



DEPARTMENT OF THE ARMY  
MISSISSIPPI VALLEY DIVISION, CORPS OF ENGINEERS  
P.O. BOX 80  
VICKSBURG, MISSISSIPPI 39181-0080

REPLY TO  
ATTENTION OF:

CEMVD-PD-L

6 JUN '16

MEMORANDUM FOR Commander, Vicksburg District

SUBJECT: Request for Approval of Review Plan (RP) for the Highway 6 Bridge Relocation and Panola-Quitman Levee Setback

1. References:

- a. Memorandum, CEMVK-DE, 4 April 2016, subject as above (encl 1).
- b. Memorandum, CEMVD-RB-T, 26 April 2016, as above (encl 2).
- c. EC 1165-2-214, 15 December 2012, subject: Civil Works Review Policy.
- d. EC 1165-2-216, 30 September 2015, Policy and Procedural Guidance for Processing Requests to Alter U.S. Army Corps of Engineers Civil Works Projects Pursuant to 33 USC 408.

2. The enclosed Vicksburg District Highway 6 Bridge Relocation and Panola-Quitman Levee Setback Review Plan, endorsed by the Risk Management Center, has been prepared in accordance with EC 1165-2-214. The RP has been coordinated with the Lower District Support Team and the Regional Business Technical Division who concurred with the plan in reference 1.b.

3. MVD hereby approves this RP, which is subject to change as circumstances require, consistent with study development under the Project Management Business Process. Subsequent revisions to this RP or its execution will require new written approval from this office. Non-substantive changes to this RP do not require additional approval from this office. The district should post the approved RP to its web site.

4. The MVD point of contact for this action is [REDACTED].

2 Encls

MICHAEL C. WEHR  
Major General, USA  
Commanding



**DEPARTMENT OF THE ARMY**

VICKSBURG DISTRICT, CORPS OF ENGINEERS  
4155 CLAY STREET  
VICKSBURG, MISSISSIPPI 39183-3435

REPLY TO  
ATTENTION OF:

CEMVK-DE

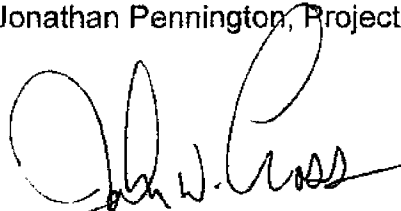
APR -4 2016

MEMORANDUM FOR CEMVD-PD-L

SUBJECT: Request for Approval of Review Plan for the Highway 6 Bridge Relocation and Panola-Quitman Levee Setback

1. Submitted for approval is a Review Plan (encl) outlining the requirements for the request to alter the Panola-Quitman Levee System pursuant to 33 U.S.C. § 408. The Mississippi Department of Transportation (MDOT) plans to relocate Highway 6 southward of the existing highway which crosses the Panola-Quitman Levee System. The system, for which USACE has maintenance responsibility, will require a levee setback. The design and construction will be performed by MDOT.
2. Agency Technical Review (ATR) for this project is managed within USACE and is being conducted by the Vicksburg District team identified in the Review Plan.
3. An Independent External Peer Review (IEPR) will be required for this project and will be conducted by a qualified expert selected by MDOT and approved by USACE.
4. Questions should be directed to Mr. Jonathan Pennington, Project Manager (ext. 1-5015).

Encl



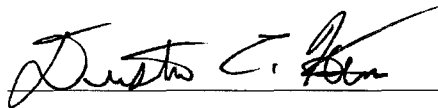
JOHN W. CROSS  
COL, Corps of Engineers  
Commanding

CF: (w/encls)  
CEMVK-OD-MP (Pennington)

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

**Review Plan for Highway 6 Bridge  
and Levee Setback Pursuant to 33  
USC § 408**

ENDORSED  
BY:



5-5-16

DATE

USACE, Risk Management Center

APPROVED  
BY:



6 Jun '16

DATE

Michael C. Wehr

Commanding



**Contents**

- 1. Introduction ..... 1
  - a. Purpose of This Review Plan ..... 1
  - b. Guidance and Policy References ..... 1
  - c. Description and Information ..... 1
  - d. Review Management Organization (RMO) Coordination ..... 3
- 2. Execution Plan and Review Requirements ..... 3
  - a. Level of Review Required by the District ..... 3
  - b. Level of Review Required of the Requester (MDOT) ..... 4
  - c. Decision-Level Determination ..... 5
  - d. District Review Purpose ..... 5
- 3. District-Led Agency Technical Review Team ..... 5
  - a. Review Procedures ..... 5
  - b. Products to Undergo ATR ..... 6
  - c. Required ATR Team Expertise and Requirements ..... 7
  - d. Completion and Certification of the ATR ..... 8
- 4. Requester-Led SAR ..... 9
  - a. Required SAR Expertise ..... 9
  - b. Completion and Certification of the IEPR ..... 10
- 5. Review Schedule and Cost ..... 11
  - a. Schedule ..... 11
  - b. Cost ..... 11
- 6. Public Participation of Review Plan ..... 11
- 7. Review Plan Points of Contact ..... 12
- ATTACHMENT 1: COMPLETION AND CERTIFICATION OF AGENCY TECHNICAL REVIEW ..... 13
- ATTACHMENT 2: DISTRICT TEAM ROSTERS ..... 14
- ATTACHMENT 3: RP FROM REQUESTER ..... 18
- ATTACHMENT 4: REVIEW PLAN REVISIONS ..... 19

## **1. Introduction**

### **a. Purpose of This Review Plan**

This Alteration-Specific Review Plan is intended to ensure quality of the review by the Vicksburg District for the request to alter a US Army Corps of Engineers (USACE) civil works project within the Vicksburg 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) and Engineering Circular (EC) 1165-2-214, Civil Works Review Policy, 15 December 2012. This review plan provides the review guidelines associated with a specific alteration request pursuant to 33 USC 408 (Section 408).

### **b. Guidance and Policy References**

- EC 1165-2-214, Civil Works Review, 15 December 2012
- EC 1165-2-215, Use and Dissemination of Dam and Levee Inundation Map Data, 15 July 2013
- EC 1165-2-216, Change 1, Policy and Procedural Guidance for Processing Requests to Alter US Army Corps of Engineers Civil Works Projects Pursuant to 33 USC 408, 30 September 2015
- 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 Mar 2011
- ER 1110-2-1806, Earthquake Design and Evaluation for Civil Works Projects, 31 July 1995
- ER 1110-1-1807, Drilling in Earth Embankment Dams and Levees, 31 December 2014

The products applicable to determination of impacts to the operation and maintenance of the flood risk reduction project will be reviewed against published guidance, including Engineering Regulations, Engineering Circulars, Engineering Manuals, Engineering Technical Letters, Engineering Construction Bulletins, Policy Guidance Letters, MVK best practices, implementation guidance, project guidance memoranda and other formal guidance memoranda issued by USACE Headquarters (HQUSACE).

### **c. Description and Information**

This Review Plan covers the request to relocate State Route Highway 6 a distance of approximately 125 feet southward of the existing highway which crosses the Panola-

Quitman Levee System and Tallahatchie River in Panola County, Mississippi (see Figures 1 and 2). This work will require the Mississippi Department of Transportation (MDOT) to relocate one bridge southward of the existing bridge. A new bridge will span the Tallahatchie River downstream of the existing bridge, and the new alignment will cross the Panola-Quitman Levee System approximately 125 feet to the south of the existing alignment. The highway relocation work will require a landside levee setback on the existing Panola-Quitman Levee System. The setback of the newly constructed levee will be accomplished before the existing levee is removed. To ensure that USACE can operate and maintain the Panola-Quitman Levee System in perpetuity, the MVK Real Estate Office will acquire the necessary permanent easement for the levee setback. A Section 408 permission will be required for the levee setback. To ensure the levee setback meets USACE standards, MVK will conduct technical reviews of the MDOT plans, attend MDOT design meetings, and perform field inspections as necessary to ensure compliance with the requirements of the 408 Permission. MDOT will be required to provide design plans and specifications for MVK review and approval during the design phase and prior to the start of construction activities. MDOT will provide MVK with the necessary documentation and as-built drawings of the levee setback for USACE National Levee Database requirements. MDOT has provided the necessary funding for all USACE work, including real estate acquisition, technical reviews, and QA/QC oversight of the levee setback.

Along with the levee setback work, there will be five utility crossings associated with the highway relocation work. For the utility crossings, separate Section 408 permissions will be processed in accordance with the MVK Procedural Review Plan Pursuant to 33 USC § 408.

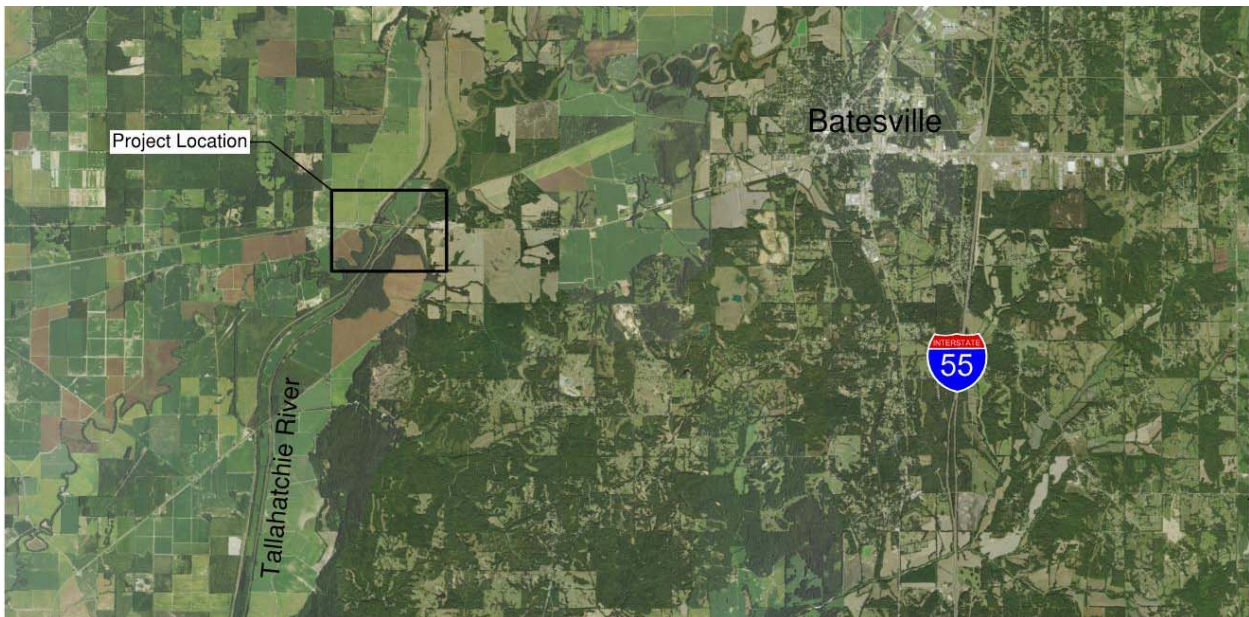


Figure 1: Project Location



Figure 2: Plan of Proposed Levee Changes

#### **d. Review Management Organization (RMO) Coordination**

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for the peer review effort described in this Review Plan is the USACE Risk Management Center (RMC).

## **2. Execution Plan and Review Requirements**

### **a. Level of Review Required by the District**

The review of this alteration request shall include a district-led Agency Technical Review (ATR), pursuant to EC 1165-2-216, Paragraph 7.c.(4). MVK's Chief of Engineering has determined that a Safety Assurance Review (SAR) will be required.

The proposed levee setback is a common design; No new techniques or innovative materials will be used during construction. The project was designed by a reputable engineering firm with substantial technical review by MVK Engineering Division. The proposed levee setback will consist of 1400 linear feet of embankment constructed to a

grade of 190 feet, making it approximately 10 feet tall. The levee setback will include seepage berms designed in accordance with USACE criteria.

**b. Level of Review Required of the Requester (MDOT)**

**(1) Quality Assurance and Quality Control (QA/QC) Review.**

Pursuant to MDOT's Quality Control Plan (QCP), the level of review required is a QA/QC review. See Attachment 3. QA/QC is the review of basic science and engineering work products focused on fulfilling the project quality requirements defined in the QCP. QC will consist of Quality Checks and reviews as outlined in the QCP. QA/QC reviews will be accomplished by MDOT or its contractors. The requester has provided USACE with documentation regarding the quality control/quality assurance procedures followed in the development of the project design. This documentation is in the form of a report that identifies:

- i. Purpose and scope of the review.
- ii. Description of the review team and a short statement on their qualifications.
- iii. Summary of the review performed during design.
- iv. Lessons learned and major changes made during the review.
- v. All internal QC comments and resolutions.
- vi. Supplemental studies or analyses performed during the design, e.g. geotechnical report.

**(2) Safety Assurance Review (SAR)** A Safety Assurance Review, also known as a Type II IEPR (Independent External Peer Review), will be conducted on design and construction activities for flood risk management projects, as well as, other projects where potential hazards pose a significant threat to human life. An external peer will review the design and construction activity prior to initiation of physical construction and periodically thereafter until construction activities are completed. The charges to the SAR reviewer complement the ATR process and do not duplicate it, the SAR will be accomplished by the requestor. A SAR is to be provided by an Architect-Engineer (AE) firm contracted by the requestor or arranged with another government agency to manage external to USACE. For a SAR, the selection of the reviewer will use the National Academy of Science (NAS) Policy which sets the standard for "independence" in the review process. The Requester's Design of Record AE Firm CANNOT procure the expert. A site visit will be scheduled for the SAR reviewer.



**c. Decision-Level Determination**

In accordance with EC 1165-2-216 the Section 408 final decision level resides with the Director of Civil Works at HQUSACE. The proposed alteration meets one of the seven criteria in EC 1165-2-216 that requires HQUSACE review.

- The proposed alteration requires a Type II IEPR per EC 1165-2-214.

**d. District Review Purpose**

The review of all work products will be in accordance with the guidelines established within this review plan. The ATR Review will serve as the MVK’s review of the request. The purpose of this review is to ensure the proper application of established criteria, regulations, laws, codes, principles and professional practices. For the purposes of 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.

**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.c of this review plan. See Attachment 2 for the district ATR team roster. This attachment lists the qualifications of the district ATR team members to meet the requirement of Section 3.c of this review 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. DrChecks review software may be used to document ATR comments, responses and associated resolutions accomplished throughout the review process.

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.

A draft ATR completion and certification signature sheet is included in Attachment 1.

The 408 permit request will be required to be approved by HQUSACE. Via a DE memo, the summary of findings will be provided to MVD. MVD will complete review of the Summary of Findings within 30 days. Within the 30 day Division review period, MDOT’s SAR Report covering the review of implementation documents will be provided to MVD for review. Upon completion of their review, MVD will provide any comments to MVK for coordination with the 408 requestor. Once all comments have been satisfactorily addressed, the MVD Commander will endorse the Summary of Findings and SAR report to HQUSACE for their review and decision.

**b. Products to Undergo ATR**

For each ATR event, the ATR team will examine, as part of its ATR activities, relevant QC records and provide written comment in the ATR report as to the apparent adequacy of the QC effort for the associated products or services. MVK will conduct technical reviews of the MDOT plans, attend MDOT design meetings, and perform field inspections as necessary to ensure compliance with the requirements of the 408 Permission. MDOT will be required to provide design plans and specifications for MVK review and approval during the design phase and prior to the start of construction

activities. MDOT will provide MVK with the necessary documentation and as-built drawings of the levee setback for USACE National Levee Database requirements.

**c. Required ATR Team Expertise and Requirements**

The following provides an estimate of the ATR members and the types of expertise that should be represented on the review panel.

**ATR Lead** – The ATR team leader should be a senior-level engineer with extensive experience in conducting reviews. The team leader should also be a subject matter expert in the review of Section 408 alteration requests.

**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 7 years of demonstrated experience in the specific field of levee engineering in evaluating, designing, and constructing large levees embankments. 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 Engineer** – The team member should be a senior-level, professionally registered civil engineer with experience in the completion of plans and specifications (P&S) for levees, levee enlargements, levee rehabilitations. The team member must have experience as a technical specialist on all aspects of levee and drainage programs and activities, including review of 408 permit requests involving impacts to levees and channels.

**Hydraulic Engineer** – The team member should be a senior-level, professionally registered engineer with experience with engineering analysis related to flood risk management and levee and dam safety projects.

**Real Estate Specialist** – The team member should be a senior real estate specialist with experience in the preparation of real estate mapping products to support of right-of-way acquisition; providing technical assistance and guidance pertaining to real estate acquisition requirements, policies, and procedures; developing right-of-way acquisition cost estimates and scheduling requirements; reviewing project right-of-way plans for accuracy and completeness; participating as the real estate representative on PDT Teams; and performing DQC/BCOE/ATR/ITR Reviews.

**Environmental Specialist** – The team member should have 5 or more years of experience in NEPA compliance activities and preparation of Environmental Assessments and Environmental Impact Statements.

**Regulatory Specialist** – The team member should be a senior level environmental protection specialist with extensive experience in reviewing Section 408 requests with regards to Section 10/404 Permit requirements. The team member must have experience in evaluating projects with regards to Section 404 (b)(1) compliance.

**Construction Engineer** – The team member should be a senior-level, professionally registered engineer with 10 or more years of experience in the engineering construction field. The team member should have a background in levee construction.

**Office of Counsel Specialist** – The team member should be a senior-level attorney with 5 or more years of experience.

**District 408 Coordinator** – The team member should be a senior-level, professionally registered engineer with 15 or more years of experience. The team member must be the District's current 408 Coordinator.

**District Levee Safety Officer** – The team member should be a senior-level, professionally registered engineer with 15 or more years of experience. The team member must be the District's current Levee Safety Officer.

**d. 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.

The ATR team members will determine whether the proposed alteration would impair the usefulness of the federal project, be injurious to the public interest, or meets legal and policy requirements. ATR team members will provide their comments to the District Section 408 Coordinator, who will use the comments to determine if the proposed alteration can be approved in accordance with EC 1165-2-216. Conflicts in addressing ATR comments will be elevated to the functional chief and MVD for resolution if necessary. Following ATR, the District Section 408 Coordinator will compile a Summary of Findings in accordance with Step 5 from EC 1165-2-216 (with an appendix of ATR Comments and Resolution) and obtain the endorsement of the District Levee Safety Program Manager, the District Levee Safety Officer, the District Counsel, and other District leadership before recommending to the District Commander that the proposed alteration be approved or denied.

#### **4. Requester-Led SAR**

##### **a. Required SAR Expertise**

The following provides an estimate of the SAR reviewer and the type of expertise that should be represented. The reviewer shall be selected from “distinguished experts in engineering, hydrology, or other appropriate disciplines.” Water Resources Development Act 2007. The reviewer 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.

**b. Completion and Certification of the IEPR**

The SAR will be managed by an Architect-Engineer firm which meets the criteria set forth in EC 1165-2-214. DrChecks review software may be used to document the SAR comments and aid in the preparation of the Review Report but is not required.

Comments should address the adequacy and acceptability of the engineering, models, and analyses used. SAR comments should generally include the same four key parts as described for ATR comments in Section 3.

An initial SAR Review Report covering the review of implementation documents will be provided to MVD for review within the 30 day Division review period of the Summary of Findings. This Review Report will accompany the publication of the final report for the project and shall:

Disclose the names of the reviewer, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;

- (1) Include the charge to the reviewer;
- (2) Describe the nature of their review and their findings and conclusions; and
- (3) Include a verbatim copy of the 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.

This review report, including reviewer comments and a recommendation letter will be provided to the RMC as soon as they become available. A suggested report outline is an introduction, the composition of the review team, a summary of the review during design, a summary of the review during construction, any lessons learned in both the process and/or design and construction, and appendices for conflict of disclosure forms, for comments to include any appendices for supporting analyses and assessments of the adequacy and acceptability of the methods, models, and analyses used. All comments in the report will be finalized by the reviewer prior to their release to USACE for each review plan milestone. Written responses to the IEPR Review Report will be prepared 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. The requestor will prepare responses except that issue resolution will be a dual responsibility between the product provider and USACE, with USACE having the final authority. The revised submittal will be provided to the RMO with the USACE response and all other materials related to the review. After the MSC 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/CivilWorks/PeerReviewPlans.aspx>.

**5. Review Schedule and Cost**

**a. Schedule**

To the extent practical, 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 comments. Below is an overall review schedule that shows timing and sequence of all reviews.

<b>PROJECT PHASE/SUBMITTAL</b>	<b>REVIEW START DATE</b>	<b>REVIEW END DATE</b>
<b>DQC Review (95%)</b>	Ongoing	Ongoing
<b>ATR Review</b>	11 January 2016	06 April 2016
<b>IEPR for design</b>	TBD	TBD
<b>IEPR for construction</b>	TBD	TBD

**b. Cost**

- 1) ATR. MVK has received funding through a Memorandum of Agreement (MOA) from MDOT to cover all review costs. The preliminary review schedule is provided in the table in Section 5.a. The cost for the ATR is approximately \$35,000.
- 2) IEPR. A SAR will be required for this project. Initial indications are that the estimated cost for the SAR is in the range of \$30,000 to \$50,000. This estimate will be refined when the Scope of Work for the SAR contract is completed. The SAR contractor will be involved with the project through the construction 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 at project completion.

**6. Public Participation of Review Plan**

As required by EC 1165-2-214, the approved Review Plan will be posted on the District website:

<http://www.mvk.usace.army.mil/Missions/CivilWorks/PeerReviewPlans.aspx>.

The public will have 30 days to provide comments on the documents. The Section 408 Coordinator will consider any comments received during that period and determine if revisions to this Review Plan are necessary. This engagement will ensure that the Review Plan is responsive to the interests of a wide array of stakeholders and customers.

**7. Review Plan Points of Contact**

Name/Title	Organization	Email/Phone
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]



## ATTACHMENT 1: COMPLETION AND CERTIFICATION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) is complete for the Highway 6 Bridge Relocation and Panola-Quitman Levee Setback in Panola County, Mississippi. The ATR was conducted pursuant to the Alteration-Specific Review Plan to comply with the requirements of EC 1165-2-216. During the ATR, compliance with established policy principles, procedures, and legal requirements was verified, and it has been determined that the proposed alteration will not impair the usefulness of the federal project and will not be injurious to the public interest. All comments resulting from the ATR have been resolved.

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Neal Lewis  
ATR Team Leader  
CEMVK-OD-MP

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Date

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Thomas Shaw  
MVK Section 408 Coordinator  
CEMVK- EC-PC

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Date

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Nathan Snorteland  
Director  
CEIWR-RM

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Date

**ATTACHMENT 3: RP FROM REQUESTER**

**FINAL INDEPENDENT EXTERNAL PEER REVIEW  
DESIGN AND CONSTRUCTION PHASE REVIEWS  
WEST BANK TALLAHATCHIE RIVER  
LEVEE RELOCATION**

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Near State Route 6  
Panola County, Mississippi

Project No. STP/EXB-0070-03(022)

April 4, 2016

*Prepared for:*



*Prepared By:*

***Mendrop Engineering Resources, LLC***  
854 Wilson Drive, Suite A  
Ridgeland, MS 39157  
(File No. H-709-41-16)



The views, opinions, and/or findings contained in this report are those of the author and should not be construed as an official Department of the Army position, policy, or decision, unless so designated by other documentation.

**Table of Contents**

1. Introduction ..... 1

    a. Purpose of This Review Plan ..... 1

    b. Guidance and Policy References ..... 1

    c. Requirements ..... 1

2. Description and Information ..... 2

3. Quality Control (QC)..... 3

4. Agency Technical Review (ATR)..... 3

5. Independent External Peer Review (IEPR) ..... 3

Appendix A: General Charge Guidance .....A-1

Appendix B: Confidential Conflict of Interest Disclosure .....B-1

## 1. Introduction

### a. Purpose of This Review Plan

The Vicksburg District, U.S. Army Corps of Engineers has determined that the proposed alterations to the West Bank Tallahatchie River levee near HWY SR-6 in Panola County, MS requires a Type II Independent External Peer Review (IEPR). This Type II IEPR Review Plan is intended to ensure a quality-engineering project is developed by the Mississippi Department of Transportation (MDOT). This Review Plan has been developed for the proposed alterations to the West Bank Tallahatchie River Levee, resulting from the proposed widening of HWY SR-6 in Panola County, MS. This Review Plan was prepared in accordance with EC 1165-2-214, "Civil Works Review Policy" 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". The Review Plan shall layout a value added process that assures the correctness of the information shown and how that quality process will be documented. The Review Plan 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.

### b. Guidance and Policy References

- 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, 31 July 2014
- EC 1165-2-214, Civil Works Review Policy, 15 December 2012

### c. Requirements

This review plan 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, operation, maintenance, repair, replacement and rehabilitation (OMRR&R).

This Alteration-Specific Review Plan is intended to ensure quality of the review by the Vicksburg District for the request to alter a US Army Corps of Engineers (USACE) civil works project within the Vicksburg 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) and Engineering Circular (EC) 1165-2-214, Civil Works Review Policy, 15 December 2012. This review plan provides the review guidelines associated with a specific alteration request pursuant to 33 USC 408 (Section 408).

## 2. Description and Information

This Review Plan covers proposed alterations to the West Bank Tallahatchie River Levee near HWY SR-6, Panola County, MS resulting from the Mississippi Department of Transportation (MDOT) proposed replacement of the HWY SR-6 Bridge over the Tallahatchie River in Panola County. As part of that project it will be necessary to set back a portion of the levee due to the proposed bridge end falling within the existing levee.



Figure 1: Map of Project

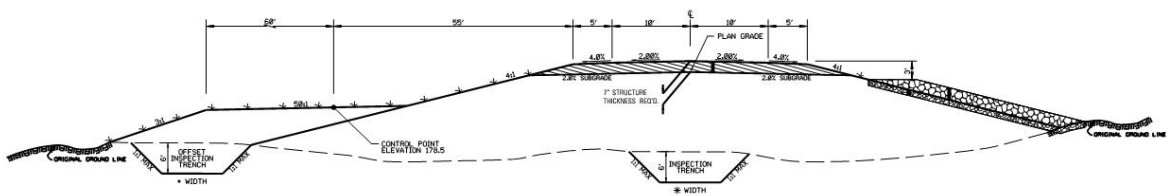
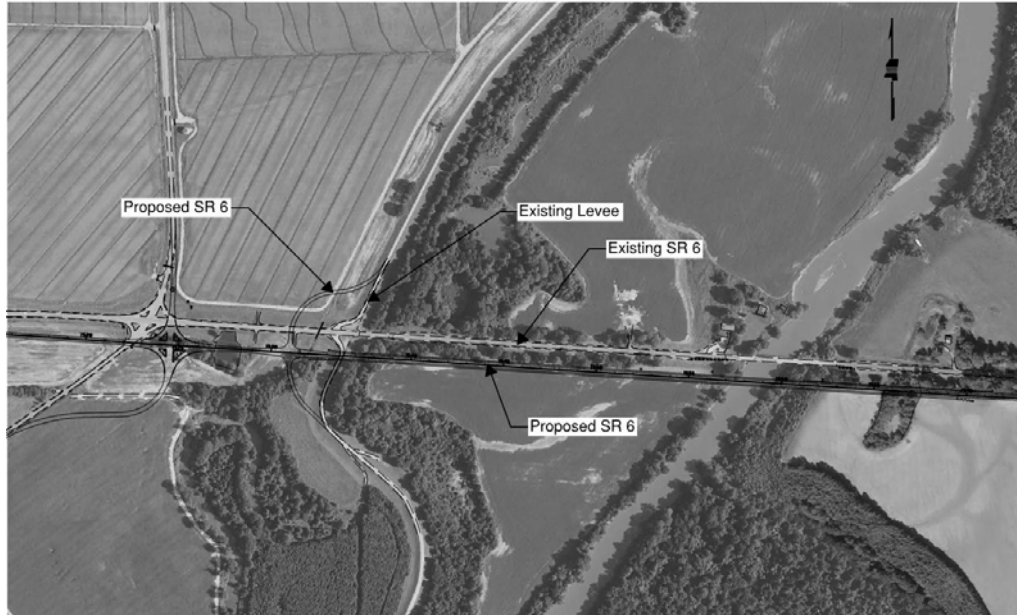


Figure 2: Levee Typical Section



**Figure 3: Plan View of Project**

### **3. Quality Control (QC)**

Provided by MDOT under separate document.

### **4. Agency Technical Review (ATR)**

To be conducted by the Vicksburg District, U.S. Army Corps of Engineers

### **5. Independent External Peer Review (IEPR)**

IEPR is required for implementation documents under certain circumstances. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-214, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted.

A Type II IEPR will be performed on the design plans, analysis and supporting data for the activities associated with the relocation of the West Bank Tallahatchie River Levee. Reviews will include geotechnical reviews of the design calculations.

Prepare Final Report: The Safety Assurance Review (SAR) Type II IEPR contractor shall prepare a Final Review Report to include the levee relocation as stated. The review report shall contain comments addressing the analysis, design plans and flood risk associated with the construction activities

Comments should address the adequacy and acceptability of the engineering methods, and analyses used. A suggested report outline is an introduction, the composition of the review team, a summary of the review during design, a summary of the review during construction, any lessons learned in both the process and/or design and construction, and appendices for conflict of disclosure forms, comments to any appendices, supporting analyses, and assessments of the adequacy and acceptability of the methods, models, and analyses used. All comments in the report will be finalized by the panel prior to their release to USACE for each review plan milestone.

The reviewer's comments should generally include the four key parts of a quality review comment and 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.

The Type II IEPR team will prepare a Final Report that will be submitted to the Vicksburg District and shall:

- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers prepared by the MDOT;
- Describe the nature of their review and their findings and conclusions; and

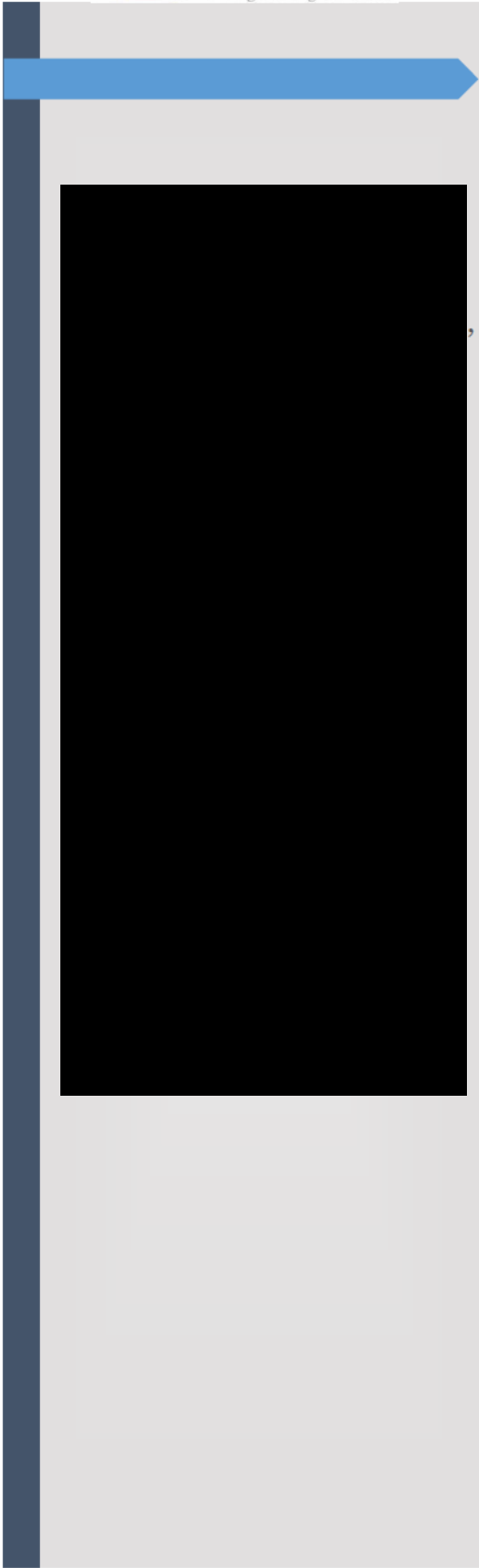


- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

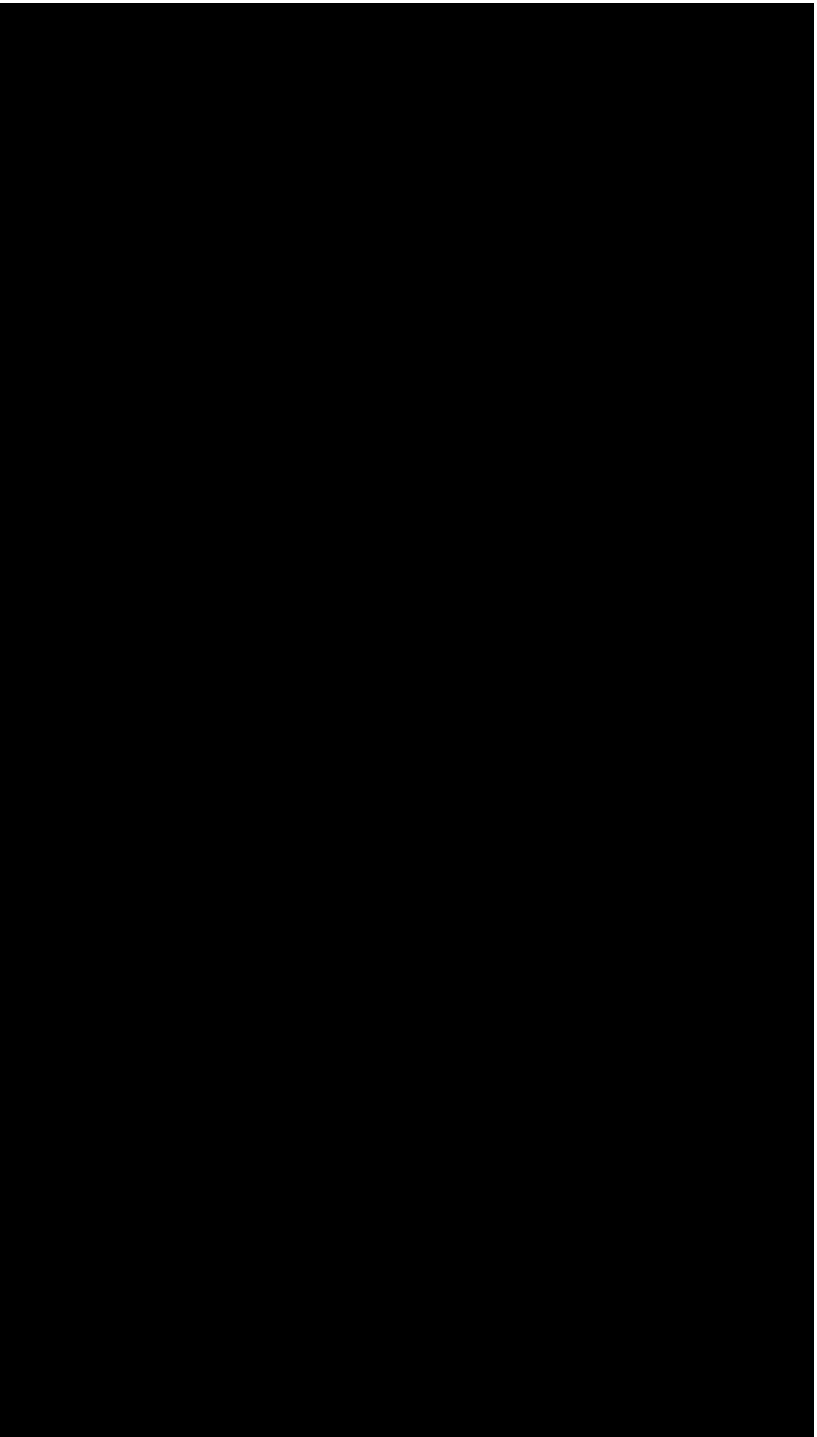
This review report, including reviewer comments and a recommendation letter will be provided to the Risk Management Center (RMC) as soon as they become available. Written responses to the IEPR Review Report will be prepared to explain the agreement or disagreement with the views expressed in the report, 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. The revised submittal will be provided to the RMC with the USACE response and all other materials related to the review.

The IEPR panel member will include:

<b>DISCIPLINE</b>	<b>NAME</b>	<b>DESCRIPTION OF CREDENTIALS</b>
Geotechnical Engineering		



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## APPENDIX A

### GENERAL CHARGE GUIDANCE

For a Type II IEPR, the design and construction phases and the Safety Assurance Review should focus on unique site features and changes from the assumptions made and conditions that formed the basis for the concept design. The expert reviewers shall address each of the following evaluation factors for each of the questions in each of the paragraphs below:

- Is the direction of the project appropriate?
- Has USACE overlooked any critical items?
- Does the panel have any other observations to add?

A. For the PED or Design Phase Review of the West Bank Tallahatchie River Levee, Panola County, MS that has the following formal decision documents:

- MDOT Project # STP/EXB-0070-03(022)

The SAR should focus on unique features and changes from the assumptions made and conditions that formed the basis for the design during the decision document phase. The SAR shall address the following questions:

1. Are the steps (input data, assumptions, methods, analyses, etc.) for determining the stability, seepage, and settlement of the proposed relocated levee appropriate?
2. Are the steps (input data, assumptions, methods, analyses, etc.) for selecting the borrow material for the proposed relocated levee and berms appropriate?
3. Do the design assumptions made during the decision document phase for hazards remain valid through the completion of design as additional knowledge is gained and the state-of-the-art evolves?
4. Do the project features adequately address redundancy, resiliency, or robustness with an emphasis on interfaces between structures, materials, members, and project phases?
  - (1) Redundancy. The use of multiple lines of defense that are linked to potential failure modes. The most vulnerable failure modes need the greatest redundancy.
  - (2) Resilience. The use of enhancements to improve the ability of the system to sustain loads greater than the design load to achieve gradual failure modes over some duration rather than sudden failure modes.
  - (3) Robustness. The use of more conservative assumptions to increase capacity to compensate for greater degrees of uncertainty and risk.
5. Do the project features and/or components effectively work as a system?

B. For the construction phase, the SAR shall address the following questions:

1. Do the assumptions made during design remain valid through construction as additional knowledge is gained and the state-of-the-art evolves? (Final DDRs, CO QMPs, site visits, QA/QC reports, and other similar documents will be provided to the expert reviewer for this assessment).

Will the project monitoring adequately reveal any deviations from assumptions made for performance?

## APPENDIX B

## CONFIDENTIAL CONFLICT OF INTEREST DISCLOSURE

INSTRUCTIONS

It is essential that the work of committees of the institution used in the development of reports not be compromised by any significant conflict of interest. For this purpose, **the term "conflict of interest" means any financial or other interest which conflicts with the service of the individual because it (1) could significantly impair the individual's objectivity or (2) could create an unfair competitive advantage for any person or organization.** Except for those situations in which the institution determines that a conflict of interest is unavoidable and promptly and publicly discloses the conflict of interest, no individual can be appointed to serve (or continue to serve) on a committee of the institution used in the development of reports if the individual has a conflict of interest that is relevant to the functions to be performed.

The term "conflict of interest" means something more than individual bias. There must be an *interest*, ordinarily financial, that could be directly affected by the work of the committee.

Conflict of interest requirements are *objective* and *prophylactic*. They are not an assessment of one's actual behavior or character, one's ability to act objectively despite the conflicting interest, or one's relative insensitivity to particular dollar amounts of specific assets because of one's personal wealth. Conflict of interest requirements are objective standards designed to eliminate certain specific, potentially compromising situations from arising, and thereby to protect the individual, the other members of the committee, the institution, and the public interest. The individual, the committee, and the institution should not be placed in a situation where others could reasonably question, and perhaps discount or dismiss, the work of the committee simply because of the existence of conflicting interests.

The term "conflict of interest" applies only to *current interests*. It does not apply to past interests that have expired, no longer exist, and cannot reasonably affect current behavior. Nor does it apply to possible interests that may arise in the future but do not currently exist, because such future interests are inherently speculative and uncertain. For example, a pending formal or informal application for a particular job is a current interest, but the mere possibility that one might apply for such a job in the future is not a current interest.

The term "conflict of interest" applies not only to the personal interests of the individual but also to the *interests of others* with whom the individual has substantial common financial interests if these interests are relevant to the functions to be performed. Thus, in assessing an individual's potential conflicts of interest, consideration must be given not only to the interests of the individual but also to the interests of the individual's spouse and minor children, the individual's employer, the individual's business partners, and others with whom the individual has substantial common financial interests. Consideration must also be given to the interests of those for whom one is acting in a fiduciary or similar capacity (e.g., being an officer or director of a corporation, whether profit or nonprofit, or serving as a trustee).

Much of the work of this institution involves scientific and technical studies and assistance for sponsors across a broad range of activities. Such activities may include, for example: defining research needs, priorities, opportunities and agendas; assessing technology development issues and opportunities; addressing questions of human health promotion and assessment; providing scientific and technical assistance and supporting services for government agency program development; assessing the state of scientific or technical knowledge on particular subjects and in particular fields; providing international and foreign country science and technology assessments, studies and assistance. Such activities frequently address scientific, technical, and policy issues that are sufficiently broad in scope that they do not implicate specific financial interests or conflict of interest concerns.

However, where such activities address more specific issues having significant financial implications -- e.g., funding telescope A versus telescope B, government development or evaluation of a specific proprietary technology, promotion or endorsement of a specific form of medical treatment or medical device, connecting foreign research facilities to specific commercial interests, making recommendations to sponsors regarding specific contract or grant awards, etc. -- careful consideration must be given to possible conflict of interest issues with respect to the appointment of members of committees that will be used by the institution in the development of reports to be provided by the institution to sponsoring agencies.

The overriding objective of the conflict of interest inquiry in each case is to identify whether there are interests -- primarily financial in nature -- that conflict with the committee service of the individual because they could impair the individual's objectivity or could create an unfair competitive advantage for any person or organization. The fundamental question in each case is does the individual, or others with whom the individual has substantial common financial interests, have identifiable interests that could be directly affected by the outcome of the project activities of the committee on which the individual has been invited to serve? For projects involving advice regarding awards of contracts, grants, fellowships, etc., this institution is also guided by the principle that an individual should not participate in any decision regarding the award of a contract or grant or any other substantial economic benefit to the individual or to others with whom the individual has substantial common financial interests or a substantial personal or professional relationship.

The application of these concepts to specific scientific and technical studies and assistance projects must necessarily be addressed in each case on the basis of the particular facts and circumstances involved. The questions set forth below are designed to elicit information from you concerning possible conflicts of interest that are relevant to the functions to be performed by the particular committee on which you have been invited to serve.

1. FINANCIAL INTERESTS. (a) Taking into account stocks, bonds, and other financial instruments and investments including partnerships (but excluding broadly diversified mutual funds and any investment or financial interests valued at less than \$10,000), do you or, to the best of your knowledge others with whom you have substantial common financial interests, have financial investments that could be affected, either directly or by a direct effect on the business enterprise or activities underlying the investments, by the outcome of the project activities of the committee on which you have been invited to serve?

(b) Taking into account real estate and other tangible property interests, as well as intellectual property (patents, copyrights, etc.) interests, do you or, to the best of your knowledge others with whom you have substantial common financial interests, have property interests that could be directly affected by the outcome of the project activities of the committee on which you have been invited to serve?

(c) Could your employment or self-employment (or the employment or self-employment of your spouse), or the financial interests of your employer or clients (or the financial interests of your spouse's employer or clients) be directly affected by the outcome of the project activities of the committee on which you have been invited to serve?

(d) Taking into account research funding and other research support (e.g., equipment, facilities, industry partnerships, research assistants and other research personnel, etc.), could your current research funding and support (or that of your close research colleagues and collaborators) be directly affected by the outcome of the project activities of the committee on which you have been invited to serve?

(e) Could your service on the committee on which you have been invited to serve create a specific financial or commercial competitive advantage for you or others with whom you have substantial common financial interests?

**If the answer to all of the above questions under FINANCIAL INTERESTS is either "no" or "not applicable," check here \_\_\_\_ (NO).**

**If the answer to any of the above questions under FINANCIAL INTERESTS is "yes," check here \_\_\_\_ (YES), and briefly describe the circumstances on the last page of this form.**

2. OTHER INTERESTS. (a) Is the central purpose of the project for which this disclosure form is being prepared a critical review and evaluation of your own work or that of your employer?

(b) Do you have any existing professional obligations (e.g., as an officer of a scientific or engineering society) that effectively require you to publicly defend a previously established position on an issue that is relevant to the functions to be performed in this committee activity?

(c) To the best of your knowledge, will your participation in this committee activity enable you to obtain access to a competitor's or potential competitor's confidential proprietary information?

(d) If you are or have ever been a U.S. Government employee (either civilian or military), to the best of your knowledge are there any federal conflict of interest restrictions that may be applicable to your service in connection with this committee activity?

(e) If you are a U.S. Government employee, are you currently employed by a federal agency that is sponsoring this project? If you are not a U.S. Government employee, are you an employee of any other sponsor (e.g., a private foundation) of this project?

(f) If the committee activity for which this form is being prepared involves reviews of specific applications and proposals for contract, grant, fellowship, etc. awards to be made by sponsors, do you or others with whom you have substantial common financial interests, or a familial or substantial professional relationship, have an interest in receiving or being considered for awards that are currently the subject of the review being conducted by this committee?

(g) If the committee activity for which this form is being prepared involves developing requests for proposals, work statements, and/or specifications, etc., are you interested in seeking an award under the program for which the committee on which you have been invited to serve is developing the request for proposals, work statement, and/or specifications -- or, are you employed in any capacity by, or do you have a financial interest in or other economic relationship with, any person or organization that to the best of your knowledge is interested in seeking an award under this program?

**If the answer to all of the above questions under OTHER INTERESTS is either "no" or "not applicable," check here \_\_\_\_\_ (NO).**

**If the answer to any of the above questions under OTHER INTERESTS is "yes," check here \_\_\_\_ (YES), and briefly describe the circumstances on the last page of this form.**

EXPLANATION OF "YES" RESPONSES:



*During your period of service in connection with the activity for which this form is being completed, any changes in the information reported, or any new information, which needs to be reported, should be reported promptly by written or electronic communication to the responsible staff officer.*

\_\_\_\_\_  
YOUR SIGNATURE

\_\_\_\_\_  
DATE

Reviewed by: \_\_\_\_\_

\_\_\_\_\_  
Date



<b>Table of Contents</b>	<b>Page</b>
<b>QCP 1.01 – Documented Review Process (9 pages)</b>	
1.0 Purpose	1
2.0 Scope	1
3.0 Definitions	1
4.0 General	2
5.0 Process	2
5.1 Review Process Implementation	2
5.2 Document Origination	2
5.3 Document Review	3
5.4 Back-checking the Document	3
5.5 Revising the Original Document	4
5.6 Verifying Document Corrections	4
5.7 Issuance	5
5.8 Subsequent Revisions	5
5.9 Documentation of Instructions, Suggestions or Questions	5
6.0 Records	5
7.0 Exhibits	5
Figure 1: Generalized Review Process Flow Chart	6
Figure 2: Sample Drawing Check (Review Phase)	7
Figure 3: Sample Drawing Check (Back-Check Phase)	7
Figure 4: Sample Drawing Check (Revision Phase)	8
Figure 5: Sample Drawing Check (Verification Phase)	8
Figure 6: Sample Calculation Check	9
<b>QCP 1.02 – Review Records (6 pages)</b>	
1.0 Purpose	1
2.0 Scope	1
3.0 Definitions	1
4.0 General	1
5.0 Process	1
5.1 Standard Disposition Codes	2
5.1.1 Review and Verification Codes	2
5.1.2 Back-Check Codes	2
5.2 PDF Name Column	3
5.3 Accepted Workflow	3
5.4 Standard Revision Workflow	3
5.5 Rework Workflow	3
5.6 Verification Revision Workflow	3
6.0 Records	4
7.0 Exhibits	4
Figure 1: Design Notebook Review Record	5
Figure 2: Drawing Review Record	6



## **1.0 Purpose**

This quality control procedure details the process and policies established for documenting the review of project deliverables.

## **2.0 Scope**

This quality control procedure applies to all project deliverables generated by GARVER and its subconsultants. Project deliverables relevant to this quality control procedure include, but are not limited to, drawings, specifications, reports and calculation notebooks.

## **3.0 Definitions**

*Originator* – Individual who creates or introduces deliverable as part of deliverable package.

*Reviewer* – Qualified individual, other than the originator, who is experienced in the relevant discipline that reviews deliverable documents for conformance with applicable design criteria and standards and is familiar with the design associated with the element being reviewed.

*Back-checker* – Individual responsible for verifying the adequacy of the proposed revisions designated by the Reviewer. The Back-checker may be the Originator, or a designee who is familiar with the scope or nature of the information portrayed on the document.

*Reviser* – Individual responsible for amending the original document according to the changes marked on the progress print. The Reviser may be the Originator, the Reviewer, or a designee who is familiar with the tools required to make the designated changes to the original document.

*Verifier* – Individual responsible for the verifying that all requested modifications are made to the original document.

*Review Record* – Document or file used to track individuals engaged in the review process for a document, completion dates for the various review activities, and summarizes the disposition for each review process.

*Deliverable Package* – Complete collection of project deliverables prepared for internal or external submission or distribution.

*Work Product* – drawing, specification, calculation, etc.

*Progress Print* – document showing the latest progress of a work product used to detail the various phases of the review process.

*Progress Package* – Compilation of all documents to be submitted.



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*Project Deliverable* – Any item to be included as part of the official contract documents, or an item relevant to contract document development that is subject to submission for external quality audit.

## **4.0 General**

It is the policy of this design team to routinely review and document the evolution of the various project deliverables from origination through issuance. This policy will be in effect during all phases of design and development of each deliverable version.

To successfully complete this quality control procedure, a minimum of two design team members are required. These individuals will be qualified by education or experience to develop or review deliverables within a given discipline.

## **5.0 Process**

### **5.1 Review Process Implementation**

At the beginning of the project it is the responsibility of the Design Manager, or their designee, to determine the need or applicability of this quality control procedure. If deemed necessary, the Design Manager, or their designee, shall be responsible for the following tasks:

- Establishment of review schedule that ensures progress packages are assessed for accuracy and adequacy prior to submission or distribution.
- Supervision of progress package assembly.
- Logging/recording individuals engaged in the development and review of project deliverables. The actions taken and the date an action is completed will also be logged or recorded.
- Compilation of reviewed and corrected project deliverables.

This quality control process will be utilized for all design phases listed in the DQMP. Once begun, this quality control process requires continual documentation as detailed in the subsequent sections for changes or revisions made to deliverable documents.

### **5.2 Document Origination**

Each work product is prepared and designated by its Originator for incorporation in the overall deliverable package. It is the primary responsibility of the Originator to ensure the accuracy and adequacy of their work products. It is also the responsibility of the Originator to ensure that a review record is generated for the document. The Originator shall notify the Design Manager, or their designee, of the document's creation and when a progress print of the document is complete ready for review.

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During origination of each deliverable document, the Originator will use only **Blue** or **Black** coloring to annotate, emphasize, or comment on documents. This use of other colored annotations (such as **Red** marks, **Yellow** highlighting, **Green** marks or **Green** highlights) will not be permitted as they are reserved for subsequent review phases.

The Originator will establish a line item entry for each work product within the review record and provide their initials and date of origination under the origination activity column. The Originator will also affix their initials and date directly onto each work product.

### 5.3 Document Review

When deemed complete, each work product will be checked by the Reviewer for conformance with the requirements set forth in the project design criteria. Review will also include, but not be limited to, assessments of constructability, applicability, safety, compliance with governing standards and conformity with project scope.

When annotating progress prints, the Reviewer will note items found to be compliant with a **Yellow** highlight. Items found to be in error will be noted so in **Red**. The use of other colors (such as **Green** or **Blue**) during this phase of the review process will not be permitted as they are reserved for subsequent phases.

When reviewing reports, specifications or other electronically generated text documents, the Reviewer may elect to directly annotate or revise the original document using the commenting and change tracking features.

Upon completion of their review, the Reviewer will log/record a "Review" activity entry with their initials, date, and disposition for the relevant line items in the review record. The Reviewer will also initial and date each reviewed document. See Section 5.7 for issuance requirements of work products found to be "Accepted" or without error.

### 5.4 Back-checking the Document

After the review of a progress print is complete, the Back-checker will back-check the Reviewer's comments and marked revisions. The intent of this review phase is to give the Back-checker the opportunity to verify the applicability of the proposed revisions or further address the Reviewer's comments or questions.

When annotating progress prints, the Back-checker will place a **Green** check mark next to the proposed revision if they are in agreement with the change. If the Back-checker disagrees with the proposed revision and has the consensus of the Reviewer, they will cross out in **Green** the original mark in such a manner as to maintain its legibility. The Back-checker may then write in **Green** the word "STET" (Latin for "let it stand") next the Reviewer's comment to denote no revision is required, or an alternative value to the Reviewer's revision. The Back-checker may also add further changes to the progress print at this point by doing so in **Green**, and with the concurrence of the Reviewer.



When back-checking electronically generated documents that are modified or annotated by the Reviewer using the commenting or change tracking features, the Originator is not required to record their agreement of each revision directly in the original document. The Originator's disposition to the Reviewer's comments will instead only be recorded in the appropriate line item within the review record. It is required of the Originator to continue the utilization of change tracking features when making further modifications to the document during this review phase. Any changes made by the Originator will be done so with the concurrence of the Reviewer.

It is the responsibility of the Back-checker and the Reviewer to work through and resolve any differences during this review phase. If a resolution cannot be reached, the discipline lead will be engaged to resolve the issue. Once there are no unresolved issues, the Back-checker will log a "Back-Check" activity entry with their initials, date, and disposition in the review record. The Back-checker's initials and date shall also be affixed to the progress print.

### **5.5 Revising the Original Document**

Once the back-check process is complete, the Reviser will amend the original document based upon the changes designated on the progress print. Supervision shall be provided by the Back-checker or Reviewer if someone other than these two individuals makes the required changes.

When annotating progress prints, the Reviser will circle each marked revision in **Green** as the change is made to the original document. This use of **Yellow** or **Green** highlighting will not be permitted as they are reserved for other review phases.

Annotation and documentation of the revision process is only required for drawings. Furthermore, due to the dynamic nature of the revision process afforded when using change tracking features, revisions will be made to the original document in preceding review phases. After all revisions are made to the original drawing, the Reviser will log a "Revision" activity entry with their initials and date in the drawing review record. The Reviser's initials and date shall also be affixed to the progress print.

### **5.6 Verifying Document Corrections**

Once work products are updated, the Verifier will ensure the original documents were modified for all designated revisions to their satisfaction. Any corrections found to be in error, or not made, will be marked in **Red** on the clean print. For corrections found to be amended properly, the Verifier will highlight the appropriate **Green** circle on the progress print in **Yellow** indicating their confirmation.

Once the Verifier completes their review of a revised document, they will log/record a "Verification" activity entry with their initials, date, and disposition in the review record. The Verifier's initials and date shall also be affixed to the progress print. Work products found during verification to require no further revision shall be deemed complete and ready for issuance. Work products needing additional modification will be returned to the Back-checker for response and revision. See Section 5.7 for issuance requirements of work products found to be "Accepted" or without error. See work flow illustration in Figure 1 for further clarification.



## **5.7 Issuance**

All work products receiving an “Accepted” disposition during the review or verification tasks are considered complete and ready for issuance. Work products at this state shall be affixed with an issuance stamp by the Reviewer or the Verifier designating that the work product is ready for submittal.

A deliverable package may not be submitted until all of its individual work products bare an issuance stamp.

## **5.8 Subsequent Revisions**

If a document is subsequently revised after the verification phase is complete, a new progress print will be prepared and this review process will be repeated.

## **5.9 Documentation of Instructions, Suggestions or Questions**

At any time during the during the review process, any one of the above individuals may document instructions, suggestions or questions directly to the document in **Blue** or **Black**. Any such annotations made using these colors are not intended to mandate changes to the original document. However, they shall serve as a method to coordinate thoughts or ideas during the review process.

## **6.0 Records**

Review records shall be utilized to summarize the status, outcomes and individuals associated with this documented review process. See QCP 1.02 for instructions on how to utilize review records.

Project deliverables that are comprised of very few individual work products may utilize an abbreviated Independent Technical Review from to summarize the formal review process. Permit applications, small reports, exhibits, etc. are sample project deliverables that may utilize this form. See Appendix C for this form.

Annotated documents developed during this review process (PDF records) shall be retained electronically in PDF format. See QCP 1.03 for instructions on how to name and store PDF records.

## **7.0 Exhibits**

Figure 1: Generalized Review Process Flow Chart

Figure 2: Sample Drawing Check (Review Phase)

Figure 3: Sample Drawing Check (Back-Check Phase)

Figure 4: Sample Drawing Check (Revision Phase)

Figure 5: Sample Drawing Check (Verification Phase)

Figure 6: Sample Calculation Check

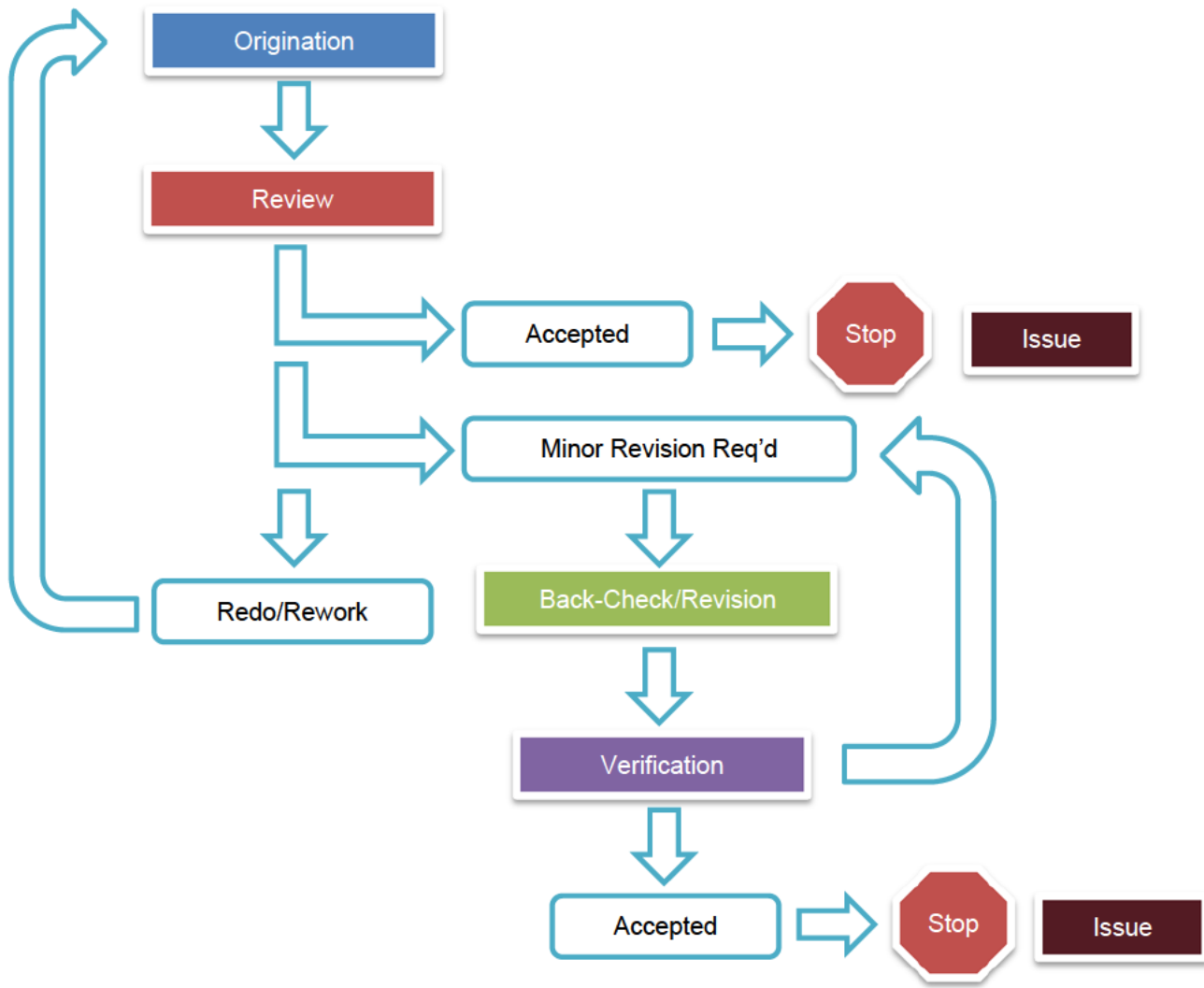


Figure 1: Generalized Review Process Flow Chart



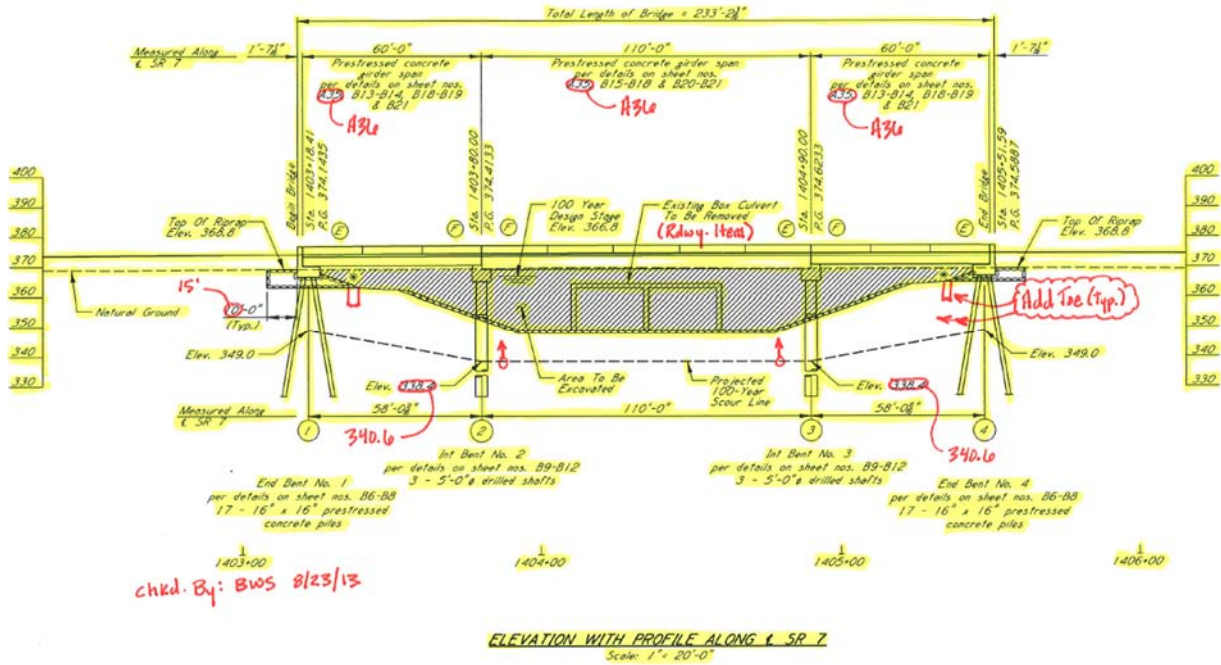


Figure 2: Sample Drawing Check (Review Phase)

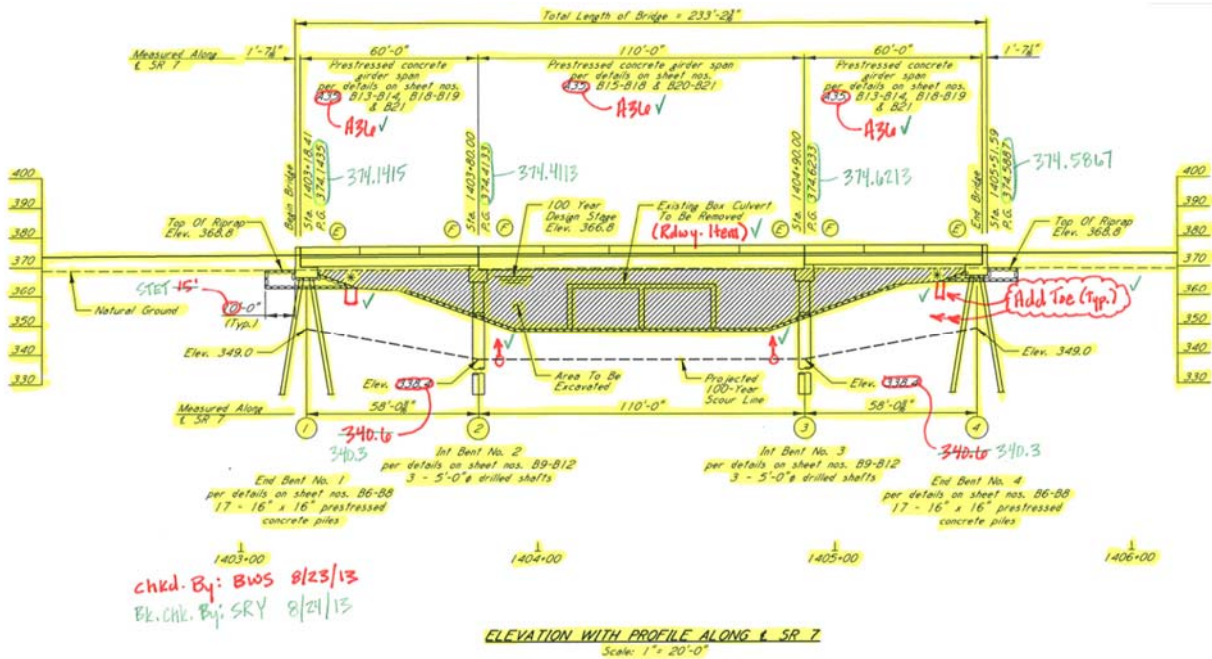


Figure 3: Sample Drawing Check (Back-Check Phase)

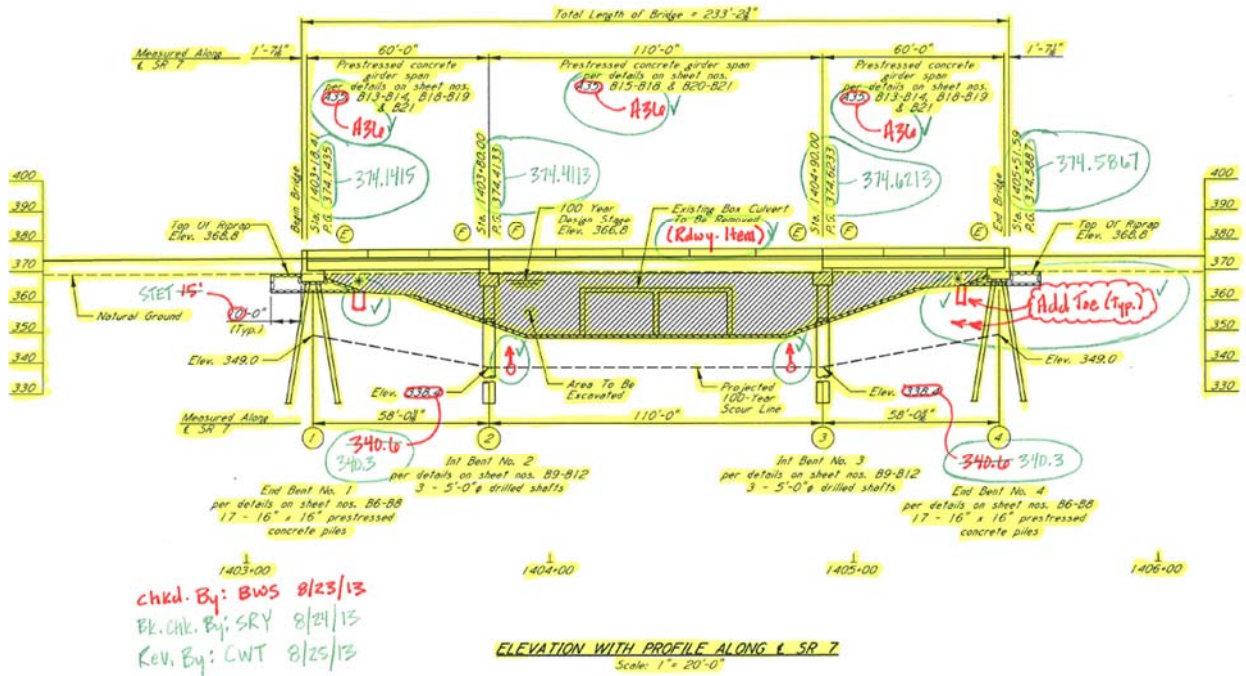


Figure 4: Sample Drawing Check (Revision Phase)

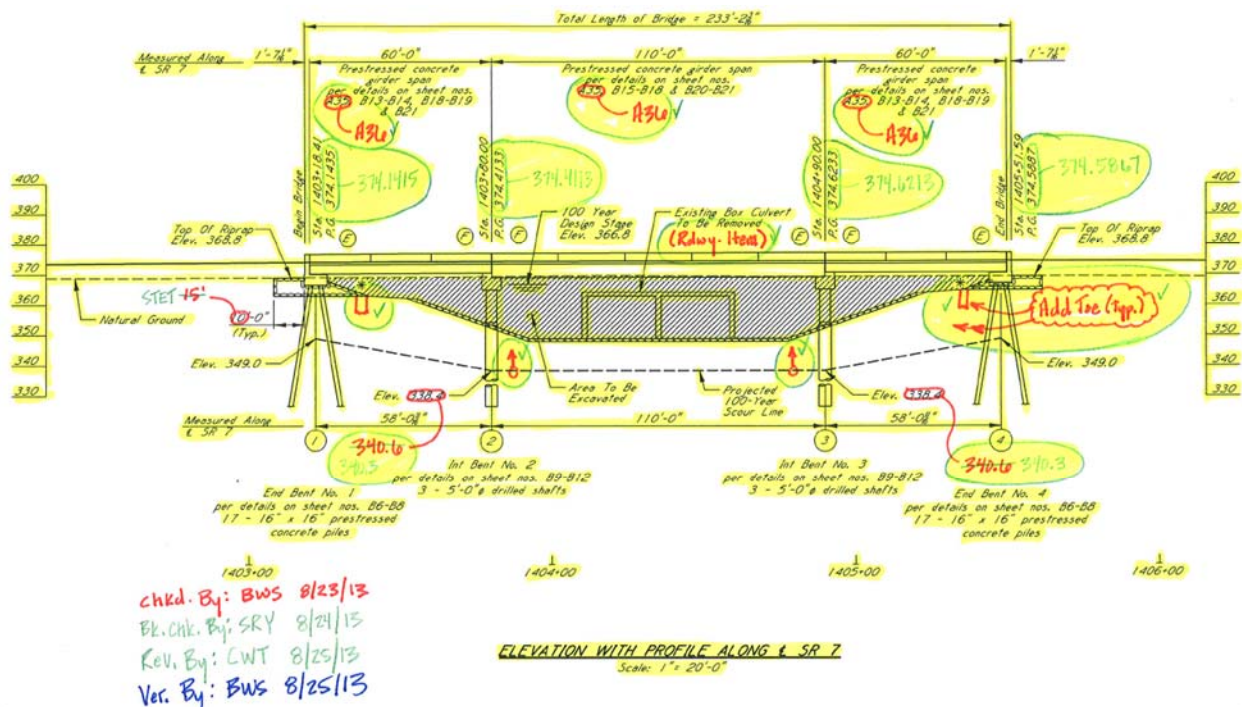


Figure 5: Sample Drawing Check (Verification Phase)

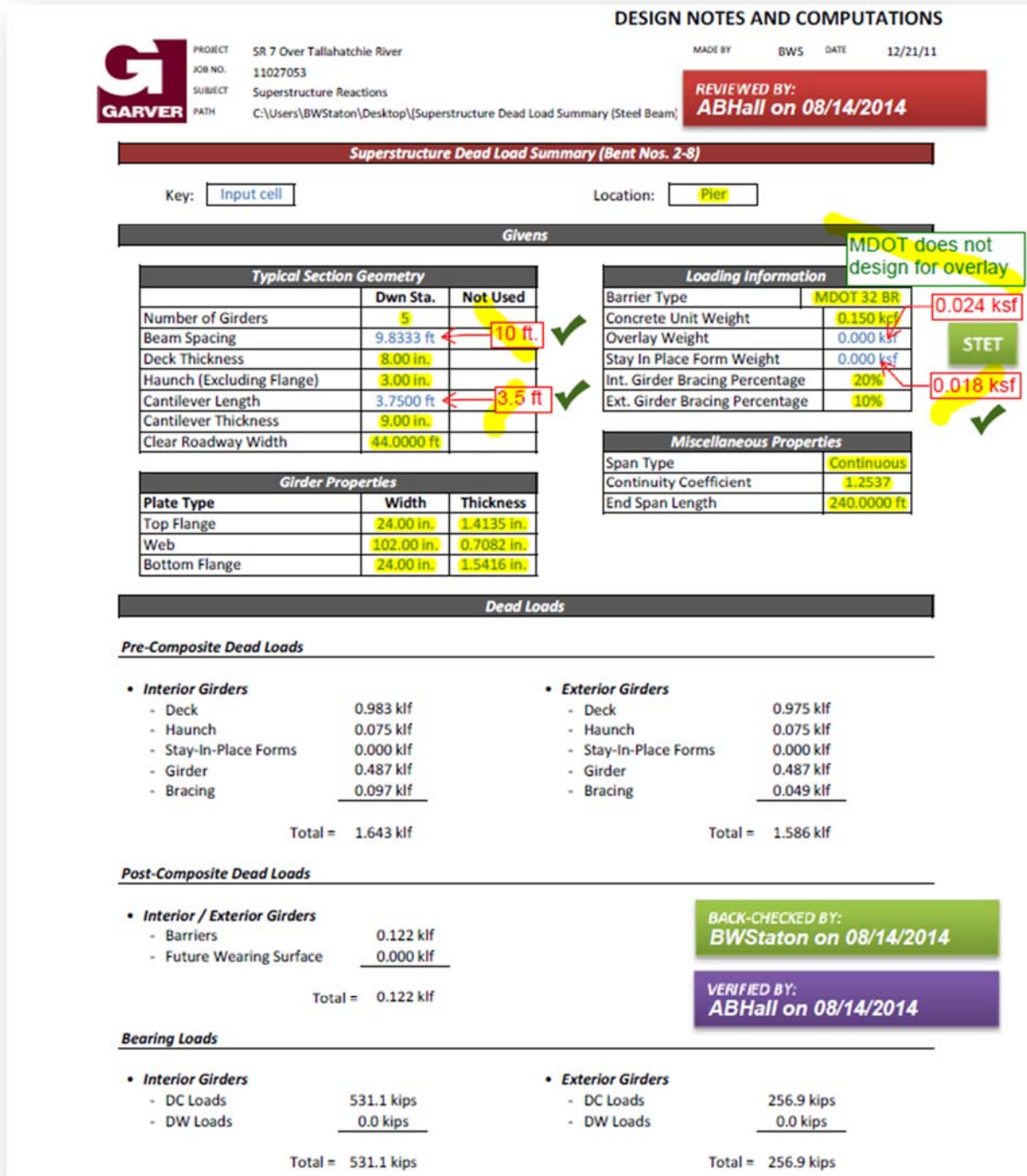


Figure 6: Sample Calculation Check



## **1.0 Purpose**

Review records are used to summarize the status, outcomes and individuals associated with the documented review process. Review records give a snapshot of the level of effort associated with development of specific work products that make up project deliverables.

## **2.0 Scope**

This quality control procedure is applicable to all work products subject to the documented review process described in QCP1.01.

## **3.0 Definitions**

*Review Record* – Tabulated summary listing review activities for individual work products comprising project deliverables.

*PDF Record* – A compilation of annotated progress prints (for a given project deliverable) saved in an electronic (PDF) format, depicting individual review and back-check comments generated during the review process. See QCP 1.03 for more information.

## **4.0 General**

This project utilizes a series of review records that manages the development of each project deliverable. These review records track the development history of a deliverable by logging the individuals responsible for specific review activities, as well as, the completion dates and dispositions of those activities.

## **5.0 Process**

A separate review record will be generated for each project deliverable type (i.e. drawings, specifications, design notebooks, etc.) and for each review phase. Within each review record an individual line item will be created for every drawing, specification, analysis, worksheet, or hand calculation to summarize the review workflow for that item. Review records for drawings will include activity entries for origination, review, back-check, revision, and verification. Review records for other project deliverables will include activity entries for all the previous review phases with the exception of revision. Ultimately, a review record is a summary of individual work product review workflows.

The review workflow for each work product is deemed complete when an “accepted” disposition is achieved during review or verification. The overall review process for the project deliverable is deemed complete once all individual review workflows conclude. Work products that receive an “accepted” disposition from the reviewer do not require a verification activity. All individuals engaged during the documented review process with initials appearing in the review record shall sign and date a review

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roster. A review roster shall accompany every review record. Multiple review rosters may be used with a single review record, if needed, to better distinguish involvement of specific components.

## **5.1 Standard Disposition Codes**

The purpose of the review record is to summarize the development of each project deliverable. It is not the intent of the review record to list each individual comment made during review. Consequently, review records utilize a standard coding system to summarize the disposition for key review phases. These standard disposition codes serve as a means to expediently differentiate varying levels of effort required to develop each work product and identify items that required additional attention. The standard disposition codes are detailed below:

### **5.1.1 Review and Verification Codes**

*A (Accepted)* – Used to designate that all items are satisfactory and no further action is necessary.

*R (Rework/Redo)* – Used to designate that significant inaccuracies exist and re-origination is required. Items marked with this code will require subsequent documented review.

*M (Minor Revisions Required)* – Used to designate that minor revisions are warranted. Items marked with this code do not require subsequent documented review.

*N/A (Not Applicable)* – Used to designate item as irrelevant and indicate for removal from deliverable package.

*FIO (For Information Only)* – Used to designate that item is not checked and only serves as supplemental information.

### **5.1.2 Back-Check Codes**

*C (Concur)* – Used to designate that all Reviewer comments are valid and require incorporation.

*E (Concur with Exception)* – Used to designate that some Reviewer comments are not applicable and should be disregarded. It is the responsibility of the Back-checker to bring such items to the attention of the Reviewer and arrive at a resolution as detailed in QCP 1.01 before revising the original document.

*D (Disagree)* – Used to designate that all Reviewer comments are invalid.

Note: It is the responsibility of the Back-checker to bring to the Reviewer's attention any comments marked to be disregarded or other changes made during the back-check. See QCP 1.01 for resolution requirements.

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## **5.2 PDF Name Column**

The PDF Name column shall be used to designate to PDF record that contains the specific review and back-comments summarized for a given review iteration of a work product. See QCP 1.03 PDF file naming Convention.

## **5.3 Accepted Workflow**

If a work product is found to be found without error during review, the review workflow is completed requiring no further activities. See line item 3(e) in Figure 1 for a sample entry associated with this review workflow.

## **5.4 Standard Revision Workflow**

If a work product is determined to require additional minor modification during review, the work product will require a back-check, revision, and subsequent verification. This workflow should be used when the nature of the requested revisions do not necessitate an additional documented review cycle (e.g. does not require a rework workflow as described in Section 5.5). A standard revision workflow can be completely summarized with a single line item entry within the review record. See line item 3(a) in Figure 1 for a sample entry associated with this review workflow.

## **5.5 Rework Workflow**

If a work product is determined to require rework and a subsequent review, an additional line entry shall be included immediately underneath the previous line item entry for that work product. The title "Rework" shall be used as the description for this subsequent line item entry. In this situation, the previous line item entry will only need to summarize review activities through the back-check task. The Back-checker is required to respond to the Review's comments in the previous PDF record and stamp that work product with the Rework stamp. The Originator in the new line item entry shall be the individual responsible for revising the previously developed work product. The reworked work product(s) will need to be saved in a separate PDF record using the sequential naming convention discussed in QCP 1.03. This process shall be repeated as necessary. See line item 3(f) in Figure 1 for a sample entry associated with this review workflow.

## **5.6 Verification Revision Workflow**

If a work product is determined to require additional modification during the verification task, an additional line entry shall be included immediately underneath the previous line item entry for that work product. The title "Revision" shall be used as the description for this subsequent line item entry. In this situation, the previous line item entry will summarize review activities through the verification task. The Originator and Reviewer activity logs in the new line item entry are not required to be completed. Only the subsequent back-check, revision, and verification activities need to be logged with this new line item. The revised work product will not need to be saved in a separate PDF record for this situation. Consequently, this workflow should only be used if requested revisions are minor in nature. The Rework process detailed in Section 5.5 shall be utilized if significant modifications are necessary. See line item 4(b) in Figure 1 for a sample entry associated with this review workflow.

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## **6.0 Records**

Review records and rosters shall reside in the folder destination specified below. Review records for drawings will utilize a standard Excel template. Review records for other project deliverable types will utilize a standard MS Word template.

*\\Design\Quality Program\Quality Records\Review Records*

## **7.0 Exhibits**

Figure 1: Design Notebook Review Record

Figure 2: Drawing Review Record

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Discipline: Bridges & Structures  
Subject: Package 4:: US 69 Structural Steel

US 69 Missouri River Bridge Design Build Project  
Design Notebook Quality Control Review Record

**Review & Verification Codes**

A – Accepted  
R – Rework / Redo  
M – Minor Revision Required  
N/A – Analysis Not Applicable  
FIO – For Information Only (Not Checked)

**Back Check / Revision Codes**

C – Concur  
E – Concur with Exception  
D – Disagree

Item Number & Description	PDF Name	Origination		Review			Back Check / Revision			Verification		
		Initials	Date	Initials	Date	Code	Initials	Date	Code	Initials	Date	Code
I. Lateral Bracing Welded Connection	R1.00	ABH	10/14	BWS	11/14	M	ABH	11/14	E	BWS	11/14	A
m. System Buckling Check	R1.00	ABH	11/14	BWS	11/14	M	ABH	11/14	C	BWS	11/14	A
3. End Bent 1 Finger Joint	---	---	---	---	---	---	---	---	---	---	---	---
a. Bent 2 Stiffness Worksheet (No Scour)	R1.00	JES	10/14	BWS	11/14	M	ABH	11/14	C	BWS	11/14	A
b. Bent 3 Stiffness Worksheet (No Scour)	R1.00	JES	10/14	BWS	11/14	M	ABH	11/14	C	BWS	11/14	A
c. Longitudinal Load Distribution Spreadsheet	R1.00	ABH	10/14	BWS	11/14	M	ABH	11/14	C	BWS	11/14	A
d. Finger Joint Sketch	R1.00	ABH	10/14	BWS	11/14	FIO	---	---	---	---	---	---
e. Finger Joint Movement	R1.00	ABH	11/14	BWS	11/14	A	---	---	---	---	---	---
f. Finger Joint Plate Design	R1.00	ABH	11/14	BWS	11/14	R	ABH	11/14	E	---	---	---
- Rework	R2.00	ABH	11/14	BWS	11/14	A	---	---	---	---	---	---
4. End Bent 5 Finger Joint	---	---	---	---	---	---	---	---	---	---	---	---
a. Thermal Origin per Midas	R1.00	ABH	11/14	BWS	11/14	FIO	---	---	---	---	---	---
b. Bent 2 Stiffness Worksheet (Scour)	R1.00	JES	10/14	BWS	11/14	M	ABH	11/14	C	BWS	11/14	M
- Revision	---	---	---	---	---	---	ABH	11/14	C	BWS	11/14	A



Figure 1: Design Notebook Review Record





Discipline: Bridges & Structures  
 Subject: SR 12 over Fannegusha Creek

SR 12 over Fannegusha Creek  
 Drawing Quality Control Record

Review & Verification Codes

A - Accepted  
 R - Rework / Redo  
 M - Minor Revisions Required  
 N/A - Sheet is Not Applicable (Remove)

Back Check Codes

C - Concur  
 E - Concur with Exception  
 D - Disagree

OFFICE REVIEW SUBMITTAL															
Work No.	Sheet Name/Description	PDF Name	Origination		Review			Back Check			Revision		Verification		
			Initials	Date	Initials	Date	Code	Initials	Date	Code	Initials	Date	Initials	Date	Code
DI-BR-1	DETAILED INDEX (BRIDGE)	R90.1.00	MRA	10/14	BWS	10/14	M	MRA	10/14	E	CWT	10/14	BWS	11/14	A
SQ-BR-1	SUMMARY OF QUANTITIES (BRIDGE)	R90.1.00	MRA	10/14	BWS	10/14	M	MRA	10/14	E	CWT	10/14	BWS	11/14	A
EQ-BR-1	ESTIMATED QUANTITIES (BRIDGE)	R90.1.00	MRA	10/14	BWS	10/14	M	MRA	10/14	C	CWT	10/14	BWS	11/14	A
1	SR 12 OVER FANNEGUSHA CREEK	R90.1.00	MRA	10/14	BWS	10/14	M	MRA	10/14	C	CWT	10/14	BWS	11/14	M
	- Revision	---	---	---	---	---	---	MRA	11/14	C	CWT	11/14	BWS	11/14	A
2	SR 12 OVER FANNEGUSHA CREEK	R90.1.00	MRA	09/14	BWS	10/14	M	MRA	10/14	C	CWT	10/14	BWS	11/14	A
3	FOUNDATION PLAN	R90.1.00	MRA	10/14	BWS	10/14	M	MRA	10/14	E	CWT	10/14	BWS	11/14	A
4	GENERALIZED SOIL PROFILE	R90.1.00	MDOT	09/14	BWS	10/14	M	MRA	10/14	C	CWT	10/14	BWS	11/14	A
5	GENERALIZED SOIL PROFILE	R90.1.00	MDOT	09/14	BWS	10/14	M	MRA	10/14	C	CWT	10/14	BWS	11/14	A
6	TRIAL SHAFT DETAILS	R90.1.00	MDOT	09/14	BWS	10/14	M	MRA	10/14	C	CWT	10/14	BWS	11/14	A
7	SUPERELEVATION TRANSITION DETAIL	R90.1.00	MRA	10/14	BWS	10/14	M	MRA	10/14	E	CWT	10/14	BWS	11/14	R
	- Rework	R90.2.00	MRA	11/14	BWS	11/14	M	MRA	11/14	C	CWT	11/14	BWS	11/14	A
8	END BENT NO. 1 DETAILS	R90.1.00	DRG	09/14	AJK	10/14	M	DRG	10/14	E	CWT	10/14	AJK	11/14	A
9	END BENT NO. 4 DETAILS	R90.1.00	DRG	09/14	AJK	10/14	M	DRG	10/14	C	CWT	10/14	AJK	11/14	A
10	END BENT NOS. 1 & 4 DETAILS	R90.1.00	DRG	09/14	AJK	10/14	M	DRG	10/14	E	CWT	10/14	AJK	11/14	A
11	INT. BENT NOS. 2 & 3 DETAILS	R90.1.00	MRA	10/14	AJK	10/14	M	MRA	10/14	D	CWT	10/14	AJK	11/14	A
12	INT. BENT NOS. 2 & 3 DETAILS	R90.1.00	MRA	10/14	AJK	10/14	M	MRA	10/14	E	CWT	10/14	AJK	11/14	A
13	INT. BENT NOS. 2 & 3 DETAILS	R90.1.00	MRA	10/14	AJK	10/14	M	MRA	10/14	E	CWT	10/14	AJK	11/14	A
14	580'-0" CONT. COMP. PLATE GIRDER SPAN DETAILS	R90.1.01	BWS	09/14	RLW	10/14	M	BWS	10/14	E	CWT	10/14	RLW	11/14	A
15	580'-0" CONT. COMP. PLATE GIRDER SPAN DETAILS	R90.1.01	BWS	09/14	RLW	10/14	M	BWS	10/14	C	CWT	10/14	RLW	11/14	A
16	580'-0" CONT. COMP. PLATE GIRDER SPAN DETAILS	R90.1.01	BWS	09/14	RLW	10/14	M	BWS	10/14	C	CWT	10/14	RLW	11/14	A



Figure 2: Drawing Review Record

**ATTACHMENT 4: REVIEW PLAN REVISIONS**

<b>Revision Date</b>	<b>Description of Change</b>	<b>Page / Paragraph Number</b>