



WILSONVILLE PUBLIC WORKS COMPLEX  
SITE DESIGN REVIEW APPLICATION

FEBRUARY 12th, 2021



City of Wilsonville  
Exhibit B1 DB21-0017 et al

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## PROJECT | INFO

### APPLICANT

Brandon Dole, Project Manager

Scott Edwards Architecture, LLP  
2709 SE Ankeny St.  
Portland, OR 97214

### OWNER

City of Wilsonville Public Works  
29799 SW Town Center Loop E  
Wilsonville, OR 97070

### REQUEST

The City of Wilsonville Public Works Department proposes to construct a new office building, metal warehouse storage building, vehicle wash and dewatering station. Site improvements include new surface parking for city staff and visitors along with the department's fleet vehicle and large equipment. The warehouse building, fleet and equipment parking will be contained within a secure fenced yard.

### LOCATION

Parcel: 00810224, 00810233  
Taxlot: 31W14A 01800, 31W14A 01900  
Map: 31W14A

### ZONING

Planned Development Industrial (PDI)  
Comprehensive Plan: Industrial



**Objectid:** 99442  
**Primary Address:** No Situs  
**Jurisdiction:** Wilsonville (<https://www.ci.wilsonville.or.us>)  
**Map Number:** 31W14A  
**Taxlot Number:** 31W14A 01900  
**Parcel Number:** 00810233  
**Document Number:** 2016-084980  
**Census Tract:** 022707

### Assessment

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**Estimated Acres:** 4.71  
**Current Year Assessed Value:** \$1,274,121.00 \*  
**Market Building Value:** \$0.00  
**Market Land Value:** \$2,041,861.00  
**Market Total Value:** \$2,041,861.00  
**Sale Price:** \$1,766,000.00  
**Doc Date:** 12/07/2016  
**Doc Type:** M  
**Taxcode:** 003023

### Zoning & Development

**Designation:** Contact City  
**Urban Growth Boundary:** METRO UGB

\* The Current Year Assessed Value is a combined value for both parcels 018000 and 019000.



**Objectid:** 74403

**Primary Address:** No Situs

**Jurisdiction:** Wilsonville (<https://www.ci.wilsonville.or.us>)

**Map Number:** 31W14A

**Taxlot Number:** 31W14A 01800

**Parcel Number:** 00810224

**Document Number:** 2016-084980

**Census Tract:** 022707

### Assessment

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**Estimated Acres:** 2.91

**Current Year Assessed Value:** \$780,945.00 \*

**Market Building Value:** \$0.00

**Market Land Value:** \$1,251,515.00

**Market Total Value:** \$1,251,515.00

**Sale Price:** \$1,766,000.00

**Doc Date:** 12/07/2016

**Doc Type:** X

**Taxcode:** 003023

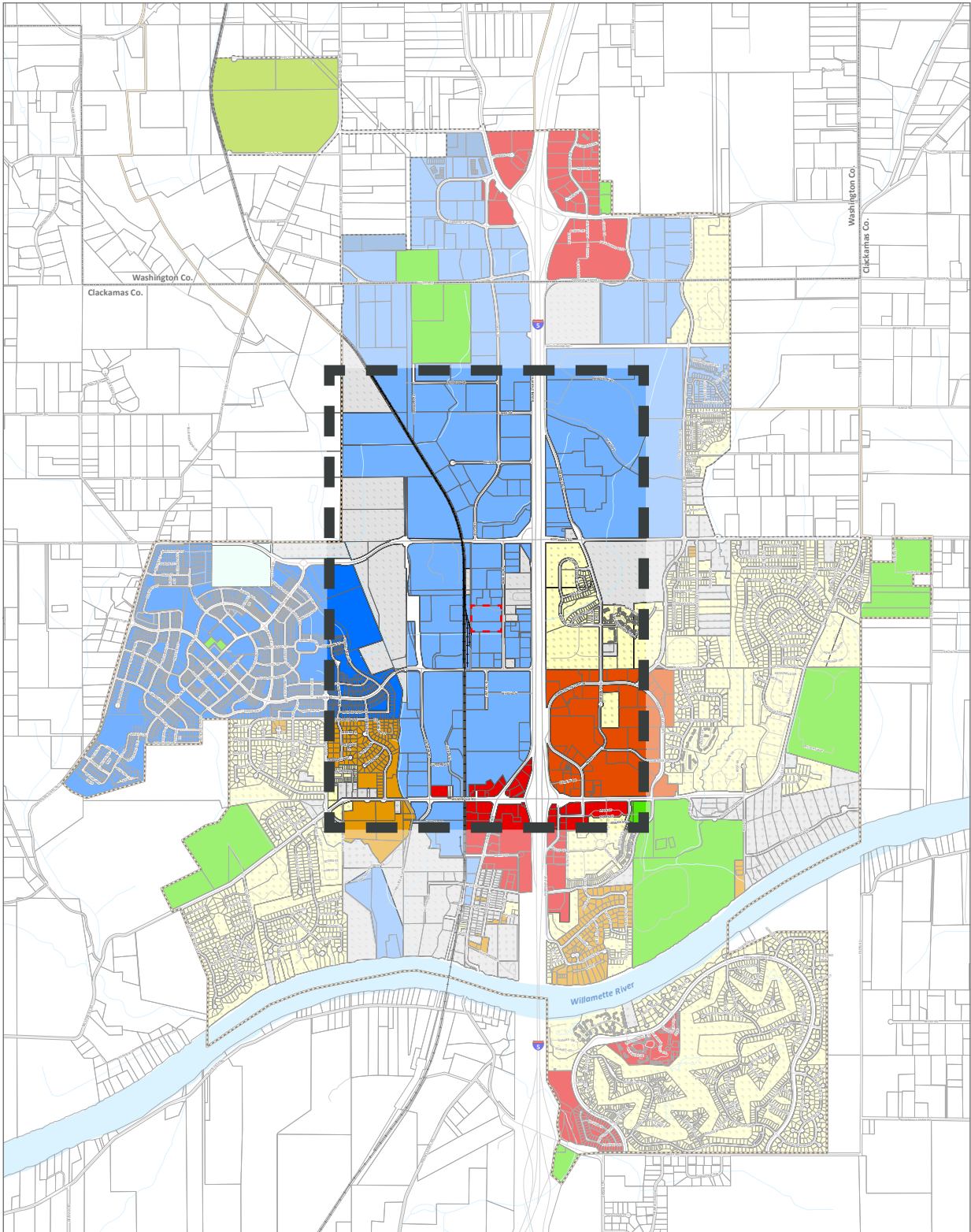
### Zoning & Development

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# Zoning Map



0 0.5 Mile  
June 5, 2017

## Zoning Designations

- Residential Agricultural Holding (RA-H)
- Residential (R)
- Planned Development Residential (PDR)
- Village (V)
- Planned Development Commercial (PDC)
- Planned Development Commercial Town Center (PDC-TC)
- Planned Development Industrial (PDI)
- PDI - Regionally Significant Industrial Area (PDI-RSIA)
- Public Facility (PF)
- Public Facility - Corrections (PF-C)
- Exclusive Farm Use (EFU)

- County Boundary
- City Boundary
- Urban Growth Boundary
- Taxlots

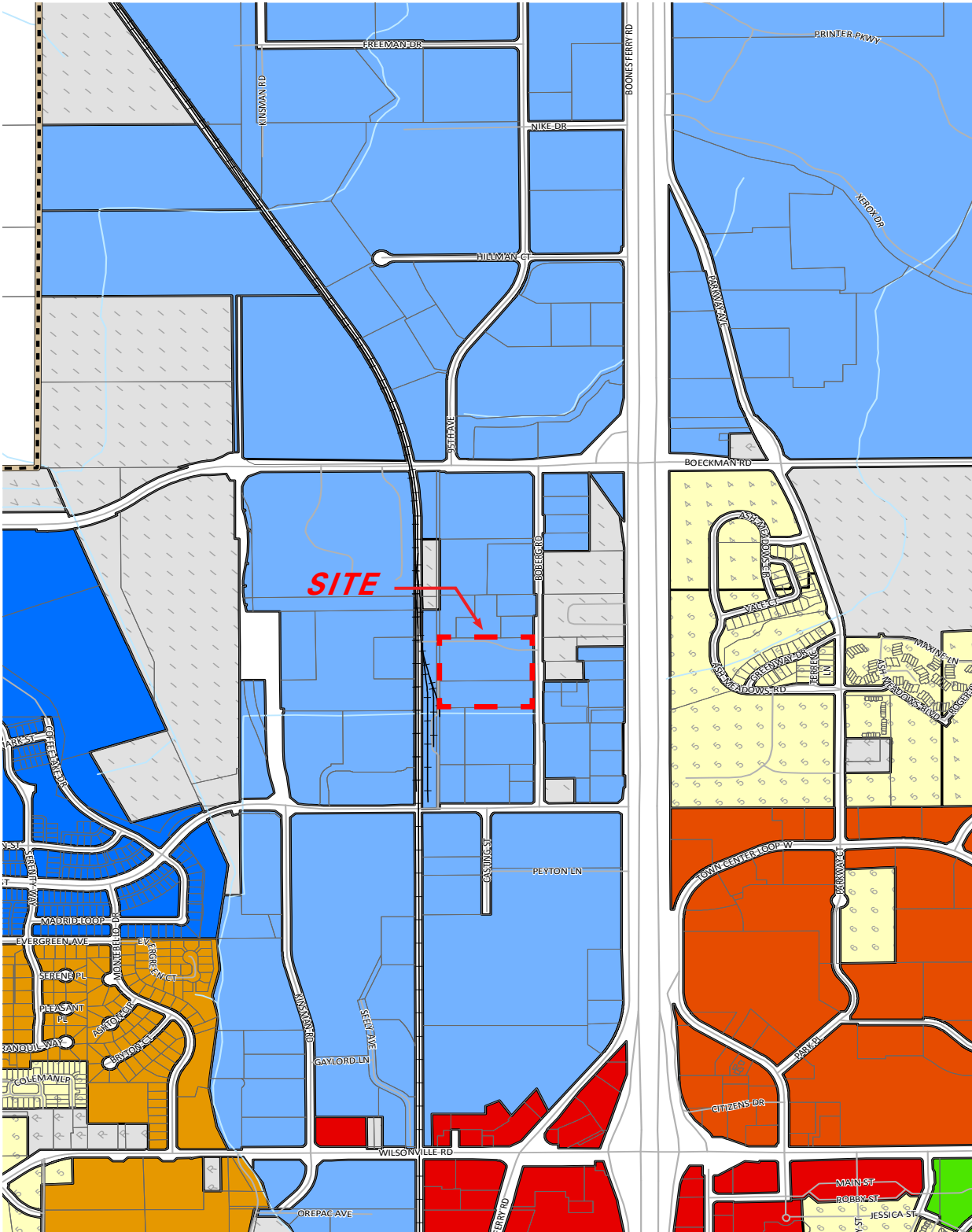


## Official Zoning Map

Mayor \_\_\_\_\_ Date \_\_\_\_\_  
 City Recorder \_\_\_\_\_ Date \_\_\_\_\_  
 Resolution Number: \_\_\_\_\_

Disclaimer: The City of Wilsonville makes no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. Data errors and omissions may exist in map and report. This map is not suitable for legal, engineering, or surveying purposes. Please contact the City of Wilsonville Planning Division to verify report information is complete and accurate.

Note: Refer to individual overlay zone maps for overlay district boundaries



## Zoning Map



0 0.5 Mile

June 5, 2017

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- County Boundary
- City Boundary
- Urban Growth Boundary
- Taxlots

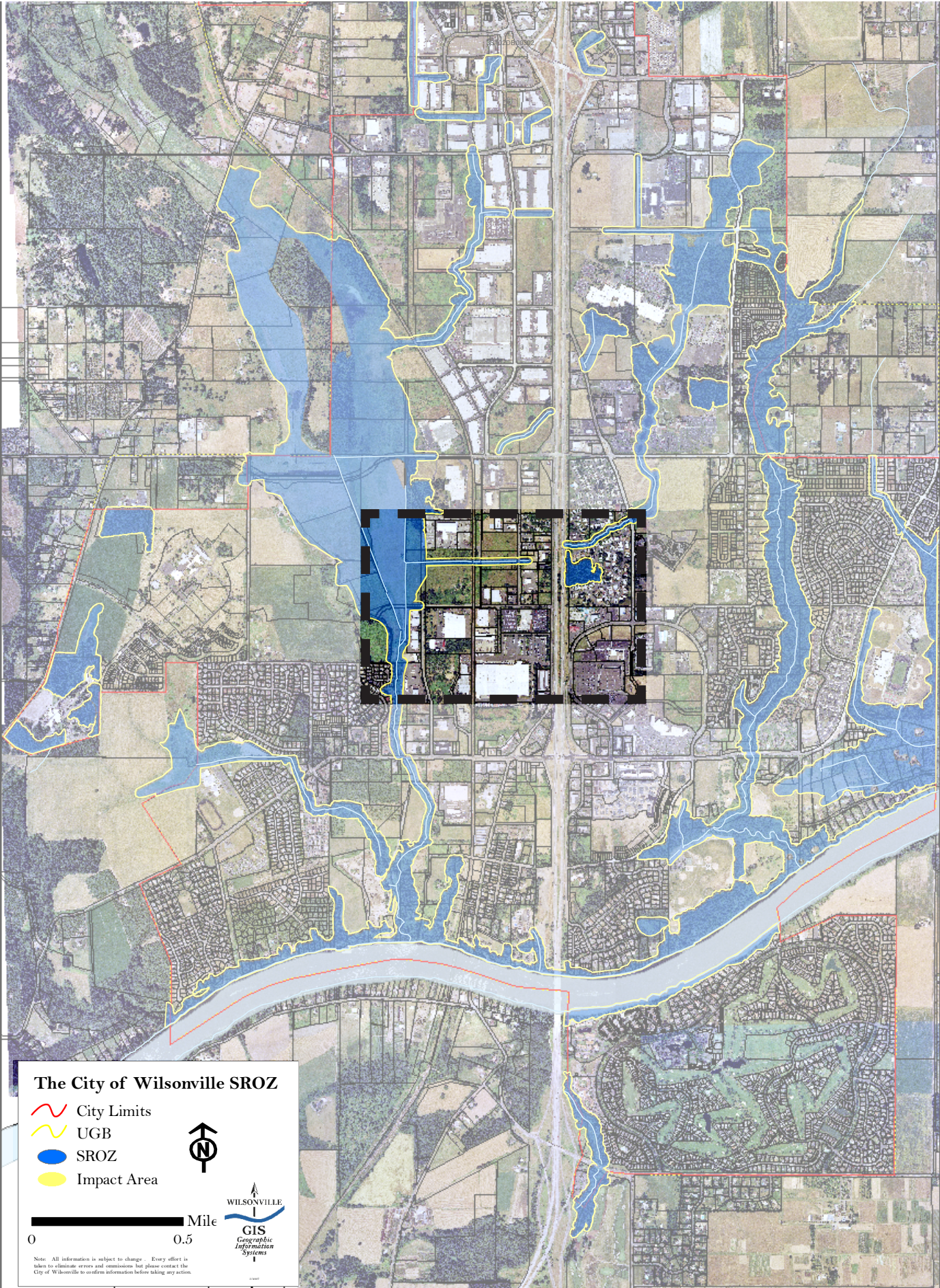


### Official Zoning Map

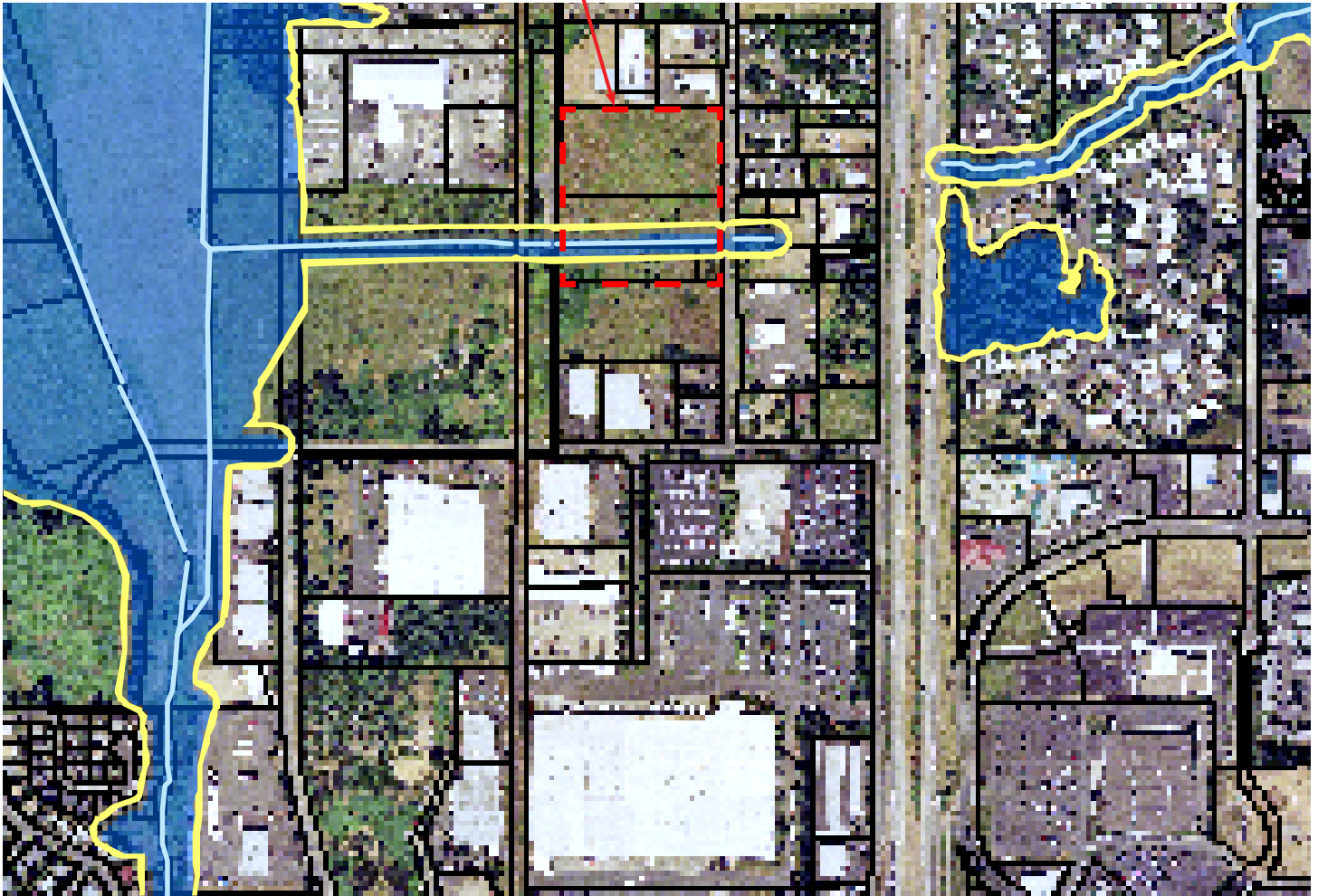
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**SITE**



### The City of Wilsonville SROZ

-  City Limits
-  UGB
-  SROZ
-  Impact Area



0 Mile 0.5



Note: All information is subject to change. Every effort is taken to eliminate errors and omissions but please contact the City of Wilsonville to confirm information before taking any action.





## PROJECT I BACKGROUND

Tapping in as the second fastest growing city in Oregon; Wilsonville has been experiencing major growth throughout its municipality. Since the year 2000, the city has witness an eye opening 3.9% population growth rate. This does not appear to stop any time soon considering the Portland metro-area is expected to grow by 1.2M by 2035. Such consistent growth not only means more people but more infrastructure.

Currently the Public Works Department (PW) operates within the Police Station while vehicle and material storage are spread throughout the city. Even though this model has worked thus far, in accommodating for the new growth as-well as planning for the future beyond, Wilsonville has elected to invest into a new PW Complex. The investment will not only ensure the department's capability and resiliency but also enhance their efficiency by centralizing all department needs to one site. The new complex will truly be home to the Wilsonville Public Works Department.

## PUBLIC WORKS COMPLEX

- | Public Works Office Building
- | Storage Warehouse and Shop Spaces
- | Site Storage and Facilities

## THE PROJECT PARCELS

The project parcels is located within the Planned Development Industrial Zone (PDI); it is subject to the Significant Resources Overlay Zone (SROZ) at the southern boundary. It consists of (2) lots, city owned, which are to be consolidated into a single lot totaling 7.62 acres.





## 2

### THE SURROUNDINGS

The majority of the surrounding neighbors consist of commercial/industrial uses allowed within the PDI zone. However, directly to the east there is a Residential Agriculture Holding Zone (RA-H) the development will need to be sensitive to. The street frontage of the development runs along Boberg Road, the eastern boundary of the site. The street consist of low pedestrian traffic; however, a full sidewalk buffer is present throughout the PDI zoning.

### THE NEIGHBORS

To the North the adjacent parcel is in used by a local contractor that houses their operating office and storage warehouse. A security chain link fence surrounds the storage warehouse throughout. The applicant proposes to implement similar measures to the development; the fencing will have obscuring slats as required. A paved easement does exist within this north



boundary splitting the lot into two; ultimately, creating a landscape buffer to the northern lot. The paved easement provides access to the West parcel used by an industrial pre-cast vault company. It is important to note the west parcel and our lot are separated by train tracks. The applicant proposes to implement a secured fencing along the west boundary to help visually obstruct views to the material yard storage to be located in this area. To the South of the parcel is the SMART Transit Operation Facility. Due to the

SROZ overlay zoning in this area, heavy buffering landscape naturally existing and will remain in place. The applicant proposes locating a chain-link fence at the SROZ boundary to protect from encroachment. Parking facilities for fleet vehicles and large equipment storage are to be adjacent to the fence line. To the East, Boberg Road runs parallel to the property line providing street frontage to the office building. As mentioned, Boberg consist of low pedestrian traffic with a RA-H zoning across the road.





## PROJECT | DESCRIPTION

The new Wilsonville Public Works Complex will consolidate all department divisions and needs currently housed throughout the city in one centralized location. The intent is to develop a modern, efficient and easily maintainable facility that is design for their current and future operational needs.

### THE GOALS + OBJECTIVES

- | Centralized Home for PW Department
- | Offices + Conference Rooms
- | IOC Capability Room
- | PW Vehicle + Equipment Parking
- | Vehicle Wash Stations
- | Indoor Material Storage Areas
- | Dewater Facility
- | 20 yrs of Growth + Expansion
- | Seismic Resilience

### THE SITE FACILITIES

To achieve the consolidation and centralization of all PW Divisions there are extensive needs of the site from the department. Naturally, the site

is to be separated into two sections: an open public area and a secured fenced-in area.

The public area will consist of site accessibility improvements, the public access point to the office building, public/visitor parking, a stormwater facility and landscaping.

The secured fenced-in area, the “yard” if you will, consist of 201,200 sf all dedicated to the PW Operations. This will include material bin storage, dewater facility, warehouse facility, vehicle washing stations, a magnesium chloride storage tank, nursery storage area, resiliency power generator, staffing courtyard, trash / recycling area, fleet vehicle parking / storage, staffing parking, stormwater facilities and landscaping.

Not only does this consolation dedicate a home for PW, it will change the department efficiency throughout all its daily operations.

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## THE OFFICE BUILDING

The new office building will provide 23,900 sf of modern office space that will house the department's ADMIN and PW Operations Divisions. The new construction is design to be a Seismic IV structure; ensuring resiliency and the ability to perform duties in the event of a major natural disaster. The building will include energy efficient assemblies, utilize natural daylight, and provide Wilsonville PW with a game plan to accommodate growth over the next 20 years. Building amenities include secure access point, employee locker rooms, staff kitchen/lunchroom, IOC capability, emergency supply room, conference rooms, offices, open work stations with adequate storage capacity throughout.

## THE WAREHOUSE BUILDING

A new 19,900 sf warehouse facility will provide a fleet maintenance facility with (6) vehicle bay stations, small part/equipment storage, PW sector specific indoor storage for crew, wood

shop, sign shop, paint storage, lock shop, staging area, water quality lab, an office and an exterior boot wash station. The warehouse will also provide exterior covered parking / storage at the (3) western bays. This area is designed to accommodate growth of the warehouse over the next 20+ years. This would put in place a plan-of-action and ease an expansion once deemed a need by the PW department.

## SITE CHALLENGES

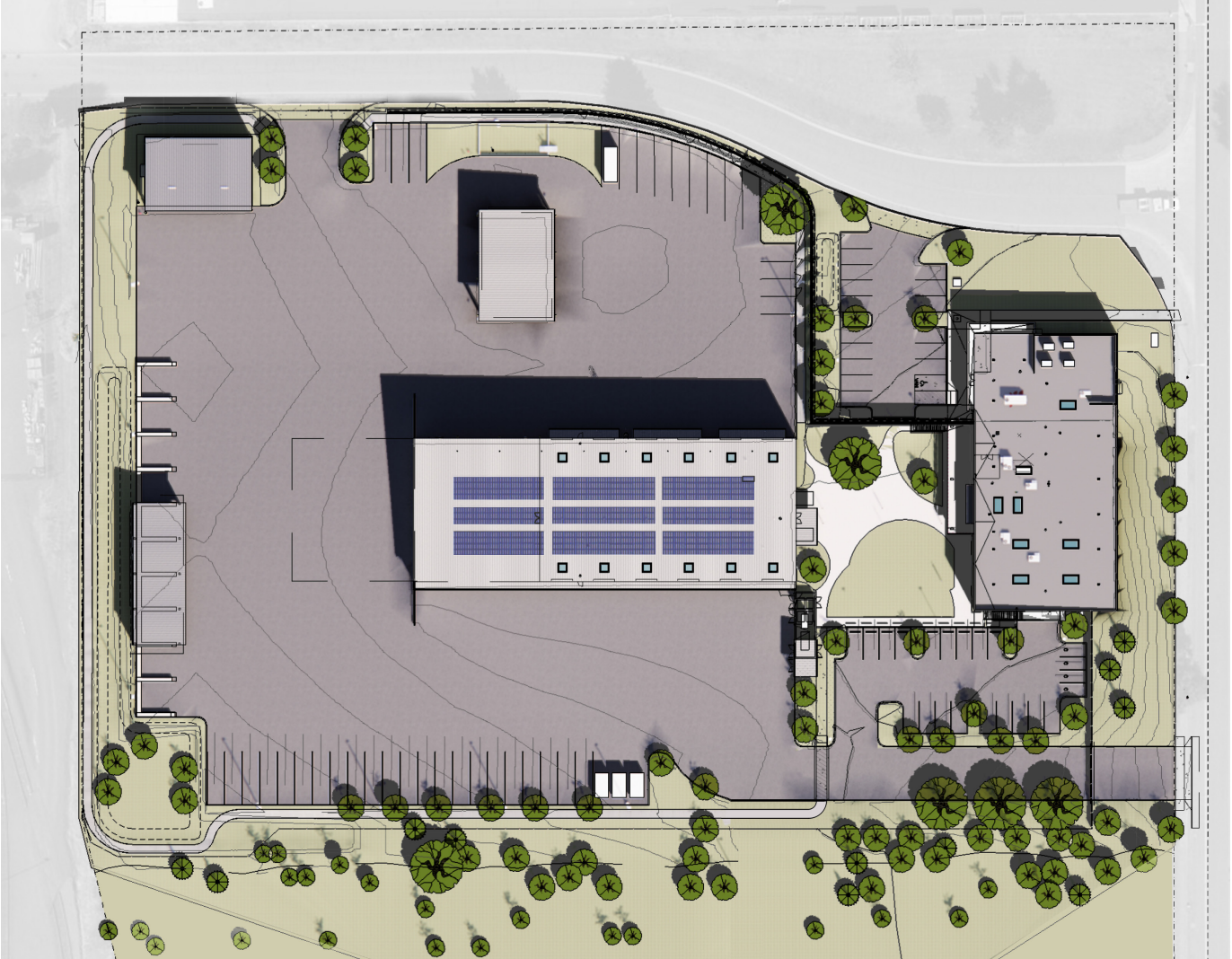
Like any other site there are challenges one must understand and address in the new development; this site is no different. The site experiences a significant slope depression from east to west. More specifically, there is about a 20'-0" drop from the northeast corner to the southwest corner. The design team is addressing this challenge by making it into the strength of the design. The development will be a 2 level structure with a partly subterranean level.







AERIAL PERSPECTIVE





## WILSONVILLE PUBLIC WORKS COMPLEX

DESIGN DRAWINGS + EXHIBITS



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## WILSONVILLE PD | NARRATIVE

The following sections of the Wilsonville Planned Development are applicable to this land use approval:

### WILSONVILLE PD SECTIONS

- | 4.117 Planned Development Residential Zones
- | 4.118 Standards applying to all Planned Development
- | 4.135 Planned Development Industrial (PDI) Zones and Industrial Standards
- | 4.139 Significant Resource Overlay Zone (SROZ)
- | 4.140 Planned Development Regulations
- | 4.154 On-Site Pedestrian Access and Circulation
- | 4.155 Parking, Loading and Bicycle Parking
- | 4.156 Signs Regulations Purpose & Objectives
- | 4.171 Protection of Natural Features and Other Resources
- | 4.175 Public Safety and Crime Prevention
- | 4.176 Landscaping, Screening and Buffering
- | 4.177 Street Improvements Standards
- | 4.179 Mixed Solid Waste and Recycling
- | 4.199 Outdoor Lighting
- | 4.300 Underground Utilities
- | 4.400 Site Design Review
- | 4.600 Tree Preservation and Protection

### PERMITS AND APPROVALS:

The applicant is responsible for obtaining approval and permits from each applicable government agency and departments at City of Wilsonville including but not limited to Engineering and Building Divisions.

**Code Section 4.118 Standards Applying to Industrial Developments in Any Zone.**

(.01) *Height Guidelines: In "S" overlay zones, the solar access provisions of Section 4.137 shall be used to determine maximum building heights. In cases that are subject to review by the Development Review Board, the Board may further regulate heights as follows:*

- A. *Restrict or regulate the height or building design consistent with adequate provision of fire protection and fire-fighting apparatus height limitations.*
- B. *To provide buffering of low-density developments by requiring the placement of three or more story buildings away from the property lines abutting a low density zone.*
- C. *To regulate building height or design to protect scenic vistas of Mt. Hood or the Willamette River.*

**Applicant's Response:**

**The proposed development meets the height requirements of the PDI zone and is not located within an "S" overlay zone. The applicant understands that the Development Review Board may further regulate heights for adequate fire protection and access for fire-fighting apparatus, to provide buffering of low density developments for three or more storied buildings and to protect scenic vistas of Mt. Hood.**

(.02) *Underground Utilities shall be governed by Sections 4.300 to 4.320. All utilities above ground shall be located so as to minimize adverse impacts on the site and neighboring properties.*

**Applicant's Response:**

**All above ground utilities have been located to minimize adverse impacts on the site and neighboring properties.**

(.03) *Notwithstanding the provisions of Section 4.140 to the contrary, the Development Review Board, in order to implement the purposes and objectives of Section 4.140, and based on findings of fact supported by the record may:*

- A. *Waive the following typical development standards:*
  - 1. *minimum lot area;*
  - 2. *lot width and frontage;*
  - 3. *height and yard requirements;*

4. *lot coverage;*
5. *lot depth;*
6. *street widths;*
7. *sidewalk requirements;*
8. *height of buildings other than signs;*
9. *parking space configuration and drive aisle design;*
10. *minimum number of parking or loading spaces;*
11. *shade tree islands in parking lots, provided that alternative shading is provided;*
12. *fence height;*
13. *architectural design standards;*
14. *transit facilities; and*
15. *On-site pedestrian access and circulation standards; and*
16. *Solar access standards, as provided in section 4.137.*

**Applicant's Response:**

**The applicant understands the typical development standards could be waived by the Development Review Board to ensure the intent of Section 4.140 is met. The applicant is not requesting any of the typical standards to be waived as the requirements of Section 4.140 is met by the proposed development.**

- B. *The following shall not be waived by the Board, unless there is substantial evidence in the whole record to support a finding that the intent and purpose of the standards will be met in alternative ways:*
1. *open space requirements in residential areas;*
  2. *minimum density standards of residential zones;*
  3. *minimum landscape, buffering, and screening standards;*

**Applicant's Response:**

**The applicant understands the intent of the items mentioned must be met through the prescriptive or an alternative means and method approved by the Development Review Board. The proposed development does not require an alternate means of complying with the development standards.**

- C. *The following shall not be waived by the Board, unless there is substantial evidence in the whole record to support a finding that the intent and purpose of the*

*standards will be met in alternative ways, and the action taken will not violate any applicable federal, state, or regional standards:*

- 1. maximum number of parking spaces;*
- 2. standards for mitigation of trees that are removed;*
- 3. standards for mitigation of wetlands that are filled or damaged; and*
- 4. trails or pathways shown in the Parks and Recreation Master Plan.*

**Applicant's Response:**

**The applicant understands the intent of the items mentioned must be met through the prescriptive or an alternative means and method approved by the Development Review Board. And must not conflict with federal, state or regional standards. The proposed development does not require an alternate means of complying with the development standards.**

- D. Locate individual building, accessory buildings, off-street parking and loading facilities, open space and landscaping and screening without reference to lot lines; and*
- E. Adopt other requirements or restrictions, inclusive of, but not limited to, the following:*
  - 1. Percent coverage of land by buildings and structures in relationship to property boundaries to provide stepped increases in densities away from low-density development.*
  - 2. Parking ratios and areas expressed in relation to use of various portions of the property and/or building floor area.*
  - 3. The locations, width and improvement of vehicular and pedestrian access to various portions of the property, including portions within abutting street or private drive.*
  - 4. Arrangement and spacing of buildings and structures to provide appropriate open spaces around buildings.*
  - 5. Location and size of off-street loading areas and docks.*
  - 6. Uses of buildings and structures by general classification, and by specific designation when there are unusual requirements for parking, or when the use involves noise, dust, odor, fumes, smoke, vibration, glare or radiation incompatible with present or potential development of surrounding property. Such incompatible uses may be excluded in the amendment approving the zone change or the approval of requested permits.*



7. *Measures designed to minimize or eliminate noise, dust, odor, fumes, smoke, vibration, glare, or radiation which would have an adverse effect on the present or potential development on surrounding properties.*
8. *Schedule of time for construction of the proposed buildings and structures and any stage of development thereof to insure consistency with the City's adopted Capital Improvements Plan and other applicable regulations.*
9. *A waiver of the right of remonstrance by the applicant to the formation of a Local Improvement District (LID) for streets, utilities and/or other public purposes.*
10. *Modify the proposed development in order to prevent congestion of streets and/or to facilitate transportation.*
11. *Condition the issuance of an occupancy permit upon the installation of landscaping or upon a reasonable scheduling for completion of the installation of landscaping. In the latter event, a posting of a bond or other security in an amount equal to one hundred ten percent (110%) of the cost of the landscaping and installation may be required.*
12. *A dedication of property for streets, pathways, and bicycle paths in accordance with adopted Facilities Master Plans or such other streets necessary to provide proper development of adjacent properties.*

**Applicant's Response:**

**The applicant understands restrictions and/or requirements as stated could be implemented by the Development Review Board to ensure the intent of Section 4.140 is met. The proposed development meets the development standards without adopting other requirements as outlined.**

- (.04) *The Planning Director and Development Review Board shall, in making their determination of compliance in attaching conditions, consider the effects of this action on availability and cost. The provisions of this section shall not be used in such a manner that additional conditions, either singularly or cumulatively, have the effect of unnecessarily increasing the cost of development. However, consideration of these factors shall not prevent the Board from imposing conditions of approval necessary to meet the minimum requirements of the Comprehensive Plan and Code.*

**Applicant's Response:**

**The applicant understands restrictions and/or requirements implemented are intended sole purpose to meet the minimum requirements of the Comprehensive Plan and Code.**

- (.05) *The Planning Director, Development Review Board, or on appeal, the City Council, may as a condition of approval for any development for which an application is submitted, require that portions of the tract or tracts under consideration be set aside, improved, conveyed or dedicated for the following uses:*
- A. *Recreational Facilities: The Director, Board, or Council, as the case may be, may require that suitable area for parks or playgrounds be set aside, improved or permanently reserved for the owners, residents, employees or patrons of the development consistent with adopted Park standards and Parks and Recreation Master Plan.*
  - B. *Open Space Area: Whenever private and/or common open space area is provided, the City shall require that an association of owners or tenants be established which shall adopt such Articles of Incorporation, By-Laws or other appropriate agreement, and shall adopt and impose such Declaration of Covenants and Restrictions on such open space areas and/or common areas that are acceptable to the Development Review Board. Said association shall be formed and continued for the purpose of maintaining such open space area. Such an association, if required, may undertake other functions. It shall be created in such a manner that owners of property shall automatically be members and shall be subject to assessments levied to maintain said open space area for the purposes intended. The period of existence of such association shall be not less than twenty (20) years and it shall continue thereafter and until a majority vote of the members shall terminate it, and the City Council formally votes to accept such termination.*
  - C. *Easements: Easements necessary to the orderly extension of public utilities, and the protection of open space, may be required as a condition of approval. When required, such easements must meet the requirements of the City Attorney prior to recordation.*

**Applicant's Response:**

**The applicant understands the jurisdiction may include a condition of approval requiring a portion of the development to be dedicated for recreational areas, open spaces or easements.**

- (.06) *Nothing in this Code shall prevent the owner of a site that is less than two (2) acres in size from filing an application to rezone and develop the site as a Planned Development. Smaller properties may or may not be suitable for such development, depending upon their particular sizes, shapes, locations, and the nature of the proposed development, but Planned Developments shall be encouraged at any appropriate location.*

**Applicant's Response:**

**The proposed development is to adhere to the existing PDI zoning. The applicant does not seek to rezone.**

- (.07) Density Transfers. *In order to protect significant open space or resource areas, the Development Review Board may authorize the transfer of development densities from one portion of a proposed development to another. Such transfers may go to adjoining properties, provided that those properties are considered to be part of the total development under consideration as a unit.*

**Applicant's Response:**

**The applicant will not be pursuing density transfers on the proposed development.**

- (.08) Wetland Mitigation and other mitigation for lost or damaged resources. *The Development Review Board may, after considering the testimony of experts in the field, allow for the replacement of resource areas with newly created or enhanced resource areas. The Board may specify the ratio of lost to created and/or enhanced areas after making findings based on information in the record. As much as possible, mitigation areas shall replicate the beneficial values of the lost or damaged resource areas.*

**Applicant's Response:**

**The proposed development does not include the replacement, enhanced or newly created resource areas.**

- (.09) Habitat-Friendly Development Practices. *To the extent practicable, development and construction activities of any lot shall consider the use of habitat-friendly development practices, which include:*

- A. *Minimizing grading, removal of native vegetation, disturbance and removal of native soils, and impervious area;*
- B. *Minimizing adverse hydrological impacts on water resources, such as using the practices described in Part (a) of Table NR-2 in Section 4.139.03, unless their use is prohibited by an applicable and required state or federal permit, such as a permit required under the federal Clean Water Act, 33 U.S.C. §§1251 et seq., or the federal Safe Drinking Water Act, 42 U.S.C. §§300f et seq., and including conditions or plans required by such permit;*
- C. *Minimizing impacts on wildlife corridors and fish passage, such as by using the practices described in Part (b) of Table NR-2 in Section 4.139.03; and*
- D. *Using the practices described in Part (c) of Table NR-2 in Section 4.139.03.*

**Applicant's Response:**

**The applicant proposes a development that meets required programming for the use while minimizing impervious area to the maximum extent practical. Stormwater Best Management Practices (BMP) are used to limit impacts on adjacent natural resources and downstream facilities.**

## **Section 4.135. PDI- Planned Development Industrial Zone**

(.01) *Purpose: The purpose of the PDI zone is to provide opportunities for a variety of industrial operations and associated uses.*

**Applicant's Response:**

**The applicant understands and acknowledges the purpose of the PDI zone is to provide opportunities for a variety of industrial operations and associated uses. The proposed development meets the intent of the PDI zone and includes uses that will contribute to variety of industrial development within the zone.**

(.02) *The PDI Zone shall be governed by Section 4.140, Planned Development Regulations, and as otherwise set forth in this Code.*

**Applicant's Response:**

**The applicant understands and acknowledges the PDI Zone is governed by Section 4.140. Responses to Section 4.140 are included.**

(.03) *Uses that are typically permitted:*

- A. *Warehouses and other buildings for storage of wholesale goods, including cold storage plants.*
- B. *Storage and wholesale distribution of agricultural and other bulk products, provided that dust and odors are effectively contained within the site.*
- C. *Assembly and packing of products for wholesale shipment*
- D. *Manufacturing and processing*
- E. *Motor vehicle services, or other services complementary or incidental to primary uses, and which support the primary uses by allowing more efficient or cost-effective operations*
- F. *Manufacturing and processing of electronics, technical instrumentation components and health care equipment.*
- G. *Fabrication*
- H. *Office complexes - Technology*
- I. *Corporate headquarters*
- J. *Call centers*
- K. *Research and development*

- L. *Laboratories*
- M. *Repair, finishing and testing of product types manufactured or fabricated within the zone.*
- N. *Industrial services*
- O. *Any use allowed in a PDC Zone, subject to the following limitations:*
  - 1. *Service Commercial uses (defined as professional services that cater to daily customers such as financial, insurance, real estate, legal, medical or dental offices) not to exceed 5000 square feet of floor area in a single building, or 20,000 square feet of combined floor area within a multi-building development.*
  - 2. *Office Complex Use (as defined in Section 4.001) shall not exceed 30% of total floor area within a project site.*
  - 3. *Retail uses, not to exceed 5000 square feet of indoor and outdoor sales, service or inventory storage area for a single building and 20,000 square feet of indoor and outdoor sales, service or inventory storage area for multiple buildings.*
  - 4. *Combined uses under Subsections 4.135(.03)(O.)(1.) and (3.) shall not exceed a total of 5000 square feet of floor area in a single building or 20,000 square feet of combined floor area within a multi-building development.*
- P. *Training facilities whose primary purpose is to provide training to meet industrial needs.*
- Q. *Public facilities.*
- R. *Accessory uses, buildings and structures customarily incidental to any permitted uses.*
- S. *Temporary buildings or structures for uses incidental to construction work. Such structures to be removed within 30 days of completion or abandonment of the construction work.*
- T. *Other similar uses, which in the judgment of the Planning Director, are consistent with the purpose of the PDI Zone.*

**Applicant's Response:**

**The proposed development is a public facility that includes the following uses; staff offices, equipment and material storage, bulk material storage (covered and uncovered), dewatering and vehicle washing station, outdoor vehicle and equipment storage.**

**The proposed development is a permitted use in the PDI Zone.**

(.04) Block and access standards:

*The PDI zone shall be subject to the same block and access standards as the PDC zone, Section 4.131(.02) and (.03).*

**Applicant's Response:**

**The applicant understands the PDI zone is subject to the same block and access standards as prescribed for the PDC zone, section 4.131 (.02) and (.03).**

(.05) Performance Standards. *The following performance standards apply to all industrial properties and sites within the PDI Zone, and are intended to minimize the potential adverse impacts of industrial activities on the general public and on other land uses or activities. They are not intended to prevent conflicts between different uses or activities that may occur on the same property.*

- A. *All uses and operations except storage, off-street parking, loading and unloading shall be confined, contained, and conducted wholly within completely enclosed buildings, unless outdoor activities have been approved as part of Stage II, Site Design or Administrative Review.*

**Applicant's Response:**

**The applicant will be pursuing approval from the Stage II Site Design Review for two outdoor activities.**

**The proposed development includes a dewatering facility and vehicle washing station that are not fully enclosed due to the nature of their use. The dewatering facility is to be enclosed 3 of the 4 sides to minimize visual exposure to the right-of-way and adjacent properties. The open side of the structure faces into the private property and will be used for access of the facility by the vacuum trucks. Lastly, the vehicle wash station consists of a centralized room storing all accessories and water connections required by the washing station. This room is to have a washing station to the north and south that will be open on all 3 sides to allow water to drain and dry appropriately. Each of the described facilities will be located within the operations secure yard and obstructed from view by a six foot tall vinyl slatted chain link fence with landscaping.**

- B. *Vibration: Every use shall be so operated that the ground vibration inherently and recurrently generated from equipment other than vehicles is not perceptible without instruments at any boundary line of the property on which the use is located.*

**Applicant's Response:**

**The proposed development does not include use(s) that would generate ground vibrations that could be perceptible without instruments at any of the parcel boundaries.**

- C. *Emission of odorous gases or other odorous matter in quantities as detectable at any point on any boundary line of the property on which the use is located shall be prohibited.*

**Applicant's Response:**

**Due to the nature of a Public Works Operations Complex the need for a dewater facility is a must. This facility is to hold and dry wet debris vacuumed from sewers throughout Wilsonville. The proposed design of this facility would enclose the structure on the public facing sides (north, east and west) to minimize odorous at the property line. The south side of the structure would remain open to allow access to the facility by the vacuum trucks as well as allowing sunlight to expedite the drying process.**

- D. *Any open storage shall comply with the provisions of Section 4.176, and this Section.*

**Applicant's Response:**

**The applicant understands and acknowledges that compliance with section 4.176 is required in addition to this section. Responses to section 4.176 have been included.**

- E. *No building customarily used for night operation, such as a baker or bottling and distribution station, shall have any opening, other than stationary windows or required fire exits, within one hundred (100) feet of any residential district and any space used for loading or unloading commercial vehicles in connection with such an operation shall not be within one hundred (100) feet of any residential district.*

**Applicant's Response:**

**The proposed development does not include buildings that have openings within one hundred feet of a residential district. The proposed development will be used for night operations during emergency response events only.**

- F. *Heat and Glare:*



1. *Operations producing heat or glare shall be conducted entirely within an enclosed building.*
2. *Exterior lighting on private property shall be screened, baffled, or directed away from adjacent residential properties. This is not intended to apply to street lighting.*

**Applicant's Response:**

**The proposed development does not include a use or operation that would produce heat or glare. All proposed exterior lighting is screened, baffled and directed away from the adjacent residential properties.**

- G. *Dangerous Substances: Any use which involves the presence, storage or handling of any explosive, nuclear waste product, or any other substance in a manner which would cause a health or safety hazard for any adjacent land use or site shall be prohibited.*

**Applicant's Response:**

**The proposed development does not include any use that involves the presence, storage or handling of any explosive, nuclear waste product or any other substance in a manner which would cause a health or safety hazard for adjacent properties.**

- H. *Liquid and Solid Wastes:*

1. *Any storage of wastes which would attract insects or rodents or otherwise create a health hazard shall be prohibited.*
2. *Waste products which are stored outside shall be concealed from view from any property line by a sight-obscuring fence or planting as required in Section 4.176.*
3. *No connection with any public sewer shall be made or maintained in violation of applicable City or State standards.*
4. *No wastes conveyed shall be allowed to or permitted, caused to enter, or allowed to flow into any public sewer in violation of applicable City or State standards.*
5. *All drainage permitted to discharge into a street gutter, caused to enter or allowed to flow into any pond, lake, stream, or other natural water course shall be limited to surface waters or waters having similar characteristics as determined by the City, County, and State Department of Environmental Quality.*
6. *All operations shall be conducted in conformance with the City's standards and ordinances applying to sanitary and storm sewer discharges.*

**Applicant's Response:**

**The proposed development does not include the storage of wastes that would attract insects or rodents or otherwise create a health hazard.**

- I. Noise: Noise generated by the use, with the exception of traffic noises from automobiles, trucks, and trains, shall not violate any applicable standards adopted by the Oregon Department of Environmental Quality and W.C. 6.204 governing noise control in the same or similar locations.*

**Applicant's Response:**

**The proposed development will not generate noise beyond the traffic noises from automobiles and yard equipment, typical of an operations yard. All applicable noise will not violate standards adopted by the Oregon Department of Environmental Quality and W.C. 6.204.**

- J. Electrical Disturbances. Except for electrical facilities wherein the City is preempted by other governmental entities, electrical disturbances generated by uses within the PDI zone which interfere with the normal operation of equipment or instruments within the PDI Zone are prohibited. Electrical disturbances which routinely cause interference with normal activity in abutting residential use areas are also prohibited.*

**Applicant's Response:**

**The proposed development does not include a use or uses that would generate electrical disturbances or interference with the normal of equipment or instruments within the surround PDI zone.**

- K. Discharge Standards: There shall be no emission of smoke, fallout, fly ash, dust, vapor, gases, or other forms of air pollution that may cause a nuisance or injury to human, plant, or animal life, or to property. Plans of construction and operation shall be subject to the recommendations and regulations of the State Department of Environmental Quality. All measurements of air pollution shall be by the procedures and with equipment approved by the State Department of Environmental Quality or equivalent and acceptable methods of measurement approved by the City. Persons responsible for a suspected source of air pollution upon the request of the City shall provide quantitative and qualitative information regarding the discharge that will adequately and accurately describe operation conditions.*

**Applicant's Response:**

**The proposed development does not include use that emit smoke, fly ash, fallout, dust, vapor, gases or other forms of air pollution. The applicant understands and acknowledges that the plans of construction and operation are subject to the recommendations and regulations of the State Department of Environmental Quality and the City of Wilsonville.**

*L. Open burning is prohibited.*

**Applicant's Response:**

**The understands and acknowledges that open burning is prohibited.**

*M. Storage:*

- 1. Outdoor storage must be maintained in an orderly manner at all times.*
- 2. Outdoor storage area shall be gravel surface or better and shall be suitable for the materials being handled and stored. If a gravel surface is not sufficient to meet the performance standards for the use, the area shall be suitably paved.*
- 3. Any open storage that would otherwise be visible at the property line shall be concealed from view at the abutting property line by a sight obscuring fence or planting not less than six (6) feet in height.*

**Applicant's Response:**

**The proposed development includes an operations yard that primary purpose is the storage of city fleet vehicles.**

*N. Landscaping:*

- 1. Unused property, or property designated for expansion or other future use, shall be landscaped and maintained as approved by the Development Review Board. Landscaping for unused property disturbed during construction shall include such things as plantings of ornamental shrubs, lawns, native plants, and mowed, seeded fieldgrass.*
- 2. Contiguous unused areas of undisturbed fieldgrass may be maintained in their existing state. Large stands of invasive weeds such as Himalayan blackberries, English ivy, cherry Laurel, reed canary grass or other identified invasive plants shall be removed and/or mowed at least annually to reduce fire hazard. These unused areas, located within a phased development*

*project or a future expansion cannot be included in the area calculated to meet the landscape requirements for the initial phase(s) of the development.*

3. *Unused property shall not be left with disturbed soils that are subject to siltation and erosion. Any disturbed soil shall be seeded for complete erosion cover germination and shall be subject to applicable erosion control standards.*

**Applicant's Response:**

**The proposed development intends to make use of the entire lot; all area visible to the public will adhere to landscape requirements. However, area allocated within the private secured yard is private property does not intend to meet landscape requirements as it is both private property and not visible to the public. The yard is to be hidden through landscaping buffers / opaque fencing slats.**

**(.06) Other Standards:**

- A. *Minimum Individual Lot Size: No limit save and except as shall be consistent with the other provisions of this Code (e.g., landscaping, parking, etc.).*
- B. *Maximum Lot Coverage: No limit save and except as shall be consistent with the other provisions of this Code (e.g., landscaping, parking, etc.).*
- C. *Front Yard Setback: Thirty (30) feet. Structures on corner or through lots shall observe the minimum front yard setback on both streets. Setbacks shall also be maintained from the planned rights-of-way shown on any adopted City street plan.*
- D. *Rear and Side Yard Setback: Thirty (30) feet. Structures on corner or through lots shall observe the minimum rear and side yard setbacks on both streets. Setbacks shall also be maintained from the planned rights-of-way shown on any adopted City street plan.*
- E. *No setback is required when side or rear yards abut on a railroad siding.*
- F. *Corner Vision: Corner lots shall have no sight obstruction to exceed the vision clearance standards of Section 4.177.*
- G. *Off-Street Parking and Loading: As provided in Section 4.155.*
- H. *Signs: As provided in Sections 4.156.01 through 4.156.11.*

**Applicant's Response:**

**The proposed development is to comply with lot size/coverage provisions as stated in the Development Code.**

**All setbacks and corner vision clearances, as prescribed, have been incorporated into the development to be compliant with the Development Code Off-street parking and loading are on par with Development Code standards.**

**The development proposes 1 monolithic sign at the intersection of the access road and Boberg Rd. It is to be compliant as prescribed.**

## **Code Section 4.140 Planned Development Regulations.**

### *(.01) Purpose .*

- A. The provisions of Section 4.140 shall be known as the Planned Development Regulations. The purposes of these regulations are to encourage the development of tracts of land sufficiently large to allow for comprehensive master planning, and to provide flexibility in the application of certain regulations in a manner consistent with the intent of the Comprehensive Plan and general provisions of the zoning regulations and to encourage a harmonious variety of uses through mixed use design within specific developments thereby promoting the economy of shared public services and facilities and a variety of complimentary activities consistent with the land use designation on the Comprehensive Plan and the creation of an attractive, healthful, efficient and stable environment for living, shopping or working.*
- B. It is the further purpose of the following Section:*
- 1. To take advantage of advances in technology, architectural design, and functional land use design:*
  - 2. To recognize the problems of population density, distribution and circulation and to allow a deviation from rigid established patterns of land uses, but controlled by defined policies and objectives detailed in the comprehensive plan;*
  - 3. To produce a comprehensive development equal to or better than that resulting from traditional lot land use development.*
  - 4. To permit flexibility of design in the placement and uses of buildings and open spaces, circulation facilities and off-street parking areas, and to more efficiently utilize potentials of sites characterized by special features of geography, topography, size or shape or characterized by problems of flood hazard, severe soil limitations, or other hazards;*
  - 5. To permit flexibility in the height of buildings while maintaining a ratio of site area to dwelling units that is consistent with the densities established by the Comprehensive Plan and the intent of the Plan to provide open space, outdoor living area and buffering of low-density development.*
  - 6. To allow development only where necessary and adequate services and facilities are available or provisions have been made to provide these services and facilities.*
  - 7. To permit mixed uses where it can clearly be demonstrated to be of benefit to the users and can be shown to be consistent with the intent of the Comprehensive Plan.*
  - 8. To allow flexibility and innovation in adapting to changes in the economic and technological climate.*

**Applicant's Response:**

**The applicant understands and acknowledges the purpose of the Planned Development Regulations. The proposed development meets the intent of these regulations. All application material is intended to demonstrate compliance with Planned Development Regulations.**

*(.02) Lot Qualification.*

- A. Planned Development may be established on lots which are suitable for and of a size to be planned and developed in a manner consistent with the purposes and objectives of Section 4.140.*
- B. Any site designated for development in the Comprehensive Plan may be developed as a Planned Development, provided that it is zoned "PD" or specifically defined as a PD zone by this code. All sites which are greater than two (2) acres in size, and designated in the Comprehensive Plan for commercial, residential, or industrial use shall be developed as Planned Developments, unless approved for other uses permitted by the Development Code. Smaller sites may also be developed through the City's PD procedures, provided that the location, size, lot configuration, topography, open space and natural vegetation of the site warrant such development.*

**Applicant's Response:**

**The subject property of the proposed development is suitable for and of appropriate size to be planned and developed consistent with requirements of a Planned Development. Furthermore, the subject property is located with the PDI zone and is greater than 2 acres and is considered industrial in nature which requires to be developed a Planned Development.**

*(.03) Ownership.*

- A. The tract or tracts of land included in a proposed Planned Development must be in one (1) ownership or control or the subject of a joint application by the owners of all the property included. The holder of a written option to purchase, with written authorization by the owner to make applications, shall be deemed the owner of such land for the purposes of Section 4.140.*
- B. Unless otherwise provided as a condition for approval of a Planned Development permit, the permittee may divide and transfer units or parcels of any development. The transferee shall use and maintain each such unit or parcel in strict conformance with the approval permit and development plan.*

**Applicant's Response:**

**The subject property of the proposed development is under one ownership; the City of Wilsonville. Therefore the ownership standard is met.**

*(.04) Professional Design.*

- A. *The applicant for all proposed Planned Developments shall certify that the professional services of the appropriate professionals have been utilized in the planning process for development.*

**Applicant's Response:**

**The property owner, City of Wilsonville Public Works, has hired Scott Edwards Architecture, LLP as the design professional for the proposed development. Scott Edwards Architecture is the applicant on the behalf of the property owner.**

- B. *Appropriate professionals shall include, but not be limited to the following to provide the elements of the planning process set out in Section 4.139:*
1. *An architect licensed by the State of Oregon;*
  2. *A landscape architect registered by the State of Oregon;*
  3. *An urban planner holding full membership in the American Institute of Certified Planners, or a professional planner with prior experience representing clients before the Development Review Board, Planning Commission, or City Council; or*
  4. *A registered engineer or a land surveyor licensed by the State of Oregon.*

**Applicant's Response:**

**The property owner, City of Wilsonville Public Works, has hired the following design professionals and engineers for the proposed development:**

<b>Architect:</b>	<b>Scott   Edwards Architecture, LLP Sid Scott, AIA</b>
<b>Civil Engineer:</b>	<b>Harper Houf Peterson Righellis, Inc. Alex Simpson, PE</b>
<b>Landscape Arch:</b>	<b>Harper Houf Peterson Righellis, Inc. Daniel Chin, RLS, ASLA</b>

- C. *One of the professional consultants chosen by the applicant from either 1, 2, or 3, above, shall be designated to be responsible for conferring with the planning staff with respect to the concept and details of the plan.*



**Applicant's Response:**

**Scott | Edwards Architecture is to assume the responsibility for conferring with the City of Wilsonville's planning staff on the development.**

- D. The selection of the professional coordinator of the design team will not limit the owner or the developer in consulting with the planning staff.*

**Applicant's Response:**

**The applicant acknowledges and understands that the selection of the professional coordinator of the design team will not limit the owner, City of Wilsonville Public Works, in consulting with the planning staff.**

*(.05) Planned Development Permit Process.*

- A. All parcels of land exceeding two (2) acres in size that are to be used for residential, commercial or industrial development, shall, prior to the issuance of any building permit:*
- 1. Be zoned for planned development;*
  - 2. Obtain a planned development permit; and*
  - 3. Obtain Planning Director, Development Review Board, or, on appeal, City Council approval.*

**Applicant's Response:**

**The applicant understands and acknowledges the permit process for a Planned Development. The subject parcel of the proposed development is zone for a planned development and an applicant to obtain a planned development permit has been submitted.**

- B. Zone change and amendment to the zoning map are governed by the applicable provisions of the Zoning Sections, inclusive of Section 4.197*

**Applicant's Response:**

**The applicant understands and acknowledges that a zone change and amendment to the zoning map are governed by the provisions of the Zoning Sections, inclusive of Section 4.197. The proposed development does not include or require a zone change as it is considered an allowable use under the subject parcel's zoning designation.**

- C. *Development Review Board and Planning Director approval is governed by Sections 4.400 to 4.450*

**Applicant's Response:**

**The applicant acknowledges and understands the Development Review Board and Planning Director approval is governed by Sections 4.400 to 4.450. Responses to sections 4.400 to 4.450 have been provided as part of the development's application material.**

- D. *All planned developments require a planned development permit. The planned development permit review and approval process consists of the following multiple stages, the last two or three of which can be combined at the request of the applicant:*

1. *Pre-application conference with Planning Department;*

**Applicant's Response:**

**A pre-application conference with the Planning Department was completed for the proposed development. The summary of the pre-application conference is included in the application material.**

2. *Preliminary (Stage I) review by the Development Review Board or the Planning Director for properties within the Coffee Creek Industrial Design Overlay District. When a zone change is necessary, application for such change shall be made simultaneously with an application for preliminary approval; and*

**Applicant's Response:**

**The applicant has submitted an application for Preliminary (Stage I) review for proposed development and requests that the Final (Stage II) review be combined so the reviews are completed concurrently.**

3. *Final (Stage II) review by the Development Review Board or the Planning Director for properties within the Coffee Creek Industrial Design Overlay District.*

**Applicant's Response:**

**The applicant has submitted an application for Preliminary (Stage I) review for proposed development and requests that the Final (Stage II) review be combined so the reviews are completed concurrently.**

4. *In the case of a zone change and zone boundary amendment, City Council approval is required to authorize a Stage I preliminary plan except for properties within the Coffee Creek Industrial Design Overlay District, which may receive separate zone map amendment approvals.*

**Applicant's Response:**

**The proposed development application does require or request a zone change.**

*(.06) Staff Report:*

- A. *The planning staff shall prepare a report of its findings and conclusions as to whether the use contemplated is consistent with the land use designated on the Comprehensive Plan. If there is a disagreement as to whether the use contemplated is consistent, the applicant, by request, or the staff, may take the preliminary information provided to the Development Review Board for a use interpretation.*
- B. *The applicant may proceed to apply for Stage I - Preliminary Approval - upon determination by either staff or the Development Review Board that the use contemplated is consistent with the Comprehensive Plan.*

**Applicant's Response:**

**The applicant understands that planning staff will prepare a report of staff findings and conclusions as to whether the proposed development is consistent with the Comprehensive Plan. If a disagreement is to arise the Development Review Board, utilizing information provide, will determine if the proposed developments use is consistent with the use designated on the Comprehensive Plan.**

*(.07) Preliminary Approval (Stage One):*

- A. *Applications for preliminary approval for planned developments shall:*
  1. *Be made by the owner of all affected property or the owner's authorized agent; and*
  2. *Be filed on a form prescribed by the City Planning Department and filed with said Department.*
  3. *Set forth the professional coordinator and professional design team as provided in subsection (.04), above.*
  4. *State whether the development will include mixed land uses, and if so, what uses and in what proportions and locations.*

**Applicant's Response:**

**The application for preliminary approval of the proposed development has been made by the subject property owner's agent. The applicant and owner has submitted the city's Planning Division Development Application form as part of the application material. Scott Edwards Architecture has been set forth as the professional design team that will coordinate with the Planning Division. The proposed development is not a mixed use development.**

- B. The application shall include conceptual and quantitatively accurate representations of the entire development sufficient to judge the scope, size, and impact of the development on the community; and, in addition to the requirements set forth in Section 4.035, shall be accompanied by the following information:*
- 1. A boundary survey or a certified boundary description by a registered engineer or licensed surveyor.*
  - 2. Topographic information as set forth in Section 4.035*
  - 3. A tabulation of the land area to be devoted to various uses, and a calculation of the average residential density per net acre. Developments within the RN zone shall show how the proposed number of units complies with the applicable maximum and minimum provisions of the RN zone.*
  - 4. A stage development schedule demonstrating that the developer intends receive Stage II approval within two (2) years of receiving Stage I approval, and to commence construction within two (2) years after the approval of the final development plan, and will proceed diligently to completion; unless a phased development schedule has been approved; in which case adherence to that schedule shall be considered to constitute diligent pursuit of project completion.*
  - 5. A commitment by the applicant to provide in the Final Approval (Stage II) a performance bond or other acceptable security for the capital improvements required by the project.*
  - 6. If it is proposed that the final development plan will be executed in stages, a schedule thereof shall be provided.*
  - 7. Statement of anticipated waivers from any of the applicable site development standards.*

**Applicant's Response:**

**The application for the proposed development includes conceptual and quantitatively accurate information adequate to determine scope, size, and impact of the development on the surrounding community. The**

**application material includes a boundary survey with topographic information and a tabulation of the land area devoted to various uses. The owner, City of Wilsonville Public Works commits intends to receive Stage II approval within (2) years of a Stage I approval and complete the development within (2) years of Stage II being approved. The development is proposed to be completed in one phase and not multiple stage. No site development standard waivers are anticipated or being requested as part of the development.**

- C. *An application for a Stage I approval shall be considered by the Development Review Board as follows:*
1. *A public hearing as provided in Section 4.013.*
  2. *After such hearing, the Board shall determine whether the proposal conforms to the permit criteria set forth in this Code, and may approve or disapprove the application and the accompanying preliminary development plan or require such changes therein or impose such conditions of approval as are in its judgment, necessary to ensure conformity to said criteria and regulations. In so doing, the Board may, in its discretion, authorize submission of the final development plan in stages, corresponding to different units or elements of the development. It shall do so only upon evidence assuring completion of the entire development in accordance with the preliminary development plan and stage development schedule.*
  3. *A final decision on a complete application and preliminary plan shall be rendered within one hundred and twenty (120) days after the application is deemed complete unless a continuance is agreed upon by the applicant and the appropriate City decision-making body.*
  4. *The determination of the Development Review Board shall become final at the end of the appeal period for the decision, unless appealed to the City Council in accordance with Section 4.022 of this Code.*

**Applicant's Response:**

**The applicant acknowledges and understands the process the Development Review Board will follow to complete the review of the proposed development.**

- D. *As provided in Section 4.134, an application for a Stage I approval within the Coffee Creek Industrial Design Overlay District may be considered by the Planning Director as follows:*
1. *A Class II – Administrative Review as provided in Section 4.035(.03).*

2. *After considering available information, the Planning Director shall determine whether the proposal conforms to the permit criteria set forth in this Code and may approve or disapprove the application and the accompanying preliminary development plan or require such changes therein or impose such conditions of approval as are in his or her judgment, necessary to ensure conformity to said criteria and regulations. In so doing, the Planning Director may, in his or her discretion, authorize submission of the final development plan in stages, corresponding to different units or elements of the development. The Planning Director shall do so only upon receiving evidence assuring completion of the entire development in accordance with the preliminary development plan and stage development schedule.*
3. *A final decision on a complete application and preliminary plan shall be rendered within one hundred and twenty (120) days after the application is deemed complete unless a continuance is agreed upon by the applicant and the Planning Director.*
4. *The determination of the Planning Director shall become final at the end of the appeal period for the decision, unless appealed to the Development Review Board in accordance with Section 4.022 of this Code.*

**Applicant's Response:**

**The proposed development is not located within the Coffee Creek Industrial Design Overlay District, therefore, this section is not applicable.**

**(.09) Final Approval (Stage Two):**

*[Note: Outline Number is incorrect.]*

- A. *Unless an extension has been granted by the Development Review Board or Planning Director, as applicable, within two (2) years after the approval or modified approval of a preliminary development plan (Stage I), the applicant shall file with the City Planning Department a final plan for the entire development or when submission in stages has been authorized pursuant to Section 4.035 for the first unit of the development, a public hearing shall be held on each such application as provided in Section 4.013. As provided in Section 4.134, an application for a Stage II approval within the Coffee Creek Industrial Design Overlay District may be considered by the Planning Director without a public hearing as a Class II Administrative Review as provided in Section 4.035(.03).*

**Applicant's Response:**

**The applicant has submitted an application for Preliminary (Stage I) review for proposed development and requests that the Final (Stage II) review be combined so the reviews are completed concurrently.**

- B. *The Development Review Board or Planning Director, as applicable, shall determine whether the proposal conforms to the permit criteria set forth in this Code, and shall approve, conditionally approve, or disapprove the application.*

**Applicant's Response:**

**The applicant and owner acknowledge and understand the Development Review Board or Planning Director, as applicable, determine if the application is approved, approved conditionally or disapprove the application.**

- C. *The final plan shall conform in all major respects with the approved preliminary development plan, and shall include all information included in the preliminary plan plus the following:*
1. *The location of water, sewerage and drainage facilities;*
  2. *Preliminary building and landscaping plans and elevations, sufficient to indicate the general character of the development;*
  3. *The general type and location of signs;*
  4. *Topographic information as set forth in Section 4.035;*
  5. *A map indicating the types and locations of all proposed uses; and*
  6. *A grading plan.*

**Applicant's Response:**

**The application material includes information required of the final development plan. The material includes the location of water, sewage and drainage facilities, building and landscape plans and elevations, a signage plane, a survey including topographic information, and a grading plan.**

- C. *The final plan shall be sufficiently detailed to indicate fully the ultimate operation and appearance of the development or phase of development. However, Site Design Review is a separate and more detailed review of proposed design features, subject to the standards of Section 4.400.*

**Applicant's Response:**

**The application material includes information required of the final development plan. The material includes the location of water, sewage and drainage facilities, building and landscape plans and elevations, a signage plane, a survey including topographic information, and a grading plan.**

- D. *Copies of legal documents required by the Development Review Board or Planning Director, as applicable, for dedication or reservation of public facilities, or for the creation of a non-profit homeowner's association, shall also be submitted.*

**Applicant's Response:**

**The applicant acknowledges and understands the Development Review Board or Planning Director may require legal documentation for any dedication or reservation of public facilities.**

- E. *Within thirty (30) days after the filing of the final development plan, the Planning staff shall forward such development plan and the original application to the Tualatin Valley Fire and Rescue District, if applicable, and other agencies involved for review of public improvements, including streets, sewers and drainage. The Development Review Board or Planning Director, as applicable, shall not act on a final development plan until it has first received a report from the agencies or until more than thirty (30) days have elapsed since the plan and application were sent to the agencies, whichever is the shorter period.*

**Applicant's Response:**

**The applicant acknowledges and understands within (30) days of filing the final development plan the planning staff will forward the application material to the Tualatin Valley Fire and Rescue District and other applicable agencies for their review of public improvements. A report from the agencies will be required for the Development Review Board or Planning Director to act on the development plan unless more than (30) days elapse without report from the agencies.**

- G. *Upon receipt of the final development plan, the Development Review Board or Planning Director, as applicable shall examine such plan and determine:*
1. *Whether it conforms to all applicable criteria and standards; and*
  2. *Whether it conforms in all substantial respects to the preliminary approval; or*
  3. *Require such changes in the proposed development or impose such conditions of approval as are in its judgment necessary to insure conformity to the applicable criteria and standards.*

**Applicant's Response:**

**The applicant and owner acknowledge and understand the Development Review Board or Planning Director, as applicable, examine and determine if the application conforms to all applicable standards and may require changes or**



**impose conditions of approval on the proposed development to insure conformity to applicable standards**

- H. *If the Development Review Board or Planning Director, as applicable, permits the applicant to revise the plan, it shall be resubmitted as a final development plan within sixty (60) days. If the Board or Planning Director approves, disapproves or grants such permission to resubmit, the decision of the Board shall become final at the end of the appeal period for the decision, unless appealed to the City Council, in accordance with Sections 4.022 of this Code.*

**Applicant's Response:**

**The applicant and owner acknowledge and understand that if the Development Review Board or Planning Director, as applicable, allow a revision to the plan, it shall be resubmitted within (60) days and that any decision of the Board become final at the end of the appeal period for the decision.**

- I. *All Stage II Site Development plan approvals shall expire two years after their approval date, if substantial development has not occurred on the property prior to that time. Provided, however, that the Development Review Board or Planning Director, as applicable, may extend these expiration times for up to three (3) additional periods of not more than one (1) year each. Applicants seeking time extensions shall make their requests in writing at least thirty (30) days in advance of the expiration date. Requests for time extensions shall only be granted upon (1) a showing that the applicant has in good faith attempted to develop or market the property in the preceding year or that development can be expected to occur within the next year, and (2) payment of any and all Supplemental Street SDCs applicable to the development. Upon such payment, the development shall have vested traffic generation rights under 4.140 (.10), provided however, that if the Stage II approval should expire, the vested right to use trips is terminated upon City repayment, without interest, of Supplemental Street SDCs. For purposes of this Ordinance, "substantial development" is deemed to have occurred if the required building permits or public works permits have been issued for the development, and the development has been diligently pursued, including the completion of all conditions of approval established for the permit.*

**Applicant's Response:**

**The applicant and owner acknowledge and understand all Stage II Site Development plan approval shall expire two years after their approval date if substantial development has not occurred on the property. Extension of**

**the expiration time may be granted up to (3) times for not more than a year each given the required criteria is met.**

- J. A planned development permit may be granted by the Development Review Board or Planning Director, as applicable, only if it is found that the development conforms to all the following criteria, as well as to the Planned Development Regulations in Section 4.140:*
- 1. The location, design, size and uses, both separately and as a whole, are consistent with the Comprehensive Plan, and with any other applicable plan, development map or Ordinance adopted by the City Council.*
  - 2. That the location, design, size and uses are such that traffic generated by the development at the most probable used intersection(s) can be accommodated safely and without congestion in excess of Level of Service D, as defined in the Highway Capacity Manual published by the National Highway Research Board, on existing or immediately planned arterial or collector streets and will, in the case of commercial or industrial developments, avoid traversing local streets. Immediately planned arterial and collector streets are those listed in the City's adopted Capital Improvement Program, for which funding has been approved or committed, and that are scheduled for completion within two years of occupancy of the development or four year if they are an associated crossing, interchange, or approach street improvement to Interstate 5.*
    - a. In determining levels of Service D, the City shall hire a traffic engineer at the applicant's expense who shall prepare a written report containing the following minimum information for consideration by the Development Review Board:*
      - i. An estimate of the amount of traffic generated by the proposed development, the likely routes of travel of the estimated generated traffic, and the source(s) of information of the estimate of the traffic generated and the likely routes of travel*
      - ii. What impact the estimate generated traffic will have on existing level of service including traffic generated by (1) the development itself, (2) all existing developments, (3) Stage II developments approved but not yet built, and (4) all developments that have vested traffic generation rights under section 4.140(.10), through the most probable used intersection(s), including state and county intersections, at the time of peak level of traffic. This analysis shall be conducted for each direction of travel if backup from other intersections will interfere with intersection operations.*
    - b. The following are exempt from meeting the Level of Service D criteria standard:*

- i. *A planned development or expansion thereof which generates three (3) new p.m. peak hour traffic trips or less;*
  - ii. *A planned development or expansion thereof which provides an essential governmental service.*
  - c. *Traffic generated by development exempted under this subsection on or after Ordinance No. 463 was enacted shall not be counted in determining levels of service for any future applicant.*
  - d. *Exemptions under 'b' of this subsection shall not exempt the development or expansion from payment of system development charges or other applicable regulations.*
  - e. *In no case will development be permitted that creates an aggregate level of traffic at LOS "F".*
3. *That the location, design, size and uses are such that the residents or establishments to be accommodated will be adequately served by existing or immediately planned facilities and services.*

**Applicant's Response:**

**The applicant and owner acknowledge and understand the criteria required to determine conformance with the Planned Development Regulations.**

- K. *Mapping: Whenever a Planned Development permit has been granted, and so long as the permit is in effect, the boundary of the Planned Development shall be indicated on the Zoning Map of the City of Wilsonville as the appropriate "PD" Zone.*

**Applicant's Response:**

**The applicant and owner acknowledge and understand that whenever a Planned Development permit has been granted and so long as the permit is in effect, the boundary of the Planned Development shall be indicated on the City of Wilsonville Zoning Map as the appropriate "PD" zone.**

- L. *Adherence to Approved Plan and Modification Thereof: The applicant shall agree in writing to be bound, for her/himself and her/his successors in interest, by the conditions prescribed for approval of a development. The approved final plan and stage development schedule shall control the issuance of all building permits and shall restrict the nature, location and design of all uses. Minor changes in an approved preliminary or final development plan may be approved by the Director of Planning if such changes are consistent with the purposes and general character of the development plan. All other modifications, including extension or revision of the stage development schedule, shall be processed in the same*

*manner as the original application and shall be subject to the same procedural requirements.*

**Applicant's Response:**

**The applicant agrees to be bound by the conditions prescribed for approval of a development and understands the approved final plan shall control issuance of all building permits and shall restrict the nature, location and design of all uses. Any minor changes in an approved development plan may be approved by the Director of Planning if such changes are consistent with the purpose and general character of the development plan. All other modifications, including extensions or revisions of the of the development shall be processed in the same manner this application subject to same procedural requirements.**

*M. In the event of a failure to comply with the approved plan or any prescribed condition of approval, including failure to comply with the stage development schedule, the Development Review Board may, after notice and hearing, revoke a Planned Development permit. General economic conditions that affect all in a similar manner may be considered as a basis for an extension of a development schedule. The determination of the Board shall become final thirty (30) days after the date of decision unless appealed to the City Council.*

**Applicant's Response:**

**The applicant acknowledges and understands that failure to comply with the approved plan or any prescribed condition of approval, the Development Review Board may, after notice and hearing revoke a Planned Development permit.**

*(.10) Early Vesting of Traffic Generation. Applicants with Stage I or Master Plan approvals occurring after June 2, 2003 may apply to vest the right to use available transportation capacity at the intersections of Wilsonville Road with Boone's Ferry Road and with Town Center Loop West, and/or the I-5 interchange. Vesting for properties with such approvals shall occur upon execution of a vesting agreement satisfactory to the city, which agreement shall include a proposed development schedule or phasing plan and either provide for the payment of any and all Supplemental Street SDCs or provide other means of financing public improvements. Vesting for properties pending such approvals shall occur upon such agreement and the date the approvals are final.*

*The number of trips vested is subject to modification based upon updated traffic analysis associated with subsequent development approvals for the property. A reduction in vested trips shall attend repayment of vesting fees by the City. An increase in available vested trips shall occur upon payment of necessary vesting fees.*

*Vesting shall remain valid and run with the property, unless an approval that is necessary for vesting to occur is terminated or a vesting agreement is terminated. If the vested right to use certain trips is lost or terminated, as determined by the Community Development Director with the concurrence of City Council, such trips shall be made available to other development upon City repayment, without interest, of associated vesting fees.*

**Applicant's Response:**

**The proposed development application does not request to vest the right to use available transportation capacity at the intersections of Wilsonville Road with Boone's Ferry Road and with Town Center Loop West, and/or the I-5 interchange, therefore, this section is not applicable.**

**Section 4.154. On-site Pedestrian Access and Circulation.**

*(.01) On-site Pedestrian Access and Circulation*

- A. *The purpose of this section is to implement the pedestrian access and connectivity policies of the Transportation System Plan. It is intended to provide for safe, reasonably direct, and convenient pedestrian access and circulation.*

**Applicant's Response:**

**The applicant acknowledges and understands the purpose of the on-site pedestrian access and circulation requirements. The proposed development complies with the pedestrian access and connectivity standards.**

- B. *Standards. Development shall conform to all of the following standards:*

1. *Continuous Pathway System. A pedestrian pathway system shall extend throughout the development site and connect to adjacent sidewalks, and to all future phases of the development, as applicable.*

**Applicant's Response:**

**The proposed development includes a pedestrian pathway from the public right-of-way (SW Boberg Rd.) to the main building, as well as safe pedestrian circulation throughout the development site.**

2. *Safe, Direct, and Convenient. Pathways within developments shall provide safe, reasonably direct, and convenient connections between primary building entrances and all adjacent parking areas, recreational areas/playgrounds, and public rights-of-way and crosswalks based on all of the following criteria:*
- a. *Pedestrian pathways are designed primarily for pedestrian safety and convenience, meaning they are free from hazards and provide a reasonably smooth and consistent surface.*
  - b. *The pathway is reasonably direct. A pathway is reasonably direct when it follows a route between destinations that does not involve a significant amount of unnecessary out-of-direction travel.*
  - c. *The pathway connects to all primary building entrances and is consistent with the Americans with Disabilities Act (ADA) requirements.*
  - d. *All parking lots larger than three acres in size shall provide an internal bicycle and pedestrian pathway pursuant to Section 4.155(.03)(B.)(3.)(d.).*

**Applicant's Response:**

**The proposed development includes safe, direct, and convenient**

pedestrian pathway from the public right-of-way (SW Boberg Rd.) to the primary building entrances and all adjacent parking areas. The pedestrian pathways are designed for pedestrian use and is free of any hazards providing a reasonably smooth and consistent surface, the pathways are direct and follow routes between destinations that does not involve significant out-of-direction travel. All pathway connections to the primary building entrances are designed to be ADA compliant. The staff and visitor parking areas are not larger than (3) acres, therefore, an internal bicycle and pedestrian pathway is not required.

3. *Vehicle/Pathway Separation. Except as required for crosswalks, per subsection 4, below, where a pathway abuts a driveway or street it shall be vertically or horizontally separated from the vehicular lane. For example, a pathway may be vertically raised six inches above the abutting travel lane, or horizontally separated by a row of bollards.*

**Applicant's Response:**

**On-site pathways are separated both horizontally and vertically from vehicle traffic. Throughout out the private yard most pathways are separated vertically except at crosswalks per the subsection #4.**

4. *Crosswalks. Where a pathway crosses a parking area or driveway, it shall be clearly marked with contrasting paint or paving materials (e.g., pavers, light-color concrete inlay between asphalt, or similar contrast).*

**Applicant's Response:**

**Pedestrian pathway crossings on-site including the private yard are clearly delineated with contrasting paint markings where applicable.**

5. *Pathway Width and Surface. Primary pathways shall be constructed of concrete, asphalt, brick/masonry pavers, or other durable surface, and not less than five (5) feet wide. Secondary pathways and pedestrian trails may have an alternative surface except as otherwise required by the ADA.*

**Applicant's Response:**

**Main pedestrian pathways are hard surfaced and a minimum five-feet wide. The development does include a dedicated pedestrian walkway running along the perimeter of the secured yard fencing; it too will be a hard surface and a minimum of five-feet wide walkway.**

6. *All pathways shall be clearly marked with appropriate standard signs.*

**Applicant's Response:**

**Applicant intends to comply with any on-site pedestrian pathways or crossings that require signage.**



**Section 4.155. General Regulations - Parking, Loading and Bicycle Parking.**

*(.01) Purpose:*

- A. The design of parking areas is intended to enhance the use of the parking area as it relates to the site development as a whole, while providing efficient parking, vehicle circulation and attractive, safe pedestrian access.*
- B. As much as possible, site design of impervious surface parking and loading areas shall address the environmental impacts of air and water pollution, as well as climate change from heat islands.*
- C. The view from the public right of way and adjoining properties is critical to meet the aesthetic concerns of the community and to ensure that private property rights are met. Where developments are located in key locations such as near or adjacent to the I-5 interchanges, or involve large expanses of asphalt, they deserve community concern and attention.*

**Applicant's Response:**

**The applicant acknowledges and understands the proposed development parking design is subject to the standard regulations set forth within Section 4.155.**

*(.02) General Provisions:*

- A. The provision and maintenance of off-street parking spaces is a continuing obligation of the property owner. The standards set forth herein shall be considered by the Development Review Board as minimum criteria.*
  - 1. The Board shall have the authority to grant variances or planned development waivers to these standards in keeping with the purposes and objectives set forth in the Comprehensive Plan and this Code.*
  - 2. Waivers to the parking, loading, or bicycle parking standards shall only be issued upon a findings that the resulting development will have no significant adverse impact on the surrounding neighborhood, and the community, and that the development considered as a whole meets the purposes of this section.*

**Applicant's Response:**

**The Wilsonville Public Works (WPW) is not requesting waivers to the parking, loading, or bicycle parking standards. The proposed development complies with the prescriptive parking counts.**

- B. *No area shall be considered a parking space unless it can be shown that the area is accessible and usable for that purpose, and has maneuvering area for the vehicles, as determined by the Planning Director.*

**Applicant's Response:**

**All spaces designated as parking space are accessible and allow for adequate maneuvering of vehicles as needed.**

- C. *In cases of enlargement of a building or a change of use from that existing on the effective date of this Code, the number of parking spaces required shall be based on the additional floor area of the enlarged or additional building, or changed use, as set forth in this Section. Current development standards, including parking area landscaping and screening, shall apply only to the additional approved parking area.*

**Applicant's Response:**

**The proposed development is all new construction; the proposed parking counts meet development standards as prescribed in Section 4.155.**

- D. *In the event several uses occupy a single structure or parcel of land, the total requirement for off-street parking shall be the sum of the requirements of the several uses computed separately, except as modified by subsection "E," below. Within the TC Zone, the cumulative number of parking spaces required by this subsection may be reduced by 25 percent.*

**Applicant's Response:**

**The proposed development consists of both office and industrial uses. The WPW acknowledges and understands the minimum parking count is to be the sum of uses per Table 5 in Section 4.155.**

- E. *Owners of two (2) or more uses, structures, or parcels of land may utilize jointly the same parking area when the peak hours of operation do not overlap, provided satisfactory legal evidence is presented in the form of deeds, leases, or contracts securing full and permanent access to such parking areas for all the parties jointly using them.*

**Applicant's Response:**

**The proposed development does not include multiple uses, structure or parcels that require the joint use of a single parking area. All proposed parking is**

**retained within the property boundary of the development and to be used by City of Wilsonville Public Works staff and visitors only.**

- F. Off-street parking spaces existing prior to the effective date of this Code may be included in the amount necessary to meet the requirements in case of subsequent enlargement of the building or use to which such spaces are necessary.*

**Applicant's Response:**

**The subject parcel of the proposed development is an undeveloped parcel that does not contain any existing off-street parking spaces.**

- G. Off-Site Parking. Except for single-family dwellings, the vehicle parking spaces required by this Chapter may be located on another parcel of land, provided the parcel is within 500 feet of the use it serves and the DRB has approved the off-site parking through the Land Use Review. The distance from the parking area to the use shall be measured from the nearest parking space to the main building entrance, following a sidewalk or other pedestrian route. Within the TC Zone there is no maximum distance to an off-site location provided the off-site parking is located within the TC Zone. The right to use the off-site parking must be evidenced in the form of recorded deeds, easements, leases, or contracts securing full and permanent access to such parking areas for all the parties jointly using them. Within the TC zone, there is no maximum distance to an off-site location provided the off-site parking is located within the TC Zone.*

**Applicant's Response:**

**The owner, City of Wilsonville Public Works, is not requesting to allocate portion of the required parking spaces in an adjacent parcel. All off-street parking is to be allocated within the subject property boundary.**

- H. The conducting of any business activity shall not be permitted on the required parking spaces, unless a temporary use permit is approved pursuant to Section 4.163.*

**Applicant's Response:**

**The applicant acknowledges and understands that any business conducted within parking area or space will require a temporary use permit approved pursuant to Section 4.163; all parking spaces are to remain available for parking use only.**

- I. *Where the boundary of a parking lot adjoins or is within a residential district, such parking lot shall be screened by a sight-obscuring fence or planting. The screening shall be continuous along that boundary and shall be at least six (6) feet in height.*

**Applicant's Response:**

**The subject parcel of the proposed development is within the PDI zone, it is adjacent to an RA-H zone located directly across Boberg Road. Nevertheless, all parking lots boundaries are allocated away from the street frontage screened by either the proposed office building, landscaping, or sight obscuring fencing.**

- J. *Parking spaces along the boundaries of a parking lot shall be provided with a sturdy bumper guard or curb at least six (6) inches high and located far enough within the boundary to prevent any portion of a car within the lot from extending over the property line or interfering with required screening or sidewalks.*

**Applicant's Response:**

**All proposed parking spaces along the boundaries of a parking lot utilize wheel stop bumpers or curb at least (6) inches high and located far enough within the boundary preventing any portion a vehicle extending over a property line or interfering with required screening or sidewalks.**

- K. *All areas used for parking and maneuvering of cars shall be surfaced with asphalt, concrete, or other surface, such as pervious materials (i. e. pavers, concrete, asphalt) that is found by the City's authorized representative to be suitable for the purpose. In all cases, suitable drainage, meeting standards set by the City's authorized representative, shall be provided.*

**Applicant's Response:**

**All parking and maneuvering areas on the site are paved with hardscape materials (concrete or asphalt).**

- L. *Artificial lighting which may be provided shall be so limited or deflected as not to shine into adjoining structures or into the eyes of passers-by.*

**Applicant's Response:**

**All artificial site lighting included in the development proposed is direct downward lighting limiting any unwanted deflections to surrounding neighbors and / or eyes of a passer-by.**

M. *Off-street parking requirements for types of uses and structures not specifically listed in this Code shall be determined by the Development Review Board if an application is pending before the Board. Otherwise, the requirements shall be specified by the Planning Director, based upon consideration of comparable uses.*

**Applicant's Response:**

**Off-street parking requirements for the proposed development are clearly specified on Table 5 of Section 4.155, they are the following:**

<b>(e)(5):</b>	<b>Commercial-</b>	<b>Office Space</b>
<b>(f)(2):</b>	<b>Industrial -</b>	<b>Storage Warehouse</b>

N. *Up to forty percent (40%) of the off-street spaces may be compact car spaces as identified in Section 4.001 - "Definitions," and shall be appropriately identified.*

**Applicant's Response:**

**The applicant proposes four (4) compact spaces as clearly identified on the site plan.**

O. *Where off-street parking areas are designed for motor vehicles to overhang beyond curbs, planting areas adjacent to said curbs shall be increased to a minimum of seven (7) feet in depth. This standard shall apply to a double row of parking, the net effect of which shall be to create a planted area that is a minimum of seven (7) feet in depth.*

**Applicant's Response:**

**The proposed development does not include parking spaces where vehicles overhang beyond curbs or planting areas adjacent to parking curbs.**

P. *Parklets are permitted within the TC Zone on up to two parking spaces per block and shall be placed in front of the business. Placement of parklet requires a temporary right-of-way use permit and approval by the City Engineer.*

**Applicant's Response:**

**The proposed development does not include parklets, therefore, this section is not applicable.**

(.03) *Minimum and Maximum Off-Street Parking Requirements:*

- A. *Parking and loading or delivery areas shall be designed with access and maneuvering area adequate to serve the functional needs of the site and shall:*
1. *Separate loading and delivery areas and circulation from customer and/or employee parking and pedestrian areas. Circulation patterns shall be clearly marked.*
  2. *To the greatest extent possible, separate vehicle and pedestrian traffic.*

**Applicant's Response:**

**The proposed development parking and delivery areas are designed to provide adequate access and maneuvering areas. These areas are located within a secured fenced yard separate from both staff and visitor parking. A Pedestrian and Circulation Exhibit is included in the application material.**

- B. *Parking and loading or delivery areas shall be landscaped to minimize the visual dominance of the parking or loading area, as follows:*
1. *Landscaping of at least ten percent (10%) of the parking area designed to be screened from view from the public right-of-way and adjacent properties. This landscaping shall be considered to be part of the fifteen percent (15%) total landscaping required in Section 4.176.03 for the site development.*
  2. *Landscape tree planting areas shall be a minimum of eight (8) feet in width and length and spaced every eight (8) parking spaces or an equivalent aggregated amount.*
    - a. *Trees shall be planted in a ratio of one (1) tree per eight (8) parking spaces or fraction thereof, except in parking areas of more than two hundred (200) spaces where a ratio of one (1) tree per six (six) spaces shall be applied as noted in subsection (.03)(B.)(3.). A landscape design that includes trees planted in areas based on an aggregated number of parking spaces must provide all area calculations.*
    - b. *Except for trees planted for screening, all deciduous interior parking lot trees must be suitably sized, located, and maintained to provide a branching minimum of seven (7) feet clearance at maturity.*

**Applicant's Response:**

**The proposed landscaping is allocated to minimize visibility of the visitor parking areas to the public right of way. In addition, the staff parking area is to be located behind a secured fence further mitigating its presence the public right of way.**

**Both the visitor as well as the staff parking have landscape areas located within every 8 parking spaces as prescribed.**

3. *Due to their large amount of impervious surface, new development with parking areas of more than two hundred (200) spaces that are located in any zone, and that may be viewed from the public right of way, shall be landscaped to the following additional standards:*
  - a. *One (1) trees shall be planted per six (6) parking spaces or fraction thereof. At least twenty-five percent (25%) of the required trees must be planted in the interior of the parking area.*
  - b. *Required trees may be planted within the parking area or the perimeter, provided that a minimum of forty percent (40%) of the canopy dripline of mature perimeter trees can be expected to shade or overlap the parking area. Shading shall be determined based on shadows cast on the summer solstice.*
  - c. *All parking lots in excess of two hundred (200) parking spaces shall provide an internal pedestrian walkway for every six (6) parking aisles. Minimum walkway clearance shall be at least five (5) feet in width. Walkways shall be designed to provide pedestrian access to parking areas in order to minimize pedestrian travel among vehicles. Walkways shall be designed to channel pedestrians to the front entrance of the building.*
  - d. *Parking lots more than three acres in size shall provide street-like features along principal drive isles, including curbs, sidewalks, street trees or planting strips, and bicycle routes.*
  - e. *All parking lots viewed from the public right of way shall have a minimum twelve (12) foot landscaped buffer extending from the edge of the property line at the right of way to the edge of the parking area. Buffer landscaping shall meet the low screen standard of 4.176(.02)(D) except that trees, groundcovers and shrubs shall be grouped to provide visual interest and to create view openings no more than ten (10) feet in length and provided every forty (40) feet. Notwithstanding this requirement, view of parking area that is unscreened from the right of way due to slope or topography shall require an increased landscaping standard under 4.176(.02) in order to buffer and soften the view of vehicles as much as possible. For purposes of this section, "view from the public right of way" is intended to mean the view from the sidewalk directly across the street from the site, or if no sidewalk, from the opposite side of the adjacent street or road.*
  - f. *Where topography and slope condition permit, the landscape buffer shall integrate parking lot storm water treatment in bioswales and related plantings. Use of berms or drainage swales are allowed provided that planting areas with lower grade are constructed so that they are protected from vehicle maneuvers. Drainage swales shall be constructed to Public Works Standards.*

- g. In addition to the application requirements of section 4.035(.04)(6)(d), where view of signs is pertinent to landscape design, any approved or planned sign plan shall accompany the application for landscape design approval.*

**Applicant's Response:**

**The proposed development will not exceed 200-parkings spaces, therefore, this standard is not applicable.**

- C. Off Street Parking shall be designed for safe and convenient access that meets ADA and ODOT standards. All parking areas which contain ten (10) or more parking spaces, shall for every fifty (50) standard spaces., provide one ADA-accessible parking space that is constructed to building code standards, Wilsonville Code 9.000.

**Applicant's Response:**

**The prosed development will have a total of 50 parking spaces requiring a minimum of (1) ADA accessible parking spaces The development proposes to have a total of (3) ADA accessible parking spaces as shown in the site plan.**

- D. Where possible, parking areas shall be designed to connect with parking areas on adjacent sites so as to eliminate the necessity for any mode of travel of utilizing the public street for multiple accesses or cross movements. In addition, on-site parking shall be designed for efficient on-site circulation and parking.

**Applicant's Response:**

**The proposed parking design ensure the maximum on-site efficiency allowing users to maneuver through the site without utilizing the public street.**

- E. In all multi-family dwelling developments, there shall be sufficient areas established to provide for parking and storage of motorcycles, mopeds and bicycles. Such areas shall be clearly defined and reserved for the exclusive use of these vehicles.

**Applicant's Response:**

**The proposed development is not a multi-family development, therefore, this section is not applicable.**



- F. On-street parking spaces, directly adjoining the frontage of and on the same side of the street as the subject property, may be counted towards meeting the minimum off-street parking standards.

**Applicant’s Response:**

**The proposed development does not have any on-street parking directly adjoining the frontage of the property, therefore, this section does not apply.**

- G. Tables 5 shall be used to determine the minimum and maximum parking standards for various land uses. The minimum number of required parking spaces shown on Tables 5 shall be determined by rounding to the nearest whole parking space. For example, a use containing 500 square feet, in an area where the standard is one space for each 400 square feet of floor area, is required to provide one off-street parking space. If the same use contained more than 600 square feet, a second parking space would be required. Structured parking and on-street parking are exempted from the parking maximums in Table 5. [Amended by Ordinance No. 538, 2/21/02.]

**Applicant’s Response:**

**Any resulting fractions from the parking calculation were rounded up or down per standard. The following calculation is used to determine the minimum and maximum parking space quantities:**

<b>Use</b>	<b>SQFT</b>	<b>Min</b>	<b>Max</b>
<b>Office</b>	<b>17,235</b>	<b>47</b>	<b>71</b>
<b>Warehouse</b>	<b>1551</b>	<b>1</b>	<b>1</b>
<b>Total: Min 48</b>		<b>Max 72</b>	

**Total proposed: 50 staff & visitor parking spaces**

**Please note the 50 parking space indicated above are considered staff and visitor parking spaces only. The development will provide an additional 37 City of Wilsonville Public Works fleet vehicle and equipment parking storage spaces that will be contained within the fenced storage area. These spaces do not contribute the parking min and max requirements.**

- H. Electrical Vehicle Charging Stations:

1. Parking spaces designed to accommodate and provide one or more electric vehicle charging stations on site may be counted towards meeting the minimum off-street parking standards.
2. Modification of existing parking spaces to accommodate electric vehicle charging stations on site is allowed outright.

**Applicant's Response:**

**The proposed development parking design includes (2) electrical charging stations as indicated on the site plan. They have been accounted in the proposed parking count of (50).**

I. Motorcycle parking:

1. Motorcycle parking may substitute for up to 5 spaces or 5 percent of required automobile parking, whichever is less. For every 4 motorcycle parking spaces provided, the automobile parking requirement is reduced by one space.
2. Each motorcycle space must be at least 4 feet wide and 8 feet deep. Existing parking may be converted to take advantage of this provision.

**Applicant's Response:**

**The proposed development parking design accounts for (3) motorcycle parking stalls below the office building; the automotive parking requirement is not reduced.**

(.04) Bicycle Parking:

A. Required Bicycle Parking - General Provisions.

1. The required minimum number of bicycle parking spaces for each use category is shown in Table 5, Parking Standards.
2. Bicycle parking spaces are not required for accessory buildings. If a primary use is listed in Table 5, bicycle parking is not required for the accessory use.
3. When there are two or more primary uses on a site, the required bicycle parking for the site is the sum of the required bicycle parking for the individual primary uses.
4. Bicycle parking space requirements may be waived by the Development Review Board per Section 4.118(.03)(A)(9.) and (10.).

**Applicant's Response:**

**The proposed development bike parking counts are derived as follows:**

Use	SQFT	Min Req'd
Office	17,235	4
Warehouse	1551	2
<b>Total min bike parking</b>		<b>6</b>
<b>Total proposed</b>		<b>7</b>

B. Standards for Required Bicycle Parking

1. Each space must be at least 2 feet by 6 feet in area and be accessible without moving another bicycle.
2. An aisle at least 5 feet wide shall be maintained behind all required bicycle parking to allow room for bicycle maneuvering. Where the bicycle parking is adjacent to a sidewalk, the maneuvering area may extend into the right-of-way.
3. When bicycle parking is provided in racks, there must be enough space between the rack and any obstructions to use the space properly.
4. Bicycle lockers or racks, when provided, shall be securely anchored.
5. Bicycle parking shall be located within 30 feet of the main entrance to the building or inside a building, in a location that is easily accessible for bicycles. For multi-tenant developments, with multiple business entrances, bicycle parking may be distributed on-site among more than one main entrance.
6. With Planning Director approval, on street vehicle parking can also be used for bicycle parking.

**Applicant's Response:**

**All bike parking spaces are configured with a 2'0" x 6'0" area accessible without having to move an adjacent bike. In addition, a 5'0" clear maneuvering aisle is adjacent to ensure ease of movement. Bike racks are to be installed per manufacturer's instructions and is within a 30'-0" distance to the entry of the building.**

C. Long-term Bicycle Parking

1. Long-term bicycle parking provides employees, students, residents, commuters, and others who generally stay at a site for several hours a weather-protected place to park bicycles.
2. For a proposed multi-family residential, retail, office, or institutional development, or for a park and ride or transit center, where six (6) or more bicycle parking spaces are required pursuant to Table 5, 50% of the bicycle

parking shall be developed as long-term, secure spaces. Required long-term bicycle parking shall meet the following standards:

- a. All required spaces shall meet the standards in subsection (B.) above, and must be covered in one of the following ways: inside buildings, under roof overhangs or permanent awnings, in bicycle lockers, or within or under other structures.
- b. All spaces must be located in areas that are secure or monitored (e.g., visible to employees, monitored by security guards, or in public view).
- c. Spaces are not subject to the locational criterion of (B.)(5.).

**Applicant's Response:**

**All bike parking within the proposed development is located at a weather protected area. A single bike rack near the primary building entrance is located under the building canopy, while the other (6) proposed bike racks are located in the lower level open air parking area of the building.**

Note: In considering proposed waivers to the following standards, the City will consider the potential uses of the site and not just the uses that are currently proposed. For waivers to exceed the maximum standards, applicants shall bear the burden of proving that Metro, State, and federal clean air standards will not be violated.

<b>TABLE 5: PARKING STANDARDS</b>			
<b>USE</b>	<b>PARKING MINIMUMS</b>	<b>PARKING MAXIMUMS</b>	<b>BICYCLE MINIMUMS</b>
<b>a. Residential</b>			
1. Single-family dwelling units, duplexes, multiple-family dwelling units of nine (9) or fewer units	1 per D.U.	No Limit	Multiple-family dwelling units – Min. of 2
2. Accessory dwelling unit	Per Subsection 4.113 (.10)	No limit	None required
3. Multiple-family dwelling units of ten (10) or more units	1 per D.U. (less than 500 sq. ft.) 1.25 per D.U. (1 bdrm) 1.5 per D.U. (2 bdrm) 1.75 per D.U. (3 bdrm) Within the TC Zone, parking minimum is 1 per DU, regardless of the	No Limit	1 per D.U.

**TABLE 5: PARKING STANDARDS**

USE	PARKING MINIMUMS	PARKING MAXIMUMS	BICYCLE MINIMUMS
	number of bedrooms, if constructed as a residential only building		
4. Manufactured or mobile home park	2 spaces/unit	No Limit	1 per D.U.
<b>b. Commercial Residential</b>			
1. Hotel	1 per 1000 sq. ft.	No Limit	1 per 5 units Min. of 2
2. Motel	1 per 1000 sq. ft.	No Limit	1 per 5 units Min. of 2
3. Clubs, Lodges	Spaces to meet the combined requirements of the uses being conducted such as hotel, restaurant, auditorium, etc.	No Limit	1 per 20 parking spaces Min. of 2

**TABLE 5: PARKING STANDARDS**

USE	PARKING MINIMUMS	PARKING MAXIMUMS	BICYCLE MINIMUMS
<b>c. Institutions</b>			
1. Welfare or correctional institution	1 space/3 beds for patients or inmates	No Limit	1 per 50 beds Min. of 2
2. Convalescent hospital, nursing home, sanitarium, rest home, home for the aged	1 space/2 beds for patients or residents	No Limit	1 per 6000 sq. ft. Min. of 2
3. Hospital	2 spaces/bed	No Limit	1 per 20 parking spaces Min. of 2
<b>d. Places of Public Assembly</b>			
1. Church	1 space/4 seats, or 8 ft of bench length in the main auditorium	.8 per seat	1 per 50 seats Min. of 2
2. Library, reading room, museum, art gallery	2.5 per 1000 sq. ft.	No Limit	1 per 1000 sq. ft. Min. of 6

**TABLE 5: PARKING STANDARDS**

USE	PARKING MINIMUMS	PARKING MAXIMUMS	BICYCLE MINIMUMS
3. Preschool nursery, kindergarten	.2 per student and staff	.3 per student and staff	1 per 3500 sq. ft. Min. of 2
4. Elementary or Middle School	.2 per student and staff	.3 per student and staff	8 per class (above 2 <sup>nd</sup> grade) K – 2 <sup>nd</sup> grade: 1 per 3500 sq. ft.
5. High School	.2 per student and staff	.3 per student and staff	4 per class
6 College, commercial school for adults	.2 per student and staff	.3 per student and staff	1 per class Min. of 4
7 Other auditorium, meeting rooms	.3 per seat	.5 per seat	1 per 50 seats Min. of 4



**TABLE 5: PARKING STANDARDS**

USE	PARKING MINIMUMS	PARKING MAXIMUMS	BICYCLE MINIMUMS
8. Stadium, arena, theater	.3 per seat	.5 per seat	1 per 40 seats Min. of 4
9. Bowling alley	4 spaces/lane	No Limit	1 per 10 lanes Min. of 2
10. Dance hall, skating rink, gym, swim or fitness center	4.3 per 1000 sq. ft.	6.5 per 1000- sq. ft.	1 per 4000 sq. ft. Min. of 2
11. Tennis or racquetball facility	1 per 1000 sq. ft.	1.5 per 1000 sq. ft.	1 per court Min. of 2
<b>e. Commercial</b>			
1. Retail store except supermarkets and stores selling bulky merchandise and grocery stores	4.1 per 1000 sq. ft.	6.2 per 1000 sq. ft.	1 per 4000 sq. ft. Min. of 2

**TABLE 5: PARKING STANDARDS**

USE	PARKING MINIMUMS	PARKING MAXIMUMS	BICYCLE MINIMUMS
1500 sq. ft. gross floor area or less			
2. Commercial retail, 1501 sq. ft. or more	4.1 per 1000 sq. ft. There is no minimum off-street parking requirement within the TC zone for commercial retail less than 5000 sq. ft. and within a mixed-use building	6.2 per 1000 sq. ft.	1 per 4000 sq. ft. Min. of 2
3. Service or repair shops	4.1 per 1000 sq. ft.	6.2 per 1000 sq. ft.	1 per 4000 sq. ft.
4. Retail stores and outlets selling furniture, automobiles or other bulky merchandise where the operator can show the bulky merchandise	1.67 per 1000 sq. ft.	6.2 per 1000 sq. ft.	1 per 8000 sq. ft. Min. of 2

**TABLE 5: PARKING STANDARDS**

USE	PARKING MINIMUMS	PARKING MAXIMUMS	BICYCLE MINIMUMS
occupies the major areas of the building			
5. Office or flex space (except medical and dental)  Bank with drive-thru	2.7 per 1000 sq. ft.  4.3 per 1000 sq. ft.	4.1 per 1000 sq. ft.  6.5 per 1000 sq. ft.	1 per 5000 sq. ft.  Min. of 2
6. Medical and dental office or clinic area	3.9 per 1000 sq. ft.	5.9 per 1000 sq. ft.	1 per 5000 sq. ft.  Min. of 2
7. Eating or drinking establishments  Fast food (with drive-thru) Other	15.3 per 1000 sq. ft.  9.9 per 1000 sq. ft.	23 per 1000 sq. ft.  14.9 per 1000 sq. ft.	1 per 4000 sq. ft.  Min. of 4
8. Mortuaries	1 space/4 seats, or 8ft. of bench length in chapels	No Limit	Min. of 2

**TABLE 5: PARKING STANDARDS**

<b>USE</b>	<b>PARKING MINIMUMS</b>	<b>PARKING MAXIMUMS</b>	<b>BICYCLE MINIMUMS</b>
<b>f. Industrial</b>			
1. Manufacturing establishment	1.6 per 1000 sq. ft.	No Limit	1 per 10,000 sq. ft. Min. of 6
2. Storage warehouse, wholesale establishment, rail or trucking freight terminal	.3 per 1000 sq. ft.	.5 per 1000 sq. ft.	1 per 20,000 sq. ft. Min. of 2
<b>g. Park &amp; Ride or Transit Parking</b>	As needed	No Limit	10 per acre, with 50% in lockable enclosures

(.05) Minimum Off-Street Loading Requirements:

A. Every building that is erected or structurally altered to increase the floor area, and which will require the receipt or distribution of materials or merchandise by truck or similar vehicle, shall provide off-street loading berths on the basis of minimum requirements as follows:

1. Commercial, industrial, and public utility uses which have a gross floor area of 5,000 square feet or more, shall provide truck loading or unloading berths in accordance with the following tables:

Square feet of Floor Area	Number of Berths Required
Less than 5,000	0
5,000 - 30,000	1
30,000 - 100,000	2
100,000 and over	3

2. Restaurants, office buildings, hotels, motels, hospitals and institutions, schools and colleges, public buildings, recreation or entertainment facilities, and any similar use which has a gross floor area of 30,000 square feet or more, shall provide off-street truck loading or unloading berths in accordance with the following table:

Square feet of Floor Area	Number of Berths Required
Less than 30,000	0
30,000 - 100,000	1
100,000 and over	2

3. A loading berth shall contain space twelve (12) feet wide, thirty-five (35) feet long, and have a height clearance of fourteen (14) feet. Where the vehicles generally used for loading and unloading exceed these dimensions, the required length of these berths shall be increased to accommodate the larger vehicles.
4. If loading space has been provided in connection with an existing use or is added to an existing use, the loading space shall not be eliminated if elimination would result in less space than is required to adequately handle the needs of the particular use.

5. Off-street parking areas used to fulfill the requirements of this Ordinance shall not be used for loading and unloading operations except during periods of the day when not required to meet parking needs.
- B Exceptions and Adjustments.
1. The Planning Director or Development Review Board may approve a loading area adjacent to or within a street right-of-way where it finds that loading and unloading operations:
    - a. Are short in duration (*i.e.*, less than one hour);
    - b. Are infrequent (less than three operations daily);
    - c. Do not obstruct traffic during peak traffic hours;
    - d. Do not interfere with emergency response services or bicycle and pedestrian facilities; and
    - e. Are acceptable to the applicable roadway authority.

**Applicant's Response:**

**The applicant does not anticipate loading services or delivery trucks visits occurring more than once a week due to the nature of the proposed developments use. However, the development will provide (1) off-street berth located inside the Warehouse Building ensuring no interference with the operation of adjacent streets.**

(.06) Carpool and Vanpool Parking Requirements:

- A. Carpool and vanpool parking spaces shall be identified for the following uses:
  1. New commercial and industrial developments with seventy-five (75) or more parking spaces,
  2. New institutional or public assembly uses, and
  3. Transit park-and-ride facilities with fifty (50) or more parking spaces.
- B. Of the total spaces available for employee, student, and commuter parking, at least five percent, but not fewer than two, shall be designated for exclusive carpool and vanpool parking.
- C. Carpool and vanpool parking spaces shall be located closer to the main employee, student or commuter entrance than all other parking spaces with the exception of ADA parking spaces.
- D. Required carpool/vanpool spaces shall be clearly marked "Reserved - Carpool/Vanpool Only."

**Applicant's Response:**

**The proposed development includes two (2) carpool parking spaces. Please refer to the “Parking Site Exhibit”.**

- (.07) Parking Area Redevelopment. The number of parking spaces may be reduced by up to 10% of the minimum required parking spaces for that use when a portion of the existing parking area is modified to accommodate or provide transit-related amenities such as transit stops, pull-outs, shelters, and park and ride stations.

**Applicant’s Response:**

**The applicant is not requesting a reduction of the required minimum parking spaces, therefore, this standard is not applicable.**

#### **Section 4.156.01. Sign Regulations Purpose and Objectives.**

- (.01) Purpose. The general purpose of the sign regulations are to provide one of the principal means of implementing the Wilsonville Comprehensive Plan by fostering an aesthetically pleasing, functional, and economically vital community, as well as promoting public health, safety, and well-being. The sign regulations strive to accomplish the above general purpose by meeting the needs of sign owners while maintaining consistency with the development and design standards elsewhere in Chapter 4. This code regulates the design, variety, number, size, location, and type of signs, as well as the processes required to permit various types of signs. Sign regulations have one or more of the following specific objectives:
- A. Well-designed and aesthetically pleasing signs sufficiently visible and comprehensible from streets and rights-of-way that abut a site as to aid in wayfinding, identification and provide other needed information.
  - B. Sign design and placement that is compatible with and complementary to the overall design and architecture of a site, along with adjoining properties, surrounding areas, and the zoning district.
  - C. A consistent and streamlined sign review process that maintains the quality of sign development and ensures due process.
  - D. Consistent and equitable application and enforcement of sign regulations.
  - E. All signs are designed, constructed, installed, and maintained so that public safety, particularly traffic safety, are not compromised.
  - F. Sign regulations are content neutral.

#### **Applicant's Response:**

**The applicant acknowledges and understands the purpose and objectives of the sign regulations and submits the following responses to Section 4.156. The intent of the proposed sign designs are minimal in nature and for the sole purpose to identify and direct the public to the Public Works facility. The location and design of each sign is intended to compliment the overall complex with no impact to adjacent properties and right of way sight lines. A Sign Plan is included in the application material.**



**Section 4.156.02. Sign Review Process and General Requirements.**

- (.01) Permit Required. Unless exempt under Section 4.156.05, no sign, permanent or temporary, shall be displayed or installed in the City without first obtaining a sign permit.

**Applicant's Response:**

**The applicant is developing a public facility and all proposed signage is to serve as an aid to indicate the location of the Public Works facility. Per Section 4.156.05.B., a sign permit is not required.**

- (.02) Sign Permits and Master Sign Plans. Many properties in the City have signs pre-approved through a Master Sign Plan. For the majority of applications where a Master Sign Plan has been approved the applicant need not consult the sign requirements for the zone, but rather the Master Sign Plan, copies of which are available from the Planning Division. Signs conforming to a Master Sign Plan require only a Class I Sign Permit.

**Applicant's Response:**

**The applicant is developing a public facility and all proposed signage is to serve as an aid to indicate the location of the Public Works facility. Per Section 4.156.05.B., a sign permit is not required.**

- (.03) Classes of Sign Permits, Master Sign Plans, and Review Process. The City has three classes of sign permits for permanent signs: Class I, Class II, and Class III. In addition, non-residential developments with three or more tenants require a Master Sign Plan. Class I sign permits are reviewed through the Class I Administrative Review Process as outlined in Subsection 4.030(.01)(A.). Class II sign permits are reviewed through the Class II Administrative Review Process as outlined in Subsection 4.030(.01)(B.). Class III Sign Permits and Master Sign Plans are reviewed by the Development Review Board (DRB) as outlined in Section 4.031.

**Applicant's Response:**

**The applicant is developing a public facility and all proposed signage is to serve as an aid to indicate the location of the Public Works facility. Per Section 4.156.05.B., a sign permit is not required.**

- (.04) Class I Sign Permit. Sign permit requests shall be processed as a Class I Sign Permit when the requested sign or signs conform to a Master Sign Plan or other previous

sign approval. In addition, a Minor Adjustment to a Master Sign Plan or other previous sign approval may be approved in connection with a Class I Sign Permit.

- A. Class I Sign Permit Submission Requirements: Application for a Class I Sign Permit shall include two (2) copies of the following along with all required application fees:
  1. Completed application form prescribed by the City and signed by the property owner or the property owner's representative,
  2. Sign drawings showing all materials, the sign area and dimensions used to calculate sign areas, and other details sufficient to judge the full scale of the associated sign or signs and related improvements,
  3. Information showing how the proposed sign or signs conform with all applicable code requirements, Master Sign Plans, or other previous sign approvals for the property, and
  4. Information supporting any minor adjustment requests.
- B. Class I Sign Permit Review Criteria: The sign or signs conform with the applicable master sign plan or other previous sign approvals, and applicable code requirements.
- C. Minor Adjustments: Notwithstanding approved Master Sign Plans or other previous sign approvals, as part of a Class I Sign Permit Minor Adjustments may be approved as described in 1. and 2. below. Minor Adjustments are valid only for the Sign Permit with which they are associated and do not carry over to future sign permits or copy changes.
  1. Adjustment to Sign Height or Length: Adjustment of not more than ten (10) percent from the sign height (not height from ground) and/or length may be approved for the reasons listed in a. through d. below, unless otherwise specifically prohibited in the Master Sign Plan. Minor adjustments to sign height and length shall not cause the sign to cross the edge of any fascia, architectural element or area of a building facade identified as a sign band. The area of the sign exceeding the height or length as part of a minor adjustment shall not count against the sign area indicated in a Master Sign Plan or other previous sign approval.
    - a. To accommodate the descender on the lower case letters "q, y, p g, or j", not otherwise accommodated by the measurement method used, where the letter matches the font of other letters in the sign, the descender is no more than 1/2 the cap height of the font, and the descender is no wider than the main body of the letter;
    - b. To accommodate stylized fonts where bowls, shoulders, or serifs of the stylized letters extend beyond the cap height;
    - c. To accommodate an arching or other non-straight baseline; or
    - d. To accommodate a federally registered trademark logo where compliance with the defined maximum sign height would result in the

cap height of the text in the logo being ninety (90) percent or less of the cap height for letters otherwise allowed. (i.e. if a Master Sign Plan allowed 24" letters and 24" total sign height, and a 24" logo would result in the cap height of the text within the logo being less than 21.6", the total height of the logo could be increased to 26.4")

2. Lateral Adjustment of Building Sign Location: Lateral adjustment of a building sign location identified in drawings or plans for a Master Sign Plan or other sign approval when all of the following are met:
  - a. The lateral distance being moved does not exceed fifty (50) percent of the sign length or ten (10) feet, whichever is greater;
  - b. The exact location is not specifically supported or required by written findings or a condition of approval;
  - c. The sign remains within the same architectural feature and sign band, except if the location is on a pillar, column, or similar narrow architectural support feature, the sign may be moved to a sign band on the architecture feature which it supports if no other sign is already placed in that sign band for the tenant space; and
  - d. The placement maintains any spacing from the edge of an architectural feature, building, or tenant space specifically identified in the Master Sign plan or other sign approval or if no spacing is identified, maintains a definable space between the sign and the edge of architectural features, the tenant space, and building.

**Applicant's Response:**

**The applicant is developing a public facility and all proposed signage is to serve as an aid to indicate the location of the Public Works facility. Per Section 4.156.05.B., a sign permit is not required.**

(.05) Class II Sign Permit. Sign permit requests for meeting one or more of the descriptions listed in A. through C. below shall be processed as a Class II Sign Permit when the request does not conform with a Master Sign Plan or other previous sign approval but meets the requirements of the applicable sign regulations, unless the request would modify a condition of approval specifically imposed by the DRB or City Council:

- A. Existing residential development;
- B. Existing non-residential development with less than three (3) tenants unless the request involves a freestanding or ground mounted sign greater than eight (8) feet in height in a new location;

- C. New development or redevelopment in the Coffee Creek Industrial Design Overlay District subject to a Class II administrative review process; [Section 4.156.02 Section (.05)C amended per Ordinance No. 812, 02/22/18]
- D. Major Adjustments to a Master Sign Plan when all of the following criteria are met:
  - 1. The request is compatible with the pattern of signage established in the sign plan in terms of locations, placement on buildings, proportionality to fascia and building facade, architectural design, and materials used;
  - 2. The request is due to special conditions or circumstances that make it difficult to comply with the established Master Sign Plan;
  - 3. The request involves signs for a single tenant, a single multi-tenant freestanding or ground mounted sign, or a series of similar related multi-tenant freestanding or ground mounted signs in the same development; and
  - 4. The request does not involve a freestanding or ground mounted sign greater than eight (8) feet in height at a new location.
- E. Class II Sign Permit Submission Requirements: Application for a Class II Sign Permit shall include two (2) paper copies and one (1) electronic copy of the following in addition to all required fees:
  - 1. Completed application form prescribed by the City and signed by the property owner or their authorized representative;
  - 2. Sign drawings or descriptions of all materials, sign area and dimensions used to calculate areas, lighting methods, and other details sufficient to judge the full scale of the signs and related improvements;
  - 3. Documentation of the lengths of building or tenant space facades used in calculating maximum allowed sign area;
  - 4. Drawings of all building facades on which signs are proposed indicating the areas of the facades on which signs will be allowed;
  - 5. Narrative describing the scope of the project, including written findings addressing all applicable review criteria, along with any other information showing how the proposed signage conforms with requirements for the applicable zone;
- F. Class II Sign Permit Review Criteria: Class II Sign Permits shall satisfy the sign regulations for the applicable zoning district and the Site Design Review Criteria in Sections 4.400 through 4.421, as well as the following criteria:
  - 1. The proposed signage is compatible with developments or uses permitted in the zone in terms of design, materials used, color schemes, proportionality, and location, so that it does not interfere with or detract from the visual appearance of surrounding development;
  - 2. The proposed signage will not create a nuisance or result in a significant reduction in the value or usefulness of surrounding development; and

3. Special attention is paid to the interface between signs and other site elements including building architecture and landscaping, including trees.

**Applicant's Response:**

**The applicant is developing a public facility and all proposed signage is to serve as an aid to indicate the location of the Public Works facility. Per Section 4.156.05.B., a sign permit is not required.**

- (.06) Class III Sign Permit. Sign permit requests shall be processed as a Class III Sign Permit when associated with new development, except as noted in Subsection 4.156.02 (.05) C., or redevelopment requiring DRB review, and not requiring a Master Sign Plan; when a sign permit request is associated with a waiver or non-administrative variance; or when the sign permit request involves one or more freestanding or ground mounted signs greater than eight (8) feet in height in a new location. [Section 4.156.02 Section (.06) amended per Ordinance No. 812, 02/22/18]
- A. Class III Sign Permit Submission Requirements: Ten (10) paper and electronic copies of the submission requirements for Class II Sign Permits plus information on any requested waivers or variances in addition to all required fees.
  - B. Class III Sign Permit Review Criteria: The review criteria for Class II Sign Permits plus waiver or variance criteria when applicable.

**Applicant's Response:**

**The applicant is developing a public facility and all proposed signage is to serve as an aid to indicate the location of the Public Works facility. Per Section 4.156.05.B., a sign permit is not required.**

- (.07) Master Sign Plans. A Master Sign Plan is required for non-residential developments with three (3) or more tenants. In creating a Master Sign Plan thought should be given to needs of initial tenants as well as the potential needs of future tenants.
- A. Master Sign Plan Submission Requirements: Applications for Master Sign Plans shall include ten (10) paper and electronic copies of all the submission requirements for Class II and III Sign Permits and the following in addition to all required fees:
    1. A written explanation of the flexibility of the Master Sign Plan for different potential tenant space configurations over time;
    2. A written explanation of the extent to which different sign designs, including those incorporating logos, stylized letters, multiple lines of text, non-straight baselines, or different materials and illumination will be allowed and if

allowed how the flexibility of the master sign plan will allow these different sign designs over time;

3. A written explanation of how the sign plan provides for a consistent and compatible sign design throughout the subject development.
- B. Master Sign Plan Review Criteria: In addition to the review criteria for Class II and Class III Sign Permits, Master Sign Plans shall meet the following criteria:
1. The Master Sign Plan provides for consistent and compatible design of signs throughout the development; and
  2. The Master Sign Plan considers future needs, including potential different configurations of tenant spaces and different sign designs, if allowed.
- C. Modifications of a Master Sign Plan: Modifications of a Master Sign Plan, other than Minor and Major Adjustments, shall be reviewed the same as a new Master Sign Plan.

**Applicant's Response:**

**The applicant is developing a public facility and all proposed signage is to serve as an aid to indicate the location of the Public Works facility. Per Section 4.156.05.B., a sign permit is not required.**

(.08) Waivers and Variances. Waivers and variances are similar in that they allow deviation from requirements such as area, and height from ground. They differ in that waivers are granted by the DRB as part of a comprehensive review of the design and function of an entire site to bring about an improved design and variances are granted by either the Planning Director or DRB to relieve a specific hardship caused by the regulations.

- A. Waivers. The DRB may grant waivers for sign area, sign height from ground (no waiver shall be granted to allow signs to exceed thirty-five (35) feet in height), number of signs, or use of electronic changeable copy signs in order to better implement the purpose and objectives of the sign regulations as determined by making findings that all of the following criteria are met:
1. The waiver will result in improved sign design, in regards to both aesthetics and functionality.
  2. The waiver will result in a sign or signs more compatible with and complementary to the overall design and architecture of a site, along with adjoining properties, surrounding areas, and the zoning district than signs allowed without the waiver.
  3. The waiver will result in a sign or signs that improve, or at least do not negatively impact, public safety, especially traffic safety.

4. Sign content is not being considered when determining whether or not to grant a waiver.

**Applicant's Response:**

**The development application does not require or include a request for a waiver or variance. This section is not applicable.**

B. Variances.

1. Administrative Variance: In reviewing a Sign Permit the Planning Director may grant or deny a variance to relieve a hardship through the Class II Administrative Review process. Such a variance shall only be approved where the variance does not exceed twenty percent (20%) of area, height, or setback requirements. The Planning Director shall approve such a variance only upon finding that the application complies with all of the required variance criteria listed in Section 4.196.
2. Other Variances: In addition to the authority of the Planning Director to issue administrative variances as noted above, the Development Review Board may authorize variances from sign requirements of the Code, subject to the standards and criteria listed in Section 4.196.

**Applicant's Response:**

**The development application does not require or include a request for a waiver or variance. This section is not applicable.**

(.09) Temporary Sign Permits. Temporary sign permits shall be reviewed as follows:

- A. 30 days and less- Class I Administrative Review
- B. 31 days up to 120 days- Class II Administrative Review
- C. Submission Requirements: Applications for a temporary sign permit shall include the following in addition to the required application fee:
  1. Completed application form prescribed by the City and signed by the property owner or their authorized representative,
  2. Two (2) copies of sign drawings or descriptions showing all materials, sign area and dimensions used to calculate areas, number of signs, location and placement of signs, and other details sufficient to judge the full scale of the sign or signs,
  3. Information showing the proposed sign or signs conform with all applicable code requirements.
- D. Review Criteria: Temporary Sign Regulations in Section 4.156.09

- E. When a temporary sign permit request is submitted as part of the broader temporary use permit request of the same duration, the sign request shall not require an additional fee.

**Applicant's Response:**

**The development application does not include temporary signage, therefore, this section is not applicable.**

- (.10) Waiver of Documentation. The Planning Director may, in his or her discretion, waive an application document for Class I, Class II, and temporary sign permits where the required information has already been made available to the City, or where the Planning Director determines the information contained in an otherwise required document is not necessary to review the application.

**Applicant's Response:**

**The development application does not require or include a request for a waiver or variance. This section is not applicable.**



### Section 4.156.03. Sign Measurement

(.01) Sign Area:

- A. Cabinet Signs and Similar: The area for signs enclosed by cabinet, frame, or other background (including lighted surface) not otherwise part of the architecture of a building or structure shall be the area of a shape drawn around the outer dimension of the cabinet, frame, or background.
1. If the cabinet, frame, or background is an irregular shape the signs perimeter shall be measured the same as an individual element sign under B. below.
  2. The sign area does not include:
    - a. Foundations, supports, and other essential structures that are not designed to serve as a backdrop or border to the sign;
    - a. Architectural elements of a freestanding or ground mounted sign designed to match or complement the architectural design of buildings on the site not and otherwise meeting the definition of a sign;
    - c. A pole or other structural support, unless such pole or structural support is internally illuminated or otherwise so designed to constitute a display device.

**Applicant's Response:**

**The development application does not include cabinet styled signage; therefore, this section is not applicable.**

<b>Figure S-1. Measurement of Cabinet or Similar Signs</b>
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- B. Individual Element Signs: The area for signs constructed of individual elements (letters, figures, etc.) attached to a building wall or similar surface or structure shall be the summed area of up to three squares, rectangles, circles, or triangles drawn around all sign elements.
1. The descender on the lower case letters "q, y, p g, or j." shall not be included in sign area when the letter otherwise matches the font of other letters in the sign, the descender is no more than 1/2 the cap height of the font, and the descender is no wider than the main body of the letter.

**Applicant's Response:**

**The development application includes signage constructed of individual elements. The signage is to be constructed as raised architectural lettering approximately 6" in height and less than 15 square feet measured per Figure S-2. This style of signage is limited to the main building entrance and is**

intended for public identification of the facility. The main building entrance faces the public parking area and is interior lot facing.

**Figure S-2. Measurement of Individual Element Signs**

- C. Round or Three-Dimensional Signs: The area of a round or three-dimensional sign shall be the maximum surface area visible from any one location on the ground measured the same as A. above except if the maximum surface area is an irregular shape the signs perimeter shall be measured the same as an individual element sign under B. above.

**Applicant's Response:**

**The development application does not include round or three-dimensional signs; therefore, this section is not applicable.**

- D. Awning or Marquee Signs: The area of signs incorporated into awnings or marquees shall be the area of the entire panel containing the sign measured the same as A. above unless it is clear that part of the panel contains no sign-related display or decoration, other than the background color of the awning.

**Applicant's Response:**

**The development application does not include awning or three-dimensional signs; therefore, this section is not applicable.**

- E. Painted Wall Signs: The area of painted wall signs shall be determined as follows:
1. If individual elements are painted without a background it shall be calculated in the manner indicated in B. above.
  2. If a background is painted it shall be calculated in the manner indicated in A. above.

**Applicant's Response:**

**The development application does not include painted wall signs; therefore, this section is not applicable.**

- F. Temporary Signs: The area of temporary signs including banners, lawn signs, and rigid signs shall be calculated in the manner indicated in A. above.

**Applicant's Response:**

**The development application does not include temporary signs; therefore, this section is not applicable.**

- G. Unless otherwise specified, the sign area of a two-sided sign, with two matching sides, shall be considered to be the area of one side. For example, the sign area of a two-sided sign having thirty-two (32) square feet per sign face shall be considered to be thirty-two (32) square feet, unless this code specifies otherwise.

**Applicant's Response:**

**The applicant acknowledges and understands the standard to determine the area of a two-sided sign.**

(.02) Sign Height above Ground.

- A. The height above ground of a freestanding or ground-mounted sign is measured from the average grade directly below the sign to the highest point of the sign or sign structure except as follows:
1. A freestanding or ground mounted sign on a man-made base, including a graded earth mound, shall be measured from the grade of the nearest pavement or top of any pavement curb to the highest point of the sign or sign structure. In all cases signs on a berm shall be allowed to be eight (8) feet in height from the top of the berm.
  2. A freestanding or ground mounted sign placed below the elevation of the right-of-way it fronts shall be measured from the lowest point in the right-of-way along the frontage to the highest point of the sign.

**Applicant's Response:**

**The proposed ground mounted monument sign does not exceed eight feet in height measured per Figure S-3.**

**Figure S-3. How to Measure Height of a Freestanding or Ground Mounted Sign**

(.03) Sign Height and Length.

- A. Height of a sign is the vertical distance between the lowest and highest points of the sign.
- B. Length of a sign is the horizontal distance between the furthest left and right points of the sign.

**Applicant's Response:**

**The applicant acknowledges and understands the standard for determining the height and length of a proposed sign.**

- (.04) Final Determination of Sign Measurement. The Planning Director shall be responsible for determining the area, height above ground and height and length of a sign, subject to appeal as specified in Section 4.022. Applicants for sign plans and permits shall provide the dimensions needed to calculate the area, height above ground, height, and length.

**Applicant's Response:**

**The applicant understands final determination of the area, height and length of the proposed signage is made by the Planning Director. The application material includes a sign plan that includes the information needed by the Planning Director.**

**Section 4.156.04. Non-Conforming Signs.**

- (.01) Non-Conforming Signs. Non-conforming signs, which may be non-conforming structures or non-conforming uses, are subject to the standards for non-conforming uses and non-conforming structures delineated in Sections 4.189 through 4.190. Except, however, that a non-conforming sign that is damaged beyond fifty percent (50%) of its value, as determined by the City Building Official, may only be reconstructed if the reconstructed sign meets all applicable zoning, structural, and electrical standards applicable at the time of reconstruction. Nothing in this Section is intended to impair any previously approved sign permit that has been issued by the City of Wilsonville, subject to state or federal law, or to require the removal of any sign that was legally erected or installed prior to the effective date of these regulations. In the event that a previously erected or installed sign no longer meets applicable City zoning standards it may remain in place, subject to the standards for non-conforming uses or nonconforming structures noted above. However, a sign that is required to be moved solely because of a public taking may be replaced on the site, and maintain its non-conforming status, subject to a Class II Sign Permit, provided the replacement sign is found to not increase in non-conformity to current code standards other than required setbacks.

**Applicant's Response:**

**The development application does not include or address any existing non-conforming signs; therefore, this section is not applicable.**

**Section 4.156.05. Signs Exempt From Sign Permit Requirements.**

- (.01) The following signs are exempt from the permit requirements of this code and do not require sign permits. Unless otherwise specified, the area of the exempted signs shall not be included in the calculations of sign area permitted on a given site:
- A. Traffic or other governmental or directional signs, as may be authorized by the City or other units of government having jurisdiction within the City.
  - B. Signs installed by public utility companies indicating danger, or which serve as an aid to public safety, or which show the location of utilities or public facilities, including underground utilities.
  - C. Flags displayed from permanently-located freestanding or wall-mounted flagpoles that are designed to allow raising and lowering of flags. One site may have up to two (2) exempt flags; no exempt flag may be more than thirty (30) feet in height.

**Applicant's Response:**

**The intent of the proposed sign designs are minimal in nature and for the sole purpose to identify and direct the public to the Public Works facility. All proposed signage meets the exemption requirements of Section 4.156.05.**

- (.02) Other Signs. No sign permit is necessary before placing, constructing or erecting the following signs. However, in all other particulars such signs shall conform to the requirements of applicable Building and Electrical Codes, as well as this Code.
- A. Signs inside a building except for prohibited signs listed in Section 4.156.06.
  - B. Name Plates and Announcements.
    - 1. A sign identifying the name, street address, occupation and/or profession of the occupant of the premises in the aid of public health and safety. One name plate, not exceeding a total of three (3) square feet shall be allowed for each occupant. The name plate shall be affixed to the building.
    - 2. Announcements posted on a given property (e.g., no smoking, no parking, rules of conduct, etc.) and not intended to be read from off-site, are permitted to be located as needed. Such announcements shall not be considered to be part of the sign allotment for the property.
  - C. Directional Signs. Designed for non-changing messages, directional signs facilitate the safe movement of the traveling public. Such signs are subject to the following standards and conditions:
    - 1. The sign area does not exceed three (3) square feet per sign face,
    - 2. The sign location is not within public rights-of-way and meets City vision clearance requirements;

3. No sign lighting;
  4. No logo or a logo that does not exceed one (1) square foot in size; and
  5. No more than one (1) directional sign is located on the same tax lot.
- D. Changes of Copy Only, where the graphics contained on an existing sign are changed, but the sign itself is not structurally altered, and no building or electrical permit is required.
- E. Signs not visible from any off-site location.
- F. Holiday lights and decorations, in place between November 15 and January 15.
- G. Signs on scoreboards or ballfields located on public property.
- H. One small decorative banner per dwelling unit placed on site, in residential zones.
- I. Lawn Signs meeting the standards of Table S-1 and the following conditions:
1. Such signs shall not be intentionally illuminated and shall not display movement.
  2. Such signs shall not obscure sight lines of the motoring public, obscure traffic or other government signs, or create a nuisance to the use or occupancy of any property.
  3. Lawn signs associated with temporary events may be posted no longer than sixty (60) days before the beginning of an event and must be removed at the event's completion.
  4. Lawn signs not associated with temporary events may be posted for one period of up to sixty (60) days in a calendar year.
  5. Such signs may be up to six (6) feet in height.
  6. Such signs may be one (1) or two (2) sided.
- J. Rigid Signs meeting the standards of Table S-1 and the following conditions:
1. Such signs shall not be intentionally illuminated and shall not display movement.
  2. Such signs shall not obscure sight lines of the motoring public, obscure traffic or other government signs, or create a nuisance to the use or occupancy of any property.
  3. Such signs may be up to six (6) feet in height, except signs on lots with an active construction project (active building permit), which may be up to ten (10) feet in height. (Note that signs exceeding six (6) feet in height typically require building permits.)
  4. Such signs may be one (1), two (2), or three (3) sided.
  5. On Residential and Agriculture zoned lots:

- a. A rigid sign not associated with an ongoing temporary event may be displayed for no more than sixty (60) days each calendar year.
  - b. A rigid sign associated with an ongoing temporary event may be displayed for the duration of that event. Note: Section 4.156.06 (.01) Q. of this Code prohibits signs associated with temporary events to remain posted after the completion of the event.
6. On Commercial, Industrial, or Public Facility zoned lots:
- a. A rigid sign not associated with an ongoing temporary event may be displayed for no more than ninety (90) days each calendar year.
  - b. A rigid sign associated with an ongoing temporary event may be displayed for the duration of that temporary event. Note: Section 4.156.06(.01)(Q.) of this Code prohibits signs associated with temporary events to remain posted after the completion of the event.
  - c. A temporary event must have an end, marked by the occurrence of a specifically anticipated date or happening. A temporary event may not be a part of a broader, continuing event or of related, serial events. Temporary events shall not be defined by content, but may include isolated merchandise sales or discounts, or availability of real estate for sale or lease.
- K. Signs allowed in Subsections 6.150 (1) and (2) Wilsonville Code for special events.



#### **Section 4.156.06. Prohibited Signs**

- (.01) Prohibited Signs. The following signs are prohibited and shall not be placed within the City:
- A. Search lights, strobe lights, and signs containing strobe lights or other flashing lights, unless specifically approved in a sign permit.
  - B. Obstructing signs, a sign or sign structure such that any portion of its surface or supports will interfere in any way with the free use of any fire escape, exit, hydrant, standpipe, or the exterior of any window; any sign projecting more than twelve (12) inches from a wall, except projecting signs that are specifically permitted through the provisions of this Code.
  - C. Changing image signs, including those within windows.
  - D. Changeable copy signs that use lighting changed digitally, unless specifically approved through a waiver process connected with a Class III Sign Permit or Master Sign Plan. In granting a waiver for a digital changeable copy signs the DRB shall ensure the following criteria will be met:
    1. The sign shall be equipped with automatic dimming technology which automatically adjusts the sign's brightness in direct correlation with ambient light conditions and the sign owner shall ensure appropriate functioning of the dimming technology for the life of the sign.
    2. The luminance of the sign shall not exceed five thousand (5000) candelas per square meter between sunrise and sunset, and five hundred (500) candelas per square meter between sunset and sunrise.
  - E. Roof signs - signs placed on the top of a building or attached to the building and projecting above the top of that building, unless specifically approved through the temporary sign permit procedures or the architectural design of a building makes the slope of the roof below the peak a practicable location of signs on a building and the general location of signs on the roof is approved by the DRB during Stage II Approval, as applicable, and Site Design Review.
  - F. Signs obstructing vision clearance areas.
  - G. Pennants, streamers, festoon lights, balloons, and other similar devices intended to be moved by the wind, unless specifically authorized in an approved sign permit.
  - H. Signs attached to trees, public sign posts, or public utility poles, other than those placed by appropriate government agencies or public utilities.
  - I. Signs using bare-bulb illumination or signs lighted so that the immediate source of illumination is visible, unless specifically authorized by the Development Review Board or City Council such as Digital Changeable Copy Signs. This is not intended to prohibit the use of neon or LED's as a source of illumination.

- J. Signs that use flame as a source of light or that emit smoke or odors.
- K. Any sign, including a window sign, which is an imitation of or resembles an official traffic sign or signal; and which may include display of words or graphics that are likely to cause confusion for the public, such as "STOP," "GO," "SLOW," "CAUTION," "DANGER," "WARNING," etc.
- L. Any sign, including a window sign, which by reason of its size, location, movements, content, coloring or manner of illumination may be confused with, or construed as, a traffic control device, or which hides from view any traffic sign, signal, or device.
- M. Portable signs, exceeding six (6) square feet of sign area per side, other than those on vehicles or trailers. The display of signs on a vehicle or trailer is prohibited where the vehicle or trailer is not fully operational for use on public roads or where the primary function of the vehicle or trailer is advertising. Examples where the primary function of the vehicle or trailer is advertising include mobile billboards such as those on which advertising space is rented, sold, or leased.
- N. Signs located on public property in violation of Section 4.156.10.
- O. Signs placed on private property without the property owner's permission.
- P. Signs erected or installed in violation of standards prescribed by the City of Wilsonville, State of Oregon or the U.S. government.
- Q. Signs associated with temporary events, after the temporary event is completed.
- R. Any private signs, including window signs, with a luminance greater than five thousand (5000) candelas per square meter between sunrise and sunset and five hundred (500) candelas per square meter between sunset and sunrise.
- S. Video Signs

**Applicant's Response:**

**The development application does not include any of the prohibited signs per Section 4.156.06.**

**Section 4.156.07. Sign Regulations In Residential Zones.**

- (.01) Ground Mounted Signs for Residential Developments. One ground mounted sign, not exceeding eighteen (18) square feet in area and six (6) feet in height above ground, shall be permitted for each residential subdivision or for any multi-family development.
- A. Additional ground mounted signs of eighteen (18) square feet or less shall be permitted for additional entrances to the subdivision or development located on a separate street frontage or on the same street frontage located at least two hundred (200) feet apart.
- B. For one entrance on a street frontage, an additional ground mounted sign may be placed on opposite side of the street or private drive at the intersection.
- (.02) Ground Mounted Signs for Outdoor Recreational Areas on Separate Lots. Public or private parks or other similar outdoor recreational areas on separate lots than dwelling units are allowed one (1) ground mounted sign of eighteen (18) square feet or less in area and six (6) feet or less in height above ground.
- (.03) Non-Residential Uses. Uses, other than residential and outdoor recreation, shall be subject to the sign regulations for PDC, TC, TPDI, and Public Facility zones.

**Applicant's Response:**

**The proposed development is located within the PDI zone, therefore, this section is not applicable.**

**Section 4.156.08. Sign Regulations in the PDC, TC, PDI, and PF Zones.**

**(.01) Freestanding and Ground Mounted Signs:**

- A. One freestanding or ground mounted sign is allowed for the first two-hundred (200) linear feet of site frontage. One additional freestanding or ground mounted sign may be added for through and corner lots having at least two-hundred (200) feet of frontage on one street or right-of-way and one-hundred (100) feet on the other street or right-of-way.

**Applicant's Response:**

**The total site frontage of the proposed development is approximately 535 feet. The development includes one ground mounted monument sign.**

- B. The allowed height above ground of a freestanding or ground mounted sign is twenty (20) feet except as noted in 1-2 below.
  - 1. The maximum allowed height above ground for signs along the frontage of Interstate 5, and parallel contiguous portions of streets, as identified in Figure S-4, associated with multiple tenants or businesses may be increased by three (3) feet for each tenant space of ten thousand (10,000) square feet or more of gross floor area up to a maximum of thirty-five (35) feet.
  - 2. The allowed height above ground for signs in the TC Zone, Old Town Overlay Zone, and PDI Zone is eight (8) feet, except those signs along the frontage of Interstate 5 and parallel contiguous portions of streets identified in Figure S-4.

**Applicant's Response:**

**The proposed ground mounted monument sign does not exceed 8 feet in height and is therefore compliant with standards of the PDI zone.**

- C. The maximum allowed area for each freestanding or ground-mounted sign is determined based on gross floor area and number of tenant spaces:
  - 1. For frontages along streets other than those indicated in 2 below sign area allowed is calculated as follows:
    - a. The sign area allowed for signs pertaining to a single tenant:

<b>Gross Floor Area in a Single Building</b>	<b>Maximum Allowed Sign Area</b>
Less than 11,000 sq. ft.	32 sq. ft.
11,000-25,999 sq. ft.	32 sq. ft. + 2 sq. ft. per 1000 sq. ft. of floor area greater than 10,000 rounded down to the

	nearest 1,000 sq. ft.
26,000 sq. ft. or more	64 sq. ft.

- i. For PF (Public Facility) zoned properties adjacent to residential zoned land the maximum allowed area is thirty-two (32) square feet.
- b. The maximum allowed sign area for signs pertaining to multiple tenants or businesses is thirty-two (32) square feet plus the following for each tenant space:

Gross Floor Area of Tenant Space	Additional Allowed Sign Area for Tenant Space
Less than 1,000 sq. ft.	3 sq. ft.
1,000-10,999	3 sq. ft. + 3 sq. ft. per 1,000 sq. ft. of floor area rounded down to the nearest 1,000 sq. ft.
11,000 sq. ft. or more	32 sq. ft.

- i. The total sign area shall not exceed two hundred (200) square feet, except in the TC Zone, Old Town Overlay Zone, and PDI Zone the total sign area shall not exceed eighty (80) square feet.

[Amended by Ord. 835, 6/5/19]

- ii. Though the maximum allowed sign area is calculated based on number of tenant spaces and their size, the content of the sign and area used for different content is at the discretion of the sign owner, except for required addressing.
2. Signs fronting Interstate 5 and parallel contiguous street sections, as identified in Figure S-4.
- a. For signs on properties or within developments with a single tenant or business the sign area allowed is sixty-four (64) square feet.
  - b. For signs on properties or within developments with multiple tenants or businesses the maximum allowed area is sixty-four (64) square feet plus an additional thirty-two (32) square feet for each tenant space of 10,000 square feet or more of gross floor area up to a maximum total sign area of three hundred (300) square feet.
    - i. Though the sign area allowed is calculated based on number of large tenant spaces, the content of the sign and area used for different content is at the discretion of the sign owner, except for any required addressing.

**Applicant’s Response:**

**The proposed ground mounted monument sign does not exceed 32 square feet in area and is therefore compliant with the standard.**

- D. Pole or sign support placement shall be installed in a full vertical position.

**Applicant's Response:**

**The proposed ground mounted monument sign is to be mounted in a full vertical position and is therefore compliant with the standard.**

- E. Freestanding and ground mounted signs shall not extend into or above public rights-of-way, parking areas, or vehicle maneuvering areas.

**Applicant's Response:**

**The proposed ground mounted monument sign does not extend into or above public rights-of-way, parking areas or maneuvering areas and is therefore compliant with the standard.**

- F. The location of free standing or ground mounted signs located adjacent to or near the Public Right-of-Way shall be in compliance with the City's Public Works Standards for sight distance clearance. Prior to construction, the location of the sign shall be approved by the City of Wilsonville Engineering Division.

**Applicant's Response:**

**The applicant acknowledges and understands that prior to construction the location of the proposed monument sign is to be approved by the City of Wilsonville Engineering Division. The final location of the monument sign is to be in compliance with the City's Public Works Standards for sight distance clearance.**

- G. Freestanding and ground mounted signs shall be designed to match or complement the architectural design of buildings on the site.

**Applicant's Response:**

**The proposed ground mounted monument sign is designed to complement the architectural design of the proposed buildings.**

- H. For freestanding and ground mounted signs greater than eight (8) feet in height, the width of the sign shall not exceed the height.

**Applicant's Response:**

**The proposed ground mounted monument sign does not exceed 8 feet in height and is therefore this standard is not applicable.**

- I. Along street frontages in the TC Zone and Old Town Overlay Zone monument style signs are required.

**Applicant’s Response:**

**The proposed development is not located in the TC Zone or Old Town Overlay Zone therefore this standard is not applicable.**

- J. Freestanding and ground mounted signs shall be no further than fifteen (15) feet from the property line and no closer than two (2) feet from a sidewalk or other hard surface in the public right-of-way.
- K. Except for those signs fronting Interstate 5, freestanding and ground mounted signs shall include the address number of associated buildings unless otherwise approved in writing by the City and the Fire District.
- L. When a sign is designed based on the number of planned tenant spaces it shall remain a legal, conforming sign regardless of the change in the number of tenants or configuration of tenant spaces.

**Figure S-4. Interstate 5 and Contiguous Parallel Street Frontages**

**Figure S-4. Interstate 5 and Contiguous Parallel Street Frontages (continued)**

**Figure S-4. Interstate 5 and Contiguous Parallel Street Frontages (continued)**

(.02) Signs on Buildings.

- A. Sign Eligible Facades: Building signs are allowed on a facade of a tenant space or single tenant building when one or more of the following criteria are met:
  - 1. The facade has one or more entrances open to the general public;

2. The facade faces a lot line with frontage on a street or private drive with a cross section similar to a public street, and no other buildings on the same lot obstruct the view of the building facade from the street or private drive; or
3. The facade is adjacent to the primary parking area for the building or tenant.

B. Sign Area Allowed:

1. The sign area allowed for all building signs on a sign eligible façade is shown in the table below:

Linear Length of Façade (feet)	Sign Area Allowed*
Less than 16	Area equal to linear length
16 to 24	24 sq. ft.
Greater than 24 to 32	32 sq. ft.
Greater than 32 to 36	Area equal to linear length
Greater than 36 to 72	36 sq. ft.
Greater than 72	36 sq. ft. plus 12 sq. ft. for each 24 linear feet or portion thereof greater than 72 up to a maximum of 200 sq. ft.

\*Except as noted in 2. through 5. below

2. The sign area allowed for facades with a primary public entrance or with a frontage along a public street dominated by windows or glazing may be increased by transferring to the façade up to one half (1/2) the sign area allowed for adjacent facades up to fifty (50) square feet. In no case shall the allowed sign area exceed an area equal to the linear length of the façade.
3. The sign area allowed is increased as follows for signs at separate building entrances:
  - a. For building entrances open to the general public located at least fifty (50) feet apart on the same facade, the sign area allowed is increased by fifty (50) percent up to fifty (50) square feet.
  - b. For building entrances located less than fifty (50) feet apart on the same facades, the sign area allowed is increased by twenty (20) percent up to twenty (20) square feet.
4. For businesses occupying multiple buildings in a campus setting, sign area shall be limited to that allowed for the largest building, which may then be distributed throughout the campus.
5. If a façade otherwise not sign eligible faces a lot line with frontage on Interstate 5, the applicant can transfer sign area allowed from one (1) of the locations described in a. and b. below. In no case shall the allowed sign area



exceed an area equal to the allowed sign area for a sign eligible façade of the same linear length.

- a. The freestanding sign along the Interstate 5 frontage. This generally involves placing building signs on the subject façade in lieu of installing a freestanding sign.
- b. Adjacent façade up to fifty (50) square feet, when a majority of the adjacent façade from which the sign area is being transferred is visible from Interstate 5.

6. Calculating linear length of a façade for the purpose of determining maximum sign area allowed. For facades of a single tenant building the length the facade measured at the building line, except as noted in a. and b. below. For multi-tenant buildings the width of the façade of the tenant space shall be measured from the centerline of the party walls or the outer extent of the exterior wall at the building line, as applicable, except as noted in a. and b. below. Applicants shall provide the dimensions needed to calculate the length. Each tenant space or single occupant building shall not be considered to have more than five (5) total facades.

- a. If a façade is curvilinear, stepped, or otherwise not a straight line, the façade shall be measured by drawing a straight line between the edges of the façade as shown in the figure below.
- b. For an “L” shaped tenant space or single tenant building the longest leg of the interior of the “L” shall be basis for measuring the length of the L-shaped facade. Sign area allowed based on the longest leg can be distributed between legs.

C. The length of individual tenant signs shall not exceed seventy-five (75) percent of the length of the facade of the tenant space.

D. The height of building signs shall be within a definable sign band, fascia, or architectural feature and allow a definable space between the sign and the top and bottom of the sign band, fascia, or architectural feature.

E. Types of signs permitted on buildings include wall flat, fascia, projecting, blade, marquee and awning signs. Roof-top signs are prohibited.

(.03) Additional signs. Notwithstanding the signs allowed based on the site in (.01) and (.02) above, the following signs may be permitted, subject to standards and conditions in this Code:

A. Directional Signs: In addition to exempt directional signs allowed under Subsection 4.156.05 (.02) C. freestanding or ground mounted directional signs six (6) square feet or less in area and four (4) feet or less in height:

1. The signs shall be designed to match or complement the architectural design of buildings on the site;

2. The signs shall only be placed at the intersection of internal circulation drives; and
  3. No more than one (1) sign shall be placed per intersection corner with no more than two (2) signs per intersection.
- B. Planned Development Signs. Up to thirty (32) square feet of the allowed sign area for freestanding signs in a planned development may be used for a separate on-site monument sign or off-site monument sign on an adjacent parcel identifying the Planned Development project.
- C. Blade Signs. To aid in pedestrian wayfinding, one (1) blade sign, not to exceed six (6) square feet, per facade eligible for building signs. Blade signs over pedestrian accessible areas shall provide a minimum of eight (8) feet of clearance from the ground.
- D. Fuel or Service Station Price Signs. In addition to the freestanding or ground mounted signs allowed, changeable copy signs shall be allowed for the purpose of advertising fuel prices, subject to the following standards and conditions:
1. The signs shall have a maximum of eleven (11) square feet in area per face per type of fuel sold and shall be permanently affixed to the building or a freestanding sign.
  2. The signs shall not be considered in calculating the sign area or number of signs allowed.
  3. Signs on fuel pumps shall be permitted, providing that they do not project beyond the outer edge of the pump in any direction.

#### **Section 4.156.09. Temporary Signs In All Zones.**

The following temporary signs may be permitted in addition to the permanent signs allowed in different zones and exempt temporary signs unless specifically prohibited in a master sign plan or other sign approval:

- (.01) General Allowance. Except as noted in subsection (.02) below up to two (2) temporary signs not exceeding a combined total of twenty four (24) square feet may be permitted per lot or non-residential tenant. Such signs may be banners, rigid signs, lawn signs, portable signs, or other signs of similar construction.
- (.02) Opening Banner for a New Business or Housing Development. A banner corresponding with the opening of a new business or housing development may be permitted, subject to the following standards and conditions:
  - A. One such banner shall be allowed either from the date of issuance of Building Permits until four (4) weeks after issuance of Certificates of Occupancy, or if no Building Permit is issued, for four (4) weeks after occupancy of a new business.
  - B. Such banner may be two-sided but shall not exceed thirty-two (32) square feet per face.
  - C. Such signs shall not be permitted at the same time as general allowance signs in (.01) above.
- (.03) Annual Event Signs. Up to ten (10) lawn signs may be permitted to be located in the public right-of-way for up to fourteen (14) days if all of the following are met:
  - A. Signs will not be located in the areas listed in Subsection 4.156.10 (.01) A. 4.
  - B. The applicant or event has not been issued a permit for and placed signs in the public right-of-way in the previous six (6) months;
  - C. Not more than one (1) other permit has been issued for lawn signs in the right-of-way during the time period the applicant is requesting;
  - D. The event to which the signs pertain is expected to attract two hundred fifty (250) or more people;
  - E. The request is not in addition to exempt lawn signs for large special events allowed for in Section 6.150; and
  - F. The applicant has indicated on a map the exact locations the signs will be placed and has submitted an application along with the required fee.
- (.04) Inflatable Signs. Inflatable signs may be permitted for a maximum of fifteen (15) days of display use in any calendar year subject to the following standards and conditions:
  - A. Does not exceed ten (10) feet in overall height; and

- B. If attached to a building in any manner, it meets applicable building code requirements including consideration of wind loads.

#### **Section 4.156.10. Signs on City and ODOT Right-Of-Way.**

- (.01) Signs on City Property. For the purposes of this section, City property is defined as physical sites, City rights-of-way, and rights-of-way over which the City has jurisdiction. City property includes, but is not limited to, the following: City Hall, the Community Center, the Library, parks and open space, Transit and Fleet Building, SMART Central, and the City's reservoir, pump station, and treatment plant properties.
- A. Allowed Signs. The following signs may be placed on City property and/or City rights-of-way and right-of-ways over which the City has jurisdiction under the following conditions:
1. Such signs as are necessary to locate and direct the public to City premises, or other governmental premises.
  2. Such signs as are necessary for the public's health, safety and welfare authorized under law, regulation, ordinance, or order including but not limited to traffic signs. This shall include signs authorized to conform with the State's Tourism Information program and any similar local government program.
  3. Signs and their placement as authorized in subsections 1 and 2, above, shall meet all other applicable standards and criteria under law, regulation, ordinance, or order.
  4. Lawn signs may be placed, subject to the standards in subsection 4.156.10 (.01)A. 5., below, on City rights-of-way and rights-of-way over which the City has jurisdiction except 1) those rights-of-way adjoining City properties defined in subsection 4.156.10 (.01) above, and 2) in the following locations where the placement of signs could damage landscaping or interfere with the maintenance of the rights-of-way:
    - a. In any median or landscaped strip inside the City limits as identified below in Sections 4.156.10 (.01) A. 4. b. through p.
    - b. Either side of French Prairie Road.
    - c. Either side of Canyon Creek Road North, from Boeckman Road to Elligsen Road.
    - d. Either side of Wilsonville Road between Town Center Loop East and the Portland & Western (previously Burlington Northern) Railroad property.
    - e. Either side of Town Center Loop West and East.
    - f. Both sides of former S.W. Parkway frontage between Town Center Loop West and Wilsonville Road.
    - g. Wilsonville Road between Willamette Way West and Willamette Way East.
    - h. The north side of Wilsonville Road from Town Center Loop East to Boeckman Creek.

- i. Either side of Wilsonville Road between Boeckman Road and the southern boundary of the Wilsonville High School property.
  - j. Either side of Parkway Center Avenue.
  - k. The south side of Elligsen Road from the eastern city limits to a point directly across from the west side of the Tualatin Valley Fire District fire station.
  - l. Either side of Boeckman Road and all islands, from the railroad tracks west to 110th.
  - m. Either side of 110th between Barber Street and Boeckman Road.
  - n. The eastern side of Grahams Ferry Road from Tooze Road to the City limits.
  - o. Either side of Barber Street between 110th and Brown Road, including islands and roundabouts.
  - p. Such other areas as the City may designate as requiring protection from landscape damage.
5. Lawn signs shall meet the following standards and conditions:
- a. Allowed only between the hours of 6 a.m. Friday and 8 p.m. Sunday, and the hours of 9 a.m. and 4 p.m. Tuesdays;
  - b. Not greater than thirty (30) inches in height. A-frame signs may be 24" by 36" provided that they are designed to meet vision clearance requirements (typically not over 30 inches in height when standing);
  - c. Not placed on street surfaces, sidewalks, paths, median strips, or bicycle ways;
  - d. Located within forty (40) feet of an intersection;
  - e. No more than three (3) signs per person; and
  - f. Placed no more than one every fifty (50) feet and at least ten (10) feet away from any other temporary sign.
6. Banners on public light and other poles identified in a plan maintained or adopted by the City and installed by or under arrangement with the Public Works Department.

(.02) Signs within ODOT Right-Of-Way. Consistent with the Laws and Administrative Rules of the State of Oregon, all signs of any kind are prohibited within right-of-way of the Oregon Department of Transportation (ODOT), except those signs that are specifically determined by ODOT to be necessary for the public's health, safety, or welfare. The City may assist the State in the removal of signs that are illegally placed within ODOT right-of-way, as provided above for signs in City right-of-way. City assistance is justified in view of the substantial public investment that has recently been made to improve and beautify both freeway interchange areas north of the Willamette River.

**Section 4.156.11. Sign Enforcement.**

- (.01) General. Any person who places a sign that requires a permit under this section, and who fails to obtain a permit before installing the sign, shall be subject to penalties and fines as established in Wilsonville Code 4.025.
- (.02) Removal of Signs. Any sign placed on public property in violation of the provisions of this Code shall be immediately removed by the City. As soon thereafter as reasonable, the City shall notify the owner or the owner's representative that the sign has been removed, and that if the sign is not claimed within ten (10) days, the sign will be deemed abandoned and subject to disposal by the City. The City shall have no responsibility to contact the owner of the sign if the owner's name, address, and telephone number are not clearly indicated on the sign and shall dispose of the sign ten days after its removal by the City. The City Council may establish fees to be collected at the time of releasing impounded signs in order to cover the City's costs in collecting, storing, and returning these signs and administering the sign removal program.
- (.03) Civil Enforcement. Any sign which is intentionally placed in violation of the provisions of this code after the owner of the sign has been notified of the initial sign removal and reason for its removal, shall subject the owner to a civil violation not to exceed \$100.00 as and for a civil fine for each day that a violation continues to exist.
- (.04) Additional enforcement. The remedies described herein are not exclusive and may be used in addition to those prescribed elsewhere in the Wilsonville Code, including Sections 1.012 and 1.013, Violations, and 6.200 through 6.620, Nuisances. The City Attorney may use any enforcement process available at law or equity, including but not limited to, seeking injunctive relief, equitable relief, damages, or fines for violations.

<u>Sign Location Description</u>		<u>Lawn Signs</u> [see WC 4.156.05 (.02) I.]	<u>Rigid Signs</u> [see WC 4.156.05 (.02) J.]	<u>Maximum Combined Lawn and Rigid Signs</u>
<b>Part 1. General Allowances for Lawn and Rigid Signs</b>				
Residential or Agriculture zoned lots. <sup>1</sup>	Area per sign face	6 sq. ft.	6 sq. ft.	
	Exempt at one time	3 signs per lot	1 sign per lot	<i>3 signs per lot</i>
Commercial, Industrial, or Public Facility zoned lots. <sup>2</sup>	Area per sign face	6 sq. ft.	32 sq. ft.	
	Exempt at one time	3 signs per lot	1 sign per lot, plus 1 additional sign if the lot is more than 3 acres in area or has multiple street frontages	<i>3 signs per lot, plus 1 additional rigid sign if the lot is more than 3 acres in area or has multiple street frontages.</i>
<b>Part 2. Additional Special Allowances for Rigid Signs<sup>3</sup></b>				
Lots with <i>active</i> commercial, industrial, public facility, or multi-family construction projects. <sup>4</sup>	Area per sign face		64 sq. ft.	
	Exempt at one time		1 sign per lot	
Residential or Agriculture tracts of land in excess of 5 acres or recorded residential subdivisions with more than 25% of the lots remaining unsold and undeveloped.	Area per sign face		32 sq. ft.	
	Exempt at one time		1 sign per qualifying tract or subdivision	
<p><sup>1</sup> Residential and Agriculture zones include all PDR (Planned Development Residential) zones, along with the R (Residential), RA-H (Residential Agriculture-Holding) zone, and any county-zoned land within Wilsonville City limits. In addition, lots not zoned Residential, but designated exclusively for residential use in an approved Master Plan, shall be considered residentially-zoned for the purposes of this table. This includes residential lots and in the Village Zone.</p> <p><sup>2</sup> Commercial, Industrial, Public Facility zones include all PDC (Planned Development Commercial), PDI (Planned Development Industrial), and PF (Public Facility) zones. In addition, lots zoned</p>				



Village, but designated for commercial, mixed-use, or publically-owned use in an approved Master Plan, shall fall under this description category for the purposes of this table.

<sup>3</sup> Sign allowances in Part 2 are in addition to the allowances and maximums in Part 1.

<sup>4</sup> An active construction project means a construction project for which any required building permits have been obtained and for which the City Building Official has not approved building occupancy. When the Building Official issues a temporary Certificate of Occupancy, the construction project shall be considered active until a permanent Certificate of Occupancy is issued. Active construction projects involving churches, private schools, or other non-single-family uses are included in this description.

**Table S-1: Exempt Lawn and Rigid Sign Allowances**

**Figure 30: Lighting Overlay Zone Map**

**Section 4.171. General Regulations - Protection of Natural Features and Other Resources.**

- (.01) **Purpose.** It is the purpose of this Section to prescribe standards and procedures for the use and development of land to assure the protection of valued natural features and cultural resources. The requirements of this Section are intended to be used in conjunction with those of the Comprehensive Plan and other zoning standards. It is further the purpose of this Section:
- A. To protect the natural environmental and scenic features of the City of Wilsonville.
  - B. To encourage site planning and development practices which protect and enhance natural features such as riparian corridors, streams, wetlands, swales, ridges, rock outcroppings, views, large trees and wooded areas.
  - C. To provide ample open space and to create a constructed environment capable and harmonious with the natural environment.

**Applicant's Response:**

**Applicant proposes a site plan that meets required programming for use while protecting existing natural resources to the greatest extent practical. This includes protecting and limiting all disturbance outside of natural features. A soft-surface trail and new native landscaping is proposed to create an environment that is harmonious with the natural environment.**

(.02) **General Terrain Preparation:**

- A. All developments shall be planned, designed, constructed and maintained with maximum regard to natural terrain features and topography, especially hillside areas, floodplains, and other significant landforms.
- B. All grading, filling and excavating done in connection with any development shall be in accordance with the Uniform Building Code
- C. In addition to any permits required under the Uniform Building Code, all developments shall be planned, designed, constructed and maintained so as to:
  1. Limit the extent of disturbance of soils and site by grading, excavation and other land alterations.
  2. Avoid substantial probabilities of: (1) accelerated erosion; (2) pollution, contamination, or siltation of lakes, rivers, streams and wetlands; (3) damage to vegetation; (4) injury to wildlife and fish habitats.
  3. Minimize the removal of trees and other native vegetation that stabilize hillsides, retain moisture, reduce erosion, siltation and nutrient runoff, and preserve the natural scenic character.

**Applicant's Response:**

**Applicant proposes a project design and grading layout that works in harmony with the existing ground as much as possible. All grading will be in compliance with the UBC and Public Works standards. Erosion control and stormwater management are provided to reduce erosion and downstream impacts.**

(.03) Hillsides: All developments proposed on slopes greater than 25% shall be limited to the extent that:

- A. An engineering geologic study approved by the City, establishes that the site is stable for the proposed development, and any conditions and recommendations based on the study are incorporated into the plans and construction of the development. The study shall include items specified under subsection 4.171(.07)(A.)(2.)( a-j):
- B. Slope stabilization and re-vegetation plans shall be included as part of the applicant's landscape plans.
- C. Buildings shall be clustered to reduce alteration of terrain and provide for preservation of natural features.
- D. Creation of building sites through mass pad grading and successive padding or terracing of building sites shall be avoided where feasible.
- E. Roads shall be of minimum width, with grades consistent with the City's Public Works Standards.
- F. Maintenance, including re-vegetation, of all grading areas is the responsibility of the developer, and shall occur through October 1 of the second growing season following receipt of Certificates of Occupancy unless a longer period is approved by the Development Review Board.
- G. The applicant shall obtain an erosion and sediment control permit from the City's Building and Environmental Services Division's.

**Applicant's Response:**

**This project is not located within a hillside development location and no slopes are greater than 25% within the development area.**

(.04) Trees and Wooded Areas.

- A. All developments shall be planned, designed, constructed and maintained so that:

1. Existing vegetation is not disturbed, injured, or removed prior to site development and prior to an approved plan for circulation, parking and structure location.
  2. Existing wooded areas, significant clumps/groves of trees and vegetation, and all trees with a diameter at breast height of six inches or greater shall be incorporated into the development plan and protected wherever feasible.
  3. Existing trees are preserved within any right-of-way when such trees are suitably located, healthy, and when approved grading allows.
- B. Trees and woodland areas to be retained shall be protected during site preparation and construction according to City Public Works design specifications, by:
1. Avoiding disturbance of the roots by grading and/or compacting activity.
  2. Providing for drainage and water and air filtration to the roots of trees which will be covered with impermeable surfaces.
  3. Requiring, if necessary, the advisory expertise of a registered arborist/horticulturist both during and after site preparation.
  4. Requiring, if necessary, a special maintenance, management program to insure survival of specific woodland areas of specimen trees or individual heritage status trees.

**Applicant's Response:**

**Applicant proposes a site plan that meets required programming for the use while retaining as much existing natural vegetation and trees as possible. Existing trees and natural vegetation along the natural resource are protected and enhanced with new native plantings. Arborist report and recommendations have been incorporated into the design.**

(.05) High Voltage Powerline Easements and Rights of Way and Petroleum Pipeline Easements:

- A. Due to the restrictions placed on these lands, no residential structures shall be allowed within high voltage powerline easements and rights of way and petroleum pipeline easements, and any development, particularly residential, adjacent to high voltage powerline easements and rights of way and petroleum pipeline easements shall be carefully reviewed.
- B. Any proposed non-residential development within high voltage powerline easements and rights of way and petroleum pipeline easements shall be coordinated with and approved by the Bonneville Power Administration, Portland General Electric Company or other appropriate utility, depending on the easement or right of way ownership.

**Applicant's Response:**

**This project does contain high voltage or petroleum pipeline easements.**

(.06) Hazards to Safety: Purpose:

- A. To protect lives and property from natural or human-induced geologic or hydrologic hazards and disasters.
- B. To protect lives and property from damage due to soil hazards.
- C. To protect lives and property from forest and brush fires.
- D. To avoid financial loss resulting from development in hazard areas.

**Applicant's Response:**

**Applicant will comply with all requirements to protect health and human safety.**

(.07) Standards for Earth Movement Hazard Areas:

- A. No development or grading shall be allowed in areas of land movement, slump or earth flow, and mud or debris flow, except under one of the following conditions:
  - 1. Stabilization of the identified hazardous condition based on established and proven engineering techniques which ensure protection of public and private property. Appropriate conditions of approval may be attached by the City.
  - 2. An engineering geologic study approved by the City establishing that the site is stable for the proposed use and development. The study shall include the following:
    - a. Index map.
    - b. Project description, to include: location; topography, drainage, vegetation; discussion of previous work; and discussion of field exploration methods.
    - c. Site geology, to include: site geologic map; description of bedrock and superficial materials including artificial fill; location of any faults, folds, etc.; and structural data including bedding, jointing, and shear zones.
    - d. Discussion and analysis of any slope stability problems.
    - e. Discussion of any off-site geologic conditions that may pose a potential hazard to the site or that may be affected by on-site development.
    - f. Suitability of site for proposed development from geologic standpoint.
    - g. Specific recommendations for cut slope stability, seepage and drainage control, or other design criteria to mitigate geologic hazards.
    - h. Supportive data, to include: cross sections showing subsurface structure; graphic logs of subsurface explorations; results of laboratory tests; and references.

- i. Signature and certification number of engineering geologist registered in the State of Oregon.
  - j. Additional information or analyses as necessary to evaluate the site.
- B. Vegetative cover shall be maintained or established for stability and erosion control purposes.
- C. Diversion of storm water into these areas shall be prohibited.
- D. The principal source of information for determining earth movement hazards is the State Department of Geology and Mineral Industries (DOGAMI) Bulletin 99 and any subsequent bulletins and accompanying maps. Approved site specific engineering geologic studies shall be used to identify the extent and severity of the hazardous conditions on the site, and to update the earth movement hazards database.

**Applicant's Response:**

**Applicant has designed a grading and erosion control plan that minimizes erosion and runoff during construction. A DEQ 1200-C permit will be obtained. The project's development does not occur in a hazard area for land movements or debris flow. Vegetation is maintained and established through thoughtful landscaping and stormwater is managed for the site using low-impact vegetated development approaches.**

(.08) Standards for Soil Hazard Areas:

- A. Appropriate siting and design safeguards shall insure structural stability and proper drainage of foundation and crawl space areas for development on land with any of the following soil conditions: wet or high water table; high shrink-swell capability; compressible or organic; and shallow depth-to-bedrock.
- B. The principal source of information for determining soil hazards is the State DOGAMI Bulletin 99 and any subsequent bulletins and accompanying maps. Approved site-specific soil studies shall be used to identify the extent and severity of the hazardous conditions on the site, and to update the soil hazards database accordingly.

**Applicant's Response:**

**The project is not located within a soil hazard area.**

(.09) Historic Protection: Purpose:

- A. To preserve structures, sites, objects, and areas within the City of Wilsonville having historic, cultural, or archaeological significance.

B. Standards:

1. All developments shall be planned, designed, constructed, and maintained to assure protection of any designated historic or cultural resource on or near the site. Restrictions on development may include:
  - a. Clustering of buildings and incorporation of historic and/or cultural resources into site design in a manner compatible with the character of such resource.
  - b. Limitations on site preparation and grading to avoid disturbance of areas within any historic or archaeological sites, monuments or objects of antiquity.
  - c. Provision of adequate setbacks and buffers between the proposed development and the designated resources.
2. The city may attach additional conditions with respect to the following design factors in protecting the unique character of historic/cultural resources:
  - a. Architectural compatibility;
  - b. Proposed intensity of development;
  - c. Relationship to designated open space;
  - d. Vehicular and pedestrian access; and
  - e. Proposed building or structural mass in relation to the designated resource.

C. Review Process:

1. The Development Review Board shall be the review body for:
  - a. All development which proposes to alter a designated historic, or cultural resource or resource site; and
  - b. All development which proposes to use property adjacent to a designated cultural resource; and
  - c. All applications requesting designation of a cultural or historic resource
2. The application shall include the following:
  - a. A complete list of exterior materials, including color of these materials.
  - b. Drawings:
    - i. Side elevation for each side of any affected structure.
    - ii. Drawings shall show dimensions or be to scale.
    - iii. Photographs may be used as a substitute for small projects.
  - c. Plot plans shall be submitted for new structures, fences, additions exceeding fifty (50) square feet, or any building relocation.
3. Any improvement proposed for property adjacent to a designated, cultural or historic resource site, shall be subject to the following provisions:
  - a. All uses and structures which are incompatible with the character of the cultural or historic resource are prohibited. The criteria used to determine incompatibility shall include the following:

- i. The intensity and type of use when compared with the historic use patterns of the areas.
    - ii. The orientation, setback, alignment, spacing and placement of buildings.
    - iii. The scale, proportions, roof forms, and various architectural features of building design.
  - b. Setbacks may be required which are over and above those required in the base zone in order to protect the resource. Setbacks should be appropriate to the scale and function of the resource, but allow reasonable use of the adjacent property.
  - c. An appropriate buffer or screen may be required between the new or converting use on the adjacent property and the resource.
4. Nothing in this chapter shall be construed to prevent the ordinary maintenance or repair of any exterior architectural feature in or on any property covered by this chapter that does not involve a change in design, material or external reconstruction thereof, nor does this Code prevent the construction, reconstruction, alteration, restoration, demolition or removal of any such feature when the Building Official certifies to the Development Review Board that such action is required for the public safety due to an unsafe or dangerous condition which cannot be rectified through the use of acceptable building practices.
  5. The owner, occupant or other person in actual charge of a cultural resource, or an improvement, building or structure in an historic district shall keep in good repair all of the exterior portions of such improvement, building or structure, all of the interior portions thereof when subject to control as specified in the designating ordinance or permit, and all interior portions thereof whose maintenance is necessary to prevent deterioration and decay or any exterior architectural feature.

**Applicant's Response:**

**The project is not located within, nor contains, any type of historic structures or preservation.**

(.10) Alteration and Development Criteria:

- A. Demolition or alteration of any structure, or any change in any site or object which has been designated as a cultural resource, is prohibited unless it is determined:
  1. In the case of a designated cultural resource, the proposed work would not detrimentally alter, destroy or adversely affect any exterior architectural or other identified feature; or
  2. In the case of any property located within a historic district, the proposed construction, removal, rehabilitation, alteration, remodeling, excavation or



exterior alteration conforms to any prescriptive standards as adopted by the City, and does not adversely affect the character of the district; or

3. In the case of construction of a new improvement, building or structure upon a cultural resource site, the exterior of such improvements will not adversely affect and will be compatible with the external appearance of existing designated improvements, buildings and structures on said site; or
4. That no reasonable use can be made of the property without such approval.

**Applicant's Response:**

**The project does not propose to demolish any existing structures.**

(.11) Cultural Resource Designation Criteria: A cultural resource may be designated and placed on the Cultural Resources Inventory if it meets the following criteria:

- A. It exemplifies or reflects special elements of the City's cultural, social, economic, political, aesthetic, engineering or architectural history; or
- B. It is identified with persons or events significant in local, state, or national history; or
- C. It embodies distinctive characteristics of a style, type, period, or method of construction, or it is a valuable example of the use of indigenous materials or craftsmanship; or
- D. It is representative of the notable work of a builder, designer, or architect.

**Section 4.175. Public Safety and Crime Prevention.**

- (.01) All developments shall be designed to deter crime and insure public safety.

**Applicant's Response:**

**The proposed development is designed, to a reasonable extent to deter crime and ensure public safety. Some of the security provisions included in the development include security perimeter fencing for the operations yard, security cameras, electronic access controls, and dedicated staff and visitor parking areas.**

- (.02) Addressing and directional signing shall be designed to assure identification of all buildings and structures by emergency response personnel, as well as the general public.

**Applicant's Response:**

**The proposed development includes addressing and directional signage to identify all buildings by emergency response personnel and the general public.**

- (.03) Areas vulnerable to crime shall be designed to allow surveillance. Parking and loading areas shall be designed for access by police in the course of routine patrol duties.

**Applicant's Response:**

**The proposed development is designed, to a reasonable extent to deter crime and ensure public safety. The areas within the development have designed to allow surveillance and access by police during routine patrol duties.**

- (.04) Exterior lighting shall be designed and oriented to discourage crime.

**Applicant's Response:**

**The proposed development includes adequate site and exterior building lighting designed and oriented to discourage crime to the extent possible.**

**Section 4.176. Landscaping, Screening, and Buffering.**

*Note: the reader is encouraged to see Section 4.179, applying to screening and buffering of storage areas for solid waste and recyclables.*

(.01) Purpose. This Section consists of landscaping and screening standards and regulations for use throughout the City. The regulations address materials, placement, layout, and timing of installation. The City recognizes the ecological and economic value of landscaping and requires the use of landscaping and other screening or buffering to:

A. Promote the re-establishment of vegetation for aesthetic, health, erosion control, flood control and wildlife habitat reasons;

**Applicant's Response:**

**Vegetation will be re-established. Planting will include Trees, shrubs, groundcover and grasses to re-establish plantings for aesthetic, health, erosion control, flood control and wildlife habitat.**

B. Restore native plant communities and conserve irrigation water through establishment, or re-establishment, of native, drought-tolerant plants;

**Applicant's Response:**

**Native and/or drought tolerant trees, shrubs, groundcover and grasses will be used in stormwater treatment areas and SROZ areas.**

C. Mitigate for loss of native vegetation;

**Applicant's Response:**

**Native trees, shrubs, groundcover and grasses will be used in stormwater treatment areas and SROZ areas to help mitigate the loss of native species.**

D. Establish and enhance a pleasant visual character which recognizes aesthetics and safety issues;

**Applicant's Response:**

**Landscaping will be used to establish and enhance visual character of the site by softening and screening hardscape and storage areas. Safety will be addressed by adhering to vision clearance standards by using low growing grasses, shrubs and groundcover.**

- E. Promote compatibility between land uses by reducing the visual, noise, and lighting impacts of specific development on users of the site and abutting sites or uses;

**Applicant's Response:**

**Visual, noise, and lighting impacts to abutting sites will be reduced through a fully sight-obscuring perimeter fence. Landscaping to the south and east property lines will add additional visual, noise and lighting impact mitigation.**

- F. Unify development and enhance and define public and private spaces;

**Applicant's Response:**

**Public and private use will be enhanced using trees, shrubs and groundcover to soften hardscape. Public and private space will be delineated by a fully sight-obscuring chain link fence and ornamental fence.**

- G. Promote the retention and use of existing topsoil and vegetation.  
Amended soils benefit stormwater retention and promote infiltration;

**Applicant's Response:**

**Topsoil will be stockpiled, amended and re-used. Existing vegetation will be retained whenever possible. On site stormwater treatment and infiltration is proposed.**

- H. Aid in energy conservation by providing shade from the sun and shelter from the wind; and

**Applicant's Response:**

**Numerous canopy trees are proposed to provide shade and shelter.**

- I. Screen from public view the storage of materials that would otherwise be considered unsightly.

**Applicant's Response:**

**Storage areas will be screened using a 6' tall fully sight-obscuring fence.**

- J. Support crime prevention, create proper sight distance clearance, and establish other safety factors by effective landscaping and screening.

**Applicant's Response:**

**Crime prevention will be achieved primarily through using a 6' tall fully sight-obscuring fence. Safety will be addressed by adhering to vision clearance standards with low grasses, shrubs and groundcovers.**

- K. Provide landscaping materials that minimize the need for excessive use of fertilizers, herbicides and pesticides, irrigation, pruning, and mowing to conserve and protect natural resources, wildlife habitats, and watersheds.

**Applicant's Response:**

**Native and/or drought tolerant trees, shrubs, groundcover and grasses are proposed throughout the site and will be used in stormwater treatment areas and SROZ areas to minimize excessive use of fertilizers, herbicides and pesticides, irrigation, pruning, and mowing to conserve and protect natural resources, wildlife habitats, and watersheds.**

(.02) Landscaping and Screening Standards.

- A. Subsections "C" through "I," below, state the different landscaping and screening standards to be applied throughout the City. The locations where the landscaping and screening are required and the depth of the landscaping and screening is stated in various places in the Code.
- B. All landscaping and screening required by this Code must comply with all of the provisions of this Section, unless specifically waived or granted a Variance as otherwise provided in the Code. The landscaping standards are minimum requirements; higher standards can be substituted as long as fence and vegetation-height limitations are met. Where the standards set a minimum based on square footage or linear footage, they shall be interpreted as applying to each complete or partial increment of area or length (e.g., a landscaped area of between 800 and 1600 square feet shall have two trees if the standard calls for one tree per 800 square feet).
- C. General Landscaping Standard.
  - 1. Intent. The General Landscaping Standard is a landscape treatment for areas that are generally open. It is intended to be applied in situations where distance is used as the principal means of separating uses or developments and landscaping is required to enhance the intervening

space. Landscaping may include a mixture of ground cover, evergreen and deciduous shrubs, and coniferous and deciduous trees.

2. Required materials. Shrubs and trees, other than street trees, may be grouped. Ground cover plants must fully cover the remainder of the landscaped area (see Figure 21: General Landscaping). The General Landscaping Standard has two different requirements for trees and shrubs:
  - a. Where the landscaped area is less than 30 feet deep, one tree is required for every 30 linear feet.
  - b. Where the landscaped area is 30 feet deep or greater, one tree is required for every 800 square feet and two high shrubs or three low shrubs are required for every 400 square feet.

**Applicant's Response:**

**A combination of trees, shrubs and grasses is proposed to comply with the General Landscaping Standard. Groundcovers are proposed for the remaining areas. Trees will be spaced a maximum of 30' O.C. except for areas 30' deep or greater, where 1 tree/800 sf is proposed. The shrub requirement for these larger areas will also comply with the Standard.**

D. Low Screen Landscaping Standard.

1. Intent. The Low Screen Landscaping Standard is a landscape treatment that uses a combination of distance and low screening to separate uses or developments. It is intended to be applied in situations where low screening is adequate to soften the impact of one use or development on another, or where visibility between areas is more important than a total visual screen. The Low Screen Landscaping Standard is usually applied along street lot lines or in the area separating parking lots from street rights-of-way.
2. Required materials. The Low Screen Landscaping Standard requires sufficient low shrubs to form a continuous screen three (3) feet high and 95% opaque, year-round. In addition, one tree is required for every 30 linear feet of landscaped area, or as otherwise required to provide a tree canopy over the landscaped area. Ground cover plants must fully cover the remainder of the landscaped area. A three (3) foot high masonry wall or a berm may be substituted for the shrubs, but the trees and ground cover plants are still required. When applied along street lot lines, the screen or wall is to be placed along the interior side of the landscaped area. (See Figure 22: Low Screen Landscaping).

**Applicant's Response:**

**A combination of trees, shrubs and grasses is proposed to comply with**

**the Low Screen Landscaping Standard. Groundcovers are proposed for the remaining areas. Trees will be spaced a maximum of 30' O.C. This Standard will be applied to parking lot areas to provide screening from street rights-of-way.**

E. Low Berm Landscaping Standard.

1. Intent. The Low Berm Standard is intended to be applied in situations where moderate screening to reduce both visual and noise impacts is needed to protect abutting uses or developments from one-another, and where it is desirable and practical to provide separation by both distance and sight-obscuring materials. This screening is most important where either, or both, of the abutting uses or developments can be expected to be particularly sensitive to noise or visual impacts.
2. Required materials. The Low Berm Standard requires a berm at least two feet six inches (2' 6") high along the interior side of the landscaped area (see Figure 23: Low Berm Landscaping). If the berm is less than three (3) feet high, low shrubs meeting the Low Screen Landscaping Standard, above, are to be planted along the top of the berm, assuring that the screen is at least three (3) feet in height. In addition, one tree is required for every 30 linear feet of berm, or as otherwise required to provide a tree canopy over the landscaped area. Ground cover plants must fully cover the remainder of the landscaped area.

**Applicant's Response:**

**The Low Berm Standard will not be used in this application.**

F. High Screen Landscaping Standard.

1. Intent. The High Screen Landscaping Standard is a landscape treatment that relies primarily on screening to separate uses or developments. It is intended to be applied in situations where visual separation is required.
2. Required materials. The High Screen Landscaping Standard requires sufficient high shrubs to form a continuous screen at least six (6) feet high and 95% opaque, year-round. In addition, one tree is required for every 30 linear feet of landscaped area, or as otherwise required to provide a tree canopy over the landscaped area. Ground cover plants must fully cover the remainder of the landscaped area. A six (6) foot high masonry wall or a berm may be substituted for the shrubs, but the trees and ground cover plants are still required. When applied along street lot lines, the screen or wall is to be placed along the interior side of the landscaped area. (See Figure 24: High Screen Landscaping).

G. High Wall Standard.

1. Intent. The High Wall Standard is intended to be applied in situations where extensive screening to reduce both visual and noise impacts is needed to protect abutting uses or developments from one-another. This screening is most important where either, or both, of the abutting uses or developments can be expected to be particularly sensitive to noise or visual impacts, or where there is little space for physical separation.
2. Required materials. The High Wall Standard requires a masonry wall at least six (6) feet high along the interior side of the landscaped area (see Figure 25: High Wall Landscaping). In addition, one tree is required for every 30 linear feet of wall, or as otherwise required to provide a tree canopy over the landscaped area. Ground cover plants must fully cover the remainder of the landscaped area.

**Applicant's Response:**

**The High Wall Standard will not be used in this application.**

H. High Berm Standard.

1. Intent. The High Berm Standard is intended to be applied in situations where extensive screening to reduce both visual and noise impacts is needed to protect abutting uses or developments from one-another, and where it is desirable and practical to provide separation by both distance and sight-obscuring materials. This screening is most important where either, or both, of the abutting uses or developments can be expected to be particularly sensitive to noise or visual impacts.
2. Required materials. The High Berm Standard requires a berm at least four (4) feet high along the interior side of the landscaped area (see Figure 26: High Berm Landscaping). If the berm is less than six (6) feet high, low shrubs meeting the Low Screen Landscaping Standard, above, are to be planted along the top of the berm, assuring that the screen is at least six (6) feet in height. In addition, one tree is required for every 30 linear feet of berm, or as otherwise required to provide a tree canopy over the landscaped area. Ground cover plants must fully cover the remainder of the landscaped area.

**Applicant's Response:**

**The High Berm Standard will not be used in this application.**

I. Partially Sight-Obscuring Fence Standard.

1. Intent. The Partially Sight-Obscuring Fence Standard is intended to provide a tall, but not totally blocked, visual separation. The standard is applied where a low level of screening is adequate to soften the impact



of one use or development on another, and where some visibility between abutting areas is preferred over a total visual screen. It can be applied in conjunction with landscape plantings or applied in areas where landscape plantings are not necessary and where nonresidential uses are involved.

2. Required materials. Partially Sight-Obscuring Fence Standard are to be at least six (6) feet high and at least 50% sight-obscuring. Fences may be made of wood (other than plywood or particle-board), metal, bricks, masonry or other permanent materials (see Figure 27: Partially Sight-Obscuring Fence).

**Applicant's Response:**

**The Partially Sight-Obscuring Fence Standard will not be used in this application.**

J. Fully Sight-Obscuring Fence Standard.

1. Intent. The Fully Sight-Obscuring Fence Standard is intended to provide a totally blocked visual separation. The standard is applied where full visual screening is needed to reduce the impact of one use or development on another. It can be applied in conjunction with landscape plantings or applied in areas where landscape plantings are not necessary.
2. Required materials. Fully sight-obscuring fences are to be at least six (6) feet high and 100% sight-obscuring. Fences may be made of wood (other than plywood or particle-board), metal, bricks, masonry or other permanent materials (see Figure 28: Totally Sight-Obscuring Fence).

**Applicant's Response:**

**The fully sight-obscuring fence standard will be used to meet screening standard for the storage area. The fence will be a 6' tall chain link metal fence with HDPE privacy slats to provide a minimum 90% sight-obscuring.**

- (.03) Landscape Area. Not less than fifteen percent (15%) of the total lot area, shall be landscaped with vegetative plant materials. The ten percent (10%) parking area landscaping required by section 4.155.03(B)(1) is included in the fifteen percent (15%) total lot landscaping requirement. Landscaping shall be located in at least three separate and distinct areas of the lot, one of which must be in the contiguous frontage area. Planting areas shall be encouraged adjacent to structures. Landscaping shall be used to define, soften or screen the appearance of buildings and off-street parking areas. Materials to be installed shall achieve a balance between various plant forms, textures, and heights. The installation of native plant materials shall be used whenever practicable. (For

recommendations refer to the Native Plant List maintained by the City of Wilsonville).

**Applicant's Response:**

**The proposed development (322,726 SF) will exceed the 15% requirement, providing 31% landscaping (101,506 SF). Of the 13,830 SF of parking area, 37% (5,100 SF) will be landscaped. Plantings are proposed along the entire frontage of SW Boberg Road to soften the appearance of the new building, as well as the parking areas of the site. The landscaping will be a combination of trees, shrubs, groundcover and grasses from parking areas, general landscape areas, storm water treatment areas and SROZ areas.**

- (.04) Buffering and Screening. Additional to the standards of this subsection, the requirements of the Section 4.137.5 (Screening and Buffering Overlay Zone) shall also be applied, where applicable.
- A. All intensive or higher density developments shall be screened and buffered from less intense or lower density developments.
  - B. Activity areas on commercial and industrial sites shall be buffered and screened from adjacent residential areas. Multi-family developments shall be screened and buffered from single-family areas.
  - C. All exterior, roof and ground mounted, mechanical and utility equipment shall be screened from ground level off-site view from adjacent streets or properties.
  - D. All outdoor storage areas shall be screened from public view, unless visible storage has been approved for the site by the Development Review Board or Planning Director acting on a development permit.
  - E. In all cases other than for industrial uses in industrial zones, landscaping shall be designed to screen loading areas and docks, and truck parking.
  - F. In any zone any fence over six (6) feet high measured from soil surface at the outside of fenceline shall require Development Review Board approval.

**Applicant's Response:**

**The sight-obscuring fence standard will be used to meet screening standard for the storage area. The fence will be a 6' tall chain link metal fence with HDPE privacy slats to provide a minimum 90% sight-obscuring.**

- (.05) Sight-Obscuring Fence or Planting. The use for which a sight-obscuring fence or planting is required shall not begin operation until the fence or planting is erected

or in place and approved by the City. A temporary occupancy permit may be issued upon a posting of a bond or other security equal to one hundred ten percent (110%) of the cost of such fence or planting and its installation. (See Sections 4.400 to 4.470 for additional requirements.)

**Applicant's Response:**

**The sight-obscuring fence standard will be used to meet screening standard for the storage area. The fence will be a 6' tall chain link metal fence with HDPE privacy slats to provide a minimum 90% sight obscuring. The fence will be installed prior to occupancy.**

(.06) Plant Materials.

A. Shrubs and Ground Cover. All required ground cover plants and shrubs must be of sufficient size and number to meet these standards within three (3) years of planting. Non-horticultural plastic sheeting or other impermeable surface shall not be placed under mulch. Native topsoil shall be preserved and reused to the extent feasible. Surface mulch or bark dust are to be fully raked into soil of appropriate depth, sufficient to control erosion, and are confined to areas around plantings. Areas exhibiting only surface mulch, compost or barkdust are not to be used as substitutes for plant areas. [Amended by Ord. # 674 11/16/09]

1. Shrubs. All shrubs shall be well branched and typical of their type as described in current AAN Standards and shall be equal to or better than 2-gallon containers and 10" to 12" spread.

**Applicant's Response:**

**All shrubs will be 2-gallon minimum with 12" minimum spread. Native topsoil will be reused and amended as necessary for optimal plant growth. All new plantings areas will be mulched to reduce weed growth and retain soil moisture.**

2. Ground cover. Shall be equal to or better than the following depending on the type of plant materials used: gallon containers spaced at 4 feet on center minimum, 4" pot spaced 2 feet on center minimum, 2-1/4" pots spaced at 18 inch on center minimum. No bare root planting shall be permitted. Ground cover shall be sufficient to cover at least 80% of the bare soil in required landscape areas within three (3) years of planting. Where wildflower seeds are designated for use as a ground cover, the City may require annual re-seeding as necessary.

**Applicant's Response:**

**Proposed groundcover is 1 gallon minimum with 24" - 30" spread. Native topsoil will be reused and amended as necessary for optimal plant growth. All new plantings areas will be mulched to reduce weed growth and retain soil moisture.**

3. Turf or lawn in non-residential developments. Shall not be used to cover more than ten percent (10%) of the landscaped area, unless specifically approved based on a finding that, due to site conditions and availability of water, a larger percentage of turf or lawn area is appropriate. Use of lawn fertilizer shall be discouraged. Irrigation drainage runoff from lawns shall be retained within lawn areas.

**Applicant's Response:**

**The development proposes 4417 sf of lawn, 4% of the proposed total landscaped area.**

4. Plant materials under trees or large shrubs. Appropriate plant materials shall be installed beneath the canopies of trees and large shrubs to avoid the appearance of bare ground in those locations.

**Applicant's Response:**

**Groundcover and ornamental grasses will be planted under the proposed trees. The existing tree root zones will be protected.**

5. Integrate compost-amended topsoil in all areas to be landscaped, including lawns, to help detain runoff, reduce irrigation and fertilizer needs, and create a sustainable, low-maintenance landscape. [Added by Ord. # 674 11/16/09]

**Applicant's Response:**

**Stockpiled existing topsoil will be amended with a minimum of 4" of compost prior to planting per general planting notes.**

- B. Trees. All trees shall be well-branched and typical of their type as described in current American Association of Nurserymen (AAN) Standards and shall be balled and burlapped. The trees shall be grouped as follows:
  1. Primary trees which define, outline or enclose major spaces, such as Oak, Maple, Linden, and Seedless Ash, shall be a minimum of 2" caliper.
  2. Secondary trees which define, outline or enclose interior areas, such as

Columnar Red Maple, Flowering Pear, Flame Ash and Honeylocust, shall be a minimum of 1-3/4" to 2" caliper.

3. Accent trees which, are used to add color, variation and accent to architectural features, such as Flowering Pear and Kousa Dogwood, shall be 1-3/4" minimum caliper.
4. Large conifer trees such as Douglas Fir or Deodar Cedar shall be installed at a minimum height of eight (8) feet.
5. Medium-sized conifers such as Shore Pine, Western Red Cedar or Mountain Hemlock shall be installed at a minimum height of five to six (5 to 6) feet.

**Applicant's Response:**

**Proposed trees will be a minimum of 2" caliper for deciduous trees and 8' height for conifers.**

- C. Where a proposed development includes buildings larger than twenty-four (24) feet in height or greater than 50,000 square feet in footprint area, the Planning Director or the Development Review Board, as applicable, may require larger or more mature plant materials: [Section 4.176 Section (.06) amended per Ordinance No. 812, 02/22/18]
  1. At maturity, proposed trees shall be at least one-half the height of the building to which they are closest, and building walls longer than 50 feet shall require tree groups located no more than fifty (50) feet on center, to break up the length and height of the façade.
  2. Either fully branched deciduous or evergreen trees may be specified depending upon the desired results. Where solar access is to be preserved, only solar-friendly deciduous trees are to be used. Where year-round sight obscuring is the highest priority, evergreen trees are to be used.
  3. The following standards are to be applied:
    - a. Deciduous trees:
      - i. Minimum height of ten (10) feet; and
      - ii. Minimum trunk diameter (caliper) of 2 inches (measured at four and one-half [4 1/2] feet above grade).
    - b. Evergreen trees: Minimum height of twelve (12) feet.

**Applicant's Response:**

**The proposed building will be 33 feet tall. 3" caliper Red Oaks and Little Leaf Linden street trees are proposed on the east side of the building along SW Boberg Road. Both trees have a minimum mature height of 50 feet.**

- D. Street Trees. In order to provide a diversity of species, the Development Review Board may require a mix of street trees throughout a development. Unless the Board waives the requirement for reasons supported by a finding in the record, different types of street trees shall be required for adjoining blocks in a development.
1. All trees shall be standard base grafted, well branched and typical of their type as described in current AAN Standards and shall be balled and burlapped (b&b). Street trees shall be planted at sizes in accordance with the following standards:
    - a. Arterial streets - 3" minimum caliper
    - b. Collector streets - 2" minimum caliper.
    - c. Local streets or residential private access drives - 1-3/4" minimum caliper.  
[Amended by Ord. 682, 9/9/10]
    - d. Accent or median tree -1-3/4" minimum caliper.
  2. The following trees and varieties thereof are considered satisfactory street trees in most circumstances; however, other varieties and species are encouraged and will be considered:
    - a. Trees over 50 feet mature height: Quercus garryana (Native Oregon White Oak), Quercus rubra borealis (Red Oak), Acer Macrophyllum (Native Big Leaf Maple), Acer nigrum (Green Column Black Maple), Fraxinus americanus (White Ash), Fraxinus pennsylvannica 'Marshall' (Marshall Seedless Green Ash), Quercus coccinea (Scarlet Oak), Quercus pulustris (Pin Oak), Tilia americana (American Linden).
    - b. Trees under 50 feet mature height: Acer rubrum (Red Sunset Maple), Cornus nuttallii (Native Pacific Dogwood), Gleditsia triacanthos (Honey Locust), Pyrus calleryana 'Bradford' (Bradford Pear), Tilia cordata (Little Leaf Linden), Fraxinus oxycarpa (Flame Ash).
    - c. Other street tree species. Other species may be specified for use in certain situations. For instance, evergreen species may be specified where year-round color is desirable and no adverse effect on solar access is anticipated. Water-loving species may be specified in low locations where wet soil conditions are anticipated.

**Applicant's Response:**

**3" caliper street trees are proposed on the east side of the building along SW Boberg Road. Species include Red Oak and Little Leaf Linden.**

- E. Types of Plant Species.

1. Existing landscaping or native vegetation may be used to meet these standards, if protected and maintained during the construction phase of the development and if the plant species do not include any that have been listed by the City as prohibited. The existing native and non-native vegetation to be incorporated into the landscaping shall be identified.
2. Selection of plant materials. Landscape materials shall be selected and sited to produce hardy and drought-tolerant landscaping. Selection shall be based on soil characteristics, maintenance requirements, exposure to sun and wind, slope and contours of the site, and compatibility with other vegetation that will remain on the site. Suggested species lists for street trees, shrubs and groundcovers shall be provided by the City of Wilsonville.
3. Prohibited plant materials. The City may establish a list of plants that are prohibited in landscaped areas. Plants may be prohibited because they are potentially damaging to sidewalks, roads, underground utilities, drainage improvements, or foundations, or because they are known to be invasive to native vegetation.

**Applicant's Response:**

**Plant species will be native and/or non-invasive plant species. Drought tolerant species will be used in non-irrigated areas.**

F. Tree Credit.

Existing trees that are in good health as certified by an arborist and are not disturbed during construction may count for landscaping tree credit as follows (measured at four and one-half feet above grade and rounded to the nearest inch):

Existing trunk diameter	Number of Tree Credits
18 to 24 inches in diameter	3 tree credits
25 to 31 inches in diameter	4 tree credits
32 inches or greater	5 tree credits

1. It shall be the responsibility of the owner to use reasonable care to maintain preserved trees. Trees preserved under this section may only be removed if an application for removal permit under Section 4.610.10(01)(H) has been approved. Required mitigation for removal shall be replacement with the number of trees credited to the preserved and removed tree.
2. Within five years of occupancy and upon notice from the City, the property owner shall replace any preserved tree that cannot be maintained due to disease or damage, or hazard or nuisance as defined in

Chapter 6 of this code. The notice shall be based on complete information provided by an arborist. Replacement with the number of trees credited shall occur within one (1) growing season of notice.

- G. Exceeding Standards. Landscape materials that exceed the minimum standards of this Section are encouraged, provided that height and vision clearance requirements are met.
- H. Compliance with Standards. The burden of proof is on the applicant to show that proposed landscaping materials will comply with the purposes and standards of this Section. [Amended by Ordinance No. 538, 2/21/02.]

**Applicant's Response:**

**Existing trees to remain are not included in the calculation of required landscape trees.**

(.07) Installation and Maintenance.

- A. Installation. Plant materials shall be installed to current industry standards and shall be properly staked to assure survival. Support devices (guy wires, etc.) shall not be allowed to interfere with normal pedestrian or vehicular movement.

**Applicant's Response:**

**Installation will be done per planting details and will specify staking of trees.**

- B. Maintenance. Maintenance of landscaped areas is the on-going responsibility of the property owner. Any landscaping installed to meet the requirements of this Code, or any condition of approval established by a City decision-making body acting on an application, shall be continuously maintained in a healthy, vital and acceptable manner. Plants that die are to be replaced in kind, within one growing season, unless appropriate substitute species are approved by the City. Failure to maintain landscaping as required in this Section shall constitute a violation of this Code for which appropriate legal remedies, including the revocation of any applicable land development permits, may result.
- C. Irrigation. The intent of this standard is to assure that plants will survive the critical establishment period when they are most vulnerable due to a lack of watering and also to assure that water is not wasted through unnecessary or inefficient irrigation. Approved irrigation system plans shall specify one of the following:



1. A permanent, built-in, irrigation system with an automatic controller. Either a spray or drip irrigation system, or a combination of the two, may be specified.
  2. A permanent or temporary system designed by a landscape architect licensed to practice in the State of Oregon, sufficient to assure that the plants will become established and drought-tolerant.
  3. Other irrigation system specified by a licensed professional in the field of landscape architecture or irrigation system design.
  4. A temporary permit issued for a period of one year, after which an inspection shall be conducted to assure that the plants have become established. Any plants that have died, or that appear to the Planning Director to not be thriving, shall be appropriately replaced within one growing season. An inspection fee and a maintenance bond or other security sufficient to cover all costs of replacing the plant materials shall be provided, to the satisfaction of the Community Development Director. Additionally, the applicant shall provide the City with a written license or easement to enter the property and cause any failing plant materials to be replaced.
- D. Protection. All required landscape areas, including all trees and shrubs, shall be protected from potential damage by conflicting uses or activities including vehicle parking and the storage of materials.

**Applicant's Response:**

**Plantings will be maintained by owner. The landscape design will include a permanent automatic irrigation system to allow plantings to become established and provide supplemental water through periods of drought (summer watering). Plantings in parking areas will be protected with curbs.**

- (.08) Landscaping on Corner Lots. All landscaping on corner lots shall meet the vision clearance standards of Section 4.177. If high screening would ordinarily be required by this Code, low screening shall be substituted within vision clearance areas. Taller screening may be required outside of the vision clearance area to mitigate for the reduced height within it.

**Applicant's Response:**

**This section does not apply, as no high screen is required at the corner of SW Boberg Road and the private access road.**

- (.09) Landscape Plans. Landscape plans shall be submitted showing all existing and proposed landscape areas. Plans must be drawn to scale and show the type,

installation size, number and placement of materials. Plans shall include a plant material list. Plants are to be identified by both their scientific and common names. The condition of any existing plants and the proposed method of irrigation are also to be indicated. Landscape plans shall divide all landscape areas into the following categories based on projected water consumption for irrigation:

- A. High water usage areas (+/- two (2) inches per week): small convoluted lawns, lawns under existing trees, annual and perennial flower beds, and temperamental shrubs;
- B. Moderate water usage areas (+/- one (1) inch per week): large lawn areas, average water-using shrubs, and trees;
- C. Low water usage areas (Less than one (1) inch per week, or gallons per hour): seeded fieldgrass, swales, native plantings, drought-tolerant shrubs, and ornamental grasses or drip irrigated areas.
- D. Interim or unique water usage areas: areas with temporary seeding, aquatic plants, erosion control areas, areas with temporary irrigation systems, and areas with special water-saving features or water harvesting irrigation capabilities.

These categories shall be noted in general on the plan and on the plant material list.

**Applicant's Response:**

**The landscape plans depict all existing and proposed landscape areas including size, number and placement of materials. A plant material list is included. The landscape areas are further divided into high, moderation and low water usage consumption categories. See landscape plans for further information.**

- (.10) Completion of Landscaping. The installation of plant materials may be deferred for a period of time specified by the Board or Planning Director acting on an application, in order to avoid hot summer or cold winter periods, or in response to water shortages.

In these cases, a temporary permit shall be issued, following the same procedures specified in subsection (.07)(C)(3), above, regarding temporary irrigation systems. No final Certificate of Occupancy shall be granted until an adequate bond or other security is posted for the completion of the landscaping, and the City is given written authorization to enter the property and install the required landscaping, in the event that the required landscaping has not been installed. The form of such written authorization shall be submitted to the City Attorney for review.

**Applicant's Response:**

**This development does not propose deferral of plant material installation, therefore this section does not apply.**

- (.11) Street Trees Not Typically Part of Site Landscaping. Street trees are not subject to the requirements of this Section and are not counted toward the required standards of this Section. Except, however, that the Development Review Board may, by granting a waiver or variance, allow for special landscaping within the right-of-way to compensate for a lack of appropriate on-site locations for landscaping. See subsection (.06), above, regarding street trees.

**Applicant's Response:**

**The development proposes new Street Trees along Boberg Rd. that are located with the public right of way and are not counted toward site landscaping requirements. A variance is not being requested for this standard on this development.**

- (.12) Mitigation and Restoration Plantings. A mitigation plan is to be approved by the City's Development Review Board before the destruction, damage, or removal of any existing native plants. Plantings intended to mitigate the loss of native vegetation are subject to the following standards. Where these standards conflict with other requirements of this Code, the standards of this Section shall take precedence. The desired effect of this section is to preserve existing native vegetation.
- A. Plant Sources. Plant materials are to be native and are subject to approval by the City. They are to be non-clonal in origin; seed source is to be as local as possible, and plants must be nursery propagated or taken from a pre-approved transplantation area. All of these requirements are to be addressed in any proposed mitigation plan.
  - B. Plant Materials. The mitigation plan shall specify the types and installation sizes of plant materials to be used for restoration. Practices such as the use of pesticides, fungicides, and fertilizers shall not be employed in mitigation areas unless specifically authorized and approved.
  - C. Installation. Install native plants in suitable soil conditions. Plant materials are to be supported only when necessary because of extreme winds at the site. Where support is necessary, all stakes, guy wires or other measures are to be removed as soon as the plants can support themselves. Protect from animal and fowl predation and foraging until establishment.
  - D. Irrigation. Permanent irrigation systems are generally not appropriate in restoration situations, and manual or temporary watering of new plantings is often necessary. The mitigation plan shall specify the method and frequency of manual watering, including any that may be necessary after the first growing season.

- E. Monitoring and Reporting. Monitoring of native landscape areas is the ongoing responsibility of the property owner. Plants that die are to be replaced in kind and quantity within one year. Written proof of the survival of all plants shall be required to be submitted to the City's Planning Department one year after the planting is completed.

**Applicant's Response:**

**Tree mitigation will apply to this project. Plant materials in and adjacent to the SROZ will be native and sourced from local nurseries. The SROZ area will have temporary irrigation. The owner will maintain the mitigation trees as part of the ongoing landscape maintenance for the site.**

**Section 4.177. Street Improvement Standards.**

This section contains the City's requirements and standards for pedestrian, bicycle, and transit facility improvements to public streets, or within public easements. The purpose of this section is to ensure that development, including redevelopment, provides transportation facilities that are safe, convenient, and adequate in rough proportion to their impacts.

- (.01) Development and related public facility improvements shall comply with the standards in this section, the Wilsonville Public Works Standards, and the Transportation System Plan, in rough proportion to the potential impacts of the development. Such improvements shall be constructed at the time of development or as provided by Section 4.140, except as modified or waived by the City Engineer for reasons of safety or traffic operations.

**Applicant's Response:**

**Applicant will comply with Wilsonville Public Works Standards and the City's Transportation System Plan (TSP). The development's frontage along Boberg Rd is already in compliance with the City's TSP for a Collector roadway and no new public roadway improvement are proposed.**

(.02) Street Design Standards.

- A. All street improvements and intersections shall provide for the continuation of streets through specific developments to adjoining properties or subdivisions.
1. Development shall be required to provide existing or future connections to adjacent sites through the use of access easements where applicable. Such easements shall be required in addition to required public street dedications as required in Section 4.236(.04)

**Applicant's Response:**

**No existing or future street connections are within or adjacent to this development and no new street connections are proposed.**

- B. The City Engineer shall make the final determination regarding right-of-way and street element widths using the ranges provided in Chapter 3 of the Transportation System Plan and the additional street design standards in the Public Works Standards.

**Applicant's Response:**

**Applicant acknowledges the City Engineer and TSP standards. The development's frontage along Boberg Rd is already in compliance with the City's TSP for a Collector roadway and no new public roadway improvement are proposed.**

C. Rights-of-way.

1. Prior to issuance of a Certificate of Occupancy Building permits or as a part of the recordation of a final plat, the City shall require dedication of rights-of-way in accordance with the Transportation System Plan. All dedications shall be recorded with the County Assessor's Office.
2. The City shall also require a waiver of remonstrance against formation of a local improvement district, and all non-remonstrances shall be recorded in the County Recorder's Office as well as the City's Lien Docket, prior to issuance of a Certificate of Occupancy Building Permit or as a part of the recordation of a final plat.
3. In order to allow for potential future widening, a special setback requirement shall be maintained adjacent to all arterial streets. The minimum setback shall be 55 feet from the centerline or 25 feet from the right-of-way designated on the Master Plan, whichever is greater.

**Applicant's Response:**

**The development's frontage along Boberg Rd is already in compliance with the City's TSP for a Collector roadway and no new public roadway improvement are proposed. No right-of-way dedication is required for this development.D.**

Dead-end Streets. New dead-end streets or cul-de-sacs shall not exceed 200 feet in length, unless the adjoining land contains barriers such as existing buildings, railroads or freeways, or environmental constraints such as steep slopes, or major streams or rivers, that prevent future street extension and connection. A central landscaped island with rainwater management and infiltration are encouraged in cul-de-sac design. No more than 25 dwelling units shall take access to a new dead-end or cul-de-sac street unless it is determined that the traffic impacts on adjacent streets will not exceed those from a development of 25 or fewer units. All other dimensional standards of dead-end streets shall be governed by the Public Works Standards. Notification that the street is planned for future extension shall be posted on the dead-end street.

**Applicant's Response:**

**This development does not contain any dead-end streets or cul-de-sacs and none are proposed.**

E. Corner or clear vision area.

1. A clear vision area which meets the Public Works Standards shall be maintained on each corner of property at the intersection of any two streets, a street and a railroad or a street and a driveway. However, the following items shall be exempt from meeting this requirement:
  - a. Light and utility poles with a diameter less than 12 inches.
  - b. Trees less than 6" d.b.h., approved as a part of the Stage II Site Design, or administrative review.
  - c. Except as allowed by b., above, an existing tree, trimmed to the trunk, 10 feet above the curb.
  - d. Official warning or street sign.
  - e. Natural contours where the natural elevations are such that there can be no cross-visibility at the intersection and necessary excavation would result in an unreasonable hardship on the property owner or deteriorate the quality of the site.

**Applicant's Response:**

**Project will comply with clear vision requirements and public works standards for clear vision areas at all proposed driveway ingress and egress points by ensuring no utilities, trees, grading, or signs are impeding vision.**

F. Vertical clearance - a minimum clearance of 12 feet above the pavement surface shall be maintained over all streets and access drives.

**Applicant's Response:**

**Project complies with minimum 12-foot vertical clearance requirements for streets and access drives.**

G. Interim improvement standard. It is anticipated that all existing streets, except those in new subdivisions, will require complete reconstruction to support urban level traffic volumes. However, in most cases, existing and short-term projected traffic volumes do not warrant improvements to full Master Plan standards. Therefore, unless otherwise specified by the Development Review Board, the following interim standards shall apply.

1. Arterials - 24 foot paved, with standard sub-base. Asphalt overlays are generally considered unacceptable, but may be considered as an interim improvement based on the recommendations of the City Engineer, regarding adequate structural quality to support an overlay.
2. Half-streets are generally considered unacceptable. However, where the Development Review Board finds it essential to allow for reasonable

development, a half-street may be approved. Whenever a half-street improvement is approved, it shall conform to the requirements in the Public Works Standards:

3. When considered appropriate in conjunction with other anticipated or scheduled street improvements, the City Engineer may approve street improvements with a single asphalt lift. However, adequate provision must be made for interim storm drainage, pavement transitions at seams and the scheduling of the second lift through the Capital Improvements Plan.

**Applicant's Response:**

**This project does not propose an interim improvement standard as the Boberg Rd. frontage is already improved to the TSP standard for a Collector roadway.**

(.03) Sidewalks. Sidewalks shall be provided on the public street frontage of all development. Sidewalks shall generally be constructed within the dedicated public right-of-way, but may be located outside of the right-of-way within a public easement with the approval of the City Engineer.

- A. Sidewalk widths shall include a minimum through zone of at least five feet. The through zone may be reduced pursuant to variance procedures in Section 4.196, a waiver pursuant to Section 4.118, or by authority of the City Engineer for reasons of traffic operations, efficiency, or safety.
- B. Within a Planned Development, the Development Review Board may approve a sidewalk on only one side. If the sidewalk is permitted on just one side of the street, the owners will be required to sign an agreement to an assessment in the future to construct the other sidewalk if the City Council decides it is necessary.

**Applicant's Response:**

**This project's existing public frontage along Boberg Rd. is already improved with a five-foot wide sidewalk which meets TSP standards. Therefore public sidewalk improvements are not proposed with this development.**

(.04) Bicycle Facilities. Bicycle facilities shall be provided to implement the Transportation System Plan, and may include on-street and off-street bike lanes, shared lanes, bike boulevards, and cycle tracks. The design of on-street bicycle facilities will vary according to the functional classification and the average daily traffic of the facility.

**Applicant's Response:**

**This project's existing public frontage along Boberg Rd. includes a bicycle lane per the TSP and no new bicycle facilities are proposed with this development.**



- (.05) Multiuse Pathways. Pathways may be in addition to, or in lieu of, a public street. Paths that are in addition to a public street shall generally run parallel to that street, and shall be designed in accordance with the Public Works Standards or as specified by the City Engineer. Paths that are in lieu of a public street shall be considered in areas only where no other public street connection options are feasible, and are subject to the following standards.
- A. Paths shall be located to provide a reasonably direct connection between likely pedestrian and bicyclist destinations. Additional standards relating to entry points, maximum length, visibility, and path lighting are provided in the Public Works Standards.
  - B. To ensure ongoing access to and maintenance of pedestrian/bicycle paths, the City Engineer will require dedication of the path to the public and acceptance of the path by the City as public right-of-way; or creation of a public access easement over the path.

**Applicant's Response:**

**This development does not propose a public multi-use pathway as there are no reasonable connections to existing pathways or public right of way. The development's public frontage along Boberg Rd. is already improved to the TSP standard.**

(.06) Transit Improvements

Development on sites that are adjacent to or incorporate major transit streets shall provide improvements as described in this section to any bus stop located along the site's frontage, unless waived by the City Engineer for reasons of safety or traffic operations. Transit facilities include bus stops, shelters, and related facilities. Required transit facility improvements may include the dedication of land or the provision of a public easement.

- A. Development shall at a minimum provide:
  - 1. Reasonably direct pedestrian connections, as defined by Section 4.154, between building entrances and the transit facility and between buildings on the site and streets adjoining transit stops.
  - 2. Improvements at major transit stops. Improvements may include intersection or mid-block traffic management improvements to allow for pedestrian crossings at major transit stops.
- B. Developments generating an average of 49 or more pm peak hour trips shall provide bus stop improvements per the Public Works Standards. Required

improvements may include provision of benches, shelters, pedestrian lighting; or provision of an easement or dedication of land for transit facilities.

- C. In addition to the requirements of 4.177(.06)(A.)(2.), development generating more than 199 pm peak hour trips on major transit streets shall provide a bus pullout, curb extension, and intersection or mid-block traffic management improvements to allow for pedestrian crossings at major transit stops.
- D. In addition to the requirements of 4.177(.06)(A.) and (B.), development generating more than 500 pm peak-hour trips on major transit streets shall provide on-site circulation to accommodate transit service.

**Applicant's Response:**

**This project's frontage includes an existing bus stop to remain. The project development generates 46 total PM peak hour trips therefore bus transit improvements are not required. Direct pedestrian access is provided from the main building entrance to the bus stop.**

(.07) Residential Private Access Drives. Residential Private Access Drives shall meet the following standards:

- A. Residential Private Access Drives shall provide primary vehicular access to no more than four (4) dwelling units, excluding accessory dwelling units.
- B. The design and construction of a Residential Private Access Drive shall ensure a useful lifespan and structural maintenance schedule comparable, as determined by the City Engineer or City's Authorized Representative, to a local street constructed in conformance to current public works standards.
  - 1. The design of residential private access drives shall be stamped by a professional engineer registered in the state of Oregon and shall be approved by the City Engineer or City's Authorized Representative to ensure the above requirement is met.
  - 2. Prior to issuing a certificate of occupancy for any residential dwelling unit whose primary vehicular access is from a Residential Private Access Drive the City Engineer or City's Authorized Representative shall certify construction of the Residential Private Access Drive substantially conforms the design approved by the City Engineer or City's Authorized Representative.
- C. Residential Private Access Drives shall be named for addressing purposes. All Residential Private Access Drives shall use the suffix "Lane", i.e. SW Oakview Lane.
- D. Residential Private Access Drives shall meet or exceed the standards for access drives and travel lanes established in Subsection (.08) of this Section.

**Applicant's Response:**

**This project does not propose any residential private driveways so this standard does not apply.**

(.08). Access Drive and Driveway Approach Development Standards.

- A. An access drive to any proposed development shall be designed to provide a clear travel lane free from any obstructions.
- B. Access drive travel lanes shall be constructed with a hard surface capable of carrying a 23-ton load.
- C. Where emergency vehicle access is required, approaches and driveways shall be designed and constructed to accommodate emergency vehicle apparatus and shall conform to applicable fire protection requirements. The City may restrict parking, require signage, or require other public safety improvements pursuant to the recommendations of an emergency service provider.
- D. Secondary or emergency access lanes may be improved to a minimum 12 feet with an all-weather surface as approved by the Fire District. All fire lanes shall be dedicated easements.
- E. Minimum access requirements shall be adjusted commensurate with the intended function of the site based on vehicle types and traffic generation.
- F. The number of approaches on higher classification streets (e.g., collector and arterial streets) shall be minimized; where practicable, access shall be taken first from a lower classification street.
- G. The City may limit the number or location of connections to a street, or impose access restrictions where the roadway authority requires mitigation to alleviate safety or traffic operations concerns.
- H. The City may require a driveway to extend to one or more edges of a parcel and be designed to allow for future extension and inter-parcel circulation as adjacent properties develop. The City may also require the owner(s) of the subject site to record an access easement for future joint use of the approach and driveway as the adjacent property(ies) develop(s).
- I. Driveways shall accommodate all projected vehicular traffic on-site without vehicles stacking or backing up onto a street.
- J. Driveways shall be designed so that vehicle areas, including but not limited to drive-up and drive-through facilities and vehicle storage and service areas, do not obstruct any public right-of-way.
- K. Approaches and driveways shall not be wider than necessary to safely accommodate projected peak hour trips and turning movements, and shall be designed to minimize crossing distances for pedestrians.

- L. As it deems necessary for pedestrian safety, the City, in consultation with the roadway authority, may require traffic-calming features, such as speed tables, textured driveway surfaces, curb extensions, signage or traffic control devices, or other features, be installed on or in the vicinity of a site.
- M. Approaches and driveways shall be located and designed to allow for safe maneuvering in and around loading areas, while avoiding conflicts with pedestrians, parking, landscaping, and buildings.
- N. Where a proposed driveway crosses a culvert or drainage ditch, the City may require the developer to install a culvert extending under and beyond the edges of the driveway on both sides of it, pursuant applicable Public Works standards.
- O. Except as otherwise required by the applicable roadway authority or waived by the City Engineer, temporary driveways providing access to a construction site or staging area shall be paved or graveled to prevent tracking of mud onto adjacent paved streets.
- P. Unless constrained by topography, natural resources, rail lines, freeways, existing or planned or approved development, or easements or covenants, driveways proposed as part of a residential or mixed-use development shall meet local street spacing standards and shall be constructed to align with existing or planned streets, if the driveway.
  - 1. Intersects with a public street that is controlled, or is to be controlled in the planning period, by a traffic signal;
  - 2. Intersects with an existing or planned arterial or collector street; or
  - 3. Would be an extension of an existing or planned local street, or of another major driveway.

**Applicant's Response:**

**This development proposes commercial access drives that comply with Public Works and fire access standards. The access drives are clear from all obstructions and will be hard surfaces for all vehicle types and emergency vehicles. The number of approaches to Boberg Rd (Collector) has been minimized to one connection and the site's other two connections are taken from the existing private access drive. All new driveways are designed to accommodate appropriate stacking so vehicles will not queue into the public right of way and allow for safe maneuvering.**

(.09) Minimum street intersection spacing standards.

- A. New streets shall intersect at existing street intersections so that centerlines are not offset. Where existing streets adjacent to a proposed development do not align properly, conditions shall be imposed on the development to provide for proper alignment.

B. Minimum intersection spacing standards are provided in Transportation System Plan Table 3-2.

**Applicant's Response:**

**This project does not propose any new streets or street intersections so this standard does not apply.**

(.10) Exceptions and Adjustments. The City may approve adjustments to the spacing standards of subsections (.08) and (.09) above through a Class II process, or as a waiver per Section 4.118(.03)(A.), where an existing connection to a City street does not meet the standards of the roadway authority, the proposed development moves in the direction of code compliance, and mitigation measures alleviate all traffic operations and safety concerns. Mitigation measures may include consolidated access (removal of one access), joint use driveways (more than one property uses same access), directional limitations (e.g., one-way), turning restrictions (e.g., right in/out only), or other mitigation.

**Applicant's Response:**

**This project is not proposing an adjustment to the spacing standards so this standard does not apply.**

**Section 4.179. Mixed Solid Waste and Recyclables Storage in New Multi-Unit Residential and Non-Residential Buildings.**

- (.01) All site plans for multi-unit residential and non-residential buildings submitted to the Wilsonville Development Review Board for approval shall include adequate storage space for mixed solid waste and source separated recyclables.

**Applicant's Response:**

**The proposed development incorporates adequate storage for mixed solid waste and source separated recyclables. Please see "Proposed Site Exhibit" for locations.**

- (.02) The floor area of an interior or exterior storage area shall be excluded from the calculation of building floor area for purposes of determining minimum storage requirements.

**Applicant's Response:**

**The applicant has excluded the interior / exterior storage area in calculating minimum storage requirements.**

- (.03) The storage area requirement shall be based on the predominant use(s) of the building. If a building has more than one of the uses listed herein and that use occupies 20 percent or less of the floor area of the building, the floor area occupied by that use shall be counted toward the floor area of the predominant use(s). If a building has more than one of the uses listed herein and that use occupies more than 20 percent of the floor area of the building, then the storage area requirement for the whole building shall be the sum of the requirement for the area of each use.

**Applicant's Response:**

**The proposed development consists of two primary buildings with different uses. The two buildings consist of an administration office building and a warehouse storage building. The storage area required is a sum of the requirement for the areas of each use.**

- (.04) Storage areas for multiple uses on a single site may be combined and shared.

**Applicant's Response:**

**The applicant has combined the required storage area and is to be utilized by both primary buildings.**

- (.05) The specific requirements are based on an assumed storage height of four feet for solid waste/recyclables. Vertical storage higher than four feet but no higher than seven feet may be used to accommodate the same volume of storage in a reduced floor space. Where vertical or stacked storage is proposed, the site plan shall include drawings to illustrate the layout of the storage area and dimensions for the containers.

**Applicant's Response:**

**The applicant is not seeking a stacked storage solution to meet minimum storage requirement.**

- (.06) The specific requirements for storage area are as follows:
- A. Multi-unit residential buildings containing five-ten units shall provide a minimum storage area of 50 square feet. Buildings containing more than ten residential units shall provide an additional five square feet per unit for each unit above ten.
  - B. Non-residential buildings shall provide a minimum storage area of ten square feet, plus:
    1. Office: Four square feet per 1,000 square feet gross floor area (GFA);
    2. Retail: Ten square feet per 1,000 square feet GFA;
    3. Wholesale / Warehouse / Manufacturing: Six square feet per 1,000 square feet GFA; and
    4. Other: Four square feet per 1,000 square feet GFA.

**Applicant's Response:**

**The minimum storage area for the proposed development is as follows:**

<u>Building</u>	<u>Use</u>	<u>Size</u>	<u>Min. Storage</u>
Administration building	Office (minus parking area)	17,235 sf	68.94 sf
Warehouse building	Warehouse	17,390 sf	104.34 sf

**Total minimum storage requirement: 184 sf (183.28 sf)**

**Total storage provided: 252 sf**

**The proposed development meets the requirement to minimum Mixed Solid Waste and Recyclable Storage areas.**

- (.07) The applicant shall work with the City's franchised garbage hauler to ensure that site plans provide adequate access for the hauler's equipment and that storage area is adequate for the anticipated volumes, level of service and any other special circumstances which may result in the storage area exceeding its capacity. The hauler shall notify the City by letter of their review of site plans and make recommendations for changes in those plans pursuant to the other provisions of this section.

**Applicant's Response:**

**The applicant has coordinated with the city's franchised garbage hauler to ensure adequate access is provided. The hauler's review and approval letter is included in the application material.**

- (.08) Existing multi-unit residential and non-residential developments wishing to retrofit their structures to include storage areas for mixed solid waste and recycling may have their site plans reviewed and approved through the Class I Administrative Review process, according to the provisions of Section 4.035. Site plans for retrofitting existing developments must conform to all requirements of this Section, "Mixed Solid Waste and Recyclables Storage In New Multi-Unit Residential and Non-Residential Buildings," and 4.430, "Location, Design and Access Standards for Mixed Solid Waste and Recycling Areas," of the Wilsonville City Code.

**Applicant's Response:**

**The proposed development is new construction, therefore, this section is not applicable.**



## **Section 4.199     OUTDOOR LIGHTING**

- Section 4.199.10     Outdoor Lighting In General.
- Section 4.199.20     Applicability.
- Section 4.199.30     Lighting Zones.
- Section 4.199.40     Lighting Systems Standards for Approval.
- Section 4.199.50     Submittal Requirements.
- Section 4.199.60     Major Additions or Modifications.

### **Section 4.199.10. Outdoor Lighting In General.**

- (.01) Purpose: The purpose of this Code is to provide regulations for outdoor lighting that will:
  - A. Permit reasonable uses of outdoor lighting for nighttime safety, utility, security, productivity, enjoyment and commerce.
  - B. Conserve energy and resources to the greatest extent possible.
  - C. Minimize glare, particularly in and around public rights-of-way; and reduce visual discomfort and improve visual acuity over large areas by avoiding “light islands” and “spotlighting” that result in reduced visual perception in areas adjacent to either the source of the glare or the area illuminated by the glare.
  - D. Minimize light trespass, so that each owner of property does not cause unreasonable light spillover to other property.
  - E. Curtail the degradation of the nighttime environment and the night sky.
  - F. Preserve the dark night sky for astronomy and enjoyment.
  - G. Protect the natural environment, including wildlife, from the damaging effects of night lighting from human sources.
- (.02) Purpose Statement as Guidelines: Declaration of purpose statements are guidelines and not approval criteria in the application of WC Section 4.199.

#### **Applicant’s Response:**

**The applicant acknowledges and understands the purpose of the outdoor lighting standards. The proposed development includes general site lighting for the operations yard and associated buildings. The proposed outdoor lighting provides for nighttime safety and operations. The design utilizes industry standard energy conservation measures that curtail the degradation of the nighttime environment and does not trespass on adjacent properties and preserves the surrounding natural environment.**

**Section 4.199.20. Applicability.**

- (.01) This Ordinance is applicable to:
- A. Installation of new exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas.
  - B. Major additions or modifications (as defined in this Section) to existing exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas.
- (.02) Exemption. The following luminaires and lighting systems are EXEMPT from these requirements:
- A. Interior lighting.
  - B. Internally illuminated signs.
  - C. Externally illuminated signs.
  - D. Temporary lighting for theatrical, television, and performance areas.
  - E. Lighting in swimming pools and other water features governed by Article 680 of the National Electrical Code.
  - F. Building Code required exit path lighting.
  - G. Lighting specifically for stairs and ramps.
  - H. Temporary and seasonal lighting provided that individual lamps are 10 watts or less.
  - I. Lighting required and/or regulated by the City (i.e. construction related activities), Federal Aviation Administration, U.S. Coast Guard or other Federal or State agency.
  - J. Single-family residential lighting.
  - K. Code Required Signs.
  - L. American flag.
  - M. Landscape lighting.
  - N. Lights approved by the City through an Administrative Review Temporary Use Permit process.
  - O. Public street lights.
  - P. ATM security lighting.
  - Q. Those “Exceptions” listed in the “Exterior Lighting Power Allowance” provisions of the *Oregon Energy Efficiency Specialty Code*.

**Applicant’s Response:**

**The proposed development is a public facility and includes new exterior lighting systems, therefore, the following sections are applicable. The provided responses are to those luminaires and lighting systems not included in the (.02) exemptions.**

**Section 4.199.30. Lighting Overlay Zones.**

- (.01) The designated Lighting Zone as indicated on the Lighting Overlay Zone Map for a commercial, industrial, multi-family or public facility parcel or project shall determine the limitations for lighting systems and fixtures as specified in this Ordinance.
- A. Property may contain more than one lighting zone depending on site conditions and natural resource characteristics.

**Applicant's Response:**

**The Lighting Overlay Zone Map is included in the application material. The development parcel contains only one lighting zone.**

- (.02) The Lighting Zones shall be:
- A. LZ 1. Developed areas in City and State parks, recreation areas, SROZ wetland and wildlife habitat areas; developed areas in natural settings; sensitive night environments; and rural areas. This zone is intended to be the default condition for rural areas within the City.
- B. LZ 2. Low-density suburban neighborhoods and suburban commercial districts, industrial parks and districts. This zone is intended to be the default condition for the majority of the City.
- C. LZ 3. Medium to high-density suburban neighborhoods and districts, major shopping and commercial districts as depicted on the Lighting Overlay Zone Map.
- D. LZ 4. Reserved for limited applications with special lighting requirements. This zone is appropriate for users who have unique site or operating circumstances that warrant additional light. This zone shall not be applied to residential or agricultural areas.

**Applicant's Response:**

**The proposed development is within lighting zone LZ 2. Low-density suburban neighborhoods and suburban commercial districts, industrial parks and districts. As indicated, this is the default designation for majority of the city.**

- (.03) Modification of Lighting Zones.
- A. The City Council may modify the designated Lighting Zones of one or more parcels if the City Council finds that the original Lighting Zone was in error, a change in circumstances has occurred warranting the change since the designation was established or the purposes of this section are better served.

- B. The Development Review Board (DRB) may modify the designated Lighting Zones as part of the Stage II, Site Design Review Process if the DRB finds that the original Lighting Zone was in error, or a change in circumstances has occurred warranting the change since the designation was established or the purposes of this section are better served.
- C. This ordinance establishes a Lighting Overlay Zone Map. The Planning Division shall maintain the current Lighting Overlay Zone Map.

**Applicant's Response:**

**The applicant acknowledges and understands the development is within the LZ 2 lighting overlay zone. No modification is being requested as part of this application.**

**Section 4.199.40. Lighting Systems Standards for Approval.**

(.01) Non-Residential Uses and Common Residential Areas.

- A. All outdoor lighting shall comply with either the Prescriptive Option or the Performance Option below.

**Applicant's Response:**

**The outdoor lighting included in the proposed development complies with the Prescriptive Option.**

- B. Prescriptive Option. If the lighting is to comply with this Prescriptive Option, the installed lighting shall meet all of the following requirements according to the designated Lighting Zone.

- 1. The maximum luminaire lamp wattage and shielding shall comply with Table 7.

**Applicant's Response:**

**All proposed luminaires comply with the maximum luminaire lamp wattage and shielding requirements, per Table 7.**

Lighting Zone	Fully Shielded	Shielded	Partly Shielded	Unshielded
LZ 2	100	35	39	Low voltage landscape lighting 50 watts or less

- 2. Except for those exemptions listed in Section 4.199.20(.02), the exterior lighting for the site shall comply with the *Oregon Energy Efficiency Specialty Code, Exterior Lighting*.

**Applicant's Response:**

**All proposed exterior lighting complies with the Oregon Energy Efficiency Specialty Code.**

- 3. The maximum pole or mounting height shall be consistent with Table 8.

**Applicant's Response:**

**All proposed exterior lighting complies with the pole and mounting height limitations, per Table 7.**

Lighting Zone	Lighting for private drives, driveways, parking, bus stops and other transit facilities	Lighting for walkways, bikeways, plazas and other pedestrian areas	All other lighting
LZ 2	40	18	8

**The pole and/or mounting height for all proposed exterior lighting does not exceed 40 feet at private drives, driveways, or parking. Lighting for walkways, bikeways, plazas and pedestrian areas do not exceed 18 feet in height. All other lighting does not exceed 8 feet in height.**

4. Each luminaire shall be set back from all property lines at least 3 times the mounting height of the luminaire:
  - a. Exception 1: If the subject property abuts a property with the same base and lighting zone, no setback from the common lot lines is required.
  - b. Exception 2: If the subject property abuts a property which is zoned (base and lighting) other than the subject parcel, the luminaire shall be setback three times the mounting height of the luminaire, measured from the abutting parcel's setback line. (Any variance or waiver to the abutting property's setback shall not be considered in the distance calculation).
  - c. Exception 3: If the luminaire is used for the purpose of street, parking lot or public utility easement illumination and is located less than 3 mounting heights from the property line, the luminaire shall include a house side shield to protect adjoining property.
  - d. Exception 4: If the subject property includes an exterior column, wall or abutment within 25 feet of the property line, a luminaire partly shielded or better and not exceeding 60 lamp watts may be mounted onto the exterior column, wall or abutment or under or within an overhang or canopy attached thereto.
  - e. Exception 5: Lighting adjacent to SROZ areas shall be set back 3 times the mounting height of the luminaire, or shall employ a house side shield to protect the natural resource area.

**Applicant's Response:**

**The proposed development meets the criteria outlined in Exception 2. All abutting properties to the subject parcel share the same base and lighting zone, therefore, no setback from the common lot line is required.**

- C. Performance Option. If the lighting is to comply with the Performance Option, the proposed lighting design shall be submitted by the applicant for approval by the City meeting all of the following:
1. The weighted average percentage of direct uplight lumens shall be less than the allowed amount per Table 9.
  2. The maximum light level at any property line shall be less than the values in Table 9, as evidenced by a complete photometric analysis including horizontal illuminance of the site and vertical illuminance on the plane facing the site up to the mounting height of the luminaire mounted highest above grade. The Building Official or designee may accept a photometric test report, demonstration or sample, or other satisfactory confirmation that the luminaire meets the shielding requirements of Table 7. Luminaires shall not be mounted so as to permit aiming or use in any way other than the manner maintaining the shielding classification required herein:
    - a. Exception 1. If the property line abuts a public right-of-way, including a sidewalk or street, the analysis may be performed across the street at the adjacent property line to the right-of-way.
    - b. Exception 2. If, in the opinion of the Building Official or designee, compliance is impractical due to unique site circumstances such as lot size or shape, topography, or size or shape of building, which are circumstances not typical of the general conditions of the surrounding area. The Building Official may impose conditions of approval to avoid light trespass to the maximum extent possible and minimize any additional negative impacts resulting to abutting and adjacent parcels, as well as public rights-of-way, based on best lighting practices and available lighting technology.
  3. The maximum pole or mounting height shall comply with Table 8.
- D. Curfew. All prescriptive or performance based exterior lighting systems shall be controlled by automatic device(s) or system(s) that:
1. Initiate operation at dusk and either extinguish lighting one hour after close or at the curfew times according to Table 10; or
  2. Reduce lighting intensity one hour after close or at the curfew time to not more than 50% of the requirements set forth in the *Oregon Energy Efficiency Specialty Code* unless waived by the DRB due to special circumstances; and
  3. Extinguish or reduce lighting consistent with 1. and 2. above on Holidays.
- The following are exceptions to curfew:
- a. Exception 1: Building Code required lighting.
  - b. Exception 2: Lighting for pedestrian ramps, steps and stairs.
  - c. Exception 3: Businesses that operate continuously or periodically after curfew.



**Applicant's Response:**

**All proposed exterior lighting complies with the prescriptive option.  
This standard is not applicable to the proposed development.**

(.02) Special Permit for Specific Lighting Fixtures and Systems and When Exceeding Lighting Requirements.

- A. This section is intended to apply to situations where more than normal foot candles are required due to a unique circumstance or use or where it is absolutely essential to perform the proposed activities after dark. All special permits shall be reviewed by the DRB.
- B. Upon issuance of a special permit by the Development Review Board (DRB), lighting systems not complying with the technical requirements of this Ordinance may be installed, maintained, and replaced for lighting that exceeds the maximums permitted by this Ordinance. This section is intended to be applied to uses such as sports lighting systems including but not limited to, sport fields and stadiums, such as baseball and football field lighting, tennis court lighting, swimming pool area lighting and prisons; other very intense lighting defined as having a light source exceeding 200,000 lumens or an intensity in any direction of more than 2,000,000 candelas; building façade lighting of portions of buildings over two stories high; and public monuments.
- C. To obtain such a permit, applicants shall demonstrate that the proposed lighting installation:
  - 1. Is within Lighting Zone 3 or above.
  - 2. Has been designed to minimize obtrusive light and artificial sky glow, supported by a signed statement from a registered civil or electrical engineer describing the mitigation measures. Such statement shall be accompanied by calculations indicating the light trespass levels (horizontal and vertical at ground level) at the property line.
  - 3. Will not create excessive glare, sky glow, or light trespass beyond that which can be reasonably expected by application of best lighting practices, and available technology.
  - 4. Provides appropriate lighting curfew hours based on the use and the surrounding areas.
- D. The DRB may impose conditions of approval to mitigate any negative impacts resulting to the abutting parcel, based on best lighting practices and available lighting technology.
- E. The City may charge a review fee and may, at the Building Official's option, employ the services of a qualified professional civil or electrical engineer to

review such submittals and the cost thereof shall be an additional fee charged to the applicant.

**Applicant's Response:**

**All proposed exterior lighting complies with the prescriptive option and no special lighting permit is being requested. This standard is not applicable to the proposed development.**

**Section 4.199.50. Submittal Requirements.**

(.01) Applicants shall submit the following information as part of DRB review or administrative review of new commercial, industrial, multi-family or public facility projects:

- A. A statement regarding which of the lighting methods will be utilized, prescriptive or performance, and a map depicting the lighting zone(s) for the property.

**Applicant's Response:**

**The applicant has indicated that the lighting method utilized for the proposed development is the prescriptive option.**

- B. A site lighting plan that clearly indicates intended lighting by type and location. For adjustable luminaires, the aiming angles or coordinates shall be shown.

**Applicant's Response:**

**The applicant has included a site lighting plan in the application material. The site lighting plan indicates the type and location of each luminaire.**

- C. For each luminaire type, drawings, cut sheets or other documents containing specifications for the intended lighting including but not limited to, luminaire description, mounting, mounting height, lamp type and manufacturer, lamp watts, ballast, optical system/distribution, and accessories such as shields.

**Applicant's Response:**

**The applicant has provided product information for each proposed luminaire. The product information includes a description, manufacturer, lamp, watt, ballast and accessory specification.**

- D. Calculations demonstrating compliance with *Oregon Energy Efficiency Specialty Code, Exterior Lighting*, as modified by Section 4.199.40(.01)(B.)(2.)

**Applicant's Response:**

**The applicant has provided lighting calculations within the application material. The lighting calculation indicate compliance with the Oregon Energy Efficiency Specialty Code, Exterior Lighting.**

- E. Lighting plans shall be coordinated with landscaping plans so that pole lights and trees are not placed in conflict with one another. The location of lights shall be shown on the landscape plan. Generally, pole lights should not be placed within one pole length of landscape and parking lot trees.

**Applicant’s Response:**

**The applicant has provided lighting plans and landscape plans that reflect the proposed exterior lighting. The plans have been coordinated with respect to each discipline.**

- F. Applicants shall identify the hours of lighting curfew.

**Applicant’s Response:**

**The proposed development’s hours of lighting curfew is 10:00pm (2200 hours).**

Lighting Zone	Curfew Time
LZ 2	10:00 PM (2200 hours)

(.02) In addition to the above submittal requirements, Applicants using the Prescriptive Method shall submit the following information as part of the permit set plan review:

- A. A site lighting plan (items 1 A - F, above) which indicates for each luminaire the 3 mounting height line to demonstrate compliance with the setback requirements. For luminaires mounted within 3 mounting heights of the property line the compliance exception or special shielding requirements shall be clearly indicated.

**Applicant’s Response:**

**The applicant has provided a site lighting plan and application material indicating the proposed development meets the criteria outlined in Exception 2. All abutting properties to the subject parcel share the same base and lighting zone, therefore, no setback from the common lot line is required. The exemption has been noted on the site lighting plan.**

(.03) In addition to the above submittal requirements, Applicants using the Performance Method shall submit the following information as part of the permit set plan review:

- A. Site plan showing horizontal isocandle lines, or the output of a point-by-point computer calculation of the horizontal illumination of the site, showing property lines and light levels immediately off of the subject property.

- B. For each side of the property, the output of a point-by-point vertical footcandle calculation showing illumination in the vertical plane at the property line from grade to at least 10 feet higher than the height of the tallest pole.
- C. Lighting plans shall be prepared by a qualified licensed engineer.

**Applicant's Response:**

**All proposed exterior lighting complies with the prescriptive option and no special lighting permit is being requested. This standard is not applicable to the proposed development.**

(.04) In addition to the above applicable submittal requirements, Applicants for Special Permits shall submit the following to the DRB for review:

- A. Tabulation of International Engineering Society of North America (IESNA) lighting recommendations for each task including area illuminated, recommended illumination level, actual maintained illumination level, and luminaires used specifically to achieve the indicated criteria.
- B. Lighting plans shall be prepared by a qualified licensed engineer.

**Applicant's Response:**

**All proposed exterior lighting complies with the prescriptive option and no special lighting permit is being requested. This standard is not applicable to the proposed development.**

(.05) For all calculations, the following light loss factors shall be used unless an alternative is specifically approved by the City:

Metal halide	0.6
High pressure sodium	0.8
Compact fluorescent	0.7
Full size fluorescent	0.75
Incandescent	0.9
Halogen	0.95
Other	As approved

**Section 4.199.60. Major Additions or Modifications to Pre-Existing Sites.**

(01.) Major Additions. If a major addition occurs on a property, all of the luminaires on the site shall comply with the requirements of this Section. For purposes of this subsection, the following are considered to be major additions:

- A. Additions of 50 percent or more in terms of additional dwelling units, gross floor area, seating capacity, or parking spaces, either with a single addition or with cumulative additions after July 2, 2008.
- B. Modification or replacement of 50 percent or more of the outdoor lighting luminaries' within a 5-year timeframe existing as of July 2, 2008.

Lighting Zone	Fully Shielded	Shielded	Partly Shielded	Unshielded
LZ 1	70	20	13	Low voltage landscape lighting 50 watts or less
LZ 2	100	35	39	Low voltage landscape lighting 50 watts or less
LZ 3	250	100	70	Landscape and facade lighting 100 watts or less; ornamental lighting on private drives of 39 watts and less
LZ 4	450	150	150	Landscape and facade lighting 250 watts or less; ornamental lights on private drives and lanterns 70 watts or less; marquee lighting not employing medium based lamps

Lighting Zone	Lighting for private drives, driveways, parking, bus stops and other transit facilities	Lighting for walkways, bikeways, plazas and other pedestrian areas	All other lighting
LZ 0	20	8	4
LZ 1	25	12	4
LZ 2	40	18	8
LZ 3	40	18	16
LZ 4	Height limit to be determined by Special Use Permit Only		

Lighting mounted onto buildings or other structures shall not exceed a mounting height greater than 4 feet higher than the tallest part of the building or structure at the place where the lighting is installed, nor higher than 33.33 percent of the horizontal distance of the light from the nearest property line, whichever is less.

<b>Table 9: Performance Method</b>			
<b>Lighting Zone</b>	<b>Maximum percentage of direct upright lumens</b>	<b>Maximum Light Level at Property Line</b>	
		<b>Horizontal plane at grade (foot candles - fc)</b>	<b>Vertical plane facing the site in question, from grade to mounting height of highest mounted luminaire (foot candles - fc)</b>
LZ 0	0	0.01 fc	0.02 fc
LZ 1	1%	0.05 fc	0.1 fc
LZ 2	5%	0.2 fc	0.4 fc
LZ 3	10%	0.4 fc	0.8 fc
LZ 4	20%	0.8 fc	1.6 fc

<b>Table 10: Curfew</b>	
<b>Lighting Zone</b>	<b>Curfew Time</b>
LZ 0	8:00 PM (2000 hours)
LZ 1	
LZ 2	10:00 PM (2200 hours)
LZ 3	Midnight (2400 hours)
LZ 4	

**Figure 30: Lighting Overlay Zone Map**

## **UNDERGROUND UTILITIES**

### **Section 4.300. General.**

- (.01) The City Council deems it reasonable and necessary in order to accomplish the orderly and desirable development of land within the corporate limits of the City, to require the underground installation of utilities in all new developments.
- (.02) After the effective date of this Code, the approval of any development of land within the City will be upon the express condition that all new utility lines, including but not limited to those required for power, communication, street lighting, gas, cable television services and related facilities, shall be placed underground.
- (.03) The construction of underground utilities shall be subject to the City's Public Works Standards and shall meet applicable requirements for erosion control and other environmental protection.

#### **Applicant's Response:**

**The proposed development is designed so that all new utility services are placed underground. The applicant acknowledges and understands the construction of underground utilizes are subject to the City's Public Works Standards and must meet applicable erosion control and other environmental protection. The application material demonstrates compliance with these standards.**

### **Section 4.310 Exceptions.**

Section 4.300 of this Code shall not apply to surface-mounted transformers, surface-mounted connection boxes, wireless communication facilities, and meter cabinets and other appurtenances which are reasonably necessary to be placed above ground, or to temporary utility service facilities during construction, or to high capacity electric and communication feeder lines, or to utility transmission lines operating at 50,000 volts or more.

#### **Applicant's Response:**

**The applicant acknowledges and understands the requirements of this section do not apply to surface-mounted transformers and other similar equipment that are necessary to be placed above ground. The proposed development includes such equipment.**

### **Section 4.320. Requirements.**



- (.01) The developer or subdivider shall be responsible for and make all necessary arrangements with the serving utility to provide the underground services (including cost of rearranging any existing overhead facilities). All such underground facilities as described shall be constructed in compliance with the rules and regulations of the Public Utility Commission of the State of Oregon relating to the installation and safety of underground lines, plant, system, equipment and apparatus.
- (.02) The location of the buried facilities shall conform to standards supplied to the subdivider by the City. The City also reserves the right to approve location of all surface-mounted transformers.
- (.03) Interior easements (back lot lines) will only be used for storm or sanitary sewers, and front easements will be used for other utilities unless different locations are approved by the City Engineer. Easements satisfactory to the serving utilities shall be provided by the developer and shall be set forth on the plat.

**Applicant's Response:**

**The applicant acknowledges and understands the responsibility to make all necessary arrangements with the service utility to provide underground services and that all underground facilities are to be constructed in compliance with the rules and regulations of the Public Utility Commission of the State of Oregon.**

**Section 4.171. General Regulations - Protection of Natural Features and Other Resources.**

- (.01) Purpose. It is the purpose of this Section to prescribe standards and procedures for the use and development of land to assure the protection of valued natural features and cultural resources. The requirements of this Section are intended to be used in conjunction with those of the Comprehensive Plan and other zoning standards. It is further the purpose of this Section:
  - A. To protect the natural environmental and scenic features of the City of Wilsonville.
  - B. To encourage site planning and development practices which protect and enhance natural features such as riparian corridors, streams, wetlands, swales, ridges, rock outcroppings, views, large trees and wooded areas.
  - C. To provide ample open space and to create a constructed environment capable and harmonious with the natural environment.

**Applicant's Response:**

**Applicant proposes a site plan that meets required programming for use while protecting existing natural resources to the greatest extent practical. The proposed development protects the natural environmental and scenic features of the City of Wilsonville maintaining to the extent possible the natural features of the subject parcel. The proposed development provides ample open space and is considered harmonious with the natural environment.**

(.02) General Terrain Preparation:

- A. All developments shall be planned, designed, constructed and maintained with maximum regard to natural terrain features and topography, especially hillside areas, floodplains, and other significant landforms.
- B. All grading, filling and excavating done in connection with any development shall be in accordance with the Uniform Building Code
- C. In addition to any permits required under the Uniform Building Code, all developments shall be planned, designed, constructed and maintained so as to:
  1. Limit the extent of disturbance of soils and site by grading, excavation and other land alterations.
  2. Avoid substantial probabilities of: (1) accelerated erosion; (2) pollution, contamination, or siltation of lakes, rivers, streams and wetlands; (3) damage to vegetation; (4) injury to wildlife and fish habitats.
  3. Minimize the removal of trees and other native vegetation that stabilize hillsides, retain moisture, reduce erosion, siltation and nutrient runoff, and preserve the natural scenic character.

**Applicant's Response:**

**Applicant proposes a project design and grading layout that works in harmony with the existing ground as much as possible. All proposed grading is in compliance with the UBC and Public Works standards.**

(.03) Hillsides: All developments proposed on slopes greater than 25% shall be limited to the extent that:

- A. An engineering geologic study approved by the City, establishes that the site is stable for the proposed development, and any conditions and recommendations based on the study are incorporated into the plans and construction of the development. The study shall include items specified under subsection 4.171(.07)(A.)(2.)( a-j):
- B. Slope stabilization and re-vegetation plans shall be included as part of the applicant's landscape plans.
- C. Buildings shall be clustered to reduce alteration of terrain and provide for preservation of natural features.
- D. Creation of building sites through mass pad grading and successive padding or terracing of building sites shall be avoided where feasible.
- E. Roads shall be of minimum width, with grades consistent with the City's Public Works Standards.

- F. Maintenance, including re-vegetation, of all grading areas is the responsibility of the developer, and shall occur through October 1 of the second growing season following receipt of Certificates of Occupancy unless a longer period is approved by the Development Review Board.
- G. The applicant shall obtain an erosion and sediment control permit from the City's Building and Environmental Services Division's.

**Applicant's Response:**

**The subject parcel of the proposed development does not contain or proposed to create a slope that is greater than 25%, therefore, this section is not applicable.**

(.04) Trees and Wooded Areas.

- A. All developments shall be planned, designed, constructed and maintained so that:
  - 1. Existing vegetation is not disturbed, injured, or removed prior to site development and prior to an approved plan for circulation, parking and structure location.
  - 2. Existing wooded areas, significant clumps/groves of trees and vegetation, and all trees with a diameter at breast height of six inches or greater shall be incorporated into the development plan and protected wherever feasible.
  - 3. Existing trees are preserved within any right-of-way when such trees are suitably located, healthy, and when approved grading allows.
- B. Trees and woodland areas to be retained shall be protected during site preparation and construction according to City Public Works design specifications, by:
  - 1. Avoiding disturbance of the roots by grading and/or compacting activity.
  - 2. Providing for drainage and water and air filtration to the roots of trees which will be covered with impermeable surfaces.
  - 3. Requiring, if necessary, the advisory expertise of a registered arborist/horticulturist both during and after site preparation.
  - 4. Requiring, if necessary, a special maintenance, management program to insure survival of specific woodland areas of specimen trees or individual heritage status trees.

**Applicant's Response:**

**Applicant proposes a site plan that meets required programming for the use while retaining as much existing natural vegetation and trees as possible.**

(.05) High Voltage Powerline Easements and Rights of Way and Petroleum Pipeline Easements:

- A. Due to the restrictions placed on these lands, no residential structures shall be allowed within high voltage powerline easements and rights of way and petroleum pipeline easements, and any development, particularly residential, adjacent to high voltage powerline easements and rights of way and petroleum pipeline easements shall be carefully reviewed.
- B. Any proposed non-residential development within high voltage powerline easements and rights of way and petroleum pipeline easements shall be coordinated with and approved by the Bonneville Power Administration, Portland General Electric Company or other appropriate utility, depending on the easement or right of way ownership.

**Applicant's Response:**

**The proposed development does not contain or require high voltage or petroleum pipeline easements, therefore, this section is not applicable.**

(.06) Hazards to Safety: Purpose:

- A. To protect lives and property from natural or human-induced geologic or hydrologic hazards and disasters.
- B. To protect lives and property from damage due to soil hazards.
- C. To protect lives and property from forest and brush fires.
- D. To avoid financial loss resulting from development in hazard areas.

**Applicant's Response:**

**The proposed development complies with all requirements to protect health and human safety.**

(.07) Standards for Earth Movement Hazard Areas:

- A. No development or grading shall be allowed in areas of land movement, slump or earth flow, and mud or debris flow, except under one of the following conditions:
  - 1. Stabilization of the identified hazardous condition based on established and proven engineering techniques which ensure protection of public and private property. Appropriate conditions of approval may be attached by the City.
  - 2. An engineering geologic study approved by the City establishing that the site is stable for the proposed use and development. The study shall include the following:
    - a. Index map.

- b. Project description, to include: location; topography, drainage, vegetation; discussion of previous work; and discussion of field exploration methods.
  - c. Site geology, to include: site geologic map; description of bedrock and superficial materials including artificial fill; location of any faults, folds, etc.; and structural data including bedding, jointing, and shear zones.
  - d. Discussion and analysis of any slope stability problems.
  - e. Discussion of any off-site geologic conditions that may pose a potential hazard to the site or that may be affected by on-site development.
  - f. Suitability of site for proposed development from geologic standpoint.
  - g. Specific recommendations for cut slope stability, seepage and drainage control, or other design criteria to mitigate geologic hazards.
  - h. Supportive data, to include: cross sections showing subsurface structure; graphic logs of subsurface explorations; results of laboratory tests; and references.
  - i. Signature and certification number of engineering geologist registered in the State of Oregon.
  - j. Additional information or analyses as necessary to evaluate the site.
- B. Vegetative cover shall be maintained or established for stability and erosion control purposes.
- C. Diversion of storm water into these areas shall be prohibited.
- D. The principal source of information for determining earth movement hazards is the State Department of Geology and Mineral Industries (DOGAMI) Bulletin 99 and any subsequent bulletins and accompanying maps. Approved site specific engineering geologic studies shall be used to identify the extent and severity of the hazardous conditions on the site, and to update the earth movement hazards database.

**Applicant's Response:**

**The proposed development is not located within an Earth Movement Hazard area; therefore, this section is not applicable.**

(.08) Standards for Soil Hazard Areas:

- A. Appropriate siting and design safeguards shall insure structural stability and proper drainage of foundation and crawl space areas for development on land with any of the following soil conditions: wet or high water table; high shrink-swell capability; compressible or organic; and shallow depth-to-bedrock.
- B. The principal source of information for determining soil hazards is the State DOGAMI Bulletin 99 and any subsequent bulletins and accompanying maps. Approved site-specific soil studies shall be used to identify the extent and severity

of the hazardous conditions on the site, and to update the soil hazards database accordingly.

**Applicant's Response:**

**The proposed development is not located within an Soil Hazard area; therefore, this section is not applicable.**

(.09) Historic Protection: Purpose:

- A. To preserve structures, sites, objects, and areas within the City of Wilsonville having historic, cultural, or archaeological significance.
- B. Standards:
  1. All developments shall be planned, designed, constructed, and maintained to assure protection of any designated historic or cultural resource on or near the site. Restrictions on development may include:
    - a. Clustering of buildings and incorporation of historic and/or cultural resources into site design in a manner compatible with the character of such resource.
    - b. Limitations on site preparation and grading to avoid disturbance of areas within any historic or archaeological sites, monuments or objects of antiquity.
    - c. Provision of adequate setbacks and buffers between the proposed development and the designated resources.
  2. The city may attach additional conditions with respect to the following design factors in protecting the unique character of historic/cultural resources:
    - a. Architectural compatibility;
    - b. Proposed intensity of development;
    - c. Relationship to designated open space;
    - d. Vehicular and pedestrian access; and
    - e. Proposed building or structural mass in relation to the designated resource.
- C. Review Process:
  1. The Development Review Board shall be the review body for:
    - a. All development which proposes to alter a designated historic, or cultural resource or resource site; and
    - b. All development which proposes to use property adjacent to a designated cultural resource; and
    - c. All applications requesting designation of a cultural or historic resource
  2. The application shall include the following:

- a. A complete list of exterior materials, including color of these materials.
  - b. Drawings:
    - i. Side elevation for each side of any affected structure.
    - ii. Drawings shall show dimensions or be to scale.
    - iii. Photographs may be used as a substitute for small projects.
  - c. Plot plans shall be submitted for new structures, fences, additions exceeding fifty (50) square feet, or any building relocation.
3. Any improvement proposed for property adjacent to a designated, cultural or historic resource site, shall be subject to the following provisions:
- a. All uses and structures which are incompatible with the character of the cultural or historic resource are prohibited. The criteria used to determine incompatibility shall include the following:
    - i. The intensity and type of use when compared with the historic use patterns of the areas.
    - ii. The orientation, setback, alignment, spacing and placement of buildings.
    - iii. The scale, proportions, roof forms, and various architectural features of building design.
  - b. Setbacks may be required which are over and above those required in the base zone in order to protect the resource. Setbacks should be appropriate to the scale and function of the resource, but allow reasonable use of the adjacent property.
  - c. An appropriate buffer or screen may be required between the new or converting use on the adjacent property and the resource.
4. Nothing in this chapter shall be construed to prevent the ordinary maintenance or repair of any exterior architectural feature in or on any property covered by this chapter that does not involve a change in design, material or external reconstruction thereof, nor does this Code prevent the construction, reconstruction, alteration, restoration, demolition or removal of any such feature when the Building Official certifies to the Development Review Board that such action is required for the public safety due to an unsafe or dangerous condition which cannot be rectified through the use of acceptable building practices.
5. The owner, occupant or other person in actual charge of a cultural resource, or an improvement, building or structure in an historic district shall keep in good repair all of the exterior portions of such improvement, building or structure, all of the interior portions thereof when subject to control as specified in the designating ordinance or permit, and all interior portions thereof whose maintenance is necessary to prevent deterioration and decay or any exterior architectural feature.

**Applicant's Response:**

**The proposed development is not located within, nor contains, any type of historic structures or preservation; therefore, this section is not applicable.**

(.10) Alteration and Development Criteria:

- A. Demolition or alteration of any structure, or any change in any site or object which has been designated as a cultural resource, is prohibited unless it is determined:
  - 1. In the case of a designated cultural resource, the proposed work would not detrimentally alter, destroy or adversely affect any exterior architectural or other identified feature; or
  - 2. In the case of any property located within a historic district, the proposed construction, removal, rehabilitation, alteration, remodeling, excavation or exterior alteration conforms to any prescriptive standards as adopted by the City, and does not adversely affect the character of the district; or
  - 3. In the case of construction of a new improvement, building or structure upon a cultural resource site, the exterior of such improvements will not adversely affect and will be compatible with the external appearance of existing designated improvements, buildings and structures on said site; or
  - 4. That no reasonable use can be made of the property without such approval.

**Applicant's Response:**

**The subject parcel of the proposed development has not been designated or said to contain cultural resources; therefore, this section is not applicable.**

(.11) Cultural Resource Designation Criteria: A cultural resource may be designated and placed on the Cultural Resources Inventory if it meets the following criteria:

- A. It exemplifies or reflects special elements of the City's cultural, social, economic, political, aesthetic, engineering or architectural history; or
- B. It is identified with persons or events significant in local, state, or national history; or
- C. It embodies distinctive characteristics of a style, type, period, or method of construction, or it is a valuable example of the use of indigenous materials or craftsmanship; or
- D. It is representative of the notable work of a builder, designer, or architect.

**Applicant's Response:**



**The subject parcel of the proposed development has not been designated or said to contain cultural resources; therefore, this section is not applicable. The applicant is not requesting the designation of a cultural resource.**

## **SITE DESIGN REVIEW.**

### **Section 4.400. Purpose.**

- (.01) Excessive uniformity, inappropriateness or poor design of the exterior appearance of structures and signs and the lack of proper attention to site development and landscaping in the business, commercial, industrial and certain residential areas of the City hinders the harmonious development of the City, impairs the desirability of residence, investment or occupation in the City, limits the opportunity to attain the optimum use in value and improvements, adversely affects the stability and value of property, produces degeneration of property in such areas and with attendant deterioration of conditions affecting the peace, health and welfare, and destroys a proper relationship between the taxable value of property and the cost of municipal services therefor.

#### **Applicant's Response:**

**The applicant acknowledges and understands that poor design and lack of proper attention to site development hinders the harmonious development of a city by impairing economic stability, growth, land valuation, sustainability and ultimately increases cost. The proposed development is a public facility and should be an example of proper development that results from the processes and procedures set forth in the Site Design Review requirements. The application material provided by the applicant and owner, City of Wilsonville Public Works addresses the concerns and purpose of this section.**

- (.02) The City Council declares that the purposes and objectives of site development requirements and the site design review procedure are to:
- A. Assure that Site Development Plans are designed in a manner that insures proper functioning of the site and maintains a high quality visual environment.
  - B. Encourage originality, flexibility and innovation in site planning and development, including the architecture, landscaping and graphic design of said development;
  - C. Discourage monotonous, drab, unsightly, dreary and inharmonious developments;
  - D. Conserve the City's natural beauty and visual character and charm by assuring that structures, signs and other improvements are properly related to their sites, and to surrounding sites and structures, with due regard to the aesthetic qualities of the natural terrain and landscaping, and that proper attention is given to exterior appearances of structures, signs and other improvements;

- E. Protect and enhance the City's appeal and thus support and stimulate business and industry and promote the desirability of investment and occupancy in business, commercial and industrial purposes;
- F. Stabilize and improve property values and prevent blighted areas and, thus, increase tax revenues;
- G. Insure that adequate public facilities are available to serve development as it occurs and that proper attention is given to site planning and development so as to not adversely impact the orderly, efficient and economic provision of public facilities and services.
- H. Achieve the beneficial influence of pleasant environments for living and working on behavioral patterns and, thus, decrease the cost of governmental services and reduce opportunities for crime through careful consideration of physical design and site layout under defensible space guidelines that clearly define all areas as either public, semi-private, or private, provide clear identity of structures and opportunities for easy surveillance of the site that maximize resident control of behavior -- particularly crime;
- I. Foster civic pride and community spirit so as to improve the quality and quantity of citizen participation in local government and in community growth, change and improvements;
- J. Sustain the comfort, health, tranquility and contentment of residents and attract new residents by reason of the City's favorable environment and, thus, to promote and protect the peace, health and welfare of the City.

**Applicant's Response:**

**The applicant acknowledges and understands the purpose and objective of the Site Design Review requirements. The application material provided by the applicant and owner, City of Wilsonville Public Works addresses the concerns and purpose of this section.**

**Section 4.420. Jurisdiction and Powers of the Board.**

- (.01) Application of Section. Except for single-family or two-family dwellings in any residential zoning district, and in the Village zone, row houses or apartments, and Class II applications in the Coffee Creek Industrial Design Overlay District, no Building Permit shall be issued for a new building or major exterior remodeling of an existing building, and no Sign Permit, except as permitted in Sections 4.156.02 and 4.156.05, shall be issued for the erection or construction of a sign relating to such new building or major remodeling, until the plans, drawings, sketches and other documents required for a Sign Permit application have been reviewed and approved

by the Board. [Amended by Ord. No. 538, 2/21/02.] [Amended by Ord. No. 557, 9/5/03.] [Amended by Ord. No. 704, 6/18/12]

**Applicant's Response:**

**The applicant acknowledges and understand that no building or sign permit will be issued for the erection or construction of a sign related to the proposed development until plans and the proper documentation has been reviewed and approved by the board. The application material includes a request for a Sign Permit for the preliminary signage design.**

- (.02) Development in Accord with Plans. Construction, site development and landscaping shall be carried out in substantial accord with the plans, drawings, sketches and other documents approved by the Board, unless altered with Board approval. Nothing in this subsection shall be construed to prevent ordinary repair, maintenance and replacement of any part of the building or landscaping which does not involve a substantial change from the purpose of Section 4.400. If the Board objects to such proposed changes, they shall be subject to the procedures and requirements of the site design review process applicable to new proposals.

**Applicant's Response:**

**The applicant acknowledges and understands the construction, site development, and landscape are to be executed in substantial accord with application material provided, unless altered with Board approval.**

- (.03) Variances. The Board may authorize variances from the site development requirements, based upon the procedures, standards and criteria listed in Section 4.196. Variances shall be considered in conjunction with the site design review process.

**Applicant's Response:**

**The applicant acknowledges and understands the procedures, standards, and criteria for requesting variances. The application material does not include a request for variances.**

**Section 4.421. Criteria and Application of Design Standards.**

(.01) The following standards shall be utilized by the Board in reviewing the plans, drawings, sketches and other documents required for Site Design Review. These standards are intended to provide a frame of reference for the applicant in the development of site and building plans as well as a method of review for the Board. These standards shall not be regarded as inflexible requirements. They are not intended to discourage creativity, invention and innovation. The specifications of one or more particular architectural styles is not included in these standards. (Even in the Boones Ferry Overlay Zone, a range of architectural styles will be encouraged.)

- A. Preservation of Landscape. The landscape shall be preserved in its natural state, insofar as practicable, by minimizing tree and soils removal, and any grade changes shall be in keeping with the general appearance of neighboring developed areas.

**Applicant's Response:**

**The proposed development includes measures to preserve the natural landscape of the site. The proposed improvements are configured to minimize the removal of existing healthy trees and impacts to the SROZ area within the site. All proposed plantings are of native species that contribute to the preservation of the natural landscape.**

- B. Relation of Proposed Buildings to Environment. Proposed structures shall be located and designed to assure harmony with the natural environment, including protection of steep slopes, vegetation and other naturally sensitive areas for wildlife habitat and shall provide proper buffering from less intensive uses in accordance with Sections 4.171 and 4.139 and 4.139.5. The achievement of such relationship may include the enclosure of space in conjunction with other existing buildings or other proposed buildings and the creation of focal points with respect to avenues of approach, street access or relationships to natural features such as vegetation or topography.

**Applicant's Response:**

**The structures included in the proposed development have been located and designed to assure harmony with the natural environment and protect existing vegetation and sensitive natural features found on and around the subject parcel.**

- B. Drives, Parking and Circulation. With respect to vehicular and pedestrian circulation, including walkways, interior drives and parking, special attention shall be given to location and number of access points, general interior

circulation, separation of pedestrian and vehicular traffic, and arrangement of parking areas that are safe and convenient and, insofar as practicable, do not detract from the design of proposed buildings and structures and the neighboring properties.

**Applicant's Response:**

**The proposed location of drives, parking areas, and vehicle and pedestrian circulation proper attention are configured such that these areas are safe and convenient to the extent possible. These features of the develop do not hinder or distract from the design of the site and/or buildings and have no impact on the adjacent properties or surrounding area.**

- C. Surface Water Drainage. Special attention shall be given to proper site surface drainage so that removal of surface waters will not adversely affect neighboring properties of the public storm drainage system.

**Applicant's Response:**

**The proposed development includes provisions such as proper grading, erosion control and storm water detention systems to control and address site surface drainage. These provisions ensure the removal of surface waters will not adversely affect neighboring properties of the public storm drainage system.**

- D. Utility Service. Any utility installations above ground shall be located so as to have a harmonious relation to neighboring properties and site. The proposed method of sanitary and storm sewage disposal from all buildings shall be indicated.

**Applicant's Response:**

**The proposed development includes utility equipment that will be above but is located with considerations and no impact to neighboring properties. The method of sanitary and storm sewage disposal is included in the application material.**

- E. Advertising Features. In addition to the requirements of the City's sign regulations, the following criteria should be included: the size, location, design, color, texture, lighting and materials of all exterior signs and outdoor advertising structures or features shall not detract from the design of proposed buildings and structures and the surrounding properties.

**Applicant's Response:**

**The signage proposed is minimal in nature and per city signage standards. The materials, size, location and design will not detract from the design of buildings being proposed and the surrounding neighborhood.**

- F. Special Features. Exposed storage areas, exposed machinery installations, surface areas, truck loading areas, utility buildings and structures and similar accessory areas and structures shall be subject to such setbacks, screen plantings or other screening methods as shall be required to prevent their being incongruous with the existing or contemplated environment and its surrounding properties. Standards for screening and buffering are contained in Section 4.176.

**Applicant's Response:**

**The proposed development includes special features such as outdoor storage areas for city fleet and large equipment, bulk materials, utility buildings and structures. These features are screened by sight obscuring fencing, perimeter landscaping, and buffering per Section 4.176**

- (.02) The standards of review outlined in Sections (a) through (g) above shall also apply to all accessory buildings, structures, exterior signs and other site features, however related to the major buildings or structures.
- (.03) The Board shall also be guided by the purpose of Section 4.400, and such objectives shall serve as additional criteria and standards.
- (.04) Conditional application. The Planning Director, Planning Commission, Development Review Board or City Council may, as a Condition of Approval for a zone change, subdivision, land partition, variance, conditional use, or other land use action, require conformance to the site development standards set forth in this Section.
- (.05) The Board may attach certain development or use conditions in granting an approval that are determined necessary to insure the proper and efficient functioning of the development, consistent with the intent of the Comprehensive Plan, allowed densities and the requirements of this Code. In making this determination of compliance and attaching conditions, the Board shall, however, consider the effects of this action on the availability and cost of needed housing. The provisions of this section shall not be used in such a manner that additional conditions either singularly or accumulatively have the effect of unnecessarily increasing the cost of housing or effectively excluding a needed housing type.
- (.06) The Board or Planning Director may require that certain paints or colors of materials be used in approving applications. Such requirements shall only be applied when site development or other land use applications are being reviewed by the City.

- A. Where the conditions of approval for a development permit specify that certain paints or colors of materials be used, the use of those paints or colors shall be binding upon the applicant. No Certificate of Occupancy shall be granted until compliance with such conditions has been verified.
- B. Subsequent changes to the color of a structure shall not be subject to City review unless the conditions of approval under which the original colors were set included a condition requiring a subsequent review before the colors could be changed.

**Section 4.430. Location, Design and Access Standards for mixed Solid Waste and Recycling Areas**

- (.01) The following locations, design and access standards for mixed solid waste and recycling storage areas shall be applicable to the requirements of Section 4.179 of the Wilsonville City Code.

**Applicant's Response:**

**The applicant acknowledges and understands the location, design, and access standards for mixed solid waste and recycle storage areas. The application material provide conveys compliance with standards of this section.**

(.02) Location Standards:

- A. To encourage its use, the storage area for source separated recyclables shall be co-located with the storage area for residual mixed solid waste.
- B. Indoor and outdoor storage areas shall comply with Uniform Building and Fire Code requirements.
- C. Storage area space requirements can be satisfied with a single location or multiple locations and can combine with both interior and exterior locations.
- D. Exterior storage areas can be located within interior side yard or rear yard areas. Minimum setback shall be three (3) feet. Exterior storage areas shall not be located within a required front yard setback, including double frontage lots.
- E. Exterior storage areas shall be located in central and visible locations on a site to enhance security for users.
- F. Exterior storage areas can be located in a parking area if the proposed use provides at least the minimum number of parking spaces required for the use after deducting the area used for storage. Storage areas shall be appropriately screened according to the provisions of Section 4.430 (.03), below.



- G. The storage area shall be accessible for collection vehicles and located so that the storage area will not obstruct pedestrian or vehicle traffic movement on the site or on public streets adjacent to the site.

**Applicant's Response:**

**The proposed solid-mixed waste and recycle area is a roofed concrete block enclosure located within the fenced operations yard. It is fully centrally located in operations yard for ease of use and access for all users. It is visually screened by sight obscuring fencing, the proposed building and perimeter landscaping. The applicant has coordinated the design and location of the enclosure with franchise waste hauler and has received approval on the design included in the application material.**

(.03) Design Standards.

- A. The dimensions of the storage area shall accommodate containers consistent with current methods of local collection.
- B. Storage containers shall meet Uniform Fire Code standards and be made of or covered with waterproof materials or situated in a covered area.
- C. Exterior storage areas shall be enclosed by a sight obscuring fence, wall or hedge at least six (6) feet in height. Gate openings for haulers shall be a minimum of ten (10) feet wide and shall be capable of being secured in a closed or open position. In no case shall exterior storage areas be located in conflict with the vision clearance requirements of Section 4.177.
- D. Storage area(s) and containers shall be clearly labeled to indicate the type of materials accepted.

**Applicant's Response:**

**The proposed refuse enclosure will accommodate (2) standard 6 yard dumpsters and (4) rolling carts. Each container will be supplied by the franchise waste hauler and will be labeled to indicate the type of materials accepted. The storage area is enclosed within a concrete block enclosure that is gated and covered.**

(.04) Access Standards.

- A. Access to storage areas can be limited for security reasons. However, the storage area shall be accessible to users at convenient times of the day and to collect service personnel on the day and approximate time they are scheduled to provide collection service.

- B. Storage areas shall be designed to be easily accessible to collection trucks and equipment, considering paving, grade and vehicle access. A minimum of ten (10) feet horizontal clearance and eight feet of vertical clearance is required if the storage area is covered.
- C. Storage areas shall be accessible to collection vehicles without requiring backing out of a driveway onto a public street. If only a single access point is available to the storage area, adequate turning radius shall be provided to allow collection vehicles to safely exit the site in a forward motion. (Added by Ordinance #426, April 4, 1994.)

**Applicant's Response:**

**The proposed storage area is limited to city staff only and is secured within the sites fenced operations yard. Access to the enclosure has been reviewed and approved by the franchise waste hauler.**

**Section 4.440. Procedure.**

- (.01) Submission of Documents. A prospective applicant for a building or other permit who is subject to site design review shall submit to the Planning Department, in addition to the requirements of Section 4.035, the following:
  - A. A site plan, drawn to scale, showing the proposed layout of all structures and other improvements including, where appropriate, driveways, pedestrian walks, landscaped areas, fences, walls, off-street parking and loading areas, and railroad tracks. The site plan shall indicate the location of entrances and exits and direction of traffic flow into and out of off-street parking and loading areas, the location of each parking space and each loading berth and areas of turning and maneuvering vehicles. The site plan shall indicate how utility service and drainage are to be provided.
  - B. A Landscape Plan, drawn to scale, showing the location and design of landscaped areas, the variety and sizes of trees and plant materials to be planted on the site, the location and design of landscaped areas, the varieties, by scientific and common name, and sizes of trees and plant materials to be retained or planted on the site, other pertinent landscape features, and irrigation systems required to maintain trees and plant materials. An inventory, drawn at the same scale as the Site Plan, of existing trees of 4" caliper or more is required. However, when large areas of trees are proposed to be retained undisturbed, only a survey identifying the location and size of all perimeter trees in the mass is necessary.
  - C. Architectural drawings or sketches, drawn to scale, including floor plans, in sufficient detail to permit computation of yard requirements and showing all elevations of the proposed structures and other improvements as they will

appear on completion of construction. Floor plans shall also be provided in sufficient detail to permit computation of yard requirements based on the relationship of indoor versus outdoor living area, and to evaluate the floor plan's effect on the exterior design of the building through the placement and configuration of windows and doors.

- D. A Color Board displaying specifications as to type, color, and texture of exterior surfaces of proposed structures. Also, a phased development schedule if the development is constructed in stages.
- E. A sign Plan, drawn to scale, showing the location, size, design, material, color and methods of illumination of all exterior signs.
- F. The required application fee.

**Applicant's Response:**

**The required application material has been submitted for review. The application material includes a proper site survey with topographic information, civil site plans, architectural plans and drawings of the complete development, a color board of the proposed materials, a sign plan, and required application fee.**

- (.02) As soon as possible after the preparation of a staff report, a public hearing shall be scheduled before the Development Review Board. In accordance with the procedures set forth in Section 4.010(2) and 4.012, the Development Review Board shall review and approve, approve with conditions, or deny the proposed architectural, site development, landscaping or sign plans of the applicant. If the Board finds that additional information or time are necessary to render a decision, the matter may be continued to a date certain. The applicant shall be immediately notified in writing of any such continuation or delay together with the scheduled date of review.

**Applicant's Response:**

**The applicant acknowledges and understands that after the staff report has been prepared a public hearing will be scheduled before the Development Review Board for review, approval, approval with conditions, or a denial of the application. Any additional information required by the board shall be presented in a timely fashion as the matter may be continued to a date certain.**

**Section 4.441. Effective Date of Decisions.**

A decision of the Board shall become effective fourteen (14) calendar days after the date of the decision, unless the decision is appealed to, or called up by, the Council. If the decision of the

Board is appealed to, or called up by, the City Council, the decision of the Council shall become effective immediately.

**Applicant's Response:**

**The applicant acknowledges and understands that a decision of the Board becomes effective (14) calendar days after the date of the decision pending the decision is appealed or called up by the Council. If in the event the decision is appealed or called up by the Council, the Council's decision becomes effective immediately.**

**Section 4.442. Time Limit on Approval.**

Site design review approval shall be void after two (2) years unless a building permit has been issued and substantial development pursuant thereto has taken place; or an extension is granted by motion of the Board.

**Applicant's Response:**

**The applicant acknowledges and understands that the Site design review approval is voided after (2) years unless a building permit has been issued and substantial development has taken place or an extension is granted by the Board.**

**Section 4.443. Preliminary Consideration.**

An applicant may request preliminary consideration by the Board of general plans prior to seeking a building permit. When seeking preliminary consideration, the applicant shall submit a site plan showing the proposed structures, improvements and parking, together with a general description of the plans. The Board shall approve or reject all or part of the applicant's general plan within the normal time requirements of a formal application. Preliminary approval shall be deemed to be approval of the final plan to the extent that the final design contains the characteristics of the preliminary design.

**Applicant's Response:**

**The applicant is not requesting preliminary consideration; therefore, this section is not applicable.**

**Section 4.450. Installation of Landscaping.**

- (.01) All landscaping required by this section and approved by the Board shall be installed prior to issuance of occupancy permits, unless security equal to one hundred and ten percent (110%) of the cost of the landscaping as determined by the Planning Director is filed with the City assuring such installation within six (6) months of occupancy. "Security" is cash, certified check, time certificates of deposit, assignment of a savings account or such other assurance of completion as shall meet

with the approval of the City Attorney. In such cases the developer shall also provide written authorization, to the satisfaction of the City Attorney, for the City or its designees to enter the property and complete the landscaping as approved. If the installation of the landscaping is not completed within the six-month period, or within an extension of time authorized by the Board, the security may be used by the City to complete the installation. Upon completion of the installation, any portion of the remaining security deposited with the City shall be returned to the applicant.

**Applicant's Response:**

**The applicant acknowledges and understands that all landscaping required by this section and approved by the Board is to be installed prior to issuance of occupancy permits and the option to place 110% of the cost of the landscaping into security as filed with City assuring such installation within (6) months of occupancy.**

- (.02) Action by the City approving a proposed landscape plan shall be binding upon the applicant. Substitution of plant materials, irrigation systems, or other aspects of an approved landscape plan shall not be made without official action of the Planning Director or Development Review Board, as specified in this Code.

**Applicant's Response:**

**The applicant acknowledges and understands the decision approving the proposed landscape plan is binding upon the applicant. Any substitution of plant materials, irrigation system, or other aspects of the approved plan shall not be made**

- (.03) All landscaping shall be continually maintained, including necessary watering, weeding, pruning, and replacing, in a substantially similar manner as originally approved by the Board, unless altered with Board approval.

**Applicant's Response:**

**The applicant acknowledges and understands all landscaping is to be continually maintained, including water and replacing as needed in a substantially similar manner to the Board approved landscape plan. Any alterations would require Board approval.**

- (.04) If a property owner wishes to add landscaping for an existing development, in an effort to beautify the property, the Landscape Standards set forth in Section 4.176 shall not apply and no Plan approval or permit shall be required. If the owner wishes to modify or remove landscaping that has been accepted or approved through the

City's development review process, that removal or modification must first be approved through the procedures of Section 4.010.

**Applicant's Response:**

**The applicant acknowledges and understands any landscaping in addition to Board approved landscaping does not require approval or additional permits.**

## **TREE PRESERVATION AND PROTECTION**

### **Section 4.600. Purpose and Declaration**

- (.01) Rapid growth, the spread of development, need for water and increasing demands upon natural resources have the effect of encroaching upon, despoiling, or eliminating many of the trees, other forms of vegetation, and natural resources and processes associated therewith which, if preserved and maintained in an undisturbed and natural condition, constitute important physical, aesthetic, recreational and economic assets to existing and future residents of the City of Wilsonville.

#### **Applicant's Response:**

**Applicant will comply with tree preservation and protection requirements in order to mitigate the impact to the site's natural resources. This includes preserving as many trees as possible and protecting the natural resources on site**

- (.02) Specifically, the City Council finds that:
- A. Woodland growth protects public health through the absorption of air pollutants and contamination, through the reduction of excessive noise and mental and physical damage related to noise pollution, and through its cooling effect in the summer months, and insulating effects in winter;
  - B. Woodlands provide for public safety through the prevention of erosion, siltation, and flooding; and
  - C. Trees make a positive contribution to water quality and water supply by absorbing rainfall, controlling surface water run-off, and filtering and assisting in ground water recharge; and
  - D. Trees and woodland growth are an essential component of the general welfare of the City of Wilsonville by producing play areas for children and natural beauty, recreation for all ages and an irreplaceable heritage for existing and future City residents.

#### **Applicant's Response:**

**Applicant proposes a site plan that meets programming requirements for the use while retaining existing trees and vegetation to the maximum extent practical. This includes protection and enhancement of the existing natural resource on the development and providing low-impact vegetated stormwater management facilities for the project.**

(.03) Therefore, the purposes of this subchapter are:

- A. To preserve Significant Resource Overlay Zone areas, recognizing that development can and will occur.
- B. To provide for the protection, preservation, proper maintenance and use of trees and woodlands in order to protect natural habitat and prevent erosion.
- C. To protect trees and other wooded areas for their economic contribution to local property values when preserved, and for their natural beauty and ecological or historical significance.
- D. To protect water quality, control surface water run-off, and protect ground water recharge.
- E. To reflect the public concern for these natural resources in the interest of health, safety and general welfare of Wilsonville residents.
- F. To encourage replanting where trees are removed.

**Applicant's Response:**

**Applicant proposes to retain existing trees and vegetation to the maximum extent practical. This includes protection and enhancement of the existing SROZ area of the development and providing low-impact vegetated stormwater management facilities for the project.**



**Section 4.600.20.     Applicability of Subchapter**

- (.01) The provisions of this subchapter apply to the United States and the State of Oregon, and to their agencies and subdivisions, including the City of Wilsonville, and to the employees and agents thereof.
- (.02) By this subchapter, the City of Wilsonville regulates forest practices on all lands located within its urban growth boundary, as provided by ORS 527.722.
- (.03) The provisions of this subchapter apply to all land within the City limits, including property designated as a Significant Resource Overlay Zone or other areas or trees designated as protected by the Comprehensive Plan, City zoning map, or any other law or ordinance; except that any tree activities in the Willamette River Greenway that are regulated by the provisions of WC 4.500 - 4.514 and requiring a conditional use permit shall be reviewed by the DRB under the application and review procedures set forth for Tree Removal Permits.

**Section 4.600.30. Tree Removal Permit Required**

- (.01) Requirement Established. No person shall remove any tree without first obtaining a Tree Removal Permit (TRP) as required by this subchapter.
- (.02) Tree Removal Permits will be reviewed according to the standards provided for in this subchapter, in addition to all other applicable requirements of Chapter 4.
- (.03) Although tree activities in the Willamette River Greenway are governed by WC 4.500 - 4.514, the application materials required to apply for a conditional use shall be the same as those required for a Type B or C permit under this subchapter, along with any additional materials that may be required by the Planning Department. An application for a Tree Removal Permit under this section shall be reviewed by the Development Review Board.

**Applicant's Response:**

**Applicant will comply with tree removal permitting requirements.**

**Section 4.600.40.     Exceptions**

- (.01) Exception from requirement. Notwithstanding the requirement of WC 4.600.30(1), the following activities are allowed without a Tree Removal Permit, unless otherwise prohibited:
- A. Agriculture, Commercial Tree Farm or Orchard. Tree removal or transplanting occurring during use of land for commercial purposes for agriculture, orchard(s), or tree farm(s), such as Christmas tree production.
  - B. Emergencies. Actions made necessary by an emergency, such as tornado, windstorm, flood, freeze, utility damage or other like disasters, in order to prevent imminent injury or damage to persons or property or restore order and it is impractical due to circumstances to apply for a permit.
    - 1. When an emergency has occurred, a Tree Removal Permit must be applied for within thirty (30) days following the emergency tree removal under the application procedures established in this subchapter.
    - 2. In addition to complying with the permit application requirements of this subchapter, an applicant shall provide a photograph of any tree removed and a brief description of the conditions that necessitated emergency removal. Such photograph shall be supplied within seven days of application for a permit. Based on good cause shown arising out of the emergency, the Planning Director may waive any or all requirements of this section.
    - 3. Where a Type A Permit is granted for emergency tree removal, the permittee is encouraged to apply to the City Tree Fund for replanting assistance.
  - C. City utility or road work in utility or road easements, in utility or road right-of-ways, or in public lands. However, any trees removed in the course of utility work shall be mitigated in accordance with the standards of this subchapter.
  - D. Nuisance abatement. The City is not required to apply for a Tree Removal Permit to undertake nuisance abatement as provided in WC 6.200 et seq. However, the owner of the property subject to nuisance abatement is subject to all the provisions of this subchapter in addition to the requirements of WC 6.200 et seq.
  - E. The removal of filbert trees is exempt from the requirements of this subchapter.
  - F. The Charbonneau District, including its golf course, is exempt from the requirements of WC 4.600.30(1) on the basis that by and through the current CC&R's of the Charbonneau Country Club, the homeowners' association complies with all requirements of WC 4.610.30(1)(C)(1). This exception has been based upon the Tree Maintenance and Protection Plan that has been submitted by the Charbonneau Country Club and approved by the Planning Director. Tree removal activities remain subject to all applicable standards of this subchapter. Unless authorized by the City, this exception does not include tree removal upon any public easements or public property within the district. In the event that the CC&R's are changed relative to the

effect of the Tree Maintenance and Protection Plan, then the Planning Director shall review whether such effect is material, whether it can be mitigated, and if not, may disallow the exemption.

**Applicant's Response:**

**Applicant is not applying for an exception to tree removal standards so this standard does not apply.**

**Section 4.600.50. Application For Tree Removal Permit**

- (.01) Application for Permit. A person seeking to remove one or more trees shall apply to the Director for a Tree Removal Permit for a Type A, B, C, or D permit, depending on the applicable standards as provided in this subchapter.
- (A) An application for a tree removal permit that does not meet the requirements of Type A may be submitted as a Type B application.
- (.02) Time of Application. Application for a Tree Removal Permit shall be made before removing or transplanting trees, except in emergency situations as provided in WC 4.600.40 (1)(B) above. Where the site is proposed for development necessitating site plan or plat review, application for a Tree Removal Permit shall be made as part of the site development application as specified in this subchapter.
- (.03) Fees. A person applying for a Tree Removal Permit shall pay a non-refundable application fee; as established by resolution of the City Council.
- A. By submission of an application, the applicant shall be deemed to have authorized City representatives to have access to applicant's property as may be needed to verify the information provided, to observe site conditions, and if a permit is granted, to verify that terms and conditions of the permit are followed.

**Applicant's Response:**

**Applicant will apply for the appropriate tree removal permit as required within the constraints of application timing and fees.**

**Section 4.610.00. Application Review Procedure**

- (.01) The permit applicant shall provide complete information as required by this subchapter in order for the City to review the application.
- (.02) Departmental Review. All applications for Tree Removal Permits must be deemed complete by the City Planning Department before being accepted for review. When all required information has been supplied, the Planning Department will verify whether - the application is complete. Upon request of either the applicant or the City, the City may conduct a field inspection or review meeting. City departments involved in the review shall submit their report and recommendations to the Planning Director who shall forward them to the appropriate reviewing authority.
- (.03) Reviewing Authority.
- A. Type A or B. Where site plan review or plat approval by the Development Review Board is not required by City ordinance, the grant or denial of the Tree Removal Permit application shall be the responsibility of the Planning Director. The Planning Director has the authority to refer a Type B permit application to the DRB under the Class II administrative review procedures of this Chapter. The decision to grant or deny a permit shall be governed by the applicable review standards enumerated in WC 4.610.10
  - B. Type C. Where the site is proposed for development necessitating site plan review or plat approval by the Development Review Board, the Development Review Board shall be responsible for granting or denying the application for a Tree Removal Permit, and that decision may be subject to affirmance, reversal or modification by the City Council, if subsequently reviewed by the Council. For site development applications subject to a Class II administrative review process in the Coffee Creek Industrial Design Overlay District, the Planning Director shall be responsible for the granting or denial of the Tree Removal Permit application.
  - C. Type D. Type D permit applications shall be subject to the standards and procedures of Class I administrative review and shall be reviewed for compliance with the Oregon Forest Practice Rules and Statutes. The Planning Director shall make the decision to grant or deny an application for a Type D permit.
  - D. Review period for complete applications. Type A permit applications shall be reviewed within 10 (ten) working days. Type B permit applications shall be reviewed by the Planning Director within thirty (30) calendar days, except that the DRB shall review any referred application within sixty (60) calendar days. Type C permit applications shall be reviewed within the time frame established by this Chapter. Type D permit applications shall be reviewed within 15 calendar days.
- (.04) Notice. Before the granting of a Type C Tree Removal Permit, notice of the application shall be sent by regular mail to all owners within two hundred fifty feet

(250') of the property where the trees are located as provided for in WC 4.010. The notice shall indicate where the application may be inspected and when a public hearing on the application will be held.

- (.05) Denial of Tree Removal Permit. Whenever an application for a Tree Removal Permit is denied, the permit applicant shall be notified, in writing, of the reasons for denial.
- (.06) Grant of a Tree Removal Permit. Whenever an application for a Type B, C or D Tree Removal Permit is granted, the reviewing authority shall:
  - A. Conditions. Attach to the granting of the permit any reasonable conditions considered necessary by the reviewing authority including, but not limited to, the recording of any plan or agreement approved under this subchapter, to ensure that the intent of this Chapter will be fulfilled and to minimize damage to, encroachment on or interference with natural resources and processes within wooded areas;
  - B. Completion of Operations. Fix a reasonable time to complete tree removal operations; and
  - C. Security. Require the Type C permit grantee to file with the City a cash or corporate surety bond or irrevocable bank letter of credit in an amount determined necessary by the City to ensure compliance with Tree Removal Permit conditions and this Chapter.
    - 1. This requirement may be waived by the Planning Director if the tree removal must be completed before a plat is recorded, and the applicant has complied with WC 4.264(1) of this Code.

**Applicant's Response:**

**Applicant will comply with tree removal permit application review procedures.**

#### **Section 4.610.10. Standards For Tree Removal, Relocation Or Replacement**

- (.01) Except where an application is exempt, or where otherwise noted, the following standards shall govern the review of an application for a Type A, B, C or D Tree Removal Permit:
- A. Standard for the Significant Resource Overlay Zone. The standard for tree removal in the Significant Resource Overlay Zone shall be that removal or transplanting of any tree is not inconsistent with the purposes of this Chapter.
  - B. Preservation and Conservation. No development application shall be denied solely because trees grow on the site. Nevertheless, tree preservation and conservation as a design principle shall be equal in concern and importance to other design principles.
  - C. Developmental Alternatives. Preservation and conservation of wooded areas and trees shall be given careful consideration when there are feasible and reasonable location alternatives and design options on-site for proposed buildings, structures or other site improvements.
  - D. Land Clearing. Where the proposed activity requires land clearing, the clearing shall be limited to designated street rights-of-way and areas necessary for the construction of buildings, structures or other site improvements.
  - E. Residential Development. Where the proposed activity involves residential development, residential units shall, to the extent reasonably feasible, be designed and constructed to blend into the natural setting of the landscape.
  - F. Compliance With Statutes and Ordinances. The proposed activity shall comply with all applicable statutes and ordinances.
  - G. Relocation or Replacement. The proposed activity shall include necessary provisions for tree relocation or replacement, in accordance with WC 4.620.00, and the protection of those trees that are not to be removed, in accordance with WC 4.620.10.
  - H. Limitation. Tree removal or transplanting shall be limited to instances where the applicant has provided completed information as required by this Chapter and the reviewing authority determines that removal or transplanting is necessary based on the criteria of this subsection.
    - 1. Necessary For Construction. Where the applicant has shown to the satisfaction of the reviewing authority that removal or transplanting is necessary for the construction of a building, structure or other site improvement, and that there is no feasible and reasonable location alternative or design option on-site for a proposed building, structure or other site improvement; or a tree is located too close to existing or proposed buildings or structures, or creates unsafe vision clearance.



2. Disease, Damage, or Nuisance, or Hazard. Where the tree is diseased, damaged, or in danger of falling, or presents a hazard as defined in WC 6.208, or is a nuisance as defined in WC 6.200 et seq., or creates unsafe vision clearance as defined in this Code.
    - (a) As a condition of approval of Stage II development, filbert trees must be removed if they are no longer commercially grown or maintained.
  3. Interference. Where the tree interferes with the healthy growth of other trees, existing utility service or drainage, or utility work in a previously dedicated right-of-way, and it is not feasible to preserve the tree on site.
  4. Other. Where the applicant shows that tree removal or transplanting is reasonable under the circumstances.
- I. Additional Standards for Type C Permits.
    1. Tree survey. For all site development applications reviewed under the provisions of Chapter 4 Planning and Zoning, the developer shall provide a Tree Survey before site development as required by WC 4.610.40, and provide a Tree Maintenance and Protection plan, unless specifically exempted by the Planning Director or DRB, prior to initiating site development.
    2. Platted Subdivisions. The recording of a final subdivision plat whose preliminary plat has been reviewed and approved after the effective date of Ordinance 464 by the City and that conforms with this subchapter shall include a Tree Survey and Maintenance and Protection Plan, as required by this subchapter, along with all other conditions of approval.
    3. Utilities. The City Engineer shall cause utilities to be located and placed wherever reasonably possible to avoid adverse environmental consequences given the circumstances of existing locations, costs of placement and extensions, the public welfare, terrain, and preservation of natural resources. Mitigation and/or replacement of any removed trees shall be in accordance with the standards of this subchapter.
  - J. Exemption. Type D permit applications shall be exempt from review under standards D, E, H and I of this subsection.

**Applicant's Response:**

**Applicant will comply with tree removal permit application review procedures. A Tree Survey conducted by a certified arborist is included with the application. The development proposes to meet all tree removal and mitigation requirements, and tree and landscape planting enhancement within the natural resource buffer and SROZ. Tree preservation and protection has been incorporated into the design to the greatest extent practical.**

**Section 4.610.20.     Type A Permit**

- (.01) Approval to remove one to three trees within a twelve (12) month period on any property shall be granted if the application meets all of the following requirements:
  - A. The trees subject to removal are not located in the Significant Resource Overlay Zone; and
  - B. The trees subject to removal are not located in the Willamette River Greenway;
  - C. The trees subject to removal are not Heritage Trees.
  - D. The trees subject to removal are not street trees;
  - E. The trees subject to removal must not be retained as a condition of site development approval.
  
- (.02) Where the City determines that an application to remove a tree or trees does not meet the criteria of 1(A) - (E) of this section, then the application may be submitted as a Type B application.
  
- (.03) An application for a Type A Permit shall contain the following information:
  - A. A brief statement explaining why tree removal is necessary.
  - B. A brief description of the trees proposed for removal or relocation, including common name, approximate height, diameter (or circumference) at four and one-half (4 1/2) feet d.b.h. above grade, and apparent health.
  - C. A drawing that depicts where trees are located and provides sufficient detail to indicate to a City reviewer where removal or relocation will occur.
  - D. The name of the person who will perform the removal or transplanting, if known, and the approximate date of removal.
  - E. Additional supporting information which the Planning Department requests, in order to determine whether an application meets the requirements of this section.
  
- (.04) The City shall accept a Type A permit application under the following procedure:
  - F. Review Period. Completed Type A permit applications shall be reviewed within ten (10) working days. The grant or denial of the Tree Removal Permit application shall be the responsibility of the Planning Director.
  - G. The Type A permit application shall be reviewed under the standards of Class I administrative review and applicable requirements of this subchapter.

**Applicant's Response:**

**Because tree removal is proposed within the SROZ area, the application does not meet the requirements for a Type A permit.**

**Section 4.610.30. Type B Permit**

- (.01) An applicant may apply for a Type B Permit based on the following criteria:
- A. The applicant proposes to remove four (4) or more trees on property not subject to site development review; or
  - B. The applicant proposes major or minor changes in a condition or conditions of a development permit previously approved under the provisions of this Chapter; or
  - C. The applicant is a homeowners' association that proposes to remove trees on property previously approved by the City for development.
    1. A Tree Maintenance and Protection Plan submitted for approval-under (1)(C) of this subsection shall meet the following criteria:
      - a. The Development Review Board shall review the Covenants, Conditions and Restrictions (CC&R's) to verify that the homeowners' association is designated and authorized by the CC&R's to review tree maintenance, removal, and planting requests.
      - b. A request for tree removal shall indicate the reason for the request, as well as the location, size, species and health of tree.
      - c. Decisions on requests and actions taken are documented and retained and shall be made available to the City's Development Review Board upon request.
      - d. A replanting program is established and reviewed on an annual basis. Where such a program is approved, mitigation under this Chapter shall not be required.
    2. Any permit approved under this subsection shall require that all maintenance, planting, and removal be performed to the standards established in this subchapter and in Wilsonville Code.
    3. Failure of a homeowners' association to meet the requirements of this subsection shall be grounds for revocation of a Type B permit.
- (.02) Application for the Type B permit shall consist of the information required for a Type A Permit, as provided in WC 4.610.20, and a Tree Maintenance and Protection Plan, which shall contain the following information:
- A. An accurate topographical survey, subdivision map or plat map, that bears the signature of a qualified, registered surveyor or engineer, and which shows:
    1. the shape and dimensions of the property, and the location of any existing and proposed structure or improvement,

2. the location of the trees on the site, and indicating species, approximate height, d.b.h. diameter, canopy spread and common name,
  3. the location of existing and proposed easements, as well as setbacks required by existing zoning requirements.
- B. In lieu of the map or survey, an applicant proposing to remove trees under (1)(B) or (1)(C) of this subsection may provide aerial photographs with overlays, GIS documentation, or maps approved by the Planning Director, and clearly indicating the information required by (2)(A) of this subsection.
- C. Arborist Report. The report shall describe the health and condition of all trees subject to removal or transplanting, and shall include information on species, common name, diameter at four and one-half (4 1/2) feet d.b.h., approximately height and age.
- D. Tree Protection. Unless specifically exempted by the Planning Director, a statement describing how trees intended to remain will be protected during tree removal, and how remaining trees will be maintained.
- E. Tree Identification. Unless specifically exempted by the Planning Director, a statement that any trees proposed for removal will be identified by a method obvious to a site inspector, such as tagging, painting, or flagging, in addition to clear identification on construction documents.
- F. Replacement Trees. A description of the proposed tree replacement program with a detailed explanation including the number, size, and species, and cost. In lieu of replacing trees, the applicant may propose to pay into the City Tree Fund an amount equivalent to the value of the replacement trees after installation, as provided in this subchapter.
- G. Covenants, Conditions and Restrictions (CC&R's). Where the applicant is proposing to remove trees on common areas, the applicant shall provide a copy of the applicable CC&R's, including any landscaping provisions.
- H. Waiver of documentation. The Planning Director may waive an application document where the required information has already been made available to the City, or where the Director determines the information is not necessary to review the application.

(.03) Review.

- A. The Type B permit application, including major or minor changes in a condition or conditions of a development permit previously approved under the provisions of this chapter, shall be reviewed under the standards of Class II administrative review and the requirements of this subchapter. Where site plan review or plat approval by the Development Review Board is not required by City ordinance, the grant or denial of the Type B permit shall be the responsibility of the Planning Director. The Planning Director has the authority to refer a Type B

permit application to DRB under the Class II administrative review procedures of this Chapter.

- B. The DRB shall review and render a decision on any application referred by the Planning Director within sixty (60) days. The Planning Director shall review a completed permit application within thirty (30) days.
- C. The decision to grant or deny a Type B permit shall be governed by the standards established in WC 4.610.10.

**Applicant's Response:**

**Because the property is subject to site development review and the applicant is not an HOA, a Type B permit is not applicable.**

**Section 4.610.40. Type C Permit**

- (.01) Approval to remove any trees on property as part of a site development application may be granted in a Type C permit. A Type C permit application shall be reviewed by the standards of this subchapter and all applicable review criteria of Chapter 4.

Application of the standards of this section shall not result in a reduction of square footage or loss of density, but may require an applicant to modify plans to allow for buildings of greater height. If an applicant proposes to remove trees and submits a landscaping plan as part of a site development application, an application for a Tree Removal Permit shall be included. The Tree Removal Permit application will be reviewed in the Stage II development review process. The DRB shall review all Type C permits, with the exception of Class II development review applications located within the Coffee Creek Industrial Design Overlay District, where the Planning Director shall have review authority. Any plan changes made that affect trees after Stage II review of a development application shall be subject to review by the original approval authority. Where mitigation is required for tree removal, such mitigation may be considered as part of the landscaping requirements as set forth in this Chapter. Tree removal shall not commence until approval of the required Stage II application and the expiration of the appeal period following that decision. If a decision approving a Type C permit is appealed, no trees shall be removed until the appeal has been settled.

- (.02) The applicant must provide ten copies of a Tree Maintenance and Protection Plan completed by an arborist that contains the following information:
- A. A plan, including a topographical survey bearing the stamp and signature of a qualified, registered professional containing all the following information:
    1. Property Dimensions. The shape and dimensions of the property, and the location of any existing and proposed structure or improvement.
    2. Tree survey. The survey must include:
      - a. An accurate drawing of the site based on accurate survey techniques at a minimum scale of one inch (1") equals one hundred feet (100') and which provides a) the location of all trees having six inches (6") or greater d.b.h. likely to be impacted, b) the spread of canopy of those trees, (c) the common and botanical name of those trees, and d) the approximate location and name of any other trees on the property.
      - b. A description of the health and condition of all trees likely to be impacted on the site property. In addition, for trees in a present or proposed public street or road right-of-way that are described as unhealthy, the description shall include recommended actions to restore such trees to full health. Trees proposed to remain, to be transplanted or to be removed shall be so designated. All trees to remain on the site are to be designated with metal tags that are to remain in place throughout the development. Those tags shall be numbered, with the numbers keyed to the tree survey map that is provided with the application.
      - c. Where a stand of twenty (20) or more contiguous trees exist on a site and the applicant does not propose to remove any of those trees, the required tree survey may be simplified to accurately show only the perimeter area of that stand of trees, including its drip line. Only those

trees on the perimeter of the stand shall be tagged, as provided in "b," above.

- d. All Oregon white oaks, native yews, and any species listed by either the state or federal government as rare or endangered shall be shown in the tree survey.
3. Tree Protection. A statement describing how trees intended to remain will be protected during development, and where protective barriers are necessary, that they will be erected before work starts. Barriers shall be sufficiently substantial to withstand nearby construction activities. Plastic tape or similar forms of markers do not constitute "barriers."
4. Easements and Setbacks. Location and dimension of existing and proposed easements, as well as all setbacks required by existing zoning requirements.
5. Grade Changes. Designation of grade changes proposed for the property that may impact trees.
6. Cost of Replacement. A cost estimate for the proposed tree replacement program with a detailed explanation including the number, size and species.
7. Tree Identification. A statement that all trees being retained will be identified by numbered metal tags, as specified in subsection "A," above in addition to clear identification on construction documents.

**Applicant's Response:**

**The proposed development is part of a site development application and will comply with the criteria of a Type C permit application. A Tree Survey and Report is included with the application, as well as a Planting Plan that proposes new plantings to comply with mitigation requirements for proposed tree removal. A Tree Maintenance and Protection Plan was completed by a certified arborist and is part of the application.**

**Section 4.610.50. Type D Permit**

- (.01) The owner or operator of a commercial woodlot shall apply and receive approval for a Type D Permit before beginning harvesting operations of more than three (3) trees within any twelve (12) month period. Type D permit applications shall be subject to the standards and procedures of Class I administrative review and shall be reviewed for compliance with the Oregon Forest Practice Rules. The removal of three (3) or fewer trees in a commercial woodlot within any twelve (12) month period shall not require a tree removal permit.

- (.02) Sites which meet the following criteria on the effective date of this regulation shall be designated as commercial woodlots by the Planning Director:
  - A. The site is at least 30,000 square feet.
  - B. Trees have been maintained on the site for the purpose of harvesting.
  - C. The property from which the forest species are to be harvested are in a property tax deferred status based on agricultural and/or forest use under state law provisions for Farm Deferral, Forest Land Deferral, or Small Woodlands Deferral.
- (.03) All other sites which potentially meet the criteria of WC 4.610.50(B) shall be reviewed by the Development Review Board, which shall determine whether a site meets the criteria for a commercial woodlot designation when an application is submitted for a tree removal permit.
- (.04) Approval to remove trees as part of a commercial harvest shall be granted if a plan meets all of the following criteria:
  - A. Trees will be grown and maintained according to an established plan.
  - B. Approved forestry practices will be followed. Forest practices include the administrative rules as adopted by the Oregon Department of Forestry.
  - C. Harvested trees will be replanted according to an established plan. Where trees are proposed to be removed as a final harvest and no further planting, maintenance, or rotation of trees will occur after trees are removed, the applicant shall propose an erosion control and revegetation plan for review.

**Applicant's Response:**

**The site is not a designated commercial woodlot and does not meet the criteria for a Type D permit application.**

**Section 4.620.00. Tree Relocation, Mitigation, Or Replacement**

- (.01) Requirement Established. A Type B or C Tree Removal Permit grantee shall replace or relocate each removed tree having six (6) inches or greater d.b.h. within one year of removal.
- (.02) Basis For Determining Replacement. The permit grantee shall replace removed trees on a basis of one (1) tree replanted for each tree removed. All replacement



trees must measure two inches (2") or more in diameter. Alternatively, the Planning Director or Development Review Board may require the permit grantee to replace removed trees on a per caliper inch basis, based on a finding that the large size of the trees being removed justifies an increase in the replacement trees required. Except, however, that the Planning Director or Development Review Board may allow the use of replacement Oregon white oaks and other uniquely valuable trees with a smaller diameter.

- (.03) Replacement Tree Requirements. A mitigation or replacement tree plan shall be reviewed by the City prior to planting and according to the standards of this subsection.
- A. Replacement trees shall have shade potential or other characteristics comparable to the removed trees, shall be appropriately chosen for the site from an approved tree species list supplied by the City, and shall be state Department of Agriculture Nursery Grade No. 1 or better.
  - B. Replacement trees must be staked, fertilized and mulched, and shall be guaranteed by the permit grantee or the grantee's successors-in-interest for two (2) years after the planting date.
  - C. A "guaranteed" tree that dies or becomes diseased during that time shall be replaced.
  - D. Diversity of tree species shall be encouraged where trees will be replaced, and diversity of species shall also be maintained where essential to preserving a wooded area or habitat.
- (.04) All trees to be planted shall consist of nursery stock that meets requirements of the American Association of Nurserymen (AAN) American Standards for Nursery Stock (ANSI Z60.1) for top grade.
- (.05) Replacement Tree Location.
- A. City Review Required. The City shall review tree relocation or replacement plans in order to provide optimum enhancement, preservation and protection of wooded areas. To the extent feasible and desirable, trees shall be relocated or replaced on-site and within the same general area as trees removed.
  - B. Relocation or Replacement Off-Site. When it is not feasible or desirable to relocate or replace trees on-site, relocation or replacement may be made at another location-approved by the City.
- (.06) City Tree Fund. Where it is not feasible to relocate or replace trees on site or at another approved location in the City, the Tree Removal Permit grantee shall pay into the City Tree Fund, which fund is hereby created, an amount of money approximately the value as defined by this subchapter, of the replacement trees that would otherwise be required by this subchapter. The City shall use the City Tree

Fund for the purpose of producing, maintaining and preserving wooded areas and heritage trees, and for planting trees within the City.

- A. The City Tree Fund shall be used to offer trees at low cost on a first-come, first-serve basis to any Type A Permit grantee who requests a tree and registers with the City Tree Fund.
- B. In addition, and as funds allow, the City Tree Fund shall provide educational materials to assist with tree planting, mitigation, and relocation.

(.07) Exception. Tree replacement may not be required for applicants in circumstances where the Director determines that there is good cause to not so require. Good cause shall be based on a consideration of preservation of natural resources, including preservation of mature trees and diversity of ages of trees. Other criteria shall include consideration of terrain, difficulty of replacement and impact on adjacent property.

**Applicant's Response:**

**The Planting Plan demonstrates new plantings to have characteristics and diversity required for required mitigation planting. Trees will be replaced at a ratio of 1:1, with a minimum of 2" caliper and be appropriate to the site conditions and existing inventory of trees to remain. Removed trees are proposed to be replaced prior to substantial completion of the proposed development and final certificate of occupancy. All new plantings will be installed in accordance with best practices of AAN and ANSI Z60.1. Since all replacement plantings will be installed on site, the applicant will not be utilizing the City Tree Fund option.**

**Section 4.620.10. Tree Protection During Construction**

- (.01) Where tree protection is required by a condition of development under Chapter 4 or by a Tree Maintenance and Protection Plan approved under this subchapter, the following standards apply:
- A. All trees required to be protected must be clearly labeled as such.
  - B. Placing Construction Materials Near Tree. No person may conduct any construction activity likely to be injurious to a tree designated to remain, including, but not limited to, placing solvents, building material, construction equipment, or depositing soil, or placing irrigated landscaping, within the drip line, unless a plan for such construction activity has been approved by the Planning Director or Development Review Board based upon the recommendations of an arborist.
  - C. Attachments to Trees During Construction. Notwithstanding the requirement of WC 4.620.10(1)(A), no person shall attach any device or wire to any protected tree unless needed for tree protection.
  - D. Protective Barrier. Before development, land clearing, filling or any land alteration for which a Tree Removal Permit is required, the developer shall erect and maintain suitable barriers as identified by an arborist to protect remaining trees. Protective barriers shall remain in place until the City authorizes their removal or issues a final certificate of occupancy, whichever occurs first. Barriers shall be sufficiently substantial to withstand nearby construction activities. Plastic tape or similar forms of markers do not constitute "barriers." The most appropriate and protective barrier shall be utilized. Barriers are required for all trees designated to remain, except in the following cases:
    - 1. Right-of-Ways and Easements. Street right-of-way and utility easements may be cordoned by placing stakes a minimum of fifty (50) feet apart and tying ribbon, plastic tape, rope, etc., from stake to stake along the outside perimeters of areas to be cleared.
    - 2. Any property area separate from the construction or land clearing area onto which no equipment will venture may also be cordoned off as described in paragraph (D) of this subsection, or by other reasonable means as approved by the reviewing authority.

**Applicant's Response: Applicant acknowledges the requirements for tree protection during construction and will comply with all tree protection measures and recommendations set forth by the project arborist.**

- (.01) The following standards apply to all activities affecting trees, including, but not limited to, tree protection as required by a condition of approval on a site development application brought under this Chapter or as required by an approved Tree Maintenance and Protection Plan.
- A. Pruning activities shall be guided by the most recent version of the ANSI 300 Standards for Tree, Shrub, and Other Woody Plant Maintenance. Information on these standards shall be available upon request from the Planning Department.
  - B. Topping is prohibited.
    - 1. Exception from this section may be granted under a Tree Removal Permit if necessary for utility work or public safety.

**Applicant's Response: Applicant acknowledges the requirements for landscape maintenance and protection.**

**Section 4.630.00. Appeal**

- (.01) The City shall not issue a Tree Removal Permit until approval has been granted by either the Planning Director or the DRB. Any applicant denied a Type A or B permit may appeal the decision as provided for in review of Class I Development Applications, or Class II Development Applications, whichever is applicable. Decisions by the Planning Director may be appealed to the DRB as provided in WC 4.022. Decisions by the DRB may be appealed to the City Council as provided in WC 4.022.
- (.02) The City shall not issue a Tree Removal Permit approved by the Development Review Board until fifteen (15) calendar days have passed following the approval. The grant or denial of a Tree Removal Permit may be appealed to the City Council in the same manner as provided for in WC 4.022. An appeal must be filed in writing, within the fifteen (15) calendar day period following the decision being appealed. The timely filing of an appeal shall have the effect of suspending the issuance of a permit pending the outcome of the appeal. The City Council, upon review, may affirm, reverse or modify the decision rendered by the Development Review Board based upon the same standards of review specified for the DRB in the Wilsonville Code.

**Applicant's Response: Applicant acknowledges the approval and appeal process.**

**Section 4.630.10. Display Of Permit; Inspection**

The Tree Removal Permit grantee shall conspicuously display the permit on-site. The permit grantee shall display the permit continuously while trees are being removed or replaced or while activities authorized under the permit are performed. The permit grantee shall allow City representatives to enter and inspect the premises at any reasonable time, and failure to allow inspection shall constitute a violation of this subchapter.

**Applicant's Response: Applicant acknowledges the requirements for display of permit.**

**Section 4.630.20. Variance For Hardship**

Any person may apply for a variance of this subchapter as provided for in Section 4.196 of this Chapter.

**Applicant's Response: Applicant does not intend to apply for a hardship variance.**

**Section 4.630.30. Severability**

If any part of this ordinance is found by a court of competent jurisdiction to be invalid, that part shall be severable and the remainder of this ordinance shall not be affected.

**Applicant's Response: Applicant acknowledges this standard.**



**Section 4.640.00. Violation; Enforcement**

- (.01) The cutting, damaging, or removal of any individual tree without a permit as required by this ordinance constitutes a violation punishable as a separate infraction under WC 1.013. In addition, each violation of a condition or a violation of any requirement of this Chapter shall constitute a separate infraction.
- (.02) Retroactive Permit. A person who removes a tree without obtaining a Type A or Type B permit may apply retroactively for a permit. In addition to all application requirements of this Chapter, the person must be able to demonstrate compliance with all requirements of this subchapter, in addition to paying a triple permit fee and a penalty per tree in an amount established by resolution of City Council. Mitigation requirements of this subchapter apply to all retroactive permits.
- (.03) Nuisance Abatement. Removal of a tree in violation of this Chapter is a nuisance and may be abated as provided in Sections 6.230 to 6.244, 6.250, and 6.260 of the Wilsonville Code.
- (.04) Withholding Certificate of Occupancy. The City Building Official has the authority to issue a stop-work order, withhold approval of a final plat, or withhold issuance of a certificate of occupancy, permits or inspections until the provisions of this Chapter, including any conditions attached to a Tree Removal Permit, have been fully met.
- (.05) Fines. Fines for a violation shall be imposed according to WC 1.012.
- (.06) Mitigation. The City shall require the property owner to replace illegally removed or damaged trees. The City may also require a combination of payment and tree replacement.
  - A. The City shall notify the property owner in writing that a violation has occurred and mitigation is required. Within thirty (30) days of the date of mailing of the notice, the property owner shall provide a mitigation plan to the City. The plan shall provide for replacement of a tree of similar species and size taking into account the suitability of the site and nursery stock availability.
  - B. Replacement will be on an inch-for-inch basis computed by adding the total diameter measured at d.b.h. in inches of the illegally removed or damaged trees. The City may use any reasonable means to estimate the tree loss if destruction of the illegally removed or damaged trees prevents exact measurement. All replaced trees must be a minimum two-inch (2") caliper. If the mitigation requirements cannot be completed on the property, the City may require completion at another approved location. Alternatively, the City may require

payment into the City Tree Fund of the value of the removed tree as established by the Planning Department.

**Section 4.640.10. Alternative Enforcement**

- (.01) In the event that a person commits more than one violation of WC 4.600.30 to WC 4.630.00, the following alternative sentence may be imposed:
- A. If a person has gained money or property through the commission of an offense under this section, then upon conviction thereof, the court, in lieu of imposing a fine, may sentence the person to pay an amount, fixed by the court, not to exceed double the amount of the gain from the commission of the offense.
  - B. "Gain" is defined as the amount of money or value of property derived from the commission of the violation, less the amount of money or value of property seized by or surrendered to the City. "Value" shall be the greater of the market value or replacement cost as determined by a licensed professional in the tree, nursery, or landscape field.
  - C. Any fines collected by the City under this section shall accrue to the City Tree Fund.

**Section 4.640.20. Responsibility For Enforcement.**

Compliance with this Chapter shall be enforced by the City Attorney, the City Attorney's designee, and Clackamas County or Washington County law enforcement officers.

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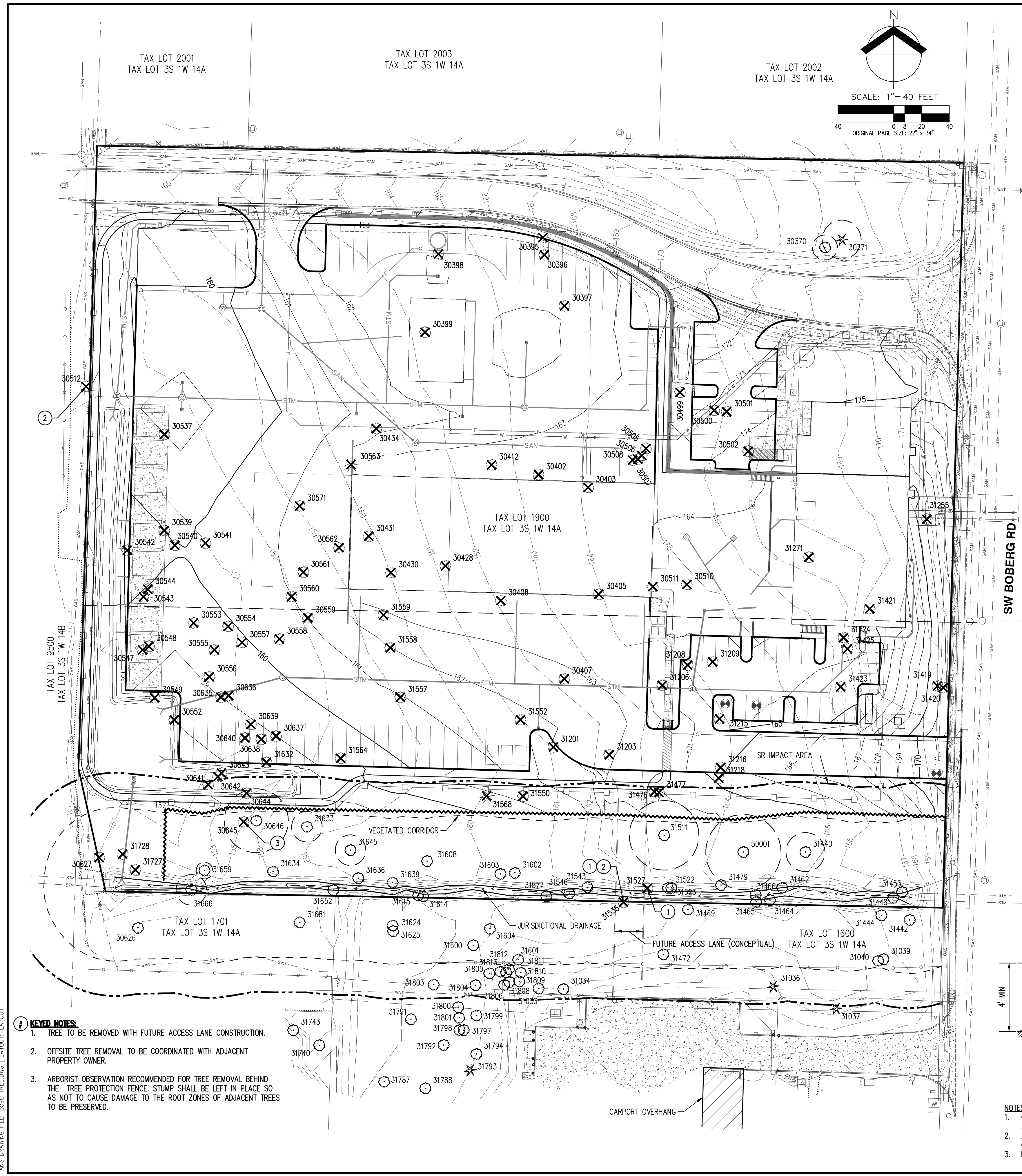
## APPENDIX ITEMS

- 1 | TREE PRESERVATION + REMOVAL PLAN
- 2 | STORMWATER MANAGEMENT REPORT
- 3 | GEO TECHNICAL ENGINEERING REPORT
  - 4 | EXTERIOR MATERIAL STUDY
  - 5 | PRE APPLICATION SUMMARY
- 6 | TRANSPORTATION IMPACT ANALYSIS
  - 7 | PRELIMINARY TITLE REPORT
- 8 | EXISTING CONDITIONS SURVEY

Thank you

S|E A

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**TREE PRESERVATION NOTES:**

- PLACING MATERIALS NEAR TREES:**
- NO PERSON MAY CONDUCT ANY ACTIVITY WITHIN THE TREE PROTECTION AREA OF ANY TREE DESIGNATED TO REMAIN, INCLUDING, BUT NOT LIMITED TO, PARKING EQUIPMENT, PLACING SOLVENTS, STORING BUILDING MATERIAL AND SOIL DEPOSITS, DUMPING CONCRETE WASHOUT.

**ATTACHMENTS TO TREES:**

- DURING CONSTRUCTION, NO PERSON SHALL ATTACH ANY OBJECT TO ANY TREE DESIGNATED FOR PROTECTION.

**GRADING NEAR TREES:**

- THE GRADE SHALL NOT BE ELEVATED OR REDUCED WITHIN THE TREE PROTECTION AREA OF TREES TO BE PRESERVED WITHOUT THE PROJECT ARBORIST'S AUTHORIZATION. THE PROJECT ARBORIST MAY ALLOW COVERAGE OF UP TO ONE HALF OF THE AREA OF THE TREE'S OPTIMAL TREE ROOT PROTECTION ZONE WITH LIGHT SOILS (NO CLAY) TO THE MINIMUM DEPTH NECESSARY TO CARRY OUT GRADING OR LANDSCAPING PLANS, IF IT WILL NOT IMPERIL THE SURVIVAL OF THE TREE. AERATION DEVICES MAY BE REQUIRED TO ENSURE THE TREE'S SURVIVAL.
- IF THE GRADE ADJACENT TO A PRESERVED TREE IS RAISED SUCH THAT IT COULD SLOUGH OR ERODE INTO THE TREE PROTECTION AREA, IT SHALL BE PERMANENTLY STABILIZED TO PREVENT SUFFOCATION OF THE ROOTS.
- THE APPLICANT SHALL NOT INSTALL AN IMPERVIOUS SURFACE WITHIN THE TREE PROTECTION AREA WITHOUT THE AUTHORIZATION OF THE PROJECT ARBORIST. THE PROJECT ARBORIST MAY REQUIRE SPECIFIC CONSTRUCTION METHODS AND/OR USE OF AERATION DEVICES TO ENSURE THE TREE'S SURVIVAL AND TO MINIMIZE THE POTENTIAL FOR ROOT INDUCED DAMAGE TO THE IMPERVIOUS SURFACE.
- TO THE GREATEST EXTENT PRACTICAL, UTILITY TRENCHES SHALL BE LOCATED OUTSIDE OF THE TREE PROTECTION AREA. THE PROJECT ARBORIST MAY REQUIRE THAT UTILITIES BE TUNNELED UNDER THE ROOTS OF TREES TO BE RETAINED IF THE PROJECT ARBORIST DETERMINES THAT TRENCHING WOULD SIGNIFICANTLY REDUCE THE CHANCES OF THE TREE'S SURVIVAL.
- TREES AND OTHER VEGETATION TO BE RETAINED SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION. CLEARING OPERATIONS SHALL BE CONDUCTED SO AS TO EXPOSE THE SMALLEST PRACTICAL AREA OF SOIL FOR THE LEAST POSSIBLE AMOUNT OF TIME. SHRUBS, GROUND COVER, AND STUMPS SHALL BE MAINTAINED TO CONTROL EROSION, WHERE FEASIBLE. WHERE NOT FEASIBLE, APPROPRIATE EROSION CONTROL PRACTICES SHALL BE IMPLEMENTED.

**ADDITIONAL REQUIREMENTS:**

- THE PROJECT ARBORIST MAY REQUIRE ADDITIONAL TREE PROTECTION MEASURES WHICH ARE CONSISTENT WITH ACCEPTED URBAN FORESTRY PRACTICES.

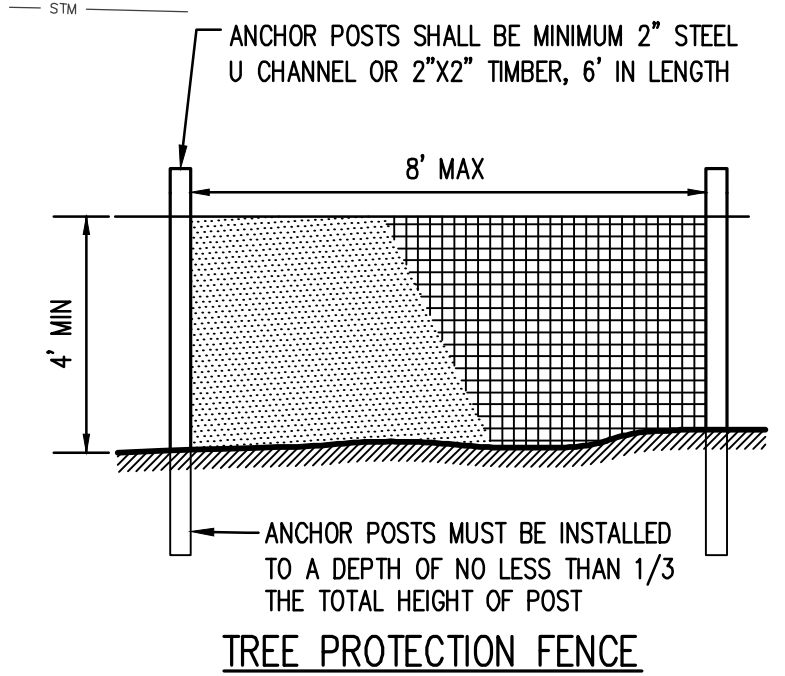
**EXCAVATION WITHIN ASSUMED TREE ROOT ZONES:**

- EXCAVATION IN THE TOP 24 INCHES OF SOIL IN THE ASSUMED TREE ROOT ZONE SHOULD BEGIN AT THE EXCAVATION LINE THAT IS CLOSEST TO THE TREE.
- THE EXCAVATION SHOULD BE DONE BY HAND/SHOVEL OR WITH AN EXCAVATOR AND A PERSON WITH A SHOVEL, PRUNING SHEARS, AND A PRUNING SAW.
- IF DONE BY HAND, ALL ROOTS 1-INCH DIAMETER OR LARGER SHOULD BE PRUNED AT THE EXCAVATION LINE.
- IF DONE WITH AN EXCAVATOR (MOST LIKELY SCENARIO), THEN THE OPERATOR SHALL START THE CUT AT THE EXCAVATION LINE AND CAREFULLY "FEEL" FOR ROOTS/RESISTANCE. WHEN THERE IS RESISTANCE, THE PERSON WITH THE SHOVEL HAND DIGS AROUND THE ROOTS AND PRUNES THE ROOTS 1-INCH DIAMETER OR LARGER.
- THE EXCAVATOR IS TO REMAIN OFF OF THE TREE ROOTS TO BE PRESERVED AT ALL TIMES.
- ALL ROOTS SHALL BE CUT CLEANLY WITH PRUNING SHEARS OR A PRUNING SAW.
- THE PROJECT ARBORIST MUST BE ON SITE DURING ANY WORK WITHIN THE TREE PROTECTION AREA.

**PRUNING/TREE REMOVAL NOTES:**

- THE CONTRACTOR SHALL PROVIDE AN ADEQUATE CREW OF PERSONNEL, EQUIPMENT, AND MATERIALS TO SAFELY AND EFFICIENTLY COMPLETE THE ASSIGNED WORK. EACH SUCH CREW SHALL INCLUDE AN INDIVIDUAL WHO SHALL BE DESIGNATED AS THE CREW SUPERVISOR, BE RESPONSIBLE FOR THE CREW'S ACTIVITIES, RECEIVE INSTRUCTION FROM THE OWNER OR THE OWNER'S REPRESENTATIVE, AND DIRECT THE CREW TO ACCOMPLISH SUCH WORK.
- WHENEVER A TREE, WHICH IS NOT SCHEDULED TO BE REMOVED, MUST BE TRIMMED OR PRUNED, THE CONTRACTOR SHALL ENSURE THAT SUCH TRIMMING AND PRUNING IS CARRIED OUT UNDER THE DIRECT SUPERVISION OF A CERTIFIED ARBORIST. ALL PRUNING AND TRIMMING SHALL BE PERFORMED IN ACCORDANCE WITH THE PROVISIONS OF ANSI A300 "STANDARD PRACTICES FOR TREE, SHRUB AND OTHER WOODY PLANT MAINTENANCE".
- UNLESS AS OTHERWISE DIRECTED BY THE OWNER, ROOT BALLS FROM TREES BEING REMOVED SHALL BE COMPLETELY REMOVED UNLESS THE ROOT REMOVAL CROSSES ONTO ADJACENT PROPERTIES OR WOULD COMPROMISE TREES BEING PRESERVED. IN THOSE CASES, THE STUMPS SHALL BE GROUND AS NECESSARY SO AS NOT TO CAUSE DAMAGE TO THE ROOT ZONES OF ADJACENT TREES TO BE PRESERVED ON THE SUBJECT PARCEL OR ADJUTING PARCELS. STUMPS NEAR PROPERTY LINES SHALL ALSO BE GROUND AS NECESSARY SO AS NOT TO CAUSE DISTURBANCE TO ADJACENT PARCELS.
- THE CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH THE LATEST GOVERNMENTAL SAFETY REGULATIONS. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ANSI Z133.1 "PRUNING, TRIMMING, REPAIRING, MAINTAINING AND REMOVING TREES AND CUTTING BRUSH—SAFETY REQUIREMENTS" WITH SPECIAL EMPHASIS GIVEN TO THE REQUIREMENT THAT ONLY QUALIFIED LINE-CLEARANCE TREE TRIMMERS BE ASSIGNED TO WORK WHERE A POTENTIAL ELECTRICAL HAZARD EXISTS.
- THE CONTRACTOR SHALL MAKE ALL THE NECESSARY ARRANGEMENTS WITH ANY UTILITY THAT MUST BE PROTECTED OR RELOCATED IN ORDER TO ACCOMPLISH THE WORK. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE PROTECTION OF THE OPERATING CONDITION OF ALL ACTIVE UTILITIES WITHIN THE AREA OF CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISTING UTILITIES.
- ANY MATERIAL RESULTING FROM THE TRIMMING OR REMOVAL OF ANY TREES SHALL BECOME THE RESPONSIBILITY OF THE CONTRACTOR TO DISPOSE OF.
- HAZARDOUS TREE REPORTING: ANY PERSON ENGAGED IN TRIMMING OR PRUNING WHO BECOMES AWARE OF A TREE OF DOUBTFUL STRENGTH, THAT COULD BE DANGEROUS TO PERSONS AND PROPERTY, SHALL REPORT SUCH TREE(S) TO THE OWNER OR THE OWNER'S REPRESENTATIVE. SUCH TREES SHALL INCLUDE THOSE THAT ARE OVER MATURE, DISEASED, OR SHOWING SIGNS OF DECAY OR OTHER STRUCTURAL WEAKNESS.
- TREES DETERMINED TO BE A HAZARD SHALL BE REMOVED AS SOON AS POSSIBLE.
- DAMAGES: ANY DAMAGE CAUSED BY THE CONTRACTOR, INCLUDING, BUT NOT LIMITED TO, BROKEN SIDEWALK, CURB, RUTTED LAWN, BROKEN WATER SHUT-OFFS, WIRE DAMAGE, BUILDING DAMAGE, STREET DAMAGE, ETC., WILL BE REPAIRED OR REPLACED IN A TIMELY MANNER, TO THE OWNER'S SATISFACTION, AND ALL COSTS PAID BY THE CONTRACTOR.
- ANY BRUSH CLEARING REQUIRED WITHIN THE TREE PROTECTION AREA SHALL BE ACCOMPLISHED WITH HAND OPERATED EQUIPMENT.
- TREES TO BE REMOVED SHALL BE FELLED SO AS TO FALL AWAY FROM OPTIMAL TREE ROOT PROTECTION ZONES AND TO AVOID PULLING AND BREAKING OF ROOTS TO REMAIN. DIRECTIONAL FELLING OF TREES SHALL BE USED TO AVOID DAMAGE TO TREES DESIGNATED FOR RETENTION.
- ALL DOWNED BRUSH AND TREES SHALL BE REMOVED FROM THE TREE PROTECTION AREA EITHER BY HAND OR WITH EQUIPMENT STAGED OUTSIDE OF THE TREE PROTECTION AREA. EXTRACTION SHALL OCCUR BY LIFTING THE MATERIAL OUT, NOT BY SKIDDING IT ACROSS THE GROUND.
- IF TEMPORARY HAUL OR ACCESS ROADS MUST PASS OVER TREE PROTECTION AREA, A ROADBED OF STEEL PLATES, OR 6 INCHES OF MULCH, OR 6 INCHES OF GRAVEL SHALL BE PLACED TO PREVENT SOIL COMPACTION IF DETERMINED NECESSARY BY THE PROJECT ARBORIST. THE ROADBED MATERIAL SHALL BE REPLENISHED AS NECESSARY TO MAINTAIN A 6-INCH DEPTH.
- PRUNING: THE CONTRACTOR SHALL CONSULT WITH THE PROJECT ARBORIST PRIOR TO ANY PRUNING ACTIVITIES NECESSARY FOR CONSTRUCTION ACTIVITIES. ALL PRUNING ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH ANSI A300 PRUNING STANDARDS. PRUNING SHALL BE COMPLETED PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.
- CUT BRANCHES AND ROOTS WITH SHARP PRUNING INSTRUMENTS THAT DO NOT CHOP OR TEAR.
- FENCING SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITIES, INCLUDING, BUT NOT LIMITED TO CLEARING, GRADING, EXCAVATION, OR DEMOLITION WORK, AND SHALL BE REMOVED ONLY AFTER THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES, INCLUDING LANDSCAPING AND IRRIGATION INSTALLATION.
- TREE PROTECTION FENCING SHALL BE FLUSH WITH THE INITIAL UNDISTURBED GRADE.

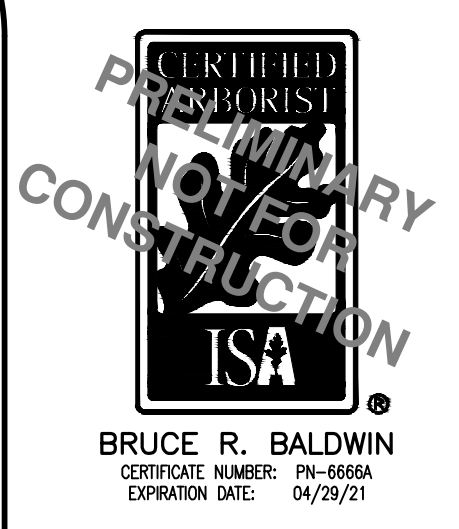
- KEYED NOTES:**
- TREE TO BE REMOVED WITH FUTURE ACCESS LANE CONSTRUCTION.
  - OFFSITE TREE REMOVAL TO BE COORDINATED WITH ADJACENT PROPERTY OWNER.
  - ARBORIST OBSERVATION RECOMMENDED FOR TREE REMOVAL BEHIND THE TREE PROTECTION FENCE. STUMP SHALL BE LEFT IN PLACE SO AS NOT TO CAUSE DAMAGE TO THE ROOT ZONES OF ADJACENT TREES TO BE PRESERVED.



- TREE PROTECTION FENCE**
- NOTES:**
- CHAIN LINK FENCE FOR TREE PROTECTION DEVICE OR APPROVED EQUAL.
  - AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
  - DEVICE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

**LEGEND**

EXISTING GROUND CONTOUR (1 FT)	---	149
EXISTING GROUND CONTOUR (5 FT)	---	150
FINISHED GRADE CONTOUR (1 FT)	---	149
FINISHED GRADE CONTOUR (5 FT)	---	150
EXISTING CONIFEROUS TREE	⊗	
EXISTING DECIDUOUS TREE	○	
TREE REMOVAL	⊗	
TREE PROTECTION FENCE (TREE PROTECTION AREA)	~~~~~	
ASSUMED TREE ROOT ZONE (1-FT RADIUS PER 1-IN OF DBH)	○	



Detailed Tree Inventory for SW Boberg Road

AKS Job No. 5590 - Evaluation Date: 05/09/2019 - Evaluated by: BRK

Table with columns: Tree #, DBH (in.), Avg. Crown Radius (ft), Height (ft), Tree Species, Common Name (Scientific name), Comments, Health Rating\*\*, Structure Rating\*\*, Remove/Preserve. Contains 315 rows of tree data.

AKS DRAWING FILE: 5590\_TREE.DWG | LAYOUT: LAYOUT1 (2)

Detailed Tree Inventory for SW Boberg Road

AKS Job No. 5590 - Evaluation Date: 05/09/2019 - Evaluated by: BRK

Table with columns: Tree #, DBH (in.), Avg. Crown Radius (ft), Height (ft), Tree Species, Common Name (Scientific name), Comments, Health Rating\*\*, Structure Rating\*\*, Remove/Preserve. Contains 54 rows of tree data.

Total # of Existing Trees inventoried = 162

Total # of Existing Onsite Trees = 119

Total # of Existing Onsite Trees to be Preserved = 30

Total # of Existing Onsite Trees to be Removed = 89

Total # of Existing Offsite Trees = 43

Total # of Existing Offsite Trees to be Preserved = 41

Total # of Existing Offsite Trees to be Removed = 2

Total # of Replacement Trees Required Outside of the Significant Resource Overlay Zone (per Wilsonville Development Code Section 4.620.00) = 79

Total # of Replacement Trees Required Within the SROZ (per Wilsonville Development Code Section 4.139.07) = 29

Total # of Replacement Shrubs Required Within the SROZ (per Wilsonville Development Code Section 4.139.07) = 51

\*Health Rating:

- 1 = Good Health - A tree that exhibits typical foliage, bark, and root characteristics, for its respective species, shows no signs of infection or infestation, and has a high level of vigor and vitality.
2 = Fair Health - A tree that exhibits some abnormal health characteristics and/or shows some signs of infection or infestation, but may be reversed or abated with supplemental treatment.
3 = Poor Health - A tree that is in significant decline, to the extent that supplemental treatment would not likely result in reversing or abating its decline.

\*\*Structure Rating:

- 1 = Good Structure - A tree that exhibits typical physical form characteristics, for its respective species, shows no signs of structural defects of the canopy, trunk, and/or root system.
2 = Fair Structure - A tree that exhibits some abnormal physical form characteristics and/or some signs of structural defects, which reduce the structural integrity of the tree, but are not indicative of imminent physical failure, and may be corrected using arboricultural abatement methods.
3 = Poor Structure - A tree that exhibits extensively abnormal physical form characteristics and/or significant structural defects that substantially reduces the structural viability of the tree, cannot feasibly be abated, and are indicative of imminent physical failure.

Arborist Disclosure Statement:

Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the health of trees, and attempt to reduce the risk of living near trees. The Client and Jurisdiction may choose to accept or disregard the recommendations of the arborist, or seek additional advice. Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fall in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like medicine, cannot be guaranteed. Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees. Neither this author nor AKS Engineering & Forestry, LLC have assumed any responsibility for liability associated with the trees on or adjacent to this site.

At the completion of construction, all trees should once again be reviewed. Land clearing and removal of adjacent trees can expose previously unseen defects and otherwise healthy trees can be damaged during construction.

AKS ENGINEERING & FORESTRY, LLC logo and contact information. SW BOBERG RD CITY OF WILSONVILLE OREGON WILSONVILLE OREGON. Includes address: 12965 SW HERMAN RD, STE 100, TUALATIN, OR 97062.

TREE PRESERVATION AND REMOVAL TABLE. Includes drawing title, designer (BRK), manager (BRB), checker (BRB), date (02/08/2021), revision table, job number (5590), sheet number (2 OF 2).





Harper  
Houf Peterson  
Righellis Inc.

# Wilsonville Public Works Facility

SEA-108

## Preliminary Stormwater Management Report

February 18, 2021

Prepared For:

Scott Edwards Architecture  
2525 E. Burnside St  
Portland, OR 97214

SEA-108

Prepared By:

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EXPIRES: 06/30/2022



ENGINEERS ♦ PLANNERS  
LANDSCAPE ARCHITECTS ♦ SURVEYORS

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**Appendix**

- EX-1 BASIN MAP
- WES BMP PRINTOUTS
- NRCS WEB SOIL SURVEY
- SITE SPECIFIC GEOTECHNICAL REPORT
- OPERATIONS & MAINTENANCE - STORMWATER FACILITIES



## **Project Description**

The project site is located west of SW Boberg Road between SW Barber Street and SW Boeckman Road at 28601 SW Boberg Road in the City of Wilsonville. The site consists of two tax lots (31W14A #1900 and #1600), totaling approximately 6.75 acres in size and designated as Planned Development Industrial (PDI) on the City of Wilsonville Zoning Map. The proposed project constructs a Public Works Complex addressing the long-term needs of the City of Wilsonville's Public Works Department. The complex will feature an office space with additional area designated for future expansion, a warehouse, storage yard, vehicle wash building, decant facility, and staff/public parking areas.

No public stormwater improvements are part of this project.

Low impact development site approaches (LID) are proposed to treat the impervious and pervious surface runoff. The LID facilities will also provide stormwater flow control for their respective basin areas.

Proposed stormwater management improvements are detailed further in this report. Refer to the Appendix for EX-1 proposed (post-development) basin map, and the WES BMP calculator printouts along with additional calculations and information.

The purpose of this stormwater memorandum is to present stormwater best management practices (BMP) for water quality treatment, flow control, infiltration and conveyance to be installed as part of this development project and designed to comply with the 2015 City of Wilsonville Stormwater & Surface Water Design & Construction Standards.

## **Existing Site Description**

The existing site is generally mild sloped, grassy land with sparse tree growth on the interior portion of the property and an existing wetland lined with dense vegetation along the south property boundary. A private access road crosses the north portion of the site for access to the adjacent property to the west. The site gently slopes from east to west at approximately 3% grade. Elevations range from 175' to 152' (NAVD88). The site's highest elevations are nearest the east portion of the site near Boberg Rd. There are no existing stormwater management system or facilities on the site. There is an existing public stormwater system located within Boberg Rd. This public stormwater system is proposed to remain; however, this project will not connect to the Boberg Rd. system due to elevation constraints. The existing wetland corridor along the southern property line follows the slope of the site to the west, where it eventually enters two existing 36" concrete storm culverts that continue flowing past the subject property to the west. This project will discharge stormwater near this lowest point in elevation of the site, just upstream of these existing culverts.

## **Soils Characteristics**

The Natural Resources Conservation Service (NRCS) with the United States Department of Agriculture (USDA) has classified the soils within Clackamas County in the Soil Survey of Clackamas County Manual. Soils are categorized into Hydrologic Soil Groups based on estimated runoff from precipitation. These groupings assume the soils are saturated and receive precipitation from long-duration storms. This rainfall to runoff relationship is complex and



includes the Drainage and Permeability characteristics of the soil. Pre-developed conditions for the site are the existing site's landscape areas. According to the USDA web soil survey, the site consists of soil group: 88A – Willamette Silt Loam (Soil Group C) and 91A – Woodburn Silt Loam (Soil Group C). Upon further exploration and site-specific geotechnical exploration and analysis, the site is underlain primarily by topsoil, silt and clay with varying proportions of sand, gravel, and cobbles. Please reference the geotechnical report and addendum for further information.

### **Infiltration**

Site-specific infiltration testing was completed by the geotechnical engineer in three locations and depths at the site. The testing generally revealed negligible infiltration rates around 1.4 inches per hour at a depth of 5.5-ft BGS. A test was completed in the SW corner of the site at a depth of 9-ft BGS and revealed an infiltration rate of approximately 45 inches per hour. However, this depth is greater than the depth of any proposed stormwater facilities. Therefore, a type C1 soil was used in the WES BMP calculator for purposes of sizing the stormwater facilities on-site.

### **Groundwater**

Refer to the geotechnical report for detailed boring logs and investigation. Per the report, *“groundwater was not encountered during our explorations. However, based on our review of projects completed in the site vicinity and water well logs on file with the Oregon Water Resources Department, we anticipate groundwater could range between approximately 10 and 20 feet BGS. Based on our correspondence with you, we understand the two existing wells located near the southwest corner of the proposed office building are old farm wells from prior site use. Water levels in the wells measured approximately 20.9 and 34.8 feet BGS on June 5, 2019, respectively.”*

Therefore, based on this information, coupled with the low to negligible infiltration rates, full stormwater infiltration is not feasible for this site. The proposed stormwater facility within the courtyard will be impermeable lined due to lack of soil infiltration, and location adjacent to building foundations.

### **Proposed Conditions**

Stormwater management improvements include the use of vegetated filtration swales and a detention pond constructed near the southwest portion of the site. There are two vegetated filtration swales located on the eastern half of the site that will provide stormwater management for the public parking lot, and the office building, staff parking and courtyard, respectively. The large southwest detention pond facility is intended to treat runoff from proposed Basin 3 (majority of the yard and warehouse) and will also receive managed stormwater from Basins 1 and 2 before ultimate discharge.

The majority of site runoff will be collected in catch basins and conveyed to each facility for treatment before discharging to the southern tributary to Seely Ditch / Coffee Lake Creek along the southern edge of the property. See Table 1 for Stormwater Runoff Basins.



**Table 1 – Stormwater Runoff Basins**

Basin	Total Area (SF)	Impervious Area (SF)	Pervious Area (SF)	Facility and Size
1	15,320	7,080	8,240	Vegetated Swale: 550 SF
2	48,125	31,925	16,200	Vegetated Swale: 2,000 SF
3	166,625	150,200	16,425	Detention Pond: 9,088 SF
<b>TOTAL</b>	230,070	189,205	40,865	

**Table 2 – Stormwater Management Requirements**

Table 2: City of Wilsonville Stormwater Management Requirements	
Design Requirement	City of Wilsonville Criteria
Conveyance Design Storm	10-Year; 24-hour SBUH Method for Pipe
Treatment Area	All Disturbed Impervious Area + New Impervious Area
Treatment Storm	1.0" / 24-hour storm per City of Wilsonville
Detention	Peak Flow Duration matching between 42% of the 2-year up through the 10-year storm event

Stormwater facility design calculations have been completed using the BMP Sizing Tool application. This tool addresses water quality treatment and flow control requirements when sizing stormwater management facilities. The design process includes separating the site into Discharge Management Areas (DMA) that are routed to BMP's. The application will adequately size the BMP's based on soil infiltration rates and desired facility surface area or depth.

**Proposed Basin Characteristics**

The proposed site's stormwater management basins are broken into three basins, 1-3. See exhibit EX-1 in the Appendix for an illustration of these proposed management basin areas. See Table 1 above for a summary of the proposed basin areas.

**Water Quality**

The City of Wilsonville water quality treatment criteria will be met by treatment of the site runoff through LID vegetated facilities. Treatment will occur via biofiltration and is met using the WES BMP Calculator. The proposed LID planter facilities will consist of an overflow set 12 inches above the topsoil growing media elevation. This will allow for 12" of ponding depth and filtration through the soil media prior to overflow. The facilities consist of an 18" depth section of growing filtration soil media, with 15" of drain rock below. A PVC liner is placed at the bottom of the interior courtyard facility due to proximity to building foundations. A perforated underdrain pipe is set at the bottom of each facility to ensure full drawdown. The water quality event has been routed through each LID facility in the WES BMP calculator to ensure that the event does not cause stormwater to enter the overflow structure during the water quality storm event. Treated stormwater will be collected in the underdrain system and routed to site conveyance. Studies



from the International Stormwater BMP Database (July 2012) indicate that bio filtration BMPs are good candidates for treatment of phosphorus, TSS and algae and mercury / metals.

Landscaping and trees are retained and proposed throughout the site to the maximum extent feasible. Above-ground vegetated stormwater facilities will benefit from tree canopy during the summer months to mitigate stormwater temperature rise. Underdrain systems will be necessary for collecting and routing stormwater that will filter through the proposed soil media but will not infiltrate the underlying native soils.

The WES BMP calculations are located in the Appendix.

BMP design constrains include area limitations, existing topography, and existing soil permeability. The City of Wilsonville Public Works department has strict requirements for developed sites and desire for safety, efficient use of the site, large vehicle turning movements and future opportunities.

Proper delineation and erosion and sediment control will be installed to protect the proposed facilities from potentially being compacted and/or inundated with sediment during construction.

Following treatment and detention, stormwater will ultimately discharge to the southern tributary to Seely Ditch / Coffee Lake Creek along the southern edge of the property. Refer to the Appendix for a proposed storm drainage schematic. See Table 1 above for a summary of stormwater management basins.

### **Detention / Flow Control**

All proposed LID planter facilities are designed to allow for 12" of ponding to provide flow control while stormwater is infiltrating through the soil media. Each planter overflow structure has an orifice cap on the incoming perforated underdrain to limit inflow and facilitate detention storage ponding within the basin. Flow control for the site is required to meet peak flow duration matching between 42% of the 2-year up through the 10-year storm event. The WES BMP calculator has been used to size the facilities to ensure that this requirement is met. See Table 1 above for a summary of stormwater management basins. See the WES BMP calculator printout in the appendix for additional information.

### **Conveyance**

The proposed storm pipe system is designed to have the capacity to convey the runoff from a 10-year storm event return frequency storm event without ponding. The site storm system was designed to convey all of the impervious area and contributing pervious area for the entire site. A minimum pipe size and slope will be maintained throughout the system. The intent is to maintain a minimum free flow velocity of 3.0 fps in all pipes. See the Appendix for pipe sizing calculations (minimum pipe slopes & sizes required to meet these conditions).

A conduit Flow Mannings "n" = 0.013 for pipe flow is used in all calculations.

The time of concentration ( $t_c$ ) is defined as the time for runoff to travel from the furthestmost point of the watershed to the point in question. Time of concentration can be estimated from several formulas. The minimum time of concentration is 5 minutes in developed urban areas



and the maximum is 100 minutes in rural areas. A time of concentration of 5 minutes is used for design of the stormwater basins in this project.

### **Downstream Analysis**

An analysis of the drainage system downstream of the development, verifying that the downstream system has the capacity to convey the 25-year design storm, will be performed during the permitting portion of the project. The analysis shall extend downstream to a point in the drainage system where the proposed development site constitutes 10% or less of the total tributary drainage flow. If the proposed development area is less than 10% of the total tributary drainage area at the approved point of discharge, the analysis will continue for one-quarter mile downstream of the approved point of discharge.

### **Additional Site Uses**

A vehicle wash station and decant facility are proposed to be constructed on the site. Therefore, these facilities are fully covered and will be hydraulically isolated from all other areas. The areas will include a hard-piped connection to the sanitary sewer system.

Bulk material storage uses are proposed for the site in the SW portion of the site. Approximately 10 storage bays will be constructed. A roof will cover 4 of the bays. The bays will contain bulk construction and maintenance materials such as rock and sand to be used by the Public Works department.

### **BMP Operation and Maintenance**

Proposed stormwater management facilities will be maintained by the Owner, Wilsonville Public Works.

All facilities shall be maintained per the schedule and requirements listed in the O&M plan included in the Appendix and as recorded with Clackamas County.

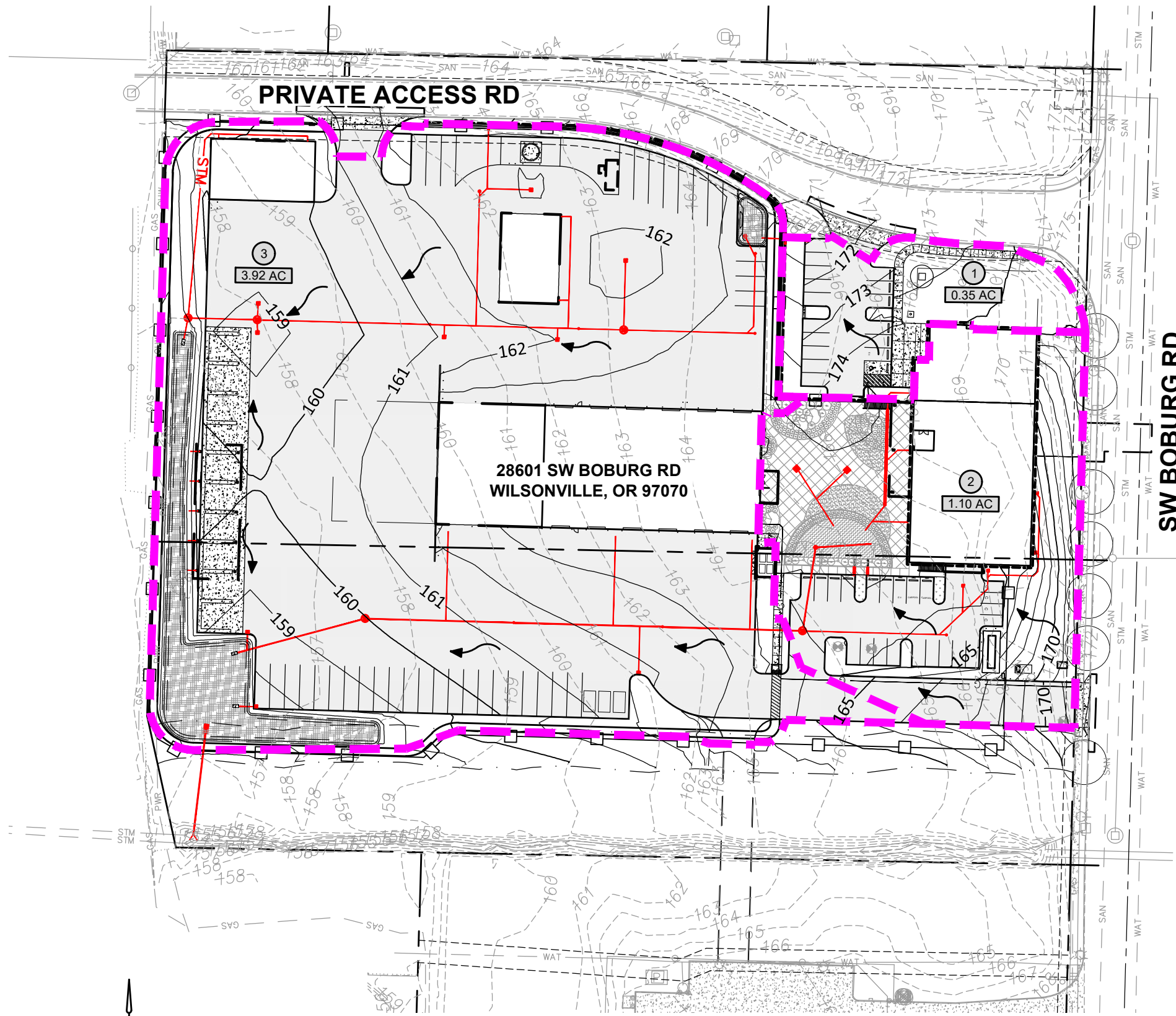
Contact Person: Martin Montalvo, Wilsonville PWD Ops Manager, 503-570-1560

See exhibits in the Appendix for stormwater planter locations and further information.

### **Conclusion**

The proposed stormwater management plan will achieve pollutant removal and flow control to the maximum extent practicable via vegetated stormwater planters. The proposed facilities satisfy City of Wilsonville stormwater quality and water quantity requirements. As designed, this project shall not create any adverse impacts to the downstream storm system.

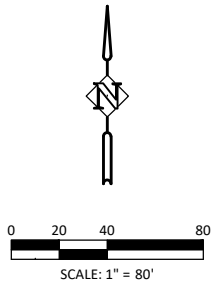




# LEGEND

- — — — — MAJOR DRAINAGE BASIN BOUNDARY
- DRAINAGE ARROW

BASIN	PERVIOUS AREA	IMPERVIOUS AREA	TOTAL AREA
1	8,240 SF	7,080 SF	15,320 SF
2	16,910 SF	31,215 SF	48,125 SF
3	28,685 SF	142,185 SF	170,870 SF



DATE	NO.	DESCRIPTION
R E V I S I O N S		

DESIGNED:	HHPR
DRAWN:	HHPR
CHECKED:	AJS
DATE:	FEBRUARY 2021

**Harper  
Houf Peterson  
Righellis Inc.**

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PROPOSED BASIN MAP  
**WILSONVILLE PUBLIC WORKS**  
WILSONVILLE, OREGON

SHEET NO.  
**EX-1**  
JOB NO.  
SEA-108



## WES BMP Sizing Report

### Project Information

Project Name	Wilsonville Public Works Complex
Project Type	PublicFacilities
Location	Boberg Rd
Stormwater Management Area	230070
Project Applicant	City of Wilsonville
Jurisdiction	OutofDistrict

### Drainage Management Area

Name	Area (sq-ft)	Pre-Project Cover	Post-Project Cover	DMA Soil Type	BMP
Basin 1-Pervious	7,690	Grass	LandscapeCsoil	C	Basin 1 - Veg. Swale
Basin 1-Impervious	7,080	Grass	ConventionalConcrete	C	Basin 1 - Veg. Swale
Basin 2-Pervious	14,200	Grass	LandscapeCsoil	C	Basin 2 - Veg Swale
Basin 2-Impervious	31,925	Grass	ConventionalConcrete	C	Basin 2 - Veg Swale
Basin 3-Pervious	7,337	Grass	LandscapeCsoil	C	Basin 3 - Detention Pond
Basin 3-Impervious	150,200	Grass	ConventionalConcrete	C	Basin 3 - Detention Pond

### LID Facility Sizing Details

LID ID	Design Criteria	BMP Type	Facility Soil Type	Minimum Area (sq-ft)	Planned Areas (sq-ft)	Orifice Diameter (in)
Basin 2 - Veg Swale	FlowControlAndTreatment	Vegetated Swale - Filtration	C1	1,951.3	2,000.0	2.0
Basin 1 - Veg. Swale	FlowControlAndTreatment	Vegetated Swale - Filtration	C1	546.3	550.0	1.2

### Pond Sizing Details

Pond ID	Design Criteria(1)	Facility Soil Type	Max Depth (ft)(2)	Top Area (sq-ft)	Side Slope (1:H)	Facility Vol. (cu-ft)(3)	Water Storage Vol. (cu-ft)(4)	Adequate Size?
Basin 3 - Detention Pond	FCWQT	C1	4.25	9,088.0	3	29,212.8	17,978.9	Yes

1. FCWQT = Flow control and water quality treatment, WQT = Water quality treatment only

2. Depth is measured from the bottom of the facility and includes the three feet of media (drain rock, separation layer and growing media).

3. Maximum volume of the facility. Includes the volume occupied by the media at the bottom of the facility.

4. Maximum water storage volume of the facility. Includes water storage in the three feet of soil media assuming a 40 percent porosity.

# Simple Pond Geometry Configuration

Pond ID: Basin 3 - Detention Pond

Design: FlowControlAndTreatment

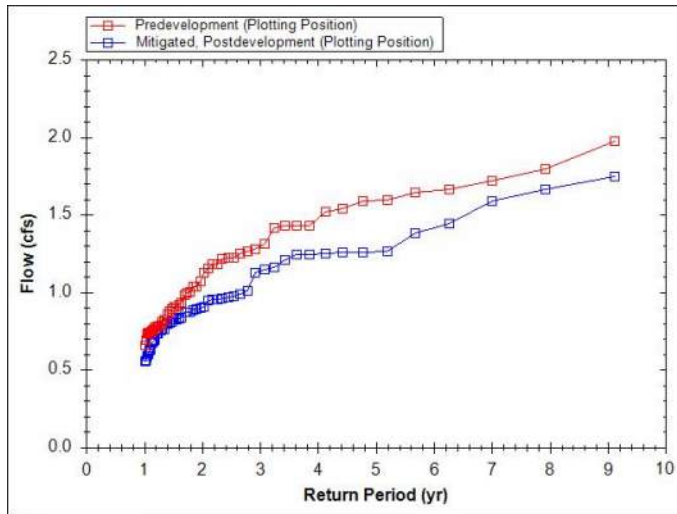
## Shape Curve

Depth (ft)	Area (sq ft)
4.3	9,088.0

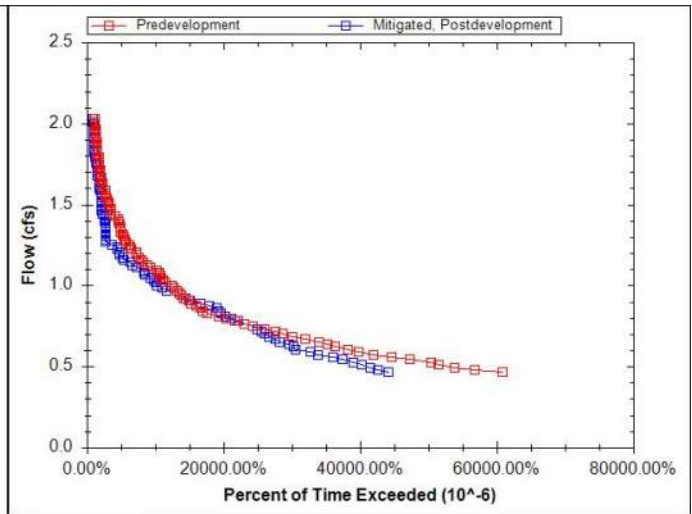
## Outlet Structure Details

Lower Orifice Invert (ft)	0.0
Lower Orifice Dia (in)	2.9
Upper Orifice Invert(ft)	2.8
Upper Orifice Dia (in)	7.1
Overflow Weir Invert(ft)	3.3
Overflow Weir Length (ft)	6.3

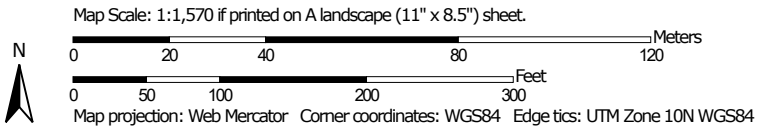
Flow Frequency Chart



Flow Duration Chart



Soil Map—Clackamas County Area, Oregon




## MAP LEGEND

### Area of Interest (AOI)

Area of Interest (AOI)




















### Soils




 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

### Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

### Water Features

 Streams and Canals

### Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

**Warning:** Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clackamas County Area, Oregon  
 Survey Area Data: Version 14, Sep 18, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 19, 2015—Sep 13, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
88A	Willamette silt loam, wet, 0 to 3 percent slopes	8.3	84.5%
91A	Woodburn silt loam, 0 to 3 percent slopes	1.5	15.5%
<b>Totals for Area of Interest</b>		<b>9.9</b>	<b>100.0%</b>

## Clackamas County Area, Oregon

### 88A—Willamette silt loam, wet, 0 to 3 percent slopes

#### Map Unit Setting

*National map unit symbol:* 227q

*Elevation:* 150 to 350 feet

*Mean annual precipitation:* 40 to 50 inches

*Mean annual air temperature:* 52 to 54 degrees F

*Frost-free period:* 165 to 210 days

*Farmland classification:* All areas are prime farmland

#### Map Unit Composition

*Willamette, wet, and similar soils:* 85 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Willamette, Wet

##### Setting

*Landform:* Terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Stratified glaciolacustrine deposits

##### Typical profile

*H1 - 0 to 14 inches:* silt loam

*H2 - 14 to 60 inches:* silty clay loam

##### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):*

Moderately high to high (0.57 to 1.98 in/hr)

*Depth to water table:* About 30 to 42 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water storage in profile:* High (about 12.0 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 2w

*Land capability classification (nonirrigated):* 2w

**Hydrologic Soil Group: C**

*Forage suitability group:* Moderately Well Drained < 15% Slopes  
(G002XY004OR)

*Hydric soil rating:* No

## **Data Source Information**

Soil Survey Area: Clackamas County Area, Oregon  
Survey Area Data: Version 14, Sep 18, 2018



## Clackamas County Area, Oregon

### 91A—Woodburn silt loam, 0 to 3 percent slopes

#### Map Unit Setting

*National map unit symbol:* 227y

*Elevation:* 150 to 400 feet

*Mean annual precipitation:* 40 to 50 inches

*Mean annual air temperature:* 52 to 54 degrees F

*Frost-free period:* 165 to 210 days

*Farmland classification:* All areas are prime farmland

#### Map Unit Composition

*Woodburn and similar soils:* 85 percent

*Minor components:* 6 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Woodburn

##### Setting

*Landform:* Terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Stratified glaciolacustrine deposits

##### Typical profile

*H1 - 0 to 16 inches:* silt loam

*H2 - 16 to 38 inches:* silty clay loam

*H3 - 38 to 60 inches:* silt loam

##### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):*

Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 25 to 32 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water storage in profile:* High (about 12.0 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 2w

*Land capability classification (nonirrigated):* 2w

**Hydrologic Soil Group: C**

*Forage suitability group:* Moderately Well Drained < 15% Slopes

(G002XY004OR)

*Hydric soil rating:* No

### **Minor Components**

#### **Huberly**

*Percent of map unit:* 3 percent  
*Landform:* Swales on terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* Yes

#### **Dayton**

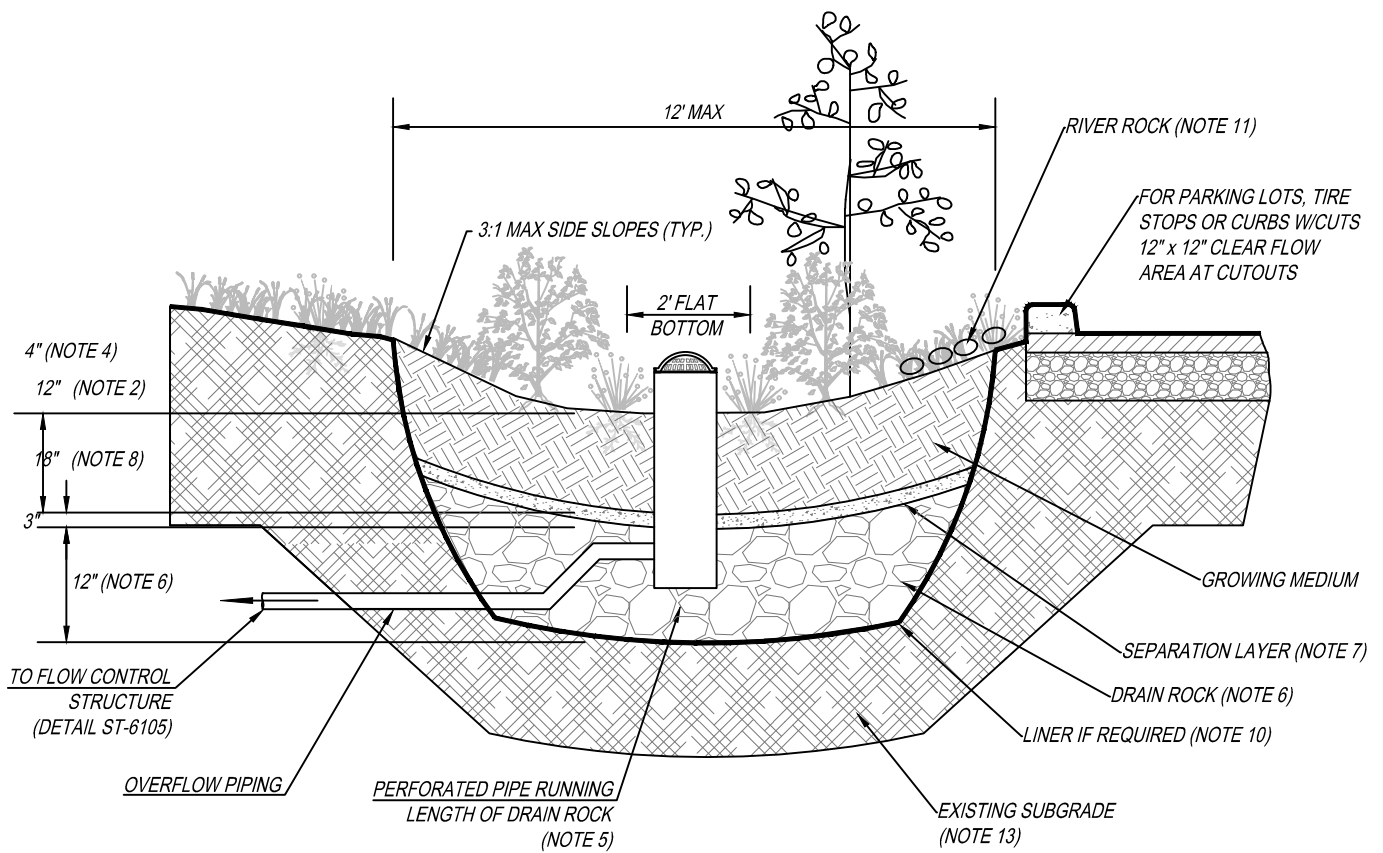
*Percent of map unit:* 2 percent  
*Landform:* Terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* Yes

#### **Aquolls**

*Percent of map unit:* 1 percent  
*Landform:* Flood plains  
*Hydric soil rating:* Yes

## **Data Source Information**

Soil Survey Area: Clackamas County Area, Oregon  
Survey Area Data: Version 14, Sep 18, 2018



**GENERAL NOTES:**

1. **PROVIDE PROTECTION FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC IN PROPOSED INFILTRATION AREAS PRIOR TO, DURING AND AFTER CONSTRUCTION. UNLESS REQUIRED BY SITE CONDITIONS, UNLINED SWALES ARE PREFERRED TO ALLOW MAXIMUM INFILTRATION.**
2. **DIMENSIONS:**
  - DEPTH OF SWALE (FROM TOP OF GROWING MEDIUM TO OVERFLOW ELEVATION); 12"
  - LONGITUDINAL SLOPE OF SWALE: 6.0% OR LESS
  - FLAT BOTTOM WIDTH: 2' MINIMUM
  - SIDE SLOPES OF SWALE: 3:1 MAXIMUM
3. **LOCATION/SETBACKS:**
  - FILTRATION SWALES SHALL BE 10' FROM FOUNDATIONS AND 5' FROM PROPERTY LINES UNLESS APPROVED BY BUILDING OFFICIAL
4. **OVERFLOW:**
  - INLET ELEVATION SHALL ALLOW FOR 4" OF FREEBOARD, MINIMUM.
  - PROTECT FROM DEBRIS AND SEDIMENT WITH STRAINER OR GRATE.
5. **PIPING:**
  - PERFORATED UNDER-DRAIN PIPING: SHALL BE ABS SCH. 40, CAST IRON, OR PVC SCH. 40. MINIMUM DIAMETER IS 6". PIPING SHALL HAVE 1% GRADE AND FOLLOW THE UNIFORM PLUMBING CODE. PVC NOT ALLOWED ABOVE GROUND. WRAP UNDER-DRAIN IN FILTER FABRIC TO REDUCE TRANSPORT OF FINES.
  - OVERFLOW PIPING: SHALL BE ABS SCH. 40, CAST IRON, OR PVC SCH. 40 AND SHALL NOT BE PERFORATED. MINIMUM DIAMETER IS 6". PIPING SHALL HAVE 1% GRADE AND FOLLOW THE UNIFORM PLUMBING CODE. PVC NOT ALLOWED ABOVE GROUND.
6. **DRAIN ROCK:**
  - SIZE: 1 1/2" - 3/4" WASHED
  - DEPTH: 12"
7. **SEPARATION BETWEEN DRAIN ROCK AND GROWING MEDIUM: SHALL BE A 3" LAYER OF 3/4" - 1/4" OPEN GRADED AGGREGATE.**
8. **GROWING MEDIUM:**
  - 18" MINIMUM
  - SEE APPENDIX C FOR SPECIFICATION OR USE SAND/LOAM/COMPOST 3-WAY MIX.
  - FACILITY SURFACE AREA MAY BE REDUCED BY 25% WHEN GROWING MEDIA DEPTH IS INCREASED TO 30" OR MORE.
9. **VEGETATION: FOLLOW LANDSCAPE PLANS OR REFER TO PLANTING REQUIREMENTS IN APPENDIX A.**
10. **WATERPROOF LINER (IF REQUIRED): SHALL BE 30 MIL PVC OR EQUIVALENT.**
11. **INSTALL RIVER ROCK SPLASH PAD OVER A NON WOVEN GEO TEXTILE FABRIC TO TRANSITION FROM INLETS TO GROWING MEDIUM. SIZE OF ROCK SHALL BE 1" TO 3", 4 SQUARE FEET, 6" DEEP.**
12. **CHECK DAMS: SHALL BE PLACED ACCORDING TO FACILITY DESIGN. REFER TO DETAIL ST-6100 FOR PROFILE AND SPACING.**
13. **SEASONAL HIGH GROUNDWATER SEPARATION:**
  - SEPARATION DISTANCE AS REQUIRED BY CITY.

**Vegetated Swale - Filtration**

**CITY OF  
WILSONVILLE**



DRAWING NUMBER: ST-6045

DRAWN BY: SR

SCALE: N.T.S.

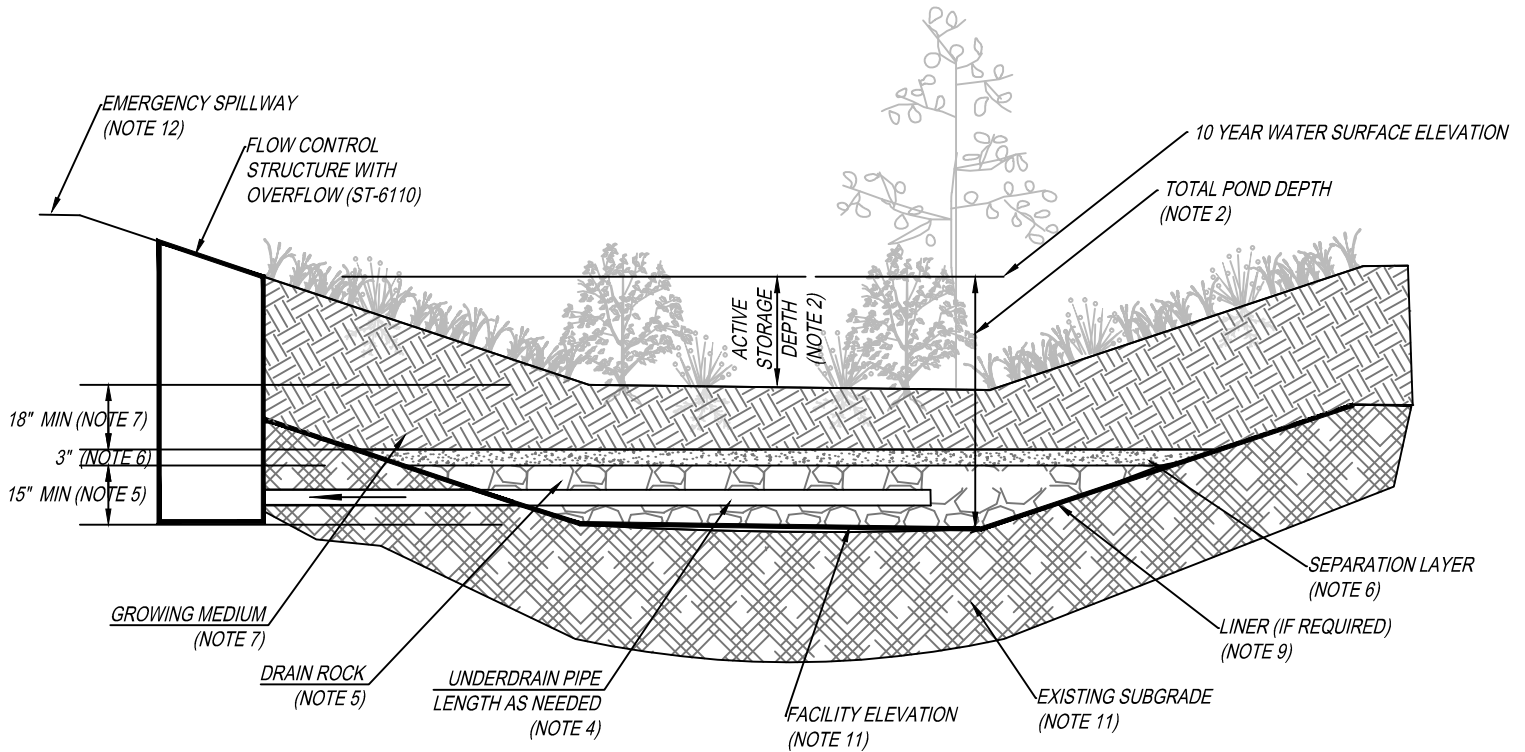
FILE NAME: ST-6045.DWG

APPROVED BY: NK

DATE: 4/16/18

**PUBLIC WORKS STANDARDS**

This Detail Drawing may not be altered or changed in any manner except by the City Engineer. It is the responsibility of the user to acquire the most current version.



**GENERAL NOTES:**

1. PROVIDE PROTECTION FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC IN PROPOSED INFILTRATION AREAS PRIOR TO, DURING AND AFTER CONSTRUCTION. UNLESS REQUIRED BY SITE CONDITIONS, UNLINED PONDS ARE PREFERRED TO ALLOW MAXIMUM INFILTRATION.
2. DIMENSIONS:
  - ACTIVE STORAGE DEPTH: (FROM TOP OF GROWING MEDIUM TO OVERFLOW ELEVATION); PER FACILITY SIZING MODEL
  - TOTAL POND DEPTH: 4' MINIMUM, PER FACILITY SIZING MODEL
  - BOTTOM SLOPE: 2.0% OR LESS
  - SIDE SLOPES OF DETENTION POND: 3:1 MAXIMUM
3. LOCATION/SETBACKS:
  - DETENTION POND SHALL BE 10' FROM FOUNDATIONS AND 5' FROM PROPERTY LINES UNLESS APPROVED BY BUILDING OFFICIAL.
4. PIPING:
  - PERFORATED UNDER-DRAIN PIPING: SHALL BE ABS SCH. 40, CAST IRON OR PVC SCH. 40. 6" MINIMUM DIAMETER. PIPING SHALL HAVE 1% GRADE AND FOLLOW THE UNIFORM PLUMBING CODE. PVC NOT ALLOWED ABOVE GROUND. WRAP UNDER-DRAIN PIPE IN FILTER FABRIC TO REDUCE TRANSPORT OF FINES.
  - OVERFLOW PIPING: SHALL BE ABS SCH. 40, CAST IRON OR PVC SCH. 40 AND SHALL NOT BE PERFORATED. MINIMUM DIAMETER IS 6". PIPING SHALL HAVE 1% GRADE AND FOLLOW THE UNIFORM PLUMBING CODE. PVC NOT ALLOWED ABOVE GROUND.
5. DRAIN ROCK:
  - SIZE: 1 1/2" - 3/4"-0 WASHED
  - DEPTH: 15" MINIMUM
6. SEPARATION BETWEEN DRAIN ROCK AND GROWING MEDIUM: SHALL BE A 3" LAYER OF 3/4" - 1/4" OPEN GRADED AGGREGATE.
7. GROWING MEDIUM:
  - 18" MINIMUM
  - SEE APPENDIX C FOR SPECIFICATION OR USE SAND/LOAM/COMPOST 3-WAY MIX.
8. VEGETATION: FOLLOW LANDSCAPE PLANS OR REFER TO PLANTING REQUIREMENTS IN APPENDIX A.
9. WATERPROOF LINER (IF REQUIRED): SHALL BE 30 MIL PVC OR EQUIVALENT FOR DETENTION POND.
10. INSTALL RIVER ROCK SPLASH PAD OVER A NON WOVEN GEO TEXTILE FABRIC TO TRANSITION FROM INLETS TO GROWING MEDIUM. SIZE OF ROCK SHALL BE 1" TO 3", 4 SQUARE FEET 6" DEEP.
11. SEASONAL HIGH GROUNDWATER SEPARATION:
  - SEPARATION DISTANCE AS REQUIRED BY CITY.
12. EMERGENCY SPILLWAY SIZED TO CONVEY THE 100 YEAR DESIGN STORM (S-2275). SEE PUBLIC WORKS STANDARDS 301.4.09

**Detention Pond**

DRAWING NUMBER: ST-6060	DRAWN BY: SR	SCALE: N.T.S.
FILE NAME: ST-6060.DWG	APPROVED BY: NK	DATE: 6/3/16

**CITY OF  
WILSONVILLE**



**PUBLIC WORKS STANDARDS**

## STORMWATER FACILITIES OPERATIONS AND MAINTENANCE CHECKLIST

<b>Problem</b>	<b>Frequency</b>	<b>Trigger</b>	<b>Preferred Condition</b>
<i>Sediment Accumulation in Treatment Area</i>	<i>Monthly from November through April Annually Required</i>	<i>Sediment depth exceeds 3 inches</i>	<i>Sediment removed from vegetated treatment area: level side to side and drains freely toward outlet; no standing water within 24 hours of any major storm (1" in 24 hours)</i>
<i>Erosion Scouring</i>	<i>Monthly from November through April Annually Required</i>	<i>Monthly from November through April Annually Required</i>	<i>Repair ruts or bare areas by filling with topsoil during dry season; regrade and replant large bare areas.</i>
<i>Standing Water</i>	<i>Monthly from November through April and after any major storm (1 inch in 24 hours)</i>	<i>Standing water in the planter between storms that does not drain freely</i>	<i>Remove sediment or trash blockages; improve end to end grade so there is no standing water 24 hours after any major storm (1 inch in 24 hours)</i>
<i>Flow not Distributed Evenly</i>	<i>Monthly from November through April Annually Required</i>	<i>Flows unevenly distributed through planter width due to uneven or clogged flow spreader</i>	<i>Level the spreader and clean so that flows spread evenly over entire planter width</i>
<i>Settlement/ Misalignment</i>	<i>Annually Required</i>	<i>Failure of planters has created safety, function, or design problem</i>	<i>Planter replaced or repaired to design standards</i>
<i>Constant Baseflow</i>	<i>Monthly from November through April Annually Required</i>	<i>Small, continual flow of water through the planter even after weeks without rain; planter bottom has an eroded, muddy channel</i>	<i>Add a low-flow pea gravel drain the length of the planter or bypass the baseflow around the planter</i>
<i>Vegetation</i>	<i>Monthly from November through April Annually Required</i>	<i>Vegetation blocking more than 10% of the inlet pipe opening</i>	<i>No vegetation blocking the inlet pipe opening</i>
<i>Poor Vegetation Coverage</i>	<i>Monthly Annually Required</i>	<i>Grass or other vegetation is sparse, or bare in more than 10% of the planter area</i>	<i>Determine cause of poor growth and correct the condition; replant with plants (per Appendix A) as needed to meet facility standards</i>
<i>Invasive Vegetation</i>	<i>Monthly Annually Required</i>	<i>No invasive vegetation is planted or permitted to remain</i>	<i>no invasive vegetation present; remove excessive weeds. Control if complete eradication is not feasible</i>
<i>Rodents</i>	<i>Monthly Annually Required</i>	<i>Evidence of rodents or rodent damage</i>	<i>No rodents; functioning facility</i>
<i>Insects</i>	<i>Annually Required</i>	<i>Insects such as wasps and hornets that interfere with maintenance activities</i>	<i>Harmful Insects removed</i>
<i>Trash and Debris</i>	<i>Monthly and after any major storm (1 inch in 24 hours) Annually Required</i>	<i>Visual evidence of trash, debris or dumping</i>	<i>Trash and Debris removed from facility</i>
<i>Contamination and Pollution</i>	<i>Monthly from November through April Annually Required</i>	<i>Any evidence of oil, gasoline, contamination or other pollutants</i>	<i>No contaminants or pollutants present; coordinate removal/cleanup with local water quality response agency</i>
<i>Obstructed Inlet/Outlet</i>	<i>Monthly and after any major storm event (1 inch in 24 hours) Annually Required</i>	<i>Inlet/outlet areas clogged with sediment, vegetation or debris</i>	<i>Clear inlet and outlet; obstructions removed</i>
<i>Excessive Shading</i>	<i>Monthly from November through April Annually Required</i>	<i>Vegetation growth is poor because unlight does not reach planter</i>	<i>Trim over-hanging limbs and/or remove brushy vegetation as needed</i>
<i>Vegetation</i>	<i>Monthly from November through April Annually Required</i>	<i>Specified or approved grass grows so tall that it competes with shrubs and/or becomes a fire danger</i>	<i>String trim non-wetland grasses to 4 inch to 6 inch and remove clippings; protect woody vegetation</i>

### Stormwater Facilities Operations & Maintenance Checklist

DRAWING NUMBER: ST-6115

DRAWN BY: SR

SCALE: N.T.S.

FILE NAME: ST-6115.DWG

APPROVED BY: NK

DATE: 10/3/14

**CITY OF  
WILSONVILLE**



**PUBLIC WORKS STANDARDS**

## Vegetated Swales Operations & Maintenance Plan

What to Look For	What to Do
<b>Structural Components, including inlets and outlets/overflows, shall freely convey stormwater.</b>	
Clogged inlets or outlets	-Remove sediment and debris from catch basins, trench drains, curb inlets and pipes to maintain at least 50% conveyance capacity at all times.
Cracked Drain Pipes	-Replace/seal cracks. Replace when repair is insufficient.
Check Dams	-Maintain 4 - 10 inch deep rock check dams at design intervals.
<b>Vegetation</b>	
Dead or strained vegetation	-Replant per original planting plan, or substitute from Appendix A. -Irrigate as needed. Mulch banks annually. DO NOT apply fertilizers, herbicides, or pesticides.
Tall Grass and Vegetation	-Cut back to 4-6 inches, 1-2 times per year. Remove cuttings
Weeds	-Manually remove weeds. Remove all plant debris.
<b>Growing/Filter Medium, including soil and gravels, shall sustain healthy plant cover and infiltrate within 72 hours.</b>	
Gullies	-Fill, lightly compact, and plant vegetation to disperse flow.
Erosion	-Restore or create outfalls, checkdams, or splash blocks where necessary.
Slope Sippage	-Stabilize Slope.
Ponding	-Rake, till, or amend to restore infiltration rate.

### Annual Maintenance Schedule:

*Summer.* Make any structural repairs. Improve filter medium as needed. Clear drain. Irrigate as needed.

*Fall.* Replant exposed soil and replace dead plants. Remove sediment and plant debris.

*Winter.* Monitor infiltration/flow-through rates. Clear inlets and outlets/overflows to maintain conveyance.

*Spring.* Remove sediment and plant debris. Replant exposed soil and replace dead plants. Mulch.

*All seasons.* Weed as necessary.

*Maintenance Records:* Record date, description, and contractor (if applicable) for all structural repairs, landscape maintenance, and facility cleanout activities. Keep work orders and invoices on file and make available upon request of the inspector.

*Access:* Maintain ingress/egress to design standards.

*Infiltration/Flow Control:* All facilities shall drain within 72 hours. Record time/date, weather, and site conditions when ponding occurs.

*Pollution Prevention:* All sites shall implement best management practices to prevent hazardous or solid wastes or excessive oil and sediment from contaminating stormwater. Contact \_\_\_\_\_ for immediate assistance responding to spills. Record time/date, weather, and site conditions if site activities contaminate stormwater.

*Vectors (Mosquitoes & Rodents):* Stormwater facilities shall not harbor mosquito larvae or rats that pose a threat to public health or that undermine the facility structure. Monitor standing water for small wiggling sticks perpendicular to the water's surface.

Note holes/burrows in and around facilities. Call Clackamas County Vector Control for immediate assistance to eradicate vectors. Record time/date, weather, and site conditions when vector activity observed.

### Vegetated Swale O & M Plan

DRAWING NUMBER: ST-6055

DRAWN BY: SR

SCALE: N.T.S.

FILE NAME: ST-6055.DWG

APPROVED BY: NK

DATE: 10/8/14

**CITY OF  
WILSONVILLE**



**PUBLIC WORKS STANDARDS**

## Detention Pond Operations & Maintenance Plan

Detention Pond removes pollutants through several processes: sedimentation, filtration, and biological processes. The facility owner must keep a log, recording all inspection dates, observations, and maintenance activities. The following items shall be inspected and maintained as stated:

What to Look For	What to Do
<b>Structural Components, including inlets and outlets/overflows, shall freely convey stormwater.</b>	
Clogged inlets or outlets	-Remove sediment and debris from catch basins, trench drains, curb inlets and pipes to maintain at least 50% conveyance capacity at all times.
Cracked Drain Pipes	-Repair/seal cracks. Replace when repair is insufficient.
Check Dams	-Maintain 4 - 10 inch deep rock check dams at design intervals.
<b>Vegetation shall cover 90% of the facility.</b>	
Dead or strained vegetation	-Replant per original planting plan, or substitute from Appendix A. -Irrigate as needed. Mulch banks annually. DO NOT apply fertilizers, herbicides, or pesticides.
Tall Grass and Vegetation	-Cut back grass and prune overgrowth 1-2 times per year. Remove cuttings.
Weeds	-Manually remove weeds. Remove all plant debris.
<b>Growing/Filter Medium, including soil and gravels, shall sustain healthy plant cover and infiltrate within 72 hours.</b>	
Gullies	-Fill, lightly compact, and plant vegetation to disperse flow.
Erosion	-Replace splash blocks or inlet gravel/rock.
Slope Sippage	-Stabilize 3:1 Slopes/banks with plantings from Appendix A
Ponding	-Rake, till, or amend to restore infiltration rate.

### Annual Maintenance Schedule:

All facility components, vegetation, and source controls shall be inspected for proper operations and structural stability. These inspections shall occur, at a minimum, quarterly for the first 2 years from the date of installation, and 2 times per year thereafter, and within 48 hours after each major storm event.

**Access:** Maintain ingress/egress to design standards.

**Infiltration/Flow Control:** All facilities shall drain within 72 hours. Record time/date, weather, and site conditions when ponding occurs.

**Pollution Prevention:** All sites shall implement best management practices to prevent hazardous or solid wastes or excessive oil and sediment from contaminating stormwater. Contact \_\_\_\_\_ for immediate assistance responding to spills. Record time/date, weather, and site conditions if site activities contaminate stormwater.

**Vectors (Mosquitoes & Rodents):** Stormwater facilities shall not harbor mosquito larvae or rats that pose a threat to public health or that undermine the facility structure. Monitor standing water for small wiggling sticks perpendicular to the water's surface. Note holes/burrows in and around facilities. Call Clackamas County Vector Control for immediate assistance to eradicate vectors. Record time/date, weather, and site conditions when vector activity observed.

### Detention Pond O & M Plan

DRAWING NUMBER: ST-6065

DRAWN BY: SR

SCALE: N.T.S.

FILE NAME: ST-6065.DWG

APPROVED BY: NK

DATE: 10/8/14

**CITY OF  
WILSONVILLE**



**PUBLIC WORKS STANDARDS**



## **REPORT OF GEOTECHNICAL ENGINEERING SERVICES**

Wilsonville Public Works Facility  
SW Boberg Road  
Wilsonville, Oregon

For  
City of Wilsonville  
June 13, 2019

GeoDesign Project: CWilson-19-01



June 13, 2019

City of Wilsonville  
30000 SW Town Center Loop East  
Wilsonville OR 97070

Attention: Martin Montalvo

**Report of Geotechnical Engineering Services**

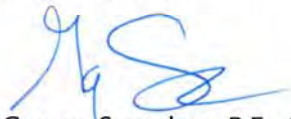
Wilsonville Public Works Facility  
SW Boberg Road  
Wilsonville, Oregon  
GeoDesign Project: CWilson-19-01

GeoDesign, Inc. is pleased to submit our geotechnical engineering report for the proposed Wilsonville Public Works Facility site located along SW Boberg Road in Wilsonville, Oregon. Our services for this project were conducted in accordance with our proposal dated March 11, 2019.

We appreciate the opportunity to be of service to you. Please contact us if you have questions regarding this report.

Sincerely,

GeoDesign, Inc.



George Saunders, P.E., G.E.  
Principal Engineer

cc: Andrew Kraus, Scott Edwards Architecture LLP (via email only)  
Beau Braman, Harper Houf Peterson Righellis, Inc. (via email only)

NAK:GPS:kt

Attachments

One copy submitted (via email only)

Document ID: CWilson-19-01-061319-geor.docx

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## EXECUTIVE SUMMARY

Based on our review of the preliminary project plans and the results of our explorations, laboratory testing, and analyses, it is our opinion the project is geotechnically feasible. This summary is an overview of the report; however, the full report should be referenced for a more thorough discussion of the subsurface conditions and geotechnical recommendations for the project. The primary geotechnical considerations for the project are summarized as follows:

- A grading plan had not been developed by the time of this report; however, we understand cut and fill of up to approximately 4 feet may be needed. Planned fill could induce settlement. The risk of fill-induced settlement is dependent on the grading plan and discussed in the “Fill-Induced Settlement” section.
- Based on the assumed foundation loads, the proposed structures can be supported on conventional shallow foundations as presented in the “Shallow Foundations” section. The foundations should be underlain by granular pads underlain by undisturbed native soil or new structural fill overlain by native soil. Topsoil, buried topsoil, and pre-existing fill should be removed from under foundations.
- The moisture contents of the on-site silt and clay soil generally varied from 17 to 34 percent at the time of our explorations. As discussed in the “Structural Fill” section, moisture conditioning (drying) will be required to use the material as structural fill.
- The near-surface soil is primarily fine grained. This fine-grained soil is easily disturbed during wet weather or when at a moisture content that is above optimum. If not carefully executed, site preparation, grading, utility trench work, and roadway excavation in this soil can create extensive soft areas. Significant subgrade repair costs can result.
- Dense gravel with cobbles and boulders were encountered in the test pit excavations. When encountered, cobbles and especially boulders will result in difficult excavation conditions and may require special equipment and procedures for removal. Excavation volumes for utility trenches may be greater than anticipated due to sloughing and the need to remove oversized material. Oversized material is not suitable for use as structural fill, unless it is crushed (see “Structural Fill” section).
- Foundation drains are recommended where the finish floor grade will be less than 1 foot above existing grades as discussed in the “Drainage” section.
- Infiltration rates were measured to be between 1.4 and 45.0 inches per hour. Infiltration testing results and recommendations are discussed in the “Infiltration System” section.

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## ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
AC	asphalt concrete
ACP	asphalt concrete pavement
ADT	average daily traffic
ASTM	American Society for Testing and Materials
BGS	below ground surface
ESAL	equivalent single-axle load
FHWA	Federal Highway Administration
g	gravitational acceleration (32.2 feet/second <sup>2</sup> )
H:V	horizontal to vertical
IBC	International Building Code
MCE	maximum considered earthquake
OSHA	Occupational Safety and Health Administration
OSSC	Oregon Standard Specifications for Construction (2018)
pcf	pounds per cubic foot
PG	performance grade
psf	pounds per square foot
psi	pounds per square inch
SOSSC	State of Oregon Structural Specialty Code

## 1.0 INTRODUCTION

GeoDesign, Inc. is pleased to submit this geotechnical engineering report for the proposed Wilsonville Public Works Facility site located along SW Boberg Road in Wilsonville, Oregon. The approximately 7.6-acre site includes Tax Lots 1800 and 1900 in Clackamas County, Oregon. Figure 1 shows the site relative to existing topographic and physical features. Figure 2 shows the proposed site layout, existing topography, and the approximate locations of our explorations. Acronyms and abbreviations used herein are defined above, immediately following the Table of Contents.

The conceptual site plans identify one- to two-story office and warehouse buildings with footprints of approximately 9,000 and 11,500 square feet, respectively, on the middle portion of the site, with associated parking lots and utilities. Based on site topography (see Figure 2), the site grades vary between approximately 175 feet on the northeast corner and 155 feet on the southwest corner. A grading plan was not available at the time of this report; however, based on the proposed plans, we anticipate cut and fill of up to approximately 4 feet may be needed.

Building foundation loads were not known at the time of this report. However, based on our experience with similar projects, we anticipate maximum column and continuous footing loads will be between approximately 150 and 200 kips and approximately 5 kips per linear foot, respectively. The floor slab loads are anticipated to be less than 250 psf.

## 2.0 SCOPE OF SERVICES

The purpose of our geotechnical services was to explore the site subsurface conditions and provide geotechnical engineering recommendations for use in design and construction of the proposed development and associated improvements. The specific scope of our services is summarized as follows:

- Reviewed readily available, published geologic data and our in-house files for existing information on subsurface conditions in the site vicinity.
- Coordinated and managed the field explorations, including locating utilities and scheduling subcontractors and GeoDesign staff.
- Excavated 10 test pits across the site to depths between 9.5 and 11.5 feet BGS.
- Completed three infiltration tests at three of the exploration locations near the proposed stormwater detention system.
- Maintained continuous logs of the explorations and collected samples at representative intervals.
- Performed a laboratory testing program consisting of the following:
  - Twenty moisture content determinations in general accordance with ASTM D2216
  - Two particle-size analyses in general accordance with ASTM C117
  - One full grain-size distribution test in general accordance ASTM C136
  - Two Atterberg limits tests in general accordance with ASTM D4318
- Provided recommendations for site preparation, grading and drainage, compaction criteria for both on-site and imported material, fill type for imported material, procedures for use of on-site soil, and wet weather earthwork procedures.

- Evaluated groundwater conditions at the site and provided general recommendations for dewatering during construction.
- Provided recommendations for the use of on-site native and fill material for support of slabs on grade.
- Provided recommendations for special construction considerations associated with large fill depths.
- Provided foundation support recommendations for the proposed structures, including allowable bearing capacity, settlement estimates, and lateral resistance parameters.
- Provided recommendations for use in design of conventional retaining walls, including backfill and drainage requirements and lateral earth pressures.
- Provided recommendations for construction of AC pavements for on-site access roads and parking areas, including subbase, base course, and AC paving thickness for light and heavy vehicle traffic.
- Provided seismic design coefficients as prescribed by the 2015 IBC and 2014 SOSSC.
- Provided the results of field infiltration testing to be incorporated into the design of the infiltration system.
- Prepared this geotechnical engineering report that presents our findings, conclusions, and recommendations.

### **3.0 SITE CONDITIONS**

#### **3.1 SURFACE CONDITIONS**

The site is currently an undeveloped lot bordered by SW Boberg Road to the east, railroad tracks and a storage yard to the west, a drainage ditch to the south, and commercial buildings to the north. A paved access road runs through the northern site margin in an east-west direction. Based on the site survey, the site grades vary between approximately 175 feet on the northeast corner and 155 feet on the southwest corner. The site is vegetated with grass, weeds, bushes, and trees. During our site reconnaissance, we observed two existing well heads located near the southwest corner of the proposed office building.

#### **3.2 SUBSURFACE CONDITIONS**

##### **3.2.1 General**

Subsurface conditions were explored by excavating 10 test pits (TP-1 through TP-10) across the site to depths between 9.5 and 11.5 feet BGS. The approximate exploration locations are shown on Figure 2. Descriptions of our field exploration and laboratory testing programs, the exploration logs, and results of laboratory testing are presented in the Appendix. Explorations at the site generally encountered topsoil, buried topsoil, and pre-existing fill underlain by silt and clay with varying proportions of sand, gravel, and cobbles. Gravel with varying proportions of silt, clay, cobbles, and boulders underlies the silt and clay to the maximum depth explored. The following sections provide a summary of the soil units encountered.

##### **3.2.2 Topsoil/Buried Topsoil/Pre-Existing Fill**

Layers of topsoil, buried topsoil, and pre-existing fill associated with prior agricultural and earthwork activities were encountered in all explorations. The topsoil and buried topsoil layers have been tilled for agricultural purposes. Test pits TP-1 through TP-3, TP-5, TP-6, TP-8, and

TP-9 encountered approximately 1 foot to 1.5 feet of topsoil. Test pit TP-4 encountered 0.7 foot of pre-existing fill underlain by 0.8 foot of buried topsoil. Test pits TP-7 and TP-10 encountered 1.5 and 2 feet of pre-existing fill, respectively.

The topsoil/buried topsoil is generally comprised of medium stiff to very stiff silt with trace to minor sand and trace clay and organics. The pre-existing fill in test pits TP-4 and TP-10 is generally comprised of medium dense, silty gravel with sand and trace organics. The pre-existing fill in test pit TP-7 is generally comprised of medium stiff silt; minor sand; and trace clay, organics, and masonry/concrete debris. All explorations encountered an approximately 5- to 8-inch-thick root zone at the ground surface.

At the time of our explorations the moisture content of one select topsoil sample measured 17 percent.

### **3.2.3 Silt and Clay**

In general, we observed stiff to very stiff (typically stiff) silt and clay with varying proportions of sand, gravel, and cobbles and trace organics extending to depths between approximately 4.5 and 10.5 feet BGS. Test pits TP-9 and TP-10 were completed in silt and clay at a depth of 10.5 feet BGS. Laboratory testing indicates the native silt and clay (below topsoil) had moisture contents ranging from 20 to 34 percent at the time of our explorations.

### **3.2.4 Gravel**

Dense to very dense gravel with varying proportions of silt, clay, sand, cobbles, and boulders underlies the silt and clay in test pits TP-1 through TP-8 to the maximum depth explored of up to 11.5 feet BGS. Laboratory testing indicates the gravel had moisture contents ranging from 10 to 22 percent at the time of our explorations.

### **3.2.5 Groundwater**

Groundwater was not encountered during our explorations. However, based on our review of projects completed in the site vicinity and water well logs on file with the Oregon Water Resources Department, we anticipate groundwater could range between approximately 10 and 20 feet BGS. Based on our correspondence with you, we understand the two existing wells located near the southwest corner of the proposed office building are old farm wells from prior site use. Water levels in the wells measured approximately 20.9 and 34.8 feet BGS on June 5, 2019, respectively. Perched groundwater may be encountered at shallow depths, particularly during wet seasons or prolonged wet weather. The depth to groundwater may fluctuate in response to seasonal changes, water levels in nearby bodies of water, prolonged rainfall, changes in surface topography, and other factors not observed in this study.

## **3.3 INFILTRATION TESTING**

We understand stormwater infiltration systems are being considered for the proposed development. The locations and configurations were conceptual at the time of this report. We conducted infiltration tests in test pits TP-2, TP-3, and TP-8 near the location of the proposed stormwater detention system. The infiltration tests were completed at depths between



approximately 5.5 and 9.5 feet BGS. The infiltration testing procedures are described in the Appendix, and the results of the infiltration and laboratory testing are described in the “Infiltration System” section.

#### **4.0 CONCLUSIONS AND RECOMMENDATIONS**

Based on our review of the proposed preliminary development plan and the results of our explorations, laboratory testing, and analyses, it is our opinion the proposed development can be constructed at the site. The primary geotechnical considerations for the project are summarized in the “Executive Summary” section. Our specific recommendations are provided in the following sections.

#### **5.0 DESIGN**

##### **5.1 GENERAL**

The following sections provide our design recommendations for the project. All site preparation and structural fill should be prepared as recommended in the “Construction” section.

##### **5.2 FILL-INDUCED SETTLEMENT**

Settlement should be anticipated in areas where fill will be placed to raise site grades. On a preliminary basis, where fill is thicker than 4 feet, we recommend construction be delayed until survey information shows that fill-induced settlement is complete. We recommend that GeoDesign review the final grading plan to provide our final recommendations, which may or may not include settlement monitoring.

If required, we recommend monitoring settlement by installing settlement monuments within the footprint of the fill. A typical settlement monument detail is shown on Figure 3. For ease in handling, the casing and rod portions of the settlement plate are usually installed in 5-foot sections. As filling progresses, couplings are used to install additional sections. Continuity in the monitoring data is maintained by reading and recording the top of the measurement rod immediately prior to and following the addition of new sections. Care must be taken during fill construction not to bend or break the rods.

The settlement plates should be installed following stripping, prior to site filling, and immediately surveyed once established. Survey shots should be taken at each settlement plate at least twice per week during fill construction and for at least one month after fill construction, followed by once weekly thereafter. The settlement plates should be monitored using survey equipment with accuracy of at least 1/100<sup>th</sup> of a foot referenced to a stationary datum established at least 50 feet from the edge of the fill. In addition to recording the elevation of the settlement plates during each survey event, a complete record of the preload history requires reading and recording the fill height at each settlement plate.

##### **5.3 SHALLOW FOUNDATIONS**

###### **5.3.1 General**

Based on the preliminary plans and estimated foundation loads as previously stated, and assuming the site is prepared as recommended in the “Construction” section, it is our opinion

the proposed buildings can be supported on conventional spread footings founded on minimum 6-inch-thick granular pads underlain by the native stiff silt and clay or on structural fill overlying firm native soil. As discussed above, settlement monitoring may be required prior to building construction. Foundation elements should not be supported on topsoil, buried topsoil, or pre-existing fill material. If present, these materials should be removed and replaced with structural fill.

The granular pads should extend 6 inches beyond the margins of the footings for every foot excavated below the base grade of the footings. The granular pads should consist of imported granular material, as defined in the "Structural Fill" section. The imported granular material should be compacted to not less than 95 percent of the maximum dry density, as determined by ASTM D1557, or until well keyed, as determined by one of our geotechnical staff. We recommend that a member of our geotechnical staff observe the prepared footing subgrade.

As discussed in the "Drainage" section, depending on the finished floor grade of the buildings, foundation drains may be required over portions of the building footprints.

### **5.3.2 Dimensions and Capacities**

Continuous wall and isolated spread footings should be at least 18 and 24 inches wide, respectively. The bottom of exterior footings should be at least 18 inches below the lowest adjacent exterior grade. The bottom of interior footings should be established at least 12 inches below the base of the slab.

Footings bearing on subgrade prepared as recommended above should be sized based on an allowable bearing pressure of 2,500 psf. This is a net bearing pressure; the weight of the footing and overlying backfill can be ignored in calculating footing sizes. The recommended allowable bearing pressure applies to the total of dead plus long-term live loads and may be doubled for short-term loads such as those resulting from wind or seismic forces.

### **5.3.3 Resistance to Sliding**

Lateral loads on footings can be resisted by passive earth pressure on the sides of the structure and by friction on the base of the footings. Our analysis indicates the available passive earth pressure for footings confined by native soil and structural fill is 250 pcf modeled as an equivalent fluid pressure. Adjacent floor slabs, pavement, or the upper 12-inch depth of adjacent, unpaved areas should not be considered when calculating passive resistance. In addition, in order to rely on passive resistance, a minimum of 10 feet of horizontal clearance must exist between the face of the footings and any adjacent down slopes. For footings in contact with native soil, a coefficient of friction equal to 0.35 may be used when calculating resistance to sliding. For footings that bear on granular pads, a coefficient of friction equal to 0.45 may be used when calculating resistance to sliding.

### **5.3.4 Settlement**

As discussed above, settlement monitoring may be required prior to building construction. Shallow foundations designed in accordance with the recommendations in this report should

experience post-construction settlement of less than 1 inch. Differential settlement that approaches one-half of the total settlement should be expected between adjacent footings with similar loads.

### 5.3.5 Subgrade Observation

All footing and floor subgrades should be evaluated by a representative of GeoDesign to evaluate the bearing conditions. Observations should also confirm that all loose or soft material, organics, unsuitable fill, prior topsoil zones, and softened subgrades (if present) have been removed. Localized deepening of footing excavations may be required to penetrate deleterious material.

## 5.4 SEISMIC DESIGN CONSIDERATIONS

### 5.4.1 IBC Design Parameters

Based on our investigation, the parameters in Table 1 should be used to compute seismic base shear forces if the buildings are designed using the applicable provisions of the 2015 IBC and 2014 SOSSC. We selected a Site Class D based on the results of our explorations.

**Table 1. IBC and SOSSC Seismic Design Parameters**

Seismic Design Parameter	Short Period ( $T_s = 0.2$ second)	1 Second Period ( $T_1 = 1.0$ second)
MCE Spectral Acceleration	$S_s = 0.927$ g	$S_1 = 0.410$ g
Site Class	D	
Site Coefficient	$F_a = 1.129$	$F_v = 1.590$
Adjusted Spectral Acceleration	$S_{MS} = 1.047$ g	$S_{M1} = 0.652$ g
Design Spectral Response Acceleration Parameters	$S_{DS} = 0.698$ g	$S_{D1} = 0.435$ g

### 5.4.2 Liquefaction

Liquefaction settlement is the result of seismically induced densification and subsequent ground settlement of loose sand and silty sand below the groundwater table. Based on the findings of our subsurface explorations and the anticipated groundwater elevation, it is our opinion there is a low risk of liquefaction and liquefaction-related hazards at the site.

## 5.5 FLOOR SLABS

Satisfactory subgrade support for buildings floor slabs supporting up to 250 psf areal loading can be obtained provided the building pads are prepared as described in the "Construction" section. To help reduce moisture transmission and slab shifting, we recommend a minimum 6-inch-thick layer of floor slab base rock be placed and compacted over a subgrade that has been prepared in conformance with the "Site Preparation" section. The floor slab base rock should meet the requirements in the "Structural Fill" section and be compacted to at least 95 percent of ASTM D1557.

The native soil is fine grained and will tend to maintain a high moisture content. In areas where moisture-sensitive floor slab and flooring will be installed, the installation of a vapor barrier is warranted in order to reduce the potential for moisture transmission through and efflorescence growth on the slab and flooring. In addition, flooring manufacturers often require vapor barriers to protect flooring and flooring adhesives and will warrant their product only if a vapor barrier is installed according to their recommendations.

If the project includes highly moisture-sensitive flooring, we recommend that 10- or 15-mil Stego Wrap be considered for this project. The recommended procedures for installing Stego Wrap are to pour the floor slab concrete directly over the vapor barrier. We recommend the structural engineer be contacted to determine if the mix design for the concrete should be modified assuming the above-referenced construction sequence. Actual selection and design of an appropriate vapor barrier, if needed, should be based on discussions among members of the design team.

Slabs should be reinforced according to their proposed use and per the structural engineer's recommendations. Load-bearing concrete slabs may be designed assuming a modulus of subgrade reaction,  $k$ , of 100 psi per inch. If the subgrade is cement amended, the subgrade reaction can be increased to 225 psi per inch.

The design parameters provided above assume that the floor slabs are underlain by post-stripping native soil, compacted structural fill, or improved topsoil/pre-existing fill subgrade (by the means of scarification and compaction or by cement amendment). If encountered, oversized debris, boulders, and other deleterious material should be removed prior to compaction. As discussed in the "Drainage" section, we recommend foundation drains be constructed over portions of the building footprints.

## **5.6 RETAINING STRUCTURES**

### **5.6.1 Assumptions**

While we are not aware of significant retaining walls planned at the site, we provide the following general recommendations. Our retaining wall design recommendations are based on the following assumptions: (1) the walls consist of conventional, cantilevered retaining walls, (2) the walls are less than 8 feet in height, (3) the backfill is drained, and (4) the backfill has a slope flatter than 4H:1V. Re-evaluation of our recommendations will be required if the retaining wall design criteria for the project varies from these assumptions.

### **5.6.2 Wall Design Parameters**

Unrestrained site walls that retain native soil should be designed to resist active earth pressures of 35 to 55 pcf when supporting slopes between 4H:1V and 2H:1V, respectively. Where retained slopes are between inclinations of 4H:1V and 2H:1V, the designer may linearly interpolate between these active earth pressures. For embedded building walls, a superimposed seismic lateral force should be calculated based on a dynamic force of  $6.5H^2$  pounds per lineal foot of wall (where  $H$  is the height of the wall in feet) and applied at  $0.6H$  from the base of the wall.

If retaining walls are restrained from rotation prior to being backfilled, the aforementioned active earth pressures shall be increased by 15 pcf. If other surcharges (e.g., slopes steeper than

2H:1V, foundations, vehicles, etc.) are located within a horizontal distance from the back of a wall equal to twice the height of the wall, additional pressures may need to be accounted for in the wall design. Our office should be contacted for appropriate wall surcharges based on the actual magnitude and configuration of the applied loads.

The wall footings should be designed in accordance with the guidelines in the “Shallow Foundations” section.

### **5.6.3 Wall Drainage and Backfill**

The above design parameters have been provided assuming that back-of-wall drains will be installed to prevent buildup of hydrostatic pressures behind all walls. If a drainage system is not installed, our office should be contacted for revised design forces.

Backfill material placed behind the walls and extending a horizontal distance of  $\frac{1}{2}H$  (where H is the height of the retaining wall) should consist of retaining wall select backfill placed and compacted in conformance with the “Structural Fill” section.

A minimum 6-inch-diameter, perforated collector pipe should be placed at the base of the walls. The pipe should be embedded in a minimum 2-foot-wide zone of angular drain rock that is wrapped in a drainage geotextile fabric and extends up the back of the wall to within 1 foot of the finish grade. The drain rock and drainage geotextile fabric should meet specifications provided in the “Materials” section. The perforated collector pipes should discharge at an appropriate location away from the base of the wall. The discharge pipe(s) should not be tied directly into stormwater drain systems, unless measures are taken to prevent backflow into the drainage system of the wall.

Settlement of up to 1 percent of the wall height commonly occurs immediately adjacent to the wall as the wall rotates and develops active lateral earth pressures. Consequently, we recommend construction of flatwork adjacent to retaining walls be postponed at least four weeks after backfilling of the wall, unless survey data indicates that settlement is complete prior to that time.

## **5.7 DRAINAGE**

### **5.7.1 General**

We recommend roof drains be connected to a tightline leading to storm drain facilities. Pavement surfaces and open space areas should be sloped such that surface water runoff is collected and routed to suitable discharge points. We also recommend ground surfaces adjacent to buildings be sloped to facilitate positive drainage away from the buildings.

### **5.7.2 Foundation Drains**

Preliminarily, we recommend perimeter foundation drains be installed where the finish floor grade will be less than 1 foot above existing grades; however, we recommend that GeoDesign review the final grading plan as a basis for foundation drain recommendations.

If required, the foundation drains should be constructed at a minimum slope of approximately  $\frac{1}{2}$  percent and pumped or drained by gravity to a suitable discharge. The perforated drainpipe

should not be tied to a stormwater drainage system without backflow provisions. The foundation drains should consist of 4-inch-diameter, perforated drainpipe embedded in a minimum 2-foot-wide zone of crushed drain rock that extends to the ground surface. The invert elevation of the drainpipe should be installed at least 18 inches below the elevation of the floor slab.

The drain rock and geotextile should meet the requirements specified in the “Materials” section. The drain rock and geotextile should extend up the side of embedded walls to within a foot of the ground surface, geotextile wrapped over the top of the drain rock, as recommended in the “Retaining Structures” section.

### 5.8 INFILTRATION SYSTEM

We understand stormwater infiltration system might be constructed for the proposed development with a potential detention system location at the southwest site margin (see Figure 2). The locations and configurations were conceptual at the time of this report. Infiltration tests were performed to evaluate the infiltration potential at the site. The results of our field infiltration testing and laboratory testing are presented in Table 2.

**Table 2. Infiltration and Laboratory Testing Summary**

Location	Depth (feet BGS)	Observed Infiltration Rate <sup>1</sup> (inches per hour)	Fines Content <sup>2</sup> (percent)	Soil Type at Test Depth
TP-2	5.5	1.4	19	Silty GRAVEL, minor sand
TP-3	9.5	“Inconclusive”	15	Clayey GRAVEL with sand, cobbles, and boulders
TP-8	9.0	45.0	6	GRAVEL with sand, clay, and cobbles

1. In situ infiltration rate observed in the field
2. Fines content - material passing the U.S. Standard No. 200 sieve

Correction factors should be applied to the measured infiltration rate to account for soil variations and the potential for long-term clogging due to siltation and buildup of organic material. The infiltration rates shown in Table 2 are short-term field rates and factors of safety have not been applied. We recommend a minimum factor of safety of at least 2 be applied to the field infiltration values presented above.

The Infiltration results are highly variable across the site and within the underlying gravel due to the variable amounts of silt, clay, sand, cobbles, and boulders. We note the higher infiltration rate measured in test pit TP-8 is due to the fact that this test was performed in a localized clean gravel layer. While noted as “inconclusive” results at TP-3, testing was attempted multiple times and suggest that the infiltration capacity at this location is also relatively high. However, the laboratory test results and our field classifications at TP-3 indicate the gravel layers generally have higher fines contents, which is not associated with high infiltration capacity.

Based on the test results above and our prior infiltration testing in the site vicinity, we recommend all infiltration systems be installed in gravel soil. We recommend an unfactored field infiltration rate of 1.4 inches per hour; however, also note that additional large-scale infiltration tests could be completed to substantiate higher design rates.

We recommend the installation of stormwater facilities be observed by a qualified geotechnical engineer or representative under their supervision to evaluate if soil conditions are consistent with subsurface conditions encountered during our explorations. If stormwater systems will not have redundant overflow systems, we recommend confirmation testing of infiltration facilities. The results of this field testing might necessitate the stormwater system be enlarged to achieve the design infiltration rate.

We understand the stormwater design is still in progress. We will work with the team on evaluating options and recommend we review the final design.

### **5.9 PAVEMENT**

New AC pavement may be constructed for drive aisles and car parking at the proposed project. We are not aware of off-site improvements with this project. If required, additional field work and analysis will likely be required depending on the extent of off-site improvements.

The pavement subgrades should be prepared in accordance with the "Site Preparation" section. The design parameters provided below assume the pavement is underlain by post-stripping native soil, compacted structural fill, or improved topsoil/pre-existing fill subgrade (by the means of scarification and compaction or by cement amendment). If encountered, oversized debris, boulders, and other deleterious material should be removed prior to compaction.

Specific traffic information was not provided to us at the time of this report. Our pavement recommendations are based on the following assumptions:

- A resilient modulus of 20,000 psi was estimated for the aggregate base.
- Initial and terminal serviceability indices of 4.2 and 2.0, respectively.
- Reliability of 75 percent and standard deviation of 0.45.
- Structural coefficients of 0.42 and 0.10 for the AC and aggregate base, respectively.
- No growth.
- A resilient modulus of 3,500 psi for site subgrades assuming the surface 18 inches of subgrade is scarified and compacted to at least 92 percent of the maximum dry density, as defined by ASTM D1557 (modified).
- Fire access will consist of an imposed fire apparatus load of 75,000 pounds on an infrequent basis.

Pavement design is strongly influenced by the type and frequency of truck traffic. The breakdown of the truck traffic (relative to FHWA classification) used in our analysis are presented in Table 3. If any of these assumptions vary from project design values, our office should be contacted with the appropriate information so that the pavement designs can be revised.

**Table 3. Truck Traffic Breakdown**

FHWA Class Group	Description	Percent
4	Bus and Fire Truck	2
5	2-axle, single unit	50
6	3-axle, single unit	48
7	4-axle, single unit	0
8	tractor/trailer 3- to 4-axle	0
9	tractor/trailer 3- to 4-axle	0
10	tractor/trailer 3- to 4-axle	0
11	5-axle, multi-trailer	0
12	6-axle, multi-trailer	0

Our pavement design recommendations assuming a truck ADT between 10 and 40 are presented in Table 4.

**Table 4. Recommended Standard Pavement Sections**

Traffic Levels	Trucks per Day <sup>1</sup>	ESALs	AC (inches)	Base Rock (inches)
Car Parking Stalls	0	10,000	3.0	8.0
Truck/Drive Aisles <sup>1</sup>	10	35,000	3.0	12.0
Truck/Drive Aisles <sup>1</sup>	20	70,000	3.5	12.0
Truck/Drive Aisles <sup>1</sup>	30	105,000	3.5	14.0
Truck/Drive Aisles <sup>1</sup>	40	139,000	4.0	14.0

1. See Table 3 for the assumed breakdown of the trucks.

If the subgrade is cement amended to the thicknesses indicated below and the amended soil achieves a seven-day unconfined compressive strength of at least 100 psi, the pavement can be constructed as recommended in Table 5.

**Table 5. Recommended Pavement Sections using Cement Amendment**

Traffic Levels	Trucks per Day <sup>1</sup>	ESALs	AC Thickness (inches)	Aggregate Base Thickness (inches)	Cement Amendment (inches)
Car Parking Stalls	0	10,000	3.0	4.0	12.0
Truck/Drive Aisles <sup>1</sup>	10	35,000	3.0	4.0	12.0
Truck/Drive Aisles <sup>1</sup>	20	70,000	3.5	4.0	12.0
Truck/Drive Aisles <sup>1</sup>	30	105,000	3.5	5.0	12.0
Truck/Drive Aisles <sup>1</sup>	40	139,000	4.0	6.0	12.0

1. See Table 3 for the assumed breakdown of the trucks.



To prevent strength loss during curing, cement-amended soil should be allowed to cure for at least four days prior to construction traffic or placing the aggregate base. Lastly, the amended subgrade should be protected with a minimum of 4 inches of aggregate base prior to construction traffic access.

All thicknesses are intended to be the minimum acceptable. The design of the recommended pavement section is based on the assumption that construction will be completed during an extended period of dry weather. Wet weather construction could require an increased thickness of aggregate base. In addition, the pavement sections recommended above are for support of post-construction design traffic. The aggregate (with or without cement-amended subgrade) is not designed to support construction traffic. Increased aggregate thicknesses will likely be required to support construction traffic as discussed in the "Construction Considerations" section.

The AC, aggregate base, and cement amendment should meet the requirements outlined in the "Materials" section.

Construction traffic should be limited to non-building, unpaved portions of the site or haul roads. Construction traffic should not be allowed on new pavement. If construction traffic is to be allowed on newly constructed road sections, an allowance for this additional traffic will need to be made in the design pavement section.

## **6.0 CONSTRUCTION**

### **6.1 SITE PREPARATION**

#### **6.1.1 Demolition**

Demolition includes complete removal of existing site improvements within 5 feet of areas to receive new pavements, buildings, retaining walls, or engineered fills. Underground vaults, tanks, manholes, foundation elements, and other subsurface structures should be removed in areas of new foundation elements. Utility lines can be completely removed or grouted full if left in place. Soil disturbed during demolition should be removed and replaced in accordance with the recommendations in the "Structural Fill" section. Monitoring wells should be decommissioned in accordance with the guidelines set forth by the Oregon Department of Environmental Quality.

Material generated during demolition should be transported off site for disposal in accordance with the project Contaminated Media Management Plan (if available) or stockpiled in areas designated by the owner.

#### **6.1.2 Grubbing and Stripping**

Trees and shrubs should be removed from fill areas. In addition, root balls should be grubbed out to the depth of the roots, which could exceed 3 feet BGS. Depending on the methods used to remove the root balls, considerable disturbance and loosening of the subgrade could occur during site grubbing. We recommend that soil disturbed during grubbing operations be removed to expose firm, undisturbed subgrade. The resulting excavations should be backfilled with structural fill.

The existing root zone should be stripped and removed from all fill areas. Based on our explorations, the average depth of stripping will be approximately 6 to 8 inches, although greater stripping depths will likely be required to remove localized zones of loose or organic soil. The actual stripping depth should be based on field observations at the time of construction. Stripped material should be transported off site for disposal or used in landscaped areas.

### **6.1.3 Topsoil/Buried Topsoil/Pre-Existing Fill**

Topsoil, buried topsoil, and pre-existing fill associated with past agricultural and grading activities were encountered in our explorations to depths of 1 foot to 2 feet BGS. The composition and consistency of the topsoil, buried topsoil, and pre-existing fill are variable and include silt and clay with variable sand and trace organics and debris (concrete, masonry) and silty gravel with sand and trace organics. To prevent excessive differential settlement, foundations should not bear on the topsoil, buried topsoil, or pre-existing fill. We recommend these materials be removed from below the footings and the footings be underlain by granular pads as recommended in the "Shallow Foundations" section.

Pavement or concrete slab performance can also be affected by poor subgrade performance, such as is possible with topsoil, buried topsoil, and pre-existing fill. We recommend scarifying and compacting these materials within pavement and slab areas. If encountered, deleterious material and oversized debris should be removed prior to compaction.

As discussed in the "Structural Fill" section, the on-site soil can be sensitive to small changes in moisture content and will be difficult, if not impossible, to compact adequately during wet weather. While scarification and compaction of the subgrade is the best option for subgrade improvement, it will likely only be possible during extended dry periods and following moisture conditioning of the soil. As discussed further on in this report, cement amendment is an option for conditioning the soil for use as structural fill during periods of wet weather or when drying the soil is not an option.

Topsoil, buried topsoil, and pre-existing fill should be evaluated at the time of construction. Removal of unsuitable material may be required from building areas. The resulting excavations should be backfilled with structural fill. The project budget may need to include a contingency for removal of topsoil, buried topsoil, and pre-existing fill materials from below buildings and foundation elements.

### **6.1.4 Subgrade Evaluation**

Upon completion of stripping and subgrade stabilization, and prior to the placement of fill or pavement improvements, the exposed subgrade should be evaluated by proof rolling. The subgrade should be proof rolled with a fully loaded dump truck or similarly heavy, rubber tire construction equipment to identify soft, loose, or unsuitable areas. A member of our geotechnical staff should observe proof rolling to evaluate yielding of the ground surface. During wet weather, subgrade evaluation should be performed by probing with a foundation probe rather than proof rolling. Areas that appear soft or loose should be improved in accordance with subsequent sections.

### **6.1.5 Compacting Test Pit Locations**

The test pit excavations were backfilled using the relatively minimal compactive effort of the excavator bucket. Soft spots can be expected at these locations. We recommend this relatively uncompacted soil be removed from the test pits to a depth of 3 feet below finished subgrade. If a test pit is located within 10 feet of a footing, we recommend full-depth removal of the uncompacted soil. The resulting excavation should be brought back to grade with structural fill.

## **6.2 CONSTRUCTION CONSIDERATIONS**

The fine-grained soil present on this site is easily disturbed. If not carefully executed, site preparation, utility trench work, and roadway excavation can create extensive soft areas and significant repair costs can result. Earthwork planning, regardless of the time of year, should include considerations for minimizing subgrade disturbance.

If construction occurs during or extends into the wet season, or if the moisture content of the surficial soil is more than a few percentage points above optimum, site stripping and cutting commonly need to be accomplished using track-mounted equipment to prevent damage to the subgrade. Likewise, the use of granular haul roads and staging areas will be necessary for support of construction traffic during the rainy season or when the moisture content of the surficial soil is more than a few percentage points above optimum. The base rock thickness for pavement areas is intended to support post-construction design traffic loads, not for support of construction traffic. If construction is planned for periods when the subgrade soil is wet, staging and haul roads with increased thicknesses of base rock will be required. The amount of staging and haul road areas, as well as the required thickness of granular material, will vary with the contractor's sequencing of a project and type/frequency of construction equipment. Based on our experience, between 12 and 18 inches of imported granular material is generally required in staging areas and between 18 and 24 inches in haul roads areas. Stabilization material may be used as a substitute provided the top 4 inches of material consists of imported granular material. The actual thickness will depend on the contractor's means and methods and, accordingly, should be the contractor's responsibility. In addition, a geotextile fabric should be considered to assist as a barrier between the subgrade and imported granular material in areas of repeated construction traffic. The imported granular material, stabilization material, and geotextile fabric should meet the specifications in the "Materials" section.

As an alternative to thickened crushed rock sections, haul roads and utility work zones may be constructed using cement-amended subgrades overlain by a crushed rock wearing surface. If this approach is used, the thickness of granular material in staging areas and along haul roads can typically be reduced to between 6 and 9 inches. This recommendation is based on an assumed minimum unconfined compressive strength of 100 psi for subgrade amended to a depth of 12 to 16 inches. The actual thickness of the amended material and imported granular material will depend on the contractor's means and methods and, accordingly, should be the contractor's responsibility. Cement amendment is discussed in the "Materials" section.

## **6.3 PERMANENT SLOPES**

Permanent cut and fill slopes should not exceed 2H:1V. Access roads and pavement should be located at least 5 feet from the top of cut and fill slopes. The setback should be increased to 10 feet for buildings. The slopes should be planted with appropriate vegetation to provide

protection against erosion as soon as possible after grading. Surface water runoff should be collected and directed away from slopes to prevent water from running down the face of the slope.

## **6.4 EXCAVATION**

### **6.4.1 Excavation and Shoring**

The silt and clay soil at the site should be readily excavatable with conventional grading equipment. However, dense gravel with cobbles and boulders might be encountered in cut areas and utility excavations. The dense gravel, cobbles, and boulders will result in difficult excavation with conventional equipment. Utility trenches may result in slowed excavation and larger backfill volumes due to the presence of cobbles, boulders, and related caving.

Temporary excavation sidewalls should stand vertical to a depth of approximately 4 feet, provided groundwater seepage is not observed in the sidewalls. Open excavation techniques may be used to excavate trenches with depths between 4 and 8 feet, provided the walls of the excavation are cut at a slope of 1H:1V and groundwater seepage is not present. At this inclination, the slopes with loose gravel, cobbles, and boulders may ravel and require some ongoing repair. Excavations should be flattened to 1½H:1V or 2H:1V if excessive sloughing or raveling occurs. In lieu of large and open cuts, approved temporary shoring may be used for excavation support. Use of approved temporary shoring is recommended where the slopes cannot be cut back, within the influence area of structural elements, and for cuts below the water table. The influence area can be defined as a 1H:1V slope extending down from a 5-foot setback from the edge of a foundation element. A wide variety of shoring and dewatering systems are available. Consequently, we recommend the contractor be responsible for selecting the appropriate shoring and dewatering systems.

If box shoring is used, it should be understood that box shoring is a safety feature used to protect workers and does not prevent caving. If the excavations are left open for extended periods of time, caving of the sidewalls may occur. The presence of caved material will limit the ability to properly backfill and compact the trenches. The contractor should be prepared to fill voids between the box shoring and the sidewalls of the trenches with sand or gravel before caving occurs.

If shoring is used, we recommend the type and design of the shoring system be the responsibility of the contractor, who is in the best position to choose a system that fits the overall plan of operation. All excavations should be made in accordance with applicable OSHA and state regulations.

### **6.4.2 Trench Dewatering**

Perched groundwater may be encountered at shallow depths after prolonged wet periods. Dewatering systems are best designed by the contractor; however, it is our opinion it should be possible to remove groundwater encountered by pumping from a sump system in the trenches. More intense use of pumps may be required at certain times of the year and where more intense seepage occurs. Removed water should be routed to a suitable discharge point.

Where groundwater seepage into shored excavations occurs, we recommend placing at least 1 foot of stabilization material at the base of the excavations. Trench stabilization material should meet the requirements provided in the "Structural Fill" section.

We note these recommendations are for guidance only. Dewatering of excavations is the sole responsibility of the contractor, as the contractor is in the best position to select these systems based on their means and methods.

### **6.4.3 Safety**

All excavations should be made in accordance with applicable OSHA requirements and regulations of the state, county, and local jurisdiction. While this report describes certain approaches to excavation and dewatering, the contract documents should specify that the contractor is responsible for selecting excavation and dewatering methods, monitoring the excavations for safety, and providing shoring (as required) to protect personnel and adjacent structural elements.

## **6.5 MATERIALS**

### **6.5.1 Structural Fill**

#### **6.5.1.1 General**

Fill should be placed on subgrade that has been prepared in conformance with the "Site Preparation" section. A variety of material may be used as structural fill at the site. However, all material used as structural fill should be free of organic matter or other unsuitable material. A brief characterization of some of the acceptable materials and our recommendations for their use as structural fill is provided below.

#### **6.5.1.2 On-Site Soil**

The material at the site should be suitable for use as general structural fill, provided it is properly moisture conditioned and free of debris, organic material, and particles over 6 inches in diameter. Occasional cobbles and boulders greater than 6 inches may be acceptable if they can be properly mixed into the fill matrix to reduce void creation and are spaced sufficiently to allow compaction of the soil. Oversized material should not be placed within 3 feet of the finished subgrade or in areas where future foundation or utility excavations are planned. Materials greater than 10 inches in diameter shall not be placed in fills. Fine grading of soil may result in segregating cobbles/boulders or coarse gravel from the soil matrix, resulting in unsatisfactory (poorly graded or "bony") fill. Fill material should be maintained as well graded with gravel, sand, and silt material for proper compaction during fill placement and mass grading. A qualified geotechnical engineer should observe fill material prior to placement.

Based on laboratory test results, the moisture content of the on-site silt and clay soil generally varied from 17 to 34 percent at the time of our explorations. We estimate the optimum moisture content for compaction to be approximately 17 to 19 percent for the on-site silt and clay soil. Moisture conditioning (drying) will be required to use on-site soil for structural fill. Accordingly, extended dry weather will be required to adequately condition and place the soil as structural fill. It will be difficult, if not impossible, to adequately compact on-site soil during the rainy season or during prolonged periods of rainfall. We note that oversize material will present a challenge to moisture conditioning.

When used as structural fill, native soil should be placed in lifts with a maximum uncompacted thickness of 8 inches and compacted to not less than 92 percent of the maximum dry density for fine-grained soil and 95 percent of the maximum dry density for granular soil, as determined by ASTM D1557.

#### **6.5.1.3 Imported Granular Material**

Imported granular material used as structural fill should be pit- or quarry-run rock, crushed rock, or crushed gravel and sand. The imported granular material should also be angular and fairly well graded between coarse and fine material, should have less than 5 percent fines by dry weight passing the U.S. Standard No. 200 sieve, and should have at least two mechanically fractured faces.

Imported granular material should be placed in lifts with a maximum uncompacted thickness of 12 inches and compacted to not less than 95 percent of the maximum dry density, as determined by ASTM D1557. During the wet season or when wet subgrade conditions exist, the initial lift should be approximately 18 inches in uncompacted thickness and should be compacted by rolling with a smooth-drum roller without using vibratory action.

#### **6.5.1.4 Stabilization Material**

Stabilization material used in staging or haul road areas or in trenches should consist of 4- or 6-inch-minus pit- or quarry-run rock, crushed rock, or crushed gravel and sand. The material should have a maximum particle size of 6 inches, should have less than 5 percent by dry weight passing the U.S. Standard No. 4 Sieve, and should have at least two mechanically fractured faces. The material should be free of organic matter and other deleterious material. Stabilization material should be placed in lifts between 12 and 24 inches thick and compacted to a firm condition.

#### **6.5.1.5 Trench Backfill**

Trench backfill placed beneath, adjacent to, and for at least 12 inches above utility lines (i.e., the pipe zone) should consist of durable, well-graded granular material with a maximum particle size of 1½ inches, should have less than 7 percent fines by dry weight, and should have at least two mechanically fractured faces. The pipe zone backfill should be compacted to at least 90 percent of the maximum dry density, as determined by ASTM D1557, or as required by the pipe manufacturer or local building department.

Within roadway alignments, the remainder of the trench backfill up to the subgrade elevation should consist of durable, well-graded granular material with a maximum particle size of 2½ inches, should have less than 7 percent fines by dry weight, and should have at least two mechanically fractured faces. This material should be compacted to at least 92 percent of the maximum dry density, as determined by ASTM D1557, or as required by the pipe manufacturer or local building department. The upper 3 feet of the trench backfill should be compacted to at least 95 percent of the maximum dry density, as determined by ASTM D1557.

Outside of structural improvement areas (e.g., roadway alignments or building pads) trench backfill placed above the pipe zone may consist of general fill material that is free of organics

and material over 6 inches in diameter. This general trench backfill should be compacted to at least 90 percent of the maximum dry density, as determined by ASTM D1557, or as required by the pipe manufacturer or local building department.

#### **6.5.1.6 Drain Rock**

Drain rock should consist of angular, granular material with a maximum particle size of 2 inches. The material should be free of roots, organic matter, and other unsuitable material; should have less than 2 percent by dry weight passing the U.S. Standard No. 200 sieve (washed analysis); and should have at least two mechanically fractured faces. Drain rock should be compacted to a well-keyed, firm condition.

#### **6.5.1.7 Aggregate Base Rock**

Imported granular material used as base rock for building floor slabs and pavement should consist of  $\frac{3}{4}$ - or 1 $\frac{1}{2}$ -inch-minus material (depending on the application). In addition, the aggregate should have less than 5 percent by dry weight passing the U.S. Standard No. 200 sieve. The aggregate base should be compacted to not less than 95 percent of the maximum dry density, as determined by ASTM D1557.

#### **6.5.1.8 Retaining Wall Select Backfill**

Backfill material placed behind retaining walls and extending a horizontal distance of  $\frac{1}{2}H$  (where H is the height of the retaining wall) should consist of imported granular material as described above and should have less than 7 percent fines by dry weight. We recommend the wall backfill be separated from general fill, native soil, and/or topsoil using a geotextile fabric that meets the specifications provided below for drainage geotextiles.

The wall backfill should be compacted to a minimum of 95 percent of the maximum dry density, as determined by ASTM D1557. However, backfill located within a horizontal distance of 3 feet from a retaining wall should only be compacted to approximately 90 percent of the maximum dry density, as determined by ASTM D1557. Backfill placed within 3 feet of the wall should be compacted in lifts less than 6 inches thick using hand-operated tamping equipment (such as a jumping jack or vibratory plate compactor). If flatwork (sidewalks or pavements) will be placed atop the wall backfill, we recommend the upper 2 feet of material be compacted to 95 percent of the maximum dry density, as determined by ASTM D1557.

#### **6.5.1.9 Retaining Wall Leveling Pad**

Imported granular material placed at the base of retaining wall footings should consist of select granular material. The granular material should be 1"-0 to  $\frac{3}{4}$ "-0 aggregate size and have at least two mechanically fractured faces. The leveling pad material should be placed in a 6- to 12-inch lift and compacted to not less than 95 percent of the maximum dry density, as determined by ASTM D1557.

### **6.5.2 Geotextile Fabric**

#### **6.5.2.1 Subgrade Geotextile**

Subgrade geotextile should conform to OSSC Table 02320-4 and OSSC 00350 (Geosynthetic Installation). A minimum initial aggregate base lift of 6 inches is required over geotextiles. All drainage aggregate and stabilization material should be underlain by a subgrade geotextile.

### **6.5.2.2 Drainage Geotextile**

Drainage geotextile should conform to Type 2 material of OSSC Table 02320-1 and OSSC 00350 (Geosynthetic Installation). A minimum initial aggregate base lift of 6 inches is required over geotextiles.

### **6.5.3 Soil Amendment with Cement**

#### **6.5.3.1 General**

As an alternative to the use of imported granular material for wet weather structural fill, an experienced contractor may be able to amend the on-site soil with portland cement to obtain suitable support properties. Successful use of soil amendment depends on the use of correct mixing techniques, soil moisture content, and amendment quantities. Soil amending should be conducted in accordance with the specifications provided in OSSC 00344 (Treated Subgrade). The amount of cement used during treatment should be based on an assumed soil dry unit weight of 100 pcf. Depending on the grade and location, cobbles and boulders could be present in the subgrade. Cobbles and boulders can damage cement tilling equipment and when encountered may require removal for cement treatment.

#### **6.5.3.2 Subbase Stabilization**

Specific recommendations based on exposed site conditions for soil amending can be provided if necessary. However, for preliminary design purposes, we recommend a target strength for cement-amended subgrade for building and pavement subbase (below aggregate base) soil of 100 psi. The amount of cement used to achieve this target generally varies with moisture content and soil type. It is difficult to predict field performance of soil to cement amendment due to variability in soil response, and we recommend laboratory testing to confirm expectations. Generally, 4 percent cement by weight of dry soil can be used when the soil moisture content does not exceed approximately 20 percent. If the soil moisture content is in the range of 25 to 35 percent, 5 to 7 percent by weight of dry soil is recommended. The amount of cement added to the soil may need to be adjusted based on field observations and performance. Moreover, depending on the time of year and moisture content levels during amendment, water may need to be applied during tilling to appropriately condition the soil moisture content.

For building and pavement subbase, we recommend assuming a minimum cement ratio of 6 percent (by dry weight). If the soil moistures are in excess of 30 percent, a cement ratio of 7 percent may be needed. Because of the higher organic content and moisture, we recommend using a cement ratio of 7 to 8 percent when stabilizing topsoil zone material for building and pavement subbase.

A static, sheepfoot or segmented pad roller with a minimum static weight of 40,000 pounds should be used for initial compaction of the fine-grained soil. A smooth-drum roller with a minimum applied linear force of 700 pounds per inch should be used for final compaction. The amended soil should be compacted to at least 92 percent of the achievable dry density at the moisture content of the material, as defined in ASTM D1557.



A minimum curing of four days is required between treatment and construction traffic access. Construction traffic should not be allowed on unprotected, cement-amended subgrade. To protect the cement-treated surfaces from abrasion or damage, the finished surface should be covered with 4 to 6 inches of imported granular material.

Treatment depths for building/pavement, haul roads, and staging areas are typically on the order of 12, 16, and 12 inches, respectively. The crushed rock typically becomes contaminated with soil during construction. Contaminated base rock should be removed and replaced with clean rock in pavement areas. The actual thickness of the amended material and imported granular material for haul roads and staging areas will depend on the anticipated traffic, as well as the contractor's means and methods and, accordingly, should be the contractor's responsibility.

Cement amending should not be attempted when air temperature is below 40 degrees Fahrenheit or during moderate to heavy precipitation. Cement should not be placed when the ground surface is saturated or standing water exists.

#### **6.5.3.3 *Cement-Amended Structural Fill***

On-site soil that would not otherwise be suitable for structural fill may be amended and placed as fill over a subgrade prepared in conformance with the "Site Preparation" section. The cement ratio for general cement-amended fill can generally be reduced by 1 percent (by dry weight). Typically, a minimum curing of four days is required between treatment and construction traffic access. Consecutive lifts of fill may be treated immediately after the previous lift has been amended and compacted (e.g., the four-day wait period does not apply). However, where the final lift of fill is a building or roadway subgrade, the four-day wait period is in effect.

#### **6.5.3.4 *Other Considerations***

Portland cement-amended soil is hard and has low permeability. This soil does not drain well and it is not suitable for planting. Future planted areas should not be cement amended, if practical, or accommodations should be made for drainage and planting. Moreover, cement amending soil within building areas must be done carefully to avoid trapping water under floor slabs. We should be contacted if this approach is considered. Cement amendment should not be used if runoff during construction cannot be directed away from adjacent wetlands.

### **6.5.4 AC**

#### **6.5.4.1 *ACP***

The AC should be Level 2, ½-inch, dense ACP according to OSSC 00744 (Asphalt Concrete Pavement) and compacted to 91 percent of the theoretical maximum density of the mix, as determined by AASHTO T 209. The minimum and maximum lift thickness is 2.0 and 3.0 inches, respectively, for ½-inch ACP. Asphalt binder should be performance graded and conform to PG 64-22 or better. The binder grade should be adjusted depending on the aggregate gradation and amount of recycled asphalt pavement and/or recycled asphalt shingles in the contractor's mix design submittal.

#### **6.5.4.2 Cold Weather Paving Considerations**

In general, AC paving is not recommended during the cold weather (temperatures less than 40 degrees Fahrenheit). Compacting under these conditions can result in low compaction and premature pavement distress.

Each AC mix design has a recommended compaction temperature range that is specific for the particular AC binder used. In colder temperatures, it is more difficult to maintain the temperature of the AC mix as it can lose heat while stored in the delivery truck, as it is placed, and in the time between placement and compaction. In Oregon, the AC surface temperature during paving should be at least 40 degrees Fahrenheit for lift thickness greater than 2.5 inches and at least 50 degrees Fahrenheit for lift thickness between 2.0 and 2.5 inches.

If paving activities must take place during cold-weather construction as defined above, the project team should be consulted and a site meeting should be held to discuss ways to lessen low compaction risks.

### **6.6 EROSION CONTROL**

The site soil is susceptible to erosion; therefore, erosion control measures should be carefully planned and in place before construction begins. Surface water runoff should be collected and directed away from slopes to prevent water from running down the slope face. Erosion control measures (such as straw bales, sediment fences, and temporary detention and settling basins) should be used in accordance with local and state ordinances.

## **7.0 OBSERVATION OF CONSTRUCTION**

Satisfactory foundation and earthwork performance depends to a large degree on quality of construction. Sufficient observation of the contractor's activities is a key part of determining that the work is completed in accordance with the construction drawings and specifications. Subsurface conditions observed during construction should be compared with those encountered during the subsurface exploration. Recognition of changed conditions often requires experience; therefore, qualified personnel should visit the site with sufficient frequency to detect if subsurface conditions change significantly from those anticipated.

We recommend GeoDesign be retained to observe earthwork activities, including stripping, proof rolling of the subgrade and repair of soft areas, cement amending, footing subgrade preparation, infiltration system installation, performing laboratory compaction and field moisture-density tests, observing final proof rolling of the pavement subgrade and base rock, and AC placement and compaction.

## **8.0 LIMITATIONS**

We have prepared this report for use by the City of Wilsonville and members of the design and construction team for the proposed project. The data and report can be used for bidding or estimating purposes, but our report, conclusions, and interpretations should not be construed as warranty of the subsurface conditions and are not applicable to other nearby building sites.

Exploration observations indicate soil conditions only at specific locations and only to the depths penetrated. They do not necessarily reflect soil strata or water level variations that may exist between exploration locations. If subsurface conditions differing from those described are noted during the course of excavation and construction, re-evaluation will be necessary.

The site development plans and design details were preliminary at the time this report was prepared. When the design has been finalized and if there are changes in the site grades or location, configuration, design loads, or type of construction, the conclusions and recommendations presented may not be applicable. If design changes are made, we request that we be retained to review our conclusions and recommendations and to provide a written modification or verification.

The scope does not include services related to construction safety precautions, and our recommendations are not intended to direct the contractor's methods, techniques, sequences, or procedures, except as specifically described in our report for consideration in design.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with generally accepted practices in this area at the time the report was prepared. No warranty, express or implied, should be understood.

◆ ◆ ◆

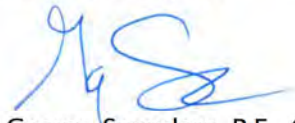
We appreciate the opportunity to be of service to you. Please call if you have questions concerning this report or if we can provide additional services.

Sincerely,

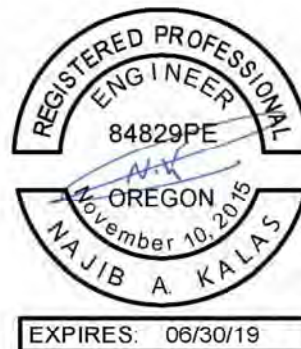
GeoDesign, Inc.



Najib A. Kalas, P.E.  
Associate Engineer



George Saunders, P.E., G.E.  
Principal Engineer



## REFERENCES

*ASCE Standard ASCE/SEI 7-10, Minimum Design Loads for Building and Other Structures*, March 2013, American Society of Civil Engineers.

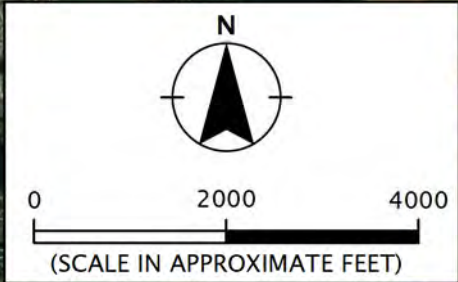
ODOT, 2018. *Oregon Standard Specifications for Construction*, Oregon Department of Transportation, 2018 Edition.

*2014 Oregon Structural Specialty Code Based on the 2012 International Building Code*, ISBN: 978-1-60983-517-0, 2014, International Code Council, Inc.

## FIGURES



VICINITY MAP BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO®



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 File Name: J:\A-D\CWilson\CWilson-19-01\CWilson-19-01\Figures\CAD\CWilson-19-01-VM01.dwg | Layout: FIGURE 1

**GEODESIGN INC**  
 9450 SW Commerce Circle - Suite 300  
 Wilsonville OR 97070  
 503.968.8787 www.geodesigninc.com

CWILSON-19-01

JUNE 2019

VICINITY MAP

WILSONVILLE PUBLIC WORKS FACILITY  
 WILSONVILLE, OR

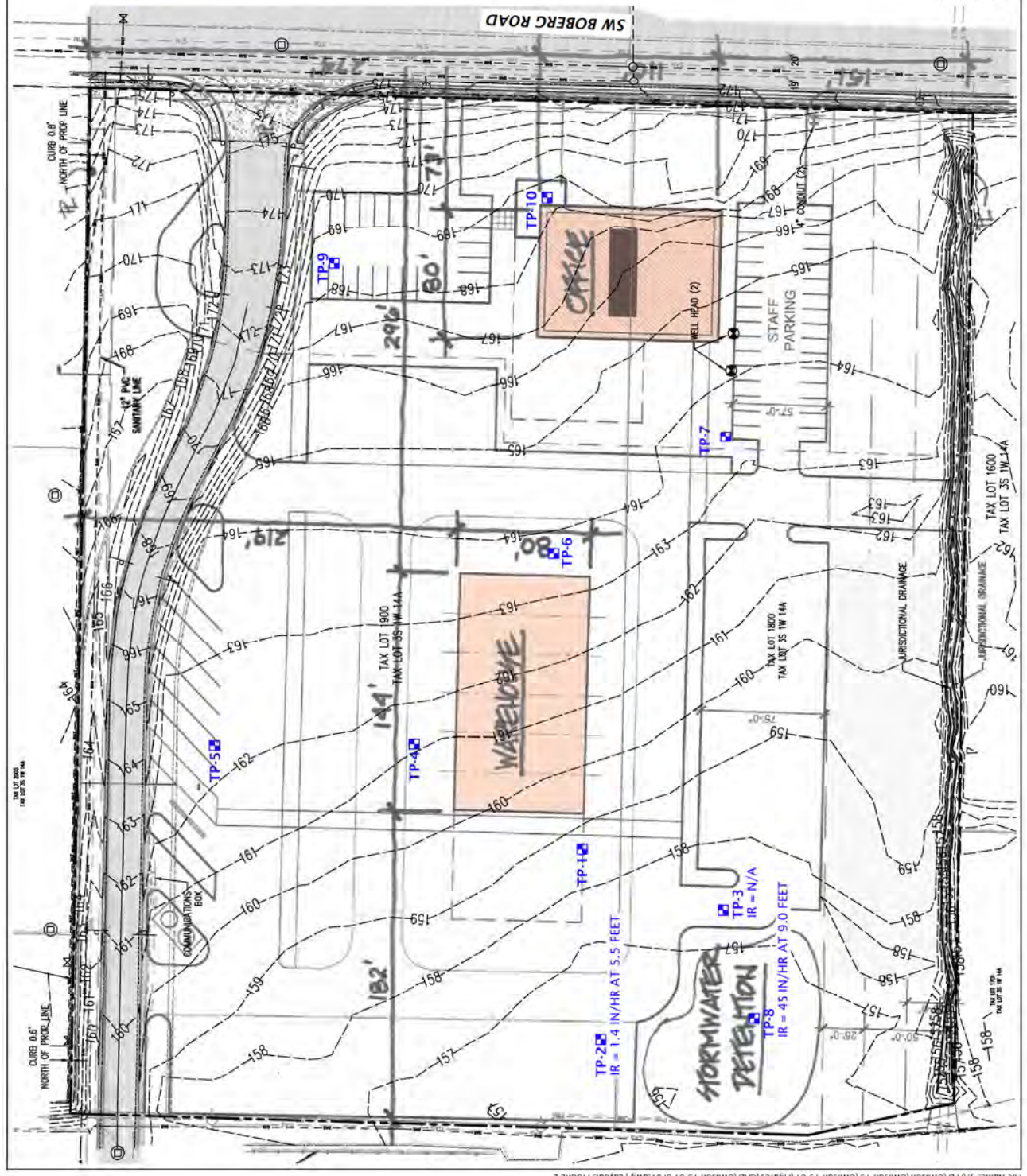
FIGURE 1

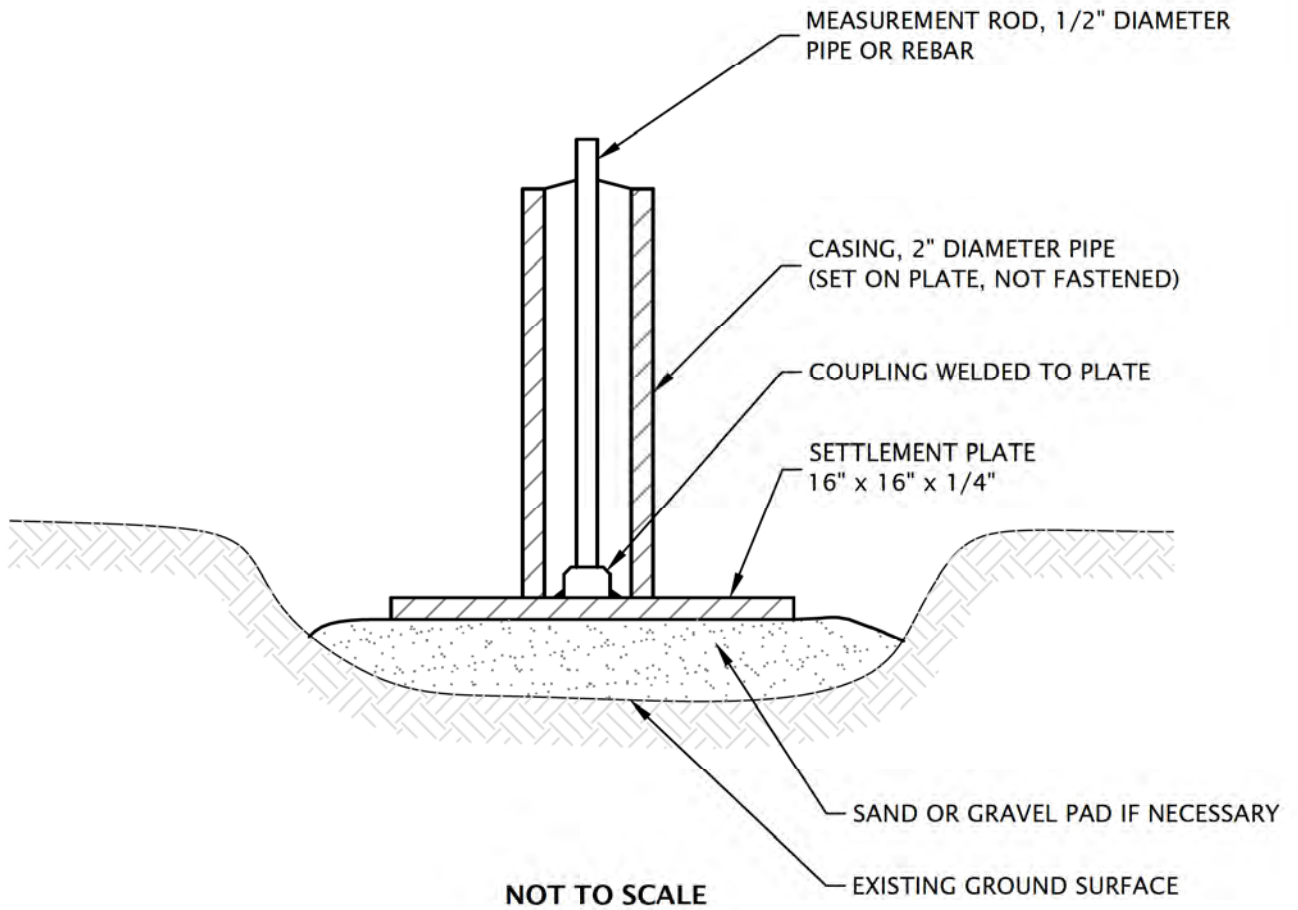
SITE PLAN

SITE PLAN BASED ON SCHEMATIC SITE DIAGRAM  
 DATED MAY 14, 2019 PREPARED BY SCOTT EDWARDS  
 ARCHITECTURES, LLP. AND SHEET 01 EXISTING  
 CONDITIONS SITE PLAN DATED MAY 2, 2019  
 PREPARED BY AKS ENGINEERING & FORESTRY, LLC.



**LEGEND:**  
 --- SITE BOUNDARY  
 TP-1 [Symbol] TEST PIT  
 IR = 1.4 IN/HR AT 5.5 FEET UNFACTORED INFILTRATION RATE





NOT TO SCALE

**NOTES:**

1. INSTALL MARKERS ON FIRM GROUND OR ON SAND OR GRAVEL PADS IF NEEDED FOR STABILITY. TAKE INITIAL READING ON TOP OF ROD AND AT ADJACENT GROUND LEVEL PRIOR TO PLACING ANY FILL.
2. FOR EASE IN HANDLING, ROD AND CASING ARE USUALLY INSTALLED IN 5-FOOT SECTIONS. AS FILL PROGRESSES, COUPLINGS ARE USED TO INSTALL ADDITIONAL LENGTHS. CONTINUITY IS MAINTAINED BY READING THE TOP OF THE MEASUREMENT ROD, THEN IMMEDIATELY ADDING THE NEW SECTION AND READING THE TOP OF THE ADDED ROD. BOTH READINGS ARE RECORDED.
3. RECORD THE ELEVATION OF THE TOP OF THE MEASUREMENT ROD IN EACH MARKER AT THE RECOMMENDED TIME INTERVALS. EACH TIME, NOTE THE ELEVATION OF THE ADJACENT FILL SURFACE.
4. READ THE MARKER TO THE NEAREST 0.01 FOOT, OR 0.005 FOOT IF POSSIBLE. NOTE THE FILL ELEVATION TO THE NEAREST 0.1 FOOT.
5. THE ELEVATIONS SHOULD BE REFERENCED TO A TEMPORARY BENCHMARK LOCATED ON STABLE GROUND AT LEAST 500 FEET FROM THE EMBANKMENT.

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## APPENDIX

## **APPENDIX**

### **FIELD EXPLORATIONS**

#### ***GENERAL***

We explored subsurface conditions at the site by excavating 10 test pits (TP-1 through TP-10) at the approximate locations shown on Figure 2. Excavation services were provided by Dan J. Fischer Excavating, Inc. of Forest Grove, Oregon, on May 15, 2019 using a trackhoe. The exploration locations were determined by pacing from existing site features and should be considered accurate to the degree implied by the methods used. The exploration logs are presented in this appendix.

#### ***SOIL SAMPLING***

A member of our geology staff observed the explorations. We collected representative samples of the various soils encountered in the explorations for geotechnical laboratory testing. Representative grab samples of the soil observed in the test pits were collected from the walls and/or base of the test pits using the excavator bucket. A hand-held pocket penetrometer was used to estimate the unconfined shear strength of the fine-grained soil. Sampling methods and intervals are shown on the exploration logs.

#### ***SOIL CLASSIFICATION***

We collected samples of the soil encountered at representative intervals. The soil samples were classified in accordance with the "Explorations Key" (Table A-1) and "Soil Classification System" (Table A-2), which are presented in this appendix. The exploration logs indicate the depths at which the soils or their characteristics change, although the change could be gradual. If the change occurred between sample locations, the depth was interpreted. Classifications are shown on the exploration logs.

#### ***INFILTRATION TESTING***

Infiltration tests were conducted in test pits TP-2, TP-3, and TP-8 at depths between approximately 5.5 and 9.5 feet BGS using open pit method. The infiltration rates were estimated by filling the pit with water, allowing the area to saturate, and then measuring the drop in water with time. The tests were conducted under a hydrostatic head of less than approximately 18 inches. Representative soil samples were collected from at or below the infiltration test locations for grain-size distribution analyses, as described in this appendix.

### **LABORATORY TESTING**

We visually examined soil samples collected from the explorations to confirm field classifications. We also performed the following laboratory testing.

#### ***MOISTURE CONTENT***










The natural moisture content of select soil samples was determined in general accordance with ASTM D2216. The natural moisture content is a ratio of the weight of the water to dry soil in a test sample and is expressed as a percentage. The test results are presented in this appendix.

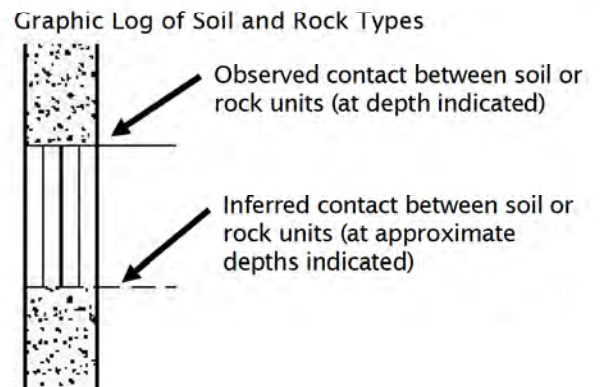
### ***GRAIN-SIZE ANALYSIS***

We completed grain-size analysis on three soil samples in order to determine the distribution of soil particle sizes. The testing on one sample consisted of full sieve analysis completed in general accordance with ASTM C136, while testing on two samples consisted of fines content determination completed in conformance with ASTM C117. The test results are presented in this appendix.

### ***ATTERBERG LIMITS TESTING***

Atterberg limits (plastic and liquid limits) testing was performed on select soil samples in general accordance with ASTM D4318. The plastic limit is defined as the moisture content where the soil becomes brittle. The liquid limit is defined as the moisture content where the soil begins to act similar to a liquid. The plasticity index is the difference between the liquid and plastic limits. The test results are presented in this appendix.

SYMBOL	SAMPLING DESCRIPTION
	Location of sample collected in general accordance with ASTM D1586 using Standard Penetration Test with recovery
	Location of sample collected using thin-wall Shelby tube or Geoprobe® sampler in general accordance with ASTM D1587 with recovery
	Location of sample collected using Dames & Moore sampler and 300-pound hammer or pushed with recovery
	Location of sample collected using Dames & Moore sampler and 140-pound hammer or pushed with recovery
	Location of sample collected using 3-inch-O.D. California split-spoon sampler and 140-pound hammer with recovery
	Location of grab sample
	Rock coring interval
	Water level during drilling
	Water level taken on date shown




**GEOTECHNICAL TESTING EXPLANATIONS**

ATT	Atterberg Limits	P	Pushed Sample
CBR	California Bearing Ratio	PP	Pocket Penetrometer
CON	Consolidation	P200	Percent Passing U.S. Standard No. 200 Sieve
DD	Dry Density	RES	Resilient Modulus
DS	Direct Shear	SIEV	Sieve Gradation
HYD	Hydrometer Gradation	TOR	Torvane
MC	Moisture Content	UC	Unconfined Compressive Strength
MD	Moisture-Density Relationship	VS	Vane Shear
NP	Non-Plastic	kPa	Kilopascal
OC	Organic Content		

**ENVIRONMENTAL TESTING EXPLANATIONS**

CA	Sample Submitted for Chemical Analysis	ND	Not Detected
P	Pushed Sample	NS	No Visible Sheen
PID	Photoionization Detector Headspace Analysis	SS	Slight Sheen
ppm	Parts per Million	MS	Moderate Sheen
		HS	Heavy Sheen

RELATIVE DENSITY - COARSE-GRAINED SOIL									
Relative Density		Standard Penetration Resistance		Dames & Moore Sampler (140-pound hammer)		Dames & Moore Sampler (300-pound hammer)			
Very Loose		0 - 4		0 - 11		0 - 4			
Loose		4 - 10		11 - 26		4 - 10			
Medium Dense		10 - 30		26 - 74		10 - 30			
Dense		30 - 50		74 - 120		30 - 47			
Very Dense		More than 50		More than 120		More than 47			
CONSISTENCY - FINE-GRAINED SOIL									
Consistency		Standard Penetration Resistance		Dames & Moore Sampler (140-pound hammer)		Dames & Moore Sampler (300-pound hammer)		Unconfined Compressive Strength (tsf)	
Very Soft		Less than 2		Less than 3		Less than 2		Less than 0.25	
Soft		2 - 4		3 - 6		2 - 5		0.25 - 0.50	
Medium Stiff		4 - 8		6 - 12		5 - 9		0.50 - 1.0	
Stiff		8 - 15		12 - 25		9 - 19		1.0 - 2.0	
Very Stiff		15 - 30		25 - 65		19 - 31		2.0 - 4.0	
Hard		More than 30		More than 65		More than 31		More than 4.0	
PRIMARY SOIL DIVISIONS					GROUP SYMBOL		GROUP NAME		
COARSE-GRAINED SOIL  (more than 50% retained on No. 200 sieve)	GRAVEL  (more than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVEL (< 5% fines)			GW or GP		GRAVEL		
		GRAVEL WITH FINES (≥ 5% and ≤ 12% fines)			GW-GM or GP-GM		GRAVEL with silt		
					GW-GC or GP-GC		GRAVEL with clay		
		GRAVEL WITH FINES (> 12% fines)			GM		silty GRAVEL		
					GC		clayey GRAVEL		
					GC-GM		silty, clayey GRAVEL		
	SAND  (50% or more of coarse fraction passing No. 4 sieve)	CLEAN SAND (<5% fines)			SW or SP		SAND		
		SAND WITH FINES (≥ 5% and ≤ 12% fines)			SW-SM or SP-SM		SAND with silt		
					SW-SC or SP-SC		SAND with clay		
		SAND WITH FINES (> 12% fines)			SM		silty SAND		
SC					clayey SAND				
SC-SM					silty, clayey SAND				
FINE-GRAINED SOIL  (50% or more passing No. 200 sieve)	SILT AND CLAY	Liquid limit less than 50			ML		SILT		
					CL		CLAY		
					CL-ML		silty CLAY		
		Liquid limit 50 or greater			OL		ORGANIC SILT or ORGANIC CLAY		
					MH		SILT		
					CH		CLAY		
	OH			ORGANIC SILT or ORGANIC CLAY					
	HIGHLY ORGANIC SOIL					PT		PEAT	
MOISTURE CLASSIFICATION			ADDITIONAL CONSTITUENTS						
Term	Field Test	Secondary granular components or other materials such as organics, man-made debris, etc.							
		Percent	Silt and Clay In:		Percent	Sand and Gravel In:			
	Fine-Grained Soil		Coarse-Grained Soil			Fine-Grained Soil	Coarse-Grained Soil		
dry	very low moisture, dry to touch	< 5	trace	trace	< 5	trace	trace		
moist	damp, without visible moisture	5 - 12	minor	with	5 - 15	minor	minor		
wet	visible free water, usually saturated	> 12	some	silty/clayey	15 - 30	with	with		
					> 30	sandy/gravelly	Indicate %		
 9450 SW Commerce Circle - Suite 300 Wilsonville OR 97070 503.968.8787 www.geodesigninc.com			<b>SOIL CLASSIFICATION SYSTEM</b>				<b>TABLE A-2</b>		

TEST PIT LOG - 1 PER PAGE CWILSON-19-01-TP1\_10.GPJ GEODESIGN.GDT PRINT DATE: 6/6/19:KM:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %			COMMENTS
						0	50	100	
0.0		Very stiff, brown SILT (ML), trace clay, sand, and organics (rootlets); moist (16-inch-thick tilled zone, 6- to 8-inch-thick root zone).	158.7						
1.3		Stiff, brown with orange mottled CLAY (CL), some silt, trace to minor sand, trace organics (rootlets); moist, sand is fine.	157.4	PP	⊗	●			PP = 4.0 tsf
2.5			1.3	PP					PP = 3.5 tsf
3.5			ATT PP	⊗	●				PP = 2.75 tsf LL = 45% PL = 21%
5.0				PP					PP = 2.75 tsf
6.5		Dense, brown, silty GRAVEL (GM), minor sand; moist, gravel is fine to coarse and subangular. with cobbles and boulders; cobbles are approximately 10%, boulders are approximately 5% at 7.0 feet	152.2		⊗	●			
7.5			6.5						PP = 4.5 tsf
9.0		Very dense, brown, clayey GRAVEL with sand (GC); moist, gravel is coarse and subrounded, sand is medium.	149.7						
10.0			9.0						
11.5		Exploration completed at a depth of 11.5 feet.	147.2		⊗				
12.5			11.5						No groundwater seepage observed to the depth explored. No caving observed to the depth explored.
15.0									
17.5									
20.0									

EXCAVATED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: J. Hook

COMPLETED: 05/15/19

EXCAVATION METHOD: trackhoe (see document text)



CWILSON-19-01

TEST PIT TP-1

JUNE 2019

WILSONVILLE PUBLIC WORKS FACILITY  
WILSONVILLE, OR

FIGURE A-1

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %			COMMENTS
						0	50	100	
0.0		Very stiff, brown SILT (ML), minor sand, trace clay and organics (rootlets, charcoal); moist, sand is fine (14-inch-thick tilled zone, 8-inch-thick root zone).	156.4	PP					PP = 3.75 tsf
1.2		Stiff, brown with orange mottled SILT (ML), minor sand, trace clay and organics (rootlets); moist.	155.2	PP					PP = 2.75 tsf
2.5		with gravel; gravel is coarse at 3.0 feet		PP	⊗				PP = 3.0 tsf
				PP					PP = 3.25 tsf
4.5		Dense, brown, silty GRAVEL (GM), minor sand; moist, gravel is coarse and subangular.	151.9		⊗				
5.0			4.5	P200	⊗				P200 = 19% Infiltration test: 1.4 inches per hour at 5.5 feet.
7.0		Very dense, brown, clayey GRAVEL with sand and cobbles (GC), trace silt; moist, gravel is subrounded, cobbles are approximately 15%.	149.4						
7.5			7.0						
9.5		Exploration completed at a depth of 9.5 feet.	146.9		⊗				Bulk sampled collected at 9.0 feet.
10.0			9.5						No groundwater seepage observed to the depth explored. No caving observed to the depth explored.

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LOGGED BY: J. Hook

COMPLETED: 05/15/19

EXCAVATION METHOD: trackhoe (see document text)



CWILSON-19-01

TEST PIT TP-2

JUNE 2019

WILSONVILLE PUBLIC WORKS FACILITY  
WILSONVILLE, OR

FIGURE A-2


TEST PIT LOG - 1 PER PAGE CWILSON-19-01-TP1\_10.GPJ GEODESIGN.GDT PRINT DATE: 6/6/19:KM:KT

TEST PIT LOG - 1 PER PAGE CWILSON-19-01-TP1\_10.GPJ GEODESIGN.GDT PRINT DATE: 6/6/19:KM:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %			COMMENTS
						0	50	100	
0.0		Very stiff, brown SILT (ML), trace to minor sand, trace clay and organics (rootlets); moist, sand is fine (18-inch-thick tilled zone, 8-inch-thick root zone).	157.5	PP					PP = 3.5 tsf
2.5		Stiff, brown SILT (ML), minor sand, trace clay and organics (rootlets); moist.	156.0 1.5	PP					PP = 2.75 tsf
				PP	⊗	●			PP = 3.5 tsf
		with gravel; gravel is coarse at 4.0 feet		PP					PP = 3.5 tsf
5.0		Dense to very dense, brown, silty GRAVEL with cobbles and boulders (GM), minor sand; moist, gravel is coarse and subrounded to subangular, cobbles are approximately 10%, boulders are approximately 5%.	153.0 4.5		⊗				
7.5		Very dense, brown, clayey GRAVEL with sand, cobbles, and boulders (GC), trace silt; moist, gravel is coarse and subrounded, cobbles are approximately 10 to 15%, boulders are approximately 5%.	150.0 7.5						
10.0		Exploration completed at a depth of 10.0 feet.	147.5 10.0	P200	⊗	●			Infiltration test: "inconclusive" at 9.5 feet. P200 = 15%  No groundwater seepage observed to the depth explored. No caving observed to the depth explored.

EXCAVATED BY: Dan J. Fischer Excavating, Inc.      LOGGED BY: J. Hook      COMPLETED: 05/15/19

EXCAVATION METHOD: trackhoe (see document text)

 <p>9450 SW Commerce Circle - Suite 300 Wilsonville OR 97070 503.968.8787 www.geodesigninc.com</p>	CWILSON-19-01	TEST PIT TP-3	
	JUNE 2019	WILSONVILLE PUBLIC WORKS FACILITY WILSONVILLE, OR	FIGURE A-3



DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %			COMMENTS
						0	50	100	
0.0		Medium dense, brown, silty GRAVEL with sand (GM), trace organics (rootlets); moist, gravel is fine to coarse and subrounded (5-inch-thick root zone) - FILL.	161.1						
			160.4 0.7	PP	☒				PP = 4.0 tsf
			159.6 1.5	PP					PP = 3.75 tsf
2.5		Medium stiff, brown SILT (ML), minor sand, trace clay and organics (rootlets); moist (buried tilled zone).		PP					PP = 2.75 tsf
		Stiff, brown with orange mottled SILT (ML), minor sand, trace clay and organics (rootlets); moist.		PP	☒				PP = 2.0 tsf
5.0				PP					PP = 2.0 tsf
7.5					☒				
		Very dense, brown, silty GRAVEL with cobbles (GM), minor sand; moist, gravel is fine to coarse and subrounded, cobbles are approximately 10%.	153.1 8.0		☒				
10.0		Exploration completed at a depth of 10.0 feet.	151.1 10.0						No groundwater seepage observed to the depth explored. No caving observed to the depth explored.
12.5									
15.0									
17.5									
20.0									

EXCAVATED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: J. Hook

COMPLETED: 05/15/19

EXCAVATION METHOD: trackhoe (see document text)



CWILSON-19-01

TEST PIT TP-4

JUNE 2019

WILSONVILLE PUBLIC WORKS FACILITY  
WILSONVILLE, OR

FIGURE A-4

TEST PIT LOG - 1 PER PAGE CWILSON-19-01-TP1\_10.GPJ GEODESIGN.GDT PRINT DATE: 6/6/19:KM:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %			COMMENTS
						0	50	100	
0.0		Stiff, brown SILT (ML), trace sand, clay, and organics (rootlets); moist (12-inch-thick tilled zone, 7-inch-thick root zone).	162.3						PP = 3.75 tsf
1.0		Stiff, brown SILT (ML), minor sand, trace clay and organics (rootlets); moist.	161.3	PP					
2.5				PP	⊗	●			PP = 3.75 tsf PP = 2.5 tsf
5.0				PP	⊗				PP = 2.25 tsf
6.0		trace to minor sand at 6.0 feet							
7.5				PP	⊗	●			PP = 3.5 tsf
8.5			153.8						
9.5		Dense, brown, silty GRAVEL with cobbles and boulders (GM), minor sand; moist, gravel is coarse and subrounded, cobbles are approximately 10%, boulders are approximately 10% with sand at 9.5 feet	152.3		⊗				
10.0		Exploration completed at a depth of 10.0 feet.	152.3						No groundwater seepage observed to the depth explored. No caving observed to the depth explored.
12.5									
15.0									
17.5									
20.0									

EXCAVATED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: J. Hook

COMPLETED: 05/15/19

EXCAVATION METHOD: trackhoe (see document text)



CWILSON-19-01

TEST PIT TP-5

JUNE 2019

WILSONVILLE PUBLIC WORKS FACILITY  
WILSONVILLE, OR

FIGURE A-5

TEST PIT LOG - 1 PER PAGE CWILSON-19-01-TP1\_10.GPJ GEODESIGN.GDT PRINT DATE: 6/6/19:KM:KT

TEST PIT LOG - 1 PER PAGE CWILSON-19-01-TP1\_10.GPJ GEODESIGN.GDT PRINT DATE: 6/6/19:KM:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %			COMMENTS
						0	50	100	
0.0		Stiff, brown SILT (ML), trace sand, clay, and organics (rootlets); moist (18-inch-thick tilled zone, 8-inch-thick root zone).	163.7	PP					PP = 3.0 tsf
2.5		Stiff to very stiff, brown SILT (ML), minor sand, trace clay and organics (rootlets); moist.	162.2 1.5	PP	☒	●			PP = 2.75 tsf
				PP					PP = 3.5 tsf
				PP					PP = 3.5 tsf
5.0									
				PP	☒				PP = 4.0 tsf
7.5									
		Dense, brown, silty GRAVEL with cobbles and boulders (GM); moist, gravel is coarse and subrounded, cobbles are approximately 20%, boulders are approximately 5% with sand at 9.5 feet	155.7 8.0		☒	●			
10.0		Exploration completed at a depth of 10.0 feet	153.7 10.0						No groundwater seepage observed to the depth explored. No caving observed to the depth explored.
12.5									
15.0									
17.5									
20.0									

EXCAVATED BY: Dan J. Fischer Excavating, Inc.      LOGGED BY: J. Hook      COMPLETED: 05/15/19

EXCAVATION METHOD: trackhoe (see document text)

 <p>9450 SW Commerce Circle - Suite 300 Wilsonville OR 97070 503.968.8787 www.geodesigninc.com</p>	CWILSON-19-01	<b>TEST PIT TP-6</b>	
	JUNE 2019	WILSONVILLE PUBLIC WORKS FACILITY WILSONVILLE, OR	<b>FIGURE A-6</b>

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %			COMMENTS
						0	50	100	
0.0		Medium stiff, brown SILT (ML), minor sand, trace clay, organics (roots, rootlets), and debris (masonry, concrete); moist (6-inch-thick root zone) - FILL.	163.4	PP					PP = 4.0 tsf
1.5		Stiff, brown SILT (ML), minor sand, trace clay; moist.	161.9	PP					PP = 3.0 tsf
2.5				PP					PP = 3.0 tsf
4.0		very stiff at 4.0 feet		PP	⊗	●			PP = 3.0 tsf
5.0									
7.5				PP	⊗				PP = 4.5 tsf
9.5			153.9						
10.0		Dense to very dense, brown, silty GRAVEL with cobbles (GM), minor sand; moist, gravel is coarse and subrounded, cobbles are approximately 15 to 20%.	9.5		⊗				
11.0		Exploration completed at a depth of 11.0 feet.	152.4		⊗				
11.0			11.0						No groundwater seepage observed to the depth explored. No caving observed to the depth explored.
12.5									
15.0									
17.5									
20.0									

EXCAVATED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: J. Hook

COMPLETED: 05/15/19

EXCAVATION METHOD: trackhoe (see document text)



CWILSON-19-01

TEST PIT TP-7

JUNE 2019

WILSONVILLE PUBLIC WORKS FACILITY  
WILSONVILLE, OR

FIGURE A-7

TEST PIT LOG - 1 PER PAGE CWILSON-19-01-TP1\_10.GPJ GEODESIGN.GDT PRINT DATE: 6/6/19:KM:KT

TEST PIT LOG - 1 PER PAGE CWILSON-19-01-TP1\_10.GPJ GEODESIGN.GDT PRINT DATE: 6/6/19:KM:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %			COMMENTS
						0	50	100	
0.0		Medium stiff, brown SILT (ML), trace sand, clay, and organics (roots, rootlets); moist (14-inch-thick tilled zone, 6-inch-thick root zone).	156.3						PP = 3.5 tsf
1.2		Stiff, brown SILT (ML), minor sand, trace clay; moist.	155.1	PP					PP = 3.5 tsf
2.5				PP	⊗	●			PP = 3.0 tsf
				PP					PP = 3.0 tsf
5.0		Dense, brown, silty GRAVEL with cobbles and boulders (GM), minor sand; moist, gravel is coarse and subrounded to subangular, cobbles are approximately 20%, boulders are approximately 10%.	151.3						
			5.0		⊗				
7.5		Very dense, brown GRAVEL with clay, sand, and cobbles (GP-GC); moist, gravel is subrounded, cobbles are approximately 10%.	148.3						
			8.0		⊗				
9.5		Exploration completed at a depth of 9.5 feet.	146.8	SIEV	⊗	●			Bulk sample collected at 9.0 feet. Infiltration test: 45.0 inches per hour at 9.0 feet. No groundwater seepage observed to the depth explored. No caving observed to the depth explored.
10.0			9.5						
12.5									
15.0									
17.5									
20.0									

EXCAVATED BY: Dan J. Fischer Excavating, Inc.      LOGGED BY: J. Hook      COMPLETED: 05/15/19

EXCAVATION METHOD: trackhoe (see document text)

 <p>9450 SW Commerce Circle - Suite 300 Wilsonville OR 97070 503.968.8787 www.geodesigninc.com</p>	CWILSON-19-01	TEST PIT TP-8	
	JUNE 2019	WILSONVILLE PUBLIC WORKS FACILITY WILSONVILLE, OR	FIGURE A-8

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %			COMMENTS
						0	50	100	
0.0		Medium stiff, brown SILT (ML), trace sand, clay, and organics (rootlets); moist (14-inch-thick tilled zone, 6-inch-thick root zone).	168.5	PP					PP = 1.2 tsf
		Stiff, brown with orange mottled SILT (ML), minor sand, trace clay; moist.	167.3 1.2	PP					PP = 2.0 tsf
2.5				PP	⊗				PP = 2.0 tsf
				PP					PP = 2.0 tsf
5.0					⊗				
		trace sand at 6.0 feet							
7.5									
		trace gravel at 9.0 feet			⊗				
10.0		gravelly, with cobbles; cobbles are approximately 10% at 10.0 feet	158.0 10.5						
		Exploration completed at a depth of 10.5 feet							No groundwater seepage observed to the depth explored. No caving observed to the depth explored.
12.5									
15.0									
17.5									
20.0									

EXCAVATED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: J. Hook

COMPLETED: 05/15/19

EXCAVATION METHOD: trackhoe (see document text)



CWILSON-19-01

TEST PIT TP-9

JUNE 2019

WILSONVILLE PUBLIC WORKS FACILITY  
WILSONVILLE, OR

FIGURE A-9

TEST PIT LOG - 1 PER PAGE CWILSON-19-01-TP1\_10.GPJ GEODESIGN.GDT PRINT DATE: 6/6/19:KM:KT

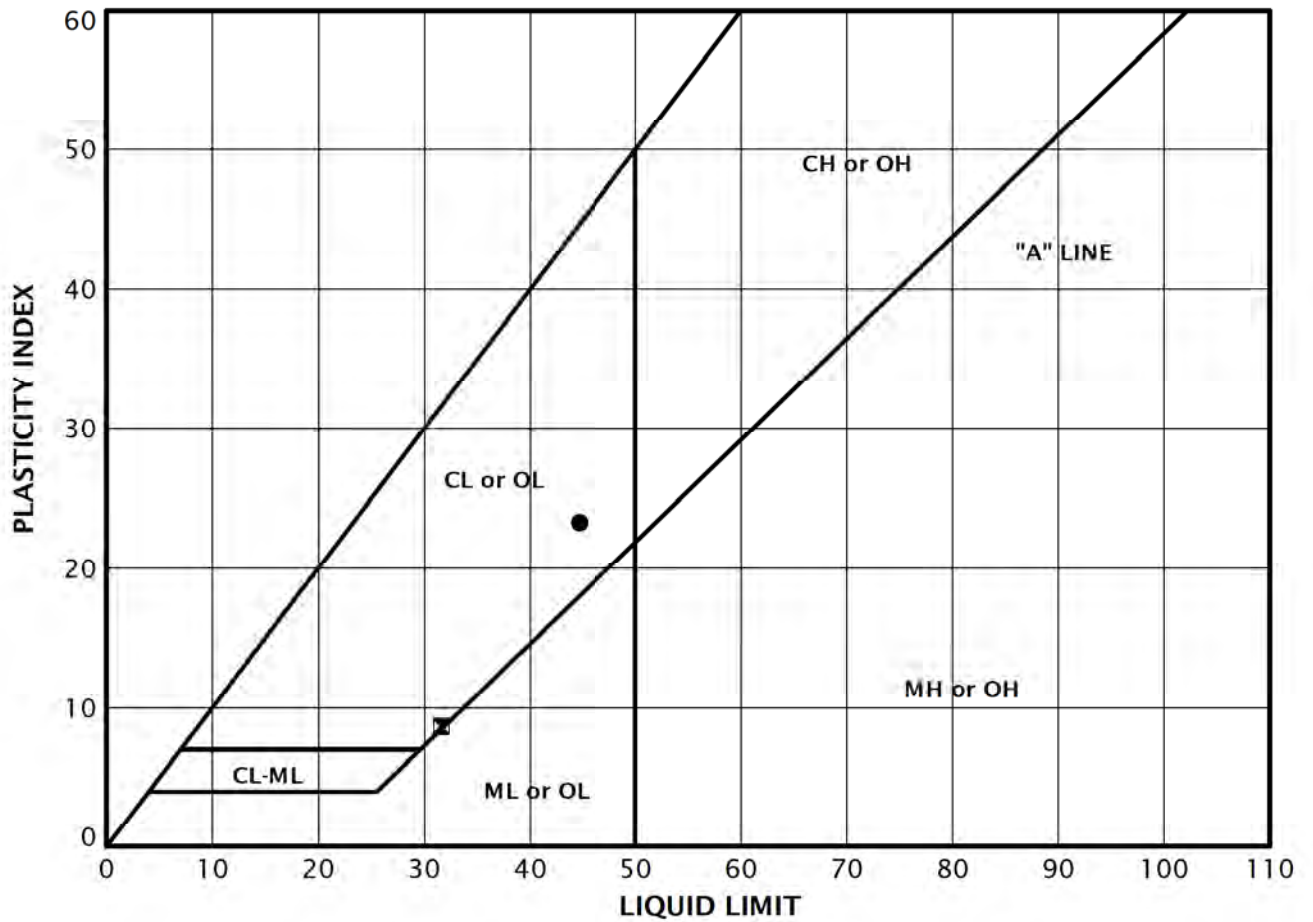
TEST PIT LOG - 1 PER PAGE CWILSON-19-01-TP1\_10.GPJ GEODESIGN.GDT PRINT DATE: 6/6/19:KM:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT %			COMMENTS
						0	50	100	
0.0		Medium dense, light brown, silty GRAVEL with sand (GM), trace organics (rootlets); moist, gravel is angular (6-inch-thick root zone) - FILL.	168.4						
2.5		Stiff to very stiff, brown with gray mottled SILT (ML), some clay, trace to minor sand; moist.	166.4 2.0	PP					PP = 4.0 tsf
				ATT PP	⊗	●			PP = 3.5 tsf LL = 32% PL = 23%
				PP					PP = 3.0 tsf
5.0									
7.5				PP	⊗				PP = 4.5 tsf
10.0		minor sand at 10.0 feet			⊗				
		Exploration completed at a depth of 10.5 feet.	157.9 10.5						No groundwater seepage observed to the depth explored. No caving observed to the depth explored.
12.5									
15.0									
17.5									
20.0									

EXCAVATED BY: Dan J. Fischer Excavating, Inc.      LOGGED BY: J. Hook      COMPLETED: 05/15/19

EXCAVATION METHOD: trackhoe (see document text)

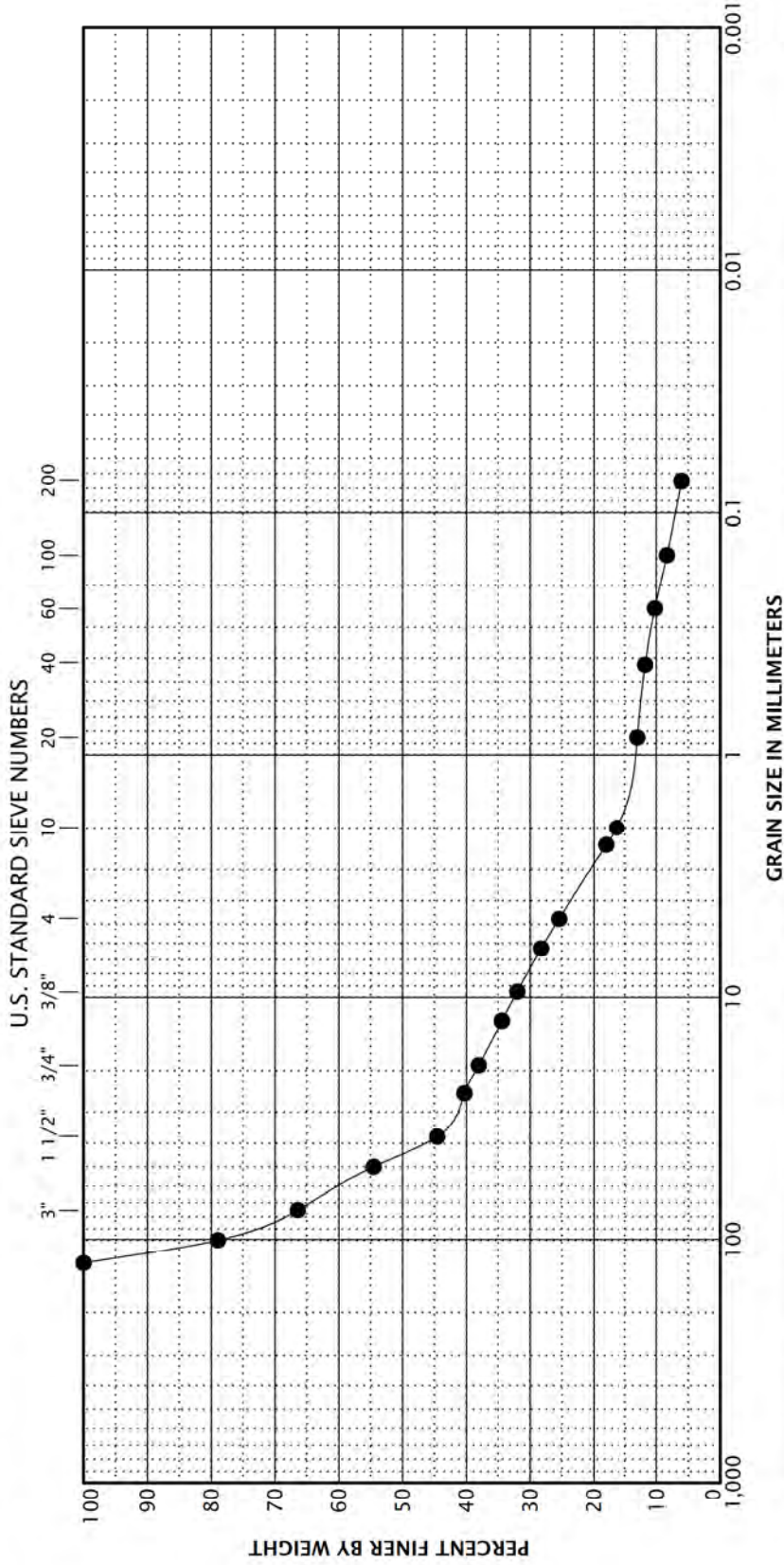
 9450 SW Commerce Circle - Suite 300 Wilsonville OR 97070 503.968.8787 www.geodesigninc.com	CWILSON-19-01	TEST PIT TP-10	
	JUNE 2019	WILSONVILLE PUBLIC WORKS FACILITY WILSONVILLE, OR	FIGURE A-10



KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
●	TP-1	3.0	26	45	21	24
■	TP-10	3.0	22	32	23	9

ATTERBERG\_LIMITS 7 CWILSON-19-01-TP1\_10.GPJ GEODESIGN.GDT PRINT DATE: 6/5/19-KM





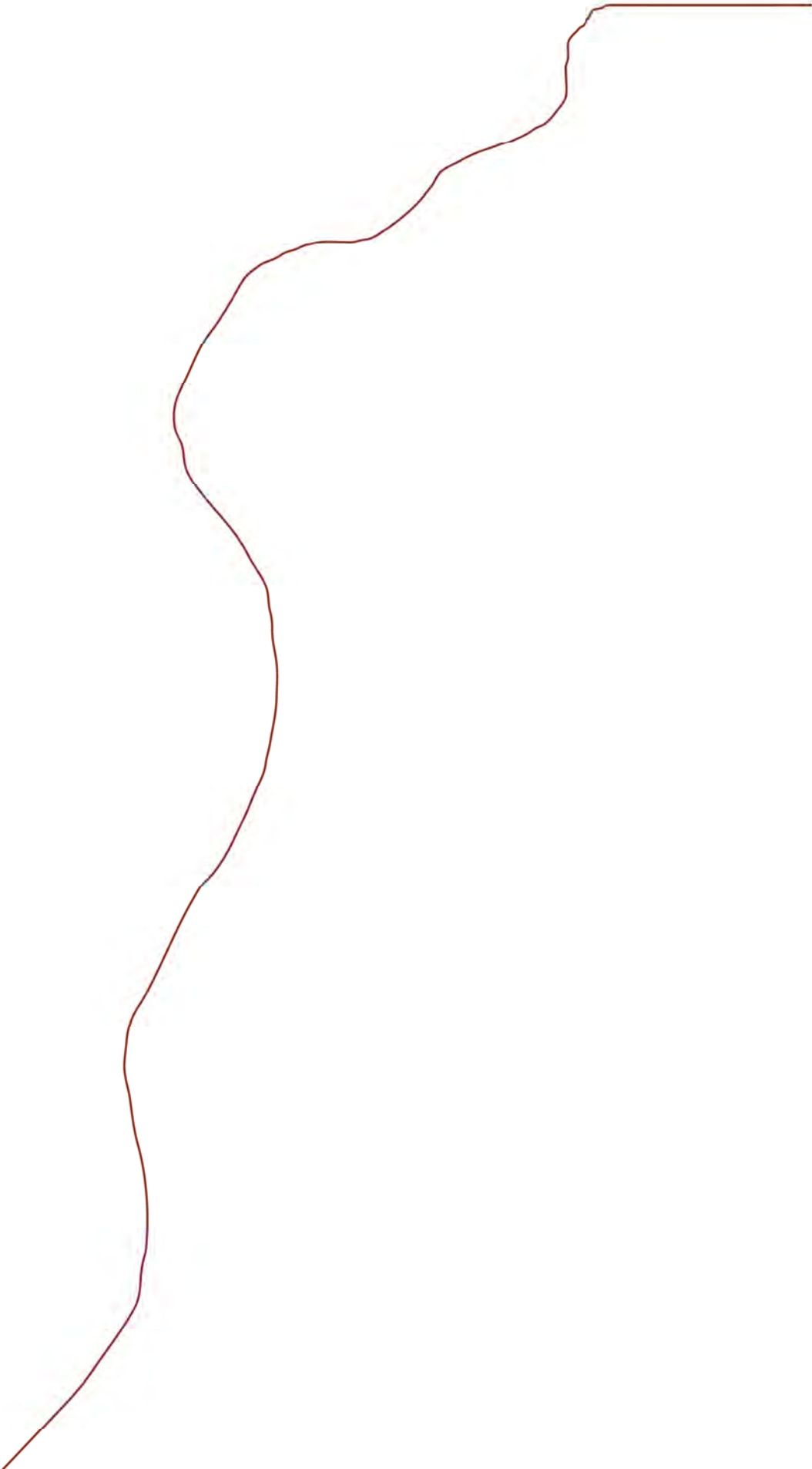
BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	D60	D50	D30	D10	D5	GRAVEL (PERCENT)	SAND (PERCENT)	SILT (PERCENT)	CLAY (PERCENT)
●	TP-8	9.0	14	60.28	43.88	7.63	0.23		41	19		6

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
TP-1	1.0	157.7	17							
TP-1	3.0	155.7	26				45	21	24	
TP-1	6.5	152.2	14							
TP-2	2.0	154.4	24							
TP-2	5.0	151.4	15			19				
TP-3	3.0	154.5	30							
TP-3	9.5	148.0	18			15				
TP-4	4.0	157.1	34							
TP-4	9.0	152.1	22							
TP-5	2.0	160.3	20							
TP-5	7.0	155.3	33							
TP-6	2.0	161.7	24							
TP-6	9.0	154.7	10							
TP-7	3.0	160.4	27							
TP-8	2.5	153.8	22							
TP-8	9.0	147.3	14		41	19	6			
TP-9	2.0	166.5	32							
TP-9	9.0	159.5	31							
TP-10	3.0	165.4	22				32	23	9	
TP-10	10.0	158.4	34							

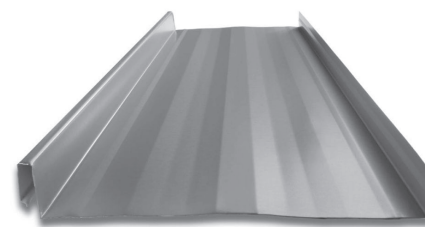
LAB SUMMARY: CWILSON-19-01-TPI\_10.GPJ GEODESIGN.GDT PRINT DATE: 6/5/19-KM

 9450 SW Commerce Circle - Suite 300 Wilsonville OR 97070 503.968.8787 www.geodesigninc.com	CWILSON-19-01	<b>SUMMARY OF LABORATORY DATA</b>	
	JUNE 2019	WILSONVILLE PUBLIC WORKS FACILITY WILSONVILLE, OR	<b>FIGURE A-13</b>





ENLARGED NORTH FACADE



1 STANDING SEAM MTL PANEL [MTL #1]



2 FLAT MTL PANEL [MTL #2]

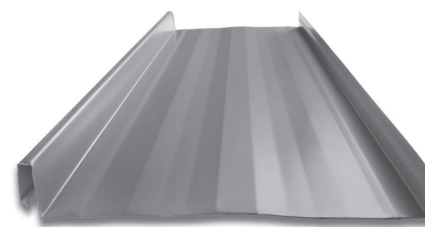


3 WOOD SIDING

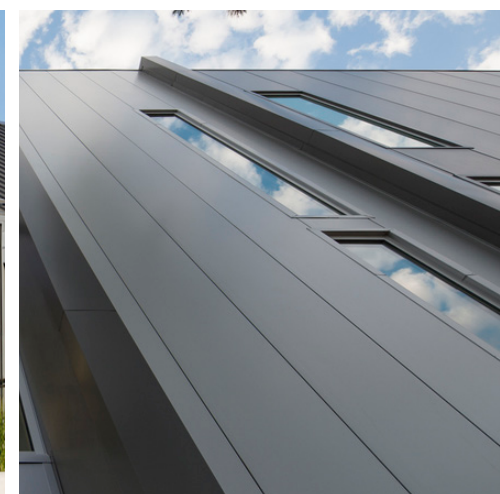




ENLARGED NORTH FACADE



1 STANDING SEAM MTL PANEL [MTL #1]

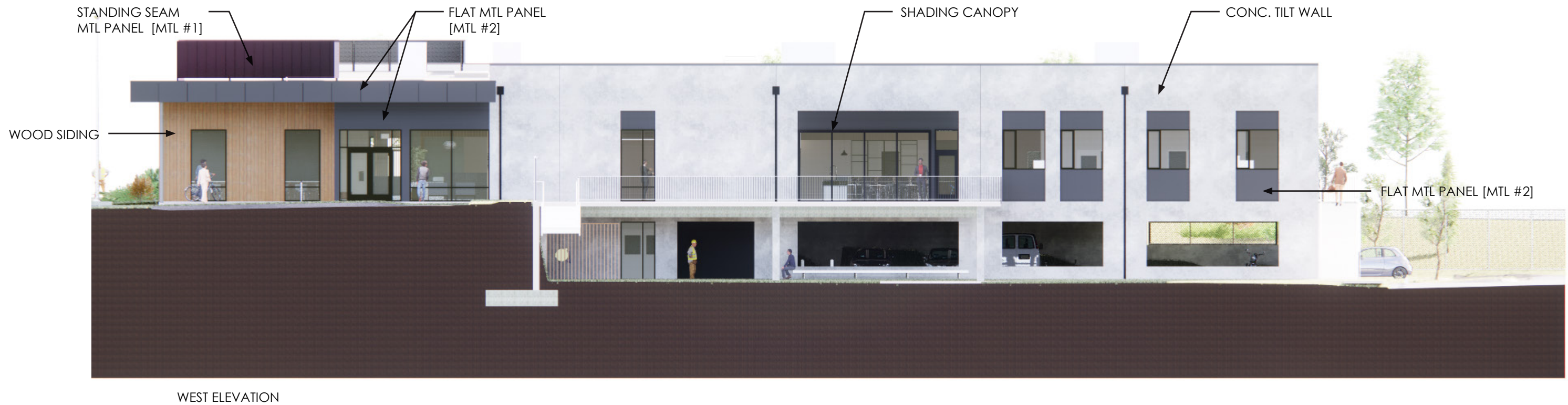
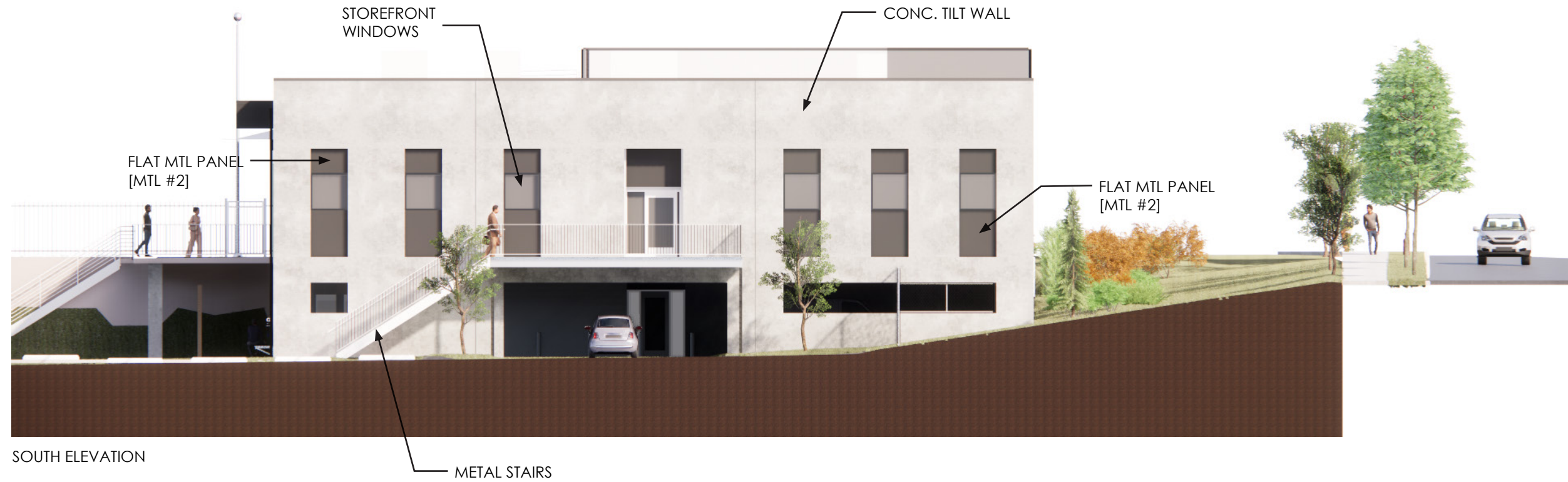


2 FLAT MTL PANEL [MTL #2]



3 CONCRETE TILT WALL





## Brandon Dole

---

**From:** Bradford, Philip <pbradford@ci.wilsonville.or.us>  
**Sent:** Friday, November 13, 2020 2:56 PM  
**To:** Andrew Kraus; Kerber, Delora; Montalvo, Martin  
**Subject:** City of Wilsonville Public Works Facility - Pre-Application Meeting Follow Up  
**Attachments:** Plan Set.docx; Reports and Other Documents.docx

Good afternoon,

Thank you for taking the time to discuss the proposed City of Wilsonville Public Works Facility. I wanted to follow up with an e-mail with additional information. Please forward this information to other members of your project team as appropriate.

An audio recording of the meeting can be found here:  
<https://app.box.com/s/4114nl63zp1uzcfp8aa3q25zo4blyqe2>

As you look at what you need to submit for land use review the following list will aid you in what to submit and what code criteria to respond to in your project narrative. If you have further questions of what a project narrative should look like or what to submit please don't hesitate to contact a planner and ask. You can access the City's Development Code in pdf and Microsoft Word document formats at <https://www.ci.wilsonville.or.us/planning/page/development-code>. Please keep in mind the burden to show compliance with applicable City standards falls on the applicant (see Wilsonville Code 4.014). For planned development proposals Wilsonville Code requires a professional design team including, but not limited to, a registered architect, a registered landscape architect, a certified planner or planner with extensive experience talking projects through public review processes, and a professional engineer. We have found it typically difficult for applicants to prepare a complete and satisfactory application without this full team of professionals.

As a reminder the land use review process is separate from and occurs prior to building and other construction permitting. We do allow for some concurrent review of building permits, but do not submit building permits prior to your land use application being complete and a public hearing being scheduled. Building permits cannot be issued until the land use decision is final after the conclusion of the local appeal period.

This email includes 5 sections

1. Land Use Review Steps
2. Anticipated/Potential Land Use Applications for Project
3. Submittal Requirements
4. Applicable Development Code Sections
5. Other Specific Concerns/Discussion Items for Project

### 1. Land Use Review Steps

Land use review has a number of steps as follows:

Step 1. Submittal (see Section 3 and attached checklist for more details on submittal requirements):

Applicant submits application including:

- Signed application form
- All land use application fees
- 3 paper copies, and 1 electronic copy in flattened pdf format on CD, DVD, flash drive, or via file storage site or email of the following:
  - Project narrative (please include in MS Word document format in addition to pdf)
  - Full size, and reduced (11X17 or smaller) of plans related to land use review
  - Reports such as arborist report, stormwater drainage report, traffic report

Step 2. Initial City Review “Completeness Review”: The assigned Wilsonville planner reviews the application to determine if all materials required to review the application are submitted. We call this step “completeness review.” It concludes with a determination of whether the submitted application package is “complete” or “incomplete.” The applicant will be notified by letter about the determination. If the determination is “incomplete” the letter includes the specific items needed to make the application “complete.” If application is “complete” the next step is Step 6.

Step 3. Indication of Intention for Incomplete Applications: If the application is “incomplete” the applicant either indicates whether they intend to submit the items identified in the “incompleteness letter”. This is done by signing and returning a page enclosed with the “incompleteness letter.” If the applicant refuses to submit additional materials the application will proceed to step 6, noting that failure to provide sufficient information can be grounds for denying an application.

Step 4. Applicant Prepares Additional Request Materials and Resubmits Application: If the application is “incomplete” and the applicant intends to address the items identified in the “incompleteness letter” the applicant prepares the identified items. Once the applicant prepares all the items they resubmit the application as identified in Step 1. Occasionally if the additional materials are minor the previous submittal package can be supplemented or pages switched out. In most cases complete new copies of the entire submittal package will be submitted.

Step 5. City Reviews Resubmitted Package “2nd Completeness Review”. The assigned Wilsonville planner reviews the revised application to determine if all materials required to review the application are submitted. A determination of “complete” or “incomplete” will again occur with the corresponding letter being sent to the applicant.

Step 6. Hearing Scheduled, City Staff Prepares Report, Public Notice and Comment Period. Once the application is “complete” the project is scheduled for a hearing before one of two Development Review Board panels. The hearing is typically scheduled 30-45 days from when the application is deemed “complete.” 20 days prior to the hearing the Assigned Planner sends out a Public Hearing Notice soliciting comments from the public. The Assigned Planner also solicits comments and conditions of approval from various City Departments and Divisions as well as partner agencies and service providers such as TVF&R, NW Natural, and Republic Service (franchise waste collector). One week prior to the hearing a Staff Report is published for public review.

Step 7. Public Hearing. Development Review Board (DRB) public hearings are typically 6:30 p.m. on the 2nd and 4th Monday of the month at Wilsonville City Hall. The public hearing typically follows the following format:

- Assigned Planner presents their report to the DRB often with support from Engineering and Natural Resource staff and answers board questions. The staff presentation typically thoroughly describes the project including layout, design, and impacts.
- The applicant is given the opportunity to present. The applicant can say as little as they want, but the DRB typically prefers some description and explanation of the motivation behind and goals of the project adding color to staff’s description of the project. The DRB can ask questions of the applicant.
- Others in attendance can testify, the DRB can ask questions of them.
- The applicant gets an opportunity to rebut any testimony
- After all testimony and questioning the DRB chair closes the Public Hearing.
- A DRB member makes a motion
- DRB discussion and deliberation
- DRB decision

Step 8. Notice of Decision and Appeal Period. Typically the next day a Notice of Decision is sent by the City. In most cases this includes a form accepting the conditions of approval the applicant must sign and return. The Notice of Decision includes notification of the 14-day appeal period from the date the decision is mailed.

## 2. Anticipated/Potential Land Use Applications for Project

- Stage I Master Plan



- Stage II Final Plan
- Site Design Review
- Type C Tree Removal
- Class 3 Sign Permit

### 3. Submittal Requirements (can use as a checklist)

We have tried to make this as complete as possible, and may not include everything required.

The submittal package needs to include:

1. An [application form](#) signed by the property owner
2. All applicable planning application fees
3. A project narrative including the following sections (paper copy, pdf, and ms word):
  - a. Summary of Proposal (1-2 pages typically) including key numbers (i.e. acreage, square feet of buildings, number of units, etc.)
  - b. Background Information (1-2 pages typically)
  - c. Discussion of key issues or discussion items (1-2 pages), include discussion of any neighborhood outreach
  - d. Response Findings to Code Criteria (numerous pages), in the following basic format:
    - Code Criteria Reference and Language
    - Response (from applicant): The written response needs to be specific and clear. It needs to go beyond saying a criteria is met to clearly and specifically explaining how it is met. AS an example, if the criteria is “Parking standards shown in Table A shall be met,” the response should state, “the proposal provides 52 parking spaces, 2 more than the 50 parking spaces required. See parking layout on the site plan, Exhibit B2” not something unspecific like “the proposal provides sufficient parking”.
4. Plan set including the information in the attached “Plan Set Submittal Checklist”: (you can use the sheet reference field to write in a reference to where the information is).
5. Other reports and documents (traffic report, arborist report, etc.). Include in notebook or packet with narrative. A checklist of requirement documents is attached as “Reports and Other Documents Checklist”

### 4. Applicable Development Code Sections

These are the applicable code sections to consider in preparing your narrative and designing your site. For the most part it does not include code sections related to procedures. The code can be accessed online by following this [link](#).

#### **Industrial Development Standards and Industrial Zoning**

- Planned Development Residential (PDI) Zones and Industrial Standards: Sections 4.117 and 4.135

#### **Planned Development Standards and Regulations for all Planned Development (PD) Zones**

- Standards applying to all Planned Development (PD) Zones: Section 4.118
- Planned Development Regulations: Section 4.140

#### **Overlay Zones**

- Significant Resource Overlay Zone (SROZ): Sections 4.139.00 through 4.139.11

#### **General Development Regulations and Standards**

- On-Site Pedestrian Access and Circulation: Section 4.154
- Parking, Loading, and Bicycle Parking: Section 4.155
- Street Improvement Standards: Section 4.177
- Landscaping, Screening, and Buffering: Section 4.176
- Mixed Solid Waste and Recycling: Section 4.179

- Outdoor Lighting: Sections 4.199 through 4.199.60
- Underground Utilities: Sections 4.300 through 4.320
- Protection of Natural and Other Features: Section 4.171
- Public Safety and Crime Prevention: 4.175

**Site Design Review (Detailed Review of Architecture, Landscaping, Signs and other Design Elements)**

- Site Design Review: Sections 4.400 through 4.450

**Signs**

- Signs: Sections 4.156.01 through 4.156.11

**Tree Removal**

- Tree Preservation and Protection: Sections 4.600 through 4.640.20

**Definitions of Terms**

- Definitions of Terms: Section 4.001

5. Other Specific Concerns / Discussion Items for Project

Roadway crossing the SROZ: The road connection is considered exempt pursuant to Section 4.139.04(.08). The applicant must still demonstrate the necessity of the road connection and provide mitigation for the development impacts. Fencing cannot be included in the resource area, especially fencing that bifurcates the resource area. The SROZ boundary and the SROZ impact area must be shown on the site plans. For any additional questions regarding the SROZ please contact Kerry Rappold, Natural Resources Program Manager at [rappold@ci.wilsonville.or.us](mailto:rappold@ci.wilsonville.or.us) / 503-570-1570.

Tree Removal: Based on a previously withdrawn tree removal permit for the site at least 59 trees are proposed for removal. As part of the Type C Tree Removal Plan, please clearly demonstrate how mitigation will be provided for these and any other trees proposed for removal.

Stage I / Stage II Modification for SMART Property: A separate land use application is needed to remove the parking spaces and add the road connection to the SMART Facility as this was not included as part of the original SMART Facility approval. The Development Review Board will also review this application.

Best regards,

**Philip Bradford**  
Associate Planner  
City of Wilsonville

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29799 SW Town Center Loop East, Wilsonville, OR 97070

*Disclosure Notice: Messages to and from this e-mail address may be subject to the Oregon Public Records Law.*

*City Hall is now open, with physical distancing controls in place. During COVID-19, we wish to remain responsive while prioritizing the health and safety of the Wilsonville community. We are happy to meet by call or teleconference as an alternative to face-to-face meetings.*

# WILSONVILLE PUBLIC WORKS DEVELOPMENT TRANSPORTATION IMPACT STUDY

DECEMBER 2020

PREPARED FOR:



117 COMMERCIAL STREET NE, SUITE 310, SALEM, OR 97301 • 503.391.8773 • [DKSASSOCIATES.COM](http://DKSASSOCIATES.COM)

**PREPARED FOR CITY OF WILSONVILLE**



**PREPARED BY DKS ASSOCIATES**

Scott Mansur, P.E., PTOE

Jenna Bogert, EI



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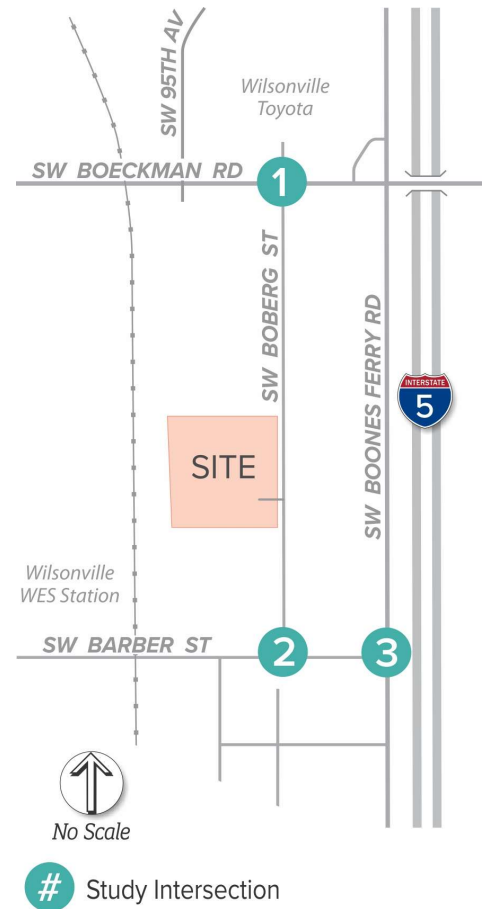
## INTRODUCTION

This study evaluates the transportation impacts associated with the proposed City Public Works building to be located on SW Boberg Road in Wilsonville, Oregon. The Public Works Department currently share a building with the Wilsonville Police Department near Wilsonville Road/Town Center Loop East. The City desires to build a new separate location for the Public Works Department off SW Boberg Road. Based on the information provided by the City, the project will consist of a 15,800 square-foot office building (with 8,200 square feet of structured parking below the main level) and a 17,900 square-foot warehouse for storage.

The purpose of this transportation impact analysis is to identify potential mitigation measures needed to offset transportation impacts that the proposed development may have on the nearby transportation network. The impact analysis is focused on the study intersections, which were selected for evaluation in coordination with City staff. The intersections are listed below and shown in Figure 1.

1. SW Boeckman Road/SW Boberg Road
2. SW Boberg Road/SW Barber Street
3. SW Boones Ferry Road/SW Barber Street

This chapter introduces the proposed development. Table 1 lists important characteristics of the study area and proposed project.



**FIGURE 1: STUDY AREA**

**TABLE 1: STUDY AREA AND PROPOSED PROJECT CHARACTERISTICS**

<b>STUDY AREA</b>	
<b>NUMBER OF STUDY INTERSECTIONS</b>	Three
<b>ANALYSIS PERIODS</b>	Weekday PM peak hour (one hour between 4pm – 6pm)
<b>PROPOSED DEVELOPMENT</b>	
<b>SIZE AND LAND USE</b>	15,800 square-foot office building (with 8,200 square feet of structured parking below the main level) and 17,900 square-foot storage warehouse
<b>PROJECT TRIPS</b>	50 total PM peak hour trips (11 in, 39 out)
<b>VEHICLE ACCESS POINTS</b>	Four full accesses to the site will be provided. One via SW Boberg Road, one internal connection to the SMART facility to the south, and two via the private access road on the north edge of the site.
<b>OTHER TRANSPORTATION FACILITIES</b>	
<b>PEDESTRIAN AND BICYCLE FACILITIES</b>	Sidewalks and bicycle lanes currently existing along SW Boberg Road fronting the project site.
<b>TRANSIT FACILITIES</b>	Bus stop for SMART Transit Route 6 is located on SW Boberg Road adjacent to the site

## **EXISTING CONDITIONS**

This chapter provides documentation of existing study area conditions, including the study area roadway network, pedestrian and bicycle facilities, and existing traffic volumes and operations.

### **STUDY AREA ROADWAY NETWORK**

Key roadways in the study area are summarized in Table 2 along with their existing roadway characteristics. Adjacent to the site SW Boberg Road is identified as a Collector. The functional classifications for City of Wilsonville streets are provided in the City of Wilsonville Transportation System Plan (TSP).<sup>1</sup>

<sup>1</sup> Wilsonville Transportation System Plan, Amended April 15, 2019.



**TABLE 2: STUDY AREA ROADWAY CHARACTERISTICS**

ROADWAY	FUNCTIONAL CLASSIFICATION	LANES	POSTED SPEED	SIDEWALKS	BIKE FACILITIES	ON-STREET PARKING
SW BOBERG ROAD	Collector	2	40 mph	Yes	Yes	Partial <sup>a</sup>
SW BOECKMAN ROAD	Major Arterial	2-4	40 mph	Yes	Yes	No
SW BOONES FERRY ROAD	Collector	3	35 mph <sup>b</sup> 45 mph <sup>c</sup>	No	No	No
SW BARBER STREET	Collector	2	35 mph	Yes	Yes	No

<sup>a</sup> Parallel on-street parking is available on the east side of SW Boberg Road adjacent to the Walnut Mobile Home Park.

<sup>b</sup> Posted speed limit on SW Boones Ferry Road is 35 mph south of SW Barber Street.

<sup>c</sup> Posted speed limit on SW Boones Ferry Road is 45 mph north of SW Barber Street.

**BICYCLE AND PEDESTRIAN FACILITIES**

There are existing marked bicycle lanes on SW Boberg Road. Sidewalks currently exist on both sides of SW Boberg Road between SW Boeckman Road and the northern edge of the project site. Sidewalks are present on the west side only of SW Boberg Road fronting the project site and continuing down to SW Barber Street.

**PUBLIC TRANSIT SERVICE**

South Metro Area Regional Transit (SMART) provides public transportation services within Wilsonville and outlying areas, including Canby, Salem, and the south end of Portland. The SMART Transit Operations Facility is located adjacent to the project site to the south. There are multiple bus stops along SW Boberg Road for Route 6. Route 6 provides service between the Wilsonville Transit Center and Argyle Square via Canyon Creek Road (see Figure 2 to the right). Service is provided Monday through Friday with headways of 30 mins between the hours of 7 am – 10 am and 3:30 pm – 7:30 pm.

**PLANNED PROJECTS**

The City of Wilsonville Transportation System Plan (TSP) has a list of Higher Priority projects which includes the recommended projects reasonably expected to be funded through 2035. These are the highest priority solutions to meet the City’s most important needs.



**FIGURE 2: SMART BUS ROUTE 6 MAP**

The list includes the following projects that impact the key roadways near the proposed project site.<sup>2</sup>

- BW-03 - Fill in the gaps in the sidewalk on the east side of the roadway between SW Boeckman Road and SW Barber Street, and construct transit stop improvements.
- RW-01 – Widen Boeckman Road from Boberg Road to 500 feet east of Parkway Avenue to include additional travel lanes in both directions along with bike lanes and sidewalks; project includes reconstruction of the bridge over I-5 and improvements at Boeckman Road/Boberg Road and Boeckman Road/Parkway Avenue intersections and adjacent transit stops.

## EXISTING TRAFFIC VOLUMES

---

New intersection turn movement count data was collected during a weekday p.m. peak period (4:00-6:00 p.m.) at the SW Boberg Road/SW Barber Street intersection.

For the other two remaining study intersections, historical intersection turn movement counts were used.<sup>3</sup> These historical counts were used to factored up the new traffic count that was below average traffic volumes due to impacts from COVID-19.<sup>4</sup>

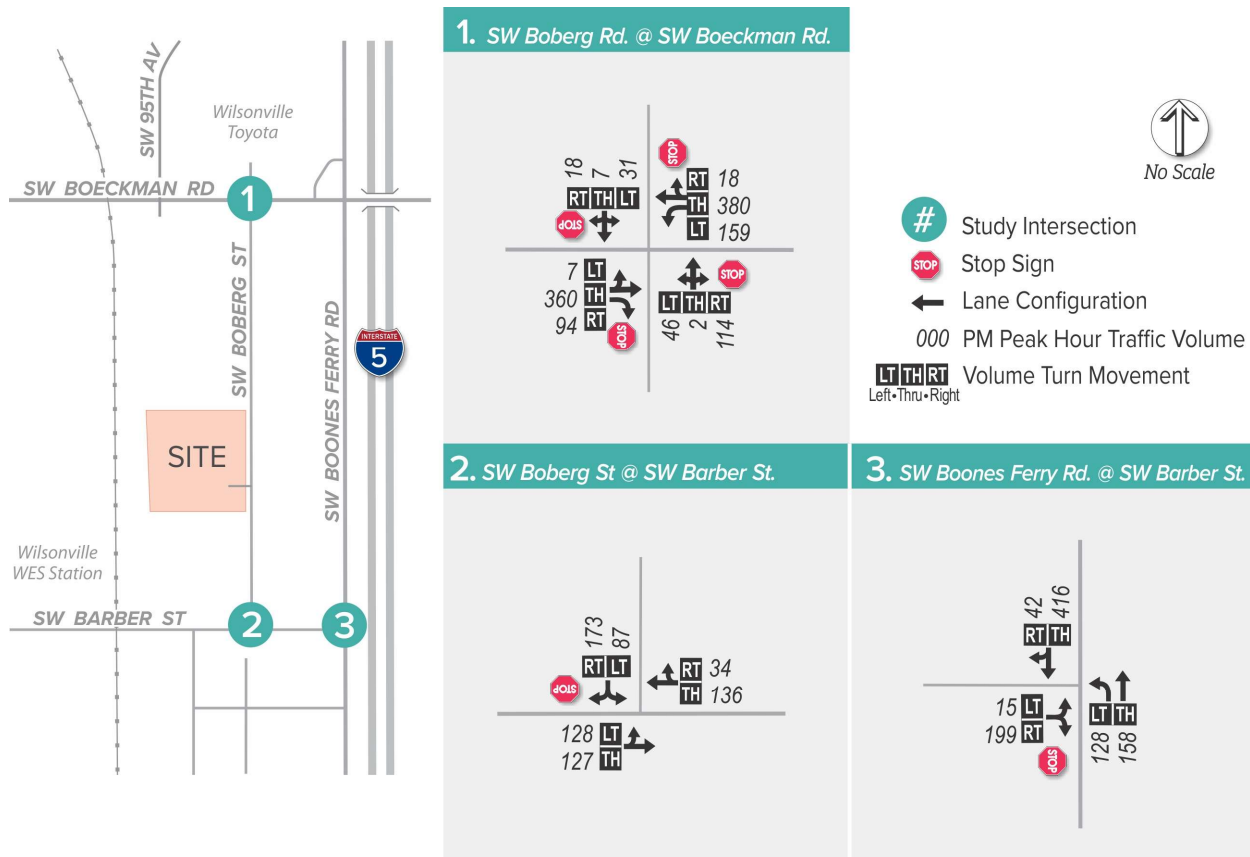
Figure 1 shows the 2020 p.m. peak hour traffic volumes for the study intersections, along with the lane configurations and traffic control. The original two-hour traffic counts are included in the Appendix A.

---

<sup>2</sup> Table 5-3/Figure 5-4 and Table 5-4/Figure 5-5, Wilsonville Transportation System Plan, Amended April 15, 2019.

<sup>3</sup> Historical counts were collected on December 4th and 5th, 2018 by Key Data Network.

<sup>4</sup> The total entering volume at SW Boberg Road/SW Barger Street was increased by a factor of 1.35 based on the historical counts at the other study intersections. Additionally, the peak hour factor was increased from 0.78 to 0.90 for this analysis.



**FIGURE 3: 2020 EXISTING TRAFFIC VOLUMES, LANE GEOMETRIES, AND TRAFFIC CONTROL**

### INTERSECTION PERFORMANCE MEASURES

Agency mobility standards often require intersections to meet level of service (LOS) or volume-to-capacity (V/C) intersection operation thresholds. Additional details about LOS and delay are provided in Appendix B.

- The intersection LOS is similar to a “report card” rating based upon average vehicle delay. Level of service A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. Level of service D and E are progressively worse operating conditions. Level of service F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity. This condition is typically evident in long queues and delays.
- The volume-to-capacity (v/c) ratio represents the level of saturation of the intersection or individual movement. It is determined by dividing the peak hour traffic volume by the maximum hourly capacity of an intersection or turn movement. When the V/C ratio approaches 0.95, operations become unstable and small disruptions can cause the traffic flow to break down, resulting in the formation of excessive queues.

The City of Wilsonville requires study intersections on public streets to meet its minimum acceptable level of service (LOS) standard, which is LOS D for the overall intersection for the PM peak period.

## EXISTING INTERSECTION OPERATIONS

An analysis of the 2020 existing intersection operations was performed at the three study intersections to determine the current operating conditions of the study area. Intersection operations were analyzed for the PM peak hour using Highway Capacity Manual (HCM) 6th Edition methodology.<sup>5</sup> The volume to capacity (v/c) ratio, delay, and level of service (LOS) of each study intersection are listed in Table 3.

**TABLE 3: EXISTING 2020 STUDY INTERSECTION OPERATIONS**

INTERSECTION	OPERATING STANDARD	PM PEAK HOUR		
		V/C	DELAY	LOS
<b>UNSIGNALIZED</b>				
SW BOECKMAN ROAD/SW BOBERG ROAD*	LOS D	0.72	17.9	C
SW BOBERG ROAD/SW BARBER STREET	LOS D	0.46	15.5	A/C
SW BOONES FERRY RD/SW BARBER STREET	LOS D	0.42	16.3	A/C
<b>Two-Way Stop Intersections:</b> Delay = Average Stopped Delay per Vehicle (sec) at Worst Movement LOS = Level of Service of Major Street/Minor Street v/c = Volume-to-Capacity Ratio of Worst Movement		<b>*All-Way Stop Intersections:</b> Delay = Average Stopped Delay per Vehicle (sec) of Intersection LOS = Level of Service of Intersection v/c = Volume-to-Capacity Ratio of Worst Movement		

As shown, all study intersections meet the operating standard (LOS D) for the existing conditions. The HCM reports are provided in Appendix C.

## PROJECT IMPACTS

This chapter reviews the impacts that the proposed development may have on the study area transportation system. This analysis includes site plan evaluation, trip generation, trip distribution, and future year traffic volumes and operating conditions for the four study intersections.

## PROPOSED DEVELOPMENT

The Wilsonville Public Works Department currently shares a building with the Wilsonville Police Department near Wilsonville Road/Town Center Loop East. The City desires to build a new separate

<sup>5</sup> Highway Capacity Manual, 6th Edition, Transportation Research Board, 2017.

location for the Public Works Department off SW Boberg Road. Based on the information provided by the City, the project will consist of a 15,800 square-foot office building (with 8,200 sq. ft. of structured parking below the main level) and a 17,900 square-foot warehouse for storage.

## FUTURE ANALYSIS SCENARIOS

Operating conditions were analyzed at the study intersections for the following traffic scenarios. The comparison of the following scenarios enables the assessment of project impacts:

- Existing + Stage II
- Existing + Project
- Existing + Stage II + Project

All future analysis scenarios assume the same traffic control as existing conditions. Stage II represents traffic from other developments that have Stage II approval or are under construction in Wilsonville.

## TRIP GENERATION

Trip generation is the method used to estimate the number of vehicles added to site driveways and the adjacent roadway network by a development during a specified period (i.e., such as the PM peak hour). For this study, the Institute of Transportation Engineers (ITE) trip generation rates for Office (710) and Warehouse (150) were used.<sup>6</sup> The Office (710) land use was used to estimate the trip generation of the public works building and the Warehouse (150) land use was used to estimate the trip generation of storage building. The total trip generation for the proposed development is shown in Table 4.

**TABLE 4: VEHICLE TRIP GENERATION**

LAND USE (ITE CODE)	SIZE <sup>a</sup>	PM PEAK TRIP RATE <sup>b</sup>	PM PEAK TRIPS			DAILY TRIPS
			IN	OUT	TOTAL	
GENERAL OFFICE (710)	15.8 KSF	1.27 trips per KSF	3	17	20	177
WAREHOUSE (150)	17.9 KSF	1.68 trips per KSF	8	22	30	74
<b>TOTAL TRIP GENERATION</b>			<b>11</b>	<b>39</b>	<b>50</b>	<b>251</b>

<sup>a</sup> KSF = 1,000 square feet

<sup>b</sup> Number of trips for this land use is based on an equation. The rates shown are back-calculated.

<sup>6</sup> Trip Generation Manual, 10th Edition, Institute of Transportation Engineers, 2017.

As shown, the proposed development is expected to generate a total 50 PM peak hour trips (11 in, 39 out). The project trips at the study intersections are shown in Figure 2 in the following section.

### VEHICLE TRIP DISTRIBUTION

Vehicle trip distribution provides an estimation of where vehicles would be coming from and going to. It is given as a percentage at key gateways to the study area and is used to route project trips through the study intersections. Figure 2 shows the trip distribution for the proposed site. The trip distribution was based on the Wilsonville Travel Demand Model.<sup>7</sup>

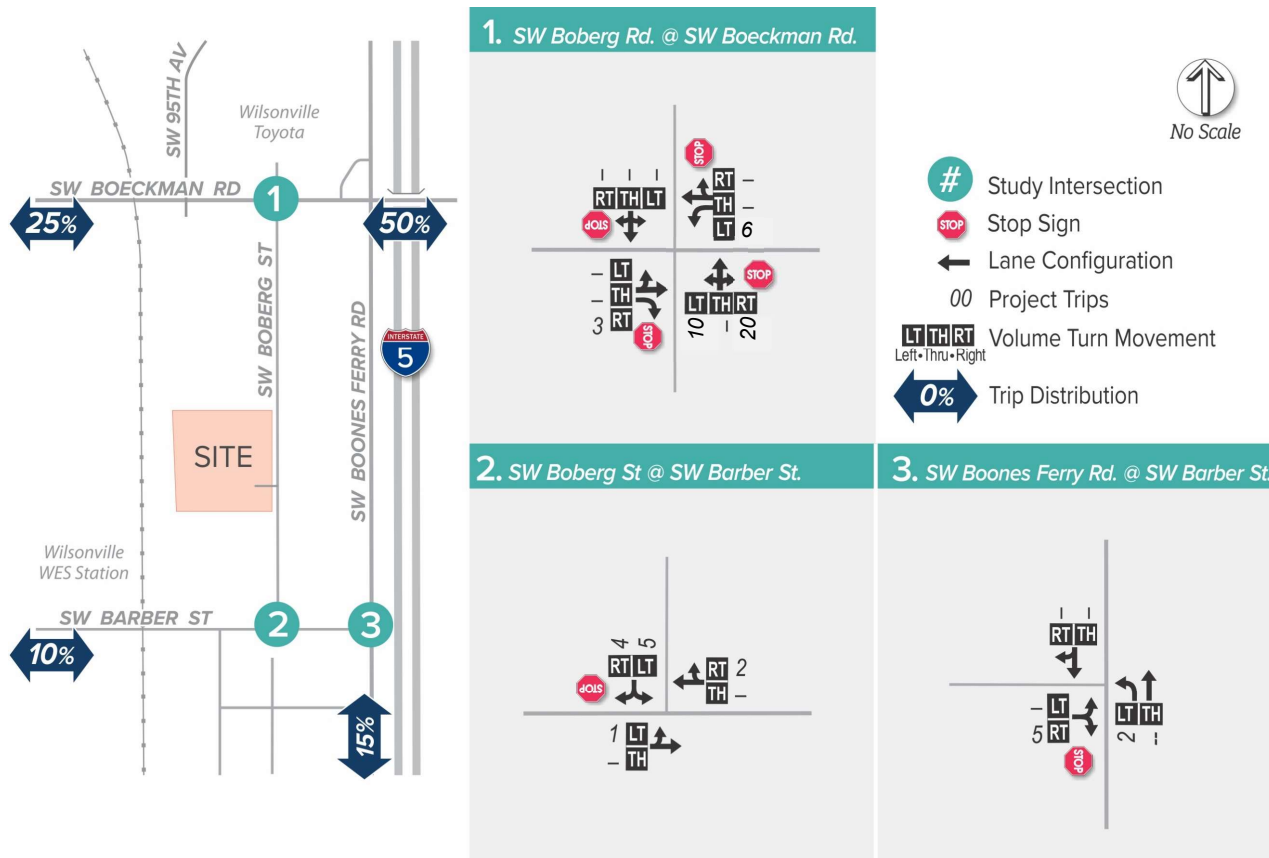


FIGURE 4: TRIP DISTRIBUTION AND PROJECT TRIPS

### PROJECT TRIPS THROUGH CITY OF WILSONVILLE INTERCHANGE AREAS

The project trips through the two City of Wilsonville I-5 interchange areas were estimated based on the trip generation and distribution assumptions as discussed prior.

Approximately 15% of the project trips are expected to travel through the I-5/Wilsonville Road interchange area and 20% are expected to travel through the I-5/Elligsen Road interchange area; that is, the proposed development is expected to generate 8 new PM peak hour trips through the I-

<sup>7</sup> Select zone analysis for zone 4031 in 2035 Wilsonville Travel Demand Model.

5/Wilsonville Road interchange area and 10 new PM peak hour trips through the I-5/Elligsen Road interchange area.

## FUTURE TRAFFIC VOLUMES

Traffic volumes were estimated at the study intersections for the two future analysis scenarios. The future scenarios include various combinations of three types of traffic: Existing, Project, and Stage II. Stage II development trips are estimated based on the list of currently approved Stage II developments provided by City staff.<sup>8</sup> The Stage II list is included in Appendix D. Figure 3 shows the PM peak hour traffic volumes used to analyze the two future scenarios.

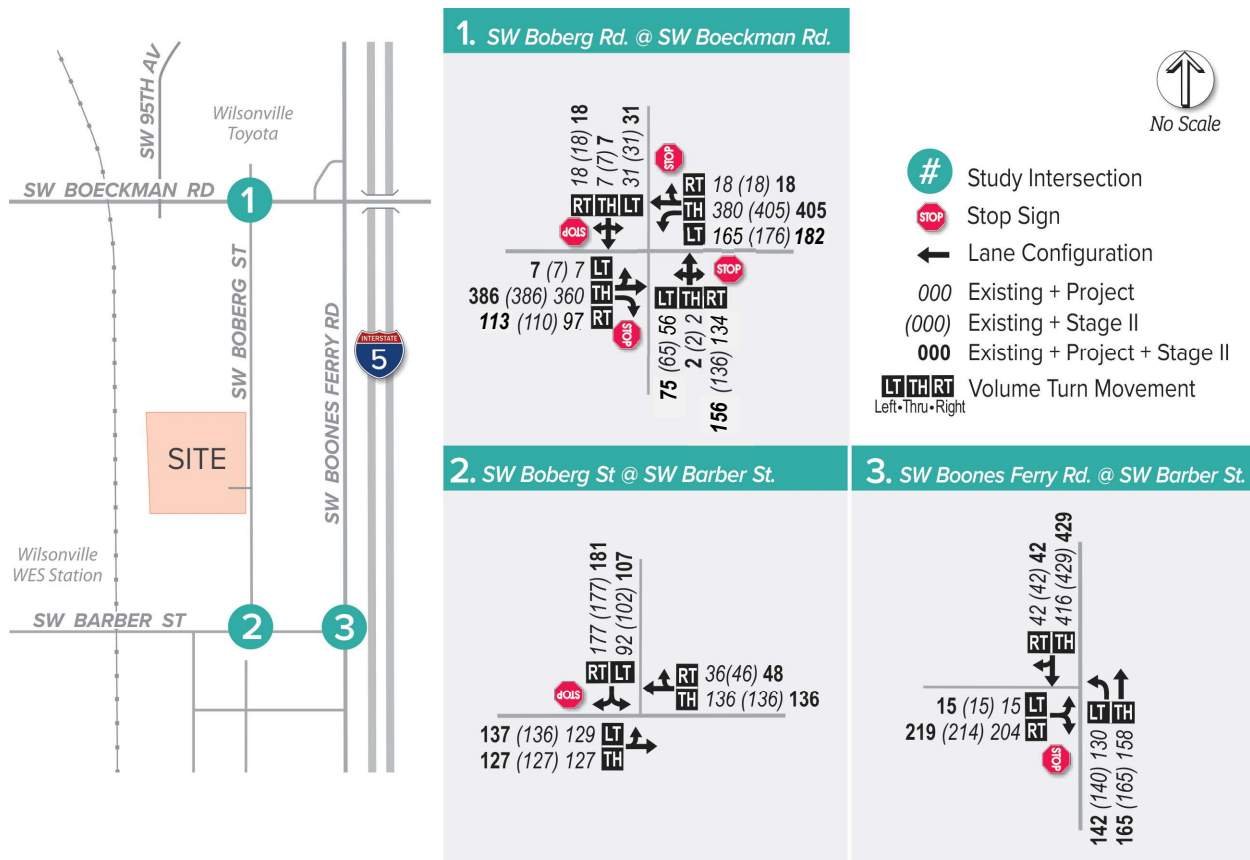


FIGURE 5: FUTURE PM PEAK HOUR TRAFFIC VOLUMES

<sup>8</sup> Email from Daniel Pauly, City of Wilsonville, August 18, 2020.

## FUTURE INTERSECTION OPERATIONS

Future operating conditions were analyzed based on the traffic volumes shown in Figure 3. The intersection operations for both future scenarios are shown in Table 5.

The HCM reports are provided in Appendices E – G.

**TABLE 5: FUTURE INTERSECTION OPERATIONS**

INTERSECTION	OPERATING STANDARD	EXISTING + PROJECT			EXISTING + STAGE II			EXISTING + STAGE II + PROJECT		
		V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
<b>UNSIGNALIZED</b>										
SW BOECKMAN RD/ SW BOBERG RD*	LOS D	0.74	19.0	C	0.82	23.4	C	0.84	25.1	D
SW BOBERG RD/ SW BARBER ST	LOS D	0.48	16.0	A/C	0.52	17.3	A/C	0.54	18.0	A/C
SW BOONES FERRY RD/ SW BARBER ST	LOS D	0.43	16.4	A/C	0.46	17.2	A/C	0.47	17.4	A/C

**Two-Way Stop Intersections:**

Delay = Average Stopped Delay per Vehicle (sec) at Worst Movement  
 LOS = Level of Service of Major Street/Minor Street  
 v/c = Volume-to-Capacity Ratio of Worst Movement

**\*All-Way Stop Intersections:**

Delay = Average Stopped Delay per Vehicle (sec) of Intersection  
 LOS = Level of Service of Intersection  
 v/c = Volume-to-Capacity Ratio of Worst Movement

As shown, the study intersections are expected to meet the City’s operating standard under both future analysis scenarios.



## SITE REVIEW

The following sections discuss the site access and sight distance, pedestrian and bicycle facilities, and the parking for the proposed development. The site plan is shown in Figure 6.

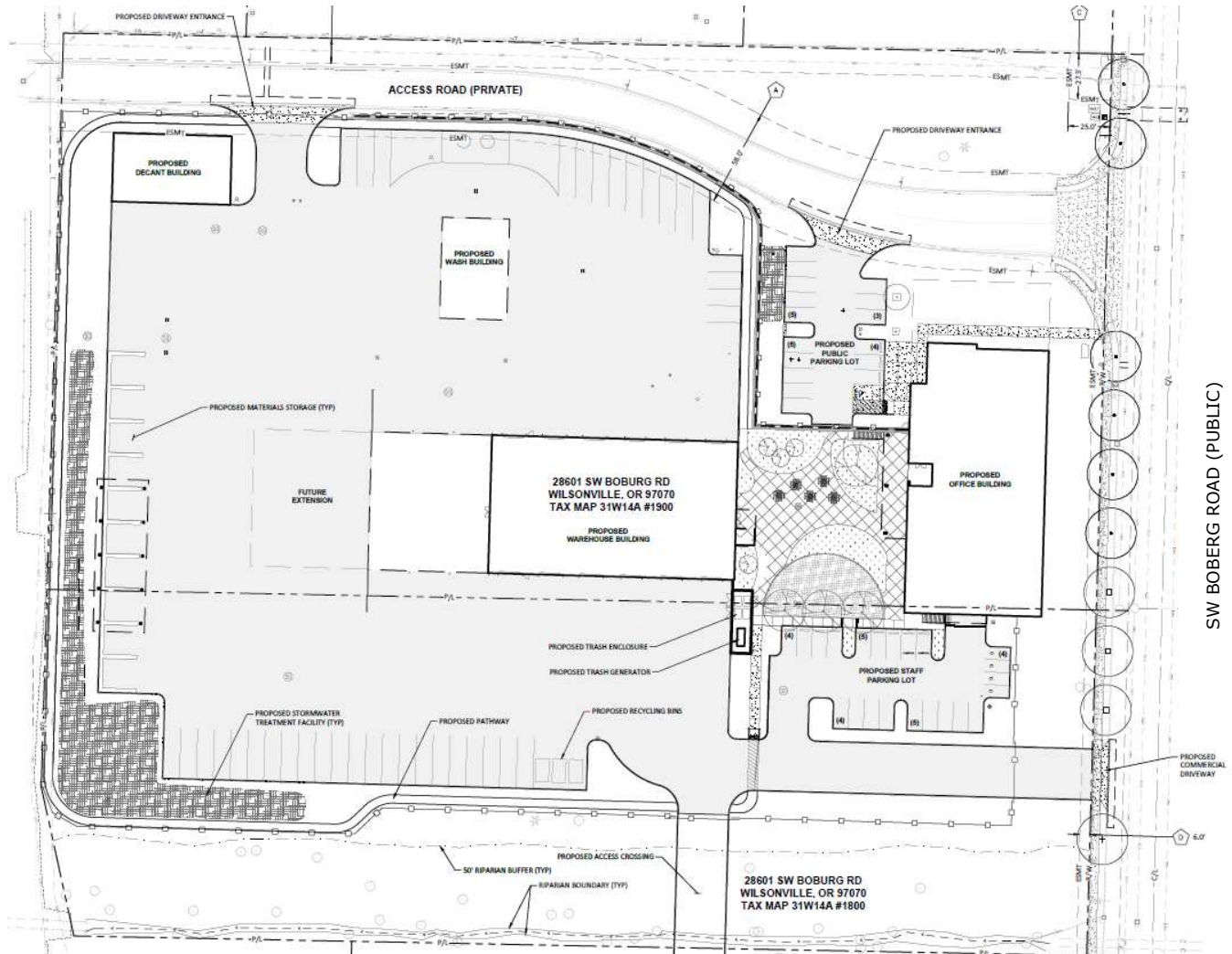


FIGURE 6: SITE PLAN

### SITE ACCESSES

There is an existing east-west private access road on the northern edge of the project site off SW Boberg Road. This private access roadway is the sole access to the Oldcastle Infrastructure Facility (located west of the train tracks). This roadway will provide access to the Public Works site via two driveways, one to the public parking area and the other to the warehouse/storage portion of the site. The site plan also shows another new proposed site access on SW Boberg Road, which will be gated and primarily for staff. The fourth site access is provided via an internal connection to the SMART facility to the south.

The proposed access on Boberg Road is required to meet the City’s public works construction standards.<sup>9</sup> The access spacing standard for an access on a collector is to be a minimum 100 feet, but the desired spacing is 300 feet. The nearest existing access on Boberg Road is 150 feet to the south, which provides access to the SMART operational facility, and therefore meets the standards.

### **SIGHT DISTANCE**

With a posted speed of 40 miles per hour, the sight distance requirement along SW Boberg Road is 445 feet for vehicles turning left from the minor roadway and 385 feet for vehicles turning right from the minor roadway.<sup>10</sup>

Preliminary sight distance was evaluated at the southern staff driveway location on SW Boberg Road. The driveway location was found to be sufficient to meet the stated requirements. Prior to occupancy, sight distance at any new or modified access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.

### **CLEAR DRIVEWAY AISLE LENGTH**

The City has minimum driveway aisle length standards.<sup>11</sup> For driveways with more than 100 average daily traffic (ADT), the drive aisle must be clear of parking stalls and intersecting drive aisles within 100 feet from the back of sidewalk. The conceptual site plan show sufficient length (over 200 feet) for the driveway on SW Boberg Road.

### **PEDESTRIAN AND BICYCLE FACILITIES**

As stated earlier, there are existing sidewalks and marked bicycle lanes along SW Boberg Road fronting the project site.

On-site, sufficient sidewalks are provided between the staff parking/public parking and the Public Works building/storage warehouse building.

### **PARKING**

The proposed project is required to comply with the City code for the number of vehicular parking stalls and bicycle parking spaces that are provided on site.<sup>12</sup> Table 7 lists the vehicular and bicycle parking requirements for the project site. The parking requirements are based on the building use.

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<sup>9</sup> Table 2.12 Public Works Construction Standards, City of Wilsonville, 2017.

<sup>10</sup> American Association of State Highway and Transportation Officials (AASHTO), 2018, Table 9-7 and 9-9.

<sup>11</sup> Public Works Standards, Section 201.2.23 (Driveways), Revised December 2015.

<sup>12</sup> Wilsonville Development Code, Section 4.155, Table 5, updated October 2019.

**TABLE 6: VEHICLE AND BICYCLE PARKING REQUIREMENTS**

LAND USE	SIZE (KSF)	MINIMUM RATE	MAXIMUM RATE	SPACES REQUIRED BY CODE		
				VEHICLE MINIMUM	VEHICLE MAXIMUM	BICYCLE MINIMUM
OFFICE	15.8	2.7 stalls/KSF	4.1 stalls/KSF	43	65	3
WAREHOUSE	17.9	0.3 stalls/KSF	0.5 stalls/KSF	5	9	2
<b>TOTAL PARKING STALLS REQUIRED BY CODE</b>				<b>48</b>	<b>74</b>	<b>5</b>
<b>PROPOSED NUMBER OF STALLS</b>				<b>56</b>		<b>6</b>

<sup>a</sup> There are no minimum off-street parking requirements for retail within the Town Center that is less than 5,000 square feet and is within a mixed-use building.

As shown above, 48 vehicular parking stalls are needed to meet the minimum Code requirements for the project. The site plan proposes 56 vehicular parking stalls (17 stalls for public parking and 39 stalls for staff parking).

The City code requires a minimum of 5 bicycle parking spaces for the site. The site plan shows 3 bicycle racks on the south side of the office building, totaling 6 bicycle parking stalls, meeting the City requirements.

## SUMMARY OF PROJECT IMPACTS

The key findings of the transportation impact study for the new Public Works development are discussed below.

- The City plans to build a new Public Works building. The project will consist of a 15,800 square-foot office building (with 8,200 square feet of structured parking below the main level) and a 17,900 square-foot warehouse for storage.
- The proposed development is expected to generate 50 new PM peak hour trips (11 in, 39 out).
- Of those project trips, 8 new trips are expected to travel through the I-5/Wilsonville Road interchange area and 10 new trips are expected to travel through the I-5/Elligsen Road interchange area.
- The traffic operations at the three study intersections are expected to operate within the City’s LOS D standard under project build conditions.
- Prior to occupancy, sight distance at the proposed project access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.

# APPENDIX

## CONTENTS

- A. TRAFFIC COUNT DATA
- B. LOS DESCRIPTION
- C. HCM REPORT – EXISTING CONDITIONS
- D. STAGE II LIST
- E. HCM REPORT – EXISTING + PROJECT
- F. HCM REPORT – EXISTING + STAGE II
- G. HCM REPORT – EXISTING + STAGE II + PROJECT

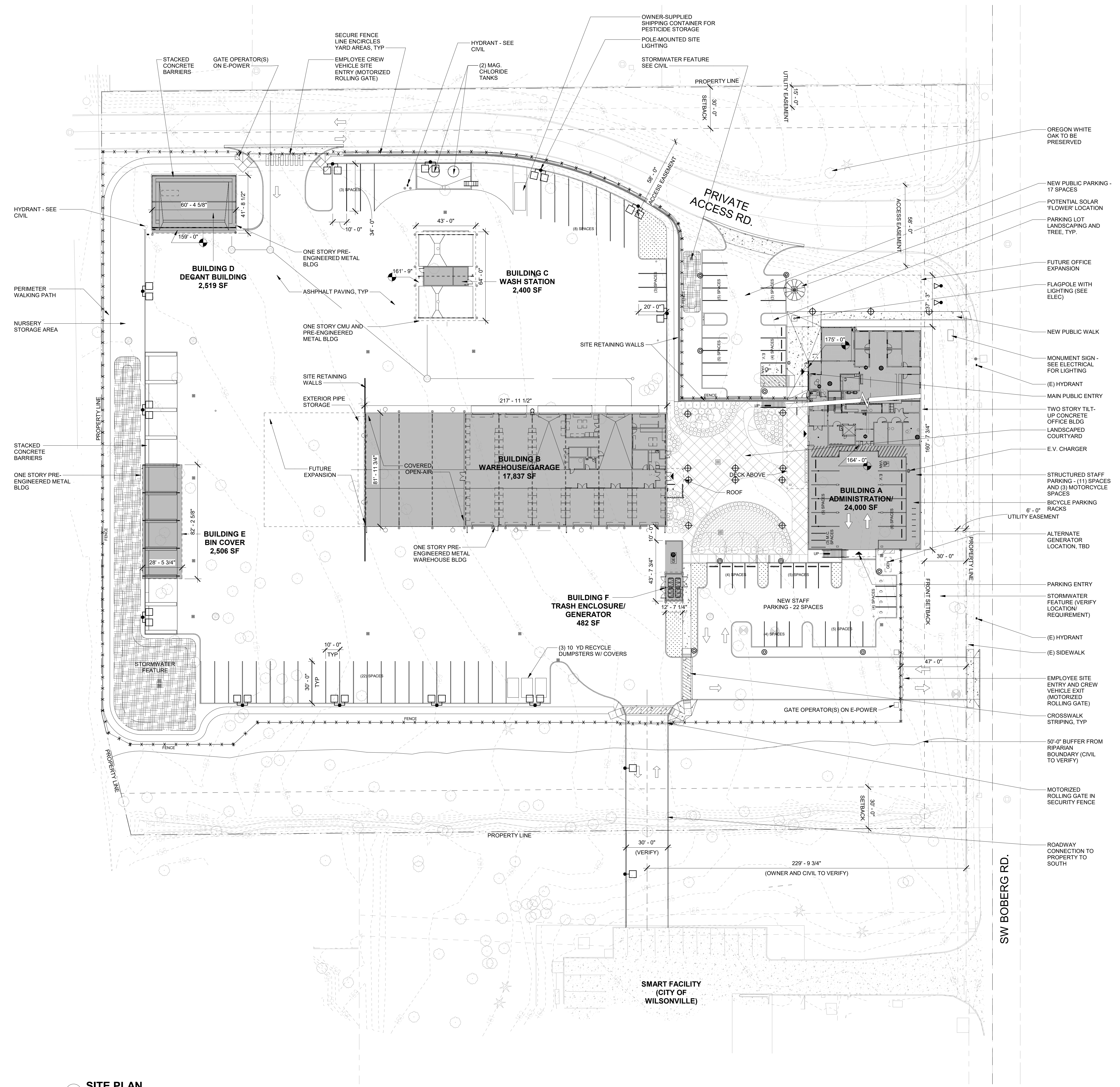


117 COMMERCIAL STREET NE, SUITE 310, SALEM, OR 97301 • 503.391.8773 • [DKSASSOCIATES.COM](http://DKSASSOCIATES.COM)

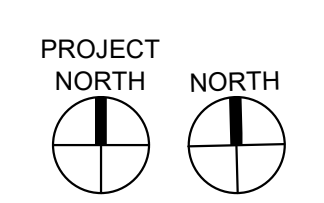
NOT FOR  
CONSTRUCTION

**WILSONVILLE  
PUBLIC WORKS**  
Job Number: 20102  
28801 SW BOBERG RD  
WILSONVILLE, OR 97070

FILE PATH: C:\Revit\_Local\20102\_Wilsonville Public Works\_20\_estravers@sealp.com.rvt



**1 SITE PLAN**  
1" = 30'-0"



100% DD 11/19/2020  
ISSUE DATE  
Drawing:  
**SITE PLAN**

Sheet No:  
**A1.01**

THESE DRAWINGS ARE THE ORIGINAL UNPUBLISHED WORK OF THE ARCHITECT AND MAY NOT BE DUPLICATED OR USED WITHOUT THE WRITTEN CONSENT OF THE ARCHITECT.

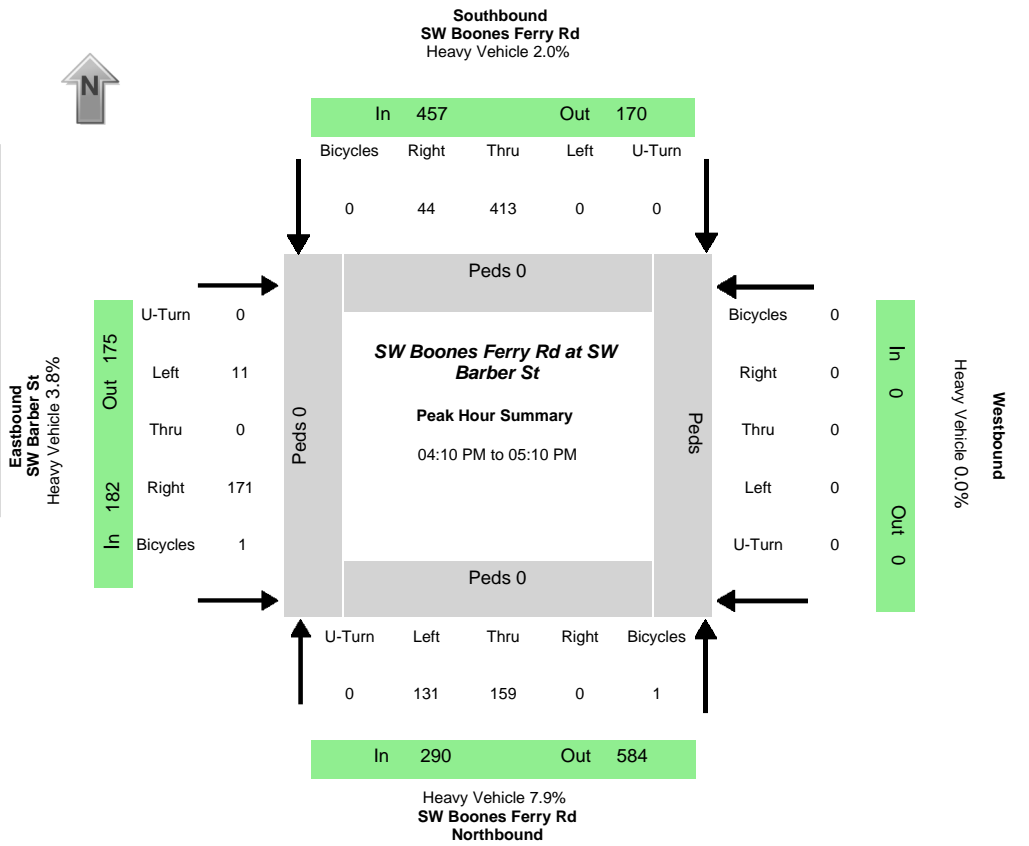
## **APPENDIX A.**

### **TRAFFIC COUNT DATA**



Data Provided by K-D-N.com 503-594-4224

N/S street	SW Boones Ferry Rd
E/W street	SW Barber St
City, State	Wilsonville OR
Site Notes	
Location	45.310193 - -122.769836
Start Date	Tuesday, December 04, 2018
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:10:00 PM
Peak 15 Min Start	04:55:00 PM
PHF (15-Min Int)	0.94



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
131	159	0	0	0	413	44	0	11	0	171	0	0	0	0	0	290	457	182	0	584	170	175	0
Percent Heavy Vehicles																							
6.9%	8.8%	0.0%	0.0%	0.0%	1.0%	11.4%	0.0%	0.0%	0.0%	4.1%	0.0%	0.0%	0.0%	0.0%	0.0%	7.9%	2.0%	3.8%	0.0%	1.9%	8.2%	8.0%	0.0%

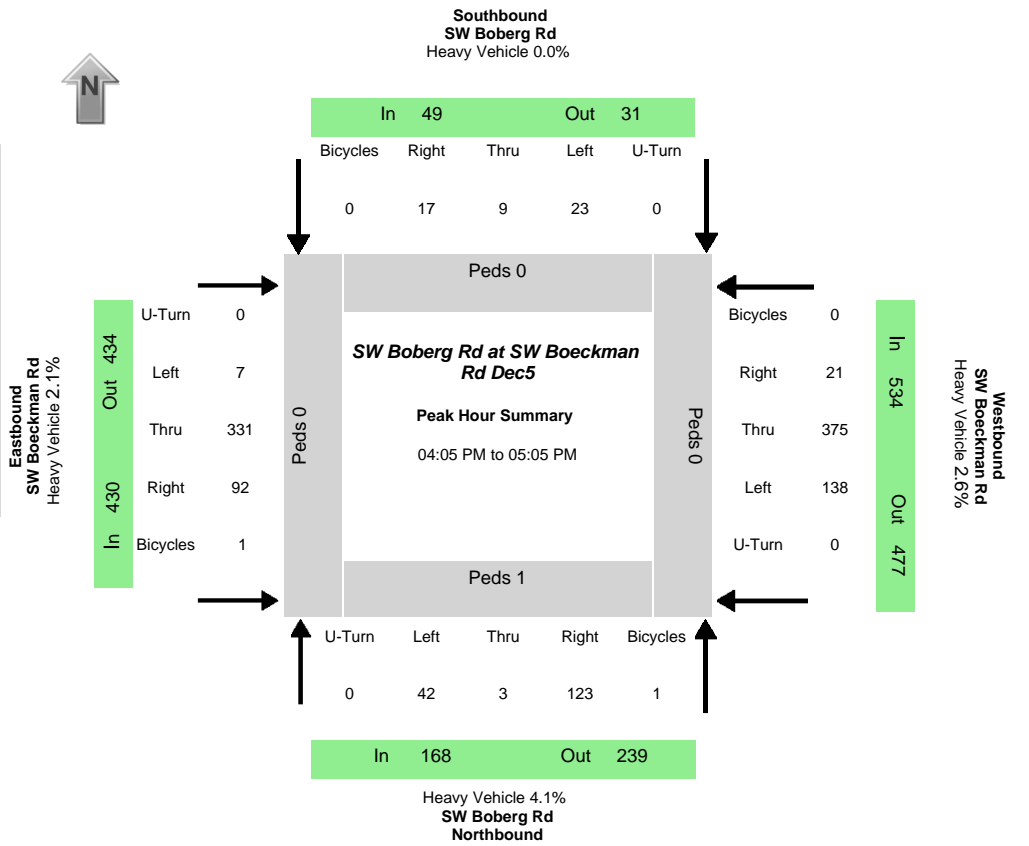
PHV - Bicycles														PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				in Crosswalk					
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0

Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Barber St				Westbound				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	7	9	0	0	34	0	0	0	1	0	14	0	0	0	0	0	207	
04:05:00 PM	12	6	0	0	30	2	0	0	0	0	19	0	0	0	0	0	223	
04:10:00 PM	8	12	0	0	35	5	0	0	0	0	13	0	0	0	0	0	233	
04:15:00 PM	14	17	0	0	25	7	0	0	0	0	18	0	0	0	0	0	235	
04:20:00 PM	12	17	0	0	29	4	0	0	3	0	14	0	0	0	0	0	233	
04:25:00 PM	7	16	0	0	36	1	0	0	3	0	12	0	0	0	0	0	245	
04:30:00 PM	11	14	0	0	36	3	0	0	0	0	15	0	0	0	0	0	238	
04:35:00 PM	14	9	0	0	51	3	0	0	0	0	14	0	0	0	0	0	236	
04:40:00 PM	11	10	0	0	32	5	0	0	0	0	10	0	0	0	0	0	204	
04:45:00 PM	16	11	0	0	29	1	0	0	0	0	20	0	0	0	0	0	216	896
04:50:00 PM	10	8	0	0	28	5	0	0	1	0	7	0	0	0	0	0	220	912
04:55:00 PM	8	17	0	0	36	3	0	0	3	0	13	0	0	0	0	0	247	929
05:00:00 PM	9	16	0	0	41	2	0	0	1	0	12	0	0	0	0	0	239	928
05:05:00 PM	11	12	0	0	35	5	0	0	0	0	23	0	0	0	0	0	227	916
05:10:00 PM	12	13	0	0	30	3	0	0	1	0	13	0	0	0	0	0	205	901
05:15:00 PM	10	13	0	0	28	2	0	0	3	0	13	0	0	0	0	0	206	899
05:20:00 PM	8	9	0	0	33	1	0	0	1	0	12	0	0	0	0	0	203	886
05:25:00 PM	12	10	0	0	34	3	0	0	0	0	14	0	0	0	0	0	229	885
05:30:00 PM	11	8	0	0	32	1	0	0	1	0	13	0	0	0	0	0	242	903
05:35:00 PM	18	18	0	0	30	3	0	0	1	0	20	0	0	0	0	0	247	897
05:40:00 PM	14	17	0	0	39	4	0	0	1	0	11	0	0	0	0	0	221	902
05:45:00 PM	17	16	0	0	22	1	0	0	3	0	12	0	0	0	0	0	182	869
05:50:00 PM	13	6	0	0	25	1	0	0	3	0	16	0	0	0	0	0		
05:55:00 PM	4	7	0	0	17	2	0	0	4	0	13	0	0	0	0	0		



Data Provided by K-D-N.com 503-594-4224

N/S street	SW Boberg Rd
E/W street	SW Boeckman Rd
City, State	Wilsonville OR
Site Notes	
Location	45.317427 - -122.772079
Start Date	Wednesday, December 05, 2018
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:05:00 PM
Peak 15 Min Start	04:25:00 PM
PHF (15-Min Int)	0.93



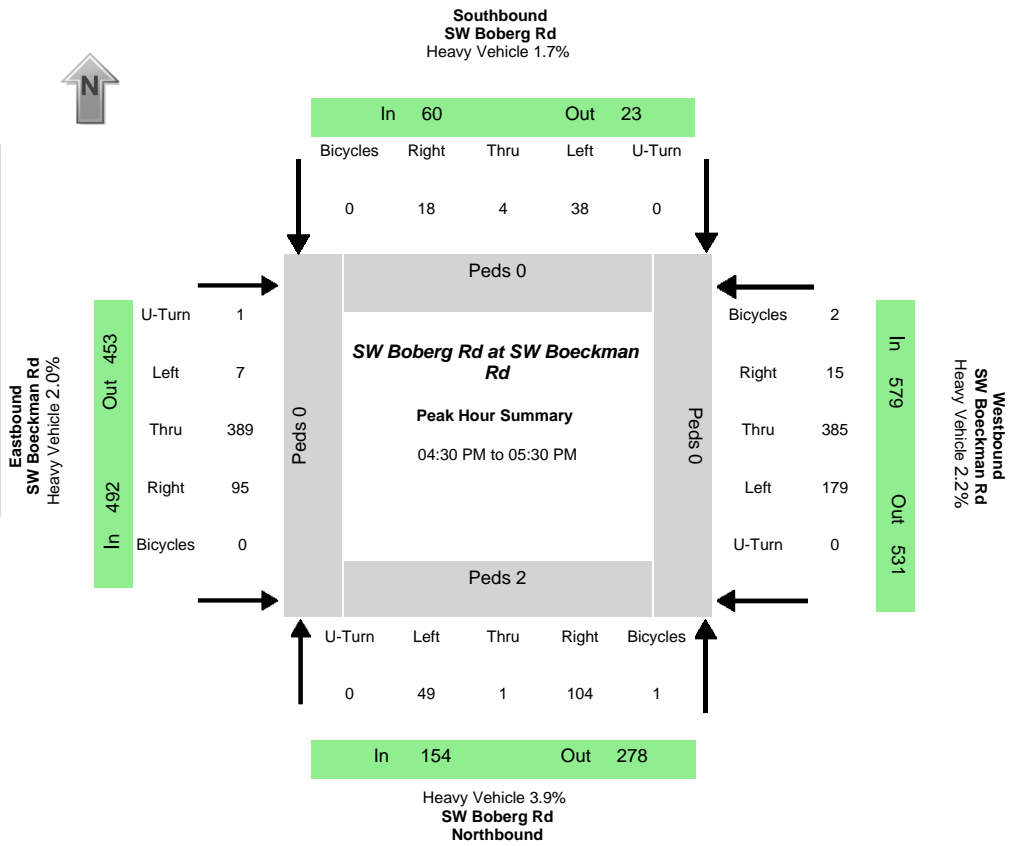
Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
42	3	123	0	23	9	17	0	7	331	92	0	138	375	21	0	168	49	430	534	239	31	434	477
Percent Heavy Vehicles																							
7.1%	0.0%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	2.2%	0.0%	2.2%	2.7%	4.8%	0.0%	4.2%	0.0%	2.1%	2.6%	2.1%	3.2%	3.0%	2.3%

PHV - Bicycles														PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				in Crosswalk					
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	1	0	0	0	1

Time	Northbound SW Boberg Rd				Southbound SW Boberg Rd				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	2	0	7	0	3	1	0	0	0	22	4	0	8	27	2	0		
04:05:00 PM	7	0	11	0	5	0	2	0	0	28	8	0	9	33	3	0		
04:10:00 PM	4	0	8	0	2	0	0	0	1	37	10	0	9	25	1	0	279	
04:15:00 PM	3	0	8	0	1	2	2	0	0	25	5	0	13	20	1	0	283	
04:20:00 PM	3	1	8	0	0	0	0	0	1	37	8	0	8	32	2	0	277	
04:25:00 PM	5	2	13	0	1	0	2	0	0	17	7	0	14	33	1	0	275	
04:30:00 PM	2	0	17	0	2	2	0	0	1	23	12	0	12	36	1	0	303	
04:35:00 PM	1	0	15	0	0	1	1	0	2	35	10	0	12	37	0	0	317	
04:40:00 PM	1	0	6	0	2	0	0	0	0	32	5	0	9	31	0	0	308	
04:45:00 PM	4	0	12	0	1	2	4	0	0	18	4	0	15	36	0	0	296	
04:50:00 PM	2	0	5	0	3	0	4	0	1	13	5	0	16	27	3	0	261	
04:55:00 PM	7	0	12	0	2	0	1	0	1	33	11	0	8	28	3	0	281	1143
05:00:00 PM	3	0	8	0	4	2	1	0	0	33	7	0	13	37	6	0	299	1181
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05:35:00 PM	4	1	12	0	2	0	1	0	0	23	11	0	13	33	1	0	266	1110
05:40:00 PM	0	0	15	0	2	2	2	0	0	16	10	0	8	22	1	1	267	1103
05:45:00 PM	3	0	5	0	1	1	1	0	0	17	6	0	8	33	1	0	256	1083
05:50:00 PM	4	0	3	0	1	1	1	0	1	30	4	0	8	23	0	0	231	1080
05:55:00 PM	3	2	9	0	1	3	1	0	2	24	8	0	9	24	2	0	240	1062

Data Provided by K-D-N.com 503-594-4224

N/S street	<b>SW Boberg Rd</b>
E/W street	<b>SW Boeckman Rd</b>
City, State	Wilsonville OR
Site Notes	
Location	45.317427 - -122.772079
Start Date	Tuesday, December 04, 2018
Start Time	04:00:00 PM
Weather	
Study ID #	
<b>Peak Hour Start</b>	<b>04:30:00 PM</b>
<b>Peak 15 Min Start</b>	<b>05:05:00 PM</b>
<b>PHF (15-Min Int)</b>	<b>0.90</b>



Peak-Hour Volumes (PHV)

Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
49	1	104	0	38	4	18	0	7	389	95	1	179	385	15	0	154	60	492	579	278	23	453	531
Percent Heavy Vehicles																							
4.1%	0.0%	3.8%	0.0%	0.0%	0.0%	5.6%	0.0%	0.0%	1.3%	5.3%	0.0%	2.8%	1.8%	6.7%	0.0%	3.9%	1.7%	2.0%	2.2%	3.6%	4.3%	2.2%	1.7%

PHV - Bicycles

PHV - Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				in Crosswalk					
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	2	0	0	0	2

All Vehicle Volumes

Time	Northbound SW Boberg Rd				Southbound SW Boberg Rd				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	1	1	12	0	1	1	2	0	1	26	7	0	8	24	3	0		
04:05:00 PM	4	0	9	0	5	1	0	0	0	36	6	0	8	29	3	0		
04:10:00 PM	6	1	8	0	2	3	3	0	3	27	6	0	12	31	1	0	291	
04:15:00 PM	5	0	4	0	1	1	3	0	0	20	11	0	11	27	2	0	289	
04:20:00 PM	2	2	14	0	4	0	2	0	1	30	9	0	8	31	1	0	292	
04:25:00 PM	6	1	17	0	0	0	2	0	1	20	3	0	8	28	0	0	275	
04:30:00 PM	5	0	6	0	2	0	3	0	1	30	7	0	16	25	0	0	285	
04:35:00 PM	3	0	10	0	3	0	1	0	0	33	3	0	9	37	0	0	280	
04:40:00 PM	3	0	8	0	1	0	1	0	0	25	9	0	14	34	2	0	291	
04:45:00 PM	8	0	13	0	5	0	1	0	0	34	15	0	16	19	0	0	307	
04:50:00 PM	4	0	9	0	3	1	0	0	0	35	8	0	17	30	2	0	317	
04:55:00 PM	4	0	8	0	3	1	1	0	1	22	7	0	15	28	6	0	316	1173
05:00:00 PM	6	0	7	0	5	1	1	0	1	35	10	1	9	26	0	0	307	1188
05:05:00 PM	3	0	10	0	4	1	4	0	0	44	9	0	18	33	1	0	325	1214
05:10:00 PM	6	1	8	0	3	0	2	0	1	34	9	0	15	41	1	0	350	1232
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05:25:00 PM	2	0	5	0	4	0	2	0	0	26	5	0	21	40	1	0	328	1285
05:30:00 PM	1	0	10	0	0	0	0	0	1	23	8	0	7	32	2	0	303	1274
05:35:00 PM	8	0	11	0	2	2	1	0	1	27	7	0	8	33	1	0	291	1276
05:40:00 PM	2	1	8	0	3	1	3	0	0	26	5	0	12	43	1	0	290	1284
05:45:00 PM	0	0	7	0	0	4	1	0	0	21	4	0	7	32	1	0	283	1250
05:50:00 PM	3	2	10	0	0	0	0	0	1	28	8	0	9	36	1	0	280	1239
05:55:00 PM	1	1	14	0	1	2	1	0	0	16	6	0	5	29	2	0	253	1221



(303) 216-2439

www.alltrafficdata.net

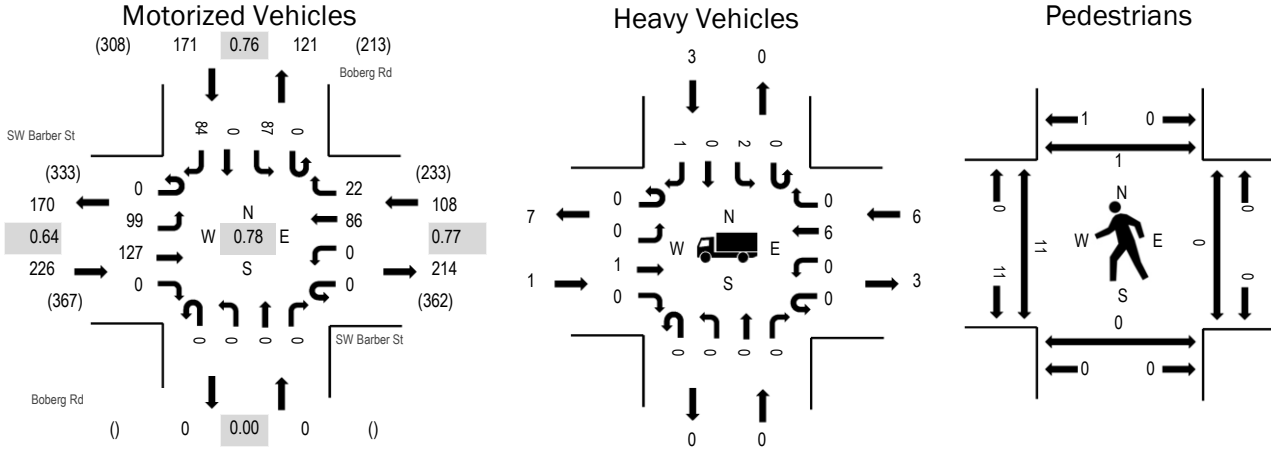
**Location:** 1 Boberg Rd & SW Barber St PM

**Date:** Wednesday, August 26, 2020

**Peak Hour:** 04:25 PM - 05:25 PM

**Peak 15-Minutes:** 05:00 PM - 05:15 PM

**Peak Hour**



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.4%	0.64
WB	5.6%	0.77
NB	0.0%	0.00
SB	1.8%	0.76
All	2.0%	0.78

**Traffic Counts - Motorized Vehicles**

Interval Start Time	SW Barber St Eastbound				SW Barber St Westbound				Boberg Rd Northbound				Boberg Rd Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	3	8	0	0	0	11	0	0	0	0	0	0	12	0	1	35	436
4:05 PM	0	4	8	0	0	0	9	1	0	0	0	0	0	8	0	9	39	475
4:10 PM	0	11	13	0	0	0	6	6	0	0	0	0	0	8	0	7	51	482
4:15 PM	0	6	6	0	0	0	7	3	0	0	0	0	0	2	0	7	31	472
4:20 PM	0	7	5	0	0	0	3	5	0	0	0	0	0	8	0	4	32	485
4:25 PM	0	3	5	0	0	0	4	1	0	0	0	0	0	10	0	6	29	505
4:30 PM	0	12	7	0	0	0	5	1	0	0	0	0	0	9	0	9	43	502
4:35 PM	0	3	11	0	0	0	6	1	0	0	0	0	0	7	0	5	33	497
4:40 PM	0	6	8	0	0	0	6	4	0	0	0	0	0	5	0	5	34	491
4:45 PM	0	9	8	0	0	0	7	0	0	0	0	0	0	10	0	12	46	499
4:50 PM	0	4	8	0	0	0	9	2	0	0	0	0	0	3	0	5	31	476
4:55 PM	0	9	8	0	0	0	8	2	0	0	0	0	0	1	0	4	32	469
5:00 PM	0	18	25	0	0	0	11	3	0	0	0	0	0	8	0	9	74	472
5:05 PM	0	14	15	0	0	0	9	1	0	0	0	0	0	4	0	3	46	
5:10 PM	0	7	11	0	0	0	6	1	0	0	0	0	0	9	0	7	41	
5:15 PM	0	8	5	0	0	0	11	4	0	0	0	0	0	7	0	9	44	
5:20 PM	0	6	16	0	0	0	4	2	0	0	0	0	0	14	0	10	52	
5:25 PM	0	4	10	0	0	0	4	3	0	0	0	0	0	1	0	4	26	
5:30 PM	0	8	4	0	0	0	12	1	0	0	0	0	0	6	0	7	38	
5:35 PM	0	3	4	0	0	0	6	6	0	0	0	0	0	4	0	4	27	
5:40 PM	0	3	9	0	0	0	13	4	0	0	0	0	0	5	0	8	42	
5:45 PM	0	4	5	0	0	0	4	2	0	0	0	0	0	3	0	5	23	
5:50 PM	0	4	4	0	0	0	6	0	0	0	0	0	0	2	0	8	24	
5:55 PM	0	3	5	0	0	0	12	1	0	0	0	0	0	8	0	6	35	
Count Total	0	159	208	0	0	0	179	54	0	0	0	0	0	154	0	154	908	
Peak Hour	0	99	127	0	0	0	86	22	0	0	0	0	0	87	0	84	505	

### Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	2	2	4:00 PM						4:00 PM	0	0	0	0	0
4:05 PM	1	0	0	0	1	4:05 PM						4:05 PM	0	0	0	0	0
4:10 PM	1	0	0	0	1	4:10 PM						4:10 PM	1	0	0	0	1
4:15 PM	0	0	3	0	3	4:15 PM						4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM						4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	0	0	4:25 PM						4:25 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0	4:30 PM						4:30 PM	3	0	0	0	3
4:35 PM	0	0	0	0	0	4:35 PM						4:35 PM	0	0	0	0	0
4:40 PM	0	0	0	0	0	4:40 PM						4:40 PM	0	0	0	0	0
4:45 PM	0	0	1	2	3	4:45 PM						4:45 PM	0	0	0	0	0
4:50 PM	0	0	1	0	1	4:50 PM						4:50 PM	1	0	0	0	1
4:55 PM	0	0	0	0	0	4:55 PM						4:55 PM	2	0	0	0	2
5:00 PM	0	0	2	1	3	5:00 PM						5:00 PM	3	0	0	1	4
5:05 PM	0	0	0	0	0	5:05 PM						5:05 PM	0	0	0	0	0
5:10 PM	0	0	1	0	1	5:10 PM						5:10 PM	1	0	0	0	1
5:15 PM	0	0	1	0	1	5:15 PM						5:15 PM	1	0	0	0	1
5:20 PM	1	0	0	0	1	5:20 PM						5:20 PM	0	0	0	0	0
5:25 PM	0	0	0	0	0	5:25 PM						5:25 PM	2	0	0	0	2
5:30 PM	0	0	1	0	1	5:30 PM						5:30 PM	0	0	0	0	0
5:35 PM	0	0	1	1	2	5:35 PM						5:35 PM	0	0	0	0	0
5:40 PM	1	0	0	1	2	5:40 PM						5:40 PM	0	0	0	0	0
5:45 PM	0	0	1	0	1	5:45 PM						5:45 PM	1	0	0	0	1
5:50 PM	0	0	0	1	1	5:50 PM						5:50 PM	1	0	0	0	1
5:55 PM	0	0	0	0	0	5:55 PM						5:55 PM	0	0	0	1	1
Count Total	4	0	12	8	24	Count Total						Count Total	16	0	0	2	18
Peak Hour	1	0	6	3	10	Peak Hour						Peak Hour	11	0	0	1	12

**APPENDIX B**

**LOS DESCRIPTION**

## **TRAFFIC LEVELS OF SERVICE**

Analysis of traffic volumes is useful in understanding the general nature of traffic in an area, but by itself indicates neither the ability of the street network to carry additional traffic nor the quality of service afforded by the street facilities. For this, the concept of level of service has been developed to subjectively describe traffic performance. Level of service can be measured at intersections and along key roadway segments.

Levels of service categories are similar to report card ratings for traffic performance. Intersections are typically the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently is generally diminished in their vicinities. Levels of Service A, B and C indicate conditions where traffic moves without significant delays over periods of peak travel demand. Level of service D and E are progressively worse peak hour operating conditions and F conditions represent where demand exceeds the capacity of an intersection. Most urban communities set level of service D as the minimum acceptable level of service for peak hour operation and plan for level of service C or better for all other times of the day. The Highway Capacity Manual provides level of service calculation methodology for both intersections and arterials<sup>1</sup>. The following two sections provide interpretations of the analysis approaches.

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<sup>1</sup> *2000 Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2000, Chapter 16 and 17.

## UNSIGNALIZED INTERSECTIONS (Two-Way Stop Controlled)

Unsignalized intersection level of service is reported for the major street and minor street (generally, left turn movements). The method assesses available and critical gaps in the traffic stream which make it possible for side street traffic to enter the main street flow. The 2010 Highway Capacity Manual describes the detailed methodology. It is not unusual for an intersection to experience level of service E or F conditions for the minor street left turn movement. It should be understood that, often, a poor level of service is experienced by only a few vehicles and the intersection as a whole operates acceptably.

Unsignalized intersection levels of service are described in the following table.

### *Level-of-Service Criteria: Automobile Mode*

Control Delay (s/vehicle)	LOS by Volume-to-Capacity Ratio	
	$v/c \leq 1.0$	$v/c > 1.0$
0-10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

Note: The LOS criteria apply to each lane on a given approach and to each approach on the minor street.  
LOS is not calculated for major-street approaches or for the intersection as a whole

## SIGNALIZED INTERSECTIONS

For signalized intersections, level of service is evaluated based upon average vehicle delay experienced by vehicles entering an intersection. Control delay (or signal delay) includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. In previous versions of this chapter of the HCM (1994 and earlier), delay included only stopped delay. As delay increases, the level of service decreases. Calculations for signalized and unsignalized intersections are different due to the variation in traffic control. The 2000 Highway Capacity Manual provides the basis for these calculations.

Level of Service	Delay (secs.)	Description
A	<10.00	<b>Free Flow/Insignificant Delays:</b> No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Most vehicles do not stop at all. Progression is extremely favorable and most vehicles arrive during the green phase.
B	10.1-20.0	<b>Stable Operation/Minimal Delays:</b> An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles. This level generally occurs with good progression, short cycle lengths, or both.
C	20.1-35.0	<b>Stable Operation/Acceptable Delays:</b> Major approach phases fully utilized. Most drivers feel somewhat restricted. Higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, and the number of vehicles stopping is significant.
D	35.1-55.0	<b>Approaching Unstable/Tolerable Delays:</b> The influence of congestion becomes more noticeable. Drivers may have to wait through more than one red signal indication. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. The proportion of vehicles not stopping declines, and individual cycle failures are noticeable.
E	55.1-80.0	<b>Unstable Operation/Significant Delays:</b> Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are a frequent occurrence.
F	>80.0	<b>Forced Flow/Excessive Delays:</b> Represents jammed conditions. Queues may block upstream intersections. This level occurs when arrival flow rates exceed intersection capacity, and is considered to be unacceptable to most drivers. Poor progression, long cycle lengths, and v/c ratios approaching 1.0 may contribute to these high delay levels.

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Source: *2000 Highway Capacity Manual*, Transportation Research Board, Washington D.C.



## **APPENDIX C**

### **HCM REPORT – EXISTING CONDITIONS**

HCM 6th AWSC  
1: Boberg Road & Boeckman Road

Existing PM  
Public Works Building TIA

Intersection	
Intersection Delay, s/veh	17.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↕			↕	
Traffic Vol, veh/h	7	360	94	159	380	18	46	2	114	31	7	18
Future Vol, veh/h	7	360	94	159	380	18	46	2	114	31	7	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	2	4	2	2	6	6	0	4	0	0	3
Mvmt Flow	8	391	102	173	413	20	50	2	124	34	8	20
Number of Lanes	0	1	1	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	18.7	19.6	12.4	11
HCM LOS	C	C	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	28%	2%	0%	100%	0%	55%
Vol Thru, %	1%	98%	0%	0%	95%	12%
Vol Right, %	70%	0%	100%	0%	5%	32%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	162	367	94	159	398	56
LT Vol	46	7	0	159	0	31
Through Vol	2	360	0	0	380	7
RT Vol	114	0	94	0	18	18
Lane Flow Rate	176	399	102	173	433	61
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.312	0.68	0.155	0.313	0.718	0.117
Departure Headway (Hd)	6.376	6.138	5.452	6.514	5.974	6.948
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	560	586	654	550	601	512
Service Time	4.452	3.904	3.217	4.276	3.736	5.046
HCM Lane V/C Ratio	0.314	0.681	0.156	0.315	0.72	0.119
HCM Control Delay	12.4	21.1	9.2	12.2	22.6	11
HCM Lane LOS	B	C	A	B	C	B
HCM 95th-tile Q	1.3	5.2	0.5	1.3	6	0.4

**Intersection**

Int Delay, s/veh 7.4

**Movement** EBL EBT WBT WBR SBL SBR

Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	128	127	136	34	87	173
Future Vol, veh/h	128	127	136	34	87	173
Conflicting Peds, #/hr	1	0	0	1	0	11
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	1	7	0	2	1
Mvmt Flow	142	141	151	38	97	192

**Major/Minor** Major1 Major2 Minor2

Conflicting Flow All	190	0	-	0	596	182
Stage 1	-	-	-	-	171	-
Stage 2	-	-	-	-	425	-
Critical Hdwy	4.1	-	-	-	6.42	6.21
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.2	-	-	-	3.518	3.309
Pot Cap-1 Maneuver	1396	-	-	-	466	863
Stage 1	-	-	-	-	859	-
Stage 2	-	-	-	-	659	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1395	-	-	-	414	854
Mov Cap-2 Maneuver	-	-	-	-	414	-
Stage 1	-	-	-	-	764	-
Stage 2	-	-	-	-	658	-

**Approach** EB WB SB

HCM Control Delay, s	4	0	15.5
HCM LOS			C

**Minor Lane/Major Mvmt** EBL EBT WBT WBR SBLn1

Capacity (veh/h)	1395	-	-	-	630
HCM Lane V/C Ratio	0.102	-	-	-	0.459
HCM Control Delay (s)	7.9	0	-	-	15.5
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	2.4

HCM 6th TWSC  
3: Boones Ferry Road & Barber Street

Existing PM  
Public Works Building TIA

Intersection						
Int Delay, s/veh	4.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑	↑	
Traffic Vol, veh/h	15	199	128	158	416	42
Future Vol, veh/h	15	199	128	158	416	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	125	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	4	9	8	2	10
Mvmt Flow	16	212	136	168	443	45

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	906	466	488	0	-	0
Stage 1	466	-	-	-	-	-
Stage 2	440	-	-	-	-	-
Critical Hdwy	6.43	6.24	4.19	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.336	2.281	-	-	-
Pot Cap-1 Maneuver	305	592	1040	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	647	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	265	592	1040	-	-	-
Mov Cap-2 Maneuver	265	-	-	-	-	-
Stage 1	547	-	-	-	-	-
Stage 2	647	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.3	4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1040	-	545	-	-
HCM Lane V/C Ratio	0.131	-	0.418	-	-
HCM Control Delay (s)	9	-	16.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	2	-	-

## **APPENDIX D**

### **STAGE II LIST**



## **APPENDIX E**

### **HCM REPORT – EXISTNG + PROJECT**

HCM 6th AWSC  
1: Boberg Road & Boeckman Road

Existing + Project PM  
Public Works Building TIA

Intersection	
Intersection Delay, s/veh	19
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔	↔	↔			↔			↔	
Traffic Vol, veh/h	7	360	97	165	380	18	56	2	134	31	7	18
Future Vol, veh/h	7	360	97	165	380	18	56	2	134	31	7	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	2	4	2	2	6	6	0	4	0	0	3
Mvmt Flow	8	391	105	179	413	20	61	2	146	34	8	20
Number of Lanes	0	1	1	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	19.9	21	13.4	11.2
HCM LOS	C	C	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	29%	2%	0%	100%	0%	55%
Vol Thru, %	1%	98%	0%	0%	95%	12%
Vol Right, %	70%	0%	100%	0%	5%	32%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	192	367	97	165	398	56
LT Vol	56	7	0	165	0	31
Through Vol	2	360	0	0	380	7
RT Vol	134	0	97	0	18	18
Lane Flow Rate	209	399	105	179	433	61
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.373	0.699	0.165	0.333	0.738	0.122
Departure Headway (Hd)	6.436	6.307	5.619	6.678	6.138	7.245
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	555	570	633	536	584	498
Service Time	4.527	4.09	3.402	4.458	3.917	5.245
HCM Lane V/C Ratio	0.377	0.7	0.166	0.334	0.741	0.122
HCM Control Delay	13.4	22.6	9.5	12.8	24.4	11.2
HCM Lane LOS	B	C	A	B	C	B
HCM 95th-tile Q	1.7	5.5	0.6	1.5	6.3	0.4



Intersection						
Int Delay, s/veh	7.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	129	127	136	36	92	177
Future Vol, veh/h	129	127	136	36	92	177
Conflicting Peds, #/hr	1	0	0	1	0	11
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	1	7	0	2	1
Mvmt Flow	143	141	151	40	102	197

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	192	0	-	0	599 183
Stage 1	-	-	-	-	172 -
Stage 2	-	-	-	-	427 -
Critical Hdwy	4.1	-	-	-	6.42 6.21
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.2	-	-	-	3.518 3.309
Pot Cap-1 Maneuver	1394	-	-	-	465 862
Stage 1	-	-	-	-	858 -
Stage 2	-	-	-	-	658 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1393	-	-	-	412 853
Mov Cap-2 Maneuver	-	-	-	-	412 -
Stage 1	-	-	-	-	762 -
Stage 2	-	-	-	-	657 -

Approach	EB	WB	SB
HCM Control Delay, s	4	0	16
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1393	-	-	-	624
HCM Lane V/C Ratio	0.103	-	-	-	0.479
HCM Control Delay (s)	7.9	0	-	-	16
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	2.6

HCM 6th TWSC  
3: Boones Ferry Road & Barber Street

Existing + Project PM  
Public Works Building TIA

Intersection						
Int Delay, s/veh	4.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	WT		WT	↑	↑	
Traffic Vol, veh/h	15	204	130	158	416	42
Future Vol, veh/h	15	204	130	158	416	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	125	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	4	9	8	2	10
Mvmt Flow	16	217	138	168	443	45

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	910	466	488	0	-	0
Stage 1	466	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Critical Hdwy	6.43	6.24	4.19	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.336	2.281	-	-	-
Pot Cap-1 Maneuver	304	592	1040	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	644	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	264	592	1040	-	-	-
Mov Cap-2 Maneuver	264	-	-	-	-	-
Stage 1	546	-	-	-	-	-
Stage 2	644	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.4	4.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1040	-	546	-	-
HCM Lane V/C Ratio	0.133	-	0.427	-	-
HCM Control Delay (s)	9	-	16.4	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	2.1	-	-

## **APPENDIX F**

### **HCM REPORT – EXISTNG + STAGE II**

Intersection	
Intersection Delay, s/veh	23.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↕			↕	
Traffic Vol, veh/h	7	386	110	176	405	18	65	2	136	31	7	18
Future Vol, veh/h	7	386	110	176	405	18	65	2	136	31	7	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	2	4	2	2	6	6	0	4	0	0	3
Mvmt Flow	8	420	120	191	440	20	71	2	148	34	8	20
Number of Lanes	0	1	1	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	24.7	26.4	14.5	11.7
HCM LOS	C	D	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %		32%	2%	0%	100%	0%
Vol Thru, %		1%	98%	0%	0%	96%
Vol Right, %		67%	0%	100%	0%	4%
Sign Control		Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane		203	393	110	176	423
LT Vol		65	7	0	176	0
Through Vol		2	386	0	0	405
RT Vol		136	0	110	0	18
Lane Flow Rate		221	427	120	191	460
Geometry Grp		2	7	7	7	7
Degree of Util (X)		0.413	0.78	0.195	0.369	0.818
Departure Headway (Hd)		6.732	6.573	5.884	6.946	6.406
Convergence, Y/N		Yes	Yes	Yes	Yes	Yes
Cap		534	551	612	520	566
Service Time		4.771	4.289	3.6	4.661	4.121
HCM Lane V/C Ratio		0.414	0.775	0.196	0.367	0.813
HCM Control Delay		14.5	28.8	10	13.7	31.7
HCM Lane LOS		B	D	A	B	D
HCM 95th-tile Q		2	7.2	0.7	1.7	8.2

Intersection						
Int Delay, s/veh	8.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	136	127	136	46	102	177
Future Vol, veh/h	136	127	136	46	102	177
Conflicting Peds, #/hr	1	0	0	1	0	11
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	1	7	0	2	1
Mvmt Flow	151	141	151	51	113	197

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	203	0	-	0	621 189
Stage 1	-	-	-	-	178 -
Stage 2	-	-	-	-	443 -
Critical Hdwy	4.1	-	-	-	6.42 6.21
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.2	-	-	-	3.518 3.309
Pot Cap-1 Maneuver	1381	-	-	-	451 855
Stage 1	-	-	-	-	853 -
Stage 2	-	-	-	-	647 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1380	-	-	-	396 846
Mov Cap-2 Maneuver	-	-	-	-	396 -
Stage 1	-	-	-	-	751 -
Stage 2	-	-	-	-	646 -

Approach	EB	WB	SB
HCM Control Delay, s	4.1	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1380	-	-	-	598
HCM Lane V/C Ratio	0.11	-	-	-	0.518
HCM Control Delay (s)	7.9	0	-	-	17.3
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	3

HCM 6th TWSC  
3: Boones Ferry Road & Barber Street

Existing + Stage II PM  
Public Works Building TIA

**Intersection**

Int Delay, s/veh 5.2

**Movement** EBL EBR NBL NBT SBT SBR

Lane Configurations	W		W	↑	↑	
Traffic Vol, veh/h	15	214	140	165	429	42
Future Vol, veh/h	15	214	140	165	429	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	125	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	4	9	8	2	10
Mvmt Flow	16	228	149	176	456	45

**Major/Minor** Minor2 Major1 Major2

Conflicting Flow All	953	479	501	0	-	0
Stage 1	479	-	-	-	-	-
Stage 2	474	-	-	-	-	-
Critical Hdwy	6.43	6.24	4.19	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.336	2.281	-	-	-
Pot Cap-1 Maneuver	286	583	1028	-	-	-
Stage 1	621	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	245	583	1028	-	-	-
Mov Cap-2 Maneuver	245	-	-	-	-	-
Stage 1	531	-	-	-	-	-
Stage 2	624	-	-	-	-	-

**Approach** EB NB SB

HCM Control Delay, s	17.2	4.2	0
HCM LOS	C		

**Minor Lane/Major Mvmt** NBL NBT EBLn1 SBT SBR

Capacity (veh/h)	1028	-	535	-	-
HCM Lane V/C Ratio	0.145	-	0.455	-	-
HCM Control Delay (s)	9.1	-	17.2	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	2.4	-	-

## **APPENDIX G**

### **HCM REPORT – EXISTNG + PROJECT + STAGE II**

Intersection	
Intersection Delay, s/veh	25.1
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↕			↕	
Traffic Vol, veh/h	7	386	113	182	405	18	75	2	156	31	7	18
Future Vol, veh/h	7	386	113	182	405	18	75	2	156	31	7	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	2	4	2	2	6	6	0	4	0	0	3
Mvmt Flow	8	420	123	198	440	20	82	2	170	34	8	20
Number of Lanes	0	1	1	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	26.6	28.7	15.9	12
HCM LOS	D	D	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	32%	2%	0%	100%	0%	55%
Vol Thru, %	1%	98%	0%	0%	96%	12%
Vol Right, %	67%	0%	100%	0%	4%	32%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	233	393	113	182	423	56
LT Vol	75	7	0	182	0	31
Through Vol	2	386	0	0	405	7
RT Vol	156	0	113	0	18	18
Lane Flow Rate	253	427	123	198	460	61
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.478	0.8	0.206	0.391	0.839	0.131
Departure Headway (Hd)	6.797	6.741	6.051	7.113	6.572	7.749
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	529	538	593	506	552	462
Service Time	4.835	4.482	3.792	4.854	4.312	5.808
HCM Lane V/C Ratio	0.478	0.794	0.207	0.391	0.833	0.132
HCM Control Delay	15.9	31.3	10.4	14.4	34.8	12
HCM Lane LOS	C	D	B	B	D	B
HCM 95th-tile Q	2.6	7.6	0.8	1.8	8.7	0.4



Intersection						
Int Delay, s/veh	8.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	137	127	136	48	107	181
Future Vol, veh/h	137	127	136	48	107	181
Conflicting Peds, #/hr	1	0	0	1	0	11
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	1	7	0	2	1
Mvmt Flow	152	141	151	53	119	201

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	205	0	-	0	624 190
Stage 1	-	-	-	-	179 -
Stage 2	-	-	-	-	445 -
Critical Hdwy	4.1	-	-	-	6.42 6.21
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.2	-	-	-	3.518 3.309
Pot Cap-1 Maneuver	1378	-	-	-	449 854
Stage 1	-	-	-	-	852 -
Stage 2	-	-	-	-	646 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1377	-	-	-	394 845
Mov Cap-2 Maneuver	-	-	-	-	394 -
Stage 1	-	-	-	-	749 -
Stage 2	-	-	-	-	645 -

Approach	EB	WB	SB
HCM Control Delay, s	4.1	0	18
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1377	-	-	-	593
HCM Lane V/C Ratio	0.111	-	-	-	0.54
HCM Control Delay (s)	7.9	0	-	-	18
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	3.2

HCM 6th TWSC  
3: Boones Ferry Road & Barber Street

Existing + Stage II + Project PM  
Public Works Building TIA

**Intersection**

Int Delay, s/veh 5.3

**Movement** EBL EBR NBL NBT SBT SBR

Lane Configurations	W		W	↑	↑	
Traffic Vol, veh/h	15	219	142	165	429	42
Future Vol, veh/h	15	219	142	165	429	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	125	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	4	9	8	2	10
Mvmt Flow	16	233	151	176	456	45

**Major/Minor** Minor2 Major1 Major2

Conflicting Flow All	957	479	501	0	-	0
Stage 1	479	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Critical Hdwy	6.43	6.24	4.19	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.336	2.281	-	-	-
Pot Cap-1 Maneuver	285	583	1028	-	-	-
Stage 1	621	-	-	-	-	-
Stage 2	622	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	243	583	1028	-	-	-
Mov Cap-2 Maneuver	243	-	-	-	-	-
Stage 1	530	-	-	-	-	-
Stage 2	622	-	-	-	-	-

**Approach** EB NB SB

HCM Control Delay, s	17.4	4.2	0
HCM LOS	C		

**Minor Lane/Major Mvmt** NBL NBT EBLn1 SBT SBR

Capacity (veh/h)	1028	-	535	-	-
HCM Lane V/C Ratio	0.147	-	0.465	-	-
HCM Control Delay (s)	9.1	-	17.4	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	2.4	-	-

Fidelity National Title of Oregon 4514/609982 - Comm

Clackamas County Official Records 2016-084980  
Sherry Hall, County Clerk 12/09/2016 01:59:19 PM  
D-D Cnt=1 Stn=0 LESLIE \$78.00  
\$16.00 \$22.00 \$30.00 \$10.00

After recording, return to:  
City of Wilsonville  
Attn: City Recorder  
29799 SW Town Center Loop East  
Wilsonville OR 97070

Return tax statements to:  
No change

**STATUTORY WARRANTY DEED**

KNOW ALL BY THESE PRESENTS, that **Washington County**, a political subdivision of the State of Oregon (hereinafter referred to as "Grantor"), as legal owner of that certain real property described below, for the consideration hereinafter stated, conveys and warrants to the **City of Wilsonville**, a municipal corporation of the State of Oregon (hereinafter referred to as "Grantee"), effective the 7th day of December, 2016, the following-described real property, free of any encumbrances:

The legal description is set forth in **Exhibit A**, attached hereto and incorporated by reference herein. **Exhibit B Permitted Exceptions** attached hereto

Grantor is seized in and has good right to convey said real property and warrants and will defend the title to the property against all adverse claims thereto.

The true and actual consideration paid for this transfer, stated in terms of dollars, is One Million Seven Hundred Sixty-Six Thousand Dollars (\$1,766,000), which is agreed by Grantor to be the whole and adequate consideration.

**BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.**

IN WITNESS WHEREOF, the undersigned have executed this Warranty Deed effective as of the date first above written.


**GRANTOR:**

WASHINGTON COUNTY,  
a political subdivision of the State of Oregon

By:   
Don Bohn  
As Its: Assistant County Administrator

STATE OF OREGON            )  
  ) ss.  
County of Washington        )


This instrument was acknowledged before me on December 7, 2016,  
by Don Bohn, as Assistant County Administrator of Washington County.

  
Notary Public – State of Oregon



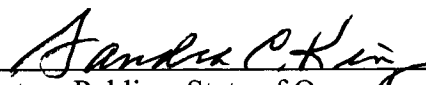
**GRANTEE:**

ACCEPTED on behalf of the City of Wilsonville, Oregon:

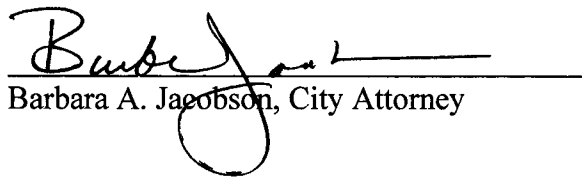
By:   
Bryan Cosgrove, City Manager

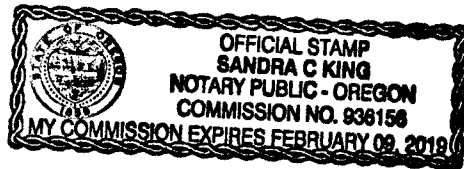
STATE OF OREGON            )  
  ) ss.  
County of Clackamas        )

This instrument was acknowledged before me on December 7, 2016,  
by Bryan Cosgrove, as City Manager of the City of Wilsonville.

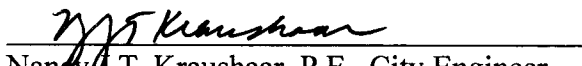
  
Notary Public – State of Oregon

APPROVED AS TO FORM:

  
Barbara A. Jacobson, City Attorney



APPROVED AS TO LEGAL DESCRIPTION:

  
Nancy T. Kraushaar, P.E., City Engineer

I:\prop acq\pw facil\doc\deed stat war-wa city (bj^).doc

**EXHIBIT "A"**  
Legal Description

PARCEL I:

Lot 10, BOBERG, in the City of Wilsonville, County of Clackamas and State of Oregon.

EXCEPTING THEREFROM that portion included in Dedication Deed recorded May 7, 1986 as Recorder's Fee No. 86-016172.

PARCEL II:

Lot 11, BOBERG, in the City of Wilsonville, County of Clackamas and State of Oregon.

EXCEPTING THEREFROM the South 125 feet thereof, as cut off by a line drawn parallel with the South line of said Lot 11.

FURTHER EXCEPTING THEREFROM that portion included in Dedication Deed recorded May 7, 1986 as Recorder's Fee No. 86-016172.

FURTHER EXCEPTING THEREFROM that portion described as Parcel 3 and conveyed to the Tri-County Metropolitan Transportation District of Oregon in Deed recorded October 14, 2008 as Recorder's Fee No. 2008-070975.

**EXHIBIT "B"**  
**PERMITTED EXCEPTIONS**

1. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: The City of Wilsonville  
Purpose: Street construction and public utilities  
Recording Date: May 7, 1986  
Recording No: 86-016173  
Affects: The Easterly portion

2. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: The City of Wilsonville  
Purpose: Underground pipeline  
Recording Date: September 4, 1986  
Recording No: 86-034111  
Affects: The North 15 feet of Parcel I

3. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: The City of Wilsonville  
Purpose: Underground pipeline  
Recording Date: October 27, 1988  
Recording No: 88-044997  
Affects: The South 12.5 feet of the North 27.5 feet of Parcel I

4. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: Oldcastle Precast, Inc., a Washington corporation  
Purpose: Access  
Recording Date: October 14, 2008  
Recording No: 2008-070971  
Affects: Parcel I

5. Any rights, interests, or claims which may exist or arise by reason of the following matters disclosed by survey,

Job No.: 5590  
Dated: December 6, 2016  
Prepared by: AKS Engineering & Forestry, LLC  
Matters shown: A) Sanitary sewer line on the North portion of Parcel I.  
D) Communication Riser is 0.3' South and 3.8' West of the Northeast portion of Parcel I.  
F) Communication Box on the Northwest portion of Parcel I



Bob Vroman  
County Assessor

DEPARTMENT OF ASSESSMENT AND TAXATION

Development Services Building  
150 Beaver Creek Road | Oregon City, OR 97045

RE: Property Tax Account #00810224 and 00810233  
Assessor's Map #31W 14A, Tax Lots 01800 and 01900

As of this date, all taxes, fees, assessment or other charges as provided by Oregon Revised Statute (HB 2127) on the parcel referenced above have been paid in full.

Payer: n/a – Both parcels are owned by Washington County, and have been exempt from property taxation beginning with tax year 2002-03 through the current 2016-2017 tax year.

Assessor/Deputy

October 26, 2016

Date

Fidelity National Title of Oregon 45/41609982-Com W



320441  
KNOW ALL MEN BY THESE PRESENTS, That J. M. WETHERBEE and CAROLANN P. WETHERBEE, husband and wife

in consideration of TEN AND NO/100 -----, hereinafter called the grantor, and other valuable consideration to grantor paid by BRYCE B. CROSBY and BERNIECE L. CROSBY, husband and wife, hereinafter called the grantee, does hereby grant, bargain, sell and convey unto the said grantee and grantee's heirs, successors and assigns, that certain real property, with the tenements, hereditaments and appurtenances thereunto belonging or appertaining, situated in the County of CLACKAMAS and State of Oregon, described as follows, to-wit:

All of Lot Eleven (11), BOBERG, in the County of Clackamas and State of Oregon; EXCEPT the South 125 feet thereof.

To Have and to Hold the above described and granted premises unto the said grantee and grantee's heirs, successors and assigns forever. And said grantor hereby covenants to and with said grantee and grantee's heirs, successors and assigns, that grantor is lawfully seized in fee simple of the above granted premises, free from all encumbrances

and that grantor will and grantor's heirs, executors and administrators shall warrant and forever defend the above granted premises and every part and parcel thereof against the lawful claims and demands of all persons whomsoever.

In construing this deed and where the context so requires, the singular includes the plural. WITNESS grantor's hand and seal this 30th day of November, 1964

Signature of J. M. Wetherbee (Seal)  
Signature of Carolann P. Wetherbee (Seal)

STATE OF OREGON, County of CLACKAMAS, ) ss. November 30, 1964.  
Personally appeared the above named J. M. WETHERBEE and CAROLANN P. WETHERBEE, husband and wife and acknowledged the foregoing instrument to be their voluntary act and deed.



Refers me: Amy J. Penne  
Notary Public for Oregon  
My commission expires 12-11-64

WARRANTY DEED  
J. M. Wetherbee, et al. ux.  
TO  
Bryce B. Crosby, et al. ux.  
AFTER RECORDING RETURN TO  
AFTER RECORDING RETURN TO  
PACIFIC TITLE INS. CO.  
915 Main St.  
Oregon City, Oregon  
320441

STATE OF OREGON  
RECORDED  
NOV 30 1964 PM 12 57  
BOOK 650 PAGE 179  
The Oregon State Bar  
Where any deed and will and other instrument is recorded in this office, the same shall be subject to the lien of the State Bar of Oregon for the payment of the fees and costs of the Bar for the recording of the same.

65

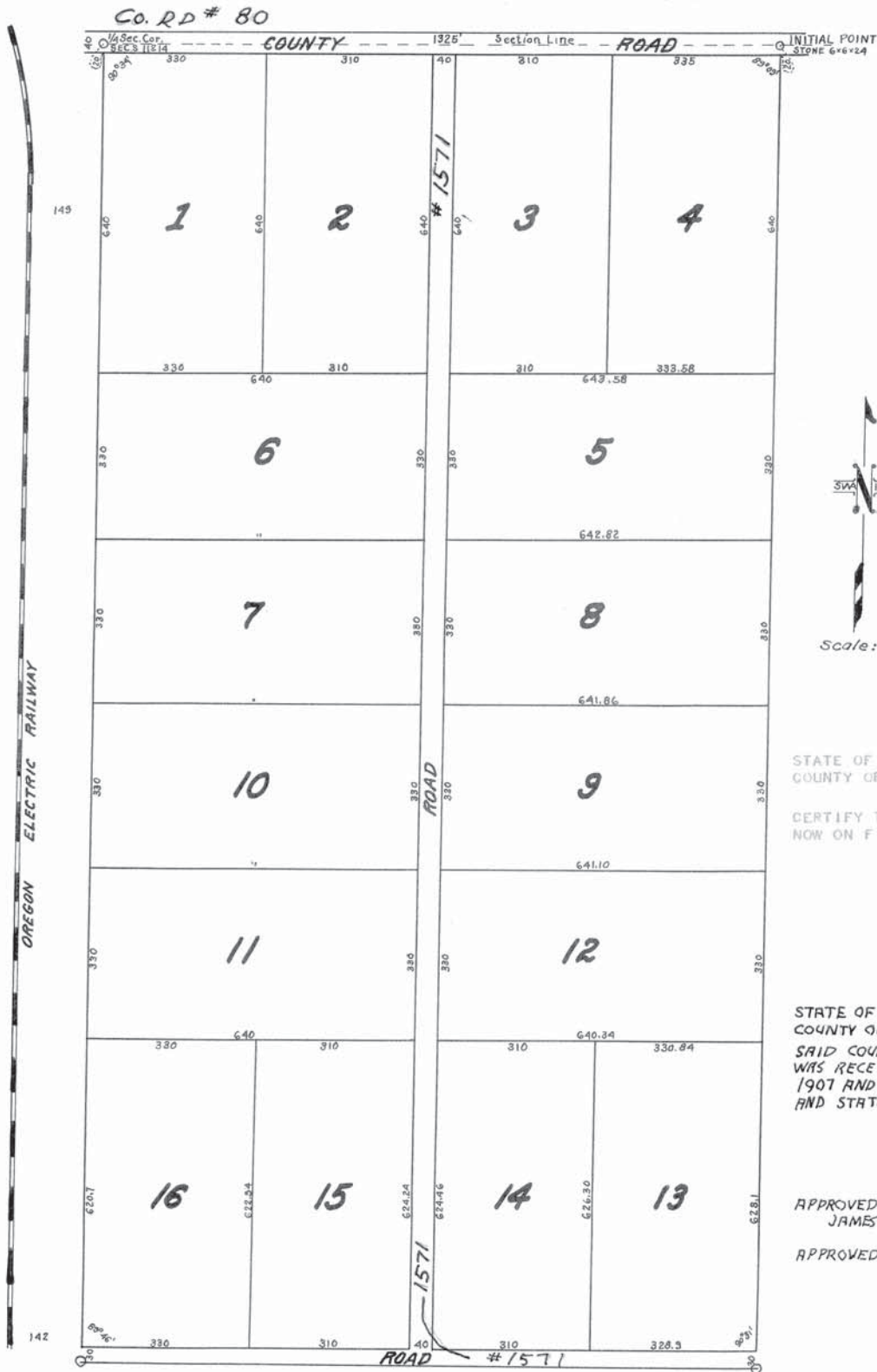
2417

63

BOOK 650 PAGE 179

# PLAT OF BOBERG

BEING THE W. 1/2 OF N. E. 1/4 SEC. 14 T. 3 S. R. 1 W. W. M.  
SCALE 200 FT TO 1 INCH



STATE OF OREGON } SS  
COUNTY OF CLACKAMAS }  
I, E. C. HACKETT, RECORDER OF SAID COUNTY,  
CERTIFY THE WITHIN AND FOREGOING TO BE A TRUE AND CORRECT COPY OF THE MAP  
NOW ON FILE IN MY OFFICE AND IN MY CARE AND CUSTODY. AUGUST 26, 1930.  
*E. C. Hackett*  
COUNTY RECORDER.

STATE OF OREGON } SS  
COUNTY OF CLACKAMAS } I, C. E. RAMSBY, COUNTY RECORDER IN AND FOR  
SAID COUNTY, DO HEREBY CERTIFY THAT THE WITHIN INSTRUMENT OF WRITING  
WAS RECEIVED FOR RECORD AT 11:25 O'CLOCK A. M. ON THE 30 DAY OF OCT.  
1907 AND RECORDED ON PAGE 5 IN BOOK 7 RECORD OF PLATS OF SAID COUNTY  
AND STATE.  
WITNESS MY HAND AND SEAL OF OFFICE AFFIXED.  
C. E. RAMSBY, RECORDER.

APPROVED  
JAMES F. NELSON, CO. ASSESSOR.

APPROVED AND ORDERED FILED THIS 30 DAY OF OCT. 1907.  
GRANT B. DIMICK, JUDGE

T. B. KILLIN  
JOHN LEWELLEN, COMMISSIONERS

KNOW ALL MEN BY THESE PRESENTS, THAT I, WILLIAM F. BOBERG, OF THE COUNTY OF CLACKAMAS, STATE OF OREGON, DO HEREBY MAKE, ESTABLISH AND  
DECLARE THE ANNEXED PLAT TO BE THE PLAT OF BOBERG SITUATED IN AND COMPRISING THE WEST HALF (W 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION  
FOURTEEN (14) IN TOWNSHIP THREE (3) SOUTH OF RANGE ONE (1) WEST OF THE WILLAMETTE MERIDIAN, IN CLACKAMAS COUNTY, OREGON.

THE INITIAL POINT OF THE SURVEY OF SAID BOBERG IS SHOWN ON SAID PLAT AND BY THE AFFIDAVIT OF THE SURVEYOR, WHO SURVEYED THE SAME,  
ATTACHED TO SAID PLAT. SAID INITIAL POINT IS A STONE MONUMENT SITUATED ON THE NORTH LINE OF SAID SECTION FOURTEEN (14) AT A POINT 1325 FEET EAST  
OF THE QUARTER SECTION CORNER ON THE NORTH SIDE OF SAID SECTION FOURTEEN (14) SAID INITIAL POINT BEING ALSO THE NORTHEAST CORNER OF SAID BOBERG  
I HEREBY DEDICATE TO PUBLIC USE ALL OF THE STREETS AND ROADS SHOWN ON SAID PLAT.

IN WITNESS WHEREOF I HAVE HEREUNTO SET MY HAND AND SEAL THIS FIFTH DAY OF SEPTEMBER, 1907.

WITNESSES--  
JOHN W. THORNTON  
KATE C. THORNTON

WILLIAM F. BOBERG Secy

STATE OF OREGON } SS  
COUNTY OF CLACKAMAS } THIS CERTIFIES THAT ON THIS FIFTH DAY OF SEPTEMBER, 1907, BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC IN AND FOR THE  
STATE AND COUNTY AFORESAID, PERSONALLY APPEARED THE WITHIN NAMED WILLIAM F. BOBERG, WHO IS KNOWN TO ME TO BE THE IDENTICAL PERSON DESCRIBED IN AND  
WHO EXECUTED THE FOREGOING INSTRUMENT OF WRITING AND ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME. IN TESTIMONY WHEREOF, I HAVE HEREUNTO SET MY  
HAND AND AFFIXED MY NOTARIAL SEAL THIS THE DAY AND YEAR IN THIS MY CERTIFICATE WRITTEN.

MY COMMISSION EXPIRES 28TH OF SEPT., 1908.

SEAL OF  
NOTARY

JOHN W. THORNTON  
NOTARY PUBLIC IN AND FOR THE STATE OF OREGON.

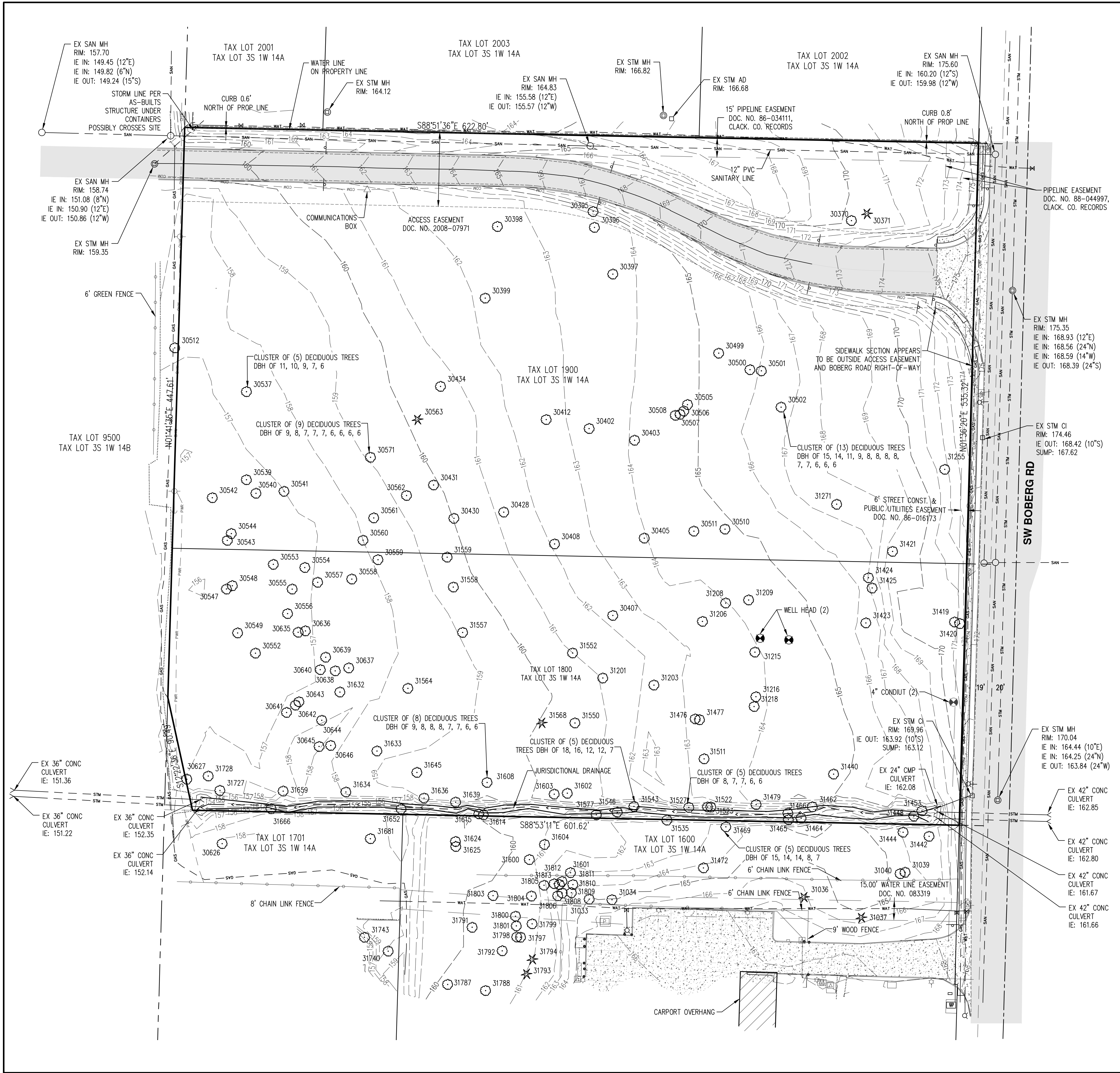
STATE OF OREGON } SS  
COUNTY OF MULTNOMAH } I, C. C. WATSON, BEING FIRST DULY SWORN, DEPOSE AND SAY, THAT I HAVE CORRECTLY SURVEYED AND MARKED WITH PROPER MONUMENTS  
THE LAND REPRESENTED ON THE ANNEXED PLAT OF BOBERG, SITUATED IN THE WEST ONE-HALF (W 1/2) OF THE NORTHEAST ONE-FOURTH (NE 1/4) OF SECTION FOURTEEN (14),  
TOWNSHIP THREE (3) SOUTH RANGE ONE (1) WEST WILLAMETTE MERIDIAN, AND THAT I PLANTED A PROPER STONE MONUMENT, (6 X 6 X 24 INCHES) INDICATING THE  
INITIAL POINT OF SUCH SURVEY, WHICH SAID INITIAL POINT AND MONUMENT IS SITUATED ON THE NORTH LINE OF SAID SECTION FOURTEEN (14) AT A POINT 1325  
FEET EAST OF THE QUARTER SECTION CORNER ON THE NORTH SIDE OF SAID SECTION FOURTEEN (14), WHICH SAID POINT IS ALSO THE NORTHEAST CORNER OF SAID TRACT  
SO SURVEYED.

SUBSCRIBED AND SWORN TO BEFORE ME THIS 4TH DAY OF SEPT. 1907.

M. J. CLOHESSY  
NOTARY PUBLIC FOR STATE OF OREGON.

SEAL OF  
NOTARY

C. C. WATSON



### LEGEND

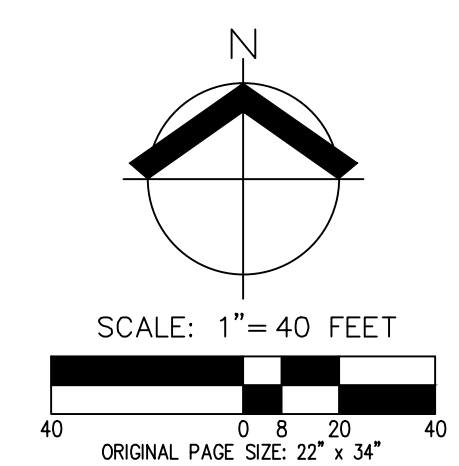
**EXISTING**

DECIDUOUS TREE		WATER VAULT	
CONIFEROUS TREE		POWER VAULT	
WATER METER		STORM DRAIN AREA DRAIN	
WATER VALVE		GAS VALVE	
SIGN		POWER JUNCTION BOX	
FIRE HYDRANT		COMMUNICATIONS RISER	
		STREET LIGHT	

**EXISTING**

RIGHT-OF-WAY LINE	
BOUNDARY LINE	
PROPERTY LINE	
CENTERLINE	
CURB	
EDGE OF PAVEMENT	
POWER LINE	
COMMUNICATIONS LINE	
GAS LINE	
STORM DRAIN LINE	
WATER LINE	

- NOTES:**
- UTILITIES SHOWN ARE BASED ON UNDERGROUND UTILITY LOCATE MARKINGS AS PROVIDED BY OTHERS, PROVIDED PER UTILITY LOCATE TICKET NUMBERS 19093567, 19093587, 19093598, 19096423, 19096432. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND LOCATES REPRESENT THE ONLY UTILITIES IN THE AREA. CONTRACTORS ARE RESPONSIBLE FOR VERIFYING ALL EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION.
  - FIELD WORK WAS CONDUCTED APRIL 15, 16, 18, 19, & 22.
  - VERTICAL DATUM: ELEVATIONS ARE BASED ON TRIMBLE NOW NETWORK AND CONFIRMED BY CHECKING WASHINGTON COUNTY BENCHMARK NO. 455. LOCATED AT THE NW CORNER OF ELLISSEN (STAFFORD EXIT) ROAD BRIDGE OVER I-5. ELEVATION = 284.95 FEET (NAVD 88).
  - HORIZONTAL DATUM: A LOCAL DATUM PLANE DERIVED FROM STATE PLANE OREGON NORTH 3601, INTERNATIONAL FOOT, NAD83(2011) EPOCH: 2010.0000, BY MULTIPLYING BY A PROJECT MEAN COMBINED SCALE FACTOR OF 1.0001064187 AT A CENTRAL PROJECT POINT WITH STATE PLANE GRID COORDINATES OF N608398.48, E7617337.42 WITH A MERIDIAN CONVERGENCE ANGLE OF -136'44". STATE PLANE COORDINATES WERE DERIVED FROM THE TRIMBLE VRS NOW NETWORK.
  - THIS MAP DOES NOT CONSTITUTE A PROPERTY BOUNDARY SURVEY.
  - SURVEY IS ONLY VALID WITH SURVEYOR'S STAMP AND SIGNATURE.
  - BUILDING FOOTPRINTS ARE MEASURED TO SIDING UNLESS NOTED OTHERWISE. CONTACT SURVEYOR WITH QUESTIONS REGARDING BUILDING TIES.
  - CONTOUR INTERVAL IS 1 FOOT.
  - TREES WITH DIAMETER OF 6" AND GREATER ARE SHOWN. TREE DIAMETERS WERE DETERMINED BY VISUAL INSPECTION. TREE INFORMATION IS SUBJECT TO CHANGE UPON ARBORIST INSPECTION.
  - TREES WITH DIAMETER OF 6" AND GREATER ARE SHOWN. TREE DIAMETERS WERE MEASURED UTILIZING A DIAMETER TAPE AT BREAST HEIGHT. TREE INFORMATION IS SUBJECT TO CHANGE UPON ARBORIST INSPECTION.



**EXISTING**  
**CONDITIONS PLAN**

DESIGNED BY: \_\_\_\_\_  
 DRAWN BY: KM  
 MANAGED BY: TA  
 CHECKED BY: NW  
 DATE: 5/2/2019

REGISTERED PROFESSIONAL LAND SURVEYOR  
  
 OREGON  
 JANUARY 9, 2007  
 NICK WHITE  
 7065213  
 RENEWS: 6/30/20

REVISIONS: \_\_\_\_\_

JOB NUMBER  
**5590**

SHEET  
**01**



AKS ENGINEERING & FORESTRY, LLC  
 12965 SW HERMAN RD, STE 100  
 TUALATIN, OR 97062  
 P: 503.563.6151  
 F: 503.563.6152  
 aks-eng.com

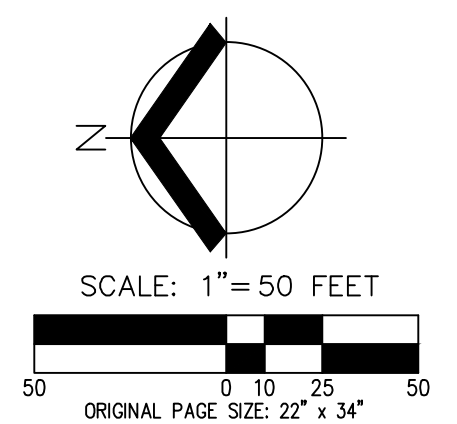
ENGINEERING SURVEYING NATURAL RESOURCES  
 FORESTRY PLANNING LANDSCAPE ARCHITECTURE

**SW BOBERG RD**  
**CITY OF WILSONVILLE**  
**WILSONVILLE**  
 CLATSOP COUNTY TAX LOTS 1800 & 1900  
 TAX MAP 3 1 W 14A

**AERIAL PLAN**

DESIGNED BY:  
 DRAWN BY: KM  
 MANAGED BY: TA  
 CHECKED BY: NW  
 DATE: 5/2/2019  
 REGISTERED PROFESSIONAL LAND SURVEYOR  
*Nick White*  
 OREGON  
 JANUARY 9, 2007  
 NICK WHITE  
 70652LS  
 RENEWS: 6/30/20

REVISIONS:  
 JOB NUMBER  
**5590**  
 SHEET  
**02**



TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
30370	DECIDUOUS	9
30371	CONIFEROUS	14
30395	DECIDUOUS	8,7
30396	DECIDUOUS	16,7
30397	DECIDUOUS	11,8
30398	DECIDUOUS	11,11,8
30399	DECIDUOUS	11
30402	DECIDUOUS	8
30403	DECIDUOUS	9,8
30405	DECIDUOUS	9
30407	DECIDUOUS	8
30408	DECIDUOUS	6
30412	DECIDUOUS	11,9
30428	DECIDUOUS	11
30430	DECIDUOUS	7
30431	DECIDUOUS	8
30434	DECIDUOUS	10,9
30499	DECIDUOUS	10,9
30500	DECIDUOUS	13,11
30501	DECIDUOUS	13
30502	DECIDUOUS	MULTIPLE*
30505	DECIDUOUS	8
30506	DECIDUOUS	8
30507	DECIDUOUS	9
30508	DECIDUOUS	10
30510	DECIDUOUS	12
30511	DECIDUOUS	13
30512	DECIDUOUS	13,7,6
30537	DECIDUOUS	MULTIPLE*
30539	DECIDUOUS	6
30540	DECIDUOUS	6
30541	DECIDUOUS	14,12
30542	DECIDUOUS	7
30543	DECIDUOUS	7
30544	DECIDUOUS	9
30547	DECIDUOUS	8
30548	DECIDUOUS	6
30549	DECIDUOUS	6
30552	DECIDUOUS	6
30553	DECIDUOUS	10
30554	DECIDUOUS	8
30555	DECIDUOUS	7,6
30556	DECIDUOUS	10,7
30557	DECIDUOUS	6,7
30558	DECIDUOUS	9,9,6
30559	DECIDUOUS	6,6
30560	DECIDUOUS	13,9
30561	DECIDUOUS	6,6
30562	DECIDUOUS	9
30563	CONIFEROUS	17
30571	DECIDUOUS	MULTIPLE*
30626	DECIDUOUS	11,6,6
30627	DECIDUOUS	13,6
30635	DECIDUOUS	13
30636	DECIDUOUS	7

TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
30637	DECIDUOUS	11
30638	DECIDUOUS	8
30639	DECIDUOUS	7
30640	DECIDUOUS	8
30641	DECIDUOUS	8
30642	DECIDUOUS	7
30643	DECIDUOUS	8,7
30644	DECIDUOUS	6
30645	DECIDUOUS	9
30646	DECIDUOUS	23
31033	DECIDUOUS	24
31034	DECIDUOUS	24,17
31036	CONIFEROUS	13
31037	CONIFEROUS	15
31039	DECIDUOUS	18
31040	DECIDUOUS	8
31201	DECIDUOUS	6
31203	DECIDUOUS	9
31206	DECIDUOUS	10,7
31208	DECIDUOUS	22
31209	DECIDUOUS	7
31215	DECIDUOUS	11,10
31216	DECIDUOUS	20,12
31218	DECIDUOUS	22
31255	DECIDUOUS	6
31271	DECIDUOUS	6
31419	DECIDUOUS	22,16,15
31420	DECIDUOUS	9
31421	DECIDUOUS	6
31423	DECIDUOUS	6
31424	DECIDUOUS	6
31425	DECIDUOUS	7,7,7
31440	DECIDUOUS	14,11,8
31442	DECIDUOUS	7,6
31444	DECIDUOUS	20,8
31448	DECIDUOUS	11,11
31453	DECIDUOUS	10
31462	DECIDUOUS	8
31464	DECIDUOUS	7
31465	DECIDUOUS	7
31466	DECIDUOUS	7
31469	DECIDUOUS	MULTIPLE*
31472	DECIDUOUS	6
31476	DECIDUOUS	6
31477	DECIDUOUS	6
31479	DECIDUOUS	7
31511	DECIDUOUS	25
31522	DECIDUOUS	10
31523	DECIDUOUS	9
31527	DECIDUOUS	MULTIPLE*
31535	DECIDUOUS	14,13
31543	DECIDUOUS	MULTIPLE*
31546	DECIDUOUS	19
31550	DECIDUOUS	12,11
31552	DECIDUOUS	6

TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
31557	DECIDUOUS	8
31558	DECIDUOUS	7
31559	DECIDUOUS	10
31564	DECIDUOUS	18
31568	CONIFEROUS	11
31577	DECIDUOUS	6
31600	DECIDUOUS	6
31601	DECIDUOUS	7,7
31602	DECIDUOUS	14
31603	DECIDUOUS	17
31604	DECIDUOUS	6
31608	DECIDUOUS	MULTIPLE*
31614	DECIDUOUS	6
31615	DECIDUOUS	9
31624	DECIDUOUS	6
31625	DECIDUOUS	6
31632	DECIDUOUS	7
31633	DECIDUOUS	11,7
31634	DECIDUOUS	7
31636	DECIDUOUS	11,11
31639	DECIDUOUS	18
31645	DECIDUOUS	11,8
31652	DECIDUOUS	8,6
31659	DECIDUOUS	6
31666	DECIDUOUS	11
31681	DECIDUOUS	7
31727	DECIDUOUS	20
31728	DECIDUOUS	7
31740	DECIDUOUS	10
31743	DECIDUOUS	6
31787	DECIDUOUS	11
31788	DECIDUOUS	7,6,6
31791	DECIDUOUS	12,12
31792	DECIDUOUS	8,7
31793	CONIFEROUS	13
31794	CONIFEROUS	13
31797	DECIDUOUS	7
31798	DECIDUOUS	7
31799	DECIDUOUS	8
31800	DECIDUOUS	6
31801	DECIDUOUS	13,19,10
31803	DECIDUOUS	11,17
31804	DECIDUOUS	9,9,8
31805	DECIDUOUS	9,7
31806	DECIDUOUS	7
31808	DECIDUOUS	6
31809	DECIDUOUS	6
31810	DECIDUOUS	10
31811	DECIDUOUS	7
31812	DECIDUOUS	7
31813	DECIDUOUS	6



10295 Southwest Ridder Road Wilsonville, OR 97070  
o 503.570.0626 f 503.582.9307 republicservices.com

May 21, 2021

Brandon Dole

Re: Wilsonville Public Works  
28601 SW Boberg Rd.  
Wilsonville, OR 97070

Dear Brandon,

Thank you, for sending us the preliminary site plans for this proposed development in Wilsonville OR.

My Company: Republic Services of Clackamas and Washington Counties has the franchise agreement to service this area with the City of Wilsonville. We will provide complete commercial waste removal and recycling services as needed on a weekly basis for this location

We have reviewed your revised trash and recycle enclosure design plans and are satisfied that we will be able to safely service this location.

The roof line recessed to a position that is flush with the gates, and height of 12' Ft., is adequate for our trucks to service two side-by-side frontload containers.

The primary gates with a width of 20' Ft., and opening radius of 120 degrees, with wind pins to hold the gates open for service, is adequate for our trucks to service frontload containers.

The personnel door with a width of 6' Ft. and outward opening radius of 180 degrees with wind pins to hold the doors open for to service, is adequate for our trucks to service roll carts.

The smooth, level path leading from the personnel doors to the parking lot with no obstructions is adequate for our trucks to service roll carts.

The access to the property using either the North and/or East gate, and the travel paths to the enclosure are free of obstructions and adequate for our trucks to service this location.

Thanks Brandon, for your help and concerns for our services prior to this project being developed.

Sincerely,



Kelly Herrod  
Operations Supervisor  
Republic Services Inc.



**FIRE CODE / LAND USE / BUILDING REVIEW  
APPLICATION**

**North Operating Center**  
11945 SW 70<sup>th</sup> Avenue  
Tigard, OR 97223  
Phone: 503-649-8577

**South Operating Center**  
8445 SW Elligsen Rd  
Wilsonville, OR 97070  
Phone: 503-649-8577

REV 6-30-20

**Project Information**

Applicant Name: Brandon Dole, Scott Edwards Architecture

Address: 2525 E Burnside, Portland, OR 97214

Phone: (503) 539-4594

Email: bdole@seallp.com

Site Address: 28601 SW Boberg Rd.

City: Wilsonville, OR 97070

Map & Tax Lot #: 31W14A 01800 & 31W14A 01900

Business Name: Wilsonville Public Works

Land Use/Building Jurisdiction: Wilsonville

Land Use/ Building Permit # \_\_\_\_\_

Choose from: Beaverton, Tigard, Newberg, Tualatin, North Plains, West Linn, Wilsonville, Sherwood, Rivergrove, Durham, King City, Washington County, Clackamas County, Multnomah County, Yamhill County

**Project Description**

*The Wilsonville Public Works is seeking approval to construct a new operations complex. The project will include a new office building, warehouse storage building, accessory structures and site improvements.*

**Permit/Review Type (check one):**

- Land Use / Building Review - Service Provider Permit
- Emergency Radio Responder Coverage Install/Test
- LPG Tank (Greater than 2,000 gallons)
- Flammable or Combustible Liquid Tank Installation (Greater than 1,000 gallons)
  - \* Exception: Underground Storage Tanks (UST) are deferred to DEQ for regulation.
- Explosives Blasting (Blasting plan is required)
- Exterior Toxic, Pyrophoric or Corrosive Gas Installation (in excess of 810 cu.ft.)
- Tents or Temporary Membrane Structures (in excess of 10,000 square feet)
- Temporary Haunted House or similar
- OLCC Cannabis Extraction License Review
- Ceremonial Fire or Bonfire (For gathering, ceremony or other assembly)

**For Fire Marshal's Office Use Only**

TVFR Permit # 2021-0097

Permit Type: SPP-COW

Submittal Date: 9-22-2021

Assigned To: DFM Arn

Due Date: \_\_\_\_\_

Fees Due:

Fees Paid:

**Approval/Inspection Conditions**  
(For Fire Marshal's Office Use Only)

**This section is for application approval only**

Fire Marshal or Designee: [Signature] Date: 09-22-2021

Conditions: FD gates access

See Attached Conditions:  Yes  No

Site Inspection Required:  Yes  No

**This section used when site inspection is required**

Inspection Comments:

Final TVFR Approval Signature & Emp ID \_\_\_\_\_ Date \_\_\_\_\_





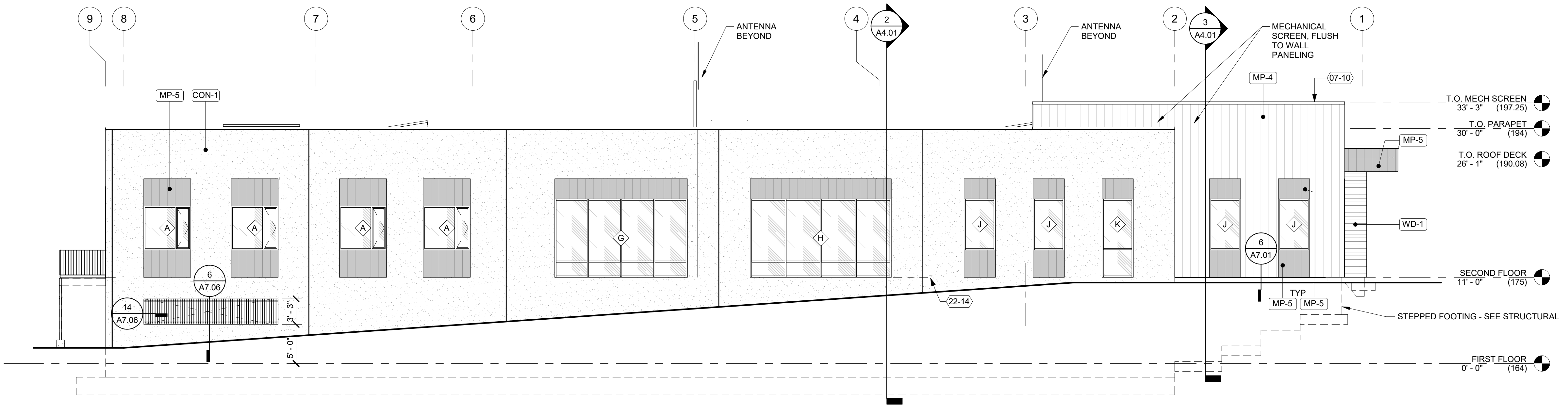
NOT FOR CONSTRUCTION

**WILSONVILLE PUBLIC WORKS**  
 Job Number: 20102  
 28601 SW BOBERG RD  
 WILSONVILLE, OR 97070

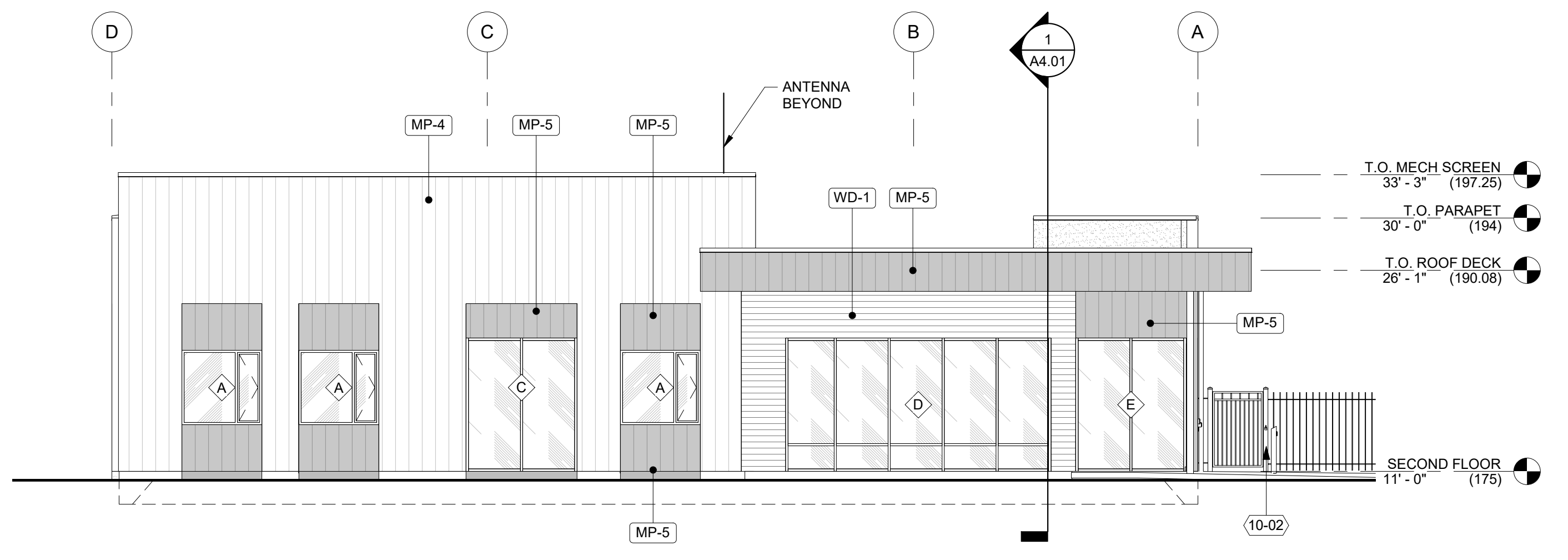
- ELEVATION SHEET NOTES**
- CONTRACTOR TO NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION
  - GRADE IS APPROXIMATE. SEE CIVIL.
  - SEE WALL SECTIONS TAGGED IN PLAN FOR VERTICAL OPENING DIMENSIONS
- KEYNOTES** (xx-xx)
- 03-06 TILT-UP CONCRETE. SEE STRUCTURAL; CLEAR SEAL AND ANTI-GRAFFITI COATINGS TO 10' ABOVE ADJACENT GRADE OR FLOOR LEVEL
  - 05-01 STEEL PLATE ENTRY CANOPY, REF STRUCTURAL
  - 05-10 STEEL FLAT BAR PICKET GUARD RAILING, GALVANIZED AND PAINTED TO MATCH MP-5, 42" MIN. A.F.F.
  - 05-12 WOOD SLAT BENCH WITH STEEL FRAME
  - 05-17 GALVANIZED STEEL STAIR STRUCTURE WITH GALVANIZED STEEL GRATING TREADS AND LANDINGS
  - 05-22 WARNING BAR - 5" CAPPED STEEL PIPE SUSPENDED BY CHAINS FROM LANDING ABOVE, REFLECTIVE STENCILLED LETTERING ON YELLOW PAINT
  - 06-04 WOOD SLAT SCREEN WALL WITH STEEL SUPPORTS
  - 07-01 SHEET METAL LEADERBOX WITH OVERFLOW, AND THRU-WALL SCUPPER WITH 3" DIA. DOWNSPOUT
  - 07-10 METAL WALL CAP FLASHING
  - 08-12 DOOR CONTROL CARD READER
  - 08-14 DOOR CONTROL AUTO-OPERATOR
  - 10-01 SURFACE-MOUNTED FIRE DEPT. KEY CABINET W/ KNOX PADLOCK PER TVFD
  - 10-02 FENCE-MOUNTED FIRE DEPT. KEY CABINET W/ KNOX PADLOCK PER TVFD
  - 10-04 FLAGPOLE WITH INTERIOR HALYARD AND TOP LIGHT, SEE ELEC.
  - 22-04 WALL-MOUNTED HOSE REEL WITH HOT AND COLD PREURSORIZED WATER SUPPLY
  - 22-14 EXTERIOR HOSE BIBB, SEE PLUMBING
  - 26-01 LIGHT FIXTURE, REF LIGHTING PLAN AND RCP
  - 32-05 BIKE RACKS MOUNTED PER MANUFACTURER
  - 32-09 DECORATIVE FENCING - SEE LANDSCAPE
  - 33-01 GAS METER

**LEGEND**

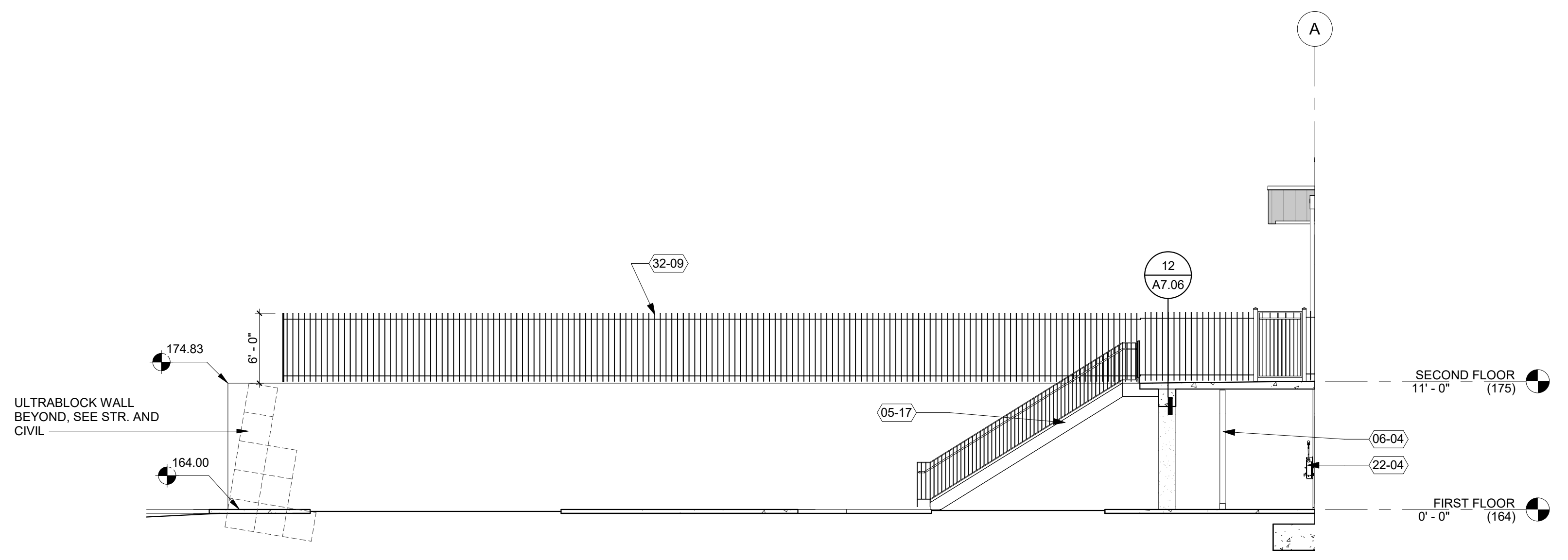
	OPEN TO BEYOND
	CON-1 DESC: TILT-UP CONCRETE PANELS CLEAR SEAL W/ ANTI-GRAFFITI TO 10' A.F.F.
	MP-4 DESC: FIELD METAL PANEL
	MP-5 DESC: ACCENT METAL PANEL
	WD-1 DESC: CEDAR SIDING CLEAR SEALER/ STAIN



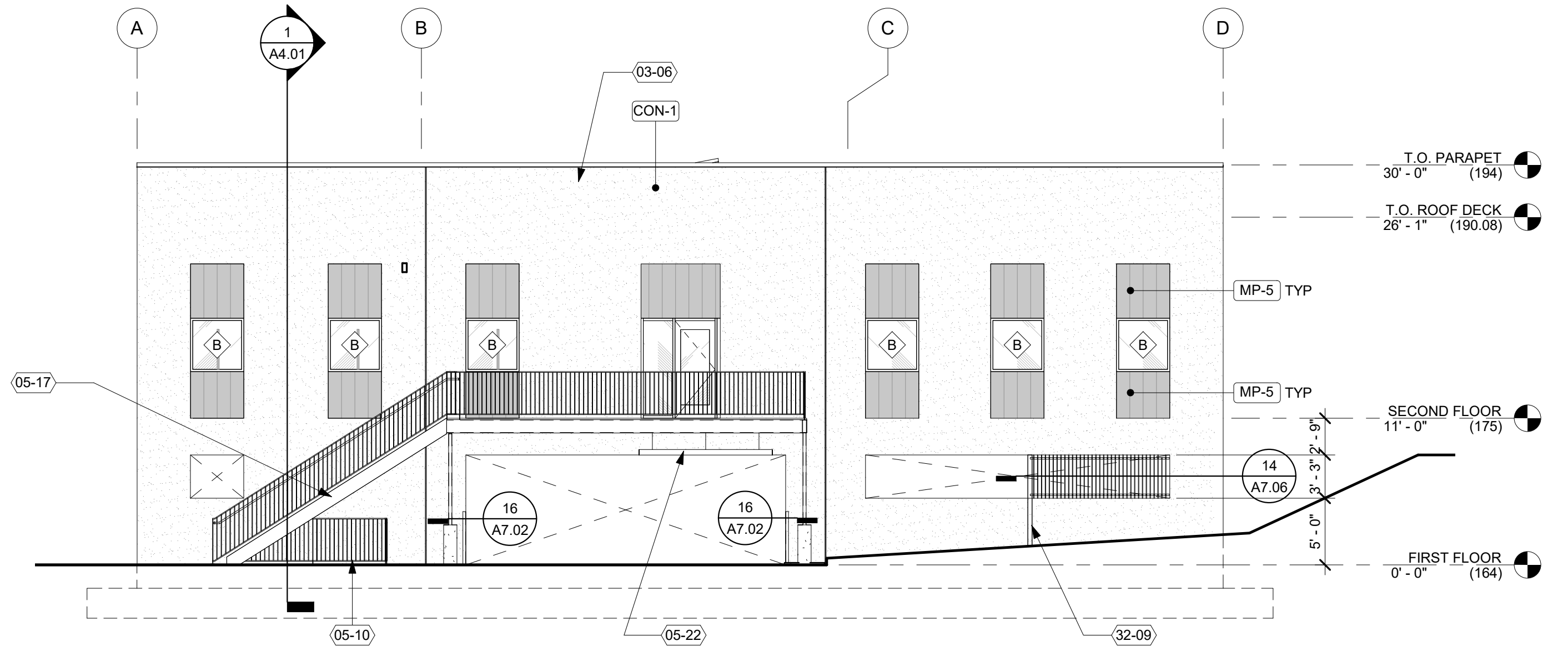
**1 ADMIN BUILDING A - EAST**  
 1/8" = 1'-0"



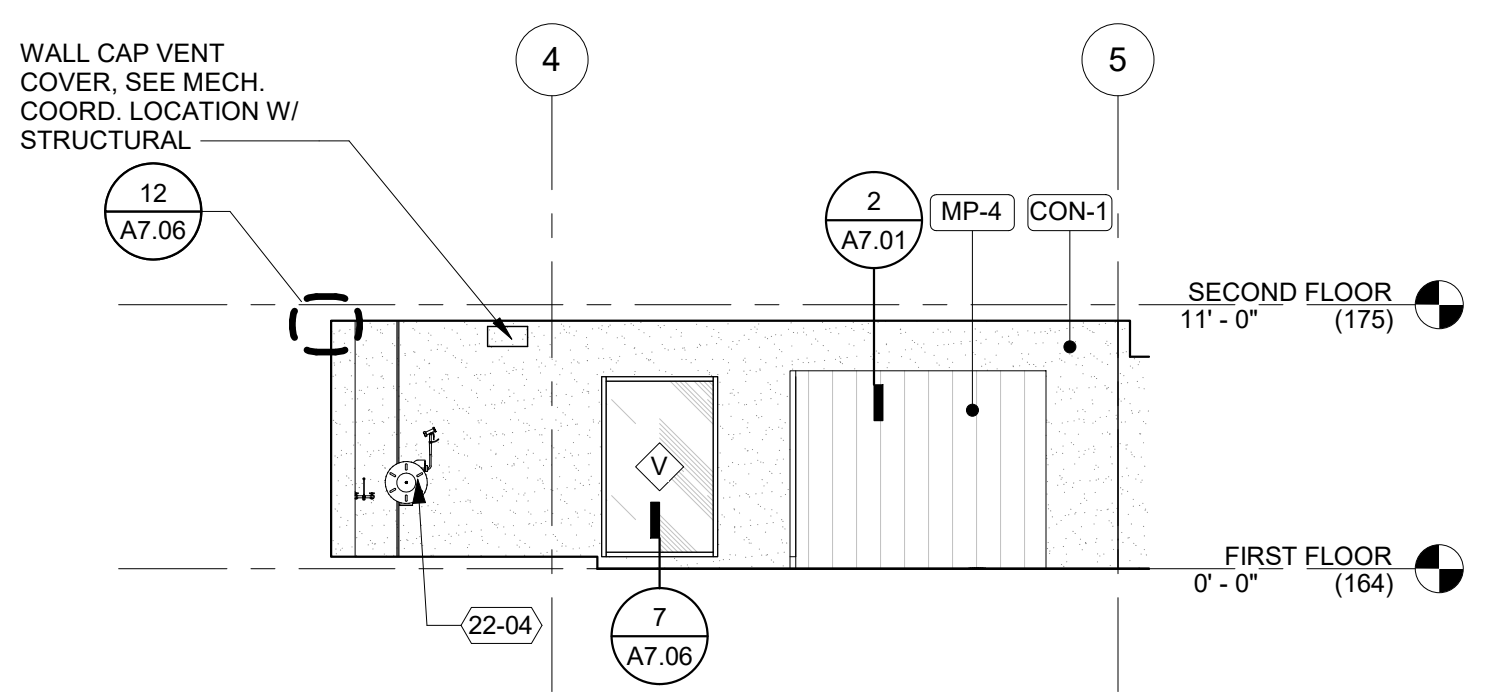
**2 ADMIN BUILDING A - NORTH**  
 1/8" = 1'-0"



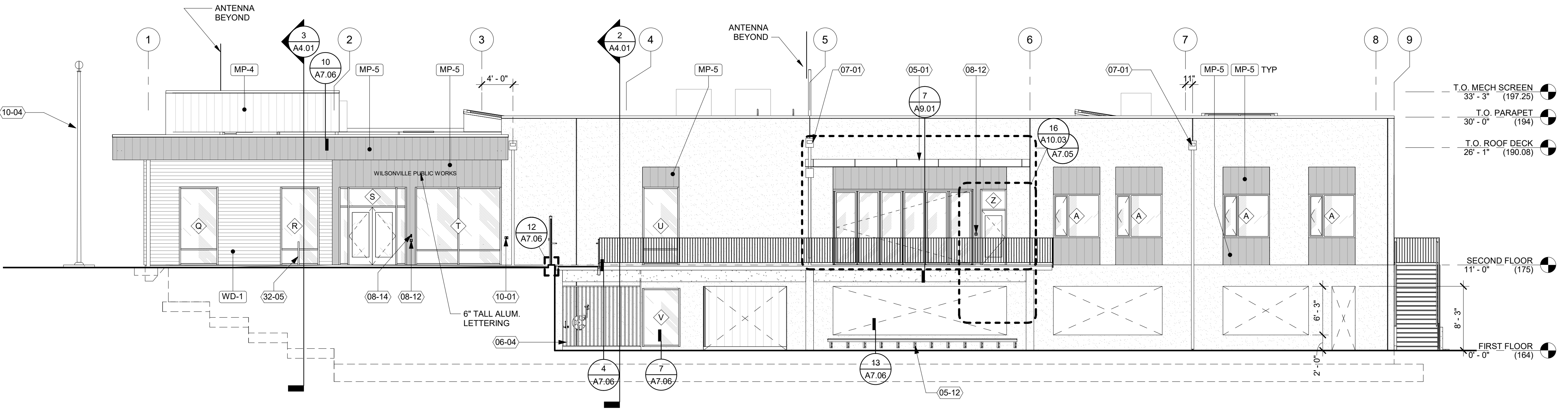
**8 COURTYARD - NORTH WALL**  
 1/8" = 1'-0"



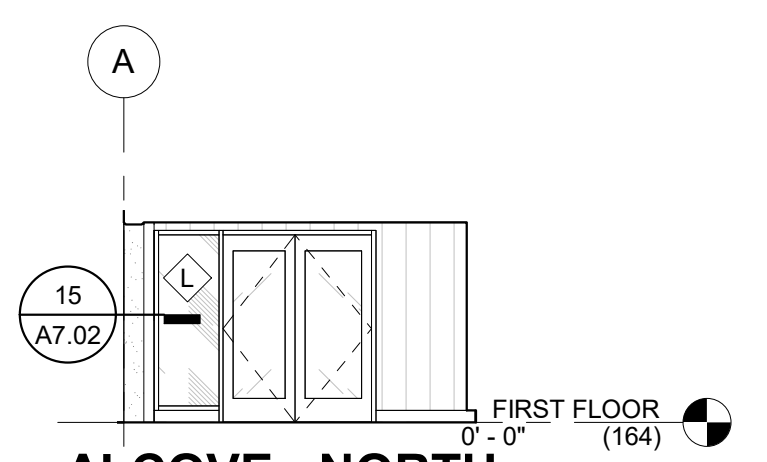
**4 ADMIN BUILDING A - SOUTH**  
 1/8" = 1'-0"



**7 ADMIN BUILDING A - WEST UNDER DECK**  
 1/8" = 1'-0"



**3 ADMIN BUILDING A - WEST**  
 1/8" = 1'-0"



**5 ALCOVE - NORTH**  
 1/8" = 1'-0"

THESE DRAWINGS ARE THE ORIGINAL UNPUBLISHED WORK OF THE ARCHITECT AND MAY NOT BE DUPLICATED OR USED WITHOUT THE WRITTEN CONSENT OF THE ARCHITECT.

**TVFR**  
 Tualatin Valley Fire & Rescue  
 APPROVED PLANS  
 APPROVAL OF PLANS IS NOT AN APPROVAL OF OMISSIONS OR OVERSIGHTS.  
 Deputy Fire Marshal II

LAND USE APP 02.19.2021  
 ISSUE DATE  
 Drawing:  
**EXTERIOR ELEVATIONS - BLDG A**

Sheet No:  
**FS-2**

FILE PATH: C:\Revit\_Locall\20102\_Wilsonville Public Works\_20\_Land Use\_Updated\_bdoley\SSC4.rvt

NOT FOR CONSTRUCTION

**WILSONVILLE PUBLIC WORKS**  
Job Number: 20102  
28601 SW BOBERG RD  
WILSONVILLE, OR 97070

**ELEVATION SHEET NOTES**

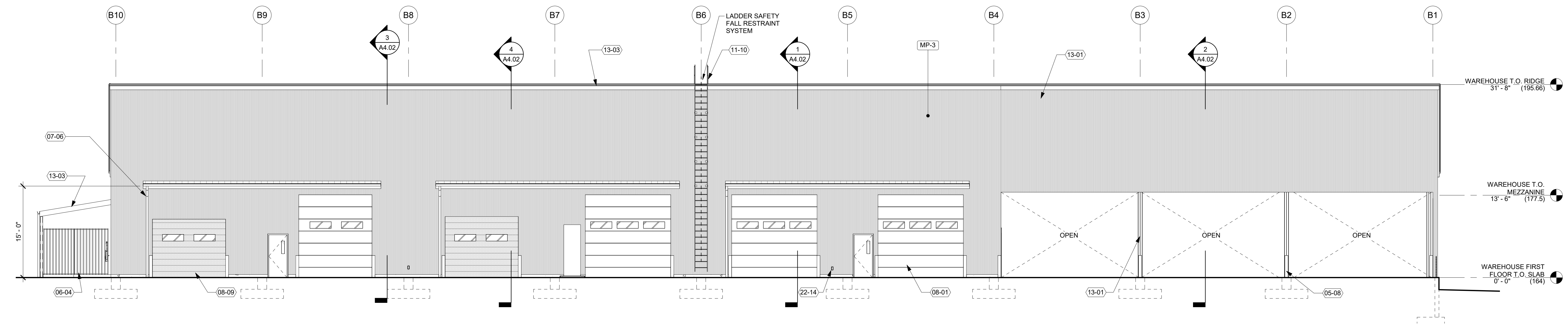
- A. CONTRACTOR TO NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION
- B. GRADE IS APPROXIMATE, SEE CIVIL.
- C. SEE WALL SECTIONS TAGGED IN PLAN FOR VERTICAL OPENING DIMENSIONS

**KEYNOTES**

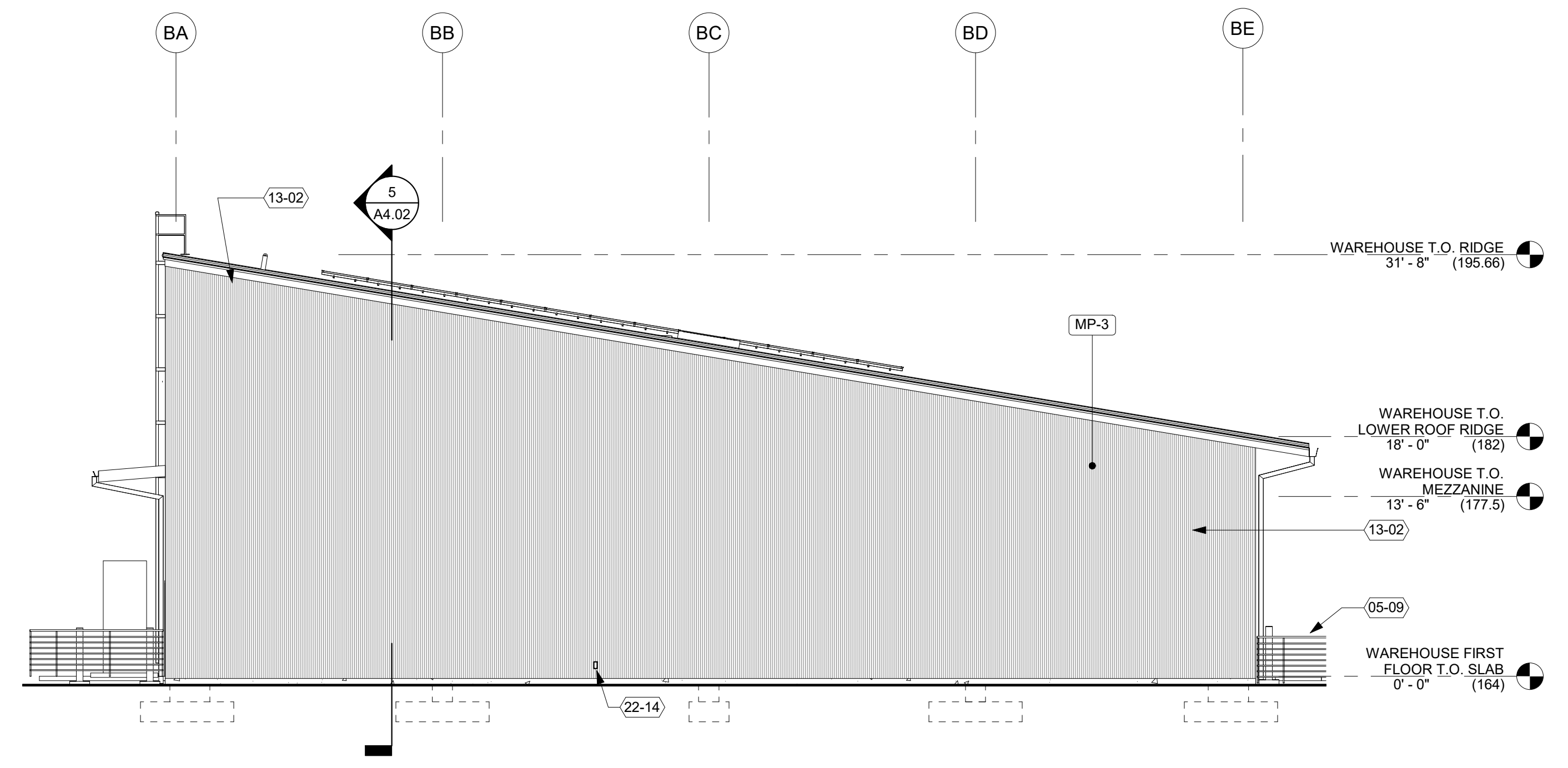
- 05-08 6" STEEL PIPE BOLLARD W/ CONC. FILL TYP - SEE CIVIL
- 05-09 2" DIA. STEEL PIPE GUARD RAILING, GALVANIZED FINISH; 42" MIN.
- 05-16 GALVANIZED STEEL POSTS - HIGH PERFORMANCE EXTERIOR PAINT WHERE EXPOSED
- 06-04 WOOD SLAT SCREEN WALL WITH STEEL SUPPORTS
- 07-06 6" SHEET METAL GUTTER & 3" DOWNSPOUT; ENSURE TO MINIMIZE GUTTER SEAMS, SEE CIVIL FOR CONNECTION
- 08-01 SECTIONAL GARAGE DOOR WITH INSULATED PANELS AND GLAZING
- 08-09 COILING GARAGE DOOR WITH INSULATED PANELS AND GLAZING
- 11-05 ROOF-MOUNTED FALL PROTECTION ANCHOR
- 11-10 ROOF ACCESS LADDER WITH LADDER FALL RESTRAINT SAFETY DEVICE SYSTEM BY PEMB
- 13-01 PRE-ENGINEERED METAL BUILDING STRUCTURE - SEE SPECIFICATIONS
- 13-02 PRE-ENGINEERED METAL BUILDING METAL SIDING PANELS OVER WIND GIRTS, MP-3
- 13-03 PRE-ENGINEERED METAL BUILDING METAL ROOF PANELS, MP-1 AT 1:12 SLOPES; MP-2 AT 2:12 SLOPES
- 22-14 EXTERIOR HOSE BIBB, SEE PLUMBING
- 26-06 PV PANEL ARRAY - SEE ELECTRICAL

**LEGEND**

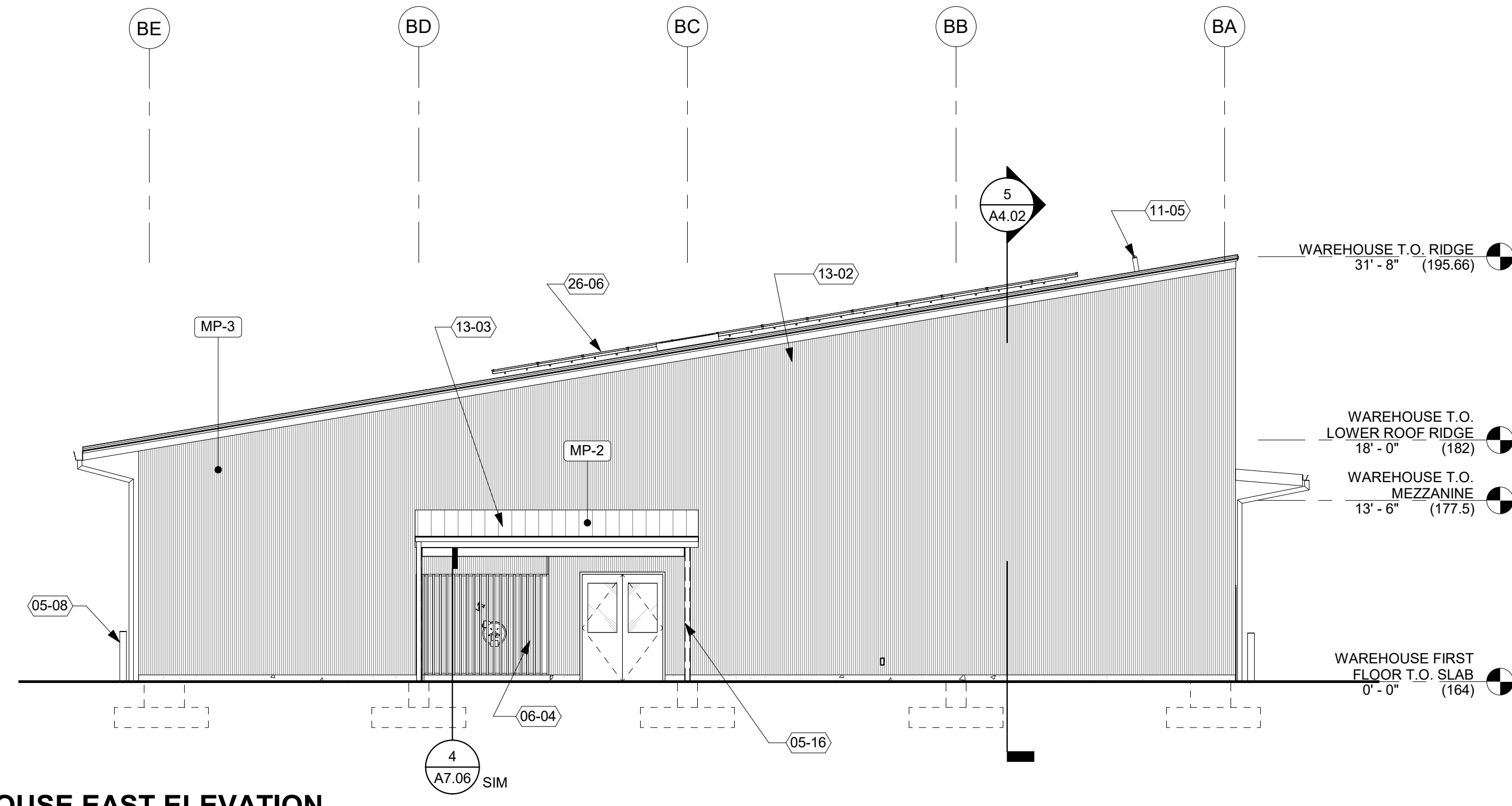
	OPEN TO BEYOND
	MP-2 DESC: ROOF METAL PANEL
	MP-3 DESC: FIELD METAL PANEL



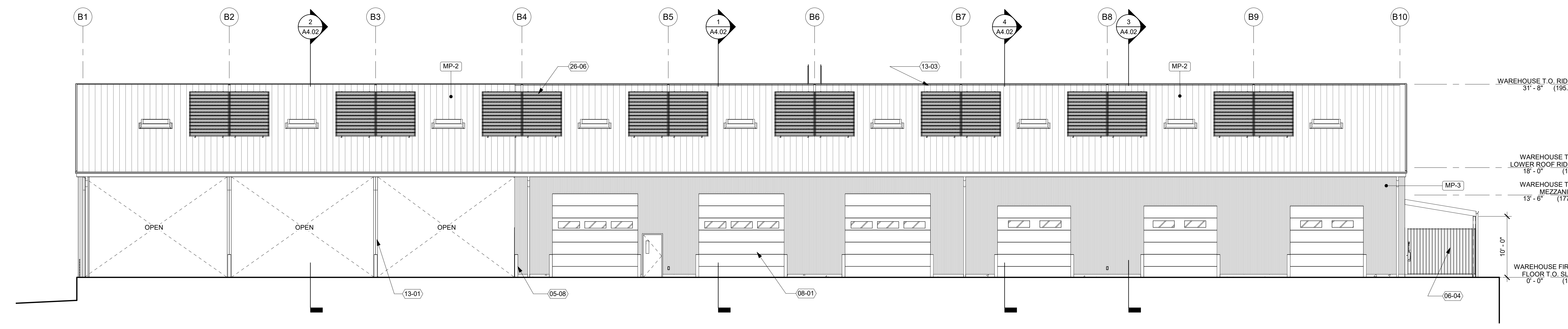
**1 WAREHOUSE NORTH ELEVATION**  
1/8" = 1'-0"



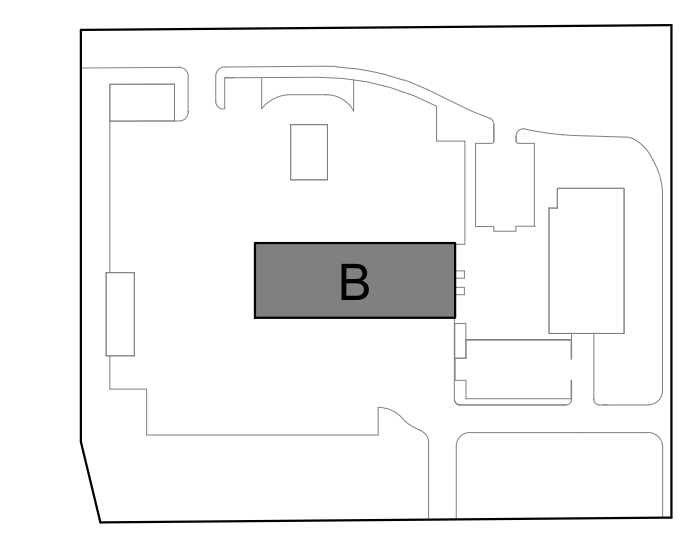
**2 WAREHOUSE WEST ELEVATION**  
1/8" = 1'-0"



**3 WAREHOUSE EAST ELEVATION**  
1/8" = 1'-0"



**4 WAREHOUSE SOUTH ELEVATION**  
1/8" = 1'-0"



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Deputy Fire Marshal II

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Drawing:  
**EXTERIOR ELEVATIONS - WAREHOUSE - BLDG B**

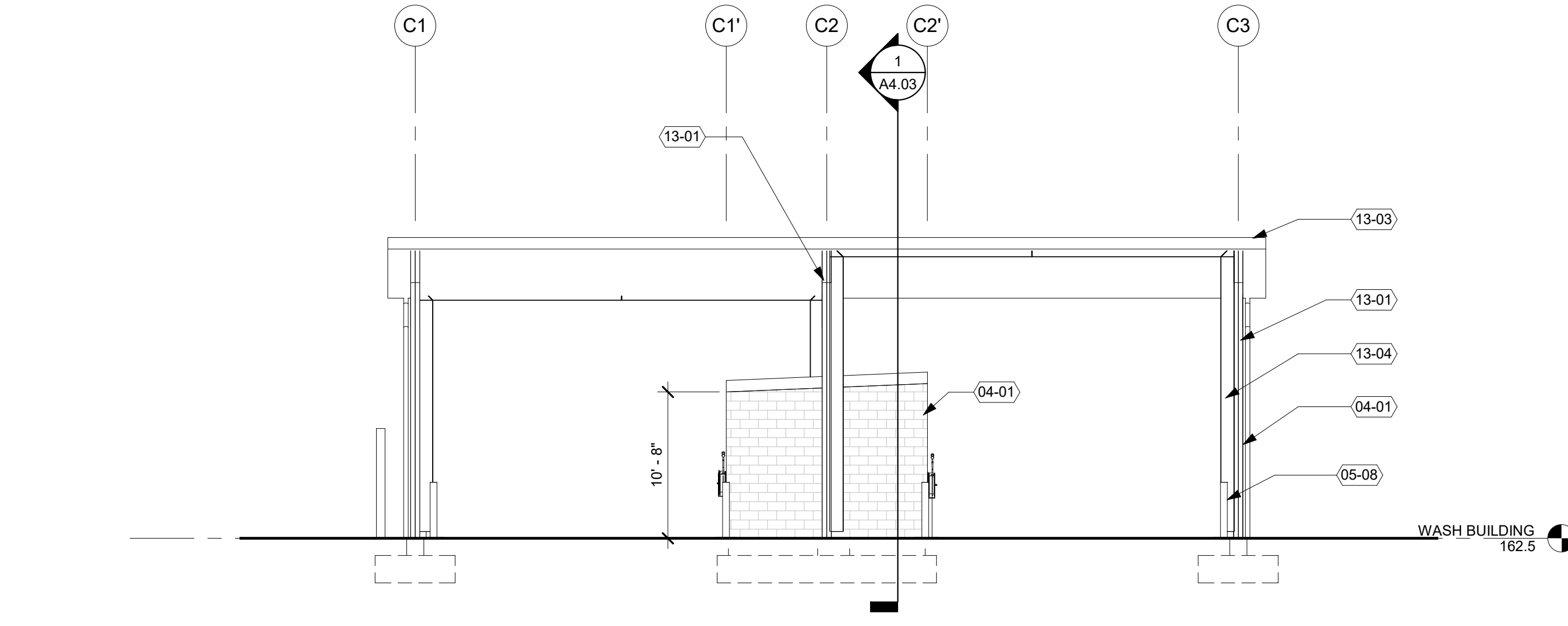
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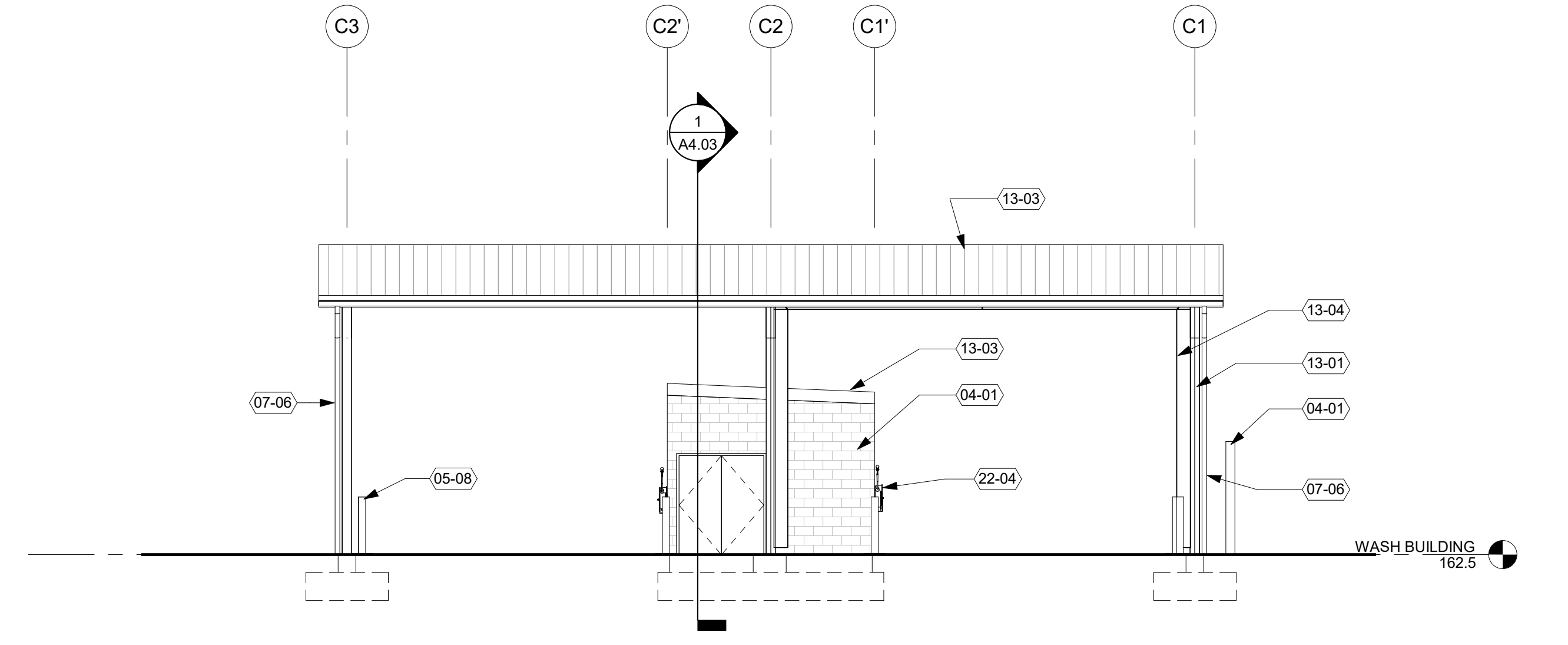
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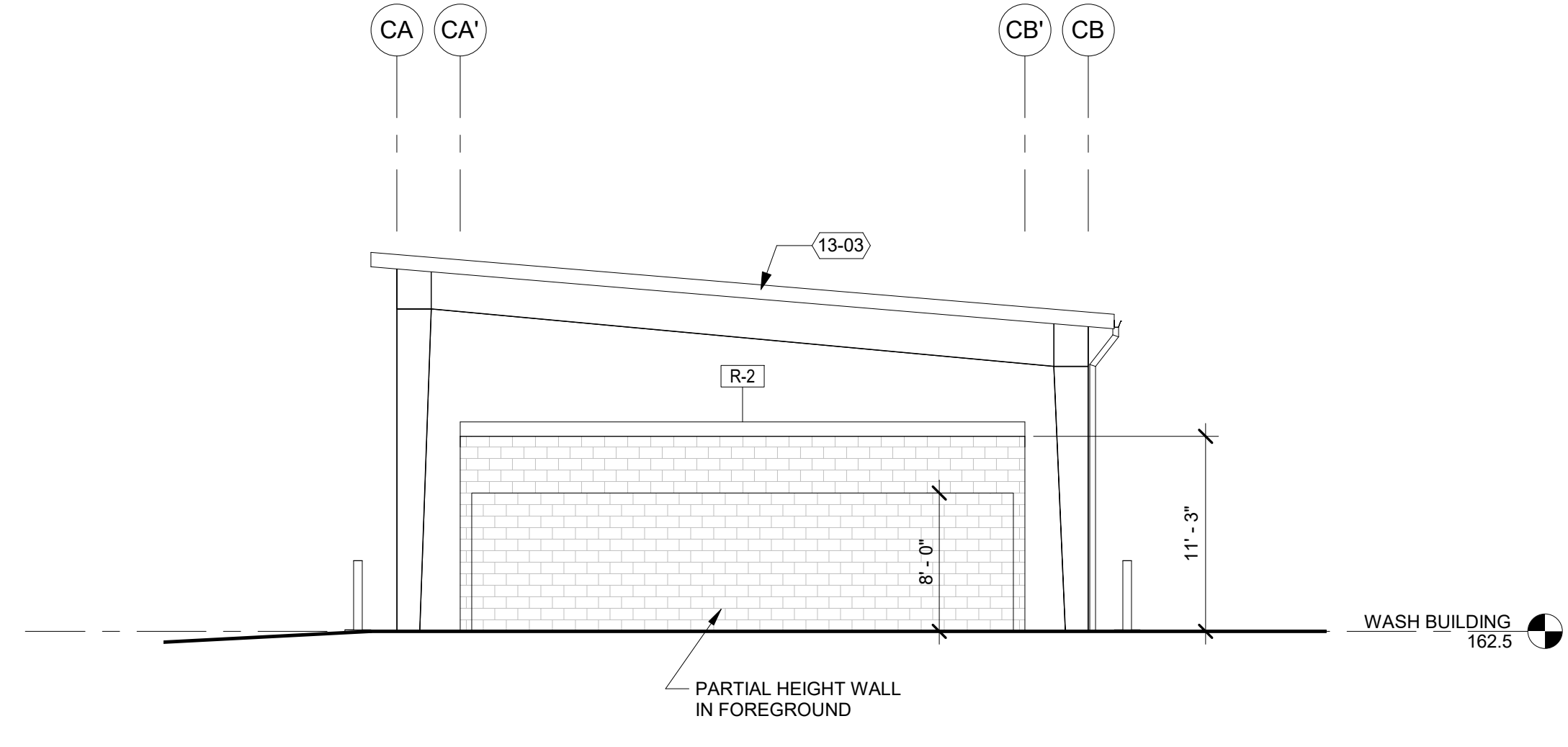
KEYNOTES (XX-01) (BY SPEC DIVISION)	
03-03	CONCRETE FOOTING/PIER - SEE STRUCTURAL
04-01	CONCRETE MASONRY BLOCK WALLS, SEE STRUCTURAL
04-02	CONCRETE BARRIER BLOCKS; 30" X 60" EACH, TYP
05-08	6" STEEL PIPE BOLLARD W/ CONC. FILL TYP - SEE CIVIL
07-06	5" SHEET METAL GUTTER & 3" DOWNSPOUT; ENSURE TO MINIMIZE GUTTER SEAMS, SEE CIVIL FOR CONNECTION
11-10	ROOF ACCESS LADDER WITH LADDER FALL RESTRAINT SAFETY DEVICE SYSTEM BY PEMB
11-22	8,700 GAL. MgCL DOUBLE-WALL TANK; FITTINGS, CONTROLS, RECIRC PUMP, SEE PLUMBING
13-01	PRE-ENGINEERED METAL BUILDING STRUCTURE - SEE SPECIFICATIONS
13-02	PRE-ENGINEERED METAL BUILDING METAL SIDING PANELS OVER WIND GIRTS, MP-3
13-03	PRE-ENGINEERED METAL BUILDING METAL ROOF PANELS, MP-1 AT 1:12 SLOPES; MP-2 AT 2:12 SLOPES
13-04	PRE-ENGINEERED METAL BUILDING METAL PORTAL FRAME
22-04	WALL MOUNTED HOSE REEL WITH HOT AND COLD PREURSSURIZED WATER SUPPLY
26-05	PROVIDE WALL-MOUNTED LIGHT FIXTURE



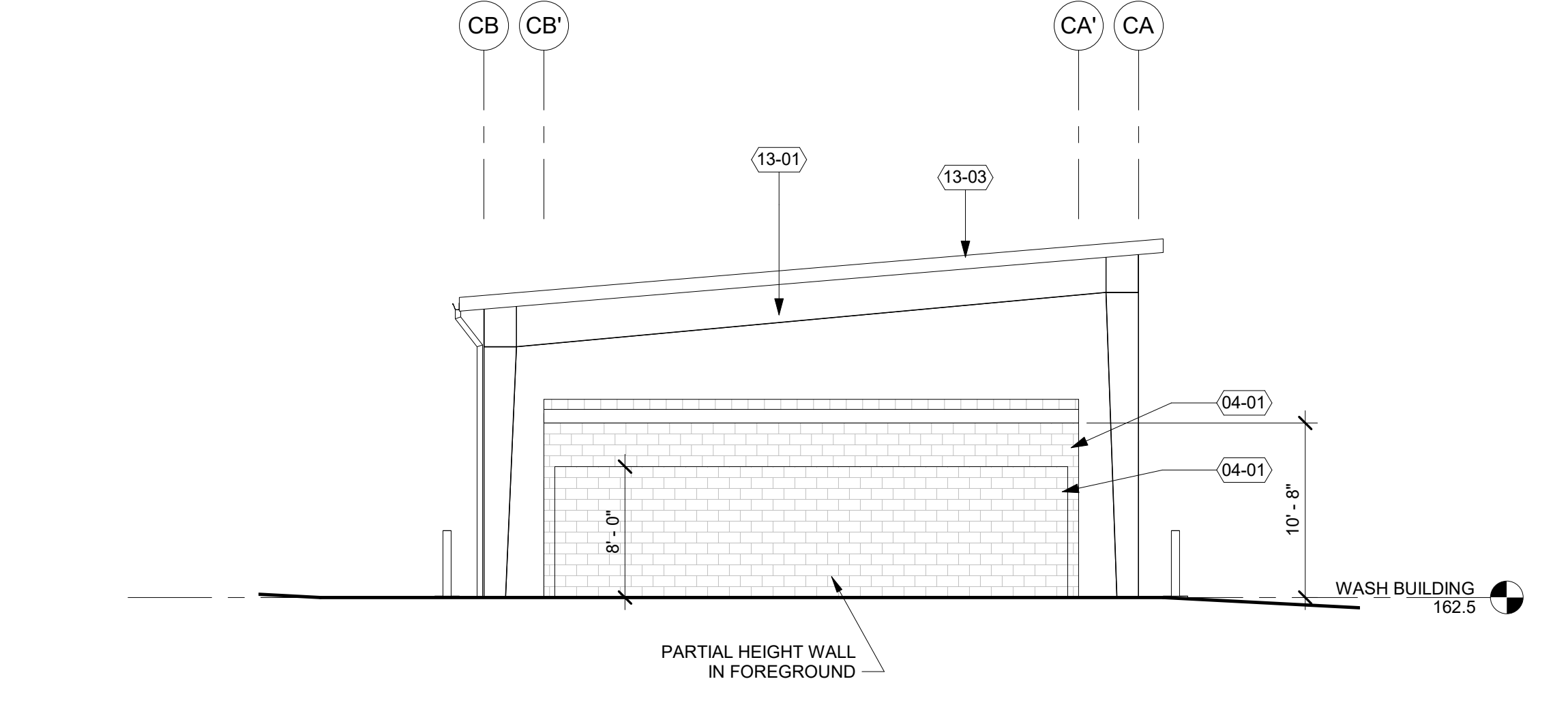
**1 WASH BUILDG - WEST**  
1/8" = 1'-0"



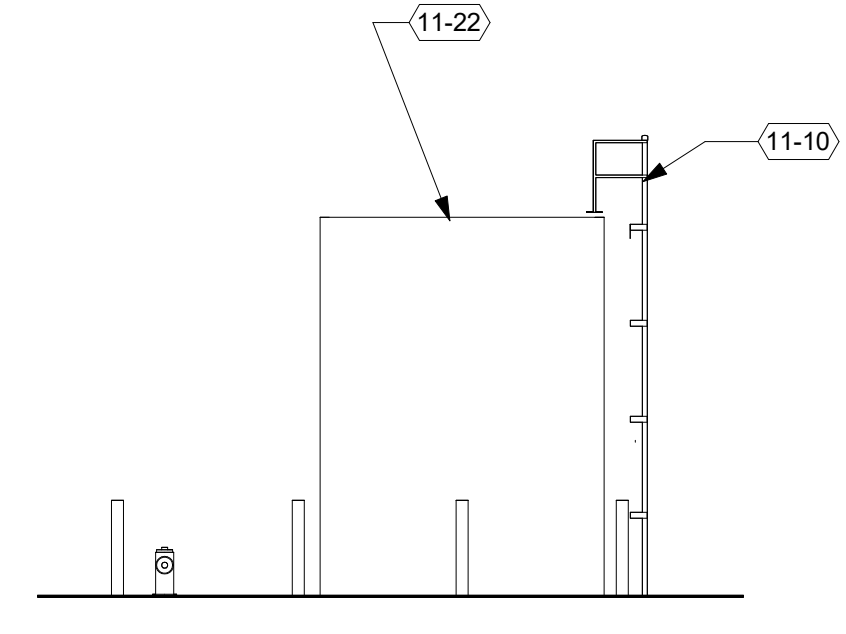
**2 WASH BUILDG - EAST**  
1/8" = 1'-0"



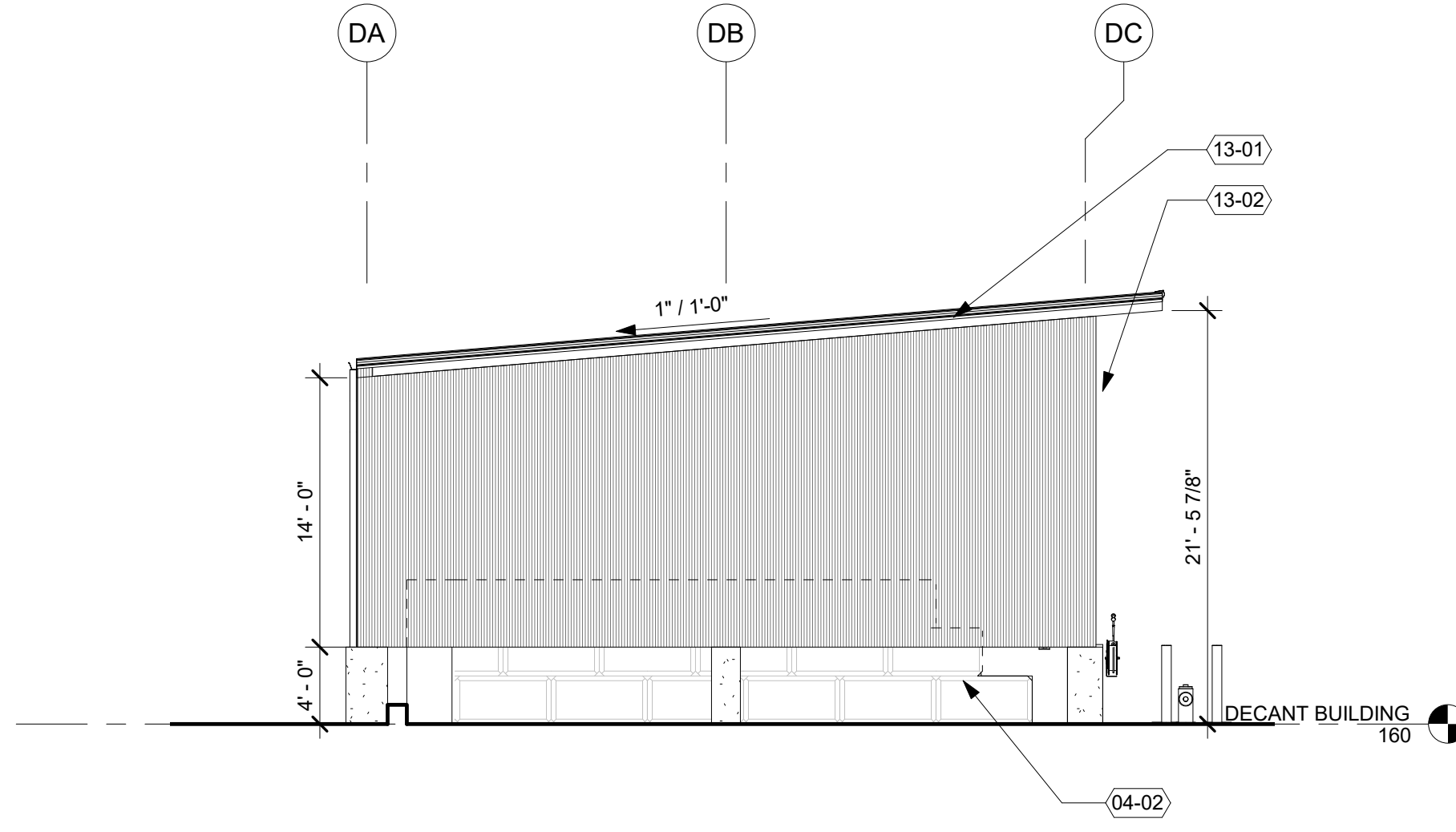
**3 WASH BUILDG - SOUTH**  
1/8" = 1'-0"



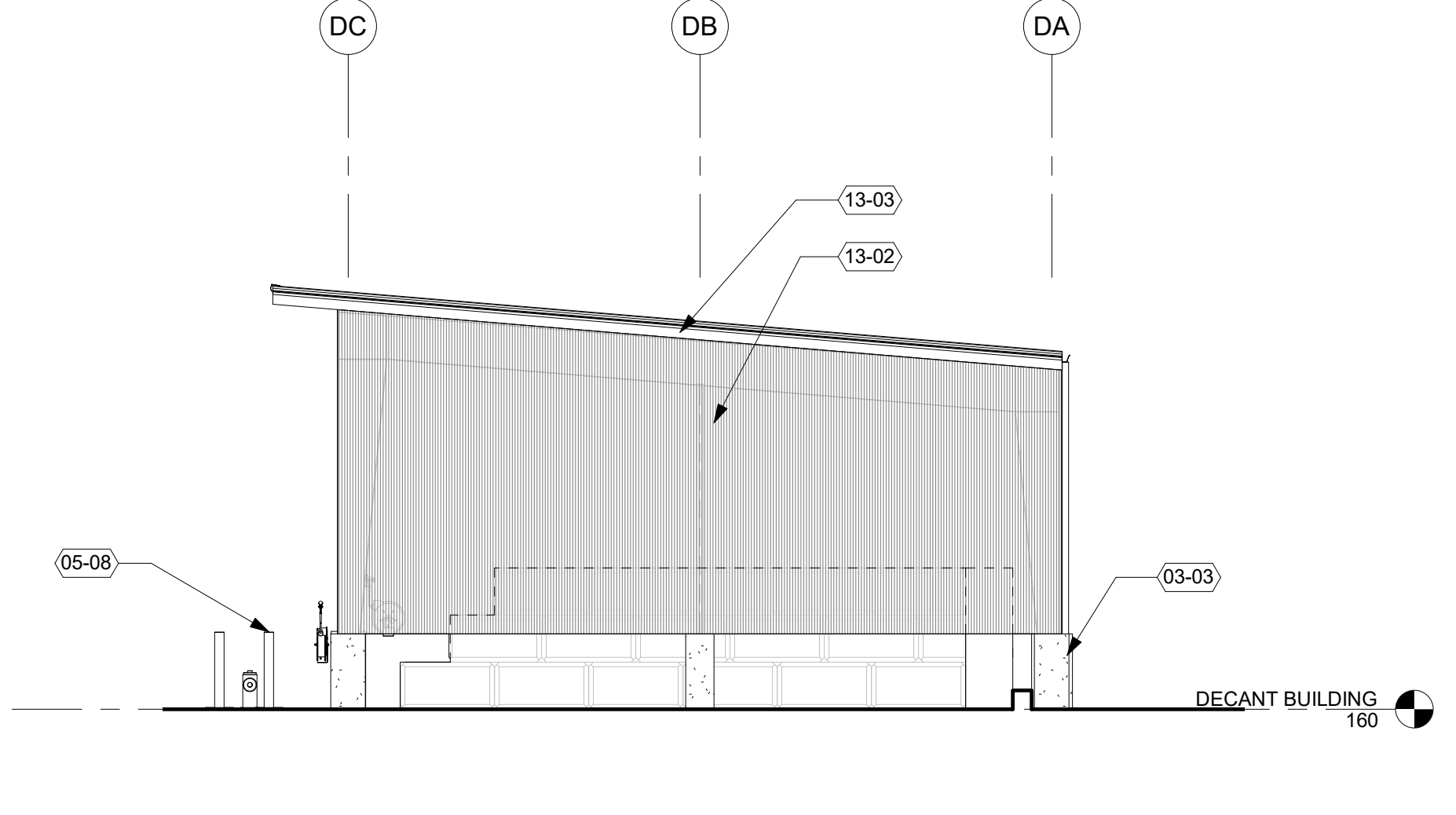
**4 WASH BUILDG - NORTH**  
1/8" = 1'-0"



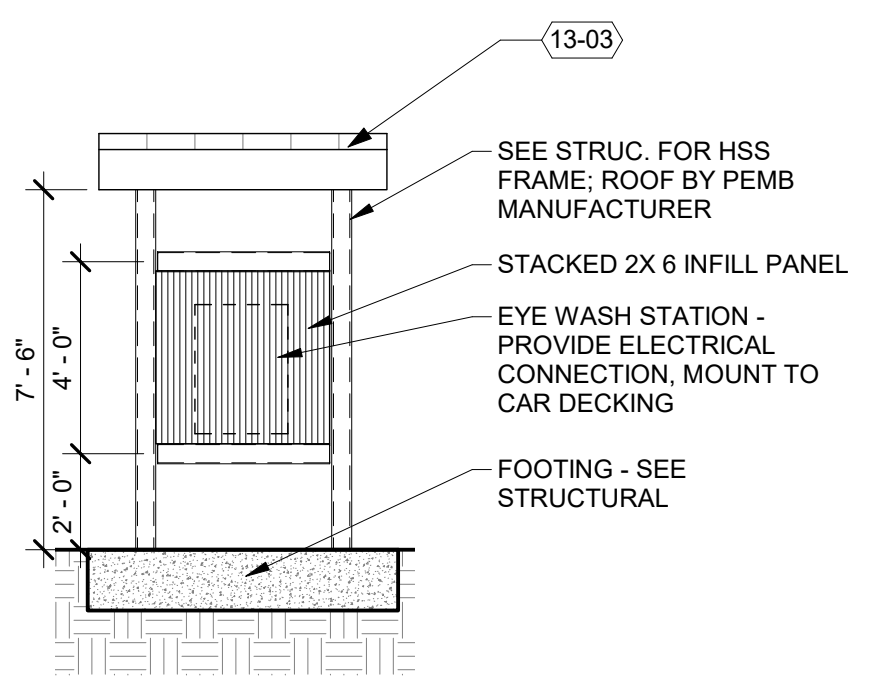
**5 MAG CHLORIDE TANK**  
1/8" = 1'-0"



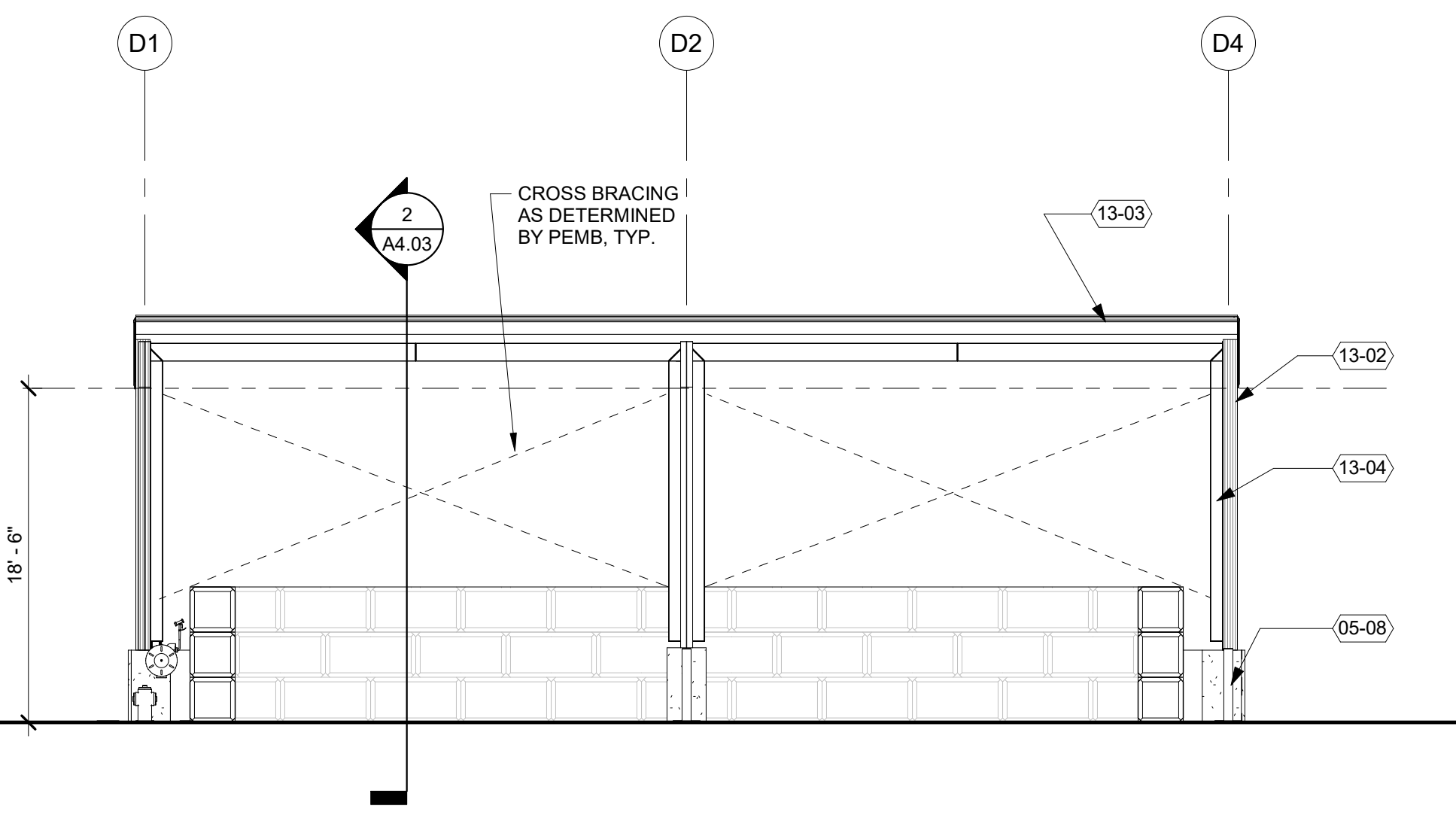
**6 DECANT BUILDING D - WEST**  
1/8" = 1'-0"



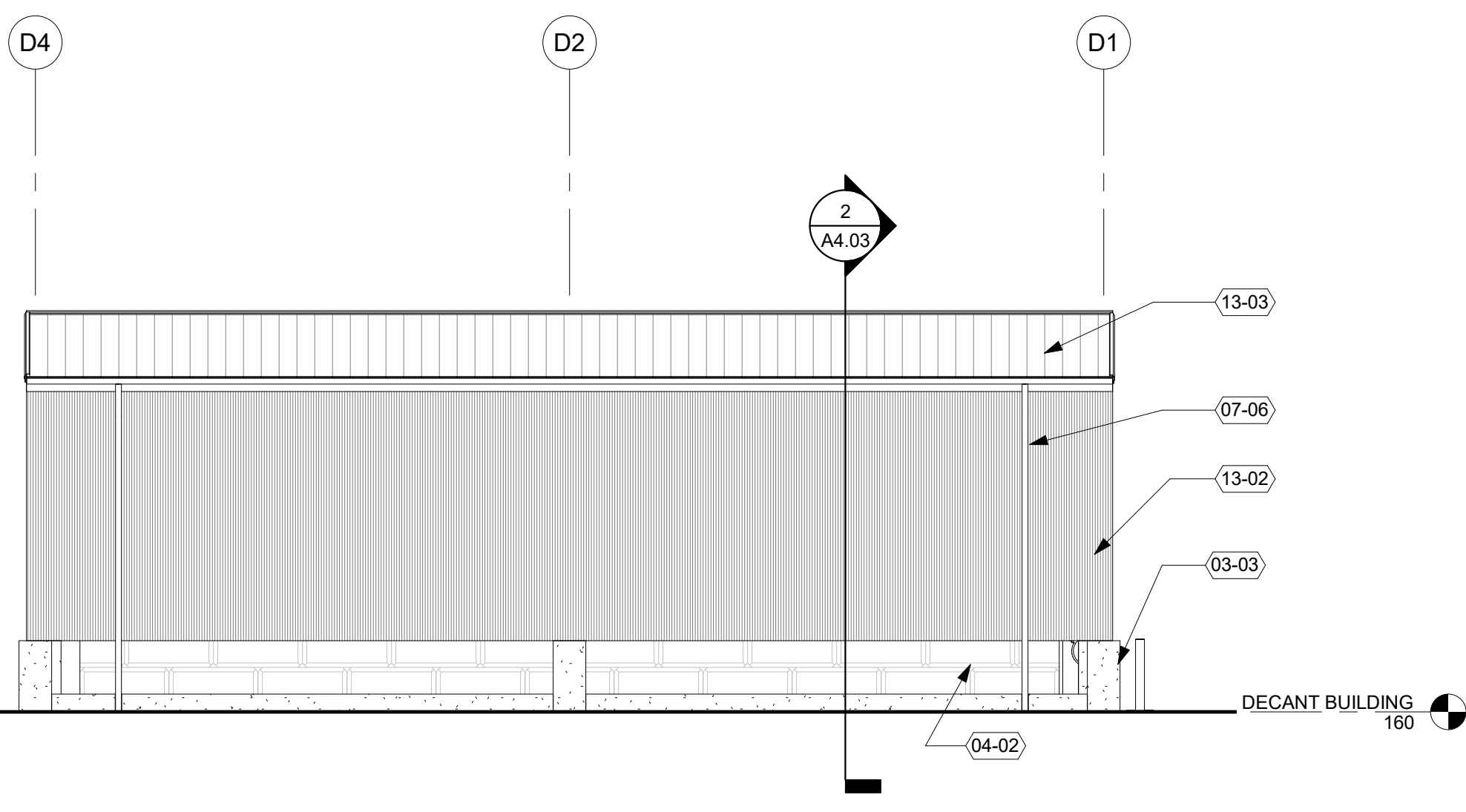
**7 DECANT BUILDING D - EAST**  
1/8" = 1'-0"



**8 EYE WASH STATION**  
1/4" = 1'-0"



**9 DECANT BUILDING D - SOUTH**  
1/8" = 1'-0"



**10 DECANT BUILDING D - NORTH**  
1/8" = 1'-0"

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Deputy Fire Marshal II

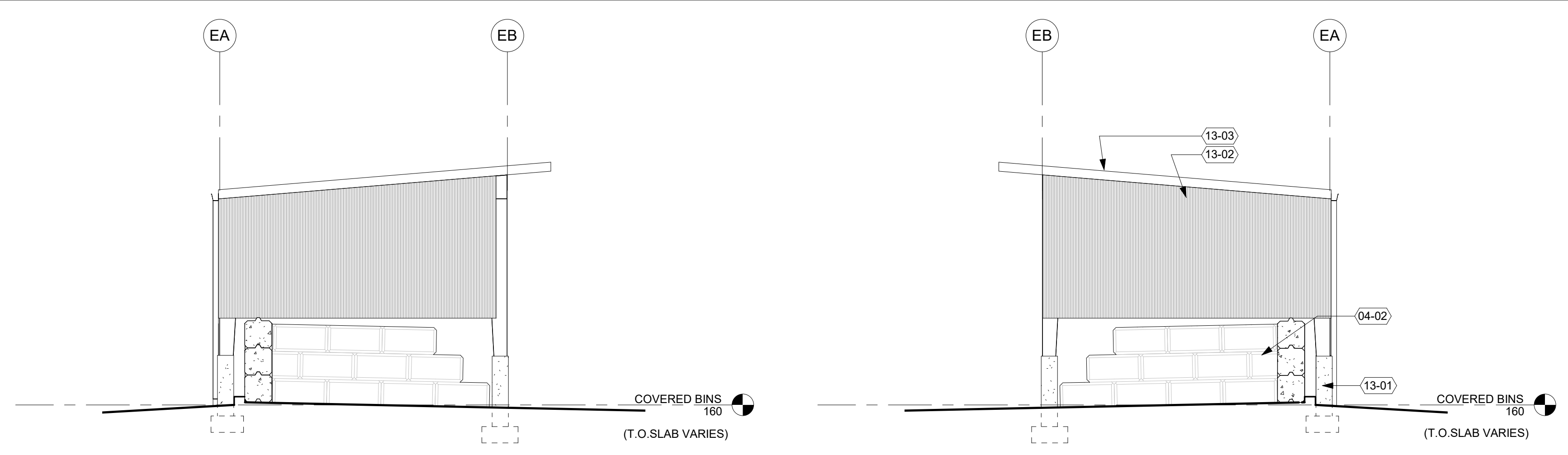
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Drawing:  
**EXTERIOR ELEVATIONS - BLDGS C, D**

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**FS-4**

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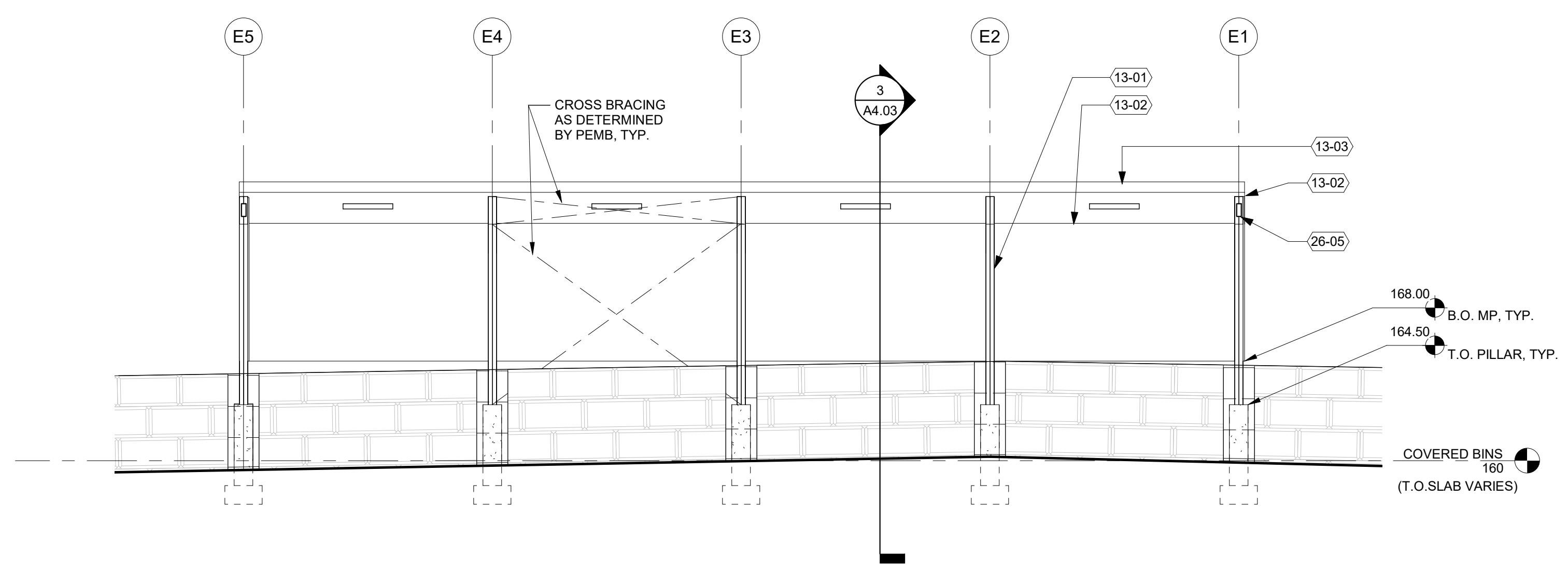
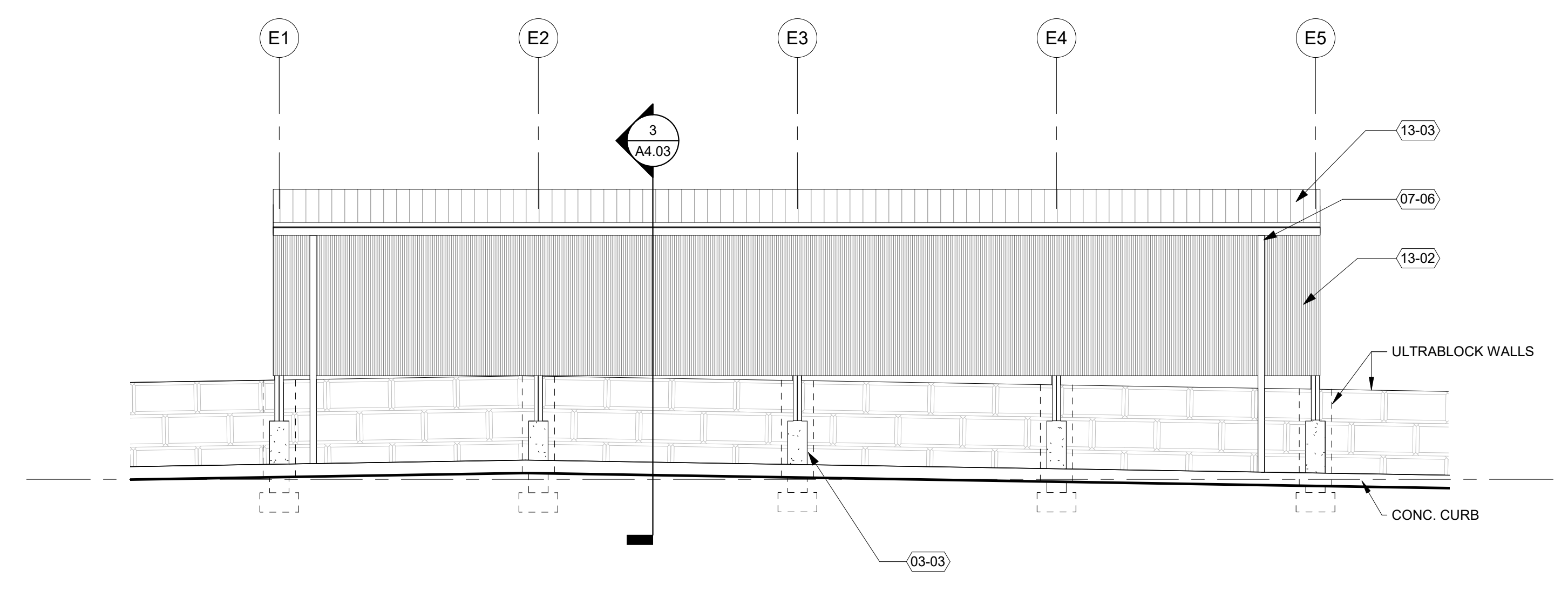
NOT FOR CONSTRUCTION

KEYNOTES (XX-01) (BY SPEC DIVISION)	
03-03	CONCRETE FOOTING/PIER - SEE STRUCTURAL
04-01	CONCRETE MASONRY BLOCK WALLS, SEE STRUCTURAL
04-02	CONCRETE BARRIER BLOCKS, 30" X 60" EACH, TYP.
05-16	GALVANIZED STEEL POSTS - HIGH PERFORMANCE EXTERIOR PAINT WHERE EXPOSED
07-06	5" SHEET METAL GUTTER & 3" DOWNSPOUT; ENSURE TO MINIMIZE GUTTER SEAMS, SEE CIVIL FOR CONNECTION
13-01	PRE-ENGINEERED METAL BUILDING STRUCTURE - SEE SPECIFICATIONS
13-02	PRE-ENGINEERED METAL BUILDING METAL SIDING PANELS OVER WIND GIRTS, MP-3
13-03	PRE-ENGINEERED METAL BUILDING METAL ROOF PANELS, MP-1 AT 1:12 SLOPES, MP-2 AT 2:12 SLOPES
26-05	PROVIDE WALL-MOUNTED LIGHT FIXTURE



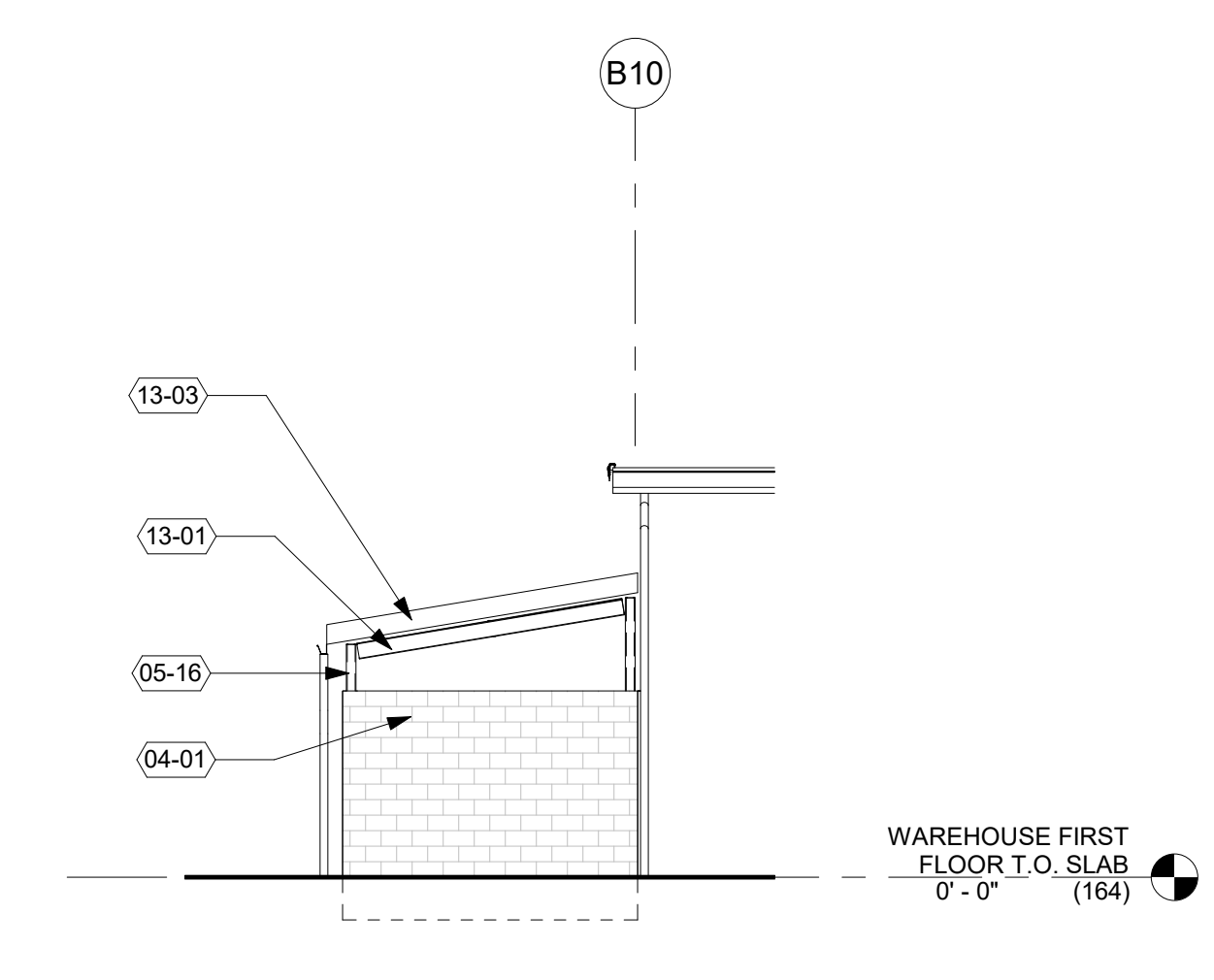
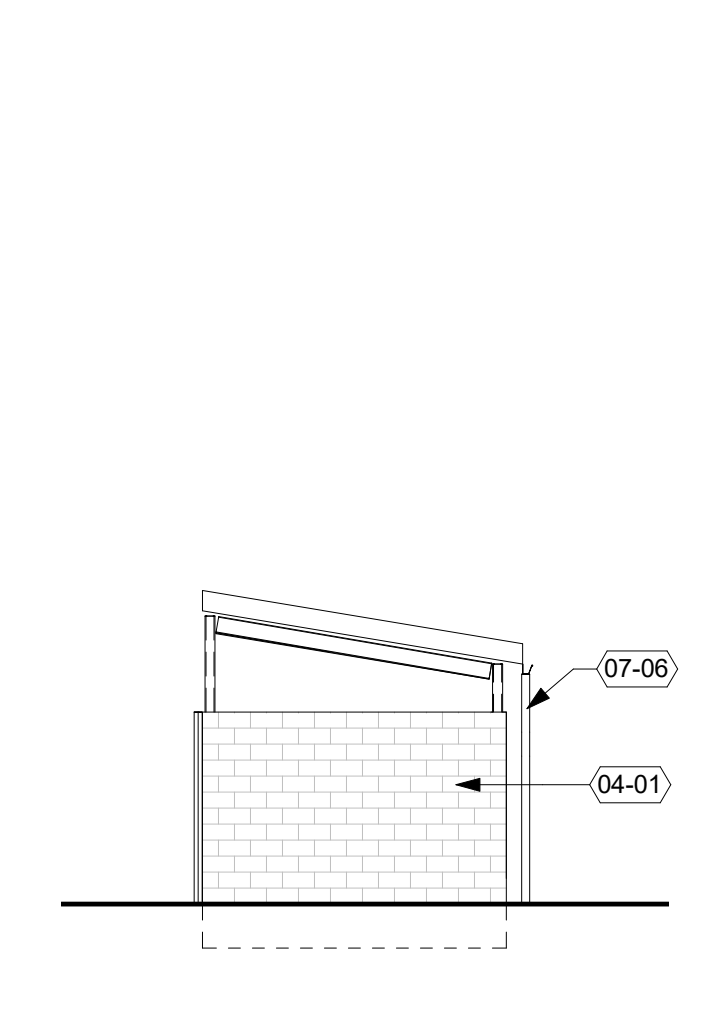
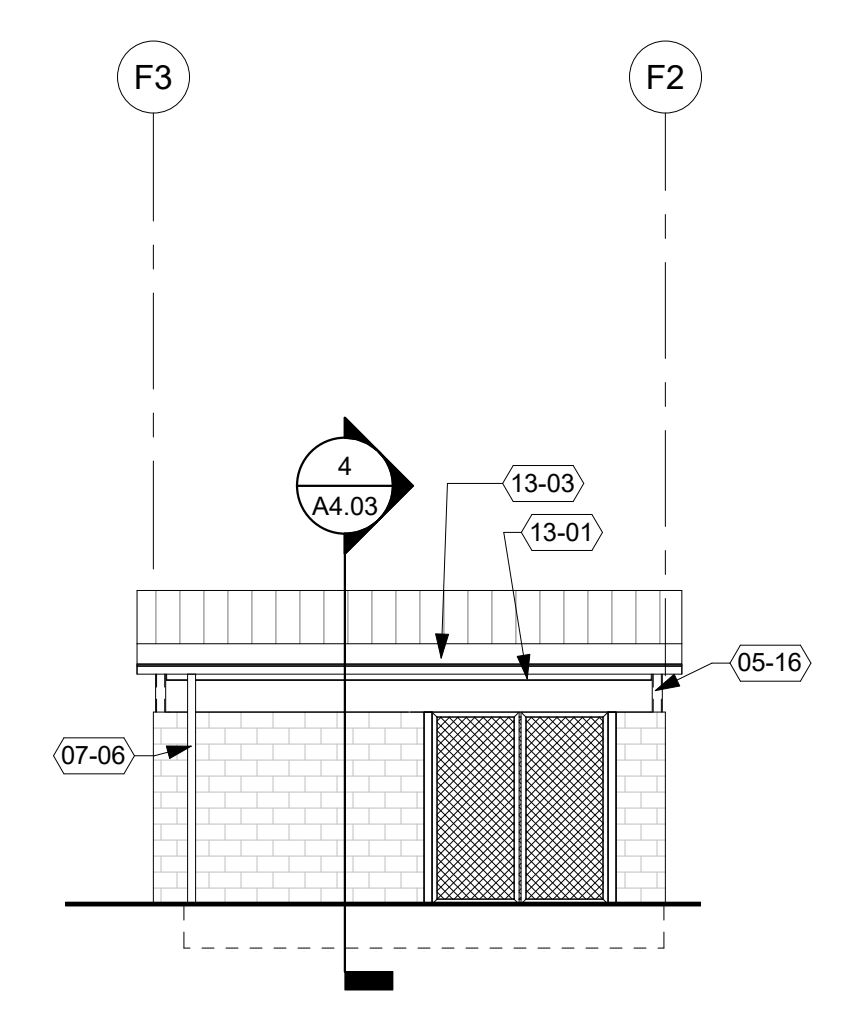
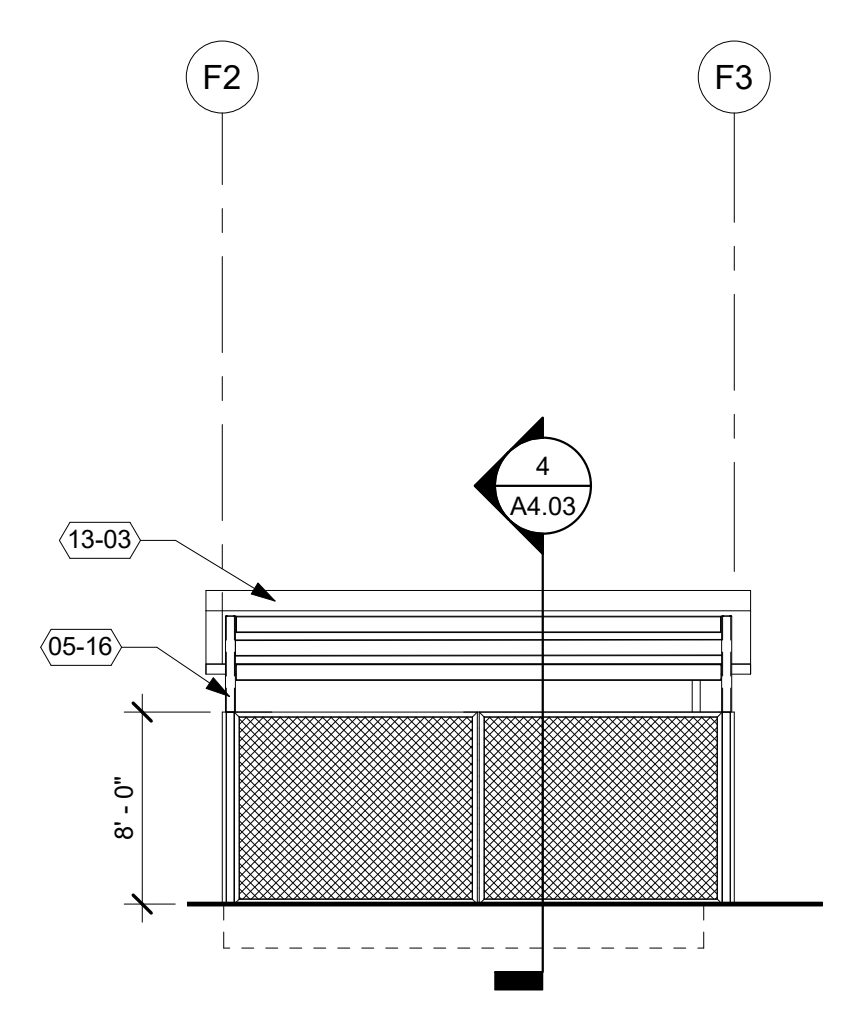
**1 COVERED BINS - SOUTH**  
1/8" = 1'-0"

**2 COVERED BINS - NORTH**  
1/8" = 1'-0"



**3 COVERED BINS - WEST**  
1/8" = 1'-0"

**4 COVERED BINS - EAST**  
1/8" = 1'-0"



**5 TRASH ENCLOSURE - WEST**  
1/8" = 1'-0"

**6 TRASH ENCLOSURE - EAST**  
1/8" = 1'-0"

**7 TRASH ENCLOSURE - SOUTH**  
1/8" = 1'-0"

**8 TRASH ENCLOSURE - NORTH**  
1/8" = 1'-0"



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**EXTERIOR ELEVATIONS - BLDGS E, F**

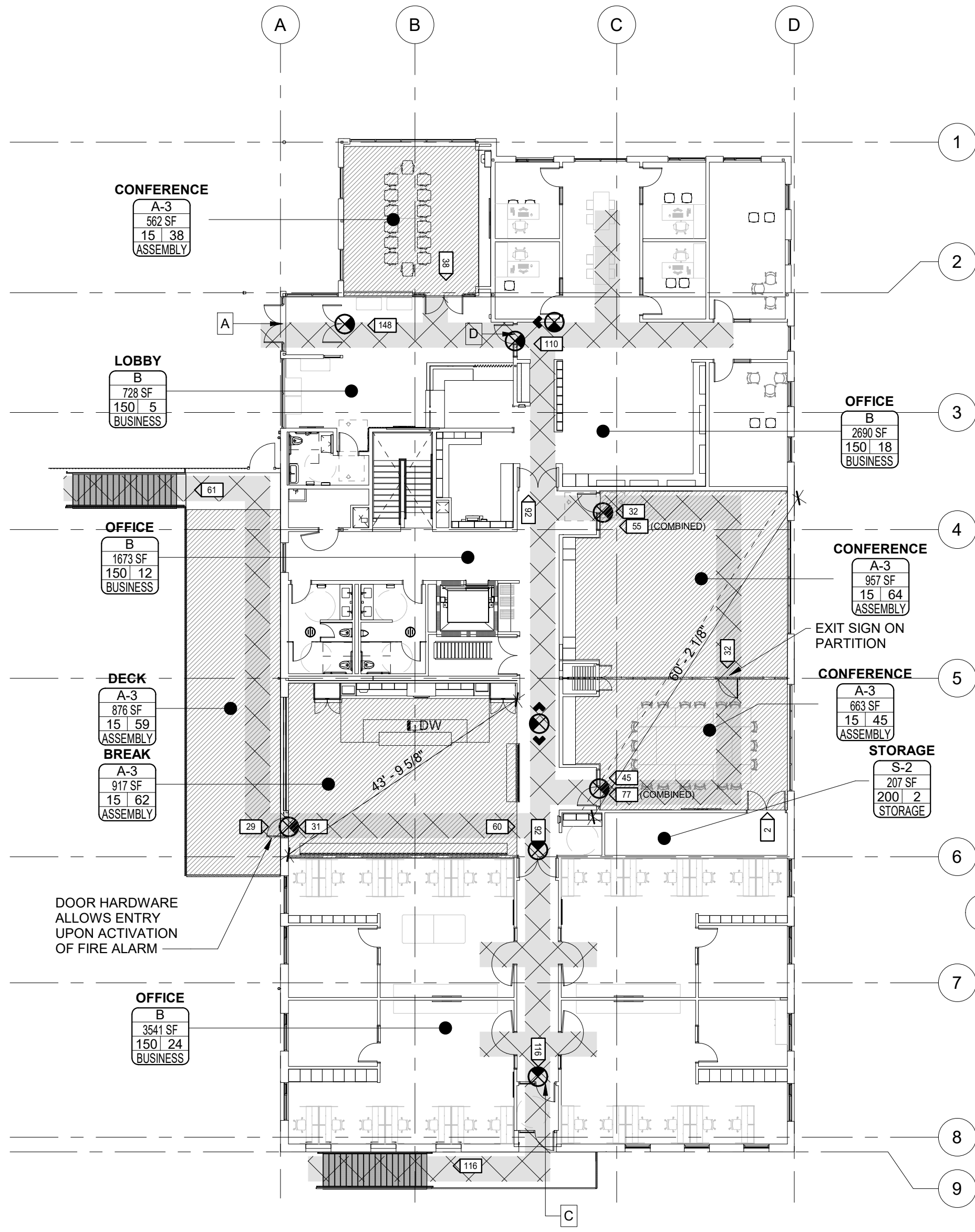
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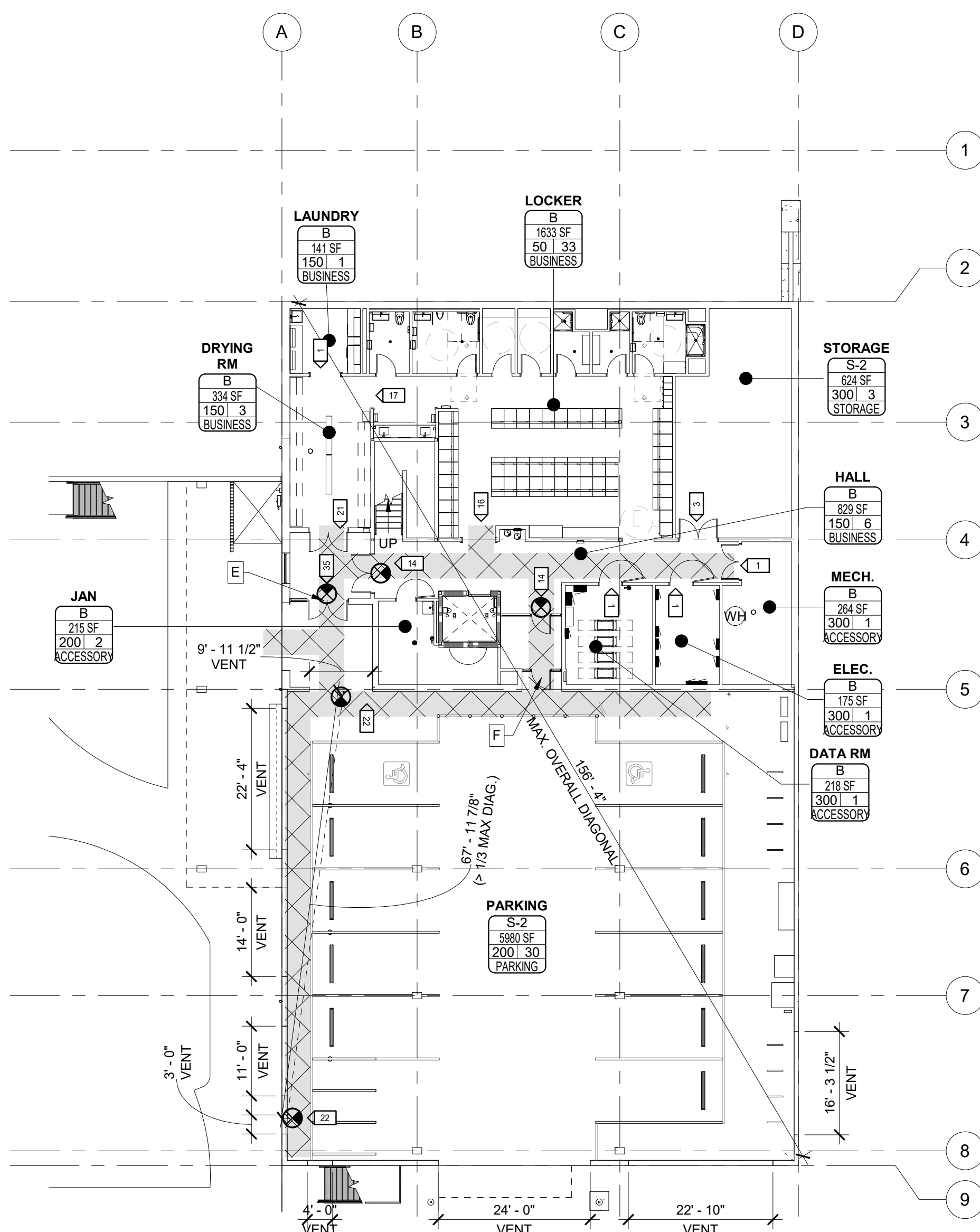
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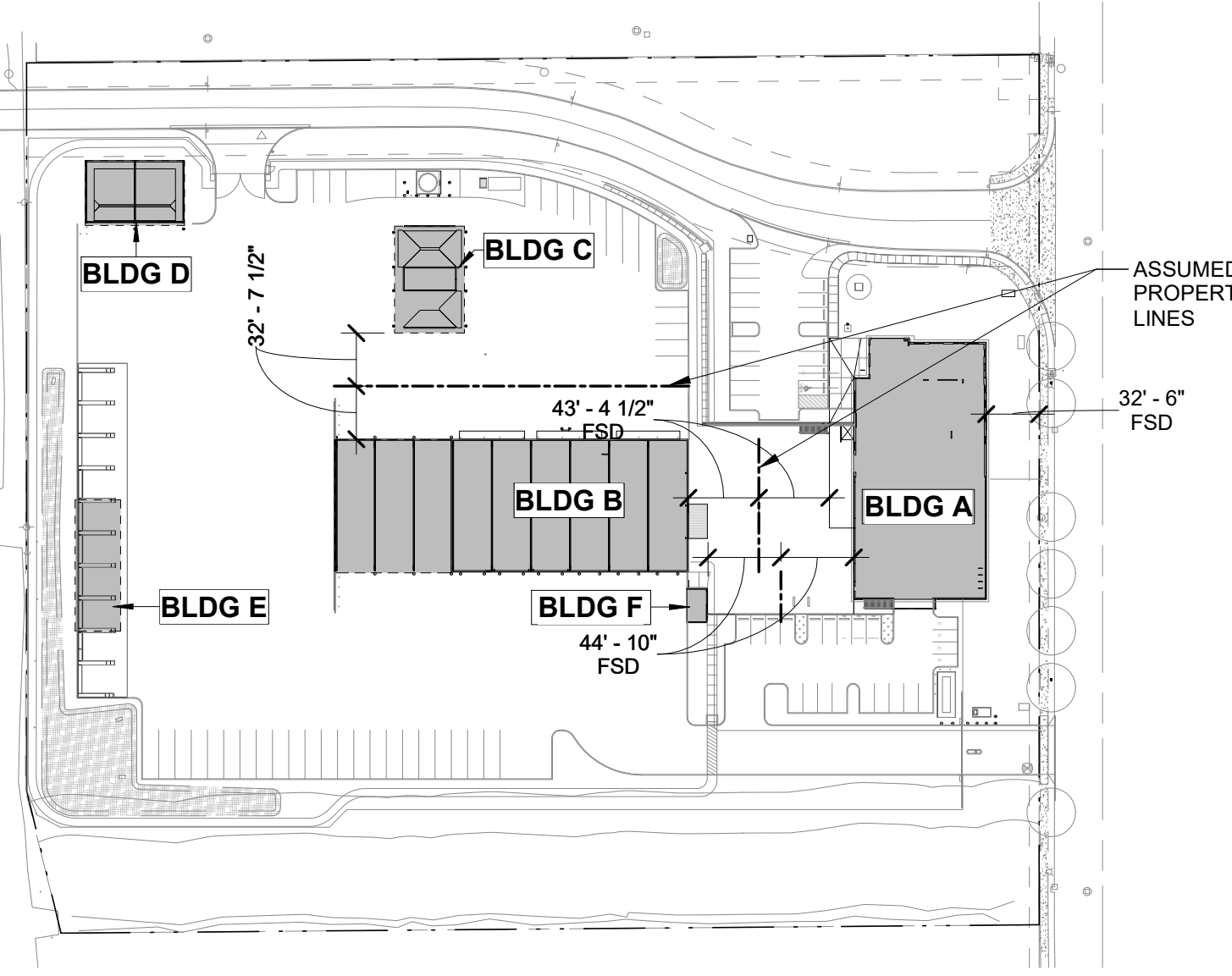
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**BUILDING A - SECOND FLOOR LIFE SAFETY PLAN**  
1/16" = 1'-0"



**BUILDING A - FIRST FLOOR LIFE SAFETY PLAN**  
1/16" = 1'-0"



**CODE SITE PLAN WITH F.S.D./ASSUMED PROPERTY LINES**  
1" = 100'-0"

**CODE SUMMARY LEGEND**

	1 HOUR RATED ASSEMBLY
	WALL RATINGS TO CONTINUE ABOVE / BELOW ALL DOORS, RELITES, ETC.
	AREA NAME
	OCCUPANCY (CH. 3)
	AREA (SF)
	OCCUPANT LOAD FACTOR / NUMBER OF OCCUPANTS
	FUNCTION (CH. 10)
	OCCUPANT LOAD AT EXIT OR EXIT ACCESS
	EXIT SIGN SHADE INDICATES ILLUMINATE FACE. ARROW INDICATES DIRECTION TO EXIT
	EXIT ACCESS PATH
	EXIT ACCESS DOOR
	DOOR RATING (IN MINUTES)
	MULT-PURPOSE FIRE EXTINGUISHER AND CABINET (FEC) OR FIRE EXTINGUISHER (FE) ON BRACKET. VERIFY EXACT LOCATIONS AND QUANTITY WITH FIRE DEPARTMENT.
	ASSEMBLY AREA (NET MEASUREMENT)
	AREA OF MINIMUM EGRESS ILLUMINATION (44" WIDE MIN U.I.O.)
	FIRE SEPARATION DISTANCE
	WIDTH OF NATURALLY VENTILATED GARAGE OPENING

OPEN GARAGE CALC.  
GARAGE PERIMETER = 75 + 75 + 80.17 + 80.17 = 310'-4"  
GARAGE WALL AREA = 3,440 SF  
REQ'D 40% LENGTH OF OPENINGS = 124'-2"  
PROVIDED LENGTH OF OPENINGS = 127'-4" OK  
REQ'D 20 % AREA OF OPENINGS = 685 SF  
PROVIDED % AREA OF OPENING = 787 SF OK

**CHAPTER 10: MEANS OF EGRESS**

SECTION 1004	OCCUPANT LOAD (OL)	338
SECTION 1005.3.1	STAIRWAY EGRESS CAPACITY FACTOR	0.3
SECTION 1005.3.2	OTHER EGRESS CAPACITY FACTOR	0.2
TABLE 1006.2.1	MAX OCCUPANT LOAD FOR ONE EXIT MAX COMMON PATH OF EGRESS TRAVEL	49 Occupants 75 FT 100 FT (B,S OCCS)
TABLE 1006.3.2	MAX OCCUPANT LOAD PER STORY MIN NUMBER OF EXITS FOR STORY	500 2
TABLE 1006.3.3(1)	STORIES WITH ONE EXIT FOR R-2	NOT APPLICABLE
TABLE 1006.3.3(2)	STORIES WITH ONE EXIT FOR OTHER OCCUPANCIES	
	FIRST STORY OR BELOW GRADE PLANE	49
	SECOND STORY ABOVE GRADE PLANE	28
	THIRD STORY AND HIGHER	NOT APPLICABLE
TABLE 1017.2	EXIT ACCESS TRAVEL DISTANCE	250 FT (A OCC); 300 FT (B OCC); 400 FT (S-2 OCC)
TABLE 1020.1	CORRIDOR FIRE-RESISTANCE RATING	0
TABLE 1020.2	MINIMUM CORRIDOR WIDTH	44 INCHES
SECTION 1020.4	DEAD ENDS	20 FEET(A OCC); 50 FEET (B AND S OCC) *LENGTH IS NOT LIMITED WHERE LENGTH < 2.5x WIDTH
SECTION 1027.6	EXTERIOR STAIRWAY PROTECTION	*NOT REQUIRED PER EXCEPTION 1

**CHAPTER 13: ENERGY EFFICIENCY : 2019 OREGON ENERGY EFFICIENCY SPECIALTY CODE**

CLIMATE ZONE 4

OPAQUE ELEMENTS	REQUIRED		PROVIDED
	ASSEMBLY MAX.	MIN. R-VALUE	
ROOFS			
INSULATION ENTIRELY ABOVE DECK	U-0.032	R-30CI	R-33.6 CI
METAL BUILDINGS	U-0.037	R-19 FC + R-11 LS	R-25+R-11 LS
ATTIC AND OTHER	U-0.021	R-49 FC	NA
WALLS (ABOVE GRADE)			
MASS	U-0.104	R-8.5CI	R-9.5 CI
METAL BUILDINGS	U-0.060	R-9FC + R-15.8CI	R-25 FC PER TABLE A3.2.3
STEEL-FRAMED	U-0.064	R-13FC + R7.5CI	R-19FC+R-7.5 CI
WOOD-FRAMED / OTHER	U-0.064	R-13FC+ R-3.8CI OR R-20FC	NA
WALLS (BELOW GRADE)	C-0.119	R-7.5CI	R-7.5 CI
FLOORS			
MASS	U-0.057	R-14.8 CI	NA
STEEL JOIST	U-0.038	R-30FC	R-30 (CI)
WOOD FRAMED / OTHER	U-0.033	R-30FC	NA
SLAB-ON-GRADE FLOORS			
UNHEATED	F-0.52	R-15CI FOR 24" BELOW	R-15 FOR 24" BELOW
HEATED	F-0.843	R-20CI FOR 24" BELOW	NA
OPAQUE DOORS			
SWINGING	U-0.37	NR	U-0.37
NON-SWINGING	U-0.31 (GAR, DRS <14% GLAZ)	R-4.75	R-9
FENESTRATION			
	REQUIRED		PROVIDED
	MAX U	MAX SHGC	MAX SHGC
VERTICAL %	0% - 40% OF ABOVE GRADE WALL ALLOWED		##% ACTUAL
NONMETAL FRAMING	0.31	0.36	1.10
METAL FRAMING, FIXED	0.38		
METAL FRAMING, OPERABLE	0.46		
METAL FRAMING, ENTRANCE DR	0.68		
SKYLIGHT (0% - 3% OF ROOF ALLOWED)	0.50	0.40	NR
			0.44
			0.20
			0.5810.2 = 2.9

**LIFE SAFETY OCCUPANT LOAD SCHEDULE - BUILDING A**

TABLE 1004.1.2

AREA NAME	AREA (SF)	OCCUPANCY	FUNCTION OF SPACE	OCCUPANT LOAD FACTOR	OCCUPANT LOAD
<b>FIRST FLOOR</b>					
DATA RM	218 SF	B	ACCESSORY	300	1
DRYING RM	334 SF	B	BUSINESS	150	3
ELEC	175 SF	B	ACCESSORY	300	1
HALL	829 SF	B	BUSINESS	150	6
JAN	215 SF	B	ACCESSORY	200	2
LAUNDRY	141 SF	B	BUSINESS	150	1
LOCKER	1633 SF	B	BUSINESS	50	33
MECH.	264 SF	B	ACCESSORY	300	1
PARKING	5980 SF	S-2	PARKING	200	30
STORAGE	624 SF	S-2	STORAGE	300	3
	10413 SF				81
<b>SECOND FLOOR</b>					
BREAK	917 SF	A-3	ASSEMBLY	15	62
CONFERENCE	967 SF	A-3	ASSEMBLY	15	64
CONFERENCE	662 SF	A-3	ASSEMBLY	15	38
CONFERENCE	663 SF	A-3	ASSEMBLY	15	45
DECK	876 SF	A-3	ASSEMBLY	15	59
LOBBY	728 SF	B	BUSINESS	150	5
OFFICE	3541 SF	B	BUSINESS	150	24
OFFICE	2890 SF	B	BUSINESS	150	19
OFFICE	1673 SF	B	BUSINESS	150	12
STORAGE	207 SF	S-2	STORAGE	200	2
	12813 SF				329
TOTAL	23226 SF				410

**EXIT DOOR SUMMARY**

EXIT #	OCCUPANT LOAD	REQUIRED CLEAR WIDTH	DOOR WIDTH	MIN CLEAR WIDTH PROVIDED
A	148	32"	72"	64"
C	116	32"	36"	32"
D	117	32"	36"	32"
E	35	32"	74 1/4"	66 1/2"
F	14	32"	36"	32"

**CHAPTER 29: PLUMBING FIXTURES**

PLUMBING FIXTURE SUMMARY

OCCUPANCY (CHAPTER 3)	TOTAL	OCCUPANTS		WATER CLOSETS		LAVATORIES		DRINKING FOUNTAINS	SERVICE SINKS
		MALE	FEMALE	MALE	FEMALE	MALE	FEMALE		
A-3	209	105	105	0.84	1.615385	0.525	0.525	1	
B	107	54	54	2.08	2.08	1.35	1.35		
S-2	35	18	18	0.18	0.18	0.18	0.18		
REQUIRED				4	4	3	3	1	1
PROVIDED				2	2	2	2	2	1
				IN ADDITION, 5 FIXTURES ARE PROVIDED IN 4 UNISEX TOILET ROOMS		IN ADDITION, 4 LAV ARE PROVIDED IN 4 UNISEX TOILET ROOMS		IN ADDITION, THE KITCHEN PROVIDES DRINKING WATER VIA BOTTLE FILLING TAP AND A BOTTLE FILLER IS LOCATED IN THE LOBBY	

**BUILDING CODE SUMMARY 2019 OREGON STRUCTURAL SPECIALTY CODE**

**BUILDING A - ADMINISTRATION BUILDING**

**OCCUPANCY** B/A-3/S-2 MIXED USE, NON-SEPARATED

**CONSTRUCTION TYPE** TYPE V-B (B AND A OCCS); TYPE I-B (S-2 OCC); FULLY SPRINKLERED

**CHAPTER 4: SPECIAL DETAILED REQUIREMENTS BASED ON OCCUPANCY AND USE**

SECTION 406	MOTOR VEHICLE RELATED OCCUPANCY	CONSTRUCTION SHALL BE OF TYPE I, II, OR IV CONSTRUCTION.
406.5.1	MOTOR VEHICLE RELATED OCCUPANCY	CONSTRUCTION SHALL BE OF TYPE I, II, OR IV CONSTRUCTION.
406.5.2	OPENINGS FOR NATURAL VENTILATION PURPOSES. EXTERIOR SIDE OF STRUCTURE SHALL HAVE UNIFORMLY DISTRIBUTED OPENINGS ON TWO OR MORE SIDES; AREA OF OPENINGS SHALL NOT BE LESS THAN 20 PERCENT OF TOTAL PERIMETER WALL AREA; AGGREGATE LENGTH OF THE OPENINGS SHALL NOT BE LESS THAN 40 PERCENT OF THE PERIMETER.	
406.5.11	PROHIBITIONS: VEHICLE REPAIR WORK; PARKING OF BUSES, TRUCKS AND SIMILAR VEHICLES. PARTIAL OR COMPLETE CLOSING OF REQUIRED OPENINGS IN EXTERIOR WALLS BY ANY MEANS; DISPENSING FUEL.	

**CHAPTER 5: GENERAL BUILDING HEIGHTS AND AREAS**

TABLE 504.3 (ALLOWABLE)	HEIGHT / STORIES / AREA FACTOR (SM SPRINKLERS TABLE 506.2)	B - OFFICE/BUSINESS: 60 FT / 3 STORY / 27000 SF A-3 - CONFERENCE ROOMS: 60 FT / 2 STORY / 18000 SF S-2 - PARKING: 60 FT / 3 STORY / 40500 SF
TABLE 506.2.4 MIXED-OCCUPANCY, MULTISTORY EQUATION 5-3	BUILDING AREA	Aa = A1 + (Ns x If) = 18000 SF + (6000 SF x 0.75) = 22500 SF PER STORY (MOST RESTRICTIVE)
SECTION 506.3	FRONTAGE INCREASE	If = [F/P - 0.25] x W/30 If = [484.33/484.33 - 0.25] x 30/30 = 0.75
SECTION 508.2	ACTUAL HEIGHT / STORIES LARGEST INDIVIDUAL STORY ACTUAL BUILDING AREA	24' - 0" / 2 Story 12855 SF 23648 SF
SECTION 508.2	ACCESSORY OCCUPANCY	N/A
SECTION 508.3 / 508.4	MIXED OCCUPANCY	NON-SEPARATED PER 508.3
SECTION 510.7.1	SPECIAL PROVISION	N/A - FOLLOWING 508.3

**CHAPTER 6: TYPES OF CONSTRUCTION / CONSTRUCTION CLASSIFICATION**

TABLE 601	FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS	
	BUILDING ELEMENT	FIRE RATING *
	PRIMARY STRUCTURAL FRAME	0 HOUR
	BEARING WALLS	0 HOUR
	EXTERIOR	0 HOUR
	INTERIOR	0 HOUR
	NON BEARING WALLS AND PARTITIONS - EXTERIOR	PER TABLE 602
	NON BEARING WALLS AND PARTITIONS - INTERIOR	0 HOUR
	FLOOR CONSTRUCTION AND SECONDARY MEMBERS	0 HOUR
	ROOF CONSTRUCTION AND SECONDARY MEMBERS	0 HOUR
	* UNLESS OTHERWISE REQUIRED BY THIS CODE	
TABLE 602	FIRE RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON F.S.D.	
	FIRE SEPARATION DISTANCE	FIRE RATING
	X < 5'	1 HOUR
	5' <= X < 10'	1 HOUR
	10' <= X < 30'	0 HOUR
	X >= 30'	0 HOUR

**CHAPTER 7: FIRE AND SMOKE PROTECTION FEATURES**

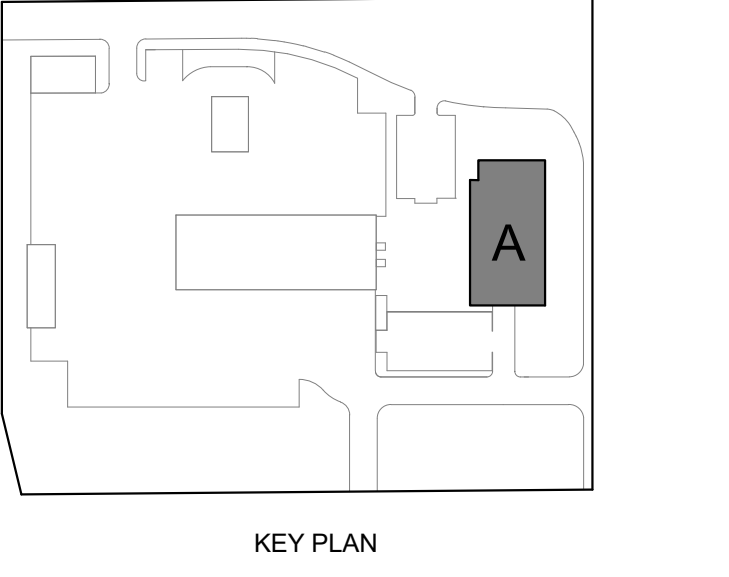
TABLE 705.2	MINIMUM DISTANCE OF PROJECTION	40' FROM LINE USED TO DETERMINE FSD
TABLE 705.8	MAXIMUM AREA OF WALL OPENINGS BASED ON FSD AND OPENING PROTECTION	
	0 TO LESS THAN 3'	UNPROTECTED, SPRINKLERED NOT ALLOWED
	3 TO LESS THAN 5'	15%
	5 TO LESS THAN 10'	25%
	10 TO LESS THAN 15'	45%
	15 TO LESS THAN 20'	75%
	20 TO LESS THAN 25'	NO LIMIT
	25 TO LESS THAN 30'	NO LIMIT
	30' OR GREATER	NO LIMIT
TABLE 706.4	FIRE WALL FIRE RESISTANCE	2 HOUR
TABLE 707.3.10	FIRE BARRIER ASSEMBLIES AND HORIZONTAL ASSEMBLIES BTWN FIRE AREAS	2 HOUR
SECTION 708	FIRE PARTITIONS	1 HOUR
SECTION 709	SMOKE BARRIERS	NOT REQUIRED
SECTION 711	FLOOR AND ROOF ASSEMBLIES SUPPORTING CONSTRUCTION PER 711.2.3	
711.2.4.1	SEPARATING MIXED OCCUPANCIES	PER SECTION 508.3 (NON-SEPARATED)
711.2.4.2	SEPARATING FIRE AREAS	PER SECTION 707.3.10
711.2.4.3	DWELLING / SLEEPING UNITS	IN ACCORDANCE WITH 420.3
711.2.4.4	SEPARATING SMOKE COMPARTMENTS	PER SECTION 709
711.2.4.5	SEPARATING INCIDENTAL USES	PER SECTION 509
711.2.4.6	OTHER SEPARATIONS	
SECTION 713	SHAFT ENCLOSURES	NOT LESS THAN 1 HOUR CONNECTING LESS THAN 4 STORIES NOT LESS THAN 2 HOUR CONNECTING 4 STORIES OR MORE

**CHAPTER 8: INTERIOR FINISHES**

TABLE 803.13	INTERIOR WALL AND CEILING FINISH REQUIREMENTS (FLAME SPREAD RATING)	
	EXTERIOR EXIT STAIRWAYS AND RAMPS AND EXIT PASSAGEWAYS	B
	CORRIDORS AND ENCLOSURES FOR EXIT ACCESS STAIRWAYS AND RAMPS	B
	ROOMS AND ENCLOSED SPACES	C

**CHAPTER 9: FIRE PROTECTION SYSTEMS**

FULLY SPRINKLERED PER OSSC CHAPTER 9 SECTION 903.3.1.1.



**S|E|A**  
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phone: (503) 226-3617 www.sealp.com

**WILSONVILLE PUBLIC WORKS**  
Job Number: 20102  
28601 SW BOBERG RD  
WILSONVILLE, OR 97070

**TVFR**  
Tualatin Valley Fire & Rescue  
APPROVED PLANS  
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Deputy Fire Marshal II

LAND USE APP 02.19.2021  
ISSUE DATE

Drawing:  
**CODE SUMMARY - BUILDING A**

Sheet No: **FS-7**

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NOT FOR CONSTRUCTION

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WILSONVILLE PUBLIC WORKS  
Job Number: 20102  
28601 SW BOBERG RD  
WILSONVILLE, OR 97070

Table with 2 columns: GROSS BUILDING SQUARE FOOTAGE, GROSS BUILDING SQUARE FOOTAGE. Rows include Warehouse T.O. Mezzanine, Second Floor, First Floor, Admin Upper Floor, Warehouse Gross, Admin Lower Floor.

Table with 2 columns: EXIT ACCESS TRAVEL DISTANCE - BUILDING B, EGRESS PATH NAME, EGRESS PATH LENGTH. Row includes Warehouse with path length 99'-10 15/32".

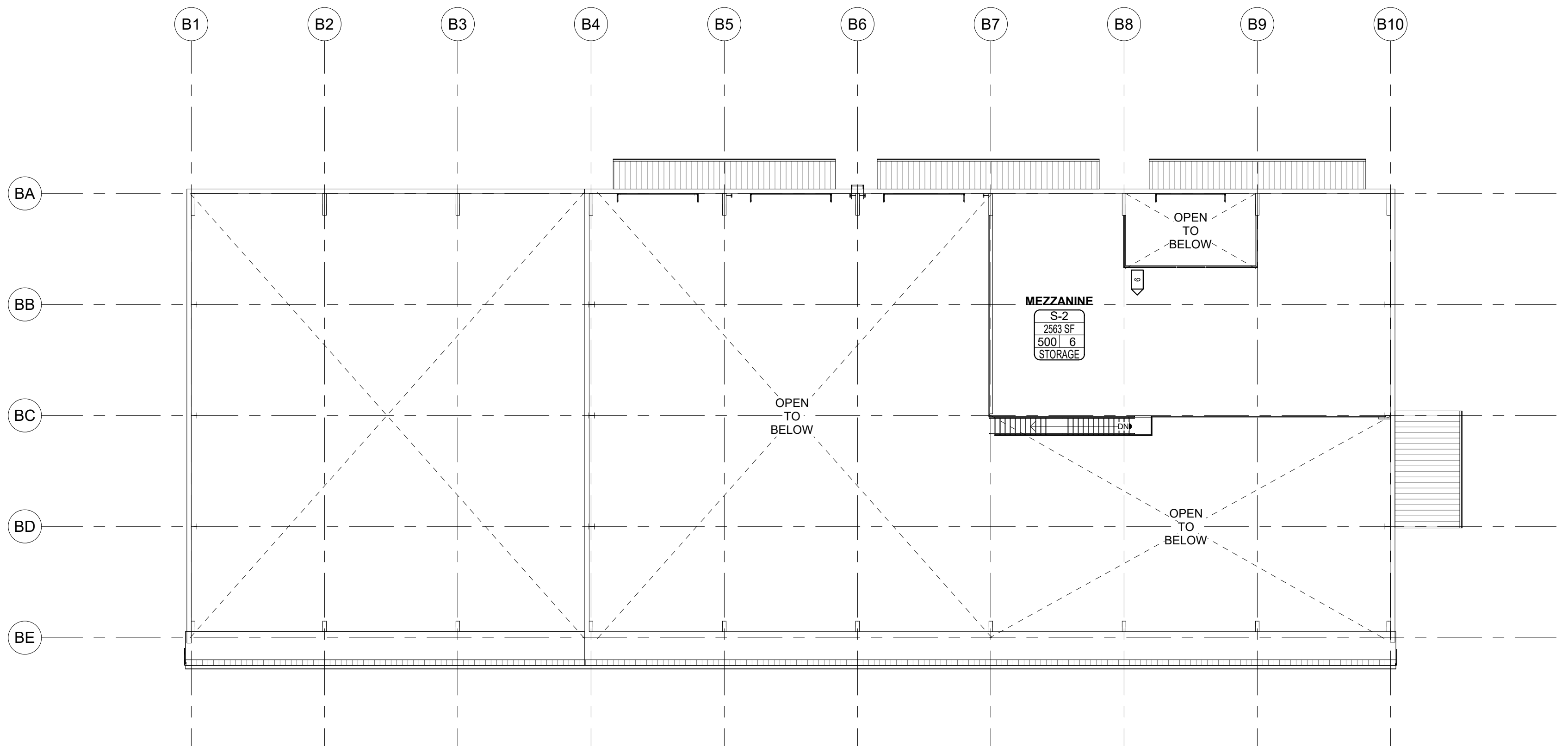
Table with 5 columns: EXIT #, OCCUPANT LOAD, REQUIRED CLEAR WIDTH, DOOR WIDTH, CLEAR WIDTH PROVIDED. Rows A, B, C.

Table with 5 columns: AREA NAME, AREA (SF), FUNCTION OF SPACE, OCCUPANT LOAD FACTOR, OCCUPANT LOAD. Lists various rooms like Warehouse, Lock Shop, Mech, Office, Open Warehouse, Paint Shop, Sign Shop, Trash Encl, Warehouse, Wood Shop, Mezzanine.

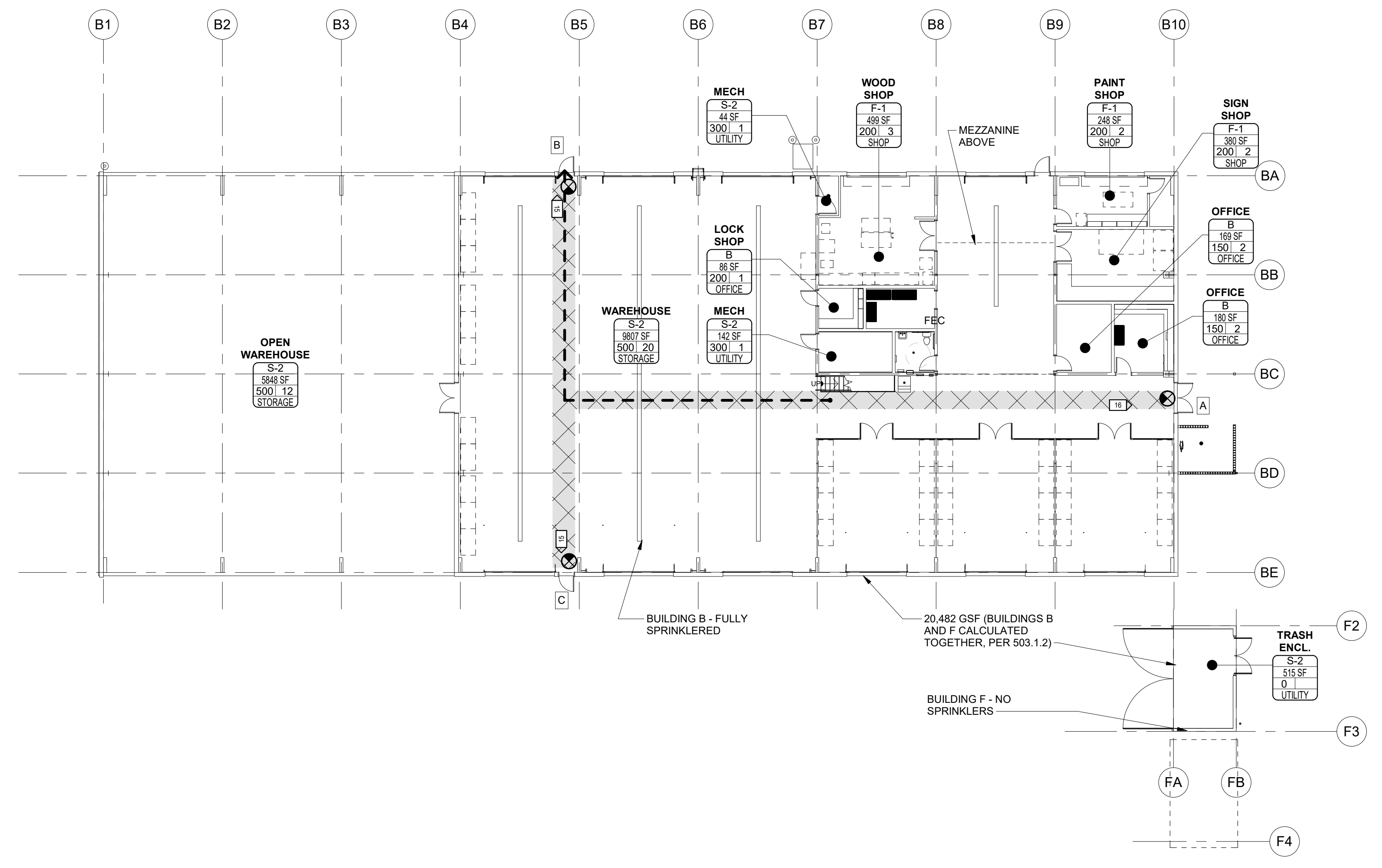
CHAPTER 10: MEANS OF EGRESS. Table with 3 columns: SECTION, OCCUPANT LOAD (CL), OCCUPANT LOAD (OFFICE). Lists egress requirements for various sections.

CHAPTER 13: ENERGY EFFICIENCY : 2019 OREGON ENERGY EFFICIENCY SPECIALTY CODE. Table with 4 columns: OPAQUE ELEMENTS, ASSEMBLY MAX., REQUIRED, PROVIDED. Lists requirements for roofs, walls, floors, doors, fenestration.

BUILDING CODE SUMMARY 2019 OREGON STRUCTURAL SPECIALTY CODE. Table with 3 columns: SECTION, BUILDING CODE SUMMARY, 2019 OREGON STRUCTURAL SPECIALTY CODE. Lists various code requirements.



1 BUILDING B - MEZZANINE  
1/16" = 1'-0"



3 BUILDING B - FIRST FLOOR  
1/16" = 1'-0"

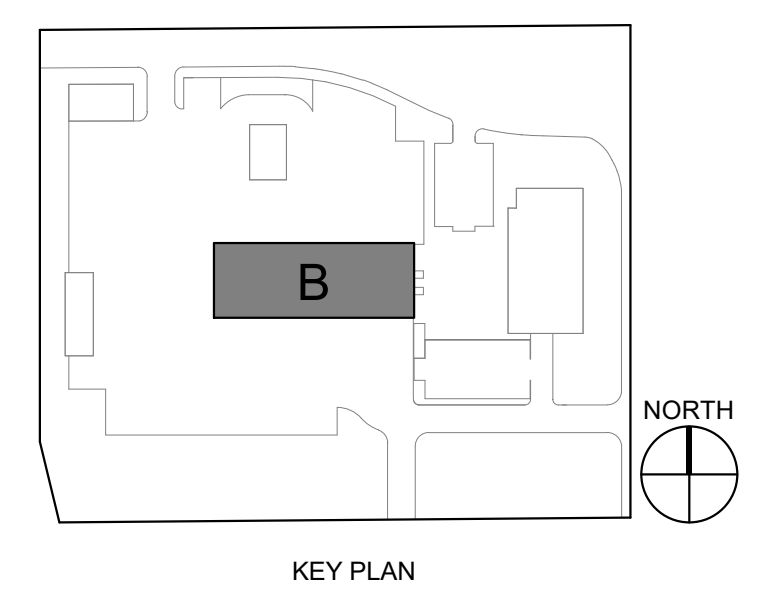
CODE SUMMARY LEGEND. Table with 2 columns: SYMBOL, DESCRIPTION. Lists symbols for 1-hour rated assembly, area name, occupancy, area, function, exit access path, door rating, fire extinguisher, assembly area, minimum egress illumination, fire separation distance, and vent.

CHAPTER 29: PLUMBING FIXTURES. Table with 6 columns: OCCUPANCY (CHAPTER 3), TOTAL, MALE, FEMALE, WATER CLOSETS, LAVATORIES, DRINKING FOUNTAINS, SERVICE SINKS. Lists fixture counts for occupancy types A-3, B, S-2.

CHAPTER 7: FIRE AND SMOKE PROTECTION FEATURES. Table with 3 columns: TABLE, MINIMUM DISTANCE OF PROJECTION, MAXIMUM AREA OF WALL OPENINGS. Lists fire and smoke protection requirements.

CHAPTER 8: INTERIOR FINISHES. Table with 3 columns: TABLE, INTERIOR WALL AND CEILING FINISH REQUIREMENTS. Lists finish requirements for interior walls and ceilings.

CHAPTER 9: FIRE PROTECTION SYSTEMS. Table with 1 column: FULLY SPRINKLERED (ELECTIVELY, NOT REQUIRED FOR ALLOWABLE AREAS) PER OSSC CHAPTER 9 SECTION 903.3.1.1.



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Drawing:  
CODE SUMMARY - BUILDING B

FILE PATH: C:\Revit\_Local\20102\_Wilsonville Public Works\_20\_Land Use\_Updated\_bloley\SSC4.rvt  
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