



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DIVISION, GREAT LAKES AND OHIO RIVER
CORPS OF ENGINEERS
550 MAIN STREET
CINCINNATI, OH 45202

CELRD-PD-GL

JAN 21 2016

MEMORANDUM FOR Commander, U.S. Army Engineer District, Huntington, 502 Eighth Street, Huntington, WV 25701-2070

SUBJECT: Approval of Review Plan for the Interstate 71 Widening Project, Between I-70 and the Stringtown Road Interchange, Columbus, Ohio, 408 Request

1. References:

a. Memorandum, CELRH-EC-D, subject: Interstate 71 Widening Project, Between I-70 and the Stringtown Road Interchange, Columbus, Ohio, 408 Request, Review Plan, dated 29 October 2015 with attachment, enclosed.

b. Memorandum, CEIWR-RMC, subject: Risk Management Center Endorsement, Interstate-71 Widening Project, Between I-70 and the Stringtown Road Interchange, Columbus, Ohio, 408 Request, Review Plan, dated 28 October 2015, enclosed.

2. The attached Review Plan for the Interstate 71 Widening Project has been prepared in accordance with EC 1165-2-214, "Civil Works Review", dated 15 December 2012 and EC 1165-2-216, "Policy and Procedural Guidance for Processing Requests to Alter US Army Corps of Engineers Civil Works Projects Pursuant to 33 USC 408", dated 31 July 2014. The subject review plan has been coordinated with CEIWR-RMC and supports the MSC approval of the review plan.

3. I approve the enclosed subject Review Plan. Subsequent revisions to this review plan or its execution will require new written approval from this office and is subject to change as circumstances require, consistent with the Project Management Business Process.

4. The District is requested to post the review plan to its website. Prior to posting, the names of all individuals and dollar amounts identified in the review plan should be removed.

5. The point of contact for the RMC's endorsement of the subject review plan is P.E.; he can be reached at 601-631-5896. The point of contact for the MSC's approval is he can be reached at 513-684-3159.

Encls

Commanding

CF:

**U.S. Army Corps of Engineers
Great Lakes & Ohio River Division
Huntington District**

REVIEW PLAN

**Review Plan for INTERSTATE-71 WIDENING PROJECT FRA-71-9.74
Between I-70 and the Stringtown Road Interchange
Columbus, Ohio
By the Ohio Department of Transportation
With the Cooperation of the City of Columbus**

Pursuant to 33 USC § 408

MSC Approval Date:

FOR OFFICIAL USE ONLY

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1. Introduction

a. Purpose of This Review Plan

This Alteration-Specific Review Plan is intended to ensure quality of the review by the Huntington District for the request to alter a US Army Corps of Engineers (USACE) civil works project within the Huntington District's area of responsibility. This review plan was prepared in accordance with Engineer Circular (EC) 1165-2-216, "Policy and Procedural Guidance for Processing Requests to Alter US Army Corps of Engineers Civil Works Projects Pursuant to 33 USC 408" (reference paragraph 7.c.(4) in EC 1165-2-216). This review plan provides the review guidelines associated with a specific alteration request pursuant to 33 USC 408 (Section 408). The requester of this Section 408 permit is the Ohio Department of Transportation (ODOT), District 6, Planning and Engineering department. The City of Columbus, the non-federal sponsor, has endorsed this alteration by letter, dated 18 November 2014.

b. Description and Information

This Review Plan covers proposed alterations to the West Columbus, Ohio, Local Protection Project (WCOLPP), resulting from the Ohio Department of Transportation (ODOT) proposed widening of Interstate 71 (I-71), between I-70 and the Stringtown Road Interchange. (SLM 9.74 to 15.05). As part of that project it will be necessary to alter portions of the WCOLPP. Proposed alterations include:

- **ODOT Area A:** LPP feature impacted: earthen levee embankment. Roadway ditch cutting into levee along Frank Rd. The widening of Frank Rd. will require the new roadway ditch to cut into the river slope of the levee along Frank Rd. It is proposed to steepen the river slope of the levee from 2.5H:1V to 2.0H:1V and add 6 feet of soil fill to the homogeneous embankment on the land side from ODOT STA. 136+50 to 139+00 (approximate USACE STA. 348+00 to 350+50).
- **ODOT Area B:** LPP feature impacted: Sheet pile cutoff extending beyond I-wall. Sheet pile cutoff wall within bridge abutment embankment at Greenlawn Ave. bridge. The upper 3 ft of sheet piling will be encased in foundation concrete from ODOT STA. 682+00 to 683+00 (approximate USACE STA. 263+50 to 264+50).
- **ODOT Area C:** LPP feature impacted: I-wall. Greenlawn Ave. Interchange Ramp A3 is to be realigned over existing I-wall. The existing I-wall will be removed and a new I-wall installed approximately 10 ft to the east existing I-wall from ODOT STA. 687+00 to 698+00 (approximate USACE STA. 250+10 to 260+40). Exposed height of the new I-wall would range from 3.5 to 4.4 ft.

- **ODOT Area D: LPP feature impacted:** Gatewell. Greenlawn Ave. Interchange Ramp A3 to be realigned over existing Gatewell 9 (Phase IIIA Gatewell 6) requiring the relocation of Gatewell 9 to the east of I-wall at ODOT STA. 690+00 (approximate USACE STA. 257+50).
- **Areas identified by ODOT as “not impacted”:** reaches of I-wall and T-wall from ODOT STA. 615+00 to 683+00 (just North of Frank Rd. to Greenlawn Ave). I-71 SB and interstate Ramp F (Greenlawn to I-71 SB) will be expanded or relocated closer to the existing floodwall. This interstate expansion or relocation also requires alteration to existing highway-related appurtenances (guardrail, drainage interception and control features, signage, light fixtures, etc.).

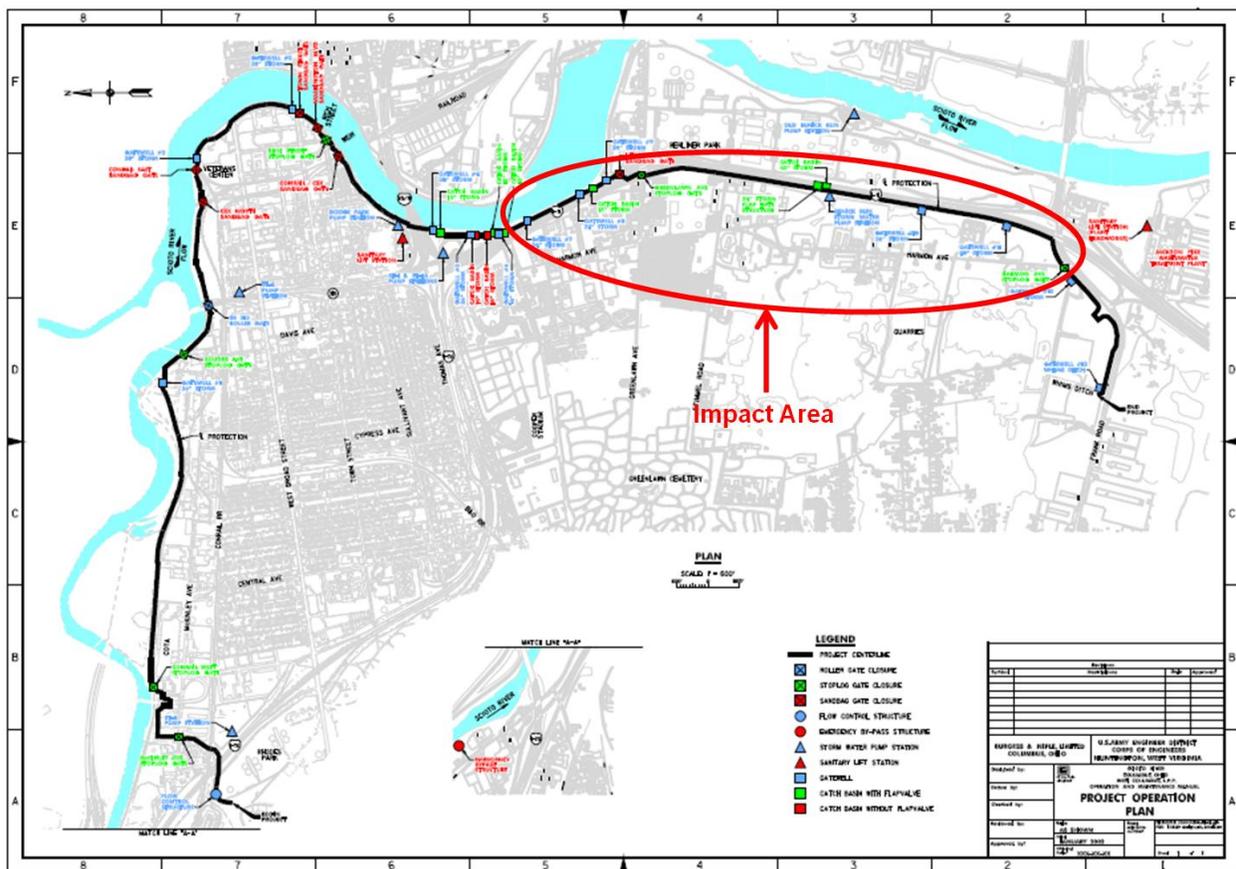


Figure 1: Plan of West Columbus Local Protection Project Showing Impact Area

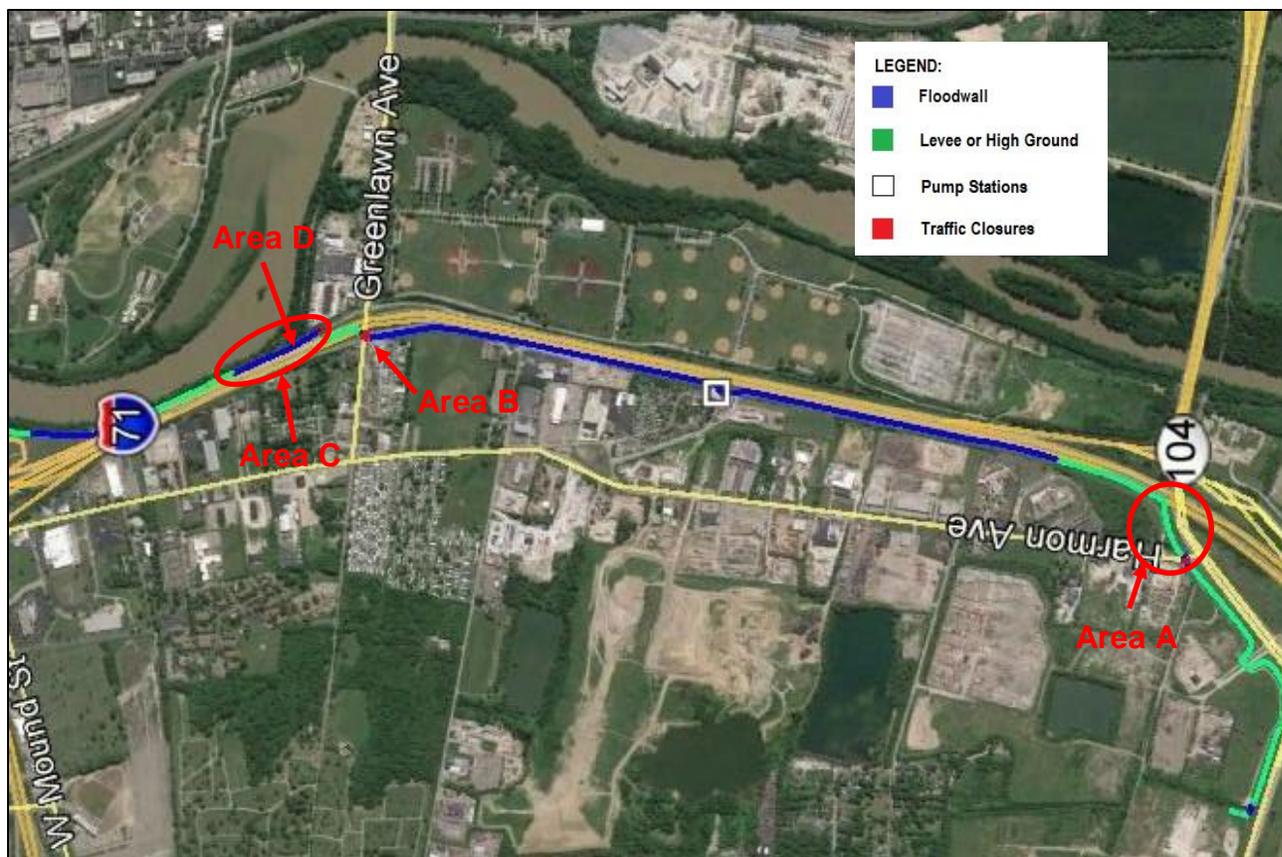


Figure 2: LPP Project Features within Impact Area

Authorization under Sections 10/404/103 is not being pursued. Credit under Section 221 of the Flood Control Act of 1970, as amended is not being sought. Nor is approval under Section 204(f) of WRDA 1986. All work will be within existing ODOT/City right of way and the use of federally owned property is not required. The proposed ODOT alteration to the West Columbus LPP involves areas where the ODOT I-71 widening project footprint overlaps the location of the floodwall. These locations are itemized in Appendix A - ODOT Type II IEPR Review Plan.

c. Background

The West Columbus, Ohio, Local Protection Project (WCOLPP) is located in Franklin County, Ohio, along Dry Run and the Scioto River in the western portion of the City of Columbus. The protection extends approximately 2,400 feet along the lower right descending bank of Dry Run and continues from its confluence with the Scioto River along the right descending bank and floodplain of the Scioto River for approximately 7.2 miles. To facilitate engineering and design, and construction, the project was divided into three phases and each phase was further subdivided.

Phase I consists of five parts. Phases IA and IB consist of 3,100 linear feet of the upstream end of the project known as Dry Run Levee; and, Phases IC, ID, and IE utilize three different Ohio Department of Transportation (ODOT) highway projects for the addition of necessary flood protection features. Phase IC is the Souder Avenue Closure constructed as a part of ODOT's Souder Avenue Extension. Phase ID, the Interstate 670 Modification, has incorporated flood protection features in ODOT's four-lane Interstate 70 highway embankment project. Phase IE is the State Route (SR) 315 Gate Closure constructed as a part of ODOT's SR-315 Modification Project.

Phase II was constructed utilizing five construction contracts. Phases IIA, IIC, and IID continue the floodwall/levee system, while Phase IIB covers the Dodge Park storm water pump station and Phase IIE covers the Dodge Park combined pump station. Two existing highway storm water pump stations, ST-2 and ST-8, were also incorporated into the project.

Phase III consists of the remainder of the project and includes levee, floodwall, and a storm water pump station. Phase IIIA provides protection from Interstate 70 to Greenlawn Avenue and was constructed under two separate contracts, Phase IIIA (North) and Phase IIIA (South). Phase IIIB provides protection from Greenlawn Avenue to Frank Road and also includes the Renick Run storm water pump station. Phase IIIC provides protection from Frank Road to the end of the project at Whims Ditch. Two existing highway storm water pump stations, ST-1 and ST-1A, were also incorporated into the Phase III segment of the project.

The LPP features include levee, inverted T-base wall (T-wall), I-wall, closures and interior drainage facilities. Levee/floodwall features consist of approximately 10,900 feet of I-wall/T-wall, 7,100 feet of levee with sheet pile cutoff, 8,700 feet of existing high ground, and 13 closures (6-Stoplog, 1-Roller Gate, 6-Sand Bag). Levees typically have 1 vertical on 2.5 horizontal side slopes, a 10-foot wide top, and a 5-foot inspection trench. Along the northern section of the project, a highly visible floodwall section at the Veteran's Memorial Center was integrated into natural surroundings by the incorporation of the open space into a waterfront park. The Phase IIIB concrete floodwall section utilized a combination of wall graphics and landscaping to soften its appearance. Interior drainage features are highlighted by a 100,000-gallon per minute (gpm) storm water pumping station at Dodge Park, and a 140,000-gpm storm water pumping station on the Renick Run Storm Sewer near Emig Road. The 140,000-gpm pumping station has been designed with expansion capability to 200,000 gpm. Three existing interstate storm water pump stations, ST-1, ST-1A, and ST-8 were incorporated into the project. ST-2 is located along SR 315 and is owned and operated by the City.

One combined pump station at Dodge Park and a portion of the 120-inch Scioto Main sanitary sewer was constructed during various phases of the WCLPP. The extension of the 120-inch Scioto Main sanitary sewer to the Jackson Pike Wastewater Treatment Plant (WWTP) as well as modifications to the Jackson Pike WWTP Headworks which were constructed under City of Columbus capital improvement projects are also important part of the flood protection system. Operation of the Jackson Pike headworks is also governed by the Interim Interconnector Sewer Operational Plan. In addition, approximately eight-tenths of a mile of bicycle/pedestrian trail were constructed for recreational purposes. The trail runs along the riverside of the project from the esplanade below the Broad Street Bridge to Souder Avenue.

A flood warning system has also been developed to provide assistance in operating the project. This system collects and feeds rainfall and flood stage information from various locations throughout the upper Scioto River drainage basin into a central computer system, currently located at the City's Fairwood Avenue facility. The central computer system continuously monitors current conditions and stores real-time data for reference and use in determining the rate of rise of the river.

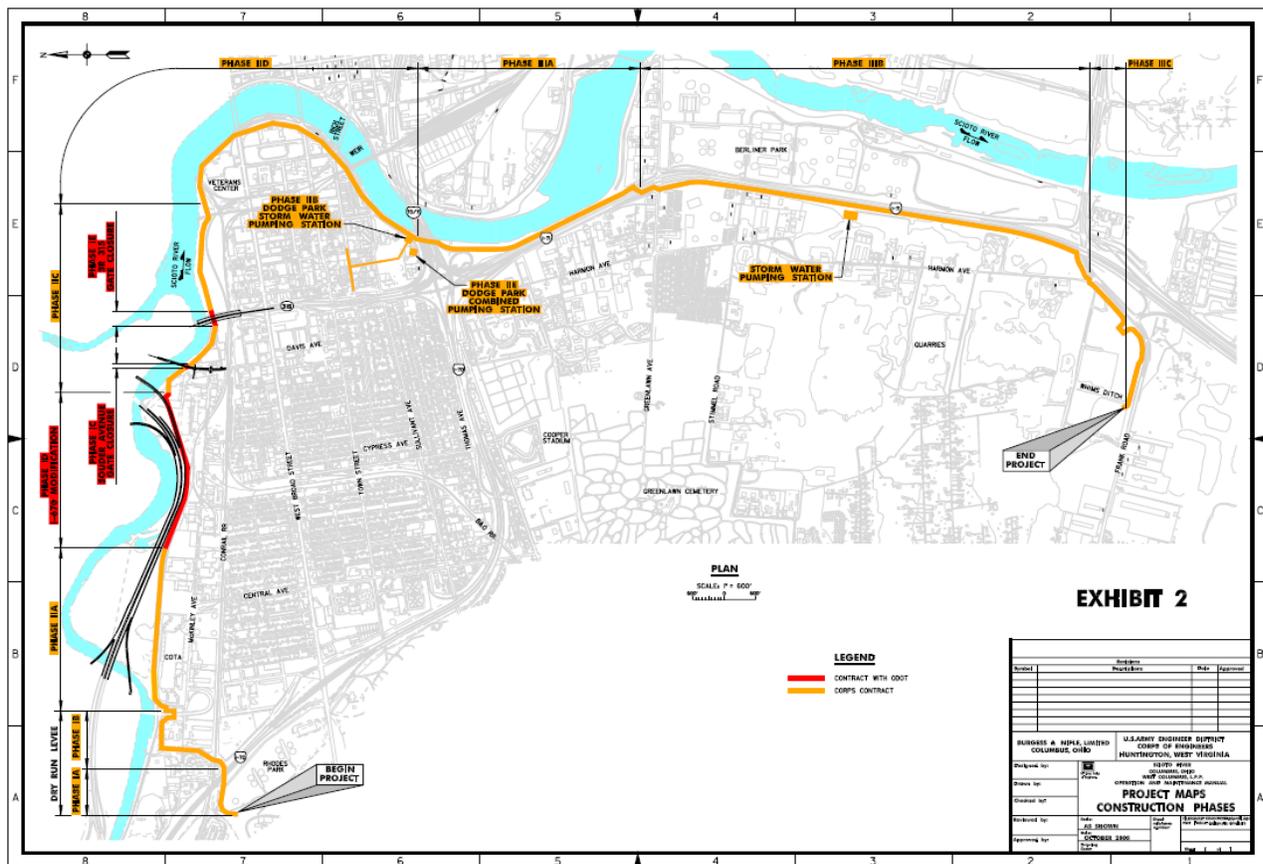


Figure 3: Plan of West Columbus Local Protection Project Showing Original Construction Phasing

2. Review Requirements

a. Level of Review Required by the Requester

(1) **Quality Assurance and Quality Control (QA/QC) Review.** QA/QC is the review of basic science and engineering work products focused on fulfilling the project's quality requirements. QC will consist of Quality Checks and reviews and will be accomplished by the requester. All QC/QA documentation will be provided to the ATR Team (Appendix C).

(2) **Independent External Peer Review.** A Type II Independent External Peer Review (IEPR) will be required for ODOT's proposed alteration to the West Columbus LPP project. Rationale for this determination is in accordance with procedures in EC1165-2-214 "Civil Works Review Policy". The LRH Chief of Engineering and Construction Division has determined that the proposed alteration would pose a significant threat to human life and public safety.

Risk Drivers leading to this determination include:

- The proposed alteration compromises the line of protection:
 - Approximately 1,100 LF of I-Wall, ranging in height from 3.5 to 4.4 ft, will be removed and relocated 10' east of the existing alignment. Soil-Structure interaction and lessons learned following the 2005 Hurricane Katrina incident will need to be applied. Also, live loads from traffic are a concern.
 - Excavation along the river side of the levee and embankment fill along the dry side. Slope stability is a concern given the proposed construction techniques.
 - Relocation of an existing gateway.
- Construction sequencing is critical. During construction, for a short duration, there will be a gap in protection in the West Columbus Floodwall system. Contingencies will need to be developed to close the gap during a flood event.
- The West Columbus LPP protects a major US city. The protected area, about 2,800 acres, is completely urban with a mix of residential, industrial, and commercial development.
- A Levee Screening for the WCOLPP was completed in 2014 and is currently under review by HQUSACE. However, consequences for the protected area are expected to be significant. Critical affected facilities for breach or overtopping would include five schools, a major hospital, fire

station, four chemical facilities, museum, and a correctional medical facility and camp complex. The WCOLPP currently provides protection for an annual chance exceedance probability of 0.002. Overtopping could inundate the approximately 4,000 residential and commercial buildings within the inundation zone. Total estimated property damages would be in excess of \$400 million (in 1992 dollars).

- Cost for construction of the approximately 1,100 LF of I-Wall relocation is estimated to be \$1.2 million.

The review plan for the Type II IEPR has been developed by the requester, ODOT (Appendix A). The proposed alteration is to a USACE levee/floodwall project. The review comments will be documented, using the USACE DrCHECKS Software system, for tracking purposes, and to maintain Quality Control of the product. The Huntington District will ensure that ODOT is aware and understands all USACE comments, and that each comment is properly addressed and incorporated into the contract documents.

A Type II IEPR will be performed on the plans, specifications, and design analysis by the IEPR team listed in Appendix A. During the midpoint of construction of the I-wall and upon completion of construction, IEPR reviews will be conducted for the geotechnical and structural disciplines.

b. Level of Review Required by the District

The review of this alteration request shall include a district-led Agency Technical Review (ATR), reference paragraph 7.c.(4) in EC 1165-2-216. The Agency Technical Review (ATR) for this proposed alteration will be led and performed by Huntington District USACE professionals. Legal compliance review will be conducted by the Huntington District Office of Counsel.

c. Decision-Level Determination

A final decision by the Director of Civil Works at HQUSACE is required because a Type II Independent External Peer Review (IEPR) is required for ODOT's proposed alteration to the West Columbus LPP project. Once the District and Division recommends approval, then the Section 408 request requires HQUSACE level review and decision.

d. District Review Purpose

The review of all work products will be in accordance with the guidelines established within this review plan. The purpose of this review is to ensure the proper application of established criteria, regulations, laws, codes, principles and professional practices and that the requirements set forth in EC-1165-2-216 have been met.

For the purposes of this Section 408, the ATR team will make the following determinations:

- 1) Impair the Usefulness of the Project Determination. The objective of this determination is to ensure that the proposed alteration will not limit the ability of the project to function as authorized and will not compromise or change any authorized project conditions, purposes, or outputs.
- 2) Injurious to the Public Interest Determination. Proposed alterations will be reviewed to determine the probable impacts, including cumulative impacts, on the public interest. The decision whether to approve an alteration will be determined by the consideration of whether benefits are commensurate with risks.
- 3) Legal and Policy Compliance Determination. A determination will be made as to whether the proposed alteration meets all legal and policy requirements.
- 4) Verify Appropriate Decision Level. Verify whether or not HQUSACE review and decision is required.

3. District-led Agency Technical Review Team

The District-led Agency Technical Review Team is comprised of reviewers with the appropriate independence and expertise to conduct a comprehensive review in a manner commensurate with the type of proposed alteration described in Section 1.b of this review plan.

Agency Technical Review (ATR). ATR is an in-depth review, managed within USACE, and conducted by a qualified team that is not involved in the day-to-day production of the project/product. The purpose of this review is to ensure the proper application of clearly established criteria, regulations, laws, codes, principles and professional practices.

The ATR team reviews the various work products and assure that all the parts fit together in a coherent whole. ATR teams will be comprised of senior USACE personnel, preferably recognized subject matter experts with the appropriate technical expertise such as regional technical specialists (RTS), and may be supplemented by outside experts as appropriate.

The Huntington District ATR team is listed in Appendix C. EC Reviewers are CERCAP registered or are in the process of obtaining their registration. Disciplines required for this review include:

- Civil/Site,
- Structural,
- Geotechnical and Construction,
- Hydrology and Hydraulics,
- Levee Safety Program Management,
- Electrical/Mechanical,
- Economics,
- Maintenance and Operation (Sponsor),
- Economics,
- Real Estate,
- Planning/NEPA.

4. National Environmental Policy Act

Under the National Environmental Policy Act (NEPA) the District will assess the potential environmental impacts of any recommended Federal actions. It is anticipated an environmental assessment will be prepared for this action. The NEPA document will undergo ATR by Charles (Chip) W. Hall, CELRN-PM-P. Mr. Hall is a Biologist and Regional Technical Specialist for the Nashville District.

5. Execution Plan

a. Review Procedures

Reviews will be conducted in a fashion which promotes dialogue regarding the quality and adequacy of the required documentation. The ATR team will review the documents provided.

The four key parts of a review comment will normally include:

- 1) The review concern – identify the deficiency or incorrect application of policy, guidance, or procedures.
- 2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not been properly followed.

- 3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the district’s ability to make a decision as to whether to approve or deny the Section 408 request.
- 4) The probable specific action needed to resolve the concern – identify the action(s) that the requester must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist. The ATR documentation must include the text of each ATR concern, a brief summary of the pertinent points in any discussion, including any vertical coordination, and the agreed upon resolution.

This Review Plan defines the scope and level of ATR review for the proposed alterations to the West Columbus LPP project.

References

- (1) Engineer Circular (EC) 1165-2-214, Civil Works Review Policy, 15 December 2012
- (2) Engineer Regulation (ER) 1110-1-12, Quality Management, 31 July 2006
- (3) Engineer Circular (EC) 1165-2-216, Water Resource Policies and Authorities, 31 July 2014

b. Completion and Certification of the ATR

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- (1) Identify the document(s) reviewed and the purpose of the review;
- (2) Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- (3) Include the charge to the reviewers;
- (4) Describe the nature of their review and their findings and conclusions;
- (5) Identify and summarize each unresolved issue (if any); and
- (6) Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The vertical team consists of 1) District: Chief, Engineering and Construction Division/DSO/LSO, 2) RMO:

RMC Review Manager, and 3) MSC: Division Section 408 Coordinator. The ATR lead will prepare a completion of ATR and Certification of ATR. It will certify that the issues raised by the ATR team have been resolved (or elevated to the vertical team). The completion and certification should be completed based on the work reviewed to date for the project. A Sample Completion of ATR and Certification of ATR are included in Appendix D.

c. Review Schedule

The following timeline is a Draft and for Estimation purposes.

Event	Date
Review Plan Completion by District	October 2015
Review Plan Submission to RMC	October 2015
Review Plan Endorsed by RMC	November 2015
Review Plan Submission to LRD	November 2015
Review Plan Approval by LRD	January 2016
ATR & IEPR Review	January 2016

d. Review Cost

The anticipated cost for the District is projected to be \$200,000. The anticipated cost for ATR is \$80,000. This cost includes project management, project coordination, Review Plan development, ATR, real estate evaluation, construction site visits, environmental documentation preparation and review, and Section 408 Summary of Findings. ODOT has provided payment to the Huntington District for the review.

The anticipated cost for IEPR is \$110,000. The IEPR cost includes \$90,000 for review of the Design Analysis and Project Plans and Specifications by four experts (two geotechnical, one structural, and one hydraulics) and \$20,000 for review during the midpoint of construction and upon construction completion by two experts (one geotechnical and one structural).

e. Public Participation

As required by EC 1165-2-214, the approved Review Plan will be posted on the District public website (<http://www.lrh.usace.army.mil/Missions/PublicReview.aspx>). This is not a formal comment period and there is no set timeframe for the opportunity for public comment. If and when comments are received, the PDT will consider them and decide if revisions to the review plan are necessary. This engagement will ensure that the peer review approach is responsive to the wide array of stakeholders and customers, both within and outside the federal government.

6. Review Plan Points of Contact

Name/Title	Organization	Email/Phone
_____ _____	_____ _____	_____ _____ _____
_____ _____	_____ _____	_____ _____ _____
_____ _____	_____ _____	