

**Review Plan
U.S. Army Corps of Engineers
Mississippi Valley Division
Vicksburg District**

**Yazoo City (Sta. 1089+00) and Belzoni
(Sta. 1039+50) Yazoo River Levee
Setbacks**

MSC Approval Date: *Pending*

Last Revision Date: *None*



**US Army Corps
of Engineers®**

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1. Purpose and Requirements

a. Purpose

This Review Plan (RP) for the Yazoo City and Belzoni Levee Setbacks will ensure a quality-engineering project is developed by the Corps of Engineers in accordance with EC 1165-2-214, "Civil Works Review Policy". The RP shall lay out a value added process that assures the correctness of the information shown. This RP describes the scope of review for addressing bank stabilization issues on completed projects. The District Chief of Engineering has assessed that the risk of the project is significant; therefore a Safety Assurance Review (SAR) will be required.

b. Guidance and Policy References

- EC 1165-2-214, Civil Works Review Policy, 15 December 2012
- ER 1110-1-12, Quality Management, 31 March 2011
- EM 1110-1-1905, Bearing Capacity of Soils, 30 October 1992
- EM 1110-2-1913, Design and Construction of Levees, 30 April 2000
- ER 1105-2-101, Risk Analysis for Flood Damage Reduction Studies, 3 January 2006
- ER 1110-1-12, Change 2, Quality Management, 31 March 2011
- ER 1110-2-1806, Earthquake Design and Evaluation for Civil Works Projects, 31 July 1995

c. Requirements

This RP was developed in accordance with EC 1165-2-214, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. The RP identifies the most important skill sets needed in the reviews and the objective of the review and the specific advice sought, thus setting the appropriate scale and scope of review for the individual project. This RP should be provided to Project Delivery Team (PDT), DQC, ATR and IEPR Teams.

d. Review Management Organization

The USACE Risk Management Center (RMC) is the Review Management Organization (RMO) for this project. Contents of this RP have been coordinated with the RMC and the Mississippi Valley Division, the Major Subordinate Command (MSC). In-Progress Review (IPR) team meetings with the RMC and MVD will be scheduled on an "as-



needed” basis to discuss programmatic, policy, and technical matters. The MVD Levee Safety Program Manager and MVD District Support Team member will be the points of contact for vertical technical and policy coordination. Vicksburg District (MVK) will assist the RMC with management of the ATR and IEPR reviews and development of the draft ATR and IEPR “charges”.

2. Project Description and Information

a. Project Description

The levees that will be set back are part of the Upper Yazoo Projects on the Yazoo River. They were constructed to reduce flood stages in the upper Yazoo Basin near Belzoni and Yazoo City, Mississippi. The work to be reviewed under this RP will consist of two sites: The Belzoni Levee Setback (Levee Station Number 1035+00) and the Yazoo City Setback (Levee station number 1089+00). Both sites have extensive and active bank caving that is endangering the existing levees. The Belzoni site work will set back the existing Yazoo River left descending bank levee approximately 200’ and will be approximately 1600’ long (see Figure 1).





The Yazoo City site work will set back the existing Yazoo River right descending bank levee approximately 200' and will be approximately 1600' long (see figure 2).



To ensure that USACE can operate and maintain the Yazoo River Levee in perpetuity, the MVK Real Estate Office will acquire the necessary permanent easement for the levee setbacks.

b. System Information and Risks

1. Yazoo River – Belzoni Bank Caving

The Tchula Lake Levee System protects approximately 186 square miles of land lying between the East Bank of the Yazoo River and high ground. This levee system starts at high ground just west of Cruger, Mississippi and runs along the east bank of the Yazoo River and ties into low ground at Tchula Lake at approximate Station 1611+10, then picks up on the other side of Tchula Lake at approximate Station 1627+05 and runs to high ground approximately 3.5 miles west of Bee Lake near the town of Thornton, Mississippi.

The population density within the leveed area is low, except east of Belzoni where there is a small population cluster living behind the levee. Accordingly, flooding from a breach prior to overtopping of this portion of the levee could begin inundating populated areas within hours. Structures located near the breach or overtopping location could be washed off their foundations due to high velocities, but the velocities would decrease as the water begins to spread across the basin.



There is no bathtub effect for this levee system, meaning floodwater is able to drain. The depths of flooding in the basin where the majority of the population is located would be about 7 feet, which is about the same height as a typical single-story residence in the area. Therefore, absent evacuation, there is a high potential for loss of life.

For an unexpected breach prior to overtopping, the warning time for evacuation would be shorter. There are evacuation plans in place, but they do not establish formal evacuation routes; therefore, the time for evacuation would be longer because residents may not be knowledgeable about routes that would lead to high ground. Approximately 27% of the population at risk would not be able to evacuate if a breach occurred prior to overtopping at night.

The population at risk for the Tchula Lake Levee protected area is 1,430 (day) and 1,870 (night). For a scenario of a breach prior to overtopping on the levee segment, the threatened populations are 443 (day) and 579 (night) and the loss of life estimates are 1.65 (day) and 2.25 (night). Data and analysis provided are from the Levee Senior Oversight Group approved levee Screening Level Risk Assessment.

2. Yazoo River – Yazoo City Bank Caving

The Whittington Auxiliary South Levee System protects approximately 165 square miles of land lying between the East Bank of the Will Whittington Auxiliary Channel and the Yazoo River to the east. The Whittington Auxiliary South Levee System ties into low ground at the south end of the levee along the east bank of the Will Whittington Auxiliary Channel, extends north to the intersection of the Yazoo River, and parallels the river southeast until it ties into high ground. The area is subject to flooding from the Yazoo River backwater and can also receive flood waters from headwater flooding of the Yazoo River. It was designed as a floodway to help reduce potential flooding at Yazoo City.

The population centers, Louise, Silver City, and Yazoo City, are located outside the flood zone areas, though there are over 500 people located within the inundation area. The majority of the developments are rural farm property in open areas, some urban property close to rivers, and industrial property.

For an overtopping or breach near overtopping scenario, evacuations of the at-risk area would begin about 8 hours prior to stage reaching the top of the levee. Given the relatively flood risk aware population and warning system, a high percentage of the population would attempt to leave the area east towards the higher ground beyond Yazoo City. For an unexpected breach prior to overtopping, the warning would go out much closer to breach and allow little time for evacuation.

Flooding from breach or overtopping of this segment would begin inundating urban populations close to the rivers, then the rural populations on farm land, within minutes of overtopping or breach. Structures located near the breach or overtopping location would likely be washed off their foundations due to high

velocities, but the velocities would decrease as the water begins to spread across the basin.

The population at risk for the Whittington Auxiliary South Levee System is 571 (day) and 533 (night). For a scenario of a breach prior to overtopping on the levee segment, the threatened populations are 142 (day) and 579 (night), and the loss of life estimates are 0.31 (day) and 0.29 (night). Data and analysis provided are from the Levee Senior Oversight Group approved levee Screening Level Risk Assessment.

c. Project Sponsor

There is no project sponsor for the MR&T, Yazoo River Levees. These levees are owned and operated by USACE at 100% federal cost. Operations and Maintenance work is performed through a contract administered by the Greenwood Area Office of the Vicksburg District.

3. District Quality Control

a. Requirements

All implementation documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. The project plans, specifications, and design documentation will go through milestone reviews at the 65%, 90%, and 95% levels of completion. Between milestone reviews, the District will perform “over-the-shoulder” reviews and “red-dot” calculation checks in addition to the milestone reviews. ATR will be held concurrently with the 90% milestone review, and the Independent External Peer Review (IEPR) and the Biddability, Constructability, Operability, Environmental, and Sustainability Review (BCOES, a/k/a District Office Review (DOR)) will be held concurrently with the 95% review. All computations, drawings or sketches shall undergo a rigorous independent check as part of the standard Quality Control (QC) process. Quality checks may be performed by staff responsible for the work, such as supervisors, work leaders, team leaders, designated individuals from the senior staff, or other qualified personnel. However, they should not be performed by the same people who performed the original work, including managing/reviewing the work in the case of contracted efforts. Quality checks include a review of the alternatives considered, schedules, budgets, means and methods of construction, and have lessons learned been considered. DQC is assuring the math and assumptions are correct by having a checker initial each sheet of the computations. Checking is accompanied by a red check mark or similar annotation next to the item that has been checked. For drawings the checker shall place a red check mark or similar annotation on each dimension/elevation, note or reference showing concurrence with the correctness of the information shown. Additionally, the PDT is responsible to ensure consistency and effective coordination across all project disciplines during project design and construction management. See Attachment 2 for PDT and DQC members and disciplines.

b. Documentation

All DQC reviews are managed by the District DQC Coordinator. All comments, responses, and back checks will be conducted in DrChecks and included with final design documentation.

4. Agency Technical Review

a. Requirements

ATR is mandatory for all implementation documents (including supporting data, analyses, environmental compliance documents, etc.). The ATR will be held concurrently with the 90% milestone review. It will consist of reviewing the plans, specifications, and design documentation report (DDR). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct, went through robust DQC, comply with published USACE guidance, and whether the document explains the analyses and results in a reasonably clear manner for the public and decision makers. The PDT should obtain ATR agreement on key data such as hydraulic and geotechnical parameters early in design process. The goal is to have early involvement of the ATR team, especially when key decisions are made. The ATR Lead should be invited to all PDT meetings, in order to understand the design efforts and to know when to engage other ATR members for concurrence on key decisions. Value-added lessons learned from the ATR team should be shared early on to have the best chance of being adopted by the PDT. This is consistent with the requirement that the ATR members shall not be involved in the day-to-day production of the project/product. A site visit will not be scheduled for the ATR Team.

b. Documentation of ATR

DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments will be limited to those that are required to ensure adequacy of the product. The four key parts of a quality review comment will normally include:

- (1) The review concern – identify the product’s information 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 plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and



(4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

c. Comment Resolution

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 in DrChecks includes the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the District, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

d. Products to Undergo ATR

Documents to undergo the ATR include the project plans, specifications, and DDR. In addition to the standard product information and design decision documentation, the DDR will include appendices for all calculations, the soils report, and documentation of completed DQC.

e. Required ATR Team Expertise and Requirements

ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team will be from outside the home MSC. The ATR team will be chosen based on each individual's qualifications and experience with similar projects. All ATR reviewers will be certified in CERCAP: <https://maps.crrel.usace.army.mil/apex/f?p=105:53:14975649327116::NO:::> See Attachment 2 for ATR members.

ATR Lead: The ATR Lead is a senior professional outside the home MSC with extensive experience in preparing Civil Works documents and conducting ATRs. The Lead has the necessary skills and experience to lead a virtual team through the ATR process. The ATR Lead may also serve as a reviewer for a specific discipline, in this case, Geotechnical Engineering, Construction Engineering, or Civil Engineering.

Geotechnical Engineer - Geotechnical Engineer reviewer shall be a registered professional geotechnical engineer with 10 years of demonstrated experience in the specific field of levee engineering in evaluating, designing, and constructing large levees embankments; and with a minimum MS degree or higher in engineering is preferred. Geotechnical reviewer experience shall be in soil compaction and earthwork construction; soil mechanics; seepage and piping; landslide and slope stability evaluations; bearing capacity and settlement; and foundation inspection and



assessment. The Geotechnical reviewer shall also have knowledge of best practices regarding levee design and construction procedures and policies.

Civil Engineering - The team member should be a registered professional engineer and have 5 or more years of experience in civil engineering. Experience needs to include the engineering and design of flood risk management project features.

Construction Engineer – Reviewer should be a senior level, professionally registered engineer with extensive experience in the engineering construction field with particular emphasis on levee safety projects. The Construction reviewer should have a minimum of 10 years of experience.

f. 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 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 is included as Attachment 1.

5. Independent External Peer Review (IEPR)/Safety Assurance Review (SAR)

a. Decision on Type II IEPR

A Type II IEPR, also referred to as a Safety Assurance Review (SAR), will be performed during the Implementation Phase on the design and construction activities associated with the plans, specifications, and DDR. A risk-informed decision was made as to



whether IEPR is appropriate based on the factors to consider for conducting a Type II IEPR review that are outlined in EC 1165-2-214, Appendix E, Section 2 (a) thru (c).

A risk-informed decision was made that this project poses a significant threat to human life (public safety) since it involves levees that serve the purpose of reducing the risk to life and property. For a Type II IEPR the selection of the Type II IEPR review panel members will be made up of independent recognized experts from outside of USACE in the appropriate disciplines, representing a balance of expertise suitable for the review being conducted. The selection of IEPR review panel members will be selected using the National Academy of Science (NAS) Policy which sets the standard for "independence" in the review process. A site visit will be scheduled for the IEPR Team Member.

b. Scope of Safety Assurance Reviews

Type II IEPRs are managed outside USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. The Type II IEPR panel will conduct review of the design and construction activities prior to initiation of physical construction and once construction activities are completed. The review shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.

c. Products to Undergo Type II IEPR

Documents to undergo the Type II IEPR include the project plans, specifications, and DDR. In addition to the standard product information and design decision documentation, the DDR will include appendices for all calculations, the soils report, and documentation of completed DQC and ATR.

d. Required Type II IEPR Panel Expertise

The following provides an estimate of the Type II IEPR panel member and the type of expertise that should be represented. The member shall be a recognized expert in his/her field and have specialized experience pertaining to the work being performed in this project. In addition the member should have an advanced degree and be professionally registered.

Geotechnical Engineer - Geotechnical Engineer reviewer shall be a registered professional geotechnical engineer from an Architect-Engineer or consulting firm, a public agency, or academia with 10 years of demonstrated experience in the specific field of levee engineering in evaluating, designing, and constructing large levees embankments; and with a minimum MS degree or higher in engineering is preferred. Geotechnical reviewer experience shall be in soil compaction and earthwork construction; soil mechanics; seepage and piping; landslide and slope stability evaluations; bearing capacity and settlement; and foundation inspection and



assessment. The Geotechnical reviewer shall also have knowledge of best practices regarding levee design and construction procedures and policies.

e. Documentation of Type II IEPR

The Type II IEPR will be managed by an AE firm or government entity which meets the criteria set forth in EC 1165-2-214. DrChecks review software may be used to document the Type II IEPR comments and aid in the preparation of the Review Report but is not required.

Comments should address the adequacy and acceptability of the engineering methods, models, and analyses used. Type II IEPR comments should generally include the same four key parts as described for ATR comments in Section 4. An AE contractor or Government Entity will be responsible for compiling and entering comments into DrChecks.

No later than 60 days following the Design phase and Construction phase milestones, the Type II IEPR team member will prepare a Review Report that will accompany the publication of the final report for the project and shall:

- Disclose the names of the reviewer, organizational affiliation, and include a short paragraph on both the credentials and relevant experiences of the reviewer;
- Include the charge to the reviewer;
- Describe the nature of the review and their findings and conclusions; and
- Include a verbatim copy of the reviewer's comments (either with or without specific attributions).

These Review Reports, including reviewer comments and a recommendation letter will be provided to the RMC as soon as they become available. Written responses to the IEPR Review Report will be prepared by the Vicksburg District to explain the agreement or disagreement with the views expressed in the report, the actions undertaken or to be undertaken in response to the report, and the reasons those actions are believed to satisfy the key concerns stated in the report (if applicable). These comment responses will be provided to the RMC for concurrence and incorporated into the report. The revised report will be provided to the RMC with the USACE response and all other materials related to the review.

The Vicksburg District's responses shall be submitted to the MVD MSC for final Division Commander Approval. After the Division Commander's approval, the District will make the report and responses available to the public on the District's website located at the following: <http://www.mvk.usace.army.mil/Missions/Civil-Works/Peer-Review-Plans/>



6. Policy and Legal Compliance Review

All implementation documents will be reviewed throughout the project for their compliance with law and policy. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy and warrant approval or further recommendation to higher authority by the home MSC Commander. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies.

7. Review Schedule and Costs

a. Schedule of Reviews

To the extent practicable, reviews should not extend the design schedule but should be embedded in the design process. Reviewers should be involved at key decision points and are encouraged to provide timely, over-the-shoulder comments. The review schedule is provided in the following table.

DQCR, PQCR, ATR, & BCOES REVIEW SCHEDULE		
ACTIVITY	ACTIVITY START DATE	ACTIVITY END DATE
65% Milestone Review	6/30/17	7/14/17
ATR Coordination Meeting	8/2/17	8/2/17
90% Milestone Review	8/4/17	8/18/17
Agency Technical Review	8/4/17	8/24/17
IEPR Coordination Meeting	8/22/17	8/24/17
95% Milestone Review	9/1/17	9/15/17
BCOES Review	9/1/17	9/15/17
Type II IEPR – Design Phase	9/1/17	10/27/17
Type II IEPR – 50% Construction Phase	2 nd Quarter FY 2018	
Type II IEPR – Final Construction Phase	3 rd Quarter FY 2018	

b. ATR Schedule and Cost

The preliminary review schedule is listed in the provided in the table in Paragraph 7.a. The estimated cost for the ATR is approximately \$15,000.

c. IEPR Schedule and Costs

A Type II IEPR will be required for this project. Initial indications are that the estimated cost for the Type II IEPR will be approximately \$40,000-\$60,000. This estimate will be refined when the Scope of Work for the Type II IEPR contract is completed. The Type II IEPR contractor will be involved with the project through the construction phase and into the operations and maintenance phase. More specific milestone dates will be added in the future during the construction phase, but it can be assumed to occur near the mid-point of construction and near the end of construction.

8. Public Participation of Review Plan

As required by EC 1165-2-214, the approved RP will be posted on the District public website (<http://www.mvk.usace.army.mil/Missions/Civil-Works/Peer-Review-Plans>). The public will have 30 days to provide comments on the documents; after all comments have been submitted, the comments will be provided to the technical reviewers. This is not a formal comment period. If and when comments are received, the PDT will consider them and decide if revisions to the RP 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.

9. Review Plan Approval and Updates

The MSC for this is the Mississippi Valley Division. The MSC Commander is responsible for approving this RP. The Commander's approval reflects vertical team input (involving the Vicksburg District, MSC, and RMC) as to the appropriate scope and level of review for the study and endorsement by the RMC. The RP is a living document and may change as the study progresses; the District is responsible for keeping the RP up to date. Commander approval will be documented as a memorandum. Significant changes to the RP (such as changes to the scope and/or level of review) should be re-endorsed by the RMC and re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the RP, along with the Commanders' approval memorandum, will be posted on the District's webpage <http://www.mvk.usace.army.mil/Missions/Civil-Works/Peer-Review-Plans>. The latest RP should also be provided to the RMO and home MSC.



10. Engineering Model Certification and Approval

The use of certified or approved engineering models is required for all activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. The responsible use of well-known and proven USACE-developed and commercial engineering software will continue, and the professional practice of documenting the application of the software and modeling results will be followed. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required). The following engineering models are anticipated to be used:

MODEL	STATUS
Geo-Slope Geostudio 2012	Approved
Bentley MicroStation and Inroads Civil Design Software	Approved

11. Review Plan Points of Contact

NAME/TITLE	ORGANIZATION	EMAIL/PHONE
Jonathan Pennington/ Project Coordinator	CEMVK-OD- MP	<u>Jonathan.D.Pennington@usace.army.mil</u> 601-631-5015



ATTACHMENT 1: COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the _____ for *Belzoni and Yazoo City Levee Softbacks*. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-214. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrCheckssm.

SIGNATURE

Name
ATR Lead
Office Symbol/Company

Date

SIGNATURE

Name
Project Manager
Office Symbol

Date

SIGNATURE

Name
Architect Engineer Project Manager¹
Company, location

Date

SIGNATURE

Nathan Snorteland
Director
CEIWR-RMC

Date

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: Describe the major technical concerns and their resolution. As noted above, all concerns resulting from the ATR of the project have been fully resolved.

Chief, Engineering Division (Vicksburg District)
Office Symbol

Date

Levee Safety Officer (Vicksburg District)
Office Symbol

Date

¹ Only needed if some portion of the ATR was contracted

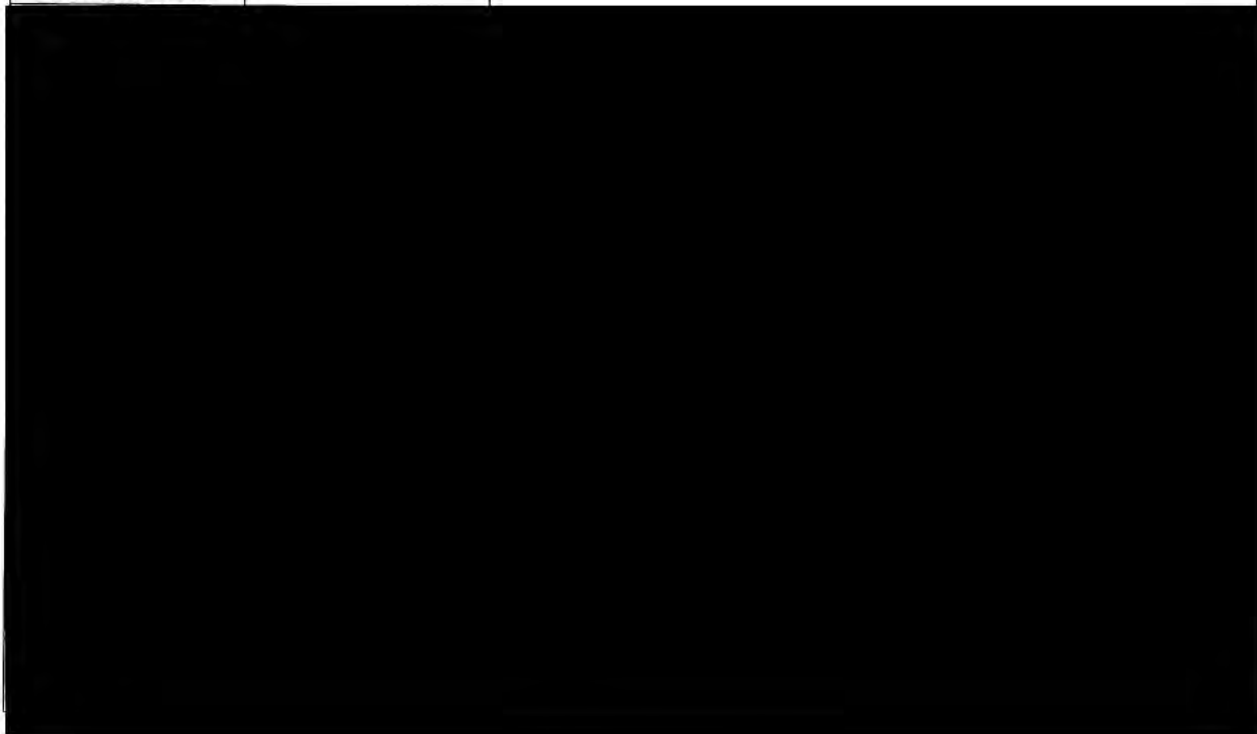


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ATTACHMENT 2: TEAM ROSTERS

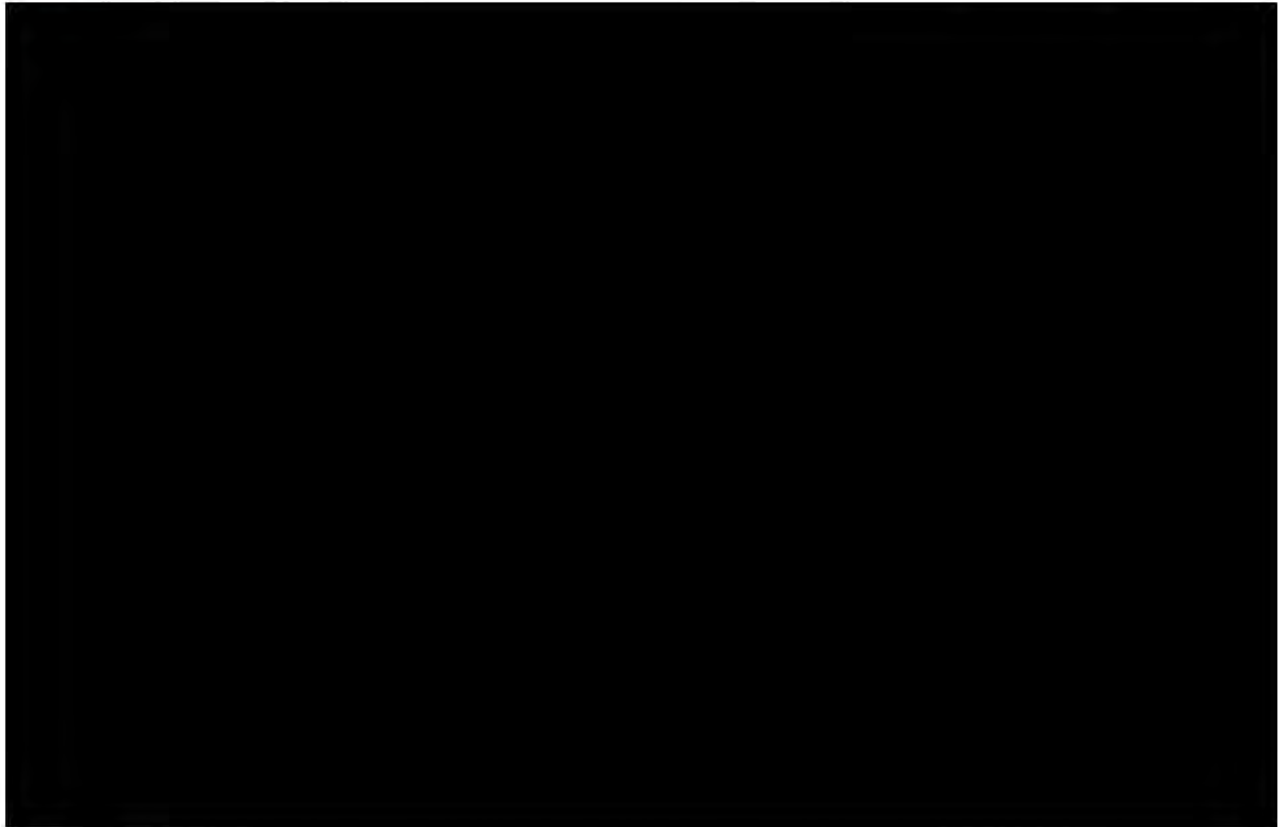
PDT Members

NAME/TITLE	ORGANIZATION	EMAIL/PHONE
Jonathan Pennington / Project Coordinator	CEMVK-OD-MP	<u>Jonathan.D.Pennington@usace.army.mil</u> 601-631-5015



DQC Reviewers

NAME/TITLE	ORGANIZATION	EMAIL/PHONE
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Agency Technical Review (ATR) Team

DISCIPLINE	NAME	DESCRIPTION OF CREDENTIALS
ATR Lead		The ATR Lead is a senior professional outside the home MSC with extensive experience in preparing Civil Works documents and conducting ATRs. The Lead has the necessary skills and experience to lead a virtual team through the ATR process.
Geotechnical Engineering		Geotechnical Engineer reviewer shall be a registered professional geotechnical engineer with 10 years of demonstrated experience in the specific field of levee engineering in evaluating, designing, and constructing large levees embankments; and with a minimum MS degree or higher in engineering is preferred. Geotechnical reviewer experience shall be in soil compaction and earthwork construction; soil mechanics; seepage and piping; landslide and slope stability evaluations; bearing capacity and settlement; and foundation inspection and assessment. The Geotechnical reviewer shall also have knowledge of best practices regarding



		levee design and construction procedures and policies.
Civil Engineering		The team member should be a registered professional engineer and have 5 or more years of experience in civil engineering. Experience needs to include the engineering and design of flood risk management project features.
Construction Engineering		Reviewer should be a senior level, professionally registered engineer with extensive experience in the engineering construction field with particular emphasis on levee safety projects. The Construction reviewer should have a minimum of 10 years of experience.



Type II Independent External Peer Review (IEPR) Panel

DISCIPLINE	NAME	DESCRIPTION OF CREDENTIALS
IEPR Lead/Geotechnical Engineering	TBD	TBD



ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

Date: June 27, 2017

Originating District: CEMVK

Project/Study Title: YAZOO BASIN MAIN STEM, MR&T LEVEE SETBACKS at YAZOO CITY AND BELZONI

PWI #:

District POC: Jonathan Pennington (601) 631-5015

Please fill out this checklist and submit with the draft Review Plan when coordinating with the appropriate RMO. For DQC, the District is the RMO; for ATR of Dam and Levee Safety Studies, the Risk Management Center is the RMO; and for non-Dam and Levee Safety projects and other work products, CEMVD is the RMO; for Type II IEPR, the Risk Management Center is the RMO. Any evaluation boxes checked 'No' indicate the RP possibly may not comply with EC 1165-2-214 and should be explained. Additional coordination and issue resolution may be required prior to MSC approval of the Review Plan.

REQUIREMENT	REFERENCE	EVALUATION
1. Is the Review Plan (RP) a standalone document?	EC 1165-2-214, Appendix B, Para 1	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
a. Does it include a cover page identifying it as a RP and listing the project/study title, originating district or office, and date of the plan?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b. Does it include a table of contents?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
c. Is the purpose of the RP clearly stated and EC 1165-2-214 referenced?	EC 1165-2-214 Para 7a	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
d. Does it reference the Project Management Plan (PMP) of which the RP is a component including P2 Project #?	EC 1165-2-214 Para 7a.(2)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No No PMP on this existing project.
e. Does it include a paragraph stating the title, subject, and purpose of the work product to be reviewed?	EC 1165-2-214 Appendix B, Para 4a	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
f. Does it list the names and disciplines in the home district, MSC and RMO to whom inquiries about the plan may be directed?*	EC 1165-2-214, Appendix B, Para 4a	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<i>*Note: It is highly recommended to put all team member names and contact information in an appendix for easy updating as team members change or the RP is updated.</i>		

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<p>2. Documentation of risk-informed decisions on which levels of review are appropriate.</p> <p>a. Does it succinctly describe the three levels of peer review: District Quality Control (DQC), Agency Technical Review (ATR), and Independent External Peer Review (IEPR)?</p> <p>b. Does it contain a summary of the CW implementation products required?</p> <p>c. DQC is always required. The RP will need to address the following questions:</p> <p>i. Does it state that DQC will be managed by the home district in accordance with the Major Subordinate Command (MSC) and district Quality Management Plans?</p> <p>ii. Does it list the DQC activities (for example, 35, 65, 95, BCOE reviews, etc)</p> <p>iii. Does it list the review teams who will perform the DQC activities?</p> <p>iv. Does it provide tasks and related resource funding and schedule showing when the DQC activities will be performed?</p> <p>d. Does it assume an ATR is required and if an ATR is not required does it provide a risk based decision of why it is not required? If an ATR is required the RP will need to address the following questions:</p> <p>i. Does it identify the ATR District, MSC, and RMO points of contact?</p>	<p>EC 1165-2-214, Appendix B, Para 4b</p> <p>EC 1165-2-214 Para 7a</p> <p>EC 1165-2-214 Para 15a</p> <p>EC 1165-2-214 Para 15b</p> <p>EC 1165-2-214 Para 8a</p> <p>EC 1165-2-214 Para 8a</p> <p>EC 1165-2-214 Para 8b(1)</p> <p>EC 1165-2-214 Para 8a</p> <p>EC 1165-2-214 Para 9b</p> <p>EC 1165-2-214 Appendix B, Para 4a</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Click here to enter text.</p>
<p>ii. Does it identify the ATR lead from outside the home MSC?</p>	<p>EC 1165-2-214 Para 9c</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>

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<p>iii. Does it provide a succinct description of the primary disciplines or expertise needed for the review (not simply a list of disciplines)? If the reviewers are listed by name, does the RP describe the qualifications and years of relevant experience of the ATR team members?*</p> <p><i>*Note: It is highly recommended to put all team member names and contact information in an appendix for easy updating as team members change or the RP is updated.</i></p>	<p>EC 1165-2-214 Appendix B, Para 4g</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
<p>iv. Does it provide tasks and related resource, funding and schedule showing when the ATR activities will be performed?</p>	<p>EC 1165-2-214 Appendix C, Para 3e.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Click here to enter text.</p>
<p>v. Does the RP address the requirement to document ATR comments using Dr Checks?</p>	<p>EC 1165-2-214 Para 7d (1)</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
<p>e. Does it assume a Type II IEPR is required and if a Type II IEPR is not required does it provide a risk based decision of why it is not required including RMC/ MSC concurrence? If a Type II IEPR is required the RP will need to address the following questions:</p>	<p>EC 1165-2-214 Appendix E, Para 1a</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Click here to enter text.</p>
<p>i. Does it provide a defensible rationale for the decision on Type II IEPR?</p>	<p>EC 1165-2-214 Appendix E, Para 1a</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
<p>ii. Does it identify the Type II IEPR District, MSC, and RMO points of contact?</p>	<p>EC 1165-2-214 Appendix B, Para 4a</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
<p>iii. Does it state that for a Type II IEPR, it will be contracted with an A/E contractor or arranged with another government agency to manage external to the Corps of Engineers?</p>	<p>EC 1165-2-214 Appendix E, Para 6c(1)</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
<p>iv. Does it state for a Type II IEPR, that the selection of IEPR review panel members will be made up of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of expertise suitable for the review being conducted?</p>	<p>EC 1165-2-214 Appendix B, Para 4k(1) and Appendix E, Para's 1a & 7</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
<p>v. Does it state for a Type II IEPR, that the selection of IEPR review panel members will be selected using the National Academy of Science (NAS) Policy which sets the standard for "independence" in the review process?</p>	<p>EC 1165-2-214 Appendix E, Para 6d(3)</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
<p>vi. If the Type II IEPR panel is established by USACE, has local (i.e. District) counsel reviewed the Type II IEPR execution for FACA requirements?</p>	<p>EC 1165-2-214 Appendix E, Para 6c(1)</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A</p>

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<p>vii. Does it provide tasks and related resource, funding and schedule showing when the Type II IEPR activities will be performed?</p> <p>viii. Does the project address hurricane and storm risk management or flood risk management or any other aspects where Federal action is justified by life safety or significant threat to human life?</p> <p>Is it likely? If yes, Type II IEPR must be addressed.</p> <p>ix. Does the RP address Type II IEPR factors? Factors to be considered include:</p> <ul style="list-style-type: none"> • Does the project involve the use of innovative materials or techniques where the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent setting methods or models, or presents conclusions that are likely to change prevailing practices? • Does the project design require redundancy, resiliency and robustness • Does the project have unique construction sequencing or a reduced or overlapping design construction schedule; for example, significant project features accomplished using the Design-Build or Early Contractor Involvement (ECI) delivery systems. 	<p>EC1165-2-214 Para 7e</p> <p>EC1165-2-214 Para 10d</p> <p>EC1165-2-214 Appendix E, Para 2</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
<p>f. Does it address policy compliance and legal review? If no, does it provide a risk based decision of why it is not required?</p>	<p>EC 1165-2-214 Para 14</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
<p>3. Does the RP present the tasks, timing, and sequence of the reviews (including deferrals)?</p> <p>a. Does it provide and overall review schedule that shows timing and sequence of all reviews?</p> <p>b. Does the review plan establish a milestone schedule aligned with the critical features of the project design and construction?</p>	<p>EC1165-2-214 Para 7a</p> <p>EC1165-2-214 Para 7a</p> <p>EC1165-2-214 Para 7a</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>4. Does the RP address engineering model certification requirements?</p> <p>a. Does it list the models and data anticipated to be used in developing recommendations?</p> <p>b. Does it indicate the certification /approval status of those models and if certification or approval of any model(s) will be needed?</p>	<p>EC 1165-2-214, Appendix B, Para 4i</p> <p>EC 1165-2-214, Appendix B, Para 4i</p> <p>EC 1165-2-214, Appendix B, Para 4i</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>

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c. If needed, does the RP propose the appropriate level of certification/approval for the model(s) and how it will be accomplished?	EC 1165-2-214, Appendix B, Para 4i	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
5. Does the RP explain how and when there will be opportunities for the public to comment on the study or project to be reviewed? a. Does it discuss posting the RP on the District website? b. Does it indicate the web address, and schedule and duration of the posting?	EC 1165-2-214, Appendix B, Para 4d EC 1165-2-214, Appendix B, Para 6a EC 1165-2-214, Appendix B, Para 6a	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
6. Does the RP explain when significant and relevant public comments will be provided to the reviewers before they conduct their review? a. Does it discuss the schedule of receiving public comments? b. Does it discuss the schedule of when significant comments will be provided to the reviewers?	EC 1165-2-214, Appendix B, Para 4e EC 1165-2-214, Appendix B, Para 4e EC 1165-2-214, Appendix B, Para 4e	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
7. Does the RP address whether the public, including scientific or professional societies, will be asked to nominate professional reviewers?* a. If the public is asked to nominate professional reviewers then does the RP provide a description of the requirements and answer who, what, when, where, and how questions? <i>* Typically the public will not be asked to nominate potential reviewer</i>	EC 1165-2-214, Appendix B, Para 4h EC 1165-2-214, Appendix B, Para 4h	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
8. Does the RP address expected in-kind contributions to be provided by the sponsor? a. If expected in-kind contributions are to be provided by the sponsor, does the RP list the expected in-kind contributions to be provided by the sponsor?	EC 1165-2-214, Appendix B, Para 4j EC 1165-2-214, Appendix B, Para 4j	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A No In-Kind contribution is required for this project. <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
9. Does the RP explain how the reviews will be documented? a. Does the RP address the requirement to document ATR comments using Dr Checks and Type II IEPR published comments and responses pertaining to the design and construction activities summarized in a report reviewed and approved by the MSC and posted on the home district website?	EC 1165-2-214, Para 7d EC 1165-2-214, Para 7d	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

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b. Does the RP explain how the Type II IEPR will be documented in a Review Report?	EC 1165-2-214 Appendix B , Para 4k (14)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
c. Does the RP document how written responses to the Type II IEPR Review Report will be prepared?	EC 1165-2-214 Appendix B, Para 4k (13)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
d. Does the RP detail how the district/PCX/MS and CECW-CP will disseminate the final Type II IEPR Review Report, USACE response, and all other materials related to the Type II IEPR on the internet?	EC 1165-2-214 Appendix B, Para 4k(13)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
10. Has the approval memorandum been prepared and does it accompany the RP?	EC 1165-2-214, Appendix B, Para 5	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

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