



US Army Corps
of Engineers®

Buffalo District
Great Lakes and Ohio River Division

GRAND RIVER, BANK STREET EMERGENCY STREAMBANK AND SHORELINE EROSION PROTECTION PROJECT

Continuing Authorities Program Section 14

P2/Project Number: 461094

Review Plan- Engineering & Design

PREPARED
BY:

[Redacted]
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Project Manager
USACE, Buffalo District

ENDORSED



for

[Redacted]
[Redacted]
Chief, Technical Services Division
Review Management Organization Representative
USACE, Buffalo District

APPROVED
BY:

[Redacted]
[Redacted]
LTC, EN
Commanding

MSC APPROVAL DATE:

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**REVIEW PLAN
ENGINEERING AND DESIGN PRODUCTS
GRAND RIVER, BANK STREET CAP 14
BUFFALO DISTRICT
Date: 24 MAR 2021**

1. PURPOSE AND REQUIREMENTS

- a. Purpose. This review plan defines the level and scope of reviews required for engineering and design (E&D) products for the Grand River, Bank Street Emergency Streambank Protection Project in the city of Painesville, Lake County, Ohio. The project is authorized by the Continuing Authorities Program (CAP) Section 14 of the Rivers and Harbors Act, as amended
- b. References. This review plan is prepared in accordance with regional business process QMS 08504 LRD and latest versions of the guidance documents listed below.
 - (1) Engineering Regulation (ER) 415-1-11, Biddability, Constructability, Operability, Environmental and Sustainability (BCOES) Reviews
 - (2) ER 1110-1-12, Quality Management
 - (3) Engineering Circular (EC) 1165-2-217, Civil Works Review Policy
 - (4) Grand River/Bank Street, CAP Section 14 Project Management Plan
- c. Requirements. The design and construction activities and related implementation documents for the project are required to be formally reviewed per the references listed in paragraph 1.b. Quality review categories include district quality control/assurance (DQC), agency technical review (ATR) and independent safety assurance review (SAR) review (if required).

2. REVIEW MANAGEMENT ORGANIZATION (RMO).

3. PROJECT SCOPE AND PRODUCTS

- a. Project Description and Scope of Work.

The City of Painesville is located in Lake County in northeastern Ohio, approximately 30 miles east of Cleveland. Much of the city is situated along the west side of the Grand River that flows northward into Lake Erie. The proposed project would address approximately 325-feet of slope failure along the top portion of the streambank at approximately river mile seven (7) of the Grand River. Below in Figure 1 is an aerial view of the project location.

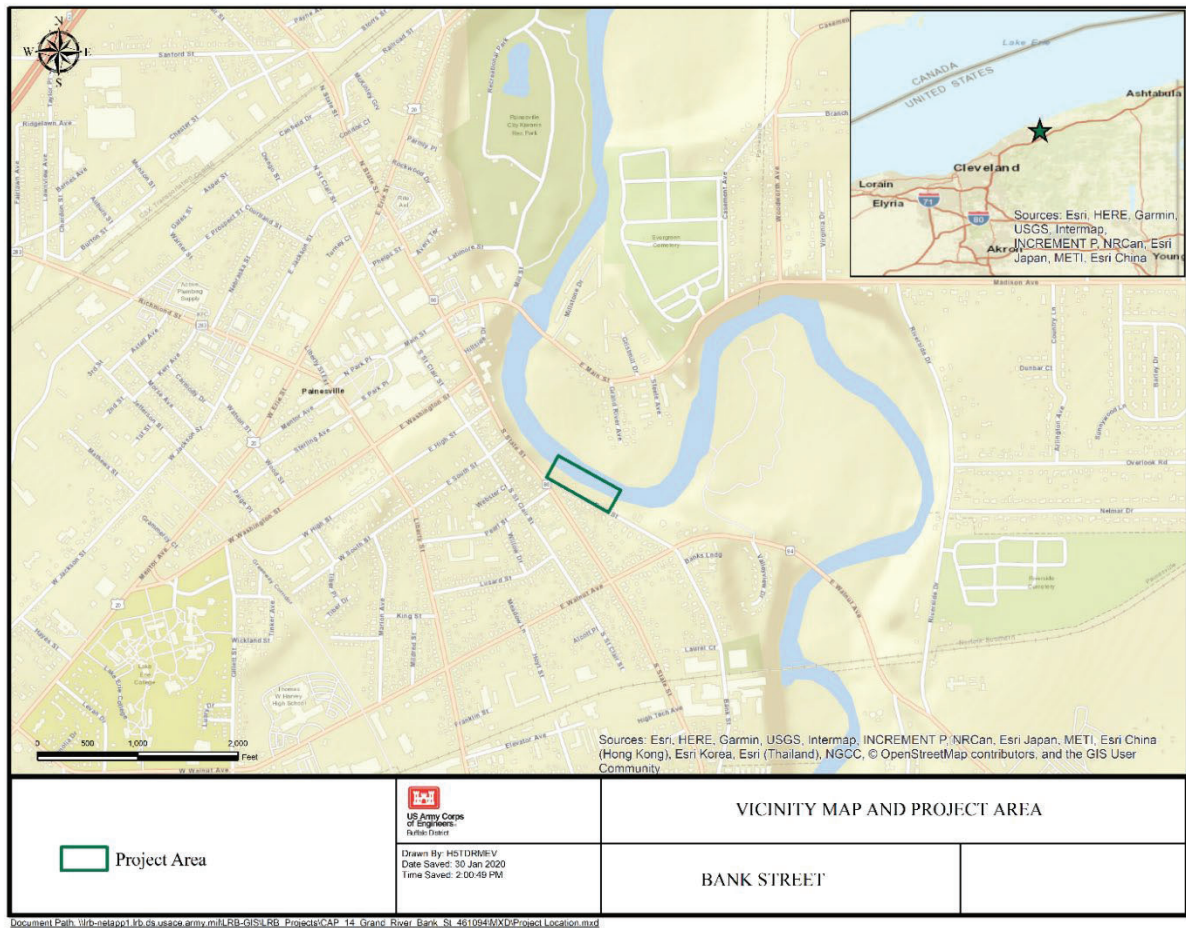


Figure 1- Aerial view of project location

Alternative 1 (Anchored Steel Sheet Pile Wall) is the most cost-effective plan and is the Tentatively Selected Plan (TSP). This alternative would include construction of a steel sheet pile wall approximately 325 feet in length near the top-of-slope. Installation would require sheet pile embedment to a stable depth within the overburden soils or to the top of rock. This is a top-down construction technique where the majority of construction equipment would operate near the top of slope. Removal of the existing soil nails and wire mesh reinforcement will be required. The wall design will require anchorage in the form of an earth/rock anchor or Deadman structure. Below in Figure 2 is a preliminary cross section of the proposed structure.

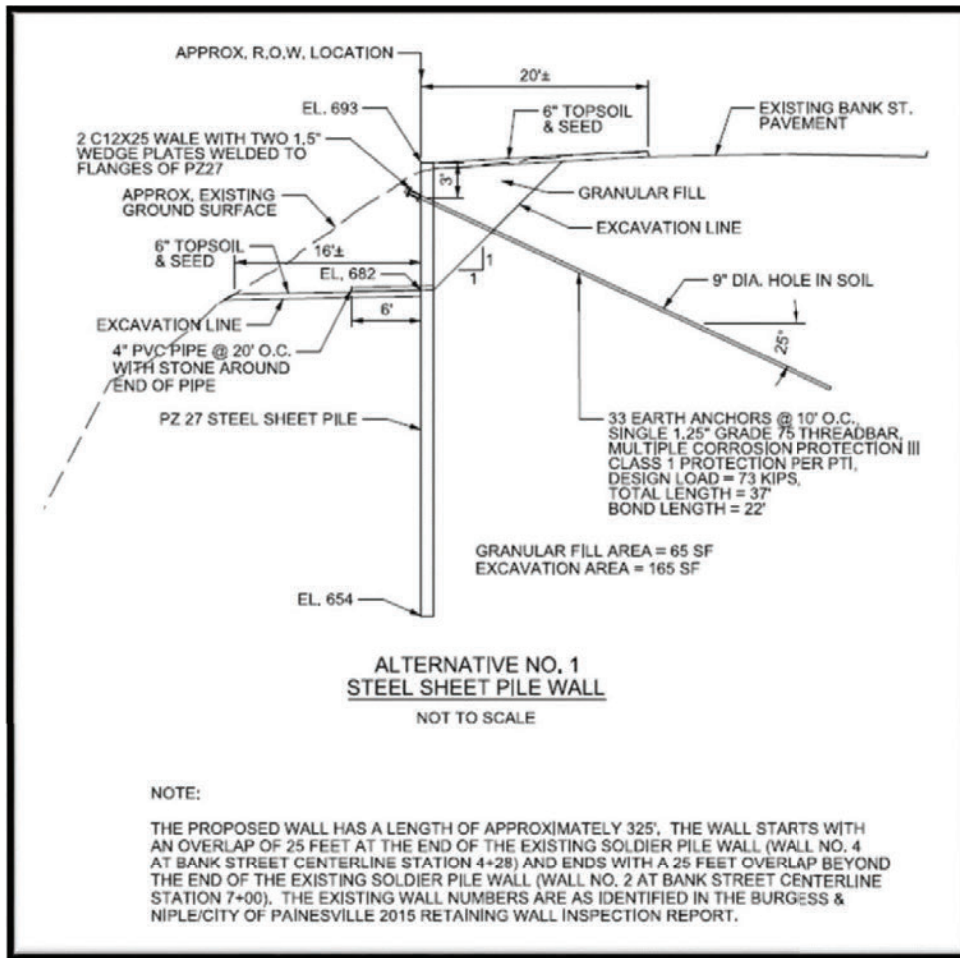


Figure 2- Cross Section of the Tentatively Selected Plan (Reference Page 69 of the Detailed Project Report for the Grand River Bank Street Section 14 Project)

Project Type:	CAP Section 14- Emergency Streambank & Shoreline Erosion Protection
Location:	Painesville, Ohio
Purpose/Function:	Develop a long-term and cost-effective means to protect Bank Street and associated public utilities from further slope failure as a result of significant slope failure related to streambank erosion on the Grand River.
Key Physical Components:	The recommended plan includes the use of steel sheet pile, earth anchors, and PVC wall drainage pipes with stone covered outlets.
Estimated Construction Cost:	
E&D Product Method Delivery:	In-house LRB resources will be used for preparation of E&D products.
Construction Delivery Method:	Small Business (Invitation for Bids Assumed)

- b. Engineering and Design Products. The engineering and design products to be reviewed include the following:
 - a. Design Documentation Report (DDR)
 - b. Plans and Specifications (P&S)
 - c. Engineering Considerations and Instructions for Field Personnel (ECIFP)
 - c. Required Quality Reviews.
 - (1) District Quality Control (DQC): DQC procedures, including BCOES reviews, shall be performed for all products listed in paragraph 3.b.
 - (2) Agency Technical Review (ATR): Based on Tables 3 and 4 of QMS 08504 LRD, the District Chief of Engineering has determined that ATR is required.
 - (3) Type II Independent External Peer Review (IEPR), Safety Assurance Review (SAR): The District Chief of Engineering has determined that the project does not pose significant life safety risks and a Type II IEPR (SAR) is not required.
 - d. Technical Risk Analysis and Scope of Review: ATR is required and a review charge will be prepared and issued to each review team. Referring to paragraph 7.4.d and Table 4 of QMS 08504 LRD, the project delivery team (PDT) has performed a risk analysis and have identified the following key project technical complexities and risks upon which to focus and scale the project reviews:
 - (1) Medium risk that construction activities (i.e. driving sheet pile, equipment loading, etc.) could induce slope failure and/or vibration damages to nearby homes or public infrastructure. To help mitigate this risk, Geotechnical Engineering expertise will be consulted during performance of the ATR.
4. PROJECT DELIVERY TEAM (PDT). The PDT members are listed in Attachment 1.
5. REVIEW EXECUTION. District quality control (DQC) will be performed per Chapter 3 of ER 1110-1-12 and Section 8 of EC 1165-2-217. ATR shall be performed in accordance with Section 9 of EC 1165-2-217. Based on the review charge in paragraph 3.d, the technical discipline(s) and expertise required for the ATR are scaled and are listed in Table 1. ATR reviewers are listed Attachment 1.

Table 1. ATR Technical Discipline(s) and Expertise	
Technical Discipline or Reviewer Name	Expertise Required
	Geotechnical Engineering

6. REVIEW SCHEDULE AND BUDGETS. The schedule and estimates of cost-shared budgets (combined federal and non-federal) for reviews are shown in Table 2.

Table 2. Review Schedule and Budgets			
Review	Start Date	Finish Date	Budget (\$)
Concept BCOES 1 (Kickoff - Tentative)	06 APR 2021	06 APR 2021	[REDACTED]
Design Documentation Report DQC	24 JUN 2021	16 JUL 2021	[REDACTED]
Design Documentation Report ATR	19 JUL 2021	16 AUG 2021	[REDACTED]
BCOES 2 (Concurrent with ATR)	26 OCT 2021	01 DEC 2021	[REDACTED]
Backcheck BCOES 2	02 DEC 2021	15 DEC 2021	[REDACTED]
Certification of Plans and Specs	16 DEC 2021	17 DEC 2021	[REDACTED]
Sign Drawings and Send to Contracting	20 DEC 2021	20 DEC 2021	[REDACTED]

7. REVIEW PLAN POINTS OF CONTACT. Questions and comments relating to this review plan can be directed to the following points of contact:

a. District Project Leaders.

(1) Project Manager: [REDACTED]

(2) Technical Lead: [REDACTED]

b. ATR Leader: [REDACTED]

c. Review Management Organization (RMO): [REDACTED]

8. ENGINEER OF RECORD APPROVAL:

[REDACTED]
 Chief, Design Branch
 USACE, Buffalo District

ATTACHMENT 1 – TEAM MEMBERS

PROJECT DELIVERY TEAM			
Function/Discipline	Name (Last, First)	Office	Phone
Project Manager	[REDACTED]	CELRB-PMP-PM	[REDACTED]
City Engineer, Painesville, OH	[REDACTED]		[REDACTED]
Plan Formulator	[REDACTED]	CELRB-PML-PA	[REDACTED]
Engineering Team Lead	[REDACTED]	CELRB-TDD-S	[REDACTED]
Program Analyst	[REDACTED]	CELRD-PDS	[REDACTED]
Geotechnical Engineer	[REDACTED]	CELRB-TDD-C	[REDACTED]
Civil Engineering Technician (Specs)	[REDACTED]	CELRB-TDD-S	[REDACTED]
Safety & Occupational Health	[REDACTED]	CELRB-SO	[REDACTED]
Program Specialist	[REDACTED]	CELRB-PMP-O	[REDACTED]
Biologist, Environmental Analysis	[REDACTED]	CELRB-PM-EA	[REDACTED]
Branch Chief, Contracting	[REDACTED]	CELRB-CECT	[REDACTED]
Assistant District Counsel	[REDACTED]	CELRB-OC	[REDACTED]
Realty Specialist	[REDACTED]	CELRB-RE	[REDACTED]
Public Affairs Officer	[REDACTED]	CELRB-PA	[REDACTED]
District Value Officer	[REDACTED]	CELRB-TDDDE	[REDACTED]
Cost Engineer	[REDACTED]	CELRB-TDD-E	[REDACTED]
Geospatial Technician	[REDACTED]	CELRB-TD-EE	[REDACTED]
DQC REVIEWERS			
Function/Discipline	Name	Office	Phone
DQC Lead - Chief, Design	[REDACTED]	CELRB-TDD	[REDACTED]
Civil/Structural Design	[REDACTED]	CELRB-TDD-S	[REDACTED]
Coastal/Geotech	[REDACTED]	CELRB-TDD-C	[REDACTED]
Cost Engineering	[REDACTED]	CELRB-TDD-E	[REDACTED]
BCOES REVIEWERS			
Function/Discipline	Name	Office	Phone
Construction	[REDACTED]	CELRB-TDC-O	[REDACTED]
Counsel	[REDACTED]	CELRB-OC	[REDACTED]
Contracting	[REDACTED]	CELRB-CT	[REDACTED]
Environmental	[REDACTED]	CELRB-PML-E	[REDACTED]
Civil/Structural	[REDACTED]	CELRB-TDD-S	[REDACTED]
Design Branch Chief	[REDACTED]	CELRB-TDD	[REDACTED]
Real Estate	[REDACTED]	CELRB-RE	[REDACTED]
ATR REVIEWER(S)			
Function/Discipline	Name	Office	Phone
ATR Leader - Geotechnical Engineering (Regional Technical Specialist)	[REDACTED]	CELRB-TS-D-G	[REDACTED]