

REVIEW PLAN
Using the MVD Model Review Plan
for
Continuing Authorities Program
Section 14, 107, 111, 204, 206, 208, or 1135 Projects,
or Projects directed by Guidance
to use CAP processes

Emiquon East Aquatic Ecosystem Restoration Project, Fulton County, Illinois
Section 206 Project

Definite Project Report

Rock Island District

MSC Approval Date: [21 September 2011](#)

Last Revision Date: [16 September 2011](#)



**US Army Corps
of Engineers®**

**Review Plan
Using the MVD Model Review Plan**

**Emiquon East Aquatic Ecosystem Restoration, Fulton County, Illinois
Section 206 Project**

Definite Project Report

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1. Purpose and Requirements.

a. Purpose. This Review Plan defines the scope and level of peer review for the Emiquon East Aquatic Ecosystem Restoration, Fulton County, Illinois, Section 206 Project products. Products to be reviewed include the Definite Project Report with Integrated Environmental Assessment and all associated appendices. Specific areas for technical review include; environmental and cultural assessment; cost estimate; hydraulic and hydrologic analysis; structural, mechanical, and electrical engineering; and real estate plan.

Section 206 of the Water Resources Development Act of 1996, Public Law 104-305, authorizes the Secretary of the Army to carry out a program of aquatic ecosystem restoration with the objective of restoring degraded ecosystem structure, function, and dynamic processes to a less degraded, more natural condition considering the ecosystem's natural integrity, productivity, stability and biological diversity. This authority is primarily used for manipulation of the hydrology in and along bodies of water, including wetlands and riparian areas. This authority also allows for dam removal. This is a Continuing Authorities Program (CAP) which focuses on water resource related projects of relatively smaller scope, cost and complexity. Unlike the traditional Corps' civil works projects that are of wider scope and complexity, the Continuing Authorities Program is a delegated authority to plan, design, and construct certain types of water resource and environmental restoration projects without specific Congressional authorization.

Additional Information on this program can be found in Engineering Regulation 1105-2-100, Planning Guidance Notebook, Appendix F, Amendment #2.

b. Applicability. This review plan is based on the MVD Model Review Plan for Section 14, 107, 111, 204, 206, 208, or 1135 Projects or Programs directed by guidance to follow CAP processes, which is applicable to projects that do not require Independent External Peer Review (IEPR), as defined by the mandatory Type I IEPR triggers contained in EC 1165-2-209, Civil Works Review Policy.

c. References:

- (1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 January 2010.
- (2) Director of Civil Works' Policy Memorandum #1, CECW-P, dated 19 January 2011.
- (3) EC 1105-2-412, Assuring Quality of Planning Models, 31 March 2010.
- (4) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 September 2006.
- (5) ER 1105-2-100, Planning Guidance Notebook, Appendix F, Continuing Authorities Program, Amendment #2, 31 January 2007.
- (6) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 November 2007.
- (7) Approved Project Management Plan, September 2010

2. Review Management Organization (RMO) Coordination.

The RMO is responsible for managing the overall peer review effort described in this review plan. The RMO for Section 206 is MVD. MVD will coordinate and approve the review plan and manage the Agency Technical Review (ATR). The home District will post the approved review plan on its public website.

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3. Project Information.

a. Decision Document. The Emiquon East Aquatic Ecosystem Restoration, Fulton County, Illinois definite project report decision document will be prepared in accordance with ER 1105-2-100, Appendix F, Amendment #2. The approval level of this decision document (if policy compliant) is the Mississippi Valley Division. An Environmental Assessment (EA) will be prepared along with the decision document.

b. Study/Project Description. The Project Study Area is one of the largest and most recognized bottomland lakes in the Illinois River Valley (Figure 1). The Illinois River’s significance was recognized by Congress in WRDA 1996 as a “nationally significant ecosystem” as part of the Upper Mississippi River System. Prior to its isolation from the river in 1920 when levee construction was completed, the Project area was a large commercial inland fishery and waterfowl hunting area. The Project area was drained for agricultural production and served as productive farmland for more than 80 years. The Nature Conservancy (TNC) is the non-Federal Sponsor. TNC announced in 2000 that it had purchased the Project area along with additional adjacent lands. The Project area continued to be farmed while a restoration plan was being developed until 2006 when TNC signed into a Wetland Reserve Program (WRP) agreement with the USDA-Natural Resources Conservation Service (NRCS). In 2007, in cooperation with the WRP agreement, TNC halted pumping and the water levels began to rise, restoring fishery and wetland habitat in this backwater area. However, recent restoration efforts at Hennepin and Hopper Lakes were determined to be detrimental to the ecosystem when they ceased to manage water levels. Disturbance to the system occurred due to the high concentration of common and grass carp varieties of fish. The Nature Conservancy has identified that without a reliable way to manage water levels at Emiquon, the ecosystem will be substantially degraded over time.

The Product Delivery Team identified a number of possible water control, pumping, spillway and interior island measures to address a suite of habitat goals for the area and identified a plan that maximized the environmental benefits while accounting for the Project effectiveness, efficiency, acceptability and completeness.

The National Ecosystem Restoration Plan for this Project is identified in the report as W1S0P2I2 and includes; a single gate 7-foot wide Water Control Structure, a 60,000 gallon-per-minute Pumping System, and 10 Interior Earthen Islands .

Current and Future Cost Summary

Account	Feature	Current Dollar Estimate	FFE
01	Lands and Damages	\$4,500,000	\$4,500,000
06	Monitoring and Adaptive	\$1,103,000	\$1,132,000
13	Pumping Plant	\$1,955,000	\$2,066,000
15	Floodway Control & Diversion	\$2,540,000	\$2,685,000
19	Buildings, Grounds, & Utilities	\$740,000	\$803,000
30	Planning, Engineering, and Design	\$3,022,000	\$3,162,000
31	Construction Management	\$610,000	\$687,000
Total Project Costs		\$13,970,000	\$14,483,000

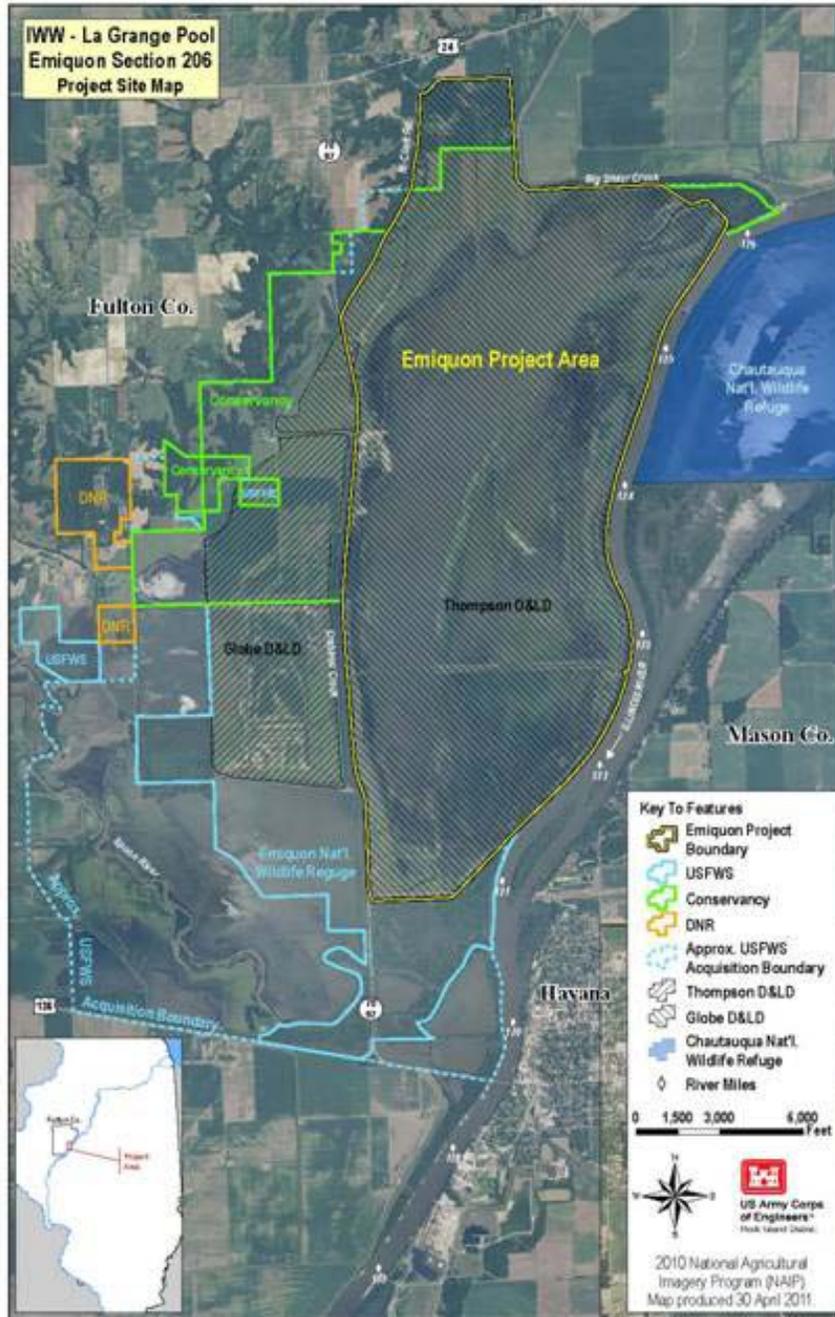
The Federal cost share of the Project is 65 percent of the total cost but not to exceed \$7.5 million. Section 3062 of WRDA 2007 increased the statutory limit on the Federal Government’s financial participation in the planning, engineering, design, and construction of the Section 206 Project at Emiquon, Illinois from \$5,000,000 to \$7,500,000. The NFS is required to cost share the remaining 35 percent of the total Project

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cost. The NFS land credits amount is estimated at total of \$4.5 million. Any costs that exceed the Federal cost statue limit of \$7.5 million are paid 100 percent by the NFS.

A policy waiver request will likely be required because is it estimated that the land credits will exceed 25% of the total project cost. No other policy waivers are anticipated per Appendix F of ER 1105-2-100 (as amended).

Figure 1 - Emiquon East Site Map



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c. Factors Affecting the Scope and level of Review. The Section 206 Emiquon Aquatic Ecosystem Restoration Continuing Authorities Project has been determined to be a low-risk level project. As stated in MVD QMS Process 03502.1-MVD (MVD CAP Review Plan Checklist and Model Review Plans), if any of the criteria listed below are not met, the MVD Model Review Plan for a Section 206 project is not applicable, and a project specific review plan must be prepared by the home district, coordinated with the appropriate Planning Center of Expertise (PCX) and approved by MVD in accordance with EC 1165-2-209, and Director of Civil Works' Policy Memorandum #1, 19 January 2011. Use of the MVD CAP Model Review Plan is justified because the project meets all the criteria.

- **The project does NOT involve a significant threat to human life/safety assurance:** The project does not involve construction of a flood risk management levee or a dam. The project does not involve modification of an existing dam
 - **The total project cost is LESS than \$45 million:** Current project cost estimate is \$14.5 million.
 - **There has been NO request by the Governor of an affected state for a peer review by independent experts:** The State of Illinois is supportive of this project.
 - **The project does NOT require an Environmental Impact Statement (EIS):** The project will contribute positively to the environment. As such an Environmental Assessment will be prepared.
 - **The project/study is NOT likely to involve significant public dispute as to the size, nature, or effects of the project:** The public is in favor of this project and generally support of TNC's past efforts to restore the area.
 - **The project/study is NOT likely to involve significant public dispute as to the economic or environmental cost or benefit of the project:** The public is in favor of this project and generally support of TNC's past efforts to restore the area.
 - **The information in the decision document or anticipated project design is NOT likely to be based on novel methods, involve the use of innovative materials or techniques, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices:** The project used standard methods of analysis and evaluation as show in Section 8 Model Certification and Approval. Standard construction materials will be used.
 - The project design is NOT anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedule.

d. In-Kind Contributions. Products and analyses provided by non-Federal sponsors as in-kind services are subject to District Quality Control (DQC) and ATR, similar to any products developed by USACE. However, no in-kind services will be contributed for the study.

4. District Quality Control (DQC).

All decision documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC prior to ATR. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management

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Plan (PMP). The home district shall manage DQC in accordance with MVD and district Quality Management Plan. Any discrepancies between a reviewer and a Project Delivery Team (PDT) member will be resolved face-to-face. If a concern cannot be satisfactorily resolved between the DQC team and the PDT, it will be elevated to the section supervisor for further resolution.

The home district shall manage DQC in accordance with MVD and the district Quality Management Plan. MVR will conduct a formal pre-AFB DQC Review of the Emiquon Project in accordance with EC 1165-2-209 Paragraph 8. All DQC comments will be entered into DrChecks which will be accessible to the ATR reviewers. The District section planning chief will issue a DQC certification for DQC that is conducted on products for major milestones that will be provided to the ATR lead at the beginning of the ATR review period.

The definite project report will undergo formal DQC review for the pre-AFB draft report. Formal DQC will be conducted on the pre-final report only if major fundamental changes occur to the document due to public review or changes in policy.

DQC expertise should match up with the disciplines present in the PDT. Efforts will be made to capture DQC reviewers with knowledge in multiple areas where possible and practical to minimize costs of the review. As a minimum the DQC review must include Hydrology and Hydraulics, Plan Formulation, Civil/Environmental Engineering, Cost Engineering, and Environmental and Cultural resources.

5. Agency Technical Review (ATR).

One ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.), however additional ATRs may be performed if deemed warranted. ATR shall be documented and discussed at the Alternative Formulation Briefing (AFB) milestone. Certification of the ATR will be provided prior to the District Commander signing the final report. ATR is managed within USACE by the designated RMO and is conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR teams will be comprised of senior USACE personnel. The ATR team lead will be from within the MSC. The ATR team lead will be from the MVS District.

a. Products to Undergo ATR. ATR will be performed throughout the project in accordance with the District and MVD Quality Management Plans. Products to undergo ATR include: The Definite Project Report with Integrated Environmental Assessment and all associated appendices will undergo Pre-AFB ATR review. Pre-Final ATR review will be conducted if major changes are required between the approval of the draft report for public review and the final submittal.

b. Required ATR Team Expertise. It is anticipated that there will be ten senior technical reviewers including the ATR lead for the Definite Project Report with Integrated Environmental Assessment. The following table contains a list of the ATR team members needed for the review and their required expertise.

ATR Team Members/Disciplines	<i>Expertise Required</i>
ATR Lead/Plan Formulator	The ATR lead should be a senior level planning and policy expert, preferably with experience in preparing Section 206 and conducting ATR reviews. The lead should also have the necessary skills and experience to lead a virtual team through

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	the ATR process. The ATR lead will also serve as a reviewer for plan formulation. The ATR Lead MUST be from outside Rock Island District.
Economics	The Economics reviewer should be a senior level economics expert with experience in incremental cost analysis, regional economic development, and benefit calculations for recreational projects.
Environmental Resources	The Environmental Resources reviewer should be a senior level professional with experience in the WHAG and AHAG habitat models as well as being familiar with the NEPA process requirements.
Cultural Resources	The Cultural Resources reviewer should be a senior level professional with specialized experience in NEPA requirements.
Hydrology and Hydraulic Engineering	The H&H Engineering reviewer should be a senior level technical expert in the field of hydraulics and have a thorough understanding of open channel dynamics, scour analysis and basin routing.
Civil Engineering	The Civil Engineering reviewer should be a senior level technical expert in site planning, quantity calculations, HTRW and project design and O&M.
Structural Engineering	The Structural Engineering reviewer should be a senior level technical expert in sheet pile foundations and reinforced concrete structures.
Electrical Engineering	The Electrical Engineering reviewer should be a senior level reviewer with experience in sizing outdoor rated electrical components for pump stations.
Mechanical Engineering	The Mechanical Engineering reviewer should be a senior level reviewer with experience in the application of submersible pumps and mechanical means of lifting large sluice gates.
Real Estate	The Real Estate Reviewer should be a senior level expert appraiser/economist familiar with CAP projects, and should be experienced in LERRD crediting and gross appraisals.

c. Documentation of ATR. DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. Any editorial comments should be provided informally by email to the PDT.

6. Policy and Legal Compliance Review.

All decision documents will be reviewed throughout the study process for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. 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 MVD Commander. DQC and ATR augment and complement the policy review

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processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in decision documents.

7. Cost Engineering Directory of Expertise (DX) Review And Certification.

For CAP projects, ATR of the costs may be conducted by pre-certified district cost personnel within the region or by the Walla Walla Cost DX. The pre-certified list of cost personnel has been established and is maintained by the Cost DX at <https://kme.usace.army.mil/EC/cost/CostAtr/default.aspx>. The cost ATR member will be coordinated with the Cost DX for execution of cost ATR and cost certification. The Cost DX will be responsible for final cost certification and may be delegated at the discretion of the Cost DX.

8. Model Certification and Approval.

Approval of planning models under EC 1105-2-412 is not required for CAP projects. MSC commanders remain responsible for assuring the quality of the analyses used in these projects. ATR will be used to ensure that models and analyses are compliant with Corps policy, theoretically sound, computationally accurate, transparent, described to address any limitations of the model or its use, and documented in study reports.

EC 1105-2-412 does not cover engineering models used in planning. 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. As part of the USACE Scientific and Engineering Technology (SET) Initiative, many engineering models have been identified as preferred or acceptable for use on Corps studies and these models should be used whenever appropriate. 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).

Planning and Engineering Models. The following models were used in the development of the decision document:

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Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study
HEC-RAS 4.0 (River Analysis System)	The Hydrologic Engineering Center's River Analysis System (HEC-RAS) program provides the capability to perform one-dimensional steady and unsteady flow river hydraulics calculations. This tool will be used for levee spillway design analysis.
ACES module of CEDAS (Coastal Engineering Design & Analysis System) v4.0 program developed by Veri-Tech, Inc.	The wind fetch analysis will be conducted using ACES. ACES is an interactive computer-based design and analysis system containing six functional areas: wave prediction; wave theory; wave transformation; structural design; wave runup; and littoral processes.
Wildlife Habitat Appraisal Guide (WHAG) (Ulrich, et al., 1984)	The WHAG was developed by the Missouri Dept of Conservation and the U.S. Dept of Agriculture, Soil Conservation Service (now NRCS). It is a field evaluation procedure designed to estimate habitat quality and account for changes due to land management practices. A pre-selected list of species was used in the habitat matrices of the Non-forested Wetland WHAG model to represent a guild of other similar species that utilize the habitat found in the study area.
Aquatic Habitat Appraisal Guide (AHAG) (Mathias, et al., 1996)	The AHAG authors developed this habitat model to evaluate fish habitat in the Upper Mississippi River System. The AHAG is based on the concept of the Habitat Evaluation Procedures (USFWS, 1980). The AHAG numerically rate aquatic habitat quality for individual fish species under varying environmental conditions and to document benefits of environmental features in the project design.

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9. Review Schedules and Costs.

ATR Schedule and Cost. Pre-AFB ATR was conducted in June 2011 and was completed in August 2011. The total cost for Pre-AFB ATR was approximately \$40,000. If Pre-Final ATR is required it is anticipated that it will be conducted in September 2011 at an additional cost of \$20,000.

10. Public Participation.

State and Federal resource agencies may be invited to participate in the study covered by this review plan as partner agencies or as technical members of the PDT, as appropriate. The Section 206 Emiquon Definite Project Report with Integrated Environmental Assessment will be available for public comment for 30 days once it has been approved for release to the public pending approval by MVD following the Alternative Formulation Briefing. The report will be posted on the Rock Island District's website (<http://www2.mvr.usace.army.mil/projects/index.cfm>) and postcards requesting review of the report and appendices will be distributed to the list of contacts located in the DPR Appendix Q – Distribution List as coordinated with the Outreach team member of the PDT.

11. Review Plan Approval and Updates.

The MVD District Support Team Chief is responsible for approving this review plan and ensuring that use of the MVD Model Review Plan is appropriate for the specific project covered by the plan. The review plan is a living document and may change as the study progresses. The home district is responsible for keeping the review plan up to date. Minor changes to the review plan since the last MVD approval are documented in Attachment 2. Significant changes to the review plan (such as changes to the scope and/or level of review) should be reapproved by MVD following the process used for initially approving the plan. Significant changes may result in MVD determining that use of the MVD Model Review Plan is no longer appropriate. In these cases, a project specific review plan will be prepared and approved in accordance with EC 1165-2-209. The latest version of the review plan, along with the MVD approval memorandum, will be posted on the home district's webpage.

12. Review Plan Points of Contact.

Public questions and/or comments on this review plan can be directed to the following points of contact:

- Jason Smith, Civil Engineer, Rock Island District, (309) 794-5690
- Fredrick Ragan, Program Manager, Mississippi Valley Division, (601) 634-5926

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Attachment 1: Team Rosters

Product Delivery Team (PDT) Roster

<u><i>Role</i></u>	<u><i>Name</i></u>	<u><i>District/Organization</i></u>	<u><i>Phone Number</i></u>
Planning	Jason Smith, P.E.	MVR	309-794-5690
Environmental	Joe Jordan	MVR	309-794-5191
Project Engineer	Kara Mitvalsky, P.E.	MVR	309-794-5623
Cultural Resources	Ron Deiss	MVR	309-794-5185
Structural Engineering	Josh Cackley	MVR	309-794-5246
Geotechnical Engineering	Jotham Povitch, P.E.	MVR	309-794-5402
Hydraulic Engineering	Lucie Sawyer	MVR	309-794-5836
Cost Engineering	Brandon Hintz	MVR	309-794-5265
Real Estate	Jason Appel	MVR	309-794-5489
Water Quality	Thomas "Leo" Keller	MVR	309-794-5720
Economics	Rick Eberts	MVR	309-794-5557
Electrical Engineering	Bryan Radtke	MVR	309-794-5598
Mechanical Engineering	Jim Bartek	MVR	309-794-5599
Technical Editor	Mary Rodkey	MVR	309-794-5499
Non-Federal Sponsor Representative	Doug Blodgett	TNC	309-547-2730

District Quality Control (DQC) Roster

<u><i>Discipline</i></u>	<u><i>Section Notation</i></u>	<u><i>Reviewer</i></u>
Planning	PD-F	Marshal Plumley
Environmental Engineering	EC-DN	Rachel Fellman
Environmental	PD-E	Len Kring
Cultural Resources	PD-E	Jim Ross
Structural Engineering	EC-DS	Mike Ballard
Geotechnical Engineering	EC-G	David Robison
Hydraulic Engineering	EC-HH	Tom Gambucci
Cost Engineering	EC-TE	Chuck VanLaarhoven
Real Estate	RE	TBD
Water Quality	EC-HQ	Clint Beckert
Economics	PD-E	Dan Fetes
General Engineering	EC-DG	Bryan Pattschul

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Agency Technical Review (ATR) Roster

<i>Discipline</i>	<i>Organization Code</i>	<i>Reviewer</i>	<i>Years of Experience</i>
ATR Lead/Plan Formulator	B3K2100	Michelle Kniep	15
Economics	E4W1K02	Jeff Strahan	12
Environmental Resources	B3K2100	Charlie Hanneken	5
Cultural Resources	B3L1700	James Barnes	24
Hydrology and Hydraulic	B3L1200	Ray Kopsky	25
Civil Engineering	B3L1121	John Osterage	3
Structural Engineering	B3L1112	John Zacher	15
Electrical Engineering	B3L1115	Brandon Lewis	8
Mechanical Engineering	B3L1114	Steve Kamadulski	5
Cost Engineering	Rehired Annuitant	Gary Smith	33
Real Estate	B3N0100	Melissa Hoerner	15

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Attachment 2: Review Plan Revisions

Revision Date	Description of Change	Page/Paragraph Number