



## **Draft Environmental Assessment**

# **Turner Creek Water Intake System Replacement**

City of Yamhill, Oregon

FEMA-1824-DR-OR

**July 7, 2010**



# **FEMA**

**U.S. Department of Homeland Security**

FEMA Region X

130 228<sup>th</sup> Street SW

Bothell, WA 98021-9796

# Draft Environmental Assessment

## Turner Creek Water Intake System Replacement

City of Yamhill, Oregon

FEMA Hazard Mitigation Grant Program (FEMA-1824-DR-OR)

*Prepared for:*

**U.S. Department of Homeland Security**

FEMA Region X

130 228<sup>th</sup> Street SW

Bothell, WA 98021-9796

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*July 7, 2010*

## Table of Contents

1.0	INTRODUCTION.....	1
1.1	Authority and Jurisdiction.....	1
2.0	PURPOSE AND NEED.....	1
3.0	LOCATION AND BACKGROUND.....	2
3.1	Site Location.....	2
3.2	Background.....	3
4.0	ALTERNATIVE ANALYSIS.....	3
4.1	Alternative 1 – No Action Alternative.....	4
4.2	Alternative 2 – Relocate Water Intake Structure Adjacent to City’s Water Treatment Facility and Decommission Existing Intake Structure (Proposed Action).....	4
4.2.1	Area 1 – Proposed Intake.....	5
4.2.2	Area 2 – Dam Decommissioning.....	6
5.0	AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES.....	8
5.1	Geology and Soils.....	9
5.1.1	Affected Environment.....	9
5.1.2	Effects and Consequences to Geology and Soils – Alternative 1 – No Action Alternative.....	9
5.1.3	Effects and Consequences to Geology and Soils – Alternative 2 – Proposed Action.....	9
5.1.4	Mitigation Measures.....	10
5.2	Water Resources.....	10
5.2.1	Affected Environment.....	11
5.2.2	Effects and Consequences to Water Resources – Alternative 1 – No Action Alternative.....	12
5.2.3	Effects and Consequences to Water Resources – Alternative 2 – Proposed Action.....	12
5.2.3	Mitigation Measures.....	13
5.3	Biological Resources.....	13
5.3.1	Affected Environment.....	14
5.3.2	Effects and Consequences to Biological Resources – Alternative 1 – No Action Alternative.....	16
5.3.3	Effects and Consequences to Biological Resources – Alternative 2 – Proposed Action.....	16
5.4	Cultural Resources.....	18

5.4.1 Affected Environment ..... 18

5.4.2 Effects and Consequences to Cultural Resources – Alternative 1 – No Action Alternative ..... 18

5.4.3 Effects and Consequences to Cultural Resources – Alternative 2 – Proposed Action ..... 19

5.4.4 Mitigation Measures ..... 19

5.5 Environmental Justice ..... 19

5.5.1 Affected Environment ..... 19

5.5.2 Effects and Consequences to Environmental Justice – Alternative 1 – No Action Alternative ..... 20

5.5.3 Effects and Consequences to Environmental Justice – Alternative 2 – Proposed Action ..... 20

5.5.4 Mitigation Measures ..... 20

6.0 CUMULATIVE EFFECTS ..... 20

7.0 CONSULTATION AND COORDINATION ..... 21

7.2 Public Involvement ..... 21

8.0 MITIGATION MEASURES REQUIRED ..... 23

9.0 REFERENCES ..... 25

**Figures**

Figure 1. Site Location Map (Wold Environmental Consultants, LLC)..... 2

Figure 2. Proposed new intake site (4/27/10). ..... 5

Figure 3. Entrance to new site from treatment plant.....

Figure 4. Existing water intake structure (1) and slide area (2)..... 7

**Appendices**

- Appendix A – Intake Design
- Appendix B - Cultural Resources Concurrence Letters
- Appendix C – Public Notice

## LIST OF ACRONYMS

APE	Area of Potential Effect
BA	Biological Assessment
BMPs	Best Management Practices
BO	Biological Opinion
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
cy	cubic yards
DEQ	Oregon Department of Environmental Quality
EA	Environmental Assessment
EFH	Essential Fish Habitat
EO	Executive Order
ESA	Endangered Species Act
ESCP	Erosion and Sediment Control Plan
FEMA	Federal Emergency Management Agency
FPPA	Farmland Protection Policy
FONSI	Finding of No Significant Impact
FWCA	Fish and Wildlife Coordination Act
HMGP	Hazard Mitigation Grant Program
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPDES	National Pollution Discharge Elimination System
NR	National Register
NRHP	National Register of Historic Places
OEM	Oregon Office of Emergency Management
OHWM	Ordinary High Water Mark
OSHA	Occupational Safety and Health Act
EA	Environmental Assessment
SHPO	State Historic Preservation Office/Officer
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

## **1.0 INTRODUCTION**

The City of Yamhill (City) has applied through the Oregon Department of Emergency Management (OEM) to the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) for funding to construct a new water intake structure adjacent to the City's water treatment facility. The site is located downstream of its existing intake structure, which would be decommissioned. FEMA is proposing to fund 75 percent of the cost for this project through its Hazard Mitigation Grant Program (HMGP), with the remainder coming from the City or other nonfederal sources.

The Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1973 (Stafford Act), as amended, provides federal assistance programs for both public and private losses sustained in disasters. FEMA's HMGP provides grants to states, local governments, and Indian tribes for long-term hazard mitigation projects. This project is authorized under a major disaster declared by the President on March 2, 2009, for severe winter storms, record and near record snow, landslides and mudslides that occurred from December 13-26, 2008 (FEMA-1824-DR-OR). The HMGP is authorized under Section 404 of the Stafford Act.

### **1.1 Authority and Jurisdiction**

The National Environmental Policy Act (NEPA) of 1969 requires that Federal agencies evaluate the environmental impacts of their proposed actions and the natural and human environment before deciding to fund an action. The President's Council on Environmental Quality (CEQ) has developed a series of regulations for implementing NEPA. These regulations are included in Title 40 of the Code of Federal Regulations (CFR), Parts 1500–1508. They require the preparation of an Environmental Assessment (EA) that includes an evaluation of alternative means of addressing the purpose and need for a Federal action and a discussion of the potential environmental impacts of the proposed Federal action. An EA provides the evidence and analysis to determine whether the proposed Federal action will have a significant adverse effect on the human environment.

An EA related to a FEMA program must be prepared according to the requirements of the Stafford Act and 44 CFR, Part 10. This section of the Federal Code requires that FEMA takes environmental considerations into account when authorizing funding or approving actions. This draft EA was conducted in accordance with both CEQ and FEMA regulations for NEPA. The purpose of this EA is to meet FEMA's responsibilities under NEPA and to determine whether to prepare a Finding of No Significant Impact or a Notice of Intent to prepare an Environmental Impact Statement for the proposed project.

## **2.0 PURPOSE AND NEED**

The purpose of the HMGP is to reduce the loss of life and property in future disasters by funding mitigation measures during the recovery phase of a natural disaster. The purpose of this project is to provide funds for the removal of the City's existing water intake structure on Turner Creek and to install a new water intake structure closer to the Yamhill water treatment facility. The

City has determined there is a need to move the intake structure away from its current location, which is in an active slide area that causes problems every year when flooding occurs. The City is worried the water intake system could be seriously damaged or destroyed by the next major storm and would leave the citizens in its community without water.

### 3.0 LOCATION AND BACKGROUND

#### 3.1 Site Location

The City's water treatment plant is located northwest of the City on Turner Creek Road in rural Yamhill County. The plant is approximately 8.2 miles from the Highway 47 turnoff to Pike Road at the north end of the City. Pike Road becomes Turner Creek Road at approximately 4.3 miles. The existing water intake structure is located approximately 100 to 200 yards upstream from the water treatment plant, at approximately river mile 3.8 of Turner Creek. The legal description is Township 2 South, Range 5 West, Section 10; and Latitude  $45.412257^{\circ}$  North, Longitude  $-123.295602^{\circ}$  West. Figure 1 below shows the location of the project area.

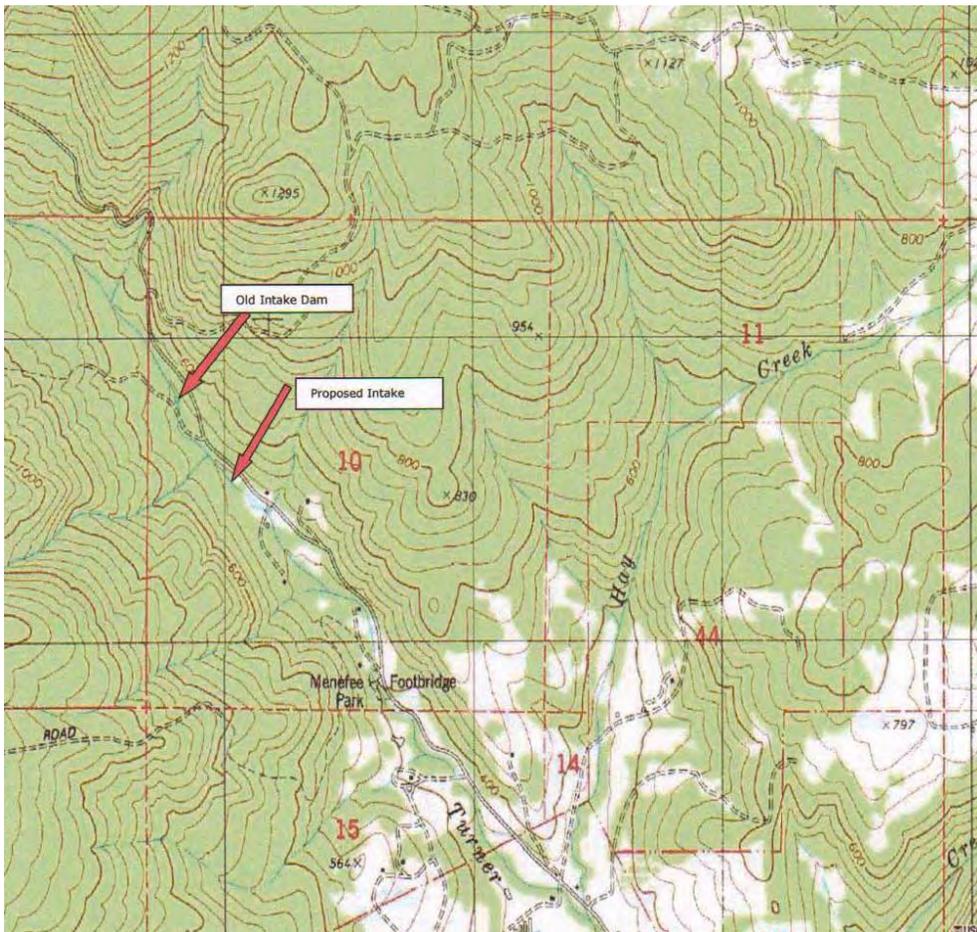


Figure 1. Site Location Map (Wold Environmental Consultants, LLC)

## 3.2 Background

The existing water intake structure on Turner Creek was constructed in 1936 and is operated by the City. It is the sole source of municipal drinking water for the community of Yamhill. The structure consists of a diversion dam, fish screen, and fish ladder that are situated within a portion of Turner Creek which is an active slide area that poses a threat to the intake structure. The structure is considered outdated and requires significant improvements to provide acceptable fish passage (new fish ladders), along with provisions to protect it from debris flows during high flow periods. In addition, the bank adjacent to the existing water intake pipe has slid into Turner Creek within approximately four feet from the opening of the pipe. Should the intake opening become blocked, the City would lose their only source of water for the community.

The City uses a number of methods for minimizing sediment movement in the watershed, including maintaining a healthy forest with continuous vegetative cover in the riparian area, limitation of operations during wet weather, stabilizing areas with exposed soils, and prohibiting activities near creeks in the area. However, during heavy precipitation sediment movement from upstream and the nearby hillside continues to be problematic. This is largely due to the fine granular nature of the soils in the watershed and the active slide area adjacent to the existing structure.

The construction of a new water intake structure downstream of the existing structure would include the decommissioning of the existing intake structure and would improve fish passage. It would also provide the City with a reliable location to house its intake away from potential slide activity. The proposed project would provide a permanent solution to the continued requirement to have sediment removed from behind the intake structure and eliminate the concern that the adjacent banks will slide during heavy precipitation events.

In addition to this draft EA, a Biological Assessment (BA) was prepared by Wold Environmental Consultants to address the effects of the proposed construction on fish species that occur in Turner Creek that are listed as threatened under the Endangered Species Act (ESA) of 1973. The BA also addresses the potential effects of the project on Essential Fish Habitat (EFH) as designated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) of 1996. The BA was required as part of the permit process for the U.S. Army Corps of Engineers (USACE) and was submitted to the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS) for consultation under both the ESA and EFH. The NMFS will prepare a Biological Opinion (BO) on the effects of the project on ESA-listed fish, their critical habitat, and EFH. Terms and conditions to minimize these effects will be provided in the BO and will be required as part of FEMA funding for this project.

## 4.0 ALTERNATIVE ANALYSIS

In accordance with Federal laws and FEMA regulations, the EA process for a proposed Federal action must include an evaluation of alternatives and a discussion of the potential environmental impacts.

This draft EA includes the analysis of two alternatives. Alternative 1 is the No Action Alternative, which would entail no repairs or improvements to the City's current water supply system. Water for the system would continue to be provided by the existing water intake structure at its current location. Alternative 2 is the Proposed Action Alternative and includes new construction of a water intake structure adjacent to the City's water treatment plant and the decommissioning of its current water intake structure upstream of the facility.

A third alternative considered but not carried forward was to repair and update the existing water intake structure at its current location. This would include improvements to the fish ladder to meet current state fish passage requirements, along with bank stabilization upstream of the intake structure where the active slide occurs. Due to the geologic vulnerability of the site, stabilizing the bank would require designing and engineering of a retaining structure that would be able to adequately protect the site.

Even if the slide area was able to be successfully stabilized, debris flow from above the riparian zone both at the site and upstream would continue to pose a threat to the intake structure. The land above the riparian buffer zone was logged within the past five years. Exposed sediment and woody debris on the logged land continue to be vulnerable to washouts during heavy precipitation events. The riparian zone that buffers the water intake structure at and upstream of its current location is steep and limited, as riparian buffer zones for timber harvesting are based on linear distance, not horizontal. Potential damage from debris flows generated from logged areas during future high precipitation events will likely increase at the site during coming years until the replanting efforts at the harvested land is able to provide better soil stability.

No other alternatives were considered for the relocation of the water intake system as the site chosen is on land owned by the City and provides a suitable low impact location in close proximity to the City's existing water treatment facility.

#### **4.1 Alternative 1 – No Action Alternative**

Inclusion of a No Action Alternative in the environmental analysis and documentation is required under NEPA. The alternative evaluates the effects of not providing eligible assistance for a specific action and provides a benchmark against which the other alternatives may be evaluated.

Under the No Action Alternative, FEMA would not fund the construction of a new water intake structure downstream of the existing site and the existing structure would continue to provide water for the community. As a consequence, the existing water intake structure would continue to be at risk from future high precipitation events and potential landslides.

#### **4.2 Alternative 2 – Relocate Water Intake Structure Adjacent to City's Water Treatment Facility and Decommission Existing Intake Structure (Proposed Action)**

The City proposes to construct a new water intake structure downstream of the existing structure at a site adjacent to the City's water treatment facility (see Appendix A). The new location is

within a segment of stream channel on land owned by the City. The new intake would be designed as a low impact system, which would allow unimpeded passage for fish at all life stages.

Following the construction of the new intake, the outdated existing structure would be decommissioned during the subsequent calendar year and would entail the removal of the existing 36-foot wide concrete dam, fish screen and fish ladder. All work has been designed to address obstruction and fish passage issues, thereby improving fish habitat. Stream flows would be re-introduced following the removal of the structure and it is anticipated that the stream would naturally attenuate to equilibrium. The Proposed Action does not include the design or construction of a reconstructed channel. The existing structure is considered to be a relatively small dam and the stream is anticipated to revert to a stable morphological condition without additional measures.

For the purposes of this draft EA, and in conjunction with the final BA, the proposed project footprint is defined in two segments of Turner Creek, as discussed below.

#### **4.2.1 Area 1 – Proposed Intake**

Area 1 is defined as the proposed location for the new water intake structure. It incorporates an area of approximately 2,175 square feet adjacent to the existing water treatment facility. The site is approximately 10 miles northwest of the City on Turner Creek.

The proposed work for the new intake structure consists of excavating an area on the northern bank of Turner Creek. Excavation would require clearing and grubbing of existing vegetation, including the removal of less than 12 alders within the clearing limits of the project area and mobilization of excavation equipment to dig approximately 11 feet deep. The excavation would allow for proper bedding and foundation preparation for the new intake structure. All excavated soil and rock would be hauled off-site to an approved disposal location.



Figure 2. Photo of proposed new intake site (4/27/10).



Figure 3. Photo of entrance to new site from water plant.

The staging area would be located on the plant side of an existing cyclone fence in the gravel parking area for the facility and is above and away from the stream. The completed intake would pump water from the top of the constructed basin, which would be located at the stream level and would fill with water from the creek. Should the stream level decrease during dry summer months, the City maintains a raw water impoundment reservoir upstream from the existing intake which could release water to augment the supply during low flows.

Construction sequencing would be directed by the selected contractor and would be required to meet all project conditions. It is anticipated that all in-water work would be completed within one week during approved in-water work windows. Construction would most likely follow the outline below:

- Implement erosion control measures (*e.g.*, containment and sediment control measures).
- Prepare temporary staging area in water treatment plant parking area.
- Construct access road (minimal distance) to construction site.
- Clear and grub the site within established clearing limits.
- Excavate the area above the ordinary high water mark (OHWM) down to bedrock.
- Remove bedrock down to the design depth.
- Install concrete forms and reinforcement for construction of a sediment basin and pump station.
- Isolate the construction area below the OHWM by installing sand bags to divert the stream to the opposite side of the channel to de-water the project site.
- Prior to de-watering the project area, all fish would be salvaged and placed back in the stream immediately downstream of the work area.
- Excavate the area below the OHWM to design depth.
- Install concrete forms and reinforcement for the intake structure.
- Pour concrete.
- Install pumps and related apparatus (railings, fish screens, etc.).
- Remove sand bags to re-establish stream flow and begin a testing operation.
- Conduct site restoration, including grading and replanting of the disturbed area with native vegetation.

All temporary erosion controls would be installed according to the Erosion and Sediment Control Plan (ESCP) developed for the project by the construction contractor and would include methods to prevent pollution. All ESCP measures are required to be in place prior to the commencement of construction. Groundwater de-watering, if necessary, would be directed to a silt sack in the parking lot staging area. This site has an existing forebay for the water treatment plant that would serve as a sedimentation settling facility to ensure turbidity is reduced before water is allowed to re-enter the stream. Fish salvage would be conducted by the Oregon Department of Fish and Wildlife (ODFW) or certified personnel prior to de-watering. The water would be diverted through gravity flow in a flexible pipe system.

#### **4.2.2 Area 2 – Dam Decommissioning**

The existing water intake structure is located approximately 100 to 200 yards upstream from the City's water treatment facility. The area affected extends approximately 75 feet upstream of the

intake diversion dam and approximately 15 feet below the current intake. An access road and staging area would be constructed on the westerly side of the upstream section of the existing intake dam structure. Decommissioning of the existing structure will occur in the riparian zone (within 25 feet wide), for a total action area of approximately 4,335 square feet.

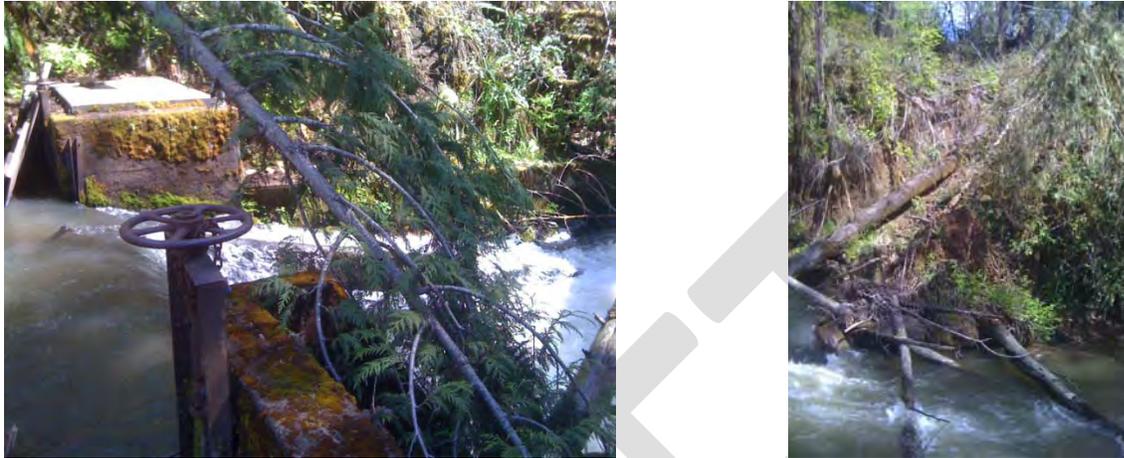


Figure 4. Photos of Existing water intake structure (1) and slide area (2).

No downstream effects to Turner Creek are anticipated during construction, as the construction area would be completely isolated from the stream flow. A coffer dam would be installed upstream of the project site to de-water the project area. Fish salvage would be conducted by the Oregon Department of Fish and Wildlife (ODFW) or certified personnel prior to de-watering. The water would be diverted through gravity flow in a flexible pipe system. It is anticipated that all in-water work would be completed in three days.

Decommissioning would entail the excavation of approximately 36 cubic yards (cy) of sediment deposits behind the existing concrete diversion dam to expose the dam structure in its entirety. At the recommendation of the NMFS, the excavated material would be stockpiled at the toe of the north bank upstream of the dam structure. This would help to redirect flows from the failing bank and allow the stream to actively recruit bed load material at a tempered pace. Once the structure is fully exposed, dismantling and de-constructing of the concrete dam structure will be completed.

The existing structure is keyed into the stream bank and during deconstruction it will be ascertained whether the bank would be more stable by leaving the end structures intact or if removal of the end sections would be more beneficial. This decision will be made based on input from a geotechnical specialist and project engineer, who will make on site field observations during the dismantling of the structure in order to avoid a potential collapse of the streambank due to removal operations. The intent is to re-establish the full bank to bank cross section of the creek. Additionally, a retaining wall on the northern side of the stream is subject to removal or will remain, depending upon the stability of the bank. This will also be ascertained during construction. If it is determined that the retaining wall must be removed, all concrete and reinforcement materials will be extracted and hauled off site to an approved disposal location.

Once the concrete dam structure is removed, a transition channel would be constructed in the center portion of the channel. This temporary measure would create a consistent slope that would provide connectivity to the upstream and downstream portions of the work area. Natural flows would then be re-established and the natural progression of the stream would eventually reach equilibrium as accumulated sediments transport downstream and allow the channel to reform to a stable state. It is anticipated that after several high flow events the stream will reach equilibrium in slope and sediment transport. As soon as the stream is considered to be stable, restoration work along the riparian edge would commence. Natural fiber matting will be used to provide stability and protect against erosion. Native vegetation would be planted at the site to further stabilize the bank and re-establish the riparian function.

## 5.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The NEPA compliance process requires Federal agencies to consider direct and indirect impacts to the environment. The following subsections discuss the regulatory settings and the existing conditions for resource areas within the affected area. The discussion is broad and regional in nature. It does not include a complete inventory of each resource but does provide information to characterize those resources. This section also describes the environment and existing conditions for each alternative and identifies the potential effects of the two alternatives considered.

For each resource category, the impact analysis should follow the same approach in terms of impact findings. When possible, quantitative information should be provided to establish impacts. Qualitatively, these impacts will be measured as outlined below:

**None/Negligible:** The resource area would not be affected, or changes would be either non-detectable or if detected, would have effects that would be slight and local. Impacts would be well below regulatory standards, as applicable.

**Minor:** Changes to the resource would be measurable, although the changes would be small and localized. Impacts would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse effects.

**Moderate:** Changes to the resource would be measurable and have both localized and regional scale impacts. Impacts would be within or below regulatory standards, but historical conditions are being altered on a short-term basis. Mitigation measures would be necessary and the measures would reduce any potential adverse effects.

**Major:** Changes would be readily measurable and would have substantial consequences on a local and regional level. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, though long-term changes to the resource would be expected.

## 5.1 Geology and Soils

The riparian corridor of Turner Creek consists of areas of steep slopes (1:1), particularly in the immediate vicinity of the existing intake and upstream of the structure, which is an active slide area. Downstream from the existing intake the riparian slope is less severe (3:1) as the channel approaches the area sited for the proposed new intake structure.

Soils in the watershed are comprised of weathered volcanic and sedimentary rock. Above the project sites the stream channel has sediments that are more prone to erosion as they are moderately confined, lower in gradient and the stream flows through sedimentary rock layers. Turner Creek meanders with slower water that provides sites for sediment deposition. In the lower elevation main channel of the watershed, rock of volcanic origin is located in the headwater region of the watershed (a small area of the watershed) and tends to contain steep, confined channels that transports water, wood and sediment rapidly.

### 5.1.1 *Affected Environment*

At the existing water intake site the stream channel is composed of rock, cobble and fines in a series of riffle pool complexes, with the pools containing sediment to approximately 6 to 16 inches in depth. The site has accumulated sediment and gravel which washes down the stream during high flow events. The bank adjacent to the intake pipe for the municipal system has slid into the creek within approximately one to two feet from the opening. This slide activity is an ongoing problem which requires immediate attention when slides occur to prevent the waterintake opening from being blocked, which would eliminate the only municipal source of drinking water for the community of Yamhill.

At the new water intake site there is bedrock (more basalt with harder characteristics) and the stream is relatively small. Bedrock steps, short falls and boulders are present within much of the area and immediately downstream, with downstream areas of riffles and pool complexes. The moderate gradients present throughout the stream channel suggest well-contained flows, large particle substrate, and high stream energy.

### 5.1.2 *Effects and Consequences to Geology and Soils – Alternative 1 – No Action Alternative*

Under this alternative, no construction activities would occur that would potentially impact geology or soils. Deterioration of the streambank at the existing intake would continue during future high flow events when combined with landslides in the area.

### 5.1.3 *Effects and Consequences to Geology and Soils – Alternative 2 – Proposed Action*

It is the intent of the Proposed Action to provide a permanent solution to the continued requirement to have sediment removed from behind the existing intake structure and eliminate the concern that the adjacent streambank will slide during heavy precipitation events. Approximately 36 cy of sediment would be removed for the decommissioning of the existing

dam. In addition, approximately 450 linear feet of the stream channel would be restored back to a typical slope and profile for the naturally occurring stream.

Construction at the new water intake structure site would involve disturbance of the streambank, soils and vegetation. Following construction, all temporary structures would be removed and the site would be re-graded, replanted, and restored. The intake structure would disturb about 2,100 sq ft of riparian area and be installed about 11 feet below the existing ground surface. Because of the small scale of the site work at the dam and intake structure, adverse effects to site geology and soils would be minor.

#### **5.1.4 Mitigation Measures**

Best Management Practices (BMPs) required in Section 8.0 would ensure adequate measures are applied before, during and after construction to stabilize soils and control stormwater runoff from each action site. A geotechnical specialist and project engineer are required to be on-site during the dismantling of the existing intake structure to determine the extent of the removal that is feasible in order to avoid a potential collapse of the streambank due to removal operations.

## **5.2 Water Resources**

Projects funded by FEMA must comply with permit requirements for the U.S. Army Corps of Engineers (USACE) under the Clean Water Act (CWA) of 1972 and the River and Harbors Act of 1899. This includes any project that involves the excavation or the placement of fill material into waters of the United States, particularly when work will be conducted below the OHWM of a water body or in a wetland. Regulations also require that any fill material used is obtained from a permitted borrow location or approved upland source.

The CWA sets forth procedures for effluent limitations, water quality standards and implementation plans, national performance standards, and point source (*e.g.*, municipal wastewater discharges) and nonpoint source (*e.g.*, stormwater) programs. The CWA also establishes the National Pollutant Discharge Elimination System (NPDES) under Sections 401 and 402 and requires permits for dredged or fill material under Section 404.

Executive Order (EO) 11988 for Floodplain Management requires Federal agencies to take action to minimize the occupancy and modification of floodplains. Furthermore, EO 11988 requires that Federal agencies proposing to site an action in a floodplain must consider practicable alternatives to avoid adverse effects and incompatible development in the floodplain. If no practicable alternatives exist to siting an action in the floodplain, the action must be designed to minimize potential harm to or within the floodplain. Furthermore, a notice must be publicly circulated explaining the action and the reasons for siting it in the floodplain. When evaluating actions in the floodplain, FEMA applies the decision process described in 44 CFR Part 9, referred to as the 8-Step Process, to ensure that its actions are consistent with EO 11988.

As with EO 11988, EO 11990 (Protection of Wetlands) requires Federal agencies to follow avoidance, mitigation, and preservation procedures with public input before proposing new

construction in wetlands. The implementation of EO 11990 is also described in 44 CFR Part 9. As with EO 11988, the 8-Step Process is used to evaluate the potential effects of an action on wetlands. As discussed in the CWA subsection above, formal legal protection of jurisdictional wetlands is promulgated through Section 404 of the CWA. A permit from the USACE may be required if an action has the potential to affect wetlands.

### ***5.2.1 Affected Environment***

Turner Creek feeds into the North Yamhill River, which is an approximately 31-mile tributary of the Yamhill River. The action areas are located in the 6<sup>th</sup> field of the North Yamhill River watershed. The Yamhill River is a sub-tributary of the Willamette River. The Upper Willamette River is separated from the Lower Willamette River by Willamette Falls. The North Yamhill River drains an area of the Northern Oregon Coast Range and is part of the Willamette Valley west of the Willamette River.

The North Yamhill River watershed has elevations that range from 60 feet above sea level where the river leaves the watershed on the eastern side to 3,600 feet above sea level in the west at Trask Mountain. Population density within the watershed is concentrated primarily within the towns of Yamhill and Carlton. A majority of the watershed (100,000 acres) is privately owned and the Bureau of Land Management administers an additional 12,829 acres of primary forestland in the western portion of the watershed.

The effects to water quality are based primarily on the potential for downstream turbidity and sedimentation from in-water construction required for the establishment of a new intake structure, removal of a portion of the existing intake during the dam decommissioning activity, and stream restoration work within and along the banks of Turner Creek. The City is currently operating under two permits with the USACE; one for emergency work and an annual Nationwide Permit (NWP) for cleaning and maintenance. The Proposed Action would be authorized under several NWPs, which may include, but are not limited to, NWP 27 (Aquatic Habitat Restoration, Establishment, and Enhancement Activities) for the removal of the existing water intake structure, NWP 33 (Temporary Construction, Access, and Dewatering) for temporary coffer dams, and NWP 12 (Utility Line Activities) for construction of the new water intake structure. The USACE permit requirements may change depending on the limitations of individual NWPs and whether or not it is decided by the USACE that a more appropriate NWP applies.

The final BA includes additional details regarding the watershed, including existing and potential impacts to riparian conditions, habitat access, habitat elements, channel conditions and water quality. Forestry, agriculture and road construction practices have created disturbances that have affected the stream channel by decreasing riparian buffers, increasing sedimentation, and reducing the availability of large woody debris availability, all of which have affected stream morphology, temperatures and habitat availability.

Thorough analysis of the potential affects to water quality related to the Oregon Department of Environmental Quality (DEQ) was conducted in the final BA prepared for the Proposed Action and the BA has been submitted to NMFS for consultation as part of the USACE permitting

process. NMFS will prepare a BO on the effects of the project on ESA and EFH listed fish. As part of the analysis by NMFS, terms and conditions to minimize effects to species will be provided in the BO and will be required as part of FEMA funding for this project. The final BA will be available for viewing at the viewing locations in Yamhill County for this draft EA and are available upon request by interested parties who are not able to view the document at these locations (see Section 7.2 for viewing locations).

Currently, no wetland inventory maps are available for the City. No wetlands have been identified in the immediate vicinity of the project areas that would be affected. A site visit conducted by FEMA Environmental and Historic Preservation staff on both January 28 and April 27, 2010, confirmed that no wetlands would be impacted by the project at the current location or the Proposed Action site.

The water treatment plant is considered a critical facility, including the water intake structure used by the facility. Furthermore, the intake structure's function is dependent on its location adjacent to Turner Creek, in the floodplain. As such, mitigation and design related to floodplains and flood damage risks should be done to the 500-year base flood event, as required for critical facilities. Although, the action areas are not located in a floodplain according to FEMA Floodplain Rate Insurance Map Community Panel No. 4102490025C, dated September 30, 1983, for Yamhill County, historical flood information indicates there is floodplain in the project areas.

The action sites are situated within an area that has relatively steep slope conditions and lack broad floodplain conditions such as a relatively flat valley floor. The straight incision of the channel does not have connectivity to a floodplain, and few to no off-channel ponds or backwater areas are present. Any potential affects to floodplains would be temporary and would not cause any change to pre-existing floodplain values. Neither alternative would have an impact on a 100-year or 500-year floodplain or to wetlands and no further documentation is required.

### ***5.2.2 Effects and Consequences to Water Resources – Alternative 1 – No Action Alternative***

This alternative does not include any FEMA action and no construction activities would occur that would potentially impact water resources. Therefore, FEMA would not be required to comply with the CWA, EO 11988, or EO 11990. There would be no additional disturbance of the earth surface from this alternative other than what already exists at the site due to its proximity to an active slide area, which does have the potential to impact water resources. Risks to the intake structure and operation of the plant, which are critical facilities, would persist.

### ***5.2.3 Effects and Consequences to Water Resources – Alternative 2 – Proposed Action***

Site preparation and relocation of the water intake system at an alternative site has the potential to affect water quality by sediment pollution from stormwater runoff that could affect the water quality of Turner Creek. A distance of 700 feet is proposed to address temporary increases in turbidity from in-water work for the Proposed Action. This is based on the type of work, containment proposed, amount of flow within Turner Creek, and the experiences of prior construction projects. While there is potential for nominal amounts of suspended fine sediments to extend beyond 700 feet downstream, it is expected that the concentration of any suspended

sediments (turbidity levels) will be low enough to not result in physical effects to water resources. Consistent with EO11988, relocation of the intake structure would significantly reduce the potential for water treatment facility operation disruptions and be considered a moderate positive effect for the critical facility. The project would may cause moderate, but temporary, adverse effects to water quality, during construction. Restoration of the stream to its natural flow conditions would result in a moderate longterm positive effect.

### 5.2.3 Mitigation Measures

Terms and conditions to minimize effects to water resources will be provided by the BO being prepared by NMFS, along with all USACE permitting requirements, and would be required for FEMA funding of this project.

In order to minimize stormwater pollutants from the construction activities under the Proposed Action, a General National Pollutant Discharge Elimination System (NPDES) permit, or a waiver of the permit, may be required to be obtained from the DEQ. The General NPDES permit is obtained by developing a Stormwater Pollution Prevention Plan that implements a series of BMPs (*e.g.*, silt fences, hay bales, etc.). The contractor for the Proposed Action would be required to implement BMPs (included in Section 8.0) to reduce or eliminate runoff impacts during proposed construction activities and to reduce the potential for soil erosion after construction, regardless of whether a NPDES Permit or a waiver from the permit requirement is secured.

## 5.3 Biological Resources

The **Endangered Species Act (ESA)** establishes a Federal program to conserve, protect, and restore threatened and endangered plants and animals and their habitats. Section 7 of the ESA mandates that all Federal agencies must ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a threatened or endangered species or result in the destruction of critical habitat for these species. To accomplish this, Federal agencies must consult with the U.S. Fish and Wildlife Service (USFWS) and the NMFS when taking an action that has the potential to affect any threatened, endangered or proposed species, or result in the destruction or adverse modification of designated for proposed critical habitat.

The **Fish and Wildlife Coordination Act (FWCA)** was enacted to protect fish and wildlife when Federal actions result in the control or modification of a natural stream or body of water. The statute requires Federal agencies to take into consideration the effect those water-related projects would have on fish and wildlife resources, to take actions to prevent loss or damage to these resources, and to provide for the development and improvement of these resources. For an action resulting in the control or modification of a body of water, the Federal agency must consult with the USFWS or NMFS (as appropriate) to develop measures to mitigate action-related losses of fish and wildlife resources. The responsibility for compliance with the FWCA for this project falls back to the USACE under their permitting responsibility under Section 404 of the CWA. The USACE review of the Pre-Construction notification under the applicable

NWPs required for the Proposed Action would include FWCA compliance and no additional review is required by FEMA.

The **Magnuson-Stevens Fishery Conservation and Management Act** (as amended) requires all Federal agencies to consult with NMFS on activities or proposed activities authorized, funded, or undertaken by that agency that may adversely affect EFH. The EFH provisions are designed to protect fisheries habitat from being lost due to disturbance and degradation.

The **Migratory Bird Treaty Act** makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandoning eggs or young) may be considered a take and is potentially punishable by fines and/or imprisonment. If an action is determined to cause a potential take of migratory birds, as described above, then consultation with the USFWS needs to be initiated to determine measures to minimize or avoid these impacts.

**EO 13112 (Invasive Species)** was created to prevent the introduction of invasive species and to provide for their control. Under this order, the Federal government may “not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the U.S. or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.”

### 5.3.1 *Affected Environment*

The Proposed Action areas consist of woody riparian vegetation. Tree stands are primarily Douglas fir with some western hemlock, western red cedar, red alder, and bigleaf maple. Common understory shrubs and plants include red osier dogwood, sword fern, salal, Oregon-grape, red huckleberry, reed canary grass, and dense patches of Himalayan blackberry. The areas generally support only sparse understory vegetation because of the high tree density. The majority of the adjacent private forestlands are in the 50-year age class, reflecting the fire history and salvage in the watershed (BLM, 1997).

Willamette Falls historically made the Willamette River downstream of the project passable to migratory fish only during high flow periods. Low summer flows prevented the passage of naturally spawning summer and fall-run salmonids into the Upper Willamette River. As a result, only spring Chinook and winter steelhead trout naturally occur above the falls. Below the falls, the Willamette River provides a migratory corridor for both juvenile and adult anadromous fish and juvenile rearing habitat for several anadromous fish species, including steelhead (*Onchorhynchus mykiss*), and individual runs of coho salmon (*O. kisutch*) and sockeye salmon (*O. nerka*).

The final BA determined the work proposed within Turner Creek for the project has the potential to affect anadromous runs of coho salmon, steelhead trout, coastal/native cutthroat trout (*O.*

*clarki clarki*), and Pacific lamprey (*Lampetra tridentate*). Winter steelhead trout are native and listed as threatened under the ESA for the Lower Columbia River (Upper Willamette River). Cutthroat trout are proposed as threatened for the Lower Columbia River (Upper Willamette River) under the ESA. Coho salmon are non-native above the Willamette Falls but their population status is growing and the species falls under EFH. The Pacific lamprey does not currently have a Federal listing status.

Factors considered in evaluating the project impacts in the final BA included the dependence of fish species on specific habitat components that will be removed or modified, the abundance of distribution habitat, habitat components in the project vicinity, distribution and population levels of the species (if known), the possibility of direct impacts to fish, the degree of impacts to habitat, and the potential to mitigate the adverse effects. This also includes the proximity of the action to species, timing and duration of the work, and the disturbance frequency, intensity and severity. The approved Oregon Department of Fish and Wildlife (ODFW) in-water work period for the Yamhill River, which includes Turner Creek, is July 15 to September 30. All in-water work associated with the Proposed Action would occur during this period unless an extension of the work period is granted by ODFW and approved by the NMFS.

The final BA incorporates input received from multiple site visits and coordination with the USACE, NMFS, ODFW, FEMA, and OEM. The potential for the project to impact water quality and in-stream and riparian habitat quality was analyzed to determine the environmental baseline for the watershed, and to discuss how the Proposed Action would affect the ESA and EFH species. As part of the BO process, NMFS is reviewing the project to determine what habitat-based biological requirements will be required to ensure there would not be an adverse effect to ESA and EFH species.

### **5.3.1.1 Endangered Species Act (ESA)**

Winter steelhead, listed as a threatened species on March 19, 1998 (and reaffirmed on January 5, 2006), are known to occur in Turner Creek. ESA winter steelhead juveniles rear in Turner Creek year-round. Adult steelhead may spawn in the area from February to May, with incubating eggs in the gravel possibly until the end of June.

Thorough analysis of the potential effects to winter steelhead was conducted in the final BA for the Proposed Action and the BA has been submitted to NMFS for formal ESA consultation as part of the USACE permitting process. The final BA determination was that the Proposed Action “*may affect, is likely to adversely affect*” ESA-listed fish and “*may affect, but is not likely to destroy or adversely modify*” designated critical habitat under the ESA. The NMFS will prepare a BO that will include the effects of the project on ESA-listed fish and their critical habitat. Terms and conditions to minimize these effects will be provided in the BO and will be required as part of FEMA funding for this project.

### **5.3.1.2 Magnuson-Stevens Fishery Conservation and Management Act (as amended); EFH**

Coho salmon fall under EFH consideration for Turner Creek. Adults spawn in the area from November until early January, and incubating eggs could be in the gravel until late March, depending on spawning timing and water temperature. Juveniles would be present in the project areas all year, either as fry in spring, pre-smolts in summer, or as one-year-old smolts in spring as well.

Thorough analysis of the potential affects to coho salmon was conducted in the final BA for the Proposed Action and the BA has been submitted to NMFS for EFH consultation as part of the USACE permitting process. The final BA determined the Proposed Action “*may affect, is likely to adversely affect*” EFH. However, based on the timing of the work, the relatively nominal habitat in the vicinity of the project, and the minimal amount of work needed for the Proposed Action, the final BA concluded with a determination that there will be “*minimal to no adverse impact*” to EFH. NMFS will prepare a BO on the effects of the project on EFH-listed fish. Terms and conditions to minimize these effects will be provided in the BO and would be required as part of FEMA funding for this project.

### **5.3.1.3 Migratory Bird Treaty Act**

Yamhill County is located in the statewide Pacific Flyway path for migratory birds. There is not nesting habitat for migratory birds in or near the alternatives and the types of actions proposed would not alter or disturb breeding or non-breeding habitat, affect food fish populations, or contribute to pollution levels or contamination of marine waters, provided all environmental conditions required by FEMA are implemented. No further review regarding migratory birds is required.

### **5.3.2 *Effects and Consequences to Biological Resources – Alternative 1 – No Action Alternative***

Under this alternative, no construction activities would occur. The existing water intake structure would continue to be at risk from debris flows during high flow events on Turner Creek and from active slides known to occur in the area. Increased sedimentation and erosion during such events would continue to affect the stream channel and water quality, which in turn has the potential to have adverse effects on fish species and their stream habitat. Wildlife currently inhabiting or foraging in the area would continue to do so.

This alternative does not include any FEMA action; therefore, FEMA would not be required to consult with the USFWS or NMFS to comply with the ESA, FWCA or EFH.

### **5.3.3 *Effects and Consequences to Biological Resources – Alternative 2 – Proposed Action***

The final BA determined the Proposed Action may result in short-term adverse effects in the action area and addresses potential adverse effects to both ESA and EFH fish species. The BO prepared by NMFS on the effects of the project on ESA and EFH-listed fish will include terms

and conditions to minimize these effects and would be required as part of FEMA funding for this project.

It is expected that approximately 0.10 acres of riparian vegetation would be affected by the Proposed Action. Only certified noxious weed-free seed, hay, straw, mulch, or other vegetation material would be used for site stabilization. For all replanting, plants and seeds would be obtained from local sources to ensure plants are adapted to the local climate and soil chemistry. Revegetation plans would be prepared in accordance with NMFS guidelines to address factors that contribute to site success such as weather and disturbance patterns, nutrient cycling, and the hydrologic condition of the replanted areas. No pesticide would be allowed and no fertilizer applied. Noxious weed control measures would be implemented during the re-establishment phase in replanted areas. The Proposed Action is in compliance with EO 13112 for invasive species.

#### **5.3.3.1 Area 1 – New Intake Effects and Consequences to Biological Resources**

Some vegetation loss would result and would include the removal of trees (less than 12 alders) and shrubs for construction of the staging area, access road, temporary work area, and installation of the new intake structure. After removal of the temporary structures used for construction of the new structure, the streambank, soils and vegetation disturbed by the project would be re-graded and restored. Disturbed riparian areas would be seeded with native riparian vegetation.

The final BA for the project determined the Proposed Action may result in short-term adverse effects in the action area and addresses potential adverse effects to both ESA and EFH fish species. The new structure would be located on the northern rim of Turner Creek and placed along the edges of the active stream channel. Construction would result in some permanent removal of riparian vegetation that would nominally change the function of the existing riparian habitat. The placement of a structure where none existed before has the potential to permanently alter the substrate of Turner Creek at this location. The structure has been designed so that it would not pose any physical barrier for fish passage.

#### **5.3.3.1 Area 2 – Dam Decommissioning Effects and Consequences to Biological Resources**

Decommissioning the existing intake structure at Area 2 would avoid impacts to riparian areas as much as feasibly practicable. Following decommissioning, the stream channel would be restored back to its typical shape and profile. Riparian vegetation removed for construction would be replaced by an equal or greater amount, including the re-establishment of the streambank that was disturbed for approximately 75 feet upstream. Trees such as western red cedar, red alder, and big leaf maple would be planted, along with shrubs, herbaceous plants, and aquatic macrophytes to help stabilize the soils.

The decommissioning of the outdated structure would provide unimpeded passage for fish through the removal of a 36-foot wide segment of the intake that currently spans the full width of the stream. The stream channel would be allowed to naturally attenuate and restore itself, which

would provide additional fish passage in the stream. Thus, the proposed project would result in moderate longterm positive effects to stream habitat conditions and thus fish.

#### **5.3.4 Mitigation Measures**

Mitigation measures required in Section 8.0 would ensure that construction at the Proposed Action sites is not likely to adversely affect the riparian vegetation beyond short-term impacts. Appropriate BMPs and fencing around the sites would reduce the habitat available for wildlife use, but there is substantial habitat available in the surrounding area and the effect would be negligible.

### **5.4 Cultural Resources**

The National Historic Preservation Act (NHPA) declares Federal policy to protect historic sites and values, in cooperation with other nations, states, and local governments. Subsequent amendments designated the State Historic Preservation Officer (SHPO) as the individual responsible for administering state-level programs. Section 106 of the NHPA and its implementing regulations (36 CFR 800) outline the procedures to be followed in the documentation, evaluation and mitigation of impacts to cultural resources. The Section 106 process applies to any Federal undertaking that has the potential to affect cultural resources and includes identifying significant historic properties and districts that may be affected by an action and mitigating adverse effects to properties listed, or eligible for listing, in the National Register of Historic Places (NRHP) (36 CFR 60.4).

Other Federal regulations such as the Native American Graves Protection and Repatriation Act and the Archaeological Resources Protection Act are not applicable to this project, as these acts only apply to federal lands.

#### **5.4.1 Affected Environment**

The existing water intake structure was built in 1936 and appears typical for that type of structure. The structure would be without National Register eligibility merit. Decommissioning of the existing structure and the construction of an intake structure at a new site would result in ground disturbance. The area disturbed would be relatively small in both locations, thus no field investigations were conducted to further evaluate for the potential presence of archeological resources. The decommissioning site has incurred past ground disturbance from previous landslides and scouring during high flow events. The new site has incurred past ground disturbance in the staging area and up to the cyclone fence separating the water treatment plant facility from Turner Creek.

#### **5.4.2 Effects and Consequences to Cultural Resources – Alternative 1 – No Action Alternative**

Under this alternative, no construction activities would occur that would potentially affect cultural resources.

### ***5.4.3 Effects and Consequences to Cultural Resources – Alternative 2 – Proposed Action***

As part of the USACE permitting process, the USACE assumed the lead in consulting with the SHPO and tribes that were identified as having a potential interest in the project area. The USACE reviewed files and records, the latest published version of the National Register, lists of properties determined to be eligible, and other appropriate sources of information. The USACE determined the Proposed Action would have no effect to historic properties based upon their review of available information.

The USACE sent a letter to the SHPO requesting concurrence with their determination and received a concurrence letter on May 6, 2010, which is included in Appendix B (SHPO Case No. 10-0444). The SHPO did not find any previous cultural resource surveys completed near the proposed project area. The SHPO advised that extreme caution is recommended during ground disturbing activities to protect potential archaeological sites and objects, and human remains.

A request for review was sent on April 20, 2010, by the USACE to three tribes, including the Confederated Tribes of the Grand Ronde Community (Grand Ronde), the Confederated Tribes of Siletz Indians, and the Confederated Tribes of the Warm Springs Reservation. Eirik Thorsgard, Cultural Protection Coordinator for the Grand Ronde tribe, was the only one to respond (see Appendix B). He provided an e-mail on April 26, 2010, stating the tribe had reviewed the USACE permit application and did not have comments or concerns about the project.

### ***5.4.4 Mitigation Measures***

An unexpected discovery clause is included in Section 8.0 and requires that in the event historically or archaeologically significant materials or sites (or evidence thereof) are discovered during the implementation of the project, the project shall be halted and all reasonable measures taken to avoid or minimize harm to property until such time as FEMA, in consultation with the SHPO, determines appropriate measures have been taken to ensure that the project is in compliance with the NHPA.

## **5.5 Environmental Justice**

EO 12898 (Federal Actions to Address Environmental Justice in Minority and Low-Income Populations) requires Federal lead agencies to ensure rights established under Title IV of the Civil Rights Act of 1964 when analyzing environmental effects. FEMA and most Federal lead agencies determine impacts to low-income and minority communities as part of the NEPA compliance process. Agencies are required to identify and correct programs, policies, and activities that have a disproportionately high and adverse effect on human health or environmental effects on minority or low-income populations. EO 12898 also tasks Federal agencies with ensuring that public notifications regarding environmental issues are concise, understandable, and readily accessible.

### ***5.5.1 Affected Environment***

For the purpose of evaluating Environmental Justice effects in this draft EA, the affected environment is defined as the population of the City of Yamhill, Oregon. Statistics for Yamhill

County were also evaluated for comparison. As reported in the 2000 U.S. Census, 92.6 percent of the City is White, 4.8 percent is Hispanic or Latino, and 2.6 percent is not Hispanic, Latino or white. The U.S. Census determined that 25.2 percent of the City was in poverty status in 2000, compared to 40.3 percent for the county.

### ***5.5.2 Effects and Consequences to Environmental Justice – Alternative 1 – No Action Alternative***

Under this alternative, no construction activities would take place. The existing water supply source for the community of Yamhill would remain at risk from future high precipitation events and from the potential for landslides to block the water intake. This alternative would have a potential adverse effect on the reliability of drinking water for the community as a whole, that would in turn affect low income and minority populations.

### ***5.5.3 Effects and Consequences to Environmental Justice – Alternative 2 – Proposed Action***

The construction of a new water intake structure sited downstream of the existing structure would provide the City with a reliable location to house its water intake away from potential slide activity. The proposed project would provide a permanent solution to the continued requirement to have sediment removed from behind the intake structure and eliminate the concern that the adjacent banks will slide during heavy precipitation events. This would have a beneficial effect to the general population, including low income and minority populations in the community of Yamhill, as it would provide a reliable source of water for the municipal drinking water system.

### ***5.5.4 Mitigation Measures***

None.

## **6.0 CUMULATIVE EFFECTS**

Cumulative effects are those that result from the incremental effect of an action when added to other past, present and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes an action. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time.

Under the No Action Alternative, adverse impacts would occur if the water system is damaged or destroyed during future flooding or landslide events and the City is left without an available water supply. This would result in an adverse effect to the availability of a reliable source of community water. Relocation of the water intake system as proposed under Alternative 2 should not contribute to adverse cumulative impacts to the environment.

There will be relatively little potential for cumulative impacts to the environment, vegetation, and wildlife from the Proposed Action considered. The relocation would disturb some previously undisturbed ground and there would be temporary disturbance to soil. Areas of disturbed soil would be properly compacted to eliminate settling and erosion issues. BMPs such as silt fencing and revegetation would reduce the potential for runoff and erosion to adjacent areas. There would be long term gain to area residents by the reduction of risk to their existing water intake system and the increase in capacity to the City's water system.

The Proposed Action would establish an improved source of drinking water supply for the citizens of Yamhill and would increase the amount of available water to the City. The section of stream downstream of the existing water intake structure will likely experience an increase in flow as the diversion is eliminated with the decommissioning of the existing water intake structure. It is anticipated that the demand of water supply to the treatment plant would not substantially increase; therefore flows downstream of the new intake structure would be consistent with historical flows in consideration of the raw water diversion.

Indirect effects to stream flow may result should water demand increase beyond the current demand due to increases in the urban population served. However, it is not anticipated that flows would be altered from the diversion pattern that Turner Creek has historically seen from the intake of raw water. The City maintains a reservoir upstream that can be utilized to supplement stream flow during low flows to offset any potential adverse cumulative effects.

Spawning gravels may be temporarily and acutely affected by temporary increases in sedimentation caused by the removal of the existing water intake structure in conjunction with the release of water and upstream sediments currently being held behind the existing structure. Stockpiling the removed sediments upstream on the channel banks would allow a slow release into the system and was recommended by Aaron Beavers, NMFS Hydrology Engineer, during a site visit on April 27, 2010. It is anticipated that the amount of sediment that may potentially affect habitat in a long-term manner would be inconsequential as the accumulated material is largely comprised of the sand, gravel, and cobble material that is found in the upstream section. The gravel in the sediment has biological value to the stream system and its slow release back into the system would help to promote spawning habitat.

## **7.0 CONSULTATION AND COORDINATION**

Several state and Federal agencies were consulted throughout the BA, permit application, and draft EA process to gather valuable input and to meet regulatory requirements. Agencies contacted included the USFWS, NMFS, ODFW, SHPO, DEQ, and the USACE.

### **7.1 Public Involvement**

FEMA's draft EA is being released and a public notice is being posted in Yamhill for a 21-day public review and comment period, ending July 30, 2010. The draft EA and public notice will be posted for viewing on FEMA's website at

<http://www.fema.gov/plan/ehp/envdocuments/index.shtm>. A copy of the public notice is included in Appendix C.

The initial public notice will also serve as the final public notice for this project. Unless significant substantive public comments are received, no further public involvement will be conducted for this draft EA. FEMA does not anticipate the need to prepare an Environmental Impact Statement. In the public notice distributed with the draft EA, all recipients were notified that after the public comment period ends, provided no substantive comments are received, the final EA and a Finding of No Significant Impact (FONSI) will be available at the above website.

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## 8.0 MITIGATION MEASURES REQUIRED

The following mitigation measures are required as conditions of FEMA funding:

1. The City is required to obtain and comply with all local, state and Federal requirements, including any required certifications and permits. Failure to obtain all appropriate authorizations may jeopardize federal funding.
2. The applicant is responsible for selecting, implementing, monitoring and maintaining appropriate BMPs to control erosion and sediment, reduce spills and pollution, and provide habitat protection. Erosion controls must be in place before any significant alteration of an area takes place. If fill is stored on site, the contractor is required to cover and contain it appropriately. Areas of disturbed soil need to be properly compacted to eliminate settling and erosion issues. Access roads and work areas must use existing access ways whenever possible and minimize soil disturbance and compaction within 200 feet of any stream, water body, or wetland. BMPs such as silt fencing and reseeding using native species are required, as needed, to eliminate the potential for runoff and erosion to adjacent areas.
3. Additional terms and conditions to minimize effects to water quality and biological resources will be provided by the BO prepared by NMFS, along with all USACE permitting requirements, and are required for FEMA funding of this project. This is expected to include the minimizing and avoidance measures in Section 7.1 in the final BA, along with the standard specifications in Section 7.2. The standard specifications include, but are not limited to, erosion and sediment control, environmental protection, pollution control measures, regulated work areas, fish protection, work area isolation, water intake screen requirements, and site restoration.
4. In order to minimize stormwater pollutants from the construction activities under the Proposed Action, a General NPDES permit, or a waiver of the permit, may be required to be obtained from the DEQ. Permit compliance or documentation of how it was determined a permit is not required is required to be kept in project files.
5. The applicant is responsible for ensuring all construction activities are performed using qualified personnel and in accordance with the standards specified in OSHA regulations. Appropriate signage and barriers, if needed, are required to be in place prior to construction activities to alert pedestrians and motorists of project activities to minimize potential adverse public safety concerns.
6. Following decommissioning of the existing water intake structure, the stream channel is required to be restored back to its typical shape and profile. Trees, shrubs, herbaceous plants, and aquatic macrophytes are to be planted to help stabilize the soils. Trees such as western red cedar, red alder, and big leaf maple would be planted where feasible along the riparian areas of the full length of the decommissioning bank, including the re-establishment of the streambank that was disturbed for approximately 75 feet upstream.

7. Only certified noxious weed-free seed, hay, straw, mulch, or other vegetation material would be used for site stabilization and revegetation. After removal of the temporary structures used for construction of the new water intake structure, the streambank, soils and vegetation disturbed at the site are required to be re-graded and restored. Disturbed riparian areas shall be seeded with native riparian vegetation and vegetation removed for construction shall be replaced by an equal or greater amount. For all replanting, plants and seeds will be obtained from local sources to ensure plants are adapted to the local climate and soil chemistry. Revegetation plans will be prepared in accordance with NMFS guidelines to address factors that contribute to site success such as weather and disturbance patterns, nutrient cycling, and the hydrologic condition of the replanting areas. Noxious weed control measures shall be implemented during the re-establishment phase in replanted areas. The use of pesticides and/or fertilizer is not allowed.
8. No construction material or debris shall be staged or disposed of in a wetland, even temporarily. Excess and unsuitable excavated material shall not be sidecast into or placed upslope of wetlands environments and shall be disposed of at an approval disposal location.
9. In the event that historically or archaeologically significant materials or sites (or evidence thereof) are discovered during the implementation of the project, the project shall be halted and all reasonable measures taken to avoid or minimize harm to property until such time as FEMA, in consultation with the SHPO, determines appropriate measures have been taken to ensure that the project is in compliance with the NHPA.
10. Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other laws and Executive Orders.

## 9.0 REFERENCES

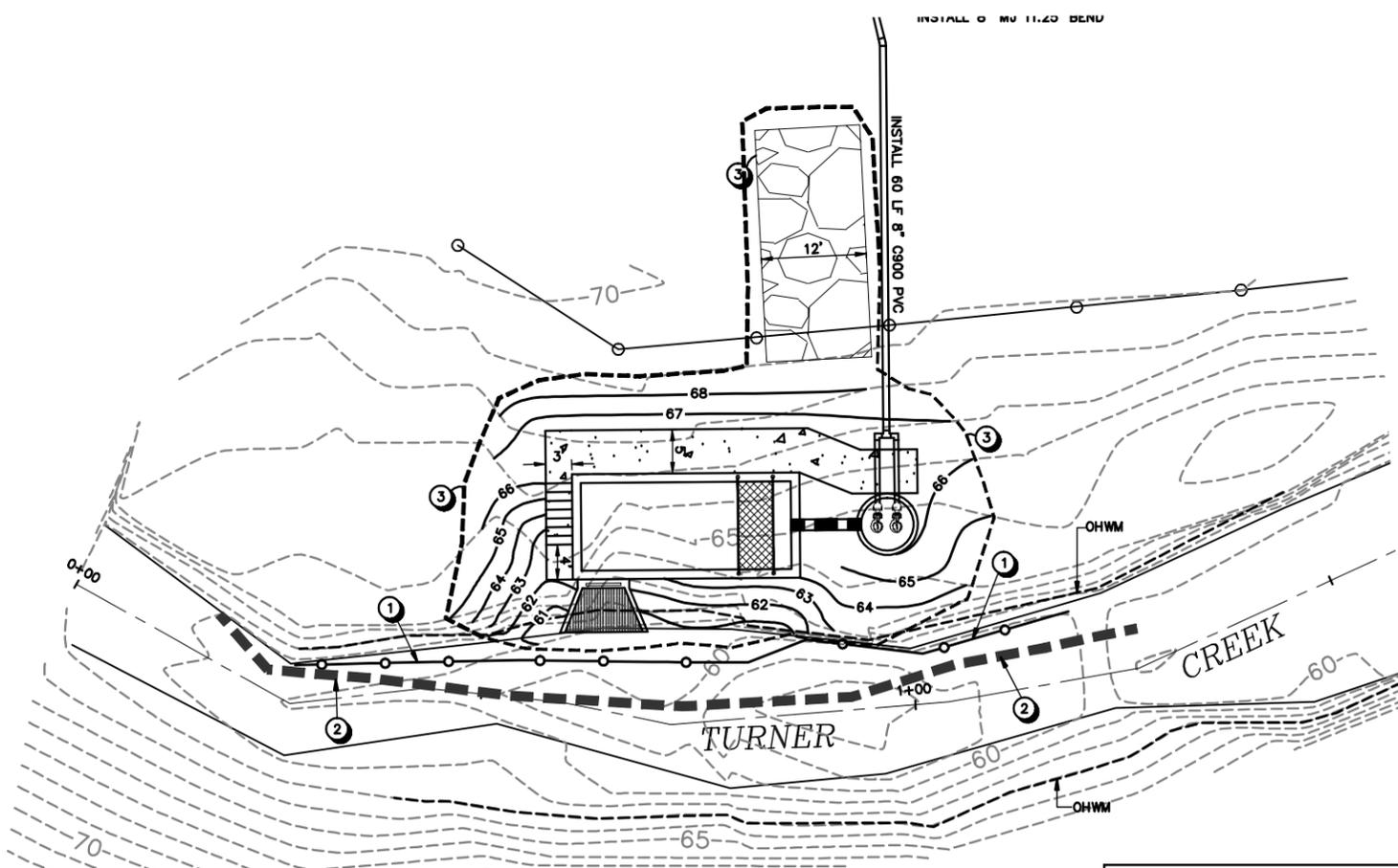
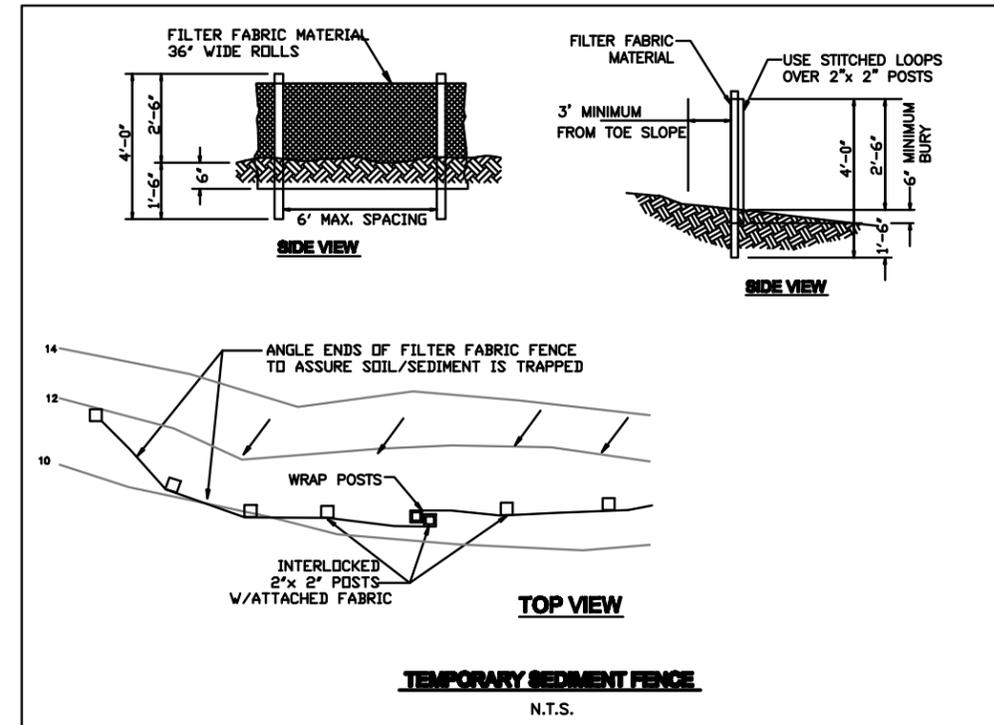
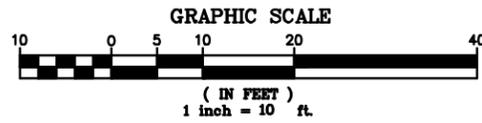
U.S. Census 2000. <http://censtats.census.gov/data/OR/1604184250.pdf> for the City of Yamhill and <http://censtats.census.gov/data/OR/05041071.pdf> for Yamhill County.

Wold Environmental Consultants, LLC. 2010. *Biological Assessment Turner Creek Water Intake Replacement*.

**APPENDIX A**

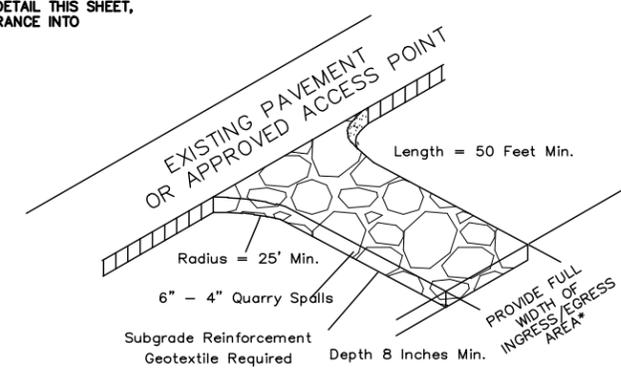
**Intake Design**

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TOTAL CUBIC YARDS REMOVED: 160 CY  
 CUBIC YARDS REMOVED BELOW OHWM: 5 CY  
 TOTAL AREA DISTURBED: 2175 SF = 0.05 ACRES  
 TOTAL AREA DISTURBED BELOW OHWM: 120 SF = 0.002 ACRES

- NOTES**
- 1 TEMPORARY SILT FENCE, SEE DETAIL THIS SHEET
  - 2 PLACE TEMPORARY SANDBAGS AS NECESSARY TO ISOLATE WORK AREA AND DIVERT WATER FROM CONSTRUCTION ACTIVITIES
  - 3 GRADING LIMITS
  - 4 CONSTRUCTION ENTRANCE, SEE DETAIL THIS SHEET, GRADE AS NECESSARY FOR ENTRANCE INTO CONSTRUCTION SITE



\*20' MIN. FOR SINGLE FAMILY AND DUPLEX RESIDENTIAL  
**GRAVEL CONSTRUCTION ENTRANCE**

- GRAVEL CONSTRUCTION ENTRANCES :**
1. STABILIZED CONSTRUCTION ENTRANCE(S) SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
  2. ALL VEHICLES LEAVING THE SITE SHALL LEAVE BY DRIVING ACROSS THE GRAVEL CONSTRUCTION ENTRANCE(S) IF GRAVEL ENTRANCE BECOME FILLED WITH MUD AND IS NO LONGER FUNCTIONAL, ADDITIONAL GRAVEL SHALL BE PLACED. VEHICLE TIRES SHALL BE FREE FROM DIRT BEFORE LEAVING THE SITE.
  3. IF ACCESS IS NEEDED FROM A PAVED SURFACE OVER A CURB TO A GRAVEL SITE ENTRANCE. A WOODEN RAMP SHALL BE BUILT FROM THREE OR MORE PLANKS OF INCREASING SIZE WOOD, OFFSET TO ALLOW FOR DRAINAGE. NO GRAVEL OR ROAD BASE RAMPS ALLOWED.



EXPIRES: 06/30/11  
 SIGNATURE DATE: \_\_\_\_\_

E08-048 C4.dwg 16:32 11/24/2009

DATE:	NO.	REVISION

DRAWN:	DESIGNED:	CHECKED:
SCALE: AS SHOWN	DATE: MARCH 2008	
PROJECT NO. E08-048		

**FDG**  
 Firwood Design Group, LLC  
 SURVEYING • ENGINEERING • PLANNING

30000 PIONEER BLVD., SUITE 104  
 SANDY, OREGON 97055  
 TEL: (503) 688-6737 • FAX: (503) 688-6788

**CITY OF YAMHILL**  
 TOWNSHIP 2S, R 5W SEC. 10  
 OF WILLAMETTE MERIDIAN

**TURNER CREEK WATER INTAKE**  
 CITY OF YAMHILL, OREGON  
 EROSION CONTROL AND DEWATERING PLAN

**APPENDIX B**

**Cultural Resources Concurrence Letters**

DRAFT



**Oregon**  
Theodore R. Kulongoski, Governor

**Parks and Recreation Department**  
State Historic Preservation Office  
725 Summer St NE, Ste C  
Salem, OR 97301-1266  
(503) 986-0671  
Fax (503) 986-0793  
www.oregonheritage.org

May 06, 2010

Mr. Brian Villalon  
US Army Corps of Engineers/CENWP-OP-G  
PO Box 2946  
Portland, OR 97208-2946

RE: SHPO Case No. 10-0444  
NWP-2010-67  
Removal existing dam structure  
COE/DSL/City of Yamhill  
2S 5W 10, Yamhill County

Dear Mr. Villalon:

Our office recently received a request to review the proposal for the project referenced above. In checking our statewide cultural resource database, I find that there have been no previous cultural resource surveys completed near the proposed project area. However, the project area lies within an area generally perceived to have a high probability for possessing archaeological sites and/or buried human remains.

While not having sufficient knowledge to predict the likelihood of cultural resources being within your project area, extreme caution is recommended during future ground disturbing activities. ORS 358.905 and ORS 97.740 protect archaeological sites and objects and human remains on state public and private lands in Oregon. If any cultural material is discovered during construction activities, all work should cease immediately until a professional archaeologist can assess the discovery. If your project has a federal nexus (i.e., federal funding, permitting, or oversight) please coordinate with your federal agency representative to ensure that you are in compliance with Section 106 of the NHPA.

If you have any questions about my comments or would like additional information, please feel free to contact our office at your convenience. In order to help us track your project accurately, please be sure to reference the SHPO case number above in all correspondence.

Dennis Griffin, Ph.D., RPA  
State Archaeologist  
(503) 986-0674  
dennis.griffin@state.or.us

**Villalon, Brian A NWP**

**From:** Eirik Thorsgard [Eirik.Thorsgard@grandronde.org]  
**Sent:** Monday, April 26, 2010 2:46 PM  
**To:** Villalon, Brian A NWP  
**Subject:** RE: NWP-2010-67 City of Yamhill Dam removal

Hello Brian,

The Confederated Tribes of the Grand Ronde Community of Oregon Cultural Resources Department has reviewed this permit application and has no comments or concerns regarding this project at this time.

Eirik Thorsgard MAIS  
Cultural Protection Coordinator  
Interim Tribal Historic Preservation Officer Confederated Tribes of the Grand Ronde Community of Oregon PhD Candidate Flinders University Adelaide, Australia

-----Original Message-----

**From:** Villalon, Brian A NWP [mailto:Brian.A.Villalon@usace.army.mil]  
**Sent:** Tuesday, April 20, 2010 9:57 AM  
**To:** Eirik Thorsgard; rkentta@ctsi.nsn.us; Brigette Whipple  
**Subject:** NWP-2010-67 City of Yamhill Dam removal

Good day,

The attached project description, maps, and drawings are provided for your review.

The project is located in Turner Creek approximately 8.2 miles West of the city of Yamhill on Turner Creek Road, in Yamhill County, Oregon (Section 10, Township 2 South, Range 5 West).

The proposed project involves the removal of an existing Dam structure on Turner Creek, used for the city of Yamhill's drinking water intake. The city is proposing to replace the Dam with a side channel intake structure as shown in the attached application and plan drawings.

The Corps believes this project will have No Effect to cultural resources based upon our review of available information. We reviewed Branch files and records, the latest published version(s) of the National Register, lists of properties determined eligible, and other appropriate sources of information in making our determination.

We are also requesting you advise us whether treaty fishing access sites, usual and accustomed areas, traditional cultural properties, or other resources important to the Tribes might be affected by the proposed action.

Please respond to the Corps' effects determination at your earliest convenience. If we have not heard back from you within 30 days from date of this notification, we will assume you have no comments or concerns and/or concur with our effects determination regarding this action.

Regards,

Brian A. Villalon  
Regulatory Project Manager/Biologist  
US Army Corps of Engineers/ Portland District CENWP-OP-G PO Box 2946 Portland, OR 97208-2946  
Office: 503-808-4368  
Fax: 503-808-4375

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**APPENDIX C**

**Public Notice**

DRAFT

The U.S. Department of Homeland Security's  
**Federal Emergency Management Agency (FEMA)**  
**Draft Environmental Assessment**  
**FEMA-1824-DR-OR**  
**City of Yamhill, Oregon**

**Turner Creek Water Intake System Relocation**

Notice is hereby given that FEMA plans to assist the City of Yamhill by providing partial funding to remove an existing small low head dam and associated water intake system on Turner Creek and to install a new water intake structure closer to the Yamhill Water Treatment facility. The new site would be at less risk from future flooding events and would increase the capacity of the City's water system. FEMA is proposing to fund 75 percent of the cost for this project through its Hazard Mitigation Grant Program (HMGP), with the remainder coming from the applicant or other nonfederal sources. Federal financial assistance would be provided pursuant to the authority of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended.

FEMA has prepared a draft Environmental Assessment (EA) for the proposed project pursuant to the National Environmental Policy Act (NEPA) of 1969 and FEMA's implementing regulations. The draft EA will be finalized after agency and public review and input. The EA evaluates alternatives for compliance with applicable environmental laws, including: Executive Orders No. 11988 (Floodplain Management), No. 11990 (Protection of Wetlands), and No. 12898 (Environmental Justice). Alternative 1 is the No Action Alternative, which would entail no relocation of the existing water intake system. Alternative 2 would decommission the existing water intake system site and build a new water intake system at an alternative site.

This notice will constitute as the final notice as required by Executive Order 11988, Floodplain Management, and Executive Order 11990, Protection of Wetlands. If no significant issues are identified during the comment period, FEMA will finalize the EA, issue a Finding of No Significant Impact (FONSI), and fund the project.

The draft EA is available for viewing and download at <http://www.fema.gov/plan/ehp/envdocuments/index.shtm>. Please submit your written comments to Science Kilner, FEMA Region X Deputy Environmental Officer, no later than midnight on July 30, 2010. Comments can be submitted by:

1. By mail to: U.S. Department of Homeland Security  
FEMA Region X  
130 228<sup>th</sup> Street SW  
Bothell, WA 98021-9796
2. Fax at: (425) 487-4613
3. E-mail at: [science.kilner@dhs.gov](mailto:science.kilner@dhs.gov)

After the public comment period ends, the final EA and the FONSI will be available for viewing at: [http://www.fema.gov/plan/ehp/envdocuments/archives\\_index.shtm](http://www.fema.gov/plan/ehp/envdocuments/archives_index.shtm).