



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

REPLY TO ATTENTION OF

CENWS-OD-EM

MEMORANDUM FOR Commander, Northwestern Division U.S. Army Corps of Engineers
 ATTN: CENWD-CM-OE

SUBJECT: Desimone-Briscoe School Levee Rehabilitation – City of Tukwila, King County, Washington, GRN-01-14 – Request for project approval

1. Request project review / approval of the project enclosed herein.

DISTRICT REMARKS

PROJECT APPROVAL / FUNDING SUMMARY SHEET

| | |
|------------------|--------------------------|
| Project Number | GRN-01-14 |
| Category Code | 910-320 |
| Type Report | Rehabilitation |
| Event Name | March 2014 Storms |
| Event Date Start | March 2014 |
| State | Washington |
| County | King |
| CWIS Number | -145634 -CWIS is #030768 |
| B/C Ratio | 580 : 1 |

| Least Cost Alternative (LCA) | |
|--|----------------------|
| Construction Subtotal | \$ 6,609,000 |
| S&A (6%) | \$ 396,000 |
| Contingency (10%) | \$ 701,000 |
| Total Construction Cost | \$ 7,706,000 |
| Engineering & Design (6% Federal) | \$ 463,000 |
| LCA Total Project Costs | \$ 8,169,000 |
| LCA Federal Project Costs (80% Construction Cost + E&D) | \$ 6,628,000 |
| LCA Sponsor Project Costs (20% Construction Cost) | \$ 1,541,000 |
| Locally Preferred Alternative (LPA) | |
| Construction Cost | \$ 1,536,000 |
| S&A (6%) | \$ 92,000 |
| Contingency (10%) | \$ 163,000 |
| Engineering & Design (6%) | \$ 108,000 |
| Additional Cost of LPA (100% Sponsor) | \$ 1,899,000 |
| Total Project Costs | \$ 10,068,000 |
| Federal Project Cost with LPP (No Change from LCA) | \$ 6,628,000 |
| Sponsor Project Cost (20% LCA Construction Cost + 100% LPA Cost) | \$ 3,440,000 |
| B/C Ratio | 580 : 1 |

CENWS-OD-EM SUBJECT: Request for project approval of the Desimone-Briscoe School Levee rehabilitation in King County, Washington, GRN-01-14.

2. This memorandum summarizes information found in the enclosed Project Information Report. For additional information, please contact CPT Rex Broderick at (206) 316-3133.

FOR THE COMMANDER


Francis E. Coffey
Chief, Operations Division
for

PROJECT INFORMATION REPORT
REHABILITATION OF FLOOD CONTROL WORKS
DESIMONE-BRISCOE SCHOOL LEVEE,
CITY OF TUKWILA, KING COUNTY, WASHINGTON
GRN-01-14

PART 1. PROJECT EXECUTIVE SUMMARY

PROJECT NAME: Desimone- Briscoe School Non-Federal Levee

PROJECT FUNDING CLASS: 320

PROJECT CWIS NUMBER: ~~145634~~ CWIS # 030768

NON-FEDERAL SPONSOR: King County

LOCATION AND DESCRIPTION: The Desimone-Briscoe School Levee is located in King County, Washington and is approximately 11,600 feet long from river mile (RM) 14.5 to 17.0. The damaged project section is located near river mile 14.5, Section 2, Township 22N Range 4 E Willamette Meridian, King County, Washington. The levee is one segment of a six segment levee system.

The Levee is a non-federal flood control project and the project is active in the Public Law 84-99 Rehabilitation and Inspection Program.

DESCRIPTION OF DAMAGE: Damage was reported following a recent 2 yr event on 3/10/2014 of 9,090 cfs at USGS gage 12113000, Green River near Auburn. This event is estimated to be a 2-yr return period, or about a 0.5 chance of exceedance for a given year.

The length of the flood damage is 780 linear feet. The damage consists of scour at the toe of the structure, which has led to lost armoring at the toe of the structure, lost embankment material and over steepened unstable banks. Significant soil is exposed along the steepened bank and the levee is estimated to provide a 1 yr level of protection in the damaged condition.

PROPOSED REPAIR: The recommended alternative is the Locally Preferred Alternative. The Locally Preferred Alternative is not the least cost alternative. Per ER 500-1-1, the local sponsor is responsible for all costs in excess of the least cost alternative. The Locally preferred alternative consists of laying back slopes and armoring riverward slopes for approximately 1075 feet. The levee will be graded back to 2H: 1V slopes and a 3 foot blanket with a launchable toe of class IV riprap placed for armor rock with plantings and hydroseed. In pulling back the slopes the levee will be moved landward and due to site constraints 780 feet of floodwall will be built at the landward shoulder of the levee. The project length allows for adequate transitions back to the existing section at the tie-in points. The proposed repair will restore the pre-flood 250 yr level of protection. The remainder of the levee and toe is assumed to be intact and

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provide a 250 yr level of protection which is consistent with overtopping. See Appendix B for site plan and typical cross section for the proposed repair.

SUMMARIZED FINANCIAL AND ECONOMIC DATA (RECOMMENDED PLAN)

| Least Cost Alternative (LCA) | |
|--|----------------------|
| Construction Cost | \$ 6,609,000 |
| S&A (6%) | \$ 396,000 |
| Contingency (10%) | \$ 701,000 |
| Total Construction Cost | \$ 7,706,000 |
| Engineering & Design (6% Federal) | \$ 463,000 |
| LCA Total Project Costs | \$ 8,169,000 |
| LCA Federal Project Costs (80% Construction Cost + E&D) | \$ 6,628,000 |
| LCA Sponsor Project Costs (20% Construction Cost) | \$ 1,541,000 |
| Locally Preferred Alternative (LPA) | |
| Construction Cost | \$ 1,536,000 |
| S&A (6%) | \$ 92,000 |
| Contingency (10%) | \$ 163,000 |
| Engineering & Design (6%) | \$ 108,000 |
| Additional Cost of LPA (100% Sponsor) | \$ 1,899,000 |
| Total Project Costs | \$ 10,068,000 |
| Federal Project Cost with LPP (No Change from LCA) | \$ 6,628,000 |
| Sponsor Project Cost (20% LCA Construction Cost + 100% LPA Cost) | \$ 3,440,000 |
| Project Estimated Annual Benefits | \$ 124,518,000 |
| B/C Ratio | 289 : 1 |

POINT OF CONTACT: Doug Weber, CENWS-OD-EM, (206) 764-3406

PART 2. PROJECT REPORT

1. Project Identification.

- a. Project Name: Desimone- Briscoe School Non-Federal Levee
- b. Project Funding Class: 320
- c. Project CWIS Number: 145634

2. Project Authority.

- a. Classification: Non-Federal flood control levee designed to provide protection from periodic, recurring floods
- b. Authority: Unknown
- c. Estimated original cost of project: Unknown
- d. Construction completion date of the original project: 1940's
- e. Additional information regarding major modification/improvements/betterments: Repairs performed to levees in July of 2007 and 1976.

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3. Sponsor.

a. Sponsor Identification: King County

POC for Sponsor: Tom Bean

Phone: (206) 477-4638 (W)

(206) 979-8270 (C)

b. Application for Assistance:

(1) Date of Issuance of District's public Notice: March 17, 2014

(2) Date of NFS's written request: April 16, 2014

4. Project Location

a. Town: City of Tukwila

County: King

State: Washington

Basin: Green

Flood Source: Green River

Narrative: This urban non-federal flood control project is located on the Green River in King County, Washington. The damaged project section is located on the right bank of the Green River near river mile 14.5. See Appendix C for photographs of damage, location and vicinity maps, and typical cross sections for the proposed repair.

5. Project Design: This urban flood control project is located on the Green River in the City of Tukwila, King County, Washington. The system consists of an earthen material levee with armor rock on the riverward side.

6. Disaster Incident: Damage was reported following a recent 2 yr event on 3/10/2014 of 9,090 cfs at USGS gage 12113000, Green River near Auburn. This event is estimated to be a 2-yr return period, or about a 0.5 chance of exceedance for a given year.

7. Project Damages: The high river flows caused scour and loss of embankment material and toe rock. The levee slope is over-steepened and unstable, and the loss of scour protection has compromised the pre-flood level of protection offered by the levee. Protective armoring is missing exposing the levee fill material to flows expected to recur on a bi-annual basis. A flood could scour the damaged section of the levee to the point where it would breach. It is conservative to assume that the only level of protection offered from the levee is by the natural ground behind it. Therefore, the estimated level of protection provided by the Desimone-Briscoe School levee in its current condition offers a 2-year level of protection. This levee requires an emergency repair to ensure that it will remain safe and stable for future high water events.

8. Project Performance: This location has experienced erosion in past flood events resulting in requests for assistance from the local sponsor. However, the scour noted after the flood in January 2011 was determined by the District to be outside of the levee prism

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and not impacting the functionality of the project. The last inspection prior to the flood (April 2013) did not rate erosion/bank caving or slope stability due to poor visibility caused by excessive vegetation. Overall the levee was found to be in an unacceptable condition. However, the levee segment remains eligible in the PL84-99 program due to King County's participation in the Corps' system wide improvement framework (SWIF) program. Although the current guidance would give the County two years to accomplish repairs, this levee will remain eligible for Federal assistance as long as the County continues progress in this program. Vegetation was the deficiency noted, and is the reason it is in the SWIF. The levee is maintained by the local sponsor who performs pre and post-flood inspections.

9. Project Repair Alternatives Considered:

Multiple alternatives were considered including: No-Action Alternative; Repair in Place Alternative, Non-Structural Alternative Repair to Pre-Flood Level of Protection with Floodwall Alternative; and the Locally Preferred Alternative. All proposed structural repairs will restore the pre-flood 250 yr level of protection. The remainder of the levee and toe is intact and provides a 250 yr level of protection which is consistent with overtopping.

a. No Action Alternative:

The No-Action alternative was evaluated and the no action alternative was rejected due to the reduced level of protection and the increased likelihood of failure for the levee in its current condition. The results of a failure would include damages within the levee systems protected area.

b. Non-Structural Alternative:

This alternative would relocate all existing structures, utilities and other infrastructure within the damage area protected by the levee. This was not a viable alternative for our sponsor. The costs associated with this alternative were deemed too high for the level of benefit associated with this alternative and many of the businesses in this area are already long established.

c. Repair to Pre-flood level of protection:

This alternative would reconstruct the levee prism and toe and establish a safe stable (2H:1V) armored slope and launchable toe. In this location, there is no room for an adequate toe, and without room for the toe, the reach will scour again. This levee is on the outside bend of the river. There is no room at this location to set the levee back; there is a state highway at the downstream end and to reconstruct the levee would require encroachment into the highway and highway right-of-way, it was determined that this alternative is not feasible. If somehow a toe could be constructed and the levee put on top of the launchable toe, to achieve a 2H:1V slope and restore the 12 ft crown, would still require moving the state highway, buildings and utilities as well as a parking lot. This would be time consuming and very expensive, and will not meet the program requirements to repair prior to next flood season. To repair in place would require a toe rock volume of 322 ft³/ft. without wood. Mitigation is required at this location, and large

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woody debris (LWD) would be placed at the toe, and would require 374 ft³/ft. of rock. This creates channel capacity issues. But, the launchable toe would create a mid slope planting bench to accommodate additional mitigation. The levee slope would need to be set back to create room for this toe, and the slopes would be constructed to 2H: 1V levee with a 3-ft blanket of class IV up to the 1% chance exceedence elevation. Top soil would cover the mid-slope bench riprap and riprap to the crown, plants and bark would go on the bench, and the levee slope would be hydroseeded. There is a possibility of off-site mitigation as well and this becomes quite expensive. The Project Delivery Team determined that this alternative was not feasible. Therefore further analysis of this alternative was not pursued.

d. Repair to Pre-Flood Level of Protection with Floodwall Alternative:

The repair includes approximately a 780' rebuild of the existing levee toe and slope, and installation of a floodwall on the landward shoulder of the crown. Riverward side slope work would include a layback of the slope to 2H:1V, a 16 foot crown, rock armor with a launchable toe, and a midslope bench. The repair will retain the pre-flood level of protection while reducing the potential levee footprint and restore armor to protect the structure from river flow. Slope protection will be achieved by rip rap with a mean particle size of 1.5 ft with a toe entrenched to a potential estimated scour depth of 5 ft. Laying back the slope to 2H:1V will provide reliable flood protection by creating a stable armored slope. Repair will restore the pre-flood 250 yr level of protection. This is the Least Cost Alternative.

e. Locally Preferred Alternative

The Locally Preferred Alternative is an extension of the Repair to Pre-Flood Level of Protection with Floodwall Alternative. (See option c. above) The total repair length is 1075'. The repair includes the above mentioned repair of approximately 780' of levee toe and slope with an incorporated floodwall on the landward shoulder of the crown, plus the rebuilding of an additional 295' of existing levee toe and slope without a flood wall. The repair will retain the pre-flood level of protection while reducing the potential levee footprint and restore armor to protect the structure from river flow. Laying back the slope to 2H:1V will provide reliable flood protection by creating a stable armored slope. The sponsor asked that this alternative be considered because they are planning to continue the floodwall through the adjacent 295' section and would like to ensure that the riverward portion of the section matches the work that will be done to repair the 780' damaged section of levee. This is the Locally Preferred Alternative.

10. Recommended Alternative:

The recommended plan is the Locally Preferred Alternative, this is not the least cost alternative. Per ER 500-1-1, the local sponsor is responsible for all costs in excess of the least cost alternative. This alternative will return the levee to the pre-flood level of protection. The proposed repair will restore 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. Some length upstream and downstream of the repair will also need to transition from the repair to the existing levee alignment to prevent

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scour at the tie-ins, these lengths are included in the total length. The project will also require replacing the Green River Trail along the crown of the levee. See Appendix B for design drawings, maps and Appendix C for photos. Final selection of the preferred alternative and finalization of the design, including NEPA/ESA recommendations, will occur during the Engineering and Design phase and prior construction.

11. Real Estate:

Lands, Easements, Rights-of-Ways, Relocation, and Disposal (LERRD's)

The project is located in Tukwila, WA in Sections 35/36, Township 23 North, Range 13 West, Willamette Meridian, in King County, Washington. The Desimone-Briscoe School Levee Rehabilitation Project would repair approximately 1075 LF of the armored toe and riverward slope of the levee and construct 780 LF of floodwall(See Appendix B).

In order to proceed with the rehabilitation effort, the NFS must make the required local project lands available prior to solicitation for the construction contract. See the proposed project schedule under Section 15 of this report.

To meet the real estate requirements, the Public Sponsor will need to demonstrate that it has the below minimum real property interests for the entire Desimone Levee Rehabilitation Project:

PERPETUAL FLOOD PROTECTION LEVEE EASEMENT ESTATE

A perpetual and assignable right and easement in the land delineated on the attached location map, Exhibit____, by this reference made a part hereof, to construct, maintain, repair, operate, patrol and replace a flood protection levee, including all appurtenances thereto; reserving, however, to the owners, their heirs and assigns, all such rights and privileges in the land as may be used without interfering with or abridging the rights and easement hereby acquired.

Proposed access (both ingress and egress) to the Rehabilitation Effort site is available from public streets onto the levee. The Public Sponsor will need to confirm ingress and egress locations and be able to demonstrate that it has the below real property interests for access to the levee easement footprint for construction, operation and maintenance of the Desimone Levee Rehabilitation Project.

PERPETUAL ROAD EASEMENT

A perpetual and assignable easement and right-of-way in, on, over and across the land delineated on the attached location map, Exhibit __, for the location, construction, operation, maintenance, alteration and replacement of (a) road(s) and appurtenances thereto; together with the right to trim, cut, fell and remove therefrom all trees, underbrush, obstructions and other vegetation, structures, or obstacles within the limits of the right-of-way; reserving, however, to the grantors, their heirs and assigns, the right to

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cross over or under the right-of-way as access to their adjoining land; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

A temporary work area for construction staging is currently proposed in an isolated area of the parking lot near the levee repair location. The Public Sponsor will need to demonstrate that it has the below real property interests for the proposed temporary work area.

TEMPORARY WORK AREA EASEMENT

A temporary easement and right-of-way in, on, over, and across the land delineated on the attached location map, Exhibit _____, for a period not to exceed _____, beginning with date possession of the land is granted to the Grantee for use by the United States, its representatives, agents, and contractors as a work area, including the right to deposit fill thereon, move, store, and remove equipment and supplies, and erect and remove temporary structures on the land, and to perform any other work necessary and incident to the construction of Desimone Levee Rehabilitation Project. Job No. GRN-01-14, together with the right to trim, cut, fell, and remove there from all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements for public roads.

The Public Sponsor may also need to provide a suitable disposal site by acquiring a temporary disposal area (using the above temporary work area easement); however, if the Public Sponsor is unable to provide a suitable disposal area, then the material will be taken to a commercial site for disposal.

The final location of temporary work area easements and disposal sites to support the construction of the Rehabilitation Effort, including access routes for ease of construction, will be determined in the next phase – Engineering & Design (E&D). Also as part of the land certification process for the levee rehabilitation effort and the entire Desimone Levee Rehabilitation Project, the Public Sponsor will need to provide title reports, not more than 90 days old at the time of land certification demonstrating its interest in the Levee Project lands.

Any questions regarding types of property interests needed for the proposed project should be coordinated with COE, Real Estate Division.

12. Economic Evaluation:

The objective of the economic evaluation is to determine if the project is economically justified.

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The economic analysis is conducted in accordance with ER and EP 500-1-1. Some key points are as follows:

- a. Discount Rate. Economic justification analysis will use the current Federal discount rate for water resources evaluation. Currently the discount rate is 3.5%.
- b. Level of Detail. The benefits of project rehabilitation are determined by comparison of the with and without project conditions. The economic analysis will be prepared in level of detail commensurate with the complexity of the project. Also in the analysis, the greater the effect a particular benefit item has on project justification, the greater the level of detail of its evaluation. It is not intended that the analyses for rehabilitation projects be exhaustive, but should provide sufficient data to document the steps used in formulating the proposed plan of rehabilitation.
- c. Period of Analysis. The same period of time over which all project costs and benefits are analyzed is used for all alternatives. The period of analysis for rehabilitation work should not exceed the remaining physical life of the entire project. Any exception to the above will require justification in the PIR.
 - 1) Federal Projects. The economic life of federally constructed projects shall be the shortest time period determined by the following criteria:
 - a. Fifty years.
 - b. The degree of protection afforded by the project in the rehabilitated condition. This project will be designed to provide protection for up to a 250-year event.
 - c. The anticipated remaining life of the project assuming ordinary maintenance without major component rehabilitation (e.g. pumping plants, earth fill levees, riprap protection, etc.)
 - 2) Non-Federal Agricultural Projects. Ten years, or the degree of protection provided, whichever is less.
 - 3) Non-Federal Urban Projects. Use same criteria as for Federal projects.

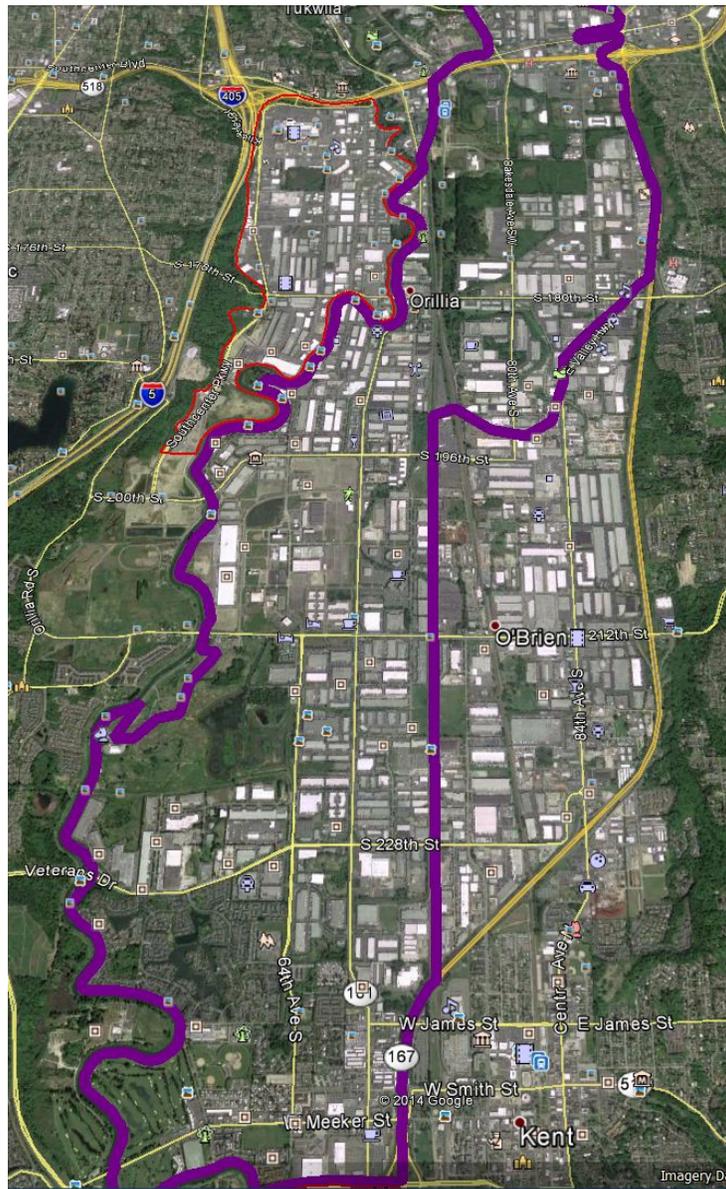
The economic analysis for this project will use a discount rate of 3.5% and a Period of Analysis of 50 years.

Location: The Desimone-Briscoe School Levee is part of the Lower Green (RB) 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. It is operated and maintained by King County Department of Natural Resources and Parks. King County constructed the levee in early 1964.

a. Protected area: The Leveed Area is about 7.65 square miles of highly developed warehousing, light industrial, retail, and residential land use. Based on HAZUS estimates pulled by the Levee Screening Tool (LST), daytime population is estimated at about 45,000; night time about 13,000. The LST also estimates about 2600 structures with a value of about \$4.4B. See Figure E-1

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Figure E-1 Lower Green River Right Bank Leveed Area (magenta polygon)



b. Without-Project Condition: NWS engineering staff has estimated that the levee's level of protection has been reduced from 250 years (.004 annual exceedance probability) to a 2 year (.5 annual exceedance probability). According to the LST, an event that overtops the levee (maximum level of protection) is about a 250-year event, which would inundate over 5,000 acres and 2600 structures valued at \$4.4B to depths of over 12 feet.

c. With-Project Condition: Repair of the levee would restore the estimated level of protection to approximately a 250-year event. Therefore, flooding of the residential and commercial structures and inventory would not be expected before the 250-year event for the with-project condition

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d. **Benefits Evaluation:** In accordance with ER 500-1-1, the economic analysis is prepared to a level of detail sufficient to demonstrate a high probability that the annualized economic benefits of the repair exceed the annualized costs.

This levee has been screened by the levee screening process and the Levee Screening Tool (LST) has information about the extent of the protected area, property values, and inundation depths that has been reviewed extensively.

The LST includes a graph with information about population, number of structures, area (in square miles), and structure value associated with ground and water surface elevations. Figure E-2 below is a screen shot from the LST of the Desimone-Briscoe School levee screening tool.

Figure E-2 Desimone Elevations vs. Property values



Table E-1 tabulates the characteristics by ground elevation

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Table E-1 Leveed area Characteristics

| Approx Ground Elevation | Flood Plain Area (Square Miles) | Est Pop (Day) | Number of structures | Value of Structures |
|--------------------------------|--|----------------------|-----------------------------|----------------------------|
| 17 | 0 | 0 | 0 | 0 |
| 18.5 | 0.01 | 61.61 | 2.57 | \$ 13,463,340 |
| 21 | 0.34 | 1761.34 | 51.8 | \$ 268,342,077 |
| 27 | 1.24 | 5961.22 | 163.45 | \$ 601,900,595 |
| 28.5 | 1.79 | 7442.16 | 203.33 | \$ 730,130,440 |
| 29 | 5.12 | 19509.1 | 538.1 | \$ 2,197,805,661 |
| 30 | 5.6 | 20408.18 | 618.17 | \$ 2,351,338,151 |
| 31 | 6.18 | 22333.3 | 799.69 | \$ 2,683,568,213 |
| 32.5 | 6.6 | 24361.18 | 1221.28 | \$ 3,032,224,087 |
| 34 | 7.02 | 27142.11 | 1922.51 | \$ 3,521,016,007 |
| 34.5 | 7.28 | 29390.56 | 2329.27 | \$ 3,844,871,160 |
| 36.5 | 7.69 | 31512.66 | 2491.68 | \$ 4,149,951,180 |
| Maximums | 7.85 | 38038 | 2681 | \$ 4,427,228,300 |

The purpose of the LST is to evaluate risk to life and property; hence its purpose is to capture potential consequences rather than estimating damages. Thus, it does not provide a depth damage curve which is critical to estimating expected annual damages or EAD.

Damages are typically estimated based on the relationship between the depth of inundation, which is the difference between the estimated Water Surface Elevation (WSE) and the First Floor Elevation (FFE), and the percentage of damage to the structure based on that inundation depth and the depreciated replacement value of the structure. Both FEMA and the Corps of Engineers rely on depth percent damage tables that have been developed from statistical analysis and expert opinion elicitation studies from decades of flooding experience. FEMA has a curve for a consolidated or generic building that is a composite of commercial and residential structures. Table E-2 consolidates and shows estimates of damage to structures grouped by ground elevations for an event approximating the maximum with project level of protection internal to the Desimone-Briscoe School Levee.

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Table E-2 Estimated maximum inundation depths and damages for Desimone structures by ground elevation groups

| Approx Ground Elevation | Value of Structures by Ground Elevation Groups | WSE (Desimone Segment Minimum) | Average Depth (feet) | Average First Floor Elevation | Average Structure Inundation Depth | FEMA Depth % Damage for Consolidated Buildings | Estimated Damage to Structures |
|---|--|--------------------------------|----------------------|-------------------------------|------------------------------------|--|--------------------------------|
| 17 | 0 | 31.9 | 14.9 | 2 | 12.9 | 49% | \$ - |
| 18.5 | \$ 13,463,340 | 31.9 | 13.4 | 2 | 11.4 | 47% | \$ 6,342,849 |
| 21 | \$ 254,878,737 | 31.9 | 10.9 | 2 | 8.9 | 45% | \$ 113,782,966 |
| 27 | \$ 333,558,518 | 31.9 | 4.9 | 2 | 2.9 | 27% | \$ 91,451,739 |
| 28.5 | \$ 128,229,845 | 31.9 | 3.4 | 2 | 1.4 | 20% | \$ 25,227,940 |
| 29 | \$ 1,467,675,221 | 31.9 | 2.9 | 2 | 0.9 | 16% | \$ 241,241,776 |
| 30 | \$ 153,532,490 | 31.9 | 1.9 | 2 | -0.1 | 16% | \$ 24,043,188 |
| 31 | \$ 332,230,062 | 31.9 | 0.9 | 2 | -1.1 | 0% | \$ - |
| 32.5 | \$ 348,655,874 | 31.9 | -0.6 | 2 | -2.6 | 0% | \$ - |
| 34 | \$ 488,791,919 | 31.9 | -2.1 | 2 | -4.1 | 0% | \$ - |
| 34.5 | \$ 323,855,154 | 31.9 | -2.6 | 2 | -4.6 | 0% | \$ - |
| 36.5 | \$ 305,080,020 | 31.9 | -4.6 | | -6.6 | 0% | \$ - |
| Total Estimated Damage to Structures | | | | | | | \$ 502,090,457 |

The table shows that a 250-year event would be expected to cause over \$500M in damages to the \$4.4B in property internal to the leveed area.

If repairs are made (the with-project condition), the levee will be restored to a 250-year level of protection, however, levee is not designed to provide protection from events that exceed a 250- year event thus any events that exceed in severity a 250-year exceedance probability (i.e. annual exceedance probability of less than .004) would result in more severe consequences. Those consequences will not be estimated, but truncated at the maximum WO Project estimate.

Since the LST does not provide estimates of inundation depths at more frequent events that would be expected to breach the levee in the without project condition an assumption is made that the damage curve is a linearly increasing function with higher damages associated with lower probability events. The area under the curve of this function is the sum of the expected value of all events between the zero damage event (.5 annual exceedance probability) and the design Level Of Protection or the 250- year event. This sum is considered a reasonable approximation of is the EAD that will be prevented in the with project or rehabilitated condition. For a detailed explanation of the procedure used to calculate EAD see IWR88-R-2 IWR Urban Flood Damage Manual; Page V55. Table E4 shows the results of applying that process to calculate the With and Without Project EAD, rounded to the nearest \$1,000.

The comparison of the without-project and with-project damages is presented in Table E-3 below.

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Table E-3 Comparison of Without-Project and With-Project Damages - Project Annual Benefits

| | |
|--------------------------|----------------------|
| EAD W/O Rehab | \$125,523,000 |
| EAD W/ Rehab (Truncated) | \$1,004,000 |
| Rehab Benefits | \$124,518,000 |

Project Costs:

Since the Recommended Alternative is the sponsor’s Locally Preferred Alternative (LPA) rather than the Least Cost Alternative two cost analysis are required in order to determine cost allocations. The benefits are the same with either plan.

The Total Project Least Cost estimate is \$8,168,000. Shown in Table E-4 below. The Sponsor Preferred Alternative or Locally Preferred Plan (LPA) project cost estimate (\$10,068,000) is shown in Table 5. This cost is converted to annual costs by amortizing it over the project lifetime of 50 years at the current federal interest rate of 3.5%. The annual estimated Operation and Maintenance cost (\$2,000), sponsor responsibility, is added to that annualized project cost to obtain the total annual cost. Table E-6 Annualized Costs displays the summary of the annual costs, for the Least Cost Plan.

Table E-4 Project Costs Least Cost Plan

| | |
|-----------------------------|---------------------|
| Construction Cost | \$ 6,609,000 |
| S&A | \$ 397,000 |
| Contingency (10%) | \$ 701,000 |
| Total Construction Cost | \$ 7,006,000 |
| Engineering and Design (6%) | \$ 462,000 |
| Total Project Cost | \$ 8,168,000 |
| Project annual Benefits | \$ 124,518,000 |
| Benefit-Cost Ratio | 356 |

The LPA Total Project Cost is \$10,068,000. Table E-5-below summarizes the annual costs of the LPA.

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Table E-5 Recommended Plan (LPA)

| | |
|---|-----------------------|
| Construction Cost | \$ 1,536,000 |
| Contingency (10%) | \$ 92,000 |
| S&A | \$ 163,000 |
| Total Construction Cost | \$ 1,791,000 |
| Engineering and Design (6%) | \$ 107,000 |
| Additional Cost of LPP (100% Sponsor) | \$ 1,899,000 |
| Total Project Cost | \$ 1,898,000 |
| Total Sponsor cost (20% LCA Construction Cost + 100% LPP Cost) | \$ 3,440,000 |
| Federal Costs of LPP (No Change from LCA) | \$ 6,627,000 |
| Project Annual Costs (50 years @ 3.5%) | \$ 431,200 |
| Project annual Benefits | \$ 124,518,000 |
| Benefit-Cost Ratio | \$ 289 |

Table E-6 displays the conversion of Total Project Costs to Annual Costs

Table E-6 Annualized Project Costs

| | |
|--|----------------------|
| Total Project Cost | \$ 10,068,000 |
| Principle and Interest (50 yrs @ 3.5%) | \$ 429,200 |
| O&M | \$ 2,000 |
| Total Annual Cost | \$ 431,200 |

e. Benefit Checks: Benefit checks are summarized in Table E-7.

Table E-7 Checks

| Check | Check Met? |
|--|----------------|
| Property value \$4.4B First costs: \$10 M | Yes |
| Crop benefits per acre do not exceed 5% of land value per acre | Not applicable |
| Crop benefits do not exceed net crop income | Not applicable |
| Each property owner accounts for less than 25% of the benefits | Yes |

13. Environmental:

a. General: The project site is an oversteepened bank with minimal vegetation on the outside of a bend in the Green River. The riverward face is dominated by herbaceous invasives including blackberry and reed canarygrass. The landward face includes numerous large maples planted throughout the site with a mown grass understory. Landward of the levee is a parking area and business park. The levee crown is an asphalt recreational trail. The opposite bank is also a levee. The opposite bank is the upstream end of the Tukwila 205 project which includes anchored large woody debris.

The Green River contains spawning populations of fall Chinook, coho, pink, and fall

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chum salmon, and winter and summer steelhead. Small numbers of sockeye salmon are also found. Bull trout use the lower river for feeding and rearing. The project area contains limited rearing habitat for these species. No spawning occurs in the project area.

b. Endangered Species Act: The following species listed under the Endangered Species Act as endangered (E) or threatened (T) and their designated critical habitat (CH) or proposed critical habitat (PCH) could occur within the project area vicinity.

- Coastal/Puget Sound Bull Trout (*Salvelinus confluentus*) (T) (CH)
- Puget Sound Chinook (*Oncorhynchus tshawytscha*) (T) (CH)
- Puget Sound Steelhead (*O. mykiss*) (T) (PCH)
- Marbled Murrelet (*Brachyramphus marmoratus*) (T)

Any potential effects of the proposed work on threatened and endangered species and designated critical habitat will be addressed in separate compliance documentation in accordance with Section 7 of the Endangered Species Act.

The work window for this location is 1 August to 31 August. This window misses the most sensitive periods for fish. Impacts to fish would be mitigated by the following: 1) any in-water work associated with repairs and rehabilitation of the levee would occur during the fisheries work window; 2) use of clean fill material; and 3) following Best Management Practices. It is anticipated that there would be no significant adverse effect to critical habitat as the project proposes to repair a riprap toe where a similar rock toe had existed prior to the flood damage. Incorporation of a layback and bench at the site, as proposed by the local sponsor would be beneficial as it could reduce velocities and widen this narrow channel. The loss of the landward maples could decrease shading to the river and increase the amounts of artificial light on the water.

Trees along the landward face were proposed for removal by the City of Tukwila in their plans to layback the slope of the levee above ordinary high water. Incorporation of their plans will mean the removal of approximately 13 mature maple trees from the backslope of the levee. The City has negotiated mitigation for their proposed work, including the tree removal, with the relevant agencies and has received permits. The Corps will review the City's plans and may incorporate their mitigation, as appropriate, if the tree removal becomes a part of the Federal action. The Corps' additional work below ordinary high water will need further consideration of mitigation needs.

c. Environmental Considerations During Construction:

-Water Quality: Short-term, discountable adverse impacts may result from the repairs to the levee. A temporary increase in turbidity due to fill placement is expected. Turbidity will be monitored during construction. If turbidity exceeds water quality standards, construction will recommence when turbidity returns to acceptable levels. The levee face is dominated by herbaceous vegetation such as blackberry and reed canary grass. Trees along the landward face were proposed for removal by the City of Tukwila in their plans

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to layback the riverward slope of the levee above ordinary high water. Incorporation of their plans will mean the removal of approximately 13 mature maple trees from the backslope of the levee. The City has negotiated mitigation for their proposed work, including the tree removal, with the relevant agencies and has received permits. The Corps will review the City's plans and may incorporate their mitigation, as appropriate, if the tree removal becomes a part of the Federal action.

-Fish and Wildlife: When completed, this levee repair is not intended or expected to generate appreciable change in habitat conditions as compared with pre-existing conditions. Adequate mitigation will be included in the project to offset impacts to habitat. Repair construction work may cause indirect impacts to fish and wildlife. There may be a temporary increase in turbidity due to rock placement or in-water work. Working during the work window will limit this impact.

Short-term impacts to wildlife could occur from levee repair construction activities. Noise from construction activities may temporarily disturb and displace birds and mammals that occur within and adjacent to the project area.

Limited vegetation exists at the site. Trees along the landward face were proposed for removal by the City of Tukwila in their plans to layback the slope of the levee above ordinary high water. Incorporation of their plans will mean the removal of approximately 13 mature maple trees from the backslope of the levee. The City has negotiated mitigation for their proposed work, including the tree removal, with the relevant agencies and has received permits. The Corps will review the City's plans and may incorporate their mitigation, as appropriate, if the tree removal becomes a part of the Federal action.

-Wetlands: Although the project area may contain waters of the U.S., no jurisdictional wetlands have been identified within the project area. No impacts to wetlands are anticipated.

d. Cultural Resources: The Corps completed a records search and literature review of information on file at the Washington State Department of Archaeology and Historic Preservation. The review indicated that there are no known archaeological resources in the project's area of potential effects (defined as the zone directly affected by the levee restoration), and no historic era structures eligible for listing on the National Register for Historic Places (NRHP).

Prior to approval of the proposed project, the Corps would conduct a cultural resources survey of the project area to determine whether there are historic properties within the area of potential effect and whether there is a potential for the proposed project to cause effects to historic properties that may be located in or adjacent to the project area. The Corps would also consult with the Muckleshoot Indian Tribe to determine if there are properties of religious or cultural significance that might be affected. The results of the cultural resources investigation and the Corps' findings of effect on historic properties would be submitted to the Washington State Historic Preservation Office (SHPO) and the

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Muckleshoot Indian Tribe for their review and comment. Should the project have an adverse effect on a historic property, the adverse effects would be resolved prior to project approval in accordance with the regulations implementing Section 106 of the National Historic Preservation Act (NHPA).

e. Recreation: This section of levee is part of the Green River Trail in King County. This trail is heavily used by walkers, joggers, cyclists, and other recreational enthusiasts. Construction to repair this part of the levee will temporarily close this section of the trail and cause recreational activities to be routed around the area. Following completion of the construction the crown of the levee will be paved to restore the trail. The trail will reopen, though the section through the construction area will change visually with the removal of the landward trees.

f. Cumulative Effects: The City of Tukwila is planning a floodwall project at the same location as the proposed repair, though the floodwall will continue through a longer stretch of the levee than the area that was damaged by the flood. The City had planned their floodwall project to begin construction in fall 2014. Their proposed repair includes work only above ordinary high water (OHW) and includes a 6:1 sloped bench just above OHW and a 2:1 sloped riverward face. The trail will be maintained on the levee crown with the backslope being augmented with a floodwall to reduce the levee footprint. All of the large maples currently along the backside of the levee through the project area would be removed for this project. Plantings on the face are planned as mitigation. The flood wall will continue to rely on an intact toe for scour protection, as constructed by the Corps' project. Portions of their project above ordinary high water may be incorporated into the Federal action. The Corps plans to continue discussions with the City and County to synchronize our projects so that the Corp's work is compatible with long term plans for the site.

g. Coordination: The proposed work is formally coordinated throughout the planning, design, and construction phases with the following tribes and agencies:

- (1) U.S. Fish and Wildlife Service
- (2) National Marine Fisheries Service
- (3) U.S. Fish and Wildlife Service
- (4) Muckleshoot Indian Tribe
- (5) State Historic Preservation Office
- (6) Washington Department of Ecology
- (7) King County
- (8) City of Tukwila
- (9) City of Kent

Recommendations from the above listed agencies will be considered and implemented as appropriate. Any suggested revisions to the design as a result of agency review will require design, cost, and technical review prior to construction. Environmental effects of the proposed levee rehabilitation will be considered during the planning process in

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accordance with ER 200-2-2, Procedures for Implementing NEPA, paragraph 8, Emergency Actions.

h. Further Compliance: An environmental assessment (EA) will be prepared to evaluate probable impacts of the project on the existing environment. Factors addressed by the evaluation include, but not limited to: public safety, water quality, wetlands, threatened and endangered species, noise, economics, fish, and wildlife. The EA will be coordinated with applicable Federal and State resource agencies and tribes. The NEPA process will be concluded as pursuant to requirements in ER 200-2-2. In addition, the requirements for compliance with the Endangered Species Act will be completed.

Pursuant to 33 U.S. Code section 1344(f)(1)(B), emergency reconstruction of recently damaged parts of levees does not require a Clean Water Act Section 404 evaluation provided that the work is conducted for maintenance purposes. Analogizing to the Code of Federal Regulations Title 33, Section 323.4(a)(2), the rehabilitation may be exempted from requirements of Section 404, provided the rehabilitation does not include any modifications that changes the character, scope, or size of the original fill design. Concerning scope and size, the proposed repair would not require a Section 404(b)(1) evaluation as long as the footprint of the levee repair, which falls within waters of the U.S., is no larger than the pre-damage footprint and wetlands are not temporarily impacted during construction. However, if Section 404 jurisdiction is triggered, a 401 water quality certification might be required.

A Coastal Consistency Determination will be completed prior to construction and will be coordinated with the State Department of Ecology.

i. Environmental Enhancement Features: Project construction may include environmental enhancement features to offset construction impacts. Mitigation proposed by the City in their permitting process for the work above ordinary high water will be reviewed for possible incorporation if their plans become a part of the Federal action. The Corps' additional work below ordinary high water will need further consideration for mitigation needs. Laying back the slope of the levee and incorporating the low bench benefits the aquatic habitat. Additional features may include native plantings. Environmental features proposed by consulting agencies for environmental permits will be fully engineered and reviewed during E&D. Per guidance from Corps Headquarters, 5% of construction cost may be used for environmental features.

14. Interagency Levee Task Force (ILTF):

HQUSACE has not directed activation of an ILTF for the flood event associated with the March 2014 floods in Western Washington. However, informal coordination with FEMA is ongoing.

15. Project Management

a. Funding Authority:

(1) Program and Appropriation: Public Law 84 – 99, Levee Rehabilitation, Flood Control and Coastal Emergencies

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- (2) Project Funding Class: 320
(3) Project CWIS Number: 145634

b. Project Funds

| Least Cost Alternative (LCA) | |
|--|----------------------|
| Construction Cost | \$ 6,609,000 |
| S&A (6%) | \$ 396,000 |
| Contingency (10%) | \$ 701,000 |
| Total Construction Cost | \$ 7,706,000 |
| Engineering & Design (6% Federal) | \$ 463,000 |
| LCA Total Project Costs | \$ 8,169,000 |
| LCA Federal Project Costs (80% Construction Cost + E&D) | \$ 6,628,000 |
| LCA Sponsor Project Costs (20% Construction Cost) | \$ 1,541,000 |
| Locally Preferred Alternative (LPA) | |
| Construction Cost | \$ 1,536,000 |
| S&A (6%) | \$ 92,000 |
| Contingency (10%) | \$ 163,000 |
| Engineering & Design (6%) | \$ 108,000 |
| Additional Cost of LPA (100% Sponsor) | \$ 1,899,000 |
| Total Project Costs | \$ 10,068,000 |
| Federal Project Cost with LPP (No Change from LCA) | \$ 6,628,000 |
| Sponsor Project Cost (20% LCA Construction Cost + 100% LPA Cost) | \$ 3,440,000 |
| Project Estimated Annual Benefits | \$ 124,518,000 |
| B/C Ratio | 289 : 1 |

c. Project Repair Schedule

The Work Window (work allowed in the water) is 1-31 August. Work performed outside this window will only consist of work that is not in the water.

| RESPONSIBLE PARTY | MILESTONE TAKS | MILESTONE DATE |
|--------------------------|---|-----------------------|
| COE | PIR Approval | 15 August 2014 |
| COE | E&D complete | 26 Sept 2014 |
| COE | LOA and LER Cert Documents to Non-federal Sponsor, and Designs for Review NLT | 3 October 2014 |
| King County | Sign LOA by Non-federal Sponsor | 17 October 2014 |
| COE | Environmental Documentation | 19 December 2014 |
| King County / Tukwila | Non-federal Sponsor certifies lands | 9 January 2015 |
| King County | Non-federal Sponsor provides cash contribution | 30 January 2015 |
| COE | RE Division Certifies Lands Available | 6 February 2015 |
| COE | Solicit contractors | 27 February 2015 |
| COE | Initiate construction | 24 July 2015 |
| COE | Complete construction | 11 September 2015 |

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d. Project Authentication

Prepared by: CPT Rex Broderick, (206) 316-3133

Emergency Management approval by: Doug Weber, (206) 764-3406

e. Technical Points of Contact

Emergency Management: Doug Weber, (206) 764-3406

Project Manager: CPT Rex Broderick, (206) 316-3133

Economics: Don Bisbee, (206) 764-3713

Environmental: Bobbi Jo McClain, (206) 764-6968

Cultural resources: Ashley Dailide, (206) 764-6942

Geotechnical Engineering: Seth Klein, (206) 316-3949

Civil Engineering: Michael Peele, (206) 764-6961

Program Management: Cathie Desjardin, (206) 764-3452

Real Estate: Diane Jordan, (206) 316-4419

Hydraulics and Hydrology: Brendan Comport, (206) 764-3565

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Appendix A: Project Sponsor's request for Rehabilitation Assistance.



King County

Water and Land Resources Division

Department of Natural Resources and Parks

King Street Center
201 South Jackson Street, Suite 600
Seattle, WA 98104-3855

206-477-4800 Fax 206-296-0192

TTY Relay: 711

April 16, 2014

Doug Weber
Chief, Emergency Management Branch
Seattle District, Corps of Engineers
4735 East Marginal Way South
Seattle, WA 98134

Dear Mr. Weber:

Pursuant to your March 17, 2014, notice to levee sponsors, I am writing to request rehabilitation assistance for flood-damaged levees under the authority of Public Law 84-99. Specifically, I request assistance with the following damages to King County levees that were identified after flood conditions receded in March 2014:

1. Desimone levee on the right bank of the Green River in the City of Tukwila, River Mile (RM) 14.5-14.6, between Cascade Avenue South and the West Valley Highway (SR 181). Slumping of the riverward levee slope has undermined its rock armor and exposed its subgrade materials.
2. Segale levee on the left bank of the Green River in the City of Tukwila, RM 15.1, between Riverside Drive and Todd Boulevard South (if both were extended). Steep fill slope at an access ramp transition is slumping.
3. Holiday Kennel levee on the right bank of the Green River in the City of Kent, RM 18.5-18.7, between South 218th Street and South 221st Street (if both were extended). Slumping of the riverward levee slope has undermined its rock armor and exposed its subgrade materials.
4. Russell Upper levee on the right bank of the Green River in the City of Kent, RM 19.4-19.9, between South 232nd Street and South 237th Street (if both were extended). Slumping of the riverward levee slope has undermined its rock armor and exposed its subgrade materials.
5. Signature Pointe levee on the right bank of the Green River in the City of Kent, RM 23.0, roughly where 66th Avenue South would intersect the river. Slumping of the riverward levee slope has exposed subgrade materials.



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Doug Weber
April 16, 2014
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6. Nursing Home levee on the right bank of the Green River in the City of Kent, RM 25.9, roughly where South 262nd Street would intersect the river. Rill erosion of the riverward levee slope.
7. Dykstra levee on the left bank of the Green River in the City of Auburn, RM 29.7, roughly where Pike Street Northeast would intersect the river. Slumping of the riverward levee slope has undermined its rock armor and exposed its subgrade materials.
8. Dykstra levee on the left bank of the Green River in the City of Auburn, RM 30.2-30.3, roughly where 19th Drive Northeast would intersect the river. Slumping of the riverward levee slope has undermined its rock armor and exposed its subgrade materials.

These levees were damaged in the flooding of March 2014. Each of these damaged levees is currently eligible for rehabilitation assistance. All are maintained by King County on behalf of the King County Flood Control District.

I should mention that the Segale levee (#2 above) is part of the Tukwila 205 federal levee for which the City of Tukwila serves as local sponsor. We partner with the city in maintenance of the Segale levee.

I should also mention that the Nursing Home levee (#6 above) is part of the Horseshoe Bend 205 federal levee, for which the King County Flood Control District is the local sponsor.

I have directed Tom Bean to serve as our point of contact for this work. He can be reached by telephone at 206-477-4638 and by email at tom.bean@kingcounty.gov. Please work with Mr. Bean to achieve rehabilitation of these damaged levees.

Sincerely,



Steve Bleifuhs, Manager
River and Floodplain Management Section

cc: Bob Giberson, Director of Public Works, City of Tukwila
Tim LaPorte, Public Works Director, City of Kent
Kevin Snyder, Community Development and Public Works Director, City of Auburn
Lorin Reinelt, Green River Basin Supervising Engineer, King County River and
Floodplain Management Section (RFMS)
Tom Bean, Special Projects Engineer, RFMS

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Appendix B: project location and vicinity maps, and drawings

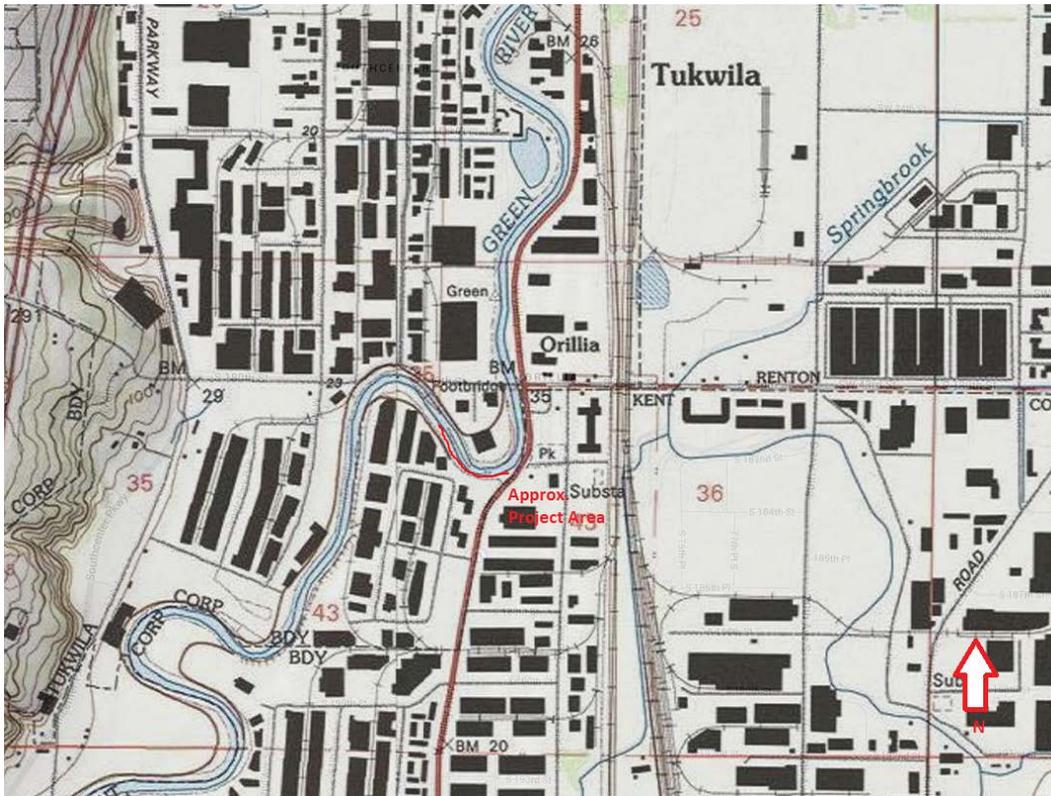


Figure 1. Project location on a Vicinity map

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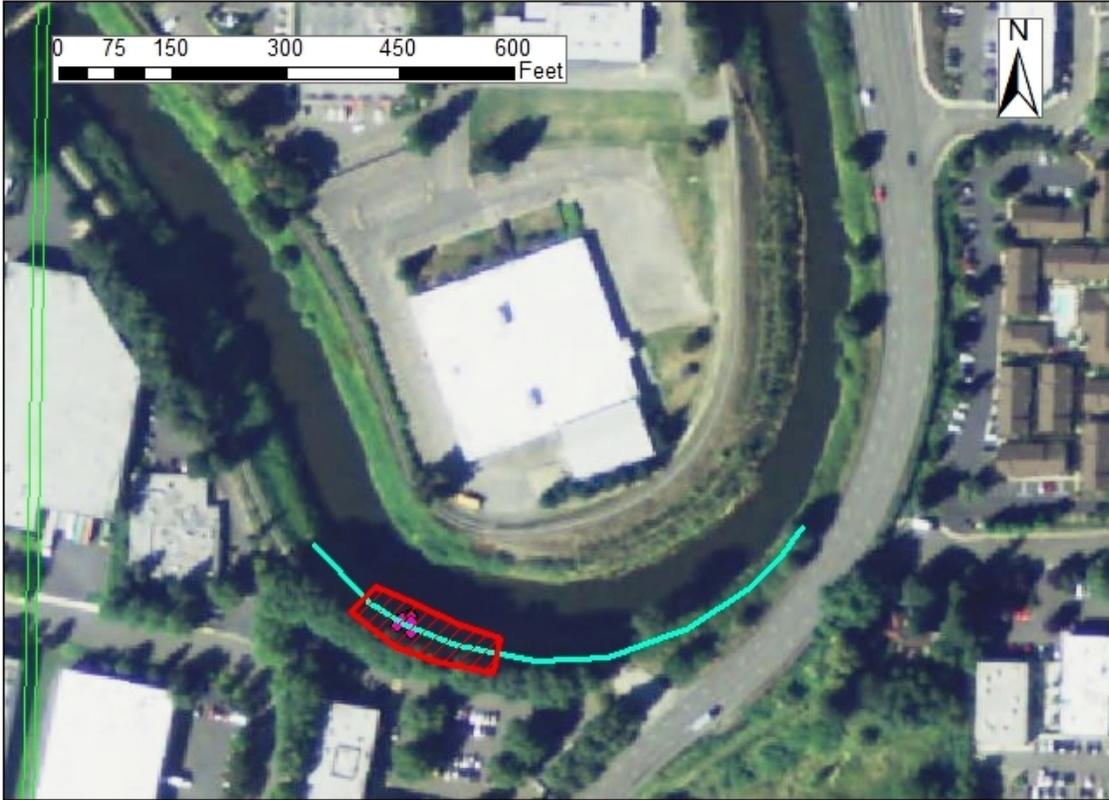
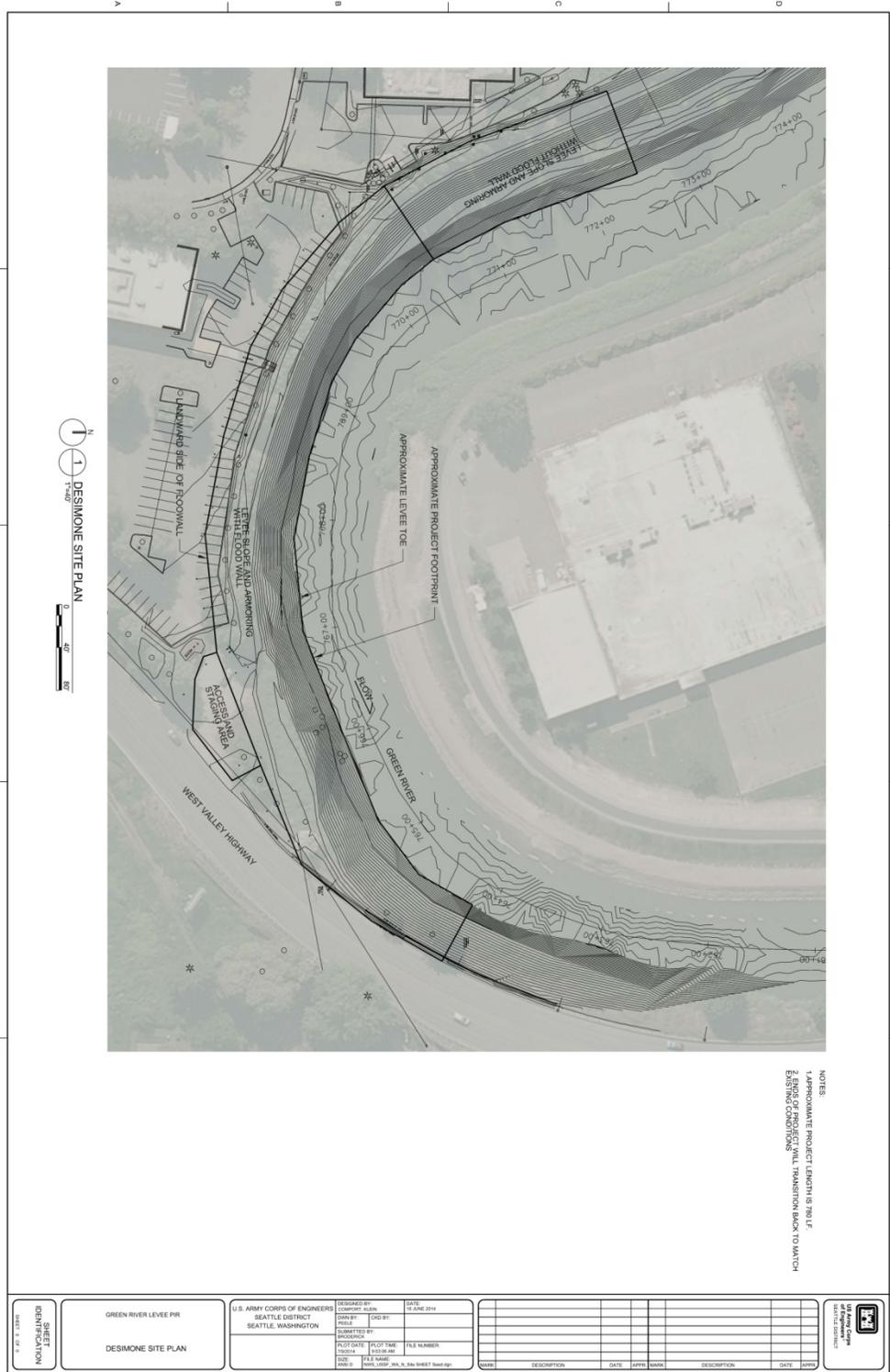


Figure 2. Recommended repair length

PROJECT INFORMATION REPORT



NOTES:
 1. APPROXIMATE PROJECT LENGTH IS 2911.6'
 2. ENDS OF PROJECT WILL TRANSITION BACK TO MATCH EXISTING CONDITIONS

GREEN RIVER LEVEE PIR
 DESIMONE SITE PLAN

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

DESIGNED BY: PROJECT ADMIN
 DATE: 18 JUNE 2014
 DRAWN BY: CHD BY:
 CHECKED BY: DATE:
 PROJECT NO: 14-0000000000000000
 PROJECT NAME: 14-0000000000000000
 FILE NUMBER: 14-0000000000000000
 PLOT DATE: 18 JUN 2014 10:03 AM
 PLOT TIME: 10:03 AM
 PLOT BY: JLS
 PLOT D: 14061_VMPF_VIA_A_S&A-DH&T-foot.dwg

| NO. | DESCRIPTION | DATE | APPR. | DATE | APPR. |
|-----|-------------|------|-------|------|-------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |



DATE AND TIME PLOTTED: 7/6/2014 DESIGN FILE: Y:\Emergency Management\2014 Levee Rehab\King County\1 Desimone2_Design\Civil\2014-Desimone C-101.dgn

Figure 3. Proposed Repair Site Plan

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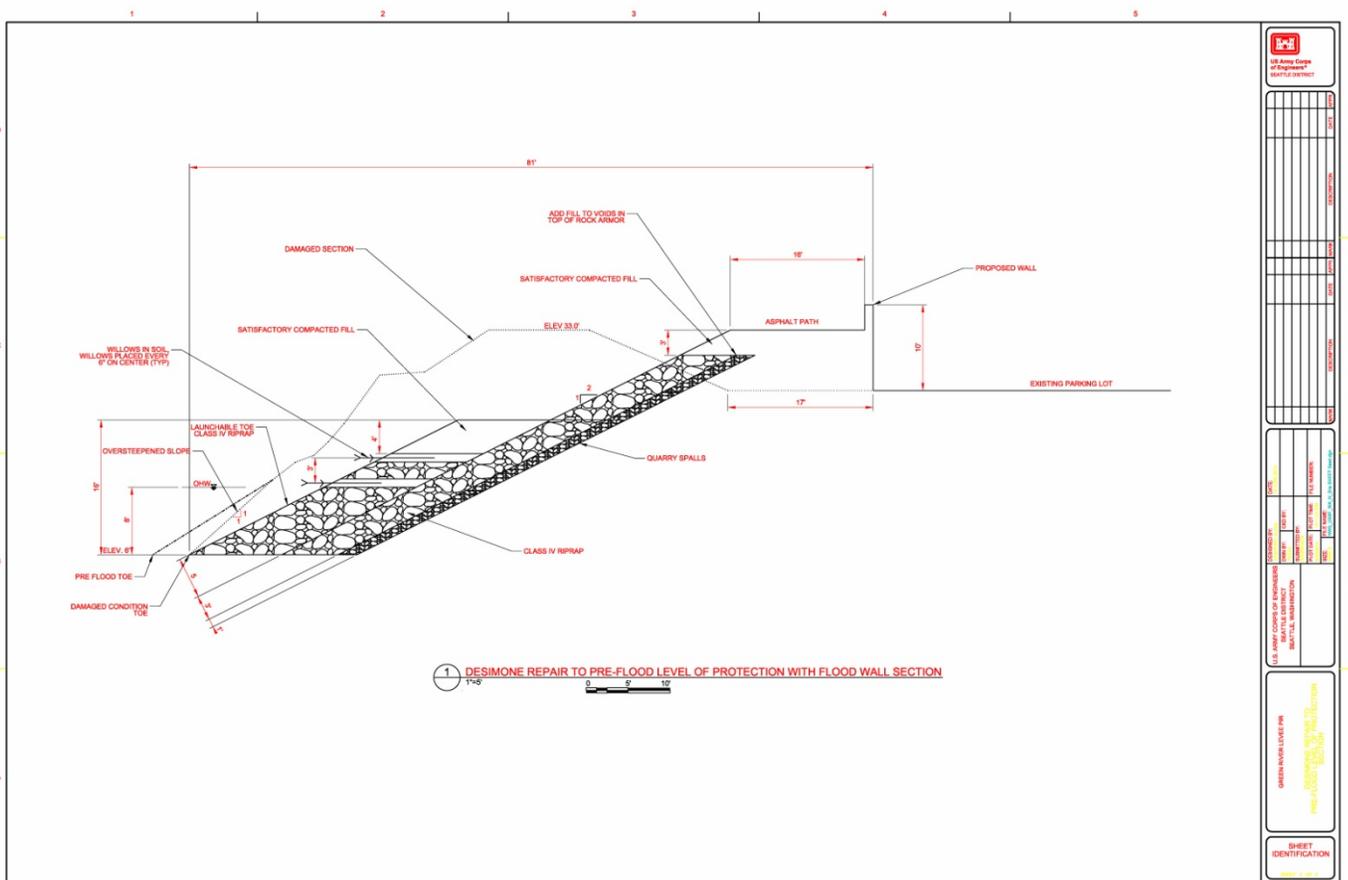


Figure 4. Proposed Cross section

Appendix C: Photos of damaged area



Photo 1: Looking downstream. Exposed toe rock and sloughing silt. (King County photo)



Photo 2: Exposed levee material. Looking upstream.(King County photo)

Appendix Z: PIR Review Checklist

Desimone Levee Repair PIR Review Checklist for Repair of FCW Rehabilitation Projects

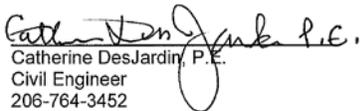
- | | YES | NO | N/A | |
|-----|-------------------------------------|--------------------------|--------------------------|---|
| 1. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | The project is active in the RIP. [ER, 5-2.a.] |
| 2. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | The project was damaged by flood(s) or coastal storm(s). [ER, 5-2] |
| 3. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | The Public Sponsor has requested Rehabilitation Assistance in writing. [ER, 5-10.b.] |
| 4. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | The public sponsor has agreed to sign the Cooperation Agreement, which will occur before USACE begins rehabilitation work. [ER, 5-10.] |
| 5. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | The estimated construction cost of the rehabilitation is greater than \$15,000, and is not considered sponsor maintenance. [ER, 5-2.q.] |
| 6. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | The repair option selected is the option that is the least cost to the Federal government, or, the sponsor's preferred alternative is selected with all increases in cost paid by the public sponsor. PIR includes justification for non-selection of the least cost alternative. [ER, 5-2.h. and 5-11.e.(3)] |
| 7. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | The public sponsor is aware of the opportunity to seek a nonstructural alternative project, and has decided to proceed with a structural rehabilitation. [ER, 5-16.] |
| 8. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | The cost estimate in the PIR itemized the work to identify the Public Sponsor's cost share. [ER, 5-11.] |
| 9. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | The rehabilitation project has a favorable benefit cost ratio of greater than 1.0:1. [ER, 5-2.r.] |
| 10. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | The proposed work will not modify FCW to increase the degree of protection or capacity, or to provide protection to a larger area. [ER, 5-2.n.] |
| 11. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Betterments are paid 100 percent by the Public Sponsor [ER 5-2.o.] |
| 12. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | The CA contains a provision for 80% Federal and 20% local cost share for non-Federal projects [ER, 5-11.a.] |
| 13. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Cost for any betterments are identified separately in the cost estimate. [ER, 5-2.o.] |

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Desimone PIR Review Checklist for FCW Rehabilitation Projects (Continued)

- | 14. | YES | NO | N/A | |
|-----|-------------------------------------|--------------------------|-------------------------------------|--|
| | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Repair of deliberate levee cuts is the responsibility of the public sponsor, except as provided for in ER 500-1-1, paragraphs 5-2.j. and 4-3.h. [ER, 5-2.j. and 4-3.h.] |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | All deficient and deferred maintenance will be paid for or accomplished by the Public Sponsor, without receiving credit toward any sponsor's cost share. [ER, 5-2.g.] |
| | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Any relocation of levees is adequately justified. [ER, 5-2.h.] |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | USACE assistance does not correct design or construction deficiencies. [ER, 5-12.a.] |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | An assessment of environmental requirements was completed. [ER, 5-13., and EP, Figure 5-3, paragraph 12.] |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | The project complies with NEPA, and required documentation was completed and placed in Appendix G of the PIR. [ER, 2-3.k.; ER, 5-13.; and EP, Figure 5-3, paragraph 12.] |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | The Endangered Species Act was appropriately considered. [ER, 5-13.g., and EP, Figure 5-3., paragraph 12.] |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | EO 11988 requirements were considered in the process of evaluating the proposed project for rehabilitation. [ER, 5-13.f., and EP, Figure 5-3, paragraph 12.] |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | The completed PIR has been reviewed and the PIR Checklist has been reviewed and signed by the Emergency Management Office. [EP, 5-11.a.(3)(a)] |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | The completed PIR meets all policy, procedural, content, and formatting requirements of ER 500-1-1 and EP 500-1-1. [ER, 2-3.b.] |

EM REVIEWING OFFICIAL'S SIGNATURE


 Catherine DesJardin, P.E.
 Civil Engineer
 206-764-3452

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