

# SW 86TH AVE. PUMP STATION

Type II

## Floodplain Alteration Application

The City of Portland Bureau of Environmental Services is requesting Washington County Type II floodplain alteration approval to construct needed infrastructure to serve the SW 86<sup>th</sup> Ave. Pump Station. The infrastructure is within the 100-year floodplain of Fanno Creek and a mapped Significant Natural Resource Area. The infrastructure includes: SW 86<sup>th</sup> Avenue Diversion/Flow Control Manhole, SW 86<sup>th</sup> Avenue Sewer Extension, improvement of SW Caroland Road to meet emergency access standards (CDC 503.1.1), and a vegetated stormwater swale that will be constructed to meet Clean Water Service's *Design and Construction Standards* for water quality.

Development within the floodplain and floodway area, and significant natural areas are subject to Sections 421 (Drainage Hazard) and 422 (Significant Natural Resources) of the Washington County Code. Project elements in this application are allowed under Section 421-5.6, 5.10 and 5.11 through a Type II review, and under Section 422-3.3(1) and (3).

In addition to this narrative, this application includes the following attachments:

**Figures.** Type II Floodplain Alteration Figures

**Floodplain Memo.** SW 86<sup>th</sup> Ave. Pump Station Floodplain Analysis Tech. Memo

**Wildlife Assessment.** Wildlife Habitat Assessment

## INTRODUCTION

Infrastructure to serve the SW 86<sup>th</sup> Ave. Pump Station is located within the floodway or 100-year floodplain of Fanno Creek and a mapped Significant Natural Resource Area. These project elements are subject to Sections 421 (Drainage Hazard) and 422 (Significant Natural Resources) of the Washington County Code, whereas the rest of the SW 86<sup>th</sup> Ave. Pump Station development is not. These project elements are allowed under Section 421 through a Type II Floodplain Alteration and are subject to the requirements of Section 422. In order to address the approval criteria appropriately, these project elements are being addressed in this Type II Floodplain Alteration application.

### Location

The City of Portland (City) Bureau of Environmental Services (BES) owns and operates the Fanno Basin (FABA) Pump Station, which is located at 6895 SW 86<sup>th</sup> Avenue, Beaverton, Washington County, Oregon. The existing FABA Pump Station is situated on tax lots 1S123AD 201 and 202, and 1S123DA 200. The City also owns the adjacent property located at 7000 SW Caroland Road (tax lots 1S123DA 200 and 1S124AD 2301) where BES is applying for a Type III Special Use and Development Review for a new pump station (referred to as the SW 86<sup>th</sup> Ave. Pump Station). The infrastructure needed to serve the proposed SW 86<sup>th</sup> Ave. Pump Station occurs on both of these properties as listed below:

	FABA Pump Station Property	SW 86 <sup>th</sup> Ave. Pump Station Property
Diversion/Flow Control Manhole	Yes	No
Sewer Extension	Yes	Yes
SW Caroland Road	Yes	Yes
Stormwater Swale	Yes	Yes

### Project Elements

Project elements included in this Type II Floodplain Alteration include the following:

- SW 86<sup>th</sup> Avenue Diversion/Flow Control Manhole – A new diversion/flow control manhole will replace an existing manhole on the northwest corner of the existing FABA Pump Station’s generator building. The manhole will have an at-grade concrete slab with access hatches that will be about 330 square feet (sf) in size. A new 36-inch diameter overflow outfall will extend from the manhole to Fanno Creek. A portion of the Fanno Creek bank (55 sf) will be excavated to create a small, off-channel “cove” for the outfall discharge. This will involve excavating approximately 76 cubic yards of material from the 100-year floodplain. The 36-inch diameter outfall pipe will outlet to a 12-inch bed of a cobble/boulder mix. The outlet of the outfall pipe is below the ordinary high water (OHW) elevation of Fanno Creek.
- SW 86<sup>th</sup> Avenue Sewer Extension – A below grade gravity sewer extension from the diversion/flow control manhole to the caisson for the SW 86<sup>th</sup> Avenue Pump Station. The sewer extension will be installed using trenchless technology.
- SW Caroland Road will be improved to meet emergency access standards (Section 503.1.1). The street will be widened to have a 12-foot paved surface and will include a vegetated filter strip (as per Section 410-1.4E).
- A vegetated stormwater swale will be constructed to meet Clean Water Service’s (District’s) *Design and Construction Standards* for water quality. The stormwater swale will be 2,110 sf and planted with appropriate native vegetation.

# WASHINGTON COUNTY COMMUNITY DEVELOPMENT CODE PROCEDURES (ARTICLE II)

## 203 PROCESSING TYPE I, II AND III DEVELOPMENT ACTIONS

### 203-1 Initiation and Withdrawal of Action

#### 203-1.1 Type I, II and III development actions may be initiated only by:

**Application by all the owners or all the contract purchasers of the subject property, or any person authorized in writing to act as agent of the owners or contract purchasers.**

**Response:** The City is the current owner of the property and is the applicant.

**Owner/Applicant Contact:** City of Portland Bureau of Environmental Services  
1120 SW Fifth Avenue, Room 1000  
Portland, OR 97204  
Contact: Daniel J. Hebert, PE  
(503) 823-2689  
Daniel.Hebert@portlandoregon.gov

### 203-2 Pre-Application Conference

A Pre-Application Conference was held on January 12, 2012, with Wayne Hayson, Ross Van Loo, Rocky Brown, and Rick Raetz of Washington County. The Pre-Application Conference Summary is in **Attachment I** of this application. At the Pre-Application Conference Washington County determined that the SW 86<sup>th</sup> Avenue Diversion/Flow Control Manhole, SW 86<sup>th</sup> Avenue Sewer Extension, improvements to SW Caroland Road, and the stormwater swale project elements require a Type II Floodplain Alteration because they are within the 100-year floodplain. The proposed project elements are a conforming use and are part of the overall operational controls of the Fanno Basin system. The proposed system elements meet development standards as outlined below. This procedure requirement is met.

### 203-4 Application

This application is for a Type II Floodplain Alteration Review. The application contains the following information (as required by this section of the Washington County Community Development Code):

- A. Signed and completed application form is in **Attachment I. Development Application Form, Supplemental Information Form, and Fee.**
- B. Current Washington County's tax maps showing the subject property and all properties within 500 feet of the subject property are found in **Attachment II. Tax Maps.**

*General project information and other basin improvements can be found on the following website:*

<http://www.portlandonline.com/bes/index.cfm?c=49285&a=344385#pump>

- C/D. Not applicable – all properties within 500 feet are within Washington County.
- E. Included **Figures** show the property boundaries, proposed and existing: structures and improvements, easements, driveways, water and sewer lines, all drainage courses, and structures within 250 feet of a drainage course.
- F/G. Not applicable – there are no railroad crossings and the project is within the UGB.
- H. Additional information, required by other provisions of the Washington County Community Development Code (CDC) including applicable standards and requirements of the Comprehensive Plan, are also addressed in this narrative. A Drainage Hazard Analysis, as required in Section 421 is included in the application as **Floodplain Analysis Technical Memorandum**. A **Wildlife Habitat Assessment** has been prepared to address the Significant Natural Area as required by Section 422.
- I/J. Additional information directly related to the applicable standards of this Code, including applicable standards and requirements of the Comprehensive Plan as specified by this Code as deemed essential by the Director to evaluate adequately the specific application for compliance with those criteria and standards is included in the following narrative.
- The project is located within Sub Area 13 of the Raleigh Hills-Garden Home Community Plan Area. This application addresses the General Design Elements of the Community Plan and the Design Elements specific to Sub Area 13. The Tualatin Hills Parks and Recreation District's Fanno Creek Trail comprises a portion of Area of Special Concern Q.
- Both of the sites are zoned R-5. Section 302-4.12 may permit public utilities to be developed in the residential zone through a Type III procedure, subject to 430-105. Section 430-105.6A exempts underground pipes and conduits from these regulations.
- Portions of the proposed project will be in either the floodway or the 100-year floodplain of Fanno Creek. These project elements are allowed within the 100-yr floodplain and floodway under Section 421 of the Washington County Code through a Type II Floodplain Alteration review and are subject to the requirements of Section 421, summarized as follows:
- 421-5.6 allows water quality improvement facilities
  - 421-5.10 allows vehicular access
  - 421-5.11 allows construction or major improvement or alteration of underground pipes and conduits including sewer, and necessary accessory structures
- Work within the floodplain will consist of both open excavation (diversion/flow control structure, road and stormwater swale) and trenchless (pipe) construction. The application narrative provides findings that demonstrates compliance with the applicable review standards of Sections 421-3, 421-5.6, 421-5.10, 421-5.11, 421-7, 421-11, and 421-14.
- These project elements are also subject to Section 422. Section 422-3.3 (1) allows crossings for streets, roads, and other public transportation facilities. Section 422-3.3(3) allows installation or construction of sewer utilities. The proposed pipe and diversion structure qualify as sewer lines under Section 422-3.3(3). The application documents that the proposed use will not seriously interfere with the preservation of fish and wildlife areas and habitat identified in the Community Plan (per Section 422-3.6).
- K. Not applicable – a neighborhood meeting is not required for this Type II Floodplain Alteration Review.
- L. Fee was submitted with this application.
- M. The Service Provider Letter from Clean Water Services is included in **Attachment I. Development Application Form & Supplemental Information Form**.

## RALEIGH HILLS-GARDEN HOME COMMUNITY PLAN

The project is located within Sub Area 13 of the Raleigh Hills-Garden Home Community Plan Area. The General Design Elements of the Community Plan and the Design Elements specific to Sub Area 13 are listed and addressed individually below.

### GENERAL DESIGN ELEMENTS

1. In the design of new development, floodplains, drainage hazard areas, streams and their tributaries, riparian zones and wooded areas, steep slopes, scenic features, and powerline easements and rights-of-way shall be:
  - a. used to accent, define, or separate areas of differing or similar residential densities and differing planned land uses;
  - b. preserved and protected, consistent with the provisions of the Community Development Code, to enhance the economic, social, wildlife, open space, scenic, recreation qualities of the community; and
  - c. where appropriate, interconnected as part of a park and open space system. Site planning for new development shall be consistent with designated land uses.

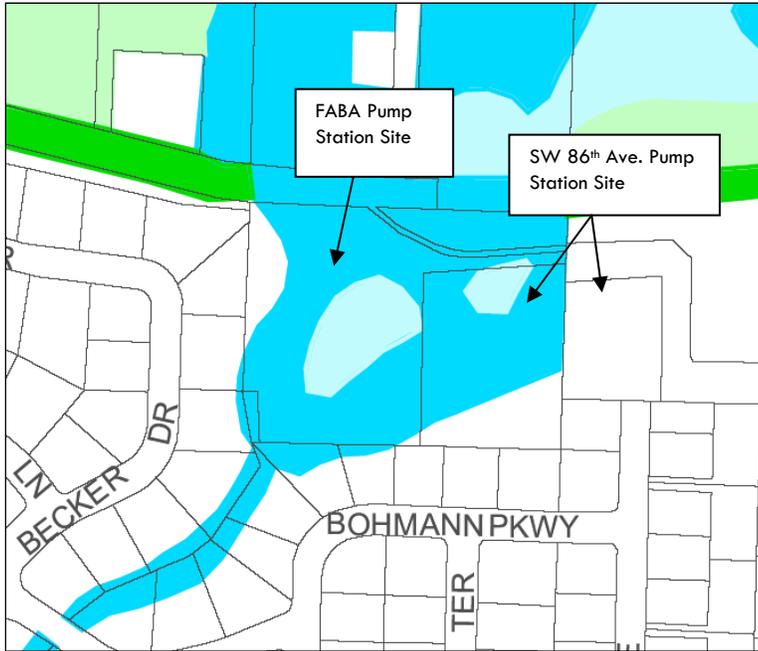
**Response:** BES has a Special Use Permit for the development and use of the FABAs Pump Station site as a pump station. The proposed project elements are located within the 100 year floodplain and are part of the overall operational controls of the Fanno Creek Basin sewer system. The project either complies with or exceeds the required setbacks, lot dimensions, building locations, and screening requirements of the R-5 Districts and those required for a Public Utility.

With the narrative provided under Sections 421 and 422 below, the proposed project is consistent with this design element.

2. Master Planning – Primary Use or Planned Development procedures and standards specified in the Community Development Code shall be required for development on land which includes a Significant Natural Resource, as a means of protecting the resource while accommodating new development. An exception to this requirement shall be allowed if all of the Significant Natural Resource site is retained as open space. Public dedication of this open space is not required, but is encouraged. A density transfer from the resource area to the buildable portion shall be allowed for any Significant Natural Resource site as specified in the Community Development Code.

**Response:** The Significant Natural and Cultural Resources map associated with this community plan shows both “Water Area and Wetland” as identified below (in light blue shading) and “Water Areas and Wetlands and Fish and Wildlife Habitat” identified below (in dark blue shading). The project elements in this application will be constructed within the “Water Area and Wetlands and Fish and Wildlife Habitat.” Development in the mapped Significant Natural Areas is addressed in Section 422 of this application and in the **Wildlife Habitat Assessment**.

Section 422-3.3(1) allows for crossings for streets, roads or other transportation facilities. Section 422-3.3(3) allows installation or construction of sewer utilities. The proposed pipe and diversion structure qualify as sewer lines under Section 422-3.3(3). The application documents that the proposed use will not seriously



interfere with the preservation of fish and wildlife areas and habitat identified in the Washington County Comprehensive Plan (Section 422-3.6).

SW Caroland Road will need to be widened to have a paved width of 12 feet to meet the emergency access requirements of Section 503-1.1. Widening of the road will impact 400 sf and the removal of four trees within the delineated Water Area and Wetlands and Fish and Wildlife Habitat.

The diversion/flow control manhole will replace an existing manhole. The manhole will be 330 sf in size. The manhole will have an outfall to Fanno Creek. A 55 sf portion of the Fanno Creek bank will be excavated to create a small, off-channel “cove” for the outfall. This will involve a net excavation of 76 cubic yards from the floodplain. The 36-

inch diameter outfall pipe will outlet to a minimum 12-inch thick bed of a cobble/boulder mix. The outlet of the outfall pipe will be designed to discharge below the OHW elevation of Fanno Creek. BES has secured a Removal-Fill Permit from Oregon Department of State Lands (DSL) and applied for a Section 404 of the Clean Water Act permit from the US Army Corps of Engineers (Corps) for the project.

A vegetated stormwater swale will be constructed within the wildlife habitat area. The swale will be 2,110 sf and will be planted with appropriate native vegetation. The vegetated swale is being designed to meet the District’s *Chapter 3 Design and Construction Standards* for water quality facilities.

The habitat enhancement plan meets the recommended measures to mitigate the proposed development’s impact to the natural resource areas, as defined in Section 106-129. The mitigation plan replaces the unavoidable loss of habitat values caused by the project and provides habitat values that currently are lacking. As shown in the **Wildlife Habitat Assessment**, the proposed enhancement activities increase the value of the habitat significantly. The mitigation plan will improve cover by adding structural diversity, variety, connectivity, and seasonality. The robustly planted area will provide a corridor that offers cover and forage opportunities from Fanno Creek to the forested wetland north located north of the property (that further extends along the Fanno Creek Trail and onto the Portland Golf Club). The undeveloped areas of both properties will be enhanced by removing non-native, invasive plants that are well established and are currently out competing native plants. Once the non-native plants are removed, the area will be densely planted with native plants.

The primary use procedures are being utilized to evaluate these project elements as discussed below in Section 404. The project will be constructed in accordance with the permits for this project issued by the District, DSL and the Corps. The project is consistent with this design element.

3. Open space shall be used for a variety of recreational activities, the protection of wildlife habitats, education, scientific research, or aesthetic purposes, such as scenic views.

**Response:** On the FABA Pump Station site, the diversion/flow control manhole will replace an existing manhole. The remaining open space will remain unaltered.

On the SW 86<sup>th</sup> Ave. Pump Station site, open space will be reduced by the road widening needed to meet the emergency access standards of Section 503-1.1. The remaining delineated wetlands and wildlife habitat areas will be preserved and protected as open space, consistent with the provision of the CDC to provide wildlife and riparian habitat. These areas will be enhanced by removal of non-native vegetation and the planting of a habitat enhancement landscape design, which will also increase the aesthetic views of the property from users of the Fanno Creek Trail.

4. Trees located within a Significant Natural Resource site shall not be removed without a development permit for tree removal having first been obtained, as provided for within the Community Development Code.

**Response:** As shown on **Figure 4. Tree Removal** and summarized in the table below, the proposed project elements will require the removal of ten trees (with diameters greater than 6 in dbh) within the area designated as Water Area and Wetland and Fish and Wildlife Habitat.

	Manhole	SW Caroland Road		Total Tree Removal
	6 in dbh	6-8 in dbh	9-11 in dbh	
Douglas fir	3			3
Red alder	2			2
Western red cedar	1			1
Birch		1	3	4
<b>Total Trees Per Project Element</b>	<b>6</b>	<b>4</b>		<b>10</b>

Work area limits are defined on **Figures 5A-5C. Grading Plans**. Vegetation that is to be retained will be fenced for protection during grading and construction. Protected vegetation will be regularly monitored for signs of stress or degradation. None of these trees will be removed without first securing a development permit allowing their removal.

The project is consistent with this design element.

5. Fanno Creek flood plain and tributary drainage hazard areas, as well as Golf and Hall creeks, and tributaries, shall be left substantially in their natural condition. Individual property maintenance of privately owned stream channels shall be enforced. Alterations to stream channels shall be prohibited except as provided by the Community Development Code. Filling of a flood plain which results in a net decrease in water holding capacity shall be prohibited. Access shall be dedicated or public easement granted along waterways where appropriate.

**Response:** The Fanno Creek floodplain will be left substantially in its natural condition. The project will result in a net excavation of 210 cubic yards below the 100-year floodplain, which will have a beneficial effect of additional flood storage. As described in the **Floodplain Analysis Technical Memorandum** for the project, the proposed project elements will not increase the 100-year water surface elevations above the existing Federal Emergency Management Agency (FEMA) regulatory flood elevations. It also indicates that activities in the floodplain will not result in a net decrease in water holding capacity as further detailed in Section 421 below.

The project does not alter stream channels (Fanno Creek or the side channel). For health and safety purposes, public access around the pump stations is discouraged, and therefore public access is not provided.

The project is consistent with this design element.



Existing view of Wetland A (foreground) and house (background) from Fanno Creek Trail.



Visual simulation of habitat enhancement area looking from Fanno Creek Trail towards Wetland A. This simulates habitat conditions 3-5 years after planting. Eventually, planted trees will reach a height of 40-60 feet upon full maturity, offering a multi-storied canopy.

6. The Tualatin Hills Park and Recreation District, as the primary public owner/manager of wildlife habitat in the community, is urged to retain existing natural vegetation on established park properties, except as provided by currently adopted park development plans adopted prior to 1984.

**Response:** Not applicable. The project is in conformance with this design element since the project does not alter the existing vegetation along the trail. The project is located adjacent to and south of the Tualatin Hills Park and Recreation District's (THPRD) Fanno Creek Trail. The proposed project elements do not involve alterations to the trail.

7. Significant historical and cultural resources shall not be altered, defaced, demolished or relocated without first obtaining a development permit as provided for in the Historic and Cultural Management Overlay District contained in the Community Development Code.

**Response:** Not applicable. There are no historic or cultural resources on the site. The proposed project is not located within the Historic and Cultural Management Overlay District as identified in the Community Plan. The project is consistent with this design element.

8. All new subdivisions, attached unit residential development, and commercial development shall provide for pedestrian pathways which allow public access through, or along, the development and connect with adjacent developments, shopping areas, schools, public transit, parks and recreation sites.

**Response:** Not applicable. The project is a basic utility, not a subdivision, residential or commercial development.

9. Bicycle parking facilities shall be required as a part of all commercial, industrial and institutional developments. Residential developments which have parking lots of 20 or more spaces shall provide bicycle parking facilities.

**Response:** Not applicable. The project is the site of an unmanned public utility, and the development is not intended for public access. Section 429-2 does not require bicycle parking for public utilities.

10. Noise reduction measures shall be incorporated into all new residential developments located adjacent to Arterials and Collectors. Noise reduction measure alternatives include vegetative buffers, berms, walls, setbacks and structured design techniques, such as insulation and the orientation of windows away from the road.

**Response:** Not applicable. This is not a new residential development and the site is not located adjacent to an arterial or collector.

11. Proposed new commercial uses and expansion of existing uses along either Canyon Road or Beaverton-Hillsdale Highway shall be evaluated against the Community Plan goal to discourage strip commercial development. Designs shall include features such as shared access, orientation, parking, signage and landscaping, as required by the Community Development Code, which mitigate the detrimental effects of commercial strip development.

**Response:** Not applicable. The project is not located along either Canyon Road or Beaverton-Hillsdale Highway.

12. In order to soften the impact of more intensive uses on residential areas, expansion or change of institutional uses which abut low density residential uses shall be accompanied by mitigating development features at least as effective as those listed for Type 2 Screening and Buffering Standards in the Community Development Code.

**Response:** All of the project elements are either at-grade or below ground. The ground disturbed by constructing these project elements will be graded back to existing conditions and planted with an appropriate plant mix as shown on **Figure 7. Landscape Plan**. The landscape plan exceeds the Type 2 Screening and Buffering standards. The project is consistent with this design element.

13. Where the impact of noise and lighting associated with commercial or industrial uses adjacent to residential areas does not meet the standards in the Community Development Code, the commercial development shall be subject to limited hours of operation.

**Response:** Not applicable. All of the project elements within the 100-year floodplain are either at-grade or below ground. None of the elements will create noise or add new lighting.

14. New development shall dedicate, when determined to be appropriate through the development review process, rights-of-way for road extensions and alignments as indicated in the Community Plan. However, improved traffic flow should be achieved by redesign when feasible, rather than by widening roads or building new ones. New development shall also be subject to conditions set forth in the County's growth management policies and public facility standards during the development review process.

**Response:** Access to the site will remain the same, and traffic patterns will not increase. Traffic would be limited to routine maintenance vehicles estimated to make two to five trips to the site per week. The Community Plan does not indicate road extension or alignments on the property. SW Caroland Road will be widened from a 10-foot width to a 12-foot paved width in order to meet the emergency access requirements of Section 503-1.1. The project is consistent with this design element.

15. New access onto Arterials and Collectors shall be limited as detailed in the Community Development Code provisions on Circulation and Access. Shared or consolidated access shall be required prior to issuance of a development permit for land divisions or structures located adjacent to these facilities, unless demonstrated to be unfeasible.

**Response:** Not applicable. Access will remain the same.

16. The County shall emphasize non-auto (transit, bicycle, and pedestrian) measures as an interim solution to circulation issues. These measures shall be used to facilitate access to transit centers.

**Response:** Not applicable. The project elements will not cause an increase in traffic.

17. Pedestrian/bicycle pathways, identified in the County's Transportation Plan shall be included in the design of road improvements.

**Response:** Not applicable. The project is adjacent to the Fanno Creek Trail. No other pedestrian/bicycle paths are identified in the Transportation Plan.

18. Piecemeal annexation of land in this Planning Area shall be discouraged. Review of development proposals for land proximate to the cities of Portland and Beaverton limits shall be coordinated as required in the Washington County - City of Portland and Washington County - City of Beaverton Urban Planning Area Agreements.

**Response:** The review of this development proposal is consistent with the terms of the Urban Planning Area Agreements and is being coordinated between the City of Portland and Washington County.

19. In order to discourage strip commercial development along Scholls Ferry and Oleson Roads, and to prevent commercial encroachment into adjacent residential areas, applicants for plan changes to commercial designations for properties adjacent to these arterials shall bear an additional burden of proof in establishing that development resulting from such requests will neither promote strip commercial development, nor encroach into existing neighborhoods.

**Response:** Not applicable.

20. The required amount of parking for development shall be determined by the Parking Maximum Designations and the standards of the Community Development Code.

**Response:** Not applicable. All of the project elements are either at-grade or below ground infrastructure that does not generate the need for parking. Parking for the new SW 86<sup>th</sup> Avenue Pump Station will be provided in the service yard (outside of the floodplain and the Significant Natural Resource Area).

## SUBAREA 13

This subarea is located north of the Metzger Community Planning Area and south of the old railroad right-of-way (east of SW 86th Avenue) and Scholls Ferry Road (west of SW 86th Avenue). Scholls Ferry Road is the western boundary and Oleson Road bounds the subarea on the east.

Most of this subarea is planned residential, R-5. Sites designated residential, R-9, R-15 or R-24 are located off of Scholls Ferry Road, SW 92nd Avenue, and Oleson Road near Alden Road. Office Commercial is found only on a few lots on the east end of Garden Home Road. Institutional is the designation on the Red Tail Golf Course, church sites, and parks. The golf course is located in the Washington Square Regional Center Boundary.

Specific Design elements associated with Subarea 13 of the Raleigh Hills-Garden Home Community Plan area are listed and addressed individually below.

### Specific Design Elements:

1. The predominately urban low density residential development pattern of this subarea shall be maintained and protected, consistent with the Community Development Code.

**Response:** The proposed project will not increase the residential density of the area. This design element is met.

2. The narrow corridor between SW 92nd Avenue and Oleson Rod, also known as the abandoned railroad right-of-way and the old bridle path, is Area of Special Concern Q. The land in this Area of Special Concern shall be developed as a community pedestrian/bicycle path in order to provide a unique transportation/open space/wildlife habitat corridor connecting high residential densities and industrial uses on the west with a commercial concentration and community recreation area on the east. Three property holders are involved in this corridor: Washington County on the west, the Portland Golf Club, and the Aaron Frank Estate on the east. Washington County shall initiate a process to consider the transfer of the county-owned portion between SW 92nd and the Golf Club to the Tualatin Hills Park and recreation District for development as a public park In addition, the County shall encourage THPRD to seek the extension of this park eastward along the corridor in order to complete the planned pedestrian/bicycle path. Specifically, restoration of the public right-of-way shall be sought at the time the Aaron Frank Estate is developed, and an easement shall be sought from the Portland Golf Club in order to link up with the publicly-owned portion of the corridor to the west.

**Response:** The THPRD's Fanno Creek Trail comprises a portion of Area of Special Concern Q. Project elements will not affect the trail. The proposed project is consistent with this design element.

3. Garden Home Road shall not be extended from SW 92nd Avenue through to Scholls Ferry Road.

**Response:** Not applicable. The proposed project does not involve any extension of Garden Home Road.

4. Multnomah Boulevard shall not be extended between Oleson Road and Allen Boulevard.

**Response:** Not applicable. The proposed project does not involve any extension of Multnomah Boulevard.

## LAND USE DISTRICTS (ARTICLE III)

### 302 R-5 DISTRICT (RESIDENTIAL 5 UNITS PER ACRE)

The parcel is zoned R-5 under the Washington County Comprehensive Plan. Under Section 302-3.10, removal of trees within areas identified within a Significant Natural Resources area allowed under a Type II Review, subject to Section 407-3. Section 407-3 is addressed below.

The project infrastructure elements of this application are located within the floodway or 100-year floodplain of Fanno Creek. The Significant Natural and Cultural Resources map associated with this community plan shows both “Water Area and Wetland” and “Water Area and Wetland and Fish and Wildlife Habitat.” Development within the floodplain and floodway area, and significant natural areas are subject to Sections 421 (Drainage Hazard) and 422 (Significant Natural Resources) of the CDC. Project elements in this application are allowed under Section 421-5.6, 5.10 and 5.11 through a Type II review, subject to Section 422. Section 422-3.3(1) allows for crossings for streets, roads or other transportation facilities. Section 422-3.3(3) allows installation or construction of sewer utilities. The proposed pipe and diversion structure qualify as sewer lines under Section 422-3.3(3).

The habitat enhancement plan meets the recommended measures to mitigate the proposed development’s impact to the natural resource areas, as defined in Section 106-129. The mitigation plan replaces the unavoidable loss of habitat values caused by the project and provides habitat values that currently are lacking. As shown in the **Wildlife Habitat Assessment**, the proposed enhancement activities increase the value of the habitat significantly. The mitigation plan will improve cover by adding structural diversity, variety, connectivity, and seasonality. The robustly planted area will provide a corridor that offers cover and forage opportunities from Fanno Creek to the forested wetland north located north of the property (that further extends along the Fanno Creek Trail and onto the Portland Golf Club). The entire undeveloped area of the property will be enhanced by removing non-native, invasive plants that are well established and are currently out competing native plants. Once the non-native plants are removed, the area will be densely planted with native plants. The application documents that the proposed use will not seriously interfere with the preservation of fish and wildlife areas and habitat identified in the Washington County Comprehensive Plan (Section 422-3.6).

## DEVELOPMENT STANDARDS (ARTICLE IV)

### 404 MASTER PLANNING

#### 404-1 Type I, Site Analysis of a New Use or Expansion of an Existing Use

**Response:** The required categories of Table 1 of this section of code are listed and addressed in the table below.

	Existing Site	Future Site
<b>Topography</b>	The site is generally level, but the terrain generally slopes down towards Fanno Creek. <b>Figure 2</b> shows the topography of the site.	Contours of areas outside of the developed areas will remain the same. Grading plans of the project elements within the 100-year floodplain are shown on <b>Figures 5A-5C</b> .
<b>Soils and Geology</b>	The soils at the project site are mapped as Aloha silt loam and Huberly silt loam (U.S.D.A. Soil Conservation Service, <i>Soil Survey of Washington County, Oregon</i> , 1983). The Geotechnical Report of soil conditions is included as <b>Attachment IV</b> .	Project elements will result in net excavation of 210 cubic yards below the 100-year flood elevation.
<b>Drainage</b>	The project site is in the Fanno Creek basin on the lower slopes of the Tualatin Mountains. Higher elevations on the east and south areas of the property generally drain to the northwest, to a wetland or west towards a side channel that flows to Fanno Creek.	SW Caroland Road will be graded so that runoff goes into vegetated filter strips. Runoff from the SW 86 <sup>th</sup> Ave Pump Station service yard will be directed to the vegetated stormwater swale through pipes
<b>Vegetation</b>	The property has two different landscape patterns. The first is an actively maintained landscape yard with mowed lawn, an English-style garden, and several raised beds with several ornamental plants. The other landscape pattern consists of a remnant orchard and more native vegetation. This vegetation is a mix of native and non-native species (including thick patches of bamboo, fruit trees, and blackberry).	<b>Figure 7. Landscape Plan</b> shows the areas that will landscaped with either a screening and buffering planting design or an habitat enhancement planting design. The undeveloped portion of the site will be enhanced by removing non-native, invasive plants and planted with native plants. These robustly planted areas will further screen and separate the development from the surrounding residential neighborhood.
<b>Views and Vistas</b>	The Community Plan does not identify any Scenic Views, Scenic Features, or Scenic Routes on or near the project site. Fanno Creek Trail runs along the north property line. Views of the properties from the trail reveal a large lots with mature vegetation, and a few large buildings.	Users of the Fanno Creek Trail will see a densely planted areas. The delineated Significant Natural Area will be planted to meet the requirements of the District's <i>Chapter 3 Design and Construction Standards</i> for water quality sensitive areas and vegetated corridors.
<b>Sun Exposure</b>	The Solar Access Standard for New Development (Code Section 427-3) does not apply to this project based on the condition criteria listed in 427-3.1.	

	Existing Site	Future Site
<b>Structures</b>	The properties are currently developed as either a single-family residence with a swimming pool, and an asphalt driveway or a pump station with pump house, generator building and service yard.	Location and size of project elements are shown on <b>Figure 1 Type II Site Plan</b> . All of these project elements are at-grade or below ground.
<b>Open Space</b>	The property contains areas subject to the development standards of Code Section 405, Open Space (e.g., water bodies, riparian areas, floodplain, and wetlands). Most of the undeveloped area of the property is maintained landscape.	Undeveloped areas on the site will be managed as open space. This includes the 100-year floodplain riparian area around the side channel, wetlands, and wildlife habitat. These areas will be enhanced and protected, consistent with the provision of the CDC to enhance wildlife, open space, and qualities of the community.

**Off-site** – An off-site analysis was conducted to identify adjacent land uses as summarized in the table below. The project site is located in a well established neighborhood that consists mostly of single family houses. The Portland Golf Club is located north of the study area. The Fanno Creek Trail traverses the study area and vicinity in a generally east-west alignment. The study area vicinity includes vegetation that is characteristic of residential areas, with a mix of ornamental trees and shrubs and weedy plants. Some native vegetation remains along the trail and the edge of the Portland Golf Club. Underground sanitary sewer lines cross the study area generally parallel to the Fanno Creek Trail.

Direction	Adjacent Land Uses
<b>North</b>	Residential, Trail
<b>Northwest</b>	Residential, Trail
<b>Northeast</b>	Trail, Golf Course
<b>West</b>	Fanno Creek, Residential
<b>East</b>	Residential
<b>Southwest</b>	Fanno Creek, Residential
<b>Southeast</b>	Residential
<b>South</b>	Residential

## 407 LANDSCAPE DESIGN

### 407-3 Tree Preservation and Removal

**Response:** As shown on **Figure 4. Tree Removal** and summarized in the table below, the proposed project elements will require the removal of ten trees (with diameters greater than 6 in dbh) within the area designated as Water Area and Wetland and Fish and Wildlife Habitat.

The diversion/flow control manhole will require the removal of six trees. An engineered excavation support system will be used to minimize the area to be disturbed during excavation.

Four trees will need to be removed along SW Caroland Road. Widening of the road was reduced to the extent allowed by the Fire Marshal. SW Caroland Road is bordered on the north by a wetland. In order to reduce impacts to wetlands, the trees will need to be removed.

	Manhole	SW Caroland Road		Total Tree Removal
	6 in dbh	6-8 in dbh	9-11 in dbh	
Douglas fir	3			3
Red alder	2			2
Western red cedar	1			1
Birch		1	3	4
<b>Total Trees Per Project Element</b>	<b>6</b>	<b>4</b>		<b>10</b>

Work area limits are defined on **Figures 5A-5C. Grading Plans**. Vegetation that is to be retained will be fenced for protection during grading and construction. Protected vegetation will be regularly monitored for signs of stress or degradation. None of these trees will be removed without first securing a development permit allowing their removal. The project is consistent with Design Element 4 of the Community.

A detailed analysis of the effects of the project elements to the 100-year floodplain and findings addressing the application requirements of Section 422 are addressed below. The habitat enhancement plan meets the recommended measures to mitigate the proposed development's impact to the natural resource areas, as defined in Section 106-129. The mitigation plan replaces the unavoidable loss of habitat values caused by the project and provides habitat values that currently are lacking. The removal of these trees will not seriously interfere with the preservation of fish and wildlife areas and habitat identified in the Washington County Comprehensive Plan (Section 422-3.6).

## 410 GRADING AND DRAINAGE

### 410-1 General Provisions

**Response:** All grading activities will occur pursuant to the provisions of Chapter 33 of the 1994 Uniform Building Code, or its successor. In the event of conflict between the provisions of this Code, the Community Plan, the Rural/Natural Resource Plan and Appendix 33 of the 1994 Uniform Building Code, the more restrictive standard will be followed. All grading permit applications will include detailed plans, per Section 410-2. Preliminary grading plans are included at the end of this narrative under the **Figures** tab.

#### 410-1.2 Grading Plan

**Response:** Site plans for the project elements within 100-year floodplain are include:

**Figure 5A. Diversion/Flow Control Manhole and Outfall**

**Figure 5B. SW Caroland Road**

**Figure 5C. Vegetated Stormwater Swale**

All of the project elements within the 100-year floodplain are at-grade or below ground. The grading plans show the preliminary final contours, elevations and shapes of finished surfaces to be blended with adjacent terrain consistent with land use and surface water management requirements to achieve a consistent grade and transition to the adjacent undisturbed areas. Basic utilities, roads and stormwater facilities are an allowed use in the R-5 zoning and district. The project elements within the 100-year floodplain are on tax lots 1S123AD 200, 201 and 202, and 1S123DA 200; and 1S124AD 2301. The total size of all tax lots is 236,724 sf. The area disturbed by grading for each project element is listed in the table below.

	Area (sf)	Net cut (cy)
Diversion/flow control manhole and outfall	385	76
SW Caroland Road	2,692	5
Stormwater swale	2,110	129
<b>Total</b>	<b>5,182</b>	<b>210</b>

The proposed project elements within the 100-year floodplain will result in a net excavation of approximately 210 cubic yards.

Grading is required to construct all of the project elements. Grading within the 100-year floodplain will be minimized by installing the sewer connection pipe using trenchless technology. The receiving bore pit will be where the diversion/flow control structure will be constructed. The extent and nature of proposed grading is appropriate for these underground pipes and does not create site disturbance to an extent greater than that required for the project.

The diversion/flow control structure will have an at-grade cover for maintenance. A portion of the Fanno Creek bank will be excavated to create a small, off-channel “cove” for the outfall discharge.

SW Caroland Road will be widened to have a 12-foot wide paved surface to meet the emergency access standards of Section 503-1.1.

The vegetated filter strips along SW Caroland Road and the vegetated stormwater swale are needed to meet the District’s *Chapter 3 Design and Construction Standards* for water quality. These features have been sized accordingly. For the 25-year storm event (District design event) the pre-development peak runoff rate is 0.42 cfs. Post development runoff will be 0.41 cfs. The project will not increase the flood elevation up or downstream of the project.

Preliminary Erosion Control Plans are included in **Attachment VII. 60% Design Drawings**.

### 410-2 Grading Permit

**Response:** All grading permit applications shall include detailed plans, per Section 410-2. A grading permit will be applied for upon approval of the land use review.

### 410-3 Criteria For Approval

**Response:** The extent and nature of proposed grading is appropriate and does not create site disturbance to an extent greater than that required for the project. The grading plans, included as **Figures 5A-5C**, show the preliminary final contours, elevations and shapes of finished surfaces to be blended with adjacent terrain consistent with land use and surface water management requirements to achieve a consistent grade and transition to undisturbed areas. Tops of cut slopes and bottoms of fills are to be rounded off to blend with the natural terrain. The proposed grading will neither cause erosion to any greater extent than would occur in the absence of the proposed development nor result in erosion, stream sedimentation, nor cause other adverse offsite effects or hazards to life or property.

As shown on **Figure 7. Landscape Plan**, all areas disturbed through grading will be planted to prevent erosion after construction activities are completed. In addition, the banks along Fanno Creek within the construction limits will be protected with an erosion control fabric, as shown on the Erosion Control drawings included in the **60% Design Drawings**.

As described in 410-1.2.C(6), in preparation for grading and construction, topsoil removed from the first 12 inches shall be stored on or near the sites and protected from erosion while grading operations are underway. After completion of grading, topsoil is to be restored to exposed cut and fill embankments to provide a suitable base for seeding and planting. After construction is complete and the site is graded to final contours, the project area will be seeded with native grasses and covered with sterile straw for erosion control. Landscape material will be installed during the fall/winter of 2013/14.

## 421 FLOOD PLAIN/DRAINAGE HAZARD AREA

### 421-1 Lands Subject to Flood Plain and Drainage Hazard Area Standards

**421-1.1** The maps entitled “Flood Plain Series, Washington County, Oregon” Revision 5/01/74, 1/03/78, 1/81 and 5/25/83 and 12/12/83 based upon data from the U.S. Army Corps of Engineers; U.S.G.S.; U.S.B.; S.C.S.; and Washington County, together with the Flood Insurance Rate Maps and the “Flood Insurance Study for Washington County” maps, as may be amended from time to time, including the Flood Boundary and Floodway Map, as provided for in the regulations of the Federal Emergency Management Agency (FEMA) (44 CFR part 59-60) hereby are adopted by reference as setting forth the flood plain, floodway and drainage hazard areas of Washington County. But where the maps are not available, the Director may use any base flood elevation and floodway data available from a federal or state source, or any other authoritative source, to determine the boundaries of the flood plain, floodway and drainage hazard areas of Washington County.

**Response:** Floodplain and drainage hazard information was obtained from Washington County, topographic map GIS data from the District, and additional background information from Pacific Water Resources, Inc., the preparers of the original HEC-2 model and the most recent FEMA Washington County Flood Insurance Study (FIS). The 100-year floodplain boundary, floodway boundary and 100-year floodplain elevation of Fanno Creek on the property is shown on **Figure 2. Floodplain Boundaries**.

**421-1.2** Recognizing that the scale may be such that the true and accurate flood plain or drainage hazard area cannot be determined from the maps referenced in Section 421-1.1 alone, all persons seeking a Development Permit for lands within said areas and two-hundred-fifty (250) feet of the map boundary of a flood plain or drainage hazard area identified in Section 421-1.1 except as noted below for land divisions and property line adjustments, shall submit with the Development Permit application:

- A. A delineation of the flood plain and the floodway boundaries, established by a registered engineer or a registered surveyor from the surface elevations prepared by the County for the flood plain based upon maps referenced in Section 421-1.1, and upon any other available authoritative flood data approved by the Director, including but not limited to high water marks, photographs of past flooding or historical flood data; and
- B. A delineation of the drainage hazard area and drainage way by a registered surveyor or a registered engineer from surface elevations prepared by a registered engineer. Such delineation shall be based on mean sea level datum and be field located from recognized landmarks.

For each of the above, submitted plans shall be accurately drawn and at an appropriate scale that will enable ready identification and understanding of the submitted information. The plans shall include the locations of any existing or proposed property lines, buildings, structures, parking areas, streets, access ways, or other relevant information on the subject property, and within fifty (50) feet of the delineation.

**Response:** Included in the **Floodplain Analysis Technical Memorandum** is an exhibit that shows the flood plain, floodway, and drainage hazard area (DHA) boundaries for the subject properties. Floodplain and DHA boundaries were delineated based on GIS information provided by the District, the FEMA Flood Insurance Study for Washington County, and hydraulic modeling provided by Washington County.

### 421-3 Submittal Requirements

**Response:** Existing and proposed topography within the boundaries of the flood area are shown on the figures listed below. Slopes around the diversion/flow control manhole, stormwater swale and SW Caroland Road are less than 5% and the contour intervals are one foot. The banks along Fanno Creek have slopes greater than 5%. The contour interval for the outfall grading plan is 1 foot.

**Figure 5A. Diversion/Flow Control Manhole and Outfall**

**Figure 5B. SW Caroland Road**

**Figure 5C. Vegetated Stormwater Swale**

### 421.5 Uses and Activities Permitted Through a Type II Procedure

**421-5.6 Water quality or quantity improvement facilities, or a required wetland mitigation project when:**

- A. Mandated by a local, state, or federal regulatory agency;
- B. In conjunction with an adopted Drainage Master Plan as defined in Subjection 106-64; or
- C. In conjunction with any other master plan for water or wetlands management improvements approved by Ordinance or Resolution and Order of the Board.

**Sites that are designated as Significant Natural Resource are subject to the requirements of Section 422.**

**Response:** The vegetated filter strips along SW Caroland Road and the vegetated stormwater swale are needed to meet the District's *Chapter 3 Design and Construction Standards* for water quality. These features have been sized accordingly. These project elements are water quality features that are required by the District in compliance with this provision.

**421-5.10 Vehicular access to permitted uses, including driveway crossings, except as permitted by Section 421-4.8**

**Response:** SW Caroland Road will be widened to have a 12-foot wide paved surface to meet the emergency access standards of 503-1.1. SW Caroland Road is a vehicular access to a permitted use in this zone and is in compliance with this provision.

**421-5.11 Construction or major improvement or alteration of underground pipes and conduits, including sewer, water and gas lines, transmission and distribution lines for geothermal resources, gas and oil, underground electrical, telephone and television transmission and distribution lines, including necessary accessory structures and drainage systems.**

**Response:** The proposed new SW 86th Avenue Sewer Extension and SW 86th Avenue Diversion/Flow Control manhole (designated F-3 in the City of Portland’s Public Facilities Plan), is required to control and direct Fanno Creek Interceptor (FCI) flows of up to 47-cfs to both the existing FAB A Pump Station and the SW 86th Avenue Pump Station (F-5 in the PFP). The proposed SW 86th Avenue Diversion/Flow Control Manhole will also include provisions for an emergency overflow outfall element that will relieve FCI flows to Fanno Creek when flows in the FCI exceed the available pumping capacity and diversion to the District cannot be accommodated.

During dry weather conditions and small to moderate storm events when total flow in the FCI is below 23-cfs, the proposed SW 86th Avenue Diversion/Flow Control Manhole will direct flow to the new SW 86th Avenue Pump Station, which is planned to discharge to the existing, newly upgraded Fanno pressure line system. When total flow in the FCI exceeds 23-cfs, a control weir or similar device in the SW 86th Avenue Diversion/Flow Control Manhole will allow the higher flows to enter the existing FAB A Pump Station wet well, and the FAB A Pump Station will automatically operate to provide an additional 24-cfs firm pumping capacity. The diversion/flow control manhole will be a below ground structure with an at-grade manhole for maintenance access. This project element constitutes construction or major improvement of underground sewer lines and conduits in compliance with this provision.

**421-7 Development Standards for all Type II and Type III Flood Plain and Drainage Hazard Area Uses or Activities**

**421-7.1 Development proposed to encroach into a regulatory floodway adopted and designated pursuant to FEMA regulations shall demonstrate through hydrologic and hydraulic analysis, performed in accordance with standard engineering practice by a registered civil engineer, that the cumulative effect of the proposal, when combined with all other existing and anticipated development within the basin based upon full development of the basin as envisioned in the applicable Community Plan or the Rural/Natural Resource Plan, will not result in any increase in flood levels within the community during the occurrence of the base (regional) flood discharge. Notwithstanding this provision, development that would result in such an increase may be approved if the County, at the sole expense of the applicant, first obtains FEMA approval in accordance with 44 CFR Ch. 1, Part 65 (October 1, 1990 edition, or its successor). No increase to the flood plain elevation shall be permitted unless the area in which the rise will occur contains no structures and the owner of such property signs a written acceptance of any increase in the flood plain elevation. These properties are not required to be part of the application for the proposed development.**

**Response:** The diversion/flow control manhole and outfall are located within the floodway. Construction of these project elements will not increase the 100-year water surface elevations above the existing FEMA regulatory flood elevations. **Appendix B. Floodplain Analysis Technical Memorandum** provides documentation of no-rise to the regulatory flood elevation as a result of these project elements. The diversion/flow control manhole and outfall have been designed so that finish grade surfaces match, or are lower than, existing grade surfaces. Construction of these elements will result in a net cut of 76 cubic yards from the 100-year floodplain.

**421-7.2** Development proposed on a flood plain site where the development does not encroach into an adopted FEMA regulatory floodway shall demonstrate through hydrologic and hydraulic analysis, performed in accordance with standard engineering practice by a registered civil engineer, that the cumulative effect of the proposal, when combined with all other existing and anticipated development within the basin based upon full development of the basin as envisioned in the applicable Community Plan or the Rural/Natural Resource Plan, will not increase the flood plain elevation more than one (1) foot at any point in the community. Notwithstanding this provision, an increase in excess of one (1) foot may be approved if the County, at the sole expense of the applicant, first obtains FEMA approval in accordance with 44 CFR Ch. 1, Part 65 (October 1, 1990 edition, or its successor). No increase to the flood plain elevation shall be permitted unless the area in which the rise will occur contains no structures and the owner of such property signs a written acceptance of any increase in the flood plain elevation.

**Response:** Widening of SW Caroland Road and the vegetated stormwater swale will not increase the 100-year water surface elevations above the existing FEMA regulatory flood elevations. The **Floodplain Analysis Technical Memorandum** provides documentation of no-rise to the regulatory flood elevation. Improvements to SW Caroland Road and the stormwater swale have been designed so that finish grade surfaces match, or are lower than, existing grade surfaces. Widening of SW Caroland Road will result in a net cut of 5 cubic yards from within the 100-year floodplain. The vegetated stormwater swale will result in a net cut of 129 cubic yards from within the 100-year floodplain.

**421-7.3** Development proposed on a drainage hazard area site shall demonstrate through hydrologic and hydraulic analysis, performed in accordance with standard engineering practice by a registered civil engineer, that the cumulative effect of the proposal, when combined with all other existing and anticipated development within the basin based upon full development of the basin as envisioned in the applicable Community Plan or the Rural/Natural Resource Plan, will not result in any increase to the drainage hazard area elevation at any point in the community. Notwithstanding this provision, an increase may be approved if the area in which the rise will occur contains no structures and the owner of such property signs a written acceptance of any increase in the drainage hazard area elevation.

**Response:** Construction of all the project elements will not increase the drainage hazard area elevation at any point in the community as documented in the **Floodplain Analysis Technical Memorandum**.

**421-7.4** Encroachments into a floodway shall be designed so as to minimize the risk that the encroachment will catch substantial debris or otherwise significantly impede floodwater flows. Designs may include, but are not limited to, adequate sizing of openings, secured breakaway bridges, diverters or spacing of supports.

**Response:** All of the project elements within the floodway are at-grade and will not catch debris or impede floodwater flows because they will be at-grade or below ground. The outfall outlet pipe will be designed to discharge below the OHW elevation of Fanno Creek. This will also not catch debris or impede floodwater flows because it is recessed into a cove.

**421-7.5** The proposal will not increase the existing velocity of flood flows so as to exceed the erosive velocity limits of soils in the flood area. Energy dissipation devices or other measures to control the mean velocity so as not to cause erosion of the flood area may be used to meet this standard. "Open Channel Hydraulics" by V. T. Chow, McGrawHill Book Company, Inc., 1988, is presumed to be the best available reference for maximum permissible velocity. "Hydraulic Engineering Circular No. 14," Hydraulic Design of Energy Dissipators for Culverts and Channels, published by the Federal Highway Administration, September 1983, is presumed to be the best available reference for the design of energy dissipators.

**Response:** No changes are proposed to the existing topography that would result in a change to channel velocity.

**421-7.6** All cut and fill shall be structurally sound and designed to minimize erosion. All fill below the flood surface elevation shall be accompanied by an equal amount of cut or storage within the boundary of the development site.

**Response:** The cut and fill will be structurally sound and designed to minimize erosion. The proposed project elements will result in a net excavation below the 100-yr flood elevation of approximately 210 cubic yards.

**421-7.7** There is adequate storm drainage behind a dike such as a lift pump or flap gate to drain the flood plain or drainage hazard area behind the dike.

**Response:** Not applicable because the site is not behind a dike.

**421-7.8** That the environmental impact of the disturbance or alteration of riparian wildlife and vegetation has been minimized to the extent practicable as required by Section 422. Enhancement of riparian habitats through planting or other such improvements may be required to mitigate adverse effects. Significant features such as natural ponds, large trees and endangered vegetation within the flood area shall be protected when practicable.

**Response:** The proposed development has been designed to minimize the impacts to natural resources to the extent practicable. The proposed development will have the following impacts to Water Areas and Wetlands and Fish and Wildlife Habitat:

**Flow Control/Diversion Manhole and Outfall** – About 385 sf of habitat will be permanently impacted for the construction of the manhole and outfall. Six trees will need to be removed.

**SW Caroland Road Improvements** – The existing access road will be widened to have a 12-foot wide paved surface and a vegetated filter strip. This will require the removal of four birch trees.

**Stormwater Swale** – A vegetated stormwater swale will cover a 2,110 sf sized area and planted with appropriate native vegetation.

The mitigation plan meets the recommended measures to mitigate the proposed development's impact to the natural resource areas, as defined in CDC 106-129. The mitigation plan replaces the unavoidable loss of habitat values caused by the project and provides habitat values that currently are lacking. The proposed enhancement increases the value of the habitat significantly. The mitigation plan will improve cover by adding structural diversity, variety, connectivity, and seasonality. The robustly planted area will provide a corridor that offers cover and forage opportunities from Fanno Creek to the forested wetland located north of the property (that further extends along the Fanno Creek Trail and onto the Portland Golf Club). The entire undeveloped area of the property will be enhanced by removing non-native, invasive plants that are

well established and are currently out-competing native plants. Once the non-native plants are removed, the area will be densely planted with native plants.

The undeveloped area on the two sites will be preserved and protected as open space, consistent with the provision of the Community Plan Design Elements to enhance wildlife, open space, and qualities of the community. The proposed project will not seriously interfere with the preservation of fish and wildlife areas and habitat on the site.

**421-7.9 Drainage systems shall be designed and constructed according to the adopted Drainage Master Plan for the area, if one exists.**

**Response:** The vegetated filter strips along SW Caroland Road and the vegetated stormwater swale are needed to meet the District's *Chapter 3 Design and Construction Standards* for water quality. These features have been sized accordingly.

**421-7.10 Proposed partitions and subdivisions shall minimize flooding by complying with the applicable standards of Sections 410, 421, 426, 6053.2 and 6103.1, and Chapter 6 of the Clean Water Services Construction Standards.**

**Response:** Not applicable. No subdivisions are proposed.

**421-7.11 Public utilities and facilities in proposed partitions and subdivisions shall be located and constructed in a manner that will minimize flood damage.**

**Response:** Not applicable. No subdivisions are proposed.

**421-7.12 Proposed partitions and subdivisions shall provide adequate drainage to reduce exposure to flood damage by complying with the standards of Section 410 and applicable standards of Section 6053.2 or 6103.2, whichever is applicable.**

**Response:** Not applicable. No subdivisions are proposed.

## **421-11 Criteria for Utilities**

**421-11.1 New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system. The applicant shall obtain all applicable local, state or federal permits.**

**Response:** Not applicable. The project does not include a new water supply system.

**421-11.2 New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into, or discharge from, the system. The applicant shall obtain all applicable local, state and federal permits.**

**Response:** The Fanno Creek Basin drainage area includes approximately 1,900-acres that consists primarily of land developed as Residential Use (>80%), Open Space and Vacant Use (>18%), and Commercial Use (approximately 1%). During 2-year recurrence interval storm events, flows in the FCI can exceed the pumping capacity of the FAB A Pump Station. When those conditions occur a surcharge in the FCI will allow flow to enter District's sewer conveyance system. Flow modeling of these conditions conducted by BES in cooperation with the District indicate that certain reaches of the District's sewage collection and conveyance system are likely experiencing flows near system capacity, and the additional flow from the FCI may cause uncontrolled overflows to occur. If not relieved, the excess flows could cause excessive pressures in the District's collection system that could damage the structural integrity of the pipes and manholes.

Demand analysis, based on flow monitoring in the Fanno Creek Basin, concludes that the Fanno Creek Basin sewage system must be able to capture, convey, and pump a minimum of 47-cfs to prevent FCI flows from entering the District's sewage collection system. The proposed new SW 86<sup>th</sup> Ave Pump Station (designated F-5 in the PFP) is required to control and direct FCI flows of up to 47-cfs to both the existing Fanno Basin Pump Station and the proposed SW 86<sup>th</sup> Avenue Pump Station. The proposed SW 86<sup>th</sup> Ave. Pump Station will provide the additional 23-cfs pumping capacity that is needed to meet the requirements of the State's 5-year design standard.

The proposed new SW 86<sup>th</sup> Avenue Sewer Extension and SW 86<sup>th</sup> Avenue Diversion/Flow Control Manhole, is required to control and direct FCI flows of up to 47-cfs to both the existing FABA Pump Station and the future SW 86<sup>th</sup> Avenue Pump Station. The proposed SW 86<sup>th</sup> Avenue Diversion/Flow Control Manhole will also include provisions for an emergency overflow outfall element that will relieve FCI flows to Fanno Creek when flows in the FCI exceed the available pumping capacity and diversion to the District cannot be accommodated. The new sewer extension and diversion/flow control manhole therefore have been designed to eliminate infiltration of flood waters to the system in compliance with this provision.

**421-11.3 On-site disposal systems shall be permitted only if located and designed to avoid impairment and eliminate contamination of flood waters. The applicant shall obtain all applicable local, state and federal permits.**

**Response:** Not applicable, no on-site disposal system is proposed.

**421-11.4 Above ground electrical, communication and signal transmission and distribution lines and related accessory structures other than poles or towers shall be constructed at or above the flood surface elevation. Poles and towers shall be constructed and placed to minimize risk of damage.**

**Response:** Not applicable. No above ground electrical, communication or signal transmissions lines are part of the project.

**421-11.5 Electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.**

**Response:** Not applicable. Project elements within the floodplain include only the diversion/flow control manhole, sewer extension, access road and stormwater swale.

**421-11.6 Construction of utilities shall be done in a way which minimizes the impact on the flood area. The site shall be restored, as far as practicable, to its original state.**

**Response:** The extent and nature of proposed grading has been limited to the extent possible. Grading plans show the preliminary final contours, elevations and shapes of finished surfaces will to be blended with adjacent terrain consistent with land use and surface water management requirements to achieve a consistent grade and transition to undisturbed areas. As shown on the grading plans, the sites will be restored, as much as practicable, to their original state. The area disturbed by grading for each project element is listed in the table below.

	Area (sf)	Net cut (cy)
Diversion/flow control manhole and outfall	385	76
SW Caroland Road	2,692	5
Stormwater swale	2,110	129
<b>Total</b>	<b>5,182</b>	<b>210</b>

The proposed project elements within the 100-year floodplain will be at-grade or below and will result in a net excavation of approximately 210 cubic yards.

## 421-14 General Requirements and Prohibitions

**421-14.1 Property owners shall maintain the flood area in such a manner as to prevent reduction of the natural carrying capacity. Maintenance outside of the public right-of-way shall be done by means of hand implements unless a Development Permit for an alteration is first obtained (lawn mowers are considered hand implements).**

**Response:** BES will maintain the flood area in such a manner as to prevent reduction of the natural carrying capacity in compliance with CDC 421-14.1. The construction techniques do not require any fill or negative alteration of the natural carrying capacity of the creek.

**421-14.2 Storage of petroleum products, explosives, herbicides, pesticides, insecticides, poisons, defoliants, fungicides, desiccants, nematocides and rodenticide is prohibited.**

**Response:** BES will not store listed products in compliance with CDC 421-14.2.

**421-14.3 Dumping of solid waste in the flood area is prohibited.**

**Response:** BES will not dump solid waste in compliance with CDC 421-14.3

**421-14.4 Section 421 is in addition to any and all Federal, State or special district laws and regulations in force at the time of approval of the Development Permit. Any permits required from a local, state or federal agency shall be obtained prior to any development within the flood area.**

**Response:** BES has secured a Removal-Fill Permit from DSL and is in the process for obtaining a Section 404 of the Clean Water Act permit from the Corps for the project. BES has also secured the SPL from the District.

**421-14.5 The standards and criteria of this Section are cumulative and in addition to any other requirements of this Code. Any more stringent provisions of an applicable Community Plan or the Rural/Natural Resource Plan Element shall control.**

**Response:** BES understands the standards and criteria of this Section and others within the CDC. In addition to conditions of approval from this Development Review, BES will also implement permit conditions received from DSL, the Corps, and the District for the project.

**421-14.6 The Review Authority may condition any Type II or III development permit to the extent necessary to avoid any specifically identified deleterious impacts on the natural integrity of the flood area or to wildlife and vegetation within the flood area.**

**Response:** BES understands this requirement.

**421-14.7** In the case of the partitioning or subdivision of land for the location of structures for human occupancy, such site shall provide a building site, which includes the ground under the structure plus a ten (10) foot setback around all sides of the structure, with a ground elevation at least one (1) foot above the flood surface elevation. No partition or subdivision shall create a lot whose dimensions do not meet this standard.

**Response:** Not applicable. This project is not a subdivision and does not include any structures for human occupancy.

**421-14.8** There shall be no dumping of fill in a flood area without a flood plain or drainage hazard area alteration permit.

**Response:** BES understands this requirement. BES will not place fill in the flood area outside what is allowed under this permit.

## 422 SIGNIFICANT NATURAL RESOURCES

### 422-2 Lands Subject to this Section

Those areas identified in the applicable Community Plan or the Rural/Natural Resource Plan Element as Significant Natural Resources and areas identified as Regionally Significant Fish and Wildlife Habitat on Metro's current Regional Significant Fish and Wildlife Habitat Inventory Map.

**Response:** The Significant Natural and Cultural Resources map associated with this community plan shows both "Water Area and Wetland" and "Water Areas and Wetlands and Fish and Wildlife Habitat." The diversion/flow control manhole will be constructed within the "Water Area and Wetland and Fish and Wildlife Habitat" and the outfall will be within a "Water Area and Wetlands." SW Caroland Road and the vegetated stormwater swale will be constructed within "Water Areas and Wetlands and Fish and Wildlife Habitat."

*Significant Natural Resources on the site include:*

*422-2.1 Water Areas and Wetlands – 100-year floodplain, drainage hazard areas and ponds, except those already developed*

*422-2.2 Water Areas and Wetlands and Fish and Wildlife Habitat – Water areas and wetlands that area also fish and wildlife habitat.*

Development in these areas is addressed below and in the **Wildlife Habitat Assessment**.

### 422-3 Criteria for Development

**422-3.1** The required master plan and site analysis for a site which includes an identified natural resource shall:

- A. Identify the location of the natural resource(s), except in areas where a Goal 5 analysis has been completed and a program decision adopted pursuant to OAR 660, Division 23 (effective September 1, 1996);**

**Response:** As allowed under CDC Interpretation for Significant Natural Resources areas (CDC 422), the extent of the Significant Natural Resource Area was defined in the field by a wildlife biologist and a wetland biologist. A Wetland Delineation was submitted to DSL, who has issued concurrence. Additionally, this Wildlife Habitat Assessment was completed to define the Significant Natural Resource

area boundary. The mapped and field delineated Significant Natural Resource Area boundaries are shown on **Figure 3. Significant Natural Resource Areas**

**B. Describe the treatment or proposed alteration, if any. Any alteration proposed pursuant to Section 422-3.1 B. shall be consistent with the program decision for the subject natural resource; and**

**Response:** The project will have the following impacts to the Significant Natural Resource area:

**Flow Control/Diversion Manhole and Outfall** – About 385 sf of habitat will be permanently impacted for the construction of the manhole and outfall, and result in the net excavation of 76 cubic yards for material from within the 100-year floodplain. A new 36-inch diameter overflow outfall will extend from the manhole to Fanno Creek. A portion of the Fanno Creek bank will be excavated to create a small, off-channel “cove” for the outfall discharge. The 36-inch diameter outfall pipe will outlet to a 12-inch bed of a cobble/boulder mix. The outlet of the outfall pipe is below the OHW elevation of Fanno Creek. Construction of the diversion/flow control manhole will require the removal of six trees from within the wildlife life habitat/riparian area.

BES has secured a Removal-Fill Permit from the DSL, and has applied for a Section 404 Clean Water Act permit from the Corps for the project. BES has incorporated measures to minimize adverse impacts to natural resources, and will comply with the conditions and requirements of permits issued by the District, DLS, and the Corps.

A new sewer line will run from the diversion/flow control manhole to the new pump station. The sewer extension pipe will be bored from the new caisson to the diversion/flow control manhole using trenchless technology. The sewer pipe will be underground. The utility corridor will be planted with a native plant community that benefits wildlife and will not conflict with the utility.

**SW Caroland Road Improvements** – The existing road will need to be improved to meet emergency access standards (Section 503.1.1). The street will be widened to have a 12-foot wide paved surface and vegetated filter strip (as per Section 410-1.4E). This will require the removal of four birch trees.

**Stormwater Swale** – A vegetated stormwater swale will be constructed within the wildlife habitat area. The swale will cover a 2,110 sf area. The stormwater swale is being designed to meet the District’s *Design and Construction Standards* for water quality. The stormwater swale will be planted with appropriate native vegetation. Potential locations of the stormwater swale are limited by the fact that the swale needs to be situated at an elevation lower than the impervious surface requiring treatment.

**C. Apply the design elements of the applicable Community Plan; or the applicable implementing strategies of the Rural/Natural Resource Plan Element, Policy 10, Implementing Strategy E which states:**

*“IMPLEMENT THE RECOMMENDATIONS OF THE OREGON DEPARTMENT OF FISH AND WILDLIFE HABITAT PROTECTION PLAN FOR WASHINGTON COUNTY AND TO MITIGATE THE EFFECTS OF DEVELOPMENT IN THE BIG GAME RANGE WITHIN THE EFU, EFC AND AF20 LAND USE DESIGNATIONS.”*

**Response:** The project meets the design elements of the Raleigh Hills-Garden Home Community Plan and Subarea 13 as discussed above under the Community Plan and summarized below:

- The undeveloped area will remain as open space and be vegetated with native species, in accordance with the District’s *Design and Construction Standards* (Appendix C, Resolution and Order 04-9). The undeveloped area on the site will be preserved and protected, consistent with the

provision of the Community Plan Design Elements to enhance wildlife, open space, and qualities of the community.

- The proposed project will not seriously interfere with the preservation of fish and wildlife areas and habitat on the site. The mitigation plan meets the recommended measures to mitigate the proposed development's impact to the natural resource areas, as defined in CDC 106-129. The mitigation plan replaces the unavoidable loss of habitat values caused by the project and provides habitat values that current are lacking.
- The proposed development maintains many of the mature trees and vegetation on the entire site. The mitigation plan replaces the unavoidable loss of habitat values caused by the project and provides habitat values that current are lacking. The proposed enhancement increases the value of the habitat significantly by improving cover and adding structural diversity, variety, connectivity, and seasonality. The robustly planted area will provide a corridor that offers cover and forage opportunities from Fanno Creek to the forested wetland north located north of the property (that further extends along the Fanno Creek Trail and onto the Portland Golf Club).
- On-going maintenance of the project will be provided by the City of Portland. For a period of five years following construction, BES will annually monitor the site to assure the survival of plantings, regeneration of acceptable diversity and abundance of native plant species. BES shall actively remove undesirable vegetation during this five year monitoring period.
- Traffic patterns would remain the same. Traffic would be limited to routine maintenance vehicles estimated to make three to five trips to the site per week. Access will remain the same.

In addition, BES has incorporated measures to minimize adverse impacts to natural resources during construction (see **Attachment V. Construction Management Plan**), and will comply with the conditions and requirements of permits issued by the District, DSL and the Corps. These measures are integral components of the project and are contained in the Construction Management Plan.

The project site is not within Big Game Range, or with the EFU, EFC or AF20 land use designations.

### 422-3.2 Open Space Inside the UGB

**Response:** The undeveloped portion of the sites will remain as open space and be vegetated with native species, in accordance with the District's *Design and Construction Standards (Appendix C, Resolution and Order 04-9)*. The proposed plantings will improve riparian conditions by establishing a healthy native plant community and improving cover by adding structural diversity, variety, connectivity, and seasonality. No other uses are intended for the open space area in compliance with this criterion. The site is not located in a Park Deficient Area (per significant natural resource map).

### 422-3.3 Development within a Riparian Zone, Water Areas and Wetlands, and Water Areas and Wetlands and Fish and Wildlife Habitat

**Response:** The proposed project elements are allowed under (1) crossings for streets, roads, and other public transportation facilities and (3) installation or construction of utilities. The floodplain and drainage hazard area development criteria have been followed as required by this section.

BES will construct the project in accordance with the permits issued by the District, DSL and the Corps.

### 422-3.6 Significant Natural Areas Finding

For any proposed use in a Significant Natural Resource Area, there shall be a finding that the proposed use will not seriously interfere with the preservation of fish and wildlife areas and habitat identified in the Washington County Comprehensive Plan, or how the interference can be mitigated. This section shall not apply in areas where a Goal 5 analysis has been completed and a program decision has been adopted that allows a “conflicting use” to occur pursuant to OAR 660-23-040(5)(c) (effective September 1, 1996).

*The proposed project elements are allowed under 422-3.3(1) crossings for streets, roads, and other public transportation facilities; and 422-3.3(3) Installation or construction of sewer lines.*

**Response:** Mapped Significant Natural Resource Areas are shown on **Figure 3. Significant Natural Resource Areas**. As allowed under CDC Interpretation for 422, the extent of the Significant Natural Resource Area was defined in the field by a wildlife biologist and a certified wetland delineator.

The proposed development will have the following impacts to natural resources:

**Flow Control/Diversion Manhole and Outfall** – About 385 sf of habitat will be permanently impacted for the construction of the manhole. Six trees will need to be removed.

**SW Caroland Road Improvements** – The existing access road will be widened to have a 12-foot paved with and vegetated filter strip. This will require the removal of four birch trees.

**Stormwater Swale** – A vegetated stormwater swale will be constructed within the wildlife habitat area. The stormwater swale will be planted with appropriate native vegetation.

The mitigation plan meets the recommended measures to mitigate the proposed development’s impact to the natural resource areas, as defined in CDC 106-129. The mitigation plan replaces the unavoidable loss of habitat values caused by the project and provides habitat values that current are lacking. The proposed enhancement increases the value of the habitat significantly. The mitigation plan will improve cover by adding structural diversity, variety, connectivity, and seasonality. The robustly planted area will provide a corridor that offers cover and forage opportunities from Fanno Creek to the forested wetland north located north of the property (that further extends along the Fanno Creek Trail and onto the Portland Golf Club). The entire undeveloped area of the property will be enhanced by removing non-native, invasive plants that are well established and are currently out competing native plants. Once the non-native plants are removed, the area will be densely planted with native plants.

The undeveloped area on the site will be preserved and protected, consistent with the provision of the Community Plan Design Elements to enhance wildlife, open space, and qualities of the community. The proposed project will not seriously interfere with the preservation of fish and wildlife areas and habitat on the site.

## 422-5 State and Regulatory Guidelines

Development within a riparian corridor, Water Areas and Wetlands, or Water Areas and Wetlands and Fish and Wildlife Habitat, shall obtain all required local, state and federal permits.

**Response:** BES has received a Service Provider Letter from the District and secured a Removal-Fill Permit from the DSL. BES has applied for a Section 404 Clean Water Act permit from the Corps for the project. BES has incorporated several measures to minimize adverse impacts to natural resources, and will utilize these measures as outlined in **Attachment V. Construction Management Plan**, and comply with the conditions and requirements of permits issued by the District, DLS, and the Corps.

## CONCLUSION

The proposed project elements are a conforming use and part of the overall operational controls of the Fanno Basin system. The proposed system elements will occur on City-owned property. The project is located within Sub Area 13 of the Raleigh Hills-Garden Home Community Plan Area. This application addresses the General Design Elements of the Community Plan and the Design Elements specific to Sub Area 13. The Tualatin Hills Parks and Recreation District's Fanno Creek Trail comprises a portion of Area of Special Concern Q.

The site is zoned R-5. Section 302-4.12 may permit public utilities to be developed in the residential zone through a Type III procedure, subject to 430-105. Section 430-105.6A exempts underground pipes and conduits from these regulations and instead requires a Type II review for the lines, conduit, road crossing and stormwater swale.

Portions of the proposed project will be located within the floodway and the 100-year floodplain of Fanno Creek. Section 421-5.6 allows development of water quality facilities through a Type II procedure. Section 421-5.10 allows vehicular access to permitted uses through a Type II process. Section 421-5.11 permits construction or major improvement or alteration of underground pipes and conduits including sewer, including necessary accessory structures through a Type II procedure. The application narrative provides findings that demonstrates compliance with the applicable review standards of Sections 421-3, 421-5.11, 421-7, 421-11, and 421-14.

Section 422-3.3(1) allows crossings for streets, roads, or other public transportation facilities. Section 422-3.3(3) allows installation or construction of sewer utilities within a Water Areas and Wetlands. The application documents that the proposed use will not seriously interfere with the preservation of fish and wildlife areas and habitat identified in the Washington County Comprehensive Plan (Section 422-3.6).

This application narrative demonstrates that the proposal meets all of the required approval criteria. The applicant therefore respectfully requests approval of the application.