



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

REPLY TO  
ATTENTION OF:

11 FEB 2013

CEMVD-PD-SP

MEMORANDUM FOR Commander, St. Louis District

SUBJECT: Review Plan, Metro East St. Louis Levee Systems  
Modification, Section 408 Submittal, Revision Request for Safety  
Assurance Review Process

1. References:

a. Email, MVS, 31 January 2013, subject: RMC Endorsement 408  
Review Plan. (encl 1).

b. Memorandum, CEIWR-RMC, 31 January 2013, subject: Risk  
Management Center Endorsement - Metro East St. Louis Levee Systems  
Modification, Illinois, Section 408 Review Plan - Revision 2  
(encl 2).

2. The proposed modification of the Review Plan (encl 3) for the  
Metro East St. Louis Levee Systems Modification, Illinois, has been  
prepared in accordance with EC 1165-2-214. The proposed  
modification includes and describes the USACE preparation and  
submission of the Safety Assurance Review because the Southwestern  
Illinois Flood Prevention Levee District Council proposed  
modifications will be encompassed within the overarching Federal  
project. The Review Plan modification has been coordinated with the  
Upper District Support Team and the Flood Risk Management Center,  
which endorsed the plan in the enclosed memorandum, reference 1.b.

3. I hereby approve this modification to the Review Plan, which is  
subject to change as circumstances require, consistent with study  
development under the Project Management Business Process.  
Subsequent revisions to this Review Plan or its execution will  
require new written approval from this office. Non-substantive  
changes to this Review Plan do not require further approval. The  
District should post the approved Review Plan to its web site.

4. The MVD point of contact is [REDACTED], CEMVD-PD-SP,  
[REDACTED].

3 Encls

[REDACTED]  
Director of Programs

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Thursday, January 31, 2013 3:42 PM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** RMC Endorsement 408 Review Plan (UNCLASSIFIED)  
**Attachments:** RMC Endorsement Rev 2 Review Plan MemoEastStLouis408.pdf; Rev 2 Section 408 Review Plan 28 June 12 without track changes.docx; Rev 2 Section 408 Review Plan 28 June 12 without track changes.pdf; Legal Certification of Rev 1 Review Plan.pdf

Classification: UNCLASSIFIED  
Caveats: NONE

Phil, attached is the RMC's endorsement of the latest Revision (Revision 2 dated June 28, 2012) of the Review Plan for the Metro East St. Louis Levee Systems Modification Section 408 Submittal. Also attached are the Revised Review Plan itself, and the legal certification for MVS performing the associated SAR.

With this RMC endorsement, request is made for MVD's approval of the subject revised review plan.

Please call if any question.

[REDACTED]

[REDACTED]

U.S. Army Corps of Engineers, St. Louis District  
314-331-8719

[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE



**DEPARTMENT OF THE ARMY**  
RISK MANAGEMENT CENTER, CORPS OF ENGINEERS  
12596 W. BAYAUD AVENUE SUITE 400  
LAKEWOOD, CO 80228

REPLY TO  
ATTENTION OF  
CEIWR-RMC-WD

CEIWR-RMC

31 January 2013

MEMORANDUM FOR: Commander, St. Louis District, ATTN: CEMVS-EC

SUBJECT: Risk Management Center Endorsement – Metro East St. Louis Levee Systems Modification, Illinois, Section 408 Review Plan – Revision 2

1. The Risk Management Center (RMC) has reviewed the revised Review Plan (RP) for the Metro East St. Louis Section 408, dated 28 June 2012, and concurs that this RP provides for an adequate level of peer review and complies with the current peer review policy requirements outlined in EC 1165-2-214 "Civil Works Review", dated 15 December, 2012.
2. This review plan was prepared by the St. Louis District, reviewed by the Mississippi Valley Division and the RMC, and all review comments have been satisfactorily resolved.
3. The RMC endorses this document to be approved by the MSC Commander. Upon approval of the RP, please provide a copy of the approved RP, a copy of the MSC Commander's approval memorandum, and a link to where the RP is posted on the District website to [REDACTED]. RMC Senior Review Manager [REDACTED]
4. Thank you for the opportunity to assist in the preparation of this RP. Please coordinate all aspects of the Type II IEPR. For further information, please do not hesitate to contact me at (303) 963-4556.

Sincerely,

[REDACTED]  
Senior Review Manager  
Risk Management Center

CF:  
CEIWR-RMC-ZA [REDACTED]  
CEMVD (Division Quality Manager)

ENCL 2

# **REVIEW PLAN**

**Metro East St. Louis Levee Systems Modification  
Section 408 Submittal**

**Revision 2**

**June 28, 2012**

**Last MVD Submittal Date: April 26, 2012**



**US Army Corps  
of Engineers®**

**REVIEW PLAN**

**Metro East St. Louis Levee Systems Modification  
Section 408 Submittal**

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## **1. PURPOSE AND REQUIREMENTS**

### **a. Purpose.**

The purpose of this Review Plan is to define the scope and level of review for the Section 408 Permit process for an application by AMEC representing the Southwestern Illinois Flood Prevention Levee District Council (FPD). The FPD is authorized by Madison, St. Clair, and Monroe Counties along with the Wood River Drainage and Levee District, Metro East Sanitary District, Prairie Du Pont Drainage and Levee District, and Fish Lake Drainage and Levee District to perform all necessary repair work to their flood prevention systems. This work would take place in southwestern Illinois on the east bank of the Mississippi River, in Madison, St. Clair, and Monroe Counties of Illinois.

### **b. References.**

- (1) Title 33 United States Code Section 408
- (2) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010
- (3) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
- (4) EC 1105-2-412, Assuring Quality of Planning Models, 31 March 2011
- (5) CECW-PB Memorandum, Policy and Procedural Guidance for the Approval of Modification and Alterations of Corps of Engineers Projects, 23 October 2006
- (6) CECW-PB Memorandum, Clarification Guidance on the Policy and Procedural Guidance for the Approval of Modifications and Alterations of Corps of Engineers Projects, 17 November 2008
- (7) CECW-PB Memorandum, Delegation of Authority to District Commanders to Approve Pursuant to 33 U.S.C. 408 Those Minor, Low Impact Modifications to Flood Protection Works Operated and Maintained by Non-Federal Sponsors Previously Being Considered under 33 CFR 208.10(a)(5), 18 June 2010
- (8) CEMVD-PD-SP Memorandum, Mississippi Valley Division Guidance and Intent for Section 408 Evaluations for Minor and Other than Minor Determinations on Alterations and Modifications of Corps of Engineers Projects, 29 August 2011
- (9) ER 1165-2-119, Modification of Completed Projects, 20 September 1982

### **c. Requirements.**

The following is the process that will be followed for application and issuance of 33 USC 408 permissions for the proposed work of AMEC. The US Army, Corps of Engineers (USACE) will accept 408 applications and grant approvals within its authority for defined discrete reaches or segments of levees with a complete package of submittal documents. All pertinent Section 404 and Section 10 permits will be ready for issue by USACE prior to the issuance of any 408 permissions to AMEC. Discussions will be initiated with HQUSACE, through the Regional Integration Team (RIT), to ensure the above process is agreed upon prior to submittal.

An Agency Technical Review (ATR) team will be established to perform a 60% in progress and a 100% ATR on all documents (as defined in 4a) submitted by AMEC. Features that are beyond minor impacts as defined by USACE guidance will require a Safety Assurance Review (SAR) Type II Independent External Peer Review (IEPR). The SAR Type II IEPR will occur concurrently with the ATR period. In compliance with the Policy Review Requirements of the 17 November 2008 Guidance page 4 paragraph 3.c.(2), the SAR of the FPD's project will be the first phase of an overarching SAR of the USACE federal projects that will correct underseepage problems in the Wood River levee

system, and the East St. Louis levee system, as described in Paragraph 3 of this plan. The Prairie du Pont/Fish Lake levee project is currently under study with a similar expected outcome.

Listed below are the work packages anticipated to be submitted by the applicant at the 100% design completion level for 408 permissions. Classification of features within these packages as being minor or other than minor will be determined by an established process with the St. Louis District (MVS) and the Mississippi Valley Division (MVD) per the guidance referenced above.

ANTICIPATED APPLICANT 100% SUBMITTAL PACKAGES	SAR REQUIRED?
1. Gravity Drain & Toe Drain Rehab (WR & MESD)	No
2A. Pump Stations (PdP/FL)	No
2B. Pump Stations (WR & MESD)	No
3. Relief Wells, Berms, Graded Filters, & Toe Drains (WR)	Yes
4. Clay Blankets, Graded Filters & Toe Drains (MESD)	Yes
5. Relief Wells, Clay Blankets, Graded Filters, & Toe Drains (MESD)	Yes
6. Relief Wells & Berms (PdP/FL)	No
7A. Design Build Cutoff Walls - Shallow (WR)	Yes
7B. Design Build Cutoff Walls - Deep (WR)	Yes

Also the applicant will submit 14 interim submittal packages to USACE for review the majority of which are for Graded Filters and Trench Drain features (See Attachment 4). The purpose of these interim submittals is to identify and resolve any differences in design philosophies or criteria prior to submittal of the 100% submittal packages.

See Attachment 4 for a listing of packages and interim submittals and their projected submission dates.

**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 the peer review effort described in this Review Plan will be co-managed by the Risk Management Center (RMC), in collaboration with MVD and MVS. The Risk Management Center (RMC) will provide review oversight and concurrence on this Review Plan prior to MVD approval. The MVD will coordinate and approve the Review Plan and manage the Agency Technical Review (ATR). The District will be the first point of contact with the applicant.

As described within this Review Plan, the ATR team will review AMEC products to insure that the proposed modifications are not injurious to the public interest and will not impair the usefulness of the levees. In providing assurance that AMEC’s plans are technically acceptable; AMEC will be required to submit sufficient information, data, calculations, and drawings to substantially define those features of work, including modification to or construction of new pump stations that could impact the operation, safety, and stability of the levees. AMEC may submit a segment or reach of a levee district for a 408 permit if that segment/reach contains all features that may affect flood risk within the protected area.

The objective of the technical review is to ensure that the proposed modifications are not injurious to the public interest and will not impair the usefulness of the levees, and will be conducted consistent with the review charge. This technical review will be performed on the analysis and documentation prepared by the applicant. The “charge” to the reviewers on the team will contain the instructions regarding the objective of the review and the specific advice sought. The review will identify, examine, and comment upon assumptions that underlie analyses (i.e. public safety, economic, engineering, environmental, real estate, and others) appropriate to the charge, as well as to evaluate the soundness of models and analytic methods. The review team will evaluate whether the interpretations of analyses and conclusions are reasonable. To provide effective review, in terms of both usefulness and credibility of results, the charge will give reviewers the flexibility to bring important issues to the attention of decision makers.

For Section 408 reviews, the review team’s charge will be as follows:

(1) The review team will screen AMEC’s design against USACE criteria. The team will not judge the feature’s suitability to meet the applicants 100 year frequency level of protection objective. If no differences or issues exist from this screening, the review will be complete. If differences exist, each will be documented in Dr. Checks for resolution by AMEC. If resolution cannot be achieved in criteria, assumptions, or design, AMEC’s proposal will be reviewed with the following considerations:

- (a) Will the proposed work injure or impair the usefulness of the levee segment/system submitted?
- (b) Will the proposed work be injurious to public interest?

The following criteria will be used for defining public interest:

- (b.1) Do the proposed features increase risk to the public?
- (b.2) Do the proposed features diminish the original federal investment.
- (b.3) Do the proposed features create waste of any public monies?
- (b.4) Do the proposed features wastefully or unnecessarily increase future Operation and Maintenance Requirements?
- (b.5) Do the proposed features create or exacerbate hazardous environmental impacts?

(2) Simultaneously, a USACE team will analyze AMEC’s design for qualification of eligible Work-in-Kind credit. The same USACE team will also identify any portions of AMEC’s design that USACE could perform if authorized and funded.

It should be noted that this review plan is principally intended to address other than minor modifications of a federal project that require approval by the Directorate of Civil Works and not minor, low impact modifications to flood protection works.

### 3. PROJECT INFORMATION

The FPD was formed to oversee efforts of the three Metro East levee systems (from north to south): the Wood River levee system(s), the East St. Louis levee system, and the Prairie du Pont/Fish Lake levee system. Along with the Chain of Rocks levee system (a federally owned levee system), these systems collectively represent the project area; see **Figure 1**.



The levee systems were built over 50 years ago with similar design features and are in need of reconstruction/rehabilitation to address problems with underseepage. These conditions put the levee systems at risk of failure during a high water event, which endangers the lives of residents, and would result in significant damage to the urban and agricultural development behind the levees. The existing levee systems were federally designed and constructed and originally authorized to provide a level of protection at 52-feet on the St. Louis gage, plus two feet of freeboard. Underseepage problems have been determined to be a result of a design deficiency. The Wood River and East St. Louis levee projects possess executed decision documents authorizing correction of the deficiencies to return the systems to their authorized level of protection. The Prairie du Pont/Fish Lake project is currently under study with a similar expected outcome.

Operating in parallel with these federal projects, the applicant's immediate objective is to achieve FEMA accreditation as soon as possible. The FPD has contracted with a private engineering firm, AMEC, to evaluate the Metro East levee systems, and design and oversee construction of all repairs and alterations required to qualify for 100 year certification and achieve FEMA accreditation. Alterations/modifications of a Federal Flood Control Project require a Section 408 permit. U.S.C. Chapter 33, Section 408 authorizes the Secretary of the Army to permit alterations to existing Corps projects as long as the alterations/modifications are not injurious to the public interest and will not impair the usefulness of the Authorized Project.

Because this is a non-federal alteration to a federally constructed project, USACE is primarily concerned with the operational, environmental, and physical impacts to the existing levee systems. This review plan is meant to ensure that the FPD's contractor does not adversely impact the Metro East levees or diminish the capability of the Corps to carry out authorized Federal projects. It is also intended to confirm that environmental impacts have been adequately evaluated and addressed throughout the design and construction of project modifications.

The Wood River Drainage and Levee District (levee district) is located on the east bank of the Mississippi River flood plain between river miles 195 and 203, above the Ohio River. The levee district is protected by an urban design levee across the river from St. Louis and St. Charles counties in Missouri. This system includes approximately 21 miles of main line levee, 170 relief wells, 26 closure structures, 41 gravity drains, and seven pump stations. There are approximately 13,700 acres of bottomland within the District and 4,700 acres of hill land tributary to the levee units. The project area consists of mostly industrial and urban development, with oil refineries representing the major industry in the area. Inundation of these sites, which occupy thousands of acres in the floodplain, would cause widespread environmental contamination. Failure of the levee system would have large negative economic, environmental, and national security consequences.

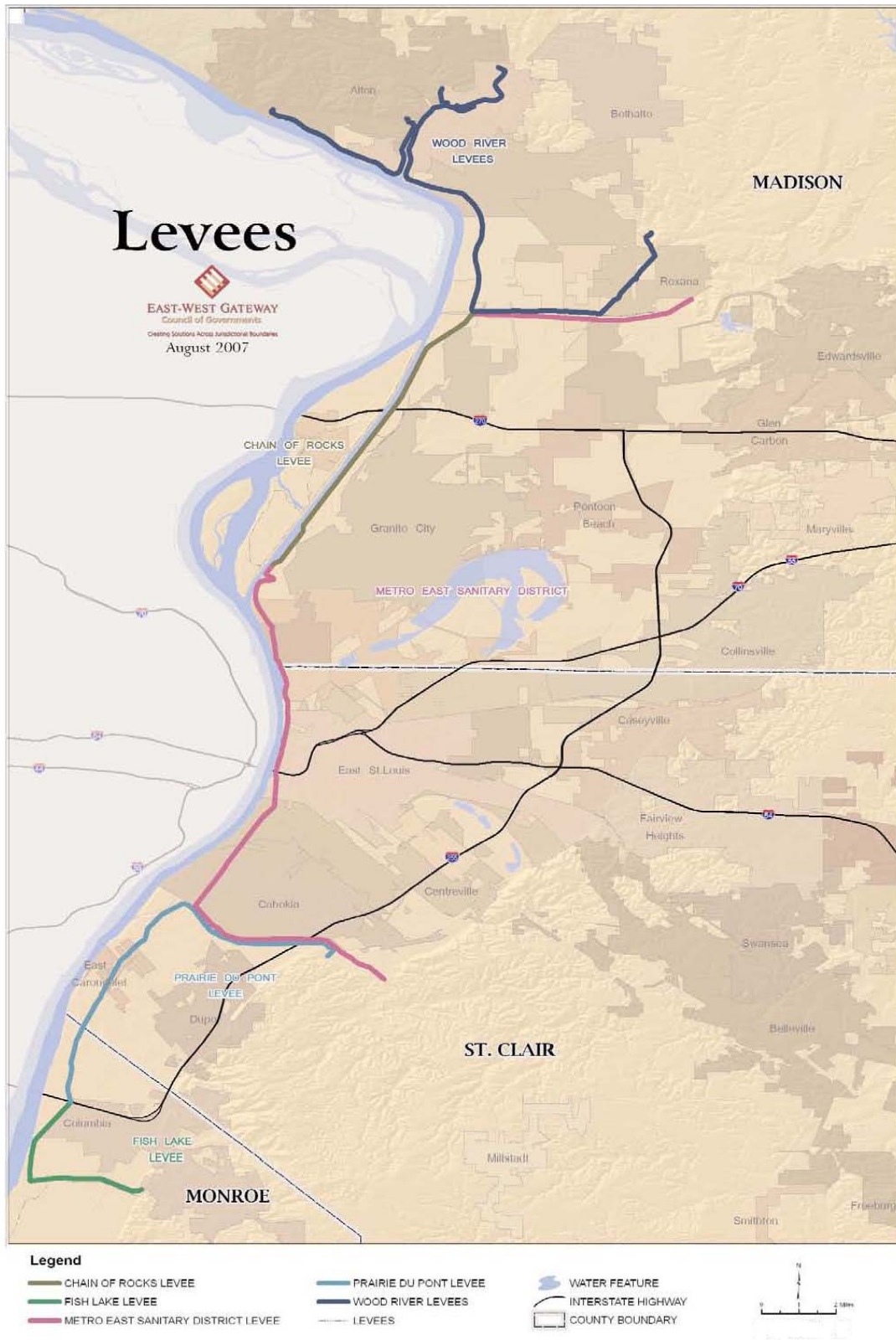
The East St. Louis, Illinois Flood Protection levee system is owned and operated by the Metro East Sanitary District (MESD). The levee system is located on the east bank of the Mississippi River flood plain between river miles 175 and 195, above the Ohio River. The district is protected by an urban design levee across the river from St. Louis City, Missouri. The system includes 28.6 miles of levee, 27 closure structures, 40 gravity drains, 17 pump stations, 314 wood stave relief wells, 26 stainless steel relief wells, and 3.1 miles of floodwall on the levee. The system protects 86,000 acres, 250,000 inhabitants, and over \$4.5 billion in property assets. The protected area consists of mainly urban and industrial development. Inundation of these sites would result in a major catastrophe with loss of life, huge property damages, and possible spread of hazardous toxic waste.

The Prairie Du Pont Sanitary and Levee District & the Fish Lake Drainage and Levee District are located on the east bank of the Mississippi River between river miles 166 and 175, above the Ohio River. The northern portion of the levee lies in St. Clair County, IL and the southern portion in Monroe County, IL. The project also occupies portions of two independent Levee Districts. The northern portion of the levee in St. Clair County is administered by the Prairie Du Pont Sanitary and Levee District, while the southern portion of the levee is administered by the Fish Lake Drainage and Levee District. The Prairie Du Pont and Fish Lake Levee Districts consist of a 15.2 mile urban design levee system, completed in 1951, with 162 relief wells, 4 closure structures, 18 gravity drains, and 6 pump stations to evacuate interior drainage. There is a total of approximately 19,700 acres of drainage area, 12,890 of which is bottomland. The project area consists of urban and agricultural development, with several farmsteads flanking the levee. The PDP-FL levee system serves the Villages of Dupo and East Carondelet protecting a population of about 7,100.

Possible alternative features considered for each reach include construction of:

- Graded filters, some with trench drains
- Trench drains at levee toe
- New relief wells
- Seepage berms
- Riverside clay blankets
- Protruding clay caps
- Shallow cutoff wall
- Deep cutoff wall
- Pump Stations
- Gravity drains and rehabilitation of existing gravity drains
- Pipes and culverts
- Deep and shallow ditches
- Combination of possible alternatives

MVS has determined that an Environmental Assessment is required for the applicant to be in compliance with the National Environmental Policy Act. The Environmental Assessment has been produced and has been submitted for public review.



**Figure 1: Metro East Area Map\***  
 \*Source: East-West Gateway Council of Governments Website

**4. AGENCY TECHNICAL REVIEW**

USACE personnel shall conduct technical reviews upon receipt of Plans and Specifications and related design computations from the FPD with an estimated timeframe per the following table:

Submittal Completion Percent	SAR Required?	Estimated Total Calendar Days of Total Review Time
60% Progress Review*	If SAR needed, SAR performed concurrently with ATR & MVD Reviews	30 (44 including comment resolution)
100% Final**	No	30 (44 including comment resolution)
100% Final**	Yes	110 (30 days allowed for DCW Approval)

- \*MVS 408 Project Delivery Team (PDT) will conduct an initial review of 60% documents to ascertain whether any portions of the proposed improvements can be preliminarily recommended as minor in nature.
- \*\*MVS will recommend whether proposed modifications are minor in nature or other than minor to MVD. Determination of whether modifications and alterations to flood protection works operated and maintained by non-Federal sponsors meet the criteria for minor, low-impact modifications is reserved for the Commanding General, Mississippi Valley Division (MVD).

**a. Products to Undergo District ATR.**

All documents submitted by AMEC for consideration will be required to undergo ATR. (Note: Design Quality Control (DQC) will be conducted by AMEC. Documentation of DQC is not required as part of the submission.) The following documents must be submitted by AMEC and will undergo ATR through USACE:

- (1) Written request for approval of the project modification
- (2) Technical Analysis and Adequacy of Design (including, but not limited to, plans, specifications and associated computations): geotechnical, structural, hydraulic and hydrology, mechanical, electrical, and operation and maintenance (O&M) requirements
- (3) Real estate analysis
- (4) Discussion of residual risk
- (5) Administrative record of key decisions
- (6) Discussion of Executive Order 11988
- (7) Environmental Protection Compliance: National Environmental Policy Act (i.e. EA or EIS), Endangered Species Act (Biological Assessment), Fish and Wildlife Coordination Act, Clean Air Act, Hazardous, Toxic, and Radioactive Waste (HTRW), National Historic Preservation Act, Clean Water Act, and Noise Control Act

**b. Required ATR Team Expertise.**

The ATR team will consist of a combination of regional, senior USACE personnel and local USACE technical experts. The discipline list and team roster can be found in Attachment 1. Tulsa District

will perform ATR Lead, coordinating input and comments from technical experts representing the St. Louis District, Memphis District, and Rock Island District. In instances where technical review may require further consultation, members of the ATR team may also seek input from Regional Technical Specialists (RTS) within their respective Communities of Practice (CoP). The RTS will serve as a portal for regional and national expertise. Upon receipt of the 60 percent design and 100 percent design, the ATR team will share information with the RTS' from the Geotechnical, Civil, and Hydrologic and Hydraulic Engineering CoP's. If necessary, and at the discretion of the MVS and MVD Levee Safety Officers, the RTS will be asked to offer technical assistance for designs that are highly technical, proposing high risk, and/or are controversial in nature.

<b>Technical Review Team Members/Disciplines</b>	<b>Expertise Required</b>
ATR Lead	The ATR lead should be a senior professional with extensive experience in reviewing technical and engineering documents and conducting reviews. The technical lead may also serve as a reviewer for a specific discipline (such as engineering, planning, etc).
Environmental Resources	The environmental resources reviewer should be experienced in the National Environmental Policy Act (NEPA) process and have a biological or environmental background that is relevant to the project area.
Cultural Resources	The cultural resources reviewer should be experienced and have knowledge of cultural resources within the project area, and have experience with tribal issues, regulations, and laws.
Hydrology & Hydraulic Engineering	The H&H reviewer should be an expert in the field of floodplain hydraulics and hydrology and have a thorough understanding of the application of levees, floodwalls, closure structures, gravity drains, pump stations, and channel design.
Geotechnical Engineering	The geotechnical reviewer should be experienced in levee design and post-construction evaluation, seepage and piping failure mode analysis, internal drainage, relief well construction, construction of subsurface soil/cement/bentonite walls, and familiarity with USACE levee safety guidance. A registered professional engineer is recommended.
Civil Engineering	The civil reviewer should be experienced in civil engineering including utility relocations, positive closure requirements, and levee construction. A registered professional engineer is recommended.
Structural Engineering	The Structural reviewer should be an experienced Structural engineer and have experience in pump station structural designs, closure structures, and other levee structural features.
Mechanical Engineering	The mechanical reviewer should be an experienced mechanical engineer and have experience in pump station design, sizing, etc.
Electrical Engineering	The electrical reviewer should have experience in pump station power, controls, etc. The same individual may review both the electrical and mechanical components of the study.
Real Estate	Real estate reviewer should be experienced in Federal civil work

	real estate laws, policies, and guidance. The member will have experience working with real estate issues relevant to the project area.
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**c. Documentation of ATR.**

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

- (1) The review concern – identify and describe, as necessary, the product’s information deficiency or incorrect application of policy, guidance, or procedures, or non-compliance with the review charge;
- (2) The basis for the concern – cite the appropriate law, policy, guidance, procedure that has not be properly followed, or non-compliance with the review charge;
- (3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the efficiency (cost), effectiveness (function/outputs), safety, Federal interest, or public acceptability; and
- (4) The probable specific action needed to resolve the concern – identify the action(s) that the applicant 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 in DrChecks will include the text of each Reviewer’s concern, the applicant’s response, a brief summary of the pertinent points in any discussion, and the agreed upon resolution.

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

- Identify the document(s) reviewed and the purpose of the review;
- 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;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); 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.

ATR may be certified when all review concerns are either resolved or referred to the vertical team for resolution and the review documentation is complete. The Technical Review Lead will prepare a Statement of Technical Review certifying that the issues raised by the review team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed, based on work reviewed to date, for all documents submitted by the applicant. A sample Statement of Technical Review is included in Attachment 2.

## 5. REVIEW SCHEDULES AND COSTS

- a. **Technical Review Schedule and Cost.** AMEC is scheduled to have sufficient documentation for the 60% submittal to the ATR team by December 2011. The ATR team will have 30 days for the review and to provide comments. During this time, MVS' 408 PDT will perform a review of the documents and assess whether there is adequate information to recommend that proposed features, in whole or in part, are minor in nature or other than minor. Following the 30 day review and comment period, AMEC will then have 14 days to respond to those comments. The 100% Draft Final will be submitted during the 2nd Quarter 2012. Upon receipt of the full package, MVS will perform a review of the documents and provide their recommendation to MVD pertaining to whether the proposed modifications are minor in nature or other than minor. The ATR team will have 30 days to review and provide comments on the 100% Draft Final deliverable. The applicant will have 14 days to reach consensus on comments and make any corrections. The total ATR cost, which will be project funded, is estimated to be \$400,000. The following table identifies estimated costs and review timeframes.

Activity	Est. Start Date	Est. End Date	Duration	Cost
Environmental Assessment Compliance	-	30 November 2011	-	██████
ATR Team Receive Applicant Submittal (60% Submittal)	30 December 2011	-	-	-
ATR Team Review and Comment Period (60% Submittal)	02 January 2012	31 January 2012	30 days**	██████
Applicant Respond to Comments	01 February 2012	14 February 2012	14 days***	-
100% Draft Final Segment/Reach Submittals*	1 <sup>st</sup> Quarter 2012 Through 29 March 2013	-	-	-
ATR Review of 100% Draft Final Segments/Reaches As Submitted	1 <sup>st</sup> Quarter 2012 Through 30 March 2013	1 <sup>st</sup> Quarter 2012 Through 30 April 2013	30 days After Segment/Reach Submittal Receipt**	██████
Applicant Resolution of all Comments	1 <sup>st</sup> Quarter 2012 Through 31 April 2013	1 <sup>st</sup> Quarter 2012 Through 15 May 2013	14 days***	-
Total Schedule	December 2011	TBD	88 days / segment/reach**	██████

\*Draft Final Submittals will be submitted in Levee Segments/Reaches

\*\*Applies to those segments/reaches not requiring an SAR

\*\*\*For A-E work, 14 days is the standard turnaround of review documents and is assumed for this plan.

- For Levee segments requiring SAR, the review schedule and anticipated segment 408 permission is as follows:

- (1) Simultaneous review by ATR Team, MVD, HQ and SAR Team of 100% Final Segment Submittal: 45 calendar days
- (2) Applicant Resolution of Comments: 14 calendar days
- (3) Applicant Finalizes 408 permission request: 7 calendar days
- (4) MVS reviews/approves 408 permission: 7 calendar days
- (5) MVD reviews/approves 408 permission: 7 calendar days
- (6) Director of Civil Works reviews/approves 408 permission: 30 calendar days

- TOTAL No. calendar days from 100% Final Submittal of cut-off wall segment: 110 calendar days

## 6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

Independent External Peer Review 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 1165-2-209, 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. An independent External Peer Review (IEPR) Type II Safety Assurance Review (SAR) will be required for all other than minor modifications to flood protection works.

- a. **Decision on Type II IEPR SAR.** In accordance with USACE guidance in EC 1165-2-209, Type II IEPRs will be performed as required. Type II IEPR, or Safety Assurance Review (SAR), are managed outside USACE and are conducted on design and construction activities for flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. The existing “Limited Reevaluation Report and Environmental Assessment, Design Deficiency Corrections, East St. Louis, Illinois Flood Protection Project” and the “Wood River Levee System Limited Reevaluation Report, Design Deficiency Corrections” are approved USACE projects that have just transitioned from Decision Document phase to Implementation Phase (via execution of approvals of said decision documents). Review plans for the implementation phase of these projects are currently being prepared. Since these are Flood Risk Management projects it is assumed that these reviews will include the requirement for Safety Assurance Review of the various phases of implementation. The alterations to these levee systems being proposed by the Flood Protection District Council will intersect with, interact with, and supplement, in many cases, the underseepage control features recommended in the approved plans for the aforementioned USACE projects. As such, design phase of the USACE projects will include an analysis of the FPD installed features to estimate their contribution to the underseepage control requirements of the USACE projects. Since this USACE design work will be the subject of SAR, the district intends to initiate the SAR activity via review of the actual proposed designs being provided by the FPD via the Section 408 permit requests.
- b. **Products to Undergo SAR.** All documentation deemed for an SAR, except for the O&M Manual, that will be reviewed by the ATR team will also be reviewed by the SAR panel.
- c. **Required SAR Panel Expertise.** Because the FPD’s project will be encompassed within the overarching federal project, USACE will prepare and submit a SAR Plan: SAR Scope of Work and Review Charge. The RMO, in conjunction with the St. Louis District and the MSC, will need to be involved with the review and endorsement of the SAR Plan to ensure it is established in accordance



with EC 1165-2-209. Reviewers will be required to possess experience and qualifications equal to or greater than ATR members identified in Section 4.b above, although the number of reviewers may be less.

The peer review panel can take the form of a panel of consultants, but the members are limited to reviewing and commenting on the work being done by others. Composition of the panel will likely change depending on the need of the particular phase of review. It is anticipated the IEPR panel will likely include a Geotechnical reviewer, a Hydrology & Hydraulic Engineering reviewer, a Civil/Structural Engineering reviewer, an Electrical/Mechanical Engineering reviewer, and possibly an Environmental Resources reviewer. At a minimum, one member is required, but the panel composition shall be a size appropriate for the size and complexity of particular phase of the project. The peer review can work concurrent with on-going work.

An expert shall be identified for each required discipline, and selection will be based on availability, technical credentials, and absence of perceived or actual conflict of interest. The IEPR panel members shall not have any financial or litigation association with the USACE; the Design A/E; their engineering teams, subcontractors or construction contractors. The IEPR panel members will have to fully disclose any known or potential conflict of interest that may arise from the performance of the work. Areas of conflict may include current employment by the Federal or State governments, participation in developing the subject project, a publicly documented statement advocating for or against the subject project, current or future interests in subject project or future benefits from the project, and paid or unpaid participation in litigation against the USACE.

Selection of expert reviewers for the IEPR panel will adhere to the National Academy of Science (NAS) Policy on Committee Composition and Balance and Conflicts of Interest. Prior to submitting the IEPR panel for approval, the IEPR Contractor shall obtain a statement from each of the panel members indicating willingness to participate and the absence of a conflict of interest. The IEPR Contractor will be required to submit the NAS Conflict of Interest form for all reviewers with the proposed list of panel members. The following website provides academy guidance for assessing composition and the appropriate forms for prospective panel members in General Scientific and Technical Studies: <http://www.nationalacademies.org/coi/index.html>.

The final independent external peer reviewer list, including their credentials and NAS forms, will be provided for approval. Expert reviewers shall have experience in design and construction of projects similar in scope to the Metro East levee systems.

**d. Documentation of SAR.** SAR comments should generally include the same four key parts as described for ATR comments in Section 4.c above. The focus of the review should be ensuring the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health, safety, and welfare. The SAR review panel will prepare a SAR review report that will include all SAR panel comments. The final SAR Review Report will be submitted to the applicant and the ATR team for review. The applicant and the ATR team shall consider all recommendations made by the SAR panel, and prepare a written response for all recommendations adopted or not adopted. The final SAR Review Report will summarize the findings of the SAR panel and the applicant's and ATR team's responses. The Review Report and the responses will be made available to the public, including through electronic means on the internet.

## **7. PUBLIC PARTICIPATION**

Part of the review of AMEC's submittal will include an assessment review of the environmental impacts of the proposed work. This review will include the appropriate National Environmental Policy Act (NEPA) documentation. This documentation will be posted on the MVS website (<http://www.mvs.usace.army.mil/pm/pm-reports.html>) for the public to view and a medium for public comment will be provided.

## **8. REVIEW PLAN APPROVAL AND UPDATES**

MVD will receive a copy of the Review Plan and updates to the plan, reflecting vertical team coordination as to the appropriate scope and level of review for the Section 408 Permit process. Like the Project Management 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. Changes to the review plan will be documented in Attachment 3. The latest version of the Review Plan will be posted on the MVS website: <http://www.mvs.usace.army.mil/pm/pmPeerReview.html>. The latest Review Plan will also be provided to the RMC and Major Subordinate Command.

## **9. REVIEW PLAN POINTS OF CONTACT**

Questions and/or comments on this review plan can be directed to [REDACTED] (314-331-8719) or [REDACTED] (314-331-8479), Review Plan Points of Contact.

**ATTACHMENT 1: TEAM ROSTERS**

Agency Technical Review Team LAST NAME	FIRST NAME	ROLE/DISCIPLINE	OFFICE	PHONE #	EMAIL
[REDACTED]	[REDACTED]	Technical Lead	SWT	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Civil	MVS	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Civil	MVS	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Civil	MVM	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Environmental	SWT	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Hydrology & Hydraulics	MVS	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Hydrology & Hydraulics	MVs	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Hydrology & Hydraulics	MVS	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Real Estate	MVM	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Cultural Resources	SWT	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Geotechnical Engineering Lead	MVM	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Geotechnical Engineering	MVS	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Geotechnical Engineering	MVS	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Geotechnical Engineering	MVS	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Geotechnical Engineering	MVS	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Mechanical Engineering	MVS	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Electrical Engineering	MVS	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Structural Engineering	MVS	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	Civil Construction Quality Assurance	MVS	[REDACTED]	[REDACTED]

**Independent External Peer Review II Panel**

LAST NAME	FIRST NAME	ROLE/DISCIPLINE	ORGANIZATION	PHONE #	EMAIL
TBD					
TBD					
TBD					
TBD					

**Vertical Team**

LAST NAME	FIRST NAME	POSITION	PHONE #	EMAIL
[REDACTED]	[REDACTED]	MVD District Support POC	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	RMC POC	[REDACTED]	[REDACTED]

**ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS**

**COMPLETION OF TECHNICAL REVIEW**

The Agency Technical Review has been completed for the [Section 408 Submittal.....](#) for Metro East ST. Louis Levee Systems Modifications. The ATR was conducted as defined in the project’s Review Plan. During the technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer’s needs consistent with law and existing US Army Corps of Engineers policy. All comments resulting from the technical review have been resolved and the comments have been closed in DrChecks<sup>sm</sup>.

*SIGNATURE*

Name: [Redacted]

ATR Team Leader

Office Symbol/Company: [CESWT-PE-P](#)

\_\_\_\_\_  
Date

*SIGNATURE*

Name: [Redacted]

Project Manager

Office Symbol: [CEMVS-EC](#)

\_\_\_\_\_  
Date

*SIGNATURE*

Name: [Redacted]

Architect Engineer Project Manager<sup>1</sup>

Company, location: [AMEC Earth & Environmental,  
Nashville, TN](#)

\_\_\_\_\_  
Date

*SIGNATURE*

Name: [Redacted]

Director of Risk Management

Office Symbol/Company: [CEIWR-RMC](#)

\_\_\_\_\_  
Date

**CERTIFICATION OF TECHNICAL REVIEW**

Significant concerns and the explanation of the resolution are as follows: [Describe the major technical concerns and their resolution.](#)

As noted above, all concerns resulting from the technical review of the project have been fully resolved.

*SIGNATURE*

Name: [Redacted]

Chief, Engineering and Construction Division

Office Symbol: [CEMVS-EC](#)

\_\_\_\_\_  
Date

*SIGNATURE*

Name: [Redacted]

Chief, Programs and Project Management Division

Office Symbol: [CEMVS-DP](#)

\_\_\_\_\_  
Date

<sup>1</sup> Only needed if some portion of the ATR was contracted

**ATTACHMENT 3: REVIEW PLAN REVISIONS**

<b>Revision Date</b>	<b>Description of Change</b>	<b>Page / Paragraph Number</b>
26 April 2012: Revision 1	Revision 1: Changed SAR responsibility from the applicant to USACE	Pages 1 & 2/ Par. 1.c.; Page 11/ Par. 6.a; Pages 11 & 12/ Par. 6.c; Page 12/ Par. 6.d.
	Revision 1: Revised applicant's submittal package list	Page 2/Par. 1.c.
	Revision 1: Added Construction Quality Assurance member to ATR Team	Page 14/Attach 1.
28 June 2012: Revision 2	Revision 2: Added Attachment 14: Bid Package and Interim submittal List	Table of contents page ii.
	Revision 2: Expanded Applicant 100% Submittal Table. Added paragraph under table describing 14 interim submittals that will be listed in Attachment 14.	Page 2 / Par. 1.c.
	Revision 2: Revised ATR Team Roster: Replaced Dennis Stephens with Donald Duncan, Added Emily Navin, Replaced Steven Hobbs and Joshua Verdught with William Moeller	Page 14 Attachment 1
	Revision 2: Added Attachment 14: Based on Applicant's schedule dated 6-22-12, contains bid package 100% complete submittal listing and dates, and interim geotechnical submittal listing and dates.	Pages 17 & 18

**ATTACHMENT 4: BID PACKAGE AND INTERIM SUBMITTAL LIST**

**SWIFPDC BID PACKAGE & INTERIM SUBMITTAL LIST**

(Based on Applicant's Schedule Dated 6-22-12)

<b>BID PACKAGE NO. &amp; DESCRIPTION</b>	<b>SCHEDULED SWIFPDC DESIGN 100% COMPLETE &amp; SUBMITTED FOR USACE 408 APPROVAL</b>	<b>ACTUAL SWIFPDC SUBMISSION</b>	<b>ATR REVIEW TEAM (see table below)</b>
1: Gravity Drain/Toe Drain Rehab (WR & MESD)	1-21-12	2-6-12	WR & MESD
2A: Pump Stations (PdP/FL)	8-3-12		PdP/FL
2B: Pump Stations (WR & MESD)	12-21-12		WR & MESD
3: Relief Wells, Berms, Graded Filter & Toe Drain (WR)	5-3-13		WR
4: Clay Blanket, Graded Filter & Toe Drain (MESD)	3-8-13		MESD
5: Relief Wells, Clay Blanket, Graded Filter, & Toe Drain (MESD)	4-5-13		MESD
6: Relief Wells & Berms (PdP/FL)	11-28-12		PdP/FL
7A: Design Build (DB) Shallow Cutoff Walls (WR)*	TBD		WR
7B: Design Build (DB) Deep Cutoff Walls (WR)*	TBD		WR

\*Applicant is planning this package as a Design/Build (DB) bid.

<b>INTERIM GEOTECHNICAL SUBMISSIONS</b>	<b>SCHEDULED SUBMITTAL FOR USACE REVIEW &amp; APPROVAL</b>	<b>ACTUAL SWIFPDC SUBMISSION</b>	<b>ATR REVIEW TEAM (see below table, only geotechnical members required)</b>
6: Extend Relief Well Riser Pipes (PdP/FL)	6-29-12		PdP/FL
2B: UWR Sta 121-129	7-23-12		WR
2B: UWR Sta 216-219	7-23-12		WR
2B: MESD Sta 1210-1243	7-26-12		MESD
2B: LWR Sta 132-135	7-31-12		WR
2B: MESD Sta 1245-1273	8-3-12		MESD
2B: LWR Sta 135-151	8-3-12		WR

<b>INTERIM TRENCH DRAIN- GRADED FILTER SUBMISSIONS</b>	<b>SCHEDULED SUBMITTAL FOR USACE REVIEW &amp; APPROVAL</b>	<b>ACTUAL SWIFPDC SUBMISSION</b>	<b>ATR REVIEW TEAM (see below table, only geotechnical members required)</b>
2B: LWR Sta 170-187	8-8-12		WR
2B: LWR Sta 594-608	8-10-12		WR
2B: MESD Sta 1276-1310	8-15-12		MESD
2B: UWR Sta 38-44	8-15-12		WR
2B: MESD Sta 1323-1345 RW Ditch	8-21-12		MESD
2B: MESD Sta 1323-1345 Field Ditch	8-28-12		MESD
2B: MESD Sta 782-787	8-31-12		MESD

<b>Wood River ATR Review Team – (WR)</b>	<b>MESD ATR Review Team – (MESD)</b>	<b>PdP/FL ATR Review Team – (PdP/FL)</b>
██████████ - ATR Lead	██████████ - ATR Lead	██████████ - ATR Lead
██████████ - Civil	██████████ - Civil	██████████ - Civil
██████████ - Civil	██████████ - Civil	██████████ - Civil
██████████ - Environmental	██████████ - Environmental	██████████ - Environmental
██████████ - H & H	██████████ - H & H	██████████ - H & H
██████████ - H & H	██████████ - H & H	██████████ - H & H
██████████ - H & H	██████████ - H & H	██████████ - H & H
██████████ - Real Estate	██████████ - Real Estate	██████████ - Real Estate
██████████ - Cultural	██████████ - Cultural	██████████ - Cultural
██████████ - Geotechnical	██████████ - Geotechnical	██████████ - Geotechnical
██████████ - Geotech.	██████████ - Geotechnical	██████████ - Geotech.
██████████ Geotechnical	██████████ - Geotechnical	██████████ Geotechnical
██████████, MVS - Mechan.	██████████, MVS - Mechan.	██████████, MVS - Mechan.
██████████ - Electrical	██████████ - Electrical	██████████ - Electrical
██████████ - Structural	██████████ - Structural	██████████ - Structural
██████████ - Constr. Q.A.	██████████ - Constr. Q.A.	██████████ - Constr. Q.A.