



NOTICE OF DECISION  
CITY OF NEWBERG, STORMWATER OUTFALL REPLACEMENT  
730/740 WYNOOSKI STREET  
STREAM CORRIDOR OVERLAY MISC223-0001

May 24, 2023

City of Newberg Public Works Department  
Attn: Fatin Abdullah  
414 E. First Street  
Newberg, OR 97132

The Newberg Community Development Director **approved** the proposed Stream Corridor Overlay review MISC223-0001 for the City of Newberg Public Works Department's project #04-5150-7177338 to replace a stormwater outfall into Hess Creek at 730/740 Wynooski Street, tax lots R3220CA 00700 (portion), 00802 (portion) and 00803 (portion), subject to the conditions listed in the attached report. The decision will become effective on June 8, 2023, unless an appeal is filed.

You may appeal this decision to the Newberg Planning Commission within 14 calendar days of this decision in accordance with Newberg Development Code 15.100.170. All appeals must be in writing on a form provided by the Planning Division. Anyone wishing to appeal must submit the written appeal form together with the required fee of \$582 (plus a 5% technology fee) to the Planning Division within 14 days of the date of this decision.

**The deadline for filing an appeal is 4:30 pm on June 7, 2023.**

At the conclusion of the appeal period, please remove all notices from the site.

Design review approval is only valid for one year from the effective date above. If building or construction permits are not issued within this time period, then design review approval becomes null and void and no construction may take place. If design review approval on your project is approaching its expiration date, contact the Planning Division regarding extension opportunities.

Please contact the Planning Division at [planning@newbergoregon.gov](mailto:planning@newbergoregon.gov) or call 503-537-1240 if you have questions.

Sincerely,

Jim Jacks, AICP  
Senior Planner

cc: All persons who submitted public comment.

DECISION AND FINDINGS  
CITY OF NEWBERG, STORMWATER OUTFALL REPLACEMENT  
730/740 WYNOOSKI STREET  
STREAM CORRIDOR OVERLAY MISC223-0001

FILE NO: MISC223-0001

REQUEST: Replacement of City of Newberg Stormwater Outfall

LOCATION: 730/740 Wynooski Street

TAX LOT: R3220CA 00700, 00802, 00803

APPLICANT: City of Newberg Public Works Department – Fatin Abdullah

OWNER: Clair Sunderland, 730 Wynooski St., and  
Jim Wheaton, 740 Wynooski St.

ZONE: Residential (R-2)

PLAN DISTRICT: Medium Density Residential (MDR) / Stream Corridor (SC)

OVERLAYS: Stream Corridor Overlay (SC) Subdistrict

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Section II: Findings for MISC223-0001 Stream Corridor Overlay (SC) Subdistrict

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Attachments:

1. Application and Supplemental Information
2. Agency Comments

## Section I: Application Information

### A. DESCRIPTION OF APPLICATION:

The City of Newberg Public Works Department (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 of Newberg'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 is 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 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.

The final design of the project was completed in December 2022 and the project was 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.

### SITE INFORMATION:

1. Location: 730 / 740 S Wynooski Street (Tax lots R3220CA 00700, 00802, 00803)

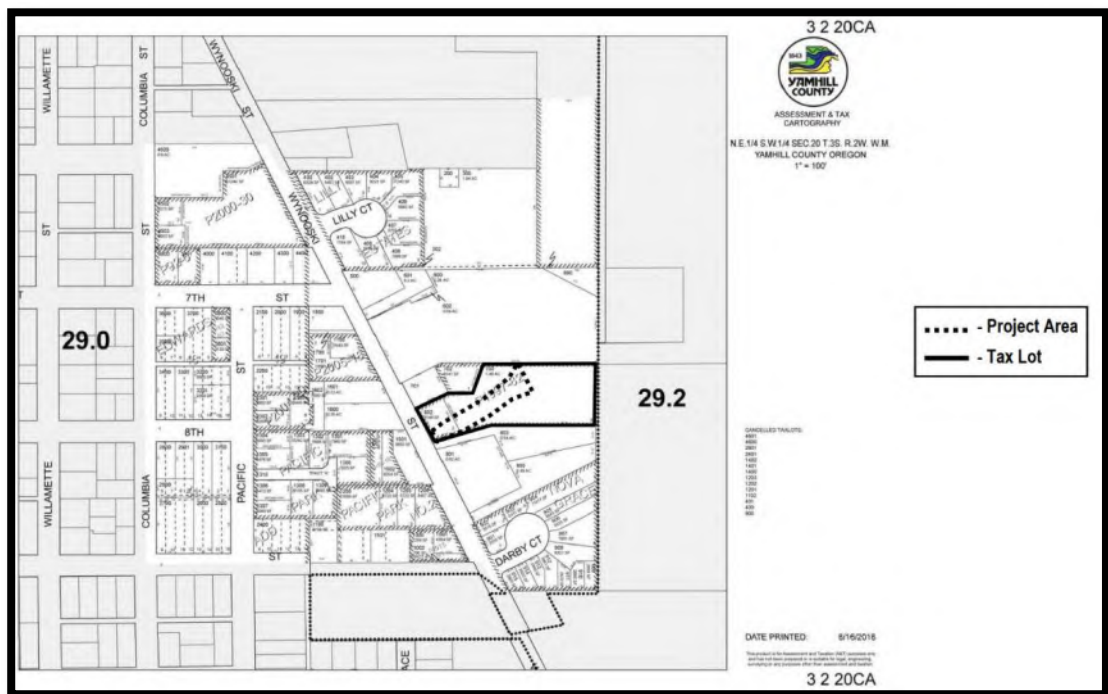


Figure 1 Project Location

2. Size: The disturbed area is 12,917 square feet (~ 0.3 Acres)

3. Topography: Slopes down to the east into the Hess Creek stream corridor area.

4. Current Land Uses: Vacant, except for the City's stormwater conveyance and outfall.

5. Natural Features: Hess Creek vegetative corridor, open grass meadows, with established trees and shrubs.

6. Adjacent Land Uses:

a. North: Open space

b. East: Open space, incorporated

c. South: Residential, incorporated

d. West: Residential, incorporated

7. Adjacent Zoning:

a. North: Residential (R-2)

b. East: AF-10 (County – Agriculture/Forest Small Holding)

c. South: Residential (R-2)

d. West: Residential (R-2)

8. Access and Transportation: Access to the proposed development is provided from S Wyooski Street. S Wyooski 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 Wyooski Street to make the necessary stormwater connections via a catch basin and manhole within the S Wyooski Street right-of-way, and the project team plans to obtain a right-of-way access permit from Yamhill County to complete the work.

9. Utilities: Not applicable to this project.



Figure 2 Project Area



**A. PROCESS:** The Stream Corridor request is a Type II application and follows the procedures in Newberg Development Code 15.100.030. Following a 14-day public comment period, the Community Development Director makes a decision on the applications based on the criteria listed in the attached findings. The Director’s decision is final unless appealed. Important dates related to this application are as follows:

1. 04/11/2023 The Community Development Director deemed the application complete.
2. 05/01/2023 The applicant posted notice on the site.
3. 05/03/2023 The applicant mailed notice to the property owners within 500 feet.
4. 05/17/2023 The 14-day public comment period ended.
5. 05/24/2023 The Community Development Director issued a decision on the application.

**B. AGENCY COMMENTS:** The application was routed to several public agencies for review and comment. Comments and recommendations from city departments have been incorporated into the findings and conditions. As of the writing of this report, the city received the following agency comments:

- a. Building Official: Reviewed, no conflict.
- b. City Manager: Reviewed, no conflict.
- c. Community Development, Director: Reviewed, no conflict.
- d. Finance Department: Reviewed, no conflict.
- e. Police Department: Reviewed, no conflict.
- f. Public Works, Director: Reviewed, no conflict.
- g. Public Works, Maintenance Superintendent: Comments provided stating:  
  
“Carl and myself request the alterations to be excepted. As proposed system is externally maintenance unfriendly.”  
  
Sheet F7A of the comment depicts in red a proposed location for a “4x4 catch basin, and two hinged grates.” Sheet F5 of the comment includes a red comment box pointing to a location to “replace manhole with a Sciclone SCX-6 Water Quality manhole or bigger.”
- h. Public Works, Wastewater Treatment Plant: Reviewed, no conflict.
- i. Public Works, Water Superintendent: Reviewed, no conflict.

j. Public Works, Engineering: Reviewed, no conflict.

k. Zply Fiber: Reviewed, no conflict.

All agency comments are provided in Attachment 2.

**C. PUBLIC COMMENTS:** No public comments were received.

**D. ANALYSIS:** The subject property is the location of an existing City of Newberg stormwater conveyance and outfall in the R-2 zoning district. The Newberg Municipal Code (NMC) identifies such uses as being part of the “Utility Uses” use category. The NMC’s use table identifies the “Utility Uses” with its “Basic Utilities” which includes stormwater facilities, as a permitted use in the R-2 zoning district.

As proposed, the stormwater outfall project is located within the stream corridor and is outside the floodplain of Hess Creek (Applicant’s materials, p. 35 or 158, Plan sheet F6, Grading Plan, HBH Consulting Engineers). The applicant has provided a complete application addressing the criteria stated in the NMC for development in the Stream Corridor area.

The applicant performed the required 14-day public noticing associated with Type II Administrative Decisions. The City completed the required 15-day agency and department referral period. No public comments were received and agency comments are included as Attachment 2 of this report.

**Section II: Findings – File MISC223-0001**  
**CITY OF NEWBERG STORMWATER OUTFALL REPLACEMENT**  
**STREAM CORRIDOR OVERLAY (SC) SUBDISTRICT REVIEW**

The Newberg Municipal Code (NMC) criteria and development standards are written in *italic bold* font and findings are written in regular font. The NMC criteria will be presented first, and followed by findings of fact.

Findings of fact with underlined font indicate subsequent inclusion into Conditions of Approval (Section III).

**NEWBERG MUNICIPAL CODE (NMC)**

*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.*

**Finding:** The applicant responds, Section 15.342.070(A) does not apply because the proposed project is not a public or private street crossing, sidewalk, pathway or other transportation improvement that crosses a stream corridor. Staff concurs with the applicant response. Because the project is not a public or private street crossing, sidewalk, pathway or other transportation improvement that crosses a stream corridor the criterion is not applicable.

This criterion is not applicable.

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

**Finding:** The applicant responds, Section 15.342.070(B) does not apply because the proposed project does not propose a bridge or other transportation improvement that bridges a wetland area. Because the project is not a bridge or other transportation improvement that bridges a wetland the criterion is not applicable.

This criterion is not applicable.

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

**Finding:** The applicant responds, Section 15.342.070(C) does not apply because the proposed project does not propose a railroad trackage crossing over the SC overlay subdistrict that bridges a wetland area. Because the project does not propose a railroad trackage crossing over a SC overlay subdistrict that bridges a wetland the criterion is not applicable.

This criterion is not applicable.

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

**Finding:** The applicant responds, in the Pre-Application Summary Meeting Notes dated 4/10/2020, the City indicated 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. Because the project was listed in the City's Capital Improvement List (2018), the project is considered to be listed within approved City of Newberg master infrastructure plans.

This criterion is met.

***E. New single-family residences which meet all of the following requirements: Subsections 1 – 4 are not shown because the following finding determines Section E does not apply.***

**Finding:** The applicant responds, Section 15.342.070 (E), does not apply because the proposed project does not propose a new single-family residence. Because the project does not propose a new single-family residence the criterion is not applicable.

This criterion is not applicable.

***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:***

***Subsections F(1) – F(4) are not shown because the following finding determines Section F does not apply.***

**Finding:** The applicant responds, Section 15.342.070 (F), does not apply because the proposed project does not propose a reduced front yard setback for a single-family residence or addition. Because the project does not propose a new single-family residence the criterion is not applicable.

This criterion is not applicable.

***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.***

**Finding:** The project propose temporary construction access associated with authorized Type II uses. Because the project does not propose a temporary construction access associated with an authorized Type II use the criterion is not applicable.

This criterion is not applicable.



***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.***

**Finding:** The applicant responds, Section 15.342.070 (H), does not apply because the proposed project does not propose grading and fill for recreational uses and activities. Because the project does not propose grading and filling for recreational uses and activities the criterion is not applicable.

This criterion is not applicable.

***I. Public parks.***

**Finding:** The applicant responds, Section 15.342.070 (I), does not apply because the proposed project does not propose a public park. Because the project does not propose a public park the criterion is not applicable.

This criterion is not applicable.

***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.***

**Finding:** The applicant responds, Section 15.342.070 (J), does not apply because the proposed project does not propose stream corridor enhancement activities. Because the project does not propose a stream corridor enhancement activity the criterion is not applicable.

This criterion is not applicable.

***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 of the following existing conditions:***

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

**Finding:** The SC overlay subdistrict boundary line is shown on the HBH Consulting Engineer's December 22, 2022, Outfall Redesign, Sheet 1 of 1, Title Sheet and Vicinity Map, and Sheet 2 of 11, Existing Conditions.

This criterion is met.

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

**Finding:** Existing site features including structures, areas previously disturbed, and existing utility locations can be found on the HBH Consulting Engineer’s December 22, 2022, Outfall Redesign, Sheets 1 – 8.

This criterion is met.

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

**Finding:** Existing wetlands can be found on Plan Sheet F8. The applicant’s March 15, 2023 Project Description states in part, “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 wetland. The City applied for JPA Permit on February 3, 2023.” The Project Description also states, “Construction will be required to take place according to the JPA permit during the in-water work period between July, 2023 and September, 2023.” The location of wetlands is shown in the December 22, 2022, HBH Consulting Engineer’s Erosion Control Plan, Sheet F8. It shows “Wetland A” is on the east side of the sediment fence which is on the east side of the energy dissipator. The application materials include the Joint Permit Application.

This criterion is met.

***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.***

**Finding:** The approximate location of trees more than 6 inches in diameter and clusters of Hawthorne trees is shown in the December 22, 2022, HBH Consulting Engineer’s Existing Conditions Plan, Sheet 2 of 11 and the Demolition Plan, Sheet 3 of 11.

This criterion is met.

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

**Finding:** Topography lines are shown on Plan Sheet No’s. 1 – 8 of 11 with minor 1-foot intervals in dashed contour lines and major 5-foot intervals shown in solid contour lines.

This criterion is met.

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

**Finding:** Project photos are included on Plan Sheet No. 2 of 11, Existing Conditions. Additional photos are included in the application materials.

This criterion is met.

***B. Proposed development plan including all of the following:***

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

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

This criterion is met.

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

**Finding:** An Erosion and Sedimentation Control Plan and associated narrative via sheet notes are shown on Plan Sheet No. 7 of 11.

This criterion is met.

***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.***

**Finding:** The applicant responds, “A Stream Corridor Mitigation Plan is located on Plan Sheet No’s. L1 and L2 and were prepared by a landscape architect, Otten and Associates, LLC. The planting plan indicates the size, species, and location of all new vegetation to be planted. Please see findings in NMC 15.342.090 (B)(2) for staff direction on tree species selection.

This criterion is met.

***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 regraded 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.***

**Finding:** As shown in the plans the site is being regraded 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.

This criterion is met.

***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.***

**Finding:** The Stream Corridor Mitigation Plan uses at least eight species of plants including

grasses. See Plan Sheet No. 8 of 11. Its General Note #3 states at least three tree species will be selected from the Newberg Native Plan List. General Note #4 states at least three shade-tolerant shrub species will be used from the Newberg Native Plan List. General Note #5 states at least two seed species will be used from the Newberg Native Plant List. The total number of trees (3), shrubs (3) and grasses (2) species is eight. An updated planting plan listing the species from the Newberg Native Plant List shall be provided to the Planning Division prior to the beginning of construction. All plants must be installed prior to final planning inspection.

If the aforementioned condition is adhered to, this criterion will be met.

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

**Finding:** The Stream Corridor Mitigation Plan Sheet No. 8 of 11, General Note #3, states at least three species of trees and General Note #4 says three species of shrubs will be selected from the Newberg Native Plant List. Because the applicant does not identify which shrub species will be used from the Newberg Native Plan List, additional information is required.

An updated planting plan listing the species from the Newberg Native Plant List shall be provided to the Planning Division prior to the beginning of construction. All plants must be installed prior to final planning inspection.

If the aforementioned conditions are adhered to, this criterion will be met.

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

**Finding:** The seed mixture can be found on Plan Sheet 8 of 11 in General Note #5 which states no more than 50% of the total seed mix will be grass.

This criterion is met.

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

**Finding:** The applicant responds, “The total disturbed area is 12,917 square feet. Required shrubs are 3 for every 500 square feet; 67 shrubs have been provided.”

The response does not properly calculate the required minimum number of shrubs. There are 25.83 500-square foot units in the 12,917 square foot disturbed area (12,917 sq. ft. / 500 sq. ft. = 25.83 units). Because three shrubs are required for each 500 square foot unit, the calculated requirement of 77.5 shrubs is rounded up to 78 shrubs as the minimum number of shrubs required. Further, the response does not address the requirement that “A minimum of one tree...shall be used for every 500 square feet of planting area.” Because one tree is required for each 500 square foot unit, 26 trees are required.

An updated planting plan showing a minimum of 78 shrubs and 26 trees shall be provided to the Planning Division prior to the beginning of construction. All plants must be installed prior to final planning inspection.



If the aforementioned condition is adhered to, this criterion will be met.

***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.***

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

This criterion is met.

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

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

This criterion is met.

***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.***

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

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

***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.***

**Finding:** The applicant responds that Plan Sheet No's. 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 the cluster of Hawthorne trees as noted in the existing conditions would be treated as one tree per each cluster.

Plan Sheet 3 of 11, Demolition Plan, uses "X" symbols to show trees to be removed within the work area and 6 symbols are shown. One of the symbols is labeled as Sheet Note 5 which states, "Remove existing tree. All trees >6" DBH to be replaced at 3:1 ratio (see Mitigation Plan) (typ)." The tree removal labeled with Sheet Note 5 is identified on Plan Sheet 2 of 11, Existing Conditions, as a dead Douglas Fir 36" DBH. The dead Douglas Fir would be replaced with 8 trees, not 3 trees, per NMC 15.342.090(C)(3). Five of the tree removals are labeled as Sheet Note 7 which states, "Remove existing cluster of Hawthorne trees." The five clusters of Hawthorne

trees would be replaced at a rate of 3 trees per one tree (cluster) removed and the total would be 15 trees per NMC 15.342.090(C)(1).

The minimum number of replacement trees required is 23 trees (8 + 15 = 23). Plan Sheet 8 of 11, Mitigation Plan, shows 15 new trees to be planted and spaced uniformly along both sides of the work area. Because a minimum of 23 new trees are required and the Mitigation Plan shows 15 new trees the applicant shall provide an updated planting plan showing a minimum of 23 trees to mitigate for the removal of existing trees pursuant to NMC 15.342.090(C). All plants must be installed prior to final planning inspection.

If the aforementioned condition is adhered to, this criterion will be met.

***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.***

**Finding:** Plan Sheet No. 8 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. The proposed tree, shrub and seed mix will allow for achievement of 90% coverage in 1 year.

This criterion is met.

***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.***

**Finding:** 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. Because the erosion control devices will remain in place until the 90 % coverage is achieved, the proposed project will ensure attainment of the criterion.

This criterion is met.

***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.***

**Finding:** The application materials indicate that all restoration work is proposed within the Stream Corridor Overlay Subdistrict on the respective impacted properties. Because the proposed restoration work occur within the SC overlay subdistrict and be on the same property, the applicant has addressed the criterion.

This criterion is met.

**15.342.100 Type III process for exceptions and variances.**

***A. Exceptions. Except as provided in NMC 15.342.040, 15.342.050, and 15.342.070, uses and activities otherwise allowed under the applicable base zone regulations shall be processed as a Type III. The applicant shall submit a stream corridor impact report (SCIR) and meet the criteria set forth in NMC 15.342.140: [Subsections 1 – 3 are not shown because as explained in the finding, below, Section 15.342.100, A, does not apply.]***

**Finding:** The proposed project does not request an exception because the proposed replacement of the existing stormwater outfall facility. Because the use is allowed in the SC Subdistrict, the criterion is not applicable.

***B. Variance. A variance to the standards of this chapter may be granted under the Type III process. A variance to this chapter shall be processed as a Type III procedure and shall only be subject to the following criteria:***

*[Subsections 1 and 2 are not shown because as explained in the finding, below, Section 15.342.100(B) does not apply.]*

**Finding:** The proposed replacement of the existing stormwater outfall facility is allowed in the SC Subdistrict and no variance is needed. Because no variance is requested and the use is allowed the criterion is not applicable.

***C. Nothing contained herein shall be deemed to require a hearing body to approve a request for a Type III permit under this section.***

**Finding:** Because no action requiring a Type III permit is proposed or requested the criterion is not applicable.

**15.342.110 Prohibited uses and activities.**

***The following activities or uses are prohibited within this subdistrict:***

***A. Except as provided in NMC 15.342.040(R), the planting or propagation of any plant identified as a nuisance plant as determined by a qualified botanist or indicated as a nuisance plant on the Newberg plant list.***

**Finding:** None of the plant species listed on the landscape sheets are indicated as a nuisance plant on the Newberg Stream Corridor Plant List.

This criterion is met.

***B. The removal of native trees that are greater than six inches in diameter at breast height, except as is otherwise permitted within this chapter.***

**Finding:** See Finding for 15.342.090(C) above, which allows “Removed trees over six inches in diameter, as measured at breast height, shall be replaced as follows:” Plan Sheet No’s. 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 the cluster of Hawthorne trees as noted in the existing conditions would be treated as one tree per each cluster.

This criterion is met.

***C. Any use dealing with hazardous substances or materials, including but not limited to gas service stations.***

**Finding:** The project does not propose any use dealing with hazardous substances or materials. Because the applicant is not proposing a use dealing with hazardous substances or materials, the criterion is not applicable.

***D. Public pathways, except those in conjunction with public lands, public parks or public easements that have been acquired by other than eminent domain.***

**Finding:** The applicant is not proposing a new public pathway. The project will retain the existing access for maintenance of the stormwater facility. Because no additional public pathways will be created, the criterion is not applicable.

***E. Recreational marijuana producer and recreational marijuana processor.***

**Finding:** Because the applicant is not proposing any use associated with recreational marijuana this criterion is not applicable.

***F. Recreational marijuana wholesalers, laboratories, research certificates and retailers.***

**Finding:** Because the applicant is not proposing any use associated with recreational marijuana this criterion is not applicable.

***G. Recreational marijuana dispensaries.***

**Finding:** Because the applicant is not proposing any use associated with recreational marijuana dispensaries this criterion is not applicable.

***15.342.120 Density transfer.***

***For residential development proposals on lands which contain the SC overlay subdistrict, a transfer of density shall be permitted within the development proposal site. The following formula shall be used to calculate the density that shall be permitted for allowed residential use on the property:***



*A. Step 1. Calculate expected maximum density. The expected maximum density (EMD) is calculated by multiplying the acreage of the property by the density permitted within the Newberg comprehensive plan.*

**Finding:** Because the proposal is not for a residential development this criterion is not applicable.

*B. Step 2. The density that shall be permitted on the property shall be equal to the EMD obtained in Step 1, provided:*

*[Subsections 1 - 5 are not shown because as explained in the finding, below, Section 15.342.120(B) does not apply.]*

**Finding:** Because the proposal is not for a residential development this criterion is not applicable.

*15.342.130 Procedure for adjusting and amending the delineated stream corridor.*

*A. Type II Process. The manager shall authorize an adjustment to the delineated stream corridor by a maximum of 15 percent of the corridor width as measured from the centerline of the stream to the upper edge of the stream corridor boundary (from the boundary location originally adopted as part of this chapter), provided the applicant demonstrates that the following standards are met:*

- 1. The location of the delineated stream corridor boundary is not reduced to less than 50 feet from the edge of a wetland or 100-year flood elevation, whichever is higher; and*
- 2. The lands to be eliminated do not contain sloped areas in excess of 20 percent; and*
- 3. The lands to be eliminated do not significantly contribute to the protection of the remaining stream corridor for water quality, stormwater control and wildlife habitat; and*
- 4. A stream corridor impact report which complies with the provisions of this chapter is provided; and*
- 5. The line to be adjusted has not been previously adjusted from the boundary location originally adopted as part of this chapter.*

**Finding:** Because the proposed project does not request an adjustment or amendment to the delineated stream corridor the criteria are not applicable.

*B. Type III Process. The applicant may propose to amend the delineated stream corridor boundary through a Type III quasi-judicial zone change proceeding consistent with the provisions of this code (see standard zone change criteria).*

**Finding:** Because the proposed project does not request an adjustment or an amendment to the delineated stream corridor this criterion is not applicable.

## **CONCLUSION**

Based on the above findings, the proposed replacement of the existing stormwater facility meets the criteria required within the Newberg Development Code subject to completion of the attached conditions. The proposed project is recommended for approval.

**Section III: Conditions – File MISC223-0001**  
**CITY OF NEWBERG, STORMWATER OUTFALL REPLACEMENT**  
**CONDITIONS OF APPROVAL**

Either write or otherwise permanently affix the conditions of approval contained within this report onto the first page of the plans submitted for review.

**A. Updated Planting Plan Required to Beginning Construction**

1. An updated planting plan listing the species from the Newberg Native Plant List shall be provided to the Planning Division prior to the beginning of construction.
2. All plants must be installed prior to final planning inspection.
3. An updated planting plan showing a minimum of 78 shrubs and 26 trees shall be provided to the Planning Division prior to the beginning of construction.
4. The applicant shall provide an updated planting plan showing a minimum of 23 trees to mitigate for the removal of existing trees pursuant to NMC 15.342.090(C).

**DEVELOPMENT NOTES:**

1. **Stream Corridor Conditions:** Contact the Planning Division (503-537-1240) to verify that all conditions have been completed.
2. **Site Inspection:**
  - a. Contact the Building Division (503-537-1240) for Building, Mechanical, and Plumbing final inspections.
  - b. Contact the Fire Department (503-649-7302) for Fire Safety final inspections.
  - c. Contact the Planning Division (503-537-1240) for stream corridor mitigation planting inspections.

## **Attachment 1: Application and Supplemental Information**





# 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:

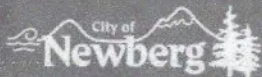
Design Review .....	p. 12
Partition Tentative Plat .....	p. 14
Subdivision Tentative Plat .....	p. 17
Variance Checklist .....	p. 20

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

2-16-23  
 Owner Signature Date  
Clare Sunderland  
 Print Name





# TYPE II APPLICATION – LAND USE

File #: \_\_\_\_\_

**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): 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

**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.

[Signature] 02/02/2023  
 Applicant Signature Date  
Fatin Abdullah  
 Print Name

[Signature] 3/12/23  
 Owner Signature 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

 <b>U.S. Army Corps of Engineers Portland District</b>	 <b>Oregon Department of State Lands</b>	 <b>Oregon Department of Environmental Quality</b>

## (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) <input checked="" type="checkbox"/> Consultant <input type="checkbox"/> 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 <b>Pacific Habitat Services</b> 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

<b>Wynooski Street Storm Project / Outfall Design</b>				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** Channel 1, Wetland A, Ditch 1	River Mile N/A	6 <sup>th</sup> Field HUC Name Hess Creek-Willamette River	6 <sup>th</sup> Field HUC (12 digits) 170900070307
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\* 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").

<b>C. Indicate the project category. (check all that apply.)</b>		
<input type="checkbox"/> Commercial Development	<input type="checkbox"/> Industrial Development	<input type="checkbox"/> Residential Development
<input type="checkbox"/> Institutional Development	<input type="checkbox"/> Agricultural	<input type="checkbox"/> Recreational
<input type="checkbox"/> Transportation	<input type="checkbox"/> Restoration	<input type="checkbox"/> Bridge
<input type="checkbox"/> Dredging	<input checked="" type="checkbox"/> Utility lines	<input type="checkbox"/> Survey or Sampling
<input type="checkbox"/> In- or Over-Water Structure	<input checked="" type="checkbox"/> Maintenance	<input checked="" type="checkbox"/> Other: <b>Outfall repair</b>
<b>(4) PROJECT DESCRIPTION</b>		

**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:

<b>Permanent Impacts</b>	
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)
<b>Temporary impacts (as erosion control best management practices (BMPs)*)</b>	
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
<b>Corps Jurisdiction</b>			
Wetland A	0.004	5	6
Ditch 1	0.001	6	0
Channel 1	0.01	97	0
<b>Total</b>	<b>0.02</b>	<b>108</b>	<b>6</b>
<b>DSL Jurisdiction</b>			
Wetland A	0.004	5	6
Channel 1	0.01	97	0
<b>Total</b>	<b>0.02</b>	<b>102</b>	<b>6</b>

**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 Wyooski 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<sup>§</sup>.

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.)		
<b>CORPS AND DSL JURISDICTION</b>							
Wetland A	Varies	Varies	Varies	175 / 0.004	6	Permanent	Native substrate
<b>G. Total Removal Volumes and Dimensions</b>							
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 <u>Highest Measured Tide</u>					N/A	N/A	N/A
Total Removal Below <u>High Tide Line</u>					N/A	N/A	N/A
Total Removal Below <u>Mean High Water Tidal Elevation</u>					N/A	N/A	N/A
<b>H. Fill Volumes and Dimensions (if more than 7 impact sites, include a summary table as an attachment)</b>							
Wetland / Waterbody Name *	Fill Dimensions					Time Fill is to Remain**	Material***
	Length (ft.)	Width (ft.)	Depth (ft)	Area (sf./ acre)	Volume (c.y.)		
<b>CORPS JURISDICTION</b>							
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

<sup>§</sup> 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 <u>Highest Measured Tide</u>					N/A	N/A	N/A
Total Fill Below <u>High Tide Line</u>					N/A	N/A	N/A
Total Fill Below <u>Mean High Water Tidal Elevation</u>					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	Description
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 Wyooski 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 Wyooski 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 Wyooski 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.



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**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 Wyooski 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.

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\*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](#)?  Yes  No  Unknown  
**If yes, attach TSP review as a separate document for DSL.**

- Is the project site within a designated [Marine Reserve](#)?  Yes  No  Unknown  
**If yes, certain additional DSL restrictions will apply.**

- Will the overall project involve ground disturbance of one acre or more?  Yes  No  Unknown  
**If yes, you may need a [1200-C permit](#) from the Oregon Department of Environmental Quality (DEQ).**

- 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?  Yes  No  Unknown  
**If yes, explain in Block 6 and provide references to any physical/chemical testing report(s).**

- 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?  Yes  No  Unknown  
**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.**

- 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.

<b>Mitigation Bank / In-Lieu Fee Information:</b>			
Name of mitigation bank or in-lieu fee project: <u>Mud Slough / PIL for stream impacts</u>			
Type of credits to be purchased: <u>PEM</u>			
If you are proposing permittee-responsible mitigation, have you prepared a compensatory mitigation plan? <input type="checkbox"/> <b>Yes.</b> Submit the plan with this application and complete the remainder of this section. <input type="checkbox"/> <b>No.</b> A mitigation plan will need to be submitted ( <i>for DSL, this plan is required for a complete application</i> ).			
<b>Mitigation Location Information (Fill out only if permittee-responsible mitigation is proposed)</b>			
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 <i>Community Development Director</i>	City / County
<i>Doug Rux</i>	<i>Development Director</i>	<i>Newberg</i>
Signature	Date	
<i>Doug Rux</i>	<i>1/24/2023</i>	
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

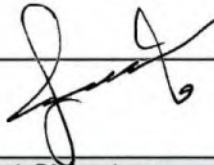
\$

### Applicant Signature (required) Must match name in Block 2

Print Name

Fatin Abdullah

Signature



Title

Engineering Project Coordinator

Date

01/25/2023

### Authorized Agent Signature

Print Name

Carlee Michelson

Signature



Title

Natural Resource Specialist

Date

1/31/2023

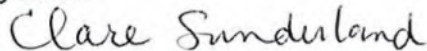
### Landowner Signature(s)\*

#### Landowner of the Project Site (if different from applicant)

Print Name

Clare Sunderland

Signature



Title

property owner, 730 wynooski

Date

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 \$

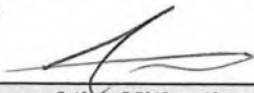
**Applicant Signature (required) Must match name in Block 2**

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 WYNOSKI)
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](mailto:portlandpermits@usace.army.mil)

**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](mailto:portlandpermits@usace.army.mil)

**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

**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

**Counties:**

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

**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:**

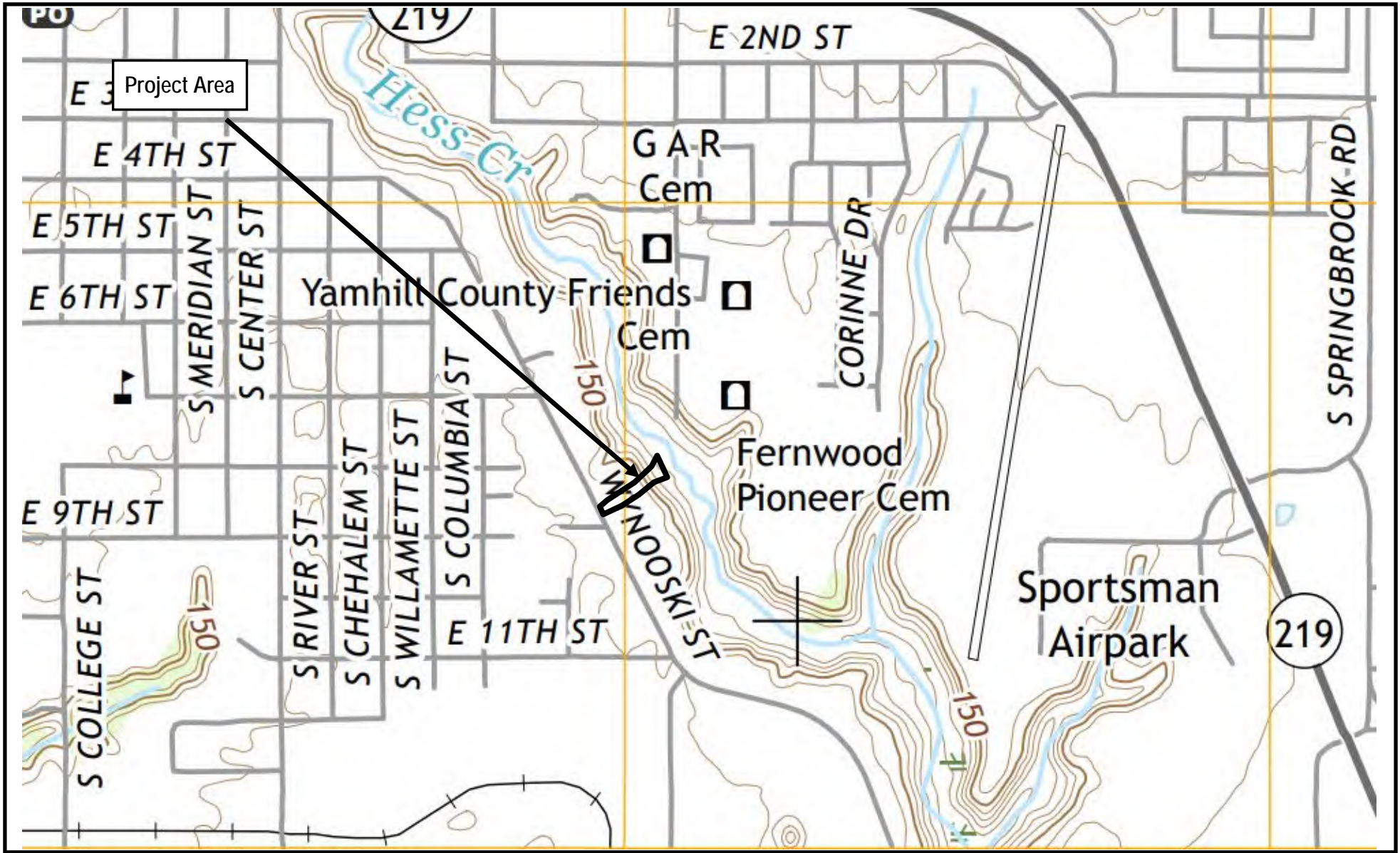
ATTN: DEQ 401 Certification Program  
Water Quality  
700 NE Multnomah St, Suite 600  
Portland, OR 97232  
[401applications@deq.state.or.us](mailto:401applications@deq.state.or.us)

# Attachment 1

## Figures







#6601  
10/8/2018



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

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

FIGURE  
F1



ASSESSMENT & TAX  
CARTOGRAPHY

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

..... - Project Area  
——— - Tax Lot

- 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



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

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

FIGURE  
F2





#6601  
10/8/2018

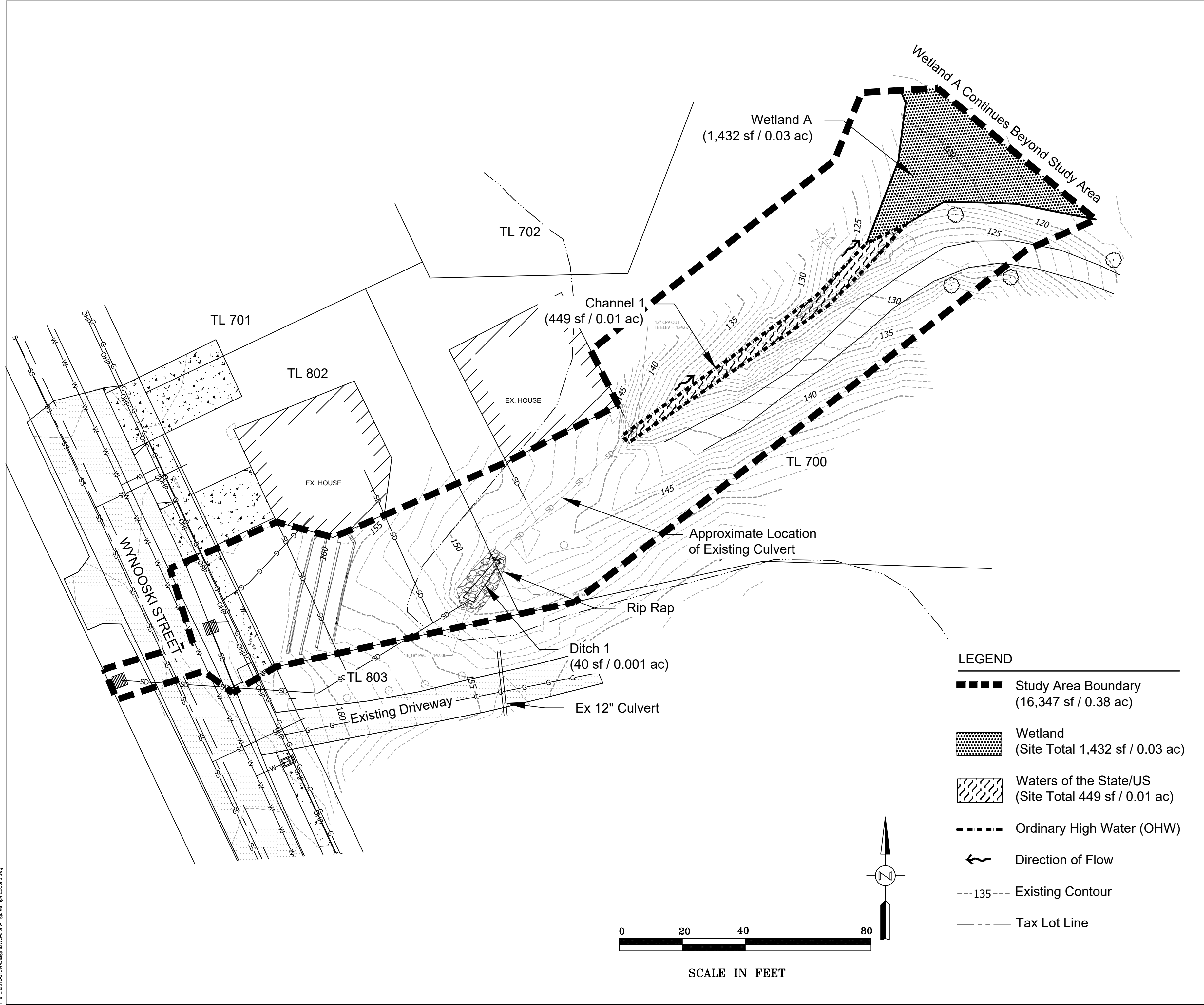


Pacific Habitat Services, Inc.  
9450 SW Commerce Circle, Suite 180  
Wilsonville, OR 97070

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

FIGURE  
F3

PH: Stamp: 12/27/2022 2:24:48 PM - Devin  
 File: L:\2019\19-0154-Design\DWG2\_PJA Figures\Fig4\_Existing.dwg



- LEGEND**
- Study Area Boundary (16,347 sf / 0.38 ac)
  - Wetland (Site Total 1,432 sf / 0.03 ac)
  - Waters of the State/US (Site Total 449 sf / 0.01 ac)
  - Ordinary High Water (OHW)
  - Direction of Flow
  - Existing Contour
  - Tax Lot Line

#	DATE	DESCRIPTION

EXISTING CONDITIONS  
**WYNOSKI OUTFALL REDESIGN**  
 CITY OF NEWBERG  
 NEWBERG, OR

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

**H B H**  
 CONSULTING  
 ENGINEERS

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

FIGURE NUMBER  
**F4**



**IMPACTS:**

**WETLAND A - PERMANENT IMPACT**

FILL: 5cy CUT: 6cy

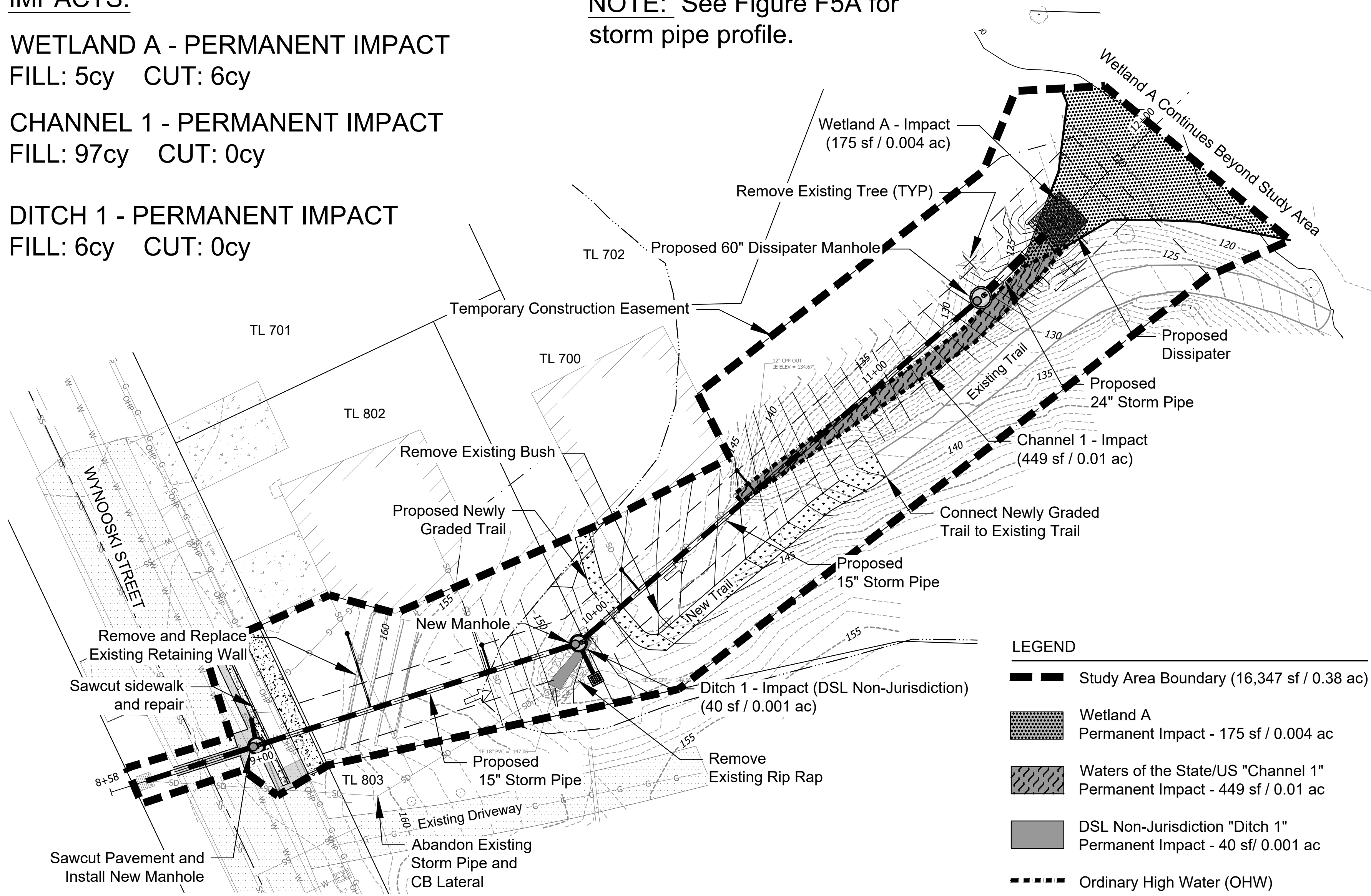
**CHANNEL 1 - PERMANENT IMPACT**

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)
- Existing Contour
- Proposed Contour
- Tax Lot Line
- Storm Line Flow Arrow
- Tree to be Removed
- Limits of Work/Temporary Construction Easement

#	DATE	DESCRIPTION

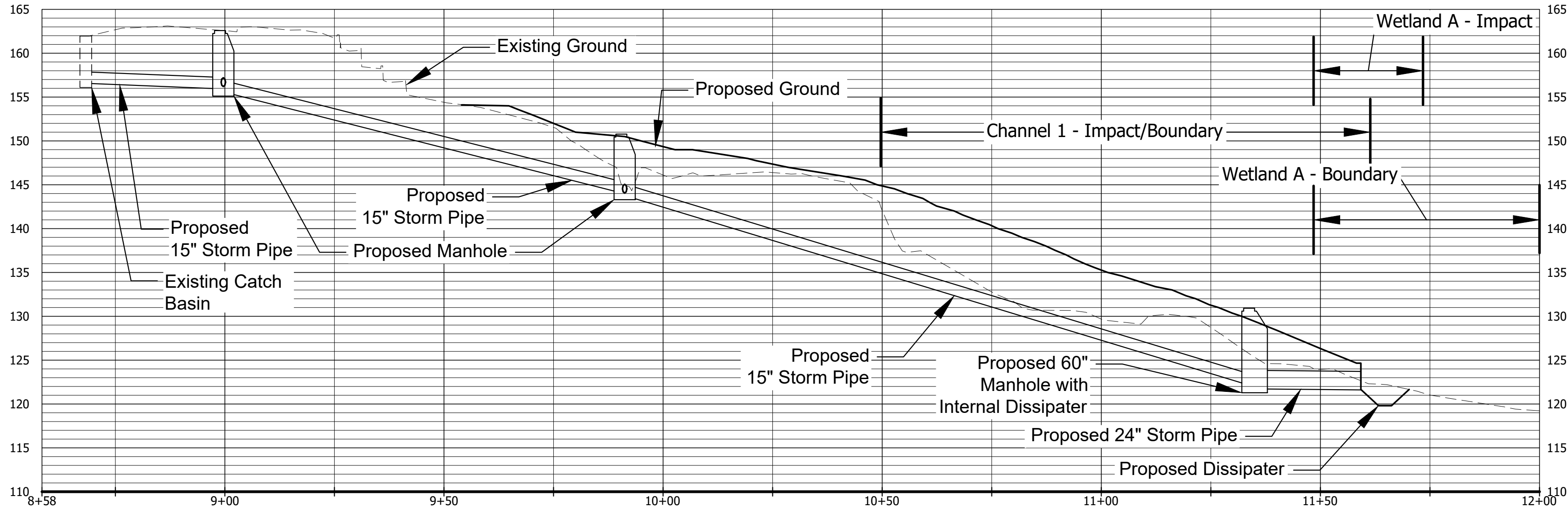
**STORM DRAIN IMPROVEMENTS**  
**WYNOOSKI OUTFALL REDESIGN**  
**CITY OF NEWBERG**  
 NEWBERG, OR

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

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

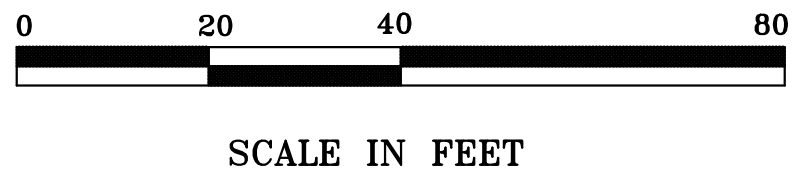
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**F5**

Plot Stamp: 12/27/2022 2:24:58 PM - Devin  
 File: L:\2019\1514-Design\DWG2\_1514 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

#	DATE	DESCRIPTION

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-engineers.com

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

FIGURE NUMBER  
**F5A**

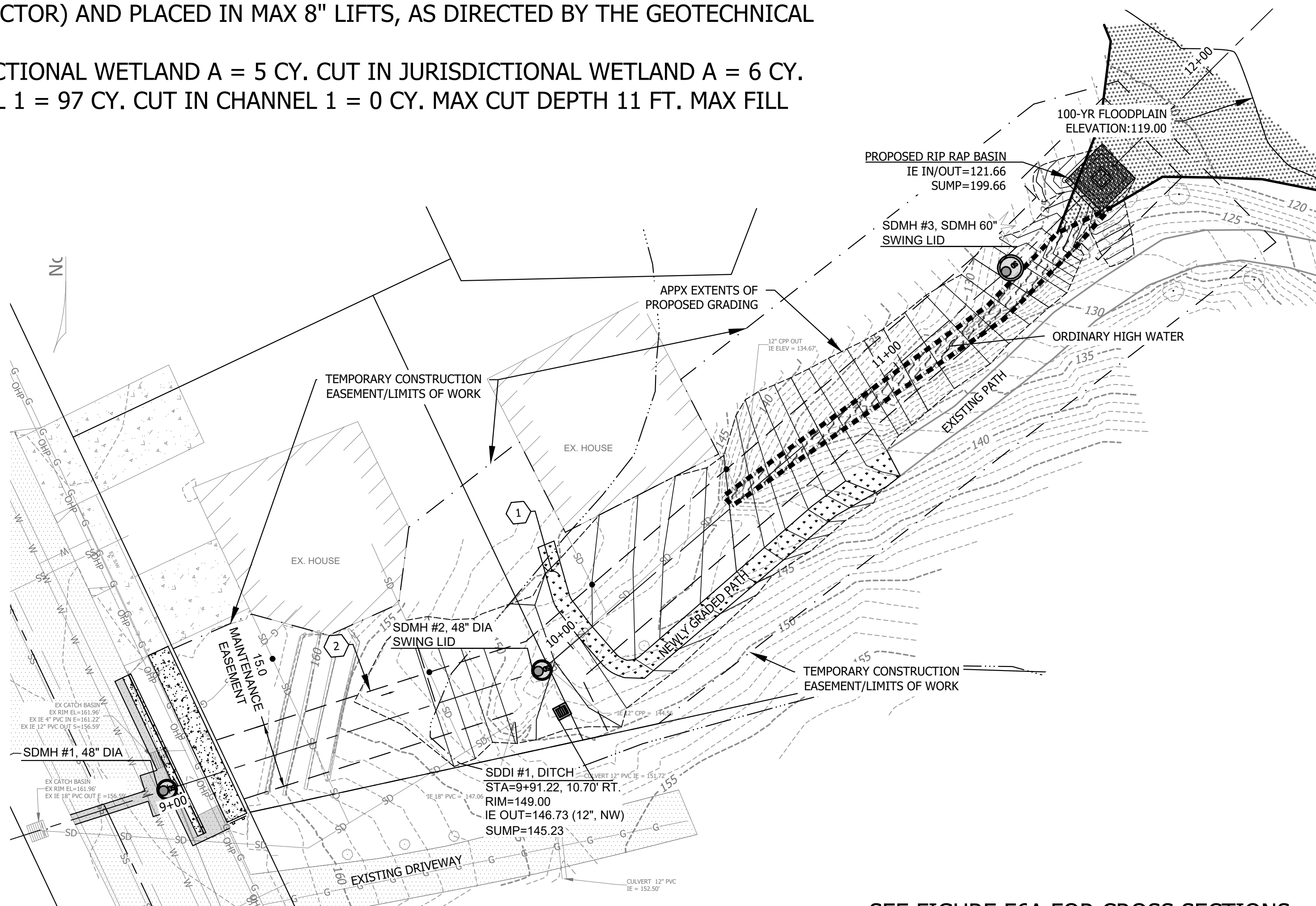
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# NOTES

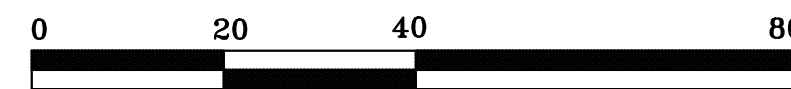
- ① PROPOSED GRASS PATH, PROVIDING PEDESTRIAN ACCESS TO EXISTING PATH.
- ② PROPOSED PERMANENT MAINTENANCE EASEMENT TO EXTEND 7.5 FT ON EITHER SIDE OF PIPE ALIGNMENT.

## GENERAL NOTES

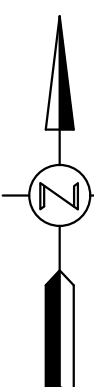
1. SEE GRADING SECTIONS IN FIGURE 6A FOR ADDITIONAL GRADING INFORMATION.
2. ENGINEERED FILL SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY BY ASTM D698 (STANDARD PROCTOR) AND PLACED IN MAX 8" LIFTS, AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
3. FILL IN JURISDICTIONAL WETLAND A = 5 CY. CUT IN JURISDICTIONAL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



SCALE IN FEET



#	DATE	DESCRIPTION

**GRADING PLAN**  
**WYNOOSKI OUTFALL REDESIGN**  
 CITY OF NEWBERG  
 NEWBERG, OR

**H B H**  
**CONSULTING**  
**ENGINEERS**

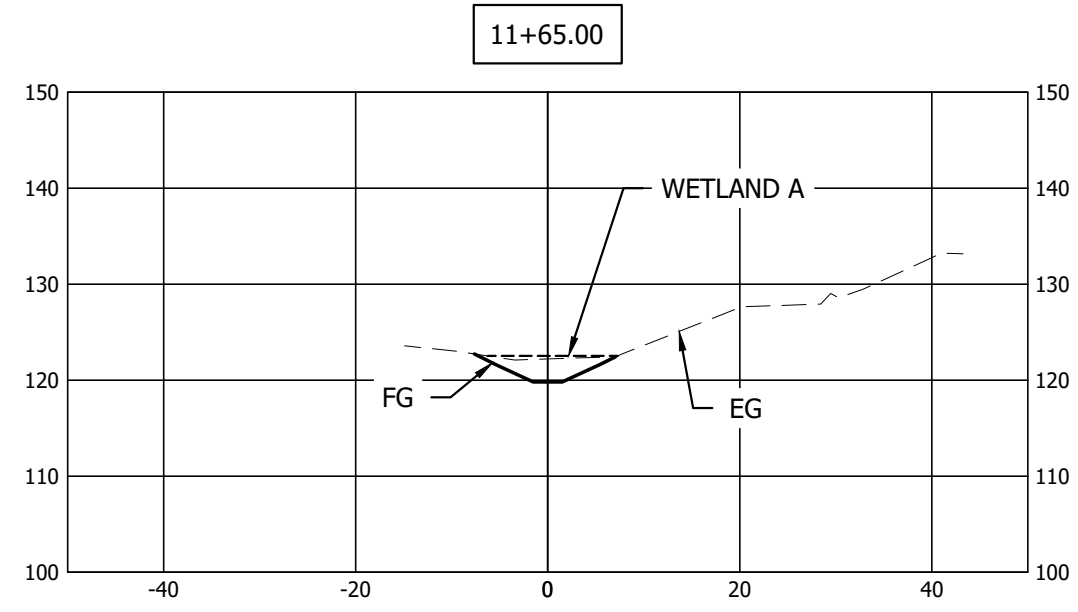
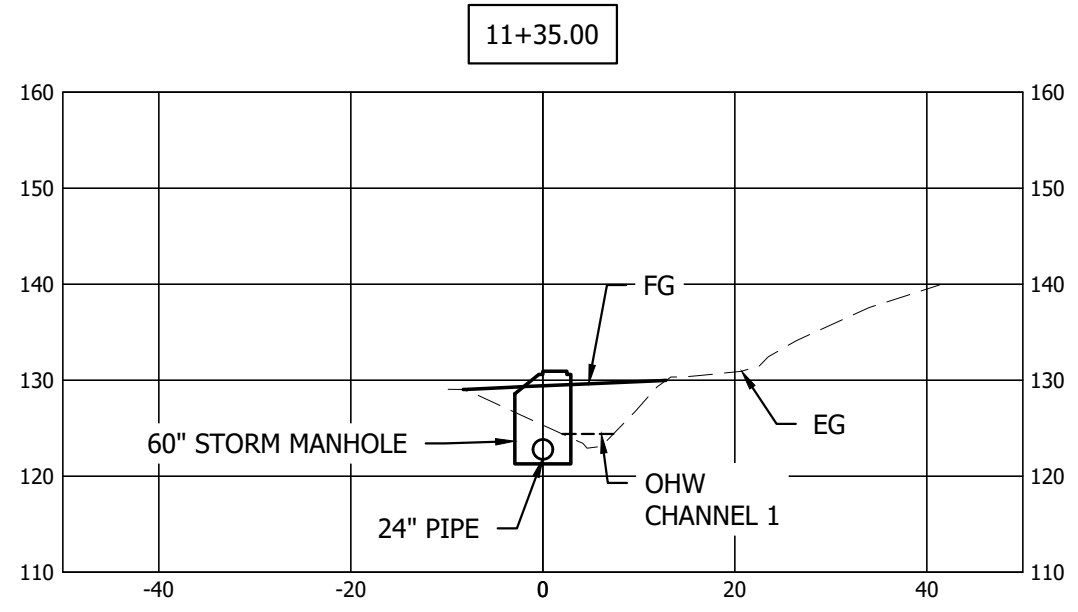
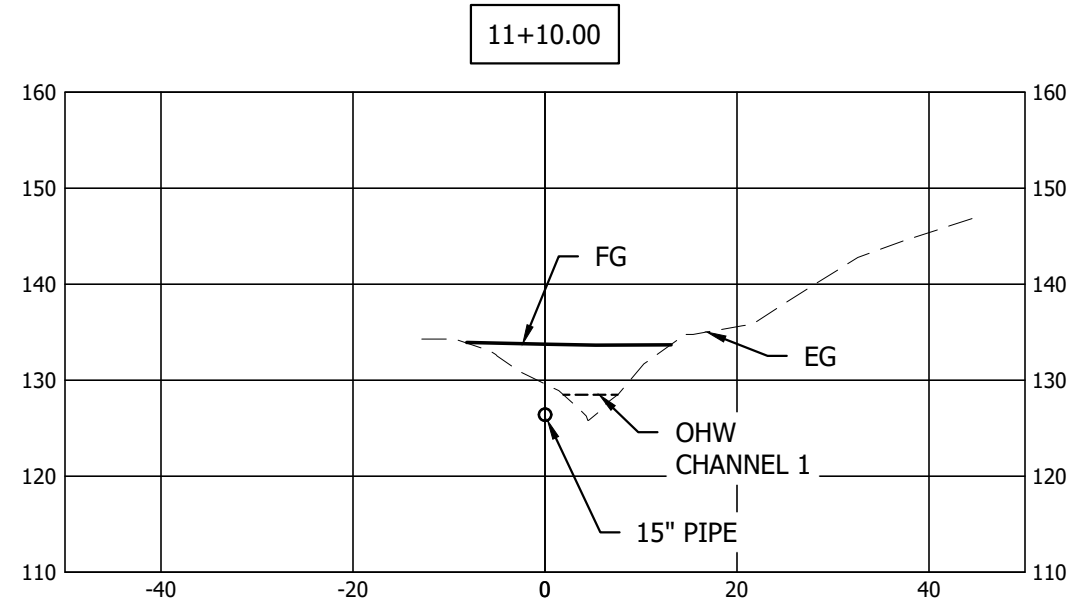
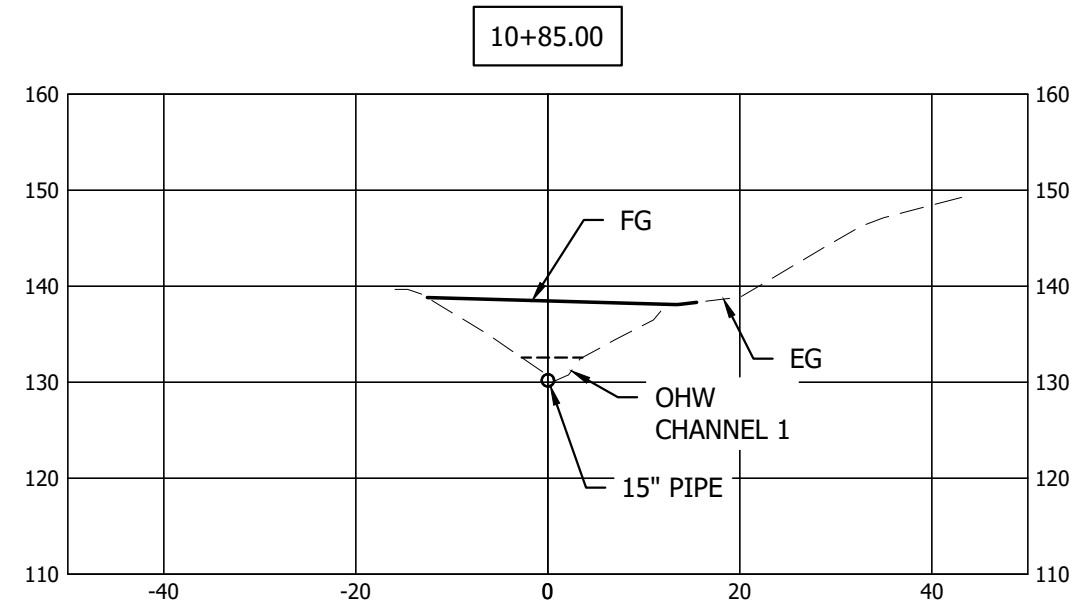
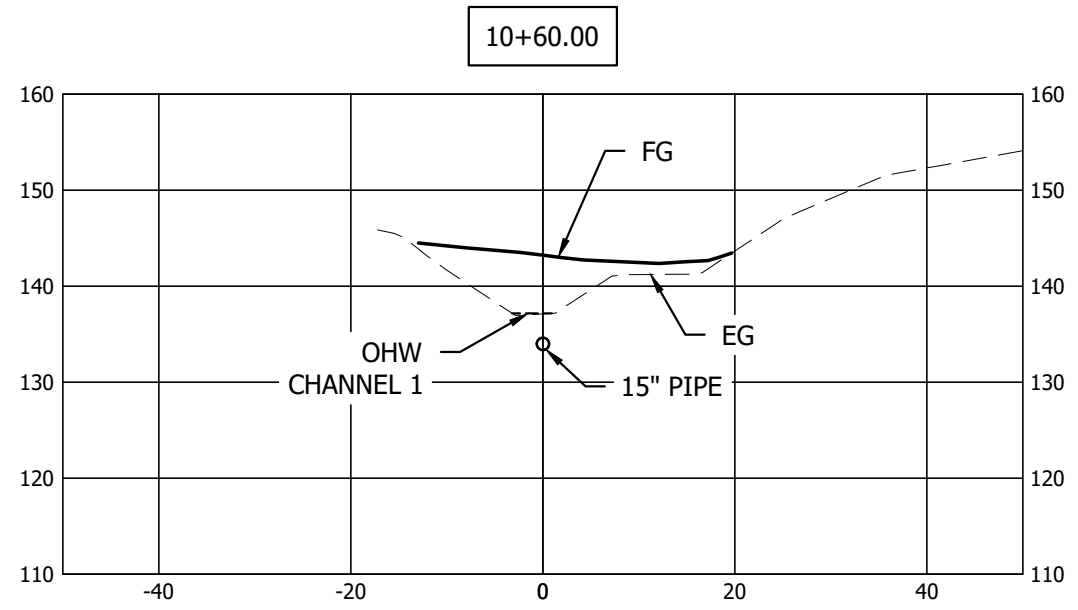
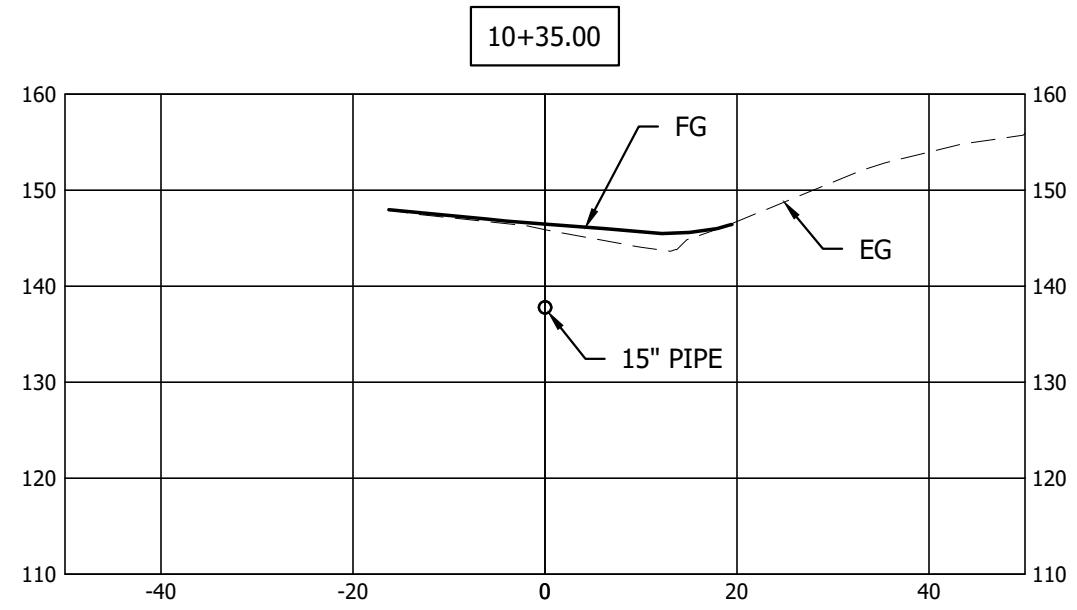
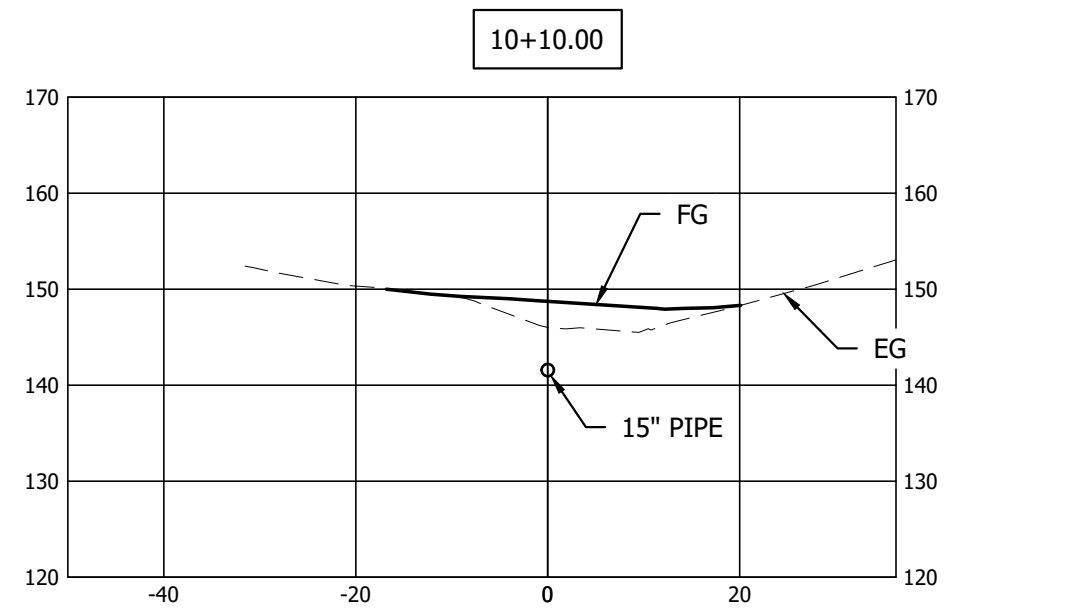
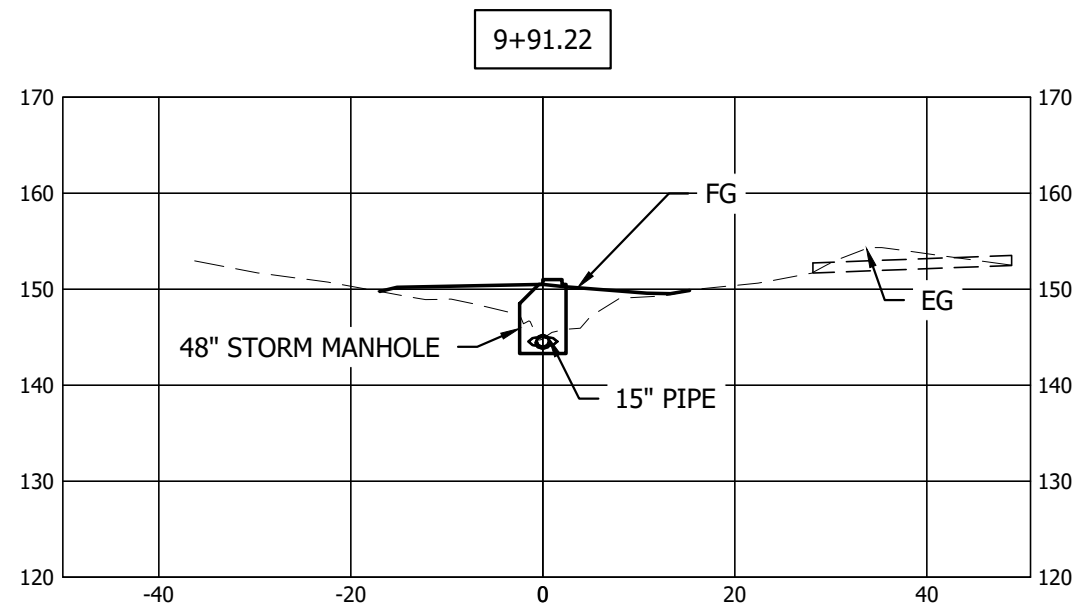
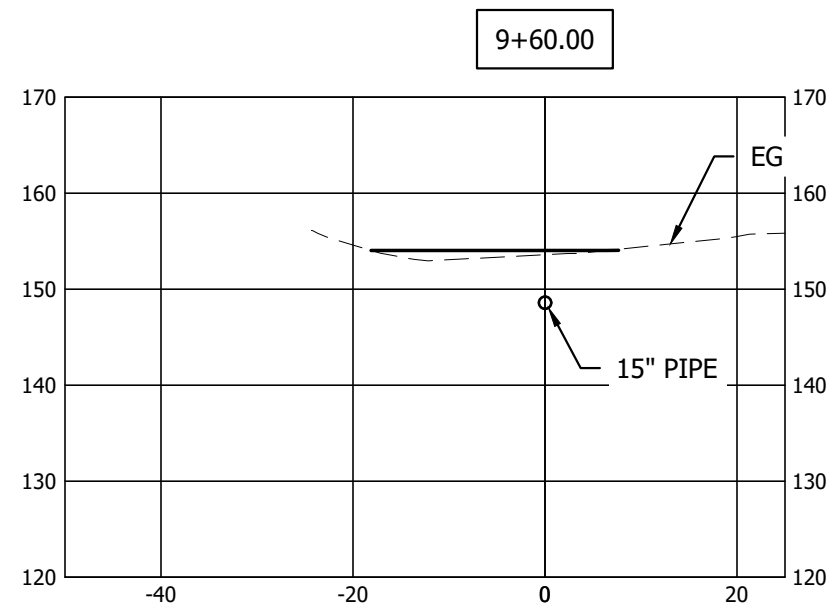
501 E First Street  
 Newberg, Oregon 97132  
 503/554-9553 fax 503/537-9554  
 email: mail@hbh-engineers.com

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

FIGURE NUMBER  
**F6**

Plot Stamp: 12/27/2022 2:25:22 PM - Devin  
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Plot Stamp: 12/27/2022 2:25:58 PM - Devin  
 File: L:\2019\19-Design\DWG2\_JPA Figures\Fig5A\_Profile.dwg



REFER TO FIGURE F5A FOR CROSS-SECTION LOCATIONS

FG = FINISHED GRADE  
 EG = EXISTING GROUND

#	DATE	DESCRIPTION	BY

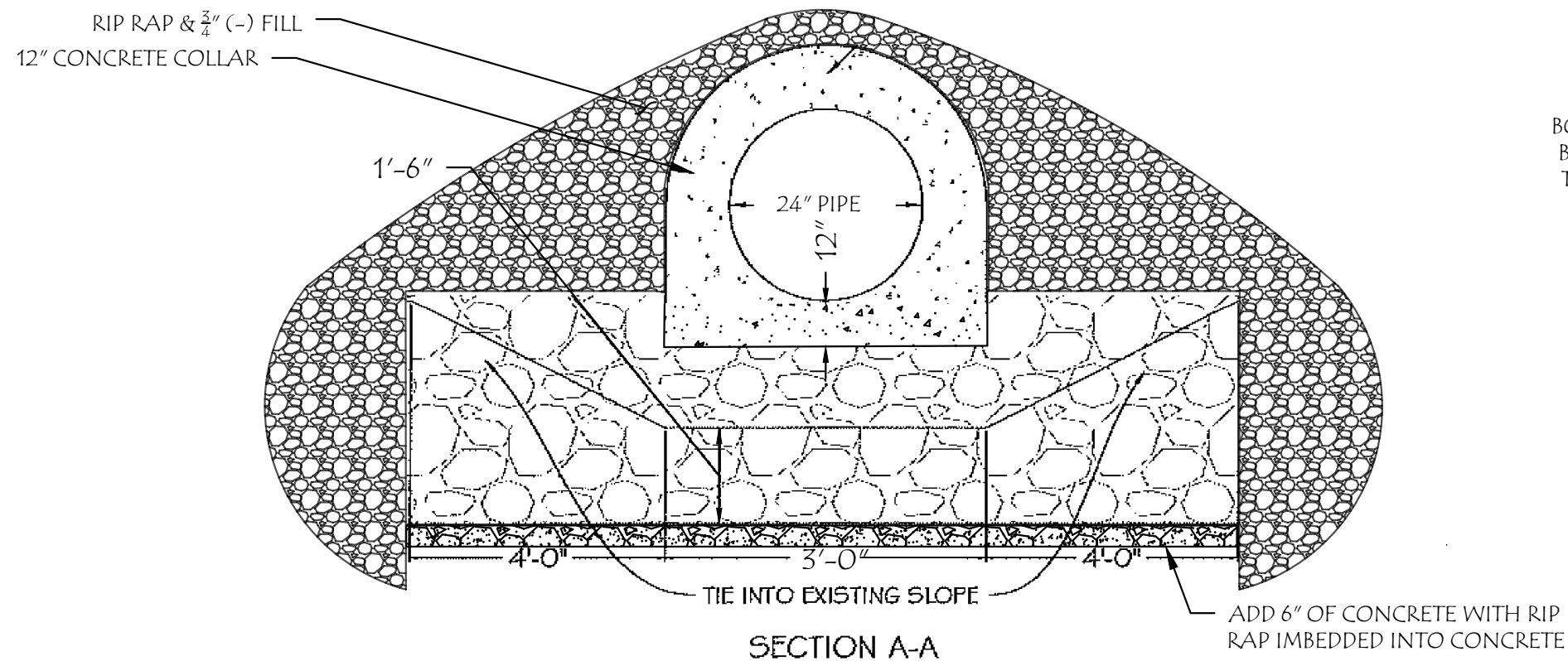
STORM DRAIN IMPROVEMENTS CROSS SECTIONS  
**WYNOOSKI OUTFALL REDESIGN**  
 CITY OF NEWBERG  
 NEWBERG, OR

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

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

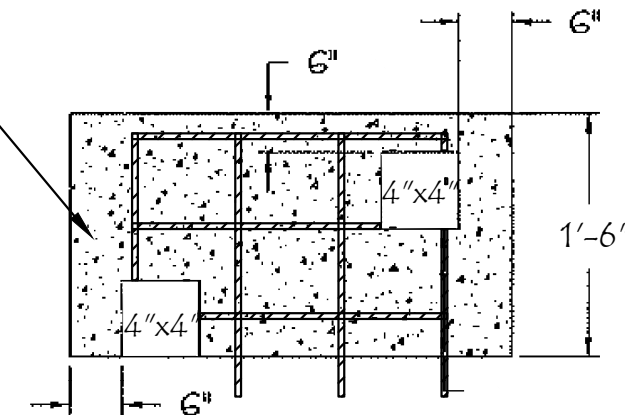
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**F6A**



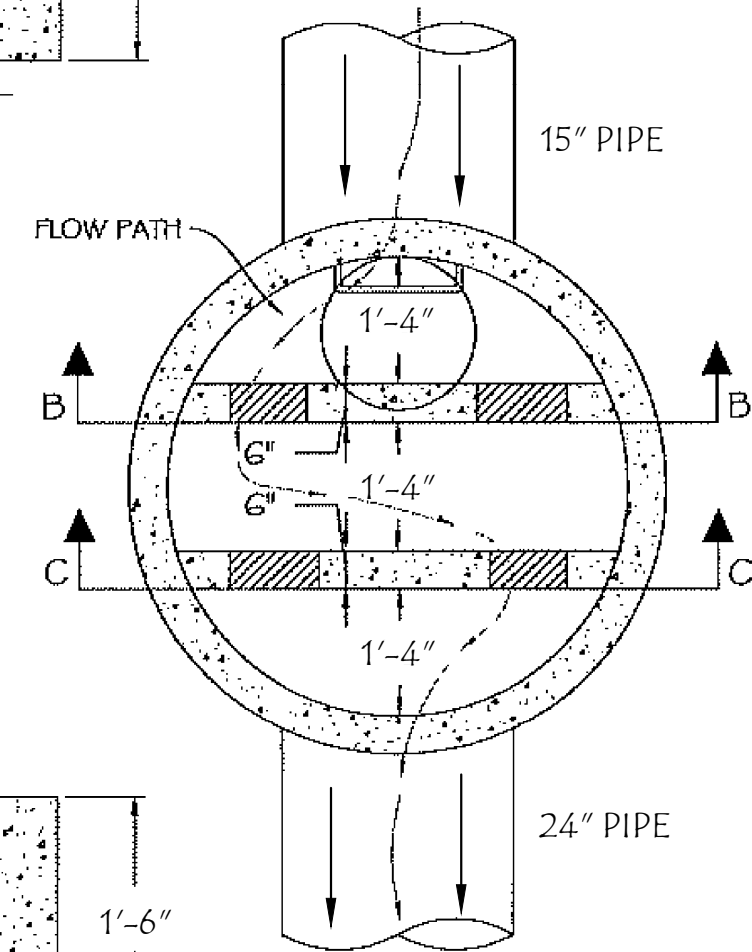


SECTION A-A  
PIPE OUTLET DETAILS  
(NTS)

ADD  $\frac{3}{8}$ " REBAR MAT 12" O.C. FOR BOTH BAFFEL WALLS. TIE INTO MH BASE DOWELS. MIN 3" CLEARANCE TO ANY OPENING/EDGE. REBAR IS DOWELED INTO MANHOLE BASE.

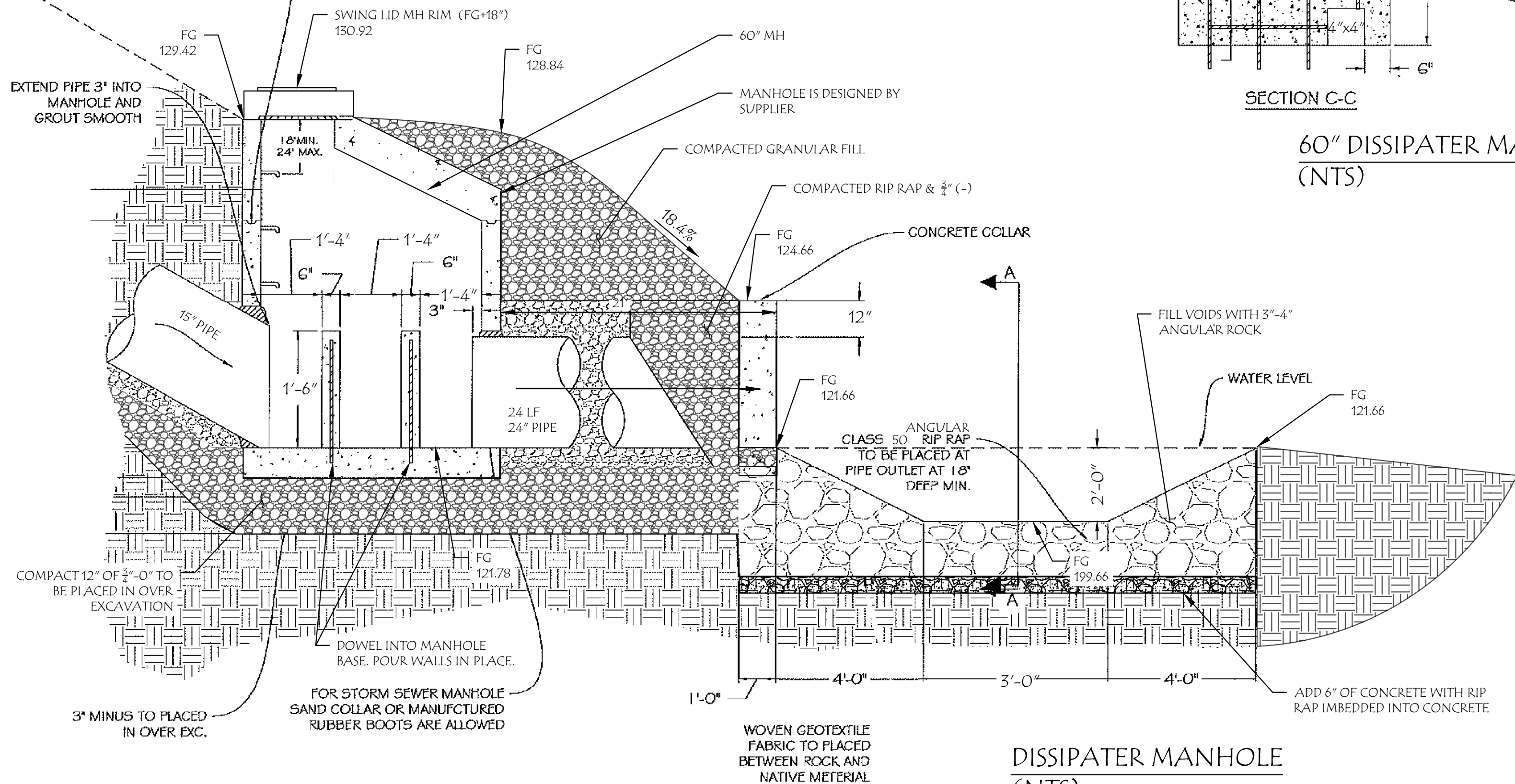


SECTION B-B



60" DISSIPATER MANHOLE DETAILS  
(NTS)

ALL JOINTS SHALL BE SEALED W/ 'RAM NEK' OR 'KENT SEAL'. FINISH ALL JOINTS AND PICK HOLES W/ APPROVED NON-STRIK GROUT



DISSIPATER MANHOLE  
(NTS)

#	DATE	DESCRIPTION

DISSIPATER DETAILS  
**WYNOOSKI OUTFALL REDESIGN**  
CITY OF NEWBERG  
NEWBERG, OR

**H B H**  
CONSULTING  
ENGINEERS

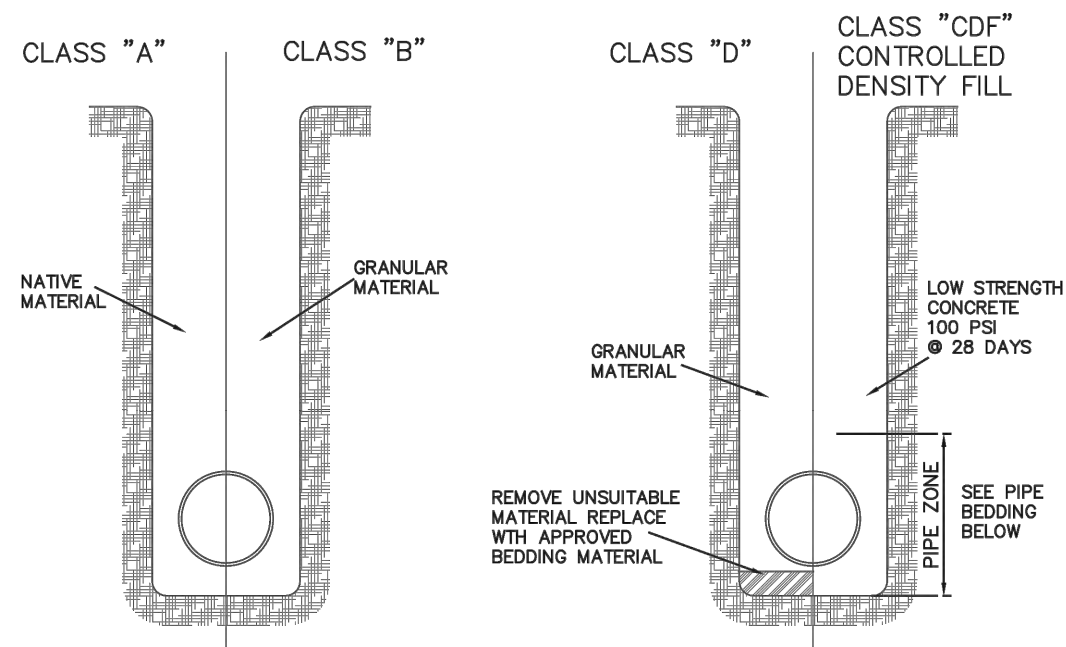
501 E First Street  
Newberg, Oregon 97132  
503/554-9553 fax 503/537-9554  
email: mail@hbh-engineers.com

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

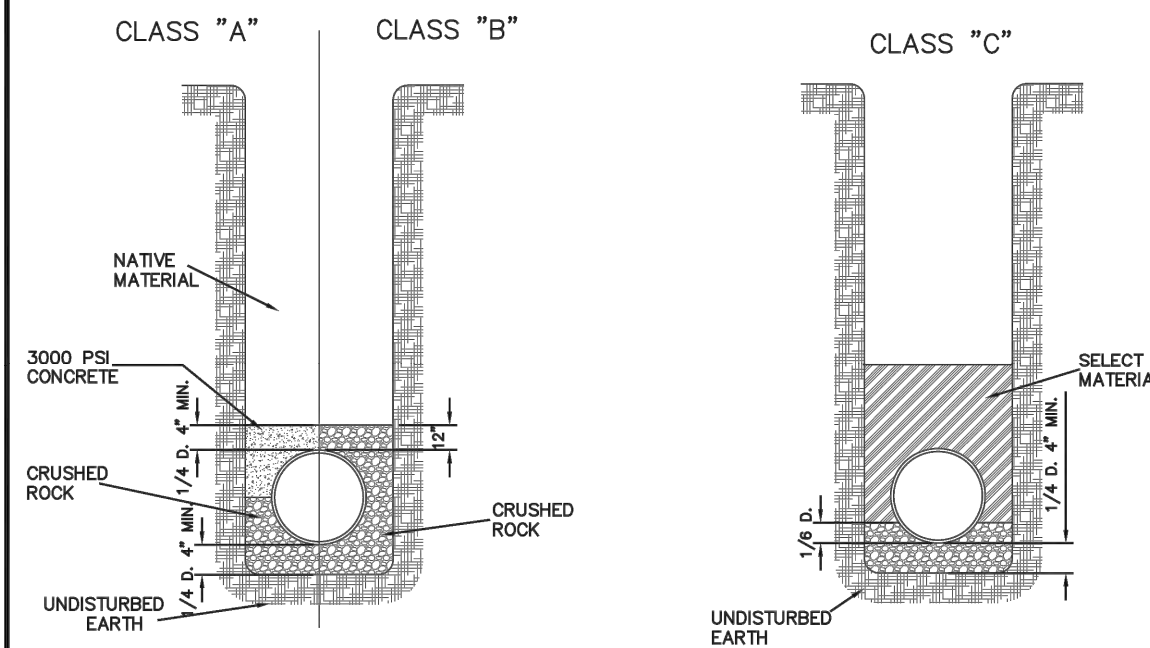
FIGURE NUMBER

**F7A**

201A TRENCH BACKFILL



201B 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	CLASS	CLASS	CLASS	CLASS	PERCENT (BY WEIGHT)
50	100	200	700	2000	
<b>WEIGHT OF ROCK (LBS)</b>					
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

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

REVISIONS:	SCALE: N.T.S.
SEPT 2013- JAY H.	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

REVISIONS:	SCALE: N.T.S.
SEPT. 2013- JAY H.	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

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

**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@hbhconsulting.com

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

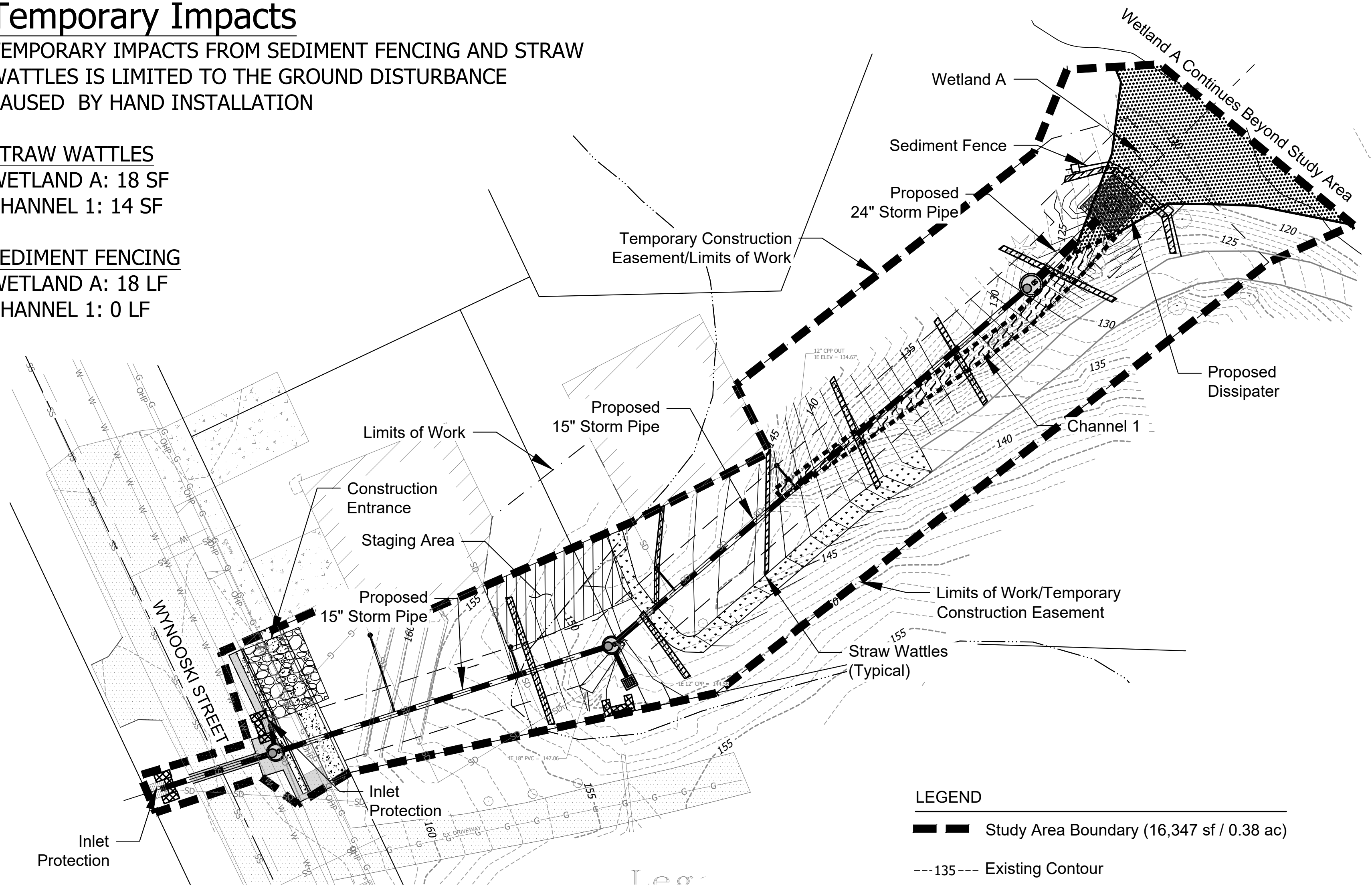
FIGURE NUMBER  
**F7B**

# 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

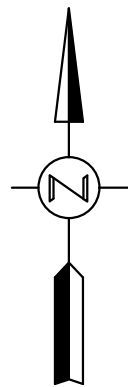
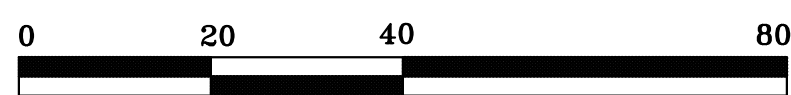
**SEDIMENT FENCING**  
 WETLAND A: 18 LF  
 CHANNEL 1: 0 LF



**LEGEND**

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

Note: See Figure F8A for Erosion Control Notes.



SCALE IN FEET

#	DATE	DESCRIPTION

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-engineers.com

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

FIGURE NUMBER


**F8**

## 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

EROSION CONTROL NOTES  
**WYNOOSKI OUTFALL REDESIGN**  
 CITY OF NEWBERG  
 NEWBERG, OR

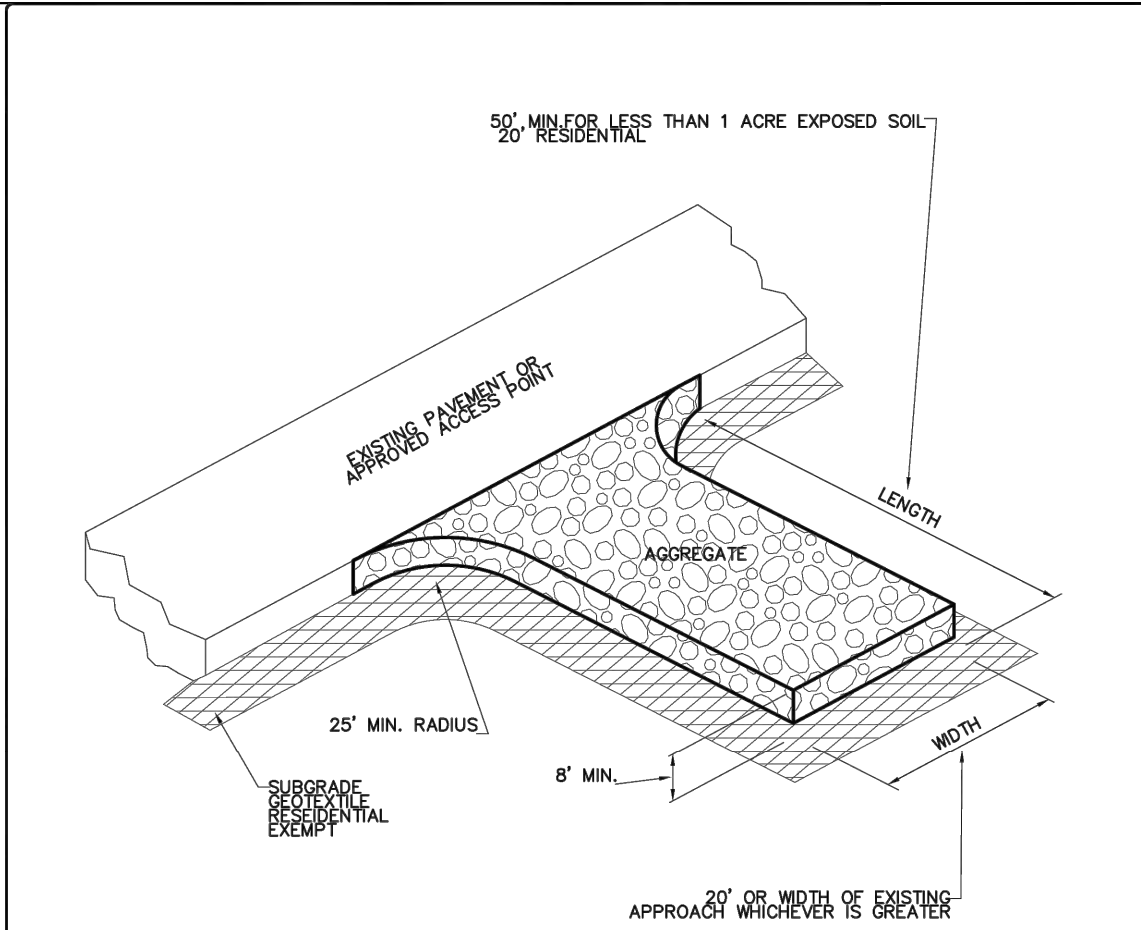


501 E First Street  
 Newberg, Oregon 97132  
 CONSULTING 503/554-9553 fax 503/537-9554  
 ENGINEERS email: mail@hbhconsulting.com

DATE	12/22/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	JH
FIGURE NUMBER	
<b>F8A</b>	

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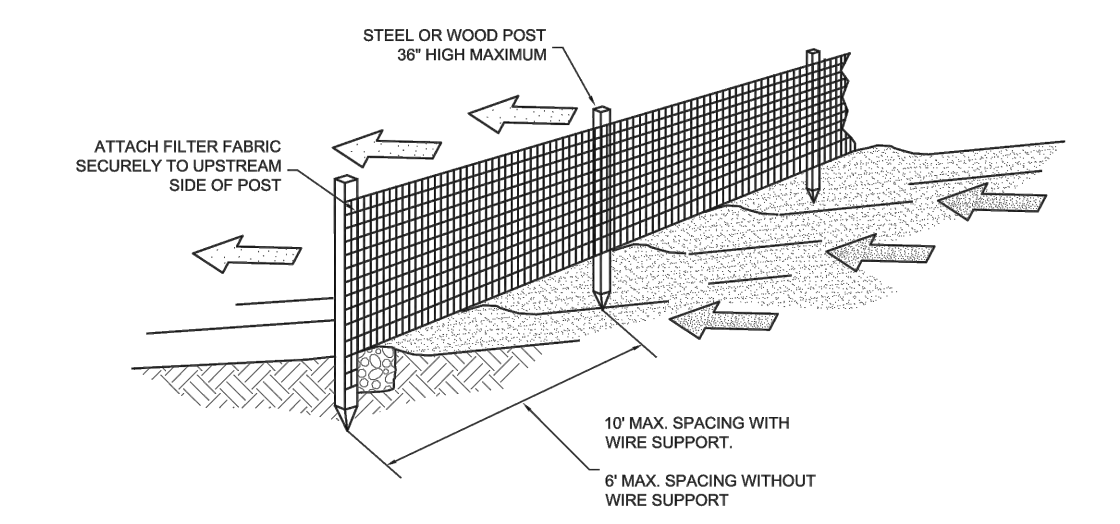
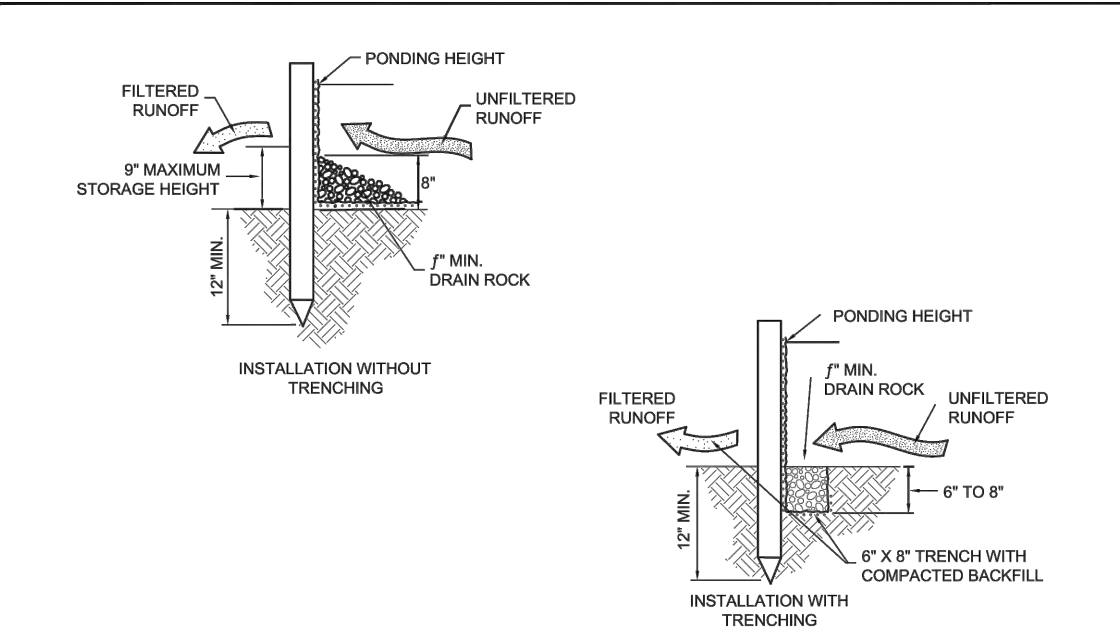
- NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
  2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC 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: 503-537-1249  
FAX: 503-537-1277

REVISIONS:

CONSTRUCTION ENTRANCE

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

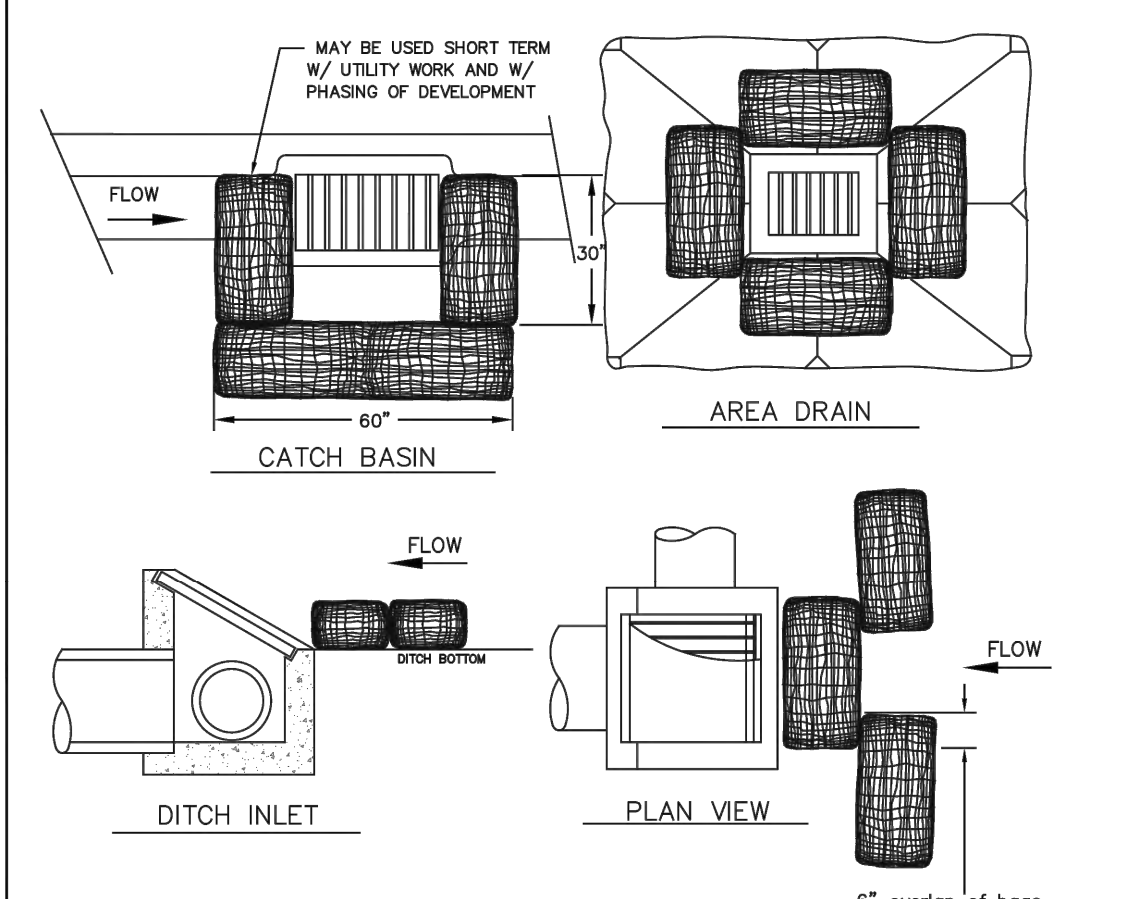


City of Newberg  
PUBLIC WORKS ENGINEERING DIVISION  
414 E. FIRST STREET NEWBERG, OR 97132  
PHONE: 503-537-1249  
FAX: 503-537-1277

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: 503-537-1249  
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

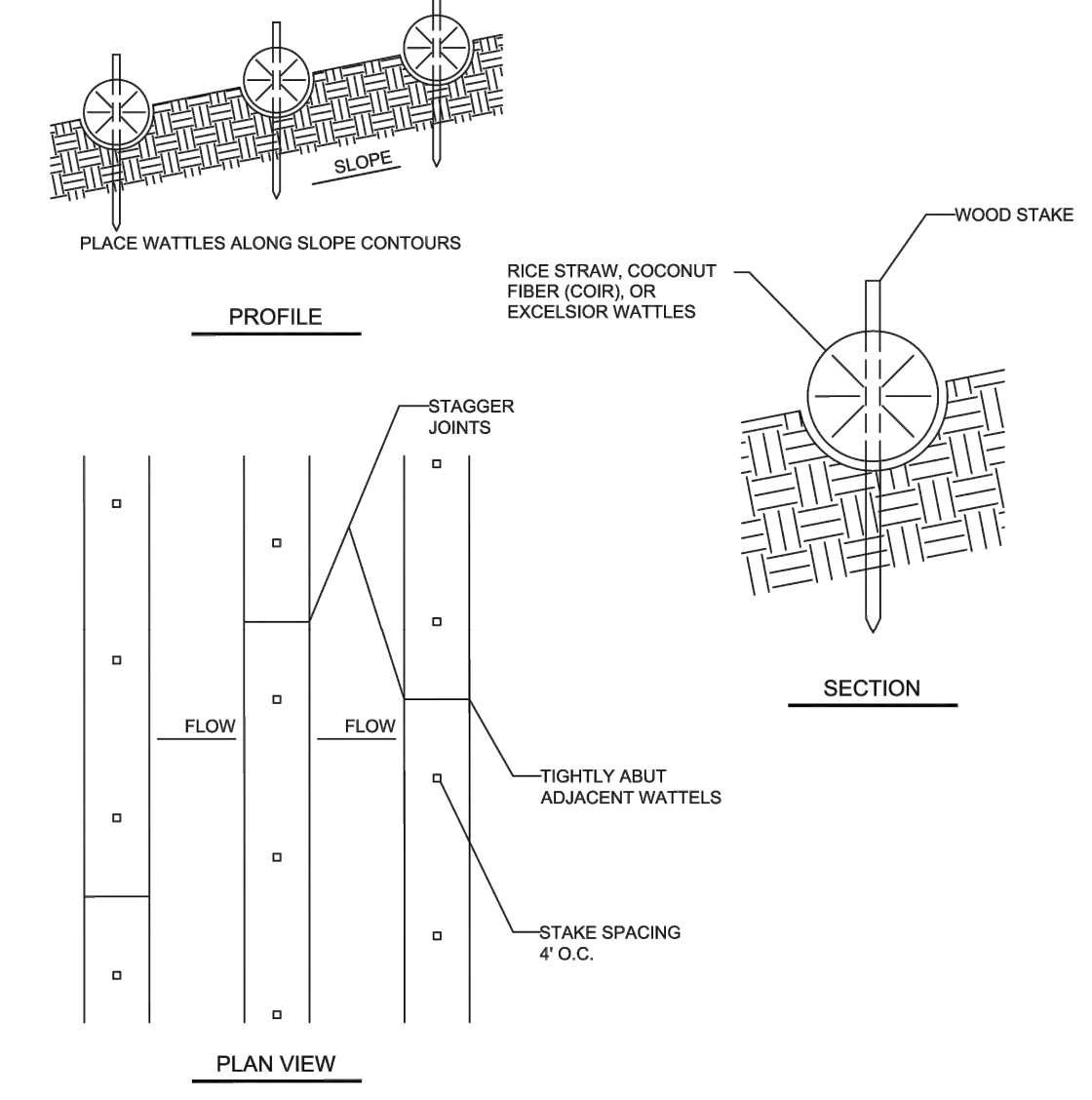


TABLE 3-12 BARRIER SPACING FOR GENERAL APPLICATION

% 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 EROSION SOILS.  
2. SPACING IN ACCORDANCE WITH TABLE 3-12.

City of Newberg  
PUBLIC WORKS ENGINEERING DIVISION  
414 E. FIRST STREET NEWBERG, OR 97132  
PHONE: 503-537-1249  
FAX: 503-537-1277

REVISIONS:  
NA

WATTLES/STRAW BALE

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

#	DATE	DESCRIPTION

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-engineers.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:

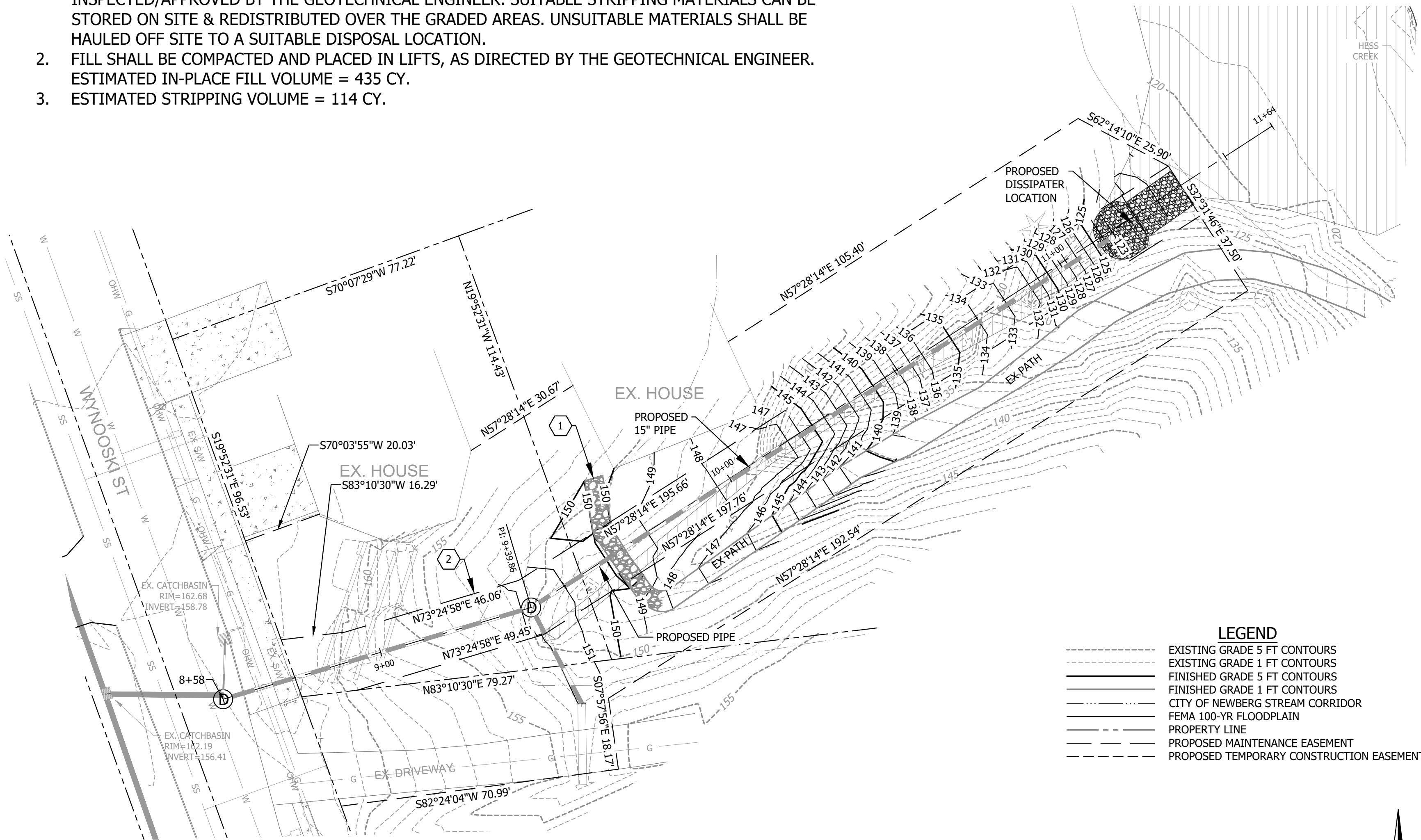
WETLAND A - PERMANENT IMPACT  
FILL: 50cy CUT: 8cy

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

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

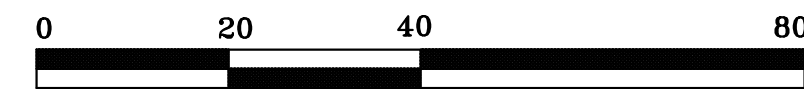
## GENERAL NOTES

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.

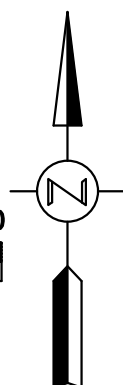


### LEGEND

- 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



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@hbhconsulting.com

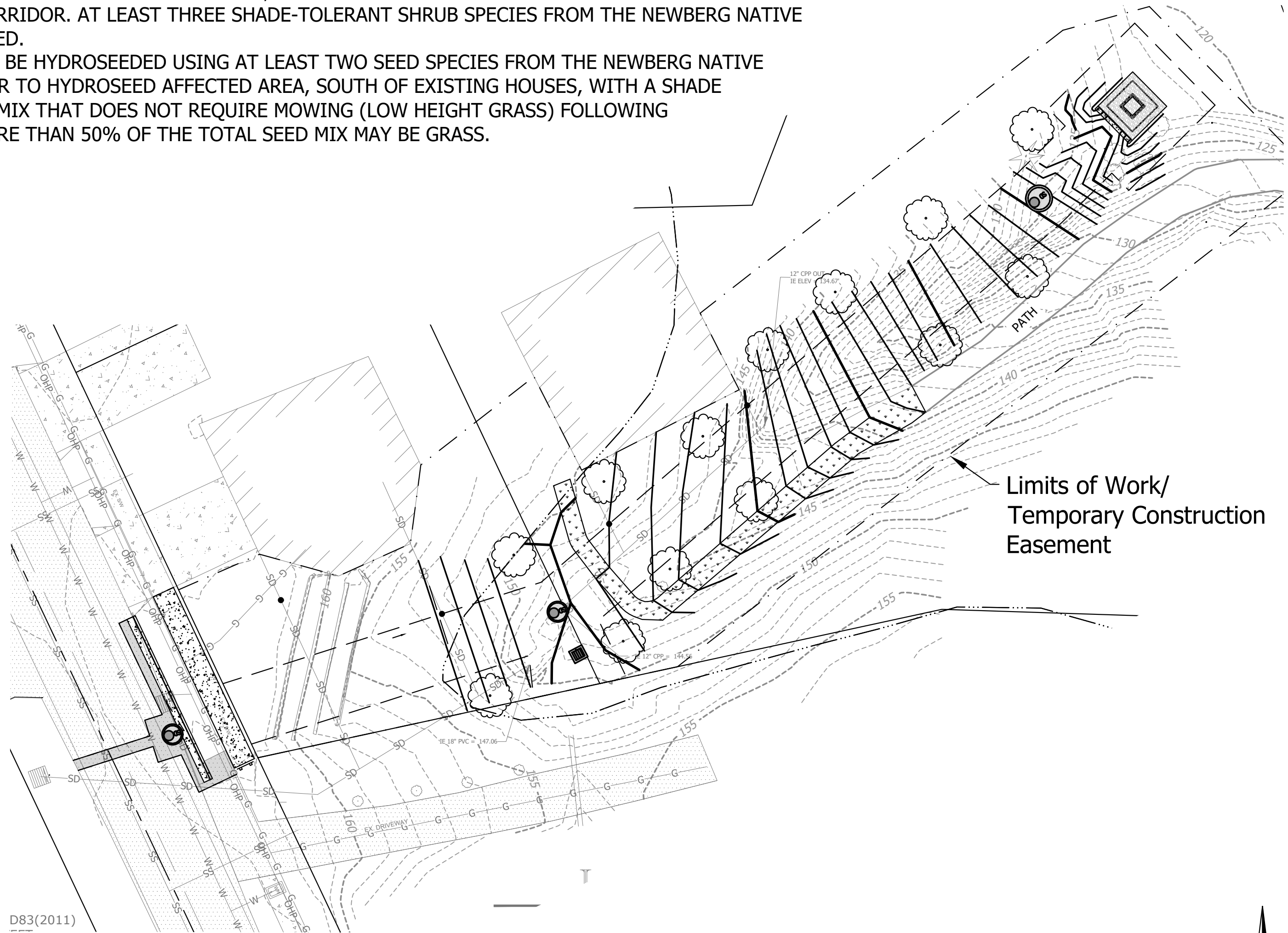
DATE	12/22/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	JH

FIGURE NUMBER  
**F9**

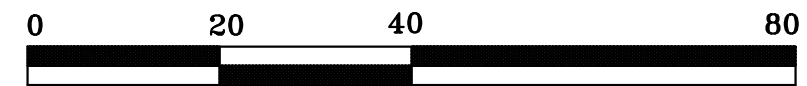


## GENERAL NOTES

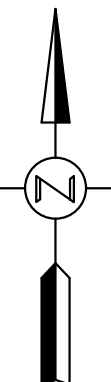
1. CONTRACTOR TO PLANT AT LEAST 13 TREES ON SITE, SPACED EVENLY THROUGHOUT THE DISTURBED AREA WITHIN THE STREAM CORRIDOR. CONTRACTOR TO VERIFY TOTAL NUMBER OF EXISTING TREES GREATER THAN 6" DBH TO BE REMOVED. IF MORE THAN FOUR TREES GREATER THAN 6" DBH WILL BE REMOVED, CONTRACTOR TO PLANT NEW TREES AT 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 HYDROSEEDING 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.



D83(2011)



SCALE IN FEET



#	DATE	DESCRIPTION

**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-engineers.com

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

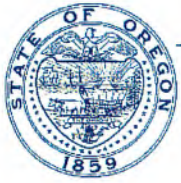
FIGURE NUMBER

F10

# 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](http://www.oregon.gov/dsl)

State Land Board

April 15, 2019

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

Kate Brown  
Governor

Bev Clarno  
Secretary of State

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);

Tobias Read  
State Treasurer

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.

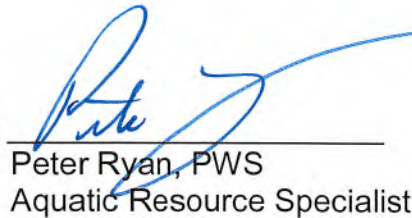
Thank you for having the site evaluated. Please phone me at 503-986-5271 if you have any questions.

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](mailto: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**

<input checked="" type="checkbox"/> Applicant <input type="checkbox"/> Owner Name, Firm and Address: <b>James (Jay) Harris, Public Works Director</b> <b>City of Newberg</b> 414 E. First Street Newberg, OR 97132	Business phone # <b>(503) 537-1211</b> Mobile phone # (optional) E-mail: <b>jay.harris@newbergoregon.gov</b>
--	--

<input checked="" type="checkbox"/> Authorized Legal Agent, Name and Address: <b>Same as above</b>	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. Harris*  
 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: <b>Wynooski Street Storm Project</b>	Latitude: <b>45.293802</b> Longitude: <b>-122.962271</b> <small>decimal degree - centroid of site or start &amp; end points of linear project</small> Tax Map # <b>3 2 20CA</b> Tax Lot(s) <b>802 &amp; 700 (Portion)</b>
---	--

Proposed Use: <b>Storm Line/Utility</b>	Tax Map # Tax Lot(s)
--	-------------------------

Project Street Address (or other descriptive location): <b>740 Wynooski Street</b> City: <b>Newberg</b> County: <b>Yamhill</b>	Township <b>3S</b> Range <b>2W</b> Section <b>20AC</b> QQ <b>NE1/4 SW1/4</b> <small>Use separate sheet for additional tax and location information</small> Waterway: <b>N/A</b> River Mile: NWI Quad(s): <b>Newberg</b>
--	--

**Wetland Delineation Information**

Wetland Consultant Name, Firm and Address: <b>Pacific Habitat Services</b> <b>Attn: Carlee Michelson</b> <b>9450 SW Commerce Circle, Suite 180</b> <b>Wilsonville, OR 97070</b>	Phone # <b>503-570-0800</b> Mobile phone # E-mail: <b>cm@pacifichabitat.com</b>
---	---

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**

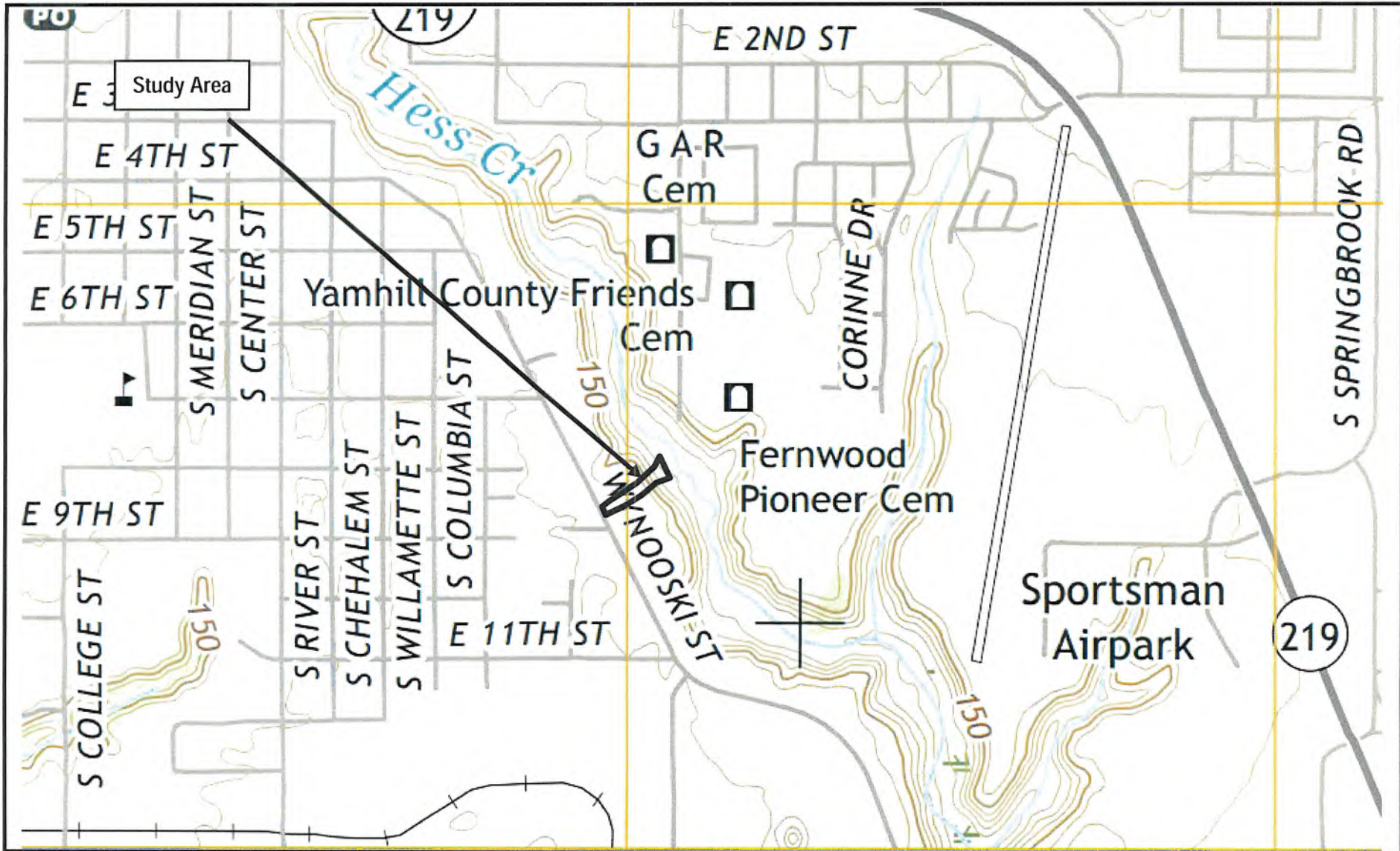
<input type="checkbox"/> R-F permit application submitted	<input checked="" type="checkbox"/> Fee payment submitted <b>\$454</b>
<input type="checkbox"/> Mitigation bank site	<input type="checkbox"/> Fee (\$100) for resubmittal of rejected report
<input type="checkbox"/> Industrial Land Certification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

**For Office Use Only**

DSL Reviewer: <u>DE</u> Fee Paid Date: ___/___/___	DSL WD # <u>2019-0031</u>
Date Delineation Received: <u>1/22/19</u> Scanned: <input type="checkbox"/> Final Scan: <input type="checkbox"/>	DSL App. # _____

*electronic # 77546*





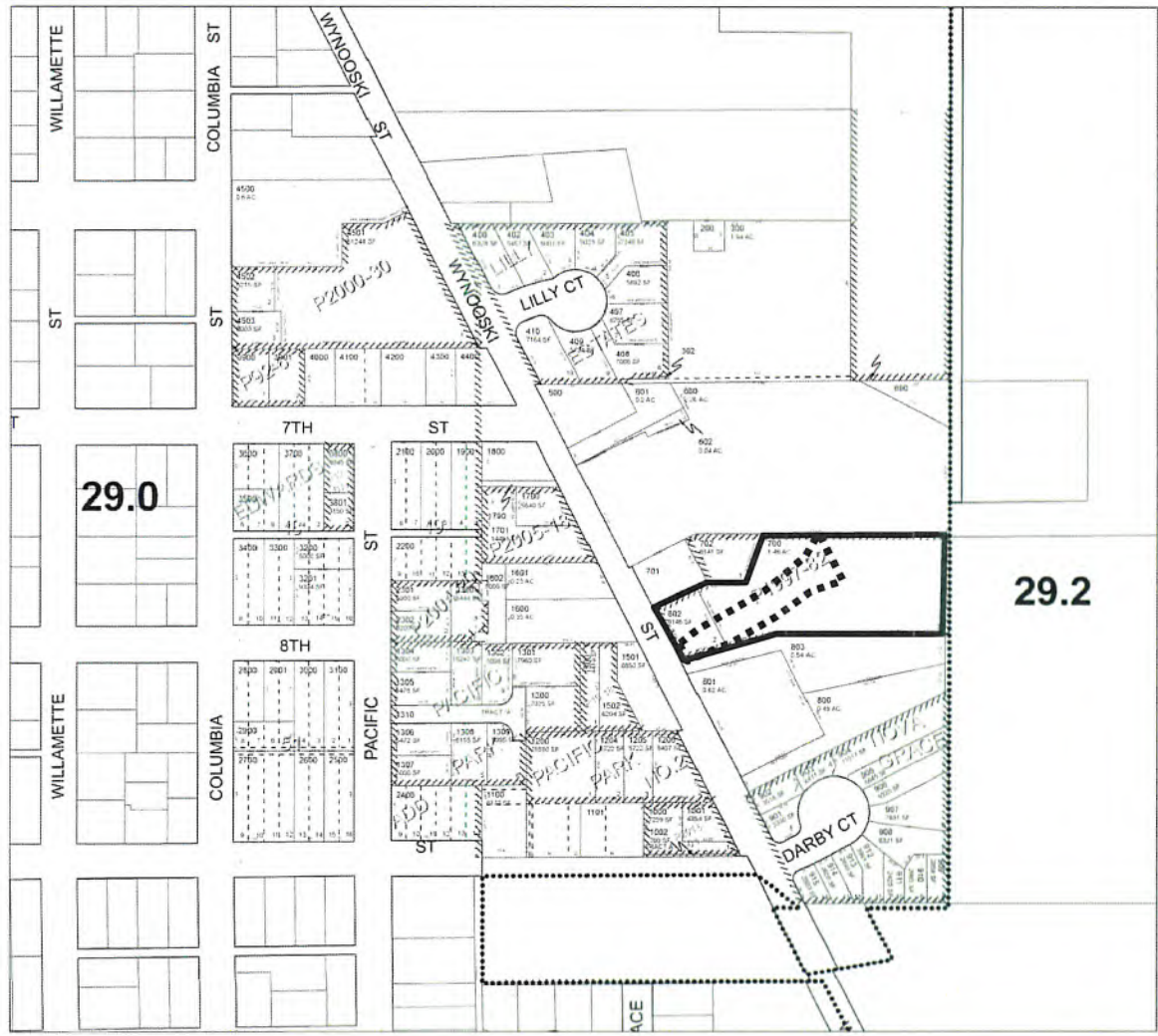
#6601  
10/8/2018

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

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

FIGURE  
1





29.0

29.2

3 2 20CA



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 TAX LOTS
- 4601
  - 4600
  - 2601
  - 2401
  - 1402
  - 1401
  - 1400
  - 1203
  - 1202
  - 1201
  - 1102
  - 401
  - 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, mapping or any profession other than assessment and taxation.

3 2 20CA

#6601  
10/8/2018

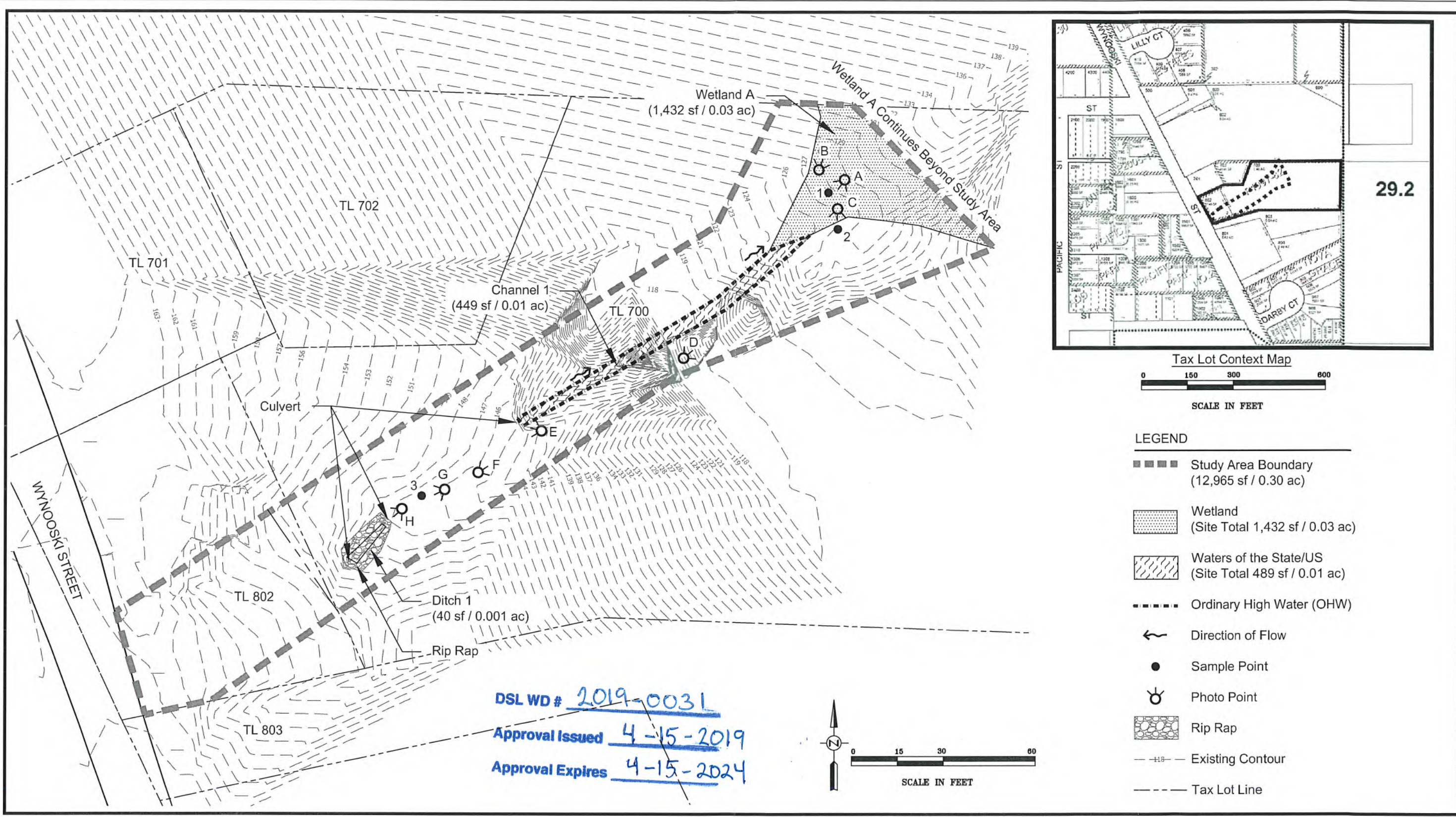


Pacific Habitat Services, Inc.  
9450 SW Commerce Circle, Suite 180  
Wilsonville, OR 97070

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

FIGURE  
2





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



# 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: 143  
(SFAM Report)

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	*If EPA Classification is different from the gradient you observe in the local reach, select the gradient in the local reach.
Erodibility (local)	Easily Erodible	Gradient*	< 2%	

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<sup>2</sup>)? (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

<b>Name of Project Area:</b>	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	
<b>V1</b>  <b>Rare Species Occurrence &amp; Special Habitat Designations</b>	<b>Are there rare species or special habitat designations in the vicinity of the PA?</b>								
	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.								
	<i>Values informed: Surface Water Storage, Flow Variation, Substrate Mobility, Maintain Biodiversity, Sustain Trophic Structure, Nutrient Cycling, Chemical Regulation, Thermal Regulation</i>								
	<b>Essential salmonid habitat or rare non-anadromous fish species:</b>								
	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			
	<b>Rare amphibian and reptile species:</b>								
	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
	<b>Important Bird Areas or rare waterbirds:</b>								
	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			
	<b>Rare songbirds, raptors, and mammals:</b>								
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	
<b>Rare invertebrate species:</b>									
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	
<b>Rare plant species:</b>									
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	
<b>V2</b>  <b>Water Quality Impairments</b>	<b>Is this reach on the 303(d) list or other TMDL (Categories 3B-5) for any of the following impairments: sediment, nutrient, metals &amp; toxics, temperature, or flow modification?</b>								
	Answer each submeasure using information from the site's SFAM Report (water quality impairments section).								
	<i>Values informed: Flow Variation, Sediment Continuity, Create &amp; Maintain Habitat, Sustain Trophic Structure, Nutrient Cycling, Chemical Regulation, Thermal Regulation</i>								
	<b>Sediment impairment:</b> 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
	<b>Nutrient impairment:</b> 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
	<b>Metals or other toxics impairment:</b> 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
<b>Temperature impairment:</b>									
Biology, Water Quality	Temperature Impairment	TempImp		Select yes or no from the dropdown menu:	No			0.00	
<b>Flow modification:</b>									
Hydrology, Biology	Flow Modification	FlowMod		Select yes or no from the dropdown menu:	No			0.00	



V3 Protected Areas	<b>Is the PA boundary within 300 feet of a special protected area?</b> 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.  <i>Values informed: Maintain Biodiversity, Sustain Trophic Structure</i>							
	Biology		Protect		Select yes or no from the dropdown menu:	No		
V4 Impervious Area	<b>What is the percent impervious area in the drainage basin?</b> Answer using information from the site's StreamStats Report (IMPERV).  <i>Values informed: Surface Water Storage, Flow Variation, Sediment Continuity, Substrate Mobility, Create &amp; Maintain Habitat, Sustain Trophic Structure, Nutrient Cycling, Chemical Regulation, Thermal Regulation</i>							
	Hydrology, Geomorphology, Biology, Water Quality		ImpArea		<10%, select A; 10-25%, select B; >25-60%, select C; >60%, select D.	B		
V5 Riparian Area	<b>What is the percentage of intact riparian area within 2 miles upstream of the PA?</b> 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.  <i>Values informed: Create &amp; Maintain Habitat, Sustain Trophic Structure, Nutrient Cycling, Chemical Regulation, Thermal Regulation</i>							
	Biology, Water Quality		RipArea		If >50% select A. If >35-50%, select B. If 15-35%, select C. If <15%, select D.	D		
V6 Extent of Downstream Floodplain Infrastructure	<b>What is the extent of infrastructure (buildings, bridges, utilities, row crops) in the floodplain?</b> 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.  <i>Values informed: Surface Water Storage, Sediment Continuity, Create &amp; Maintain Habitat, Sustain Trophic Structure</i>							
	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		
V7 Zoning	<b>What is the dominant zoned land use designation downstream of the PA?</b> 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.  <i>Values informed: Surface Water Storage, Create &amp; Maintain Habitat, Sustain Trophic Structure</i>							
	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		
V8 Frequency of Downstream Flooding	<b>What is the frequency of downstream flooding?</b> 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).  <i>Values informed: Surface Water Storage</i>							
	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		

V9 Impoundments	<b>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?</b> 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. <i>Values informed: Surface Water Storage, Flow Variation, Sediment Continuity, Substrate Mobility, Create &amp; Maintain Habitat</i>								
	Hydrology, Geomorphology, Biology		Impound		Are there 1-2 small dams or other impoundments <b>upstream</b> of the PA?	No	Upstream impoundments subscore:	1.00	
					Are there >2 small impoundments, 1 or more large dams or other impoundments <b>upstream</b> of the PA?	No			
					Are there 1-2 small dams or other impoundments <b>downstream</b> of the PA?	No	Downstream impoundments subscore:	1.00	
Are there >2 small impoundments, 1 or more large dams or other impoundments <b>downstream</b> of the PA?					No				
V10 Fish Passage Barriers	<b>Are there man-made fish passage barriers within 2 miles upstream and/or downstream of the PA?</b> 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. <i>Values informed: Maintain Biodiversity, Sustain Trophic Structure</i>								
	Biology		Passage	Slope barrier	Upstream	Blocked	0.00	0.50	
				Downstream	Unknown	1.00			
V11 Water Source	<b>Is there an area that is of special concern for drinking water sources or groundwater recharge within 2 miles downstream of the PA?</b> 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. <i>Values informed: Sub/Surface Transfer, Nutrient Cycling, Chemical Regulation</i>								
	Hydrology, Water Quality		Source		Select yes or no from the dropdown menu:	Yes		1.00	
V12 Surrounding Land Cover	<b>What are the land cover types surrounding the PA?</b> 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%. <i>Values informed: Maintain Biodiversity, Sustain Trophic Structure</i>								
	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	<b>What is the longitudinal extent of intact riparian area that is contiguous to the PA?</b> 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. <i>Values informed: Maintain Biodiversity, Create &amp; Maintain Habitat, Sustain Trophic Structure, Nutrient Cycling, Chemical Regulation, Thermal Regulation</i>								
	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	<b>What is the relative position of the PA in its HUC 8 watershed?</b> Answer this question looking at position of the PA relative 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." <i>Values informed: Sediment Continuity, Nutrient Cycling, Chemical Regulation</i>								
	Geomorphology, Water Quality		Position		Select an answer from the dropdown menu:	Upper 1/3		0.00	

V15 Flow Restoration Needs	<b>What is the "streamflow restoration need" ranking of the watershed within which the PA is located?</b> Answer this question using the Flow Restoration Needs layer in the SFAM Map Viewer. <i>Values informed: Flow Variation, Create &amp; Maintain Habitat</i>							
	Hydrology, Biology		FlowRest		Select an answer from the dropdown menu:	Not Ranked or Low		
V16 Unique Habitat Features	<b>Are there rare aquatic habitat features within the EAA that are not common to the rest of the drainage basin?</b> 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. <i>Values informed: Substrate Mobility, Maintain Biodiversity, Create &amp; Maintain Habitat, Sustain Trophic Structure, Thermal Regulation</i>							
	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
<b>Already in Stream Classification on Cover Page - NO DATA INPUT REQUIRED.</b>								
Surface Water Runoff	<b>What is the level of surface water runoff (based on local water availability and local gradient)?</b> No data input necessary, information taken from EPA classification (stream type & gradient).							
	Hydrology		Runoff					0.75
Aquifer Permeability	<b>What is the permeability of the aquifer (determined by percent permeable bedrock based on hydraulic conductivity m/day)?</b> No data input necessary, information taken from EPA classification.							
	Hydrology		AqPerm			High		0.00
Soil Permeability	<b>What is the permeability of the soil (based on hydraulic conductivity in cm/hr)?</b> No data input necessary, information taken from EPA classification.							
	Hydrology		SoilPerm			High		0.00
Erodibility	<b>What is the erodibility of this reach?</b> No data input necessary, information taken from EPA classification.							
	Geomorphology		Erode			Easily Erodible		1.00

## STREAM FUNCTION ASSESSMENT METHOD for OREGON

<b>Name of Project</b>	Channel 1 (Wynooski St)		Enter Data in Yellow Boxes ONLY
<b>Area:</b>			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			
<b>F1</b> <b>Natural Cover</b>	<p><b>What is the percent natural cover above the stream within the PAA?</b></p> <p>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.</p> <p><i>Functions informed: Sustain Trophic Structure, Nutrient Cycling, Thermal Regulation</i></p>							
	Biology, Water Quality		Cover	WMTsmall	Enter a percentage: <i>(round to nearest whole number)</i>	95		0.85
<b>F2</b> <b>Invasive Vegetation</b>	<p><b>What is the percent cover of invasive vegetation within the PAA?</b></p> <p>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.</p> <p><i>Functions informed: Maintain Biodiversity, Sustain Trophic Structure</i></p>							
	Biology		InvVeg		Enter a percentage: <i>(round to nearest whole number)</i>	81		0.00
<b>F3</b> <b>Native Woody Vegetation</b>	<p><b>What is the percent cover of native woody vegetation within the PAA?</b></p> <p><i>Functions informed: Maintain Biodiversity, Create &amp; Maintain Habitat</i></p>							
	Biology		WoodyVeg		Enter a percentage: <i>(round to nearest whole number)</i>	7		0.11
<b>F4</b> <b>Large Trees</b>	<p><b>What is the percent cover of large trees (dbh&gt;20in) within the PAA?</b></p> <p><i>Functions informed: Maintain Biodiversity, Create &amp; Maintain Habitat</i></p>							
	Biology		LgTree	West	Enter a percentage: <i>(round to nearest whole number)</i>	4		0.12
<b>F5</b> <b>Vegetated Riparian Corridor Width</b>	<p><b>What is the average width of the vegetated riparian corridor within the PAA?</b></p> <p>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.</p> <p><i>Functions informed: Nutrient Cycling, Chemical Regulation</i></p>							
	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
---------	--	----------	--	---	---------	--	------

<p><b>F7</b></p> <p><b>Floodplain Exclusion</b></p>	<p><b>What percent of the floodplain has been disconnected within the PAA?</b></p> <p>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.</p> <p><i>Functions informed: Surface Water Storage, Create &amp; Maintain Habitat</i></p>						
<p>Hydrology, Biology</p>		<p>Exclusion</p>		<p>If ≤ 20%, select A. If &gt;20 - 40%, select B. If &gt;40 - 80%, select C. If &gt;80%, select D.</p>	<p>D</p>		<p>0.00</p>
<p><b>F8</b></p> <p><b>Bank Armoring</b></p>	<p><b>What percentage of the stream banks within the PAA are armored?</b></p> <p>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 woody 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).</p> <p><i>Functions informed: Substrate Mobility</i></p>						
<p>Geomorphology</p>		<p>Armor</p>		<p>Enter a percentage: (round to nearest whole number)</p>	<p>0</p>		<p>1.00</p>
<p><b>F9</b></p> <p><b>Bank Erosion</b></p>	<p><b>What percentage of stream banks within the PAA are actively eroding or recently (within previous year or high flow) eroded?</b></p> <p>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.</p> <p><i>Functions informed: Sediment Continuity</i></p>						
<p>Geomorphology</p>		<p>Erosion</p>		<p>Enter a percentage: (round to nearest whole number)</p>	<p>49</p>		<p>0.17</p>
<p><b>F10</b></p> <p><b>Overbank Flow</b></p>	<p><b>Does the stream interact with its floodplain within the PAA?</b></p> <p>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 <u>either</u> the right or left bank floodplain within the PAA? Do not include evidence from inset floodplains developing within entrenched channel systems.</p> <p>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.</p> <p><i>Functions informed: Surface Water Storage, Sub/Surface Transfer, Sustain Trophic Structure, Nutrient Cycling, Chemical Regulation</i></p>						
<p>Hydrology, Biology, Water Quality</p>		<p>OBFlow</p>		<p>Select yes or no from dropdown menu: (If there is no floodplain, leave blank)</p>	<p>No</p>		<p>0.00</p>

F11  Wetland Vegetation	<b>Are there wetland indicator plants adjacent to the channel and/or in the floodplain within the PAA?</b>							
	Determine if vegetation in the riparian area of the PAA has a wetland indicator status of obligate or facultative wet.							
	<i>Functions informed: Sub/Surface Transfer, Maintain Biodiversity, Sustain Trophic Structure, Nutrient Cycling, Chemical Regulation</i>							
	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? <i>(Select N/A if you answered No above)</i>	Yes			
				If yes, are the wetland indicator plants located beyond 0.5 x BFW distributed along >70% of the length of the PAA? <i>(Select N/A if you answered No above)</i>	No			
F12  Side Channels	<b>What proportion of the EAA length has side channels?</b>							
	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.							
	<i>Functions informed: Surface Water Storage, Sub/Surface Transfer, Maintain Biodiversity, Create &amp; Maintain Habitat</i>							
	Hydrology, Biology		SideChan		Enter a percentage: <i>(round to nearest whole number)</i>	0		0.00
F13  Lateral Migration	<b>What percent of both sides of the channel within the EAA is constrained from lateral migration?</b>							
	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.							
	<i>Functions informed: Sediment Continuity</i>							
	Geomorphology		LatMigr		Enter a percentage: <i>(round to nearest whole number)</i>	0		1.00
F14  Wood	<b>What is the frequency of large wood in the bankfull channel within the EAA?</b>							
	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).							
	<i>Functions informed: Surface Water Storage, Maintain Biodiversity, Create &amp; Maintain Habitat</i>							
	Hydrology, Biology		Wood	WMTsmall	Enter the frequency (pieces per 328 ft) of wood in the channel: <i>(round to nearest hundredth)</i>	0.00		0.00

F15 Incision	<b>What is the degree of channel incision within the EAA?</b>							
	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.							
<i>Functions informed: Surface Water Storage, Sediment Continuity, Create &amp; Maintain Habitat</i>								
Hydrology, Geomorphology, Biology		Incision		Enter the average incision: (round to nearest hundredth)	1.67		0.54	
F16 Embeddedness	<b>What is the degree of substrate embeddedness in the stream channel?</b>							
	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.							
<i>Functions informed: Flow Variation, Substrate Mobility, Create &amp; Maintain Habitat</i>								
Hydrology, Geomorphology, Biology		Embed		Enter a percentage: (round to nearest whole number)	73		0.35	
F17 Channel Bed Variability	<b>Is the channel variable?</b>							
	Channel bed variability indicators include variation in wetted channel width and stream thalweg depth along the EAA.							
	<i>Functions informed: Surface Water Storage, Sub/Surface Transfer, Flow Variation, Sediment Continuity, Maintain Biodiversity, Create &amp; Maintain Habitat, Nutrient Cycling, Chemical Regulation</i>							
	Hydrology, Geomorphology, Biology, Water Quality		BedVar		Enter the <b>wetted width</b> coefficient of variation:	0.84		1.00
				Enter the <b>thalweg depth</b> 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
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

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  $\geq 3.0$  but  $\leq 7.0$  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	<b>2.58</b>	SWS	ImpArea	0.30	3.42	3.83	<b>7.25</b>						
	Incision	0.54			Runoff	0.75									
	Exclusion	0.00			ImpoundUS	1.00									
	BedVar	1.00			DwnFP	0.50									
	Wood	0.00			Zoning	1.00									
	SideChan	0.00			DwnFld	0.30									
SST	OBFlow	0.00	<b>3.75</b>	SST	Fish	1.00	0.00	1.00	<b>10.00</b>						
	WetVeg	0.50			AqPerm	0.00									
	SideChan	0.00			SoilPerm	0.00									
	BedVar	1.00			Source	1.00									
FV	BedVar	1.00	<b>7.82</b>	FV	ImpArea	0.30	0.50	5.00	<b>5.50</b>						
	Embed	0.35			FlowMod	0.00									
	ImpoundUS	1.00			1-ImpoundUS	0.00									
					FlowRest	0.00									
					AqPerm	0.00									
					SoilPerm	0.00									
					ImpoundDS	1.00									
					RarInvert	0.00									
					RarAmRep	0.50									
					Fish	1.00									
SC	Incision	0.54	<b>5.68</b>	SC	SedList	0.00	0.43	4.17	<b>4.60</b>						
	Erosion	0.17			ImpArea	0.30									
	LatMigr	1.00			ImpoundUS	1.00									
					Postion	0.00									
					1-DwnFP	0.50									
					Erode	1.00									
SM	Armor	1.00	<b>8.04</b>	SM	ImpoundDS	1.00	3.25	2.50	<b>5.75</b>						
	Embed	0.35			ImpArea	0.30									
	BedVar	1.00			ImpoundUS	1.00									
					SubFeat	0.00									
					Fish	1.00									
					RarPlant	0.00									
					RarAmRep	0.50									
					RareInvert	0.00									
MB	Barriers	0.00	<b>0.91</b>	MB	Passage	0.50	1.08	1.67	<b>2.75</b>						
	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			Fish	1.00									
	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	<b>0.38</b>	CMH	1-ImpArea	0.70	2.70	2.50	<b>5.20</b>						
	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			1-FlowMod	1.00									
	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	<b>3.17</b>				STS	SurrLand	0.15	2.39	1.88	<b>4.27</b>
		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-Templimp	1.00											
			Protect	0.00											
			1-DwnFP	0.50											
			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	<b>6.08</b>	NC	Nutrimp	0.00	0.46	5.00	<b>5.46</b>						
	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									
					Position	0.00									
CR	RipWidth	0.69	<b>5.48</b>	CR	Fish	1.00	0.46	5.00	<b>5.46</b>						
	BedVar	1.00			RareInvert	0.00									
	WetVeg	0.50			RarAmRep	0.50									
	OBFlow	0.00			Waterbird	0.00									
					RarBdMm	0.00									
					RarPlant	0.00									
					Source	1.00									
					ToxImp	0.00									
					ImpArea	0.30									
					1-RipArea	1.00									
					1-RipCon	1.00									
					SedList	0.00									
					Position	0.00									
					Fish	1.00									
		RarInvert	0.00												
		RarAmRep	0.50												
TR	Cover	0.85	<b>8.50</b>	TR	Waterbird	0.00	4.10	2.50	<b>6.60</b>						
					1-Templimp	1.00									
					RipArea	0.00									
					RipCon	0.00									
					ImpArea	0.30									
					Fish	1.00									
					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.

<b>Project Area Description:</b>
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.
<b>Is there a Floodplain?</b>
No

<b>Establishing the boundaries of the Proximal Assessment Area (PAA):</b>																																											
<p>a) Identify the spatial extent of direct impact.</p> <p>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.</p> <p>c) Locate the center of the PAA and measure the bankfull channel width (BFW).</p> <p>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.</p> <p>e) Establish the lateral boundaries of the PAA at a distance of 2 × the <u>average</u> BFW or 50' from the stream edge (bankfull edge), whichever is greater, on each side of the stream.</p>																																											
Total PAA stream length (ft) =		108																																									
Distance between transects (PAA length ÷ 4) =		27																																									
2 × average bankfull width (calculated below) =		7.2																																									
<table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th colspan="4" style="text-align: center;">Bankfull Width:</th> <th style="width: 15%;"></th> <th style="width: 15%; text-align: center;">Latitude</th> <th style="width: 15%; text-align: center;">Longitude</th> </tr> <tr> <th style="width: 10%;">Transect</th> <th style="width: 10%;">Location</th> <th style="width: 10%;">Width (ft)</th> <th style="width: 10%;">Average</th> <th></th> <th style="width: 10%;">Corner 1</th> <th style="width: 10%;">Corner 2</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">T1</td> <td style="text-align: center;">27</td> <td style="text-align: center;">4.3</td> <td rowspan="3" style="text-align: center; vertical-align: middle;">3.6</td> <td></td> <td style="text-align: center;">45.2939</td> <td style="text-align: center;">-122.9622</td> </tr> <tr> <td style="text-align: center;">T2</td> <td style="text-align: center;">54</td> <td style="text-align: center;">3.5</td> <td></td> <td style="text-align: center;">45.2937</td> <td style="text-align: center;">-122.962</td> </tr> <tr> <td style="text-align: center;">T3</td> <td style="text-align: center;">81</td> <td style="text-align: center;">3</td> <td></td> <td style="text-align: center;">45.2942</td> <td style="text-align: center;">-122.9618</td> </tr> <tr> <td colspan="4"></td> <td></td> <td style="text-align: center;">45.294</td> <td style="text-align: center;">-122.9615</td> </tr> </tbody> </table>				Bankfull Width:					Latitude	Longitude	Transect	Location	Width (ft)	Average		Corner 1	Corner 2	T1	27	4.3	3.6		45.2939	-122.9622	T2	54	3.5		45.2937	-122.962	T3	81	3		45.2942	-122.9618						45.294	-122.9615
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T3	81	3			45.2942	-122.9618																																					
					45.294	-122.9615																																					

<b>Establishing the boundaries of the Extended Assessment Area (EAA):</b>																		
<p>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.</p> <p>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.</p> <p>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.</p>																		
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																
<table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 15%; text-align: center;">Latitude</th> <th style="width: 15%; text-align: center;">Longitude</th> </tr> </thead> <tbody> <tr> <td style="width: 15%;">Corner 1</td> <td style="text-align: center;">45.2938</td> <td style="text-align: center;">-122.9623</td> </tr> <tr> <td>Corner 2</td> <td style="text-align: center;">45.2937</td> <td style="text-align: center;">-122.9622</td> </tr> <tr> <td>Corner 3</td> <td style="text-align: center;">45.2942</td> <td style="text-align: center;">-122.9617</td> </tr> <tr> <td>Corner 4</td> <td style="text-align: center;">45.2941</td> <td style="text-align: center;">-122.9615</td> </tr> </tbody> </table>					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
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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- Wyooski 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?	<b>Natural Cover (F1):</b> Record densiometer readings from both left and right banks at each transect.				See F2-F4 below	<b>Riparian Corridor (F5):</b> Record the width (ft) of the riparian corridor at each PAA transect. If > 330 ft, enter 330.				<b>Barriers (F6):</b> Does a man-made structure limit fish passage (barrier, partial, passable, unknown, none)?			<b>Exclusion (F7):</b> What % of the 100-yr floodplain is excluded due to features (<=20%, >20-40%, >40-80%, >80%)?		
		T1	T2	T3			T1	T2	T3	Barrier			<=20%		
	Left	17	17	17		Left	30	50	50						
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														

<b>Armor (F8) and Erosion (F9):</b> 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				

<b>Overbank Flow (F10):</b> Is there evidence of overbank flow at least 0.5 × BFW from the bankfull edge? ( <i>circle answer in field</i> )			No
---	--	--	----

<b>Wetland Vegetation (F11):</b> Are there FACW or OBL wetland plants on the banks or in the floodplain? ( <i>circle answers</i> )				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- Wyooski 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
--	-----

<b>Wood (F14):</b> 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

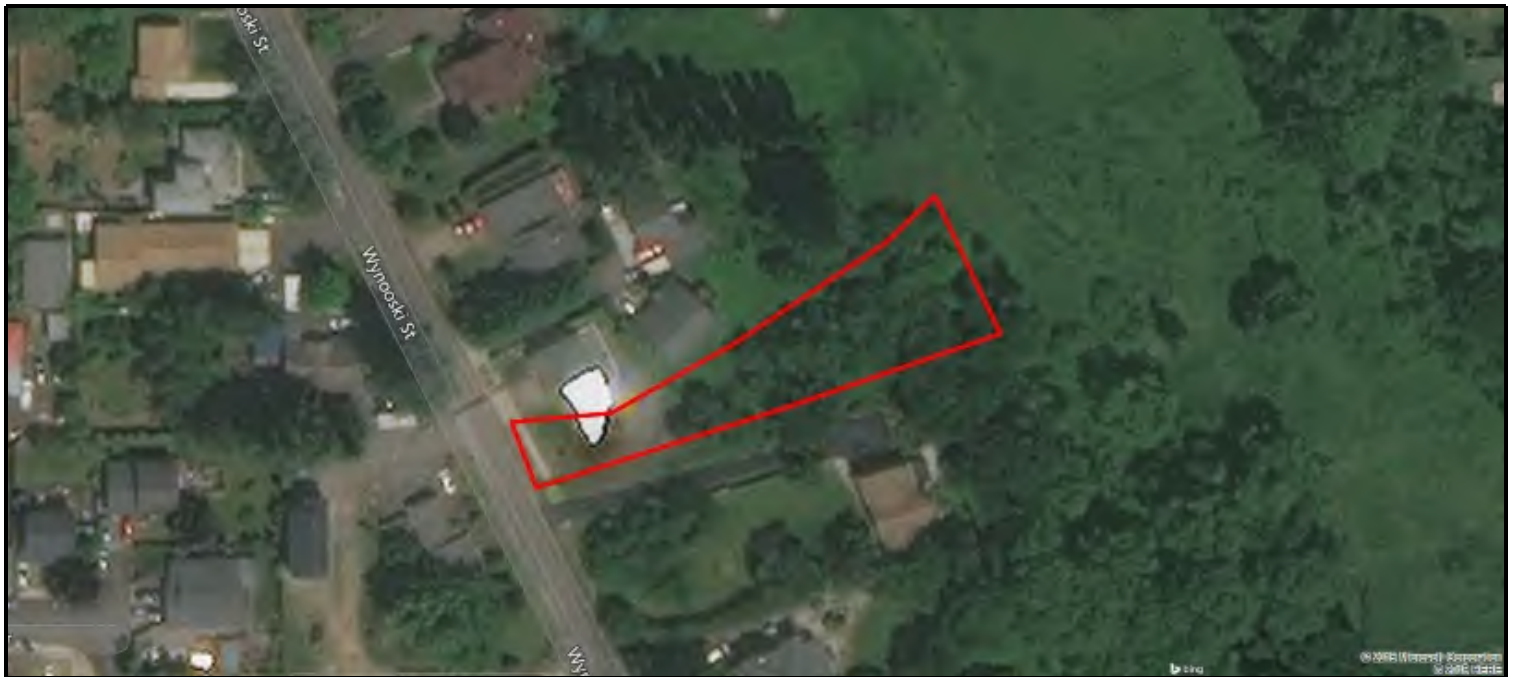
**Side Channels (F12) and Lateral Migration (F13):** Record start and end locations (ft) of adjacent side channels and evidence of constraints to lateral migration along the length of the EAA.

	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.

EAA Transect	Feet from EAA lower boundary	Incision (F15)			Substrate Embeddedness (F16)					Thalweg Depth (F17)									
		Wetted width (F17)	Bankfull height	Lowest floodplain height	Embed1	Embed2	Embed3	Embed4	Embed5	Depth1	Depth2	Depth3	Depth4	Depth5	Depth6	Depth7	Depth8	Depth9	Depth10
		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 <u>between</u> each cross-channel transect while moving upstream.											
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										

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

*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.*

Report Generated: December 18, 2019 11:44 AM

Assessment Area: 0.4 Acres

### Dominant soil type(s)

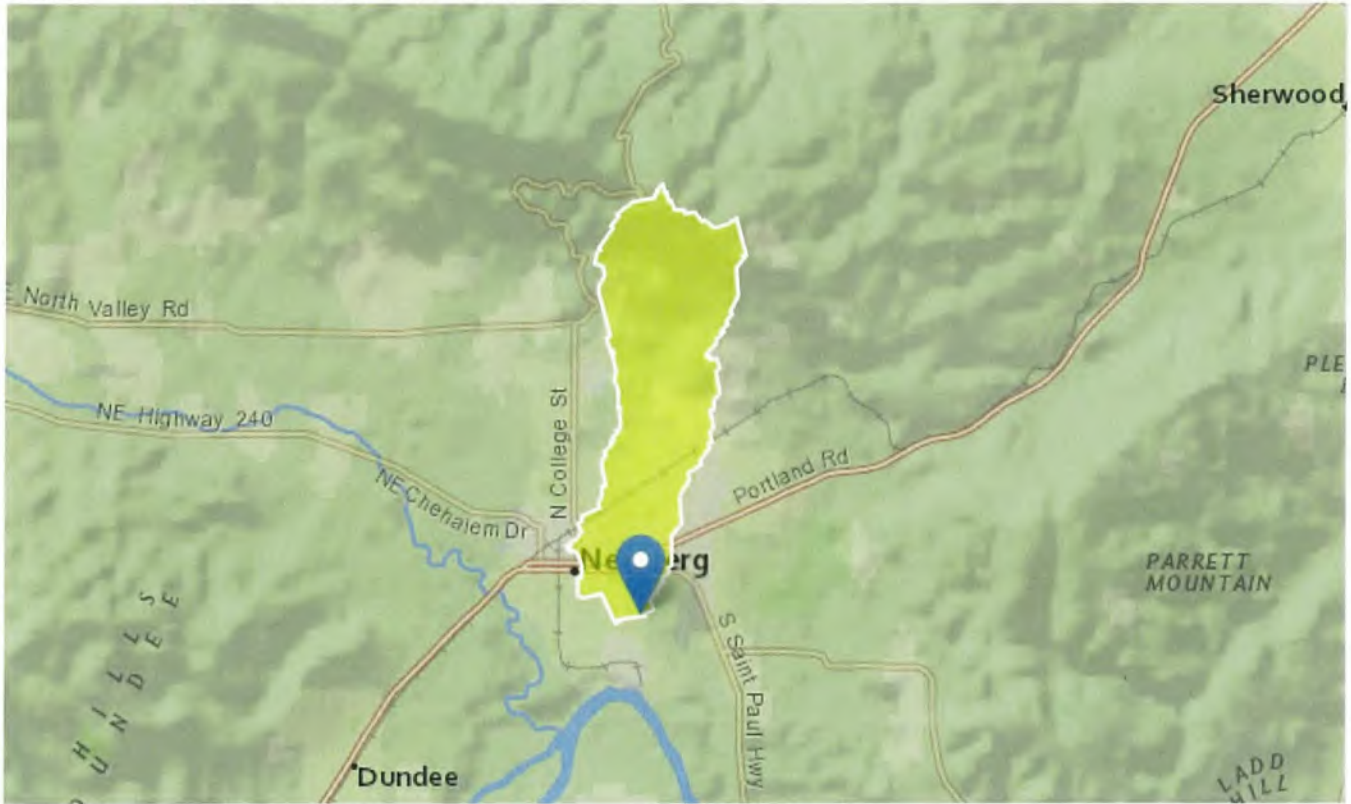
Soil Type	Erosion Hazard Rating	Hydric Rating	Percent Area
Woodburn silt loam, 20 to 55 percent slopes	Severe	N/A	94.51 %
Aloha silt loam, 0 to 3 percent slopes	Slight	N/A	4.87 %
Wapato silty clay loam, 0 to 3 percent slopes	Slight	N/A	0.62 %

*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

<b>Parameter Code</b>	<b>Parameter Description</b>	<b>Value</b>	<b>Unit</b>
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]

<b>Parameter Code</b>	<b>Parameter Name</b>	<b>Value</b>	<b>Units</b>	<b>Min Limit</b>	<b>Max Limit</b>
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]

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

<b>Statistic</b>	<b>Value</b>	<b>Unit</b>	<b>Pll</b>	<b>Plu</b>	<b>SE</b>	<b>SEp</b>	<b>Equiv. Yrs.</b>
2 Year Peak Flood	95.2	ft <sup>3</sup> /s	55.6	163	32.6	32.6	2
5 Year Peak Flood	142	ft <sup>3</sup> /s	83.3	243	32.4	32.4	2.8
10 Year Peak Flood	175	ft <sup>3</sup> /s	102	301	33	33	3.6
25 Year Peak Flood	217	ft <sup>3</sup> /s	124	380	34.1	34.1	4.8
50 Year Peak Flood	249	ft <sup>3</sup> /s	139	443	35.1	35.1	5.5
100 Year Peak Flood	280	ft <sup>3</sup> /s	154	509	36.2	36.2	6.2
500 Year Peak Flood	355	ft <sup>3</sup> /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>)**

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Application Version: 4.3.11



Legend

- Proximal Assessment Area (PAA) length = 108 feet
- Extended Assessment Area (EAA) Length = feet
- Impact Area
- Project Area

#6601  
12/8/2019



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

Approximate Project Area, PAA and EAA boundaries  
Wynoski 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 be 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 be 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<sup>3</sup>, 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<sup>2</sup> 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  $\frac{3}{4}$  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.

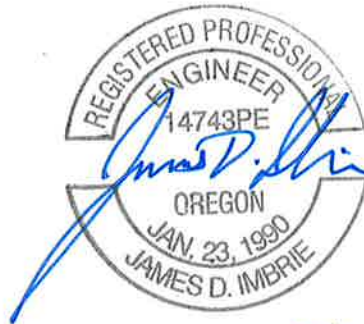
We appreciate this opportunity to be of service.

Sincerely,

**GEO PACIFIC ENGINEERING, INC.**



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



EXPIRES: 06/30/2021

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



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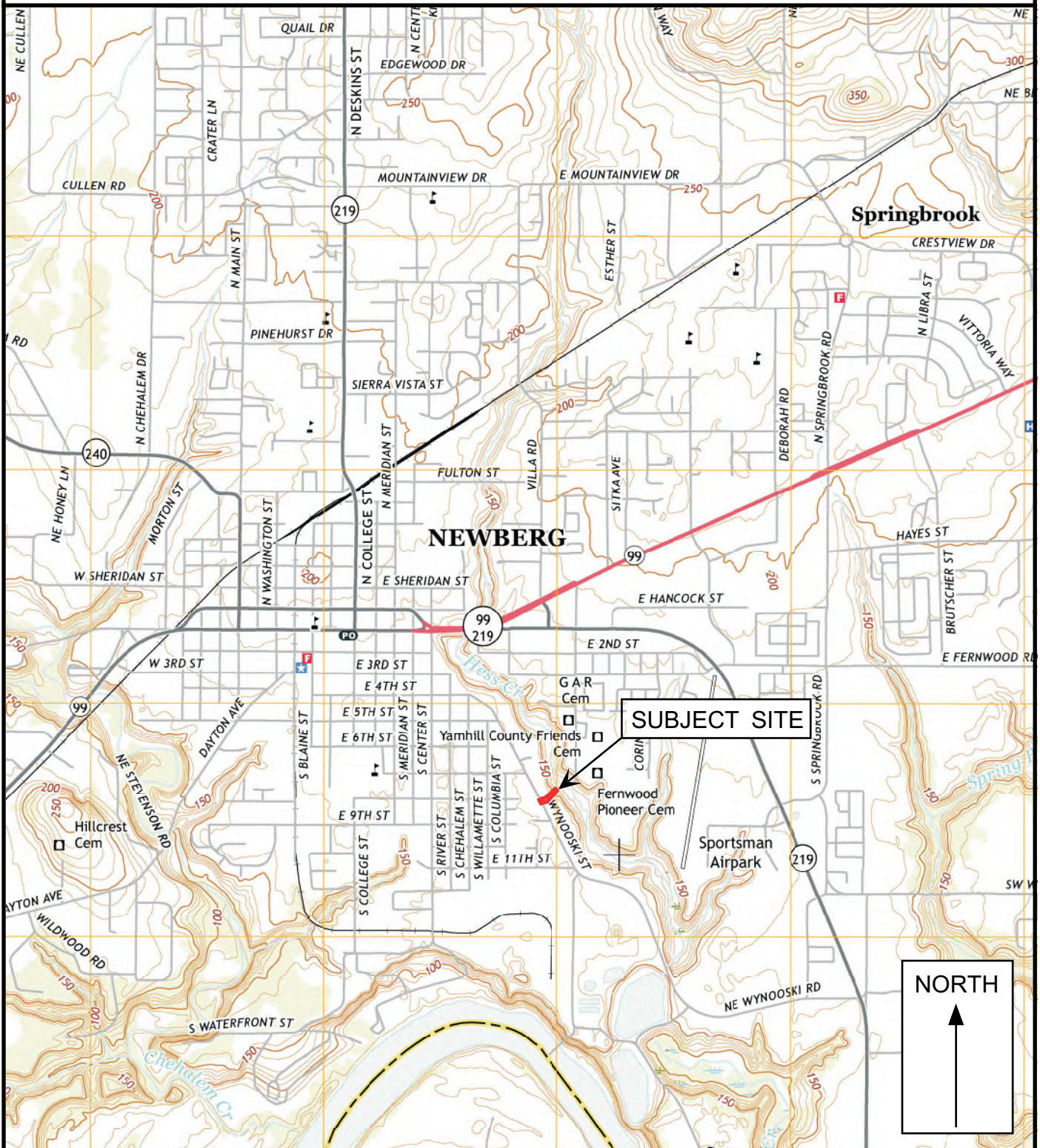
## FIGURES





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

# 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: Wynooki Stormwater Outfall  
 Newberg, Oregon

Project No. 19-5352

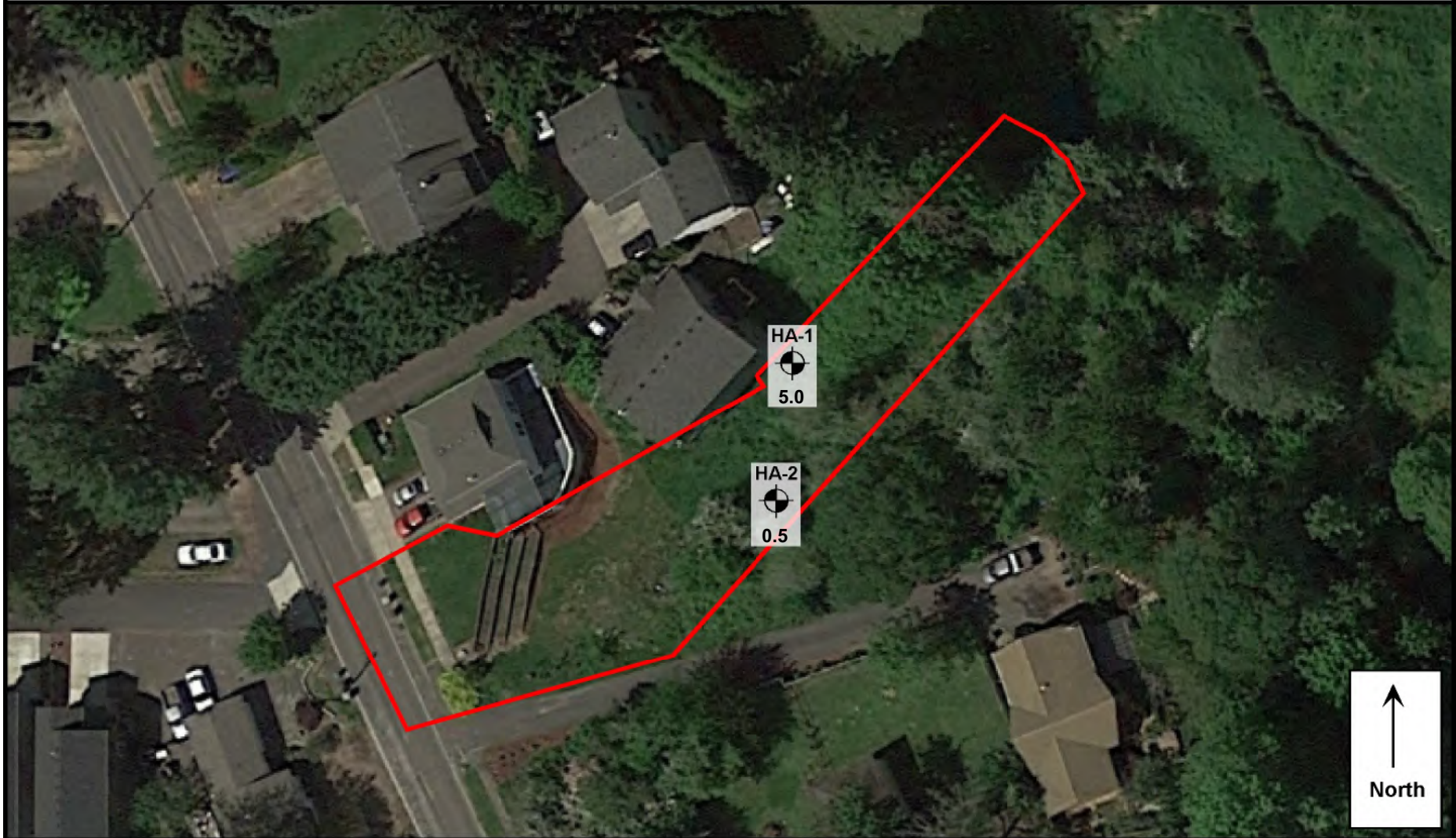
FIGURE 1







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  
  
APPROXIMATE SCALE 1"=50'

Project: Wynooski Stormwater Outfall  
Newberg, Oregon

Project No. 19-5352

FIGURE 2



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

# 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'

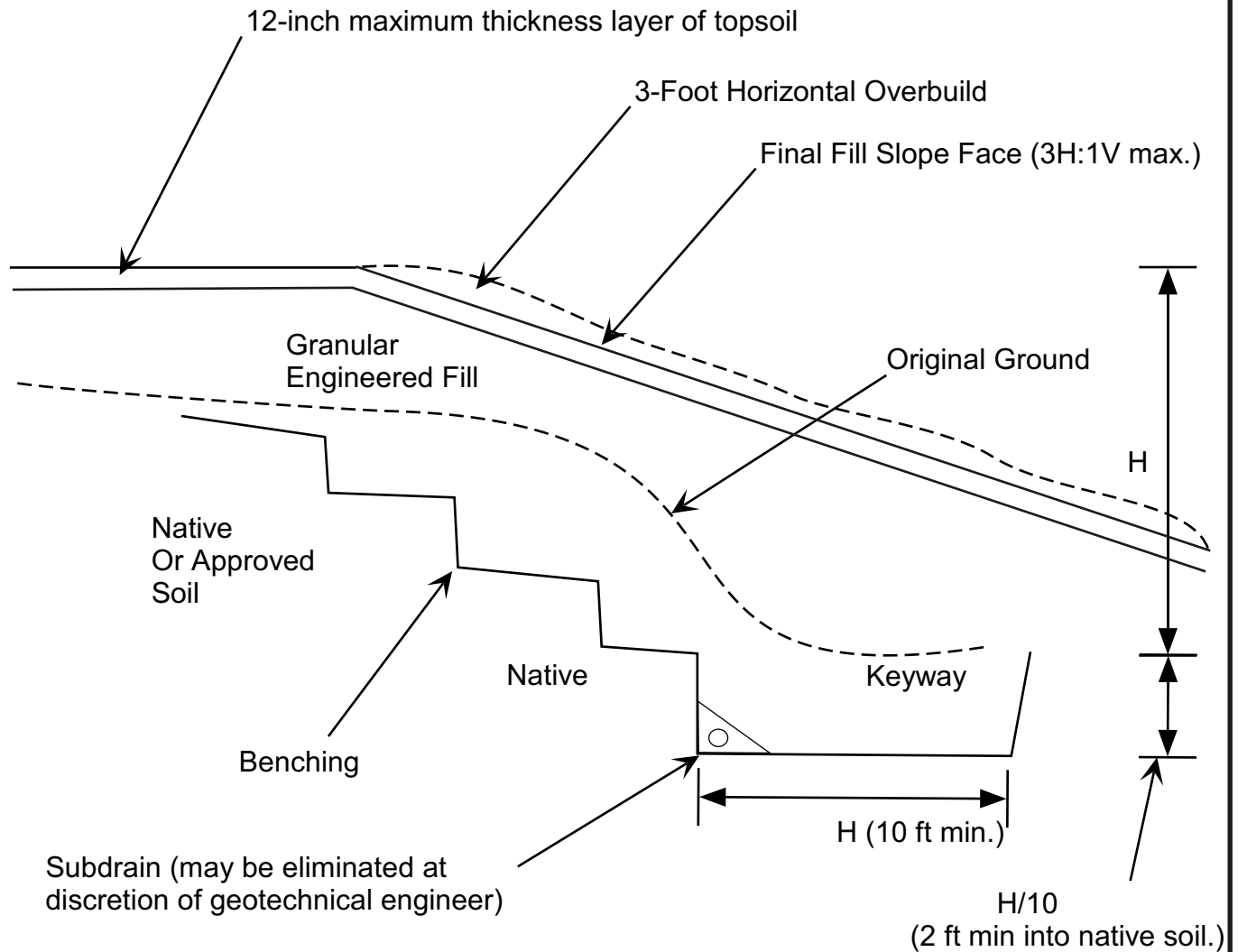
Date: 11/18/19  
 Drawn by: TJT

Project: Wynoski Stormwater Outfall  
 Newberg, Oregon

Project No. 19-5352

FIGURE 3

**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.



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## EXPLORATION LOGS











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 <b>HA- 1</b>
---	---------------------	-------------------------

Depth (ft)	Pocket Penetrometer (tons/ft <sup>2</sup> )	Sample Type	In-Situ Dry Density (lb/ft <sup>3</sup> )	Moisture Content (%)	Water Bearing Zone	Material Description
1						Loose, moderately organic SILT (OL-ML), dark brown, roots throughout, moist (Topsoil) ----- 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**

 Bag Sample	 Bucket Sample	 Shelby Tube Sample	 Seepage	 Water Bearing Zone	 Water Level at Abandonment
--	---	--	---	--	---

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











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 <b>HA-2</b>
---	---------------------	------------------------

Depth (ft)	Pocket Penetrometer (tons/ft <sup>2</sup> )	Sample Type	In-Situ Dry Density (lb/ft <sup>3</sup> )	Moisture Content (%)	Water Bearing Zone	Material Description
1						Loose, moderately organic SILT (OL-ML), dark brown, roots throughout, moist (Topsoil)
2						Medium stiff, clayey SILT (ML), dark brown, micaceous, trace fine roots, low plasticity, very moist (Willamette Formation)
3						Stiff, silty CLAY (CL), reddish brown, trace orange and gray mottling, low to moderate plasticity, moist (Willamette Formation)
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						

<b>LEGEND</b>  Bag Sample  Bucket Sample  Shelby Tube Sample  Seepage  Water Bearing Zone  Water Level at Abandonment						Date Excavated: 11/4/19 Logged By: TJT/TEB Surface Elevation: 142 AMSL
--	--	--	--	--	--	--



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## PHOTOGRAPHIC LOG

**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

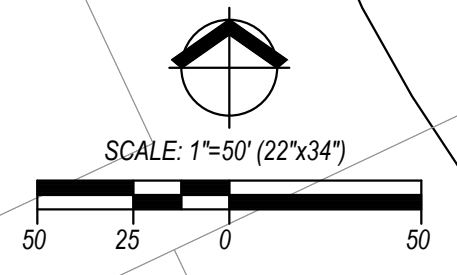
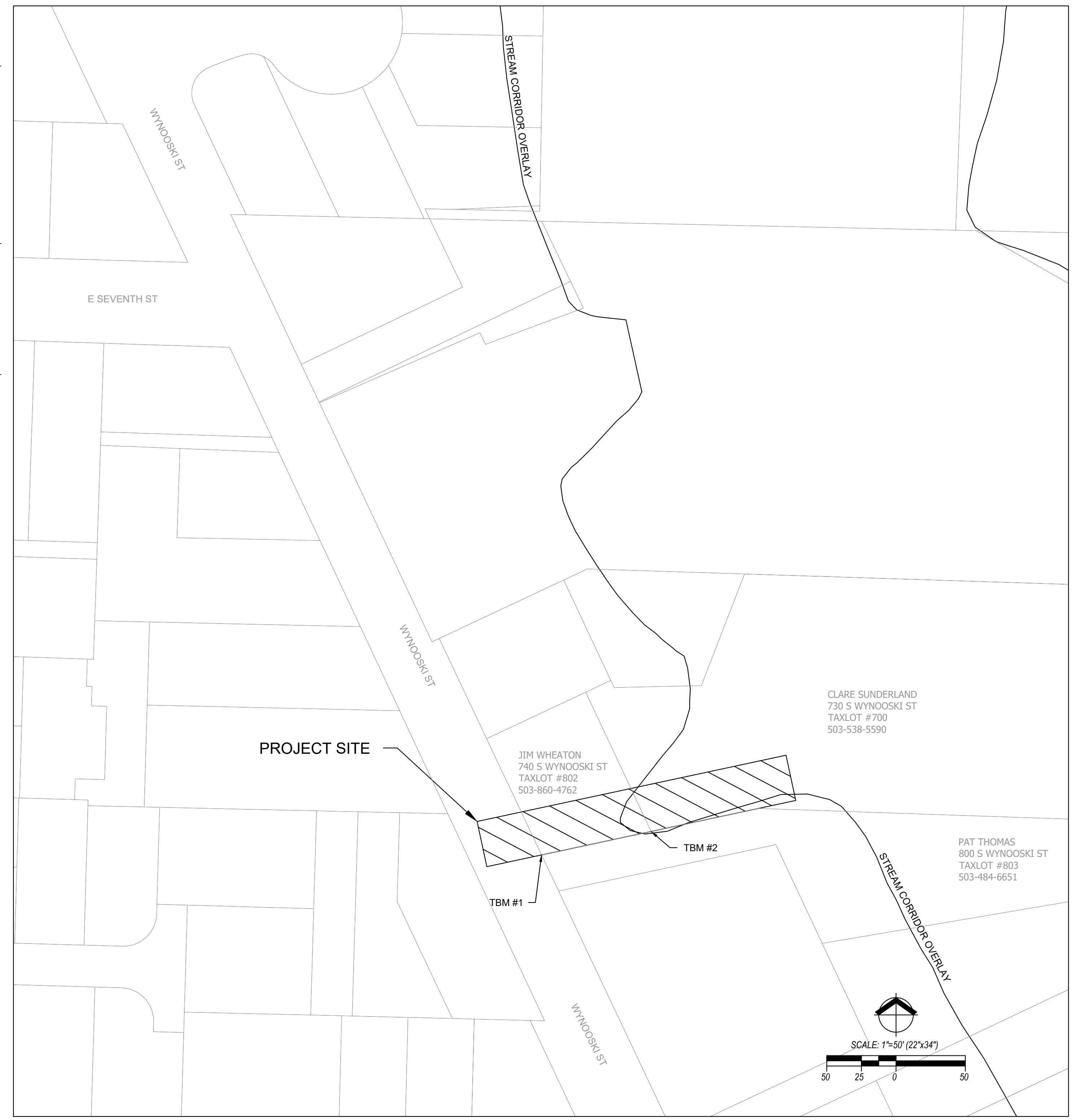
THE CONTRACTOR, IN LOCATION AND PROTECTING UNDERGROUND UTILITIES, MUST COMPLY WITH THE REGULATIONS OF O.R.S. 757.541 TO 757.571.

## NOTE:

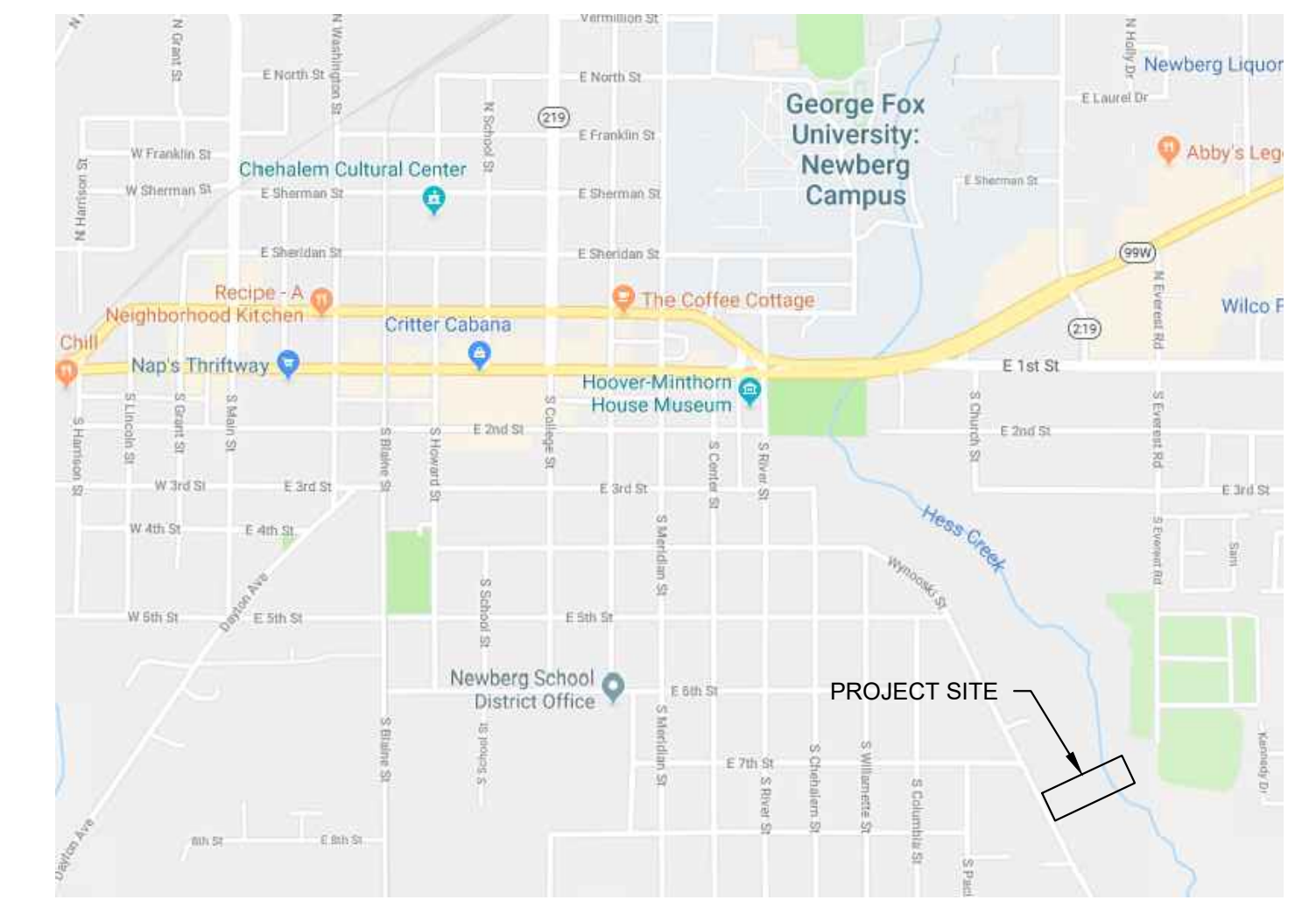
THIS DESIGN COMPLIES WITH ORS 92.044 (7) IN THAT NO UTILITY INFRASTRUCTURE IS DESIGNED TO BE WITHIN ONE FOOT OF A SURVEY MONUMENT LOCATION SHOWN ON A SUBDIVISION OR PARTITION PLAT. NO DESIGN MODIFICATION NOR FINAL FIELD LOCATION CHANGE SHALL BE PERMITTED IF IT WOULD CAUSE ANY UTILITY INFRASTRUCTURE TO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

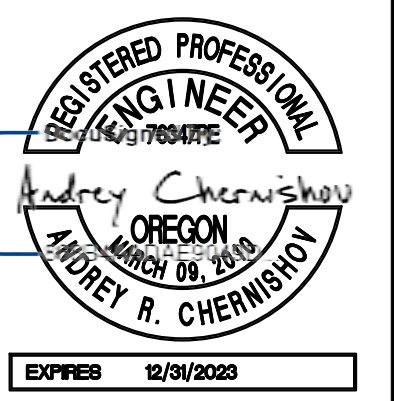
SHEET INDEX	
TITLE SHEET & VICINITY MAP	1 OF 11
EXISTING CONDITIONS	2 OF 11
DEMOLITION PLAN	3 OF 11
GRADING PLAN	4 OF 11
STORM DRAIN IMPROVEMENTS	5 OF 11
STORM DRAIN IMPROVEMENTS	6 OF 11
EROSION & SEDIMENTATION CONTROL	7 OF 11
STREAM CORRIDOR MITIGATION PLAN	8 OF 11
CITY OF NEWBERG STANDARD DETAILS	9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



**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: msh@hbh-engineers.com

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

SHEET NUMBER  
**1 OF 11**

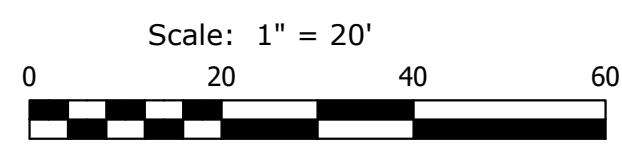


# TOPOGRAPHIC SURVEY for: CITY OF NEWBERG

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



North

**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.

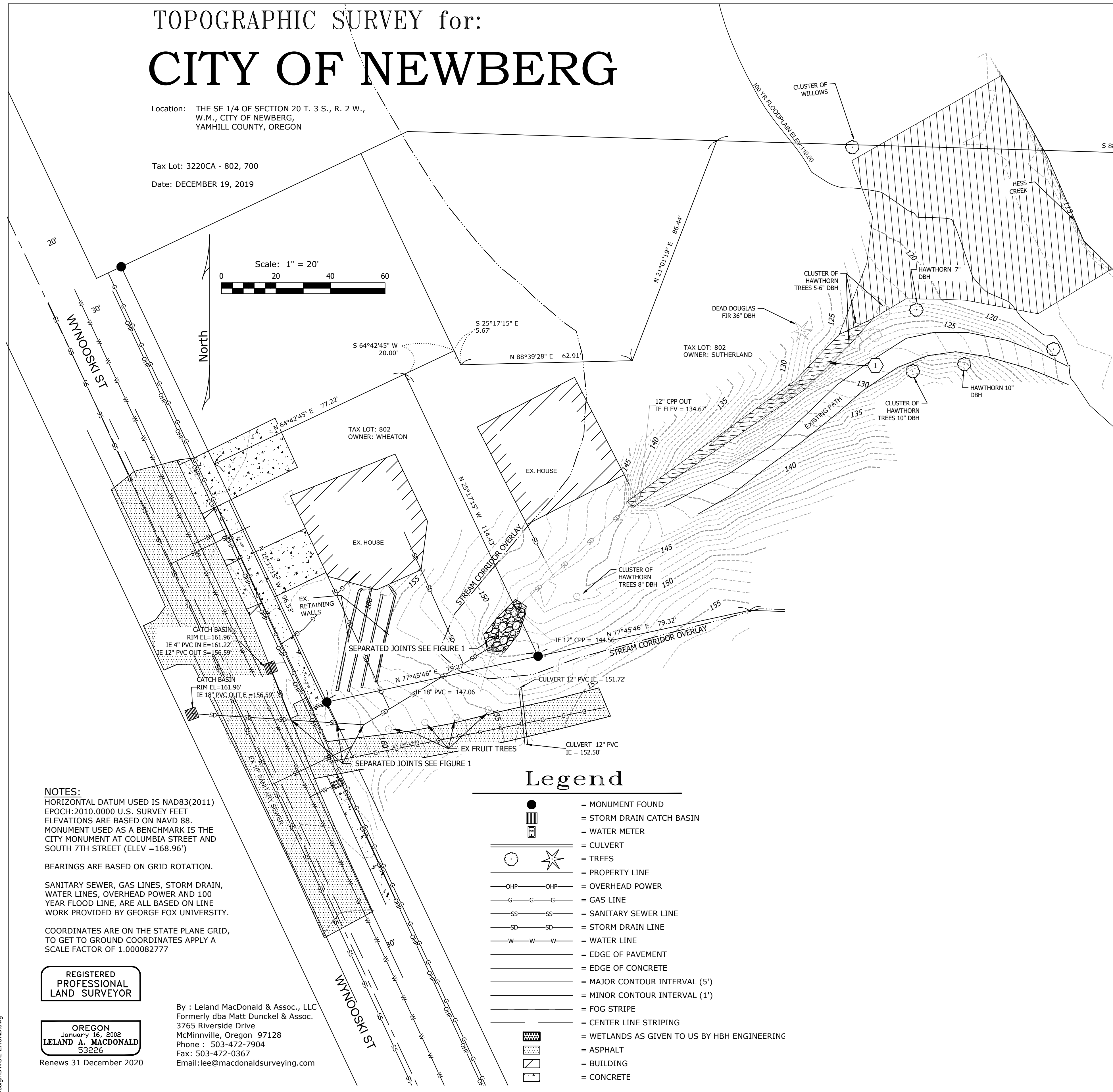


FIG. 1: SEPARATED JOINTS IN EX. STORM PIPE



FIG. 2: EXISTING OUTFALL

**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.

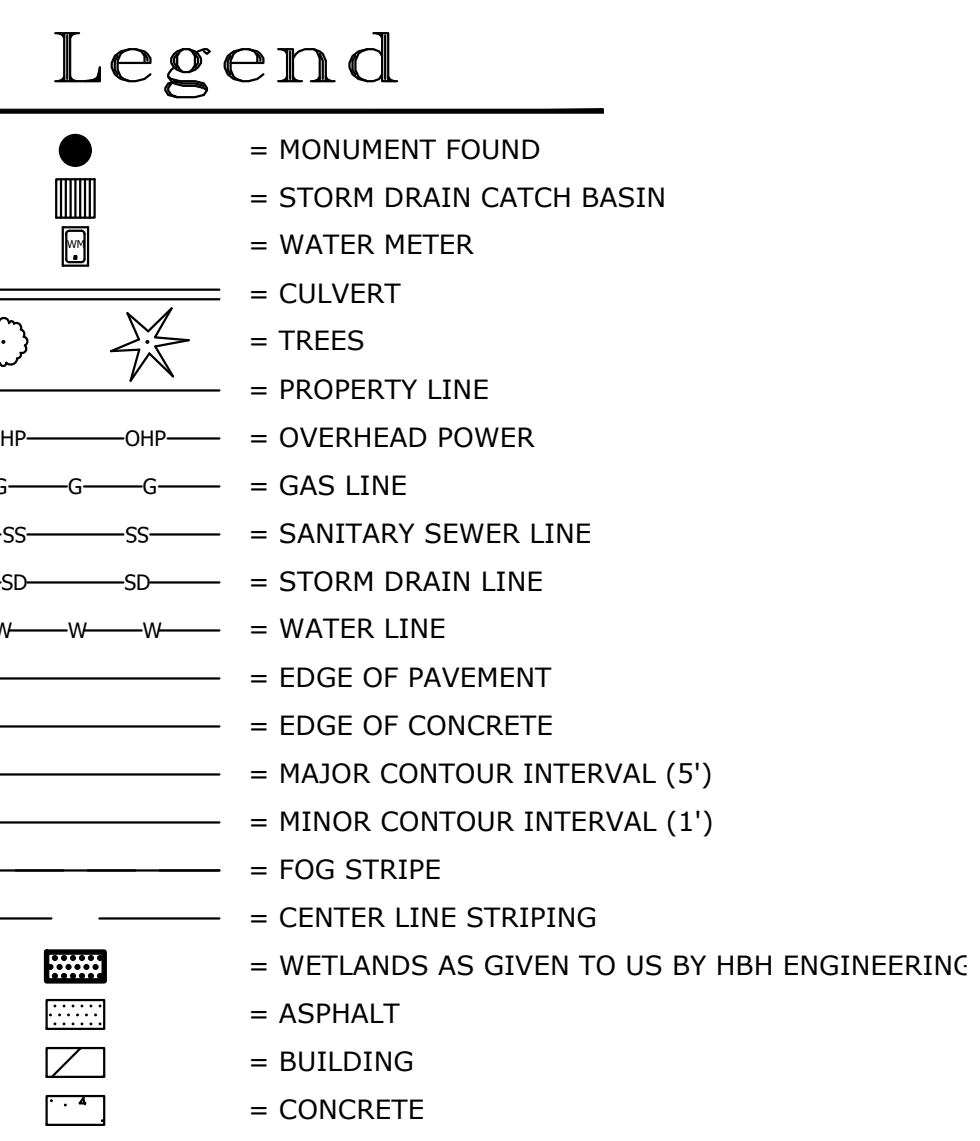
SANITARY SEWER, GAS LINES, STORM DRAIN, WATER LINES, OVERHEAD POWER AND 100 YEAR FLOOD LINE, ARE ALL BASED ON LINE WORK PROVIDED BY GEORGE FOX UNIVERSITY.

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

REGISTERED PROFESSIONAL LAND SURVEYOR

OREGON  
January 15, 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



BY	DATE	DESCRIPTION

EXISTING CONDITIONS  
**WYNOOSKI OUTFALL REDESIGN**  
CITY OF NEWBERG  
NEWBERG, OR

501 E First Street  
Newberg, Oregon 97132  
503/537-9553 fax 503/537-9554  
email: msi@hbh-engineers.com

**H B H ENGINEERS**

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

SHEET NUMBER  
**2 OF 11**

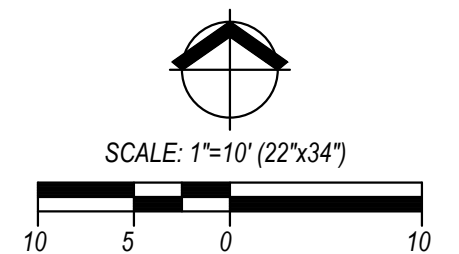
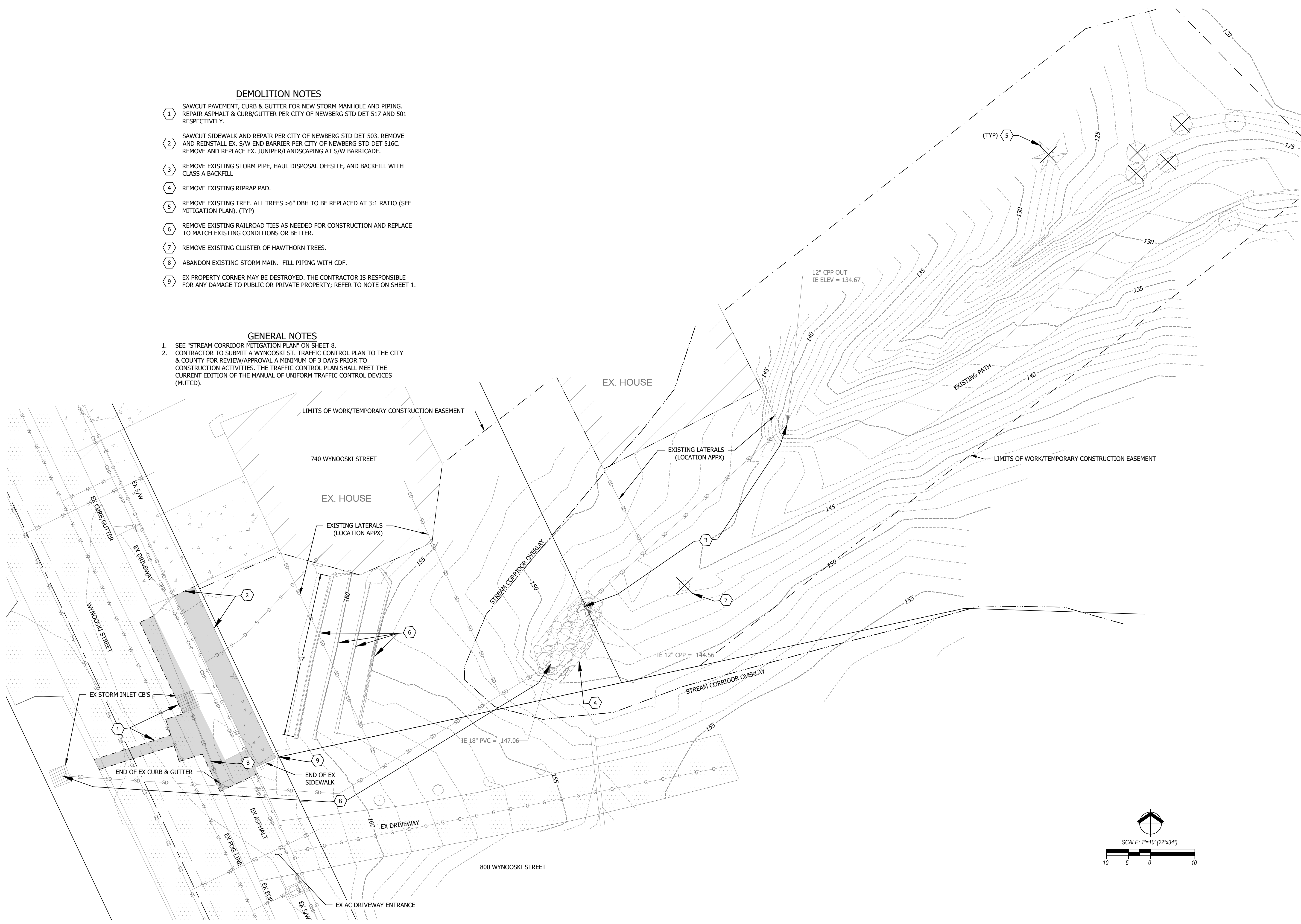


**DEMOLITION NOTES**

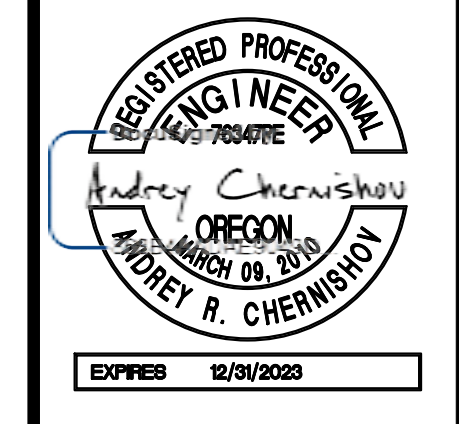
- 1 SAWCUT PAVEMENT, CURB & GUTTER FOR NEW STORM MANHOLE AND PIPING. REPAIR ASPHALT & CURB/GUTTER PER CITY OF NEWBERG STD DET 517 AND 501 RESPECTIVELY.
- 2 SAWCUT SIDEWALK AND REPAIR PER CITY OF NEWBERG STD DET 503. REMOVE AND REINSTALL EX. S/W END BARRIER PER CITY OF NEWBERG STD DET 516C. REMOVE AND 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



**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: mzh@hbh-engineers.com

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

SHEET NUMBER

# 3 OF 11

Plot Stamp: 12/27/2022 3:15:49 PM - Devin  
 File: L:\2019\0154\Design\DWG\3-DEM.dwg

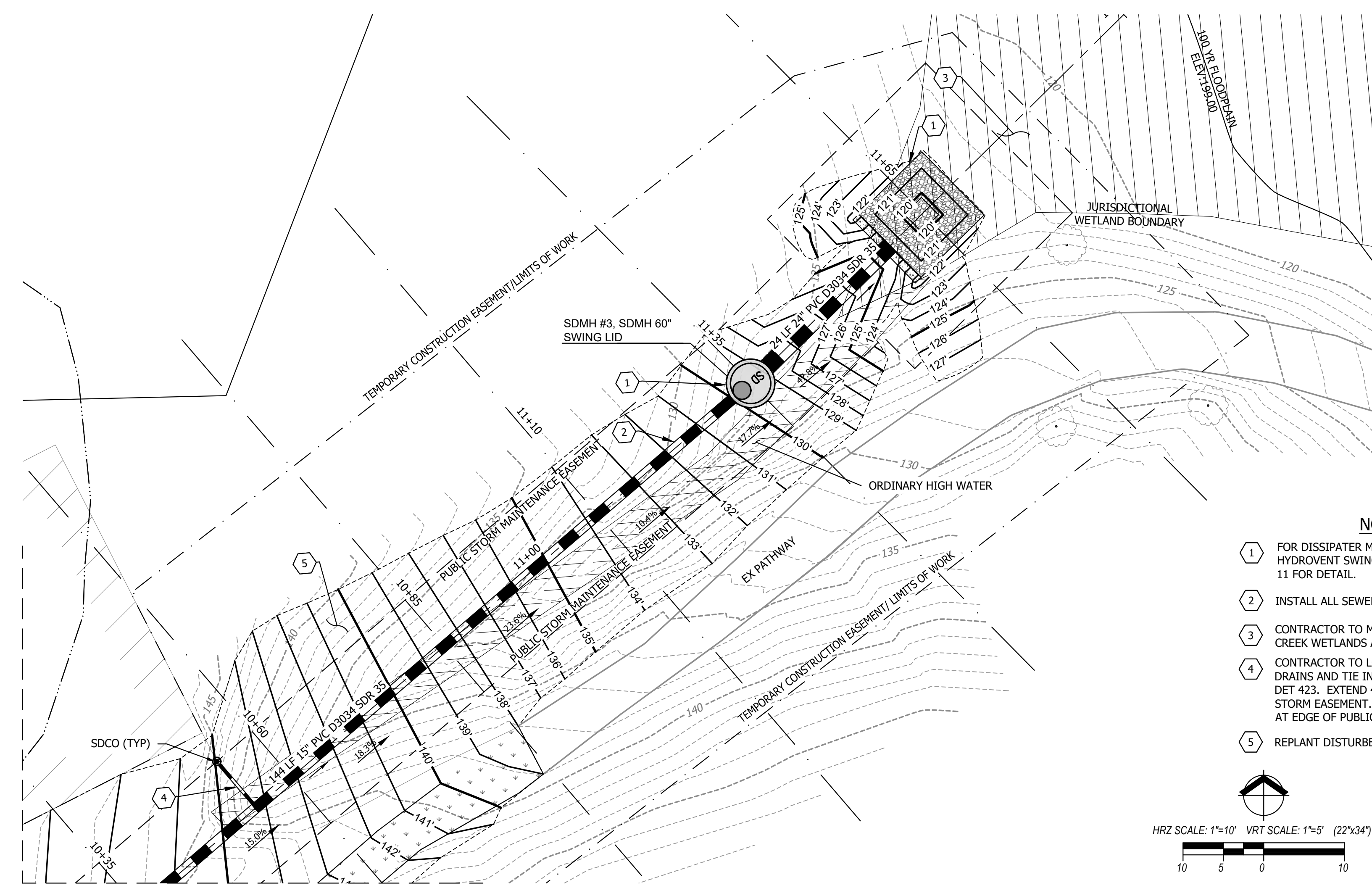




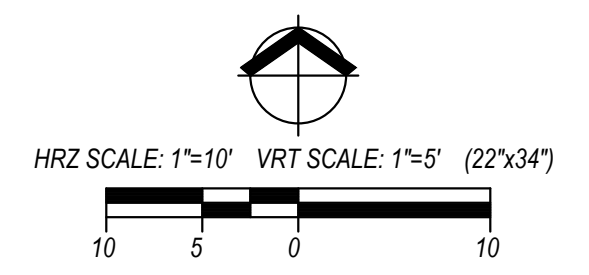




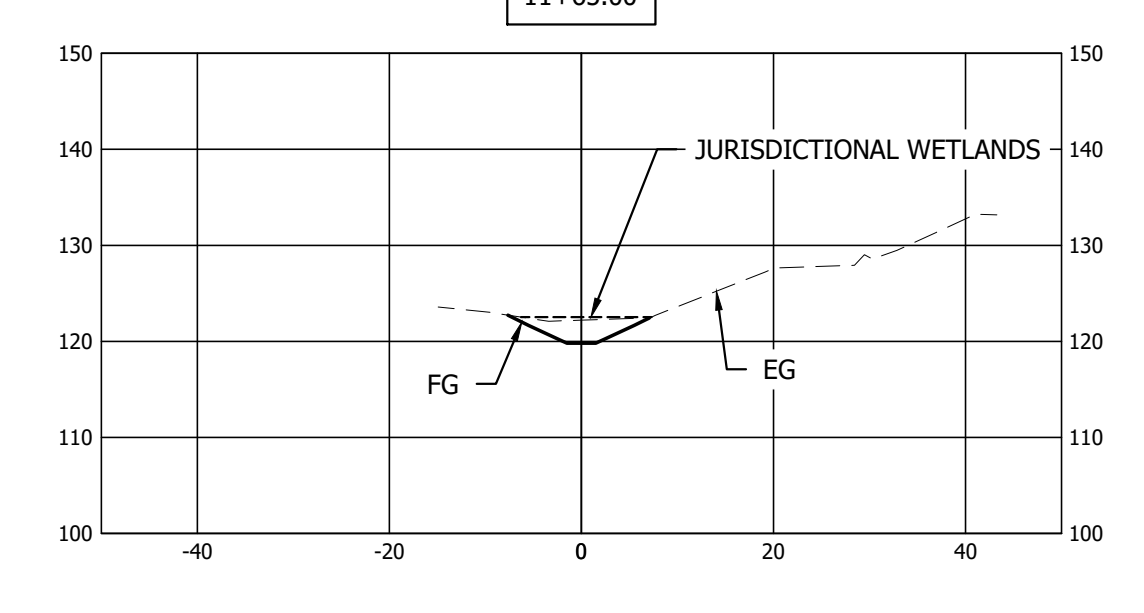
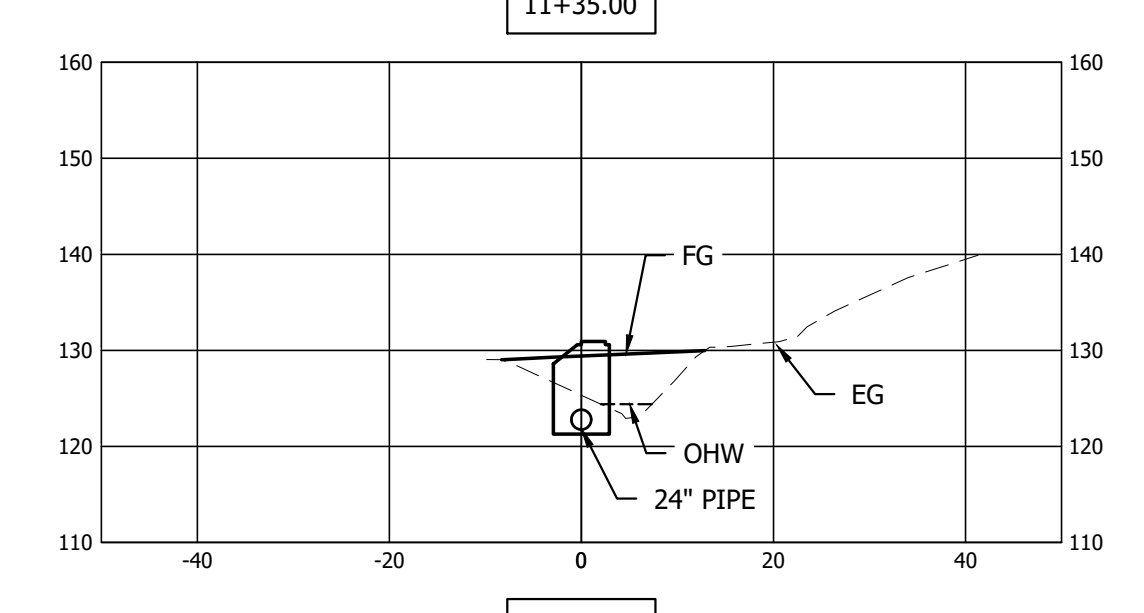
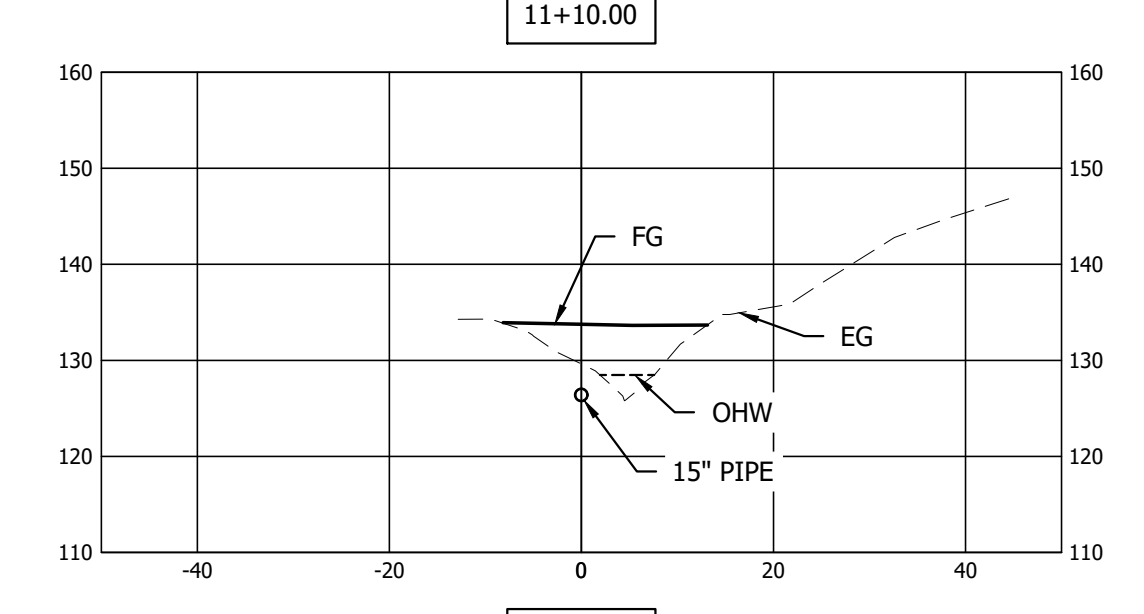
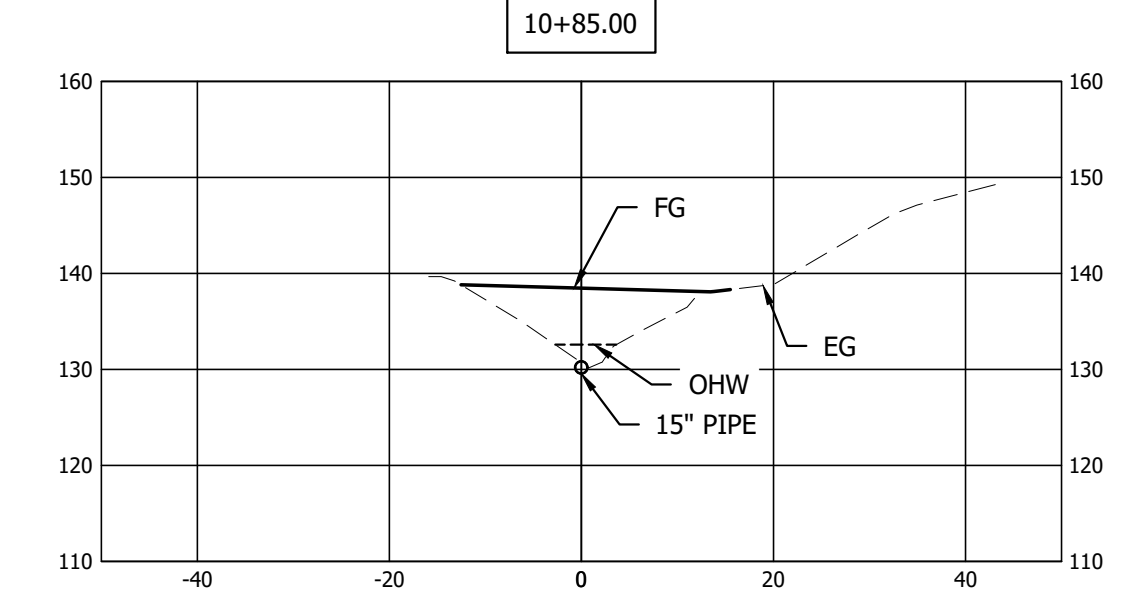
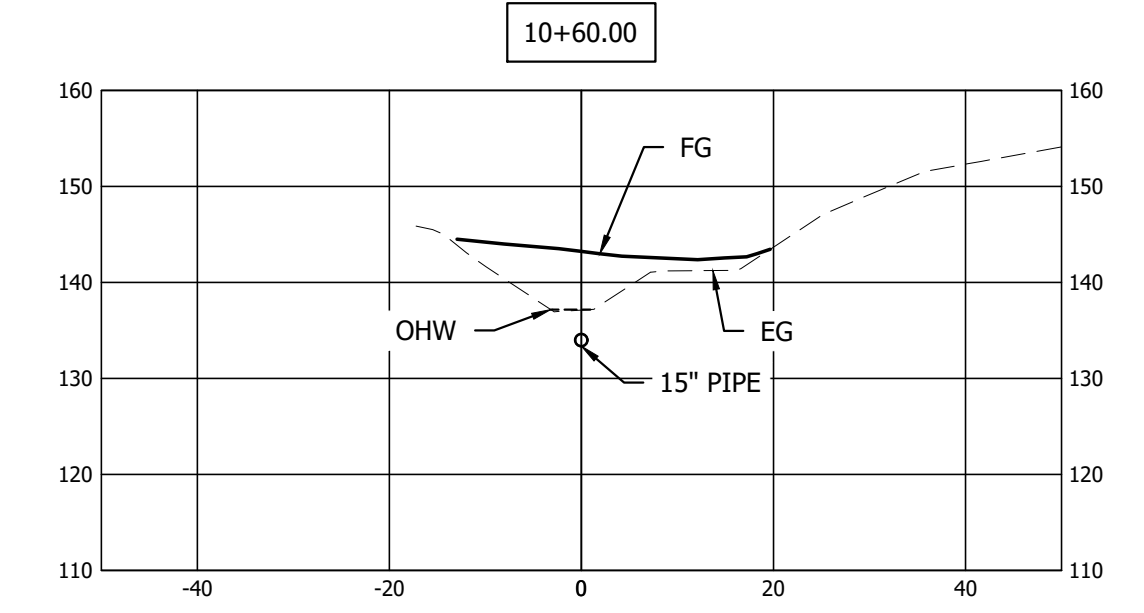
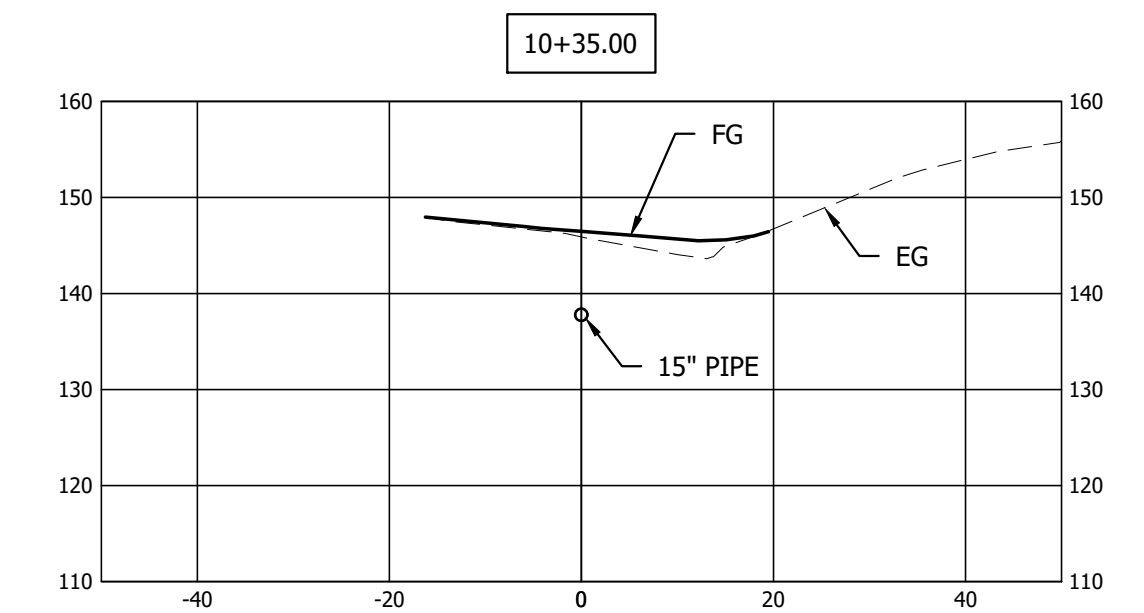
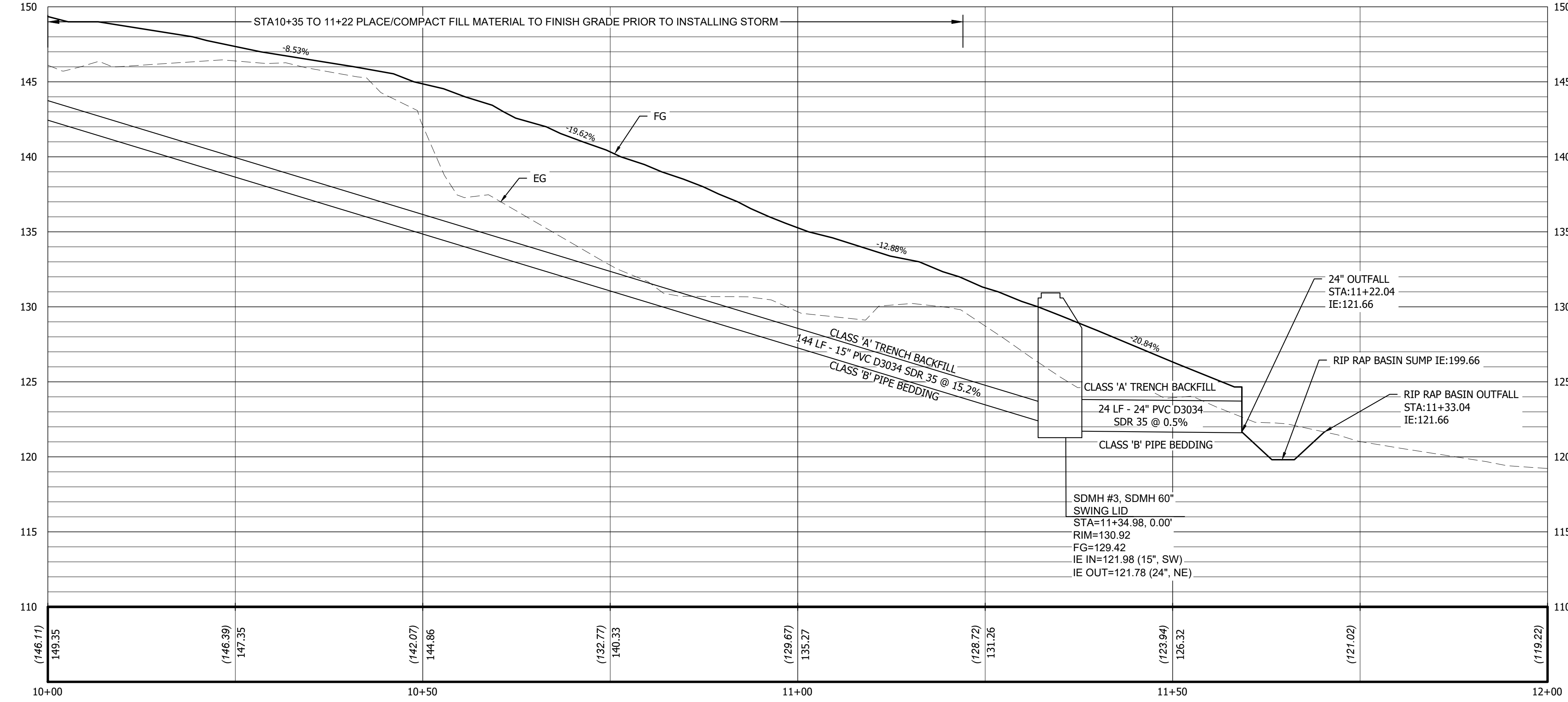




- NOTES**
- FOR DISSIPATER MANHOLE AND RIPRAP BASIN, SEE SHEET #11. INSTALL HYDROVENT SWING LID MODEL R-1650-HV, OR APPROVED EQUAL. SEE PAGE 11 FOR DETAIL.
  - INSTALL ALL SEWER PIPE PER CITY OF NEWBERG STD DET 110. (TYP.)
  - CONTRACTOR TO MINIMIZE DISTURBANCE TO EXISTING HESS CREEK WETLANDS AREAS.
  - 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.
  - REPLANT DISTURBED AREA PER MITIGATION PLAN ON SHEET 8.



MATCHLINE - SEE SHEET 5



CROSS SECTIONS

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

BY	DATE	DESCRIPTION



**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: msh@hbh-engineers.com

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


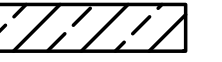
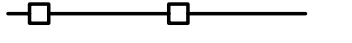
SHEET NUMBER  
**6 OF 11**

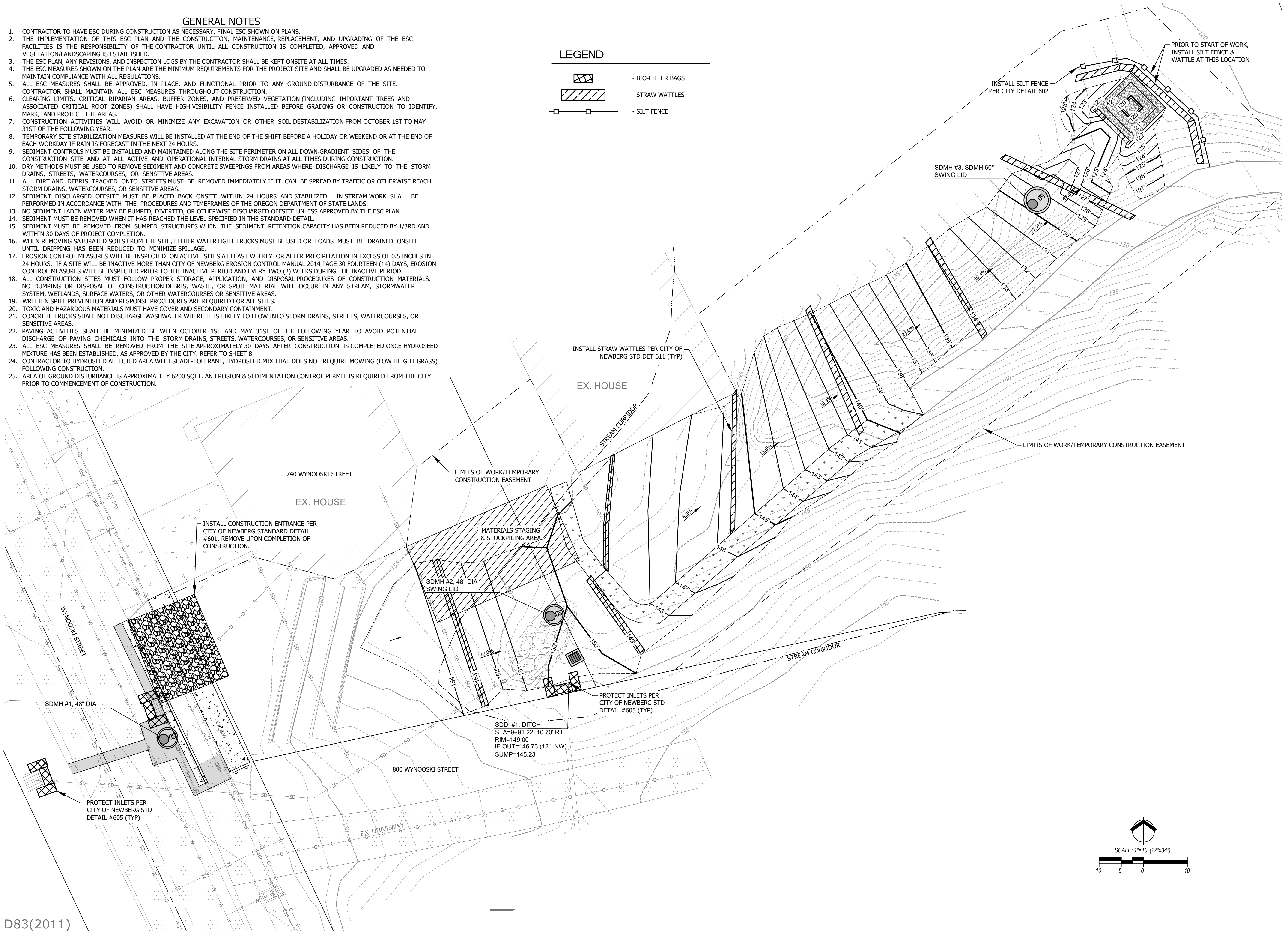


GENERAL NOTES

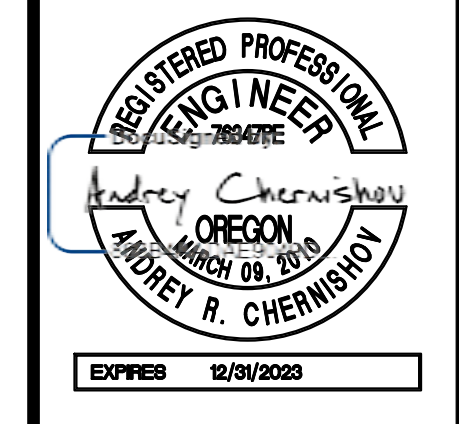
- CONTRACTOR TO HAVE ESC DURING CONSTRUCTION AS NECESSARY. FINAL ESC SHOWN ON PLANS.
- THE IMPLEMENTATION OF THIS ESC PLAN AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED, APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.
- THE ESC PLAN, ANY REVISIONS, AND INSPECTION LOGS BY THE CONTRACTOR SHALL BE KEPT ONSITE AT ALL TIMES.
- 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.
- 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.
- 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.
- CONSTRUCTION ACTIVITIES WILL AVOID OR MINIMIZE ANY EXCAVATION OR OTHER SOIL DESTABILIZATION FROM OCTOBER 1ST TO MAY 31ST 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 ESC 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 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.
- 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.
- CONCRETE TRUCKS SHALL NOT DISCHARGE WASHWATER WHERE IT IS LIKELY TO FLOW INTO STORM DRAINS, STREETS, WATERCOURSES, OR SENSITIVE AREAS.
- 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.
- 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.
- CONTRACTOR TO HYDROSEED AFFECTED AREA WITH SHADE-TOLERANT, HYDROSEED MIX THAT DOES NOT REQUIRE MOWING (LOW HEIGHT GRASS) FOLLOWING CONSTRUCTION.
- 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



BY	DATE	DESCRIPTION



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: msh@hbh-engineers.com

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

Plot Stamp: 12/27/2022 3:20:33 PM - Devin  
 File: L:\2019\0154\Design\DWG\7-ESC.dwg







**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**

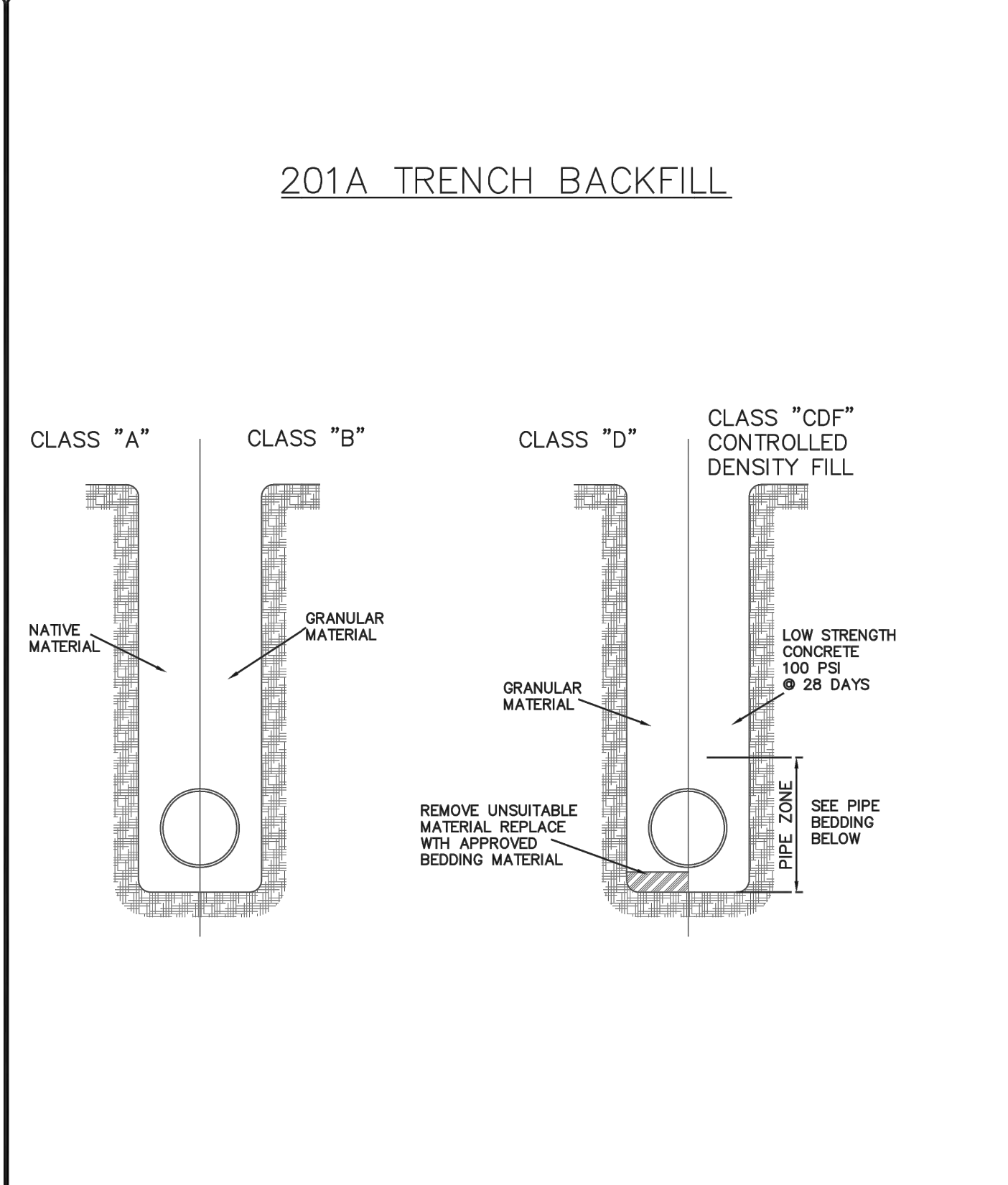
WATER	36 (in.)
STORM	48 (in.)
SEWER	8 (ft.)

**TABLE 2: PIPE COVER**

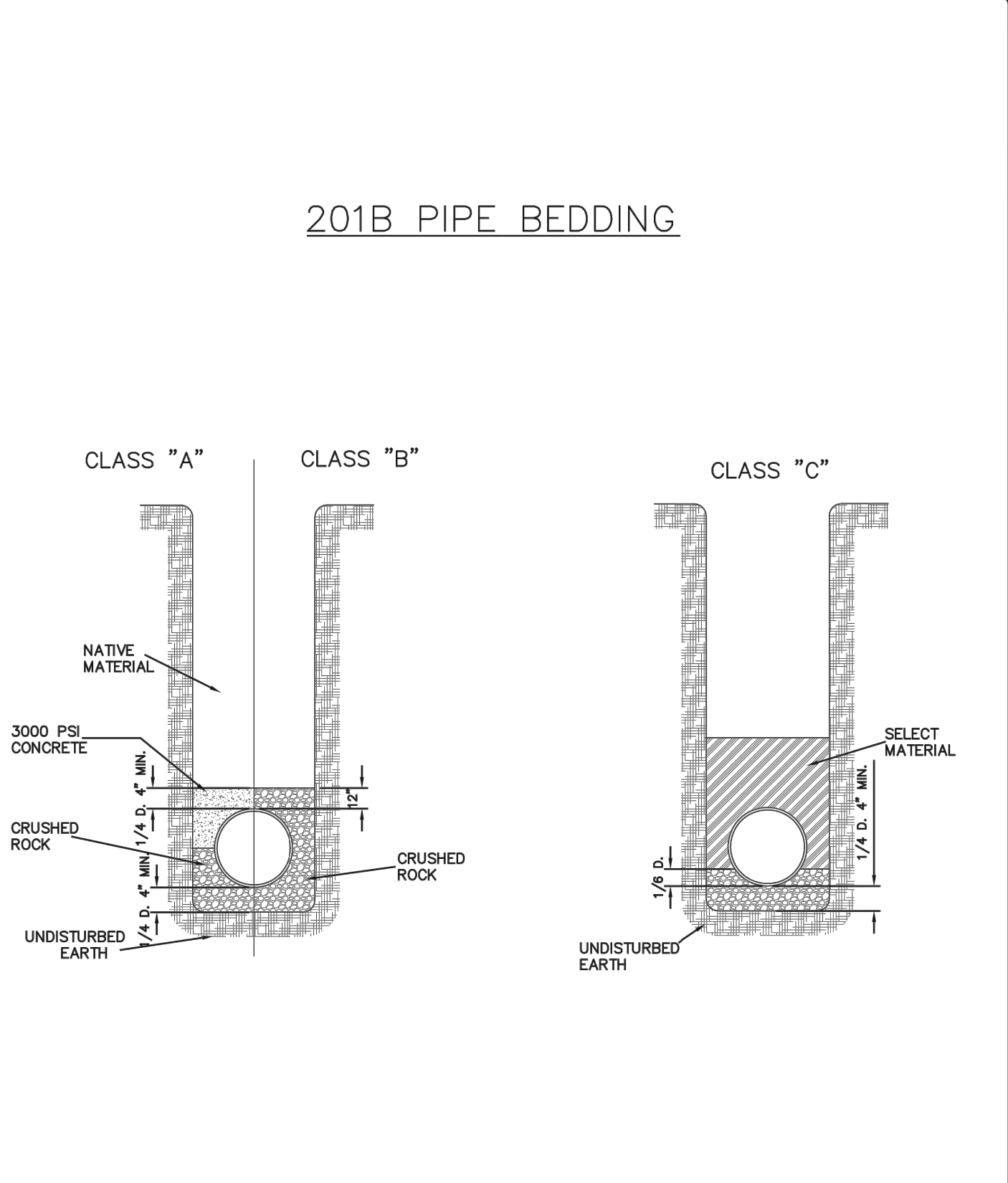
TYPE OF PIPE	PAVED AREAS (in.)	UNPAVED AREAS (in.)
PVC C900	24	12
PVC 3034 SDR35	36	24
DUCTILE IRON	18	6
*RCP CLASS II	30	18
*RCP CLASS IV	24	12
*RCP CLASS V	18	6

\* WHEN APPROVED

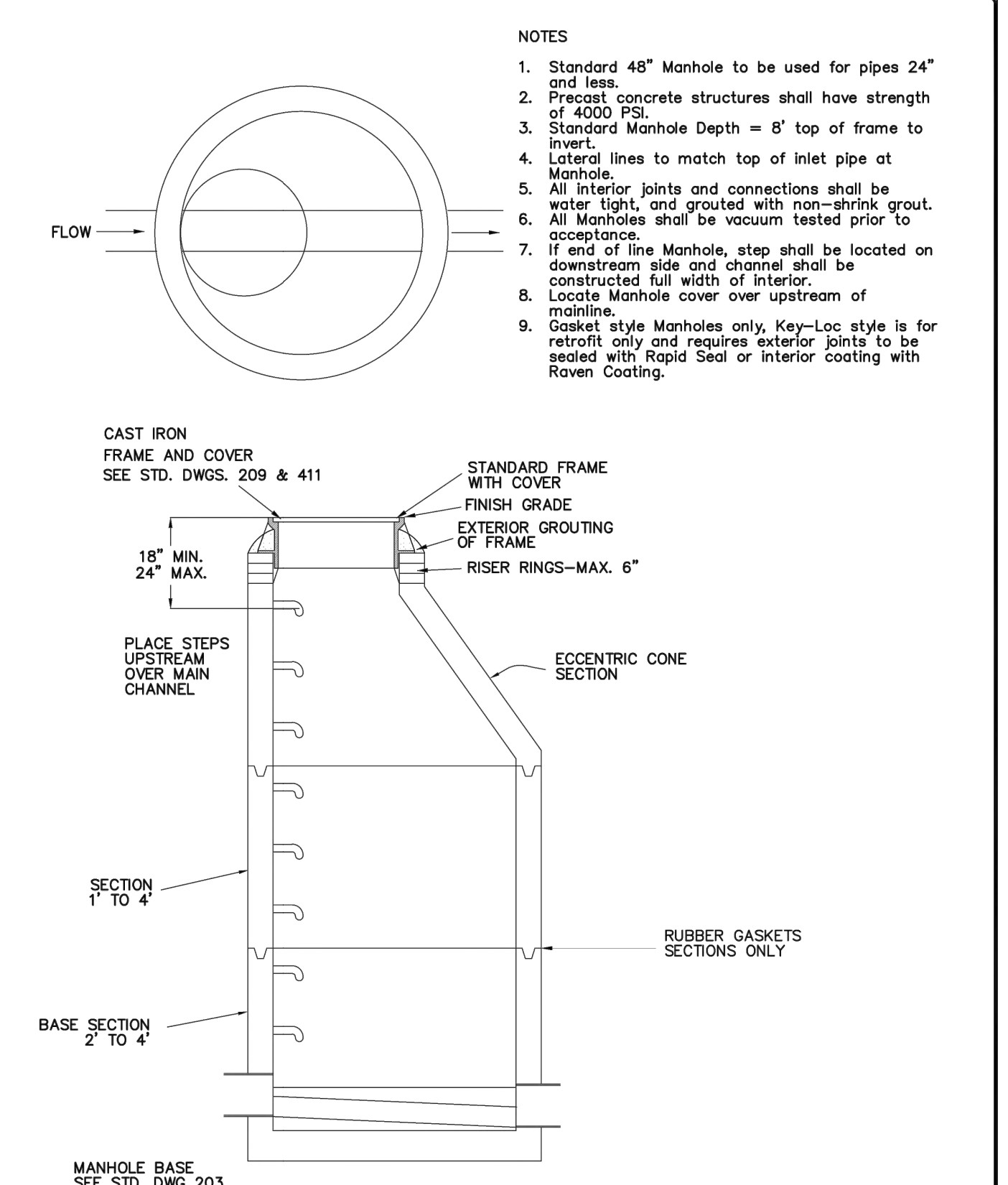
**City of Newberg** REVISIONS: PIPE COVER SCALE: N.T.S. DATE: 01/24/2014 APPROVED BY: JAY H. STANDARD DRAWING: 110



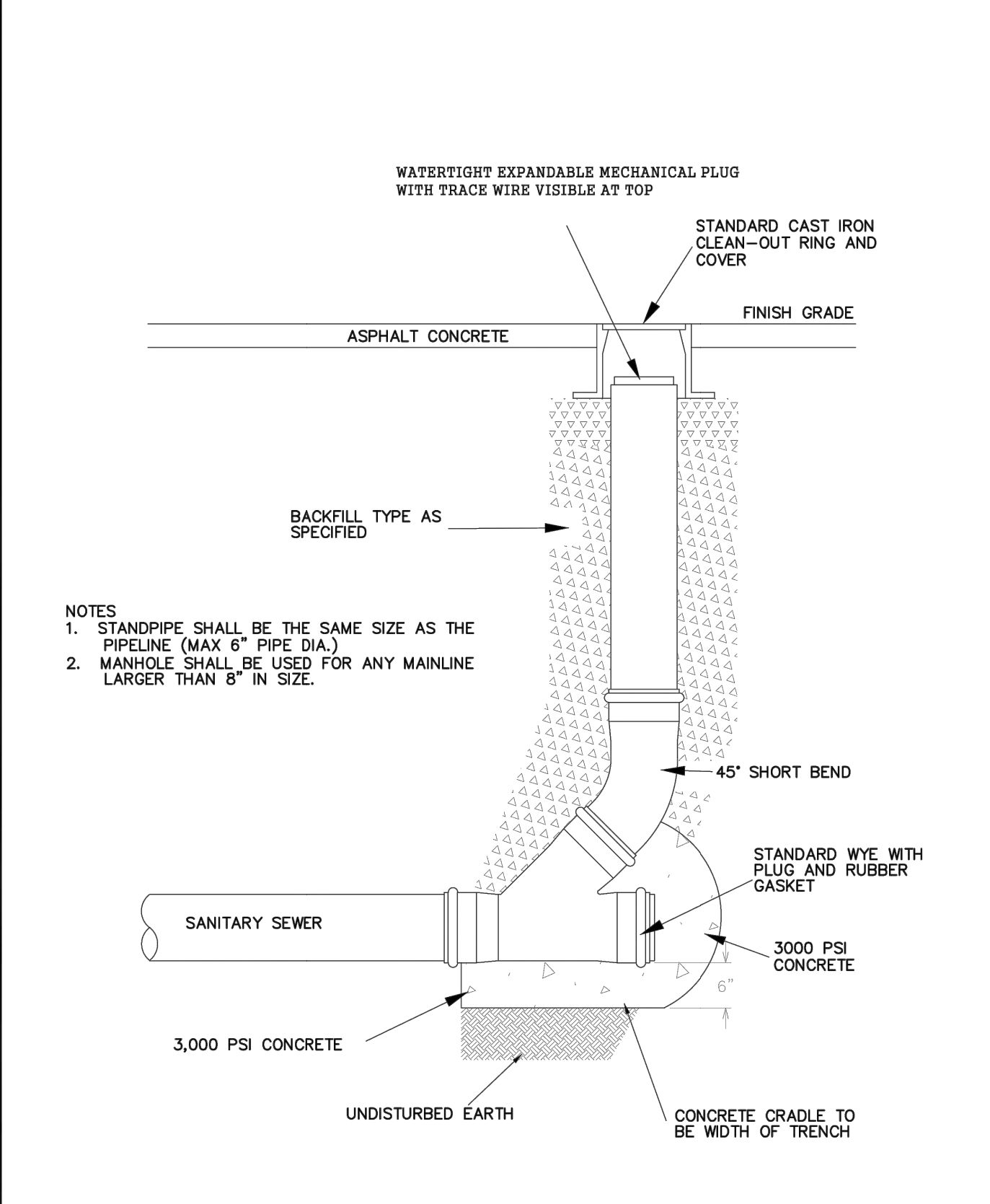
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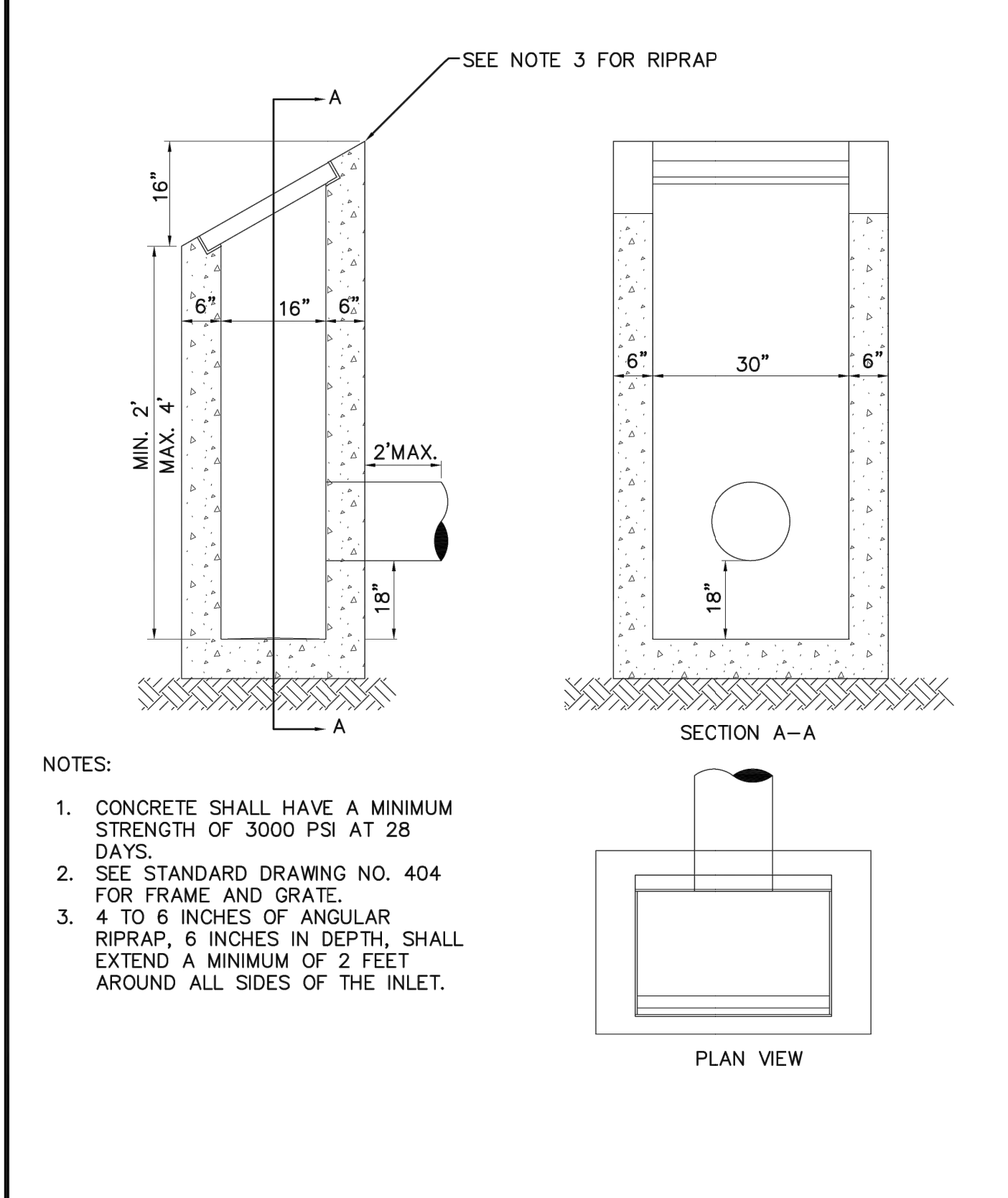
**City of Newberg** REVISIONS: PIPE BEDDING SCALE: N.T.S. DATE: MAY 2007 APPROVED BY: D. DANICIT STANDARD DRAWING: 201B



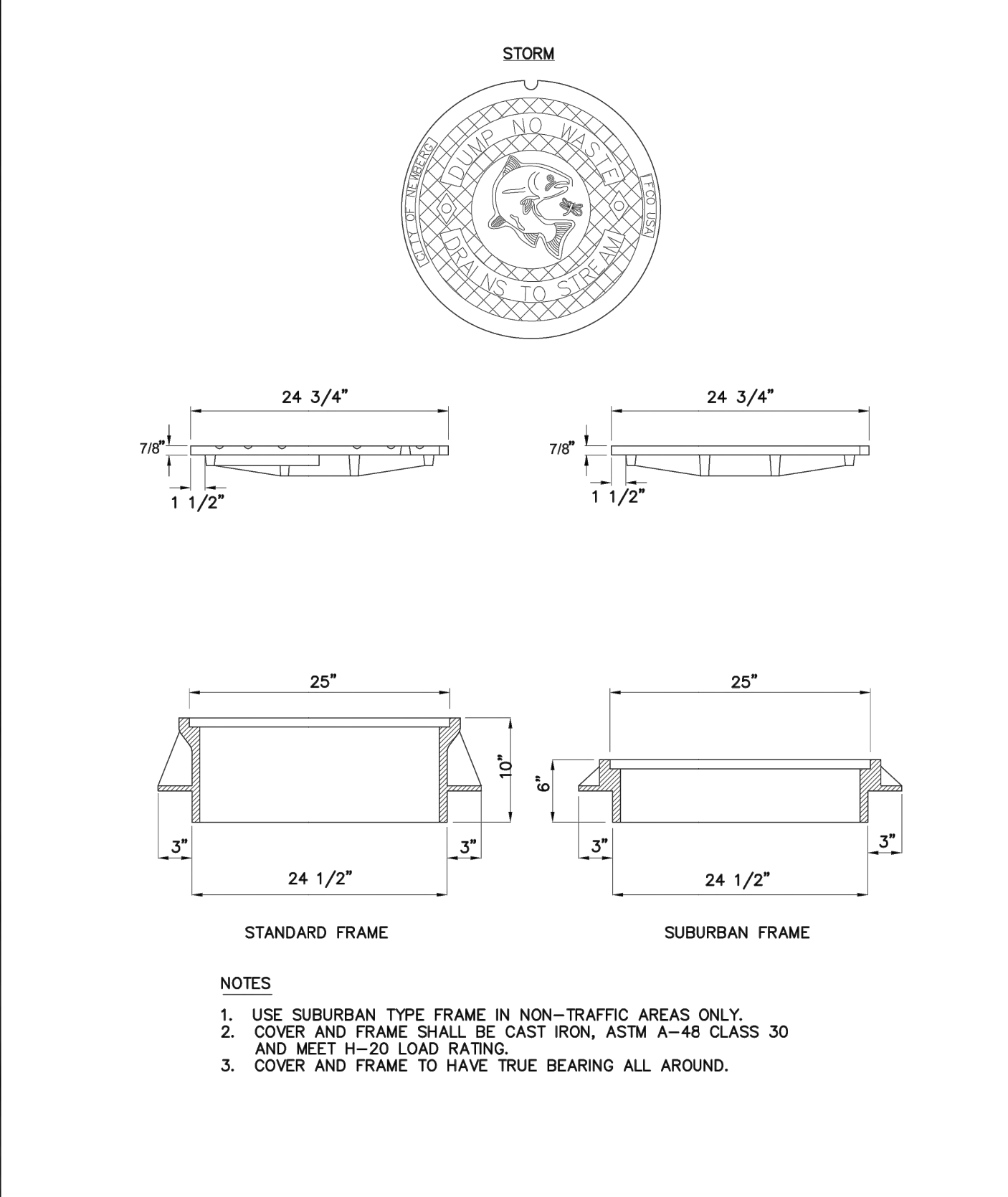
**City of Newberg** REVISIONS: 48" STANDARD MANHOLE SCALE: N.T.S. DATE: May 2015 APPROVED BY: K. Hofmann STANDARD DRAWING: 204



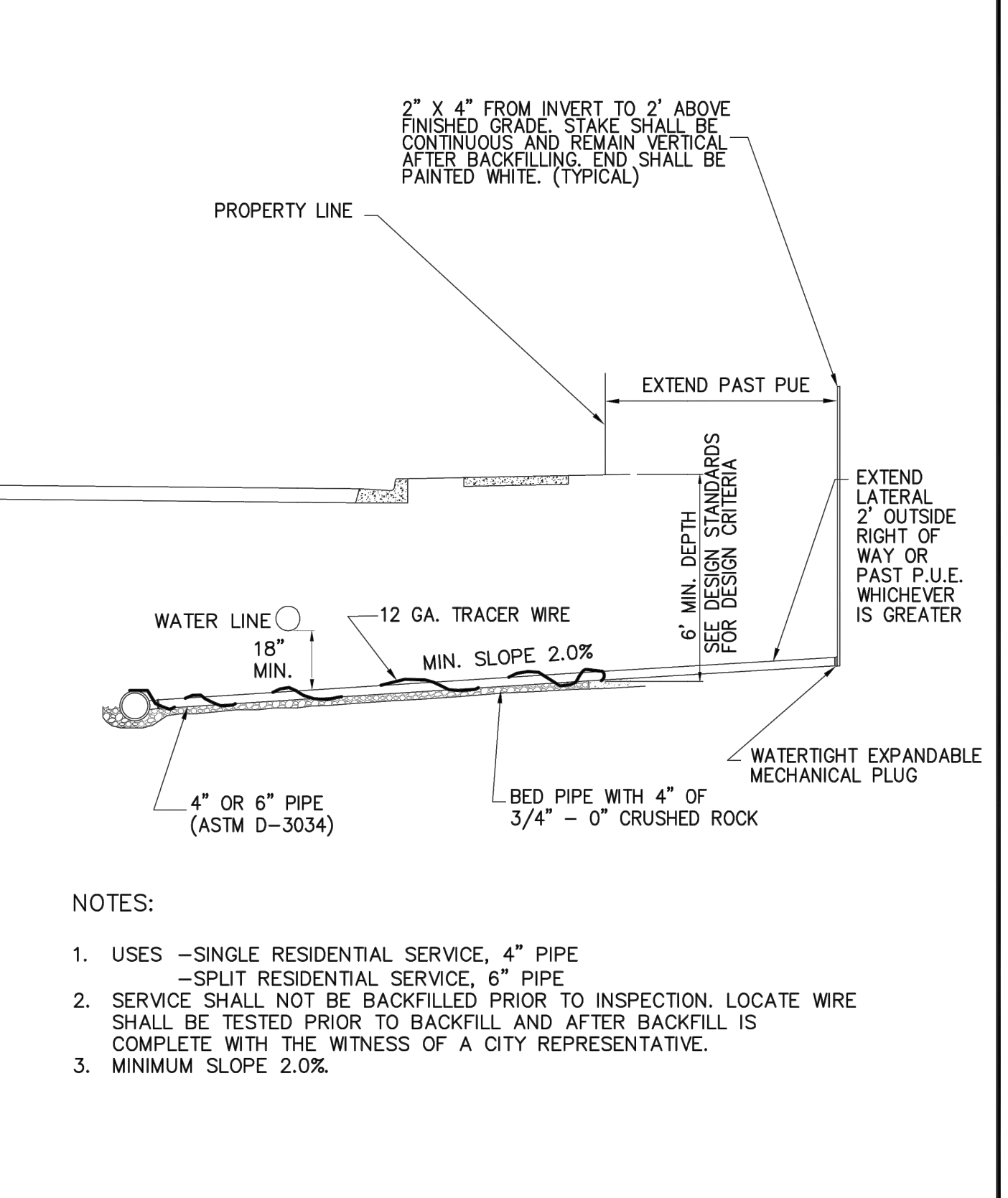
**City of Newberg** REVISIONS: CLEAN OUT SCALE: N.T.S. DATE: May 2015 APPROVED BY: K. Hofmann STANDARD DRAWING: 210



**City of Newberg** REVISIONS: DITCH INLET SCALE: N.T.S. DATE: MARCH 2014 APPROVED BY: J. HARRIS STANDARD DRAWING: 403



**City of Newberg** REVISIONS: STORM WATER MANHOLE FRAME AND COVER SCALE: N.T.S. DATE: MARCH 2014 APPROVED BY: J. HARRIS STANDARD DRAWING: 411



**City of Newberg** REVISIONS: STORM SEWER SERVICE BRANCH SCALE: N.T.S. DATE: May 2015 APPROVED BY: K. Hofmann STANDARD DRAWING: 423

NO.	DATE	DESCRIPTION

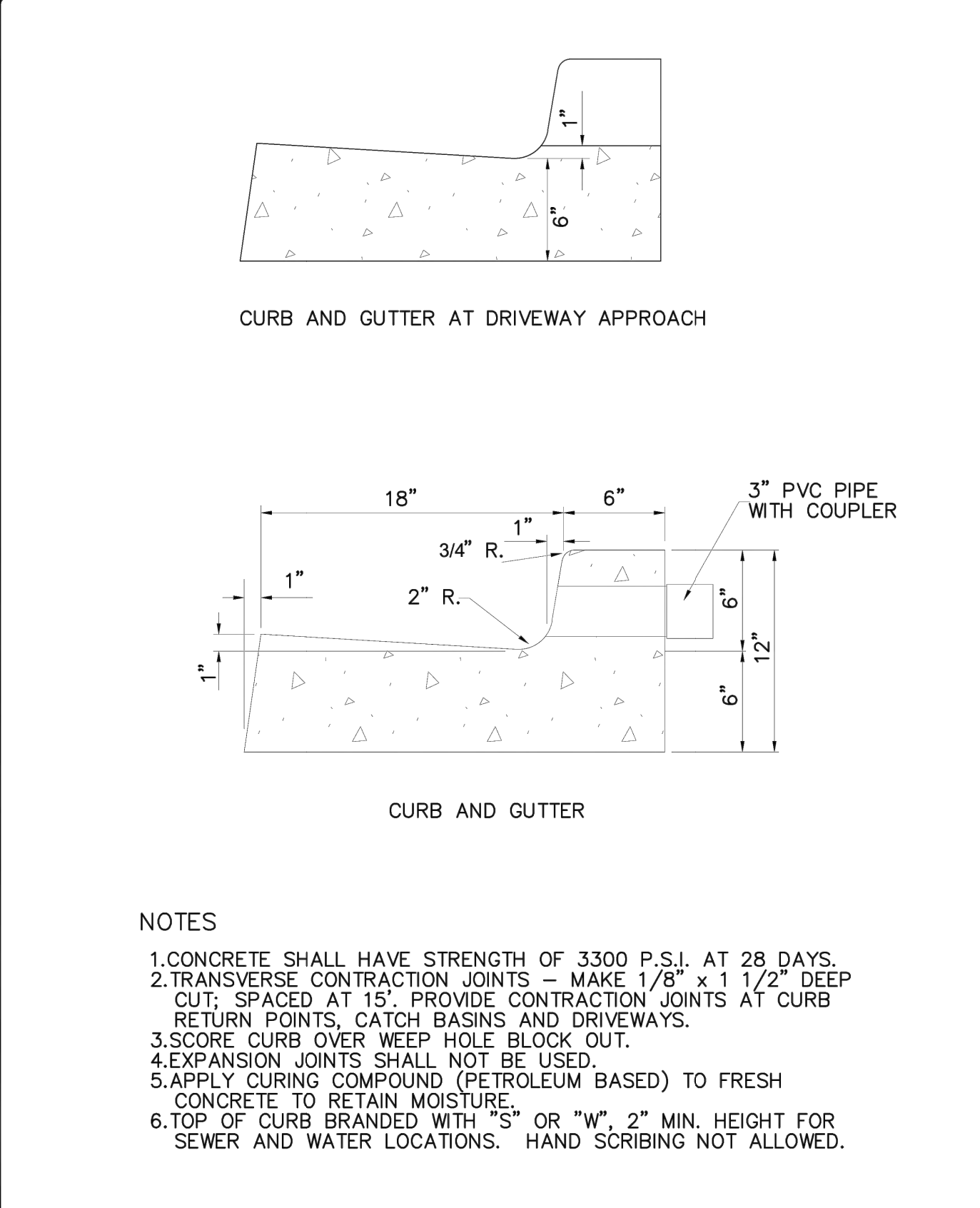
**REGISTERED PROFESSIONAL ENGINEER**  
**ANDREY CHERNISHOV**  
 OREGON  
 MARCH 09, 2010  
**ANDREY R. CHERNISHOV**  
 EXPIRES 12/31/2023

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: msh@hbh-engineers.com

DATE	12/22/2022
DRAWN	IARB
DESIGNED	IJH
CHECKED	IARC
SHEET NUMBER	9 OF 11

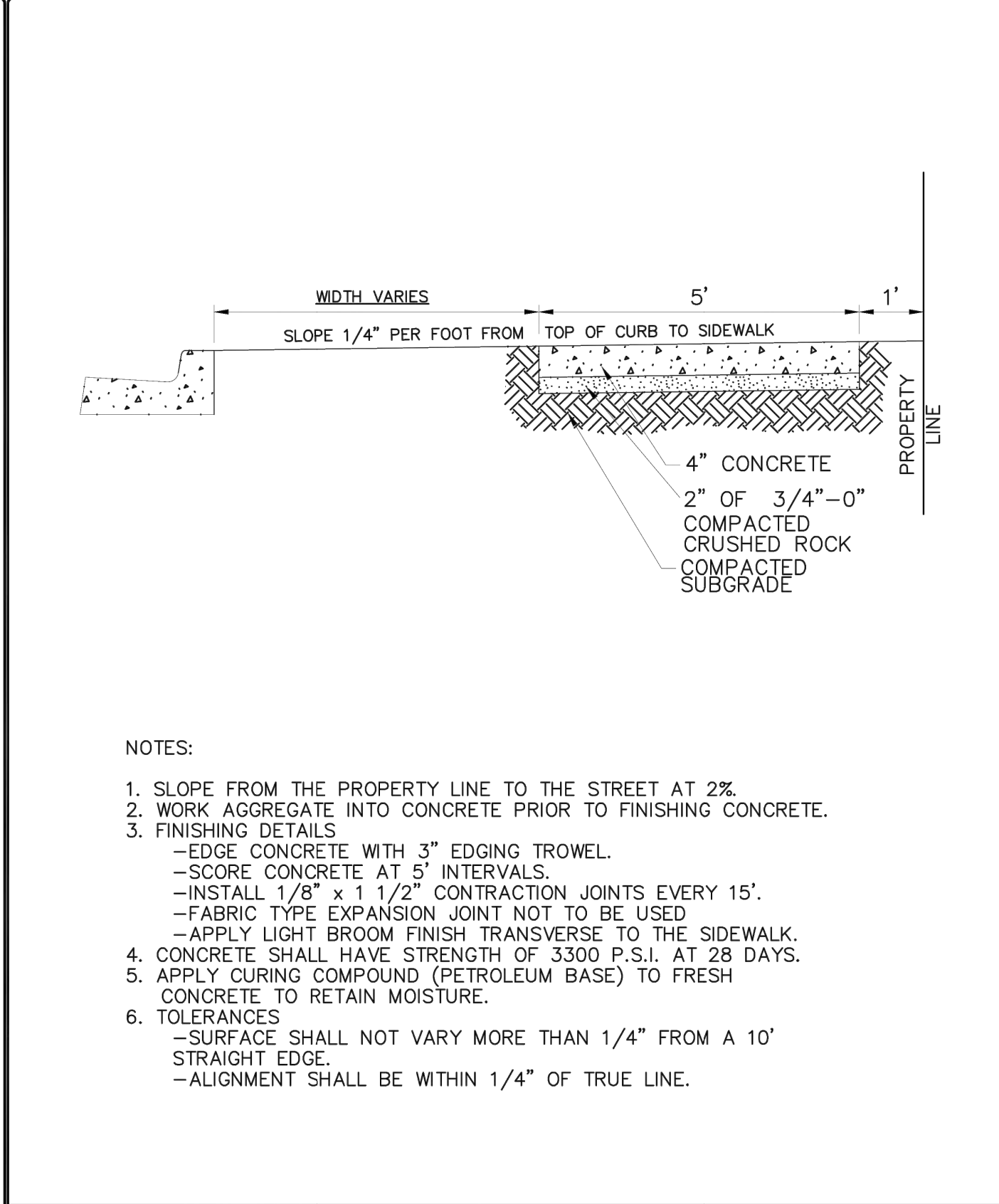




**NOTES**

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.

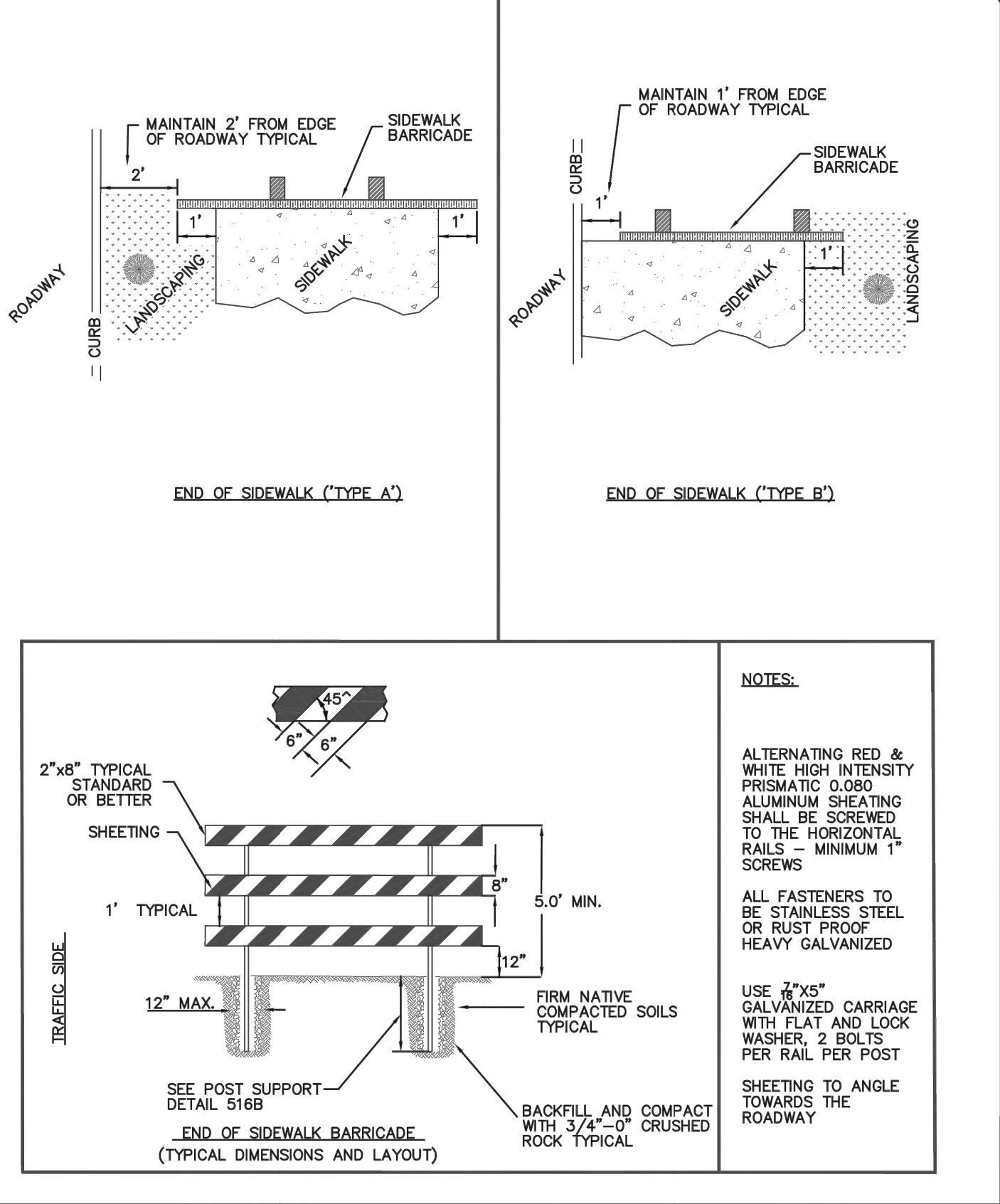
City of Newberg  
 REVISIONS: 05/05/2015 - ASH  
 SCALE: N.T.S.  
 DATE: May 2015  
 APPROVED BY: K. Hofmann  
 STANDARD DRAWING: 501



**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.

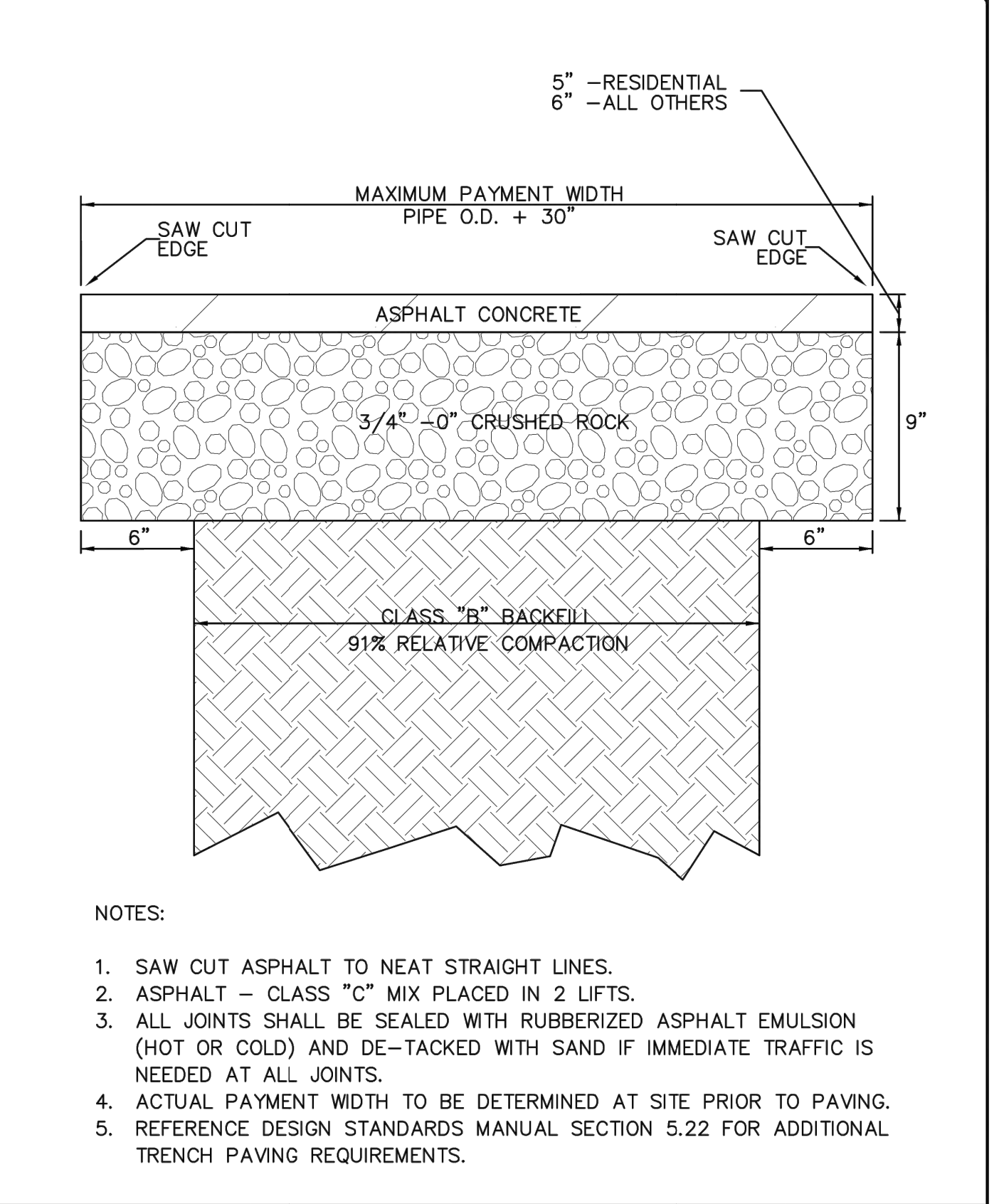
City of Newberg  
 REVISIONS: 05/05/2015 - ASH  
 SCALE: N.T.S.  
 DATE: May 2015  
 APPROVED BY: K. Hofmann  
 STANDARD DRAWING: 503



**NOTES**

- ALTERNATING RED & WHITE HIGH INTENSITY PRISMATIC GLASS ALUMINUM SHEATING SHALL BE SCREWED TO THE HORIZONTAL RAILS - MINIMUM 1" SCREWS
- ALL FASTENERS TO BE STAINLESS STEEL OR RUST PROOF HEAVY GALVANIZED
- USE 4"x5" GALVANIZED CARRIAGE WITH FLAT AND LOCK WASHER, 2 BOLTS PER RAIL PER POST
- SHEETING TO ANGLE TOWARDS THE ROADWAY

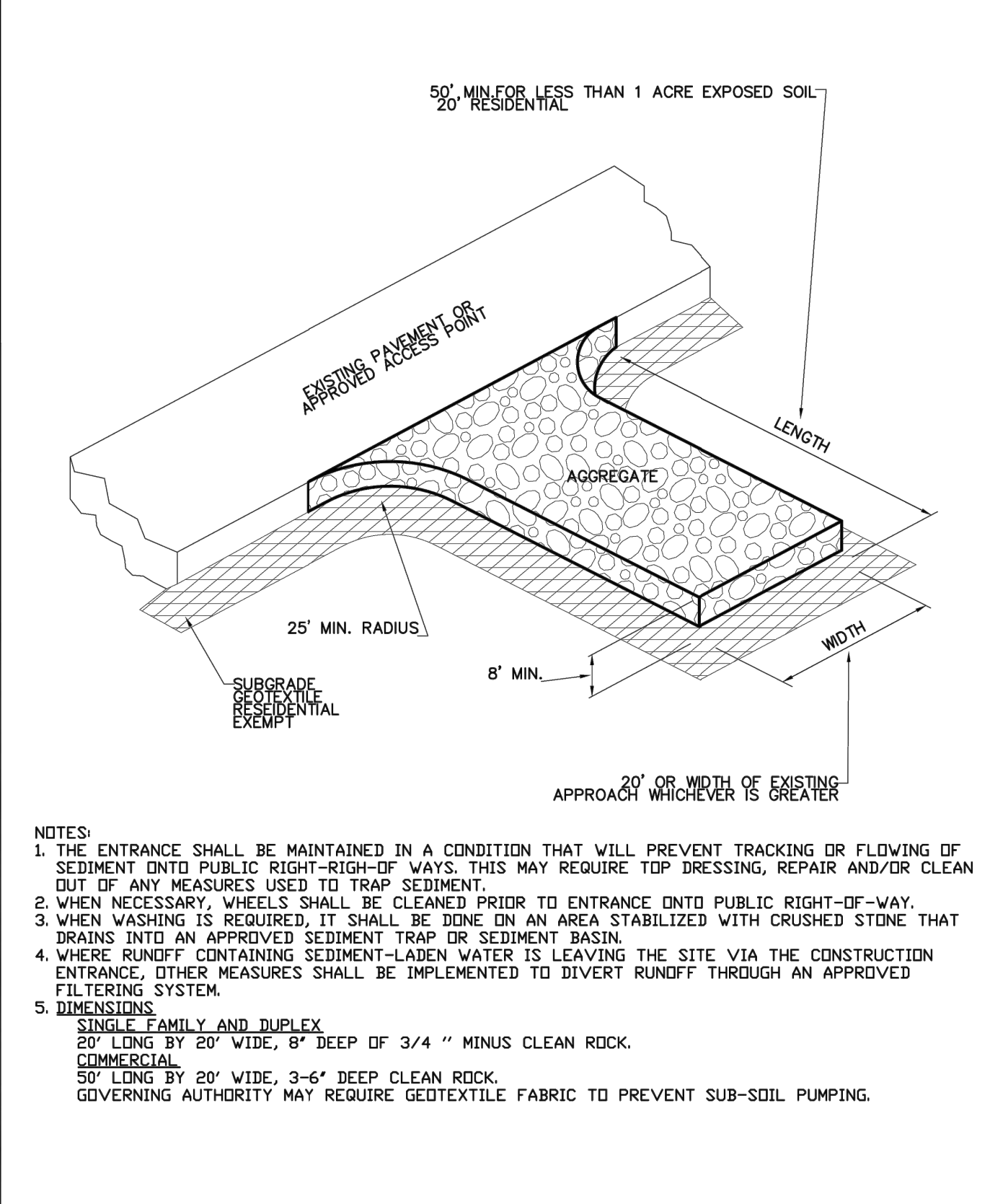
City of Newberg  
 REVISIONS:  
 SCALE: N.T.S.  
 DATE: MAY 2014  
 APPROVED BY: J. HARRIS  
 STANDARD DRAWING: 516C



**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.

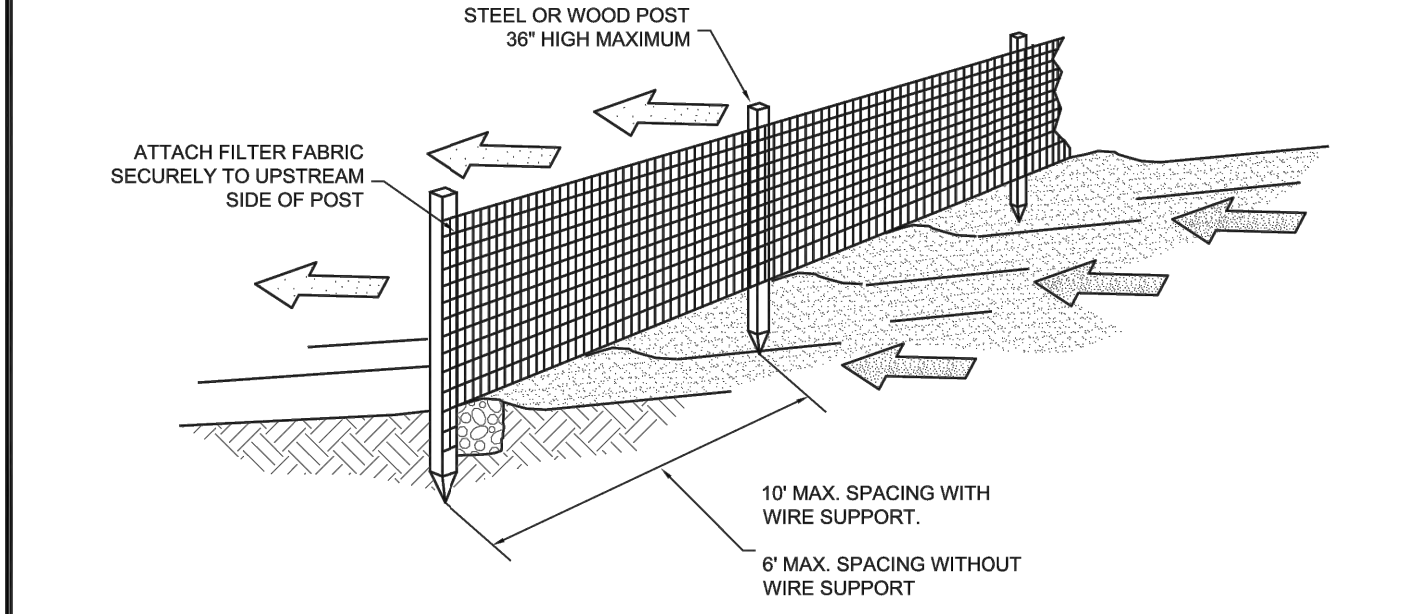
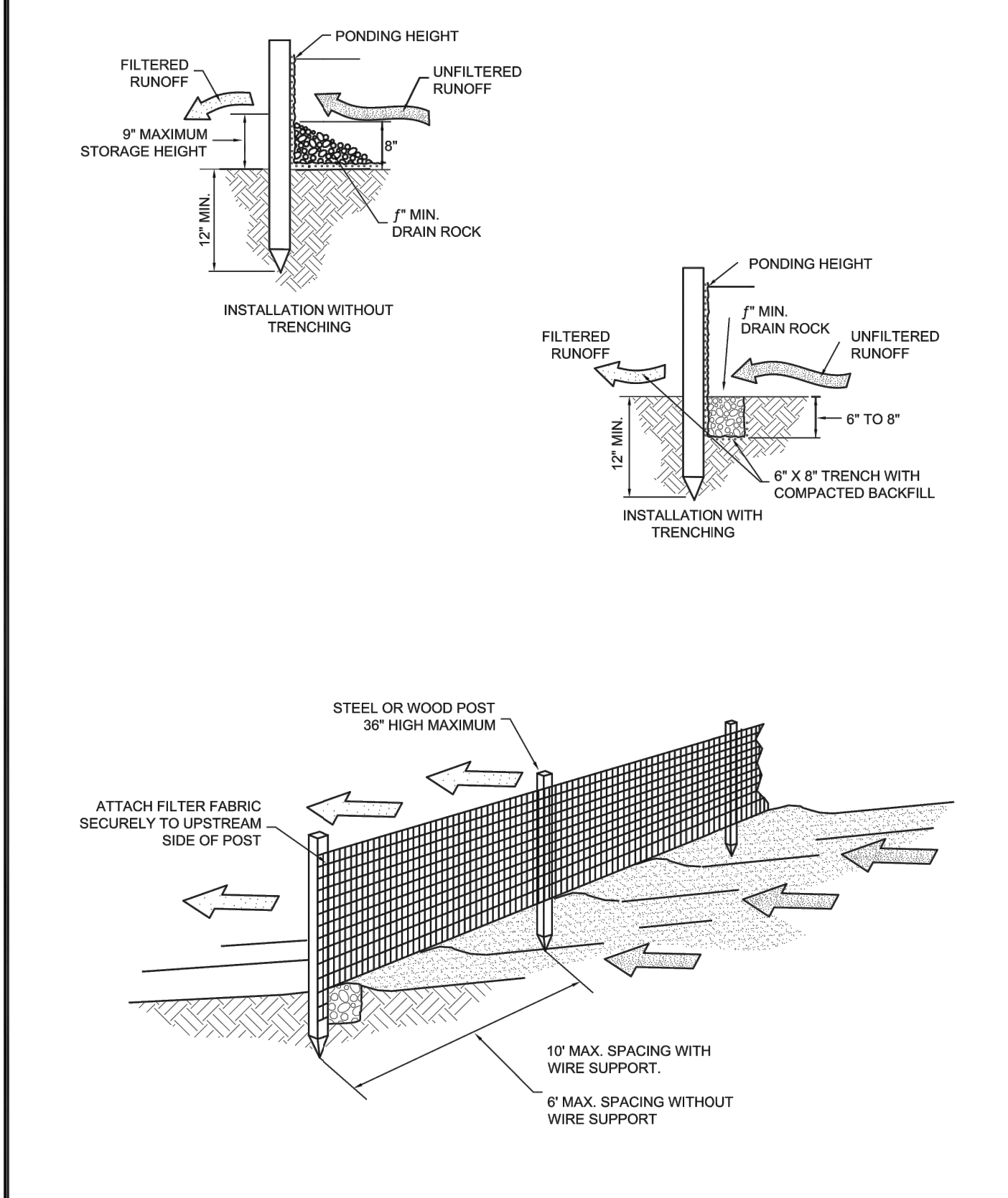
City of Newberg  
 REVISIONS: Jan. 2011, 05/07/2015 - ASH  
 SCALE: N.T.S.  
 DATE: May 2015  
 APPROVED BY: K. Hofmann  
 STANDARD DRAWING: 517



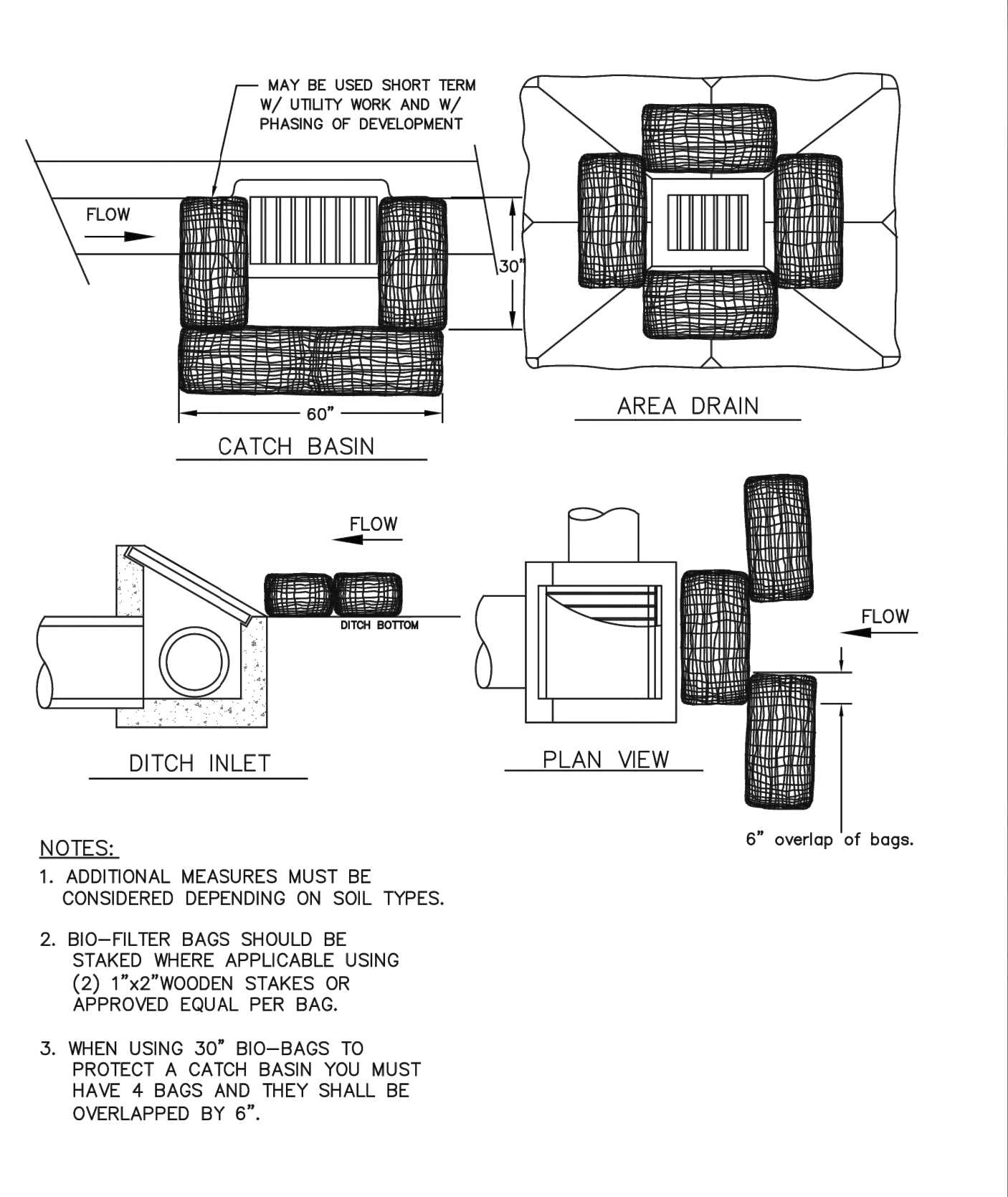
**NOTES**

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-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 RESIDENTIAL: 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 GEDTEXTILE FABRIC TO PREVENT SUB-SOIL PUMPING.

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



City of Newberg  
 REVISIONS:  
 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  
 REVISIONS: 12/10/2013  
 SCALE: N.T.S.  
 DATE: 04/04/2009  
 APPROVED BY: PAUL CHIU  
 STANDARD DRAWING: 605

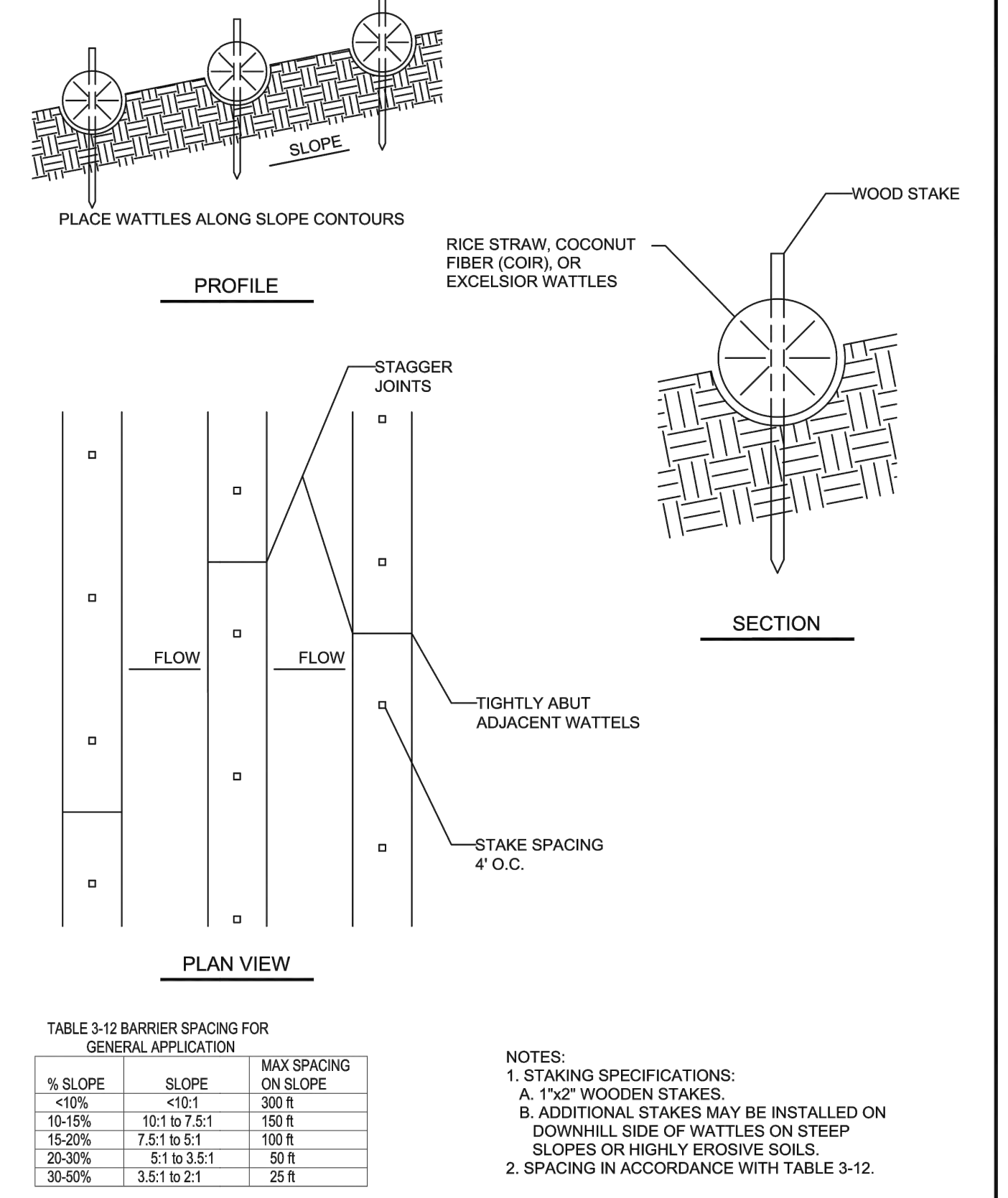


TABLE 3-12 BARRIER SPACING FOR GENERAL APPLICATION

% 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 EROSIONAL SOILS.
2. SPACING IN ACCORDANCE WITH TABLE 3-12.

City of Newberg  
 REVISIONS: NA  
 SCALE: N.T.S.  
 DATE: 01/10/2014  
 APPROVED BY:  
 STANDARD DRAWING: 611

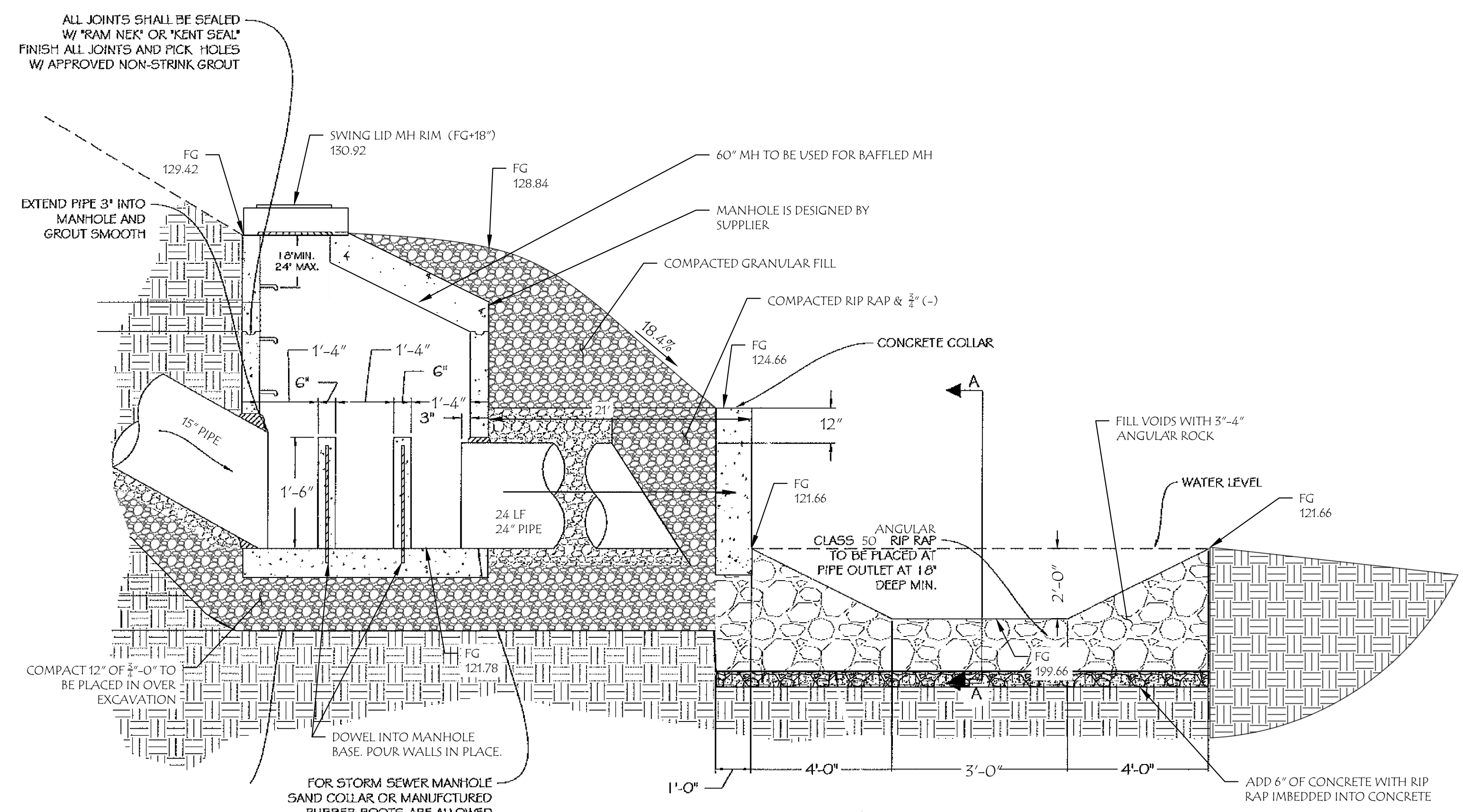
REGISTERED PROFESSIONAL ENGINEER  
 ANDREW CHERNISHOV  
 OREGON LICENSE # 09-10110  
 ANDREW R. CHERNISHOV  
 EXPIRES 12/31/2023

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

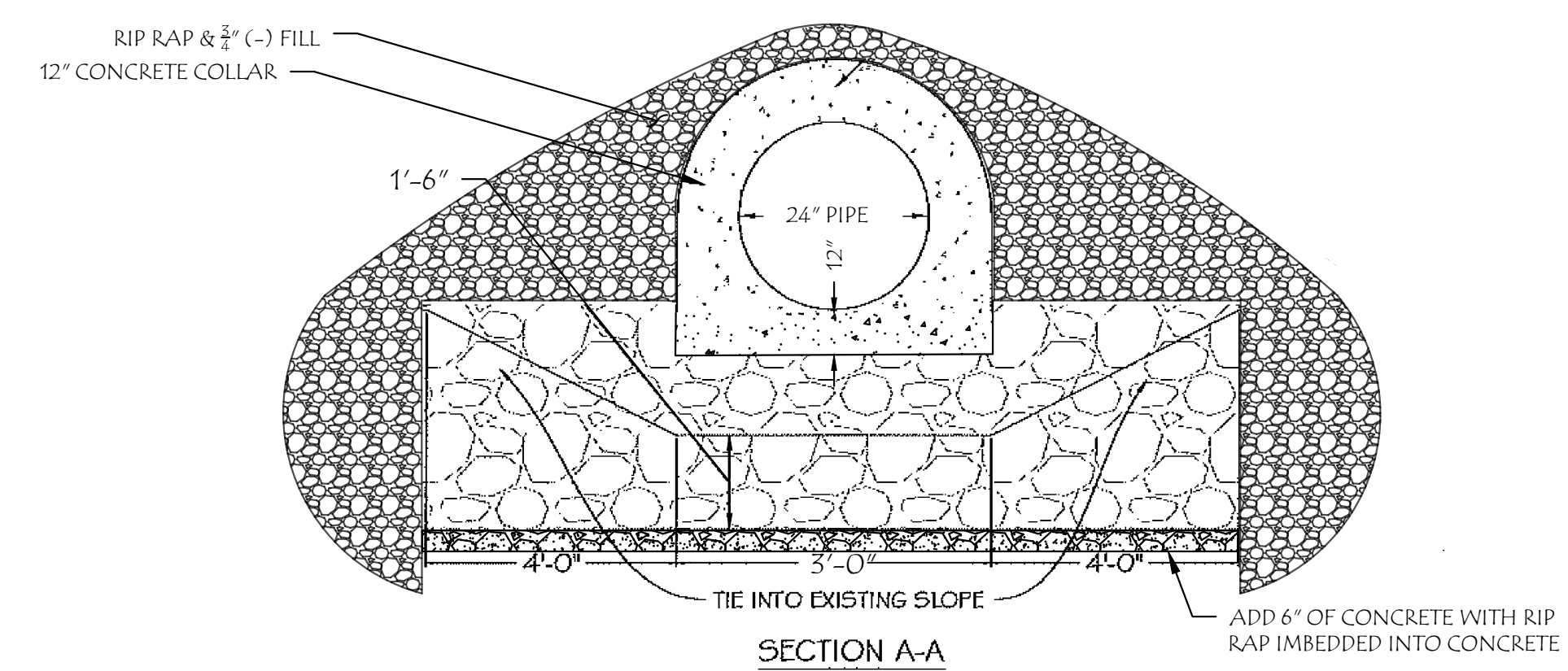
**H B H**  
 CONSULTING ENGINEERS  
 501 E First Street  
 Newberg, Oregon 97132  
 503/554-9553 fax 503/537-9554  
 email: msh@hbh-engineers.com

DATE: 12/22/2022  
 DRAWN: IARB  
 DESIGNED: IJH  
 CHECKED: IARC  
 SHEET NUMBER: 10 OF 11





DISSIPATER MANHOLE  
(NTS)



PIPE OUTLET DETAILS  
(NTS)

**RIPRAP NOTES:**

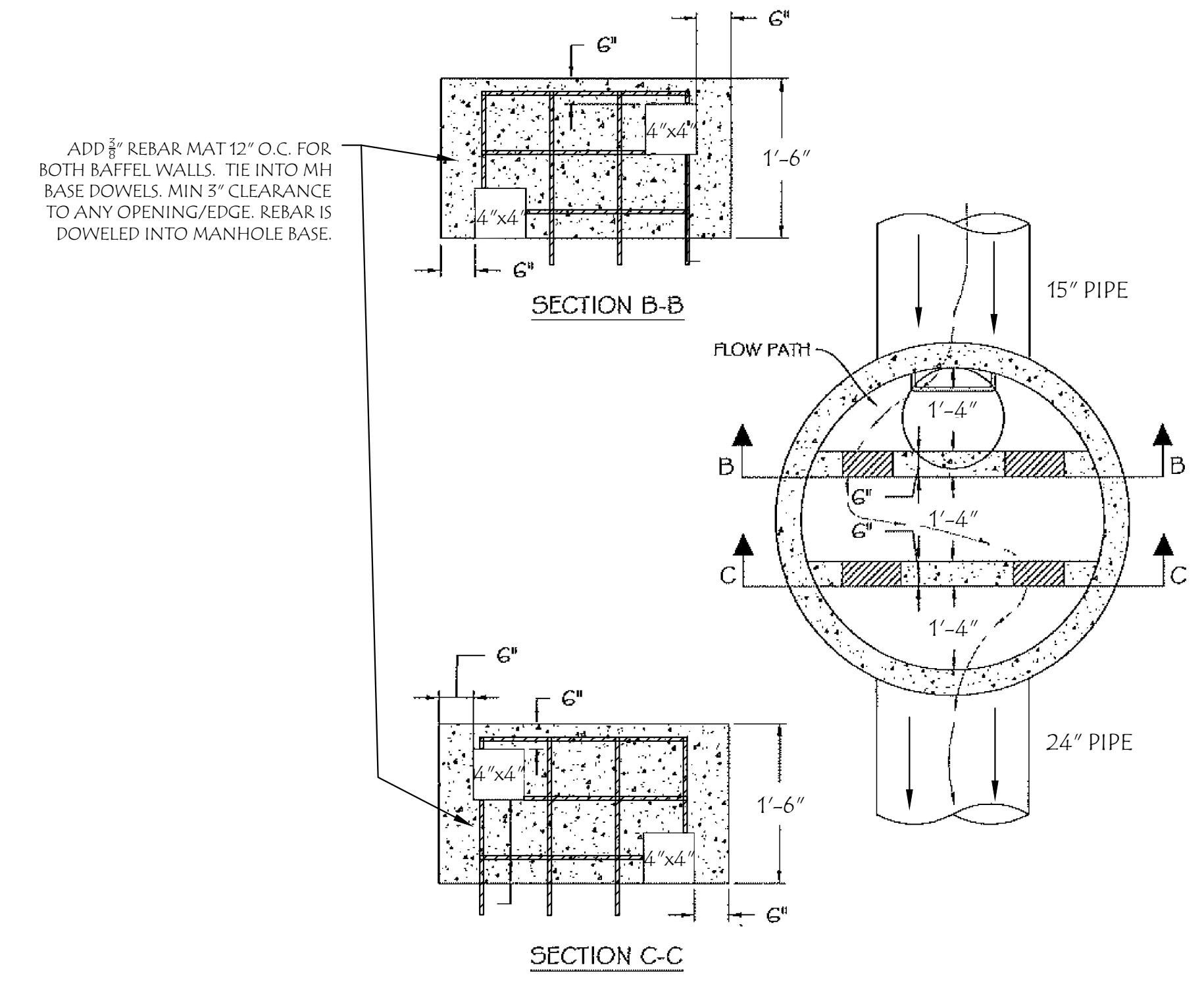
- ROCK FOR RIPRAP SHALL BE ANGULAR IN SHAPE
- THICKNESS OF A SINGLE ROCK SHALL NOT BE LESS THAN ONE-THIRD ITS LENGTH

**RIPRAP INSTALLATION NOTES:**

- EXCAVATE BELOW FINISH GRADE DPETH TO DIMENSIONS SHOWN ON APPROVED PLANS
- INSTALL 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	WEIGHT OF ROCK (LBS)	PERCENT (BY WEIGHT)
50	30-15	20%
30	15-2	30%
15	2-0	40%
2	0	10%



60" DISSIPATER MANHOLE DETAILS  
(NTS)

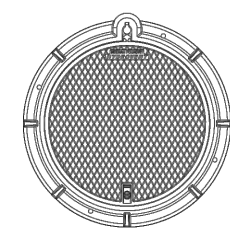
## HYDROVENT™ PRODUCT DESCRIPTION

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.

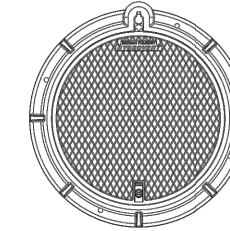
**Design features include:**

- 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

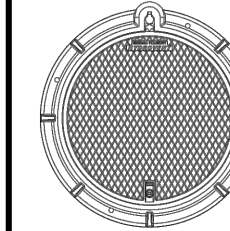
Additional questions regarding Neenah Foundry HydroVent™ manhole cover should be directed to our Product Engineering Department (920) 725-7000.



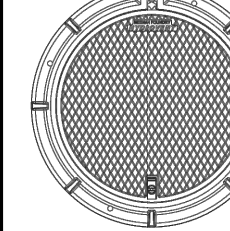
R-1550-HV 21"



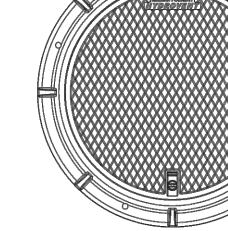
R-1642-HV 24"



R-1650-HV 24"




R-1743-HV 30"

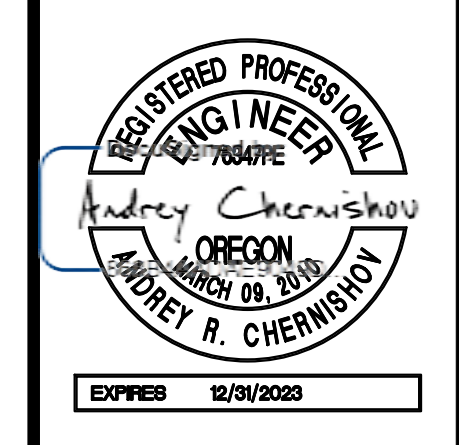


R-1739-HV 36"

HydroVent™ System		
MODEL	CLEAR OPENING (Diameter)	FRAME HEIGHT
R-1550-HV	21"	9"
R-1642-HV	24-1/8"	7"
R-1650-HV	24-1/8"	4"
R-1743-HV	30"	6"
R-1739-HV	36"	6"



BY	DATE	DESCRIPTION



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: msh@hbh-engineers.com

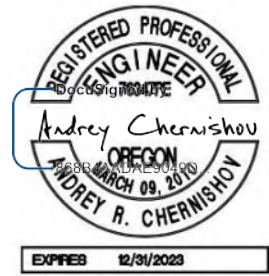
DATE | 12/22/2022  
DRAWN | ARB  
DESIGNED | JH  
CHECKED | ARC

SHEET NUMBER  
11 OF 11





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



## MEMORANDUM

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

Project Number: **2019-001**

### 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**

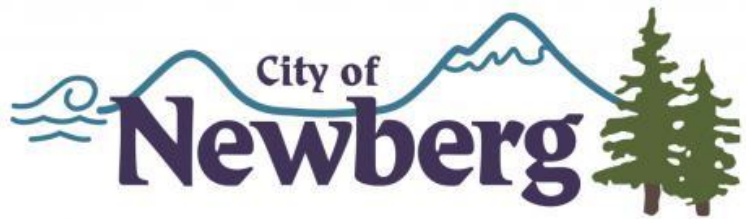
The proposed improvements entail replacing the existing storm conveyance system from the Hess Creek outfall into Wyooski Street (Attachment C). A new storm manhole in Wyooski Street will be used to tie into the existing storm system. The outlet of this manhole will be a new 15" pipe that drains east 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 Wyooski 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 Wyooski 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.

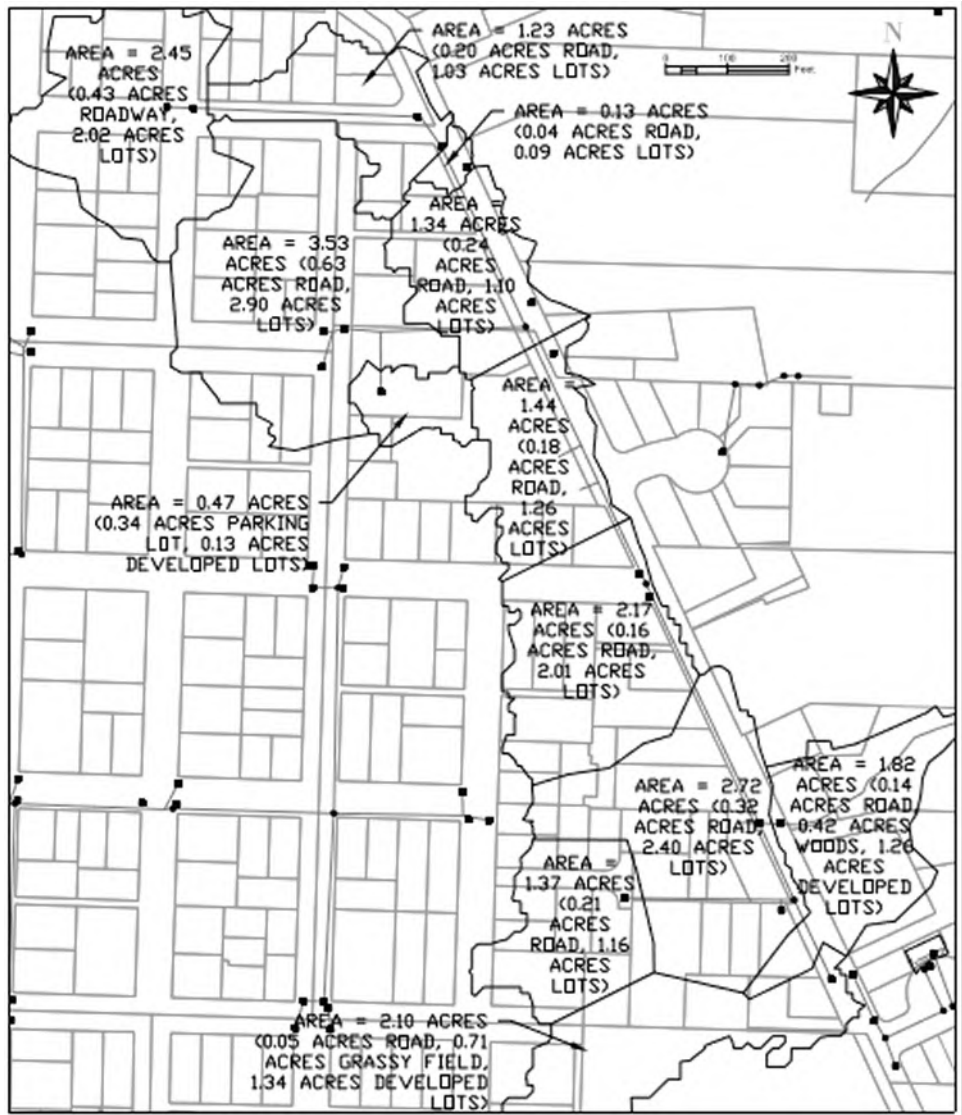
Appendices:

**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 <sup>2</sup> )	CN <sub>avg</sub>	S	la (in)	P (in)	Pe (in)	L (ft)	tc (hr)	la/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
														<b>Total Flow (cfs)</b>	<b>12.53</b>



**Figure 1: Map of Sub-Basins**







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

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

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

	Sheet Flow		Shallow Concentrated Flow		Channel Flow	
	Surface Description	Paved	Surface Description	Paved	Cross sectional flow area, (ft <sup>2</sup> )	
<b>SUB-BASIN 4</b>	Manning's Roughness Coeff, n	0.011	Flow Length, L (ft)	50	Wetted Perimeter, (ft)	0.785
	Flow Length, L (total L<300ft)	300	Watercourse slope, s (ft/ft)	0.272	Hydraulic Radius, r (ft)	2.329
	2-yr 24-hr rainfall, P2 (in)	3	Average Velocity, V (ft/s)	2.55	Channel Slope, s (ft/ft)	0.337
	Land Slope, s (ft/ft)	0.00272			Manning's Roughness Coeff, n	0.00272
					V (ft/s)	0.011
					V (ft/s)	3.423
	Tt	0.1116	Tt	0.00545	Flow Length	150
				Tt	0.012	
				<b>Tc</b>	<b>0.129</b>	
<b>SUB-BASIN 5</b>	Surface Description	Paved	Surface Description	Paved	Cross sectional flow area, (ft <sup>2</sup> )	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
	Tt	0.1790	Tt	0.00000	Flow Length	62.000
				Tt	0.012	
				<b>Tc</b>	<b>0.191</b>	
<b>SUB-BASIN 6</b>	Surface Description	Paved	Surface Description	Paved	Cross sectional flow area, (ft <sup>2</sup> )	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
	Tt	0.0364	Tt	0.00000	Flow Length	38.000
				Tt	0.002	
				<b>Tc</b>	<b>0.038</b>	



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

	Sheet Flow		Shallow Concentrated Flow		Channel Flow	
	Surface Description	Paved	Surface Description	Paved		
<b>SUB-BASIN 7</b>	Surface Description		Surface Description		Cross sectional flow area, (ft <sup>2</sup> )	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
				<b>Tc</b>	<b>0.190</b>	
<b>SUB-BASIN 8</b>	Surface Description		Surface Description		Cross sectional flow area, (ft <sup>2</sup> )	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
				<b>Tc</b>	<b>0.186</b>	
<b>SUB-BASIN 9</b>	Surface Description		Surface Description		Cross sectional flow area, (ft <sup>2</sup> )	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
				<b>Tc</b>	<b>0.119</b>	

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

	Sheet Flow		Shallow Concentrated Flow		Channel Flow	
	Surface Description	Paved	Surface Description	Paved		
<b>SUB-BASIN 10</b>	Surface Description		Surface Description		Cross sectional flow area, (ft <sup>2</sup> )	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
				<b>Tc</b>	<b>0.079</b>	
<b>SUB-BASIN 11</b>	Surface Description		Surface Description		Cross sectional flow area, (ft <sup>2</sup> )	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
				<b>Tc</b>	<b>0.112</b>	
<b>SUB-BASIN 12</b>	Surface Description		Surface Description		Cross sectional flow area, (ft <sup>2</sup> )	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
				<b>Tc</b>	<b>0.071</b>	

Sample Calculations:

\* All calcs for Sub-Basin 1

• Average Curve Number,  $CN_{avg}$ 

$$CN_{avg} = \frac{CN_1 A_1 + CN_2 A_2}{A_{tot}} = \frac{98(.43 \text{ acre}) + 83(2.02 \text{ acre})}{2.43 \text{ acre}}$$

$$CN_{avg} = 86$$

• S

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

$$S = 1.68$$

• Initial Abstraction,  $I_a$ 

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

$$I_a = 0.336 \text{ in}$$

• Runoff,  $P_e$ 

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

$$P_e = 2.51 \text{ in}$$

• Time of Concentration,  $T_c$ - Sheet Flow Travel Time,  $T_{t1}$ 

$$T_{t1} = \frac{0.007(NL)^{1.48}}{(P_e)^{0.5} S^{0.4}} = \frac{0.007((.011)(300 \text{ ft}))^{1.48}}{(3 \text{ in})^{0.5} (.0044 \text{ ft/ft})^{0.4}}$$

$$T_{t1} = 0.092 \text{ hr}$$

- Shallow Concentrated Flow Travel Time,  $T_{t2}$ \* Length to nearest catch basin used,  $T_{t2} = 0 \text{ hr}$ - Channel Flow Travel Time,  $T_{t3}$ 

\* Manning's Equation, V

$$V = \frac{1.49}{n} R_h^{2/3} S_0^{1/2} = \frac{1.49}{.017} (.225 \text{ ft})^{2/3} (.0044 \text{ ft/ft})^{1/2}$$

$$V = 2.15 \text{ ft/s}$$

$$T_{t3} = \frac{L}{V} = \frac{25 \text{ ft}}{(2.15 \text{ ft/s} \cdot \frac{3600 \text{ s}}{1 \text{ hr}})}$$

$$T_{t3} = 0.003 \text{ hr}$$

$$T_c = T_{t1} + T_{t2} + T_{t3} = 0.092 \text{ hr} + 0 \text{ hr} + 0.003 \text{ hr}$$

$$T_c = 0.095 \text{ hr}$$

• Unit Peak Discharge,  $q_u$ 

\* Use Graph 4-1A in the HydroCAD PR-55 manual

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

$$q_u = 160 \text{ csm/in}$$

• Peak Discharge,  $q_p$

$$q_p = q_u A_{\text{tot}} P_e F_p \uparrow 1.0 = 160 \text{ csm/in} (1.00383 \text{ mi}^2) (2.51 \text{ in})$$

$$q_p = 1.54 \text{ cfs}$$

• Note: All Precipitation and Soil Values were based off of City Code or NRCS Survey Data.

## 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 <sup>2</sup> )	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

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

$$\underline{A = 0.349 \text{ ft}^2}$$

- Wetted Perimeter,  $P_w$

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

$$\underline{P_w = 2.09 \text{ ft}}$$

- Hydraulic Radius,  $R_h$

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

$$\underline{R_h = 0.167 \text{ ft}}$$

- Flow Rate,  $Q$  (PVC Pipe)

$$Q = \frac{1.49}{n} A R_h^{2/3} S_o^{1/2} = \frac{1.49}{0.13} (0.349 \text{ ft}^2) (0.167 \text{ ft})^{2/3} (0.013 \text{ ft/ft})^{1/2}$$

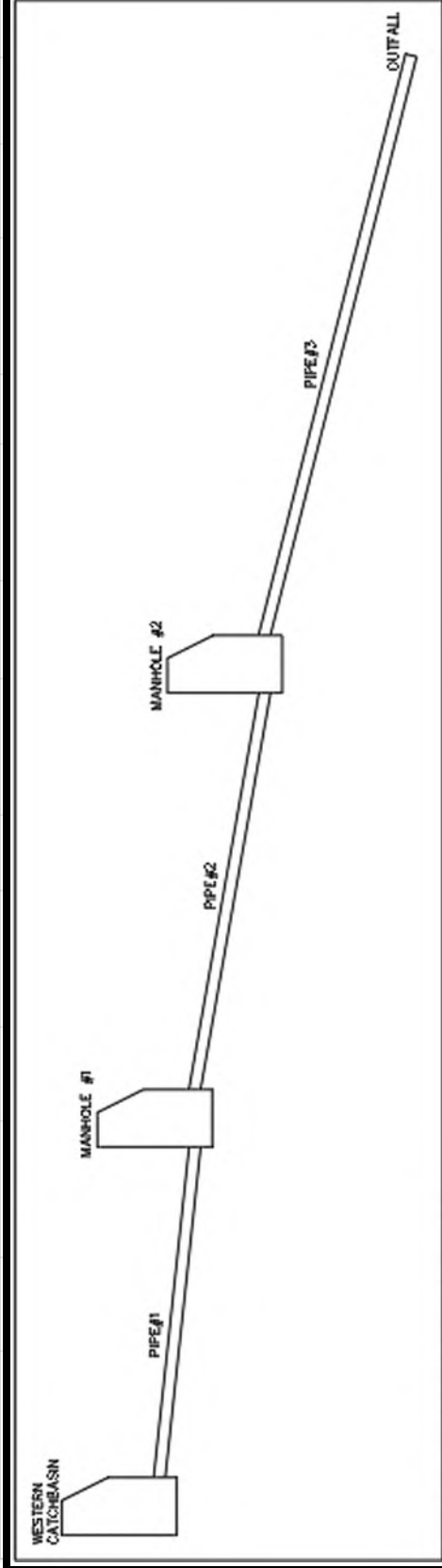
$$\underline{Q = 4.37 \text{ cfs}}$$

## 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	15	162.89	12	156.52	122.8	
Upstream invert	N/A	33.2	155.248	56.9	145	211.3	
Downstream invert	156.41	3.50%	155.048	17.66%	144.8	10.41%	
Water elevation	158.39	105.4443	154.70	105.4443	142.83	105.4443	
2 ft below rim?	Yes	1054443	Yes	1318053	Yes	1318053	
CB depth	5.78	0.0170	7.842	0.0170	11.72	0.0170	
		Major losses (ft)		Major losses (ft)		Major losses (ft)	
		Minor loss coeffic		Minor loss coeffic		Minor loss coeffic	
		v <sup>2</sup> /2g (ft)		v <sup>2</sup> /2g (ft)		v <sup>2</sup> /2g (ft)	
		Minor losses (ft)		Minor losses (ft)		Minor losses (ft)	
		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 Wyooski St. basins, GFU Senior Design Team 2019
Dynamic viscosity (ft <sup>2</sup> /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 =  $1.21 \times 10^{-5}$  ft<sup>2</sup>/sFind

Is pipe between MH#2 and outfall sized appropriately?

Solution

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

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

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

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

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

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

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

Note:

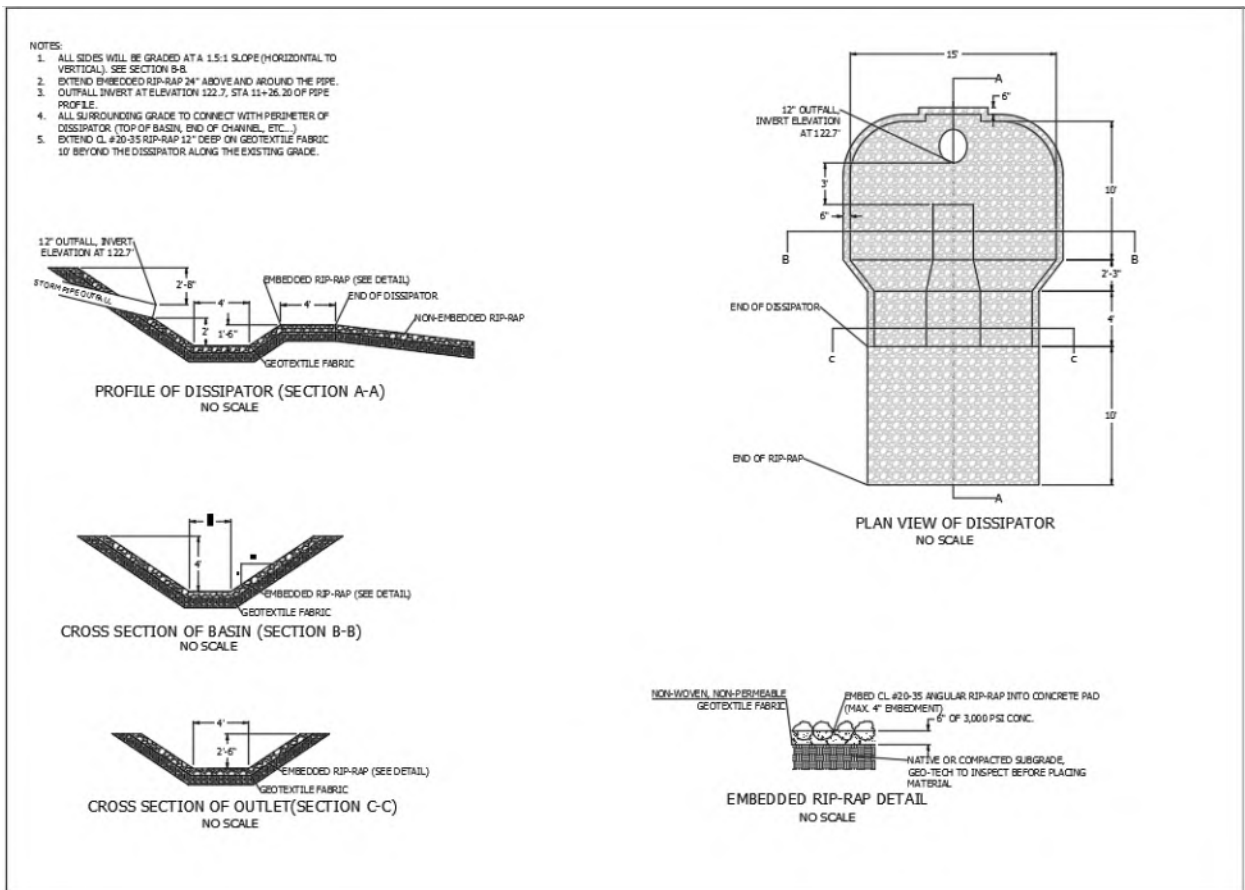
The water elevation using the Conservation of Energy equation is 141.0 ft, well below the invert elevation of 143.8 ft. This means that the pipe is not in closed-conduit flow, but rather open-channel flow. Pipe is appropriately sized.



## 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/wier base to avoid submerging
- Basin and outlet bases are 4ft long
- Basin width at base is 3ft
- Basin depth is ~~1.5ft~~ 1.5ft
- Top of outlet is approximately 1ft above the water level

## • Calculations

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

$$H = 1.22 \text{ ft}$$

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,  $V < 2 \text{ ft/s}$ 

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

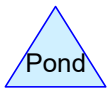
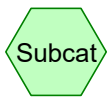
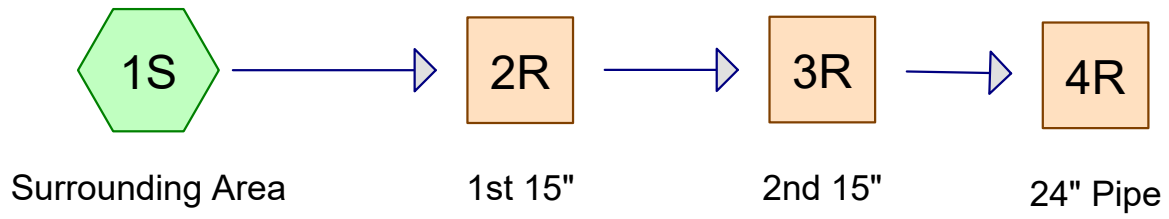
$$V = 1.76 \text{ ft/s} < 2 \text{ ft/s} \checkmark$$

$$A = H(b + 1.5H) = 1.22 \text{ ft}(4 \text{ ft} + 1.5(1.22 \text{ ft}))$$

$$A = 7.11 \text{ ft}^2$$

\* Area formula derived from area of a trapezoid

**ATTACHMENT B**





**Wynooski St Outfall**

Type IA 24-hr 25 YR Rainfall=4.00"

Prepared by HBH Consulting Engineers

Printed 1/30/2020

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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

**Wynooski St Outfall**

Type IA 24-hr 25 YR Rainfall=4.00"

Prepared by HBH Consulting Engineers

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**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
<hr/>		
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		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.00"
0.4	43	0.0040	1.67	0.58	<b>Pipe Channel, E 5th #1</b> 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	<b>Pipe Channel, E 5th #2</b> 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	<b>Pipe Channel, Wynooski St #1</b> 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	<b>Pipe Channel, Wynooski St #2</b> 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	<b>Pipe Channel, Wynooski St #3</b> 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	<b>Pipe Channel, Wynooski St #4</b> 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	<b>Pipe Channel, Wynooski St #5</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
<hr/>					
22.6	2,023	Total			

# Wynooski St Outfall

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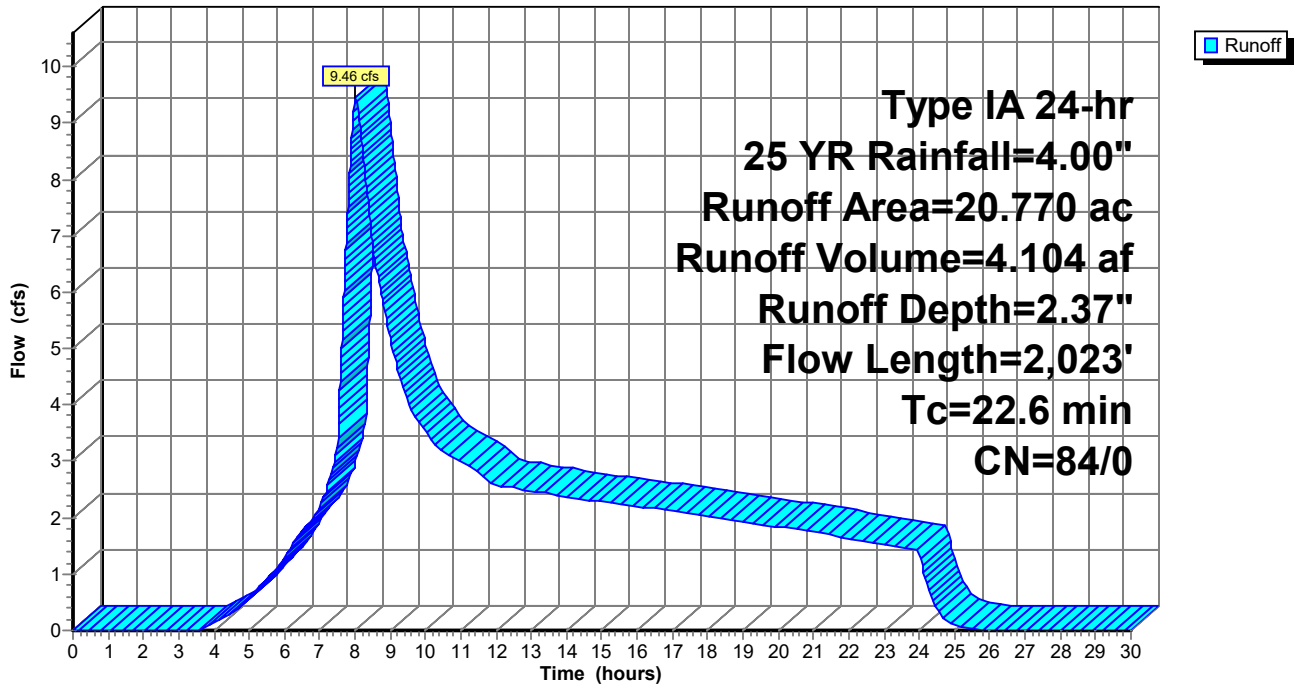
Type IA 24-hr 25 YR Rainfall=4.00"

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## Subcatchment 1S: Surrounding Area

Hydrograph





# Wynooski St Outfall

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Type IA 24-hr 25 YR Rainfall=4.00"

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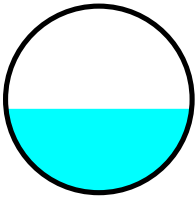
## Summary for Reach 2R: 1st 15"

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

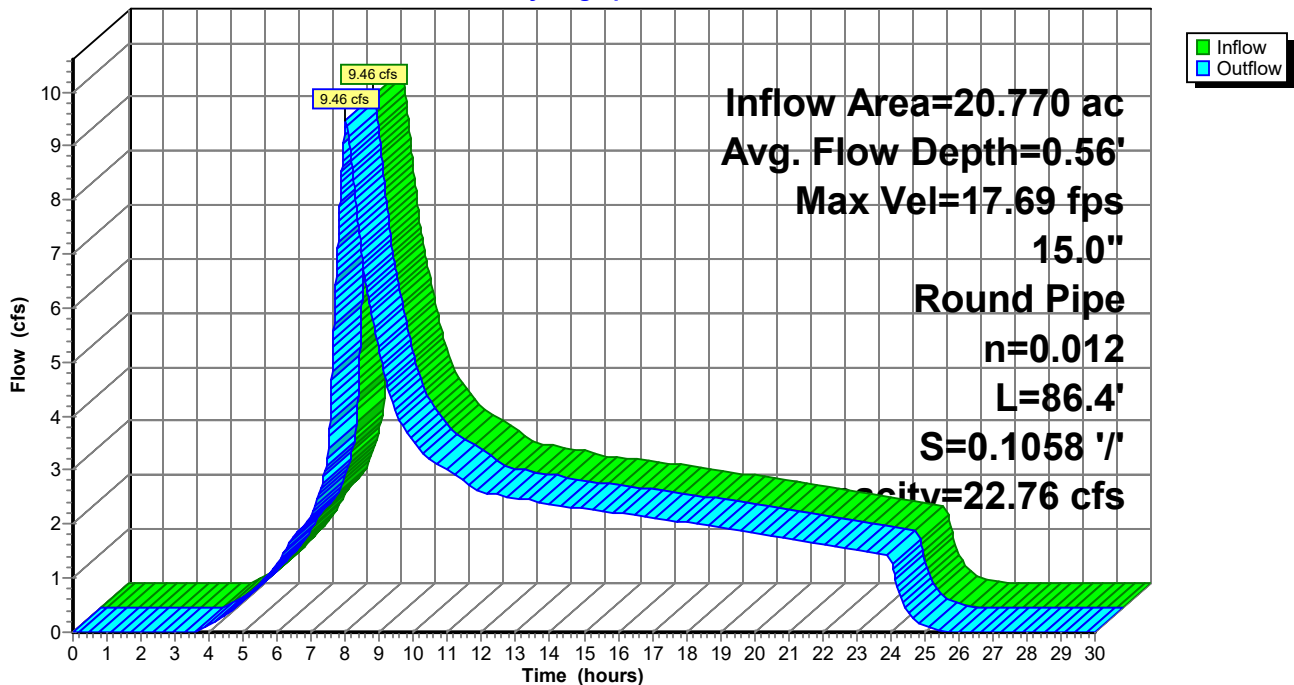
Peak Storage= 46 cf @ 8.01 hrs  
 Average Depth at Peak Storage= 0.56'  
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 22.76 cfs

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



## Reach 2R: 1st 15"

Hydrograph



**Wynooski St Outfall**

Prepared by HBH Consulting Engineers

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Type IA 24-hr 25 YR Rainfall=4.00"

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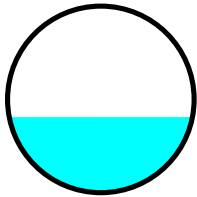
**Summary for Reach 3R: 2nd 15"**

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

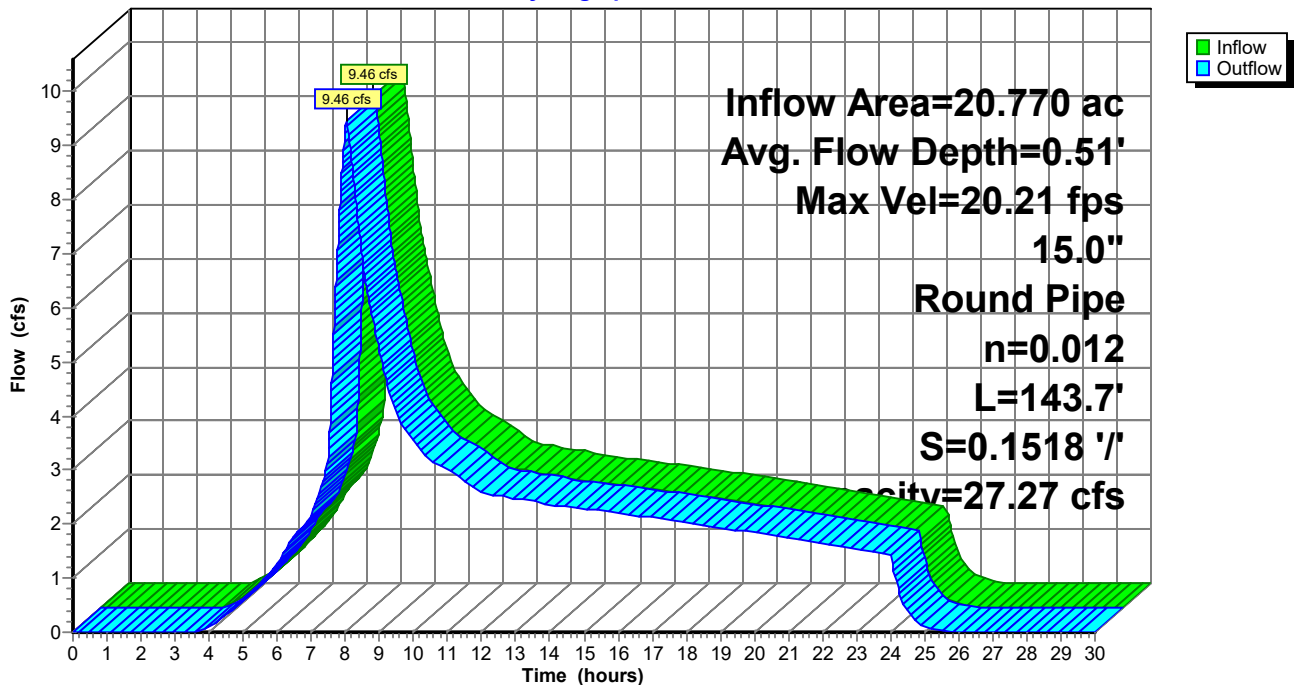
Peak Storage= 67 cf @ 8.01 hrs  
 Average Depth at Peak Storage= 0.51'  
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 27.27 cfs

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



**Reach 3R: 2nd 15"**

Hydrograph



### Wynooski St Outfall

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Type IA 24-hr 25 YR Rainfall=4.00"

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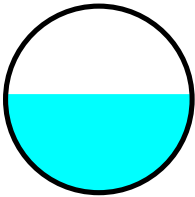
### Summary for Reach 4R: 24" Pipe

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

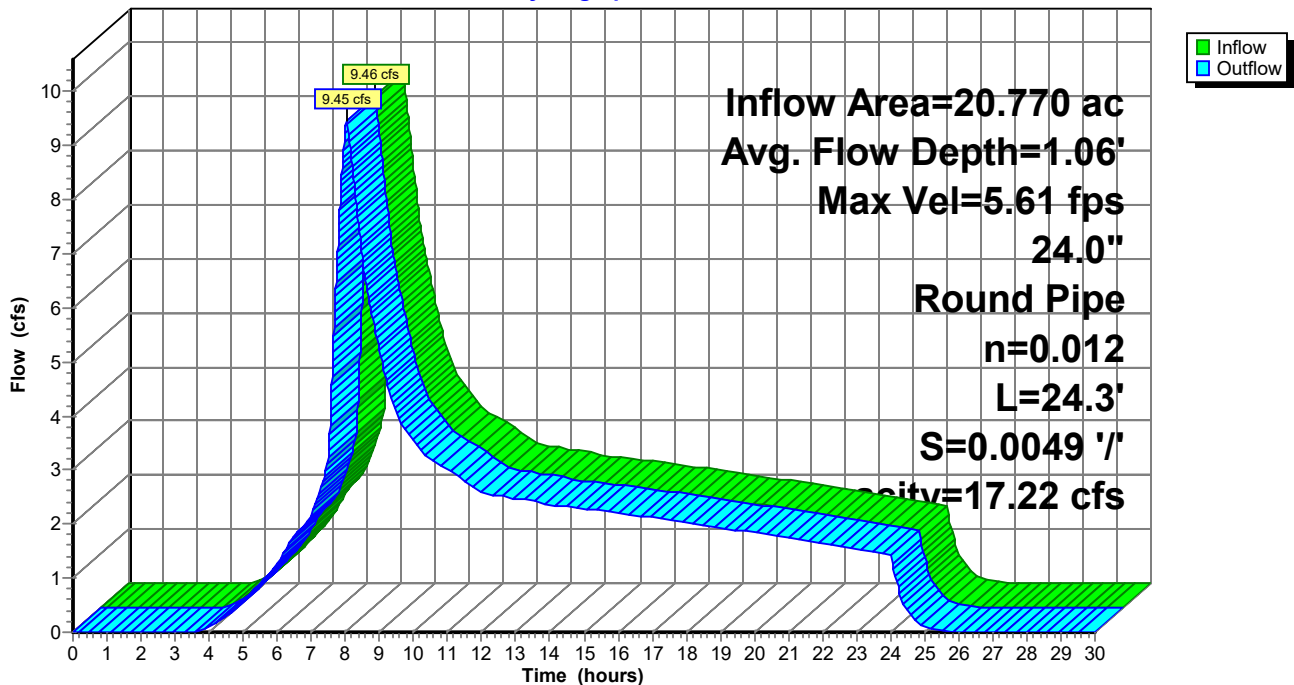
Peak Storage= 41 cf @ 8.02 hrs  
 Average Depth at Peak Storage= 1.06'  
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 17.22 cfs

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



### Reach 4R: 24" Pipe

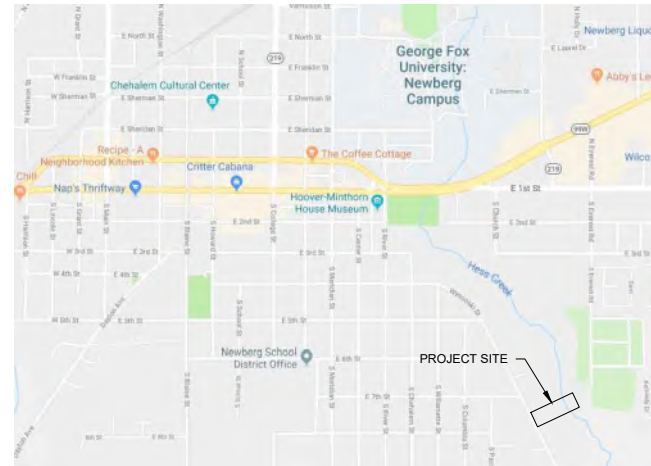
Hydrograph



# WYNOOSKI STORMWATER OUTFALL REDESIGN CONSTRUCTION PLANS

**ATTACHMENT C**

## VICINITY MAP



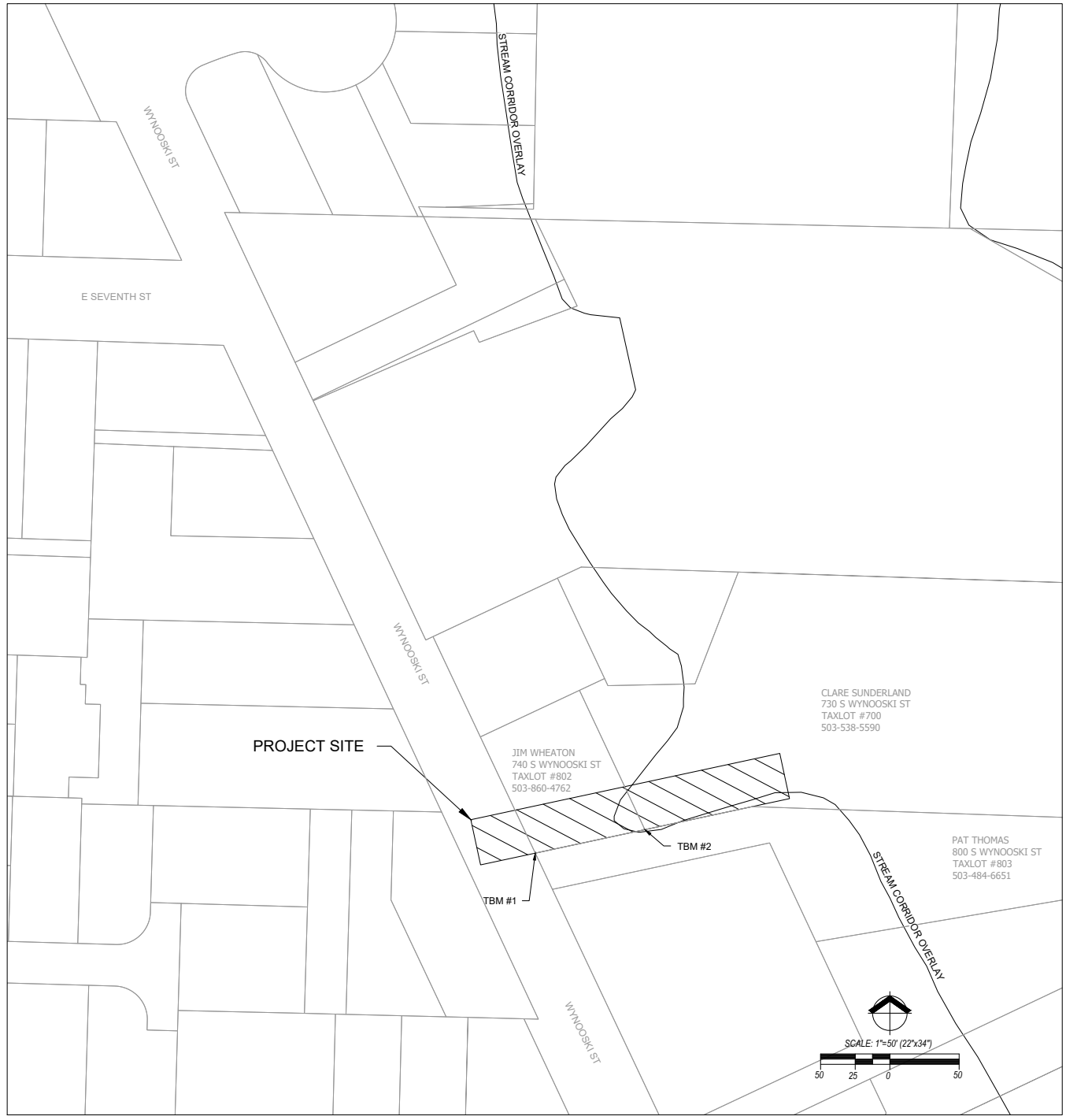
**PROJECT ABBREVIATIONS**  
 DBH - DIAMETER AT BREAST HEIGHT  
 EX - EXISTING  
 FEMA - FEDERAL EMERGENCY MANAGEMENT AGENCY  
 IE - INVERT ELEVATION  
 LF - LINEAL FEET  
 S - SLOPE  
 MH - MANHOLE  
 CB - CATCH BASIN

**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)



### 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

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#	DATE	DESCRIPTION



**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 503/517-9554  
 email: mail@hbh-consulting.com

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

SHEET NUMBER  
**1 OF 11**

LAST REVISION DATE 9/28/2022

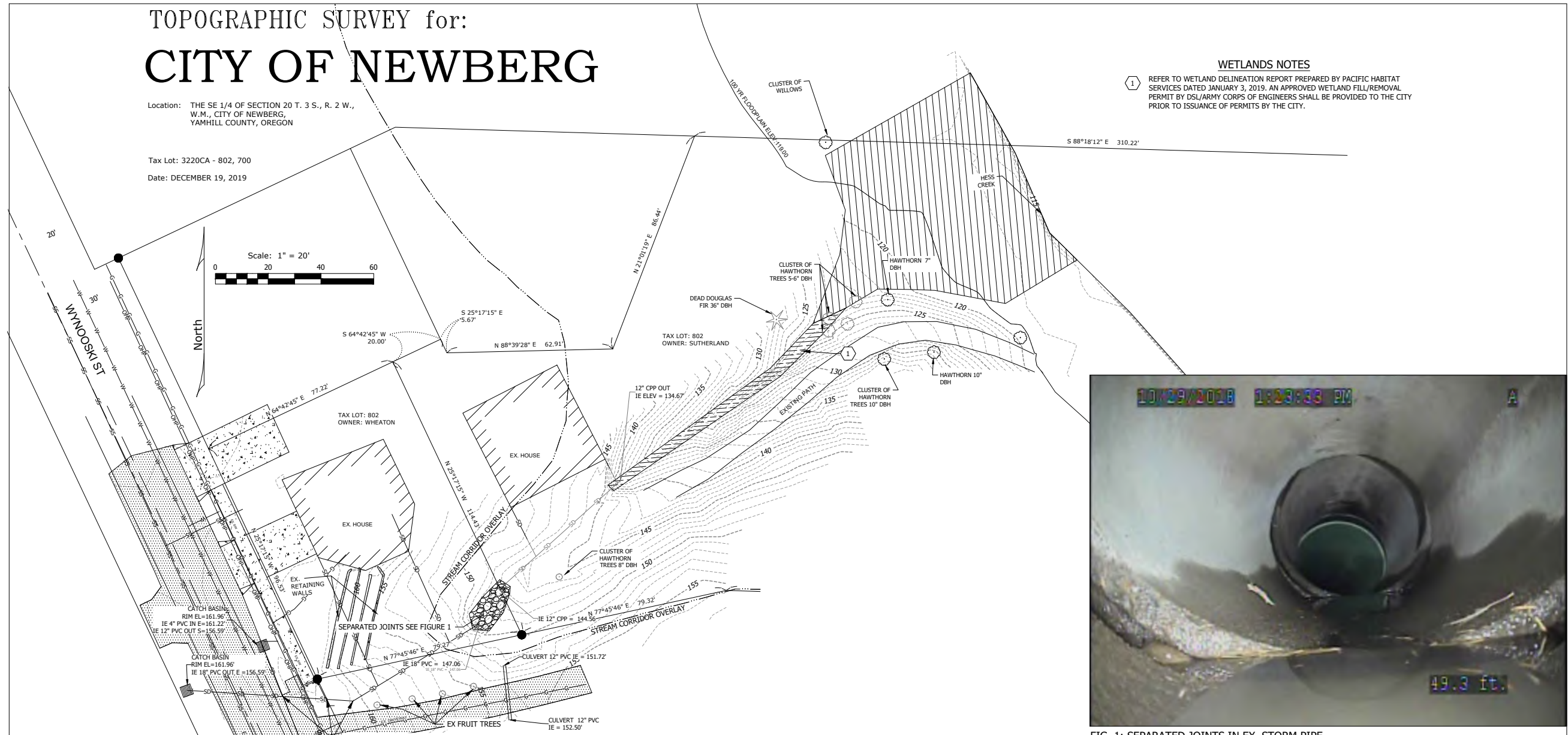
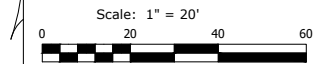


# TOPOGRAPHIC SURVEY for: CITY OF NEWBERG

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

REGISTERED PROFESSIONAL LAND SURVEYOR

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

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

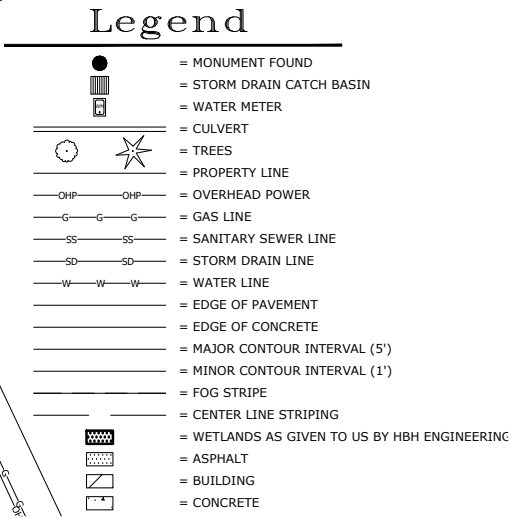


FIG. 1: SEPARATED JOINTS IN EX. STORM PIPE



FIG. 2: EXISTING OUTFALL

#	DATE	DESCRIPTION

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 503/517-9554  
email: mail@hbh-engineers.com

DATE	1/28/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC
SHEET NUMBER	2 OF 11

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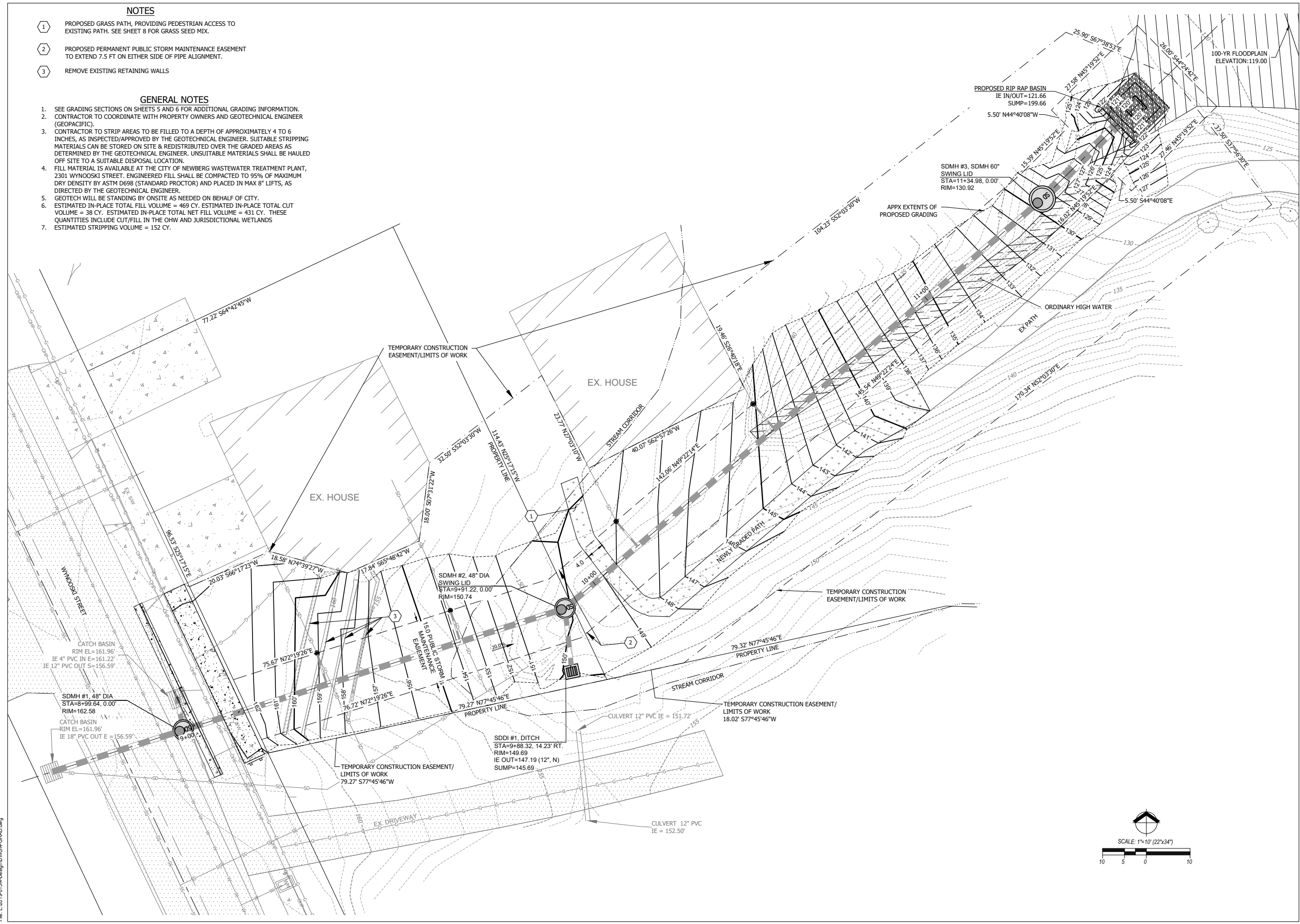


**NOTES**

- 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 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 (GEO-PACIFIC).
- 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.



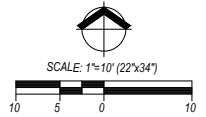
NO.	DATE	DESCRIPTION



**GRADING PLAN**  
**WYNOOSKI OUTFALL REDESIGN**  
 CITY OF NEWBERG  
 NEWBERG, OR

**H B H**  
 CONSULTING  
 ENGINEERS

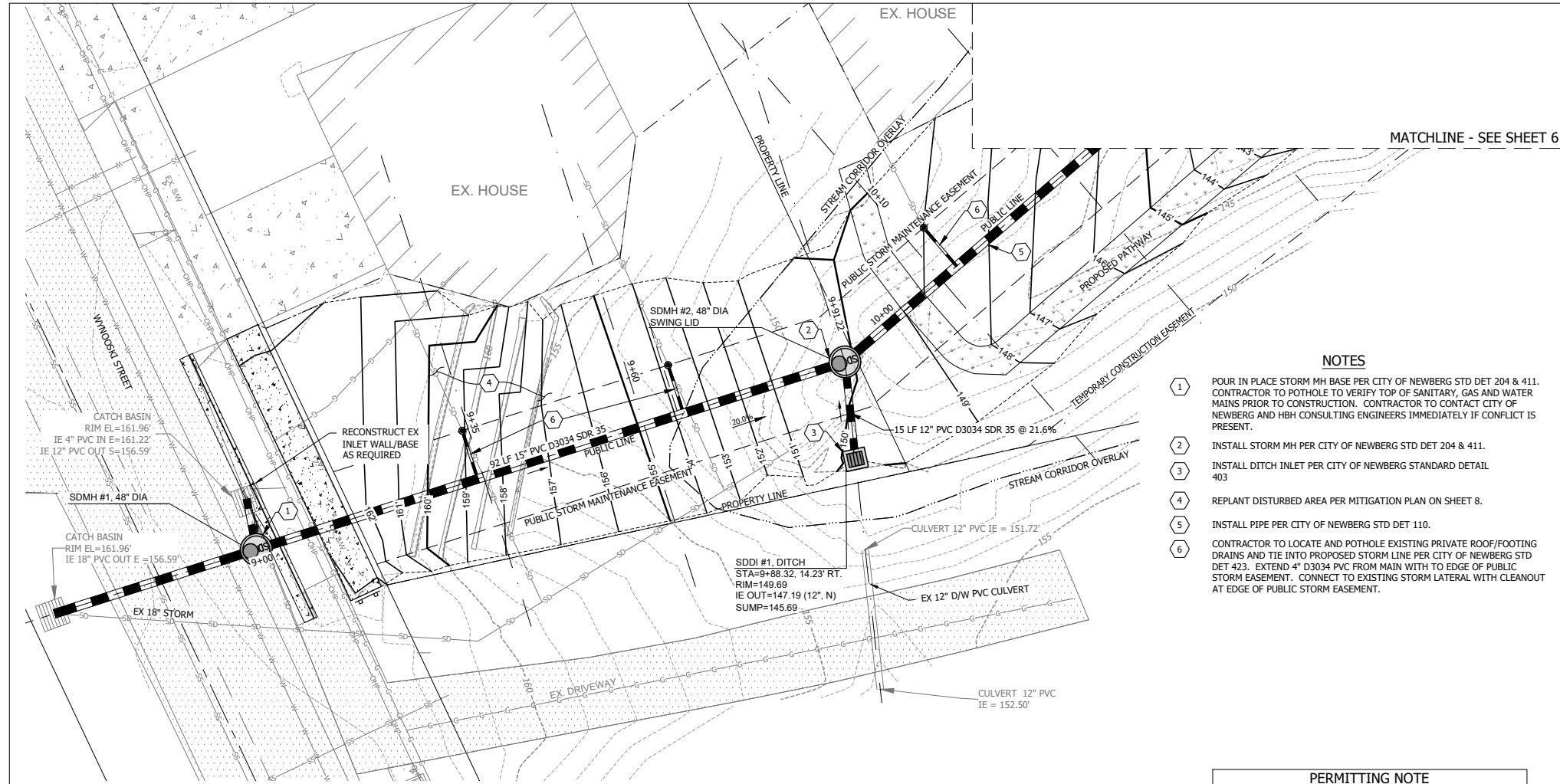
501 E First Street  
 Newberg, Oregon 97132  
 503/534-9553 fax 503/537-9554  
 email: mail@hbh-engineers.com



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

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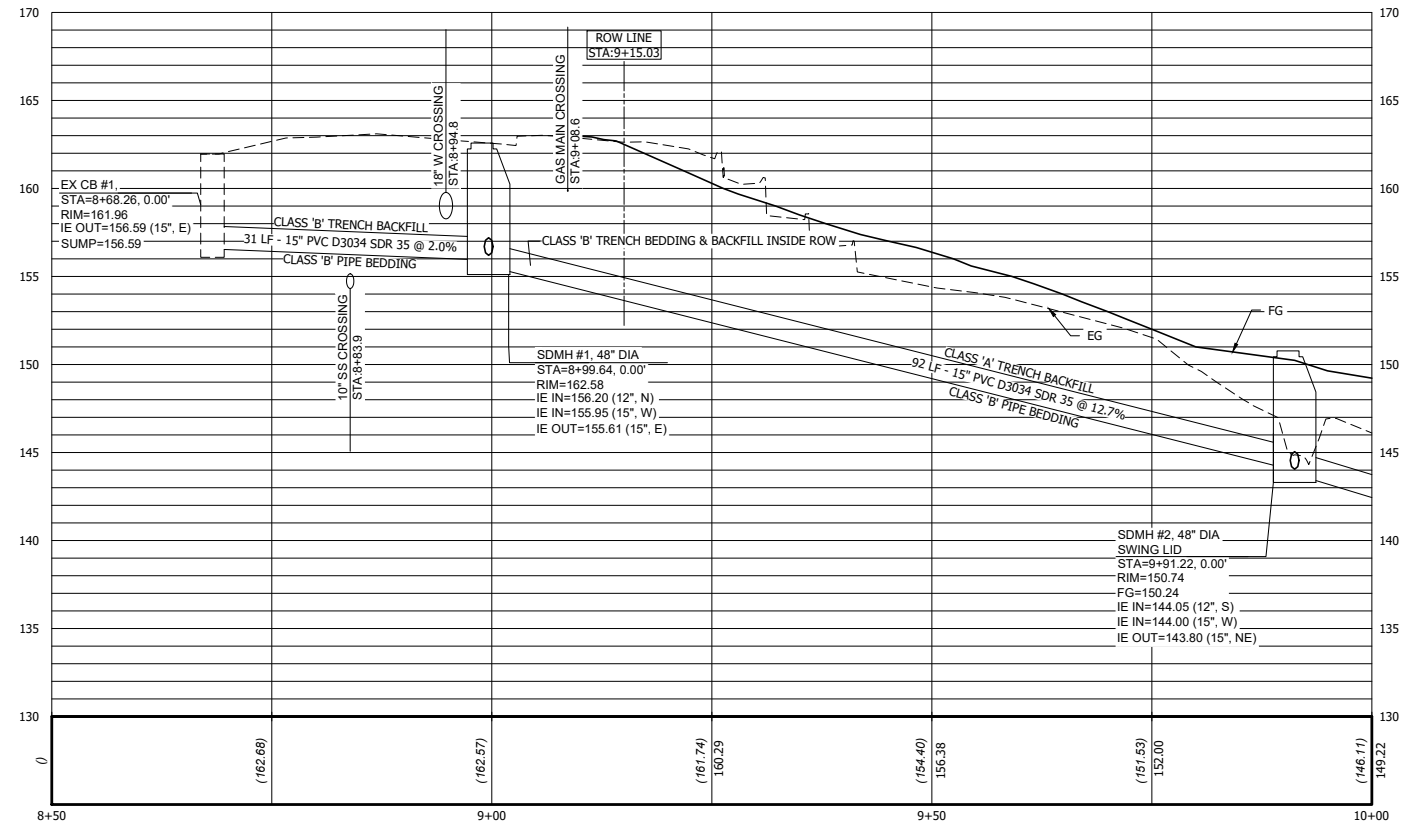
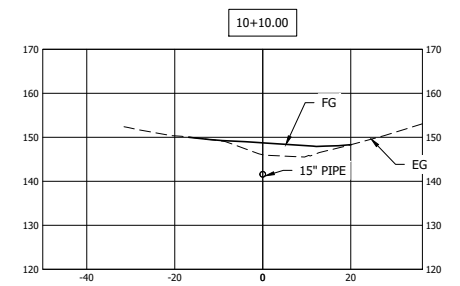
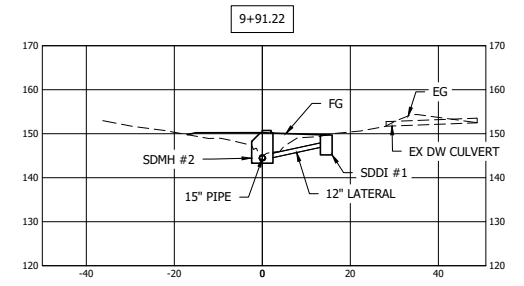
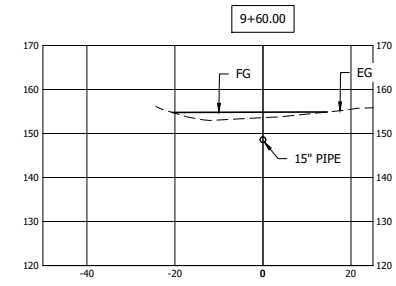
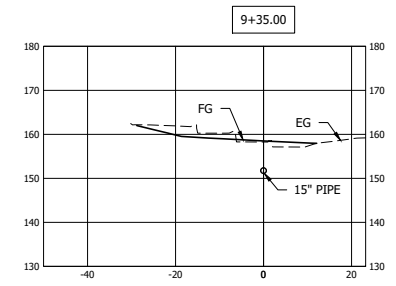
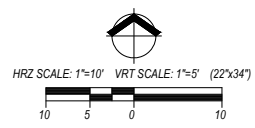
MATCHLINE - SEE SHEET 6

**NOTES**

- 1 POUR IN PLACE STORM MH BASE PER CITY OF NEWBERG STD DET 204 & 411. CONTRACTOR TO POT HOLE 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 POT HOLE 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.



#	DATE	DESCRIPTION



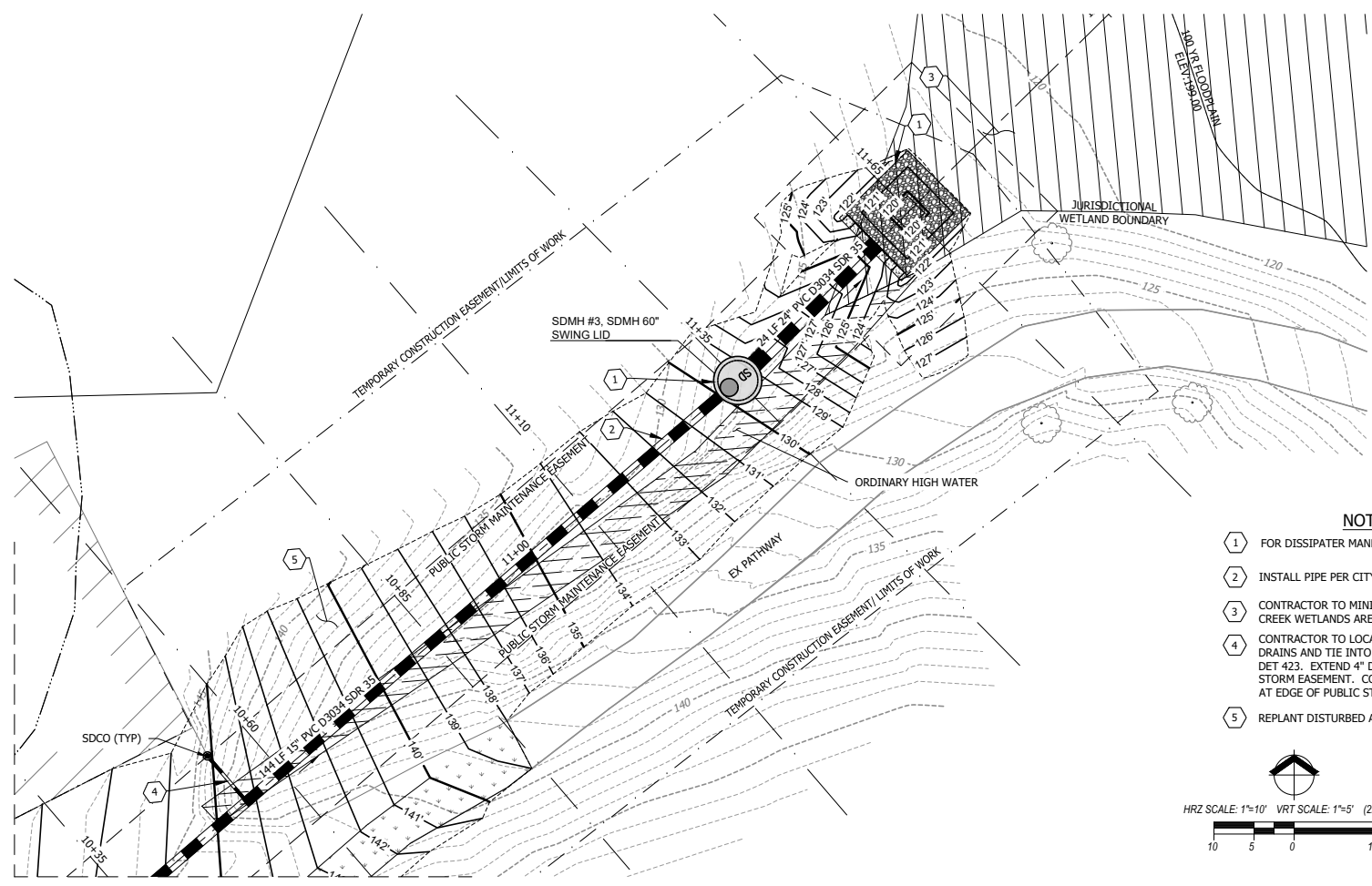
**STORM DRAIN IMPROVEMENTS  
WYNOOSKI OUTFALL REDESIGN  
CITY OF NEWBERG  
NEWBERG, OR**

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

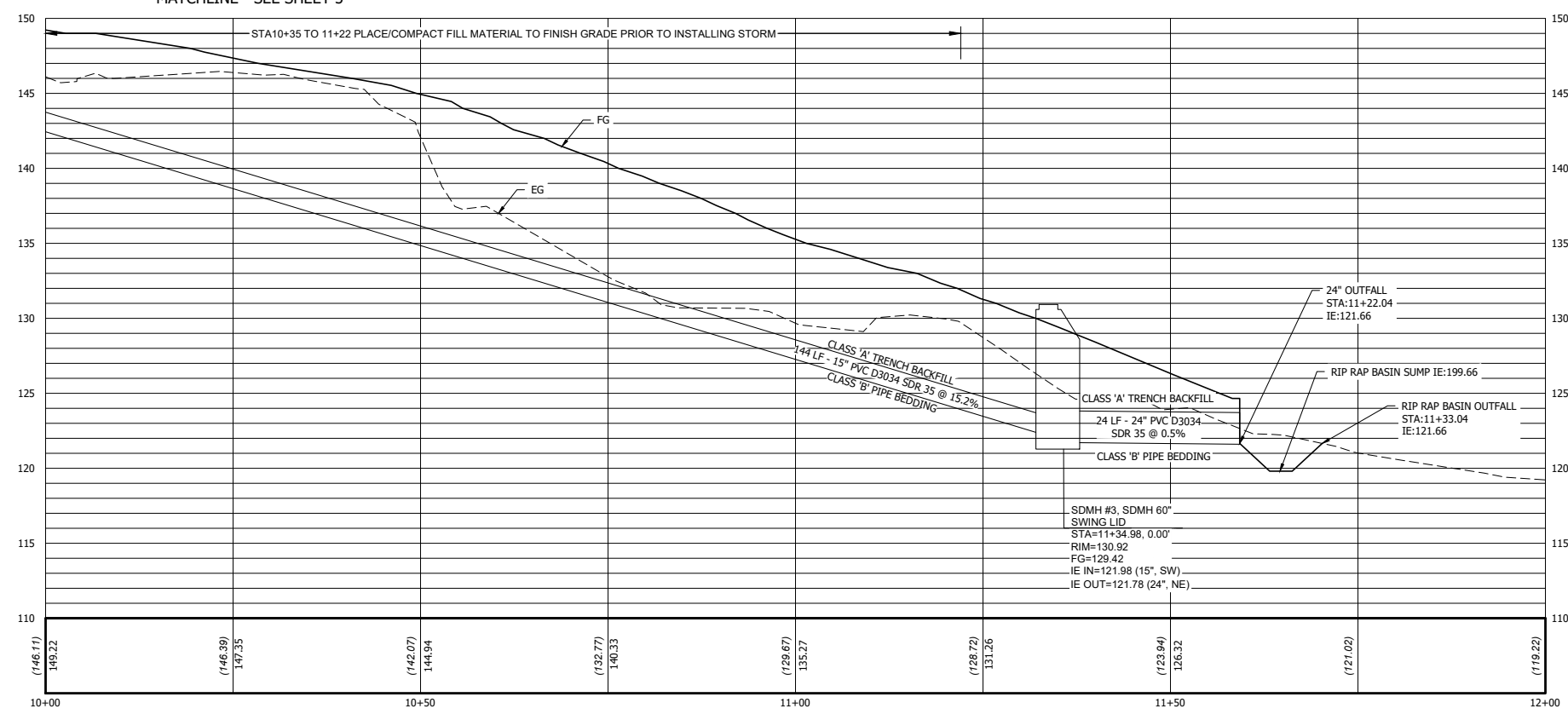
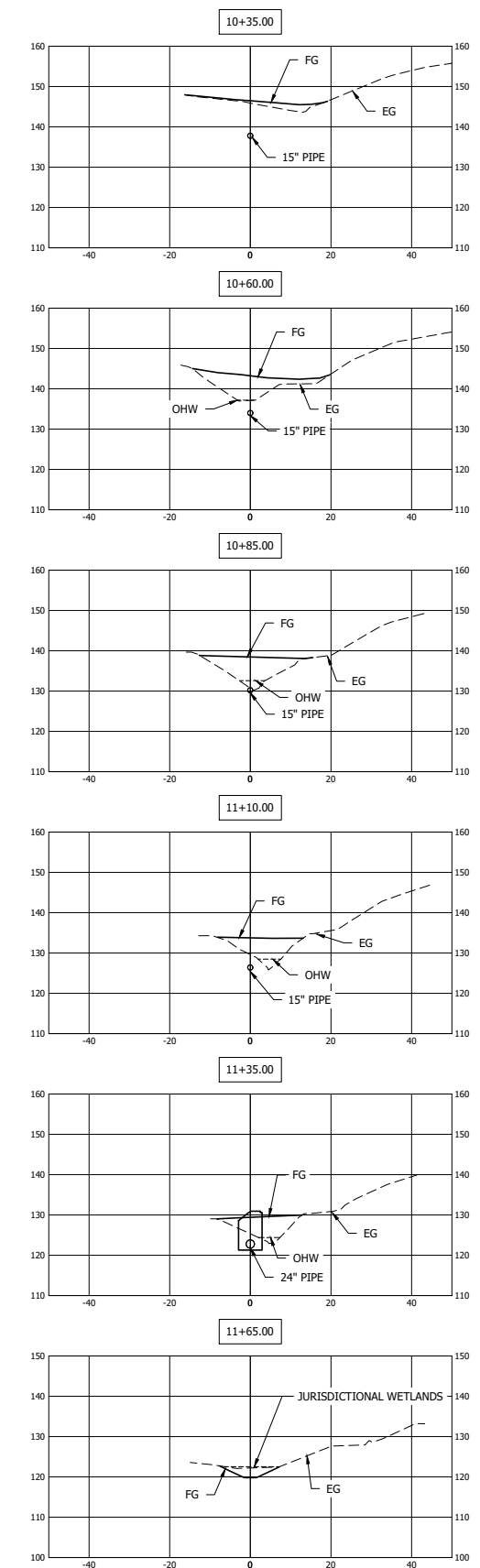
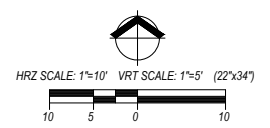
DATE | 9/28/2022  
DRAWN | ARB  
DESIGNED | JH  
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- NOTES**
- 1 FOR DISSIPATER MANHOLE AND RIPRAP BASIN, SEE SHEET #11.
  - 2 INSTALL PIPE PER CITY OF NEWBERG STD DET 110.
  - 3 CONTRACTOR TO MINIMIZE DISTURBANCE TO EXISTING HESS CREEK WETLANDS AREAS.
  - 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.



#	DATE	DESCRIPTION



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

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ENGINEERS

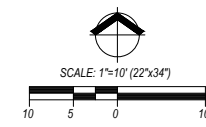
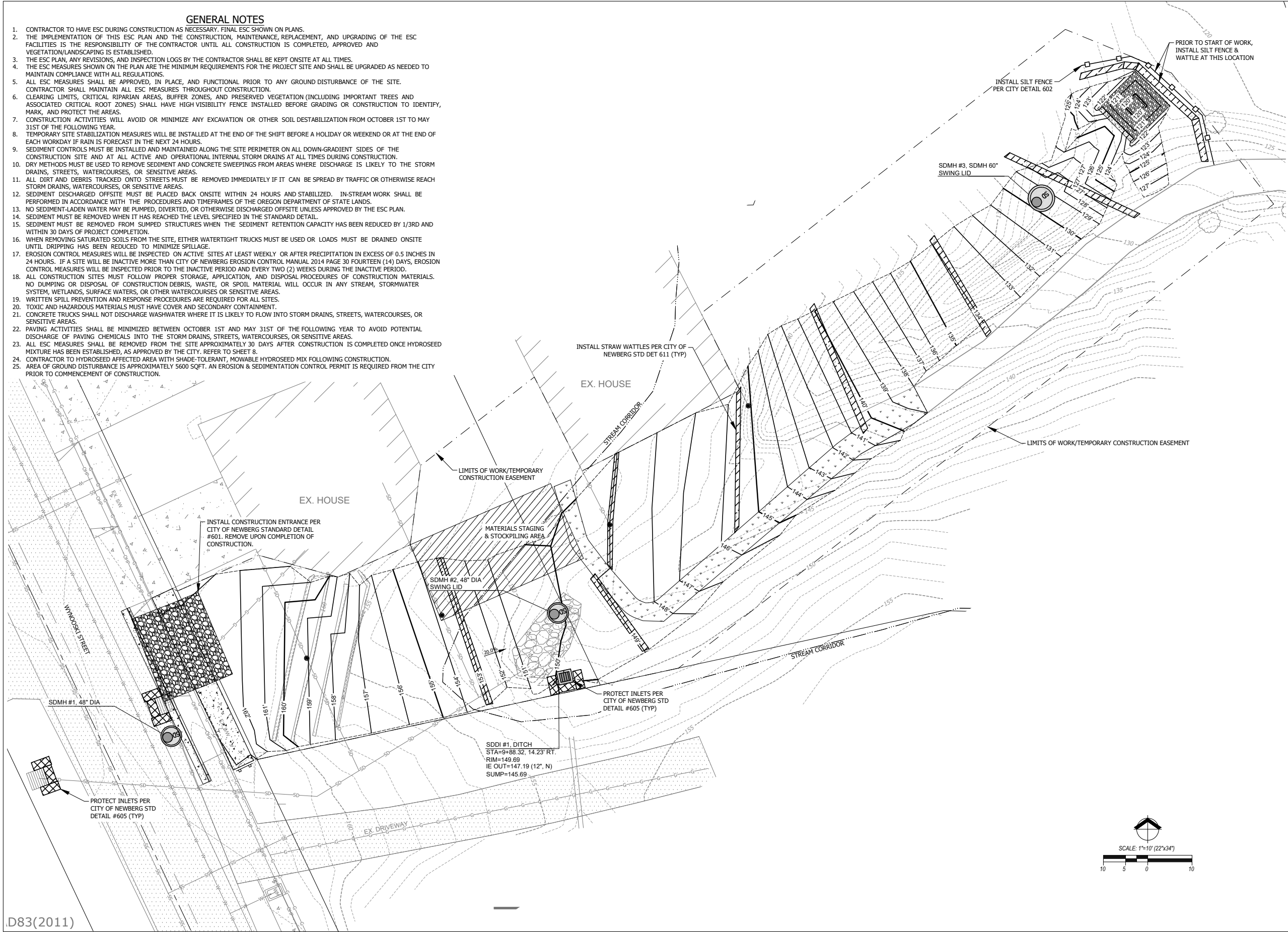
501 E First Street  
Newberg, Oregon 97132  
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email: mail@hbh-consulting.com

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DESIGNED	JH
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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 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 SPILL 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.



#	DATE	DESCRIPTION



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

**H B H**  
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**ENGINEERS**

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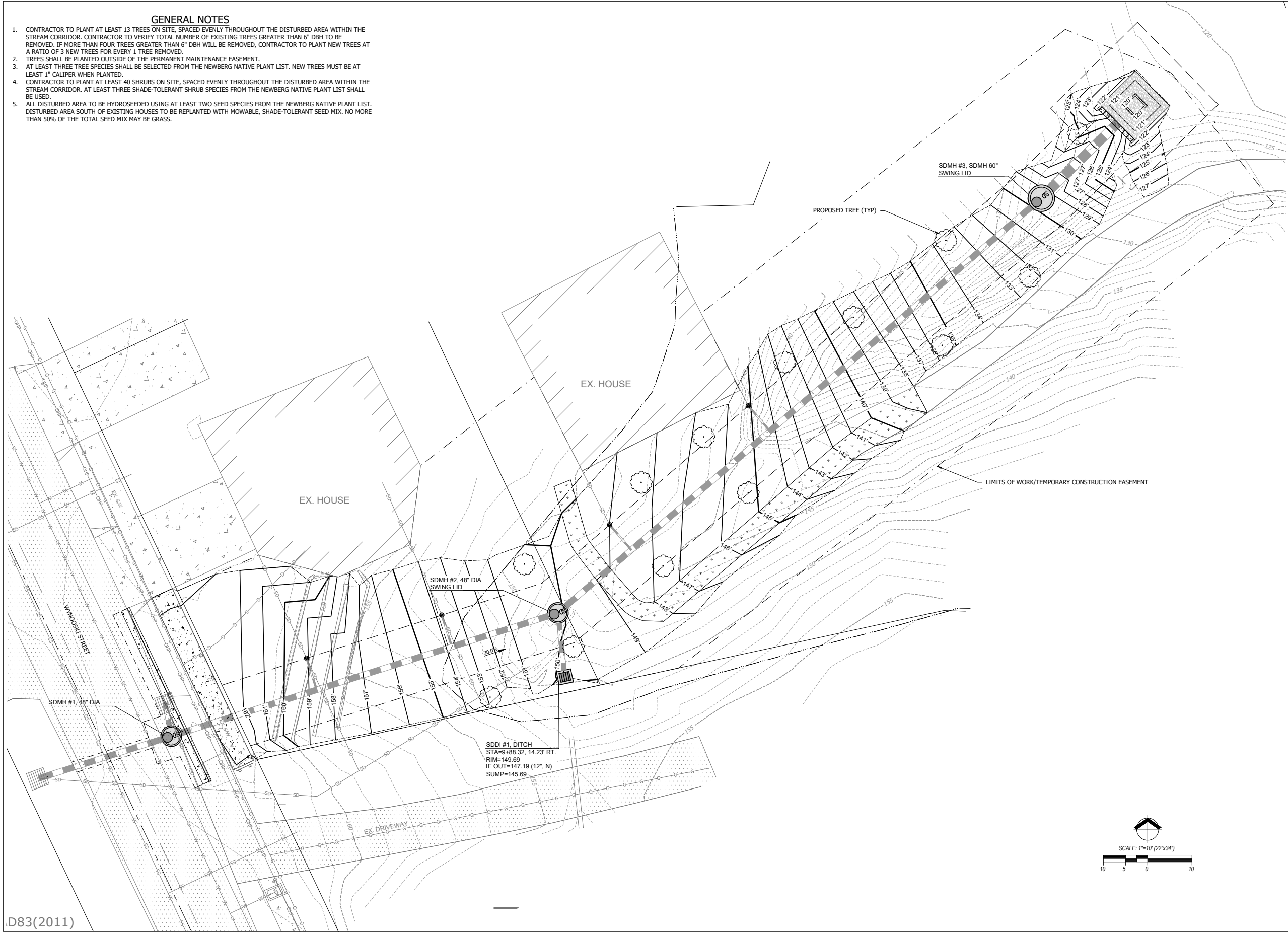
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CHECKED | ARC

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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 HYDROSEEDING 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.



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 D83(2011)

#	DATE	DESCRIPTION

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

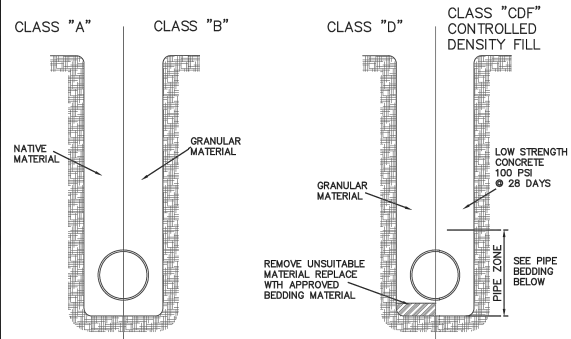
**NOTES:**

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.

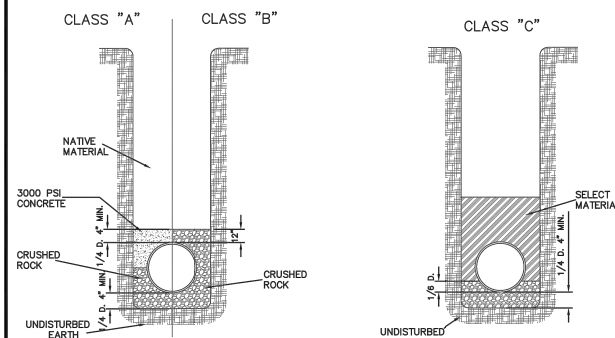
TABLE 1 : MINIMUM COVER		TABLE 2: PIPE COVER	
TYPE	COVER (in./ft.)	TYPE OF PIPE	COVER (in./ft.)
WATER	36 (in.)	PVC C900	24
STORM	48 (in.)	PVC 3034 SDR35	36
SEWER	8 (ft.)	DUCTILE IRON	18
		*RCP CLASS II	30
		*RCP CLASS IV	24
		*RCP CLASS V	18

\* WHEN APPROVED

**201A TRENCH BACKFILL**

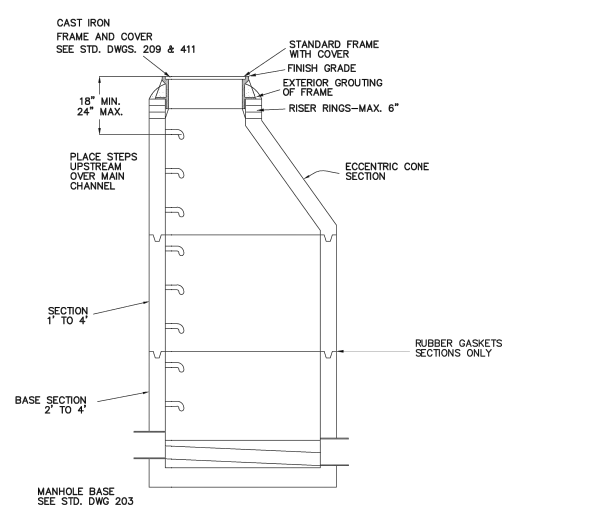


**201B PIPE BEDDING**



**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 manhole.
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.

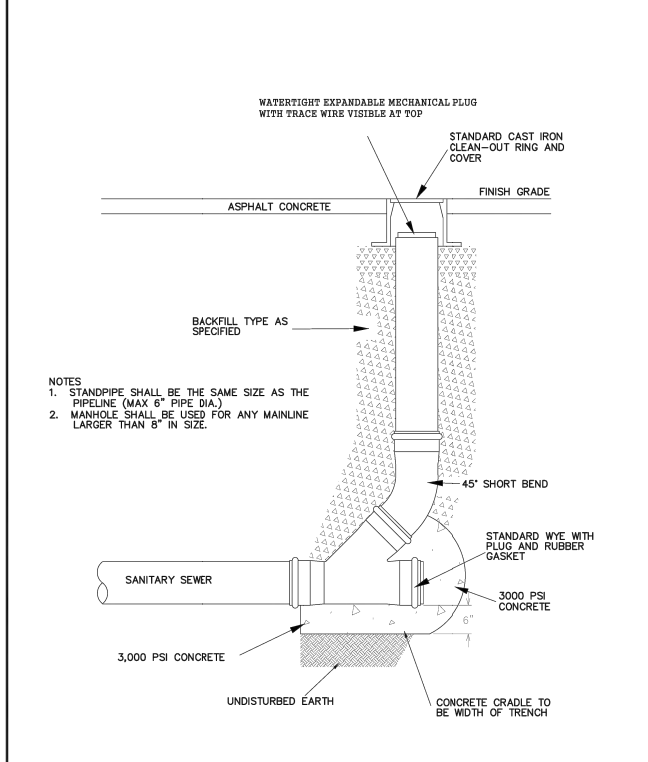


City of Newberg logo and title block for **PIPE COVER**. Includes revision table, date (01/24/2014), approved by (JAY H.), and drawing number **110**.

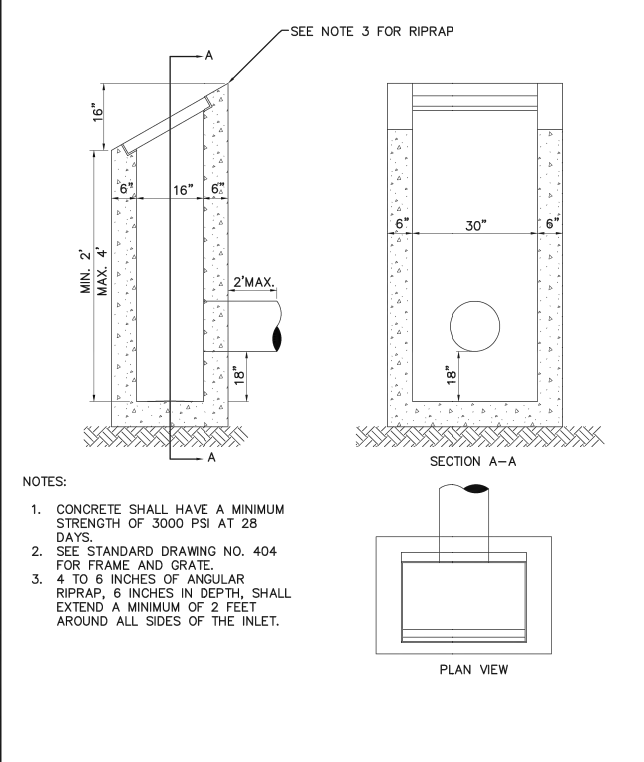
City of Newberg logo and title block for **TRENCH BACKFILL**. Includes revision table, date (MAY 2007), approved by (D. DANCI), and drawing number **201A**.

City of Newberg logo and title block for **PIPE BEDDING**. Includes revision table, date (MAY 2007), approved by (D. DANCI), and drawing number **201B**.

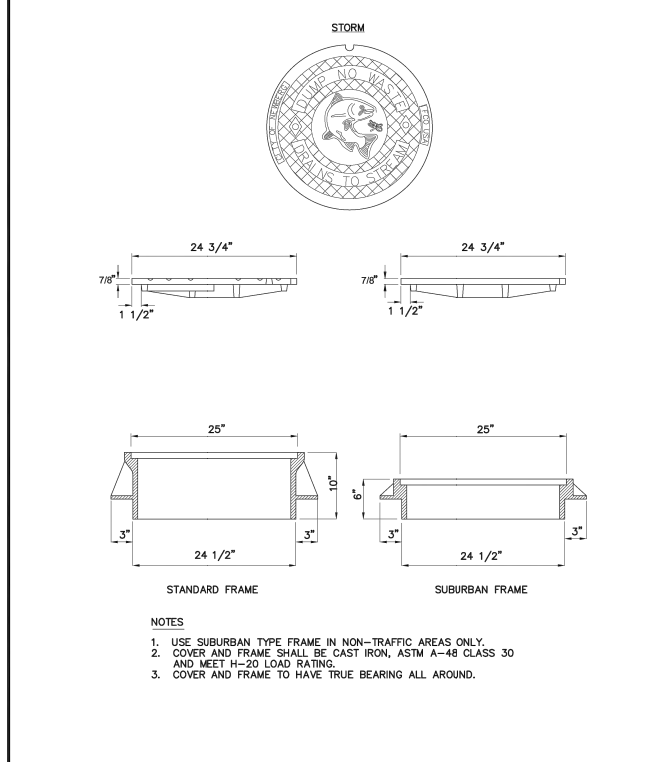
City of Newberg logo and title block for **48" STANDARD MANHOLE**. Includes revision table, date (12/28/12), approved by (K. Hofmann), and drawing number **204**.



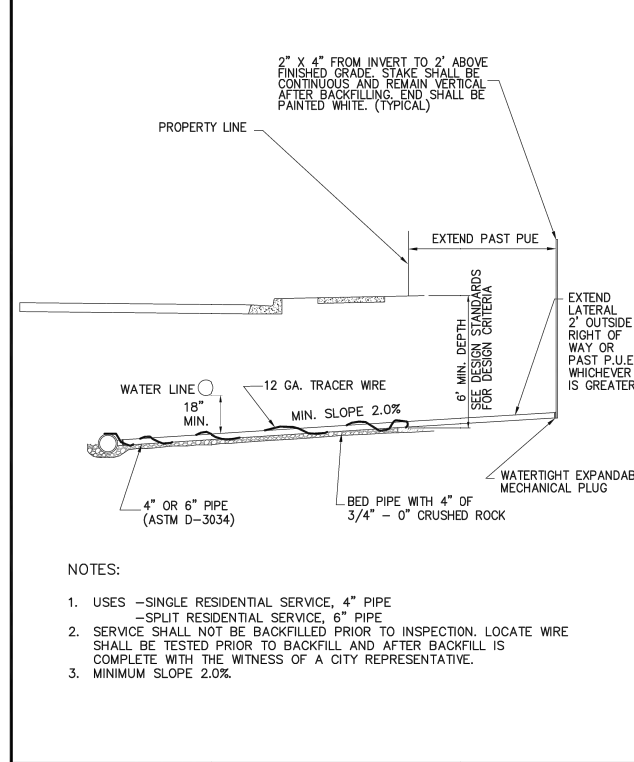
City of Newberg logo and title block for **CLEAN OUT**. Includes revision table, date (05/04/2015), approved by (ASH), and drawing number **210**.



City of Newberg logo and title block for **DITCH INLET**. Includes revision table, date (MARCH 2014), approved by (J. HARRIS), and drawing number **403**.



City of Newberg logo and title block for **STORM WATER MANHOLE FRAME AND COVER**. Includes revision table, date (MARCH 2014), approved by (J. HARRIS), and drawing number **411**.



City of Newberg logo and title block for **STORM SEWER SERVICE BRANCH**. Includes revision table, date (FEB 2014), approved by (K. Hofmann), and drawing number **423**.

#	DATE	DESCRIPTION



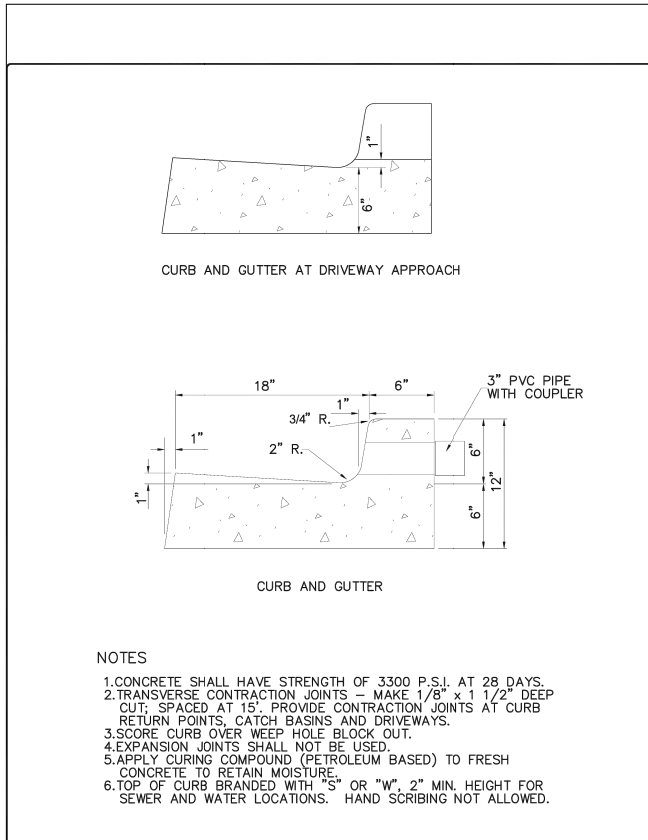
**CITY OF NEWBERG STANDARD DETAILS**  
**WYNOOSKI OUTFALL REDESIGN**  
**CITY OF NEWBERG**  
**NEWBERG, OR**

**H B H**  
**CONSULTING**  
**ENGINEERS**

501 E First Street  
 Newberg, Oregon 97132  
 503/534-9553 fax 503/537-9554  
 email: mail@hbh-consulting.com

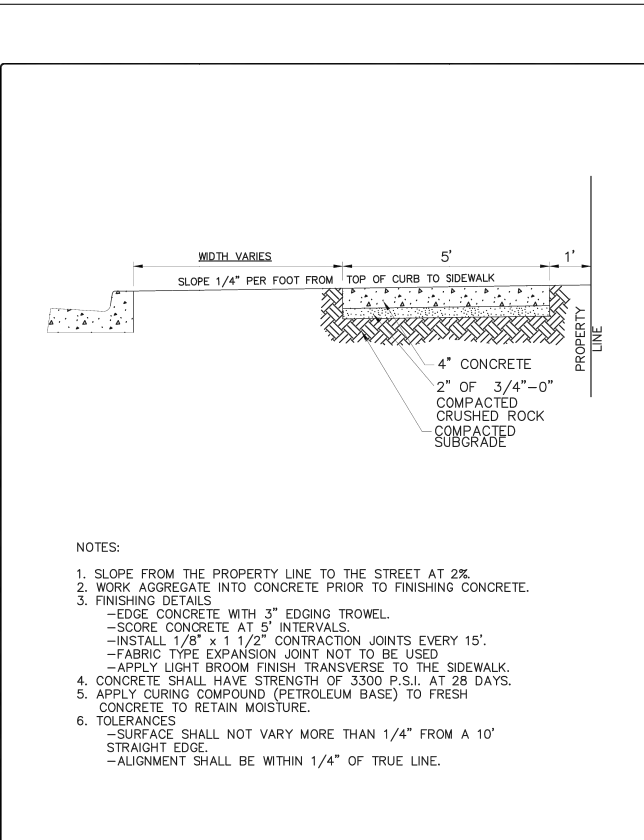
DATE	9/28/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC
SHEET NUMBER	9 OF 11





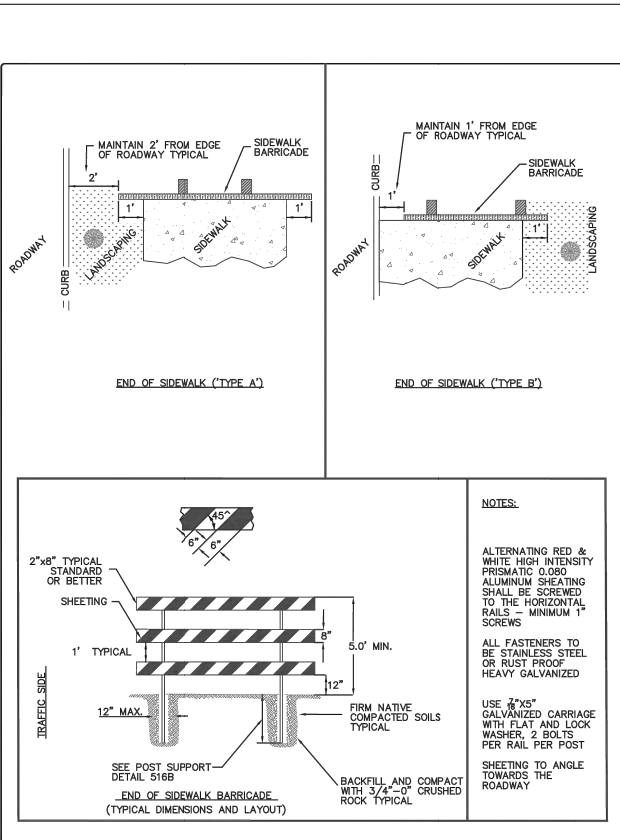
**NOTES**

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.



**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.



**NOTES:**

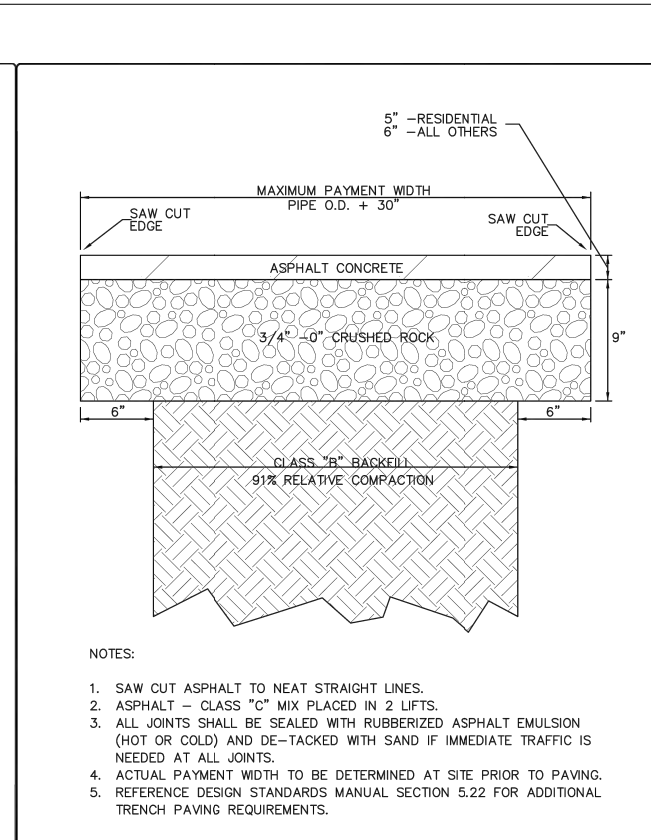
ALTERNATING RED & WHITE HIGH INTENSITY PRISMATIC 0.080 ALUMINUM SHEATHING SHALL BE SCREWED TO THE HORIZONTAL RAILS - MINIMUM 1" SCREWS

ALL FASTENERS TO BE STAINLESS STEEL OR RUST PROOF HEAVY GALVANIZED

USE 2"X8" GALVANIZED CARRIAGE WITH FLAT AND LOCK WASHER, 2 BOLTS PER RAIL PER POST

SHEETINGS TO ANGLE TOWARDS THE ROADWAY

BACKFILL AND COMPACT WITH 3/4"-0" CRUSHED ROCK TYPICAL



**NOTES:**

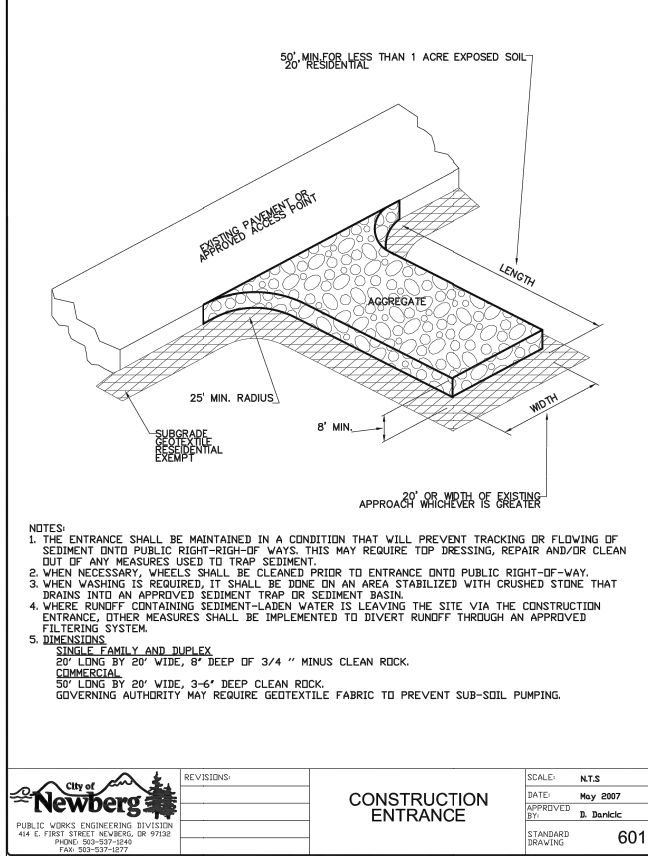
1. SAW CUT ASPHALT TO NEAT STRAIGHT LINES.
2. ASPHALT - CLASS "C" MIX PLACED IN 2 LIFTS.
3. ALL JOINTS SHALL BE SEALED WITH RUBBERIZED ASPHALT EMULSION (HOT OR COLD) AND DE-TACKED WITH SAND IF IMMEDIATE TRAFFIC IS NEEDED AT ALL JOINTS.
4. ACTUAL PAYMENT WIDTH TO BE DETERMINED AT SITE PRIOR TO PAVING.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

City of Newberg	REVISIONS: 05/05/2015 - ASH	SCALE: N.T.S.	DATE: May 2015	APPROVED BY: K. Hofmann	STANDARD DRAWING: 501
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City of Newberg	REVISIONS: 05/05/2015 - ASH	SCALE: N.T.S.	DATE: May 2015	APPROVED BY: K. Hofmann	STANDARD DRAWING: 503
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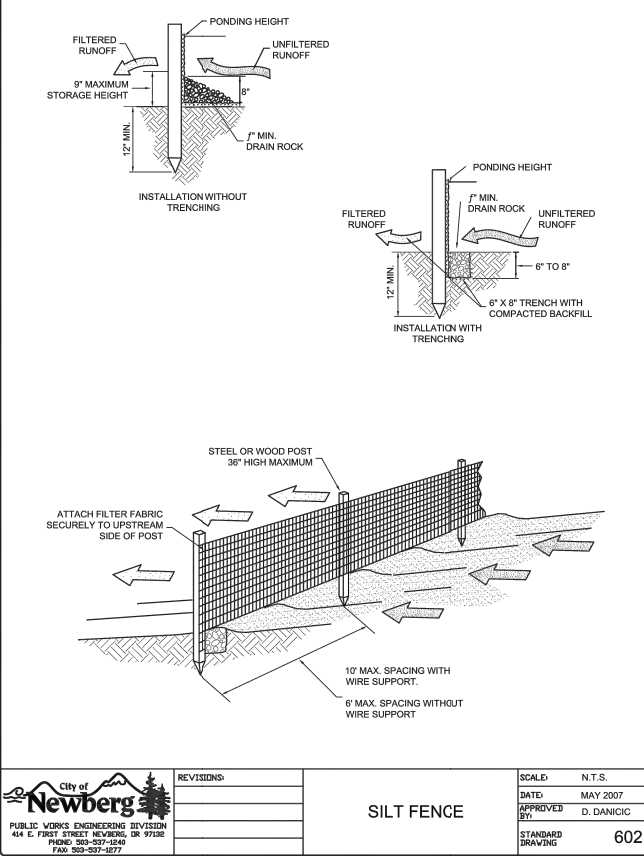
City of Newberg	REVISIONS: 05/07/2015 - ASH	SCALE: N.T.S.	DATE: May 2014	APPROVED BY: J. HARRIS	STANDARD DRAWING: 516C
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City of Newberg	REVISIONS: 05/07/2015 - ASH	SCALE: N.T.S.	DATE: May 2015	APPROVED BY: K. Hofmann	STANDARD DRAWING: 517
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**NOTES:**

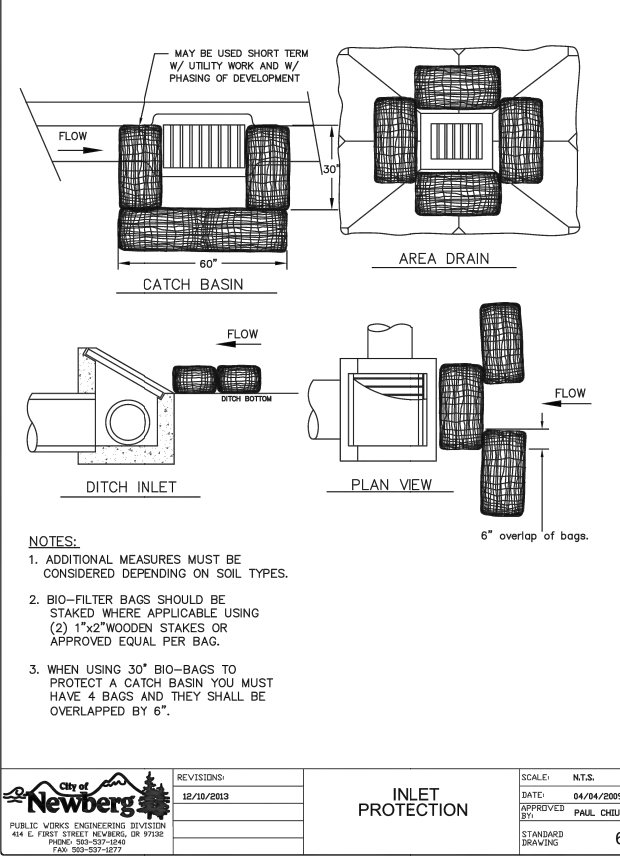
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
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: 50' 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.



ATTACH FILTER FABRIC SECURELY TO UPSTREAM SIDE OF POST

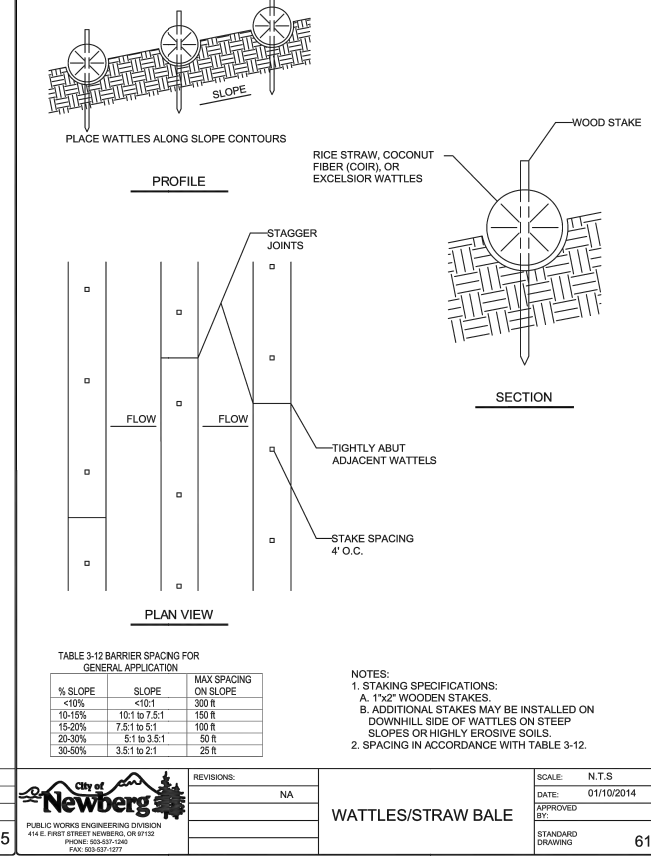
10' MAX. SPACING WITH WIRE SUPPORT

6' MAX. SPACING WITHOUT WIRE SUPPORT



**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".



% 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 ERODIBLE SOILS.
2. SPACING IN ACCORDANCE WITH TABLE 3-12.

City of Newberg	REVISIONS: 05/08/2015 - ASH	SCALE: N.T.S.	DATE: May 2007	APPROVED BY: B. Danicic	STANDARD DRAWING: 601
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City of Newberg	REVISIONS: 12/18/2013	SCALE: N.T.S.	DATE: MAY 2007	APPROVED BY: D. DANICIC	STANDARD DRAWING: 602
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City of Newberg	REVISIONS: 04/04/2009	SCALE: N.T.S.	DATE: 04/04/2009	APPROVED BY: PAUL CHIU	STANDARD DRAWING: 605
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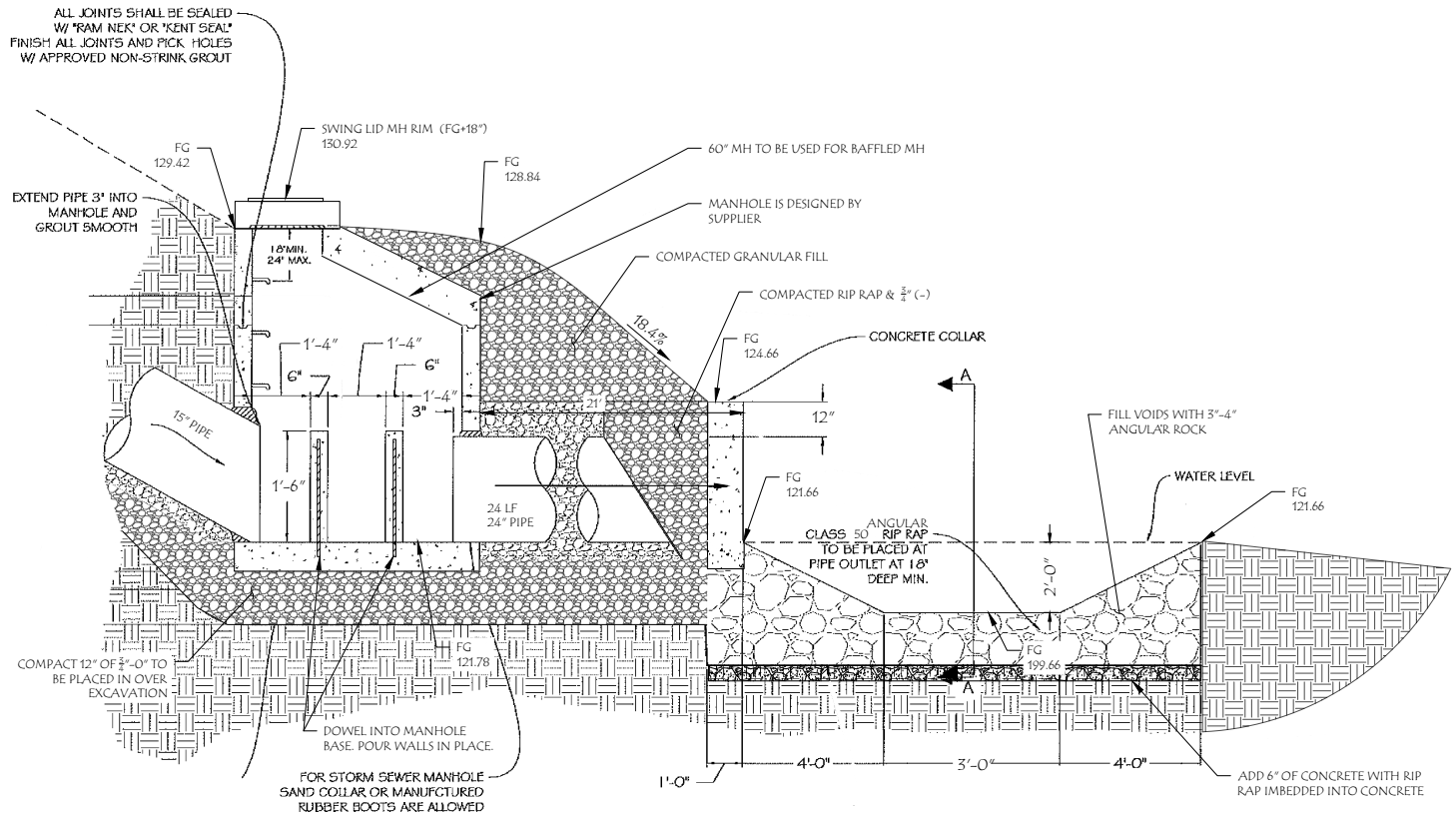
City of Newberg	REVISIONS: NA	SCALE: N.T.S.	DATE: 01/10/2014	APPROVED BY:	STANDARD DRAWING: 611
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REGISTRED PROFESSIONAL ENGINEER  
78407E  
ANDREW H. CHENWISKEY  
OCECON  
MARCH 09, 2010  
EXPIRES 12/31/2021

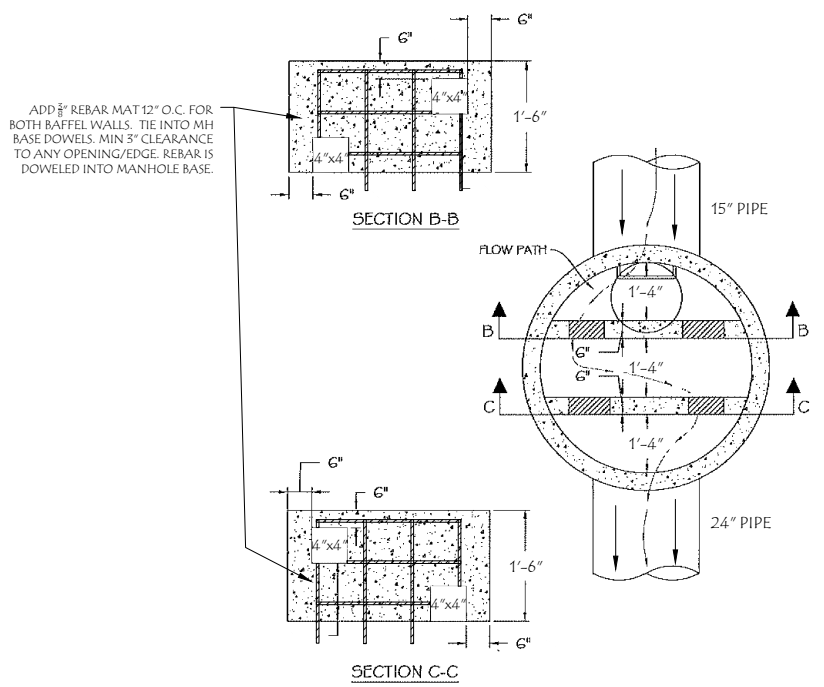
CITY OF NEWBERG STANDARD DETAILS  
WYNOOSKI OUTFALL REDESIGN  
CITY OF NEWBERG  
NEWBERG, OR

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



DISSIPATER MANHOLE  
(NTS)

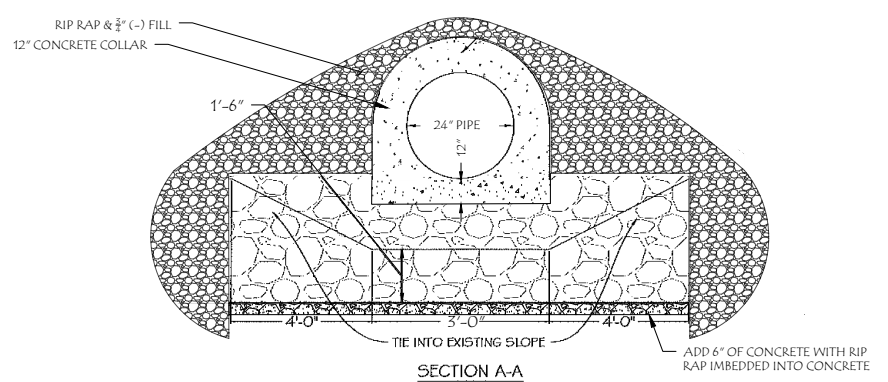


60" DISSIPATER MANHOLE DETAILS  
(NTS)

- 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 DIMENSIONS SHOWN ON APPROVED PLANS
  - INSTALL 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%



PIPE OUTLET DETAILS  
(NTS)

#	DATE	DESCRIPTION

REGISTERED PROFESSIONAL  
ENGINEER  
76807E

OREGON  
MARCH 09, 2010

ANDREW H. CHENWISKEY

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-engineers.com

DATE	9/28/2022
DRAWN	ARB
DESIGNED	JH
CHECKED	ARC
SHEET NUMBER	11 OF 11



## Community Development Department

P.O. Box 970 ▪ 414 E First Street ▪ Newberg, Oregon 97132

503-537-1240. Fax 503-537-1272 [www.newbergoregon.gov](http://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  
City of Newberg **your project at the time of application**)  
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.

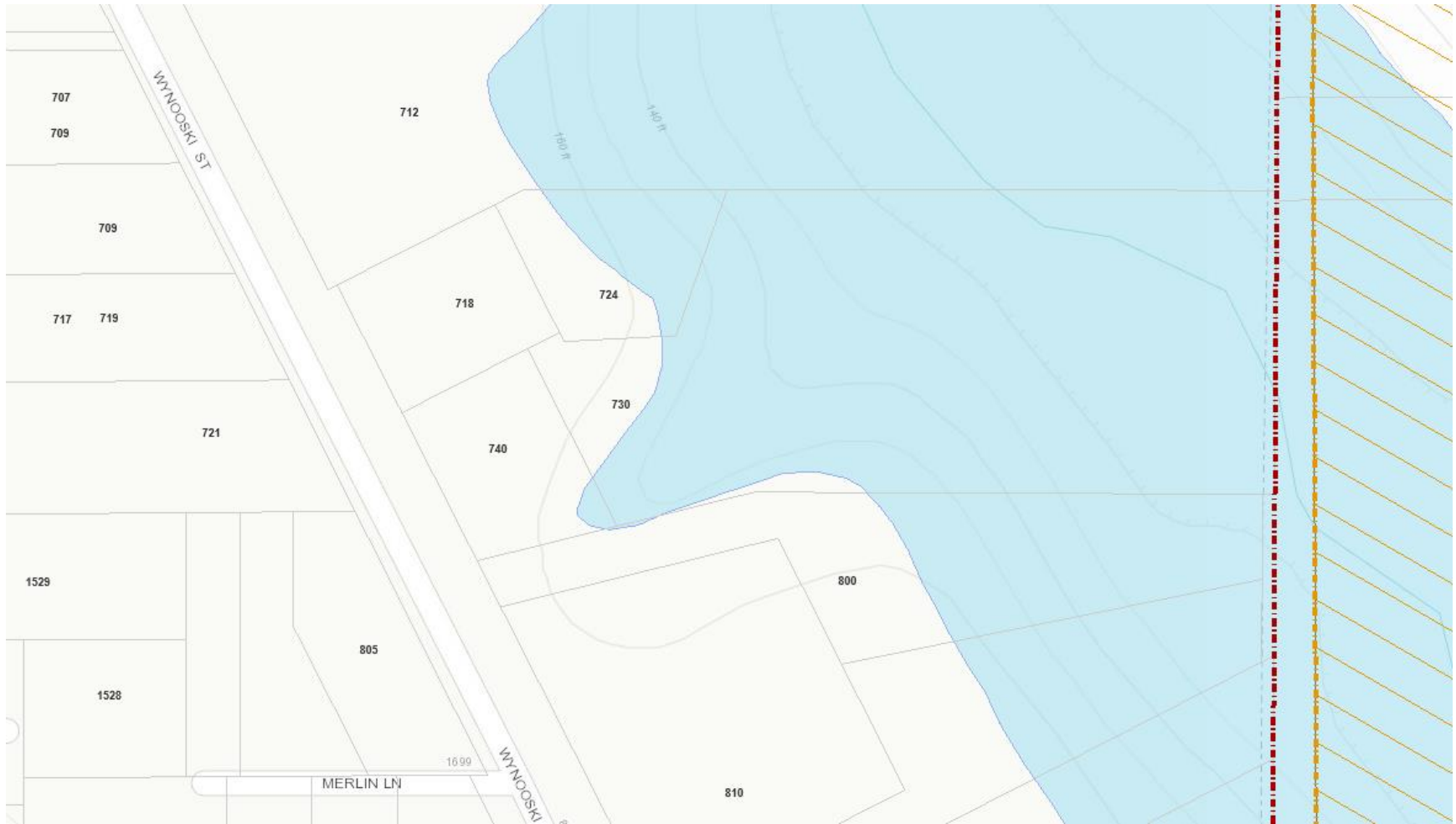
All written comments must be turned in by 4:30 p.m. on **enter date two weeks from date you mailed notice.** Any issue which might be raised in an appeal of this case to the Land Use Board of Appeals (LUBA) must be submitted to the City in writing before this date. You must include enough detail to enable 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**







# 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				RDV 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	ROSENBUURY JOSYNDRA 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	MIRAMONTE'S 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 MELUSSA 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	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™**

**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*<sup>™</sup>

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.

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

Until a change is requested all tax statements  
shall be sent to the following address:



\$26.00

SAME AS ABOVE

DMR-DDMR Cnt=1 Stn=2 ANITA

12/17/2004 03:55:56 PM

\*\*\*\*\* \$5.00 \$10.00 \$11.00 \*\*\*\*\*

**STATUTORY WARRANTY DEED**

MWT-82972

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 within 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 Gould*  
\_\_\_\_\_  
FELICIA GOULD

STATE OF OREGON, COUNTY OF YAMHILL )ss.

The foregoing instrument was acknowledged before me this 15<sup>th</sup> day of December, 2004 by JERRY GOULD and FELICIA GOULD



*Janet L. Winder*  
\_\_\_\_\_  
Notary Public for Oregon  
My Commission Expires: 5/6/05



**First American Title™**

**First American Title Insurance Company**

775 NE Evans Street  
McMinnville, OR 97128  
Phn - (503)376-7363  
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**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.





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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.



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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.

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.



Before me:  
Susan L. Crawford  
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  
02/04/2002 01:50:21 PM  
DMR-DDMR Cnt=1 Stn=2 ANITA  
\$5.00 \$10.00 \$11.00

## **Attachment 2: Agency Comments**





COMMUNITY DEVELOPMENT  
LAND USE APPLICATION REFERRAL

*Brooks Bateman*

The enclosed material has been referred to you for your information and comment. Any comments you wish to make should be returned to the Community Development Department prior to: April 28, 2023  
Please refer questions and comments to: Clay Downing

**NOTE: Full size plans are available at the Community Development Department Office.**

**APPLICANT:** City of Newberg Engineering/ Fatin Abdullah  
**REQUEST:** Wynooski Stormwater Outfall Replacement  
**SITE ADDRESS:** 730/740 Wynooski St  
**LOCATION:** N/A  
**TAX LOT:** R3220CA 00700  
**FILE NO:** MISC223-0001  
**ZONE:** R-2(Residential Medium Density Zoning)  
**HEARING DATE:** N/A



Project Information can be found on the linked page below:  
<https://www.newbergoregon.gov/planning/page/misc223-0001-s-wynooski-stormwater-outfall-replacement>

- Reviewed, no conflict.
- Reviewed; recommend denial for the following reasons:
- Require additional information to review. (Please list information required)
- Meeting requested.
- Comments. (Attach additional pages as needed)

*Brooks Bateman*  
\_\_\_\_\_  
Reviewed By:

4.20.23  
Date:

BUILDING  
\_\_\_\_\_  
Organization:



# COMMUNITY DEVELOPMENT LAND USE APPLICATION REFERRAL

The enclosed material has been referred to you for your information and comment. Any comments you wish to make should be returned to the Community Development Department prior to: April 28, 2023  
Please refer questions and comments to: Clay Downing

**NOTE: Full size plans are available at the Community Development Department Office.**

**APPLICANT:** City of Newberg Engineering/ Fatin Abdullah  
**REQUEST:** Wynooski Stormwater Outfall Replacement  
**SITE ADDRESS:** 730/740 Wynooski St  
**LOCATION:** N/A  
**TAX LOT:** R3220CA 00700  
**FILE NO:** MISC223-0001  
**ZONE:** R-2(Residential Medium Density Zoning)  
**HEARING DATE:** N/A

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Project Information can be found on the linked page below:  
<https://www.newbergoregon.gov/planning/page/misc223-0001-s-wynooski-stormwater-outfall-replacement>

---

- Reviewed, no conflict.
- Reviewed; recommend denial for the following reasons:
- Require additional information to review. (Please list information required)
- Meeting requested.
- Comments. (Attach additional pages as needed)

---

Reviewed By:

---

Date:

---

Organization:



# COMMUNITY DEVELOPMENT LAND USE APPLICATION REFERRAL

*Doug Rux*

The enclosed material has been referred to you for your information and comment. Any comments you wish to make should be returned to the Community Development Department prior to: April 28, 2023  
Please refer questions and comments to: Clay Downing

**NOTE: Full size plans are available at the Community Development Department Office.**

**APPLICANT:** City of Newberg Engineering/ Fatin Abdullah  
**REQUEST:** Wynooski Stormwater Outfall Replacement  
**SITE ADDRESS:** 730/740 Wynooski St  
**LOCATION:** N/A  
**TAX LOT:** R3220CA 00700  
**FILE NO:** MISC223-0001  
**ZONE:** R-2(Residential Medium Density Zoning)  
**HEARING DATE:** N/A



Project Information can be found on the linked page below:  
<https://www.newbergoregon.gov/planning/page/misc223-0001-s-wynooski-stormwater-outfall-replacement>

- Reviewed, no conflict.
- Reviewed; recommend denial for the following reasons:
- Require additional information to review. (Please list information required)
- Meeting requested.
- Comments. (Attach additional pages as needed)

*Doug Rux*  
Reviewed By:

*5/2/23*  
Date:

*City of Newberg*  
Organization:





# COMMUNITY DEVELOPMENT LAND USE APPLICATION REFERRAL

The enclosed material has been referred to you for your information and comment. Any comments you wish to make should be returned to the Community Development Department prior to: April 28, 2023  
Please refer questions and comments to: Clay Downing

**NOTE: Full size plans are available at the Community Development Department Office.**

**APPLICANT:** City of Newberg Engineering/ Fatin Abdullah  
**REQUEST:** Wyooski Stormwater Outfall Replacement  
**SITE ADDRESS:** 730/740 Wyooski St  
**LOCATION:** N/A  
**TAX LOT:** R3220CA 00700  
**FILE NO:** MISC223-0001  
**ZONE:** R-2(Residential Medium Density Zoning)  
**HEARING DATE:** N/A



Project Information can be found on the linked page below:  
<https://www.newbergoregon.gov/planning/page/misc223-0001-s-wyooski-stormwater-outfall-replacement>

- Reviewed, no conflict.
- Reviewed; recommend denial for the following reasons:
- Require additional information to review. (Please list information required)
- Meeting requested.
- Comments. (Attach additional pages as needed)

*Fatin Abdullah*  
Reviewed By:

4/27/23  
Date:

Finance  
Organization:





# COMMUNITY DEVELOPMENT LAND USE APPLICATION REFERRAL

The enclosed material has been referred to you for your information and comment. Any comments you wish to make should be returned to the Community Development Department prior to: April 28, 2023  
Please refer questions and comments to: Clay Downing

**NOTE: Full size plans are available at the Community Development Department Office.**

**APPLICANT:** City of Newberg Engineering/ Fatin Abdullah  
**REQUEST:** Wynooski Stormwater Outfall Replacement  
**SITE ADDRESS:** 730/740 Wynooski St  
**LOCATION:** N/A  
**TAX LOT:** R3220CA 00700  
**FILE NO:** MISC223-0001  
**ZONE:** R-2(Residential Medium Density Zoning)  
**HEARING DATE:** N/A



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Project Information can be found on the linked page below:  
<https://www.newbergoregon.gov/planning/page/misc223-0001-s-wynooski-stormwater-outfall-replacement>

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- Reviewed, no conflict.
- Reviewed; recommend denial for the following reasons:
- Require additional information to review. (Please list information required)
- Meeting requested.
- Comments. (Attach additional pages as needed)

\_\_\_\_\_  
Reviewed By:

\_\_\_\_\_  
Date:

\_\_\_\_\_  
Organization:



# COMMUNITY DEVELOPMENT LAND USE APPLICATION REFERRAL

The enclosed material has been referred to you for your information and comment. Any comments you wish to make should be returned to the Community Development Department prior to: April 28, 2023  
Please refer questions and comments to: Clay Downing

**NOTE: Full size plans are available at the Community Development Department Office.**

**APPLICANT:** City of Newberg Engineering/ Fatin Abdullah  
**REQUEST:** Wynooski Stormwater Outfall Replacement  
**SITE ADDRESS:** 730/740 Wynooski St  
**LOCATION:** N/A  
**TAX LOT:** R3220CA 00700  
**FILE NO:** MISC223-0001  
**ZONE:** R-2(Residential Medium Density Zoning)  
**HEARING DATE:** N/A



---

Project Information can be found on the linked page below:  
<https://www.newbergoregon.gov/planning/page/misc223-0001-s-wynooski-stormwater-outfall-replacement>

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- Require additional information to review. (Please list information required)
- Meeting requested.
- Comments. (Attach additional pages as needed)

\_\_\_\_\_  
Reviewed By:

\_\_\_\_\_  
Date:

\_\_\_\_\_  
Organization:



# COMMUNITY DEVELOPMENT LAND USE APPLICATION REFERRAL

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Please refer questions and comments to: Clay Downing

**NOTE: Full size plans are available at the Community Development Department Office.**

**APPLICANT:** City of Newberg Engineering/ Fatin Abdullah  
**REQUEST:** Wynooski Stormwater Outfall Replacement  
**SITE ADDRESS:** 730/740 Wynooski St  
**LOCATION:** N/A  
**TAX LOT:** R3220CA 00700  
**FILE NO:** MISC223-0001  
**ZONE:** R-2(Residential Medium Density Zoning)  
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Comments. (Attach additional pages as needed)

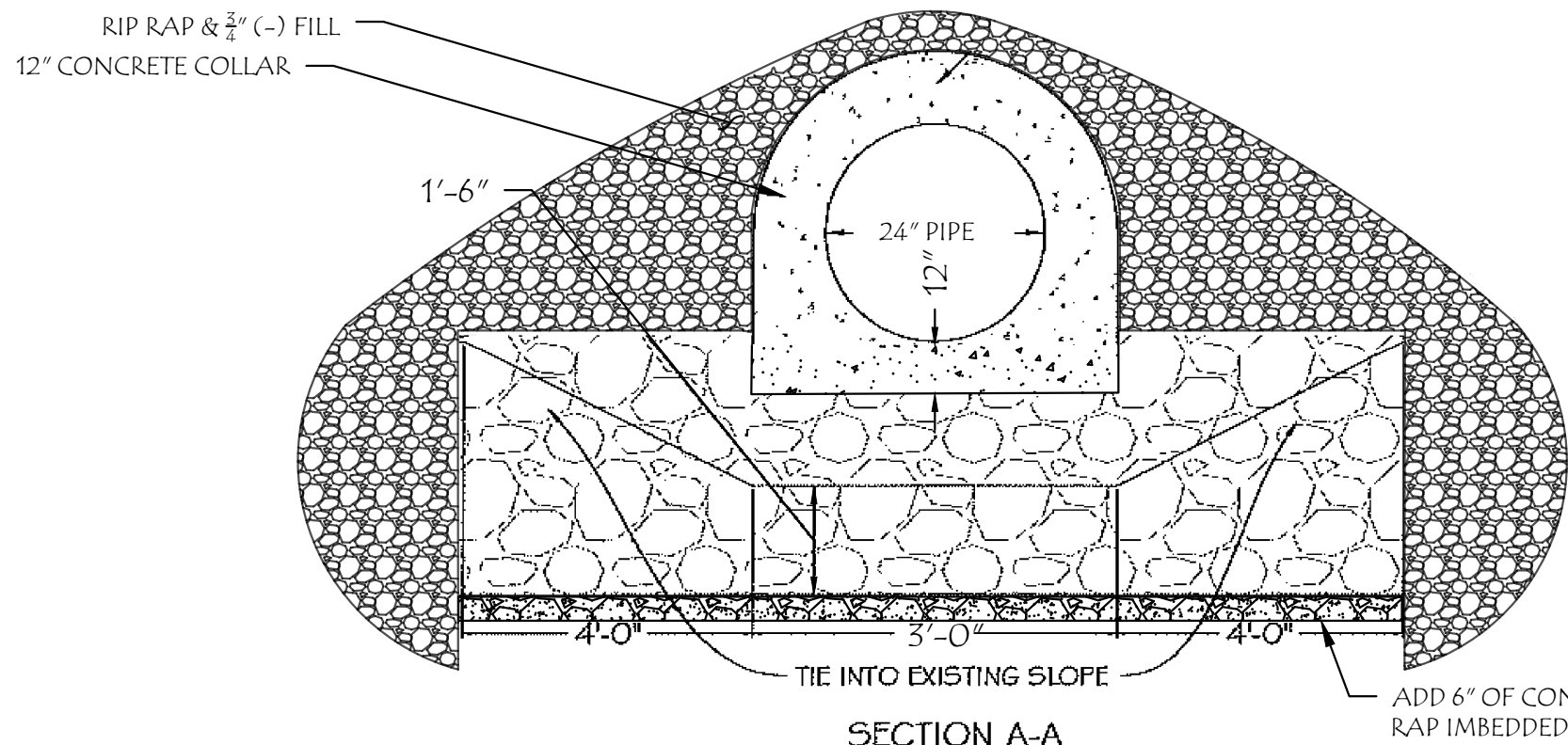
Carl and Myself request the alterations to be excepted.  
As the proposed system is externally maintenance unfriendly.

\_\_\_\_\_  
Reviewed By:

\_\_\_\_\_  
Date:

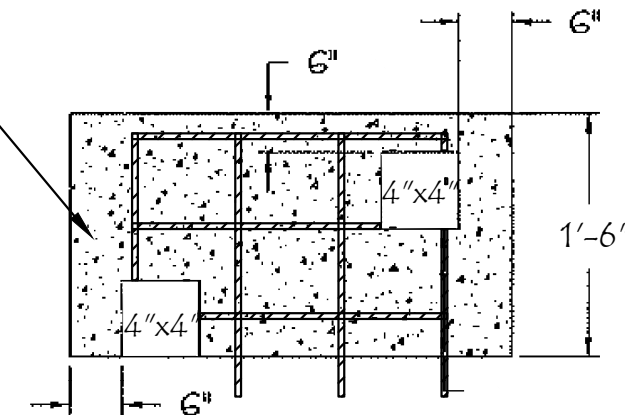
\_\_\_\_\_  
Organization:



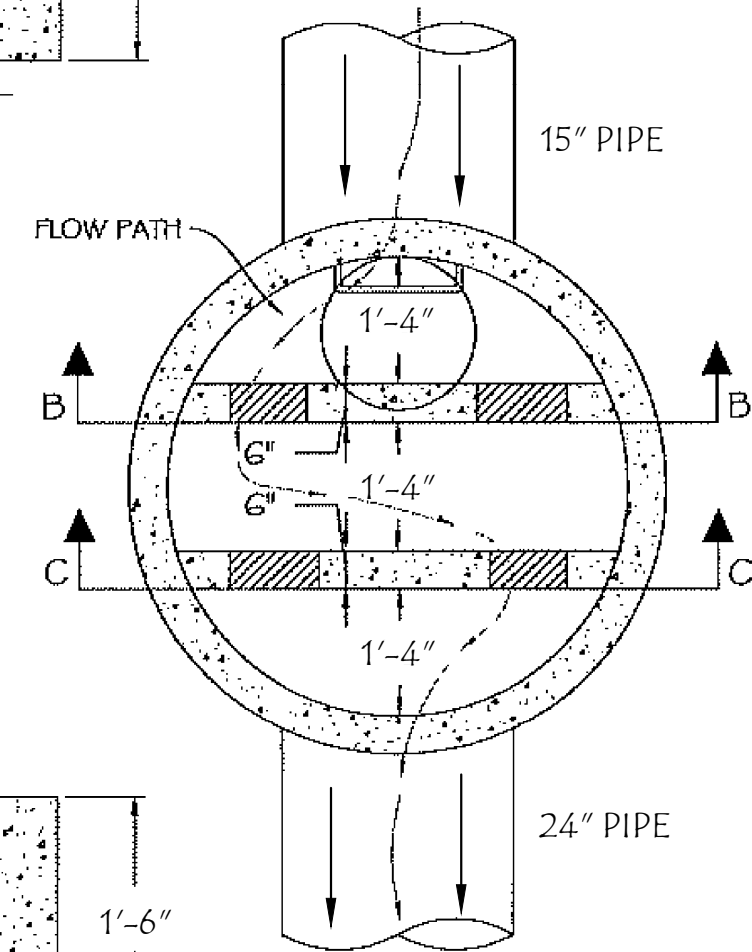


SECTION A-A  
PIPE OUTLET DETAILS  
(NTS)

ADD 3/8" REBAR MAT 12" O.C. FOR BOTH BAFFEL WALLS. TIE INTO MH BASE DOWELS. MIN 3" CLEARANCE TO ANY OPENING/EDGE. REBAR IS DOWELED INTO MANHOLE BASE.

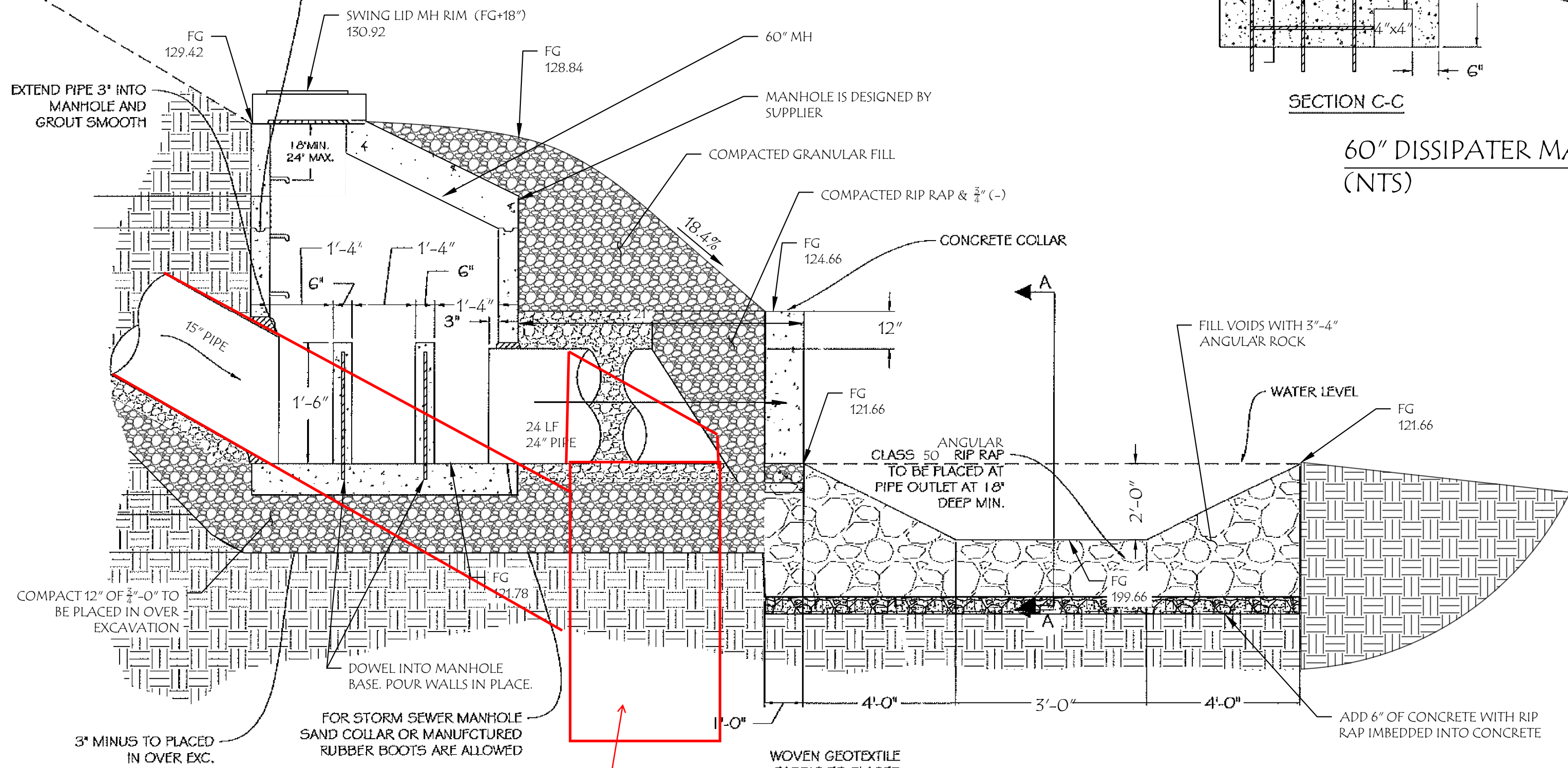


SECTION B-B



60" DISSIPATER MANHOLE DETAILS  
(NTS)

ALL JOINTS SHALL BE SEALED W/ 'RAM NEK' OR 'KENT SEAL' FINISH ALL JOINTS AND PICK HOLES W/ APPROVED NON-STRIK GROUT



DISSIPATER MANHOLE  
(NTS)

4 x 4 Catch basin  
two Hinged Grates

#	DATE	DESCRIPTION

DISSIPATER DETAILS  
**WYNOOSKI OUTFALL REDESIGN**  
CITY OF NEWBERG  
NEWBERG, OR

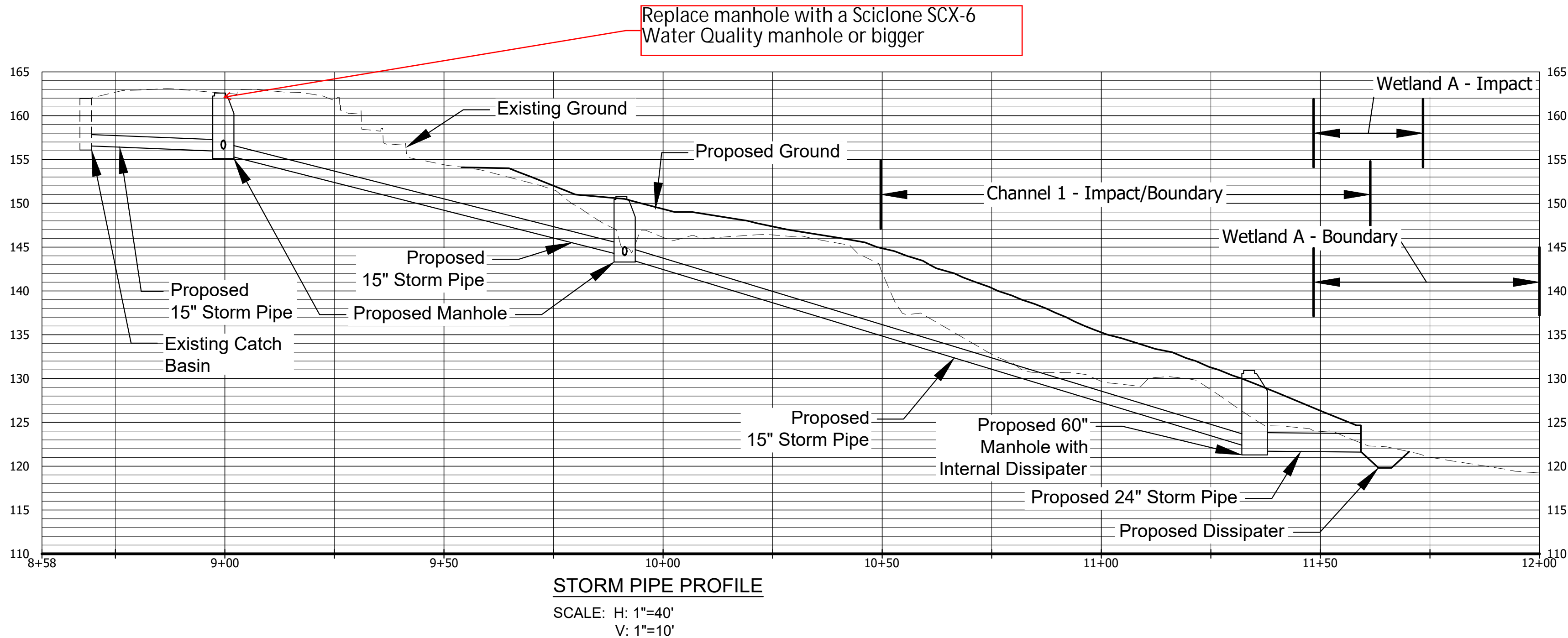
**H B H**  
CONSULTING  
ENGINEERS

501 E First Street  
Newberg, Oregon 97132  
503/554-9553 fax 503/537-9554  
email: mail@hbh-engineers.com

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

FIGURE NUMBER

F7A

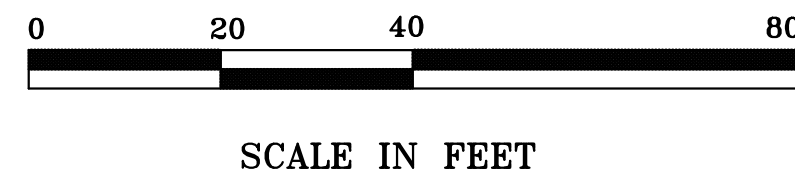


**IMPACTS:**

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

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

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



#	DATE	DESCRIPTION

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-engineers.com

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

FIGURE NUMBER  
**F5A**

Plot Stamp: 12/27/2022 2:25:12 PM - Devin  
File: L:\2019\154-Design\DWG2\_JPA Figures\Fig5A\_Profile.dwg

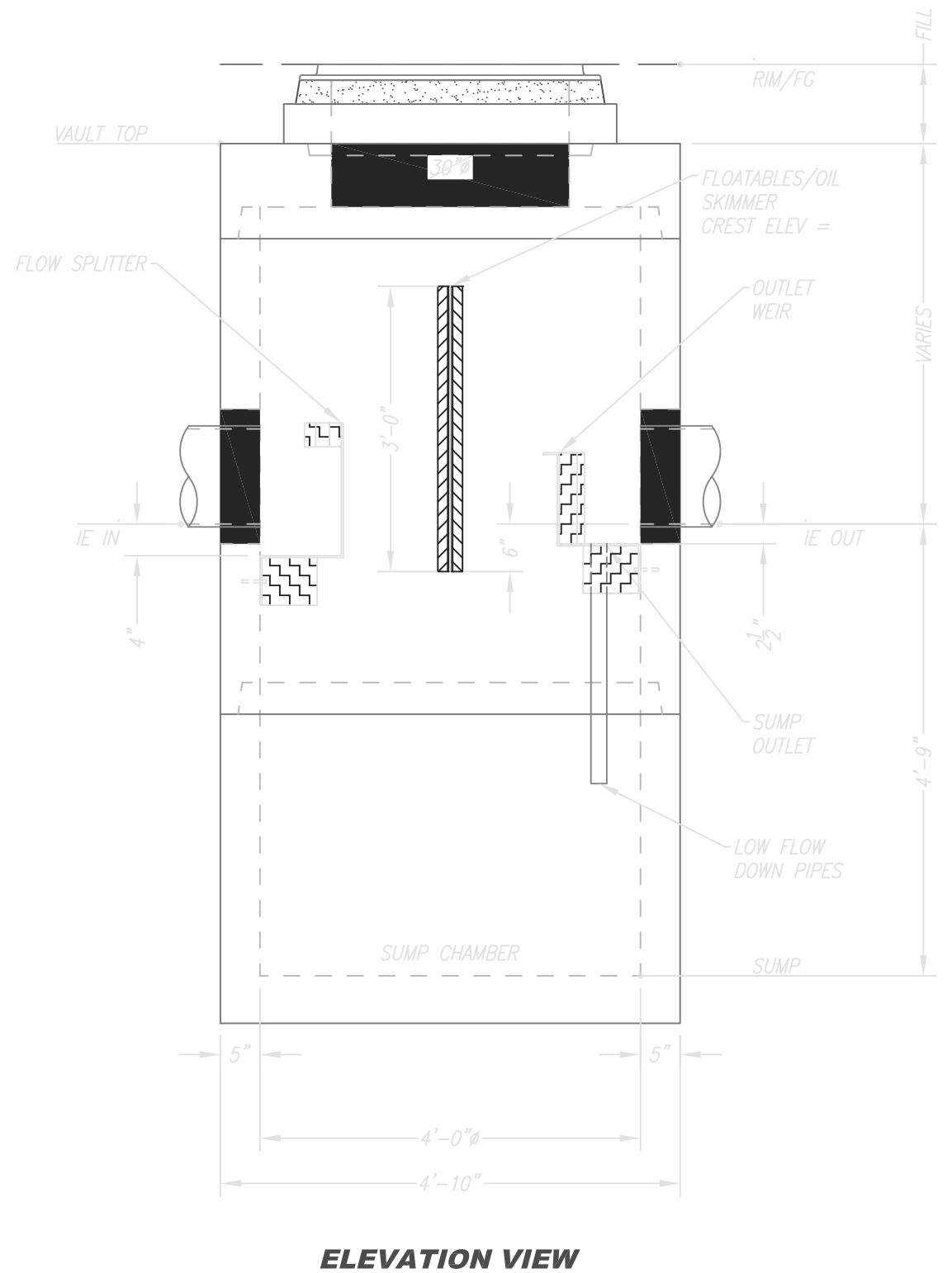
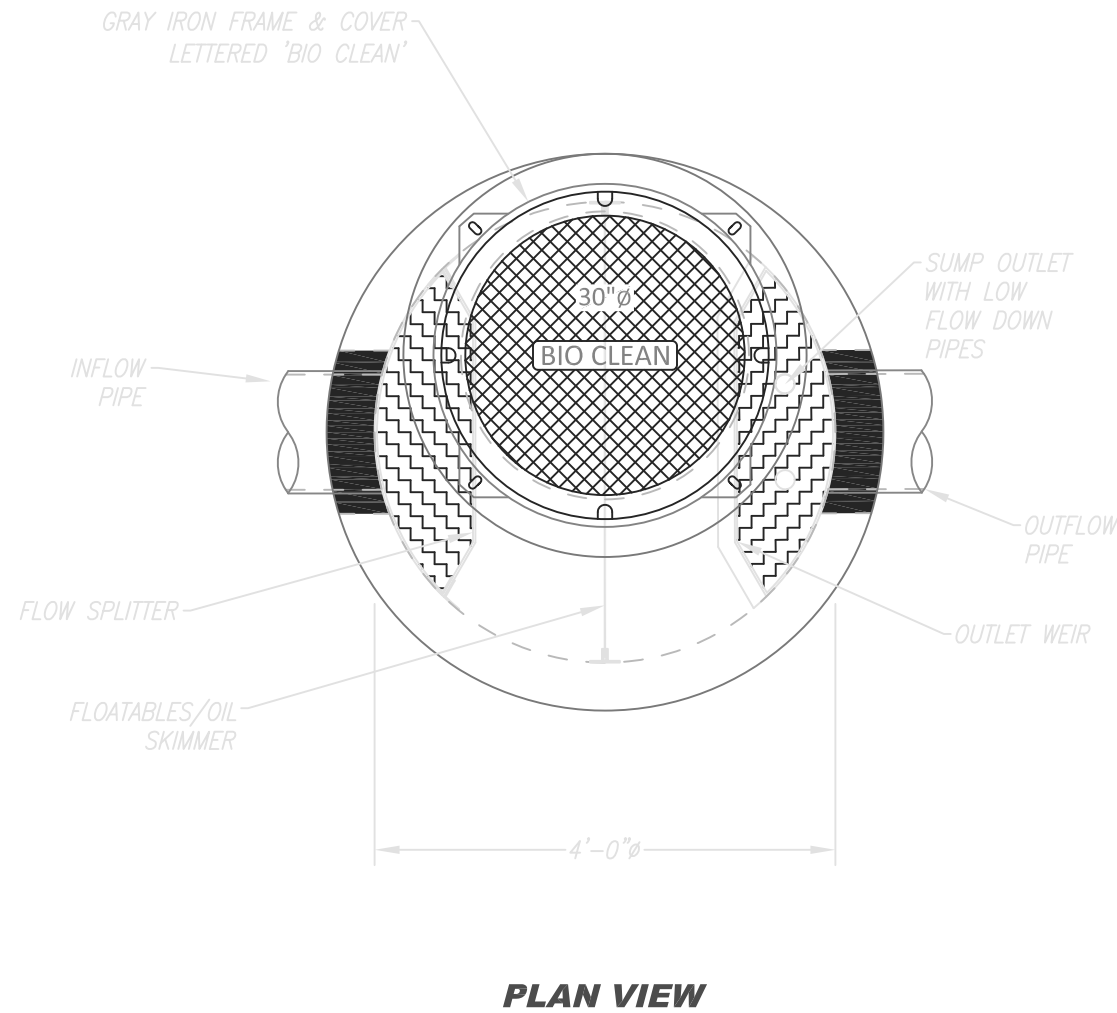


SITE SPECIFIC DATA*			
PROJECT NUMBER	.		
PROJECT NAME	.		
PROJECT LOCATION	.		
STRUCTURE ID	SCX-04		
WATER QUALITY FLOW RATE (CFS)	1.82		
PEAK FLOW RATE (CFS)	.		
PEAK STORM DURATION (YEARS)	.		
PIPE DATA	I.E.	MATERIAL	DIAMETER
INFLOW PIPE 1	.	.	.
OUTFLOW PIPE 1	.	.	.
RIM ELEVATION	.		
SUMP ELEVATION	####		
SURFACE LOADING REQUIREMENT	HS20		
FRAME AND COVER	(1) $\phi$ 30"		
SKIMMER WALL HEIGHT	STANDARD		
KNOWN GROUNDWATER ELEVATION	NA		
NOTES: CONCEPT ONLY. NOT FOR CONSTRUCTION.			
*PER ENGINEER OF RECORD			
PERFORMANCE DATA			
TREATMENT FLOW RATE (CFS)	----		
TSS REMOVAL EFFICIENCY	----		
SUMP CHAMBER CAPACITY			
DIAMETER (FT)	AREA (SF)	HEIGHT (FT)	TOTAL (CF)
4	12.56	4.75	59.7

**INSTALLATION NOTES**

1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SCICLONEX UNIT AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURER'S SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURER'S CONTRACT.
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1:20 SCALE



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8/3/22MBILLINGS

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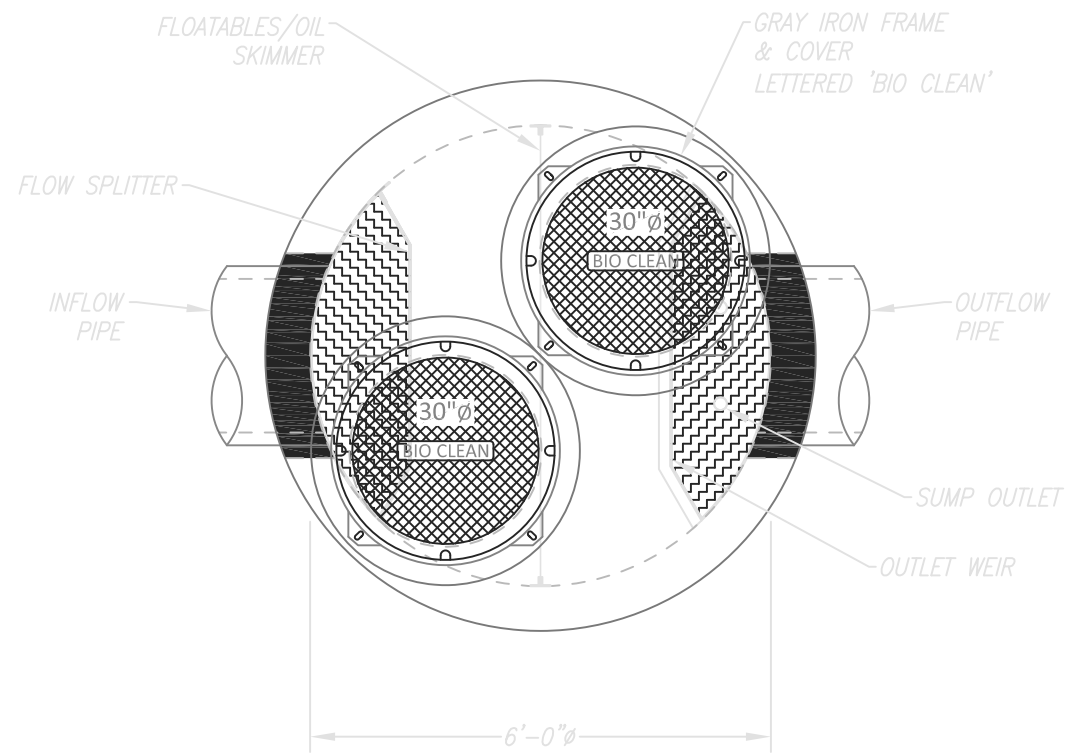
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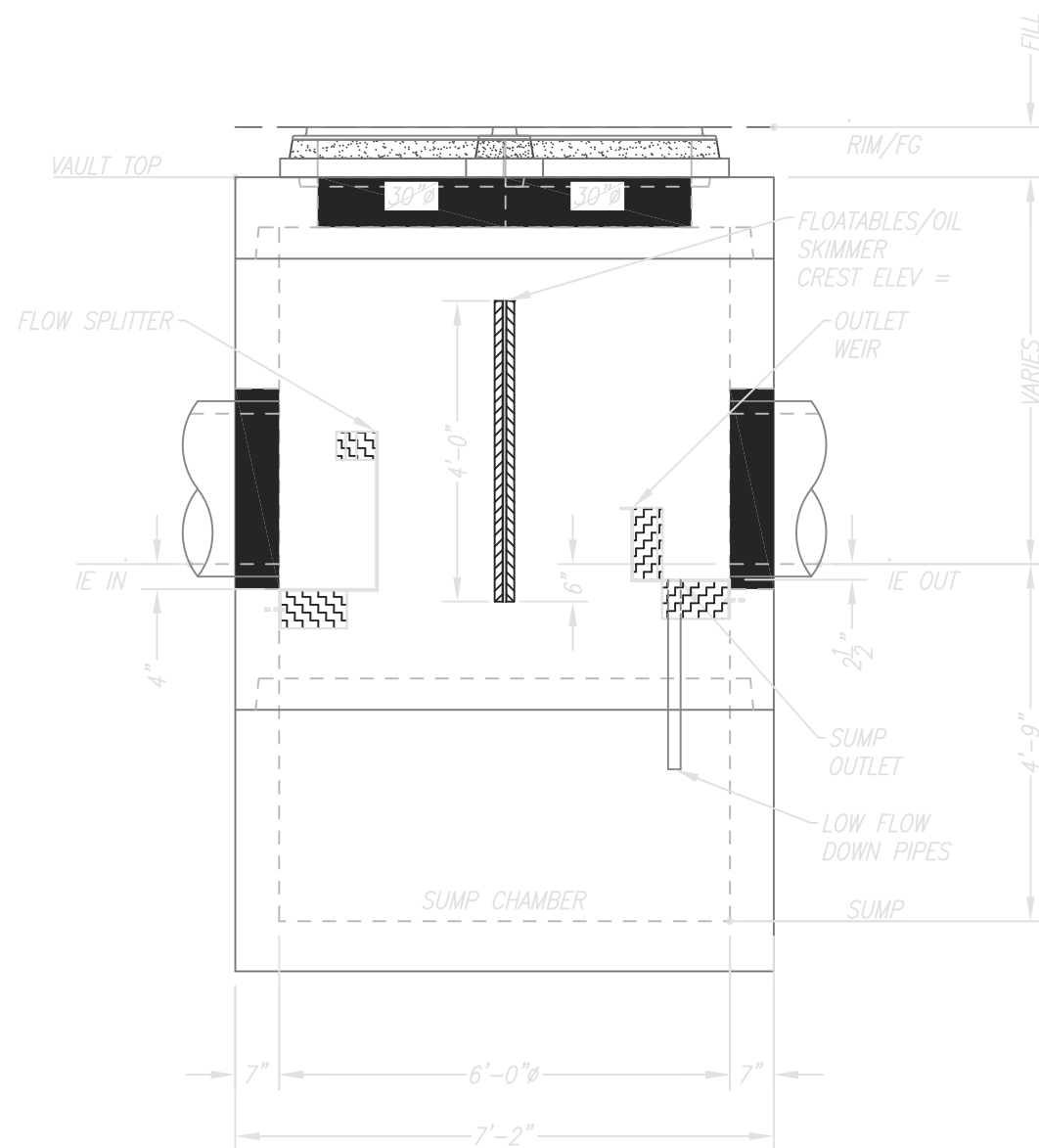


**SCICLONEX SCX-04**  
HYDRODYNAMIC SEPARATOR  
STANDARD DETAIL

SITE SPECIFIC DATA*			
PROJECT NUMBER	.		
PROJECT NAME	.		
PROJECT LOCATION	.		
STRUCTURE ID	SCX-06		
WATER QUALITY FLOW RATE (CFS)	4.09		
PEAK FLOW RATE (CFS)	.		
PEAK STORM DURATION (YEARS)	.		
PIPE DATA	I.E.	MATERIAL	DIAMETER
INFLOW PIPE 1	.	.	.
OUTFLOW PIPE 1	.	.	.
RIM ELEVATION	.		
SUMP ELEVATION	####		
SURFACE LOADING REQUIREMENT	HS20		
FRAME AND COVER	(2) $\phi$ 30"		
SKIMMER WALL HEIGHT	STANDARD		
KNOWN GROUNDWATER ELEVATION	NA		
NOTES: CONCEPT ONLY. NOT FOR CONSTRUCTION.			
*PER ENGINEER OF RECORD			
PERFORMANCE DATA			
TREATMENT FLOW RATE (CFS)	---		
TSS REMOVAL EFFICIENCY	---		
SUMP CHAMBER CAPACITY			
DIAMETER (FT)	AREA (SF)	HEIGHT (FT)	TOTAL (CF)
6	28.26	4.75	134.2



**PLAN VIEW**



**ELEVATION VIEW**

**INSTALLATION NOTES**

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1:30 SCALE

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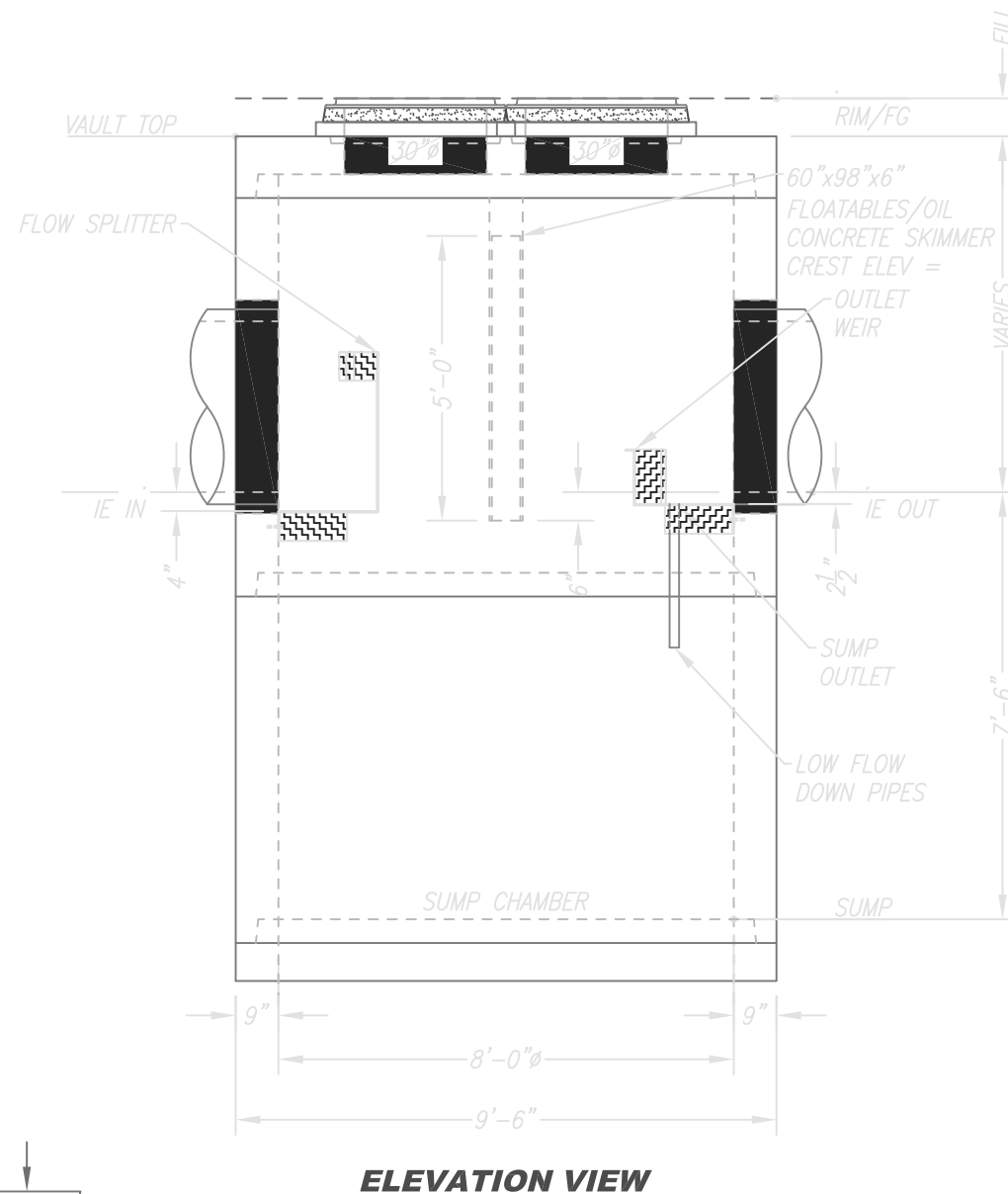
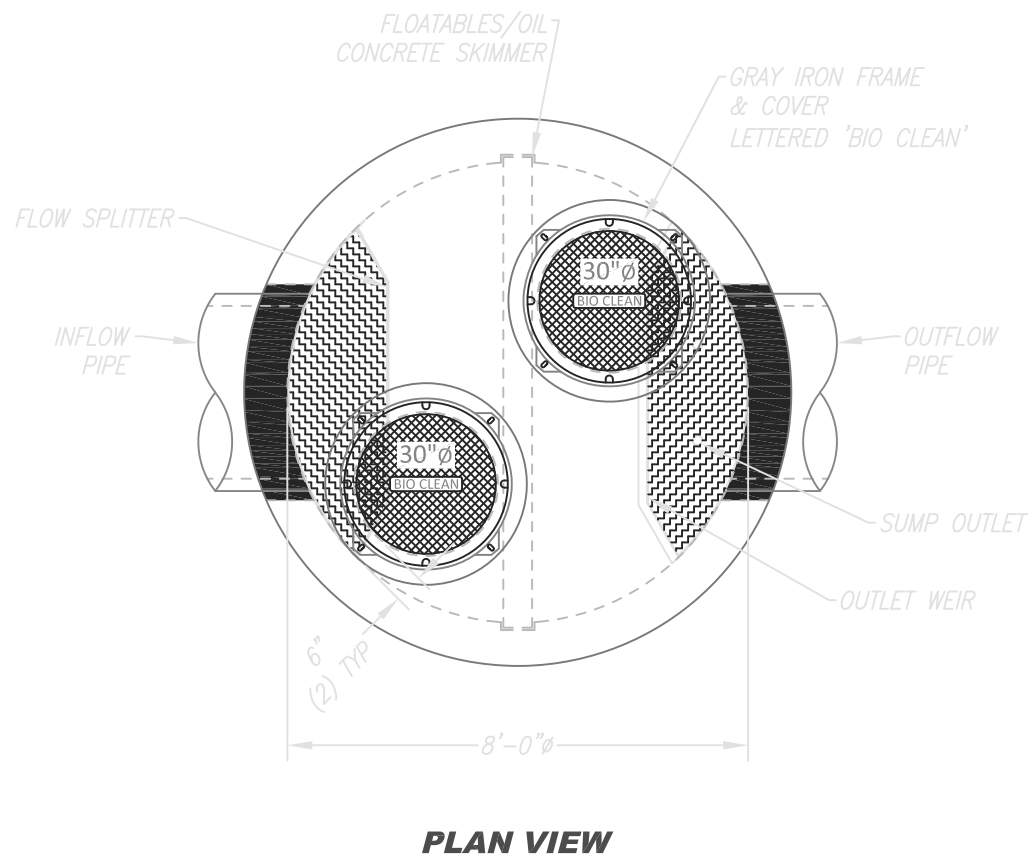


**SCICLONE SCX-06**  
HYDRODYNAMIC SEPARATOR  
STANDARD DETAIL

8/31/22/MBILLINGS



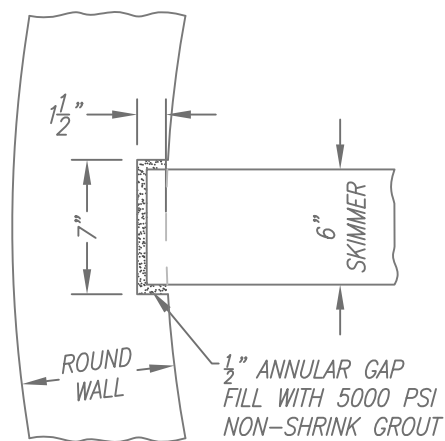
SITE SPECIFIC DATA*			
PROJECT NUMBER	.		
PROJECT NAME	.		
PROJECT LOCATION	.		
STRUCTURE ID	SCX-08		
WATER QUALITY FLOW RATE (CFS)	6.65		
PEAK FLOW RATE (CFS)	.		
PEAK STORM DURATION (YEARS)	.		
PIPE DATA	I.E.	MATERIAL	DIAMETER
INFLOW PIPE 1	.	.	.
OUTFLOW PIPE 1	.	.	.
RIM ELEVATION	.		
SUMP ELEVATION	####		
SURFACE LOADING REQUIREMENT	HS20		
FRAME AND COVER	(2) $\phi 30"$		
SKIMMER WALL HEIGHT	STANDARD		
KNOWN GROUNDWATER ELEVATION	NA		
NOTES: CONCEPT ONLY. NOT FOR CONSTRUCTION.			
*PER ENGINEER OF RECORD			
PERFORMANCE DATA			
TREATMENT FLOW RATE (CFS)	---		
TSS REMOVAL EFFICIENCY	---		
SUMP CHAMBER CAPACITY			
DIAMETER (FT)	AREA (SF)	HEIGHT (FT)	TOTAL (CF)
8	50.24	7.50	376.8



### INSTALLATION NOTES

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1:40 SCALE



**CONCRETE SKIMMER TO ROUND WALL CONNECTION**  
1:10 SCALE

### GENERAL NOTES

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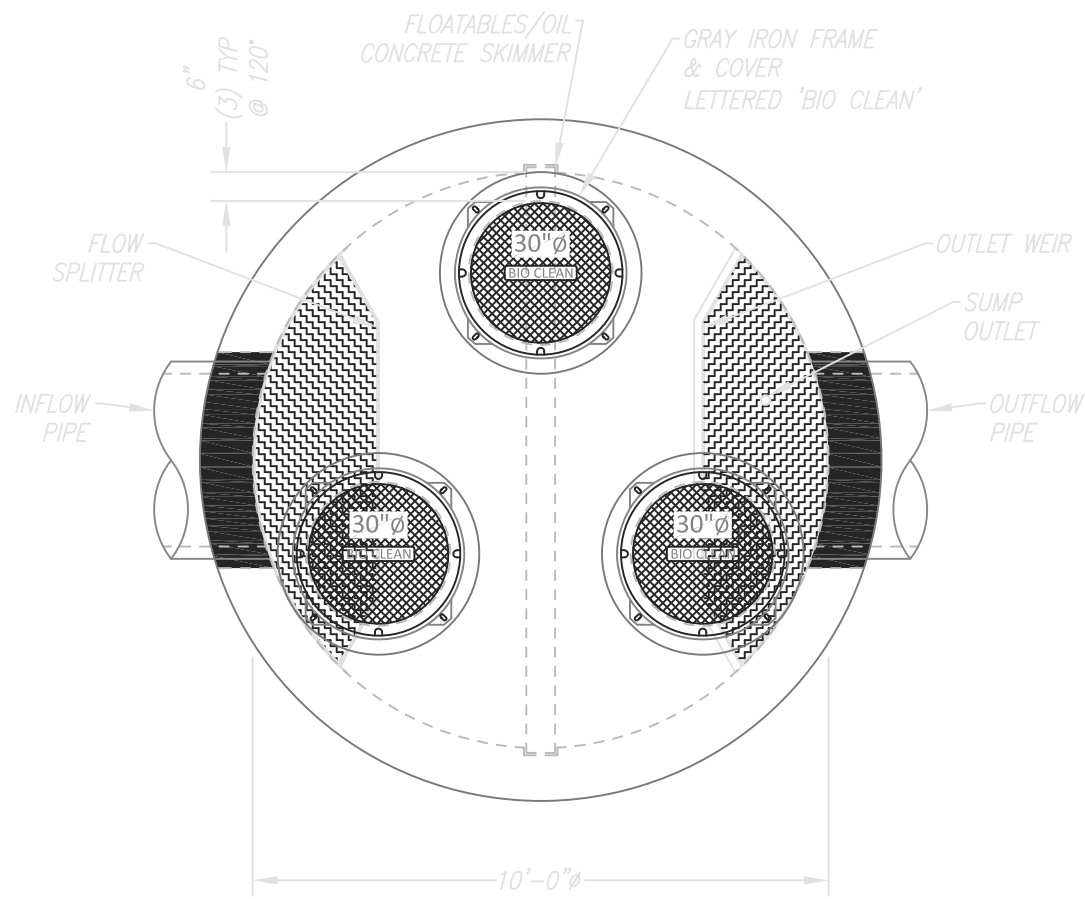
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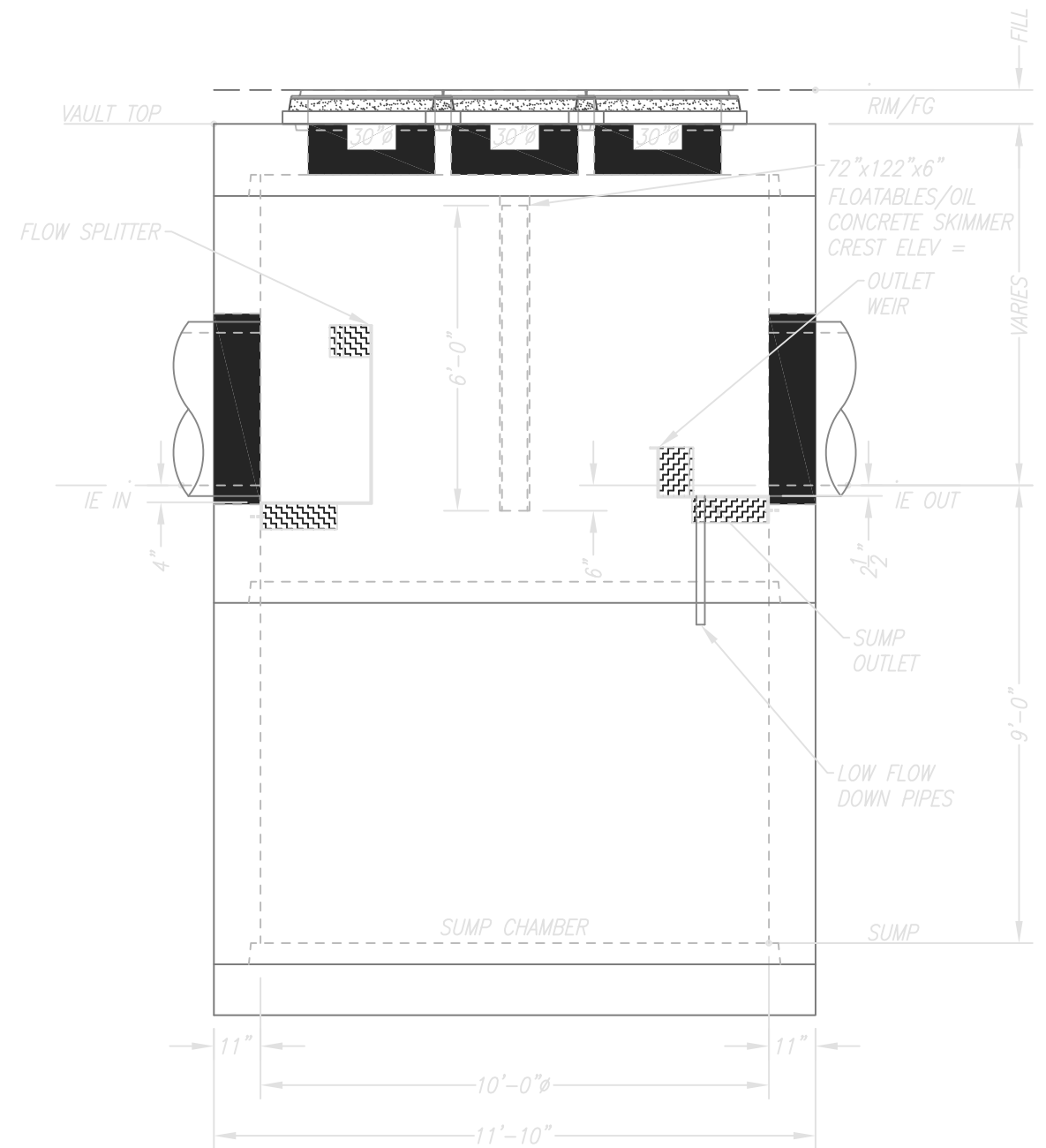


**SCICLONE SCX-08**  
HYDRODYNAMIC SEPARATOR  
STANDARD DETAIL

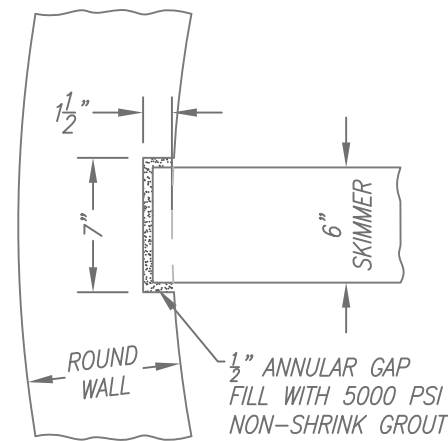
SITE SPECIFIC DATA*			
PROJECT NUMBER	.		
PROJECT NAME	.		
PROJECT LOCATION	.		
STRUCTURE ID	SCX-10		
WATER QUALITY FLOW RATE (CFS)	11.36		
PEAK FLOW RATE (CFS)	.		
PEAK STORM DURATION (YEARS)	.		
PIPE DATA	I.E.	MATERIAL	DIAMETER
INFLOW PIPE 1	.	.	.
OUTFLOW PIPE 1	.	.	.
RIM ELEVATION	.		
SUMP ELEVATION	#####		
SURFACE LOADING REQUIREMENT	HS20		
FRAME AND COVER	(3) $\phi 30"$		
SKIMMER WALL HEIGHT	STANDARD		
KNOWN GROUNDWATER ELEVATION	NA		
NOTES: CONCEPT ONLY. NOT FOR CONSTRUCTION.			
*PER ENGINEER OF RECORD			
PERFORMANCE DATA			
TREATMENT FLOW RATE (CFS)	11.36		
TSS REMOVAL EFFICIENCY	50%		
SUMP CHAMBER CAPACITY			
DIAMETER (FT)	AREA (SF)	HEIGHT (FT)	TOTAL (CF)
10	78.50	9.00	706.5



**PLAN VIEW**



**ELEVATION VIEW**



**CONCRETE SKIMMER TO ROUND WALL CONNECTION**  
1:10 SCALE

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**SCICLONE SCX-10**  
HYDRODYNAMIC SEPARATOR  
STANDARD DETAIL

8/31/22BREVE



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**ZONE:** R-2(Residential Medium Density Zoning)  
**HEARING DATE:** N/A



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\_\_\_\_\_  
*Fatin Abdullah*  
Reviewed By:

\_\_\_\_\_  
Date:

\_\_\_\_\_  
City of Newberg - Operations  
Organization:



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Date:

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Organization:





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**ZONE:** R-2(Residential Medium Density Zoning)  
**HEARING DATE:** N/A

**RECEIVED**

4/14/2023

batesf

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- Comments. (Attach additional pages as needed)

Reviewed By:

Scott Albert - Ziplly Fiber Network Engineer

Organization: 503-526-3544 [scott.albert@ziply.com](mailto:scott.albert@ziply.com)

4/14/23

Date: