FINDING OF NO SIGNIFICANT IMPACT
Desimone-Briscoe School Levee Rehabilitation
Tukwila, Washington

1. Background. The Desimone-Briscoe School Levee is part of the Lower Green River Levee System. It is located on the right bank, between South 180th Street in the City of Tukwila and South 200th Street in the City of Kent, Washington. The Desimone-Briscoe School Levee provides flood protection to over 7.65 square miles of urban developed land. The levee was damaged during high flows in the Spring of 2014. The high river flows resulted in the scour and loss of protective armor rock and levee prism material along a 300-foot reach of the levee.

a. The levee was designed to provide a 100-year level of protection. The failure condition of the levee for the damaged (current) condition is estimated at less than a two-year level of protection.

2. Proposed Action. The least-cost alternative was determined to be the Waterward Slope Layback with Retaining Wall alternative. This would include approximately a 585-foot (ft) rebuild of the existing levee toe and slope, and installation of a retaining wall on the landward shoulder of the crown. The riverward slope would be laid back to a slope of 2H: 1V from the toe to elevation 26 ft and have a varying upper slope of no steeper than 1.5H/1V. An upper slope bench would be installed. The wall on the landward slope would be used to reduce the encroachment of the levee on existing infrastructure behind the levee. The repair would restore the pre-flood 100-year level of protection. This was determined to be the least-cost feasible alternative. The non-Federal sponsor, King County Flood Control Zone District (KCFCZD), has requested an alternative that is different than the least-cost alternative, a Locally Preferred Plan (LPP). The LPP is similar to the Waterward Slope Layback with Retaining Wall alternative, with two significant differences. The LPP adds the rebuilding of an additional 190 ft of existing levee toe and slope upstream of the least-cost feasible alternative. Additionally, the retaining wall that would have been included in the least-cost feasible alternative will be upgraded to a floodwall. The cost increment represented by these two differences will be borne by the Sponsor. Thus the Federal project, under the LPP alternative, will have a complete length of 775 ft of toe and slope work and includes 585 ft of flood wall installation. The LPP alternative is the selected alternative.

a. The LPP will be completed in two phases. Phase 1 includes the installation of the floodwall by the City of Kent. This emergency installation began in February 2015 in order to generate tangible incremental enhancement of flood risk reduction benefits essential to the maximization of protection of human life and property in light of the levee's damaged status, within the ongoing flood season. Floodwall installation was expected to take three weeks; however, there are four additional months of associated work to finalize the wall installation. This additional work must be fully completed before the Federal work on the riverward face comprising Phase 2 can commence. Phase 2 will include the completion of the toe and slope work in order to fully restore the pre-

flood level of protection. Phase 2 will begin in summer 2015. Phase 2 is expected to take approximately eight weeks. The in-water work window for this reach is 1-31 August. A fish window extension has been requested and received, with the expectation that all isolation materials will be in place prior to 31 August. Work will continue within the isolated area through September, and all in-water work will be completed and isolation materials will be removed by 30 September. Although Phase 1 was constructed by non-Federal parties, it is expected to be integrated into the Federal action through the cost-sharing relationship between the U.S. Army Corps of Engineering (Corps) and the KCFCZD, and is thus evaluated herein under National Environmental Policy Act (NEPA). The design of the wall was previously reviewed by a Corps' structural engineer and found to be acceptable as a retaining wall design. Following construction by the City of Kent, KCFCZD is expected to receive credit for the action as their cost share for the Federal repair. If the wall is not accepted by the Corps for integration into the design of the federally constructed elements of Phase 2, the Corps will evaluate the need for reconsidering the analysis and supplementing the accompanying Environmental Assessment (EA), and this Finding of Significant Impact will be revisited and revised, as necessary.

b. Mitigation features have been included in the Project design. The repair footprint has been curtailed to avoid impacts to a tribal fishing site. The slope of the repaired section will be laid back to increase channel capacity and slow velocity of flows. Two planting lifts will be installed into the riverward face of the levee at or near ordinary high water. Hooker's willows (*Salix hookeriana*), Sitka willows (*S. sitchensis*), and red-osier dogwood (*Cornus sericea*) will be spaced approximately every 12 inches in each lift. These species stay relatively small and bushy, with flexible stems. Pacific willows (*S. lasiandra*) will be also placed into both lifts, one stem every 15 ft within each lift. Pacific willow is a fast-growing tree. Above ordinary high water, after construction is completed, a layer of topsoil will be placed onto the riprap. This topsoil will be seeded with a native seed mix. Additional trees will be planted along the riverward bench. These include bigleaf maple (*Acer macrophyllum*), cascara (*Rhamnus purshiana*), bitter cherry (*Prunus emarginata*), Oregon ash (*Fraxinus latifolia*), Douglas-fir (*Pseudotsuga menziesii*), Pacific crab apple (*Malus fusca*), and shore pine (*Pinus contorta*). Mitigation for the Federal action will include the plantings within the length of project that will constitute the least-cost alternative (585 feet). This includes a total of 1092 shrubs and 152 trees. The Federal project will also consist of plantings within the 190 linear-ft "LPP Segment" depicted in Figure 3 of the accompanying EA. These plantings will not be conducted in direct compensation for losses caused by the Corps' repair activities, and they will be funded by the non-Federal sponsor, so the plantings will not be counted as Federal mitigation. Within the LPP, an additional 355 shrubs and 48 trees will be planted, for a site total of 1447 shrubs and 200 trees.

3. Impacts Summary. Pursuant to the NEPA the enclosed EA has been prepared. The EA evaluates the predicted environmental impacts associated with the proposed action and whether that action would cause significant adverse impacts to the quality of the human environment as briefly summarized below.

a. The Corps concludes that this project is within the public's interest and complies with the substantive elements of Section 404 of the Clean Water Act (CWA). The proposed repair of the Desimone-Briscoe School Levee involves activities in the waters of the U.S. which are functionally analogous to activities subject to authorization under NWP 3. The purpose of the proposed levee rehabilitation is to repair an existing serviceable levee damaged by floods. The project includes a minor deviation in the volume of structural and armor rock used within the levee prism in the vicinity of the toe in order to meet current construction and safety standards. The Corps has reviewed the parameters of NWP 3 as guidance for analyzing project impacts. The Corps has concluded that the project satisfies the conditions associated with application of CWA Section 401 certification under NWP 3, and that extension of the State's general certification under Section 401 to the project is therefore justified. Pursuant to NWP 3 by analogy, the State has provided general concurrence that the activity is consistent to the maximum extent practicable with the enforceable policies of the State program under the Coastal Zone Management Act. A memorandum detailing the Corps' analysis was provided to Ecology for their review on 19 February 2015. A Letter of Verification from Ecology was received on 29 April 2015 concurring that the project meets the requirements of NWP 3. Ecology's concurrence that the project is consistent to the maximum extent practicable with the enforceable polices of the Washington State Coastal Zone Management Program is presumed in accordance with 33 CFR 336.1(b)(9)(iv) and 15 CFR 930.41(a).

b. The Corps consulted with the Washington State Historic Preservation Officer (SHPO) and the Muckleshoot Indian Tribe as required by the National Historic Preservation Act. There are no properties listed in the National Register of Historic Places or the Washington State Historic Site Register in the project vicinity, and no cultural resources have been recorded within the Area of Potential Effect (APE). The Corps notified the Muckleshoot Indian Tribe on 7 January 2015, and asked the Tribe to identify any concerns and sought information about properties of religious or cultural significance that might be affected by the project. The Tribe did not identify any resources within the APE. The Corps notified the SHPO of our Finding of No Historic Properties Affected on 23 February 2015. The SHPO agreed with this determination on 23 February 2015.

c. The proposed project has been analyzed with respect to its effects on tribal treaty rights. The Muckleshoot Indian Tribe raised concerns over this project early in the design phase: impacts to a Usual and Accustomed fishing station under their treaty rights, impacts to water temperatures from tree loss, and access to the fishing station during construction. The project footprint and design were adjusted to avoid direct impact to the fishing station. Additional tree plantings were included in the project design to mitigate for any impact from vegetation removal and mitigate any temporal loss of the shading function. Tribal access to the area will be maintained throughout construction. Additionally, the Corps will monitor the project area to determine if rock placed for the repair effort has migrated to the fishing site. If this occurs the Corps will remove the transported rock to restore the approximate fishing site bathymetry.

d. Due to the urgent nature of commencing the Phase 1 construction within the ongoing flood season, the Corps initiated informal expedited consultation with the National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) in early December 2014. The expedited consultation focused only on the impacts of the proposed Phase 1 work (floodwall installation and tree removal) with the understanding that a full consultation for the complete Federal action (including consideration of any impacts from both Phase 1 and Phase 2) would occur prior to the commencement of the Phase 2 construction. Determinations concerning effects on listed species of the full Federal action (Phase 1 and Phase 2) in the project area have been made in a Biological Evaluation and transmitted to USFWS and NMFS on 13 February 2015. The Corps determined that the proposed project may affect but is not likely to adversely affect Puget Sound (PS) Chinook, Coastal/PS bull trout and PS steelhead and may affect but is not likely to adversely affect their designated/proposed critical habitat. A letter of concurrence was received from NMFS on 2 March 2015. A letter of concurrence was also received from USFWS 20 March 2015.

e. Unavoidable adverse effects associated with this project include: (1) minor and temporary increase in turbidity; (2) a temporary and localized increase in noise and emissions, which may disrupt nearby residents and businesses as well as fish and wildlife in the area; (3) minor vegetation impacts; and (4) a temporary and localized disruption of traffic by construction vehicles. These unavoidable impacts would be short in duration and are considered insignificant. Mitigation is included in the project design to address impacts to vegetation. Implementation of Best Management Practices and Conservation Measures will limit the impact of the overall project, including: minimization of the project length, use of vibratory pile driving, isolating the work area from the river, and water quality monitoring.

4. Finding. I find that the proposed action will not result in significant adverse environmental impacts and complies with all applicable laws, regulations, and agency consultations, including the CWA, ESA, NHPA, and NEPA, as well as applicable Executive Orders. Based on the analysis described above and provided in more detail in the accompanying EA, the Desimone-Briscoe School Levee Rehabilitation is not a major Federal action significantly affecting the quality of human environment, and therefore, does not require preparation of an Environmental Impact Statement.

16 Jun 15
Date

JOHN G. BUCK
Colonel, Corps of Engineers
District Commander

ENVIRONMENTAL ASSESSMENT

Desimone-Briscoe School Levee Rehabilitation

Tukwila, Washington

June 2015

US Army Corps of Engineers ®
Seattle District

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1 INTRODUCTION

The purpose of an Environmental Assessment (EA), as reflected in 40 CFR sections 1500.1(c) and 1508.9(a)(1) of the Council on Environmental Quality regulations implementing the National Environmental Policy Act (NEPA) of 1969 (as amended) is to "provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact" on actions authorized, funded, or carried out by the federal government, and to assist agency officials make decisions that are based on understanding of "environmental consequences, and take actions that protect, restore, and enhance the environment." This assessment evaluates environmental consequences for the implementation of management actions carried out by the U.S. Army Corps of Engineers (Corps) in cooperation with King County, Washington in response to the flood event described below.

1.1 Location of Action

The Desimone-Briscoe School Levee is part of the Lower Green River Levee System. It is located along the right bank (looking downstream) of the Green River between South 180th Street in the City of Tukwila and South 200th Street in the City of Kent, Washington (Figure 1). The proposed rehabilitation is located in Sections 35/36, Township 23 North, Range 13 West of the Willamette Meridian. The project site is near river mile 14.5.

1.2 Authority

The proposed levee repair is authorized by Public Law 84-99 (33 U.S. Code Section 701n). The Corps' rehabilitation and restoration work under this authority is limited to flood control works damaged or destroyed by floods. The statute authorizes rehabilitation to the condition and level of protection exhibited by the flood control work prior to the damaging event. King County Flood Control Zone District is the local sponsor.

1.3 Project Purpose and Need

Damage to the Desimone-Briscoe School levee was reported following a flood event on 10 March 2014 of 9,090 cubic feet per second at USGS gage 12113000, Green River near Auburn. This event is estimated to be a 2-year return period, or about a 0.5 chance of exceedance for a given year. The length of the flood damage is about 300 linear feet. The damage consists of scour at the toe of the structure, which has led to lost armoring, lost embankment material and over-steepened unstable banks. Soil is exposed along the steepened bank and the levee is estimated to provide a 2-year level of protection in the damaged condition. In its undamaged condition, the levee provides 100 year level of protection.

The levee provides flood protection to 7.65 square miles of developed lands. This levee system is the primary protection for the City of Kent, including emergency response transportation routes as well as many businesses, homes and utilities. The purpose of the proposed action is to restore the levee to its designed level of protection.

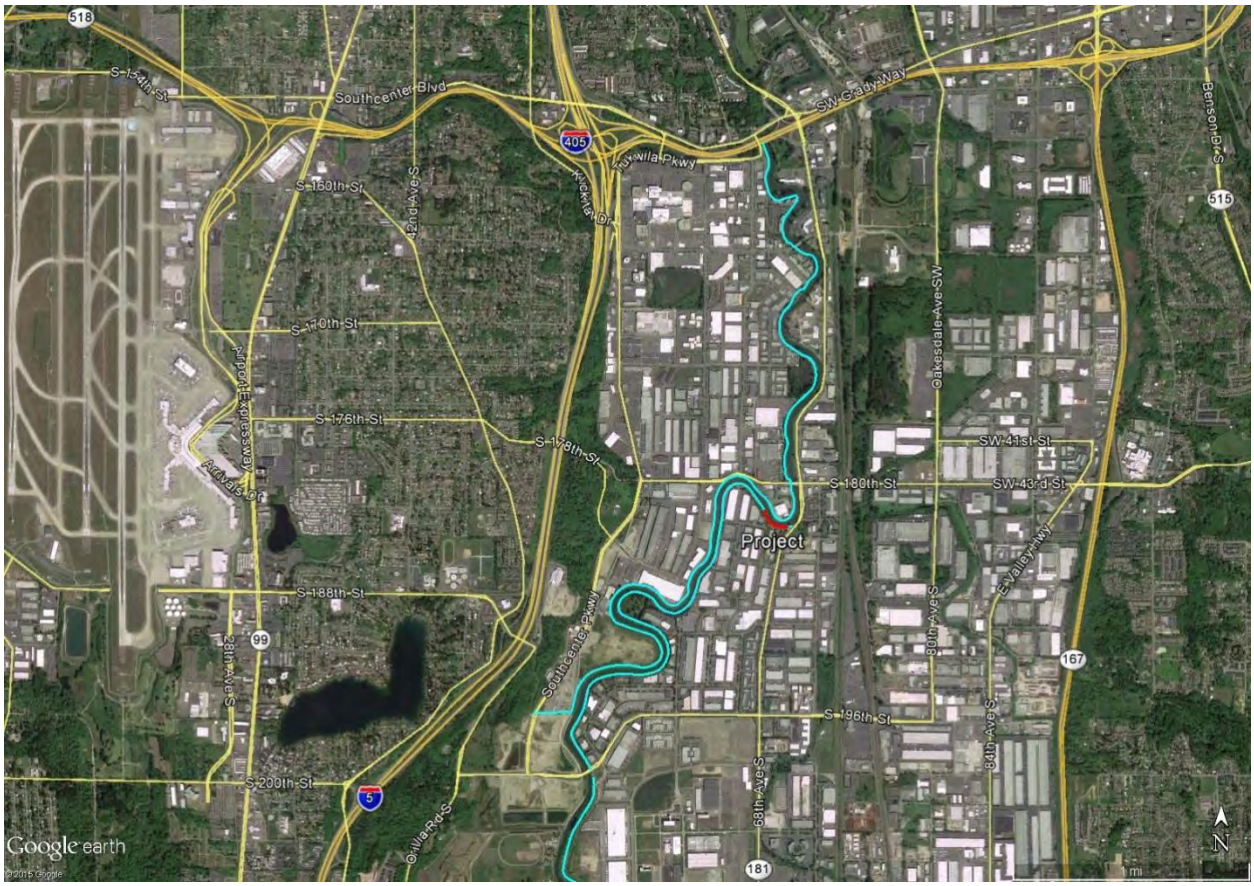

Figure 1. Overview of the project location. The blue lines illustrate the levees in the area with the red line indicating the project site.

1.4 Project History

Prior to the damaging flood event, the City of Kent had been pursuing a project to install a floodwall along the landward side of four reaches of the Desimone-Briscoe School Levee. The proposed Federal rehabilitation assistance action is co-located with a portion of Kent's work, known as Reach 1. Kent's previously planned floodwall is a steel sheetpile wall which was designed to reduce flood risk to the cities of Kent, Tukwila, and Renton. Kent has completed some components of Reaches 2, 3 and 4. The Corps' proposed Desimone-Briscoe School Levee Rehabilitation project would supplant a portion of Kent's project within Reach 1. The Federal project will therefore complete its own environmental impacts assessment and compliance documentation for the footprint of the Federal repair action.

2 ALTERNATIVES CONSIDERED

Criteria for selecting an agency preferred alternative included analyzing total cost of implementation, environmental effects of the action, and potential to achieve the project purpose. These are compared against the potential costs, environmental effects, and public safety risks of taking no action.

2.1 Alternative 1 – No Action

The No Action Alternative would leave the levee in its damaged condition. As a part of the No Action Alternative, the local sponsor would continue to construct their floodwall project (see Section 1.4 above). This floodwall is not considered to be a stand-alone flood control structure. The wall requires the supporting soils, both riverward and landward of the wall, in order to maintain stability. Without some action to repair the damaged levee, the floodwall installation alone is not expected to fully restore the level of flood protection.

The No Action alternative would not meet the project purpose, due to the high likelihood of damage to protected infrastructure and homes during future flood events. This alternative is included and analyzed in order to evaluate the relative merits and disadvantages of the action alternative. This alternative was carried through the alternative comparison in Chapter 3 of this document to provide a baseline for comparison of future conditions.

Figure 2. Photograph showing the damaged condition of the levee.

2.2 Alternative 2 – Waterward Slope Layback to Restore the 100-year (1% Annual Chance Exceedence, ACE) Level of Protection

The Waterward Slope Layback Alternative would reconstruct 585 feet of levee prism and establish a safe stable (2H:1V) armored slope on the lower riverward face, as well as a launchable toe. This alternative would include the repair of the 300 feet of damage and a total of 285 feet of transition zones upstream and downstream of the damage repair. The transition zones are calculated to allow the layback of the slope to a stable configuration within the damaged area and then to include gentle, smooth transitions to the existing oversteepened banks upstream and downstream, particularly in light of the severity of the bend in the river at the damage site. However, in this location there is no room for an adequate toe and creation of the

stable slope due to the proximity of infrastructure behind the levee, particularly a business and its parking lot. With insufficient room to restore a full cross-section with riverward and landward slopes adequately laid back to meet Corps design standards for slope stability, the Waterward Slope Layback Alternative was determined to be not feasible and is eliminated from further consideration.

2.3 Alternative 3 – Waterward Slope Layback with Retaining Wall to Restore the 100-year Level of Protection

The Waterward Slope Layback with Retaining Wall Alternative would include approximately a 585-foot rebuild of the existing levee toe and slope, and installation of a retaining wall on the landward shoulder of the crown. The retaining wall would be a reinforced concrete I-wall with a slab of 16 feet wide and a stem of 10 feet tall. The wall thickness would be approximately12 inches and slab thickness would be approximately 24 inches. By including a retaining wall on the back side of the levee, the levee footprint can be truncated. The resulting reduction of the cross-section dimension would decrease the footprint of the levee, thereby providing adequate room for the levee reconstruction within the available real estate. The riverward slope would be laid back to a slope of 2H:1V from the toe to elevation 26 ft and have a varying upper slope of no steeper than 1.5H/1V. The levee embankment, armor protection and launchable toe, with an upper-slope bench on the riverward side would be constructed, as described above in Alternative 2. The wall on the landward slope would be used to reduce the encroachment of the levee on existing property behind the levee and make this project constructible and feasible. The repair would restore the pre-flood 100-year level of protection. This was determined to be the least-cost feasible alternative.

Per Corps guidance (Engineering Regulation 500-1-1), a non-Federal sponsor can request an alternative that is different than the least cost alternative. Any increase in Federal cost resulting from the sponsor's preference of any alternative, other than the one that is least expensive to the Federal Government when all Federal costs are included, will be borne by the sponsor.

2.4 Alternative 4 – Locally Preferred Plan

At the Desimone-Briscoe School Levee, the sponsor requested a Locally Preferred Plan (LPP). The LPP is similar to the Waterward Slope Layback with Retaining Wall alternative, with two significant differences. The LPP adds, at the request of the sponsor, the rebuilding of an additional 190 ft of existing levee toe and slope (see segment labeled “LPP segment” on Figure 3) upstream of the least-cost alternative. Additionally, the retaining wall that would have been included in the least-cost alternative has been upgraded to a floodwall. The retaining wall would be concrete and would extend only slightly below the ground, while the floodwall is steel and extends 23 to 64 feet below the ground surface. The cost increment represented by these two differences would be borne by the Sponsor. Thus the Federal project, under the LPP alternative, would have a complete length of 775 ft of toe and slope work and includes 585 ft of flood wall installation.

The 585 feet of the floodwall behind the least-cost alternative, once installed and completed by the non-Federal sponsor, is anticipated to be integrated into the Federal project. The sponsor intends to install a total of 925 feet of floodwall in the project area. See Figure 3. This effort was initiated beginning in February 2015 and is expected to have a 5-month construction period. The sponsor is expected to receive credit against its cost-share for contributing the construction of the 585-foot floodwall element of the project. The sponsor requested the LPP in order to

extend the toe armoring to fully protect the upstream portion of the floodwall. The portion of the wall downstream of the limit of the Federal project is being engineered by the non-Federal sponsor as a stand-alone feature. The sponsor would not receive credit against its cost share for the construction of any length of the floodwall beyond the length of the least-cost alternative.

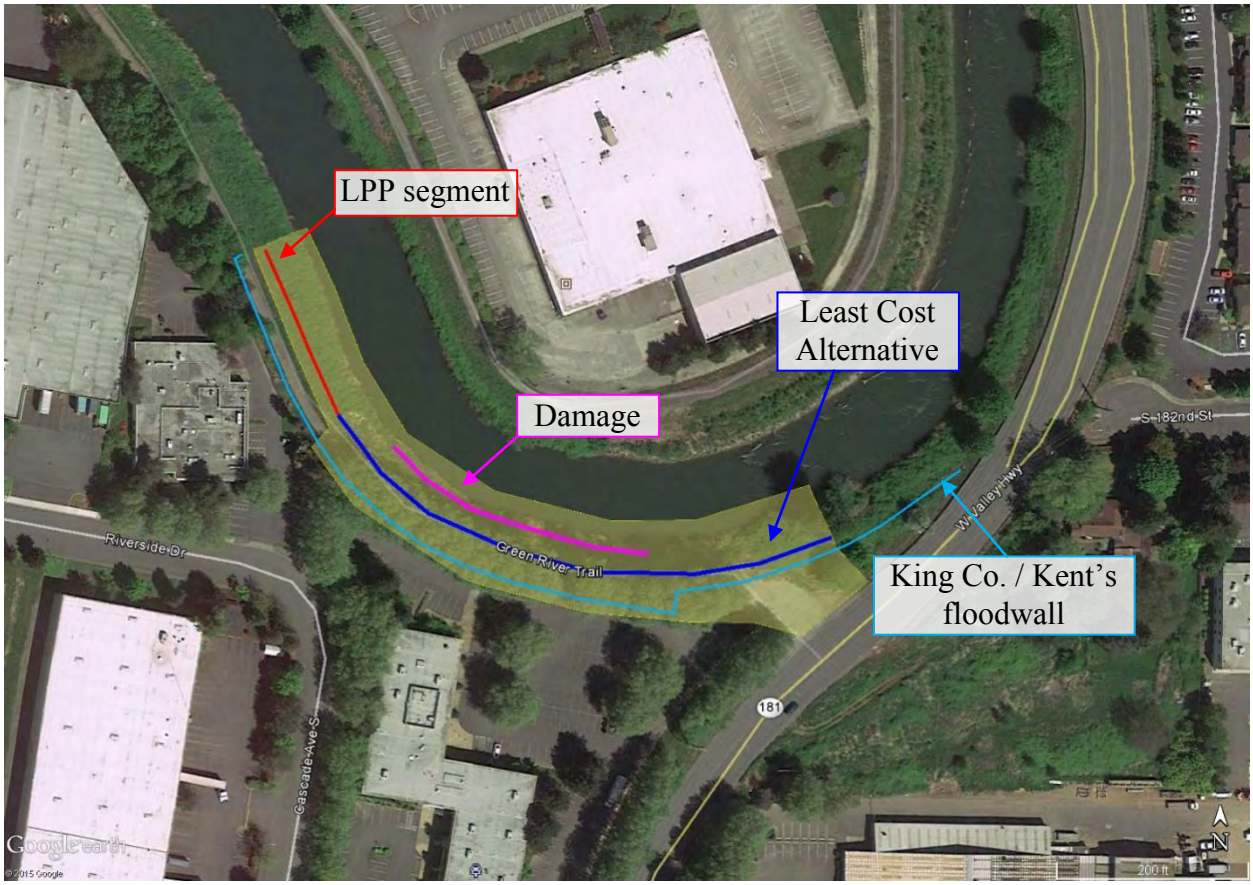

Figure 3. Project site details. The yellow shaded area indicates the Federal Action.

2.5 Alternatives Considered but Eliminated from Detailed Study

2.5.1 Alternative 5 – Non-Structural

This alternative would relocate all existing structures, utilities and other infrastructure outside of the floodplain. The costs associated with this alternative are extremely high relative to the level of benefit, therefore this alternative has been eliminated from detailed consideration .

2.5.2 Alternative 6 – Levee Setback

This alternative would relocate the entire levee footprint landward of the existing location. Construction of this alternative would require the acquisition of all lands between the existing levee alignment and the setback levee and could potentially require the removal or relocation of structures, depending on the proposed alignment. This alternative would require a longer repair length in order to circumvent the damaged area. The costs associated with this alternative are

extremely high relative to the level of benefit. Due to the extended repair length required and high cost relative to benefit, this alternative was eliminated from detailed consideration.

2.6 Agency Preferred Alternative (Alternative 4)

The Corps has determined that the LPP is the preferred alternative. The LPP would restore the pre-damaged level of protection and meet the project's purpose and need. The cost to the Federal government would be equivalent to the least-cost feasible alternative as any additional costs are borne by the non-Federal sponsor. The LPP would be completed in two phases. During Phase 1, King County and the City of Kent are proposing to construct the floodwall and complete all associated landward work, a 585-foot portion of which would subsequently be incorporated into the Federal action (see Figure 3). This Phase 1 effort began in February, with a five-month construction period (Phase 1). The piles for the floodwall are being installed with vibratory equipment to depths of 23 to 64 feet. The above-ground portion of the wall will be 8 to 13 feet tall relative to the ground level landward of the flood control structure.

The wall will be installed landward of the existing levee embankment. The space between the existing levee embankment and wall will be backfilled immediately, in order to provide stability to the sheet pile and associated floodwall features. A concrete cap beam will be installed along the top of the steel sheet pile wall to secure and provide a common rigid tie for the sheet pile panels. A concrete barrier will be built along the top of the cap beam to provide a guardrail to protect public trail users and maintenance vehicles. This concrete barrier will itself provide incremental protection against overtopping. The exposed sheet piles below the cap beam on the landside of the floodwall will be painted to provide corrosion protection. A steel pipe hand railing will be added to the top of the concrete barrier to raise the minimum guardrail height to 48 inches above the levee trail to protect bicyclists. A vehicle access ramp will be constructed at the location of a small City parking area off West Valley Highway just northeast of the property at 18200 Cascade Avenue South. A 20-foot wide opening will be provided within the concrete barrier to allow for vehicular access to the levee system. The opening will include removable bollards anchored into the cap beam.

In Phase 2, the Corps would complete the toe and slope work on the currently damaged riverward bank in order to fully restore the levee to the pre-flood 100-year level of protection. The second phase of the proposed repair, which is expected to be conducted and completed in summer 2015, would construct 775 feet of levee toe and would lay back and armor the slope. This second phase would require in-water work. The work area would be isolated from the river during the in-water work. Past projects on the Green River have used silt curtains, supersacks, and similar methods to achieve isolation of the work area. The in-water work window for this reach is 1 August to 31 August. A fish window extension has been requested and received, with the expectation that all isolation materials will be in place prior to 31 August. Work would continue within the isolated area through September, and all in-water work would be completed and isolation materials removed by 30 September.

The proposed levee would include a riverward slope of 2H:1V to an elevation of 26 feet. Above elevation 26 feet, the slope would vary, with a maximum of 1.5H:1V. The levee would have a varying crown width, ranging from 14 to 28-foot crown, and rock armoring with a launchable toe. The project length of 775 feet would also include transitions on both the upstream and downstream ends from the repaired components to the existing levee alignment. These transitions prevent scour at the tie-ins. Slope protection would be achieved by rip rap with a mean particle size of 1.5 feet with a launchable toe sized to protect the levee to a potential

estimated scour depth of 24 feet. The project would also include the removal and reconstruction of the Green River Trail along the crown of the levee.

The floodwall installation (Phase 1) was initiated in February and this construction element is expected to take approximately three weeks. The objective of this early sheet pile installation was to provide substantial incremental enhancement of flood risk reduction before the end of the flood season on 31 March. There are four additional months of associated work to finalize the wall installation, as described above, which must be fully completed before the Federal work on the riverward face comprising Phase 2 can commence. Because the in-water work may only be conducted during August, it is essential that all Phase 1 work that may possibly interfere with access to and construction at the damaged site, including unrestricted use of the limited construction staging areas, must be fully complete by 1 August 2015. Following the Phase 2 in-water work, the subsequent slope and crown work that will be completed out of the water will take an additional 4 weeks. With the five-month construction time necessary for the full course of Phase 1, it was essential that the Sponsor's floodwall installation commence in early February and continue without interruption until complete. This will provide the opportunity for completion of Phase 2, and full restoration of the pre-damage level of protection prior to the start of the 2015-2016 flood season.

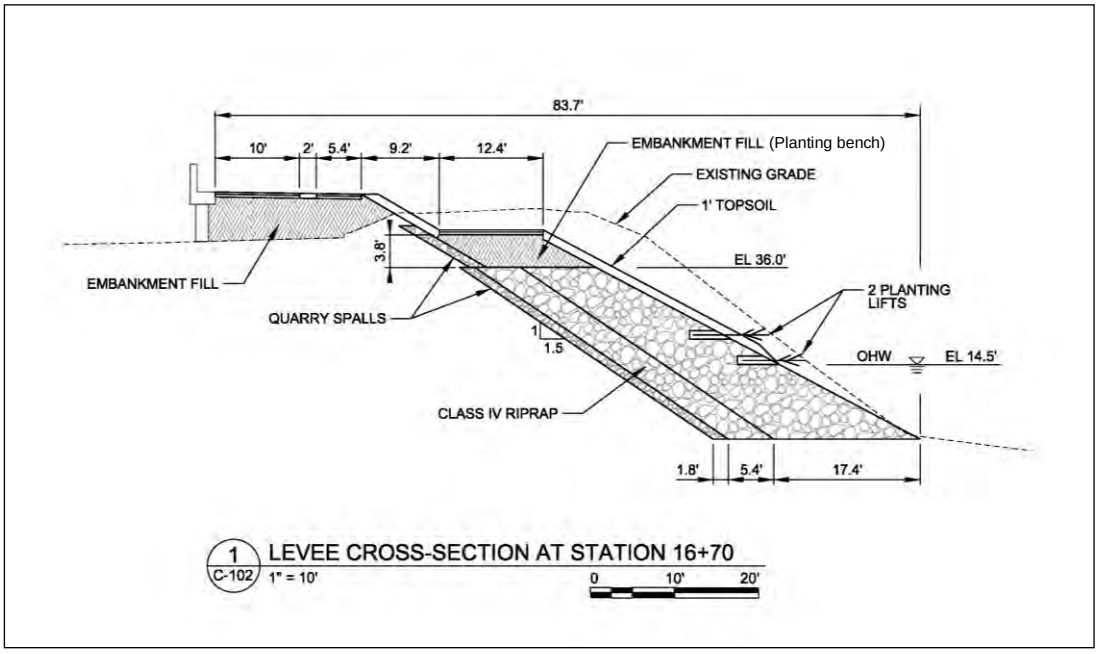

Figure 4. Typical cross section of the proposed repair.

Mitigation features have been included in the project design. Two planting lifts would be installed into the riverward face of the levee at or near ordinary high water. Live tree cuttings, approximately three feet in length, would be placed within a one-foot lift of soil. Hooker's willows (*Salix hookeriana*), Sitka willows (*S. sitchensis*), and red-osier dogwood (*Cornus sericea*) would be spaced approximately every twelve inches in each lift. These species stay relatively small and bushy, with flexible stems. Pacific willows (*S. lasiandra*) would be placed into both lifts, one stem every 15 feet within each lift. Pacific willow is a fast-growing tree. Above ordinary high water, after construction is completed, a layer of topsoil would be placed onto the riprap. This topsoil would be seeded with a native seed mix. Additional trees would be

planted along the riverward bench. These would include bigleaf maple (*Acer macrophyllum*), cascara (*Rhamnus purshiana*), bitter cherry (*Prunus emarginata*), Oregon ash (*Fraxinus latifolia*), Douglas-fir (*Pseudotsuga menziesii*), Pacific crab apple (*Malus fusca*), and shore pine (*Pinus contorta*). Mitigation for the Federal action would include the plantings within the length of project that would constitute the least-cost alternative (585 feet). This would include a total of 1092 shrubs and 152 trees.

The Federal project would also consist of plantings within the 190 linear-foot "LPP Segment" depicted in Figure 3. These plantings would not be conducted in direct compensation for losses caused by the Corps' repair activities, and they would be funded by the non-Federal sponsor, so the plantings would not be counted as Federal mitigation. Within the LPP segment, an additional 355 shrubs and 48 trees would be planted, for a site total of 1447 shrubs and 200 trees.

3 ENVIRONMENTAL RESOURCES OF CONCERN

This section provides information on environmental resources of concern relevant to the decision process for selecting the agency preferred alternative (Alternative 4). This analysis evaluates the potential for proposed activities associated with the considered alternatives to affect (either adversely or beneficially) the various environmental resources, and provides a comparative assessment of each alternative's effect on the environment. Factors for selecting the agency preferred plan include finding the plan that is environmentally responsible and the most cost effective which achieves the project purpose. The area of analysis for determining environmental effects is the Green River up to approximately a half mile upstream and downstream from the proposed project. The time scale for analysis of effects is one year for immediate effects and up to 50 years for chronic or cumulative effects.

3.1 Water Quality

The Green River does not meet state standards for temperature in the project reach. The average water temperature as measured at the Ecology gage for August is 64.8°F (18.2°C). Temperature criteria for this area is a maximum of 63.5°F (17.5°C). The Clean Water Act requires that a Total Maximum Daily Load (TMDL) be developed for water bodies that do not meet water quality standards. A TMDL for temperature in the Green River was established in 2011. Summer water temperatures are too warm for native fish that use these waters for migration, spawning and rearing. The river in the project area is also impaired for dissolved oxygen, which is related to the high temperatures. A shade deficit exists throughout the Middle and Lower Green River riparian corridor, with the exception of the reach through the Green River gorge. The effective shade deficit is especially prevalent below the city of Auburn (Ecology 2011). Additionally, the project area is considered "critical" for river shading because it is a southern bank.

The river bank in this reach is largely devoid of trees. A large cottonwood and five other, smaller trees exist on the riverward bank downstream of the project site. These riparian trees, which provide important riverine habitat and shade functions, will be retained. The proposed Federal action will remove 17 trees landward of the levee. Some of these trees are large enough that they do provide some shading to the bank and to the river late in the day.

3.1.1 Alternative 1 – No-Action

Under the No Action Alternative, continued erosion of the damaged area would be expected, especially during high water and flood events. This continued erosion would endanger the stability of the floodwall that is being constructed by the non-Federal sponsor independent of the

Federal action, and could cause the wall to fail. A breach of the levee and floodwall could occur, causing flooding to the protected urban area. The erosion of the structure and inundation of surrounding land could cause high turbidity. The flooding of homes, warehouses, and businesses could cause contaminants such as gas, oil, sewage, pesticides, herbicides, etc. to enter the water.

3.1.2 Alternative 3 – Waterward Slope Layback with Retaining Wall

The reconstruction effort is not expected to cause significant adverse impacts to water quality. No contaminants would be present in the construction materials. Clean rock fill would be obtained from an approved borrow pit and rock quarry. Turbidity during project construction in excess of ambient river conditions is expected to be minor and localized. The work area would be isolated from the river to reduce turbidity impacts. Water quality monitoring would be done during construction to ensure that state water quality standards are met.

Although the volume of rock at the project site would increase with the proposed repair, this is not expected to impact water quality. The site is currently armored with herbaceous plants above ordinary high water and exposed rock below ordinary high water. With the placement of top soil over the rock above ordinary high water and seeding the soil, the square footage of exposed rock would be unchanged.

Alternative 3 would include mitigation plantings throughout the 585-foot repair. Tall, fast-growing tree species and shorter shrub species would be planted near ordinary high water and along the upper bank. With the growth and maturation of these trees, the overall shading throughout the site would be improved over the current condition and no impact to river temperature is expected

Implementation of Alternative 3 would not be expected to cause significant adverse impacts to water quality.

3.1.3 Alternative 4 – Locally Preferred Plan

Impacts of the LPP would be identical to those for Alternative 3 above, though the length of the repair would include an additional 190 feet of riverward work. The additional riverward work within the Federal Project would not require removal of any additional trees. As with Alternative 3, the LPP would include planting of trees and shrubs which would extend throughout the additional length of the LPP segment, and water quality monitoring would ensure minimal turbidity impacts during construction. At full maturity the overall shading throughout the site would be improved over the current condition and no impact to river temperature is expected.

The reconstruction effort is not expected to cause significant adverse impacts to water quality. No contaminants will be present in the construction materials. Clean rock fill would be obtained from an approved borrow pit and rock quarry. Turbidity during project construction is expected to be minor and localized. The work area would be isolated from the river to reduce turbidity impacts. Water quality monitoring would be done during construction to ensure that state water quality standards are met.

3.2 Vegetation

Limited vegetation occurs in the project area. The levee has an armored riverward slope with the crown maintained as a walking trail. The backslope includes a mown lawn and parking area with landscaping trees and shrubs in a commercial/light industrial area. The riverward face is

dominated by herbaceous invasives including blackberry (*Rubus armeniacus*) and reed canarygrass (*Phalaris arundinacea*).

3.2.1 Alternative 1 – No-Action

Without repair no impact to vegetation is expected. Continued erosion of the damaged area would be expected to continue to compromise the limited existing vegetation on the slope, causing further slumping and exposure of bare soil. Should a breach occur, vegetation in the surrounding area could also be compromised by inundation.

3.2.2 Alternative 3 – Waterward Slope Layback with Retaining Wall

The Federal action would require the removal of 17 trees on the landward side of the levee, ranging in size from a four-inch diameter hawthorn (*Crataegus douglasii*) to several 24-inch diameter London planetrees (*Platanus hispanica*). The Non-federal action of installing an additional 385 ft of floodwall outside the footprint of the Federal action will remove an additional 12 trees. All of these trees are outside the direct riparian zone. They provide limited shading and leaf litter to the river and some wildlife habitat in this urban area. These functions would be impacted with the tree removal. As described above (Section 2.6), the proposed Federal compensatory mitigation would include upper and lower bank plantings of 152 trees and 1092 shrubs. At maturity, these trees would improve shading and riparian habitat throughout the reach. Additionally, the existing herbaceous plants along the riverbank would be removed, however the placement of topsoil and seeding on the bank is expected to restore the herbaceous covering quickly. No long term negative effects to vegetation are expected.

3.2.3 Alternative 4 – Locally Preferred Plan

The impacts of the LPP are the same as those discussed above for Alternative 3. There would be no increase in tree loss with the addition of the LPP because the additional length of rebuilt levee slope and toe would be all riverward of the floodwall where there are no trees. Overall, the LPP would not have a significant adverse impact on vegetation but could have a minor benefit on vegetation composition as it would replace predominantly non-native species with native trees and shrubs and increase the length of riparian plantings along the river. Considering in combination the Federal compensatory mitigation plantings, as well as the additional LPP segment plantings which would not be conducted in direct compensation for losses resulting from the Federal repair, a cumulative total of 200 trees would be planted in consideration of the loss of 29 trees (Section 2.6). This is a replacement ratio of 6.9:1. This ratio would help to offset the temporal loss of function between the time the trees are cut and the time that the new trees begin to provide similar function. At maturity, these trees would improve shading and riparian habitat throughout the reach.

3.3 Fish and Wildlife

The project is in a very urban area which provides limited wildlife habitat. Species using the area are limited to those that are acclimated to co-existing with humans. Bird diversity remains high in the middle basin of the Green River, but diminishes somewhat downstream in the lower basin where urban density is higher (USACE 2008). Many small mammals (e.g., foxes, skunks, weasels, and squirrels) are known to use the dense understories of some of urban forested stands in King County (USACE 2008).

Over 30 fish species have been documented in the Green/Duwamish River. The Lower Green is categorized as "Salmonid Spawning, Rearing, and Migration" habitat (King County 2008). Four

major anadromous salmonid runs use the lower and middle basin to complete their life cycles: Chinook (*Oncorhynchus tshawytscha*), coho (*Oncorhynchus kisutch*), chum (*Oncorhynchus keta*), and pink (*Oncorhynchus gorbuscha*) salmon, and steelhead (*Oncorhynchus mykiss*). Small numbers of sea-run cutthroat trout (*Oncorhynchus clarki*) may also use the middle Green River. Additionally there are three hatcheries operating in the middle Green River, two run by WDFW and one by the Muckleshoot Tribe, which supplement Chinook, coho, chum and steelhead runs. Resident fish populations may include rainbow trout (*O. mykiss*), cutthroat trout and mountain whitefish (*Prosopium williamsoni*). Other native fish include lamprey, minnows, sculpins, and suckers.

The majority of salmonid spawning in the Green River occurs upstream of RM 29.6, with the downstream extent of WDFW spawner surveys being RM 25.4 (Cropp 2006 *in* USACE 2008). As noted previously, the work will occur at approximately river mile 14.5.

3.3.1 Alternative 1 – No Action

The No Action alternative could have a limited impact on terrestrial species. Inundation and erosion could cause the loss of some trees and impacts to associated habitat function, however this impact would be expected to be minimal. The No Action Alternative could result in negative impacts on fish species. If a breach occurred, high turbidity and potential contamination could be seen from the resultant flooding of the urban protected area. Decreased water quality could occur for a long distance, depending on the extent of inundation and the materials within the flooded area. Fish and wildlife in the area could be negatively affected by the turbidity increase and contaminants released into the river should such a breach occur.

3.3.2 Alternative 3 – Waterward Slope Layback with Retaining Wall

As noted above, wildlife in the area are likely acclimated to human presence and no significant impact would be expected. Wildlife may temporarily avoid the area due to increased noise and human presence during both phases of the construction but would return quickly once construction is complete. Use of vibratory pile driving minimizes the noise effects of the Phase 1 repair. Construction of the floodwall (Phase 1) and completion of the tree removal in winter avoids the nesting season. Loss of the trees would temporarily decrease wildlife habitat availability in the project area. At maturity, the tree and shrub plantings along the riverward bank would improve wildlife habitat throughout the reach by improving native species diversity and increasing the riparian buffer width.

By using vibratory pile driving, coupled with the distance of the wall from the river, no vibration is expected to propagate to the water during the Phase 1 construction. The Phase 1 construction is not expected to have an effect on fisheries, excepting the tree removal.

Disturbance from vibration is possible during Phase 2 construction, stemming from delivery and dumping of rock on land as it is staged for construction, and as a result of excavation and placement of rock along the riverward face of the levee. Vibration could cause any fish in the area to move away from the construction zone, however the river channel provides similar habitat in nearby locations for any fish that vacate the project area.

Excavation and placement of rock may lead to elevated temporary and localized turbidity levels surrounding the construction. The work area would be isolated from the river to ensure that state water quality standards are not exceeded and to limit impacts to fish.

The project area is largely devoid of functioning riparian habitat. The project area would cumulatively lose 29 trees from on the backside of the levee. These trees contribute minor

nutrients (leaf litter) to the river system. However the trees, particularly the larger trees, do contribute to shading the river. The loss of trees would decrease shading to the bank and the river, particularly in the late afternoon. Loss of herbaceous plants from the river bank would have a short term impact on nutrient input (plant material and insect fall). The project would install 152 trees and 1092 shrubs. These would be planted along the riverward face of the full length of the construction area to decrease the effects of the temporal lag of plant re-establishment. The plantings would create riparian corridor in this area where none exists currently. Established native vegetation, with time and maturity, is expected to provide shade to the channel and provide structural diversity for wildlife.

The in-water work window for this reach of the Green River is 1 August to 31 August. A fish window extension has been granted, with the expectation that all isolation materials will be in place prior to 31 August. Work will continue within the isolated area through September, and all in-water work will be completed and isolation materials will be removed by 30 September.

The proposed design also includes a slope layback which would move the crown of the levee landward up to 27 feet. At ordinary high water, the levee profile would move landward a few feet. The layback would open channel capacity in this reach to slow velocities, particularly during higher flow events. When coupled with plantings, the overall project would improve the functionality of the area as refugia for fisheries.

Overall Alternative 3 would have temporary, localized impacts on fish and wildlife during construction. The proposed plantings of native riparian trees and shrubs would mitigate the loss of the mature non-native landward trees.

3.3.3 Alternative 4 – Locally Preferred Plan

The impacts of the LPP on fish and wildlife would be the same as those discussed above for Alternative 3. There is no increase in tree loss with the addition of the LPP length. Overall, the LPP would not have a significant adverse impact on fish and wildlife but could have a minor benefit on vegetation composition as it increases the length of riparian plantings along the river. Including the Federal and non-federal tree removal and plantings, a cumulative total of 200 trees would be planted in the project area in consideration of the loss of 29 trees. This would constitute a replacement ratio of 6.9:1.

Overall Alternative 4 would have temporary, localized impacts on fish and wildlife during construction. The proposed plantings of native riparian trees and shrubs would mitigate the loss of the mature non-native landward trees. The planting ratio would also be expected to offset the time lag before the new plantings replace the impacted functions.

3.4 Threatened and Endangered Species

In accordance with Section 7(a)(2) of the ESA, federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed and proposed threatened or endangered species. Three species protected under the ESA may occur in the vicinity of the project. The following sections briefly summarize relevant information for the protected species, evaluate how the proposed project may affect the species, and conclude with a determination of effect.

Table 1. ESA Protected Species Potentially Affected by the Proposed Action.

Species	Listing Status	Critical Habitat
Coastal/Puget Sound Bull Trout *Salvelinus confluentus*	Threatened	Designated
Puget Sound Chinook Salmon *Oncorhynchus tshawytscha*	Threatened	Designated
Puget Sound Steelhead *Oncorhynchus mykiss*	Threatened	Proposed

Other listed species may occur in King County as well but have no potential to be affected by the proposed project. The proposed project will have "no effect" on the following species and their designated critical habitat due to their sensitivities to human encroachment, lack of suitable habitat, or because their presence is so transitory that any temporal affects to these species from construction activities would not be perceived as unusual, cause disruption of behavior or lead to measurable reductions in their prey base. These species include the Canada lynx (*Lynx canadensis*), grizzly bear (*Ursus arctos horribilis*), gray wolf (*Canis lupus*), northern spotted owl (*Strix occidentalis caurina*), yellow-billed cuckoo (*Coccyzus americanus*), Southern DPS of eulachon (*Thaleichthys pacificus*), Oregon spotted frog (*Rana pretiosa*), and golden paintbrush (*Castilleja levisecta*). Several marine species are also listed in King County. Project effects, including any impacts to prey species, are not expected to be so far-reaching as to impact marine habitats. No effect is expected to southern resident killer whale (*Orcinus orca*), Puget Sound/Georgia Basin distinct population segment (DPS) of canary rockfish (*Sebastes pinniger*), Puget Sound/Georgia Basin DPS of yelloweye rockfish (*Sebastes ruberrimus*), Puget Sound/Georgia Basin DPS of bocaccio (*Sebastes paucispinus*), Southern DPS of eulachon (*Thaleichthys pacificus*), and Southern DPS of North American green sturgeon (*Acipenser medirostris*).

Marbled murrelet (*Brachyramphus marmoratus*) could transit the project area while travelling between nesting and feeding areas, however the additional noise and human presence is not expected to significantly increase the ambient conditions as the project area is in an urban commercial/light industrial community. Additionally, the loudest construction effort (the vibratory pile driving) is expected to occur in February/March, which is outside of the murrelet nesting season (1 April to 23 Sept). Murrelet behavior is not expected to be affected by the proposed construction.

3.4.1 Alternative 1 – No-Action

If a breach and subsequent flooding occurred, the no action alternative could adversely impact listed fisheries and their critical habitat. If a breach occurred, high turbidity and potential contamination could be seen from the resultant flooding of the urban protected area. Decreased water quality could occur for a long distance within the river, depending on the extent of inundation and the materials within the flooded area. Listed fish in the Green River could be negatively affected by the turbidity increase and contaminants released into the water column should such a breach occur.

3.4.2 Alternative 3 – Waterward Slope Layback with Retaining Wall

Disturbance from vibration is possible during Phase 2 construction, stemming from delivery and dumping of rock on land as it is staged for construction, and as a result of excavation and placement of rock along the riverward face of the levee. Salmonids have been found to respond

maximally to sounds between 35 and 170 Hz, but the fish did not move more than 60 cm from the sound source (Van Derwalker 1967). Construction-generated vibration would be in a low-frequency range, and salmonids may be able to hear only in low ranges (Hawkins and Johnstone 1978). Abbott (1972) observed no response at 600 Hz in rainbow trout which otherwise responded generally to signals at 150 and 300 Hz. It is possible that vibrations below the hearing range of salmonids would still be perceived and might elicit a startle response. Movement of heavy equipment is likely to create vibratory disturbances in general; Hawkins and Johnstone (1978) said that Atlantic salmon were sensitive to sounds transmitted through substrate in a river environment. Vibration could cause any fish in the area to move away from the construction zone. The river channel provides similar habitat in nearby locations for any fish that vacate the project area. Vibration disturbance to fish is expected to be minor.

Excavation and placement of rock may lead to elevated temporary and localized turbidity levels surrounding the construction. The work area would be isolated from the river to ensure that state water quality standards are not exceeded and to limit impacts to fish. Salmonids exhibit physiological and behavioral responses to suspended sediments (Newcombe and MacDonald 1991). Physiological effects can include gill trauma (Servizi and Martens 1987; Noggle 1978; Redding and Schreck 1987), and effects on osmoregulation, blood chemistry (Redding et al. 1987, cited in Sigler 1988), growth, and reproduction. Behavioral responses include feeding disruption from olfactory and visual impairment (Kim et al. 1986, cited in Sigler 1988); gill flaring; and curtailment of territorial defense (Berg and Northcote 1985, cited in LaSalle 1988). Conversely, some protection against predation may be afforded salmonids in areas of suspended sediment (Gregory 1988). Suspension of sediments can increase biochemical oxygen demand, and reduce dissolved oxygen levels in the water. Turbidity impacts to fish are expected to be minor.

The project area is largely devoid of functioning riparian habitat. The 17 trees that would be removed for the Federal action and the 12 trees to be removed for the non-Federal action at the project site are all on the backside of the levee and only contribute minor nutrients (leaf litter) to the river system. However the trees, particularly the larger trees, do contribute to shading the river. The loss of trees would decrease shading to the river. Loss of herbaceous plants would have a short term impact on nutrient input (plant material and insect fall). The project would include the installation of two tree planting lifts and upper bank plantings. Also topsoil and seeding would occur on the riprap above ordinary high water to further mitigate the impacts of the vegetation loss and decrease the time lag until the site returns to the pre-construction habitat function. Established riparian vegetation, with time and maturity, is expected to provide shade to the channel and cover the riprap slopes. Overall shade through the project reach would be improved with the establishment of these trees. The plantings would also be expected to provide organic input through leaf drop to nurture the base of the food web for juvenile salmonids, serve as a source of terrestrial insects for forage for juvenile salmonids, slow river current along the levee toe, provide refuge for juvenile fish during high flows, and provide additional wildlife habitat.

Alternative 3 may affect but is not likely to adversely affect Chinook, bull trout, and steelhead and may affect but is not likely to adversely affect their designated and proposed critical habitat. This determination is made based upon the potential for minor turbidity, noise, and vibrational disturbance to juveniles during construction; minor impacts to vegetation; the planting of tree species on the river bank throughout the project length; the laying back of the riverward slope to increase channel capacity; and in light of the pre-flood condition at the project site.

3.4.3 Alternative 4 – Locally Preferred Plan

The impacts of Alternative 4, the LPP, on listed fish would be the same as those discussed above for Alternative 3. There would be no increase in tree loss with the addition of the LPP length. Overall, the LPP would not have a significant adverse impact on fish but could have a minor benefit on vegetation composition as it increases the length of riparian plantings along the river. Including the Federal and non-federal tree removal and plantings, a cumulative total of 200 trees would be planted in the project area in consideration of the loss of 29 trees. This is a replacement ratio of 6.9:1.

Alternative 4 may affect but is not likely to adversely affect Chinook, bull trout, and steelhead and may affect but is not likely to adversely affect their designated and proposed critical habitat. This determination is made based upon the potential for minor turbidity, noise, and vibrational disturbance to juveniles during construction; minor impacts to vegetation; the planting of tree species on the river bank throughout the project length; the laying back of the riverward slope to increase channel capacity; and in light of the pre-flood condition at the project site.

A Biological Evaluation (BE) of the impacts of the Federal action (both Phases 1 and 2) was submitted to NMFS and USFWS on 13 February 2015. The Corps determined that the proposed project **may affect but is not likely to adversely** affect Puget Sound Chinook, Coastal/Puget Sound bull trout and Puget Sound steelhead and may affect but is not likely to adversely affect their designated/proposed critical habitat. A letter of concurrence was received from NMFS on 2 March 2015. A letter of concurrence was also received from USFWS 20 March 2015.

3.5 Cultural Resources

The Corps has coordinated its environmental review of impacts on cultural resources for NEPA with its responsibilities to take into account effects on historic properties[1] as required by Section 106 of the National Historic Preservation Act (NHPA). The Corps has determined and documented the area of potential effect (APE) for both direct and indirect effects, as required at 36 C.F.R § 800.4 of the regulations implementing Section 106. The APE includes the length of the levee repair and all staging and access areas, totaling 3.5 acres. The Washington State Historic Preservation Officer (SHPO) agreed with our determination of the APE on December 8, 2014.

The Corps has conducted a records search and literature review of the Washington Information System Architectural and Archaeological Records Database (WISAARD). The literature review and records search revealed that the entire project area has been previously surveyed (Dellert et al. 2013). There are no properties listed in the National Register of Historic Places or the Washington State Historic Site Register in the project vicinity, and no cultural resources have been recorded within the APE. The Corps notified the Muckleshoot Tribe of Indians on 7 January 2015, and asked the Tribe to identify any concerns and sought information about properties of religious or cultural significance that might be affected by the project. The Tribe did not identify any resources within the APE. The Corps notified the SHPO of our finding of No Historic Properties Affected on 23 February 2015. The SHPO agreed with our determination on 23 February 2015.

[1] *Historic properties* are those cultural resources that are eligible for inclusion or listed on the National Register of Historic Places.

3.5.1 Alternative 1 – No-Action

The No-Action alternative would have no adverse impact on cultural resources, as there are no cultural resources within the project APE.

3.5.2 Alternative 3 – Waterward Slope Layback with Retaining Wall

Alternative 3 would have no adverse impact on cultural resources, as there are no cultural resources within the project APE.

3.5.3 Alternative 4 – Locally Preferred Plan

This alternative would have no adverse impact on cultural resources, as there are no cultural resources within the project APE.

3.6 Air Quality, Greenhouse Gas Emissions, and Noise

The Clean Air Act requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards for pollutants considered harmful to public health and the environment (EPA 2014). EPA has set standards for six principal pollutants (known as criteria pollutants), including carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter (PM-10 and PM-2.5, as delineated by the size of the particle), and sulfur dioxide. States are required to develop a plan for any areas that cannot meet these standards, called nonattainment areas, to improve air quality. Once the plans are implemented and air quality improves, the non-attainment designation is removed. These areas continue to act under a state plan to maintain the air quality. King County includes maintenance areas for carbon monoxide, ozone, and particulate matter.

Greenhouse gases are gases that trap heat in the atmosphere. Carbon dioxide, methane, Nitrous oxide, and fluorinated gases are the four main greenhouses gases of concern. These are largely emitted through the burning of fossil fuels or wood products, as well as from agricultural practices and a variety of industrial processes. King County conducts periodic assessments of greenhouse gases to identify major sources of emissions, set air quality goals, and track progress (King County 2013). King County's 2010 assessment showed a continued increase in emissions of greenhouse gases (1.3% up from 2008), however this gain was less than the population increase. Therefore the emission per person rate declined by approximately 0.8% average decline per year. King County's report states that declines in per-person vehicle travel and building energy use explain the drop, however they also note that the national recession, and increased unemployment at the time of the study, is likely a contributing factor (King County 2013).

The City of Tukwila regulates the ambient noise levels to "provide for and promote the health, safety and welfare of the general public, (City Ordinance 8.22.010). The project area is a commercial/light industrial zone adjacent to a busy highway. Typical sources of sound in the project area are vehicle engine noises, air conditioning/heating units, machinery, industrial operations, and landscaping equipment.

3.6.1 Alternative 1 – No Action

As there would be no further Federal construction with the No Action Alternative, no impact to air quality, greenhouse gas emission, or noise would occur.

3.6.2 Alternative 3 – Waterward Slope Layback with Retaining Wall

Construction vehicles and heavy equipment used during the proposed construction would temporarily and locally generate increased gasoline and diesel exhaust fumes. The small area of construction and the short duration of the floodwall work in Phase 1 and the Phase 2 bank repair construction activities would limit the impact to air quality. The activity would constitute routine repair of an existing facility, generating an increase in direct emissions of a criteria pollutant or its precursors that would be clearly *de minimis*, and would therefore be exempted by 40 CFR Section 93.153(c)(2)(iv) from the conformity determination requirements. Emissions generated by the construction activity are expected to be minor, short-term, and well below the *de minimis* threshold. Unquantifiable but insignificant exacerbation of effects of CO_2 emissions on global climate change would be anticipated.

Temporary increases in noise would occur as a result of both phases of the construction for the proposed action. The project area is surrounded by commercial and light industrial properties. Two residential properties exist within 1000 feet of the construction. Proposed work would be done from 7AM to 7 PM to limit noise impacts on surrounding properties. Impact hammers would not be used to install sheetpile walls. Wildlife in this urban area is likely habituated to human activity and noise. No long-term change in noise levels would occur as a result of the project.

3.6.3 Alternative 4 – Locally Preferred Plan

The impacts of Alternative 4, the LPP, on air quality, greenhouse gas emissions, and noise would be the same as those discussed above for Alternative 3. The increased length of construction under the LPP (190 ft of slope work) would slightly increase the duration of construction and the number of truckloads of material being delivered. These would slightly increase the expected output of emissions and the duration of increased noise at the project site. As with Alternative 3, implementation of the LPP would be an activity that would constitute routine repair of an existing facility, generating an increase in direct emissions of a criteria pollutant or its precursors that would be clearly *de minimis*. Emissions generated by the construction activity would be expected to be minor, short-term, and well below the *de minimis* threshold. Unquantifiable but insignificant exacerbation of effects of CO_2 emissions on global climate change would be anticipated.

Temporary increases in noise would occur as a result of both phases of the construction for the proposed action. The project area is surrounded by commercial and light industrial properties. Two residential properties exist within 1000 feet of the construction. Proposed work would be done from 7AM to 7 PM to limit noise impacts on surrounding properties. Impact hammers would not be used to install sheetpile walls. Wildlife in this urban area is likely habituated to human activity and noise. No long-term change in noise levels would occur as a result of the project.

3.7 Traffic, Utilities, and Public Services

The Desimone-Briscoe School Levee provides flood protection to 7.65 square miles of highly developed warehousing, light industrial, retail, and residential land use. The levee also protects the important arterial traffic routes, local roads, power lines, and other utilities that service this community. No utilities occur at the project site.

This crown of the levee within the project area is a dead-end spur of the Green River Trail. This trail is heavily used by walkers, joggers, cyclists, and other recreational enthusiasts.

3.7.1 Alternative 1 – No Action

Taking no action to prevent continuing erosion could lead to a possible breach of the levee. This could lead to significant impacts to public infrastructure.

3.7.2 Alternative 3 – Waterward Slope Layback with Retaining Wall

Construction-related traffic may cause temporary increases to, and disruption of, local traffic. Flaggers and signs would be used, as needed, to safely move traffic around the construction site. No long-term change in traffic would occur as a result of the project.

The placement of the floodwall, Phase 1, would occur within a parking lot. A number of parking stalls would be affected. Reorganizing the spaces would help to retain the largest number of spaces possible; however the overall number of spaces would be expected to permanently decrease. Similarly, traffic patterns within the parking area may change, however emergency access will be maintained.

Both phases of construction would temporarily close this section of the Green River Trail. The project will also change the width of the trail. With this alternative, the trail would have a 10-foot width of asphalt, with a 2-foot concrete shoulder on the landward side and a 2-foot gravel shoulder on the riverward side. The regional trail design is typically a 12-foot asphalt trail with 2-foot shoulders on both sides. Through the project area, the trail already does not meet the design standard, as the width of the paved surface is as narrow as 9 feet in some areas. The project design was coordinated with King County Parks, the Muckleshoot Tribe, and the City of Tukwila. The narrower trail was determined to be acceptable within this reach because it is a dead-end spur that gets relatively limited use. The reduced trail width would allow for an increased number of plantings along the bench.

Following completion of the construction, the trail would be restored and would reopen. The trail through the construction area would change visually with the removal of the landward trees and planting of the waterward trees. Appropriate signs and markers would be used to limit safety concerns, such as visibility markers and trail striping to guide travelers away from the end of the floodwall.

3.7.3 Alternative 4 – Locally Preferred Plan

Impacts of the LPP would be identical to those for Alternative 3 above, though the length of the repair would include an additional 190 feet of riverward work. Construction duration may be slightly longer and therefore traffic impacts and trail closure would be slightly longer. The trail width and details within Alternative 4 would be identical to those described above in Alternative 3. No significant short or long term effects to traffic, utilities, and public services would occur.

4 MITIGATION

Mitigation for effects of a proposed action is evaluated as part of documentation under NEPA, such as this EA. Mitigation can take any of the following forms:

1. Avoiding the effect altogether by not taking a certain action or parts of an action.
2. Minimizing effects by limiting the degree or magnitude of the action and its implementation.
3. Rectifying the effect by repairing, rehabilitating, or restoring the affected environment.

4. Reducing or eliminating the effect over time by preservation and maintenance operations during the life of the action.

5. Compensating for the effect by replacing or providing substitute resources or environments.

The proposed action will employ typical Best Management Practices (BMPs) and Conservation Measures to avoid and minimize adverse effects. These measures will be written into the Construction Management Plan (CMP). A Corps employee will act as Construction Manager for the effort and will ensure that these measures will be employed per the CMP. Long-term monitoring of the plantings will be the responsibility of the Local Sponsor, per the Cooperation Agreement. BMPs and Conservation Measures include:

- The project length has been minimized to only that needed to repair the damaged section and the construction limits, access route and staging area would be clearly marked;
- The downstream extent of the project was reduced in order to avoid impacts to a U&A fishing site and several riparian trees (a large cottonwood and several smaller willows).
- The work area would be isolated from the river during in water construction to limit water quality impacts;
- All in-water work would occur during the extended in-water work window for this area (1Aug to 30 Sept) to limit impacts to salmonids;
- Water quality monitoring would be done to ensure compliance with state standards; and
- No refueling would occur within 100 feet of the water and a five gallon spill kit will be available on site.

As discussed above, mitigation is proposed to offset the loss of vegetation at the project site and offset any impacts to fisheries. Of particular concern is the loss of trees given the urban setting and the temperature exceedances in the river. Two planting lifts would be installed into the riverward face of the levee at or near ordinary high water. Live tree cuttings, approximately three feet in length, would be placed within a one-foot lift of soil. Hooker's willows (*Salix hookeriana*), Sitka willows (*S. sitchensis*), and red-osier dogwood (*Cornus sericea*) would be spaced approximately every twelve inches in each lift. These species stay relatively small and bushy, with flexible stems. Pacific willows (*S. lasiandra*) would be placed into both lifts, one stem every 15 feet within each lift. Pacific willow is a fast-growing tree. Above ordinary high water, after construction is completed, a layer of topsoil would be placed onto the riprap. This topsoil would be seeded with a native seed mix. Additional trees would be planted along the riverward bench. These would include bigleaf maple (*Acer macrophyllum*), cascara (*Rhamnus purshiana*), bitter cherry (*Prunus emarginata*), Oregon ash (*Fraxinus latifolia*), Douglas-fir (*Pseudotsuga menziesii*), Pacific crab apple (*Malus fusca*), and shore pine (*Pinus contorta*). Mitigation for the Federal action would include the plantings within the length of project that would constitute the least-cost alternative (585 feet). This would include a total of 1092 shrubs and 152 trees. The Federal project would also consist of plantings within the "LPP Segment" depicted in Figure 3. These plantings would not be conducted in direct compensation for losses caused by the Corps' repair activities, and they would be funded by the non-Federal sponsor, so the plantings would not be counted as Federal mitigation. Within the LPP segment, an additional 355 shrubs and 48 trees would be planted, for a site total of 1447 shrubs and 200 trees. The proposed tree replacement ratio accounts for the time lag between when the trees would be

removed and when the plantings are established and growing sufficiently to replace the impacted functions. In addition the proposed mitigation would:

- Replace predominantly non-native trees with native species;
- Replace landward trees with riverward trees to enhance the shading and habitat function of the trees within this reach;
- Create a riparian forested buffer where the reach currently has only herbaceous plants;
- Create fish refugia that would engage during annual high water events by planting at ordinary high water, particularly the shrub plantings;
- Create overhanging woody vegetation for shading and fish habitat improvements; and
- Increase channel capacity and slow velocity of flows with the slope layback, particularly during larger flood events.

5 COORDINATION

The Corps provided information on the proposed action (in the form of a copy of the Notice of Preparation) to agencies, Tribes, and the interested public for public review and comment, including:

- U.S. Fish and Wildlife Service
- National Marine Fisheries Service
- Muckleshoot Indian Tribe
- State Historic Preservation Office
- Washington Department of Ecology
- King County
- City of Tukwila
- City of Kent

A Notice of Preparation for the Desimone-Briscoe School Levee Rehabilitation Project was issued for a public comment period from 6 February to 9 March 2015. Four comments were received. See Appendix E for comments and the Corps responses.

6 CUMULATIVE EFFECTS

As defined by the White House Council on Environmental Quality implementing regulations for NEPA at 40 CFR 1508.7, "cumulative impact" means "the impact on the environment which results from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."

6.1 Existing Conditions

The Desimone Briscoe School Levee is a part of the Lower Green River Levee System of contiguous flood control levees that protect the cities of Kent, Tukwila, and Renton.

As noted above, prior to the damaging flood event, the City of Kent had been pursuing a project to install a floodwall along the landward side of four reaches of the Desimone-Briscoe School Levee. The proposed Federal rehabilitation assistance action is co-located with a portion of Kent's work, known as Reach 1. Kent's previously planned floodwall is a steel sheetpile wall which was designed to reduce flood risk to the cities of Kent, Tukwila, and Renton. Kent has completed some components of Reaches 2, 3 and 4. The Corps' proposed Desimone-Briscoe

School Levee Rehabilitation project would supplant a portion of Kent's project within Reach 1. In total, 925 feet of floodwall would be installed at the site and 29 trees would be removed, a portion of the floodwall and the tree removal as the Federal project and a portion as non-Federal project.

Kent's floodwall project is a part of a larger, long-term effort to raise the level of protection of the levee system in this area. The increased height of the wall and levee in disconnected sections, as included within the non-Federal work at the project site, does not raise the level of protection for the system. However the city does plan for a full system-wide levee raise. The current level of protection is 100 year, with 3 feet of freeboard. Removing freeboard from the calculation, the levee is believed to overtop at the 250-year flood level. The raised height planned for the levee system would provide 500-year level of protection, with three feet of freeboard.

6.2 Reasonably Foreseeable Future Actions

The City of Tukwila adopted its first Strategic Plan in December 2012 (City of Tukwila 2015). This defined a collective vision for the community's future. The plan priorities included crime reduction, improved livability, strengthening the financial fundamentals, updating policies, and improved public access to services and decision-making processes. A review of the Strategic Plan does not show any proposed activities in the immediate project area.

6.3 Cumulative Effects of the Completed and Proposed Action

The proposed action is to restore the level of protection that existed at the time of the flood event, thus maintaining the flood risk reduction status quo. The repair would use a larger volume of rock within the bank than was at the site previously, however sufficient excavation will be completed to ensure that the riverward rock placement would occur within the existing footprint. The layback would involve a landward shift of the prism, however this impact is not expected to significantly impact local businesses or traffic patterns. This repair would not interfere with any ongoing or future development within this urban environment.

The non-Federal action to raise the level of protection will further reduce floodplain connectivity on the right bank during extreme flood events. The protected area is already highly developed and this change is not expected to significantly impact land use.

The past construction actions coupled with the proposed repairs would not be a significant adverse cumulative impact to any of the potentially impacted resources. Specifically, air, water, vegetation, fish and wildlife would not be significantly impacted either from an individual or cumulative perspective. The Corps therefore concludes that there would be no significant adverse incremental contribution to cumulative effects associated with this repair action.

7 ENVIRONMENTAL COMPLIANCE

This chapter describes how the preferred alternative complies with all of the pertinent environmental laws.

7.1 National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.)

NEPA (42 U.S.C. 4321 et seq.) requires that Federal agencies consider the environmental effects of their actions. It requires that an Environmental Impact Statement (EIS) be included in every recommendation or report on proposals for legislation and other major Federal actions

significantly affecting the quality of the human environment. The EIS must provide detailed information regarding the proposed action and alternatives, the environmental effects of the alternatives, appropriate mitigation measures, and any adverse environmental effects that cannot be avoided if the proposal is implemented. Agencies are required to demonstrate that these factors have been considered by decision makers prior to undertaking actions. Major Federal actions determined not to have a significant adverse effect on the quality of the human environment may be evaluated through an Environmental Assessment (EA).

Commencement of construction of the first phase of the repair (the floodwall) occurred in February 2015, prior to completion of the NEPA process. The Phase 1 work was considered an "emergency action" because it was necessary to protect human life and property and because it was time-critical due to the ongoing flood season, which is considered to occur from 1 November through 31 March. Phase 1 is being constructed by the City of Kent, with a portion of Phase 1 creditable as an in-kind contribution of the King County Flood Control Zone District, the Corps' non-Federal sponsor. Construction needed to be initiated as early as possible within the 2014-2015 flood season as the repair work was expected to generate tangible incremental enhancement of flood risk reduction benefits essential to maximization of protection of human life and property in light of the levee's damaged status. Under NEPA, the agency is required to comply with NEPA to the fullest extent possible (Section 102). The Corps' NEPA regulation regarding "Emergency Actions" does allow for completion of NEPA documentation after the fact in emergency situations. Emergency actions are discussed in 33 CFR 230.8 as follows:

"Section 230.8 - Emergency actions. In responding to emergency situations to prevent or reduce imminent risk of life, health, property, or severe economic losses, district commanders may proceed without the specific documentation and procedural requirements of other sections of this regulation. District commanders shall consider the probable environmental consequences in determining appropriate emergency actions and when requesting approval to proceed on emergency actions, will describe proposed NEPA documentation or reasons for exclusion from documentation. NEPA documentation should be accomplished prior to initiation of emergency work if time constraints render this practicable. Such documentation may be accomplished after the completion of emergency work, if appropriate. Emergency actions include Flood Control and Coastal Emergencies Activities pursuant to Public Law 84-99, as amended, and projects constructed under sections 3 of the [Rivers and Harbors] Act of 1945 or 14 of the Flood Control Act of 1946 of the Continuing Authorities Program. When possible, emergency actions considered major in scope with potentially significant environmental impacts shall be referred through the division commanders to HQUSACE (CECW-RE) for consultation with CEQ about NEPA arrangements."

Due to the funding timeline, it was not feasible for the Corps to complete all NEPA procedures prior to committing to and initiating the Federal action by signing a Cooperation Agreement with the King County Flood Control Zone District. The damaging flood event occurred in March 2014 and King County's request for assistance was dated April 16, 2014. An initial assessment of the damage was conducted on May 15, 2014. An assessment report dated August 13, 2014 notes that the damages at this site merit further investigation. The Corps' Seattle District completed the initial Project Information Report on August 28, 2014 and provided the report to the Corps' Northwestern Division, which approved the project on September 9, 2014 and provided funding on September 16, 2014. Between September 16, 2014 and the execution of the Cooperation Agreement, the Corps worked closely with King County and the City of Kent on the details of the proposed design. Because of the need for extensive coordination to determine an

acceptable alternative design, and because environmental coordination and analysis could effectively begin only after the full design was finalized, all environmental documentation could not be completed prior to the signing of the Cooperation Agreement and implementing Phase 1 construction.

Completion of the entire NEPA documentation prior to the Federal action – while still fulfilling the agency's emergency levee rehabilitation authorities and responsibilities under Public Law 84-99 – was impossible in this instance. Since the arrival of funding, insufficient time was available to identify alternatives, and coordinate, assess, and document the environmental impacts prior to the date on which the commencement of the Federal action was necessary. Therefore, the agency complied with NEPA "to the fullest extent possible" under the circumstances.

In accordance with the NEPA, federal projects are required to disclose potential environmental impacts and provide opportunity for public involvement. A Notice of Preparation for the Desimone-Briscoe School Levee Rehabilitation was issued on 6 February 2015 and the comment period was open until 9 March. Four comments were received (See Appendix E). The project design was modified to respond to comments and concerns of interested stakeholders and Tribes. Design changes included increased plantings, planting bench width increases, crown width/ trail width decreases, and an overall project length decrease.

This EA has been prepared pursuant to NEPA Sec. 102(C). Effects on the quality of the human environment as a result of the proposed project are anticipated to be less than significant. The EA has incorporated any necessary and applicable modifications to the scope and/or nature of the project, any effects to the human environment resulting from these modifications, the procedures and practices used to implement the project, and/or the type and extent of compensatory mitigation associated with the project. Accompanying this EA is a Finding of No Significant Impact (FONSI).

Although Phase 1 was constructed by non-Federal parties, it is expected to be integrated into the Federal action through the cost-sharing relationship between the Corps and the King County Flood Control Zone District, and is thus evaluated herein under NEPA. The design of the wall was previously reviewed by a Corps' structural engineer and found to be acceptable as a retaining wall design. Following construction by the City of Kent, King County Flood Control Zone District is expected to receive credit for the action as their cost share for the Federal repair. If the wall is not accepted by the Corps for integration into the design of the federally constructed elements of Phase 2, the Corps will evaluate the need for reconsidering the analysis and supplementing this EA, and the accompanying Finding of Significant Impact will be revisited and revised, as necessary.

7.2 Endangered Species Act of 1973, as Amended (16 U.S.C. §§ 1531-1544) and Magnuson Stevens Conservation and Management Act

The Endangered Species Act (16 U.S.C. 1531-1544), amended in 1988, establishes a national program for the conservation of threatened and endangered species of fish, wildlife, and plants and the habitat upon which they depend. Section 7(a)(2) of the ESA requires that Federal agencies consult with USFWS and NMFS, as appropriate, to ensure that proposed actions are not likely to jeopardize the continued existence of endangered or threatened species or to adversely modify or destroy designated critical habitats.

Due to the urgent nature of commencing the Phase 1 construction within the ongoing flood season, the Corps initiated informal expedited consultation with the NMFS and USFWS in early December 2014. The expedited consultation focused only on the impacts of the proposed Phase 1 work (floodwall installation and tree removal) with the understanding that a full consultation for the complete Federal action (including consideration of any impacts from both Phase 1 and Phase 2) would occur prior to the commencement of the Phase 2 construction. The non-Federal sponsor thus proceeded with Phase 1 construction prior to the Corps' completion of full consultation with the Services pursuant to the "emergency circumstances" provisions of the ESA consultation regulation. The applicable regulation is set out at 50 CFR Section 402.05 (a) and (b) and provides as follows:

> (a) Where emergency circumstances mandate the need to consult in an expedited manner, consultation may be conducted informally through alternative procedures that the Director determines to be consistent with the requirements of section 7(a)-(d) of the Act. This provision applies to situations involving acts of God, disasters, casualties, national defense or security emergencies, etc.
>
> (b) Informal consultation shall be initiated as soon as practicable after the emergency is under control. The Federal agency shall submit information on the nature of the emergency actions(s), the justification for expedited consultation, and the impacts to endangered or threatened species and their habitats. The Service will evaluate such information and issue a biological opinion including the information and recommendations given during emergency consultation.

The Phase1 work was considered an emergency circumstance because construction was required to be initiated as early as possible within the 2014-2015 flood season to generate tangible incremental enhancement of flood risk reduction benefits essential to the maximization of protection of human life and property, which was in danger during the ongoing flood season due to the diminished level of flood protection.

Determinations concerning effects on listed species of the full Federal action (Phase 1 and Phase 2) in the project area have been made and transmitted to USFWS and NMFS in a BE on 13 February 2015 as discussed in Section 3.4. The Corps determined that the proposed project **may affect but is not likely to adversely** affect Puget Sound Chinook, Coastal/Puget Sound bull trout and Puget Sound steelhead and may affect but is not likely to adversely affect their designated/proposed critical habitat. A letter of concurrence was received from NMFS on 2 March 2015. A letter of concurrence was also received from USFWS 20 March 2015 (see Appendix D).

The project is in compliance with the Endangered Species Act and the Magnuson Stevens Conservation and Management Act..

7.3 Migratory Bird Treaty Act (16 USC 703-712)

The Migratory Bird Treaty Act is a federal law enacted in 1916 to protect migratory birds. The act prohibits the pursuit, hunting, taking, capturing, killing or selling of any listed species and does not discriminate between live or dead birds. The act grants full protection to any bird parts including feathers, eggs and nests. Over 800 species are currently on the list.

The proposed repair would not be undertaken in such a way that migratory birds would be harmed or harassed. Removal of the trees occurred in the winter to avoid the nesting season. Tree plantings would improve the riparian corridor in the area and will replace the existing

predominantly non-native trees with native species. Overall no negative, direct, and willful impact to migratory birds is expected.

7.4 Clean Water Act, as Amended (33 U.S.C. §1251 et seq.)

The Federal Water Pollution Control Act is more commonly referred to as the Clean Water Act (CWA). This act is the primary legislative vehicle for Federal water pollution control programs and the basic structure for regulating discharges of pollutants into waters of the United States. The CWA was established to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." The CWA sets goals to eliminate discharges of pollutants into navigable waters, protect fish and wildlife, and prohibit the discharge of toxic pollutants in quantities that could adversely affect the environment.

The Corps concludes that this project would be within the public's interest and complies with the substantive elements of Section 404 of the CWA. Discharging activities that are similar in nature and have minimal individual and cumulative impacts may qualify for a general permit, such as a nationwide permit. Nationwide Permit 3 (NWP 3) authorizes the repair, rehabilitation, or replacement of any currently serviceable structure, provided that the structure or fill is not to be put to a different use. Necessary minor deviations in the structure's configuration are authorized. This NWP also authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events. The purpose of the proposed Desimone-Briscoe School Levee Rehabilitation is to repair an existing serviceable levee damaged by floods. The proposed 2015 repair would include a minor deviation in the construction technique and levee composition to include more riprap buried within the levee prism as compared with the pre-existing levee design. The increased volume of structural and armor rock would address the scour potential within the project reach to meet current construction and safety standards. Re-grading of the levee face would be conducted to a depth that accommodates the designed riprap toe protection. Additionally, the levee had previously had a riverward slope of 1.5H:1V and this would be laid back to a more stable 2:H:1V lower slope. The re-constructed levee toe would be placed within the same footprint as the pre-flood toe. To accommodate the additional riprap within the levee prism without riverward encroachment, in-water excavation of bank material would be needed to allow for riprap placement. The work area would be temporarily isolated from the river to ensure a safe work environment and to limit the impacts of turbidity on the Green River. No change in the footprint would occur from the pre-damaged condition and no new structures will be added below ordinary high water. A new structure would be added to the levee with the retaining wall/floodwall construction, however this will occur on the landward side of the levee and would have no impact below ordinary high water.

The Corps has reviewed the parameters of NWP 3 as guidance for analyzing project impacts. The Corps concluded that the Desimone-Briscoe School Levee Rehabilitation project on the Green River would be functionally analogous to NWP 3. Furthermore, the Corps analyzed the project pursuant to the conditions attached to NWP 3 and concludes that the project satisfies the conditions and qualifies for the State's general certification for Section 401 of the Clean Water Act. A memorandum detailing the Corps' analysis was provided to Ecology for their review on 19 February 2015. A Letter of Verification from Ecology was received on 29 April 2015 concurring that the project meets the parameters of general Certification under NWP 3 and that general consistency with Section 401 is satisfied.

Section 402 of the Clean Water Act provides the statutory basis for regulating the discharge of pollutants from point sources to waters of the United States. Construction sites which disturb over one acre of ground must work with the EPA to control stormwater runoff and receive authorization through a National Pollutant Discharge Elimination System permit. The proposed levee rehabilitation disturbs over one acre of land. A Stormwater Pollution Protection Plan will be developed and a Construction General Permit will be obtained prior to construction.

7.5 Coastal Zone Management Act of 1972 (16 U.S.C. § 1451-1465)

Under the Coastal Zone Management Act (CZMA) of 1972 (16 USC§ 1451-1465), Sec. 307(c)(1)(A), "[e]ach Federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs."

King County is considered within the Washington coastal zone under the CZMA. The Desimone-Briscoe School Levee Rehabilitation has been determined to be consistent with the State approved program which includes the King County Shoreline Management Plan. The Corps has concluded the provisions of Nationwide Permit (NWP) 3 apply to the proposed project. The State has made a general determination that activities meeting the parameters of NWP 3 are consistent with the enforceable policies of the Coastal Zone Management Act. A determination of consistency was provided to Ecology for their review on 19 February 2015. A Letter of Verification from Ecology has not yet been received concurring that the project meets the consistency conditions of NWP 3 and that general consistency with CZMA is achieved. Ecology's concurrence that the project is consistent to the maximum extent practicable with the enforceable polices of the Washington State coastal zone management program is presumed in accordance with 33 CFR 336.1(b)(9)(iv) and 15 CFR 930.41(a).

7.6 National Historic Preservation Act (16 U.S.C. § 470 et seq.)

Section 106 of the National Historic Preservation Act requires that a federally assisted or federally permitted project account for the potential effects on sites, districts, buildings, structures, or objects that are included in or eligible for inclusion in the National Register of Historic Places. The entire project area has been surveyed, and a finding of No Historic Properties Affected has been submitted to the Washington SHPO in a letter dated 23 February 2015.

7.7 Clean Air Act as Amended (42 U.S.C. § 7401, et seq.)

Section 176 of the Clean Air Act, 42 U S C §7506(c), prohibits Federal agencies from approving any action that does not conform to an approved state or Federal implementation plan. The project constitutes a routine facility repair and/or maintenance activity, generating an increase in emissions that is clearly *de minimis* under 40 CFR 93.153(c)(2)(iv), and is therefore exempt from the conformity requirements of the Clean Air Act.

7.8 Treaty Rights

The Federal trust responsibility to Native American Tribes arises from the treaties signed between them. Under Article VI, Clause 2 of the U.S. Constitution, treaties with the Tribes are the supreme law of the land, superior to State laws, and equal to Federal laws. In these treaties, the United States made a set of commitments in exchange for tribal lands, including the promise

that the United States would protect the tribe's people. The Supreme Court has held that these commitments create a trust relationship between the United States and each treaty tribe, and impose upon the federal government "moral obligations of the highest responsibility and trust." The scope of the Federal trust responsibility is broad and incumbent upon all Federal agencies. The U.S. government has an obligation to protect tribal land, assets, and resources that it holds in trust for the Tribes, and a responsibility to ensure that its actions do not abrogate Tribal treaty rights.

In the mid-1850s, the United States entered into treaties with many Native American tribes in the Northwest. These treaties guaranteed the signatory tribes the right to "take fish at usual and accustomed grounds and stations . . . in common with all citizens of the territory" [*U.S. v. Washington*, 384 F. Supp. 312 at 332 (WDWA 1974)]. In *U.S. v. Washington*, 384 F. Supp. 312 at 343 - 344, the court resolved that the Treaty tribes had the right to take up to 50 percent of the harvestable anadromous fish runs passing through those grounds, as needed to provide them with a moderate standard of living (Fair Share). Over the years, the courts have held that this right comprehends certain subsidiary rights, such as access to their "usual and accustomed"fishing grounds. More than *de minimis* effects to access to usual and accustomed (U&A) fishing area may violate this treaty right [*Northwest Sea Farms v. Wynn*, F. Supp. 931 F. Supp. 1515 at 1522 (WDWA 1996)]. In *U.S. v. Washington*, 759 F.2d 1353 (9th Cir 1985) the court indicated that the obligation to prevent degradation of the fish habitat would be determined on a case-by-case basis. The Ninth Circuit has held that this right encompasses the right to take shellfish [*U.S. v. Washington*, 135 F.3d 618 (9th Cir 1998)].

The proposed project has been analyzed with respect to its effects on the treaty rights described above. Extensive coordination with the Muckleshoot Indian Tribe occurred during the project design. As a result of tribal and stakeholder comments and concerns, the project design was substantively changed. Design changes included increased plantings, planting bench width increases, crown width/ trail width decreases, and an overall project length decrease.

The Muckleshoot Indian Tribe identified a U&A fishing station downstream of our project site. The original project footprint included the U&A site. In order to avoid impacting that station, the project footprint was truncated and the local sponsor modified their floodwall design to eliminate the need for riverward work. The Tribe also relayed a concern about the loss of trees and associated shading, as it related to the water temperatures at the site. Additional tree plantings were included in the project design to mitigate for any impact and any temporal loss of the shading function. Tribal access to the area would be maintained throughout construction.

With the final coordinated design, the Corps believes the following:

(1) The work would protect access to usual and accustomed fishing and gathering areas;
(2) The work would not cause the degradation of fish runs in usual and accustomed fishing grounds or with fishing activities or shellfish harvesting and habitat; and
(3) The work would not impair the Treaty tribes' ability to meet moderate living needs.

7.9 Executive Order 12898, Environmental Justice

Executive Order 12898 directs every Federal agency to identify and address disproportionately high and adverse human health or environmental effects of agency programs and activities on minority and low-income populations. The proposed action does not involve a facility siting decision and would not have a disproportionately high adverse human health impact to any environmental justice community. Therefore, the project complies with this order.

7.10 Executive Order 11988, Floodplain Management

Executive Order 11988 requires Federal agencies to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy of the floodplain, and to avoid direct and indirect support of floodplain development where there is a practicable alternative. In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by flood plains."

By Corps policy, the provisions of EO 11988 are not applicable to the repair of flood control works to the pre-existing level of flood protection, as the repair actions do not directly affect either the modification or occupancy of floodplains, and do not directly or indirectly impact floodplain development.

7.11 Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks

Executive Order 13045 requires each Federal agency to identify and assess environmental health risks and safety risks that may disproportionately affect children; and ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

The proposed action would reduce flood risk for a residential neighborhood, which includes an elementary school. The construction would be conducted in a safe manner, with appropriate safety equipment and materials. The project complies with this order.

8.0 CONCLUSION

In light of the minor expected effects, the preferred alternative would not generate significant impacts on the quality of the human environment, and thus the preparation of an Environmental Impact Statement is not required.

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APPENDIX A: Site Photos, Project Designs, and Pullout Pit Illustrations

Photo 1: Damaged section of levee, showing the riverward face

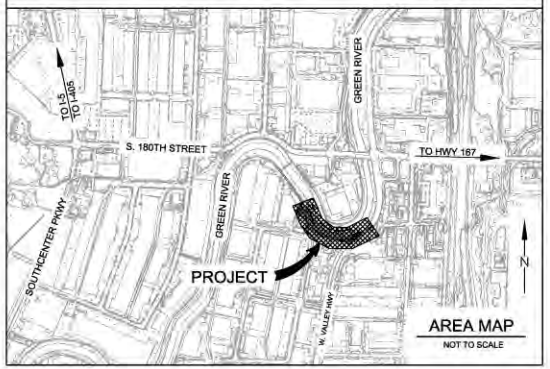
Photo 2: Damaged section of levee, showing the crown and backslope

US Army Corps of Engineers®
Seattle District

PL 84-99 LEVEE REHABILITATION DESIMONE-BRISCOE SCHOOL, GREEN RIVER

TUKWILA, WASHINGTON

VICINITY MAP
NOT TO SCALE



AREA MAP
NOT TO SCALE

FY15 GRN-01-14

SAFETY PAYS

NOT ALL UTILITIES ARE SHOWN ON THE PLANS. CALL 2 WORKING DAYS BEFORE YOU DIG 1-800-424-5555

IF SHEET MEASURES LESS THAN 22" X 34" IT IS A REDUCED PRINT. REDUCE SCALE ACCORDINGLY.

US Army Corps of Engineers ® Seattle District

File No: E-51-4-69
Date: 13 MAR 2015

U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
SEATTLE, WASHINGTON

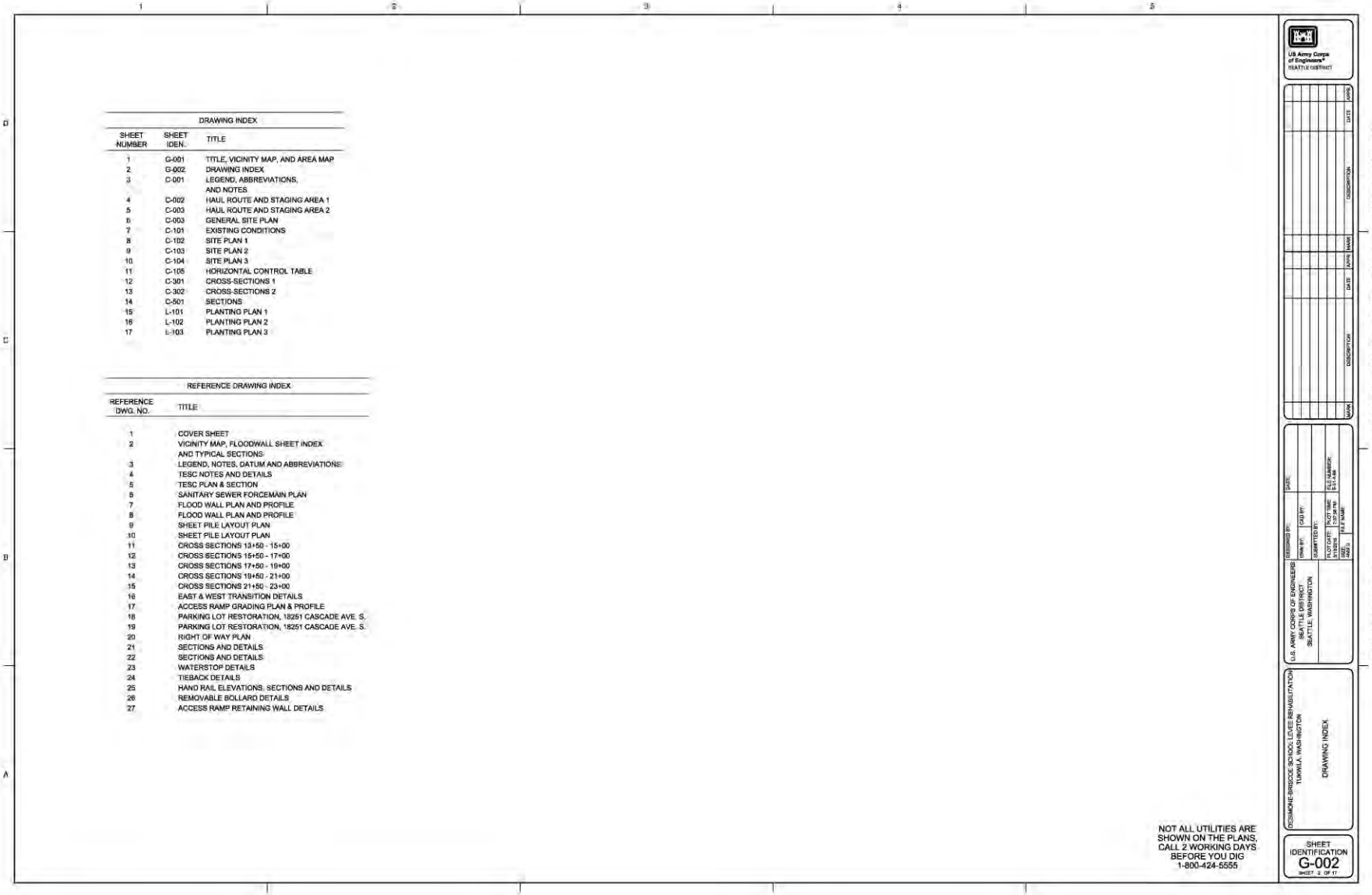
Submitted by: LEAH WICKSTROM, P.E. 12/2014 Project Manager Date
Reviewed by: LEE FORD, P.E. 12/2014 Tech Review Date
Prepared by: MICHAEL PEELE, P.E. 12/2014 Civil Section Date

DESIMONE-BRISCOE SCHOOL LEVEE REHABILITATION
TUKWILA, WASHINGTON

TITLE: VICINITY MAP, AND AREA MAP

SHEET IDENTIFICATION
G-001
SHEET 1 OF 17

DESIGN FILE: I:\MED\Design\FY15_PM\48192_GRD\Gen_Desn\CAD_Sheets\General\PM48192_GRD1_G-001CVR.dgn
DATE AND TIME PLOTTED: 3/13/2015



DRAWING INDEX

SHEET NUMBER	SHEET IDEN.	TITLE
1	G-001	TITLE, VICINITY MAP, AND AREA MAP
2	G-002	DRAWING INDEX
3	C-001	LEGEND, ABBREVIATIONS, AND NOTES
4	C-002	HAUL ROUTE AND STAGING AREA 1
5	C-003	HAUL ROUTE AND STAGING AREA 2
6	C-003	GENERAL SITE PLAN
7	C-101	EXISTING CONDITIONS
8	C-102	SITE PLAN 1
9	C-103	SITE PLAN 2
10	C-104	SITE PLAN 3
11	C-105	HORIZONTAL CONTROL TABLE
12	C-301	CROSS-SECTIONS 1
13	C-302	CROSS-SECTIONS 2
14	C-501	SECTIONS
15	L-101	PLANTING PLAN 1
16	L-102	PLANTING PLAN 2
17	L-103	PLANTING PLAN 3

REFERENCE DRAWING INDEX

REFERENCE DWG. NO.	TITLE
1	COVER SHEET
2	VICINITY MAP, FLOODWALL SHEET INDEX AND TYPICAL SECTIONS
3	LEGEND, NOTES, DATUM AND ABBREVIATIONS
4	TESC NOTES AND DETAILS
5	TESC PLAN & SECTION
6	SANITARY SEWER FORCEMAIN PLAN
7	FLOOD WALL PLAN AND PROFILE
8	FLOOD WALL PLAN AND PROFILE
9	SHEET PILE LAYOUT PLAN
10	SHEET PILE LAYOUT PLAN
11	CROSS SECTIONS 13+50 - 15+00
12	CROSS SECTIONS 15+50 - 17+00
13	CROSS SECTIONS 17+50 - 19+00
14	CROSS SECTIONS 19+50 - 21+00
15	CROSS SECTIONS 21+50 - 23+00
16	EAST & WEST TRANSITION DETAILS
17	ACCESS RAMP GRADING PLAN & PROFILE
18	PARKING LOT RESTORATION, 18251 CASCADE AVE. S.
19	PARKING LOT RESTORATION, 18251 CASCADE AVE. S.
20	RIGHT OF WAY PLAN
21	SECTIONS AND DETAILS
22	SECTIONS AND DETAILS
23	WATERSTOP DETAILS
24	TIEBACK DETAILS
25	HAND RAIL ELEVATIONS, SECTIONS AND DETAILS
26	REMOVABLE BOLLARD DETAILS
27	ACCESS RAMP RETAINING WALL DETAILS

NOT ALL UTILITIES ARE SHOWN ON THE PLANS, CALL 2 WORKING DAYS BEFORE YOU DIG 1-800-424-5555

US Army Corps of Engineers
SEATTLE DISTRICT

DESIGNED BY:
DRAWN BY:
CHKD BY:
SUBMITTED BY:
PLOT DATE: 3/13/2015
PLOT TIME: 2:07:34 PM
FILE NAME: G-002.dgn
DATE:
FILE NUMBER: E31-146

U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
SEATTLE, WASHINGTON

DESIMONE-BRISCOE SCHOOL LEVEE REHABILITATION
TUKWILA, WASHINGTON

DRAWING INDEX

SHEET IDENTIFICATION
G-002
SHEET 2 OF 17

DESIGN FILE: I:\AEC\Designs\FY15_PN448192_GRDL\Civil_Docs\CAD_Sheets\General\PN448192_GRDL-G-002IND.dgn

DATE AND TIME PLOTTED: 3/13/2015

CIVIL NOTES

LINETYPES

- 20 — EXISTING CONTOURS
- 20 — PROPOSED CONTOURS
- CONSTRUCTION LIMITS

LEGEND

- CONCRETE PAVEMENT
- CUT/FILL ARROW
- EXISTING SPOT ELEVATION
- EL 21.00 — PROPOSED SPOT ELEVATION
- TREE

ABBREVIATIONS

APPROX.	APPROXIMATE
CONC	CONCRETE
COR	USACE CONTRACTING OFFICER REPRESENTATIVE
DIAM., DIA	DIAMETER
E	EAST
EL, ELEV	ELEVATION
EMB	EMBANKMENT
EO	EDGE OF
EOA	EDGE OF ASPHALT
EOC	EDGE OF CONCRETE
EOG	EDGE OF GRAVEL
EP	EDGE OF PAVEMENT
EXC	EXCAVATION
EXIST, EX	EXISTING
FIG	FIGURE
FT	FEET/FOOT
H, HORIZ	HORIZONTAL
IN	INCH/INCHES
L	LENGTH
LF	LINEAL FOOT/FEET
LT	LEFT
MAX.	MAXIMUM
MIN	MINIMUM
MISC	MISCELLANEOUS
MM	MILLIMETER
N	NORTH
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC, O.C	ON CENTER
PSI	POUNDS PER SQUARE INCH
R	RADIUS
REQD	REQUIRED
SPEC	SPECIFICATION
STA	STATION
STD	STANDARD
TEMP	TEMPORARY
TYP	TYPICAL
VAR	VARIES
V, VERT	VERTICAL
W/	WITH
W.S.	WATER SURFACE
WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

DRAFTING

- DIRECTION OF VIEW
- X / C-304: LETTER INDICATES CIVIL SECTION; NUMBER INDICATES ELEV OR DETAIL; PLATE NUMBER WHERE SECTION/DETAIL IS DRAWN
- X / C-502: NUMBER INDICATES DETAIL NO.; PLATE NUMBER WHERE DETAIL IS DRAWN
- N — NORTH ARROW
- 0 20 40 — GRAPHIC SCALE (FEET)

SURVEY/DATUM

MAPPING COMPILED BY CITY OF KENT ON JUNE 9, 2011.

VERTICAL DATUM: NAVD '88 HORIZONTAL DATUM: NAD 83/91

CITY OF KENT BENCHMARK NO. 850, BENCHMARK ELEVATION: 31.824

BENCHMARK DESCRIPTION: SET MAG NAIL WITH 1-1/2" CITY OF KENT ALUMINUM WASHER IN ASPHALT ON WEST SIDE OF WEST VALLEY HIGHWAY AT NORTHWEST CORNER OF DRIVEWAY APRON AT ENTRANCE TO BIKE TRAIL AT NORTH END OF RIVERPOINT CORPORATE CENTER, AT TODD BLVD. AND WEST VALLEY HIGHWAY.

CITY OF KENT BENCHMARK NO. 851, BENCHMARK ELEVATION: 33.496

BENCHMARK DESCRIPTION: SET MAG NAIL WITH 1-1/2" CITY OF KENT ALUMINUM WASHER IN BIKE TRAIL ON EAST SIDE OF GREEN RIVER IN BRISCOE PARK, BEHIND BUILDING NO. 6020 IN CUL-DE-SAC AT INTERSECTION OF S. 190 ST. AND 62 AVE. S. MAG NAIL IS IN TRAIL WEST OF TWO COVERED PICNIC AREAS.

UTILITIES CONTACT INFORMATION

COMPANY	PHONE
CALL-BEFORE-YOU-DIG	(800) 424-5555
PUGET SOUND ENERGY	(425) 392-6412
CITY OF TUKWILA	(206) 433-0179

LEVEE CONSTRUCTION NOTES

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE CORPS OF ENGINEERS OF ANY DISCREPANCIES WITH RESPECT TO THE PLANS.
2. BEFORE EXCAVATION OR TRENCHING, CONTRACTOR SHALL SUBMIT A UTILITY LOCATE REQUEST (CALL BEFORE YOU DIG) THROUGH THE STATE OF WASHINGTON UTILITY NOTIFICATION CENTER IN ACCORDANCE WITH STATE OF WASHINGTON LAW: CHAPTER 19.122 RCW - UNDERGROUND UTILITIES. NO EXCAVATION MAY BEGIN UNTIL THE TIME STATED ON THE LOCATE TICKET. THE ONE-CALL PHONE NUMBER FOR UTILITY LOCATES IS: 1-800-424-5555.
3. ANY DAMAGE TO EXISTING SUBSURFACE OR SURFACE FACILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.
4. THE HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING UTILITIES AND IMPROVEMENTS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL UTILITIES AND IMPROVEMENTS PRIOR TO EXCAVATION TO AVOID DAMAGE. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING AND PRESERVING THE INTEGRITY OF EXISTING SITE UTILITIES DURING CONSTRUCTION.
5. ALL DISTANCES SHOWN ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATION SHALL BE INTERPRETED TO REFER TO HORIZONTALLY AND VERTICALLY PROJECTED PLANES, UNLESS OTHERWISE NOTED.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FULL RESTORATION OF ALL EXISTING FEATURES DISTURBED DURING CONSTRUCTION TO THEIR ORIGINAL CONDITION, UNLESS OTHERWISE INDICATED BY THE CONSTRUCTION DOCUMENTS.
7. PRELIMINARY CLEARING AND GRUBBING, STAGING AREAS AND CONSRUCTION ACCESS RAMP

   (A) ESTABLISH CONSTRUCTION STAGING AREAS, AS SHOWN ON PLANS.

   (B) INSTALL TEMPORARY EROSION CONTROL MEASURES FOR PHASES OF WORK TO BE CONDUCTED. WORKING AS CONSTRUCTION ADVANCES, CONTINUE TO INSTALL SILT FENCING ALONG FULL LENGTH OF DISTURBED AREAS OF THE PROJECT SITE. INSTALL EROSION CONTROL MEASURES AS NEEDED TO PREVENT THE DISCHARGE OR ACCUMULATION OF SEDIMENT INTO THE RIVER, ADJACENT SWALES, CATCH BASINS AND STORM DRAINS AND OFF-SITE. ACCUMULATION OF SEDIMENT IN ADJACENT SWALES OR STORM DRAINS WILL BE MONITORED DAILY AND CLEANED TO ENSURE CONTINUED SERVICE THROUGHTOUT CONSTRUCTION.

   (C) CLEAR AND GRUB PROJECT SITE. DISPOSE OF VEGETATION AND OTHER UNSUITABLE MATERIALS IN AN APPROVED AND PERMITTED OFF-SITE LOCATION.
8. RESTORATION, TRAIL RESURFACING, AND TEMPORARY CONSTRUCTION WORK AREAS

   (A) CONSTRUCT ASPHALT PAVED TRAIL ALONG TOP OF LEVEE AND RESTORE ASPHALT ON ALL DISTURBED AREAS, INCLUDING TEMPORARY CONSTRUCTION ACCESS AND WORK AREAS.

   (B) HYDROSEED ALL DISTURBED SITE AREAS PRIOR TO END OF CONSTRUCTION.

   (C) RESTORE TEMPORARY WORK AREAS TO PRE-CONSTRUCTION CONDITION. REPLACE ANY DAMAGED CURBS, PAINT STRIPES, ETC. IN KIND.

   (D) RESTORE ACCESS ROAD CONDITIONS AND FEATURES (FENCING, GATES, ETC...) TO PRE-CONSTRUCTION CONDITIONS.
9. CONSTRUCTION

   (A) ALL IN-WATER PROJECT WORK SHALL BE COMPLETED DURING THE FISH WINDOW: AUGUST 1 - AUGUST 31.

   (B) THE LIMITS OF THE STAGING AREA WILL BE DELINEATED IN THE FIELD BEFORE THE START OF CONSTRUCTION. FOLLOWING CONSTRUCTION, CONSTRUCTION MATERIALS WILL BE REMOVED AND ANY DISTURBED BARE SOIL IN ANY UNPAVED PORTION OF THE STAGING AREA WILL BE HYDROSEEDED.

   (C) HEAVY EQUIPMENT WILL OPERATE EITHER FROM THE TOP OF BANK OR FROM A MID-SLOPE BENCH WELL ABOVE THE WATERLINE. THE EXCAVATOR BUCKET WILL ENTER THE WATER ONLY TO EXCAVATE MATERIAL TO ALLOW PLACEMENT OF ROCK AND FOR PLACEMENT OF ROCK.

   (D) ALL GAS AND OIL CONTAINERS FOR SMALL EQUIPMENT SHALL BE SAFELY AND SECURELY STORED IN UTILITY VEHICLES.

   (E) ALL WORK AREAS SHALL BE FENCED OFF WITH TEMPORARY FENCING PRIOR TO START OF CONSTRUCTION. NO GROUND DISTURBANCE OR OTHER CONSTRUCTION ACTIVITY SHALL TAKE PLACE OUTSIDE OF FENCING.

   (F) NO NATURALLY OCCURRING MATERIAL (LOGS, STUMPS, OR BRANCHES) SHALL BE REMOVED FROM THE RIVER AT ANY TIME. SHIFTING OF MATERIAL AS NEEDED FOR CONSTRUCTION SHALL BE APPROVED BY THE COR.

   (G) SEE SPECIFICATION 01160 WATER QUALITY STANDARDS FOR TURBIDITY SAMPLING REQUIREMENTS.
10. EROSION CONTROL AND VEGETATION

    (A) VEGETATION TO BE PRESERVED AND CLEARING LIMITS WILL BE FLAGGED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION BY THE PROJECT ENGINEER OR THE PROJECT ECOLOGIST.

    (B) EROSION CONTROL HYDROSEED MIX WILL BE USED TO ESTABLISH INITIAL GROUND COVER ON ALL DISTURBED AREAS, USING WASHINGTON STATE DEPARTMENT OF TRANSPORTATION HYDROSEED MIX.

NOT ALL UTILITIES ARE SHOWN ON THE PLANS, CALL 2 WORKING DAYS BEFORE YOU DIG 1-800-424-5555

US Army Corps of Engineers® SEATTLE DISTRICT

MARK | DESCRIPTION | DATE | APPR.

DESIGNED BY: M. PEELE | DWN BY: | CKD BY: | SUBMITTED BY: | PLOT DATE: 3/13/2015 | PLOT TIME: 2:59:02 PM | FILE NUMBER: E-51-488 | SIZE: ANSI D

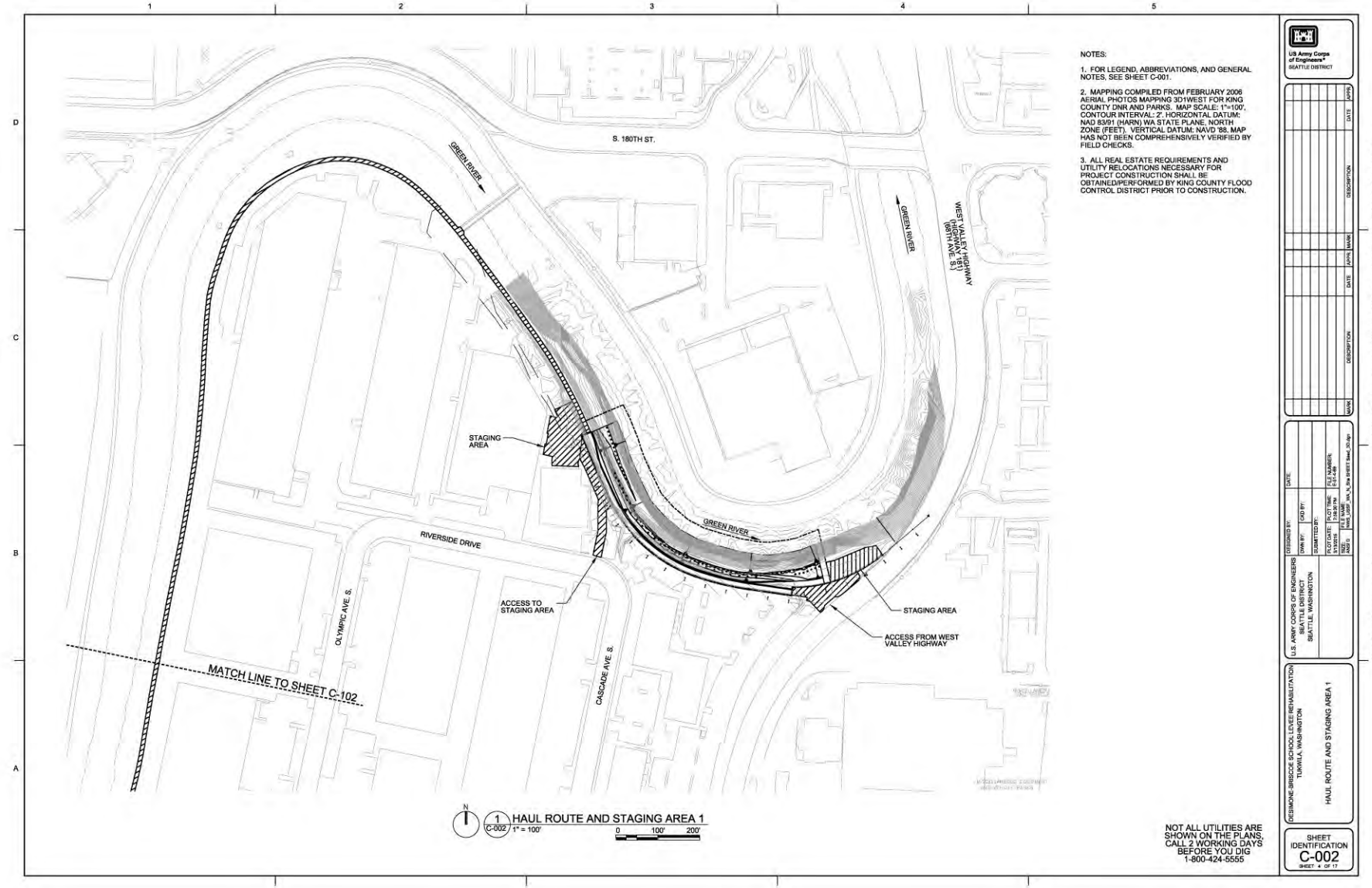
U.S. ARMY CORPS OF ENGINEERS SEATTLE DISTRICT SEATTLE, WASHINGTON

DESIMONE-BRISCOE SCHOOL LEVEE REHABILITATION TUKWILA, WASHINGTON

LEGEND, ABBREVIATIONS AND NOTES

SHEET IDENTIFICATION C-001 SHEET 3 OF 17

DATE AND TIME PLOTTED: 3/13/2015



NOTES:

1. FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES, SEE SHEET C-001.

2. MAPPING COMPILED FROM FEBRUARY 2006 AERIAL PHOTOS MAPPING 3D1WEST FOR KING COUNTY DNR AND PARKS. MAP SCALE: 1"=100', CONTOUR INTERVAL: 2'. HORIZONTAL DATUM: NAD 83/01 (HARN) WA STATE PLANE, NORTH ZONE (FEET). VERTICAL DATUM: NAVD '88. MAP HAS NOT BEEN COMPREHENSIVELY VERIFIED BY FIELD CHECKS.

3. ALL REAL ESTATE REQUIREMENTS AND UTILITY RELOCATIONS NECESSARY FOR PROJECT CONSTRUCTION SHALL BE OBTAINED/PERFORMED BY KING COUNTY FLOOD CONTROL DISTRICT PRIOR TO CONSTRUCTION.

NOT ALL UTILITIES ARE SHOWN ON THE PLANS. CALL 2 WORKING DAYS BEFORE YOU DIG 1-800-424-5555

US Army Corps of Engineers
SEATTLE DISTRICT

MARK	DESCRIPTION	DATE	APPR.

U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
SEATTLE, WASHINGTON

DESIGNED BY:
DWN BY:
CKD BY:
SUBMITTED BY:
PLOT DATE: 3/13/2015
PLOT TIME: 7:09:37 PM
FILE NUMBER: E31-4-09
ADD'L INFO:
NAME_LASER: WA_N_Std SHEET Stand_30.dgn

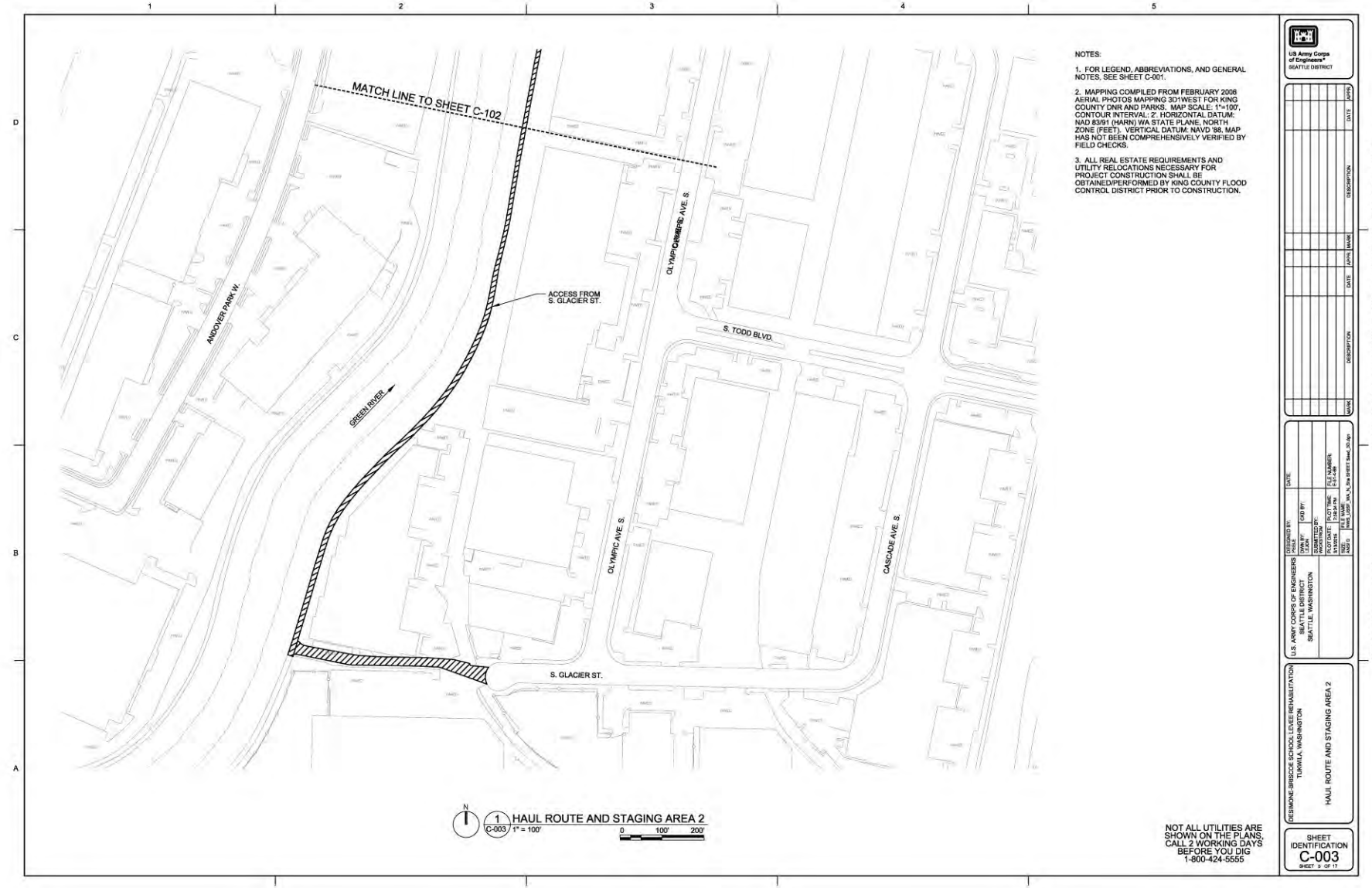
DESIMONE-BRISCOE SCHOOL LEVEE REHABILITATION
TUKWILA, WASHINGTON

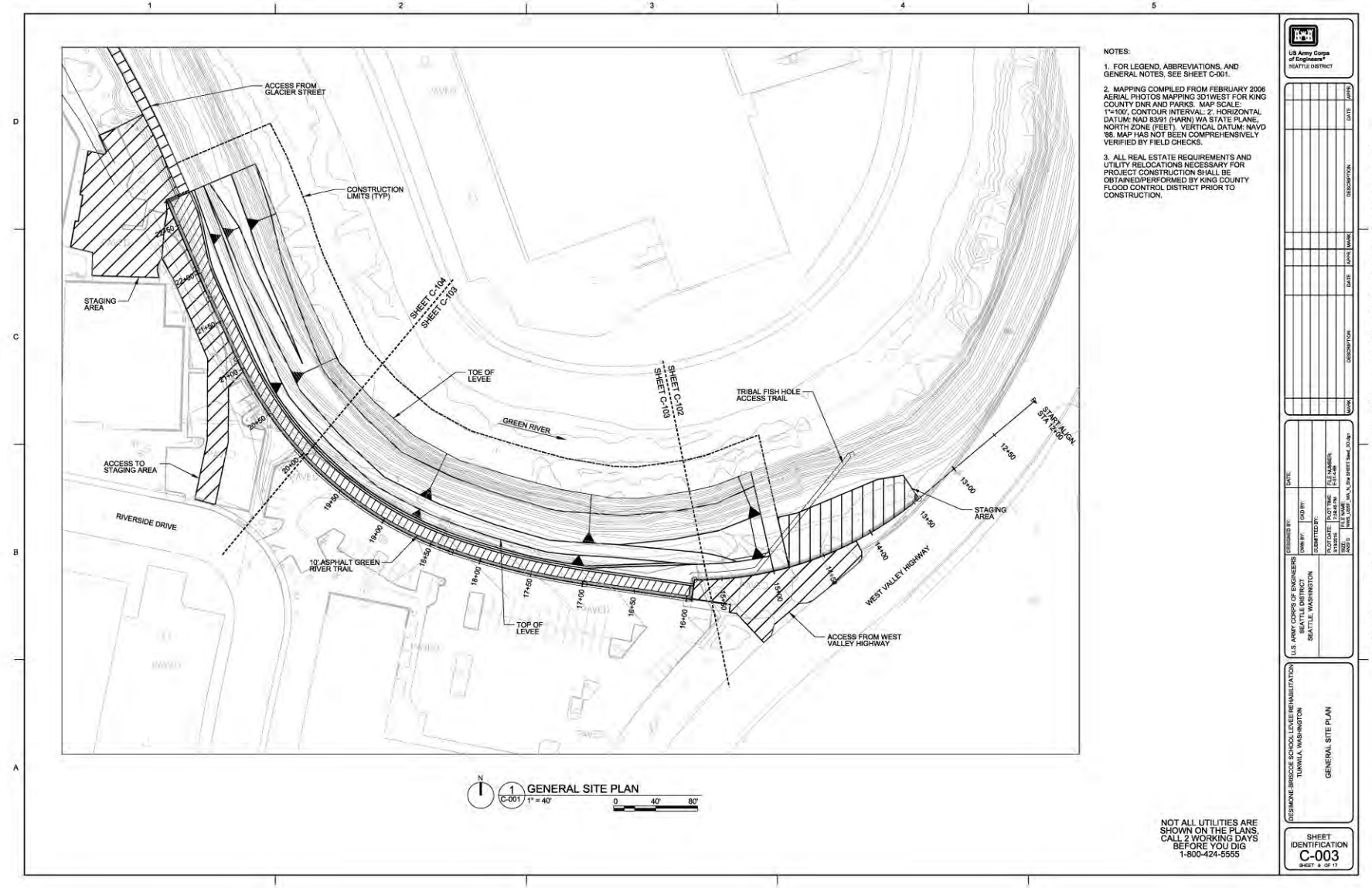
HAUL ROUTE AND STAGING AREA 1

SHEET IDENTIFICATION
C-002
SHEET 4 OF 17

DESIGN FILE: I:\AEC\Designs\FY15_PN448192_GRDL\Con_Docs\CAD_Sheets\Civil\PN448192_GRDL C-002AltR.dgn

DATE AND TIME PLOTTED: 3/13/2015


MATCH LINE TO SHEET C-102
ACCESS FROM S. GLACIER ST.
ANDOVER PARK W.
GREEN RIVER
OLYMPIC DR. S.
S. TODD BLVD.
OLYMPIC AVE. S.
CASCADE AVE. S.
S. GLACIER ST.
NOTES:
1. FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES, SEE SHEET C-001.
2. MAPPING COMPILED FROM FEBRUARY 2006 AERIAL PHOTOS MAPPING 3D1WEST FOR KING COUNTY DNR AND PARKS. MAP SCALE: 1"=100', CONTOUR INTERVAL: 2'. HORIZONTAL DATUM: NAD 83/91 (HARN) WA STATE PLANE, NORTH ZONE (FEET). VERTICAL DATUM: NAVD '88. MAP HAS NOT BEEN COMPREHENSIVELY VERIFIED BY FIELD CHECKS.
3. ALL REAL ESTATE REQUIREMENTS AND UTILITY RELOCATIONS NECESSARY FOR PROJECT CONSTRUCTION SHALL BE OBTAINED/PERFORMED BY KING COUNTY FLOOD CONTROL DISTRICT PRIOR TO CONSTRUCTION.
1 C-003 HAUL ROUTE AND STAGING AREA 2
1" = 100'
0 100' 200'
NOT ALL UTILITIES ARE SHOWN ON THE PLANS. CALL 2 WORKING DAYS BEFORE YOU DIG 1-800-424-5555
US Army Corps of Engineers
SEATTLE DISTRICT
U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
SEATTLE, WASHINGTON
DESIMONE-BRISCOE SCHOOL LEVEE REHABILITATION
TUKWILA, WASHINGTON
HAUL ROUTE AND STAGING AREA 2
SHEET IDENTIFICATION
C-003
SHEET 3 OF 17
DESIGN FILE: I:\AEC\Designs\FY15_PN448192_GRDL\Con_Docs\CAD_Sheets\Civil\PN448192_GRDL C-003AVR.dgn
DATE AND TIME PLOTTED: 3/13/2015


ACCESS FROM GLACIER STREET
CONSTRUCTION LIMITS (TYP)
STAGING AREA
SHEET C-104
SHEET C-103
TOE OF LEVEE
SHEET C-102
SHEET C-103
TRIBAL FISH HOLE ACCESS TRAIL
GREEN RIVER
START ALIGN STA 12+00
ACCESS TO STAGING AREA
RIVERSIDE DRIVE
10' ASPHALT GREEN RIVER TRAIL
STAGING AREA
WEST VALLEY HIGHWAY
TOP OF LEVEE
ACCESS FROM WEST VALLEY HIGHWAY
NOTES:
1. FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES, SEE SHEET C-001.
2. MAPPING COMPILED FROM FEBRUARY 2006 AERIAL PHOTOS MAPPING 3D1WEST FOR KING COUNTY DNR AND PARKS. MAP SCALE: 1"=100', CONTOUR INTERVAL: 2'. HORIZONTAL DATUM: NAD 83/91 (HARN) WA STATE PLANE, NORTH ZONE (FEET). VERTICAL DATUM: NAVD '88. MAP HAS NOT BEEN COMPREHENSIVELY VERIFIED BY FIELD CHECKS.
3. ALL REAL ESTATE REQUIREMENTS AND UTILITY RELOCATIONS NECESSARY FOR PROJECT CONSTRUCTION SHALL BE OBTAINED/PERFORMED BY KING COUNTY FLOOD CONTROL DISTRICT PRIOR TO CONSTRUCTION.
1 C-001 GENERAL SITE PLAN
1" = 40'
0 40' 80'
NOT ALL UTILITIES ARE SHOWN ON THE PLANS, CALL 2 WORKING DAYS BEFORE YOU DIG 1-800-424-5555
US Army Corps of Engineers
SEATTLE DISTRICT
U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
SEATTLE, WASHINGTON
DESIMONE-BRISCOE SCHOOL LEVEE REHABILITATION
TUKWILA, WASHINGTON
GENERAL SITE PLAN
SHEET IDENTIFICATION
C-003
SHEET 3 OF 17
DESIGN FILE: I:\AEC\Designs\FY15_PN448192_GRDL\Con_Docs\CAD_Sheets\Civil\PN448192_GRDL C-003GEN.dgn
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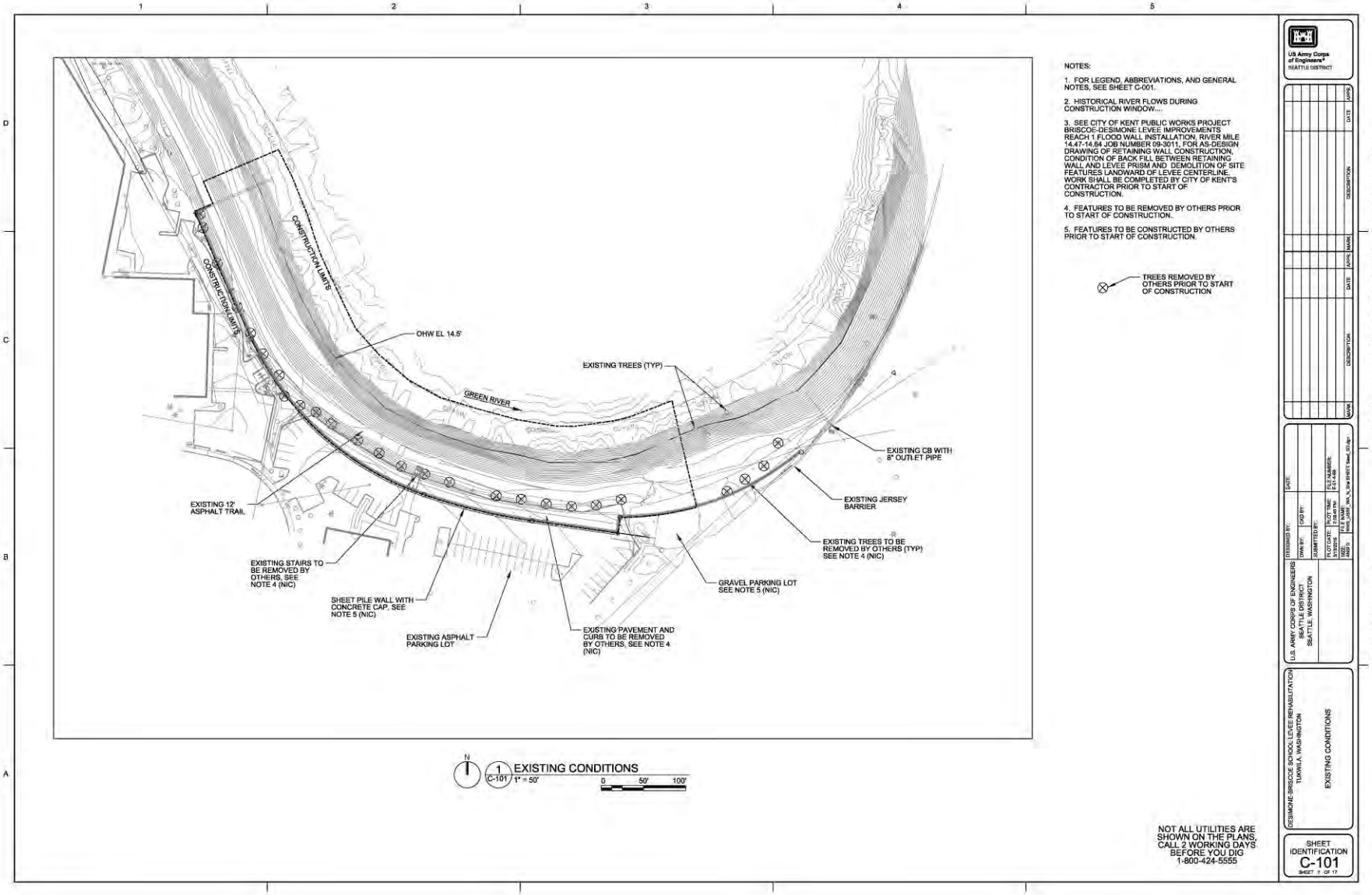
CONSTRUCTION LIMITS
CONSTRUCTION LIMITS
OHW EL 14.5'
GREEN RIVER
EXISTING TREES (TYP)
EXISTING CB WITH 8" OUTLET PIPE
EXISTING JERSEY BARRIER
EXISTING 12' ASPHALT TRAIL
EXISTING TREES TO BE REMOVED BY OTHERS (TYP) SEE NOTE 4 (NIC)
EXISTING STAIRS TO BE REMOVED BY OTHERS, SEE NOTE 4 (NIC)
GRAVEL PARKING LOT SEE NOTE 5 (NIC)
SHEET PILE WALL WITH CONCRETE CAP, SEE NOTE 5 (NIC)
EXISTING ASPHALT PARKING LOT
EXISTING PAVEMENT AND CURB TO BE REMOVED BY OTHERS, SEE NOTE 4 (NIC)
N
1 C-101 EXISTING CONDITIONS
1" = 50'
0 50' 100'
NOTES:
1. FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES, SEE SHEET C-001.
2. HISTORICAL RIVER FLOWS DURING CONSTRUCTION WINDOW....
3. SEE CITY OF KENT PUBLIC WORKS PROJECT BRISCOE-DESIMONE LEVEE IMPROVEMENTS REACH 1 FLOOD WALL INSTALLATION, RIVER MILE 14.47-14.64 JOB NUMBER 09-3011, FOR AS-DESIGN DRAWING OF RETAINING WALL CONSTRUCTION, CONDITION OF BACK FILL BETWEEN RETAINING WALL AND LEVEE PRISM AND DEMOLITION OF SITE FEATURES LANDWARD OF LEVEE CENTERLINE. WORK SHALL BE COMPLETED BY CITY OF KENT'S CONTRACTOR PRIOR TO START OF CONSTRUCTION.
4. FEATURES TO BE REMOVED BY OTHERS PRIOR TO START OF CONSTRUCTION.
5. FEATURES TO BE CONSTRUCTED BY OTHERS PRIOR TO START OF CONSTRUCTION.
TREES REMOVED BY OTHERS PRIOR TO START OF CONSTRUCTION
NOT ALL UTILITIES ARE SHOWN ON THE PLANS, CALL 2 WORKING DAYS BEFORE YOU DIG 1-800-424-5555
US Army Corps of Engineers
SEATTLE DISTRICT
DESIMONE-BRISCOE SCHOOL LEVEE REHABILITATION
TUKWILA, WASHINGTON
EXISTING CONDITIONS
SHEET IDENTIFICATION
C-101
SHEET 7 OF 17
DESIGN FILE: I:\AEC\Designs\FY15_PN448192_GRDL\Con_Docs\CAD_Sheets\Civil\PN448192_GRDL C-101\01.dgn
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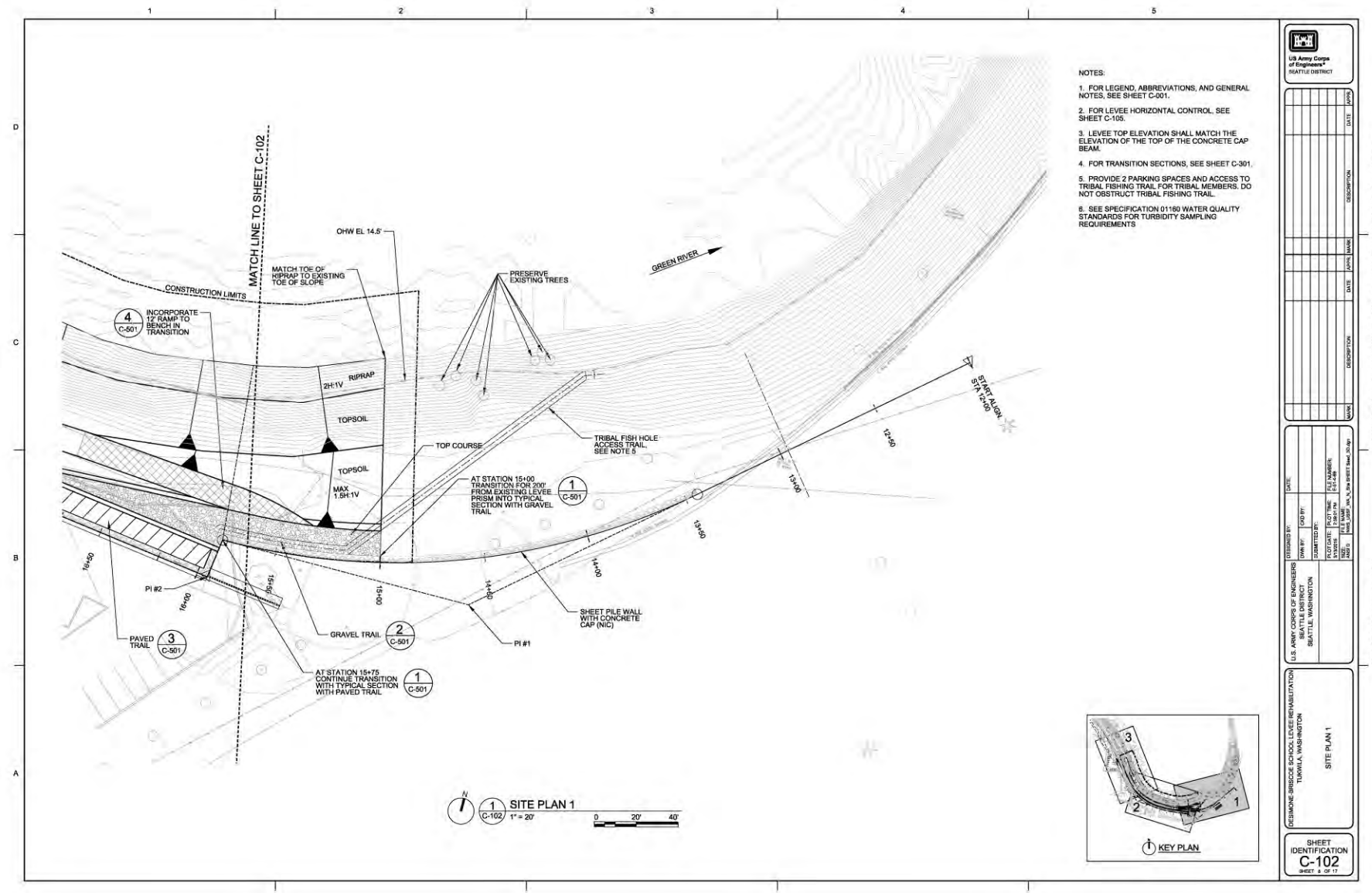
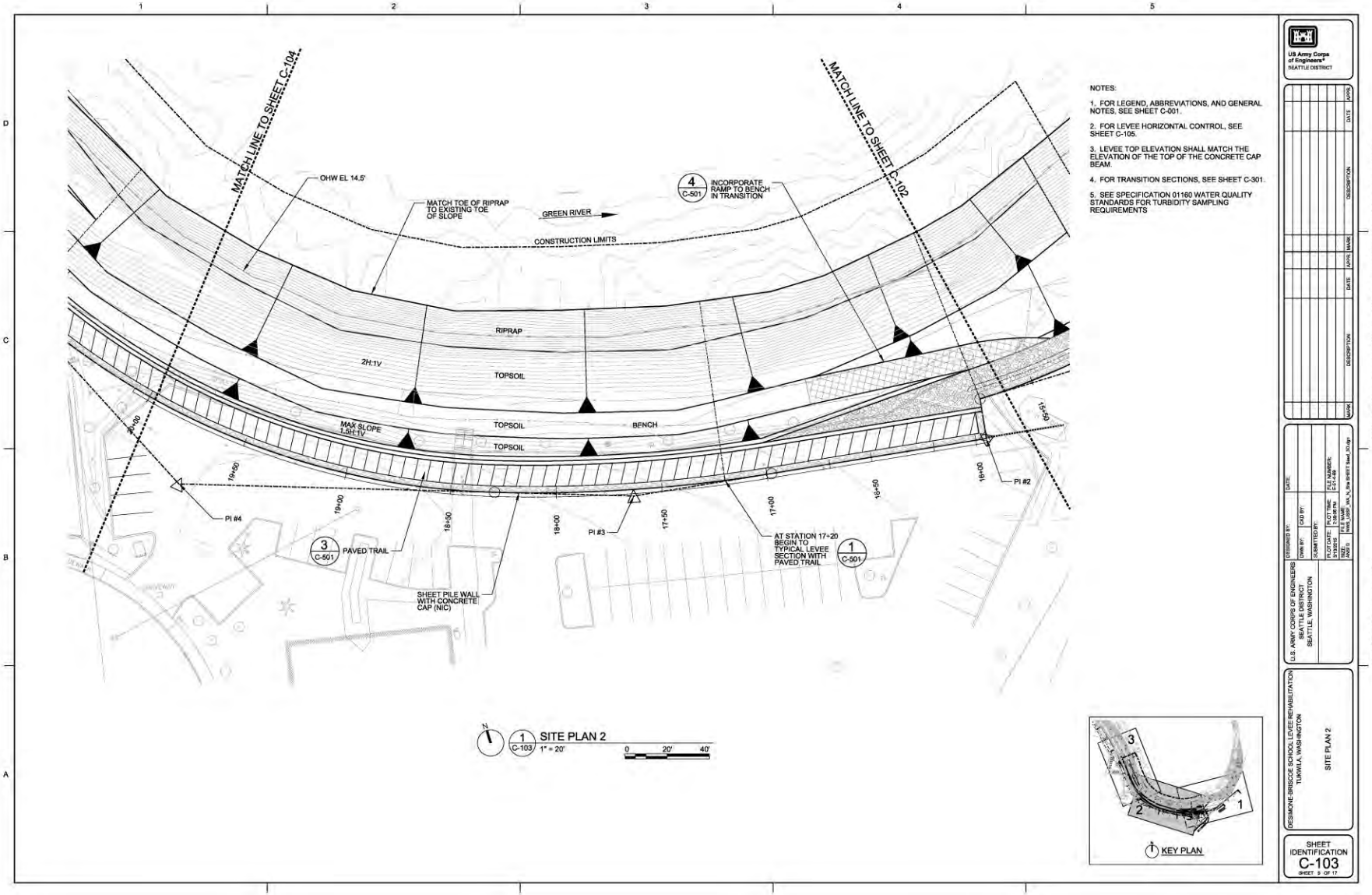
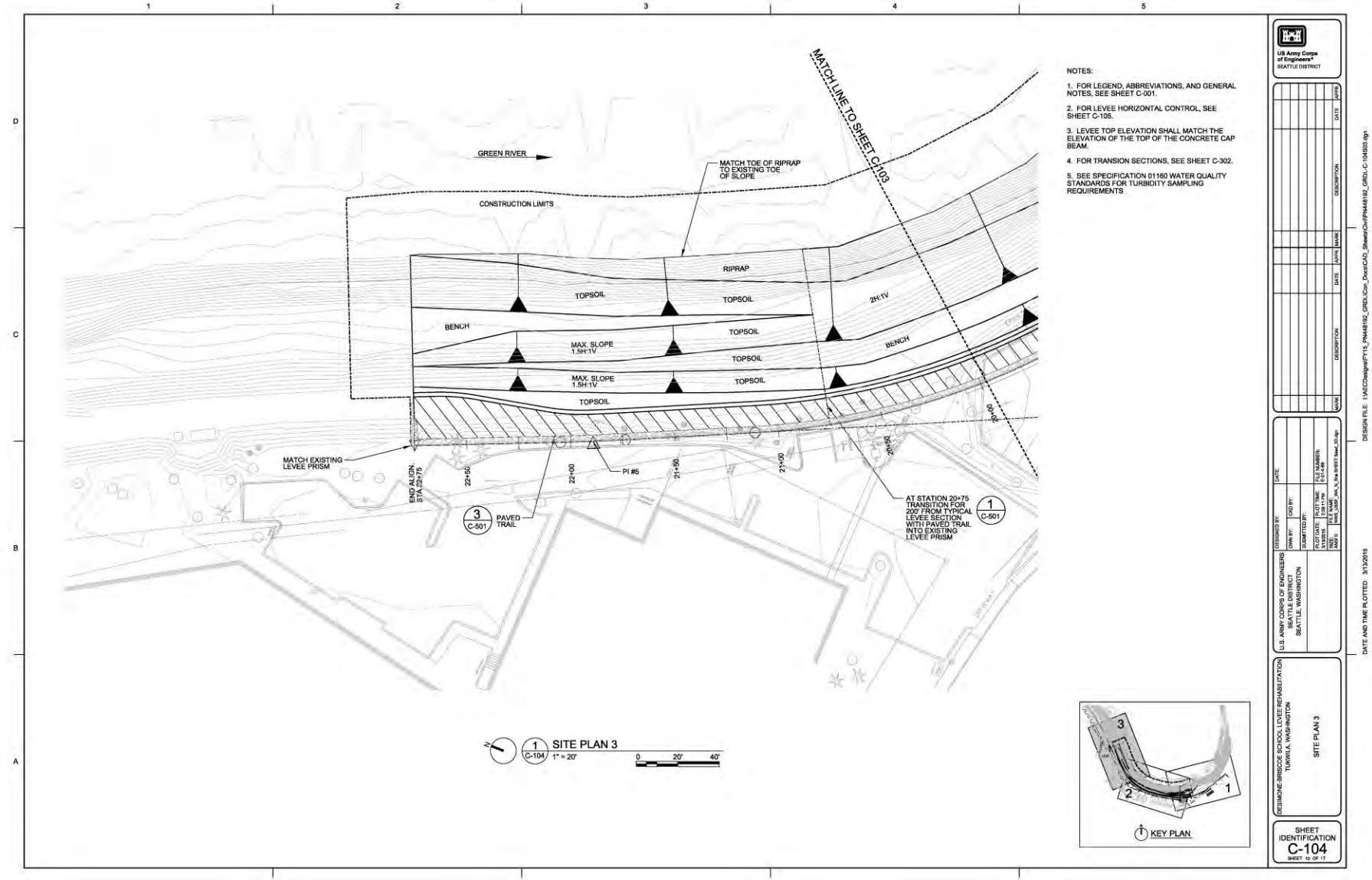

NOTES:
1. FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES, SEE SHEET C-001.
2. FOR LEVEE HORIZONTAL CONTROL, SEE SHEET C-105.
3. LEVEE TOP ELEVATION SHALL MATCH THE ELEVATION OF THE TOP OF THE CONCRETE CAP BEAM.
4. FOR TRANSITION SECTIONS, SEE SHEET C-301.
5. PROVIDE 2 PARKING SPACES AND ACCESS TO TRIBAL FISHING TRAIL FOR TRIBAL MEMBERS. DO NOT OBSTRUCT TRIBAL FISHING TRAIL.
6. SEE SPECIFICATION 01160 WATER QUALITY STANDARDS FOR TURBIDITY SAMPLING REQUIREMENTS
MATCH LINE TO SHEET C-102
CONSTRUCTION LIMITS
OHW EL 14.5'
MATCH TOE OF RIPRAP TO EXISTING TOE OF SLOPE
PRESERVE EXISTING TREES
GREEN RIVER
INCORPORATE 12' RAMP TO BENCH IN TRANSITION
4 C-501
RIPRAP
2H:1V
TOPSOIL
TOPSOIL
MAX 1.5H:1V
TOP COURSE
TRIBAL FISH HOLE ACCESS TRAIL, SEE NOTE 5
START ALIGN STA 12+00
AT STATION 15+00 TRANSITION FOR 200' FROM EXISTING LEVEE PRISM INTO TYPICAL SECTION WITH GRAVEL TRAIL
1 C-501
PI #2
PAVED TRAIL
3 C-501
GRAVEL TRAIL
2 C-501
AT STATION 15+75 CONTINUE TRANSITION WITH TYPICAL SECTION WITH PAVED TRAIL
1 C-501
SHEET PILE WALL WITH CONCRETE CAP (N/C)
PI #1
16+50
16+00
15+50
15+00
14+50
14+00
13+50
13+00
12+50
1 C-102 SITE PLAN 1
1" = 20'
0 20' 40'
KEY PLAN
US Army Corps of Engineers
SEATTLE DISTRICT
U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
SEATTLE, WASHINGTON
DESIGNED BY:
DWN BY:
CKD BY:
SUBMITTED BY:
PLOT DATE: 3/13/2015
PLOT TIME: 7:09:01 PM
FILE NUMBER: E31-4-09
HAS_LASER_WA_N_Std SHEET Stnd_30.dgn
DESIMONE-BRISCOE SCHOOL LEVEE REHABILITATION
TUKWILA, WASHINGTON
SITE PLAN 1
SHEET IDENTIFICATION
C-102
SHEET 8 OF 17
DESIGN FILE: I:\AEC\Designs\FY15_PN448192_GRDL\Con_Docs\CAD_Sheets\Civil\PN448192_GRDL C-102501.dgn
DATE AND TIME PLOTTED: 3/13/2015


MATCH LINE TO SHEET C-104
MATCH LINE TO SHEET C-102
OHW EL 14.5'
MATCH TOE OF RIPRAP TO EXISTING TOE OF SLOPE
GREEN RIVER
CONSTRUCTION LIMITS
4 C-501 INCORPORATE RAMP TO BENCH IN TRANSITION
RIPRAP
2H:1V
TOPSOIL
MAX SLOPE 1.5H:1V
TOPSOIL
BENCH
TOPSOIL
PI #4
PI #3
PI #2
3 C-501 PAVED TRAIL
SHEET PILE WALL WITH CONCRETE CAP (NIC)
AT STATION 17+20 BEGIN TO TYPICAL LEVEE SECTION WITH PAVED TRAIL
1 C-501
NOTES:
1. FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES, SEE SHEET C-001.
2. FOR LEVEE HORIZONTAL CONTROL, SEE SHEET C-105.
3. LEVEE TOP ELEVATION SHALL MATCH THE ELEVATION OF THE TOP OF THE CONCRETE CAP BEAM.
4. FOR TRANSITION SECTIONS, SEE SHEET C-301.
5. SEE SPECIFICATION 01160 WATER QUALITY STANDARDS FOR TURBIDITY SAMPLING REQUIREMENTS
1 C-103 SITE PLAN 2
1" = 20'
0 20' 40'
KEY PLAN
US Army Corps of Engineers
SEATTLE DISTRICT
U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
SEATTLE, WASHINGTON
DESIMONE-BRISCOE SCHOOL LEVEE REHABILITATION
TUKWILA, WASHINGTON
SITE PLAN 2
SHEET IDENTIFICATION
C-103
SHEET 9 OF 17
DESIGN FILE: I:\AEC\Designs\FY15_PN448192_GRDL\Con_Docs\CAD_Sheets\Civil\PN448192_GRDL C-103S02.dgn
DATE AND TIME PLOTTED: 3/13/2015


MATCH LINE TO SHEET C-103
GREEN RIVER
CONSTRUCTION LIMITS
MATCH TOE OF RIPRAP TO EXISTING TOE OF SLOPE
RIPRAP
TOPSOIL
BENCH
MAX. SLOPE 1.5H:1V
2H:1V
MATCH EXISTING LEVEE PRISM
END ALIGN STA 22+75
22+50
22+00
PI #5
21+50
21+00
20+50
20+00
3 C-501 PAVED TRAIL
AT STATION 20+75 TRANSITION FOR 200' FROM TYPICAL LEVEE SECTION WITH PAVED TRAIL INTO EXISTING LEVEE PRISM
1 C-501
NOTES:
1. FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES, SEE SHEET C-001.
2. FOR LEVEE HORIZONTAL CONTROL, SEE SHEET C-105.
3. LEVEE TOP ELEVATION SHALL MATCH THE ELEVATION OF THE TOP OF THE CONCRETE CAP BEAM.
4. FOR TRANSION SECTIONS, SEE SHEET C-302.
5. SEE SPECIFICATION 01160 WATER QUALITY STANDARDS FOR TURBIDITY SAMPLING REQUIREMENTS.
1 C-104 SITE PLAN 3
1" = 20'
0 20' 40'
KEY PLAN
US Army Corps of Engineers
SEATTLE DISTRICT
DESIMONE-BRISCOE SCHOOL LEVEE REHABILITATION
TUKWILA, WASHINGTON
SITE PLAN 3
U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
SEATTLE, WASHINGTON
SHEET IDENTIFICATION
C-104
SHEET 10 OF 17
DESIGN FILE: I:\AEC\Designs\FY15_PN448192_GRDL\Con_Docs\CAD_Sheets\Civil\PN448192_GRDL C-104S03.dgn
DATE AND TIME PLOTTED: 3/13/2015

HORIZONTAL CONTROL TABLE

START ALIGNMENT

STA 0+00.00
N 163,279.020
E 1,290,909.450
Length: 144.08
Direction: S 49°50'55" W

PC

STA 1+44.08
N 163,186.120
E 1,290,799.330

PI #1

STA 2+65.07
N 163,108.100
E 1,290,706.850
Radius: 328.00
Delta: 40°29'50" Right
Length: 231.83
DOC (Arc): 17°28'06"
Chord: 227.04 S 70°05'50" W
Tangent: 121.00 S 49°50'55" W

PT

STA 3+75.91
N 163,108.630
E 1,290,585.650
Length: 18.94
Direction: S 8°10'16" W

PI #2

STA 3+94.85
N 163,090.080
E 1,290,583.160
Length: 102.95
Direction: N 81°49'44" W

PC

STA 4+97.80
N 163,104.710
E 1,290,481.250

PI #3

STA 5+63.67
N 163,114.070
E 1,290,416.050
Radius: 698.00
Delta: 10°46'55" Right
Length: 131.35
DOC (Arc): 8°12'31"
Chord: 131.15 N 76°26'16" W
Tangent: 65.67 N 81°49'44" W

PCC

STA 6+29.15
N 163,135.470
E 1,290,353.760

PI #4

STA 7+78.41
N 163,183.940
E 1,290,212.590
Radius: 350.00
Delta: 46°11'32" Right
Length: 282.17
DOC (Arc): 16°22'13"
Chord: 274.59 N 47°57'03" W
Tangent: 149.26 N 71°02'49" W

PT

STA 9+11.33
N 163,319.380
E 1,290,149.850
Length: 62.46
Direction: N 24°51'17" W

PC

STA 9+73.79
N 163,376.060
E 1,290,123.600

PI #5

STA 9+89.35
N 163,390.180
E 1,290,117.060
Radius: 1000.00
Delta: 1°47'00" Right
Length: 31.12
DOC (Arc): 5°43'46"
Chord: 31.12 N 23°57'47" W
Tangent: 15.56 N 24°51'17" W

PT

STA 10+04.91
N 163,404.500
E 1,290,110.960
Length: 70.11
Direction: N 23°04'17" W

END OF ALIGNMENT

STA 10+75.02
N 163,404.500
E 1,290,110.960

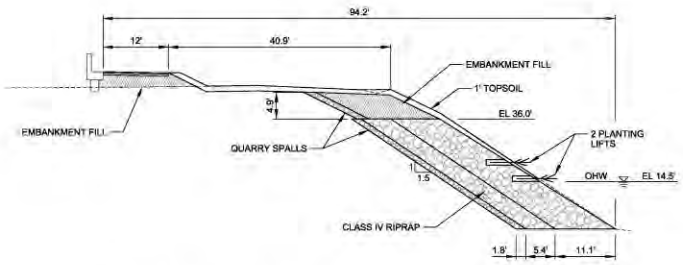
US Army Corps of Engineers®
SEATTLE DISTRICT

U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
SEATTLE, WASHINGTON

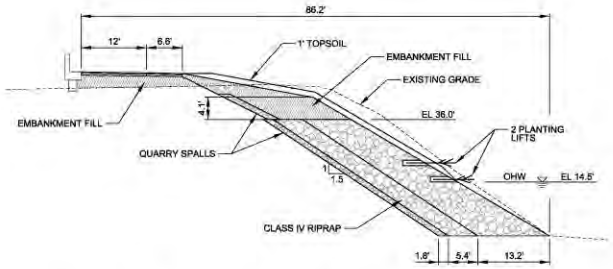
DESIMONE-BRISCOE SCHOOL LEVEE REHABILITATION
TUKWILA, WASHINGTON

HORIZONTAL CONTROL TABLE

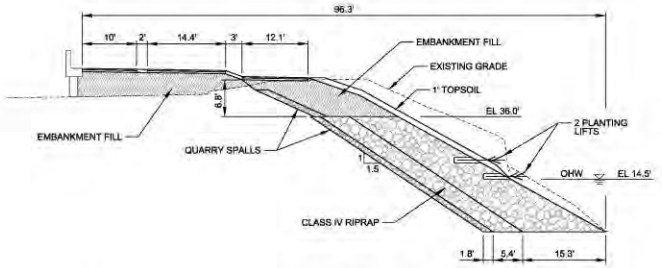
SHEET IDENTIFICATION
C-105



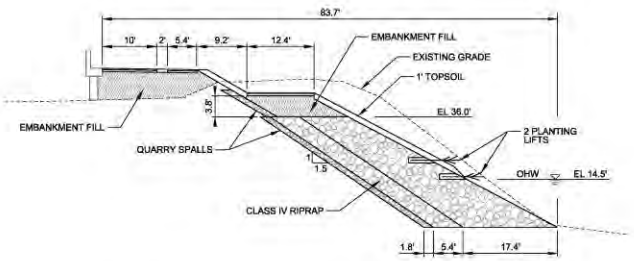
1 C-102 LEVEE CROSS-SECTION AT STATION 15+00
1" = 10'
0 10' 20'



1 C-102 LEVEE CROSS-SECTION AT STATION 15+50
1" = 10'
0 10' 20'



1 C-102 LEVEE CROSS-SECTION AT STATION 16+20
1" = 10'
0 10' 20'



1 C-102 LEVEE CROSS-SECTION AT STATION 16+70
1" = 10'
0 10' 20'

NOTES:

1. FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES, SEE SHEET C-001.

2. FOR ADDITIONAL CROSS-SECTION ANNOTATION AND DIMENSIONS, SEE TYPICAL LEVEE CROSS-SECTION ON SHEET C-501

US Army Corps of Engineers
SEATTLE DISTRICT

DESIGNED BY: PSLE
DRAWN BY: TWK
SUBMITTED BY:
PLOT DATE: 3/19/2015
PLOT TIME: 2:09:34 PM
FILE NAME: C-301.dgn
DATE:
U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
SEATTLE, WASHINGTON

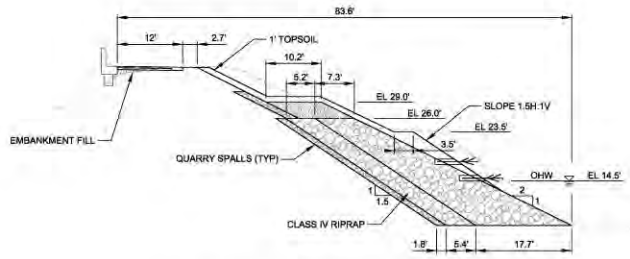
DESIMONE-BRISCOE SCHOOL LEVEE REHABILITATION
TUKWILA, WASHINGTON

CROSS-SECTIONS 1

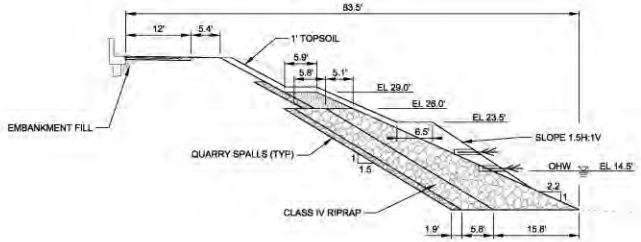
SHEET IDENTIFICATION
C-301
SHEET 12 OF 17

DESIGN FILE: I:\AEC\Designs\FY15_PN448192_GRDL\Con_Docs\CAD_Sheets\Civil\PN448192_GRDL-C-301C51.dgn

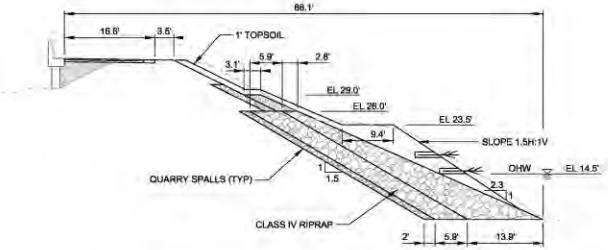
DATE AND TIME PLOTTED: 3/13/2015



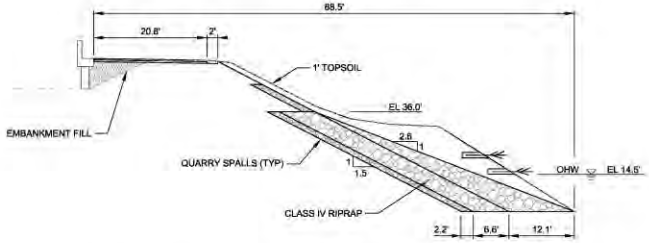
1 C-102 LEVEE CROSS-SECTION AT STATION 21+25
1" = 10'
0 10' 20'



1 C-102 LEVEE CROSS-SECTION AT STATION 21+75
1" = 10'
0 10' 20'



1 C-102 LEVEE CROSS-SECTION AT STATION 22+25
1" = 10'
0 10' 20'



1 C-102 LEVEE CROSS-SECTION AT STATION 22+75
1" = 10'
0 10' 20'

NOTES:

1. FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES, SEE SHEET C-001.

2. FOR ADDITIONAL CROSS-SECTION ANNOTATION AND DIMENSIONS, SEE TYPICAL LEVEE CROSS-SECTION ON SHEET C-501

US Army Corps of Engineers
SEATTLE DISTRICT

U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
SEATTLE, WASHINGTON

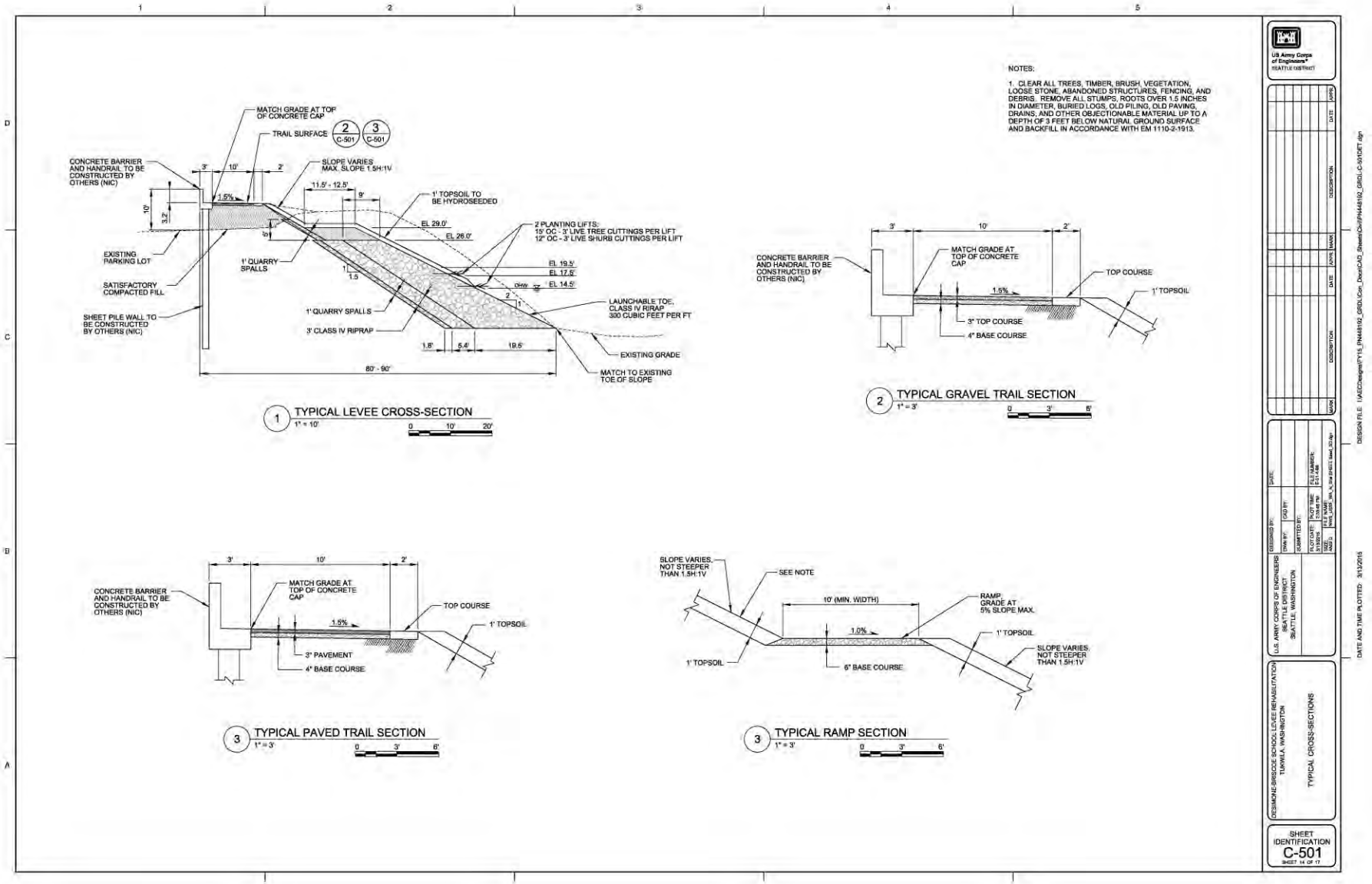
DESIMONE-BRISCOE SCHOOL LEVEE REHABILITATION
TUKWILA, WASHINGTON

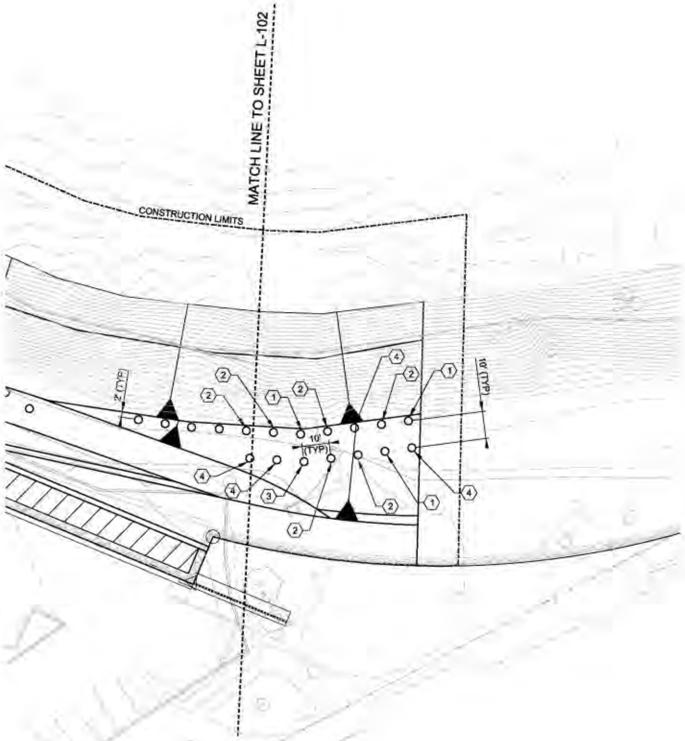
CROSS-SECTIONS 2

SHEET IDENTIFICATION
C-302
SHEET 13 OF 17

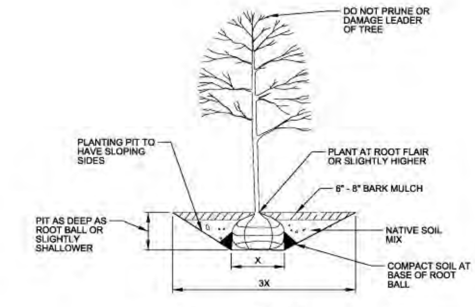
DESIGN FILE: I:\AEC\Designs\FY15_PN448192_GRDL\Con_Docs\CAD_Sheets\Civil\PN448192_GRDL-C-302CS2.dgn

DATE AND TIME PLOTTED: 3/13/2015

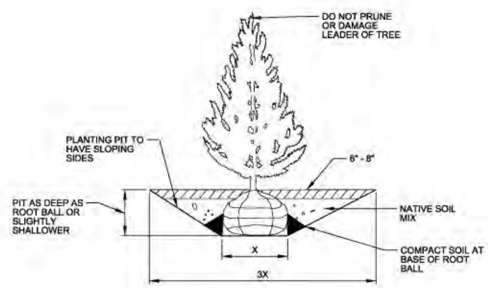

NOTES:
1. CLEAR ALL TREES, TIMBER, BRUSH, VEGETATION, LOOSE STONE, ABANDONED STRUCTURES, FENCING, AND DEBRIS. REMOVE ALL STUMPS, ROOTS OVER 1.5 INCHES IN DIAMETER, BURIED LOGS, OLD PILING, OLD PAVING, DRAINS, AND OTHER OBJECTIONABLE MATERIAL UP TO A DEPTH OF 3 FEET BELOW NATURAL GROUND SURFACE AND BACKFILL IN ACCORDANCE WITH EM 1110-2-1913.
MATCH GRADE AT TOP OF CONCRETE CAP
TRAIL SURFACE
2 C-501
3 C-501
CONCRETE BARRIER AND HANDRAIL TO BE CONSTRUCTED BY OTHERS (NIC)
SLOPE VARIES MAX. SLOPE 1.5H:1V
1' TOPSOIL TO BE HYDROSEEDED
2' PLANTING LIFTS: 15' OC - 3' LIVE TREE CUTTINGS PER LIFT 12" OC - 3' LIVE SHURB CUTTINGS PER LIFT
EXISTING PARKING LOT
1' QUARRY SPALLS
SATISFACTORY COMPACTED FILL
SHEET PILE WALL TO BE CONSTRUCTED BY OTHERS (NIC)
1' QUARRY SPALLS
3' CLASS IV RIPRAP
LAUNCHABLE TOE, CLASS IV RIRAP 300 CUBIC FEET PER FT
EXISTING GRADE
MATCH TO EXISTING TOE OF SLOPE
1 TYPICAL LEVEE CROSS-SECTION
1" = 10'
CONCRETE BARRIER AND HANDRAIL TO BE CONSTRUCTED BY OTHERS (NIC)
MATCH GRADE AT TOP OF CONCRETE CAP
TOP COURSE
1' TOPSOIL
3" TOP COURSE
4" BASE COURSE
2 TYPICAL GRAVEL TRAIL SECTION
1" = 3'
CONCRETE BARRIER AND HANDRAIL TO BE CONSTRUCTED BY OTHERS (NIC)
MATCH GRADE AT TOP OF CONCRETE CAP
TOP COURSE
1' TOPSOIL
3" PAVEMENT
4" BASE COURSE
3 TYPICAL PAVED TRAIL SECTION
1" = 3'
SLOPE VARIES, NOT STEEPER THAN 1.5H:1V
SEE NOTE
10' (MIN. WIDTH)
RAMP GRADE AT 5% SLOPE MAX.
1' TOPSOIL
6" BASE COURSE
SLOPE VARIES, NOT STEEPER THAN 1.5H:1V
3 TYPICAL RAMP SECTION
1" = 3'
US Army Corps of Engineers
SEATTLE DISTRICT
U.S. ARMY CORPS OF ENGINEERS SEATTLE DISTRICT SEATTLE, WASHINGTON
DESIMONE-BRISCOE SCHOOL LEVEE REHABILITATION TUKWILA, WASHINGTON
TYPICAL CROSS-SECTIONS
SHEET IDENTIFICATION C-501
SHEET 14 OF 17
DESIGN FILE: I:\AEC\Designs\FY15_PN448192_GRDL\Civil_Docs\CAD_Sheets\Civil\PN448192_GRDL C-501DET.dgn
DATE AND TIME PLOTTED: 3/13/2015



1 / C-102 LANDSCAPE PLAN 1
1" = 20'



1 / L-103 DECIDUOUS TREE PLANTING
NOT TO SCALE



1 / L-103 EVERGREEN TREE PLANTING
NOT TO SCALE

NOTES.

1. FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES, SEE SHEET C-001.

2. PLANT MATERIAL SHALL BE HEALTHY, DISEASE FREE AND IN A VIGOROUS GROWING STATE UPON DELIVERY TO SITE. PLANT MATERIAL FAILING TO MEET THESE CRITERIA SHALL BE REJECTED.

3. CONTAINER PLANTS SHALL HAVE GROWN THEREIN A MINIMUM OF 6 MONTHS AND A MAXIMUM OF 2 YEARS, WITH ROOTS FILLING THE CONTAINERS, BUT NOT SHOWING EVIDENCE OF BEING OR HAVING ROOT BOUND.

4. 6" TO 8" OF BARK MULCH WILL BE PLACED AFTER PLANTING.

5. TREES SHALL BE WATERED-IN AT THE TIME OF PLANTING.

6. CONTRACTOR SHALL PROVIDE A 100% SURVIVAL FOR 30 DAYS FOLLOWING PLANTING AND 80% SURVIVAL AT ONE YEAR.

7. PLANTING SHALL BE ACCOMPLISHED IN LATE FALL OR EARLY WINTER.

8. STAKES SHALL BE CUT WHILE DORMANT AND BETWEEN 3' TO 5' IN LENGTH WITH AN ANGLE CUT (45 DEGREES) BASAL END OF 0.5" TO 1.5" IN DIAMTER AND PERPENDICULAR CUT JUST ABOVE A NODE (BUD) AT THE TOP.

9. STAKES WILL BE STRIPPED OF ALL STEMS AND LEAVES TAKING CARE TO MINIMIZE SCARRING OR BRUISING.

10. STAKES WILL BE INSTALLED ALONG THE LEVEE SLOPE WITH 2/3 OF EACH STAKE EMBEDDED INTO THE SLOPE WITH AT LEAST TWO LATERAL BUDS ABOVE GROUND AFTER PLANTING.

11. PLANT STAKES ALONG 12" CENTERS USING TRANGULAR SPACING TO FORM TWO ROWS ALONG THE BANK WITH THE FIRST ROW ESTABLISHED STARTING AT ORDINARY HIGH WATER MARK (OHWM).

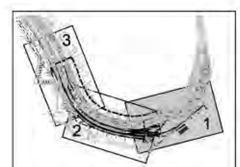
12. LIGHTLY SCARIFY ROOTBALL TO LOOSEN ROOTS PRIOR TO PLANTING.

13. FEATHER MULCH TO MAINTAIN 6" CLEARANCE BETWEEN MULCH AND STEM OF SHRUB.

14. NO RECYCLED ORGANIC MULCH IN BIORRETENTION AREAS. KEEP MULCH AWAY FROM FOLIAGE.

TREE TABLE

NO.	NAME	NAME	MAX. HEIGHT	TYPE	NO. OF TREES
1	BIGLEAF MAPLE	ACER MACROPHYLLUM	100'	1 GALLON	21
2	DOUGLAS-FIR	PSEUDOTSUGA MENZIESII	250'	1 GALLON	7
3	CASCARA	RHAMNUS PURSHIANA	30'	1 GALLON	21
4	BITTER CHERRY	PRUNUS EMARGINATA	30'	1 GALLON	26
5	SHORE PINE	PINUS CONTORTA	50'	1 GALLON	14
6	PACIFIC CRAB APPLE	MALUS FUSCA	40'	1 GALLON	4
7	OREGON ASH	FRAXINUM LATIFOLIA	70'	1 GALLON	4



KEY PLAN

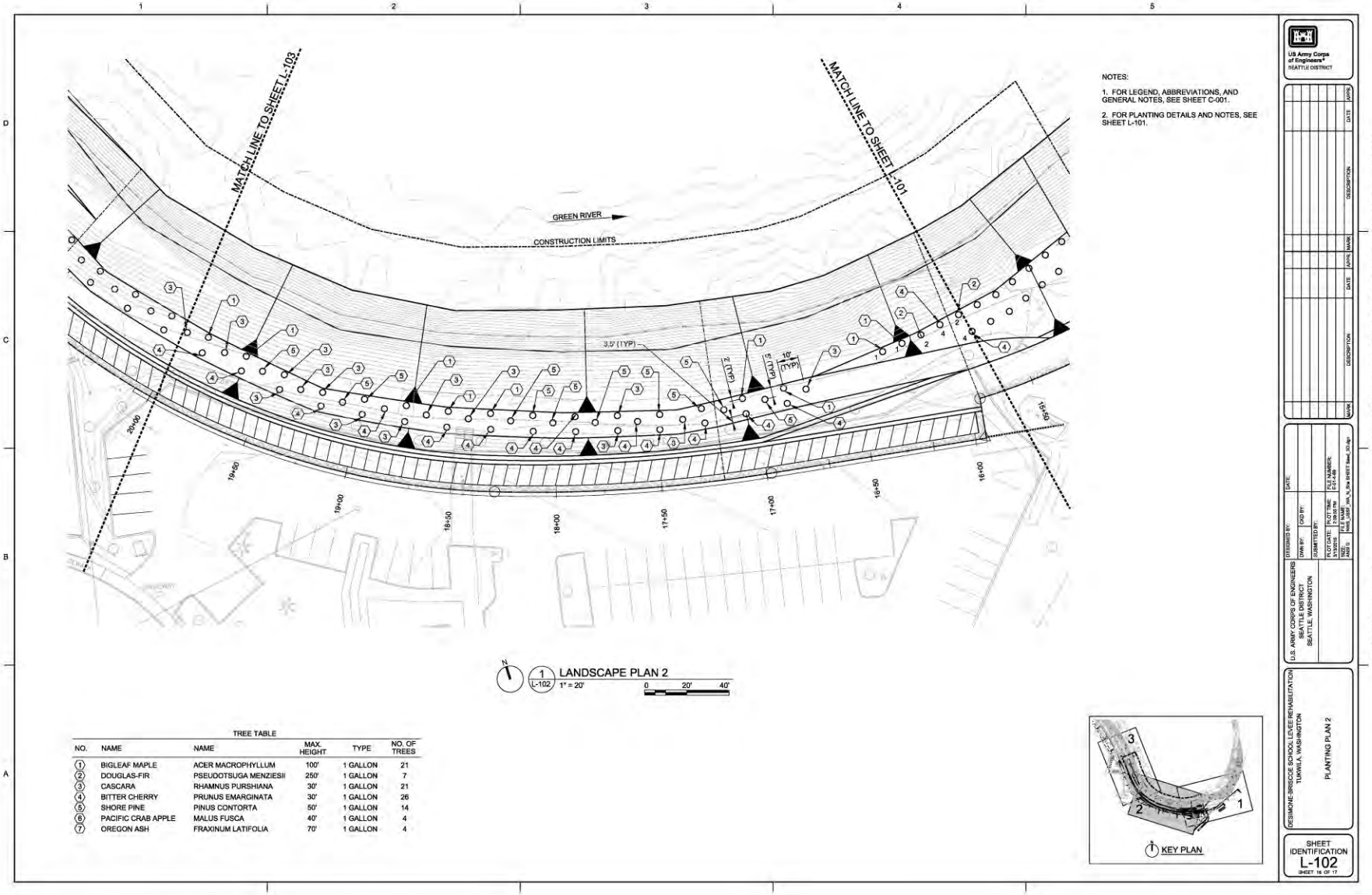
US Army Corps of Engineers
SEATTLE DISTRICT

U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
SEATTLE, WASHINGTON

DESIMONE-BRISCOE SCHOOL LEVEE REHABILITATION
TUKWILA, WASHINGTON

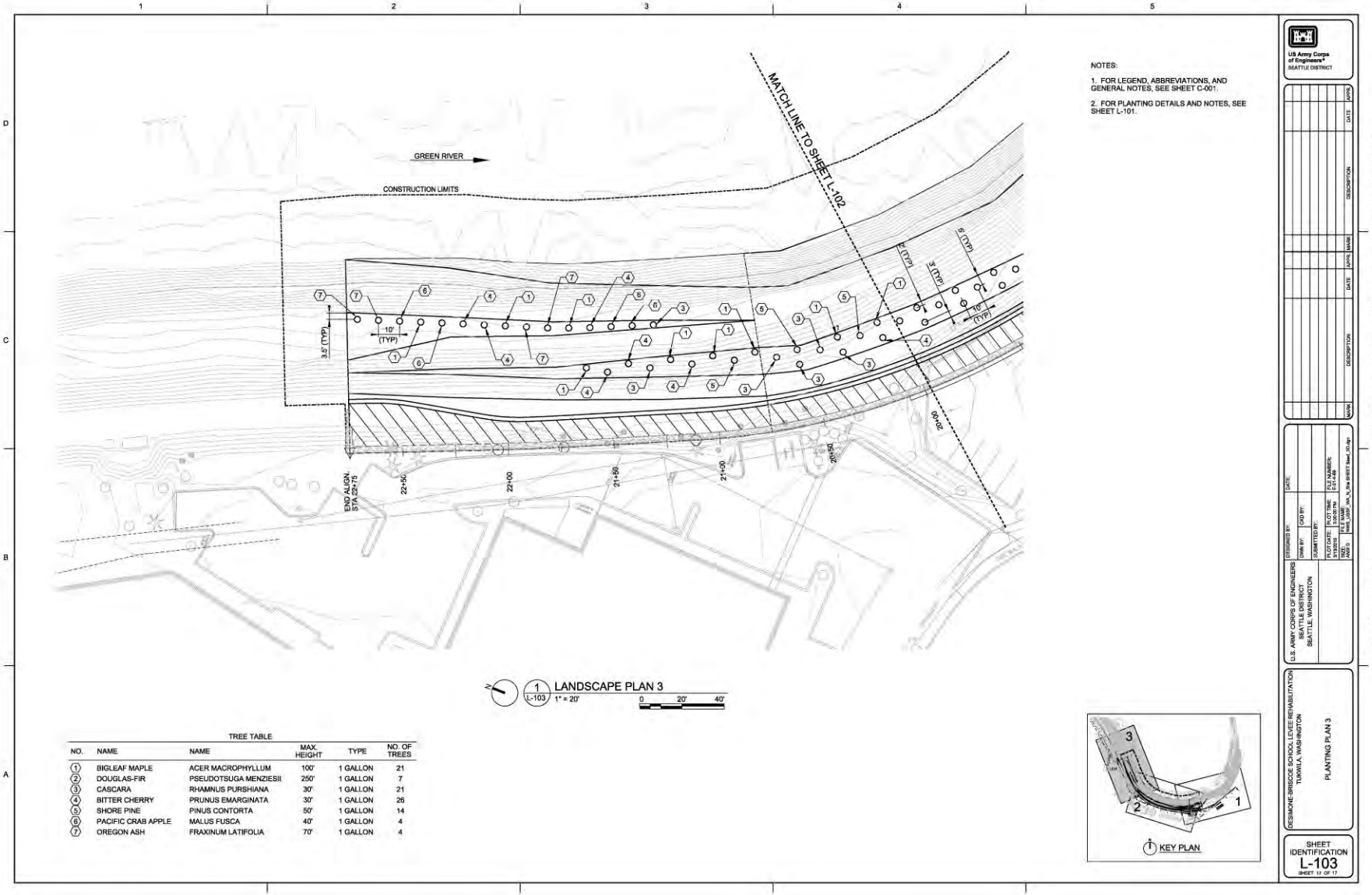
PLANTING PLAN 1

SHEET IDENTIFICATION
L-101



TREE TABLE

NO.	NAME	NAME	MAX. HEIGHT	TYPE	NO. OF TREES
1	BIGLEAF MAPLE	ACER MACROPHYLLUM	100'	1 GALLON	21
2	DOUGLAS-FIR	PSEUDOTSUGA MENZIESII	250'	1 GALLON	7
3	CASCARA	RHAMNUS PURSHIANA	30'	1 GALLON	21
4	BITTER CHERRY	PRUNUS EMARGINATA	30'	1 GALLON	26
5	SHORE PINE	PINUS CONTORTA	50'	1 GALLON	14
6	PACIFIC CRAB APPLE	MALUS FUSCA	40'	1 GALLON	4
7	OREGON ASH	FRAXINUM LATIFOLIA	70'	1 GALLON	4



NOTES:

1. FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES, SEE SHEET C-001.
2. FOR PLANTING DETAILS AND NOTES, SEE SHEET L-101.

1 L-103 LANDSCAPE PLAN 3
1" = 20'
0 20' 40'

TREE TABLE

NO.	NAME	NAME	MAX. HEIGHT	TYPE	NO. OF TREES
1	BIGLEAF MAPLE	ACER MACROPHYLLUM	100'	1 GALLON	21
2	DOUGLAS-FIR	PSEUDOTSUGA MENZIESII	250'	1 GALLON	7
3	CASCARA	RHAMNUS PURSHIANA	30'	1 GALLON	21
4	BITTER CHERRY	PRUNUS EMARGINATA	30'	1 GALLON	26
5	SHORE PINE	PINUS CONTORTA	50'	1 GALLON	14
6	PACIFIC CRAB APPLE	MALUS FUSCA	40'	1 GALLON	4
7	OREGON ASH	FRAXINUM LATIFOLIA	70'	1 GALLON	4

1 KEY PLAN

US Army Corps of Engineers
SEATTLE DISTRICT

DESIMONE-BRISCOE SCHOOL LEVEE REHABILITATION
TUKWILA, WASHINGTON

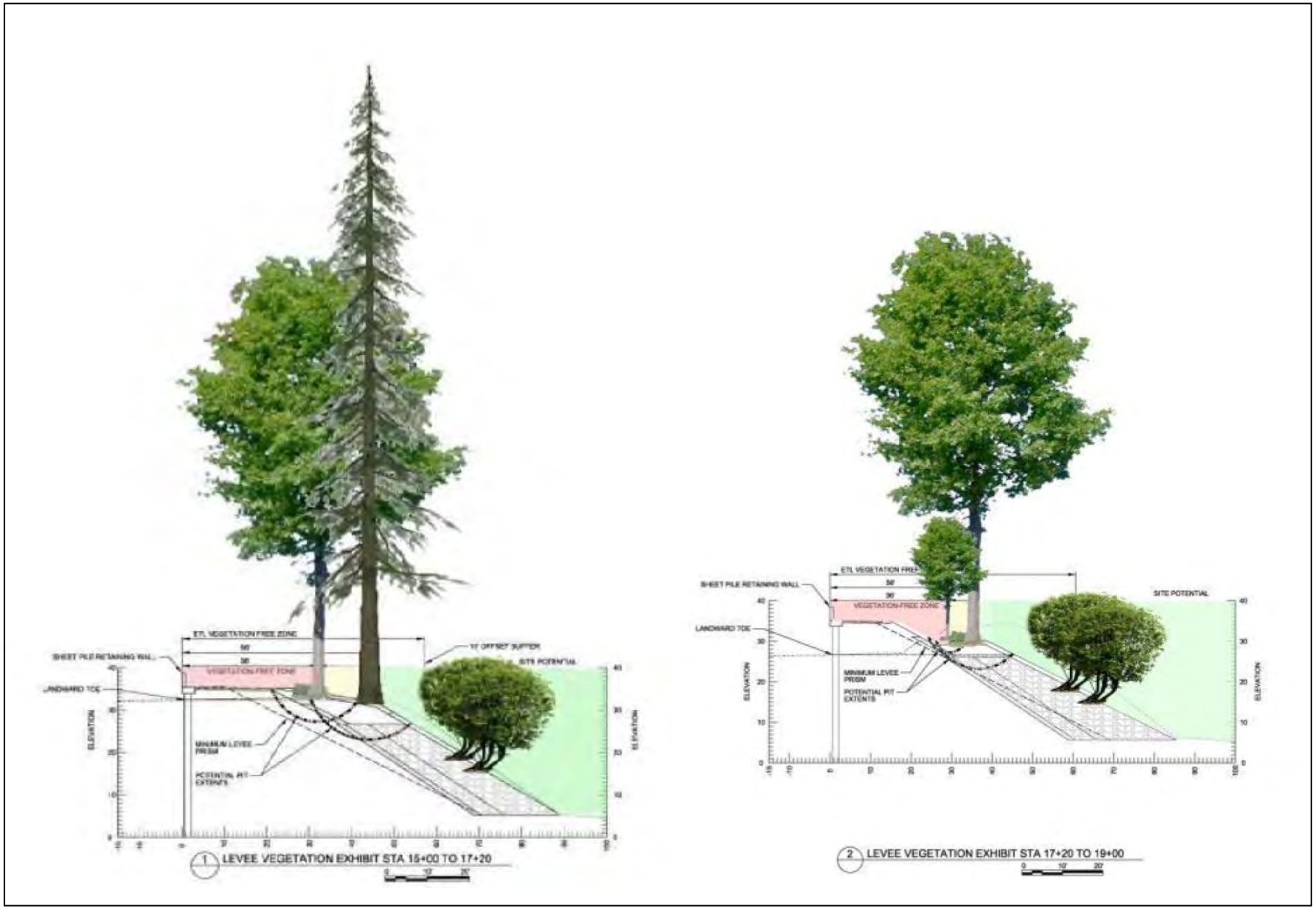
PLANTING PLAN 3

U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
SEATTLE, WASHINGTON

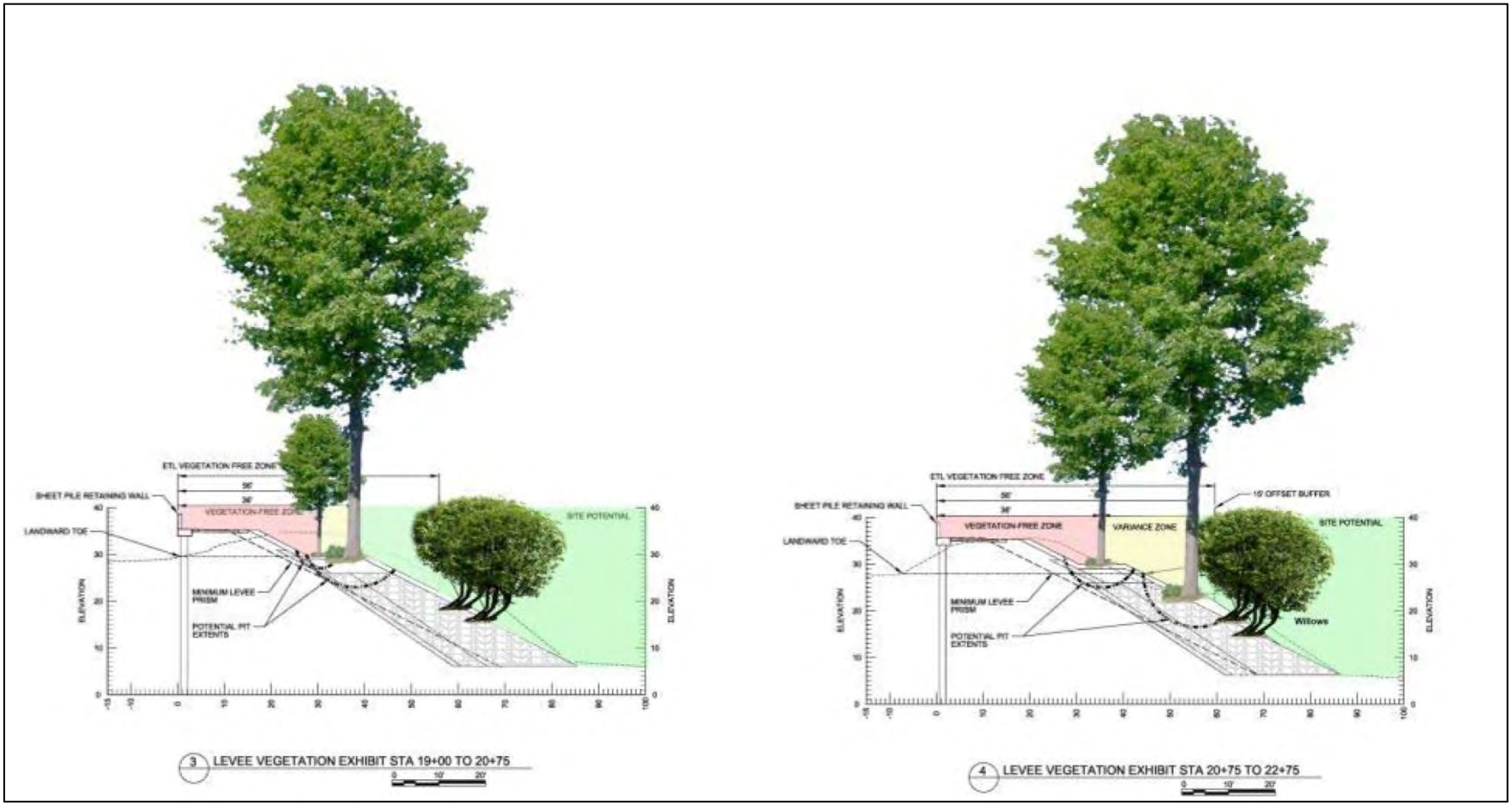
SHEET IDENTIFICATION
L-103
SHEET 17 OF 17

DESIGN FILE: I:\AEC\Designs\FY15_PN448192_GRDL\Con_Docs\CAD_Sheets\Civil\PN448192_GRDL_L-103503.dgn

DATE AND TIME PLOTTED: 3/13/2015



Pullout pit illustrations showing mature trees.



Pullout pit illustrations showing mature trees.

APPENDIX B: Clean Water Act Documents

Memo

To: Paul Anderson, Department of Ecology

From: Bobbi Jo McClain, U.S. Army Corps of Engineers

CC: Rebekah Padgett, Department of Ecology

Date: 2/23/2015

Re: Desimone-Briscoe School Levee Rehabilitation, Functional Analogy with Nationwide Permit 3

Introduction

The purpose of this document is to record the U.S. Army Corps of Engineers (Corps) substantive compliance evaluation of the levee rehabilitation at the Desimone-Briscoe School Levee on the Green River, King County, Washington in respect to Nationwide Permit (NWP) 3. The Corps concludes that the levee rehabilitation work is functionally analogous to NWP 3. The Corps also concludes that the project satisfies the conditions associated with the above NWP and qualifies for the State's pre-certification for Section 401 of the Clean Water Act and pre-determined consistency concurrence for the Coastal Zone Management Act. Details for construction of the project are included below and in the attachments.

Background

The Green River sustained high flows during the spring of 2014. The river peaked during 10 March 2014 at approximately 9,090 cubic feet per second as measured at the upstream USGS gage #12113000 (approximately a 2-year return period). The high river flows resulted in the damage to the Desimone-Briscoe School levee which has reduced the level of protection from 100-year level of protection to a 2-year level of protection. Per Public Law (PL) 84-99, the Corps is authorized to repair damaged flood control works to the pre-damaged level of protection.

The proposed Federal action includes 775 ft of toe and slope work and 585 ft of floodwall installation on the landward shoulder. The local sponsor will install an additional length of floodwall beyond the Federal project. This floodwall is not considered to be a stand-alone flood control structure. The wall requires soil, both riverward and landward, in order to maintain stability. Without some action to repair the damaged levee, the floodwall installation alone is not expected to fully restore the level of flood protection. The Federal action would reconstruct the levee prism and establish a safe stable (2H:1V) armored lower slope and launchable toe with an upper-slope bench. The addition of the floodwall on the landward shoulder of the levee would decrease the landward encroachment of the setback, thereby providing adequate room for the levee reconstruction.

The construction of the Federal action will require the removal of 17 trees on the landward side of the levee, including several 24-inch diameter London planetrees (*Platanus hispanica*) as well as removal of the herbaceous vegetation from the riverward slope. Two planting lifts will be installed into the

riverward face of the levee at or near ordinary high water. A total of 78 trees Pacific willows (*S. lasiandra*) would be placed within the lifts. Pacific willows are a tall tree species. Hooker's willows (*Salix hookeriana*), Sitka willows (*S. sitchensis*), and red-osier dogwood (*Cornus sericea*) would also be planted in each lift (for a total of 1092 plants). These species stay relatively small and bushy, with flexible stems. Trees will also be planted on the upper-slope bench. The plant palette for the bench is still being determined, but is likely to include bigleaf maple (*Acer macrophyllum*), cascara (*Rhamnus purshiana*), bitter cherry (*Prunus emarginata*), and shore pine (*Pinus contorta*). The Federal action will include planting 58 trees on the bench. A layer of topsoil would be placed onto the riprap above ordinary high water. This topsoil would be seeded with a native seed mix.

Co-located with the proposed Federal action, several non-Federal actions will occur. These actions are not federally funded; however they will occur in the same area and are interrelated actions. The length of floodwall installed beyond the Federal action will require further tree removal (an additional 13 trees). Also, additional plantings will occur within the upstream end of the riverward repair (190 feet) which will be fully funded by the King County Flood Control District, the local sponsor of the project. This will include 19 trees on the bench, and 25 trees and 355 shrubs in the lift. Together, the Federal and non-Federal actions remove a total of 30 trees and replant 180 trees (a 6:1 replacement ratio) and 1447 shrubs.

NWP 3 authorizes the repair, rehabilitation, or replacement of any currently serviceable structure, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. This NWP also authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage.

The Corps does not issue permits for its own civil works activities. Nevertheless, the Corps has accepted responsibility for the compliance of its civil works projects with Clean Water Act Section 404, as well as the obligation to seek water quality certification under Section 401. NWP 3 applies to the repair, rehabilitation, or replacement of a previously authorized structure; thus, NWP 3 does not directly apply to Corps activities under PL 84-99. However, the effects of the Corps' Desimone-Briscoe School Levee repair project on water quality would be essentially identical to the water quality effects of repairs to Corps-authorized structures. Therefore, the Corps has concluded that the Desimone-Briscoe School Levee repair would generate effects that are functionally analogous to the effects of a repair to an authorized structure conducted in accordance with NWP 3, and that extension of the water quality certification established under NWP 3 to this project is fully justified.

General State Section 401 certification under NWP 3 has been established, subject to conditions. Individual 401 review is required if:

1. The project or activities are below the OHWM with new work being proposed outside the original footprint.

2. The proposed project or activity increases the original footprint of the structure by more than 1/10th acre in wetlands. Note 1: "Original footprint" refers to the configuration of the structure or filled area within the last two years. Note 2: This may include causing surrounding wetlands to be drained.
3. The project or activity includes adding a new structure, such as a weir, flap gate/tide gate, or culvert to the site.

The purpose of the project is to repair flood damage done to the levee. The project is to repair an existing serviceable structure and to maintain the use (i.e. flood control) of that structure. The proposed 2015 repair includes a minor deviation in the construction technique and levee composition to include more riprap buried within the levee prism from the original levee construction. The increased quantity of armor rock will address the scour potential within the project reach to meet current construction and safety codes. Re-grading of the levee face will be conducted to a depth that accommodates the designed riprap toe protection. Additionally, the levee had previously had a riverward slope of 1.5H:1V and this will be laid back to a more stable 2:H:1V lower slope. The re-constructed levee toe will be placed within the same footprint as the pre-flood toe. To accommodate the additional riprap within the levee prism without riverward encroachment, in-water excavation of bank material will be needed to allow for riprap placement. The work area will be temporarily isolated from the river to ensure a safe work environment and to limit the impacts of turbidity on the Green River. No change in the footprint will occur from the pre-damaged condition and no new structures will be added below ordinary high water. A new structure will be added to the levee with the retaining wall/floodwall construction, however this will occur on the landward side of the levee and has no impact below ordinary high water.

The Corps' Analysis of State 401 Certification General Conditions

In order for any NWP authorization involving Section 404 activities to be valid in Washington State, permittees must comply with all applicable State 401 Certification general conditions. The following are the eight general conditions and how the Desimone-Briscoe School Levee Rehabilitation project meets each condition.

1. For in-water construction activities. Individual 401 review is required under this condition for projects or activities authorized under NWPs that will cause, or be likely to cause or contribute to an exceedence of a state water quality standard (WAC 173-201A) or sediment management standard (WAC 173-204).

Temporary increases in turbidity may result from construction activities. In order to reduce potential for turbidity-related effects on juvenile salmonids, all in-water construction work would take place during the established fish window (1 Aug to 31 Aug). The design and implementation of the erosion-control measures and the Storm Water Pollution Prevention Plan (SWPPP) would incorporate best management practices (BMPs) such as installation of sediment control measures to reduce the duration and magnitude of any temporary increases in turbidity. The work area will be isolated from the river with supersacks, silt curtain, or a similar method. Turbidity monitoring during construction would ensure that any temporary increase in turbidity is minor and does not

exceed state water quality conditions. Should monitoring show that turbidity increases are occurring and threatening to exceed state standards, work will be halted and construction methods adjusted to ensure that exceedances do not occur. No exceedances are anticipated

2. Projects or Activities Discharging to Impaired Waters. Individual 401 review is required by this condition for projects or activities authorized under NWPs if the project or activity may result in further exceedences of a specific parameter the waterbody is listed for on the state's list of impaired waterbodies (the 303(d) list).

The water quality in the Green River within the project reach is considered impaired for temperature (category 4A) and dissolved oxygen (Category 2). A Total Maximum Daily Load (TMDL) was established for the lower Green River and a Water Quality Improvement Report was written by the Washington State Department of Ecology (Ecology) in 2011. The 2011 report states that a shade deficit exists throughout the Middle and Lower Green River riparian corridor, with the exception of the reach through the Green River gorge. The effective shade deficit is especially prevalent below the city of Auburn. This lack of shade contributes to the temperature and dissolved oxygen impairments in the river.

The proposed project reach lacks trees on the riverward slope. The Federal action does propose to remove 17 trees from the back slope of the levee. Mature trees on the back slope may provide some shade benefits to the river. The project mitigates for this impacted function by planting tall tree species at ordinary high water and on the upper-slope bench. Given some time lag for the growth of these species, overall function of the reach is expected to be maintained or improved by shifting the trees from the back slope of the levee to the riverward slope. The proposed action will have no effect on these listings and will not result in further exceedances of the listed parameters.

3. Notification. Projects requiring individual 401 review must provide Ecology with written documentation from the Corps including a description of the project, delineation of special aquatic sites, and Coastal Zone Management Program "Consistency Determination."

The proposed action is functionally analogous to NWP 3 and qualifies for State's pre-certification for Section 401 of the Clean Water Act; therefore, the project does not require individual 401 review. Project description details are included in this memo as well as the attached project designs.

4. Aquatic resources requiring special protection. Certain aquatic resources are unique, difficult-to replace components of the aquatic environment in Washington State. Activities that would affect these resources must be avoided to the greatest extent possible. Compensating for adverse impacts to high value aquatic resources is typically difficult, prohibitively expensive, and may not be possible in some landscape settings. Individual 401 review is required for activities in specified wetland types.

The proposed project will not have impacts on any aquatic resources requiring special protection.

5. Mitigation. 401 Certification is based on adequate compensatory mitigation being provided for wetland and other water quality-related impacts of projects or activities authorized under the NWP Program.

The proposed project is functionally analogous to NWP 3 and is not expected to require Individual 401 review. However, to offset the unavoidable impacts, mitigation is included in the project design. Unavoidable impacts will be temporary and minor, to include minimal turbidity, noise, vegetation removal, and increased human presence. As discussed above, mitigation will include laying back the lower slope, two planting lifts placed at or near ordinary high water, planting trees on the upper-slope bench, and covering the upper slope with topsoil and hydroseed. The project will remove trees from the landward slope and will replace them with trees planted on the riverward slope. Additionally the project will also plant shrub species at or near ordinary high water.

6. Temporary Fills. Individual 401 review is required for any project or activity with temporary fill in wetlands or other waters of the State for more than 90 days, unless the applicant has received written approval from Ecology.

The placement of supersacks or other materials to isolate the work area from the river does involve the temporary placement of fill. The in-water work and the isolation of the work area will be completed within the in-water work window for this reach (1 Aug to 31 Aug) and as such these temporary fills will not be in place for longer than 30 days.

7. Stormwater Discharge Pollution Prevention. Projects that involve land disturbance or impervious surfaces must implement prevention or control measures to avoid discharge of pollutants in stormwater runoff to waters of the state. For land disturbances during construction, the project must follow Ecology's current stormwater manual.

The project is not expected to discharge pollutants in stormwater runoff to waters of the state. Best management practices will be implemented. This will include:

- Equipment used near the water will be cleaned prior to construction.
- Biodegradable hydraulic fluids will be used in machinery where appropriate.
- Refueling will occur on the backside of the levee.
- Construction equipment shall be regularly checked for drips or leaks.
- At least one fuel spill kit with absorbent pads will be onsite at all times.
- Drive trains of equipment will not operate in the water.
- The work area will be isolated from the river with supersacks, silt curtain, or a similar method.
- Turbidity monitoring will be done to ensure that no exceedances occur.

8. State Certification for PCNs not receiving 45-day response. In the event the U.S. Army Corps of Engineers does not respond to a complete pre-construction notification within 45 days, the applicant must contact Ecology for Individual 401 review.

The purpose of the PCN is to notify the District Engineer of a project and allow his or her evaluation of the proposed action. The Seattle District Engineer will review the project in its

entirety prior to construction through review of the final Environmental Assessment and the completion of the NEPA process.

The Corps' Conclusion

The Corps concludes that the Desimone-Briscoe School Levee Rehabilitation project on the Green River is functionally analogous to NWP 3. Furthermore, the Corps analyzed the project pursuant to the conditions attached to NWP 3 and concludes that the project satisfies the conditions and qualifies for the State's pre-certification for Section 401 of the Clean Water Act and pre-determined consistency concurrence for the Coastal Zone Management Act.

Clean Water Act Section 404 Analysis

Green River – Desimone-Briscoe School Levee Repair
Rehabilitation of Flood Control Works

Tukwila, King County, Washington

Prepared by:

U.S. Army Corps of Engineers
Seattle District
Environmental and Cultural Resources Branch

April 2015

US Army Corps
of Engineers ®
Seattle District

1.0 INTRODUCTION

The purpose of this document is to record the U.S. Army Corps of Engineers (Corps) compliance evaluation of the repair of the Desimone-Briscoe School Levee on the Green River, King County, Washington, pursuant to the Clean Water Act (CWA), and the General Regulatory Policies of the Corps. Specifically, Section 404 of the CWA requires an evaluation of impacts for work involving discharge of fill material into the waters of the U.S., and evaluation guidance can be found in the CWA 404(b)(1) Guidelines [40 CFR §230.12(a)]. The General Regulatory Policies of the Corps of Engineers [33 CFR §320.4(a)] provide measures for evaluating permit applications for activities undertaken in navigable waters.

Attachment A provides the specific Corps analysis of compliance with the CWA Section 404(b)(1) and the General Regulatory Policy requirements.

1.0 PROJECT BACKGROUND

Damage to the Desimone-Briscoe School levee was reported following a flood event on 10 March 2014 of 9,090 cubic feet per second at USGS gage 12113000, Green River near Auburn. This event is estimated to be a 2-year return period, or about a 0.5 chance of exceedance for a given year. The length of the flood damage is about 300 linear feet. The damage consists of scour at the toe of the structure, which has led to lost armoring, lost embankment material and over-steepened unstable banks. Soil is exposed along the steepened bank and the levee is estimated to provide a 2-year level of protection in the damaged condition. In its undamaged condition, the levee provides 100 year level of protection.

2.0 PROJECT NEED

The levee provides flood protection to 7.65 square miles of developed lands. This levee system is the primary protection for the City of Kent, including emergency response transportation routes as well as many businesses, homes and utilities. The damage has reduced the level of protection of the Desimone-Briscoe School Levee to approximately a 2-year flood event.

3.0 PROJECT PURPOSE

The purpose of the proposed action is to restore the levee to its designed 100-year level of protection in order to protect lives and property from subsequent flooding.

4.0 PROPOSED ACTION AND ALTERNATIVES

Multiple alternatives were considered including: Waterward Slope Layback to Restore the 100-year (1% Annual Chance Exceedence, ACE) Level of Protection, Non-Structural, and Levee Setback. A preliminary evaluation has been performed on the following alternatives:

a. **No Action Alternative**: The No-Action alternative would leave the levee in its current damaged condition. This alternative was considered but not pursued. The potential of flood damages to the protected infrastructure and homes protected by the levee is not acceptable.

b. **Waterward Slope Layback with Retaining Wall**: The Waterward Slope Layback with Retaining Wall Alternative would include approximately a 585-foot rebuild of the existing levee toe and slope and installation of a retaining wall on the landward shoulder of the crown. The retaining wall would be a reinforced concrete I-wall with a slab of 16 feet wide and a stem of 10 feet tall. By including a retaining wall on the back side of the levee, the levee footprint can be truncated. The resulting reduction of the cross-section dimension would decrease the footprint of the levee, thereby providing adequate room for the levee reconstruction within the available real estate. The riverward slope would be laid back to a slope of 2H:1V from the toe to elevation 26 ft

and have a varying upper slope of no steeper than 1.5H/1V. The levee embankment, armor protection and launchable toe, with an upper-slope bench on the riverward side would be constructed, as described above in Alternative 2. The wall on the landward slope would be used to reduce the encroachment of the levee on existing property behind the levee and make this project constructible and feasible. The repair would restore the pre-flood 100-year level of protection. This was determined to be the least-cost feasible alternative.

c. **Locally Preferred Plan (Recommended Alternative):** Per Corps guidance (Engineering Regulation 500-1-1), a non-Federal sponsor can request an alternative that is different than the least cost alternative. Any increase in Federal cost resulting from the sponsor's preference of any alternative, other than the one that is least expensive to the Federal Government when all Federal costs are included, will be borne by the sponsor.

   At the Desimone-Briscoe School Levee, the sponsor requested a Locally Preferred Plan (LPP). The LPP is similar to the Waterward Slope Layback with Retaining Wall alternative, with two significant differences. The LPP adds, at the request of the sponsor, the rebuilding of an additional 190 ft of existing levee toe and slope (see segment labeled "LPP segment" on Figure 3) upstream of the least-cost alternative. Additionally, the retaining wall that would have been included in the least-cost alternative has been upgraded to a floodwall. The retaining wall would be concrete and would extend only slightly below the ground, while the floodwall is steel and extends 23 to 64 feet below the ground surface. The cost increment represented by these two differences would be borne by the Sponsor. Thus the Federal project, under the LPP alternative, would have a complete length of 775 ft of toe and slope work and includes 585 ft of flood wall installation.

   The 585 feet of the floodwall behind the least-cost alternative, once installed and completed by the non-Federal sponsor, is anticipated to be integrated into the Federal project. The sponsor intends to install a total of 925 feet of floodwall in the project area. See Figure 3. This effort was initiated beginning in February 2015 and is expected to have a 5-month construction period. The sponsor is expected to receive credit against its cost-share for contributing the construction of the 585-foot floodwall element of the project. The sponsor requested the LPP in order to extend the toe armoring to fully protect the upstream portion of the floodwall. The portion of the wall downstream of the limit of the Federal project is being engineered by the non-Federal sponsor as a stand-alone feature. The sponsor would not receive credit against its cost share for the construction of any length of the floodwall beyond the length of the least-cost alternative.

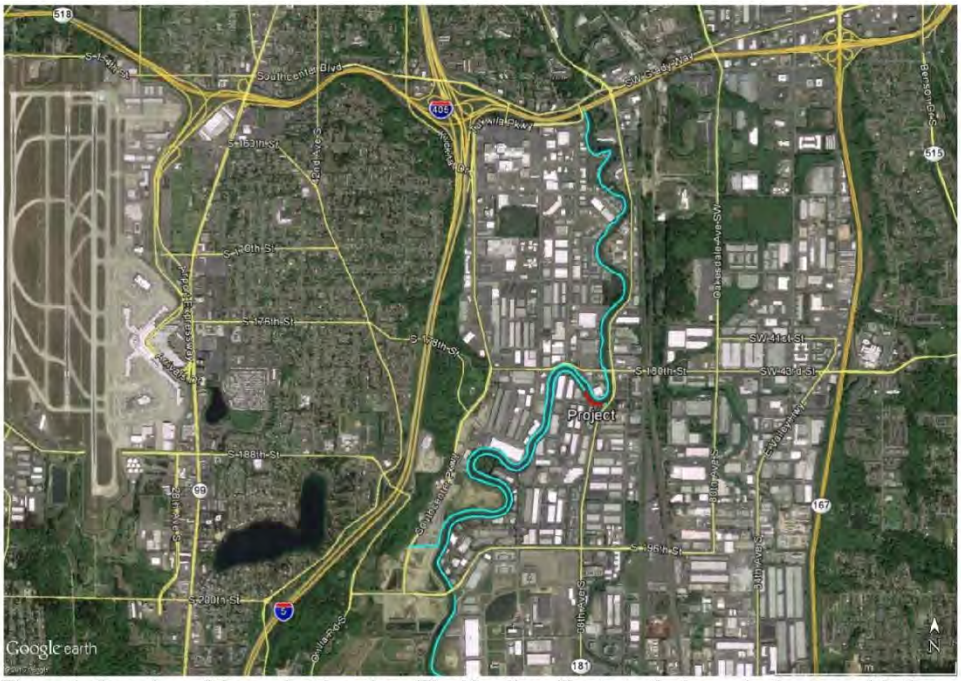


Figure 1. Overview of the project location. The blue lines illustrate the levees in the area with the red line indicating the project site.

The LPP would be completed in two phases. During Phase 1, King County and the City of Kent are proposing to construct the floodwall and complete all associated landward work, a 585-foot portion of which would subsequently be incorporated into the Federal action (see Figure 3). This Phase 1 effort began in February, with a five-month construction period (Phase 1). The piles for the floodwall are being installed with vibratory equipment to depths of 23 to 64 feet. The above-ground portion of the wall will be 8 to 13 feet tall relative to the ground level landward of the flood control structure.

The wall will be installed landward of the existing levee embankment. The space between the existing levee embankment and wall will be backfilled immediately, in order to provide stability to the sheet pile and associated floodwall features. A concrete cap beam will be installed along the top of the steel sheet pile wall to secure and provide a common rigid tie for the sheet pile panels. A concrete barrier will be built along the top of the cap beam to provide a guardrail to protect public trail users and maintenance vehicles. This concrete barrier will itself provide incremental protection against overtopping. The exposed sheet piles below the cap beam on the landside of the floodwall will be painted to provide corrosion protection. A steel pipe hand railing will be added to the top of the concrete barrier to raise the minimum guardrail height to 48 inches above the levee trail to protect bicyclists. A vehicle access ramp will be constructed at the location of a small City parking area off West Valley Highway just northeast of the property at 18200 Cascade Avenue South. A 20-foot wide opening will be provided within the concrete barrier to allow for vehicular access to the levee system. The opening will include removable bollards anchored into the cap beam.

In Phase 2, the Corps would complete the toe and slope work on the currently damaged riverward bank in order to fully restore the levee to the pre-flood 100-year level of protection. The second phase of the proposed repair, which is expected to be conducted and completed in summer 2015, would construct 775 feet of levee toe and would lay back and armor the slope. This second phase would require in-water work. The work area would be isolated from the river during the in-water work. Past projects on the Green River have used silt curtains, supersacks, and similar methods to achieve isolation of the work area. The in-water work window for this reach is 1 August to 31 August. A fish window extension has been requested and received, with the expectation that all isolation materials will be in place prior to 31 August. Work will continue within the isolated area through September, and all in-water work will be completed and isolation materials will be removed by 30 September.

The proposed levee would include a riverward slope of 2H:1V to an elevation of 26 feet. Above elevation 26 feet, the slope would vary, with a maximum of 1.5H:1V. The levee would have a varying crown width, ranging from 14 to 28-foot crown, and rock armoring with a launchable toe. The project length of 775 feet would also include transitions on both the upstream and downstream ends from the repaired components to the existing levee alignment. These transitions prevent scour at the tie-ins. Slope protection would be achieved by rip rap with a mean particle size of 1.5 feet with a launchable toe sized to protect the levee to a potential estimated scour depth of 24 feet. The project would also include the removal and reconstruction of the Green River Trail along the crown of the levee.

The floodwall installation (Phase 1) was initiated in February and this construction element is expected to take approximately three weeks. The objective of this early sheet pile installation was to provide substantial incremental enhancement of flood risk reduction before the end of the flood season on 31 March. There are four additional months of associated work to finalize the wall installation, as described above, which must be fully completed before the Federal work on the riverward face comprising Phase 2 can commence. Because the in-water work may only be conducted during August, it is essential that all Phase 1 work that may possibly interfere with access to and construction at the damaged site, including unrestricted use of the limited construction staging areas, must be fully complete by 1 August 2015. Following the Phase 2 in-water work, the subsequent slope and crown work that will be completed out of the water will take an additional 4 weeks. With the five-month construction time necessary for the full course of Phase 1, it was essential that the Sponsor's floodwall installation commence in early February and continue without interruption until complete. This will provide the opportunity for completion of Phase 2, and full restoration of the pre-damage level of protection prior to the start of the 2015-2016 flood season.

Mitigation features have been included in the project design. Two planting lifts would be installed into the riverward face of the levee at or near ordinary high water. Live tree cuttings, approximately three feet in length, would be placed within a one-foot lift of soil. Hooker's willows (Salix hookeriana), Sitka willows (S. sitchensis), and red-osier dogwood (Cornus sericea) would be spaced approximately every twelve inches in each lift. These species stay relatively small and bushy, with flexible stems. Pacific willows (S. lasiandra) would be placed into both lifts, one stem every 15 feet within each lift. Pacific willow is a fast-growing tree. Above ordinary high water, after construction is completed, a layer of topsoil would be placed onto the riprap. This topsoil would be seeded with a native seed mix. Additional trees would be planted along the riverward bench. These would include bigleaf maple (Acer macrophyllum), cascara (Rhamnus purshiana), bitter cherry (Prunus emarginata), Oregon ash (Fraxinus latifolia), Douglas-fir (Pseudotsuga menziesii), Pacific crab apple (Malus fusca), and shore pine (Pinus contorta). Mitigation for the Federal action would include the plantings within the length of project that would constitute the least-cost alternative (585 feet). This would include a total of 1092 shrubs and 152 trees. Plantings would also occur within the additional 190 feet added with the LPP, however these would not be counted as Federal mitigation. Within the LPP, an additional 355 shrubs and 48 trees would be planted, for a site total of 1447 shrubs and 200 trees.

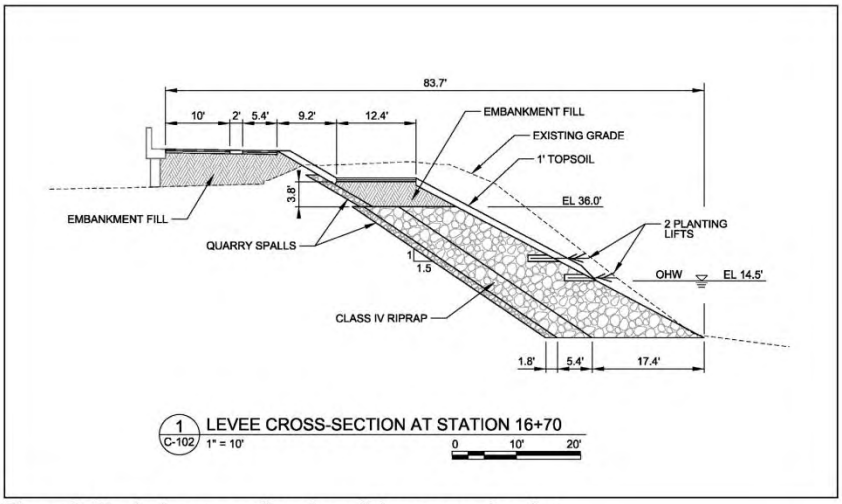


Figure 2: Typical cross section view of the proposed action.

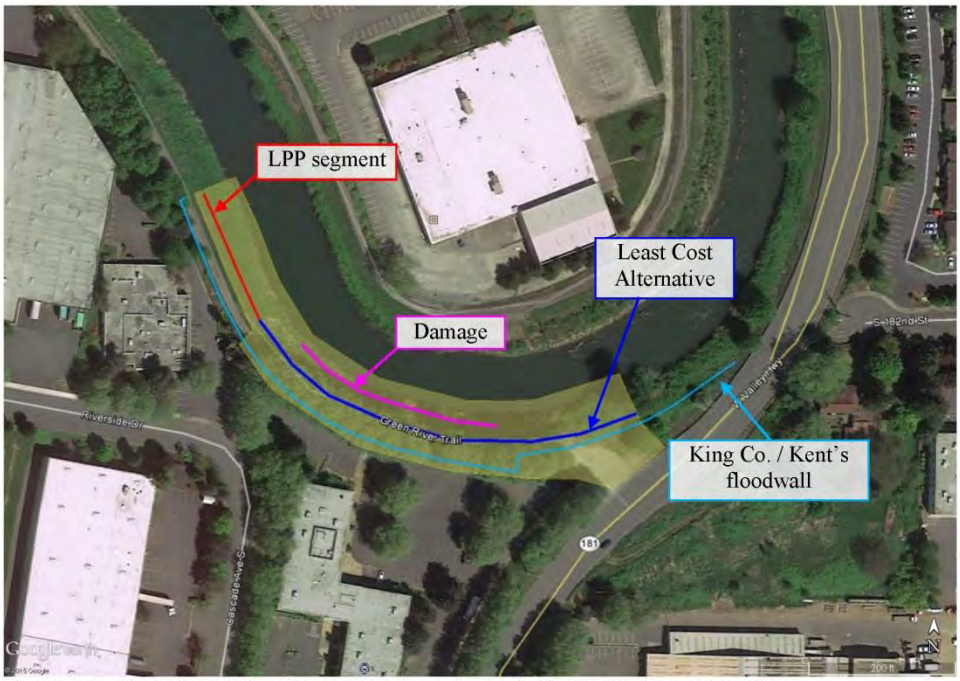


Figure 3. Project site details. The yellow shaded area indicates the Federal Action.

5.0 POTENTIALLY ADVERSE EFFECTS (INDIVIDUALLY OR CUMULATIVELY) ON THE AQUATIC ENVIRONMENT

a. Effects on Physical, Chemical, or Biological Characteristics of the Aquatic Ecosystem

The project site length is 775 feet, with work below the OHW along that length down to the toe. Temporary impacts could include possible minor changes to turbidity, increased noise and vibrations during construction. Vegetation removal will be limited to that required to complete the project. The Federal action would require the removal of 17 trees on the landward side of the levee, ranging in size from a four-inch diameter hawthorn (*Crataegus douglasii*) to several 24-inch diameter London planetrees (*Platanus hispanica*). Following completion, the riverward slope will be covered with topsoil and seeded above ordinary high water. Tree plantings are also proposed. The proposed Federal mitigation would include upper and lower bank plantings of 152 trees and 1092 shrubs.

Figure 3. Photograph of the riverward side of the damaged levee.

Figure 4. Damaged section of levee, showing the crown and backslope.

b. Effects on Recreational, Aesthetic, Historical, and Economic Values

This crown of the levee within the project area is a dead-end spur of the Green River Trail. This trail is heavily used by walkers, joggers, cyclists, and other recreational enthusiasts. Both phases of construction would temporarily close this section of the Green River Trail. The project will also change the width of the trail. With this alternative, the trail would have a 10-foot width of asphalt, with a 2-foot concrete shoulder on the landward side and a 2-foot gravel shoulder on the riverward side. The regional trail design is typically a 12-foot asphalt trail with 2-foot shoulders on both sides. Through the project area, the trail already does not meet the design standard, as the width of the paved surface is as narrow as 9 feet in some areas. The project design was coordinated with King County Parks, the Muckleshoot Tribe, and the City of Tukwila. The narrower trail was determined to be acceptable within this reach because it is a dead-end spur that gets relatively limited use. The reduced trail width would allow for an increased number of plantings along the bench. Following completion of the construction, the trail would be restored and would reopen. The trail through the construction area would change visually with the removal of the landward trees and planting of the waterward trees. Appropriate signs and markers would be used to limit safety concerns, such as visibility markers and trail striping to guide travelers away from the end of the floodwall. Overall, the trail will be temporarily impacted, but will reopen after the construction and expected usage will be unaffected.

The Corps has coordinated its environmental review of impacts on cultural resources for NEPA with its responsibilities to take into account effects on historic properties as required by Section 106 of the National Historic Preservation Act (NHPA). The Corps has determined and documented the area of potential effect (APE) for both direct and indirect effects, as required at 36 C.F.R § 800.4 of the regulations implementing Section 106. The APE includes the length of the levee repair and all staging and access areas, totaling 3.5 acres. The Washington State Historic Preservation Officer (SHPO) agreed with our determination of the APE on December 8, 2014.

The Corps has conducted a records search and literature review of the Washington Information System Architectural and Archaeological Records Database (WISAARD). The literature review and records search revealed that the entire project area has been previously surveyed (Dellert et al. 2013). There are

no properties listed in the National Register of Historic Places or the Washington State Historic Site Register in the project vicinity, and no cultural resources have been recorded within the APE. The Corps notified the Muckleshoot Tribe of Indians on 7 January 2015, and asked the Tribe to identify any concerns and sought information about properties of religious or cultural significance that might be affected by the project. The Tribe did not identify any resources within the APE. The Corps notified the SHPO of our finding of No Historic Properties Affected on 23 February 2015. The SHPO agreed with our determination on 23 February 2015.

c. Findings

This work is not exempt from Section 404 of the CWA, however the change is a minor deviation for current construction codes and levee safety.

This alternative would have no adverse impact on cultural resources, as there are no cultural resources within the project APE.

Based on the analysis of the proposed work, the levee repair will not have a significant environmental impact.

6.0 ALL APPROPRIATE AND PRACTICABLE MEASURES TO MINIMIZE POTENTIAL HARM TO THE AQUATIC ECOSYSTEM

a. Impact Avoidance and Minimization Measures

The proposed action will employ typical Best Management Practices (BMPs) and Conservation Measures to avoid and minimize adverse effects. These measures will be written into the Construction Management Plan (CMP). A Corps employee will act as Construction Manager for the effort and will ensure that these measures will be employed per the CMP. Long-term monitoring of the plantings will be the responsibility of the Local Sponsor, per the Cooperation Agreement. BMPs and Conservation Measures include:

- The project length has been minimized to only that needed to repair the damaged section and the construction limits, access route and staging area would be clearly marked;
- The downstream extent of the project was reduced in order to avoid impacts to a U&A fishing site and several riparian trees (a large cottonwood and several smaller willows).
- The work area would be isolated from the river during in water construction to limit water quality impacts;
- All in-water work would occur during the extended in-water work window for this area (1Aug to 30 Sept) to limit impacts to salmonids;
- Water quality monitoring would be done to ensure compliance with state standards; and
- No refueling would occur within 100 feet of the water and a five gallon spill kit will be available on site.

b. Compensatory Mitigation Measures

Mitigation is proposed to offset the loss of vegetation at the project site. Of particular concern is the loss of trees given the urban setting and the temperature exceedances in the river. Two planting lifts would be installed into the riverward face of the levee at or near ordinary high water. Live tree cuttings, approximately three feet in length, would be placed within a one-foot lift of soil. Hooker's willows (*Salix hookeriana*), Sitka willows (*S. sitchensis*), and red-osier dogwood (*Cornus sericea*) would be spaced approximately every twelve inches in each lift. These species stay relatively small and bushy, with flexible stems. Pacific willows (S. lasiandra) would be placed into both lifts, one stem every 15 feet within each lift. Pacific willow is a fast-growing tree. Above ordinary high water, after construction is completed, a layer of topsoil would be placed onto the riprap. This topsoil would be seeded with a native

seed mix. Additional trees would be planted along the riverward bench. These would include bigleaf maple (*Acer macrophyllum*), cascara (*Rhamnus purshiana*), bitter cherry (*Prunus emarginata*), Oregon ash (*Fraxinus latifolia*), Douglas-fir (*Pseudotsuga menziesii*), Pacific crab apple (*Malus fusca*), and shore pine (*Pinus contorta*). Mitigation for the Federal action would include the plantings within the length of project that would constitute the least-cost alternative (585 feet). This would include a total of 1092 shrubs and 152 trees. Plantings would also occur within the additional 190 feet added with the LPP, however these would not be counted as Federal mitigation. Within the LPP, an additional 355 shrubs and 48 trees would be planted, for a site total of 1447 shrubs and 200 trees.

The proposed tree replacement ratio accounts for the time lag between when the trees would be removed and when the plantings are established and growing sufficiently to replace the impacted functions. In addition the proposed mitigation would:

- Replace predominantly non-native trees with native species;
- Replace landward trees with riverward trees to enhance the shading and habitat function of the trees within this reach;
- Create a riparian forested buffer where the reach currently has only herbaceous plants;
- Create fish refugia that would engage during annual high water events by planting at ordinary high water, particularly the shrub plantings;
- Create overhanging woody vegetation for shading and fish habitat improvements; and
- Increase channel capacity and slow velocity of flows with the slope layback, particularly during larger flood events.
-

c. Findings

The Corps has determined that all appropriate and practicable measures have been taken to minimize potential harm to the environment and appropriate mitigation is proposed to offset unavoidable impacts.

7.0 OTHER FACTORS IN THE PUBLIC INTEREST

a. Fish and Wildlife. The Corps has found that the proposed action may affect but is not likely to adversely affect Chinook, bull trout, and steelhead and may affect but is not likely to adversely affect their designated and proposed critical habitat. This determination is made based upon the potential for minor turbidity, noise, and vibrational disturbance to juveniles during construction; minor impacts to vegetation; the planting of tree species on the river bank throughout the project length; the laying back of the riverward slope to increase channel capacity; and in light of the pre-flood condition at the project site. A Biological Evaluation (BE) of the impacts of the Federal action (both Phases 1 and 2) was submitted to NMFS and USFWS on 13 February 2015. The Corps determined that the proposed project may affect but is not likely to adversely affect Puget Sound Chinook, Coastal/Puget Sound bull trout and Puget Sound steelhead and may affect but is not likely to adversely affect their designated/proposed critical habitat. A letter of concurrence was received from NMFS on 2 March 2015. A letter of concurrence was also received from USFWS 20 March 2015. An in-water work window extension was also sought from the USFWS and NMFS. USFWS and NMFS agreed to the extension via emails on 15 April and 14 April, respectively. No significant impacts are expected.

b. Water Quality. The Corps has concluded that this project will not violate Washington State Water Quality Standards. The work area would be isolated from the river during the in-water work to reduce turbidity impacts. Past projects on the Green River have used silt curtains, supersacks, and similar methods to achieve isolation of the work area. Turbidity during project construction in excess of ambient river conditions is expected to be minor and localized. Water quality monitoring would be done during construction to ensure that state water quality standards are met. No contaminants would be present in the construction materials. Clean rock fill would be obtained from an approved borrow pit and rock quarry.

Although the volume of rock at the project site would increase with the proposed repair, this is not expected to impact water quality. The site is currently armored with herbaceous plants above ordinary high water and exposed rock below ordinary high water. With the placement of top soil over the rock above ordinary high water and seeding the soil, the square footage of exposed rock would be unchanged. Mitigation plantings will occur throughout the repair. With the growth and maturation of these trees, the overall shading throughout the site would be improved over the current condition.

The Green River does not meet state standards for temperature in the project reach. The average water temperature as measured at the Ecology gage for August is 64.8°F (18.2°C). Temperature criteria for this area is a maximum of 63.5°F (17.5°C). The Clean Water Act requires that a Total Maximum Daily Load (TMDL) be developed for water bodies that do not meet water quality standards. A TMDL for temperature in the Green River was established in 2011. The river in the project area is also impaired for dissolved oxygen, which is related to the high temperatures. A shade deficit exists throughout the Middle and Lower Green River riparian corridor, with the exception of the reach through the Green River gorge. The effective shade deficit is especially prevalent below the city of Auburn. Additionally, the project area is considered "critical" for river shading because it is a southern bank. With the growth and maturation of the trees planted as mitigation at the project site, the overall shading throughout the site would be improved over the current condition and no negative impact to river temperature is expected

c. Historical and Cultural Resources
See 5b above.

e. Environmental Benefits.
The project is not designed to create an environmental benefit, but does include mitigation that is expected to fully offset the impacts of the action.

9. CONCLUSION
The Corps finds that this project is within the public's interest and complies with the substantive elements of Section 404 of the Clean Water Act.

Attachment A

Clean Water Act 404(b)(1) Evaluation [40 CFR §230]
Permit Application Evaluation [33 CFR §320.4]

404(b)(1) Evaluation [40 CFR §230]

Potential Impacts on Physical and Chemical Characteristics [Subpart C]:

1. **Substrate [230.20]**
   The existing levee has is armored. Below ordinary high water, the rock armor is exposed. Post-construction, the site will have a similar condition. The volume of rock, and the depth of rock into the bank will be a changed condition.
2. **Suspended particulates/turbidity [230.21]**
   Minimal turbidity is expected during construction. The work area will be isolated from the river. Best management practices (BMPs) for sediment control will be used throughout construction to minimize any potential turbidity issues.
3. **Water [230.22]**
   The work is not expected to add any nutrients to the water that could affect the clarity, color, odor, or aesthetic value of the water, or that could reduce the suitability of the Green River for aquatic organisms or recreation. No impacts to wetlands will occur.
4. **Current patterns and water circulation [230.23]**
   The Corps expects minimal disruption of current patterns and water circulation during or after construction. A Hydraulic Engineer assisted with the design of the project to determine rock size and design details to restore flood protection and minimize disturbance. No change to current patterns or water circulation is expected after completion.
5. **Normal water fluctuations [230.24].**
   The levee repair work would have no effect on normal water fluctuations.
6. **Salinity gradients [230.25]**
   The Green River is a freshwater river system. No effect to salinity gradients would occur.

Potential Impacts on Biological Characteristics of the Aquatic Ecosystem [Subpart D]:

1. **Threatened and endangered species [230.30]**
   The Corps has found that the proposed action may affect but is not likely to adversely affect Chinook, bull trout, and steelhead and may affect but is not likely to adversely affect their designated and proposed critical habitat. This determination is made based upon the potential for minor turbidity, noise, and vibrational disturbance to juveniles during construction; minor impacts to vegetation; the planting of tree species on the river bank throughout the project length; the laying back of the riverward slope to increase channel capacity; and in light of the pre-flood condition at the project site. A Biological Evaluation (BE) of the impacts of the Federal action (both Phases 1 and 2) was submitted to NMFS and USFWS on 13 February 2015. The Corps determined that the proposed project may affect but is not likely to adversely affect Puget Sound Chinook, Coastal/Puget Sound bull trout and Puget Sound steelhead and may affect but is not likely to adversely affect their designated/proposed critical habitat. A letter of concurrence was received from NMFS on 2 March 2015. A letter of concurrence was also received from USFWS 20 March 2015. An in-water work window extension was also sought from the USFWS and NMFS. USFWS and NMFS agreed to the extension via emails on 15 April and 14 April, respectively. No significant impacts are expected.
2. **Fish, crustaceans, mollusks, and other aquatic organisms in the food web [230.31]**
   Fish crustaceans, mollusks, and other aquatic organisms may be temporarily impacted by small turbidity increases and increased noise. Temporary placement of the isolation materials could cause

the crushing of any crustaceans in the river bottom. Similar habitat exists upstream and downstream and any impacted areas would be expected to be recolonized quickly by surrounding aquatic organisms.

3. **Other wildlife [230.32]**
   Wildlife in the vicinity of the project is expected to be acclimated to human presence and noise as the project area is in an urban area and is adjacent to a busy highway. Birds and other wildlife may be temporarily displaced due noise and presence of equipment. Similar habitat exists nearby for their use. Loss of vegetation will temporarily reduce available habitat function at the project site. However the tree plantings will offset this loss. With maturity, the tree and shrub plantings will provide a native riparian forest to replace the existing, largely non-native trees behind the levee. Impacts to wildlife are expected to be temporary and negligible.

Potential Impacts on Special Aquatic Sites [Subpart E]:

1. **Sanctuaries and refuges [230.40]**
   The proposed and completed actions will have no effect on sanctuaries and refuges.
2. **Wetlands [230.41]**
   The proposed and completed actions will have no effect on wetlands.
3. **Mud flats [230.42]**
   No mud flats are present at the project site; therefore, the proposed and completed action will have no effect on mudflats.
4. **Vegetated shallows [230.43]**
   No vegetated shallows are present at the project site; therefore, the proposed and completed action will have no effect on vegetated shallows.
5. **Corral reefs [230.44]**
   Not applicable.
6. **Riffle and pool complexes [230.45]**
   No riffle and pool complexes are present at the project sites; therefore, the proposed and completed action will have no effect on riffle and pool complexes.

Potential Effects on Human Use Characteristics [Subpart F]:

1. **Municipal and private water supplies [230.50]**
   The proposed and completed action will have no effect on municipal or private water supplies.
2. **Recreational and commercial fisheries [230.51]**
   The crown of the levee within the project area is a dead-end spur of the Green River Trail. This trail is heavily used by walkers, joggers, cyclists, and other recreational enthusiasts. Both phases of construction would temporarily close this section of the Green River Trail. The project will also change the width of the trail. With this alternative, the trail would have a 10-foot width of asphalt, with a 2-foot concrete shoulder on the landward side and a 2-foot gravel shoulder on the riverward side. The regional trail design is typically a 12-foot asphalt trail with 2-foot shoulders on both sides. Through the project area, the trail already does not meet the design standard, as the width of the paved surface is as narrow as 9 feet in some areas. The project design was coordinated with King County Parks, the Muckleshoot Tribe, and the City of Tukwila. The narrower trail was determined to be acceptable within this reach because it is a dead-end spur that gets relatively limited use. The reduced trail width would allow for an increased number of plantings along the bench. Following completion of the construction, the trail would be restored and would reopen. The trail through the construction area would change visually with the removal of the landward trees and planting of the waterward trees. Appropriate signs and markers would be used to limit safety concerns, such as visibility markers and trail striping to guide travelers away from the end of the floodwall. Overall, the trail will be temporarily impacted, but will reopen after the construction and expected usage will be

unaffected.

3. **Water-related recreation [230.53]**
   The proposed and completed action will have no effect on water-related recreation.
4. **Aesthetics [230.53]**
   During construction there will be some disturbance from excavation and heavy equipment noise and exhaust. There will be minor vegetation loss, to be offset by riverward plantings. The aesthetics of the reach will be changed with the change in tree locations and types and the presence of the floodwall.
5. **Parks, national and historic monuments, national seashores, wilderness areas, research sites and similar preserves [230.54]**
   Not applicable.

Evaluation and Testing [Subpart G]:

1. **General evaluation of dredged or fill material [230.60]**
   Bank stabilization material will consist of Class 4 riprap and quarry spalls. Levee fill material comprises the levee embankment and is assumed to be silty sandy gravel to gravelly silty sand. Existing material will be reused to the extent possible. Any imported material will be free from contamination and obtained from a permitted local quarry or borrow area.
2. **Chemical, biological, and physical evaluation and testing [230.61]**
   No soil sampling is required as no contamination is known or expected. Turbidity monitoring will be completed during inwater workto ensure compliance with state water quality standards during construction.

Actions to Minimize Adverse Effects [Subpart H]:

1. **Actions concerning the location of the discharge [230.70]**
   The materials to be discharged (riprap and spall rock) are clean. Staging areas will be located in uplands.
2. **Actions concerning the material to be discharged [230.71]**
   Bank stabilization material will be required to meet Corps standards for placement of riprap. Material will be imported from an approved, clean source.
3. **Actions controlling the material after discharge [230.72]**
   Following placement of the materials for the repair, no further dispersion is expected, therefore no measures to control placement of these materials are considered necessary.
4. **Actions affecting the method of dispersion [230.73]**
   The rip rap will be placed onto the lower bank below ordinary high water behind the isolation materials. The excavator will work from the bank. Turbidity impacts are expected to be minor and temporary and water quality monitoring will be done to ensure compliance with state water quality standards.
5. **Actions related to technology [230.74]**
   The technology used in the proposed project is considered acceptable for this scope of work. Disposal will involve use of a hydraulic excavator with material transported to and from the site in dump trucks. Use of the vibratory pile driving for wall construction minimizes the noise impacts. No other specific actions to minimize effects related to technology are needed.
6. **Actions affecting plant and animal populations [230.75]**
   The Corps has coordinated construction activities with state and federal resource agencies to minimize impacts to fishery and wildlife resources. There will be temporary disturbance to wildlife in the project vicinity due to turbidity and noise from operation of machinery. Timing of construction will avoid impacts to sensitive species.

7. **Actions affecting human use [230.76]**
   The Corps has taken all appropriate and practicable steps to assure minimal impacts to human use, safety and general appreciation of the area. Traffic will not need to be detoured. Signs and flaggers will be used as needed to minimize impacts and improve safety. Construction will occur during daylight hours to minimize noise impacts to nearby houses. Use of vibratory pile driving will minimize the noise impacts of the project. Repair of the flood control structure is not expected to diminish water quality, but may have temporary impacts on local residents.
8. **Other actions [230.77]**
   Best management practices will be used in the proposed construction to ensure that no unnecessary damage to the environment occurs.

General Policies for Evaluating Permit Applications [33 CFR §320.4]

1. **Public Interest Review [320.4(a)]**
   The Corps finds this repair to flood control structures to be in compliance with the 404(b)(1) guidelines and not contrary to public interest.
2. **Effects on wetlands [320.4(b)]**
   See 404(b)(1) evaluation above. No impact to wetlands is expected.
3. **Fish and wildlife [320.4(c)]**
   The Corps has found that impacts to sensitive species and impacts to fish and wildlife will be temporary and minimal.
4. **Water quality [320.4(d)]**
   The Corps certifies that this project will not violate Water Quality Standards as set forth by the Clean Water Act. By analogy, the provisions of the regional conditions under Nationwide Permit 3, allow for minor deviations in the design during maintenance and repair of an existing structure pursuant to the Corps of Engineers' Clean Water Act Section 404(b)(1) permitting program.
5. **Historic, cultural, scenic, and recreational values [320.4(e)]**
   The Corps notified the SHPO of our finding of No Historic Properties Affected on 23 February 2015. The SHPO agreed with our determination on 23 February 2015.
6. **Effects on limits of the Territorial Sea [320.4(f)]**
   Not applicable.
7. **Consideration of property ownership [320.4(g)]**
   Access for construction equipment and materials will be via public rights-of-way and real estate rights of entry provided by King County, the non-federal sponsor of the repairs. No change in property ownership will occur.
8. **Activities affecting coastal zones [320.4(h)]**
   King County is considered within the Washington coastal zone under the CZMA. The Desimone-Briscoe School Levee Rehabilitation has been determined to be consistent with the State approved program which includes the King County Shoreline Management Plan. The Corps has concluded the provisions of Nationwide Permit (NWP) 3 apply to the proposed project. The State has made a general determination that activities meeting the parameters of NWP 3 are consistent with the enforceable policies of the Coastal Zone Management Act. A determination of consistency was provided to Ecology for their review on 19 February 2015. A Letter of Verification from Ecology has not yet been received concurring that the project meets the consistency conditions of NWP 3 and that general consistency with CZMA is achieved.
9. **Activities in marine sanctuaries [320.4(i)]**
   Not applicable.
10. **Other federal, state, or local requirements [320.4(j)]**
    The Corps has sent information about the proposed action to all applicable federal, state, local, and tribal parties. The Corps determined that the proposed project may affect but is not likely to adversely affect Puget Sound Chinook, Coastal/Puget Sound bull trout and Puget Sound steelhead and

may affect but is not likely to adversely affect their designated/proposed critical habitat and submitted this finding to USFWS and NMFS in a Biological Evaluation on 13 February 2015. A letter of concurrence was received from NMFS on 2 March 2015. A letter of concurrence was also received from USFWS 20 March 2015. This Clean Water Section 404(b)1 analysis will be provided to the Washington Department of Environmental Quality as a courtesy to document Clean Water Section 401 compliance by analogy to Nationwide Permit 3.

11. **Safety of impoundment structures [320.4(k)]**
    Not applicable.
12. **Floodplain Management [320.4(l)]**
    The project is in compliance. The Corps considered alternatives to reduce hazards and risks associated with floods and to minimize the impact of floods on human safety, health and welfare, and restoring and preserving the natural and beneficial values of the base floodplain. The project maintains the status quo of the floodplain.
13. **Water supply and conservation [320.4(m)]**
    Not applicable.
14. **Energy conservation and development [320.4(n)]**
    Not applicable.
15. **Navigation [320.4(o)]**
    This project will not impede current navigability within the Green River.
16. **Environmental benefits [320.4(p)]**
    The district engineer has weighed the beneficial and detrimental environmental aspects of the project. No net detriments are expected, with minor beneficial impact to the watershed with proposed plantings.
17. **Economics [320.4(q)]**
    Economic studies were undertaken which included studies enumerating and evaluating damages related to the existing economic development protected by the levee, sensitivity evaluations and optimization scenarios evaluating the benefits and costs of alternative project scopes. The outcome of these evaluations combined with engineering, environmental, and local sponsor considerations have led to the selection of the recommended plan. The project reduces damages from flooding to the Cities of Kent, Tukwila, and Renton including approximately 2600 structures with a value of approximately $4.4 billion. Repairing the levee was found to be economically rational based on a comparison of the annualized benefits (damages prevented by restoring the levee) and the annualized cost of repairs.

18. Mitigation [320.4(r)].

Mitigation features have been included in the project design. Two planting lifts would be installed into the riverward face of the levee at or near ordinary high water. Live tree cuttings, approximately three feet in length, would be placed within a one-foot lift of soil. Hooker's willows (Salix hookeriana), Sitka willows (S. sitchensis), and red-osier dogwood (Cornus sericea) would be spaced approximately every twelve inches in each lift. These species stay relatively small and bushy, with flexible stems. Pacific willows (S. lasiandra) would be placed into both lifts, one stem every 15 feet within each lift. Pacific willow is a fast-growing tree. Above ordinary high water, after construction is completed, a layer of topsoil would be placed onto the riprap. This topsoil would be seeded with a native seed mix. Additional trees would be planted along the riverward bench. These would include bigleaf maple (Acer macrophyllum), cascara (Rhamnus purshiana), bitter cherry (Prunus emarginata), Oregon ash (Fraxinus latifolia), Douglas-fir (Pseudotsuga menziesii), Pacific crab apple (Malus fusca), and shore pine (Pinus contorta). Mitigation for the Federal action would include the plantings within the length of project that would constitute the least-cost alternative (585 feet). This would include a total of 1092 shrubs and 152 trees. Plantings would also occur within the additional 190 feet added with the LPP, however these would not be counted as Federal mitigation. Within the LPP, an additional 355 shrubs and 48 trees would be planted, for a site total of 1447 shrubs and 200 trees.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

April 29, 2015

Evan Lewis
U.S. Army Corps of Engineers
PO Box 3755
Seattle, WA 98124

RE: Desimone-Briscoe School Levee Rehabilitation Project, Green River, King County, Washington

Dear Mr. Lewis:

Ecology has determined that the above project meets the requirements for Washington State 401 Water Quality Certification under Nationwide Permit #3, based on the application, as well as subsequent commitments made by the U.S. Army Corps of Engineers (Corps) and described in the attachment to this letter. Any changes to your project that would impact water quality should be submitted in writing to Ecology before work begins for additional review.

An individual 401 certification will not be required for this project; however this letter does not exempt the Corps from other requirements of federal, state, and local agencies.

Please contact me if you have any questions regarding this letter at (425) 649-7129 or email Rebekah.Padgett@ecy.wa.gov.

Sincerely,

Rebekah R. Padgett
Federal Permit Manager
Shorelands and Environmental Assistance Program

Enclosure

e-cc: Bobbi Jo McClain, U.S. Army Corps of Engineers
Larry Fisher, Washington Department of Fish and Wildlife
Carol Lumb, City of Tukwila

Karen Walter, Muckleshoot Indian Tribe
Jody Walters, NOAA Fisheries
Jim Muck, U.S. Fish and Wildlife Service
David Pater, Joan Nolan, Dave Garland, Patrick McGraner, Dave Radabaugh, Paul Anderson, Erik Stockdale, Josh Baldi, Loree' Randall, Ecology
ecyrefedpermits@ecy.wa.gov

Attachment

Corps Commitments for
Desimone-Briscoe School Levee Rehabilitation Project

In addition to best management practices and the project description found in the Notice of Preparation/Clean Water Act Public Notice dated February 6, 2015, 100 percent design drawings, and Functional Analogy with Nationwide Permit 3 memorandum dated February 19, 2015, and several emails between the Corps and Ecology, the Corps has made additional commitments in cooperation with the King County Flood Control District, including:

- Install a gravity-fed drip irrigation system and conduct a minimum of two years of irrigation for the plantings;
- Monitor all plantings (both containerized stock and stakes) for a minimum of one year, ensuring a performance standard of 100 percent survival at Year 1;
- Ensure that the mulch specifications do not compromise survivability of the containerized stock (no more than four-inch-deep mulch over individual plantings/trees); and
- A Water Quality Monitoring Plan will be developed and implemented to address in-water construction, and the Plan will be consistent with *Dykstra & Desimone-Briscoe School Levee Rehabilitation Projects NWP 3 Supplemental Information*, received by Ecology on April 3, 2015. Additionally, water quality monitoring will be conducted not only for placement of materials, but also excavation activity, and if exceedances of state water quality standards occur, the Corps will assess the situation and make adjustments, stopping work if needed to assess and address the cause.

APPENDIX C: Endangered Species Act Documents

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, Washington 98115

Refer to NMFS No:
WCR-2015-2124

March 2, 2015

Evan Lewis
Chief, Environmental and Cultural Resources Branch
U.S. Army Corps of Engineers
P. O. Box 3755
Seattle, Washington 98124-3755

Re: Endangered Species Act Section 7(a)(2) Concurrence Letter and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Desimone-Briscoe School Levee Rehabilitation Project, Tukwila, King County, Washington, (HUC 171100130305, Green River)

Dear Mr. Lewis:

On February 13, 2015, NOAA's National Marine Fisheries Service (NMFS) received your request for a written concurrence that the Army Corps of Engineers' (COE) proposed levee repair project is not likely to adversely affect (NLAA) species listed as threatened or endangered or critical habitats designated under the Endangered Species Act (ESA). This response to your request was prepared by NMFS pursuant to section 7(a)(2) of the ESA, implementing regulations at 50 CFR 402, and agency guidance for preparation of letters of concurrence.

NMFS also reviewed the proposed action for potential effects on essential fish habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), including conservation measures and any determination you made regarding the potential effects of the action. This review was pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation. After careful review of the information, NMFS concluded the action would not adversely affect EFH. Thus, consultation under the MSA is not required for this action.

This letter underwent pre-dissemination review using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554. A complete record of this consultation is on file at the Oregon Washington Coastal Office in Lacey, Washington.

Proposed Action and Action Area

In March 2014, flood waters scoured the levee slope along the Green River at approximately river mile 14.5 near Tukwila, Washington, resulting in erosion of embankment material and toe rock along 300 feet of the right-bank levee. The COE, along with King County as its local sponsor, proposes to repair the levee under the Public Law 84-99 emergency repair program. The proposed repair will restore a 100 year level of protection.

The COE will repair 775 feet of levee by constructing a launchable toe, laying back the lower riverward bank from the existing 1.5H:1V to a 2H:1V slope and the upper riverward slope to a varying grade of no steeper than 1.5H:1V, replacing the bank armoring, and installing 585 feet of sheetpile floodwall on the landward shoulder of the crown. The slope layback will move the levee crown landward up to 27 feet, and will open channel capacity, which is expected to slow velocity during higher flows. The new design will also include a 9-foot wide upper-slope bench. The elevation of the bench will be dictated by the volume of rock estimated to be necessary to address possible scour depths. This rock volume will be substantial due to the severity of the bend in the river at the site.

King County will begin floodwall construction in February, 2015 as there will be no in-water work with this phase of the project. They will use a vibratory driver to install the floodwall piles. They will also have to remove 17 trees from the landward side of the levee. They will backfill the space between the existing levee embankment and the floodwall to provide stability to the sheetpile.

The Phase 2 construction will include: isolating the work area, temporary removal of any remaining riprap, excavation of the bank on the damaged reach, placement of a one-foot blanket of filter material, placement of a blanket of Class 4 riprap (8 to 27-inch diameter), placement of an additional volume of rock to create the launchable toe, and installation of planting lifts and topsoil. The toe and slope work will required in-water excavation. Therefore, the COE will use supersacks, a silt curtain, or similar method to isolate the work area from the river.

The COE will install two planting lifts into the riverward levee face at or near ordinary high water. The plants will include the Hooker's willow (*Salix hookeriana*), Sitka willow (*S. sitchensis*), red-osier dogwood (*Cornus sericea*), all shrubby species, and Pacific willow (*S. lasiandra*) and black cottonwood (*Populus trichocarpa*), fast-growing trees. The riverward levee face is currently dominated by herbaceous invasive plants, including Himalayan blackberry (*Rubus armeniacus*) and reed canary grass (*Phalaris arundinacea*).

The in-water work window will extend from August 1 through August 31. There are no interrelated or interdependent activities associated with this action.

The action area will extend from the upstream-most in-water activity to 300 feet downstream of the downstream-most in-water activity. This area will account for short periods of increased suspended sediment concentrations when installing and removing the materials used to isolate

the in-water work areas. The action area contains designated critical habitat for PS Chinook salmon.

Action Agency's Effects Determination

The COE made determinations of "may affect, not likely to adversely affect" (NLAA) for Puget Sound (PS) Chinook salmon (*Oncorhynchus tshawytscha*) and its' critical habitat, and PS steelhead (*O. mykiss*). The COE's biological assessment (BA) noted the potential for minor turbidity, noise, and vibrational disturbance to adult Chinook salmon and juvenile steelhead during construction and minor impacts to vegetation. They also noted the planting of trees and laying back of the riverward slope of the levee as beneficial habitat actions.

The Federal Register Notice dates for the evolutionarily significant units (ESUs), Distinct Population Segments (DPSs), and critical habitats for these species are shown in Table 1.

Table 1. Federal Register notices for final rules that list threatened and endangered species, designate critical habitats, or apply protective regulations to listed species considered in this consultation.

Species	ESU or DPS	Original Listing Notice	Listing Status Reaffirmed	Critical Habitat	Protective Regulations
Chinook salmon (*Oncorhynchus tshawytscha*)	Puget Sound	3/24/99 64 FR 14308 Threatened	8/15/11 76 FR 50448 Threatened	9/02/05 70 FR 52630	6/28/05 70 FR 37160
Steelhead (*O. mykiss*)	Puget Sound	5/11/07 72 FR 26722 Threatened	8/15/11 76 FR 50448 Threatened	1/14/2013 78 FR 2725 Proposed	9/25/08 73 FR 55451

Consultation History

The NMFS received the BA and request for consultation from the COE on February 13, 2015, on which date we initiated informal consultation.

ENDANGERED SPECIES ACT

Effects of the Action

Under the ESA, "effects of the action" means the direct and indirect effects of an action on the listed species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action (50 CFR 402.02). The applicable standard to find that a proposed action is not likely to adversely affect listed species or critical habitat is that all of the effects of the action are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or critical habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur.

The effects of the proposed action are reasonably likely to include temporary increases in suspended sediment concentrations when installing and removing the structures used to isolate the in-water work areas, and a slight decrease in shade and allochthonous input due to tree removal from the landward side of the levee. It is unlikely that sound created by the vibratory pile driving on the levee will reach levels in the river that would adversely affect fish.

Puget Sound Chinook salmon
Puget Sound steelhead

Young-of-the-year Chinook salmon begin emigrating from the Green-Duwamish system by mid January, with emigration peaks occurring from late February through early March and late May through early June. Yearling Chinook salmon could be found in the action area from late-February through June. It is unlikely that juvenile Chinook salmon will occupy the action area during construction so effects will be discountable. Adult PS Chinook salmon could emigrate through the action area during the work window so could potentially be exposed to project effects. Increased suspended sediment concentrations will be short-term and localized, resulting in little potential exposure time. Exposure to increased suspended sediment concentrations will likely be below levels that present a risk of either physical harm or behavioral disruption to adult Chinook salmon, so effects will be insignificant.

Adult PS steelhead migrate through the action area from January through May. Therefore, it is unlikely they will occupy the action area during construction, so effects will be discountable. Juvenile steelhead rear in freshwater for one to three years before emigrating, so could potentially be present in the action area during construction. However, the relatively slow velocities and small substrates in the action area provide poor steelhead rearing habitat. It is unlikely juvenile steelhead will occupy the action area during construction so, effects will be discountable.

The decrease in riparian shade will not be enough to measurably affect water temperature, and the short-term slight decrease in allochthonous input will not be enough to measurably affect forage production for juvenile salmonids. These effects will be insignificant on PS Chinook salmon and PS steelhead. We agree with the COE that indirect effects are mostly beneficial by laying back of the riverward slope of the levee, and as riparian shrubs and trees grow.

The NMFS concurs with the COE determinations of "may affect, not likely to adversely affect" for PS Chinook salmon and PS steelhead.

The Primary Constituent Element (PCE) for PS Chinook salmon critical habitat in the action area is:

> PCE 3 - Freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks that support juvenile and adult mobility and survival;

Increased suspended sediment concentrations generated during construction activities will only temporarily affect water quality and will not be high enough to impair adults migrating upstream past the action area. Adult Chinook salmon will also have adequate space to migrate around the isolation barriers. The slight decrease in riparian shade will not be enough to measurably affect water temperature. The project will not affect the migration corridor for juvenile Chinook salmon migrants. All potential effects will be insignificant on critical habitat. The NMFS concurs with your determination of "may affect, not likely to adversely affect" designated PS Chinook salmon critical habitat.

Conclusion

Based on this analysis, NMFS concurs with the COE that the proposed action is not likely to adversely affect the subject listed species and designated critical habitats.

Reinitiation of Consultation

Reinitiation of consultation is required and shall be requested by the COE or by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and (1) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) the identified action is subsequently modified in a manner that causes an effect on the listed species or critical habitat that was not considered in this concurrence letter; or if (3) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16). This concludes the ESA portion of this consultation.

This concludes consultation under the ESA. Please direct questions regarding this letter to Jody Walters of the Oregon and Washington Coastal Office, Lacey, Washington, (360) 534-9307, jody.walters@noaa.gov.

Sincerely,

for William W. Stelle, Jr.
Regional Administrator

cc: Bobbi Jo McClain, COE
Holly Coccoli, MIT

5

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Washington Fish and Wildlife Office
510 Desmond Dr. SE, Suite 102
Lacey, Washington 98503

MAR 20 2015

Reply Refer To:
01EWFW00-2015-I-0323

Evan Lewis
Seattle District, U.S. Army Corps of Engineers
ATTN: Environmental and Cultural Resources Branch (McClain)
P.O. Box 3755
Seattle, Washington 98124-3755

Dear Mr. Lewis:

Subject: Desimone-Briscoe School Levee Rehabilitation Project

This letter is in response to your February 9, 2015, request for the U.S. Fish and Wildlife Service's (Service) concurrence with your determination that the Desimone-Briscoe School Levee Rehabilitation Project "may affect, but is not likely to adversely affect" bull trout (*Salvelinus confluentus*) and bull trout critical habitat. The project is located along the right bank of the Green River between South 180th Street in the City of Tukwila and South 200th Street in the City of Kent, King County, Washington. We received your letter and Biological Evaluation, dated January, 2015, on February 10, 2015. This informal consultation has been conducted in accordance with section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (ESA).

The U.S. Army Corps of Engineers (Corps) and King County, as its local sponsor, are proposing to undertake repairs to the Desimone-Briscoe School Levee under the Public Law 84-99 emergency repair program. The project is being conducted in two phases. Phase 1 includes installing a floodwall that was to begin construction in February 2015 and will last approximately 20 weeks. The floodwall will be installed landward of the levee. Phase 2 includes toe and bank work on the levee waterward of the floodwall.

On December 8, 2014, the Corps (Bobbi Jo McClain) emailed the Service (Martha Jensen) on Phase 1 of the project. Phase 1 involves installing a floodwall along the Desimone-Briscoe School Levee using a vibratory pile driver. The installation was scheduled to begin in January, 2015, and continue until May, 2015. The Corps determined that the installation of the floodwall would have "no effect" on bull trout and marbled murrelets. The Service (Martha Jensen) responded to the Corps' via email on December 8, 2015, stating that the Service does not provide

concurrence for actions where the Corps makes a no effect determination. Therefore, the Service is not addressing Phase 1 of the project in this consultation.

A detailed description of the proposed action is contained in the biological evaluation (pages 2 – 8). The Corps (Bobbi Jo McClain) emailed the Service (Martha Jensen), on March 2, 2015, with proposed changes to the project as described in the January 2015 biological evaluation. The project includes repairing a total of 775 lineal feet of levee. Phase 2 actions that may affect bull trout and designated bull trout critical habitat include the following:

- Removal of any existing riprap in the damaged reach.
- Constructing a launch-able toe. This includes placing a large amount of rock low on the face of the levee to protect against potential scour. The rock is placed so that it can launch into any scour and continue to protect the toe of the levee.
- Regrading the lower bank slope from 1.5H:1V to a 2H:1V, and the upper bank to a 1.5H:1V. A 9-foot wide upper-slope bench is included in the levee design.
- Replacing bank armoring.
- Planting trees and other native vegetation at or near the ordinary high water line along the entire 775 lineal feet of levee.

The project involves numerous conservation measures to minimize project impacts. Some of the conservation measures include the following:

- The work area will be isolated from the river with supersacks (large sand or gravel-filled bags), silt curtain, or a similar method.
- In-water work will be limited to the August 1 to August 31 work window.
- Biodegradable hydraulic fluids will be used in machinery where appropriate.

The project is located along the lower Green River between the Cities of Tukwila and Kent. The action area is defined by the farthest reaching physical, chemical, and biotic effects of the action on the environment. The project involves removal of riprap, excavation of the bank, and placement of large rock to stabilize the toe of the levee, and riprap that will result in increased turbidity and suspended sediments. The in-water action area is defined by the distance that increased turbidity and suspended sediments will extend and attenuate to background levels. The Service estimates that increased turbidity and suspended sediment levels will attenuate to background levels within 300 feet of the project site.

Bull Trout

Bull trout use the Green River and the action area for foraging, migrating and overwintering. The numbers of bull trout that use the Green River is very low. The Duwamish/Green River is

not a bull trout core area, as the species does not spawn in this watershed (no local populations). Anadromous bull trout from other nearby watersheds such as the Stillaguamish, Snohomish or Puyallup Rivers may use the Green River for foraging or overwintering. Both sub-adult and adult bull trout could be in the action area.

The action will result in limited temporary impacts to water quality, native substrates, aquatic vegetation, the benthic invertebrate community, and complexity of the shoreline habitat. Although the work area and construction activities will be isolated from the main river, the project will result in short-term localized increased turbidity and sediment during installation of the super sacks to isolate the work and after the super sacks are removed and flows inundate the project site. Water quality may also be impacted through fuel or oil spills from construction equipment that operate within the project site. These effects will be intermittent and limited in physical extent and duration. Degraded water quality from these activities could result in temporary behavioral changes to bull trout through decreased visibility and foraging opportunities, and abandonment or avoidance of selected habitats within the Green River. Work isolation, placement of super sacks, and in-water construction including removal of riprap, bank excavation, and placement of large rocks and riprap will result in temporary and minimal loss of prey abundance. Because impacts to bull trout and their prey resources will not be measurable, the Service considers the effects of the project to bull trout to be insignificant.

Designated Critical Habitat for Bull Trout

The Service designated critical habitat for bull trout on October 18, 2010 (75 FR 63898). The final rule identified nine Primary Constituent Elements (PCEs) essential for the conservation of bull trout. Seven of the nine PCEs are found in the action area:

- PCE 1: Springs, seeps, groundwater sources, and subsurface water connectivity (hyporheic flows) to contribute to water quality and quantity and provide thermal refugia.
- PCE 2: Migration habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and foraging habitats including but not limited to permanent, partial, intermittent, or seasonal barriers.
- PCE 3: An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.
- PCE 4: Complex river, stream, lake, reservoir, and marine shoreline aquatic environments and processes with features such as large wood, side channels, pools, undercut banks and substrates, to provide a variety of depths, gradients, velocities, and structure.
- PCE 5: Water temperatures ranging from 2 to 15 °C (36 to 59 °F), with adequate thermal refugia available for temperatures that exceed the upper end of this range. Specific temperatures within this range will depend on bull trout life-history stage and form; geography; elevation; diurnal and seasonal variation; shading, such as that provided by riparian habitat; streamflow; and local groundwater influence.

- PCE 7: A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departure from a natural hydrograph.

- PCE 8: Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.

The proposed action is not expected to have measurable short- or long-term effects to any of the bull trout PCEs within the action area. The project will not result in any barriers to the migratory corridor or measurably increase water temperatures within the action area. Project construction will be isolated from the main river and will result in a temporary degradation of water quality. Project construction will temporarily reduce the food base via a small reduction of prey resources and degradation of aquatic habitat, but over the long-term, the project will benefit the prey base, as well as temperatures (planting trees along the levee), in the action area. Therefore, effects to bull trout critical habitat from the proposed action are considered insignificant.

This concludes informal consultation pursuant to the regulations implementing the ESA (50 CFR 402.13). This project should be re-analyzed and re-initiation may be necessary if 1) new information reveals effects of the action that may affect listed species or critical habitat in a manner, or to an extent, not considered in this consultation, 2) if the action is subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in this consultation, and/or 3) a new species is listed or critical habitat is designated that may be affected by this project. If you have any questions about this letter or your responsibilities under the ESA, please contact Jim Muck at (206) 526-4740 or jim_muck@fws.gov.

Sincerely,

Martha L. Jensen

for

Eric V. Rickerson, State Supervisor
Washington Fish and Wildlife Office

APPENDIX D: National Historic Preservation Act Documents

DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-3755

REPLY TO
ATTENTION OF

Environmental and Cultural Resources Branch

JAN 07 2015

The Honorable Virginia Cross
Chairwoman, Muckleshoot Indian Tribe
39015 172nd Avenue SE
Auburn, Washington 98092-9763

SUBJECT: PL-84-99 Desimone-Briscoe School Levee Rehabilitation Project; Tukwila, King County, WA

Dear Madam Cross:

The U.S. Army Corps of Engineers (Corps) proposes to repair the Desimone-Briscoe School Levee (undertaking) along the Green River in the city of Tukwila, King County, Washington. The purpose of the undertaking is to restore the 250-year level of flood protection in order to protect lives and property from subsequent flooding. We have determined that the proposed project is an undertaking as defined at 36 C.F.R. Part 800 implementing Section 106 of the National Historic Preservation Act (NHPA).To assist in our review, we are notifying you about the project, requesting your assistance in identifying any issues or concerns you might have, and seeking information to identify properties which may be of religious or cultural significance that may be affected by the projects as specified by the implementing regulations for Section 106 at 36 C.F.R. § 800.4(a) (4). The letter also summarizes efforts that the Corps has taken to date to identify historic properties that may be affected by the undertaking.

The Desimone-Briscoe School Levee is approximately 11,600 feet long and protects residential, commercial, and industrial property. The levee is one segment of a six segment system. From upstream to downstream, the system includes: Myers Golf Levee, Kent Shops-Narita Levee, Upper Russell Road Somes-Dolan Levee, Lower Russell Road-Holiday Kennel Levee, Boeing Levee, and Desimone-Briscoe School Levee. At the downstream end, the levee ties into WA-181 / West Valley Highway; the upstream end ties into Boeing Levee under the S 200th St. Bridge. The damaged project section is located on the right bank of the Green River near river mile 14.5 within the City of Tukwila, WA (Figure 1).

Damage to the Desimone-Briscoe Levee was reported following a recent high water event on 10 March 2014 of 9,090 cfs at US Geological Survey gage 12113000, on the Green River near Auburn. The length of the flood damage is 780 linear feet. Scour at the toe of the structure has led to lost armoring, lost embankment material, and over steepened unstable banks. The loss of scour protection has compromised the level of protection offered by the levee. A flood could scour the damaged section of the levee to the point where it would breach. The proposed repairs would include construction of 1075' of levee toe, lay back its slope and armoring to a 2H:1V

slope to elevation 33.0' and install 780' of floodwall on the landward shoulder of the crown. A portion of the upstream and downstream ends of the repair length would include transitions from the repair to the existing levee alignment to prevent scour at the tie-ins. The project will also require replacing the Green River Trail along the crown of the levee.

The undertaking is located in Section 36, Township 23 North, Range 4 East in the city of Tukwila (Figure 2). The Corps has determined the area of potential effect (APE) for the Desimone-Briscoe School Levee Rehabilitation Project to be the length of the levee repair, as well as all staging and access zones. The APE for both direct and indirect effects encompasses approximately 3.5 acres. The Corps believes that the APE is sufficient to identify and consider both direct and indirect effects of the proposed project.

We would like to summarize efforts taken to date to identify cultural resources within the APE. The Corps staff archaeologist has conducted a records search and literature review of the Washington Information System Architectural and Archaeological Records Database (WISAARD). The literature review and records search revealed that the entire project area was previously surveyed (Dellert et al. 2013) with negative results. There are no properties listed in the National Register of Historic Places or the Washington State Historic Site Register in the project vicinity, and no cultural resources have been recorded within the APE.

If the Tribe has information or concerns regarding properties which may be of religious or cultural significance that you believe may be affected by this project, please contact us as soon as possible so that we may consult with you and ensure consideration of the information in a timely manner. A copy of this letter with enclosures will be furnished to Ms. Laura Murphy, Muckleshoot Indian Tribe, at 39015 172nd Avenue SE, Auburn, Washington 98092-9763.

If you have any questions or desire additional information, please contact the project archaeologist, Ms. Ashley Dailide, at ashley.m.dailide@usace.army.mil or (206) 764-6942. You may also contact Ms. Lori Morris (Tribal Liaison) at (206) 764-3625 or by email at frances.morris@usace.army.mil. I may be reached by telephone at (760) 764-6922 or by email at evan.r.lewis@usace.army.mil. Thank you for your assistance with this undertaking.

Sincerely,

Evan R. Lewis, Chief
Environmental and Cultural
Resources Branch

Enclosure

References

2013. Dellert, Jenny, Angus Tierney, and Jennifer Gebhardt. *Cultural Resources Assessment for the Briscoe-Desimone Levee, City of Kent Green River Levees Improvement Project, Kent, King County, Washington.* Submitted to the City of Kent Public Works Department.

Figure 1. Project Location Overview

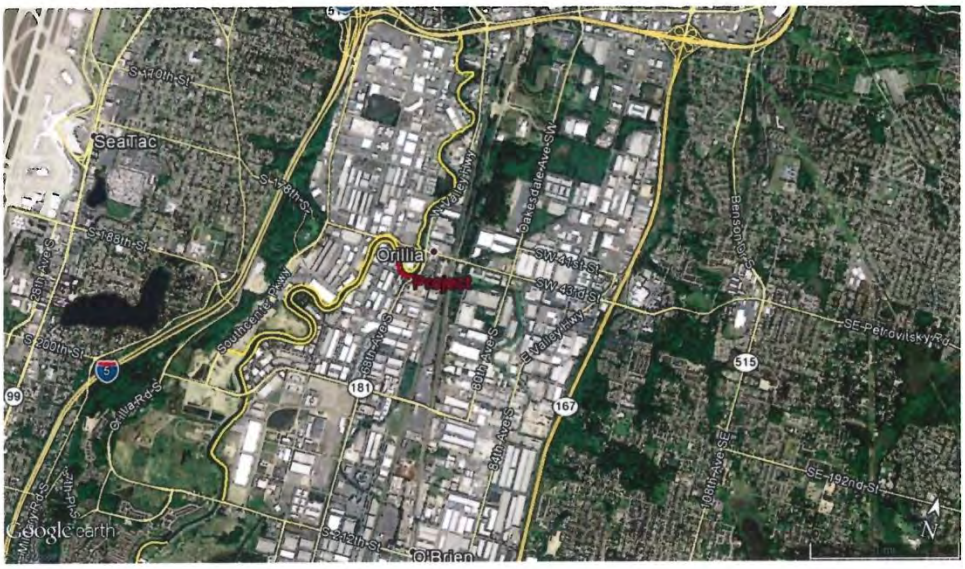
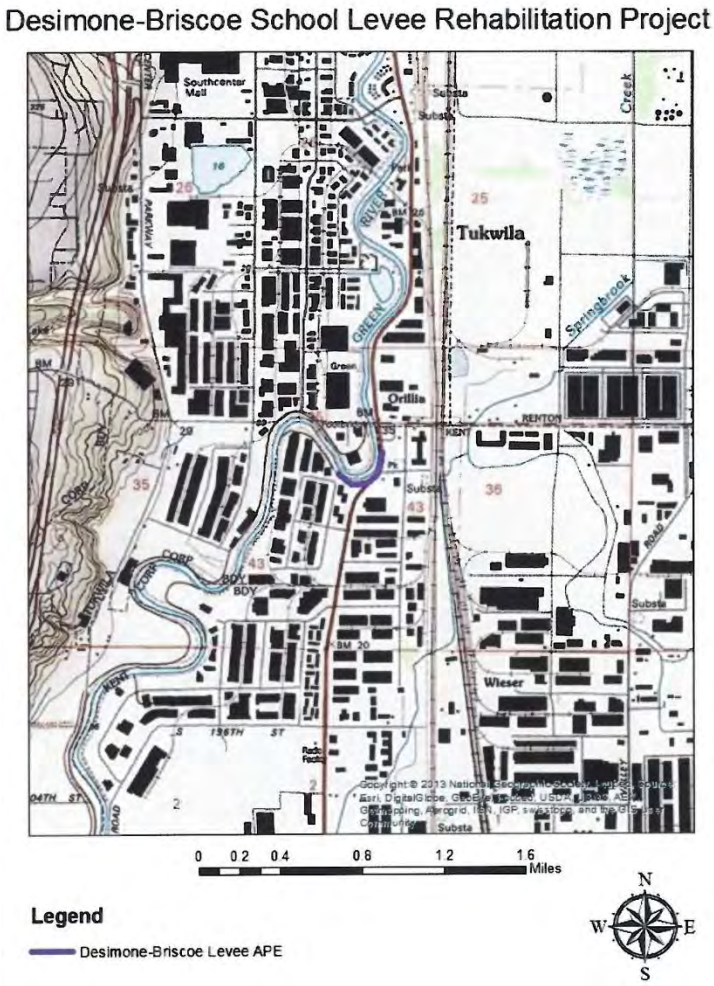


Figure 2. Project APE



DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-3755

REPLY TO
ATTENTION OF

Environmental and Cultural Resources Branch

DEC 0 3 2014

Allyson Brooks, Ph.D.
State Historic Preservation Officer
Department of Archaeology and Historic Preservation
Post Office Box 48343
Olympia, Washington 98504-8343

SUBJECT: Desimone-Briscoe School Levee Rehabilitation Project: Tukwila, King County, WA

Dear Dr. Brooks:

The U.S. Army Corps of Engineers (Corps) proposes to repair the Desimone-Briscoe School Levee (undertaking) along the Green River in the city of Tukwila, King County, Washington. The purpose of the undertaking is to restore the 250-year level of flood protection in order to protect lives and property from subsequent flooding. The Corps has determined and documented the area of potential effect (APE) for the undertaking and is consulting with your office under Section 106 as provided at 36 C.F.R.§ 800.4(a). The letter also summarizes efforts that the Corps has taken to date to identify historic properties that may be affected by the undertaking.

The Desimone-Briscoe School Levee is approximately 11,600 feet long and protects residential, commercial, and industrial property. The levee is one segment of a six segment system. From upstream to downstream, the system includes: Myers Golf Levee, Kent Shops-Narita Levee, Upper Russell Road Somes-Dolan Levee, Lower Russell Road-Holiday Kennel Levee, Boeing Levee, and Desimone-Briscoe School Levee. At the downstream end, the levee ties into WA-181 / West Valley Highway; the upstream end ties into Boeing Levee under the S 200th St. Bridge. The damaged project section is located on the right bank of the Green River near river mile 14.5 within the City of Tukwila, WA (Figure 1).

Damage to the Desimone-Briscoe Levee was reported following a recent high water event on 10 March 2014 of 9,090 cfs at US Geological Survey gage 12113000, on the Green River near Auburn. The length of the flood damage is 780 linear feet. Scour at the toe of the structure has led to lost armoring, lost embankment material, and over steepened unstable banks. The loss of scour protection has compromised the level of protection offered by the levee. A flood could scour the damaged section of the levee to the point where it would breach. The proposed repairs would include construction of 1075' of levee toe, lay back its slope and armoring to a 2H:1V slope to elevation 33.0' and install 780' of floodwall on the landward shoulder of the crown. A portion of the upstream and downstream ends of the repair length would include transitions from the repair to the existing levee alignment to prevent scour at the tie-ins. The project will also require replacing the Green River Trail along the crown of the levee.

The undertaking is located in Section 36, Township 23 North, Range 4 East in the city of Tukwila (Figure 2). The Corps has determined the area of potential effect (APE) for the Desimone-Briscoe School Levee Rehabilitation Project to be the length of the levee repair, as well as all staging and access zones. The APE for both direct and indirect effects encompasses approximately 3.5 acres. The Corps believes that the APE is sufficient to identify and consider both direct and indirect effects of the proposed project.

We would like to summarize efforts taken to date to identify cultural resources within the APE. The Corps staff archaeologist has conducted a records search and literature review of the Washington Information System Architectural and Archaeological Records Database (WISAARD). The literature review and records search revealed that there have been two cultural resource investigations within the vicinity of the project APE. There are no properties listed in the National Register of Historic Places or the Washington State Historic Site Register in the project vicinity, and no cultural resources have been recorded within the APE. We have also notified the Muckleshoot Tribe of Indians about the project to identify properties to which they may attach religious or cultural significance or other concerns with historic properties that may be affected.

The Corps requests your review and agreement with our determination of the APE. If you have any questions or desire additional information, please contact the project Archaeologist, Ms. Ashley Dailide, at ashley.m.dailide@usace.army.mil or (206) 764-6942. I may be contacted at evan.r.lewis@usace.army.mil or (206) 316-3096.

Sincerely,

Evan R. Lewis, Chief
Environmental and Cultural
Resources Branch

Enclosure

Figure 1. Project Location Overview

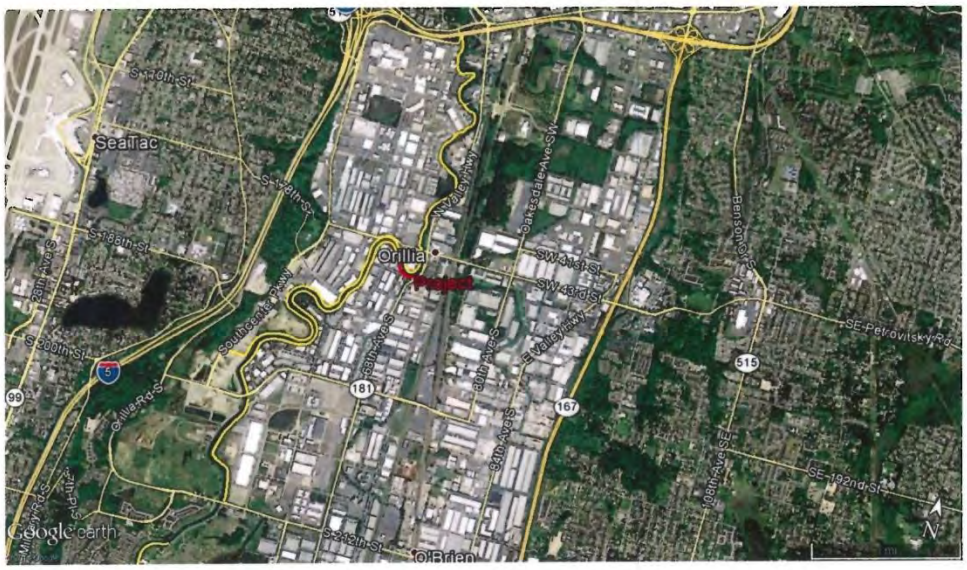
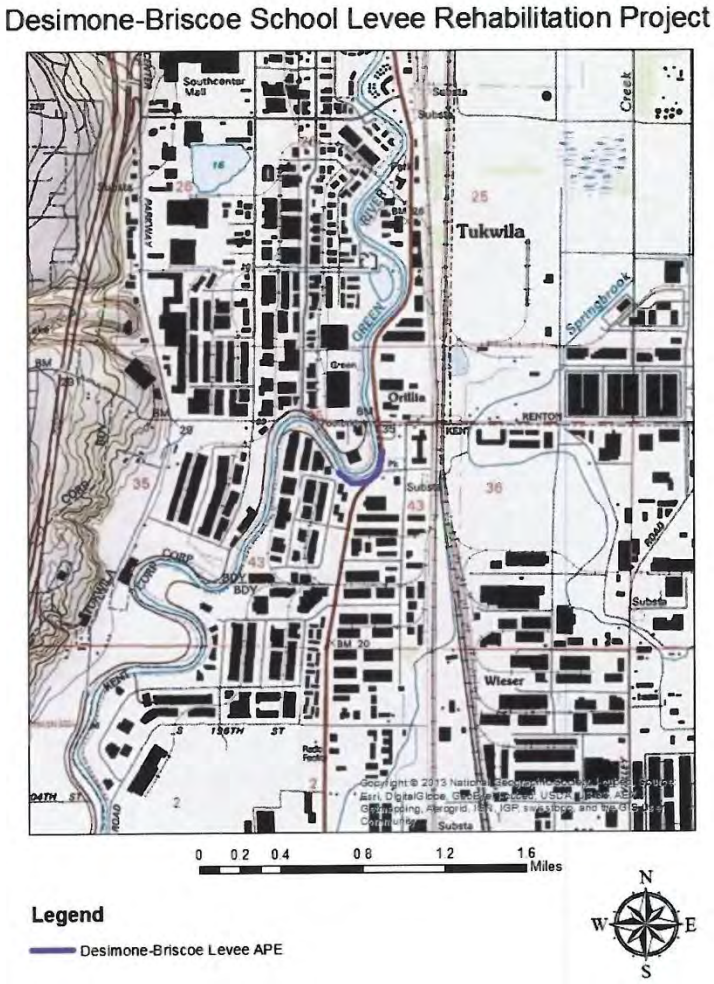


Figure 2. Project APE



DEPARTMENT OF
ARCHAEOLOGY &
HISTORIC PRESERVATION
Protect the Past Shape the Future

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

December 8, 2014

Mr. Evan R. Lewis
Environmental Resources Section
Corps of Engineers – Seattle District
PO Box 3755
Seattle, Washington 98124-3755

Re: Desimone-Briscoe School Levee Rehabilitation Project
Log No.: 120814-18-COE-S

Dear Mr. Lewis:

Thank you for contacting our department. We have reviewed the materials you provided for the Area of Potential Effect (APE) for the proposed Desimone-Briscoe School Levee Rehabilitation Project, Tukwila, King County, Washington

We concur with your definition of the Area of Potential Effect (APE).

We look forward to receiving the results of your identification efforts and professional cultural resources review, the results of tribal consultation, and the Determination of Effect.

We would also appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4).

These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer in compliance with the Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations 36CFR800.4. Should additional information become available, our assessment may be revised.

Thank you for the opportunity to comment and we look forward to receiving the report on the results of your efforts.

Sincerely,

Robert G. Whitlam, Ph.D.
State Archaeologist
(360) 586-3080
email: *rob.whitlam@dahp.wa.gov*

State of Washington • **Department of Archaeology & Historic Preservation**
P.O. Box 48343 • Olympia, Washington 98504-8343 • (360) 586-3065
www.dahp.wa.gov

DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-3755

REPLY TO
ATTENTION OF

Environmental and Cultural Resources Branch

FEB 23 2015

Allyson Brooks, Ph.D.
State Historic Preservation Officer
Department of Archaeology and Historic Preservation
Post Office Box 48343
Olympia, Washington 98504-8343

SUBJECT: Desimone-Briscoe School Levee Rehabilitation Project: Tukwila, King County, WA (SHPO Log #: 120814-18-COE-S)

Dear Dr. Brooks:

The U.S. Army Corps of Engineers (Corps) proposes to repair the Desimone-Briscoe School Levee (undertaking) along the Green River in the city of Tukwila, King County, Washington. The purpose of the undertaking is to restore the 250-year level of flood protection in order to protect lives and property from subsequent flooding. In our letter of December 3, 2014, the Corps documented the area of potential effect (APE) with which your office agreed on December 8, 2014. This letter provides a brief project description, summarizes the efforts to identify historic properties, and provides agency determinations and findings as provided at 36 C.F.R. § 800.4 and 5. We request your concurrence with our finding that there will be no historic properties affected by the proposed undertaking.

The Desimone-Briscoe School Levee is approximately 11,600 feet long and protects residential, commercial, and industrial property. The levee is one segment of a six segment system. From upstream to downstream, the system includes: Myers Golf Levee, Kent Shops-Narita Levee, Upper Russell Road Somes-Dolan Levee, Lower Russell Road-Holiday Kennel Levee, Boeing Levee, and Desimone-Briscoe School Levee. At the downstream end, the levee ties into WA-181 / West Valley Highway; the upstream end ties into Boeing Levee under the S 200th St. Bridge. The damaged project section is located on the right bank of the Green River near river mile 14.5 within the City of Tukwila, WA (Figure 1).

Damage to the Desimone-Briscoe Levee was reported following a recent high water event on 10 March 2014 of 9,090 cfs at US Geological Survey gage 12113000, on the Green River near Auburn. The length of the flood damage is 780 linear feet. Scour at the toe of the structure has led to lost armoring, lost embankment material, and over steepened unstable banks. The loss of scour protection has compromised the level of protection offered by the levee. A flood could scour the damaged section of the levee to the point where it would breach. The proposed repairs would be completed in two phases. During Phase 1, King County and the City of Kent are proposing to construct the floodwall and complete all associated landward work, a portion of

which would subsequently be incorporated into the Federal action. In Phase 2, the Corps would complete the toe and slope work on the currently damaged riverward bank in order to fully restore the levee to the pre-flood 100-year level of protection. The second phase of the proposed repair would construct 775 feet of levee toe and would lay back and armor the slope. The proposed levee would include a riverward slope of 2H:1V to an elevation of 26 feet. Above elevation 26 feet, the slope will vary, with a maximum of 1.5H:1V. The levee will have a 16-foot crown and rock armoring with a launchable toe. The repair distance of 775 feet will also include transitions on both the upstream and downstream ends from the repaired components to the existing levee alignment. These transitions prevent scour at the tie-ins. Slope protection would be achieved by rip rap with a mean particle size of 1.5 feet with a launchable toe sized to protect the levee to a potential estimated scour depth of 24 feet. The project would also include the removal and reconstruction of the Green River Trail along the crown of the levee.

The undertaking is located in Section 36, Township 23 North, Range 4 East in the city of Tukwila. The Corps has determined the area of potential effect (APE) for the Desimone-Briscoe School Levee Rehabilitation Project to be the length of the levee repair, as well as all staging and access zones (Figure 2). The APE for both direct and indirect effects encompasses approximately 3.5 acres. The Corps believes that the APE is sufficient to identify and consider both direct and indirect effects of the proposed project.

We would like to summarize efforts taken to date to identify cultural resources within the APE. The Corps staff archaeologist has conducted a records search and literature review of the Washington Information System Architectural and Archaeological Records Database (WISAARD). The literature review and records search revealed that the entire project area has been previously surveyed (Dellert et al. 2013). There are no properties listed in the National Register of Historic Places or the Washington State Historic Site Register in the project vicinity, and no cultural resources have been recorded within the APE. We have also notified the Muckleshoot Tribe of Indians about the project to identify properties to which they may attach religious or cultural significance or other concerns with historic properties that may be affected. The Tribe did not comment on the undertaking.

The Corps has made a reasonable and good faith effort to identify historic properties that may be affected by this undertaking. Due to the high level of previous disturbance resulting from the construction of the existing levee, and the results of the archival research, the Corps has determined that there are no historic properties located within the project APE. The Corps has found there would be no historic properties affected by the rehabilitation of the Desimone-Briscoe Levee.

The Corps requests your review and agreement with our finding that there will be no historic properties affected. If you have any questions or desire additional information, please contact the project Archaeologist, Ms. Ashley Dailide, at ashley.m.dailide@usace.army.mil or (206) 764-6942. I may be contacted at evan.r.lewis@usace.army.mil or (206) 316-3096.

Sincerely,

Evan R. Lewis, Chief
Environmental and Cultural
Resources Branch

Enclosure

References:

2013. Dellert, Jenny, Angus Tierney, and Jennifer Gebhardt. *Cultural Resources Assessment for the Briscoe-Desimone Levee, City of Kent Green River Levees Improvement Project, Kent, King County, Washington.* Submitted to the City of Kent Public Works Department.

Figure 1. Project Location Overview

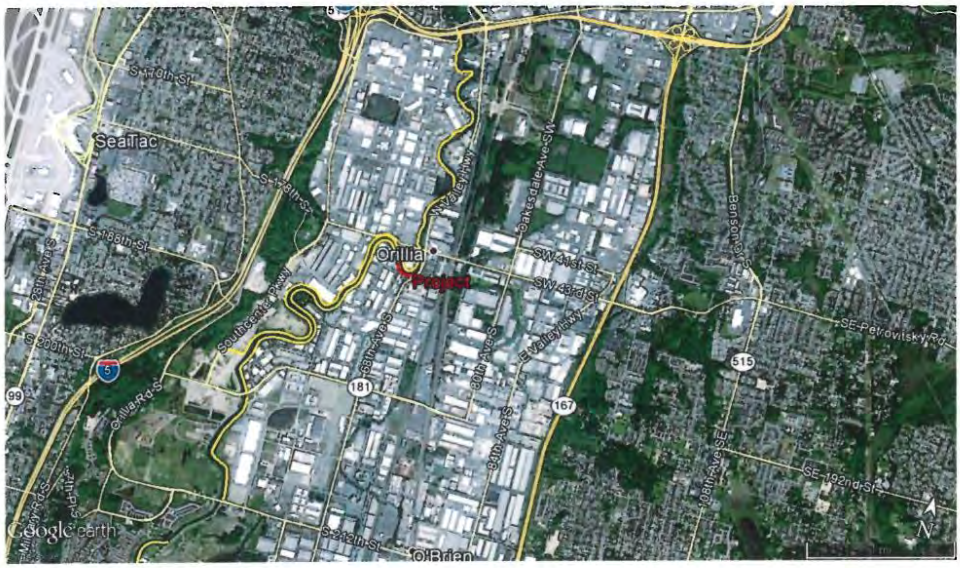
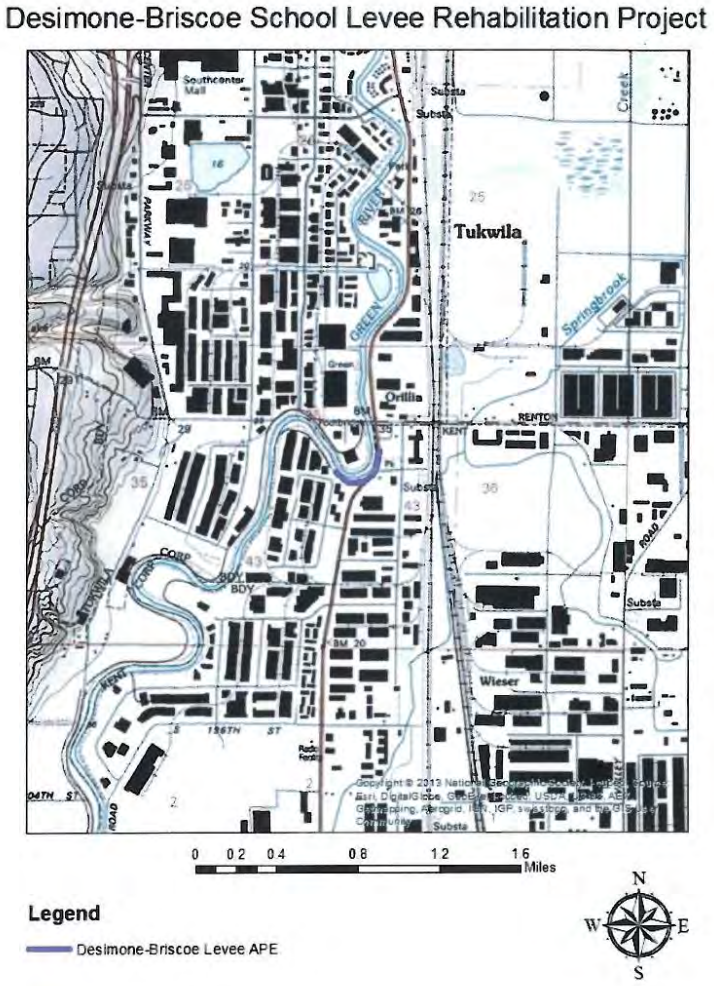


Figure 2. Project APE



DEPARTMENT OF
ARCHAEOLOGY &
HISTORIC PRESERVATION
Protect the Past Shape the Future

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

February 23, 2015

Mr. Evan Lewis
Environmental & Cultural Resources
Seattle District
Corps of Engineers
PO Box 3755
Seattle, Washington 98124

Re : Desimone-Briscoe School Levee Rehabilitation Project
Log No.: 120814-18-COE-S

Dear Mr. Lewis:

Thank you for contacting our department. We have reviewed the materials you provided for the proposed Desimone-Briscoe School Levee Rehabilitation Project along the Green River, Tukwila, King County, Washington.

We concur with your determination of No Historic Properties Affected.

We would appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4).

These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer in compliance with the Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations 36CFR800.4.

Should additional information become available, our assessment may be revised, including information regarding historic properties that have not yet been identified. Thank you for the opportunity to comment and a copy of these comments should be included in subsequent environmental documents.

Sincerely,

Robert G. Whitlam, Ph.D.
State Archaeologist
(360) 890-2615 mobile
email: *rob.whitlam@dahp.wa.gov*

State of Washington • **Department of Archaeology & Historic Preservation**
P.O. Box 48343 • Olympia, Washington 98504-8343 • (360) 586-3065
www.dahp.wa.gov

APPENDIX E: Public Comments and Responses

State of Washington
Department of Fish and Wildlife
Mailing Address: 600 Capitol Way N, Olympia WA 98501-1091, (360) 902-2200, TDD (360) 902-2207
Main Office Location: Natural Resources Building, 1111 Washington Street SE, Olympia WA

February 27, 2015

Washington Department of Ecology
SEA Program – Federal Project Coordinator
Post Office Box 47600
Olympia, Washington 98504-7600

Dear Ms. Padgett:

SUBJECT: PUBLIC NOTICE NUMBER EN-ER-15-01, DESIMONE-BRISCOE SCHOOL LEVEE REHABILITATION, GREEN RIVER, TUKWILA, WA, WRIA 09.0001

Washington Department of Fish and Wildlife has reviewed Public Notice Number EN-**ER-15-01** that we received from you on February 23, 2015 and submits the following comments.

The local sponsor, King County Flood Control District, is responsible for obtaining a Hydraulic Project Approval for this project.

A project priority should be to increase tree plantings at the site to address thermal and other habitat impacts on threatened Puget Sound Chinook and steelhead and other salmonid fish species. The most recent plan set I reviewed was an improvement over the previous set. However, the selection of shore pine needs to be replaced with western red cedar or other coniferous species commonly found on local rivers.

If you have any questions concerning this, please call me at 425-313-5683.

Sincerely,

Larry Fisher

Larry Fisher
Area Habitat Biologist

Cc: WDFW, Stewart Reinbold
MIT Fisheries, Karen Walter
City of Tukwila, Andrea Cummins

Corps Response:

The Corps thanks the Washington Department of Fish and Wildlife for their interest and comments on the proposed action. The U.S. Army Corps of Engineers is the lead for construction of Phase 2 of the proposed action, therefore making Phase 2 a Federal action. The United States has not expressly waived Federal sovereign immunity with respect to any requirement to obtain a State of Washington Hydraulic Project Approval. The City of Kent, as the lead entity constructing Phase 1, is responsible for obtaining any applicable permits and authorizations addressing Phase 1 work.

Shore pine was included in the plant palette because its habitat needs meet the expected conditions. It is a Northwest native that is highly adaptable to many soil conditions. Western redcedar requires a wetter environment and is therefore not expected to thrive at this location. The plant palette was chosen to include a variety of species that would increase spatial structure, habitat value, and shading potential while limiting the risk to the levee and utilizing the maximum width of plantable space.

City of Tukwila — *Jim Haggerton, Mayor*

Department of Community Development — *Jack Pace, Director*

March 4, 2015

United States Army Corps of Engineers, Seattle District
Environmental and Cultural Resources Branch
Attn: Bobbi Jo McClain
PO Box 3755
Seattle, WA 98124-3755

Subject: Desimone-Briscoe School Levee Rehabilitation, Tukwila, WA

Dear Ms. McClain,

The City of Tukwila has reviewed the available documents for the proposed repairs under the PL 84-99 program to the Desimone-Briscoe School levee, located at 18200 Cascade Avenue South, and would like to provide the following comments/questions to the Corps. These comments are based on the currently available documents: the 65% design plans, the Notice of Preparation, and the NWP3 Functional Analogy memo dated February 23, 2015 to Paul Anderson at the Washington State Department of Ecology.

- More detail is needed regarding the proposed plantings on the bench – the documents provide a general count of trees to be planted and suggested species, but notes that the plant palette has not yet been finalized. The environmental impacts and anticipated habitat benefits cannot be truly evaluated given the limited information available.
    - A planting plan reflecting the size of the bench, the soil preparation proposed, planting details, and the location and species of selected trees should be included in the design package.
    - Shore pine (Pinus contorta) is a shorter growing conifer and will not reach the height needed to provide shade to the river or mitigate for the existing large trees being removed, additional species of conifer (doug fir, sitka spruce, cedar – if shaded) should be added to the plant palette
    - Cascara (Rhamnus purshiana) is typically an understory small tree or large shrub and will not achieve enough height at maturity to shade the river, it could be planted as a shrub or understory but should not be considered in the tree count
    - Are there any shrubs/understory plants proposed for the bench? Will the bench be hydroseeded or mulched following plant installation?

- The responsibility for the plantings is being split between the COE and King County Flood District (the local sponsor), but there are no details documenting the transition from one responsible party to another to ensure all of the planting are installed, irrigated and maintained properly.

- Soil lifts at OHW should be extended farther back into the profile to create a larger soil pocket and enable the planting of longer stakes. Planting is not dense enough at 12" O.C. Stakes should be installed at 8" to 10" O.C. to provide more coverage and better habitat value.

- Topsoil layer on levee face is proposed at 1". This is not enough to support any type of desired plant life and may be unstable at such a steep angle. Suggest increasing amount of topsoil and extending to willow lift.

- More information is needed on how the placement of such a large amount of rock will not cause a net loss in ecological function, particularly as it relates to temperature and the temporal impact of an exposed rock face for at least 10 years until vegetation matures enough to provide some habitat value. Suggest limiting the amount of rock as feasible, particularly on the upper levee face above OHW, to ameliorate to the extent possible the environmental impacts of this project on water quality in a section of the river under a TMDL for temperature.

The review process is being driven by the need to move forward quickly with advertising the project for construction - while we understand the need to be ready to construct during the fish window, providing comments on a project with limited information and known upcoming changes is an inefficient use of staff time. As the anticipated release of the 95% design drawings is March 13th, it seems an extension of the comment deadline to account for updated design would have facilitated a more thorough, detailed, and streamlined review by stakeholders. The City of Tukwila will send additional comments when the EA and 95% design become available.

Sincerely,

Jack Pace
Director, Department of Community Development

Corps Response:
The Corps thanks the City of Tukwila for their interest and comments on the proposed action. The planting plan has been further developed and is included within this analysis. Shore pine and cascara were included in the plant palette because these species habitat needs meet the expected conditions. They are both Northwest natives that are expected to thrive at this location. The plant palette was chosen to include a variety of species that would increase spatial structure, habitat value, and shading potential while limiting the risk to the levee and utilizing the maximum width of plantable space. In addition, many stakeholders had requested consistency with Kent's initial designs for this location. Kent's plant palette was therefore taken into consideration. Corps guidance was also followed when designing the plantings, which included consideration of pullout pit sizes and proximity to the minimum levee prism. The largest species have larger pullout pits, and as such are limited to only the outer edge in the widest locations on the planting bench. To maximize the planting width and increase spatial and species diversity, a variety of larger species were incorporated.

The soil would also be covered by hydroseeding, which typically includes a mix of seed, fertilizer and mulch.

Plantings will be completed under a contract to the Corps. The contract would include a warranty period (12 months) throughout which plant survival will be the responsibility of the contractor. The contract would also include installation of a drip irrigation system to ensure plant success. The non-Federal sponsor's responsibility for maintenance is defined in the Cooperation Agreement between the parties governing the partnership under which the Federal action is taken, as well as in Engineering Regulation 500-1-1.

Topsoil over the levee face would be placed at a depth of one foot and would extend to the planting lifts. Additional soil would be included on the bench for planting purposes. The soil lifts for planting have been designed to minimize levee safety concerns while maintaining likelihood of plant survival. Similar designs have been successfully installed at other repair sites.

Although the volume of rock at the project site would increase with the proposed action, this is not expected to impact water temperatures. Prior to the flood event, the site was armored with exposed rock below ordinary high water. With the placement of top soil over the rock above ordinary high water and seeding the soil, the amount of exposed rock would be unchanged. The placement of topsoil and seeding on the bank would be expected to restore the herbaceous covering quickly. The bank currently does not have any woody species within the project footprint. The trees that would be removed exist behind the levee, at some distance from the water. Although they provide some shading, their function is limited by this distance. The addition of woody vegetation and tall tree species on the riverward face of the levee would be expected to provide a long-term benefit to the site and improve shading.

MUCKLESHOOT INDIAN TRIBE
Fisheries Division
39015 - 172nd Avenue SE • Auburn, Washington 98092-9763
Phone: (253) 939-3311 • Fax: (253) 931-0752

March 9, 2015

Ms. Bobbi Jo McClain
U.S. Army Corps of Engineers
P.O. Box 3755
Seattle, WA 98124-3755

RE: Desimone-Briscoe School Levee Rehabilitation Project (Reach 1), Tukwila, WA
U.S. Army Corps of Engineers, Notice of Preparation and Clean Water Act Public Notice, EN-ER-15-01

Dear Ms. McClain:

Fisheries staff reviewed the Notice of Preparation (NOP) for the proposed Desimone-Briscoe Reach 1 levee repair along the Green River and the Corps' 65% percent draft design 31 MAR 2014. The Tribe has serious concerns about this project's impacts to tribal fishing and to salmon habitat in the Green River. These concerns focus on short and long term impacts to a tribal fishing site and to riparian vegetation and water quality.

The NOP preferred alternative consists of a sheet pile floodwall and 775 feet of levee toe and bank armoring encompassing 300 feet of direct levee repair. The proposed levee repair may damage or eliminate a traditional net fishing site located around 100 feet downstream of the levee rehabilitation work. Changes in water flow along the rehabilitated river bend and turbulence at the downstream end of the repair may erode the features at the bank line that maintain the existing scour pool or its favorable hydraulics.

The riparian planting area, plan, and mitigation for the preferred alternative is wholly inadequate. The riparian mitigation for the floodwall project permitted by Tukwila in August 2014[i], with its 50 feet of potential planting buffer width, 6:1 planting slope at the river's edge and 170 trees– better than the preferred alternative but still inadequate in our view – is now being taken away by this NOP and replaced with a project that has a 9 foot wide planting bench with one inch of topsoil on top of rock and two mid-slope planning lifts for willows and a cottonwoods with a low chance of thriving given the soil extent shown.

Trees will be removed from an area identified as a critical priority for shade based on its aspect and bank orientation[ii]. Seventeen trees up to 24 inches diameter within 50-60 feet of the river

would be removed as part of the PL-84-99 repair project, and an additional 19 trees within 50-90 feet of the river would be removed by the King County Flood Control District for floodwall construction, for a total of 36 trees removed[iii]. The preferred alternative includes widening the existing Green River recreational trail from about10 feet to 16 feet – further reducing available area for tree plantings by 6 feet.

As stated in the NOP, the Green River is listed as a temperature impaired water body under Washington's 303(d) list. Typical summer temperatures are in the range of those causing severe infections of warm water -related bacterial and parasitic diseases in salmon and trout. In 2014, 10 percent of the adult female Chinook carcasses sampled in the Green River had died before releasing their eggs, while 67 percent of those sampled in lower Soos Creek also died before spawning[iv]. A Temperature TMDL was prepared for the Green River that recommends planting a continuous 150 foot wide buffer of trees over 100 feet tall a rom river mile 60 downtream to the Black River.

The planting proposal shown in NOP Figure 3 is not adequate to meet river temperature requirements. The project plan and design as a whole should be modified to provide a much wider and more suitable tree planting area and soils between the floodwall and the river to help address the river temperature impairment, and a new plan provided for review. The trail should be narrowed to the existing 10 feet to maximize space for trees and riparian plants to fully mitigate for the loss of the existing trees and to address the critical riparian shade needs at this site. A larger planting area is needed to accommodate a minimum of 170 trees as required under the local sponsor's City of Tukwila Shoreline Permit (#L14-0030) issued August 20, 2014.

The NOP states that the Project Team will work with the Tribe to ensure that the fishing site's integrity will be preserved, however, the NOP does not present a detailed description of how the site currently functions and how the project may adversely affect it. A monitoring plan and a contingency plan agreed to by the Tribe is needed to provide certainty that the traditional fishing site will protected from damage, or restored or mitigated if required.

It seems that the Tribe and others were misled to believe that this floodwall project would allow planting of the river bank with trees without limitations to improve habitat and promote slope stability. See http://your.kingcounty.gov/dnrp/library/water-and-land/flooding/kcfzed/GEI-presentation-2012-June-29.pdf). Floodwall construction at the Briscoe Desimone levee (referred to as "the Kent approach" by the County Flood Control District's Expert Engineering Independent Third-Party Review was promoted as having the additional benefit that it would allow natural erosional processes to occur at the river bank without any need to armor the toe or the bank. At the time of the Briscoe-Desimone levee setback versus floodwall debate before the King County Flood District in 2013, their report noted: *"Another notable feature of the Kent approach is in how it addresses erosion and sloughing of the river bank. In its natural state, the river bank periodically erodes and sloughs, particularly on the outside bends of the river. One alternative to manage this erosion is to armor the river bank with large rocks. While this*

alternative minimizes the long-term cost of maintenance, it is detrimental to the health of the fish (e.g., Schmetterling et al. 2001). Another alternative to manage this periodic erosion is to allow it to occur naturally and then repair it before it threatens the integrity of the levee. While this alternative is best for the health of the fish, it increases the cost of long-term maintenance. In the Kent approach, the engineers have certified the levee without armoring the river bank, providing as natural as possible of a habitat for the fish."

The NOP preferred alternative wholly eliminates the claimed environmental benefits that justified the floodwall/Kent approach instead of the levee setback that the Tribe and others recommended. No mitigation is proposed for impacts to designated critical habitat for Puget Sound Chinook and primary constituent elements, including those in freshwater rearing and migration corridors that may be affected by the proposed bank repairs, armoring and launchable toe.

Based on the above, we do not believe that the NOP sufficiently addresses impacts to the Tribe's treaty fishing rights or critical habitat for listed species, or Clean Water act requirements. We hope that this project will be further revised so that these issues can be addressed.

We request the opportunity to provide input to the draft EA and BA as these documents are prepared.

Thank you,

Holly Coccoli
Fisheries Biologist

Cc:

Lori Morris, USACOE Tribal Liaison

---

[i] City of Tukwila Shorelines Permit to Kent Public Works, 8/20/14
[ii] Riparian Aspect Priorities Map, Martin Fox, 2013
[iii] City of Tukwila, Shoreline Substantial Dev elopement Variance L14-0031, 8/21/14
[iv] Footen, Warner, and Hildebrandt, MITFD, unpub.

Corps Response:

The Corps thanks the Muckleshoot Indian Tribe for their interest and comments on the proposed action. The Tribe notified the Corps of the existence of the fishing station early in our project development. Since that time, the Corps has appreciated working with the Tribe to consider solutions that protect the fishing station while also continuing to provide flood risk reduction for the protected area. The overall length of the project was reduced to avoid direct impact to the station. The repair design would not be expected to significantly alter the hydraulics of the scour hole which is used as the fishing station. There would be a tendency with the levee setback to increase flow curvature through the bend, due to the increased width of the cross-section. As flow exits the bend it would contract slightly. This contraction of flow may result in an increase in turbulence near the scour hole as flow is deflected off the setback levee at the downstream end of the repair and combines with flow in the channel. Since the near bank and bed features causing the scour pool are nearly 90 feet downstream of the proposed repair they should remain unaltered by the repair. The potential to increase turbulence in the vicinity of the hole would at minimum maintain the size of the pool by supporting recirculation of flows and entrainment of sediment in the vicinity of the scour hole.

Additionally, the launchable toe is not expected to migrate to the scour hole. Site data and professional judgment of the Seattle District's senior hydraulic engineers indicate that the filling of the existing pool with riprap from the repair is not likely to occur. The project has been designed with a stable rock revetment and has provided sufficient distance between the downstream terminus of the repair and the scour hole to avoid transport of levee rock into the hole, even in the event of bend scour and launching of riprap into the channel. Given the setting, it is likely that the channel bed and bank slope in the vicinity of the scour hole are hardened from historical armoring projects and repeated exposure to high flows. Rock launched from the slope of the levee to fill any scour that occurs at its base would cause further hardening of the bend through this area of the river. This would be expected to increase geomorphic stability beyond what presently exists along this bend and prevent future toe undercutting or bank erosion, which would in turn maintain existing hydraulics that have contributed to scour hole to formation.

The Corps has worked with the Tribe to define a monitoring plan for gauging the impacts on the bathymetric characteristics of the fishing site. The Corps' Emergency Management Branch will conduct a minimum of four monitoring sessions including pre construction, post-construction, and post-flood season. The monitoring objective is to determine if class IV riprap is lost from the Corps' repair work at the Desimone Levee Rehabilitation project and is transported to the tribal fishing site. If, during the approximately one-year monitoring period, the Tribe notifies the Corps that, in its view, the fishing site has been adversely affected, the Corps will work closely with the Tribe to determine if rock has migrated from the project into the fishing hole. This would include verifying the loss of armor rock from the repair footprint; accretion of rock in the vicinity of the fishing hole; and a general consistency of characteristics of the rock between what was originally placed during construction and what is subsequently found in and around the fishing hole. The baseline will determine if rock has migrated into the hole and if so, the Seattle District will remove the transported rock to approximate baseline conditions and replace the rock into the armor/toe blanket.

The riparian planting plan has been modified. This has included decreasing the trail width on the crown to maximize the available planting space. A total of 29 trees would be removed by

Federal and non-Federal actions, landward of the levee. These losses would be replaced within the project site with a total of 200 trees on the riverward face. This would be a replacement ratio of nearly 7:1. Topsoil would be placed over the levee face at a depth of one foot and will extend to the planting lifts. Additional soil is included on the bench for planting purposes. The placement of topsoil and seeding on the bank would be expected to restore the herbaceous covering quickly. The bank currently does not have any woody species within the project footprint. The trees that would be removed exist behind the levee, at some distance from the water. Although they provide some shading, their function is limited by this distance. The addition of woody vegetation and tall tree species on the riverward face of the levee would be expected to provide a long-term benefit to the site and improve shading. The proposed action is a levee repair, authorized by Public Law 84-99. The project would include mitigation as needed to offset the short-term and long term impacts of the proposed action. The project is not expected to appreciably alter, positively or negatively, the environmental condition of the site as it existed prior to the flood event.

Kent's floodwall design requires soil both riverward and landward of the structure for stability. The 2014 flood event damaged the riverward slope within the project area. Corps' engineers determined that continued erosion of the bank would endanger the floodwall stability and could cause the wall to fail. Therefore, it was determined that riverward slope repairs were required. Mitigation features have been incorporated into the project to fully offset the expected impacts of the repair.

Comparisons of the design of this Federal project with the prior design of a King County and City of Kent floodwall project in the same location are misplaced, as those prior non-Federal plans did not involve a Corps design, the application of Corps standards, or planned execution by the Corps, and because that non-Federal design pre-dated the significant damage of the March 2014 flood event and King County's subsequent request for Federal assistance under Public Law 84-99.

The Corps has continued to work with the Tribe throughout the design phase to address the concerns expressed. Corresponding modifications were incorporated into the Corps' impact analyses. At the time of receiving these comments the Biological Evaluation, an inter-agency communication, had been prepared and submitted to the Services. Additionally, the Notice of Preparation promulgated on February 6, 2015 served as the vehicle for public involvement in the NEPA process.

March 9, 2015

Bobbi Jo McClain
Environmental and Cultural Resources Branch
U.S. Army Corps of Engineers
P.O. Box 3755
Seattle, WA 98124-3755

RE: U.S. Army Corps of Engineers (Corps) Reference #EN-ER-15-01
Ecology Comments on the Notice of Preparation/Clean Water Act Public Notice for the Desimone-Briscoe School Levee Rehabilitation Project, Tukwila, King County, Washington

Dear Ms. McClain:

Thank you for making available the *Notice of Preparation/Clean Water Act Public Notice* (NOP) for the Desimone-Briscoe School Levee Rehabilitation Project, dated February 6, 2015, to the Washington State Department of Ecology for our review and comment.

The NOP identifies the preferred alternative to be the Locally Preferred Plan, consisting of the Waterward Slope Layback with Retaining Wall Alternative with an extension of the embankment work 190 feet upstream of the repair and substitution of a sheetpile floodwall for the retaining wall. Ecology has concerns with the proposal, particularly within the context of the Corps-authorized Green River System Wide Improvement Framework (SWIF).

In addition to the February 6 NOP, the Corps provided Ecology with a revised narrative description of the project, dated February 23, 2015, through Section 401 Water Quality Certification and Coastal Zone Management Consistency review processes. We are therefore aware that a revised design is in the works. However, because the revised design will not be available until after the NOP comment period closes, and the Corps determined that Ecology's requested extension to the comment period is not warranted, our attached comments are based on the content of the February 6 NOP. Where it appears that any of our comments may be addressed through the revised project description, the sentence is marked with an asterisk.

As previously noted, King County is presently leading a Corps-authorized SWIF for the Lower Green River. A variety of levee alignments to achieve 500-year flood protection are being discussed in concert with the achievement of multi-benefit objectives, such as improved water quality, salmon habitat, and recreation opportunities. Consistent with the SWIF deliberations,

the proposed project should minimize how much it limits future alternatives for the affected reach of the river. This is a particular concern with respect to vegetation management. The Shade Tree Planting recommendations being discussed at the SWIF include "establishing a continuous, tall tree canopy along the 21 mile long Lower Green River shoreline, such that there is 'Maximum Potential Shade', as defined in the Green River Temperature TMDL report. . . .If establishing a continuous 150-foot wide zone of tall trees as part of the capital project is not feasible due to corridor width, facility inspection requirements, or building footprint, then the project sponsors will maximize shade within the levee design and achieve an equivalent or better shade benefit elsewhere along the 21-mile shoreline, in areas identified on the Solar Radiation Priorities map." The project should be designed to be as consistent with this approach as can be reasonably achieved.

Ecology is aware that the Briscoe-Desimone Segment I site is challenging, and that the site restrictions initially led to a City of Kent design that could not meet the City of Tukwila Shoreline Master Program (SMP) setback levee slope requirements. However, Kent worked cooperatively with Tukwila on a design which included levee benches and significant trees on top of the levee. Commensurate with this work, Kent obtained a shoreline variance to construct the design. The variance required Ecology review and approval, which was granted on September 11, 2014. From what we know of the current Corps proposal, the design varies from both the City of Kent design and that required under the City of Tukwila SMP. Of course, there is uncertainty around the Corps' proposal until the revised design is complete later this month.

In sum, Ecology felt the Kent proposal was consistent with the spirit of the SWIF in terms of both process and substance. However, from what we know of the Corps proposal, the NOP does not appear to achieve such consistency

The NOP notice mentions preparation of an Environmental Assessment under the National Environmental Policy Act, and we look forward to continuing to work with the Corps throughout this process to better understand what specifically is being proposed.

Based on a recent experience with a Corps project, Ecology would like to request that the Corps provide a detailed site map that illustrates all of the property owners and, specifically, if there are any tribal trust lands in the area.

We note that King County Flood District is the local sponsor for the project and look forward to working with them as they obtain all of the local and state permits required for this project.

Attached are more detailed comments by topical area. Please note that the comments are made by separate programs in Ecology, so please contact the appropriate staff if you have questions.

Thank you again for the opportunity to comment on the NOP. We look forward to understanding how this project can be made consistent with the SWIF, and what Ecology can do to help ensure we achieve that common objective.

Sincerely,

Josh Baldi
Northwest Regional Director

cc: Evan Lewis, U.S. Army Corps of Engineers
Larry Fisher, Washington Department of Fish and Wildlife
Carol Lumb, City of Tukwila
Mike Mactutis, City of Kent
Karen Walter, Muckleshoot Indian Tribe

e-cc: Bobbi Jo MClain, U.S. Army Corps of Engineers bobbi.j.mcclain@usace.army.mil
David Pater, Ecology
Dave Radabaugh, Ecology
Patrick McGraner, Ecology
Joan Nolan, Ecology
Rebekah Padgett, Ecology
Paul Anderson, Ecology
Erik Stockdale, Ecology
Loree' Randall, Ecology

Attachment A

Detailed Ecology Comments on the Desimone-Briscoe School Levee Rehabilitation Notice of Preparation/Clean Water Act Public Notice

SHORELANDS AND ENVIRONMENTAL ASSISTANCE PROGRAM

401/CZM: Rebekah Padgett, (425) 649-7129

401: Regarding Section 401 of the Clean Water Act, note that Ecology is currently reviewing the Corps' memorandum from Bobbi Jo McClain, Corps, to Paul Anderson, Ecology, RE: Desimone Briscoe School Levee Rehabilitation, Functional Analogy with Nationwide Permit 3, dated February 19, 2015 (hereafter referred to as 'Nationwide Analogy Memo'), in order to determine whether the Corps will need to obtain an individual Section 401 water quality certification (WQC) and Coastal Zone Management (CZM) Consistency Determination from Ecology for this project. The language in the NOP appears to indicate that Ecology already has certified Nationwide Permit #3; however, all projects must meet both the State 401 Certification conditions of the specific nationwide permit and the State 401 Certification General Conditions that apply to all of the Nationwide Permits, subject to Ecology review.

Ecology will need to review a detailed design to determine how water quality will be protected and the project will meet state water quality standards during construction. Examples of information required for this review are construction techniques and best management practices (BMPs). The NOP indicates that there will be substantial excavation of the toe and slope, including in-water excavation. However, the volume of material to be excavated is unclear, as is the composition of the material to be excavated (e.g., fine/silt, sand, gravel). And while the NOP indicates that the excavation work area will be isolated from the river through use of silt curtains, supersacks, or similar, there is insufficient detail. There is also no commitment within the NOP to conduct monitoring for turbidity during in-water work.*

At this time, Ecology does not have reasonable assurance that state water quality standards will be met, and further information will be needed in order to make this determination.

CZM: Consistency with Washington's Coastal Zone Management Program, per the Coastal Zone Management Act (CZMA), should be included in the discussion on page 9 regarding compliance with other laws and regulations. While the Corps prepared and submitted a CZMA Consistency Determination for the proposal (received February 25, 2015), it only includes an analysis under the Shoreline Management Act. The Consistency Determination should provide an analysis of all six of the enforceable policies of Washington's Coastal Zone Management Program, and this analysis will be needed for Ecology to complete its CZM review for this proposal. Based on the 65%

designs, it appears that the project may not be consistent with the City of Tukwila's Shoreline Master Program (see comments under Shoreline Master Program Consistency below), and the revised design will be needed to complete its review.

Please clarify if the 585 feet of floodwall installation described as part of the federal action in the Nationwide Analogy Memo is in fact already under construction as part of Phase 1 of the overall project in the LOP. If so, work should not have begun until CZM consistency is determined by Ecology.

For future reference, WQC/CZM applications and supporting documents should be submitted to Ecology's Headquarters Office: 401/CZM Federal Permit Coordinator, Shorelands and Environmental Assistance Program, WA Department of Ecology, PO Box 47600, Lacey, WA 98504.

Shoreline Master Program Consistency: David Pater, (425) 649-4253

A federal activity that occurs within the coastal zone is required to be consistent with locally adopted plans, in this case the City of Tukwila 2011 Shoreline Master Program. The Corps NOP levee design is not consistent with the City of Tukwila's adopted Shoreline Master Program (SMP) or its implementing regulations. The key aspects of inconsistency with the SMP and implementing regulations are as follows:

1. The levee profile does not match the Tukwila SMP profile which is an overall slope of 2.5:1, with a mid-slope bench of 15 feet. See SMP Sec. 7.5 B, Figure 2, Minimum Levee Profile.

2. The City SMP Sec. 7.5 also discusses the ecological value of incorporating vegetation into future levee designs. A 15-foot mid-slope bench planted with native trees and shrubs* and a large tree vegetation element on the top of the levee are key components for providing habitat benefits for the river. The bench in the Corps design is not 15 feet in width and the 65% drawings did not include a landscaping plan.*

3. The large amount of rock being placed in the river will have a detrimental effect on water temperature in a river that is already too warm during critical summer months. Projects within shoreline jurisdiction are required to show there will be no net loss of ecological function – while the current levee is armored, it does not contain the amount of exposed rock that is reflected in the Corps design. Ecology considers this ecological degradation.

4. Tukwila Shoreline Variance Permit: Another complication added to this project is that the City of Tukwila processed a shoreline variance permit in 2014 for a different levee design. The Department of Ecology was required to review and render a decision on this permit. Ecology approved the variance permit on September 11, 2014. The City of Kent was the project proponent and worked cooperatively with the City of Tukwila on the levee design. The approved design plans had a levee setback slope of 6:1 for the lower bench and 2:1 for the upper slope, with a much more robust vegetation component than the Corps NOP design.* This included levee benches and significant trees on the top of

the levee to mitigate replacement of the existing 24-inch-diameter mature trees. The City of Kent provided a detailed landscaping plan that was to be implemented to provide habitat replacement for 29 large trees (Hawthorns and London Planes) that are being removed in order to construct the flood wall. Attachment B compares the Corps NOP design slope and vegetation component with this original design. The amount, diversity and size of vegetation are significantly more robust in the original design, compared to the Corps NOP design.*

* The additional Corps revised narrative description does contain a greater vegetation component and added benches (lifts) for the vegetation, but it still is well below the amount of significant trees, species diversity, and overall number of trees and shrubs compared to the original City of Kent levee design. The lack of significant trees in the Corps levee proposal is of particular concern given the elevated summer temperature issues within the Green River. This is especially an issue with the top of the levee given that the Corps design does not replace the removed mature trees described above.

Ecology understands that the Briscoe-Desimone Segment I site is challenging, given the location adjacent to the West Valley highway and office parks. These site restrictions resulted initially in a City of Kent design that could not meet the Tukwila SMP setback levee slope requirements, thus the need for the shoreline variance permit.

Floodplain Management: David Radabaugh, (425) 649-4260

Has the Corps analyzed the project to ensure that there will be no rise in the Base Flood Elevation, demonstrating consistency with National Flood Insurance Program requirements? With work apparently proposed in the floodway, the project should document how it is achieving no-rise of the Base Flood Elevation.

The consultation with the resource agencies under Section 7 of the Endangered Species Act needs to be completed for the proposed project. This may influence the design options.

Riparian Planting: Patrick McGraner, (425) 649-4447

The NOP provided to Ecology in the Public Notice on February 6, 2015 describes two planting lifts on the riverward face of the levee at or near the ordinary high water. Page 4 describes three native species of shrubs which are all acceptable species to be spaced approximately 12 inches apart in each lift for a total of 1092 shrubs. These shrubs were selected in part due to their flexibility (ability to bend without breaking during flood events). Only two tree species are mentioned, Pacific willow and black cottonwood which are described as fast-growing, tall tree species. In my opinion, Pacific willow is a tall species of *willow* but as a tree species, is not a tall species. Both of these tree species are nevertheless good choices for this environment.

The overall planting density appears to meet the standards that are generally acceptable for these kinds of projects; however, there is a lack of species diversity in both the shrub and tree species compared to the 10 species of trees and the 15 species of shrubs proposed in the City of Kent project description. Notably missing are the coniferous tree species such as Douglas fir, Sitka

spruce, and western redcedar. This is likely due to the reluctance by the Corps to allow large trees to be planted on dikes and levees.

However, when reviewing the 65% site plans dated February 23, 2015 (Functional Analogy with NWP 3), it is notable that the black cottonwood has been pulled from the design as presented in the NOP, and shore pine was added in its place. Shore pine is a much shorter growing tree species than black cottonwood. One of the primary purposes of planting tall tree species was to provide shade to help reduce water temperatures for fish. This function partially exists now because the 30+ London plane trees that are to be removed currently provide some shade. The 65% design has thus removed the taller of the two tree species, leaving a tall willow species (but short tree) and shore pine which is considerably shorter than black cottonwood.

The 65% design indicates that the species proposed to be planted as the least cost alternative can all be planted as whips/cuttings which is less costly than planting containerized nursery stock; however, the work on the levee is scheduled to take place during the dry season when these species are typically fully leafed-out. The 65% design shows that the whips are to be placed in two rows as material is laid over the top. How does this work if the construction is being proposed in the dry season and the whips/cuttings are not available for purchase?

Even assuming that the whips/cuttings are available, how would they be expected to survive the remainder of the summer drought without being given the opportunity to root-out like a typical planting of whips/cuttings? Whips and cuttings are generally planted in moist soils in late fall or early spring from stems which have buds only – not in full leaf. It would seem that the current plan would lead to high mortality. How would the dead whips/cuttings be replaced after the construction was completed? It seems unlikely that there would be any reasonable/efficient way to water the whips during the summer that would be effective for whip/cuttings to take (sprout roots, leaf-out, grow) without potentially compromising the newly constructed levee. Late summer temperatures would likely kill many of these whip/cuttings.

Based on these assumptions, this reviewer does not support the least-cost alternative planting design as presented because of a high probability of failure and the lack of contingency plan for replanting, maintenance and monitoring. Per these plans, there is not reasonable assurance that water quality impacts (loss of shading from existing London plane trees) will be adequately replaced over time.

WATER QUALITY PROGRAM

Total Maximum Daily Load: Joan Nolan, (425) 649-4425

The *Green River Temperature Total Maximum Daily Load* (TMDL) report was written under the authority of the federal Clean Water Act (CWA) and approved by the Environmental Protection Agency in August 2011. This report determined that portions of the Green River, including the Desimone reach, exhibit unhealthy and sometimes lethal temperatures for salmonids and fail to consistently meet state water quality standards.

This reviewer finds that the Project **#EN-ER-15-01** design is not consistent with the TMDL Implementation Strategy. This TMDL strategy requires mature full riparian shade and determined it to be integral to achieve cooler water. The TMDL strategy calls for compliance with city, including the City of Tukwila, and county critical areas ordinances and shoreline master programs as essential. These promote the preservation and restoration of streamside vegetation as well as other practices vital to achieve water quality standards and support designated beneficial uses such endangered fish.

Attachment B

Comparison of the Kent project and the Corps project details.

Kent			
	Project Feature	**Specification**	**Notes**
	Length	1100 ft	
	Armoring	Only at the tie in back to the levee	
	Layback final slope (low)	6:1 bench just above OHW	Up to 15 ft in width, to get wet at flows of 2,500 cfs
	Layback final slope (upper)	2:1 upper slope	
	Green River Trail width	16 ft	
	Tree removal (See Figure 2)	32 from the plans	There is some difference here between Kent's plans and the number in Kent's permit documents. 32 is based on a review of the October design and ground-truthing.
	# of trees planted	137 from the plans	19 big leaf maple 10 cascara 19 doug fir 13 oregon ash 11 sitka spruce 13 red cedar 8 bitter cherry 9 crabapple 20 cottonwood 7.5 pacific willow 7.5 sitka willow (this species is considered a shrub in the Corps project)
	# of shrubs and ground cover	1763	566 red-osier dogwood 231 Pacific ninebark 27 vine maple 63 black twinberry 68 nootka rose 101 salmonberry 123 red-stem ceanothus 71 oceanspray 99 tall oregon grape 102 mock orange 170 red flowering currant 142 snowberry 470 swamp rose 40 thimbleberry
	Width of planting zone	approx 54 ft width	Horizontal width in the plans

Corps			
	Project Feature	**Specification**	**Notes**
	Length (See Figure 1)	775 ft*	585 ft (Least-cost) 190 ft (LPP)
	Armoring	Throughout	to the 100 yr level of protection elevation
	Layback final slope (low)	2:1	
	Layback final slope (upper)	1.5-2:1	With an upper slope bench
	Green River Trail width	16 ft	
	Tree removal (see Figure 2)	17	Federal (to be off-set within the least cost project length only)
		15	Non Federal
		TOTAL: 32	
	# of trees planted	78 (Least Cost)	39 pacific willow 39 cottonwood
		25 (LPP)	13 pacific willow 12 cottonwood
		TOTAL: 103	
	# of shrubs	1092 (Least Cost)	364 hooker's willow 364 red-osier dogwood 364 sitka willow (this species is considered a tree in Kent's project)
		355 (LPP)	118 hooker's willow 118 red-osier dogwood 119 sitka willow (this species is considered a tree in Kent's project)
		TOTAL: 1447	
	Width of planting zone	43 ft width	Horizontal width (10 feet - the proposed width of the planted trees/shrubs in the lifts 33 feet - proposed width of topsoil/hydroseed placement)

*Note: The Federal project is broken into several pieces. The full length of riverward work is 775 ft. This is made up of 585 ft of "Least-cost alternative" plus 190 ft of "Locally Preferred Plan (LPP)". The least-cost alternative is what the Federal action would be to repair the damage (slope layback and toe work, as well as a retaining wall). King County requested the toe and slope work be lengthened 190 ft upstream, in order to continue the armoring in front of the remainder of the upstream floodwall installation. See Figure 1 below for further explanation. The cost increase due to the additional length of the LPP would be borne solely by the local sponsor. The Federal action, and consideration of impacts, includes 775 ft of riverward work and 585 ft of floodwall installation. However, because King County will be fully funding the extra 190 ft of work, any trees planted in that area would not be used as mitigation for the Federal impacts. We expect to continue the same tree/shrub planting plan throughout the full 775-foot repair, partially as Federal mitigation and partially available for non-Federal mitigation (should they choose to use it).

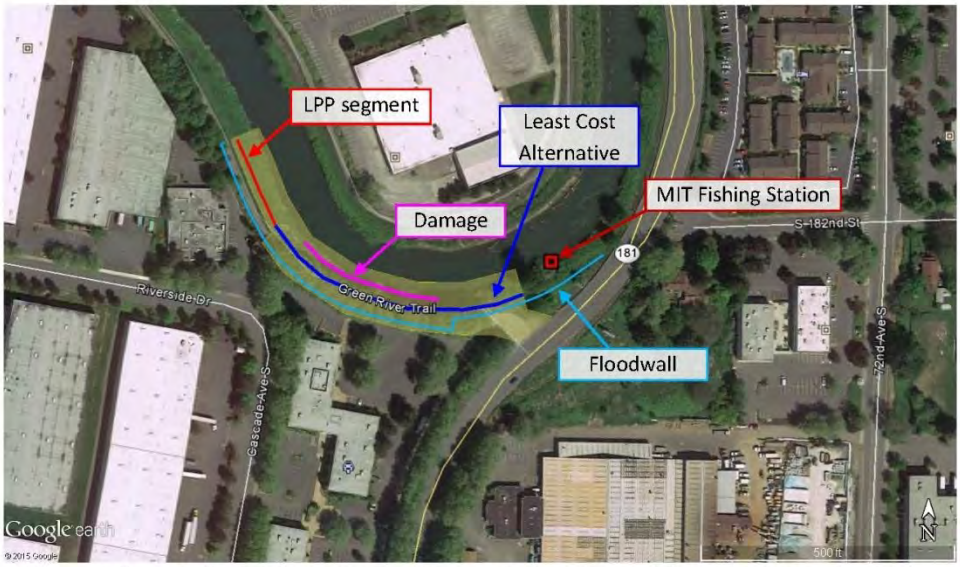


Figure 1. Project site details (approximate – see designs for specific, accurate location). The yellow shaded area indicates the Federal Action.

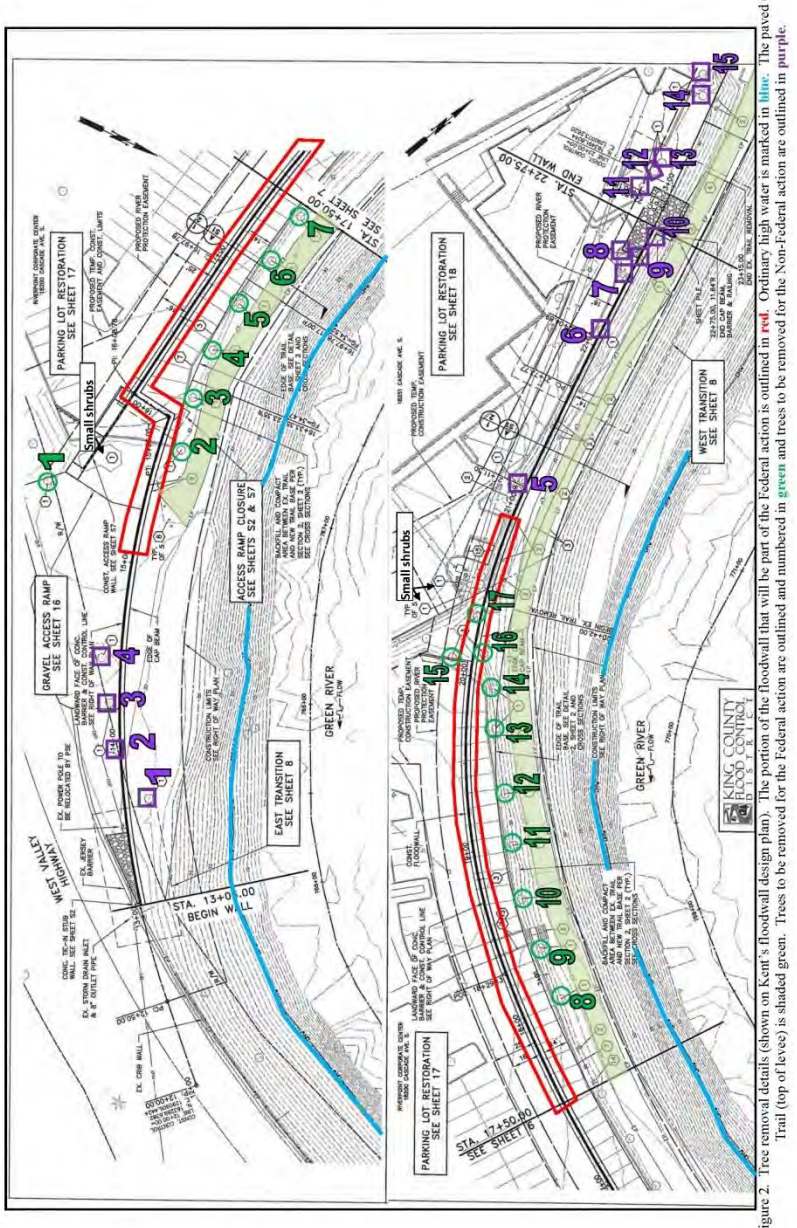


Figure 2. Tree removal details (shown on Kent's floodwall design plan). The portion of the floodwall that will be part of the Federal action is outlined in **red**. Ordinary high water is marked in **blue**. The paved Green River Trail (top of levee) is shaded green. Trees to be removed for the Federal action are outlined and numbered in **green** and trees to be removed for the Non-Federal action are outlined in **purple**.

Bobbi Jo McClain Ecology Comments on NOP: Attachment B March 9, 2015 | Page 12

Corps Response:

The Corps thanks the Washington Department of Ecology for their interest and comments on the proposed action. A total of 29 trees would be removed by Federal and non-Federal actions, landward of the levee. These losses would be replaced within the project site with a total of 200 trees on the riverward face. This would be a replacement ratio of nearly 7:1. The river bank currently does not have any woody species within the project footprint. The trees that would be removed exist behind the levee, at some distance from the water. Although they provide some shading, this function is limited by their distance from the river. The addition of woody vegetation and tall tree species on the riverward face of the levee would be expected to provide a long-term benefit to the site and improve shading in this reach. As is mentioned, the available corridor width is quite constrained in this urban environment given the proximity of the West Valley Highway and existing business parks. The proposed design would include a wall as a way to minimize the landward footprint while maximizing the riverward slope layback and the available width of riparian plantings. Additionally, the design would narrow the levee crown to maximize the width of the planting bench within this constrained project area. The proposed design would be consistent to the extent practicable with the enforceable policies of the Tukwila Shoreline Master Program. Although the Green River SWIF is under development and has not been finalized or approved by the Corps, this action coupled with its mitigation elements would be consistent to the extent possible with the spirit of that SWIF process within the restrictions of the Corps' national guidelines on levee safety.

Water quality monitoring would occur throughout the in-water construction effort to ensure that state water quality standards are met. In order to protect water quality, and minimize fisheries impacts, the work area would be isolated from the river during the in-water work. Corps' contracting procedures do not dictate the method of isolation, only the performance criteria that must be achieved such as work zone isolation and downstream water quality requirements. Past projects on the Green River have used silt curtains, supersacks, and similar methods.

The local sponsor and the City of Kent began work on the floodwall installation in February. In the interval while construction of Phase 1 is proceeding, no Federal construction project is underway. Thus, the City obtained all permits needed to support Phase 1 construction, which included installing the floodwall. As Phase 1 constitutes an emergency repair to a flood control structure, Phase 1 construction began as early as possible to reduce the risk of flood damages within the flood season. Following completion of Phase 1, and if the balance of the action evaluated in this EA is executed, the Corps would assess whether to integrate that completed non-Federal work into the Federal action. As a result, this EA and the Consistency Determination evaluate the entire scope of both Phases 1 and 2. King County and Kent thus began this construction at some risk that the Federal project may not come to fruition. As such, if the Federal project were terminated, King County and Kent would continue to construct the pre-planned design or would modify the design and seek permits for their modification to address the increased scour at the project site. The Corps' analysis of the Federal projects' consistency with the Clean Water Act and Coastal Zone Management Act through analogy to Nationwide Permit 3 was submitted to the Washington Department of Ecology on 19 February 2015. Additional information, including the 95% designs, a description of the changes, details on the water quality monitoring plan, and the Corps' input on the six enforceable policies in an email dated 17 March 2015.

Comparisons of the design of this Federal project with the prior design of a King County and City of Kent floodwall project in the same location are misplaced, as those prior non-Federal plans did not involve a Corps design, the application of Corps standards, or planned execution by the Corps, and because that non-Federal design pre-dated the significant damage of the March 2014 flood event and King County's subsequent request for Federal assistance under Public Law 84-99.

Although the volume of rock at the project site would increase with the proposed action, this is not expected to impact water temperatures. Prior to the flood event, the site was armored with exposed rock below ordinary high water. The placement of topsoil and seeding on the bank armor above ordinary high water would be expected to restore the herbaceous covering quickly. Therefore, the amount of exposed rock would be unchanged from the existing condition. The bank currently does not have any woody species within the project footprint. The addition of woody vegetation and tall tree species on the riverward face of the levee would be expected to provide a long-term benefit to the site and improve shading. The Corps' action, coupled with the mitigation measures described in this EA, is consistent with the Corps' obligations arising from Sections 404 and 401 of the CWA, the CZMA, and the ESA with respect to water temperature effects.

Endangered Species Act consultation has been completed. Letters of concurrence have been received from NMFS (dated 2 March 2015) and from USFWS (dated 20 March 2015; see Appendix D).

The Corps' hydraulic engineers assisted in the project design. The design would include a large slope layback which would increase channel capacity. However, the design also would include plantings which would increase the roughness in the area. Overall, the models showed that these two factors would chiefly offset one another from a hydraulics perspective. There would be no resulting change in the 100-year water surface elevation with the proposed action.

The planting plan has been further developed since the NOP. A total of 8 species of trees and three species of shrubs have been included. The plant palette was chosen to include a variety of species that would increase spatial structure, habitat value, and shading potential while limiting the risk to the levee and utilizing the maximum width of plantable space. In addition, many stakeholders requested consistency with Kent's initial designs for this location. Kent's plant palette was therefore taken into consideration. Corps guidance was also followed when designing the plantings, which included consideration of pullout pit sizes and proximity to the minimum levee prism in order to minimize risk to the structure. The larger tree species have larger pullout pits, and as such can only be placed in the widest locations on the planting bench. To maximize the planted area and increase spatial and species diversity, a variety of species would be incorporated. Several larger trees, including Douglas-fir and bigleaf maple have been included in the design to maximize the shade benefit where possible. Smaller trees were also used to enable planting closer to the levee prism and in areas with a narrow bench. Black cottonwood was removed during Corps' headquarters review of the design due to concerns regarding the rooting structure of the species. Live cuttings have been available for purchase and have been used successfully during similar past Corps repairs constructed during summer fish windows.

Plantings will be completed under a contract to the Corps. The contract will include a warranty period (12 months) throughout which plant survival will be the responsibility of the contractor. The contract will also include installation of a drip irrigation system to help ensure plant success.

APPENDIX F: Clean Zone Management Act Consistency Determination

COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

Coastal Zone Management Act Consistency Determination
Desimone-Briscoe School Levee Rehabilitation Project within the City of Tukwila, 2011

The rehabilitation actions are activities undertaken by a Federal agency; the following constitutes a federal consistency determination with the enforceable provisions of the Washington Coastal Zone Management Program.

1 INTRODUCTION

The proposed Federal action applicable to this consistency determination is the rehabilitation activities on the Desimone-Briscoe School Levee along the Green River. This determination of consistency with the Washington Coastal Zone Management Act is based on review of applicable sections of the State of Washington Shoreline Management Program and policies and standards of the City of Tukwila, Washington Shoreline Master Plan.

2 STATE OF WASHINGTON SHORELINE MANAGEMENT PROGRAM

The Coastal Zone Management Act of 1972, as amended, requires Federal agencies to carry out their activities in a manner which is consistent to the maximum extent practicable with the enforceable policies of the approved state Coastal Zone Management (CZM) Programs. The Shoreline Management Act of 1972 (SMA; RCW 90.58) is the core of Washington's CZM Program. Primary responsibility for the implementation of the SMA is assigned to local government. The City of Tukwila, in which the proposed levee rehabilitation project is located, fulfilled this requirement with the Shoreline Master Program (SMP) for the City of Tukwila, which was revised on March 24, 2011.

The proposed repair is located along the Green River which is designated in the City of Tukwila's Shoreline Management Program as an Urban Conservancy Environment. The purpose of the Urban Conservancy Environment is to protect ecological functions where they exist in urban and developed settings, and restore ecological functions where they have been previously degraded, while allowing a variety of compatible uses.

3 CITY OF TUKWILA SHORELINE MASTER PROGRAM

Applicable goals and policies of the Tukwila SMP are presented below with the Corps consistency indicated in *bold italics.*

Plan Goal 5.1, Shoreline Environment Designations, Comprehensive: Shoreline Environment designations that meet Washington State Shoreline Management Act requirements, and reflect local conditions and Tukwila's long-term vision for its shoreline. The shoreline jurisdiction generally extends for 200 feet on either side of the Ordinary High Water mark, consistent with the Washington State Shoreline Management Act. In order to implement this goal, the SMP proposes three Environment Designations: Shoreline Residential, Urban Conservancy, and High

Intensity (as detailed in the Shoreline Environment Section) that comply with the Washington State Shoreline Management Act and function well for the City.

Policy 5.1.2: In the Urban Conservancy Environment priority shall be given to the following:

- Development that promotes vegetation conservation and enhancement, sensitive areas protection, and preservation of water quality to assure no net loss of shoreline ecological functions.
- Water enjoyment uses;
- Uses that remove shoreline armoring, unless required for a shoreline dependent use, and uses that prevent and/or minimize flood damage;
- Uses that preserve or restore shoreline ecological functions provided by vegetation, open space, flood plain or sensitive area lands;
- Uses that minimize interference with navigation and flood control, consider impacts to public views, and allow for the safe, unobstructed passage of fish and wildlife, particularly those species dependent on migration;
- Uses that provide public access and public recreation whenever feasible and when ecological impacts can be mitigated;
- Development that is compatible with the natural and biological limitations of the land and water that do not require extensive alteration of the shoreline or new shoreline stabilization, except for restoration projects.
- Enhancement and restoration of ecological functions; and
- Redevelopment of underutilized areas and development of commercial and industrial activities where shoreline impacts are minimized and where there is no net loss of shoreline functions.

Consistent. The proposed levee repair will restore the designed level of flood protection. Additionally the public access currently at the site, namely the Green River Trail will be maintained.

Goal 5.2, Shoreline Planning and Management: Expanded value of the river as a community and regional resource through regional coordination of shoreline management programs and through programs that foster river appreciation and awareness, involving partnerships among businesses, schools, government and community organizations.

Policy 5.2.1: Coordinate shoreline planning and management activities with other local jurisdictions and their plans such as the WRIA 9 Salmon Habitat Plan and the King County Flood Hazard Management Plan to establish region-wide consistency in addressing river issues with regional implications, such as economic development, public access, wildlife habitat, water quality control and flood control.

Consistent. The proposed levee repair is being coordinated with the City of Tukwila, the City of Kent, King County, interested Tribes, and state and federal resource agencies.

Goal 5.3, Land Development Use and Economic Vitality: Development along the shoreline that fosters the economic vitality of Tukwila while preserving the long-term benefits of the river.

Policy 5.3.3: When no other feasible alternative exists, allow structures for water dependent uses to be placed in the water, or structural reinforcement of the riverbank, only when this provides a significant, long-term public benefit, does not interfere with navigation or flood management, does not cause a loss of shoreline function or is essential to a water-dependent use.

Consistent. The proposed levee repair will restore the designed level of flood protection. The levee is currently damaged and provides a much reduced level of protection. The levee repair provides a long-term public safety benefit.

Policy 5.3.4: Prohibit the construction of new flood control facilities unless constructed to incorporate habitat restoration features and work to remove existing shoreline armoring – where possible– to restore habitat functions.

Consistent. The proposed levee repair will restore the designed level of flood protection of an existing flood control facility.

Goal 5.4, Private Property Rights: Protect rights of property owners to reasonable use and enjoyment of private property, through appropriate location, access to, and design of shoreline uses.

Policy 5.4.1: Design, locate and manage shoreline uses in a manner which maintains reasonable use and enjoyment of private property.

Policy 5.4.5: Obtain additional easement area to permit the improvement of flood control and river habitat by setting back levees or removing revetments and other hard shoreline armoring and replacing with more habitat-friendly flood control levees or other shoreline treatment

Consistent. The placement of the floodwall and layback of the riverward slope will move the footprint of the levee landward. Laying back the slope opens up channel capacity and allows for incorporation of plantings into the design. The levee will encroach into private property, specifically a parking area for the adjacent business. A number of parking spaces will be lost. Redesigning the parking area will be completed to include as many stalls as possible. Project proponents (King County and the City of Kent) have worked with the property owner to agree on the alignment of the wall and have agreed to compensate the business for any lost parking spaces.

Goal 5.6, Access and Recreational Use: Increase the amount and diversity of opportunities for public recreation and access to and along the river, including visual and cultural access, access to the water's edge, opportunities for small boat navigation and access, and connections to other neighborhoods, consistent with the shoreline character.

Policy 5.6.1: Retain and improve areas identified as important in the network of public access to the river, including cross-town connections, former railroad right-of-ways and unimproved

street-end right-of-ways, historic sites, unique natural features or other areas valuable for their interpretive potential.

Policy 5.6.2: Maintain existing parks along the shoreline and acquire additional park land to increase access and recreation opportunities.

Policy 5.6.6: Support the implementation of the King County Green River Trail, per the existing King County Green River Trail Master Plan as well as pedestrian/bicycle connections with the Trail from properties on the opposite bank and the expansion of this trail where appropriate.

Consistent. King County and the City of Kent worked with Tukwila to receive a variance for this portion of the Green River Trail. The variance allows a 16 ft width of the trail. This includes the 2 foot concrete pad along the floodwall as the landward shoulder, a 12 foot wide asphalt trail and a 2 foot gravel riverward shoulder. The proposed action is aligned with this variance. In addition, the King County Regional Trail Inventory and Implementation Guidelines also call for this configuration for the Green River Trail (12 feet wide with 2-foot shoulders).

Goal 5.8, Historical Resource Use and Archaeological Protection: Recognition of the river's contribution to Tukwila history and community identity through identification, enhancement, restoration, and protection of sites with historic and cultural value and through development of interpretive and educational programs.

Policy 5.8.3: Ensure that archaeological artifacts and sites are protected when development takes place in the shoreline jurisdiction.

Consistent. The Corps is currently taking actions to identify historic properties that may be affected by the proposed action as required by Section 106 of the National Historic Preservation Act. The Corps is consulting with the Washington State Historic Preservation Officer, Indian tribes, and other consulting parties about the project and will complete identification and evaluation for historic properties as well as make agency findings of effect for Section 106 prior to approval of the proposed action. As of this time, the Corps has not identified any historic properties within the area of potential effect and does not anticipate that the proposed project would affect historic properties.

Goal 5.9, Natural Environment and Habitat Use: Restored, enhanced, and protected natural environment resources along the river, including trees, wildlife habitat and features with value for long-term public, scientific and educational uses.

Policy 5.9.1: Ensure that shoreline development results in no net loss of shoreline ecological function, minimizes impacts on wildlife and that significant vegetation, sandbars, wetlands, watercourses, and other critical areas identified as important for habitat are maintained through the proper location, design, construction, and management of all shoreline uses and activities.

Policy 5.9.2: Ensure that shoreline development and activities protect riverbank vegetation and, where feasible, restore degraded riverbanks in accordance with the vegetation management provisions of the Shoreline Master Program, in order to minimize and compensate for impacts to fish and wildlife habitat.

Policy 5.9.3: Mitigate unavoidable disturbances of significant vegetation or habitat through replacement of habitat and provision of interpretive features consistent with the shoreline access guidelines.

Consistent. The proposed action area is devoid of riparian trees, with the riverward bank being dominated by herbaceous vegetation. The construction of the Federal action will require the removal of 17 trees on the landward side of the levee, including several 24-inch diameter London planetrees (Platanus hispanica) as well as removal of the herbaceous vegetation from the riverward slope. Two planting lifts will be installed into the riverward face of the levee at or near ordinary high water. Hooker's willows (Salix hookeriana), Sitka willows (S. sitchensis), and red-osier dogwood (Cornus sericea) would be planted in each lift (for a total of 1092 plants). These species stay relatively small and bushy, with flexible stems. A total of 78 trees, Pacific willows (S. lasiandra), would also be placed within the lifts. In addition, 58 trees will be planted along the upper slope bench. These will include bigleaf maple (Acer macrophyllum), cascara (Rhamnus purshiana), bitter cherry (Prunus emarginata), and shore pine (Pinus contorta). Co-located with the proposed federal action, several non-Federal actions will occur. These actions will have impacts and mitigation measures that are not a part of the Federal action as they are not Federally funded. However, they will occur in the same area and are interrelated actions. The length of floodwall installed beyond the Federal action will require further tree removal (15 trees). Also, the plantings that will occur within the upstream end of the riverward repair (190 feet) will be fully funded by King County. This will include 19 trees on the bench, and 25 trees and 355 shrubs in the lift. Together, the Federal and non-Federal actions remove a total of 32 trees and replant 1447 shrubs and 180 trees (a 5.6:1 replacement ratio for trees in the reach). Established riparian vegetation, with time and maturity, is expected to ameliorate high river temperatures by providing shade to the channel and covering the riprap slopes. The plantings would also be expected to provide organic input through leaf litter and insect drop, slow river current along the levee toe, provide refuge for juvenile fish during high flows, and provide additional wildlife habitat. The lower slope layback would also open channel capacity in this reach to slow velocities, particularly during higher flows.

Goal 5.10, Water Quality, Surface Water and Flood Control Use: Improved water quality and quantity control programs affecting the Green/Duwamish River that improve the river's water quality, provide habitat for fish and wildlife, protect public health and safety, and enhance public enjoyment of the river.

Policy 5.10.1: Design, locate, and manage shoreline development including streets, flood control projects, surface water drainage and sewer systems, clearing and grading activities, and landscaping in a manner which minimizes opportunities for pollutants to enter the river, provides erosion control and otherwise protects water quality.

Policy 5.10.2: Design, manage, and mitigate flood control uses to minimize impacts to other shoreline uses such as trees and riverbank vegetation, public access and recreation, and fish habitat; and set them back from the river, where feasible for the project, with land areas between the water and the levee set aside as open space for public recreation or wildlife habitat.

Policy 5.10.3: Consistent with project feasibility, mitigate unavoidable negative impacts on other shoreline uses owing to flood control uses through such measures as restoration of trees and native riverbank vegetation, provision of public access to the water's edge, interpretive features, or other mitigation of loss of opportunities for shoreline multiple uses.

Policy 5.10.4: Obtain additional easements, where needed, from property owners to set back levees to improve flood control and shoreline habitat functions. Where possible, as redevelopment occurs, replace bulkheads, revetments or other hard bank stabilization with more natural levees, riverbanks or other shoreline treatments, to improve flood control, ecological functions and habitat.

Policy 5.11.1: Design, locate, and manage shoreline uses, such as capital improvement projects and private development, in a manner that does not endanger public health, safety and welfare, and enhances the capacity of the river to provide long-term flood protection, habitat and other benefits and resources to the community and the environment.

Consistent. As discussed above, the project will improve the riparian condition within the reach by planting trees on the riverward bank as replacement for trees removed landward of the levee. The Green River Trail, which is on the levee crown, will be temporarily impacted during construction, but will be replaced. The trail will be wider than the current condition and public access will remain unchanged. Additionally, the riverward slope would be laid back to a slope of 2H:1V from the toe to elevation 26 ft and have a varying upper slope of no steeper than 1.5H:1V. The slope lay back enlarges the channel cross-sectional area to the extent possible in this urban setting. The bank will continue to be armored to provide adequate flood protection as required due to the velocities seen in this severe bend of the river.

Additional SMP details: Minimum Levee Profile: These standards at a minimum shall include an overall slope of 2.5:1 from the toe of the levee to the riverward edge of the crown, a 15 foot mid slope bench, 18' access across the top of the levee, a 2:1 back slope, and an additional 10 foot no-build area measured from the landward toe for inspection and repairs. In instances where an existing building that has not lost its nonconforming status prevents the complete construction of the minimum levee profile, achieving an overall slope of 2.5:1 may be difficult – however, the slope should be as close to 2.5:1 as possible.

A floodwall is not the preferred back slope profile for a levee and may be substituted for all or a portion of the back slope only where necessary to avoid encroachment or damage to a structure legally constructed prior to the date of adoption of this Master Program and which has not lost its nonconforming status and to preserve access needed for building functionality. The floodwall shall be designed to be the minimum necessary to provide 10' (ten foot) clearance between the levee and the building or the minimum necessary to preserve access needed for building

functionality while meeting all engineering safety standards. A floodwall may also be used where necessary to avoid encroachment on a railroad easement.

Consistent. The preferred profile drawn in the SMP shows 2:1 slopes, with the 15 foot mid-slope bench, which when measured from the toe to crown shows an overall slope of 2.5:1. An existing building and highway behind the levee limits the real estate available for the project. The real estate constraints thereby limit the ability to achieve the preferred slope, as well as the preferred crown and bench widths. The proposed slope lay back gets as close as possible to the preferred 2.5:1 slope within this confined urban setting. Additionally, the confined space has required consideration of the tradeoff between the bench width and the crown width. As discussed previously, King County and the City of Kent worked with Tukwila to receive a variance for this portion of the Green River Trail. The variance allows a 16 ft width for the trail. This includes the 2-foot concrete pad along the floodwall as the landward shoulder, a 12-foot wide asphalt trail and a 2-foot gravel riverward shoulder. The proposed action is aligned with this variance. In addition, the King County Regional Trail Inventory and Implementation Guidelines also call for this configuration for the Green River Trail (12 feet wide with 2-foot shoulders). By limiting the width of the trail (and thereby the levee crown) the width of the bench can be maximized. The wider bench allows for increased planting of a wider riparian buffer. Similarly, incorporation of the floodwall as a portion of the levee backslope, while not preferred, does maximize the project's ability to layback the riverward slope in order to achieve alternate goals.

The project achieves the greatest slope layback possible within the confined space at the project location and is thereby consistent with the intent of the SMP.

4 ENFORCEABLE POLICIES OF THE COASTAL ZONE MANAGEMENT PROGRAM:

The project complies with the following enforceable policies of the Coastal Zone Management Program:

1. Shoreline Management Act: The consistency determination submitted to Washington Department of Ecology outlines the Corps' analysis of compliance with the SMA.
2. State Water Quality Requirements: The NWP memo submitted to Washington Department of Ecology outlines the Corps' analysis of compliance with state water quality requirements.
3. State Air Quality Requirements: This project does not require air quality permits.
4. State Environmental Policy Act: Corps Civil Works projects comply with NEPA and are not subject to SEPA.

The remaining two policies, the Energy Facility Site Evaluation Council law and the Ocean Resources Management Act are not applicable to this project.

5 STATEMENT OF CONSISTENCY

Based on the above evaluation, the Corps has determined that the proposed rehabilitation activities comply with the goals and policies specified in the City of Tukwila Shoreline Master Program as revised in 2011. The proposed action is thus considered to be consistent to the maximum extent practicable with the State of Washington Shoreline Management Program and policies and standards of the City of Tukwila Shoreline Master Program.