TYPE II APPLICATION – LAND USE

File #: MISC223-0001

TYPES – PLEASE CHECK ONE:

- ☐ Design review
- ☐ Tentative Plan for Partition
- ☐ Tentative Plan for Subdivision
- ☐ Type II Major Modification
- ☐ Variance _____
- ☑ Other: (Explain) _____

APPLICANT INFORMATION:

APPLICANT: Fatin Abdullah
ADDRESS: 414 E 1st Street Newberg, OR 97132
EMAIL ADDRESS: fatin.abdullah@newbergoregon.gov
PHONE: 503-554-7786 MOBILE: _____ FAX: N/A
OWNER (if different from above): Clare Sunderland PHONE: 503-538-5590
ADDRESS: 730 Wynooski St. Newberg, OR 97132
ENGINEER/SURVEYOR: Andrey Chernishove, HBH Engineering PHONE: 503-554-9553
ADDRESS: 501 E 1st Street, Newberg, OR 97132

GENERAL INFORMATION:

PROJECT NAME: Wynooski Stormwater Outfall PROJECT LOCATION: 730/740 Wynooski Street
PROJECT DESCRIPTION/USE: Wynooski Stormwater Outfall Replacement PROJECT VALUATION: $335,000
MAP/TAX LOT NO. (i.e.3200AB-400): R3220CA 00700 ZONE: R-2 SITE SIZE: 0.3 ac SQ. FT. ☐ ACRE ☐
COMP PLAN DESIGNATION: MDR/Stream Corridor TOPOGRAPHY: Varies - Drainage to Stream Corridor
CURRENT USE: Residential
SURROUNDING USES:
NORTH: Residential SOUTH: Residential
EAST: Public-Quasi Public WEST: Residential

SPECIFIC PROJECT CRITERIA AND REQUIREMENTS ARE ATTACHED

General Checklist: ☐ Fees ☐ Public Notice Information ☐ Current Title Report ☐ Written Criteria Response ☐ Owner Signature

For detailed checklists, applicable criteria for the written criteria response, and number of copies per application type, turn to:

Design Review ..... **p. 12**
Partition Tentative Plat ..... **p. 14**
Subdivision Tentative Plat ..... **p. 17**
Variance Checklist ..... **p. 20**

The above statements and information herein contained are in all respects true, complete, and correct to the best of my knowledge and belief. Tentative plans must substantially conform to all standards, regulations, and procedures officially adopted by the City of Newberg. All owners must sign the application or submit letters of consent. Incomplete or missing information may delay the approval process.

02/02/2023
Applicant Signature Date

Fatin Abdullah
Print Name

Clare Sunderland 2-16-23
Owner Signature Date

Clare Sunderland
Print Name

TYPE II APPLICATION – LAND USE

File #: _____

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- ☐ **Tentative Plan for Subdivision**
- ☐ **Type II Major Modification**
- ☐ **Variance** _____
- ☑ **Other: (Explain)** _____

APPLICANT INFORMATION:

APPLICANT: Fatin Abdullah
ADDRESS: 414 E 1st Street Newberg, OR 97132
EMAIL ADDRESS: fatin.abdullah@newbergoregon.gov
PHONE: 503-554-7786 MOBILE: _____ FAX: N/A
OWNER (if different from above): JIM WHEATON PHONE: 503-860-4762
ADDRESS: 740 Wynooski St. Newberg, OR 97132
ENGINEER/SURVEYOR: Andrey Chernishove, HBH Engineering PHONE: 503-554-9553
ADDRESS: 501 E 1st Street, Newberg, OR 97132

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Applicant Signature 02/02/2023 Date

Fatin Abdullah
Print Name

Owner Signature 3/12/23 Date

JIM WHEATON
Print Name

Wynooski Stormwater Outfall Project

Stream Corridor Overlay Land-Use Application

03/15/2023

Project Description

The City of Newberg Engineering Division is seeking development approval to reconstruct an existing stormwater outfall located near 730 and 740 S Wynooski Street. This project was identified in the City's Capital Improvement Project (CIP) list in 2018 due to erosion from an existing stormwater outfall that was identified during routine maintenance activities. The existing outfall and associated erosion was beginning to show impacts to an existing residential home foundation just north of the outfall.

The City's goal with this project was to reduce erosion into Hess Creek, stabilize the slope to avoid private property impacts, enhance the natural qualities of the impacted area, and improve the existing stormwater outfall in a way that reduces the overall facility maintenance.

This project will move the existing outfall further down the drainage channel near the bottom of the sloped hillside and install a correctly sized riprap flow dissipater to eliminate erosion and sedimentation from entering Hess Creek. Work within the Stream Corridor Overlay will include removal of the existing failed stormwater dissipater, installation of new stormwater pipe via an open trench, installation of a riprap flow dissipater, and native plant restoration work following construction.

Due to the scope of this project work, a Joint Permit Application (JPA) was applied for due to design impacts to both the existing wetland and stream channel in the drainage. The City applied for JPA Permit on February 3, 2023.

Wynooski Street is classified as a Major Collector and is under the jurisdictional authority of Yamhill County within the project area boundary. Temporary traffic control will be needed along S Wynooski Street to make the necessary stormwater connections via a catch basin and manhole within the S Wynooski Street right-of-way, and the project team plans to obtain a right-of-way access permit from Yamhill County to complete the work.

The final design of the project was completed in December 2022 and the project is scheduled to go out to bid in February/March 2023. Construction will be required to take place according to the JPA permit during the in-water work period between July, 2023 and September, 2023.

Conformance with City of Newberg Development Code

Stream Corridor (SC) Overlay Subdistrict

15.342.070 Activities requiring a Type II process.

The installation, construction or relocation of the following improvements shall be processed as a Type II decision. The proposal shall be accompanied by a plan as identified in NMC 15.342.080 and conform to the mitigation standards contained in NMC 15.342.090.

A. Public or private street crossings, sidewalks, pathways, and other transportation improvements that generally cross the stream corridor in a perpendicular manner.

Response: This criteria does not apply.

B. Bridges and other transportation improvements that bridge the wetland area.

Response: This criteria does not apply.

C. Railroad trackage crossings over the SC overlay subdistrict that bridge the wetland area.

Response: This criteria does not apply.

D. Water, wastewater, and stormwater systems already listed within approved City of Newberg master infrastructure plans.

Response: In the Pre-Application Summary Meeting Notes dated 4/10/2020, the City indicated that this land-use application would be processed under 15.342.070(D). This project would fall under the City's 2014 Stormwater Master Plan Project A-1 Stream Bank Protection Projects, and in 2018 the project was included in the City's Capital Improvement Project list.

E. New single-family residences which meet all of the following requirements:

1. The lot was created prior to December 4, 1996, is currently vacant, has at least 75 percent of the land area located within the SC overlay subdistrict and has less than 5,000 square feet of buildable land located outside the SC overlay subdistrict.

2. No more than one single-family house and its expansion is permitted on the property, which shall occupy a coverage area not to exceed 1,500 square feet in area.

3. The single-family structure shall be sited in a location which minimizes the impacts to the stream corridor.

4. The improvements and other work are not located within the 100-year flood boundary.

Response: This criteria does not apply.

F. Reduced front yard setback. Properties within the SC subdistrict may reduce the front yard setback for single-family residences or additions where the following requirements are met:

1. The reduction in the front yard setback will allow no less than five feet between the property line and the proposed structure.

2. The reduction in the setback will allow the footprint of the proposed structure or addition to be located entirely out of the SC overlay subdistrict.

3. Two 20-foot-deep off-street parking spaces can be provided which do not project into the street right-of-way.

4. Maximum coverage within the stream corridor subdistrict shall not exceed 1,500 square feet.

Response: This criteria does not apply.

G. Temporary construction access associated with authorized Type II uses. The disturbed area associated with temporary construction access shall be restored pursuant to NMC 15.342.090.

Response: This criteria does not apply.

H. Grading and fill for recreational uses and activities, which shall include revegetation, and which do not involve the construction of structures or impervious surfaces.

Response: This criteria does not apply.

I. Public parks.

Response: This criteria does not apply.

J. Stream corridor enhancement activities which are reasonably expected to enhance stream corridor resource values and generally follow the restoration standards in NMC 15.342.060. [Ord. 2451, 12-2-96. Code 2001 § 151.471.]

Response: This criteria does not apply.

15.342.080 Plan submittal requirements for Type II activities.

In addition to the design review plan submittal requirements, all applicants for Type II activities within the SC overlay subdistrict shall submit the following information:

A. A site plan indicating all the following existing conditions:

1. Location of the boundaries of the SC overlay subdistrict.

Response: The Stream Corridor Overlay Subdistrict Boundary can be found on Plan Sheets No. 1 through 8.

2. Outline of any existing features including, but not limited to, structures, decks, areas previously disturbed, and existing utility locations.

Response: Existing site conditions including structures, areas previously disturbed, and existing utility locations can be found on Plan Sheets No. 2.through 4

3. Location of any wetlands or water bodies on the site and the location of the stream centerline and top of bank.

Response: Existing can be found on Plan Sheets No. 1 through 8.

4. Within the area to be disturbed, the approximate location of all trees that are more than six inches in diameter at breast height must be shown, with size and species. Trees outside the disturbed area may be individually shown or shown as crown cover with an indication of species type or types.

Response: The Stream Corridor Mitigation Plan on Plan Sheet No. 2 and 3 shows the requested information.

5. Topography shown by contour lines at five-foot vertical intervals or less.

Response: Topography lines are shown on Plan Sheet No. 1 through 8.

6. Photographs of the site may be used to supplement the above information but are not required.

Response: Some project photos are included on Plan Sheet No. 2.

B. Proposed development plan including all of the following:

1. Outline of disturbed area including all areas of proposed utility work.

Response: The project boundary showing disturbed areas including proposed utility work are shown throughout the plan set.

2. Location and description of all proposed erosion control devices.

Response: An Erosion and Sedimentation Control Plan and associated narrative via sheet notes are shown on Plan Sheet No. 7.

3. A landscape plan prepared by a landscape architect, or other qualified design professional, shall be prepared which indicates the size, species, and location of all new vegetation to be planted. [Ord. 2451, 12-2-96. Code 2001 § 151.472.]

Response: A Stream Corridor Mitigation Plan is located on Plan Sheet No. L1 and L2 and were prepared by a landscape architect (Otten & Associates, LLC).

15.342.090 Mitigation requirements for Type II activities.

The following mitigation requirements apply to Type II activities. The plans required pursuant to NMC 15.342.080 shall be submitted indicating the following mitigation requirements will be met.

A. Disturbed areas, other than authorized improvements, shall be regarded and contoured to appear natural. All fill material shall be native soil. Native soil may include soil associations commonly found within the vicinity, as identified from USDA Soil Conservation Service, Soil Survey of Yamhill Area, Oregon.

Response: As shown in the plans, the site is being regarded and contoured to appear natural. Engineered fill material will be placed based on the recommendations from the Geotechnical Report dated November 20, 2019 (see Appendix) to stabilize existing slopes.

B. Replanting shall be required using a combination of trees, shrubs and grass. Species shall be selected from the Newberg native plant list. Planting shall be as follows:

1. At least eight species of plants shall be used.

Response: The Stream Corridor Mitigation Plan uses at least eight species of plants including grasses. See Plan Sheet No. 8.

2. At least two species must be trees and two species must be shrubs.

Response: The Stream Corridor Mitigation Plan includes three types of trees and four types of shrubs. See Plan Sheet No. 8.

3. No more than 50 percent of any seed mix used can be grass.

Response: The seed mixture can be found on Plan Sheet 8 and meets the requirement as stated.

4. A minimum of one tree and three shrubs shall be used for every 500 square feet of planting area.

Response: The total disturbed area is 12,917 square feet. Required shrubs 3 for every 500 square feet; 67 shrubs have been provided.

5. Areas to be replanted must be completed at the time of final inspection or completion of the work, except as otherwise allowed by this code.

Response: The applicant acknowledges this criteria and will complete replanting before calling in a final inspection or determining the work is complete.

6. Existing vegetation that can be saved and replanted is encouraged, although not required.

Response: Plan Sheet No. L1 shows the protection of some existing plant material, but no plant material is being proposed for saving and replanting purposes.

C. Removed trees over six inches in diameter, as measured at breast height, shall be replaced as follows:

1. Trees from six to 18 inches in diameter shall be replaced with a minimum of three new trees for every tree removed.

Response: Plan Sheets No. 2 and 3 can be used to see existing tree diameters and trees to be removed as part of the demolition plan. Four 6-inch trees and one 8-inch tree are being removed as part of the project grading and will be replaced with fifteen new trees. Per discussion with Doug Rux, Community Development Director, on March 10, 2020 it was determined that the cluster of hawthorn trees as noted in the existing conditions would be treated as one tree per each cluster.

2. Trees over 18 inches but less than 30 inches shall be replaced with a minimum of five trees for every tree removed.

Response: Plan Sheets No. 2 and 3 can be used to see existing tree diameters and trees to be removed as part of the demolition plan. There are no existing trees to be removed which are over 18-inches but less than 30-inches. This criteria does not apply.

3. Trees over 30 inches shall be replaced with a minimum of eight trees for every tree removed.

Response: Plan Sheets No. 2 and 3 can be used to see existing tree diameters and trees to be removed as part of the demolition plan. One 36-inch Douglas Fir tree was identified in the survey as dead. This tree will be removed as part of this project and per discussion with Doug Rux, Community Development Director, on March 10, 2020 it was determined that mitigation for this tree was not required since the tree was dead.

4. All trees replaced pursuant to this section shall have an average caliper measurement of a minimum of one inch. Additional trees of any size caliper may be used to further enhance the mitigation site.

Response: Plan Sheet No. 8 shows new trees having a 1-inch caliper or equivalent tree height specification.

D. All disturbed areas, other than authorized improvements, shall be replanted to achieve 90 percent cover in one year. The director may require a bond or other form of security instrument to insure completion of the restoration plan. The director shall authorize the release of the bond or other security instrument when, after one year, the restoration site has achieved the purposes and standards of this section.

Response: Plan Sheet No. 88 provides for the Stream Corridor Mitigation Plan. The project area as shown will be replaced to achieve 90 percent coverage in one year. The applicant is prepared to bond for plant material if required by the City of Newberg.

E. All disturbed areas shall be protected with erosion control devices prior to construction activity. The erosion control devices shall remain in place until 90 percent cover is achieved.

Response: Plan Sheet No. 7 provides for an Erosion and Sedimentation Control Plan. Erosion control devices will remain in place until 90 percent cover is achieved.

F. Except as provided below, all restoration work must occur within the SC overlay subdistrict and be on the same property. The director may authorize work to be performed on properties within the general vicinity or adjacent to the overlay subdistrict; provided, that the applicant demonstrates that this will provide greater overall benefit to the stream corridor areas. [Ord. 2451, 12-2-96. Code 2001 § 151.473.]

Response: All restoration work is proposed within the Stream Corridor Overlay Subdistrict on the respective impacted properties.

Appendix

JPA Permit Draft

Plan Set(including planting plan)updated plan sheets from HBH.

Geotechnical ReportHydraulics Report (HBH)

Wetland Delineation Report (Pacific Habitat)

Draft Mailed Notice – Completed Draft 02/06/2023.

Draft Posting – Completed Draft 02/06/2023.

Copy of IDP from Pacific Habitat (not in appendix, but needed to have a copy on hand for construction)

Title Report

Joint Permit Application

This is a joint application, and must be sent to both agencies, who administer separate permit programs. Alternative forms of permit applications may be acceptable; contact the Corps and DSL for more information.

DATE STAMP

U.S. Army Corps of Engineers Portland District	Oregon Department of State Lands	Oregon Department of Environmental Quality
Action ID Number **NWP-2020-097**	DSL Number **62490-RF**	

(1) TYPE OF PERMIT(S) IF KNOWN (check all that apply)

Corps: ☐ Individual ☒ Nationwide No.: 3 ☐ Regional General ☐ Other (Specify)

DSL: ☒ Individual ☐ GP Trans ☐ GP Min Wet ☐ GP Maint Dredge ☐ GP Ocean Energy ☐ No Permit ☐ Waiver

(2) APPLICANT AND LANDOWNER CONTACT INFORMATION

	Applicant	Property Owner (if different)	Authorized Agent (if applicable) ☒ Consultant ☐ Contractor
Name (Required) Business Name Mailing Address 1 Mailing Address 2 City, State, Zip	Fatin Abdullah, Engineering Project Coordinator City of Newberg 414 E. First St Newberg, OR 97132	Clare Sunderland 730 Wynooski St Newberg, OR 97132 James Wheaton 740 Wynooski St Newberg, OR 97132	Carlee Michelson **Pacific Habitat Services** 9450 SW Commerce Circle, Suite 180 Wilsonville, OR 97070
Business Phone Cell Phone Fax Email	(503) 554-7786 Fatin.Abdullah@newbergoregon.gov		(503) 570-0800 cm@pacifichabitat.com

(3) PROJECT INFORMATION

A. Provide the project location

Wynooski Street Storm Project / Outfall Design		Latitude & Longitude* 45.2939, -122.9619
Project Address / Location 740 Wynooski Street	City (nearest) Newberg	County Yamhill

Township	Range	Section	Quarter/Quarter	Tax Lot
3 South	2 West	20AC	NE ¼ SW1/4	802 (portion)
3 South	2 West	20AC	NE ¼ SW1/4	700 (portion)
3 South	2 West	20AC	NE ¼ SW1/4	Wynooski Street ROW
3 South	2 West	20AC	NE ¼ SW1/4	803 (portion)

Brief Directions to the Site:

From HWY 219 S within Newberg, turn W onto NE Wynooski Rd. Drive 1 mile and arrive at 740 Wynooski Street.

B. What types of waterbodies or wetlands are present in your project area? (Check all that apply.)

☒ River / Stream ☒ Non-Tidal Wetland ☐ Lake / Reservoir / Pond

☐ Estuary or Tidal Wetland ☐ Other: ☐ Pacific Ocean

Waterbody or Wetland Name**	River Mile	6th Field HUC Name	6th Field HUC (*12 digits*)
Channel 1, Wetland A, Ditch 1	N/A	Hess Creek-Willamette River	170900070307

* In decimal format (e.g., 44.9399, -123.0283)

** If there is no official name for the wetland or waterbody, create a unique name (such as "Wetland 1" or "Tributary A").

C. Indicate the project category. (check all that apply.)		
☐ Commercial Development	☐ Industrial Development	☐ Residential Development
☐ Institutional Development	☐ Agricultural	☐ Recreational
☐ Transportation	☐ Restoration	☐ Bridge
☐ Dredging	☒ Utility lines	☐ Survey or Sampling
☐ In- or Over-Water Structure	☒ Maintenance	☒ Other: **Outfall repair**

(4) PROJECT DESCRIPTION

A. Summarize the overall project, including work in areas both in and outside of waters or wetlands.

This project was previously permitted in 2020 under NWP2020-097. The applicant was unable to initiate the project and has now updated the site plan for resubmittal. No changes are proposed to the original wetland/waters impacts on site, but the upland area near Wynooski Street has a slightly different grading plan due to an adjacent landowner request. No changes to previous mitigation methods are proposed. The applicant has an active permit with the Department of State Lands (#62490-RF) that was renewed in July 2022.

The project area is approximately 0.36 acres and located east of Wynooski Street, approximately 0.5 miles south of Highway 99 in Newberg (Figures F1-F4; all figures are in Attachment 1). The proposed project includes making necessary repairs and updates to an existing stormwater culvert outfall within the project area. The existing outfall pipe has separated joints and has begun to deteriorate, which has contributed to erosion along adjacent slopes between residential properties on the northeastern side of Channel 1. As existing wetlands and Channel 1 extend to Hess Creek (off-site) from the existing outfall location, impacts will be necessary to provide ground surface stability and stormwater improvements. Hess Creek is located approximately 20 feet east of the study area and flows into the Willamette River approximately 2 river miles southeast of the site.

The improvements include a new 15-inch storm pipe connecting to existing City stormwater conveyances along Wynooski Street, which will bypass the old outfall location and convey flow underground to a new outfall location downslope within Wetland A. The proposed outfall location will require a rip rap dissipater to distribute flow evenly into Wetland A and reduce the potential for erosion and sedimentation (Figures F5, F5A, F6, F6A and F7A, F7B). The project will require total impact to Channel 1 due to the new storm pipe, and partial permanent impact to Wetland A from the rip rap dissipater. A new path will cross an upland area and connect to an existing path on site.

Stormwater: No changes in stormwater quantity or quality are proposed and according to the City of Newberg's Stormwater Management Guidelines, will comply with the Standard Local Operating Procedures for Endangered Species (SLOPES V) by the U.S. Army Corps of Engineers (Corps), 2015[*]. The Stormwater Plan (Figure F5) has been designed to adhere to the City of Newberg's Stormwater Management Guidelines[†], which requires control standards based on 24-hour storm events ranging from 50 percent of the 2-year return storm to the 25-year return storm events[‡]. No increases in impervious surface area are proposed and no change to conveyance quantity is proposed.

Mitigation: The proposed project will permanently impact 0.01 acres of waters of the state/US and 0.004 acres of wetlands on site, which will require mitigation. The applicant previously purchased wetland mitigation credits from a local wetland mitigation bank to compensate for impacts to Wetland A; as waters impacts are below 0.10 acre, no mitigation is required from the Corps; however, state required payment-in-lieu was provided to compensate for impacts to Channel 1.

[*] SLOPES V requires full treatment of water equal to 50% of the cumulative rainfall from the 2-yr, 24-hr storm event.

[†] Newberg Municipal Code 13.25.270 Stormwater Treatment Standards

[‡] City of Newberg (2014). *City of Newberg Design Standards Manual*. Newberg, Oregon: City of Newberg.

B. Describe work within waters and wetlands

The following tables describe the work to take place in waters and wetland:

Permanent Impacts	
Wetland A	175 square feet (0.004 acres) impact. Consists of removing 6 cubic yards of native substrate and fill of 5 cubic yards with clean fill, riprap and storm pipe
Ditch 1 (non-jurisdictional at the state level)	Fill of 6 cubic yards (clean fill) over 40 square feet (0.001 acres)
Channel 1	Fill 97 cubic yards (storm pipe and aggregate backfill) over 449 square feet (0.01 acres)
Temporary impacts (as erosion control best management practices (BMPs)*	
Wetland A	placement of straw wattles and sediment fencing - 36 square feet
Channel 1	placement of straw wattles and sediment fencing - 14 square feet

* These areas are not anticipated to cause any adverse effects to Wetland A and will be removed and revegetated at the end of the project.

Element	**Acres**	**Permanent**	
		Fill	**Removal**
Corps Jurisdiction			
Wetland A	0.004	5	6
Ditch 1	0.001	6	0
Channel 1	0.01	97	0
Total	**0.02**	**108**	**6**
DSL Jurisdiction			
Wetland A	0.004	5	6
Channel 1	0.01	97	0
Total	**0.02**	**102**	**6**

C. Construction Methods. Describe how the removal and/or fill activities will be accomplished to minimize impacts to waters and wetlands.

Access to the site for construction will be located on the east side of Wynooski Street along the southern project area boundary near an existing driveway (Figures F8). The construction entrance will be installed at the beginning of construction and maintained for the duration of the project. The staging and stockpiling will be located within the upland along the northern project area boundary near an existing residence. Typical equipment used for construction will include an excavator backhoe, loader, dump truck, bulldozer grader or compactor. Conventional fill and excavation methods will be used for the project.

Site construction will commence with the implementation of the erosion control plan, followed by any necessary site clearing and grubbing. Below ground utilities proposed that require trenching and grading include stormwater features (stormwater outfall and storm pipe, and manholes), as well as above ground rip rap dissipater. The final construction step will be to revegetate bare soil.

Erosion and Sediment Control: The Erosion Control Plan (Figures F8-F8B) illustrates some of the measures that will be used to ensure that impacts to wetlands are minimized to the maximum extent practicable. The following components of the erosion control plan and project design will protect against erosion and prevent the transport of sediments to any downstream receiving waters offsite. Along with the ESCP notes listed in Figure F8A, the following measures will also comply with the project:

- All erosion and sediment control measures shall be approved, in place, and functional prior to any ground disturbance of the site. Contractor shall maintain all erosion and sediment control measures throughout construction.
- Construction activities will avoid or minimize any excavation or other soil destabilization from November 1 to May 31 of the following year.
- Temporary site stabilization measures will be installed at the end of the shift before a holiday or weekend or at the end of each workday if rain is forecast in the next 24 hours.
- Sediment controls must be installed and maintained along the site perimeter on all down-gradient sides of the construction site and at all active and operational internal storm drains at all times during construction.
- Dry methods must be used to remove sediment and concrete sweepings from areas where discharge is likely to the storm drains, streets, watercourses, or sensitive areas.
- All dirt and debris tracked onto streets must be removed immediately if it can be spread by traffic or otherwise reach storm drains, watercourses, or sensitive areas.
- Sediment discharged offsite must be placed back onsite within 24 hours and stabilized. In-stream work shall be performed in accordance with the procedures and timeframes of the Oregon Department of State Lands.
- No sediment-laden water may be pumped, diverted, or otherwise discharged offsite unless approved by the erosion and sediment control plan.
- Sediment must be removed when it has reached the level specified in the standard detail.
- Sediment must be removed from sumped structures when the sediment retention capacity has been reduced by 1/3rd and within 30 days of project completion.
- When removing saturated soils from the site, either watertight trucks must be used or loads must be drained onsite until dripping has been reduced to minimize spillage.
- Erosion control measures will be inspected on active sites at least weekly or after precipitation in excess of 0.5 inches in 24 hours. If a site will be inactive more than fourteen (14) days (per City of Newberg's erosion control manual 2014 page 30), erosion control measures will be inspected prior to the inactive period and every two (2) weeks during the inactive period.
- All construction sites must follow proper storage, application, and disposal procedures of construction materials. No dumping or disposal of construction debris, waste, or spoil material will occur in any stream, stormwater system, wetlands, surface waters, or other watercourses or sensitive areas.
- Written spill prevention and response procedures are required for all sites.
- Toxic and hazardous materials must have cover and secondary containment.
- Paving activities shall be minimized between November 1 and May 31 of the following year to avoid potential discharge of paving chemicals into the storm drains, streets, watercourses, or sensitive areas.
- All erosion and sediment control measures shall be removed from the site 30 days after construction is completed and approved by the city.

- Contractor to hydroseed affected area with shade-tolerant, mowable hydroseed mix following construction.
- Area of ground disturbance is approximately 5,600 sq. ft. An erosion & sedimentation control permit is required prior to commencement of construction.

D. Describe source of fill material and disposal locations if known.

Types of materials to be used for onsite fill include a rip rap dissipater (CL50) placed along a 1.5:1 slope as approved by the geotechnical engineer; clean imported backfill of crushed rock and granular fill; and a 15-inch and 24-inch storm pipe and manhole. Stockpile locations will be placed on site with an impervious layer placed underneath the stockpile area. Temporary plastic sheeting will be placed around the stockpile area to prevent stormwater and material runoff. Any disposal required will occur legally in an off-site upland location.

E. Construction timeline.

Work proposed within waters of the state/US will occur during the appropriate in-water work period (IWWP), which is June 1-October 31[§].

What is the estimated project start date?: June, 2023

What is the estimate project completion date? October, 2023

Is any of the work underway or already complete? ☐ Yes ☒ No
If yes, describe.

F. Removal Volumes and Dimensions (if more than 7 impact sites, include a summary table as an attachment)

Wetland / Waterbody Name *	Removal Dimensions					Time Removal is to Remain**	Material***
	Length (ft.)	Width (ft.)	Depth (ft.)	Area (sf./acre)	Volume (c.y.)		
CORPS AND DSL JURISDICTION							
Wetland A	Varies	Varies	Varies	175 / 0.004	6	Permanent	Native substrate

G. Total Removal Volumes and Dimensions

Total Removal to Wetland and Other Waters	Length (ft)	Area (sq. ft. / acre)	Volume (c.y.)
Total Removal to Wetlands	~varies	175 / 0.004	6
Total Removal Below Ordinary High Water	N/A	N/A	N/A
Total Removal Below Highest Measured Tide	N/A	N/A	N/A
Total Removal Below High Tide Line	N/A	N/A	N/A
Total Removal Below Mean High Water Tidal Elevation	N/A	N/A	N/A

H. Fill Volumes and Dimensions (if more than 7 impact sites, include a summary table as an attachment)

Wetland / Waterbody Name *	Fill Dimensions					Time Fill is to Remain**	Material***
	Length (ft.)	Width (ft.)	Depth (ft)	Area (sf./ acre)	Volume (c.y.)		
CORPS JURISDICTION							
Wetland A	5-12	6-23	.1-.8	175 / 0.004	5	Permanent	CL50 riprap; 15" storm pipe
Channel 1	~110	~5	1-1.5	449 /0.01	97	Permanent	crushed rock and granular backfill; 15" storm pipe
Ditch 1	~10	varies	.5	40 / 0.001	6	Permanent	Clean granular backfill

[§] Oregon Department of Fish and Wildlife (ODFW). *Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, June 2008.

DSL JURISDICTION							
Wetland A	5-12	6-23	.1-.8	175 / 0.004	5	Permanent	CL50 riprap; 15" storm pipe
Channel 1	~110	~5	1-1.5	449 / 0.01	97	Permanent	crushed rock and granular backfill; 15" storm pipe
Corps and DSL Jurisdiction							
Wetland A	1	6-23	.5	18	1	Temporary	straw wattles and sediment fencing
Channel 1	1	~5	.5	14	1	Temporary	straw wattles and sediment fencing

I. Total Fill Volumes and Dimensions			
Total Fill to Wetland and Other Waters	**Length (ft)**	**Area (sq. ft. / acre)**	**Volume (c.y.)**
Total Fill to Wetlands (Corps and DSL)	Varies	193 / 0.004	6
Total Fill Below Ordinary High Water (Corps)	~120	503 / 0.01	104
Total Fill Below Ordinary High Water (DSL)	~110	463 /0.01	98
Total Fill Below Highest Measured Tide	N/A	N/A	N/A
Total Fill Below High Tide Line	N/A	N/A	N/A
Total Fill Below Mean High Water Tidal Elevation	N/A	N/A	N/A

* If there is no official name for the wetland or waterbody, create a unique name (such as "Wetland 1" or "Tributary A").
** Indicate whether the proposed area of removal or fill is permanent or, if you are proposing temporary impacts, specify the days, months, or years the fill or removal is to remain.
*** Example: soil, gravel, wood, concrete, pilings, rock etc.)

Figure	Description	Figure	
F1	Location Map (USGS)	F6, F6A	Grading Plan, Cross Sections
F2	Tax Lot Map	F7A - F7B	Dissipater and Standard Details
F3	Recent Aerial Photo	F8	Erosion Control Plan
F4	Existing Conditions	F8A - FB	Erosion Control Notes and Standard Details
F5	Site Plan –Storm Drain Improvements	F9	Alternative Site Plan
F5A	Storm Drain Improvements Profile	F10	Revegetation Plan
Attachments	**Description**	**Attachments**	**Description**
1	Figures	3	Stream Functional Assessment
2	Department of State Lands Concurrence Letter		

(5) PROJECT PURPOSE AND NEED

Provide a statement of the purpose and need for the overall project.

Purpose: The purpose of the project is to provide repairs and updates to existing stormwater structures within the project area. The repairs will include stabilizing existing slopes surrounding Channel 1, which will serve to prevent damage to adjacent private residential lots and structures. The improvements include a new 15-inch storm pipe that will connect to existing City stormwater conveyances along Wynooski Street and will bypass the old outfall location to convey flow underground to a new outfall located downslope within Wetland A. The proposed outfall location will require a rip rap dissipater to distribute flow evenly into Wetland A and reduce the potential for erosion and sedimentation. The project will require total impact to Channel 1, which is incised by seasonal flow from the outfall pipe and has resulted in slope instability within the project area. The improved path extension will provide a public benefit to the City of Newberg.

Need: The project requires necessary repairs and updates to the existing outfall pipe that has separated joints and has begun to deteriorate. The outfall location currently contributes to eroding slopes between residential properties on the northeastern side of Channel 1. As existing wetlands and Channel 1 extend to Hess Creek (off-site) from the existing outfall location, impacts will be necessary to provide ground surface stability and stormwater improvements. This need can be accommodated through storm pipe and outfall relocation, which is proposed to dissipate into Wetland A and avoids outfall-induced erosion along upslope properties.

(6) DESCRIPTION OF RESOURCES IN PROJECT AREA

A. Describe the existing physical, chemical, and biological characteristics of each wetland or waterbody. Reference the wetland and waters delineation report if one is available. Include the list of items provided in the instructions.

The project area is located due east of Wynooski Street, approximately 0.5 miles southeast of Oregon Highway 99 in Newberg, Oregon. Hess Creek is located approximately 20 feet east beyond the study area and flows into the Willamette River approximately 2 river miles southeast of the site. Landscape topography is gently rolling with elevations ranging between approximately 120 feet and 160 feet. The area of lowest elevation is located in the eastern portion of the site, where a deeply incised drainage channel (Channel 1) flows east towards Hess Creek and adjacent wetlands

Dominant vegetation in the project area includes English hawthorn (*Crataegus monogyna*, FAC), Himalayan blackberry (*Rubus armeniacus*, FAC), reed canarygrass (*Phalaris arundinacea*, FACW), and field horsetail (*Equisetum arvense*, FAC), Douglas' fir (*Pseudotsuga menziesii*, FACU), Oregon ash (*Fraxinus latifolia*, FACW), big leaf maple (*Acer macrophyllum*, FACU), beaked hazelnut (*Corylus cornuta*, FACU), English ivy (*Hedera helix*, FACU), and holly (*Ilex* sp., (FAC).

A delineation was conducted in 2019 with three potentially jurisdictional features (discussed below). The delineation received concurrence in April 2019 from the Department of State Lands (DSL) (WD #2019-0031, Attachment 2). The delineation report was submitted to the Corps as a separate report.

Channel 1

Channel 1 (0.01 acres/ 449 square feet) is a drainage channel that is fed by a culvert connected to Ditch 1. The channel has become deeply incised and conveys seasonal flow northeast toward Wetland A (described below). Average channel width is 2-3 feet and the banks are approximately 1-2 feet above the channel bottom and bordered by Himalayan blackberry. Flowing water was not present at the time of the delineation, but saturation, drainage patterns and scour were evident within the channel, which is actively eroding adjacent slopes. The Cowardin classification is riverine, intermittent streambed, seasonally flooded/saturated (R4SB5E) wetland, and Riverine Flow-Through is the primary Hydrogeomorphic (HGM) classification. The drainage channel has been scoured of vegetation by seasonal flow from the culvert and run-off from adjacent upland slopes; displays a change in sediment characteristics, contains exposed roots, has no organic debris accumulation, and displays a distinct change in plant community.

Wetland A

Wetland A (0.03 acres / 1,521 square feet) is a palustrine emergent seasonally flooded/saturated (PEM1E) wetland with a HGM classification of Slope. The wetland begins at the base of a slope where the forested boundary ends, and the topography flattens out into a gently sloping terrace. A thick growth of Himalayan blackberry borders the base of slope, but Wetland A mainly consists of reed canarygrass. Wetland A receives hydrology from the Channel 1, precipitation and groundwater, and continues offsite to the north, northeast, east, and southeast.

Ditch 1 (DSL Non-Jurisdictional)

A ditch (0.001 acres / 40 square feet) connected to a storm drain downslope of Wynooski Street directs seasonal runoff east toward a buried culvert that outfalls into Channel 1 flowing northeast within the study area. The ditch is man-made within upland soils and has been lined with cobble and gravel. The ditch is approximately three-feet wide, one foot deep, and does not convey regular flows aside from storm events. This feature is non-jurisdictional for the state of Oregon, per concurrence letter of April 15, 2019, from DSL.

Stream Functional Assessment: On January 7, 2020, Pacific Habitat Services (PHS) performed a Stream Function Assessment Method (SFAM[**]) on Channel 1 within the study area (Attachment 3). SFAM identifies eleven stream functions within four broad functional groups (hydrologic, geomorphic, biological, and water quality), as outlined in OAR 141-085-0685(4). Below are the specific functions and grouped functions scores.

SPECIFIC FUNCTIONS	Function Score	Function Rating	Value Score	Value Rating
Surface Water Storage (SWS)	2.58	Lower	7.25	Higher
Sub/Surface Water Transfer (SST)	3.75	Moderate	10.00	Higher
Flow Variation (FV)	7.82	Higher	5.50	Moderate
Sediment Continuity (SC)	5.68	Moderate	4.60	Moderate
Sediment Mobility (SM)	8.04	Higher	5.75	Moderate
Maintain Biodiversity (MB)	0.91	Lower	2.75	Lower
Create and Maintain Habitat (CMH)	0.38	Lower	5.20	Moderate
Sustain Trophic Structure (STS)	3.17	Moderate	4.27	Moderate
Nutrient Cycling (NC)	6.08	Moderate	5.46	Moderate
Chemical Regulation (CR)	5.48	Moderate	5.46	Moderate
Thermal Regulation (TR)	8.50	Higher	6.60	Moderate
GROUPED FUNCTIONS	**REPRESENTATIVE FUNCTION**		**Function Group Rating**	**Value Group Rating**
Hydrologic Function (SWS, SST, FV)	Flow Variation (FV)		Higher	Moderate
Geomorphic Function (SC, SM)	Sediment Mobility (SM)		Higher	Moderate
Biologic Function (MB, CMH, STS)	Sustain Trophic Structure (STS)		Moderate	Moderate
Water Quality Function (NC, CR, TR)	Thermal Regulation (TR)		Higher	Moderate

After assessing the site, PHS staff disagrees that Channel 1 provides a "Higher" function group rating for hydrologic function, particularly related to surface water storage and flow variation. The channel is the result of erosion, only diversifies in width where culvert entrance widens the channel and is too steep of a slope to truly store water at the surface level for any prolonged period. Downslope wetlands are likely to provide more surface water storage than Channel 1. Similarly, the channel likely does not provide a "Higher" function group rating for geomorphic functions related to sediment mobility, due to the conveyance of stormwater through culverts and rip rap foundations further upslope.

Wetland Functional Assessment: A functional assessment was conducted for Wetland A at the project site during the delineation. As wetland impacts are below 0.20 acres, under OAR 141-085-0685(4)(c), best professional judgment was used to assess the functions and values of Wetland A:

Water quality and quantity: Any chemicals or nutrients in the water (no standing water) are from surface runoff from adjacent uplands, groundwater, and stormwater from the outfall feeding Channel 1. The wetland's dense herbaceous vegetation filters inorganic nutrients such as nitrogen, phosphorus and ammonium nitrate. The wetland's gradual sloped topography does not allow for significant or long-term storage of surface waters and no standing water was present during the delineation. It is likely the wetland is essentially a nutrient sink, allowing plants to take up and hold nutrients during the summer months. For these reasons, the overall water quality and quantity function and value is "Moderate".

[**] Nadeau, T-L., C. Trowbridge, D. Hicks, and R. Coulombe. 2018. A Scientific Rationale in Support of the Stream Function Assessment Method for Oregon (SFAM, Version 1.0). Oregon Department of State Lands, Salem, OR, EPA 910-S-18-001, U.S. Environmental Protection Agency, Region 10, Seattle, WA

Fish and wildlife habitat: The wetland lacks areas of long-term standing water, which reduces the likelihood of it providing breeding habitat for amphibians. The wetland does not include an enclosed canopy with trees and shrubs, which reduces the likelihood of providing nesting opportunities for birds but has limited suitability for songbird habitat due to a dominance of emergent plants. There is no down woody debris in the assessed portion of the project area seasonal zone, which does not provide suitable shelter from predators. More common species such as rodents, coyote and deer may be regularly found in the wetland due to its position along undeveloped riparian corridor; however, residential development encloses the corridor on both sides of Hess Creek. For these reasons, the overall fish and wildlife habitat function is low, and value is "Moderate".

Native plant communities and species diversity: The wetland's herbaceous vegetation is dominated by non-native species mostly reed canarygrass. Species diversity is low and does not include many natives. There is limited microtopography due to a gradual slope. The overall native plant community and species diversity function is "Low" and value is "Moderate" due to the lacking benefit of having a more diverse shrub and tree layer.

Recreation and education: As the property is undeveloped and privately owned, there is no known recreation or educational opportunities provided by the wetland. For this reason, the overall function and value for recreation and education is "Low".

Endangered Species Act: There are no listed species within the project site. Channel 1 and Wetland A do not provide habitat for listed or candidate species under the Endangered Species Act (ESA). No critical habitat or Essential Salmonid Habitat (ESH) is mapped within the site. No changes in storm conveyance quantity or treatment methods are proposed; existing stormwater infrastructure complies with the 2-year, 24-hour storm event according to the City of Newberg's Stormwater Manual. The nearest mapped ESH is located 2 river miles southeast of the site, in the Willamette River. It is anticipated that the potential effects of the proposed project on ESA-listed salmonids and their habitats will be covered under the existing NMFS 2014 Formal Programmatic Conference and Biological Opinion and Essential Fish Habitat Consultation for *Revisions to Standard Local Operating Procedures for Endangered Species to Administer Maintenance or Improvement of Stormwater, Transportation or Utility Actions Authorized or Carried Out by the U.S. Corps of Engineers in Oregon* (SLOPES V Stormwater, Transportation or Utilities).

Fish and Wildlife Species Use: As mentioned in the functional assessment, the wetland lacks areas of long-term standing water, which reduces the likelihood of it providing breeding habitat for amphibians. The wetland does not include an enclosed canopy with trees and shrubs, which reduces the likelihood of providing nesting opportunities for birds but has limited suitability for songbird habitat due to a dominance of emergent plants. Within the Hess Creek HUC12 watershed, there are occurrences of western pond turtle (*Actinemys marmorata*), which are unlikely in the impact area due to reasons outlined above.

Fish habitat potential is low, as the flow in Channel 1 is not continuous and contains a fish passage barrier. Wetland A is vegetated and does not typically contain standing water. Within the same HUC12, there are mapped essential salmonid habitats (ESH) and other habitats for the following species: Steelhead (*Oncorhynchus mykiss*) in the upper Willamette River, Oregon chub (*Oregonichthys crameri*), Chinook salmon (*Oncorhynchus tshawytscha*) in the upper Willamette River, and Pacific lamprey (*Entosphenus tridentatus*).

Archeological and Historic Resources: No known archaeological survey has been conducted on the property. If any archaeological resources and/or artifacts are encountered during construction, all construction activity will immediately cease, and the State Historic Preservation Office will be contacted.

100-Year Floodplain: No impacts are proposed within the 100-year floodplain, which resides east and outside of the project area.

B. Describe the existing navigation, fishing and recreational use of the waterbody or wetland.

There is no known navigation, fishing, or recreational use of Wetland A, Channel 1, or Ditch 1 within the project area, which is located on private property.

(7) PROJECT SPECIFIC CRITERIA AND ALTERNATIVES ANALYSIS

Describe project-specific criteria necessary to achieve the project purpose. Describe alternative sites and project designs that were considered to avoid or minimize impacts to the waterbody or wetland.*

Project specific criteria include:

1. A city utility in need of repair and/or maintenance
2. Within the City of Newberg
3. Accessible by equipment utilized for repair
4. Minimization of impacts to natural resources
5. Prioritization of potential residential disturbance caused by City infrastructure deterioration

No-Build: The no-build option would exacerbate the erosion problem along residential slopes caused by the stormwater outfall deterioration. This is not a viable option for the City.

Other Properties in the City: The criteria listed above were applied to other properties in the City, which is why the proposed project is isolated to the small area of high priority repair needs along the east side of Wynooski Street.

Alternative site plan: The alternative site plan (Figure F9) shows a slightly different configuration of PVC pipe placed adjacent to the existing channel. This plan would require further excavation during installation into adjacent eroding slopes, and closer to nearby residences. This would also result in the same amount of impact to the channel, and an increased impact area to Wetland A through a larger rip rap dissipater. To avoid unnecessary excavations, reduce erosion, and provide a better alternative for adjacent neighboring properties and the City, this plan was not selected.

Preferred site plan: The preferred site plan (Figure F5) proposes a 15-inch PVC drain pipe to convey the same amount of stormwater runoff into Wetland A through an extended storm pipe and new rip rap dissipater. By elongating the storm pipe and eliminating Channel 1, erosion will be reduced along the slope and runoff will be conveyed safely into a low-sloping area within Wetland A. All disturbed and bare areas will be revegetated with native vegetation after final contours are achieved.

*Not required by the Corps for a complete application, but is necessary for individual permits before a permit decision can be rendered.

(8) ADDITIONAL INFORMATION

Are there any state or federally listed species on the project site?	☐ Yes	☒ No	☐ Unknown
Is the project site within designated or proposed critical habitat?	☐ Yes	☒ No	☐ Unknown
Is the project site within a national Wild and Scenic River?	☐ Yes	☒ No	☐ Unknown
Is the project site within a State Scenic Waterway?	☐ Yes	☒ No	☐ Unknown
Is the project site within the 100-year floodplain?	☐ Yes	☒ No	☐ Unknown

If yes to any of the above, explain in Block 6 and describe measures to minimize adverse effects to these resources in Block 7.

Is the project site within the Territorial Sea Plan (TSP) Area? **If yes, attach TSP review as a separate document for DSL.**	☐ Yes	☒ No	☐ Unknown
Is the project site within a designated Marine Reserve? **If yes, certain additional DSL restrictions will apply.**	☐ Yes	☒ No	☐ Unknown
Will the overall project involve ground disturbance of one acre or more? **If yes, you may need a 1200-C permit from the Oregon Department of Environmental Quality (DEQ).**	☐ Yes	☒ No	☐ Unknown
Is the fill or dredged material a carrier of contaminants from on-site or off-site spills?	☐ Yes	☒ No	☐ Unknown
Has the fill or dredged material been physically and/or chemically tested? **If yes, explain in Block 6 and provide references to any physical/chemical testing report(s).**	☐ Yes	☐ No	☒ Unknown
Has a cultural resource (archaeological and/or built environment) survey been performed on the project area?	☐ Yes	☒ No	☐ Unknown
Do you have any additional archaeological or built environment documentation, or correspondence from tribes or the State Historic Preservation Office? **If yes, provide a copy of the survey and/or documentation of correspondence with this application to the Corps only. Do not describe any resources in this document. Do not provide the survey or documentation to DSL.**	☐ Yes	☒ No	☐ Unknown

Is the project part of a DEQ Cleanup Site? ☐ Yes ☒ No Permit number_____ DEQ Contact_____

Will the project result in new impervious surfaces or the redevelopment of existing surfaces? Yes ☐ No ☒

If yes, the Applicant must submit a post-construction stormwater management plan to DEQ's 401 WQC program for review and approval, see http://www.deq.state.or.us/wq/sec401cert/docs/stormwaterGuidelines.pdf

Identify any other federal agency that is funding, authorizing or implementing the project.

Agency Name	Contact Name	Phone Number	Most Recent Date of Contact

List other certificates or approvals/denials required or received from other federal, state or local agencies for work described in this application.

Agency	Certificate / approval / denial description	Date Applied
ODEQ	401 Water Quality Certification	Concurrent
USACE	NWP3 verification	Concurrent

Other DSL and/or Corps Actions Associated with this Site (Check all that apply):

☐ Work proposed on or over lands owned by or leased from the Corps (may require authorization pursuant to 33 USC 408). These could include the federal navigation channel, structures, levees, real estate, dikes, dams and other Corps project.

☐ State Owned Waterway DSL Waterway Lease # _____

☒ Other Corps or DSL Permits Corps # NWP2020-097 DSL # 62490RF

☐ Violation for Unauthorized Activity Corps # _____ DSL # _____

☒ Wetland and Waters Delineation Corps # _____ DSL # WD2019-0031

Submit the entire delineation report to the Corps; submit only the concurrence letter (if complete) and approved maps to DSL. If not previously submitted to DSL, send under a separate cover letter.

(9) IMPACTS, RESTORATION/REHABILITATION, COMPENSATORY MITIGATION

A. Describe unavoidable environmental impacts that are likely to result from the proposed project. Include permanent, temporary, direct and indirect impacts.

The proposed project will permanently impact 449 square feet of Channel 1, 175 square feet of Wetland A, and 40 square feet of Ditch 1 (DSL-non-jurisdictional). These impacts are an unavoidable result of replacing deteriorating stormwater facilities causing erosional damage to nearby residences and the proposed project will additionally prevent further erosion along this slope.

B. For temporary removal or fill or disturbance of vegetation in waterbodies, wetlands or riparian (i.e., streamside) areas, discuss how the site will be restored after construction to include the timeline for restoration.

Temporary impacts include 14 square feet of straw wattles and sediment fencing placed within Channel 1 and 18 square feet within Wetland A during construction. These sediment control elements will be removed, and any bare soil areas revegetated with native vegetation as seen in the revegetation Figure F10, which also includes planting plans for permanent impact areas.

Compensatory Mitigation

C. Proposed mitigation approach. Check all that apply:

☐ Permittee-responsible Onsite Mitigation	☐ Permittee-responsible Offsite Mitigation	☒ Mitigation Bank or in-lieu fee program	☒ Payment to Provide (not approved for use with Corps permits)

D. Provide a brief description of mitigation approach and the rationale for choosing that approach. If you believe mitigation should not be required, explain why.

The adverse effect of this project includes permanent fill associated with stormwater rip rap and pipe, and permanent removal of native soil and riprap across 175 square feet of Wetland, 449 square feet of waters of the state/US, and 40 square feet of Ditch 1 (DSL non-jurisdictional).

The mitigation approach will be purchasing mitigation bank credits for wetland impacts and using the DSL payment in lieu (PIL) for waters impacts, as discussed below. The applicant's rationale for using a mitigation bank and PIL is that the cumulative amount of impact to wetland and waters is less than 0.2 acres, and the site is unsuitable for restoration and enhancement at such a small size requirement.

DSL: The previously obtained DSL removal/fill application is still active and has been renewed. The applicant already purchased 0.005 mitigation bank credits from Mud Slough Wetland Mitigation bank to compensate for permanent wetland impacts, and has paid DSL $2,320.70 payment-in-lieu for permanent waters impacts. Per OAR 141-085-0680 (3)(c), the project involves less than 0.20 acres of permanent wetland impact and is using a mitigation bank; therefore, DSL's Principles Objectives are not being addressed.

Corps: As impacts to wetlands and water are less than 0.10 acre, no mitigation is required by the Corps.

Mitigation Bank / In-Lieu Fee Information:

Name of mitigation bank or in-lieu fee project: Mud Slough / PIL for stream impacts

Type of credits to be purchased: PEM

If you are proposing permittee-responsible mitigation, have you prepared a compensatory mitigation plan?

☐ **Yes.** Submit the plan with this application and complete the remainder of this section.

☐ **No.** A mitigation plan will need to be submitted (*for DSL, this plan is required for a complete application*).

Mitigation Location Information (Fill out only if permittee-responsible mitigation is proposed)

Mitigation Site Name/Legal Description	Mitigation Site Address	Tax Lot #
County	**City**	**Latitude & Longitude** (in DD.DDDD format)

Township	Range	Section	Quarter/Quarter

(10) ADJACENT PROPERTY OWNERS FOR PROJECT AND MITIGATION SITE*

☒ **Pre-printed mailing labels of adjacent property owners attached**

OLIVARES FAVIOLA
724 WYNOOSKI ST
NEWBERG OR 97132

KELLY J PHELPS
PATRICK J THOMAS
800 WYNOOSKI ST
NEWBERG OR 97132

SCOTT & KARIN MAJDECKI
810 WYNOOSKI ST
NEWBERG OR 97132

CLARE SUNDERLAND
730 WYNOOSKI ST
NEWBERG OR 97132

JAMES & VIVA WHEATON
740 WYNOOSKI ST
NEWBERG OR 97132

RANDY MILLER
718 WYNOOSKI ST
NEWBERG OR 97132

ANDRA LUNSTRUM &
KATHLEEN MANN
1622 MERLIN LN
NEWBERG OR 97132

DAVE JEFFERY
214 W AVE F
MCPHERSON KS 67460

TERRY & LINDA HOLDAHL
721 WYNOOSKI ST
NEWBERG OR 97132

MARTHA IANCU
15715 SW QUEEN VICTORIA PL
KING CITY OR 97224

STEPHEN & ELIZABETH
ROSENBERGER
712 WYNOOSKI ST
NEWBERG OR 97132

JODI & SEAN MALLOY
2421 PEBBLE SPRINGS CT
HENDERSON NV 89074

(11) CITY/COUNTY PLANNING DEPARTMENT LAND USE AFFIDAVIT
(TO BE COMPLETED BY LOCAL PLANNING OFFICIAL)

I have reviewed the project described in this application and have determined that:

- ☐ This project is not regulated by the comprehensive plan and land use regulations.
- ☐ This project is consistent with the comprehensive plan and land use regulations.
- ☒ This project is consistent with the comprehensive plan and land use regulations with the following:
  - ☐ Conditional Use Approval
  - ☒ Development Permit
  - ☐ Other Permit (explain in comment section below)
- ☐ This project is not currently consistent with the comprehensive plan and land use regulations. To be consistent requires:
  - ☐ Plan Amendment
  - ☐ Zone Change
  - ☐ Other Approval or Review (see comment section)

An application or variance request has ☐ has not ☒ been filed for approvals required above.

Local planning official name (print)	Title	City / County
Doug Rux	Community Development Director	Newberg
Signature	**Date**	
Doug Rux	1/24/2023	

Comments:

(12) COASTAL ZONE CERTIFICATION

If the proposed activity described in your permit application is within the Oregon Coastal Zone, the following certification is required before your application can be processed. The signed statement will be forwarded to the Oregon Department of Land Conservation and Development (DLCD) for its concurrence or objection. For additional information on the Oregon Coastal Zone Management Program and consistency reviews of federally permitted projects, contact DLCD at 635 Capitol Street NE, Suite 150, Salem, Oregon 97301 or call 503-373-0050 or click here.

CERTIFICATION STATEMENT

I certify that, to the best of my knowledge and belief, the proposed activity described in this application complies with the approved Oregon Coastal Zone Management Program and will be completed in a manner consistent with the program.

Print/Type Applicant Name	Title
Applicant Signature	Date

(13) SIGNATURES

Application is hereby made for the activities described herein. I certify that I am familiar with the information contained in the application, and, to the best of my knowledge and belief, this information is true, complete and accurate. I further certify that I possess the authority to undertake the proposed activities. By signing this application I consent to allow Corps or DSL staff to enter into the above-described property to inspect the project location and to determine compliance with an authorization, if granted. I hereby authorize the person identified in the authorized agent block below to act in my behalf as my agent in the processing of this application and to furnish supplemental information in support of this permit application. I understand that the granting of other permits by local, county, state or federal agencies does not release me from the requirement of obtaining the permits requested before commencing the project. I understand that payment of the required state processing fee does not guarantee permit issuance.

To be considered complete, the fee must accompany the application to DSL. The fee is not required for submittal of an application to the Corps.

Fee Amount Enclosed	$

Applicant Signature (required) Must match name in Block 2

Print Name	Title
Fatin Abdullah	Engineering Project Coordinator
Signature	Date
	01/25/2023

Authorized Agent Signature

Print Name	Title
Carlee Michelson	Natural Resource Specialist
Signature	Date
	1/31/2023

Landowner Signature(s)*

Landowner of the Project Site (if different from applicant)

Print Name	Title
Clare Sunderland	property owner, 730 Wynooski
Signature	Date
Clare Sunderland	1-24-23

Landowner of the Mitigation Site (if different from applicant)

Print Name	Title
Signature	Date

Department of State Lands, Property Manager (to be completed by DSL)

If the project is located on state-owned submerged and submersible lands, DSL staff will obtain a signature from the Land Management Division of DSL. A signature by DSL for activities proposed on state-owned submerged/submersible lands only grants the applicant consent to apply for a removal-fill permit. A signature for activities on state-owned submerged and submersible lands grants no other authority, express or implied and a separate proprietary authorization may be required.

Print Name	Title
Signature	Date

* Not required by the Corps.

(13) SIGNATURES

Application is hereby made for the activities described herein. I certify that I am familiar with the information contained in the application, and, to the best of my knowledge and belief, this information is true, complete and accurate. I further certify that I possess the authority to undertake the proposed activities. By signing this application I consent to allow Corps or DSL staff to enter into the above-described property to inspect the project location and to determine compliance with an authorization, if granted. I hereby authorize the person identified in the authorized agent block below to act in my behalf as my agent in the processing of this application and to furnish supplemental information in support of this permit application. I understand that the granting of other permits by local, county, state or federal agencies does not release me from the requirement of obtaining the permits requested before commencing the project. I understand that payment of the required state processing fee does not guarantee permit issuance.

To be considered complete, the fee must accompany the application to DSL. The fee is not required for submittal of an application to the Corps.

Fee Amount Enclosed	$

Applicant Signature (required) Must match name in Block 2

Print Name	Title
Fatin Abdullah	Engineering Project Coordinator
Signature	Date
	01/30/2023

Authorized Agent Signature

Print Name	Title
Carlee Michelson	Natural Resource Specialist
Signature	Date

Landowner Signature(s)*

Landowner of the Project Site (if different from applicant)

Print Name	Title
Jim Wheaton	Homeowner (740 Wynooski)
Signature	Date
	1/23/23

Landowner of the Mitigation Site (if different from applicant)

Print Name	Title
Signature	Date

Department of State Lands, Property Manager (to be completed by DSL)

If the project is located on state-owned submerged and submersible lands, DSL staff will obtain a signature from the Land Management Division of DSL. A signature by DSL for activities proposed on state-owned submerged/submersible lands only grants the applicant consent to apply for a removal-fill permit. A signature for activities on state-owned submerged and submersible lands grants no other authority, express or implied and a separate proprietary authorization may be required.

Print Name	Title
Signature	Date

* Not required by the Corps.

(14) ATTACHMENTS

- ☒ **Drawings**
  - ☒ Location map with roads identified
  - ☒ U.S.G.S. topographic map
  - ☒ Tax lot map
  - ☒ Site plan(s)
  - ☒ Cross section drawing(s)
  - ☒ Recent aerial photo
  - ☐ Project photos
  - ☒ Erosion and Pollution Control Plan(s), if applicable
  - ☒ DSL/Corps Wetland Concurrence letter and map, if approved and applicable
- ☒ Pre-printed labels for adjacent property owners (Required if more than 5)
- ☐ Incumbency certificate if applicant is a partnership or corporation
- ☒ Restoration plan or rehabilitation plan for temporary impacts
- ☐ Mitigation plan
- ☐ Wetland functional assessment, if applicable (Section 6)
  - ☐ Cover Page
  - ☐ Score Sheets
  - ☐ ORWAP OR , F, T, & S forms
  - ☐ ORWAP Reports
  - ☐ Assessment Maps
  - ☐ ORWAP Reports: Soils, Topo, Assessment area, Contributing area
- ☒ Stream Functional Assessment, if applicable
  - ☒ Cover Page
  - ☒ Score Sheets
  - ☒ SFAM PA, PAA, & EAA forms
  - ☒ SFAM Report
  - ☒ Assessment Maps
    - ☒ Aerial Photo, Site Map, and Topo Site Map (Both maps should document the PA, PAA, & EAA)
- ☐ Compensatory Mitigation (CM) Eligibility & Accounting Worksheet
  - ☐ Matching Quickguide Sheet(s)
  - ☐ CM Eligibility & Accounting Sheet
- ☒ Alternatives analysis (Section 7)
- ☐ Biological assessment (if requested by Corps project manager during pre-application coordination)
- ☒ Stormwater management plan (may be required by the Corps or DEQ)
- ☒ Other: Please Describe:
  - ☒ **Wetland Delineation Report (Separate report for Corps)**
  - ☒ **Payment Calculator For In-Lieu Fee Program**

For U.S. Army Corps of Engineers send application to:

USACE Portland District
ATTN: CENWP-ODG-P
PO Box 2946
Portland, OR 97208-2946
503-808-4373
portlandpermits@usace.army.mil

Counties:
Baker, Benton, Clackamas, Clatsop, Columbia, Gilliam, Grant, Hood River, Jefferson Lincoln, Linn, Malheur, Marion, Morrow, Multnomah, Polk, Sherman, Tillamook, Umatilla, Union, Wallowa, Wasco, Washington, Wheeler, Yamhill

U.S. Army Corps of Engineers
ATTN: CENWP-ODG-E
211 E. Seventh Ave., Suite 105
Eugene, OR 97401-2722
541-465-6868
portlandpermits@usace.army.mil

Counties:
Coos, Crook, Curry, Deschutes, Douglas, Jackson, Josephine, Harney, Klamath, Lake, Lane

For Department of State Lands send application to:

West of the Cascades:
Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
503-986-5200

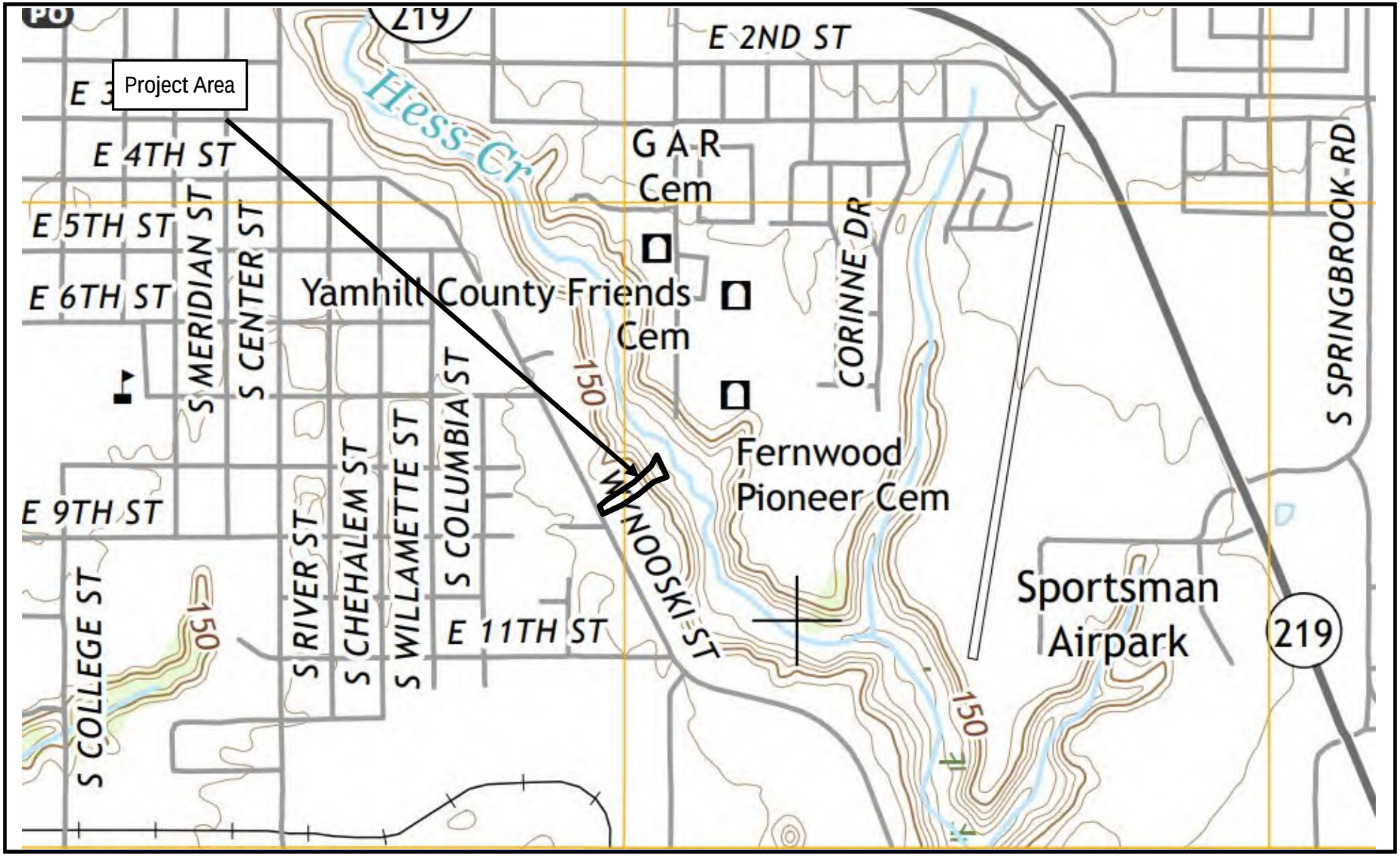
East of the Cascades:
Department of State Lands
1645 NE Forbes Road, Suite 112
Bend, Oregon 97701
541-388-6112

For Department of Environmental Quality email application to:

ATTN: DEQ 401 Certification Program
Water Quality
700 NE Multnomah St, Suite 600
Portland, OR 97232
401applications@deq.state.or.us

Attachment 1

Figures

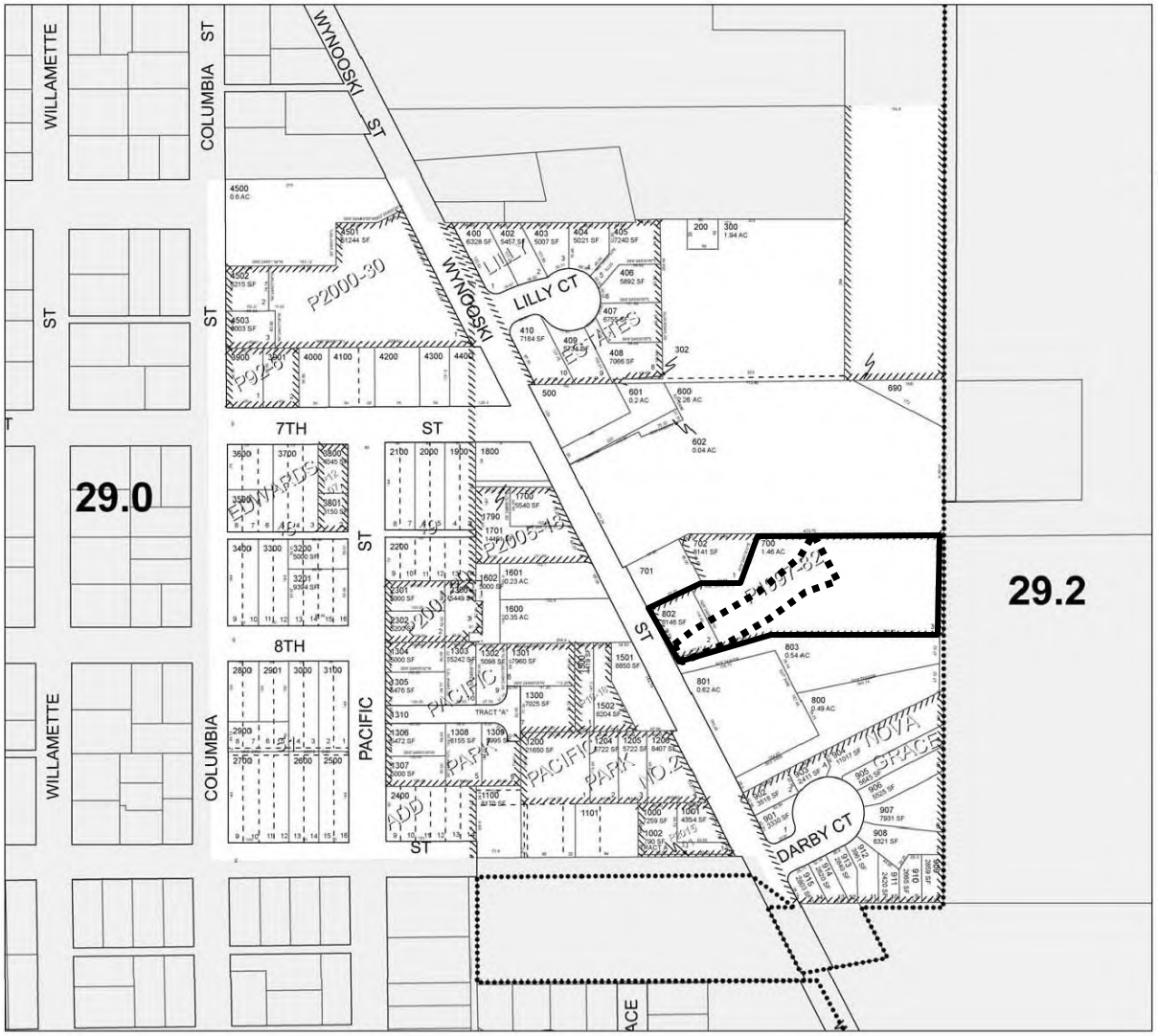


#6601
10/8/2018

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

General Location and Topography
Wynooski Road Storm Project /Outfall Redesign - Newberg, Oregon
United States Geological Survey (USGS), Newberg, Oregon, 7.5 Quadrangle, 2017
(viewer/nationalmap.gov/basic)

FIGURE
F1



3 2 20CA

1843 YAMHILL COUNTY

ASSESSMENT & TAX CARTOGRAPHY

N.E.1/4 S.W.1/4 SEC.20 T.3S. R.2W. W.M.
YAMHILL COUNTY OREGON
1" = 100'

CANCELLED TAXLOTS:
4601
4600
2801
2401
1402
1401
1400
1203
1202
1201
1102
401
400
900

DATE PRINTED: 8/16/2018

This product is for Assessment and Taxation (A&T) purposes only and has not been prepared or is suitable for legal, engineering, surveying or any purposes other than assessment and taxation.

3 2 20CA

#6601
10/8/2018

PHS

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Tax Lot Map
Wynooski Road Storm Project /Outfall Redesign - Newberg, Oregon
The Oregon Map (ormap.net)

FIGURE
F2

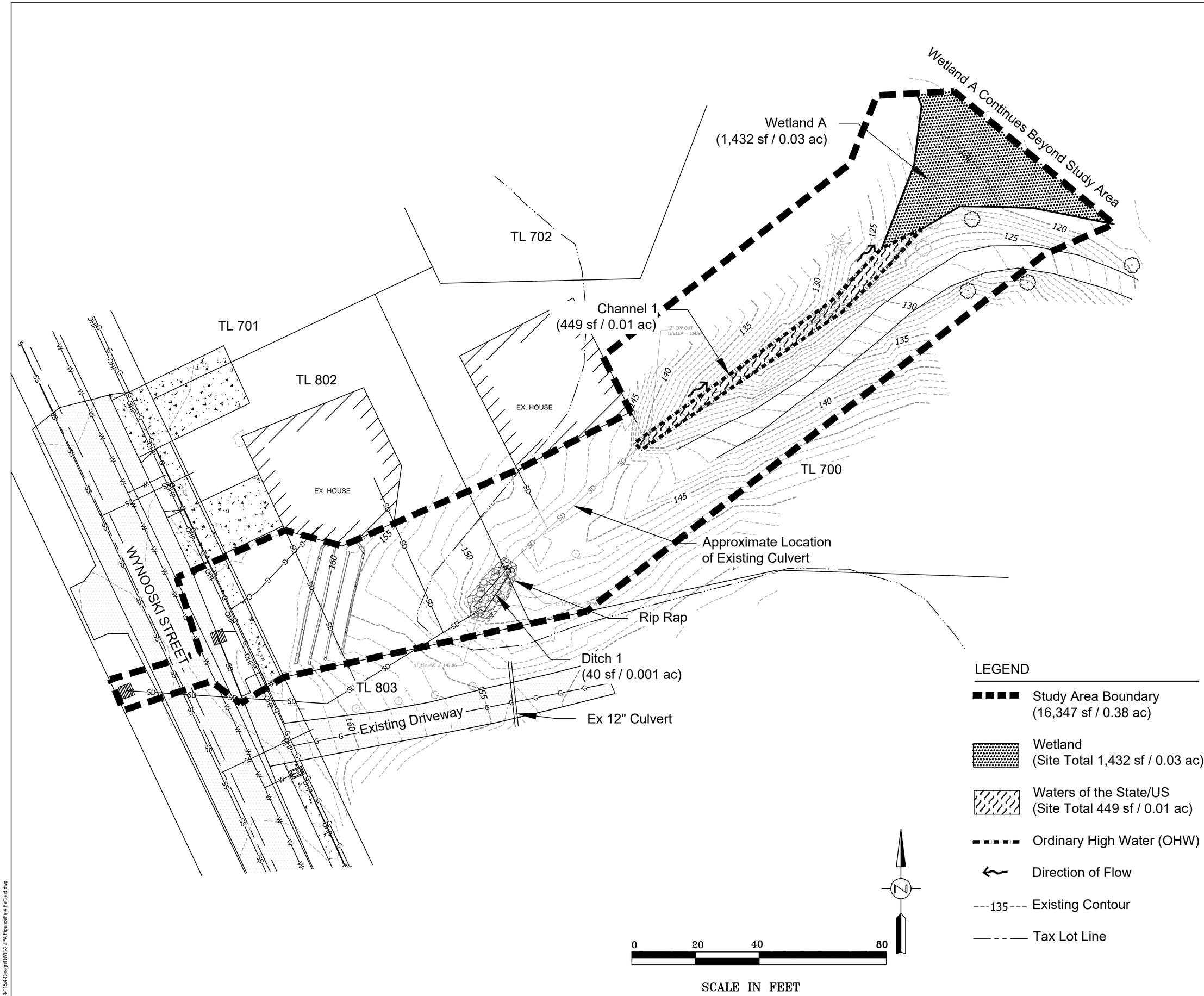
#6601
10/8/2018

PHS

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Aerial Photo
Wynooski Road Storm Project /Outfall Redesign - Newberg, Oregon
GoogleEarth, 2018

FIGURE
F3



#	DATE	DESCRIPTION	BY

EXISTING CONDITIONS

WYNOOSKI OUTFALL REDESIGN

CITY OF NEWBERG

NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	12/22/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	JH

FIGURE NUMBER

F4

Plot Stamp: 12/27/2022 3:24:48 PM - Devin
File: L:\2019\019-04\Design\DWG\2 JPA Figures\Fig4 ExCond.dwg

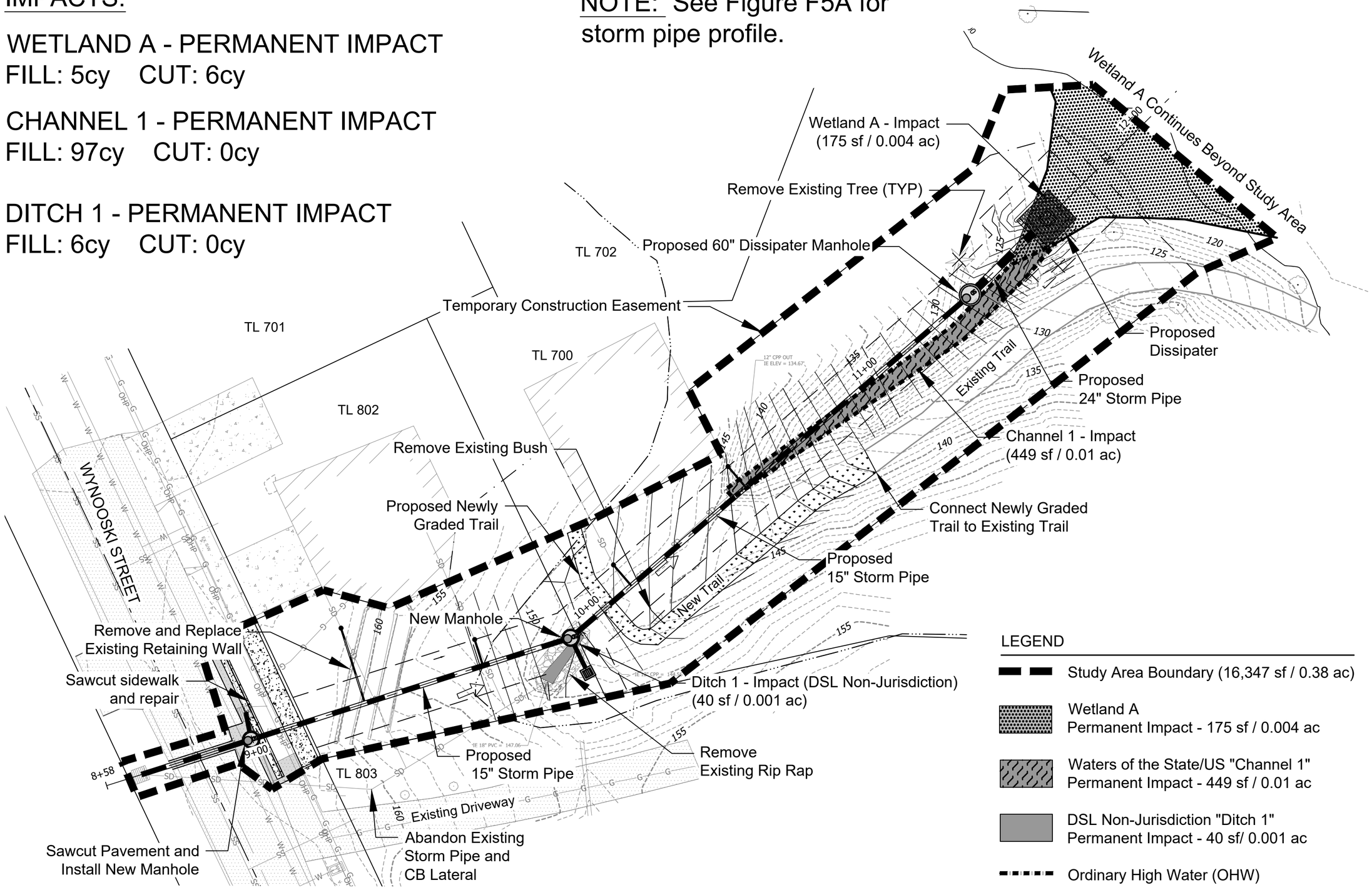
IMPACTS:

WETLAND A - PERMANENT IMPACT
FILL: 5cy CUT: 6cy

CHANNEL 1 - PERMANENT IMPACT
FILL: 97cy CUT: 0cy

DITCH 1 - PERMANENT IMPACT
FILL: 6cy CUT: 0cy

NOTE: See Figure F5A for storm pipe profile.



LEGEND

- Study Area Boundary (16,347 sf / 0.38 ac)
- Wetland A
  Permanent Impact - 175 sf / 0.004 ac
- Waters of the State/US "Channel 1"
  Permanent Impact - 449 sf / 0.01 ac
- DSL Non-Jurisdiction "Ditch 1"
  Permanent Impact - 40 sf/ 0.001 ac
- Ordinary High Water (OHW)
- 135 Existing Contour
- 135 Proposed Contour
- Tax Lot Line
- Storm Line Flow Arrow
- Tree to be Removed
- Limits of Work/Temporary Construction Easement

0 20 40 80

SCALE IN FEET

#	DATE	DESCRIPTION	BY

STORM DRAIN IMPROVEMENTS
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	12/22/2022
DRAWN	ARB
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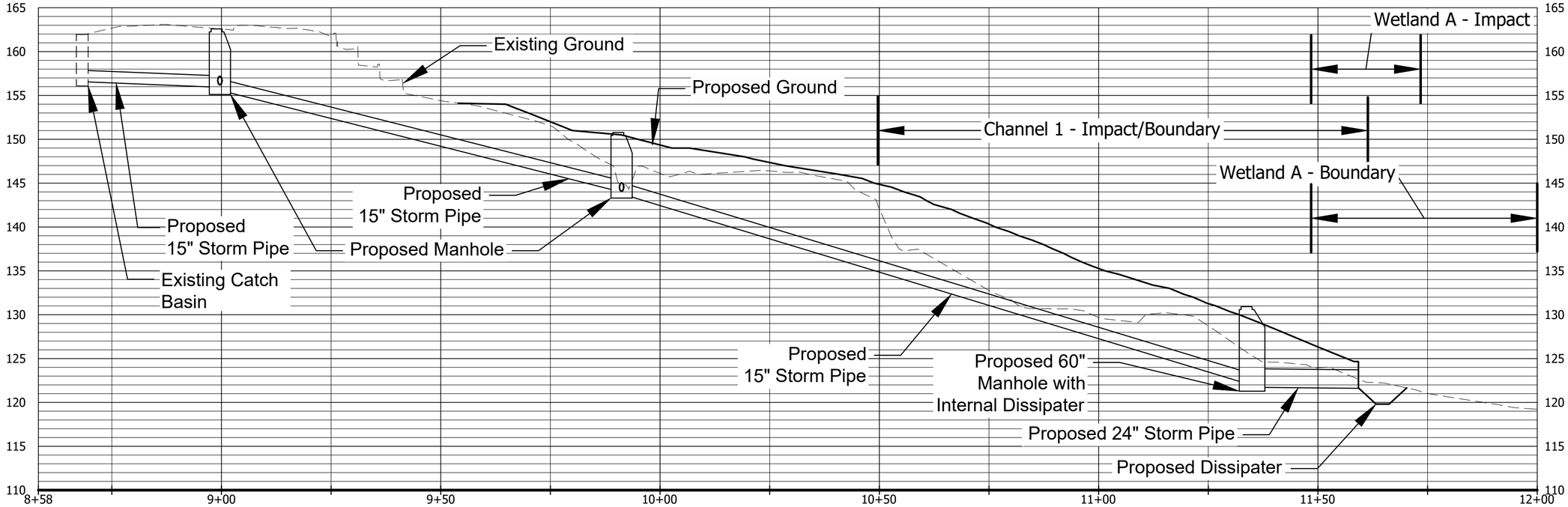
CHECKED	JH

FIGURE NUMBER
F5

Plot Stamp: 12/27/2022 3:24:59 PM - Devin
File: L:\2019-01\54-Design\DWG+2, JPA Figures\Fig5 Proposed Plan.dwg



STORM PIPE PROFILE

SCALE: H: 1"=40'
V: 1"=10'

IMPACTS:

WETLAND A - PERMANENT IMPACT
FILL: 5cy CUT: 6cy

CHANNEL 1 - PERMANENT IMPACT
FILL: 97cy CUT: 0cy

DITCH 1 - PERMANENT IMPACT
FILL: 6cy CUT: 0cy

0 20 40 80

SCALE IN FEET

#	DATE	DESCRIPTION	BY

STORM DRAIN IMPROVEMENTS PROFILE
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

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FIGURE NUMBER

F5A

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File: L:\2019-0154-Design\DWG-2 JPA Figures\Fig5A Profile.dwg

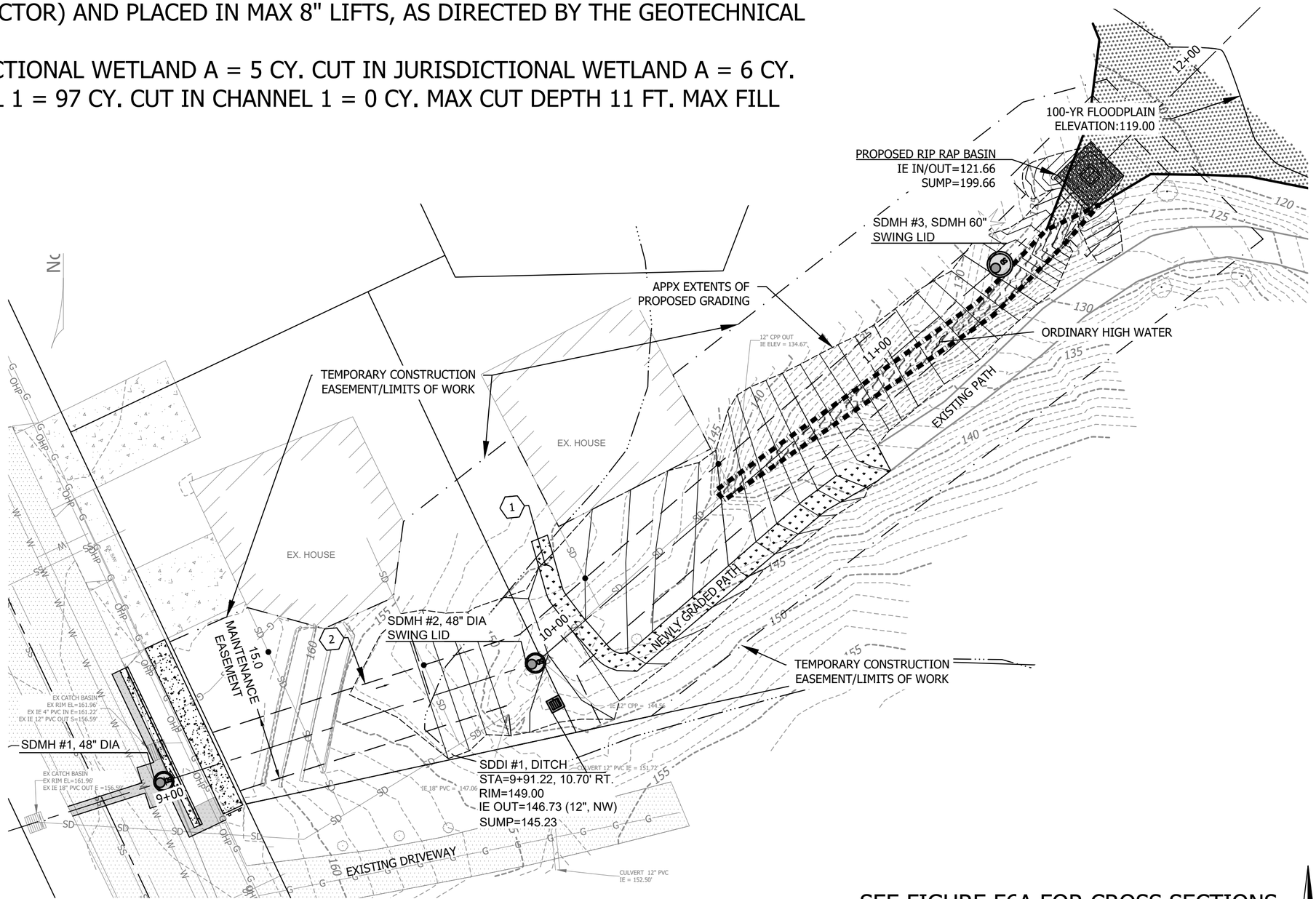
NOTES

1. PROPOSED GRASS PATH, PROVIDING PEDESTRIAN ACCESS TO EXISTING PATH.

2. PROPOSED PERMANENT MAINTENANCE EASEMENT TO EXTEND 7.5 FT ON EITHER SIDE OF PIPE ALIGNMENT.

GENERAL NOTES

1. SEE GRADING SECTIONS IN FIGURE 6A FOR ADDITIONAL GRADING INFORMATION.
2. ENGINEERED FILL SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY BY ASTM D698 (STANDARD PROCTOR) AND PLACED IN MAX 8" LIFTS, AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
3. FILL IN JURISDICTIONAL WETLAND A = 5 CY. CUT IN JURISDICTIONAL WETLAND A = 6 CY.
4. FILL IN CHANNEL 1 = 97 CY. CUT IN CHANNEL 1 = 0 CY. MAX CUT DEPTH 11 FT. MAX FILL DEPTH 11 FT.



SEE FIGURE F6A FOR CROSS SECTIONS

0 20 40 80

SCALE IN FEET

#	DATE	DESCRIPTION	BY

GRADING PLAN
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-0553 fax 503/537-9554
email: mail@hbh-consulting.com

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DESIGNED	JH
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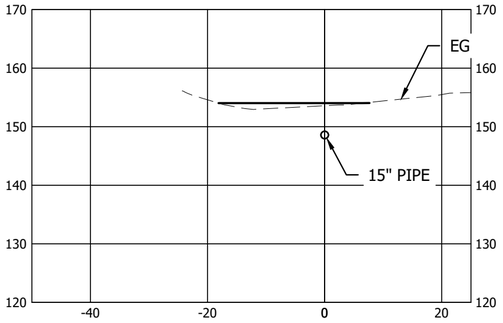
FIGURE NUMBER

F6

Plot Stamp: 12/27/2022 3:25:22 PM - Devin
File: L:\2019-015\4-Design\DWG-2_JPA Figures\Fig6 GRADING.dwg

9+60.00



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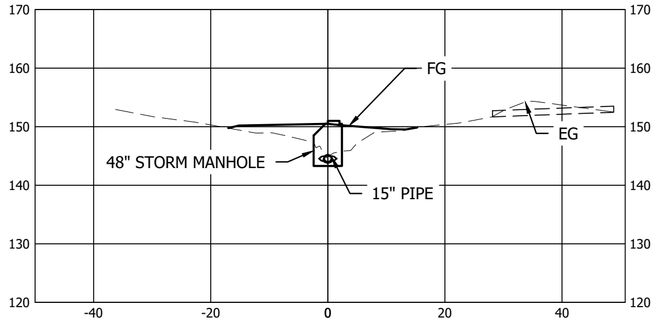

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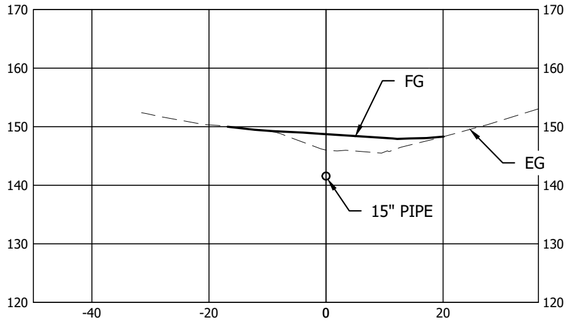

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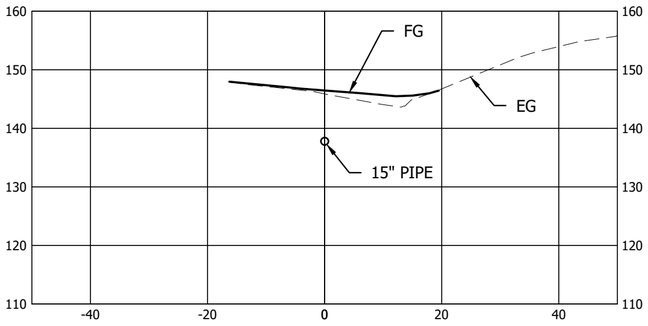

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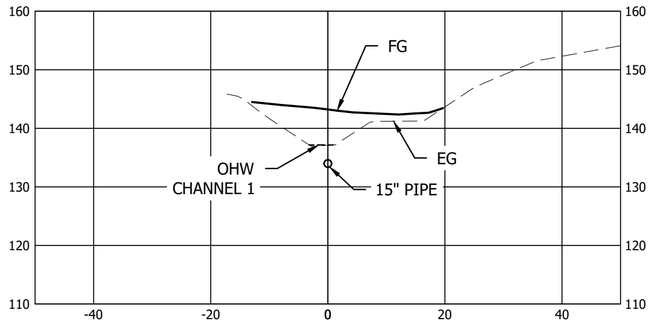

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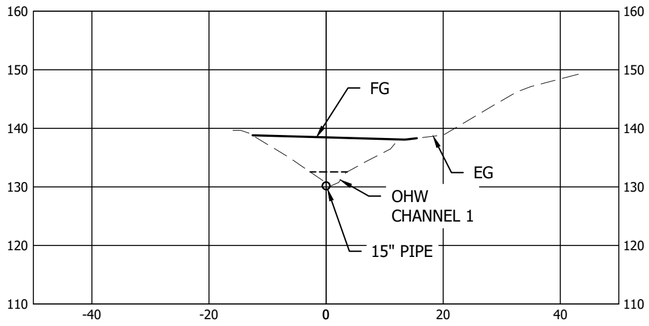
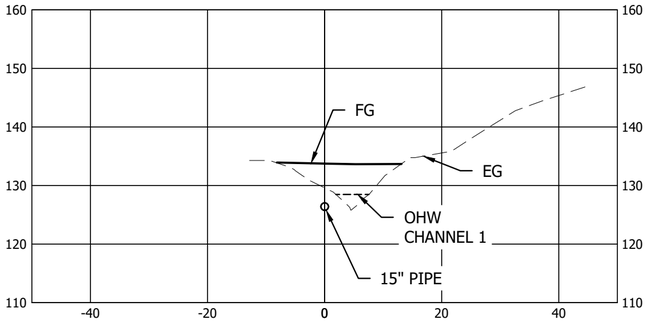


11+10.00



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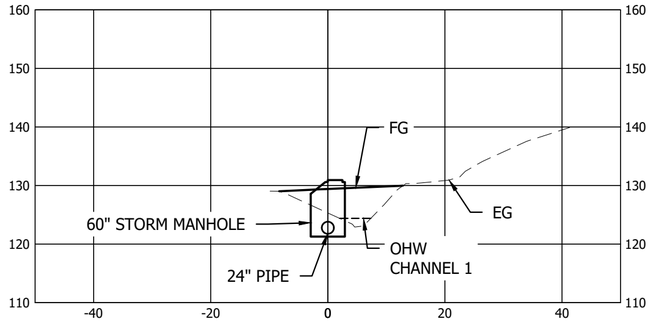

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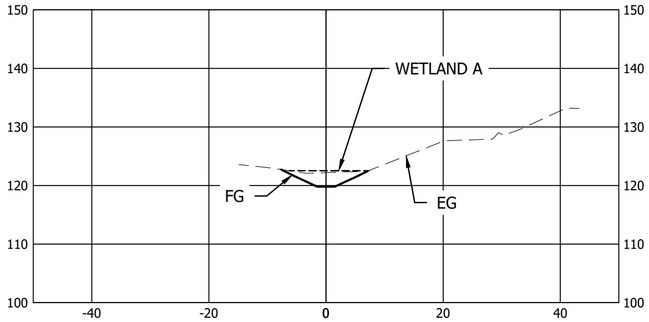

REFER TO FIGURE F5A FOR CROSS-SECTION LOCATIONS

FG = FINISHED GRADE
EG = EXISTING GROUND

#	DATE	DESCRIPTION	BY

STORM DRAIN IMPROVEMENTS CROSS SECTIONS
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-0553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	12/22/2022
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FIGURE NUMBER

F6A

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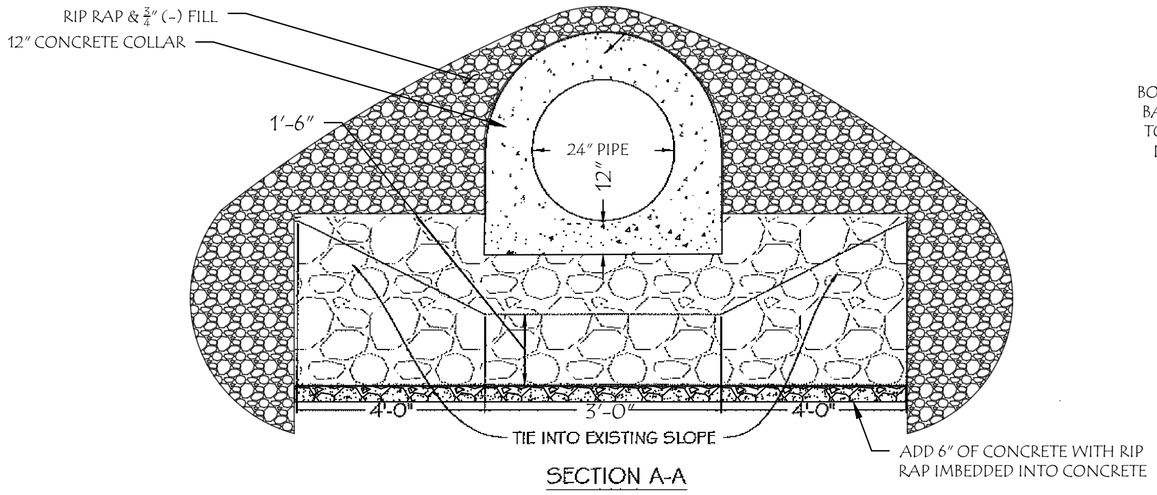
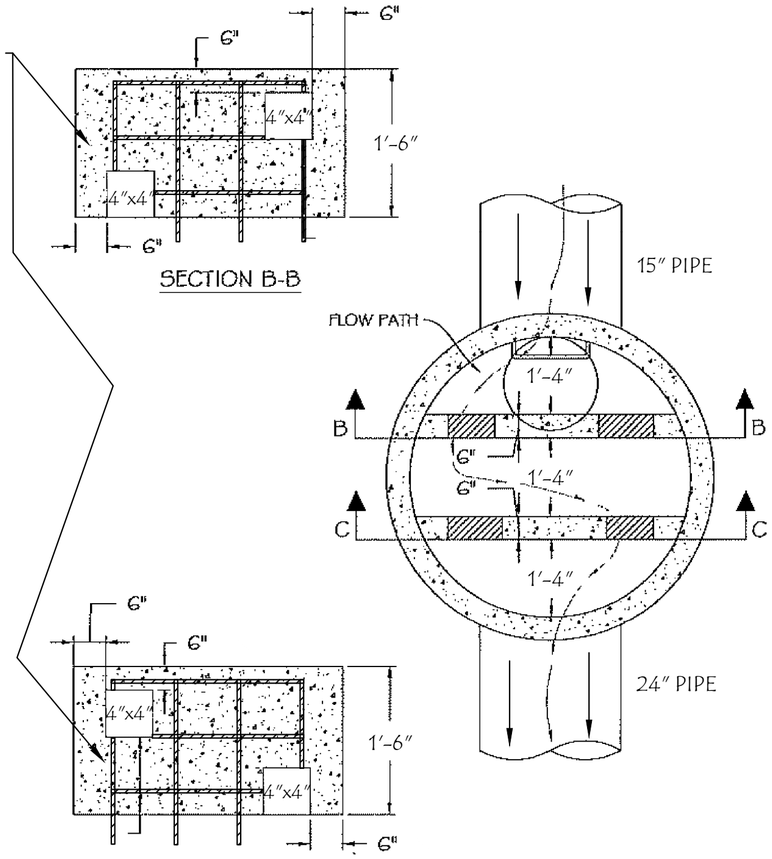
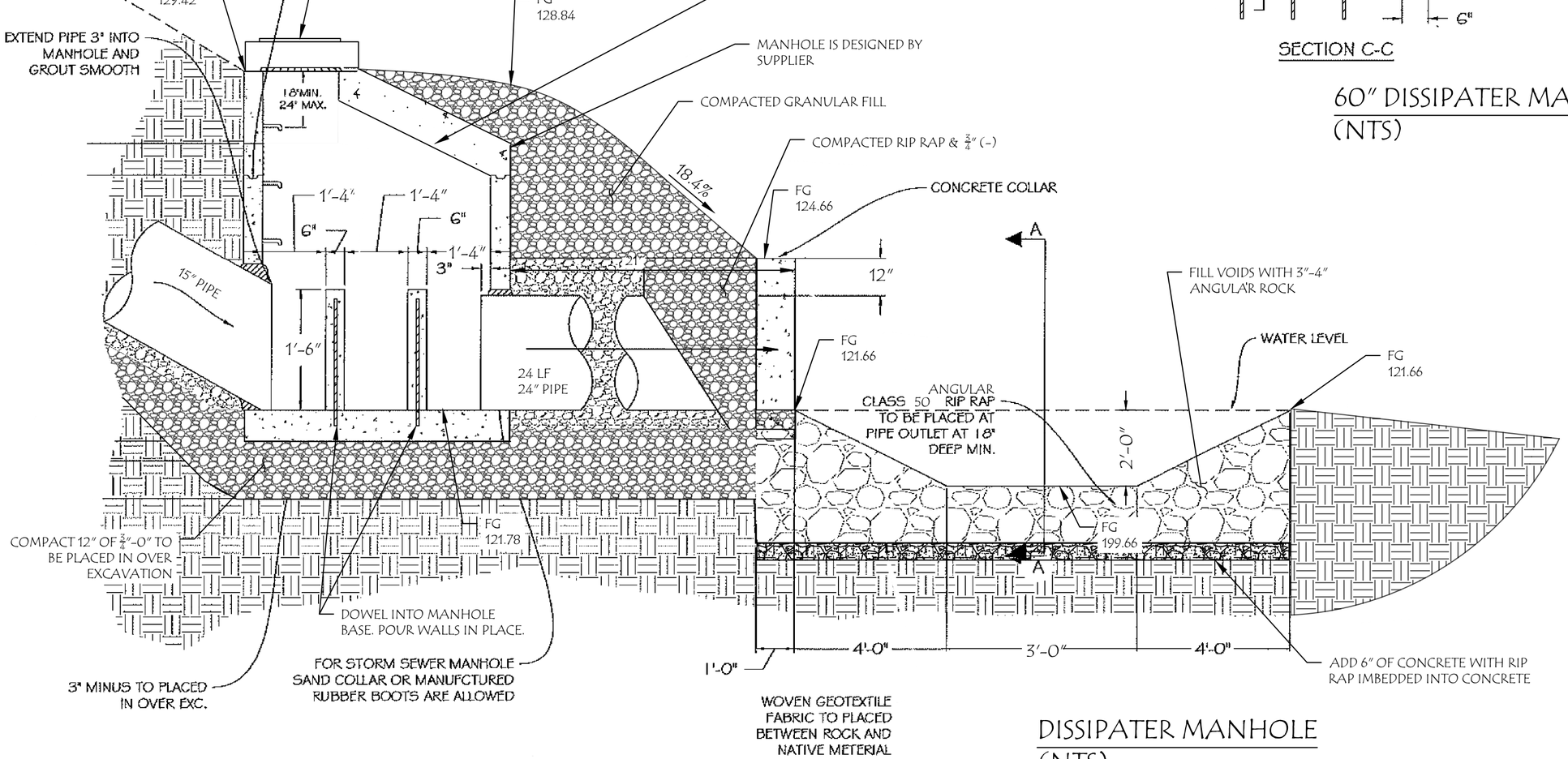


SECTION A-A

PIPE OUTLET DETAILS
(NTS)



60" DISSIPATER MANHOLE DETAILS
(NTS)



DISSIPATER MANHOLE
(NTS)

#	DATE	DESCRIPTION	BY

DISSIPATER DETAILS
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

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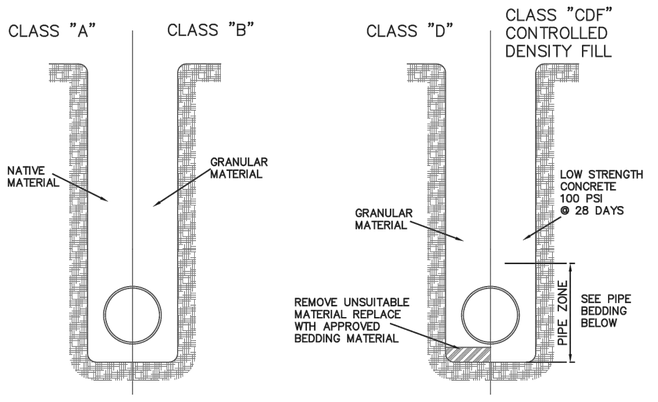
FIGURE NUMBER

F7A

Plot Stamp: 12/27/2022 3:25:47 PM - Devin
File: L:\2019-01\54-Design\DWG-2 JPA Figures\Fig7A Dissipator Detail.dwg

201A TRENCH BACKFILL

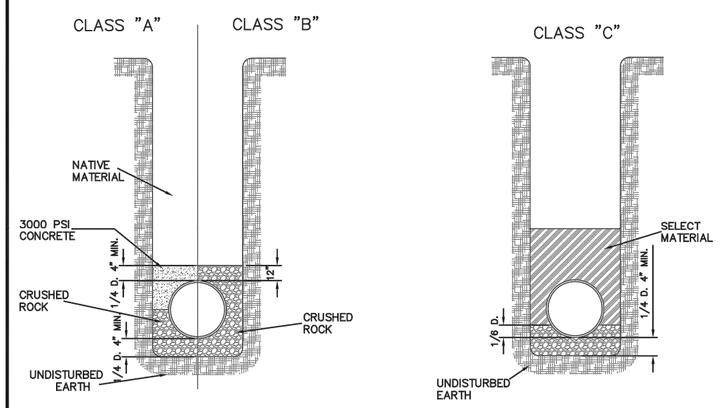


REVISIONS:	SEPT 2013- JAY H.
SCALE:	N.T.S
DATE:	MAY 2007
APPROVED BY:	D. DANICI
STANDARD DRAWING	201A

City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
PHONE: 503-537-1240
FAX: 503-537-1277

TRENCH BACKFILL

201B PIPE BEDDING



REVISIONS:	SEPT. 2013- JAY H.
SCALE:	N.T.S
DATE:	MAY 2007
APPROVED BY:	D. DANICI
STANDARD DRAWING	201B

City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
PHONE: 503-537-1240
FAX: 503-537-1277

PIPE BEDDING

RIPRAP:

- ROCK FOR RIPRAP SHALL BE ANGULAR IN SHAPE.
- THICKNESS OF A SINGLE ROCK SHALL NOT BE LESS THAN ONE-THIRD ITS LENGTH.

RIPRAP INSTALLATION:

- EXCAVATE BELOW FINISH GRADE TO DEPTH & DIMENSIONS SHOWN ON APPROVED PLANS.
- INSTALL WOVEN GEOTEXTILE FABRIC.
- PLACE RIP RAP TO FINISH GRADE.

- GRADE RIPRAP SHALL BE THE CLASS AND SIZE OF ROCK ACCORDING TO THE FOLLOWING:

CLASS 50	CLASS 100	CLASS 200	CLASS 700	CLASS 2000	PERCENT (BY WEIGHT)
WEIGHT OF ROCK (LBS)					
50-30	100-60	200-140	700-500	2000-1400	20
30-15	60-25	140-80	500-200	1400-700	30
15-2	25-2	80-8	200-20	700-40	40
2-0	2-0	8-0	20-0	40-0	10

REVISIONS:	
SCALE:	N.T.S.
DATE:	MARCH 2014
APPROVED BY:	JAY H.
STANDARD DRAWING	422

City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
PHONE: 503-537-1240
FAX: 503-537-1277

RIPRAP

#	DATE	DESCRIPTION	BY

STANDARD DETAILS
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	12/22/2022
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DESIGNED	JH
CHECKED	JH

FIGURE NUMBER
F7B

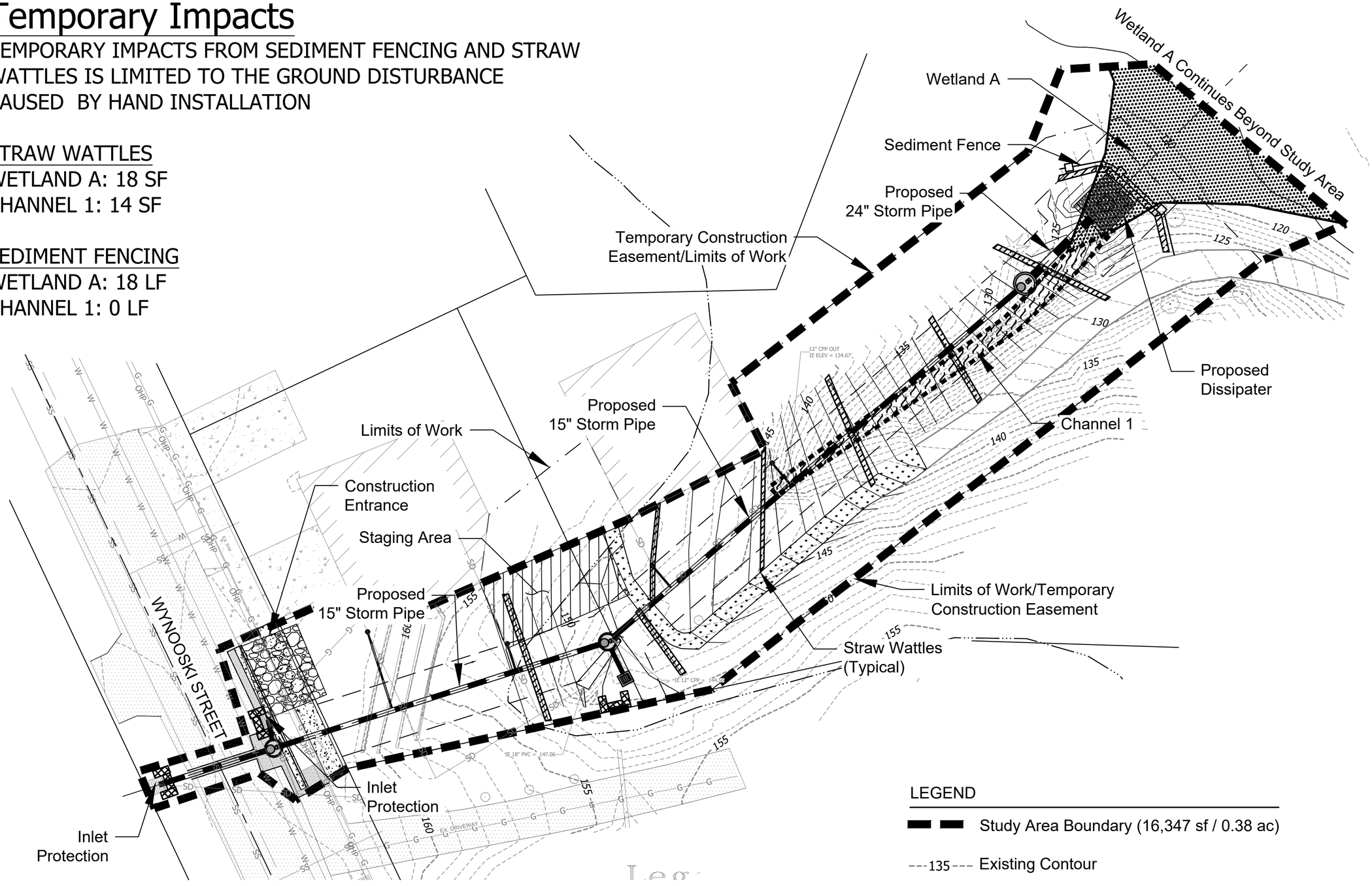
Plot Stamp: 12/27/2022 3:25:33 PM - Devin
File: L:\2019-01514-Design\DWG-2 JPA Figures\Fig7B Standard Details\sa.dwg

Temporary Impacts

TEMPORARY IMPACTS FROM SEDIMENT FENCING AND STRAW WATTLES IS LIMITED TO THE GROUND DISTURBANCE CAUSED BY HAND INSTALLATION

STRAW WATTLES
WETLAND A: 18 SF
CHANNEL 1: 14 SF

SEDIMENT FENCING
WETLAND A: 18 LF
CHANNEL 1: 0 LF



LEGEND

- Study Area Boundary (16,347 sf / 0.38 ac)
- 135 Existing Contour
- 135 Proposed Contour
- Tax Lot Line
- Limits of Work/Temporary Construction Easement

Note: See Figure F8A for Erosion Control Notes.

0 20 40 80

SCALE IN FEET

N

#	DATE	DESCRIPTION	BY

EROSION CONTROL PLAN
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	12/22/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	JH

FIGURE NUMBER

F8

Plot Stamp: 12/27/2022 3:26:04 PM - Devin
File: L:\2019-01514-Design\DWGs-2 JPA Figures\Fig8 ESC Plan.dwg

EROSION CONTROL NOTES

1. CONTRACTOR TO HAVE ESC DURING CONSTRUCTION AS NECESSARY. FINAL ESC SHOWN ON PLANS.
2. THE IMPLEMENTATION OF THIS ESC PLAN AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THE ESC FACILITIES IS THE RESPONSIBILITY OF THE APPLICANT/CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED, APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.
3. THE ESC PLAN, ANY REVISIONS, AND INSPECTION LOGS SHALL BE KEPT ONSITE AT ALL TIMES.
4. THE ESC MEASURES SHOWN ON THE PLAN ARE THE MINIMUM REQUIREMENTS FOR THE PROJECT SITE AND SHALL BE UPGRADED AS NEEDED TO MAINTAIN COMPLIANCE WITH ALL REGULATIONS.
5. ALL ESC MEASURES SHALL BE APPROVED, IN PLACE, AND FUNCTIONAL PRIOR TO ANY GROUND DISTURBANCE OF THE SITE. CONTRACTOR SHALL MAINTAIN ALL ESC MEASURES THROUGHOUT CONSTRUCTION.
6. CLEARING LIMITS, CRITICAL RIPARIAN AREAS, BUFFER ZONES, AND PRESERVED VEGETATION (INCLUDING IMPORTANT TREES AND ASSOCIATED CRITICAL ROOT ZONES) SHALL HAVE HIGH VISIBILITY FENCE INSTALLED BEFORE GRADING OR CONSTRUCTION TO IDENTIFY, MARK, AND PROTECT THE AREAS.
7. CONSTRUCTION ACTIVITIES WILL AVOID OR MINIMIZE ANY EXCAVATION OR OTHER SOIL DESTABILIZATION FROM OCTOBER 1ST TO MAY 31ST OF THE FOLLOWING YEAR.
8. TEMPORARY SITE STABILIZATION MEASURES WILL BE INSTALLED AT THE END OF THE SHIFT BEFORE A HOLIDAY OR WEEKEND OR AT THE END OF EACH WORKDAY IF RAIN IS FORECAST IN THE NEXT 24 HOURS.
9. SEDIMENT CONTROLS MUST BE INSTALLED AND MAINTAINED ALONG THE SITE PERIMETER ON ALL DOWN-GRADIENT SIDES OF THE CONSTRUCTION SITE AND AT ALL ACTIVE AND OPERATIONAL INTERNAL STORM DRAINS AT ALL TIMES DURING CONSTRUCTION.
10. DRY METHODS MUST BE USED TO REMOVE SEDIMENT AND CONCRETE SWEEPINGS FROM AREAS WHERE DISCHARGE IS LIKELY TO THE STORM DRAINS, STREETS, WATERCOURSES, OR SENSITIVE AREAS.
11. ALL DIRT AND DEBRIS TRACKED ONTO STREETS MUST BE REMOVED IMMEDIATELY IF IT CAN BE SPREAD BY TRAFFIC OR OTHERWISE REACH STORM DRAINS, WATERCOURSES, OR SENSITIVE AREAS.
12. SEDIMENT DISCHARGED OFFSITE MUST BE PLACED BACK ONSITE WITHIN 24 HOURS AND STABILIZED. IN-STREAM WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROCEDURES AND TIMEFRAMES OF THE OREGON DEPARTMENT OF STATE LANDS.
13. NO SEDIMENT-LADEN WATER MAY BE PUMPED, DIVERTED, OR OTHERWISE DISCHARGED OFFSITE UNLESS APPROVED BY THE ESC PLAN.
14. SEDIMENT MUST BE REMOVED WHEN IT HAS REACHED THE LEVEL SPECIFIED IN THE STANDARD DETAIL.
15. SEDIMENT MUST BE REMOVED FROM SUMPED STRUCTURES WHEN THE SEDIMENT RETENTION CAPACITY HAS BEEN REDUCED BY 1/3RD AND WITHIN 30 DAYS OF PROJECT COMPLETION.
16. WHEN REMOVING SATURATED SOILS FROM THE SITE, EITHER WATERTIGHT TRUCKS MUST BE USED OR LOADS MUST BE DRAINED ONSITE UNTIL DRIPPING HAS BEEN REDUCED TO MINIMIZE SPILLAGE.
17. EROSION CONTROL MEASURES WILL BE INSPECTED ON ACTIVE SITES AT LEAST WEEKLY OR AFTER PRECIPITATION IN EXCESS OF 0.5 INCHES IN 24 HOURS. IF A SITE WILL BE INACTIVE MORE THAN CITY OF NEWBERG EROSION CONTROL MANUAL 2014 PAGE 30 FOURTEEN (14) DAYS, EROSION CONTROL MEASURES WILL BE INSPECTED PRIOR TO THE INACTIVE PERIOD AND EVERY TWO (2) WEEKS DURING THE INACTIVE PERIOD.
18. ALL CONSTRUCTION SITES MUST FOLLOW PROPER STORAGE, APPLICATION, AND DISPOSAL PROCEDURES OF CONSTRUCTION MATERIALS. NO DUMPING OR DISPOSAL OF CONSTRUCTION DEBRIS, WASTE, OR SPOIL MATERIAL WILL OCCUR IN ANY STREAM, STORMWATER SYSTEM, WETLANDS, SURFACE WATERS, OR OTHER WATERCOURSES OR SENSITIVE AREAS.
19. WRITTEN SPILL PREVENTION AND RESPONSE PROCEDURES ARE REQUIRED FOR ALL SITES.
20. TOXIC AND HAZARDOUS MATERIALS MUST HAVE COVER AND SECONDARY CONTAINMENT.
21. CONCRETE TRUCKS SHALL NOT DISCHARGE WASHWATER WHERE IT IS LIKELY TO FLOW INTO STORM DRAINS, STREETS, WATERCOURSES, OR SENSITIVE AREAS.
22. PAVING ACTIVITIES SHALL BE MINIMIZED BETWEEN OCTOBER 1ST AND MAY 31ST OF THE FOLLOWING YEAR TO AVOID POTENTIAL DISCHARGE OF PAVING CHEMICALS INTO THE STORM DRAINS, STREETS, WATERCOURSES, OR SENSITIVE AREAS.
23. ALL ESC MEASURES SHALL BE REMOVED FROM THE SITE 30 DAYS AFTER CONSTRUCTION IS COMPLETED AND APPROVED BY THE CITY.
24. CONTRACTOR TO HYDROSEED AFFECTED AREA WITH SHADE-TOLERANT, HYDROSEED MIX THAT DOES NOT REQUIRE MOWING (LOW HEIGHT GRASS) FOLLOWING CONSTRUCTION.
25. AREA OF GROUND DISTURBANCE IS APPROXIMATELY 5600 SQFT. AN EROSION & SEDIMENTATION CONTROL PERMIT IS REQUIRED PRIOR TO COMMENCEMENT OF CONSTRUCTION.

#	DATE	DESCRIPTION	BY

REDESIGN

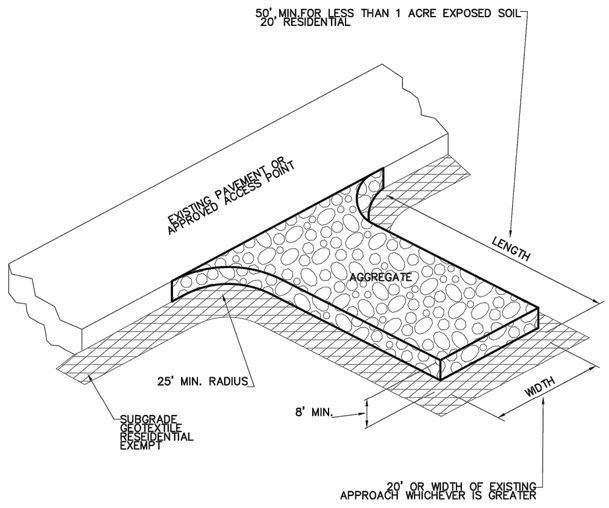
EROSION CONTROL NOTES
WYNOOSKI OUTFALL
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-0553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	12/22/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	JH

FIGURE NUMBER
F8A

Plot Stamp: 12/27/2022 3:26:09 PM - Devin
File: L:\2019-01\54-Design\DWG-2 JPA Figures\Fig8A ESC Notes.dwg



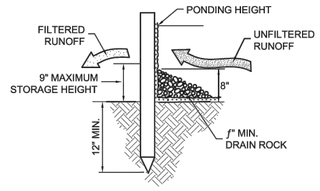
NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-RIGH-OF WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. WHERE RUNOFF CONTAINING SEDIMENT-LADEN WATER IS LEAVING THE SITE VIA THE CONSTRUCTION ENTRANCE, OTHER MEASURES SHALL BE IMPLEMENTED TO DIVERT RUNOFF THROUGH AN APPROVED FILTERING SYSTEM.
5. DIMENSIONS
   SINGLE FAMILY AND DUPLEX
   20' LONG BY 20' WIDE, 8" DEEP OF 3/4 " MINUS CLEAN ROCK.
   COMMERCIAL
   50' LONG BY 20' WIDE, 3-6" DEEP CLEAN ROCK.
   GOVERNING AUTHORITY MAY REQUIRE GEOTEXTILE FABRIC TO PREVENT SUB-SOIL PUMPING.

City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
PHONE: 503-537-1240
FAX: 503-537-1277

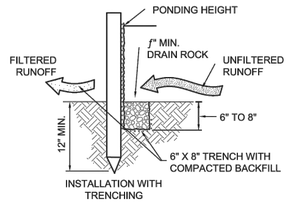
REVISIONS:

CONSTRUCTION ENTRANCE

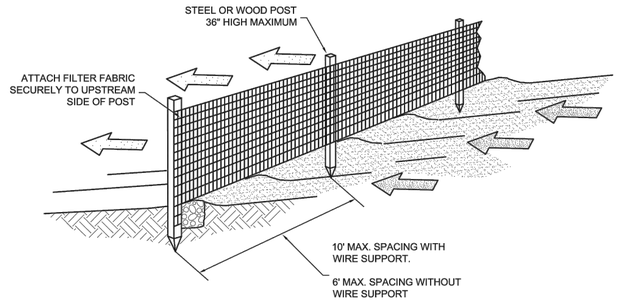
SCALE: N.T.S
DATE: May 2007
APPROVED BY: D. Danicic
STANDARD DRAWING 601



INSTALLATION WITHOUT TRENCHING



INSTALLATION WITH TRENCHING

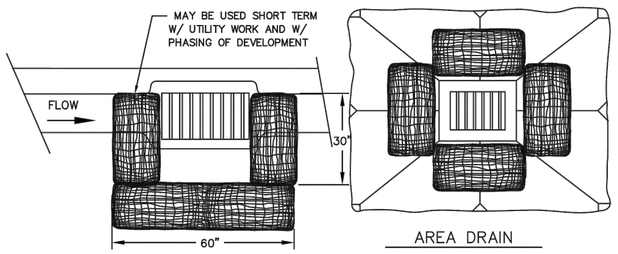


City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
PHONE: 503-537-1240
FAX: 503-537-1277

REVISIONS:

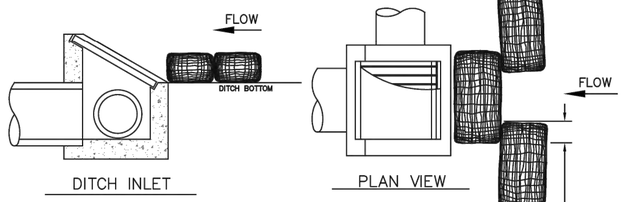
SILT FENCE

SCALE: N.T.S.
DATE: MAY 2007
APPROVED BY: D. DANICIC
STANDARD DRAWING 602



CATCH BASIN

AREA DRAIN



DITCH INLET

PLAN VIEW

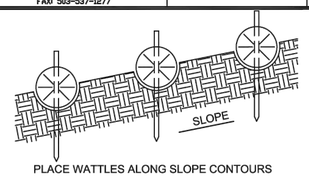
NOTES:
1. ADDITIONAL MEASURES MUST BE CONSIDERED DEPENDING ON SOIL TYPES.
2. BIO-FILTER BAGS SHOULD BE STAKED WHERE APPLICABLE USING (2) 1"x2"WOODEN STAKES OR APPROVED EQUAL PER BAG.
3. WHEN USING 30" BIO-BAGS TO PROTECT A CATCH BASIN YOU MUST HAVE 4 BAGS AND THEY SHALL BE OVERLAPPED BY 6".

City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
PHONE: 503-537-1240
FAX: 503-537-1277

REVISIONS:
12/10/2013

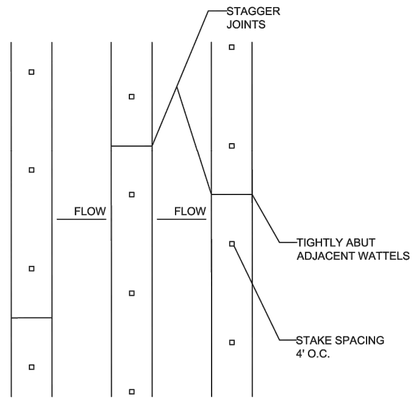
INLET PROTECTION

SCALE: N.T.S.
DATE: 04/04/2009
APPROVED BY: PAUL CHIU
STANDARD DRAWING 605

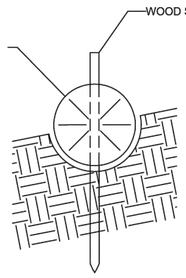


PLACE WATTLES ALONG SLOPE CONTOURS

PROFILE



PLAN VIEW



SECTION

TABLE 3-12 BARRIER SPACING FOR GENERAL APPLICATION

% SLOPE	SLOPE	MAX SPACING ON SLOPE
<10%	<10:1	300 ft
10-15%	10:1 to 7.5:1	150 ft
15-20%	7.5:1 to 5:1	100 ft
20-30%	5:1 to 3.5:1	50 ft
30-50%	3.5:1 to 2:1	25 ft

NOTES:
1. STAKING SPECIFICATIONS:
   A. 1"x2" WOODEN STAKES.
   B. ADDITIONAL STAKES MAY BE INSTALLED ON DOWNHILL SIDE OF WATTLES ON STEEP SLOPES OR HIGHLY EROSIVE SOILS.
2. SPACING IN ACCORDANCE WITH TABLE 3-12.

City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
PHONE: 503-537-1240
FAX: 503-537-1277

REVISIONS:
NA

WATTLES/STRAW BALE

SCALE: N.T.S
DATE: 01/10/2014
APPROVED BY:
STANDARD DRAWING 611

#	DATE	DESCRIPTION	BY

STANDARD DETAILS
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE 12/22/2022
DRAWN ARB
DESIGNED JH
CHECKED JH

FIGURE NUMBER
F8B

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NOTES

1. PLACE 3/4" (-) GRAVEL 4' WIDE, 3" DEEP PLACED ON PERMEABLE GEOTEXTILE FABRIC, PROVIDING PEDESTRIAN ACCESS TO EXISTING TRAIL.
2. PROPOSED PERMANENT MAINTENANCE EASEMENT TO EXTEND 7.5 FT ON EITHER SIDE OF PIPE ALIGNMENT.

ALTERNATIVE SITE PLAN NARRATIVE

THIS SITE PLAN WAS SURVEYED AND DESIGNED BY GEORGE FOX UNIVERSITY STUDENTS.
THE DISSIPATER USED WAS UNDER-DESIGNED AND PLACED IN A LOCATION THAT ADDED SIGNIFICANT GRADING IN THE WETLAND AREAS, WHICH IS WHY THIS PLAN WAS NOT CHOSEN.

IMPACTS:

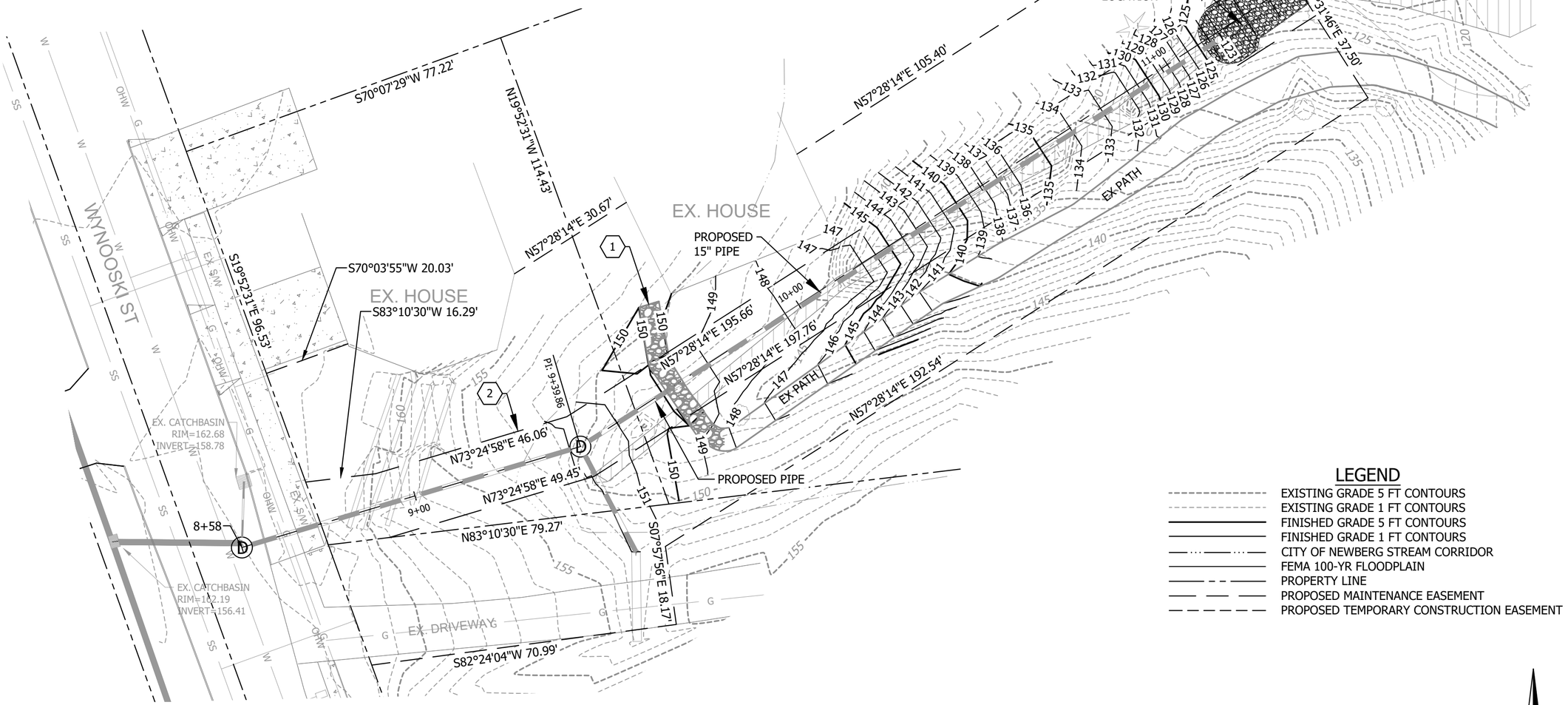
WETLAND A - PERMANENT IMPACT
FILL: 50cy CUT: 8cy

CHANNEL 1 - PERMANENT IMPACT
FILL: 125cy CUT: 3cy

DITCH 1 - PERMANENT IMPACT
FILL: 6cy CUT: 0cy

GENERAL NOTES

1. CONTRACTOR TO STRIP AREAS TO BE FILLED TO A DEPTH OF APPROXIMATELY 3 INCHES, AS INSPECTED/APPROVED BY THE GEOTECHNICAL ENGINEER. SUITABLE STRIPPING MATERIALS CAN BE STORED ON SITE & REDISTRIBUTED OVER THE GRADED AREAS. UNSUITABLE MATERIALS SHALL BE HAULED OFF SITE TO A SUITABLE DISPOSAL LOCATION.
2. FILL SHALL BE COMPACTED AND PLACED IN LIFTS, AS DIRECTED BY THE GEOTECHNICAL ENGINEER. ESTIMATED IN-PLACE FILL VOLUME = 435 CY.
3. ESTIMATED STRIPPING VOLUME = 114 CY.



LEGEND

- EXISTING GRADE 5 FT CONTOURS
- EXISTING GRADE 1 FT CONTOURS
- FINISHED GRADE 5 FT CONTOURS
- FINISHED GRADE 1 FT CONTOURS
- CITY OF NEWBERG STREAM CORRIDOR
- FEMA 100-YR FLOODPLAIN
- PROPERTY LINE
- PROPOSED MAINTENANCE EASEMENT
- PROPOSED TEMPORARY CONSTRUCTION EASEMENT

0 20 40 80

SCALE IN FEET

#	DATE	DESCRIPTION	BY

ALTERNATIVE SITE PLAN
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	12/22/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	JH

FIGURE NUMBER

F9

Plot Stamp: 12/27/2022 3:26:24 PM - Devin
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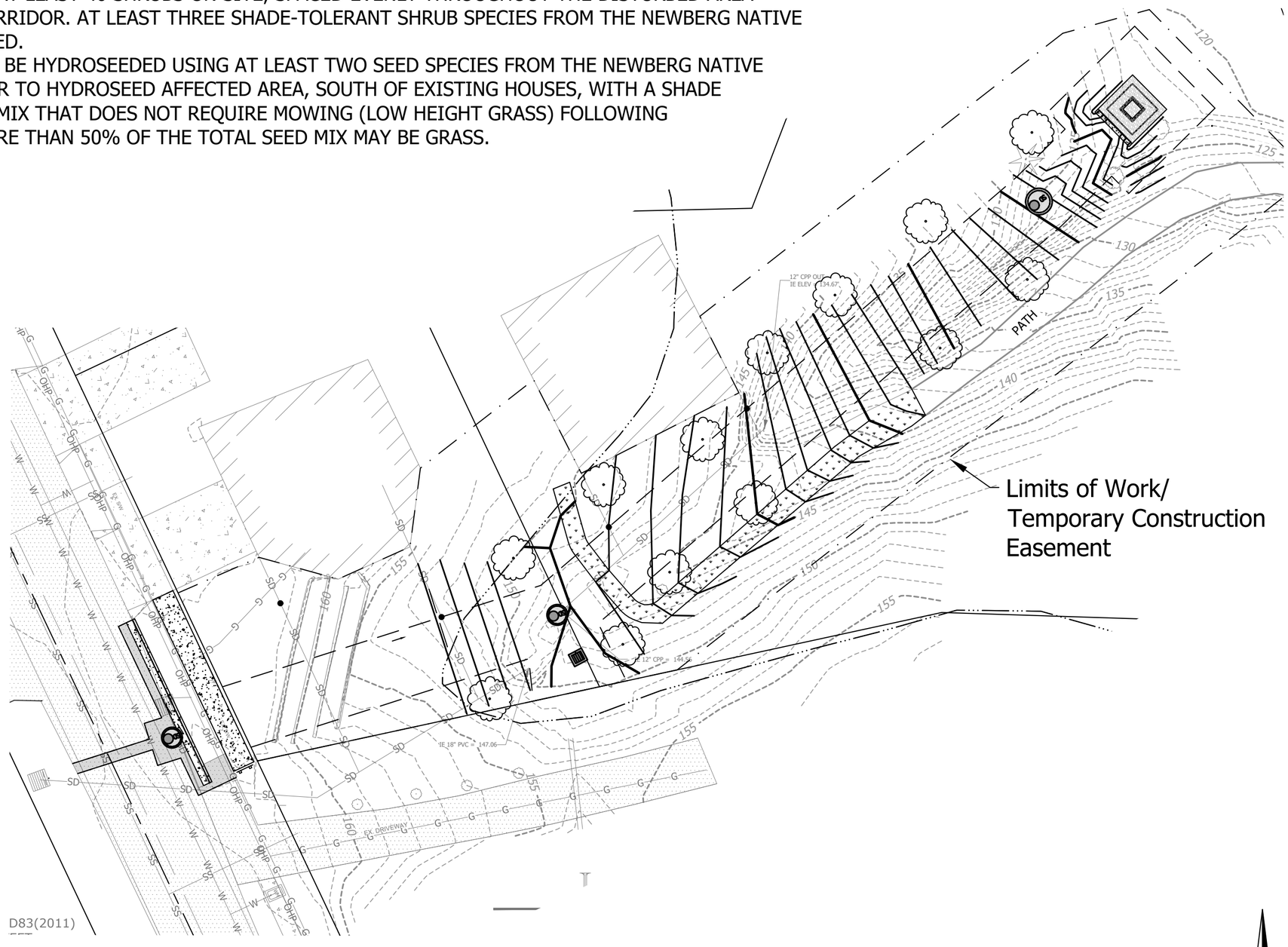
GENERAL NOTES

1. CONTRACTOR TO PLANT AT LEAST 13 TREES ON SITE, SPACED EVENLY THROUGHOUT THE DISTURBED AREA WITHIN THE STREAM CORRIDOR. CONTRACTOR TO VERIFY TOTAL NUMBER OF EXISTING TREES GREATER THAN 6" DBH TO BE REMOVED. IF MORE THAN FOUR TREES GREATER THAN 6" DBH WILL BE REMOVED, CONTRACTOR TO PLANT NEW TREES AT A RATIO OF 3 NEW TREES FOR EVERY 1 TREE REMOVED.
2. TREES SHALL BE PLANTED OUTSIDE OF THE PERMANENT MAINTENANCE EASEMENT.
3. AT LEAST THREE TREE SPECIES SHALL BE SELECTED FROM THE NEWBERG NATIVE PLANT LIST. NEW TREES MUST BE AT LEAST 1" CALIPER WHEN PLANTED.
4. CONTRACTOR TO PLANT AT LEAST 40 SHRUBS ON SITE, SPACED EVENLY THROUGHOUT THE DISTURBED AREA WITHIN THE STREAM CORRIDOR. AT LEAST THREE SHADE-TOLERANT SHRUB SPECIES FROM THE NEWBERG NATIVE PLANT LIST SHALL BE USED.
5. ALL DISTURBED AREA TO BE HYDROSEEDED USING AT LEAST TWO SEED SPECIES FROM THE NEWBERG NATIVE PLANT LIST. CONTRACTOR TO HYDROSEED AFFECTED AREA, SOUTH OF EXISTING HOUSES, WITH A SHADE TOLERANT, HYDROSEED MIX THAT DOES NOT REQUIRE MOWING (LOW HEIGHT GRASS) FOLLOWING CONSTRUCTION. NO MORE THAN 50% OF THE TOTAL SEED MIX MAY BE GRASS.



0 20 40 80

SCALE IN FEET

#	DATE	DESCRIPTION	BY

REVEGETATION PLAN
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	12/22/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	JH

FIGURE NUMBER

F10

Plot Stamp: 12/27/2022 3:26:33 PM - Devin
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Attachment 2

Department of State Lands
Concurrence Letter

Oregon
Kate Brown, Governor

Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 986-5200
FAX (503) 378-4844
www.oregon.gov/dsl

April 15, 2019

City of Newberg
Attn: James (Jay) Harris, Public Works Director
414 E. First Street
Newberg, OR 97132

Re: WD #2019-0031 Wetland Delineation Report for Wynooski Street Storm Project, Yamhill County;
T 3S R 2W S 20AC TL 802 and 700 (Portion);

Dear Mr. Harris:

The Department of State Lands has reviewed the wetland delineation report prepared by Pacific Habitat Services for the site referenced above. Please note that the study area includes only a portion of the tax lots described above (see the attached maps). Based upon the information presented in the report, and additional information submitted upon request, we concur with the wetland and waterway boundaries as mapped in revised Figure 6 of the report. Please replace all copies of the preliminary wetland map with this final Department-approved map.

Within the study area(s), one wetland (Wetland A), one waterway (Channel 1) and one ditch (Ditch 1) were identified. Wetland A (totaling approximately 0.03 acres) and Channel 1 are subject to the permit requirements of the state Removal-Fill Law. Under current regulations, a state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in wetland or below the ordinary high-water line (OHWL) of the waterway (or the 2-year recurrence interval flood elevation if OHWL cannot be determined). Ditch 1 is exempt per OAR 141-085-0515(8) and therefore, not subject to current state Removal-Fill requirements.

This concurrence is for purposes of the state Removal-Fill Law only. Federal or local permit requirements may apply as well. The Army Corps of Engineers will determine jurisdiction for purposes of the Clean Water Act. We recommend that you attach a copy of this concurrence letter to both copies of any subsequent joint permit application to speed application review.

Please be advised that state law establishes a preference for avoidance of wetland impacts. Because measures to avoid and minimize wetland impacts may include reconfiguring parcel layout and size or development design, we recommend that you

work with Department staff on appropriate site design before completing the city or county land use approval process.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter unless new information necessitates a revision. Circumstances under which the Department may change a determination are found in OAR 141-090-0045 (available on our web site or upon request). In addition, laws enacted by the legislature and/or rules adopted by the Department may result in a change in jurisdiction; individuals and applicants are subject to the regulations that are in effect at the time of the removal-fill activity or complete permit application. The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months of the date of this letter.

Thank you for having the site evaluated. Please phone me at 503-986-5271 if you have any questions.

Sincerely,

Daniel Evans, PWS
Jurisdiction Coordinator

Approved by _____
Peter Ryan, PWS
Aquatic Resource Specialist

Enclosures

ec: Carlee Michelson, PHS
City of Newberg Planning Department
Kinsey Friesen, Corps of Engineers
Mike DeBlasi, DSL

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

Fully completed and signed report cover forms and applicable fees are required before report review timelines are initiated by the Department of State Lands. Make the checks payable to the Oregon Department of State Lands. To pay fees by credit card, go online at: https://apps.oregon.gov/DSL/EPS/program?key=4.

Attach this completed and signed form to the front of an unbound report or include a hard copy with a digital version (single PDF file of the report cover from and report, minimum 300 dpi resolution) and submit to, **Oregon Department of State Lands, 775 Summer Street NE, Suite 100, Salem, OR 97301-1279.** A single PDF of the completed cover form and report may be e-mailed to **Wetland_Delineation@dsl.state.or.us**. For submittal of PDF files larger than 10 MB, e-mail DSL instructions on how to access the file from your ftp or other file sharing website.

Contact and Authorization Information

☒ Applicant ☐ Owner Name, Firm and Address:
James (Jay) Harris, Public Works Director
City of Newberg
414 E. First Street
Newberg, OR 97132

Business phone # **(503) 537-1211**
Mobile phone # (optional)
E-mail: **jay.harris@newbergoregon.gov**

☒ Authorized Legal Agent, Name and Address:
Same as above

Business phone #
Mobile phone #
E-mail:

I either own the property described below or I have legal authority to allow access to the property. I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.

Typed/Printed Name: James (Jay) O. Harris Signature: J.O.H

Date: 1-22-19 Special instructions regarding site access: Please call me w/ date/time of visit so I can notify the prop. owners.

Project and Site Information

Project Name:
Wynooski Street Storm Project

Latitude: **45.293802** Longitude: **-122.962271**
decimal degree - centroid of site or start & end points of linear project

Tax Map # 3 2 20CA
Tax Lot(s) 802 & 700 (Portion)

Proposed Use:
Storm Line/Utility

Tax Map #
Tax Lot(s)

Project Street Address (or other descriptive location):
740 Wynooski Street

City: **Newberg** County: **Yamhill**

Township	Range	Section	QQ
3S	**2W**	**20AC**	**NE1/4 SW1/4**

Use separate sheet for additional tax and location information

Waterway: **N/A** River Mile:
NWI Quad(s): **Newberg**

Wetland Delineation Information

Wetland Consultant Name, Firm and Address:
Pacific Habitat Services
Attn: Carlee Michelson
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Phone # **503-570-0800**
Mobile phone #
E-mail: **cm@pacifichabitat.com**

The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge.

Consultant Signature: Carlee Michelson Date: **1/18/2019**

Primary Contact for report review and site access is ☒ Consultant ☐ Applicant/Owner ☐ Authorized Agent

Wetland/Waters Present? ☒ Yes ☐ No Study Area size: **0.31 acre** Total Wetland Acreage: **0.03; Waters: 0.01**

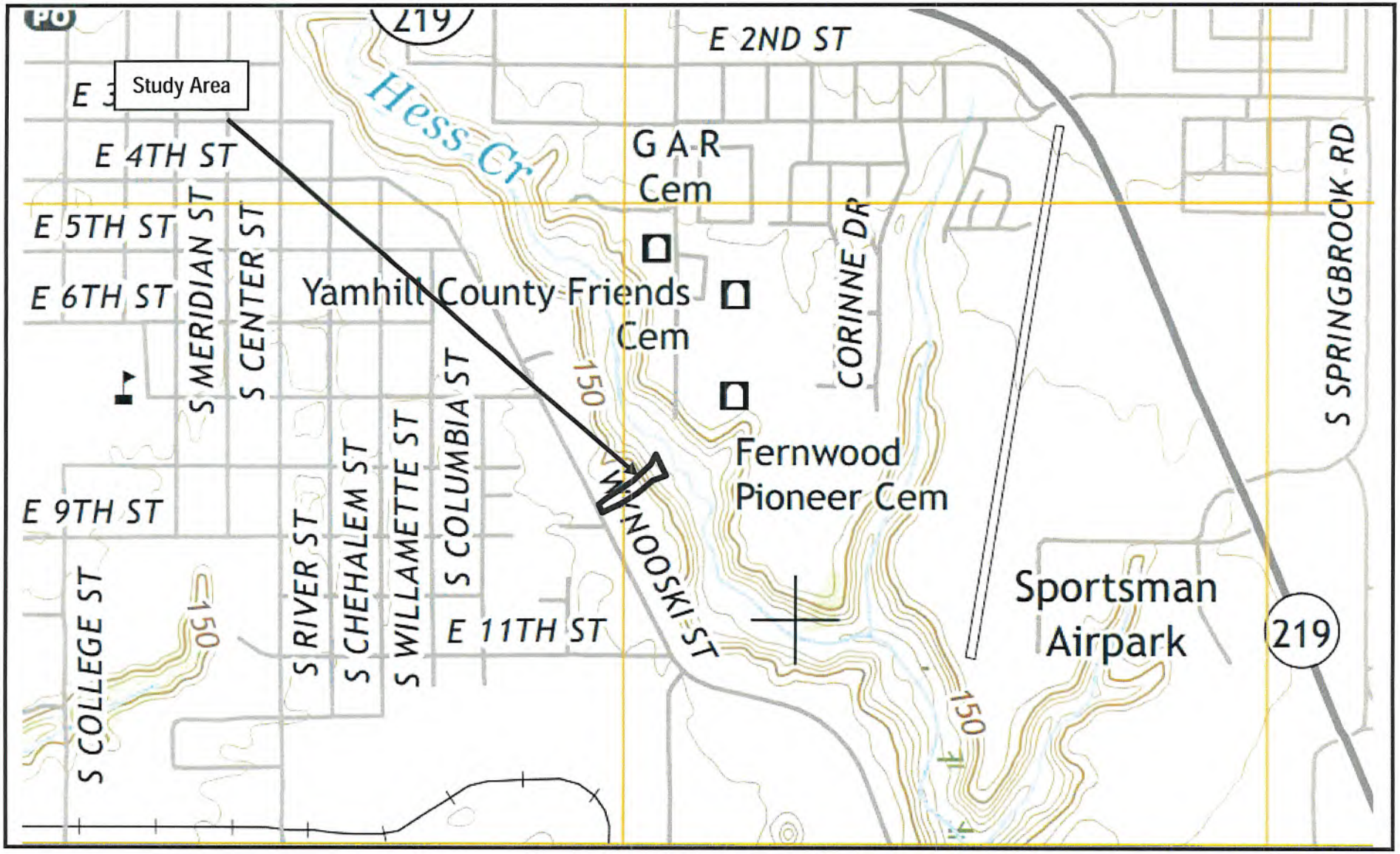
Check Applicable Boxes Below

☐ R-F permit application submitted
☒ Fee payment submitted **$454**
☐ Mitigation bank site
☐ Fee ($100) for resubmittal of rejected report
☐ Industrial Land Certification Program Site
☐ Request for Reissuance. See eligibility criteria (no fee)
☐ Wetland restoration/enhancement project (not mitigation)
DSL # _____ Expiration Date _____
☐ Previous delineation/application on parcel?
☒ LWI shows wetlands or waters on parcel?
If Known, previous DSL #
Wetland ID Code

For Office Use Only

DSL Reviewer: DE- Fee Paid Date: ___/___/___ DSL WD # 2019-0031
Date Delineation Received: 1/22/19 Scanned: ☐ Final Scan: ☐ DSL App. # _____

electronic #77546

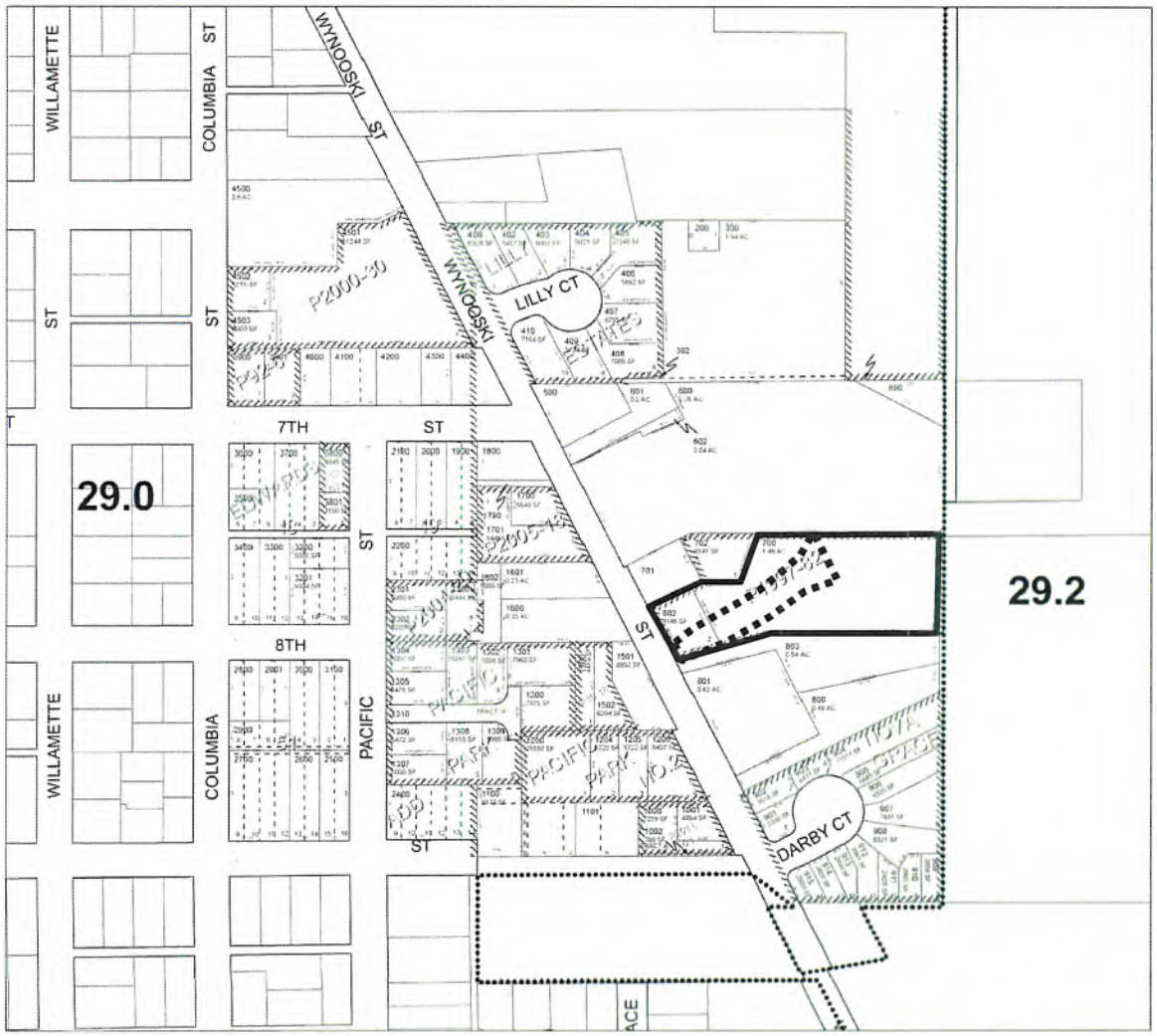


#6601
10/8/2018

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

General Location and Topography
Wynooski Road Storm Project - Newberg, Oregon
United States Geological Survey (USGS), Newberg, Oregon, 7.5 Quadrangle, 2017
(viewer/nationalmap.gov/basic)

FIGURE
1



3 2 20CA

YAMHILL COUNTY
1843

ASSESSMENT & TAX
CARTOGRAPHY

N.E.1/4 S.W.1/4 SEC.20 T.3S. R.2W. W.M.
YAMHILL COUNTY OREGON
1" = 100'

- Study Area
- Tax Lot

CANCELLED TAXLOTS
4501
4600
2601
2401
1402
1401
1400
1201
1202
1201
1102
401
400
900

DATE PRINTED: 8/16/2018

This product is for Assessment and Taxation (A&T) purposes only and has not been prepared in a suitable for legal, engineering, surveying or any purposes other than assessment and taxation.

3 2 20CA

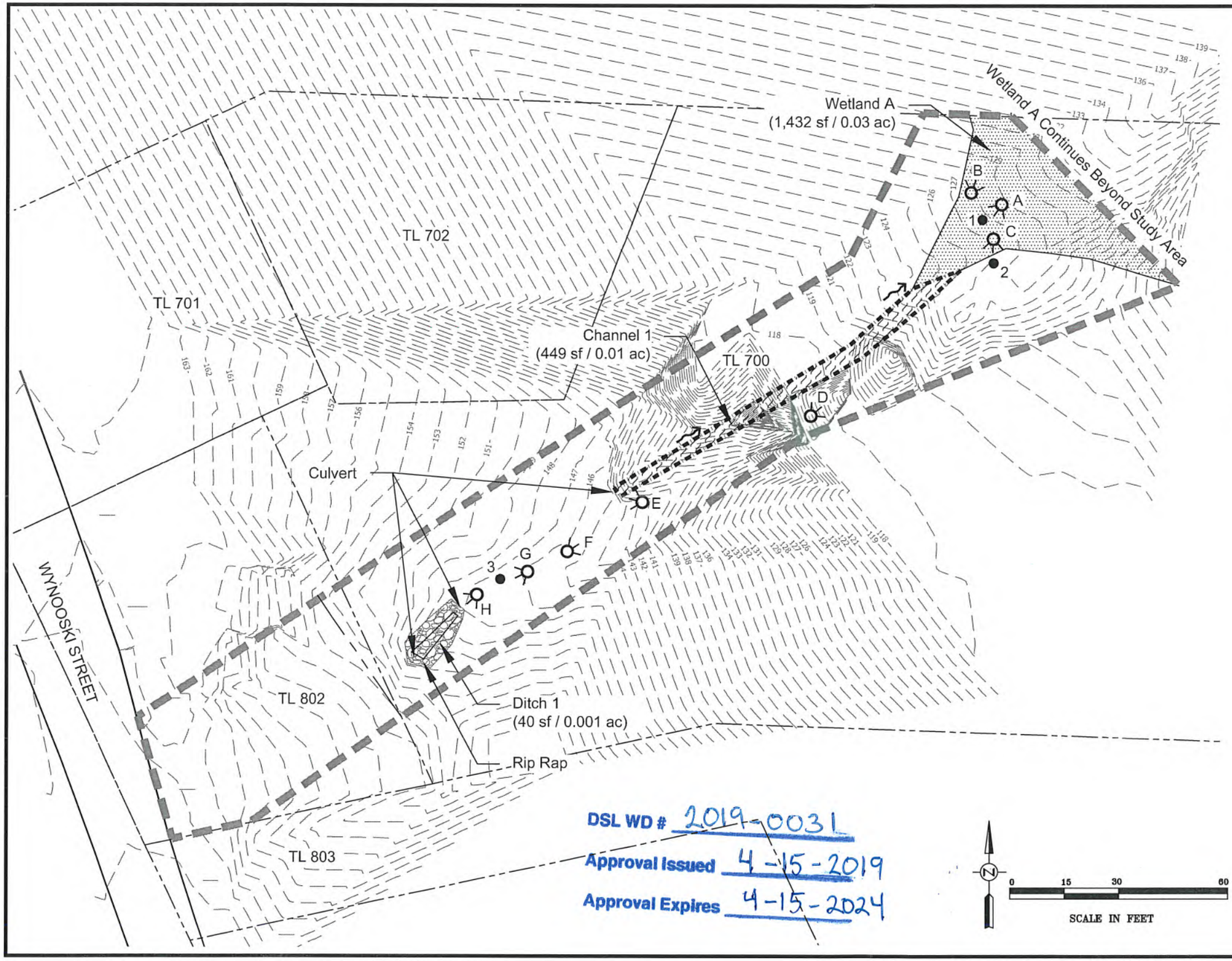
#6601
10/8/2018

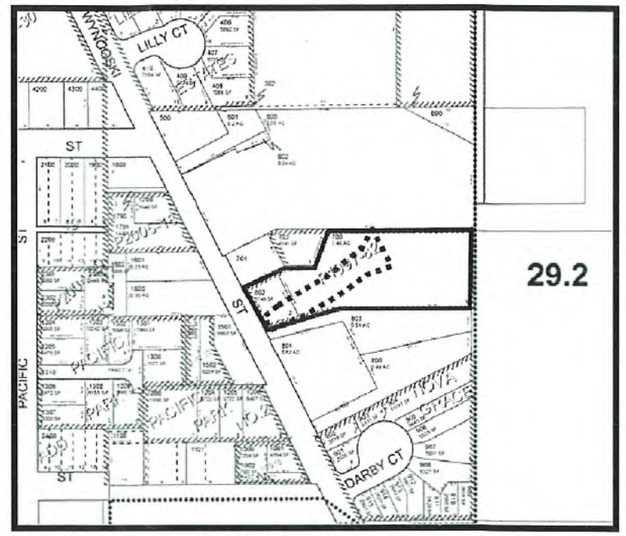
PHS

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Tax Lot Map
Wynooski Road Storm Project - Newberg, Oregon
The Oregon Map (ormap.net)

FIGURE
2





Tax Lot Context Map

0 150 300 600

SCALE IN FEET

LEGEND

- Study Area Boundary (12,965 sf / 0.30 ac)
- Wetland (Site Total 1,432 sf / 0.03 ac)
- Waters of the State/US (Site Total 489 sf / 0.01 ac)
- Ordinary High Water (OHW)
- Direction of Flow
- Sample Point
- Photo Point
- Rip Rap
- Existing Contour
- Tax Lot Line

DSL WD # 2019-0031

Approval Issued 4-15-2019

Approval Expires 4-15-2024

N

0 15 30 60

SCALE IN FEET

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180 Wilsonville, Oregon 97070
Phone: (503) 570-0800 Fax (503) 570-0855

Survey provided by City of Newberg and George Fox University and is Subcentimeter. Sample point and culvert location accuracy is ± 3 feet.

Wetland Delineation
Wynooski Street Storm Project - Newberg, Oregon

FIGURE 6

4-12-2019

X:\Project Directories\6600\6601 Wynooski Road Storm\AutoCAD\Plot Dwg\Fig6 WetDel.dwg, 4/12/2019 1:47:15 PM

Attachment 3

Stream Functional Assessment

STREAM FUNCTION ASSESSMENT METHOD for OREGON

Version 1.0 (June 2018)

Name of Project Area:	Channel 1 (Wynooski St)	**Date of Field Assessment:**	1/7/2020	**Latitude*:**	45.2939
Data Collector:	CM	**Elevation:** (SFAM Report)	143	**Longitude*:**	-122.9619
					** near center of the project site*
Project Number:	6601	**Project Area Length (feet):**	110	**Project Area (acres):**	0.10
Photo Numbers:					

What is the Oregon Stream Classification for the project area? Select from drop-down menu. Refer to the SFAM Report. If the project area spans more than one reach, describe the dominant stream classification.				Mountain Wet Rain/Valley Wet
What ratings does the Oregon Stream Classification identify for the following measures in the local hydrologic unit? Refer to the SFAM Report. If project area spans more than one reach, describe the dominant classification:				
Aquifer Permeability (local)	High	Soil Permeability (local)	High	
Erodibility (local)	Easily Erodible	Gradient*	< 2%	*If EPA Classification is different from the gradient you observe in the local reach, select the gradient in the local reach.

Is the channel perennial, intermittent, or ephemeral? (Map Viewer-NHD Flowline)	Intermittent	
Which Level III EPA Ecoregion is the site located in? (SFAM Report)	Willamette Valley	Western Mountains
Is the average width of the stream less than or greater than 50 feet? (User Input)	≤ 50 feet	Small
What is the 2 year peak flow (cfs)? (StreamStats Report)	95.2	
What is the size of the drainage area (mi^2)? (StreamStats Report)	2.93	

External Data: List below the persons and/or agencies that provided location information on rare wildlife species, and/or rare plants, and the date the information was gathered (if known).

Project Area History: Based on conversation with landowner/manager and other information, describe below the years and extent (% of project area) of past and present management actions (e.g., vegetation control), natural disturbances (e.g., fire, insect infestations), and human-associated disturbances (e.g., grazing regimes).

Human disturbances, hydrology conveyed through culverts. Vegetation is mowed seasonally.

Assessment Notes: Note any special features of the reach or landscape, problems with scoring, or other information that may be relevant.

Either end of the PAA is truncated by wetland on the downslope end (channel ends/loses morphology), and truncated by a stormwater pipe on the upslope end, preventing the typical evaluation of an EAA. This was discussed with Dana Hicks (DSL), who suggested that we evaluate existing conditions "as-is", with notes describing the limitations of this assessment. In the EAA Field Data Form, transects J & K have no channel, they are located in a buried culvert. transects A & B have no channel, but are made up of wetland.

STREAM FUNCTION ASSESSMENT METHOD for OREGON

Name of Project Area:	Channel 1 (Wynooski St)	Enter Data in These Boxes ONLY Scores Automatically Calculated in Green Boxes

VALUES MEASURES TABLE

FILL IN THE YELLOW BOXES. Most questions contain drop-down menus in their respective answer box. Select an answer from the drop-down menus, when possible, instead of typing an answer.

Measure	Function Groups	Submeasure	Measure Abbreviation	Qualifiers		Data Entry			Measure Score
V1 **Rare Species Occurrence & Special Habitat Designations**	**Are there rare species or special habitat designations in the vicinity of the PA?** Answer each submeasure using information from the site's SFAM report (rare species scores & special habitat designations section), as well as any available survey data for the PA and its vicinity, or personal knowledge about the site. Note: The SFAM Report provides rankings of High, Intermediate, Low, or None for each category of rare species associated with aquatic and riparian habitat. Upgrade a ranking to High if there is a recent (within 5 years) onsite observation of any of these species by a qualified observer under conditions similar to what now occur. Provide references in the external notes section of the cover page. *Values informed: Surface Water Storage, Flow Variation, Substrate Mobility, Maintain Biodiversity, Sustain Trophic Structure, Nutrient Cycling, Chemical Regulation, Thermal Regulation* **Essential salmonid habitat or rare non-anadromous fish species:**								
	Hydrology, Geomorphology, Biology, Water Quality	Fish	Fish		Is the PA within a HUC12 that has designated Essential Salmonid Habitat (ESH)? Select yes or no.	Yes			1.00
					According to the site's SFAM Report, what is the "non-anadromous fish" score? Select an answer from the dropdown menu:	Low			
	Rare amphibian and reptile species:								
	Hydrology, Geomorphology, Biology, Water Quality	Rare Amphibians and Reptiles	RarAmRep		According to the site's SFAM Report, what is the "amphibian and reptile" score? Select an answer from the dropdown menu:	Intermediate			0.50
	Important Bird Areas or rare waterbirds:								
	Biology, Water Quality	Waterbirds	Waterbird		Is there an Important Bird Area (IBA) within a 2-mile radius of the PA?	No			0.00
					According to the site's SFAM Report, what is the "feeding waterbird" score? Select an answer from the dropdown menu:	None/Not Known			
	Rare songbirds, raptors, and mammals:								
	Biology, Water Quality	Rare Bird and Mammals	RarBdMm		According to the site's SFAM Report, what is the "songbird, raptor and mammal" score? Select an answer from the dropdown menu:	None/Not Known			0.00
	Rare invertebrate species:								
	Hydrology, Geomorphology, Biology, Water Quality	Rare Invertebrates	RarInvert		According to the site's SFAM Report, what is the "invertebrates" score? Select an answer from the dropdown menu:	None/Not Known			0.00
	Rare plant species:								
	Geomorphology, Biology, Water Quality	Rare Plants	RarPlant		According to the site's SFAM Report, what is the "plant" score? Select an answer from the dropdown menu:	None/Not Known			0.00
V2 **Water Quality Impairments**	**Is this reach on the 303(d) list or other TMDL (Categories 3B-5) for any of the following impairments: sediment, nutrient, metals & toxics, temperature, or flow modification?** Answer each submeasure using information from the site's SFAM Report (water quality impairments section). *Values informed: Flow Variation, Sediment Continuity, Create & Maintain Habitat, Sustain Trophic Structure, Nutrient Cycling, Chemical Regulation, Thermal Regulation*								
	Sediment impairment: total suspended solids (TSS), sedimentation, or turbidity (note that some sedimentation can be naturally occurring and desirable therefore does not constitute a problem)								
	Geomorphology, Water Quality	Sedimentation	SedList		Select yes or no from the dropdown menu:	No			0.00
	Nutrient impairment: phosphorus, nitrate, ammonia, DO, aquatic weeds or algae, chlorophyll a, etc.; or untreated stormwater/wastewater discharge occurs within 500 feet of the reach								
	Biology, Water Quality	Nutrient Impairment	NutrImp		Select yes or no from the dropdown menu:	No			0.00
	Metals or other toxics impairment: toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.); or untreated stormwater/wastewater discharge occurs within 500 feet of the reach								
	Water Quality	Metals & Toxics Impairment	ToxImp		Select yes or no from the dropdown menu:	No			0.00
	Temperature impairment:								
	Biology, Water Quality	Temperature Impairment	TempImp		Select yes or no from the dropdown menu:	No			0.00
	Flow modification:								
	Hydrology, Biology	Flow Modification	FlowMod		Select yes or no from the dropdown menu:	No			0.00

V3 **Protected Areas**	**<u>Is the PA boundary within 300 feet of a special protected area?</u>** Answer using information from the site's SFAM Report (Within 300 feet of a Special Protected Area) as well as other available data for the PA and its vicinity. Note: The SFAM Report evaluates whether BLM Areas of Critical Environmental Concern (ACEC) or Outstanding Natural Areas (ONA), federal Research Natural Areas (RNA) or Special Interest Areas (SIA), Natural Heritage Conservation Areas (NHCA), and Land Trust and Nature Conservancy Preserves are within 300 feet of the PA. If there are other lands within 300 feet of the site that are protected specifically for their high ecological significance, select yes and provide references in the assessment notes section of the cover page. *Values informed: Maintain Biodiversity, Sustain Trophic Structure*								
	Biology		Protect		Select yes or no from the dropdown menu:	No			0.00
V4 **Impervious Area**	**<u>What is the percent impervious area in the drainage basin?</u>** Answer using information from the site's StreamStats Report (IMPERV). *Values informed: Surface Water Storage, Flow Variation, Sediment Continuity, Substrate Mobility, Create & Maintain Habitat, Sustain Trophic Structure, Nutrient Cycling, Chemical Regulation, Thermal Regulation*								
	Hydrology, Geomorphology, Biology, Water Quality		ImpArea		<10%, select A; 10-25%, select B; >25-60%, select C; >60%, select D.	B			0.30
V5 **Riparian Area**	**<u>What is the percentage of intact riparian area within 2 miles upstream of the PA</u>?** Intact refers to a riparian area with forest or otherwise unmanaged (i.e. natural) perennial cover appropriate for the basin that is at least 15 ft wide on both sides of the channel. Unmanaged perennial cover is vegetation that includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands in which the ground and vegetation is disturbed less than annually, such as lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, pasture, row crops (e.g., vegetable, orchards, Christmas tree farms), lawns, residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. *Values informed: Create & Maintain Habitat, Sustain Trophic Structure, Nutrient Cycling, Chemical Regulation, Thermal Regulation*								
	Biology, Water Quality		RipArea		If >50% select A. If >35-50%, select B. If 15-35%, select C. If <15%, select D.	D			0.00
V6 **Extent of Downstream Floodplain Infrastructure**	**<u>What is the extent of infrastructure (buildings, bridges, utilities, row crops) in the floodplain</u>?** Consider the floodplain area between the PA and either the next largest water body (large tributary, mainstem junction, lake, etc.) or 2 miles downstream, whichever is less. *Values informed: Surface Water Storage, Sediment Continuity, Create & Maintain Habitat, Sustain Trophic Structure*								
	Hydrology, Geomorphology, Biology		DwnFP		If >50% of total area, select A. If 1-50% of total area, select B. If none, select C. If not known or the downstream floodplain is not mapped, select D.	B			0.50
V7 **Zoning**	**<u>What is the dominant zoned land use designation downstream of the PA?</u>** Consider the floodplain area between the PA and either the next largest water body (larger tributary, mainstem junction, lake, etc.) or 2 miles downstream, whichever is less. *Values informed: Surface Water Storage, Create & Maintain Habitat, Sustain Trophic Structure*								
	Hydrology, Biology		Zoning		If developed (commercial, industrial, residential, etc.), select A. If agriculture or rural residential, select B. If forest, open space, or public lands, select C. If not zoned or no information, select D.	A			1.00
V8 **Frequency of Downstream Flooding**	**<u>What is the frequency of downstream flooding?</u>** Consider the floodplain area between the PA and either the next largest water body or 2 miles, whichever is less. Determine the frequency of flooding downstream of the PA that affects infrastructure (i.e. affects use of the site or causes economic loss). *Values informed: Surface Water Storage*								
	Hydrology		DwnFld		If frequent (several times a year), select A. If moderate (up to once a year), select B. If infrequent (only large events), select C. If never or not known, select D.	C			0.30

V9 **Impoundments**	**<u>What is the prevalence of impoundments within 2 miles upstream and downstream of the PA that are likely to cause shifts in timing or volume of water?</u>** The shift may be by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times). For each category, select yes or no from the dropdown menu. *Values informed: Surface Water Storage, Flow Variation, Sediment Continuity, Substrate Mobility, Create & Maintain Habitat*									
	Hydrology, Geomorphology, Biology		Impound		Are there 1-2 small dams or other impoundments **<u>upstream</u>** of the PA?	No			Upstream impoundments subscore:	1.00
					Are there >2 small impoundments, 1 or more large dams or other impoundments **<u>upstream</u>** of the PA?	No				
					Are there 1-2 small dams or other impoundments **<u>downstream</u>** of the PA?	No			Downstream impoundments subscore:	1.00
					Are there >2 small impoundments, 1 or more large dams or other impoundments **<u>downstream</u>** of the PA?	No				
V10 **Fish Passage Barriers**	**<u>Are there man-made fish passage barriers within 2 miles upstream and/or downstream of the PA</u>?** Select an answer from the drop-down menu for each of the upstream and downstream directions. If more than one barrier is present, answer for the one with the most restricted level of passage (e.g. Blocked). Do not include natural barriers. *Values informed: Maintain Biodiversity, Sustain Trophic Structure*									
	Biology		Passage	Slope barrier	Upstream	Blocked	0.00			0.50
					Downstream	Unknown	1.00			
V11 **Water Source**	**<u>Is there an area that is of special concern for drinking water sources or groundwater recharge within 2 miles downstream of the PA?</u>** This includes any of the following: the source area for a surface-water drinking water source; the source area for a groundwater drinking water source; a designated Groundwater Management Area; a designated Sole Source Aquifer. *Values informed: Sub/Surface Transfer, Nutrient Cycling, Chemical Regulation*									
	Hydrology, Water Quality		Source		Select yes or no from the dropdown menu:	Yes				1.00
V12 **Surrounding Land Cover**	**<u>What are the land cover types surrounding the PA?</u>** Draw a 2 mile radius around the PA. Provide an estimate of the percentage of area within the resulting polygon that matches each land cover description. Enter 0% if none. Enter 1% if barely present. Must sum to 100%. *Values informed: Maintain Biodiversity, Sustain Trophic Structure*									
	Biology		SurrLand		Unmanaged vegetation (wetland, native grassland, forest) or water	10	× 1.00	10.00		0.15
					Managed vegetation (pasture, regularly watered lawn (i.e. park), row crops, orchards)	10	× 0.50	5.00		
					None of the above (including bare areas [dirt, rock], roads, energy facilities, residential, commercial, industrial)	80	× 0.00	0.00		
					SUM	100				
V13 **Riparian Continuity**	**<u>What is the longitudinal extent of intact riparian area that is contiguous to the PA?</u>** Select the longest length of contiguous riparian corridor in either the upstream or downstream direction, but do not include the PA length itself. Intact refers to a riparian area with forest or otherwise managed (i.e. natural) perennial cover appropriate for the basin that is at least 15 ft wide on both sides of the channel. Contiguous means there are no > 100 ft gaps in forested cover or unmanaged perennial cover. Unmanaged perennial cover is vegetation that includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands in which the ground and vegetation is disturbed less than annually, such as lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, pasture, row crops (e.g., vegetable, orchards, Christmas tree farms), lawns, residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. *Values informed: Maintain Biodiversity, Create & Maintain Habitat, Sustain Trophic Structure, Nutrient Cycling, Chemical Regulation, Thermal Regulation*									
	Biology, Water Quality		RipCon		If <100 feet, select A. If 100-500 feet, select B. If >500 feet, select C.	A				0.00
V14 **Watershed Position**	**<u>What is the relative position of the PA in its HUC 8 watershed?</u>** Answer this question looking at position of the PA releative to the 8-digit HUC layer. • If the PA is (a) closer to the watershed's outlet than its upper end and (b) closer to the large stream/river exiting the watershed's outlet than it is to the boundary of the watershed, select "lower 1/3." • If the PA is (a) closer to the watershed's upper end than its outlet and (b) closer to the watershed's boundary than its large stream/river, select "upper 1/3." • If neither of the above conditions are met, select "middle 1/3." *Values informed: Sediment Continuity, Nutrient Cycling, Chemical Regulation*									
	Geomorphology, Water Quality		Position		Select an answer from the dropdown menu:	Upper 1/3				0.00

V15 **Flow Restoration Needs**	**<u>What is the "streamflow restoration need" ranking of the watershed within which the PA is located?</u>** Answer this question using the Flow Restoration Needs layer in the SFAM Map Viewer. *Values informed: Flow Variation, Create & Maintain Habitat*									
	Hydrology, Biology		FlowRest		Select an answer from the dropdown menu:	Not Ranked or Low				0.00
V16 **Unique Habitat Features**	**<u>Are there rare aquatic habitat features within the EAA that are not common to the rest of the drainage basin</u>?** For each feature type, select yes or no from the dropdown menu. This question must be answered in the field, but the user can check for any mapped wetlands or seeps, springs, or tributaries in the office using the Oregon Wetlands Cover, Springs, and the Flowline layers, respectively. *Values informed: Substrate Mobility, Maintain Biodiversity, Create & Maintain Habitat, Sustain Trophic Structure, Thermal Regulation*									
	Geomorphology, Biology		HabFeat		Large log jams that span 25% or more of the active channel width?	No		Overall HabFeat score		0.00
					Braided channel or otherwise multiple channels resulting in islands?	No				
					Large spatial extent (>30%) of wetlands in the floodplain?	No		Substrate subscore		0.00
					Seeps, springs, or tributaries contributing colder water?	No		Thermal subscore		0.00
Already in Stream Classification on Cover Page - NO DATA INPUT REQUIRED.										
Surface Water Runoff	**What is the level of surface water runoff (based on local water availability and local gradient)?** No data input necessary, information taken from EPA classification (stream type & gradient).									
	Hydrology		Runoff							0.75
Aquifer Permeability	**What is the permeability of the aquifer (determined by percent permeable bedrock based on hydraulic conductivity m/day)?** No data input necessary, information taken from EPA classification.									
	Hydrology		AqPerm			High				0.00
Soil Permeability	**What is the permeability of the soil (based on hydraulic conductivity in cm/hr)?** No data input necessary, information taken from EPA classification.									
	Hydrology		SoilPerm			High				0.00
Erodibility	**What is the erodibility of this reach?** No data input necessary, information taken from EPA classification.									
	Geomorphology		Erode			Easily Erodible				1.00

STREAM FUNCTION ASSESSMENT METHOD for OREGON

Name of Project Area:	Channel 1 (Wynooski St)	Enter Data in Yellow Boxes ONLY Scores Automatically Calculated in Green Boxes

FUNCTIONS MEASURES TABLE

FILL IN THE YELLOW BOXES. Most questions below require a numerical input. When possible, please select answer from the drop-down menus instead of typing in the answer.

Measure	Function Groups		Measure Abbreviation	Qualifiers		Data Entry		Measure Score
F1 **Natural Cover**	**What is the percent natural cover above the stream within the PAA?** Measure the percentage of cover above the stream, including both overstory and understory vegetation and overhanging banks, by averaging spherical densiometer measurements taken at each transect within the PAA. *Functions informed: Sustain Trophic Structure, Nutrient Cycling, Thermal Regulation*							
	Biology, Water Quality		Cover	WMTsmall	**Enter a percentage**: *(round to nearest whole number)*	95		0.85
F2 **Invasive Vegetation**	**What is the percent cover of invasive vegetation within the PAA?** Consider the Oregon Department of Agriculture Noxious Weed list in Appendix 3 of the SFAM User Guide, and other sources of information, such as Oregon iMAPInvasives and iNaturalist. *Functions informed: Maintain Biodiversity, Sustain Trophic Structure*							
	Biology		InvVeg		**Enter a percentage**: *(round to nearest whole number)*	81		0.00
F3 **Native Woody Vegetation**	**What is the percent cover of native woody vegetation within the PAA**? *Functions informed: Maintain Biodiversity, Create & Maintain Habitat*							
	Biology		WoodyVeg		**Enter a percentage**: *(round to nearest whole number)*	7		0.11
F4 **Large Trees**	**What is the percent cover of large trees (dbh>20in) within the PAA?** *Functions informed: Maintain Biodiversity, Create & Maintain Habitat*							
	Biology		LgTree	West	**Enter a percentage**: *(round to nearest whole number)*	4		0.12
F5 **Vegetated Riparian Corridor Width**	**What is the average width of the vegetated riparian corridor within the PAA?** An intact vegetated riparian corridor is defined as one typified by largely undisturbed ground cover and dominated by "natural" species. Natural does not necessarily mean pristine and can include both upland plants and species with wetland indicator status, and native and non-native species. Natural does not include pasture or cropland, recreational fields, recently harvested forest, pavement, bare soil, gravel pits, or dirt roads. Note that relatively small features, such as a narrow walking trail, that likely have negligible effects on water quality can be included within the vegetated riparian corridor width. *Functions informed: Nutrient Cycling, Chemical Regulation*							
	Water Quality		RipWidth		**Enter the average width (feet)**:	97		0.69

F6 **Fish Passage Barriers**	**Is there a man-made fish passage barrier in the PAA?** Select an answer from the drop-down menu. Man-made barriers to fish passage can include structures such as dams, culverts, weirs/sills,tide gates, bridges and fords that can block physical passage or can create unsuitable conditions for passage (e.g. high velocity). The level of passage provided can be researched in the office using the Man-made Fish Passage Barriers data layer (Fish Passage Barriers in the Habitat Group) in the SFAM Map Viewer, then confirmed in the field. Do not include natural barriers. If more than one barrier is present, answer for the one with the most restricted level of passage (e.g. Blocked). Not all barriers have been mapped. See the User Manual for more information. *Functions informed: Maintain Biodiversity, Create & Maintain Habitat*

Biology		Barriers		**Enter an option from the dropdown menu:**	Blocked		0.00

F7 **Floodplain Exclusion**	**What percent of the floodplain has been disconnected within the PAA?** For alluvial rivers, the floodplain is defined by a distinct break in slope at valley margins, a change in geologic character from alluvium to other, indications of historical channel alignments within a valley, or as the 100-year flood limit. Disconnection refers to any portion of the flood area no longer inundated due to levees, channel entrenchment, roads or railroad grades, or other structures (including buildings and any associated fill) within the proximal assessment area. All barriers should be included when estimating disconnection, even if the barrier is not present during all flood stages; EXCEPT where the structure is expressly managed for floodplain function and inundation. *Functions informed: Surface Water Storage, Create & Maintain Habitat*								
	Hydrology, Biology		Exclusion		If ≤ 20%, select A. If >20 - 40%, select B. If >40 - 80%, select C. If >80%, select D.	D			0.00
F8 **Bank Armoring**	**What percentage of the stream banks within the PAA are armored?** What percentage of the streambank has been stabilized using rigid methods to permanently prevent meandering processes? Examples of armoring include gabion baskets, sheet piles, rip rap, large woody debris that covers the entire bank height, and concrete. Bank stabilization methods that return bank erosion to natural rates and support meandering processes are not counted as armoring. Examples include many bioengineering practices, large wody debris placed along the bank toe, and in-stream structures that still use native vegetation cover on the streambanks. Percent armoring is calculated as the sum of the armored lengths of the left and right banks, divided by sum total lengths of both banks within PAA (i.e. twice the total PAA length). *Functions informed: Substrate Mobility*								
	Geomorphology		Armor		**Enter a percentage:** *(round to nearest whole number)*	0			1.00
F9 **Bank Erosion**	**What percentage of stream banks within the PAA are actively eroding or recently (within previous year or high flow) eroded?** Indications of active/recent erosion include vertical or near vertical bank stream banks that show exposed soil and rock, evidence of tension cracks, active sloughing, or that are largely void of vegetation or roots capable of holding soil together. The percent is calculated as the sum of lengths of left and right banks that are eroding, divided by the sum of total lengths of both banks within PAA. *Functions informed: Sediment Continuity*								
	Geomorphology		Erosion		**Enter a percentage:** *(round to nearest whole number)*	49			0.17
F10 **Overbank Flow**	**Does the stream interact with its floodplain within the PAA?** Is there evidence of fine sediment deposition (sand or silt) on the floodplain, organic litter wracked on the floodplain or in floodplain vegetation, or scour of floodplain surfaces, extending greater than 0.5xBFW onto either the right or left bank floodplain within the PAA? Do not include evidence from inset floodplains developing within entrenched channel systems. If the abutting land use limits the opportunity to observe evidence of overbank flow, is there other credible information that would indicate regular (at least every two years) overbank flow in the PAA? Examples of "other credible information" include first-hand knowledge, discharge/stream gauge measures, etc. Cite the evidence on the Cover Page. *Functions informed: Surface Water Storage, Sub/Surface Transfer, Sustain Trophic Structure, Nutrient Cycling, Chemical Regulation*								
	Hydrology, Biology, Water Quality		OBFlow		**Select yes or no from dropdown menu:** *(If there is no floodplain, leave blank)*	No			0.00

F11 **Wetland Vegetation**	**<u>Are there wetland indicator plants adjacent to the channel and/or in the floodplain within the PAA?</u>** Determine if vegetation in the riparian area of the PAA has a wetland indicator status of obligate or facultative wet. *Functions informed: Sub/Surface Transfer, Maintain Biodiversity, Sustain Trophic Structure, Nutrient Cycling, Chemical Regulation*							
	Hydrology, Biology, Water Quality		WetVeg		Are there wetland indicator plant species within the PAA?	Yes		0.50
					If yes, are any wetland indicator plants located greater than 0.5 x BFW from the bankfull edge on at least one side of the stream? *(Select N/A if you answered No above)*	Yes		
					If yes, are the wetland indicator plants located beyond 0.5 x BFW distributed along >70% of the length of the PAA? *(Select N/A if you answered No above)*	No		
F12 **Side Channels**	**<u>What proportion of the EAA length has side channels?</u>** Side channels include all open conveyances of water, even if the channel is plugged on one end. If both ends are plugged, do not count as a side channel. *Functions informed: Surface Water Storage, Sub/Surface Transfer, Maintain Biodiversity, Create & Maintain Habitat*							
	Hydrology, Biology		SideChan		**Enter a percentage**: *(round to nearest whole number)*	0		0.00
F13 **Lateral Migration**	**<u>What percent of both sides of the channel within the EAA is constrained from lateral migration?</u>** Constraints on lateral migration of the channel within 2 BFW or 50 feet (whichever is greater) includes bank stabilization and armoring, bridges and culverts, diversions, roads paralleling the stream and any other intentional structures or features that limit lateral channel movement whether intentionally or not. For cross-channel structures (diversions, bridges, culverts, etc.), record 4x the BFW as the length constrained on both sides of the channel. For linear features, record the length on each side of the channel. For segmented bank features, such as bendway weirs or log jams acting in concert, record the effective length of stabilization on each side of the channel affected. It is acceptable to include relevant armoring that is recorded in the Bank Armoring question, below. *Functions informed: Sediment Continuity*							
	Geomorphology		LatMigr		**Enter a percentage:** *(round to nearest whole number)*	0		1.00
F14 **Wood**	**<u>What is the frequency of large wood in the bankfull channel within the EAA?</u>** Report the frequency (pieces per 328 feet [100m] of channel) of independent pieces of wood, defined here as woody material with a diameter of at least 4 inches (10cm) and a length of 5 feet (1.5m) within the EAA. This means that at least 5 feet of the piece of wood must be larger than 4 inches in diameter (i.e. a circumference > 12.5 inches). Independent pieces include all those individual pieces that meet size criteria either separate from or within log jams. To be counted, wood must have some part of its length within the bankfull channel. Exclude any wood that has been intentionally anchored to or within the channel banks (using spikes, cables, ballast, etc.) for the purpose of preventing bank erosion (armoring). *Functions informed: Surface Water Storage, Maintain Biodiversity, Create & Maintain Habitat*							
	Hydrology, Biology		Wood	WMTsmall	**Enter the frequency (pieces per 328 ft) of wood in the channel:** *(round to nearest hundredth)*	0.00		0.00

F15 **Incision**	**What is the degree of channel incision within the EAA?** As part of the longitudinal survey, at 11 evenly spaced locations along the stream within the EAA, measure the Bank Height Ratio (BHR). The BHR is the height from the stream thalweg to the lowest floodplain/terrace divided by the bankfull height. Do not consider inset floodplains. *Functions informed: Surface Water Storage, Sediment Continuity, Create & Maintain Habitat*							
	Hydrology, Geomorphology, Biology		Incision		**Enter the average incision:** *(round to nearest hundredth)*	1.67		0.54
F16 **Embeddedness**	**What is the degree of substrate embeddedness in the stream channel?** To what extent are larger stream substrate particles surrounded by finer sediments on the surface of the streambed? Measurements are taken at 11 transects within the EAA. *Functions informed: Flow Variation, Substrate Mobility, Create & Maintain Habitat*							
	Hydrology, Geomorphology, Biology		Embed		**Enter a percentage:** *(round to nearest whole number)*	73		0.35
F17 **Channel Bed Variability**	**Is the channel variable?** Channel bed variability indicators include variation in wetted channel width and stream thalweg depth along the EAA. *Functions informed: Surface Water Storage, Sub/Surface Transfer, Flow Variation, Sediment Continuity, Maintain Biodiversity, Create & Maintain Habitat, Nutrient Cycling, Chemical Regulation*							
	Hydrology, Geomorphology, Biology, Water Quality		BedVar		Enter the **wetted width** coefficient of variation:	0.84		1.00
					Enter the **thalweg depth** coefficient of variation:	0.88		1.00
							AVERAGE	1.00

STREAM ASSESSMENT SCORES SHEET **version 1.0**

Project Area Name:	Channel 1 (Wynooski St)		
Investigator Name:	CM		
Date of Field Assessment:	1/7/2020		
Latitude (decimal degrees):	45.2939	Longitude (decimal degrees):	-122.9619

SPECIFIC FUNCTIONS	Function Score	Function Rating	Value Score	Value Rating
Suface Water Storage (SWS)	2.58	Lower	7.25	Higher
Sub/Surface Water Transfer (SST)	3.75	Moderate	10.00	Higher
Flow Variation (FV)	7.82	Higher	5.50	Moderate
Sediment Continuity (SC)	5.68	Moderate	4.60	Moderate
Sediment Mobility (SM)	8.04	Higher	5.75	Moderate
Maintain Biodiversity (MB)	0.91	Lower	2.75	Lower
Create and Maintain Habitat (CMH)	0.38	Lower	5.20	Moderate
Sustain Trophic Structure (STS)	3.17	Moderate	4.27	Moderate
Nutrient Cycling (NC)	6.08	Moderate	5.46	Moderate
Chemical Regulation (CR)	5.48	Moderate	5.46	Moderate
Thermal Regulation (TR)	8.50	Higher	6.60	Moderate

GROUPED FUNCTIONS	REPRESENTATIVE FUNCTION	Function Group Rating	Value Group Rating
Hydrologic Function (SWS, SST, FV)	Flow Variation (FV)	Higher	Moderate
Geomorphic Function (SC, SM)	Sediment Mobility (SM)	Higher	Moderate
Biologic Function (MB, CMH, STS)	Sustain Trophic Structure (STS)	Moderate	Moderate
Water Quality Function (NC, CR, TR)	Thermal Regulation (TR)	Higher	Moderate

Formulas for each specific function and value (shown on Subscores tab) produce a numerical score between 0.0 and 10.0. For ecological functions, a score of 0.0 indicates that negligible function is being provided by the stream whereas a score of 10.0 indicates that the stream is providing maximum function (as defined) given certain contextual factors. For values, a score of 0.0 indicates that there is low opportunity for the site to provide a specific ecological function and that, even if it did, the specific function would not be of particular significance given the context of the site. Conversely, a value score or 10.0 indicates that a site has the opportunity to provide a specific function and that it would be highly significant in that particular location. For all function and value formulas, both extents of the scoring range (0.0 and 10.0) are mathematically possible.

To facilitate conceptual understanding, numerical scores are translated into ratings of Lower, Moderate, or Higher. The numerical thresholds for each of these rating categories are consistent across all functions and values such that scores of <3.0 are rated “Lower,” scores ≥3.0 but ≤7.0 are rated “Moderate,” and scores that are >7.0 are rated “Higher.” These thresholds are consistent with the standard scoring scheme applied to all individual measures.

Each specific function, and its associated value, is included in one of four thematic groups: hydrologic, geomorphic, biologic, and water quality functions. Group ratings provide an indication of the degree to which each group of processes is present at a site. Groups are represented by the highest-rated function with the highest-rated associated value among the 2-3 functions that comprise each group. This hierarchical selection system ensures that thematic functional groups are represented by the highest-performing and highest-valued ecological function.

FUNCTIONS				VALUES					
Function	**Measure Name**	**Measure Score**	**Function Score**	**Value**	**Measure Name**	**Measure Score**	**Opportunity Subscore**	**Significance Subscore**	**Value Score**
SWS	OBFlow	0.00		SWS	ImpArea	0.30			
	Incision	0.54			Runoff	0.75			
	Exclusion	0.00			ImpoundUS	1.00			
	BedVar	1.00	**2.58**		DwnFP	0.50	3.42	3.83	**7.25**
	Wood	0.00			Zoning	1.00			
	SideChan	0.00			DwnFld	0.30			
					Fish	1.00			
SST	OBFlow	0.00		SST	AqPerm	0.00			
	WetVeg	0.50	**3.75**		SoilPerm	0.00	0.00	1.00	**10.00**
	SideChan	0.00			Source	1.00			
	BedVar	1.00							
FV	BedVar	1.00		FV	ImpArea	0.30			
	Embed	0.35			FlowMod	0.00			
	ImpoundUS	1.00			1-ImpoundUS	0.00			
					FlowRest	0.00			
					AqPerm	0.00	0.50	5.00	**5.50**
			7.82		SoilPerm	0.00			
					ImpoundDS	1.00			
					RarInvert	0.00			
					RarAmRep	0.50			
					Fish	1.00			
SC	Incision	0.54		SC	SedList	0.00			
	Erosion	0.17			ImpArea	0.30			
	LatMigr	1.00			ImpoundUS	1.00			
					Postion	0.00	0.43	4.17	**4.60**
			5.68		1-DwnFP	0.50			
					Erode	1.00			
					ImpoundDS	1.00			
SM	Armor	1.00		SM	ImpArea	0.30			
	Embed	0.35			ImpoundUS	1.00			
	BedVar	1.00			SubFeat	0.00			
					Fish	1.00	3.25	2.50	**5.75**
			8.04		RarPlant	0.00			
					RarAmRep	0.50			
					RareInvert	0.00			
MB	Barriers	0.00		MB	Passage	0.50			
	BedVar	1.00			SurrLand	0.15			
	Wood	0.00			RipCon	0.00			
	SideChan	0.00			HabFeat	0.00			
	InvVeg	0.00			Protect	0.00			
	WoodyVeg	0.11	**0.91**		Fish	1.00	1.08	1.67	**2.75**
	LgTree	0.12			RarInvert	0.00			
	WetVeg	0.50			RarAmRep	0.50			
					Waterbird	0.00			
					RarBdMm	0.00			
					RarPlant	0.00			
CMH	Exclusion	0.00		CMH	1-ImpArea	0.70			
	Wood	0.00			ImpoundUS	1.00			
	Embed	0.35			RipArea	0.00			
	BedVar	1.00			RipCon	0.00			
	WoodyVeg	0.11			1-NutrImp	1.00			
	LgTree	0.12	**0.38**		1-FlowMod	1.00	2.70	2.50	**5.20**
	Incision	0.54			1-FlowRest	1.00			
	SideChan	0.00			1-DwnFP	0.50			
	Barriers	0			1-Zoning	0.00			
					ImpoundDS	1.00			
					HabFeat	0			
STS	OBFlow	0.00		STS	SurrLand	0.15			
	Cover	0.85			1-ImpArea	0.70			
	InvVeg	0.00			Passage	0.50			
	WoodyVeg	0.11			RipArea	0.00			
	WetVeg	0.50			RipCon	0.00			
					1-NutrImp	1.00			
					1-TempImp	1.00			
					Protect	0.00			
			3.17		1-DwnFP	0.50	2.39	1.88	**4.27**
					1-Zoning	0.00			
					Fish	1.00			
					RarInvert	0.00			
					RarAmRep	0.50			
					Waterbird	0.00			
					RarBdMm	0.00			
					RarPlant	0.00			
					HabFeat	0.00			
NC	OBFlow	0.00		NC	NutrImp	0.00			
	BedVar	1.00			ImpArea	0.30			
	RipWidth	0.69			1-RipArea	1.00			
	WetVeg	0.50			1-RipCon	1.00			
	Cover	0.85			SedList	0.00	0.46	5.00	**5.46**
			6.08		Position	0.00			
					Fish	1.00			
					RareInvert	0.00			
					RarAmRep	0.50			
					Source	1.00			
CR	RipWidth	0.69		CR	ToxImp	0.00			
	BedVar	1.00			ImpArea	0.30			
	WetVeg	0.50			1-RipArea	1.00			
	OBFlow	0.00			1-RipCon	1.00			
					SedList	0.00			
					Position	0.00			
			5.48		Fish	1.00	0.46	5.00	**5.46**
					RarInvert	0.00			
					RarAmRep	0.50			
					Waterbird	0.00			
					RarBdMm	0.00			
					RarPlant	0.00			
					Source	1.00			
TR	Cover	0.85		TR	1-TempImp	1.00			
					RipArea	0.00			
					RipCon	0.00			
					ImpArea	0.30			
			8.50		Fish	1.00	4.10	2.50	**6.60**
					RarInvert	0.00			
					RarAmRep	0.50			
					ThermFeat	0.00			

SFAM Site Layout Field Data Form

Project Area Name: Channel 1- Wynooski St Date: 1/7/2020 Assessor: CM

Print this form to take to the field, along with the PAA and EAA field forms. Use the instructions, measurements, and diagrams on this form to establish the two assessment areas necessary for data collection.

Project Area Description:

No EAA due to truncated ends of the PAA due to an existing culvert/storm pipe upslope, and wetland downslope where the channel loses definition to become Wetland A.

Is there a Floodplain?

No

Establishing the boundaries of the Proximal Assessment Area (PAA):

a) Identify the spatial extent of direct impact.

b) Establish the longitudinal boundaries of the PAA at the upstream and downstream extent of the impact, or 50ft of stream length, whichever is greater.

c) Locate the center of the PAA and measure the bankfull channel width (BFW).

d) At two additional locations, equidistant between the PAA center and the PAA upper and lower boundaries, measure BFW. PAA transects will be located at the 3 locations where BFW was measured.

e) Establish the lateral boundaries of the PAA at a distance of 2 × the average BFW or 50' from the stream edge (bankfull edge), whichever is greater, on each side of the stream.

Total PAA stream length (ft) =	108
Distance between transects (PAA length ÷ 4) =	27
2 × average bankfull width (calculated below) =	7.2

Bankfull Width:			
Transect	Location	Width (ft)	Average
T1	27	4.3	3.6
T2	54	3.5	
T3	81	3	

	Latitude	Longitude
Corner 1	45.2939	-122.9622
Corner 2	45.2937	-122.962
Corner 3	45.2942	-122.9618
Corner 4	45.294	-122.9615

Establishing the boundaries of the Extended Assessment Area (EAA):

a) The EAA is an upstream and downstream extension of the PAA. Establish the longitudinal boundaries by multiplying the average BFW by 5 and measuring that distance upstream and downstream from the PAA upper and lower boundaries, respectively.

b) The lateral boundaries of the EAA are the same distance from the stream edge (bankfull) as the lateral boundaries for the PAA (above). Note that the EAA contains the entire PAA.

c) Locate the 11 EAA transect locations by dividing the total EAA length by 10. The distance between each transect is 0.1 × the total EAA length. Transects include the upper and lower EAA boundaries.

Length EAA extends above/below PAA (5 × average BFW) =	18
Total EAA length (10 × BFW + PAA length, rounded to nearest 10') =	140
Distance between EAA transects (EAA length ÷ 10) =	14

	Latitude	Longitude
Corner 1	45.2938	-122.9623
Corner 2	45.2937	-122.9622
Corner 3	45.2942	-122.9617
Corner 4	45.2941	-122.9615

SFAM Proximal Area Assessment (PAA) Field Data Form

Project Area Name: Channel 1- Wynooski St Date: 1/7/2020 Assessor: CM

Print this form to take to the field. You only need to print the portion that is within the defined print area (i.e. you do not need the data calculation columns while in the field). After collecting data in the field, transfer data into the Excel worksheet. **Cells in the "Calculations" section will populate automatically.**

What is the longitudinal length of the PAA?	**Natural Cover (F1)**: Record densiometer readings from both left and right banks at each transect.				**See F2-F4 below**	**Riparian Corridor (F5):** Record the width (ft) of the riparian corridor at each PAA transect. If > 330 ft, enter 330.				**Barriers (F6):** Does a man-made structure limit fish passage (barrier, partial, passable, unknown, none)?	**Exclusion (F7):** What % of the 100-yr floodplain is excluded due to features (<=20%, >20-40%, >40-80%, >80%)?
		T1	T2	T3			T1	T2	T3		
	Left	17	17	17		Left	30	50	50	Barrier	<=20%
108	Right	15	14	17		Right	50	70	330		

Invasive Vegetation (F2), Native Woody Vegetation (F3), and Large Trees (F4)*:* For each of the three vegetation classes, record the start and end positions (distance from bankfull, to the nearest 0.1ft) of each occurrence along the length of the transect. Transects run perpendicular to the stream edge, from the bankfull edge to the lateral boundary of the PAA.

What is the length of the transect (ft)?	50		Vegetation transects are conducted on both banks. If it is physically or legally unfeasible to access one side, indicate which side was surveyed by selecting Left or Right from the dropdown menu.	

Transect	Vegetation Class	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
1 (left)	InvVeg	0	30														
	Native WoodyVeg																
	LgTree																
1 (right)	InvVeg	0	10	22	50												
	Native WoodyVeg																
	LgTree																
2 (left)	InvVeg	0	50														
	Native WoodyVeg																
	LgTree																
2 (right)	InvVeg	0	12	15	29	37	50										
	Native WoodyVeg	29	42														
	LgTree																
3 (left)	InvVeg	0	50														
	Native WoodyVeg	20	25	48	50												
	LgTree	20	25	48	50												
3 (right)	InvVeg	0	11	14	15	25	31	33	50								
	Native WoodyVeg																
	LgTree	45	50														

Armor (F8) and Erosion (F9): Record start and end locations (ft) of bank armoring features and bank erosion evidence along the length of the PAA.

	Start	End	Start	End	Start	End	Start	End
Armoring (left)								
Armoring (right)								
Erosion (left)	0	80						
Erosion (right)	0	22	30	33				

Overbank Flow (F10): Is there evidence of overbank flow at least 0.5 × BFW from the bankfull edge? *(circle answer in field)*		No

Wetland Vegetation (F11): Are there FACW or OBL wetland plants on the banks or in the floodplain? *(circle answers)*	Yes	
If yes, answer the following questions:		
→ Are any located > 0.5 × BFW from the bankfull edge?	Yes	
→ …for more than 70% of the PAA length?		No

SFAM Extended Area Assessment (EAA) Field Data Form

Project Area Name: Channel 1- Wynooski St Date: 7-Jan Assessor: CM

Print this form to take to the field. You only need to print the portion that is within the defined print area (i.e. you do not need the data calculation columns while in the field). After collecting data in the field, transfer data from the Function Measure Input Value columns (Y-Z) into the Excel worksheet. **Cells in the "Calculation" section will populate automatically.**

What is the total longitudinal length of the EAA (ft)?	144

Wood (F14): Tally each piece of wood along the EAA that measures > 4" diameter and is at least 5' long. You can record the location of the wood to avoid double counting.

Total = 0

Side Channels (F12) and Lateral Migration (F13): Record start and end locations (ft) of adjacent side channels and evidence of constraints to lateral migration along the length of the EAA.

	Start	End	Start	End	Start	End	Start	End	Start	End
Side channels (either side)										
Constraints to lateral migration (left)										
Constraints to lateral migration (right)										

Unique Features (V16): Note the presence of any unique habitat features throughout the EAA including, but not limited to: log jams, braided channels, >30% wetlands in floodplain, springs, seeps, cold water inputs, etc.

	Wetted Width (F17)	**Incision (F15)**	**Substrate Embeddedness (F16)**					**Thalweg Depth (F17)**									
	Record width and height at each cross-channel transect (round to nearest 0.1 ft).		Record % embeddedness (to the nearest quartile: 0, 25, 50, 75, 100) at 5 equidistant points along each cross-channel transect.					Record the thalweg depth at 10 equidistant points between each cross-channel transect while moving upstream.									
EAA Transect	Feet from EAA lower boundary	Wetted width	Bankfull height	Lowest floodplain height	Embed1	Embed2	Embed3	Embed4	Embed5	Depth1	Depth2	Depth3	Depth4	Depth5	Depth6	Depth7	Depth8	Depth9	Depth10
A	0	0	0.1	0.1	100	100	100	100	100	0	0	0	0	0	0	0	0	0	0
B	14	0	0.1	0.1	100	100	100	100	100	0	0	0	0	0	0	0	0	0	0
C	28	1	2.1	4	100	100	100	100	100	1.7	1.6	1.7	1.7	1.8	1.6	1.7	1.6	1.7	1.7
D	42	1	2	4	100	100	100	100	100	1.7	1.7	1.7	1.6	1.6	1.6	1.7	1.6	1.6	1.7
E	56	0.7	1.2	1.5	100	100	100	100	100	0.7	0.7	0.7	0.6	0.7	0.8	0.7	0.8	0.8	0.8
F	70	1	1.3	2	100	100	100	100	100	0.8	0.8	0.8	0.7	0.7	0.8	0.7	0.8	0.8	0.8
G	84	1	1.3	2	100	100	100	100	100	0.6	0.5	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.5
H	98	2	1.3	4	100	100	100	100	100	0.4	0.4	0.5	0.4	0.4	0.5	0.6	0.5	0.5	0.4
I	112	4	1.3	4	0	0	0	0	0	0.3	0.3	0.3	0.4	0.4	0.3	0.5	0.4	0.4	0.3
J	126	1.5	1.5	1.5	0	0	0	0	0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
K	140	1.5	1.5	1.5	0	0	0	0	0										

OREGON EXPLORER

Stream Function Assessment Method (SFAM) Report

Report Generated: December 18, 2019 11:44 AM

Assessment Area: 0.4 Acres

Location Map

Location Information

Latitude	45.294 N	Longitude	-122.962 W
Elevation	143 ft	Level III Ecoregion	Willamette Valley
HUC8	17090007 Middle Willamette		
HUC10	1709000703 Chehalem Creek-Willamette River		
HUC12	170900070307 Hess Creek-Willamette River		
Linear ft of stream in HUC8	141,076	Annual precipitation	40 in

Stream Type and Classifications

Stream Classification	Mountain Wet Rain / Valley Wet	Percent of project area	100.00 %
Aquifer permeability	High	Soil permeability	High
Gradient	<2%	Erodibility	Easily_Erodible

OREGON EXPLORER

Stream Function Assessment Method (SFAM) Report

Report Generated: December 18, 2019 11:44 AM

Assessment Area: 0.4 Acres

Stream classifications and associated attributes are derived from a U.S. Environmental Protection Agency stream classification geospatial data layer developed for Oregon (2015). This layer provides a statewide stream/watershed classification system for streams and rivers of various sizes, based in part on a hydrologic landscape classification system.

Rare Species Scores and Special Habitat Designations

Rare Species Type	Maximum score	Sum Score	Rating
Non-anadromous Fish Species	0.22	0.22	Low
Amphibian & Reptile Species	0.24	0.24	Intermediate
Feeding Waterbirds	0	0	None
Songbirds, Raptors, and Mammals	0	0	None
Invertebrate Species	0	0	None
Plant Species	0	0	None

Scores have taken into account several factors for each rare species record contained in the official database of the Oregon Biodiversity Information Center (ORBIC): (a) the regional rarity of the species, (b) their proximity to the point of interest, and (c) the "certainty" that ORBIC assigns to each of those records.

Within 300 ft of a Special Protected Area?	No
Within a HUC12 that has designated Essential Salmonid Habitat?	Yes
Within 2 miles of an Important Bird Area?	No

Water Quality Impairments

No features found in project area.

Water quality information is derived from Oregon's 2012 Integrated Report, including the list of water quality limited waters needing Total Maximum Daily Loads (303d List). Each record in the report is assigned an assessment category based on an evaluation of water quality information. Categories included in the SFAM Report are:

Category 5: *Water is water quality limited and a TMDL is needed; Section 303(d) list.*

Category 4: *Water is impaired or threatened but a TMDL is not needed because: (A) the TMDL is approved, (B) other pollution requirements are in place, or (C) the impairment (such as flow or lack of flow) is not caused by a pollutant.*

Category 3B: *Water quality is of potential concern; some data indicate non-attainment of a criterion, but data are insufficient to assign another category.*

OREGON EXPLORER

Stream Function Assessment Method (SFAM) Report

Report Generated: December 18, 2019 11:44 AM

Assessment Area: 0.4 Acres

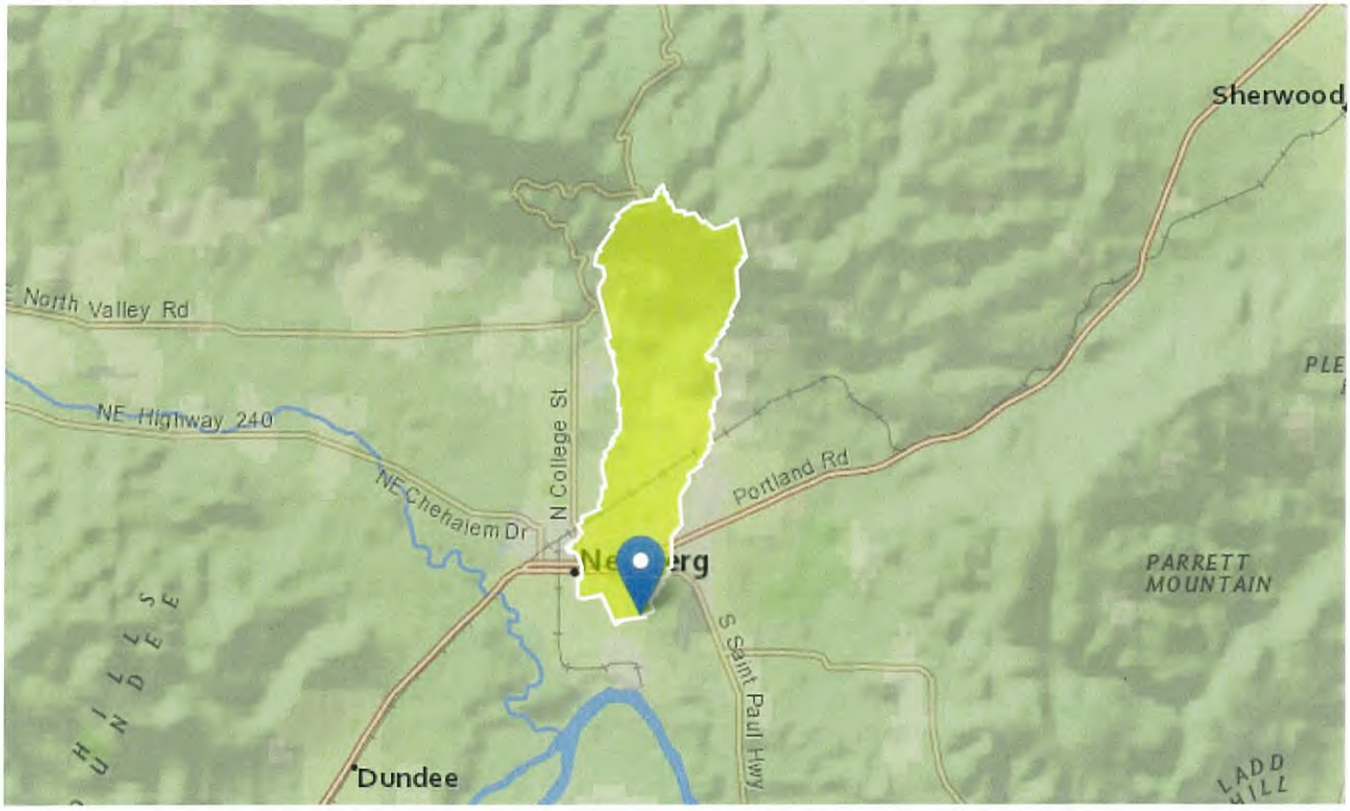
Dominant soil type(s)

Soil Type	Erosion Hazard Rating	Hydric Rating	Percent Area
Woodburn silt loam, 20 to 55 percent slopes	Severe	N/A	94.51 %
Aloha silt loam, 0 to 3 percent slopes	Slight	N/A	4.87 %
Wapato silty clay loam, 0 to 3 percent slopes	Slight	N/A	0.62 %

This report contains both centroid-based and polygon-based data. The Location Information and Rare Species Scores sections of the report contain centroid-based data (determined by the center point of the polygon), while the remaining sections are polygon-based (determined from the entire polygon).

StreamStats Report

Region ID: OR
Workspace ID: OR20191218194920381000
Clicked Point (Latitude, Longitude): 45.29466, -122.96216
Time: 2019-12-18 11:49:36 -0800



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	2.93	square miles
I24H2Y	Maximum 24-hour precipitation that occurs on average once in 2 years - Equivalent to precipitation intensity index	1.93	inches
SOILPERM	Average Soil Permeability	0.79	inches per hour
JANMAXT2K	Mean Maximum January Temperature from 2K resolution PRISM 1961-1990 data	45.3	degrees F

Parameter Code	Parameter Description	Value	Unit
WATCAPORC	Available water capacity from STATSGO data using methods from SIR 2005-5116	0.18	inches
ORREG2	Oregon Region Number	10001	dimensionless
BSLOPD	Mean basin slope measured in degrees	5.71	degrees
JANMINT2K	Mean Minimum January Temperature from 2K resolution PRISM PRISM 1961-1990 data	32.7	degrees F
ELEV	Mean Basin Elevation	411	feet
IMPERV	Percentage of impervious area	20.6	percent

Peak-Flow Statistics Parameters[Reg 2B Western Interior LT 3000 ft Cooper]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	2.93	square miles	0.37	7270
BSLOPD	Mean Basin Slope degrees	5.71	degrees	5.62	28.3
I24H2Y	24 Hour 2 Year Precipitation	1.93	inches	1.53	4.48
ELEV	Mean Basin Elevation	411	feet		
ORREG2	Oregon Region Number	10001	dimensionless		

Peak-Flow Statistics Flow Report[Reg 2B Western Interior LT 3000 ft Cooper]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	PIu	SE	SEp	Equiv. Yrs.
2 Year Peak Flood	95.2	ft^3/s	55.6	163	32.6	32.6	2
5 Year Peak Flood	142	ft^3/s	83.3	243	32.4	32.4	2.8
10 Year Peak Flood	175	ft^3/s	102	301	33	33	3.6
25 Year Peak Flood	217	ft^3/s	124	380	34.1	34.1	4.8
50 Year Peak Flood	249	ft^3/s	139	443	35.1	35.1	5.5
100 Year Peak Flood	280	ft^3/s	154	509	36.2	36.2	6.2
500 Year Peak Flood	355	ft^3/s	187	674	39.1	39.1	7.5

Peak-Flow Statistics Citations

Cooper, R.M.,2005, Estimation of Peak Discharges for Rural, Unregulated Streams in Western Oregon: U.S. Geological Survey Scientific Investigations Report 2005-5116, 76 p. (http://pubs.usgs.gov/sir/2005/5116/pdf/sir2005-5116.pdf)

Application Version: 4.3.11

#6601
12/8/2019

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Approximate Project Area, PAA and EAA boundaries
Wynooski Road Storm Project / Outfall Redesign - Newberg, Oregon
United States Geological Survey (USGS), Newberg, Oregon, 7.5 Quadrangle, 2019
(viewer/nationalmap.gov/basic)

FIGURE
A

#6601
12/8/2019

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Aerial Photograph with PAA and EAA Boundaries
Wynooski Road Storm Project / Outfall Redesign - Newberg, Oregon
GoogleEarth, 2018

FIGURE
B

Real-World Geotechnical Solutions
Investigation • Design • Construction Support

November 20, 2019
Project No. 19-5352

City of Newberg
Kristin Svicarovich
414 East First Street
Newberg, OR 97132
Email: Kristin.svicarovich@newbergoregon.gov

SUBJECT: WYNOOSKI STORMWATER OUTFALL DESIGN
740 S WYNOOSKI STREET
NEWBERG, OREGON 97132

As requested, this report presents recommendations for construction and design parameters for the above-referenced project. The purpose of this study was to evaluate subsurface conditions at the locations of the proposed stormwater culvert and to provide geotechnical recommendations for design and construction of the proposed culvert. This geotechnical study was performed in accordance with GeoPacific Proposal No. P-7136, dated October 23, 2019, and your subsequent authorization of our proposal and *General Conditions for Geotechnical Services.*

SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The subject site is located at approximately 740 S Wynooski Street in Newberg, Oregon. The proposed improvement consists of the construction of a stormwater outfall on the southeastern portion of the site, adjacent to Hess Creek. Topography in the vicinity of the site is moderately sloping to the east, towards Hess Creek, at grades of approximately 5 to 15 percent with steep sloping conditions of up to 0.9H:1V and vertical relief of 6 to 8 feet around the existing stormwater culvert. In the vicinity of the steep sloping conditions on the northern portion of the site, small scarps are forming, indicating soil movement on the sloping area near the existing culvert. Vegetation consists primarily of short grasses, small to medium trees, and bramble.

REGIONAL GEOLOGIC SETTING

Regionally, the subject site lies within the Willamette Valley/Puget Sound lowland, a broad structural depression situated between the Coast Range on the west and the Cascade Range on the east. A series of discontinuous faults subdivide the Willamette Valley into a mosaic of fault-bounded, structural blocks (Yeats et al., 1996). Uplifted structural blocks form bedrock highlands, while down-warped structural blocks form sedimentary basins.

The subject site is underlain by Quaternary age (last 1.6 million years) alluvium and glacial-outburst flood sediment consisting of silt, sand, and gravel deposited primarily by late Pleistocene glacial-outburst floods, but also including glaciofluvial sediments from the Cascade Range (Gannett, 1998). The last of these outburst floods occurred about 10,000 years ago. These

deposits typically consist of horizontally layered, micaceous, silt to coarse sand forming poorly-defined to distinct beds less than 3 feet thick. Regional studies indicate that the thickness of the Catastrophic Flood Deposits in the vicinity of the subject site is approximately 50 feet (Madin, 1990). The Catastrophic Flood Deposits are underlain by Miocene aged (about 14.5 to 16.5 million years ago) Columbia River Basalt, a thick sequence of lava flows which forms the crystalline basement of the basin.

FIELD EXPLORATION AND SUBSURFACE CONDITIONS

On November 4, 2019, 2 hand auger borings were advanced to a maximum depth of 7.5 feet below the ground surface (bgs). The hand auger explorations were performed on either side of the proposed culvert location. The approximate exploration locations are presented on Figures 2 and 3. It should be noted that exploration locations were located in the field by pacing or taping distances from apparent property corners and other site features shown on the plans provided. As such, the locations of the explorations should be considered approximate.

Soils observed in the explorations were classified in general accordance with the Unified Soil Classification System. During exploration, GeoPacific noted geotechnical conditions such as soil consistency, moisture and groundwater conditions. Hand auger exploration logs are attached. The following report sections are based on the exploration program conducted on November 4, 2019, and summarize subsurface conditions encountered at the site.

Soil Descriptions

Topsoil Horizon – A 6-inch thick layer of topsoil was present at both hand auger exploration locations. The topsoil typically consisted of moderately organic dark brown, loose, moist SILT (OL-ML) with fine roots.

Undocumented Fill – Underlying the topsoil at the location of hand auger exploration HA-1 we encountered undocumented fill consisting of dark brown clayey SILT (ML) underlain by dark reddish brown silty CLAY (CL) (See attached logs). The undocumented fill contained variable amounts of organic debris, brick, and plastic debris. The undocumented fill extended to an approximate depth of 5 feet bgs at hand auger exploration HA-1.

Willamette Formation – Underlying the topsoil at hand auger exploration location HA-2 and the undocumented fill at the location of hand auger HA-1, we encountered fine grained soils belonging to the Willamette Formation. The Willamette Formation soils consisted of dark brown clayey SILT (ML) and was underlain by reddish brown Lean CLAY (CL) (See attached logs). At approximately 5 feet bgs, a 3-inch thick layer of soft, wet, gray clay was observed in hand auger HA-2 which contained trace vesicular basalt. The Willamette Formation soils extended beyond the maximum observed depth of 7.5 feet below the ground surface at the location of our explorations.

Soil Moisture and Groundwater

On November 4, 2019, soils encountered in our explorations were generally moist to very moist, with a layer of wet clay present at approximately 5 feet bgs in hand auger exploration HA-2. Groundwater was not encountered in either hand auger exploration location. Experience has shown that temporary perched storm-related groundwater conditions often occur within the surface soils over fine-grained native deposits such as those beneath the site, particularly during the wet

season. It is anticipated that groundwater conditions will vary depending on the season, local subsurface conditions, changes in site utilization, and other factors.

CONCLUSIONS AND SOIL PARAMETERS FOR CULVERT DESIGN

Our site investigation indicates that the proposed construction is geotechnically feasible, provided that the recommendations of this report are incorporated into the design and construction phases of the project.

It is our opinion that the primarily geotechnical concern is the steep sloping conditions in the vicinity of the existing stormwater culvert, and existing home on the northeastern portion of the site. Grades of up to 0.9H:1V and vertical relief of 6 to 8 feet exist in this area. During our site investigation, we have observed up to 5 feet of soft to medium stiff undocumented fill and small scarps forming at the top of slope. It is our opinion that additional remediation measures will not be necessary if the proposed grading as specified on Sheet 4 of the project plans is performed following the recommendations provided in the Site Preparation, Engineered Fill, and Keyways and Benching for Engineered Fill on Slopes sections of this report.

We understand that a culvert is proposed connecting two existing culverts running between Wynooski Street and Hess Creek. The culvert designer should refer to the attached exploration logs for information regarding the soil conditions at the proposed location. Recommended design parameters for the proposed culvert are summarized below.

- Allowable Soil Bearing Capacity: 1,500 psf
- Equivalent Fluid Active Pressure: 45 psf
- Equivalent Fluid Passive Pressure: 300 psf
- Anticipated Fluid Pressure Due to Traffic Loading (Where Applicable): 75 psf
- Coefficient of Friction Between Concrete and Subgrade Soil: 0.42
- Maximum permanent grades for native soil or engineered fill: 2H:1V

If temporary shoring recommendations is needed in the vicinity of the existing home, GeoPacific can perform additional explorations and provide recommendations for temporary shoring consisting of gravity concrete blocks during construction if required.

Site Preparation Recommendations

Areas of proposed construction and areas to receive fill should be cleared of landscaping, existing structures, vegetation, and any organic and inorganic debris, and unsuitable soils. Inorganic debris and organic materials from clearing should be removed from the site. Organic-rich soils and root zones should then be stripped from construction areas of the site or where engineered fill is to be placed. Depth of stripping of organic soils is estimated to be approximately 4 to 6 inches across the majority of the site, however depth of organic soil layers may increase in areas where existing utilities such as culverts have been installed. If encountered, debris and unsuitable soil should be thoroughly removed, and the excavations backfilled with approved engineered fill. At the location of hand auger HA-1, up to 5 feet of undocumented fill was observed. The final depth of soil removal will be determined on the basis of a site inspection after the excavation has been

performed. In the vicinity of the existing home on the northeastern portion of the site, GeoPacific may recommend that some undocumented fill be left in place, based upon our evaluation during construction. Stripped topsoil and debris should be removed from the site. Subgrade soils should be reviewed before engineered fill is placed. Maximum permanent grading should be no greater than 26.7 degrees (2H:1V) for exposed slopes consisting of native soil or engineered fill.

Engineered Fill

All grading for the proposed construction should be performed as engineered grading in accordance with the applicable building code at the time of construction with the exceptions and additions noted herein. Areas proposed for fill placement should be prepared as described in the *Site Preparation Recommendations* section. Surface soils should competent native soil, or soil approved by the geotechnical engineer prior to structural fill placement. Proper test frequency and earthwork documentation usually requires daily observation and testing during stripping, rough grading, and engineered fill placement.

GeoPacific recommends that engineered fill placed onsite consist of granular material such as reject rock, recycled concrete or other approved material. Imported fill material must be approved by the geotechnical engineer before being imported to the site. GeoPacific anticipates that excavated native soils consisting of silt and clay will not be suitable for reuse as engineered fill but can may placed within the upper 12 inches below the finished grade surface. Oversize material greater than 6 inches in size should not be used within 3 feet of foundation footings, and material greater than 12 inches in diameter should not be used in engineered fill.

Engineered fill should be compacted in horizontal lifts not exceeding 8 inches using standard compaction equipment. We recommend that engineered fill be compacted to at least 95 percent of the maximum dry density determined by ASTM D698 (Standard Proctor) or equivalent. Field density testing should conform to ASTM D2922 and D3017, or D1556. All engineered fill should be observed and tested by the project geotechnical engineer or their representative. Typically, one density test is performed for at least every 2 vertical feet of fill placed or every 500 yd^3, whichever requires more testing. Because testing is performed on an on-call basis, we recommend that the earthwork contractor be held contractually responsible for test scheduling and frequency. During periods of wet-weather site earthwork may be impacted by soil moisture.

Keyways and Benching for Engineered Fill on Slopes

Engineered fill to be placed in sloping areas inclining steeper than 20% grade should be constructed on a keyway and benches in accordance with the typical design shown in Figure 4. Keyways should have a minimum depth of 2 feet and minimum width of 10 feet. Additional removals of potentially unstable soils may be required depending on conditions observed during construction. Both benches and keyways should be roughly horizontal in the down slope direction, but may slope up to 20% grade along topographic contour. Keyways sloping more than 20% grade along topographic contour should be benched.

The keyway should include a subdrain consisting of a minimum 3-inch-diameter, ADS Heavy Duty grade (or equivalent), perforated plastic pipe enveloped in a minimum of 3 cubic feet per lineal foot of 2”- ½”, open-graded gravel drain rock wrapped with geotextile filter fabric (Mirafi 140N or equivalent). GeoPacific should inspect keyways, subdrains and benching prior to fill placement.

Areas of potential seepage observed during construction may require a rock blanket drain in the keyway bottom.

We recommend that permanent fill and cut slopes be constructed no steeper than 3H:1V (33% grade). Fill slopes should be overbuilt a minimum of 3 feet horizontally beyond finish grade and then trimmed back to finish grade as shown in figure in order to achieve a well compacted slope face.

Excavating Conditions and Utility Trench Backfill

We anticipate that on-site soils can generally be excavated using conventional heavy equipment. Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the contractor. Actual slope inclinations at the time of construction should be determined based on safety requirements and actual soil and groundwater conditions. All temporary cuts in excess of 4 feet in height should be sloped in accordance with U.S. Occupational Safety and Health Administration (OSHA) regulations (29 CFR Part 1926) or be shored. The existing native soils classify as Type B Soil and temporary excavation side slope inclinations as steep as 1H:1V may be assumed for planning purposes. These cut slope inclinations are applicable to excavations above the water table only. GeoPacific can provide additional recommendations for temporary shoring in the vicinity of the existing home if needed.

Shallow, perched groundwater may be encountered during the wet weather season and should be anticipated in excavations and utility trenches. Vibrations created by traffic and construction equipment may cause some caving and raveling of excavation walls. In such an event, lateral support for the excavation walls should be provided by the contractor to prevent loss of ground support and possible distress to existing or previously constructed structural improvements.

Underground utility pipe should be installed in accordance with the procedures specified in ASTM D2321 and City of Newberg standards. We recommend that structural trench backfill be compacted to at least 95 percent of the maximum dry density obtained by the Standard Proctor (ASTM D698) or equivalent. Initial backfill lift thicknesses for a ¾"-0 crushed aggregate base may need to be as great as 4 feet to reduce the risk of flattening underlying flexible pipe. Subsequent lift thickness should not exceed 1 foot. If imported granular fill material is used, then the lifts for large vibrating plate-compaction equipment (e.g. hoe compactor attachments) may be up to 2 feet, provided that proper compaction is being achieved and each lift is tested. Use of large vibrating compaction equipment should be carefully monitored near existing structures and improvements due to the potential for vibration-induced damage.

Adequate density testing should be performed during construction to verify that the recommended relative compaction is achieved. Typically, at least one density test is taken for every 4 vertical feet of backfill on each 100-lineal-foot section of trench.

Erosion Control Considerations

During our field exploration program, we observed soil conditions that would be considered moderately susceptible to erosion. In our opinion, the primary concern regarding erosion potential will occur during construction in areas that have been stripped of vegetation.

Maximum permanent grading should be no greater than 18.4 degrees (3H:1V) for exposed slopes consisting of native soil or granular engineered fill.

Erosion at the site during construction can be minimized by implementing the project erosion control plan, which should include judicious use of straw wattles, fiber rolls, and silt fences. If used, these erosion control devices should remain in place throughout site preparation and construction.

Erosion and sedimentation of exposed soils can also be minimized by quickly re-vegetating exposed areas of soil, and by staging construction such that large areas of the project site are not denuded and exposed at the same time. Areas of exposed soil requiring immediate and/or temporary protection against exposure should be covered with either mulch or erosion control netting/blankets. Areas of exposed soil requiring permanent stabilization should be seeded with an approved grass seed mixture, or hydroseeded with an approved seed-mulch-fertilizer mixture.

Spread Foundations

Headwalls or structures may be supported on shallow foundations bearing on competent undisturbed, native soils and/or engineered fill, appropriately designed and constructed as recommended in this report. Foundation design, construction, and setback requirements should conform to the applicable building code at the time of construction. Spread footings should be embedded at a minimum depth of 18 inches below exterior grade to maximize bearing strength and protect against frost heave.

The anticipated allowable soil bearing pressure is 1,500 lbs/ft^2 for footings bearing on competent, native soil and/or engineered fill. If higher allowable bearing capacities are desired, GeoPacific may be consulted to provide additional recommendations. The recommended maximum allowable bearing pressure may be increased by 1/3 for short-term transient conditions such as wind and seismic loading.

Wind, earthquakes, and unbalanced earth loads will subject the proposed structure to lateral forces. Lateral forces on a structure will be resisted by a combination of sliding resistance of its base or footing on the underlying soil and passive earth pressure against the buried portions of the structure. For use in design, a coefficient of friction of 0.42 may be assumed along the interface between the base of the footing and subgrade soils. Passive earth pressure for buried portions of structures may be calculated using an equivalent fluid weight of 300 pounds per cubic foot (pcf), assuming footings are cast against dense, natural soils or engineered fill. The recommended coefficient of friction and passive earth pressure values do not include a safety factor. The upper 12 inches of soil should be neglected in passive pressure computations unless it is protected by pavement, or riprap.

The maximum anticipated total and differential footing movements (generally from soil expansion and/or settlement) are 1 inch and ¾ inch over a span of 20 feet, respectively. We anticipate that the majority of the estimated settlement will occur during construction, as loads are applied.

Footing excavations should penetrate through topsoil and any loose soil to competent subgrade that is suitable for bearing support. All footing excavations should be trimmed neat, and all loose or softened soil should be removed from the excavation bottom before placing reinforcing steel bars.

Due to the wet soil conditions and moisture sensitivity of on-site native soils, foundations may require overexcavation of footings and backfill with compacted, crushed aggregate.

Permanent Below-Grade Walls

Lateral earth pressures against below-grade walls will depend upon the inclination of any adjacent slopes, type of backfill, degree of wall restraint, method of backfill placement, degree of backfill compaction, drainage provisions, and magnitude and location of any adjacent surcharge loads. At-rest soil pressure is exerted on a retaining wall when it is restrained against rotation. In contrast, active soil pressure will be exerted on a wall if its top is allowed to rotate or yield a distance of roughly 0.001 times its height or greater.

If the subject retaining walls will be free to rotate at the top, they should be designed for an active earth pressure equivalent to that generated by a fluid weighing 45 pcf for level backfill against the wall. For restrained wall, an at-rest equivalent fluid pressure of 55 pcf should be used in design, again assuming level backfill against the wall. These values assume that the recommended drainage provisions are incorporated, and hydrostatic pressures are not allowed to develop against the wall.

During a seismic event, lateral earth pressures acting on below-grade structural walls will increase by an incremental amount that corresponds to the earthquake loading. Based on the Mononobe-Okabe equation and peak horizontal accelerations appropriate for the site location, seismic loading should be modeled using the active or at-rest earth pressures recommended above, plus an incremental rectangular-shaped seismic load of magnitude 6.5H, where H is the total height of the wall.

We assume relatively level ground surface below the base of the walls. As such, we recommend passive earth pressure of 300 pcf for use in design, assuming wall footings are cast against competent native soils or engineered fill. If the ground surface slopes down and away from the base of any of the walls, a lower passive earth pressure should be used and GeoPacific should be contacted for additional recommendations.

A coefficient of friction of 0.42 may be assumed along the interface between the base of the wall footing and subgrade soils. The recommended coefficient of friction and passive earth pressure values do not include a safety factor, and an appropriate safety factor should be included in design. The upper 12 inches of soil should be neglected in passive pressure computations unless it is protected by pavement or riprap.

The above recommendations for lateral earth pressures assume that the backfill behind the subsurface walls will consist of properly compacted structural fill, and no adjacent surcharge loading. If the walls will be subjected to the influence of surcharge loading within a horizontal distance equal to or less than the height of the wall, the walls should be designed for the additional horizontal pressure. For uniform surcharge pressures, a uniformly distributed lateral pressure of 0.35 times the surcharge pressure should be added. Traffic surcharges may be estimated using an additional vertical load 250 psf (2 feet of additional fill).

The recommended equivalent fluid densities assume a free-draining condition behind the walls so that hydrostatic pressures do not build-up. This can be accomplished by placing a 12 to 18-inch

wide zone of sand and gravel containing less than 5 percent passing the No. 200 sieve against the walls. A 3-inch minimum diameter perforated, plastic drain pipe should be installed at the base of the walls and connected to a suitable discharge point to remove water in this zone of sand and gravel. The drain pipe should be wrapped in filter fabric (Mirafi 140N or other as approved by the geotechnical engineer) to minimize clogging.

Wall drains are recommended to prevent detrimental effects of surface water runoff on foundations – not to dewater groundwater. Drains should not be expected to eliminate all potential sources of water entering a basement or beneath a slab-on-grade. An adequate grade to a low point outlet drain in the crawlspace is required by code. Underslab drains are sometimes added beneath the slab when placed over soils of low permeability and shallow, perched groundwater.

Water collected from the wall drains should be directed into the local storm drain system or other suitable outlet. A minimum 0.5 percent fall should be maintained throughout the drain and non-perforated pipe outlet. Down spouts and roof drains should not be connected to the wall drains in order to reduce the potential for clogging. The drains should include clean-outs to allow periodic maintenance and inspection. Grades around the proposed structure should be sloped such that surface water drains away from the building.

GeoPacific should be contacted during construction to verify subgrade strength in wall keyway excavations, to verify that backslope soils are in accordance with our assumptions, and to take density tests on the wall backfill materials.

Structures should be located a horizontal distance of at least 1.5H away from the back of the retaining wall, where H is the total height of the wall. GeoPacific should be contacted for additional foundation recommendations where structures are located closer than 1.5H to the top of any wall.

Seismic Design

The Oregon Department of Geology and Mineral Industries (DOGAMI), Oregon HazVu: 2019 Statewide GeoHazards Viewer indicates that the site is in an area where *very strong* ground shaking is anticipated during an earthquake. Structures should be designed to resist earthquake loading in accordance with the methodology described in the 2018 International Building Code (IBC) with applicable Oregon Structural Specialty Code (OSSC) revisions.

We anticipate that the average shear wave velocity of the soils in the upper 100 feet underlying the site is greater than 600 feet per second. Therefore, if the fundamental periods of vibration of the proposed structures are equal to or less than 0.5 seconds, the site class is determined to be Site Class D, as defined in ASCE 7, Chapter 20, Table 20.3-1. The fundamental period of the proposed structures is to be confirmed by a structural engineer. Design values determined for the site using the USGS (United States Geological Survey) 2019 Seismic Design Maps Summary Report, summarized in Table 1. Site class determination is based upon soil conditions observed during field explorations.

Table 1 - Recommended Earthquake Ground Motion Parameters (ASCE 7-16)

Parameter	Value
Location (Lat, Long), degrees	45.294, -122.962
Probabilistic Ground Motion Values, 2% Probability of Exceedance in 50 years	
Peak Ground Acceleration PGA_M	0.474 g
Short Period, S_s	0.853 g
1.0 Sec Period, S_1	0.413 g
Soil Factors for Site Class D:	
F_a	1.159
*F_v	1.887
$SD_s = 2/3 \times F_a \times S_s$	0.659 g
$SD_1 = 2/3 \times F_v \times S_1$	0.520 g
Seismic Design Category	D

* F_v value reported in the above table is a straight-line interpolation of mapped spectral response acceleration at 1-second period, S_1 per Table 1613.2.3(2) of OSSC 2019 with the assumption that Exception 2 of ASCE 7-16 Chapter 11.4.8 is met per the Structural Engineer. If Exception 2 is not met, and the long-period site coefficient (F_v) is required for design, GeoPacific Engineering can be consulted to provide a site-specific procedure as per ASCE 7-16, Chapter 21.

UNCERTAINTIES AND LIMITATIONS

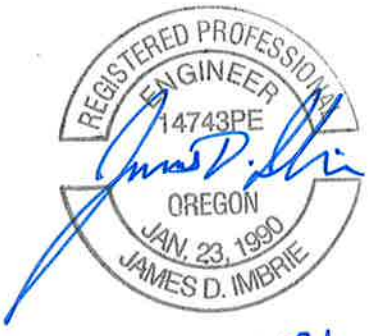
Within the limitations of scope, schedule and budget, GeoPacific attempted to execute these services in accordance with generally accepted professional principles and practices in the fields of geotechnical engineering and engineering geology at the time the report was prepared. No warranty, expressed or implied, is made. The scope of our work did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous or toxic substances in the soil, surface water, or groundwater at this site.

Sufficient geotechnical monitoring, testing and consultation should be provided during construction to confirm that the conditions encountered are consistent with those indicated by explorations. Recommendations for design changes will be provided should conditions revealed during construction differ from those anticipated, and to verify that the geotechnical aspects of construction comply with the contract plans and specifications.

We appreciate this opportunity to be of service.

Sincerely,

GEOPACIFIC ENGINEERING, INC.



EXPIRES: 06/30/2021

Thomas J. Torkelson, E.I.T
Engineering Staff

James D. Imbrie, G.E.
Principal Geotechnical Engineer

Attachments:

Figures:

- Figure 1 – Site Vicinity Map
- Figure 2 – Site Aerial and Exploration Locations
- Figure 3 – Site Plan and Exploration Location
- Figure 4 – Typical Keyway, Benching & Fill Slope Detail

Exploration Logs
Photographic Log

FIGURES

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel (503) 598-8445
Fax (503) 941-9281

GeoPacific Engineering, Inc.
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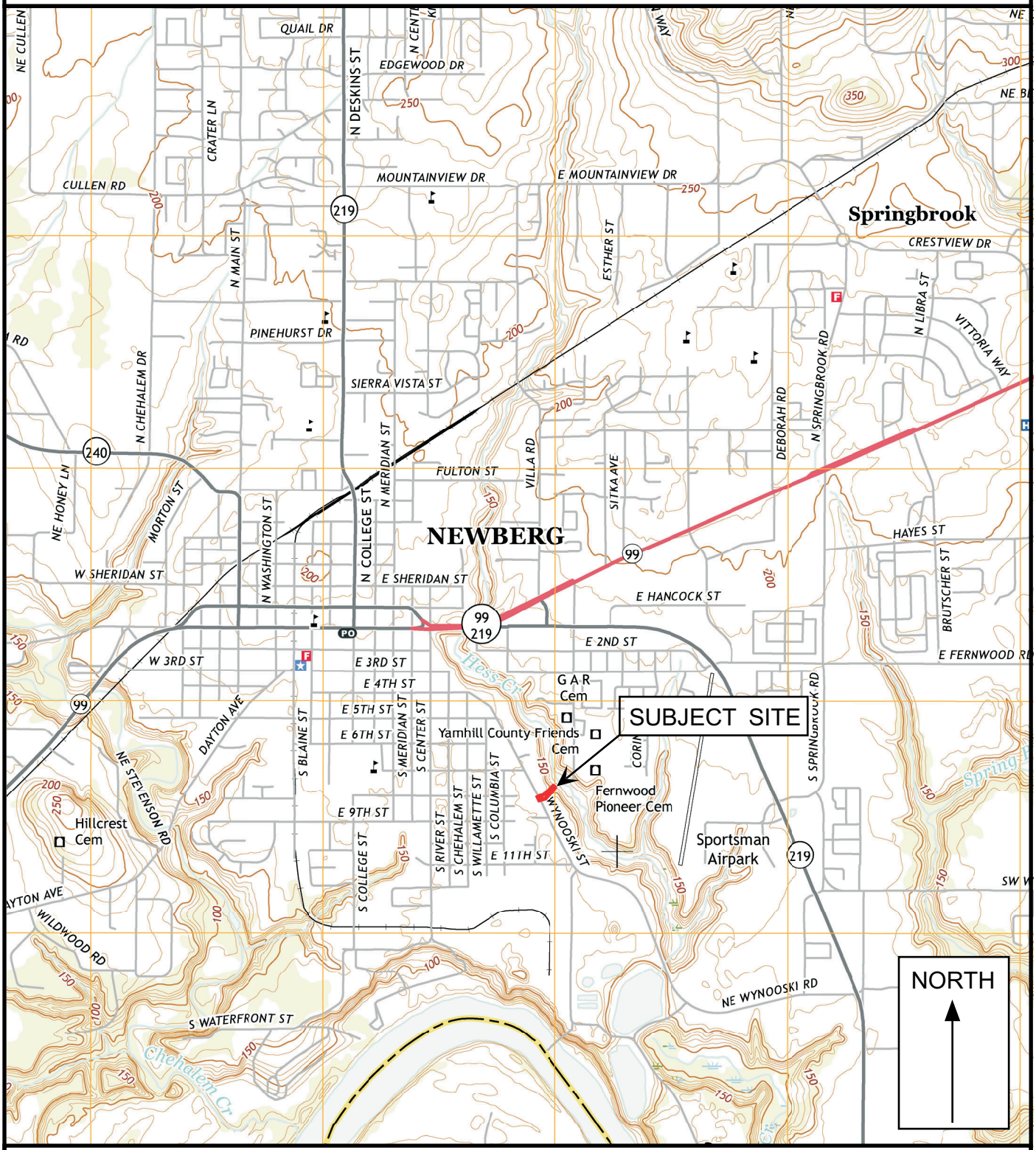
VICINITY MAP



Legend

Approximate Scale 1 in = 2,000 ft

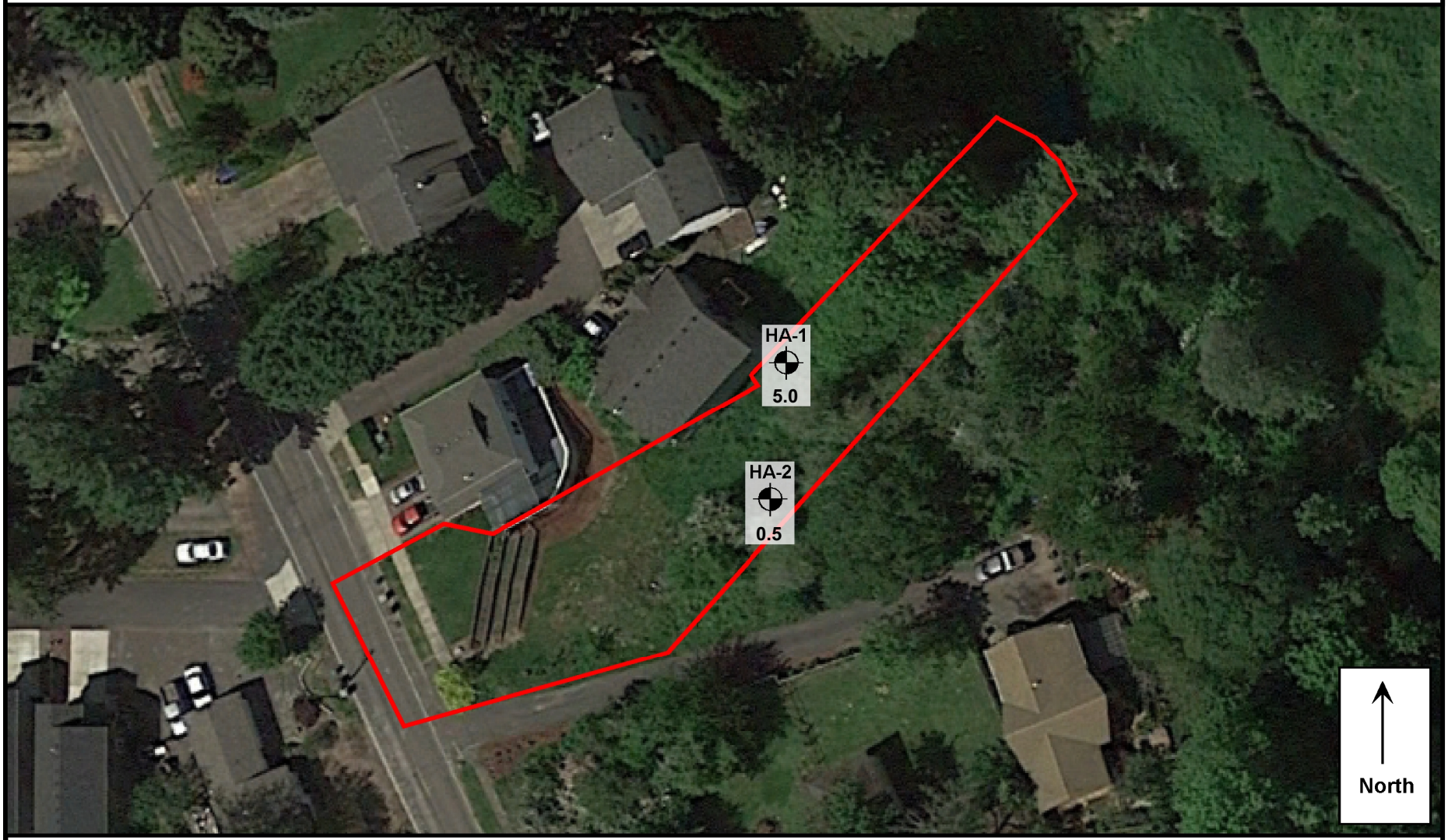
Date: 11/4/19
Drawn by: TEB

Base map: U.S. Geological Survey, 20170328, USGS US Topo 7.5-minute map for Newberg, OR 2017: USGS - National Geospatial Technical Operations Center (NGTOC)

Project: Wynooski Stormwater Outfall Newberg, Oregon	Project No. 19-5352	FIGURE 1

GeoPacific Engineering, Inc.
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

SITE AERIAL AND EXPLORATION LOCATIONS



Legend

HA-1 — Hand Auger Boring Designation and Approximate Location

5.0 — Depth of Topsoil or Undocumented Fill (feet)

Date: 11/4/19
Drawn by: TEB

0 50'
APPROXIMATE SCALE 1"=50'

Project: Wynooski Stormwater Outfall Newberg, Oregon	Project No. 19-5352	FIGURE 2

GeoPacific Engineering, Inc.
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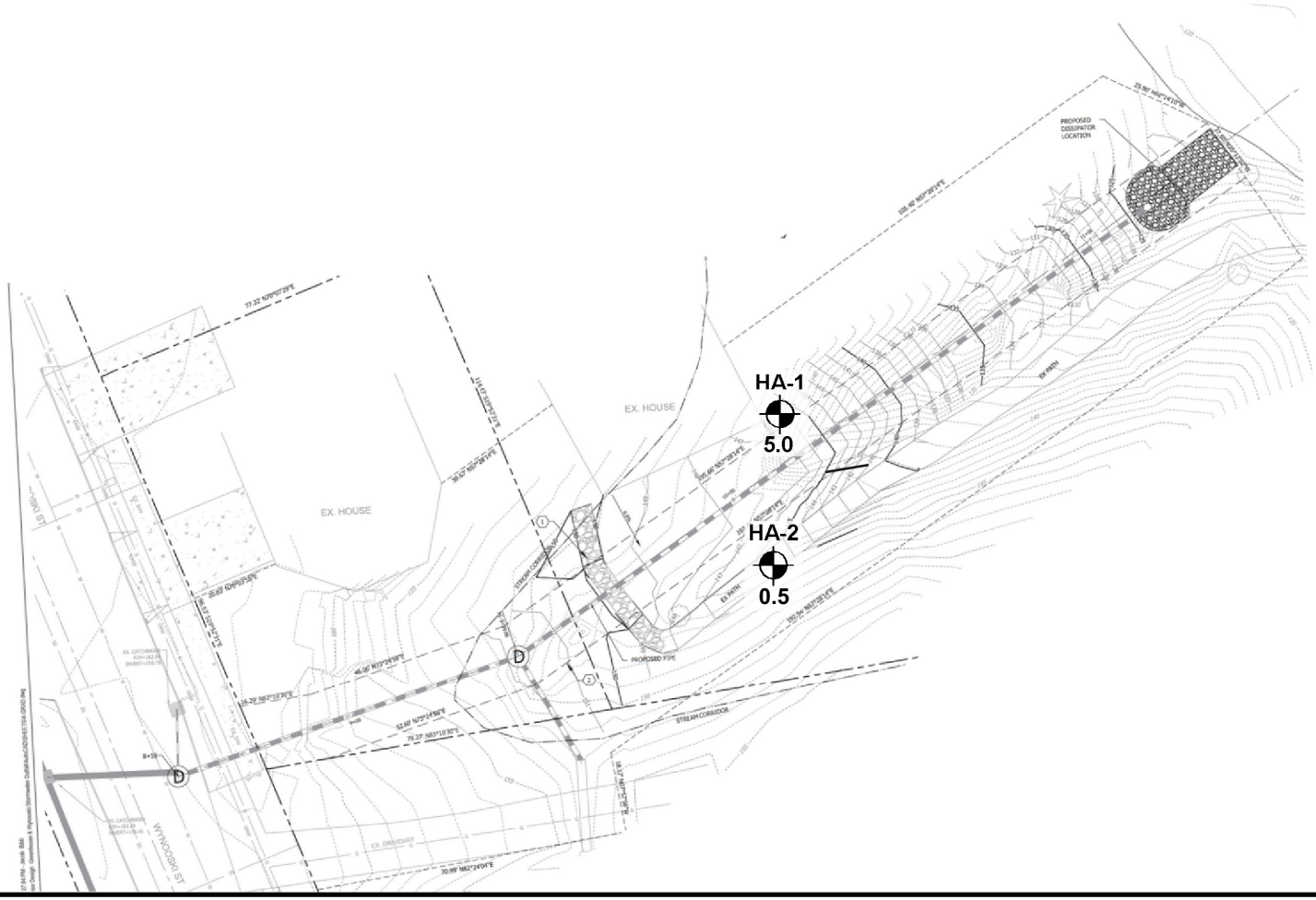
SITE PLAN AND EXPLORATION LOCATIONS



Legend

HA-1 — Hand Auger Boring Designation and Approximate Location

5.0 — Depth of Topsoil or Undocumented Fill (feet)

0 40'

APPROXIMATE SCALE 1"=50'

Date: 11/18/19
Drawn by: TJT

Project: Wynooski Stormwater Outfall Newberg, Oregon	Project No. 19-5352	FIGURE 3

GeoPacific Engineering, Inc.
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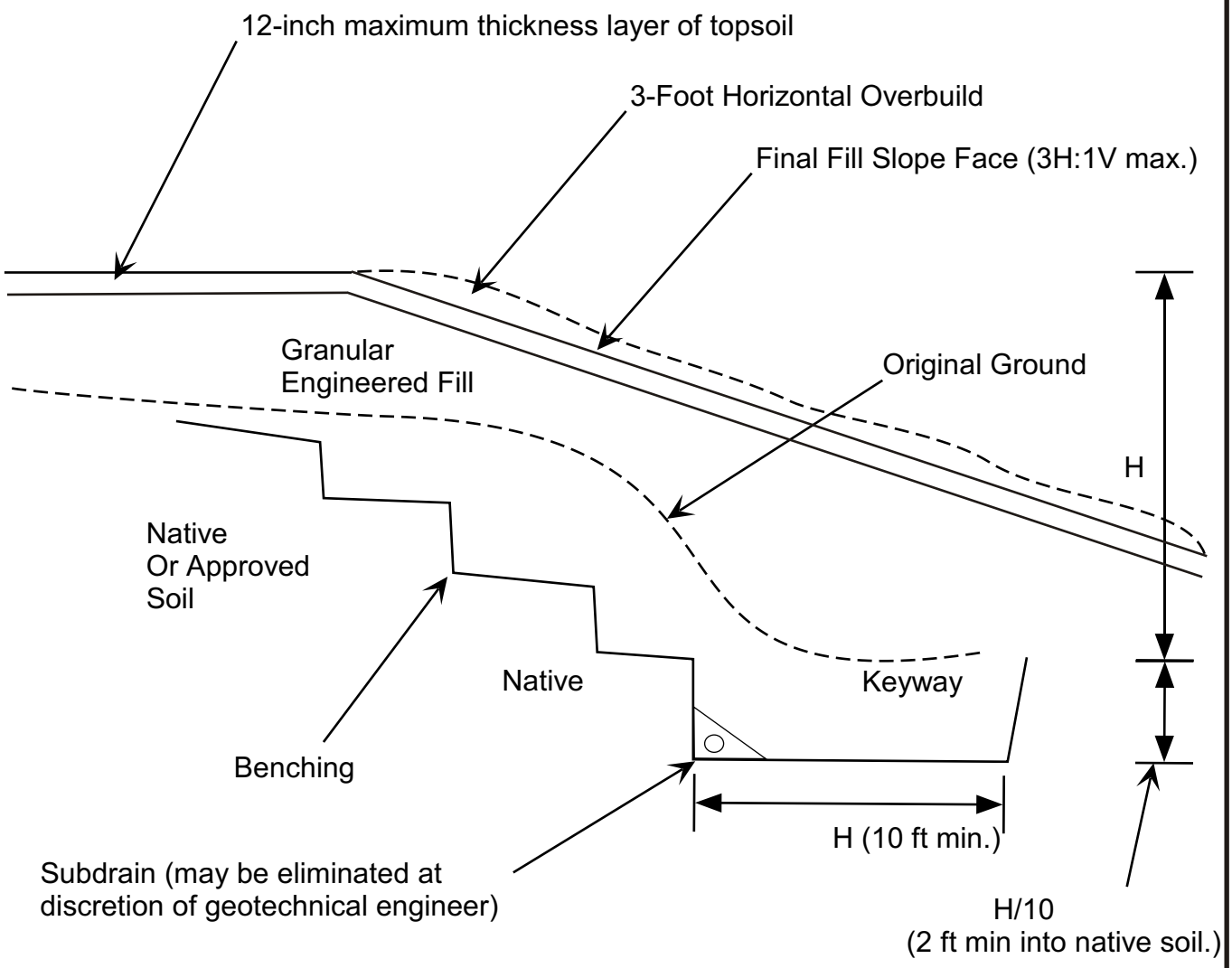
Tel: (503) 598-8445 Fax: (503) 941-9281

FILL SLOPE DETAIL

TYPICAL KEYWAY, BENCHING & FILL SLOPE DETAIL



Recommended subdrain is minimum 3-inch-diameter ADS Heavy Duty grade (or equivalent), perforated plastic pipe enveloped in a minimum of 3 cubic feet per lineal foot of 2" to 1/2" open-graded gravel drain rock wrapped with geotextile filter fabric (Mirafi 140N or equivalent).

Engineered Fill may be reject rock, recycled concrete or other approved granular material.

Project: Wynooski Stormwater Outfall Newberg, Oregon	Project No. 19-5352	FIGURE 4

GeoPacific Engineering, Inc.
Real-World Geotechnical Solutions
Investigation • Design • Construction Support

EXPLORATION LOGS

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel (503) 598-8445
Fax (503) 941-9281

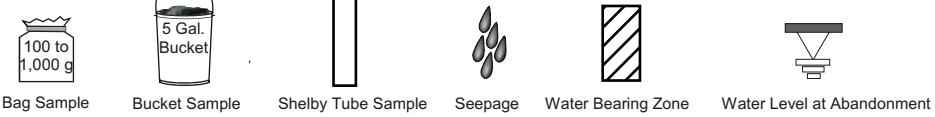
GeoPacific Engineering, Inc.
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

HAND AUGER LOG

Project: Wynooski Stormwater Outfall Newberg, Oregon	Project No. 19-5352	Hand Auger **HA- 1**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
0						Loose, moderately organic SILT (OL-ML), dark brown, roots throughout, moist (Topsoil)
1						Soft, clayey SILT (ML), dark brown, micaceous, trace roots throughout, with trace rounded gravel and black staining, moist (Willamette Formation)
2						Grades to with trace organics, trace fine-grained sand, and very moist at 1.5 feet bgs Grades to medium stiff below 2 feet bgs
3						Grades to with trace brick debris below 3 feet bgs
4						Grades to with more clay below 4 feet bgs
5						Medium stiff, silty CLAY (CL), dark reddish brown, low to moderate plasticity, moist (Willamette Formation)
6						
7						Grades to very stiff below 7 feet bgs
8						Hand Auger Terminated at 7.5 Feet.
9						Note: No groundwater seepage encountered. No significant caving observed.
10						
11						
12						

LEGEND



Date Excavated: 11/4/19
Logged By: TJT/TEB
Surface Elevation: 147 AMSL

GeoPacific Engineering, Inc.
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

HAND AUGER LOG

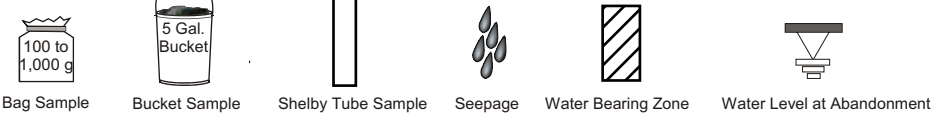
Project: Wynooski Stormwater Outfall
Newberg, Oregon

Project No. 19-5352

Hand Auger **HA-2**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
0						Loose, moderately organic SILT (OL-ML), dark brown, roots throughout, moist (Topsoil)
1						Medium stiff, clayey SILT (ML), dark brown, micaceous, trace fine roots, low plasticity, very moist (Willamette Formation)
2						Stiff, silty CLAY (CL), reddish brown, trace orange and gray mottling, low to moderate plasticity, moist (Willamette Formation)
3						
4						3-inch thick layer of soft, gray, wet, lean clay with trace vesicular basalt at 4.8 feet bgs
5						Grades to very still at 5 feet bgs
6						Hand Auger Terminated at 5.1 Feet.
7						Note: No seepage or groundwater encountered. No significant caving observed.
8						
9						
10						
11						
12						

LEGEND



Date Excavated: 11/4/19
Logged By: TJT/TEB
Surface Elevation: 142 AMSL

GeoPacific Engineering, Inc.
Real-World Geotechnical Solutions
Investigation • Design • Construction Support

PHOTOGRAPHIC LOG

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel (503) 598-8445
Fax (503) 941-9281

19-5352 WYNOOSKI STORMWATER OUTFALL
GEOTECHNICAL SITE INVESTIGATION
PHOTOGRAPHIC LOG

View of Site from Wynooski Street, Facing East

Steep Slope near Existing Home, Facing Northwest

WYNOOSKI STORMWATER OUTFALL REDESIGN

CONSTRUCTION PLANS

LOCATE

(48 HOUR NOTICE PRIOR TO EXCAVATION)

OREGON LAW REQUIRES YOU TO FOLLOW THE RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH 952-001-0090 & ORS 757.542 THROUGH 757.562 AND ORS 757.993. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER AT (800) 332-2344 OR (503) 232-1987. IF YOU HAVE ANY QUESTION ABOUT THE RULES, YOU MAY CONTACT THE CENTER. YOU MUST NOTIFY THE CENTER AT LEAST TWO BUSINESS DAYS BEFORE CONVINCING ANY EXCAVATION. CALL 503-246-6699.

ONE CALL SYSTEM NUMBER 1-800-332-2344.

REPAIR EMERGENCIES

NORTHWEST NATURAL GAS	- 800-882-3377
VERIZON	- 800-483-2000
PORTLAND GENERAL ELECTRIC	- 503-542-8818
CLEANWATER SERVICES	- 503-681-3600 OR 503-547-8100
COMCAST	- 503-605-4884

THE CONTRACTOR, IN LOCATION AND PROTECTING UNDERGROUND UTILITIES, MUST COMPLY WITH THE REGULATIONS OF O.R.S. 757.541 TO 757.571.

NOTE:

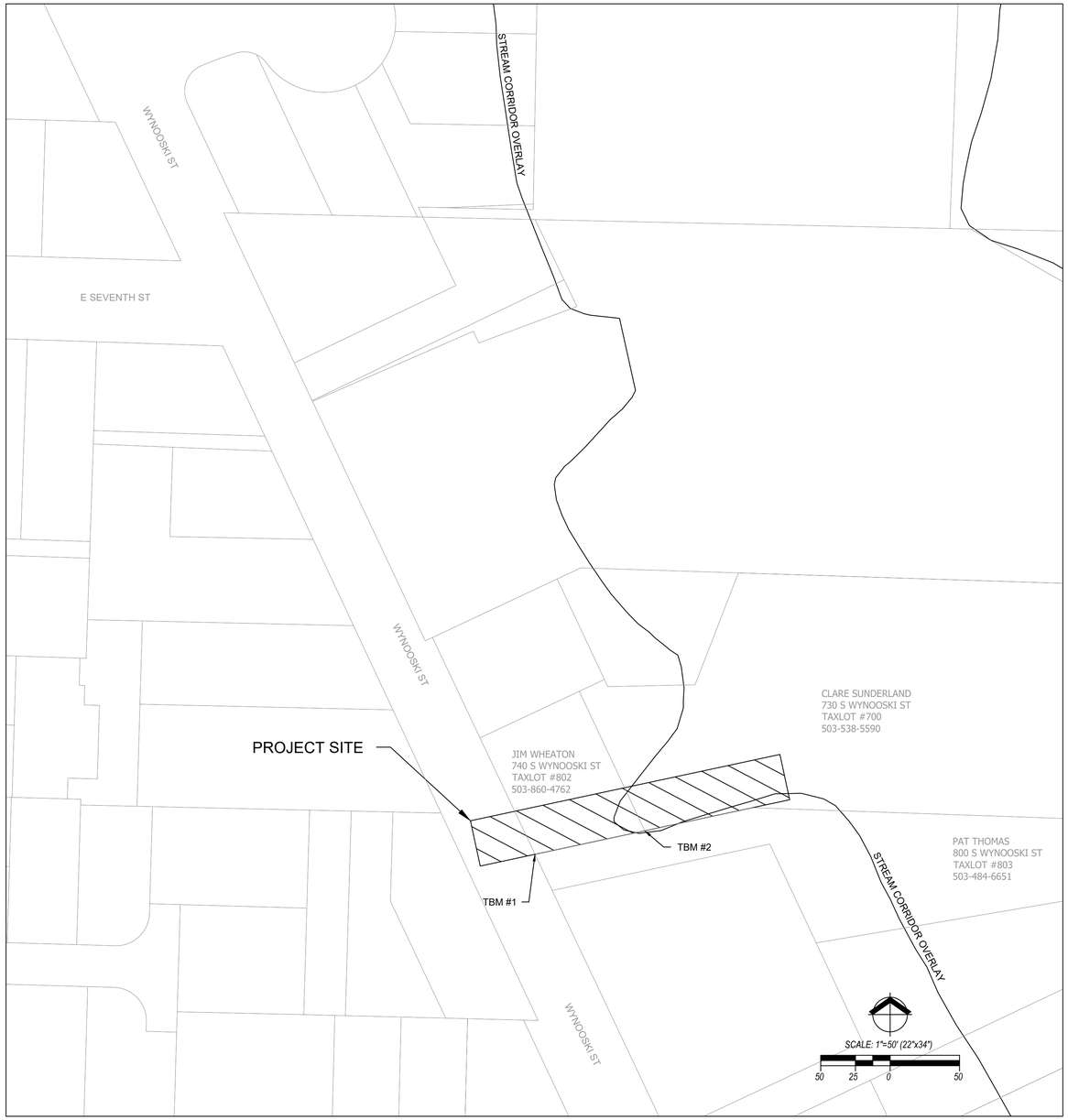
THIS DESIGN COMPLIES WITH ORS 92.044 (7) IN THAT NO UTILITY INFRASTRUCTURE IS DESIGNED TO BE WITHIN ONE FOOT OF A SURVEY MONUMENT LOCATION SHOWN ON A SUBDIVISION OR PARTITION PLAT. NO DESIGN MODIFICATION NOR FINAL FIELD LOCATION CHANGE SHALL BE PERMITTED IF IT WOULD CAUSE ANY UTILITY INFRASTRUCTURE TO BE PLACED WITHIN THE PROHIBITED AREA.

BASIS OF BEARINGS

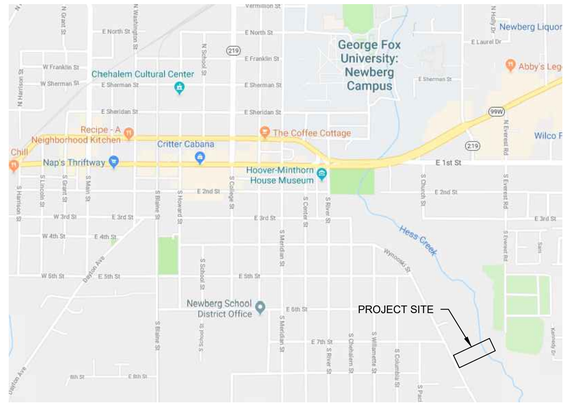
HORIZONTAL ALIGNMENT OF THE PROPERTY LINES SHOWN ARE BASED ON GRID ROTATION.

LEGEND

- EXISTING GRADE 5 FT CONTOURS
- EXISTING GRADE 1 FT CONTOURS
- FINISHED GRADE 5 FT CONTOURS
- FINISHED GRADE 1 FT CONTOURS
- JURISDICTIONAL WETLANDS
- ORDINARY HIGH WATER
- CITY OF NEWBERG STREAM CORRIDOR
- FEMA 100-YR FLOODPLAIN
- PROPERTY LINE
- SURVEY CONTROL POINT
- PROPOSED MAINTENANCE EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT
- APPROXIMATE EXTENTS OF GRADING
- CROSS SECTION LINE



VICINITY MAP



PROJECT ABBREVIATIONS
DBH - DIAMETER AT BREAST HEIGHT
EX - EXISTING
FEMA - FEDERAL EMERGENCY MANAGEMENT AGENCY
IE - INVERT ELEVATION
LF - LINEAL FEET
S - SLOPE
MH - MANHOLE
CB - CATCH BASIN

SITE INFORMATION
TAX MAP: 3S 2W 20CA
TAX LOT: 802, 803 & 700
ADDRESS: 730, 740 & 800 WYNOOSKI ST, NEWBERG, OR 97132
ZONING: R2 (MED. DENSITY RESIDENTIAL)

SHEET INDEX	
TITLE SHEET & VICINITY MAP	1 OF 11
EXISTING CONDITIONS	2 OF 11
DEMOLITION PLAN	3 OF 11
GRADING PLAN	4 OF 11
STORM DRAIN IMPROVEMENTS	5 OF 11
STORM DRAIN IMPROVEMENTS	6 OF 11
EROSION & SEDIMENTATION CONTROL	7 OF 11
STREAM CORRIDOR MITIGATION PLAN	8 OF 11
CITY OF NEWBERG STANDARD DETAILS	9 OF 11
CITY OF NEWBERG STANDARD DETAILS	10 OF 11
DETAILS	11 OF 11

NOTE

CONTRACTOR SHALL NOT REMOVE OR DESTROY ANY SURVEY MONUMENTS WITHOUT CONTACTING THE YAMHILL COUNTY SURVEY DEPARTMENT PER OREGON REVISED STATUTES 209.150 AND 209.155. MONUMENTS REMOVED OR DESTROYED SHALL BE REPLACED BY A REGISTERED LAND SURVEYOR AND A REPLACEMENT SURVEY FILED WITH THE COUNTY.

BENCHMARK NOTE

ELEVATIONS ARE BASED ON NAVD88.
SURVEY NORTHINGS AND EASTINGS ARE BASED ON CITY MONUMENT AT COLUMBIA ST & S SEVENTH ST (ELEV. 168.96, N: 603233.19, E: 7567768.88)

LAST REVISION DATE 12/27/2022

#	DATE	DESCRIPTION	BY

REGISTERED PROFESSIONAL ENGINEER
OREGON
MARCH 09, 2018
AUDREY R. CHERNISHOV
EXPIRES: 12/31/2023

TITLE SHEET & VICINITY MAP
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	12/22/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC

SHEET NUMBER
1 OF 11

Plot Stamp: 12/27/2022 3:19:28 PM - Devin
File: L:\2019-015\4-Design\DWG\1-TITLE.dwg

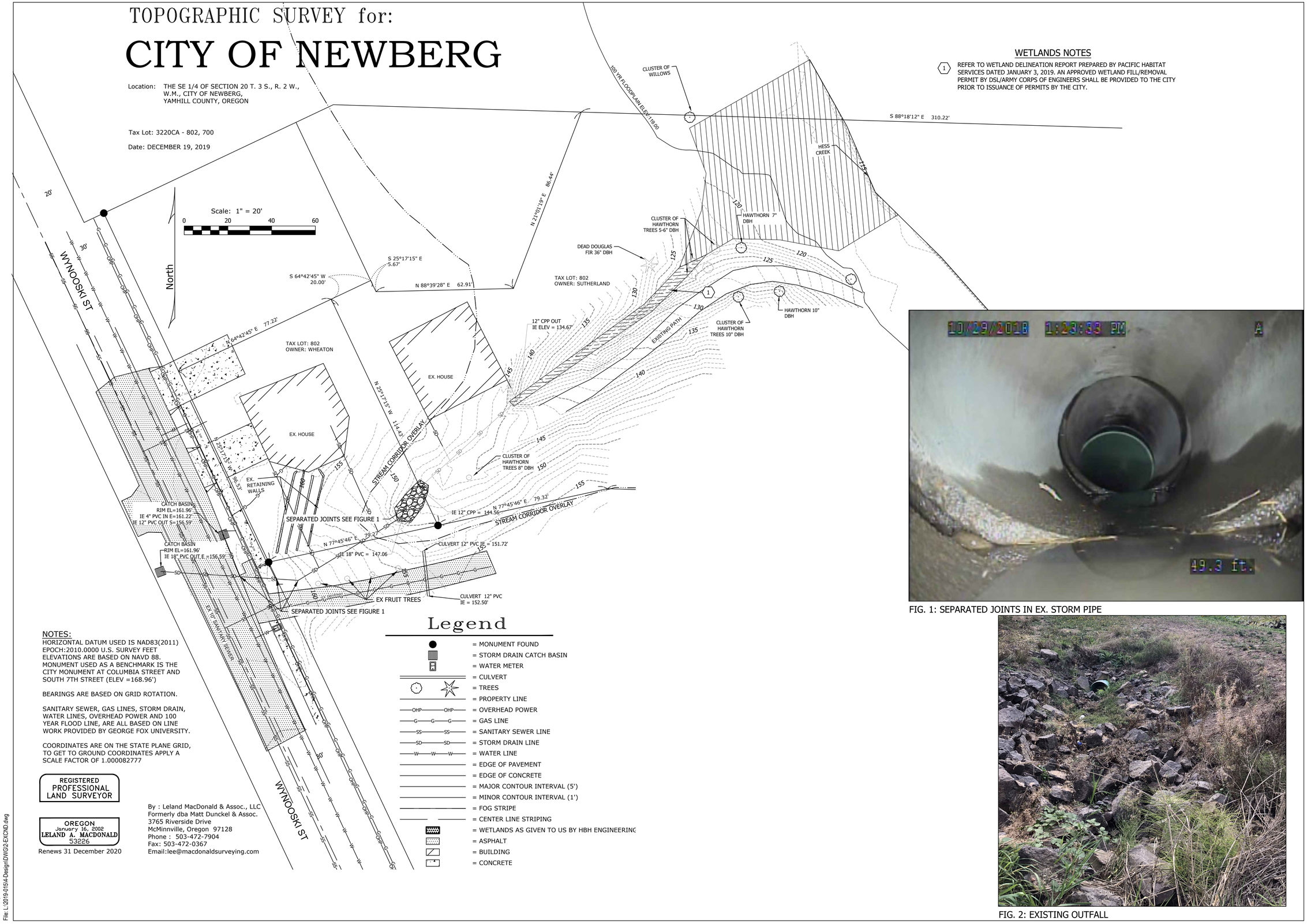
TOPOGRAPHIC SURVEY for:

CITY OF NEWBERG

Location: THE SE 1/4 OF SECTION 20 T. 3 S., R. 2 W., W.M., CITY OF NEWBERG, YAMHILL COUNTY, OREGON

Tax Lot: 3220CA - 802, 700

Date: DECEMBER 19, 2019



WETLANDS NOTES

1 REFER TO WETLAND DELINEATION REPORT PREPARED BY PACIFIC HABITAT SERVICES DATED JANUARY 3, 2019. AN APPROVED WETLAND FILL/REMOVAL PERMIT BY DSL/ARMY CORPS OF ENGINEERS SHALL BE PROVIDED TO THE CITY PRIOR TO ISSUANCE OF PERMITS BY THE CITY.

NOTES:

HORIZONTAL DATUM USED IS NAD83(2011) EPOCH:2010.0000 U.S. SURVEY FEET
ELEVATIONS ARE BASED ON NAVD 88.
MONUMENT USED AS A BENCHMARK IS THE CITY MONUMENT AT COLUMBIA STREET AND SOUTH 7TH STREET (ELEV =168.96')

BEARINGS ARE BASED ON GRID ROTATION.

SANITARY SEWER, GAS LINES, STORM DRAIN, WATER LINES, OVERHEAD POWER AND 100 YEAR FLOOD LINE, ARE ALL BASED ON LINE WORK PROVIDED BY GEORGE FOX UNIVERSITY.

COORDINATES ARE ON THE STATE PLANE GRID, TO GET TO GROUND COORDINATES APPLY A SCALE FACTOR OF 1.000082777

Legend

- = MONUMENT FOUND
- = STORM DRAIN CATCH BASIN
- = WATER METER
- = CULVERT
- = TREES
- = PROPERTY LINE
- = OVERHEAD POWER
- = GAS LINE
- = SANITARY SEWER LINE
- = STORM DRAIN LINE
- = WATER LINE
- = EDGE OF PAVEMENT
- = EDGE OF CONCRETE
- = MAJOR CONTOUR INTERVAL (5')
- = MINOR CONTOUR INTERVAL (1')
- = FOG STRIPE
- = CENTER LINE STRIPING
- = WETLANDS AS GIVEN TO US BY HBH ENGINEERING
- = ASPHALT
- = BUILDING
- = CONCRETE

REGISTERED PROFESSIONAL LAND SURVEYOR

OREGON
January 16, 2002
LELAND A. MACDONALD
53226
Renews 31 December 2020

By : Leland MacDonald & Assoc., LLC
Formerly dba Matt Dunckel & Assoc.
3765 Riverside Drive
McMinnville, Oregon 97128
Phone : 503-472-7904
Fax: 503-472-0367
Email:lee@macdonaldsurveying.com

FIG. 1: SEPARATED JOINTS IN EX. STORM PIPE

FIG. 2: EXISTING OUTFALL

#	DATE	DESCRIPTION	BY

EXISTING CONDITIONS
WYNOOSKI OUTFALL
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	12/22/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC

SHEET NUMBER
2 OF 11

Plot Stamp: 12/27/2022 3:19:38 PM - Devin
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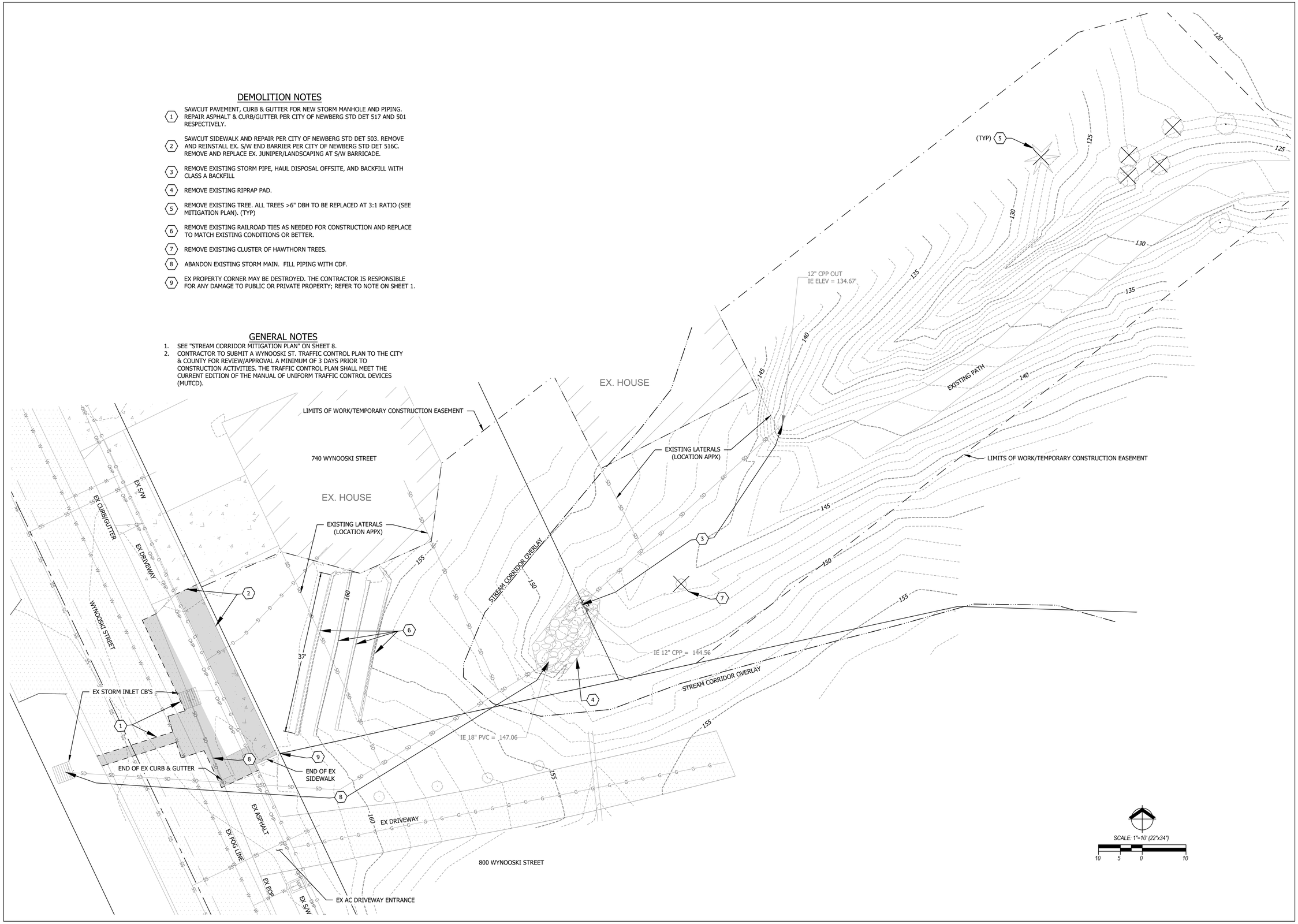
DEMOLITION NOTES

1. SAWCUT PAVEMENT, CURB & GUTTER FOR NEW STORM MANHOLE AND PIPING. REPAIR ASPHALT & CURB/GUTTER PER CITY OF NEWBERG STD DET 517 AND 501 RESPECTIVELY.
2. SAWCUT SIDEWALK AND REPAIR PER CITY OF NEWBERG STD DET 503. REMOVE AND REINSTALL EX. S/W END BARRIER PER CITY OF NEWBERG STD DET 516C. REMOVE AND REPLACE EX. JUNIPER/LANDSCAPING AT S/W BARRICADE.
3. REMOVE EXISTING STORM PIPE, HAUL DISPOSAL OFFSITE, AND BACKFILL WITH CLASS A BACKFILL
4. REMOVE EXISTING RIPRAP PAD.
5. REMOVE EXISTING TREE. ALL TREES >6" DBH TO BE REPLACED AT 3:1 RATIO (SEE MITIGATION PLAN). (TYP)
6. REMOVE EXISTING RAILROAD TIES AS NEEDED FOR CONSTRUCTION AND REPLACE TO MATCH EXISTING CONDITIONS OR BETTER.
7. REMOVE EXISTING CLUSTER OF HAWTHORN TREES.
8. ABANDON EXISTING STORM MAIN. FILL PIPING WITH CDF.
9. EX PROPERTY CORNER MAY BE DESTROYED. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO PUBLIC OR PRIVATE PROPERTY; REFER TO NOTE ON SHEET 1.

GENERAL NOTES

1. SEE "STREAM CORRIDOR MITIGATION PLAN" ON SHEET 8.
2. CONTRACTOR TO SUBMIT A WYNOOSKI ST. TRAFFIC CONTROL PLAN TO THE CITY & COUNTY FOR REVIEW/APPROVAL A MINIMUM OF 3 DAYS PRIOR TO CONSTRUCTION ACTIVITIES. THE TRAFFIC CONTROL PLAN SHALL MEET THE CURRENT EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).



#	DATE	DESCRIPTION	BY

REGISTERED PROFESSIONAL ENGINEER
OREGON
MARCH 09, 2018
ANDREY R. CHERNISHOV
EXPIRES: 12/31/2023

DEMOLITION PLAN
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	12/22/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC

SHEET NUMBER
3 OF 11

Plot Stamp: 12/27/2022 3:19:49 PM - Devin
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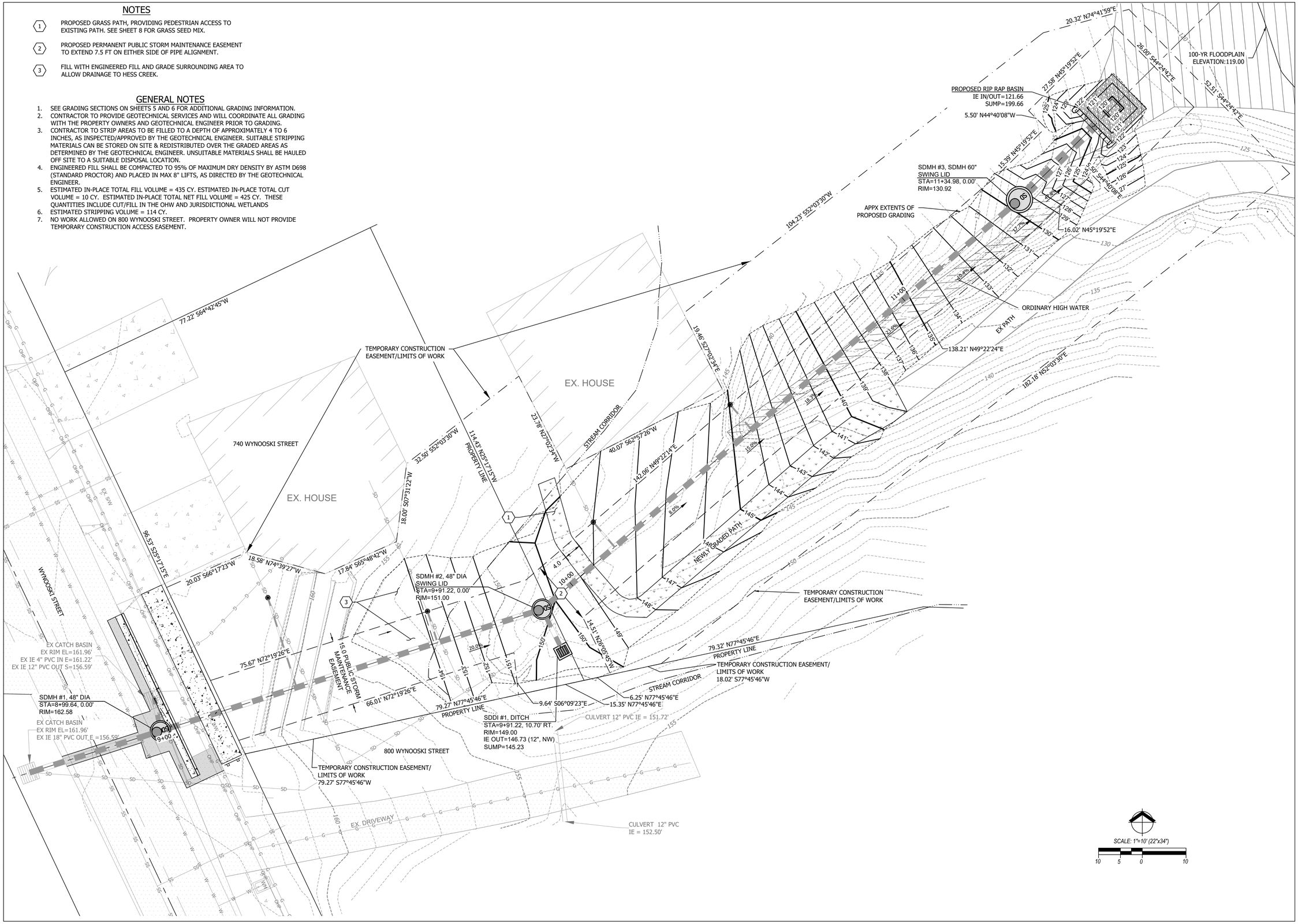
NOTES

1. PROPOSED GRASS PATH, PROVIDING PEDESTRIAN ACCESS TO EXISTING PATH. SEE SHEET 8 FOR GRASS SEED MIX.
2. PROPOSED PERMANENT PUBLIC STORM MAINTENANCE EASEMENT TO EXTEND 7.5 FT ON EITHER SIDE OF PIPE ALIGNMENT.
3. FILL WITH ENGINEERED FILL AND GRADE SURROUNDING AREA TO ALLOW DRAINAGE TO HESS CREEK.

GENERAL NOTES

1. SEE GRADING SECTIONS ON SHEETS 5 AND 6 FOR ADDITIONAL GRADING INFORMATION.
2. CONTRACTOR TO PROVIDE GEOTECHNICAL SERVICES AND WILL COORDINATE ALL GRADING WITH THE PROPERTY OWNERS AND GEOTECHNICAL ENGINEER PRIOR TO GRADING.
3. CONTRACTOR TO STRIP AREAS TO BE FILLED TO A DEPTH OF APPROXIMATELY 4 TO 6 INCHES, AS INSPECTED/APPROVED BY THE GEOTECHNICAL ENGINEER. SUITABLE STRIPPING MATERIALS CAN BE STORED ON SITE & REDISTRIBUTED OVER THE GRADED AREAS AS DETERMINED BY THE GEOTECHNICAL ENGINEER. UNSUITABLE MATERIALS SHALL BE HAULED OFF SITE TO A SUITABLE DISPOSAL LOCATION.
4. ENGINEERED FILL SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY BY ASTM D698 (STANDARD PROCTOR) AND PLACED IN MAX 8" LIFTS, AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
5. ESTIMATED IN-PLACE TOTAL FILL VOLUME = 435 CY. ESTIMATED IN-PLACE TOTAL CUT VOLUME = 10 CY. ESTIMATED IN-PLACE TOTAL NET FILL VOLUME = 425 CY. THESE QUANTITIES INCLUDE CUT/FILL IN THE OHW AND JURISDICTIONAL WETLANDS
6. ESTIMATED STRIPPING VOLUME = 114 CY.
7. NO WORK ALLOWED ON 800 WYNOOSKI STREET. PROPERTY OWNER WILL NOT PROVIDE TEMPORARY CONSTRUCTION ACCESS EASEMENT.



#	DATE	DESCRIPTION	BY

REGISTERED PROFESSIONAL ENGINEER
OREGON
MARCH 09, 2010
AUDREY R. CHERNISHOV
EXPIRES: 12/31/2023

GRADING PLAN
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	12/22/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC

SHEET NUMBER
4 OF 11

Plot Stamp: 12/27/2022 3:19:52 PM - Devin
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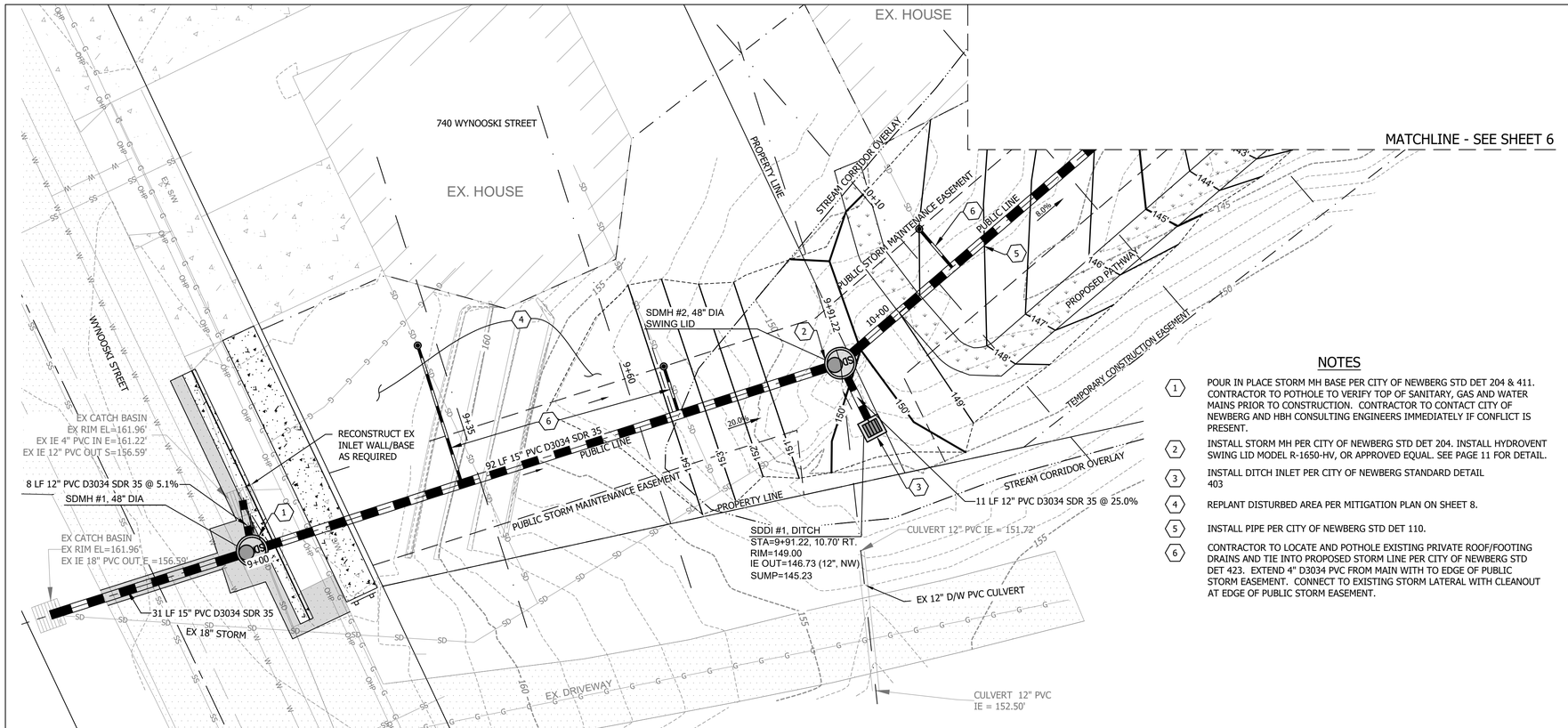


NOTES

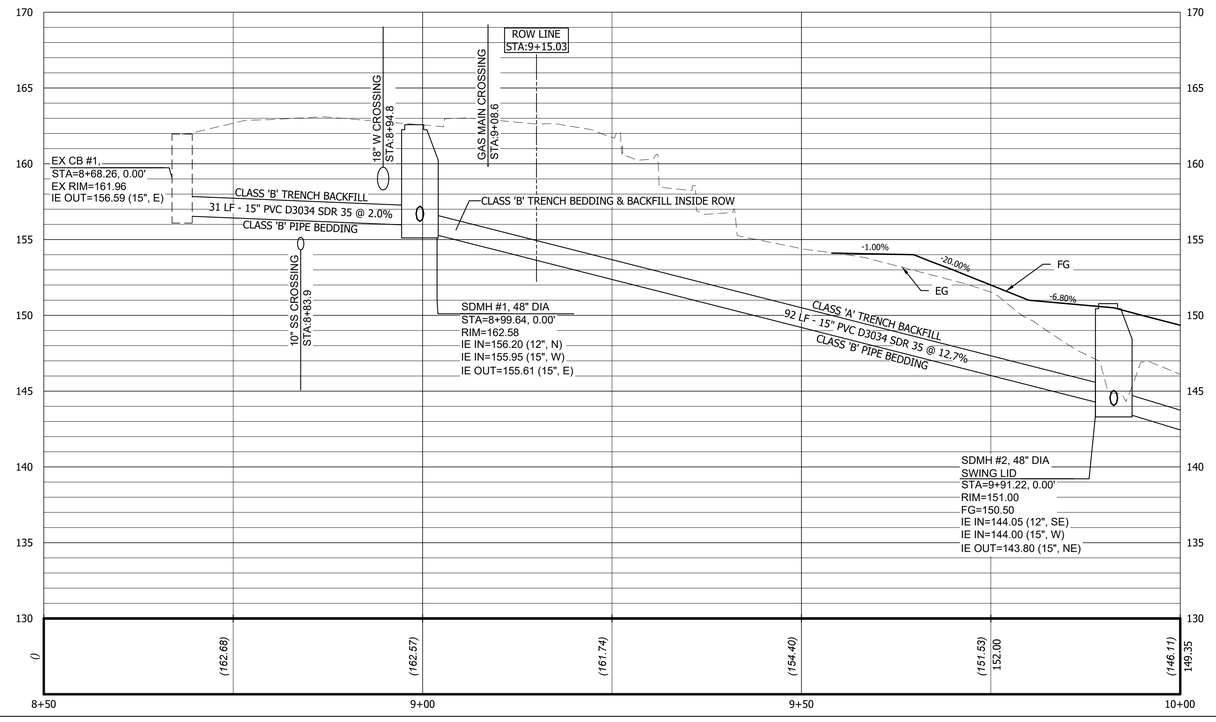
1. POUR IN PLACE STORM MH BASE PER CITY OF NEWBERG STD DET 204 & 411. CONTRACTOR TO POTHOLE TO VERIFY TOP OF SANITARY, GAS AND WATER MAINS PRIOR TO CONSTRUCTION. CONTRACTOR TO CONTACT CITY OF NEWBERG AND HBH CONSULTING ENGINEERS IMMEDIATELY IF CONFLICT IS PRESENT.
2. INSTALL STORM MH PER CITY OF NEWBERG STD DET 204. INSTALL HYDROVENT SWING LID MODEL R-1650-HV, OR APPROVED EQUAL. SEE PAGE 11 FOR DETAIL.
3. INSTALL DITCH INLET PER CITY OF NEWBERG STANDARD DETAIL 403
4. REPLANT DISTURBED AREA PER MITIGATION PLAN ON SHEET 8.
5. INSTALL PIPE PER CITY OF NEWBERG STD DET 110.
6. CONTRACTOR TO LOCATE AND POTHOLE EXISTING PRIVATE ROOF/FOOTING DRAINS AND TIE INTO PROPOSED STORM LINE PER CITY OF NEWBERG STD DET 423. EXTEND 4" D3034 PVC FROM MAIN WITH TO EDGE OF PUBLIC STORM EASEMENT. CONNECT TO EXISTING STORM LATERAL WITH CLEANOUT AT EDGE OF PUBLIC STORM EASEMENT.

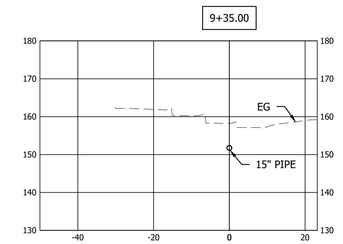
PERMITTING NOTE

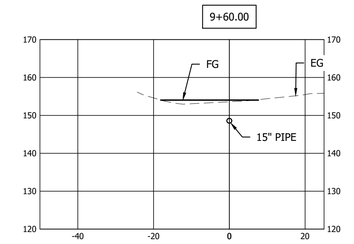
A PERMIT IS REQUIRED FOR THE WORK IN THE WYNOOSKI ST. RIGHT-OF-WAY FROM YAMHILL COUNTY. COPY OF PERMIT SHALL BE ON FILE AT THE CITY PRIOR TO CONSTRUCTION. THE CITY SHALL APPLY FOR THE PERMIT.

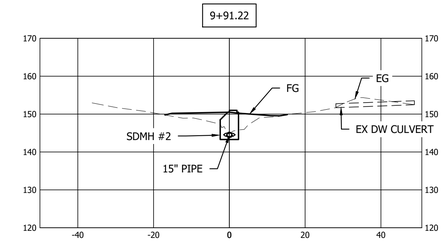
HRZ SCALE: 1"=10' VRT SCALE: 1"=5' (22"x34")

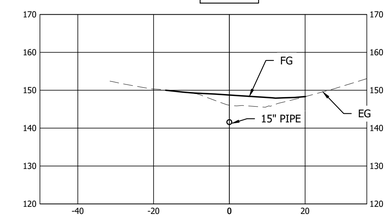
10 5 0 10











CROSS SECTIONS

HRZ SCALE: 1"=20' VRT SCALE: 1"=20' (22"x34")

#	DESCRIPTION	DATE	BY

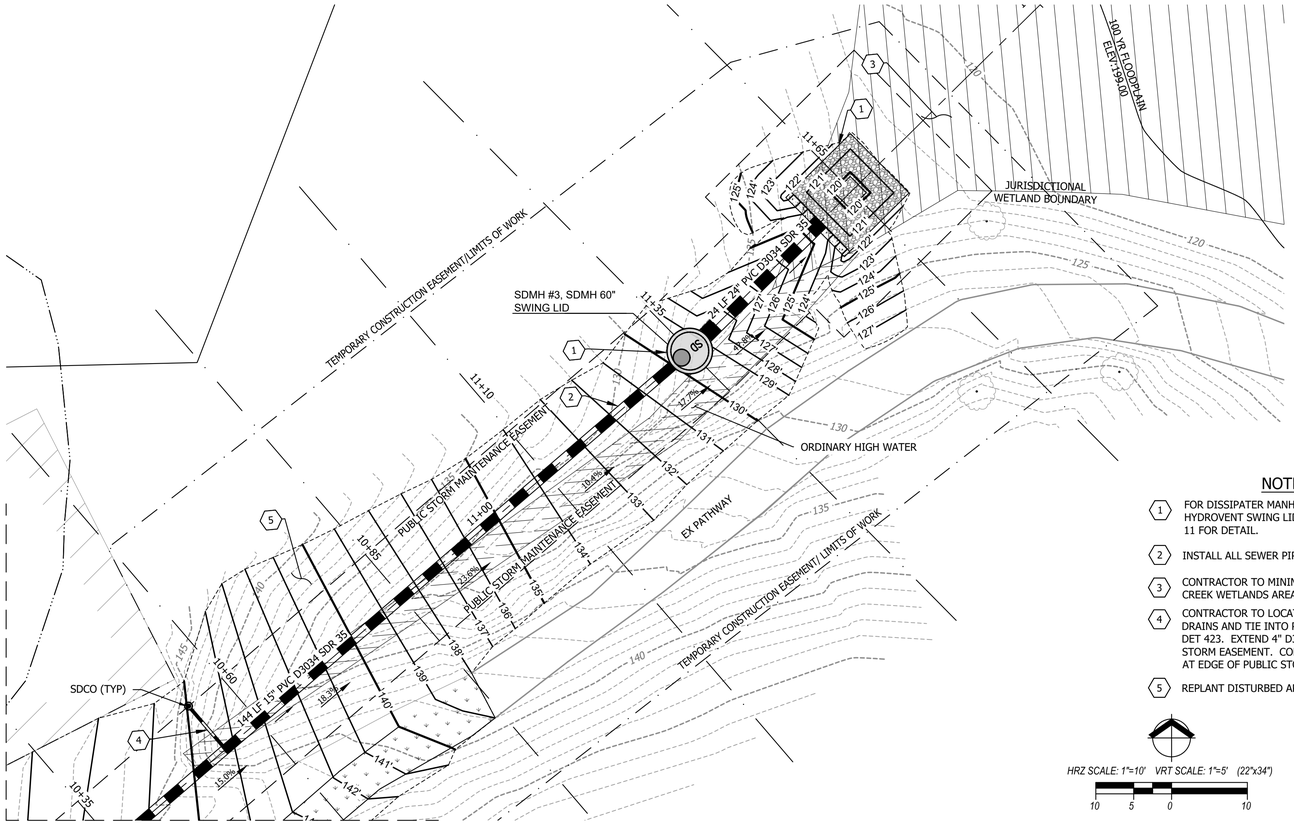
REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 28, 1978
ANDREY CHERNISHOV
RENEWAL: MARCH 09, 2023
EXPIRES: 12/31/2023

STORM DRAIN IMPROVEMENTS
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	12/22/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC

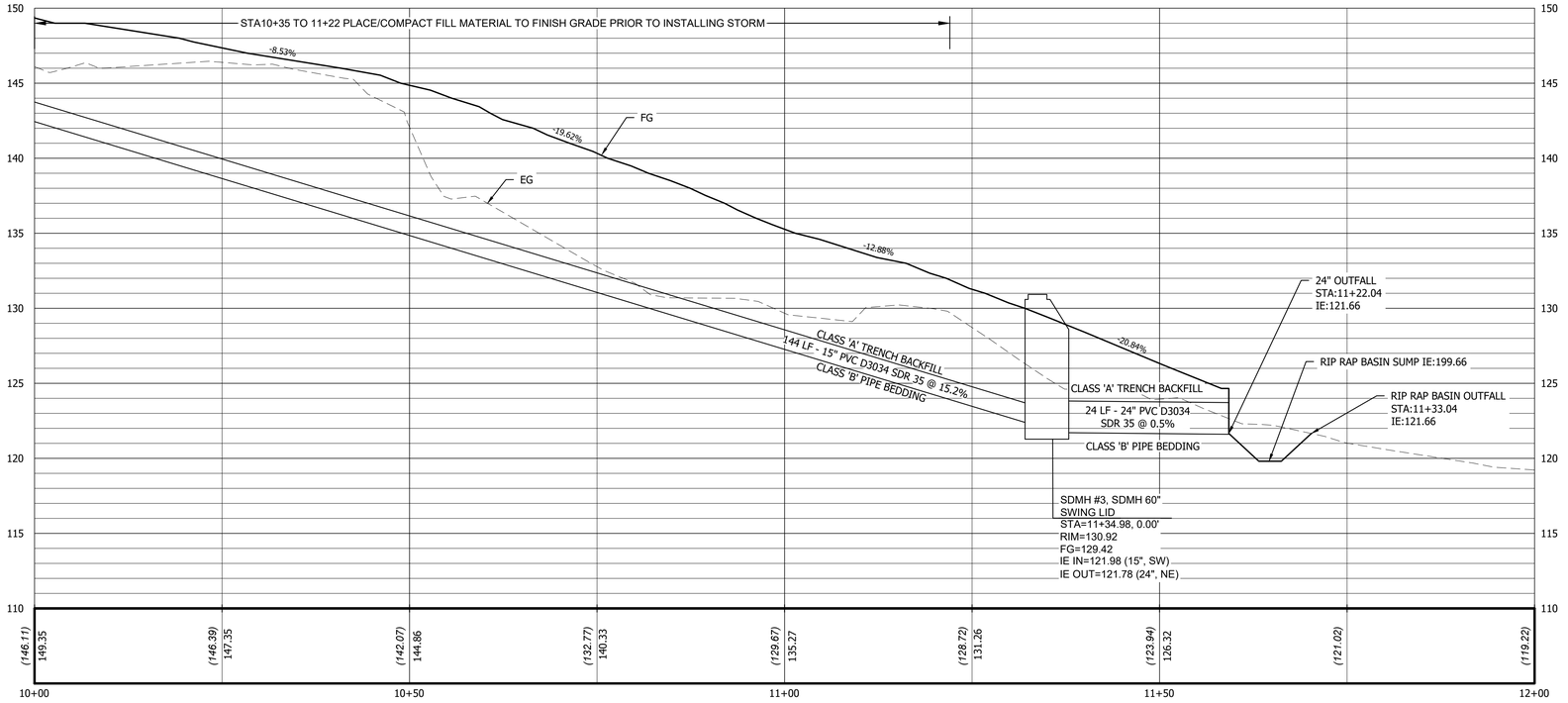
SHEET NUMBER
5 OF 11

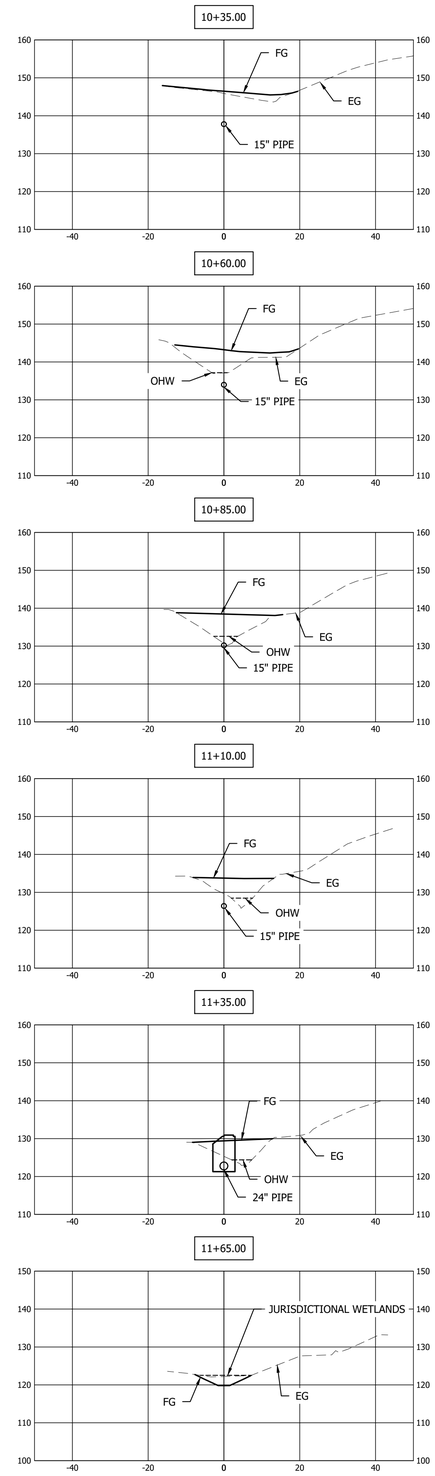


NOTES

1. FOR DISSIPATER MANHOLE AND RIPRAP BASIN, SEE SHEET #11. INSTALL HYDROVENT SWING LID MODEL R-1650-HV, OR APPROVED EQUAL. SEE PAGE 11 FOR DETAIL.
2. INSTALL ALL SEWER PIPE PER CITY OF NEWBERG STD DET 110. (TYP.)
3. CONTRACTOR TO MINIMIZE DISTURBANCE TO EXISTING HESS CREEK WETLANDS AREAS.
4. CONTRACTOR TO LOCATE AND POTHOLE EXISTING PRIVATE ROOF/FOOTING DRAINS AND TIE INTO PROPOSED STORM LINE PER CITY OF NEWBERG STD DET 423. EXTEND 4" D3034 PVC FROM MAIN WITH TO EDGE OF PUBLIC STORM EASEMENT. CONNECT TO EXISTING STORM LATERAL WITH CLEANOUT AT EDGE OF PUBLIC STORM EASEMENT.
5. REPLANT DISTURBED AREA PER MITIGATION PLAN ON SHEET 8.

HRZ SCALE: 1"=10' VRT SCALE: 1"=5' (22"x34")





CROSS SECTIONS

HRZ SCALE: 1"=20' VRT SCALE: 1"=20' (22"x34")

#	DESCRIPTION	DATE	BY

REGISTERED PROFESSIONAL ENGINEER
ANDREY R. CHERNISHOV
OREGON
MARCH 09, 2010
EXPIRES: 12/31/2023

STORM DRAIN IMPROVEMENTS
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	12/22/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC

SHEET NUMBER
6 OF 11

Plot Stamp: 12/27/2022 3:20:22 PM - Devin
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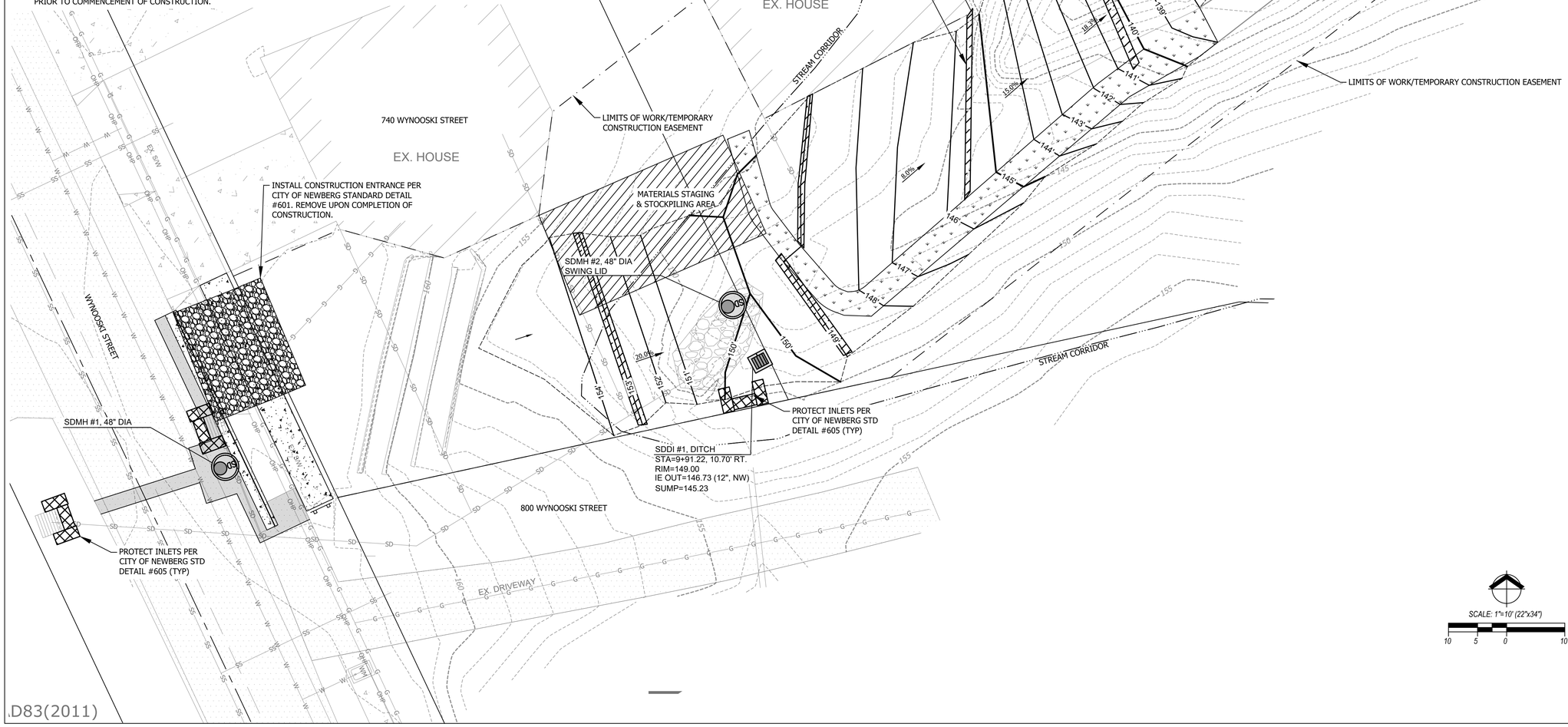
GENERAL NOTES

1. CONTRACTOR TO HAVE ESC DURING CONSTRUCTION AS NECESSARY. FINAL ESC SHOWN ON PLANS.
2. THE IMPLEMENTATION OF THIS ESC PLAN AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED, APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.
3. THE ESC PLAN, ANY REVISIONS, AND INSPECTION LOGS BY THE CONTRACTOR SHALL BE KEPT ONSITE AT ALL TIMES.
4. THE ESC MEASURES SHOWN ON THE PLAN ARE THE MINIMUM REQUIREMENTS FOR THE PROJECT SITE AND SHALL BE UPGRADED AS NEEDED TO MAINTAIN COMPLIANCE WITH ALL REGULATIONS.
5. ALL ESC MEASURES SHALL BE APPROVED, IN PLACE, AND FUNCTIONAL PRIOR TO ANY GROUND DISTURBANCE OF THE SITE. CONTRACTOR SHALL MAINTAIN ALL ESC MEASURES THROUGHOUT CONSTRUCTION.
6. CLEARING LIMITS, CRITICAL RIPARIAN AREAS, BUFFER ZONES, AND PRESERVED VEGETATION (INCLUDING IMPORTANT TREES AND ASSOCIATED CRITICAL ROOT ZONES) SHALL HAVE HIGH VISIBILITY FENCE INSTALLED BEFORE GRADING OR CONSTRUCTION TO IDENTIFY, MARK, AND PROTECT THE AREAS.
7. CONSTRUCTION ACTIVITIES WILL AVOID OR MINIMIZE ANY EXCAVATION OR OTHER SOIL DESTABILIZATION FROM OCTOBER 1ST TO MAY 31ST OF THE FOLLOWING YEAR.
8. TEMPORARY SITE STABILIZATION MEASURES WILL BE INSTALLED AT THE END OF THE SHIFT BEFORE A HOLIDAY OR WEEKEND OR AT THE END OF EACH WORKDAY IF RAIN IS FORECAST IN THE NEXT 24 HOURS.
9. SEDIMENT CONTROLS MUST BE INSTALLED AND MAINTAINED ALONG THE SITE PERIMETER ON ALL DOWN-GRADIENT SIDES OF THE CONSTRUCTION SITE AND AT ALL ACTIVE AND OPERATIONAL INTERNAL STORM DRAINS AT ALL TIMES DURING CONSTRUCTION.
10. DRY METHODS MUST BE USED TO REMOVE SEDIMENT AND CONCRETE SWEEPINGS FROM AREAS WHERE DISCHARGE IS LIKELY TO THE STORM DRAINS, STREETS, WATERCOURSES, OR SENSITIVE AREAS.
11. ALL DIRT AND DEBRIS TRACKED ONTO STREETS MUST BE REMOVED IMMEDIATELY IF IT CAN BE SPREAD BY TRAFFIC OR OTHERWISE REACH STORM DRAINS, WATERCOURSES, OR SENSITIVE AREAS.
12. SEDIMENT DISCHARGED OFFSITE MUST BE PLACED BACK ONSITE WITHIN 24 HOURS AND STABILIZED. IN-STREAM WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROCEDURES AND TIMEFRAMES OF THE OREGON DEPARTMENT OF STATE LANDS.
13. NO SEDIMENT-LADEN WATER MAY BE PUMPED, DIVERTED, OR OTHERWISE DISCHARGED OFFSITE UNLESS APPROVED BY THE ESC PLAN.
14. SEDIMENT MUST BE REMOVED WHEN IT HAS REACHED THE LEVEL SPECIFIED IN THE STANDARD DETAIL.
15. SEDIMENT MUST BE REMOVED FROM SUMPED STRUCTURES WHEN THE SEDIMENT RETENTION CAPACITY HAS BEEN REDUCED BY 1/3RD AND WITHIN 30 DAYS OF PROJECT COMPLETION.
16. WHEN REMOVING SATURATED SOILS FROM THE SITE, EITHER WATERTIGHT TRUCKS MUST BE USED OR LOADS MUST BE DRAINED ONSITE UNTIL DRIPPING HAS BEEN REDUCED TO MINIMIZE SPILLAGE.
17. EROSION CONTROL MEASURES WILL BE INSPECTED ON ACTIVE SITES AT LEAST WEEKLY OR AFTER PRECIPITATION IN EXCESS OF 0.5 INCHES IN 24 HOURS. IF A SITE WILL BE INACTIVE MORE THAN CITY OF NEWBERG EROSION CONTROL MANUAL 2014 PAGE 30 FOURTEEN (14) DAYS, EROSION CONTROL MEASURES WILL BE INSPECTED PRIOR TO THE INACTIVE PERIOD AND EVERY TWO (2) WEEKS DURING THE INACTIVE PERIOD.
18. ALL CONSTRUCTION SITES MUST FOLLOW PROPER STORAGE, APPLICATION, AND DISPOSAL PROCEDURES OF CONSTRUCTION MATERIALS. NO DUMPING OR DISPOSAL OF CONSTRUCTION DEBRIS, WASTE, OR SPOIL MATERIAL WILL OCCUR IN ANY STREAM, STORMWATER SYSTEM, WETLANDS, SURFACE WATERS, OR OTHER WATERCOURSES OR SENSITIVE AREAS.
19. WRITTEN SPILL PREVENTION AND RESPONSE PROCEDURES ARE REQUIRED FOR ALL SITES.
20. TOXIC AND HAZARDOUS MATERIALS MUST HAVE COVER AND SECONDARY CONTAINMENT.
21. CONCRETE TRUCKS SHALL NOT DISCHARGE WASHWATER WHERE IT IS LIKELY TO FLOW INTO STORM DRAINS, STREETS, WATERCOURSES, OR SENSITIVE AREAS.
22. PAVING ACTIVITIES SHALL BE MINIMIZED BETWEEN OCTOBER 1ST AND MAY 31ST OF THE FOLLOWING YEAR TO AVOID POTENTIAL DISCHARGE OF PAVING CHEMICALS INTO THE STORM DRAINS, STREETS, WATERCOURSES, OR SENSITIVE AREAS.
23. ALL ESC MEASURES SHALL BE REMOVED FROM THE SITE APPROXIMATELY 30 DAYS AFTER CONSTRUCTION IS COMPLETED ONCE HYDROSEED MIXTURE HAS BEEN ESTABLISHED, AS APPROVED BY THE CITY. REFER TO SHEET 8.
24. CONTRACTOR TO HYDROSEED AFFECTED AREA WITH SHADE-TOLERANT, HYDROSEED MIX THAT DOES NOT REQUIRE MOWING (LOW HEIGHT GRASS) FOLLOWING CONSTRUCTION.
25. AREA OF GROUND DISTURBANCE IS APPROXIMATELY 6200 SQFT. AN EROSION & SEDIMENTATION CONTROL PERMIT IS REQUIRED FROM THE CITY PRIOR TO COMMENCEMENT OF CONSTRUCTION.

LEGEND

- BIO-FILTER BAGS
- STRAW WATTLES
- SILT FENCE



SCALE: 1"=10' (22"x34")

10 5 0 10

#	DATE	DESCRIPTION	BY

REGISTERED PROFESSIONAL ENGINEER
OREGON
MARCH 09, 2018
ANDREY R. CHERNISHOV
EXPIRES: 12/31/2023

EROSION & SEDIMENTATION CONTROL
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
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DATE	12/22/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC

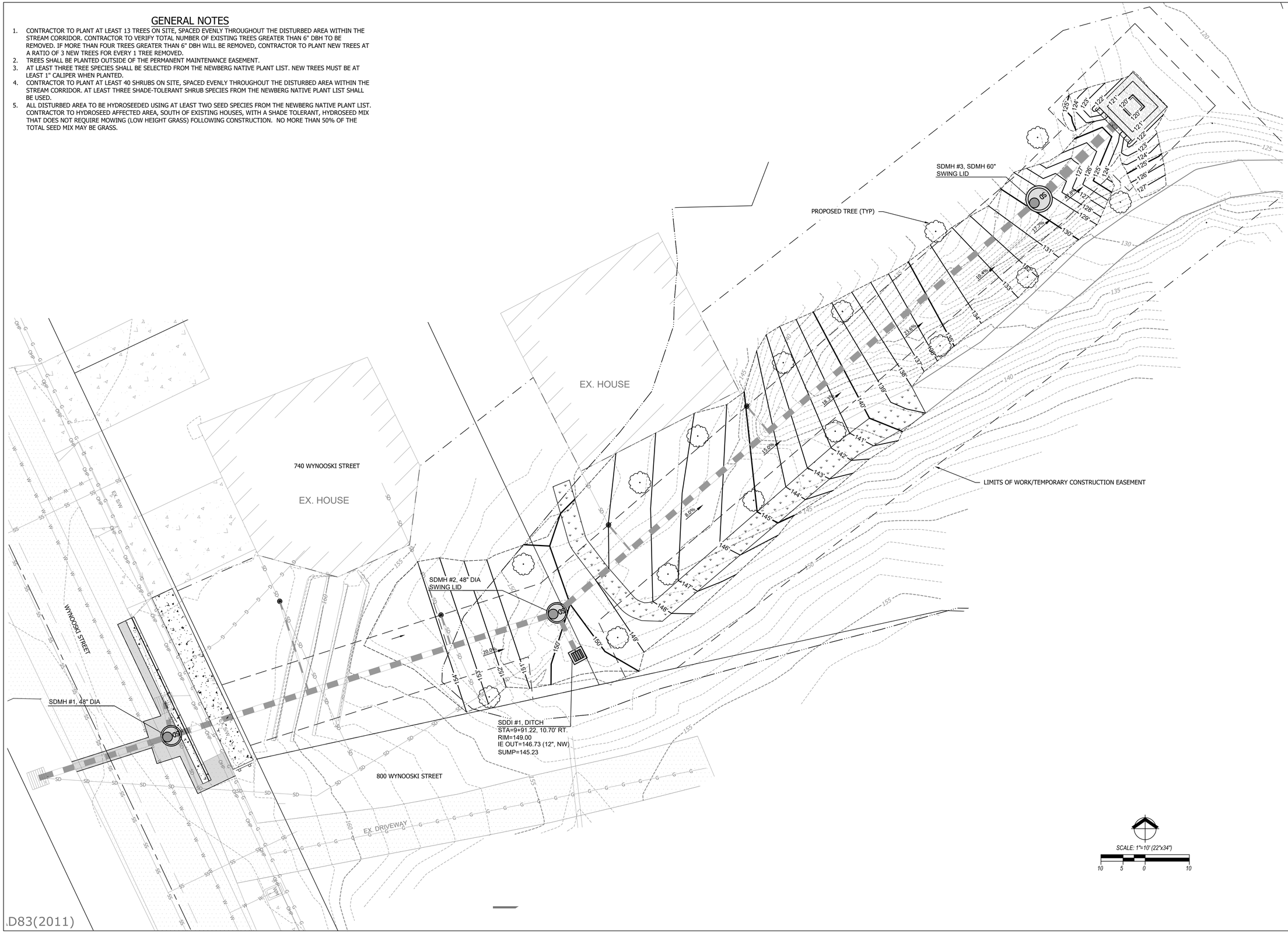
SHEET NUMBER
7 OF 11

Plot Stamp: 12/27/2022 3:20:33 PM - Devin
File: L:\2019-01\54-Design\DWG\7-ESC.dwg

,D83(2011)

GENERAL NOTES

1. CONTRACTOR TO PLANT AT LEAST 13 TREES ON SITE, SPACED EVENLY THROUGHOUT THE DISTURBED AREA WITHIN THE STREAM CORRIDOR. CONTRACTOR TO VERIFY TOTAL NUMBER OF EXISTING TREES GREATER THAN 6" DBH TO BE REMOVED. IF MORE THAN FOUR TREES GREATER THAN 6" DBH WILL BE REMOVED, CONTRACTOR TO PLANT NEW TREES AT A RATIO OF 3 NEW TREES FOR EVERY 1 TREE REMOVED.
2. TREES SHALL BE PLANTED OUTSIDE OF THE PERMANENT MAINTENANCE EASEMENT.
3. AT LEAST THREE TREE SPECIES SHALL BE SELECTED FROM THE NEWBERG NATIVE PLANT LIST. NEW TREES MUST BE AT LEAST 1" CALIPER WHEN PLANTED.
4. CONTRACTOR TO PLANT AT LEAST 40 SHRUBS ON SITE, SPACED EVENLY THROUGHOUT THE DISTURBED AREA WITHIN THE STREAM CORRIDOR. AT LEAST THREE SHADE-TOLERANT SHRUB SPECIES FROM THE NEWBERG NATIVE PLANT LIST SHALL BE USED.
5. ALL DISTURBED AREA TO BE HYDROSEEDED USING AT LEAST TWO SEED SPECIES FROM THE NEWBERG NATIVE PLANT LIST. CONTRACTOR TO HYDROSEED AFFECTED AREA, SOUTH OF EXISTING HOUSES, WITH A SHADE TOLERANT, HYDROSEED MIX THAT DOES NOT REQUIRE MOWING (LOW HEIGHT GRASS) FOLLOWING CONSTRUCTION. NO MORE THAN 50% OF THE TOTAL SEED MIX MAY BE GRASS.



#	DATE	DESCRIPTION	BY

REGISTERED PROFESSIONAL ENGINEER
OREGON
MARCH 09, 2010
ANDREY R. CHERNISHOV
EXPIRES: 12/31/2023

STREAM CORRIDOR MITIGATION PLAN
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	12/22/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC

SHEET NUMBER
8 OF 11

Plot Stamp: 12/27/2022 3:20:44 PM - Devin
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D83(2011)

NOTES:

1. THE MINIMUM PIPE COVER SHALL BE ACCORDING TO TABLE 1, BELOW. WHEN CIRCUMSTANCES DICTATE, THEN A LESSER DESIGN COVER MAY BE CONSIDERED PER TABLE 2 BELOW.

2. PIPE COVER SHALL BE MEASURED FROM FINISHED GRADE TO THE UPPER MOST EXTERIOR SURFACE ELEVATION OF THE PIPE.

3. A PIPE UNDER A ROADWAY SHALL NOT INTRUDE INTO THE SUBGRADE AND SHALL BE PROTECTED DURING CONSTRUCTION.

4. SUFFICIENT DEPTH SHALL MEAN FROM THE TOP OF THE PIPE TO FINISHED GRADE. ALL STORM DRAINS SHALL BE LAID AT SUFFICIENT DEPTH TO PROTECT AGAINST DAMAGE FROM INTERIM CONSTRUCTION LOADS, FINAL TRAFFIC LOADS, AND TO DRAIN BUILDING FOOTINGS WHERE PRACTICAL. IN AREAS OF RELATIVELY FLAT TERRAIN, THE DESIGN ENGINEER MUST SHOW THAT SUFFICIENT DEPTH PROVIDED AT THE BOUNDARY OF THE DEVELOPMENT TO PROPERLY SERVE THE REMAINDER OF THE UPSTREAM BASIN AREA TRIBUTARY TO THE SITE.

TABLE 1 : MINIMUM COVER	
WATER	36 (in.)
STORM	48 (in.)
SEWER	8 (ft.)

TABLE 2: PIPE COVER

TYPE OF PIPE	PAVED AREAS (in.)	UNPAVED AREAS (in.)
PVC C900	24	12
PVC 3034 SDR35	36	24
DUCTILE IRON	18	6
*RCP CLASS II	30	18
*RCP CLASS IV	24	12
*RCP CLASS V	18	6

* WHEN APPROVED

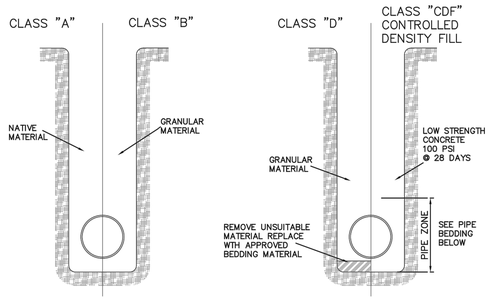
City of Newberg — PUBLIC WORKS ENGINEERING DIVISION, 414 E. FIRST STREET NEWBERG, OR 97132, PHONE: 503-537-1240, FAX: 503-537-1277

REVISIONS:

PIPE COVER

SCALE:
DATE: 01/24/2014
APPROVED BY: JAY H.
STANDARD DRAWING 110

201A TRENCH BACKFILL



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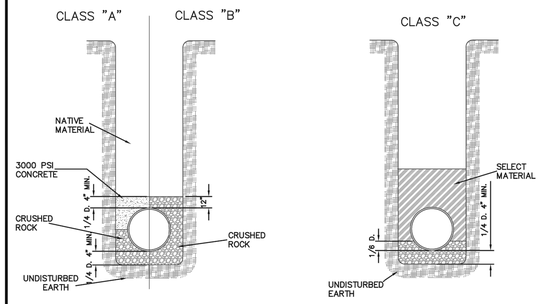
REVISIONS: SEPT 2013- JAY H.

TRENCH BACKFILL

SCALE: N.T.S
DATE: MAY 2007
APPROVED BY: D. DANICI
STANDARD DRAWING 201A

201B PIPE BEDDING



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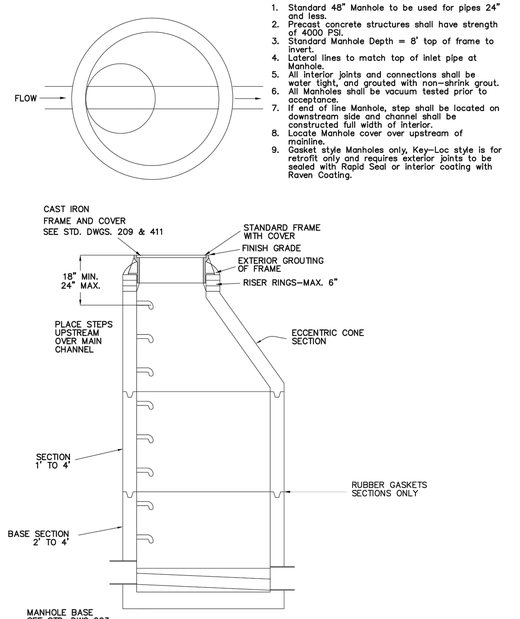
REVISIONS: SEPT. 2013- JAY H.

PIPE BEDDING

SCALE: N.T.S
DATE: MAY 2007
APPROVED BY: D. DANICI
STANDARD DRAWING 201B

NOTES

1. Standard 48" Manhole to be used for pipes 24" and less.
2. Precast concrete structures shall have strength of 4000 PSI.
3. Standard Manhole Depth = 8' top of frame to invert.
4. Lateral lines to match top of inlet pipe at Manhole.
5. All interior joints and connections shall be water tight, and grouted with non-shrink grout.
6. All Manholes shall be vacuum tested prior to acceptance.
7. If end of line Manhole, step shall be located on downstream side and channel shall be constructed full width of interior.
8. Locate Manhole cover over upstream of mainline.
9. Gasket style Manholes only, Key-Loc style is for retrofit only and requires exterior joints to be sealed with Rapid Seal or interior coating with Raven Coating.



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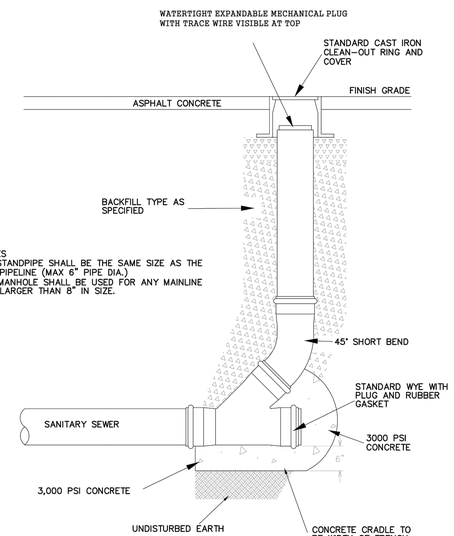
REVISIONS: 12/28/12; 11/27/2013-CHIU; 05/01/2015 - ASM

48" STANDARD MANHOLE

SCALE: N.T.S
DATE: May 2015
APPROVED BY: K. Hofmann
STANDARD DRAWING 204



NOTES
1. STANDPIPE SHALL BE THE SAME SIZE AS THE PIPELINE (MAX 6" PIPE DIA.)
2. MANHOLE SHALL BE USED FOR ANY MAINLINE LARGER THAN 8" IN SIZE.

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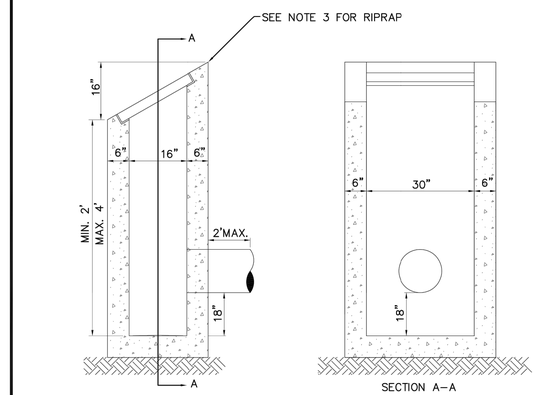
REVISIONS: 05/04/2015 - ASM

CLEAN OUT

SCALE: N.T.S
DATE: May 2015
APPROVED BY: K. Hofmann
STANDARD DRAWING 210



NOTES:

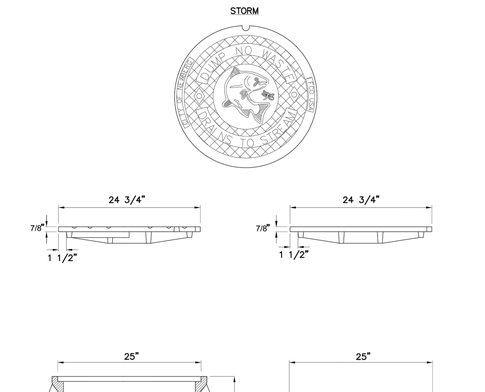
1. CONCRETE SHALL HAVE A MINIMUM STRENGTH OF 3000 PSI AT 28 DAYS.
2. SEE STANDARD DRAWING NO. 404 FOR FRAME AND GRATE.
3. 4 TO 6 INCHES OF ANGULAR RIPRAP, 6 INCHES IN DEPTH, SHALL EXTEND A MINIMUM OF 2 FEET AROUND ALL SIDES OF THE INLET.

City of Newberg — PUBLIC WORKS ENGINEERING DIVISION, 414 E. FIRST STREET NEWBERG, OR 97132, PHONE: 503-537-1240, FAX: 503-537-1277

REVISIONS:

DITCH INLET

SCALE: N.T.S
DATE: MARCH 2014
APPROVED BY: J. HARRIS
STANDARD DRAWING 403



NOTES
1. USE SUBURBAN TYPE FRAME IN NON-TRAFFIC AREAS ONLY.
2. COVER AND FRAME SHALL BE CAST IRON, ASTM A-48 CLASS 30 AND MEET H-20 LOAD RATING.
3. COVER AND FRAME TO HAVE TRUE BEARING ALL AROUND.

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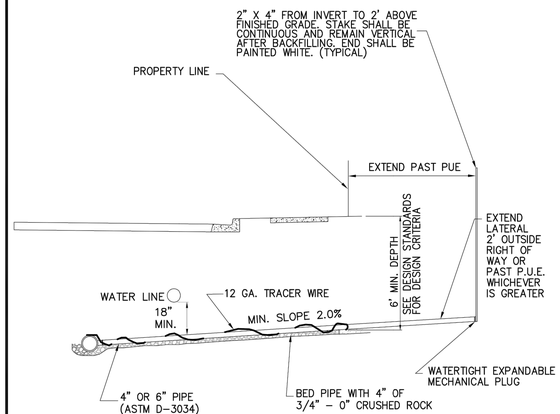
REVISIONS:

STORM WATER MANHOLE FRAME AND COVER

SCALE: N.T.S
DATE: MARCH 2014
APPROVED BY: J. HARRIS
STANDARD DRAWING 411



NOTES:

1. USES -SINGLE RESIDENTIAL SERVICE, 4" PIPE
   -SPLIT RESIDENTIAL SERVICE, 6" PIPE
2. SERVICE SHALL NOT BE BACKFILLED PRIOR TO INSPECTION. LOCATE WIRE SHALL BE TESTED PRIOR TO BACKFILL AND AFTER BACKFILL IS COMPLETE WITH THE WITNESS OF A CITY REPRESENTATIVE.
3. MINIMUM SLOPE 2.0%.

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REVISIONS: FEB 2014; MAY 2014; 05/08/2015 -ASM

STORM SEWER SERVICE BRANCH

SCALE: N.T.S
DATE: May 2015
APPROVED BY: K. Hofmann
STANDARD DRAWING 423

DATE	DESCRIPTION	BY
4		

REGISTERED PROFESSIONAL ENGINEER — OREGON — MARCH 09, 2010 — ANDREY R. CHERNISHOV
EXPIRES: 12/31/2023

CITY OF NEWBERG STANDARD DETAILS

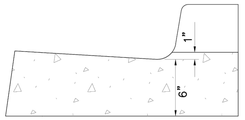
WYNOOSKI OUTFALL REDESIGN

CITY OF NEWBERG
NEWBERG, OR

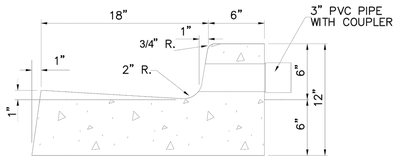
H B H CONSULTING ENGINEERS
501 E First Street, Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE | 12/22/2022
DRAWN | ARB
DESIGNED | JH
CHECKED | ARC

SHEET NUMBER
9 OF 11



CURB AND GUTTER AT DRIVEWAY APPROACH



CURB AND GUTTER

NOTES

1. CONCRETE SHALL HAVE STRENGTH OF 3300 P.S.I. AT 28 DAYS.
2. TRANSVERSE CONTRACTION JOINTS – MAKE 1/8" x 1 1/2" DEEP CUT, SPACED AT 15'. PROVIDE CONTRACTION JOINTS AT CURB RETURN POINTS, CATCH BASINS AND DRIVEWAYS.
3. SCORE CURB OVER WEEP HOLE BLOCK OUT.
4. EXPANSION JOINTS SHALL NOT BE USED.
5. APPLY CURING COMPOUND (PETROLEUM BASED) TO FRESH CONCRETE TO RETAIN MOISTURE.
6. TOP OF CURB BRANDED WITH "S" OR "W", 2" MIN. HEIGHT FOR SEWER AND WATER LOCATIONS. HAND SCRIBING NOT ALLOWED.

City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
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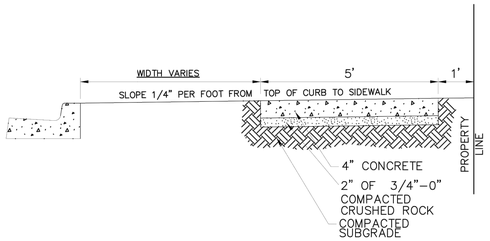
05/05/2015 - ASM

CURB AND GUTTER

SCALE: N.T.S.
DATE: May 2015
APPROVED BY: K. Hofmann
STANDARD DRAWING 501



NOTES:

1. SLOPE FROM THE PROPERTY LINE TO THE STREET AT 2%.
2. WORK AGGREGATE INTO CONCRETE PRIOR TO FINISHING CONCRETE.
3. FINISHING DETAILS
   - –EDGE CONCRETE WITH 3" EDGING TROWEL.
   - –SCORE CONCRETE AT 5' INTERVALS.
   - –INSTALL 1/8" x 1 1/2" CONTRACTION JOINTS EVERY 15'.
   - –FABRIC TYPE EXPANSION JOINT NOT TO BE USED
   - –APPLY LIGHT BROOM FINISH TRANSVERSE TO THE SIDEWALK.
4. CONCRETE SHALL HAVE STRENGTH OF 3300 P.S.I. AT 28 DAYS.
5. APPLY CURING COMPOUND (PETROLEUM BASE) TO FRESH CONCRETE TO RETAIN MOISTURE.
6. TOLERANCES
   - –SURFACE SHALL NOT VARY MORE THAN 1/4" FROM A 10' STRAIGHT EDGE.
   - –ALIGNMENT SHALL BE WITHIN 1/4" OF TRUE LINE.

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REVISIONS:
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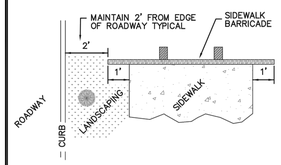
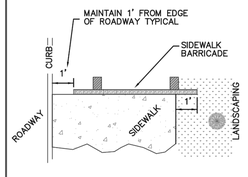
SIDEWALK TYPE "A"

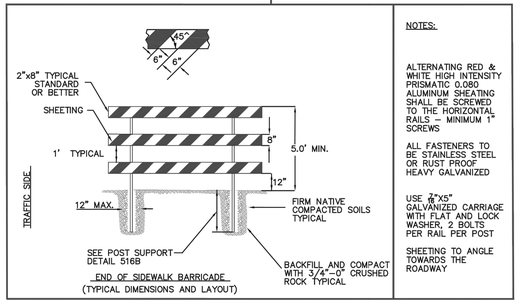
SCALE: N.T.S.
DATE: May 2015
APPROVED BY: K. Hofmann
STANDARD DRAWING 503



END OF SIDEWALK ("TYPE A")



END OF SIDEWALK ("TYPE B")



END OF SIDEWALK BARRICADE
(TYPICAL DIMENSIONS AND LAYOUT)

NOTES:

ALTERNATING RED & WHITE HIGH INTENSITY PRISMATIC 0.080 ALUMINUM SHEATING SHALL BE SCREWED TO THE HORIZONTAL RAILS – MINIMUM 1" SCREWS

ALL FASTENERS TO BE STAINLESS STEEL OR RUST PROOF HEAVY GALVANIZED

USE 7"X5" GALVANIZED CARRIAGE WITH FLAT AND LOCK WASHER, 2 BOLTS PER RAIL PER POST

SHEETING TO ANGLE TOWARDS THE ROADWAY

City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
PHONE: 503-537-1240
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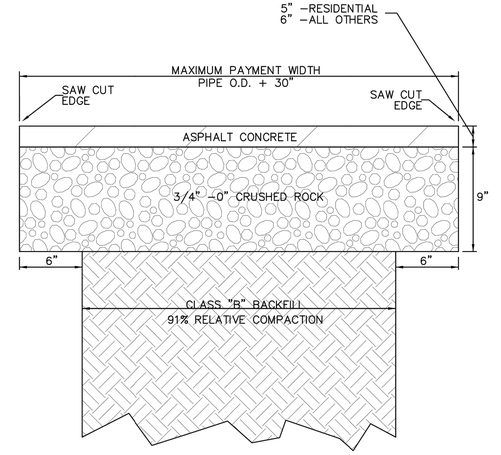
REVISIONS:

END OF SIDEWALK BARRICADES

SCALE: N.T.S.
DATE: MAY 2014
APPROVED BY: J. HARRIS
STANDARD DRAWING 516C



NOTES:

1. SAW CUT ASPHALT TO NEAT STRAIGHT LINES.
2. ASPHALT – CLASS "C" MIX PLACED IN 2 LIFTS.
3. ALL JOINTS SHALL BE SEALED WITH RUBBERIZED ASPHALT EMULSION (HOT OR COLD) AND DE–TACKED WITH SAND IF IMMEDIATE TRAFFIC IS NEEDED AT ALL JOINTS.
4. ACTUAL PAYMENT WIDTH TO BE DETERMINED AT SITE PRIOR TO PAVING.
5. REFERENCE DESIGN STANDARDS MANUAL SECTION 5.22 FOR ADDITIONAL TRENCH PAVING REQUIREMENTS.

City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
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PHONE: 503-537-1240
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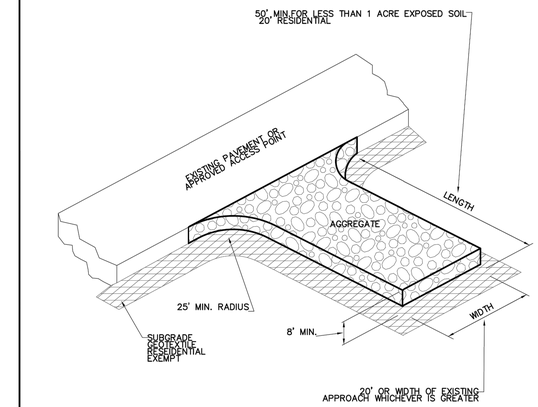
REVISIONS:
Jan. 2011
05/07/2015 - ASM

TRENCH PAVING

SCALE: N.T.S.
DATE: May 2015
APPROVED BY: K. Hofmann
STANDARD DRAWING 517



NOTES:

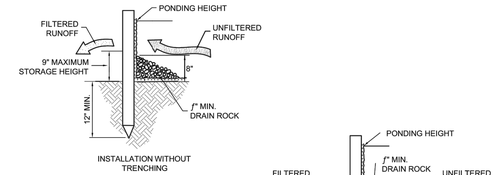
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-RIGH-OF WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. WHERE RUNOFF CONTAINING SEDIMENT-LADEN WATER IS LEAVING THE SITE VIA THE CONSTRUCTION ENTRANCE, OTHER MEASURES SHALL BE IMPLEMENTED TO DIVERT RUNOFF THROUGH AN APPROVED FILTERING SYSTEM.
5. DIMENSIONS:
   SINGLE FAMILY AND DUPLEX
   20' LONG BY 20' WIDE, 8" DEEP OF 3/4 " MINUS CLEAN ROCK.
   COMMERCIAL
   50' LONG BY 20' WIDE, 3-6" DEEP CLEAN ROCK.
   GOVERNING AUTHORITY MAY REQUIRE GEOTEXTILE FABRIC TO PREVENT SUB-SOIL PUMPING.

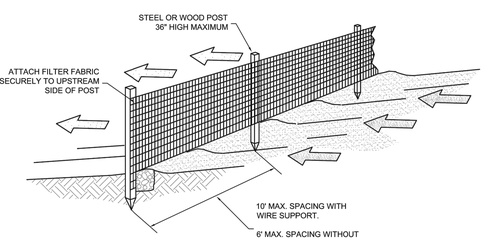
City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
PHONE: 503-537-1240
FAX: 503-537-1277

REVISIONS:

CONSTRUCTION ENTRANCE

SCALE: N.T.S
DATE: May 2007
APPROVED BY: D. Danicic
STANDARD DRAWING 601



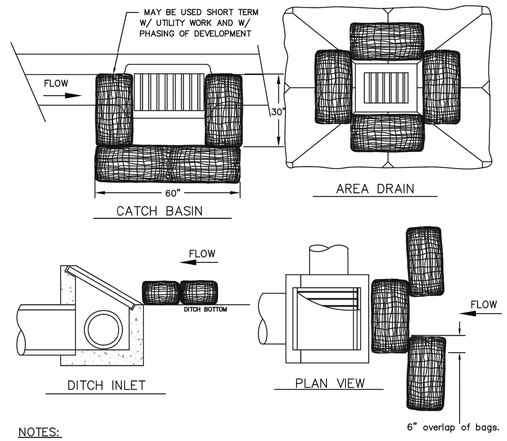


City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
PHONE: 503-537-1240
FAX: 503-537-1277

REVISIONS:

SILT FENCE

SCALE: N.T.S.
DATE: MAY 2007
APPROVED BY: D. DANICIC
STANDARD DRAWING 602



NOTES:

1. ADDITIONAL MEASURES MUST BE CONSIDERED DEPENDING ON SOIL TYPES.
2. BIO–FILTER BAGS SHOULD BE STAKED WHERE APPLICABLE USING (2) 1"x2"WOODEN STAKES OR APPROVED EQUAL PER BAG.
3. WHEN USING 30" BIO–BAGS TO PROTECT A CATCH BASIN YOU MUST HAVE 4 BAGS AND THEY SHALL BE OVERLAPPED BY 6".

City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
PHONE: 503-537-1240
FAX: 503-537-1277

REVISIONS:
12/10/2013

INLET PROTECTION

SCALE: N.T.S.
DATE: 04/04/2009
APPROVED BY: PAUL CHIU
STANDARD DRAWING 605

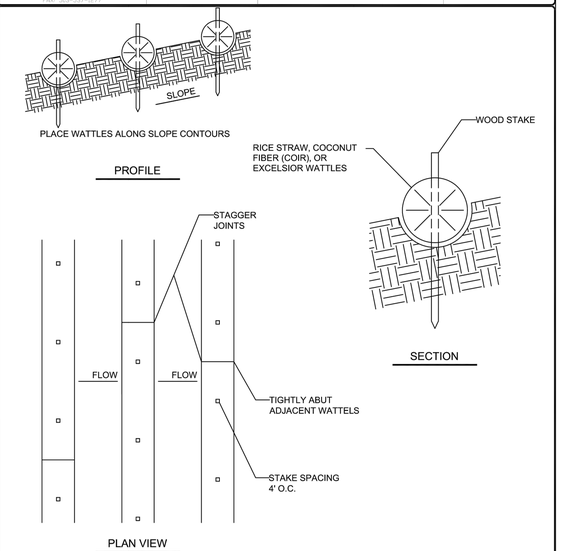


TABLE 3-12 BARRIER SPACING FOR GENERAL APPLICATION

% SLOPE	SLOPE	MAX SPACING ON SLOPE
<10%	<10:1	300 ft
10-15%	10:1 to 7.5:1	150 ft
15-20%	7.5:1 to 5:1	100 ft
20-30%	5:1 to 3.5:1	50 ft
30-50%	3.5:1 to 2:1	25 ft

NOTES:
1. STAKING SPECIFICATIONS:
   A. 1"x2" WOODEN STAKES.
   B. ADDITIONAL STAKES MAY BE INSTALLED ON DOWNHILL SIDE OF WATTLES ON STEEP SLOPES OR HIGHLY EROSIVE SOILS.
2. SPACING IN ACCORDANCE WITH TABLE 3-12.

City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
PHONE: 503-537-1240
FAX: 503-537-1277

REVISIONS:
NA

WATTLES/STRAW BALE

SCALE: N.T.S
DATE: 01/10/2014
APPROVED BY:
STANDARD DRAWING 611

BY | DATE | # | DESCRIPTION

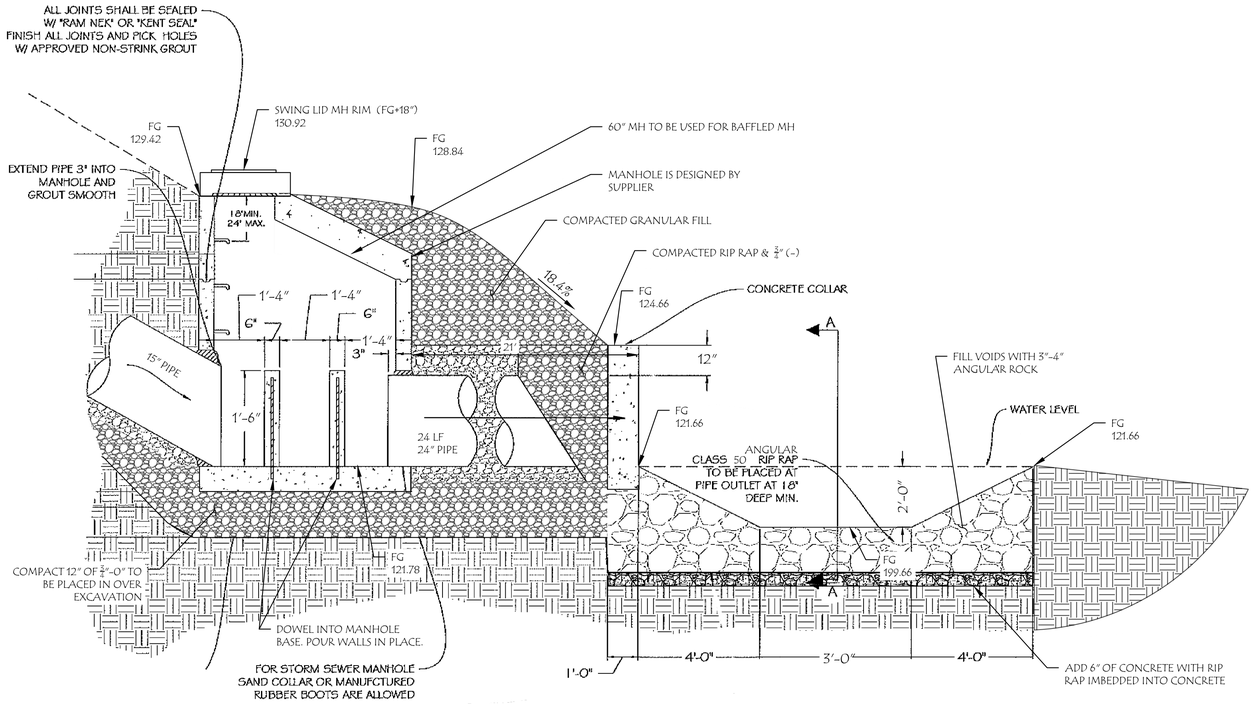
REGISTERED PROFESSIONAL ENGINEER
OREGON
MARCH 09, 2010
ANDREY R. CHERNISHOV
EXPIRES: 12/31/2023

CITY OF NEWBERG STANDARD DETAILS
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

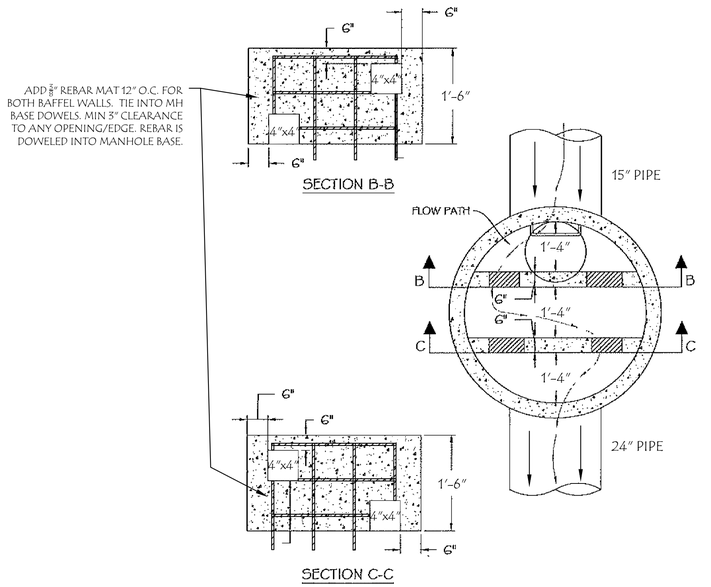
H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE | 12/22/2022
DRAWN | ARB
DESIGNED | JH
CHECKED | ARC

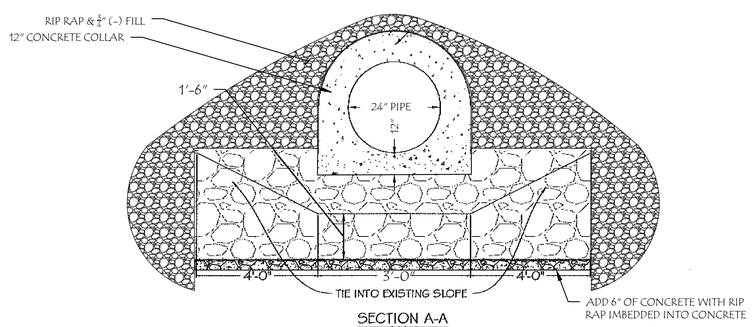
SHEET NUMBER
10 OF 11



DISSIPATER MANHOLE
(NTS)



60" DISSIPATER MANHOLE DETAILS
(NTS)



SECTION A-A

PIPE OUTLET DETAILS
(NTS)

RIPRAP NOTES:
- ROCK FOR RIPRAP SHALL BE ANGULAR IN SHAPE
- THICKNESS OF A SINGLE ROCK SHALL NOT BE LESS THAN ONE-THIRD ITS LENGTH

RIPRAP INSTALLATION NOTES:
- EXCAVATE BELOW FINISH GRADE DPETH TO DIMENSIONSN SHOWN ON APPROVED PLANS
- INTSALL WOVEN GEOTEXTILE FABRIC
- PLACE RIP RAP TO FINISH GRADE

GRADE RIP RAP SHALL BE THE CLASS AND SIZE OF ROCK ACCORDING TO THE FOLLOWING:

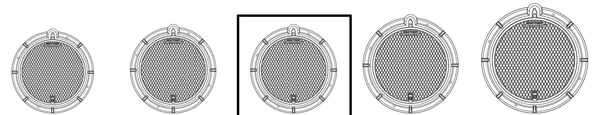
CLASS 50	
WEIGHT OF ROCK (LBS)	PERCENT (BY WEIGHT)
50-30	20%
30-15	30%
15-2	40%
2-0	10%

HYDROVENT™
PRODUCT DESCRIPTION

Neenah Foundry's HydroVent™ manhole cover is designed using LiftMate™ ball and socket hinge system technology coupled with a heavy duty latching mechanism. The HydroVent™ manhole cover is designed to provide surge relief at the location of the installation during events when the sewer system becomes surcharged.

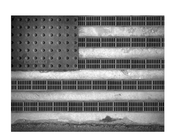
Design features include:
- Gray iron construction – Fatigue resistant durability plus noise suppression
- Heavy duty latching mechanism automatically engages when lid is closed
- Hinge and latch design allows pressure relief while preventing lid blow off
- Superior gasket design and material resists water inflow
- Solid flange improves resistance to inflow
- Automatic "hold open" arm helps prevent accidental closure
- "Made-in-USA" ensures acceptability with federally funded projects
- No dead lifting required to close cover
- Ball and socket hinge provides full support when opening and closing
- Hinge easily disengages for complete lid removal, no tools required
- Traffic rated, exceeds 40,000 pound proof loading requirements of AASHTO-M-306-07

Additional questions regarding Neenah Foundry HydroVent™ manhole cover should be directed to our Product Engineering Department (920) 725-7000.



R-1550-HV 21" | R-1642-HV 24" | R-1650-HV 24" | R-1743-HV 30" | R-1739-HV 36"

HydroVent™ System		
MODEL	CLEAR OPENING (Diameter)	FRAME HEIGHT
R-1550-HV	21"	9"
R-1642-HV	24-⅛"	7"
R-1650-HV	24-⅛"	4"
R-1743-HV	30"	6"
R-1739-HV	36"	6"



#	DATE	DESCRIPTION	BY

REGISTERED PROFESSIONAL ENGINEER
OREGON
MARCH 09, 2010
ANDREY R. CHERNISHOV
EXPIRES 12/31/2023

DETAILS
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

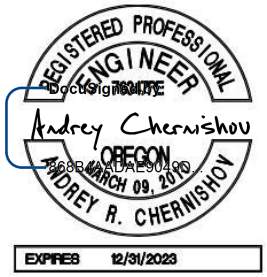
H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	12/22/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC

SHEET NUMBER
11 OF 11

HBH CONSULTING ENGINEERS

501 E First Street
Newberg, Oregon 97132
503/554-9553 · Fax 503/537-9554



MEMORANDUM

Date: **9/30/2022** Project Number: **2019-001**
To: **To Whom It May Concern**
From: **Andrey Chernishov, PE**
RE: **Wynooski Street Hydrology Memo**

Overview

The proposed project is in Newberg, Oregon on Wynooski Street, south of East 7th Street. The improvements involve rehabilitating an existing storm system outfall into Hess Creek. This project was originally undertaken by students from George Fox University (GFU) who prepared a hydraulics report (Attachment A). This report analyzed the existing storm system's basin to determine flow conditions, pipe sizing, and the design of an energy dissipater for the outfall of the storm system into Hess Creek. HBH reviewed the stormwater hydraulics report prepared by the GFU students and made some modifications. The GFU report was not at full design, however the hydrological conditions from the report were interpreted and inputted to build a Hydrocad model to complete the design of the system (Attachment B).

Peak runoff rates will not be changed as a result of this project.

Applicable Rules and Standards

This model uses the Santa Barbara Urban Hydrograph (SBUH) method with a NRCS Type 1A rainfall distribution per City of Newberg Public Works Design & Construction Standards. The outfall is classified as a minor drainage system element, which the City requires a 25-year design storm of 4.0 inches to be used for analysis.

Existing Conditions and Methodology

The existing Wynooski Street basin drains east off the street via an 18" pipe. This pipe runs down a hill approximately 70' into an existing riprap pad that is in severe disrepair. There is an existing private lateral 15' south of this pad that drains into the existing riprap pad via surface flow. The outlet of this existing riprap pad is a 12" pipe that runs approximately 60' downhill before exiting into a large ditch that drains east into Hess Creek.

Catchment (1S) represents the existing basin of the outfall. This basin was compiled from sub-basin areas and curve numbers from the GFU hydraulics report. The GFU report calculated the peak flow for each sub-basin and summated these as the peak flow for the outfall, which overestimated the peak flow for the basin. A singular Time of Concentration (T_c) was calculated for the basin in place of individual sub-basin T_c's to provide a more accurate model of peak flows.

Proposed Conditions

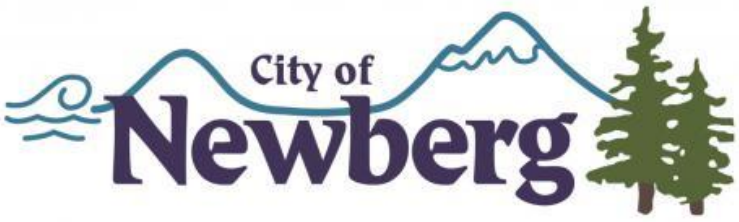
The proposed improvements entail replacing the existing storm conveyance system from the Hess Creek outfall into Wynooski Street (Attachment C). A new storm manhole in Wynooski Street will be used to tie into the existing storm system. The outlet of this manhole will be a new 15" pipe that drains east 86 LF into a new storm manhole that will be placed on the existing hillside, in place of the existing riprap pad. This manhole will also tie the existing private lateral via a new 12" pipe that connects to the existing lateral outfall. Water will exit the mid-hill storm manhole east via a new 15" pipe and flow east 144 LF before entering an energy dissipating manhole. This energy dissipating manhole's outlet is a new 24 LF, 24" pipe that exits into a new riprap basin. This riprap basin dissipates flow even further to reduce velocities to an acceptable speed before leaving the facility and draining via surface flow to Hess Creek. The ODOT Hydraulics Manual (CH-11) would require a concrete energy dissipater and a riprap pad, which was used in this design.

Hydrology

Analyses were performed in Hydrocad (inputs and outputs attached). The existing basin yields a peak flow rate 9.45 cfs at the 25-year storm event (4.00-inches over a 24-hr period). The dissipation manhole will decrease the flowrate significantly. The riprap basin will further decrease the velocity of the stormwater below 2 ft/sec prior to overflowing to the wetlands.

ATTACHMENT A

Wynooski Outfall Hydraulics Report



Josh Meyer, Jacob Bibb, John Hampton, Kristen Mock, Katelyn Smith
Advisors: Ben Guidice, PE, PhD, Neal Ninteman, Evan Eykelbosch, PE

Overview and Purpose:

The purpose of the Wynooski stormwater project is to provide a replacement design for the current stormwater outfall for the area. This report will show and explain the results of the upstream analysis for this outfall, which will yield a peak flow rate and the corresponding pipe sizes. In addition, it will further outline the sizing of the energy dissipator to be placed at the outfall of the pipe based on flow conditions, hydraulic behaviors, and given geometries. The analysis will be of the surrounding area under existing conditions and experiencing a Type 1A 25 year, 24 hour storm event.

Calculations and Methods:

TR-55:

The methodology used to find the peak flow through the outfall was the TR-55 calculation method as outlined in city code and guidelines. Basin areas and borders were based off of City of Newberg Lidar data, which was processed in AutoCAD Civil 3D to produce the aforementioned attributes. Soil characteristics and classifications were taken from the USDA soil survey site from its most recent data on Yamhill County.

Pipe Sizing:

In order to find proposed pipe sizes and evaluate existing pipe for flow capacity, a separate set of calculations using Manning's equation was implemented. Manning's n coefficient values were taken from City of Portland standards, and full pipe flow was assumed. The resulting capacities yielded sizing for the pipes that were to be added to the site, but more iterations were needed for analysis of existing pipes.

Further capacity calculations were needed to decide whether to replace the pipe running under Wynooski St. The required slope to allow the pipe to stay was calculated to be approximately 3.5%. Using a digital level, it was found that the existing pipe has a slope of about 3.7%. With such a small difference, flow calculations assuming overflow conditions into the corresponding manholes were used to give a more definitive result. These calculations used closed-conduit conditions and utilized the Darcy-Weisbach equations to model all the pipes and manholes through the outfall. If the water level in each manhole remained below 2 feet below the top of each manhole, the existing pipe would not be replaced.

Energy Dissipator Sizing:

Multiple references were used in the design of the dissipator. The first was a set of constraints set out by both City of Newberg code and the client/project lead, Public Works Director Jay Harris. These constraints included designing the dissipator as a rip-rap lined basin, an exit velocity of less than 2 ft/s to avoid erosion, the use of embedded rip-rap (Fig. 4), and a set side slope. The other major reference was chapter 11 of the ODOT Hydraulics Manual, which outlined several design processes.

The design process began with analysis of the hydraulic behavior a rip-rap lined basin is designed to create. The outlet section of the structure acts as a broad crested weir as the water pools up in the basin. The pipe outfall was placed high enough above the outlet to avoid too much submergence. The base of the outlet was expanded to larger than that of the basin in order to reduce the exit velocity below the maximum limit.

Since there is no earthen channel coming out of the dissipator, it was decided to extend the rip-rap beyond the weir and continuously fan out the width to further avoid channelizing the soil downstream from the weir.

Results and Conclusion:

The resulting peak flow was approximately **12.5 cfs**. Under both open channel and closed conduit conditions, the new pipes are sized at **12 inches** in diameter. The existing pipe under the road is to be kept since it fulfills the requirements of the project and complies with the city codes. The final dissipator design can be seen in Figure 4.

Appendices:

TR-55 Method

Table 1: TR-55 Method Results

Notes: See Figures 1-3 for LIDAR and GIS data
See Tables 2-5 for tc calculations

Sub-Basin	A Road (acres)	A Lot (acres)	CN Road	CN Lot	Atot (mi^2)	CNavg	S	Ia (in)	P (in)	Pe (in)	L (ft)	tc (hr)	Ia/P	qu (csm/in)	qp tr55 (cfs)
1	0.43	2.02	98	83	0.00383	86	1.678	0.336	4	2.51	300	0.095	0.084	160	1.538
2	0.2	1.03	98	83	0.00192	85	1.704	0.341	4	2.5	350	0.111	0.085	155	0.744
3	0.04	0.09	98	83	0.0002	88	1.414	0.283	4	2.69	100	0.026	0.071	165	0.089
4	0.63	2.9	98	83	0.00552	86	1.672	0.334	4	2.52	400	0.129	0.084	155	2.156
5	0.24	1.1	98	83	0.00209	86	1.67	0.334	4	2.52	250	0.191	0.084	160	0.843
6	0.34	0.13	98	83	0.00073	94	0.655	0.131	4	3.31	175	0.038	0.033	170	0.411
7	0.18	1.26	98	83	0.00225	85	1.782	0.356	4	2.45	375	0.190	0.089	160	0.882
8	0.16	2.01	98	83	0.00339	84	1.89	0.378	4	2.38	375	0.186	0.095	160	1.291
9	0.32	2.4	98	83	0.00425	85	1.797	0.359	4	2.44	375	0.119	0.090	165	1.711
10	0.21	1.16	98	83	0.00214	85	1.723	0.345	4	2.48	300	0.079	0.086	165	0.876
11	0.14	1.26	98	83	0.00284	81	2.322	0.464	4	2.13	325	0.112	0.116	155	0.938
12	0.05	1.34	98	83	0.00328	80	2.451	0.490	4	2.07	550	0.071	0.123	155	1.052
														Total Flow (cfs)	**12.53**

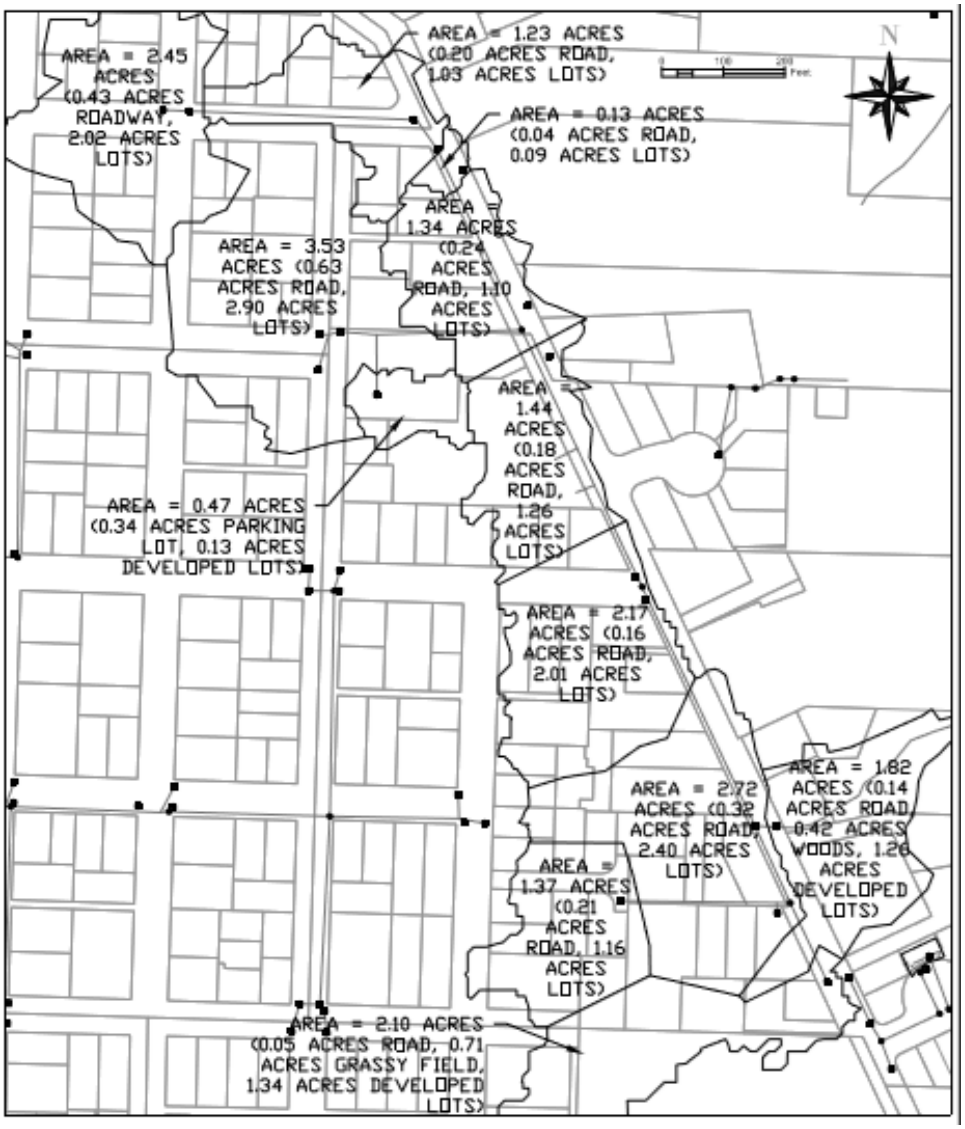


Figure 1: Map of Sub-Basins

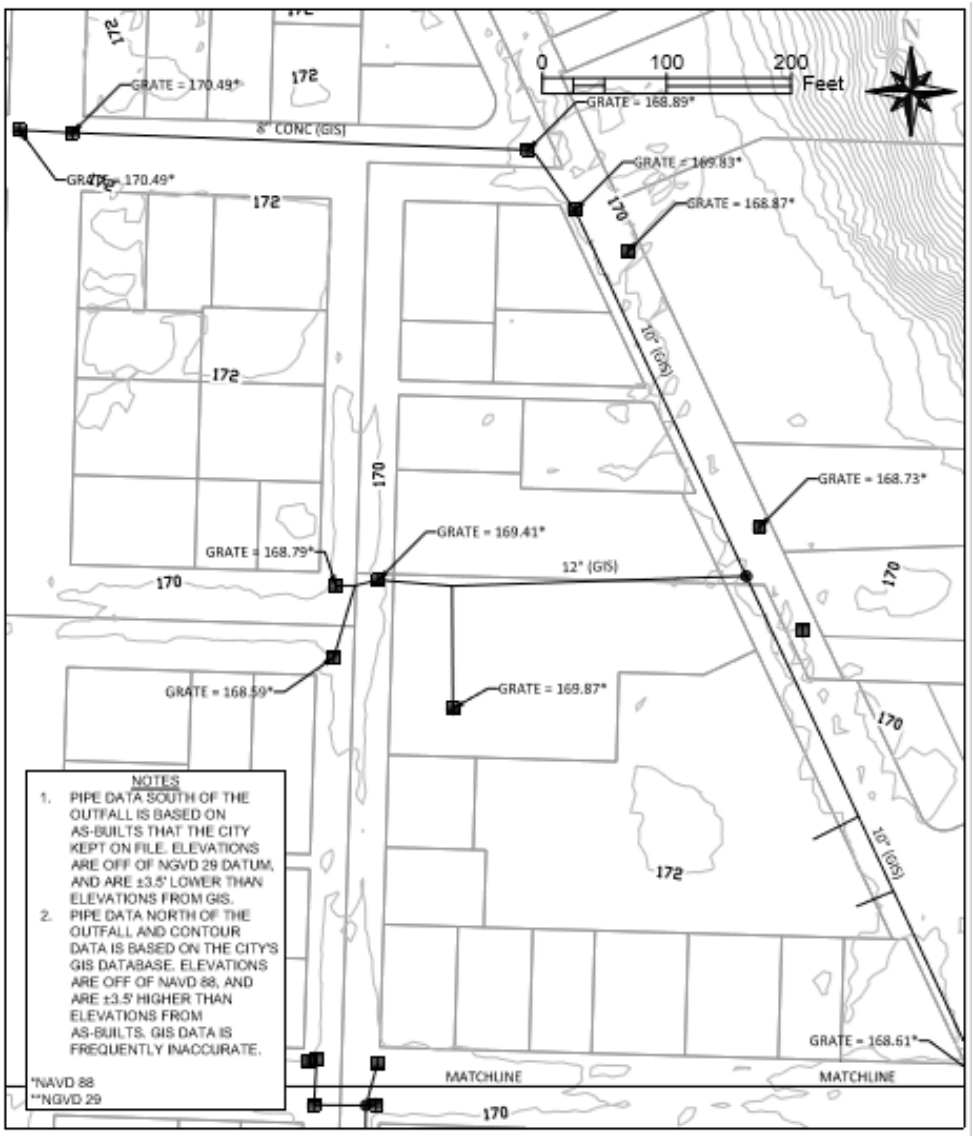


Figure 2: Pipe and Elevation Data 1:
Note: Map outlines sub-basins north of the project location.

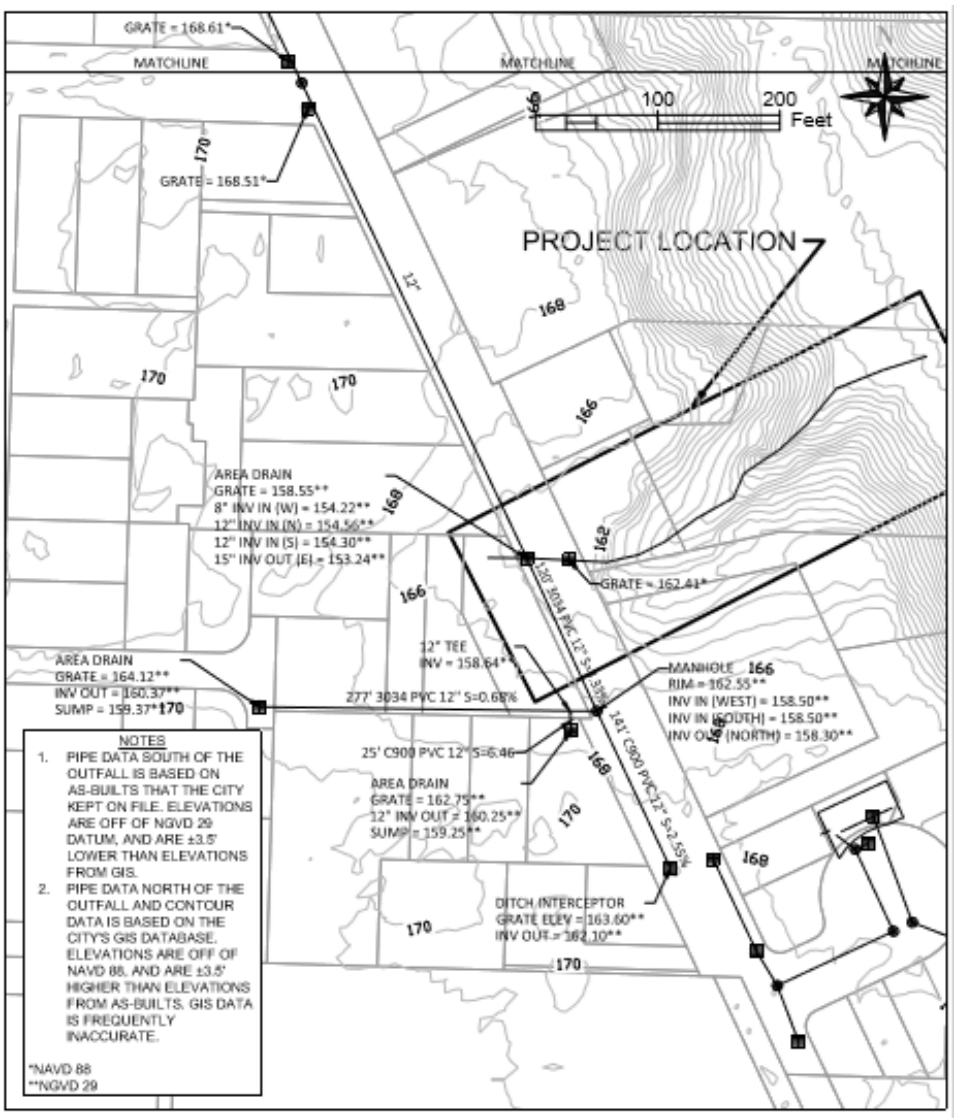


Figure 2: Pipe and Elevation Data 2:

Table 2: Time of Concentration Calculations (Sub-Basins 1-3)

	Sheet Flow		Shallow Concentrated Flow		Channel Flow	
SUB-BASIN 1	Surface Description	Paved	Surface Description		Cross sectional flow area, (ft^2)	0.349
	Manning's Roughness Coeff, n	0.011	Flow Length, L (ft)		Wetted Perimeter, (ft)	1.552
	Flow Length, L (total L<300ft)	300	Watercourse slope, s (ft/ft)		Hydraulic Radius, r (ft)	0.225
	2-yr 24-hr rainfall, P2 (in)	3	Average Velocity, V (ft/s)		Channel Slope, s (ft/ft)	0.004
	Land Slope, s (ft/ft)	0.0044			Manning's Roughness Coeff, n	0.017
					V (ft/s)	2.150
					Flow Length (ft)	25.0
	Tt (hr)	0.0920	Tt (hr)	0	Tt (hr)	0.003
					Tc (hr)	0.095
SUB-BASIN 2	Sheet Flow		Shallow Concentrated Flow		Channel Flow	
	Surface Description	Paved	Surface Description	Paved	Cross sectional flow area, (ft^2)	0.349
	Manning's Roughness Coeff, n	0.011	Flow Length, L (ft)	50	Wetted Perimeter, (ft)	1.552
	Flow Length, L (total L<300ft)	300	Watercourse slope, s (ft/ft)	0.0044	Hydraulic Radius, r (ft)	0.225
	2-yr 24-hr rainfall, P2 (in)	3	Average Velocity, V (ft/s)	1.45	Channel Slope, s (ft/ft)	0.004
	Land Slope, s (ft/ft)	0.0044			Manning's Roughness Coeff, n	0.017
					V (ft/s)	2.150
					Flow Length (ft)	75.0
	Tt	0.0920	Tt	0.00958	Tt	0.010
					Tc	0.111
SUB-BASIN 3	Sheet Flow		Shallow Concentrated Flow		Channel Flow	
	Surface Description	Paved	Surface Description		Cross sectional flow area, (ft^2)	0.5454
	Manning's Roughness Coeff, n	0.011	Flow Length, L (ft)		Wetted Perimeter, (ft)	1.9405
	Flow Length, L (total L<300ft)	100	Watercourse slope, s (ft/ft)		Hydraulic Radius, r (ft)	0.2811
	2-yr 24-hr rainfall, P2 (in)	3	Average Velocity, V (ft/s)		Channel Slope, s (ft/ft)	0.0044
	Land Slope, s (ft/ft)	0.0192			Manning's Roughness Coeff, n	0.01
					V (ft/s)	4.241
					Flow Length (ft)	75
	Tt	0.0212	Tt	0	Tt	0.005
					Tc	0.028

Table 3: Time of Concentration Calculations (Sub-Basins 4-6)

	Sheet Flow		Shallow Concentrated Flow		Channel Flow	
SUB-BASIN 4	Surface Description	Paved	Surface Description	Paved	Cross sectional flow area, (ft^2)	0.785
	Manning's Roughness Coeff, n	0.011	Flow Length, L (ft)	50	Wetted Perimeter, (ft)	2.329
	Flow Length, L (total L<300ft)	300	Watercourse slope, s (ft/ft)	0.272	Hydraulic Radius, r (ft)	0.337
	2-yr 24-hr rainfall, P2 (in)	3	Average Velocity, V (ft/s)	2.55	Channel Slope, s (ft/ft)	0.00272
	Land Slope, s (ft/ft)	0.00272			Manning's Roughness Coeff, n	0.011
					V (ft/s)	3.423
					Flow Length	150
	Tt	0.1116	Tt	0.00545	Tt	0.012
					Tc	0.129
SUB-BASIN 5	Sheet Flow		Shallow Concentrated Flow		Channel Flow	
	Surface Description	Paved	Surface Description	Paved	Cross sectional flow area, (ft^2)	0.545
	Manning's Roughness Coeff, n	0.011	Flow Length, L (ft)	0	Wetted Perimeter, (ft)	1.940
	Flow Length, L (total L<300ft)	250	Watercourse slope, s (ft/ft)	0.0044	Hydraulic Radius, r (ft)	0.281
	2-yr 24-hr rainfall, P2 (in)	3	Average Velocity, V (ft/s)	1.45	Channel Slope, s (ft/ft)	0.001
	Land Slope, s (ft/ft)	0.000579			Manning's Roughness Coeff, n	0.011
					V (ft/s)	1.399
					Flow Length	62.000
	Tt	0.1790	Tt	0.00000	Tt	0.012
					Tc	0.191
SUB-BASIN 6	Sheet Flow		Shallow Concentrated Flow		Channel Flow	
	Surface Description	Paved	Surface Description	Paved	Cross sectional flow area, (ft^2)	0.349
	Manning's Roughness Coeff, n	0.011	Flow Length, L (ft)	0	Wetted Perimeter, (ft)	1.552
	Flow Length, L (total L<300ft)	175	Watercourse slope, s (ft/ft)	0.0044	Hydraulic Radius, r (ft)	0.225
	2-yr 24-hr rainfall, P2 (in)	3	Average Velocity, V (ft/s)	1.45	Channel Slope, s (ft/ft)	0.015
	Land Slope, s (ft/ft)	0.0152			Manning's Roughness Coeff, n	0.011
					V (ft/s)	6.175
					Flow Length	38.000
	Tt	0.0364	Tt	0.00000	Tt	0.002
					Tc	0.038

Table 4: Time of Concentration Calculations (Sub-Basins 7-9)

	Sheet Flow		Shallow Concentrated Flow		Channel Flow	
SUB-BASIN 7	Surface Description	Paved	Surface Description	Paved	Cross sectional flow area, (ft^2)	0.545
	Manning's Roughness Coeff, n	0.011	Flow Length, L (ft)	75	Wetted Perimeter, (ft)	1.940
	Flow Length, L (total L<300ft)	300	Watercourse slope, s (ft/ft)	0.00157	Hydraulic Radius, r (ft)	0.281
	2-yr 24-hr rainfall, P2 (in)	3	Average Velocity, V (ft/s)	1.42	Channel Slope, s (ft/ft)	0.00157
	Land Slope, s (ft/ft)	0.00157			Manning's Roughness Coeff, n	0.011
					V (ft/s)	2.303
					Flow Length	300
	Tt	0.1390	Tt	0.01467	Tt	0.036
					Tc	0.190
SUB-BASIN 8	Sheet Flow		Shallow Concentrated Flow		Channel Flow	
	Surface Description	Paved	Surface Description	Paved	Cross sectional flow area, (ft^2)	0.785
	Manning's Roughness Coeff, n	0.011	Flow Length, L (ft)	75	Wetted Perimeter, (ft)	2.329
	Flow Length, L (total L<300ft)	300	Watercourse slope, s (ft/ft)	0.00124	Hydraulic Radius, r (ft)	0.337
	2-yr 24-hr rainfall, P2 (in)	3	Average Velocity, V (ft/s)	1.4	Channel Slope, s (ft/ft)	0.00124
	Land Slope, s (ft/ft)	0.00124			Manning's Roughness Coeff, n	0.011
					V (ft/s)	2.311
					Flow Length	150
	Tt	0.1527	Tt	0.01488	Tt	0.018
					Tc	0.186
SUB-BASIN 9	Sheet Flow		Shallow Concentrated Flow		Channel Flow	
	Surface Description	Paved	Surface Description	Paved	Cross sectional flow area, (ft^2)	0.785
	Manning's Roughness Coeff, n	0.011	Flow Length, L (ft)	75	Wetted Perimeter, (ft)	2.329
	Flow Length, L (total L<300ft)	300	Watercourse slope, s (ft/ft)	0.0033	Hydraulic Radius, r (ft)	0.337
	2-yr 24-hr rainfall, P2 (in)	3	Average Velocity, V (ft/s)	1.45	Channel Slope, s (ft/ft)	0.0033
	Land Slope, s (ft/ft)	0.0033			Manning's Roughness Coeff, n	0.011
					V (ft/s)	3.770
					Flow Length	25
	Tt	0.1033	Tt	0.01437	Tt	0.002
					Tc	0.119

Table 5: Time of Concentration Calculations (Sub-Basins 10-12)

	Sheet Flow		Shallow Concentrated Flow		Channel Flow	
SUB-BASIN 10	Surface Description	Paved	Surface Description	Paved	Cross sectional flow area, (ft^2)	0.785
	Manning's Roughness Coeff, n	0.011	Flow Length, L (ft)	0	Wetted Perimeter, (ft)	2.329
	Flow Length, L (total L<300ft)	300	Watercourse slope, s (ft/ft)	0.0068	Hydraulic Radius, r (ft)	0.337
	2-yr 24-hr rainfall, P2 (in)	3	Average Velocity, V (ft/s)	2.55	Channel Slope, s (ft/ft)	0.0068
	Land Slope, s (ft/ft)	0.0068			Manning's Roughness Coeff, n	0.011
					V (ft/s)	5.412
					Flow Length	38
	Tt	0.0773	Tt	0.00000	Tt	0.002
					Tc	0.079
SUB-BASIN 11	Sheet Flow		Shallow Concentrated Flow		Channel Flow	
	Surface Description	Paved	Surface Description	Paved	Cross sectional flow area, (ft^2)	0.785
	Manning's Roughness Coeff, n	0.011	Flow Length, L (ft)	25	Wetted Perimeter, (ft)	2.329
	Flow Length, L (total L<300ft)	300	Watercourse slope, s (ft/ft)	0.0033	Hydraulic Radius, r (ft)	0.337
	2-yr 24-hr rainfall, P2 (in)	3	Average Velocity, V (ft/s)	1.45	Channel Slope, s (ft/ft)	0.0033
	Land Slope, s (ft/ft)	0.0033			Manning's Roughness Coeff, n	0.011
					V (ft/s)	3.770
					Flow Length	50
	Tt	0.1033	Tt	0.00479	Tt	0.004
					Tc	0.112
SUB-BASIN 12	Sheet Flow		Shallow Concentrated Flow		Channel Flow	
	Surface Description	Paved	Surface Description	Paved	Cross sectional flow area, (ft^2)	0.785
	Manning's Roughness Coeff, n (for	0.011	Flow Length, L (ft)	230	Wetted Perimeter, (ft)	2.329
	Flow Length, L (total L<300ft)	300	Watercourse slope, s (ft/ft)	0.0233	Hydraulic Radius, r (ft)	0.337
	2-yr 24-hr rainfall, P2 (in)	3	Average Velocity, V (ft/s)	2.85	Channel Slope, s (ft/ft)	0.0233
	Land Slope, s (ft/ft)	0.0233			Manning's Roughness Coeff, n	0.011
					V (ft/s)	10.018
					Flow Length	50
	Tt	0.0473	Tt	0.02242	Tt	0.001
					Tc	0.071

Sample Calculations:

* All calcs for Sub-Basin 1

- Average Curve Number, CN_{avg}

$$CN_{avg} = \frac{CN_r A_r + CN_L A_L}{A_{tot}} = \frac{98(.43\,acre) + 83(2.02\,acre)}{2.43\,acre}$$

$CN_{avg} \approx 86$

- S

$$S = \frac{1000}{CN} - 10 = \frac{1000}{86} - 10$$

$S = 1.68$

- Initial Abstraction, I_a

$$I_a = 0.2(S) = 0.2(1.68)$$

$I_a = 0.336\,in$

- Runoff, P_e

$$P_e = \frac{(P - 0.2S)^2}{(P + 0.8S)} = \frac{(4in - 0.336in)^2}{(4in + 0.8(1.68))}$$

$P_e = 2.51\,in$

- Time of Concentration, T_c

  - Sheet Flow Travel Time, T_{t_1}

$$T_{t_1} = \frac{0.007(nL)^{.8}}{(P_2)^{.5} S^{.4}} = \frac{.007((.011)(300ft))^{.8}}{(3in)^{.5}(.0044ft/ft)^{.4}}$$

$T_{t_1} = 0.092\,hr$

  - Shallow Concentrated Flow Travel Time, T_{t_2}

    * Length to nearest catch basin used, $T_{t_2} = 0\,hr$

  - Channel Flow Travel Time, T_{t_2}

    * Manning's Equation, V

$$V = \frac{1.49}{n} R_h^{2/3} S_0^{1/2} = \frac{1.49}{.017}(.225ft)^{2/3}(.004ft/ft)^{1/2}$$

$V = 2.15\,ft/s$

$$T_{t_2} = \frac{L}{V} = \frac{25ft}{(2.15ft/s \cdot \frac{3600s}{1hr})}$$

$T_{t_2} = 0.003\,hr$

$T_c = T_{t_1} + T_{t_2} + T_{t_3} = 0.092hr + 0hr + .003\,hr$

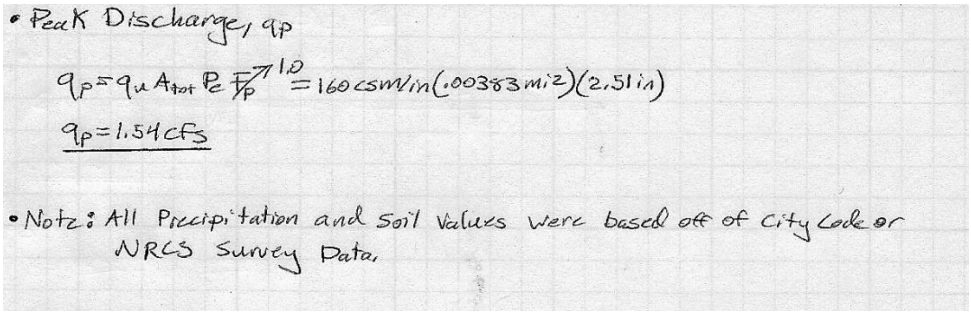
$T_c = 0.095\,hr$

- Unit Peak Discharge, q_u

  * Use Graph 4-IA in the HydroCAD TR-55 manual

$$-\frac{I_a}{P} = \frac{0.336in}{4in} = 0.084$$

$q_u = 160\,csm/in$



Open Channel Analysis (Manning's Equation):

Table 6: Pipe Capacities under Open Channel Conditions

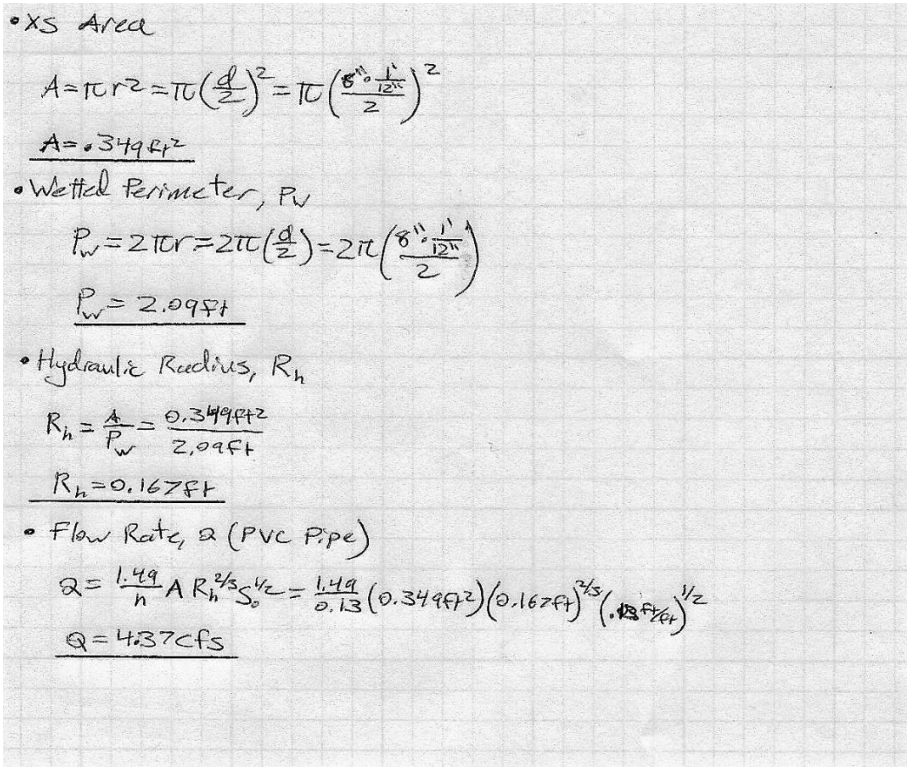
Notes: Slope and roughness coefficient inputs found in Table 7.
Calculations assume full pipe flow.

Pipe Diameter (in)	XS Area (ft^2)	Pw (ft)	Rh (ft)	Q Concrete (cfs)	Q PVC (cfs)
8	0.349	2.094	0.167	3.34	4.37
10	0.545	2.618	0.208	6.06	7.92
12	0.785	3.142	0.250	9.85	12.88
14	1.069	3.665	0.292	14.86	19.43
15	1.227	3.927	0.313	17.86	23.35
16	1.396	4.189	0.333	21.21	27.74
18	1.767	4.712	0.375	29.04	37.98
20	2.182	5.236	0.417	38.46	50.30
24	3.142	6.283	0.500	62.54	81.79

Table 7: Pipe Slope and Roughness Coefficients

Slope, S0	0.13
n (concrete)	0.017
n (old PVC)	0.013

Sample Calculations:



- XS Area

$$A = \pi r^2 = \pi\left(\frac{d}{2}\right)^2 = \pi\left(\frac{8'' \cdot \frac{1'}{12''}}{2}\right)^2$$

$A = .349\,ft^2$

- Wetted Perimeter, P_w

$$P_w = 2\pi r = 2\pi\left(\frac{d}{2}\right) = 2\pi\left(\frac{8'' \cdot \frac{1'}{12''}}{2}\right)$$

$P_w = 2.09\,ft$

- Hydraulic Radius, R_h

$$R_h = \frac{A}{P_w} = \frac{0.349\,ft^2}{2.09\,ft}$$

$R_h = 0.167\,ft$

- Flow Rate, Q (PVC Pipe)

$$Q = \frac{1.49}{n} A R_h^{2/3} S_o^{1/2} = \frac{1.49}{0.13}(0.349\,ft^2)(0.167\,ft)^{2/3}\left(.13\,\frac{ft}{ft}\right)^{1/2}$$

$Q = 4.37\,cfs$

Closed Channel Analysis (Darcy-Weisbach)

Table 8: Water Level Elevation Model

Notes: Flow, Viscosity, and Roughness Coefficient inputs from Table 9
Assume closed conduit flow

Western catchbasin		Pipe		MH at roadway		Pipe		MH #2		Pipe		Outfall	
Rim elevation	162.19	Diameter (in)	15	Rim elevation	162.89	Diameter (in)	12	Rim elevation	156.52	Diameter (in)	12	Elevation	122.8
Upstream invert	N/A	Length (ft)	33.2	Upstream invert	155.248	Length (ft)	56.9	Upstream invert	145	Length (ft)	211.3		
Downstream invert	156.41	Slope	3.50%	Downstream inve	155.048	Slope	17.66%	Downstream inve	144.8	Slope	10.41%		
Water elevation	158.39	Rel. roughness (f	0.0003333	Water elevation	154.70	Rel. roughness (f	0.0004166	Water elevation	142.83	Rel. roughness (f	0.0004166		
2 ft below rim?	Yes	Reynolds numbe	1054443	2 ft below rim?	Yes	Reynolds numbe	1318053	2 ft below rim?	Yes	Reynolds numbe	1318053		
CB depth	5.78	Friction factor	0.0170	MH depth	7.842	Friction factor	0.0170	MH depth	11.72	Friction factor	0.0170		
		Major losses (ft)	0.727			Major losses (ft)	3.805			Major losses (ft)	14.129		
		Minor loss coeffic	0.5			Minor loss coeffic	0.5			Minor loss coeffic	0.5		
		v^2/2g (ft)	1.61			v^2/2g (ft)	3.93			v^2/2g (ft)	3.93		
		Minor losses (ft)	0.81			Minor losses (ft)	1.97			Minor losses (ft)	1.97		
		Flow type	CLOSED			Flow type	OPEN			Flow type	OPEN		

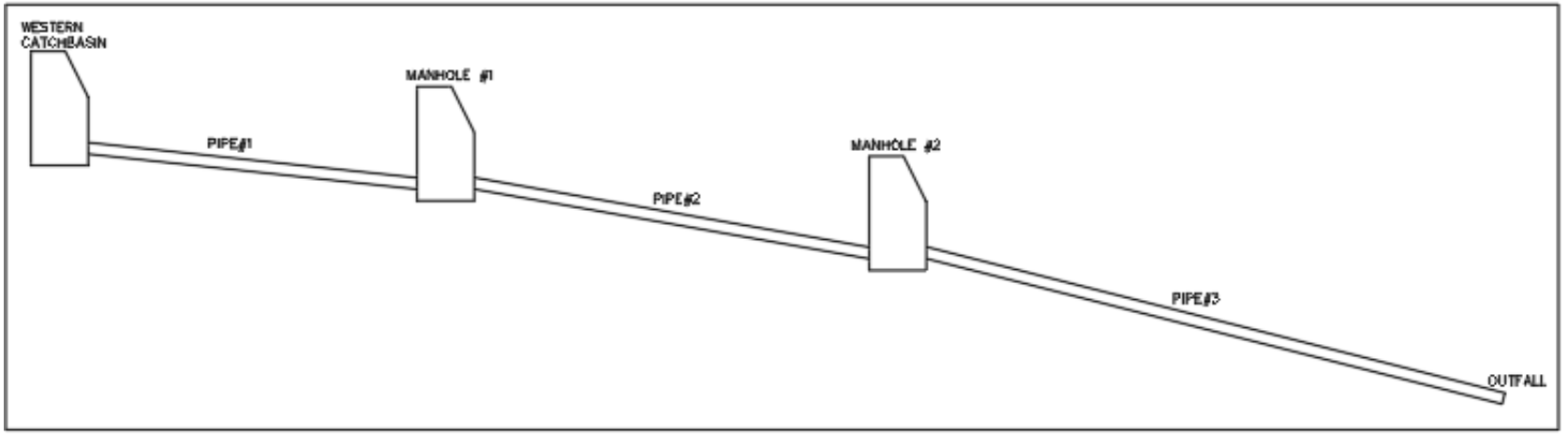


FIGURE 4: MODEL OF ANALYZED LAYOUT
NOTES:
NO SCALE.
ALL DIMENSIONS ARE IN TABLE 8.

Table 9: Flow, Viscosity, and Roughness Coefficient

Notes: Sources of values included within the table instead of text.

Flow rate (CFS)	12.5	Source: Upstream analysis of Wynooski St. basins, GFU Senior Design Team 2019
Dynamic viscosity (ft^2/s)	0.0000121	Kinematic viscosity of water at 60 degrees F, EngineeringToolbox.com
PVC roughness (ft)	0.0004167	Source: Absolute roughness value for old PVC pipe, Water Resources textbook
Note: Darcy-Weisbach friction factors are taken from the Moody chart, based on the Reynolds number and relative roughness shown in the spreadsheet below.		

Sample Calculations:

Given

Outfall elev = 122.8
MH#2 rim elev = 151.99
MH#2 downstream invert = 143.8
Pipe diameter = 12 in
Pipe length = 183.3 ft
Pipe slope = 11.5%
Relative roughness = 0.000417
Q = 12.5 CFS
Dynamic viscosity of water = $1.21*10^{-5}$ ft^2/s

Find

Is pipe between MH#2 and outfall sized appropriately?

Solution

Closed-conduit flow analysis. Use Darcy-Weisbach equation.

Reynolds number: $Re = \frac{\left(\frac{Q}{A}\right)*D}{Dyn.viscosity} = \frac{\left(\frac{12.5\ CFS}{\pi(1ft)^2/4}\right)*1\ ft}{1.21*10^{-5}ft^2/s} = 1{,}320{,}000$

Friction factor: At Re = 1,320,000 and relative roughness = 0.000417, f = 0.017

Major head losses: $h_l = f * \frac{L}{D} * \frac{\left(\frac{Q}{A}\right)^2}{2g} = 0.017 * \frac{183.3\ ft}{1\ ft} * \frac{\left(\frac{12.5\ CFS}{\frac{\pi(1ft)^2}{4}}\right)^2}{2*32.2\frac{ft}{s^2}} = 12.3\ ft$

Minor head losses: $h_m = K * \frac{\left(\frac{Q}{A}\right)^2}{2g} = 0.5 * \frac{\left(\frac{12.5\ CFS}{\frac{\pi(1ft)^2}{4}}\right)^2}{2*32.2\frac{ft}{s^2}} = 1.97\ ft$

Conservation of Energy Equation to find water elevation in MH#2:

$$z_{MH\#2} = z_{outfall} + h_l + h_m + \frac{\left(\frac{Q}{A}\right)^2}{2g} = 122.8 + 12.3 + 2.0 + \frac{\left(\frac{12.5\ CFS}{\frac{\pi(1ft)^2}{4}}\right)^2}{2*32.2\frac{ft}{s^2}} = 141.0$$

Note:

The water elevation using the Conservation of Energy equation is 141.0 ft, well below the invert elevation of 143.8 ft. This means that the pipe is not in closed-conduit flow, but rather open-channel flow. Pipe is appropriately sized.

Dissipator Sizing and Hydraulics:

Table 10: Dissipator Dimension Values

Dissipator Dimensions	
Basin Base Width (ft)	3
Wier Base Length (ft)	4
Basin Base Length (ft)	4
Wier Base Length (ft)	4
Sides Slope (Horiz:Vert)	1.5:1
Basin Depth from Wier (ft)	1.5
Outfall invert to Basin Base (ft)	1
Wier Depth (ft)	2.5

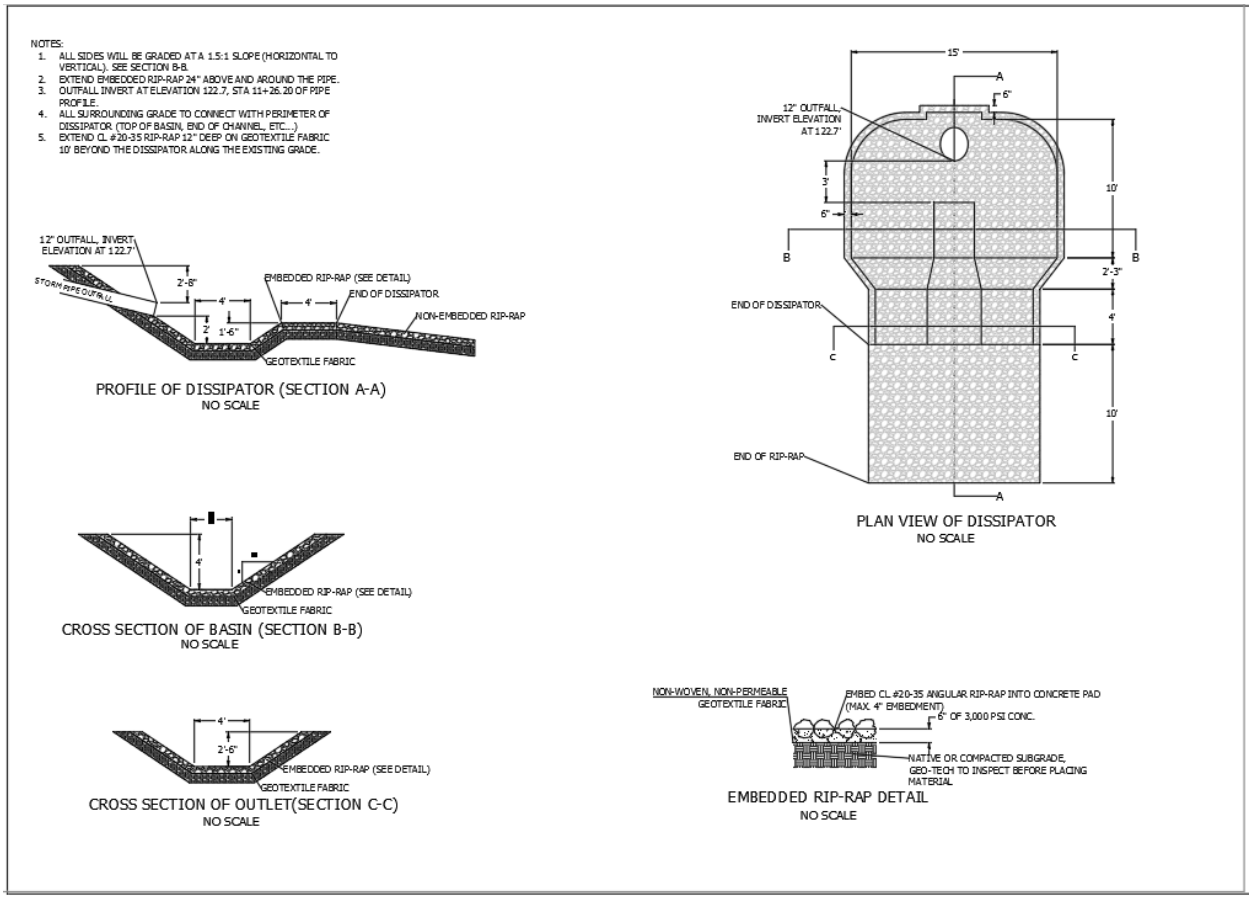
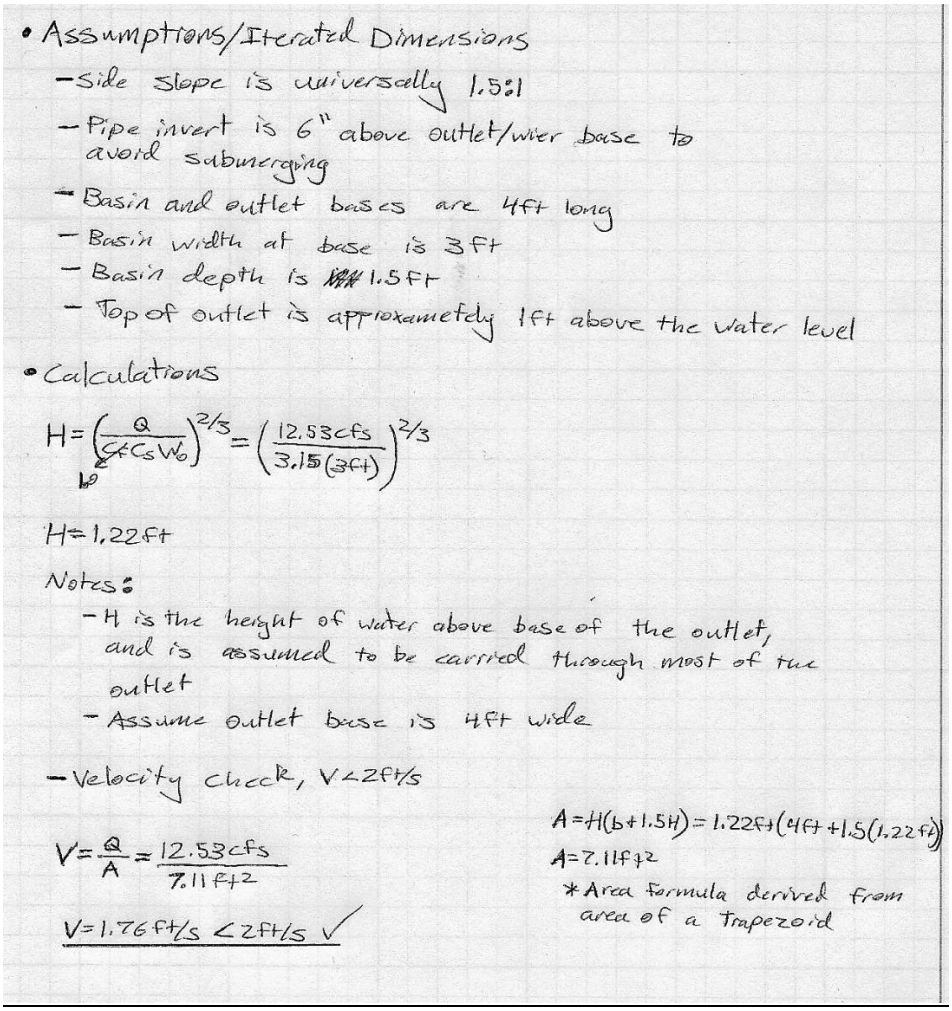


Figure 5: Dissipator Detail

Notes: Detail is from the current plan set (April 29).

Sample Calculations and Assumptions:



- Assumptions/Iterated Dimensions
  - Side slope is universally 1.5:1
  - Pipe invert is 6" above outlet/weir base to avoid submerging
  - Basin and outlet bases are 4ft long
  - Basin width at base is 3ft
  - Basin depth is 1.5ft
  - Top of outlet is approximately 1ft above the water level
- Calculations

$$H=\left(\frac{Q}{C_f C_s W_b}\right)^{2/3}=\left(\frac{12.53\,cfs}{3.15(3ft)}\right)^{2/3}$$

$H=1.22ft$

Notes:
- H is the height of water above base of the outlet, and is assumed to be carried through most of the outlet
- Assume outlet base is 4ft wide

- Velocity check, $V<2ft/s$

$$V=\frac{Q}{A}=\frac{12.53\,cfs}{7.11\,ft^2}$$

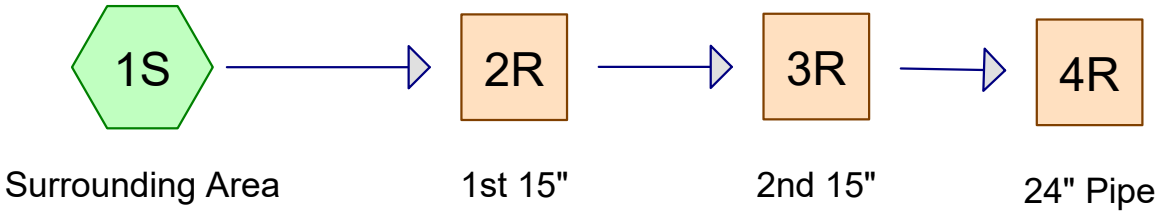
$V=1.76ft/s<2ft/s$ ✓

$A=H(b+1.5H)=1.22ft(4ft+1.5(1.22ft))$

$A=7.11ft^2$

*Area formula derived from area of a trapezoid

ATTACHMENT B



Subcat Reach Pond Link

Routing Diagram for Wynooski St Outfall
Prepared by HBH Consulting Engineers, Printed 1/30/2020
HydroCAD® 10.00-22 s/n 01354 © 2018 HydroCAD Software Solutions LLC

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Surrounding Area Runoff Area=20.770 ac 0.00% Impervious Runoff Depth=2.37"
Flow Length=2,023' Tc=22.6 min CN=84/0 Runoff=9.46 cfs 4.104 af

Reach 2R: 1st 15" Avg. Flow Depth=0.56' Max Vel=17.69 fps Inflow=9.46 cfs 4.104 af
15.0" Round Pipe n=0.012 L=86.4' S=0.1058 '/' Capacity=22.76 cfs Outflow=9.46 cfs 4.104 af

Reach 3R: 2nd 15" Avg. Flow Depth=0.51' Max Vel=20.21 fps Inflow=9.46 cfs 4.104 af
15.0" Round Pipe n=0.012 L=143.7' S=0.1518 '/' Capacity=27.27 cfs Outflow=9.46 cfs 4.104 af

Reach 4R: 24" Pipe Avg. Flow Depth=1.06' Max Vel=5.61 fps Inflow=9.46 cfs 4.104 af
24.0" Round Pipe n=0.012 L=24.3' S=0.0049 '/' Capacity=17.22 cfs Outflow=9.45 cfs 4.104 af

Summary for Subcatchment 1S: Surrounding Area

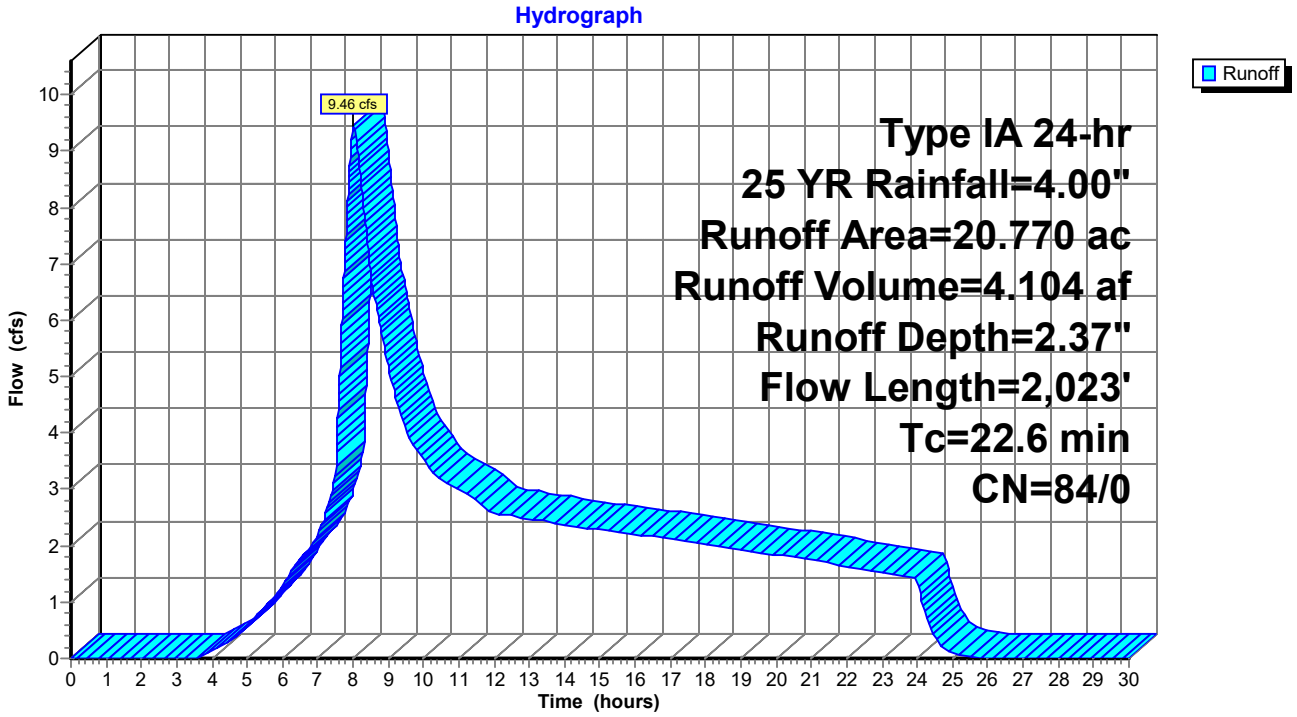
Runoff = 9.46 cfs @ 8.01 hrs, Volume= 4.104 af, Depth= 2.37"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 YR Rainfall=4.00"

	Area (ac)	CN	Description
*	2.450	86	
*	1.230	85	
*	0.130	88	
*	3.530	86	
*	1.340	86	
*	0.470	94	
*	1.440	85	
*	2.170	84	
*	2.720	85	
*	1.370	85	
*	1.820	83	
*	2.100	76	
	20.770	84	Weighted Average
	20.770	84	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	300	0.0044	0.91		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 3.00"
0.4	43	0.0040	1.67	0.58	**Pipe Channel, E 5th #1** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.017
3.6	364	0.0040	1.67	0.58	**Pipe Channel, E 5th #2** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.017
0.4	61	0.0044	2.89	1.57	**Pipe Channel, Wynooski St #1** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012
3.9	325	0.0010	1.38	0.75	**Pipe Channel, Wynooski St #2** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012
4.5	473	0.0016	1.74	0.95	**Pipe Channel, Wynooski St #3** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012
4.1	422	0.0012	1.70	1.34	**Pipe Channel, Wynooski St #4** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.2	35	0.0033	3.28	4.02	**Pipe Channel, Wynooski St #5** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
22.6	2,023	Total			

Subcatchment 1S: Surrounding Area



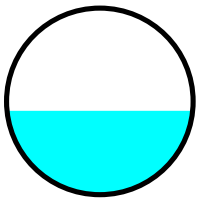
Summary for Reach 2R: 1st 15"

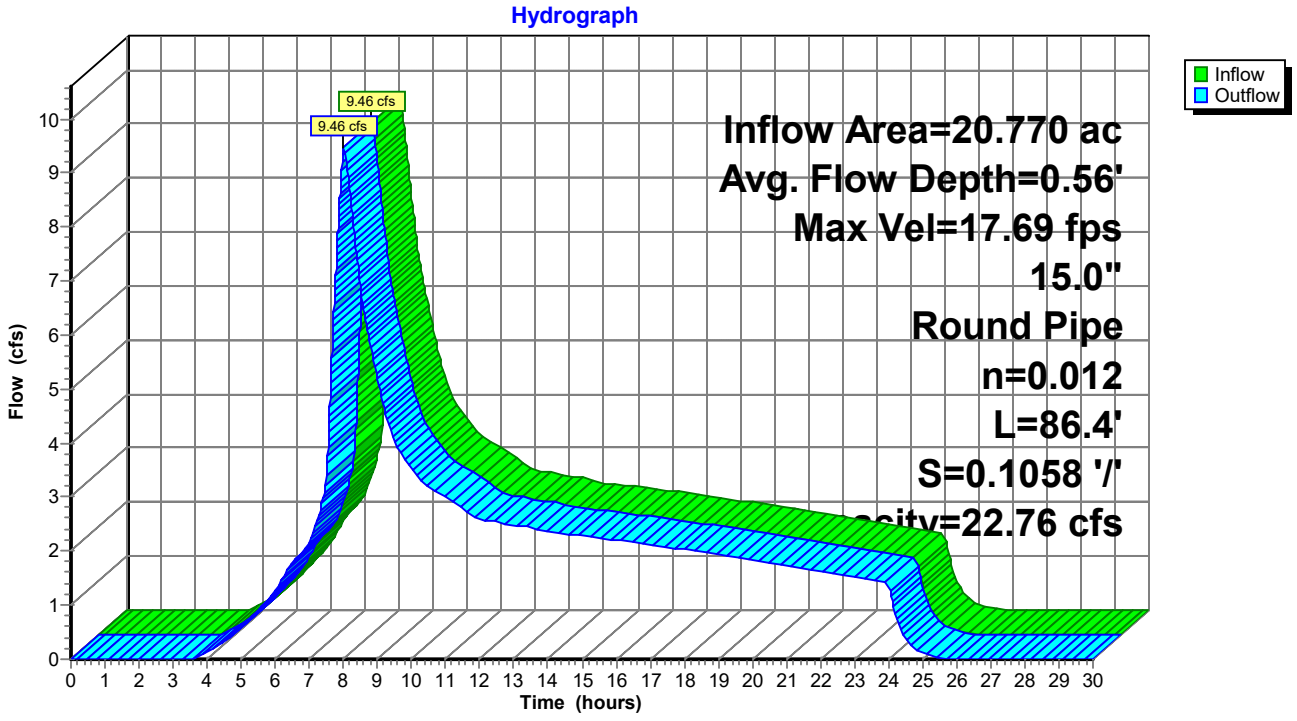
Inflow Area = 20.770 ac, 0.00% Impervious, Inflow Depth = 2.37" for 25 YR event
Inflow = 9.46 cfs @ 8.01 hrs, Volume= 4.104 af
Outflow = 9.46 cfs @ 8.01 hrs, Volume= 4.104 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 17.69 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 10.36 fps, Avg. Travel Time= 0.1 min

Peak Storage= 46 cf @ 8.01 hrs
Average Depth at Peak Storage= 0.56'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 22.76 cfs

15.0" Round Pipe
n= 0.012
Length= 86.4' Slope= 0.1058 '/'
Inlet Invert= 153.14', Outlet Invert= 144.00'





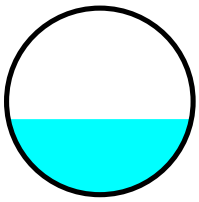
Summary for Reach 3R: 2nd 15"

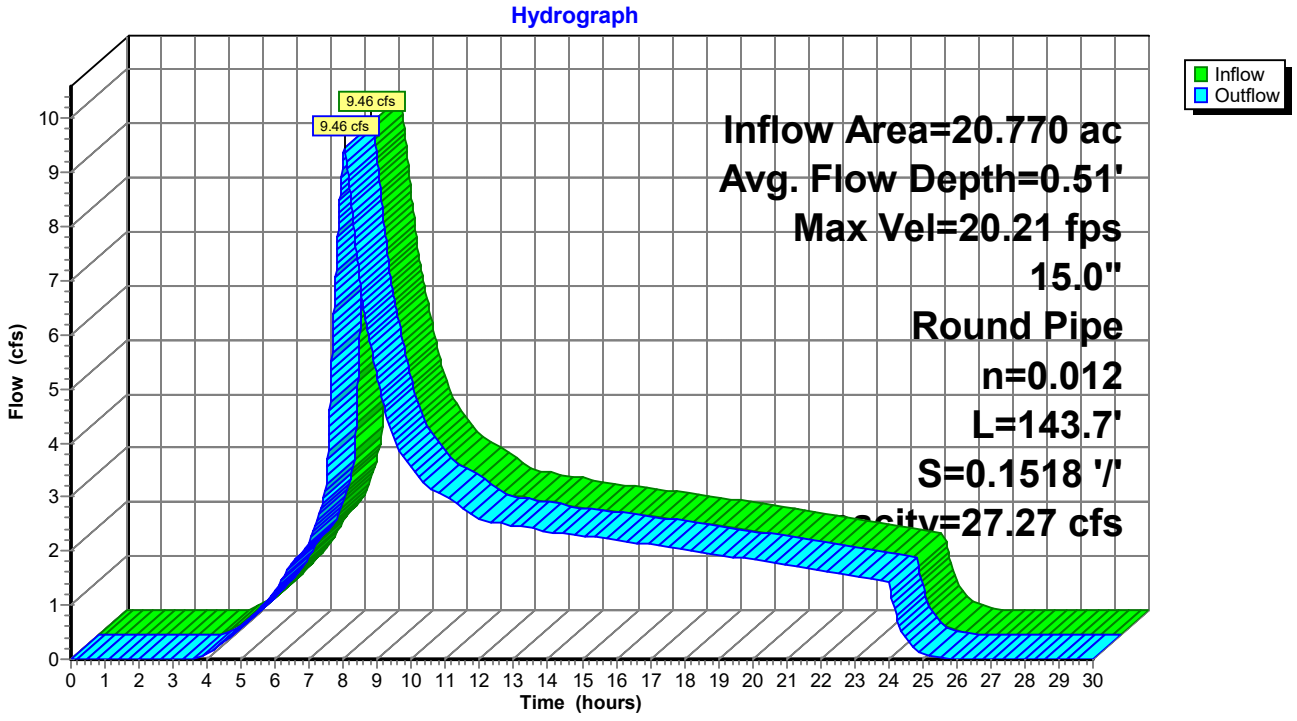
Inflow Area = 20.770 ac, 0.00% Impervious, Inflow Depth = 2.37" for 25 YR event
Inflow = 9.46 cfs @ 8.01 hrs, Volume= 4.104 af
Outflow = 9.46 cfs @ 8.01 hrs, Volume= 4.104 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 20.21 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 11.80 fps, Avg. Travel Time= 0.2 min

Peak Storage= 67 cf @ 8.01 hrs
Average Depth at Peak Storage= 0.51'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 27.27 cfs

15.0" Round Pipe
n= 0.012
Length= 143.7' Slope= 0.1518 '/'
Inlet Invert= 143.80', Outlet Invert= 121.98'





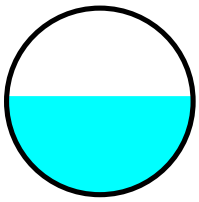
Summary for Reach 4R: 24" Pipe

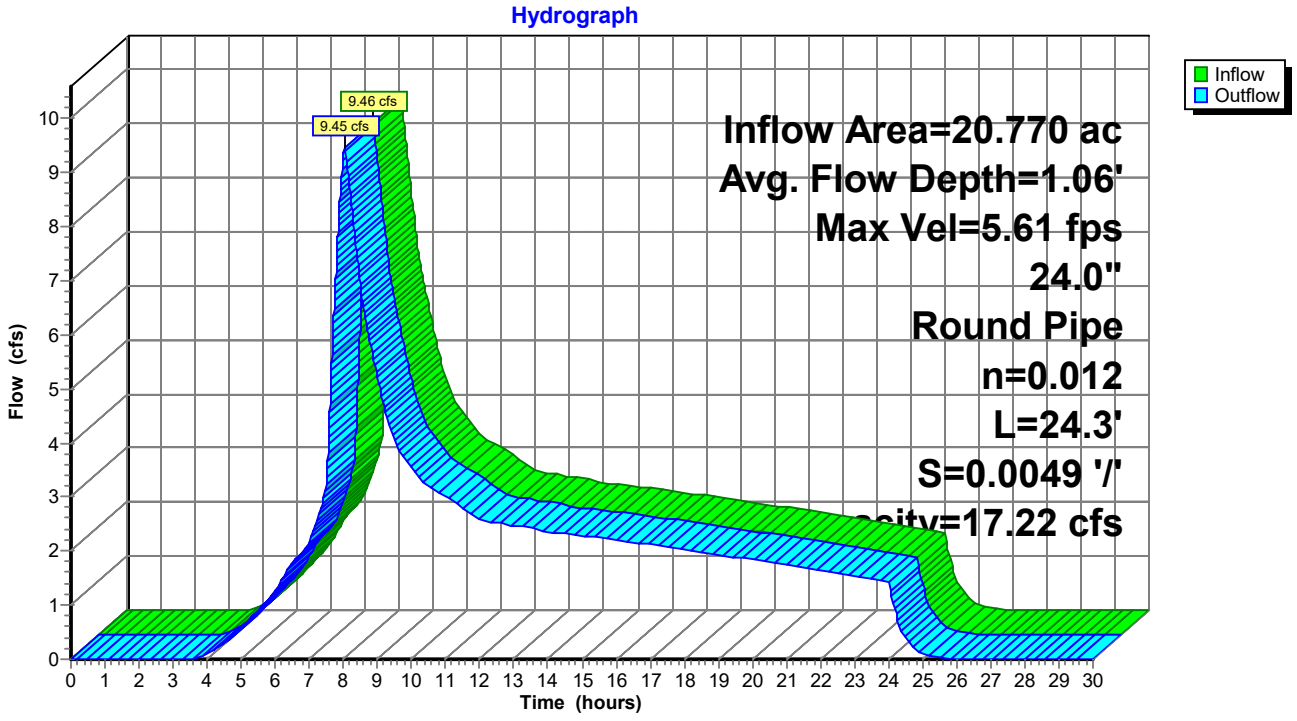
Inflow Area = 20.770 ac, 0.00% Impervious, Inflow Depth = 2.37" for 25 YR event
Inflow = 9.46 cfs @ 8.01 hrs, Volume= 4.104 af
Outflow = 9.45 cfs @ 8.02 hrs, Volume= 4.104 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.61 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.26 fps, Avg. Travel Time= 0.1 min

Peak Storage= 41 cf @ 8.02 hrs
Average Depth at Peak Storage= 1.06'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 17.22 cfs

24.0" Round Pipe
n= 0.012
Length= 24.3' Slope= 0.0049 '/'
Inlet Invert= 121.78', Outlet Invert= 121.66'





WYNOOSKI STORMWATER OUTFALL REDESIGN

CONSTRUCTION PLANS

ATTACHMENT C

LOCATE

(48 HOUR NOTICE PRIOR TO EXCAVATION)

OREGON LAW REQUIRES YOU TO FOLLOW THE RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH 952-001-0090 & ORS 757.542 THROUGH 757.562 AND ORS 757.993. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER AT (800) 332-2344 OR (503) 232-1987. IF YOU HAVE ANY QUESTION ABOUT THE RULES, YOU MAY CONTACT THE CENTER. YOU MUST NOTIFY THE CENTER AT LEAST TWO BUSINESS DAYS BEFORE CONVINCING ANY EXCAVATION. CALL 503-246-6699.

ONE CALL SYSTEM NUMBER 1-800-332-2344.

REPAIR EMERGENCIES

NORTHWEST NATURAL GAS	- 800-882-3377
VERIZON	- 800-483-2000
PORTLAND GENERAL ELECTRIC	- 503-542-8818
CLEANWATER SERVICES	- 503-681-3600 OR 503-547-8100
COMCAST	- 503-605-4884

THE CONTRACTOR, IN LOCATION AND PROTECTING UNDERGROUND UTILITIES, MUST COMPLY WITH THE REGULATIONS OF O.R.S. 757.541 TO 757.571.

NOTE:

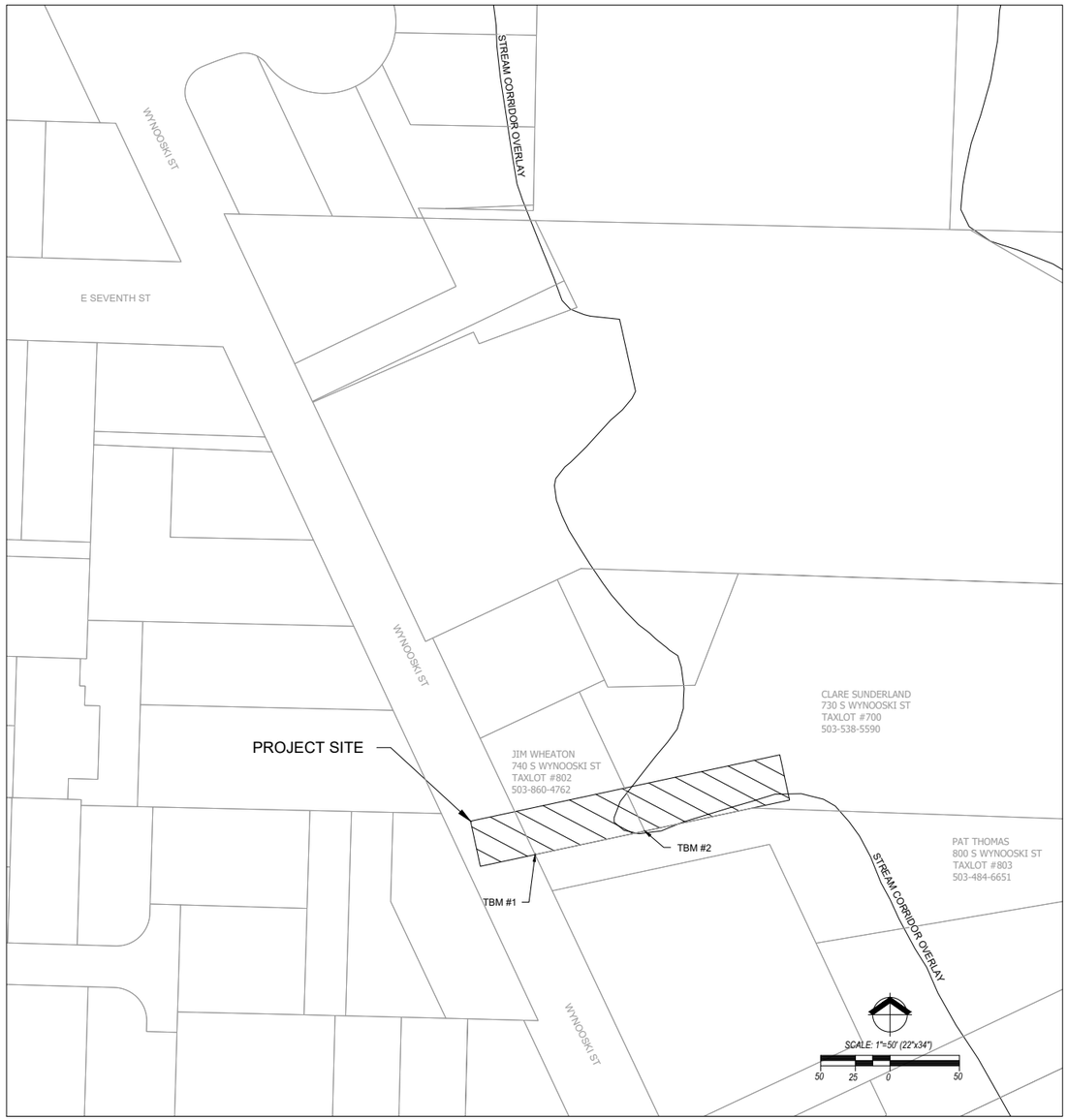
THIS DESIGN COMPLIES WITH ORS 92.044 (7) IN THAT NO UTILITY INFRASTRUCTURE IS DESIGNED TO BE WITHIN ONE FOOT OF A SURVEY MONUMENT LOCATION SHOWN ON A SUBDIVISION OR PARTITION PLAT. NO DESIGN MODIFICATION NOR FINAL FIELD LOCATION CHANGE SHALL BE PERMITTED IF IT WOULD CAUSE ANY UTILITY INFRASTRUCTURE TO BE PLACED WITHIN THE PROHIBITED AREA.

BASIS OF BEARINGS

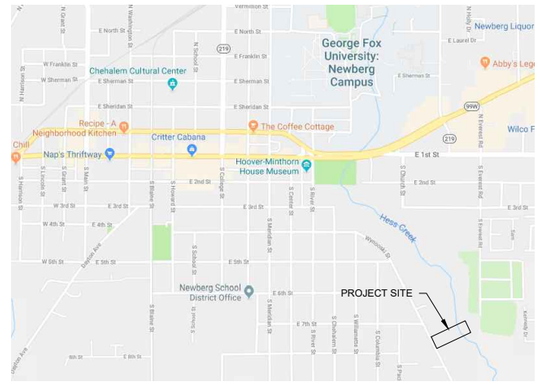
HORIZONTAL ALIGNMENT OF THE PROPERTY LINES SHOWN ARE BASED ON GRID ROTATION.

LEGEND

- EXISTING GRADE 5 FT CONTOURS
- EXISTING GRADE 1 FT CONTOURS
- FINISHED GRADE 5 FT CONTOURS
- FINISHED GRADE 1 FT CONTOURS
- JURISDICTIONAL WETLANDS
- ORDINARY HIGH WATER
- CITY OF NEWBERG STREAM CORRIDOR
- FEMA 100-YR FLOODPLAIN
- PROPERTY LINE
- SURVEY CONTROL POINT
- PROPOSED MAINTENANCE EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT
- APPROXIMATE EXTENTS OF GRADING
- CROSS SECTION LINE



VICINITY MAP



PROJECT ABBREVIATIONS
DBH - DIAMETER AT BREAST HEIGHT
EX - EXISTING
FEMA - FEDERAL EMERGENCY MANAGEMENT AGENCY
IE - INVERT ELEVATION
LF - LINEAL FEET
S - SLOPE
MH - MANHOLE
CB - CATCH BASIN

SITE INFORMATION
TAX MAP: 3S 2W 20CA
TAX LOT: 802, 803 & 700
ADDRESS: 730, 740 & 800 WYNOOSKI ST, NEWBERG, OR 97132
ZONING: R2 (MED. DENSITY RESIDENTIAL)

SHEET INDEX	
TITLE SHEET & VICINITY MAP	1 OF 11
EXISTING CONDITIONS	2 OF 11
DEMOLITION PLAN	3 OF 11
GRADING PLAN	4 OF 11
STORM DRAIN IMPROVEMENTS	5 OF 11
STORM DRAIN IMPROVEMENTS	6 OF 11
EROSION & SEDIMENTATION CONTROL	7 OF 11
STREAM CORRIDOR MITIGATION PLAN	8 OF 11
CITY OF NEWBERG STANDARD DETAILS	9 OF 11
CITY OF NEWBERG STANDARD DETAILS	10 OF 11
DETAILS	11 OF 11

NOTE

CONTRACTOR SHALL NOT REMOVE OR DESTROY ANY SURVEY MONUMENTS WITHOUT CONTACTING THE YAMHILL COUNTY SURVEY DEPARTMENT PER OREGON REVISED STATUTES 209.150 AND 209.155. MONUMENTS REMOVED OR DESTROYED SHALL BE REPLACED BY A REGISTERED LAND SURVEYOR AND A REPLACEMENT SURVEY FILED WITH THE COUNTY.

BENCHMARK NOTE

ELEVATIONS ARE BASED ON NAVD88.
SURVEY NORTHINGS AND EASTINGS ARE BASED ON CITY MONUMENT AT COLUMBIA ST & S SEVENTH ST (ELEV. 168.96, N: 603233.19, E: 7567768.88)

LAST REVISION DATE 9/28/2022

NO	DATE	DESCRIPTION	BY
1			

REGISTERED PROFESSIONAL ENGINEER 78540PE
OREGON MARCH 09, 2010 ANDREY R. CHERNISHOV
EXPIRES: 12/31/2021

TITLE SHEET & VICINITY MAP
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	9/28/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC

SHEET NUMBER
1 OF 11

Plot Stamp: 9/28/2022 3:30:31 PM - Andrew
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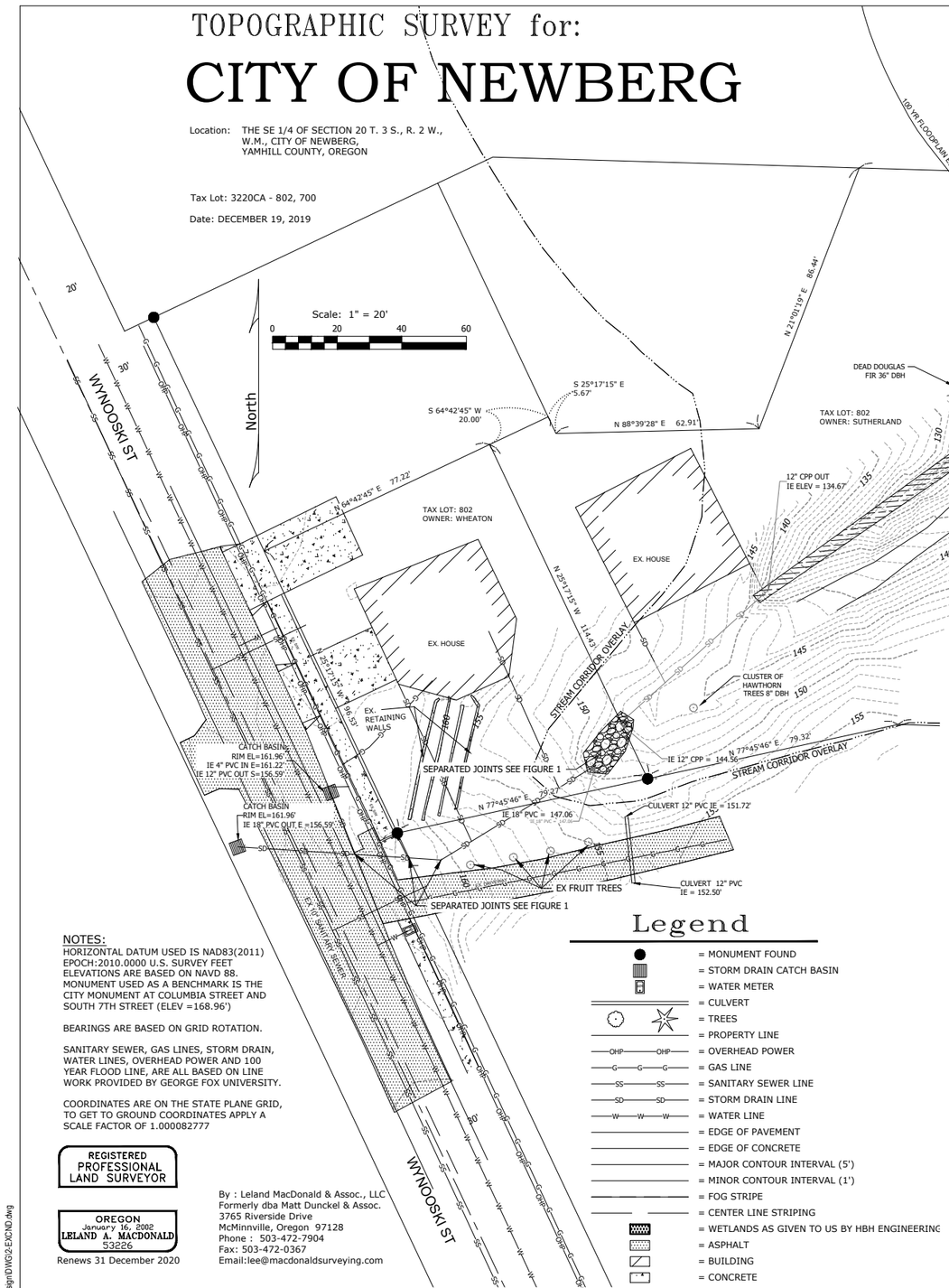
TOPOGRAPHIC SURVEY for:

CITY OF NEWBERG

Location: THE SE 1/4 OF SECTION 20 T. 3 S., R. 2 W., W.M., CITY OF NEWBERG, YAMHILL COUNTY, OREGON

Tax Lot: 3220CA - 802, 700

Date: DECEMBER 19, 2019



WETLANDS NOTES

1 REFER TO WETLAND DELINEATION REPORT PREPARED BY PACIFIC HABITAT SERVICES DATED JANUARY 3, 2019. AN APPROVED WETLAND FILL/REMOVAL PERMIT BY DSL/ARMY CORPS OF ENGINEERS SHALL BE PROVIDED TO THE CITY PRIOR TO ISSUANCE OF PERMITS BY THE CITY.

NOTES:

HORIZONTAL DATUM USED IS NAD83(2011)
EPOCH:2010.0000 U.S. SURVEY FEET
ELEVATIONS ARE BASED ON NAVD 88.
MONUMENT USED AS A BENCHMARK IS THE CITY MONUMENT AT COLUMBIA STREET AND SOUTH 7TH STREET (ELEV =168.96')

BEARINGS ARE BASED ON GRID ROTATION.

SANITARY SEWER, GAS LINES, STORM DRAIN, WATER LINES, OVERHEAD POWER AND 100 YEAR FLOOD LINE, ARE ALL BASED ON LINE WORK PROVIDED BY GEORGE FOX UNIVERSITY.

COORDINATES ARE ON THE STATE PLANE GRID, TO GET TO GROUND COORDINATES APPLY A SCALE FACTOR OF 1.000082777

Legend

- = MONUMENT FOUND
- = STORM DRAIN CATCH BASIN
- = WATER METER
- = CULVERT
- = TREES
- = PROPERTY LINE
- = OVERHEAD POWER
- = GAS LINE
- = SANITARY SEWER LINE
- = STORM DRAIN LINE
- = WATER LINE
- = EDGE OF PAVEMENT
- = EDGE OF CONCRETE
- = MAJOR CONTOUR INTERVAL (5')
- = MINOR CONTOUR INTERVAL (1')
- = FOG STRIPE
- = CENTER LINE STRIPING
- = WETLANDS AS GIVEN TO US BY HBH ENGINEERING
- = ASPHALT
- = BUILDING
- = CONCRETE

REGISTERED PROFESSIONAL LAND SURVEYOR

OREGON January 16, 2002 LELAND A. MACDONALD 53226

Renews 31 December 2020

By : Leland MacDonald & Assoc., LLC
Formerly dba Matt Dunckel & Assoc.
3765 Riverside Drive
McMinnville, Oregon 97128
Phone : 503-472-7904
Fax: 503-472-0367
Email:lee@macdonaldsurveying.com

FIG. 1: SEPARATED JOINTS IN EX. STORM PIPE

FIG. 2: EXISTING OUTFALL

A	DATE	DESCRIPTION	BY

EXISTING CONDITIONS
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	9/28/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC

SHEET NUMBER
2 OF 11

Plot Stamp: 9/28/2022 3:30:41 PM, Andrew
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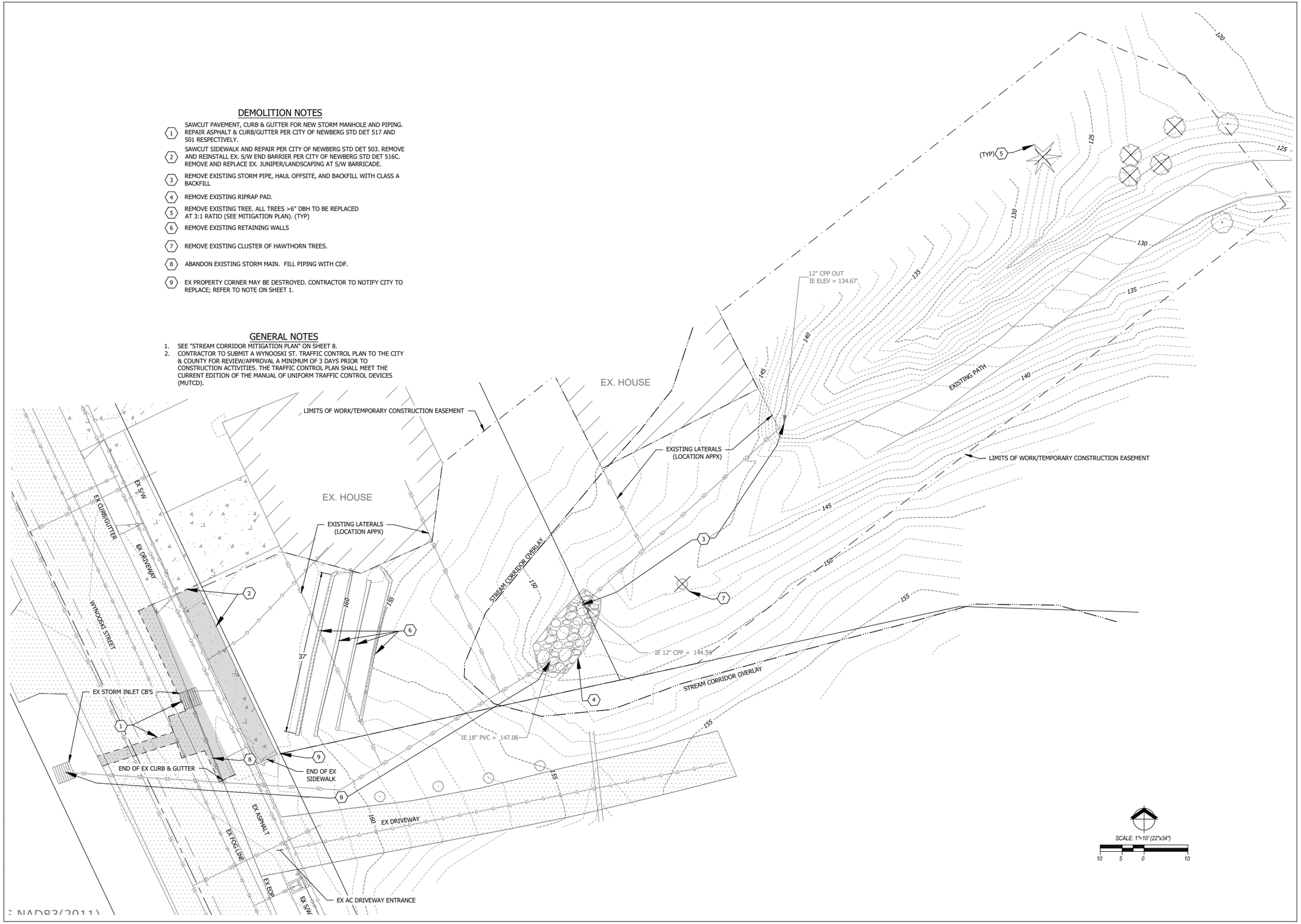
DEMOLITION NOTES

1. SAWCUT PAVEMENT, CURB & GUTTER FOR NEW STORM MANHOLE AND PIPING. REPAIR ASPHALT & CURB/GUTTER PER CITY OF NEWBERG STD DET 517 AND 501 RESPECTIVELY.
2. SAWCUT SIDEWALK AND REPAIR PER CITY OF NEWBERG STD DET 503. REMOVE AND REINSTALL EX. S/W END BARRIER PER CITY OF NEWBERG STD DET 516C. REMOVE AND REPLACE EX. JUNIPER/LANDSCAPING AT S/W BARRICADE.
3. REMOVE EXISTING STORM PIPE, HAUL OFFSITE, AND BACKFILL WITH CLASS A BACKFILL
4. REMOVE EXISTING RIPRAP PAD.
5. REMOVE EXISTING TREE. ALL TREES >6" DBH TO BE REPLACED AT 3:1 RATIO (SEE MITIGATION PLAN). (TYP)
6. REMOVE EXISTING RETAINING WALLS
7. REMOVE EXISTING CLUSTER OF HAWTHORN TREES.
8. ABANDON EXISTING STORM MAIN. FILL PIPING WITH CDF.
9. EX PROPERTY CORNER MAY BE DESTROYED. CONTRACTOR TO NOTIFY CITY TO REPLACE; REFER TO NOTE ON SHEET 1.

GENERAL NOTES

1. SEE "STREAM CORRIDOR MITIGATION PLAN" ON SHEET 8.
2. CONTRACTOR TO SUBMIT A WYNOOSKI ST. TRAFFIC CONTROL PLAN TO THE CITY & COUNTY FOR REVIEW/APPROVAL A MINIMUM OF 3 DAYS PRIOR TO CONSTRUCTION ACTIVITIES. THE TRAFFIC CONTROL PLAN SHALL MEET THE CURRENT EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).



	DATE	DESCRIPTION	BY
A			

REGISTERED PROFESSIONAL ENGINEER
78540PE
OREGON
MARCH 09, 2010
ANDREY R. CHERNISHOV
EXPIRES: 12/31/2021

DEMOLITION PLAN
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	9/28/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC

SHEET NUMBER
3 OF 11

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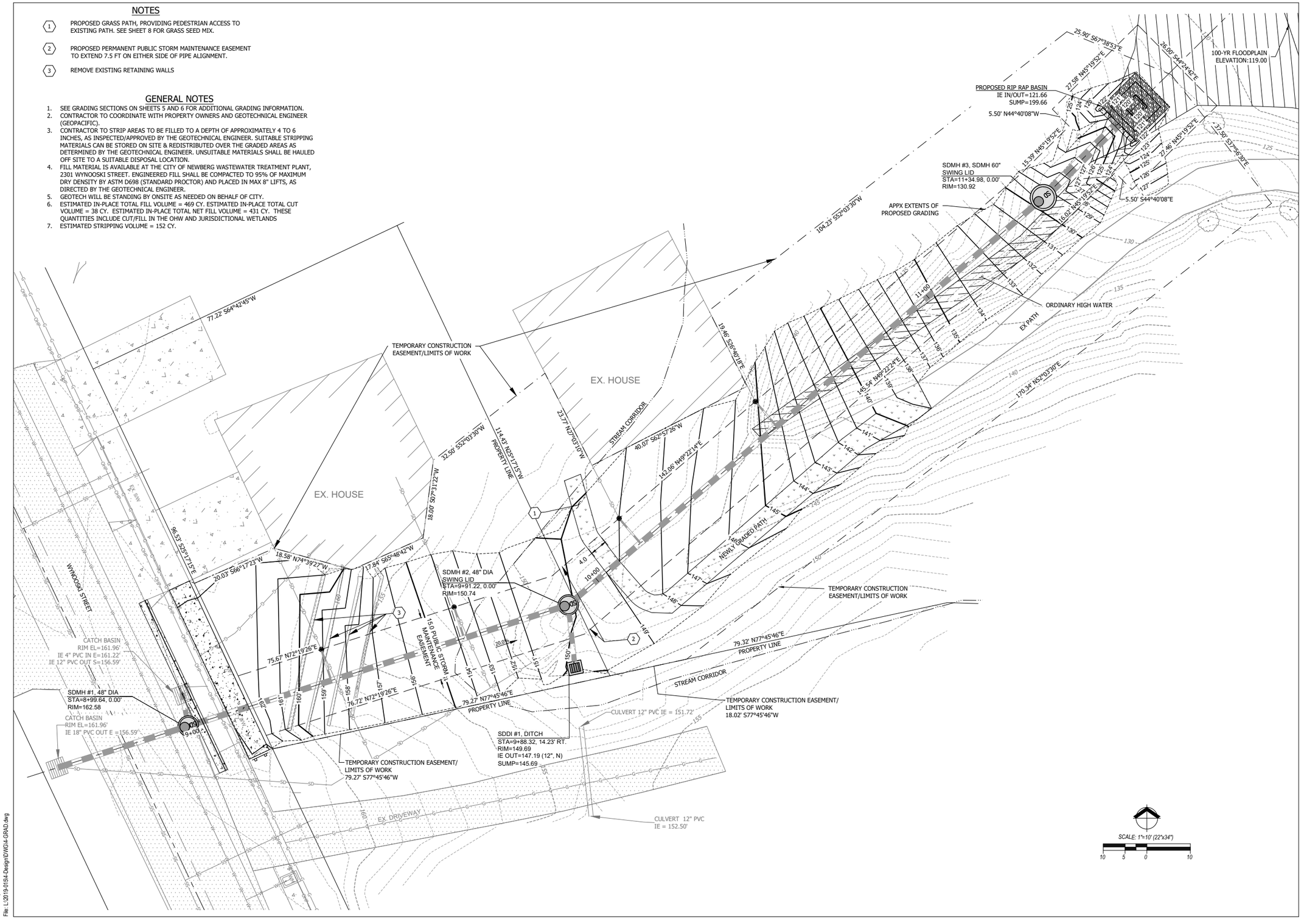
NAD83(2011)

NOTES

1. PROPOSED GRASS PATH, PROVIDING PEDESTRIAN ACCESS TO EXISTING PATH. SEE SHEET 8 FOR GRASS SEED MIX.
2. PROPOSED PERMANENT PUBLIC STORM MAINTENANCE EASEMENT TO EXTEND 7.5 FT ON EITHER SIDE OF PIPE ALIGNMENT.
3. REMOVE EXISTING RETAINING WALLS

GENERAL NOTES

1. SEE GRADING SECTIONS ON SHEETS 5 AND 6 FOR ADDITIONAL GRADING INFORMATION.
2. CONTRACTOR TO COORDINATE WITH PROPERTY OWNERS AND GEOTECHNICAL ENGINEER (GEOPACIFIC).
3. CONTRACTOR TO STRIP AREAS TO BE FILLED TO A DEPTH OF APPROXIMATELY 4 TO 6 INCHES, AS INSPECTED/APPROVED BY THE GEOTECHNICAL ENGINEER. SUITABLE STRIPPING MATERIALS CAN BE STORED ON SITE & REDISTRIBUTED OVER THE GRADED AREAS AS DETERMINED BY THE GEOTECHNICAL ENGINEER. UNSUITABLE MATERIALS SHALL BE HAULED OFF SITE TO A SUITABLE DISPOSAL LOCATION.
4. FILL MATERIAL IS AVAILABLE AT THE CITY OF NEWBERG WASTEWATER TREATMENT PLANT, 2301 WYNOOSKI STREET. ENGINEERED FILL SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY BY ASTM D698 (STANDARD PROCTOR) AND PLACED IN MAX 8" LIFTS, AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
5. GEOTECH WILL BE STANDING BY ONSITE AS NEEDED ON BEHALF OF CITY.
6. ESTIMATED IN-PLACE TOTAL FILL VOLUME = 469 CY. ESTIMATED IN-PLACE TOTAL CUT VOLUME = 38 CY. ESTIMATED IN-PLACE TOTAL NET FILL VOLUME = 431 CY. THESE QUANTITIES INCLUDE CUT/FILL IN THE OHW AND JURISDICTIONAL WETLANDS
7. ESTIMATED STRIPPING VOLUME = 152 CY.



NO	DATE	DESCRIPTION	BY
1			

REGISTERED PROFESSIONAL ENGINEER
OREGON
MARCH 09, 2010
ANDREY R. CHERNISHOV
EXPIRES: 12/31/2021

GRADING PLAN
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	9/28/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC

SHEET NUMBER
4 OF 11

Plot Stamp: 9/28/2022 3:31:03 PM - Andrew
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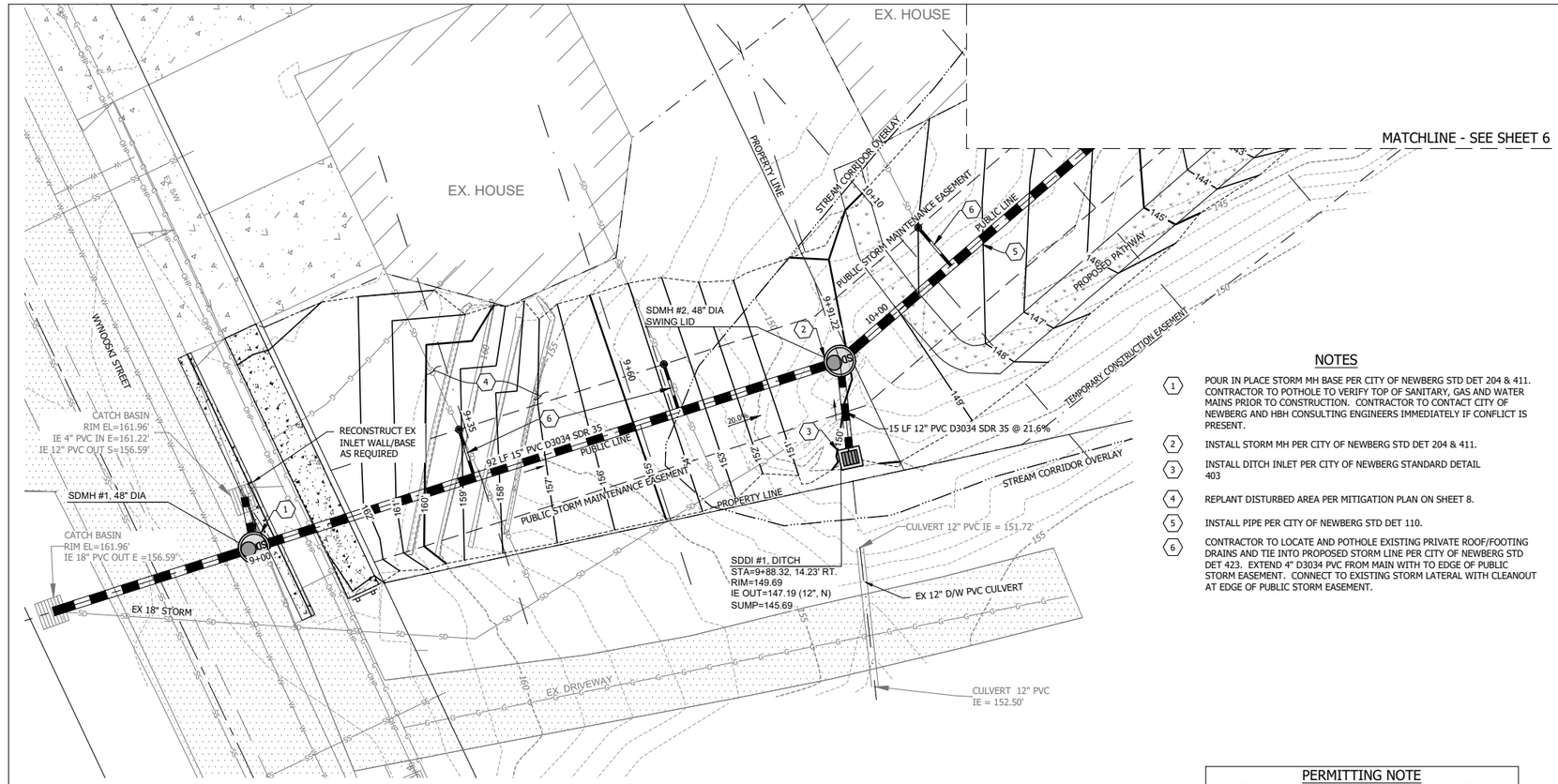


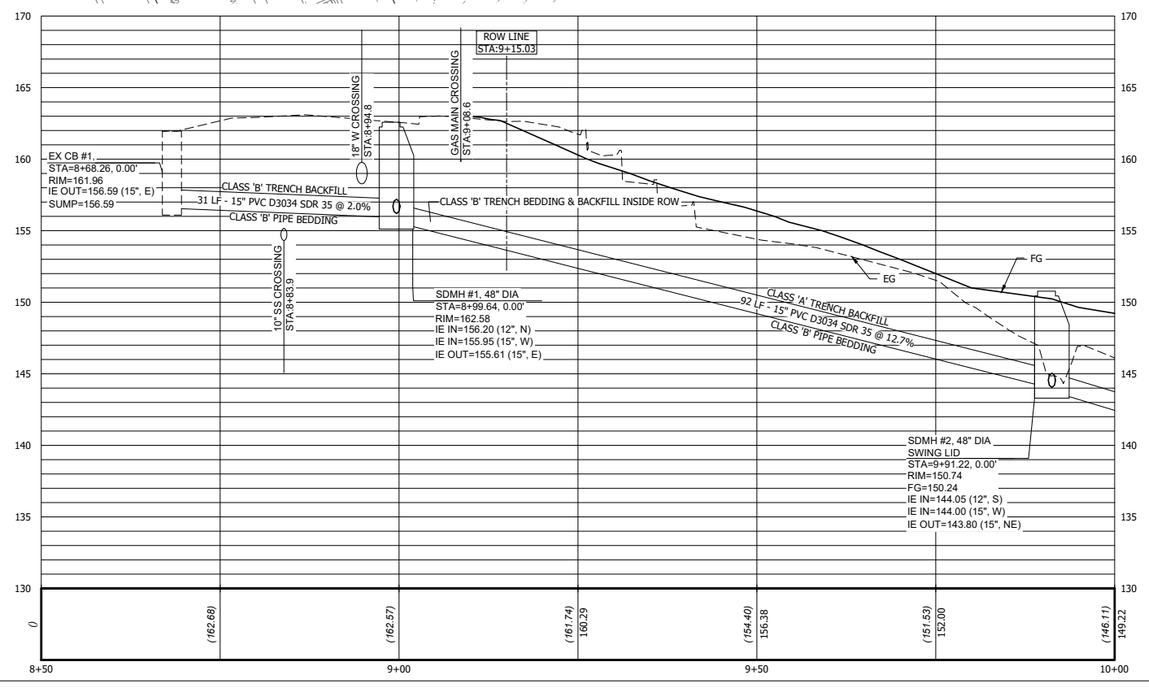
NOTES

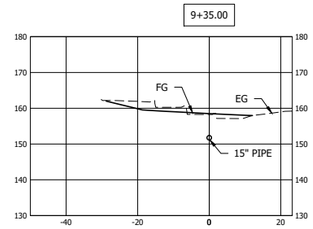
1. POUR IN PLACE STORM MH BASE PER CITY OF NEWBERG STD DET 204 & 411. CONTRACTOR TO POTHOLE TO VERIFY TOP OF SANITARY, GAS AND WATER MAINS PRIOR TO CONSTRUCTION. CONTRACTOR TO CONTACT CITY OF NEWBERG AND HBH CONSULTING ENGINEERS IMMEDIATELY IF CONFLICT IS PRESENT.
2. INSTALL STORM MH PER CITY OF NEWBERG STD DET 204 & 411.
3. INSTALL DITCH INLET PER CITY OF NEWBERG STANDARD DETAIL 403
4. REPLANT DISTURBED AREA PER MITIGATION PLAN ON SHEET 8.
5. INSTALL PIPE PER CITY OF NEWBERG STD DET 110.
6. CONTRACTOR TO LOCATE AND POTHOLE EXISTING PRIVATE ROOF/FOOTING DRAINS AND TIE INTO PROPOSED STORM LINE PER CITY OF NEWBERG STD DET 423. EXTEND 4" D3034 PVC FROM MAIN WITH TO EDGE OF PUBLIC STORM EASEMENT. CONNECT TO EXISTING STORM LATERAL WITH CLEANOUT AT EDGE OF PUBLIC STORM EASEMENT.

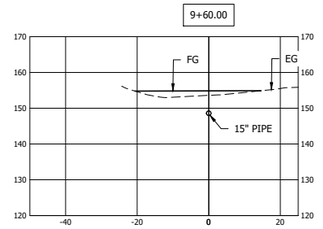
PERMITTING NOTE

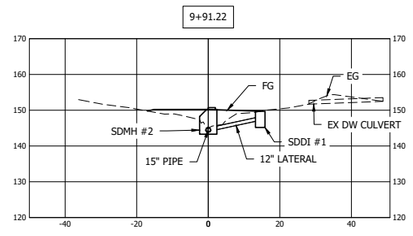
A PERMIT IS REQUIRED FOR THE WORK IN THE WYNOOSKI ST. RIGHT-OF-WAY FROM YAMHILL COUNTY. COPY OF PERMIT SHALL BE ON FILE AT THE CITY PRIOR TO CONSTRUCTION. THE CITY SHALL APPLY FOR THE PERMIT.

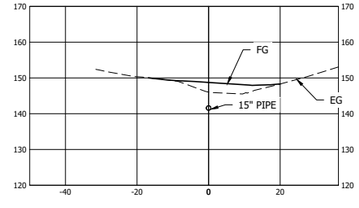
HRZ SCALE: 1"=10' VRT SCALE: 1"=5' (22"x34")











BY	DESCRIPTION	DATE
A		

REGISTERED PROFESSIONAL ENGINEER
78540PE
OREGON
MARCH 09, 2010
ANDREI R. CHERNISHOV
EXPIRES: 12/31/2021

STORM DRAIN IMPROVEMENTS
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	9/28/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC

SHEET NUMBER
5 OF 11

Plot Stamp: 9/28/2022 3:31:15 PM - Andrew
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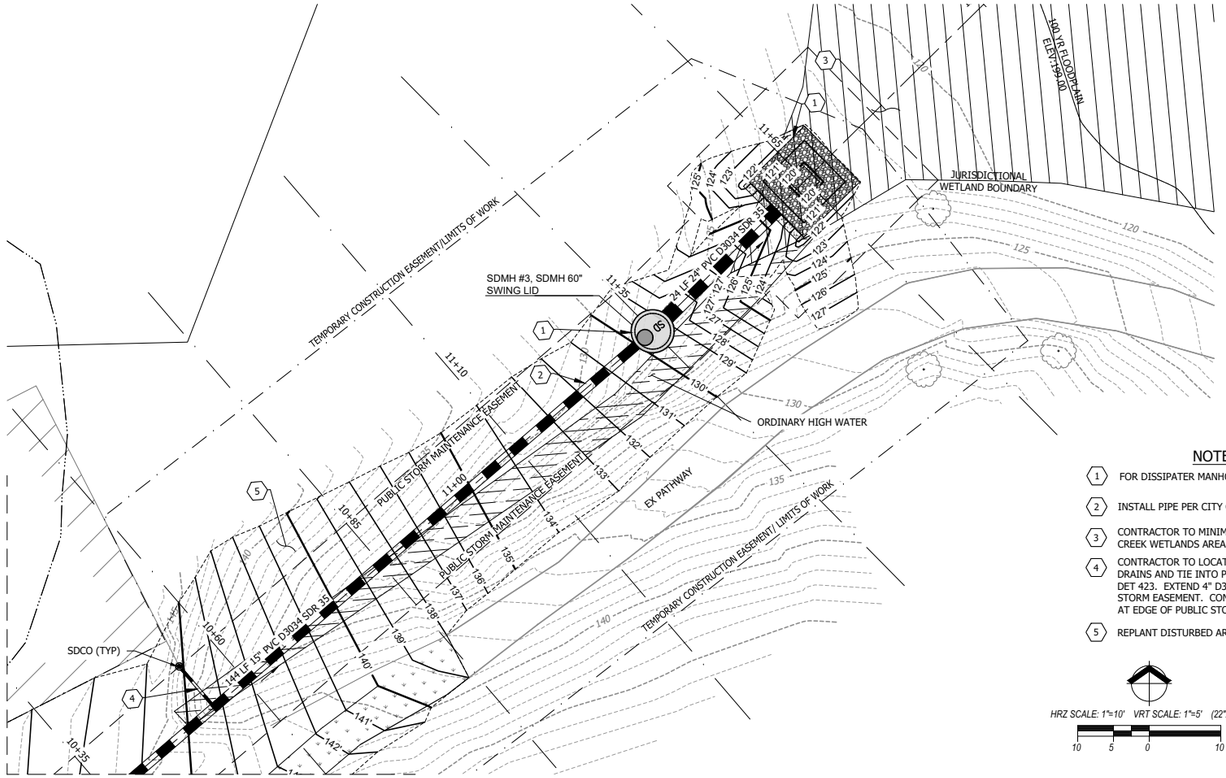
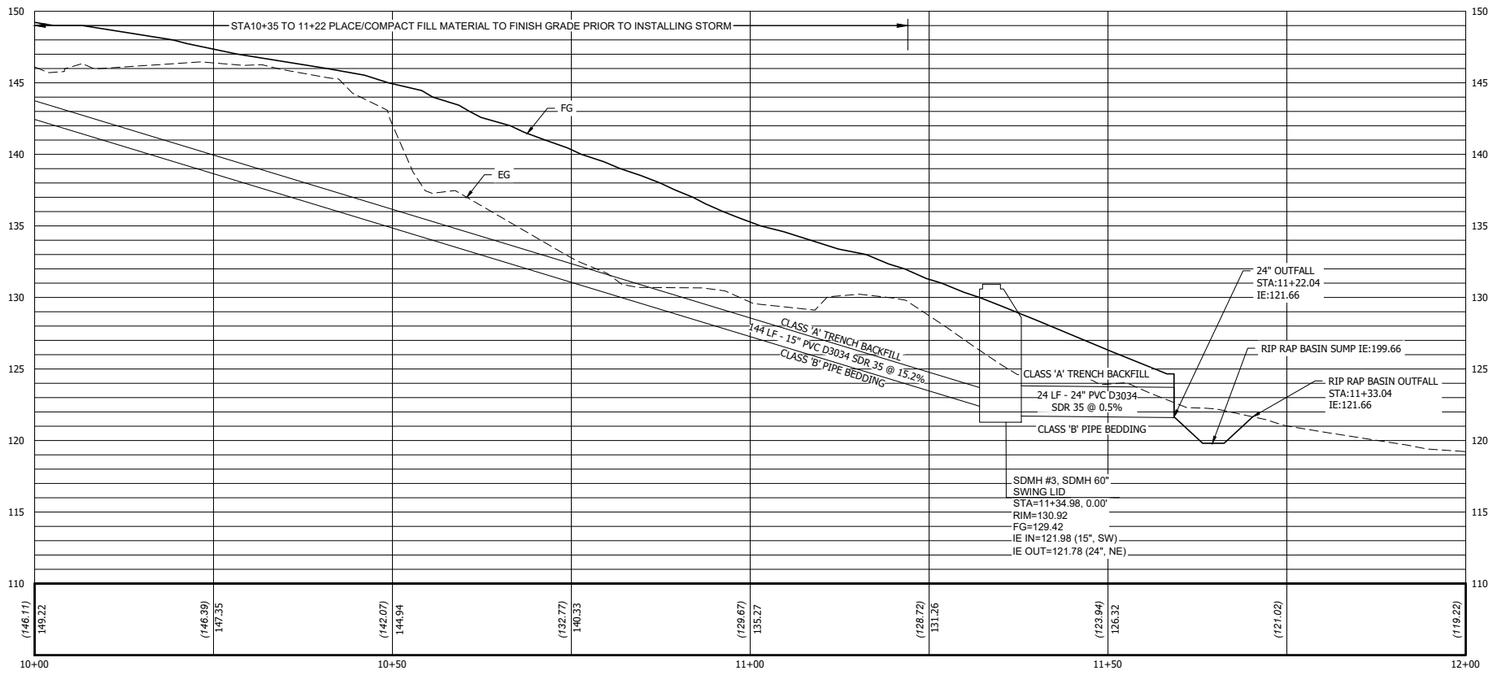


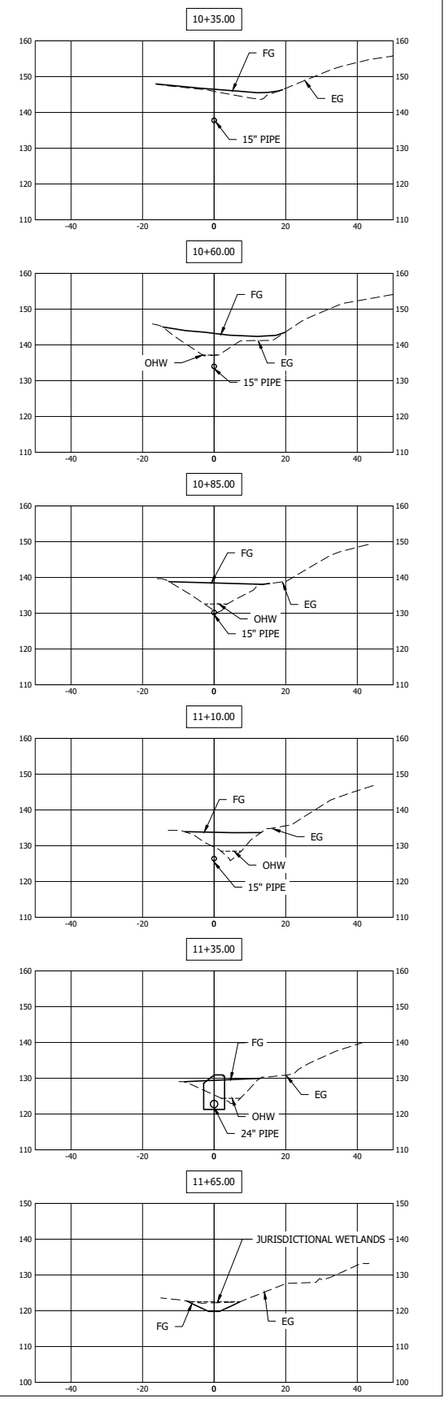
NOTES

1. FOR DISSIPATER MANHOLE AND RIPRAP BASIN, SEE SHEET #11.
2. INSTALL PIPE PER CITY OF NEWBERG STD DET 110.
3. CONTRACTOR TO MINIMIZE DISTURBANCE TO EXISTING HESS CREEK WETLANDS AREAS.
4. CONTRACTOR TO LOCATE AND POTHOLE EXISTING PRIVATE ROOF/FOOTING DRAINS AND TIE INTO PROPOSED STORM LINE PER CITY OF NEWBERG STD DET 423. EXTEND 4" D3034 PVC FROM MAIN WITH TO EDGE OF PUBLIC STORM EASEMENT. CONNECT TO EXISTING STORM LATERAL WITH CLEANOUT AT EDGE OF PUBLIC STORM EASEMENT.
5. REPLANT DISTURBED AREA PER MITIGATION PLAN ON SHEET 8.

HRZ SCALE: 1"=10' VRT SCALE: 1"=5' (22"x34")

10 5 0 10





BY	DESCRIPTION	DATE
A1		

REGISTERED PROFESSIONAL ENGINEER
OREGON
MARCH 09, 2010
ANDREY R. CHERNISHOV
EXPIRES: 12/31/2021

STORM DRAIN IMPROVEMENTS
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
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email: mail@hbh-consulting.com

DATE	9/28/2022
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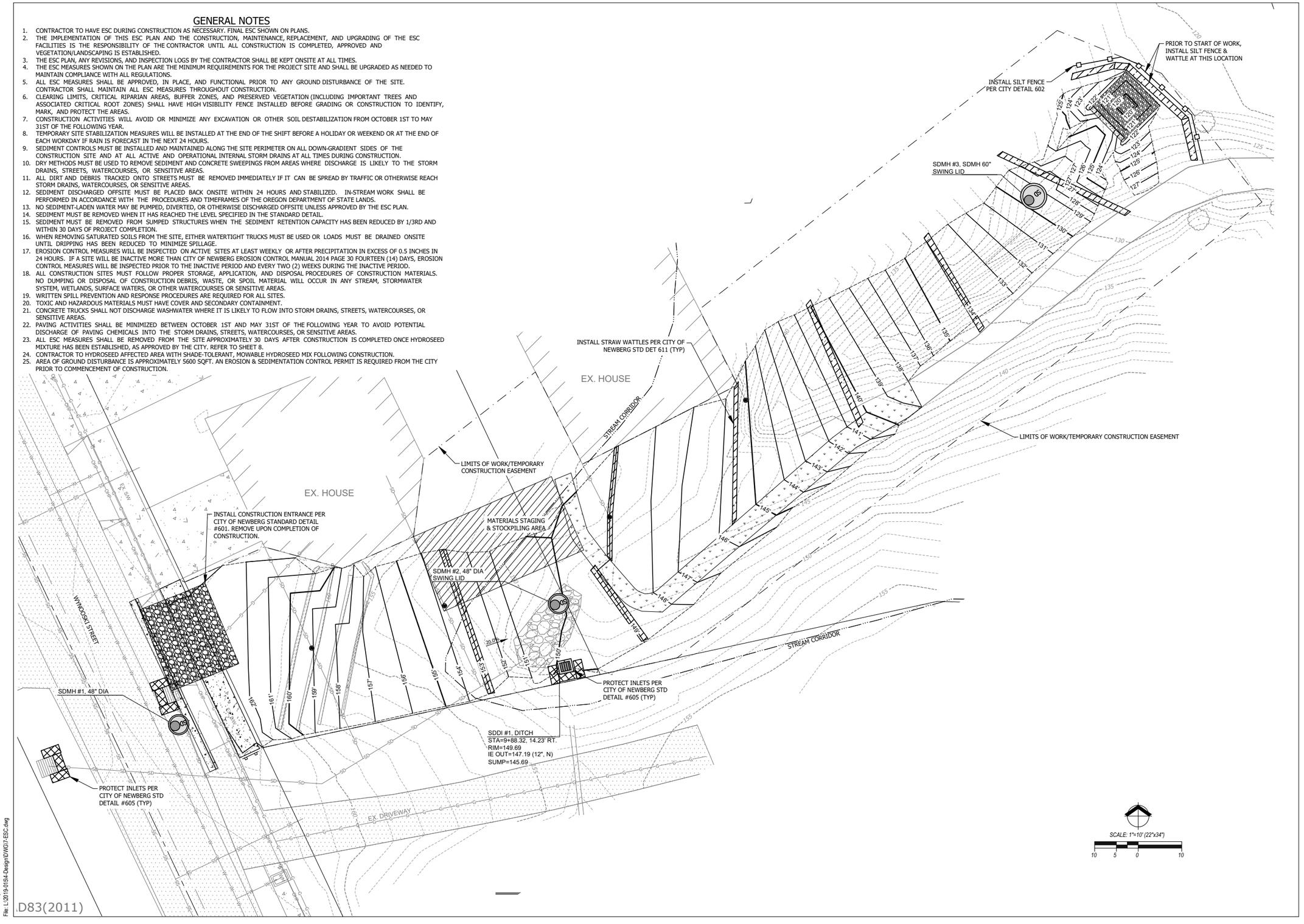
CHECKED	ARC

SHEET NUMBER
6 OF 11

Plot Stamp: 9/28/2022 3:31:29 PM - Andrew
File: L:\2019-0154-Design\DWG\6-IMPROVEMENTS.dwg

GENERAL NOTES

1. CONTRACTOR TO HAVE ESC DURING CONSTRUCTION AS NECESSARY. FINAL ESC SHOWN ON PLANS.
2. THE IMPLEMENTATION OF THIS ESC PLAN AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED, APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.
3. THE ESC PLAN, ANY REVISIONS, AND INSPECTION LOGS BY THE CONTRACTOR SHALL BE KEPT ONSITE AT ALL TIMES.
4. THE ESC MEASURES SHOWN ON THE PLAN ARE THE MINIMUM REQUIREMENTS FOR THE PROJECT SITE AND SHALL BE UPGRADED AS NEEDED TO MAINTAIN COMPLIANCE WITH ALL REGULATIONS.
5. ALL ESC MEASURES SHALL BE APPROVED, IN PLACE, AND FUNCTIONAL PRIOR TO ANY GROUND DISTURBANCE OF THE SITE. CONTRACTOR SHALL MAINTAIN ALL ESC MEASURES THROUGHOUT CONSTRUCTION.
6. CLEARING LIMITS, CRITICAL RIPARIAN AREAS, BUFFER ZONES, AND PRESERVED VEGETATION (INCLUDING IMPORTANT TREES AND ASSOCIATED CRITICAL ROOT ZONES) SHALL HAVE HIGH VISIBILITY FENCE INSTALLED BEFORE GRADING OR CONSTRUCTION TO IDENTIFY, MARK, AND PROTECT THE AREAS.
7. CONSTRUCTION ACTIVITIES WILL AVOID OR MINIMIZE ANY EXCAVATION OR OTHER SOIL DESTABILIZATION FROM OCTOBER 1ST TO MAY 31ST OF THE FOLLOWING YEAR.
8. TEMPORARY SITE STABILIZATION MEASURES WILL BE INSTALLED AT THE END OF THE SHIFT BEFORE A HOLIDAY OR WEEKEND OR AT THE END OF EACH WORKDAY IF RAIN IS FORECAST IN THE NEXT 24 HOURS.
9. SEDIMENT CONTROLS MUST BE INSTALLED AND MAINTAINED ALONG THE SITE PERIMETER ON ALL DOWN-GRADIENT SIDES OF THE CONSTRUCTION SITE AND AT ALL ACTIVE AND OPERATIONAL INTERNAL STORM DRAINS AT ALL TIMES DURING CONSTRUCTION.
10. DRY METHODS MUST BE USED TO REMOVE SEDIMENT AND CONCRETE SWEEPINGS FROM AREAS WHERE DISCHARGE IS LIKELY TO THE STORM DRAINS, STREETS, WATERCOURSES, OR SENSITIVE AREAS.
11. ALL DIRT AND DEBRIS TRACKED ONTO STREETS MUST BE REMOVED IMMEDIATELY IF IT CAN BE SPREAD BY TRAFFIC OR OTHERWISE REACH STORM DRAINS, WATERCOURSES, OR SENSITIVE AREAS.
12. SEDIMENT DISCHARGED OFFSITE MUST BE PLACED BACK ONSITE WITHIN 24 HOURS AND STABILIZED. IN-STREAM WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROCEDURES AND TIMEFRAMES OF THE OREGON DEPARTMENT OF STATE LANDS.
13. NO SEDIMENT-LADEN WATER MAY BE PUMPED, DIVERTED, OR OTHERWISE DISCHARGED OFFSITE UNLESS APPROVED BY THE ESC PLAN.
14. SEDIMENT MUST BE REMOVED WHEN IT HAS REACHED THE LEVEL SPECIFIED IN THE STANDARD DETAIL.
15. SEDIMENT MUST BE REMOVED FROM SUMPED STRUCTURES WHEN THE SEDIMENT RETENTION CAPACITY HAS BEEN REDUCED BY 1/3RD AND WITHIN 30 DAYS OF PROJECT COMPLETION.
16. WHEN REMOVING SATURATED SOILS FROM THE SITE, EITHER WATERTIGHT TRUCKS MUST BE USED OR LOADS MUST BE DRAINED ONSITE UNTIL DRIPPING HAS BEEN REDUCED TO MINIMIZE SPILLAGE.
17. EROSION CONTROL MEASURES WILL BE INSPECTED ON ACTIVE SITES AT LEAST WEEKLY OR AFTER PRECIPITATION IN EXCESS OF 0.5 INCHES IN 24 HOURS. IF A SITE WILL BE INACTIVE MORE THAN CITY OF NEWBERG EROSION CONTROL MANUAL 2014 PAGE 30 FOURTEEN (14) DAYS, EROSION CONTROL MEASURES WILL BE INSPECTED PRIOR TO THE INACTIVE PERIOD AND EVERY TWO (2) WEEKS DURING THE INACTIVE PERIOD.
18. ALL CONSTRUCTION SITES MUST FOLLOW PROPER STORAGE, APPLICATION, AND DISPOSAL PROCEDURES OF CONSTRUCTION MATERIALS. NO DUMPING OR DISPOSAL OF CONSTRUCTION DEBRIS, WASTE, OR SPOIL MATERIAL WILL OCCUR IN ANY STREAM, STORMWATER SYSTEM, WETLANDS, SURFACE WATERS, OR OTHER WATERCOURSES OR SENSITIVE AREAS.
19. WRITTEN SPILL PREVENTION AND RESPONSE PROCEDURES ARE REQUIRED FOR ALL SITES.
20. TOXIC AND HAZARDOUS MATERIALS MUST HAVE COVER AND SECONDARY CONTAINMENT.
21. CONCRETE TRUCKS SHALL NOT DISCHARGE WASHWATER WHERE IT IS LIKELY TO FLOW INTO STORM DRAINS, STREETS, WATERCOURSES, OR SENSITIVE AREAS.
22. PAVING ACTIVITIES SHALL BE MINIMIZED BETWEEN OCTOBER 1ST AND MAY 31ST OF THE FOLLOWING YEAR TO AVOID POTENTIAL DISCHARGE OF PAVING CHEMICALS INTO THE STORM DRAINS, STREETS, WATERCOURSES, OR SENSITIVE AREAS.
23. ALL ESC MEASURES SHALL BE REMOVED FROM THE SITE APPROXIMATELY 30 DAYS AFTER CONSTRUCTION IS COMPLETED ONCE HYDROSEED MIXTURE HAS BEEN ESTABLISHED, AS APPROVED BY THE CITY. REFER TO SHEET 8.
24. CONTRACTOR TO HYDROSEED AFFECTED AREA WITH SHADE-TOLERANT, MOWABLE HYDROSEED MIX FOLLOWING CONSTRUCTION.
25. AREA OF GROUND DISTURBANCE IS APPROXIMATELY 5600 SQFT. AN EROSION & SEDIMENTATION CONTROL PERMIT IS REQUIRED FROM THE CITY PRIOR TO COMMENCEMENT OF CONSTRUCTION.



NO	DATE	DESCRIPTION	BY
A			

REGISTERED PROFESSIONAL ENGINEER 78540PE
OREGON MARCH 09, 2010 ANDREY R. CHERNISHOV
EXPIRES: 12/31/2021

EROSION & SEDIMENTATION CONTROL
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	9/28/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC

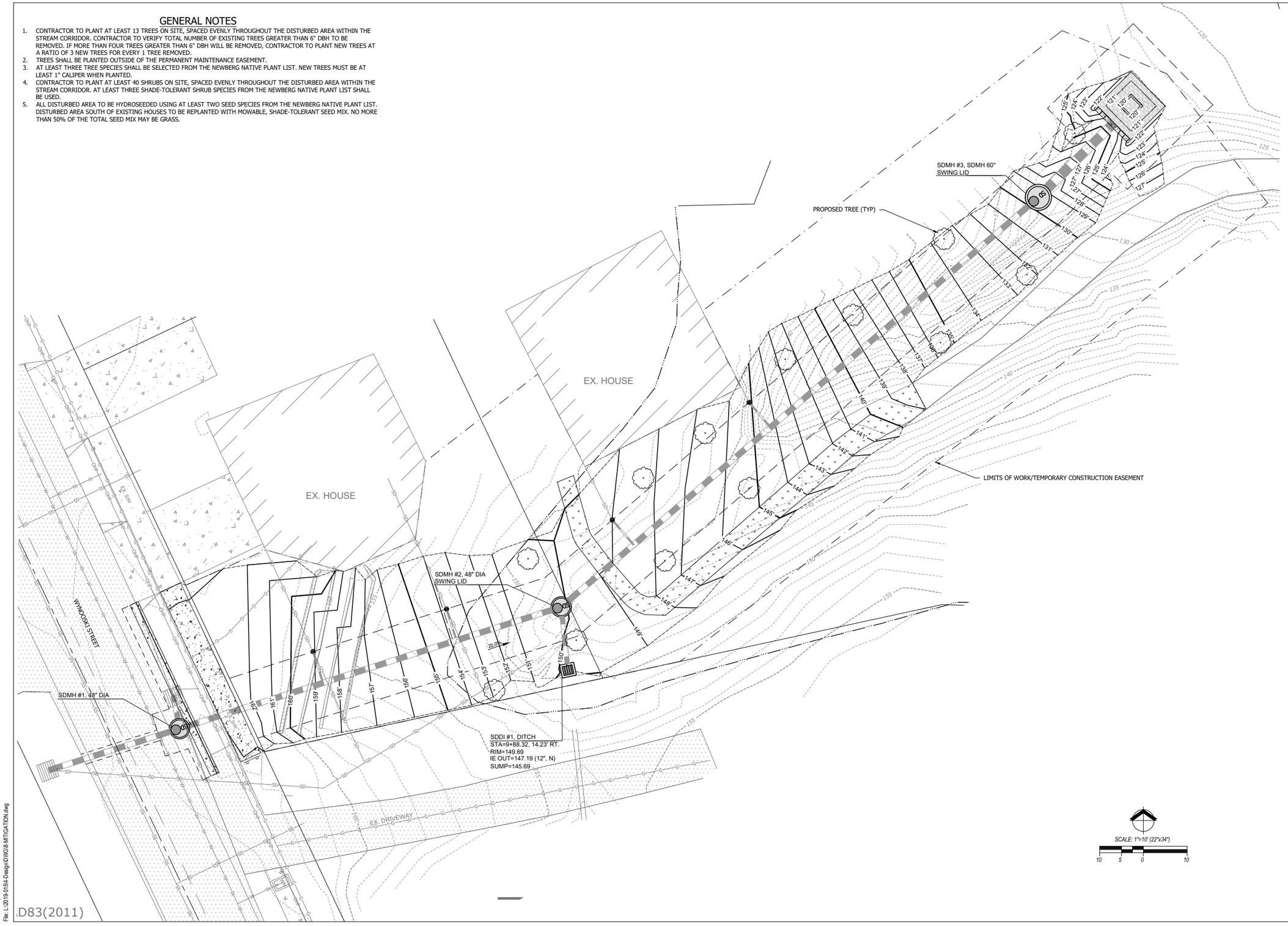
SHEET NUMBER
7 OF 11

Prd Stamp: 9/28/2022 3:31:38 PM - Andrew
File: L:\2019-01\54-Design\DWG\7-ESC.dwg

NAD83(2011)

GENERAL NOTES

1. CONTRACTOR TO PLANT AT LEAST 13 TREES ON SITE, SPACED EVENLY THROUGHOUT THE DISTURBED AREA WITHIN THE STREAM CORRIDOR. CONTRACTOR TO VERIFY TOTAL NUMBER OF EXISTING TREES GREATER THAN 6" DBH TO BE REMOVED. IF MORE THAN FOUR TREES GREATER THAN 6" DBH WILL BE REMOVED, CONTRACTOR TO PLANT NEW TREES AT A RATIO OF 3 NEW TREES FOR EVERY 1 TREE REMOVED.
2. TREES SHALL BE PLANTED OUTSIDE OF THE PERMANENT MAINTENANCE EASEMENT.
3. AT LEAST THREE TREE SPECIES SHALL BE SELECTED FROM THE NEWBERG NATIVE PLANT LIST. NEW TREES MUST BE AT LEAST 1" CALIPER WHEN PLANTED.
4. CONTRACTOR TO PLANT AT LEAST 40 SHRUBS ON SITE, SPACED EVENLY THROUGHOUT THE DISTURBED AREA WITHIN THE STREAM CORRIDOR. AT LEAST THREE SHADE-TOLERANT SHRUB SPECIES FROM THE NEWBERG NATIVE PLANT LIST SHALL BE USED.
5. ALL DISTURBED AREA TO BE HYDROSEEDED USING AT LEAST TWO SEED SPECIES FROM THE NEWBERG NATIVE PLANT LIST. DISTURBED AREA SOUTH OF EXISTING HOUSES TO BE REPLANTED WITH MOWABLE, SHADE-TOLERANT SEED MIX. NO MORE THAN 50% OF THE TOTAL SEED MIX MAY BE GRASS.



BY	DESCRIPTION	DATE
A		

STREAM CORRIDOR MITIGATION PLAN
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	9/28/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC

SHEET NUMBER
8 OF 11

Plot Stamp: 9/28/2022 3:31:48 PM - Andrew
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NOTES:

1. THE MINIMUM PIPE COVER SHALL BE ACCORDING TO TABLE 1, BELOW. WHEN CIRCUMSTANCES DICTATE, THEN A LESSER DESIGN COVER MAY BE CONSIDERED PER TABLE 2 BELOW.

2. PIPE COVER SHALL BE MEASURED FROM FINISHED GRADE TO THE UPPER MOST EXTERIOR SURFACE ELEVATION OF THE PIPE.

3. A PIPE UNDER A ROADWAY SHALL NOT INTRUDE INTO THE SUBGRADE AND SHALL BE PROTECTED DURING CONSTRUCTION.

4. SUFFICIENT DEPTH SHALL MEAN FROM THE TOP OF THE PIPE TO FINISHED GRADE. ALL STORM DRAINS SHALL BE LAID AT SUFFICIENT DEPTH TO PROTECT AGAINST DAMAGE FROM INTERIM CONSTRUCTION LOADS, FINAL TRAFFIC LOADS, AND TO DRAIN BUILDING FOOTINGS WHERE PRACTICAL. IN AREAS OF RELATIVELY FLAT TERRAIN, THE DESIGN ENGINEER MUST SHOW THAT SUFFICIENT DEPTH PROVIDED AT THE BOUNDARY OF THE DEVELOPMENT TO PROPERLY SERVE THE REMAINDER OF THE UPSTREAM BASIN AREA TRIBUTARY TO THE SITE.

TABLE 1 : MINIMUM COVER	
WATER	36 (in.)
STORM	48 (in.)
SEWER	8 (ft.)

TABLE 2: PIPE COVER

TYPE OF PIPE	PAVED AREAS (in.)	UNPAVED AREAS (in.)
PVC C900	24	12
PVC 3034 SDR35	36	24
DUCTILE IRON	18	6
*RCP CLASS II	30	18
*RCP CLASS IV	24	12
*RCP CLASS V	18	6

* WHEN APPROVED

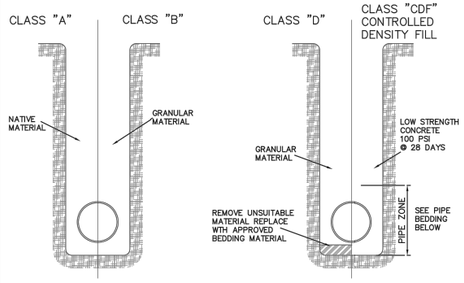
City of Newberg — PUBLIC WORKS ENGINEERING DIVISION, 414 E. FIRST STREET NEWBERG, OR 97132, PHONE: 503-537-1240, FAX: 503-537-1277

REVISIONS:

PIPE COVER

SCALE:
DATE: 01/24/2014
APPROVED BY: JAY H.
STANDARD DRAWING 110

201A TRENCH BACKFILL



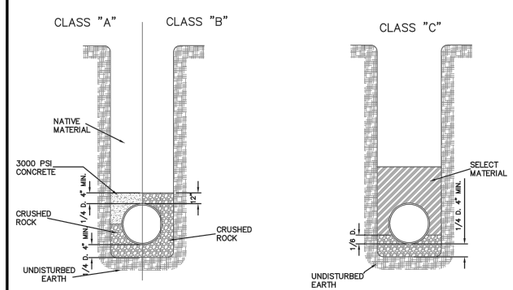
City of Newberg — PUBLIC WORKS ENGINEERING DIVISION, 414 E. FIRST STREET NEWBERG, OR 97132, PHONE: 503-537-1240, FAX: 503-537-1277

REVISIONS: SEPT 2013- JAY H.

TRENCH BACKFILL

SCALE: N.T.S
DATE: MAY 2007
APPROVED BY: D. DANICI
STANDARD DRAWING 201A

201B PIPE BEDDING



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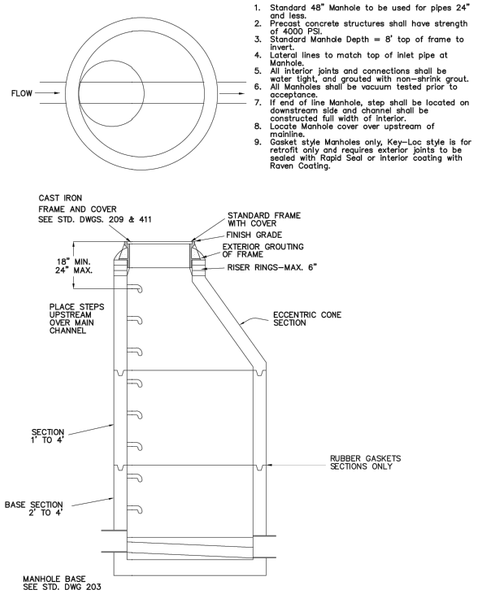
REVISIONS: SEPT. 2013- JAY H.

PIPE BEDDING

SCALE: N.T.S
DATE: MAY 2007
APPROVED BY: D. DANICI
STANDARD DRAWING 201B

NOTES

1. Standard 48" Manhole to be used for pipes 24" and less.
2. Precast concrete structures shall have strength of 4000 PSI.
3. Standard Manhole Depth = 8' top of frame to invert.
4. Lateral lines to match top of inlet pipe at Manhole.
5. All interior joints and connections shall be water tight, and grouted with non-shrink grout.
6. All Manholes shall be vacuum tested prior to acceptance.
7. If end of line Manhole, step shall be located on downstream side and channel shall be constructed full width of interior.
8. Locate Manhole cover over upstream of mainline.
9. Gasket style Manholes only, Key-Loc style is for retrofit only and requires exterior joints to be sealed with Rapid Seal or interior coating with Raven Coating.



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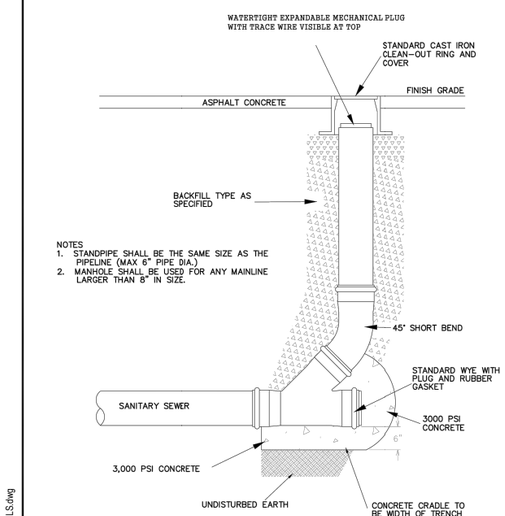
REVISIONS:
12/28/12
11/27/2013-CHIU
05/01/2015 - ASM

48" STANDARD MANHOLE

SCALE: N.T.S
DATE: May 2015
APPROVED BY: K. Hofmann
STANDARD DRAWING 204



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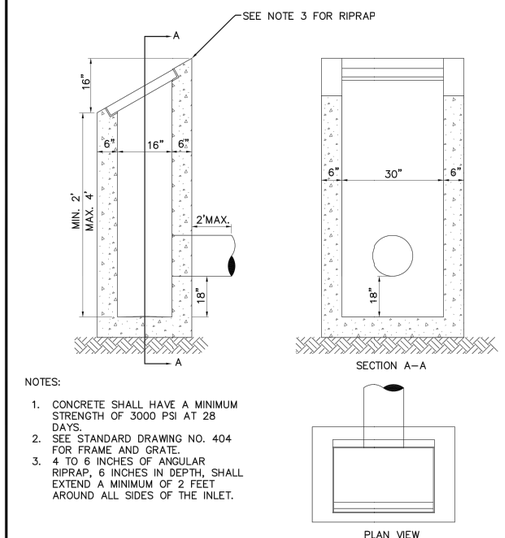
REVISIONS: 05/04/2015 - ASM

CLEAN OUT

SCALE: N.T.S
DATE: May 2015
APPROVED BY: K. Hofmann
STANDARD DRAWING 210



NOTES:

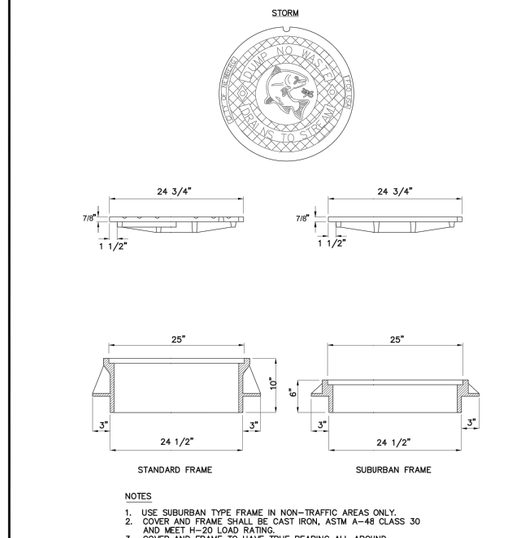
1. CONCRETE SHALL HAVE A MINIMUM STRENGTH OF 3000 PSI AT 28 DAYS.
2. SEE STANDARD DRAWING NO. 404 FOR FRAME AND GRATE.
3. 4 TO 6 INCHES OF ANGULAR RIPRAP, 6 INCHES IN DEPTH, SHALL EXTEND A MINIMUM OF 2 FEET AROUND ALL SIDES OF THE INLET.

City of Newberg — PUBLIC WORKS ENGINEERING DIVISION, 414 E. FIRST STREET NEWBERG, OR 97132, PHONE: 503-537-1240, FAX: 503-537-1277

REVISIONS:

DITCH INLET

SCALE: N.T.S
DATE: MARCH 2014
APPROVED BY: J. HARRIS
STANDARD DRAWING 403



STANDARD FRAME SUBURBAN FRAME

NOTES

1. USE SUBURBAN TYPE FRAME IN NON-TRAFFIC AREAS ONLY.
2. COVER AND FRAME SHALL BE CAST IRON, ASTM A-48 CLASS 30 AND MEET H-20 LOAD RATING.
3. COVER AND FRAME TO HAVE TRUE BEARING ALL AROUND.

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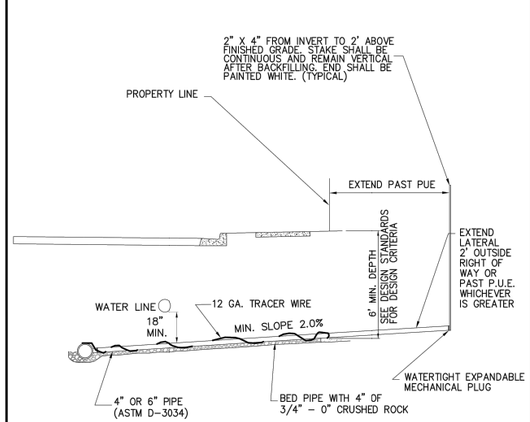
REVISIONS:

STORM WATER MANHOLE FRAME AND COVER

SCALE: N.T.S
DATE: MARCH 2014
APPROVED BY: J. HARRIS
STANDARD DRAWING 411



NOTES:

1. USES -SINGLE RESIDENTIAL SERVICE, 4" PIPE
   -SPLIT RESIDENTIAL SERVICE, 6" PIPE
2. SERVICE SHALL NOT BE BACKFILLED PRIOR TO INSPECTION. LOCATE WIRE SHALL BE TESTED PRIOR TO BACKFILL AND AFTER BACKFILL IS COMPLETE WITH THE WITNESS OF A CITY REPRESENTATIVE.
3. MINIMUM SLOPE 2.0%.

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REVISIONS:
FEB 2014
MAY 2014
05/08/2015 -ASM

STORM SEWER SERVICE BRANCH

SCALE: N.T.S
DATE: May 2015
APPROVED BY: K. Hofmann
STANDARD DRAWING 423

BY	DESCRIPTION	DATE
A		

REGISTERED PROFESSIONAL ENGINEER 78340PE
OREGON MARCH 09, 2010 ANDREY R. CHERNISHOV
EXPIRES: 12/31/2021

CITY OF NEWBERG STANDARD DETAILS

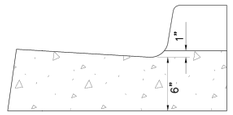
WYNOOSKI OUTFALL REDESIGN

CITY OF NEWBERG
NEWBERG, OR

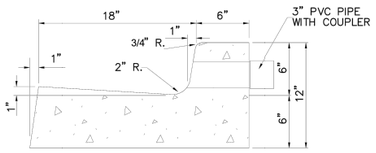
H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503-554-9553 fax 503-537-9554
email: mail@hbh-consulting.com

DATE | 9/28/2022
DRAWN | ARB
DESIGNED | JH
CHECKED | ARC

SHEET NUMBER
9 OF 11



CURB AND GUTTER AT DRIVEWAY APPROACH



CURB AND GUTTER

NOTES

1. CONCRETE SHALL HAVE STRENGTH OF 3300 P.S.I. AT 28 DAYS.
2. TRANSVERSE CONTRACTION JOINTS – MAKE 1/8" x 1 1/2" DEEP CUT; SPACED AT 15'. PROVIDE CONTRACTION JOINTS AT CURB RETURN POINTS, CATCH BASINS AND DRIVEWAYS.
3. SCORE CURB OVER WEEP HOLE BLOCK OUT.
4. EXPANSION JOINTS SHALL NOT BE USED.
5. APPLY CURING COMPOUND (PETROLEUM BASED) TO FRESH CONCRETE TO RETAIN MOISTURE.
6. TOP OF CURB BRANDED WITH "S" OR "W", 2" MIN. HEIGHT FOR SEWER AND WATER LOCATIONS. HAND SCRIBING NOT ALLOWED.

City of Newberg
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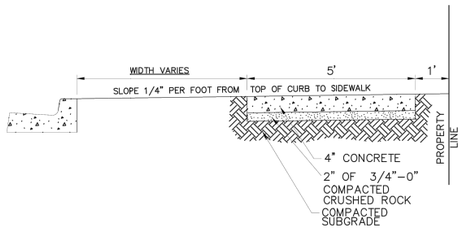
CURB AND GUTTER

SCALE: N.T.S.
DATE: May 2015
APPROVED BY: K. Hofmann
STANDARD DRAWING 501



NOTES:

1. SLOPE FROM THE PROPERTY LINE TO THE STREET AT 2%.
2. WORK AGGREGATE INTO CONCRETE PRIOR TO FINISHING CONCRETE.
3. FINISHING DETAILS
   - –EDGE CONCRETE WITH 3" EDGING TROWEL.
   - –SCORE CONCRETE AT 5' INTERVALS.
   - –INSTALL 1/8" x 1 1/2" CONTRACTION JOINTS EVERY 15'.
   - –FABRIC TYPE EXPANSION JOINT NOT TO BE USED
   - –APPLY LIGHT BROOM FINISH TRANSVERSE TO THE SIDEWALK.
4. CONCRETE SHALL HAVE STRENGTH OF 3300 P.S.I. AT 28 DAYS.
5. APPLY CURING COMPOUND (PETROLEUM BASE) TO FRESH CONCRETE TO RETAIN MOISTURE.
6. TOLERANCES
   - –SURFACE SHALL NOT VARY MORE THAN 1/4" FROM A 10' STRAIGHT EDGE.
   - –ALIGNMENT SHALL BE WITHIN 1/4" OF TRUE LINE.

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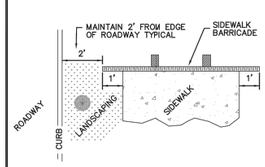
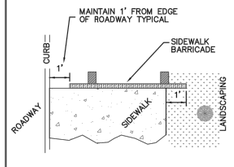
SIDEWALK TYPE "A"

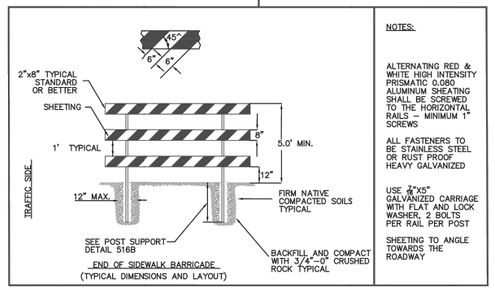
SCALE: N.T.S.
DATE: May 2015
APPROVED BY: K. Hofmann
STANDARD DRAWING 503



END OF SIDEWALK ("TYPE A")



END OF SIDEWALK ("TYPE B")



NOTES:

ALTERNATING RED & WHITE HIGH INTENSITY PRISMATIC 0.080 ALUMINUM SHEATING SHALL BE SCREWED TO THE HORIZONTAL RAILS – MINIMUM 1" SCREWS

ALL FASTENERS TO BE STAINLESS STEEL OR RUST PROOF HEAVY GALVANIZED

USE 2"X5" GALVANIZED CARRIAGE WITH FLAT AND LOCK WASHER, 2 BOLTS PER RAIL PER POST

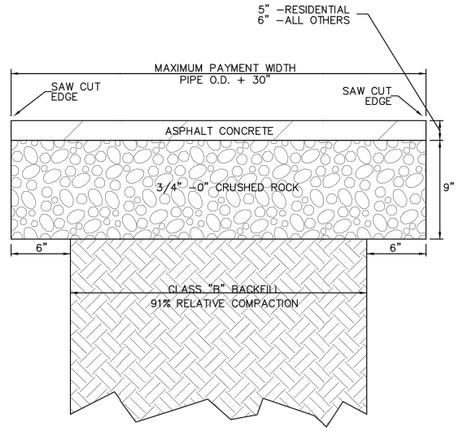
SHEETING TO ANGLE TOWARDS THE ROADWAY

City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
PHONE: 503-537-1240
FAX: 503-537-1277

REVISIONS:

END OF SIDEWALK BARRICADES

SCALE: N.T.S.
DATE: MAY 2014
APPROVED BY: J. HARRIS
STANDARD DRAWING 516C



NOTES:

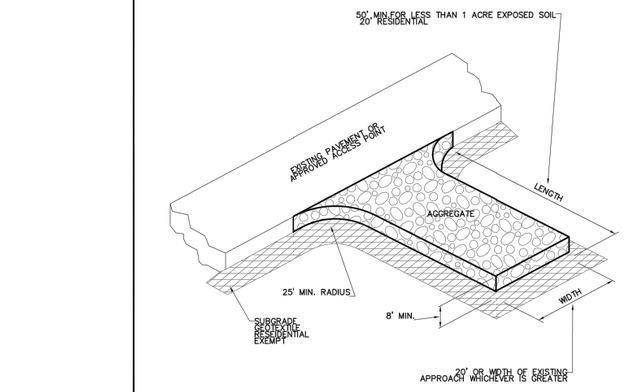
1. SAW CUT ASPHALT TO NEAT STRAIGHT LINES.
2. ASPHALT – CLASS "C" MIX PLACED IN 2 LIFTS.
3. ALL JOINTS SHALL BE SEALED WITH RUBBERIZED ASPHALT EMULSION (HOT OR COLD) AND DE–TACKED WITH SAND IF IMMEDIATE TRAFFIC IS NEEDED AT ALL JOINTS.
4. ACTUAL PAYMENT WIDTH TO BE DETERMINED AT SITE PRIOR TO PAVING.
5. REFERENCE DESIGN STANDARDS MANUAL SECTION 5.22 FOR ADDITIONAL TRENCH PAVING REQUIREMENTS.

City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
PHONE: 503-537-1240
FAX: 503-537-1277

REVISIONS: Jan. 2011; 05/07/2015 - ASM

TRENCH PAVING

SCALE: N.T.S.
DATE: May 2015
APPROVED BY: K. Hofmann
STANDARD DRAWING 517



NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-RIGH-OF WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. WHERE RUNOFF CONTAINING SEDIMENT-LADEN WATER IS LEAVING THE SITE VIA THE CONSTRUCTION ENTRANCE, OTHER MEASURES SHALL BE IMPLEMENTED TO DIVERT RUNOFF THROUGH AN APPROVED FILTERING SYSTEM.
5. DIMENSIONS:
   SINGLE FAMILY AND DUPLEX
   20' LONG BY 20' WIDE, 8" DEEP OF 3/4 " MINUS CLEAN ROCK.
   COMMERCIAL
   50' LONG BY 20' WIDE, 3-6" DEEP CLEAN ROCK.
   GOVERNING AUTHORITY MAY REQUIRE GEOTEXTILE FABRIC TO PREVENT SUB-SOIL PUMPING.

City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
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PHONE: 503-537-1240
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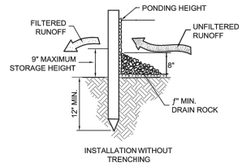
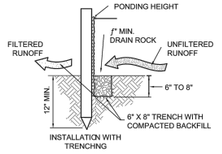
REVISIONS:

CONSTRUCTION ENTRANCE

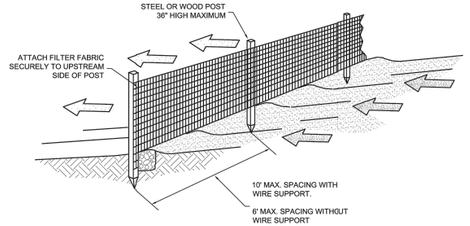
SCALE: N.T.S
DATE: May 2007
APPROVED BY: B. Danicic
STANDARD DRAWING 601



INSTALLATION WITHOUT TRENCHING



INSTALLATION WITH TRENCHING

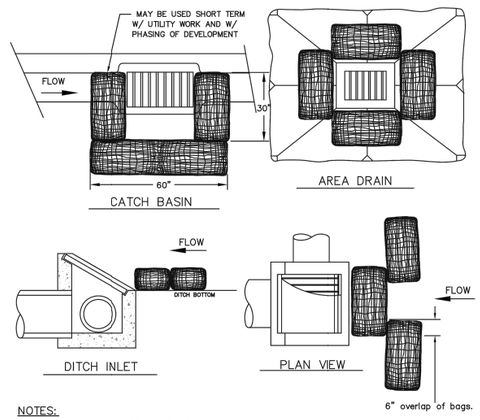


City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
PHONE: 503-537-1240
FAX: 503-537-1277

REVISIONS:

SILT FENCE

SCALE: N.T.S.
DATE: MAY 2007
APPROVED BY: D. DANICIC
STANDARD DRAWING 602



NOTES:

1. ADDITIONAL MEASURES MUST BE CONSIDERED DEPENDING ON SOIL TYPES.
2. BIO–FILTER BAGS SHOULD BE STAKED WHERE APPLICABLE USING (2) 1"x2"WOODEN STAKES OR APPROVED EQUAL PER BAG.
3. WHEN USING 30" BIO–BAGS TO PROTECT A CATCH BASIN YOU MUST HAVE 4 BAGS AND THEY SHALL BE OVERLAPPED BY 6".

City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
PHONE: 503-537-1240
FAX: 503-537-1277

REVISIONS: 12/10/2013

INLET PROTECTION

SCALE: N.T.S.
DATE: 04/04/2009
APPROVED BY: PAUL CHIU
STANDARD DRAWING 605

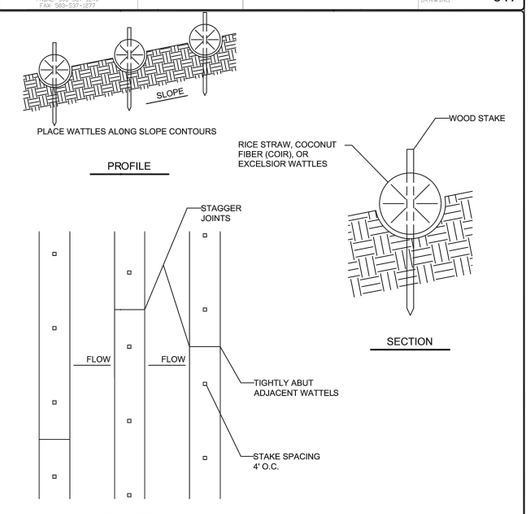


TABLE 3-12 BARRIER SPACING FOR GENERAL APPLICATION

% SLOPE	SLOPE	MAX SPACING ON SLOPE
<10%	<10:1	300 ft
10-15%	10:1 to 7.5:1	150 ft
15-20%	7.5:1 to 5:1	100 ft
20-30%	5:1 to 3.5:1	50 ft
30-50%	3.5:1 to 2:1	25 ft

NOTES:
1. STAKING SPECIFICATIONS:
   A. 1"x2" WOODEN STAKES.
   B. ADDITIONAL STAKES MAY BE INSTALLED ON DOWNHILL SIDE OF WATTLES ON STEEP SLOPES OR HIGHLY EROSIVE SOILS.
2. SPACING IN ACCORDANCE WITH TABLE 3-12.

City of Newberg
PUBLIC WORKS ENGINEERING DIVISION
414 E. FIRST STREET NEWBERG, OR 97132
PHONE: 503-537-1240
FAX: 503-537-1277

REVISIONS: NA

WATTLES/STRAW BALE

SCALE: N.T.S
DATE: 01/10/2014
APPROVED BY:
STANDARD DRAWING 611

BY	DESCRIPTION	DATE
A		

REGISTERED PROFESSIONAL ENGINEER
78340PE
OREGON
MARCH 09, 2010
ANDREY R. CHERNISHOV
EXPIRES: 12/31/2021

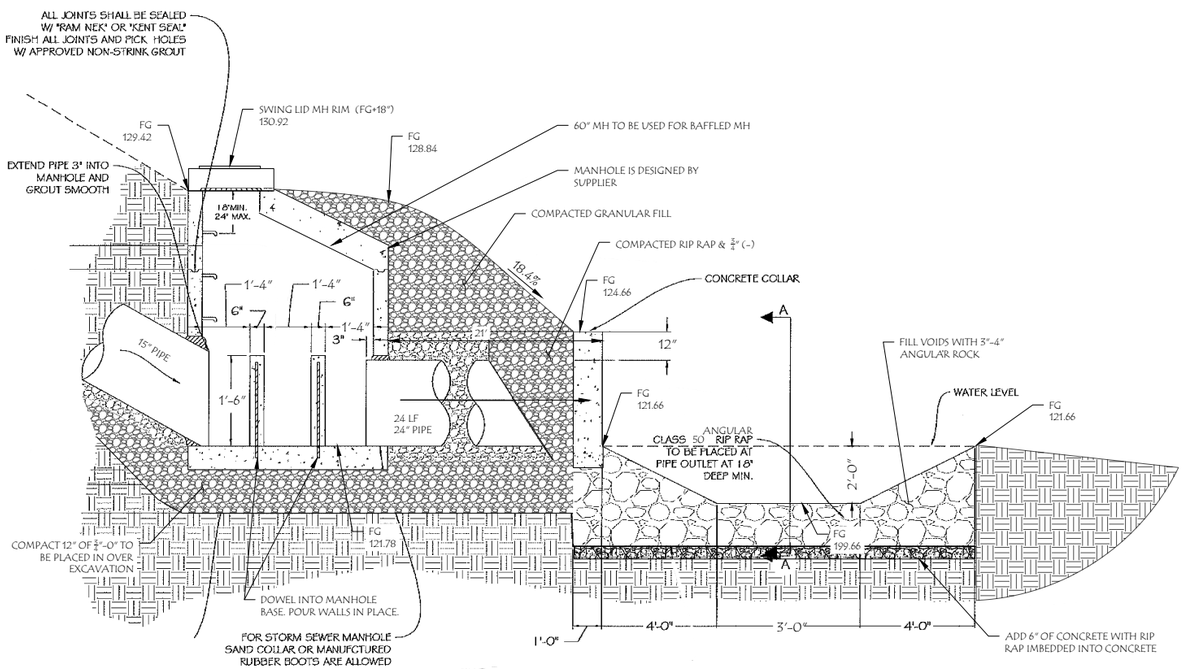
CITY OF NEWBERG STANDARD DETAILS
WYNOOSKI OUTFALL REDESIGN
CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbhconsulting.com

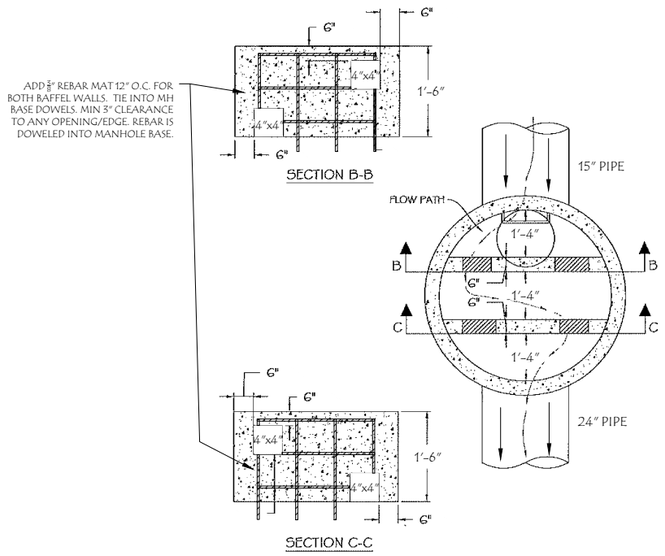
DATE | 9/28/2022
DRAWN | ARB
DESIGNED | JH
CHECKED | ARC

SHEET NUMBER
10 OF 11

Prod Stamp: 9/28/2022 3:32:12 PM - Andrew
File: L:\2019-01\54-Design\DWG\11-DETAILS.dwg



DISSIPATER MANHOLE
(NTS)



60" DISSIPATER MANHOLE DETAILS
(NTS)

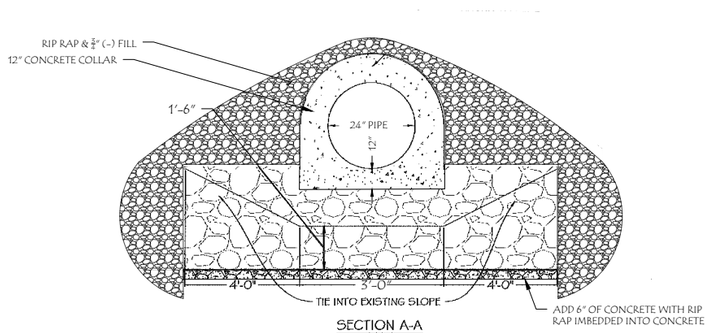
RIPRAP NOTES:
- ROCK FOR RIPRAP SHALL BE ANGULAR IN SHAPE
- THICKNESS OF A SINGLE ROCK SHALL NOT BE LESS THAN ONE-THIRD ITS LENGTH

RIPRAP INSTALLATION NOTES:
- EXCAVATE BELOW FINISH GRADE DPETH TO DIMENSIONSN SHOWN ON APPROVED PLANS
- INTSALL WOVEN GEOTEXTILE FABRIC
- PLACE RIP RAP TO FINISH GRADE

GRADE RIP RAP SHALL BE THE CLASS AND SIZE OF ROCK ACCORDING TO THE FOLLOWING:

CLASS 50

WEIGHT OF ROCK (LBS)	PERCENT (BY WEIGHT)
50-30	20%
30-15	30%
15-2	40%
2-0	10%



SECTION A-A

PIPE OUTLET DETAILS
(NTS)

BY	DESCRIPTION	DATE
A		

REGISTERED PROFESSIONAL ENGINEER
OREGON
MARCH 09, 2010
ANDREY R. CHERNISHOV
EXPIRES: 12/31/2021

DETAILS

WYNOOSKI OUTFALL REDESIGN

CITY OF NEWBERG
NEWBERG, OR

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 fax 503/537-9554
email: mail@hbh-consulting.com

DATE	9/28/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC

SHEET NUMBER
11 OF 11

Plot Stamp: 9/28/2022 3:32:34 PM - Andrew
File: L:\2019\01564-Design\DWG\12-DETAILS.dwg

Community Development Department
P.O. Box 970 ▪ 414 E First Street ▪ Newberg, Oregon 97132
503-537-1240. Fax 503-537-1272 www.newbergoregon.gov

WE WANT YOUR COMMENTS ON A PROPOSED NEW DEVELOPMENT IN YOUR NEIGHBORHOOD

The City of Newberg's Engineering Division on behalf of two (2) property owners in your neighborhood submitted an application to the City of Newberg's Community Development Department to reconstruct a failing stormwater outfall in the Stream Corridor (SC) Overlay Subdistrict**.** You are invited to take part in the City's review of this project by sending in your written comments. For more details about giving comments, please see the back of this sheet.

The development will include reconstructing an existing stormwater outfall that discharges into Hess Creek by relocating the existing outfall further downstream toward the bottom of the drainage. A new stormwater pipe and riprap flow dissipater will be installed along with site grading and the planting of grasses, shrubs, and 13 new trees.

APPLICANT: *Fatin Abdullah, City of Newberg Engineering Division*
TELEPHONE: *503-537-1282*

PROPERTY OWNER:	Jim Wheaton;	Clare Sunderland.
LOCATION:	740 S Wynooski St;	730 Wynooski St.
TAX LOT NUMBER:	R3220CA 00802;	R3220CA 00700.

Working Together for A Better Community-Serious About Service"

We are mailing you information about this project because you own land within 500 feet of the proposed new project. We invite you to send any written comments for or against the proposal within 14 days from the date this notice is mailed.

If you mail your comments to the City, please put the following information on the outside of the envelope:

Written Comments: File No.XX **(City staff will give you the file number for your project at the time of application)**
City of Newberg
Community Development Department
PO Box 970
Newberg, OR 97132

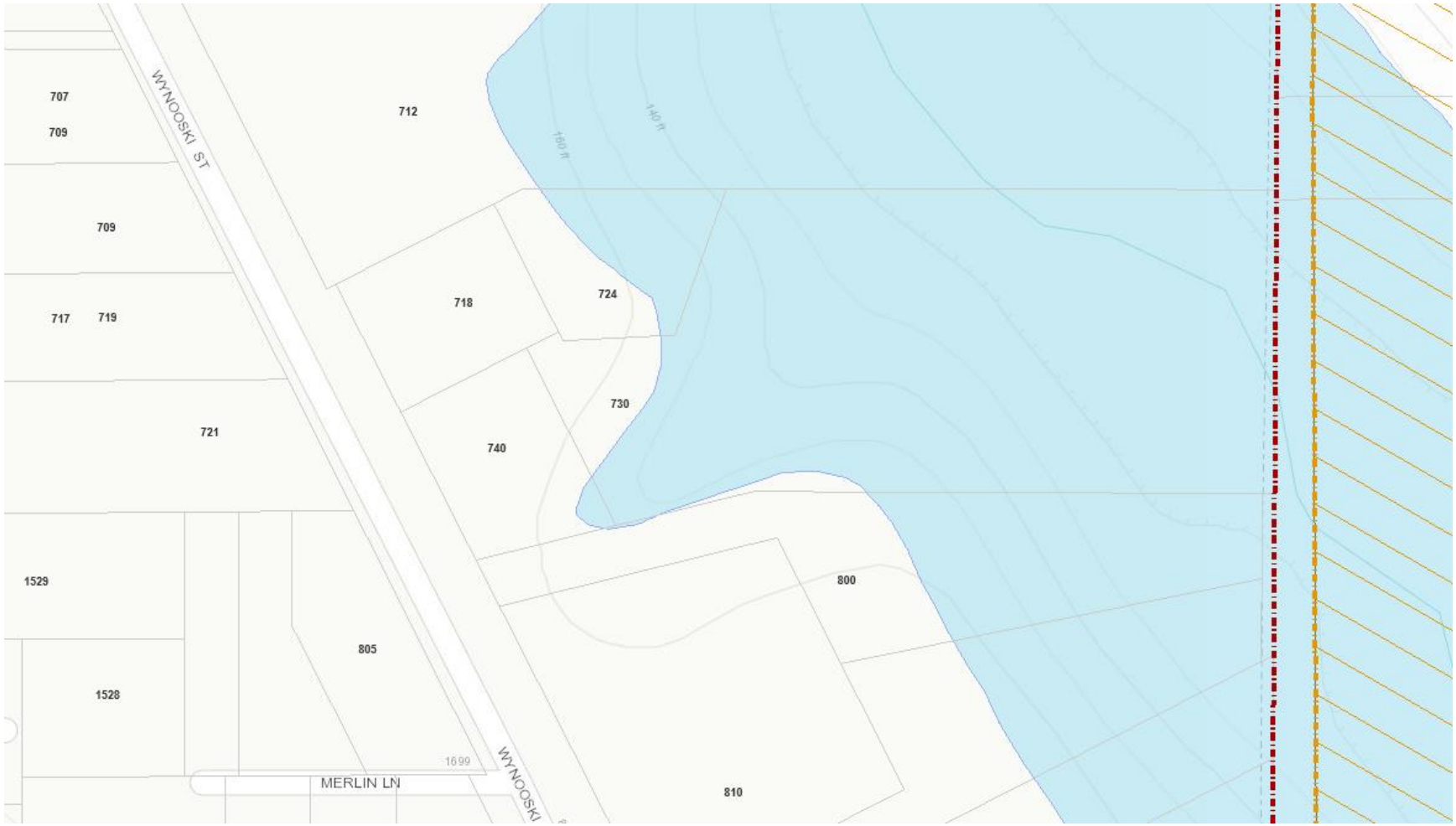
You can look over all the information about this project or drop comments off at Newberg City Hall, 414 E. First Street. You can also buy copies of the information for a cost of 25 cents a page. If you have any questions about the project, you can call the Newberg Planning Division at 503-537-1240.

All written comments must be turned in by 4:30 p.m. on ***enter date two weeks from date you mailed notice*****.** Any issue which might be raised in an appeal of this case to the Land Use Board of Appeals (LUBA) must be submitted to the City in writing before this date. You must include enough detail to enable the decision maker an opportunity to respond. The applicable criteria used to make a decision on this application for design review approval are found in Newberg Development Code 15.220.050(B).

The Community Development Director will make a decision at the end of a 14-day comment period. If you send in written comments about this project, you will be sent information about any decision made by the City relating to this project.

Date Mailed: ***Date notice is mailed***


707
712
709
717
719
730
721
800
1529
1528
S Wynooski Street


WYNOOSKI ST
707
709
709
717
719
721
712
718
724
730
740
1529
1528
805
800
810
1699
MERLIN LN
WYNOOSKI
140 ft
160 ft

List of mailing recipients of property owners within five hundred (500) feet of the outer boundaries of the tax lots of the wynooski_storm_500ft

MapTaxlot	SITUS1	SITUS2	SITUSCITY	SITUSZIP	OWNER1	OWNER2	OWNER3	MAILADD1	MAILADD2	MAILCITY	MAILSTATE	MAILZIP
R3220CD 00400	1005 NE WYNOOSKI RD				RDP PROPERTIES LLC			3035 SW 66TH CT		PORTLAND	OR	97225
R3220CD 00402					SMITH LORREN J			917 WYNOOSKI ST		NEWBERG	OR	97132
R3220CA 00915	1730 E DARBY CT		NEWBERG	97132	BAUNE FAMILY TRUST	BAUNE JAMES L CO-TRUSTEE	BAUNE ARLENE C CO-TRUSTEE	1730 E DARBY CT		NEWBERG	OR	97132
R3220CD 03800	904 S PACIFIC ST		NEWBERG	97132	MAY JACK B	GUTWENIGER ANGELA L		2220 THORNE ST		NEWBERG	OR	97132
R3220CA 00909	1756 E DARBY CT		NEWBERG	97132	ENGBERG TARREN	ENGBERG REBECCA M		11395 SW TOULOUSE ST STE 304		WILSONVILLE	OR	97070
R3220CA 00910	1752 E DARBY CT		NEWBERG	97132	CASPER PHILIP	STALKER ANGELA		1752 E DARBY CT		NEWBERG	OR	97132
R3220CA 00914	1734 E DARBY CT		NEWBERG	97132	KODAD DYLAN	KODAD GRACE		1734 E DARBY CT		NEWBERG	OR	97132
R3220CA 00911	1746 E DARBY CT		NEWBERG	97132	BENEDICT HANNAH E	BENEDICT JEREMY L H		1746 E DARBY CT		NEWBERG	OR	97132
R3220CA 01002					YAMHILL COUNTY			434 NE EVANS ST		MCMINNVILLE	OR	97128
R3220CA 00913	1738 E DARBY CT		NEWBERG	97132	VANHOOMISSEN TYLER J	VANHOOMISSEN ALEXANDRIA		2650 COEUR D'ALENE DR		WEST LINN	OR	97068
R3220CD 00300	917 NE WYNOOSKI RD				SMITH NORMAN G & LORREN J			917 NE WYNOOSKI RD		NEWBERG	OR	97132
R3220CD 00300	917 NE WYNOOSKI RD				SMITH NORMAN G & LORREN J			917 NE WYNOOSKI RD		NEWBERG	OR	97132
R3220CA 00912	1742 E DARBY CT		NEWBERG	97132	ANTILLON OCTAVIO L	ALCARAZ ROSANGELICA M		1742 E DARBY CT		NEWBERG	OR	97132
R3220CA 00908	1760 E DARBY CT		NEWBERG	97132	GUILLORY RANDALL	GUILLORY KIMBERLY		1760 E DARBY CT		NEWBERG	OR	97132
R3220CA 01001	813 WYNOOSKI ST		NEWBERG	97132	RODRIGUES DAREN J	RODRIGUES DEREK W		813 WYNOOSKI ST		NEWBERG	OR	97132
R3220CA 01000	815 WYNOOSKI ST		NEWBERG	97132	ROJO SALVADOR CAMPOS	ROJO ABEL CAMPOS		815 WYNOOSKI ST		NEWBERG	OR	97132
R3220CA 01101	835 WYNOOSKI ST		NEWBERG	97132	CHIMELIS RICARDO			835 WYNOOSKI ST		NEWBERG	OR	97132
R3220CA 00901	1731 E DARBY CT		NEWBERG	97132	WINDELL JASON	WINDELL HAILY		1731 E DARBY CT		NEWBERG	OR	97132
R3220CA 00907	1764 E DARBY CT		NEWBERG	97132	HUGHES FAMILY TRUST	HUGHES TREVOR J TRUSTEE	HUGHES TERESA R TRUSTEE	1764 E DARBY CT		NEWBERG	OR	97132
R3220CA 01100	1517 E 9TH ST		NEWBERG	97132	GARCIA-PICASSO IVAN	SORIANO-CASTRO KARINA		1517 E 9TH ST		NEWBERG	OR	97132
R3220CA 02400	818 S PACIFIC ST		NEWBERG	97132	SADDORIS ROBERT T			818 S PACIFIC ST		NEWBERG	OR	97132
R3220CA 00902	840 WYNOOSKI ST		NEWBERG	97132	RODRIGUES DEREK W JR			840 WYNOOSKI ST		NEWBERG	OR	97132
R3220CA 00906	1751 E DARBY CT		NEWBERG	97132	WEDIN ABRIANA N	WEDIN AMBER D		1751 E DARBY CT		NEWBERG	OR	97132
R3220CA 01307	812 S PACIFIC ST		NEWBERG	97132	CREGER KYLE	ERKENBECK ALICIA M		812 S PACIFIC ST		NEWBERG	OR	97132
R3220CA 00905	1747 E DARBY CT		NEWBERG	97132	MOORE ARON E	MOORE ANNIE M		1747 E DARBY CT		NEWBERG	OR	97132
R3220CA 01206	1622 MERLIN LN		NEWBERG	97132	LUNSTRUM ANDRA L	MANN KATHLEEN A		1622 E MERLIN LN		NEWBERG	OR	97132
R3220CA 01205	1616 MERLIN LN		NEWBERG	97132	SAVARINO LARRY			1616 MERLIN LN		NEWBERG	OR	97132
R3220CA 01204	1610 MERLIN LN		NEWBERG	97132	CAPPOEN CASEY			1610 MERLIN LN		NEWBERG	OR	97132
R3220CA 01200	1604 MERLIN LN		NEWBERG	97132	TOWNSEND STEPHEN A	TOWNSEND VIVIAN G		1604 MERLIN LN		NEWBERG	OR	97132
R3220CA 01309	1518 PARADISE DR		NEWBERG	97132	KENNEY JESSICA			1518 PARADISE DR		NEWBERG	OR	97132
R3220CA 01308	1508 PARADISE DR		NEWBERG	97132	HARPER JACOB M			1508 PARADISE DR		NEWBERG	OR	97132
R3220CA 01306	808 S PACIFIC ST		NEWBERG	97132	ROSENBURY JOSYNDA D			808 S PACIFIC ST		NEWBERG	OR	97132
R3220CA 00904	1743 E DARBY CT		NEWBERG	97132	RAGLAND BRITTNEY A	RAGLAND AUSTIN J		1743 E DARBY CT		NEWBERG	OR	97132
R3220CA 01300	1528 PARADISE DR		NEWBERG	97132	PEREZ NOE RODRIGUEZ			1528 PARADISE DR		NEWBERG	OR	97132
R3220CA 01310					OWNERS OF LTS 5-10			PO BOX 490		NEWBERG	OR	97132
R3220CA 00800					MAJDECKI SCOTT A & KARIN E			810 WYNOOSKI ST		NEWBERG	OR	97132
R3220CA 01305	736 S PACIFIC ST		NEWBERG	97132	ARIAS JUAN J GUZMAN	GUZMAN SANDRA V MORALES		736 S PACIFIC ST		NEWBERG	OR	97132
R3220CA 00801	810 WYNOOSKI ST		NEWBERG	97132	MAJDECKI SCOTT A & KARIN E			810 WYNOOSKI ST		NEWBERG	OR	97132
R3220 01101	1800 KENNEDY DR		NEWBERG	97132	CHEHALEM PARK & RECREATION DISTRICT			125 S ELLIOTT RD		NEWBERG	OR	97132
R3220CA 01501	805 WYNOOSKI ST		NEWBERG	97132	JEFFERY DAVE			214 W AVE F		MCPHERSON	KS	67460
R3220CA 01502					DECKON MICHAEL	DECKON NIKKI		807 WYNOOSKI LN		NEWBERG	OR	97132
R3220CA 01500	809 WYNOOSKI ST		NEWBERG	97132	PAULI MICHAEL			809 WYNOOSKI ST		NEWBERG	OR	97132
R3220CA 00803	803 WYNOOSKI ST		NEWBERG	97132	PHELPS KELLY J	THOMAS PATRICK J		800 WYNOOSKI ST		NEWBERG	OR	97132
R3220CA 01301	1529 PARADISE DR		NEWBERG	97132	DEVEAS CATHERINE			1529 PARADISE DR		NEWBERG	OR	97132
R3220CA 01302	1519 PARADISE DR		NEWBERG	97132	FOURNIER LENNETTE R			1519 PARADISE DR		NEWBERG	OR	97132
R3220CA 01303	1509 PARADISE DR		NEWBERG	97132	ALVAREZ DANIEL V			1509 PARADISE DR		NEWBERG	OR	97132
R3220CA 01304	726 S PACIFIC ST		NEWBERG	97132	ALEXANDER YVONNE	ALEXANDER DARWIN		726 S PACIFIC ST		NEWBERG	OR	97132
R3220CA 02302	720 S PACIFIC ST		NEWBERG	97132	RIESTRA JOSE O &	GALLEGOS MARY R		720 S PACIFIC ST		NEWBERG	OR	97132
R3220CA 01600	721 WYNOOSKI ST		NEWBERG	97132	HOLDAHL TERRY L	HOLDAHL LINDA C		721 WYNOOSKI ST		NEWBERG	OR	97132
R3220CA 00802	740 WYNOOSKI ST		NEWBERG	97132	WHEATON JAMES	WHEATON VIVA R		16485 NE LEANDER DR		SHERWOOD	OR	97140
R3220DB 07000	1995 KENNEDY DR		NEWBERG	97132	TERRY JULIE A	TERRY JASON		1995 KENNEDY DR		NEWBERG	OR	97132
R3220DB 07100	1993 KENNEDY DR		NEWBERG	97132	NGUYEN BAO P P			1993 KENNEDY DR		NEWBERG	OR	97132
R3220CA 02300	722 S PACIFIC ST		NEWBERG	97132	RARICK JAMES	RARICK AMANDA L		722 S PACIFIC ST		NEWBERG	OR	97132
R3220CA 02301	718 S PACIFIC ST		NEWBERG	97132	LEE ALISON			718 S PACIFIC ST		NEWBERG	OR	97132
R3220CA 01601	717 WYNOOSKI ST		NEWBERG	97132	IANCU MARTHA A			15715 SW QUEEN VICTORIA PL		KING CITY	OR	97224
R3220CA 01602	724 S PACIFIC ST		NEWBERG	97132	GUNN MACKENZIE L	RAMOS JONATAN J GONZALEZ		724 S PACIFIC ST		NEWBERG	OR	97132
R3220CA 03201	721 S PACIFIC ST		NEWBERG	97132	PERSON JULIAN	PERSON JULIANA E		721 S PACIFIC ST		NEWBERG	OR	97132
R3220DB 04700	2005 KENNEDY DR		NEWBERG	97132	SLYTER BRANDON R	SLYTER REBEKAH C		2005 KENNEDY DR		NEWBERG	OR	97132
R3220 01000	900 NE WYNOOSKI RD		NEWBERG	97132	DARBY PATRICK D			24855 WALLACE RD NW		SALEM	OR	97304
R3220CA 00701	718 WYNOOSKI ST		NEWBERG	97132	BURKLOW VINCENT M	BURKLOW VERONICA N		718 WYNOOSKI ST		NEWBERG	OR	97132
R3220CA 00700	730 WYNOOSKI ST		NEWBERG	97132	SUNDERLAND CLARE C			730 WYNOOSKI ST		NEWBERG	OR	97132
R3220CA 00702	724 WYNOOSKI ST		NEWBERG	97132	OLIVARES FAVIOLA			724 WYNOOSKI ST		NEWBERG	OR	97132
R3220CA 02200	716 S PACIFIC ST		NEWBERG	97132	TATE ERNEST W	TATE JASON W	TATE MARIE L	716 S PACIFIC ST		NEWBERG	OR	97132
R3220DB 04600	2013 KENNEDY DR		NEWBERG	97132	SNELL WADE H III	BAIRES-SNELL AMANDA I		574 SUNDAHL DR		FOLSOM	CA	0
R3220DB 04500	2025 KENNEDY DR		NEWBERG	97132	RAMIREZ MELISSA	ALONZO FAUSTINO		2025 KENNEDY DR		NEWBERG	OR	97132
R3220CA 01700	707 WYNOOSKI ST		NEWBERG	97132	SINGLETON ANGELA M			707 WYNOOSKI ST		NEWBERG	OR	97132
R3220CA 01701	709 WYNOOSKI ST		NEWBERG	97132	MCCOLLUM KIMBERLY			501 E 3RD ST		NEWBERG	OR	97132
R3220CA 01790					LABONTE FREDERICK T			1514 E 7TH ST		NEWBERG	OR	97132
R3220DB 03200	2037 KENNEDY DR		NEWBERG	97132	BOLTINGHOUSE FRANCISCA	ARTHUR CHRISTOPHER L		2037 KENNEDY DR		NEWBERG	OR	97132
R3220CA 01800	1514 E 7TH ST		NEWBERG	97132	LABONTE FREDERICK T			1514 E 7TH ST		NEWBERG	OR	97132
R3220CA 01900	1508 E 7TH ST		NEWBERG	97132	SEDAGHATY JOSEPH	SEDAGHATY DOMINI		1508 E 7TH ST		NEWBERG	OR	97132
R3220CA 02000	1504 E 7TH ST		NEWBERG	97132	COLLING NEWBERG PROPERTIES LLC			C/O CHARLES COLLING - MANAGER	13835 SW HALL BLVD	TIGARD	OR	97223
R3220CA 02100	700 S PACIFIC ST		NEWBERG	97132	MIRAMONTES NICHOLAS F	BERRIE MICHAEL		700 S PACIFIC ST		NEWBERG	OR	97132
R3220DB 03300	2049 KENNEDY DR		NEWBERG	97132	LUTTRELL RANDALL J	LUTTRELL BILLEE R		2049 KENNEDY DR		NEWBERG	OR	97132
R3220CA 00602					BALES GERALD L			901 N BRUTSCHER ST STE D PMB 229		NEWBERG	OR	97132
R3220DB 03400	2061 KENNEDY DR		NEWBERG	97132	MAIXNER JEANNE A			2061 KENNEDY DR		NEWBERG	OR	97132
R3220 01190	0 S EVEREST RD		NEWBERG	97132	FERNWOOD PIONEER CEMETERY ASSOCIATION			PO BOX 3		NEWBERG	OR	97132
R3220CA 00690					MEETING OF FRIENDS CHURCH			NEWBERG FRIENDS CEMETERY	PO BOX 487	NEWBERG	OR	97132

R3220CA 00600	712 WYNOOSKI ST	NEWBERG	97132	ROSENBERGER S D & E J LIVING TRUST	ROSENBERGER STEPHEN D TRUSTEE	ROSENBERGER ELIZABETH J TRUSTEE	712 WYNOOSKI ST		NEWBERG	OR	97132
R3220CA 00601	708 WYNOOSKI ST	NEWBERG	97132	BALES GERALD L			901 N BRUTSCHER ST STE D PMB 229		NEWBERG	OR	97132
R3220CA 00500	700 WYNOOSKI ST	NEWBERG	97132	MCCOMB TOMAS	MARSAL RENATA		700 WYNOOSKI ST		NEWBERG	OR	97132
R3220DB 03500	2073 KENNEDY DR	NEWBERG	97132	ADAMS LAURA E			2073 KENNEDY DR		NEWBERG	OR	97132
R3220CA 04400	619 WYNOOSKI ST	NEWBERG	97132	YODER ERNEST J	YODER NORMA J		619 WYNOOSKI ST		NEWBERG	OR	97132
R3220CA 04300	1507 E 7TH ST	NEWBERG	97132	MORRIS JOHN C	MORRIS MELISSA M		1507 E 7TH ST		NEWBERG	OR	97132
R3220CA 00408	1616 LILLY CT	NEWBERG	97132	CARPENTER DANIEL D	CARPENTER DEBRA R		1616 LILLY CT		NEWBERG	OR	97132
R3220CA 00409	1608 LILLY CT	NEWBERG	97132	CAMACHO ALFREDO V	SANDOVAL ELIZABETH C		1608 LILLY CT		NEWBERG	OR	97132
R3220CA 00410	1600 LILLY CT	NEWBERG	97132	SANDS KEVIN S	SANDS RHEA		1600 LILLY CT		NEWBERG	OR	97132
R3220CA 00407	1624 LILLY CT	NEWBERG	97132	LEBLANC ERICA	ALVAREZ PATRICK		1624 LILLY CT		NEWBERG	OR	97132
R3220CA 00406	1630 LILLY CT	NEWBERG	97132	ODONNELL SUSAN L			1630 LILLY CT		NEWBERG	OR	97132
R3220CA 00300				ROSENBERGER S D & E J LIVING TRUST	ROSENBERGER STEPHEN D TRUSTEE	ROSENBERGER ELIZABETH J TRUSTEE	712 WYNOOSKI ST		NEWBERG	OR	97132
R3220CA 00405	1627 LILLY CT	NEWBERG	97132	GRONICH DINNY C	GRONICH AMANDA J		1627 LILLY CT		NEWBERG	OR	97132
R3220 01100	500 S EVEREST RD	NEWBERG	97132	NEWBERG FRIENDS CHURCH			PO BOX 487		NEWBERG	OR	97132
R3220 01100	500 S EVEREST RD	NEWBERG	97132	NEWBERG FRIENDS CHURCH			PO BOX 487		NEWBERG	OR	97132
R3220 00900	97058		NEWBERG	LEARD INA M TRUSTEE FOR	LEARD LIVING TRUST		LEARD LIVING TRUST	SANDRA MASSEY	3549 OLD DUFUR RD	THE DALLES	0
R3220 00901	910 WYNOOSKI ST	NEWBERG	97132	LEARD KENNETH D & THERESA A			910 WYNOOSKI ST		NEWBERG	OR	97132

POSTED NOTICE

Land Use Notice

FILE # MISC20-000X

PROPOSAL: Reconstruct existing stormwater outfall and install new stormwater pipe and riprap flow dissipater, which includes site grading, and restoration planting of grasses, shrubs, and 13 new trees.

FOR FURTHER INFORMATION, CONTACT:

City of Newberg
Community Development Department
414 E First Street
Phone: 503-537-1240

2’

3′

Notice must be white with black letters, and must be landscape orientation, as shown above. The notice must be lettered using block printing or a “sans-serif” font, such as Arial.

First American Title Insurance Company

775 NE Evans Street
McMinnville, OR 97128
Phn - (503)376-7363
Fax - (866)800-7294

YAMHILL COUNTY TITLE UNIT
FAX (866)800-7294

Title Officer: Clayton Carter
(503)376-7363
ctcarter@firstam.com

LOT BOOK SERVICE

City Of Newberg
414 East First Street
Newberg, OR 97132

Order No.: 1039-4040604
March 03, 2023

Attn: Fatin Abdullah
Phone No.: - Fax No.:
Email:

Re: 04-5150-717738

Fee: $300.00

We have searched our Tract Indices as to the following described property:

PARCEL 2 OF PARTITION PLAT 97-82, RECORDED DECEMBER 30, 1997, IN FILM 5, PAGE 15, RECORDS OF PLATS FOR YAMHILL COUNTY, OREGON.

TOGETHER WITH AND SUBJECT TO A 25 FOOT WIDE ACCESS AND UTILITY EASEMENT AS DISCLOSED ON SAID PARTITION PLAT.

and as of March 1,2023 at 8:00 a.m.

We find that the last deed of record runs to

James M. Wheaton and Viva Roseanne Wheaton, as tenants by the entirety

We find the following apparent encumbrances within ten (10) years prior to the effective date hereof:

NONE

1. The rights of the public in and to that portion of the premises herein described lying within the limits of streets, roads and highways.

2. Easement as shown on the recorded plat/partition
   For: 25' access and utility

3. Agreement for Utility Access, Ingress and Egress Access, and Maintenance of Common Driveway, including terms and provisions thereof.
   Recorded: December 30, 1997 as Instrument No. 199721666, Deed and Mortgage Records

4. Easement, including its terms, covenants and provisions as granted by instrument:
   Recorded: February 09, 2016
   Recording Information: Instrument No. 201601710, Deed and Mortgage Records
   Grantee: Portland General Electric Company
   For: Underground distribution line easement

5. Easement, including terms and provisions contained therein:
   Recording Information: February 09, 2016 as Instrument No. 201601711, Deed and Mortgage Records
   In Favor of: Portland General Electric Company, an Oregon corporation, and its successors and assigns
   For: Right of way

6. Deed of Trust and the terms and conditions thereof.
   Grantor/Trustor: James Wheaton and Viva Roseanne Wheaton, as tenants by the entirety
   Grantee/Beneficiary: Mortgage Electronic Registration Systems, Inc., "MERS" solely as Guild Mortgage Company, its successors and assigns
   Trustee: Northwest Trustee Services, INC.
   Amount: $193,100.00
   Recorded: September 22, 2017
   Recording Information: Instrument No. 201715270, Deed and Mortgage Records

7. Deed of Trust and the terms and conditions thereof.
   Grantor/Trustor: James Wheaton and Viva Roseanne Wheaton, husband and wife
   Grantee/Beneficiary: First Technology Federal Credit Union
   Trustee: Brad L. Williams, an Oregon Attorney
   Amount: $70,140.00
   Recorded: June 11, 2018
   Recording Information: Instrument No. 201808091, Deed and Mortgage Records

   Note: This Deed of Trust contains Line of Credit privileges. If the current balance owing on said obligation is to be paid in full in the forthcoming transaction, confirmation should be made that the beneficiary will issue a proper request for full reconveyance.

We have also searched our General Index for Judgments and State and Federal Liens against the Grantee(s) named above and find:

NONE

We find the following paid taxes and city liens:

1. City liens, if any, of the City of Newberg.

NOTE: Taxes for the year 2022-2023 PAID IN FULL
Tax Amount: $3,962.94

Map No.:	R3220CA 00802
Property ID:	58742
Tax Code No.:	29.0

THIS IS NOT a title report since no examination has been made of the title to the above described property. Our search for apparent encumbrances was limited to our Tract Indices, and therefore above listings do not include additional matters which might have been disclosed by an examination of the record title. We assume no liability in connection with this Lot Book Service and will not be responsible for errors or omissions therein. The charge for this service will not include supplemental reports, rechecks or other services.

First American Title Insurance Company
775 NE Evans Street
McMinnville, OR 97128

Illegal Restrictive Covenants

Please be advised that any provision contained in this document, or in a document that is attached, linked, or referenced in this document, that under applicable law illegally discriminates against a class of individuals based upon personal characteristics such as race, color, religion, sex, sexual orientation, gender identity, familial status, disability, national origin, or any other legally protected class, is illegal and unenforceable by law.

Northwest Title Company

THIS SPACE RESERVED FOR RECORDER'S USE

Title Order No. 82972
Escrow No. 27992

After Recording Return to:

JAMES WHEATON and VIVA ROSEANNE WHEATON
740 Wynooski Street
Newberg, OR 97132

OFFICIAL YAMHILL COUNTY RECORDS
JAN COLEMAN, COUNTY CLERK
200425625

$26.00

00186547200400256250010018

12/17/2004 03:55:56 PM

DMR-DDMR Cnt=1 Stn=2 ANITA
$5.00 $10.00 $11.00

Until a change is requested all tax statements shall be sent to the following address:

SAME AS ABOVE

****

NWT. 82972

STATUTORY WARRANTY DEED

JERRY GOULD and FELICIA GOULD, Grantor, conveys and warrants to, JAMES WHEATON and VIVA ROSEANNE WHEATON , husband and wife, Grantee, the following described property free of liens and encumbrances, except as specifically set forth herein:

Parcel 2 of Partition Plat 97-82, recorded December 30, 1997, in Film 5, Page 15,Records of Plats for Yamhill County, Oregon.

TOGETHER WITH and subject to a 25 foot wide access and utility easement as disclosed on said Partition Plat.

THIS INSTRUMENT WILL 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 APPROVED USES AND TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES AS DEFINED IN ORS 30.930.

This property is free of liens and encumbrances, EXCEPT: Rights of the public in and to any portion of the herein described premise lying with in the boundaries of roads or highways.; Agreement for utility access, ingress and egress access and maintenance of common driveway, including the terms and provision thereof recorded as Instrument No. 199721666.----

The true consideration for this conveyance is $ 171,000.00

Dated this 15 day of December, 2004

Jerry A. Gould
JERRY GOULD

Felicia D. Gould
FELICIA GOULD

STATE OF OREGON, COUNTY OF YAMHILL)ss.

The foregoing instrument was acknowledged before me this 15th day of December , 2004 by JERRY GOULD and FELICIA GOULD

Janet L Winder
Notary Public for Oregon
My Commission Expires: 5/6/05

OFFICIAL SEAL
JANET L WINDER
NOTARY PUBLIC - OREGON
COMMISSION NO. 345398
MY COMMISSION EXPIRES MAY 6, 2005

First American Title Insurance Company

775 NE Evans Street
McMinnville, OR 97128
Phn - (503)376-7363
Fax - (866)800-7294

YAMHILL COUNTY TITLE UNIT
FAX (866)800-7294

Title Officer: Clayton Carter
(503)376-7363
ctcarter@firstam.com

LOT BOOK SERVICE

City Of Newberg
414 East First Street
Newberg, OR 97132

Order No.: 1039-4040600
March 02, 2023

Attn: Fatin Abdullah
Phone No.: - Fax No.:
Email:

Re: 04-5150-717738

Fee: $300.00

We have searched our Tract Indices as to the following described property:

The land referred to in this report is described in Exhibit A attached hereto.

and as of February 27, 2023 at 8:00 a.m.

We find that the last deed of record runs to

Clare C. Sunderland

We find the following apparent encumbrances within ten (10) years prior to the effective date hereof:

1. City liens, if any, of the City of Newberg.

2. The rights of the public in and to that portion of the premises herein described lying within the limits of streets, roads and highways.

3. Agreement for easement for sewer line and the terms and conditions thereof:
   Between: Robert D. and Maudie M. McCutchen, Donald W. and Judith A. Crapser
   And: Merlin B. and Eunice O. Lane
   Recording Information: June 17, 1986, Film Volume 204, Page 408, Deed and Mortgage Records

4. Deferred Improvement Agreement and the terms and conditions thereof:
   Between: City of Newberg
   And: Bruce G. Longstroth and John W. Sisson
   Recording Information: December 30, 1997 as Instrument No. 199721665, Deed and Mortgage Records

5. Driveway, access and utility easement, including terms and provisions contained therein:
   Recording Information: December 30, 1997 as Instrument No. 199721666, Deed and Mortgage Records

We have also searched our General Index for Judgments and State and Federal Liens against the Grantee(s) named above and find:

NONE

NOTE: Taxes for the year 2022-2023 PAID IN FULL

Tax Amount:	$3,705.96
Map No.:	R3220CA 00700
Property ID:	58706
Tax Code No.:	29.0

We find the following unpaid taxes and city liens:

NOTE: We find no outstanding voluntary liens of record affecting subject property. An inquiry should be made concerning the existence of any unrecorded lien or other indebtedness which could give rise to any security interest in the subject property.

THIS IS NOT a title report since no examination has been made of the title to the above described property. Our search for apparent encumbrances was limited to our Tract Indices, and therefore above listings do not include additional matters which might have been disclosed by an examination of the record title. We assume no liability in connection with this Lot Book Service and will not be responsible for errors or omissions therein. The charge for this service will not include supplemental reports, rechecks or other services.

First American Title Insurance Company
775 NE Evans Street
McMinnville, OR 97128

Illegal Restrictive Covenants

Please be advised that any provision contained in this document, or in a document that is attached, linked, or referenced in this document, that under applicable law illegally discriminates against a class of individuals based upon personal characteristics such as race, color, religion, sex, sexual orientation, gender identity, familial status, disability, national origin, or any other legally protected class, is illegal and unenforceable by law.

First American Title Insurance Company
775 NE Evans Street
McMinnville, OR 97128

Exhibit "A"

Real property in the County of Yamhill, State of Oregon, described as follows:

PARCEL 3 OF PARTITION PLAT 1997-082, RECORDED DECEMBER 30, 1997 IN FILM 5, PAGE 15, DEED AND MORTGAGE RECORDS, YAMHILL COUNTY, OREGON.

TOGETHER WITH AND SUBJECT TO A 25 FOOT ACCESS AND UTILITIES EASEMENT, AS DISCLOSED ON PARTITION PLAT 97-82.

(1)

WARRANTY DEED (INDIVIDUAL)

TONY H. LONGSTROTH and KRISTI L. LONGSTROTH, as tenants by the entirety, herein called grantor, convey(s) to CLARE C. SUNDERLAND, as an estate in fee simple all that real property situated in the County of Yamhill, State of Oregon, described as:

Parcel 3 of PARTITION PLAT #97-82, in the County of Yamhill and State of Oregon.

TOGETHER WITH & SUBJECT TO a 25 foot access and utility easement, as disclosed on PARTITION PLAT #97-82.

and covenant(s) that grantor is the owner of the above described property free of all encumbrances except **per the Preliminary Title Report issued by Chehalem Title #8915**

and will warrant and defend the same against all persons who may lawfully claim the same, except as shown above.

The true and actual consideration for this transfer is **$162,000.00.***

Dated this 1st day of February, 2002.

TONY H. LONGSTROTH

KRISTI L. LONGSTROTH

STATE OF OREGON, County of Yamhill) ss.

1-30-02 personally appeared the above named TONY H. LONGSTROTH and KRISTI L. LONGSTROTH and acknowledged the foregoing instrument to be **his/her/their** voluntary act and deed.

OFFICIAL SEAL
SUSAN L CRAWFORD
NOTARY PUBLIC - OREGON
COMMISSION NO. 333258
MY COMMISSION EXPIRES JUNE 11, 2004

Before me:
Notary Public for Oregon
My commission expires: 6-11-04

* The dollar amount should include cash plus all encumbrances existing against the property to which the property remains subject or which the purchaser agrees to pay or assume.

C.T.E. 8915

WARRANTY DEED (INDIVIDUAL)

TONY H. LONGSTROTH and KRISTI L. LONGSTROTH, as tenants by the entirety

TO

CLARE C. SUNDERLAND

After Recording Return to:
CLARE C. SUNDERLAND
402 Morton Street
Newberg, Oregon 97132

OFFICIAL YAMHILL COUNTY RECORDS
CHARLES STERN, COUNTY CLERK
200202439

$26.00

00079938200200024390010017

02/04/2002 01:50:21 PM
DMR-DDMR Cnt=1 Stn=2 ANITA
$5.00 $10.00 $11.00

SMS Vision Form SDD03OR Rev. 01/23/97

2 of 2