

**REVIEW PLAN**

AMERICAN RIVER COMMON FEATURES, NATOMAS BASIN  
SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

Prepared by:

U.S. Army Corps of Engineers, Sacramento District

July 2015  
Updated October 2021

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## REVIEW PLAN

### AMERICAN RIVER COMMON FEATURES, NATOMAS BASIN SACRAMENTO, CALIFORNIA

**JULY 2015**

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#### 1. INTRODUCTION.

a. Purpose. This Review Plan defines the scope and level of quality management activities for the American River Common Features, Natomas Basin, Sacramento and Sutter Counties, California plans and specifications, Design Documentation Report, Environmental Impact Statement, and Operation and Maintenance Manual.

The Review Plan will be updated annually or if not sooner if changes occur to major milestones or features.

b. References.

- (1) ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug 1999
- (2) ER 1110-1-12, Engineering and Design Quality Management, 21 Jul 2006
- (3) WRRDA 2014 H. R. 3080 Public Law 174, 10 Jun 2014
- (4) EC 1165-2-214, Civil Works Review Policy, 15 Dec 2012
- (5) Army Regulation 15-1, Committee Management, 27 November 1992 (Federal Advisory Committee Act Requirements)
- (6) National Academy of Sciences, Background Information and Confidential Conflict Of Interest Disclosure, BI/COI FORM 3, May 2003

c. Review Requirements. This review plan was developed in accordance with EC 1165-2-214, which establishes the procedures for ensuring the quality and credibility of U.S. Army Corps of Engineers (USACE) decision and implementation documents through independent review. This Review Plan describes the scope of review for the work products described herein. All appropriate levels of review (DQC, ATR, IEPR and Policy and Legal Review) will be included in this Review Plan and any levels not included will require documentation in the Review Plan of the risk-informed decision not to undertake that level of review. The RP identifies the most important skill sets needed in the reviews and the objective of the review and the specific advice sought, thus setting the appropriate scale and scope of review for the individual project.

## 2. PROJECT DESCRIPTION.

a. Project Authority. The American River Common Features, Natomas Basin project was authorized by the Water Resources Reform and Development Acts (WRRDA) of 2014. WRRDA 14 authorized the construction of levee improvements for the perimeter levees surrounding the Natomas Basin.

b. Location and Description. The American River Common Features, Natomas Basin project was authorized in 2014. This project authorized construction of levee improvements for 42 miles of levees along the perimeter of the Natomas Basin located in Sacramento and Sutter Counties, California. The basin has been subdivided into nine reaches, entitled Reaches A through I (see attached map). The Sacramento Area Flood Control Agency (SAFCA) has already designed and constructed Reaches D, C, and most of Reach B, as part of the Natomas Levee Improvement Project (NLIP) and are not covered in this Review Plan. However, review of the Operation and Maintenance Manuals for these reaches is covered in this Review Plan. The Corps of Engineers will be designing and constructing Reaches A, E, F, G, H, I, and the remaining portion of Reach B. The Corps will also be designing and constructing an NLIP Windows contract for gaps left in the NLIP project where there are pipe and road crossings for all of the reaches, as well as a jet grout contract for pipe and road crossings where conventional cutoff walls cannot be constructed. There will also be an environmental mitigation contract designed and constructed to meet environmental commitments. The Corps will be designing Reaches I and H first, followed by Reaches A, B, G, F, E, Mitigation Contract, NLIP Windows Contract, and Jet Grout Windows Contract. Construction will be dependent upon funding allocated by Congress.

Reach I is located on the southern perimeter of the Natomas Basin within the City of Sacramento, adjacent to the American River. The Garden Highway is located on top of the levee crown for most of Reach I, which extends from Gateway Oaks Drive to Northgate Boulevard. The levee improvements required for this reach include installation of a cutoff wall. The cutoff wall will be about 2.5 miles long, and about 50 feet in depth. It will tie into an existing cutoff wall at Gateway Oaks Drive. Some utility relocations will also be completed for this project, along with upgrades to Sump Station 58. This reach has been divided into two contracts, due to the critical nature of completing all of the cutoff wall work in one season, and because of additional land acquisition being required on the landside toe for the maintenance road in this reach. The first contract will include all of the cutoff wall work, and utility relocations that cross through the levee. The second contract will include all of the landside work such as the maintenance roads, landside slope flattening, landside utility relocations, and tree removal. The construction cost for this reach is estimated at \$20 million.

Reach H is located on the southeastern perimeter of the Natomas Basin within the City of Sacramento, adjacent to the Natomas East Main Drainage Canal (NEMDC). It extends from the Arden-Garden Connector Bridge to the SAFCA NEMDC Pump Station. The levee improvements required for this reach include installation of about 4.2 miles of cutoff wall, at a depth of about 40 feet. The construction cost for this reach is estimated at \$55 million.

Reach A is located on the southwestern perimeter of the Natomas Basin within Sacramento County, adjacent to the Sacramento River. It extends from San Juan Road to Gateway Oaks Drive. The levee improvements in this reach include levee widening, cutoff walls, and seepage berms. The entire reach is 3.5 miles long, of which 3.3 miles of levee widening with a 145 foot deep cutoff wall will be installed.



The construction cost is estimated at \$113 million. Design was completed in FY 21 with construction scheduled to begin April 2022.

Reach B is located on the western perimeter of the Natomas Basin within Sacramento County, adjacent to the Sacramento River. The remaining portion not already constructed by SAFCA covers the area between Powerline Road and San Juan Road. The levee improvements required for this reach includes levee widening, along with construction of a seepage berm or cutoff wall. The levee widening is for the entire length of two miles for this reach, and the cutoff wall depth ranges from 76 to 83 feet for 0.5 miles on the upstream end. The remaining portion of Reach B has a 100-foot landside seepage berm. The construction cost for the entire reach is estimated at \$95 million.

Reach C is located on the western perimeter of the Natomas Basin along the Sacramento River, within both Sacramento and Sutter Counties. This reach has already been constructed by SAFCA. It extends from Sankey Road to Elverta Road, for a distance of 4.9 miles. The levee improvements required for this reach included construction of an adjacent levee with a cutoff wall varying from 19 to 66 feet in depth, and/or a 100-300 foot wide seepage berm. The construction cost is estimated at \$50 million.

Reach D is located on the south bank of the Natomas Cross Canal within Sutter County. This reach has already been constructed by SAFCA. It extends from Howsley Road to Sankey Road, for a distance of 5.4 miles. The levee improvements required for this reach included construction of a cutoff wall varying in depth between 60-80 feet. The construction cost is estimated at \$45 million.

Reach G is located on the eastern perimeter of the Natomas Basin within Sacramento County, adjacent to the Natomas East Main Drainage Canal (NEMDC). It extends from the SAFCA NEMDC Pump Station to Elverta Road, for a distance of about 3.6 miles. The levee improvements required for this reach includes levee widening, along with installation of a 38-foot-deep cutoff wall. The construction cost is estimated at \$40 million.

Reach F is located on the eastern perimeter of the Natomas Basin within Sacramento and Sutter Counties, adjacent to the Natomas East Main Drainage Canal (NEMDC). It extends from Elverta Road to Sankey Road, for a distance of about 4.7 miles. The levee improvements required for this reach includes levee widening, along with installation of a 48-foot-deep cutoff wall. The construction cost is estimated at \$50 million.

Reach E is located on the northeastern perimeter of the Natomas Basin within Sutter County, adjacent to the Pleasant Grove Cross Canal (PGCC). It extends from Sankey Road to Howsley Road, for a distance of about 3.3 miles. The levee improvements required for this reach include levee widening, and installation of a 48-foot deep cutoff wall. The construction cost is estimated at \$55 million.

The NLIP Windows contract is located in the previously constructed reaches of D, C, and a portion of B. The windows are gaps left in the cutoff wall where existing pipelines and roads cross through the levee. In Reach D, the gaps are the Bennett and Northern Pumping Plant pipe crossings, and Highway 99. Additional windows are the Prichard Lake Pumping Plant, and Pumping Plant 2 pipeline crossings in Reach C, and the Elkhorn Pumping Plant and Pumping Plant 5 pipeline crossings in Reach B. A construction cost will be estimated when the full scope of this contract is known. At the time of this revision, a determination was made that the WRRDA 2014 authorization does not allow irrigation

pumping plants to be reconstructed as part of the Natomas Basin Project. Therefore, the only NLIP Windows are Reach D Windows and Pumping Plant 4, and I-5 Window. The I-5 Window included installing an adjacent levee and seepage berm underneath the I-5 bridges. The Reach D Windows contract included removal of the abandoned Bennett and Northern Pumping Plant pipe crossings, and originally included upgrades to Pumping Plant 4. However, during construction the Pumping Plant 4 work was deleted from that contract due to overhead PG&E power lines not being relocated in time for construction. A separate construction contract for Pumping Plant 4 was awarded in 2021. The Reach D Windows construction cost was \$15 million, and the Pumping Plant 4 construction cost is \$8 million. The I-5 Window construction contract is estimated at \$5 million.

The Jet Grout Windows contract will be located along the Natomas Basin levees, based on where conventional cutoff wall construction is not feasible. The exact locations of this work has not been determined at this time, but all of the locations requiring a jet grout cutoff wall will be designed and constructed in a single contract. A construction cost will be estimated when the full scope of this contract is known. At the time of this revision, the only Jet Grout Window contract will be the Reach D Highway 99 Window. The estimated construction cost is \$11 million.

The Mitigation contract will cover the remaining environmental commitments not already constructed by SAFCA for the NLIP project. The work typically includes constructing giant garter snake canals, wetlands in the borrow areas, and other environmental features as required in the Environmental Impact Statement report. The construction cost is estimated at \$50 million.

c. Project Sponsor. The project non-Federal sponsor is the State of California, Central Valley Flood Protection Board (CVFPB). CVFPB also has a separate agreement with the Sacramento Area Flood Control Agency (SAFCA), who designed and constructed the Natomas Levee Improvement Project (NLIP). The NLIP completed almost three of the nine reaches in the Natomas Basin, encompassing about one third of the total basin perimeter levees. SAFCA is currently submitting crediting documentation to USACE to fund most of their 35% cost share for the project. The sponsors are not planning any additional in-kind effort for this project.

d. Project Risks. The project authorization document, Natomas Post-Authorization Change Report (NPACR), lists the following levee problems by reach in the table below:

Levee Problems by Reach

Reach	Seepage	Stability	Erosion	Overtopping	Urbanized	Vegetation	p* (%)
A	X	X	-	-	X	X	99.8
B	X	-	X	X	X	X	59.7
C	X	-	X	X	-	X	50.0
D	X	-	X	X	-	X	98.1
E	X	X	X	X	-	-	99.8
F	-	X	X	X	-	-	99.8
G	X	X	-	-	X	-	80.9
H	X	X	-	-	X	-	80.9
I	X	X	-	-	X	-	51.4

\* Probability of failure reported is when water is at the top of the levee.

Failure of the Natomas Basin levees would imperil the health and safety of 100,000 residents and shut down Sacramento International Airport and two of California's most important interstate freeways. There will also be a loss of over \$7 billion in residential, commercial, and industrial property damage.

Because failure of the proposed levee improvements around the Natomas Basin would pose a significant threat to human life, SAFCA recognized the need for independent review of its Natomas Levee Improvement Program design and construction activities based on the Safety Assurance Review standards referenced above. For this purpose, a three-member Board of Senior Consultants was assembled. Board members include Dr. David Williams, Dr. Leslie Harder and Mr. George Sills; all recognized experts in flood control projects and levee design issues. Dr. Harder's and Mr. Sills' field of expertise is in geotechnical engineering and Dr. Williams' expertise is in hydraulics and hydrology. The Board of Senior Consultants has provided SAFCA with independent reviews of engineering design and construction activities at crucial points in the Natomas Levee Improvement Program design process.

USACE will continue the Safety Assurance Reviews for the remaining reaches. Independent Engineering Consulting firms will be utilized to perform these reviews.

**3. WORK PRODUCTS.** Plans and specifications, a Design Documentation Report (DDR), and Operations and Maintenance Manuals will be developed for the Natomas Reaches A, B, E, F, G, H, I, NLIP Windows, Jet Grout Windows, and Mitigation contracts. SAFCA has prepared the Operation and Maintenance Manuals for Reaches D, C, and a portion of B, which will be reviewed by USACE and the Safety Assurance Review Team. The construction for the Natomas Reaches A, B, E, F, G, H, I, NLIP Windows, and Jet Grout Windows will also be reviewed by the Safety Assurance Review Team. A Hydrology and Hydraulics (H&H) Basis of Design will also be prepared. The Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR) was issued in October 2010. The Corps' record of decision (ROD) was signed May 18, 2011. Supplemental environmental compliance documents will be prepared for reaches as necessary, where there are revisions to the original Environmental Impact Statement report included in the Natomas Post-Authorization Change Report (NPACR).

**4. SCOPE OF REVIEW.** The Scope of this Review Plan is for plans and specifications, DDR's, H&H Basis of Design Report, and environmental compliance documents being developed for the American River Common Features, Natomas Basin Reaches A, B, E, F, G, H, and I, in addition to the NLIP and Jet Grout Windows contracts, and the Mitigation contract. It also includes review of the Operation and Maintenance Manuals for all of these contracts, and for Reaches D, C, and B already constructed and prepared by SAFCA. The plans and specifications for Reaches D, C, and B have already been reviewed and approved by USACE (prior to 2010 when the EC was first implemented). The levels of review required are DQC (District Quality Control), ATR (Agency Technical Review), and Type II IEPR (Safety Assurance Review). 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 Plan (PMP). ATR is undertaken to "ensure the quality and credibility of the government's scientific information" in accordance with EC 1165-2-214. The Type II IEPR (SAR) is conducted to examine resiliency, robustness, and redundancy of the project and to "consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health, safety, and welfare."

a. District Quality Control Activities. All work products and reports, evaluations, and assessments shall undergo necessary and appropriate District Quality Control/Quality Assurance (DQC). This review is managed by the home district in accordance with the Major Subordinate Command (MSC) and district Quality Management Plans (P2 Project #458598) and includes seamless quality checks and reviews,

supervisory reviews, Project Delivery Team reviews (PDT) including input from the Local Sponsor. To ensure specific discipline efforts are on target with regard to compliance with policy and criteria and an acceptable level of quality, sub-products will be technically coordinated and reviewed before they are integrated into the overall project. DQC will be conducted on 60, 90, 100% and for Biddability, Constructability, Operability, Environmental, and Sustainability reviews (BCOES). All comments from the DQC reviews will be documented in DrChecks.

b. Agency Technical Review. According to EC 1165-2-214, ATR is mandatory for all decision documents and implementation documents and is undertaken to “ensure the quality and credibility of the government’s scientific information.” ATR is an in-depth review, managed by the RMC, and conducted by a qualified team outside of the home district that is not involved in the day-to-day production of a project/product. The purpose of this review is to ensure the proper application of clearly established criteria, regulations, laws, codes, principles and professional practices. DRChecks will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. American River Common Features, Natomas Basin Reaches A, B, E, F, G, H, I, NLIP Windows, Jet Grout Windows, and Mitigation contract plans and specifications, DDR, H&H Basis of Design Report, Operation and Maintenance Manuals, and the Environmental Impact Statement are implementation documents, and therefore ATR is required for this project. ATR reviews of the Operation and Maintenance Manuals for Reaches D, C, and B will also be required.

The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. Management of ATR reviews is dependent upon the phase of work and the reviews are conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. Determine and obtain an ATR agreement on key data such as hydraulic and geotechnical parameters early in design process. The goal is to have early involvement of ATR team, especially when key decisions are made. The ATR Lead should be invited virtually to all PDT meetings, in order to understand the design efforts and to know when to engage other ATR members for key decisions. Value added Lessons Learned from the ATR team should be shared early on to have the best chance of being adopted by the PDT. Most of the ATR effort should be accomplished midway through the design effort; after completion of design the ATR effort will check that the effort agreed to at mid-point was accomplished. This is consistent with the requirement that the ATR members shall not be involved in the day-to-day production of the project/product. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC. A site visit will not be scheduled for the ATR Team.

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

- (1) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
- (2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not been properly followed;
- (3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and

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

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist. The ATR documentation in DrChecks includes the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution. Certification of ATR should be completed, based on work reviewed to date, for the final report. A draft ATR certification is included in Appendix A.

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.

Due to the multidiscipline nature and scope of the bank protection/levee cutoff wall designs, it was determined that civil, geotechnical, hydraulic, structural, mechanical, and environmental expertise was needed for the ATR review activities which will be performed at the draft H&H Basis of Design Report phase, the 90% review for the remaining engineering documents, and the draft EIS for the environmental review.

c. Independent External Peer Review. EC 1165-2-214 requires that a Type II IEPR (also known as a Safety Assurance Review) shall be conducted for any project addressing hurricane and storm risk management or flood risk management, or any other project where the Federal action is justified by life safety, or the failure of the project would pose a significant threat to human life. The SAR team is an independent external panel that conducts reviews at various work phases and is to be approved by the Review Management Organization (RMO), which is the Risk Management Center (RMC). The SAR shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health, safety, and welfare. Factors to consider for conducting a Type II review of a project or components of a project are:

- (1) The project involves the use of innovative materials or techniques where the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent-setting methods or models, or presents conclusions that are likely to change prevailing practices;

(2) The project design requires redundancy, resiliency, and robustness.

(a) Redundancy. Redundancy is the duplication of critical components of a system with the intention of increasing reliability of the system, usually in the case of a backup or failsafe.

(b) Resiliency. Resiliency is the ability to avoid, minimize, withstand, and recover from the effects of adversity, whether natural or manmade, under all circumstances of use.

(c) Robustness. Robustness is the ability of a system to continue to operate correctly across a wide range of operational conditions (the wider the range of conditions, the more robust the system), with minimal damage, alteration, or loss of functionality, and to fail gracefully outside of that range.

(3) The project has unique construction sequencing or a reduced or overlapping design construction schedule; for example, significant project features accomplished using the Design-Build or Early Contractor Involvement (ECI) delivery systems.

All of the project reaches in this Review Plan have a large population area located behind the levee at their location and would pose a significant threat to human safety if the project were to fail. Therefore, all of these reaches require a Type II IEPR (SAR) review.

The risk-based concerns for this project are:

(a) Concern for internal erosion (seepage and piping) is present for all of the reaches except for Reach F. Cutoff walls and seepage berms are included in the design of these reaches.

(b) The slope stability evaluations show levee instability for all of the reaches except for Reaches B, C, and D. Levee widening and slope flattening are included in the design of these reaches.

(c) Erosion protection will be needed for Reaches B, C, D, E, and F. Stone protection will be the primary erosion protection measure used in the design of these reaches.

(d) Resilient features include internal drainage features, such as storm drain outlets and pump stations. These features exist in all reaches except for Reaches E and F. Relocating drainpipes, providing positive closure, and increasing pumping head for existing pump stations will be included in the design of these reaches.

(e) Overtopping for the 200-year plus three feet hydraulic profile is a concern for Reaches B, C, D, E, and F. The project authorization does not include levee raising, because it assumed the 100-year plus three feet hydraulic profile, which is at or below the existing top-of-levee. However, the local sponsor has indicated they will provide betterment funding to raise the levee to the 200-year plus three feet hydraulic profile for these reaches (Reaches B, C, and D have already been constructed to this elevation).

The Sacramento District Chief of Engineering is responsible for coordinating with the RMO, for attending review meetings with the SAR review panel, communicating with the agency or contractor selecting panel members, and for coordinating the approval of the final report with the MSC Chief of Business Technical Division.

After receiving the report from the peer review panel, the District Chief of Engineering, with full coordination with the Chiefs of Construction and Operations, shall consider all comments contained in the report and prepare a written response for all comments and note concurrence and subsequent action or non-concurrence with an explanation. The District Chief of Engineering shall submit the panel's report

and the District's responses shall be submitted to the MSC for final MSC Commander approval and then make the report and responses available to the public on the District's website.

d. Policy Compliance and Legal Review. The American River Common Features, Natomas Basin Reaches A, B, E, F, G, H, I, NLIP Windows, Jet Grout Windows, and Mitigation contract plans, and specifications are an implementation document and therefore do not need to be reviewed for compliance with law and policy. The Environmental Impact Statement, however, does need a legal review.

e. LSOG Review. Coordination with the LSOG on the progress and issues will be made appropriately and scheduled through HQUSACE representatives.

## **5. REVIEW TEAM.**

a. District Quality Control Activities. The American River Common Features, Natomas Reach I Contracts 1 and 2, Reach B, Reach B (I-5 Window), and Reach D (Highway 99 Window) plans and specifications are being prepared by an A-E, HDR Engineering, Inc. Reach H will also be prepared by an A-E, Pacific Civil and Structural Consultants (PCSC), Inc. Reach E plans and specifications are being prepared by Walla Walla (NWW) and Nashville Districts (LRN). Reaches F and G plans and specifications are being prepared by St. Paul District. Reache A's, plans and specifications were prepared by the Sacramento District, Corps of Engineers with support from NWW and New Orleans District (MVN). The Reach D and Pumping Plant 4 Windows, and Mitigation contract plans, and specifications were also prepared in-house. Reaches D, C, and a portion of Reach B Operation and Maintenance Manuals have been prepared by SAFCA. The Environmental Impact Statements (EIS) for all Natomas reaches will be prepared by the Sacramento District Corps of Engineers. The A-E and the Sacramento District submitted a Quality Control Plan that outlined their respective A-E and in-house quality control activities. Certification of the quality control activities will be on file with the District upon completion. DQC will be managed in the Sacramento District (District) in accordance with Major Subordinate Command (MSC) and district Quality Management Plans. Supervisory reviews will be conducted at 90% and 100%. DQC activities will be recorded in DrChecks. The QC/QA disciplines required for these reviews include Civil Design, Geotechnical Design, Hydraulic Design, Cost Engineering, Construction, and Environmental. The PDT and QC/QA teams and their qualifications are listed in tables in Appendix D.

The Real Estate Take Letters for all of the reaches are prepared by the Sacramento District Corps of Engineers, and the Real Estate Certification Packages are prepared by either SAFCA or the Department of Water Resources Real Estate Division and reviewed and approved by the district. Permanent easements are required for most of the reaches, in addition to temporary work area easements will be acquired. Utility relocations are required in all of the reaches, which have been designed by the A-E or Sacramento District, and will be paid for by the Department of Water Resources through a letter agreement, as appropriate.

b. Agency Technical Review. The ATR teams are listed below for each of the projects. Due to the nature of the cutoff wall/levee designs, it was determined by the PDT that civil, geotechnical, hydraulics, and environmental expertise was needed for the ATR review activities. The geotechnical models developed for these reaches included seepage and slope stability analyses for all of the reaches, and a geomorphology study of historical riverbeds for the entire Natomas basin. The seepage was analyzed using SEEP/W with verification by USACE's Blanket Theory model. The slope stability was analyzed using SLOPE/W with verification by UTEXAS4 model. The geomorphology study was completed by a geotechnical engineer with experience in river geomorphology, so a geotechnical ATR person with this background was included for the NEMDC review. The structural reviews include design of vaults,

headwalls, and outlets required for the pumping stations. The mechanical reviews include design of positive closure gates, and possibly pump station upgrades. Review of the H&H Basis of Design Report will determine the selected design hydraulic profile to use for the project. The Natomas PACR used the NLIP MBK Engineers hydraulic profile, which utilizes HEC-RAS and FLO-2D hydraulic models. All of the ATR reviewers must be certified in CERCAP. The ATRT members and their qualifications are listed in a table in Appendix D.

c. Type II IEPR (SAR). A Type II IEPR (SAR) is required for all of the Natomas Basin reaches. The PDT consulted with Sacramento District geotechnical and levee safety engineers to identify the necessary skill sets required for the SAR. The PDT has determined that three SAR team members will be required due to the scope of the designs, and the modeling completed for the slope stability and seepage analyses. The team members should also have experience with jet grout cutoff walls. The team shall consist of a geotechnical expert with experience in design, inspection and construction of levee projects and either another geotechnical engineer or general civil engineer with significant experience with earthwork construction quality assurance and control in flood control projects including levees. The third team member should be a structural engineer expert in design, inspections and construction of floodwalls and/or retaining walls. Experience in groundwater seepage analysis, slope stability analysis, seepage cutoff walls constructed with soil mixing and slurry methods will be necessary. A Hydraulics and Hydrology Engineer was not determined necessary for the SAR review team, due to the design assumption that the hydraulic top of levee was equivalent to the physical top of levee. An IDIQ contract with an AE firm will be utilized for SAR team selection. The AE will select suitable reviewers according to the National Academy of Science (NAS) policy which sets the standard for “independence” in the review process. The PDT determined that reviews conducted on the plans and specifications and design documentation report along with reviews during construction will be necessary.

According to guidance set forth in EC 1165-2-214, Appendix E, paragraph 5, it is expected that the SAR reviewers will review the plans and specifications and DDR prior to beginning construction and review construction activities at midpoint of construction and prior to final inspection.

#### **SAR TEAM MEMBERS**

<b>Name</b>	<b>Discipline/Experience</b>
Cari Beenenga, P.E., Gannett Fleming	Geotechnical with 15+ years experience in design, construction, inspection of levee projects, groundwater seepage analysis, slope stability analysis, seepage cutoff walls constructed with soil mixing and slurry methods.
Mark Freitas, P.E., GEI	Geotechnical/Civil with 15+ years experience in earthwork construction quality assurance and control in flood control projects
Bradley Dawson, P.E., GEI	Structural with 15+ years experience in floodwall/retaining wall construction quality assurance and control in flood control projects

d. Value Engineering Study. A Value Engineering (V-E) Study will be performed for all of the Natomas Basin reaches at the 60% P&S completion. Sacramento District selected a V-E team composed of a geotechnical, civil, mechanical, construction, cost engineer, and the local sponsor. The V-E team is responsible for determining the projects meet their intended purpose and cost efficiency. The V-E team members are listed in a table in Appendix D.



**6. PUBLIC COMMENT.** To ensure that the peer review approach is responsive to the wide array of stakeholders and customers, both within and outside the Federal Government, this Review Plan will be published on the district’s public internet site following approval by SPD at <http://www.spk.usace.army.mil>. This is not a formal comment period and there is no set timeframe for the opportunity for public comment. If and when comments are received, the PDT will consider them and decide if revisions to the review plan are necessary. The public is invited to review and submit comments on the plan as described on the web site.

**7. SCHEDULE/COSTS.**

**Table 1. Review Schedule**

**All Reaches**

<b>Title and Activity</b>	<b>Start Date</b>	<b>End Date</b>
Draft H&H Basis of Design (DQC)	9/1/15	9/15/15
Draft H&H Basis of Design (ATR)	9/15/15	9/30/15

**Reach I**

<b>Title and Activity</b>	<b>Start Date</b>	<b>End Date</b>
60% Contract 1 P&S Review (DQC)	1/7/16	1/24/16
90% Contract 1 P&S Review (DQC)	3/30/16	4/13/16
90% Contract 1 P&S Review (ATR)	4/14/16	4/28/16
Contract 1 BCOE Review	4/14/16	4/28/16
Contract 1 SAR P&S Review	4/14/16	4/28/16
100% Contract 1 P&S Review (DQC)	6/1/16	6/15/16
100% Contract 1 P&S Review (ATR)	6/16/16	6/30/16
60% Contract 2 P&S Review (DQC)	3/5/16	3/19/16
90% Contract 2 P&S Review (DQC)	5/28/16	6/11/16
90% Contract 2 P&S Review (ATR)	6/12/16	6/26/16
100% Contract 2 P&S Review (DQC)	7/30/16	8/13/16
100% Contract 2 P&S Review (ATR)	8/14/16	8/28/16
Contract 2 BCOE Review	6/12/16	6/26/16
Contract 2 SAR P&S Review	6/12/16	6/26/16
*2 <sup>nd</sup> 95% Contract 2 P&S Review (DQC)	5/28/21	6/11/21
*2 <sup>nd</sup> 95% Contract 2 P&S Review (ATR)	6/12/21	6/26/21
*2 <sup>nd</sup> 100% Contract 2 P&S Review (DQC)	8/12/21	8/26/21
*2 <sup>nd</sup> 100% Contract 2 P&S Review (ATR)	8/27/21	9/9/21
*2 <sup>nd</sup> Contract 2 BCOE Review	9/12/22	9/26/22
Contracts 1 and 2 EIS Review (DQC)	8/4/16	9/3/16
Draft Contracts 1 and 2 EIS Review (ATR)	8/4/16	9/3/16
Draft Contracts 1 and 2 EIS Review (Legal)	8/4/16	9/3/16
Draft Contract 1 O&M Manual (DQC/ATR/SAR)	4/15/21	4/30/21
*Draft Contract 2 O&M Manual (DQC/ATR/SAR)	4/15/23	4/30/23

The cost of DQC is \$20,000. The cost for ATR is \$72,700. The cost for SAR is \$100,000.

\*Reach I Contract 2 delayed due to tree removal and real estate issues.

**Reach H**

<b>Title and Activity</b>	<b>Start Date</b>	<b>End Date</b>
60% P&S Review (DQA)	3/5/16	3/19/16
90% P&S Review (DQA)	5/28/16	6/11/16
90% P&S Review (ATR)	6/12/16	6/26/16
BCOE Review	7/30/16	8/13/16
SAR Review	8/14/16	8/28/16
100% P&S Review (DQA/BCOE)	8/14/16	8/28/16
100% P&S Review (ATR)	8/14/16	8/28/16
Draft EIS Review (DQC)	8/4/16	9/3/16
Draft EIS Review (ATR)	8/4/16	9/3/16
Draft EIS Review (Legal)	8/4/16	9/3/16
Draft O&M Manual (DQC/ATR/SAR)	4/15/22	4/30/22

The cost of DQC is \$20,000. The cost for ATR is \$72,700. The cost for SAR is \$100,000.

**NLIP Reach D Windows**

<b>Title and Activity</b>	<b>Start Date</b>	<b>End Date</b>
60% P&S Review (DQA)	1/7/16	1/24/16
90% P&S Review (DQA)	3/30/16	4/13/16
90% P&S Review (ATR)	4/14/16	4/28/16
BCOE Review	4/14/16	4/28/16
SAR Review	4/14/16	4/28/16
100% P&S Review (DQA/BCOE)	6/1/16	6/15/16
100% P&S Review (ATR)	6/16/16	6/30/16
Draft EIS Review (DQC)	8/4/16	9/3/16
Draft EIS Review (ATR)	8/4/16	9/3/16
Draft EIS Review (Legal)	8/4/16	9/3/16
Draft O&M Manual (DQC/ATR/SAR)	4/15/21	4/31/21

The cost of DQC is \$10,000. The cost for ATR is \$72,700. The cost for SAR is \$100,000.

**Reaches D, C, and B (Constructed by SAFCA)**

<b>Title and Activity</b>	<b>Start Date</b>	<b>End Date</b>
Draft O&M Manuals (DQC)	1/15/16	2/1/16
Draft O&M Manuals (ATR/SAR)	2/1/16	2/15/16

The cost of DQC is \$5,000. The cost for ATR is \$10,000. The cost for SAR is \$10,000.

**Reach A**

<b>Title and Activity</b>	<b>Start Date</b>	<b>End Date</b>
65% P&S Review (DQC)	7/22/19	8/5/19
95% P&S Review (DQC)	7/10/20	7/24/20
95% P&S Review (ATR)	8/14/20	8/28/20
100% P&S Review (DQC)	2/16/21	3/2/21
100% P&S Review (ATR)	3/3/21	3/17/21
BCOE Review	8/14/20	8/28/20
SAR Review	8/14/20	8/28/20
Draft EIS Review (DQC)	--	--
Draft EIS Review (ATR)	--	--
Draft EIS Review (Legal)	--	--
Draft O&M Manual (DQC)	1/15/24	1/30/24
Draft O&M Manual (ATR/SAR)	1/30/24	2/15/24

The cost of DQC is \$21,000. The cost for ATR is \$76,400. The cost for SAR is \$100,000.

\*A supplemental EIS was not required for Reach A.

**Reach B**

<b>Title and Activity</b>	<b>Start Date</b>	<b>End Date</b>
60% P&S Review (DQA)	6/11/18	6/25/18
90% P&S Review (DQA)	12/21/18	1/3/19
90% P&S Review (ATR)	1/4/19	1/18/19
100% P&S Review (DQA)	3/23/19	4/5/19
100% P&S Review (ATR)	4/6/19	4/20/19
BCOE Review	1/4/19	1/18/19
SAR Review	1/4/19	1/18/19
Draft EIS Review (DQC)	3/23/19	4/5/19
Draft EIS Review (ATR)	3/23/19	4/5/19
Draft EIS Review (Legal)	3/23/19	4/5/19
Draft O&M Manual (DQC)	1/15/23	1/30/23
Draft O&M Manual (ATR/SAR)	1/30/23	2/15/23

The cost of DQC is \$22,000. The cost for ATR is \$80,200. The cost for SAR is \$100,000.

**Reach G**

<b>Title and Activity</b>	<b>Start Date</b>	<b>End Date</b>
65% P&S Review (DQA)	10/21/21	11/4/21
95% P&S Review (DQA)	4/22/22	5/6/22
95% P&S Review (ATR)	5/7/22	5/21/22
100% P&S Review (DQA)	7/22/22	8/6/22
100% P&S Review (ATR)	8/7/22	8/21/22
BCOE Review	5/7/22	5/21/22
SAR Review	5/7/22	5/21/22
Draft EIS Review (DQC)	7/22/22	8/21/22
Draft EIS Review (ATR)	7/22/22	8/21/22
Draft EIS Review (Legal)	7/22/22	8/21/22
Draft O&M Manual (DQC)	1/15/26	1/30/26
Draft O&M Manual (ATR/SAR)	1/30/26	2/15/26

The cost of DQC is \$23,000. The cost for ATR is \$84,200. The cost for SAR is \$100,000.

**Reach F**

<b>Title and Activity</b>	<b>Start Date</b>	<b>End Date</b>
65% P&S Review (DQA)	10/21/21	11/4/21
95% P&S Review (DQA)	4/22/22	5/6/22
95% P&S Review (ATR)	5/7/22	5/21/22
100% P&S Review (DQA)	7/22/22	8/6/22
100% P&S Review (ATR)	8/7/22	8/21/22
BCOE Review	5/7/22	5/21/22
SAR Review	5/7/22	5/7/22
Draft EIS Review (DQ)	7/22/22	8/21/22
Draft EIS Review (ATR)	7/22/22	8/21/22
Draft EIS Review (Legal)	7/22/22	8/21/22
Draft O&M Manual (DQC)	1/15/26	1/30/26
Draft O&M Manual (ATR/SAR)	1/30/26	2/15/26

The cost of DQC is \$23,000. The cost for ATR is \$84,200. The cost for SAR is \$100,000.

**Reach E**

<b>Title and Activity</b>	<b>Start Date</b>	<b>End Date</b>
65% P&S Review (DQA)	1/15/21	1/29/21
95% P&S Review (DQA)	9/25/21	10/7/21
95% P&S Review (ATR)	10/8/21	10/22/21
100% P&S Review (DQA/BCOE)	2/1/22	2/15/22
100% P&S Review (ATR)	3/3/22	3/31/22
BCOE Review	10/8/22	10/22/22
SAR Review	10/8/22	10/22/22
Draft EIS Review (DQC)	2/1/22	3/3/22
Draft EIS Review (ATR)	2/1/22	3/3/22
Draft EIS Review (Legal)	2/1/22	3/3/22
Draft O&M Manual (DQC)	1/15/22	1/30/22
Draft O&M Manual (ATR/SAR)	1/30/22	2/15/22

The cost of DQC is \$24,000. The cost for ATR is \$88,400. The cost for SAR is \$100,000.

**Natomas Reach D Pumping Plant 4**

<b>Title and Activity</b>	<b>Start Date</b>	<b>End Date</b>
*		
95% P&S Review (DQC)	4/19/20	5/3/20
*		
100% P&S Review (DQC)	5/25/20	6/9/20
*		
BCOE Review	4/19/20	5/3/20
*		
*		
*		
*		
Draft O&M Manual (DQC)	4/15/22	4/30/22
Draft O&M Manual (ATR/SAR)	4/30/22	5/15/22

The cost of DQC is \$25,000. The cost for ATR is \$92,800. The cost for SAR is \$100,000.

\*Pumping Plant 4 originally part of Natomas Reach D Windows Contract, so already completed ATR/SAR and EIS reviews.

**NLIP Reach B (I-5 Window)**

<b>Title and Activity</b>	<b>Start Date</b>	<b>End Date</b>
65% P&S Review (DQA)	6/6/19	6/28/19
95% P&S Review (DQA)	7/13/20	7/27/20
95% P&S Review (ATR)	7/13/20	7/27/20
BCOE Review	7/13/20	7/27/20
SAR Review	7/13/20	7/27/20
100% P&S Review (DQA/BCOE)	10/22/20	11/7/20
100% P&S Review (ATR)	10/22/20	11/7/20
Draft EIS Review (DQC)	10/22/20	11/21/20
Draft EIS Review (ATR)	10/22/20	11/21/20
Draft EIS Review (Legal)	10/22/20	11/21/20
Draft O&M Manual (DQC/ATR/SAR)	4/15/23	4/30/23

### Natomas Reach D Highway 99

<b>Title and Activity</b>	<b>Start Date</b>	<b>End Date</b>
65% P&S Review (DQA)	1/21/22	2/4/22
95% P&S Review (DQA)	5/1/22	5/15/22
95% P&S Review (ATR)	5/16/22	5/30/22
100% P&S Review (DQA)	7/20/22	8/3/22
100% P&S Review (ATR)	8/4/22	8/18/22
BCOE Review	5/16/22	5/30/22
SAR Review	5/16/22	5/30/22
Draft EIS Review (DQC)	7/20/22	8/19/22
Draft EIS Review (ATR)	7/20/22	8/19/22
Draft EIS Review (Legal)	7/20/22	8/19/22
Draft O&M Manual (DQC)	1/15/24	1/30/24
Draft O&M Manual (ATR/SAR)	1/30/24	2/15/24

The cost of DQC is \$26,000. The cost for ATR is \$97,500. The cost for SAR is \$100,000.

### Mitigation Contract

<b>Title and Activity</b>	<b>Start Date</b>	<b>End Date</b>
60% P&S Review (DQC)	4/7/20	4/24/20
90% P&S Review (DQC)	7/30/20	8/14/20
90% P&S Review (ATR)	8/15/20	8/29/20
100% P&S Review (DQC)	10/4/20	10/18/20
100% P&S Review (ATR)	10/19/20	11/2/20
BCOE Review	8/15/20	8/29/20
Draft O&M Manual (DQC)	1/15/23	1/30/23
Draft O&M Manual (ATR)	1/30/23	2/15/23

The cost of DQC is \$24,000. The cost for ATR is \$70,000.

## 8. DOCUMENTATION OF REVIEW. The District Quality Control activities for the American River

Common Features, Natomas Basin Reaches A, B, E, F, and G, Sacramento and Sutter Counties, California will be completed by Sacramento District. District Quality Assurance activities will be completed by Sacramento District for Natomas Reaches I and H, and for the Reaches D, C, and B Operation and Maintenance Manuals. The Agency Technical Review activities for all of the Natomas Basin reaches will be completed by Kansas City District (NWK), LRN, and Seattle District (NWS). The team used the Document Review and Checking System (DrChecks) to document the review process. Reviewers were then responsible for back checking the A/E's responses to the review comments and either close the comment or attempt to resolve any disagreements.

For the final submittal, the A/E has provided certification that the plans and specifications (P&S) have undergone the A/E's quality control procedure and that the plans are ready for advertising. It is also noted that the A/E is required to have all the design drawings stamped by a registered professional engineer. The AE's Quality Control Plan is provided as an Appendix to this review plan.

a. Statement of Technical Review. 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 leader must complete a statement of technical review for all final products and final documents. For each Agency Technical Review (ATR) event, the ATR team will examine, as part of its ATR activities, relevant DQC records and provide written comment in the ATR report as to the apparent adequacy of the DQC effort for the associated product or service. The ATR team will prepare a Review Report which includes a summary of each unresolved issue, the charge questions, a brief resume of ATR reviewers, and a printout of all DrChecks comments with resolution in order for the process to be certified as complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A sample Statement of Technical Review for the plans and specifications is included in Appendix A.

b. Final IEPR Review. The final IEPR Review Report will be submitted by the Type II IEPR panel no later than 60 days following each milestone. The SAR contractor or another government agency shall prepare a Final Review Report to include the panel review of the design documents, construction, and the O&M Manuals. Written responses to the Type II IEPR Review Report will be documented in Dr. Checks. The District/PCX/MSD and CECW-CP will disseminate the final Type II IEPR Review Report, USACE response, and all other materials related to the Type II IEPR at <http://www.usace.army.mil/Missions/CivilWorks/ProjectPlanning/CompletedPeerReviewReports.aspx>. DrChecks review software may be used to document the Type II IEPR comments and aid in the preparation of the Review Report. Comments should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. Type II IEPR comments should generally include the same four key parts as described for ATR comments in Section 5. An A/E contractor will be responsible for compiling and entering comments into DrChecks. The Type II IEPR team will prepare a Review Report that will accompany the publication of the final report for the project and shall:

- (1) Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- (2) Include the charge to the reviewers;
- (3) Describe the nature of their review and their findings and conclusions; and
- (4) 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.

**9. POINTS OF CONTACT.** Questions about this Review Plan may be directed to the applicable District Project Delivery Team, Lead Engineer, Mark Boedtke at (916) 557-6637, or to the Project Managers, Stacy Pereyda-Hill at (916) 557-6887, Krystal Bell at (916) 557-7948, and Melissa Harris at (916) 557-7517. The Chief, Engineering Division is Rick Poepelman at (916) 557-7301.

**10. REVIEW PLAN APPROVAL.**

The Sacramento District requests that the South Pacific Division endorse the above recommendations and approve this Review Plan as described in Appendix B of EC 1165-2-214.



## List of Acronyms

AE – Architect/Engineer  
ATR – Agency Technical Review  
BCOE – Biddability, Constructability, Operability and Environmental  
BI/COI - Background Information and Confidential Conflict of Interest Disclosure  
DDR – Design Documentation Report  
DQC – District Quality Control  
EC – Engineering Circular  
EIS – Environmental Impact Statement  
EIR – Environmental Impact Report  
ER – Engineering Regulation  
IDIQ – Indefinite Delivery Indefinite Quantity  
IEPR – Independent Peer Review  
MSC – Major Subordinate Command  
NAS – National Academy of Sciences  
NEMDC – Natomas East Main Drainage Canal  
PDT – Project Delivery Team  
PMP – Project Management Plan  
RMO – Review Management Organization  
RP – Review Plan  
SAR – Safety Assurance Review  
SPD – South Pacific Division  
USACE – United State Army Corps of Engineers  
WRDA - Water Resources Development Act  
WRRDA – Water Resources Reform and Development Act

**APPENDIX A**

**FORMS**

**US Army Corps of Engineers  
Sacramento District**

**QUALITY CONTROL CERTIFICATION**

**ELECTRONIC DIGITAL MEDIA SUBMITTAL  
COMPLETION OF QUALITY CONTROL REVIEW**

The Sacramento District, Design Branch has completed the Design of the Plans and Specifications for the American River Common Features, Natomas Basin, Sacramento and Sutter Counties, California. Notice is hereby given that all quality control activities, appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control Plan have been completed. 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 of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing Corps policy. The preliminary plans and specifications were accomplished by the In-House Design Team and the independent technical/ quality control review was accomplished by a peer review within Design Branch and the subject project is in compliance with the contract requirements. Design Branch Statement of Quality Control, and the Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) Certificate from Construction Operations Division are attached. Accordingly, the undersigned certifies the quality control process for this product.

**GENERAL FINDINGS for BCOES**

Compliance with clearly established policy principles and procedures, utilizing clearly justified and valid assumptions, has been verified. This includes assumptions; methods, procedures and materials used in analyses; alternatives evaluated; the appropriateness of data used and level of data obtained; and the reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing Corps policy. All appropriate ATR and BCOES review comments have been incorporated into this product. Accordingly, the undersigned certifies the quality control process for this product.

**ELECTRONIC DIGITAL MEDIA SUBMITTAL**

The drawings for the above project have been approved. The mark /s/ before the following individual's name (i.e., /s/ Rick Poeppelman, P.E.) indicates the final drawing approval. Approved drawings are dated within six months of the Advertising Date. **This certification expires 180 days from the date of issue.**

**CERTIFICATION OF DISTRICT (for Civil) QUALITY CONTROL or ASSURANCE**

As noted above, all issues and concerns associated with the development and independent technical review of the product have been resolved. The project may proceed to the next phase of product development or implementation.

For Civil Projects with District Quality Control (DQC) Review  
Significant concerns and the explanation of the resolution are as follows:

No significant concerns

Rick Poeppelman, P. E.	Date
Chief, Engineering Division	

**COMPLETION OF DISTRICT QUALITY CONTROL  
ENGINEERING**

**Project Name & Location:** American River Common Features, Natomas Basin, Sacramento and Sutter Counties, California

**Product Type & Short Description of Item:** Plans and Specifications

The District Quality Control/Quality Assurance (DQC) Process for Engineering has been completed for the geotechnical and civil portion of the design plans and specifications for the American River Common Features, Natomas Basin, Sacramento and Sutter Counties, California Plans and Specifications. The DQC was conducted as defined in the project’s Review Plan to comply with the requirements of EC 1165-2-214 and QMS Process 08506-SPD “District Quality Control/Quality Assurance (DQC) of Engineering Products”. During the DQC, 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 important comments resulting from the DQC have been resolved and the comments have been closed in Dr. Checks. The Dr. Checks report documenting this is attached.

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Sean H. Mann  
Engineering Technical Lead

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Date

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Markus S. Boedtke  
DQC Review Team Leader

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Date

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William P. Woodward  
Chief, Civil Works Design Section C

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Date

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William M. Hall  
Chief, Civil Works Design Branch

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Date

**CIVIL DESIGN BRANCH  
STATEMENT OF QUALITY CONTROL  
ELECTRONIC DIGITAL MEDIA SUBMITTAL**

**PROJECT TITLE:** American River Common Features, Natomas Basin  
**LOCATION:** Sacramento and Sutter Counties, California  
**P2 NUMBER:** 458598 **SPEC NUMBER:**

**COMPLETION OF QUALITY CONTROL ACTIVITIES**

The Project Team has completed the **plans and specifications** for the above project. Notice is hereby given that all quality control activities associated with Product Development and Independent Technical Review (ITR), as defined in the Quality Control Plan, appropriate to the level of risk and complexity inherent in the product have been completed. Compliance with clearly established policy, principles and procedures, utilizing clearly justified and valid assumptions, has been verified. This includes assumptions; methods, procedures and materials used in analyses; alternatives evaluated; the appropriateness of data used and level of data obtained; and the reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing Corps policy. Documentation of the quality control process is contained in the project file.

All appropriate ITR and Biddability, Constructibility, Operability, Environmental, and Sustainability (BCOES) and functional user review comments received in DrChecks and reviewed by this office have been incorporated into this product or satisfactorily resolved and that feedback on all comments has been provided to reviewers.

**ELECTRONIC DIGITAL MEDIA SUBMITTAL:** The drawings for the above project have been approved for advertising. The mark /s/ before the following individual's name (i.e., /s/ Name) indicates the Specifications and Final Drawing approval. **The Approved drawings' Coversheet is dated xx/xx/xxxx and is within 6 months of the Advertising Date.**

\_\_\_\_\_  
**Markus S. Boedtke, P.E.** Date  
Chief, Civil Works Design Section A

\_\_\_\_\_  
**Richard A. Torbik, P.E.** Date  
Chief, Civil Works Design Section B

\_\_\_\_\_  
**William P. Woodward, P.E.** Date  
Chief, Civil Works Design Section C

\_\_\_\_\_  
**Michele K. Louie, P.E.** Date  
Chief, Structural Design Section

**CERTIFICATION OF QUALITY CONTROL: All appropriate ITR and BCOES review comments have been incorporated into this product. The mark /s/ before my name (i.e., /s/ William Hall, P.E.) indicates my approval.** This certification expires 180 days from the date of issue.

\_\_\_\_\_  
**William M. Hall, P.E.** Date  
Acting Chief, Design Branch

**ENGINEERING SUPPORT BRANCH**

**STATEMENT OF QUALITY CONTROL/ASSURANCE**



comply with the requirements of EC 1165-2-214 and ER 1110-1-12. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrChecks<sup>sm</sup>.

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Michael Navin  
ATR Team Leader  
CEMVS-LSC

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Date

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Stacy Pereyda-Hill  
Project Manager  
SPK-PM-C

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Date

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Sean Mann  
Technical Lead  
CESPK-ED-DC

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Date

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David Carlson  
Director of Risk Management  
CEIWR-RMC

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Date

#### CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows:

[\[Describe the major technical concerns and their resolution\]](#)

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

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[Rick L Poepelman, P.E.](#)  
Chief, Engineering Division, Sacramento District

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Date

### **COMPLETION OF SAFETY ASSURANCE REVIEW (TYPE II)**

**PROJECT TITLE:** American River Common Features, Natomas Basin  
**LOCATION:** Sacramento County, California  
**SPEC NUMBER:**

The District has completed the Safety Assurance Review (SAR) on the Plans, Specifications, and Design Documentation Report (DDR) for the above project. The undersigned certify that a SAR appropriate to the level of risk and complexity inherent in the project, has been conducted as designated in the project Quality Control Plan.

During the SAR, compliance with established policy principles and procedures, utilizing justified and valid assumptions was reviewed and further analysis and investigations that are needed were identified. This included review of: assumptions, methods, procedures, and materials used in analysis, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the result, including whether the product meets the customer's need consistent with law and existing Corps policy. All comments resulting from the SAR, entered in the Design Review and Checking System (DrChecks) have been resolved.

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Mark Freitas, P.E., A/E SAR Lead  
Date

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Sean Mann, P.E., Engineering Tech Lead  
Date

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Stacy Pereyda-Hill, P.E., Project Manager  
Date

---

Rick L. Poeppelman, P.E., Chief, Engineering Division  
Date

**CONTRACTOR STATEMENT OF QUALITY CONTROL  
AND  
BIDDABILITY, CONSTRUCTIBILITY, OPERABILITY, ENVIRONMENTAL, and  
SUSTAINABILITY**



**CERTIFICATION  
AND  
ELECTRONIC DIGITAL MEDIA SUBMITTAL**

**PROJECT TITLE: American River Common Features, Natomas Basin**  
**LOCATION: Sacramento County, California**  
**SPECIFICATION NUMBER:**

**COMPLETION OF QUALITY CONTROL ACTIVITIES**

The Architect-Engineer HDR Engineering Inc. has completed the Plans & Specifications for the above project. Notice is hereby given that all quality control activities associated with Product Development and Independent Technical Review (ITR), as defined in the Quality Control Plan, appropriate to the level of risk and complexity inherent in the product have been completed. Compliance with clearly established policy, principles and procedures, utilizing clearly justified and valid assumptions, has been verified. This includes assumptions; methods, procedures and materials used in analyses; alternatives evaluated; the appropriateness of data used and level of data obtained; and the reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing Corps policy. Documentation of the quality control process is contained in the project file.

All appropriate ITR and Biddability, Constructibility, Operability, Environmental, and Sustainability (BCOES) and functional user review comments received in DrChecks and reviewed by this office have been incorporated into this product or satisfactorily resolved and that feedback on all comments has been provided to reviewers.

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Daniel Jabbour, P.E.  
Independent Technical Review Team Leader

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Date

**CERTIFICATION OF QUALITY CONTROL**

As noted above, all appropriate ITR and BCOES review comments have been incorporated into this product.

**ELECTRONIC DIGITAL MEDIA SUBMITTAL**

The mark /s/ before the names (i.e. /s/ Name) on the drawing sheets in the "Submitted" area indicates my approval. Approved drawings are dated within six months of the Advertising Date.

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Jason Nettleton, P.E.  
HDR Engineering, Inc.

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Date

**SACRAMENTO DISTRICT**

**BCOES CERTIFICATION  
Civil Works**

**Project Name:/Project Number:** American River Common Features, Natomas Basin

**Phase or type of project:** Plans and Specifications

**Certification Date:**

I, [Project Manager Name], certify that the Value Engineering process as required by ER 11-1-321 (Change 1 or latest version), Army Programs Value Engineering has been completed for this procurement action. I certify compliance with Public Law 99-662 (33 USC 2288) and OMB Circular A-131. A VE study was **[completed/waived]** on **[Enter Date]** by the appropriate authority and documented in the Value Engineering report. All rejected VE proposals indicating potential savings of over \$1,000,000 have been resolved with approval of the MSC Commander.

\_\_\_\_\_  
Project Manager

\_\_\_\_\_  
Date

\_\_\_\_\_  
Value Engineering Officer

\_\_\_\_\_  
Date

The Bid or RFP Package has been reviewed for Biddability, Constructability, Operability, Environmental, Sustainability (BCOES) requirements in accord with ER 415-1-11, dated 1 January 2013. The undersigned certify that all appropriate BCOES review comments have either been incorporated into the Bid or RFP Package or otherwise satisfactorily resolved. Comments, Evaluations, and Backchecks are all documented in the Design Review and Checking System (DrChecks).

\_\_\_\_\_  
**S. Joe Griffin**  
Chief, Environmental Resources Branch

\_\_\_\_\_  
Date

\_\_\_\_\_  
**M. Violet Albright**  
Chief, Construction Division

\_\_\_\_\_  
Date

\_\_\_\_\_  
**Adam B. Olson**  
Chief, Real Estate Division

\_\_\_\_\_  
Date

\_\_\_\_\_  
**Randy P. Olson**  
Chief, Operations Division

\_\_\_\_\_  
Date

\_\_\_\_\_  
**William M. Hall, P.E.**  
Chief, Civil Design Branch

\_\_\_\_\_  
Date

\_\_\_\_\_  
**Rick Poeppelman, P.E.**  
Chief, Engineering Division

\_\_\_\_\_  
Date

Note: This certification expires 180 days from the date of issue.

## **DR. CHECKS STATUS REPORT**

**Project Title:** American River Common Features, Natomas Basin

**Location:** Sacramento and Sutter Counties, California

**Specification No:**

**Put Screen Print from DRCheckshere.**

**APPENDIX B**  
**REVIEW PLAN CHECKLIST**

Review Plan Checklist  
For Implementation Documents

**Date:** JUNE 2015

**Originating District:** SACRAMENTO DISTRICT

**Project/Study Title:** AMERICAN RIVER COMMON FEATURES, NATOMAS BASIN, SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA, PLANS AND SPECIFICATIONS

**PWI#:**

**District POC:** Mr. Mark Boedtger

**PCX Reviewer:**

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

REQUIREMENT	REFERENCE	EVALUATION
<b>1. Is the Review Plan (RP) a stand alone document?</b>	EC 1165-2-214, Appendix B Para 4a	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
a. Does it include a cover page identifying it as a RP and listing the project/study title, originating district or office, and date of the plan?		a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
b. Does it include a table of contents?		b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
c. Is the purpose of the RP clearly stated and EC 1165-2-214 referenced?	EC 1165-2-214 Para 7a	c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
d. Does it reference the Project Management Plan (PMP) of which the RP is a component including P2 Project #?	EC 1165-2-214 Para 7a (2)	d. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
	EC 1165-2-214	e. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

<p>e. Does it include a paragraph stating the title, subject, and purpose of the work product to be reviewed?</p> <p>f. Does it list the names and disciplines in the home district, MSC and RMO to whom inquiries about the plan may be directed?*</p> <p><i>*Note: It is highly recommended to put all team member names and contact information in an appendix for easy updating as team members change or the RP is updated.</i></p>	<p>Appendix B Para 4a</p> <p>EC 1165-2-214, Appendix B, Para 4a</p>	<p>f. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p><b>2. Documentation of risk-informed decisions on which levels of review are appropriate.</b></p>	<p>EC 1165-2-214, Appendix B, Para 4b</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>a. Does it succinctly describe the three levels of peer review: District Quality Control (DQC), Agency Technical Review (ATR), and Independent External Peer Review (IEPR)?</p> <p>b. Does it contain a summary of the CW implementation products required?</p> <p>c. DQC is always required. The RP will need to address the following questions:</p> <p>i. Does it state that DQC will be managed by the home district in accordance with the Major Subordinate Command (MSC) and district Quality Management Plans?</p> <p>ii. Does it list the DQC activities (for example, 30, 60, 90, BCOE reviews, etc)</p> <p>iii. Does it list the review teams who will perform the DQC activities?</p> <p>iv. Does it provide tasks and related resource, funding and schedule showing when the DQC activities will be performed?</p> <p>d. Does it assume an ATR is required and if an ATR is not required does it provide a risk based decision of why it is not required? If an ATR is required the RP will need to address the following questions:</p>	<p>EC 1165-2-214 7a</p> <p>EC1165-2-214 Para 15</p> <p>EC1165-2-214 Para 15a</p> <p>EC1165-2-214 Para 8a</p> <p>EC 1165-2-214 Appendix B (1)</p> <p>EC 1165-2-214 Appendix B 4g</p> <p>EC 1165-2-214 Appendix B Para 4c</p> <p>EC1165-2-214 Para 15a</p>	<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>i. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>ii. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>iii. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>iv. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>d. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>

<p>i. Does it identify the ATR District, MSC, and RMO points of contact?</p> <p>ii. Does it identify the ATR lead from outside the home MSC?</p> <p>iii. Does it provide a succinct description of the primary disciplines or expertise needed for the review (not simply a list of disciplines)? If the reviewers are listed by name, does the RP describe the qualifications and years of relevant experience of the ATR team members?*</p> <p>iv. Does it provide tasks and related resource, funding and schedule showing when the ATR activities will be performed?</p> <p>v. Does the RP address the requirement to document ATR comments using Dr Checks?</p>	<p>EC 1165-2-214 Para 7a</p> <p>EC 1165-2-214 Para 9c</p> <p>EC 1165-2-214 Appendix B 4g</p> <p>EC 1165-2-214 Appendix C Para 3e</p>	<p>i. Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p>ii. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>iii. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>iv. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>v. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p><i>*Note: It is highly recommended to put all team member names and contact information in an appendix for easy updating as team members change or the RP is updated.</i></p>	<p>EC 1165-2-214 Para 7d (1)</p>	<p>e. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>e. Does it assume a Type II IEPR is required and if a Type II IEPR is not required does it provide a risk based decision of why it is not required including RMC/ MSC concurrence? If a Type II IEPR is required the RP will need to address the following questions:</p> <p>i. Does it provide a defensible rationale for the decision on Type II IEPR?</p> <p>ii. Does it identify the Type II IEPR District, MSC, and RMO points of contact?</p> <p>iii. Does it state that for a Type II IEPR, it will be contracted with an A/E contractor or arranged with another government agency to manage external to the Corps of Engineers?</p> <p>iv. Does it state for a Type II IEPR, that the selection of IEPR review panel members will be made up of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a</p>	<p>EC1165-2-214 Para 15a</p> <p>EC 1165-2-214 Para 7a</p> <p>EC 1165-2-214 Appendix B Para 4a</p> <p>EC 1165-2-214 Appendix B Para 4k (4)</p>	<p>e. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>i. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>ii. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>iii. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>

<p>balance of expertise suitable for the review being conducted?</p> <p>v. Does it state for a Type II IEPR, that the selection of IEPR review panel members will be selected using the National Academy of Science (NAS) Policy which sets the standard for “independence” in the review process?</p> <p>vi. If the Type II IEPR panel is established by USACE, has local (i.e. District) counsel reviewed the Type II IEPR execution for FACA requirements?</p> <p>vii. Does it provide tasks and related resource, funding and schedule showing when the Type II IEPR activities will be performed?</p> <p>viii. Does the project address hurricane and storm risk management or flood risk management or any other aspects where Federal action is justified by life safety or significant threat to human life?</p> <p><i>Is it likely? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></i>  <i>If yes, Type II IEPR must be addressed.</i></p> <p>ix. Does the RP address Type II IEPR factors?</p> <p>Factors to be considered include:</p> <ul style="list-style-type: none"> <li>• Does the project involve the use of innovative materials or techniques where the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent setting methods or models, or presents conclusions that are likely to change prevailing practices?</li> <li>• Does the project design require redundancy, resiliency and robustness</li> <li>• Does the project have unique construction sequencing or a reduced or overlapping design construction schedule; for example, significant project features accomplished using the Design-Build or Early Contractor Involvement (ECI) delivery systems.</li> </ul>	<p>EC 1165-2-214 Appendix B, Para 4k(1) &amp; Appendix E, Para’s 1a &amp; 7</p> <p>EC 1165-2-214 Para 6b (4) and Para 10b</p> <p>EC1165-2-214 Appendix E, Para 7c(1)</p> <p>EC1165-2-214 Appendix E, Para 5a</p> <p>EC1165-2-214 Appendix E Para 2</p>	<p>iv. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>v. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>vi. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>vii. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>viii. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>ix. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
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<p><i>Is it likely? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></i>  <i>If yes, Type II IEPR must be addressed.</i></p> <p>g. Does it address policy compliance and legal review? If no, does it provide a risk based decision of why it is not required?</p>	<p>EC 1165-2-214          Para 14</p>	<p>g. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p><b>3. Does the RP present the tasks, timing, and sequence of the reviews (including deferrals)?</b></p>	<p>EC 1165-2-214,          Appendix B,          Para 4c</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>a. Does it provide an overall review schedule that shows timing and sequence of all reviews?</p> <p>b. Does the review plan establish a milestone schedule aligned with the critical features of the project design and construction</p>	<p>EC 1165-2-214,          Appendix C,          Para 3g</p> <p>EC 1165-2-214,          Appendix E,          Para 6c</p>	<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p><b>4. Does the RP address engineering model certification requirements?</b></p>	<p>EC 1165-2-214,          Appendix B,          Para 4i</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>The hydraulic models have been previously reviewed in prior projects. Slope stability and seepage analyses have been developed for these projects.</p>
<p>a. Does it list the models and data anticipated to be used in developing recommendations?</p> <p>b. Does it indicate the certification /approval status of those models and if certification or approval of any model(s) will be needed?</p> <p>c. If needed, does the RP propose the appropriate level of certification??? /approval for the model(s) and how it will be accomplished?</p>		<p>a. Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>c. Yes <input type="checkbox"/> No <input type="checkbox"/></p>

<b>5. Does the RP explain how and when there will be opportunities for the public to comment on the study or project to be reviewed?</b>	EC 1165-2-214, Appendix B, Para 4d	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
a. Does it discuss posting the RP on the District website?		a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
b. Does it indicate the web address, and schedule and duration of the posting?		b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>6. Does the RP explain when significant and relevant public comments will be provided to the reviewers before they conduct their review?</b>	EC 1165-2-214, Appendix B, Para 4e	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> There is no public review for these project documents.
a. Does it discuss the schedule of receiving public comments?		a. Yes <input type="checkbox"/> No <input type="checkbox"/>
b. Does it discuss the schedule of when significant comments will be provided to the reviewers?		b. Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>7. Does the RP address whether the public, including scientific or professional societies, will be asked to nominate professional reviewers?*</b>	EC 1165-2-214, Appendix B, Para 4h	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> There is no public review for these project documents.
a. If the public is asked to nominate professional reviewers then does the RP provide a description of the requirements and answer who, what, when, where, and how questions?  * Typically the public will not be asked to nominate potential reviewers		a. Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>8. Does the RP address expected in-kind contributions to be provided by the sponsor?</b>	EC 1165-2-214, Appendix B, Para 4j	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> There are no in-kind sponsor contributions for these projects.
a. If expected in-kind contributions are to be provided by the sponsor, does the RP list the expected in-kind contributions to be provided by the sponsor?		a. Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>9. Does the RP explain how the reviews will be documented?</b>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

<p>a. Does the RP address the requirement to document ATR comments using Dr Checks and Type II IEPR published comments and responses pertaining to the design and construction activities summarized in a report reviewed and approved by the MSC and posted on the home district website?</p> <p>b. Does the RP explain how the Type II IEPR will be documented in a Review Report?</p> <p>c. Does the RP document how written responses to the Type II IEPR Review Report will be prepared?</p> <p>d. Does the RP detail how the district/PCX/MSC and CECW-CP will disseminate the final Type II IEPR Review Report, USACE response, and all other materials related to the Type II IEPR on the internet?</p>	<p>EC 1165-2-214, Para 7d</p> <p>EC 1165-2-214 Appendix B Para 4k (14)</p> <p>EC 1165-2-214 Appendix B Para 4k (14)</p> <p>EC 1165-2-214 Appendix B Para 5</p>	<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>d. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p><b>10. Has the approval memorandum been prepared and does it accompany the RP?</b></p>	<p>EC 1165-2-214, Appendix B, Para 7</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>

## Appendix A – CW Products and Type of Reviews

There are few absolutes in terms of review and those tend towards higher levels of review rather than lower. All Civil Works products shall get district quality control. All decision and implementation documents shall undergo Agency Technical Review. The law states when peer review is mandatory. Beyond this, the EC requires a risk informed decision be made on each individual study/project to determine the appropriate level of review. This determination will first be made as part of the review plan, which is part of the PMP. But the determination may change based upon changes the product undergoes during its development.

Any deviation from the following requires use of a risk informed decision process.

<b>CW Planning Products</b>	<b>Required Review</b>	<b>SPD Requirement</b>
Reconnaissance Report	DQC, ATR	
Feasibility Study	DQC, ATR, Type I IEPR	
General Reevaluation Report	DQC, ATR, Type I IEPR	
Limited Reevaluation Report	DQC, ATR, Type I IEPR	
Continuing Authorities Project	DQC, ATR, Type I IEPR	
Major Rehab Report (Hydropower, Navigation)	DQC, ATR, Type I IEPR	
Dredge Material Management Plan	DQC, ATR	
Shoreline Management Plan	DQC, ATR, Type I IEPR	
Master Plan	DQC, ATR	
Master Plan Update	DQC	
Operational Management Plan	DQC	
Annual Work Plan	DQC	
Hydrologic Studies*	DQC, ATR	QMP

\*Data from hydrologic studies must undergo a minimum of DQC and ATR prior to its substantive use in plan formulation studies.

<b>CW Engineering Products</b>	<b>Required Review</b>	<b>SPD Requirement</b>
Engineering Studies (EDR's, DDR's, etc)	DQC, ATR, SAR	
Cost Engineering Products	DQC, ATR	
Engineering Appendices for FS	DQC, ATR, SAR*	
Operation and Maintenance Manuals	DQC, ATR, SAR*, Policy Review	
Major Maintenance Reports	DQC, ATR	
PL 84-99 Project Information Reports	DQC, ATR	
PL 84-99 Rehab Plans and Specs	DQC, ATR, SAR*	
Plan and Specs for Levee and Dam Projects	DQC, ATR, SAR	
Purchase Orders	DQC, ATR	
Field Investigations	DQC, ATR	
Plan and Specs	DQC, ATR, SAR*	
Construction	SAR* (assumes DQC, ATR and IEPR were done in PED)	
Plans and Specs	DQC, ATR, SAR*	
Issue Evaluation Studies	DQC, ATR	
Engineering Investigations	DQC, ATR	

<b>Operations Engineering Products</b>	<b>Required Review</b>	<b>SPD Requirement</b>
Operation and Maintenance Manuals	DQC, ATR, SAR*	
Major Maintenance Reports	DQC, ATR	
Plan and Specs for Levee or Dam Projects	DQC, ATR, SAR	
Purchase Orders	DQC, ATR	
Field Investigations	DQC, ATR	
Construction		
Plan and Specs	DQC, ATR	
Engineering Investigations	DQC, ATR	
Routine Maintenance/Replacement-in-kind	DQC	
Periodic Inspections of Completed Projects	DQC	

\* SAR is required for any engineering product with life safety issues

**APPENDIX C**

**CESPD SUPPLEMENT REVIEW PLAN CHECKLIST**

### CESPD Supplemental Review Plan Checklist

Review Plan: AMERICAN RIVER COMMON FEATURES, NATOMAS BASIN, SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

Date of review:

Reviewed by:

References: CESPDR 1110-1-8, Appendix C, Planning; EC 1165-2-214, Civil Works Review Policy

Note: Any "No" answer requires explanation in the comment field.

	Item	Yes	No	Comment
1	Is there a Technical Review Strategy Session identified early in the study process? (See Appendix C paragraph 8.2,)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TRSS applies only to decision documents.
2	Are potential Continuing Authority Program (CAP) "spinoffs" identified, along with the appropriate QCP identified for them?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	These are levee remediation reaches. No possible CAP spinoffs.
3	Are the review costs identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	For District Quality Control (DQC)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	ATR?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Independent External Peer Review (IEPR)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4	Does the RP identify seamless DQC technical review (8.4), including supervisory oversight of the technical products? (See Appendix C paragraph 8.5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5	Does the RP identify the recommended review comment content and structure? (See Appendix C paragraph 8.5.4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6	Does the RP encourage face-to-face resolution of issues between the PDT and reviewers? (See Appendix C paragraph 8.5.5)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7	If issues remain, does the RP must identify an appropriate dispute resolution process? (See Appendix C paragraph 8.6)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
8	Does the RP require documentation of all significant decisions, and leave a clear audit trail? (See Appendix C paragraph 8.5.6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9	Does the RP identify all requirements for technical certifications? (See Appendix C paragraph 8.5.7)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No, this RP is for P&S
10	Does the RP identify the requirement that without-project hydrology will be certified by the Feasibility Scoping Meeting? (See Appendix C paragraph 8.5.8)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No, this RP is for P&S
11	Does the RP fully address products developed by contractors? (See Appendix C paragraph 8.10)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
12	Is the need for a VE study identified, and incorporated into the review process, after the feasibility scoping meeting? (See Appendix C paragraph 8.11)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A V-E Study is required for this process, and will be conducted during the 100% Review.
13	Does the RP include a Feasibility Alternative Review Milestone, where CESPDR buy-in to the recommended plan is obtained? (See Appendix C paragraph 12.1)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No, this RP is for P&S



	<b>Item</b>	<b>Yes</b>	<b>No</b>	<b>Comment</b>
<b>14</b>	Does the RP identify the final public meeting milestone? (See Appendix C, Enclosure 1, SPD Milestones)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No, this RP is for P&S
<b>15</b>	Does the RP identify the report approval process, and if there is a delegated approval authority?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No, this RP is for P&S
<b>16</b>	Does the RP reference CESP milestones, along with PGN milestones?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No, this RP is for P&S

Revised 10May10

**APPENDIX D**

**PDT AND REVIEW TEAMS**

**(FOR OFFICIAL USE ONLY – TO BE REMOVED PRIOR TO POSTING ON DISTRICT  
WEB SITE)**

**A-E (HDR-FUGRO) PDT AND QC/QA TEAM  
(REACH I CONTRACTS 1 AND 2)**

PROJECT DEVELOPMENT TEAM MEMBERS		
Name	Discipline (Activity)	Phone
Blake Johnson	Project Manager	916-817-4879
Richard Dirks	Civil Lead	916-817-4818
Chris Krivanec	Geotech Lead	916-817-4842
Dan Gott	Electrical	916-817-4941
Mario Carreon	Transportation	916-471-5842
Keith DeLapp	Structural	916-817-4812
Russell Douglas	CADD	916-817-4982
QC/QA MEMBERS		
Pete Hradilek	Geotech	916-817-4912
Les Harder	Geotech	916-817-4973
Lee Frederiksen	Civil	916-817-4883

**A-E (PCSC) PDT AND QC/QA TEAM  
(REACH H)**

PROJECT DEVELOPMENT TEAM MEMBERS		
Name	Discipline (Activity)	Phone
Jonathan Kors	Project Manager	916-326-5294
Phil Tabor	Civil Design	916-341-7711
David Kitzmann	Geotech Design	916-371-1690
John Boatman	Cost Estimating	425-828-0500
QC/QA MEMBERS		
Bob Sennett	Civil Design	916-421-1000
Martin McIlroy	Geotech Design	916-371-1690
Dennis Teshlog	Cost Estimating	425-828-0500

**A-E (HDR) PDT AND QC/QA TEAM  
(REACH B, I-5 WINDOW, HIGHWAY 99)**

PROJECT DEVELOPMENT TEAM MEMBERS		
Name	Discipline (Activity)	Phone
Kevin Fellows	Project Manager	916-817-4792
Jason Nettleton	Civil Lead	916-817-4792
Mark Stanley	Geotech Lead	916-817-4792
Vincent Fung	Transportation	916-679-8844
Keith DeLapp	Structural	916-817-4812
QC/QA MEMBERS		
Wes Jacobs	Structural	916-817-4912

Henry Luu	Transportation	916-817-4973
Daniel Jabour	Civil	916-817-4883

**PROJECT DEVELOPMENT TEAM (PDT)  
(REACH D AND PUMPING PLANT 4)**

SACRAMENTO DISTRICT TEAM MEMBERS		
Name	Discipline (Activity)	Phone
John Hoge	Project Manager	916-557-5304
Markus Boedtker	Technical Lead	916-557-6637
Samin Khan	Civil Design	916-557-7338
Glen Johnson	Geotechnical Engineer	775-326-1017
Derek Pate	Hydraulic Design	916-557-6705
<b>Kurt Jacobs</b>	Structural	916-557-5167
Troy O'Connor	Architectural	916-557-6766
Sid Jones	Landscape Architect	916-557-7273
Robin Rosenau	Environmental	916-557-5397
Nick Stauber	Real Estate	916-557-7861
Joe Reynolds	Cost Estimating	916-557-7573
NEW ORLEANS DISTRICT TEAM MEMBERS		
Wayne Duplantier	Mechanical	504-862-1989
John Vititoe	Electrical	504-862-2138
LOCAL SPONSOR TEAM MEMBERS		
Al Honorat	DWR Project Manager	916-574-0366
Brendan Williams	DWR Real Estate	916-657-7654
Doreen Kiruja	DWR Environmental	916-574-2236
John Bassett	SAFCA Project Manager	916-874-8731
Matt Degroot	SAFCA Real Estate	916-874-7606
KC Sorgen	SAFCA Environmental	916-874-6099

**PROJECT DEVELOPMENT TEAM (PDT)  
(REACH A)**

SACRAMENTO DISTRICT TEAM MEMBERS		
Name	Discipline (Activity)	Phone
Krystel Bell	Project Manager	916-557-7948
Kylan Kegel	Technical Lead	916-557-7775
Carisa Mai	Civil Design	916-557-7188
Joe Waltz	Geotechnical Engineer	916-557-5111
Derek Pate	Hydraulic Design	916-557-6705
<b>Matthew Maher</b>	Structural	916-557-7177
Robin Rosenau	Environmental	916-557-5397
Nick Stauber	Real Estate	916-557-7861
Sidney Jones	Landscape Architect	916-557-7273
Joe Reynolds	Cost Estimating	916-557-7573

NEW ORLEANS DISTRICT TEAM MEMBERS		
Wayne Duplantier	Mechanical	504-862-1989
John Vititoe	Electrical	504-862-2138
LOCAL SPONSOR TEAM MEMBERS		
Al Honorat	DWR Project Manager	916-574-0366
Brendan Williams	DWR Real Estate	916-657-7654
Doreen Kiruja	DWR Environmental	916-574-2236
John Bassett	SAFCA Project Manager	916-874-8731
Matt Degroot	SAFCA Real Estate	916-874-7606
KC Sorgen	SAFCA Environmental	916-874-6099

**PROJECT DEVELOPMENT TEAM (PDT)  
(REACH E)**

SACRAMENTO DISTRICT TEAM MEMBERS		
Melissa Harris	Project Manager	916-5577517
Sean Mann	Technical Lead	916-873-7384
Derek Pate	Hydraulic Design	916-557-6705
Matthew Maher	Structural	916-557-7177
Robin Rosenau	Environmental	916-557-5397
Nick Stauber	Real Estate	916-557-7861
Sidney Jones	Landscape Architect	916-557-7273
WALLA WALLA DISTRICT TEAM MEMBERS		
Name	Discipline (Activity)	Phone
Joy Hartl	Technical Lead	509-527-7613
Michael Franssen	Civil Design	509-527-7567
Martin Evans	Mechanical Engineer	509-527-7551
Derek Nelson	Cost Estimating	509-527-7612
NASHVILLE DISTRICT TEAM MEMBERS		
W. Brad Long	Geotechnical Lead	615-736-7924
Joon Lee	Geotechnical Engineer	615-736-7924
LOCAL SPONSOR TEAM MEMBERS		
Al Honorat	DWR Project Manager	916-574-0366
Brendan Williams	DWR Real Estate	916-657-7654
Doreen Kiruja	DWR Environmental	916-574-2236
John Bassett	SAFCA Project Manager	916-874-8731
Matt Degroot	SAFCA Real Estate	916-874-7606
KC Sorgen	SAFCA Environmental	916-874-6099

**PROJECT DEVELOPMENT TEAM (PDT)  
(REACHES F & G)**

SACRAMENTO DISTRICT TEAM MEMBERS		
Stacy Pereyda-Hill	Project Manager	916-557-6887

Kylan Kegel	Technical Lead	916-873-7775
Derek Pate	Hydraulic Design	916-557-6705
Robin Rosenau	Environmental	916-557-5397
Joe Waltz	Geotechnical	408-718-6925
Nick Stauber	Real Estate	916-557-7861
Sidney Jones	Landscape Architect	916-557-7273
<b>ST. PAUL DISTRICT TEAM MEMBERS</b>		
<b>Name</b>	<b>Discipline (Activity)</b>	<b>Phone</b>
Samuel Smith	Project Manager	651-290-5545
Christine Moss	Technical Lead/Civil	651-290-5025
Nathan Meisgeier	Geotechnical Engineer	651-290-5656
Kent Hokens	Structural Engineer	651-290-5584
Wade Carr	Mechanical Engineer	651-290-5607
<b>LOCAL SPONSOR TEAM MEMBERS</b>		
Al Honorat	DWR Project Manager	916-574-0366
Brendan Williams	DWR Real Estate	916-657-7654
Doreen Kiruja	DWR Environmental	916-574-2236
John Bassett	SAFCA Project Manager	916-874-8731
Matt Degroot	SAFCA Real Estate	916-874-7606
KC Sorgen	SAFCA Environmental	916-874-6099

**SACRAMENTO DISTRICT QUALITY CONTROL/ASSURANCE TEAM**

<b>Name</b>	<b>Discipline (Activity)</b>	<b>Phone</b>	<b>Experience</b>
John Hoge	Project Manager / Chair	916-557-5304	20 years levee project management experience
Hans Carota	Civil Design	916-557-6826	10 years civil design of levees experience
Joe Sciandrone	Geotechnical Engineering	916-557-7184	30 years of geotechnical design of levees and floodwalls
Jesse Schlunegger	Hydraulic Design	916-557-6777	15 years hydraulic analysis of riverine flooding and floodplain delineation experience
Robin Rosenau	Environmental	916-557-5397	30 years environmental planning experience
Joe Reynolds	Cost Engineering	916-557-6573	20+ years Cost Estimating experience
Edward Stewart	Construction	916-373-1617 x311	15 years levee construction experience

**SACRAMENTO DISTRICT LEGAL REVIEW TEAM**

<b>Name</b>	<b>Discipline (Activity)</b>	<b>Phone</b>
Carolyn Alexander	Office of Counsel	916-557-5239

**AGENCY TECHNICAL REVIEW TEAM (ATRT)**

<b>Name</b>	<b>Discipline</b>	<b>District Location</b>	<b>Phone</b>	<b>Experience</b>
Mike Navin	ATR Team Leader /	St. Louis	314-331-8441	20 years levee design and construction experience
Shane Callahan	Civil Design	Memphis	901-544-3665	17 years levee design and construction experience
Dr. Andy Gaines	Hydraulic Design	Memphis	901-544-3055	29 years in hydraulics, hydrology, and river engineering
Tim Grundhoffer	Structural Design	St. Paul	651-290-5574	24 years levee design and construction experience
Stefan Miller	Mechanical Design	New Orleans	504-862-1273	14 years pump station design experience
Matt Sheskier	Construction/ Geotechnical	RMC	720-398-7525	29 years construction of flood risk reduction projects
Joe Kauschinger	Jet Grout Design	Nashville	678-778-5858	35 years jet grouting design and construction experience
Hannah Hadley	Environmental	Seattle	206-764-6950	15 years environmental experience

**VALUE ENGINEERING TEAM**

<b>SACRAMENTO DISTRICT TEAM MEMBERS</b>		
<b>Name</b>	<b>Discipline (Activity)</b>	<b>Phone</b>
Rene McGaugh	V-E Officer	916-557-7303
Katie Charan	Cost Engineer	916-557-6983
Joe Waltz	Geotechnical Engineer	916-557-7174
Leslie Huynh	Civil Engineer	916-557-7274
Karl Mai	Construction Engineer	916-557-7173
T. Kyle Cronin	Mechanical Engineer	916-557-5312
<b>LOCAL SPONSOR TEAM MEMBERS</b>		
John Bassett	SAFCA Lead Engineer	916-874-8731
KC Sorgen	SAFCA Lead Environmental	916-874-4581

**APPENDIX E**  
QUALITY CONTROL PLANS



# Quality Control Plan

American River Common Features Project  
Geotechnical Support, Natomas Basin Reaches A, B, E-G  
and Riverside Canal, Sacramento and Sutter Counties,  
California

U.S. Army Corps of Engineers



Contract No. W91238-16-D-0018  
Task Order W9123818F0118

November 13, 2018

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## Acronyms and Abbreviations

AECOM	AECOM Technical Services, Inc.
AT/OPSEC	Antiterrorism and Operation Security
COR	Contracting Officer's Representative
CPARS	Contractor Performance Assessment Reporting System
DWR	California Department of Water Resources
ePM	Ecosystem Project Management
ER	Engineer Regulation
ISO	International Organization for Standardization
ITR	Independent Technical Review
QA	Quality Assurance
QC	Quality Control
QCC	Quality Control Certification
QCP	Quality Control Plan
QMS	Quality Management System
SAFCA	Sacramento Area Flood Control Agency
SOW	Statement of Work
SQAP	Subcontractor Quality Assurance Plan
TQR	Technical Quality Review
USACE	U.S. Army Corps of Engineers

## 1. Introduction

This Quality Control Plan (QCP) has been prepared in response to the Statement of Work (SOW) for Contract No. W91238-16-D-0018, Task Order W91238-18-F-0118, *Geotechnical Engineering Services, American River Common Features Project, Natomas Basin, Reaches A, B, E, F, G, and Riverside Canal, Sacramento and Sutter Counties, California* (Appendix A). This QCP describes planned Quality Control (QC) efforts on submittals, review schedules and milestones, and task order specific review personnel. This QCP meets U.S. Army Corps of Engineers (USACE) requirements outlined in Engineer Regulation (ER) 1110-1-12, *Quality Management*, and also follows AECOM's Quality Management System (QMS) processes and procedures.

AECOM's QC activities will consist primarily of:

- Development and execution of the QCP.
- Internal QC and Independent Technical Review (ITR) including documentation – QC activities are expected to include:
  - checks of calculations, analyses and assumptions;
  - consistency reviews by design team; and
  - checks for adherence to requirements and criteria in the SOW.
- Following the internal QC process, deliverables will undergo ITR by senior reviewers not actively involved in the analysis/design efforts or QC review. Deliverables will be reviewed for general compliance with standard engineering and professional practices, adequacy of the scope of the associated document, appropriateness of data used, consistency, accuracy, comprehensiveness, and reasonableness of results.
- Quality Control Certification (QCC) – AECOM will certify in a QCC, accompanying each draft and final submittal for each of the deliverables, that procedures outlined in the QCP have been performed and that concerns identified during QC and ITR activities have been resolved. USACE will provide AECOM with a model QCC form.

## 2. Project Execution

The project will require close coordination with USACE staff to maintain consistency and the schedule. The QCP will be adjusted as necessary during the course of the work.

### 2.1 AECOM Project Team

The project team is shown in Figure 1. This chart represents the project’s overall organizational structure.

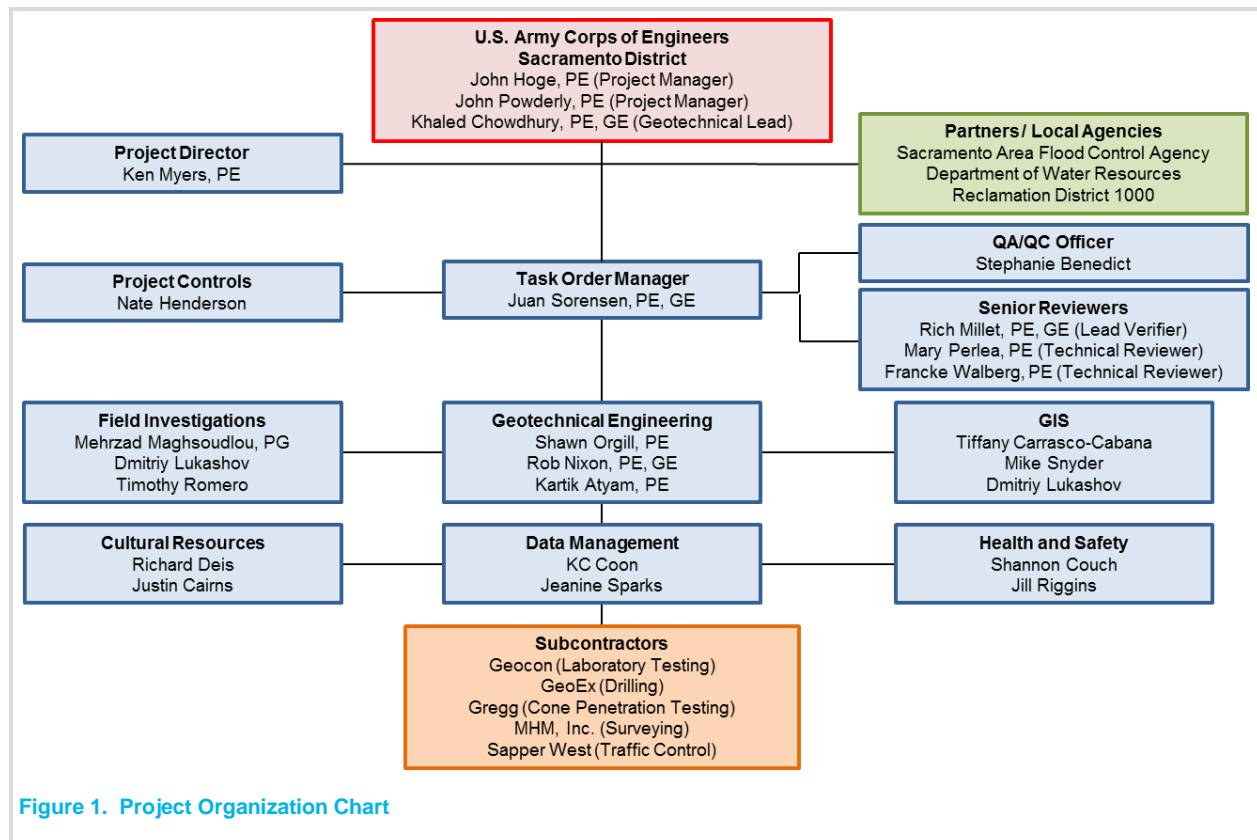


Figure 1. Project Organization Chart

### 2.2 Scope Management

No person other than the Government Contracting Officer has the authority to make any changes to this contract. Authority from the Contracting Officer to AECOM to make changes will be in the form of a signed modification.

Any problems impacting the fulfillment of contractual requirements will be brought to the attention of the Task Order Manager. The Task Order Manager will then inform USACE in writing. The AECOM Project Team will not perform services requested by any person in USACE or any other agency or organization that are outside the SOW of the task order. The Task Order Manager will be alerted when requests could result in changes in scope and/or cost. The Task Order Manager will notify the contracting officer’s representative of any such requests, and they will jointly determine an appropriate action. Any added work will not proceed until a contract modification has been received from USACE.

### 2.3 Project Schedule

The effective date of the task order is August 20, 2018. The overall period of performance is 280 calendar days.

The schedule will be actively monitored by the Task Order Manager. The Task Order Manager will discuss any potential schedule modifications with USACE, and they jointly will determine a plan of action. The Task Order Manager will be informed of any schedule changes that may affect the overall task order or contract, or that may require contract modifications.

The project schedule will be modified as agreed with USACE. Revised schedules, as approved, will be submitted to USACE and will be made available to project staff.

## 2.4 Progress Reporting

The Task Order Manager will prepare progress/status reports to be delivered by the 10th of each month. Reports will be brief, describing work performed and a quantitative statement of overall work progress, including percentage of work accomplished on each task and submittal. In addition, problems that may impede performance of the tasks outlined in the SOW will be identified along with suggested corrective actions. The report will also contain a forward look of work to be performed in the next two-week time period along with a current submittal schedule. Progress reports, in PDF format, will be e-mailed to the USACE Contracting Officer's Representative (COR), Project Manager, and the Geotechnical Lead.

## 2.5 Methods of Communication and Documentation

### 2.5.1 General Protocols for Communication

Client communication will be primarily through the USACE Project Manager and/or Geotechnical Lead. The main point of contact at AECOM will be the Task Order Manager. Regular internal communication will occur between the Project Manager and the AECOM Project Team. The AECOM team will be copied on e-mail communications regarding management decisions.

### 2.5.2 Correspondence

Correspondence will be stored by AECOM in the appropriate folder at the following location on its local area network:

- G:\US Army Corps\W91238-16-D-0018.Natomas.A.B.E-G.

### 2.5.3 Meeting Minutes and Conference Call Notes

For project meetings and conference calls, AECOM will prepare meeting minutes and a list of action items. AECOM will disseminate meeting minutes and action items to meeting participants. Electronic meeting minutes will be provided in MS Word and PDF format within three calendar days from date of event.

### 2.5.4 E-Mail

For the purposes of this project, e-mail will be considered formal written communication.

When sending project-related e-mail, the AECOM Task Order Manager and selected team members will be copied on messages containing significant or critical information. If an AECOM team member receives a significant or critical e-mail and it appears that the AECOM project management team was not included in the distribution, a copy—including all attachments—will be forwarded to the project management team.

E-mail will be stored in the Project File on AECOM's servers.

### 2.5.5 Other Correspondence

Decisions and action items made by telephone call will be followed with an e-mail summarizing the discussion.

### 3. Quality Management System

AECOM's work will be performed in accordance with our Quality Management System (QMS). The AECOM QMS is certified to the International Organization for Standardization (ISO) 9001:2008 standard. The philosophy behind the AECOM QMS is shown in Figure 2.

Our QMS is designed to manage all aspects of our work. The QMS is implemented through an internal online tool, the Ecosystem Project Management (ePM), allowing us to achieve efficiencies in communication, documentation, and review. Electronic signatures may be used in ePM to document the date and time of signing, and records are maintained in project files.

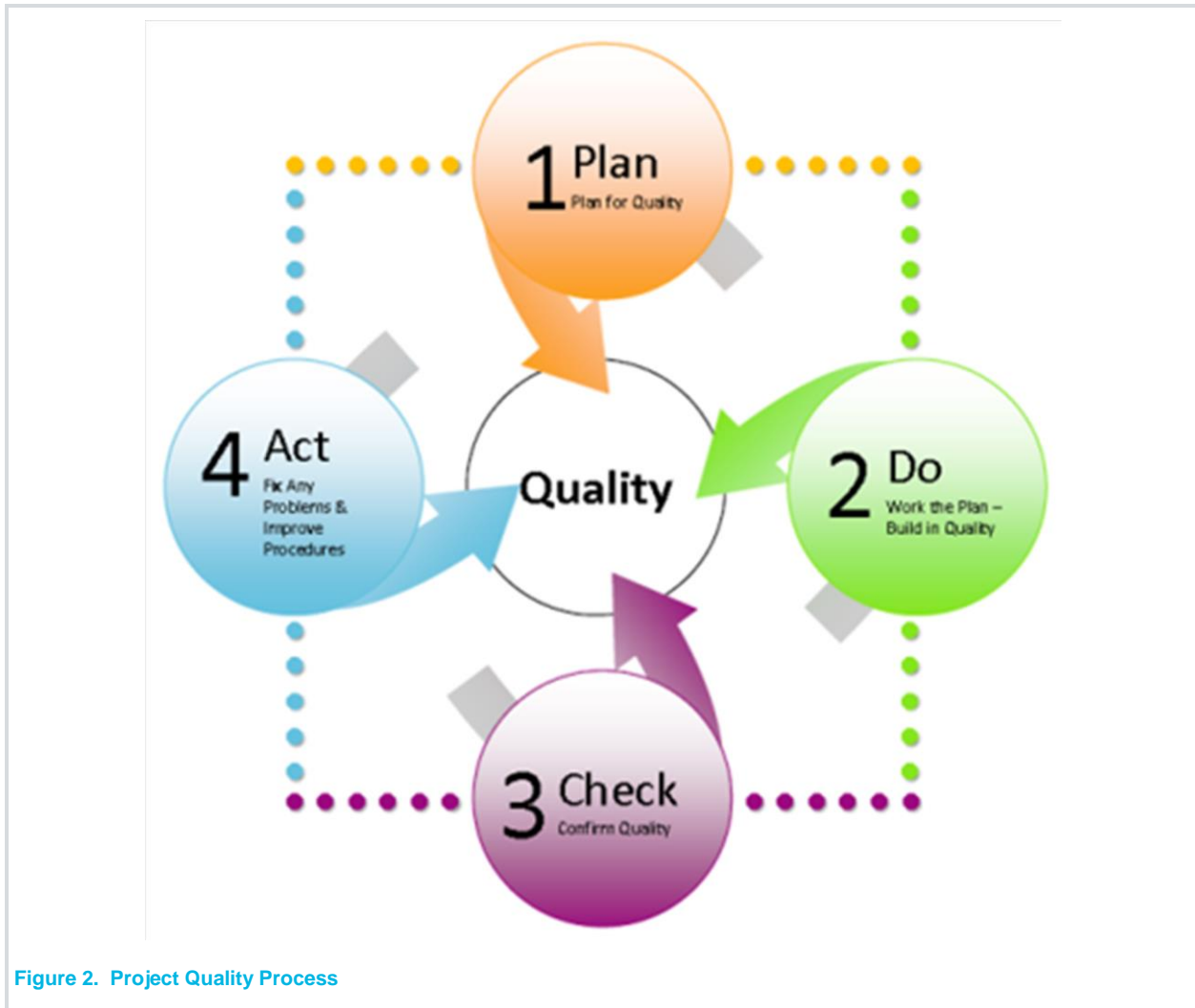


Figure 2. Project Quality Process

### 3.1 Project QC Team

#### 3.1.1 Task Order Manager

AECOM's Task Order Manager, Juan Sorensen, has overall responsibility for managing the project in accordance with the AECOM QMS, including effectively implementing the project's QCP. Mr. Sorensen will take responsibility for the quality of work products, and will confirm that they have been checked and verified according to procedure and are suitable to be issued to USACE. In addition, he will participate in the quality audits conducted by the office or project quality team.

### 3.1.2 Project Quality Manager

Stephanie Benedict is the PQM for the task order. Ms. Benedict is responsible for conducting and administrating the overall QA/QC program and also helps with day-to-day quality processes.

The Subcontractor QC Manager is responsible for QC of deliverables produced by their organization in accordance with their QCP. Subcontractor QC Managers are responsible for implementing corrections to audit findings as well. The PQM or representative will review of subcontractor's QCP to facilitate consistent implementation of QC processes across the project team (see Section 3.2.3.2).

### 3.1.3 Lead Verifiers

Lead Verifiers determine that deliverables are technically correct and complete in accordance with technical standards to meet both AECOM and client's requirements. This person is also authorized to verify that reviews of deliverables have followed the technical quality review process. The Lead Verifier is not involved in developing the work. Lead Verifiers are selected for their expertise in the discipline under review.

### 3.1.4 Reviewers

Reviewers will check the technical quality, accuracy, completeness and correctness of calculations, drawings, specifications, and other work products. Each Reviewer will be qualified based on discipline, experience, and registration/certification. A project may have multiple technical reviewers at the appropriate technical level depending on the scope of the review assigned, depending on the breadth and scope of the deliverable.

## 3.2 Requirements

### 3.2.1 Document Control

Project records, including quality records produced, will be appropriately controlled to enable easy retrieval, prevent the use of obsolete information, and reduce legal liabilities. The project will use the AECOM Unified File Index, to allow team members to find documents in the appropriate location. Quality records, such as documentation of technical quality reviews, will be maintained in ePM until the project is closed. At that time, records will be archived in accordance with the AECOM *Project Document and Records Control Procedure Q2[DCS]-222-PR1*.

### 3.2.2 Quality Planning Documents

In addition to this QCP, quality planning documents will include a project plan. The project plan, developed in AECOM's ePM system, will establish communication procedures, budgets, and schedules; and will identify discipline reviewers and lead verifiers.

### 3.2.3 QC and ITR for Deliverable Preparation

AECOM has developed an internal process to conduct reviews and address and incorporate comments. The review process is outlined in Table 1, below. Deliverables specified in the contract will be subject to review by AECOM as outlined below.

The review process will be documented in ePM with electronic signatures and date stamps. Reviews must be completed before a deliverable is released to the client.



**Table 1. Review Process Workflow**

Project Team Member	Action
Originator	<ul style="list-style-type: none"> <li>• Perform self-check of documents and sign with initials in the Checking section of the technical quality review (TQR) workflow in ePM</li> <li>• For subcontractor originated documents, subcontractor will ensure the work product has been checked and verified in compliance with their QCP procedures prior to submitting documents to AECOM</li> </ul>
Task Order Manager	<ul style="list-style-type: none"> <li>• Provide the scope of verification to the Lead Verifier, which may include but not be limited to:               <ul style="list-style-type: none"> <li>– comparing the project deliverable (output) with site surveys, technical standards, and specifications and calculations (input);</li> <li>– performing independent or alternative calculations or designs as may be required by the client or within project specifications;</li> <li>– comparing new designs with similar proven designs; and</li> <li>– confirming conformance with standards, objectives, and scope agreed upon by the client, as well as conformance with technical and industry performance standards.</li> <li>– For subcontractor-provided deliverables, confirming the completeness of deliverables, verifying completeness and applicability that is appropriate to the project, and that the deliverable has been reviewed in accordance with the subcontractor's QCP. The review identifies discrepant conditions and potentially critical information gaps, if any, and the corresponding required actions. Initiate the TQR workflow in ePM.</li> </ul> </li> </ul>
Reviewer (Discipline)	<ul style="list-style-type: none"> <li>• Review the document to confirm that the work is correct and at an appropriate level of completion before it is presented for verification.</li> <li>• Determine that spelling, grammar, calculations, and other technical aspects of the work product are correct.</li> <li>• When satisfied with the output, document that the checking process has taken place. Errors, questions, or concerns identified during checking must be clearly annotated and resolved with the originator.</li> <li>• For subcontractor originated documents, reviewers will provide review comments to the subcontractor and confirm that comments have been adequately addressed using AECOM <i>QMS Form Q4NA-351-FM1, Document Review Comments (Appendix B)</i>.</li> <li>• Document the checking process on the TQR by identifying discipline and initialing.</li> </ul>
Lead Verifier	<ul style="list-style-type: none"> <li>• Review the deliverables per the scope defined by the Task Order Manager (shown above under "Task Order Manager.")</li> <li>• Clearly annotate and resolve any errors, questions, or concerns.</li> <li>• For subcontractor originated documents, lead verifiers will use AECOM <i>QMS Form Q4NA-351-FM1, Document Review Comments (Appendix B)</i> to provide comments to the subcontractor and document that comments have been adequately addressed. Lead verifiers will confirm that the work product is complete and in accordance with the Task Order SOW.</li> <li>• Document the verification on the TQR. For subcontractor originated documents use AECOM <i>QMS Form Q2[DCS]-351-FM1, TQR Record (fillable PDF)</i></li> </ul>
PQM	<ul style="list-style-type: none"> <li>• Confirm that the work product has been checked and verified in compliance with this procedure.</li> </ul>
Approver (Task Order Manager)	<ul style="list-style-type: none"> <li>• Verify that an appropriate Statement of Limitations has been included with either the deliverable or the submittal letter.</li> <li>• Confirm that reviewer and verifier comments have been incorporated and/or addressed, and that the deliverable is suitable for ITR.</li> <li>• Document the approval on the TQR</li> <li>• Issue the deliverable/work product to the Independent Peer Reviewers for ITR</li> </ul>
Independent Peer Reviewers	<ul style="list-style-type: none"> <li>• Review the deliverables per the scope defined by the Task Order Manager</li> <li>• Independent Peer Reviewers will use AECOM <i>QMS Form Q4NA-351-FM1, Document Review Comments (Appendix B)</i> to provide comments and document that comments have been adequately addressed.</li> <li>• Document the checking process on the TQR. For subcontractor Independent Peer Reviewers use AECOM <i>QMS Form Q2[DCS]-351-FM1, TQR Record (fillable PDF)</i></li> </ul>
PQM	<ul style="list-style-type: none"> <li>• Confirm that the work product has been checked and verified in compliance with this procedure.</li> </ul>

### 3.2.3.1 Document Originator

Document originators check their work for accuracy and completeness before submitting the work for review. After a review, the originator addresses comments, either by accepting the revision or discussing the comment with the Reviewer or Lead Verifier and Project Manager.

### 3.2.3.2 Document Originator (Subcontractor)

For subs with any contracts valued at \$10,000 (USD) or more, a subcontractor quality assurance plan (SQAP) is required. Subcontractors that have a defined QMS may submit their quality manual and procedures for review to satisfy AECOM's requirements. The program's content must be specific in addressing how work products are checked and verified prior to delivery to AECOM and how documents are managed and controlled. Subcontractors that do not already have a quality program may prepare a project-specific quality assurance plan describing the process for reviewing deliverables and managing documents and records. Subcontractors must implement the program and transmit all contractually required documentation to AECOM at delineated deliverable dates during the project and upon project completion.

### 3.2.3.3 Discipline Review

A discipline review will be performed by a qualified reviewer who is independent of the work product being reviewed. The reviewer will review documents, material, or data requiring interpretation or judgment to check the clarity, logic, and reasonableness of assumptions, plans, results, evaluations, opinions, conclusions, and recommendations. Discipline reviewers also will serve to check compliance with the contract scope, and confirm the use of detail-checking processes during development of supporting materials, data, and work products.

Project deliverables will undergo one or more discipline reviews and technical editing under the direction of the Task Order Manager, in accordance with the QC procedures of AECOM and USACE.

Interdisciplinary reviews will also be conducted if needed. The Task Order Manager will verify that review staff are competent and qualified, and will provide adequate time and budget for review.

For deliverables prepared by AECOM, the purpose of discipline review will be to:

- verify correctness, completeness, and technical accuracy;
- verify that applicable AECOM design recommendations and design standards and codes are followed;
- check calculations before relying on data for conclusions;
- prevent perpetuation of errors in subsequent calculations by conducting reviews early in the process.

For deliverables prepared by subcontractors, the purpose of the discipline review is to:

- Verify the same information as for AECOM-prepared deliverables, if AECOM staff are qualified to review such subject matter; or
- Verify that deliverables have been reviewed in accordance with the subcontractor's QCP.

After the deliverable has been reviewed and edited, all comments, changes, and edits will be returned to the originator or provided in a comments table for integration into the document. The document originator will be responsible for addressing review comments or integrating changes into the document. When the originator does not agree with a suggested edit, he or she will follow up with the discipline reviewer to try to resolve the issue. If resolution cannot be reached, the Project Manager will be responsible for resolving issues.

Internal review activities will be documented using a formal review management process, following a comment–response–resolution format, recorded on AECOM *QMS Form Q4NA-351-FM1*. Discipline Reviewers will document the checking process on the TQR. For subcontractor reviews, use AECOM QMS Form Q2[DCS]-351-FM1, TQR Record (fillable PDF). ITR documentation must be included with the QCC.

### 3.2.3.4 Lead Verifier

After the discipline reviewer(s) have completed their reviews, and comments have been resolved, the Lead Verifier will evaluate whether the technical solution meets the requirements of the contract. The Lead Verifier conducts a higher-level examination to evaluate if the work product is correct and complete, and verifies that reviews of deliverables conducted by discipline reviewers have followed the technical quality review process.

### 3.2.3.5 PQM

The PQM will confirm that each deliverable has been reviewed in accordance with AECOM requirements.

### 3.2.3.6 Task Order Manager

The Task Order Manager is responsible for resolving any significant issues not resolved between the reviewer and the document originator, if applicable. In addition, the Task Order Manager is responsible for final approval of the review.

## 3.2.4 USACE/Agency Review Process

The following review process will apply to the major milestone submittals:

- AECOM will submit an Initial Draft submittal to USACE after performing internal QC and ITR in conformance with this QCP.
- USACE will perform QA review of the Initial Draft submittal, coordinate and compile USACE review comments, and enter the review comments into DrChecks
- AECOM will provide responses to USACE review comments in DrChecks. AECOM and USACE will discuss responses, as needed, to agree on path forward for actions and/or revisions to the Initial Draft submittal. AECOM will revise the Initial Draft submittal as identified in the responses and as agreed to with USACE to create a Review Draft submittal. AECOM will then submit the Review Draft to USACE
- USACE will distribute the Review Draft submittal for concurrent review by multiple agencies. Concurrent review will include: USACE Agency Technical Review (ATR), review by California Department of Water Resources (DWR), and review by the Sacramento Area Flood Control Agency (SAFCA). All comments by ATR and other agencies will be entered directly into DrChecks.
- AECOM will provide responses to the ATR and other agency comments in DrChecks. AECOM and USACE will discuss responses, as needed, to agree on path forward for actions and/or revisions to the Review Draft, including when (at what design level) each revision will be incorporated. AECOM and USACE will discuss which comments necessitate further interagency discussion during monthly or workshop meetings.

## 3.2.5 QC Audits and Project Reviews

Part of having an ISO 9001-certified QMS means that external quality auditors monitor AECOM's conformance to QMS requirements. AECOM also has an internal audit program to periodically evaluate compliance. The results of the audits are reported monthly to company management. This enables us to see trends—positive and negative—and act when necessary.

AECOM reserves the right to review and audit the sub's compliance to their QCP.

Other aspects of our QMS include discussions we call "Healthy Starts," along with recurring project reviews. Healthy starts are required for projects of a certain size. They take place very early in the project's life, to make sure that the project gets off to a "healthy start." The focus of these discussions is adequacy of budget and schedule, availability of appropriate resources, and adequacy of budget and schedule for quality reviews.

Project managers are also required to conduct monthly project reviews of their projects, to verify that the project remains on budget and on schedule. Selected projects are subject to more intensive reviews, based on risk, status, and history. These reviews are conducted by more senior management.

### **3.2.6 Client Feedback Reporting**

Client feedback is integral to the continued improvement of AECOM's processes, and to achieving USACE's satisfaction and continued work. AECOM will obtain client feedback through Project Manager personal contact, through the online client care system, or through interviews conducted by the QA/QC Manager Officer. The Project Manager will follow up with USACE to discuss the feedback, particularly any suggestions for improvement. All client survey information will be placed in the project file and will be distributed to the project team.

USACE will rate task order performance using the Contractor Performance Assessment Reporting System (CPARS). On completion and approval of the final deliverable under the task order and receipt of the contractor performance assessment report, the Project Manager will add contractor comments to the report to close out the CPARS process.

## Appendix A Task Order Statement of Work

Section C - Descriptions and Specifications

TO SOW  
CESPK-ED-G

~~17 October 2017~~  
**Revised 25 April 2018**  
**Revised 22 June 2018**  
**Revised 18 July 2018**

STATEMENT OF WORK

**1. PROJECT DATA**

**1.1. PROJECT TITLE AND LOCATION** Geotechnical Engineering Services, American River Common Features Project, Natomas Basin, Reaches A, B, E, F, G, and Riverside Canal, Sacramento and Sutter Counties, CA

**1.2. PROJECT NUMBER** 458598

**1.3. CONTRACT NO** W91238-16-D-0018, Task Order **W91238-18-F-0118**

**1.4. CONTRACTOR DATA (A-E NAME, ADDRESS, POC, E-MAIL ADDRESS)**

AECOM Technical Services, Inc.  
2020 L Street, Suite 400  
Sacramento, CA 95811

POC: Sujan Punyamurthula  
(916) 414-5800  
[sujan.punyamurthula@aecom.com](mailto:sujan.punyamurthula@aecom.com)

POC for this Task Order: Ken Myers  
(916) 679-2030  
[ken.myers@aecom.com](mailto:ken.myers@aecom.com)

**1.5. GOVERNMENT POINTS OF CONTACT:**

Sacramento District A-E Contracting Officer:  
Carolyn Mallory  
CECT-SPK  
1325 J Street  
Sacramento, CA 95814-2922  
(916) 557-5203  
[Carolyn.E.Mallory@usace.army.mil](mailto:Carolyn.E.Mallory@usace.army.mil)

Sacramento District Project Geotechnical Lead:  
U.S. Army Corps of Engineers, Sacramento District  
Mr. Khaled Chowdhury, P.E., G.E.  
CESPK-ED-PC-G  
1325 J Street  
Sacramento, California 95814-2922  
(916) 557-5309  
[Khaled.Chowdhury@usace.army.mil](mailto:Khaled.Chowdhury@usace.army.mil)

Sacramento District Project Manager:  
U.S. Army Corps of Engineers, Sacramento District  
Mr. John Hoge

CESPK-PM-C  
1325 J Street  
Sacramento, California 95814-2922  
(916) 557-5304  
[John.A.Hoge@usace.army.mil](mailto:John.A.Hoge@usace.army.mil)

## 1.6. AUTHORIZATION

Section 7002 of the Water Resources Reform and Development Act (WRRDA) of 2014 (PL 113-121).

## 1.7. SCOPE:

The tasks under this statement of work consist of geotechnical design services for the Natomas Basin Project. These tasks include performing geotechnical investigations and preparing geotechnical data report, preparing specifications on geotechnical aspects of the project, performing borrow site investigations and preparing borrow site investigation report, and performing geotechnical analyses of levees and preparing technical memorandums. This work is in support of the American River Common Features Project, Natomas Basin Project and will cover Reaches A, B, E, F, and G, and will also include the Riverside Canal, which is adjacent to Reach A and B.

***Estimated Construction Cost (Total ECC): \$267,879,000***

***Reach A ECC: \$80,359,000***

***Reach B ECC: \$51,612,000 (deleted; specifications for Reach B deleted from Task 4)***

***Reach E ECC: \$44,948,000***

***Reach F ECC: \$50,468,000***

***Reach G ECC: \$40,492,000***

## 1.8. DOCUMENT TITLES

Natomas Basin Project, American River Common Features, Sacramento County, CA

## 1.9. CRITERIA

### 1.9.1 Public References

The documents listed below are listed for A-E reference. Engineering Regulations (ER), Engineering Manuals (EM), Engineering Technical Letters (ETL) and Engineering Circulars (EC) can be downloaded at <http://www.publications.usace.army.mil/>. Other listed documents can be obtained directly from the USACE Technical POC.

- a. ER 1110-1-12, 21 July 2006, Quality Management.
- b. ER 1110-2-1806, 31 July 1995, Earthquake Design and Evaluation For Civil Works Projects.
- c. ER 1110-2-8160, 1 March 2009, Policies for Referencing Project Elevation Grades to Nationwide Vertical Datums.
- d. ER 1110-2-100, 15 February 1995, Periodic Inspection and Continuing Evaluation of Completed Civil Works Structures
- e. ER 1110-2-1150, 31 Aug 1999, Engineering and Design for Civil Works Projects
- f. EM 1110-1-1904, 30 September 1990, Settlement Analysis.
- g. EM 1110-2-1619, 1 August 1996, Risk-Based Analysis for Flood Damage Reduction Studies.
- h. EM 1110-2-1901, 30 April 1993, Seepage Analysis and Control for Dams.
- i. EM 1110-2-1902, 31 October 2003, Slope Stability.
- j. EM 1110-2-1908, 30 June 1995, Instrumentation of Embankment Dams and Levees.
- k. EM 1110-2-1913, 30 April 2000, Design and Construction of Levees.
- l. EM 1110-2-1914, 29 May 1992, Design, Construction and Maintenance of Relief Wells.
- m. ETL 1110-2-569, 1 May 2005, Engineering and Design, Design Guidance for Levee Underseepage.

- n. ETL 1110-2-583, 30 April 2014, Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures.
- o. EC 1110-2-6065, 1 July 2007, Engineering and Design - Comprehensive Evaluation of Project Datum.
- p. REFP10L0, 11 April 2008, Geotechnical Levee Practice, Standard Operating Procedures (SOP).
- q. REFP13L0 (AE Guide General Info) (provided as an attachment)
- r. EM 385-1-1, 15 September 2008, Safety and Health Requirements
- s. California Code of Regulations, Title 23. Waters, Division 1. Reclamation Board

### **1.9.2 Items and Data to be furnished by the Government**

- a. Map showing Reaches and Riverside Canal location, as well as the Kaufman and Huffstutler borrow sites
- b. Environmental Clearances for Geotechnical Investigations for Reaches A and B
- c. Kleinfelder, Inc. 2006a. Draft Problem Identification Report, Natomas Cross Canal South Levee, Natomas Basin Evaluation, Reclamation District 1000, Sutter County, California. Dated March 14, 2006.
- d. HDR 2012 Geotechnical Data Report, American River Common Features, Natomas Basin – Reach B, Sacramento, California. July 31
- e. Natomas Basin – Reach H Project, Drawing File Number 01-04-640 and Specification Number 2068
- f. *USACE Exploration Files (sent via AMRDEC on 13 July 2018)***

### **1.9.3 General Requirements**

- a. Release of Information: The A-E must not publicize nor release in any manner information or data in regards to projects on which they may be working or negotiating with USACE, nor discuss prior to public release by USACE, a project, any future program, or any planning with anyone not directly concerned with the design of the project. Any inquiries in regard to these matters must be referred to the USACE District Technical Lead. Classified information obtained from USACE must be treated in accordance with instructions in regard to such matters.
- b. Outside Agency Coordination: During the course of this SOW, the A-E may need to coordinate with outside agencies to obtain information required to complete this SOW. The A-E must keep records and correspondence files of all such coordination. The A-E must advise the USACE District Technical Lead prior to contacts with local sponsor or interested parties, and give the USACE the opportunity to participate in such discussions.

## **2. BACKGROUND**

The Common Features Project was authorized by the Water Resources Development Act (WRDA) of 1996, and by the WRDA 1999. After determining project features specific to the Natomas area were likely to exceed the authorized project cost, a General Reevaluation Report (GRR) was initiated in 2002 which focused on that portion of the project. This was considered to be appropriate since the project in Natomas was a separately justified element within the Common Features Project. The Natomas Post-Authorization Change Report (NPACR) was completed and approved in 2010, and was authorized by Congress in the 2014 Water Resources Reform and Development Act (WRRDA). The selected plan described in the 2010 Post-Authorization Change Report divides the Natomas Basin into nine reaches, A through I. This SOW includes tasks associated with the design of Natomas Basin Project features authorized in WRRDA 2014. This SOW covers Reaches A and B along the Sacramento River and Reaches E, F, and G along Natomas East Main Drainage Canal (NEMDC) West Levee.

## **3. DESCRIPTION OF WORK AND SERVICES**

The A-E must perform geotechnical design services for the Natomas Basin Project. These tasks include performing geotechnical investigations and preparing geotechnical data report, preparing specifications on geotechnical aspects of the project, performing borrow site investigations and preparing borrow site investigation report, and performing geotechnical analyses of levees and preparing technical memorandums. This work is in support of the American River Common Features Project, Natomas Basin Project and will cover Reaches A, B, E, F, and G, and will also include the Riverside Canal, which is adjacent to Reach A and B.



### **3.1. TASK 1 - QUALITY CONTROL**

#### **3.1.1 General**

The A-E is responsible for quality control (QC) of the technical products, reports, and submissions produced under this statement of work. If, at any time, A-E work is found to be in error, or the accuracy does not meet the requirements of the statement of work, the A-E must at no additional cost to the Government, make any necessary corrections. All work must be accomplished in a thoroughly professional manner under the supervision of qualified and licensed personnel. All information developed, including back-up data, must be the property of, and submitted to, the Government. Such information must not be released to others without the written permission of the USACE. The A-E's QC activities must consist primarily of:

- 1) Development and execution of a Quality Control Plan (QCP),
- 2) Internal QC including documentation upon request, and
- 3) Quality Control Certification (QCC).

Specific QC requirements are described below.

#### **3.1.2 Quality Control Plan (QCP)**

The A-E must develop and execute a QCP that describes planned QC efforts on submittals, review schedules and milestones, and task order specific review personnel. The A-E must submit and receive approval of the QCP from the Government before proceeding with the effort under this statement of work. The A-E must prepare a brief (no more than 20 pages) Quality Control Plan (QCP). The technical review must be consistent with the Quality Management Plan (CESPD R 1110-1-8) and associated technical review implementation guidance. A Milestone list and schedule for review activities must be generated to assure seamless review. The A-E team must review the project team's approach to preparation of each submittal at the outset of work on the submittal, and all reviews of draft submittals must occur 1-5 calendar days prior to submittal due dates. Review comments must have been addressed and where required accommodated in each product prior to delivery to the USACE. As a guideline, follow CESPD R 1110-1-8 App. C "Decision Document Checklist."

#### **3.1.3 A-E Quality Control (QC)**

As part of the A-E's Quality Control procedure, the A-E must perform their own Quality Control (QC) of each submittal. The Quality Control must be documented but documentation does not need to be submitted to the Government except upon request. Products must be reviewed for the following:

- Compliance with established policy and other appropriate guidance
- Adequacy of the scope of the document
- Appropriateness of data used, including level of detail
- Appropriateness of alternatives evaluated
- Consistency
- Accuracy
- Comprehensiveness
- Reasonableness of results

#### **3.1.4 Quality Control Certification (QCC)**

The A-E must certify in a Quality Control Certification (QCC), accompanying the final submittal under this statement of work, that procedures outlined in the QCP have been performed and that all concerns identified during QC activities have been resolved. The Corps will provide a model QCC to the A-E upon request. The QCC documentation, if requested, must be included as the last attachment to both the draft and final report.

#### **3.1.5 Corps of Engineers Review**

Corps of Engineers review comments will be entered into Dr Checks or sent directly to the A-E. All submittals must include incorporation of USACE comments. The USACE internal quality assurance reviewers will be required to verify the accuracy and completeness of the A-E's product and compliance with quality assurance comments. The A-E must provide full compliance with the appropriate quality assurance comments and clear annotation that indicates the extent of compliance. The A-E must provide certification that "All review comments have been addressed and appropriate comments have been incorporated."

### **3.2. TASK 2 – ANTITERRORISM AND OPERATIONAL SECURITY (AT/OPSEC) REQUIREMENTS**

3.2.1 Suspicious Activity Reporting Training (e.g. iWATCH, CorpsWatch, or See Something, Say Something): The contractor and all associated sub-contractors *who will have personnel on-site* must receive a brief/training (provided by the RA) on the local suspicious activity reporting program. This locally developed training must be used to inform employees of the types of behavior to watch for and instruct employees to report suspicious activity to the project manager, security representative or law enforcement entity. This training must be completed within 30 calendar days of contract award and within 30 calendar days of new employees commencing performance with the results reported to the Contracting Officer's Representative within 5 calendar days after the completion of the training.

3.2.2 Requirement for OPSEC training: All new contractor employees *who will be on-site* must complete Level I OPSEC Training within 30 calendar days of their reporting for duty. Additionally, all contractor employees must complete annual OPSEC awareness training. The contractor must submit certificates of completion for each affected contractor and subcontractor employee, to the COR or to the contracting officer (if a COR is not assigned), within 5 calendar days after completion of training. OPSEC awareness training is available at the following websites: <https://www.iad.gov/ioss/> or <http://www.cdse.edu/catalog/operations-security.html>; or it can be provided by the RA OPSEC Officer in presentation form which must be documented via memorandum.

3.2.3 Pre-screen candidates using E-Verify Program: The Contractor must pre-screen Candidates *who will be on-site* using the E-verify Program (<http://www.uscis.gov/e-verify>) website to meet the established employment eligibility requirements. The Vendor must ensure that the Candidate has two valid forms of Government issued identification prior to enrollment to ensure the correct information is entered into the E-verify system. An initial list of verified/eligible Candidates must be provided to the COR no later than 5 calendar days after the initial contract award. When contracts are with individuals, the individuals must be required to complete a Form I-9, Employment Eligibility Verification, with the designated Government representative. This Form must be provided to the Contracting Officer and must become part of the official contract file.

### **3.3 TASK 3 – ACCIDENT PREVENTION PLAN FOR REACHES A, B, AND RIVERSIDE CANAL**

The A-E must prepare, submit, and execute an Accident Prevention Plan (APP) including an Activity Hazard Analysis (AHA) for all field activities in support of Reaches A, B, and Riverside Canal in accordance with Appendix A, of Engineer Manual 385-1-1 to the Government for review and acceptance. The A-E must use a qualified Safety and Health Manager (SHM) to prepare the written site-specific APP. The APP must include an Activity Hazard Analyses (AHAs) appendix. Where a paragraph or subparagraph element is not applicable to the work to be performed, indicate "Not Applicable" next to the heading. The APP must be project-specific and address any unusual or unique aspects of the project or activity for which it is written. Any portions of the A-E's overall safety and health program referenced in the APP must be included in the applicable APP element and made project specific. The AHA(s) format must be in accordance with Figure 1-2 of EM 385-1-1. Subsequent AHAs must be submitted as amendments to the APP. The analysis must identify and evaluate hazards and outline the proposed methods and techniques for the safe completion of each phase of work. At a minimum, the document must define the activity being performed, sequence of work, specific safety and health hazards anticipated, control measures (to include personal protective equipment) to eliminate or reduce each hazard to acceptable levels, equipment to be used, inspection requirements, training requirements for all involved, and the competent person in charge of that phase of work. The A-E must not commence field work until the APP has been accepted by the Sacramento District Safety Officer or representative.

### **3.4. TASK 4 – GEOTECHNICAL SPECIFICATIONS FOR REACHES A AND B**

The A-E must prepare and submit technical specifications related to geotechnical aspects of Reaches A ~~and B~~ of the Natomas Basin Project. The A-E must only prepare and submit specifications sections determined to be primarily within the geotechnical engineering discipline and necessary for the construction of the improvements included in the applicable Geotechnical Basis of Design Report. The specifications must include, at a minimum, portions or all of the specification sections within the following; Division 2 (Existing Conditions), Division 31 (Earthwork), and Division 32 (Exterior Improvements). This task focuses on slurry cutoff walls using soil-bentonite and slag-cement cement-bentonite materials using open trench and one-pass trench methods, cutoff walls using deep mixing methods, drilling, monitoring wells, borrow sites, subsurface conditions, aggregates, earthwork including adjacent levee, seepage berm, drainage layers, and in-situ verification drilling. These specifications must be developed based on design drawings, specifications for Reaches H, I, and C (USACE and SAFCA Projects), lessons learned from construction in Natomas basin levee improvement projects, and site specific conditions. The specifications must be separately bound and must include a bid schedule and typed versions of the Corps guide specification sections with draft versions of any A-E prepared specifications. The specifications must be based on USACE guide specifications and the draft and final versions must be prepared in SpecsIntact.

### 3.5 TASK 5 – GEOTECHNICAL INVESTIGATIONS FOR REACHES A AND B

#### 3.5.1. Field Exploration

Specific locations of the explorations will be determined by the Corps at the time of the award of this task order. They may be located along Reach A and B within the Natomas Basin, on the levee crown, levee toes, or field. Quantities of explorations are as follows:

The A-E must perform twenty-one (21) Cone Penetrometer Tests (CPTs) within the study area with an estimated total depth of 2,520 feet (20 from levee crown and one from field). *In addition, the A-E must also perform a total of thirty (30) hand auger borings at three areas in Reach A and B at the I-5 Crossing area, Pumping Plant 3, and Pumping Plant 1 to Gateway Oaks to obtain samples to characterize the near surface soils. SAFCA will provide access to CPT and hand auger locations.*

- Explorations must be initiated upon task order award. However, no field work must commence until the APP has been accepted by the Sacramento District Safety Officer or representative. The A-E must confirm all final exploration locations marked in the field.
- The USACE will provide digital copies of all required Environmental Clearances excluding the Cultural Resource Monitoring and Clearances, which must be performed by the A-E.
- The A-E must obtain all required Rights of Entry on public lands and on private property.
- The A-E must obtain all Underground Service Alert (USA) clearances, and all other drilling permits as required by the Sacramento or Sutter Counties, RD 1000, **CALTRANS**, and Central Valley Flood Protection Board, or other relevant agencies.
- The A-E must prepare a Drilling Program Plan covering the work within this task in accordance with ER 1111-1-1807 covering the work within this task. The USACE will provide final Levee Safety Officer (LSO) certification of the final Drilling Program Plan, prior to commencement of field activities.
- The A-E must notify the COR and the Geotechnical Lead a minimum of three (3) calendar days prior to starting field explorations.
- Only a Geologist or Civil Engineer, working under the charge of a registered Geologist or Civil Engineer (practicing in geotechnical engineering) must oversee the CPTs.
- CPT's must be performed in accordance with ASTM D3441-05. The CPT rig must be fully maintained, in good condition, complete with competent and qualified operating personnel with all the necessary accessories and supplemental equipment capable of conducting CPT's to a depth of at least 160 feet considering Sacramento River East Levee area geologic conditions. The A-E must provide all data printouts, plots, and Geotechnical interpretations to the USACE. The data printouts must include, but not be limited to, depth, tip resistance, local friction, friction ratio, pore pressure, differential pore pressure, porewater pressure dissipation (2 per CPT below water table), and rod inclination.
- Field explorations performed along any waterway must be performed in coordination with monitoring of

the applicable waterway's stage daily using the Department of Water Resources, California Data Exchange Center for current stage. No CPTs must be performed on any specific day if the river stage is rising or if it is within 5 feet of the landside ground surface elevation. The field exploration program must not resume until the river water levels are observed to be dropping and at an acceptable level.

- After completion of the CPTs, they must be backfilled with grout in accordance with the local drilling permits.
- Upon completion of all CPT activities, the A-E must survey the locations of the CPT's in NAD 83 datum horizontal control and NAVD 88 datum vertical control.
- The A-E must obtain lane closure permits from the local agencies and provide traffic control during field work.
- The leftover cuttings must be placed in 55-gallon drums and disposed off-site, and the surrounding area must be cleaned prior to leaving the site.

### 3.5.2 Geotechnical Data Reports for Reaches A and B

The A-E must prepare a Geotechnical Data Report for Reaches A and B (separate reports) documenting CPTs and *hand augers* performed under 3.5.1, previous studies performed by USACE, SAFCA, and others (if applicable). The geotechnical data report must present geotechnical data from previous USACE and SAFCA reports (listed under Government Furnished Materials) in an organized format such that the data can be utilized for Reaches A and B design and construction. The report must contain, but not be limited to boring logs, laboratory test results, CPT printouts, and all resulting summaries and conclusions related to the soil material properties and distribution. Final auger boring logs and CPTs must be in gINT format. The A-E must incorporate CPTs *and hand augers* from the current study into the plans and geologic profiles developed by USACE for Reaches A and B. The A-E must assume a review of the existing plans and geologic profiles while incorporating the CPTs *and hand auger* data. The gINT project files must be incorporated by the A-E into the Corps ARCF gINT database. The soils must be classified in accordance to ASTM D2487. Field logs must be included in the appendix. Electronic versions of the laboratory testing results must be provided as must summary plots that show all lab results. The A-E must submit a draft report for review. The USACE will review the draft report and provide written comments to the A-E. The A-E must respond to the comments by making corrections or by written rebuttal. The A-E must revise the report and provide a final version to the USACE. Logs must be submitted in gINT format or gINT compatible format in hard copy (paper) and electronic copy (compact disc) formats. Final laboratory test report must be submitted in both hard copy (paper) and electronic copy (compact disc) formats.

## 3.6. TASK 6 – GEOTECHNICAL INVESTIGATIONS FOR RIVERSIDE CANAL

### 3.6.1. Field Exploration Summary

Explorations locations are shown on the attached map. These are located along the proposed alignment of the Riverside Canal, which is located landside of the levee. *SAFCA will provide access to boring locations.* Quantities of explorations are as follows:

- The A-E must perform eight (8) soil borings and install two (2) monitoring wells along the proposed alignment of the Riverside Canal. The total length of borings must be 170 feet (20-feet each boring and 25-foot monitoring wells).

### 3.6.2. Soil Boring and Sampling Details

- Explorations must be initiated upon task order award. However, no field work must commence until the APP has been accepted by the Sacramento District Safety Officer or representative. The A-E must confirm all final exploration locations marked in the field.
- The USACE will provide digital copies of all required Environmental Clearances excluding the Cultural Resource Monitoring and Clearances, which must be performed by the A-E.
- The A-E must obtain all required Rights of Entry on public lands and on private property. SAFCA will assist Right of Entry for these explorations.

- The A-E must obtain all Underground Service Alert (USA) clearances, and all other drilling permits as required by the Sacramento or Sutter Counties, RD 1000, and Central Valley Flood Protection Board, or other relevant agencies.
- The A-E must evaluate whether a Drilling Program Plan (DPP) is needed for the project. If needed, the A-E must prepare a DPP for these borings in accordance with ER 1111-1-1807 covering the work within this task. The USACE will provide the final Levee Safety Officer (LSO) certification of the final Drilling Program Plan, prior to commencement of field activities. Air or foam must not be used as a drilling fluid.
- The A-E must notify the COR and Geotechnical Lead a minimum of three (3) calendar days prior to starting field explorations.
- Only a Geologist or Civil Engineer, working under the charge of a registered Geologist or Civil Engineer (practicing in geotechnical engineering) must log the exploration and have at least 2 years of experience in logging and classifying soil in accordance with ASTM D 2488.
- Soil borings must be drilled using truck-mounted or all-terrain drill rig equipped with a 4-inch-diameter rotary wash drill bit or 6-inch diameter hollow stem auger. Borings located at the levee toe and landside field must be drilled using rotary wash drilling methods. Borings located along the levee crown must be drilled using hollow stem auger for the approximately upper 20 feet through levee fill materials. The hollow stem augers must be left in place to provide casing within the levee and the remainder of the boring must be drilled using the rotary wash drilling method.
- Field explorations performed along any waterway must be performed in coordination with monitoring of the applicable waterway's stage daily using the Department of Water Resources, California Data Exchange Center for current stage. No drilling must be performed on any specific day if the river stage is rising or if it is within 5 feet of the landside ground surface elevation. The field exploration program must not resume until the river water levels are observed to be dropping and at an acceptable level.
- Sampling Procedures during the drilling operations must include continuous penetration tests performed in accordance with ASTM D-1586 at maximum 2½ foot intervals.
- Coarse grained soils must be sampled alternating between a California Penetration Sampler (3 inch outside diameter) and Standard Penetration Test Sampler (2 inch inside diameter) to evaluate the soils encountered and to retain soil samples for laboratory testing. The penetration tests must be performed by initially driving the sampler 6 inches into the bottom of the bore hole using a 140 pound trip-hammer falling 30 inches to penetrate loose soil cuttings and "seat" the sampler. Thereafter, the sampler must be progressively driven an additional 12 inches, with the results recorded as the corresponding number of blows required to advance the sampler 12 inches, or any part thereof.
- If cohesive soils are encountered undisturbed samples must be obtained using Shelby tubes. The pressure necessary to advance the sampling equipment must be noted on the boring logs.
- Undisturbed soil samples (Shelby Tubes) obtained from the borings must be packaged and waxed on both ends in the field to reduce moisture loss and disturbance and brought to the laboratory for testing. Small samples must be collected from both ends and visually classified before the Shelby tubes are sealed. The Shelby tubes must be stored vertically as collected from the borings.
- After completion of the borings, they must be backfilled with grout in accordance with the local drilling permits.
- Leftover cuttings must be placed in 55-gallon drums and disposed off-site, and the drilled area must be cleaned prior to leaving the site.
- Upon completion of all soil boring activities, the A-E must survey the locations of the Borings in NAD 83 datum horizontal control and NAVD 88 datum vertical control.
- Hammer Energy Analysis – Perform one (1) Hammer Energy Analysis for each drill rig performing borings. A hammer energy testing performed within 3 months in similar geologic environment will be accepted in lieu of performing a hammer energy testing at the project site.
- Upon completion of borings, temporary monitoring wells must be installed at two (2) locations. The wells must be backfilled and sealed according to Standard of Practice and in compliance with the City and County regulations. The monitoring wells must be flushed at top with protected well cover.

### 3.6.3 Laboratory Testing

The laboratory must have been inspected and met the approval by the Engineer Research Development Center of the

USACE. The A-E is responsible for delivering the soil samples from the levee site to the laboratory. The A-E in consultation with the USACE must select representative samples for testing. Upon completion of testing, the A-E must store all remaining samples for a minimum of 2 years or until the project is built. The A-E must perform soil classification, compression, strength, and permeability tests (consolidation, unconfined compression, triaxial shear, and/or hydraulic conductivity) on soil samples collected from the soil borings. Frequency of testing is anticipated to be as follows:

- Sieve analysis – A total of Twenty Four (24) sieve analysis test on samples obtained within all classified SM, SC, SP, and SW (ASTM D2488) soil types per boring.
- Atterberg Limits – A total of Twenty Four (24) Atterberg Limits per sample obtained within all classified SM, SC, CL, and ML (ASTM D2488) soil types. Each sample tested must also have the natural water content determined. Each sample tested must be passed through #200 sieve testing for fines contents. In addition, samples for consolidation and triaxial strength tests must be tested for Atterberg limits, moisture contents (for strength tests), and #200 sieve tests.
- Specific Gravity – A total of five (5) samples must be tested for Specific Gravity.
- Consolidation – A total of five (5) consolidation tests within fine grained soil layer classified as CL and ML (ASTM D2488) soil types. Maximum of one (1) consolidation test per boring, with seven loads per consolidation test a well-defined consolidation curve. Consolidation tests must only be performed on samples obtained using the Shelby tubes. Additionally, an Atterberg Limits test must be performed on each consolidation test sample.
- Triaxial compression test on consolidated undrained samples with pore pressure measurements – A total of twelve (12) triaxial compression shear test (includes a multiplier of 3 to reflect three different confining pressures per sample from same shelly tube) performed on observed weakest soil type based upon blow counts or exudation pressure. Test specimen must be taken from three specimens taken from the same Shelby tube on the same soil type. Triaxial shear tests must only be performed on samples obtained using Shelby tubes. Atterberg Limits and natural moisture content must be determined on each sample tested.
- Expansion Index (ASTM D4829) – A total of five (5) expansion index testing must be performed.
- Cation Exchange Capacity (C.E.C) Testing – A total of sixteen (16) C.E.C testing must be performed.
- Corrosion Testing – A total of ten (10) corrosion testing must be performed.

The final number and distribution of geotechnical laboratory testing must be determined based on field classifications and sample conditions.

### **3.6.4 Geotechnical Data Report for Riverside Canal**

The A-E must prepare a draft and final written report documenting all the work accomplished and the results of field and laboratory testing. The report must contain, but not be limited to boring logs, laboratory test results,  $(N_1)_{60}$  calculations and spreadsheets, monitoring well logs, and all resulting summaries and conclusions related to the soil material properties and distribution. Final boring logs must be in gINT format. The gINT project files must be incorporated by the A-E into the Corps ARCF gINT database. The soils must be classified in accordance to ASTM D2487. Field logs must be included in the appendix. Electronic versions of the laboratory testing results must be provided as will summary plots that show all lab results.

The A-E must prepare a plan and profile along the alignment of the proposed Riverside Canal using the existing SAFCA borings on the northern portion of the alignment and the explorations under this Task. The A-E must submit a draft report for review. The USACE will review the draft report and provide written comments to the A-E. The A-E must respond to the comments by making corrections or by written rebuttal. The A-E must revise the report and provide a final version to the USACE. Logs must be submitted in gINT format or gINT compatible format in hard copy (paper) and electronic copy (compact disc) formats. Final laboratory test report must be submitted in both hard copy (paper) and electronic copy (compact disc) formats.

## **3.7. TASK 7 – BORROW SITE INVESTIGATIONS FOR REACHES A, B, E, F, AND G**

### **3.7.1. Field Exploration Summary**

The A-E must determine the test pit locations based on available geologic maps and access conditions and by maintaining consistency with previous borrow site investigations for Natomas levees. *SAFCA will provide access to boring locations.* Quantities of explorations are as follows:

- The A-E must perform forty-one (41) test pits within the Kaufman and Huffstutler borrow sites.
- The A-E must obtain surficial five (5) bulk samples from Natomas basin borrow sites to perform strength and hydraulic conductivity testing on remolded samples.

### 3.7.2. Test Pits and Sampling Details

- The A-E must confirm all final exploration locations marked in the field.
- The USACE will provide digital copies of all required Environmental Clearances excluding the Cultural Resource Monitoring and Clearances, which must be performed by the A-E.
- The A-E must obtain all required Rights of Entry on public lands and on private property.
- The A-E must obtain all Underground Service Alert (USA) clearances, and all other drilling permits as required by the Sacramento or Sutter Counties, RD 1000, and Central Valley Flood Protection Board, or other relevant agencies.
- The A-E must evaluate whether a Drilling Program Plan (DPP) is needed for the project. If needed, the A-E must prepare a DPP for these borings in accordance with ER 1111-1-1807 covering the work within this task. The USACE will provide the final Levee Safety Officer (LSO) certification of the final Drilling Program Plan, prior to commencement of field activities. Air or foam must not be used as a drilling fluid.
- The A-E must notify the COR and the Geotechnical Lead a minimum of three (3) calendar days prior to starting field explorations.
- Only a Geologist or Civil Engineer, working under the charge of a registered Geologist or Civil Engineer (practicing in geotechnical engineering) must log the exploration and have at least 2 years experience in logging and classifying soil in accordance with ASTM D 2488.
- Test pits must be performed using backhoe with sufficient capacity to perform test pits to a depth of 10 to 15 feet considering geologic conditions in the borrow sites.
- Field explorations performed along any waterway must be performed in coordination with monitoring of the applicable waterway's stage daily using the Department of Water Resources, California Data Exchange Center for current stage. No drilling will be performed on any specific day if the river stage is rising or if it is within 5 feet of the landside ground surface elevation. The field exploration program must not resume until the river water levels are observed to be dropping and at an acceptable level.
- The A-E must collect, retain, transport, and store samples in such a manner that the natural moisture content is retained for laboratory testing.
- After completion of the test pits, they must be backfilled in lifts no greater than 8-inches with adequate compaction effort to restore to pre-excavation state.
- The A-E must clean the site upon completion of the test pit backfilling.
- Upon completion of all soil boring activities, the A-E must survey the locations of the Borings in NAD 83 datum horizontal control and NAVD 88 datum vertical control.

### 3.7.3 Laboratory Testing

The laboratory must have been inspected and met the approval by the Engineer Research Development Center of the USACE. The A-E is responsible for delivering the soil samples from the levee site to the laboratory. The A-E in consultation with the USACE must select representative samples for testing. Upon completion of testing, the A-E must store all remaining samples for a minimum of 2 years or until the project is built. The A-E must perform soil classification, compression, strength, and permeability tests (consolidation, unconfined compression, triaxial shear, and/or hydraulic conductivity) on soil samples collected from the soil borings. Frequency of testing is anticipated to be as follows:

- Sieve analysis – A total of one hundred twenty three (123) sieve analysis test on samples obtained within all classified SM, SC, SP, and SW (ASTM D2488) soil types per boring. *Additionally, thirty five (35)*



*sieve analysis tests on samples obtained with hand augering in Reaches A & B.*

- Atterberg Limits – A total of one hundred thirty-eight (138) Atterberg Limits per sample obtained within all classified SM, SC, CL, and ML (ASTM D2488) soil types. *Additionally, thirty five (35) samples obtained with hand augering in Reaches A & B must be performed.* Each sample tested must also have the natural water content determined. Each sample tested must be passed through #200 sieve testing for fines contents. The number of tests include Atterberg limits, moisture contents (for strength tests), and #200 sieve tests hydrometer, compaction, and triaxial strength tests.
- Specific Gravity – A total of twenty (20) samples must be tested for Specific Gravity.
- Triaxial compression test on consolidated undrained samples with pore pressure measurements – A total of forty five (45) triaxial compression shear test (includes a multiplier of 3 to reflect three different confining pressures per remolded sample from same location) performed on remolded samples. Atterberg Limits and natural moisture content must be determined on each sample tested.
- Hydraulic Conductivity (ASTM D5084) – A total of thirty (30) hydraulic conductivity test performed on remolded samples. Atterberg Limits and natural moisture content must be determined on each sample tested.
- Maximum Dry Density and Optimum Water Contents (ASTM D689 and ASTM D1557) – A total of twenty (20) maximum dry density and optimum water contents using Standard and Modified compaction effort. Atterberg Limits and natural moisture content must be determined on each sample tested. *Additionally, 35 samples obtained with hand augering in Reaches A & B must be performed.*
- Expansion Index (ASTM D4829) – A total of fifteen (15) expansion index testing must be performed.
- Cation Exchange Capacity (C.E.C) Testing – A total of forty (40) C.E.C testing must be performed. *Additionally, 10 samples obtained with hand augering in Reaches A & B must be performed.*
- Corrosion Testing – A total of thirty (30) corrosion testing must be performed. *Additionally, 10 samples obtained with hand augering in Reaches A & B must be performed.*

### 3.7.4 Borrow Site Geotechnical Data Report and Technical Memorandum

The A-E must prepare a draft and final Borrow Site Geotechnical Data Report for Natomas Basin area for the Reaches A, B, E, F, and G. The data report must include the geotechnical data from previous borrow site investigations by SAFCA and the geotechnical data obtained from the current investigations. The A-E must prepare a written report documenting all the work accomplished and the results of field and laboratory testing. The report must contain, but not be limited to boring logs, laboratory test results,  $(N_1)_{60}$  calculations and spreadsheets, CPT printouts, test pits, and all resulting summaries and conclusions related to the soil material properties and distribution. Final auger boring logs must be in gINT format. The gINT project files must be incorporated by the A-E into the Corps ARCF gINT database. The soils must be classified in accordance to ASTM D2487. Field logs must be included in the appendix. Electronic versions of the laboratory testing results must be provided as must summary plots that show all lab results. The A-E must submit a draft report for review. The USACE will review the draft report and provide written comments to the A-E. The A-E must respond to the comments by making corrections or by written rebuttal. The A-E must revise the report and provide a final version to the USACE. Logs must be submitted in gINT format or gINT compatible format in hard copy (paper) and electronic copy (compact disc) formats. Final laboratory test report must be submitted in both hard copy (paper) and electronic copy (compact disc) formats.

The A-E must prepare a borrow site investigation report summarizing findings from previous borrow site investigations by SAFCA for Reaches A and B and the current investigations under this Task for Reaches A, B, E, F, and G. The A-E must perform an evaluation of quantities of available materials considering the design objectives, develop an estimate of available borrow materials considering shrinkage factors, and provide recommendations regarding to processing materials to meet project specifications. The A-E must prepare a borrow site technical memorandum summarizing the evaluations and recommendations for borrow site materials. The A-E must submit a draft memorandum for review. The USACE will review the draft memorandum and provide written comments to the A-E. The A-E must respond to the comments by making corrections or by written rebuttal. The A-E must revise the memorandum and provide a final version to the USACE.



### **3.8. TASK 8 – ARCHEOLOGICAL MONITORING FOR REACHES A, B, RIVERSIDE CANAL, AND BORROW SITES**

The A-E must provide a cultural resource monitor as follows:

Qualifications: The Cultural monitor must meet the Secretary of the Interior's Professional Qualifications Standards for Archeology as follows: A graduate degree in archeology, anthropology, or closely related field plus:

- a. At least one year of full-time professional experience or equivalent specialized training in archeological research, administration or management;
- b. At least four months of supervised field and analytic experience in general North American archeology, and
- c. Demonstrated ability to carry research to completion. The A-E must provide USACE for review and approval, the credentials of the cultural resource monitor(s) that will conduct all work under this task.

3.8.1 Orientation: The cultural resources monitor must provide assistance to the Corps biological resources monitor for pre-work employee orientation.

3.8.2 Pre-Activity Survey: A pre-activity survey for sensitive cultural resources must be conducted prior to any ground disturbance activities. Any sensitive resources observed must be documented and clearly marked. Avoidance measures such as establishment of an exclusion zone around any sensitive resources will be taken. The pre-activity survey must be conducted up to 30 days prior to the start of ground disturbing activities and no later than 7 days prior to the start of ground disturbing activities

3.8.3 Cultural Resource Monitoring: During all ground disturbing activities, a monitor must be on-site to observe work activities to ensure that sensitive resources are not impacted (~~assume 1400 hours~~). The purpose of the monitor is to inspect soil and other material as work proceeds to make a determination if cultural resources are present. This may include buried resources as well as the construction material, metal, debris and other landfill material. The monitor must immediately notify the Sacramento District Historian [Melissa Montag (916) 557-7907] should any work produce cultural resource materials. A determination will then be made by the Sacramento District Historian if and when work can proceed at that particular site. If potentially significant resources are discovered, the subsequent work must be relocated in order to avoid damage.

3.8.4 Daily Logs: The monitor must prepare for the Corps a daily log describing the activities and whether or not any significant cultural resources were located.

### **3.9. TASK 9 – MEETINGS IN SUPPORT OF REACHES A, B, AND RIVERSIDE CANAL**

The A-E's Task Manager and senior geotechnical engineer must participate in monthly geotechnical coordination meetings with the USACE geotechnical lead engineer for every month of the contract (16 meetings). The A-E must assume 2 hours per meeting. All meetings will be held in Sacramento District USACE Office, unless otherwise notified. The A-E must document the meetings and develop action items based on USACE input.

The A-E's two senior experts and the senior geotechnical lead engineer must participate in six (6) meetings to develop strategy for explorations and laboratory testing, borrow site investigations, and geotechnical specifications based on design drawings and geotechnical analyses. The A-E must assume four (4) hours duration of these meetings. The A-E must document the meetings and develop action items based on USACE input.

### **3.10. TASK 10 - PROGRESS REPORTING**

The A-E must prepare progress/status reports to be submitted by the 10<sup>th</sup> of each month. Progress reports must describe all work performed and a quantitative statement of overall work progress, including percentage of work accomplished on each task and submittal. Progress reports must be of sufficient detail to support each payment estimate (ENG 93) and must substantiate all payments requested. The A-E must submit a detailed breakdown of tasks performed under this statement of work on a monthly basis, at the time of invoice. This detailed breakdown must include the actual number of hours spent on performing each task assigned to A-E during the month. This is to include time spent on each individual RFI, submittal, meeting attendance, design revision, etc. Time spent working

on activities related to errors or omissions in original design documents must not be included in the invoice for payment.

Also, include a description of the current problems that may impede performance of the tasks outlined in this SOW and suggest corrective actions. This report must also discuss work to be performed on the next two (2) week time frame along with containing a current submittal schedule.

Progress reports must be e-mailed to the COR, the Project Technical Lead, the Geotechnical Lead, and provided with every payment estimate (ENG 93). Payment estimates without corresponding progress reports for the payment period will be rejected.

### **3.11. OPTIONAL TASK 1 – GEOTECHNICAL SPECIFICATIONS FOR REACH E**

The A-E must prepare and submit technical specifications related to geotechnical aspects of Reach E of the Natomas Basin Project. The A-E must only prepare and submit specifications sections determined to be primarily within the geotechnical engineering discipline and necessary for the construction of the improvements included in the applicable Geotechnical Basis of Design Report. The specifications must include, at a minimum, portions or all of the specification sections within the following; Division 2 (Existing Conditions), Division 31 (Earthwork), and Division 32 (Exterior Improvements). This task focuses on slurry cutoff walls using soil-bentonite and slag-cement cement-bentonite materials using open trench and one-pass trench methods, cutoff walls using deep mixing methods, drilling, monitoring wells, borrow sites, subsurface conditions, aggregates, earthwork including adjacent levee, seepage berm, drainage layers, and in-situ verification drilling. These specifications must be developed based on design drawings, specifications for Reaches H, I, and C (USACE and SAFCA Projects), lessons learned from construction in Natomas basin levee improvement projects, and site specific conditions. The specifications must be separately bound and must include a bid schedule and typed versions of the Corps guide specification sections with draft versions of any A-E prepared specifications. The specifications must be based on USACE guide specifications and the draft and final versions must be prepared in SpecsIntact.

### **3.12. OPTIONAL TASK 2 - GEOTECHNICAL SPECIFICATIONS FOR REACH F**

The A-E must prepare and submit technical specifications related to geotechnical aspects of Reach F of the Natomas Basin Project. The A-E must only prepare and submit specifications sections determined to be primarily within the geotechnical engineering discipline and necessary for the construction of the improvements included in the applicable Geotechnical Basis of Design Report. The specifications must include, at a minimum, portions or all of the specification sections within the following; Division 2 (Existing Conditions), Division 31 (Earthwork), and Division 32 (Exterior Improvements). This task focuses on slurry cutoff walls using soil-bentonite and slag-cement cement-bentonite materials using open trench and one-pass trench methods, cutoff walls using deep mixing methods, drilling, monitoring wells, borrow sites, subsurface conditions, aggregates, earthwork including adjacent levee, seepage berm, drainage layers, and in-situ verification drilling. These specifications must be developed based on design drawings, specifications for Reaches H, I, and C (USACE and SAFCA Projects), lessons learned from construction in Natomas basin levee improvement projects, and site specific conditions. The specifications must be separately bound and must include a bid schedule and typed versions of the Corps guide specification sections with draft versions of any A-E prepared specifications. The specifications must be based on USACE guide specifications and the draft and final versions must be prepared in SpecsIntact.

### **3.13 OPTIONAL TASK 3 – GEOTECHNICAL SPECIFICATIONS FOR REACH G**

The A-E must prepare and submit technical specifications related to geotechnical aspects of Reach G of the Natomas Basin Project. The A-E must only prepare and submit specifications sections determined to be primarily within the geotechnical engineering discipline and necessary for the construction of the improvements included in the applicable Geotechnical Basis of Design Report. The specifications must include, at a minimum, portions or all of the specification sections within the following; Division 2 (Existing Conditions), Division 31 (Earthwork), and Division 32 (Exterior Improvements). This task focuses on slurry cutoff walls using soil-bentonite and slag-cement cement-bentonite materials using open trench and one-pass trench methods, cutoff walls using deep mixing methods, drilling, monitoring wells, borrow sites, subsurface conditions, aggregates, earthwork including adjacent

levee, seepage berm, drainage layers, and in-situ verification drilling. These specifications must be developed based on design drawings, specifications for Reaches H, I, and C (USACE and SAFCA Projects), lessons learned from construction in Natomas basin levee improvement projects, and site specific conditions. The specifications must be separately bound and must include a bid schedule and typed versions of the Corps guide specification sections with draft versions of any A-E prepared specifications. The specifications must be based on USACE guide specifications and the draft and final versions must be prepared in SpecsIntact.

### **3.14. OPTIONAL TASK 4 – GEOTECHNICAL ANALYSIS AND TECHNICAL MEMORANDUM**

The A-E must conduct geotechnical analysis of the Natomas Basin Project levees at five (5) cross-sectional locations identified by the USACE at any of the Reaches, to include Reaches A, B, E, F, and G. These analyses must identify the existing geotechnical deficiencies (existing conditions) and remedial measures (proposed future conditions). Analysis must be performed for cases such as underseepage, through seepage, static slope stability, settlement, during construction, post construction, and rapid drawdown as applicable. The remedial measures must meet USACE and applicable local design criteria as established by the State of California Department of Water Resources (DWR). Parameters must be assigned in coordination with the USACE. The seepage and slope stability analyses must be performed for 100-year, 200-year, 200-year + 3 feet (or equivalent hydraulic top of levee), and the physical top of levee Water Surface Elevations (WSEs). Design WSE provided by the USACE must be used for the analyses. Cross section locations used for modeling must be based on soil profiles obtained from existing subsurface data performed by others (see Government Furnished Documents). Cross sections used for modeling must be based on recent survey data and extend sufficiently landward and waterward from the levee to capture conditions that can affect seepage entrance and exit conditions. The SPK Technical Lead will furnish the survey data at the time the option is exercised. Settlement analysis must be performed to estimate potential settlement quantities from consolidation. Geotechnical analyses must be provided as a technical memorandum which must be included in the USACE Geotechnical Basis of Design Report. The technical memorandum must be provided in draft for review and comment by the Corps and then in final form. The final technical memorandum must include all files in their source format. This Optional Task may be exercised up to three times.

### **3.15. OPTIONAL TASK 5 – GIS SUPPORT**

The A-E must perform 200 hours of geotechnical GIS activities in support of USACE developed products for Natomas Reaches A, B, E, F, and/or G to include preparation of figures, plans, geologic profiles, plates, and subsurface databases. These efforts are in addition to the products required in Tasks 5, 6, and 7. This Optional Task may be exercised up to three times.

Any activities associated with this task will be initiated at the request of the Sacramento District Geotechnical Lead, who will define the scope of the activity in writing. Prior to beginning work on any activity, the A-E must provide an estimate of the number of hours necessary to complete the activity. During execution, the A-E must promptly notify the Geotechnical Lead and COR if the activity is likely to exceed the estimate previously provided and must not exceed the number of hours without written direction from the COR.

### **3.13 REPORT FORMAT**

Documents must be provided in Microsoft Word (.doc) electronic format approved by the Government. Type face of report text must be Times New Roman. Point size must be 12. The report numbering must be outline numbered as follows:

1.
  - 1.1.
    - 1.1.1.

The first line on each sub paragraph must be indented from the above paragraph.

#### **3.13.1 Principle Geotechnical Specialists**

A list of the principal geotechnical specialists responsible for geotechnical analyses and report formulation must be provided in the report. The list must include the name, title, and area of expertise of each principal geotechnical specialist.

### **3.13.2 Bibliography/References**

A complete list of all references cited in the report text and/or utilized in the analyses requested herein must be included in the report.

### **3.13.3 Computations**

All computations for the analyses requested herein must be fully described and included in the technical engineering appendix to the report or other appropriate technical appendix.

### **3.13.4 Maps**

Maps must include a north arrow, scale, title block and legend. Fold-in or page-size maps must show the study reach in relationship to nearby towns, rivers, and other major such features. Maps must be legible when reproduced half-size. The A-E must provide full size reproducible maps, reduced size maps suitable for enclosure into the report and originals for all maps.

### **3.13.5 GIS**

Drawings must be compatible with geodetic datum NAD 83, Zone 2 in U.S. Survey Feet and in ArcGIS (8.1). The A-E must use ArcGIS (Arc8.1) for layer development. The A-E must use the FGDC metadata standards that are outlined in ArcGIS (Arc Catalog). The A-E must complete all data collection forms and conduct quality control on the data collection forms. The A-E must provide the Corps with a hard copy and electronic copy (See GIS requirements) of the completed data forms. The A-E must include all information in the appropriate electronic database and or format.

Data that is to be integrated with the American River Common Features project (ARCF), Geographic Information System (GIS) data must be in a shape file format that also meets the Spatial Data Standard for Facilities, Infrastructure, and Environment (SDS-FIE) compliance. Metadata also needs to be included with received data. The standard to use for the Metadata is the Federal Geographic Data Committee (FDGC). Metadata must be included with every piece of data (shapefile) provided to the US Army Corps of Engineers. The data also needs to be projected in a Coordinate System. The Coordinate System that the SRBPP GIS data must reside in is: NAD\_83 (feet) State Plane Zone 2. The delivery of the data to the US Army Corps of Engineers must be on a CD or DVD.

### **3.13.6 GPS**

The Datum of the waypoints must be NAD 83, Feet, State Plane Zone 2. Waypoint accuracy must be Plus or Minus 30 feet.

### **3.13.7 Photos**

Any digital pictures produced must be "Hot-linked" to an appropriate location on the GIS theme and metadata must be attached.

### **3.13.8 Measurement Units**

All work requested herein must be performed and presented in the "English" system of measurement of length, weight, volume, etc. A table presenting conversion factors to the SI system of units must be presented in the report. Levee stationing must be converted in Levee Miles.

### **3.13.9 Supplemental Information**

The A-E must return copies of all documents provided by the Government. All original data, reports, notes, maps, photos, negatives, and other work products developed as part of this Statement of Work must be provided to the Government upon completion of this work.

### **3.13.10 Electronic Media**

All final text files generated under this task order must be furnished to the Sacramento District in Adobe Portable Document Format (PDF), with a working copy in Microsoft Office MS Word. Drawing files must be submitted in MicroStation format, in accordance with the current version of the Tri-Service CADD/GIS Technology Center's Architectural, Engineering and Construction (A-E/C) CADD Standards.

The Government will only accept final documents found to be fully operational without conversion or reformatting.

A transmittal letter containing, as a minimum, the following information must accompany each digital media submittal to the Government. The transmittal letter must be dated and signed by the appropriate A-E's representative. The transmittal letter must be provided to the Government on 8-1/2" X 11" paper along with a digital copy of the transmittal letter in a MS Office Word 2007 format. The transmittal letter must contain the following:

- (a) The information included on the external label of each media unit (e.g., disk, tape), along with the total number being delivered,
- (b) A list of the names and descriptions of the files on each one must be in the transmittal letter
- (c) Brief instructions for transferring the files from the media to the Government's target system such as "Geographic Information System (GIS)".
- (d) A statement indicating that the A-E must retain a copy of all delivered digital media (with all files included) for at least one year and, during this period of time, must provide up to two (2) additional copies of each to the Government, if requested, at no additional cost.

## **4. SUBMITTALS**

**4.1. EPA DESIGNATED FOR SUSTAINABLE ACQUISITION:** Under the Comprehensive Procurement Guidelines (CPG) program, the Environmental Protection Agency (EPA) designates products that are or can be made with recovered materials, and recommends practices for buying these products. Any designated product that is being offered or supplied under this contract shall meet the minimum recommended content levels as identified under the CPG program. Visit <http://www.epa.gov/epawaste/conservation/cpg/products> for a complete list of designated products and the associated recommended content levels. Offerors must be able to demonstrate that each offered product meets minimum content levels upon request.

**4.2. TASK 1 – QUALITY CONTROL PLAN:** The A-E must submit an electronic PDF format of the draft and final Quality Control Plan submitted by email to the Geotechnical Engineering Lead and the COR. The A-E must all provide if requested all A-E Quality Control documents in electronic PDF format by email to the Geotechnical Engineering Lead and COR. The Quality Control Certification must also be signed and submitted in electronic PDF format by email to the Geotechnical Engineering Lead and COR upon request of the Government.

**4.3. TASK 2 - ANTITERRORISM AND OPERATION SECURITY (AT/OPSEC) REQUIREMENTS:** The A-E must submit proof of completing Suspicious Activity Reporting Training, Level I OPSEC Training, and E-verify.

**4.4. TASK 3 – ACCIDENT PREVENTION PLAN:** The A-E must submit an electronic .pdf format of the draft and final Accident Prevention Plan by email to the Geotechnical Lead and COR.

**4.5. TASK 4 – GEOTECHNICAL SPECIFICATIONS FOR REACHES A-AND-B:** The A-E must submit by email to the Geotechnical Lead and the COR a draft and final version of geotechnical specifications for Reach A in

MSWORD and .pdf format, as well as a printed bound copy of the final specifications. ~~The A-E must submit by email to the Geotechnical Lead and the COR a draft and final version of geotechnical specifications for Reach B in MSWORD and .pdf format, as well as a printed bound copy of the final specifications.~~

**4.6. TASK 5 – GEOTECHNICAL INVESTIGATIONS FOR REACHES A AND B:** The A-E must submit by email to the Geotechnical Lead and the COR a draft and final version of the Drilling Program Plan in MSWORD and .pdf format and all data printouts, plots, and Geotechnical interpretations from the CPTs. The A-E must submit draft and final version of the logs in paper copy and .pdf format. The A-E must submit final laboratory test report in both paper copy and in .pdf format. The A-E must submit by email to the Geotechnical Lead and the COR a draft and final version of Geotechnical Data Report for Reach A in MSWORD and .pdf format. The A-E must submit by email to the Geotechnical Lead and the COR a draft and final version of Geotechnical Data Report for Reach B in MSWORD and .pdf format.

**4.7. TASK 6 – GEOTECHNICAL INVESTIGATIONS FOR RIVERSIDE CANAL:** The A-E must submit by email to the Geotechnical Lead and the COR a draft and final version of the Drilling Program Plan in MSWORD and .pdf format if it is required. The A-E must submit by email to the Geotechnical Lead and COR a draft and final version of Geotechnical Data Report for Riverside Canal in MSWORD and .pdf format. The A-E must submit draft and final version of the logs in paper copy and .pdf format.

**4.8. TASK 7 – BORROW SITE INVESTIGATIONS:** The A-E must submit by email to the Geotechnical Lead and the COR a draft and final version of the Drilling Program Plan in MSWORD and .pdf format if it is required. The A-E must submit by email to the Geotechnical Lead and the COR the draft and final version of Borrow Sites Geotechnical Data in MSWORD and .pdf format. The A-E must submit by email to the Geotechnical Lead and COR the draft and final version of Technical Memorandum on Borrow Sites in MSWORD and .pdf format. The A-E must submit draft and final version of the logs in paper copy and .pdf format.

**4.9. TASK 8 – ARCHEOLOGICAL MONITORING:** The A-E must submit by email to the Geotechnical Lead and COR the daily reports from Cultural Monitoring and the project summary report in MSWORD and .pdf format.

**4.10. TASK 9 – MEETINGS:** The A-E must submit by e-mail to the Geotechnical Lead and the COR a written description of meeting minutes and action items from all meetings in MSWORD and .pdf format.

**4.11. TASK 10 - PROGRESS REPORTING:** The A-E must prepare progress/status reports to be delivered by the 10<sup>th</sup> of each month. Progress reports must be e-mailed to the COR, the Geotechnical Lead, and provided with every payment estimate (ENG 93).

**4.12. OPTIONAL TASK 1 – GEOTECHNICAL SPECIFICATIONS FOR REACH E:** Same as paragraph 4.5.

**4.13. OPTIONAL TASK 2 – GEOTECHNICAL SPECIFICATIONS FOR REACH F:** Same as paragraph 4.5.

**4.14. OPTIONAL TASK 3 – GEOTECHNICAL SPECIFICATIONS FOR REACH G:** Same as paragraph 4.5.

**4.15. OPTIONAL TASK 4 – GEOTECHNICAL ANALYSIS AND TECHNICAL MEMORANDUM:** The A-E must submit to the Geotechnical Lead and the COR the draft and final geotechnical analysis technical memorandums in MSWORD and .pdf format.

**4.16. OPTIONAL TASK 5 – GIS SUPPORT:** The A-E must submit draft and final figures and plates.

**4.17. REPORTS REPRODUCTION:** Draft and Final Reports must be provided in bound reports with compact disks containing electronic copies of the reports. The A-E must submit the number of copies listed below for each of the Draft, and Final versions.

Product

USACE<sup>1</sup>

**Task 1 – Quality Control**

Draft Quality Control Plan	digital
Final Quality Control Plan	digital

**Task 3 – Accident Prevention Plan**

Draft Accident Prevention Plan	digital
Final Accident Prevention Plan	digital

**Task 4 – Geotechnical Specifications for Reaches A and B**

Draft Geotechnical Specifications for Reach A	digital
Final Geotechnical Specifications for Reach A	<del>1</del> digital

<del>Draft Geotechnical Specifications for Reach B</del>	<del>digital</del>
--	--------------------

<del>Final Geotechnical Specifications for Reach B</del>	<del>1</del>
--	--------------

**Task 5 – Geotechnical Investigations for Reaches A and B**

Draft Geotechnical Data Report for Reach A	digital
Final Geotechnical Data Report for Reach A	<del>3</del> digital

Draft Geotechnical Data Report for Reach B	digital
Final Geotechnical Data Report for Reach B	<del>3</del> digital

**Task 6 – Geotechnical Investigations for Riverside Canal**

Draft Geotechnical Data Report for Riverside Canal	digital
Final Geotechnical Data Report for Riverside Canal	<del>5</del> digital

**Task 7 – Borrow Site Investigations**

Draft Borrow Sites Geotechnical Data Report	<del>3</del> digital
Final Borrow Sites Geotechnical Data Report	<del>5</del> digital

Draft Borrow Sites Technical Memorandum	digital
Final Borrow Sites Technical Memorandum	<del>5</del> digital

**Task 8 – Archeological Monitoring**

Draft Archeological Project Summary Report	digital
Final Archeological Project Summary Report	<del>4</del> digital

**Optional Task 1 –Geotechnical Specifications**

Draft Geotechnical Specifications for Reach E	digital
Final Geotechnical Specifications for Reach E	<del>4</del> digital

**Optional Task 2 –Geotechnical Specifications**

Draft Geotechnical Specifications for Reach F	digital
Final Geotechnical Specifications for Reach F	<del>4</del> digital

**Optional Task 3 –Geotechnical Specifications**

Draft Geotechnical Specifications for Reach G	digital
Final Geotechnical Specifications for Reach G	<del>4</del> digital

**Optional Task 4 – Geotechnical Analysis and Technical Memorandum**

Draft Geotechnical Analysis Technical Memorandum	digital
Final Geotechnical Analysis Technical Memorandum	<del>4</del> digital

Draft Analysis Technical Memorandum	digital
Final Analysis Technical Memorandum	<del>4</del> digital

**Optional Task 5 – GIS Support**

Draft GIS Submittal

digital

Final GIS Submittal

digital

Note 1: “digital” refers to a digital (pdf or other file format) only submittal. A numeral refers to the number of physical copies of the report to be provided by the A-E. Providing a physical report copy does not alleviate the A-E of other digital submission requirements stated in the tasks descriptions of this SOW.

A submittal letter must accompany all Items of Work

**5. SUBMITTAL SCHEDULE**

The A-E must incorporate schedule restrictions provided above. Subject to federal holidays and/or other factors, the plan may need to be altered or delayed and must be coordinated with the Contracting Officer’s Representative and District POC.

**5.1 Task 1 – Quality Control Plan.** The A-E must provide the QC submittals as follows:

- Draft Quality Control Plan within 14 calendar days after award, and Final within 7 calendar days of receipt of comments from the Technical Lead
- Quality Control documentation submitted together with each submittal for all Tasks as requested
- The Quality Control Certification must be signed and returned and submitted with the final Quality Control documentation

**5.2 Task 2 – AT/OPSEC.** The A-E must submit the list of Verified/Eligible Candidates to the Technical Lead and COR no later than 5 day calendar days after the initial contract award. Suspicious Activity Reporting Training and Level 1 OPSEC Training must be completed within 30 calendar days after the initial contract award and certificates must be submitted to the COR no later than 5 days after completion of the training.

**5.3 Task 3 – Accident Prevention Plan for Reaches A, B, and Riverside Canal.** The A-E must submit the draft Accident Prevent Plan to the Geotechnical Lead and COR within 14 calendar days after award and Final within 7 calendar days of receipt of comments from the District Safety Officer.

**5.4 Task 4 – Geotechnical Specifications for Reaches A and B.** The A-E must submit to the Geotechnical Lead and the COR draft Reach A Specifications 45 calendar days after Task Order Award and final 30 calendar days after receipt of USACE Review Comments. ~~The A-E must submit to the Geotechnical Lead and COR draft Reach B Specifications 90 calendar days after Task Order Award and final 30 calendar days after receipt of USACE Review Comments.~~

**5.5 Task 5 – Geotechnical Investigations for Reaches A and B.** The A-E must submit to the Geotechnical Lead and the COR draft Geotechnical Data Report for Reach A 180 calendar days after Task Order Award and 21 calendar days after receipt of USACE Review Comments. The A-E must submit to the Geotechnical Lead and the COR draft Geotechnical Data Report for Reach B 180 calendar days after Task Order Award and 21 calendar days after receipt of USACE Review Comments.

**5.6 Task 6 – Geotechnical Investigations for Riverside Canal.** The A-E must submit to the Geotechnical Lead and the COR draft Geotechnical Data Report for Riverside Canal 90 calendar days after Task Order Award and 15 calendar days after receipt of USACE Review Comments.

**5.7 Task 7 – Borrow Site Investigations for Reaches A, B, E, F, and G.** The A-E must submit to the Geotechnical Lead and the COR draft Borrow Sites Data Report 180 calendar days after Task Order Award and 30 calendar days after receipt of USACE Review Comments. The A-E must submit to the Geotechnical Lead and the COR draft Borrow Sites Technical Memorandum 180 calendar days after Task Order Award and 30 calendar days after receipt of USACE Review Comments.



**5.8 Task 8 – Archeological Monitoring for Reaches A, B, and Riverside Canal.** The A-E must submit the Cultural Monitor Qualifications within 21 calendar days of the task order award. The A-E must submit the Cultural Monitoring Daily Logs within seven (7) calendar days.

**5.9 Task 9 – Meetings in Support of Reaches A, B, and Riverside Canal.** The A-E must provide to the Geotechnical Lead and COR meeting minutes and action items 3 calendar days after the meeting.

**5.10 Task 10 – Progress Reporting.** The A-E must prepare progress/status reports to be delivered by the 10<sup>th</sup> of each month. Progress reports must be e-mailed to the Geotechnical Lead and the COR, and provided with every payment estimate (ENG 93).

**5.11 Optional Task 1 – Geotechnical Specifications for Reach E.** The A-E must submit to the Geotechnical Lead and the COR draft Reach E Specifications 45 calendar days after exercise of the optional task and final 30 calendar days after receipt of USACE Review Comments.

**5.12 Optional Task 2 – Geotechnical Specifications for Reach F.** The A-E must submit to the Geotechnical Lead and the COR draft Reach F Specifications 45 calendar days after exercise of the optional task and final 30 calendar days after receipt of USACE Review Comments.

**5.13 Optional Task 3 – Geotechnical Specifications for Reach G.** The A-E must submit to the Geotechnical Lead and the COR draft Reach G Specifications 45 calendar days after exercise of the optional task and final 30 calendar days after receipt of USACE Review Comments.

**5.14 Optional Task 4 – Geotechnical Analysis and Technical Memorandum.** The A-E must submit to the Geotechnical Lead and the COR draft Geotechnical Memorandum 60 calendar days after exercise of the optional task and final 21 calendar days after receipt of USACE Review Comments.

**5.15 Optional Task 5 – GIS Support.** The A-E must submit to the Geotechnical Lead and the COR draft Figures and Plates 180 calendar days after exercise of the optional task and final 30 calendar days after receipt of USACE Review Comments.

**5.2. REVIEW SCHEDULE:** The following reviews of submittals will be performed by the USACE and/or sponsors:

<u>Submittal</u>	<u>Review Period (Calendar Days)</u>
Task 1 - Quality Control Plan	7 days after receipt
Task 3 - Accident Prevention Plan	7 days after receipt
Task 4 - Geotechnical Specifications for Reach A	30 days after receipt
<del>Task 4 - Geotechnical Specifications for Reach B</del>	<del>30 days after receipt</del>
Task 5 - Geotechnical Data Report for Reach A	21 days after receipt
Task 5 - Geotechnical Data Report for Reach B	21 days after receipt
Task 6 - Geotechnical Data Report for Riverside Canal	15 days after receipt
Task 7 - Borrow Sites Geotechnical Data Report	30 days after receipt
Task 7 - Borrow Sites Technical Memorandum	30 days after receipt
Task 8 - Draft Archeological Project Summary Report	15 days after receipt
Optional Task 1, 2, and 3 – Geotechnical Specifications for Reached E, F, and G	21 days after receipt
Optional Task 4 – Geotechnical Analysis Technical Memorandum	21 days after receipt
Optional Task 5 – GIS Submittal	21 days after receipt
	15 days after receipt

## **6. OVERALL PERIOD OF PERFORMANCE**

All work and services must be completed within 280 calendar days after task order award.

## **7. OPTION STATEMENT**

The Government may exercise the contract options at any time within the period of performance of the task order at the stated option price.

All work and services related to the contract option must be completed within the calendar days stated below after the option is exercised.

Optional Task 1, 2, and 3 - Geotechnical Specifications for Reaches E, F, and G: 100 calendar days.

Optional Task 4 – Geotechnical Analysis and Technical Memorandum: 110 calendar days.

Optional Task 5 – GIS Support: 240 calendar days.

## **8. AUTHORITIES STATEMENT**

No person other than the Government Contracting Officer has the authority to make any changes to this contract action that impact cost or schedule. Authority from the Contracting Officer to the A-E to make changes that impact cost or schedule will be in the form of an official, signed modification.

## **9. PAYMENTS STATEMENT**

The A-E must submit ENG Form 93 (Payment Estimates), available from the Sacramento District's A-E Administration Section; should you require an ENG Form 93, please send an email request to [ENG93.AE.PaymentEstimates@usace.army.mil](mailto:ENG93.AE.PaymentEstimates@usace.army.mil). A separate ENG Form 93 must be submitted for each task order; multiple task orders or contracts may not be submitted on the same ENG Form 93. The monthly progress report must be submitted with every payment estimate. Payment estimates without corresponding progress reports for the payment period will be rejected.

Payment estimates must be submitted no more often than monthly. Percentages billed must not be calculated beyond two decimal places for each line item on a payment estimate. Each line item must give a detailed description of:

- The work item being invoiced
- The negotiated amount
- The percentage of work completed for the billing period
- And earnings to date

It is USACE Sacramento District's policy to withhold 10% retains (FAR 52.232-10) on all submitted payment estimates. Retains will be released on task orders at 100% completion, when required documentation is submitted and approved. Please refer to the award document for necessary submittals prior to submitting payment estimates. Upon receipt, the USACE Sacramento District will review and either approve for accuracy or deny the requested earnings before payment will be made. Email the completed ENG Form 93 Payment Estimates to [ENG93.AE.PaymentEstimates@usace.army.mil](mailto:ENG93.AE.PaymentEstimates@usace.army.mil), and the subject line must include the contract obligation number, task order number and invoice number.

\_\_\_\_\_/s/  
Khaled Chowdhury, P.E., G.E.  
Geotechnical Engineering Lead

Attachment 1 – REFP13L0 (AE Guide General Info)

Attachment 2 – Riverside Canal Proposed Boring Locations

## Appendix B QMS Form Q4NA-351-FM1, Document Review Comments



## Appendix C QMS Form Q2[DCS]-351-FM1, Technical Quality Review Record

DCS

# Technical Quality Review Record

Q2[DCS]-351-FM1

**Instruction:**

This form is to be used in lieu of areas of the business where ePM is not in place or during ePM system shutdowns. Refer to the [Technical Quality Review Job Aid – DCS Q2\[DCS\]-351-WI2](#).

<b>Project Details</b>		<b>TQRR No. (Optional)</b>	
<b>Project No.</b>		<b>Delivery Date</b>	
<b>Project Name</b>		<b>Originator</b>	
<b>Client/Client POC</b>		<b>Comments Due By</b>	
<b>PM Name</b>		<b>TQR Team Assigned</b>	
<b>Title of Work Product</b>			

<b>Type</b>	<input type="checkbox"/> Calculation Check. <input type="checkbox"/> Independent Peer Review (IR). <input type="checkbox"/> Bidability / Contract Documents Review. <input type="checkbox"/> Subconsultant, Client, or Third-Party Information Review.	<input type="checkbox"/> Constructability Review. <input type="checkbox"/> Interdisciplinary Coordination Review. <input type="checkbox"/> Discipline Review. <input type="checkbox"/> Other: (e.g. Construction Services documentation)	<input type="checkbox"/> Technical Approach. <input type="checkbox"/> Technical Solution Verification. <input type="checkbox"/> Specification Package Review.
	<b>Comments:</b>		

<b>Review Scope</b>	<input type="checkbox"/> Appropriate budget, schedule and resources. <input type="checkbox"/> Soundness of approach/design. <input type="checkbox"/> Technical risk and mitigation. <input type="checkbox"/> Validation of assumptions. <input type="checkbox"/> Conformance with standards and regulatory requirements. <input type="checkbox"/> Check of calculations. <input type="checkbox"/> Client input review and validation solution meets client's requirements.	<input type="checkbox"/> Review of client, sub and third-party information. <input type="checkbox"/> Edit for elements such as grammar, punctuation, formatting and graphics. <input type="checkbox"/> Adequacy of Statements of Limitations. <input type="checkbox"/> Validation of technical solution. <input type="checkbox"/> Software verification and validation.	<input type="checkbox"/> Basis and validity of conclusion / recommendation. <input type="checkbox"/> Check of drawings and graphics. <input type="checkbox"/> Compliance with scope. <input type="checkbox"/> Organization, clarity and completeness. <input type="checkbox"/> Other:
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<b>Checking</b>	For "Comments" columns, type N (None), HC (Hard Copy), EF (Electronic File – add network link), or (Review Comment Form).							
	<b>Discipline</b>	<b>Description (Calc/Rpt/Dwg/Specs)</b>	<b>Comments</b>	<b>Network Link</b>	<b>Originator Initials</b>	<b>Date</b>	<b>Reviewer Initials</b>	<b>Date</b>

<b>Verification</b>	(Note: Technical Quality Reviews are often iterative, requiring multiple rounds to verify accuracy and completeness of the work product. This section is to be completed by the Lead Verifier <u>after</u> verification of comment incorporation to include subsequent or new comments.)	
	Select:	
	<input type="checkbox"/> Lead Verifier has verified that comments have been adequately addressed. There are no outstanding issues.	
	<b>or</b> <input type="checkbox"/> Lead Verifier has verified that comments have been adequately addressed, except for unresolved issues. Any unresolved issues have been submitted to the Project Manager or Designee for final resolution.	
	<b>and</b> <input type="checkbox"/> Lead Verifier confirms that the work product is complete and in accordance with the technical approach/solution.	
	<b>Lead Verifier Signature</b>	<b>Date</b>
	<b>Lead Verifier Signature</b>	<b>Date</b>

	<b>Lead Verifier Signature</b>		<b>Date</b>
<b>Approval</b>	<input type="checkbox"/> Confirmation that the deliverable has been reviewed for overall completeness, compatibility and conformance with scope and other contract requirements; all applicable reviews have been completed and deliverable is ready for submission to the client.		
	<b>Project Manager (or Designee) Signature</b>		<b>Date</b>
	<b>Project Quality Manager Signature (as applicable)</b>		<b>Date</b>
<b>Independent Review (if applicable)</b>	Comments have been provided on:	<input type="checkbox"/> Directly on work product (electronic or on hard copy)	<input type="checkbox"/> Comment and Disposition Form
		<input type="checkbox"/> Other (paste link to network file):	
	<b>Independent Reviewer Signature</b>		<b>Date</b>
<b>DISTRIBUTION</b>	Project Central File – Quality File Folder	Other – Specify:	







# Final Quality Control Plan

**American River Common Features,  
Natomas Basin Reach B**

Contract No. W91238-17-D-0027

Task Order W91238-18-F-0052

*Sacramento County, CA*  
February 23, 2018

Submitted to:  
U.S. Army Corps of Engineers  
Sacramento District

Submitted by:  
HDR  
2365 Iron Point Road, Suite 300  
Folsom, CA 92630

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## Appendices

Appendix A – Project Award, Budget and Statement of Work

Appendix B – Architect – Engineering Guide

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# 1 PROJECT NAME

American River Common Features, Natomas Basin Reach B, Sacramento County, CA

# 2 CLIENT

U.S. Army Corps of Engineers, Sacramento District (USACE SPK)

Carolyn Mallory, Contracting Officer

John Hoge, Project Manager

Mark Boedtker, Project Technical Lead

# 3 INTRODUCTION AND OBJECTIVE

HDR was awarded Task Order (TO) No. W91238-18-F-0052 under Contract No. W91238-17-D-0027 on February 6, 2018. The Statement of Work (SOW), dated August 17, 2017, and revised December 21, 2017. This TO requires the A-E firm to develop and execute a Quality Control Plan (QCP) that describes planned QC and ITR efforts on submittals, review schedules and milestones, and TO specific review personnel. The A-E must submit and receive approval of the QCP from the Government before proceeding with the effort under this statement of work.

The objective of this QCP is to define the key members of the project delivery team (PDT) and internal independent technical review (ITR) team, project deliverables and review procedures for these deliverables, and technical guidance to be followed. The purpose of this QCP is to provide overview guidance information for all involved with the TO to ensure a common understanding of the delivery process and procedures necessary to deliver quality professional engineering services and products by HDR to SPK.

# 4 BACKGROUND and PROJECT DESCRIPTION

The Natomas Basin portion of the American River Common Features was authorized by the Water Resources Development Act of 2014. The U.S. Army Corps of Engineers (COE), the State of California, and the Sacramento Area Flood Control Agency (SAFCA) are all cost-sharing partners for project implementation. This authorization provides seepage remediation for the levees along the entire Natomas Basin. A Post-Authorization Change Report, American River Watershed, Common Features Project, Natomas Basin, was prepared with the preliminary plan for this project in August 2010. Reach B is the segment of the Natomas Basin extending from West Elverta Road to

Farm Road, which is a distance of 50,000 linear feet (9.5 miles). HDR has already prepared 60% plans and specifications for this entire reach under a contract with SAFCA. SAFCA also completed the design and construction for about 7.3 miles of this reach, leaving only the portion of Reach B between Powerline Road and Farm Road uncompleted. The Corps of Engineers will be completing this design and construction for the uncompleted portion of Reach B.

Reclamation District 1000 (RD1000) Pumping Plant No. 3 currently has four existing pumps that pump drainage water into the Sacramento River from the Pumping Plant 3. The motors for Pumps 1 and 2 are 200 hp and discharge to 36-inch diameter steel pipes. The motor for Pump 3 is 300 hp and discharges to a 36-inch diameter steel pipe. The motor for Pump 4 is 200 hp and discharges to a 42-inch pipe. Pumps 1, 2, and 3 all discharge to a pressure chamber located approximately 40 feet from the pumps. From the pressure chamber, water is combined and conveyed to the river in a 60-inch pipe. The total estimated flow from the plant is approximately 198 cfs for Pumps 1, 2, 3 and 4. The pumps may not necessarily operate at the design capacity in their existing configuration. Approximately 148 cfs flows from the 60-inch pipe through the outfall to the Sacramento River. Pump 4 has its own discharge line to the river. The existing RD1000 pumps operate on 2,400 volt electrical power. Modifications will be made to the RD1000 facility at Pumping Plant 3 as defined in the Mead and Hunt Basis of Design Report, dated April 2010.

This TO order includes preparation of the Reach B 60%, 90%, 100%, and final plans, specifications, Design Documentation Report (DDR), MCACES Cost Estimate, bid schedule, and Engineering Considerations and Instructions for Field Personnel (ECIFP). This TO also includes preparation of the draft and final Real Estate Mapping. The A-E must also incorporate the design guidelines provided in the draft Reach B Geotechnical Basis of Design prepared by the Corps of Engineers, and the Riverside Irrigation Canal Relocation and Borrow Site designs prepared by Mead & Hunt for SAFCA.

## 5 SCOPE

This Statement of Work (SOW) includes work for completion of 60%, 90%, 100%, and final plans, specifications, Design Documentation Report (DDR), MCACES Cost Estimate, and Engineering Considerations and Instructions for Field Personnel (ECIFP) for the unconstructed portion of Natomas Basin Reach B, as part of the American River Common Features project. Reach B extends from just east of Powerline Road to Farm Road. Take Mapping must also be submitted for this reach at the 60% submittal, and finalized at the 90% submittal. HDR has already prepared the 60% plans and specifications for the portion of Reach B between Powerline Road and about 1,000 feet south of Farm Road. This SOW includes revising the previously prepared 60% submittal with the design guidelines provided in the Corps of Engineers' draft Geotechnical Basis of Design, to be provided when this TO is awarded. Plans and specifications provided by SAFCA for the Riverside Irrigation Canal and Borrow Site must be incorporated into the 90% submittal, and subsequent submittals. This will be provided by SAFCA.

## 6 PROJECT REQUIREMENTS

The scope of services to be performed under this TO is presented in Appendix A. As outlined in the SOW, the services are to be provided under the following seven tasks:

- Task 1 –Quality Control Plan, Reach B
- Task 2 – Antiterrorism and Operation Security (AT/OPSEC) Requirements
- Task 3 – 60% Design Plans and Specifications, DDR, MCACES Cost Estimate, ECIFP, And Draft Real Estate Take Mapping For Reach B
- Task 4 – 90% Design Plans and Specifications, DDR, MCACES Cost Estimate, ECIFP, and Final Real Estate Take Mapping For Reach B
- Task 5 – 100% Design Plans and Specifications, DDR, MCACES Cost Estimate, and ECIFP For Reach B
- Task 6 – Final Design Plans and Specifications, DDR, MCACES Cost Estimate, and ECIFP For Reach B
- Task 7 – Coordination, Meetings, and Project Management Information

The SOW requires the submittal of the following main deliverables:

- Progress/Status Reports
- QCP (this document)
- Antiterrorism and Operation Security (AT/OPSEC) Requirements
- 60% Submittal
  - Plans
  - Specifications
  - Design Document Report (DDR)
  - MCACES II Cost Estimates
  - Engineering Considerations and Information for Field Personnel (ECIFP)
  - Draft Real Estate Mapping
- 90% Submittal
  - Plans
  - Specifications
  - Design Document Report (DDR)
  - MCACES II Cost Estimates
  - Engineering Considerations and Information for Field Personnel (ECIFP)
  - Final Real Estate Mapping
- 100% Submittal
  - Plans
  - Specifications
  - Design Document Report (DDR)
  - MCACES II Cost Estimates
  - Engineering Considerations and Information for Field Personnel (ECIFP)
- FINAL Submittal
  - Plans
  - Specifications
  - Design Document Report (DDR)



- MCACES II Cost Estimates
- Engineering Considerations and Information for Field Personnel (ECIFP)

## 7 PROJECT QUALITY CONTROL OBJECTIVES / PROCEDURES

### 7.1 Quality Control Objectives

Quality control for this project will be undertaken following the procedures outlined below. The deliverables discussed above will be reviewed for conformance with the appropriate guidance and/or reference to ensure the quality control objectives are met.

### 7.2 Quality Control Procedures

Before submittal of a deliverable to SPK, the production document and supporting materials will undergo PDT review and internal ITR review. For PDT review, document review will be performed by a senior level individual(s) with the appropriate technical background for the subject document. Depending on the complexity of the document or number of elements of a particular document, PDT review will also be performed as part of an on-going process during document development. Such on-going PDT reviews will be performed by an individual at or above the technical level of the person performing the work. An example of a more complex document that will receive on-going review is the geotechnical report. Report components such as boring logs and figures will receive on-going peer review. Final reviews will then be performed by senior level individuals to result in a draft document, ready for ITR review. The ITR Team will review all components of a deliverable for technical clarity and accuracy and to ensure that the content is consistent with the project requirements and technical criteria specified in the project SOW. The project documents will also be reviewed for editorial type comments. Following completion of the ITR review, the ITR reviewers will discuss their comments with the PDT to convey a clear understanding of any required changes, modifications or clarifications to the project documents.

ITR reviews of deliverables shall be completed to help ensure, as a minimum:

- Compliance with standard engineering and professional practices
- Compliance with project SOW requirements
- Appropriateness of data used, including level of detail
- Appropriateness of alternatives evaluated
- Accuracy of calculations
- Consistency with standards of practice
- Appropriateness of assumptions made
- Adequacy of the scope of the associated document

- Consistency, accuracy, comprehensiveness, and reasonableness of results.

Concurrent with submission of a draft project deliverable for client / external review, HDR will submit an Initial Quality Control Certificate (QCC) to the SPK Project Manager stating that the deliverable has been reviewed internally in accordance with the QCP and that all internal review comments have been addressed.

When review comments are received from SPK or other external reviewers resulting from their review of draft versions of the deliverable, similar procedures will be followed to ensure quality control during the revision process. Review comments will be addressed by members of the PDT that originally worked on the deliverable. Changes to the document will be made and will be back-checked upon revision.

All QC activities associated with ITR and external reviews will be fully documented following a tabular comment-response format. ITR activities will be fully documented using the Corps of Engineers DrChecks review management software, following the comment-response-resolution format. ITR documentation will be included with the QCC.

QC documentation will be maintained in the project file for review by SPK. A Final QCC will accompany the final submittal of a deliverable. The Final QCC will certify that procedures outlined in this QCP have been performed and that all concerns identified during internal and external QC review have been resolved.

### 7.3 Documentation of Subconsultant QC Process and Signoff Procedures

Deliverables provided by a Subconsultant shall be subject to their own QCP requirements, or to the same QC review requirements and process as presented in this QCP. The Subconsultant shall provide to HDR a Subconsultant QCP that identifies the specific quality practices; resources and activities that are used to fulfill the requirements for quality service relative to the deliverables provided by the Subconsultant. If the subconsultant does not provide a QCP, they are required to adhere to HDR's QCP. QA/QC reviews performed by the Subconsultant shall be documented using forms created by the subconsultant. The PM and QA/QC Manager shall review and approve the Subconsultant QCP prior to the receipt of Subconsultant deliverables. The PM or designated HDR staff shall perform a review of Subconsultant deliverables that will include:

- Verification that the Subconsultant deliverable provides the necessary information so that HDR can fulfill its client contractual requirements
- Verification that the Subconsultant deliverable is complete and conforms to the Subconsultant scope of services
- Verification that agreed upon or appropriate assumptions and/or input data have been used
- Assessment of the reasonableness of the Subconsultant's deliverable to determine that HDR is in agreement with the technical analysis and results

The following Subconsultant is providing services and deliverables for this project.

- Andregg Psomas (Adhering to HDR's QCP)

## 8 GUIDANCE / STANDARDS / TECHNICAL CRITERIA

Appropriate provisions of the following Guidance, Standards and Criteria shall be followed during preparation of the project documents required to be developed under the SOW for this project:

- CESPDP R 1110-1-8, Quality Management Criteria
- ER 1110-1-12, Engineering and Design Quality Management
- ERDC-ITL TR-12-6, A/E/C CAD Standard Release 6.0 Standard
- ERDC ITL TR-12-1, CAD Drafting Standard
- ER 1110-2-1302, Engineering and Design - Civil Works Cost Engineering
- UFC 3-740-05 8, HANDBOOK: CONSTRUCTION COST ESTIMATING, November 2010.
- ER 1110-2-1150, Guidance for preparing a Design Document Report (DDR) and plans can be found in Engineering Regulation.
- ER 1110-1-8155, Engineering and Design Specifications, 30 October 2015

## 9 REFERENCE DOCUMENTS

The following are reference documents to be used in the execution of the work associated with this project:

- Quality Management Criteria, including the referenced CESPDP R 1110-1-8, will be provided on optical disk upon request.
- Additional Sacramento District CADD standards and border sheets will be provided on optical disk upon request.
- Post-Authorization Change Report, American River Watershed, Common Features Project, Natomas Basin, Sacramento and Sutter Counties, California, August 2010.
- Vol. 2B: SREL Phase 3 Improvement Plans and Specifications, prepared by HDR Engineering Inc. for Sacramento Area Flood Control District, 60% Submittal dated 14 October, 2009.
- Geotechnical Basis of Design Report, Natomas Reach B, Sacramento County, California, American River Common Features, prepared by Corps of Engineers



- Riverside Irrigation Canal Relocation Plans, Specifications, MCACES Cost Estimate, and Real Estate Mapping, prepared by Mead & Hunt for Sacramento Area Flood Control Agency.
- Reach B Borrow Site Plans and Specifications, prepared by Mead & Hunt for Sacramento Area Flood Control Agency.
- Architect-Engineer Guide (attached as Appendix B):
  - Architect-Engineer Guide REFP13L0 (general info)
  - Architect-Engineer 65% Design Submittals REFP22L0
  - Architect-Engineer 100% Design Submittals REFP23L0
  - CODP02L0 File Naming Convention (Civil)
  - INSP030L0 Project Specs

## 10 PROJECT DELIVERY AND ITR TEAMS

Overall project delivery efforts will be managed by the HDR Task Order Manager, Jason Nettleton. The project leads will be Jason Nettleton as the Civil Lead, Mason Beck as the Pumping Station Lead, Omid Tavangar as the Structural Lead, Dan Gott as the Electrical Lead and Henry Luu as the Transportation Lead. Also presented below is contact information for our subconsultant (Andregg Psomas) for this TO.

**Contact information for these members of the Project Delivery Team (PDT) is presented below:**

Name	Project Role	Telephone	E-mail
Jason Nettleton, PE	Project Manager/Civil Lead	(916) 817-4865	Jason.Nettleton@hdrinc.com
Mason Beck, PE	Pumping Station Lead	(610) 807-5114	Mason.Beck@hdrinc.com
Henry Luu, PE	Transportation Lead	(916) 679-8857	Henry.Luu@hdrinc.com
Omid Tavangar, PE	Structural Lead	(916) 817-4984	Omid.Tavangar@hdrinc.com
Dan Gott, PE	Electrical Lead	(916) 817-4941	Daniel.Gott@hdrinc.com
Mary Mahoney	QAQC Manager/Project Coordinator	916-817-4823	Mary.Mahoney@hdrinc.com

**Contact information for the senior ITR Team is presented below:**

Name	Project Role	Telephone	E-mail
Kevin Calderwood, PE	Pumping Station ITR Reviewer	(916) 817-4979	Kevin.Calderwood@hdrinc.com
Mehdi Farsad, PE	Structural ITR Reviewer	(916) 817-4765	Mehdi.Farsad@hdrinc.com
Martha Dadala, PE	Transportation ITR Reviewer	(925) 900-3481	Martha.Dadala@hdrinc.com
Daniel Jabbour, PE	Civil ITR Reviewer	(916) 817-4943	Daniel.Jabbour@hdrinc.com
Raymond Genato, PE	Electrical ITR Reviewer	(916) 817-4947	Raymond.Genato@hdrinc.com

**Contact information for subconsultant, Andregg Psomas, is presented below:**

Name	Firm/Project Role	Telephone	E-mail
Mark Bardakjian	Andregg Psomas/surveyor 11661 Blocker Dr. Suite 200 Auburn, CA 95603	530.885.7072	<a href="mailto:markb@andregg.com">markb@andregg.com</a>

## 11 PROJECT SCHEDULE AND MILESTONES

The project schedule and milestones that were included in the SOW are presented below. As indicated in SOW, a more detailed project schedule will be developed after the Kickoff meeting

- Task 1 –Quality Control Plan, Reach B
- Task 2 – Antiterrorism and Operation Security (AT/OPSEC) Requirements
- Task 3 – 60% Design Plans and Specifications, DDR, MCACES Cost Estimate, ECIFP, and Draft Real Estate Take Mapping For Reach B
- Task 4 – 90% Design Plans and Specifications, DDR, MCACES Cost Estimate, ECIFP, and Final Real Estate Take Mapping For Reach B
- Task 5 – 100% Design Plans and Specifications, DDR, MCACES Cost Estimate, and, ECIFP For Reach B
- Task 6 – Final Design Plans and Specifications, DDR, MCACES Cost Estimate, and, ECIFP For Reach B
- Task 7 – Coordination, Meetings, and Project Management Information



## 11.1 Submittal Schedule

Task and Description	Duration (Calendar Days)
<b>Base Task – Reach B</b>	<b>Task Completion (calendar days after task order award)</b>
<b>Task 1: Quality Control</b> Quality Control Plan QC and ITR Documentation Quality Control Certificate	14 days 280 days 280 days
<b>Task 2: Antiterrorism and Operation Security</b> (AT/OPSEC) Requirements	3 days
<b>Task 3: P&amp;S Reach B</b> 60% Design Submittal Draft Real Estate Mapping	90 days 90 days
<b>Task 4: P&amp;S Reach B</b> 90% Design Submittal FINAL Real Estate Mapping	180 days 180 days
<b>Task 5: P&amp;S Reach B</b> 100% Design Submittal	260 days
<b>Task 6: P&amp;S Reach B</b> Final Design Submittal	300 days
<b>Task 7: Copies of Outside Agency Communications</b> Monthly Progress Status Reports	5 days after receipt 10 <sup>th</sup> of each month

## 11.2 Review Schedule

The following reviews of submittals will be performed by the COE and sponsors:

Task and Description	
Draft Quality Control Plan	7 calendar days after receipt of submittal
60% Design Submittal for Reach B	14 calendar days after receipt of submittal
Draft RE Mapping for Reach B	14 calendar days after receipt of submittal
90% Design Submittal Reach B	14 calendar days after receipt of submittal
100% Design Submittal Reach B	14 calendar days after receipt of submittal

## 12 PROJECT BUDGET

The TO award documentation (Appendix A) presents the lump sum contract fee negotiated for this project. This document also contains the distribution of the lump sum fee amongst the primary Tasks cited in the SOW.

## 13 TRANSFER OF DATA

Maintaining the schedule for this project will hinge upon the timely transfer of project data from SPK to HDR to support the work efforts required. Additionally, it will be important that HDR and SPK maintain a mutually cooperative and timely handling of production documents for review / comment / response focusing on the established schedule dates. The DrChecks system will be used to document the review comment / response process for this project.



## **APPENDIX A**

### **Project Award, Budget and Statement of Work**



# ORDER FOR SUPPLIES OR SERVICES

1. CONTRACT/PURCH. ORDER/ AGREEMENT NO. W91238-17-D-0027	2. DELIVERY ORDER/ CALL NO. W9123818F0052	3. DATE OF ORDER/CALL (YYYYMMDD) 2018 Feb 06	4. REQ./ PURCH. REQUEST NO. W62N6M72361013	5. PRIORITY
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6. ISSUED BY USACE SACRAMENTO DISTRICT ATTN: CONTRACTING DIVISION 1325 J STREET SACRAMENTO CA 95814-2922	CODE W91238	7. ADMINISTERED BY (if other than 6)  <b>SEE ITEM 6</b>	CODE	8. DELIVERY FOB <input type="checkbox"/> DESTINATION <input checked="" type="checkbox"/> OTHER  (See Schedule if other)
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9. CONTRACTOR NAME AND ADDRESS HDR ENGINEERING, INC. 2365 IRON POINT RD STE 300 FOLSOM CA 95630-8712	CODE 4FZ86	FACILITY	10. DELIVER TO FOB POINT BY (Date) (YYYYMMDD) <b>SEE SCHEDULE</b>	11. MARK IF BUSINESS IS <input type="checkbox"/> SMALL <input type="checkbox"/> SMALL DISADVANTAGED <input type="checkbox"/> WOMEN-OWNED
			12. DISCOUNT TERMS Net 30 Days	
13. MAIL INVOICES TO THE ADDRESS IN BLOCK See SOW "Payments Statement"				

14. SHIP TO US ARMY CORPS OF ENGINEERS, SACRAMENTO CONTRACTING DIVISION 1325 J STREET SACRAMENTO CA 95814-2922	CODE W91238	15. PAYMENT WILL BE MADE BY USACE FINANCE CENTER CIVIL FUNDED CONTRACTS 5722 INTEGRITY DRIVE ATTN: CEFC-FP MILLINGTON TN 38054-5005	CODE 964145	<b>MARK ALL PACKAGES AND PAPERS WITH IDENTIFICATION NUMBERS IN BLOCKS 1 AND 2.</b>
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16. TYPE OF ORDER	DELIVERY/ CALL	<input checked="" type="checkbox"/>	This delivery order/call is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract.
	PURCHASE	<input type="checkbox"/>	Reference your quote dated Furnish the following on terms specified herein. REF:

ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.

NAME OF CONTRACTOR	SIGNATURE	TYPED NAME AND TITLE	DATE SIGNED (YYYYMMDD)
<input type="checkbox"/> If this box is marked, supplier must sign Acceptance and return the following number of copies:			

17. ACCOUNTING AND APPROPRIATION DATA/ LOCAL USE

**See Schedule**

18. ITEM NO.	19. SCHEDULE OF SUPPLIES/ SERVICES	20. QUANTITY ORDERED/ ACCEPTED*	21. UNIT	22. UNIT PRICE	23. AMOUNT
<b>SEE SCHEDULE</b>					

* If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.	24. UNITED STATES OF AMERICA TEL: 916-557-5203 EMAIL: CAROLYN.E.MALLORY@USACE.ARMY.MIL BY: CAROLYN E MALLORY	<i>Carolyn E Mallory</i> CONTRACTING / ORDERING OFFICER	25. TOTAL	\$1,511,721.83
			26. DIFFERENCES	

27a. QUANTITY IN COLUMN 20 HAS BEEN

INSPECTED    RECEIVED    ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED

b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	c. DATE (YYYYMMDD)	d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE
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e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE	28. SHIP NO.	29. DO VOUCHER NO.	30. INITIALS
f. TELEPHONE NUMBER	g. E-MAIL ADDRESS		32. PAID BY
			33. AMOUNT VERIFIED CORRECT FOR

**36. I certify this account is correct and proper for payment.**

a. DATE (YYYYMMDD)	b. SIGNATURE AND TITLE OF CERTIFYING OFFICER
-----------------------	--

31. PAYMENT	34. CHECK NUMBER
<input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL	35. BILL OF LADING NO.

37. RECEIVED AT	38. RECEIVED BY	39. DATE RECEIVED (YYYYMMDD)	40. TOTAL CONTAINERS	41. S/R ACCOUNT NO.	42. S/R VOUCHER NO.
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Section B - Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0001		UNDEFINED		UNDEFINED	\$0.00

Tasks 1 through 7  
FFP

PROJECT TITLE AND LOCATION: American River Common Features,  
Natomas Basin Reach B, Sacramento County, California.

The A-E shall perform the following tasks, in accordance with the Statement of Work (SOW) dated 17 August 2017, revised 21 December 2017, incorporated herein.

The negotiated total amount is \$1,511,721.83, broken out as follows:

Task 1 – Quality Control	\$ 69,187.30
Task 2 – Antiterrorism and Operation Security (AT/OPSEC) Requirements	\$ 1,861.66
Task 3 – 60% Plans and Specifications, DDR, MCACES Cost Estimate, ECIFP, and Draft Real Estate Mapping for Reach B	\$ 683,125.57
Task 4 – 90% Plans and Specifications, DDR, MCACES Cost Estimate, ECIFP, and Final Real Estate Take Mapping for Reach B	\$ 450,934.49
Task 5 – 100% Design Plans and Specifications, DDR MCACES Cost Estimate, and ECIFP for Reach B	\$ 184,227.54
Task 6 – Final Design Plans and Specifications, DDR MCACES Cost Estimates, and ECIFP for Reach B	\$ 94,895.66
Task 7 – Coordination, Meetings, and Project Management Information	\$ 27,489.61

All work and services shall be completed in accordance with the Submittal Schedule in the SOW, but not later than 330 calendar days from the effective date of this task order.

PURCHASE REQUEST NUMBER: W62N6M72361013

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MAX NET AMT	\$0.00
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ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0001AA	2017 Fed Funds for CLIN 0001 FFP	801,068.45	Job	\$1.00	\$801,068.45

NOTE to PAYMENT PROCESSOR: Pay out these 2017 funds first.

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M72361013

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MAX NET AMT	\$801,068.45
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ACRN AA CIN: W62N6M723610130001AA	\$801,068.45
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ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0001AB	2018 Fed Funds for CLIN 0001 FFP	710,653.38	Job	\$1.00	\$710,653.38

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M72361013

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MAX NET AMT	\$710,653.38
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ACRN AB CIN: W62N6M723610130001AB	\$710,653.38
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Section C - Descriptions and Specifications

TO SOW

CESPK-ED-DC

17 August 2017

**Revised 21 December 2017**

STATEMENT OF WORK

**1. PROJECT DATA**

1.1. PROJECT TITLE AND LOCATION: American River Common Features, Natomas Basin Reach B, Sacramento County, California

1.2. PROJECT NUMBER: 458598

1.3. CONTRACT NO: ~~W91238-17-D-0027~~ ~~W91238-16-R-0013~~, Task Order **W91238-18-F-0052**

1.4. CONTRACTOR DATA:

~~TBD~~

**HDR Engineering, Inc.**  
**2365 Iron Point Road, Suite 300**  
**Folsom, California 95630-8712**

***Points of Contact:***

***Mr. Johnnie Mack***  
***Vice President / Contract Manager***  
***(916) 817-4887***  
**[Johnnie.Mack@hdrinc.com](mailto:Johnnie.Mack@hdrinc.com)**

***Mr. Sergio Jimenez***  
***Vice President/Water Resources Market Sector Lead***  
***(916) 679-8834***  
**[Sergio.Jimenez@hdrinc.com](mailto:Sergio.Jimenez@hdrinc.com)**

***Mr. Jason Nettleton***  
***Project Manager***  
***(916) 817-4865***  
**[Jason.Nettleton@hdrinc.com](mailto:Jason.Nettleton@hdrinc.com)**

1.5. GOVERNMENT POINTS OF CONTACT:

Sacramento District A-E Contracting Officer:  
Carolyn Mallory  
CECT-SPK  
1325 J Street  
Sacramento, CA 95814-2922  
(916) 557-5203  
[Carolyn.E.Mallory@usace.army.mil](mailto:Carolyn.E.Mallory@usace.army.mil)

Sacramento District Project Manager:  
John Hoge  
CESPK-PM-C  
U.S. Army Corps of Engineers  
1325 J Street

Sacramento, California 95814-2922  
Telephone (916) 557-5304  
[John.A.Hoge@usace.army.mil](mailto:John.A.Hoge@usace.army.mil)

Sacramento District Project Technical Lead:  
Mark Boedtker  
CESPK-ED-DC  
1325 J Street  
Sacramento, California 95814-2922  
Telephone (916) 557-6637  
Facsimile (916) 557-7846  
[Markus.S.Boedtker@usace.army.mil](mailto:Markus.S.Boedtker@usace.army.mil)

1.6. AUTHORIZATION: Water Resources Reform and Development Act (WRRDA) of 2014

1.7. SCOPE: This Statement of Work (SOW) includes work for completion of 60%, 90%, 100%, and final plans, specifications, Design Documentation Report (DDR), MCACES Cost Estimate, and Engineering Considerations and Instructions for Field Personnel (ECIFP) for the unconstructed portion of Natomas Basin Reach B, as part of the American River Common Features project. Reach B extends from just east of Powerline Road to Farm Road. Take Mapping must also be submitted for this reach at the 60% submittal, and finalized at the 90% submittal. HDR has already prepared the 60% plans and specifications for the portion of Reach B between Powerline Road and about 1,000 feet south of Farm Road. This SOW includes revising the previously prepared 60% submittal with the design guidelines provided in the Corps of Engineers' draft Geotechnical Basis of Design, to be provided when this task order is awarded. Plans and specifications provided by SAFCA for the Riverside Irrigation Canal and Borrow Site must be incorporated into the 90% submittal, and subsequent submittals. This will be provided by SAFCA in Fall 2017.

1.8. ESTIMATED CONSTRUCTION COST: \$ ~~37.963~~ 30 million.

1.9. DRAWINGS TITLES:

American River Common Features, Natomas Basin Reach B, Sacramento County, California

1.10. CRITERIA:

1.10.1. Quality Management Criteria, including the referenced CESPD R 1110-1-8, will be provided on optical disk upon request.

1.10.2. ER 1110-1-12 Engineering and Design Quality Management

1.10.3. CADD Drawings must comply with ERDC-ITL TR-12-6 A/E/C CAD Standard Release 6.0 Standard and the ERDC ITL TR-12-1 CAD Drafting Standard.

1.10.4. Additional Sacramento District CADD standards and border sheets will be provided on optical disk upon request.

1.10.5. Detailed instructions for preparing cost estimates are presented in ER 1110-2-1302, Engineering and Design - Civil Works Cost Engineering, and UFC 3-740-05 8 HANDBOOK: CONSTRUCTION COST ESTIMATING, November 2010.

1.10.6. Guidance for preparing a Design Document Report (DDR) and plans can be found in Engineering Regulation ER 1110-2-1150.

1.10.7. ER 1110-1-8155 Specifications, 30 October 2015

#### 1.11. GOVERNMENT FURNISHED MATERIALS (upon award in PDF format):

1.11.1. Post-Authorization Change Report, American River Watershed, Common Features Project, Natomas Basin, Sacramento and Sutter Counties, California, August 2010.

1.11.2 Vol. 2B: SREL Phase 3 Improvement Plans and Specifications, prepared by HDR Engineering Inc. for Sacramento Area Flood Control District, 60% Submittal dated 14 October, 2009.

1.11.3. Geotechnical Basis of Design Report, Natomas Reach B, Sacramento County, California, American River Common Features, prepared by Corps of Engineers.

1.11.4. Riverside Irrigation Canal Relocation Plans, Specifications, MCACES Cost Estimate, and Real Estate Mapping, prepared by Mead & Hunt for Sacramento Area Flood Control Agency.

1.11.5. Reach B Borrow Site Plans and Specifications, prepared by Mead & Hunt for Sacramento Area Flood Control Agency.

1.11.6. Architect-Engineer Guide (provided as attachments):

- Architect-Engineer Guide REFP13L0 (general info)
- Architect-Engineer 65% Design Submittals REFP22L0
- Architect-Engineer 100% Design Submittals REFP23L0
- CODP02L0 File Naming Convention (Civil) (provided upon
- INSP030L0 Proj Specs

## **2. BACKGROUND**

The Natomas Basin portion of the American River Common Features was authorized by the Water Resources Development Act of 2014. The U.S. Army Corps of Engineers (COE), the State of California, and the Sacramento Area Flood Control Agency (SAFCA) are all cost-sharing partners for project implementation. This authorization provides seepage remediation for the levees along the entire Natomas Basin. A Post-Authorization Change Report, American River Watershed, Common Features Project, Natomas Basin, was prepared with the preliminary plan for this project in August 2010. Reach B is the segment of the Natomas Basin extending from West Elverta Road to Farm Road, which is a distance of 50,000 linear feet (9.5 miles). HDR has already prepared 60% plans and specifications for this entire reach under a contract with SAFCA. SAFCA also completed the design and construction for about 7.3 miles of this reach, leaving only the portion of Reach B between Powerline Road and Farm Road uncompleted. The Corps of Engineers will be completing this design and construction for the uncompleted portion of Reach B.

***Reclamation District 1000 (RD1000) Pumping Plant No. 3 currently has four existing pumps that pump drainage water into the Sacramento River from the Pumping Plant 3. The motors for Pumps 1 and 2 are 200 hp and discharge to 36-inch diameter steel pipes. The motor for Pump 3 is 300 hp and discharges to a 36-inch diameter steel pipe. The motor for Pump 4 is 200 hp and discharges to a 42-inch pipe. Pumps 1, 2, and 3 all discharge to a pressure chamber located approximately 40 feet from the pumps. From the pressure chamber, water is combined and conveyed to the river in a 60-inch pipe. The total estimated flow from the plant is approximately 198 cfs for Pumps 1, 2, 3 and 4. The pumps may not necessarily operate at the design capacity in their existing configuration. Approximately 148 cfs flows from the 60-inch pipe through the outfall to the Sacramento River. Pump 4 has its own discharge line to the river. The existing RD1000 pumps operate on 2,400 volt electrical power. Modifications will be made to the RD1000 facility at Pumping Plant 3 as defined in the Mead and Hunt Basis of Design Report, dated April 2010.***

This task order includes preparation of the Reach B 60%, 90%, 100%, and final plans, specifications, Design Documentation Report, MCACES Cost Estimate, bid schedule, and Engineering Considerations and Instructions for Field Personnel (ECIFP). This task order also includes preparation of the draft and final Real Estate Mapping. The A-E must also incorporate the design guidelines provided in the draft Reach B Geotechnical Basis of Design

prepared by the Corps of Engineers, and the Riverside Irrigation Canal Relocation and Borrow Site designs prepared by Mead & Hunt for SAFCA.

### **3. DESCRIPTION OF WORK AND SERVICES**

The A-E must complete of 60% design, 90% design, 100% design, and final plans, specifications, Design Documentation Report (DDR), MCACES Cost Estimate, and Engineering Considerations and Instructions for Field Personnel (ECIFP) for the unconstructed portion of Natomas Basin Reach B, as part of the American River Common Features project. Reach B extends from just east of Powerline Road to Farm Road. Take Mapping must also be submitted for this reach at the 60% submittal, and finalized at the 90% submittal. HDR has already prepared the 60% plans and specifications for the portion of Reach B between Powerline Road and about 1,000 feet south of Farm Road. The A-E must revise the previously prepared 60% submittal with the design guidelines provided in the Corps of Engineers' draft Geotechnical Basis of Design, to be provided to the A-E when this task order is awarded. The A-E must also incorporate plans and specifications provided by SAFCA for the Riverside Irrigation Canal and Borrow Site into the 90% submittal, and subsequent submittals. This will be provided by SAFCA in Fall 2017.

#### **3.1. TASK 1 - QUALITY CONTROL**

##### 3.1.1. General:

The A-E is responsible for quality control (QC) of the technical products, reports, and submissions produced under this statement of work. The A-E's QC activities must consist primarily of:

- 1) Development and execution of a Quality Control Plan (QCP),
- 2) Internal QC and independent technical review (ITR), including documentation, and
- 3) Quality Control Certification (QCC).

Specific QC requirements are described below.

##### 3.1.2. Quality Control Plan (QCP):

The A-E must develop and execute a QCP that describes planned QC and ITR efforts on submittals, review schedules and milestones, and task order specific review personnel. The A-E must submit and receive approval of the QCP from the Government before proceeding with the effort under this statement of work.

##### 3.1.3. A-E Quality Control (QC) and Independent Technical Review (ITR):

All work products in this statement of work must undergo necessary and appropriate QC by the A-E prior to submittal. Documentation of QC activities is required and must be available electronically upon request for each review to the government as part of QA review activities. QC is an internal review process of work products, implementing basic quality control tools including, but not limited to: quality checks of calculations, analysis and assumptions; supervisory reviews; consistency reviews by design team; reviews for biddability, constructability and operability; checks for adherence to requirements and criteria in statement of work. In addition to the internal QC activities, the A-E must select task order specific qualified personnel to perform the ITR. The selected ITR personnel must not be actively involved in the analysis/design efforts or QC review performed under this statement of work. The A-E must describe the experience and background of the selected ITR personnel, and provide justification for their selection in the QCP. A-E deliverables must be reviewed for compliance with standard engineering and professional practices, adequacy of the scope of the associated document, appropriateness of data used, consistency, accuracy, comprehensiveness, and reasonableness of results. ITR activities must be fully documented using the Corps of Engineers DRChecks review management software, following a comment-response-resolution format. ITR documentation must be included with the QCC. Seamless ITR must be performed periodically as necessary and documented. Final ITR must be performed prior to submittal of the final documents.

##### 3.1.4. Quality Control Certification (QCC):

The A-E must certify in a Quality Control Certification (QCC), accompanying the final submittal under this supplemental statement of work, that procedures outlined in the QCP have been performed and that all concerns identified during QC and ITR activities have been resolved. The Corps will provide a model QCC to the A-E. The QCC and ITR documentation must be included as the last attachment to the final submittal.

### **3.2. TASK 2 – ANTITERRORISM AND OPERATION SECURITY (AT/OPSEC) REQUIREMENTS**

Pre-screen candidates using E-Verify Program. The Contractor must pre-screen Candidates using the E-verify Program (<http://www.uscis.gov/e-verify>) website to meet the established employment eligibility requirements. The Vendor must ensure that the Candidate has two valid forms of Government issued identification prior to enrollment to ensure the correct information is entered into the E-verify system. An initial list of verified/eligible Candidates must be provided to the COR no later than 3 business days after the initial contract award. This Form will be provided to the Contracting Officer and shall become part of the official contract file.

### **3.3. TASK 3 – 60% PLANS AND SPECIFICATIONS, DDR, MCACES COST ESTIMATE, ECIFP, AND DRAFT REAL ESTATE MAPPING FOR REACH B**

#### 3.3.1. 60% Plans:

The A-E must develop the 60% design plans for Reach B. Reach B begins about 2,000 feet east of Powerline Road, and extends to 400 feet south of Farm Road, for a distance of about 2.2 miles. The A-E may use the previously prepared HDR 60% plans, but must incorporate the design guidelines in the draft Corps of Engineers Natomas Reach B Geotechnical Basis of Design. The design includes seepage berms, cutoff walls, adjacent levees, irrigation and drainage canals, maintenance roads, utility relocations (including Pumping Plant 3), road relocations (Radio Road, San Juan Road, Farm Road, **Pumping Plant 3 Access/driveway**, and ~~several a private access ramp roads~~). Access to private properties from Garden Highway must be maintained throughout construction. All traffic and bicycle/pedestrian traffic must be maintained during construction, with adequate detouring and signage included in the plans. All mailboxes must be relocated as necessary. A tree survey of the project footprint must be conducted, identifying the species, diameter, GPS coordinate locations, and whether it is required to be removed or protected in place. The Corps of Engineers will be providing all geotechnical design details for Reach B. Design details not required for this level of effort can be deferred to the 90% submittal.

***The A-E must develop the 60% design plans for the Reclamation District 1000 (RD1000) Pumping Plant No. 3 modifications as defined in the Mead and Hunt Basis of Design Report. The existing pumps will be demolished and four new pumps will be installed for the RD1000 station including new discharge piping. The existing pipelines and outfall structure will be demolished. A new outfall will be designed to include a new headwall, flap gates, siphon breaker, positive closure vault, and piping. Each pump will have its own separate outfall pipe. In addition to the new pumps, Pumping Plant 3 shall have its sump improved to include reinforced concrete baffle walls to separate each pump. Additional changes, including electrical modifications, will be made to the RD1000 facility at Pumping Plant 3 as defined in the Mead and Hunt Basis of Design Report, dated April 2010.***

The A-E must also incorporate the 60% design plans completed by Mead & Hunt for the Riverside Canal Relocation. The plans will be stamped by Mead & Hunt, and the A-E must attach these plans to the back of the 60% Reach D plans, and include the relocation drawings in the Schedule of Drawings sheet.

(a) CADD drawings must follow the A/E/C CAD Standard Release 6.0 Standard. Sacramento District specific standards and border sheets must comply with ERDC-ITL TR-12-6 A/E/C CAD Standard Release 6.0 Standard and the ERDC ITL TR-12-1 CAD Drafting Standard.

(b) The A-E has the responsibility to show all information necessary to completely describe the project on the plans. Regardless of local practice or procedures, the designer must prepare original drawings with the expectation that both the COE, in the role of construction manager, and the construction



contractor will be able to construct this project without numerous modifications to correct design deficiencies. Plans must include longitudinal profiles, plan views, and as many cross-sections and details necessary to show the features of the project. All dimensions and elevations of the channel excavation and flood protection features must be indicated. Survey controls must be based on information presented in the Reach B plans prepared by HDR. The datum refers to National Geodetic Vertical Datum of 1988.

(c) The cover sheet(s) must include the schedule of drawings, vicinity map, location map, legend, and list of abbreviations. The schedule of drawings must include the consecutive sheet numbers, the design discipline sheet numbers, and the drawings titles. The vicinity map must be a single-line type showing major cities, nearby towns, major streams and rivers, current routes of nearby highways and railroads, and a north arrow. Show the location of the project on a small scale location map indicating the general relationship between the new project and streets to facilitate identification of the proposed site. On the location map, show the north arrow and highlight the approved project boundaries, the construction Contractor's haul roads, location and phone numbers of nearest medical facility, and the approved location of the borrow and disposal areas.

(d) The submittal drawings must be single PDF drawing sheets and sized no less than 22"x34" (ANSI D size) full-size. Drawing material that does not meet COE standards may be rejected at any time during design. The A-E is liable for replacing rejected drawings at no expense to the Government. All sheets must have the COE standard borders and title blocks. The title block is for all sheets other than the cover sheet. The cover sheet title block requires a number of signatures by COE personnel.

(e) All drawings must comply with the SPK File Naming Convention for Civil Works CADD Drawings CODP02L0. Place the drawings in the drawings set in the discipline designator sequence. The cover sheet must be the first of the drawing set. All final drawings prepared and submitted by the A-E must bear the stamp and signature of a registered engineer identified in the A-E's QC Plan, preferably one of the principals of the firm. Drawings submitted by the designer must not be dated until the final version is submitted. Cross referencing for sections and details must be based on the discipline designator drawing number (e.g., S-1, S-3, etc.).

(f) Scales must be selected to avoid overcrowded and cluttered conditions on the drawings. Where necessary to maintain proper scale, drawings or large structures must be placed on two or more sheets. A graphic scale for each of the different scales used on a drawing must be placed on the drawings preferable near the title block. Scales must be consistent throughout all the disciplines' drawings. Acceptability of scale is determined by clarity of drawings at one-half scale reduction. Plan sheets are recommended to have a scale of 1 in = 40 ft.

### 3.3.2. 60% Specifications.

Specifications must include technical provisions covering site work, cutoff walls, earthwork, environmental restoration, and other components of work requiring details. Specifications must be prepared according to ER 1110-1-8155, and must include a bid schedule in the front of the specifications, and a submittal register attached to the back of the SUBMITTAL PROCEDURES specification. SPECSINTACT software must be used to prepare specifications. In the interest of uniform construction, it is mandatory for the A-E to use Unified Facility Guide Specifications (UFGS) and Sacramento District Guide Specifications (SPKGS) unless otherwise noted. The A-E must acquire all SPKGS via Zip format using the SPECSINTACT Backup/Restore/Manage command to restore the SPKGS for use. Edit the specifications to meet the needs of the project. A-E prepared specifications must be used only if there isn't a SPKGS available for a specific item of work. Technical provisions must be sufficiently complete and detailed to insure high quality work. Each technical provision must have a table of contents and text submitted in PDF. The use of trade names or proprietary items on the drawings and/or in the specifications by adopting a manufacturer's description of a particular commercial article followed by the words "or approved equal" must be avoided.

The A-E must incorporate the Riverside Irrigation Canal Relocation specifications prepared by Mead & Hunt into the Reach B specifications.

### 3.3.3. 60% Design Document Report (DDR):

The A-E must submit the 60% Design Documentation Report (DDR) incorporating all of the design assumptions and calculations. The actual Geotechnical Basis of Design must be incorporated in the DDR as a separate appendix. This report will be provided by the Corps of Engineers. The COE will also provide all geotechnical input for the DDR. Content and format are as shown in Appendix D of ER 1110-2-1150.

The DDR must be a Word document that is developed and expanded upon with each subsequent submittal so that it represents the complete design history. The submittal must be in PDF. Include a table of contents, a narrative, and appendices. Content and format are as shown in Appendix D of ER 1110-2-1150. It must be noted that the DDR will not be part of the construction bid documents; therefore, any information contained in the DDR that will be needed to complete the construction of the project must be included in the plans and specifications.

- (a) The Table of Contents must clearly define the location of all information contained therein.
- (b) The narrative must provide a complete explanation of the basis of design discipline-by-discipline. It must also include the results of field investigations performed, including basic findings and a discussion of items that warrant special attention.
- (c) The appendices must include copies of all pertinent correspondence; all design calculations and worksheets, and all submittal review comments. Copies of all pertinent correspondence (e.g., statements of work, conference minutes and other pertinent data) are required so that the DDR presents the project history from inception to completion of the design documents. Design calculations and worksheets citing applicable codes and standards must also be included to verify the design. Sketches, details and plans, as necessary, must be prepared to support the calculations. The calculations must be computed and checked by separate individuals. Checking must be accomplished by registered engineers of the firm under contract to the COE, as identified in the A-E's QC Plan. The names of these individuals must be indicated on the page or insert carrying the calculation. Presentation must be clear and legible with a tabulation showing all design loads and conditions. The source of loading conditions formulas and references must be identified. All assumptions and conclusions must be explained and cross-referencing must be clear. When a computer program is used, the program must be named and described. This description must be sufficient to verify the validity of methods, assumptions, theories, and formulas, but will not require source code documentation or otherwise which will compromise proprietary programs. Lastly, all review comments generated by the reviewers, annotated by the COE, and responded to by the A-E must also be included as an appendix.
- (d) The specific contents of the DDR vary depending on the stage of the submittal. Do not delete information from earlier stages of design in subsequent design submittals. The original DDR must be loosely assembled while the copies must be bound. If more than one volume is used, all volumes must be numbered sequentially and assembled under a cover page indicating the volume and total number of volumes for the project. All material must be 8-1/2" X 11" standard page size PDF. Use 11" X 17" PDF for larger material, when reduction is not feasible. This applies to all drawings, published data or automatic data processing printouts that must be included in the DDR. Both side margins must be 3/4" minimum to permit loose side bindings and head-to-head printing.
- (e) Electronic Media: All submittals must be stored on optical disk or other agreed-upon media compatible with a personal computer operating Windows 7. The word processing used to generate the text must be Microsoft Word 2007 format. Graphics must be in a form that can be imported into the Word documents. Final submittal must be in both MS Word 2007 format and Adobe Acrobat PDF.
- (f) Structural Design Calculations: The structural calculations must comply with Corps of Engineers criteria. All calculations must be certified (stamped) by the person indicated in the A-E's QC Plan. The design calculations must be separately bound and clearly subdivided by structure.

#### 3.3.4. 60% MCACES II Cost Estimates:

The A-E must complete the 60% MCACES II (MII) cost estimates. Detailed instructions for preparing cost estimates are presented in UFC and ER 1110-2-1302. MCACES II (Micro-Computer Aided Cost Engineering System II) is the required software for the preparation of the cost estimate. The estimates for this task order must be performed using MII and must be consistent with the current estimating practices of the construction industry (American Society of Professional Engineers). Software can be obtained by completing a form supplied by the Corps of Engineers Technical Lead. Upon completion of the cost estimate, the A-E must submit to the Corps of Engineers Technical Lead the required back-up information and cost estimate as required by the UFC and ER 1110-2-1302. The Corps of Engineers Cost Engineers must be contacted directly for any explanations and/or clarifications.

The A-E must incorporate the MCACES cost estimate prepared by Mead & Hunt into the Reach B MCACES cost estimate. The bid schedules must also be combined into one schedule.

#### 3.3.5. 60% Engineering Considerations and Instructions for Field Personnel (ECIFP):

The A-E must complete the 60% Engineering Considerations and Instructions for Field Personnel (ECIFP) report. The 60% ECIFP must consist of an outline only, but the remaining submittals must be complete reports. The ECIFP is a report outlining the engineering considerations and providing instructions for field personnel to aid them in the supervision and inspection of the construction contract. Appendix G of ER 1110-2-1150 provides an outline of the ECIFP content.

#### 3.3.6. Draft Real Estate Mapping.

The A-E must complete the draft project footprint and staging area mapping with the 60% submittal package for this site. The mapping is a set of AutoCad Version 2007 and PDF files showing required permanent Rights-of-Way (flood protection levee easement), temporary construction and access easements (temporary work area easement), permanent access (permanent road easement), and temporary A-E staging areas necessary for construction and maintenance of the project.

The A-E must also include the draft real estate mapping for the Riverside Irrigation Canal Relocation, prepared by Mead & Hunt.

#### 3.3.7. Review Process.

##### 3.3.7.1 General.

The Corps of Engineers and other agencies will review all A-E prepared design data for conformance with the contract requirements and technical as well as functional criteria utilizing the Corps of Engineers' Design, Review, and Checking System (DRChecks). DRChecks is a computerized method for transmittal and storage of design review comments. It provides interactive capability to address and respond to design review comments. The A-E can access DRChecks at the website [www.projnet.org](http://www.projnet.org). The A-E must also obtain login capability. If the A-E requires assistance, encounters problems, or have questions or comments, call the DRChecks Coordinator, Char Woffinden, at (916) 557-7612.

##### 3.3.7.2 Review Comments.

All design review comments will be entered into DRChecks. All review comments will be "coordinated" by the Corps of Engineers Project Manager. That is, they will be reviewed for applicability to the project against the project's design criteria. Evaluate and respond to comments at a personal computer in the A-E office by use of the DRChecks website described above. All comments are stored in DRChecks. The A-E may download the review comments, evaluate the comments, and enter the responses in DRChecks.

### 3.3.7.3. A-E Responses.

The A-E must respond to the review comments in DRChecks as follows:

- (1) “Concur” if the A-E agrees with the comment.
- (2) “Non-Concur” if the A-E does not agree with the comment. A response on why the A-E does not agree with the comment.
- (3) “For Information Only” if the A-E feels the comment is for information only.
- (4) "Check and Resolve” if the A-E needs further analysis to respond to the comment. Include an explanation of what needs to be done to resolve the comment.

Submitting a separate sheet of paper with location of compliance or rebuttals is not allowed. Enter all information into DRChecks. Notify the Corps of Engineers when all responses are stored in DRChecks. If the A-E has any hardware or software problems with the DRChecks system, call Char Woffinden, the DRChecks coordinator, at (916) 557-7612.

### 3.3.7.4. Backcheck of Previous Comments.

Review comments on prior submittals must be checked for incorporation in the subsequent submittals. Those comments verified as done and explanations concurred with will be annotated, "COMMENT CLOSED," in DRChecks. Previous comments not verified as done or explanations not concurred with will be annotated, "COMMENT OPEN," will appear in the current review stage's comments. These comments require further action by A-E prior to next submittal. All final submittals will be backchecked by the Corps of Engineers, after A-E corrections are made, to ensure compliance with or resolution of comments to the satisfaction of the Corps of Engineers.

## **3.4. TASK 4 – 90% PLANS AND SPECIFICATIONS, DDR, MCACES COST ESTIMATE, ECIFP, AND FINAL REAL ESTATE TAKE MAPPING FOR REACH B**

### 3.4.1. 90% Plans:

The A-E must develop the 90% design plans for Reach B, incorporating the comments from the 60% review, and must be a complete set of plans showing 100% of the design details. Plan drawing requirements are stated in Paragraph 3.3.1.

### 3.4.2. 90% Specifications:

The A-E must develop the 90% design specifications for Reach B, incorporating the comments from the 60% review, and must be a complete set of specifications indicating 100% of the design details. Specification requirements are stated in Paragraph 3.3.2.

### 3.4.3. 90% Design Document Report (DDR):

The A-E must submit the 90% Design Documentation Report incorporating all of the comments from the 60% review. DDR requirements are stated in Paragraph 3.3.3.

### 3.4.4. 90% MCACES Cost Estimates:

The A-E must complete the 90% MCACES cost estimates, incorporating the comments from the 60% review. MCACES cost estimates requirements are stated in Paragraph 3.3.4.

### 3.4.5. 90% ECIFP:

The A-E must complete the 90% Engineering Considerations and Instructions for Field Personnel (ECIFP) report, incorporating the comments in the 60% review. ECIFP requirements are stated in Paragraph 3.3.5.

#### 3.4.6. Final Real Estate Mapping.

The A-E must complete the final project footprint and staging area mapping incorporating the comments from the 60% review. Take Mapping requirements are stated in Paragraph 3.3.6.

#### 3.4.7. Review Process.

Review process requirements are stated in Paragraph 3.3.7.

### **3.5. TASK 5 – 100% DESIGN PLANS AND SPECIFICATIONS, DDR, MCACES COST ESTIMATE, AND ECIFP FOR REACH B**

#### 3.5.1. 100% Plans:

The A-E must develop the 100% design plans for Reach B, incorporating the comments from the 90% review. Plan development requirements are stated in Paragraph 3.3.1.

#### 3.5.2. 100% Specifications:

The A-E must develop the 100% design specifications for Reach B, incorporating the comments from the 90% review. Specifications requirements are stated in Paragraph 3.3.2.

#### 3.5.3. 100% Design Documentation Report (DDR):

The A-E must complete the 100% Design Documentation Report (DDR), incorporating the comments from the 90% review. DDR requirements are stated in Paragraph 3.3.3.

#### 3.5.4. 100% MCACES Cost Estimates:

The A-E must complete the 100% MCACES cost estimates, incorporating the comments from the 90% review. MCACES Cost Estimates requirements are stated in Paragraph 3.3.4.

#### 3.5.5. 100% ECIFP:

The A-E must complete the 100% Engineering Considerations and Instructions for Field Personnel (ECIFP) report, incorporating the 90% review comments. ECIFP requirements are stated in Paragraph 3.3.5.

#### 3.5.6. Review Process.

Review process requirements are stated in Paragraph 3.3.7.

### **3.6. TASK 6 – FINAL DESIGN PLANS AND SPECIFICATIONS, DDR, MCACES COST ESTIMATES, AND ECIFP FOR REACH B**

#### 3.6.1. Final Plans:

The A-E must develop the final design plans for Reach B, incorporating any unresolved 100% backcheck review comments requiring revisions to the 100% plans. Plan drawing requirements are stated in Paragraph 3.3.1.

#### 3.6.2. Final Specifications:

The A-E must develop the specifications for Reach B, incorporating any unresolved 100% backcheck review comments require revisions to the 100% specifications. Specification requirements are stated in Paragraph 3.3.2.

#### 3.6.3. Final Design Document Report (DDR):

The A-E must submit the final Design Documentation Report, incorporating any unresolved comments from the 100% backcheck review. DDR requirements are stated in Paragraph 3.3.3.

#### 3.6.4. Final MCACES Cost Estimates:

The A-E must complete the final MCACES cost estimates incorporating any unresolved comments from the 100% backcheck review. MCACES Cost Estimates requirements are stated in Paragraph 3.3.4.

#### 3.6.5. Final ECIFP:

The A-E must complete the final Engineering Considerations and Instructions for Field Personnel (ECIFP) report, incorporating any unresolved comments from the 100% backcheck review. ECIFP requirements are stated in Paragraph 3.3.5.

#### 3.6.6. Review Process.

Review process requirements are stated in Paragraph 3.3.7.

#### 3.6.7. Final Electronic Submittal.

The A-E must prepare the CADD files for transmittal with E-Transmit for AutoCAD or Packager for MicroStation. Provide an optical disk containing all CAD files as well as an index for the reference files for each drawing. The A-E must prepare the SpecsIntact and PDF specifications files for transmittal using the SpecsIntact Backup tab in the Backup/Restore/Manage command to Zip format. Provide the Submittal Register data using the "Export Submittal Register" command to either a Comma Delimited Text File. Provide an optical disk with the SPECSINTACT specifications transmittal files and Submittal Register data file.

### **3.7. TASK 7 – COORDINATION, MEETINGS, AND PROJECT MANAGEMENT INFORMATION**

The meetings requiring attendance from the A-E are listed below. All meetings will be held in the offices of the Corps of Engineers, Sacramento District, unless notified by the Technical Lead.

#### 3.7.1. Coordination Kickoff Meeting.

A kick-off meeting will be coordinated by the Corps of Engineers Technical Lead and held at the Sacramento District office before the beginning of work. The kick-off meeting will include information availability, geotechnical criteria, requirements for the plans, specifications, Design Document Report (DDR), MCACES cost estimate, Engineering Considerations and Instructions for Field Personnel (ECIFP), and the Real Estate Mapping. In addition, the meeting will discuss the submittal reviews and schedule. The A-E must assume ~~one~~ **two** representatives for the A-E working on this task order will attend, and will be allowed to charge 4 hours for the kickoff meeting.

#### 3.7.2. Project Development Team (PDT) Meetings.

The A-E project manager, when requested by the Technical Lead within 2 working days, must attend PDT meetings at the Corps of Engineers Office between Corps of Engineers, DWR, SAFCA, and Other Agencies (1 meeting per month) for the duration of this SOW. The A-E must assume ~~1140~~ meetings at 3 hours each, must be attended by ~~one~~ **two** representatives for the prime A-E.

### 3.7.3. Progress Meetings.

An additional 2 progress meetings will be held at the Sacramento District or through teleconference. The A-E will be given seven (7) calendar days notice by the Technical Lead prior to the meeting. The meetings will discuss progress to date, project design issues, schedule, and coordination with the Corps of Engineers. The A-E must assume 4 hours per meeting, and must be attended by two representatives from the A-E.

### 3.7.4. Design Review Conferences.

A review conference at the Corps of Engineers office between the Corps of Engineers, local sponsors, and the A-E will take place following each review period of the Reach B 60%, 90%, and 100% design submittal to discuss the review comments. The A-E will be given seven (7) calendar days notice by the Technical Lead prior to the meeting. The A-E must be represented, as a minimum, by the A-E's project manager and a senior engineer. The A-E must assume 4 hours per Review Conference, and must be attended by two representatives of the prime A-E.

### 3.7.5. Written Communications:

All direction to the A-E must come through the Contracting Officer Representative (COR), and other agencies should not be communicating or directing the A-E directly. The A-E must furnish the Corps of Engineers Technical Lead (COR) with electronic copies of all written communications pertaining to the work under this contract received from other agencies within five (5) calendar days of receiving this communication. When it is clearly indicated that a copy of the communication has been furnished to the COR by the originator, the A-E must obtain the concurrence of any action items from the COR. Prepare a summary of all discussions between the A-E and representatives of interested groups and individuals of other agencies relating to work under this contract and furnish an electronic copy to the Corps of Engineers Technical Lead within five (5) calendar days.

The A-E must also prepare progress/status reports to be delivered by the 10<sup>th</sup> of each month. Progress reports must be brief (1-2 pages), describing work performed and a quantitative statement of overall work progress, including percentage of work accomplished on each task and submittal. Also, include a description of the current problems that may impede performance of the tasks outlined in this SOW and suggest corrective actions. This report must also discuss work to be performed on the next two (2) week time frame along with containing a current submittal schedule. Progress reports must be e-mailed to the COR (Technical Lead) and provided with every payment estimate (ENG 93).

## **4. SUBMITTALS**

All submittals must be provided to the COR (Technical Lead). The details of the quantities and distribution are below.

### 4.1. REPRODUCTION REQUIREMENTS:

#### 4.1.1. TASK 1 - QUALITY CONTROL AND QUALITY ASSURANCE

Provide Draft and Final Reports in optical discs containing electronic copies of the reports. The A-E must submit the number of optical discs listed below for each of the Draft, and Final versions.

<u>Product</u>	<u>COR</u>	<u>DWR</u>	<u>SAFCA</u>
Quality Control Plan	1	0	0
Internal QC and ITR Documentation	1	0	0
Quality Control Certification	1	0	0

#### 4.1.2 TASK 2 – AT/OPSEC

The Contractor must submit the List of Verified/Eligible Candidates by e-mail to the COR (Technical Lead).

**4.1.3. TASKS 3 THROUGH 6 – 60%, 90%, 100%, AND FINAL DESIGN PLANS AND SPECIFICATIONS, DDR, MCACES COST ESTIMATE, ECIFP, AND REAL ESTATE MAPPING.**

**4.1.3.1. 60%, 90%, and 100% Submittal:**

Provide optical discs for TASKS 3 through 5: 60%, 90% and 100% Design submittal for Reach B as follows:

<u>ITEM</u>	<u>COR</u>	<u>DWR</u>	<u>SAFCA</u>
60% Reach B Drawings (full size ANSI D PDF), Specifications, DDR, MCACES Cost Estimate, ECIFP	1	1	1
Draft Contract I RE Mapping	1		
90% Reach B Drawings (full size ANSI D PDF), Specifications, DDR, MCACES Cost Estimate, ECIFP	1	1	1
Final Contract I RE Mapping	1		
100% Reach B Drawings (full size ANSI D PDF), Specifications, DDR, MCACES Cost Estimate, ECIFP	1	1	1

**4.1.3.2. Final Submittal:**

Provide optical discs for TASK 6: Backchecked Final Design submittal as follows:

<u>ITEM</u>	<u>COR</u>	<u>DWR</u>	<u>SAFCA</u>
Final Drawings (full size ANSI D PDF), Specifications, DDR, Submittal Register, MCACES Cost Estimate, ECIFP, Statement of Quality Control	1	1	1

**4.1.4. TASK 7 - COORDINATION, MEETINGS, AND PROJECT MANAGEMENT INFORMATION**

The A-E must submit one electronic copy of all communications provided by other agencies to the COR (Technical Lead). The A-E must also e-mail their monthly progress status reports as a separate PDF attachment to the Corps of Engineers COR (Technical Lead).

**4.2. DISTRIBUTION:**

The 60% Design, 90% Design, the 100% Design submittal packages must be submitted directly to the Corps of Engineers - Sacramento District, Department of Water Resources, and SAFCA. The addresses for the Department of Water Resources and SAFCA are as follows:

Department of Water Resources  
ATTN: Ms. Reena Jawanda  
3464 El Camino Avenue, Suite 200  
Sacramento, California 95821

SAFCA  
ATTN: Mr. John Bassett  
1007 Seventh Street, 7<sup>th</sup> Floor  
Sacramento, California 95814

**5. SUBMITTAL SCHEDULE**



5.1. WORK SCHEDULE: The following work schedule covers the work in this SOW.

Task	Task Completion (calendar days after task order award)
Task 1: Quality Control Quality Control Plan QC and ITR Documentation Quality Control Certification	14 days 280 days 280 days
Task 2: AT/OPSEC	3 days
Task 3 : P&S Reach B 60% Design Submittal Draft RE Mapping	90 days 90 days
Task 4 : P&S Reach B 90% Design Submittal Final RE Mapping	180 days 180 days
Task 5 : P&S Reach B 100% Design Submittal	260 days
Task 6 : P&S Reach B Final Design Submittal	300 days
Task 7 : Copies of Outside Agency Communications Monthly Progress Status Reports	5 days after receipt 10 <sup>th</sup> of each month

5.2. REVIEW SCHEDULE: The following reviews of submittals will be performed by the COE and sponsors:

Draft Quality Control Plan	7 calendar days after receipt of submittal
60% Design Submittal for Reach B	14 calendar days after receipt of submittal
Draft RE Mapping for Reach B	14 calendar days after receipt of submittal
90% Design Submittal Reach B	14 calendar days after receipt of submittal
100% Design Submittal Reach B	14 calendar days after receipt of submittal

## **6. OVERALL PERIOD OF PERFORMANCE**

All base work and services must be completed within three hundred thirty (330) calendar days after the effective date of the contract action.

## **7. AUTHORITIES STATEMENT**

No person other than the Government Contracting Officer has the authority to make any changes to this contract action that impact cost or schedule. Authority from the Contracting Officer to the A-E to make changes that impact cost or schedule will be in the form of an official, signed modification.

## **8. PAYMENTS STATEMENT**

The A-E must submit ENG Form 93 (Payment Estimates), available from the Sacramento District's A-E Administration Section; should you require an ENG Form 93, please send an email request to

[ENG93.AE.PaymentEstimates@usace.army.mil](mailto:ENG93.AE.PaymentEstimates@usace.army.mil). A separate ENG Form 93 must be submitted for each task order; multiple task orders or contracts may not be submitted on the same ENG Form 93. The monthly progress report must be submitted with every payment estimate. Payment estimates without corresponding progress reports will be rejected.

Payment estimates must be submitted no more often than monthly. Percentages billed must not be calculated beyond two decimal places for each line item on a payment estimate. Each line item must give a detailed description of:

- The work item being invoiced
- The negotiated amount
- The percentage of work completed for the billing period
- And earnings to date

It is USACE Sacramento District's policy to withhold 10% retains (FAR 52.232-10) on all submitted payment estimates. Retains will be released on task orders at 100% completion, when required documentation is submitted and approved. Please refer to the award document for necessary submittals prior to submitting payment estimates.

Upon receipt, the USACE Sacramento District will review and either approve for accuracy or deny the requested earnings before payment will be made. The completed ENG Form 93 Payment Estimates must officially be submitted via email to [ENG93.AE.PaymentEstimates@usace.army.mil](mailto:ENG93.AE.PaymentEstimates@usace.army.mil), when submitting via email the subject line must include the contract obligation #, task order # and invoice.

\_\_\_\_\_/s/  
Mark Boedtke  
Technical Lead

Attachments:

- 1 – REFP13L0.pdf (AE Guide General Info)
- 2 – REFP22L0.pdf (AE Guide 65% submittals)
- 3 – REFP23L0.pdf (AE Guide 100% submittals)
- 4 – CODP02L0 (File Naming Convention, Civil)
- 5 – INSP03L0 (Proj Specs)

Section E - Inspection and Acceptance

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0001	N/A	N/A	N/A	N/A
0001AA	N/A	N/A	N/A	Government
0001AB	N/A	N/A	N/A	Government

Section F - Deliveries or Performance

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	DODAAC / CAGE
0001	N/A	N/A	N/A	N/A
0001AA	POP 06-FEB-2018 TO 02-JAN-2019	N/A	US ARMY CORPS OF ENGINEERS, SACRAMENTO CONTRACTING DIVISION 1325 J STREET SACRAMENTO CA 95814-2922 FOB: Destination	W91238
0001AB	POP 06-FEB-2018 TO 02-JAN-2019	N/A	(SAME AS PREVIOUS LOCATION) FOB: Destination	W91238

Section G - Contract Administration Data

ACCOUNTING AND APPROPRIATION DATA

AA: 096 NA X 2017 3122 000 0000 CCS: 511 L2 2017 08 2451 443424 96042 3200 2H72D0  
AMOUNT: \$801,068.45

AB: 096 NA X 2018 3122 000 0000 CCS: 511 L2 2018 08 2451 443424 96042 3200 2H72D0  
AMOUNT: \$710,653.38

ACRN	CLIN/SLIN	CIN	AMOUNT
AA	0001AA	W62N6M723610130001AA	\$801,068.45
AB	0001AB	W62N6M723610130001AB	\$710,653.38

## **APPENDIX B**

### **Architect-Engineer Guide**

# Architect-Engineer Guide

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## Scope

The purpose of this Architect-Engineer (A-E) Guide is to inform A-E firms of the general administrative and technical requirements for providing professional services and products relative to their contract with the U.S. Army Corps of Engineers, Sacramento District (SPK). It supplements *EP 715-1-7 Architect-Engineer Contracting* [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>] and the A-E Statement of Work.

## Policy

The A-E Guide applies to A-E firms and members of the Sacramento District staff involved in A-E contract management and administration. It is assumed that the A-E selection process shown in the *Purchasing of Services [PROP08L0]* has been completed and a notification of selection has been transmitted to the A-E. The A-E Firm will begin with the review of the statement of work, criteria and preparation of financial data after the security clearance is obtained. This applies to all types of A-E contract actions including but not limited to: Fixed Price Contracts, Indefinite Delivery Contracts, Task Orders, etc.

## Responsibility

The Chief of A-E Administration Section is responsible for administration of the A-E Guide.

The A-E Administration Section is responsible for coordinating any necessary revisions to the A-E guide within Sacramento District, Engineering Support Branch and Engineering Division. The A-E Administration Section will also assure that this publication is referenced within the statement of work when applicable.

The Project Manager is responsible for referring to this publication in the A-E statement of work, when applicable.

The A-E Firm is responsible for thoroughly reviewing the A-E Guide prior to submission of an A-E cost proposal. The A-E Guide becomes part of the A-E firm's contract when referenced within the A-E statement of work. Therefore, it is essential that the A-E Guide be referred to throughout the execution of the A-E contract. Should there be a conflict between the contract statement of work and the A-E guidance, the contract statement of work shall take precedence. Special emphasis should be placed on scope and cost limitations and the requirements for contract deliverables. Questions and/or conflicts concerning the requirements of this publication should be immediately addressed to the Sacramento District main point of contact (COE POC) designated within the statement of work.

## Distribution

A-E Firm

Chief of A-E Administration Section

Chief of Engineering Division

Assistant Chief of Engineering Division

Chief of Engineering Support Branch

Chief of Design Branch

Chief of Geotechnical & Environmental Engineering Branch

A-E Responsibility Coordinator

Chief of Service and Supply Branch, Contracting Division

A-E Branch, Contracting Division

Project Manager

A-E Negotiator

Small and Disadvantaged Business Utilization (SADBU) Advisor

## Ownership

The Chief of A-E Administration Section  
[[William.D.MulleryD@usace.army.mil?Subject=REFP13L0 - Architect-Engineer Guide](mailto:William.D.MulleryD@usace.army.mil?Subject=REFP13L0 - Architect-Engineer Guide)] is responsible for ensuring that this document is necessary and that it reflects actual practice.

## References

Refer to:

- *Federal Acquisition Regulation (FAR)* [<http://www.arnet.gov/far/>]
- *FAR Subpart 24.2 - Freedom of Information Act*  
[[http://www.acqnet.gov/far/current/html/Subpart 24\\_2.html](http://www.acqnet.gov/far/current/html/Subpart%2024_2.html)]
- *FAR Subpart 36.6 - Architect-Engineer Services*  
[[http://www.acqnet.gov/far/current/html/Subpart 36\\_6.html](http://www.acqnet.gov/far/current/html/Subpart%2036_6.html)]
- *FAR 52.227-14 Rights in Data - General*  
[[http://www.arnet.gov/far/current/html/52\\_227.html - 1109286](http://www.arnet.gov/far/current/html/52_227.html - 1109286)]
- *FAR 52.232-10 Payments under Fixed-Price Architect-Engineer Contracts*  
[[http://www.arnet.gov/far/current/html/52\\_232.html - 1107121](http://www.arnet.gov/far/current/html/52_232.html - 1107121)]
- *FAR 52.232-26 Prompt Payment for Fixed-Price Architect-Engineer Contracts*  
[[http://www.arnet.gov/far/current/html/52\\_232.html - 1107573](http://www.arnet.gov/far/current/html/52_232.html - 1107573)]
- *FAR 52.326-23 - Responsibility of the Architect-Engineer Contractor*  
[[http://www.acqnet.gov/far/current/html/52\\_233\\_240.html](http://www.acqnet.gov/far/current/html/52_233_240.html)]
- *FAR 52.243-1 - Changes - Fixed Price*  
[[http://www.arnet.gov/far/current/html/52\\_241\\_244.html](http://www.arnet.gov/far/current/html/52_241_244.html)]



- 5 USC 552 - Freedom of Information Act (FOIA) [[http://uscode.house.gov/uscode-cgi/fastweb.exe?getdoc+uscview+t05t08+26+0++\(\)+AND+\(\(5\)+AD\]](http://uscode.house.gov/uscode-cgi/fastweb.exe?getdoc+uscview+t05t08+26+0++()+AND+((5)+AD])
- DFARS 236.6 - Architect-Engineer Services [[http://www.acq.osd.mil/dpap/dars/dfars/html/current/236\\_6.htm\]](http://www.acq.osd.mil/dpap/dars/dfars/html/current/236_6.htm)
- AFARS Subpart 5136.6 - Architect-Engineer Services [[http://farsite.hill.af.mil/reghtml/regs/other/afars/afar36.htm\]](http://farsite.hill.af.mil/reghtml/regs/other/afars/afar36.htm)
- EFARS Subpart 36.6 – Architect-Engineer Services [[http://www.hq.usace.army.mil/cepr/efars/part36.pdf\]](http://www.hq.usace.army.mil/cepr/efars/part36.pdf)
- Executive Order E.O. 12906 - Coordinating Geographic Data and Acquisition and Access: The National Spatial Data Infrastructure [[http://www.archives.gov/federal-register/executive-orders/pdf/12906.pdf\]](http://www.archives.gov/federal-register/executive-orders/pdf/12906.pdf)
- USACE Geospatial Data Clearinghouse Node [[http://corpsgeo1.usace.army.mil/\]](http://corpsgeo1.usace.army.mil/)
- EM 385-1-1 Safety and Health Requirements [[http://www.usace.army.mil/inet/usace-docs/eng-manuals/em385-1-1/toc.htm\]](http://www.usace.army.mil/inet/usace-docs/eng-manuals/em385-1-1/toc.htm)
- EP 310-1-6 Graphic Standard Manual [[http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep310-1-6/toc.htm\]](http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep310-1-6/toc.htm)
- EP 715-1-7 Architect-Engineer Contracting [[http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/toc.htm\]](http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/toc.htm)
- ER 5-1-11 U.S. Army Corps of Engineers Business Process [[http://www.usace.army.mil/publications/eng-regs/er5-1-11/entire.pdf\]](http://www.usace.army.mil/publications/eng-regs/er5-1-11/entire.pdf)
- ER 1110-1-12 Quality Management [[http://www.usace.army.mil/publications/eng-regs/er1110-1-12/entire.pdf\]](http://www.usace.army.mil/publications/eng-regs/er1110-1-12/entire.pdf)
- ER 1110-1-8156 Policies, Guidance, and Requirements for Geospatial Data and Systems [[http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8156/entire.pdf\]](http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8156/entire.pdf)
- ER 1110-1-8159 DRCHECKS [[http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8159/entire.pdf\]](http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8159/entire.pdf)
- ENG Form 93 - Payment Estimate - Contract Performance [[http://www.usace.army.mil/inet/usace-docs/forms/e93.pdf\]](http://www.usace.army.mil/inet/usace-docs/forms/e93.pdf)
- CESPD R 1110-1-8 South Pacific Division Quality Management Plan [[http://www.spd.usace.army.mil/entire.pdf\]](http://www.spd.usace.army.mil/entire.pdf)
- CADD/GIS Technology Center, A/E/C CADD Standard, ERDC/ITL TR-01-6, Release 2.0, [[https://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp\]](https://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp)
- Content Standard for Digital Geospatial Metadata Workbook [[http://www.fgdc.gov/metadata/documents/workbook\\_0501\\_bmk.pdf\]](http://www.fgdc.gov/metadata/documents/workbook_0501_bmk.pdf)
- Criteria Bulletin Board System (CBBS) [[http://cbbs.spk.usace.army.mil/\]](http://cbbs.spk.usace.army.mil/)
- U.S. Army Corps of Engineers, Sacramento District, Engineering Quality System [[http://iso9000.spk.usace.army.mil/\]](http://iso9000.spk.usace.army.mil/)
- Sacramento District Quality Management Plan [[http://iso9000.spk.usace.army.mil/qmp\\_s/qmp\\_s.html\]](http://iso9000.spk.usace.army.mil/qmp_s/qmp_s.html)
- Sacramento District Quality Management Plan, Appendix F SPK Quality Management Process, Product Development, Technical Review, and Quality Control Certification Forms [[http://iso9000.spk.usace.army.mil/docs/AppendixF.pdf\]](http://iso9000.spk.usace.army.mil/docs/AppendixF.pdf)
- Design Process for Civil Works Projects [PROP02L0]

- [Design Process for Military Projects \[PROP03L0\]](#)
- [Design Process for Hazardous, Toxic, and Radioactive Waste Projects \[PROP04L0\]](#)
- [Value Engineering \[PROP06L0\]](#)
- [Project Safety and Health Requirements \[PROP07L0\]](#)
- [Purchasing of Services \[PROP08L0\]](#)
- [Creation, Packaging, and Delivery of Project Documents \[PROP09L0\]](#)
- [Geographic Information Systems Design \[PROP17L0\]](#)
- [Preparing BCOE and Quality Control Certificates \[PROP22L0\]](#)
- [Integrating Lessons Learned \[PROA04L0\]](#)
- [A-E Responsibility Management Program \[PROA05L0\]](#)
- [Control of Project Documents \[PROQ02L0\]](#)
- [Managing As-Built & As-Constructed Drawings \[PROQ08L0\]](#)
- [Address and Attention Line Tables \[REFP01L0\]](#)
- [Criteria Locations Table for A-E Firms \[REFP03L0\]](#)
- [Project Specification Examples \[REFP04L0\]](#)
- [General Project Metadata \[REFP05L0\]](#)
- [Architect-Engineer 10% Design Submittals \[REFP18L0\]](#)
- [Architect-Engineer 35% Design Submittals \[REFP21L0\]](#)
- [Architect-Engineer 65% Design Submittals \[REFP22L0\]](#)
- [Architect-Engineer 100% Design Submittals \[REFP23L0\]](#)
- [Request for Proposal Document Submittals \[REFP24L0\]](#)
- [Delivering AutoCAD Drawings \[INSP01L0\]](#)
- [Preparing Project Specifications \[INSP03L0\]](#)
- [Preparing Amendments in SpecsIntact \[INSP04L0\]](#)
- [Delivering Hard Copy Documents \[INSP08L0\]](#)
- [Delivering Project Specifications \[INSP09L0\]](#)
- [Creating CALS Files From AutoCAD \[INSP14L0\]](#)
- [MicroStation DGN to Postscript to CALS \[INSP15L0\]](#)
- [Evaluating a Review Comment \[INSA02L0\]](#)

## Definitions

Refer to the [Glossary of Engineering Quality System Terms and Acronyms \[REFQ10L0\]](#) for definitions not listed here.

## Purpose

### Definition of Common Deliverables

A-E contracts vary greatly in their types of acquisition strategy and execution but still have some processes and products that are the same or similar. Those similar processes and products are Common Deliverables that this A-E Guide will address. Examples are: reports, hard copy paper, CD-ROM, statement of work, the negotiation process, and Quality Control Plans (QCP). Refer to [Architect-Engineer Submittals \[REFP18L0\]](#) for the details of A-E submittal contents.

## Statement of Work Process

### Description

After A-E selection, a copy of the statement of work will be forwarded to the A-E with a request to submit pertinent financial data (e.g., wage, overhead rates, any related direct costs items, subcontractor costs, and profit factors) and possibly the A-E's cost proposal to the Sacramento District. The statement of work will indicate the extent of the work to be accomplished by the A-E and may contain references to project specific criteria. The statement of work serves as the basis for the A-E's fee proposal and the Government's estimate. It will be the basis of a determination of fair and reasonable award price.

### Importance of Statement of Work

The statement of work is a part of the contract between the A-E and the Government. Therefore, it is essential that the two parties mutually agree that the work to be accomplished as described therein is accurate and complete. The goal of the statement of work is to create a measurable product. This means that efforts under a Scope shall be quantified to the maximum extent possible. The intent will not be to say in the Scope "study Problem X and provide solutions." Instead the Scope should say "study problem X and provide solutions at the minimum, optimum, and maximum levels." If an effort cannot be measured then consider a different approach. For example; instead of "study and design a solution," there might have to be a base of "complete the study, and once the recommendations have been evaluated by the Government the design may be awarded as an option." If the basic contract is an Indefinite Delivery Type Contract some statement of work items may be more general in coverage because the Task Order will embody specific efforts. The statement of work shall follow the format defined in *EP 715-1-7* [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>], and as supplemented within local policy under the guidance of the A-E Administration Section. In order to facilitate copying of the scope into the contract document, the statement of work should be in Times New Roman, 10 point font. Do not use headers, footers, page numbers, page breaks, or 'track changes' in the statement of work. Once the contract has been awarded, all changes to the statement of work, pertaining to schedule, price or quality, when necessary, will be made by the Contracting Officer (KO) in writing in accordance with the relevant contract clauses.

## Scope Limitations

### Minor Deviations

The A-E shall provide services and products in accordance with the statement of work. During the progress of the work, the A-E may expect minor changes in criteria within the general statement of the project and should make necessary adjustments accordingly. Minor technical deviations in the statement of supporting items may also be made to accommodate actual field conditions, changes in manufacturing which impact materials, etc.

### Authorized Guidance

The A-E is cautioned to take no guidance from any source, other than the Contracting Officer, during the execution of work, which deviates from the requirements stated in the statement of

work. The A-E shall not depart from, or perform work beyond the scope, or change the criteria upon which it is based without written direction and/or consent from the Contracting Officer. The A-E shall immediately notify the COE POC and/or the Contracting Officer of any such requests. Any problems relating to design, which endanger fulfillment of contractual requirements, shall immediately be brought to the attention of the COE POC. Either the A-E or Sacramento District COE POC shall confirm oral understandings in writing, at request of either party. IN NO CASE ARE CHANGES IN SCOPE TO BE MADE AT THE ACTIVITY LEVEL.

### Obtaining Approval for Deviations

The A-E shall not deviate from the authorized statement of work unless directed otherwise by the KO. The statement of any feature shall not be exceeded without written approval of the KO. THE A-E'S RESPONSIBILITY IS DIRECTLY TO THE GOVERNMENT'S CONTRACTING OFFICER AND ANY REQUESTED DEVIATION FROM THE SCOPE OR ELABORATIONS WITHIN THE SCOPE MUST BE BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER FOR RESOLUTION.

## **Changes in Scope**

### Process

The A-E shall not perform services requested by any person in the COE, other than the Contracting Officer, which the A-E considers to be a change in work or services required by the contract and necessitating an adjustment in contract price until all of the following is completed.

- Receipt of Supplemental Statement of Work from the Contracting Officer's Representative (COR).
- Submitted a proposal to COE covering such extra services,
- Negotiated with an authorized agent of the Government a mutually satisfactory fee, and
- Received an official notice to proceed from the Government Contracting Officer.

### Negotiations

Should MAJOR changes in the Scope be authorized by the Contracting Officer, appropriate modification to the A-E contract will be negotiated in accordance with the Contract Clause *FAR 52.243-1 - Changes - Fixed Price* [[http://www.arnet.gov/far/current/html/52\\_241\\_244.html](http://www.arnet.gov/far/current/html/52_241_244.html)]

## **A-E PROJECT MANAGER DESIGNATION**

One individual of the A-E Firm shall be designated by the A-E as Project Manager. The Project Manager shall be fully cognizant of the requirements of the A-E Contract, performance schedule and contents of this publication. The Project Manager will work directly with the Sacramento District COE POC, who will furnish guidance necessary for the successful execution of the work.

## RELEASE OF PROJECT INFORMATION

### Release by A-E to Public

At any stage of study, planning, design or construction, the A-E shall contact the Sacramento District Public Affairs Office, (916) 557-5104, to obtain a clearance and release before releasing any information for publication or giving public speeches concerning a project.

### Document Ownership

Under the clause "Drawings and Other Data to Become Property of Government" of the Contract Clauses, the ownership of all studies, reports, findings, designs, drawings, specifications, notes, calculations, electronic files, computer programs/software developed specifically to satisfy scope requirements and provide acquired data or other work is vested in the Government.

### The Freedom of Information Act

Of primary concern to the Sacramento District is the release of cost and pricing data that A-Es may consider as privileged and essential to their competitive position in their respective economic sectors. The A-E is advised that the FOIA applies to the data provided for the purpose of negotiations. Therefore, in the event an A-E wishes their cost and pricing data to be privileged and exempt from public release, the Sacramento District PM should be advised in writing and each page containing such data should be appropriately marked. Although the Sacramento District treats all A-E furnished cost and pricing data as being of a confidential nature, the *5 USC 552 - Freedom of Information Act (FOIA)* [[http://uscode.house.gov/uscode-cgi/fastweb.exe?getdoc+uscview+i05t08+26+0++\(\)+AND+\(\(5\)+AD\)](http://uscode.house.gov/uscode-cgi/fastweb.exe?getdoc+uscview+i05t08+26+0++()+AND+((5)+AD))], as amended, requires the release of records held by Government Agencies or Offices when requested by interested parties, unless such records are covered by one of the "exemptions" listed in the law. The *FAR Subpart 24.2 - Freedom of Information Act* [[http://www.acqnet.gov/far/current/html/Subpart\\_24\\_2.html](http://www.acqnet.gov/far/current/html/Subpart_24_2.html)], provides DOD policy and guidance on handling requests for records and exemptions under this Act.

## Correspondence and Transmittals

*Address and Attention Line Tables* [[REFP01L0](#)] shows the appropriate attention lines for the deliverable requirements listed within this A-E Guide. Failure to include the proper attention line within the address of correspondence to the Sacramento District may delay delivery and possibly compromise the A-E contract.

Submitting files via FTP does not relieve the A-E of having to fulfill any, or all, media requirements listed within the statement of work. The COE POC must be concurrently notified by e-mail of all FTP transmissions. For FTP transmissions to be considered as a valid deliverable, they must be acknowledged by the COE POC or PM with "confirmation of receipt" e-mail. An FTP address for the project may be coordinated with Engineering Division's Criteria Management Unit at Sacramento District (916) 557-7670 or [[cbbs@spk.usace.army.mil](mailto:cbbs@spk.usace.army.mil)]

## STANDARD CLAUSES (for emphasis only)

### Architect-Engineer Contract Clauses (where to find)

The A-E should review the standard *FAR* [<http://www.arnet.gov/far/>] and *FAR Subpart 36.6 - Architect-Engineer Services* [[http://www.acqnet.gov/far/current/html/Subpart 36.6.html](http://www.acqnet.gov/far/current/html/Subpart%2036.6.html)]. These clauses are incorporated, by reference, as part of the A-E firm's contract with Sacramento District. Upon request, the Contracting Officer will provide hard copies of the applicable A-E Contract Clauses.

### Cautionary Clause (take direction only from Contracting Officer)

No person other than the Contracting Officer has the authority to make changes to any contract action that impacts cost or schedule. Authority from the Contracting Officer to the A-E to make changes that impact cost or schedule will be in the form of an official, signed modification.

### Pay Estimates

Special emphasis is placed on requirements within Contract Clause *FAR 52.232-10 Payments under Fixed-Price Architect-Engineer Contracts* [[http://www.arnet.gov/far/current/html/52\\_232.html](http://www.arnet.gov/far/current/html/52_232.html) - 1107121] as well as *FAR 52.232-26 Prompt Payment for Fixed-Price Architect-Engineer Contracts* [[http://www.arnet.gov/far/current/html/52\\_232.html](http://www.arnet.gov/far/current/html/52_232.html) - 1107573]. See the PAYMENTS paragraph located within this A-E Guide for Common Deliverables.

### Release of Data Clause

Special emphasis is placed on requirements within clause *FAR 52.227-14 Rights in Data - General* [[http://www.arnet.gov/far/current/html/52\\_227.html](http://www.arnet.gov/far/current/html/52_227.html) - 1109286] and the *FAR Subpart 24.2 - Freedom of Information Act* [[http://www.acqnet.gov/far/current/html/Subpart 24.2.html](http://www.acqnet.gov/far/current/html/Subpart%2024.2.html)]. Also, see paragraph Release by A-E to Public before discussing any parts of the contract and project with the public,

### Quality Control Clause

The A-E is reminded of contractual obligations stated in the contract clause that specifies responsibility for the professional quality, technical accuracy, and the total coordination of all designs, drawings, specifications, and other services furnished

### Alteration of Authorities/Responsibilities Clause

The A-E shall not include any statements during the preparation of contract documents that may be construed as altering the responsibilities and/or authorities regarding the parties (especially that of the Government's) involved in the construction contract.



## SERVICE AND/OR PRODUCT PHILOSOPHY

Before beginning the work, the A-E should review current criteria, instructions and guide specifications shown in *Criteria Locations Table for A-E Firms [REFP03L0]*, and make a thorough study of the requirements of the project and, if applicable, the conditions at the site. If, after an analytical review, the A-E is of the opinion that a deviation from instructions would be of benefit to the Government, the A-E shall bring the matter to the attention of the COE POC for a decision. Sacramento District encourages the A-E to use ingenuity and professional expertise to provide the best possible service and/or product for all elements of the project within the constraints imposed.

## PRE DESIGN (Scope Clarification) CONFERENCE

The A-E may be requested, or may request, to participate in a pre-work (a.k.a. Scope Clarification) conference between the customer and the key members of the A-E's project team. The purpose of such a conference is to discuss the customer's expectations, become more familiar with site conditions, better define the requirements, and if necessary, further clarify the scope for the project prior to preparation of a price proposal. This shall include the types of design, deliverables, review process/responsibilities, and major project tasks and constraints. This meeting may be held in the immediate vicinity of the proposed project, at the Sacramento District Office, or even over the telephone. At this time the A-E is encouraged to propose statement of work changes, which are felt to be in the best interest of the project. To assist in preparation for the conference, the COE POC will provide the A-E information for obtaining the project specific criteria as referenced in the statement of work.

## PREPARATION OF PROPOSAL

### Price Proposal

A-E price proposals shall be submitted to the addresses listed in *Address and Attention Line Tables [REFP01L0]*. Under no circumstance is the A-E to submit additional copies (hard or electronic) to other COE employees without the explicit consent or direction of the A-E Administration Section chief, COR, or the Contracting Officer. The type of deliverable, whether hard copy, electronic, or both should be specified with the Request for Price Proposal. If submitting an electronic proposal, see paragraph Electronic Files. If submitting a hard copy proposal the A-E shall submit the original and one copy to the A-E Administration Section chief, or COR who issued the request for proposal. If the proposal is in excess of \$550,000, an additional copy shall be sent to Construction and A-E Branch, Contracting Division.

### Subcontracting Plan

If the A-E is a large business and the total contracting amount is expected to be \$500,000 or more, the A-E must prepare and submit a subcontracting plan. The Government's SADBUI Advisor, who often will attend the pre-negotiation conference to explain the subcontracting plan requirements, must deem the plan acceptable. One copy of the A-E'S completed subcontracting plan must be sent along with the price proposal. The original of the subcontracting plan must be

sent, at the same time, to the SADBUs at the address listed in *Address and Attention Line Tables* [[REFP01L0](#)].

## Quality Control Plan (QCP)

### Purpose

The purpose of the A-E prepared QCP is to ensure development of a quality product or service from inception through completion of the Quality Control Certification (refer to paragraph A-E Quality Control (QC) Review). The QCP is a project specific document that provides a framework for developing a product and conducting the technical review of a product. The QCP is a living document and becomes part of the Sacramento District's Project Management Plan that is developed for each project by the Project Manager. The A-E QCP establishes the documents and products to be reviewed, the review team and its responsibilities, and schedule and costs for review. It is prepared for every product/service except for those identified as small and low risk. A generic version may be used for routine, minor products, if the appropriate Sacramento District Functional Chief approves. With approval, the A-E updates the QCP as warranted.

### Responsibility

The A-E is responsible for reviewing, checking and coordinating all submittals. The professional quality, technical accuracy and coordination of all design submittals and other services to be provided by the prime A-E and any subcontractors/consultants used is of major importance. A written QCP shall be submitted concurrent with the price proposal, but under separate cover letter, unless the project is highly complex and would require more time for development. In this event, the A-E will be allowed to submit a generic plan with the price proposal followed by a completely detailed plan early in the first phase of work. Refer to *Address and Attention Line Tables* [[REFP01L0](#)]. The A-E's performance evaluation will be based in large part on how the deliverables package reflects conformance with the A-E QCP. The A-E's contractual obligation to provide complete, well coordinated, and error free documents has far-reaching consequences. Therefore, the A-E is cautioned to place special emphasis on this aspect of the QCP. In the event damage to the Government results from negligent performance of any of the services to be furnished under this contract, the A-E will be held liable for such damages. The Government's review effort in no way relieves the A-E of contractual responsibilities. For this reason, an effective quality control plan is critical.

### Content

The content of the QCP is dependent on the complexity of the product or service being provided and can range from a generic QCP to a Project/Product/Service Specific QCP. As a minimum all QCPs are to include a schedule of work to be accomplished, a budget, points of contact and their respective lines of authority/coordination, a brief discussion on plan execution with contingency measures when appropriate, A-E review effort, and a A-E quality control checklist. Refer to *ER 1110-1-12 Quality Management* [<http://www.usace.army.mil/publications/eng-regs/er1110-1-12/entire.pdf>].



## Review of QCP

The COE POC will review the QCP. If comments are generated during this informal review, the A-E shall respond to the comments by E-mail and/or revise the plan accordingly and resubmit prior to initiating design. The A-E will be expected to follow the approved QCP throughout the course of the project to assure a quality end product. Should future events dictate revisions to the approved QCP, the A-E shall notify the COE POC by E-mail and submit the revised plan for approval.

## **PRE-NEGOTIATION CONFERENCE**

As with the Pre-Design Conference, the A-E may be requested, or may request, to participate in a Pre-Negotiation Conference with the COE's designated negotiator, the COE POC and key members of the A-E's project team and/or designated authorized representative. The purpose of this conference is to discuss the requirements of the statement of work. Upon conclusion of the review and adjustment of the statement of work, an acceptable format and appropriate cost breakdown (typically broken down by each task identified by a Period of Service in the statement of work to be used by the A-E for his proposal will be determined. This Pre-Negotiation Conference will also serve to address any other special contracting issues peculiar to this pending contract, as well as provide the A-E an opportunity to ask any questions, or express any concerns, regarding the requirements and administration of the contract. This meeting may be held at the Sacramento District Office, or over the telephone and/or in conjunction with the Pre-work Conference, if there is one.

## **NEGOTIATION CONFERENCE**

Negotiations may be held in Sacramento District offices or telephonically. The objective is to reach an agreement on a fair and reasonable price for the work and services required. This does not mean that there is agreement on each and every item, only major items and the overall cost to the Government. During negotiations the statement of work will again be reviewed as necessary, and the A-E's proposal will be examined and discussed in detail. Major changes in the statement of work are unacceptable at this time unless the A-E has previously notified the COE POC that certain scope changes are necessary. If a major scope change is needed, then the negotiation is stopped until the scope, and any revised proposal or revised IGE is completed.

## **AWARD OF A-E CONTRACT ACTION**

Subsequent to the successful completion of negotiations and upon approval of the Contracting Officer, the A-E will receive a written transmittal letter forwarding the unsigned contract to the A-E for signature approximately 10 days after completion of the negotiations. The signed contract must be faxed back to Sacramento District before the effective contract date. The A-E is authorized to begin work as of the effective contract date. For task order awards, the fully executed task order will be sent to the A-E and is the authority for the A-E to commence work.

## **SUBMITTAL SCHEDULE**

The schedule for contract deliverable submissions is established in the statement of work. MEETING ESTABLISHED SUBMITTAL SCHEDULES IS ESSENTIAL. Late submissions

may jeopardize project funding, construction contract award or user need dates and will have an adverse impact on the A-E's performance evaluation.

## REVIEW PROCESS

### Strategy

The Government review strategy is to accommodate *ER 5-1-11 U.S. Army Corps of Engineers Business Process* [<http://www.usace.army.mil/publications/eng-regs/er5-1-11/entire.pdf>] and utilize the A-E QCP. Refer to paragraph Quality Control Plan (QCP).

### A-E Quality Control (QC) Review

The A-E is responsible for conformance with contract requirements and technical as well as functional criteria. Therefore, the A-E shall provide a QC review of all submittals in accordance with the QCP prior to each submittal.

### Documenting QC Review

The A-E designers shall annotate all comments with responses and make the appropriate adjustments to all applicable documents prior to their resubmission to the Government. The A-E's documented QC comments and responses shall be a separate document and accompany each required submittal.

### Quality Control (QC) Certification

At the time that the final submittal is provided to the Government, the A-E shall provide a QC certification in accordance with the *Sacramento District Quality Management Plan, Appendix F SPK Quality Management Process, Product Development, Technical Review, and Quality Control Certification Forms* [<http://iso9000.spk.usace.army.mil/docs/AppendixF.pdf>].

### Virus Free Certification

The A-E shall also provide a written certification stating that each and all versions of any electronic submittal are virus free. The certification may be included on the Quality Control Certification Letter.

## Government Quality Assurance (QA) Review

### Electronic Process

The Government will provide a QA review of the A-E's work using the program described in *ER 1110-1-8159 DRCHECKS* [<http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8159/entire.pdf>].

### Level of Detail

The Government and other agency review may range from a cursory review of the A-E's QC documentation for relatively straightforward projects to a more detailed review of A-E products for more complex or controversial projects. However in all cases, the review will not identify each and every incidence of an important area needing attention. The comments will address the problem and some of the incidences. The A-E is expected to change all necessary and related items. The Government review effort in no way replaces the A-E's review and quality control requirements.

### Coordination of Comments

All Government review comments will be coordinated by the COE POC prior to submittal to the A-E through the electronic process identified in the statement of work or paragraph Electronic Process. The POC will review the comments for applicability to the project against the project's design criteria, and then notify the prime A-E the comments are ready for evaluation in accordance with *Evaluating a Review Comment [INSA02L0]*. The A-E is responsible for coordinating comments with any subcontractors. Handwritten A-E responses to Government review comments will not be accepted. A-E responses must be made as described within *Evaluating a Review Comment [INSA02L0]*. The A-E is encouraged to call and discuss any problematic comments with the appropriate reviewer. The Government will back check all final A-E submittals after A-E corrections are made to insure compliance with or resolution of comments to the satisfaction of the Government.

## **HEALTH AND SAFETY PLAN**

The A-E shall submit a health and safety plan for the work requiring such a plan. The plan shall cover all A-E actions to insure health and safety of A-E personnel during fieldwork. The plan shall be brief and shall be submitted within 7 calendar days after a contract award and prior to any fieldwork. Refer to *EM 385-1-1 Safety and Health Requirements* [<http://www.usace.army.mil/inet/usace-docs/eng-manuals/em385-1-1/toc.htm>] and *Project Safety and Health Requirements [PROP07L0]*.

## **CONSULTATION WITH THE CLIENT ACTIVITY**

The COE POC is the focal point between all Government representatives and the A-E regarding technical and performance issues. The A-E may be required to consult with the sponsor or local activity having a jurisdiction and impact, or client team concerning local conditions or operational requirements. Technical and design considerations that conflict with the directions from the COE POC shall be brought to the COE POC's attention immediately.

## **Informational Material**

Any "typical" or "example" documents (design analysis, specifications, drawings, etc. from another project or just general in nature) shown to the A-E are for background information only, and are not authorized criteria unless specifically stated within the statement of work.

## FORMAT, CONTENT, and PACKAGING OF DELIVERABLES

### General Instructions

The statement of work will define what types of deliverables are required. Follow the information below for the format of those types. Not all of these may be required by the A-E contract. Sometimes, the statement of work will also define special or additional format requirements. When conflicts arise between the statement of work and this A-E Guide for *A-E Submittals [REFP18L0]*, the statement of work governs. Please notify the COE POC for concurrence. The A-E shall use SPECINTACT and UFGS guide specifications for the preparation of all technical specifications. All hard copy submissions shall include a Project Cover Sheet, as shown in *General Project Metadata [REFP05L0]*. This applies to all sizes of paper (8.5"x11", 11"x17", 22"x34", etc).

### Type of Paper

Unless otherwise directed by the statement of work, all final hard copy CADD drawings, maps, and plates larger than 8.5" x 11" shall be on reproducible vellum. All other submittals, including interim CADD submissions, shall be on white paper with black print

### Electronic Files

#### Project Metadata

All electronic file submissions shall include Project Metadata as shown in *General Project Metadata [REFP05L0]*. This file is to be kept in the root directory of the project directory structure and shall be included with all phases of electronic deliverables.

#### Formats and Software

The statement of work should define the specific software programs and versions mandatory for the contract, especially if the files will ultimately be transferred to a customer. If it doesn't, please notify the COE POC to obtain written concurrence.

#### Geospatial Meta Data

##### Definition

Geospatial data is any data referenced to a point on the earth. This would include (but is not limited to) data the Corps uses to produce river and harbor maps, charts and drawings, real estate maps, environmental and economic studies, engineering studies and drawings. The Federal Geographic Data Committee (FGDC) has published a *Content Standard for Digital Geospatial Metadata Workbook [http://www.fgdc.gov/metadata/documents/workbook\_0501\_bmk.pdf]* that documents all the fields of the metadata standard.

## How to Create

There are several programs available to help create metadata compliant with the Federal Geographic Data Committee standards. For an extensive listing of available packages see the *USACE Geospatial Data Clearinghouse Node* [<http://corpsgeo1.usace.army.mil/>]. Since metadata is only a text file containing certain fields in a certain order, even a word processor could be used to create the files. However, since there are mandatory fields and the order of fields is important, a word processor is not recommended.

## National Clearinghouse

*Executive Order E.O. 12906 - Coordinating Geographic Data and Acquisition and Access: The National Spatial Data Infrastructure* [<http://www.archives.gov/federal-register/executive-orders/pdf/12906.pdf>] requires that all federal agencies create and submit metadata, for all geospatial data collections, to a national clearinghouse. Submission of the metadata to the national clearinghouse is the responsibility of the Sacramento District.

## Guidance

*ER 1110-1-8156 Policies, Guidance, and Requirements for Geospatial Data and Systems* [<http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8156/entire.pdf>], was written to assist USACE commands comply with the Executive Order. Refer to *Geographic Information Systems Design* [[PROPI7L0](#)] for format and content requirements.

## Studies and Reports

### Paper Size

Unless otherwise specified in the statement of work, Study and Report deliverables shall be in accordance with the *EP 310-1-6 Graphic Standard Manual* [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep310-1-6/toc.htm>], Grid B - 8.5"x11" Technical Publications, single column. Any drawings, plates, maps, etc. that require larger paper size shall be as described within Sacramento District Work Instructions.

### Content

The statement of work should describe the requirements and level of detail required to fulfill the requirements of the A-E Contract, or otherwise where to find such requirements.

### Schedules

Any MS Office compatible software may be used to create the schedules specified within the statement of work. Use the information above for delivering hard copy and/or electronic files as required.

## Plans, Drawings, Plates, and Maps

### CADD Standards

To retain clarity and relevance when reproduced in black and white, any graphics prepared for reports or presentations must make use of distinguishing line types and/or hashing patterns to depict different features. Appealing color-coding may also be employed, but not in lieu of line types and hashing. Follow the *CADD/GIS Technology Center, A/E/C CADD Standard, ERDC/ITL TR-01-6, Release 2.0,* [\[https://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp\]](https://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp).

### Scale Factors and Units of Measurement

The required unit of measurement is metric. Drawings should be one-to-one and plotted to appropriate scale for the paper size. Exceptions and specifics will be listed within the statement of work and *Creating Design Drawings for Military Projects* [\[INSP06L0\]](#).

### Border Sheets

Border sheets for various product deliverables are available from the *Sacramento District's CADD Web Page* [\[http://www.spk.usace.army.mil/organizations/cespk-ed/SPKCADD/index.html\]](http://www.spk.usace.army.mil/organizations/cespk-ed/SPKCADD/index.html). SPK CADD border sheets contain specific formats for both AutoCAD and MicroStation that must be followed.

### Content

The A-E has the responsibility to show all information necessary to completely describe the project. Regardless of local practice or procedures, the designer must prepare the drawings with the expectation that both the Corps of Engineers, in the role of product or service manager, and the customer will be able to proceed to the next level of project intent (i.e., bidding, construction or funding) without numerous modifications to correct work deficiencies.

### Interim Submittals

The amount of effort and detail required for interim submittals should be agreed to during negotiations. Some types of deliverables may have Sacramento District Work Instructions that will describe the required details.

### Cost Estimates

### Precautions

The A-E shall be aware of and take such precautionary measures as necessary to maintain the confidential nature of all cost estimates. Refer also to paragraph RELEASE OF PROJECT INFORMATION.

### Packaging and Mailing

All cost estimates shall be prepared in accordance with this section of the A-E Guide and will be bound (or stapled) separately from other submittal data. An electronic copy of the MCACES project file (with related databases) shall also be furnished to the District cost engineer on a CD-ROM.

### Use of MCACES

In general, cost estimates, at the earliest practical stage of project development, are to be prepared using the latest version of MCACES (Micro Computer Aided Cost Estimating System). When MCACES is waived on a given project by formal memorandum issued by the Sacramento District Cost Engineering Section, the cost estimate shall be prepared in accordance with the statement of work of the design contract.

### Cost Growth

The unit costs of all construction cost estimates submitted shall reflect the current pricing at the time of submittal. For all estimates prior to the Final Design, cost growth (escalation) - using the Tri-Services Index - is to be added to the total project cost, projecting costs to the assumed midpoint of construction. For Final Design and later cost estimates, cost growth may or may not be added as directed by the Sacramento District Cost Engineering POC.

## **Engineering Considerations and Instructions for Field Personnel (ECIFP)**

Unless otherwise specified within the statement of work, the A-E consultant shall prepare an ECIFP. This report is used to transmit special design concepts, assumptions, and instructions on how to construct unique design details to field personnel. The report establishes a basis for communication and coordination between design and construction personnel. The ECIFP vary in the level of information necessary to get the field personnel familiar with the project. The following information should be included as a minimum:

- Existing Health and Safety concerns at the site
- Site access protocols
- Site security protocols
- Installation or site points of contact
- USACE points of contact for contract administration
- Regulatory points of contact for emergency notification

### Report Format and Content.

As applicable to your project, include the following information in your report:

- Title Page. List Project title, location and date of report.
- List of Design Personnel. Provide a list of key design personnel that could be contacted for technical assistance during construction. Include name, design specialty and telephone number.
- Special Design Considerations. Provide clear and concise explanation of special design concepts and/or unique features by discipline; Civil, Architectural, Structural, Mechanical, Electrical, etc. such that COE construction personnel can identify and properly inspect these special items of work. Examples of items to discuss include:
  - Step-by-step instructions for constructing complex building features, i.e., do this before that, etc.
  - Critical tolerances
  - Special testing requirements
  - Critical or unusual product and performance specifications such as high pressure, temperatures or capacities.
  - Situations where manufacturer should oversee equipment installation.
  - Long-lead procurement items.
  - Government-furnished equipment.
  - Special operational constraints, i.e., utility outage periods, aircraft runway closures, phasing of work in occupied buildings or other special construction phasing required.
  - Any permits that must be obtained prior to and during construction.
  - Critical safety precautions required, especially in the areas of asbestos, or other minimum quality assurance testing amount/frequency for critical items.
- Shop Drawing Review. Provide a list of items or features of the project where you feel you alone have the expertise to properly review shop drawings involved.
- Schedule of Required Site Visits by Design Personnel. If you deem site visits on certain phases of construction are necessary, a site visitation schedule shall be prepared identifying the critical construction stages and the number of days of notification required from the COE.

## **Significant Discussions and Meeting Minutes**

### Responsible Party

With the exceptions of the PRE-DESIGN CONFERENCE and PRENEGOTIATION CONFERENCE, the A-E shall prepare significant discussion documentation and distribute either electronic or hardcopies to all parties. The COE POC, whether or not they attended or participated in the meeting, shall be provided copies of all information.



### Timeframe for delivery

The COE POC shall receive significant discussion materials within 5 –7 business days after date of occurrence. The COE POC should acknowledge by return e-mail with a "confirmation of receipt."

### Types of Significant Discussions

- Meeting Minutes

- Telephone Conversations

Only those telephone conversations relating to the technical phases of work under the contract are considered significant.

- Written Communications

Furnish to the COE POC a copy of all written communications pertaining to the work under this contract received from other Government agencies. When it is clearly indicated that a copy of the communications has been furnished to the COE POC by the originator, concurrence of action shall be obtained from the COE POC prior to performing such action.

- E-Mail Communications

Immediately transmit to the COE POC a copy of all E-mail communications pertaining to the work under this contract received from other Government agencies. When it is clearly indicated that a copy of the communications has been furnished to the COE POC by the originator, concurrence of action will be obtained from the COE POC prior to performing such action.

- What to include

- Name of Project
- Subject of Meeting
- Date of Meeting
- Attendees
- Record of Issues Discussed
- Action Items
- Suspense Date
- Minutes taken by

## **RESPONSIBILITY AFTER COMPLETION OF WORK**

### **Errors or Omissions (A-E LIABILITY FAR 36.608 and 36.609)**

The A-E is required to support the Sacramento District after completion of the scoped work should errors or omissions in the documents prepared by the A-E create problems in the

subsequent stages of the project, such as in bidding or administering the contract for construction, where the A-E has been tasked to complete the design. The support provided by the A-E shall take whatever form is necessary to correct the errors or omissions in the original documents. Such required design corrections shall be done in a timely manner at no additional cost to the Government.

### **Negligence (A-E LIABILITY FAR 36.608 and 36.609)**

Neither the Government's review, approval or acceptance of, nor payment for, the services required shall be construed to operate as a waiver of any rights under the design contract or any action arising out of the performance of the design contract, and the A-E shall be and remain liable to the Government for all damages caused by the A-E's negligent performance of any of the services furnished. Design errors or omissions, which result in damages or extra cost to the Government, will be evaluated for potential A-E financial liability. If the Government determines that the A-E is financially liable for a design deficiency, the A-E will be so advised by official correspondence. Reimbursement of costs incurred by the Government as a result of the A-E's errors and/or negligent performance will be actively pursued by Sacramento District. The preferred method of settlement of A-E financial liability is for the A-E to accept responsibility and negotiate directly with the Construction Contractor. Where the A-E cannot reach an agreement with the Contractor or if the A-E declines to negotiate or accept responsibility, Sacramento District will arrange settlement directly with the Contractor and will bill the A-E.

### **Services during Construction**

Additional services may be required in direct support of a project's construction, apart from that described as errors or omissions above. If required, these services will be defined in a Supplemental Statement of Work prepared by the Government. No services during construction work shall be performed by the A-E until an appropriate price for the work has been negotiated and a written modification is issued by the contracting officer of the COE. Services may include monthly site visits to the project, conference attendance or special inspections.

### **PERFORMANCE EVALUATIONS (FAR & EFARS 36.604)**

#### Design Phase Evaluation

#### Rating Criteria

The Government will prepare A-E performance evaluations for all Design and Engineering Service Contracts in the Contractor Performance Assessment Reporting System (CPARS) in accordance with *Purchasing of Services [PROPO8LO]*. A-E performance will be rated as Exceptional, Very Good, Satisfactory, Marginal, or Unsatisfactory, taking into consideration such things as technical quality, coordination of design documents, cost effectiveness, maintaining project schedules, cooperativeness, etc. Incomplete submissions, late submissions or resubmissions will have significant adverse impact on an A-E's performance evaluation. In addition, based on schedule and interim requirements, other evaluations may be performed.

### Rating Disposition

Immediately upon completion of engineering services, at end of work or upon completion of each task order, the PM and the project team will evaluate the A-E performance on the services rendered using Architect-Engineer Contract Administration Support System (ACASS). The A-E will be notified through the ACASS database when a draft evaluation is prepared for their review and response. The A-E is required to have a PKI certificate in order to open and maintain a CPARS account. The A-E shall be familiar with the CPARS in order to respond to draft ACASS evaluations and to access completed ACASS evaluations. Refer to EP 715-1-7 [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>], Paragraph 6-10 for A-E rebuttal procedures.

### Interim Performance Evaluations

Interim evaluations may be prepared and used to advise the A-E of their performance during the execution of a contract as considered appropriate by the Contracting Officer. Refer to EP 715-1-7 [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>], Paragraph 6.6.

### Construction Phase Evaluation

The Resident Engineer will submit an evaluation of the performance of the A-E and effectiveness of the A-E prepared contract documents. This evaluation is also maintained in the A-E Contract and Qualification Data File and DOD database. Refer to EP 715-1-7 [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>], paragraph 6-8.

### Awards for Excellent Performance

A-E Firms that perform contract services in an excellent manner may be considered for special recognition. The Sacramento District Engineer gives Certificates of Appreciation and Certificates of Commendation. Certificates of Commendation are given for exemplary performance in one or more areas of contract services. In addition, Design Excellence Awards are given (after construction is underway) for exemplary performance in all areas of A-E services. Also, awards for Specifications are made by the evaluation of A-E performance to specifically recognize and reward achievement by A-Es in the preparation of construction specifications of superior quality.

### Affect on Future Selection

Performance evaluations are available to future slate and selection boards and will be considered when subsequent A-E selections are made. Furthermore, copies of evaluations are available for the use of other Federal Design and Construction Agencies in selecting A-Es for their design contracts.

### Poor A-E Performance (Re-Submittal Policy)

If the COE POC determines that a design submittal is unacceptable, thus necessitating a re-submittal, the A-E may be required to send representatives to Sacramento District at no additional cost to the Government to resolve the problems with the submitted work.

### **PAYMENTS (FAR 52.232)**

The A-E is required to submit monthly pay estimates for the value of the design services performed to date. The Sacramento District, A-E Administration Section will provide guidance for preparing and submitting payments in accordance with the Contract Clause *FAR 52.232-10 Payments under Fixed-Price Architect-Engineer Contracts* [[http://www.arnet.gov/far/current/html/52\\_232.html](http://www.arnet.gov/far/current/html/52_232.html) - 1107121]. Monthly or partial payments may be made as the work progresses subject to submission by the A-E of estimates of the value of completed services and certification by the PM that the A-E's performance is satisfactory. The extent of supporting data required from the A-E will vary depending upon the amount of the invoice and past A-E performance. Completed *ENG Form 93 - Payment Estimate - Contract Performance* [<http://www.usace.army.mil/inet/usace-docs/forms/e93.pdf>] shall be mailed to the address and attention line shown in *Address and Attention Line Tables* [REFP01L0].

# Architect-Engineer 65% Design Submittals

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## Scope

The purpose of this document is to provide the guidance for the content of the Architect-Engineer (A-E) 65% Design Submittals. This is also called the Preliminary Design Phase. This guidance supplements the *Architect-Engineer Guide* [[REFP13L0](#)] as modified by the Statement of Work.

## Distribution

A-E Firm

Chief of AE Administration Section

Chief of Engineering Division

Assistant Chief of Engineering Division

Chief of Engineering Support Branch

Chief of Design Branch

Chief of Geotechnical & Environmental Engineering Branch

A-E Responsibility Coordinator

Project Manager

## Ownership

The Chief of AE Administration Section [[William.D.Mullery@usace.army.mil?Subject=REFP22L0 - A-E 65% Design Submittals](mailto:William.D.Mullery@usace.army.mil?Subject=REFP22L0 - A-E 65% Design Submittals)] is responsible for ensuring that this document is necessary and that it reflects actual practice.

## References

Refer to:

- *Architect-Engineer Guide* [[REFP13L0](#)]
- *Preparing Project Specifications* [[INSP03L0](#)]
- *Criteria Bulletin Board System* [<http://cbbs.spk.usace.army.mil/>]
- *UFC 1-200-01 General Building Requirements*  
[[http://www.wbdg.org/ccb/DOD/UFC/1\\_200\\_01.pdf](http://www.wbdg.org/ccb/DOD/UFC/1_200_01.pdf)]
- *UFC 3-120-10 Interior Design*  
[[http://www.wbdg.org/ccb/DOD/UFC/ufc\\_3\\_120\\_10.pdf](http://www.wbdg.org/ccb/DOD/UFC/ufc_3_120_10.pdf)]

- *UFC 3-310-01 Structural Load Data*  
[\[http://www.wbdg.org/ccb/DOD/UFC/3\\_310\\_01.pdf\]](http://www.wbdg.org/ccb/DOD/UFC/3_310_01.pdf)
- *UFC 3-410-01FA HEATING, VENTILATING, AND AIR CONDITIONING*  
[\[http://www.wbdg.org/ccb/DOD/UFC/ufc\\_3\\_410\\_01fa.pdf\]](http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf)
- *UFC 3-600-01 Fire Protection Engineering For Facilities*  
[\[http://www.wbdg.org/ccb/DOD/UFC/ufc\\_3\\_600\\_01.pdf\]](http://www.wbdg.org/ccb/DOD/UFC/ufc_3_600_01.pdf)
- *UFC 4-010-01 DoD Minimum Anti-Terrorism Standards for Buildings*  
[\[http://www.wbdg.org/ccb/DOD/UFC/4\\_010\\_01.pdf\]](http://www.wbdg.org/ccb/DOD/UFC/4_010_01.pdf)
- *TB MED 576 Treated Water Quality Standards*  
[\[http://www.army.mil/usapa/med/DR\\_pubs/dr\\_a/pdf/tbmed576.pdf\]](http://www.army.mil/usapa/med/DR_pubs/dr_a/pdf/tbmed576.pdf)
- *Project Safety and Health Requirements [PROP07L0]*
- *Creation, Packaging, and Delivery of Project Documents [PROP09L0]*
- *General Project Metadata [REFP05L0]*
- *Preparing Project Specifications [INSP03L0]*
- *Architect-Engineer 10% Design Submittals [REFP18L0]*
- *Architect-Engineer 35% Design Submittals [REFP21L0]*

## Definitions

Refer to the *Glossary of Engineering Quality System Terms and Acronyms [REFQ10L0]* for definitions not listed here.

65% Design: This is the Preliminary Design phase of a project. It is an opportunity for the A-E Firm to demonstrate full understanding of the scope of the project to the customer and that all the customer's requirements are being considered and incorporated into the design. The Preliminary Design is also another opportunity for the customer to make any adjustments needed to produce what is required. Other agencies may also be part of this review stage to support the customer in whatever way needed.

## Responsibility

The A-E Firm is responsible for preparing the Preliminary Design Documents and will communicate its understanding in the shape of design documents that will include, but not be limited to: Drawings, Design Analysis / Calculations, and Draft Specifications. Submittals will include supporting documentations in any area where other data was used in arriving at the Preliminary design solution such as Cost Estimates, Geotechnical Reports, etc. The next section will describe Preliminary Design submittal requirements in more detail

## 65% Design Submittal

The 65% Design Submittal shall include the requirements of the 35% Design Submittal whether or not a 35% Design Submittal was required. As a minimum, the 65% Design Submittal consist of the following documents:

- Design Analysis (narrative and calculations)
- Drawings
- Outline and Marked-up Guide Specifications

- Draft Specifications without Mark up.
- Project Safety and Health Requirements
- Results of Value Engineering studies performed on the project concept design.
- Cost Estimate
- Completed Environmental Permit Matrix (if required by the statement of work)
- Draft Engineering Considerations and Instructions for Field Personnel (ECIFP) Report
- Other Items as Required by the statement of work

## Objective

The Preliminary Design data must be presented in sufficient detail to accomplish the following:

- Verify that the Customer's functional and special technical needs have been met, including the minimum requirements stated in this section.
- Verify to all reviewing agencies that
  - 1) All previous review comments have been appropriately addressed,
  - 2) The designer's approach to the solution of the technical aspects of the project is sound and
  - 3) Appropriate controlling criteria are being adhered to. Justification for non-compliance with criteria must be provided in the Design Analysis Narrative.
- Prepare an accurate cost estimate to verify the project-programmed amount has been properly established.
- Show that appropriate and economical civil, architectural, structural, mechanical, and electrical systems have been selected for the project.

## Civil Design

### Design Analysis - Narrative/Calculations

Expand upon the discussion of civil features that was presented in the *Architect-Engineer 35% Design Submittals [REFP21L0]* submittal to include the items described below as applicable to the project.

**Water Service and Fire lines:** Support with calculations the selection of the water service line to the project; indicate the invert elevation at the point of entry to the building. In those locations where frost penetration is not a factor the depth of cover for the fire lines shall be as described in the next paragraph. If frost penetration exists, the same criteria still holds, but as a minimum, "the top of the fire line shall be buried not less than one foot below the frost line for the locality" - as stated in NFPA 24. If a fire sprinkler system is to be hydraulically designed by the project's contractor, provide in the Civil Design narrative and on the exterior utility drawing the static

pressure and the needed available residual pressure at the base of the sprinkler riser for a predetermined flow.

### **Water Supply Line and Distribution System:**

Show adequacy of distribution system to supply controlling demands; include information basic to this determination, and support with hydraulic computations. If the water requirements for the project are considerable, state whether a determination has been made regarding the capability of the existing system to meet the additional demand or if further hydraulic analysis is needed.

Give the friction coefficient, controlling elevations, special material requirements and any special features of the design such as pressure reducing, sustaining and relief valves.

When applicable discuss the needs of air valves, vacuum valves, combination air vacuum/air release valves (CAV/ARV), and blow-off valves. Discuss the criteria followed for the selection and location of CAV/ARV and blow-off valves. Supplement the Design Analysis with a drawing showing the profile of the entire water distribution system; also discuss the criteria followed for the location and number of gate valves and fire hydrants.

Use a minimum cover over pipes of 2.5-feet in grassed areas, 3-feet under unpaved driveways or roadways, and 4 feet under railroad tracks. Areas with deeper frost depths will require deeper placement. The bottom of the water main must be at least 12-inches above the top of the gravity sanitary sewer, and 24-inches above the top of a pressure sewer pipe. For irrigation systems, discuss types of sprinkler heads, effective coverage, spacing and zoning, automatic flow control valves, and back flow prevention units.

For projects that involve supply, collection, and/or distribution utility conduits, rigid or flexible, support with calculations the trench design (bedding, initial backfill, and final backfill) for each one of the pipe options given in the UFGS. The trench design is to be based on American Water Works Association (AWWA) Standards, or American Society of Civil Engineers Manuals and Reports on Engineering practice, as applicable; a trench cross section for each one of the pipe options is to be shown on the drawings. Any deletion of a pipe option, as called for in the COE Guide Specifications, must be supported with complete engineering calculations. The engineering based justification for the deletion of the pipe option must also be narrated in the Design Analysis. Since controlled compaction is required during construction, hydraulic consolidation of bedding or backfill (initial or final) material is not to be allowed. Thrust block area is to be based on actual bearing soil capacity, and a pressure of not less than 1.5 times the maximum expected pressure including surge; provide the supporting computations.

The pipe embedment detail terminology, shown on the construction drawings, must match exactly that of UFGS 31 00 00 EARTHWORK. For each one of the pipe options, the embedment terminology compatible with AWWA and ASTM calls for: Foundation (if required), Bedding, Haunching, Initial Backfill (all within the pipe embedment) and Final Backfill.

Provide a compacted, well-graded granular material for the pipe's bedding, and a densely compacted initial backfill. Select the gradation number; depending on the pipe material specified, from ASTM C-33, Table 2, or ASTM D448, Table 1. Tabulate the Sieve Size vs. the



Percent Passing after the gradation number is selected. Indicate the percent compaction within the pipe embedment and final backfill.

When high water tables are anticipated, embedment materials without substantial voids are required to prevent soil migration. Sand should not be used if the pipe zone area is subject to a fluctuating groundwater table or where there is a possibility of the sand migrating into the pipe bedding or trench walls.

**Pipeline Plan/Profile:** For water supply lines and distribution systems, longer than a few thousand feet, a special plan/profile drawing must be prepared at a smaller scale, e.g., 1" = 100' or 1" = 200' and made part of the construction drawings. These drawings should show pipeline stationing, all appurtenances, and other major physical and design features.

**Outline a Pipeline Filling and Draining Procedure on the drawings:** Fill the different water lines from the lowest point in each individual line limiting the flow rate to 1 (one) foot per second; provide drain valves sized to provide a flushing velocity of 2.5 feet per second; show at which locations the pipeline is to be filled from; discuss air evacuation thru the combination air vacuum/air release valves (CAV/ARV).

Show the points of connection to the existing water system as well as valves and appurtenances. The filling and draining operations narrative must take into account the physical layout of the existing water system so that it can be isolated properly with a minimum of inconvenience to the consumers during the filling and draining operations.

### **Water Supply Works:**

Discuss the selection of the type of units, materials, economy of operation, controls, etc. Provide a statement of sizes or capacities of major components, any critical elevations or dimensions, and essential related items as covered in the computations.

Include data on existing supplies and for new sources such as wells and surface supplies. Provide data for all water wells and test drilling programs with full explanation of factors affecting choice of location, type, diameter, depth, and important related characteristics.

**Water Treatment:** After analyzing the water characteristics, establish the necessity for and extent of treatment options. The Army potable water is defined in *TB MED 576 Treated Water Quality Standards* [[http://www.army.mil/usapa/med/DR\\_pubs/dr\\_a/pdf/tbmed576.pdf](http://www.army.mil/usapa/med/DR_pubs/dr_a/pdf/tbmed576.pdf)], which also spells out the Army water quality requirements.

The selection of one particular type of design, when two or more types of design are known to be feasible, must be based on the results of an economic study. The results of these economic studies are to be included in this Preliminary Design.

The Standards outlined in *TB MED 576 Treated Water Quality Standards* [[http://www.army.mil/usapa/med/DR\\_pubs/dr\\_a/pdf/tbmed576.pdf](http://www.army.mil/usapa/med/DR_pubs/dr_a/pdf/tbmed576.pdf)] are maximum values and every reasonable attempt should be made to obtain water of better quality. The applicable water quality standards are presented in Appendix H. Waters having physical characteristics exceeding the limits of Appendix H should not, as a general rule, be used for drinking.

#### Appendix H of TB MED 576 Treated Water Quality Standards

[\[http://www.army.mil/usapa/med/DR\\_pubs/dr\\_a/pdf/tbmed576.pdf\]](http://www.army.mil/usapa/med/DR_pubs/dr_a/pdf/tbmed576.pdf) covers both the National Interim Primary Drinking Water Regulations (NIPDWR), in Section I, and the National Secondary Drinking Water Regulations (NSDWR) in Section 11. Note that Army facilities shall endeavor to provide drinking water of the highest quality in consonance with NSDWR.

Army installations must comply with regulations on levels of organic compounds in drinking water and will be required to install removal equipment if these compounds are detected. Reference is made to *ETL 1110-3-367 Trace Organic Compounds in Potable Water Supplies* [\[http://www.usace.army.mil/inet/usace-docs/eng-tech-ltrs/etl1110-3-367/entire.pdf\]](http://www.usace.army.mil/inet/usace-docs/eng-tech-ltrs/etl1110-3-367/entire.pdf) which supplements *TM 5-813-3 Water Supply-Water Treatment, Supplement 411* [\[http://www.usace.army.mil/inet/usace-docs/armytm/tm5-813-3/entire.pdf\]](http://www.usace.army.mil/inet/usace-docs/armytm/tm5-813-3/entire.pdf), and provides basic information pertaining to the occurrence, detection, and treatment of trace organic compounds that may be found in drinking water. Reference is also made to *TM 5-813-8 Water Desalination* [\[http://www.usace.army.mil/inet/usace-docs/armytm/tm5-813-8/\]](http://www.usace.army.mil/inet/usace-docs/armytm/tm5-813-8/).

List all criteria used for the design of each treatment process and operation. Furnish all calculations showing the design of the processes and operation including the organic loading. Provide a hydraulic profile of the treatment plant. Describe the elements of the design selected including the capacities and number of units, monitoring equipment, and controls.

**Building sewer connection:** The minimum pipe diameter for a gravity building sewer connection is 6-inches with a minimum velocity of 2 feet per second at average daily flow. Smaller service connections for very low flow facilities with limited fixture units can be 4" minimum. Calculations are required only for gravity building sewer connections larger than 6-inch diameter and for all pressurized building sewer connections.

**Sanitary and Industrial Sewer System:** Describe the existing system covering particularly the type, capacity, condition, present flow, and unsatisfactory elements of component parts for major extensions. Where lift stations are required, state pump type and size, volume of wet well, cycle time, and pump controls. Include data concerning state requirements for pollution control. Indicate controlling elevations and compliance with slope and size criteria. Confirm adequacy of existing sewers to carry additional flow.

**Wastewater Treatment:** Where waste treatment is included in the job, discuss the degree of treatment required to meet the applicable discharge standards. Describe the receiving stream and the elements of the design including the capacities and number of units, monitoring equipment and controls. List all criteria used for the design of the treatment process and operation; furnish all calculations. Provide a hydraulic profile of the wastewater treatment plant. The alternatives that were considered and the reason for selecting the design over the alternatives shall be discussed demonstrating how the design will achieve the treatment goals. Pilot plant testing programs, which are to be conducted, will be described, and in the case of land treatment, a soil testing program will be developed and described.

**Storm Drainage and Grading:** Discuss the drainage design. The discussion shall include the rainfall intensity and return period, concentration times, infiltration rates, the size of the contributing area, method of computation, ponding effects, if any, and the reasons behind the

selection of each of the above. Describe the grading plan and the controlling slopes which will be used in the design. Identify any local or state requirements for which the storm drainage design must comply. Discuss the existing site features affecting grading such as walks, fences, curbs, buildings, streets, and elevation of high water, as well as unusual cut or fill requirements. Provide all the computations used for determining the design flow and pipe sizes; also drainage area maps for systems that drain into or through the project area.

**Roads, Streets:** Discuss the geometric features of the paved areas such as widths of traffic lanes and shoulders. Data relating to the design such as vertical and horizontal controls and the class and category of road or street shall be included. Include all computations for curves, alignment, sight distance, and super elevations.

**Parking, Open Storage, and Hardstand Areas:** Discuss the derivation of the number of parking spaces. For the parking lot layout: discuss the selection of 90°, 60°, and 45° stalls, aisles, access lanes and stall dimensions, slopes of the surfaced areas, pavement markings, traffic signs, pedestrian access, planting islands, as well as the number and location of handicapped, visitors, and staff parking spaces.

**Sidewalks, Fencing, Signage:** Discuss sidewalk grade, location, and derivation of width, as well as joints, and joint layout. Discuss justification of fencing and describe the type and height of fences and gates. The description shall include features such as barbed wire, gate I-controllers, fabric, posts, and tension wires. Discuss street name plates, stop, and reserved parking signs, and sign posts.

**Dust and Erosion Control:** Include a statement of the proposed type and method of accomplishing dust and erosion control, reasons for selection, and extent of the area to be treated. Consider if erosion control will be required during construction. If no treatment is proposed, justify omission.

**Railroads:** Discuss the type and depth of the ballast section, weight of rail, use of relayer rail, bumpers, ties, spikes, turnouts, and road-bed preparation.

**NPDES Permit:** In projects where wastewater is not discharged into an existing collection and disposal system, the NPDES permit will be referenced and appended to the Design Analysis.

**Economic Analysis:** Furnish economic comparisons between feasible alternatives for site layout, facility orientation, utilities systems, paved areas, and other site improvements.

**Environmental Impact:** Review the Environmental Impact Analysis (Environmental Impact Assessment or Environmental Impact Statement) to determine whether any design feature changes the conclusions or recommendations of the analysis. Should changes to the analysis be required as a result of the design, a complete description of the required changes shall be included in the narrative portion of the Design Analysis. If no changes are required to the analysis, the designer shall include this conclusion in the Design Analysis narrative.

**Energy Efficiency:** Where the civil design includes energy consuming processes, provide studies on comparative energy conservation measures.

## Surveying

The survey should make reference to the origin of the vertical datum. There should be a note on the drawings indicating that all elevations are based on the National Geodetic Vertical Datum (NGVD) 1929, or whatever datum was used for this project.

The survey should make reference to the origin of the horizontal datum. There should be a note on the drawings indicating that grid coordinates are based on the California State Coordinate System Zone 11, or whatever datum was used for this project.

Provide enough spot elevations on the topography map to support the contours. No point on any topographic map should be more than one inch from either a contour or a spot elevation.

A finished floor of a building should never be used as a vertical point of reference for a survey. If it is necessary to use such a reference, a well defined point, such as a chiseled square in the south side of main entry door, should be clearly marked in the field and identified on the drawing.

At least two horizontal and vertical control points should be shown on the topography drawings so that the construction contractor can not only initiate his survey but also check it for possible blunders. If aerial photogrammetric methods were used to obtain this mapping, a control diagram should be included with the topography maps.

Tabulation should be shown on the topography mapping that lists each control point together with its coordinates, elevation, and a description of the point.

Coordinates and elevations should only be shown to two (2) decimal places. Elevations on ground surfaces should only be shown to one (1) decimal place. Values displayed to more decimal places than required, indicate a greater precision than was required or obtained.

If the Sacramento District provided the original topographic mapping for this project, a copy of that mapping should be included with the construction drawings.

The Civil exterior utilities drawing must include a subsurface utility survey.

For water supply and distribution system lines, a set of plan and profile drawings shall be prepared, which shall show as a minimum the following information:

### Survey base line with physical control points

- Existing physical features such as buildings, fences, structures, utilities, trees, and drainage systems.
- Existing and proposed ground elevations along the centerline of the pipe shall be shown on the profile.
- In plan, the proposed pipeline bearings and its relationship to the survey base line.
- In profile, the centerline elevation of the proposed pipeline.
- Beginning and ending points of the pipeline and all appurtenances.

**Military Airfield Pavements:**

The District will furnish the section of the pavement structure, a brief description of foundation explorations, materials investigations, field tests, a statement of values used in pavement design, basis for selection of pavement section, and a description of the adopted pavement sections. A copy of the Geotechnical Report will be appended to the Design Analysis.

**Future expansion:** Where buildings are to be designed for future expansion, discuss provisions to be taken to insure the projected construction will proceed in a trouble-free fashion. State if no provisions have been made for future expansion.

**Drawings:** Expand and fully develop drawings used in *Architect-Engineer 35% Design Submittals [REFP21L0]*, as applicable. Add any new sheets necessary to complete the presentation, including the following:

**Topography:** The topography drawing should show only the existing site conditions. Demolition and new construction should not be shown on this drawing. The topography drawing could be screened and used as a base map on which to show features to be demolished, or new features to be constructed on the site. In any event the topography drawing should stand-alone so that the construction surveyor will know where to find control and other necessary information about the site.

**Soil Explorations and Logs:** The Sacramento District's drawings, showing the boring stations and logs of boring, will be incorporated into the final drawing set by the A-E.

**Demolition:** Provide sufficient dimensions of the structures to be demolished; for pavement structures, identify the type, whether reinforced, and the thickness; indicate if the utility lines are to be removed or abandoned in place; always indicate if the structure is to be removed to grade or to what vertical distance below grade; show the size of any trees to be removed.

**Siting:** Show the dimensions of all new work and the relation of new work to existing facilities using offset dimensions from existing structures; show sufficient horizontal and vertical controls to clearly indicate the siting of the facility, if necessary use coordinates for locating the new work. Only one benchmark will be used, except where a very large area is involved. Indicate the benchmark location, elevation, and description. Provide a north arrow and at least two horizontal control points. With airfields, this information must be shown for each separate area of pavement. Clearly locate the on-site borrow and disposal areas. If they are on-post, but away from the construction site, show them on the Location Map of the G-sheet drawings. If there are no on-post borrow and disposal areas, provide a note to that effect on the G-sheet and, if possible, indicate on the Vicinity Map, or with a note, where they would be located. Indicate possible future construction using short dashed lines. Show the facility superimposed on the existing topography map and the soil borings locations.

**Grading and Paving:** Provide a north arrow and show the grading and drainage conditions including swales, direction of drainage, point of discharge, and ditches using notes, symbols, spot elevations and contours. Provide finished grades for new work and show existing topography. Provide sections showing the relationship between existing ground and finished grades, pavements, shoulders, ditches, swales, curbs, gutters, buildings, and other structures.

Provide a minimum of one cross-section in each direction through a building and site development area. Show the finished floor elevation and critical spot elevations; locate or make references to monuments and benchmarks for horizontal and vertical control. For clarity show removal, relocations, and new work for all other utilities on separate drawings.

Provide profiles for all storm drains which exceed typical service connections into existing storm drain systems.; indicate top and flow line elevations of all drainage structures, storm drain pipe with size and invert elevations, ground profile, and new or existing structures or utilities crossing the new storm drain. Show the location, dimensions, and geometrical layout of all roads, streets, walks, pads, open storage areas, hardstand areas, runways, aprons, taxiways, and over-runs. Indicate different surfaces and pavement sections with symbols and notes. Provide details showing joints, curbs, gutters, signs, sealants, sidewalks, and pavement sections. For rigid pavements, spot elevations shall be provided at each joint intersection. Include all elements of the pavement with depths and compaction density requirements. Clearly show joint layout, thickened edges, location of tie-down anchors, markings, and striping.

Other related construction details are parking, fencing, railroads, and plan/profile and sections. Show the geometrical layout of the parking stalls including handicapped, visitors, and staff parking stalls, along with aisles, pavement slope and markings, traffic signs and pedestrian access. Provide separate signing and striping drawings when extensive work of this nature is required. Do not show fence lengths. Show the location and dimensions of all railroad tracks and features. Provide details showing switches, turnouts, and road crossings. Include all elements of the track section with depth and compaction requirements for the ballast construction. Provide plan and profile for roads, runways, taxiways, channels, and other work that requires longitudinal layout and grade controls. The drawings shall include the new features and alignment superimposed on existing topography. Show stationing and finished grades at 100-foot intervals with intermediate points as required by vertical and horizontal curves and other features. Drawing sheets may be both single or double plan and profile. Provide cross sections at 100-foot intervals, or less, as required by topography and grading. Cross sections can be included in contract documents or as supplements to the plans.

## **Utilities, Exterior**

Show all existing and new pipes with sizes (such as water, sanitary and industrial sewers, storm drain and gas lines), valves, manholes, fire hydrants, service boxes, inlets, culverts, headwalls and cleanouts. Show existing pipe's material if such information is available. Provide a north arrow on the utilities site plan and show the relation between the utilities and roads, buildings, sidewalks, etc. Provide the sizes, strengths or classes corresponding to the different material options. Indicate the invert elevations and points of entry to buildings for utility lines. Show the fire sprinkler data required in the civil design analysis. Do not show lengths of utility runs on plan sheets for Lump Sum Bid.

Profiles shall be provided for wastewater collection lines, force mains, water supply and distribution lines. Show existing topography on both Plan and Profile. Profiles will also be provided to show adequate cover in areas of varying topography. The profiles shall show minimum cover and required excavation and backfill depths, new and existing utilities, invert

elevations, stationing, surface features such as roads, curbs, sidewalks, etc., and appurtenances to the utility systems.

Furnish details of all features such as valves, manholes, fire hydrants, service boxes, inlets, headwalls, cleanouts, thrust blocks, pipe encasements, frames, grates, covers, steps, etc. For treatment facilities, provide details for treatment units. Show all inplant lines and process piping. In congested areas or in areas where data is unclear as to the exact location of utilities, the utilities drawings should contain the following note:

"Elevations of utilities are given to the extent of information available. Where elevations are not given at points of existing utilities crossings, such elevations shall be determined by the contractor and reported to the Contracting Officer. When unknown lines are exposed, their location and elevation shall likewise be reported."

## Landscape Architectural Design

### Design Analysis - Narrative/Calculations

Refer to submittal requirements *Architect-Engineer 35% Design Submittals* [\[REFP21L0\]](#).

**Drawings:** In addition to that required in prior submittals, provide the following:

- Provide a Landscape Architectural Layout Plan that shall include a minimum of all existing building locations, access roads, parking, sidewalks, topography, and bench marks, in a dithered or light pen weight as the base sheet. Overlay existing features with new sidewalk, identify pavement types, hardstand areas, parking layout and islands, water features, shade shelters, barbecue areas, recreations features, interpretive signage location, pedestrian directional signage location, and site furniture locations. Determine the number of layout sheets required to show all areas of the site at a legible scale. Where the entire site will not fit onto one sheet segment site clearly and indicate match lines on the plan.
- Provide a separate Landscape Planting Plan that shall include a minimum of all new roads, sidewalks, hardstand areas, parking curb outline, tree and shrub list, general tree locations, turf areas, planting beds, organic and inorganic mulch areas, drainage structures location, preliminary site grading and erosion control features. In situations where the site layout will not fit on one sheet as described in the previous paragraph use the same segmented site plan and scale for all layout sheets.
- Show proposed special design features such as flagpoles, raised planters, benches, trails, and special paving treatments.
- A plant schedule listing both the botanical and common names of species to be used.
- If an irrigation system is required, provide the following:
  - Provide a separate Landscape irrigation plan showing a minimum of all new roads, sidewalks, hardstand areas, parking curb outline, turf area outline,

- planting bed outline, point of connection to water service and the dynamic head at the point of connection;
- The main and branch lines; valves and, if an automatic system, the controller location(s).

## Architectural Design

### Design Analysis - Narrative

#### Functional and technical requirements

Equipment, furniture and furnishings (also see Interior Design Narrative) to include all items required. Provide a tabulation of all equipment in the project to show the following: (If none, so state for each subparagraph below.)

- Contractor Furnished-Contractor Installed (CF-CI).
- Government Furnished-Government Installed (GF-GI or not in contract (N.I.C.)).
- Energy conservation including solar energy applications and energy budget goals.
- Sound and vibration control.
- Interior parking and service areas.
- Physical security: lock and keying, intrusion detection, alarms, restricted access areas, interior guard/canine support and ties to local authorities. Coordinate with Anti-Terrorism requirements, .
- Signage; directional, informational, and motivational.
- Exterior and interior finish materials; textures, colors and resistances (also see Interior Design Narrative).

#### Design objectives and provisions

Adapt the building to the size, shape, and orientation of the site to include benefit from natural warming and cooling effects afforded by the site.

- State how location on the site relative to local climate affects the placement of entries, fenestration, and roof overhangs due to prevailing wind, sun, and noise. Discuss architectural features and relative costs, i.e., the use of tinted or thermal glass if required as opposed to glass ordinarily used.
- Organization of functional spaces to establish workable adjacency relationships.
- Building layout to establish convenient circulation flows for materials, equipment, services and people and also to include evacuation during emergencies.
- Consolidation of spaces into sound compatible zones and protective construction zones, e.g., for fire, storm, and fallout.
- Space layout compatible with modular (structural and environmental) support systems.
- Building expandability/changeability. Where buildings are to be designed for further expansion, discuss provisions to be taken to insure the projected construction will proceed in a trouble-free fashion. If no provisions have been made for future expansion, so state.
- Physical security.



- Barrier-free design.
- Sustainable Design and Energy conservation.
- Building wall and roof construction: Provide statement of required type of construction based on occupancy, area, and height. State required wall and roof "U" values.
- Acoustical design from interior and exterior sound sources.
- Composition of masses and spaces and architectural details to reflect the desired image, and the scale and nature of the activities involved.
- Perception of the building details and volumes. (Specific provisions made, e.g., an identifiable sequence of viewing positions for experiencing the architectural and interior design).
- Enhancement of materials and systems maintenance and operation.
- Economy of building construction, operation and maintenance: Life cycle cost effectiveness. Provide an economic comparison of the in-place costs of three or more wall systems. The comparison will only consider systems, which meet the required "U" factors, are suitable to the seismic zone, and meet the durability and esthetic requirements for the project. Present the first costs for each component of the wall system, combine these, and arrive at an overall cost per square foot of wall surface. Describe the maintenance requirements for each system that was studied. Provide a section through each wall system and show all components of the wall. Attach the economic comparison to the Design Analysis as an appendix.
- A narrative of the interior design objectives. The narrative shall be concise and clearly written and shall include the following:
  - Delineation of the designer's philosophy and intent relative to the interior design scheme before it is integrated into the contract documents. Refer to *UFC 3-120-10 Interior Design* [[http://www.wbdg.org/ccb/DOD/UFC/ufc\\_3\\_120\\_10.pdf](http://www.wbdg.org/ccb/DOD/UFC/ufc_3_120_10.pdf)].
  - Discuss how this particular interior design scheme will help humanize our Army environment by fostering desired behavior and eliminating negative responses; coordinate with installation Design Guide.

Roof mounted equipment is not acceptable to many users. Roof clutter and the trade-off of cost versus acceptable aesthetics shall be discussed in the Design Analysis and at the Preliminary Review Conference. Concurrence of the user regarding acceptability of the roof aesthetics will be obtained and documented at the Preliminary Review Conference.

**Coordination with installation or outside agencies:**

- Physical security support.
- Blind vending operations.
- Occupation safety and health, as required.
- Government furnished equipment.
- Make up of signage.
- Operations and maintenance support.

**Fire Protection:** See *Architect-Engineer 35% Design Submittals* [[REFP21L0](#)] Fire Protection requirements. Refine analysis as needed to incorporate more detailed considerations.

**Color Boards.** Provide one color board for projects in which the construction cost of the structure only, exceeds \$1,000,000.

- Color Boards shall be submitted in a standard 8-1/2" x 11" three-ring binder. Fold-outs may be employed to 25-1/2" x 33" as long as they refolded with the standard binder. Number of color boards shall be as called for in the project scope. If pre-finished textured metal panels are required, samples shall be submitted with the boards.
- Actual material samples shall be displayed showing color, texture, pattern, finish, thickness, etc., for all appearance relate items where choice exists. These samples shall be large enough to indicate true patterns. However, care should be taken to present materials in proportion to that which will actually be installed in a given situation. Samples shall be organized by color schemes with a separate sample for each scheme. The schemes shall be coordinated by room names and numbers shown on the architectural floor plans. Colors shall be labeled with generic color names.
- Project title and installation shall be written in the lower right-hand corner of each module.

### **Design Analysis - Calculations.**

Refer to submittal requirements Architect-Engineer 35% Design Submittals [\[REFP21L0\]](#)

**Drawings:** Further refine and continue to develop the information required in Architect-Engineer 35% Design Submittals [\[REFP21L0\]](#).

## **Interior Design**

### **Design Analysis – Narrative**

**Structural Interior Design (SID):** Expand the information provided in the Architect-Engineer 35% Design Submittals [\[REFP21L0\]](#). At this point, additional and more product specific information on the finishes/materials can be provided. The exterior and interior finishes need to be coordinated with the architectural design and requirements on the project. Coordinate interior design narrative with the architectural narrative.

**Furniture, Fixtures & Equipment (FF&E):** Expand the information provided in the Architect-Engineer 35% Design Submittals [\[REFP21L0\]](#). At this point, additional and more product specific information on the furniture and furniture finishes can be provided. The information listed in the Architectural Narrative on CFCI and GFCI can also be provided in the FF& E narrative. See UFC 3-120-10 Interior Design [\[http://www.wbdg.org/ccb/DOD/UFC/ufc\\_3\\_120\\_10.pdf\]](http://www.wbdg.org/ccb/DOD/UFC/ufc_3_120_10.pdf) for additional information on FF&E packages.

### **Drawings**

**SID:** Exterior and interior finish schedules shall be in tabular form with legends. In the preliminary design phase, the finishes can be listed in a more product specific form, so that the

user gets a realistic sense of the exterior and interior colors, materials and finishes. Additional drawings that show any wall and/or floor material patterns that have been designed for the project.

**FF&E:** The furniture footprint plan is developed further per the users' requirements and comments. The furniture footprint plan is to show the furnishings necessary for the user's functional requirements and satisfy applicable life safety codes. The furniture footprint plan will show the appropriate size and type of furnishings and critical or required clearances. The furniture footprint plan shall include a furniture legend. When the design of the FF&E package is included in the building design contract, the furniture footprint is the furniture plan and is fully developed, along with the FF&E package. If the FF&E package is not included as part of the building design contract, the furniture footprint plans need to clearly note "Not In Contract". See *UFC 3-120-10 Interior Design* [[http://www.wbdg.org/ccb/DOD/UFC/ufc\\_3\\_120\\_10.pdf](http://www.wbdg.org/ccb/DOD/UFC/ufc_3_120_10.pdf)] for additional information on FF&E packages. Furniture footprint plans must be included throughout the design delivery process, from *Architect-Engineer 35% Design Submittals* [[REFP21L0](#)] to final submission, to ensure coordination of architectural components and engineering disciplines (lighting, power, mechanical, window placement, etc.) with respect to furniture placement.

**Color Boards:** Provide one color board for projects in which the construction cost of the structure only, exceeds \$1,000,000.

**Presentation:** Color Boards shall be submitted in a standard 8-1/2" x 11" three-ring binder. Fold-outs may be employed to 25-1/2" x 33" as long as they refolded with the standard binder. Number of color boards shall be as called for in the project scope. If pre-finished textured metal panels are required, samples shall be submitted with the boards. At this phase, it is also acceptable to use 16" x 20" presentation color boards (mat board or foam core). It is easier for the users to see all of the finishes on one or two boards. If this options is used it needs to be pre-approved with the project manager and listed in the project scope. Project title and installation shall be written in the lower right-hand corner of each module

**Samples:** Actual material samples shall be displayed showing color, texture, pattern, finish, thickness, etc., for all appearance related items where choice exists. These samples shall be large enough to indicate true patterns. However, care should be taken to present materials in proportion to that which will actually be installed in a given situation. Samples shall be organized by color schemes with a separate sample for each scheme. The schemes shall be coordinated by room names and numbers shown on the architectural floor plans. Colors shall be labeled with generic color names.

## Structural Design

Following are the basis for structural design:

- *UFC 1-200-01, Design: General Building Requirements*  
[[http://www.wbdg.org/ccb/DOD/UFC/1\\_200\\_01.pdf](http://www.wbdg.org/ccb/DOD/UFC/1_200_01.pdf)]
- *UFC 3-310-01, Structural Load Data*  
[[http://www.wbdg.org/ccb/DOD/UFC/3\\_310\\_01.pdf](http://www.wbdg.org/ccb/DOD/UFC/3_310_01.pdf)]

- *UFC 4-010-01, DoD Minimum Anti-Terrorism Standards for Buildings*  
[\[http://www.wbdg.org/ccb/DOD/UFC/4\\_010\\_01.pdf\]](http://www.wbdg.org/ccb/DOD/UFC/4_010_01.pdf)

## Design Analysis - Narrative/Calculations

Further refine and continue to develop the information required in *Architect-Engineer 35% Design Submittals [REFP21L0]*. Requirements in Early Preliminary Design Phase are needed for the development of the Preliminary Design Submittal. Show the development of all loadings. Also, provide calculations for the preliminary sizing of the main structural members and major elements of the foundation.

### Drawings:

**Foundation Plan:** Provide overall foundation layout, showing column locations, grade beams, pile locations, slab-on-grade joint pattern, etc. Also, provide a representative section, showing a typical foundation element and typical slab-on-grade.

**Floor/Roof Framing Plans:** Provide overall framing layouts (with dimensions) of the main structural elements. Show horizontal and vertical lateral load supporting system, and seismic joint locations.

## Mechanical Design

### Design Analysis - Narrative/Calculations

Refer to submittal requirements *Architect-Engineer 35% Design Submittals [REFP21L0]*. The designer shall provide solutions to any problems identified in the Early Preliminary Design Phase submittal and justify or refine all assumptions made at Early Preliminary Design Phase (user shall be contacted if required).

Designs must meet EPA emission standards when No. 5 fuel oil or No. 6 fuel oil is burned as fuel and when other hazardous emissions are produced.

Provide a list of energy saving features, which have been incorporated into the project, such as run-around coils, thermal wheels, and double bundle condensers. Indicate the pieces of equipment and controls that will be tied into a base wide energy system. The A-E shall coordinate with the user.

For physically handicapped requirements, state what provisions have been incorporated.

Provide the following information for liquid petroleum storage and distribution systems: describe the unloading facilities, the type of system, such as LPG vapor or central air mix; state the basis for storage capacity, rate of pumping and number of dispensing outlets; equipment power requirements, and a description of the tank:

**Future expansion:** Where buildings are to be designed for further expansion, discuss provisions to be taken to insure the projected construction will proceed in a trouble-free fashion. State if no provisions have been made for future expansion.

**Meters:** State type, number and location of Utility meters.

### **Design Analysis - Calculations:**

Refer to submittal requirements *Architect-Engineer 35% Design Submittals [REFP21L0]*. Provide all calculations, which are necessary to justify the systems. Show plumbing calculations as necessary to determine equipment or capacities of miscellaneous and special systems.

### **Drawings:**

Refer to submittal requirements *Architect-Engineer 35% Design Submittals [REFP21L0]*.

- Show the location of the Control Panel on the plans (in the Mechanical room).
- Prepare a ¼"=1' or ½"=1' scale partial floor plan of the bathroom areas and pipe chases of dormitory type facilities to insure that sufficient room is available for the plumbing, heating, and air conditioning equipment.
- Coordinate reflected ceiling plan with architectural and electrical designer.
- Show a schematic piping diagram for heating and cooling systems.
- Prohibition of the following types of construction where subterranean termite conditions are known to exist:
  - Buildings with sub-slab or intra-slab heating, ventilation, or air conditioning (HVAC) ducts.
  - Buildings with plenum-type, sub-floor HVAC systems, as currently defined in Federal Housing Administration minimum acceptable construction criteria guidance.
  - Buildings with HVAC ducts in enclosed crawl spaces which are exposed to the ground.
  - Buildings with outer HVAC systems where any part of the ducting is in contact with or exposed to the ground.

**Demolition:** Indicate if any demolition is required for the product. Determine the extent of the required demolition. Provide demolition drawings with necessary information for contractor to be able to bid the job, i.e., size and length of pipe or ducts to be removed or relocated; size and location of equipment to be removed; clear identification of all new, existing to be removed or relocated, existing to remain items.

NOTE: contractor is not obligated to visit the job site before the bid, so all above information shall be provided on demolition drawings.

## **Electrical Design**

### **Design Analysis - Narrative.**

Complete the discussion of electrical features that was presented in the *Architect-Engineer 35% Design Submittals [REFP21L0]* submittal. Update the narrative to include any changes brought about by review comments, and include the following:

- State and justify type of transformer insulation selected. Show characteristics of any subsequent transformation on the load side of the service entrance and a

statement of why the particular voltage was selected. State alternative systems or equipment considered and reasons for selecting a given system.

- Provide an economic comparison to justify selection of major pieces of electrical equipment. The Study will only consider alternatives which meet the design criteria and perform the functions intended. Provide the first cost for each alternative considered and list advantages/disadvantages of each. Attach the economic comparison as an appendix to the Design Analysis. The following items shall be studied:
  - Transformer types.
  - Main switchboards.
- Provide present worth, economic/energy study for the various types of lighting fixtures considered. The study will show the annual costs of power and maintenance for each fixture type over its service life. These costs will then be brought back to the present and combined with the first cost to determine the most economical fixture type. Assume an annual interest rate of 7%. Advantages and disadvantages of each will also be noted.
- State type of service entrance equipment (circuit breakers and/or fusible switches) and reason for selection.
- Discuss the following: Lightning protection, motor control centers, standby electric power, special purpose receptacles and outlets, grounding, D.C. or high frequency.
- For airfield lighting projects, state whether cable is to be direct burial or in duct. Discuss provisions for standby power, and comment on type of lighting system (such as high intensity or medium intensity, runway, approach or taxiway lighting), lighting equipment, and any conditions peculiar to the installation.
- For protective lighting systems, provide a statement of requirements for fence lighting, area lighting, building security lighting, etc. Include proposed type of luminaire, wattage of lamps, type of lamp beam spread, and how mounted on poles, buildings, etc.
- If cathodic protection is required, provide a description of the location, type, and extent of the system to be installed. State the basis for the design proposed.

**Generating plants:** In addition to a discussion of the design approach, provide the following for generating plants: estimated connected load, maximum demand load, number and size of units (including KW and PF ratings), engine governor and voltage regulating requirements, voltage and basis for selection, and justification for use of special equipment such as load sensing governors.

**Future expansion:** Where buildings are to be designed for future expansion, discuss provisions to be taken to insure the projected construction will proceed in a trouble-free fashion. State if no provisions have been made for future expansion.

### **Design Analysis - Calculations.**

Provide calculations to backup sizing of major pieces of electrical equipment. The degree of completion shall be comparable to that of the narrative and drawings.

**Drawings:**

- Provide plans showing the locations of major pieces of electrical equipment and outside distribution system. (Transformers shall include KVA and voltage ratings; outside distribution system shall include number of ducts for each duct bank, duct sizes, number of cables for each duct and cable size/types.)
- Provide plans showing the locations of special receptacles, telephone outlets, fire alarm (F.A.) control panel, F.A. manual stations, F.A. bells/horns/smoke detectors, etc.
- Coordinate with architectural designer in the preparation of the "Location of Exit Signs."
- Coordinate with architectural designer in the preparation of facility elevations.
- Coordinate with architectural and mechanical designers for reflected ceiling plan.

# Architect-Engineer 100% Design Submittals

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## Scope

The purpose of this document is to provide the guidance for the content of the Architect-Engineer (A-E) 65% Design Submittals. This is also called the Final Design Phase. This guidance supplements the *Architect-Engineer Guide* [[REFP13L0](#)] as modified by the Statement of Work.

## Distribution

A-E Firm

Chief of AE Administration Section

Chief of Engineering Division

Assistant Chief of Engineering Division

Chief of Engineering Support Branch

Chief of Design Branch

Chief of Geotechnical & Environmental Engineering Branch

A-E Responsibility Coordinator

Project Manager

## Ownership

The Chief of AE Administration Section [[William.D.Mullery@usace.army.mil?Subject=REFP18L0 - A-E Design Submittals](mailto:William.D.Mullery@usace.army.mil?Subject=REFP18L0 - A-E Design Submittals)] is responsible for ensuring that this document is necessary and that it reflects actual practice.

## References

Refer to:

- *Architect-Engineer Guide* [[REFP13L0](#)]
- *Preparing Project Specifications* [[INSP03L0](#)]
- *Criteria Bulletin Board System* [<http://cbbs.spk.usace.army.mil/>]
- *UFC 1-200-01 General Building Requirements*  
[[http://www.wbdg.org/ccb/DOD/UFC/1\\_200\\_01.pdf](http://www.wbdg.org/ccb/DOD/UFC/1_200_01.pdf)]
- *UFC 3-120-10 Interior Design*  
[[http://www.wbdg.org/ccb/DOD/UFC/ufc\\_3\\_120\\_10.pdf](http://www.wbdg.org/ccb/DOD/UFC/ufc_3_120_10.pdf)]



- *UFC 3-310-01 Structural Load Data*  
[\[http://www.wbdg.org/ccb/DOD/UFC/3\\_310\\_01.pdf\]](http://www.wbdg.org/ccb/DOD/UFC/3_310_01.pdf)
- *UFC 3-410-01FA HEATING, VENTILATING, AND AIR CONDITIONING*  
[\[http://www.wbdg.org/ccb/DOD/UFC/ufc\\_3\\_410\\_01fa.pdf\]](http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf)
- *UFC 3-600-01 Fire Protection Engineering For Facilities*  
[\[http://www.wbdg.org/ccb/DOD/UFC/ufc\\_3\\_600\\_01.pdf\]](http://www.wbdg.org/ccb/DOD/UFC/ufc_3_600_01.pdf)
- *UFC 4-010-01 DoD Minimum Anti-Terrorism Standards for Buildings*  
[\[http://www.wbdg.org/ccb/DOD/UFC/4\\_010\\_01.pdf\]](http://www.wbdg.org/ccb/DOD/UFC/4_010_01.pdf)
- *TB MED 576 Treated Water Quality Standards*  
[\[http://www.army.mil/usapa/med/DR\\_pubs/dr\\_a/pdf/tbmed576.pdf\]](http://www.army.mil/usapa/med/DR_pubs/dr_a/pdf/tbmed576.pdf)
- *Project Safety and Health Requirements [PROP07L0]*
- *Creation, Packaging, and Delivery of Project Documents [PROP09L0]*
- *General Project Metadata [REFP05L0]*
- *Preparing Project Specifications [INSP03L0]*
- *Architect-Engineer 10% Design Submittals [REFP18L0]*
- *Architect-Engineer 35% Design Submittals [REFP21L0]*
- *Architect-Engineer 65% Design Submittals [REFP22L0]*

## Definitions

Refer to the *Glossary of Engineering Quality System Terms and Acronyms [REFQ10L0]* for definitions not listed here.

**100% Design:** This is the Final Design phase of a project. It is an opportunity for the A-E Firm to demonstrate full understanding of the scope of the project to the customer and that all the customer's requirements are being considered and incorporated into the design. The Final Design is also another opportunity for the customer to make any adjustments needed to produce what is required. Other agencies may also be part of this review stage to support the customer in whatever way needed.

## Responsibility

The A-E Firm is responsible for preparing the Final Design Documents and will communicate its understanding in the shape of design documents that will include, but not be limited to: Drawings, Design Analysis / Calculations, and Draft Specifications. Submittals will include supporting documentations in any area where other data was used in arriving at the Final design solution such as Cost Estimates, Geotechnical Reports, etc. The next section will describe Final Design submittal requirements in more detail

## 100% Design Submittal

The 100% Design Submittal shall include the requirements of *Architect-Engineer 65% Design Submittals [REFP22L0]* whether or not a 65% Design Submittal was required. As a minimum, the 100% Design Submittal shall consist of the following documents:

- Design Analysis
- Drawings

- Specifications
- Project Safety and Health Requirements
- Cost Estimate
- DD Form 1354 Data Sheet
- Completed Environmental Permit Matrix (if required by the statement of work)
- ECIFP Report
- Other Items as Required by the statement of work

## Objective

The final submittal represents 100% of the design effort and is intended to present a project design that is biddable, constructible and operable, conforming to all the appropriate criteria. Final design will be accomplished by developing and refining the design as presented in the previously prepared submittals and as modified by the review comments.

## Changes to Basic Design

Major changes to the basic design will not be permitted at this time, unless these changes are the result of review comments, changes in criteria, changes in statement of work, or unforeseen problems necessitating the A-E to alter his original design. All the changes shall be resolved through the COE PM before proceeding. If major changes have been made since the last submittal, such changes shall be identified and described in the Design Analysis.

## Design Analysis - General Requirements

The Design Analysis, prepared for previous submittals, shall be expanded and refined into final form to contain that which was required by *Architect-Engineer 65% Design Submittals [REFP22L0]* plus requirements contained herein.

## Drawings - General Requirements:

Expand and fully develop the drawings required by *Architect-Engineer 65% Design Submittals [REFP22L0]* adding new drawings as necessary to meet the requirements stated hereinafter. Include in the drawings, all plans, elevations, sections, wall penetrations, furred spaces, duct and pipe chases necessary for mechanical and electrical systems. Consider spacing of required off-sets of beams, girders, reinforcing steel, joists and truss members. Where space is tight, show unequivocally that the systems will fit in the space provided. Particular attention shall be paid to areas of duct branches and cross-overs. Close coordination between all designers shall be accomplished to avoid conflicts between the various disciplines\* drawings. Whenever additive or deductive bid items are required, the limits of work or scope of these items shall be well defined on the respective disciplines\* drawings and clearly defined by word description in the specifications. Make sure adequate details are provided to cover those situations where additive bid items are not awarded such that the drawings present a complete design without the additive bid items.

## Civil Design

### Design Analysis - Narrative

Complete the discussion of civil features that was presented in the *Architect-Engineer 65% Design Submittals [REFP22L0]*. Update the narrative to include any changes brought about as a result of review comments.

### Design Analysis - Calculations

Refer to submittal requirements *Architect-Engineer 65% Design Submittals [REFP22L0]*. Update the calculations to include any changes required by review comments.

**Drawings:** Expand and fully develop drawings used in *Architect-Engineer 65% Design Submittals [REFP22L0]*. Add any new sheets necessary to complete the presentation.

## Landscape Architectural Design

### Design Analysis - Narrative

Complete the discussion of the landscape treatment that was presented in the *Architect-Engineer 65% Design Submittals [REFP22L0]*. Update the Design Analysis to include any changes brought about by review comments. If there is no requirement for landscaping is required, so state.

### Design Analysis - Calculations

Provide all calculations used for determining pipe sizes, type of sprinkler head in regards to area of coverage, and number of heads per valve. Define water pressure used in analysis and state how that value was determined:

### Drawings

**Landscape Architectural Plan.** Finalize the Landscape Architectural Layout Plan that was presented in the *Architect-Engineer 65% Design Submittals [REFP22L0]*. Dimension site features in coordination with the civil site plan. Dimension site features that are to be constructed on the land, such as sidewalks, hardstand areas, locations for all site amenities, etc. Update the plan to include any changes brought about by review comments.

**Landscape Planting Plan:** Finalize the Landscape Planting Plans that was presented in the *Architect-Engineer 65% Design Submittals [REFP22L0]*. Show location of all shrubs and trees. In case where the shrub layout may be dense and difficult to label a separate shrub planting plan and tree planting plan shall be used. Label all trees and shrubs with plant identification and quantities. Dimension location of any specimen plants that need to be in an exact location. Complete shrub and tree schedule. Update the plan to include any changes brought about by review comments.

**Planting schedule:** Provide a plant schedule to include the following:

- Common name.
- Botanical name.
- Quantity of each variety planted.
- Height after planting.
- Container size and kind of container space pattern. Tree size should be a minimum of 15 gallons to improve survivability.

**Landscape Planting and Layout Details:** Provide typical planting details for shrubs and trees. Provide details that include a minimum of all site furnishings, sections of all paving types, signage, fencing, outdoor structures, mulch placement, cobble placement and drainage details.

**Irrigation Layout Plan:** The irrigation plan shall be drawn on a separate sheet. Show location of all shrubs and trees. Show all irrigation lines, spray heads, bubbler locations and drip emitters. Show coverage of each spray head on the drawing. Show pipe sizes, backflow preventor location, control valves, vacuum breakers and point of connection to water distribution system, including the dynamic head at the point of connection. Label each valve with controller zone number, valve size and zone GPM's. Show mechanical appurtenances necessary for the proper function of the system. Each item will be indicated by an appropriate symbol. Indicate each kind and size of pipe by symbol. Provide an irrigation schedule indicating types of spray heads, bubblers and drip emitter units, type of coverage, minimum gallons per minute (gpm) and minimum pounds per square inch (psi) required at each head. Indicate total water requirement and pressure required for each zone.

**Irrigation schedule:** Provide an irrigation schedule to include the following:

- Type and size of head, gpm, pressure in psi required and radius.
- Type and size of drip emitter.
- Type and size of bubblers.
- Type and size of valve.
- Type of controller.
- Type and size of pipe.
- Type of backflow preventor.
- Method of tap.

**Irrigation Details:** Provide Irrigation Details that include a minimum of trenching and pipe burial, spray head installation, bubbler installation, drip emitter unit installation, backflow preventor, gate valve, control valve, controller, automatic drain valve, quick coupling valve.

## Architectural Design

### Design Analysis - Narrative

Complete the discussion of architectural features presented in the *Architect-Engineer 65% Design Submittals [REFP22L0]*. Update the narrative to include any changes brought about by review comments.

## Design Analysis - Calculations

Update the floor area calculations to reflect changes brought about by review comments and/or floor plan changes.

**Drawings:** Expand and fully develop drawings used in *Architect-Engineer 65% Design Submittals [REFP22L0]*. Add any new sheets necessary to complete the presentation, including the following:

**Finish and colors:** Complete for each space by use of "Finish Schedule, Finish Legend and Color Schemes." Include color of factory finished materials (e.g., floor tile) for all interior finishes and for all building exterior finishes.

## Interior Design

### Design Analysis – Narrative

**Structural Interior Design (SID):** Complete the information provided in the *Architect-Engineer 65% Design Submittals [REFP22L0]*. Update the narrative to include any changes brought about by review comments.

**Furniture, Fixtures & Equipment (FF&E):** Complete the information provided in the *Architect-Engineer 65% Design Submittals [REFP22L0]*. At this point, additional and more product specific information on the furniture and furniture finishes can be provided. The information listed in the Architectural Narrative on CFCI and GFCI can also be provided in the FF& E narrative. See *UFC 3-120-10 Interior Design* [[http://www.wbdg.org/ccb/DOD/UFC/ufc\\_3\\_120\\_10.pdf](http://www.wbdg.org/ccb/DOD/UFC/ufc_3_120_10.pdf)] for additional information on FF&E packages.

### Drawings:

**SID:** Exterior and interior finish schedules shall be in tabular form with legends. In the final design phase, the finishes can be listed in a manufacturer specific form, so that the user gets an actual sense of the exterior and interior colors, materials and finishes. Each finish sheet needs to have the following general note: "Colors listed by manufacturer are for identification purposes only and are not intended to limit selections to products of the manufacturer indicated. An exact match of the manufacturer's color is not required. The selections serve only to indicate the color and quality which the manufacturer's standard must approach." Complete the wall and/or floor material pattern drawings.

**FF&E:** The furniture footprint plans are completed per the users' requirements and comments. The furniture footprint plans are to show the furnishings necessary for the user's functional requirements and satisfy applicable life safety codes. The furniture footprint plan will show the appropriate size and type of furnishings and critical or required clearances. The furniture footprint plan shall include a furniture legend. When the design of the FF&E package is included in the building design contract, the furniture footprint is the furniture plan and is fully developed, along with the FF&E package. If the FF&E package is not included as part of the building design contract, the furniture footprint plans need to clearly note "Not In Contract." See

*UFC 3-120-10 Interior Design* [[http://www.wbdg.org/ccb/DOD/UFC/ufc\\_3\\_120\\_10.pdf](http://www.wbdg.org/ccb/DOD/UFC/ufc_3_120_10.pdf)] for additional information on FF&E packages. Furniture footprint plans must be included throughout the design delivery process, from concept to final submission, to ensure coordination of architectural components and engineering disciplines (lighting, power, mechanical, window placement, etc.) with respect to furniture placement.

**Color Boards:** Provide one color board for projects in which the construction cost of the structure only, exceeds \$1,000,000.

**Presentation:** Color Boards shall be submitted in a standard 8-1/2" x 11" three-ring binder. Fold-outs may be employed to 25-1/2" x 33" as long as they refolded with the standard binder. Number of color boards shall be as called for in the project scope. If pre-finished textured metal panels are required, samples shall be submitted with the boards. Project title and installation shall be written in the lower right-hand corner of each module

**Samples:** Actual material samples shall be displayed showing color, texture, pattern, finish, thickness, etc., for all appearance related items where choice exists. These samples shall be large enough to indicate true patterns. However, care should be taken to present materials in proportion to that which will actually be installed in a given situation. Samples shall be organized by color schemes with a separate sample for each scheme. The schemes shall be coordinated by room names and numbers shown on the architectural floor plans. Colors shall be labeled with manufacture specific information.

## Structural Design

Following are the basis for structural design:

- *UFC 1-200-01, Design: General Building Requirements*  
[[http://www.wbdg.org/ccb/DOD/UFC/1\\_200\\_01.pdf](http://www.wbdg.org/ccb/DOD/UFC/1_200_01.pdf)]
- *UFC 3-310-01, Structural Load Data*  
[[http://www.wbdg.org/ccb/DOD/UFC/3\\_310\\_01.pdf](http://www.wbdg.org/ccb/DOD/UFC/3_310_01.pdf)]
- *UFC 4-010-01, DoD Minimum Anti-Terrorism Standards for Buildings*  
[[http://www.wbdg.org/ccb/DOD/UFC/4\\_010\\_01.pdf](http://www.wbdg.org/ccb/DOD/UFC/4_010_01.pdf)]

## Design Analysis - Narrative

Complete the discussion of structural features that was presented in the *Architect-Engineer 65% Design Submittals [REFP22L0]*. Update the narrative to include any changes brought about by review comments.

## Design Analysis - Calculations

Present complete structural calculations covering analysis and design of all parts of the structure and miscellaneous facilities. All calculations, including the Design Analysis Narrative shall be stamped by a professional engineer registered in the state in which the facility is to be built. Calculations must also clearly indicate the name of the person acting in the Peer Review capacity during the life of the design phase of the project.



Design methods shall be described, including assumptions, theories, and technical formulas employed in design solutions.

All loads shall be combined so as to produce the most structural effect as required in the governing criteria. Special emphasis must be made to loading scenarios where stress reversals in combination with other loads might produce higher effects.

If special methods of solution, tables, etc., are employed, references should be made in the calculations to the sources of such material. Copies of those tables must be included and readily available in the calculations document.

For addition/alteration projects, provide calculations necessary to verify adequacy of existing structure to support new functional loads or to satisfy any new loading criteria.

When a computer program is utilized to perform engineering calculations, the Design Analysis document (calculations) shall include copies of computer input data and output summaries presented in understandable language, accompanied by diagrams, sketches and any drawings which identify joints, members, areas, etc., according to the notations used in the data listings. This will form an integral part of the Design Analysis in lieu of manual calculations otherwise required. A complete listing of all computer output will be provided, bound separately, when it is too voluminous for inclusion in the Design Analysis. These listings will be augmented by intermediate results where applicable, so that sufficient information is available to permit manual checks of final results. Include a sample hand calculation of each structural element (e.g., a truss) under one loading condition (i.e., usually the most critical) for each major system (e.g., lateral system, beam framing, etc.). This will facilitate reviewers who are not familiar with your particular program in spot checking the balance of the submitted computer data.

**Drawings:** Expand and fully develop drawings used in *Architect-Engineer 65% Design Submittals* [[REFP22L01](#)]. Add any new sheets necessary to complete the presentation.

The structure should be carefully studied so that elaborate details are not required and all information necessary for construction is clearly and simply presented on the drawings. Typical sections shall be truly typical and not representative of one particular condition.

**Wall Elevations:** Wall elevations shall be provided for precast or tilt-up concrete panels, showing typical reinforcing, reinforcing around openings, connections, etc. The intent is to show one complete design on the drawings, even though manufacturers may prefer to detail things differently.

**Joints:** The location and details of all joints shall be shown on the drawings. Include control joints in slabs-on-grade, construction joints in walls, floors, roofs, and expansion and seismic joints.

**Structural data:** The COE or A-E prepared Geotechnical Report shall not be referenced because it is not part of the contract documents. Check all general structural notes for conflicts with the specifications. The notes should not repeat the specifications. All structural data shall appear on the first sheet of the structural drawings. As a minimum state the following:

- Building classification for all aspects of the loading, occupancy and operation of the facility
- Soil bearing parameters and other information from the Geotechnical Report pertinent to the design of foundation, retaining walls, slabs on grade, etc.
- Design live loads for various areas of the building;
- Snow loads
- Basic and “design” frost penetration depth
- Snow loads and any special considerations for snow drift, etc that could affect the building.
- Design wind speed and any other applicable parameter used to analyze the building structure such as special considerations for tall and slender building, signs, etc.
- Seismic loads and loading parameters such as ground motions, site class and other information that was used to develop the design basis.
- Any other special loading such as loads due to Cranes, etc. must be fully and technically explained and quantified.

**Stair Details:** Show all structural beams and connections that are shown supporting stairs usually detailed on the Architectural Drawings.

**Roof Details:**

- Show all fastener details of roof deck to supporting members.
- Show all roof framing connections, including Reinforced Concrete and CMU beam seats, column connections, and beam-to-girder connections.
- Show all details that provide slip joints for temperature changes and all details that transfer lateral loads to the vertical shear system.
- Show all additional framing needed to provide for concentrated vertical loads, including both at and between node(s) of roof trusses.
- Show details for any roof system selected.

**Connection Design**

The A-E, the Engineer of Record (EOR) is responsible for design and detailing of “ALL” connections. Connection designs and details should be clearly indicated on drawings substantiated by calculation documentations.

**FORCE PROTECTION:** Refer to *UFC 4-010-01 DoD Minimum Anti-Terrorism Standards for Buildings* [[http://www.wbdg.org/ccb/DOD/UFC/4\\_010\\_01.pdf](http://www.wbdg.org/ccb/DOD/UFC/4_010_01.pdf)]. Progressive Collapse Design for Force Protection shall be provided for three or more story facilities. Only an external, extraordinary event (explosive threat) shall be considered. This shall be achieved through an arrangement of structural elements that provide stability to the entire structural system by transferring loads from any locally damaged region to the adjacent regions capable of resisting those loads without collapse. This shall be accomplished by providing sufficient continuity, redundancy, or energy dissipating capacity (ductility) or a combination thereof, in the members and connections of the structure. Threat analysis will include removal of one primary vertical load carrying element or one primary lateral load carrying element in any of the floor levels without progressive collapse. All floors will be designed with improved capacity to withstand



load reversals due to explosive effects by designing them to withstand a net uplift equal to the dead load plus one-half the live load. The loss of exterior CMU wall length in any of the floor levels is equal to one story height for CMU Buildings. For further guidance, refer to American Society of Civil Engineers, Standard ASCE 7-98, and Minimum Design Loads for Buildings and Other Structures.

**Future expansion:** Design for future expansion, if required.

**Seismic Evaluation and Rehabilitation for Existing Buildings:** *ICSSC RP 6* identifies trigger situations requiring evaluation seismic evaluation and rehabilitation for existing structures.

Refer to:

- ASCE/SEI 31-03 Seismic Evaluation of Existing Buildings
- *FEMA 356 Prestandard and Commentary for the Seismic Rehabilitation of Buildings* [[http://www.degenkolb.com/0\\_0\\_Misc/0\\_1\\_FEMADocuments/fema356/ps-fema356.html](http://www.degenkolb.com/0_0_Misc/0_1_FEMADocuments/fema356/ps-fema356.html)]
- *ICSSC RP 6 Standards of Seismic Safety for Existing Federally Owned and Leased Buildings* [<http://fire.nist.gov/bfrlpubs/build01/PDF/b01056.pdf>]

VAULTS: Refer to:

- Army Projects use *MIL-HDBK 1013/1A DESIGN GUIDELINES FOR PHYSICAL SECURITY OF FACILITIES* [[http://www.wbdg.org/ccb/NAVFAC/DMMHNAV/1013\\_1a.pdf](http://www.wbdg.org/ccb/NAVFAC/DMMHNAV/1013_1a.pdf)]
- AF Projects use *AFI 31-101 THE AIR FORCE INSTALLATION SECURITY PROGRAM (FOUO)* [<http://www.e-publishing.af.mil/afpubs.asp>]

## Mechanical Design

### Design Analysis - Narrative

Complete the discussion of Mechanical features that was presented in the *Architect-Engineer 65% Design Submittals* [[REFP22L0](#)]. Update the narrative to include any changes brought about by review comments.

### Design Analysis - Calculations

The final design shall be a continuation and extension of the approved concept design. The engineering and economic analysis performed as part of the *Architect-Engineer 65% Design Submittals* [[REFP22L0](#)] shall be updated as necessary and included as part of the final design package. Each of the systems, features and components considered during the final design shall be identified and the engineering and economic analysis supporting the design decision for implementation or rejection shall be included.

Finalize all calculations leading to sizing of distribution systems, selection of equipment, power requirements, controls, and selection of auxiliary equipment.

Equipment selection is restricted to regularly cataloged items of domestic manufacture, in commercial service for at least two (2) years prior to bid opening, and supplied by dealers having service organizations supporting the project location. Completely identify each piece of

equipment with three manufacturers' names, model numbers, and characteristics. Do not indicate proprietary manufacturers' names and model numbers on the drawings or in the specifications. Provide catalog cuts of selected equipment.

Provide complete tabulation of cooling loads. Psychrometric charts for all the air handling systems with cooling are required.

**ASHRAE STANDARD 90.1 COMPLIANCE:** Full compliance with the Mandatory Provisions and either the Prescriptive Path or the Energy Cost Budget Method shall be clearly demonstrated. Where life cycle cost is effective, the Mandatory Provisions of ASHRAE 90.1 and the selected compliance path or method should be exceeded. The engineering and economic analysis supporting the decisions should be included in the final design package. In those rare cases where the Mandatory Provisions of ASHRAE Standard 90.1 and the selected compliance path or method are not cost effective and a more energy intensive system, feature or component will provide a lower life cycle cost, a detailed justification with life cycle cost comparisons, including the assumptions used in the analysis and unusual facility features or operations, shall be included in the final design.

**Mandatory Provisions:** The final design package shall identify each of the required features applicable to the facility and demonstrate compliance. Any deviations shall be clearly identified and the engineering and economic analysis supporting the deviation provided.

**Prescriptive Path:** The Simplified Approach Option for HVAC Systems may be used where the specific system and facility design meets all of the relevant ASHRAE Standard 90.1 criteria. In all other cases the detailed requirements of the Prescriptive Path, as a minimum, shall be carefully followed. The final design package shall identify each of the features applicable to the facility and demonstrate compliance. Any deviations shall be clearly identified and the engineering and economic analysis supporting the deviation provided.

**Drawings:** Expand and fully develop drawings used in the *Architect-Engineer 65% Design Submittals [REFP22L0]*. List the room names and numbers on all plans and partial plans as shown on the architectural plans. Add any new sheets necessary to complete the presentation, including the following:

**Plumbing:** Provide the following:

- Show water, waste and vent piping
- Provide a schedule of plumbing fixtures and equipment. Coordinate schedule with Table I - Pipe And Fitting Materials For Drainage, Waste, And Vent Piping Systems of UFGS 22 00 00 PLUMBING, GENERAL PURPOSE.

**Heating, Ventilating and Air Conditioning (HVAC):** Provide the following:

- Double line air distribution ducts will be required for all cross sections, elevations, and in mechanical rooms. Single line ducts may be used for air distribution layout provided sufficient cross sections are shown for congested areas, and for areas that are subject to potential structural interference.

- If required for clarification of duct sizes and duct runs, show single line riser diagrams for supply, return, and exhaust air systems in multi-story buildings. Provide sections where needed to show special relations and indicate the typical location of lights, structural members, etc.
- Locate and detail all fire dampers.
- Provide piping schematics to show all complicated flow processes.
- Provide a sequence of operation and control, and control system schematic diagrams for each Mechanical System.

**Fire Protection:** Provide the following:

- Minor fire protection work may be shown on the plumbing plan. Title block shall indicate that the drawing is for both plumbing and fire protection.
- For detail of sprinkler riser, see COE Standard Mechanical Detail Drawings.
- Identify all sprinkled areas. Use different identification (symbols) for areas with different density (type of hazard). List each symbol with its pertinent hazard and density in the legend and symbols.
- Show the riser locations on the plans.
- Do not show sprinkler system layout, i.e., location of mains, branches, and sprinkler heads.
- For Hydraulically Calculated Sprinkler Systems, show the following information Refer to (UFC-3-600-01) Fire Protection Engineering for Facilities.
  - Type of hazard.
  - Minimum area of water demand.
  - Minimum rate of water application (density) GPM/sq. ft.
  - Any special sprinkler head temperature rating or classification.
  - Minimum hose stream requirements.
  - Fire Hydrant location and flow data including static and residual pressures
- For projects with several sprinkled areas of different density, provide a table listing the miscellaneous areas, occupancy rating, density, area of demand, and hose stream requirements.
- For warehouses, the following shall be shown on the drawings.
  - Commodity classification.
  - Pallet type.
  - Shelf type (open, slatted or solid).
  - Encapsulated or non-encapsulated.
  - Maximum storage height (not rack height).
  - Storage rack configuration (single, double or multiple row).
  - Whether sidewall sprinkler protection of columns is required.
  - Whether in-rack sprinklers are required due to storage height in excess of 25-feet, encapsulation of pallets, or to minimize fire water requirements for storage height of less than 25-feet.
  - Whether in-rack sprinklers are required at one level, two levels or at every tier.
  - In-rack sprinkler water demand
  - Ceiling sprinkler density (GPM/SF)
  - Design area of sprinkler operation

- Ceiling sprinkler water demand
- Inside hose stream demand (minimum 100 GPM)
- Combined inside and outside hose demand (minimum 500 GPM)
- Duration of water supply required
- Fire protection riser location(s)
- Fire wall/partition locations
- Water flow available at base of riser (GPM flow rate and associated residual pressure)

### **Energy Monitoring and Control Systems:**

The designer is required to coordinate with the using agency.

- Provide schematic diagrams and summary as shown in *UFC 3-410-02A Heating, Ventilating, and Air Conditioning (HVAC) Control Systems* [[http://www.wbdg.org/ccb/DOD/UFC/ufc\\_3\\_410\\_02a.pdf](http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_02a.pdf)].
- The system schematic diagrams shall be separate from the control system diagrams.

## **Electrical Design**

### **Design Analysis - Narrative**

Complete the discussion of electrical features that was presented in the *Architect-Engineer 65% Design Submittals [REFP22L0]*. Update the narrative to include any changes brought about by review comments.

- Describe any special switching or dimming systems required for any area.
- Provide rationale for selection of reduced-voltage starting equipment.
- Provide an energy impact analysis.

### **Design Analysis - Calculations.**

Provide complete design calculations for all interior and exterior electrical systems.

Provide manufacturers' names and model numbers for each major piece of equipment used in determining dimensional and weight requirements. Do not use proprietary names and model numbers on the drawings or in the specifications.

- Calculations for the maintained foot-candle intensities in all areas shall be shown.
- Provide calculations for sizing transformer(s) and short-circuit interrupting capacity.
- Voltage drops on all service and feeder circuits, and a worst-case branch circuit.
- Additional calculations as required to supplement the designs.

- For presentation of computer data, see structural computations final submittal.

**Drawings:** Expand and fully develop drawings used in *Architect-Engineer 65% Design Submittals [REFP22L0]* adding new sheets as necessary to meet minimum requirements stated hereafter. Drawings from *Architect-Engineer 65% Design Submittals [REFP22L0]* may be used in this expansion to finals, if applicable. Show in plan, necessary elevations and sections, all wall penetrations, furred spaces, duct and pipe chases necessary for mechanical and electrical systems. Consider spacing or required off-sets of beams, girders, reinforcing steel, joists and truss members. Where space is tight, show unequivocally that the above systems will fit the space provided. Particular attention should be paid to areas of duct branches and cross-overs. Close liaison between all designers is necessary here to avoid conflicts in the drawings. Whenever additive or deductive bid items are required, the limits of work or scope shall be well defined on the drawings for the respective disciplines unless clearly defined by description in the specifications.

**Outside distribution system:** Provide the following:

**Overhead:** Show location of new and existing poles, and routing of new lines on an electrical-only site plan. Indicate type and size of existing overhead conductors.

**Underground:** Show location of new and existing manholes and handholes on an electrical-only site plan. Locate and show details of major equipment. Show routing of ductline, ductline sections and detail of pole riser. Show adequate detail for complex grounding system (if applicable).

**Area lighting:** Show location of street, parking and walkway lighting poles. Provide details of luminaires, poles and bases. Details of luminaires shall only be provided when not covered by COE Standard Drawing No. 40-06-04.

**Floodlighting (on poles):** Provide layout of lighting poles, showing dimensions and aiming angles.

**Distribution System Profiles.** For overhead and/or underground distribution projects over 2,000 linear feet in total length, profiles shall be furnished as described under Civil Design.

**Telephone Service Connection:** Show the exterior telephone service point of connection.

**Interior distribution system:** Provide the following:

**Floor Plan:** Define the physical limits of each hazardous area and the class, division and group of equipment and wiring. Show conduit seals IAW NEC Article 500. Show sizes of all conduits including conduit to be wired by others. Indicate number and size of conductors based on copper conductors. See UFGS SECTION 26 20 00 INTERIOR DISTRIBUTION SYSTEM for aluminum conductor options. Provide a numbering system for all circuits. Detail the seismic restraints for all electrical equipment. Show complete fixture, switch, and receptacle arrangement, fixture details and identification of fixture type, special control equipment diagrams and complex switching diagrams. Indicate energy saving fluorescent fixtures with

matched ballast and lamps. Provide fire rated recessed fluorescent fixtures to match fire rating of ceiling.

**Electrical Equipment:** For all electrical equipment, list the performance characteristics required, complete schematic diagrams, and a written description of operation of complex control systems.

**Panel Schedules:** For panelboards, switchboards, power switchgear assemblies and motor control centers, provide total connected load, total spare load, main and branch circuit ratings, interrupting ratings, frame sizes for each circuit, number of poles, and description of each load.

**Wiring Diagrams:** Show a wiring diagram for each of the following systems on the plans: telephone, television, fire alarm, intercommunication, public address, and other required special systems. Show locations only of all antennas, service entrances, outlets and major equipment on a floor plan.

**Airfield Lighting:** Where airfield lighting is included in the project, show location, controlling dimensions, extent of the proposed system, routing of supply circuits, location of vaults and control towers, and locations for various types of lighting units.

**Cathodic Protection:** Where a cathodic protection system is included, show extent of the facilities to be protected, location and type of anode beds, location of test points, details for sectionalizing bonding and insulating (where applicable) an underground piping system, and source and routing of supply for impressed current.

**Generating Plant:** If the project includes a generating plant, provide a one line wiring diagram, fuel oil and coolant piping diagrams, equipment details and layout, and transfer controls in block form.

# SPK File Naming Convention for Civil Works CADD Drawings

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## Scope

This document covers the File Naming Convention for Civil Works CADD Drawings only.

It does not cover the File Naming Convention for Military CADD Drawings. Refer to *[SPK File Naming Convention for Military CADD Drawings \[CODP01L0\]](#)*

## Distribution

Archive Technician

AutoCAD Operator

Designer

Lead Designer

MicroStation Operator

Project Manager

Resource Provider

Specifications Engineer

Specifications Technician

## Ownership

The Lead Designer [[James.B.Weir@usace.army.mil?Subject=INSP07L0-Creating Design Drawings for Civil Works Projects](mailto:James.B.Weir@usace.army.mil?Subject=INSP07L0-Creating Design Drawings for Civil Works Projects)] is responsible for ensuring that this document is necessary and that it reflects actual practice.

## References

Refer to *[Architectural, Engineering, and Construction \(A/E/C\) CADD Standard Release 3.0](https://cadbim.usace.army.mil/CAD)* [<https://cadbim.usace.army.mil/CAD>]

## Introduction

File names shall comply with the *[A/E/C CADD Standard Release 3.0](https://cadbim.usace.army.mil/CAD)* [<https://cadbim.usace.army.mil/CAD>]. Chapter 2 of the A/E/C CADD Standard recognizes two basic categories of files, the model file and the sheet file. As defined in the Standard, a model file contains the physical components of the project, drawn at full scale, and typically represents plans, profiles and sections, etc. A sheet file is synonymous with a plotted CADD drawing and

includes selected portions or views of referenced model files. The naming convention for each file is as follows:

**Table 1 - File Naming Convention**

	Required	Required			
	Project Code	Discipline Designator	Type	Sequence	User
Model File	0-20 char. Tables 2 - 7	X- Table 8	XX Table 9 - 15		XXXX
Sheet File	0-20 char. Table 2 - 7	XX Table 16 - 21	X Table 2	XX	XXX
SHEET IDENTIFIER		XX	X	XX	

The sheet Identifier uses characters from the sheet file name. See **Figure 3** and **Figure 4** for how it is displayed on the sheet.

### Project Codes

The Project Code is the file name assigned to the project by the Archives Technician. The format of the project code is XXXX-YY-NNNN.

- The characters XXXX comprise the CIVIL INDICATOR
- The characters YY comprise the CIVIL FILE DIVISION
- The characters NNNN are a unique sequence number assigned and recorded by the Archives Unit

The information in Tables 2 through 7 is included to aid users in interpreting project codes. The Archive Technician maintains the definitive list of Project Codes and should be consulted for any additional codes not shown here.

### Civil Indicator

The CIVIL INDICATOR (CI) describes the area and/or structure where the project is located. Tables 2, 3, 4 and 5 lists the CI for the different states located in our district. CI can be either a one or two character numeric value or a four character alphanumeric value.

**Table 2 Civil Indicators - California**

CI	CALIFORNIA
AM	American River
AM1	Folsom Dam & Lake
BE	Bear River
CA	Calaveras River
CA1	New Hogan Dam & Lake
CA2	Farmington Dam & Lake

CI	CALIFORNIA
CA3	Bear Creek - San Joaquin
CC	Cache Creek
CC4	Middle Creek Project
CC5	Scotts Creek (Lake Port Lake)
CC6	Clear Lake/Cache Creek
CO	Coyote Creek (Santa Clara)



CI	CALIFORNIA
	County)
COR	Corte Madera Creek
DE	Delta
DE3	Bouldin Island Levee Investigations
DE4	Walnut Creek
EEL	Eel River (Near Fortuna)
FE	Feather River Basin
GR	Guadalupe River
KE	Kern River
KE1	Isabella Lake
KI	Kings River
KI2	Pine Flat Dam & Lake
KT	Kaweah - Tule River Basin
KT1	Success Dam & Lake
KT2	Terminus Dam & Lake Kaweah
ME	Merced Stream Group
ME1	Mariposa Project
ME2	Owens Creek Project
ME3	Burns Dam & Lake
ME4	Bear Creek Lake
ME5	Miles Dam & Lake
ME6	Diversion Channel
ME7	Horseshoe Dam & Lake
ME8	Black Rascal Dam & Lake
ME9	New Exchequer Dam
ME10	Virginia Point Dam
ME11	Bagby Dam & Lake
ME12	Castle Dam & Lake
ME13	Haystack Dam & Lake
ME14	Margarita Dam & Lake
MO	Mokelumne River Basin
MO1	Sloughhouse-Nashville Reservoir
MO3	Ione Dam & Lake
MO4	Pardee Dam & Lake
MO5	Michigan Bar Dam & Lake
MO6	Latrobe Dam & Lake
MO7	Carson Creek School Dam & Lake
MO8	Clement, Bear Dam & Lake
MO9	Hutson School Dam & Lake

CI	CALIFORNIA
MO10	Camache Dam & Lake
NA	Napa River (Sonoma County)
PA	River (UVAS-Carnadero Creek)
PC	Putah Creek
PC1	Monticello Dam - Lake Berryessa
RU	Russian River
RU1	Coyote Dam - Lake Mendocino
RU2	Warm Spring Dam - Lake Sonoma
SA	Sacramento River Basin
SA1	Iron Canyon Dam
SA12	Cherokee Canal
SA13	Tehama-Dutch Gulch, Tehama Lake
SA17	Shasta Lake
SA18	Dutch Gulch-Gas Point, Cottonwood Creek
SA19	Tehama Dam, Farquhar School Dam, Cottonwood Creek
SA20	Morrison Creek (Vine Yard Reservoir)
SASJ	Sacramento-San Joaquin Valley Project
SC	Stony Creek Project
SC1	Black Butte Dam & Lake
SC2	Mill Site
SJ	San Joaquin River
SJ1	Big Dry Creek Dam & Lake
SJ3	Windy Gas Reservoir
SJ4	Eastman Lake - Buchanan Dam
SJ6	Long Ridge Dam & Lake
SJ7	Hensley Lake - Hidden Dam
SJ9	Fresno River Slough - Basin
SJ10	Sycamore Creek Project
SJ11	Red Bank & Fancher Creek (Big Dry Creek Dam/Lake)
SJR	San Juan River Basin
SL1	San Lorenzo River
ST	Stanislaus River
ST1	New Melones Dam & Lake
TL	Tulare County
TL1	Tule Lake Levee

CI	CALIFORNIA
TR	Truckee River (Cal-Nev)
TR1	Wingfield Park
TR4	Martis Creek Dam & Lake
TU	Tuolumne River
TU1	Don Pedro Dam & Lake
TU2	Cherry Valley Dam
WSP	Wildcat & San Pablo Creeks
YU	Yuba River
YU1	Bullards Bar Dam & Lake
TU4	Marysville Lake

**Table 3 Civil Indicators - Nevada**

CI	NEVADA
NEV	Nevada Projects
WA	Walker River

**Table 4 Civil Indicators - Utah**

CI	UTAH
JO	Jordan River
JO2	Spanish Fork
JO3	Little Dell Dam & Lake
SE	Sevier River
SLA	Salt Lake Basin
WE	Weber River & Tributaries

**Table 5 Civil Indicators - Others**

CI	OTHERS
DOEW	Dept. of Energy - Western Area Power Admin.
NPS	National Park Service

**Table 6 Numerical Listing**

CI	Location
1	American River
2	Bear River
3	Calaveras River
4	Feather River

CI	Location
5	Mokelumne River
6	Sacramento River
7	San Joaquin River
8	Yuba River
9	Lake Tahoe
10	Vietnam
11	Gunnison River, CO
12	Colorado River
13	Green River, ??
14	Smith Fork, WY
15	Coal Creek, UT
16	Logan River, UT
17	Bitter Creek, WY
18	Mill Creek, UT
19	Park Creek, UT
20	San Juan River, CO
21	La Plata River, CO & NM
22	Fortification Creek, CO
23	Little Snake River, WY
24	Animas River, CO & NM
25	Dolores River, CO
26	Silver Creek, CO
27	Duchesne River, UT
28	Dry Creek, CO
29	Roaring Fork River, CO
30	Frying Pan River, CO
31	Killpecker Creek, ??
32	White River, UT
50	Sacramento River (Bank Protection Projects)
51	Stockton Deep Water Ship Channel
52	Sacramento Deep Water Ship Channel
80	Civil Standards
81	Equipment
84	U.G.E.T. (?)
85	Real Estate Civil - San Francisco
86	Bryte Yard & Miscellaneous

## SPK CIVIL FILE DIVISION

The CIVIL FILE DIVISION – RIVERS, HARBORS AND DAMS characters are listed in Table 7 and indicate the nature of work.

**Table 7 Civil File Divisions - Rivers, Harbors and Dams**

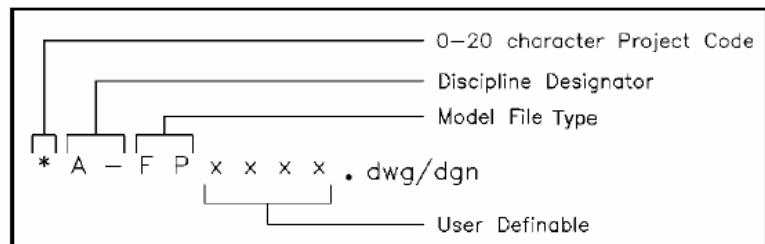
1	Borings, Logs of Explorations
2	Bridges, Ferries, Crossings
3	Cut-Offs, Bypasses, New Channels
4	Levees, Embankments, Training Walls, Wingdams, Retards Revetments, Bank Protection
5	Location of Bridges, Ferries, Sunken Barges, Lights, Buoys, Railroads, and Highways
6	Dredging, Excavation Clearings
7	Gold Dredging
8	Harbor Lines, Waterfronts
9	Dams, Recreation Weirs, Jetties, Docks, Outfall Gates, Reservoirs and Reservoir Sites
10	Profiles, Cross Sections
11	Progress Maps or Curves
12	Rights of Way (R. E.)
13	Surveys, Topographic and General Maps
14	Soundings, Depth Lines
15	Wharves, Bulkheads, Landings, Warehouses
16	Reclamation, Irrigation and Drainage Districts
17	Flood Plan Maps
18	Photo-Air Maps
19	Flooded Areas, Damaged by Floods
20	Reports – D. M., Master Plan
22	Topography
24	Orientation Map
25	Miscellaneous
26	Hydrographs
28	HTRW Aspects

## Model File Names

The format for model file names is shown in Figure 1. All of the characters must be used.

### Project Code

The Project Code is described above.



**Figure 1 Model File Names**

## Discipline Designator

The first character of the Discipline Designator (DD) will be selected from the following table (A/E/C CADD Standard Table 2-1):

**Table 8 Discipline Designator**

Discipline	DD	Discipline	DD	Discipline	DD
General	G-	Architectural	A-	Electrical	E-
Hazardous Materials	H-	Interiors	I-	Telecommunications	T-
Survey/Mapping	V-	Equipment	Q-	Resource	R-
Geotechnical	B-	Fire Protection	F-	Other Disciplines	X-
Civil	C-	Plumbing	P-	Contractor/Shop Drawings	Z-
Landscape	L-	Process	D-	Operations	O-
Structural	S-	Mechanical	M-		

The second character of the Discipline Designator is always a hyphen.

## Model File Type

The model file type is from Table 2-2 of the A/E/C CADD Standard, a portion of which is included in the following tables:

**Table 9 General Discipline Code Definitions**

Code	Definition
BS	Border Sheet
CS	Cover Sheet
KP	Keyplan

**Table 10 Hazardous Materials Discipline Code Definitions**

Code	Definition
DT	Detail
EL	Elevation
LG	Legend
PP	Pollution Prevention Plan
QP	Equipment Plan
SC	Section
XD	Existing/Demolition Plan

**Table 11 Survey/Mapping Discipline Code Definitions**

Code	Definition
AL	Existing Airfield Lighting Plan
CP	Existing Communication System Plan
EU	Existing Electrical Utilities Plan
HP	Existing Hydrographic Survey Plan
HT	Existing HTCW Utilities Plan
LG	Legend
PB	Property Boundary
PR	Existing Profile
SC	Existing Section
SP	Survey and Mapping Plan
UP	Existing Utilities Plan

**Table 12 Geotechnical Discipline Code Definitions**

Code	Definition
DT	Detail
JP	Joint Layout Plan
LB	Boring Log
LG	Legend
PV	Pavement Site Plan
SC	Section
SH	Schedule
SI	Subsurface Investigation Plan

**Table 14 Landscape Discipline Code Definitions**

Code	Definition
DT	Detail
EL	Elevation
IP	Irrigation Plan
LG	Legend
LP	Landscape Plan
SC	Section
SH	Schedule
XD	Existing/Demolition Plan

**Table 13 Civil Discipline Code Definitions**

Code	Definition
AF	Airfield Plan
BR	Beach Renourishment Plan
DT	Detail
EL	Elevation
ER	Eco-Restoration Plan
FC	Flood Control Plan
GP	Grading Plan
IP	Installation Plan/Base Map
JP	Joint Layout Plan
KP	Staking Plan
LG	Legend
NG	Navigation/Dredging Plan
PL	Project Location Map
PR	Profile
SC	Section
SH	Schedule
SP	Site Plan
TS	Transportation Site Plan
UP	Utilities Plan
XD	Existing/Demolition Plan

**Table 15 Structural Discipline Code Definitions**

Code	Definition
3D	Isometric/3D
BP	Bridge Plan
CP	Column Plan
CW	Misc. Small Civil Works Structures
DT	Detail
EL	Elevation
EP	Enlarged Plan
FC	Flood Control Structures
FP	Framing Plan
LD	Locks and Dams
LG	Legend
NP	Foundation Plan
SC	Section
SH	Schedule
XD	Existing/Demolition Plan

Discipline codes for Architectural, Interiors, Fire Protection, Plumbing, Mechanical, Electrical, and Telecommunications are shown in the A/E/C CADD Standard.

**User Definable**

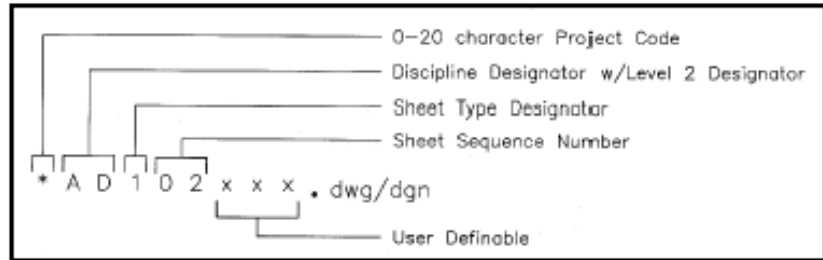
The last four required characters are user defined. If the user does not define these they should remain XXXX.

## Sheet File Names

The format for sheet file names is shown in Figure 2.

### Project Code

The Project Code will be the same contract file name used for model files.



**Figure 2 Sheet File Names**

### Discipline Designator

The Discipline Designator will be selected from the following table, which is a portion of Table 2-3 of the A/E/C CADD Standard.

**Table 16 General Discipline Designator**

Designator	Description	Content
G-	All General	All or any portion of subjects in the following Level 2 Designators
GI	General Informational	Drawing index, code summary, symbol legend, orientation maps
GC	General Contractual	Phasing, schedules, contractor staging areas, fencing, haul routes, erosion control, temporary and special requirements
GR	General Resource	Photographs, soil borings

**Table 17 Survey/Mapping Discipline Designator**

Designator	Description	Content
V-	All Survey/- Mapping	All or any portion of subjects in the following Level 2 Designators
VA	Aerial Survey	
VF	Field Survey	
VH	Hydrographic Survey	
VI	Digital Survey	
VU	Combined Utilities	

**Table 18 Geotechnical Discipline Designator**

Designator	Description	Content
B-	All Geotechnical	All or any portion of subjects in the following Level 2 Designators

**Table 19 Civil Discipline Designator**

Designator	Description	Content
C-	All Civil	All or any portion of subjects in the following Level 2 Designators
CB	Civil Beach Renourishment	Beach Disposal and Renourishment
CD	Civil Demolition	Structure removal and site clearing
CE	Civil Ecosystem Restoration	Environmental Restoration
CF	Civil Flood Control	Levees, spillways, pump stations
CG	Civil Grading	Excavation, grading , drainage, erosion control, retention ponds
CI	Civil Improvements	Pavers, flagstone, exterior tile, furnishings, retaining walls, and water features
CN	Civil Navigation	Navigation, harbors, dredging
CO	Civil Operation and Maintenance	Repair and upgrade to O&M structures
CP	Civil Paving	Roads, driveways, parking lots
CH	Civil Shore Protection	Erosion protection structures one shoreline
CR	Civil Recreation	Recreation facilities
CS	Civil Site	Plats, topographic, dimension control
CX	Civil Security	Security-related work
CT	Civil Transportation	Waterways, wharves, docks, trams, railways, airfields, and peplemovers
CU	Civil Utilities	Water, sanitary sewer, storm sewer, power, communications, fiber optic, telephone, cable television, natural gas, and steam systems

**Table 20 Landscape Discipline Designator**

Designator	Description	Content
L-	All Landscape	All or any portion of subjects in the following Level 2 Designators
LD	Landscape Demolition	Protection and removal of existing landscaping
LI	Landscape Irrigation	
LP	Landscape Planting	

**Table 21 Structural Discipline Designator**

Designator	Description	Content
S-	All Structural	All or any portion of subjects in the following Level 2 Designators
SD	Structural Demolition	Protection and removal
SS	Structural Site	
SB	Structural Substructure	Foundations, piers, slabs, and retaining walls
SF	Structural Framing	Floors and roofs

Discipline codes for Hazardous Materials, Architectural, Interiors, Equipment, Fire Protection, Plumbing, Process, Mechanical, Electrical, Telecommunications, Resource, Other Disciplines, Contractor/Shop Drawings, and Operations are shown in the A/E/C CADD Standard.

### Sheet Type Designator

The Sheet Type Designator will be selected from the following table, which is a copy of Table 2-4 in the A/E/C CADD Standard:

**Table 22 Sheet Type Designator**

Sheet Type	Designator
General (symbols legend, notes, etc.)	0
Plans (horizontal views, small scale)	1
Elevations (vertical views, small scale)	2
Sections (sectional views, small scale)	3
Large Scale Views (plans, elevations, or sections that are not details)	4
Details	5
Schedules and Diagrams	6
User Defined	7
User Defined	8
3D Representations (isometrics, perspectives, photographs)	9

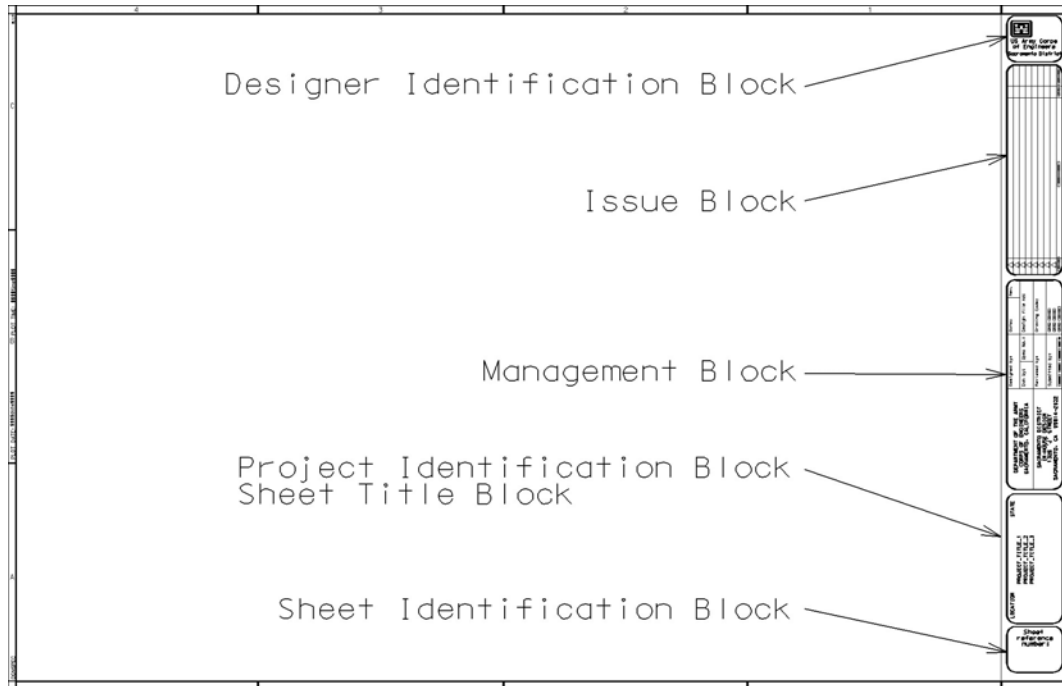
Scales are generally divided into two categories. Small-scale drawing shows less detail of a greater land area while a large-scale drawing shows a small land area in great detail. A large-scale drawing is an enlargement of a small-scale drawing.

### Sheet Sequence Number

The next two characters are for the Sheet Sequence Number and the remaining three characters are user-definable. If the sheet sequence number goes above 99 sheets, the first character in the User Definable field may be used.



## Examples



**Figure 3 Sample drawing sheet with vertical title block**

(Revised to ensure pass through security)

Napa contract 2 East has a Project Code of NA-04-XXX. A civil sheet file (C-), that contains a plan (1), with civil sequence number, (01), and user defined characters not defined, has a sheet file name of NA-04-015C-101XXX.DGN

For a contract on Folsom Dam and Lake, the electronic sheet file name for a structural cross section would be: AM1-99S-310914.dwg for sheet sequence number '10' and user definable characters '914'.

A project on the Truckee River has a Project Code of TR-19-208 and a model file that contains profiles for Alternate 3 would be named TR-19-208C-PR3XXX.dgn. In this example the first user definable character is a 3 to designate the Alternative and the remaining three user definable characters are not used.

## Standard Border Files

### MicroStation

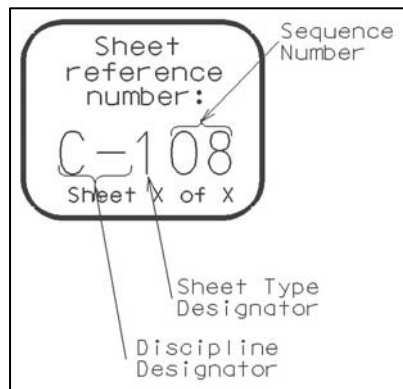
The current Standard Border Files for MicroStation users are available from the page at [SPK MicroStation Standards \[http://www.spk.usace.army.mil/organizations/cespk-ed/SPKCADD/MicroStation/microstation.html\]](http://www.spk.usace.army.mil/organizations/cespk-ed/SPKCADD/MicroStation/microstation.html) or in the LAN folder [\[\\diamond\ustation\borders\MSV8\]](\\diamond\ustation\borders\MSV8). Cover sheets are G-CSxxx.f.dgn, and G-CSxxm.dgn for

imperial and metric projects respectfully. The General Border Sheet G-BSxxxx.dgn is used for both imperial and metric projects. Instructions for use are in notes in the files.

**AutoCAD**

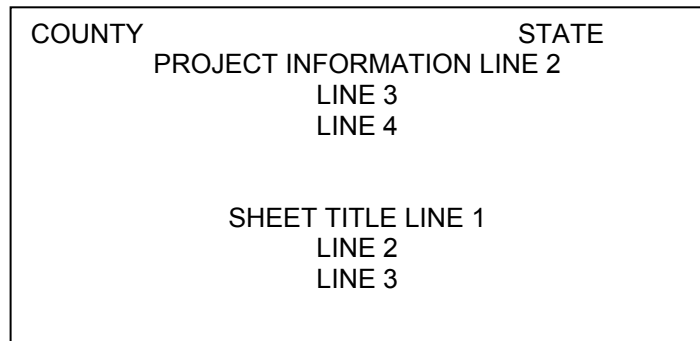
The current Standard Border Sheets for AutoCAD users are available on the page at [SPK AutoCAD Standards \[http://www.spk.usace.army.mil/organizations/cespk-ed/SPKCADD/AutoCAD/autocad.html\]](http://www.spk.usace.army.mil/organizations/cespk-ed/SPKCADD/AutoCAD/autocad.html) or in the LAN folder [\\Arsenic\milcad\Acadcust.r2k\Borders]. Both imperial and metric Standard Border Sheets are available. Copy the appropriate ones for your project.

**Title Block Information**



The Sheet Identification Block is made up of the Discipline Designator, Sheet Type Designator, and the Sheet Sequence Number as shown in Figure 4 at left.

The Project Information Block/Sheet Title Block is discipline determined and as shown in Figure 5 below:



**Figure 4 Sheet Identification Block**

**Figure 5 Project Information Block/Sheet Title Block**

The Management Block is shown in Figure 6 below.



**Figure 6 The Management Block**

## Sheet Order

As far as the sequence of the discipline designators in a drawing set, the National CAD Standard mandates that the disciplines follow the order as shown in A/E/C CADD Standard Table 2-1 which is reproduced as Table 8 Discipline Designator in this convention.

# Preparing Project Specifications

---

## Scope

This instruction covers technical specifications being developed for a Military or Civil Works construction project. It also applies to the preparation of specifications for Request for Proposals (RFP) and other performance specifications.

## Source Documents

Refer to:

- *ER 1110-1-8155 Specifications* [<http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8155/toc.htm>] for the majority of Corps instructions on specification preparation.
- *ER 415-1-10 Contractor Submittal Procedures* [<http://www.usace.army.mil/inet/usace-docs/eng-regs/er415-1-10/toc.htm>] for details about the Submittal Register

## List of Materials

*Project Drawings* - Needed to assure cohesiveness between plans and specifications.

*SpecsIntact* [<http://si.ksc.nasa.gov/specsintact/index.asp>] - Software for Editing the Unified Facilities Guide Specifications (UFGS)

*Construction Criteria Base (CCB)* [<http://www.wbdg.org/ccb/>] - Web Site containing UFGS versions required for use at time of contract award.

*Sacramento District Guide Specifications (SPKGS)* [<http://cbbs.spk.usace.army.mil/spkgs.html>] - These are tailored UFGS to fit Sacramento District customers needs and should be used in place of the UFGS with the same section number.

## Distribution

A-E Firm\*

Contract Specialist\*

Customer\*

Designer\*

ITRT\*

Lead Designer\*

Project Manager\*

RFP Contractor\*

Specifications Engineer\*

Specifications Writer\*

## Ownership

The Specifications Engineer [[Garry.L.Hill@usace.army.mil?Subject=INSP03L0-Preparing Project Specifications](mailto:Garry.L.Hill@usace.army.mil?Subject=INSP03L0-Preparing%20Project%20Specifications)] is responsible for ensuring that this document is necessary and that it reflects actual practice.

## Activity Preface

These tasks are performed whenever specification development is required as a deliverable within the Scope of Work (SOW).

The job title Specifications Unit refers to the following:

- Specifications Engineer
- Specifications Writer

## Prior Activity

*Contract Review [PROP01L0].*

## A-E Firm, RFP Contractor or Designer

1. Obtain latest version of UFGS and SPKGS.

Before commercial source specifications are used, verification is required from the Corps' Project Manager to determine if they include latest HQ USACE approved UFGS revisions.

2. Prepare an Edited Table of Contents showing mark-ups.
  - Show all Divisions.
  - For each Division not having any sections used, mark "NOT APPLICABLE" after the division title.
  - List all sections within each of the other Divisions, showing proposed deleted sections crossed out and proposed section additions highlighted (strikeout and redline)

In addition to the above, add the following tasks for 35-85% submittals.

3. Prepare Edited Specifications.

- Never copy sections from previous projects.
- Refer to *ER 1110-1-8155* [<http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8155/toc.htm>].
- Compliance with Buy American Act (BAA) is mandatory. Waivers require A-E to prepare market analysis and justification to the Corps' Project Manager.
- Use Construction Specification Institute (CSI) numbering standards for section numbers and paragraph numbers.
- Never use more than four paragraph levels.
- Arrange sections in numerical order.
- Carefully coordinate each specification section with the drawings and with all related sections so that there is no duplication, overlapping, conflicting, or ambiguous statements.
- Search CCB and SPKGS before creating a new specification section.
- Create new specifications using UFGS format.
- Get Corps' Project Manager approval before using commercial source specifications.

**If Military project, goto task #4. Otherwise, goto task #5.**

4. Incorporate Base or Installation Design Guide Requirements.
5. Submit to PM for 35-85% review.

### **Project Manager and Customer**

6. Review 35-85% submittal.
7. Notify PDT to evaluate and/or incorporate comments.

### **A-E Firm, RFP Contractor and Designer**

8. Incorporate 35-85% review comments.

In addition to the above, add the following tasks for 90-95% submittal.

**If SpecsIntact used, goto task #9. Otherwise, goto task #10.**

9. Publish the Submittal Register.
  - Each section used should have a submittal register form completed.

- Print the Submittal Verification report in SpecsIntact to check for submittal item problems.

**Goto task #11.**

10. Manually create the Submittal Register, Table of Contents and other required reports.

11. Prepare Pricing Schedule in MS Word format.

- Leave bid amounts left blank (except for the bid items for O & M manuals and final as-built drawings)
- Include all applicable notes.
- Refer to *Project Specification Examples* [[REFP04L0](#)]

12. Prepare List of Government Furnished Equipment or Materials.

- For Military - Use MS Word format.
- For Civil - Use SpecsIntact and include within Division 01 section for General Requirements.
- Include items to be furnished by the Government and installed by the Contractor.
- Include the quantity of each item to be furnished by the Government
- Include manufacturer's name and model number, size, weight, source (i.e., from storage at project site, f.o.b. railroad cars, or f.o.b. truck);
- Include whether the district office needs to requisition the items.
- Include other pertinent data.
- Do not include items of installed material or equipment to be relocated from one area or building to another.

13. Prepare List of Contractor Installed Property.

- For Military - Use MS Word format.
- For Civil - Use SpecsIntact and include within Division 01 section for General Requirements.

## Contract Specialist

14. Prepare Division 00 using the Standard Procurement System on Procurement Desktop-Defense.

A-E Firm, Designer, and RFP Contractor do not prepare Division 00.

15. Send PDF format Division 00 specifications to Specifications Unit.

## Specifications Unit

16. Incorporate Division 00 specifications into PDF specification set for Electronic Contract Solicitation advertisement and/or reproduction.

**If Military Project, goto task #17. Otherwise, goto task #19.**

17. Prepare Division 01 sections.

A-E Firm, Designer, and RFP Contractor shall prepare appropriate Division 01 sections for Military projects as described by the A-E Scope of Work.

18. Incorporate GFE list and Contractor Installed Property into Division 01.

## Contract Specialist

19. Incorporate Pricing Schedule into Division 00.

**If Contract Options, goto task #20. Otherwise, goto task #21.**

## A-E Firm, RFP Contractor and Designer

20. Incorporate Options for Contract Award.
21. Submit to PM for 90-95% review.

## Project Manager, ITRT and Customer

22. Review 90-95% submittal.
23. Notify PDT to evaluate and/or incorporate comments.

## A-E Firm, RFP Contractor and Designer

24. Address and incorporate all review comments.

For 100% submittal, do the following tasks.

25. Prepare Corrected Final Specifications.

- Specifications should be ready for publishing without further editing
- Include a Project Table of Contents.



- For Military, include Division 02 through Division 16
- For Civil, include Division 01 through Division 16
- Sections should have all highlighting removed and inapplicable text deleted.

**If A-E Delivery, goto task #29. Otherwise, goto task #26.**

## Designer

26. Notify Lead Designer by e-mail that Corrected Final Specifications are complete.

## Lead Designer

27. When all disciplines complete, Lead Designer delivers to the Project Delivery Area.

Path defined within the SOW.

Refer to *Delivering Project Specifications* [[INSP09L0](#)]

28. Notify PM and Specifications Unit by e-mail.

## Specifications Unit, A-E Firm or RFP Contractor

29. Produce a submittal register database file from SpecsIntact.

30. Deliver to Corps Project Manager

Refer to *Delivering Project Specifications* [[INSP09L0](#)]

**If SOW requires Amendment Preparation, goto task #31. Otherwise, End of activity.**

## A-E Firm or Designer

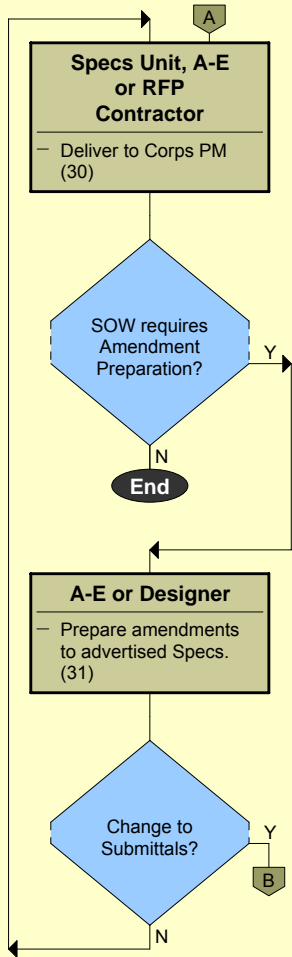
31. Prepare amendments to advertised specifications.

Refer to *Preparing Amendments in SpecsIntact* [[INSP04L0](#)]

**If Change to Submittals, goto task #29. Otherwise, goto task #30.**



### Preparing Project Specifications





# Final

## Quality Control Plan

**American River Common Features,  
Natomas Basin Reach B, I-5 Window**

Contract No. W91238-17-D-0027

Task Order W91238-18-F-0086

*Sacramento County, CA*  
May 3, 2018

Submitted to:  
U.S. Army Corps of Engineers  
Sacramento District

Submitted by:  
HDR  
2365 Iron Point Road, Suite 300  
Folsom, CA 92630

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## Appendices

Appendix A – Project Award, Budget and Statement of Work

Appendix B – Architect – Engineering Guide

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# 1 PROJECT NAME

American River Common Features, Natomas Basin Reach B, I-5 Window, Sacramento County, CA

# 2 CLIENT

U.S. Army Corps of Engineers, Sacramento District (USACE SPK)

Carolyn Mallory, Contracting Officer

John Hoge, Project Manager

Mark Boedtker, Project Technical Lead

# 3 INTRODUCTION AND OBJECTIVE

HDR was awarded Task Order (TO) No. W91238-18-F-0086 under Contract No. W91238-17-D-0027 on April 27, 2018. The Statement of Work (SOW), dated October 10, 2017, and revised March 9, 2018. This TO requires the A-E firm to develop and execute a Quality Control Plan (QCP) that describes planned QC and ITR efforts on submittals, review schedules and milestones, and TO specific review personnel. The A-E must submit and receive approval of the QCP from the Government before proceeding with the effort under this statement of work.

The objective of this QCP is to define the key members of the project delivery team (PDT) and internal independent technical review (ITR) team, project deliverables and review procedures for these deliverables, and technical guidance to be followed. The purpose of this QCP is to provide overview guidance information for all involved with the TO to ensure a common understanding of the delivery process and procedures necessary to deliver quality professional engineering services and products by HDR to SPK.

# 4 BACKGROUND and PROJECT DESCRIPTION

The Natomas Basin portion of the American River Common Features was authorized by the Water Resources Development Act of 2014. The U.S. Army Corps of Engineers (COE), the State of California, and the Sacramento Area Flood Control Agency (SAFCA) are all cost-sharing partners for project implementation. This authorization provides seepage remediation for the levees along the entire Natomas Basin. A Post-Authorization Change Report, American River Watershed, Common Features Project, Natomas Basin, was prepared with the preliminary plan for this project in August 2010.



Reach B is the segment of the Natomas Basin extending from West Elverta Road to Farm Road, which is a distance of 50,000 linear feet (9.5 miles). The upstream 7.5 miles (ending just east of Powerline Road) has already been constructed by SAFCA, except for the portion of work underneath the Interstate-5 overpass crossing. The I-5 work was included in the final construction plans for Reach B, but it was amended prior to construction to delete this work. HDR was the designer of record for the Reach B plans, specifications, Basis of Design, and cost estimate. This task order includes preparation of the Reach B I-5 Window 65%, 90%, 100%, and Final plans, specifications, Design Documentation Report, MCACES Cost Estimate, bid schedule, and Engineering Considerations for Field Personnel. It also includes producing the draft and final Real Estate Mapping.

## 5 SCOPE

This Statement of Work (SOW) includes work for completion of 65%, 90%, 100%, and final plans, specifications, Design Documentation Report (DDR), MCACES Cost Estimate, and Engineering Considerations and Instructions for Field Personnel (ECIFP) for the I-5 Window portion of Natomas Basin Reach B, as part of the American River Common Features project. Reach B I-5 Window extends from SREL (Sacramento River East Levee) Phase 2B Station 439+00 to 448+00 at the North Bayou Road intersection and I-5 overpass crossing. Take Mapping must also be submitted for this reach at the 65% submittal, and finalized at the 90% submittal. HDR has previously prepared final plans, specifications, Basis of Design Report, and a cost estimate for the I-5 Window as part of the SREL Phase 2B project, but these were prepared for SAFCA (Sacramento Area Flood Control Agency) in 2010, and not to current United States Army Corps of Engineers (USACE) standards. This SOW includes revising the previously prepared submittal to current USACE standards and deleting all work except the I-5 Window work, preparing an ECIFP, and Real Estate Take Mapping.

## 6 PROJECT REQUIREMENTS

The scope of services to be performed under this TO is presented in Appendix A. As outlined in the SOW, the services are to be provided under the following seven tasks:

- Task 1 –Quality Control
- Task 2 – Antiterrorism and Operation Security (AT/OPSEC) Requirements
- Task 3 – 65% Design Plans and Specifications, DDR, MCACES Cost Estimate, ECIFP, And Draft Real Estate Take Mapping For Reach B I-5 Window



- Task 4 – 90% Design Plans and Specifications, DDR, MCACES Cost Estimate, ECIFP, and Final Real Estate Take Mapping For Reach B I-5 Window
- Task 5 – 100% Design Plans and Specifications, DDR, MCACES Cost Estimate, and ECIFP For Reach B I-5 Window
- Task 6 – Final Design Plans and Specifications, DDR, MCACES Cost Estimate, and ECIFP For Reach B I-5 Window
- Task 7 – Coordination, Meetings, and Project Management Information

The SOW requires the submittal of the following main deliverables:

- Progress/Status Reports
- QCP (this document)
- Antiterrorism and Operation Security (AT/OPSEC) Requirements
- 65% Submittal
  - Plans
  - Specifications
  - Design Document Report (DDR)
  - MCACES II Cost Estimates
  - Engineering Considerations and Information for Field Personnel (ECIFP)
  - Draft Real Estate Mapping
- 90% Submittal
  - Plans
  - Specifications
  - Design Document Report (DDR)
  - MCACES II Cost Estimates
  - Engineering Considerations and Information for Field Personnel (ECIFP)
  - Final Real Estate Mapping
- 100% Submittal
  - Plans
  - Specifications
  - Design Document Report (DDR)
  - MCACES II Cost Estimates
  - Engineering Considerations and Information for Field Personnel (ECIFP)
- FINAL Submittal
  - Plans
  - Specifications
  - Design Document Report (DDR)
  - MCACES II Cost Estimates
  - Engineering Considerations and Information for Field Personnel (ECIFP)

# 7 PROJECT QUALITY CONTROL OBJECTIVES / PROCEDURES

## 7.1 Quality Control Objectives

Quality control for this project will be undertaken following the procedures outlined below. The deliverables discussed above will be reviewed for conformance with the appropriate guidance and/or reference to ensure the quality control objectives are met.

## 7.2 Quality Control Procedures

Before submittal of a deliverable to SPK, the production document and supporting materials will undergo PDT review and internal ITR review. For PDT review, document review will be performed by a senior level individual(s) with the appropriate technical background for the subject document. Depending on the complexity of the document or number of elements of a particular document, PDT review will also be performed as part of an on-going process during document development. Such on-going PDT reviews will be performed by an individual at or above the technical level of the person performing the work. An example of a more complex document that will receive on-going review is the geotechnical report. Report components such as boring logs and figures will receive on-going peer review. Final reviews will then be performed by senior level individuals to result in a draft document, ready for ITR review. The ITR Team will review all components of a deliverable for technical clarity and accuracy and to ensure that the content is consistent with the project requirements and technical criteria specified in the project SOW. The project documents will also be reviewed for editorial type comments. Following completion of the ITR review, the ITR reviewers will discuss their comments with the PDT to convey a clear understanding of any required changes, modifications or clarifications to the project documents.

ITR reviews of deliverables shall be completed to help ensure, as a minimum:

- Compliance with standard engineering and professional practices
- Compliance with project SOW requirements
- Appropriateness of data used, including level of detail
- Appropriateness of alternatives evaluated
- Accuracy of calculations
- Consistency with standards of practice
- Appropriateness of assumptions made
- Adequacy of the scope of the associated document
- Consistency, accuracy, comprehensiveness, and reasonableness of results.

Concurrent with submission of a draft project deliverable for client / external review, HDR will submit an Initial Quality Control Certificate (QCC) to the SPK Project Manager stating

that the deliverable has been reviewed internally in accordance with the QCP and that all internal review comments have been addressed.

When review comments are received from SPK or other external reviewers resulting from their review of draft versions of the deliverable, similar procedures will be followed to ensure quality control during the revision process. Review comments will be addressed by members of the PDT that originally worked on the deliverable. Changes to the document will be made and will be back-checked upon revision.

All QC activities associated with ITR and external reviews will be fully documented following a tabular comment-response format. ITR activities will be fully documented using the Corps of Engineers DrChecks review management software, following the comment-response-resolution format. ITR documentation will be included with the QCC.

QC documentation will be maintained in the project file for review by SPK. A Final QCC will accompany the final submittal of a deliverable. The Final QCC will certify that procedures outlined in this QCP have been performed and that all concerns identified during internal and external QC review have been resolved.

### 7.3 Documentation of Subconsultant QC Process and Signoff Procedures

Deliverables provided by a Subconsultant shall be subject to their own QCP requirements, or to the same QC review requirements and process as presented in this QCP. The Subconsultant shall provide to HDR a Subconsultant QCP that identifies the specific quality practices; resources and activities that are used to fulfill the requirements for quality service relative to the deliverables provided by the Subconsultant. If the subconsultant does not provide a QCP, they are required to adhere to HDR's QCP. QA/QC reviews performed by the Subconsultant shall be documented using forms created by the subconsultant. The PM and QA/QC Manager shall review and approve the Subconsultant QCP prior to the receipt of Subconsultant deliverables. The PM or designated HDR staff shall perform a review of Subconsultant deliverables that will include:

- Verification that the Subconsultant deliverable provides the necessary information so that HDR can fulfill its client contractual requirements
- Verification that the Subconsultant deliverable is complete and conforms to the Subconsultant scope of services
- Verification that agreed upon or appropriate assumptions and/or input data have been used
- Assessment of the reasonableness of the Subconsultant's deliverable to determine that HDR is in agreement with the technical analysis and results

The following Subconsultant is providing services and deliverables for this project.

- Andregg Psomas (Adhering to HDR's QCP)

## 8 GUIDANCE / STANDARDS / TECHNICAL CRITERIA

Appropriate provisions of the following Guidance, Standards and Criteria shall be followed during preparation of the project documents required to be developed under the SOW for this project:

- CESPDP R 1110-1-8, Quality Management Criteria
- ER 1110-1-12, Engineering and Design Quality Management
- ERDC-ITL TR-12-6, A/E/C CAD Standard Release 6.0 Standard
- ERDC ITL TR-12-1, CAD Drafting Standard
- ER 1110-2-1302, Engineering and Design - Civil Works Cost Engineering
- UFC 3-740-05 8, HANDBOOK: CONSTRUCTION COST ESTIMATING, November 2010.
- ER 1110-2-1150, Guidance for preparing a Design Document Report (DDR) and plans can be found in Engineering Regulation.
- ER 1110-1-8155, Engineering and Design Specifications, 30 October 2015

## 9 REFERENCE DOCUMENTS

The following are reference documents to be used in the execution of the work associated with this project:

- Quality Management Criteria, including the referenced CESPDP R 1110-1-8, will be provided on optical disk upon request.
- Additional Sacramento District CADD standards and border sheets will be provided on optical disk upon request.
- Post-Authorization Change Report, American River Watershed, Common Features Project, Natomas Basin, Sacramento and Sutter Counties, California, August 2010.
- Vol. 2B: SREL Phase 2B Improvement Plans and Specifications, prepared by HDR Engineering Inc. for Sacramento Area Flood Control District, Final Submittal dated August 2010.
- Geotechnical Basis of Design Report, Natomas Reach B, Sacramento County, California, American River Common Features, prepared by Corps of Engineers



- Architect-Engineer Guide (attached as Appendix B):
  - Architect-Engineer Guide REFP13L0 (general info)
  - Architect-Engineer 65% Design Submittals REFP22L0
  - Architect-Engineer 100% Design Submittals REFP23L0
  - CODP02L0 File Naming Convention (Civil)
  - INSP030L0 Project Specs

## 10 PROJECT DELIVERY AND ITR TEAMS

Overall project delivery efforts will be managed by the HDR Task Order Manager, Wesley Jacobs. The project leads are Garland Pennison as the Civil Lead with support from Jason Nettleton as Civil QC, Henry Luu as the Transportation Lead, Jason Abendroth as the Structural Lead and Mary Mahoney as the QAQC Manager/Project Coordinator. Also presented below is contact information for our subconsultant (Andregg Psomas) for this TO.

**Contact information for these members of the Project Delivery Team (PDT) is presented below:**

Name	Project Role	Telephone	E-mail
Wesley Jacobs, PE	Project Manager	(225) 224-6471	Wesley.Jacobs@hdrinc.com
Jason Nettleton, PE	Civil QC	(916) 817-4865	Jason.Nettleton@hdrinc.com
Garland Pennison, PE	Civil Lead	(337) 347-5609	Garland.Pennison@hdrinc.com
Henry Luu, PE	Transportation Lead	(916) 679-8857	Henry.Luu@hdrinc.com
Jason Abendroth, PE	Structural Lead	(225) 224-6472	Jason.Aabendroth@hdrinc.com
Mary Mahoney	QAQC Manager/Project Coordinator	916-817-4823	Mary.Mahoney@hdrinc.com

**Contact information for the senior ITR Team is presented below:**

Name	Project Role	Telephone	E-mail
Mark Stanley, PE	Geotech/Civil ITR Reviewer	(916) 817-4952	Mark.Stanley@hdrinc.com
Kenny Dosanjh, PE	Structural ITR Reviewer	(916) 817-4867	Kenwarjit.Dosanjh@hdrinc.com
Martha Dadala, PE	Transportation ITR Reviewer	(925) 900-3481	Martha.Dadala@hdrinc.com
Daniel Jabbour, PE	Civil ITR Reviewer	(916) 817-4943	Daniel.Jabbour@hdrinc.com

**Contact information for subconsultant, Andregg Psomas, is presented below:**

Name	Firm/Project Role	Telephone	E-mail
Mark Bardakjian	Andregg Psomas/surveyor 11661 Blocker Dr. Suite 200 Auburn, CA 95603	530.885.7072	<a href="mailto:markb@andregg.com">markb@andregg.com</a>

## 11 PROJECT SCHEDULE AND MILESTONES

The project schedule and milestones that were included in the SOW are presented below. As indicated in SOW, a more detailed project schedule will be developed after the Kickoff meeting

- Task 1 –Quality Control Plan, Reach B
- Task 2 – Antiterrorism and Operation Security (AT/OPSEC) Requirements
- Task 3 – 65% Design Plans and Specifications, DDR, MCACES Cost Estimate, ECIFP, and Draft Real Estate Take Mapping For Reach B I-5 Window
- Task 4 – 90% Design Plans and Specifications, DDR, MCACES Cost Estimate, ECIFP, and Final Real Estate Take Mapping For Reach B I-5 Window
- Task 5 – 100% Design Plans and Specifications, DDR, MCACES Cost Estimate, and, ECIFP For Reach B I-5 Window
- Task 6 – Final Design Plans and Specifications, DDR, MCACES Cost Estimate, and, ECIFP For Reach B I-5 Window
- Task 7 – Coordination, Meetings, and Project Management Information



## 11.1 Submittal Schedule

Task and Description	Duration (Calendar Days)
<b>Base Task – Reach B</b>	<b>Task Completion (calendar days after task order award)</b>
<b>Task 1: Quality Control</b> Quality Control Plan QC and ITR Documentation Quality Control Certificate	14 days 240 days 240 days
<b>Task 2: Antiterrorism and Operation Security</b> (AT/OPSEC) Requirements	3 days
<b>Task 3: P&amp;S Reach B I-5 Window</b> 65% Design Submittal Draft Real Estate Mapping	90 days 90 days
<b>Task 4: P&amp;S Reach B I-5 Window</b> 90% Design Submittal FINAL Real Estate Mapping	150 days 150 days
<b>Task 5: P&amp;S Reach B I-5 Window</b> 100% Design Submittal	200 days
<b>Task 6: P&amp;S Reach B I-5 Window</b> Final Design Submittal	240 days
<b>Task 7: Copies of Outside Agency Communications</b> Monthly Progress Status Reports	5 days after receipt 10 <sup>th</sup> of each month

## 11.2 Review Schedule

The following reviews of submittals will be performed by the COE and sponsors:

Task and Description	
Draft Quality Control Plan	7 calendar days after receipt of submittal
65% Design Submittal for Reach B I-5 Window	14 calendar days after receipt of submittal
Draft RE Mapping for Reach B I-5 Window	14 calendar days after receipt of submittal
90% Design Submittal Reach B I-5 Window	14 calendar days after receipt of submittal
100% Design Submittal Reach B I-5 Window	14 calendar days after receipt of submittal



## 12 PROJECT BUDGET

The TO award documentation (Appendix A) presents the lump sum contract fee negotiated for this project. This document also contains the distribution of the lump sum fee amongst the primary Tasks cited in the SOW.

## 13 TRANSFER OF DATA

Maintaining the schedule for this project will hinge upon the timely transfer of project data from SPK to HDR to support the work efforts required. Additionally, it will be important that HDR and SPK maintain a mutually cooperative and timely handling of production documents for review / comment / response focusing on the established schedule dates. The DrChecks system will be used to document the review comment / response process for this project.



## **APPENDIX A**

### **Project Award, Budget and Statement of Work**

# ORDER FOR SUPPLIES OR SERVICES

1. CONTRACT/PURCH. ORDER/ AGREEMENT NO. W91238-17-D-0027	2. DELIVERY ORDER/ CALL NO. W9123818F0086	3. DATE OF ORDER/CALL (YYYYMMDD) 2018 Apr 27	4. REQ./ PURCH. REQUEST NO. W62N6M73217906	5. PRIORITY
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6. ISSUED BY USACE SACRAMENTO DISTRICT ATTN: CONTRACTING DIVISION 1325 J STREET SACRAMENTO CA 95814-2922	CODE W91238	7. ADMINISTERED BY (if other than 6)  <b style="text-align: center;">SEE ITEM 6</b>	CODE	8. DELIVERY FOB <input type="checkbox"/> DESTINATION <input checked="" type="checkbox"/> OTHER  (See Schedule if other)
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9. CONTRACTOR NAME AND ADDRESS HDR ENGINEERING, INC. 2365 IRON POINT RD STE 300 FOLSOM CA 95630-8712	CODE 4FZ86	FACILITY	10. DELIVER TO FOB POINT BY (Date) (YYYYMMDD) <b>SEE SCHEDULE</b>	11. MARK IF BUSINESS IS <input type="checkbox"/> SMALL <input type="checkbox"/> SMALL DISADVANTAGED <input type="checkbox"/> WOMEN-OWNED
			12. DISCOUNT TERMS Net 30 Days	
13. MAIL INVOICES TO THE ADDRESS IN BLOCK See SOW "Payments Statement"				

14. SHIP TO US ARMY CORPS OF ENGINEERS, SACRAMENTO CONTRACTING DIVISION 1325 J STREET SACRAMENTO CA 95814-2922	CODE W91238	15. PAYMENT WILL BE MADE BY USACE FINANCE CENTER CIVIL FUNDED CONTRACTS 5722 INTEGRITY DRIVE ATTN: CEFC-FP MILLINGTON TN 38054-5005	CODE 964145	<b>MARK ALL PACKAGES AND PAPERS WITH IDENTIFICATION NUMBERS IN BLOCKS 1 AND 2.</b>
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16. TYPE OF ORDER	DELIVERY/ CALL	<input checked="" type="checkbox"/>	This delivery order/call is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract.
	PURCHASE	<input type="checkbox"/>	Reference your quote dated Furnish the following on terms specified herein. REF:

ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.

NAME OF CONTRACTOR	SIGNATURE	TYPED NAME AND TITLE	DATE SIGNED (YYYYMMDD)
<input type="checkbox"/> If this box is marked, supplier must sign Acceptance and return the following number of copies:			

17. ACCOUNTING AND APPROPRIATION DATA/ LOCAL USE

**See Schedule**

18. ITEM NO.	19. SCHEDULE OF SUPPLIES/ SERVICES	20. QUANTITY ORDERED/ ACCEPTED*	21. UNIT	22. UNIT PRICE	23. AMOUNT
<b>SEE SCHEDULE</b>					

* If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.	24. UNITED STATES OF AMERICA TEL: 916-557-5203 EMAIL: CAROLYN.E.MALLORY@USACE.ARMY.MIL BY: CAROLYN E MALLORY	<i>Carolyn E Mallory</i> CONTRACTING / ORDERING OFFICER	25. TOTAL \$449,421.62	26. DIFFERENCES
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27a. QUANTITY IN COLUMN 20 HAS BEEN

INSPECTED     RECEIVED     ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED

b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	c. DATE (YYYYMMDD)	d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE
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e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE	28. SHIP NO.	29. DO VOUCHER NO.	30. INITIALS
f. TELEPHONE NUMBER	g. E-MAIL ADDRESS		32. PAID BY
			33. AMOUNT VERIFIED CORRECT FOR

<b>36. I certify this account is correct and proper for payment.</b>			
a. DATE (YYYYMMDD)	b. SIGNATURE AND TITLE OF CERTIFYING OFFICER		
		31. PAYMENT <input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL	34. CHECK NUMBER
			35. BILL OF LADING NO.

37. RECEIVED AT	38. RECEIVED BY	39. DATE RECEIVED (YYYYMMDD)	40. TOTAL CONTAINERS	41. S/R ACCOUNT NO.	42. S/R VOUCHER NO.
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Section B - Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0001	Tasks 1 through 7 FFP	UNDEFINED		UNDEFINED	\$0.00

PROJECT TITLE AND LOCATION: American River Common Features,  
Natomas Basin Reach B, I-5 Window, Sacramento County, California.

The A-E shall perform the following tasks, in accordance with the Statement of Work (SOW) dated 10 October 2017, revised 9 March 2018, incorporated herein. The negotiated total amount is \$449,421.62, broken out as follows:

Task 1 – Quality Control	\$ 45,515.22
Task 2 – Antiterrorism and Operation Security (AT/OPSEC) Requirements	\$ 1,301.45
Task 3 – 65% Plans and Specifications, DDR, MCACES Cost Estimate, ECIFP, and Draft Real Estate Mapping for Reach B I-5 Window	\$ 188,197.80
Task 4 – 90% Plans and Specifications, DDR, MCACES Cost Estimate, ECIFP, and Final Real Estate Take Mapping for Reach B I-5 Window	\$ 88,908.47
Task 5 – 100% Design Plans and Specifications, DDR, MCACES Cost Estimate, and ECIFP for Reach B I-5 Window	\$ 44,020.61
Task 6 – Final Design Plans and Specifications, DDR, MCACES Cost Estimates, and ECIFP for Reach B I-5 Window	\$ 27,058.89
Task 7 – Coordination, Meetings, and Project Management Information	\$ 54,419.18

All work and services shall be completed in accordance with the Submittal Schedule in the SOW, but not later than 240 calendar days from the effective date of this task order.

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MAX NET AMT	\$0.00
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ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0001AA	2017 Fed Funds for CLIN 0001 FFP	189,753.86	Job	\$1.00	\$189,753.86

NOTE to PAYMENT PROCESSOR: Pay out these 2017 funds first.

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M73217906

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MAX  
NET AMT \$189,753.86

ACRN AA  
CIN: W62N6M732179060001 \$189,753.86

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0001AB	2018 Fed Funds for CLIN 0001 FFP	259,667.76	Job	\$1.00	\$259,667.76

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M73217906

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MAX  
NET AMT \$259,667.76

ACRN AB  
CIN: W62N6M732179060002 \$259,667.76

Section C - Descriptions and Specifications

TO SOW

CESPK-ED-DC

10 October 2017

*Revised 9 March 2018*

STATEMENT OF WORK

**1. PROJECT DATA**

1.1. PROJECT TITLE AND LOCATION: American River Common Features, Natomas Basin Reach B, I-5 Window, Sacramento County, California

1.2. PROJECT NUMBER: 458598

1.3. CONTRACT NO: W91238-17-D-0027, Task Order **W91238-18-F-0086**

1.4. CONTRACTOR DATA:

HDR Engineering, Inc.  
2365 Iron Point Road, Suite 300  
Folsom, CA 95630

Robert Boling  
Regional Business Group Director  
916.817.4858  
Robert.Boling@hdrinc.com

Johnnie Mack, P.E.  
Vice President, Contract Manager  
916.817.4887  
Johnnie.Mack@hdrinc.com

Sergio Jimenez  
WR Management Sector Manager  
916.679.8834  
Sergio.Jimenez@hdrinc.com

1.5. GOVERNMENT POINTS OF CONTACT:

Sacramento District A-E Contracting Officer:  
Carolyn Mallory  
CECT-SPK  
1325 J Street  
Sacramento, CA 95814-2922  
(916) 557-5203  
[Carolyn.E.Mallory@usace.army.mil](mailto:Carolyn.E.Mallory@usace.army.mil)

Sacramento District Project Manager:  
John Hoge  
CESPK-PM-C  
U.S. Army Corps of Engineers  
1325 J Street  
Sacramento, California 95814-2922  
Telephone (916) 557-5304

[John.A.Hoge@usace.army.mil](mailto:John.A.Hoge@usace.army.mil)

Sacramento District Project Technical Lead:

Mark Boedtker

CESPK-ED-DC

1325 J Street

Sacramento, California 95814-2922

Telephone (916) 557-6637

Facsimile (916) 557-7846

[Markus.S.Boedtker@usace.army.mil](mailto:Markus.S.Boedtker@usace.army.mil)

1.6. AUTHORIZATION: Water Resources Reform and Development Act (WRRDA) of 2014

1.7. SCOPE: This Statement of Work (SOW) includes work for completion of 65%, 90%, 100%, and final plans, specifications, Design Documentation Report (DDR), MCACES Cost Estimate, and Engineering Considerations and Instructions for Field Personnel (ECIFP) for the I-5 Window portion of Natomas Basin Reach B, as part of the American River Common Features project. The Reach B I-5 Window extends from SREL (Sacramento River East Levee) Phase 2B Station 439+00 to 448+00 at the North Bayou Road intersection and I-5 overpass crossing. Take Mapping must also be submitted for this reach at the 65% submittal, and finalized at the 90% submittal. HDR has previously prepared final plans, specifications, Basis of Design Report, and a cost estimate for the I-5 Window as part of the SREL Phase 2B project, but these were prepared for SAFCA (Sacramento Area Flood Control Agency) in 2010, and not to current United States Army Corps of Engineers (USACE) standards. This SOW includes revising the previously prepared submittal to current USACE standards and deleting all work except the I-5 Window work, and preparing an Engineering Considerations and Instructions for Field Personnel (ECIFP), and Real Estate Take Mapping.

1.8. ESTIMATED CONSTRUCTION COST: ~~\$5 million~~ **5,363,047**

1.9. DRAWINGS TITLES:

American River Common Features, Natomas Basin Reach B, I-5 Window, Sacramento County, California

1.10. CRITERIA:

1.10.1. Quality Management Criteria, including the referenced CESPD R 1110-1-8, will be provided on optical disk upon request.

1.10.2. ER 1110-1-12 Engineering and Design Quality Management

1.10.3. CADD Drawings must comply with ERDC-ITL TR-12-6 A/E/C CAD Standard Release 6.0 Standard and the ERDC ITL TR-12-1 CAD Drafting Standard.

1.10.4. Additional Sacramento District CADD standards and border sheets will be provided on optical disk upon request.

1.10.5. Detailed instructions for preparing cost estimates are presented in ER 1110-2-1302, Engineering and Design - Civil Works Cost Engineering, and UFC 3-740-05 8 HANDBOOK: CONSTRUCTION COST ESTIMATING, November 2010.

1.10.6. Guidance for preparing a Design Document Report (DDR) and plans can be found in Engineering Regulation ER 1110-2-1150.

1.10.7. ER 1110-1-8155 Specifications, 30 October 2015

1.11. GOVERNMENT FURNISHED MATERIALS (upon award in PDF format):

1.11.1. Post-Authorization Change Report, American River Watershed, Common Features Project, Natomas Basin, Sacramento and Sutter Counties, California, August 2010.

1.11.2 Vol. 2B: SREL Phase 2B Improvement Plans and Specifications, prepared by HDR Engineering Inc. for Sacramento Area Flood Control District, Final Submittal dated 7 May, 2010.

1.11.3. Geotechnical Basis of Design Report, Natomas Reach B, Sacramento County, California, American River Common Features, prepared by the U.S. Army Corps of Engineers, Sacramento District.

1.11.4. Architect-Engineer Guide (provided as attachments):

- Architect-Engineer Guide REFP13L0 (general info)
- Architect-Engineer 65% Design Submittals REFP22L0
- Architect-Engineer 100% Design Submittals REFP23L0
- CODP02L0 File Naming Convention (Civil)
- INSP030L0 Proj Specs

## **2. BACKGROUND**

The Natomas Basin portion of the American River Common Features was authorized by the Water Resources Development Act of 2014. The U.S. Army Corps of Engineers (USACE), the State of California, and the Sacramento Area Flood Control Agency (SAFCA) are all cost-sharing partners for project implementation. This authorization provides seepage remediation for the levees along the entire Natomas Basin. A Post-Authorization Change Report, American River Watershed, Common Features Project, Natomas Basin, was prepared with the preliminary plan for this project in August 2010. Reach B is the segment of the Natomas Basin extending from West Elverta Road to Farm Road, which is a distance of 50,000 linear feet (9.5 miles). The upstream 7.5 miles (ending just east of Powerline Road) has already been constructed by SAFCA, except for the portion of work underneath the Interstate-5 overpass crossing. The I-5 work was included in the final construction plans for Reach B, but it was amended prior to construction to delete this work. HDR was the designer of record for the Reach B plans, specifications, Basis of Design, and cost estimate. This task order includes preparation of the Reach B I-5 Window 65%, 90%, 100%, and Final plans, specifications, Design Documentation Report, MCACES Cost Estimate, bid schedule, and Engineering Considerations and Instructions for Field Personnel. It also include producing the draft and final Real Estate Mapping.

## **3. DESCRIPTION OF WORK AND SERVICES**

The A-E must complete of 65% design, 90% design, 100% design, and final plans, specifications, Design Documentation Report (DDR), MCACES Cost Estimate, and Engineering Considerations and Instructions for Field Personnel (ECIFP) for the Natomas Basin Reach B I-5 Window, as part of the American River Common Features project. The Reach B I-5 Window extends from SREL (Sacramento River East Levee) Phase 2B Station 439+00 to 448+00 at the North Bayou Road intersection and I-5 overpass crossing. Draft Take Mapping must also be submitted for this window at the 65% submittal, and finalized at the 90% submittal. HDR has already prepared the final plans and specifications for the I-5 Window portion of Reach B. The A-E must revise the previously prepared SREL Phase 2B submittal to meet current USACE standards and format, and delete all work not pertaining to the I-5 Window. The A-E must also prepare the draft and final Real Estate Mapping, and the Engineering Considerations and Instructions for Field Personnel (ECIFP) report.

### **3.1. TASK 1 - QUALITY CONTROL**

3.1.1. General:

The A-E is responsible for quality control (QC) of the technical products, reports, and submissions produced under this statement of work. The A-E's QC activities must consist primarily of:

- 1) Development and execution of a Quality Control Plan (QCP),



- 2) Internal QC and independent technical review (ITR), including documentation, and
- 3) Quality Control Certification (QCC).

Specific QC requirements are described below.

#### 3.1.2. Quality Control Plan (QCP):

The A-E must develop and execute a QCP that describes planned QC and ITR efforts on submittals, review schedules and milestones, and task order specific review personnel. The A-E must submit and receive approval of the QCP from the Government before proceeding with the effort under this statement of work.

#### 3.1.3. A-E Quality Control (QC) and Independent Technical Review (ITR):

All work products in this statement of work must undergo necessary and appropriate QC by the A-E prior to submittal. Documentation of QC activities is required and must be available electronically upon request for each review to the government as part of QA review activities. QC is an internal review process of work products, implementing basic quality control tools including, but not limited to: quality checks of calculations, analysis and assumptions; supervisory reviews; consistency reviews by design team; reviews for biddability, constructability and operability; checks for adherence to requirements and criteria in statement of work. In addition to the internal QC activities, the A-E must select task order specific qualified personnel to perform the ITR. The selected ITR personnel must not be actively involved in the analysis/design efforts or QC review performed under this statement of work. The A-E must describe the experience and background of the selected ITR personnel, and provide justification for their selection in the QCP. A-E deliverables must be reviewed for compliance with standard engineering and professional practices, adequacy of the scope of the associated document, appropriateness of data used, consistency, accuracy, comprehensiveness, and reasonableness of results. ITR activities must be fully documented using the Corps of Engineers DRChecks review management software, following a comment-response-resolution format. ITR documentation must be included with the QCC. Seamless ITR must be performed periodically as necessary and documented. Final ITR must be performed prior to submittal of the final documents.

#### 3.1.4. Quality Control Certification (QCC):

The A-E must certify in a Quality Control Certification (QCC), accompanying the final submittal under this supplemental statement of work, that procedures outlined in the QCP have been performed and that all concerns identified during QC and ITR activities have been resolved. The USACE will provide a model QCC to the A-E. The QCC and ITR documentation must be included as the last attachment to the final submittal.

### **3.2. TASK 2 – ANTITERRORISM AND OPERATION SECURITY (AT/OPSEC) REQUIREMENTS**

Pre-screen candidates using E-Verify Program. The Contractor must pre-screen Candidates using the E-verify Program (<http://www.uscis.gov/e-verify>) website to meet the established employment eligibility requirements. The Vendor must ensure that the Candidate has two valid forms of Government issued identification prior to enrollment to ensure the correct information is entered into the E-verify system. An initial list of verified/eligible Candidates must be provided to the COR no later than 3 business days after the initial contract award. This Form will be provided to the Contracting Officer and shall become part of the official contract file.

### **3.3. TASK 3 – 65% PLANS AND SPECIFICATIONS, DDR, MCACES COST ESTIMATE, ECIFP, AND DRAFT REAL ESTATE MAPPING FOR REACH B I-5 WINDOW**

#### 3.3.1. Review SREL Phase 2B Submittal:

The A-E must review the final SREL Phase 2B submittal, including the final plans, final specifications, final Basis of Design, and final cost estimate prepared by HDR. The A-E must organize the original CADD, SpecsIntact, and Word files for editing to current Corps of Engineers standards and format. The original design must be reanalyzed to determine if it meets all current USACE and Caltrans engineering standards. The A-E

must determine what portions of the Phase 2B plans were actually constructed, and any other changes to the project footprint which need to be incorporated into the design.

### 3.3.2. 65% Plans:

The A-E must develop the 65% design plans for the I-5 Window in Reach B. The Reach B I-5 Window extends from SREL (Sacramento River East Levee) Phase 2B Station 439+00 to 448+00 at the North Bayou Road intersection and I-5 overpass crossing. The A-E may use the previously prepared 2010 final HDR SREL Phase 2B plans, but must revise them to meet current USACE standards and format. The design includes floodwalls, cutoff walls, adjacent levees, maintenance roads, utility relocations, and road relocations. Access to private properties from Garden Highway must be maintained throughout construction. All traffic and bicycle/pedestrian traffic must be maintained during construction, with adequate detouring and signage included in the plans. All mailboxes must be relocated as necessary. A ground topographic survey (1' accuracy or better) of the project footprint must be conducted identifying all features necessary for the design. A tree survey of the project footprint must be conducted, identifying the species, diameter, GPS coordinate locations, and whether it is required to be removed or protected in place. Design details not required for this level of effort can be deferred to the 90% submittal.

(a) CADD drawings must follow the A/E/C CAD Standard Release 6.0 Standard. Sacramento District specific standards and border sheets must comply with ERDC-ITL TR-12-6 A/E/C CAD Standard Release 6.0 Standard and the ERDC ITL TR-12-1 CAD Drafting Standard.

(b) The A-E has the responsibility to show all information necessary to completely describe the project on the plans. Regardless of local practice or procedures, the designer must prepare original drawings with the expectation that both the COE, in the role of construction manager, and the construction contractor will be able to construct this project without numerous modifications to correct design deficiencies. Plans must include longitudinal profiles, plan views, and as many cross-sections and details necessary to show the features of the project. All dimensions and elevations of the channel excavation and flood protection features must be indicated. Survey controls must be based on information presented in the Reach B plans prepared by HDR. The datum refers to National Geodetic Vertical Datum of 1988.

(c) The cover sheet(s) must include the schedule of drawings, vicinity map, location map, legend, and list of abbreviations. The schedule of drawings must include the consecutive sheet numbers, the design discipline sheet numbers, and the drawings titles. The vicinity map must be a single-line type showing major cities, nearby towns, major streams and rivers, current routes of nearby highways and railroads, and a north arrow. Show the location of the project on a small scale location map indicating the general relationship between the new project and streets to facilitate identification of the proposed site. On the location map, show the north arrow and highlight the approved project boundaries, the construction Contractor's haul roads, location and phone numbers of nearest medical facility, and the approved location of the borrow and disposal areas.

(d) The submittal drawings must be single PDF drawing sheets and sized no less than 22"x34" (ANSI D size) full-size. Drawing material that does not meet COE standards may be rejected at any time during design. The A-E is liable for replacing rejected drawings at no expense to the Government. All sheets must have the COE standard borders and title blocks. The title block is for all sheets other than the cover sheet. The cover sheet title block requires a number of signatures by COE personnel.

(e) All drawings must comply with the SPK File Naming Convention for Civil Works CADD Drawings CODP02L0. Place the drawings in the drawings set in the discipline designator sequence. The cover sheet must be the first of the drawing set. All final drawings prepared and submitted by the A-E must bear the stamp and signature of a registered engineer identified in the A-E's QC Plan, preferably one of the principals of the firm. Drawings submitted by the designer must not be dated until the final version is submitted. Cross referencing for sections and details must be based on the discipline designator drawing number (e.g., S-1, S-3, etc.).

(f) Scales must be selected to avoid overcrowded and cluttered conditions on the drawings. Where necessary to maintain proper scale, drawings or large structures must be placed on two or more sheets. A graphic scale for each of the different scales used on a drawing must be placed on the drawings preferable near the title block. Scales must be consistent throughout all the disciplines' drawings. Acceptability of scale is determined by clarity of drawings at one-half scale reduction. Plan sheets are recommended to have a scale of 1 in = 40 ft.

### 3.3.3. 65% Specifications.

The specifications will be based on the final SREL Phase 2B specifications, deleting all work not associated with the I-5 Window, and updating them to current USACE standards. Specifications must include technical provisions covering site work, floodwalls, cutoff walls, earthwork, environmental restoration, and other components of work requiring details. Specifications must be prepared according to ER 1110-1-8155, and must include a bid schedule in the front of the specifications, and a submittal register attached to the back of the SUBMITTAL PROCEDURES specification. SPECSINTACT software must be used to prepare specifications. In the interest of uniform construction, it is mandatory for the A-E to use Unified Facility Guide Specifications (UFGS) and Sacramento District Guide Specifications (SPKGS) unless otherwise noted. The A-E must acquire all SPKGS via Zip format using the SPECSINTACT Backup/Restore/Manage command to restore the SPKGS for use. Edit the specifications to meet the needs of the project. A-E prepared specifications must be used only if there isn't a SPKGS available for a specific item of work. Technical provisions must be sufficiently complete and detailed to insure high quality work. Each technical provision must have a table of contents and text submitted in PDF. The use of trade names or proprietary items on the drawings and/or in the specifications by adopting a manufacturer's description of a particular commercial article followed by the words "or approved equal" must be avoided.

### 3.3.4. 65% Design Document Report (DDR):

The A-E must submit the 65% Design Documentation Report (DDR) incorporating all of the design assumptions and calculations. This report will be based on the final SREL Phase 2B Basis of Design, editing out all work not associated with the I-5 Window, and updating the design as necessary. Content and format are as shown in Appendix D of ER 1110-2-1150.

The DDR must be a Word document that is developed and expanded upon with each subsequent submittal so that it represents the complete design history. The submittal must be in PDF. Include a table of contents, a narrative, and appendices. Content and format are as shown in Appendix D of ER 1110-2-1150. It must be noted that the DDR will not be part of the construction bid documents; therefore, any information contained in the DDR that will be needed to complete the construction of the project must be included in the plans and specifications.

(a) The Table of Contents must clearly define the location of all information contained therein.

(b) The narrative must provide a complete explanation of the basis of design discipline-by-discipline. It must also include the results of field investigations performed, including basic findings and a discussion of items that warrant special attention.

(c) The appendices must include copies of all pertinent correspondence; all design calculations and worksheets, and all submittal review comments. Copies of all pertinent correspondence (e.g., statements of work, conference minutes and other pertinent data) are required so that the DDR presents the project history from inception to completion of the design documents. Design calculations and worksheets citing applicable codes and standards must also be included to verify the design. Sketches, details and plans, as necessary, must be prepared to support the calculations. The calculations must be computed and checked by separate individuals. Checking must be accomplished by registered engineers of the firm under contract to the COE, as identified in the A-E's QC Plan. The names of these individuals must be indicated on the page or insert carrying the calculation. Presentation must be clear and legible with a tabulation showing all design loads and conditions. The source of loading conditions formulas and

references must be identified. All assumptions and conclusions must be explained and cross-referencing must be clear. When a computer program is used, the program must be named and described. This description must be sufficient to verify the validity of methods, assumptions, theories, and formulas, but will not require source code documentation or otherwise which will compromise proprietary programs. Lastly, all review comments generated by the reviewers, annotated by the COE, and responded to by the A-E must also be included as an appendix.

(d) The specific contents of the DDR vary depending on the stage of the submittal. Do not delete information from earlier stages of design in subsequent design submittals. The original DDR must be loosely assembled while the copies must be bound. If more than one volume is used, all volumes must be numbered sequentially and assembled under a cover page indicating the volume and total number of volumes for the project. All material must be 8-1/2" X 11" standard page size PDF. Use 11" X 17" PDF for larger material, when reduction is not feasible. This applies to all drawings, published data or automatic data processing printouts that must be included in the DDR. Both side margins must be 3/4" minimum to permit loose side bindings and head-to-head printing.

(e) Electronic Media: All submittals must be stored on optical disk or other agreed-upon media compatible with a personal computer operating Windows 7. The word processing used to generate the text must be Microsoft Word 2007 format. Graphics must be in a form that can be imported into the Word documents. Final submittal must be in both MS Word 2007 format and Adobe Acrobat PDF.

(f) Structural Design Calculations: The structural calculations must comply with Corps of Engineers criteria. All calculations must be certified (stamped) by the person indicated in the A-E's QC Plan. The design calculations must be separately bound and clearly subdivided by structure.

#### 3.3.5. 65% MCACES II Cost Estimates:

The A-E must complete the 65% MCACES II (MII) cost estimates. Detailed instructions for preparing cost estimates are presented in UFC and ER 1110-2-1302. MCACES II (Micro-Computer Aided Cost Engineering System II) is the required software for the preparation of the cost estimate. The estimates for this task order must be performed using MII and must be consistent with the current estimating practices of the construction industry (American Society of Professional Engineers). Software can be obtained by completing a form supplied by the Corps of Engineers Technical Lead. Upon completion of the cost estimate, the A-E must submit to the Corps of Engineers Technical Lead the required back-up information and cost estimate as required by the UFC and ER 1110-2-1302. The Corps of Engineers Cost Engineers must be contacted directly for any explanations and/or clarifications.

#### 3.3.6. 65% Engineering Considerations and Instructions for Field Personnel (ECIFP):

The A-E must complete the 65% Engineering Considerations and Instructions for Field Personnel (ECIFP) report. The 65% ECIFP must consist of an outline only, but the remaining submittals must be complete reports. The ECIFP is a report outlining the engineering considerations and providing instructions for field personnel to aid them in the supervision and inspection of the construction contract. Appendix G of ER 1110-2-1150 provides an outline of the ECIFP content.

#### 3.3.7. Draft Real Estate Mapping.

The A-E must complete the draft project footprint and staging area mapping with the 65% submittal package for this site. The mapping is a set of AutoCad Version 2007 and PDF files showing required permanent Rights-of-Way (flood protection levee easement), temporary construction and access easements (temporary work area easement), permanent access (permanent road easement), and temporary A-E staging areas necessary for construction and maintenance of the project.

#### 3.3.8. Review Process.

### 3.3.7.1 General.

The Corps of Engineers and other agencies will review all A-E prepared design data for conformance with the contract requirements and technical as well as functional criteria utilizing the Corps of Engineers' Design, Review, and Checking System (DRChecks). DRChecks is a computerized method for transmittal and storage of design review comments. It provides interactive capability to address and respond to design review comments. The A-E can access DRChecks at the website [www.projnet.org](http://www.projnet.org). The A-E must also obtain login capability. If the A-E requires assistance, encounters problems, or have questions or comments, call the DRChecks Coordinator, Char Woffinden, at (916) 557-7612.

### 3.3.8.2 Review Comments.

All design review comments will be entered into DRChecks. All review comments will be "coordinated" by the Corps of Engineers Project Manager. That is, they will be reviewed for applicability to the project against the project's design criteria. Evaluate and respond to comments at a personal computer in the A-E office by use of the DRChecks website described above. All comments are stored in DRChecks. The A-E may download the review comments, evaluate the comments, and enter the responses in DRChecks.

### 3.3.8.3. A-E Responses.

The A-E must respond to the review comments in DRChecks as follows:

- (1) "Concur" if the A-E agrees with the comment.
- (2) "Non-Concur" if the A-E does not agree with the comment. A response on why the A-E does not agree with the comment.
- (3) "For Information Only" if the A-E feels the comment is for information only.
- (4) "Check and Resolve" if the A-E needs further analysis to respond to the comment. Include an explanation of what needs to be done to resolve the comment.

Submitting a separate sheet of paper with location of compliance or rebuttals is not allowed. Enter all information into DRChecks. Notify the Corps of Engineers when all responses are stored in DRChecks. If the A-E has any hardware or software problems with the DRChecks system, call Char Woffinden, the DRChecks coordinator, at (916) 557-7612.

### 3.3.8.4. Backcheck of Previous Comments.

Review comments on prior submittals must be checked for incorporation in the subsequent submittals. Those comments verified as done and explanations concurred with will be annotated, "COMMENT CLOSED," in DRChecks. Previous comments not verified as done or explanations not concurred with will be annotated, "COMMENT OPEN," will appear in the current review stage's comments. These comments require further action by A-E prior to next submittal. All final submittals will be backchecked by the Corps of Engineers, after A-E corrections are made, to ensure compliance with or resolution of comments to the satisfaction of the Corps of Engineers.

## **3.4. TASK 4 – 90% PLANS AND SPECIFICATIONS, DDR, MCACES COST ESTIMATE, ECIFP, AND FINAL REAL ESTATE TAKE MAPPING FOR REACH B I-5 WINDOW**

### 3.4.1. 90% Plans:

The A-E must develop the 90% design plans for the I-5 Window, incorporating the comments from the 65% review, and must be a complete set of plans showing 100% of the design details. Plan drawing requirements are stated in Paragraph 3.3.2.

#### 3.4.2. 90% Specifications:

The A-E must develop the 90% design specifications for the I-5 Window, incorporating the comments from the 65% review, and must be a complete set of specifications indicating 100% of the design details. Specification requirements are stated in Paragraph 3.3.3.

#### 3.4.3. 90% Design Document Report (DDR):

The A-E must submit the 90% Design Documentation Report incorporating all of the comments from the 65% review. DDR requirements are stated in Paragraph 3.3.4.

#### 3.4.4. 90% MCACES Cost Estimates:

The A-E must complete the 90% MCACES cost estimates, incorporating the comments from the 65% review. MCACES cost estimates requirements are stated in Paragraph 3.3.5.

#### 3.4.5. 90% ECIFP:

The A-E must complete the 90% Engineering Considerations and Instructions for Field Personnel (ECIFP) report, incorporating the comments in the 65% review. ECIFP requirements are stated in Paragraph 3.3.6.

#### 3.4.6. Final Real Estate Mapping.

The A-E must complete the final project footprint and staging area mapping incorporating the comments from the 65% review. Take Mapping requirements are stated in Paragraph 3.3.7.

#### 3.4.7. Review Process.

Review process requirements are stated in Paragraph 3.3.8.

### **3.5. TASK 5 – 100% DESIGN PLANS AND SPECIFICATIONS, DDR, MCACES COST ESTIMATE, AND ECIFP FOR REACH B I-5 WINDOW**

#### 3.5.1. 100% Plans:

The A-E must develop the 100% design plans for the I-5 Window, incorporating the comments from the 90% review. Plan development requirements are stated in Paragraph 3.3.2.

#### 3.5.2. 100% Specifications:

The A-E must develop the 100% design specifications for the I-5 Window, incorporating the comments from the 90% review. Specifications requirements are stated in Paragraph 3.3.3.

#### 3.5.3. 100% Design Documentation Report (DDR):

The A-E must complete the 100% Design Documentation Report (DDR), incorporating the comments from the 90% review. DDR requirements are stated in Paragraph 3.3.4.

#### 3.5.4. 100% MCACES Cost Estimates:

The A-E must complete the 100% MCACES cost estimates, incorporating the comments from the 90% review. MCACES Cost Estimates requirements are stated in Paragraph 3.3.5.

#### 3.5.5. 100% ECIFP:

The A-E must complete the 100% Engineering Considerations and Instructions for Field Personnel (ECIFP) report, incorporating the 90% review comments. ECIFP requirements are stated in Paragraph 3.3.6.

#### 3.5.6. Review Process.

Review process requirements are stated in Paragraph 3.3.8.

### **3.6. TASK 6 – FINAL DESIGN PLANS AND SPECIFICATIONS, DDR, MCACES COST ESTIMATES, AND ECIFP FOR REACH B I-5 WINDOW**

#### 3.6.1. Final Plans:

The A-E must develop the final design plans for the I-5 Window, incorporating any unresolved 100% backcheck review comments requiring revisions to the 100% plans. Plan drawing requirements are stated in Paragraph 3.3.2.

#### 3.6.2. Final Specifications:

The A-E must develop the specifications for the I-5 Window, incorporating any unresolved 100% backcheck review comments require revisions to the 100% specifications. Specification requirements are stated in Paragraph 3.3.3.

#### 3.6.3. Final Design Document Report (DDR):

The A-E must submit the final Design Documentation Report, incorporating any unresolved comments from the 100% backcheck review. DDR requirements are stated in Paragraph 3.3.4.

#### 3.6.4. Final MCACES Cost Estimates:

The A-E must complete the final MCACES cost estimates incorporating any unresolved comments from the 100% backcheck review. MCACES Cost Estimates requirements are stated in Paragraph 3.3.5.

#### 3.6.5. Final ECIFP:

The A-E must complete the final Engineering Considerations and Instructions for Field Personnel (ECIFP) report, incorporating any unresolved comments from the 100% backcheck review. ECIFP requirements are stated in Paragraph 3.3.6.

#### 3.6.6. Review Process.

Review process requirements are stated in Paragraph 3.3.8.

#### 3.6.7. Final Electronic Submittal.

The A-E must prepare the CADD files for transmittal with E-Transmit for AutoCAD or Packager for MicroStation. Provide an optical disk containing all CAD files as well as an index for the reference files for each drawing. The A-E must prepare the SpecsIntact and PDF specifications files for transmittal using the SpecsIntact Backup tab in the Backup/Restore/Manage command to Zip format. Provide the Submittal Register data using the "Export Submittal Register" command to either a Comma Delimited Text File. Provide an optical disk with the SPECSINTACT specifications transmittal files and Submittal Register data file.

### **3.7. TASK 7 – COORDINATION, MEETINGS, AND PROJECT MANAGEMENT INFORMATION**

The meetings requiring attendance from the A-E are listed below. All meetings will be held in the offices of the Corps of Engineers, Sacramento District, unless notified by the Technical Lead.

#### 3.7.1. Coordination Kickoff Meeting.

A kick-off meeting will be coordinated by the Corps of Engineers Technical Lead and held at the Sacramento District office before the beginning of work. The kick-off meeting will include information availability, geotechnical criteria, requirements for the plans, specifications, Design Document Report (DDR), MCACES cost estimate, Engineering Considerations and Instructions for Field Personnel (ECIFP), and the Real Estate Mapping. In addition, the meeting will discuss the submittal reviews and schedule. The A-E must assume ~~one~~ **two** representatives for the A-E working on this task order will attend, and will be allowed to charge **2 hours attending by teleconference or 4 hours for attending in person** the kickoff meeting.

#### 3.7.2. Project Development Team (PDT) Meetings.

The A-E project manager, when requested by the Technical Lead within 2 working days, must attend PDT meetings at the Corps of Engineers Office between Corps of Engineers, DWR, SAFCA, and Other Agencies (1 meeting per month) for the duration of this SOW. The A-E must assume 10 meetings at **1 hour each attended by teleconference or 3 hours each attended in person, and** must be attended by ~~one~~ **two** representatives for the prime A-E.

#### 3.7.3. Progress Meetings.

An additional 2 progress meetings will be held at the Sacramento District or through teleconference. The A-E will be given seven (7) calendar days notice by the Technical Lead prior to the meeting. The meetings will discuss progress to date, project design issues, schedule, and coordination with the Corps of Engineers. The A-E must assume **2 hours attended by teleconference or 4 hours attending in person** per meeting, and must be attended by two representatives from the A-E.

#### 3.7.4. Design Review Conferences.

A review conference at the Corps of Engineers office between the Corps of Engineers, local sponsors, and the A-E will take place following each review period of the Reach B I-5 Window 65%, 90%, and 100% design submittal to discuss the review comments. The A-E will be given seven (7) calendar days notice by the Technical Lead prior to the meeting. The A-E must be represented, as a minimum, by the A-E's project manager and a senior engineer. The A-E must assume **2 hours attended by teleconference or 4 hours attended in person** per Review Conference, and must be attended by two representatives of the prime A-E.

#### 3.7.5. Caltrans Coordination Meetings.

Three Caltrans coordination meetings will be held at the Sacramento District or through teleconference. The A-E shall coordinate the date and times for these meetings, and give the Technical Lead seven (7) days notice for these meetings. These meetings will discuss progress to date, project design issues, schedule, and coordination with Caltrans. The A-E must assume **2 hours attending by teleconference or 4 hours attending in person** per meeting, and must be attended by two representatives from the A-E.

#### 3.7.6. Written Communications:

All direction to the A-E must come through the Contracting Officer Representative (COR), and other agencies should not be communicating or directing the A-E directly. The A-E must furnish the Corps of Engineers Technical Lead (COR) with electronic copies of all written communications pertaining to the work under this contract received from other agencies within five (5) calendar days of receiving this communication. When it is clearly indicated that a copy of the communication has been furnished to the COR by the originator, the A-E must obtain the concurrence of any action items from the COR. Prepare a summary of all discussions between



the A-E and representatives of interested groups and individuals of other agencies relating to work under this contract and furnish an electronic copy to the Corps of Engineers Technical Lead within five (5) calendar days.

The A-E must also prepare progress/status reports to be delivered by the 10<sup>th</sup> of each month. Progress reports must be brief (1-2 pages), describing work performed and a quantitative statement of overall work progress, including percentage of work accomplished on each task and submittal. Also, include a description of the current problems that may impede performance of the tasks outlined in this SOW and suggest corrective actions. This report must also discuss work to be performed on the next two (2) week time frame along with containing a current submittal schedule. Progress reports must be e-mailed to the COR (Technical Lead) and provided with every payment estimate (ENG 93).

#### **4. SUBMITTALS**

All submittals must be provided to the COR (Technical Lead). The details of the quantities and distribution are below.

##### 4.1. REPRODUCTION REQUIREMENTS:

##### 4.1.1. TASK 1 - QUALITY CONTROL AND QUALITY ASSURANCE

***Provide the Draft and Final Quality Control Plan via e-mail in PDF format. Provide the Quality Control Certification via e-mail in PDF format.***

Provide ~~Draft and~~ Final Reports in optical discs containing electronic copies of the reports. The A-E must submit the number of optical discs listed below for ~~the each of the Draft, and~~ Final versions.

<u>Product</u>	<u>COR</u>	<u>DWR</u>	<u>SAFCA</u>
<del>Quality Control Plan</del>	±	0	0
Internal QC and ITR Documentation	1	0	0
<del>Quality Control Certification</del>	±	0	0

##### 4.1.2 TASK 2 – AT/OPSEC

The Contractor must submit the List of Verified/Eligible Candidates by e-mail to the COR (Technical Lead).

##### 4.1.3. TASKS 3 THROUGH 6 – 65%, 90%, 100%, AND FINAL DESIGN PLANS AND SPECIFICATIONS, DDR, MCACES COST ESTIMATE, ECIFP, AND REAL ESTATE MAPPING.

##### 4.1.3.1. 65%, 90%, and 100% Submittal:

Provide optical discs for TASKS 3 through 5: 65%, 90% and 100% Design submittal for Reach B I-5 Window as follows:

<u>ITEM</u>	<u>COR</u>	<u>DWR</u>	<u>SAFCA</u>
65% Drawings (full size ANSI D PDF), Specifications, DDR, MCACES Cost Estimate, ECIFP, and Draft RE Mapping	1	1	1
90% Drawings (full size ANSI D PDF), Specifications, DDR, MCACES Cost Estimate, ECIFP, and Final RE Mapping	1	1	1
100% Drawings (full size ANSI D PDF), Specifications, DDR, MCACES Cost Estimate, ECIFP	1	1	1

##### 4.1.3.2. Final Submittal:

Provide optical discs for TASK 6: Backchecked Final Design submittal as follows:

<u>ITEM</u>	<u>COR</u>	<u>DWR</u>	<u>SAFCA</u>
Final Drawings (full size ANSI D PDF), Specifications, DDR, Submittal Register, MCACES Cost Estimate, ECIFP, Statement of Quality Control	1	1	1

#### 4.1.4. TASK 7 - COORDINATION, MEETINGS, AND PROJECT MANAGEMENT INFORMATION

The A-E must submit one electronic copy of all communications provided by other agencies to the COR (Technical Lead). The A-E must also e-mail their monthly progress status reports as a separate PDF attachment to the Corps of Engineers COR (Technical Lead).

#### 4.2. DISTRIBUTION:

The 65% Design, 90% Design, the 100% Design submittal packages must be submitted directly to the Corps of Engineers - Sacramento District, Department of Water Resources, and SAFCA. The addresses for the Department of Water Resources and SAFCA are as follows:

Department of Water Resources  
 ATTN: Ms. Reena Jawanda  
 3464 El Camino Avenue, Suite 200  
 Sacramento, California 95821

SAFCA  
 ATTN: Mr. John Bassett  
 1007 Seventh Street, 7<sup>th</sup> Floor  
 Sacramento, California 95814

### 5. SUBMITTAL SCHEDULE

5.1. WORK SCHEDULE: The following work schedule covers the work in this SOW.

Task	Task Completion (calendar days after task order award)
Task 1: Quality Control Quality Control Plan QC and ITR Documentation Quality Control Certification	14 days 240 days 240 days
Task 2: AT/OPSEC	3 days
Task 3 : P&S Reach B I-5 Window 65% Design Submittal Draft RE Mapping	<del>90</del> 60 days <del>90</del> 60 days
Task 4 : P&S Reach B I-5 Window 90% Design Submittal Final RE Mapping	<del>150</del> 120 days <del>150</del> 120 days
Task 5 : P&S Reach B I-5 Window 100% Design Submittal	<del>200</del> 180 days
Task 6 : P&S Reach B I-5 Window Final Design Submittal	240 days

Task 7 : Copies of Outside Agency Communications Monthly Progress Status Reports	5 days after receipt 10 <sup>th</sup> of each month
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5.2. REVIEW SCHEDULE: The following reviews of submittals will be performed by the COE and sponsors:

Draft Quality Control Plan	7 calendar days after receipt of submittal
65% Design Submittal for Reach B I-5 Window	14 calendar days after receipt of submittal
Draft RE Mapping for Reach B I-5 Window	14 calendar days after receipt of submittal
90% Design Submittal Reach B I-5 Window	14 calendar days after receipt of submittal
100% Design Submittal Reach B I-5 Window	14 calendar days after receipt of submittal

## **6. OVERALL PERIOD OF PERFORMANCE**

All base work and services must be completed within two hundred forty (240) calendar days after the effective date of the contract action.

## **7. AUTHORITIES STATEMENT**

No person other than the Government Contracting Officer has the authority to make any changes to this contract action that impact cost or schedule. Authority from the Contracting Officer to the A-E to make changes that impact cost or schedule will be in the form of an official, signed modification.

## **8. PAYMENTS STATEMENT**

The A-E must submit ENG Form 93 (Payment Estimates), available from the Sacramento District's A-E Administration Section; should you require an ENG Form 93, please send an email request to [ENG93.AE.PaymentEstimates@usace.army.mil](mailto:ENG93.AE.PaymentEstimates@usace.army.mil). A separate ENG Form 93 must be submitted for each task order; multiple task orders or contracts may not be submitted on the same ENG Form 93. The monthly progress report must be submitted with every payment estimate. Payment estimates without a corresponding progress report will be rejected.

Payment estimates must be submitted no more often than monthly. Percentages billed must not be calculated beyond two decimal places for each line item on a payment estimate. Each line item must give a detailed description of:

- The work item being invoiced
- The negotiated amount
- The percentage of work completed for the billing period
- And earnings to date

It is USACE Sacramento District's policy to withhold 10% retains (FAR 52.232-10) on all submitted payment estimates. Retains will be released on task orders at 100% completion, when required documentation is submitted and approved. Please refer to the award document for necessary submittals prior to submitting payment estimates.

Upon receipt, the USACE Sacramento District will review and either approve for accuracy or deny the requested earnings before payment will be made. The completed ENG Form 93 Payment Estimates must officially be submitted via email to [ENG93.AE.PaymentEstimates@usace.army.mil](mailto:ENG93.AE.PaymentEstimates@usace.army.mil), when submitting via email the subject line must include the contract obligation #, task order # and invoice.

\_\_\_\_\_/s/  
Mark Boedtke  
Technical Lead

Attachments:

- 1 – REFP13L0.pdf (AE Guide General Info)
- 2 – REFP22L0.pdf (AE Guide 65% submittals)
- 3 – REFP23L0.pdf (AE Guide 100% submittals)
- 4 – CODP02L0 (File Naming Convention, Civil)
- 5 – INSP03L0 (Proj Specs)

## Section E - Inspection and Acceptance

## INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0001	N/A	N/A	N/A	N/A
0001AA	N/A	N/A	N/A	Government
0001AB	N/A	N/A	N/A	Government

Section F - Deliveries or Performance

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	DODAAC / CAGE
0001	N/A	N/A	N/A	N/A
0001AA	POP 27-APR-2018 TO 23-DEC-2018	N/A	US ARMY CORPS OF ENGINEERS, SACRAMENTO CONTRACTING DIVISION 1325 J STREET SACRAMENTO CA 95814-2922 FOB: Destination	W91238
0001AB	POP 27-APR-2018 TO 23-DEC-2018	N/A	(SAME AS PREVIOUS LOCATION) FOB: Destination	W91238

Section G - Contract Administration Data

ACCOUNTING AND APPROPRIATION DATA

AA: 096 NA X 2017 3122 000 0000 CCS:511 L2 2017 08 2451 443424 96042 3230 22JK0L  
AMOUNT: \$189,753.86

AB: 096 NA X 2018 3122 000 0000 CCS:511 L2 2018 08 2451 443424 96042 3200 22JK0L  
AMOUNT: \$259,667.76

ACRN	CLIN/SLIN	CIN	AMOUNT
AA	0001AA	W62N6M732179060001	\$189,753.86
AB	0001AB	W62N6M732179060002	\$259,667.76

## **APPENDIX B**

### **Architect-Engineer Guide**



# Architect-Engineer Guide

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## Scope

The purpose of this Architect-Engineer (A-E) Guide is to inform A-E firms of the general administrative and technical requirements for providing professional services and products relative to their contract with the U.S. Army Corps of Engineers, Sacramento District (SPK). It supplements *EP 715-1-7 Architect-Engineer Contracting* [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>] and the A-E Statement of Work.

## Policy

The A-E Guide applies to A-E firms and members of the Sacramento District staff involved in A-E contract management and administration. It is assumed that the A-E selection process shown in the *Purchasing of Services [PROP08L0]* has been completed and a notification of selection has been transmitted to the A-E. The A-E Firm will begin with the review of the statement of work, criteria and preparation of financial data after the security clearance is obtained. This applies to all types of A-E contract actions including but not limited to: Fixed Price Contracts, Indefinite Delivery Contracts, Task Orders, etc.

## Responsibility

The Chief of A-E Administration Section is responsible for administration of the A-E Guide.

The A-E Administration Section is responsible for coordinating any necessary revisions to the A-E guide within Sacramento District, Engineering Support Branch and Engineering Division. The A-E Administration Section will also assure that this publication is referenced within the statement of work when applicable.

The Project Manager is responsible for referring to this publication in the A-E statement of work, when applicable.

The A-E Firm is responsible for thoroughly reviewing the A-E Guide prior to submission of an A-E cost proposal. The A-E Guide becomes part of the A-E firm's contract when referenced within the A-E statement of work. Therefore, it is essential that the A-E Guide be referred to throughout the execution of the A-E contract. Should there be a conflict between the contract statement of work and the A-E guidance, the contract statement of work shall take precedence. Special emphasis should be placed on scope and cost limitations and the requirements for contract deliverables. Questions and/or conflicts concerning the requirements of this publication should be immediately addressed to the Sacramento District main point of contact (COE POC) designated within the statement of work.

## Distribution

A-E Firm

Chief of A-E Administration Section

Chief of Engineering Division

Assistant Chief of Engineering Division

Chief of Engineering Support Branch

Chief of Design Branch

Chief of Geotechnical & Environmental Engineering Branch

A-E Responsibility Coordinator

Chief of Service and Supply Branch, Contracting Division

A-E Branch, Contracting Division

Project Manager

A-E Negotiator

Small and Disadvantaged Business Utilization (SADBU) Advisor

## Ownership

The Chief of A-E Administration Section  
[[William.D.MulleryD@usace.army.mil?Subject=REFP13L0 - Architect-Engineer Guide](mailto:William.D.MulleryD@usace.army.mil?Subject=REFP13L0 - Architect-Engineer Guide)] is responsible for ensuring that this document is necessary and that it reflects actual practice.

## References

Refer to:

- *Federal Acquisition Regulation (FAR)* [<http://www.arnet.gov/far/>]
- *FAR Subpart 24.2 - Freedom of Information Act*  
[[http://www.acqnet.gov/far/current/html/Subpart 24\\_2.html](http://www.acqnet.gov/far/current/html/Subpart%2024_2.html)]
- *FAR Subpart 36.6 - Architect-Engineer Services*  
[[http://www.acqnet.gov/far/current/html/Subpart 36\\_6.html](http://www.acqnet.gov/far/current/html/Subpart%2036_6.html)]
- *FAR 52.227-14 Rights in Data - General*  
[[http://www.arnet.gov/far/current/html/52\\_227.html - 1109286](http://www.arnet.gov/far/current/html/52_227.html - 1109286)]
- *FAR 52.232-10 Payments under Fixed-Price Architect-Engineer Contracts*  
[[http://www.arnet.gov/far/current/html/52\\_232.html - 1107121](http://www.arnet.gov/far/current/html/52_232.html - 1107121)]
- *FAR 52.232-26 Prompt Payment for Fixed-Price Architect-Engineer Contracts*  
[[http://www.arnet.gov/far/current/html/52\\_232.html - 1107573](http://www.arnet.gov/far/current/html/52_232.html - 1107573)]
- *FAR 52.326-23 - Responsibility of the Architect-Engineer Contractor*  
[[http://www.acqnet.gov/far/current/html/52\\_233\\_240.html](http://www.acqnet.gov/far/current/html/52_233_240.html)]
- *FAR 52.243-1 - Changes - Fixed Price*  
[[http://www.arnet.gov/far/current/html/52\\_241\\_244.html](http://www.arnet.gov/far/current/html/52_241_244.html)]

- *5 USC 552 - Freedom of Information Act (FOIA)* [
- *DFARS 236.6 - Architect-Engineer Services*  
[[http://www.acq.osd.mil/dpap/dars/dfars/html/current/236\\_6.htm](http://www.acq.osd.mil/dpap/dars/dfars/html/current/236_6.htm)]
- *AFARS Subpart 5136.6 - Architect-Engineer Services*  
[<http://farsite.hill.af.mil/reghtml/regs/other/afars/afar36.htm>]
- *EFARS Subpart 36.6 – Architect-Engineer Services*  
[<http://www.hq.usace.army.mil/cepr/efars/part36.pdf>]
- *Executive Order E.O. 12906 - Coordinating Geographic Data and Acquisition and Access: The National Spatial Data Infrastructure* [<http://www.archives.gov/federal-register/executive-orders/pdf/12906.pdf>]
- *USACE Geospatial Data Clearinghouse Node* [<http://corpsgeo1.usace.army.mil/>]
- *EM 385-1-1 Safety and Health Requirements*  
[<http://www.usace.army.mil/inet/usace-docs/eng-manuals/em385-1-1/toc.htm>]
- *EP 310-1-6 Graphic Standard Manual* [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep310-1-6/toc.htm>]
- *EP 715-1-7 Architect-Engineer Contracting* [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/toc.htm>]
- *ER 5-1-11 U.S. Army Corps of Engineers Business Process*  
[<http://www.usace.army.mil/publications/eng-regs/er5-1-11/entire.pdf>]
- *ER 1110-1-12 Quality Management* [<http://www.usace.army.mil/publications/eng-regs/er1110-1-12/entire.pdf>]
- *ER 1110-1-8156 Policies, Guidance, and Requirements for Geospatial Data and Systems* [<http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8156/entire.pdf>]
- *ER 1110-1-8159 DRCHECKS* [<http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8159/entire.pdf>]
- *ENG Form 93 - Payment Estimate - Contract Performance*  
[<http://www.usace.army.mil/inet/usace-docs/forms/e93.pdf>]
- *CESPD R 1110-1-8 South Pacific Division Quality Management Plan*  
[<http://www.spd.usace.army.mil/entire.pdf>]
- *CADD/GIS Technology Center, A/E/C CADD Standard, ERDC/ITL TR-01-6, Release 2.0,* [<https://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp>]
- *Content Standard for Digital Geospatial Metadata Workbook*  
[[http://www.fgdc.gov/metadata/documents/workbook\\_0501\\_bmk.pdf](http://www.fgdc.gov/metadata/documents/workbook_0501_bmk.pdf)]
- *Criteria Bulletin Board System (CBBS)* [<http://cbbs.spk.usace.army.mil/>]
- *U.S. Army Corps of Engineers, Sacramento District, Engineering Quality System*  
[<http://iso9000.spk.usace.army.mil/>]
- *Sacramento District Quality Management Plan*  
[[http://iso9000.spk.usace.army.mil/qmp\\_s/qmp\\_s.html](http://iso9000.spk.usace.army.mil/qmp_s/qmp_s.html)]
- *Sacramento District Quality Management Plan, Appendix F SPK Quality Management Process, Product Development, Technical Review, and Quality Control Certification Forms*  
[<http://iso9000.spk.usace.army.mil/docs/AppendixF.pdf>]
- *Design Process for Civil Works Projects* [*PROP02L0*]

- [Design Process for Military Projects \[PROP03L0\]](#)
- [Design Process for Hazardous, Toxic, and Radioactive Waste Projects \[PROP04L0\]](#)
- [Value Engineering \[PROP06L0\]](#)
- [Project Safety and Health Requirements \[PROP07L0\]](#)
- [Purchasing of Services \[PROP08L0\]](#)
- [Creation, Packaging, and Delivery of Project Documents \[PROP09L0\]](#)
- [Geographic Information Systems Design \[PROP17L0\]](#)
- [Preparing BCOE and Quality Control Certificates \[PROP22L0\]](#)
- [Integrating Lessons Learned \[PROA04L0\]](#)
- [A-E Responsibility Management Program \[PROA05L0\]](#)
- [Control of Project Documents \[PROQ02L0\]](#)
- [Managing As-Built & As-Constructed Drawings \[PROQ08L0\]](#)
- [Address and Attention Line Tables \[REFP01L0\]](#)
- [Criteria Locations Table for A-E Firms \[REFP03L0\]](#)
- [Project Specification Examples \[REFP04L0\]](#)
- [General Project Metadata \[REFP05L0\]](#)
- [Architect-Engineer 10% Design Submittals \[REFP18L0\]](#)
- [Architect-Engineer 35% Design Submittals \[REFP21L0\]](#)
- [Architect-Engineer 65% Design Submittals \[REFP22L0\]](#)
- [Architect-Engineer 100% Design Submittals \[REFP23L0\]](#)
- [Request for Proposal Document Submittals \[REFP24L0\]](#)
- [Delivering AutoCAD Drawings \[INSP01L0\]](#)
- [Preparing Project Specifications \[INSP03L0\]](#)
- [Preparing Amendments in SpecsIntact \[INSP04L0\]](#)
- [Delivering Hard Copy Documents \[INSP08L0\]](#)
- [Delivering Project Specifications \[INSP09L0\]](#)
- [Creating CALS Files From AutoCAD \[INSP14L0\]](#)
- [MicroStation DGN to Postscript to CALS \[INSP15L0\]](#)
- [Evaluating a Review Comment \[INSA02L0\]](#)

## Definitions

Refer to the [Glossary of Engineering Quality System Terms and Acronyms \[REFQ10L0\]](#) for definitions not listed here.

## Purpose

### Definition of Common Deliverables

A-E contracts vary greatly in their types of acquisition strategy and execution but still have some processes and products that are the same or similar. Those similar processes and products are Common Deliverables that this A-E Guide will address. Examples are: reports, hard copy paper, CD-ROM, statement of work, the negotiation process, and Quality Control Plans (QCP). Refer to [Architect-Engineer Submittals \[REFP18L0\]](#) for the details of A-E submittal contents.

## Statement of Work Process

### Description

After A-E selection, a copy of the statement of work will be forwarded to the A-E with a request to submit pertinent financial data (e.g., wage, overhead rates, any related direct costs items, subcontractor costs, and profit factors) and possibly the A-E's cost proposal to the Sacramento District. The statement of work will indicate the extent of the work to be accomplished by the A-E and may contain references to project specific criteria. The statement of work serves as the basis for the A-E's fee proposal and the Government's estimate. It will be the basis of a determination of fair and reasonable award price.

### Importance of Statement of Work

The statement of work is a part of the contract between the A-E and the Government. Therefore, it is essential that the two parties mutually agree that the work to be accomplished as described therein is accurate and complete. The goal of the statement of work is to create a measurable product. This means that efforts under a Scope shall be quantified to the maximum extent possible. The intent will not be to say in the Scope "study Problem X and provide solutions." Instead the Scope should say "study problem X and provide solutions at the minimum, optimum, and maximum levels." If an effort cannot be measured then consider a different approach. For example; instead of "study and design a solution," there might have to be a base of "complete the study, and once the recommendations have been evaluated by the Government the design may be awarded as an option." If the basic contract is an Indefinite Delivery Type Contract some statement of work items may be more general in coverage because the Task Order will embody specific efforts. The statement of work shall follow the format defined in *EP 715-1-7* [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>], and as supplemented within local policy under the guidance of the A-E Administration Section. In order to facilitate copying of the scope into the contract document, the statement of work should be in Times New Roman, 10 point font. Do not use headers, footers, page numbers, page breaks, or 'track changes' in the statement of work. Once the contract has been awarded, all changes to the statement of work, pertaining to schedule, price or quality, when necessary, will be made by the Contracting Officer (KO) in writing in accordance with the relevant contract clauses.

## Scope Limitations

### Minor Deviations

The A-E shall provide services and products in accordance with the statement of work. During the progress of the work, the A-E may expect minor changes in criteria within the general statement of the project and should make necessary adjustments accordingly. Minor technical deviations in the statement of supporting items may also be made to accommodate actual field conditions, changes in manufacturing which impact materials, etc.

### Authorized Guidance

The A-E is cautioned to take no guidance from any source, other than the Contracting Officer, during the execution of work, which deviates from the requirements stated in the statement of

work. The A-E shall not depart from, or perform work beyond the scope, or change the criteria upon which it is based without written direction and/or consent from the Contracting Officer. The A-E shall immediately notify the COE POC and/or the Contracting Officer of any such requests. Any problems relating to design, which endanger fulfillment of contractual requirements, shall immediately be brought to the attention of the COE POC. Either the A-E or Sacramento District COE POC shall confirm oral understandings in writing, at request of either party. IN NO CASE ARE CHANGES IN SCOPE TO BE MADE AT THE ACTIVITY LEVEL.

### Obtaining Approval for Deviations

The A-E shall not deviate from the authorized statement of work unless directed otherwise by the KO. The statement of any feature shall not be exceeded without written approval of the KO. THE A-E'S RESPONSIBILITY IS DIRECTLY TO THE GOVERNMENT'S CONTRACTING OFFICER AND ANY REQUESTED DEVIATION FROM THE SCOPE OR ELABORATIONS WITHIN THE SCOPE MUST BE BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER FOR RESOLUTION.

## **Changes in Scope**

### Process

The A-E shall not perform services requested by any person in the COE, other than the Contracting Officer, which the A-E considers to be a change in work or services required by the contract and necessitating an adjustment in contract price until all of the following is completed.

- Receipt of Supplemental Statement of Work from the Contracting Officer's Representative (COR).
- Submitted a proposal to COE covering such extra services,
- Negotiated with an authorized agent of the Government a mutually satisfactory fee, and
- Received an official notice to proceed from the Government Contracting Officer.

### Negotiations

Should MAJOR changes in the Scope be authorized by the Contracting Officer, appropriate modification to the A-E contract will be negotiated in accordance with the Contract Clause *FAR 52.243-1 - Changes - Fixed Price* [[http://www.arnet.gov/far/current/html/52\\_241\\_244.html](http://www.arnet.gov/far/current/html/52_241_244.html)]

## **A-E PROJECT MANAGER DESIGNATION**

One individual of the A-E Firm shall be designated by the A-E as Project Manager. The Project Manager shall be fully cognizant of the requirements of the A-E Contract, performance schedule and contents of this publication. The Project Manager will work directly with the Sacramento District COE POC, who will furnish guidance necessary for the successful execution of the work.



## RELEASE OF PROJECT INFORMATION

### Release by A-E to Public

At any stage of study, planning, design or construction, the A-E shall contact the Sacramento District Public Affairs Office, (916) 557-5104, to obtain a clearance and release before releasing any information for publication or giving public speeches concerning a project.

### Document Ownership

Under the clause "Drawings and Other Data to Become Property of Government" of the Contract Clauses, the ownership of all studies, reports, findings, designs, drawings, specifications, notes, calculations, electronic files, computer programs/software developed specifically to satisfy scope requirements and provide acquired data or other work is vested in the Government.

### The Freedom of Information Act

Of primary concern to the Sacramento District is the release of cost and pricing data that A-Es may consider as privileged and essential to their competitive position in their respective economic sectors. The A-E is advised that the FOIA applies to the data provided for the purpose of negotiations. Therefore, in the event an A-E wishes their cost and pricing data to be privileged and exempt from public release, the Sacramento District PM should be advised in writing and each page containing such data should be appropriately marked. Although the Sacramento District treats all A-E furnished cost and pricing data as being of a confidential nature, the *5 USC 552 - Freedom of Information Act (FOIA)* [[http://uscode.house.gov/uscode-cgi/fastweb.exe?getdoc+uscview+i05t08+26+0++\(\)+AND+\(\(5\)+AD\)](http://uscode.house.gov/uscode-cgi/fastweb.exe?getdoc+uscview+i05t08+26+0++()+AND+((5)+AD))], as amended, requires the release of records held by Government Agencies or Offices when requested by interested parties, unless such records are covered by one of the "exemptions" listed in the law. The *FAR Subpart 24.2 - Freedom of Information Act* [[http://www.acqnet.gov/far/current/html/Subpart\\_24\\_2.html](http://www.acqnet.gov/far/current/html/Subpart_24_2.html)], provides DOD policy and guidance on handling requests for records and exemptions under this Act.

## Correspondence and Transmittals

*Address and Attention Line Tables* [[REFP01L0](#)] shows the appropriate attention lines for the deliverable requirements listed within this A-E Guide. Failure to include the proper attention line within the address of correspondence to the Sacramento District may delay delivery and possibly compromise the A-E contract.

Submitting files via FTP does not relieve the A-E of having to fulfill any, or all, media requirements listed within the statement of work. The COE POC must be concurrently notified by e-mail of all FTP transmissions. For FTP transmissions to be considered as a valid deliverable, they must be acknowledged by the COE POC or PM with "confirmation of receipt" e-mail. An FTP address for the project may be coordinated with Engineering Division's Criteria Management Unit at Sacramento District (916) 557-7670 or [[cbbs@spk.usace.army.mil](mailto:cbbs@spk.usace.army.mil)]

## **STANDARD CLAUSES (for emphasis only)**

### Architect-Engineer Contract Clauses (where to find)

The A-E should review the standard *FAR* [<http://www.arnet.gov/far/>] and *FAR Subpart 36.6 - Architect-Engineer Services* [[http://www.acqnet.gov/far/current/html/Subpart 36.6.html](http://www.acqnet.gov/far/current/html/Subpart%2036.6.html)]. These clauses are incorporated, by reference, as part of the A-E firm's contract with Sacramento District. Upon request, the Contracting Officer will provide hard copies of the applicable A-E Contract Clauses.

### Cautionary Clause (take direction only from Contracting Officer)

No person other than the Contracting Officer has the authority to make changes to any contract action that impacts cost or schedule. Authority from the Contracting Officer to the A-E to make changes that impact cost or schedule will be in the form of an official, signed modification.

### Pay Estimates

Special emphasis is placed on requirements within Contract Clause *FAR 52.232-10 Payments under Fixed-Price Architect-Engineer Contracts* [[http://www.arnet.gov/far/current/html/52\\_232.html](http://www.arnet.gov/far/current/html/52_232.html) - 1107121] as well as *FAR 52.232-26 Prompt Payment for Fixed-Price Architect-Engineer Contracts* [[http://www.arnet.gov/far/current/html/52\\_232.html](http://www.arnet.gov/far/current/html/52_232.html) - 1107573]. See the PAYMENTS paragraph located within this A-E Guide for Common Deliverables.

### Release of Data Clause

Special emphasis is placed on requirements within clause *FAR 52.227-14 Rights in Data - General* [[http://www.arnet.gov/far/current/html/52\\_227.html](http://www.arnet.gov/far/current/html/52_227.html) - 1109286] and the *FAR Subpart 24.2 - Freedom of Information Act* [[http://www.acqnet.gov/far/current/html/Subpart 24.2.html](http://www.acqnet.gov/far/current/html/Subpart%2024.2.html)]. Also, see paragraph Release by A-E to Public before discussing any parts of the contract and project with the public,

### Quality Control Clause

The A-E is reminded of contractual obligations stated in the contract clause that specifies responsibility for the professional quality, technical accuracy, and the total coordination of all designs, drawings, specifications, and other services furnished

### Alteration of Authorities/Responsibilities Clause

The A-E shall not include any statements during the preparation of contract documents that may be construed as altering the responsibilities and/or authorities regarding the parties (especially that of the Government's) involved in the construction contract.



## SERVICE AND/OR PRODUCT PHILOSOPHY

Before beginning the work, the A-E should review current criteria, instructions and guide specifications shown in *Criteria Locations Table for A-E Firms [REFP03L0]*, and make a thorough study of the requirements of the project and, if applicable, the conditions at the site. If, after an analytical review, the A-E is of the opinion that a deviation from instructions would be of benefit to the Government, the A-E shall bring the matter to the attention of the COE POC for a decision. Sacramento District encourages the A-E to use ingenuity and professional expertise to provide the best possible service and/or product for all elements of the project within the constraints imposed.

## PRE DESIGN (Scope Clarification) CONFERENCE

The A-E may be requested, or may request, to participate in a pre-work (a.k.a. Scope Clarification) conference between the customer and the key members of the A-E's project team. The purpose of such a conference is to discuss the customer's expectations, become more familiar with site conditions, better define the requirements, and if necessary, further clarify the scope for the project prior to preparation of a price proposal. This shall include the types of design, deliverables, review process/responsibilities, and major project tasks and constraints. This meeting may be held in the immediate vicinity of the proposed project, at the Sacramento District Office, or even over the telephone. At this time the A-E is encouraged to propose statement of work changes, which are felt to be in the best interest of the project. To assist in preparation for the conference, the COE POC will provide the A-E information for obtaining the project specific criteria as referenced in the statement of work.

## PREPARATION OF PROPOSAL

### Price Proposal

A-E price proposals shall be submitted to the addresses listed in *Address and Attention Line Tables [REFP01L0]*. Under no circumstance is the A-E to submit additional copies (hard or electronic) to other COE employees without the explicit consent or direction of the A-E Administration Section chief, COR, or the Contracting Officer. The type of deliverable, whether hard copy, electronic, or both should be specified with the Request for Price Proposal. If submitting an electronic proposal, see paragraph Electronic Files. If submitting a hard copy proposal the A-E shall submit the original and one copy to the A-E Administration Section chief, or COR who issued the request for proposal. If the proposal is in excess of \$550,000, an additional copy shall be sent to Construction and A-E Branch, Contracting Division.

### Subcontracting Plan

If the A-E is a large business and the total contracting amount is expected to be \$500,000 or more, the A-E must prepare and submit a subcontracting plan. The Government's SADBUI Advisor, who often will attend the pre-negotiation conference to explain the subcontracting plan requirements, must deem the plan acceptable. One copy of the A-E'S completed subcontracting plan must be sent along with the price proposal. The original of the subcontracting plan must be

sent, at the same time, to the SADBUs at the address listed in *Address and Attention Line Tables [REFP01L0]*.

## Quality Control Plan (QCP)

### Purpose

The purpose of the A-E prepared QCP is to ensure development of a quality product or service from inception through completion of the Quality Control Certification (refer to paragraph A-E Quality Control (QC) Review). The QCP is a project specific document that provides a framework for developing a product and conducting the technical review of a product. The QCP is a living document and becomes part of the Sacramento District's Project Management Plan that is developed for each project by the Project Manager. The A-E QCP establishes the documents and products to be reviewed, the review team and its responsibilities, and schedule and costs for review. It is prepared for every product/service except for those identified as small and low risk. A generic version may be used for routine, minor products, if the appropriate Sacramento District Functional Chief approves. With approval, the A-E updates the QCP as warranted.

### Responsibility

The A-E is responsible for reviewing, checking and coordinating all submittals. The professional quality, technical accuracy and coordination of all design submittals and other services to be provided by the prime A-E and any subcontractors/consultants used is of major importance. A written QCP shall be submitted concurrent with the price proposal, but under separate cover letter, unless the project is highly complex and would require more time for development. In this event, the A-E will be allowed to submit a generic plan with the price proposal followed by a completely detailed plan early in the first phase of work. Refer to *Address and Attention Line Tables [REFP01L0]*. The A-E's performance evaluation will be based in large part on how the deliverables package reflects conformance with the A-E QCP. The A-E's contractual obligation to provide complete, well coordinated, and error free documents has far-reaching consequences. Therefore, the A-E is cautioned to place special emphasis on this aspect of the QCP. In the event damage to the Government results from negligent performance of any of the services to be furnished under this contract, the A-E will be held liable for such damages. The Government's review effort in no way relieves the A-E of contractual responsibilities. For this reason, an effective quality control plan is critical.

### Content

The content of the QCP is dependent on the complexity of the product or service being provided and can range from a generic QCP to a Project/Product/Service Specific QCP. As a minimum all QCPs are to include a schedule of work to be accomplished, a budget, points of contact and their respective lines of authority/coordination, a brief discussion on plan execution with contingency measures when appropriate, A-E review effort, and a A-E quality control checklist. Refer to *ER 1110-1-12 Quality Management [http://www.usace.army.mil/publications/eng-regs/er1110-1-12/entire.pdf]*

## Review of QCP

The COE POC will review the QCP. If comments are generated during this informal review, the A-E shall respond to the comments by E-mail and/or revise the plan accordingly and resubmit prior to initiating design. The A-E will be expected to follow the approved QCP throughout the course of the project to assure a quality end product. Should future events dictate revisions to the approved QCP, the A-E shall notify the COE POC by E-mail and submit the revised plan for approval.

## **PRE-NEGOTIATION CONFERENCE**

As with the Pre-Design Conference, the A-E may be requested, or may request, to participate in a Pre-Negotiation Conference with the COE's designated negotiator, the COE POC and key members of the A-E's project team and/or designated authorized representative. The purpose of this conference is to discuss the requirements of the statement of work. Upon conclusion of the review and adjustment of the statement of work, an acceptable format and appropriate cost breakdown (typically broken down by each task identified by a Period of Service in the statement of work to be used by the A-E for his proposal will be determined. This Pre-Negotiation Conference will also serve to address any other special contracting issues peculiar to this pending contract, as well as provide the A-E an opportunity to ask any questions, or express any concerns, regarding the requirements and administration of the contract. This meeting may be held at the Sacramento District Office, or over the telephone and/or in conjunction with the Pre-work Conference, if there is one.

## **NEGOTIATION CONFERENCE**

Negotiations may be held in Sacramento District offices or telephonically. The objective is to reach an agreement on a fair and reasonable price for the work and services required. This does not mean that there is agreement on each and every item, only major items and the overall cost to the Government. During negotiations the statement of work will again be reviewed as necessary, and the A-E's proposal will be examined and discussed in detail. Major changes in the statement of work are unacceptable at this time unless the A-E has previously notified the COE POC that certain scope changes are necessary. If a major scope change is needed, then the negotiation is stopped until the scope, and any revised proposal or revised IGE is completed.

## **AWARD OF A-E CONTRACT ACTION**

Subsequent to the successful completion of negotiations and upon approval of the Contracting Officer, the A-E will receive a written transmittal letter forwarding the unsigned contract to the A-E for signature approximately 10 days after completion of the negotiations. The signed contract must be faxed back to Sacramento District before the effective contract date. The A-E is authorized to begin work as of the effective contract date. For task order awards, the fully executed task order will be sent to the A-E and is the authority for the A-E to commence work.

## **SUBMITTAL SCHEDULE**

The schedule for contract deliverable submissions is established in the statement of work. MEETING ESTABLISHED SUBMITTAL SCHEDULES IS ESSENTIAL. Late submissions

may jeopardize project funding, construction contract award or user need dates and will have an adverse impact on the A-E's performance evaluation.

## REVIEW PROCESS

### Strategy

The Government review strategy is to accommodate *ER 5-1-11 U.S. Army Corps of Engineers Business Process* [<http://www.usace.army.mil/publications/eng-regs/er5-1-11/entire.pdf>] and utilize the A-E QCP. Refer to paragraph Quality Control Plan (QCP).

### A-E Quality Control (QC) Review

The A-E is responsible for conformance with contract requirements and technical as well as functional criteria. Therefore, the A-E shall provide a QC review of all submittals in accordance with the QCP prior to each submittal.

### Documenting QC Review

The A-E designers shall annotate all comments with responses and make the appropriate adjustments to all applicable documents prior to their resubmission to the Government. The A-E's documented QC comments and responses shall be a separate document and accompany each required submittal.

### Quality Control (QC) Certification

At the time that the final submittal is provided to the Government, the A-E shall provide a QC certification in accordance with the *Sacramento District Quality Management Plan, Appendix F SPK Quality Management Process, Product Development, Technical Review, and Quality Control Certification Forms* [<http://iso9000.spk.usace.army.mil/docs/AppendixF.pdf>].

### Virus Free Certification

The A-E shall also provide a written certification stating that each and all versions of any electronic submittal are virus free. The certification may be included on the Quality Control Certification Letter.

## Government Quality Assurance (QA) Review

### Electronic Process

The Government will provide a QA review of the A-E's work using the program described in *ER 1110-1-8159 DRCHECKS* [<http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8159/entire.pdf>].

### Level of Detail

The Government and other agency review may range from a cursory review of the A-E's QC documentation for relatively straightforward projects to a more detailed review of A-E products for more complex or controversial projects. However in all cases, the review will not identify each and every incidence of an important area needing attention. The comments will address the problem and some of the incidences. The A-E is expected to change all necessary and related items. The Government review effort in no way replaces the A-E's review and quality control requirements.

### Coordination of Comments

All Government review comments will be coordinated by the COE POC prior to submittal to the A-E through the electronic process identified in the statement of work or paragraph Electronic Process. The POC will review the comments for applicability to the project against the project's design criteria, and then notify the prime A-E the comments are ready for evaluation in accordance with *Evaluating a Review Comment [INSA02L0]*. The A-E is responsible for coordinating comments with any subcontractors. Handwritten A-E responses to Government review comments will not be accepted. A-E responses must be made as described within *Evaluating a Review Comment [INSA02L0]*. The A-E is encouraged to call and discuss any problematic comments with the appropriate reviewer. The Government will back check all final A-E submittals after A-E corrections are made to insure compliance with or resolution of comments to the satisfaction of the Government.

## **HEALTH AND SAFETY PLAN**

The A-E shall submit a health and safety plan for the work requiring such a plan. The plan shall cover all A-E actions to insure health and safety of A-E personnel during fieldwork. The plan shall be brief and shall be submitted within 7 calendar days after a contract award and prior to any fieldwork. Refer to *EM 385-1-1 Safety and Health Requirements* [<http://www.usace.army.mil/inet/usace-docs/eng-manuals/em385-1-1/toc.htm>] and *Project Safety and Health Requirements [PROP07L0]*.

## **CONSULTATION WITH THE CLIENT ACTIVITY**

The COE POC is the focal point between all Government representatives and the A-E regarding technical and performance issues. The A-E may be required to consult with the sponsor or local activity having a jurisdiction and impact, or client team concerning local conditions or operational requirements. Technical and design considerations that conflict with the directions from the COE POC shall be brought to the COE POC's attention immediately.

## **Informational Material**

Any "typical" or "example" documents (design analysis, specifications, drawings, etc. from another project or just general in nature) shown to the A-E are for background information only, and are not authorized criteria unless specifically stated within the statement of work.

## FORMAT, CONTENT, and PACKAGING OF DELIVERABLES

### General Instructions

The statement of work will define what types of deliverables are required. Follow the information below for the format of those types. Not all of these may be required by the A-E contract. Sometimes, the statement of work will also define special or additional format requirements. When conflicts arise between the statement of work and this A-E Guide for *A-E Submittals [REFP18L0]*, the statement of work governs. Please notify the COE POC for concurrence. The A-E shall use SPECINTACT and UFGS guide specifications for the preparation of all technical specifications. All hard copy submissions shall include a Project Cover Sheet, as shown in *General Project Metadata [REFP05L0]*. This applies to all sizes of paper (8.5"x11", 11"x17", 22"x34", etc).

### Type of Paper

Unless otherwise directed by the statement of work, all final hard copy CADD drawings, maps, and plates larger than 8.5" x 11" shall be on reproducible vellum. All other submittals, including interim CADD submissions, shall be on white paper with black print

### Electronic Files

#### Project Metadata

All electronic file submissions shall include Project Metadata as shown in *General Project Metadata [REFP05L0]*. This file is to be kept in the root directory of the project directory structure and shall be included with all phases of electronic deliverables.

#### Formats and Software

The statement of work should define the specific software programs and versions mandatory for the contract, especially if the files will ultimately be transferred to a customer. If it doesn't, please notify the COE POC to obtain written concurrence.

#### Geospatial Meta Data

##### Definition

Geospatial data is any data referenced to a point on the earth. This would include (but is not limited to) data the Corps uses to produce river and harbor maps, charts and drawings, real estate maps, environmental and economic studies, engineering studies and drawings. The Federal Geographic Data Committee (FGDC) has published a *Content Standard for Digital Geospatial Metadata Workbook [http://www.fgdc.gov/metadata/documents/workbook\_0501\_bmk.pdf]* that documents all the fields of the metadata standard.

## How to Create

There are several programs available to help create metadata compliant with the Federal Geographic Data Committee standards. For an extensive listing of available packages see the *USACE Geospatial Data Clearinghouse Node* [<http://corpsgeo1.usace.army.mil/>]. Since metadata is only a text file containing certain fields in a certain order, even a word processor could be used to create the files. However, since there are mandatory fields and the order of fields is important, a word processor is not recommended.

## National Clearinghouse

*Executive Order E.O. 12906 - Coordinating Geographic Data and Acquisition and Access: The National Spatial Data Infrastructure* [<http://www.archives.gov/federal-register/executive-orders/pdf/12906.pdf>] requires that all federal agencies create and submit metadata, for all geospatial data collections, to a national clearinghouse. Submission of the metadata to the national clearinghouse is the responsibility of the Sacramento District.

## Guidance

*ER 1110-1-8156 Policies, Guidance, and Requirements for Geospatial Data and Systems* [<http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8156/entire.pdf>], was written to assist USACE commands comply with the Executive Order. Refer to *Geographic Information Systems Design* [[PROPI7L0](#)] for format and content requirements.

## Studies and Reports

### Paper Size

Unless otherwise specified in the statement of work, Study and Report deliverables shall be in accordance with the *EP 310-1-6 Graphic Standard Manual* [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep310-1-6/toc.htm>], Grid B - 8.5"x11" Technical Publications, single column. Any drawings, plates, maps, etc. that require larger paper size shall be as described within Sacramento District Work Instructions.

### Content

The statement of work should describe the requirements and level of detail required to fulfill the requirements of the A-E Contract, or otherwise where to find such requirements.

### Schedules

Any MS Office compatible software may be used to create the schedules specified within the statement of work. Use the information above for delivering hard copy and/or electronic files as required.



## Plans, Drawings, Plates, and Maps

### CADD Standards

To retain clarity and relevance when reproduced in black and white, any graphics prepared for reports or presentations must make use of distinguishing line types and/or hashing patterns to depict different features. Appealing color-coding may also be employed, but not in lieu of line types and hashing. Follow the *CADD/GIS Technology Center, A/E/C CADD Standard, ERDC/ITL TR-01-6, Release 2.0,* [\[https://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp\]](https://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp).

### Scale Factors and Units of Measurement

The required unit of measurement is metric. Drawings should be one-to-one and plotted to appropriate scale for the paper size. Exceptions and specifics will be listed within the statement of work and *Creating Design Drawings for Military Projects* [\[INSP06L0\]](#).

### Border Sheets

Border sheets for various product deliverables are available from the *Sacramento District's CADD Web Page* [\[http://www.spk.usace.army.mil/organizations/cespk-ed/SPKCADD/index.html\]](http://www.spk.usace.army.mil/organizations/cespk-ed/SPKCADD/index.html). SPK CADD border sheets contain specific formats for both AutoCAD and MicroStation that must be followed.

### Content

The A-E has the responsibility to show all information necessary to completely describe the project. Regardless of local practice or procedures, the designer must prepare the drawings with the expectation that both the Corps of Engineers, in the role of product or service manager, and the customer will be able to proceed to the next level of project intent (i.e., bidding, construction or funding) without numerous modifications to correct work deficiencies.

### Interim Submittals

The amount of effort and detail required for interim submittals should be agreed to during negotiations. Some types of deliverables may have Sacramento District Work Instructions that will describe the required details.

### Cost Estimates

### Precautions

The A-E shall be aware of and take such precautionary measures as necessary to maintain the confidential nature of all cost estimates. Refer also to paragraph RELEASE OF PROJECT INFORMATION.



### Packaging and Mailing

All cost estimates shall be prepared in accordance with this section of the A-E Guide and will be bound (or stapled) separately from other submittal data. An electronic copy of the MCACES project file (with related databases) shall also be furnished to the District cost engineer on a CD-ROM.

### Use of MCACES

In general, cost estimates, at the earliest practical stage of project development, are to be prepared using the latest version of MCACES (Micro Computer Aided Cost Estimating System). When MCACES is waived on a given project by formal memorandum issued by the Sacramento District Cost Engineering Section, the cost estimate shall be prepared in accordance with the statement of work of the design contract.

### Cost Growth

The unit costs of all construction cost estimates submitted shall reflect the current pricing at the time of submittal. For all estimates prior to the Final Design, cost growth (escalation) - using the Tri-Services Index - is to be added to the total project cost, projecting costs to the assumed midpoint of construction. For Final Design and later cost estimates, cost growth may or may not be added as directed by the Sacramento District Cost Engineering POC.

## **Engineering Considerations and Instructions for Field Personnel (ECIFP)**

Unless otherwise specified within the statement of work, the A-E consultant shall prepare an ECIFP. This report is used to transmit special design concepts, assumptions, and instructions on how to construct unique design details to field personnel. The report establishes a basis for communication and coordination between design and construction personnel. The ECIFP vary in the level of information necessary to get the field personnel familiar with the project. The following information should be included as a minimum:

- Existing Health and Safety concerns at the site
- Site access protocols
- Site security protocols
- Installation or site points of contact
- USACE points of contact for contract administration
- Regulatory points of contact for emergency notification

### Report Format and Content.

As applicable to your project, include the following information in your report:

- Title Page. List Project title, location and date of report.
- List of Design Personnel. Provide a list of key design personnel that could be contacted for technical assistance during construction. Include name, design specialty and telephone number.
- Special Design Considerations. Provide clear and concise explanation of special design concepts and/or unique features by discipline; Civil, Architectural, Structural, Mechanical, Electrical, etc. such that COE construction personnel can identify and properly inspect these special items of work. Examples of items to discuss include:
  - Step-by-step instructions for constructing complex building features, i.e., do this before that, etc.
  - Critical tolerances
  - Special testing requirements
  - Critical or unusual product and performance specifications such as high pressure, temperatures or capacities.
  - Situations where manufacturer should oversee equipment installation.
  - Long-lead procurement items.
  - Government-furnished equipment.
  - Special operational constraints, i.e., utility outage periods, aircraft runway closures, phasing of work in occupied buildings or other special construction phasing required.
  - Any permits that must be obtained prior to and during construction.
  - Critical safety precautions required, especially in the areas of asbestos, or other minimum quality assurance testing amount/frequency for critical items.
- Shop Drawing Review. Provide a list of items or features of the project where you feel you alone have the expertise to properly review shop drawings involved.
- Schedule of Required Site Visits by Design Personnel. If you deem site visits on certain phases of construction are necessary, a site visitation schedule shall be prepared identifying the critical construction stages and the number of days of notification required from the COE.

## Significant Discussions and Meeting Minutes

### Responsible Party

With the exceptions of the PRE-DESIGN CONFERENCE and PRENEGOTIATION CONFERENCE, the A-E shall prepare significant discussion documentation and distribute either electronic or hardcopies to all parties. The COE POC, whether or not they attended or participated in the meeting, shall be provided copies of all information.

### Timeframe for delivery

The COE POC shall receive significant discussion materials within 5 –7 business days after date of occurrence. The COE POC should acknowledge by return e-mail with a "confirmation of receipt."

### Types of Significant Discussions

- Meeting Minutes

- Telephone Conversations

Only those telephone conversations relating to the technical phases of work under the contract are considered significant.

- Written Communications

Furnish to the COE POC a copy of all written communications pertaining to the work under this contract received from other Government agencies. When it is clearly indicated that a copy of the communications has been furnished to the COE POC by the originator, concurrence of action shall be obtained from the COE POC prior to performing such action.

- E-Mail Communications

Immediately transmit to the COE POC a copy of all E-mail communications pertaining to the work under this contract received from other Government agencies. When it is clearly indicated that a copy of the communications has been furnished to the COE POC by the originator, concurrence of action will be obtained from the COE POC prior to performing such action.

- What to include

- Name of Project
- Subject of Meeting
- Date of Meeting
- Attendees
- Record of Issues Discussed
- Action Items
- Suspense Date
- Minutes taken by

## **RESPONSIBILITY AFTER COMPLETION OF WORK**

### **Errors or Omissions (A-E LIABILITY FAR 36.608 and 36.609)**

The A-E is required to support the Sacramento District after completion of the scoped work should errors or omissions in the documents prepared by the A-E create problems in the

subsequent stages of the project, such as in bidding or administering the contract for construction, where the A-E has been tasked to complete the design. The support provided by the A-E shall take whatever form is necessary to correct the errors or omissions in the original documents. Such required design corrections shall be done in a timely manner at no additional cost to the Government.

### **Negligence (A-E LIABILITY FAR 36.608 and 36.609)**

Neither the Government's review, approval or acceptance of, nor payment for, the services required shall be construed to operate as a waiver of any rights under the design contract or any action arising out of the performance of the design contract, and the A-E shall be and remain liable to the Government for all damages caused by the A-E's negligent performance of any of the services furnished. Design errors or omissions, which result in damages or extra cost to the Government, will be evaluated for potential A-E financial liability. If the Government determines that the A-E is financially liable for a design deficiency, the A-E will be so advised by official correspondence. Reimbursement of costs incurred by the Government as a result of the A-E's errors and/or negligent performance will be actively pursued by Sacramento District. The preferred method of settlement of A-E financial liability is for the A-E to accept responsibility and negotiate directly with the Construction Contractor. Where the A-E cannot reach an agreement with the Contractor or if the A-E declines to negotiate or accept responsibility, Sacramento District will arrange settlement directly with the Contractor and will bill the A-E.

### **Services during Construction**

Additional services may be required in direct support of a project's construction, apart from that described as errors or omissions above. If required, these services will be defined in a Supplemental Statement of Work prepared by the Government. No services during construction work shall be performed by the A-E until an appropriate price for the work has been negotiated and a written modification is issued by the contracting officer of the COE. Services may include monthly site visits to the project, conference attendance or special inspections.

### **PERFORMANCE EVALUATIONS (FAR & EFARS 36.604)**

#### Design Phase Evaluation

#### Rating Criteria

The Government will prepare A-E performance evaluations for all Design and Engineering Service Contracts in the Contractor Performance Assessment Reporting System (CPARS) in accordance with *Purchasing of Services [PROPO8LO]*. A-E performance will be rated as Exceptional, Very Good, Satisfactory, Marginal, or Unsatisfactory, taking into consideration such things as technical quality, coordination of design documents, cost effectiveness, maintaining project schedules, cooperativeness, etc. Incomplete submissions, late submissions or resubmissions will have significant adverse impact on an A-E's performance evaluation. In addition, based on schedule and interim requirements, other evaluations may be performed.

### Rating Disposition

Immediately upon completion of engineering services, at end of work or upon completion of each task order, the PM and the project team will evaluate the A-E performance on the services rendered using Architect-Engineer Contract Administration Support System (ACASS). The A-E will be notified through the ACASS database when a draft evaluation is prepared for their review and response. The A-E is required to have a PKI certificate in order to open and maintain a CPARS account. The A-E shall be familiar with the CPARS in order to respond to draft ACASS evaluations and to access completed ACASS evaluations. Refer to EP 715-1-7 [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>], Paragraph 6-10 for A-E rebuttal procedures.

### Interim Performance Evaluations

Interim evaluations may be prepared and used to advise the A-E of their performance during the execution of a contract as considered appropriate by the Contracting Officer. Refer to EP 715-1-7 [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>], Paragraph 6.6.

### Construction Phase Evaluation

The Resident Engineer will submit an evaluation of the performance of the A-E and effectiveness of the A-E prepared contract documents. This evaluation is also maintained in the A-E Contract and Qualification Data File and DOD database. Refer to EP 715-1-7 [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>], paragraph 6-8.

### Awards for Excellent Performance

A-E Firms that perform contract services in an excellent manner may be considered for special recognition. The Sacramento District Engineer gives Certificates of Appreciation and Certificates of Commendation. Certificates of Commendation are given for exemplary performance in one or more areas of contract services. In addition, Design Excellence Awards are given (after construction is underway) for exemplary performance in all areas of A-E services. Also, awards for Specifications are made by the evaluation of A-E performance to specifically recognize and reward achievement by A-Es in the preparation of construction specifications of superior quality.

### Affect on Future Selection

Performance evaluations are available to future slate and selection boards and will be considered when subsequent A-E selections are made. Furthermore, copies of evaluations are available for the use of other Federal Design and Construction Agencies in selecting A-Es for their design contracts.

### Poor A-E Performance (Re-Submittal Policy)

If the COE POC determines that a design submittal is unacceptable, thus necessitating a re-submittal, the A-E may be required to send representatives to Sacramento District at no additional cost to the Government to resolve the problems with the submitted work.

### **PAYMENTS (FAR 52.232)**

The A-E is required to submit monthly pay estimates for the value of the design services performed to date. The Sacramento District, A-E Administration Section will provide guidance for preparing and submitting payments in accordance with the Contract Clause *FAR 52.232-10 Payments under Fixed-Price Architect-Engineer Contracts* [[http://www.arnet.gov/far/current/html/52\\_232.html](http://www.arnet.gov/far/current/html/52_232.html) - 1107121]. Monthly or partial payments may be made as the work progresses subject to submission by the A-E of estimates of the value of completed services and certification by the PM that the A-E's performance is satisfactory. The extent of supporting data required from the A-E will vary depending upon the amount of the invoice and past A-E performance. Completed *ENG Form 93 - Payment Estimate - Contract Performance* [<http://www.usace.army.mil/inet/usace-docs/forms/e93.pdf>] shall be mailed to the address and attention line shown in *Address and Attention Line Tables* [REFP01L0].

**SACRAMENTO DISTRICT  
DESIGN BID BUILD  
CIVIL WORKS PROJECTS  
QUALITY CONTROL PLAN (QCP)**

**AMERICAN RIVER COMMON  
FEATURES, NATOMAS BASIN  
REACH D WINDOWS  
SUTTER COUNTY, CALIFORNIA  
19 SEPTEMBER 2016**

<b><u>QUALITY CONTROL PLAN APPROVED</u></b>	
<b>Rick Poepelman, P.E.</b> Chief, Engineering Division	Date

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**1. Project Information:**

American River Common Features, FY17, P2# 443424, Natomas Basin, Reach D Windows, Sutter County, California

**2. Project Purpose**

The Natomas Basin is surrounded by 42 miles of perimeter levees. Congress authorized the Natomas Basin Project through the Water Resources Reform and Development Act (WRRDA) 2014. It includes levee improvements utilizing cutoff walls, seepage berms, levee widening and slope flattening, pump station upgrades, utility raising and removal, and irrigation and drainage ditch relocations for the entire Natomas Basin. One of the local sponsors, Sacramento Area Flood Control Agency (SAFCA), developed the Natomas Levee Improvement Project (NLIP) and began construction in 2007. They completed most of the levee improvements for Reaches B, C, and D by 2013, with Corps review and approval of their designs. When WRRDA 2014 authorized the federal project, the Corps of Engineers began the design work for several of the reaches.

Reach D construction was mostly completed by SAFCA in 2009. They left “windows” at four sites where the cutoff wall work was obstructed by utility or road crossings. There are two irrigation pump stations (Bennett and Northern), one interior drainage pump station (Pumping Plant 4), and one road (Highway 99) crossing Reach D, which were not included in their work. The Corps’ Reach D Windows contract includes work at all of the pump station windows, but does not include the Highway 99 crossing. Both of the irrigation pump stations have since been removed, but the pipes crossing through the levee and concrete structures on the waterside and landside still need to be removed. At Pumping Plant 4, SAFCA did install the cutoff wall, but the pump station pipes crossing through the levee still need to be raised, and the pump station needs to be upgraded. The Windows contract also includes relocation of a drainage canal from the landside toe, to a location 250 feet away from the toe. Relocating the drainage canal eliminated the need for installing cutoff walls at the Bennett and Northern sites.

**3. Contract Title:**

Natomas Basin, Reach D Windows, Sutter County, California

**4. Description of Products:**

Produce construction contract documents including drawings, specifications, Design Documentation Report (DDR), cost estimate, and an Engineering Considerations and Instructions for Field Personnel (ECIFP) Report.

**5. Programmed Amount:**

\$ 15 Million

**6. Local Sponsor and Maintaining Agency:**

The California State Department of Water Resources and the Sacramento Area Flood Control Agency are the local sponsors for this project. The maintaining agency for this project is Reclamation District 1000.

Agency Office Address	Point of Contact
Local Sponsor	



Agency Office Address	Point of Contact
Department of Water Resources Central Valley Flood Protection Board ATTN: Ms. Reena Jawanda 3464 El Camino Avenue, Suite 200 Sacramento, CA 95821	POC Name: Ms. Reena Jawanda Phone: (916) 574-0271 E-mail: Ranvir.Jawanda@dwr.ca.gov
<b>Other Local Sponsor</b>	
Sacramento Area Flood Control Agency ATTN: Mr. John Bassett 1007 7th Street, 7th Floor Sacramento, CA 95814	POC Name: Mr. John Bassett Phone: (916) 874-8731 E-mail: bassettj@saccounty.net
<b>Maintaining Agency</b>	
Reclamation District (RD) 1000 ATTN: Mr. Paul Devereux 1633 Garden Highway Sacramento, CA 95833	POC Name: Mr. Paul Devereux Phone: (916) 922-1449 E-mail: pdevereux@rd1000.org

**7. Quality Control Plan Objective:**

The Quality Control Plan is a component of the Quality Management Plan (QMP) and Project Management Plan (PMP). The purpose of this QCP is to identify the schedule of all required reviews, technical design and review criteria, PDT members, QC Review Team members, Agency Technical Review (ATR) Team leader and members, and procedures to assure production of high quality contract documents within the authorized funds, scope, and the Customer and User’s time requirements. Any deviations from policy or procedures will be identified in this QCP and waivers obtained prior to initiation of design.

**8. Quality Guidelines for the Technical Review:**

The Sacramento District (SPK) Section Chiefs are responsible for the technical QC Review. Key personnel for the Local Sponsors will review the project to ensure compliance with criteria, standards, operational safety and functional requirements. SPK Construction-Operations Division, Resident, and Area Offices will perform the Biddability, Constructibility, Operability, Environmental and Sustainability (BCOES) Reviews to assure the project properly addresses these considerations. SPK will perform a QC Review prior to submitting the Design Package for the formal PDT/BCOES/ATR reviews.

**9. Technical Review Criteria:**

ER 1110-1-12 QUALITY MANAGEMENT  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_1110-1-12.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1110-1-12.pdf)  
 ER 415-1-11 BIDDABILITY, CONSTRUCT ABILITY, OPERABILITY, ENVIRONMENTAL AND SUSTAINABILITY (BCOES) REVIEWS  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_415-1-11.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_415-1-11.pdf)  
 CESP R 1110-1-8 QUALITY MANAGEMENT PLAN  
 CESP K QUALITY MANAGEMENT PLAN  
 02500-SPD PREPARATION AND APPROVAL OF REVIEW PLANS EC 1165-2-214  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/02500-SPD%20Preparation%20and%20Approval%20of%20Review%20Plans%20EC%201165-2-214.docx>  
 02500-SPD.01 CESP D SUPPLEMENTAL REVIEW PLAN CHECKLIST  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/02500-SPD.01%20CESPD%20Supplemental%20Review%20Plan%20Checklist.docx>

Civil Works DBB Quality Control Plan  
NATOMAS BASIN REACH D WINDOWS, FY17, P2# 443424  
Sutter County, California

08506-SPD QUALITY CONTROL QUALITY ASSURANCE OF ENGINEERING WORK PRODUCTS  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD%20Quality%20Control%20Quality%20Assurance%20of%20Engineering%20Work%20Products.docx>  
08506-SPD.01 CHECKLISTS FOR DQC REVIEW OF PMP, SCHEDULE, BUDGET AND REVIEW PLANS  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD.01%20Checklists%20for%20DQC%20Review%20of%20PMPs%20Review%20Plans.docx>  
08506-SPD.02 CHECKLISTS FOR REVIEW OF ENGINEERING WORK PRODUCTS  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD.02%20Checklists%20for%20Review%20of%20Engineering%20Work%20Products.docx>  
08506-SPD.03 TEMPLATES FOR DQC CERTIFICATION AND TRANSMITTAL MEMO  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD.03%20Templates%20for%20DQC%20Certifications%20and%20Transm%20Memo.docx>

**10. Design Criteria:**

**a. All Projects:**

ER 1110-2-1150 ENGINEERING AND DESIGN FOR CIVIL WORKS PROJECTS  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_1110-2-1150.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1110-2-1150.pdf)  
Architect-Engineer Guide [REFP13L0]  
Architect-Engineer 10% Design Submittals [REFP18L0]  
Architect-Engineer 30% Design Submittals [REFP21L0]  
Architect-Engineer 60% Design Submittals [REFP22L0]  
Architect-Engineer 100% Design Submittals [REFP23L0]

**b. USACE Projects**

Construction Criteria Base - ARMY/COE Criteria [http://www.wbdg.org/ccb/browse\\_org.php?o=31](http://www.wbdg.org/ccb/browse_org.php?o=31)  
USACE Publications <http://www.publications.usace.army.mil/>

**11. Customer/Command/Sponsor Criteria:**

**a. Design Standards:**

California State Water Resources Control, California Code of Regulations, Title 23, April 1, 2016

**b. Design Compatibility Standards:**

Reclamation District 1000 Pump Station Standards  
Reclamation District 1000 Supervisory Control and Data Acquisition (SCADA) System

**c. Contractor Requirements:**

Small Business Multiple Award Task Order Contract (MATOC)

**12. Technical Resource Criteria**

**a. Utility Maps:**

PG&E Electrical Mapping  
 Reclamation District 1000 Pumping Plant 4 Design Plans

**b. Standard Details:**

Reclamation District 1000 Pumping Plant 2 Standard Details

**c. Site Survey Information:**

Wood Rodgers Surveys of Bennett, Northern and Pumping Plant 4  
 SPK Survey of Vestal Drain and Pumping Plant 4

**d. Local Technical Criteria:**

Reclamation District 1000 Pumping Plant 4 Discharge and Head Capacity Requirements

**e. State Environmental Standards:**

State of California Department of Fish and Wildlife Protection Standards

**f. Project Communication Standards:**

Reclamation District 1000 Supervisory Control and Data Acquisition (SCADA) System

**13. PDT Members:**

The In-House Design Team consists of members selected by the responsible technical Section Chiefs are as follows:

**Table 1 IH Design Team**

Member Name	Discipline/Section	Telephone/E-mail
John Hoge, P.E.	Project Manager	916-557-5304 John.A.Hoge@usace.army.mil
Mark Boedtker	Technical Lead	916-557-6637 Markus.S.Boedtker@usace.army.mil
Troy O'Connor	Architect	916-557-6766 Troy.L.O'Connor@usace.army.mil
Erik Julian	Civil Engineer	916-557-7285 Erik.Julian@usace.army.mil
Michael Kynett	Geotechnical Engineer	916-557-7898 Michael.N.Kynett@usace.army.mil
Gerry Lenehan	Geotechnical Engineer	916-557-6681 Gerry.R.Lenehan@usace.army.mil
Sid Jones	Landscape Architect	916-557-7273 Sidney.I.Jones@usace.army.mil

Civil Works DBB Quality Control Plan  
 NATOMAS BASIN REACH D WINDOWS, FY17, P2# 443424  
 Sutter County, California

Member Name	Discipline/Section	Telephone/E-mail
Hana Dodini	Structural Engineer	916-557-5340 Hana.Dodini@usace.army.mil
Venese Yau	Mechanical/Fire Protection Engr	916-557-7776 Venese.L.Yau2@usace.army.mil
Franklin Lum	Electrical Engineer	916-557-7221 Franklin.D.Lum@usace.army.mil
Todd Rivas	Hydraulic Engineer	916-557-7523 Todd.M.Rivas@usace.army.mil
Robin Rosenau	Environmental Biologist	916-557-5397 Robin.M.Rosenau@usace.army.mil
Melissa Montag	Cultural Resources Archeologist	916-557-7907 Melissa.L.Montag@usace.army.mil
Laurie Parker	Real Estate Specialist	916-557-6741 Laurie.S.Parker@usace.army.mil
Steven P. Freitas, P.E.	Specifications Engineer	916-557-7296 <a href="mailto:Steven.P.Freitas@usace.army.mil">Steven.P.Freitas@usace.army.mil</a>
Chu Wei	Cost Engineer	916-557-7558 Chu.D.Wei@usace.army.mil
Laura Haven	QC/QA/DRChecks Site Administrator	916-557-7651 <a href="mailto:Laura.M.Haven@usace.army.mil">Laura.M.Haven@usace.army.mil</a>
Anderson Macatumbas	Safety Office	916-557-5315 Anderson.D.Macatumbas@uace.army.mil
Nikole May	Contracting Officer	916-557-6989 Nikole.V.May@usace.army.mil
Greg Treible	Contracting Specialist	916-557-6718 Greg.L.Treible@usace.army.mil

**14. SPK Geotechnical Branch**

If not on the PDT, the Geotechnical Branch will provide consulting services.

Name	Title	Telephone/E-mail
Michael Kynett, P.E.	Sr. Geotechnical Engineer Levee Safety Program Manager	916-557-7898 Michael.N.Kynett@usace.army.mil
Khaled Chowdhury, P.E.	Sr. Geotechnical Engineer	916-557-5309 Khaled.Chowdhury@usace.army.mil
Gerry Lenehan, P.E.	Geotechnical Engineer	916-557-6681 Gerry.R.Lenehan@usace.army.mil
Jeff Wisniewski, P.E.	Technical Lead	916-557-5115 Jeffrey.B.Wisniewski@usace.army.mil
Joe Marino, P.E.	Civil Engineering Survey and Mapping	916-557-6625 Joseph.N.Marino@usace.army.mil

**15. In-House Discipline QC Review**

Conduct QC Reviews to ensure all design computations, calculations, assumptions, and models used are correct and will result in a safe product and complies with all technical criteria.

**a. Team Members**

The In-House Discipline QC Review Team members consist of the responsible technical Section Chiefs or their delegate Subject Matter Expert (SME) as follows:

Member	Unit or Section	Telephone/E-mail
Mark Bagley	Architectural Design Section	916-557-7345 <a href="mailto:Mark.K.Bagley@usace.army.mil">Mark.K.Bagley@usace.army.mil</a>
Peter Valentine	Civil Design Section A	916-557-6618 <a href="mailto:Peter.Valentine@usace.army.mil">Peter.Valentine@usace.army.mil</a>
Rick Torbik	Civil Design Section B/ Landscape Unit	916-557-6698 <a href="mailto:Richard.A.Torbik@usace.army.mil">Richard.A.Torbik@usace.army.mil</a>
Richard M. Stauber	Soil Design Section A	916-557-7049 <a href="mailto:Richard.M.Stauber@usace.army.mil">Richard.M.Stauber@usace.army.mil</a>
Darrell Pereira	Structural Design Section	916-557-7761 <a href="mailto:Darrell.R.Pereira@usace.army.mil">Darrell.R.Pereira@usace.army.mil</a>
John Parrish	Mechanical-Electrical Design Section	916-557-7223 <a href="mailto:John.R.Parrish@usace.army.mil">John.R.Parrish@usace.army.mil</a>
Lynn Moquette	Levee Safety Section	916-557-7634 <a href="mailto:Lynn.N.Moquette@usace.army.mil">Lynn.N.Moquette@usace.army.mil</a>
Raziul Mollah	Hydraulic Design Section	916-557-7297 <a href="mailto:Razieul.H.Mollah@usace.army.mil">Razieul.H.Mollah@usace.army.mil</a>
Jerry Frost	Cost Engineering Section	916-557-6863 <a href="mailto:Jeremiah.A.Frost@usace.army.mil">Jeremiah.A.Frost@usace.army.mil</a>
Danilo Mayo	Specifications Engineer	916-557-7272 <a href="mailto:Danilo.P.Mayo@usace.army.mil">Danilo.P.Mayo@usace.army.mil</a>
Laura Haven	DRChecks Site Administrator	916-557-7651 <a href="mailto:Laura.M.Haven@usace.army.mil">Laura.M.Haven@usace.army.mil</a>

**16. District Quality Control (DQC) Review**

Conduct and document the DQC in accordance with the procedures prescribed in accordance with 08506-SPD QUALITY CONTROL QUALITY ASSURANCE OF ENGINEERING WORK PRODUCTS

[https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-](https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD%20Quality%20Control%20Quality%20Assurance%20of%20Engineering%20Work%20Products.docx)

[SPD%20Quality%20Control%20Quality%20Assurance%20of%20Engineering%20Work%20Products.docx](https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD%20Quality%20Control%20Quality%20Assurance%20of%20Engineering%20Work%20Products.docx). A DQC is an internal review of basic science and engineering work products focused on fulfilling the project quality requirements defined in the project’s Project Management Plan and the Review Plan. The DQC Review is a formal review of the draft engineering product performed by a DQC Reviewer or a DQC Review Team lead by a senior member of the organization responsible for the engineering product. DQC does not include sponsor reviews. Conduct sponsor reviews after the DQC reviews.

**a. Team Members**

DQC Review team members will demonstrate senior-level competence in the type of work being reviewed. Junior- level staff cannot be members of DQC teams without appropriate senior-level technical monitoring. For most projects, DQC members should be sought from the following sources: regional technical specialists (RTS); appointed subject matter experts (SME) from other Districts; senior level experts from other Districts; Center of Expertise staff; appointed SME or senior level experts from the responsible District; experts from other USACE commands; contractors; academic or other technical experts; or a combination of the above. DQC members may be from outside of the responsible command for large and/or complex projects, high-risk projects, and when the responsible command does not have sufficient resources to conduct proper DQC. For flood risk reduction civil works projects a levee safety criteria and policy consistency review by a Levee Safety SME is required as part of DQC Review. This will be staffed from Levee Safety Section and will include the Levee Safety Program Managers. DQC Review Team members will include the minimum number of engineering disciplines that will allow for an

adequate review of basic science and engineering. Other appropriate non-engineering representatives should be included in this review.

The In-House DQC Review Team members consist of the responsible technical Branch and Section Chiefs or their delegate Subject Matter Expert (SME) as follows:

Member	Branch or Section	Telephone/E-mail
Veronica Petrovsky	Project Management Branch	916-557-7245 <a href="mailto:Veronica.V.Petrovsky@usace.army.mil">Veronica.V.Petrovsky@usace.army.mil</a>
Shawn Curtis	Safety Office	916-557-6973 <a href="mailto:Shawn.M.Curtis@usace.army.mil">Shawn.M.Curtis@usace.army.mil</a>
Scott Tincher, PE	Design Branch	916-557-7350 <a href="mailto:Patrick.S.Tincher@usace.army.mil">Patrick.S.Tincher@usace.army.mil</a>
April Fontaine, PG	Geotechnical Engineering Branch	916-557-7699 <a href="mailto:April.L.Fontaine@usace.army.mil">April.L.Fontaine@usace.army.mil</a>
Virginia Rynk, PE	Geotechnical Engineering Branch	916-557-6735 <a href="mailto:Virginia.K.Rynk@usace.army.mil">Virginia.K.Rynk@usace.army.mil</a>
Steve Gladwell	Engineering Support Branch	916-557-7100 <a href="mailto:Steve.E.Gladwell@usace.army.mil">Steve.E.Gladwell@usace.army.mil</a>
Gregory A. Kukas, PE	Hydrology & Hydraulics Branch	916-557-7255 <a href="mailto:Gregory.A.Kukas@usace.army.mil">Gregory.A.Kukas@usace.army.mil</a>
Mark Bagley	Architectural Design Section	916-557-7345 <a href="mailto:Mark.K.Bagley@usace.army.mil">Mark.K.Bagley@usace.army.mil</a>
John Parrish	Mechanical-Electrical Design Section	916-557-7223 <a href="mailto:John.R.Parrish@usace.army.mil">John.R.Parrish@usace.army.mil</a>
Peter Valentine	Civil Design Section A	916-557-6618 <a href="mailto:Peter.Valentine@usace.army.mil">Peter.Valentine@usace.army.mil</a>
Rick Torbik	Civil Design Section B	916-557-6698 <a href="mailto:Richard.A.Torbik@usace.army.mil">Richard.A.Torbik@usace.army.mil</a>
Darrell Pereira	Structural Design Section	916-557-7761 <a href="mailto:Darrell.R.Pereira@usace.army.mil">Darrell.R.Pereira@usace.army.mil</a>
Richard M. Stauber	Soil Design Section A	916-557-7049 <a href="mailto:Richard.M.Stauber@usace.army.mil">Richard.M.Stauber@usace.army.mil</a>
Lynn Moquette	Levee Safety Section	916-557-7634 <a href="mailto:Lynn.N.Moquette@usace.army.mil">Lynn.N.Moquette@usace.army.mil</a>
Jerry Frost	Cost Engineering Section	916-557-6863 <a href="mailto:Jeremiah.A.Frost@usace.army.mil">Jeremiah.A.Frost@usace.army.mil</a>
Danilo Mayo	Specifications Engineer	916-557-7272 <a href="mailto:Danilo.P.Mayo@usace.army.mil">Danilo.P.Mayo@usace.army.mil</a>
Laura Haven	DRChecks Site Administrator	916-557-7651 <a href="mailto:Laura.M.Haven@usace.army.mil">Laura.M.Haven@usace.army.mil</a>

**17. Biddability, Constructability, Operability, Environmental, and Sustainability Review:**

SPK Construction-Operations Division, Area Office and Resident Office, Customer, etc:

Name	Title	Office
Julito Ganchero	Chief	Construction Quality Assurance Section
Dawn Shinsato	Chief	Construction District Office

Name	Title	Office
Jennifer Wheelis	Resident Engineer	Valley Resident Office

**18. Customer**

Sponsor reviews may be concurrent with any required ATR.

Name	Title	Agency
Reena Jawanda	Project Manager	Department of Water Resources Central Valley Flood Protection Board
John Bassett	Project Manager	Sacramento Area Flood Control Agency
Paul Devereux	General Manager	Reclamation District 1000

**19. Agency Technical Review Team (ATRT):**

Agency Technical Review (ATR) is dependent upon the phase of work, and professionals outside of the home district conduct all the reviews. The appropriate Review Management Organization (RMO) will assign the ATRT comprised of senior USACE personnel, preferably recognized subject matter experts with the appropriate technical expertise such as regional technical specialists (RTS), and may be supplemented by outside experts as appropriate. To assure independence, the leader of the ATR team must be from outside the home MSC.

Patrick Conroy, Geotechnical, CEMVS-EC-GT (ATR Lead)  
 Matthew Sheskie, Geotechnical, CEIWR-RMC-WD  
 R. Andy Gaines, Hydraulic, CEMVM-EC-H  
 Stefan Miller, Mechanical, CEMVN-ED-T  
 D. Shane Callahan, Civil, CEMVM-EC-D  
 Tim Grundhoffer, Structural, CEMVP-EC-D  
 Hannah Hadley, Environmental, CENWS-PM-ER

**20. Type II IEPR Safety Assurance Review (SAR) Team:**

Conduct a Type II IEPR SAR on design and construction activities for any project where potential hazards pose a significant threat to human life (public safety). The appropriate OEO will establish and administer the peer review panels.

Mark Freitas, Civil, GEI Consultants (IEPR Lead)  
 Dean Durkee, Geotechnical, Gannett Fleming, Inc.  
 Guy Lund, Structural, GEI Consultants

**21. Major Milestones / Schedule:**

Event	Begin Date (dd mmm yyyy)	Duration (Calendar Days)
Kickoff Meeting	12 Jul 2016	1
Issue Design Scope of Work	6 Sep 2016	10
Start QCP	12 Sep 2016	30
Submit to ET&S for Branch and Division Approval/Sign QCP	12 Oct 2016	2
QC Review of Early Preliminary Design Phase - 30% Design Submittal	7 Nov 2016	5
DQC Review of Early Preliminary Design Phase - 30% Design Submittal	14 Nov 2016	5
QC Review of Preliminary Design Phase – 60% Design Submittal	3 Jan 2017	5
DQC Review of Preliminary Design Phase -60% Design Submittal	9 Jan 2017	15
QC Review of Preliminary Design Phase – 90% Design Submittal	20 Mar 2017	5
DQC/BCOES PDT Review of Preliminary Design Phase – 90% Design Submittal	27 Mar 2017	15
Sponsors/ATR Review of Preliminary Design Phase – 90% Design Submittal	27 Mar 2017	15
Type II IEPR SAR of Preliminary Design Phase – 90% Design Submittal	27 Mar 2017	15
QC Review of Final Design Phase – 100% Design Submittal	8 May 2017	5
DQC/BCOES Backcheck Review of 100% Design Submittal	15 May 2017	15
Sponsors/ATR Backcheck Review of 100% Design Submittal	15 May 2017	15
Type II IEPR SAR Backcheck Review of 100% Design Submittal	15 May 2017	15
Sponsors/DQC/BCOES/ATR/SAR Comment Closeout Review of Final Design Submittal	12 Jun 2017	5
BCOES/PDT/ATR/Type II IEPR SAR/QC/QA Certifications	19 Jun 2017	3
Ready To Advertise (RTA)	26 Jun 2017	1
Solicitation	1 Jul 2017	45
Bid Opening / Receive Proposals	15 Aug 2017	1
Source Selection	22 Aug 2017	5
Award Contract	30 Sep 2017	1
Notice to Proceed	10 Oct 2017	1
Beneficial Occupancy Date	30 Jun 2018	1
Fiscal Closeout	30 Sep 2018	1



**22. Unique, sensitive, or high visibility items requiring special attention.**

None.

**23. Regular DBB IFB:**

Submittals other than product samples must be Electronic PDF files.

**a. Early Preliminary Design Phase - 30% Design Submittal:**

IAW A-E 35% Design Submittals [REFP21L0], the 30% Design Submittal must include the requirements of the 10% Design Submittal whether or not a 10% Design Submittal was required. As a minimum, the 30% Design Submittal consist of the following documents:

- Design Analysis (narrative and calculations)
- Drawings (Site Plan, Floor Plans, Elevations, Sections, etc.)
- Outline Guide Specifications
- Project Safety and Health Requirements
- Code B Cost Estimate
- Draft Engineering Considerations and Instructions for Field Personnel (ECIFP) Report Outline

**b. Preliminary Design Phase - 60% Design Submittal:**

IAW A-E 65% Design Submittals [REFP21L0], the 60% Design Submittal must include the requirements of the 30% Design Submittal whether or not a 30% Design Submittal was required. As a minimum, the 60% Design Submittal consist of the following documents:

- Design Analysis (narrative and calculations)
- Drawings (Site Plan, Floor Plans, Elevations, Sections, Details, etc.)
- Outline and Marked-up Guide Specifications (DIV 01-49)
- Daft Specifications without Mark up (DIV 01-49)
- Project Safety and Health Requirements
- Results of Value Engineering studies performed on the project concept design.
- Code B Cost Estimate
- Bid Schedule
- Draft ECIFP Report Outline
- Draft Real Estate Mapping

**c. Final Design Phase - 90% Design Submittal:**

IAW A-E 100% Design Submittals [REFP21L0], the 90-100% Design Submittal must include the requirements of the 60% Design Submittal whether or not a 60% Design Submittal was required. As a minimum, the 90-100% Design Submittal consists of the following documents:

- Design Analysis (narrative and calculations for Civil, Geotechnical, Hydraulics, Mechanical, Electrical, Structural, and Architectural)
- Drawings
- Marked up Guide Specifications (DIV 01-49)
- Specifications without Mark up (DIV 01-49)
- Project Safety and Health Requirements



**SACRAMENTO DISTRICT  
DESIGN BID BUILD  
CIVIL WORKS PROJECTS  
QUALITY CONTROL PLAN (QCP)**

**AMERICAN RIVER COMMON  
FEATURES, NATOMAS BASIN  
REACH D (PUMPING PLANT 4  
MODIFICATION)  
SUTTER COUNTY, CALIFORNIA  
4 MAY 2020**

<b><u>QUALITY CONTROL PLAN APPROVED</u></b>	
<b>Rick Poepelman, P.E.</b> Chief, Engineering Division	Date

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**1. Project Information:**

American River Common Features, FY20, P2# 458598, Natomas Basin, Reach B (Pumping Plant 4), Sutter County, California

**2. Project Purpose**

The Natomas Basin is surrounded by 42 miles of perimeter levees. Congress authorized the Natomas Basin Project through the Water Resources Reform and Development Act (WRRDA) 2014. It includes levee improvements utilizing cutoff walls, seepage berms, levee widening and slope flattening, pump station upgrades, utility raising and removal, and irrigation and drainage ditch relocations for the entire Natomas Basin. One of the local sponsors, Sacramento Area Flood Control Agency (SAFCA), developed the Natomas Levee Improvement Project (NLIP) and began construction in 2007. They completed most of the levee improvements for Reaches B, C, and D by 2013, with Corps review and approval of their designs. When WRRDA 2014 authorized the federal project, the Corps of Engineers began the design work for several of the reaches.

Reach D construction was partially completed by SAFCA in 2009. The Corps of Engineers completed the Reach D Windows construction contract in February 2020, which removed two abandoned irrigation pumping plants crossing through the levee, and relocated the Vestal Drain canal further landside from the levee toe. This contract also included replacement of Pumping Plant 4, but was not constructed due to PG&E power lines not being relocated to allow for construction access. The PG&E lines have since been relocated, and a separate construction contract is being issued to complete this work. The original design for Pumping Plant 4 remains essentially unchanged for this new contract. The plans, specifications, bid schedule, and cost estimate will be repackaged to be standalone. There will be no changes to the Design Documentation Report (DDR) or Engineering Considerations and Instructions for Field Personnel (ECIFP) Report. It was reviewed and certified previously for DQC, ATR, SAR, and BCOES in 2018. Therefore, the Corps of Engineers is repackaging this contract to include only Pumping Plant 4, and recertifying only the DQC and BCOES reviews.

**3. Contract Title:**

Natomas Basin, Reach D (Pumping Plant 4 Modification), Sutter County, California

**4. Description of Products:**

Produce construction contract documents including drawings, specifications, bid schedule, and cost estimate.

**5. Programmed Amount:**

\$ 10 Million

**6. Local Sponsor and Maintaining Agency:**

The California State Department of Water Resources and the Sacramento Area Flood Control Agency are the local sponsors for this project. The maintaining agency for this project is Reclamation District 1000.

Agency Office Address	Point of Contact
Local Sponsor	

Agency Office Address	Point of Contact
Department of Water Resources Central Valley Flood Protection Board ATTN: Mr. Sean Smith 3464 El Camino Avenue, Suite 200 Sacramento, CA 95821	POC Name: Mr. Sean Smith Phone: (916) 574-0366 E-mail: Sean.Smith@water.ca.gov
<b>Other Local Sponsor</b>	
Sacramento Area Flood Control Agency ATTN: Mr. John Bassett 1007 7th Street, 7th Floor Sacramento, CA 95814	POC Name: Mr. John Bassett Phone: (916) 874-8731 E-mail: bassettj@saccounty.net
<b>Maintaining Agency</b>	
Reclamation District (RD) 1000 ATTN: Mr. Steve Yaeger 1633 Garden Highway Sacramento, CA 95833	POC Name: Mr. Steve Yaeger Phone: (530) 305-7211 E-mail: seyaeger@yahoo.com

**7. Quality Control Plan Objective:**

The Sacramento District (SPK) will submit the project specific Quality Control Plan. The Quality Control Plan is a component of the Quality Management Plan (QMP) and Project Management Plan (PMP). The purpose of this QCP is to identify the schedule of all required reviews, technical design and review criteria, PDT members, QC Review Team members, Agency Technical Review (ATR) Team leader and members, and procedures to assure production of high quality contract documents within the authorized funds, scope, and the Customer and User's time requirements. Any deviations from policy or procedures will be identified in this QCP and waivers obtained prior to initiation of design.

**8. Quality Guidelines for the Technical Review:**

The Sacramento District (SPK) Section Chiefs are responsible for the technical QC Review. Key personnel for the Local Sponsors will review the project to ensure compliance with criteria, standards, operational safety and functional requirements. SPK Construction-Operations Division, Resident, and Area Offices will perform the Biddability, Constructibility, Operability, Environmental and Sustainability (BCOES) Reviews to assure the project properly addresses these considerations. SPK will perform a QC Review prior to submitting the Design Package for the formal PDT/BCOES/ATR reviews.

**9. Technical Review Criteria:**

ER 1110-1-12 QUALITY MANAGEMENT  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_1110-1-12.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1110-1-12.pdf)  
 ER 415-1-11 BIDDABILITY, CONSTRUCT ABILITY, OPERABILITY, ENVIRONMENTAL AND SUSTAINABILITY (BCOES) REVIEWS  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_415-1-11.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_415-1-11.pdf)  
 CESP R 1110-1-8 QUALITY MANAGEMENT PLAN  
 CESP K QUALITY MANAGEMENT PLAN  
 02500-SPD PREPARATION AND APPROVAL OF REVIEW PLANS EC 1165-2-214  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/02500-SPD%20Preparation%20and%20Approval%20of%20Review%20Plans%20EC%201165-2-214.docx>  
 02500-SPD.01 CESP D SUPPLEMENTAL REVIEW PLAN CHECKLIST  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/02500-SPD.01%20CESPD%20Supplemental%20Review%20Plan%20Checklist.docx>

Civil Works DBB Quality Control Plan  
NATOMAS BASIN REACH D (PUMPING PLANT 4 MODIFICATION), FY20, P2# 458598  
Sutter County, California

08506-SPD QUALITY CONTROL QUALITY ASSURANCE OF ENGINEERING WORK PRODUCTS  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD%20Quality%20Control%20Quality%20Assurance%20of%20Engineering%20Work%20Products.docx>  
08506-SPD.01 CHECKLISTS FOR DQC REVIEW OF PMP, SCHEDULE, BUDGET AND REVIEW PLANS  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD.01%20Checklists%20for%20DQC%20Review%20of%20PMPs%20Review%20Plans.docx>  
08506-SPD.02 CHECKLISTS FOR REVIEW OF ENGINEERING WORK PRODUCTS  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD.02%20Checklists%20for%20Review%20of%20Engineering%20Work%20Products.docx>  
08506-SPD.03 TEMPLATES FOR DQC CERTIFICATION AND TRANSMITTAL MEMO  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD.03%20Templates%20for%20DQC%20Certifications%20and%20Transm%20Memo.docx>

**10. Design Criteria:**

**a. All Projects:**

ER 1110-2-1150 ENGINEERING AND DESIGN FOR CIVIL WORKS PROJECTS  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_1110-2-1150.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1110-2-1150.pdf)  
Architect-Engineer Guide [REFP13L0]  
Architect-Engineer 10% Design Submittals [REFP18L0]  
Architect-Engineer 30% Design Submittals [REFP21L0]  
Architect-Engineer 60% Design Submittals [REFP22L0]  
Architect-Engineer 100% Design Submittals [REFP23L0]

**b. USACE Projects**

Construction Criteria Base - ARMY/COE Criteria [http://www.wbdg.org/ccb/browse\\_org.php?o=31](http://www.wbdg.org/ccb/browse_org.php?o=31)  
USACE Publications <http://www.publications.usace.army.mil/>

**11. Customer/Command/Sponsor Criteria:**

**a. Design Standards:**

California State Water Resources Control, California Code of Regulations, Title 23, April 1, 2016

**b. Design Compatibility Standards:**

American River Common Features, Natomas Basin Reach D Windows, January 2018

**c. Contractor Requirements:**

Multiple Award Task Order Contract (MATOC)

**12. Technical Resource Criteria**

**a. Utility Maps:**

PG&E Electrical Transmission Lines

**b. Standard Details:**

Reclamation District 1000 Pumping Plant 4 Standards

**c. Site Survey Information:**

State of California Department of Water Resources LIDAR Survey

**d. Local Technical Criteria:**

Natomas Mutual Water Company

**e. State Environmental Standards:**

State of California Department of Fish and Wildlife Protection Standards

**f. Project Communication Standards:**

SMUD/Communication Line Standards

**13. PDT Members:**

The Design Team consists of members selected by SPK and MVN, and are as follows:

**Table 1 SPK/MVN Design Team**

Member Name	Discipline/Section	Telephone/E-mail
John Hoge, P.E.	Project Manager SPK	916-557-5304 John.A.Hoge@usace.army.mil
Samin Khan	Civil Lead SPK	916-557-7338 Samin.A.Khan@usace.army.mil
Kurt Jacobs, P.E.	Structural Lead SPK	916-557-5167 Kurt.A.Jacobs@usace.army.mil
Tyler Heitkamp	Architectural Lead SPK	916-557-5294 Tyler.J.Heitkamp@usace.army.mil
Derek Pate, P.E.	Hydraulics Lead SPK	916-557-6705 Derek.J.Pate@usace.army.mil
Wayne Duplantier	Mechanical Lead MVN	504-862-1989 Wayne.A.Duplantier@usace.army.mil
John Vititoe	Electrical Lead MVN	504-862-2138 John.P.Vititoe@usace.army.mil
Adam Duff	Specifications Lead SPK	916-557-7651 Adam.M.Duff@usace.army.mil
Joe Reynolds	Cost Engineer SPK	916-557-7573 Joe.L.Reynolds@usace.army.mil

**14. SPK Geotechnical Branch**

If not on the PDT, the Geotechnical Branch will provide consulting services.

Name	Title	Telephone/E-mail
Glen Johnson, P.E.	Geotechnical Engineer SPK	775-326-1017 Glen.A.Johnson@usace.army.mil

**15. SPK Discipline QC Review**

Conduct QC Reviews to ensure all design computations, calculations, assumptions, and models used are correct and will result in a safe product and complies with all technical criteria.

**a. Team Members**

The SPK/MVN Discipline QC Review Team members consist of their delegated Subject Matter Expert (SME) as follows:

Member	Unit or Section	Telephone/E-mail
Markus Boedtker, P.E.	Civil Reviewer SPK	916-557-6637 Markus.S.Boedtker@usace.army.mil
Michael Ma, P.E.	Structural Reviewer SPK	916-557--7298 Michael.Ma@usace.army.mil
David Dean, P.E.	Geotechnical Reviewer SPK	916-557-6672 David.C.Dean@usace.army.mil
Octavio Aquino, R.A.	Architectural Reviewer SPK	916-557-7655 Octavio.R.Aquino@usace.army.mil
Jesse Schlunegger, P.E.	Hydraulic Design Reviewer SPK	916-557-6777 Jesse.J.Schlunegger@usace.army.mil
Charles Laborde, P.E.	Mechanical Reviewer MVN	504-862-2647 Charles.A.Laborde@usace.army.mil
Richard Cordes, P.E.	Electrical Reviewer MVN	504-862-1803 Richard.R.Cordes@usace.army.mil
Diana Modini	Specifications Reviewer SPK	916-557-6821 Diana.L.Modini@usace.army.mil
Theresa Gneiting-James	Cost Engineering Reviewer SPK	916-557-7661 Theresa.A.Gneiting- James@usace.army.mil

**16. District Quality Control (DQC) Review**

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<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD%20Quality%20Control%20Quality%20Assurance%20of%20Engineering%20Work%20Products.docx>.

A DQC Review is a formal review of the draft engineering product performed by a DQC Reviewer or a DQC Review Team lead by a senior member of the organization responsible for the engineering product. DQC does not include sponsor reviews. Conduct sponsor reviews after the DQC reviews.

**a. Team Members**

DQC Review team members will demonstrate senior-level competence in the type of work being reviewed. Junior- level staff cannot be members of DQC teams without appropriate senior-level technical monitoring. For most projects, DQC members should be sought from the following sources: regional technical specialists (RTS); appointed subject matter experts (SME) from other Districts; senior level experts from other Districts; Center



Civil Works DBB Quality Control Plan  
 NATOMAS BASIN REACH D (PUMPING PLANT 4 MODIFICATION), FY20, P2# 458598  
 Sutter County, California

of Expertise staff; appointed SME or senior level experts from the responsible District; experts from other USACE commands; contractors; academic or other technical experts; or a combination of the above. DQC members may be from outside of the responsible command for large and/or complex projects, high-risk projects, and when the responsible command does not have sufficient resources to conduct proper DQC. For flood risk reduction civil works projects a levee safety criteria and policy consistency review by a Levee Safety SME is required as part of DQC Review. This will be staffed from Levee Safety Section and will include the Levee Safety Program Managers. DQC Review Team members will include the minimum number of engineering disciplines that will allow for an adequate review of basic science and engineering. Other appropriate non-engineering representatives should be included in this review.

The In-House and MVN DQC Review Team members consist of the responsible technical Branch and Section Chiefs or their delegate Subject Matter Expert (SME) as follows:

Member	Branch or Section	Telephone/E-mail
Kristine Des Champs, PE	Project Management Branch SPK	916-557-7201 Kristine.DesChamps@usace.army.mil
Gregory A. Kukas, PE	Hydrology & Hydraulics Branch, SPK	916-557-7255 <a href="mailto:Gregory.A.Kukas@usace.army.mil">Gregory.A.Kukas@usace.army.mil</a>
Jerry Frost, PE	Engineering Support Branch SPK	916-557-6863 Jeremiah.A.Frost@usace.army.mil
Jesus Cano, RA	Architectural Design Section SPK	916-557-7360 <a href="mailto:Jesus.H.Cano@usace.army.mil">Jesus.H.Cano@usace.army.mil</a>
Rachael Maltzahn, P.E.	Mechanical Reviewer MVN	504-862-1895 Rachael.A.Maltzahn@usace.army.mil
Jabeen Pasha, P.E.	Electrical Reviewer MVN	504-862-1145 Jabeen.Pasha@usace.army.mil
Hans Carota, P.E.	Civil Design Branch SPK	916-557-6826 <a href="mailto:Hans.P.Carota@usace.army.mil">Hans.P.Carota@usace.army.mil</a>
Michele Louie, P.E.	Structural Design Section SPK	916-557-7320 <a href="mailto:Michele.K.Louie@usace.army.mil">Michele.K.Louie@usace.army.mil</a>
Anthony Tran, P.E.	Soil Design Section A SPK	916-557-5115 <a href="mailto:Anthony.K.Tran@usace.army.mil">Anthony.K.Tran@usace.army.mil</a>
Theresa Gneiting-James	Cost Engineering Section SPK	916-557-7661 Theresa.A.Gneiting- James@usace.army.mil
Aaron Klapheck	Chief, Specifications Section SPK	916-557-7562 <a href="mailto:Aaron.A.Klapheck@usace.army.mil">Aaron.A.Klapheck@usace.army.mil</a>
Joy Ng	DRChecks Site Administrator SPK	916-557-7095 <a href="mailto:Joy.R.Ng@usace.army.mil">Joy.R.Ng@usace.army.mil</a>

**17. Biddability, Constructability, Operability, Environmental, and Sustainability Review:**

SPK Construction-Operations Division, Area Office and Resident Office, Customer, etc:

Name	Title	Office
Justin Puffer	Chief	Construction Quality Assurance Section
Matthew Highstreet	Mechanical Engineer	Construction Quality Assurance Section
Jeffrey Karl	Electrical Engineer	Construction Quality Assurance Section

Name	Title	Office
Jessica Morelli	Structural Engineer	Construction Quality Assurance Section
Michael Van Stone	Specifications Engineer	Construction Quality Assurance Section
Zachary Moore	Construction Engineer	Valley Resident Office
Juan Gonzalez, P.E.	Chief	Inspection Section
Robin Rosenau	Biologist	Environmental Analysis Section
Curtis Morris	Chief	Safety Office

**18. Customer**

Sponsor reviews may be concurrent with any required ATR.

Name	Title	Agency
Morgan O'Brien	Project Manager	Department of Water Resources Central Valley Flood Protection Board
John Bassett	Project Manager	Sacramento Area Flood Control Agency
Steve Yaeger	General Manager	Reclamation District 1000

**19. Agency Technical Review Team (ATRT):**

Agency Technical Review (ATR) is dependent upon the phase of work, and professionals outside of the home district conduct all the reviews. The appropriate Review Management Organization (RMO) will assign the ATRT comprised of senior USACE personnel, preferably recognized subject matter experts with the appropriate technical expertise such as regional technical specialists (RTS), and may be supplemented by outside experts as appropriate. To assure independence, the leader of the ATR team must be from outside the home MSC.

Troy Cosgrove, Geotechnical, CEMVS-EC-GD (ATR Lead)  
 Matthew Sheskier, Geotechnical, CEIWR-RMC-WD  
 R. Andy Gaines, Hydraulic, CEMVM-EC-H  
 Stefan Miller, Mechanical, CEMVN-ED-T  
 D. Shane Callahan, Civil, CEMVM-EC-D  
 Tim Grundhoffer, Structural, CEMVP-EC-D  
 Hannah Hadley, Environmental, CENWS-PM-ER

**20. Type II IEPR Safety Assurance Review (SAR) Team:**

Conduct a Type II IEPR SAR on design and construction activities for any project where potential hazards pose a significant threat to human life (public safety). The appropriate OEO will establish and administer the peer review panels.

Mark Freitas, Civil, GEI Consultants (IEPR Lead)

Dean Durkee, Geotechnical, Gannett Fleming, Inc.  
 Guy Lund, Structural, Gannett Fleming, Inc.

**21. Major Milestones / Schedule:**

Event	Begin Date (dd mmm yyyy)	Duration (Calendar Days)
Issue Design Scope of Work	27 Apr 2018	1
Kickoff Meeting	02 Mar 2020	1
Start QCP	02 Mar 2020	2
Submit to ET&S for Branch and Division Approval/Sign QCP	04 May 2020	5
QC Review of Design Phase – 95% Design Submittal	06 Apr 2020	7
DQC/Sponsor/BCOES Review of Design Phase -95% Design Submittal	17 Apr 2020	15
QC Review of Final Design Phase – 100% Design Submittal	25 May 2020	7
DQC/Sponsor/BCOES Backcheck Review of 100% Design Submittal	1 Jun 2020	7
Sponsors/DQC/BCOES/ATR/SAR Comment Closeout Review of Final Design Submittal	25 Jun 2020	7
BCOES/PDT/ATR/Type II IEPR SAR/QC Certifications	2 Jul 2020	15
Ready To Advertise (RTA)	17 Jul 2020	1
Solicitation	24 Aug 2020	30
Bid Opening / Receive Proposals	23 Sep 2020	1
Award Contract	23 Oct 2020	1
Notice to Proceed	01 Jan 2021	1
Beneficial Occupancy Date	31 Dec 2021	1
Fiscal Closeout	30 Sep 2022	1

**22. Unique, sensitive, or high visibility items requiring special attention.**

U.S. Fish and Wildlife Giant Garter Snake Construction Windows and Monitoring

**23. Regular DBB IFB:**

Submittals other than product samples must be Electronic PDF files.

**a. Early Preliminary Design Phase - 35% Design Submittal:**

IAW A-E 35% Design Submittals [REFP21L0], the 35% Design Submittal must include the requirements of the 10% Design Submittal whether or not a 10% Design Submittal was required. As a minimum, the 35% Design Submittal consist of the following documents:

- Design Analysis (narrative and calculations)
- Drawings (Site Plan, Floor Plans, Elevations, Sections, etc.)
- Outline Guide Specifications
- Project Safety and Health Requirements
- Code B Cost Estimate
- Draft Engineering Considerations and Instructions for Field Personnel (ECIFP) Report Outline

**b. Preliminary Design Phase - 65% Design Submittal:**

IAW A-E 65% Design Submittals [REFP21L0], the 65% Design Submittal must include the requirements of the 35% Design Submittal whether or not a 35% Design Submittal was required. As a minimum, the 65% Design Submittal consist of the following documents:

- Design Analysis (narrative and calculations)
- Drawings (Site Plan, Floor Plans, Elevations, Sections, Details, etc.)
- Outline and Marked-up Guide Specifications (DIV 01-49)
- Daft Specifications without Mark up (DIV 01-49)
- Project Safety and Health Requirements
- Results of Value Engineering studies performed on the project concept design.
- Code B Cost Estimate
- Bid Schedule
- Draft ECIFP Report Outline
- Draft Real Estate Mapping

**c. Final Design Phase - 100% Design Submittal:**

IAW A-E 100% Design Submittals [REFP21L0], the 100% Design Submittal must include the requirements of the 65% Design Submittal whether or not a 65% Design Submittal was required. As a minimum, the 100% Design Submittal consists of the following documents:

- Design Analysis (narrative and calculations for Civil, Geotechnical, Hydraulics, Mechanical, Electrical, Structural, and Architectural)
- Drawings
- Marked up Guide Specifications (DIV 01-49)
- Specifications without Mark up (DIV 01-49)
- Project Safety and Health Requirements
- Code C Cost Estimate
- Bid Schedule
- Equipment Schedule
- Catalog Cuts
- Code C Cost Estimate
- ECIFP Report
- Final Real Estate Mapping

**d. Backcheck Submittal (100%):**

All corrected submittals from all reviews.

**24. Partnering or conflict resolution procedures for the stakeholders:**

The sponsors, Construction, and A-E agreed that the formal partnering session will not be scheduled at this time. Informal partnering will take place at both the pre-design and interim design sessions, continued to the furthest extent possible throughout the design process.

**25. Constraints on the process:**

This project, Natomas Basin Reach D (Pumping Plant 4), will be contracted as Small Business IFB. The levee work will need to be completed during the non-flood season between April and October 2021. Ground disturbance is limited between May and September for Giant Garter Snake protection, and in-water work is restricted between July and September.

**26. Financial resources allocated to the technical process:**

Note: amounts provided were with original intention of completing a full design package. The full amounts provided will not be spent in their entirety.

This QCP has been coordinated with the appropriate section and branch chiefs to ensure the individuals listed (or a suitable replacement) are available to meet the objectives of this plan.

Direct questions on the above to the Technical Design Lead, Mark Boedtke, (916) 557-6637.

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John Hoge, P.E.  
Project Manager

Date

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Mark Boedtke, P.E.  
Design/Technical Lead

Date

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William Hall, P.E.  
Chief, Civil Works Design Branch

Date

**SACRAMENTO DISTRICT  
DESIGN BID BUILD  
CIVIL WORKS PROJECTS  
QUALITY CONTROL PLAN (QCP)**

**AMERICAN RIVER COMMON  
FEATURES, NATOMAS BASIN  
REACH D WINDOWS  
SUTTER COUNTY, CALIFORNIA  
19 SEPTEMBER 2016**

<b><u>QUALITY CONTROL PLAN APPROVED</u></b>	
<b>Rick Poepelman, P.E.</b> Chief, Engineering Division	Date

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**1. Project Information:**

American River Common Features, FY17, P2# 443424, Natomas Basin, Reach D Windows, Sutter County, California

**2. Project Purpose**

The Natomas Basin is surrounded by 42 miles of perimeter levees. Congress authorized the Natomas Basin Project through the Water Resources Reform and Development Act (WRRDA) 2014. It includes levee improvements utilizing cutoff walls, seepage berms, levee widening and slope flattening, pump station upgrades, utility raising and removal, and irrigation and drainage ditch relocations for the entire Natomas Basin. One of the local sponsors, Sacramento Area Flood Control Agency (SAFCA), developed the Natomas Levee Improvement Project (NLIP) and began construction in 2007. They completed most of the levee improvements for Reaches B, C, and D by 2013, with Corps review and approval of their designs. When WRRDA 2014 authorized the federal project, the Corps of Engineers began the design work for several of the reaches.

Reach D construction was mostly completed by SAFCA in 2009. They left “windows” at four sites where the cutoff wall work was obstructed by utility or road crossings. There are two irrigation pump stations (Bennett and Northern), one interior drainage pump station (Pumping Plant 4), and one road (Highway 99) crossing Reach D, which were not included in their work. The Corps’ Reach D Windows contract includes work at all of the pump station windows, but does not include the Highway 99 crossing. Both of the irrigation pump stations have since been removed, but the pipes crossing through the levee and concrete structures on the waterside and landside still need to be removed. At Pumping Plant 4, SAFCA did install the cutoff wall, but the pump station pipes crossing through the levee still need to be raised, and the pump station needs to be upgraded. The Windows contract also includes relocation of a drainage canal from the landside toe, to a location 250 feet away from the toe. Relocating the drainage canal eliminated the need for installing cutoff walls at the Bennett and Northern sites.

**3. Contract Title:**

Natomas Basin, Reach D Windows, Sutter County, California

**4. Description of Products:**

Produce construction contract documents including drawings, specifications, Design Documentation Report (DDR), cost estimate, and an Engineering Considerations and Instructions for Field Personnel (ECIFP) Report.

**5. Programmed Amount:**

\$ 15 Million

**6. Local Sponsor and Maintaining Agency:**

The California State Department of Water Resources and the Sacramento Area Flood Control Agency are the local sponsors for this project. The maintaining agency for this project is Reclamation District 1000.

Agency Office Address	Point of Contact
Local Sponsor	

Agency Office Address	Point of Contact
Department of Water Resources Central Valley Flood Protection Board ATTN: Ms. Reena Jawanda 3464 El Camino Avenue, Suite 200 Sacramento, CA 95821	POC Name: Ms. Reena Jawanda Phone: (916) 574-0271 E-mail: Ranvir.Jawanda@dwr.ca.gov
<b>Other Local Sponsor</b>	
Sacramento Area Flood Control Agency ATTN: Mr. John Bassett 1007 7th Street, 7th Floor Sacramento, CA 95814	POC Name: Mr. John Bassett Phone: (916) 874-8731 E-mail: bassettj@saccounty.net
<b>Maintaining Agency</b>	
Reclamation District (RD) 1000 ATTN: Mr. Paul Devereux 1633 Garden Highway Sacramento, CA 95833	POC Name: Mr. Paul Devereux Phone: (916) 922-1449 E-mail: pdevereux@rd1000.org

**7. Quality Control Plan Objective:**

The Quality Control Plan is a component of the Quality Management Plan (QMP) and Project Management Plan (PMP). The purpose of this QCP is to identify the schedule of all required reviews, technical design and review criteria, PDT members, QC Review Team members, Agency Technical Review (ATR) Team leader and members, and procedures to assure production of high quality contract documents within the authorized funds, scope, and the Customer and User’s time requirements. Any deviations from policy or procedures will be identified in this QCP and waivers obtained prior to initiation of design.

**8. Quality Guidelines for the Technical Review:**

The Sacramento District (SPK) Section Chiefs are responsible for the technical QC Review. Key personnel for the Local Sponsors will review the project to ensure compliance with criteria, standards, operational safety and functional requirements. SPK Construction-Operations Division, Resident, and Area Offices will perform the Biddability, Constructibility, Operability, Environmental and Sustainability (BCOES) Reviews to assure the project properly addresses these considerations. SPK will perform a QC Review prior to submitting the Design Package for the formal PDT/BCOES/ATR reviews.

**9. Technical Review Criteria:**

ER 1110-1-12 QUALITY MANAGEMENT  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_1110-1-12.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1110-1-12.pdf)  
 ER 415-1-11 BIDDABILITY, CONSTRUCT ABILITY, OPERABILITY, ENVIRONMENTAL AND SUSTAINABILITY (BCOES) REVIEWS  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_415-1-11.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_415-1-11.pdf)  
 CESP R 1110-1-8 QUALITY MANAGEMENT PLAN  
 CESP K QUALITY MANAGEMENT PLAN  
 02500-SPD PREPARATION AND APPROVAL OF REVIEW PLANS EC 1165-2-214  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/02500-SPD%20Preparation%20and%20Approval%20of%20Review%20Plans%20EC%201165-2-214.docx>  
 02500-SPD.01 CESP D SUPPLEMENTAL REVIEW PLAN CHECKLIST  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/02500-SPD.01%20CESPD%20Supplemental%20Review%20Plan%20Checklist.docx>



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08506-SPD QUALITY CONTROL QUALITY ASSURANCE OF ENGINEERING WORK PRODUCTS  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD%20Quality%20Control%20Quality%20Assurance%20of%20Engineering%20Work%20Products.docx>  
08506-SPD.01 CHECKLISTS FOR DQC REVIEW OF PMP, SCHEDULE, BUDGET AND REVIEW PLANS  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD.01%20Checklists%20for%20DQC%20Review%20of%20PMPs%20Review%20Plans.docx>  
08506-SPD.02 CHECKLISTS FOR REVIEW OF ENGINEERING WORK PRODUCTS  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD.02%20Checklists%20for%20Review%20of%20Engineering%20Work%20Products.docx>  
08506-SPD.03 TEMPLATES FOR DQC CERTIFICATION AND TRANSMITTAL MEMO  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD.03%20Templates%20for%20DQC%20Certifications%20and%20Transm%20Memo.docx>

**10. Design Criteria:**

**a. All Projects:**

ER 1110-2-1150 ENGINEERING AND DESIGN FOR CIVIL WORKS PROJECTS  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_1110-2-1150.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1110-2-1150.pdf)  
Architect-Engineer Guide [REFP13L0]  
Architect-Engineer 10% Design Submittals [REFP18L0]  
Architect-Engineer 30% Design Submittals [REFP21L0]  
Architect-Engineer 60% Design Submittals [REFP22L0]  
Architect-Engineer 100% Design Submittals [REFP23L0]

**b. USACE Projects**

Construction Criteria Base - ARMY/COE Criteria [http://www.wbdg.org/ccb/browse\\_org.php?o=31](http://www.wbdg.org/ccb/browse_org.php?o=31)  
USACE Publications <http://www.publications.usace.army.mil/>

**11. Customer/Command/Sponsor Criteria:**

**a. Design Standards:**

California State Water Resources Control, California Code of Regulations, Title 23, April 1, 2016

**b. Design Compatibility Standards:**

Reclamation District 1000 Pump Station Standards  
Reclamation District 1000 Supervisory Control and Data Acquisition (SCADA) System

**c. Contractor Requirements:**

Small Business Multiple Award Task Order Contract (MATOC)

**12. Technical Resource Criteria**

**a. Utility Maps:**

PG&E Electrical Mapping  
 Reclamation District 1000 Pumping Plant 4 Design Plans

**b. Standard Details:**

Reclamation District 1000 Pumping Plant 2 Standard Details

**c. Site Survey Information:**

Wood Rodgers Surveys of Bennett, Northern and Pumping Plant 4  
 SPK Survey of Vestal Drain and Pumping Plant 4

**d. Local Technical Criteria:**

Reclamation District 1000 Pumping Plant 4 Discharge and Head Capacity Requirements

**e. State Environmental Standards:**

State of California Department of Fish and Wildlife Protection Standards

**f. Project Communication Standards:**

Reclamation District 1000 Supervisory Control and Data Acquisition (SCADA) System

**13. PDT Members:**

The In-House Design Team consists of members selected by the responsible technical Section Chiefs are as follows:

**Table 1 IH Design Team**

Member Name	Discipline/Section	Telephone/E-mail
John Hoge, P.E.	Project Manager	916-557-5304 John.A.Hoge@usace.army.mil
Mark Boedtker	Technical Lead	916-557-6637 Markus.S.Boedtker@usace.army.mil
Troy O'Connor	Architect	916-557-6766 Troy.L.O'Connor@usace.army.mil
Erik Julian	Civil Engineer	916-557-7285 Erik.Julian@usace.army.mil
Michael Kynett	Geotechnical Engineer	916-557-7898 Michael.N.Kynett@usace.army.mil
Gerry Lenehan	Geotechnical Engineer	916-557-6681 Gerry.R.Lenehan@usace.army.mil
Sid Jones	Landscape Architect	916-557-7273 Sidney.I.Jones@usace.army.mil

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Member Name	Discipline/Section	Telephone/E-mail
Hana Dodini	Structural Engineer	916-557-5340 Hana.Dodini@usace.army.mil
Venese Yau	Mechanical/Fire Protection Engr	916-557-7776 Venese.L.Yau2@usace.army.mil
Franklin Lum	Electrical Engineer	916-557-7221 Franklin.D.Lum@usace.army.mil
Todd Rivas	Hydraulic Engineer	916-557-7523 Todd.M.Rivas@usace.army.mil
Robin Rosenau	Environmental Biologist	916-557-5397 Robin.M.Rosenau@usace.army.mil
Melissa Montag	Cultural Resources Archeologist	916-557-7907 Melissa.L.Montag@usace.army.mil
Laurie Parker	Real Estate Specialist	916-557-6741 Laurie.S.Parker@usace.army.mil
Steven P. Freitas, P.E.	Specifications Engineer	916-557-7296 <a href="mailto:Steven.P.Freitas@usace.army.mil">Steven.P.Freitas@usace.army.mil</a>
Chu Wei	Cost Engineer	916-557-7558 Chu.D.Wei@usace.army.mil
Laura Haven	QC/QA/DRChecks Site Administrator	916-557-7651 <a href="mailto:Laura.M.Haven@usace.army.mil">Laura.M.Haven@usace.army.mil</a>
Anderson Macatumbas	Safety Office	916-557-5315 Anderson.D.Macatumbas@uace.army.mil
Nikole May	Contracting Officer	916-557-6989 Nikole.V.May@usace.army.mil
Greg Treible	Contracting Specialist	916-557-6718 Greg.L.Treible@usace.army.mil

**14. SPK Geotechnical Branch**

If not on the PDT, the Geotechnical Branch will provide consulting services.

Name	Title	Telephone/E-mail
Michael Kynett, P.E.	Sr. Geotechnical Engineer Levee Safety Program Manager	916-557-7898 Michael.N.Kynett@usace.army.mil
Khaled Chowdhury, P.E.	Sr. Geotechnical Engineer	916-557-5309 Khaled.Chowdhury@usace.army.mil
Gerry Lenehan, P.E.	Geotechnical Engineer	916-557-6681 Gerry.R.Lenehan@usace.army.mil
Jeff Wisniewski, P.E.	Technical Lead	916-557-5115 Jeffrey.B.Wisniewski@usace.army.mil
Joe Marino, P.E.	Civil Engineering Survey and Mapping	916-557-6625 Joseph.N.Marino@usace.army.mil

**15. In-House Discipline QC Review**

Conduct QC Reviews to ensure all design computations, calculations, assumptions, and models used are correct and will result in a safe product and complies with all technical criteria.

**a. Team Members**

The In-House Discipline QC Review Team members consist of the responsible technical Section Chiefs or their delegate Subject Matter Expert (SME) as follows:

Member	Unit or Section	Telephone/E-mail
Mark Bagley	Architectural Design Section	916-557-7345 <a href="mailto:Mark.K.Bagley@usace.army.mil">Mark.K.Bagley@usace.army.mil</a>
Peter Valentine	Civil Design Section A	916-557-6618 <a href="mailto:Peter.Valentine@usace.army.mil">Peter.Valentine@usace.army.mil</a>
Rick Torbik	Civil Design Section B/ Landscape Unit	916-557-6698 <a href="mailto:Richard.A.Torbik@usace.army.mil">Richard.A.Torbik@usace.army.mil</a>
Richard M. Stauber	Soil Design Section A	916-557-7049 <a href="mailto:Richard.M.Stauber@usace.army.mil">Richard.M.Stauber@usace.army.mil</a>
Darrell Pereira	Structural Design Section	916-557-7761 <a href="mailto:Darrell.R.Pereira@usace.army.mil">Darrell.R.Pereira@usace.army.mil</a>
John Parrish	Mechanical-Electrical Design Section	916-557-7223 <a href="mailto:John.R.Parrish@usace.army.mil">John.R.Parrish@usace.army.mil</a>
Lynn Moquette	Levee Safety Section	916-557-7634 <a href="mailto:Lynn.N.Moquette@usace.army.mil">Lynn.N.Moquette@usace.army.mil</a>
Raziul Mollah	Hydraulic Design Section	916-557-7297 <a href="mailto:Razieul.H.Mollah@usace.army.mil">Razieul.H.Mollah@usace.army.mil</a>
Jerry Frost	Cost Engineering Section	916-557-6863 <a href="mailto:Jeremiah.A.Frost@usace.army.mil">Jeremiah.A.Frost@usace.army.mil</a>
Danilo Mayo	Specifications Engineer	916-557-7272 <a href="mailto:Danilo.P.Mayo@usace.army.mil">Danilo.P.Mayo@usace.army.mil</a>
Laura Haven	DRChecks Site Administrator	916-557-7651 <a href="mailto:Laura.M.Haven@usace.army.mil">Laura.M.Haven@usace.army.mil</a>

**16. District Quality Control (DQC) Review**

Conduct and document the DQC in accordance with the procedures prescribed in accordance with 08506-SPD QUALITY CONTROL QUALITY ASSURANCE OF ENGINEERING WORK PRODUCTS <https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD%20Quality%20Control%20Quality%20Assurance%20of%20Engineering%20Work%20Products.docx>. A DQC is an internal review of basic science and engineering work products focused on fulfilling the project quality requirements defined in the project’s Project Management Plan and the Review Plan. The DQC Review is a formal review of the draft engineering product performed by a DQC Reviewer or a DQC Review Team lead by a senior member of the organization responsible for the engineering product. DQC does not include sponsor reviews. Conduct sponsor reviews after the DQC reviews.

**a. Team Members**

DQC Review team members will demonstrate senior-level competence in the type of work being reviewed. Junior- level staff cannot be members of DQC teams without appropriate senior-level technical monitoring. For most projects, DQC members should be sought from the following sources: regional technical specialists (RTS); appointed subject matter experts (SME) from other Districts; senior level experts from other Districts; Center of Expertise staff; appointed SME or senior level experts from the responsible District; experts from other USACE commands; contractors; academic or other technical experts; or a combination of the above. DQC members may be from outside of the responsible command for large and/or complex projects, high-risk projects, and when the responsible command does not have sufficient resources to conduct proper DQC. For flood risk reduction civil works projects a levee safety criteria and policy consistency review by a Levee Safety SME is required as part of DQC Review. This will be staffed from Levee Safety Section and will include the Levee Safety Program Managers. DQC Review Team members will include the minimum number of engineering disciplines that will allow for an

adequate review of basic science and engineering. Other appropriate non-engineering representatives should be included in this review.

The In-House DQC Review Team members consist of the responsible technical Branch and Section Chiefs or their delegate Subject Matter Expert (SME) as follows:

Member	Branch or Section	Telephone/E-mail
Veronica Petrovsky	Project Management Branch	916-557-7245 <a href="mailto:Veronica.V.Petrovsky@usace.army.mil">Veronica.V.Petrovsky@usace.army.mil</a>
Shawn Curtis	Safety Office	916-557-6973 <a href="mailto:Shawn.M.Curtis@usace.army.mil">Shawn.M.Curtis@usace.army.mil</a>
Scott Tincher, PE	Design Branch	916-557-7350 <a href="mailto:Patrick.S.Tincher@usace.army.mil">Patrick.S.Tincher@usace.army.mil</a>
April Fontaine, PG	Geotechnical Engineering Branch	916-557-7699 <a href="mailto:April.L.Fontaine@usace.army.mil">April.L.Fontaine@usace.army.mil</a>
Virginia Rynk, PE	Geotechnical Engineering Branch	916-557-6735 <a href="mailto:Virginia.K.Rynk@usace.army.mil">Virginia.K.Rynk@usace.army.mil</a>
Steve Gladwell	Engineering Support Branch	916-557-7100 <a href="mailto:Steve.E.Gladwell@usace.army.mil">Steve.E.Gladwell@usace.army.mil</a>
Gregory A. Kukas, PE	Hydrology & Hydraulics Branch	916-557-7255 <a href="mailto:Gregory.A.Kukas@usace.army.mil">Gregory.A.Kukas@usace.army.mil</a>
Mark Bagley	Architectural Design Section	916-557-7345 <a href="mailto:Mark.K.Bagley@usace.army.mil">Mark.K.Bagley@usace.army.mil</a>
John Parrish	Mechanical-Electrical Design Section	916-557-7223 <a href="mailto:John.R.Parrish@usace.army.mil">John.R.Parrish@usace.army.mil</a>
Peter Valentine	Civil Design Section A	916-557-6618 <a href="mailto:Peter.Valentine@usace.army.mil">Peter.Valentine@usace.army.mil</a>
Rick Torbik	Civil Design Section B	916-557-6698 <a href="mailto:Richard.A.Torbik@usace.army.mil">Richard.A.Torbik@usace.army.mil</a>
Darrell Pereira	Structural Design Section	916-557-7761 <a href="mailto:Darrell.R.Pereira@usace.army.mil">Darrell.R.Pereira@usace.army.mil</a>
Richard M. Stauber	Soil Design Section A	916-557-7049 <a href="mailto:Richard.M.Stauber@usace.army.mil">Richard.M.Stauber@usace.army.mil</a>
Lynn Moquette	Levee Safety Section	916-557-7634 <a href="mailto:Lynn.N.Moquette@usace.army.mil">Lynn.N.Moquette@usace.army.mil</a>
Jerry Frost	Cost Engineering Section	916-557-6863 <a href="mailto:Jeremiah.A.Frost@usace.army.mil">Jeremiah.A.Frost@usace.army.mil</a>
Danilo Mayo	Specifications Engineer	916-557-7272 <a href="mailto:Danilo.P.Mayo@usace.army.mil">Danilo.P.Mayo@usace.army.mil</a>
Laura Haven	DRChecks Site Administrator	916-557-7651 <a href="mailto:Laura.M.Haven@usace.army.mil">Laura.M.Haven@usace.army.mil</a>

**17. Biddability, Constructability, Operability, Environmental, and Sustainability Review:**

SPK Construction-Operations Division, Area Office and Resident Office, Customer, etc:

Name	Title	Office
Julito Ganchero	Chief	Construction Quality Assurance Section
Dawn Shinsato	Chief	Construction District Office

Name	Title	Office
Jennifer Wheelis	Resident Engineer	Valley Resident Office

**18. Customer**

Sponsor reviews may be concurrent with any required ATR.

Name	Title	Agency
Reena Jawanda	Project Manager	Department of Water Resources Central Valley Flood Protection Board
John Bassett	Project Manager	Sacramento Area Flood Control Agency
Paul Devereux	General Manager	Reclamation District 1000

**19. Agency Technical Review Team (ATRT):**

Agency Technical Review (ATR) is dependent upon the phase of work, and professionals outside of the home district conduct all the reviews. The appropriate Review Management Organization (RMO) will assign the ATRT comprised of senior USACE personnel, preferably recognized subject matter experts with the appropriate technical expertise such as regional technical specialists (RTS), and may be supplemented by outside experts as appropriate. To assure independence, the leader of the ATR team must be from outside the home MSC.

Patrick Conroy, Geotechnical, CEMVS-EC-GT (ATR Lead)  
 Matthew Sheskie, Geotechnical, CEIWR-RMC-WD  
 R. Andy Gaines, Hydraulic, CEMVM-EC-H  
 Stefan Miller, Mechanical, CEMVN-ED-T  
 D. Shane Callahan, Civil, CEMVM-EC-D  
 Tim Grundhoffer, Structural, CEMVP-EC-D  
 Hannah Hadley, Environmental, CENWS-PM-ER

**20. Type II IEPR Safety Assurance Review (SAR) Team:**

Conduct a Type II IEPR SAR on design and construction activities for any project where potential hazards pose a significant threat to human life (public safety). The appropriate OEO will establish and administer the peer review panels.

Mark Freitas, Civil, GEI Consultants (IEPR Lead)  
 Dean Durkee, Geotechnical, Gannett Fleming, Inc.  
 Guy Lund, Structural, GEI Consultants

**21. Major Milestones / Schedule:**

Event	Begin Date (dd mmm yyyy)	Duration (Calendar Days)
Kickoff Meeting	12 Jul 2016	1
Issue Design Scope of Work	6 Sep 2016	10
Start QCP	12 Sep 2016	30
Submit to ET&S for Branch and Division Approval/Sign QCP	12 Oct 2016	2
QC Review of Early Preliminary Design Phase - 30% Design Submittal	7 Nov 2016	5
DQC Review of Early Preliminary Design Phase - 30% Design Submittal	14 Nov 2016	5
QC Review of Preliminary Design Phase – 60% Design Submittal	3 Jan 2017	5
DQC Review of Preliminary Design Phase -60% Design Submittal	9 Jan 2017	15
QC Review of Preliminary Design Phase – 90% Design Submittal	20 Mar 2017	5
DQC/BCOES PDT Review of Preliminary Design Phase – 90% Design Submittal	27 Mar 2017	15
Sponsors/ATR Review of Preliminary Design Phase – 90% Design Submittal	27 Mar 2017	15
Type II IEPR SAR of Preliminary Design Phase – 90% Design Submittal	27 Mar 2017	15
QC Review of Final Design Phase – 100% Design Submittal	8 May 2017	5
DQC/BCOES Backcheck Review of 100% Design Submittal	15 May 2017	15
Sponsors/ATR Backcheck Review of 100% Design Submittal	15 May 2017	15
Type II IEPR SAR Backcheck Review of 100% Design Submittal	15 May 2017	15
Sponsors/DQC/BCOES/ATR/SAR Comment Closeout Review of Final Design Submittal	12 Jun 2017	5
BCOES/PDT/ATR/Type II IEPR SAR/QC/QA Certifications	19 Jun 2017	3
Ready To Advertise (RTA)	26 Jun 2017	1
Solicitation	1 Jul 2017	45
Bid Opening / Receive Proposals	15 Aug 2017	1
Source Selection	22 Aug 2017	5
Award Contract	30 Sep 2017	1
Notice to Proceed	10 Oct 2017	1
Beneficial Occupancy Date	30 Jun 2018	1
Fiscal Closeout	30 Sep 2018	1

**22. Unique, sensitive, or high visibility items requiring special attention.**

None.

**23. Regular DBB IFB:**

Submittals other than product samples must be Electronic PDF files.

**a. Early Preliminary Design Phase - 30% Design Submittal:**

IAW A-E 35% Design Submittals [REFP21L0], the 30% Design Submittal must include the requirements of the 10% Design Submittal whether or not a 10% Design Submittal was required. As a minimum, the 30% Design Submittal consist of the following documents:

- Design Analysis (narrative and calculations)
- Drawings (Site Plan, Floor Plans, Elevations, Sections, etc.)
- Outline Guide Specifications
- Project Safety and Health Requirements
- Code B Cost Estimate
- Draft Engineering Considerations and Instructions for Field Personnel (ECIFP) Report Outline

**b. Preliminary Design Phase - 60% Design Submittal:**

IAW A-E 65% Design Submittals [REFP21L0], the 60% Design Submittal must include the requirements of the 30% Design Submittal whether or not a 30% Design Submittal was required. As a minimum, the 60% Design Submittal consist of the following documents:

- Design Analysis (narrative and calculations)
- Drawings (Site Plan, Floor Plans, Elevations, Sections, Details, etc.)
- Outline and Marked-up Guide Specifications (DIV 01-49)
- Daft Specifications without Mark up (DIV 01-49)
- Project Safety and Health Requirements
- Results of Value Engineering studies performed on the project concept design.
- Code B Cost Estimate
- Bid Schedule
- Draft ECIFP Report Outline
- Draft Real Estate Mapping

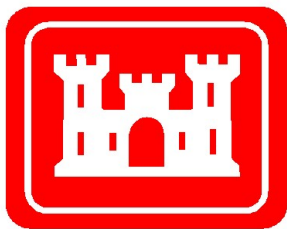
**c. Final Design Phase - 90% Design Submittal:**

IAW A-E 100% Design Submittals [REFP21L0], the 90-100% Design Submittal must include the requirements of the 60% Design Submittal whether or not a 60% Design Submittal was required. As a minimum, the 90-100% Design Submittal consists of the following documents:

- Design Analysis (narrative and calculations for Civil, Geotechnical, Hydraulics, Mechanical, Electrical, Structural, and Architectural)
- Drawings
- Marked up Guide Specifications (DIV 01-49)
- Specifications without Mark up (DIV 01-49)
- Project Safety and Health Requirements







## Quality Control Plan

American River Common Features,  
Natomas Basin Reach D, Highway 99

Contract No. W912P7-16-D-0003

Task Order W91238-21-F-0065

*Sutter County, CA*  
August 20, 2021

Submitted to:  
U.S. Army Corps of Engineers  
Sacramento District

Submitted by:  
HDR, Engineering Inc.  
2365 Iron Point Road, Suite 300  
Folsom, CA 95630

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# 1 PROJECT NAME

American River Common Features, Natomas Basin Reach D, Highway 99 Design, Sutter County, California

# 2 CLIENT

U.S. Army Corps of Engineers, Sacramento District (USACE SPK)

Cynthia Dmitrijev, Contract Specialist

Stacey Barksdale, Contract Specialist

Jin Kim, Contracting Officer

# 3 INTRODUCTION AND OBJECTIVE

HDR was awarded Task Order (TO) No. W9123821F0065 under Contract No. W912P7-16-D-0003 on July 21, 2021. This TO requires the A-E firm to develop and execute a Quality Control Plan (QCP) that describes planned quality control (QC) and independent technical review (ITR) efforts on submittals, review schedules and milestones, and TO specific review personnel. The A-E must submit and receive approval of the QCP from the Government before proceeding with the effort under this statement of work.

The objective of this QCP is to define the key members of the project delivery team (PDT) and internal ITR team, project deliverables and review procedures for these deliverables, and technical guidance to be followed. The purpose of this QCP is to provide overview guidance information for the project team involved with the TO to verify a common understanding of the delivery process and procedures necessary to deliver quality professional engineering services and products by HDR to USACE SPK.

# 4 BACKGROUND and PROJECT DESCRIPTION

The American River Common Features, Natomas Basin Project was authorized by the Water Resources Reform Development Act of 2014. The selected plan described in the 2010 Post-Authorization Change Report divides the Natomas Basin into nine reaches, A through I. This SOW covers Reach D, Highway 99, which is located along the Natomas Cross Canal.

Highway 99 is located in Reach D of the Natomas Basin, located on the south levee of the Natomas Cross Canal between the Sacramento River and Pleasant Grove Cross Canal. The majority of the Reach D levee improvements were completed by Sacramento Area Flood Control Agency (SAFCA) as part of the Natomas Levee Improvement Program from 2007 through 2010. This project installed cutoff walls in the



existing south levee and raised the levee by four feet. Areas of no work (windows) were left at the Bennett and Northern Irrigation Pump Stations, Pumping Plant 4, and Highway 99 crossing. USACE completed the work at the Bennett and Northern Pump Stations, along with constructing the new Vestal Drain as part of the Natomas Basin Reach D Windows contract in 2020. Pumping Plant 4 will be constructed by USACE in a separate contract in 2021. The only remaining window left for design in Reach D is Highway 99 crossing, which will be completed in this TO.

A Hydraulic Surface Profile Report for the Natomas Basin was completed by MBK Engineers for SAFCA in 2008. A Geotechnical Basis of Design for Reach D was completed by Kleinfelder for SAFCA in 2009. USACE will be preparing a Basis of Hydraulic Design Memo for inclusion into the Design Documentation Report for this TO. USACE will also provide the geotechnical design features, along with the geotechnical specifications for this design. USACE will also provide the environmental and cultural resource requirements for this design.

## 5 Statement of Work

This Statement of Work (SOW) includes work for completion of 35%, 65%, 95%, 100%, and final plans, specifications, Design Documentation Report (DDR), MII Cost Estimate, and Engineering Considerations and Instructions for Field Personnel (ECIFP) for the Natomas Basin Reach D, Highway 99 Project.

Draft Real Estate Mapping must also be submitted at the 65% submittal and finalized at the 95% submittal.

Also included in this SOW is Engineering Support Services during Construction for the Reach D, Highway 99 Project.

## 6 PROJECT REQUIREMENTS

The scope of services to be performed under this TO is presented in Appendix A. As outlined in the SOW, the services are to be provided under the following tasks:

- Task 1 – 35% Submittal
- Task 2 – 65% Submittal
- Task 3 – 95% Submittal
- Task 4 – 100% Submittal
- Task 5 – Final Submittal
- Task 6 – Coordination, Meetings, and Project Management
- Optional Task 1 – Additional Meetings and Communications
- Optional Task 2 – Engineering Support Services during Construction
- Optional Task 3 – Additional A-E Services during Construction
- Optional Task 4 – Additional A-E Services during Construction



- Optional Task 5 – Additional A-E Services during Construction
- Optional Task 6 – Additional A-E Services during Construction
- Optional Task 7 – Supplemental Survey

## 7 PROJECT QUALITY CONTROL OBJECTIVES / PROCEDURES

### 7.1 Quality Control Objectives

QC for this project will be undertaken following the procedures outlined below. The deliverables discussed above will be reviewed for conformance with the appropriate guidance and/or reference to verify the QC objectives are met.

### 7.2 Quality Control Procedures

Before submittal of a deliverable (Design submittal, RFI from Contractor, Construction Submittal, etc.) to USACE SPK, the production document and supporting materials will undergo internal review. Such reviews will be performed by an individual at or above the technical level of the person performing the work. The reviewer will review components of a deliverable for technical clarity and accuracy and to verify that the content is consistent with the project requirements and technical criteria specified in the project documents (Specifications, Design Document Report (DDR) and Improvement Plans). Following completion of the review, the reviewer will discuss their comments with the person performing the work to convey a clear understanding of required changes, modifications or clarifications to the project deliverable.

Reviews of deliverables must be completed to help verify, as a minimum:

- Compliance with standard engineering and professional practices
- Compliance with project documents
- Appropriateness of data used, including level of detail
- Accuracy of calculations
- Consistency with standards of practice
- Consistency, accuracy, comprehensiveness, and reasonableness of results.

Concurrent with submission of a draft project deliverable for client / external review, HDR will submit an Initial Quality Control Certificate (QCC) to the SPK Project Manager stating that the deliverable has been reviewed internally in accordance with the QCP and that all internal review comments have been addressed.

When review comments are received from SPK or other external reviewers resulting from their review of the deliverable, similar procedures will be followed to ensure quality control during the revision process. Review comments will be addressed by members of the PDT that originally worked on the deliverable. Changes to the document will be made and will be back-checked upon revision.





All QC activities associated with ITR and external reviews will be fully documented following a tabular comment-response format. ITR activities will be fully documented using the Corps of Engineers DrChecks review management software, following the comment-response-resolution format. ITR documentation will be included with the QCC.

QC documentation, including the QCP, DrChecks review results, and QC Certifications, will be maintained in the project file for USACE SPK review by the QC Manager and Project Coordinator. The Final QCC will verify that procedures outlined in this QCP have been performed and that concerns identified during internal and external QC review have been resolved.

## 8 GUIDANCE / STANDARDS / TECHNICAL CRITERIA

Appropriate provisions of the following Guidance, Standards and Criteria must be followed during preparation of the project documents required to be developed under the SOW for this project:

- ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug 1999.
- ER 1110-1-12, Engineering and Design Quality Management, 21 Jul 2006.
- ERDC-ITL TR-12-6 A/E/C CAD Standard Release 6.0 Standard and the ERDC ITL TR-12-1 CAD Drafting Standard.
- ER 1110-1-8155, Specification Standards,
- ER 1110-21302, Cost Estimating Standards.
- Sacramento District Cost Estimate Requirements for Current Working Estimates (CWE)
- 1 AE Guide General Requirements: AE Guide General Information
- 3 AE Guide 35%: AE Guide 35% Submittals
- 4 AE Guide 65%: AE Guide 65% Submittals
- 5 AE Guide 100%: AE Guide 100% Submittals
- Secretary of the Interior's Professional Qualifications Standards for Archeology, see website address [https://www.nps.gov/history/local-law/arch\\_stnds\\_9.htm](https://www.nps.gov/history/local-law/arch_stnds_9.htm)
- Urban Levee Design Criteria (ULDC), see website address [https://cawaterlibrary.net/document/urban-levee-design-criteria/Secretary of the Interior's Professional Qualifications Standards for Archeology](https://cawaterlibrary.net/document/urban-levee-design-criteria/Secretary%20of%20the%20Interior's%20Professional%20Qualifications%20Standards%20for%20Archeology), see website address [https://www.nps.gov/history/local-law/arch\\_stnds\\_9.htm](https://www.nps.gov/history/local-law/arch_stnds_9.htm)

## 9 REFERENCE DOCUMENTS

The following are reference documents to be used in the execution of the work associated with this project:



- Kleinfelder: Geotechnical Basis of Design Report, Natomas Cross Canal South Levee, Natomas Levee Improvement Program, Sacramento and Sutter Counties, California, 30 Jan 2009.
- MBK Engineers: Supplemental Report for the Design Water Surface Profile for the Natomas Levee Improvement Program, 12 Dec 2008.
- SAFCA: MHM NCC and PGCC Levee Improvement Drawings, SAFCA Contract 3113, sheet 94, drawing S-1, 1997.
- Wood Rodgers: Volume 3A: NCC South Levee Phase 2 Improvement Plans, Feb 2009.
- Cost Estimate Requirements for Current Working Estimates (CWE) dated 04 March 2020

## 10 PROJECT DELIVERY AND ITR TEAMS

Overall project delivery efforts will be managed by the HDR Engineering, Inc (HDR) TO Manager, Kevin Fellows.

**Contact information for these members of the Project Delivery Team (PDT) is presented below:**

Name	Project Role	Telephone	E-mail
Kevin Fellows, PE	Project Manager/Civil Lead	(916) 817-4792	Kevin.fellows@hdrinc.com
Vincent Fung, PE	Transportation Lead	(916) 679-8844	Vincent.fung@hdrinc.com
Stella Gardenour	Project Coordinator	(916) 817-4951	Stella.gardenour@hdrinc.com

**Contact information for the senior ITR Team is presented below:**

Name	Project Role	Telephone	E-mail
Daniel Jabbour, PE	Quality Control/Civil	(916) 817-4943	Daniel.Jabbour@hdrinc.com
Wes Jacobs	Structural Engineer	(225)266-9543	Wes.Jacobs@hdrinc.com
Henry Luu, PE	Transportation Engineer	(916) 679-8857	Henry.Luu@hdrinc.com

## 11 PROJECT SCHEDULE AND MILESTONES

The project schedule and milestones that were included in the SOW are presented below. As indicated in SOW, a more detailed project schedule will be developed after the Kickoff meeting

- Task 1 – 35% Submittal
- Task 2 –65% Submittal
- Task 3 – 95% Submittal



- Task 4 – 100% Submittal
- Task 5 – Final Submittal

## 11.1 Submittal and Delivery Schedule

The following schedule covers design work shown as Task 1 through Task 6 and Optional Tasks 1 through 7:

Task	Task Completion (calendar days after TO award)
<b>Task 1: 35 % Design Submittal</b> Quality Control Plan Schedule 35% Design Submittal	15 Days 25 Days 85 Days
<b>Task 2: 65% Design Submittal</b>	170 Days
<b>Task 3: 95% Design Submittal</b>	280 Days
<b>Task 4: 100% Design Submittal</b>	355 Days
<b>Task 5: Final Design Submittal</b>	400 Days
<b>Task 6: Coordination, Meetings, and Project Management</b> Outside Agency Communications Design Progress Meeting Notes	Three (3) days after Discussion Five (5) days after Meeting
<b>Optional Task 1: Additional Meetings and Communications</b> Outside Agency Communications Design Progress Meeting Notes	Three (3) days after Discussion Five (5) days after Meeting
<b>Optional Task 2: Engineering Support Services during Construction</b> RFI's RFI's with Design Effort Submittals	Three (3) calendar days after receipt Seven (7) calendar days after receipt Five (5) calendar days after receipt
<b>Optional Tasks 3 - 7: Additional A-E Services during Construction</b> Supplemental Survey RFI's RFI's with Design Effort Submittals	Twenty (20) calendar days after NTP Three (3) calendar days after receipt Seven (7) calendar days after receipt Five (5) calendar days after receipt

## 11.2 Review Schedule

The ITR review team will review each Design Submittal approximately 30 days prior to the Task Completion date.



## 12 PROJECT BUDGET

The TO award documentation (Appendix A) presents the lump sum contract fee negotiated for this project. This document also contains the distribution of the lump sum fee amongst the primary Tasks cited in the SOW.

## 13 TRANSFER OF DATA

Maintaining the schedule for this project will hinge upon the timely transfer of construction data from USACE SPK to HDR to support the work efforts required. Additionally, it will be important that HDR and USACE SPK maintain a mutually cooperative and timely handling of production documents for review / comment / response focusing on the established schedule dates. The Dr. Checks system will be used to document the review comment / response process for this project.



# Appendix A. Project Award, Budget and Statement of Work

# ORDER FOR SUPPLIES OR SERVICES

1. CONTRACT/PURCH. ORDER/ AGREEMENT NO. W912P7-16-D-0003		2. DELIVERY ORDER/ CALL NO. W9123821F0065		3. DATE OF ORDER/ CALL (YYYYMMDD) 2021 Jul 21		4. REQ./ PURCH. REQUEST NO. W62N6M10493222		5. PRIORITY				
6. ISSUED BY USACE SACRAMENTO DISTRICT ATTN: CONTRACTING DIVISION 1325 J STREET SACRAMENTO CA 95814-2922			CODE W91238		7. ADMINISTERED BY (if other than 6) <b>SEE ITEM 6</b>			CODE				
9. CONTRACTOR HDR ENGINEERING, INC. NAME HDR AND 2365 IRON POINT RD STE 300 ADDRESS FOLSOM CA 95630-8712			CODE 4FZ86		FACILITY		10. DELIVER TO FOB POINT BY (Date) (YYYYMMDD) <b>SEE SCHEDULE</b>		11. MARK IF BUSINESS IS <input type="checkbox"/> SMALL <input type="checkbox"/> SMALL DISADVANTAGED <input type="checkbox"/> WOMEN-OWNED			
14. SHIP TO US ARMY CORPS OF ENGINEERS, SACRAMENTO CONTRACTING DIVISION 1325 J STREET SACRAMENTO CA 95814-2922			CODE W91238		15. PAYMENT WILL BE MADE BY USACE FINANCE CENTER CIVIL FUNDED CONTRACTS 5722 INTEGRITY DRIVE ATTN: CEFC-FP MILLINGTON TN 38054-5005			12. DISCOUNT TERMS Net 30 Days		13. MAIL INVOICES TO THE ADDRESS IN BLOCK See SOW "Payments Statement"		
16. TYPE OF ORDER		DELIVERY/ CALL		X		This delivery order/call is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract.						
PURCHASE						Reference your quote dated Furnish the following on terms specified herein. REF:						
ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.												
NAME OF CONTRACTOR			SIGNATURE			TYPED NAME AND TITLE			DATE SIGNED (YYYYMMDD)			
<input type="checkbox"/> If this box is marked, supplier must sign Acceptance and return the following number of copies:												
17. ACCOUNTING AND APPROPRIATION DATA/ LOCAL USE												
<b>See Schedule</b>												
18. ITEM NO.		19. SCHEDULE OF SUPPLIES/ SERVICES				20. QUANTITY ORDERED/ ACCEPTED*		21. UNIT	22. UNIT PRICE		23. AMOUNT	
		<b>SEE SCHEDULE</b>										
* If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.				24. UNITED STATES OF AMERICA TEL: 916-557-7957 EMAIL: jin.kim@usace.army.mil BY: JIN KIM						25. TOTAL		\$673,388.93
27a. QUANTITY IN COLUMN 20 HAS BEEN												
<input type="checkbox"/> INSPECTED <input type="checkbox"/> RECEIVED <input type="checkbox"/> ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED												
b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE						c. DATE (YYYYMMDD)		d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE				
e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE						28. SHIP NO.		29. DO VOUCHER NO.		30. INITIALS		
f. TELEPHONE NUMBER			g. E-MAIL ADDRESS			<input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL		32. PAID BY		33. AMOUNT VERIFIED CORRECT FOR		
36. I certify this account is correct and proper for payment.						31. PAYMENT				34. CHECK NUMBER		
a. DATE (YYYYMMDD)		b. SIGNATURE AND TITLE OF CERTIFYING OFFICER				<input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL				35. BILL OF LADING NO.		
37. RECEIVED AT		38. RECEIVED BY		39. DATE RECEIVED (YYYYMMDD)		40. TOTAL CONTAINERS		41. S/R ACCOUNT NO.		42. S/R VOUCHER NO.		

Section B - Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0001	Tasks 1 through 6 FFP	673,388.93	Job	\$1.00	\$673,388.93

PROJECT TITLE AND LOCATION: American River Common Features,  
Natomas Basin Reach D, Highway 99, Design, Sutter County, California.

The A-E shall perform the following tasks, in accordance with the Statement of Work (SOW) dated 30 June 2021, incorporated herein.

The negotiated total amount for CLIN 0001 is \$673,388.93, broken out as follows:

Task 1 – 35% Submittal	\$ 193,240.73
Task 2 – 65% Submittal	\$ 194,375.93
Task 3 – 95% Submittal	\$ 143,321.38
Task 4 – 100% Submittal	\$ 65,917.60
Task 5 – Final Submittal	\$ 26,112.97
Task 6 – Coordination, Meetings, and Project Management	\$ 50,420.32

All work and services shall be completed in accordance with the Submittal Schedule in the SOW, but not later than 400 calendar days from the effective date of this task order.

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M10493222  
PSC CD: C211

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MAX NET AMT	\$673,388.93
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ACRN AA CIN: W62N6M104932220001	\$673,388.93
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ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0002 OPTION	Optional Task 1 FFP	13,395.64	Job	\$1.00	\$13,395.64

PROJECT TITLE AND LOCATION: American River Common Features, Natomas Basin Reach D, Highway 99, Design, Sutter County, California.

The A-E shall perform Optional Task 1 (Additional Meetings and Communications), in accordance with the Statement of Work (SOW) dated 30 June 2021, incorporated herein.

The negotiated amount for this option is \$13,395.64.

The Government may exercise Optional Task 1 at the stated option price at any time within the period of performance of this task order. If exercised, all work and services shall be completed in accordance with the Submittal Schedule in the SOW, but not later than 90 calendar days from the date the option is exercised.

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M10493222  
PSC CD: C211

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MAX NET AMT \$13,395.64



ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0003 OPTION	Optional Task 2 FFP PROJECT TITLE AND LOCATION: American River Common Features, Natomas Basin Reach D, Highway 99, Design, Sutter County, California.	87,850.91	Job	\$1.00	\$87,850.91

The A-E shall perform Optional Task 2 (Engineering Support Services during Construction), in accordance with the Statement of Work (SOW) dated 30 June 2021, incorporated herein.

The negotiated amount for this option is \$87,850.91.

The Government may exercise Optional Task 2 at the stated option price at any time within the period of performance of this task order.  
If exercised, all work and services shall be completed in accordance with the Submittal Schedule in the SOW, but not later than 500 calendar days from the date the option is exercised.

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M10493222  
PSC CD: C211

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MAX NET AMT	\$87,850.91
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ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0004 OPTION	Optional Task 3 FFP	23,184.85	Job	\$1.00	\$23,184.85

PROJECT TITLE AND LOCATION: American River Common Features, Natomas Basin Reach D, Highway 99, Design, Sutter County, California.

The A-E shall perform Optional Task 3 (Additional A-E Services during Construction), in accordance with the Statement of Work (SOW) dated 30 June 2021, incorporated herein.

The negotiated amount for this option is \$23,184.85.

The Government may exercise Optional Task 3 at the stated option price at any time within the period of performance of this task order. If exercised, all work and services shall be completed in accordance with the Submittal Schedule in the SOW, but not later than 60 calendar days from the date the option is exercised.

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M10493222  
PSC CD: C211

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MAX NET AMT \$23,184.85

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0005 OPTION	Optional Task 4 FFP	23,184.85	Job	\$1.00	\$23,184.85

PROJECT TITLE AND LOCATION: American River Common Features, Natomas Basin Reach D, Highway 99, Design, Sutter County, California.

The A-E shall perform Optional Task 4 (Additional A-E Services during Construction), in accordance with the Statement of Work (SOW) dated 30 June 2021, incorporated herein.

The negotiated amount for this option is \$23,184.85.

The Government may exercise Optional Task 4 at the stated option price at any time within the period of performance of this task order. If exercised, all work and services shall be completed in accordance with the Submittal Schedule in the SOW, but not later than 60 calendar days from the date the option is exercised.

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M10493222  
PSC CD: C211

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MAX NET AMT \$23,184.85

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0006 OPTION	Optional Task 5 FFP	23,184.85	Job	\$1.00	\$23,184.85

PROJECT TITLE AND LOCATION: American River Common Features,  
Natomas Basin Reach D, Highway 99, Design, Sutter County, California.

The A-E shall perform Optional Task 5 (Additional A-E Services during  
Construction), in accordance with the Statement of Work (SOW) dated  
30 June 2021, incorporated herein.

The negotiated amount for this option is \$23,184.85.

The Government may exercise Optional Task 5 at the stated option price at any  
time within the period of performance of this task order.  
If exercised, all work and services shall be completed in accordance with the  
Submittal Schedule in the SOW, but not later than 60 calendar days from the date  
the option is exercised.

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M10493222  
PSC CD: C211

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MAX  
NET AMT \$23,184.85

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0007 OPTION	Optional Task 6 FFP	23,184.85	Job	\$1.00	\$23,184.85

PROJECT TITLE AND LOCATION: American River Common Features, Natomas Basin Reach D, Highway 99, Design, Sutter County, California.

The A-E shall perform Optional Task 6 (Additional A-E Services during Construction), in accordance with the Statement of Work (SOW) dated 30 June 2021, incorporated herein.

The negotiated amount for this option is \$23,184.85.

The Government may exercise Optional Task 6 at the stated option price at any time within the period of performance of this task order. If exercised, all work and services shall be completed in accordance with the Submittal Schedule in the SOW, but not later than 60 calendar days from the date the option is exercised.

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M10493222  
PSC CD: C211

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MAX NET AMT	\$23,184.85
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ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0008 OPTION	Optional Task 7 FFP	5,853.79	Job	\$1.00	\$5,853.79

PROJECT TITLE AND LOCATION: American River Common Features,  
Natomas Basin Reach D, Highway 99, Design, Sutter County, California.

The A-E shall perform Optional Task 7 (Supplemental Surveying), in accordance with the Statement of Work (SOW) dated 30 June 2021, incorporated herein.

The negotiated amount for this option is \$5,853.79.

The Government may exercise Optional Task 7 at the stated option price at any time within the period of performance of this task order.  
If exercised, all work and services shall be completed in accordance with the Submittal Schedule in the SOW, but not later than 30 calendar days from the date the option is exercised.

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M10493222  
PSC CD: C211

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MAX NET AMT	\$5,853.79
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## Section C - Descriptions and Specifications

TO SOW

CESPK-EDD-A

Date: 29 April 2021

Rev: 30 June 2021

**STATEMENT OF WORK**

*\*Note: This revised SOW dated ~~29 April 2021~~ 30 June 2021 supersedes SOW dated ~~4 February 2021~~ 29 April 2021.*

**1. PROJECT DATA**

- 1.1. PROJECT TITLE AND LOCATION: American River Common Features, Natomas Basin Reach D, Highway 99, Design, Sutter County, California.
- 1.2. PROJECT NUMBER: 458598
- 1.3. CONTRACT NO: W912P7-16-D-0003, Task Order **W91238-21-F-0065**
- 1.4. CONTRACTOR DATA (A-E NAME, ADDRESS, POC, E-MAIL ADDRESS):

HDR Engineering, Inc.

2365 Iron Point Road, Suite 300

Folsom, CA 95630

Telephone: (916) 817-4700

Contact: ~~Mr. Sergio Jimenez, PE~~ *Mr. Christopher Krivanec, PE, GE*

Contract Manager

~~[Sergio.Jimenez@hdrinc.com](mailto:Sergio.Jimenez@hdrinc.com)~~ *[Christopher.Krivanec@hdrinc.com](mailto:Christopher.Krivanec@hdrinc.com)*

- 1.5. GOVERNMENT POINTS OF CONTACT (POC):

Technical Lead (Primary POC):

William Doyle

CESPK-ED-DC

U.S. Army Corps of Engineers

1325 J Street

Sacramento, California 95814-2922

Telephone (916) 557-7429

[William.A.Doyle@usace.army.mil](mailto:William.A.Doyle@usace.army.mil)

Project Manager:

Stacy Pereyda-Hill

CESPK-PM-C

U.S. Army Corps of Engineers

1325 J Street

Sacramento, California 95814-2922

Telephone (916) 557-6887

[Stacy.L.Pereyda-Hill@usace.army.mil](mailto:Stacy.L.Pereyda-Hill@usace.army.mil)

- 1.6. AUTHORIZATION:

Water Resources Reform and Development Act (WRRDA) of 2014

- 1.7. SCOPE: This Statement of Work (SOW) includes work for completion of 35%, 65%, 95%, 100%, and final plans, specifications, Design Documentation Report (DDR), MII Cost Estimate, and Engineering Considerations and Instructions for Field Personnel (ECIFP) for the Natomas Basin Reach D, Highway 99 Project. Draft Real Estate Mapping must also be submitted at the 65% submittal. Also included in this SOW is Engineering Support Services during Construction.
- 1.8. ESTIMATED CONSTRUCTION COST (ECC): \$10,000,000
- 1.9. DRAWING TITLES: American River Common Features, Natomas Basin Reach D, Highway 99, Sutter County, CA
- 1.10. CRITERIA:
  - 1.10.1. ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug 1999.
  - 1.10.2. ER 1110-1-12, Engineering and Design Quality Management, 21 Jul 2006.
  - 1.10.3. ERDC-ITL TR-12-6 A/E/C CAD Standard Release 6.0 Standard and the ERDC ITL TR-12-1 CAD Drafting Standard.
  - 1.10.4. ER 1110-1-8155, Specification Standards,
  - 1.10.5. ER 1110-21302, Cost Estimating Standards.
  - 1.10.6. Sacramento District Cost Estimate Requirements for Current Working Estimates (CWE)
  - 1.10.7. 1 AE Guide General Requirements: AE Guide General Information
  - 1.10.8. 3 AE Guide 35%: AE Guide 35% Submittals
  - 1.10.9. 4 AE Guide 65%: AE Guide 65% Submittals
  - 1.10.10. 5 AE Guide 100%: AE Guide 100% Submittals
  - 1.10.11. Secretary of the Interior's Professional Qualifications Standards for Archeology, see website address [https://www.nps.gov/history/local-law/arch\\_stnds\\_9.htm](https://www.nps.gov/history/local-law/arch_stnds_9.htm)
  - 1.10.12. Urban Levee Design Criteria (ULDC), see website address <https://cawaterlibrary.net/document/urban-levee-design-criteria/>
- 1.11. GOVERNMENT FURNISHED DATA/MATERIAL:
  - 1.11.1. Kleinfelder: Geotechnical Basis of Design Report, Natomas Cross Canal South Levee, Natomas Levee Improvement Program, Sacramento and Sutter Counties, California, 30 Jan 2009.
  - 1.11.2. MBK Engineers: Supplemental Report for the Design Water Surface Profile for the Natomas Levee Improvement Program, 12 Dec 2008.
  - 1.11.3. SAFCA: MHM NCC and PGCC Levee Improvement Drawings, SAFCA Contract 3113, sheet 94, drawing S-1, 1997.
  - 1.11.4. Wood Rodgers: Volume 3A: NCC South Levee Phase 2 Improvement Plans, Feb 2009.
  - 1.11.5. Cost Estimate Requirements for Current Working Estimates (CWE) dated 04 March 2020
  - 1.11.6. AE Guide General Requirements: AE Guide General Information
  - 1.11.7. AE Guide 35%: AE Guide 35% Submittals
  - 1.11.8. AE Guide 65%: AE Guide 65% Submittals
  - 1.11.9. AE Guide 100%: AE Guide 100% Submittals

## 2. **BACKGROUND**

- 2.1. The American River Common Features, Natomas Basin Project was authorized by the Water Resources Reform Development Act of 2014. The selected plan described in the 2010 Post-Authorization Change Report divides the Natomas Basin into nine reaches, A through I. This SOW covers Reach D, Highway 99, which is located along the Natomas Cross Canal.
- 2.2. Highway 99 is located in Reach D of the Natomas Basin, located on the south levee of the Natomas Cross Canal between the Sacramento River and Pleasant Grove Cross Canal. The majority of the Reach D levee improvements were completed by SAFCA as part of the Natomas Levee Improvement Program from 2007



through 2010. This project installed cutoff walls in the existing south levee, and raised the levee by four feet. Areas of no work (windows) were left at the Bennett and Northern Irrigation Pump Stations, Pumping Plant 4, and Highway 99 crossing. The Corps of Engineers completed the work at the Bennett and Northern Pump Stations, along with constructing the new Vestal Drain as part of the Natomas Basin Reach D Windows contract in 2020. Pumping Plant 4 will be constructed by the Corps in a separate contract in 2021. The only remaining window left for design in Reach D is Highway 99 crossing, which will be completed in this task order.

- 2.3. A Hydraulic Surface Profile Report for the Natomas Basin was completed by MBK Engineers for SAFCA in 2008. A Geotechnical Basis of Design for Reach D was completed by Kleinfelder for SAFCA in 2009. The Corps of Engineers will be preparing a Basis of Hydraulic Design Memo for inclusion into the Design Documentation Report for this task order. The Corps of Engineers will also provide the geotechnical design features, along with the geotechnical specifications for this design. The Corps of Engineers will also provide the environmental and cultural resource requirements for this design.

### 3. **GENERAL REQUIREMENTS**

#### 3.1. Quality Control:

- 3.1.1. General - The A-E is responsible for quality control (QC) of the technical products, reports, and submissions produced under this statement of work. The A-E's QC activities must consist primarily of:
  - A. Development and execution of a Quality Control Plan (QCP),
  - B. Internal QC including documentation, and
  - C. Quality Control Certification (QCC).
  - D. The A-E must allocate any effort necessary for Quality Control (QC)/Quality Assurance (QA)/Independent Technical Review (ITR) outlined in the Quality Control Plan under each applicable task

Specific QC requirements are described below:

- 3.1.2. Quality Control Plan (QCP) - The A-E must develop a project specific QCP that describes planned QC efforts on submittals, review schedules and milestones, contains review checklists, and a list of task order specific QC and ITR review personnel on the review team. The A-E must describe the experience and background of the selected QC and ITR review personnel and provide justification for their selection on the review team for this project. The selected ITR personnel must not be actively involved in the analysis/design efforts or QC review performed under this statement of work. The A-E must submit a draft project specific QCP along with the proposal. The A-E must submit the final project specific QCP within five (5) calendar days of receipt of Government review comments. The A-E must receive approval of the QCP from the Government before proceeding with the effort under this statement of work.
- 3.1.3. A-E Quality Control (QC) and Independent Technical Review (ITR) – All work products in this statement of work must undergo necessary and appropriate QC and ITR by the A-E. Documentation of QC and ITR activities is required and must be submitted to the Government with each submittal as part of the Government's Quality Assurance (QA) review activities. QC activities must be documented using either the Corps of Engineers DrChecks review management software or the A-E's own internal standard practice. QC is an internal review process of work products, implementing basic quality control tools including, but not limited to: quality checks of calculations, analysis and assumptions; supervisory reviews; consistency reviews by design team; reviews for biddability, constructability and operability; and checks for adherence to requirements and criteria in this statement of work.. The purpose of the ITR is to check for compliance with standard engineering and professional practices, adequacy of the scope of the associated document, appropriateness of data used, consistency, accuracy, comprehensiveness, and reasonableness of

results. ITR activities must be fully documented using the Corps of Engineers DRChecks review management software.

- 3.1.4. The Government will perform the quality assurance (QA) and biddability, constructability, operability, environmental and sustainability (BCOES) reviews for each submittal. QA and BCOES activities will be fully documented using the Corps of Engineers DRChecks review management software, following a comment-response-resolution format. The A-E is responsible for reviewing and addressing all comments. QA documentation must be included with the QCC. The A-E must maintain a log of review comments, and review status of open comments at each design review meeting. The execution of the QCP will occur in subsequent tasks.
- 3.1.5. Quality Control Certification (QCC): The A-E must certify in a Quality Control Certification (QCC), accompanying the Final Submittal under this statement of work, that QC and ITR procedures outlined in the QCP have been performed and that all concerns identified during QC and ITR activities have been resolved. The Corps will provide a model QCC to the A-E. The QCC and ITR documentation must be included with each design submittal.

### 3.2. Progress Reporting:

- 3.2.1. The A-E must prepare progress/status reports to be delivered by tenth (10<sup>th</sup>) of each month. Progress reports must be brief (1-2 pages), describing work performed and a quantitative statement of overall work progress, including percentage of work accomplished on each task and submittal.
- 3.2.2. Include a description of the current problems that may impede performance of the tasks outlined in this SOW and suggest corrective actions. This report must also discuss work to be performed in the last and next two (2) weeks and must contain a current submittal schedule. Progress reports must be e-mailed to the COR and provided with every payment estimate (ENG 93).
- ~~3.2.3. The A-E must allocate the effort for Progress Reporting under each of the applicable tasks in the SOW~~

### 3.3. Antiterrorism and Operation Security (AT/OPSEC) Requirements:

AT/OPSEC measures are required as follows.

- 3.3.1. Suspicious Activity Reporting Training (e.g. iWATCH, CorpsWatch, or See Something, Say Something). The contractor and all associated sub-contractors must receive a brief/training (provided by the RA) on the local suspicious activity reporting program. This locally developed training will be used to inform employees of the types of behavior to watch for and instruct employees to report suspicious activity to the project manager, security representative or law enforcement entity. This training must be completed within 30 calendar days of contract award and within 30 calendar days of new employees commencing performance with the results reported to the COR NLT 5 calendar days after the completion of the training.
- 3.3.2. For Contracts that Require OPSEC Training. All new contractor employees will complete Level I OPSEC Training within 30 calendar days of their reporting for duty. Additionally, all contractor employees must complete annual OPSEC awareness training. The contractor must submit certificates of completion for each affected contractor and subcontractor employee, to the COR or to the contracting officer (if a COR is not assigned), within 5 calendar days after completion of training. OPSEC awareness training is available at the following websites: <https://www.iad.gov/ioss/> or <http://www.cdse.edu/catalog/operations-security.html>; or it can be provided by the RA OPSEC Officer in presentation form which will be documented via memorandum.
- 3.3.3. Pre-screen candidates using E-Verify Program. The Contractor must pre-screen Candidates using the E-verify Program (<http://www.uscis.gov/e-verify>) website to meet the established employment

eligibility requirements. The Vendor must ensure that the Candidate has two valid forms of Government issued identification prior to enrollment to ensure the correct information is entered into the E-verify system. An initial list of verified/eligible Candidates must be provided to the COR no later than 3 business days after the initial contract award." \*When contracts are with individuals, the individuals will be required to complete a Form I-9, Employment Eligibility Verification, with the designated Government representative. This Form will be provided to the Contracting Officer and must become part of the official contract file.

#### 3.4. Responsibility after Design Completion:

- 3.4.1. The A-E is required to support the Sacramento District should errors or omissions in the documents create problems in bidding or administering the contract for construction. As needed, the A-E will clarify the design intent and correct any errors or omissions in the original documents. The corrections must be done in a timely manner at no additional cost to the Government. The A-E must incorporate amendment changes on the original drawings and/or CADD drawings when requested to do so after the bidding process at no extra cost to the Government. In addition, the A-E must incorporate amendment changes on the submittal registers and submit one copy in SPECSINTACT format on a disk or CD labeled with the project title, location, and construction contract number.
- 3.4.2. During the bidding period, the A-E is required to assist in answering all bidders' inquiries pertaining to the design. If clarifications are required, the A-E will prepare the required amendment to include conformed specs and drawings. The A-E, however, must not receive or respond to any direct inquiries from bidders. All inquiries or responses must be through the Sacramento District COR for the A-E Task Order.

## 4. DESCRIPTION OF WORK AND SERVICES

### 4.1. Task 1 – 35% Submittal

- 4.1.1. Schedule: The schedule for completion of the tasks in this task order are as stated in Paragraph 5.1.
- 4.1.2. Plans: The A-E must develop the 35% design plans for the Highway 99 window. Highway 99 crosses the Natomas Cross Canal just north of Howsley Road in Sutter County. Highway 99 has two 2-lane bridges spanning the Canal, and both bridge abutments are on the levees for this Canal. The Highway 99 project is providing 200-year level flood protection to the Natomas Basin, by closing the window between the existing cutoff walls on either side of the crossing. ~~SAFCA also constructed floodwalls on each side and in between each of the bridges, that will need to be raised/replaced to meet the 200-year level flood protection.~~ The Natomas Reach D Geotechnical Basis of Design determined that a Deep-Soil-Mix cutoff wall will need to be installed to fill this window and under both bridges to a depth of -38' NAVD88 on the south levee. ~~In addition, to remediate a 4 foot high height deficiency, constructing a flood barrier/floodwall/levee raise in the alignment of the cutoff walls is also required.~~ The design will also include traffic control plans to divert traffic from each bridge as the construction is completed. Both directions of traffic will need to be crossing the bridge not under construction for the period of time required for the construction on the other bridge to be completed. The design will also include relocation of any utilities or encroachments as required that are within the footprint of construction. The A-E must complete all coordination with Caltrans and Utility Agencies as required for these designs. Grading and paving of temporary lane changes on both sides of the canal is to be completed by the A-E, along with the traffic and detour signage. Surface drainage and ditches must be maintained during construction and modified to provide safe drainage discharge to receiving facilities at the toe of the levee. The A-E must complete a topographic survey of the project footprint area, capturing all information necessary for successful design and construction of this project. The basis of survey must be in US feet using California State Plane Coordinate System Zone II, NAD 83, and NAVD vertical datum. The A-E must perform survey work in accordance with Corps EM 1110-1-1005 Engineering and

Design: Control and Topographic Surveying, EC 1110-2-6065, Engineering and Design Comprehensive Evaluation of Project Datums, and other applicable Corps guidance, and industry standards. A tree survey of the project footprint must be conducted, identifying the species, diameter, GPS coordinate locations, and whether it is required to be removed or protected in place. Tree tables shall be updated to exclude the tree(s) removed during construction, and shall be verified for accuracy. The Corps of Engineers will be providing all geotechnical design details for Highway 99. Environmental and Cultural requirements will also be completed by the Corps of Engineers. Design details not required for this level of effort can be deferred to the 65% submittal.

Value Engineering Study: The 35% Submittal shall be reviewed by a USACE Value Engineering Team. A USACE Value Engineering (VE) facilitator will prepare a VE Study report that will address VE alternative recommendations and proposals. The USACE PDT will review the proposals (alternatives) in order to recommend suggestions (design recommendations) in the report developed by the VE Team. The USACE PDT will decide on what alternatives and design recommendations should be accepted, but confer with the A-E on what should be accepted, partially accepted, accepted with modifications, respond as being an alternative requiring further study, or reject the alternative. The AE would incorporate the alternative(s)/design recommendations in the 65% design submittal. The A-E shall provide 2 employees to the VE Study Kickoff Presentation and Final Report meeting. USACE recommends a technical manager and a senior level technical lead as the employees representing the A-E. Should any recommendations be accepted, the USACE VE cost estimate shall serve as an informational estimate only for the A-E Cost Engineering team.

- (a) CADD drawings must follow the A/E/C CAD Standard Release 6.0 Standard. Sacramento District specific standards and border sheets must comply with ERDC-ITL TR-12-6 A/E/C CAD Standard Release 6.0 Standard and the ERDC ITL TR-12-1 CAD Drafting Standard.
- (b) The A-E has the responsibility to show all information necessary to completely describe the project in the contract documents. Regardless of local practice or procedures, the designer must prepare original drawings with the expectation that both the COE, in the role of construction manager, and the construction contractor will be able to construct this project without numerous modifications to correct design deficiencies. Plans must include longitudinal profiles, plan views, and cross-sections and details as necessary to show the features of the project. All dimensions and elevations of the flood protection features must be indicated. Survey controls must be based on information presented in the NLIP plans prepared by Wood Rodgers. The datum refers to National Geodetic Vertical Datum of 1988.
- (c) The General sheet(s) must include the schedule of drawings, vicinity map, location map, legend, and list of abbreviations. The schedule of drawings must include the consecutive sheet numbers, the design discipline sheet numbers, and the drawings titles. The vicinity map must be a single-line type showing major cities, nearby towns, major streams and rivers, current routes of nearby highways and railroads, and a north arrow. Show the location of the project on a small scale location map indicating the general relationship between the new project and streets to facilitate identification of the proposed site. On the location map, show the north arrow and highlight the approved project boundaries, the construction Contractor's haul roads, location and phone numbers of nearest medical facility, and the approved location of the borrow and disposal areas.
- (d) The submittal drawings must be single PDF drawing sheets and sized no less than 22"x34" (ANSI D size) full-size. Drawing material that does not meet COE standards may be rejected at any time during design. The A-E is liable for replacing rejected drawings at no expense to the Government. All sheets must have the COE standard borders and title blocks. The title block is for all sheets other than the cover sheet. The cover sheet title block requires a number of signatures by COE personnel.
- (e) All drawings must comply with the SPK File Naming Convention for Civil Works CADD Drawings CDP02L0. Place the drawings in the drawings set in the discipline designator sequence.

The cover sheet must be the first of the drawing set. All final drawings prepared and submitted by the A-E must bear the stamp and signature of a registered engineer identified in the A-E's QC Plan, preferably one of the principals of the firm. Drawings submitted by the designer must not be dated until the final version is submitted. Cross referencing for sections and details must be based on the discipline designator drawing number (e.g., S-1, S-3, etc.).

(f) Scales must be selected to avoid overcrowded and cluttered conditions on the drawings. Where necessary to maintain proper scale, drawings or large structures must be placed on two or more sheets. A graphic scale for each of the different scales used on a drawing must be placed on the drawings preferable near the title block. Scales must be consistent throughout all the disciplines' drawings. Acceptability of scale is determined by clarity of drawings at one-half scale reduction. Plan sheets are recommended to have a scale of 1 in = 40 ft.

- 4.1.3. Specifications: Specifications must include technical provisions covering site work, cutoff walls, earthwork, environmental restoration (provided by Corps of Engineers), and other components of work requiring details. Specifications must be prepared according to ER 1110-1-8155, and must include a bid schedule in the front of the specifications, and a submittal register attached to the back of the SUBMITTAL PROCEDURES specification. SPECSINTACT software must be used to prepare specifications. In the interest of uniform construction, it is mandatory for the A-E to use Unified Facility Guide Specifications (UFGS) and Sacramento District Guide Specifications (SPKGS) unless otherwise noted. The A-E must acquire all SPKGS via Zip format using the SPECSINTACT Backup/Restore/Manage command to restore the SPKGS for use. Edit the specifications to meet the needs of the project. A-E prepared specifications must be used only if there isn't a SPKGS available for a specific item of work. Technical provisions must be sufficiently complete and detailed to insure high quality work. Each technical provision must have a table of contents and text submitted in PDF. The use of trade names or proprietary items on the drawings and/or in the specifications by adopting a manufacturer's description of a particular commercial article followed by the words "or approved equal" must be avoided.
- 4.1.4. Design Documentation Report (DDR): The A-E must submit the 35% Design Documentation Report (DDR) incorporating all of the design assumptions and calculations. The actual Geotechnical Basis of Design and Hydraulic Basis of Design must be incorporated in the DDR as separate appendices. These reports will be provided by the Corps of Engineers. The COE will also provide all geotechnical input for the DDR. Content and format are as shown in Appendix D of ER 1110-2-1150.

The DDR must be a Word document that is developed and expanded upon with each subsequent submittal so that it represents the complete design history. The submittal must be in PDF. Include a table of contents, a narrative, and appendices. Content and format are as shown in Appendix D of ER 1110-2-1150. It must be noted that the DDR will not be part of the construction bid documents; therefore, any information contained in the DDR that will be needed to complete the construction of the project must be included in the plans and specifications.

- (a) The Table of Contents must clearly define the location of all information contained therein.
- (b) The narrative must provide a complete explanation of the basis of design discipline-by-discipline. It must also include the results of field investigations performed, including basic findings and a discussion of items that warrant special attention.
- (c) The appendices must include copies of all pertinent correspondence; all design calculations and worksheets, and all submittal review comments. Copies of all pertinent correspondence (e.g., statements of work, conference minutes and other pertinent data) are required so that the DDR presents the project history from inception to completion of the design documents. Design calculations and worksheets citing applicable codes and standards must also be included to verify the design. Sketches, details and plans, as necessary, must be prepared to support the calculations. The

calculations must be computed and checked by separate individuals. Checking must be accomplished by registered engineers of the firm under contract to the COE, as identified in the A-E's QC Plan. The names of these individuals must be indicated on the page or insert carrying the calculation. Presentation must be clear and legible with a tabulation showing all design loads and conditions. The source of loading conditions formulas and references must be identified. All assumptions and conclusions must be explained and cross-referencing must be clear. When a computer program is used, the program must be named and described. This description must be sufficient to verify the validity of methods, assumptions, theories, and formulas, but will not require source code documentation or otherwise which will compromise proprietary programs. Lastly, all review comments generated by the reviewers, annotated by the COE, and responded to by the A-E must also be included as an appendix.

(d) The specific contents of the DDR vary depending on the stage of the submittal. Do not delete information from earlier stages of design in subsequent design submittals. The design calculations must be clearly subdivided by discipline. The original DDR must be loosely assembled while the copies must be bound. If more than one volume is used, all volumes must be numbered sequentially and assembled under a cover page indicating the volume and total number of volumes for the project. All material must be 8-1/2" X 11" standard page size PDF. Use 11" X 17" PDF for larger material, when reduction is not feasible. This applies to all drawings, published data or automatic data processing printouts that must be included in the DDR. Both side margins must be 3/4" minimum to permit loose side bindings and head-to-head printing.

(e) Electronic Media: All submittals must be stored on optical disk or other agreed-upon media compatible with a personal computer operating Windows 10. The word processing used to generate the text must be Microsoft Word 2013 format. Graphics must be in a form that can be imported into the Word documents. Final submittal must be in both MS Word 2013 format and Adobe Acrobat PDF.

(f) ~~Structural Design Calculations: The structural calculations must comply with Corps of Engineers criteria. All calculations must be certified (stamped) by the person indicated in the A-E's QC Plan.~~

- 4.1.5. Ensure project complies with current USACE, SAFCA, DWR, Reclamation District 1000, City, and all relevant Utility Owner standards. In case of conflict, USACE guidance must apply. The AE must coordinate with all utility owners to verify existing designs, and revise according to current standards and requirements. The AE must resubmit the SMUD "B" letter incorporating any design changes, and incorporate SMUD comments into the plans.
- 4.1.6. MII Cost Estimates: The A-E must complete the 35% MII cost estimates. Detailed instructions for preparing cost estimates are presented in UFC and ER 1110-2-1302. MII is the required software for the preparation of the cost estimate. The estimates for this task order must be performed using MII and must be consistent with the current estimating practices of the construction industry (American Society of Professional Engineers). Software can be obtained by completing a form supplied by the Corps of Engineers Technical Lead. Upon completion of the cost estimate, the A-E must submit to the Corps of Engineers Technical Lead the required back-up information and cost estimate as required by the UFC and ER 1110-2-1302 and the Sacramento District Cost Estimate Requirement for Current Working Estimates (CWE). The Corps of Engineers Cost Engineers must be contacted directly for any explanations and/or clarifications.
- 4.1.7. ~~Engineering Considerations and Instructions for Field Personnel (ECIFP): The A-E must complete the 35% Engineering Considerations and Instructions for Field Personnel (ECIFP) report. The 35% ECIFP must consist of an outline only, but the remaining submittals must be complete reports. The ECIFP is a report outlining the engineering considerations and providing instructions for field personnel to aid them in the supervision and inspection of the construction contract. Appendix G of ER 1110-2-1150 provides an outline of the ECIFP content.~~

4.1.8. Review Process: The Corps of Engineers and other agencies will review all A-E prepared design data for conformance with the contract requirements and technical as well as functional criteria utilizing the Corps of Engineers' Design, Review, and Checking System (DRChecks). DRChecks is a computerized method for transmittal and storage of design review comments. It provides interactive capability to address and respond to design review comments. The A-E can access DRChecks at the website [www.projnet.org](http://www.projnet.org). The A-E must also obtain login capability. If the A-E requires assistance, encounters problems, or have questions or comments, call the DRChecks Coordinator, Bianca Gayton at (916) 557-5156.

(a) Review Comments: All design review comments will be entered into DRChecks. All review comments will be "coordinated" by the Corps of Engineers Project Manager. That is, they will be reviewed for applicability to the project against the project's design criteria. Evaluate and respond to comments at a personal computer in the A-E office by use of the DRChecks website described above. All comments are stored in DRChecks. The A-E may download the review comments, evaluate the comments, and enter the responses in DRChecks.

(b) A-E Responses: The A-E must respond to the review comments in DRChecks as follows:

- (1) "Concur" if the A-E agrees with the comment.
- (2) "Non-Concur" if the A-E does not agree with the comment. A response on why the A-E does not agree with the comment.
- (3) "For Information Only" if the A-E feels the comment is for information only.
- (4) "Check and Resolve" if the A-E needs further analysis to respond to the comment. Include an explanation of what needs to be done to resolve the comment.

Submitting a separate sheet of paper with location of compliance or rebuttals is not allowed. Enter all information into DRChecks. Notify the Corps of Engineers when all responses are stored in DRChecks. If the A-E has any hardware or software problems with the DRChecks system, call the DRChecks Coordinator, Bianca Gayton at (916) 557-5156.

(c) Backcheck of Previous Comments: Review comments on prior submittals must be checked for incorporation in the subsequent submittals. Those comments verified as done and explanations concurred with will be annotated, "COMMENT CLOSED," in DRChecks. Previous comments not verified as done or explanations not concurred with will be annotated, "COMMENT OPEN," will appear in the current review stage's comments. These comments require further action by A-E prior to next submittal. All final submittals will be backchecked by the Corps of Engineers, after A-E corrections are made, to ensure compliance with or resolution of comments to the satisfaction of the Corps of Engineers.

#### 4.2. Task 2 – 65% Submittal

- 4.2.1. Plans: The A-E must develop the 65% design plans for the Highway 99 Window, incorporating the comments from the 35% review, and must be a complete set of plans showing 65% of the design details. Plan drawing requirements are stated in Paragraph 4.1.2.
- 4.2.2. Specifications: The A-E must develop the 65% design specifications for the Highway 99 Window, incorporating the comments from the 35% review, and must be a complete set of specifications indicating 65% of the design details. Specification requirements are stated in Paragraph 4.1.3.
- 4.2.3. DDR: The A-E must submit the 65% Design Documentation Report incorporating all of the comments from the 35% review. DDR requirements are stated in Paragraph 4.1.4.

- 4.2.4. MII Cost Estimates: The A-E must complete the 65% MII cost estimates, incorporating the comments from the 35% review. MII cost estimates requirements are stated in Paragraph 4.1.5.
- 4.2.5. ECIFP: *The A-E must complete the 65% Engineering Considerations and Instructions for Field Personnel (ECIFP) report. The 65% ECIFP and all remaining submittals must be complete reports. The ECIFP is a report outlining the engineering considerations for staff field personnel and provide instructions for this field personnel to aid them in the supervision and inspection of the construction contract. Appendix G of ER 1110-2-1150 provides an outline of the ECIFP content.* The A-E must complete the 65% Engineering Considerations and Instructions for Field Personnel (ECIFP) report. ~~incorporating the comments in the 35% review. ECIFP requirements are stated in Paragraph 4.1.6.~~
- 4.2.6. Draft Real Estate Mapping: The A-E must complete the draft project footprint and staging area mapping with the 65% submittal package for this site. The mapping is a set of AutoCad Version 2018 and PDF files showing required permanent Rights-of-Way (flood protection levee easement), temporary construction and access easements (temporary work area easement), permanent access (permanent road easement), and temporary A-E staging areas necessary for construction and maintenance of the project. The A-E must also show the existing property boundary lines on the mapping.
- 4.2.7. Review Process: Review process requirements are stated in Paragraph 4.1.8.

#### 4.3. Task 3 – 95% Submittal

- 4.3.1. Plans: The A-E must develop the 95% design plans for Highway 99 Window, incorporating the comments from the 65% review, and must be a complete set of plans showing 95% of the design details. Plan drawing requirements are stated in Paragraph 4.1.2.
- 4.3.2. Specifications: The A-E must develop the 95% design specifications for the Highway 99 Window, incorporating the comments from the 65% review, and must be a complete set of specifications indicating 100% of the design details. Specification requirements are stated in Paragraph 4.1.3.
- 4.3.3. DDR: The A-E must submit the 95% Design Documentation Report incorporating all of the comments from the 65% review. DDR requirements are stated in Paragraph 4.1.4.
- 4.3.4. MII Cost Estimates: The A-E must complete the 95% MII cost estimates, incorporating the comments from the 65% review. MII cost estimates requirements are stated in Paragraph 4.1.5.
- 4.3.5. ECIFP: The A-E must complete the 95% Engineering Considerations and Instructions for Field Personnel (ECIFP) report, incorporating the comments in the 65% review. ECIFP requirements are stated in Paragraph ~~4.1.6~~ 4.2.5.
- 4.3.6. Final Real Estate Mapping: The A-E must complete the final project footprint and staging area mapping with the 95% submittal package for this site. The mapping is a set of AutoCad Version 2007 and PDF files showing required permanent Rights-of-Way (flood protection levee easement), temporary construction and access easements (temporary work area easement), permanent access (permanent road easement), and temporary A-E staging areas necessary for construction and maintenance of the project.
- 4.3.7. Review Process: Review process requirements are stated in Paragraph 4.1.8

#### 4.4. Task 4 – 100% Submittal



- 4.4.1. Plans: The A-E must develop the 100% design plans for the Highway 99 Window, incorporating the comments from the 95% review, and must be a complete set of plans showing 100% of the design details. Plan drawing requirements are stated in Paragraph 4.1.2.
- 4.4.2. Specifications: The A-E must develop the 100% design specifications for the Highway 99 Window, incorporating the comments from the 95% review, and must be a complete set of specifications indicating 100% of the design details. Specification requirements are stated in Paragraph 4.1.3.
- 4.4.3. DDR: The A-E must submit the 100% Design Documentation Report incorporating all of the comments from the 95% review. DDR requirements are stated in Paragraph 4.1.4.
- 4.4.4. MII Cost Estimates: The A-E must complete the 100% MII cost estimates, incorporating the comments from the 95% review. MII cost estimates requirements are stated in Paragraph 4.1.5.
- 4.4.5. ECIFP: The A-E must complete the 100% Engineering Considerations and Instructions for Field Personnel (ECIFP) report, incorporating the comments in the 95% review. ECIFP requirements are stated in Paragraph ~~4.1.6~~ 4.2.5.
- 4.4.6. Review Process: Review process requirements are stated in Paragraph 4.1.8.

#### 4.5. Task 5 – Final Submittal

- 4.5.1. Plans: The A-E must develop the final design plans for the Highway 99 Window, incorporating the open comments from previous reviews, and must be a complete set of plans showing 100% of the design details. Plan drawing requirements are stated in Paragraph 4.1.2.
- 4.5.2. Specifications: The A-E must develop the final design specifications for the Highway 99 Window, incorporating the open comments from previous reviews, and must be a complete set of specifications indicating 100% of the design details. Specification requirements are stated in Paragraph 4.1.3.
- 4.5.3. DDR: The A-E must submit the final Design Documentation Report incorporating all of the open comments from previous reviews. DDR requirements are stated in Paragraph 4.1.4.
- 4.5.4. MII Cost Estimates: The A-E must complete the final MII cost estimates, incorporating the open comments from previous reviews. MII cost estimates requirements are stated in Paragraph 4.1.5.
- 4.5.5. ECIFP: The A-E must complete the final Engineering Considerations and Instructions for Field Personnel (ECIFP) report, incorporating the open comments in previous reviews. ECIFP requirements are stated in Paragraph ~~4.1.6~~ 4.2.5.
- 4.5.6. Review Process: Review process and comment closeout requirements are stated in Paragraph 4.1.8.
- 4.5.7. Electronic Submittal: Complete BCOES and Outside Agency review, address comments, make necessary revisions, and provide final contract documents (plans, specifications, MII Cost Estimate, DDR & ECIFP) in electronic format.

#### 4.6. Task 6 – Coordination, Meetings, and Project Management

- 4.6.1. Coordinate design document revisions with Corps staff including obtaining input from civil, geotechnical, real estate, cultural, and environmental disciplines and incorporate changes.
- 4.6.2. Coordinate with Caltrans, Utility Agencies, and Local Agencies. Determine current status and facilitate coordination with companies and agencies for the timely relocation of utilities, as well as the Levee Maintenance Agency and Non-Federal Sponsors, and incorporate design package

revisions as necessary to address comments. The A-E must assume four (4) meetings with two (2) hours attended by teleconference per meeting, plus an additional two (2) hours for preparation prior to the meeting and finalizing meeting notes after the meeting, for a total of four (4) hours of AE project manager staff time per meeting.

- 4.6.3. AE project manager must attend ten (10) design progress meetings to be held at the Sacramento District or through teleconference. Design meetings are separate from meetings conducted during construction. The A-E will be given five (5) calendar days' notice by the Technical Lead prior to any scheduled meeting. The meetings will discuss progress to date, project design issues, schedule, and coordination with the Corps of Engineers. The A-E must assume two (2) hours attended by teleconference per meeting, plus an additional two (2) hours for preparation prior to the meeting and finalizing meeting notes after the meeting, for a total of four (4) hours of AE project manager staff time per meeting.

#### 4.7 **Optional Task 1** - Additional Meetings and Communications

- 4.7.1 This optional task must be exercised in the event that additional meetings are required above and beyond those outlined for the various submittals above. Meetings must be held at either the USACE offices in Sacramento or through a video conference call. Optional Task 1 can be used for design coordination meetings from 35% up through the design RTA submittal effort.
- 4.7.2 Design Coordination Meetings: Assume these meetings will be held at USACE Sacramento District or by video teleconference call. Up to two (2) A-E employees (project manager and lead designer) per meeting, two (2) hours per meeting. For purposes of negotiations, assume that an additional six (6) meetings may be required during the course of the entire design effort. The A-E must assume that three (3) of the meetings will occur in person and three (3) will occur by teleconference. A summary report of the discussion between the A-E and representatives of interested groups and individuals of other agencies relating to work under this contract must be furnished to the COE within 7 calendar days of the conclusion of the discussion. The A-E must not attend any meetings prior to notifying and receiving approval from USACE.

#### 4.8 **Optional Task 2** - Engineering Support Services during Construction

- 4.8.1 The A-E must provide engineering construction phase support services to the Corps of Engineers (Corps). The A-E must provide 400 hours of construction phase services support to the Corps which includes attending site visits (assume 5); meeting attendance as requested (assume 5); review of construction submittals (assume 100); general coordination with the Corps, construction contractor, and stakeholders as needed; review and responding to requests for information (RFI's) from the construction contractor (assume 100); preparation of design revisions (assume 5); and a detailed cost estimate for design revisions in support of contract modifications for work not associated with any errors and omissions. A contract modification includes changes to specifications, plans, an engineer's cost estimate, and bid items. Work required due to errors or omissions (RFI reviews/responses, design modifications, etc.), as determined by the Corps, must be performed at no additional charge to the Government.
- 4.8.2 All direction, inquiries, and responses must be coordinated with the Sacramento District Project Technical Lead. The A-E must take no action under this task order unless directed/approved by the COR or Project Technical Lead. If any request for services is received from other stakeholders (construction contractor, local sponsor, etc.), the A-E must communicate this to the Corps immediately, and receive written approval from USACE's COR prior to taking action on any task. Services rendered without prior direction/approval from the COR will not be approved for payment.
- 4.8.3 Any task estimated to involve more than 4 hours of effort by the A-E must be communicated to the Sacramento District Project Technical Lead, with an estimate of total amount of hours required by the A-E to perform the task. The A-E must receive approval of the estimated level of effort from the

Project Technical Lead prior to proceeding with these tasks. Responses to RFIs, reviews of construction submittals, etc. must be in the narrative form unless otherwise specified by the Technical Lead. If the A-E believes that design revisions, including revised drawings, are necessary to adequately respond to the task, this must be communicated to the Project Technical Lead. The A-E must receive written approval from the Technical Lead prior to performing this effort.

- 4.8.4 Retain a record log of all correspondence and submittals related to engineering services during construction. A copy of the electronic record log must be submitted to the Technical Lead upon construction contract completion.
- 4.8.5 The A-E must submit a detailed breakdown of tasks performed under this statement of work on a monthly basis, at the time of invoice. This detailed breakdown must include the actual number of hours spent on performing each task assigned to the A-E during the month. This is to include time spent on each individual RFI, submittal, meeting attended, design revision, or other service rendered. Time spent working on activities related to errors or omissions in original design documents must not be included in the invoice for payment.
- 4.8.6 Engineering services are required from exercise of the optional task to the estimated date of construction completion of November 2022.

#### 4.9 **Optional Task 3** - Additional A-E Services during Construction

This Optional Task must provide an additional estimated 100 hours of construction phase engineering services as described in Optional Task 2 above.

#### 4.10 **Optional Task 4** - Additional A-E Services during Construction

This Optional Task must provide an additional estimated 100 hours of construction phase engineering services as described in Optional Task 2 above.

#### 4.11 **Optional Task 5** - Additional A-E Services during Construction

This Optional Task must provide an additional estimated 100 hours of construction phase engineering services as described in Optional Task 2 above.

#### 4.12 **Optional Task 6** - Additional A-E Services during Construction

This Optional Task must provide an additional estimated 100 hours of construction phase engineering services as described in Optional Task 2 above.

#### 4.13 **Optional Task 7 – Supplemental Surveying**

*This Optional Task shall provide an additional one (1) day of field work in the event that minor surveying needs to be performed to complete the overall survey task. This optional task shall be exercised if after the development of the survey minor features are still needed to be surveyed in order to be able to refine the overall design and tie all surface features together.*

### 5. **SUBMITTALS AND DELIVERY**

All design submittals must be sent electronically in the stipulated formats to the COR and Technical Lead, via a secure transmittal system such as OneDrive email. All other required submittals must be sent electronically via e-mail to the COR and Technical Lead.

#### 5.1. WORK SCHEDULE

- 5.1.1. The following schedule covers design work, shown as Task 1 through Task 6 and Optional Tasks 1 through ~~6~~ 7:

Task	Task Completion (calendar days after task order award)
Task 1: 35 % Design Submittal	
Quality Control Plan	15 Days
Schedule	25 Days
35% Design Submittal	<del>60</del> 75 Days
Task 2: 65% Design Submittal	<del>135</del> 160 Days
Task 3: 95% Design Submittal	<del>210</del> 260 Days
Task 4: 100% Design Submittal	<del>255</del> 340 Days
Task 5: Final Design Submittal	<del>300</del> 400 Days
Task 6: Coordination, Meetings, and Project Management	
Outside Agency Communications	Three (3) days after Discussion
Design Progress Meeting Notes	Five (5) days after Meeting
Optional Task 1: Additional Meetings and Communications	
Outside Agency Communications	Three (3) days after Discussion
Design Progress Meeting Notes	Five (5) days after Meeting
Optional Task 2: Engineering Support Services during Construction	
RFI's	Three (3) calendar days after receipt
RFI's with Design Effort	Seven (7) calendar days after receipt
Submittals	Five (5) calendar days after receipt
Optional Tasks 3 - 6: Additional A-E Services during Construction	
RFI's	Three (3) calendar days after receipt
RFI's with Design Effort	Seven (7) calendar days after receipt
Submittals	Five (5) calendar days after receipt
<i>Optional Task 7: Supplemental Surveying</i>	<i>Incorporate supplemental survey data into design submittal(s)</i>

## 5.2. REVIEW SCHEDULE

- 5.2.1. The Corps and sponsors will be allotted fourteen (14) calendar days to review documents provided. Comments will be submitted in DrChecks and the AE must address comments to the satisfaction of the Corps in order to complete the BCOES process.

## 5.3. GENERAL REQUIREMENTS:

- 5.3.1. Quality Control –
- A. Quality Control Plan: Submit with proposal.
  - B. Quality Control Certification and ITR Documentation: Submit with each design submittal.
- 5.3.2. Progress Reporting:
- A. Progress Reports are required at the frequency and per the requirements as stated in Section 3.2.
  - B. Reports must be emailed to the Technical Lead and Project Manager.
- 5.3.3. Antiterrorism and Operation Security (AT/OPSEC) Requirements – Submit documents to the COR and Technical Lead.

- A. Suspicious Activity Reporting Training: Complete training within 30 calendar days of contract award.
- B. OPSEC Training: Submit certificates of completion within 30 calendar days of contract award.
- C. Pre-screen Candidates using E-Verify Program: Submit initial list of verified/eligible Candidates no later than 3 business days after contract award.

## **6. OVERALL PERIOD OF PERFORMANCE**

All work and services for the base tasks must be completed within ~~300~~ 400 calendar days from the date of contract award.

## **7. OPTION STATEMENT**

- 7.1. The Government may exercise the contract options at any time within the period of performance of the task order at the stated option price.
- 7.2. Optional Task 1 – Additional Meetings and Communication.  
All work and services for Optional Task 1 must be completed within 90 calendar days from the date the option is exercised.
- 7.3. Optional Task 2 – Engineering Support Services During Construction.  
All work and services for Optional Task 2 must be completed within 500 calendar days from the date the option is exercised.
- 7.4. Optional Task 3 – Additional A-E Services during Construction.  
All work and services for Optional Task 3 must be completed within 60 calendar days from the date the option is exercised.
- 7.5. Optional Task 4 – Additional A-E Services during Construction.  
All work and services for Optional Task 4 must be completed within 60 calendar days from the date the option is exercised.
- 7.6. Optional Task 5 – Additional A-E Services during Construction.  
All work and services for Optional Task 5 must be completed within 60 calendar days from the date the option is exercised.
- 7.7. Optional Task 6 – Additional A-E Services during Construction.  
All work and services for Optional Task 6 must be completed within 60 calendar days from the date the option is exercised.
- 7.8. *Optional Task 7 – Supplemental Surveys.  
All work and services for Optional Task 7 must be completed within 30 calendar days from the date the option is exercised.*

## **8. AUTHORITIES STATEMENT**

- 8.1. No person other than the Government Contracting Officer has the authority to make any changes to this contract action that impact cost or schedule. Authority from the Contracting Officer to the contractor to make changes that impact cost or schedule will be in the form of an official, signed modification.

**9. PAYMENTS STATEMENT**

- 9.1. The contractor must submit ENG Form 93 (Payment Estimates), available from the Sacramento District's A-E Administration Section; should you require an ENG Form 93, please send an email request to [ENG93.AE.PaymentEstimates@usace.army.mil](mailto:ENG93.AE.PaymentEstimates@usace.army.mil). A separate ENG Form 93 must be submitted for each task order; multiple task orders or contracts may not be submitted on the same ENG Form 93. The monthly progress report must be submitted with every payment estimate. Payment estimates without a corresponding progress report will be rejected.
- 9.2. Payment estimates must be submitted no more often than monthly. Percentages billed must not be calculated beyond two decimal places for each line item on a payment estimate. Each line item must give a detailed description of:
- A. The work item being invoiced
  - B. The negotiated amount
  - C. The percentage of work completed for the billing period
  - D. And earnings to date
- 9.3. It is USACE Sacramento District's policy to withhold 10% retains (FAR 52.232-10) on all submitted payment estimates. Retains will be released on task orders at 100% completion, when required documentation is submitted and approved. Please refer to the award document for necessary submittals prior to submitting payment estimates. Upon receipt, the USACE Sacramento District will review and either approve for accuracy or deny the requested earnings before payment will be made. The completed ENG Form 93 Payment Estimates must be officially submitted via email to [ENG93.AE.PaymentEstimates@usace.army.mil](mailto:ENG93.AE.PaymentEstimates@usace.army.mil), and the subject line must include the contract obligation number, task order number and invoice number.

END OF STATEMENT OF WORK

Section E - Inspection and Acceptance

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0001	N/A	N/A	N/A	Government
0002	N/A	N/A	N/A	Government
0003	N/A	N/A	N/A	Government
0004	N/A	N/A	N/A	Government
0005	N/A	N/A	N/A	Government
0006	N/A	N/A	N/A	Government
0007	N/A	N/A	N/A	Government
0008	N/A	N/A	N/A	Government

Section F - Deliveries or Performance

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	DODAAC / CAGE
0001	POP 21-JUL-2021 TO 25-AUG-2022	N/A	US ARMY CORPS OF ENGINEERS, SACRAMENTO CONTRACTING DIVISION 1325 J STREET SACRAMENTO CA 95814-2922 FOB: Destination	W91238
0002	N/A	N/A	N/A	N/A
0003	N/A	N/A	N/A	N/A
0004	N/A	N/A	N/A	N/A
0005	N/A	N/A	N/A	N/A
0006	N/A	N/A	N/A	N/A
0007	N/A	N/A	N/A	N/A
0008	N/A	N/A	N/A	N/A



Section G - Contract Administration Data

ACCOUNTING AND APPROPRIATION DATA

AA: 096 NA X 2020 3122 000 0000 CCS: 511 L2 2020 08 2451 443424 96042 3200 2F68FG  
AMOUNT: \$673,388.93

ACRN	CLIN/SLIN	CIN	AMOUNT
AA	0001	W62N6M104932220001	\$673,388.93

## Section I - Contract Clauses

## CLAUSES INCORPORATED BY FULL TEXT

## 252.204-7012 SAFEGUARDING COVERED DEFENSE INFORMATION AND CYBER INCIDENT REPORTING (DEC 2019)

(a) Definitions. As used in this clause--

Adequate security means protective measures that are commensurate with the consequences and probability of loss, misuse, or unauthorized access to, or modification of information.

Compromise means disclosure of information to unauthorized persons, or a violation of the security policy of a system, in which unauthorized intentional or unintentional disclosure, modification, destruction, or loss of an object, or the copying of information to unauthorized media may have occurred.

Contractor attributional/proprietary information means information that identifies the contractor(s), whether directly or indirectly, by the grouping of information that can be traced back to the contractor(s) (e.g., program description, facility locations), personally identifiable information, as well as trade secrets, commercial or financial information, or other commercially sensitive information that is not customarily shared outside of the company.

Controlled technical information means technical information with military or space application that is subject to controls on the access, use, reproduction, modification, performance, display, release, disclosure, or dissemination. Controlled technical information would meet the criteria, if disseminated, for distribution statements B through F using the criteria set forth in DoD Instruction 5230.24, Distribution Statements on Technical Documents. The term does not include information that is lawfully publicly available without restrictions.

Covered contractor information system means an unclassified information system that is owned, or operated by or for, a contractor and that processes, stores, or transmits covered defense information.

Covered defense information means unclassified controlled technical information or other information, as described in the Controlled Unclassified Information (CUI) Registry at <http://www.archives.gov/cui/registry/category-list.html>, that requires safeguarding or dissemination controls pursuant to and consistent with law, regulations, and Governmentwide policies, and is--

(1) Marked or otherwise identified in the contract, task order, or delivery order and provided to the contractor by or on behalf of DoD in support of the performance of the contract; or

(2) Collected, developed, received, transmitted, used, or stored by or on behalf of the contractor in support of the performance of the contract.

Cyber incident means actions taken through the use of computer networks that result in a compromise or an actual or potentially adverse effect on an information system and/or the information residing therein.

Forensic analysis means the practice of gathering, retaining, and analyzing computer-related data for investigative purposes in a manner that maintains the integrity of the data.

Information system means a discrete set of information resources organized for the collection, processing, maintenance, use, sharing, dissemination, or disposition of information.

Malicious software means computer software or firmware intended to perform an unauthorized process that will have adverse impact on the confidentiality, integrity, or availability of an information system. This definition includes a virus, worm, Trojan horse, or other code-based entity that infects a host, as well as spyware and some forms of adware.

Media means physical devices or writing surfaces including, but is not limited to, magnetic tapes, optical disks, magnetic disks, large-scale integration memory chips, and printouts onto which covered defense information is recorded, stored, or printed within a covered contractor information system.

Operationally critical support means supplies or services designated by the Government as critical for airlift, sealift, intermodal transportation services, or logistical support that is essential to the mobilization, deployment, or sustainment of the Armed Forces in a contingency operation.

Rapidly report means within 72 hours of discovery of any cyber incident.

Technical information means technical data or computer software, as those terms are defined in the clause at DFARS 252.227-7013, Rights in Technical Data--Noncommercial Items, regardless of whether or not the clause is incorporated in this solicitation or contract. Examples of technical information include research and engineering data, engineering drawings, and associated lists, specifications, standards, process sheets, manuals, technical reports, technical orders, catalog-item identifications, data sets, studies and analyses and related information, and computer software executable code and source code.

(b) Adequate security. The Contractor shall provide adequate security on all covered contractor information systems. To provide adequate security, the Contractor shall implement, at a minimum, the following information security protections:

(1) For covered contractor information systems that are part of an information technology (IT) service or system operated on behalf of the Government, the following security requirements apply:

(i) Cloud computing services shall be subject to the security requirements specified in the clause 252.239-7010, Cloud Computing Services, of this contract.

(ii) Any other such IT service or system (i.e., other than cloud computing) shall be subject to the security requirements specified elsewhere in this contract.

(2) For covered contractor information systems that are not part of an IT service or system operated on behalf of the Government and therefore are not subject to the security requirement specified at paragraph (b)(1) of this clause, the following security requirements apply:

(i) Except as provided in paragraph (b)(2)(ii) of this clause, the covered contractor information system shall be subject to the security requirements in National Institute of Standards and Technology (NIST) Special Publication (SP) 800-171, "Protecting Controlled Unclassified Information in Nonfederal Information Systems and Organizations" (available via the internet at <http://dx.doi.org/10.6028/NIST.SP.800-171>) in effect at the time the solicitation is issued or as authorized by the Contracting Officer.

(ii)(A) The Contractor shall implement NIST SP 800-171, as soon as practical, but not later than December 31, 2017. For all contracts awarded prior to October 1, 2017, the Contractor shall notify the DoD Chief Information Officer (CIO), via email at [osd.dibcsia@mail.mil](mailto:osd.dibcsia@mail.mil), within 30 days of contract award, of any security requirements specified by NIST SP 800-171 not implemented at the time of contract award.

(B) The Contractor shall submit requests to vary from NIST SP 800-171 in writing to the Contracting Officer, for consideration by the DoD CIO. The Contractor need not implement any security requirement adjudicated by an authorized representative of the DoD CIO to be nonapplicable or to have an alternative, but equally effective, security measure that may be implemented in its place.

(C) If the DoD CIO has previously adjudicated the contractor's requests indicating that a requirement is not applicable or that an alternative security measure is equally effective, a copy of that approval shall be provided to the Contracting Officer when requesting its recognition under this contract.

(D) If the Contractor intends to use an external cloud service provider to store, process, or transmit any covered defense information in performance of this contract, the Contractor shall require and ensure that the cloud service provider meets security requirements equivalent to those established by the Government for the Federal Risk and Authorization Management Program (FedRAMP) Moderate baseline (<https://www.fedramp.gov/resources/documents/>) and that the cloud service provider complies with requirements in paragraphs (c) through (g) of this clause for cyber incident reporting, malicious software, media preservation and protection, access to additional information and equipment necessary for forensic analysis, and cyber incident damage assessment.

(3) Apply other information systems security measures when the Contractor reasonably determines that information systems security measures, in addition to those identified in paragraphs (b)(1) and (2) of this clause, may be required to provide adequate security in a dynamic environment or to accommodate special circumstances (e.g., medical devices) and any individual, isolated, or temporary deficiencies based on an assessed risk or vulnerability. These measures may be addressed in a system security plan.

(c) Cyber incident reporting requirement.

(1) When the Contractor discovers a cyber incident that affects a covered contractor information system or the covered defense information residing therein, or that affects the contractor's ability to perform the requirements of the contract that are designated as operationally critical support and identified in the contract, the Contractor shall--

(i) Conduct a review for evidence of compromise of covered defense information, including, but not limited to, identifying compromised computers, servers, specific data, and user accounts. This review shall also include analyzing covered contractor information system(s) that were part of the cyber incident, as well as other information systems on the Contractor's network(s), that may have been accessed as a result of the incident in order to identify compromised covered defense information, or that affect the Contractor's ability to provide operationally critical support; and

(ii) Rapidly report cyber incidents to DoD at <https://dibnet.dod.mil>.

(2) Cyber incident report. The cyber incident report shall be treated as information created by or for DoD and shall include, at a minimum, the required elements at <https://dibnet.dod.mil>.

(3) Medium assurance certificate requirement. In order to report cyber incidents in accordance with this clause, the Contractor or subcontractor shall have or acquire a DoD-approved medium assurance certificate to report cyber incidents. For information on obtaining a DoD-approved medium assurance certificate, see <https://public.cyber.mil/eca/>.

(d) Malicious software. When the Contractor or subcontractors discover and isolate malicious software in connection with a reported cyber incident, submit the malicious software to DoD Cyber Crime Center (DC3) in accordance with instructions provided by DC3 or the Contracting Officer. Do not send the malicious software to the Contracting Officer.

(e) Media preservation and protection. When a Contractor discovers a cyber incident has occurred, the Contractor shall preserve and protect images of all known affected information systems identified in paragraph (c)(1)(i) of this clause and all relevant monitoring/packet capture data for at least 90 days from the submission of the cyber incident report to allow DoD to request the media or decline interest.

(f) Access to additional information or equipment necessary for forensic analysis. Upon request by DoD, the Contractor shall provide DoD with access to additional information or equipment that is necessary to conduct a forensic analysis.

(g) Cyber incident damage assessment activities. If DoD elects to conduct a damage assessment, the Contracting Officer will request that the Contractor provide all of the damage assessment information gathered in accordance with paragraph (e) of this clause.

(h) DoD safeguarding and use of contractor attributional/proprietary information. The Government shall protect against the unauthorized use or release of information obtained from the contractor (or derived from information obtained from the contractor) under this clause that includes contractor attributional/proprietary information, including such information submitted in accordance with paragraph (c). To the maximum extent practicable, the Contractor shall identify and mark attributional/proprietary information. In making an authorized release of such information, the Government will implement appropriate procedures to minimize the contractor attributional/proprietary information that is included in such authorized release, seeking to include only that information that is necessary for the authorized purpose(s) for which the information is being released.

(i) Use and release of contractor attributional/proprietary information not created by or for DoD. Information that is obtained from the contractor (or derived from information obtained from the contractor) under this clause that is not created by or for DoD is authorized to be released outside of DoD--

(1) To entities with missions that may be affected by such information;

(2) To entities that may be called upon to assist in the diagnosis, detection, or mitigation of cyber incidents;

(3) To Government entities that conduct counterintelligence or law enforcement investigations;

(4) For national security purposes, including cyber situational awareness and defense purposes (including with Defense Industrial Base (DIB) participants in the program at 32 CFR part 236); or

(5) To a support services contractor ("recipient") that is directly supporting Government activities under a contract that includes the clause at 252.204-7009, Limitations on the Use or Disclosure of Third-Party Contractor Reported Cyber Incident Information.

(j) Use and release of contractor attributional/proprietary information created by or for DoD. Information that is obtained from the contractor (or derived from information obtained from the contractor) under this clause that is created by or for DoD (including the information submitted pursuant to paragraph (c) of this clause) is authorized to be used and released outside of DoD for purposes and activities authorized by paragraph (i) of this clause, and for any other lawful Government purpose or activity, subject to all applicable statutory, regulatory, and policy based restrictions on the Government's use and release of such information.

(k) The Contractor shall conduct activities under this clause in accordance with applicable laws and regulations on the interception, monitoring, access, use, and disclosure of electronic communications and data.

(l) Other safeguarding or reporting requirements. The safeguarding and cyber incident reporting required by this clause in no way abrogates the Contractor's responsibility for other safeguarding or cyber incident reporting pertaining to its unclassified information systems as required by other applicable clauses of this contract, or as a result of other applicable U.S. Government statutory or regulatory requirements.

(m) Subcontracts. The Contractor shall--

(1) Include this clause, including this paragraph (m), in subcontracts, or similar contractual instruments, for operationally critical support, or for which subcontract performance will involve covered defense information, including subcontracts for commercial items, without alteration, except to identify the parties. The Contractor shall determine if the information required for subcontractor performance retains its identity as covered defense information and will require protection under this clause, and, if necessary, consult with the Contracting Officer; and

(2) Require subcontractors to--

(i) Notify the prime Contractor (or next higher-tier subcontractor) when submitting a request to vary from a NIST SP 800-171 security requirement to the Contracting Officer, in accordance with paragraph (b)(2)(ii)(B) of this clause; and

(ii) Provide the incident report number, automatically assigned by DoD, to the prime Contractor (or next higher-tier subcontractor) as soon as practicable, when reporting a cyber incident to DoD as required in paragraph (c) of this clause.

(End of clause)

#### 252.204-7020 NIST SP 800-171 DOD ASSESSMENT REQUIREMENTS (NOV 2020)

##### (a) Definitions.

Basic Assessment means a contractor's self-assessment of the contractor's implementation of NIST SP 800-171 that-

- (1) Is based on the Contractor's review of their system security plan(s) associated with covered contractor information system(s);
- (2) Is conducted in accordance with the NIST SP 800-171 DoD Assessment Methodology; and
- (3) Results in a confidence level of "Low" in the resulting score, because it is a self-generated score.

Covered contractor information system has the meaning given in the clause 252.204-7012, Safeguarding Covered Defense Information and Cyber Incident Reporting, of this contract.

High Assessment means an assessment that is conducted by Government personnel using NIST SP 800-171A, Assessing Security Requirements for Controlled Unclassified Information that--

##### (1) Consists of--

- (i) A review of a contractor's Basic Assessment;
  - (ii) A thorough document review;
  - (iii) Verification, examination, and demonstration of a Contractor's system security plan to validate that NIST SP 800-171 security requirements have been implemented as described in the contractor's system security plan; and
  - (iv) Discussions with the contractor to obtain additional information or clarification, as needed; and
- (2) Results in a confidence level of "High" in the resulting score.

Medium Assessment means an assessment conducted by the Government that--

##### (1) Consists of--

- (i) A review of a contractor's Basic Assessment;
  - (ii) A thorough document review; and
  - (iii) Discussions with the contractor to obtain additional information or clarification, as needed; and
- (2) Results in a confidence level of "Medium" in the resulting score.



(2) Medium and High Assessments. DoD will post the following Medium and/or High Assessment summary level scores to SPRS for each system security plan assessed:

(i) The standard assessed (e.g., NIST SP 800-171 Rev 1).

(ii) Organization conducting the assessment, e.g., DCMA, or a specific organization (identified by Department of Defense Activity Address Code (DoDAAC)).

(iii) All industry CAGE code(s) associated with the information system(s) addressed by the system security plan.

(iv) A brief description of the system security plan architecture, if more than one system security plan exists.

(v) Date and level of the assessment, i.e., medium or high.

(vi) Summary level score (e.g., 105 out of 110, not the individual value assigned for each requirement).

(vii) Date that all requirements are expected to be implemented (i.e., a score of 110 is expected to be achieved) based on information gathered from associated plan(s) of action developed in accordance with NIST SP 800-171.

(e) Rebuttals. (1) DoD will provide Medium and High Assessment summary level scores to the Contractor and offer the opportunity for rebuttal and adjudication of assessment summary level scores prior to posting the summary level scores to SPRS (see SPRS User's Guide [https://www.sprs.csd.disa.mil/pdf/SPRS\\_Awardee.pdf](https://www.sprs.csd.disa.mil/pdf/SPRS_Awardee.pdf)).

(2) Upon completion of each assessment, the contractor has 14 business days to provide additional information to demonstrate that they meet any security requirements not observed by the assessment team or to rebut the findings that may be of question.

(f) Accessibility.

(1) Assessment summary level scores posted in SPRS are available to DoD personnel, and are protected, in accordance with the standards set forth in DoD Instruction 5000.79, Defense-wide Sharing and Use of Supplier and Product Performance Information (PI).

(2) Authorized representatives of the Contractor for which the assessment was conducted may access SPRS to view their own summary level scores, in accordance with the SPRS Software User's Guide for Awardees/Contractors available at [https://www.sprs.csd.disa.mil/pdf/SPRS\\_Awardee.pdf](https://www.sprs.csd.disa.mil/pdf/SPRS_Awardee.pdf).

(3) A High NIST SP 800-171 DoD Assessment may result in documentation in addition to that listed in this clause. DoD will retain and protect any such documentation as "Controlled Unclassified Information (CUI)" and intended for internal DoD use only. The information will be protected against unauthorized use and release, including through the exercise of applicable exemptions under the Freedom of Information Act (e.g., Exemption 4 covers trade secrets and commercial or financial information obtained from a contractor that is privileged or confidential).

(g) Subcontracts.

(1) The Contractor shall insert the substance of this clause, including this paragraph (g), in all subcontracts and other contractual instruments, including subcontracts for the acquisition of commercial items (excluding COTS items).

(2) The Contractor shall not award a subcontract or other contractual instrument, that is subject to the implementation of NIST SP 800-171 security requirements, in accordance with DFARS clause 252.204-7012 of this contract, unless the subcontractor has completed, within the last 3 years, at least a Basic NIST SP 800-171 DoD Assessment, as described in [https://www.acq.osd.mil/dpap/pdi/cyber/strategically\\_assessing\\_contractor\\_implementation\\_of\\_NIST\\_SP\\_800-](https://www.acq.osd.mil/dpap/pdi/cyber/strategically_assessing_contractor_implementation_of_NIST_SP_800-)



[171.html](#), for all covered contractor information systems relevant to its offer that are not part of an information technology service or system operated on behalf of the Government.

(3) If a subcontractor does not have summary level scores of a current NIST SP 800-171 DoD Assessment (i.e., not more than 3 years old unless a lesser time is specified in the solicitation) posted in SPRS, the subcontractor may conduct and submit a Basic Assessment, in accordance with the NIST SP 800-171 DoD Assessment Methodology, to [webptsmh@navy.mil](mailto:webptsmh@navy.mil) for posting to SPRS along with the information required by paragraph (d) of this clause.

(End of clause)

#### 252.204-7018 PROHIBITION ON THE ACQUISITION OF COVERED DEFENSE TELECOMMUNICATIONS EQUIPMENT OR SERVICES (JAN 2021)

(a) Definitions. As used in this clause--

Covered defense telecommunications equipment or services means--

- (1) Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation, or any subsidiary or affiliate of such entities;
- (2) Telecommunications services provided by such entities or using such equipment; or
- (3) Telecommunications equipment or services produced or provided by an entity that the Secretary of Defense reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

Covered foreign country means--

- (1) The People's Republic of China; or
- (2) The Russian Federation.

Covered missions means--

- (1) The nuclear deterrence mission of DoD, including with respect to nuclear command, control, and communications, integrated tactical warning and attack assessment, and continuity of Government; or
- (2) The homeland defense mission of DoD, including with respect to ballistic missile defense.

Critical technology means--

- (1) Defense articles or defense services included on the United States Munitions List set forth in the International Traffic in Arms Regulations under subchapter M of chapter I of title 22, Code of Federal Regulations;
- (2) Items included on the Commerce Control List set forth in Supplement No. 1 to part 774 of the Export Administration Regulations under subchapter C of chapter VII of title 15, Code of Federal Regulations, and controlled--
  - (i) Pursuant to multilateral regimes, including for reasons relating to national security, chemical and biological weapons proliferation, nuclear nonproliferation, or missile technology; or
  - (ii) For reasons relating to regional stability or surreptitious listening;

(3) Specially designed and prepared nuclear equipment, parts and components, materials, software, and technology covered by part 810 of title 10, Code of Federal Regulations (relating to assistance to foreign atomic energy activities);

(4) Nuclear facilities, equipment, and material covered by part 110 of title 10, Code of Federal Regulations (relating to export and import of nuclear equipment and material);

(5) Select agents and toxins covered by part 331 of title 7, Code of Federal Regulations, part 121 of title 9 of such Code, or part 73 of title 42 of such Code; or

(6) Emerging and foundational technologies controlled pursuant to section 1758 of the Export Control Reform Act of 2018 (50 U.S.C. 4817).

Substantial or essential component means any component necessary for the proper function or performance of a piece of equipment, system, or service.

(b) Prohibition. In accordance with section 1656 of the National Defense Authorization Act for Fiscal Year 2018 (Pub. L. 115-91), the contractor shall not provide to the Government any equipment, system, or service to carry out covered missions that uses covered defense telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless the covered defense telecommunication equipment or services are covered by a waiver described in Defense Federal Acquisition Regulation Supplement 204.2104.

(c) Procedures. The Contractor shall review the list of excluded parties in the System for Award Management (SAM) at <https://www.sam.gov> for entities that are excluded when providing any equipment, system, or service, to carry out covered missions, that uses covered defense telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless a waiver is granted.

(d) Reporting.

(1) In the event the Contractor identifies covered defense telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, the Contractor shall report at <https://dibnet.dod.mil> the information in paragraph (d)(2) of this clause.

(2) The Contractor shall report the following information pursuant to paragraph (d)(1) of this clause:

(i) Within 3 business days from the date of such identification or notification: The contract number; the order number(s), if applicable; supplier name; brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 30 business days of submitting the information in paragraph (d)(2)(i) of this clause: Any further available information about mitigation actions undertaken or recommended. In addition, the Contractor shall describe the efforts it undertook to prevent use or submission of a covered defense telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) Subcontracts. The Contractor shall insert the substance of this clause, including this paragraph (e), in all subcontracts and other contractual instruments, including subcontracts for the acquisition of commercial items.

(End of clause)

52.204-25 PROHIBITION ON CONTRACTING FOR CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT (AUG 2020)

(a) Definitions. As used in this clause--

Backhaul means intermediate links between the core network, or backbone network, and the small subnetworks at the edge of the network (e.g., connecting cell phones/towers to the core telephone network). Backhaul can be wireless (e.g., microwave) or wired (e.g., fiber optic, coaxial cable, Ethernet).

Covered foreign country means The People's Republic of China.

Covered telecommunications equipment or services means--

(1) Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities);

(2) For the purpose of public safety, security of Government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities);

(3) Telecommunications or video surveillance services provided by such entities or using such equipment; or

(4) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

Critical technology means--

(1) Defense articles or defense services included on the United States Munitions List set forth in the International Traffic in Arms Regulations under subchapter M of chapter I of title 22, Code of Federal Regulations;

(2) Items included on the Commerce Control List set forth in Supplement No. 1 to part 774 of the Export Administration Regulations under subchapter C of chapter VII of title 15, Code of Federal Regulations, and controlled--

(i) Pursuant to multilateral regimes, including for reasons relating to national security, chemical and biological weapons proliferation, nuclear nonproliferation, or missile technology; or

(ii) For reasons relating to regional stability or surreptitious listening;

(3) Specially designed and prepared nuclear equipment, parts and components, materials, software, and technology covered by part 810 of title 10, Code of Federal Regulations (relating to assistance to foreign atomic energy activities);

(4) Nuclear facilities, equipment, and material covered by part 110 of title 10, Code of Federal Regulations (relating to export and import of nuclear equipment and material);

(5) Select agents and toxins covered by part 331 of title 7, Code of Federal Regulations, part 121 of title 9 of such Code, or part 73 of title 42 of such Code; or

(6) Emerging and foundational technologies controlled pursuant to section 1758 of the Export Control Reform Act of 2018 (50 U.S.C. 4817).

Interconnection arrangements means arrangements governing the physical connection of two or more networks to allow the use of another's network to hand off traffic where it is ultimately delivered (e.g., connection of a customer of telephone provider A to a customer of telephone company B) or sharing data and other information resources.

Reasonable inquiry means an inquiry designed to uncover any information in the entity's possession about the identity of the producer or provider of covered telecommunications equipment or services used by the entity that excludes the need to include an internal or third-party audit.

Roaming means cellular communications services (e.g., voice, video, data) received from a visited network when unable to connect to the facilities of the home network either because signal coverage is too weak or because traffic is too high.

Substantial or essential component means any component necessary for the proper function or performance of a piece of equipment, system, or service.

(b) Prohibition.

(1) Section 889(a)(1)(A) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2019, from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. The Contractor is prohibited from providing to the Government any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104.

(2) Section 889(a)(1)(B) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2020, from entering into a contract, or extending or renewing a contract, with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104. This prohibition applies to the use of covered telecommunications equipment or services, regardless of whether that use is in performance of work under a Federal contract.

(c) Exceptions. This clause does not prohibit contractors from providing--

(1) A service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(2) Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(d) Reporting requirement.

(1) In the event the Contractor identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, or the Contractor is notified of such by a subcontractor at any tier or by any other source, the Contractor shall report the information in paragraph (d)(2) of this clause to the Contracting Officer, unless elsewhere in this contract are established procedures for reporting the information; in the case of the Department of Defense, the Contractor shall report to the website at <https://dibnet.dod.mil>. For indefinite delivery contracts, the Contractor shall report to the

Contracting Officer for the indefinite delivery contract and the Contracting Officer(s) for any affected order or, in the case of the Department of Defense, identify both the indefinite delivery contract and any affected orders in the report provided at <https://dibnet.dod.mil>.

(2) The Contractor shall report the following information pursuant to paragraph (d)(1) of this clause:

(i) Within one business day from the date of such identification or notification: The contract number; the order number(s), if applicable; supplier name; supplier unique entity identifier (if known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 10 business days of submitting the information in paragraph (d)(2)(i) of this clause: Any further available information about mitigation actions undertaken or recommended. In addition, the Contractor shall describe the efforts it undertook to prevent use or submission of covered telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) Subcontracts. The Contractor shall insert the substance of this clause, including this paragraph (e) and excluding paragraph (b)(2), in all subcontracts and other contractual instruments, including subcontracts for the acquisition of commercial items.

(End of clause)

#### 52.217-7 OPTION FOR INCREASED QUANTITY--SEPARATELY PRICED LINE ITEM (MAR 1989)

The Government may require the delivery of the numbered line item, identified in the Schedule as an option item, in the quantity and at the price stated in the Schedule. The Contracting Officer may exercise the option by written notice to the Contractor within the period of performance of the task order as indicated in Section C – Statement of Work. Delivery of added items shall continue at the same rate that like items are called for under the contract, unless the parties otherwise agree.

(End of clause)



# Appendix B. Architect-Engineer Guide

# Architect-Engineer Guide

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## Scope

The purpose of this Architect-Engineer (A-E) Guide is to inform A-E firms of the general administrative and technical requirements for providing professional services and products relative to their contract with the U.S. Army Corps of Engineers, Sacramento District (SPK). It supplements *EP 715-1-7 Architect-Engineer Contracting* [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>] and the A-E Statement of Work.

## Policy

The A-E Guide applies to A-E firms and members of the Sacramento District staff involved in A-E contract management and administration. It is assumed that the A-E selection process shown in the *Purchasing of Services [PROP08L0]* has been completed and a notification of selection has been transmitted to the A-E. The A-E Firm will begin with the review of the statement of work, criteria and preparation of financial data after the security clearance is obtained. This applies to all types of A-E contract actions including but not limited to: Fixed Price Contracts, Indefinite Delivery Contracts, Task Orders, etc.

## Responsibility

The Chief of A-E Administration Section is responsible for administration of the A-E Guide.

The A-E Administration Section is responsible for coordinating any necessary revisions to the A-E guide within Sacramento District, Engineering Support Branch and Engineering Division. The A-E Administration Section will also assure that this publication is referenced within the statement of work when applicable.

The Project Manager is responsible for referring to this publication in the A-E statement of work, when applicable.

The A-E Firm is responsible for thoroughly reviewing the A-E Guide prior to submission of an A-E cost proposal. The A-E Guide becomes part of the A-E firm's contract when referenced within the A-E statement of work. Therefore, it is essential that the A-E Guide be referred to throughout the execution of the A-E contract. Should there be a conflict between the contract statement of work and the A-E guidance, the contract statement of work shall take precedence. Special emphasis should be placed on scope and cost limitations and the requirements for contract deliverables. Questions and/or conflicts concerning the requirements of this publication should be immediately addressed to the Sacramento District main point of contact (COE POC) designated within the statement of work.

## Distribution

A-E Firm

Chief of A-E Administration Section

Chief of Engineering Division

Assistant Chief of Engineering Division

Chief of Engineering Support Branch

Chief of Design Branch

Chief of Geotechnical & Environmental Engineering Branch

A-E Responsibility Coordinator

Chief of Service and Supply Branch, Contracting Division

A-E Branch, Contracting Division

Project Manager

A-E Negotiator

Small and Disadvantaged Business Utilization (SADBU) Advisor

## Ownership

The Chief of A-E Administration Section  
[[William.D.MulleryD@usace.army.mil?Subject=REFP13L0 - Architect-Engineer Guide](mailto:William.D.MulleryD@usace.army.mil?Subject=REFP13L0 - Architect-Engineer Guide)] is responsible for ensuring that this document is necessary and that it reflects actual practice.

## References

Refer to:

- *Federal Acquisition Regulation (FAR)* [<http://www.arnet.gov/far/>]
- *FAR Subpart 24.2 - Freedom of Information Act*  
[[http://www.acqnet.gov/far/current/html/Subpart 24\\_2.html](http://www.acqnet.gov/far/current/html/Subpart%2024_2.html)]
- *FAR Subpart 36.6 - Architect-Engineer Services*  
[[http://www.acqnet.gov/far/current/html/Subpart 36\\_6.html](http://www.acqnet.gov/far/current/html/Subpart%2036_6.html)]
- *FAR 52.227-14 Rights in Data - General*  
[[http://www.arnet.gov/far/current/html/52\\_227.html - 1109286](http://www.arnet.gov/far/current/html/52_227.html - 1109286)]
- *FAR 52.232-10 Payments under Fixed-Price Architect-Engineer Contracts*  
[[http://www.arnet.gov/far/current/html/52\\_232.html - 1107121](http://www.arnet.gov/far/current/html/52_232.html - 1107121)]
- *FAR 52.232-26 Prompt Payment for Fixed-Price Architect-Engineer Contracts*  
[[http://www.arnet.gov/far/current/html/52\\_232.html - 1107573](http://www.arnet.gov/far/current/html/52_232.html - 1107573)]
- *FAR 52.326-23 - Responsibility of the Architect-Engineer Contractor*  
[[http://www.acqnet.gov/far/current/html/52\\_233\\_240.html](http://www.acqnet.gov/far/current/html/52_233_240.html)]
- *FAR 52.243-1 - Changes - Fixed Price*  
[[http://www.arnet.gov/far/current/html/52\\_241\\_244.html](http://www.arnet.gov/far/current/html/52_241_244.html)]



- 5 USC 552 - Freedom of Information Act (FOIA) [[http://uscode.house.gov/uscode-cgi/fastweb.exe?getdoc+uscview+t05t08+26+0++\(\)+AND+\(\(5\)+AD\]](http://uscode.house.gov/uscode-cgi/fastweb.exe?getdoc+uscview+t05t08+26+0++()+AND+((5)+AD])
- DFARS 236.6 - Architect-Engineer Services [[http://www.acq.osd.mil/dpap/dars/dfars/html/current/236\\_6.htm\]](http://www.acq.osd.mil/dpap/dars/dfars/html/current/236_6.htm)
- AFARS Subpart 5136.6 - Architect-Engineer Services [[http://farsite.hill.af.mil/reghtml/regs/other/afars/afar36.htm\]](http://farsite.hill.af.mil/reghtml/regs/other/afars/afar36.htm)
- EFARS Subpart 36.6 – Architect-Engineer Services [[http://www.hq.usace.army.mil/cepr/efars/part36.pdf\]](http://www.hq.usace.army.mil/cepr/efars/part36.pdf)
- Executive Order E.O. 12906 - Coordinating Geographic Data and Acquisition and Access: The National Spatial Data Infrastructure [[http://www.archives.gov/federal-register/executive-orders/pdf/12906.pdf\]](http://www.archives.gov/federal-register/executive-orders/pdf/12906.pdf)
- USACE Geospatial Data Clearinghouse Node [[http://corpsgeo1.usace.army.mil/\]](http://corpsgeo1.usace.army.mil/)
- EM 385-1-1 Safety and Health Requirements [[http://www.usace.army.mil/inet/usace-docs/eng-manuals/em385-1-1/toc.htm\]](http://www.usace.army.mil/inet/usace-docs/eng-manuals/em385-1-1/toc.htm)
- EP 310-1-6 Graphic Standard Manual [[http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep310-1-6/toc.htm\]](http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep310-1-6/toc.htm)
- EP 715-1-7 Architect-Engineer Contracting [[http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/toc.htm\]](http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/toc.htm)
- ER 5-1-11 U.S. Army Corps of Engineers Business Process [[http://www.usace.army.mil/publications/eng-regs/er5-1-11/entire.pdf\]](http://www.usace.army.mil/publications/eng-regs/er5-1-11/entire.pdf)
- ER 1110-1-12 Quality Management [[http://www.usace.army.mil/publications/eng-regs/er1110-1-12/entire.pdf\]](http://www.usace.army.mil/publications/eng-regs/er1110-1-12/entire.pdf)
- ER 1110-1-8156 Policies, Guidance, and Requirements for Geospatial Data and Systems [[http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8156/entire.pdf\]](http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8156/entire.pdf)
- ER 1110-1-8159 DRCHECKS [[http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8159/entire.pdf\]](http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8159/entire.pdf)
- ENG Form 93 - Payment Estimate - Contract Performance [[http://www.usace.army.mil/inet/usace-docs/forms/e93.pdf\]](http://www.usace.army.mil/inet/usace-docs/forms/e93.pdf)
- CESPD R 1110-1-8 South Pacific Division Quality Management Plan [[http://www.spd.usace.army.mil/entire.pdf\]](http://www.spd.usace.army.mil/entire.pdf)
- CADD/GIS Technology Center, A/E/C CADD Standard, ERDC/ITL TR-01-6, Release 2.0, [[https://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp\]](https://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp)
- Content Standard for Digital Geospatial Metadata Workbook [[http://www.fgdc.gov/metadata/documents/workbook\\_0501\\_bmk.pdf\]](http://www.fgdc.gov/metadata/documents/workbook_0501_bmk.pdf)
- Criteria Bulletin Board System (CBBS) [[http://cbbs.spk.usace.army.mil/\]](http://cbbs.spk.usace.army.mil/)
- U.S. Army Corps of Engineers, Sacramento District, Engineering Quality System [[http://iso9000.spk.usace.army.mil/\]](http://iso9000.spk.usace.army.mil/)
- Sacramento District Quality Management Plan [[http://iso9000.spk.usace.army.mil/qmp\\_s/qmp\\_s.html\]](http://iso9000.spk.usace.army.mil/qmp_s/qmp_s.html)
- Sacramento District Quality Management Plan, Appendix F SPK Quality Management Process, Product Development, Technical Review, and Quality Control Certification Forms [[http://iso9000.spk.usace.army.mil/docs/AppendixF.pdf\]](http://iso9000.spk.usace.army.mil/docs/AppendixF.pdf)
- Design Process for Civil Works Projects [PROP02L0]

- *Design Process for Military Projects* [[PROP03L0](#)]
- *Design Process for Hazardous, Toxic, and Radioactive Waste Projects* [[PROP04L0](#)]
- *Value Engineering* [[PROP06L0](#)]
- *Project Safety and Health Requirements* [[PROP07L0](#)]
- *Purchasing of Services* [[PROP08L0](#)]
- *Creation, Packaging, and Delivery of Project Documents* [[PROP09L0](#)]
- *Geographic Information Systems Design* [[PROP17L0](#)]
- *Preparing BCOE and Quality Control Certificates* [[PROP22L0](#)]
- *Integrating Lessons Learned* [[PROA04L0](#)]
- *A-E Responsibility Management Program* [[PROA05L0](#)]
- *Control of Project Documents* [[PROQ02L0](#)]
- *Managing As-Built & As-Constructed Drawings* [[PROQ08L0](#)]
- *Address and Attention Line Tables* [[REFP01L0](#)]
- *Criteria Locations Table for A-E Firms* [[REFP03L0](#)]
- *Project Specification Examples* [[REFP04L0](#)]
- *General Project Metadata* [[REFP05L0](#)]
- *Architect-Engineer 10% Design Submittals* [[REFP18L0](#)]
- *Architect-Engineer 35% Design Submittals* [[REFP21L0](#)]
- *Architect-Engineer 65% Design Submittals* [[REFP22L0](#)]
- *Architect-Engineer 100% Design Submittals* [[REFP23L0](#)]
- *Request for Proposal Document Submittals* [[REFP24L0](#)]
- *Delivering AutoCAD Drawings* [[INSP01L0](#)]
- *Preparing Project Specifications* [[INSP03L0](#)]
- *Preparing Amendments in SpecsIntact* [[INSP04L0](#)]
- *Delivering Hard Copy Documents* [[INSP08L0](#)]
- *Delivering Project Specifications* [[INSP09L0](#)]
- *Creating CALS Files From AutoCAD* [[INSP14L0](#)]
- *MicroStation DGN to Postscript to CALS* [[INSP15L0](#)]
- *Evaluating a Review Comment* [[INSA02L0](#)]

## Definitions

Refer to the *Glossary of Engineering Quality System Terms and Acronyms* [[REFQ10L0](#)] for definitions not listed here.

## Purpose

### Definition of Common Deliverables

A-E contracts vary greatly in their types of acquisition strategy and execution but still have some processes and products that are the same or similar. Those similar processes and products are Common Deliverables that this A-E Guide will address. Examples are: reports, hard copy paper, CD-ROM, statement of work, the negotiation process, and Quality Control Plans (QCP). Refer to *Architect-Engineer Submittals* [[REFP18L0](#)] for the details of A-E submittal contents.

## Statement of Work Process

### Description

After A-E selection, a copy of the statement of work will be forwarded to the A-E with a request to submit pertinent financial data (e.g., wage, overhead rates, any related direct costs items, subcontractor costs, and profit factors) and possibly the A-E's cost proposal to the Sacramento District. The statement of work will indicate the extent of the work to be accomplished by the A-E and may contain references to project specific criteria. The statement of work serves as the basis for the A-E's fee proposal and the Government's estimate. It will be the basis of a determination of fair and reasonable award price.

### Importance of Statement of Work

The statement of work is a part of the contract between the A-E and the Government. Therefore, it is essential that the two parties mutually agree that the work to be accomplished as described therein is accurate and complete. The goal of the statement of work is to create a measurable product. This means that efforts under a Scope shall be quantified to the maximum extent possible. The intent will not be to say in the Scope "study Problem X and provide solutions." Instead the Scope should say "study problem X and provide solutions at the minimum, optimum, and maximum levels." If an effort cannot be measured then consider a different approach. For example; instead of "study and design a solution," there might have to be a base of "complete the study, and once the recommendations have been evaluated by the Government the design may be awarded as an option." If the basic contract is an Indefinite Delivery Type Contract some statement of work items may be more general in coverage because the Task Order will embody specific efforts. The statement of work shall follow the format defined in *EP 715-1-7* [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>], and as supplemented within local policy under the guidance of the A-E Administration Section. In order to facilitate copying of the scope into the contract document, the statement of work should be in Times New Roman, 10 point font. Do not use headers, footers, page numbers, page breaks, or 'track changes' in the statement of work. Once the contract has been awarded, all changes to the statement of work, pertaining to schedule, price or quality, when necessary, will be made by the Contracting Officer (KO) in writing in accordance with the relevant contract clauses.

## Scope Limitations

### Minor Deviations

The A-E shall provide services and products in accordance with the statement of work. During the progress of the work, the A-E may expect minor changes in criteria within the general statement of the project and should make necessary adjustments accordingly. Minor technical deviations in the statement of supporting items may also be made to accommodate actual field conditions, changes in manufacturing which impact materials, etc.

### Authorized Guidance

The A-E is cautioned to take no guidance from any source, other than the Contracting Officer, during the execution of work, which deviates from the requirements stated in the statement of

work. The A-E shall not depart from, or perform work beyond the scope, or change the criteria upon which it is based without written direction and/or consent from the Contracting Officer. The A-E shall immediately notify the COE POC and/or the Contracting Officer of any such requests. Any problems relating to design, which endanger fulfillment of contractual requirements, shall immediately be brought to the attention of the COE POC. Either the A-E or Sacramento District COE POC shall confirm oral understandings in writing, at request of either party. IN NO CASE ARE CHANGES IN SCOPE TO BE MADE AT THE ACTIVITY LEVEL.

### Obtaining Approval for Deviations

The A-E shall not deviate from the authorized statement of work unless directed otherwise by the KO. The statement of any feature shall not be exceeded without written approval of the KO. THE A-E'S RESPONSIBILITY IS DIRECTLY TO THE GOVERNMENT'S CONTRACTING OFFICER AND ANY REQUESTED DEVIATION FROM THE SCOPE OR ELABORATIONS WITHIN THE SCOPE MUST BE BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER FOR RESOLUTION.

## **Changes in Scope**

### Process

The A-E shall not perform services requested by any person in the COE, other than the Contracting Officer, which the A-E considers to be a change in work or services required by the contract and necessitating an adjustment in contract price until all of the following is completed.

- Receipt of Supplemental Statement of Work from the Contracting Officer's Representative (COR).
- Submitted a proposal to COE covering such extra services,
- Negotiated with an authorized agent of the Government a mutually satisfactory fee, and
- Received an official notice to proceed from the Government Contracting Officer.

### Negotiations

Should MAJOR changes in the Scope be authorized by the Contracting Officer, appropriate modification to the A-E contract will be negotiated in accordance with the Contract Clause *FAR 52.243-1 - Changes - Fixed Price* [[http://www.arnet.gov/far/current/html/52\\_241\\_244.html](http://www.arnet.gov/far/current/html/52_241_244.html)]

## **A-E PROJECT MANAGER DESIGNATION**

One individual of the A-E Firm shall be designated by the A-E as Project Manager. The Project Manager shall be fully cognizant of the requirements of the A-E Contract, performance schedule and contents of this publication. The Project Manager will work directly with the Sacramento District COE POC, who will furnish guidance necessary for the successful execution of the work.

## RELEASE OF PROJECT INFORMATION

### Release by A-E to Public

At any stage of study, planning, design or construction, the A-E shall contact the Sacramento District Public Affairs Office, (916) 557-5104, to obtain a clearance and release before releasing any information for publication or giving public speeches concerning a project.

### Document Ownership

Under the clause "Drawings and Other Data to Become Property of Government" of the Contract Clauses, the ownership of all studies, reports, findings, designs, drawings, specifications, notes, calculations, electronic files, computer programs/software developed specifically to satisfy scope requirements and provide acquired data or other work is vested in the Government.

### The Freedom of Information Act

Of primary concern to the Sacramento District is the release of cost and pricing data that A-Es may consider as privileged and essential to their competitive position in their respective economic sectors. The A-E is advised that the FOIA applies to the data provided for the purpose of negotiations. Therefore, in the event an A-E wishes their cost and pricing data to be privileged and exempt from public release, the Sacramento District PM should be advised in writing and each page containing such data should be appropriately marked. Although the Sacramento District treats all A-E furnished cost and pricing data as being of a confidential nature, the *5 USC 552 - Freedom of Information Act (FOIA)* [[http://uscode.house.gov/uscode-cgi/fastweb.exe?getdoc+uscview+i05t08+26+0++\(\)+AND+\(\(5\)+AD\)](http://uscode.house.gov/uscode-cgi/fastweb.exe?getdoc+uscview+i05t08+26+0++()+AND+((5)+AD))], as amended, requires the release of records held by Government Agencies or Offices when requested by interested parties, unless such records are covered by one of the "exemptions" listed in the law. The *FAR Subpart 24.2 - Freedom of Information Act* [[http://www.acqnet.gov/far/current/html/Subpart\\_24\\_2.html](http://www.acqnet.gov/far/current/html/Subpart_24_2.html)], provides DOD policy and guidance on handling requests for records and exemptions under this Act.

## Correspondence and Transmittals

*Address and Attention Line Tables* [[REFP01L0](#)] shows the appropriate attention lines for the deliverable requirements listed within this A-E Guide. Failure to include the proper attention line within the address of correspondence to the Sacramento District may delay delivery and possibly compromise the A-E contract.

Submitting files via FTP does not relieve the A-E of having to fulfill any, or all, media requirements listed within the statement of work. The COE POC must be concurrently notified by e-mail of all FTP transmissions. For FTP transmissions to be considered as a valid deliverable, they must be acknowledged by the COE POC or PM with "confirmation of receipt" e-mail. An FTP address for the project may be coordinated with Engineering Division's Criteria Management Unit at Sacramento District (916) 557-7670 or [[cbbs@spk.usace.army.mil](mailto:cbbs@spk.usace.army.mil)]

## **STANDARD CLAUSES (for emphasis only)**

### Architect-Engineer Contract Clauses (where to find)

The A-E should review the standard *FAR* [<http://www.arnet.gov/far/>] and *FAR Subpart 36.6 - Architect-Engineer Services* [[http://www.acqnet.gov/far/current/html/Subpart 36.6.html](http://www.acqnet.gov/far/current/html/Subpart%2036.6.html)]. These clauses are incorporated, by reference, as part of the A-E firm's contract with Sacramento District. Upon request, the Contracting Officer will provide hard copies of the applicable A-E Contract Clauses.

### Cautionary Clause (take direction only from Contracting Officer)

No person other than the Contracting Officer has the authority to make changes to any contract action that impacts cost or schedule. Authority from the Contracting Officer to the A-E to make changes that impact cost or schedule will be in the form of an official, signed modification.

### Pay Estimates

Special emphasis is placed on requirements within Contract Clause *FAR 52.232-10 Payments under Fixed-Price Architect-Engineer Contracts* [[http://www.arnet.gov/far/current/html/52\\_232.html](http://www.arnet.gov/far/current/html/52_232.html) - 1107121] as well as *FAR 52.232-26 Prompt Payment for Fixed-Price Architect-Engineer Contracts* [[http://www.arnet.gov/far/current/html/52\\_232.html](http://www.arnet.gov/far/current/html/52_232.html) - 1107573]. See the PAYMENTS paragraph located within this A-E Guide for Common Deliverables.

### Release of Data Clause

Special emphasis is placed on requirements within clause *FAR 52.227-14 Rights in Data - General* [[http://www.arnet.gov/far/current/html/52\\_227.html](http://www.arnet.gov/far/current/html/52_227.html) - 1109286] and the *FAR Subpart 24.2 - Freedom of Information Act* [[http://www.acqnet.gov/far/current/html/Subpart 24.2.html](http://www.acqnet.gov/far/current/html/Subpart%2024.2.html)]. Also, see paragraph Release by A-E to Public before discussing any parts of the contract and project with the public,

### Quality Control Clause

The A-E is reminded of contractual obligations stated in the contract clause that specifies responsibility for the professional quality, technical accuracy, and the total coordination of all designs, drawings, specifications, and other services furnished

### Alteration of Authorities/Responsibilities Clause

The A-E shall not include any statements during the preparation of contract documents that may be construed as altering the responsibilities and/or authorities regarding the parties (especially that of the Government's) involved in the construction contract.



## SERVICE AND/OR PRODUCT PHILOSOPHY

Before beginning the work, the A-E should review current criteria, instructions and guide specifications shown in *Criteria Locations Table for A-E Firms [REFP03L0]*, and make a thorough study of the requirements of the project and, if applicable, the conditions at the site. If, after an analytical review, the A-E is of the opinion that a deviation from instructions would be of benefit to the Government, the A-E shall bring the matter to the attention of the COE POC for a decision. Sacramento District encourages the A-E to use ingenuity and professional expertise to provide the best possible service and/or product for all elements of the project within the constraints imposed.

## PRE DESIGN (Scope Clarification) CONFERENCE

The A-E may be requested, or may request, to participate in a pre-work (a.k.a. Scope Clarification) conference between the customer and the key members of the A-E's project team. The purpose of such a conference is to discuss the customer's expectations, become more familiar with site conditions, better define the requirements, and if necessary, further clarify the scope for the project prior to preparation of a price proposal. This shall include the types of design, deliverables, review process/responsibilities, and major project tasks and constraints. This meeting may be held in the immediate vicinity of the proposed project, at the Sacramento District Office, or even over the telephone. At this time the A-E is encouraged to propose statement of work changes, which are felt to be in the best interest of the project. To assist in preparation for the conference, the COE POC will provide the A-E information for obtaining the project specific criteria as referenced in the statement of work.

## PREPARATION OF PROPOSAL

### Price Proposal

A-E price proposals shall be submitted to the addresses listed in *Address and Attention Line Tables [REFP01L0]*. Under no circumstance is the A-E to submit additional copies (hard or electronic) to other COE employees without the explicit consent or direction of the A-E Administration Section chief, COR, or the Contracting Officer. The type of deliverable, whether hard copy, electronic, or both should be specified with the Request for Price Proposal. If submitting an electronic proposal, see paragraph Electronic Files. If submitting a hard copy proposal the A-E shall submit the original and one copy to the A-E Administration Section chief, or COR who issued the request for proposal. If the proposal is in excess of \$550,000, an additional copy shall be sent to Construction and A-E Branch, Contracting Division.

### Subcontracting Plan

If the A-E is a large business and the total contracting amount is expected to be \$500,000 or more, the A-E must prepare and submit a subcontracting plan. The Government's SADBUI Advisor, who often will attend the pre-negotiation conference to explain the subcontracting plan requirements, must deem the plan acceptable. One copy of the A-E'S completed subcontracting plan must be sent along with the price proposal. The original of the subcontracting plan must be

sent, at the same time, to the SADBUs at the address listed in *Address and Attention Line Tables [REFP01L0]*.

## Quality Control Plan (QCP)

### Purpose

The purpose of the A-E prepared QCP is to ensure development of a quality product or service from inception through completion of the Quality Control Certification (refer to paragraph A-E Quality Control (QC) Review). The QCP is a project specific document that provides a framework for developing a product and conducting the technical review of a product. The QCP is a living document and becomes part of the Sacramento District's Project Management Plan that is developed for each project by the Project Manager. The A-E QCP establishes the documents and products to be reviewed, the review team and its responsibilities, and schedule and costs for review. It is prepared for every product/service except for those identified as small and low risk. A generic version may be used for routine, minor products, if the appropriate Sacramento District Functional Chief approves. With approval, the A-E updates the QCP as warranted.

### Responsibility

The A-E is responsible for reviewing, checking and coordinating all submittals. The professional quality, technical accuracy and coordination of all design submittals and other services to be provided by the prime A-E and any subcontractors/consultants used is of major importance. A written QCP shall be submitted concurrent with the price proposal, but under separate cover letter, unless the project is highly complex and would require more time for development. In this event, the A-E will be allowed to submit a generic plan with the price proposal followed by a completely detailed plan early in the first phase of work. Refer to *Address and Attention Line Tables [REFP01L0]*. The A-E's performance evaluation will be based in large part on how the deliverables package reflects conformance with the A-E QCP. The A-E's contractual obligation to provide complete, well coordinated, and error free documents has far-reaching consequences. Therefore, the A-E is cautioned to place special emphasis on this aspect of the QCP. In the event damage to the Government results from negligent performance of any of the services to be furnished under this contract, the A-E will be held liable for such damages. The Government's review effort in no way relieves the A-E of contractual responsibilities. For this reason, an effective quality control plan is critical.

### Content

The content of the QCP is dependent on the complexity of the product or service being provided and can range from a generic QCP to a Project/Product/Service Specific QCP. As a minimum all QCPs are to include a schedule of work to be accomplished, a budget, points of contact and their respective lines of authority/coordination, a brief discussion on plan execution with contingency measures when appropriate, A-E review effort, and a A-E quality control checklist. Refer to *ER 1110-1-12 Quality Management [http://www.usace.army.mil/publications/eng-regs/er1110-1-12/entire.pdf]*



## Review of QCP

The COE POC will review the QCP. If comments are generated during this informal review, the A-E shall respond to the comments by E-mail and/or revise the plan accordingly and resubmit prior to initiating design. The A-E will be expected to follow the approved QCP throughout the course of the project to assure a quality end product. Should future events dictate revisions to the approved QCP, the A-E shall notify the COE POC by E-mail and submit the revised plan for approval.

## **PRE-NEGOTIATION CONFERENCE**

As with the Pre-Design Conference, the A-E may be requested, or may request, to participate in a Pre-Negotiation Conference with the COE's designated negotiator, the COE POC and key members of the A-E's project team and/or designated authorized representative. The purpose of this conference is to discuss the requirements of the statement of work. Upon conclusion of the review and adjustment of the statement of work, an acceptable format and appropriate cost breakdown (typically broken down by each task identified by a Period of Service in the statement of work to be used by the A-E for his proposal will be determined. This Pre-Negotiation Conference will also serve to address any other special contracting issues peculiar to this pending contract, as well as provide the A-E an opportunity to ask any questions, or express any concerns, regarding the requirements and administration of the contract. This meeting may be held at the Sacramento District Office, or over the telephone and/or in conjunction with the Pre-work Conference, if there is one.

## **NEGOTIATION CONFERENCE**

Negotiations may be held in Sacramento District offices or telephonically. The objective is to reach an agreement on a fair and reasonable price for the work and services required. This does not mean that there is agreement on each and every item, only major items and the overall cost to the Government. During negotiations the statement of work will again be reviewed as necessary, and the A-E's proposal will be examined and discussed in detail. Major changes in the statement of work are unacceptable at this time unless the A-E has previously notified the COE POC that certain scope changes are necessary. If a major scope change is needed, then the negotiation is stopped until the scope, and any revised proposal or revised IGE is completed.

## **AWARD OF A-E CONTRACT ACTION**

Subsequent to the successful completion of negotiations and upon approval of the Contracting Officer, the A-E will receive a written transmittal letter forwarding the unsigned contract to the A-E for signature approximately 10 days after completion of the negotiations. The signed contract must be faxed back to Sacramento District before the effective contract date. The A-E is authorized to begin work as of the effective contract date. For task order awards, the fully executed task order will be sent to the A-E and is the authority for the A-E to commence work.

## **SUBMITTAL SCHEDULE**

The schedule for contract deliverable submissions is established in the statement of work. MEETING ESTABLISHED SUBMITTAL SCHEDULES IS ESSENTIAL. Late submissions

may jeopardize project funding, construction contract award or user need dates and will have an adverse impact on the A-E's performance evaluation.

## REVIEW PROCESS

### Strategy

The Government review strategy is to accommodate *ER 5-1-11 U.S. Army Corps of Engineers Business Process* [<http://www.usace.army.mil/publications/eng-regs/er5-1-11/entire.pdf>] and utilize the A-E QCP. Refer to paragraph Quality Control Plan (QCP).

### A-E Quality Control (QC) Review

The A-E is responsible for conformance with contract requirements and technical as well as functional criteria. Therefore, the A-E shall provide a QC review of all submittals in accordance with the QCP prior to each submittal.

### Documenting QC Review

The A-E designers shall annotate all comments with responses and make the appropriate adjustments to all applicable documents prior to their resubmission to the Government. The A-E's documented QC comments and responses shall be a separate document and accompany each required submittal.

### Quality Control (QC) Certification

At the time that the final submittal is provided to the Government, the A-E shall provide a QC certification in accordance with the *Sacramento District Quality Management Plan, Appendix F SPK Quality Management Process, Product Development, Technical Review, and Quality Control Certification Forms* [<http://iso9000.spk.usace.army.mil/docs/AppendixF.pdf>].

### Virus Free Certification

The A-E shall also provide a written certification stating that each and all versions of any electronic submittal are virus free. The certification may be included on the Quality Control Certification Letter.

## Government Quality Assurance (QA) Review

### Electronic Process

The Government will provide a QA review of the A-E's work using the program described in *ER 1110-1-8159 DRCHECKS* [<http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8159/entire.pdf>].

### Level of Detail

The Government and other agency review may range from a cursory review of the A-E's QC documentation for relatively straightforward projects to a more detailed review of A-E products for more complex or controversial projects. However in all cases, the review will not identify each and every incidence of an important area needing attention. The comments will address the problem and some of the incidences. The A-E is expected to change all necessary and related items. The Government review effort in no way replaces the A-E's review and quality control requirements.

### Coordination of Comments

All Government review comments will be coordinated by the COE POC prior to submittal to the A-E through the electronic process identified in the statement of work or paragraph Electronic Process. The POC will review the comments for applicability to the project against the project's design criteria, and then notify the prime A-E the comments are ready for evaluation in accordance with *Evaluating a Review Comment [INSA02L0]*. The A-E is responsible for coordinating comments with any subcontractors. Handwritten A-E responses to Government review comments will not be accepted. A-E responses must be made as described within *Evaluating a Review Comment [INSA02L0]*. The A-E is encouraged to call and discuss any problematic comments with the appropriate reviewer. The Government will back check all final A-E submittals after A-E corrections are made to insure compliance with or resolution of comments to the satisfaction of the Government.

## **HEALTH AND SAFETY PLAN**

The A-E shall submit a health and safety plan for the work requiring such a plan. The plan shall cover all A-E actions to insure health and safety of A-E personnel during fieldwork. The plan shall be brief and shall be submitted within 7 calendar days after a contract award and prior to any fieldwork. Refer to *EM 385-1-1 Safety and Health Requirements* [<http://www.usace.army.mil/inet/usace-docs/eng-manuals/em385-1-1/toc.htm>] and *Project Safety and Health Requirements [PROP07L0]*.

## **CONSULTATION WITH THE CLIENT ACTIVITY**

The COE POC is the focal point between all Government representatives and the A-E regarding technical and performance issues. The A-E may be required to consult with the sponsor or local activity having a jurisdiction and impact, or client team concerning local conditions or operational requirements. Technical and design considerations that conflict with the directions from the COE POC shall be brought to the COE POC's attention immediately.

## **Informational Material**

Any "typical" or "example" documents (design analysis, specifications, drawings, etc. from another project or just general in nature) shown to the A-E are for background information only, and are not authorized criteria unless specifically stated within the statement of work.

## FORMAT, CONTENT, and PACKAGING OF DELIVERABLES

### General Instructions

The statement of work will define what types of deliverables are required. Follow the information below for the format of those types. Not all of these may be required by the A-E contract. Sometimes, the statement of work will also define special or additional format requirements. When conflicts arise between the statement of work and this A-E Guide for *A-E Submittals [REFP18L0]*, the statement of work governs. Please notify the COE POC for concurrence. The A-E shall use SPECINTACT and UFGS guide specifications for the preparation of all technical specifications. All hard copy submissions shall include a Project Cover Sheet, as shown in *General Project Metadata [REFP05L0]*. This applies to all sizes of paper (8.5"x11", 11"x17", 22"x34", etc).

### Type of Paper

Unless otherwise directed by the statement of work, all final hard copy CADD drawings, maps, and plates larger than 8.5" x 11" shall be on reproducible vellum. All other submittals, including interim CADD submissions, shall be on white paper with black print

### Electronic Files

#### Project Metadata

All electronic file submissions shall include Project Metadata as shown in *General Project Metadata [REFP05L0]*. This file is to be kept in the root directory of the project directory structure and shall be included with all phases of electronic deliverables.

#### Formats and Software

The statement of work should define the specific software programs and versions mandatory for the contract, especially if the files will ultimately be transferred to a customer. If it doesn't, please notify the COE POC to obtain written concurrence.

#### Geospatial Meta Data

##### Definition

Geospatial data is any data referenced to a point on the earth. This would include (but is not limited to) data the Corps uses to produce river and harbor maps, charts and drawings, real estate maps, environmental and economic studies, engineering studies and drawings. The Federal Geographic Data Committee (FGDC) has published a *Content Standard for Digital Geospatial Metadata Workbook [http://www.fgdc.gov/metadata/documents/workbook\_0501\_bmk.pdf]* that documents all the fields of the metadata standard.

## How to Create

There are several programs available to help create metadata compliant with the Federal Geographic Data Committee standards. For an extensive listing of available packages see the *USACE Geospatial Data Clearinghouse Node* [<http://corpsgeo1.usace.army.mil/>]. Since metadata is only a text file containing certain fields in a certain order, even a word processor could be used to create the files. However, since there are mandatory fields and the order of fields is important, a word processor is not recommended.

## National Clearinghouse

*Executive Order E.O. 12906 - Coordinating Geographic Data and Acquisition and Access: The National Spatial Data Infrastructure* [<http://www.archives.gov/federal-register/executive-orders/pdf/12906.pdf>] requires that all federal agencies create and submit metadata, for all geospatial data collections, to a national clearinghouse. Submission of the metadata to the national clearinghouse is the responsibility of the Sacramento District.

## Guidance

*ER 1110-1-8156 Policies, Guidance, and Requirements for Geospatial Data and Systems* [<http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8156/entire.pdf>], was written to assist USACE commands comply with the Executive Order. Refer to *Geographic Information Systems Design* [[PROPI7L0](#)] for format and content requirements.

## Studies and Reports

### Paper Size

Unless otherwise specified in the statement of work, Study and Report deliverables shall be in accordance with the *EP 310-1-6 Graphic Standard Manual* [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep310-1-6/toc.htm>], Grid B - 8.5"x11" Technical Publications, single column. Any drawings, plates, maps, etc. that require larger paper size shall be as described within Sacramento District Work Instructions.

### Content

The statement of work should describe the requirements and level of detail required to fulfill the requirements of the A-E Contract, or otherwise where to find such requirements.

### Schedules

Any MS Office compatible software may be used to create the schedules specified within the statement of work. Use the information above for delivering hard copy and/or electronic files as required.

## Plans, Drawings, Plates, and Maps

### CADD Standards

To retain clarity and relevance when reproduced in black and white, any graphics prepared for reports or presentations must make use of distinguishing line types and/or hashing patterns to depict different features. Appealing color-coding may also be employed, but not in lieu of line types and hashing. Follow the *CADD/GIS Technology Center, A/E/C CADD Standard, ERDC/ITL TR-01-6, Release 2.0,* [\[https://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp\]](https://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp).

### Scale Factors and Units of Measurement

The required unit of measurement is metric. Drawings should be one-to-one and plotted to appropriate scale for the paper size. Exceptions and specifics will be listed within the statement of work and *Creating Design Drawings for Military Projects* [\[INSP06L0\]](#).

### Border Sheets

Border sheets for various product deliverables are available from the *Sacramento District's CADD Web Page* [\[http://www.spk.usace.army.mil/organizations/cespk-ed/SPKCADD/index.html\]](http://www.spk.usace.army.mil/organizations/cespk-ed/SPKCADD/index.html). SPK CADD border sheets contain specific formats for both AutoCAD and MicroStation that must be followed.

### Content

The A-E has the responsibility to show all information necessary to completely describe the project. Regardless of local practice or procedures, the designer must prepare the drawings with the expectation that both the Corps of Engineers, in the role of product or service manager, and the customer will be able to proceed to the next level of project intent (i.e., bidding, construction or funding) without numerous modifications to correct work deficiencies.

### Interim Submittals

The amount of effort and detail required for interim submittals should be agreed to during negotiations. Some types of deliverables may have Sacramento District Work Instructions that will describe the required details.

### Cost Estimates

### Precautions

The A-E shall be aware of and take such precautionary measures as necessary to maintain the confidential nature of all cost estimates. Refer also to paragraph RELEASE OF PROJECT INFORMATION.

### Packaging and Mailing

All cost estimates shall be prepared in accordance with this section of the A-E Guide and will be bound (or stapled) separately from other submittal data. An electronic copy of the MCACES project file (with related databases) shall also be furnished to the District cost engineer on a CD-ROM.

### Use of MCACES

In general, cost estimates, at the earliest practical stage of project development, are to be prepared using the latest version of MCACES (Micro Computer Aided Cost Estimating System). When MCACES is waived on a given project by formal memorandum issued by the Sacramento District Cost Engineering Section, the cost estimate shall be prepared in accordance with the statement of work of the design contract.

### Cost Growth

The unit costs of all construction cost estimates submitted shall reflect the current pricing at the time of submittal. For all estimates prior to the Final Design, cost growth (escalation) - using the Tri-Services Index - is to be added to the total project cost, projecting costs to the assumed midpoint of construction. For Final Design and later cost estimates, cost growth may or may not be added as directed by the Sacramento District Cost Engineering POC.

## **Engineering Considerations and Instructions for Field Personnel (ECIFP)**

Unless otherwise specified within the statement of work, the A-E consultant shall prepare an ECIFP. This report is used to transmit special design concepts, assumptions, and instructions on how to construct unique design details to field personnel. The report establishes a basis for communication and coordination between design and construction personnel. The ECIFP vary in the level of information necessary to get the field personnel familiar with the project. The following information should be included as a minimum:

- Existing Health and Safety concerns at the site
- Site access protocols
- Site security protocols
- Installation or site points of contact
- USACE points of contact for contract administration
- Regulatory points of contact for emergency notification

### Report Format and Content.

As applicable to your project, include the following information in your report:

- Title Page. List Project title, location and date of report.
- List of Design Personnel. Provide a list of key design personnel that could be contacted for technical assistance during construction. Include name, design specialty and telephone number.
- Special Design Considerations. Provide clear and concise explanation of special design concepts and/or unique features by discipline; Civil, Architectural, Structural, Mechanical, Electrical, etc. such that COE construction personnel can identify and properly inspect these special items of work. Examples of items to discuss include:
  - Step-by-step instructions for constructing complex building features, i.e., do this before that, etc.
  - Critical tolerances
  - Special testing requirements
  - Critical or unusual product and performance specifications such as high pressure, temperatures or capacities.
  - Situations where manufacturer should oversee equipment installation.
  - Long-lead procurement items.
  - Government-furnished equipment.
  - Special operational constraints, i.e., utility outage periods, aircraft runway closures, phasing of work in occupied buildings or other special construction phasing required.
  - Any permits that must be obtained prior to and during construction.
  - Critical safety precautions required, especially in the areas of asbestos, or other minimum quality assurance testing amount/frequency for critical items.
- Shop Drawing Review. Provide a list of items or features of the project where you feel you alone have the expertise to properly review shop drawings involved.
- Schedule of Required Site Visits by Design Personnel. If you deem site visits on certain phases of construction are necessary, a site visitation schedule shall be prepared identifying the critical construction stages and the number of days of notification required from the COE.

## **Significant Discussions and Meeting Minutes**

### Responsible Party

With the exceptions of the PRE-DESIGN CONFERENCE and PRENEGOTIATION CONFERENCE, the A-E shall prepare significant discussion documentation and distribute either electronic or hardcopies to all parties. The COE POC, whether or not they attended or participated in the meeting, shall be provided copies of all information.



### Timeframe for delivery

The COE POC shall receive significant discussion materials within 5 –7 business days after date of occurrence. The COE POC should acknowledge by return e-mail with a "confirmation of receipt."

### Types of Significant Discussions

- Meeting Minutes

- Telephone Conversations

Only those telephone conversations relating to the technical phases of work under the contract are considered significant.

- Written Communications

Furnish to the COE POC a copy of all written communications pertaining to the work under this contract received from other Government agencies. When it is clearly indicated that a copy of the communications has been furnished to the COE POC by the originator, concurrence of action shall be obtained from the COE POC prior to performing such action.

- E-Mail Communications

Immediately transmit to the COE POC a copy of all E-mail communications pertaining to the work under this contract received from other Government agencies. When it is clearly indicated that a copy of the communications has been furnished to the COE POC by the originator, concurrence of action will be obtained from the COE POC prior to performing such action.

- What to include

- Name of Project
- Subject of Meeting
- Date of Meeting
- Attendees
- Record of Issues Discussed
- Action Items
- Suspense Date
- Minutes taken by

## **RESPONSIBILITY AFTER COMPLETION OF WORK**

### **Errors or Omissions (A-E LIABILITY FAR 36.608 and 36.609)**

The A-E is required to support the Sacramento District after completion of the scoped work should errors or omissions in the documents prepared by the A-E create problems in the

subsequent stages of the project, such as in bidding or administering the contract for construction, where the A-E has been tasked to complete the design. The support provided by the A-E shall take whatever form is necessary to correct the errors or omissions in the original documents. Such required design corrections shall be done in a timely manner at no additional cost to the Government.

### **Negligence (A-E LIABILITY FAR 36.608 and 36.609)**

Neither the Government's review, approval or acceptance of, nor payment for, the services required shall be construed to operate as a waiver of any rights under the design contract or any action arising out of the performance of the design contract, and the A-E shall be and remain liable to the Government for all damages caused by the A-E's negligent performance of any of the services furnished. Design errors or omissions, which result in damages or extra cost to the Government, will be evaluated for potential A-E financial liability. If the Government determines that the A-E is financially liable for a design deficiency, the A-E will be so advised by official correspondence. Reimbursement of costs incurred by the Government as a result of the A-E's errors and/or negligent performance will be actively pursued by Sacramento District. The preferred method of settlement of A-E financial liability is for the A-E to accept responsibility and negotiate directly with the Construction Contractor. Where the A-E cannot reach an agreement with the Contractor or if the A-E declines to negotiate or accept responsibility, Sacramento District will arrange settlement directly with the Contractor and will bill the A-E.

### **Services during Construction**

Additional services may be required in direct support of a project's construction, apart from that described as errors or omissions above. If required, these services will be defined in a Supplemental Statement of Work prepared by the Government. No services during construction work shall be performed by the A-E until an appropriate price for the work has been negotiated and a written modification is issued by the contracting officer of the COE. Services may include monthly site visits to the project, conference attendance or special inspections.

### **PERFORMANCE EVALUATIONS (FAR & EFARS 36.604)**

#### Design Phase Evaluation

#### Rating Criteria

The Government will prepare A-E performance evaluations for all Design and Engineering Service Contracts in the Contractor Performance Assessment Reporting System (CPARS) in accordance with *Purchasing of Services [PROPO8LO]*. A-E performance will be rated as Exceptional, Very Good, Satisfactory, Marginal, or Unsatisfactory, taking into consideration such things as technical quality, coordination of design documents, cost effectiveness, maintaining project schedules, cooperativeness, etc. Incomplete submissions, late submissions or resubmissions will have significant adverse impact on an A-E's performance evaluation. In addition, based on schedule and interim requirements, other evaluations may be performed.

### Rating Disposition

Immediately upon completion of engineering services, at end of work or upon completion of each task order, the PM and the project team will evaluate the A-E performance on the services rendered using Architect-Engineer Contract Administration Support System (ACASS). The A-E will be notified through the ACASS database when a draft evaluation is prepared for their review and response. The A-E is required to have a PKI certificate in order to open and maintain a CPARS account. The A-E shall be familiar with the CPARS in order to respond to draft ACASS evaluations and to access completed ACASS evaluations. Refer to *EP 715-1-7* [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>], Paragraph 6-10 for A-E rebuttal procedures.

### Interim Performance Evaluations

Interim evaluations may be prepared and used to advise the A-E of their performance during the execution of a contract as considered appropriate by the Contracting Officer. Refer to *EP 715-1-7* [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>], Paragraph 6.6.

### Construction Phase Evaluation

The Resident Engineer will submit an evaluation of the performance of the A-E and effectiveness of the A-E prepared contract documents. This evaluation is also maintained in the A-E Contract and Qualification Data File and DOD database. Refer to *EP 715-1-7* [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>], paragraph 6-8.

### Awards for Excellent Performance

A-E Firms that perform contract services in an excellent manner may be considered for special recognition. The Sacramento District Engineer gives Certificates of Appreciation and Certificates of Commendation. Certificates of Commendation are given for exemplary performance in one or more areas of contract services. In addition, Design Excellence Awards are given (after construction is underway) for exemplary performance in all areas of A-E services. Also, awards for Specifications are made by the evaluation of A-E performance to specifically recognize and reward achievement by A-Es in the preparation of construction specifications of superior quality.

### Affect on Future Selection

Performance evaluations are available to future slate and selection boards and will be considered when subsequent A-E selections are made. Furthermore, copies of evaluations are available for the use of other Federal Design and Construction Agencies in selecting A-Es for their design contracts.

### Poor A-E Performance (Re-Submittal Policy)

If the COE POC determines that a design submittal is unacceptable, thus necessitating a re-submittal, the A-E may be required to send representatives to Sacramento District at no additional cost to the Government to resolve the problems with the submitted work.

### **PAYMENTS (FAR 52.232)**

The A-E is required to submit monthly pay estimates for the value of the design services performed to date. The Sacramento District, A-E Administration Section will provide guidance for preparing and submitting payments in accordance with the Contract Clause *FAR 52.232-10 Payments under Fixed-Price Architect-Engineer Contracts* [[http://www.arnet.gov/far/current/html/52\\_232.html](http://www.arnet.gov/far/current/html/52_232.html) - 1107121]. Monthly or partial payments may be made as the work progresses subject to submission by the A-E of estimates of the value of completed services and certification by the PM that the A-E's performance is satisfactory. The extent of supporting data required from the A-E will vary depending upon the amount of the invoice and past A-E performance. Completed *ENG Form 93 - Payment Estimate - Contract Performance* [<http://www.usace.army.mil/inet/usace-docs/forms/e93.pdf>] shall be mailed to the address and attention line shown in *Address and Attention Line Tables* [REFP01L0].

**SACRAMENTO DISTRICT  
DESIGN BID BUILD  
CIVIL WORKS PROJECTS  
QUALITY CONTROL PLAN (QCP)**

**AMERICAN RIVER COMMON  
FEATURES, NATOMAS BASIN  
REACH D WINDOWS  
SUTTER COUNTY, CALIFORNIA  
19 SEPTEMBER 2016**

<b><u>QUALITY CONTROL PLAN APPROVED</u></b>	
<b>Rick Poepelman, P.E.</b> Chief, Engineering Division	Date

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**1. Project Information:**

American River Common Features, FY17, P2# 443424, Natomas Basin, Reach D Windows, Sutter County, California

**2. Project Purpose**

The Natomas Basin is surrounded by 42 miles of perimeter levees. Congress authorized the Natomas Basin Project through the Water Resources Reform and Development Act (WRRDA) 2014. It includes levee improvements utilizing cutoff walls, seepage berms, levee widening and slope flattening, pump station upgrades, utility raising and removal, and irrigation and drainage ditch relocations for the entire Natomas Basin. One of the local sponsors, Sacramento Area Flood Control Agency (SAFCA), developed the Natomas Levee Improvement Project (NLIP) and began construction in 2007. They completed most of the levee improvements for Reaches B, C, and D by 2013, with Corps review and approval of their designs. When WRRDA 2014 authorized the federal project, the Corps of Engineers began the design work for several of the reaches.

Reach D construction was mostly completed by SAFCA in 2009. They left “windows” at four sites where the cutoff wall work was obstructed by utility or road crossings. There are two irrigation pump stations (Bennett and Northern), one interior drainage pump station (Pumping Plant 4), and one road (Highway 99) crossing Reach D, which were not included in their work. The Corps’ Reach D Windows contract includes work at all of the pump station windows, but does not include the Highway 99 crossing. Both of the irrigation pump stations have since been removed, but the pipes crossing through the levee and concrete structures on the waterside and landside still need to be removed. At Pumping Plant 4, SAFCA did install the cutoff wall, but the pump station pipes crossing through the levee still need to be raised, and the pump station needs to be upgraded. The Windows contract also includes relocation of a drainage canal from the landside toe, to a location 250 feet away from the toe. Relocating the drainage canal eliminated the need for installing cutoff walls at the Bennett and Northern sites.

**3. Contract Title:**

Natomas Basin, Reach D Windows, Sutter County, California

**4. Description of Products:**

Produce construction contract documents including drawings, specifications, Design Documentation Report (DDR), cost estimate, and an Engineering Considerations and Instructions for Field Personnel (ECIFP) Report.

**5. Programmed Amount:**

\$ 15 Million

**6. Local Sponsor and Maintaining Agency:**

The California State Department of Water Resources and the Sacramento Area Flood Control Agency are the local sponsors for this project. The maintaining agency for this project is Reclamation District 1000.

Agency Office Address	Point of Contact
Local Sponsor	

Agency Office Address	Point of Contact
Department of Water Resources Central Valley Flood Protection Board ATTN: Ms. Reena Jawanda 3464 El Camino Avenue, Suite 200 Sacramento, CA 95821	POC Name: Ms. Reena Jawanda Phone: (916) 574-0271 E-mail: Ranvir.Jawanda@dwr.ca.gov
<b>Other Local Sponsor</b>	
Sacramento Area Flood Control Agency ATTN: Mr. John Bassett 1007 7th Street, 7th Floor Sacramento, CA 95814	POC Name: Mr. John Bassett Phone: (916) 874-8731 E-mail: bassettj@saccounty.net
<b>Maintaining Agency</b>	
Reclamation District (RD) 1000 ATTN: Mr. Paul Devereux 1633 Garden Highway Sacramento, CA 95833	POC Name: Mr. Paul Devereux Phone: (916) 922-1449 E-mail: pdevereux@rd1000.org

**7. Quality Control Plan Objective:**

The Quality Control Plan is a component of the Quality Management Plan (QMP) and Project Management Plan (PMP). The purpose of this QCP is to identify the schedule of all required reviews, technical design and review criteria, PDT members, QC Review Team members, Agency Technical Review (ATR) Team leader and members, and procedures to assure production of high quality contract documents within the authorized funds, scope, and the Customer and User’s time requirements. Any deviations from policy or procedures will be identified in this QCP and waivers obtained prior to initiation of design.

**8. Quality Guidelines for the Technical Review:**

The Sacramento District (SPK) Section Chiefs are responsible for the technical QC Review. Key personnel for the Local Sponsors will review the project to ensure compliance with criteria, standards, operational safety and functional requirements. SPK Construction-Operations Division, Resident, and Area Offices will perform the Biddability, Constructibility, Operability, Environmental and Sustainability (BCOES) Reviews to assure the project properly addresses these considerations. SPK will perform a QC Review prior to submitting the Design Package for the formal PDT/BCOES/ATR reviews.

**9. Technical Review Criteria:**

ER 1110-1-12 QUALITY MANAGEMENT  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_1110-1-12.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1110-1-12.pdf)  
 ER 415-1-11 BIDDABILITY, CONSTRUCT ABILITY, OPERABILITY, ENVIRONMENTAL AND SUSTAINABILITY (BCOES) REVIEWS  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_415-1-11.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_415-1-11.pdf)  
 CESP R 1110-1-8 QUALITY MANAGEMENT PLAN  
 CESP K QUALITY MANAGEMENT PLAN  
 02500-SPD PREPARATION AND APPROVAL OF REVIEW PLANS EC 1165-2-214  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/02500-SPD%20Preparation%20and%20Approval%20of%20Review%20Plans%20EC%201165-2-214.docx>  
 02500-SPD.01 CESP D SUPPLEMENTAL REVIEW PLAN CHECKLIST  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/02500-SPD.01%20CESPD%20Supplemental%20Review%20Plan%20Checklist.docx>

Civil Works DBB Quality Control Plan  
NATOMAS BASIN REACH D WINDOWS, FY17, P2# 443424  
Sutter County, California

08506-SPD QUALITY CONTROL QUALITY ASSURANCE OF ENGINEERING WORK PRODUCTS  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD%20Quality%20Control%20Quality%20Assurance%20of%20Engineering%20Work%20Products.docx>  
08506-SPD.01 CHECKLISTS FOR DQC REVIEW OF PMP, SCHEDULE, BUDGET AND REVIEW PLANS  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD.01%20Checklists%20for%20DQC%20Review%20of%20PMPs%20Review%20Plans.docx>  
08506-SPD.02 CHECKLISTS FOR REVIEW OF ENGINEERING WORK PRODUCTS  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD.02%20Checklists%20for%20Review%20of%20Engineering%20Work%20Products.docx>  
08506-SPD.03 TEMPLATES FOR DQC CERTIFICATION AND TRANSMITTAL MEMO  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD.03%20Templates%20for%20DQC%20Certifications%20and%20Transm%20Memo.docx>

**10. Design Criteria:**

**a. All Projects:**

ER 1110-2-1150 ENGINEERING AND DESIGN FOR CIVIL WORKS PROJECTS  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_1110-2-1150.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1110-2-1150.pdf)  
Architect-Engineer Guide [REFP13L0]  
Architect-Engineer 10% Design Submittals [REFP18L0]  
Architect-Engineer 30% Design Submittals [REFP21L0]  
Architect-Engineer 60% Design Submittals [REFP22L0]  
Architect-Engineer 100% Design Submittals [REFP23L0]

**b. USACE Projects**

Construction Criteria Base - ARMY/COE Criteria [http://www.wbdg.org/ccb/browse\\_org.php?o=31](http://www.wbdg.org/ccb/browse_org.php?o=31)  
USACE Publications <http://www.publications.usace.army.mil/>

**11. Customer/Command/Sponsor Criteria:**

**a. Design Standards:**

California State Water Resources Control, California Code of Regulations, Title 23, April 1, 2016

**b. Design Compatibility Standards:**

Reclamation District 1000 Pump Station Standards  
Reclamation District 1000 Supervisory Control and Data Acquisition (SCADA) System

**c. Contractor Requirements:**

Small Business Multiple Award Task Order Contract (MATOC)



**12. Technical Resource Criteria**

**a. Utility Maps:**

PG&E Electrical Mapping  
 Reclamation District 1000 Pumping Plant 4 Design Plans

**b. Standard Details:**

Reclamation District 1000 Pumping Plant 2 Standard Details

**c. Site Survey Information:**

Wood Rodgers Surveys of Bennett, Northern and Pumping Plant 4  
 SPK Survey of Vestal Drain and Pumping Plant 4

**d. Local Technical Criteria:**

Reclamation District 1000 Pumping Plant 4 Discharge and Head Capacity Requirements

**e. State Environmental Standards:**

State of California Department of Fish and Wildlife Protection Standards

**f. Project Communication Standards:**

Reclamation District 1000 Supervisory Control and Data Acquisition (SCADA) System

**13. PDT Members:**

The In-House Design Team consists of members selected by the responsible technical Section Chiefs are as follows:

**Table 1 IH Design Team**

Member Name	Discipline/Section	Telephone/E-mail
John Hoge, P.E.	Project Manager	916-557-5304 John.A.Hoge@usace.army.mil
Mark Boedtker	Technical Lead	916-557-6637 Markus.S.Boedtker@usace.army.mil
Troy O'Connor	Architect	916-557-6766 Troy.L.O'Connor@usace.army.mil
Erik Julian	Civil Engineer	916-557-7285 Erik.Julian@usace.army.mil
Michael Kynett	Geotechnical Engineer	916-557-7898 Michael.N.Kynett@usace.army.mil
Gerry Lenehan	Geotechnical Engineer	916-557-6681 Gerry.R.Lenehan@usace.army.mil
Sid Jones	Landscape Architect	916-557-7273 Sidney.I.Jones@usace.army.mil

Civil Works DBB Quality Control Plan  
 NATOMAS BASIN REACH D WINDOWS, FY17, P2# 443424  
 Sutter County, California

Member Name	Discipline/Section	Telephone/E-mail
Hana Dodini	Structural Engineer	916-557-5340 Hana.Dodini@usace.army.mil
Venese Yau	Mechanical/Fire Protection Engr	916-557-7776 Venese.L.Yau2@usace.army.mil
Franklin Lum	Electrical Engineer	916-557-7221 Franklin.D.Lum@usace.army.mil
Todd Rivas	Hydraulic Engineer	916-557-7523 Todd.M.Rivas@usace.army.mil
Robin Rosenau	Environmental Biologist	916-557-5397 Robin.M.Rosenau@usace.army.mil
Melissa Montag	Cultural Resources Archeologist	916-557-7907 Melissa.L.Montag@usace.army.mil
Laurie Parker	Real Estate Specialist	916-557-6741 Laurie.S.Parker@usace.army.mil
Steven P. Freitas, P.E.	Specifications Engineer	916-557-7296 <a href="mailto:Steven.P.Freitas@usace.army.mil">Steven.P.Freitas@usace.army.mil</a>
Chu Wei	Cost Engineer	916-557-7558 Chu.D.Wei@usace.army.mil
Laura Haven	QC/QA/DRChecks Site Administrator	916-557-7651 <a href="mailto:Laura.M.Haven@usace.army.mil">Laura.M.Haven@usace.army.mil</a>
Anderson Macatumbas	Safety Office	916-557-5315 Anderson.D.Macatumbas@uace.army.mil
Nikole May	Contracting Officer	916-557-6989 Nikole.V.May@usace.army.mil
Greg Treible	Contracting Specialist	916-557-6718 Greg.L.Treible@usace.army.mil

**14. SPK Geotechnical Branch**

If not on the PDT, the Geotechnical Branch will provide consulting services.

Name	Title	Telephone/E-mail
Michael Kynett, P.E.	Sr. Geotechnical Engineer Levee Safety Program Manager	916-557-7898 Michael.N.Kynett@usace.army.mil
Khaled Chowdhury, P.E.	Sr. Geotechnical Engineer	916-557-5309 Khaled.Chowdhury@usace.army.mil
Gerry Lenehan, P.E.	Geotechnical Engineer	916-557-6681 Gerry.R.Lenehan@usace.army.mil
Jeff Wisniewski, P.E.	Technical Lead	916-557-5115 Jeffrey.B.Wisniewski@usace.army.mil
Joe Marino, P.E.	Civil Engineering Survey and Mapping	916-557-6625 Joseph.N.Marino@usace.army.mil

**15. In-House Discipline QC Review**

Conduct QC Reviews to ensure all design computations, calculations, assumptions, and models used are correct and will result in a safe product and complies with all technical criteria.

**a. Team Members**

The In-House Discipline QC Review Team members consist of the responsible technical Section Chiefs or their delegate Subject Matter Expert (SME) as follows:

Member	Unit or Section	Telephone/E-mail
Mark Bagley	Architectural Design Section	916-557-7345 <a href="mailto:Mark.K.Bagley@usace.army.mil">Mark.K.Bagley@usace.army.mil</a>
Peter Valentine	Civil Design Section A	916-557-6618 <a href="mailto:Peter.Valentine@usace.army.mil">Peter.Valentine@usace.army.mil</a>
Rick Torbik	Civil Design Section B/ Landscape Unit	916-557-6698 <a href="mailto:Richard.A.Torbik@usace.army.mil">Richard.A.Torbik@usace.army.mil</a>
Richard M. Stauber	Soil Design Section A	916-557-7049 <a href="mailto:Richard.M.Stauber@usace.army.mil">Richard.M.Stauber@usace.army.mil</a>
Darrell Pereira	Structural Design Section	916-557-7761 <a href="mailto:Darrell.R.Pereira@usace.army.mil">Darrell.R.Pereira@usace.army.mil</a>
John Parrish	Mechanical-Electrical Design Section	916-557-7223 <a href="mailto:John.R.Parrish@usace.army.mil">John.R.Parrish@usace.army.mil</a>
Lynn Moquette	Levee Safety Section	916-557-7634 <a href="mailto:Lynn.N.Moquette@usace.army.mil">Lynn.N.Moquette@usace.army.mil</a>
Raziul Mollah	Hydraulic Design Section	916-557-7297 <a href="mailto:Razieul.H.Mollah@usace.army.mil">Razieul.H.Mollah@usace.army.mil</a>
Jerry Frost	Cost Engineering Section	916-557-6863 <a href="mailto:Jeremiah.A.Frost@usace.army.mil">Jeremiah.A.Frost@usace.army.mil</a>
Danilo Mayo	Specifications Engineer	916-557-7272 <a href="mailto:Danilo.P.Mayo@usace.army.mil">Danilo.P.Mayo@usace.army.mil</a>
Laura Haven	DRChecks Site Administrator	916-557-7651 <a href="mailto:Laura.M.Haven@usace.army.mil">Laura.M.Haven@usace.army.mil</a>

**16. District Quality Control (DQC) Review**

Conduct and document the DQC in accordance with the procedures prescribed in accordance with 08506-SPD QUALITY CONTROL QUALITY ASSURANCE OF ENGINEERING WORK PRODUCTS <https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD%20Quality%20Control%20Quality%20Assurance%20of%20Engineering%20Work%20Products.docx>. A DQC is an internal review of basic science and engineering work products focused on fulfilling the project quality requirements defined in the project’s Project Management Plan and the Review Plan. The DQC Review is a formal review of the draft engineering product performed by a DQC Reviewer or a DQC Review Team lead by a senior member of the organization responsible for the engineering product. DQC does not include sponsor reviews. Conduct sponsor reviews after the DQC reviews.

**a. Team Members**

DQC Review team members will demonstrate senior-level competence in the type of work being reviewed. Junior- level staff cannot be members of DQC teams without appropriate senior-level technical monitoring. For most projects, DQC members should be sought from the following sources: regional technical specialists (RTS); appointed subject matter experts (SME) from other Districts; senior level experts from other Districts; Center of Expertise staff; appointed SME or senior level experts from the responsible District; experts from other USACE commands; contractors; academic or other technical experts; or a combination of the above. DQC members may be from outside of the responsible command for large and/or complex projects, high-risk projects, and when the responsible command does not have sufficient resources to conduct proper DQC. For flood risk reduction civil works projects a levee safety criteria and policy consistency review by a Levee Safety SME is required as part of DQC Review. This will be staffed from Levee Safety Section and will include the Levee Safety Program Managers. DQC Review Team members will include the minimum number of engineering disciplines that will allow for an

adequate review of basic science and engineering. Other appropriate non-engineering representatives should be included in this review.

The In-House DQC Review Team members consist of the responsible technical Branch and Section Chiefs or their delegate Subject Matter Expert (SME) as follows:

Member	Branch or Section	Telephone/E-mail
Veronica Petrovsky	Project Management Branch	916-557-7245 <a href="mailto:Veronica.V.Petrovsky@usace.army.mil">Veronica.V.Petrovsky@usace.army.mil</a>
Shawn Curtis	Safety Office	916-557-6973 <a href="mailto:Shawn.M.Curtis@usace.army.mil">Shawn.M.Curtis@usace.army.mil</a>
Scott Tincher, PE	Design Branch	916-557-7350 <a href="mailto:Patrick.S.Tincher@usace.army.mil">Patrick.S.Tincher@usace.army.mil</a>
April Fontaine, PG	Geotechnical Engineering Branch	916-557-7699 <a href="mailto:April.L.Fontaine@usace.army.mil">April.L.Fontaine@usace.army.mil</a>
Virginia Rynk, PE	Geotechnical Engineering Branch	916-557-6735 <a href="mailto:Virginia.K.Rynk@usace.army.mil">Virginia.K.Rynk@usace.army.mil</a>
Steve Gladwell	Engineering Support Branch	916-557-7100 <a href="mailto:Steve.E.Gladwell@usace.army.mil">Steve.E.Gladwell@usace.army.mil</a>
Gregory A. Kukas, PE	Hydrology & Hydraulics Branch	916-557-7255 <a href="mailto:Gregory.A.Kukas@usace.army.mil">Gregory.A.Kukas@usace.army.mil</a>
Mark Bagley	Architectural Design Section	916-557-7345 <a href="mailto:Mark.K.Bagley@usace.army.mil">Mark.K.Bagley@usace.army.mil</a>
John Parrish	Mechanical-Electrical Design Section	916-557-7223 <a href="mailto:John.R.Parrish@usace.army.mil">John.R.Parrish@usace.army.mil</a>
Peter Valentine	Civil Design Section A	916-557-6618 <a href="mailto:Peter.Valentine@usace.army.mil">Peter.Valentine@usace.army.mil</a>
Rick Torbik	Civil Design Section B	916-557-6698 <a href="mailto:Richard.A.Torbik@usace.army.mil">Richard.A.Torbik@usace.army.mil</a>
Darrell Pereira	Structural Design Section	916-557-7761 <a href="mailto:Darrell.R.Pereira@usace.army.mil">Darrell.R.Pereira@usace.army.mil</a>
Richard M. Stauber	Soil Design Section A	916-557-7049 <a href="mailto:Richard.M.Stauber@usace.army.mil">Richard.M.Stauber@usace.army.mil</a>
Lynn Moquette	Levee Safety Section	916-557-7634 <a href="mailto:Lynn.N.Moquette@usace.army.mil">Lynn.N.Moquette@usace.army.mil</a>
Jerry Frost	Cost Engineering Section	916-557-6863 <a href="mailto:Jeremiah.A.Frost@usace.army.mil">Jeremiah.A.Frost@usace.army.mil</a>
Danilo Mayo	Specifications Engineer	916-557-7272 <a href="mailto:Danilo.P.Mayo@usace.army.mil">Danilo.P.Mayo@usace.army.mil</a>
Laura Haven	DRChecks Site Administrator	916-557-7651 <a href="mailto:Laura.M.Haven@usace.army.mil">Laura.M.Haven@usace.army.mil</a>

**17. Biddability, Constructability, Operability, Environmental, and Sustainability Review:**

SPK Construction-Operations Division, Area Office and Resident Office, Customer, etc:

Name	Title	Office
Julito Ganchero	Chief	Construction Quality Assurance Section
Dawn Shinsato	Chief	Construction District Office

Name	Title	Office
Jennifer Wheelis	Resident Engineer	Valley Resident Office

**18. Customer**

Sponsor reviews may be concurrent with any required ATR.

Name	Title	Agency
Reena Jawanda	Project Manager	Department of Water Resources Central Valley Flood Protection Board
John Bassett	Project Manager	Sacramento Area Flood Control Agency
Paul Devereux	General Manager	Reclamation District 1000

**19. Agency Technical Review Team (ATRT):**

Agency Technical Review (ATR) is dependent upon the phase of work, and professionals outside of the home district conduct all the reviews. The appropriate Review Management Organization (RMO) will assign the ATRT comprised of senior USACE personnel, preferably recognized subject matter experts with the appropriate technical expertise such as regional technical specialists (RTS), and may be supplemented by outside experts as appropriate. To assure independence, the leader of the ATR team must be from outside the home MSC.

Patrick Conroy, Geotechnical, CEMVS-EC-GT (ATR Lead)  
 Matthew Sheskie, Geotechnical, CEIWR-RMC-WD  
 R. Andy Gaines, Hydraulic, CEMVM-EC-H  
 Stefan Miller, Mechanical, CEMVN-ED-T  
 D. Shane Callahan, Civil, CEMVM-EC-D  
 Tim Grundhoffer, Structural, CEMVP-EC-D  
 Hannah Hadley, Environmental, CENWS-PM-ER

**20. Type II IEPR Safety Assurance Review (SAR) Team:**

Conduct a Type II IEPR SAR on design and construction activities for any project where potential hazards pose a significant threat to human life (public safety). The appropriate OEO will establish and administer the peer review panels.

Mark Freitas, Civil, GEI Consultants (IEPR Lead)  
 Dean Durkee, Geotechnical, Gannett Fleming, Inc.  
 Guy Lund, Structural, GEI Consultants

**21. Major Milestones / Schedule:**

Event	Begin Date (dd mmm yyyy)	Duration (Calendar Days)
Kickoff Meeting	12 Jul 2016	1
Issue Design Scope of Work	6 Sep 2016	10
Start QCP	12 Sep 2016	30
Submit to ET&S for Branch and Division Approval/Sign QCP	12 Oct 2016	2
QC Review of Early Preliminary Design Phase - 30% Design Submittal	7 Nov 2016	5
DQC Review of Early Preliminary Design Phase - 30% Design Submittal	14 Nov 2016	5
QC Review of Preliminary Design Phase – 60% Design Submittal	3 Jan 2017	5
DQC Review of Preliminary Design Phase -60% Design Submittal	9 Jan 2017	15
QC Review of Preliminary Design Phase – 90% Design Submittal	20 Mar 2017	5
DQC/BCOES PDT Review of Preliminary Design Phase – 90% Design Submittal	27 Mar 2017	15
Sponsors/ATR Review of Preliminary Design Phase – 90% Design Submittal	27 Mar 2017	15
Type II IEPR SAR of Preliminary Design Phase – 90% Design Submittal	27 Mar 2017	15
QC Review of Final Design Phase – 100% Design Submittal	8 May 2017	5
DQC/BCOES Backcheck Review of 100% Design Submittal	15 May 2017	15
Sponsors/ATR Backcheck Review of 100% Design Submittal	15 May 2017	15
Type II IEPR SAR Backcheck Review of 100% Design Submittal	15 May 2017	15
Sponsors/DQC/BCOES/ATR/SAR Comment Closeout Review of Final Design Submittal	12 Jun 2017	5
BCOES/PDT/ATR/Type II IEPR SAR/QC/QA Certifications	19 Jun 2017	3
Ready To Advertise (RTA)	26 Jun 2017	1
Solicitation	1 Jul 2017	45
Bid Opening / Receive Proposals	15 Aug 2017	1
Source Selection	22 Aug 2017	5
Award Contract	30 Sep 2017	1
Notice to Proceed	10 Oct 2017	1
Beneficial Occupancy Date	30 Jun 2018	1
Fiscal Closeout	30 Sep 2018	1

**22. Unique, sensitive, or high visibility items requiring special attention.**

None.

**23. Regular DBB IFB:**

Submittals other than product samples must be Electronic PDF files.

**a. Early Preliminary Design Phase - 30% Design Submittal:**

IAW A-E 35% Design Submittals [REFP21L0], the 30% Design Submittal must include the requirements of the 10% Design Submittal whether or not a 10% Design Submittal was required. As a minimum, the 30% Design Submittal consist of the following documents:

- Design Analysis (narrative and calculations)
- Drawings (Site Plan, Floor Plans, Elevations, Sections, etc.)
- Outline Guide Specifications
- Project Safety and Health Requirements
- Code B Cost Estimate
- Draft Engineering Considerations and Instructions for Field Personnel (ECIFP) Report Outline

**b. Preliminary Design Phase - 60% Design Submittal:**

IAW A-E 65% Design Submittals [REFP21L0], the 60% Design Submittal must include the requirements of the 30% Design Submittal whether or not a 30% Design Submittal was required. As a minimum, the 60% Design Submittal consist of the following documents:

- Design Analysis (narrative and calculations)
- Drawings (Site Plan, Floor Plans, Elevations, Sections, Details, etc.)
- Outline and Marked-up Guide Specifications (DIV 01-49)
- Daft Specifications without Mark up (DIV 01-49)
- Project Safety and Health Requirements
- Results of Value Engineering studies performed on the project concept design.
- Code B Cost Estimate
- Bid Schedule
- Draft ECIFP Report Outline
- Draft Real Estate Mapping

**c. Final Design Phase - 90% Design Submittal:**

IAW A-E 100% Design Submittals [REFP21L0], the 90-100% Design Submittal must include the requirements of the 60% Design Submittal whether or not a 60% Design Submittal was required. As a minimum, the 90-100% Design Submittal consists of the following documents:

- Design Analysis (narrative and calculations for Civil, Geotechnical, Hydraulics, Mechanical, Electrical, Structural, and Architectural)
- Drawings
- Marked up Guide Specifications (DIV 01-49)
- Specifications without Mark up (DIV 01-49)
- Project Safety and Health Requirements





**SACRAMENTO DISTRICT  
DESIGN BID BUILD  
CIVIL WORKS PROJECTS  
QUALITY CONTROL PLAN (QCP)**

**AMERICAN RIVER COMMON  
FEATURES, NATOMAS BASIN  
REACH D (PUMPING PLANT 4  
MODIFICATION)  
SUTTER COUNTY, CALIFORNIA  
4 MAY 2020**

<b><u>QUALITY CONTROL PLAN APPROVED</u></b>	
<b>Rick Poepelman, P.E.</b> Chief, Engineering Division	Date

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**1. Project Information:**

American River Common Features, FY20, P2# 458598, Natomas Basin, Reach B (Pumping Plant 4), Sutter County, California

**2. Project Purpose**

The Natomas Basin is surrounded by 42 miles of perimeter levees. Congress authorized the Natomas Basin Project through the Water Resources Reform and Development Act (WRRDA) 2014. It includes levee improvements utilizing cutoff walls, seepage berms, levee widening and slope flattening, pump station upgrades, utility raising and removal, and irrigation and drainage ditch relocations for the entire Natomas Basin. One of the local sponsors, Sacramento Area Flood Control Agency (SAFCA), developed the Natomas Levee Improvement Project (NLIP) and began construction in 2007. They completed most of the levee improvements for Reaches B, C, and D by 2013, with Corps review and approval of their designs. When WRRDA 2014 authorized the federal project, the Corps of Engineers began the design work for several of the reaches.

Reach D construction was partially completed by SAFCA in 2009. The Corps of Engineers completed the Reach D Windows construction contract in February 2020, which removed two abandoned irrigation pumping plants crossing through the levee, and relocated the Vestal Drain canal further landside from the levee toe. This contract also included replacement of Pumping Plant 4, but was not constructed due to PG&E power lines not being relocated to allow for construction access. The PG&E lines have since been relocated, and a separate construction contract is being issued to complete this work. The original design for Pumping Plant 4 remains essentially unchanged for this new contract. The plans, specifications, bid schedule, and cost estimate will be repackaged to be standalone. There will be no changes to the Design Documentation Report (DDR) or Engineering Considerations and Instructions for Field Personnel (ECIFP) Report. It was reviewed and certified previously for DQC, ATR, SAR, and BCOES in 2018. Therefore, the Corps of Engineers is repackaging this contract to include only Pumping Plant 4, and recertifying only the DQC and BCOES reviews.

**3. Contract Title:**

Natomas Basin, Reach D (Pumping Plant 4 Modification), Sutter County, California

**4. Description of Products:**

Produce construction contract documents including drawings, specifications, bid schedule, and cost estimate.

**5. Programmed Amount:**

\$ 10 Million

**6. Local Sponsor and Maintaining Agency:**

The California State Department of Water Resources and the Sacramento Area Flood Control Agency are the local sponsors for this project. The maintaining agency for this project is Reclamation District 1000.

Agency Office Address	Point of Contact
Local Sponsor	

Agency Office Address	Point of Contact
Department of Water Resources Central Valley Flood Protection Board ATTN: Mr. Sean Smith 3464 El Camino Avenue, Suite 200 Sacramento, CA 95821	POC Name: Mr. Sean Smith Phone: (916) 574-0366 E-mail: Sean.Smith@water.ca.gov
<b>Other Local Sponsor</b>	
Sacramento Area Flood Control Agency ATTN: Mr. John Bassett 1007 7th Street, 7th Floor Sacramento, CA 95814	POC Name: Mr. John Bassett Phone: (916) 874-8731 E-mail: bassettj@saccounty.net
<b>Maintaining Agency</b>	
Reclamation District (RD) 1000 ATTN: Mr. Steve Yaeger 1633 Garden Highway Sacramento, CA 95833	POC Name: Mr. Steve Yaeger Phone: (530) 305-7211 E-mail: seyaeger@yahoo.com

**7. Quality Control Plan Objective:**

The Sacramento District (SPK) will submit the project specific Quality Control Plan. The Quality Control Plan is a component of the Quality Management Plan (QMP) and Project Management Plan (PMP). The purpose of this QCP is to identify the schedule of all required reviews, technical design and review criteria, PDT members, QC Review Team members, Agency Technical Review (ATR) Team leader and members, and procedures to assure production of high quality contract documents within the authorized funds, scope, and the Customer and User's time requirements. Any deviations from policy or procedures will be identified in this QCP and waivers obtained prior to initiation of design.

**8. Quality Guidelines for the Technical Review:**

The Sacramento District (SPK) Section Chiefs are responsible for the technical QC Review. Key personnel for the Local Sponsors will review the project to ensure compliance with criteria, standards, operational safety and functional requirements. SPK Construction-Operations Division, Resident, and Area Offices will perform the Biddability, Constructibility, Operability, Environmental and Sustainability (BCOES) Reviews to assure the project properly addresses these considerations. SPK will perform a QC Review prior to submitting the Design Package for the formal PDT/BCOES/ATR reviews.

**9. Technical Review Criteria:**

ER 1110-1-12 QUALITY MANAGEMENT  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_1110-1-12.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1110-1-12.pdf)  
 ER 415-1-11 BIDDABILITY, CONSTRUCT ABILITY, OPERABILITY, ENVIRONMENTAL AND SUSTAINABILITY (BCOES) REVIEWS  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_415-1-11.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_415-1-11.pdf)  
 CESP R 1110-1-8 QUALITY MANAGEMENT PLAN  
 CESP K QUALITY MANAGEMENT PLAN  
 02500-SPD PREPARATION AND APPROVAL OF REVIEW PLANS EC 1165-2-214  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/02500-SPD%20Preparation%20and%20Approval%20of%20Review%20Plans%20EC%201165-2-214.docx>  
 02500-SPD.01 CESP D SUPPLEMENTAL REVIEW PLAN CHECKLIST  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/02500-SPD.01%20CESPD%20Supplemental%20Review%20Plan%20Checklist.docx>

Civil Works DBB Quality Control Plan  
NATOMAS BASIN REACH D (PUMPING PLANT 4 MODIFICATION), FY20, P2# 458598  
Sutter County, California

08506-SPD QUALITY CONTROL QUALITY ASSURANCE OF ENGINEERING WORK PRODUCTS  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD%20Quality%20Control%20Quality%20Assurance%20of%20Engineering%20Work%20Products.docx>  
08506-SPD.01 CHECKLISTS FOR DQC REVIEW OF PMP, SCHEDULE, BUDGET AND REVIEW PLANS  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD.01%20Checklists%20for%20DQC%20Review%20of%20PMPs%20Review%20Plans.docx>  
08506-SPD.02 CHECKLISTS FOR REVIEW OF ENGINEERING WORK PRODUCTS  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD.02%20Checklists%20for%20Review%20of%20Engineering%20Work%20Products.docx>  
08506-SPD.03 TEMPLATES FOR DQC CERTIFICATION AND TRANSMITTAL MEMO  
<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD.03%20Templates%20for%20DQC%20Certifications%20and%20Transm%20Memo.docx>

**10. Design Criteria:**

**a. All Projects:**

ER 1110-2-1150 ENGINEERING AND DESIGN FOR CIVIL WORKS PROJECTS  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_1110-2-1150.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1110-2-1150.pdf)  
Architect-Engineer Guide [REFP13L0]  
Architect-Engineer 10% Design Submittals [REFP18L0]  
Architect-Engineer 30% Design Submittals [REFP21L0]  
Architect-Engineer 60% Design Submittals [REFP22L0]  
Architect-Engineer 100% Design Submittals [REFP23L0]

**b. USACE Projects**

Construction Criteria Base - ARMY/COE Criteria [http://www.wbdg.org/ccb/browse\\_org.php?o=31](http://www.wbdg.org/ccb/browse_org.php?o=31)  
USACE Publications <http://www.publications.usace.army.mil/>

**11. Customer/Command/Sponsor Criteria:**

**a. Design Standards:**

California State Water Resources Control, California Code of Regulations, Title 23, April 1, 2016

**b. Design Compatibility Standards:**

American River Common Features, Natomas Basin Reach D Windows, January 2018

**c. Contractor Requirements:**

Multiple Award Task Order Contract (MATOC)

**12. Technical Resource Criteria**

**a. Utility Maps:**

PG&E Electrical Transmission Lines

**b. Standard Details:**

Reclamation District 1000 Pumping Plant 4 Standards

**c. Site Survey Information:**

State of California Department of Water Resources LIDAR Survey

**d. Local Technical Criteria:**

Natomas Mutual Water Company

**e. State Environmental Standards:**

State of California Department of Fish and Wildlife Protection Standards

**f. Project Communication Standards:**

SMUD/Communication Line Standards

**13. PDT Members:**

The Design Team consists of members selected by SPK and MVN, and are as follows:

**Table 1 SPK/MVN Design Team**

Member Name	Discipline/Section	Telephone/E-mail
John Hoge, P.E.	Project Manager SPK	916-557-5304 John.A.Hoge@usace.army.mil
Samin Khan	Civil Lead SPK	916-557-7338 Samin.A.Khan@usace.army.mil
Kurt Jacobs, P.E.	Structural Lead SPK	916-557-5167 Kurt.A.Jacobs@usace.army.mil
Tyler Heitkamp	Architectural Lead SPK	916-557-5294 Tyler.J.Heitkamp@usace.army.mil
Derek Pate, P.E.	Hydraulics Lead SPK	916-557-6705 Derek.J.Pate@usace.army.mil
Wayne Duplantier	Mechanical Lead MVN	504-862-1989 Wayne.A.Duplantier@usace.army.mil
John Vititoe	Electrical Lead MVN	504-862-2138 John.P.Vititoe@usace.army.mil
Adam Duff	Specifications Lead SPK	916-557-7651 Adam.M.Duff@usace.army.mil
Joe Reynolds	Cost Engineer SPK	916-557-7573 Joe.L.Reynolds@usace.army.mil

**14. SPK Geotechnical Branch**

If not on the PDT, the Geotechnical Branch will provide consulting services.

Name	Title	Telephone/E-mail
Glen Johnson, P.E.	Geotechnical Engineer SPK	775-326-1017 Glen.A.Johnson@usace.army.mil

**15. SPK Discipline QC Review**

Conduct QC Reviews to ensure all design computations, calculations, assumptions, and models used are correct and will result in a safe product and complies with all technical criteria.

**a. Team Members**

The SPK/MVN Discipline QC Review Team members consist of their delegated Subject Matter Expert (SME) as follows:

Member	Unit or Section	Telephone/E-mail
Markus Boedtker, P.E.	Civil Reviewer SPK	916-557-6637 Markus.S.Boedtker@usace.army.mil
Michael Ma, P.E.	Structural Reviewer SPK	916-557--7298 Michael.Ma@usace.army.mil
David Dean, P.E.	Geotechnical Reviewer SPK	916-557-6672 David.C.Dean@usace.army.mil
Octavio Aquino, R.A.	Architectural Reviewer SPK	916-557-7655 Octavio.R.Aquino@usace.army.mil
Jesse Schlunegger, P.E.	Hydraulic Design Reviewer SPK	916-557-6777 Jesse.J.Schlunegger@usace.army.mil
Charles Laborde, P.E.	Mechanical Reviewer MVN	504-862-2647 Charles.A.Laborde@usace.army.mil
Richard Cordes, P.E.	Electrical Reviewer MVN	504-862-1803 Richard.R.Cordes@usace.army.mil
Diana Modini	Specifications Reviewer SPK	916-557-6821 Diana.L.Modini@usace.army.mil
Theresa Gneiting-James	Cost Engineering Reviewer SPK	916-557-7661 Theresa.A.Gneiting- James@usace.army.mil

**16. District Quality Control (DQC) Review**

Conduct and document the DQC in accordance with the procedures prescribed in accordance with 08506-SPD QUALITY CONTROL QUALITY ASSURANCE OF ENGINEERING WORK PRODUCTS

<https://apps.usace.army.mil/sites/QMS/DC/QMSDocumentLibrary/SPD/08506-SPD%20Quality%20Control%20Quality%20Assurance%20of%20Engineering%20Work%20Products.docx>.

A DQC Review is a formal review of the draft engineering product performed by a DQC Reviewer or a DQC Review Team lead by a senior member of the organization responsible for the engineering product. DQC does not include sponsor reviews. Conduct sponsor reviews after the DQC reviews.

**a. Team Members**

DQC Review team members will demonstrate senior-level competence in the type of work being reviewed. Junior-level staff cannot be members of DQC teams without appropriate senior-level technical monitoring. For most projects, DQC members should be sought from the following sources: regional technical specialists (RTS); appointed subject matter experts (SME) from other Districts; senior level experts from other Districts; Center

Civil Works DBB Quality Control Plan  
 NATOMAS BASIN REACH D (PUMPING PLANT 4 MODIFICATION), FY20, P2# 458598  
 Sutter County, California

of Expertise staff; appointed SME or senior level experts from the responsible District; experts from other USACE commands; contractors; academic or other technical experts; or a combination of the above. DQC members may be from outside of the responsible command for large and/or complex projects, high-risk projects, and when the responsible command does not have sufficient resources to conduct proper DQC. For flood risk reduction civil works projects a levee safety criteria and policy consistency review by a Levee Safety SME is required as part of DQC Review. This will be staffed from Levee Safety Section and will include the Levee Safety Program Managers. DQC Review Team members will include the minimum number of engineering disciplines that will allow for an adequate review of basic science and engineering. Other appropriate non-engineering representatives should be included in this review.

The In-House and MVN DQC Review Team members consist of the responsible technical Branch and Section Chiefs or their delegate Subject Matter Expert (SME) as follows:

Member	Branch or Section	Telephone/E-mail
Kristine Des Champs, PE	Project Management Branch SPK	916-557-7201 Kristine.DesChamps@usace.army.mil
Gregory A. Kukas, PE	Hydrology & Hydraulics Branch, SPK	916-557-7255 <a href="mailto:Gregory.A.Kukas@usace.army.mil">Gregory.A.Kukas@usace.army.mil</a>
Jerry Frost, PE	Engineering Support Branch SPK	916-557-6863 Jeremiah.A.Frost@usace.army.mil
Jesus Cano, RA	Architectural Design Section SPK	916-557-7360 <a href="mailto:Jesus.H.Cano@usace.army.mil">Jesus.H.Cano@usace.army.mil</a>
Rachael Maltzahn, P.E.	Mechanical Reviewer MVN	504-862-1895 Rachael.A.Maltzahn@usace.army.mil
Jabeen Pasha, P.E.	Electrical Reviewer MVN	504-862-1145 Jabeen.Pasha@usace.army.mil
Hans Carota, P.E.	Civil Design Branch SPK	916-557-6826 <a href="mailto:Hans.P.Carota@usace.army.mil">Hans.P.Carota@usace.army.mil</a>
Michele Louie, P.E.	Structural Design Section SPK	916-557-7320 <a href="mailto:Michele.K.Louie@usace.army.mil">Michele.K.Louie@usace.army.mil</a>
Anthony Tran, P.E.	Soil Design Section A SPK	916-557-5115 <a href="mailto:Anthony.K.Tran@usace.army.mil">Anthony.K.Tran@usace.army.mil</a>
Theresa Gneiting-James	Cost Engineering Section SPK	916-557-7661 Theresa.A.Gneiting- James@usace.army.mil
Aaron Klapheck	Chief, Specifications Section SPK	916-557-7562 <a href="mailto:Aaron.A.Klapheck@usace.army.mil">Aaron.A.Klapheck@usace.army.mil</a>
Joy Ng	DRChecks Site Administrator SPK	916-557-7095 <a href="mailto:Joy.R.Ng@usace.army.mil">Joy.R.Ng@usace.army.mil</a>

**17. Biddability, Constructability, Operability, Environmental, and Sustainability Review:**

SPK Construction-Operations Division, Area Office and Resident Office, Customer, etc:

Name	Title	Office
Justin Puffer	Chief	Construction Quality Assurance Section
Matthew Highstreet	Mechanical Engineer	Construction Quality Assurance Section
Jeffrey Karl	Electrical Engineer	Construction Quality Assurance Section

Name	Title	Office
Jessica Morelli	Structural Engineer	Construction Quality Assurance Section
Michael Van Stone	Specifications Engineer	Construction Quality Assurance Section
Zachary Moore	Construction Engineer	Valley Resident Office
Juan Gonzalez, P.E.	Chief	Inspection Section
Robin Rosenau	Biologist	Environmental Analysis Section
Curtis Morris	Chief	Safety Office

**18. Customer**

Sponsor reviews may be concurrent with any required ATR.

Name	Title	Agency
Morgan O'Brien	Project Manager	Department of Water Resources Central Valley Flood Protection Board
John Bassett	Project Manager	Sacramento Area Flood Control Agency
Steve Yaeger	General Manager	Reclamation District 1000

**19. Agency Technical Review Team (ATRT):**

Agency Technical Review (ATR) is dependent upon the phase of work, and professionals outside of the home district conduct all the reviews. The appropriate Review Management Organization (RMO) will assign the ATRT comprised of senior USACE personnel, preferably recognized subject matter experts with the appropriate technical expertise such as regional technical specialists (RTS), and may be supplemented by outside experts as appropriate. To assure independence, the leader of the ATR team must be from outside the home MSC.

Troy Cosgrove, Geotechnical, CEMVS-EC-GD (ATR Lead)  
 Matthew Sheskier, Geotechnical, CEIWR-RMC-WD  
 R. Andy Gaines, Hydraulic, CEMVM-EC-H  
 Stefan Miller, Mechanical, CEMVN-ED-T  
 D. Shane Callahan, Civil, CEMVM-EC-D  
 Tim Grundhoffer, Structural, CEMVP-EC-D  
 Hannah Hadley, Environmental, CENWS-PM-ER

**20. Type II IEPR Safety Assurance Review (SAR) Team:**

Conduct a Type II IEPR SAR on design and construction activities for any project where potential hazards pose a significant threat to human life (public safety). The appropriate OEO will establish and administer the peer review panels.

Mark Freitas, Civil, GEI Consultants (IEPR Lead)



Dean Durkee, Geotechnical, Gannett Fleming, Inc.  
 Guy Lund, Structural, Gannett Fleming, Inc.

**21. Major Milestones / Schedule:**

Event	Begin Date (dd mmm yyyy)	Duration (Calendar Days)
Issue Design Scope of Work	27 Apr 2018	1
Kickoff Meeting	02 Mar 2020	1
Start QCP	02 Mar 2020	2
Submit to ET&S for Branch and Division Approval/Sign QCP	04 May 2020	5
QC Review of Design Phase – 95% Design Submittal	06 Apr 2020	7
DQC/Sponsor/BCOES Review of Design Phase -95% Design Submittal	17 Apr 2020	15
QC Review of Final Design Phase – 100% Design Submittal	25 May 2020	7
DQC/Sponsor/BCOES Backcheck Review of 100% Design Submittal	1 Jun 2020	7
Sponsors/DQC/BCOES/ATR/SAR Comment Closeout Review of Final Design Submittal	25 Jun 2020	7
BCOES/PDT/ATR/Type II IEPR SAR/QC Certifications	2 Jul 2020	15
Ready To Advertise (RTA)	17 Jul 2020	1
Solicitation	24 Aug 2020	30
Bid Opening / Receive Proposals	23 Sep 2020	1
Award Contract	23 Oct 2020	1
Notice to Proceed	01 Jan 2021	1
Beneficial Occupancy Date	31 Dec 2021	1
Fiscal Closeout	30 Sep 2022	1

**22. Unique, sensitive, or high visibility items requiring special attention.**

U.S. Fish and Wildlife Giant Garter Snake Construction Windows and Monitoring

**23. Regular DBB IFB:**

Submittals other than product samples must be Electronic PDF files.

**a. Early Preliminary Design Phase - 35% Design Submittal:**

IAW A-E 35% Design Submittals [REFP21L0], the 35% Design Submittal must include the requirements of the 10% Design Submittal whether or not a 10% Design Submittal was required. As a minimum, the 35% Design Submittal consist of the following documents:

- Design Analysis (narrative and calculations)
- Drawings (Site Plan, Floor Plans, Elevations, Sections, etc.)
- Outline Guide Specifications
- Project Safety and Health Requirements
- Code B Cost Estimate
- Draft Engineering Considerations and Instructions for Field Personnel (ECIFP) Report Outline

**b. Preliminary Design Phase - 65% Design Submittal:**

IAW A-E 65% Design Submittals [REFP21L0], the 65% Design Submittal must include the requirements of the 35% Design Submittal whether or not a 35% Design Submittal was required. As a minimum, the 65% Design Submittal consist of the following documents:

- Design Analysis (narrative and calculations)
- Drawings (Site Plan, Floor Plans, Elevations, Sections, Details, etc.)
- Outline and Marked-up Guide Specifications (DIV 01-49)
- Daft Specifications without Mark up (DIV 01-49)
- Project Safety and Health Requirements
- Results of Value Engineering studies performed on the project concept design.
- Code B Cost Estimate
- Bid Schedule
- Draft ECIFP Report Outline
- Draft Real Estate Mapping

**c. Final Design Phase - 100% Design Submittal:**

IAW A-E 100% Design Submittals [REFP21L0], the 100% Design Submittal must include the requirements of the 65% Design Submittal whether or not a 65% Design Submittal was required. As a minimum, the 100% Design Submittal consists of the following documents:

- Design Analysis (narrative and calculations for Civil, Geotechnical, Hydraulics, Mechanical, Electrical, Structural, and Architectural)
- Drawings
- Marked up Guide Specifications (DIV 01-49)
- Specifications without Mark up (DIV 01-49)
- Project Safety and Health Requirements
- Code C Cost Estimate
- Bid Schedule
- Equipment Schedule
- Catalog Cuts
- Code C Cost Estimate
- ECIFP Report
- Final Real Estate Mapping

**d. Backcheck Submittal (100%):**

All corrected submittals from all reviews.

**24. Partnering or conflict resolution procedures for the stakeholders:**

The sponsors, Construction, and A-E agreed that the formal partnering session will not be scheduled at this time. Informal partnering will take place at both the pre-design and interim design sessions, continued to the furthest extent possible throughout the design process.

**25. Constraints on the process:**

This project, Natomas Basin Reach D (Pumping Plant 4), will be contracted as Small Business IFB. The levee work will need to be completed during the non-flood season between April and October 2021. Ground disturbance is limited between May and September for Giant Garter Snake protection, and in-water work is restricted between July and September.

**26. Financial resources allocated to the technical process:**

Note: amounts provided were with original intention of completing a full design package. The full amounts provided will not be spent in their entirety.

This QCP has been coordinated with the appropriate section and branch chiefs to ensure the individuals listed (or a suitable replacement) are available to meet the objectives of this plan.

Direct questions on the above to the Technical Design Lead, Mark Boedtger, (916) 557-6637.

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John Hoge, P.E.  
Project Manager

Date

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Mark Boedtger, P.E.  
Design/Technical Lead

Date

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William Hall, P.E.  
Chief, Civil Works Design Branch

Date



**US Army Corps  
of Engineers®**  
Walla Walla District

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# **Quality Control Plan American River Common Features, Natomas Basin Reach E**

***Sacramento County, CA***  
**January 13, 2020**

Submitted to:  
U.S. Army Corps of Engineers  
Sacramento District

Submitted by:  
U.S. Army Corps of Engineers  
Walla Walla District  
301 N. 3<sup>rd</sup>  
Walla Walla, WA 99362

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## **1 PROJECT NAME**

American River Common Features, Natomas Basin Reach E, Sacramento County, California

## **2 CLIENT**

U.S. Army Corps of Engineers, Sacramento District  
Carolyn Mallory, Contracting Officer  
Stacy Pereyda-Hill, Project Manager  
Adam White, Project Technical Lead

## **3 INTRODUCTION AND OBJECTIVE**

The objective of this Quality Control Plan (QCP) is to define the key members of the project delivery team (PDT) and internal independent technical review (ITR) team, the project deliverables and review procedures for these deliverables, and the technical guidance to be followed. The purpose of this QCP is to provide guidance for all involved with the project to ensure a common understanding of the delivery process and procedures necessary to deliver quality professional engineering services and products by the U.S. Army Corps of Engineers (USACE) Walla Walla District (NWW) to Sacramento District (SPK).

## **4 BACKGROUND AND PROJECT DESCRIPTION**

The Natomas Basin portion of the American River Common Features was authorized by the Water Resources Development Act of 2014. USACE, the State of California, and the Sacramento Area Flood Control Agency (SAFCA) are all cost-sharing partners for project implementation. This authorization provides seepage remediation for the levees along the entire Natomas Basin. The Post-Authorization Change Report, American River Watershed, Common Features Project, Natomas Basin, with the preliminary plan for this project, was prepared in August 2010. Reach E is the segment of the Natomas Basin extending from Howsley Road to Sankey Road, which is a distance of 17,393 linear feet (3.3 miles).

## **5 SCOPE**

This scope includes preparation of the Reach E 65%, 95%, and Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) plans, specifications, Design Documentation Report (DDR), Microcomputer-Aided Cost Estimating System (MCACES) cost estimate, bid schedule, and Engineering Considerations and Instructions for Field Personnel (ECIFP). This scope also includes preparation of the draft and final Real Estate Mapping. The scope does not include the geotechnical investigations, design, or preparation of the Geotechnical Basis of Design Report. All of the geotechnical activities, including the appendixes in the DDR, will be performed by Nashville and Sacramento District.



The general improvements include a ten to twenty foot adjacent levee (depending on the location) and installing a soil bentonite cutoff wall in under seepage deficient areas. The levee design will be provided by Nashville District Geotechnical Team in conjunction with SPK Geotechnical Section. NWW is not assuming any geotechnical design or writing of the geotechnical specifications.

Reach E will tie into the upstream levee north of Howsley Road (Reach D). Reach D has an 80 foot deep cut off wall that terminates at station 283+00. NWW will coordinate with LRN and SPK the design of the tie into the cutoff wall.

Five existing culverts are located beneath the PGCC west levee and extend east to the east side of the PGCC. These culverts would need to be replaced with pipe materials and pipe closure devices to comply with EM 1110-2-1913. The pavement above the culverts would require replacement.

An existing pumping facility located on the PGCC west levee at Station 301+09 discharges flow beneath the levee crown. The existing pipe penetration will need to be raised above the 200-year water surface elevation to comply with Engineer Manual 1110-2-1913, Design and Construction of Levees. Other pumps that were identified in the field will be relocated or replaced by SAFCA.

Existing drainage canals owned and operated by RD 1000 would be disrupted by the proposed improvements to the west levee of the PGCC. In accordance with USACE levee criteria, the drainage canal would be relocated 150 feet from the landside levee toe. All RD 1000 drainage canals would be replaced with in-kind facilities.

Existing private irrigation canals and wells would also be disrupted by the proposed improvements. These facilities would be relocated outside of the levee footprint and would be replaced with in-kind facilities compatible with the new levee footprint to prevent disruption of irrigation service. The new canal would be a highline canal with 3H:1V side slopes and a maintenance road. The well relocation design will be handled by SAFCA.

Two existing bridge crossings, Howsley Road Bridge and Fifield Road Intersection, are located along the PGCC west levee. The Howsley Road Bridge will be replaced by Sacramento County; however, part of this project will be to coordinate with them. The Fifield Road Intersection will not be moved. The PGCC west levee includes a location where Sankey Road crosses into the Natomas Basin. Referred to as the Sankey Road Gap, this low spot in the levee has been hardened to accept overflows from the Natomas Cross Canal watershed into the interior of the Natomas Basin during large flood events. Hydrologic and hydraulic modeling indicates that these overflows increase the depth and extent of the interior floodplain in the northern portion of the Natomas Basin during the 1 percent annual chance exceedance flood event, but without causing damage to buildings or infrastructure. No project features are included to close this gap.

Existing power poles in the footprint of the new levee will need to be relocated to 150 feet west of the levee toe. NWW will show this on the plans, however, the poles will be relocated by the local electrical company. There is no electrical design expected from NWW on this project.

## **6 PROJECT REQUIREMENTS**

The project requirements include the submittal of the following main deliverables:

- 65% Submittal (July 10, 2020)
  - Plans
  - Specifications
  - 65% DDR
  - MCACES II Cost Estimates
  - ECIFP
  - Draft Real Estate Mapping
- 95% Submittal (January 11, 2021)
  - Plans
  - Specifications
  - DDR
  - MCACES II Cost Estimates
  - ECIFP
  - Final Real Estate Mapping
- BCOES Submittal (March 31, 2021)
  - Plans
  - Specifications
  - DDR
  - MCACES II Cost Estimates
  - ECIFP

## **7 PROJECT QUALITY CONTROL OBJECTIVES/PROCEDURES**

### **7.1 Quality Control Objectives**

Quality control for this project will be undertaken following the procedures outlined below. The deliverables discussed above will be reviewed for conformance with the appropriate guidance and/or reference to ensure the quality control objectives are met.

## 7.2 Quality Control Procedures

Before submittal of a deliverable to SPK, the production document and supporting materials will undergo PDT review and internal ITR review. For PDT review, document review will be performed by a senior level individual with the appropriate technical background for the subject document. Depending on the complexity of the document, PDT review will also be performed as part of an ongoing process during document development. Such ongoing PDT reviews will be performed by an individual at or above the technical level of the person performing the work. Final reviews will then be performed by senior level individuals, resulting in a draft document ready for ITR review. The ITR Team will review all components of a deliverable for technical clarity and accuracy, and ensure that the content is consistent with the project requirements and technical criteria specified in the project scope. The project documents will also be reviewed for editorial type comments. Following completion of the ITR review, the ITR reviewers will discuss their comments with the PDT to convey a clear understanding of any required changes, modifications, or clarifications to the project documents.

The primary objectives of an ITR are to ensure that:

- The design matches the scope.
- The project meets the applicable codes and engineering practice.
- Concepts, features, methods, analyses, details, and project costs are appropriate, valid, fully coordinated, and correct.
- All relevant engineering and scientific disciplines have been effectively integrated.
- Appropriate computer models and methods of analysis were used and basic assumptions are valid and used for the intended purpose.
- The source, amount, and level of detail of the data used in the analysis are appropriate for the complexity of the project.
- Content is sufficiently complete for the applicable design milestone of the project and provides an adequate basis for future development effort.
- Project documentation is appropriate and adequate for the design milestone.
- Any deviation from guidance and standards are identified and properly approved.

The primary focus of the ITR is on significant deficiencies, but comments on the presentation of drawings, minor numerical errors, spelling, grammar, and formatting errors are encouraged.

Concurrent with submission of a draft project deliverable for client / external review, NWW will submit an Initial Quality Control Certificate (QCC) to the SPK Project

Manager stating that the deliverable has been reviewed internally in accordance with the QCP and the NWW District Quality Control (DQC) process and that all review comments have been addressed.

All Quality Control activities associated with DQC, ITR, and SPK reviews will be fully documented using the USACE DrChecks review management software, following the comment-response-resolution format. Review documentation will be included with the QCC. Review comments will be addressed by members of the PDT who originally worked on the deliverable. Changes to the document will be made and will be back-checked upon revision.

Quality Control documentation will be maintained in the project file for review by SPK. A Final QCC will accompany the final submittal of a deliverable. The Final QCC will certify that procedures outlined in this QCP have been performed and that all concerns identified during internal and external quality control reviews have been resolved.

## **8 GUIDANCE, STANDARDS, TECHNICAL CRITERIA**

Appropriate provisions of the following Guidance, Standards and Criteria shall be followed during preparation of the project documents required to be developed for this project:

- Engineer Regulation 1110-1-12, Engineering and Design Quality Management.
- Engineer Regulation 1110-2-1302, Engineering and Design - Civil Works Cost Engineering.
- Engineer Regulation 1110-2-1150, Guidance for preparing a Design Document Report.
- Engineer Regulation 1110-1-8155, Engineering and Design Specifications, 30 October 2015.

## **9 REFERENCE DOCUMENTS**

The following reference document is to be used in the execution of the work associated with this project:

- Geotechnical Basis of Design Report, Natomas Reach E, Sacramento County, California, American River Common Features, prepared by U.S. Army Corps of Engineers, Nashville District.

## **10 PROJECT DELIVERY AND ITR TEAMS**

Overall project delivery efforts will be managed by the NWW POC, Joy Hartl. Contact information for all members of the PDT from NWW is presented below:

Name	Project Role	Telephone	Email
Joy Hartl	NWW POC / Specifications	(509) 527-7613	Joy.G.Hartl@usace.army.mil
Michael Franssen, PE	Civil Engineer	(509) 527-7567	Michael.J.Franssen@usace.army.mil
Steve Wyrembelski, PE	Civil Engineer Lead	(509) 527-7626	Steven.A.Wyrembelski@usace.army.mil
Garrett French	Civil CAD tech	(509) 527-7543	Garrett.E.French@usace.army.mil
Martin Evans, PE	Mechanical Engineer Lead	(509) 527-7551	Martin.J.Evans@usace.army.mil
Kelsey Kane	Mechanical Engineer	(509) 527-7050	Kelsey.E.Kane@usace.army.mil
Nathan Bakke	Mechanical CAD tech	(509)-527-7545	Nathan.A.Bakke@usace.army.mil
Derek Nelson, PE	Cost Engineer	(509) 527-7612	Derek.D.Nelson@usace.army.mil
Brian Schnick	GIS	(509) 527-7495	Brian.P.Schnick@usace.army.mil
Kathleen McCaw	Technical Writer	(509) 527-7419	Kathleen.McCaw@usace.army.mil
Roger Fujan	BIM Manager	(509) 527-7598	Roger.J.Fujan@usace.army.mil

Contact information for the senior ITR Team is presented below:

Name	Project Role	Telephone	Email
Yvonne Palmer, PE	Civil ITR Reviewer	(509) 527-7618	Yvonne.R.Palmer@usace.army.mil
Maung Myat, PE	Chief of Geotechnical Design	(509) 527-7539	Maung.T.Myat@usace.army.mil
Phil Auth, PE	Mechanical ITR Reviewer	(509) 527-7574	Philip.S.Auth@usace.army.mil

## 11 TRANSFER OF DATA

Maintaining the schedule for this project will hinge upon the timely transfer of project data between Walla Walla, Sacramento, and Nashville District PDT members to support

the work efforts required. Additionally, it will be important that all members of the PDT maintain a mutually cooperative and timely handling of production documents for review/comment/response, focusing on the established schedule dates. The DrChecks system will be used to document the review comment/response process for this project.



**US Army Corps  
of Engineers**®  
St. Paul District

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# Quality Control Plan

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## **American River Common Features Natomas Basin Reaches F & G**

Sacramento & Sutter Counties, CA

Engineering and Design Phase

Project No: P2 #458598

Document History:

	<u>DATE</u>	<u>DESCRIPTION &amp; LOCATION WITHIN QCP OF REVISION</u>	<u>DATE APPROVED</u>	<u>APPROVED BY</u>
Original QCP	August 2021	Original QCP		MVP & SPK
Revision # ____				

**QCP for American River Common Features Natomas Basin Reaches F & G**

**QCP ACCEPTANCE SHEET**

We endorse the Quality Control Plan dated August 2021 for the American River Common Features Natomas Basin Reaches F & G project. We understand that the Quality Control Plan is a living management document that will be updated throughout the course of the project.

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Samuel Smith  
MVP Project Manager

Date

---

Christine R. Moss  
MVP Technical Lead

Date

---

Stacy Pereyda Hill  
SPK Project Manager

Date

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Kylan Kegel  
SPK Technical Lead

Date

---

Michael R. Knoff  
Chief, MVP Engineering and Construction Division

Date

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Rick Poeppelman  
Chief, SPK Engineering Division

Date



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# Quality Control Plan

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## American River Common Features Natomas Basin Reaches F & G

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# Quality Control Plan

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## American River Common Features Natomas Basin Reaches F & G

### 1. Purpose

This plan outlines the professional expertise, technical criteria, and technical review processes that will be used to produce quality products satisfying technical, functional, environmental, safety, and legal requirements.

The goal is to produce error free decision and implementation documents that result in completed projects that conform to customer's expectations and exhibit sound engineering practice. Included in the goal are adherence to technical, legal and policy criteria, functionality, budgetary and scope limitations, schedule, and the environment. This Quality Control Plan (QCP) represents the plan of action that will be implemented on this project to ensure that the goal is met. Because some features of the plan may be modified as the project develops, it is intended to be a continuously developing record document.

South Pacific Division (SPD) and Mississippi Valley Division (MVD) engaged in a Memorandum of Agreement (MOA) for execution of construction projects, to include Natomas Basin Reaches F & G. The roles of Engineering Quality Management, as stated in the MOA, is shared by both SPD and MVD.

### 2. Applicability

This QCP applies to all functional elements within MVD that are involved in producing the planning, engineering, design, construction, and/or operations & maintenance for Natomas Basin Reaches F & G.

### 3. Project Location and Description

The Natomas Basin portion of the American River Common Features was authorized by the Water Resources Development Act of 2014. The US Army Corps of Engineers (USACE), the State of California Department of Water Resources (DWR), and the Sacramento Area Flood Control Agency (SAFCA) are all cost-sharing partners for project implementation. Reclamation District (RD) 1000 serves as the Local Maintaining Agency. This authorization provides seepage remediation for levees along the entire Natomas Basin. A Post-Authorization Change Report (PACR), American River Watershed, Common Features Project, Natomas Basin, was prepared with the preliminary plan for this project in August 2010.

Reach F is located along the Natomas East Main Drain Canal (NEMDC), with its upstream limit at Sankey Road, and its downstream limit at Elverta Road. This reach is in a rural area. The levee in this reach has issues with stability, erosion, and overtopping. The length of this reach is approximately 4.7 miles.

## QCP for American River Common Features Natomas Basin Reaches F & G

Reach G is located along the Natomas East Main Drain Canal, with its upstream limit at Elverta Road and its downstream limit at Del Paso Road. This reach is in a transition area from rural to urban. The levee in this reach has issues with seepage and stability. The length of this reach is approximately 3.6 miles.

Pumping Plant No. 6 is located along the NEMDC, approximately three quarters of a mile north of Elkhorn Boulevard. The pumping plant discharges flows from an interior drainage canal into the NEMDC. Pumping Plant No. 6 is owned and operated by RD 1000.

The purpose of this project is to evaluate the existing conditions of Reaches F & G, identify areas that do not meet performance criteria, perform analyses of different design options, select the preferred improvement measures, and provide recommendations for construction of preferred improvement measures.

### 4. Products of this Work Effort

This scope includes preparation of the Reaches F & G 35%, 65%, 95%, and Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) plans, specifications, Design Documentation Report (DDR), cost estimate, bid schedule, and Engineering Considerations and Instructions for Field Personnel (ECIFP). Key end products include:

- Project Management Plan (PMP)
- Quality Control Plan (QCP)
- Design Documentation Reports (DDR)
- Plans and Specifications (P&S)
- Applicable updates to Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R) Manuals

### 5. Project Risks and Special Considerations

The risk register has been completed, the file location for the risk register is:

\\mvd\mvp\PROJECTS\2018\_Emergency\_Supplemental\SPK\_Support\Natomas\_F\_and\_G\PM\PMP

Of important consideration in this design effort is the geotechnical alternatives analysis and selection of the preferred mitigation method. The existing levees do not comply with USACE or State of California Urban Levee Design Criteria standards. Special consideration should also be applied to the overall project footprint to avoid excessive impacts to existing structures and utilities. Continued monitoring, assessment and communication of changing risks will occur throughout the Planning, Engineering, and Design (PED) process.

Both Reaches F & G have a roadway on the levee crown. The roadway may be demolished and replaced as a component of the levee degrading in some areas. Close coordination with Non-Federal Sponsors (NFS) will be required to ensure that appropriate measures will be in place for any roadway closures.

Scope creep is a concern since there are alternatives and betterments that are not included in the current PMP. The decision date for additional betterments to be included in the project scope was the

10% concurrence meetings, as stated in the PMP. The 10% concurrence meetings occurred on 14 August 2020. The discussion of additional design alternatives and betterments is ongoing and will be revisited following finalization of the Draft Hydraulic Basis of Design Memorandum, dated 30 April 2020. This will likely occur prior to the 65% design submittal.

Real estate right of way acquisition will be the responsibility of the Non-Federal Sponsor. Any issues resulting in real estate acquisition could cause design changes.

There are many utilities crossing below and within the existing levee. Utility relocation will be the responsibility of the Non-Federal Sponsor.

## 6. Technical Criteria, Guidance, and References

The following technical criteria and reference materials are relevant to this work effort. In addition to the listed USACE criteria, planners, designers, and engineers are expected, when appropriate, to utilize current industry standards and building codes.

### 6.1 Project Management Plan (PMP) and Review Plan (RP)

The PMP was developed and agreed upon by SPK & MVP in June 2020. The PMP is undergoing revisions given changes to the project scope and is expected to be completed in August 2021. An overall RP for the Natomas Basin was completed in 2010.

The PMP outlines the five key tasks that are essential to the success of the project: 1) obtaining agreement on project goals and expectations; 2) developing a plan for acquiring and delivering a project that meets customer expectations, objectives, and needs; 3) establishing a good internal and external communications strategy; 4) defining and controlling the scope of the project; and 5) defining the resources necessary for project success. Two of the key subparts of the PMP are the Review Plan and the Quality Control Plan (i.e., this document); both sub-documents help ensure the overall quality of a project/product.

A copy of the current PMP or RP can be furnished by MVP upon request.

### 6.2 USACE Publications

[ER 415-1-11](#) *Biddability, Construct Ability, Operability, Environmental And Sustainability (BCOES) Reviews*, 1 January 2013

[ER 1110-1-12](#) *Quality Management*, 21 July 2006

[ER 1110-2-1150](#) *Engineering and Design for Civil Works*, 31 August 1999

[ER 1110-1-8155](#) *Specifications*, 30 October 2015

[ER 1110-1-8156](#) *Policies, Guidance, and Requirements for Geospatial Data and Systems*, 1 September 2012

[EM 385-1-1](#) *Safety and Health Requirements Manual*, September 2008

## QCP for American River Common Features Natomas Basin Reaches F & G

<a href="#">EM 1110-2-1913</a>	<i>Design and Construction of Levees</i> , 30 April 2000
<a href="#">EM 1110-2-2000</a>	<i>Standard Practice for Concrete for Civil Works Structures</i> , 31 March 2011
<a href="#">EM 1110-2-2102</a>	<i>Waterstops and Other Preformed Joint Materials for Civil Works Structures</i> , 30 September 1995
<a href="#">EM 1110-2-2902</a>	<i>Conduits, Culverts, And Pipes</i> , 31 March 1998
<a href="#">EC 1110-2-6070</a>	<i>Guidance for a Comprehensive Evaluation of Vertical Datums on Flood Control, Shore Protection, Hurricane Protections, and Navigation Projects</i> , 1 July 2009
<a href="#">EC 1165-2-217</a>	<i>Review Policy for Civil Works</i> , 15 December 2015
<a href="#">EP 1110-2-18</a>	<i>Vegetation Maintenance Near Levees</i> , 1 May 2019

### 6.3 Industry Standards and Codes

Roadway reconstruction and utility relocation will follow established county, state, or national standards and codes. Specific details will be determined on or around the 65% review milestone.

- California State Water Resources Control, California Code of Regulations, Title 23, April 1, 2016
- California Urban Levee Design Criteria (ULDC), May 2012

### 6.4 Documents from Previous Phases or Related Projects

Documents developed for design and construction of ARCF Natomas Basin Reaches A, B and E will be reviewed for design consistency during the design of Reaches F & G.

## 7. Key Operating Procedures

### 7.1 Standard Operating Procedures (SOPs)

This project will utilize all latest MVP & SPK SOPs. The SOPs will be discussed at all major design review meetings. Applicable SOPs are listed below.

United States Army Corps of Engineers. 2008. Standard Operating Procedure EDG-03, Geotechnical Levee Practice. Sacramento District. April.

### 7.2 Lessons Learned

Each discipline should check the Design Quality Lessons Learned (DQLL) database on the ProjNet website (<https://www.projnet.org/projnet/>) for any DQLLs that may be appropriate. The DQLL database may be checked at other times during the project design phase, and if applicable items are found, they should be immediately brought to the attention of the design team.

### **7.3 Design Schedules and Budgets**

The schedule and budget for the project will be input, maintained, and tracked using Primavera/Primavision software. Schedules and budgets will be monitored and discussed on a bi-weekly basis in Engineering-Construction Division's bi-weekly management meeting. The total MVD design budget is \$2.5M.

### **7.4 Non-Federal Sponsor Interaction**

The Non-Federal Sponsors will be invited to participate in recurring PDT meetings to ensure they are routinely updated on the project status and to determine if there are new developments that impact the project scope of work. Sponsors will also be invited to participate in the 35%, 65%, and 95% review submittals. Any request to change the scope of work will be formally documented and routed through the PM and incorporated in the PMP.

### **7.5 Request for Additional Funds**

If the project increases in scope, a budget for the increased scope will be sent to Sacramento District (SPK) for approval. Approval and additional design funds will be obtained before any additional work is performed.

### **7.6 Lost Effort**

If the project has a change in scope that creates lost effort, an estimate of the lost effort will be sent to SPK for approval. Approval and additional design funds will be obtained before any additional work is performed.

## **8. Document, Design, and Management Tools**

### **8.1 Document Management:**

- 1) ProjectWise will be utilized to store and manage the electronic files for all technical products such as drawings, reports, specifications, estimates, etc. In some cases, such as for SPECTSINTACT and MCASES, the working files may need to reside on a local PC, but the files shall be backed-up to the ProjectWise server on a regular schedule.
- 2) A project folder on the St. Paul District (MVP) network servers will be utilized to store and manage the non-technical electronic files such as correspondence, budgets, schedules, etc.

### **8.2 Design Tools:**

- 1) Computer Aided Design (CAD) Software: This project will be designed utilizing InRoads and MicroStation software. The project will be converted to Open Roads Designer (ORD).
- 2) Specification Software: The technical specifications will be prepared utilizing SPECSINTACT software.

- 3) Cost Estimating Software: Construction cost estimates will be prepared utilizing Micro Computer Aided Cost Estimating System (MCACES) MII software.
- 4) Geotechnical Modeling Software: Geotechnical analyses will be prepared utilizing GeoStudio software.

### **8.3 Management Tools:**

- 1) Scheduling and Budgeting Software: Primavera/Primavision will be utilized to track the project schedules and budgets.
- 2) Design Review Software: DrChecks will be utilized for each technical review to track the comments, evaluation responses, and backchecks.

## **9. Responsibilities**

A full list of responsibilities is included within the PMP. The following list of responsibilities focus specifically on Quality Control.

### **9.1 MVD Project Manager (PM):**

- Develops and maintains the PMP
- Coordinates technical design issues with the Technical Lead and the PDT
- Ensures review times are scheduled appropriately
- Ensures that Value Engineering (VE) is coordinated with VE manager

### **9.2 MVD Technical Lead (TL):**

- Develops and maintains the QCP in coordination with the Project Manager and the District's Quality Manager
- Coordinates with the PM to establish review schedules
- Leads the PDT in compiling the technical documents for reviews and transmitting them to the appropriate reviewers
- Coordinates with the PDT to resolve all review comments
- Verifies that all comments in DrChecks are backchecked, resolved, and properly closed

### **9.3 Product Delivery Team (PDT) Members**

- Produce high quality technical documents in a timely manner; coordinate amongst fellow team members to resolve issues; and ensure work is reviewed and checked by peers/supervisor prior to submitting for formal technical reviews
- Responds to formal comments within the designated time frame and actively works to resolve all review comments
- Incorporates all appropriate review comments into the technical products

### **9.4 Reviewers (Consistency, DQC, BCOES, ATR, etc.)**

- Performs thorough reviews in accordance with appropriate guidance and checklists

## **QCP for American River Common Features Natomas Basin Reaches F & G**

- Enters appropriate comments into DrChecks (each comment should reference page paragraph, and/or section to where the comment is made; discuss the issue; cite the appropriate code or regulation, and suggest or recommend action)
- Elevates technical issue impasses to superiors
- Backchecks responses to comments and provides closure of comments in DrChecks

### **9.5 MVP Chief of Engineering and Construction & SPK Chief of Engineering and Design**

- Approves the QCP
- Provides general oversight of all QA/QC processes for the preparation of technical products
- Certifies that technical products are complete and that all QA/QC process have been followed

## **10. Project/Product Delivery Team (PDT)**

### **10.1 Planning, Engineering, Design, and Construction PDT Members**

The PDT members for the American River Common Features Natomas Basin Reaches F & G project are listed in **Attachment 1**. The PDT will be led by an experienced Project Manager (PM) who has led PDTs in successful completion of similar work. Other PDT members assigned will have extensive professional and technical experience in their assigned areas of responsibility. Should future requirements require the application of different skills or experience than initially planned, appropriate additional personnel will be added to the PDT.

### **10.2 SPK and Non-Federal Sponsor PDT Members**

The key SPK/Non-Federal Sponsor PDT members for the American River Common Features Natomas Basin Reaches F & G project are listed in **Attachment 2**. In addition to SPK & Non-Federal Sponsors, the MVP PDT will engage and involve other appropriate USACE organizations, Federal agencies, state and local governments, local utility and infrastructure agencies, and local citizens groups and associations, to keep them informed and to solicit their feedback and assistance. This involvement includes formal meetings and presentations, formal reviews, informal meetings and discussions, teleconferences, emails and telephone conversations. Customer involvement at all levels is vital to instill confidence that the customers' needs are being addressed and the recovery efforts are of high quality. The PDT is strongly encouraged to include personnel from the Non-Federal Sponsor's staff and from other Federal agencies. Partnering with the Non-Federal Sponsor is a key element during the design of a project. Our customers are key members of the PDT. Partnering shall occur during all phases of project development.

At minimum, discussions will be held with Non-Federal Sponsor during the standard PDT meetings. Other meetings with Non-Federal Sponsor will help as necessary, to ensure complete engagement and resolution of issues or concerns.



## 11. Technical Review Teams

### 11.1 District Quality Control (DQC) Review Team

For Implementation Documents/Products, the Technical Lead is the DQC Review Leader and is responsible for managing all DQC reviews and assuring all DrChecks comments are resolved and closed.

The DQC Reviewers for the American River Common Features Natomas Basin Reaches F & G project are listed in **Attachment 3**.

A DQC Review will be performed by MVD on each product and deliverable at the 35%, 65%, and 95% milestones. SPK will be involved in DQC reviews for disciplines which they are providing direct PDT support. A DQC Review is a review conducted by senior-level personnel within the District who are experienced in the type of project that the products are for. The purpose of this review is to review the accuracy of data, information, and calculations for each product, as well as to ensure consistency and effective coordination across all disciplines. A DQC review is not intended to replace an ATR, but rather is done in addition to an ATR.

Documentation will be provided for all DQC reviews, consisting of a completed (signed) statement of technical review and certification, see QMS 22803-MVP for guidance and sample certification forms.

### 11.2 Consistency Review Team

Due to the integrated delivery structure of this MVD support to SPK project, SPK ED developed guidance for SPK review participation for disciplines outside those they are providing direct PDT support for.

Consistency review of MVD products, following DQC and concurrent with ATR where applicable, will be performed by key SPK PDT members at the major design completion milestones. These SPK team members will have been involved in coordination, design, QC and/or QA of other Natomas Basin project efforts. The charge for this review will be to assess methods, assumptions, and outputs for reasonable consistency between the various design teams and with broader SPK engineering policy and practices.

The Consistency Reviewers for the American River Common Features Natomas Basin Reaches F & G project are listed in **Attachment 4**. This attachment also includes the example Consistency Review Sign off sheet to be signed by SPK ED.

The NFS will be afforded an opportunity for formal review as part of the Consistency Review team.

### 11.3 ATR Team

The ATR Lead is responsible for providing leadership and guidance for all ATR reviews and assuring all DrChecks comments are resolved and closed. Due to the nature of the cutoff wall/levee designs, it was determined that civil, geotechnical, hydraulics, and environmental expertise was needed for the ATR review activities.

An ATR Review will be performed on each product and deliverable at the 65% and 95% milestones. The ATR Reviewers for the American River Common Features Natomas Basin Reaches F & G project are listed

in the project Review Plan. Given that the Review Plan was finalized in 2010, an updated list of ATR reviewers is provided in **Attachment 5** as designated by the RMO. The Review Plan defines project-specific ATR requirements. Coordination with the RMO for the ATR will be conducted by MVD & SPK PM once this QCP is executed.

#### **11.4 BCOES Team**

SPK & MVD will be responsible for assigning BCOES reviewers and conducting the BCOES Review & Signoff. MVD PDT will be responsible for coordinating BCOES reviews and addressing BCOES review comments.

The BCOES Reviewers for the American River Common Features Natomas Basin Reaches F & G project are listed in **Attachment 6**.

BCOES reviews will be performed in accordance with ER 415-1-11 on all Plans and Specifications (P&S) products. The intent of BCOES reviews is to improve:

- 1) How well contract documents can be understood, bid, administered, and executed.
- 2) The ease with which a contract can be built.
- 3) The efficiency with which the item can be operated and maintained.
- 4) The effectiveness of protecting the environment from the effects of construction and operation.

The BCOES Review should be conducted after the 95% DQC and ATR reviews are completed and certified. Formal comments and comment resolutions will be performed and documented in DrChecks as per ER 1110-1-8159. Prior to the start of Final BCOES Review, the PM completes and submits the following checklists and documents as defined in the MVD Regional BCOES Process QMS 08020-MVD titled *Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) Review*:

- a) QMS 08020.4-MVD Attachment D – BCOE Technical Review Checklist
- b) QMS 08020.5-MVD Attachment E – Project Quality Review Checklist
- c) Engineering Considerations and Instructions (ECIs)

#### **11.5 Type II IEPR Team**

The IEPR Lead is responsible for providing leadership and guidance for all IEPR reviews and assuring all DrChecks comments are resolved and closed.

A Type II IEPR Review will be performed on each product and deliverable at the 65% and 95% milestones. The IEPR Reviewers for the American River Common Features Natomas Basin Reaches F & G project are listed in the project Review Plan. Given that the Review Plan was finalized in 2010, an updated list of IEPR reviewers is provided in **Attachment 7** as assigned by the RMO. The Review Plan defines project specific IEPR requirements. Coordination with the RMO on the Type II IEPR will be conducted by MVP & SPK PM once this QCP is executed.

### 11.6 Summary of Deliverable Review and Lead Organization

Deliverable	DQC	Consistency	ATR**	Type II IEPR**	BCOES	NFS
Hydraulic Basis of Design	SPK	N/A	SPK	N/A	N/A	N/A
Design Documentation Report	MVD*	SPK	MVD	MVD	MVD & SPK	MVD
Plans & Specifications	MVD*	SPK	MVD	MVD	MVD & SPK	MVD
Applicable updates to the OMRR&R Manual	MVD*	SPK	MVD	MVD	MVD & SPK	MVD
Engineering Considerations	MVD*	SPK	MVD	MVD	MVD & SPK	MVD

\*SPK reviewers will be assigned to DQC team for disciplines with direct PDT involvement

\*\*SPK & MVD will share responsibility for coordinating with RMO for ATR & Type II IEPR, however MVD will lead reviews

### 12. Schedule of Technical Reviews

For ease of updating and distributing to PDT members and Review Team members, the Schedule of Technical Reviews is in **Attachment 8**.

### 13. Certification of Reviews

Certification forms (ex: District Quality Control Review, Agency Technical Review, Consistency Review, and Safety Assurance Review) will be utilized to document each of the various reviews and to certify that QA/QC processes have been completed. These forms will be finalized during the BCOES Signoff process and are included as **Attachment 9**.

### 14. Ready To Advertise (RTA) Checklist

An RTA checklist and associated technical review certification sheets will be utilized to document that all appropriate technical reviews, BCOES review, Value Engineering, and Real Estate acquisition has been successfully completed and the project is ready to advertise. This checklist and associated four technical review certification sheets are included as **Attachment 9**.

### 15. Process For Design Deviations

The current guidance for design deviations is outlined in ECB 2019-15. All proposed deviations from mandatory design standards, including rationale, must be documented in a memorandum approved by the district and division DSO or LSO and concurred by the DSOG or LSOG, whichever is appropriate. The DSOG or LSOG will ensure the appropriate Community of Practice (CoP) leaders or their designated representatives are included in the concurrence process.

SPK is the owning district of this project and all design deviations will be handled by SPK ED through SPD. MVD will initiate any known deviations by identifying in 65% DDR submittals. Concurrence of the deviation will be achieved through the SPK Consistency Review and the functional area engineering Branch Chief in SPK.

## **16. QCP Updates**

The PM will ensure that this plan is reviewed and updated on a quarterly basis, or more often if needed. The PM will take the lead in updating the plan with the technical function's participation and input. Minor updates occurring within a quarter will be prepared as addenda by the PM; all addenda will be incorporated in the quarterly updates.

The document history block at the beginning of this document shall be utilized by the PM to record the dates and nature of the updates. The "Approved By" column should contain the name of either the PM, the District QM, or the Chief EC.

## **17. Attachments**

- 1 Project Delivery Team (PDT) Members
- 2 SPK & Non-Federal Sponsor PDT Members
- 3 District Quality Control (DQC) Review Team
- 4 Consistency Review Team
- 5 Agency Technical Review (ATR) Team Members
- 6 BCOES Review Team
- 7 Independent External Peer Review (IEPR) Team Members
- 8 Schedule of Technical Reviews
- 9 Certification Forms and Ready To Advertise Checklist

**QCP for American River Common Features Natomas Basin Reaches F & G**

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**MVD Project Delivery Team (PDT) Members****ATTACHMENT 1**

<b>Name (Organization)</b>	<b>PDT Role/Title</b>	<b>Phone Number</b>	<b>Email Address</b>
Samuel Smith (MVP)	Project Manager	(651) 290-5545	Samuel.r.smith@usace.army.mil
Nathan Meisgeier (MVP)	Geotechnical Engineer	(651) 290-5656	Nathan.d.meisgeier@usace.army.mil
Charles Bishop (MVR)	Geotechnical Engineer/ Section Chief	(309) 794-5890	Charles.e.bishop@usace.army.mil
Felix Castro (MVR)	Geotechnical Engineer	(309) 794-5890	Felix.R.Castro@usace.army.mil
Catherine Seams (MVR)	Geotechnical Engineer	(309) 794-5880	Catherine.seams@usace.army.mil
Ashley Woods (MVP)	Geologist	(651) 290-5490	Ashley.M.Woods@usace.army.mil
Christine Moss (MVP)	Technical Lead/ Civil Engineer	(651) 290-5025	Christine.R.Moss@usace.army.mil
Sean Johnston (MVP)	Civil Engineer	(651) 290-5554	Sean.M.Johnston@usace.army.mil
Greg Fischer (MVP)	Civil Engineer	(651) 290-5955	Russel.g.fischer@usace.army.mil
Paul Hegre (MVP)	Civil/Specs Engineer	(651) 290-5269	Paul.D.Hegre@usace.army.mil
Kent Hokens (MVP)	Structural Engineer	(651) 290-5584	Kent.D.Hokens@usace.army.mil
Jacqueline Kovarik (MVP)	GIS Specialist	(651) 290-5267	Jacqueline.T.Kovarik@usace.army.mil
Adam Howard (MVP)	Hydraulic Engineer	(651) 290-5633	Adam.K.Howard@usace.army.mil
Wade Carr (MVP)	Mechanical Engineer	(651) 290-5607	Wade.d.carr@usace.army.mil
Christina Vasseur (MVP)	Construction Engineer	(651) 290-5558	Christina.m.vasseur@usace.army.mil
TBD	Electrical Engineer		

**SPK PDT Members**

**ATTACHMENT 2**

<b>Name</b>	<b>PDT Role/Title</b>	<b>Phone Number</b>	<b>Email Address</b>
Stacy Pereyda-Hill	Project Manager	(916) 557-6887	Stacy.L.Pereyda-Hill@usace.army.mil
Kylan Kegel	Technical Lead	(916) 557-7775	Kylan.a.kegel@usace.army.mil
Joe Waltz	Geotechnical Engineer	(408) 718-6925	Joseph.d.waltz@usace.army.mil
Heather Grommet	Deputy Chief/ Geotech Branch	(916) 557-6874	Heather.l.grommet@usace.army.mil
Blake Prawl	Environmental	(916) 549-6565	Blake.n.prawl@usace.army.mil
Robert Gudino	Cultural	(916) 557-5104	Robert.gudino@usace.army.mil
LeAnne Jett	Real Estate	(916) 557-6829	Leanne.j.jett@usace.army.mil
Sid Jones	Landscape Architect	(916) 557-7273	Sidney.l.Jones@usace.army.mil
Uriel Lopez	PM Specialist	(916) 557-7326	Uriel.Lopez@usace.army.mil
Sheryl Blackburn	Budget Analyst	(916) 557-7684	Sheryl.A.Blackburn@usace.army.mil

**Non-Federal Sponsor (NFS) PDT Members**

<b>Name</b>	<b>Affiliation</b>	<b>Phone Number</b>	<b>Email Address</b>
Paul Devereux	RD1000	(916) 417-4170	pdevereux@rd1000.org
John Bassett	SAFCA	(916) 704-8731	bassettj@saccounty.net
Al Honorat	CA-DWR-PM	(916) 574-1041	Alcenat.Honorat@water.ca.gov
Corey Lasso	CA-DWR		Corey.Lasso@water.ca.gov
Stephen Sullivan	MEAD & HUNT for RD1000	(916) 993-4621	steve.sullivan@meadhunt.com
Jeff Kashiwada	MEAD & HUNT for RD1000	(916) 971-3961	jeff.kashiwada@meadhunt.com

## DQC and System Consistency Review Team

### ATTACHMENT 3

Name (Organization)	Discipline	Email	Phone	Experience
TBD (TBD)	Project Manager	TBD	TBD	TBD
Trevor Kough (MVP)	Civil-Site /Quantities	Trevor.v.kough @usace.army.mil	(651) 290-5423	10 years' experience civil design of levees
Gary Wolf (MVP)	Civil-Site /Quantities	Gary.c.wolf @usace.army.mil	(651) 290-5288	Civil Section chief. 20 years' experience as a Civil/CADD engineer
Chris Afdahl (MVP)	Drawing CAD Standards	Christine.a.afdahl @usace.army.mil	(651) 290-5712	25 years' experience as a Civil/CADD engineer
Eduardo Torrens-Bonano (MVP)	Surveys	Eduardo.torrens @usace.army.mil	(651) 290-5596	10 Years' experience with the MVP Survey Crew
Ryan Price (MVP)	Geotechnical	Ryan.w.price @usace.army.mil	(651) 290-5318	15 years of geotechnical design of levees and floodwalls
Derek Pate (SPK)	Hydraulic Design	Derek.J.Pate @usace.army.mil	(916) 557-6705	5 years' experience on Natomas Basin
Blake Prawl (SPK)	Environment al	Blake.N.Prawl @usace.army.mil	(916) 549-6567	2 years' experience on Natomas Basin
Robert Gudino (SPK)	Cultural Resources	Robert.Gudino @usace.army.mil	(916) 557-5104	2 years' experience on Natomas Basin
Leanne Jett (SPK)	Real Estate	LeAnne.J.Jett @usace.army.mil	(916) 557-6829	1 year real estate experience on Natomas
Kent Hokens (MVP)	Structural Engineering	Kent.d.hokens @usace.army.mil	(651) 290-5584	30 years' experience in structural engineering
Jim Sentz (MVP)	Cost Engineering	TBD	TBD	20+ years Cost Estimating experience
TBD (TBD)	Construction	TBD	TBD	TBD



**SPK Consistency Review Team**

**ATTACHMENT 4**

<b>Name (Organization)</b>	<b>Discipline</b>	<b>Email</b>	<b>Phone</b>	<b>Experience</b>
Kylan Kegel (SPK)	SPK Technical Lead	kylan.a.kegel @usace.army.mil	(916) 557-7775	2 years' experience on Natomas Basin
Mark Boedtker (SPK)	Civil Design	Markus.S.Boedtker @usace.army.mil	(916) 557-6637	15 years' experience on Natomas Basin
Heather Grommet (SPK)	Geotechnical	Heather.L.Grommet @usace.army.mil	(916) 557-6874	2 years' experience on Natomas Basin
Derek Pate (SPK)	Hydraulic Design	Derek.J.Pate @usace.army.mil	(916) 557-6705	5 years' experience on Natomas Basin
Joe Reynolds (SPK)	Cost	Joe.L.Reynolds @usace.army.mil	(916) 557-7573	15 years' experience on Natomas Basin

## Agency Technical Review Team

ATTACHMENT 5

<b>Name (Organization)</b>	<b>Discipline</b>	<b>Email</b>	<b>Phone</b>	<b>Experience</b>
Michael Navin (MVS)	ATR Team Leader	Michael.P.Navin @usace.army.mil	(314) 331-8441	36 years levee design and construction experience
D. Shane Callahan (MVM)	Civil Design	Donald.S.Callahan @usace.army.mil	(901) 544-3665	17 years levee design and construction experience
Michael Navin (MVS)	Geotechnical	Michael.P.Navin @usace.army.mil	(314) 331-8441	36 years levee design and construction experience
R. Andy Gaines (MVD)	Hydraulic Design	Roger.A.Gaines @usace.army.mil	(601) 634-5917	29 years in hydraulics, hydrology, and river engineering
TBD (TBD)	Environmental	TBD	TBD	15 years environmental experience
Stefan Miller (MVN)	Mechanical	Stefan.Miller @usace.army.mil	(504) 862-1273	14 years pump station design experience
TBD (TBD)	Construction	TBD	TBD	29 years construction of flood risk reduction projects
TBD (TBD)	Jet Grout Design	TBD	TBD	35 years jet grouting design and construction experience
Tim Grundhoffer (MVP)	Structural	timothy.m.grundhoffer @usace.army.mil	(651) 290-5574	24 years levee design and construction experience

NOTE: Disciplines and experience requirements were pulled from the Natomas Basin Review Plan. Experience requirements should be comparable for identified ATR reviewers.

### BCOES Review Team

#### ATTACHMENT 6

<b>Name (Organization)</b>	<b>Role or Area of Responsibility</b>	<b>Email</b>	<b>Phone</b>	<b>Experience</b>
TBD (TBD)	BCOES Review Leader	TBD	TBD	TBD
TBD (TBD)	Bidability (Construction)	TBD	TBD	TBD
TBD (TBD)	Bidability (Contracting)	TBD	TBD	TBD
TBD (TBD)	Constructability	TBD	TBD	TBD
TBD (TBD)	Operability	TBD	TBD	TBD
TBD (TBD)	Environmental	TBD	TBD	TBD
TBD (TBD)	Sustainability	TBD	TBD	TBD

## **Independent External Peer Review Team**

**ATTACHMENT 7**

<b>Name (Organization)</b>	<b>Discipline</b>	<b>Email</b>	<b>Phone</b>	<b>Experience</b>
Cari Beenenga, Geotechnical, Gannett Fleming, Inc.	Geotechnical	TBD	TBD	Geotechnical with 15+ years' experience in design, construction, inspection of levee projects, groundwater seepage analysis, slope stability analysis, seepage cutoff walls constructed with soil mixing and slurry methods.
Mark Freitas, Civil, GEI Consultants (IEPR Lead)	Geotechnical/ Civil	TBD	TBD	Geotechnical/Civil with 15+ years' experience in earthwork construction quality assurance and control in flood control projects
Brad Dawson, Structural, Gannett Fleming, Inc.	Structural	TBD	TBD	Structural with 15+ years' experience in floodwall/retaining wall construction quality assurance and control in flood control projects

NOTE: Disciplines and experience requirements were pulled from the Natomas Basin Review Plan. Experience requirements should be comparable for identified IEPR reviewers.

## **Schedule of Technical Reviews**

**ATTACHMENT 8**

<b>Review</b>	<b>Scheduled Date</b>	<b>Actual Date</b>
Project Kickoff	16 April 2020	16 April 2020
35% DQC Review	25 January 2021	25 January 2021
35% Consistency/Sponsor Reviews	26 February 2021	26 February 2021
VE Study	5-9 April 2021	5-9 April 2021
65% DQC Review	11 November 2021	TBD
65% Consistency/Sponsor/ATR/IEPR Reviews	23 December 2021	TBD
95% DQC Review	5 May 2022	TBD
95% Consistency/Sponsor/ATR / IEPR Reviews	16 June 2022	TBD
Final BCOES Review	11 August 2022	TBD
RTA Certification	27 March 2023	TBD

# **QUALITY CONTROL PLAN**

## **AMERICAN RIVER COMMON FEATURES PROJECT**

**Sacramento County, CA**

**NATOMAS BASIN REACH H**

**Contract No. W91238-10-D-0016, Task Order No. 11**

Prepared For

**U.S. Army Corps of Engineers, Sacramento, CA**  
1325 J Street  
Sacramento, CA 95814

Prepared By

**PACIFIC CIVIL AND STRUCTURAL CONSULTANTS, LLC**  
7415 Greenhaven Drive, Suite 100  
Sacramento, CA 95831

**October 2015**

## **1.0 PROJECT DESCRIPTION**

The Project includes the preparation of final design documents (Plans, Specifications, Cost Estimate, Design Documentation Report, Engineering Considerations and Instructions for Field Personnel, Real Estate Take Mapping, and Tract Register) for the Natomas Basin Reach H. Reach H is a segment of the Natomas Basin that extends from Northgate Boulevard to the Natomas East Main Drainage Canal (NEMDC) Stormwater Pumping Station. A geotechnical analysis to evaluate potential underseepage, through seepage, and slope stability for Reach H is currently being completed by AECOM. The preliminary results of the geotechnical analysis show that a seepage cutoff wall is required through a majority of this Reach, along with some landside slope flattening.

## **2.0 PROJECT QUALITY CONTROL OBJECTIVES**

The objectives of this Quality Control (QC) Plan are to 1) outline the procedures for performing the QC functions by which the management, engineering, documentation, and ancillary work necessary to complete the project; and to 2) produce work products which are:

- In conformance with the U.S. Army Corps of Engineers (USACE) and industry standards for performance and accuracy;
- Completed in accordance with the established schedule; and
- Completed within the negotiated task order budget.

The provisions of this QC Plan are applicable to Pacific Civil and Structural Consultants, LLC (PCSC) and its subcontractors on this task order.

## **3.0 PROJECT QUALITY CONTROL PROCEDURES**

PCSC's QC Plan consists of QC review of all work products by the technical leads managing the work, and internal QC review and Independent Technical Review (ITR) within the PCSC team. The personnel responsible for developing the work products, QC reviews, and ITRs are listed in **Table 1** below. QC reviews and ITRs will be performed prior to each work product submittal. Comments that are made as a result of these reviews will be discussed and resolved with the individual responsible for developing the work product. The designer will review and respond to all QC review comments in writing. ITR activities will be documented using the USACE

**U.S. Army Corps of Engineers, Sacramento District  
Natomas Basin Reach H  
Quality Control Plan**

DRChecks review management software. After the designer reviews and responds to the comments, the reviewer will conduct a back-check of the comments, responses, and the revised work product to ensure that all comments have been addressed in a satisfactory manner.

**Table 1: Task Order Work Products and QC Responsibility**

<b>Work Product</b>	<b>Firm/Location</b>	<b>Work Product Developer</b>	<b>Internal Reviewer</b>	<b>Independent Technical Reviewer</b>
Quality Control Plan	Wood Rodgers / Sacramento	Peter Blum, P.E.	Pete Tobia, P.E.	Stephen Hawkins, P.E.
60%, 90%, 100%, and Final Plans and Specifications – Reach H	Wood Rodgers / Sacramento	Peter Blum, P.E.	Pete Tobia, P.E.	Stephen Hawkins, P.E.
MCACES Cost Estimates – All Sites	Rule of Thumb Services / Centennial, CO	Al Meyer	Pete Tobia, P.E.	Stephen Hawkins, P.E.

#### **4.0 PROJECT DELIVERABLES SCHEDULE**

**Table 2** (below) presents the Project’s deliverable dates in accordance with the Statement of Work dated 18 August 2015, and reflects a contract award date of 23 September 2015.



**U.S. Army Corps of Engineers, Sacramento District  
Natomas Basin Reach H  
Quality Control Plan**

**Table 2: Project Deliverables Schedule – Base Contract**

<b>Deliverable</b>	<b>Date</b>
Task 1: Quality Control Reach H Quality Control Plan QC and ITR Documentation Quality Control Certification	14 days 320 days 320 days
Task 2: P&S Reach H 60% Design Submittal Draft RE Mapping	180 days 180 days
Task 3: P&S Reach H 90% Design Submittal Final RE Mapping	240 days 240 days
Task 4: P&S Reach H 100% Design Submittal	280 days
Task 5: P&S Reach H Final Design Submittal	320 days
Task 6: Copies of Outside Agency Communications Monthly Progress Status Reports	5 days after receipt 10 <sup>th</sup> of each month

## **5.0 STANDARDS OF PRACTICE**

PCSC, exercising reasonable care and professional competence, will complete the deliverables and subtask elements in accordance with the requirements of the Task Order Statement of Work. At a minimum, the work products will be of a quality acceptable to the USACE Contract Manager and Technical Lead. The criteria for acceptance will be the Project Quality Control objectives outlined above, as well as the additional characteristics of organization, appearance, and the correct use of grammar and punctuation.

**U.S. Army Corps of Engineers, Sacramento District  
Natomas Basin Reach H  
Quality Control Plan**

**6.0 COMMUNICATION/COORDINATION**

Direct communication between PCSC’s Project Manager and the USACE’s team leaders will be used to facilitate completion of the work products. Refer to **Table 3** (below) for the names and contact information of PCSC’s Project Manager, PCSC’s discipline leads, and the USACE team leads. Coordination between PCSC’s Project Manager, PCSC’s discipline leads, and the USACE team leads will be facilitated through meetings, telephone calls, and emails. The Project Manager will attend all meetings and prepare written action items from each meeting for distribution. All email correspondence will be copied to the Project Manager and the USACE technical lead. Telephone calls will be documented with written notes and filed in project correspondence files. Furthermore, emails from the Project Manager to the USACE technical lead will serve to document important decisions or discussions resulting from telephone discussions.

**Table 3: Project Discipline Lead and USACE Team Lead Contacts**

<b>Discipline Leaders</b>	<b>Discipline</b>	<b>Telephone Number</b>	<b>E-Mail Address</b>
Peter Blum	Project Manager (Reach H)	(916) 440-8073	<a href="mailto:pblum@woodrogers.com">pblum@woodrogers.com</a>
Al Meyer	MCACES Cost Estimator	(720) 360-5590	<a href="mailto:ahmeyer16@gmail.com">ahmeyer16@gmail.com</a>
Mike Turner	Geotechnical Investigation Lead	(916) 679-2344	<a href="mailto:mike.turner@aecom.com">mike.turner@aecom.com</a>
Shawn Orgill	Laboratory Testing Lead	(916) 679-2046	<a href="mailto:shawn.orgill@aecom.com">shawn.orgill@aecom.com</a>
John Hoge	Project Manager	(916) 557-5304	<a href="mailto:John.A.Hoge@usace.army.mil">John.A.Hoge@usace.army.mil</a>
Mark Boedtker	Technical Lead	(916) 557-6637	<a href="mailto:Markus.S.Boedtker@usace.army.mil">Markus.S.Boedtker@usace.army.mil</a>
Mary Perlea / Mike Kynett	Geotechnical Engineer	(916) 557-7185 (916) 557-7898	<a href="mailto:mary.p.perlea@usace.army.mil">mary.p.perlea@usace.army.mil</a> ; <a href="mailto:Michael.N.Kynett@usace.army.mil">Michael.N.Kynett@usace.army.mil</a>

## **7.0 RESUMES**

Resumes for the PCSC Team's Project Manager, MCACES Cost Estimator, internal reviewer, and Independent Technical Reviewer are included on the following pages.

**E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT**  
(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		A. TOTAL	B. WITH CURRENT FIRM
Pete Blum, PE	Project Manager	17	11

15. FIRM NAME AND LOCATION (City and State)  
**Wood Rodgers, Inc. (Sacramento, CA)**

16. EDUCATION (Degree and Specialization)      17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)  
 BS, Civil Engineering, University of Nevada, Reno, 1998      Registered Professional Civil Engineer, California No. 79451

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)  
 Mr. Blum has 17 years of experience in the planning, engineering and development of a multitude of projects ranging from drainage and levee improvement projects to infrastructure improvement and master planned community projects. He has designed a multitude of public and private projects in the Sacramento, Placer, El Dorado, Sutter and Solano County areas. Mr. Blum has been responsible for the engineering of levee and floodwall systems; collection and trunk drainage systems; collection and trunk sewer systems; distribution and transmission water systems including recycled water systems; site and master development grading; and roadway designs including residential, collector and arterial roadways, roadway widening and roadway rehabilitations. Mr. Blum has overseen the engineering, preparation of specifications and bid documents, and construction of many types of projects.

**19. RELEVANT PROJECTS**

	(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
		PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
a.	<b>Feather River West Levee Project, Sutter Butte Flood Control Agency – Yuba City, California.</b>	2015	2015
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm		
	Mr. Blum is a Project Engineer for Wood Rodgers' efforts on the evaluation, design, and construction management of levee improvements at the west levee of the Feather River between the Sutter Bypass and Thermalito Afterbay in Sutter and Butte Counties, CA. Work included determining existing levee constraints, preparing alternative analyses for different rehabilitation measures, developing proposed levee land acquisition areas, developing improvement plans for levee improvements including cutoff walls, seepage berms, and relief wells, preparing project specifications and bid documents, preparing borrow site plans, reviewing construction submittals, reviewing and responding to requests for information, preparing variances to the project permits, preparing supplements to the Operation and Maintenance manuals, preparing as-built drawings and other closeout information required for the project. Mr. Blum is responsible for coordinating with the utility companies to facilitate the relocation of existing facilities in conflict with the proposed levee construction and within the proposed levee land acquisition area. The project required extensive coordination with the USACE, DWR, CVFPB, Yuba City, City of Live Oak, City of Gridley, PG&E, AT&T, local levee maintaining agencies, and a multi-disciplinary engineering team.		
b.	<b>Natomas East Main Drain Canal West Levee Improvement Project, Sacramento Area Flood Control Agency – Sacramento, CA</b>	2010	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm		
	Mr. Blum prepared constraint maps, improvement plans, specifications and quantity estimates for Natomas East Main Drain Canal West Levee improvements in Sacramento, CA. Work included determining existing levee constraints, developing proposed levee land acquisition areas, developing improvement plans for levee widening and cutoff wall installation, preparing project specifications and coordination with the agencies, consultants and contractors.		
c.	<b>Alameda County Zone 6 King and Lyons Levee Improvement Project – County of Alameda, CA</b>	2010	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm		
	Mr. Blum prepared design calculations and details for levee and floodwall improvements for the Alameda County Zone 6 King and Lyons levee in Alameda County, CA. Work included determining existing levee conditions, preparing design calculations, and developing design details and sections		
d.	<b>RD 404 and RD 784 Periodic Levee Inspections, US Army Corps of Engineers, San Joaquin and Yuba Counties, California.</b>	2011	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm		
	Mr. Blum performed periodic levee inspections on RD 404 and RD 784 levees. Each periodic inspection was accompanied by a representative from the RD. Work included coordinating with the RD's representative, field evaluating the condition of the levee to USACE levee standards including erosion, vegetation, encroachments, seepage, slope stability, and rodent control, collecting data points and photographs to document the condition of the levee, preparing reports documenting the condition of the levee, making recommendations for repairs required on each levee, making a recommendation on the overall condition of the levee, and presenting the findings to a panel of USACE representatives.		

## E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
Al Meyer	Senior Cost Engineer	A. TOTAL 46	B. WITH CURRENT FIRM 4

15. FIRM NAME AND LOCATION (City and State)  
 Rule Of Thumb Services, Centennial, CO 80121

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
Mechanical Engineer, Associates, Texas A & M	

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Mr. Meyer has 46 years of diversified professional experience in the construction industry with 36 years inclusive of cost estimating and managing projects in the range of \$100,000 to over \$900,000,000. His experience includes construction cost estimating and scheduling, planning, construction management, project management, construction claims, quality assurance/quality control, subcontract negotiation, material procurement, independent government estimates, and government and commercial negotiation support for private industry projects, and government agencies of FHWA, State DOT, DOD, DOS, DOE, EPA, GSA, VA, USAF, USACE, NAVFAC, AFCEC, IBWC, NOAA and FEMA.

Mr. Meyer's construction and cost estimating experience includes heavy/civil, environmental and facilities projects. Heavy/Civil projects include sitework development for industrial petrochemical and power plant facilities, residential developments, water and waste water treatment facilities, medium and large earth-moving and rock excavation for levee, dam and highway projects, light and heavy bridge construction, bearing pile/caisson and heavy foundation, underground and utility structures, tunnel and large diameter pipe for water and wastewater conveyance systems, stabilized and concrete paving, site preparation, sheet pile cofferdam and cell construction for marine and dry land projects. Environmental remediation project experience includes ex-situ and in-situ chemical fixation and solidification, soil vapor extraction, bioremediation, active and passive groundwater remediation systems, low and medium temperature thermal desorption, high temperature incineration, landfills and hazardous material removal, transport and disposal. Facility project experience includes planning, new construction and renovation of administration/offices, dry and wet laboratories, training and educational campuses, hospitals, senior assisted living, airport terminals and flight-line facilities for private, commercial, federal and military programs.

Mr. Meyer has provided special services to USACE including beta testing/reviewing MCACES 2nd Generation MII software during its early stages of development; lead the development of Parametric Cost Estimating Templates (PCET) for heavy civil and flood control levee planning and rehabilitation including design concepts and cost estimating system. The PCET software has been used by USACE in conjunction with California Department of Water Resources (DWR), Sacramento Area Flood Control Agency (SAFCA), City of Sacramento (COS) and other government agencies in California. The PCET software has been proposed to USACE as a parametric add-in software called "MII Tool Box".

### 19. RELEVANT PROJECTS

	(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
		PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
	<b>Chief Estimator, USACE Sacramento District, Florin Creek from Franklin Boulevard to Highway 99, Sacramento, California</b>	2013 - 2015	2015 - 2016
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	<input type="checkbox"/> Check if project performed with current firm	
a.	Chief Estimator responsible for development of bid schedule, independent government estimate for channel improvement construction using MCACES MII, development and coordination of quantity surveys using manual and automated methods with AutoCAD; DrChecks response-to-comments, coordination with and direct support to USACE SPK, SWT RMX and NWW for the ATR and Abbreviated Cost Risk Analysis for the TPCS Recertification; design support services including: dewatering and control of surface water concept and pricing, constructability review, alternatives cost analysis of four design concepts to reduce overall project cost. Estimated construction value \$7,138,663 (2013 - 2016).		
	(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	<b>Senior Cost Estimator, USACE Baltimore District, Trap &amp; Skeet Range 17, Remedial Investigation (RI) and Feasibility Study (FS), Patuxent Research Refuge, Laurel, Maryland</b>	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
b.		2013	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	<input type="checkbox"/> Check if project performed with current firm	

	Senior cost estimator responsible the development of 24 RACER cost estimates including a matrix of four alternatives with six scenarios for each alternative. The environmental alternatives include UXO removal, in-situ stabilization, ex-situ stabilization, excavation, offsite disposal, capping, soil washing technologies, five-year reviews, operation & maintenance of the soil cap and site close-out. Present value range \$1,161,779 to \$8,712,310.	
	(1) TITLE AND LOCATION ( <i>City and State</i> )	(2) YEAR COMPLETED
	<b>Chief Estimator, USACE Norfolk District, Deep Creek Bridge &amp; Road Replacement, Chesapeake, Virginia</b>	PROFESSIONAL SERVICES
		CONSTRUCTION (If applicable)
		2012 - Ongoing
		N/A
	(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE	<input type="checkbox"/> Check if project performed with current firm
c.	Chief Estimator responsible for development of bid schedule, independent government estimate for bridge and roadway construction using MII and related environmental mitigation work with RACER environmental estimating system, development and coordination of quantity surveys using manual and automated methods with On Screen Takeoff (OST); support services including: constructability review, marine construction experience for foundations and bascule bridge construction, correlating VDOT specification and the City of Chesapeake specifications with CSI specifications, validation of the IGE, Cost and Schedule Risk Analysis coordination and development. Estimated construction value \$30,938,000.	
	(1) TITLE AND LOCATION ( <i>City and State</i> )	(2) YEAR COMPLETED
	<b>Project Cost Engineer/Planner, USACE Sacramento District, Sutter Basin Program, Sutter Basin Pilot Study, Sutter Basin, California</b>	PROFESSIONAL SERVICES
		CONSTRUCTION (If applicable)
		2011 - Ongoing
		N/A
	(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE	<input type="checkbox"/> Check if project performed with current firm
d.	Cost Engineer/Planner responsible for concept support to the Project Design Team (PDT) and preparation of conceptual level cost estimates using PACES estimating system to determine cost to construct of multiple sizes of pump stations, closure structures, concrete retaining wall structures, flood gates of various configuration and sizes, modification of existing box culverts and conceptualizing of other flood control structures and providing flood control information of constructed levee projects, cross-sections, structural drawings in parallel with respective MII cost estimates. Estimated construction value approximately \$1 Billion.	
	(1) TITLE AND LOCATION ( <i>City and State</i> )	(2) YEAR COMPLETED
	<b>Chief Estimator, USACE Ft. Worth District, Rochester Levee Alteration Phase I, Dallas, Texas</b>	PROFESSIONAL SERVICES
		CONSTRUCTION (If applicable)
		2010 - 2011
		N/A
	(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE	<input type="checkbox"/> Check if project performed with current firm
e.	Chief Estimator responsible for development of bid schedule, opinion of probable cost (MII), construction schedule, development and coordination of quantity surveys using On Screen Takeoff (OST); support services included: constructability review, specification review, lime stabilized engineered fill production recommendations, borrow source haul routes, optimization of offsite and onsite earthwork haul equipment, design recommendations for structures, and fuel consumption analysis. Estimated construction value \$16,872,000.	
	(1) TITLE AND LOCATION ( <i>City and State</i> )	(2) YEAR COMPLETED
	<b>Project Cost Engineer, USACE Sacramento District, Folsom Bridge &amp; Road, Folsom, California</b>	PROFESSIONAL SERVICES
		CONSTRUCTION (If applicable)
		2006 - 2007
		N/A
	(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE	<input type="checkbox"/> Check if project performed with current firm
f.	Cost Engineer responsible for preparation of detailed construction cost estimates with options using MCACES Gold and provide bid phase support services for roadway construction including soil and rock excavation, asphalt pavement, drainage systems, traffic signs and signaling. Estimated construction value \$81,438,000 4-Lane Option & \$78,786,000 2-Lane Option.	
	(1) TITLE AND LOCATION ( <i>City and State</i> )	(2) YEAR COMPLETED
	<b>Project Cost Engineer, USACE Sacramento District, Guadalupe River Project, Coleman Avenue Bridge Abutment Improvement, San Jose, California</b>	PROFESSIONAL SERVICES
		CONSTRUCTION (If applicable)
		2006 - 2007
		N/A
	(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE	<input type="checkbox"/> Check if project performed with current firm
g.	Cost Engineer responsible for preparation of detailed construction cost estimate using MCACES for concrete structural improvement to the east and west Coleman Avenue Bridge abutments, earthwork, temporary cofferdam, control of stream, temporary erosion control measures, dewatering, water treatment, relocation of existing pedestrian pathways and amenities, relocation of existing access road, new access ramp, pathway lighting and electrical, environmental monitoring, excavation and disposal of potentially contaminated soils and landscaping. Estimated construction value \$2,151,000.	
h.	(1) TITLE AND LOCATION ( <i>City and State</i> )	(2) YEAR COMPLETED

<b>Project Cost Engineer, USACE Los Angeles District, Guadalupe River Project, Replace UPRR Bridges Nos. 3 &amp; 4, San Jose, California</b>	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
	2006 - 2007	N/A
(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE		<input type="checkbox"/> Check if project performed with current firm
<p>Cost Engineer responsible for preparation of detailed construction cost estimate using MCACES for the demolition and replacement of the Union Pacific Railroad bridge, replace the previously demolished vehicle bridge, earthwork, temporary sheet piling, control of stream, temporary erosion control measures, dewatering, water treatment, relocation of existing pedestrian pathways and amenities, relocation of existing access road, pathway lighting and electrical, environmental monitoring, excavation and disposal of potentially contaminated soils and landscaping. Estimated construction value \$7,511,000 including Options.</p>		
(1) TITLE AND LOCATION ( <i>City and State</i> )		(2) YEAR COMPLETED
<b>Project Cost Engineer, USACE LA District, Tres Rios Environmental Restoration Phase 2, Phoenix, Arizona</b>	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
	2005 - 2007	N/A
(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE		<input type="checkbox"/> Check if project performed with current firm
i.	<p>Cost Engineer responsible for preparation of detailed construction cost estimates using MCACES Gold for construction of wetlands that include soil mass excavation with long distance haul, embankment, concrete structures, flow control structures, mechanical, electrical, SCADA system, other support facilities, wetland planting and landscaping. Estimated construction value for the Flow Regulating Wetland \$22,658,000 &amp; for the Over-Bank Wetland \$6,878,000.</p>	

**E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT**

*(Complete one Section E for each key person.)*

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		A. TOTAL	B. WITH CURRENT FIRM
Pete Tobia, PE, QSD/QSP, LEED AP	QA/QC Manager	26	15

15. FIRM NAME AND LOCATION *(City and State)*  
**Wood Rodgers, Inc. (Sacramento, CA)**

16. EDUCATION <i>(Degree and Specialization)</i> MS, Business Administration, California State University Sacramento, 1997 BS, Civil Engineering, University of California Davis, 1989	17. CURRENT PROFESSIONAL REGISTRATION <i>(State and Discipline)</i> Registered Professional Engineer, California No. 49799 Registered Professional Engineer, Nevada No. 14283 Leadership in Energy and Environmental Design Accredited Professional (LEED AP) Qualified SWPPP Developer
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18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*  
 Mr. Tobia has 26 years of broad professional experience in the planning, engineering and management of large and complex municipal projects. He has been the project manager and licensed professional responsible for a multitude of large-scale public and private development projects, from master planning, engineering and environmental document coordination to specific drainage, sewer, and water master plans, capital improvement programs, public financing, and final design. Mr. Tobia has overseen the completion of entitlement applications and processing and final design and construction for many sites in Northern California. His direct design experience includes roadways and interchanges, flood control projects, commercial and residential site development, water treatment and conveyance, pump stations, and hydrologic and hydraulic modeling.  
 Mr. Tobia is well known for his ability to solve large project master plan level issues and bringing projects to a successful conclusion. He is extremely proficient at identifying and focusing on the pertinent issues and coordinating the members of the project team toward successful and effective solutions.

**19. RELEVANT PROJECTS**

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
	<b>North Area Levee Project, Sacramento Area Flood Control Agency – Sacramento, California</b>	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
		1995	1997
a.	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.) AND SPECIFIC ROLE</i>	<input type="checkbox"/> Check if project performed with current firm	
	Mr. Tobia was the Project Engineer for eight miles of improvements to existing urban levees on Arcade Creek and the Natomas East Main Drainage Canal. The design included a combination of flood walls, stoplog structures, and earthen enlargements to strengthen and raise existing levees. He prepared preliminary design and final PS&E for five separate project contracts, which required extensive right-of-way acquisitions and utility relocations. Levees had multiple crossings of the Union Pacific Railroad and City of Sacramento streets.		
	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
	<b>Sacramento Area Flood Control Agency (SAFCA), Natomas Cross Canal Levee Rehabilitation Project- Phase 1 - Sutter County, CA</b>	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
		2009	2011
b.	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.) AND SPECIFIC ROLE</i>	<input checked="" type="checkbox"/> Check if project performed with current firm	
	Provided Quality Control for the preparation of plans, specifications, and cost estimates for levee improvements for the south levee of the Natomas Cross Canal. Phase 1 construction cost estimated at approximately \$15.9 million. This project represents the first phase of SAFCA’s Natomas Levee Improvement Program, implemented to restore 100-year flood protection to the Natomas Basin.		
	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
	<b>Sutter Butte Flood Control Agency (SBFCA), Feather River West Levee Project – Sutter and Butte Counties, CA</b>	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
		2014	2015
c.	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.) AND SPECIFIC ROLE</i>	<input checked="" type="checkbox"/> Check if project performed with current firm	
	Quality Control Manager for the combined efforts of the HDR, Wood Rodgers, and URS consultant team to evaluate and design 40 miles of levee improvements at the west levee of the Feather River in Sutter and Butte Counties, California. Reviewed work from multiple consultants. Worked closely with consultant team to obtain project approvals through the Central Valley Flood Protection Board (CVFPB), California Department of Water Resources (DWR) Division of Flood Management, SBFCA’s Independent Panel of Experts, and the Sacramento District of the USACE.		
	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
	<b>Natomas East Main Drain Canal West Levee Improvement Project, Sacramento Area Flood Control Agency – Sacramento, CA</b>	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
		2010	
d.	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.) AND SPECIFIC ROLE</i>	<input checked="" type="checkbox"/> Check if project performed with current firm	
	Mr. Tobia provided quality control review for the basis of design, improvement plans, specifications and quantity estimates for Natomas East Main Drain Canal West Levee improvements in Sacramento, CA. Work included determining existing levee constraints, developing proposed levee land acquisition areas, developing improvement plans for levee widening and cutoff wall installation, and coordination with the agencies, consultants and contractors.		



**E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT**

*(Complete one Section E for each key person.)*

<b>12. NAME</b>		<b>13. ROLE IN THIS CONTRACT</b>		<b>14. YEARS EXPERIENCE</b>	
<b>Stephen Hawkins, PE, QSD/P</b>		<b>Task Order Manager - Civil</b>		A. TOTAL 35	B. WITH CURRENT FIRM 4
<b>15. FIRM NAME AND LOCATION (City and State)</b> MGE Engineering, Inc. - Sacramento, CA 95831					
<b>16. EDUCATION (Degree and Specialization)</b> BS/Civil Engineering/1980 MBA/Business Administration/1991			<b>17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)</b> 1983/Civil Engineer/CA #36556 2014/Qualified Stormwater Developer/Practitioner		
<b>18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)</b> Mr. Hawkins has broad and extensive experience in all facets of civil engineering. This experience includes planning and administration of projects involving design of levee improvements, water resources, storm drainage, sanitary sewer design and construction, and the full range of municipal engineering projects.					

**19. RELEVANT PROJECTS**

	(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
		PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
a.	<b>South Sacramento Streams Flood Damage Reduction Florin Creek Channel Improvements from Franklin Blvd. to Highway 99, Sacramento County, CA</b>	2014	Ongoing
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm		
	Lead Civil Engineer for the design of flood control features along a segment of Florin Creek from Franklin Boulevard to Highway 99, preparation of a Design Document Report (DDR), identification of relocations including utility relocations, and rights-of-way and temporary construction easement lines. Preliminary reports indicated that a trapezoidal channel configuration was the most effective for this segment. Contract #W91238-10-D-0016		
b.	<b>Eden Landing Pump Station, Alameda County Flood Control and Water Conservation District "On-Call" Contract, CA</b>	2013	2014
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm		
	Project Engineer for design of improvements to the Eden Landing Pump Station and Construction Support team leader. The 35-year old pump station was completely rehabilitated and included replacement of natural gas pump engines with variable frequency electric controls. Responsibilities include: Field investigation and measurements, review of existing As-Built and repair drawings, evaluation of operational conditions; underground discharge line inspection; and preparation of PS&E for the civil engineering portion of the pump station.		
c.	<b>American River Common Features, Levee Improvements, Site L9, USACE Sacramento District, Sacramento, CA</b>	2012	2013
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm		
	Task Order Manager for the installation of a jet grout cut off wall located on the left bank levee of the American River at the Sacramento County Regional Sanitation District Pump Station (Site L9). The 148-foot "window" in the previously constructed slurry cutoff wall is proposed to be closed using the jet grout method along the centerline of the levee crest. The closure wall has a constant depth of 60 feet with a 1-foot clay cap and overlaps the existing slurry wall by 12-feet at each end. Responsibilities included preparation of plans, specifications & estimates for the jet grout cutoff wall, utility coordination, and coordination of the joint submission between MGE and another firm that designed an adjacent jet grout wall. Contract #W91239-10-D-0016		
d.	<b>Mid Valley Levee Rehabilitation Project, Corps of Engineers Mid-Valley Area Phase III Area 3, Sites 9, 10, 11, USACE Sacramento District, Yolo County, CA</b>	2013	pending
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm		
	Task Order Manager for the design and preparation of the PS&E to design slurry cutoff walls to mitigate under and through seepage of the levee. The construction methods used were soil bentonite slurry and soil cement bentonite deep cutoff walls. Sites are located along the West bank of the Sacramento River in Yolo County. Contract #W91238-09-R-0064		
e.	<b>St. Jude to Venice Levee System, USACE New Orleans District, New Orleans, LA</b>	2012	NA
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm		
	Task Order Manager responsible for the completion of the Periodic Inspection Report for the 70-mile St. Jude to Venice ring levee system, which included a major floodgate structure. The work included coordinating the input from two inspection teams (one for the Mississippi River Levee and one for the Gulf Levee) and a structures inspection team to develop the final inspection recommendation to USACE and deliver the Official Outbrief to New Orleans District USACE staff. Contract# W912P8-08-D-0062		

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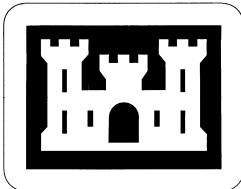
# QUALITY CONTROL PLAN

October 2009

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## American River Common Features (ARCF) Natomas Basin Sacramento, CA

Prepared for:



U.S. ARMY CORPS OF ENGINEERS

Sacramento District

W91238-09-D-0003-0014

# HDR

2365 Iron Point Road, Suite 300  
Folsom, CA 95630

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## APPENDICES

APPENDIX A – STATEMENT OF WORK

APPENDIX B – PROJECT SCHEDULE

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## **1. PROJECT NAME**

American River Common Features (ARCF)  
Natomas Basin  
Sacramento, CA

## **2. CLIENT**

U.S. Army Corps of Engineers, Sacramento District  
Mr. Dan Tibbitts, Project Manager

## **3. INTRODUCTION AND OBJECTIVE**

HDR Engineering, Inc. (HDR) was awarded Task Order/Delivery Order No. 14 under Contract No. W91238-09-D-0003 on May 27, 2009 (see Appendix C). The Statement of Work, dated September 3, 2009 (REVISED September 28, 2009), associated with this Task Order (see Appendix A) requires the A-E firm to perform quality control procedures on all products developed as part of the referenced Task Order in accordance with the USACE Sacramento District (SPK) Quality Management Plan. Additionally, the A-E firm is required to prepare a brief Task Order focused Quality Control Plan (QCP) consistent with the South Pacific Division Corps of Engineers (SPD) Quality Management Plan (CESPD R 1110-1-8) and associated technical review implementation guidance.

The objective of this QCP is to provide a description of the Project and define the Task Order (TO) Scope of Work, production and review teams, schedule, budget, project requirements, production standards and technical guidance to be followed. The purpose of this QCP is to provide overview guidance information for all involved with the TO to ensure a common understanding of the delivery process and procedures necessary to deliver high quality professional engineering services and products by HDR to SPK. These services will culminate in the development of feasibility level quantities and cost estimates and 60% Plans and Specifications for the improvements within this project area.

## **4. BACKGROUND & PROJECT DESCRIPTION**

The Common Features Project was authorized by the Water Resources Development Act (WRDA) of 1996, and modified by the WRDA 1999. After determining project features specific to the Natomas area were likely to exceed the authorized project cost, a GRR was initiated in 2002 which focused on that portion of the project. This was considered to be appropriate since the project in Natomas was a separately justified element within the Common Features Project. However, more recent concerns about anticipated costs associated with the rest of the Common Features Project, along with increasing concerns about the condition of the Sacramento River levees below the American River, made it necessary to revise the scope of the GRR to address the complete Common Features study area. This is consistent with ER 1105-2-100, Appendix G, Section III, Post Authorization Changes.

The American River Common Features GRR study area includes approximately 12 miles of the north and south banks of the American River immediately upstream of the confluence with the Sacramento River; approximately 18 miles of the east bank of the Sacramento River, downstream of the Natomas Cross Canal (NCC) down to the American River; approximately 5 miles of the

south bank of the NCC, immediately upstream of the confluence of the Sacramento River; approximately 4 miles of the Pleasant Grove Creek Canal (PGCC); approximately 8 miles of the Natomas East Main Drainage Canal (NEMDC); and approximately 15 miles of the east bank of the Sacramento River downstream of the American River down to Morrison Creek at Freeport (tie into Beach Lake Levee, southern defense for Sacramento). Although improvements to the NCC north levee were authorized in WRDA 1999, this levee is not part of the American River Common Features GRR study, but will be addressed following formulation of an agreement between the U.S. Army Corps of Engineers (USACE), the State of California, and Reclamation District (RD) 1001, the Local Sponsor for the NCC north levee.

The work included in this statement of work includes quantity and cost estimating for the Sacramento River and the American River (approx. 22 miles) for the civil design of the Feasibility Study. Work also included in this statement of work includes 60% plans and specifications for the Sacramento River East Levee and the American River - Phase 4B.

## **5. PROJECT REQUIREMENTS**

The SOW requires development of feasibility level alternative designs, and development of 60% plans and specifications to support an environmental document.

HDR will complete all of the work defined in the SOW dated September 3, 2009 (REVISED September 28, 2009). The primary Tasks identified in the SOW are as follows:

**Task 1 – QUALITY CONTROL** – Develop Quality Control Plan as per ER 1110-1-12, Engineering and Design Quality Management. Technical review will be consistent with the Quality Management Plan (CESPD 1110-1-8).

**Task 2 – MEETINGS** – The A-E, including subcontractors, shall attend regularly scheduled Project Delivery Team (PDT) meetings and any additional technical team meetings in person or via teleconference. The A-E's geotechnical specialist(s) shall attend monthly geotechnical committee meetings. The A-E shall also participate in management and/or partner briefings, and impromptu site visits, as requested. It is anticipated that twenty (20) such attendances will be required at 4 hours each for preparation, local travel, participation, and preparation of action items. Additionally, the A-E shall participate in local sponsor meetings. It is estimated that thirty (30) such attendances will be required at 6 hours each for preparation, local travel, participation, and preparation of action items. The A-E shall provide a written description of action items relating to this task order, covering those actions to be done by both the A-E and by the Corps. Action items shall be completed within two (2) calendar days following each attendance and can be submitted via email. These action items will not be an official record of the meeting, but will be reviewed by Corps PM and Technical staff to assess the quality of communication and perspective within the PDT, of which the A-E is an integral part.

**Task 3 – CIVIL DESIGN in Support of the Corps Feasibility Studies** – The A-E shall provide up to twenty (20) civil design cross section drawings and ten (10) plan view drawings to support the Corps' F4 milestone for the Natomas Basin portion of the Common Features project. The A-E shall also provide approximately ten (10) cross section drawings and five (5) plan view drawings to support the Corps' F4a milestone.

The study reaches for this Task are shown on Plate 1, Levee Distress Extents, as NAT reaches [A, B, C, and I].

- a) The Corps will provide the A-E with generalized geotechnical cross sections for each study reach, and multiple arrays (tables) of alternatives for various water surface elevations (stages) and various types of analysis, i.e., seepage, stability, erosion, and levee height. The Corps estimates that this information will be provided within thirty (30) calendar days after award of this task order.
- b) The A-E shall provide detailed cross section and plan view drawings showing the full array of alternatives. In addition, the A-E shall provide tables of quantities and appropriate unit costs for the full array of alternatives, suitable for the Corps to complete comparative cost estimates.
- c) Draft drawings and quantity/cost tables shall be provided for review within thirty (30) calendar days after receipt of geotechnical data and alternatives from the Corps. The Corps will provide review comments within fifteen (15) calendar days following receipt of the A-E's draft submittal. Final drawings and quantity/cost tables shall be provided within fifteen (15) calendar days following receipt of all Corps review comments.
- d) The A-E shall synthesize both planned and constructed work documented in previous USACE reports and reports by the non-Federal sponsor (SAFCA) for the levees along the Sacramento River east bank and American River north bank protecting the Natomas Basin. The civil design drawings shall clearly present all important features including, but not limited to, project footprints necessary for the Corps' Real Estate and Environmental considerations, above grade earth work, borrow, site development and transport to the site, roads and levee cap features, all drainage features including interior drainage and reroutes, structures removed and relocated, railroad elevating, elevation and construction controls, and sighting of toe ditches, drains, culverts, seepage wells, flap valves, fencing, water intakes, gas/water/oil line relocations, sewage treatment ponds, construction phasing, recreation sites, boat launch facilities etc. Mechanical equipment, electrical equipment, power relocations, concrete work, steel work, bridges, buildings, underground seepage control systems, landscape and plantings are not included.

**Task 4 - PHASE 4B 60% SUBMITTAL** – The A-E shall develop 60% plans, specifications, and Basis of Design report, plus a submittal register and bid schedule for specified reaches within the Natomas Basin. The study reaches for this Task are shown on Attachment 1 as NAT reaches [A and I]. The geotechnical analyses for phase 4B, including Geotechnical Alternatives Analysis and Geotechnical Basis of Design will be prepared by others under a SAFCA contract and will be provided to the Contractor by the Corps. The Corps estimates these reports will be provided within 120 calendar days after award of this task order. All products shall be prepared in accordance with the SUBMITTALS section of this SOW. The following items shall be included in the 60% submittal:

- a) The A-E shall conduct internal quality reviews by a Senior Geotechnical Engineer of the Geotechnical Alternatives Analysis and Geotechnical Basis of Design reports provided by the Corps. The purpose of the review will be to assure that the geotechnical products provided to the A-E are adequate as a basis for, and compatible with, the requirements of Task 4. Any perceived inadequacy or incompatibility shall be reported immediately to the Corps Technical Lead. This review and its findings shall be documented as part of the A-E's Basis of Design report as described in e) below, but no other specific submittal is required.
- b) The A-E shall submit the 60% design documents for review within ninety (90) calendar days after receipt of the Geotechnical Alternatives Analyses and Geotechnical Basis of Design form the Corps. The submittal package shall consist of the construction drawings, technical specifications, submittal register, bid schedule, and Basis of Design for the levee reaches specified above. The Corps will provide review comments within thirty (30) calendar days following receipt of the A-E's draft submittal. A Final revised submittal shall be provided within thirty (30) calendar days following receipt of all review comments.
- c) The drawings shall include all plans, profiles, sections, and details required to illustrate the required construction for levee improvement, corresponding utility and encroachment relocation, interior drainage modification, vegetation removal and demolition plans. Drawings shall also include temporary and permanent right-of-way limits, environmental features, and identify any archaeological or HTRW sites. Utilities shall be identified, and relocation designs included if necessary. The location of staging areas, and haul routes shall be shown. Close coordination between all designers shall be accomplished to avoid conflicts.
- d) The specifications shall be separately bound and shall include a bid schedule and typed versions of the Corps guide specification sections with draft versions of any A-E prepared specifications. The specifications shall be prepared in SpecsIntact. A submittal register using ENG Form 4288 shall be included.
- e) Basis of Design Reports. The basis of design should include an alternative analyses report and civil basis of design report based on the Geotechnical Basis of Design provided by the Corps. The civil basis of design report should include general information on the levee design criteria, utility and encroachments relocation, interior drainage modifications, and roadway relocation.

## **6. PROJECT QUALITY CONTROL OBJECTIVES / PROCEDURES**

### **Quality Control Objectives**

Quality control for this project will be consistent with HDR's Quality Control / Quality Assurance (QA/QC) Plan, which recognizes USACE procedures as outlined below. The deliverables discussed above shall be reviewed for conformance with the appropriate guidance and/or reference to ensure the quality control objectives are met.

### **Quality Control Procedures**

Before submittal of any deliverable to SPK, the production document and supporting materials will undergo individual discipline peer review (including calculation checks),



collective product development team interdisciplinary review, and will be thoroughly reviewed by an internal HDR independent QC Review Team. This QC Review Team / Independent Technical Review Team will review all components of a deliverable for technical clarity and accuracy and to ensure that the content is consistent with the project requirements and technical criteria specified in the project Statement of Work. The project documents will also be reviewed for editorial type comments. Following completion of HDR's QC/ITR review, the technical reviewers will discuss their comments with the product development team to ensure a clear understanding of any required changes, modifications or clarifications to the project documents.

HDR QC/ITR reviews of deliverables shall be completed to help ensure, as a minimum:

- (a) Compliance with established policy and other appropriate guidance
- (b) Compliance with project SOW requirements
- (c) Appropriateness of data used, including level of detail
- (d) Appropriateness of alternatives evaluated
- (e) Accuracy of Calculations
- (f) Consistency with standards of practice
- (g) Appropriateness of assumptions made
- (h) Reasonableness of results

Concurrent with submission of a draft project deliverable for client / external review, HDR will submit an Initial Quality Control Certificate (QCC) to the SPK Project Manager stating that the deliverable has been reviewed internally in accordance with HDR's QC Plan and that all internal review comments have been addressed.

When review comments are received from SPK or other external reviewers resulting from their review of draft versions of the deliverable, similar procedures will be followed to ensure quality control during the revision process. Review comments will be addressed by members of the product development team that originally worked on the deliverable. Changes to the document will be made and will be back-checked upon revision.

All QC activities associated with ITR and external reviews will be fully documented following the comment-response format in the DrChecks system. HDR's QC documentation will be maintained in the project file for review by SPK. A Final QCC will accompany the final submittal of a deliverable. The Final QCC will certify that procedures outlined in this QCP have been performed and that all concerns identified during internal and external QC review have been resolved.

## **7. GUIDANCE / STANDARDS / TECHNICAL CRITERIA**

Appropriate provisions of the following Guidance, Standards and Criteria shall be followed during preparation of the project documents required to be developed under the SOW for this project:

### **Federal Standards**



- U.S. Army Corps of Engineers. 31 August 1999. Engineering and Design, Engineering and Design for Civil Works Projects, Engineer Regulation 1110-2-1150, U.S. Army Corps of Engineers, Washington, D.C.
- U.S. Army Corps of Engineers. 30 April 2000. Engineering and Design, Design and Construction of Levees,
- Engineer Manual 1110-2-1913, U.S. Army Corps of Engineers, Washington, D.C.
- U.S. Army Corps of Engineers. 29 May 1992. Engineering and Design, Design, Construction and Maintenance of Relief Wells, Engineer Manual 1110- 2-1914, U.S. Army Corps of Engineers, Washington, D.C.
- U.S. Army Corps of Engineers. 11 April, 2008. REFP10.doc, Geotechnical Levee Practice, U.S. Army Corps of Engineers, Sacramento District, CESP-K-ED-G.

### **USACE Guidance**

- U.S. Army Corps of Engineers. 1 May 2005. Engineering and Design, Design Guidance for Levee Underseepage, Engineering Technical Letter 1110-2-569
- U.S. Army Corps of Engineers. 01 January 2001. Engineering and Design, Geotechnical Investigations, Engineer Manual 1110-1-1804, U.S. Army Corps of Engineers, Washington, D.C.
- U.S. Army Corps of Engineers. 31 October 2003. Engineer Manual 1110-2-1902, Engineering and Design, Slope Stability, U.S. Army Corps of Engineers, Washington, D.C.
- U.S. Army Corps of Engineers. 30 September 1990. Engineering and Design, Settlement Analysis, Engineer Manual 1110-1-1904, U.S. Army Corps of Engineers, Washington, D.C.
- U.S. Army Corps of Engineers. 01 January 2000. Guidelines for Landscape Planting at Floodwalls, Levees, and
- Embankment Dams, Engineer Manual EM 1110-2-301, U.S. Army Corps of Engineers, Washington, D.C.
- U.S. Army Corps of Engineers. 30 June 1994. Engineering and Design, Hydraulic Design of Flood Control
- Channels, Engineer Manual EM 1110-2-1601, U.S. Army Corps of Engineers, Washington, D.C.
- U.S. Army Corps of Engineers. 01 July 2002. Photogrammetric Mapping, Engineer Manual EM 1110-1-1000, U.S. Army Corps of Engineers, Washington, D.C.
- U.S. Army Corps of Engineers. 14 September 1990. Survey Markers and Monumentations, Engineer Manual EM 1110-1-1002, U.S. Army Corps of Engineers, Washington, D.C.

- U.S. Army Corps of Engineers. 01 July 2003. NAVSTAR Global Positioning System Surveying, Engineer Manual EM 1110-1-1003, U.S. Army Corps of Engineers, Washington, D.C.
- U.S. Army Corps of Engineers. 01 January 2007. Engineering and Design, Control and Topographic Surveying,
- Engineer Manual EM 1110-1-1005, U.S. Army Corps of Engineers, Washington, D.C
- U.S. Army Corps of Engineers. 01 February 1999. Engineering and Design, Guidelines on Ground Improvement for Structures and Facilities, Engineering Technical Letter ETL 110-1-185, U.S. Army Corps of Engineers, Washington, D.C.
- U.S. Army Corps of Engineers. 31 March 1994. Engineering and Design, Structural Design of Closure Structures For Local Flood Protection Projects, Engineer Manual EM 1110-2-2705, U.S. Army Corps of Engineers, Washington, D.C.
- U.S. Army Corps of Engineers. 22 August 1986. Engineering and Design, Overtopping of Flood Control Levees and Floodwalls, Engineering Technical Letter 1110-2-299, U.S. Army Corps of Engineers, Washington, D.C.

### **Additional Guidance**

- The A-E Guide for the Sacramento District is available at <http://cbbs.spk.usace.army.mil> Quality Management Criteria, including the referenced CESPDP R 1110-1-8, is found at [http://iso9000.spk.usace.army.mil/qmp\\_s/qmp\\_s.html](http://iso9000.spk.usace.army.mil/qmp_s/qmp_s.html)
- (ER 1110-1-12) Engineering and Design Quality Management
- CBBS at <http://cbbs.spk.usace.army.mil/ae.html>
- CADD Drawings shall use A/E/C CADD Standard Release 3.0 Standard which can be found at <https://caddim.usace.army.mil>
- Additional Sacramento District CADD standards and border sheets can be found at: <http://www.spk.usace.army.mil/organizations/cespk-ed/SPKCADD/AutoCAD/autocad.html>
- Detailed instructions for preparing cost estimates are presented in CESPK Publication, "Cost Estimating Guide, Fair and Reasonable Contract Estimate for Civil Works", dated May 1988 and ER 1110-2-1302.
- Guidance for preparing a Design Document Report (DDR) and plans can be found in Engineering Regulation ER 1110-2-1150 Appendix D.
- Design Guidance can be found at Publications of the Headquarters, United States Army Corps of Engineers at <http://www.usace.army.mil/publications/> including but not limited to Engineering Manuals- EM 1110-2-2007, EM 1110-2-2104, and EM 1110-2-2502.
- Guidance for preparing an Engineer Document Report (EDR) can be found in Engineering Regulation ER 1110-2-1150 Appendix E.

- Guidance for preparing an Engineer Considerations and Instructions to Field Personnel (ECIFP) can be found in Engineering Regulation ER 1110-2-1150 Appendix G.

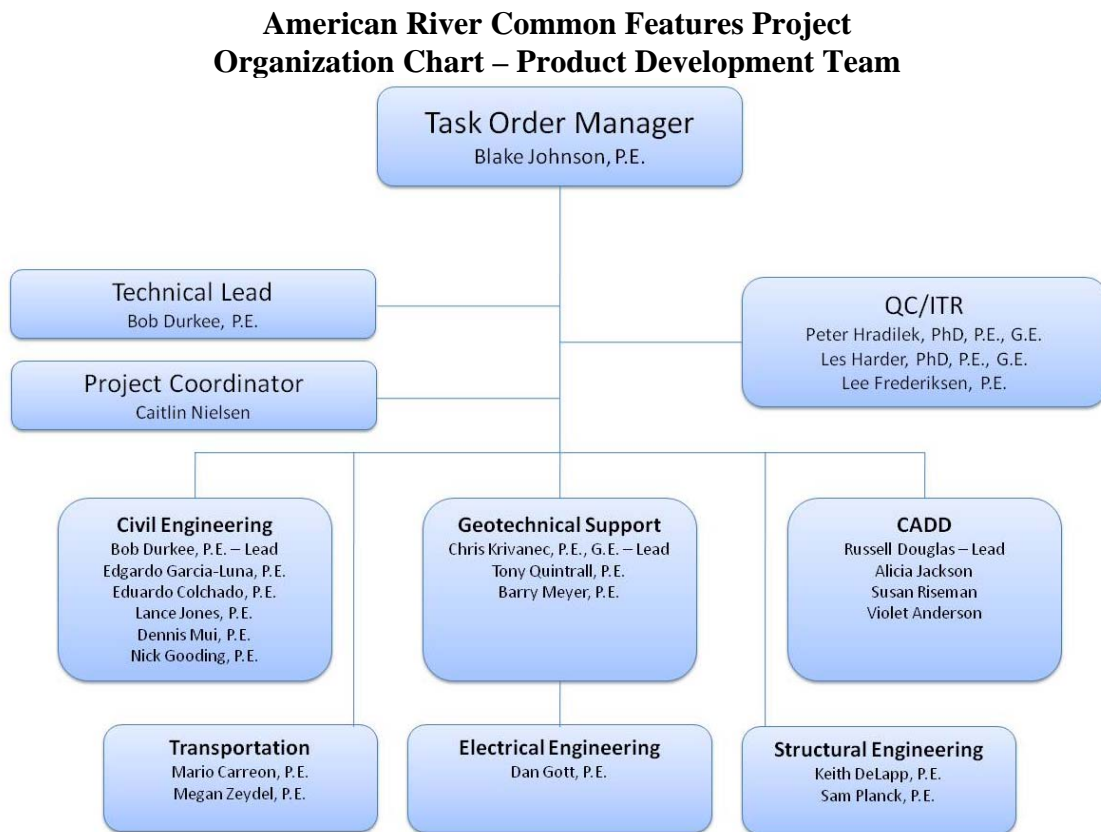
## 8. REFERENCE DOCUMENTS

The following are reference documents to be used in the execution of the work associated with this project:

- American River Common Features (ARCF) - Final Feasibility Report dated April 1998; authorized by WRDA 1996 and modified by WRDA 1999.
- American River Common Features GRR, currently being prepared by SPK.

## 9. PRODUCT DEVELOPMENT TEAM & QC/ITR TEAM

Overall production efforts will be managed by the HDR Task Order Manager, Blake Johnson, P.E. . Development of the Civil Design for the Feasibility Study and the PS&E documents for Reach B will be lead by Robert Durkee, P.E. The QC/ITR Team will be lead by Peter Hradilek Ph.D., P.E., G.E. The organization chart and table of contact information for the Product Development Team and QC/ITR Team follow:



Contact information for the Product Development Team members:

Name	Project Role	Telephone	E-mail
Blake Johnson	Task Order Manager	916-817-4879	Blake.Johnson@hdrinc.com
Robert Durkee	Technical Lead Civil Engineering Lead	916-817-4849	Robert.Durkee@hdrinc.com
Caitlin Nielsen	Project Coordinator	916-817-4946	Caitlin.Nielsen@hdrinc.com
Lance Jones	Project Engineer - Civil	916-817-4746	Lance.Jones@hdrinc.com
Dennis Mui	Project Engineer - Civil	916-817-4928	Dennis.Mui@hdrinc.com
Nick Gooding	Project Engineer - Civil	916-817-4981	Nicholas.gooding@hdrinc.com
Edgardo Garcia-Luna	Project Engineer - Civil	812-262-2752	Edgardo.Garcia-Luna@hdrinc.com
Eduardo Colchado	Project Engineer - Civil	812-282-2415	Eduardo.Colchado@hdrinc.com
Russell Douglas	CADD Lead	916-817-4982	Russell.Douglas@hdrinc.com
Susan Riseman	CADD	916-817-4917	Susan.Riseman@hdrinc.com
Violet Anderson	CADD	916-817-4967	Violet.Anderson@hdrinc.com
Alicia Jackson	CADD	916-817-4949	Alicia.Jackson@hdrinc.com
Chris Krivanec	Geotechnical Support Lead	916-817-4842	Christopher.Krivanec@hdrinc.com
Tony Quintrall	Geotechnical Support	916-817-4824	Anthony.Quintrall@hdrinc.com
Barry Meyer	Geotechnical Support	813-282-2416	Barry.Meyer@hdrinc.com
Dan Gott	Electrical Engineer	916-817-4941	Daniel.Gott@hdrinc.com
Mario Carreon	Transportation Engineer	916-471-5842	Mario.Carreon@hdrinc.com
Megan Zeydel	Transportation Engineer	916-817-4952	Megan.Zeydel@hdrinc.com
Keith DeLapp	Structural Engineer	916-817-4812	Keith.DeLapp@hdrinc.com
Sam Planck	Structural Engineer	916-817-4859	Sam.Planck@hdrinc.com

Contact information for the QC / ITR Team members:

Name	Project Role	Telephone	E-mail
Peter Hradilek	QC/ITR Team	916-817-4912	Peter.Hradilek@hdrinc.com
Les Harder	QC/ITR Team	916-817-4973	Les.Harder@hdrinc.com
Lee Frederiksen	QC/ITR Team	916-817-4883	Lee.Frederiksen@hdrinc.com

## 10. PROJECT SCHEDULE AND MILESTONES

The following table reflects the submittal and review schedule as contained in the SOW (see Appendix A). The overview project production schedule developed by HDR to reflect the as negotiated milestones and durations cited in the following table is presented in Appendix B.

Task and Description	Task Completion (calendar days after task order award)	Scheduled Completion Date
Notice to Proceed	0	10/2/09
Task 1: Quality Control Plan (QCP)	7	10/9/09
Task 2: Meetings – 2 days after each meeting		
Task 3 – Civil Designs		
Receive data from Corps	30	11/1/09
Draft civil designs (30 days after receipt of data)	60	12/1/09
Government Review (15 days after receipt of draft designs)	75	12/16/09
Final Civil Designs (15 days after receipt of review comments)	90	12/31/09
Task 4: 60% Submittal		
Receive geotechnical design documents from Corps	120	01/30/10
Draft plans, specs, and BDR (90 days after receipt of geotechnical design docs)	210	04/30/10
Government Review (30 days after receipt of draft designs)	240	05/30/10
Final plans, specs, and BDR (30 days after receipt of review comments)	270	06/29/10
Total Project Duration	270	06/29/10

## 11. PROJECT BUDGET

See Appendix C for the TO Award documentation that presents the lump sum contract fee negotiated for this project. Appendix C also contains HDR’s distribution of the lump sum fee amongst the primary Tasks cited in the SOW (Appendix A).

## 12. TRANSFER OF DATA

Maintaining the fast-track schedule for this project will hinge upon the timely transfer of project data from SPK to HDR necessary to support the analyses and design efforts required in the SOW. Additionally, it will be extremely important that HDR and SPK maintain a mutually cooperative and timely handling of production documents for review / comment / response focusing on the established schedule dates. The DrChecks system will be used to document the review comment / response process for this project.

**APPENDIX A**  
**STATEMENT OF WORK**

# ORDER FOR SUPPLIES OR SERVICES

1. CONTRACT/PURCH. ORDER/ AGREEMENT NO. W91238-09-D-0003	2. DELIVERY ORDER/ CALL NO. 0014	3. DATE OF ORDER/CALL (YYYYMMDD) 2009 Sep 30	4. REQ./ PURCH. REQUEST NO. W62N6M92722037	5. PRIORITY
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6. ISSUED BY USACE SACRAMENTO DISTRICT ATTN: CONTRACTING DIVISION 1325 J STREET-ROOM 878 SACRAMENTO CA 95814-2922	CODE W91238	7. ADMINISTERED BY (if other than 6) <b style="text-align: center;">SEE ITEM 6</b>	CODE	8. DELIVERY FOB <input checked="" type="checkbox"/> DESTINATION <input type="checkbox"/> OTHER  (See Schedule if other)
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9. CONTRACTOR NAME AND ADDRESS HDR ENGINEERING, INC. 2365 IRON POINT RD STE 300 FOLSOM CA 95630-8712	CODE 4FZ86	FACILITY	10. DELIVER TO FOB POINT BY (Date) (YYYYMMDD) <b>SEE SCHEDULE</b>	11. MARK IF BUSINESS IS <input type="checkbox"/> SMALL <input type="checkbox"/> SMALL DISADVANTAGED <input type="checkbox"/> WOMEN-OWNED
			12. DISCOUNT TERMS	
13. MAIL INVOICES TO THE ADDRESS IN BLOCK See Item 15				

14. SHIP TO USACE SACRAMENTO DISTRICT ATTN: CONTRACTING DIVISION 1325 J STREET-ROOM 878 SACRAMENTO CA 95814-2922	CODE W91238	15. PAYMENT WILL BE MADE BY USAED, FINANCE CENTER ATTN: CEFC-FP 5722 INTEGRITY DRIVE MILLINGTON TN 38054-5005	CODE W91238	<b>MARK ALL PACKAGES AND PAPERS WITH IDENTIFICATION NUMBERS IN BLOCKS 1 AND 2.</b>
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16. TYPE OF ORDER	DELIVERY/ CALL	<input checked="" type="checkbox"/>	This delivery order/call is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract.
	PURCHASE	<input type="checkbox"/>	Reference your quote dated Furnish the following on terms specified herein. REF:

ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.

NAME OF CONTRACTOR	SIGNATURE	TYPED NAME AND TITLE	DATE SIGNED (YYYYMMDD)
<input type="checkbox"/> If this box is marked, supplier must sign Acceptance and return the following number of copies:			

17. ACCOUNTING AND APPROPRIATION DATA/ LOCAL USE

**See Schedule**

18. ITEM NO.	19. SCHEDULE OF SUPPLIES/ SERVICES	20. QUANTITY ORDERED/ ACCEPTED*	21. UNIT	22. UNIT PRICE	23. AMOUNT
<b>SEE SCHEDULE</b>					

* If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.	24. UNITED STATES OF AMERICA TEL: 916-557-5203 EMAIL: Carolyn.E.Mallory@usace.army.mil BY: CAROLYN E MALLORY	<i>Carolyn E Mallory</i> CONTRACTING / ORDERING OFFICER	25. TOTAL	\$1,036,042.16
			26. DIFFERENCES	

27a. QUANTITY IN COLUMN 20 HAS BEEN

INSPECTED     RECEIVED     ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED

b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	c. DATE (YYYYMMDD)	d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE
--	-----------------------	---

e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE	28. SHIP NO.	29. DO VOUCHER NO.	30. INITIALS
f. TELEPHONE NUMBER	g. E-MAIL ADDRESS		32. PAID BY
			33. AMOUNT VERIFIED CORRECT FOR

36. I certify this account is correct and proper for payment.				31. PAYMENT	34. CHECK NUMBER
a. DATE (YYYYMMDD)	b. SIGNATURE AND TITLE OF CERTIFYING OFFICER			<input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL	35. BILL OF LADING NO.

37. RECEIVED AT	38. RECEIVED BY	39. DATE RECEIVED (YYYYMMDD)	40. TOTAL CONTAINERS	41. S/R ACCOUNT NO.	42. S/R VOUCHER NO.
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Section B - Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0001		1,036,042.16	Dollars, U.S.	\$1.00	\$1,036,042.16

Basic Tasks

FFP

PROJECT TITLE AND LOCATION: American River Common Features (ARCF), Natomas Basin, Sacramento, California

A-E shall perform the following tasks, in accordance with the Statement of Work (SOW) dated 3 September 2009, revised 11 September 2009 and 28 September 2009, incorporated herein:

Task 0 – Project Management	\$ 35,392.35
Task 1 – Quality Control	\$177,427.69
Task 2 – Meetings	\$ 60,569.22
Task 3 – Civil Design in support of the Corps Feasibility Studies	\$185,542.74
Task 4 – Phase 4B 60% Submittal	\$577,110.16

All work and services shall be completed in accordance with the Submittal Schedule in the SOW, but not later than 270 calendar days from the effective date of this task order.

FOB: Destination

PURCHASE REQUEST NUMBER: W62N6M92722037

MAX  
NET AMT

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\$1,036,042.16



ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
000101		UNDEFINED	Dollars, U.S.	UNDEFINED	\$0.00

Fed Funds for CLIN 0001

FFP

FOB: Destination

PURCHASE REQUEST NUMBER: W62N6M92722037

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MAX NET AMT	\$0.00
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ACRN AA

CIN: W62N6M92722037000101

\$1,000,000.00

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
000102		UNDEFINED	Dollars, U.S.	UNDEFINED	\$0.00

Non-Fed Funds for CLIN 0001

FFP

FOB: Destination

PURCHASE REQUEST NUMBER: W62N6M92722037

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MAX NET AMT	\$0.00
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ACRN AB

CIN: W62N6M92722037000102

\$36,042.16

Section C - Descriptions and Specifications

TO 0014 SOW

CESPK-ED-DR

*Revised 28 September 2009*

*Revised 11 September 2009*

*3 September 2009*

STATEMENT OF WORK

**1. PROJECT DATA**

1.1. PROJECT TITLE AND LOCATION: American River Common Features (ARCF), Natomas Basin, Sacramento, California

1.2. PROJECT NUMBER:

1.3. CONTRACT NO: ~~W91238-09-D-0004~~ W91238-09-D-0003, Task Order 0014

1.4. CONTRACTOR DATA:

HDR Engineering, Inc.  
2365 Iron Point Road, Suite 300  
Folsom, CA 95630  
Point of Contact (Contract Manager): Mr. Johnnie A. Mack  
(916) 817-4887  
(916) 817-4747 (fax)  
[johnnie.mack@hdrinc.com](mailto:johnnie.mack@hdrinc.com)

Mr. Blake Johnson  
Civil Design Section Manager  
(916) 817-4879  
(916) 817-4747 (fax)  
[Blake.Johnson@hdrinc.com](mailto:Blake.Johnson@hdrinc.com)

1.5. GOVERNMENT POINTS OF CONTACT:

Sacramento District A-E Contract Specialist:  
Carolyn Mallory  
CECT-SPK  
1325 J Street  
Sacramento, CA 95814-2922  
(916) 557-5203  
[Carolyn.E.Mallory@usace.army.mil](mailto:Carolyn.E.Mallory@usace.army.mil)

Sacramento District Project Manager:  
Mr. Dan Tibbitts  
U.S. Army Corps of Engineers, Sacramento District  
ATTN: CESPK-PM-C  
1325 J Street  
Sacramento, California 95814-2922  
(916) 557-7372  
[Dan.P.Tibbitts@usace.army.mil](mailto:Dan.P.Tibbitts@usace.army.mil)

Sacramento District Project Technical Lead:

Mr. Mark Boedtke  
U.S. Army Corps of Engineers, Sacramento District  
ATTN: CESPCK-ED-DR  
1325 J Street  
Sacramento, California 95814-2922  
(916) 557-6637  
[Marcus.S.Boedtke@usace.army.mil](mailto:Marcus.S.Boedtke@usace.army.mil)

1.6. AUTHORIZATION: Section 101 of Water Resources Development Act (WRDA) (PL 104-303) of 1996, and modified by WRDA 1999 (PL 106-53) Section 366.

1.7. SCOPE: The work to be accomplished consists of multi-disciplinary services and deliverables in general support of the Sacramento District Corps of Engineers (Corps) ARCF Project. The tasks focus on 1) civil design support to develop plans and cross-sections depicting a full array of alternatives, plus feasibility-level unit costs for those alternatives, in specific support of the Corps' Post-Authorization Change report (PAC) and General Re-Evaluation Report (GRR); 2) development of 60% Plans and Specifications (P&S) for specified study reaches of the Natomas Basin in specific support of a developing environmental document; ~~3) conducting field exploratory borings in support of a Phase 4B levee improvement design and construction contract; and 4) options to develop the 60% P&S to 90% and to Final (100%) biddable documents for Phase 4B construction.~~ The Corps will provide the geotechnical information, geotechnical analyses, and proposed remediation alternatives to the A-E to develop the necessary civil designs. ~~The Corps will also provide exploratory boring locations, details, and rights of entry (ROE).~~

1.8. CONSTRUCTION COST LIMITATION: \$600 million.

1.9. DRAWING / DOCUMENT TITLES:

American River Common Features, Sacramento County, CA  
General Reevaluation Report

1.10. CRITERIA:

1.10.1. CBBS at <http://cbbs.spk.usace.army.mil/ae.html>

1.10.2. Quality Management Criteria, including the referenced CESPCK R 1110-1-8, is found at [http://iso9000.spk.usace.army.mil/qmp\\_s/qmp\\_s.html](http://iso9000.spk.usace.army.mil/qmp_s/qmp_s.html) (ER 1110-1-12) Engineering and Design Quality Management.

1.10.3. Guidance for CADD Systems usage shall be the current version of the Tri-Service CADD/GIS Technology Center's Architectural, Engineering and Construction (A-E/C) CADD Standards available at <http://cbbs.spk.usace.army.mil/cadd.html>

1.10.4. Specifications shall follow the Specsintact guidance at <http://cbbs.spk.usace.army.mil/specifications.html>

1.10.5. Detailed instructions for preparing cost estimates are presented in CESPCK Publication, "Cost Estimating Guide, Fair and Reasonable Contract Estimate for Civil Works", dated May 1988.

1.10.6. The following technical guidance documents shall be utilized.

ER 1110-1-1807	Procedures for Drilling in Earth Embankments
ER 1110-1-8100	Laboratory Investigations and Testing
EM 1110-1-1804	Geotechnical Investigations
EM 1110-2-1906	Laboratory Soil Testing

EM 1110-2-1913	Design & Construction of Levees
EM 1110-2-1914	Design, Construction, and Maintenance of Relief Wells
EM 1110-2-2400	Structural Design and Evaluation of Outlet Works
EM 1110-2-2902	Conduits, Culverts, and Pipes
ETL 1110-2-569	Engineering and Design: Design Guidance for Levee Underseepage
CESPK-ED-G Sop EDG-003	Geotechnical Levee Practice

#### 1.10.7. American Society for Testing and Material (ASTM)

ASTM C117 Standard Test Method for Materials Finer than 75- $\mu$ m (No. 200) Sieve in Mineral Aggregates by Washing

ASTM C136 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates

ASTM D422 Particle-Size Analysis of Soils

ASTM D1140 Standard Test Methods for Amount of Material in Soils Finer Than the No. 200 (75- $\mu$ m) Sieve

ASTM D1586 Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils

ASTM D2166 Standard Test Method for Unconfined Compressive Strength of Cohesive Soil

ASTM D2216 Laboratory Determination of Water (Moisture) Content of Soil and Rock

ASTM D2435 Standard Test Methods for One-Dimensional Consolidation Properties of Soils Using Incremental Loading

ASTM D2487 Classification of Soils for Engineering Purposes (Unified Soil Classification System)

ASTM D2488 Description and Identification of Soils (Visual-Manual Procedures)

ASTM D2850 Standard Test Method for Unconsolidated-Undrained Triaxial Compression Test on Cohesive Soils

ASTM D2937 Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method

ASTM D3441 Deep, Quasi-Static, Cone and Friction-Cone Penetration Tests of Soil

ASTM D4318 Liquid Limit, Plastic Limit, and Plasticity Index of Soils

ASTM D4767 Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

ASTM D5084 Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

## **2. BACKGROUND**

The Common Features Project was authorized by the Water Resources Development Act (WRDA) of 1996, and modified by the WRDA 1999. After determining project features specific to the Natomas area were likely to exceed the authorized project cost, a GRR was initiated in 2002 which focused on that portion of the project. This was

considered to be appropriate since the project in Natomas was a separately justified element within the Common Features Project. However, more recent concerns about anticipated costs associated with the rest of the Common Features Project, along with increasing concerns about the condition of the Sacramento River levees below the American River, made it necessary to revise the scope of the GRR to address the complete Common Features study area. This is consistent with ER 1105-2-100, Appendix G, Section III, Post Authorization Changes.

The American River Common Features GRR study area includes approximately 12 miles of the north and south banks of the American River immediately upstream of the confluence with the Sacramento River; approximately 18 miles of the east bank of the Sacramento River, downstream of the Natomas Cross Canal (NCC) down to the American River; approximately 5 miles of the south bank of the NCC, immediately upstream of the confluence of the Sacramento River; approximately 4 miles of the Pleasant Grove Creek Canal (PGCC); approximately 8 miles of the Natomas East Main Drainage Canal (NEMDC); and approximately 15 miles of the east bank of the Sacramento River downstream of the American River down to Morrison Creek at Freeport (tie into Beach Lake Levee, southern defense for Sacramento). Although improvements to the NCC north levee were authorized in WRDA 1999, this levee is not part of the American River Common Features GRR study, but will be addressed following formulation of an agreement between the U.S. Army Corps of Engineers (USACE), the State of California, and Reclamation District (RD) 1001, the Local Sponsor for the NCC north levee. See Attachment 2.

The work included in this statement of work generally covers approximately half of the Natomas Basin. Specifically it includes development of feasibility level alternative designs, development of 60% plans and specs to support an environmental document, ~~and pending exercise of an option item, finalization of the plans and specs for construction purposes.~~

### **3. DESCRIPTION OF WORK AND SERVICES**

The following task descriptions provide specific details covering functional criteria, level of detail, and product requirements:

**3.1. TASK 1 - QUALITY CONTROL:** The A-E shall be responsible for conducting quality control on all products developed as part of the contract as outlined in ER 1110-1-12, Engineering and Design Quality Management.. The A-E shall prepare a Quality Control Plan (QCP) within seven (7) calendar days following the date of the task order award. The technical review shall be consistent with the Quality Management Plan (CESPD R 1110-1-8) and associated technical review implementation guidance. The technical review portions of the quality-control reviews shall focus on compliance with established policy, principles, and procedures, using clearly justified assumptions. The reviews shall include verification of assumptions, methods, procedures, and material used in analyses, based on the level of complexity of the analyses and safety risks posed by the project. The reviews shall verify the alternatives evaluated, the appropriateness of data used and level of data obtained, the functionality of the product, and the reasonableness of the results. The Sacramento District will provide quality assurance and can provide technical and planning management support to the A-E as needed in resolving major policy and technical issues.

**INDEPENDENT TECHNICAL REVIEW:** Independent Technical Review (ITR) shall be performed in a seamless manner to assure that approval can be assured upon completion of the work. Products shall be reviewed at a final design level. Products shall be reviewed for the following:

- a) Compliance with established policy and other appropriate guidance
- b) Adequacy of the statement of work for the document
- c) Appropriateness of data used, including level of detail
- e) Consistency
- d) Appropriateness of alternatives evaluated
- f) Accuracy
- g) Comprehensiveness
- h) Reasonableness of results

**ITR CERTIFICATION:** An ITR certification shall be provided along with the final submittal of all task items. An ITR certification form will be delivered to the A-E for the signature, and must be returned for ITR certification of this contract. A copy of the review comments and responses shall also be submitted.

**REVIEW PROCESS:** All submittals prepared by the A-E shall be reviewed by the Corps and other agencies for conformance with the contract requirements as well as technical and functional criteria utilizing the Corps of Engineers' Design, Review, and Checking System (Dr. Checks). Dr. Checks is a computerized method for transmittal and storage of design review comments. It provides interactive capability to address and respond to design review comments. The A-E can access Dr. Checks at the website [www.projnet.org](http://www.projnet.org). The A-E shall also need to get login capability. If you require assistance, encounter any problems, or have questions or comments, please call the Dr. Checks Coordinator, Laura Haven, at (916) 557-7651.

a) **Review Comments:** Written review comments will be returned to the A-E via DrChecks. This review effort in no way replaces the A-E's review requirements outlined in the A-E's Quality Control Plan. All review comments will be "coordinated" by the Corps Project Manager. That is, they will be reviewed for applicability to the project against the project's design criteria. All design review comments will be electronically transmitted between the Corps and other agencies, and the A-E via DrChecks. Comments shall be received at a personal computer in the A-E office by use of the DrChecks website described above. All comments shall be stored in DrChecks. The A-E can then download the review comments, respond to the comments, upload the responses back to DrChecks and forward responses to the Corps Project Manager.

b) **A-E Responses.** Once review comments have been forwarded to the A-E, the A-E shall respond to the review comments in Dr. Checks as follows:

- (1) "Concur" if the A-E agrees with the comment.
- (2) "Non-Concur" if the A-E does not agree with the comment. A response on why the A-E does not agree with the comment.
- (3) "For Information Only" if the A-E feels the comment is for information only.
- (4) If "Check and Resolve" if the A-E needs further analysis to respond to the comment. An explanation of what needs to be done to resolve the comment should be included.

Submitting a separate sheet of paper with location of compliance or rebuttals is not allowed. All information MUST be entered into Dr. Checks. When all of the comments have been sufficiently responded to, they shall be electronically transmitted between the COE and the A-E via Dr. Checks. In addition, all responses shall be stored in Dr. Checks. If the A-E has any hardware or software problems with the Dr. Checks system, call Laura Haven, the Dr. Checks coordinator, at (916) 557-7651.

c) **Back-check of Previous Comments:** Review comments on prior submittals will be checked for incorporation in the subsequent submittals. Those comments verified as done and explanations concurred with will be annotated, "COMMENT CLOSED", in Dr. Checks. Previous comments not verified as done or explanations not concurred with will be annotated, "COMMENT OPEN", will appear in the current review stage's comments. These comments shall require further action by A-E prior to next submittal. All final submittals will be back-checked by the COE, after A-E corrections are made, to ensure compliance with or resolution of comments to the satisfaction of the COE.

**3.2. TASK 2 – MEETINGS:** The A-E, including subcontractors, shall attend regularly scheduled Project Delivery Team (PDT) meetings and any additional technical team meetings in person or via teleconference. The A-E's geotechnical specialist(s) shall attend monthly geotechnical committee meetings. The A-E shall also participate in management and/or partner briefings, and impromptu site visits, as requested. *It is anticipated that twenty (20) such attendances will be required at 4 hours each for preparation, local travel, participation, and preparation of action items. Additionally, the A-E shall participate in local sponsor meetings. It is estimated that thirty (30) such*

*attendances will be required at 6 hours each for preparation, local travel, participation, and preparation of action items.* The A-E shall provide a written description of action items relating to this task order, covering those actions to be done by both the A-E and by the Corps. Action items shall be completed within two (2) calendar days following each attendance and can be submitted via email. These action items will not be an official record of the meeting, but will be reviewed by Corps PM and Technical staff to assess the quality of communication and perspective within the PDT, of which the A-E is an integral part. ~~It is anticipated that twenty (20) such attendances will be required at 4 hours each for preparation, local travel, participation, and preparation of action items.~~

**3.3. TASK 3 – CIVIL DESIGN in Support of the Corps Feasibility Studies.** The A-E shall provide up to twenty (20) civil design cross section drawings and ten (10) plan view drawings to support the Corps' F4 milestone for the Natomas Basin portion of the Common Features project. The A-E shall also provide approximately ten (10) cross section drawings and five (5) plan view drawings to support the Corps' F4a milestone. The study reaches for this Task are shown on ~~Attachment 1~~ *Plate 1, Levee Distress Extents, submitted under separate cover with original SOW*, as NAT reaches [A, B, C, and I].

a) The Corps will provide the A-E with generalized geotechnical cross sections for each study reach, and multiple arrays (tables) of alternatives for various water surface elevations (stages) and various types of analysis, i.e., seepage, stability, erosion, and levee height. *The Corps estimates that this information will be provided within thirty (30) calendar days after award of this task order.*

b) The A-E shall provide detailed cross section and plan view drawings showing the full array of alternatives. In addition, the A-E shall provide tables of quantities and appropriate unit costs for the full array of alternatives, suitable for the Corps to complete comparative cost estimates.

c) Draft drawings and quantity/cost tables shall be provided for review within thirty (30) calendar days after ~~award of this task order~~ *receipt of geotechnical data and alternatives from the Corps*. The Corps will provide review comments within fifteen (15) calendar days following receipt of the A-E's draft submittal. Final drawings and quantity/cost tables shall be provided within fifteen (15) calendar days following receipt of all Corps review comments.

d) The A-E shall synthesize both planned and constructed work documented in previous USACE reports and reports by the non-Federal sponsor (SAFCA) for the levees along the Sacramento River east bank and American River north bank protecting the Natomas Basin. The civil design drawings shall clearly present all important features including, but not limited to, project footprints necessary for the Corps' Real Estate and Environmental considerations, above grade earth work, borrow, site development and transport to the site, roads and levee cap features, all drainage features including interior drainage and reroutes, structures removed and relocated, railroad elevating, elevation and construction controls, and sighting of toe ditches, drains, culverts, seepage wells, flap valves, fencing, water intakes, gas/water/oil line relocations, sewage treatment ponds, construction phasing, recreation sites, boat launch facilities etc. Mechanical equipment, electrical equipment, power relocations, concrete work, steel work, bridges, buildings, underground seepage control systems, landscape and plantings are not included.

**3.4. TASK 4 – PHASE 4B 60% SUBMITTAL:** The A-E shall develop 60% plans, specifications, and Basis of Design report, plus a submittal register and bid schedule for specified reaches within the Natomas Basin. The study reaches for this Task are shown on Attachment 1 as NAT reaches [A and I]. *The geotechnical analyses for Phase 4B, including Geotechnical Alternatives Analysis and Geotechnical Basis of Design will be prepared by others under a SAFCA contract and will be provided to the Contractor by the Corps. The Corps estimates these reports will be provided within 120 calendar days after award of this task order.* All products shall be prepared in accordance with the SUBMITTALS section of this SOW. The following items shall be included in the 60% submittal:

a) *The A-E shall conduct internal quality and technical reviews by a Senior Geotechnical Engineer of the Geotechnical Alternatives Analysis and Geotechnical Basis of Design reports provided by the Corps. The purpose of the review will be to assure that the Geotechnical products provided to the A-E are adequate as a*

*basis for, and compatible with, the requirements of Task 4. Any perceived inadequacy or incompatibility shall be reported immediately to the Corps Technical Lead. This review and its findings shall be documented as part of the A-E's Basis of Design report as described in e) below, but no other specific submittal is required.*

*b) The A-E shall submit ~~the~~ Draft 60% design documents for review within ninety (90) calendar days after ~~award of this Task Order and receipt of the Geotechnical Alternatives Analyses and Geotechnical Basis of Design from the Corps.~~ The submittal package shall consist of the construction drawings, technical specifications, submittal register, bid schedule, and Basis of Design for the levee reaches specified above. ~~The Corps will provide review comments within thirty (30) calendar days following receipt of the A-E's draft submittal. A Final revised submittal shall be provided within thirty (30) calendar days following receipt of all review comments.~~*

*c) The drawings shall include all plans, profiles, sections, and details required to illustrate the required construction for levee improvement, corresponding utility and encroachment relocation, interior drainage modification, vegetation removal and demolition plans. Drawings shall also include temporary and permanent right-of-way limits, environmental features, and identify any archaeological or HTRW sites. Utilities shall be identified, and relocation designs included if necessary. The location of staging areas, and haul routes shall be shown. Close coordination between all designers shall be accomplished to avoid conflicts.*

*d) The specifications shall be separately bound and shall include a bid schedule and typed versions of the Corps guide specification sections with draft versions of any A-E prepared specifications. The specifications shall be prepared in SpecsIntact. A submittal register using ENG Form 4288 shall be included.*

*e) Basis of Design Reports. The basis of design should include an alternative analyses report and civil basis of design report based on the Geotechnical Basis of Design provided by the Corps. The civil basis of design report should include general information on the levee design criteria, utility and encroachments relocation, interior drainage modifications, and roadway relocation.*

### **~~3.5. TASK 5 – FIELD EXPLORATIONS AND LABORATORY TESTING:–~~**

~~FIELD EXPLORATION SUMMARY – Specific locations of exploration and depth of exploration are included in Attachments 2 and 3 to the SOW, titled Table 1 – Summary of Field Explorations. The stationing shown in Table 1 – Attachments 2 and 3 corresponds with ~~to~~ stationing used by SAFCA for the NLIP program. All required Right of Entry (ROE) permits, Environmental clearances and Cultural Resource monitoring and clearances will be provided by the Corps. All Underground Service Alert (USA) clearances shall be obtained by the Contractor. Quantities of explorations are as follows:~~

- ~~• Sacramento River – The Contractor shall conduct seven (7) soil borings and ten (10) cone penetrometer tests (CPT's) between approximate Stations 789+00 and 943+00.~~
- ~~• American River north levee – The Contractor shall conduct four (4) soil borings between approximate Stations 7+00 and 94+00.~~
- ~~• Natomas East Main Drainage Canal west levee – The Contractor shall perform twenty nine (29) soil borings between approximate Stations 325+00 and 675+00.~~

#### ~~GENERAL DETAILS FOR SOIL BORINGS AND CPT's~~

- ~~• Explorations shall be initiated upon award of this task order and receipt of all required permits and clearances from the Corps. The Contractor shall confirm all final exploration locations marked in the field and shall have received ROE permits and confirmation from land owners and clearance from Underground Service Alert (USA) prior to start of work. Right of Entry (ROE) for the subsurface investigation shall be obtained by the Contractor.–~~



- ~~Prior to starting the investigation, the Contractor shall assess the exploration locations depicted in Attachments 2 and 3 to determine any relocations that might be necessary for any reason. The Contractor shall provide to the Corps a plan view for review and approval showing all proposed final locations of the borings and CPT's to be drilled.~~
- ~~Prior to starting the investigation, the Contractor shall provide to the Corps a plan of operation including the plan view drawing described previously, proposed drilling methods, and boring abandonment procedures.~~
- ~~The Contractor shall obtain appropriate drilling permits as required by the Sacramento County Public Works and City of Sacramento (encroachment permits), Sacramento County Environmental Health (grouting-inspection permit), and CVFPB (drilling permit).~~
- ~~The Contractor shall notify USACE a minimum of three (3) calendar days prior to starting field explorations.~~
- ~~Only a licensed Geologist or Civil Engineer shall log the exploration and have at least 2 years experience in logging and classifying soil in accordance with ASTM D 2488.~~
- ~~Field explorations performed along the Sacramento River towards the end of the rainy season shall be performed in coordination with monitoring of the Sacramento River levels daily using the Department of Water Resources, California Data Exchange Center for current river stage. The landside ground surface elevations are approximately 20 to 23 feet (NGVD29) between Reaches 12 through 20. No drilling shall be performed on any specific day if the river stage is rising or if it is within 5 feet of the landside ground surface elevation. The field exploration program shall not resume until the river water levels are observed to be dropping and at an acceptable level.~~
- ~~Upon completion of all soil borings and CPT activities, the Contractor shall survey the locations in NAD 83 datum horizontal control and NAVD 88 datum vertical control.~~

#### SOIL BORING AND SAMPLING DETAILS

- ~~Pilot Hole Borings for Archeological Monitoring. Prior to geotechnical drilling, pilot holes no deeper than 15 feet shall be drilled a maximum of 3 feet from the location of the geotechnical boring sites. The purpose of the pilot holes is to allow an archaeologist to inspect the soil to a depth of 15 feet and to determine if cultural resources are present. If potentially significant archaeological deposits are discovered, the subsequent geotechnical boring(s) at this site shall be relocated in order to avoid damage to cultural resources. The relocation shall be approved by the Corps. The Corps archaeologist will be on site to observe all boring operations at the proposed sites and visually inspect all cores to a depth of 15 feet below the surface of natural ground. The Corps archaeologist will halt the drilling operation if any boring operation produces archaeological materials and will decide if drilling can proceed or determine a new location where another boring may be started. The Contractor shall record each boring hole's UTM coordinates with a hand held GPS unit with an accuracy of  $\leq 5m$ . The Contractor's GPS unit shall have the datum set to NAD 27. Each monitored boring shall be recorded on a separate monitoring log form with one photograph. The Contractor shall prepare a separate log form for each pilot hole and daily log chronicling the activities for each day of boring and all observations and recommendations. The form shall be provided by the Corps. The log shall be accompanied by at least one JPG photo of each boring site. The Contractor shall also prepare geotechnical boring logs for the archeological drilled borings.~~
- ~~Soil borings will be drilled using truck mounted or all terrain drill rig(s) equipped with a 4 inch diameter rotary wash drill bit. Borings located at the levee toe and landside field shall be drilled using rotary wash drilling methods.~~
- ~~Sampling Procedures during the drilling operations will include continuous penetration tests performed in~~

accordance with ASTM D-1586 at 2½ foot intervals using a California Penetration Sampler (3 inch outside diameter) to evaluate the soils encountered and to retain soil samples for laboratory testing. The penetration tests will be performed by initially driving the sampler 6 inches into the bottom of the bore hole using a 140-pound trip hammer falling 30 inches to penetrate loose soil cuttings and “seat” the sampler. Thereafter, the sampler shall be progressively driven an additional 12 inches, with the results recorded as the corresponding number of blows required to advance the sampler 12 inches, or any part thereof.

- Undisturbed Shelby tubes shall be obtained from the clay and silt layers in the levee foundation. Bag samples shall be collected from both ends of the Shelby tubes for visual classification and laboratory testing. The Shelby tubes shall be sealed with wax on both ends and stored vertical at all times.
- Soil samples obtained from the borings will be packaged and sealed in the field to reduce moisture loss and disturbance and brought to the laboratory for testing.
- 
- The ground water elevation shall be measured in each boring 24 hours after the boring has been drilled to the final depth.
- After completion of the borings, they shall be backfilled with grout in accordance with the local drilling permits.
- Leftover cuttings shall be placed in 55-gallon drums and disposed off site, and the drilled area shall be cleaned and restored to the pre-drilling conditions prior to leaving the site.

#### CPT DETAILS

- CPT's shall be performed in accordance with ASTM D3441-05. The CPT rig shall be fully maintained, in good condition, complete with competent and qualified operating personnel with all the necessary accessories and supplemental equipment capable of conducting CPT's to a depth of at least 130 feet. The Contractor shall provide all data printouts, plots, and Geotechnical interpretations to the USACE. The data printouts will include, but not be limited to, depth, tip resistance, local friction, friction ratio, pore pressure, differential pore pressure, and inclination.
- After completion of the CPTs, they shall be backfilled with grout in accordance with the local drilling permits.

#### LABORATORY TESTING

- The soil testing laboratory shall have been inspected and met the approval by the Engineer Research Development Center of the USACE.
- The Contractor shall perform classification tests (sieve analysis, Atterberg Limits) on selected disturbed soil samples collected from the soil borings.
- The Contractor shall perform moisture content of all clay and silt samples.
- The Contractor shall perform consolidation tests, triaxial compression tests, and hydraulic conductivity tests on all undisturbed samples collected from the borings. Atterberg Limits shall be determined for all undisturbed samples from triaxial or consolidation tests.
- Selection of the laboratory testing shall be based on the boring logs. The selection of the soil samples for laboratory tests and the required laboratory tests shall be coordinated with the Corps.
- The Contractor shall be responsible for delivering the soil samples from the levee site to the laboratory.

- Upon completion of testing, the Contractor shall store all remaining samples for a minimum of 2 years or until the project is built.

## GEOTECHNICAL DATA REPORT

The Contractor shall prepare a draft and final written report documenting all the work accomplished and the results of field and laboratory testing. The report shall contain, but not be limited to boring logs, CPT logs, laboratory test results,  $(N_1)_{60}$  calculations and spreadsheets, CPT printouts, and all resulting summaries and conclusions related to the soil material properties and distribution. Final auger boring logs shall be in gINT format. The soils shall be classified in accordance to ASTM D2487. Field logs shall be included in the appendix. Electronic versions of the laboratory testing results will be provided as will summary plots that show all lab results. The Contractor shall submit a draft report for review *no more than thirty (30) calendar days after completion of all field explorations and all laboratory testing*. The Corp will review the draft report and provide written comments to the Contractor within fifteen (15) calendar days after the report is submitted for review. The Contractor shall respond to the comments by making corrections or by written rebuttal. The Contractor shall revise the report and provide a final version to the Corps *within fifteen (15) calendar days after receiving all review comments*. Logs shall be submitted in gINT format or gINT compatible format in hard copy (paper) and electronic copy (compact disc) formats. Final laboratory test report shall be submitted in both hard copy (paper) and electronic copy (compact disc) formats.

**3.6. OPTION 1 – PHASE 4B 90% SUBMITTAL:** *The geotechnical design documents for the 90% design will be provided by the Corps.* The A-E shall submit 90% design documents for review sixty (60) calendar days after exercise of this Option and receipt of comments on the 60% submittal from the Corps *and receipt of the 90% geotechnical design documents from the Corps.* The 90% Design shall be accomplished by developing and refining the design presented in the 60% submittal, as modified by the review comments. This submittal shall consist of the drawings and specifications, Basis of Design, Engineering Considerations and Information for Field Personnel (ECIFP), Submittal Register and Bid Schedule commensurate with this stage of design. All products shall be prepared in accordance with the SUBMITTALS section of this SOW. Major changes to the basic design should not occur at this time, unless such changes are the result of review comments, changes in criteria, changes in the statement of work, or unforeseen problems necessitating the Corps to alter its original design. All of the changes shall be resolved through the Corps Project Manager before proceeding. If major changes are made from the previous design submittals, the changes shall be identified and described in the Basis of Design.

- ~~a) The Basis of Design shall be expanded and refined in accordance with review comments and any additional criteria.~~
- ~~b) The A-E shall expand and fully develop the drawings from the previous 60% submittal, adding new drawings as necessary to meet the requirements stated hereinafter. Include in the drawings all plans, profiles, sections, and details required to illustrate the required construction. Close coordination between all designers shall be maintained to avoid conflicts. Whenever additive bid items are required, the limits of work of these items shall be well defined on the respective disciplines' drawings and clearly defined by word description in the specifications. Adequate details shall be provided to cover the situations where additive bid items are not awarded such that the drawings present a complete design without the additive bid items.~~
- ~~c) The A-E shall bind the specifications separately and include final versions of the Corps guide specification sections with final versions of any A-E prepared specifications.~~
- ~~d) A submittal register and bid schedule commensurate with this stage of design shall also be submitted.~~

**3.7. OPTION 2 – PHASE 4B 100% SUBMITTAL:** The A-E shall submit 100% design documents for review thirty 30 calendar days after exercise of this Option and receipt of comments on the 90% submittal from the Corps *and receipt of 100% geotechnical design documents from the Corps.* The 100% design submittal shall consist of the 100% drawings, 100% specifications, 100% Basis of Design, 100% Submittal Register, 100% Bid Schedule, and

~~100% ECIFP. Electronic files for the plans, specifications, and ECIFP shall also be submitted in both Microstation/AutoCAD and Electronic Bid Set (PDF) format. All products shall be prepared in accordance with the SUBMITTALS section of this SOW. This submittal shall represent 100% of the total design effort and shall present a biddable, constructible, and operable design package conforming to all the appropriate criteria. If the design documents are not acceptable after the 100% design review, written review comments will be returned to the A-E for response/incorporation into the final design documents. The A-E shall then resubmit the documents for back-check review. The Corps will be the only review organization involved at this back check stage. The A-E's effort to revise the final design documents and to resubmit the package to the Corps shall be at no extra cost to the Government. Acceptance of this submittal constitutes completion of all requirements for this phase of work.~~

#### **4. SUBMITTALS**

4.1. PROGRESS REPORTING: The A-E shall prepare progress/status reports to be delivered by the 10<sup>th</sup> of each month. Progress reports shall be brief (1-2 pages), describing work performed and a quantitative statement of overall work progress, including percentage of work accomplished on each task and submittal. Also, include a description of the current problems that may impede performance of the tasks outlined in this SOW and suggest corrective actions. This report shall also discuss work to be performed on the next two (2) week time frame along with containing a current submittal schedule. Progress reports shall be mailed to the Project Manager, Technical Lead, and the A-E Administration Section.

4.2. Task 1 – Quality Control Plan – The A-E shall prepare a brief Quality Control Plan (QCP) within seven (7) calendar days following the award date of this task order. The technical review shall be consistent with the Quality Management Plan (CESPD R 1110-1-8) and associated technical review implementation guidance. A Milestone list and schedule for review activities shall be generated to assure seamless review. The A-E team shall review the project team's approach to preparation of each submittal at the outset of work on the submittal, and all reviews of draft submittals shall occur 1-5 calendar days prior to submittal due dates. Review comments shall have been accommodated in each product prior to delivery to the Corps. As a guideline, follow CESPD R 1110-1-8 App. C "Decision Document Checklist."

4.3. Task 2 – MEETINGS – The A-E shall submit a written description of action items from all meetings not more than two (2) calendar days following each attendance.

4.4. Task 3 – CIVIL DESIGN – The A-E shall provide twenty (20) civil design cross section drawings and ten (10) plan view drawings for the Corps F4 milestone, ten (10) cross section drawings and five (5) plan view drawings for the Corps F4a milestone, plus quantity/cost tables. Draft drawings and quantity/cost tables shall be submitted for review not more than thirty (30) calendar days after ~~award of this task order and receipt of geotechnical alternatives from the Corps~~. The Corps will provide review comments *within fifteen (15) calendar days*, and final drawings and quantity/cost tables shall be provided not more than fifteen (15) calendar days following receipt of all Corps review comments.

4.5. Task 4 – PHASE 4B 60% SUBMITTAL: The A-E shall provide 60% plans, specifications, Basis of Design report, and submittal register and bid schedule for specified reaches in the Natomas Basin. The A-E shall submit ~~the Draft 60% design documents~~ for review not more than ninety (90) calendar days after ~~award of this Task Order receipt of the 60% Geotechnical Design Documents from the Corps~~. *The Corps will provide review comments within thirty (30) calendar days, and Final 60% documents shall be submitted not more than thirty (30) calendar days following receipt of all review comments.*

4.6. Task 5 – FIELD EXPLORATIONS AND LABORATORY TESTING: The A-E shall provide an exploration plan and schedule not more than seven (7) calendar days after award of this Task Order. The A-E shall submit draft field logs and preliminary laboratory test results as they become available. *The A-E shall submit a draft geotechnical data report for review within thirty (30) calendar days after completion of all field explorations and laboratory testing. The A-E shall submit a final report within fifteen (15) calendar days following receipt of all review comments.* Final logs incorporating laboratory test data shall be submitted in gINT format or gINT-compatible format in hard copy (paper) and electronic copy (compact disc) formats. ~~Final geotechnical data report~~

*including all laboratory test results report shall be submitted in both hard copy (paper) and electronic copy (compact disc) formats within fifteen (15) days following receipt of all review comments. All final logs and laboratory test data results shall be submitted not more than thirty (30) calendar days following completion of the last boring.*

**Submittal Stages:**

— **Geotechnical Data**

— Preliminary Subsurface Investigation Results (submitted with monthly progress report)

— Proposal of Laboratory Testing Program

— Draft Data Report

— **Review by USACE**

— Preliminary Field Explorations Results

— Proposal for Laboratory Testing Program

— Draft Data Report

— **Final Geotechnical Data Report Submittal**

~~4.7. Option 1 — PHASE 4B 90% SUBMITTAL: The A-E shall submit 90% design documents for review sixty (60) calendar days after exercise of this Option and receipt of comments on the 60% submittal and receipt of the Geotechnical Design Documents from the Corps. The 90% Design shall be accomplished by developing and refining the design presented in the 60% submittal, as modified by the review comments. This submittal shall consist of the drawings and specifications, Basis of Design, Engineering Considerations and Information for Field Personnel (ECIFP), and Submittal Register and Bid Schedule commensurate with this stage of design.~~

~~4.8. Option 2 — PHASE 4B 100% SUBMITTAL: The A-E shall submit 100% design documents for review thirty 30 calendar days after exercise of this Option and receipt of comments on the 90% submittal from the Corps and receipt of the Geotechnical Design Documents from the Corps. The 100% design submittal shall consist of the 100% drawings, 100% specifications, 100% Basis of Design, 100% Submittal Register, 100% Bid Schedule, and 100% ECIFP.~~

4.9. REPORT FORMAT: Documents shall be provided in Microsoft Word (.doc) electronic format approved by the Government. Type face of report text shall be Times New Roman. Point size shall be 12. The report numbering shall be outline numbered as follows:

1.
  - 1.1.
    - 1.1.1.

The first line on each sub paragraph shall be indented from the above paragraph.

4.10. PRINCIPAL INVESTIGATORS: A list of the principal investigators responsible for data collection, analyses and report formulation shall be provided in the report. The list shall include the name, title, and area of expertise of each principal investigator.

4.11 . BIBLIOGRAPHY/REFERENCES: A complete list of all references cited in the report text and/or utilized in the analyses requested herein shall be included in the report.

4.12. COMPUTATIONS: All computations for the analyses requested herein shall be fully described and included in the technical engineering appendix to the report or other appropriate technical appendix.

4.13. MAPS: Maps shall include a north arrow, scale, title block and legend. Fold-in or page-size maps shall show the study reach in relationship to nearby towns, rivers, and other major such features. Maps shall be legible when reproduced half-size. The A-E shall provide full size reproducible maps, reduced size maps suitable for enclosure into the report and originals for all maps.

4.14. GIS: Civil drawings shall be compatible with geodetic datum NAD 83, Zone 2 in U.S. Survey Feet and in ArcGIS (8.1). The A-E shall use ArcGIS (Arc8.1) for layer development. The A-E shall use the FGDC metadata standards that are outlines in ArcGIS (Arc Catalog). The A-E shall complete all data collection forms and conduct quality control on the data collection forms. The A-E shall provide the Corps with a hard copy and electronic copy (See GIS requirements) of the completed data forms. The A-E shall include all information in the appropriate electronic database and or format.

Data that is to be integrated with the American River Common Features project (ARCF), Geographic Information System (GIS) data shall be in a shape file format that also meets the Spatial Data Standard for Facilities, Infrastructure, and Environment (SDS-FIE) compliance. Metadata also needs to be included with received data. The standard to use for the Metadata is the Federal Geographic Data Committee (FDGC). Metadata shall be included with every piece of data (shapefile) provided to the US Army Corps of Engineers. The data also needs to be projected in a Coordinate System. The Coordinate System that the SRBPP GIS data shall reside in is: NAD\_83 (feet) State Plane Zone 2. The delivery of the data to the US Army Corps of Engineers shall be on a CD or DVD.

Field Collected data shall be collected using the ESRI ArcPad software, then delivered to the US Army Corps of Engineers via shapefile following all the provisions above, (i.e.-SDS-FIE compliance, FGDC metadata, and coordinate system). The accuracy of the field-collected data, when Global Positioning System (GPS) is used shall be within one-foot tolerance.

4.15. GPS: The Datum of the waypoints shall be NAD 83, Feet, State Plane Zone 2. Waypoint accuracy shall be Plus or Minus 30 feet.

4.16. PHOTOS: Any digital pictures produced shall be "Hot-linked" to an appropriate location on the GIS theme and metadata shall be attached.

4.17. MEASUREMENT UNITS: All work requested herein shall be performed and presented in the "English" system of measurement of length, weight, volume, etc. A table presenting conversion factors to the SI system of units shall be presented in the report.

4.18. DRAWINGS: The specific contents of the drawings vary depending on the stage of the submittal. All drawings shall be provided in an electronic format approved by the Corps. All drawings for the project shall be of good quality, with a consistent format. All drawings shall have a have a standard title block and border. A standard title block and border will be provided by the Government. Drawings should include (but not exclusive of other pertinent drawings): Plan and profile of the study reach, water surface profile for the design event(s), typical cross sections of project reach, drawings of any conceptual hydraulic structures for project alternatives with design dimensions, drawings of any modifications to existing structures, etc. Drafting of all plan views, cross sections, details, legends, dimensions, notes, etc. shall be of sufficient size to permit one-half scale reduction. Use of cut-ins, stick-ons and transparent tapes, etc. shall be minimized on final drawings.

a) The A-E has the responsibility to show all information necessary to completely describe the project on the plans. Regardless of local practice or procedures, the designer shall prepare original drawings with the expectation that both the Corps of Engineers, in the role of construction manager, and the construction contractor will be able to construct this project without numerous modifications to correct design deficiencies. Plans shall include longitudinal profiles, plan views, and as many cross-sections and details necessary to show the features of the project. All dimensions and elevations of the channel excavation and environmental restoration shall be indicated. Survey controls shall be based on information presented in the COE 1991 or SAFCA 2003 plans. The datum refers to National Geodetic Vertical Datum of 1929.

b) The cover sheet(s) shall include the schedule of drawings, vicinity map, location map, legend, and list of abbreviations. The schedule of drawings shall include the consecutive sheet numbers, the design discipline sheet numbers, and the drawings titles. Spaces shall be kept between each discipline's drawings to allow room for insertion of additional drawings by revisions to the design during design or construction. The vicinity map

shall be a single-line type showing major cities, nearby towns, major streams and rivers, current routes of nearby highways and railroads, and a north arrow. Show location of the project on a small scale location map indicating the general relationship between the new project and streets to facilitate identification of the proposed site. On the location map, show the north arrow and highlight the approved project boundaries, the Contractor's haul roads, location and phone numbers of nearest medical facility, and the approved location of the borrow and disposal areas.

c) The submittal drawings shall be single thickness paper drawing sheets and sized no less than 11"x17" half-size. Drawing material that does not meet COE standards may be rejected at any time during design. The A-E is liable for replacing rejected drawings at no expense to the Government. All sheets shall have the COE standard borders and title blocks. The title block is for all sheets other than the cover sheet. The cover sheet title block requires a number of signatures by COE personnel.

d) All drawings shall be consecutively numbered by disciplines. The drawings shall be placed in the drawings set in the discipline sequence as shown in the flood control plans. The cover sheet must be the first of the drawing set. All final drawings prepared and submitted by the A-E shall bear the stamp and signature of a registered engineer identified in the A-E's QC Plan, preferably one of the principals of the firm under contract to the COE. Drawings submitted by the designer shall be dated. Cross referencing for sections and details shall be based on the discipline drawing number (e.g., S-1, S-3, etc.).

e) Scales shall be selected to avoid overcrowded and cluttered conditions on the drawings. Where necessary to maintain proper scale, drawings or large structures shall be placed on two or more sheets. A graphic scale for each of the different scales used on a drawing shall be placed on the drawings preferable near the title block. Acceptability of scale is determined by clarity of drawings at one-half scale reduction.

f) After the back-check has been completed and approved, the A-E shall submit to the COE a CD containing all of the drawing computer files as well as an index for the reference files for each drawing. In addition, a CALS file package shall be prepared of the contract drawings such that an Electronic Bid Set can be produced. Refer to EDM 49 for additional information.

g) Revisions to drawings after the project has been advertised for construction can include revisions issued by amendment during the bidding period requiring changes to drawings. The A-E shall be required to make all necessary revisions.

4.19. SPECIFICATIONS: Specifications shall include technical provisions covering site work, earthwork, environmental restoration, and other components of work requiring details. Corps of Engineers Guide Specifications (CEGS) and Civil Works guide specifications shall be used whenever possible. The A-E shall acquire all COE guide specifications via the electronic bulletin board SPECSINTACT. The bulletin board provides the most current guide specifications available for use. It shall be noted that the guide specifications shall be followed without deviations. However, if a change is needed, the A-E shall consult with the COE Project Manager. A-E prepared specifications shall be used only if there isn't a COE guide specification available for a specific item of work. Technical provisions shall be sufficiently complete and detailed to insure high quality work. Each technical provision shall have a table of contents and text submitted on 8-1/2" X 11" paper using the Construction Specifications Institute (CSI) format. The use of trade names or proprietary items on the drawings and/or in the specifications by adopting a manufacturer's description of a particular commercial article followed by the words "or approved equal" shall be avoided. Following the back-check review and approval of the specifications, the A-E shall provide a CD with Word-format computer files for the specifications and an index identifying each section. In addition, another CD shall be submitted to the Corps containing the specifications in PDF-format for use as an electronic bid set for advertisement of the contract. Refer to EDM 49 for additional information. In the interest of uniform construction, it is mandatory for the A-E to use COE guide specifications unless otherwise noted. A submittal register shall also be prepared, and shall include a tabulation of all contractor submittal requirements for this contract using ENG Form 4288. This register shall be coordinated with the specifications. The front-end specifications and SWPPP attachment will be prepared by the Corps of Engineers.

4.20. **BASIS OF DESIGN:** The Basis of Design shall be a bound document that is to be developed and expanded upon with each subsequent submittal so that it represents the complete design history. Included shall be a table of contents, a narrative, and appendices. It shall be noted that the Basis of Design will not be part of the construction bid documents; therefore, any information contained in the Basis of Design that will be needed to complete the construction of the project shall be included in the plans and specifications.

a) The Table of Contents shall clearly define the location of all information contained therein.

b) The narrative shall provide a complete explanation of the basis of design discipline-by-discipline. It shall also include the results of field investigations performed, including basic findings and a discussion of items that warrant special attention.

c) The appendices shall include copies of all pertinent correspondence, all design calculations and worksheets, and all submittal review comments. Copies of all pertinent correspondence (e.g., statements of work, conference minutes and other pertinent data) are required so that the Basis of Design presents the project history from inception to completion of the design documents. Design calculations and worksheets citing applicable codes and standards shall also be included to verify the design. Sketches, details and plans, as necessary, shall be prepared to support the calculation. The calculations shall be computed and checked by separate individuals. Checking shall be accomplished by registered engineers of the firm under contract to the COE, as identified in the A-E's QC Plan. The names of these individuals shall be indicated on the page or insert carrying the calculation. Presentation shall be clear and legible with a tabulation showing all design loads and conditions. The source of loading conditions formulas, and references shall be identified. All assumptions and conclusions shall be explained and cross-referencing shall be clear. When a computer program is used, the program shall be named and described. This description must be sufficient to verify the validity of methods, assumptions, theories, and formulas, but will not require source code documentation or otherwise which will compromise proprietary programs. Lastly, all review comments generated by the reviewers, annotated by the Corps of Engineers, and responded to by the A-E shall also be included as an appendix.

d) The specific contents of the Basis of Design vary depending on the stage of the submittal. Do not delete information from earlier stages of design in subsequent design submittals. The original Basis of Design shall be loosely assembled while the copies shall be bound. If more than one volume is used, all volumes shall be numbered sequentially and assembled under a cover page indicating the volume and total number of volumes for the project. All material shall be 8-1/2" X 11" standard page size. Larger material, folded to 8-1/2" X 11" may be utilized when reduction is not feasible. This applies to all drawings, published data or automatic data processing printouts that must be included in the Basis of Design. Both side margins shall be 3/4" minimum to permit loose side bindings and head-to-head printing.

4.21. **BID SCHEDULE:** The bid schedule shall cover all work in this Statement of Work and contain sufficient details to provide a basis for bidding by contractors to construct the project. See the CESPCK Publication, "Cost Estimating Guide, Fair and Reasonable Contract Estimate for Civil Works", for instructions on preparing the bid schedule. Include line items which can easily be divided into two (2) separate cost accounts: flood control, and non-Federal relocations and betterments described in the previous paragraph.

4.22. **ECIFP:** The Engineering Considerations and Instructions for Field Personnel (ECIFP) shall be a report including design concepts, assumptions, details and construction personnel that are essential for the successful completion of a project. The ECIFP is to be presented in outline form in the 90% submittal and bound separately for the 100% submittals.

4.23. **DESIGN SUBMITTAL REQUIREMENTS:** The A-E shall produce the number of copies for each plans and specifications submittal, and deliver them as specified below:

a) 60% Submittal - The A-E's reproduction responsibility for the 60% Design submittal shall be as follows:



<u>ITEM</u>	<u>Corps</u>	<u>DWR</u>	<u>SAFCA</u>
Drawings (half size)	10	3	2
Specifications	10	3	2
Basis of Design	10	3	2

b) ~~90% Submittal~~ The A-E's reproduction responsibility for the ~~90% Design~~ submittal shall be as follows:

<del>ITEM</del>	<del>Corps</del>	<del>DWR</del>	<del>SAFCA</del>
<del>Drawings (half size)</del>	<del>10</del>	<del>3</del>	<del>2</del>
<del>Specifications</del>	<del>10</del>	<del>3</del>	<del>2</del>
<del>Basis of Design</del>	<del>10</del>	<del>3</del>	<del>2</del>
<del>ECIFP (Outline)</del>	<del>10</del>	<del>3</del>	<del>2</del>

e) ~~100% Submittal~~ The A-E's reproduction responsibility for the ~~Final Design~~ submittal shall be as follows:

<del>ITEM</del>	<del>Corps</del>	<del>DWR</del>	<del>SAFCA</del>
<del>Drawings (half size)</del>	<del>10</del>	<del>3</del>	<del>2</del>
<del>Specifications</del>	<del>10</del>	<del>3</del>	<del>2</del>
<del>Basis of Design</del>	<del>10</del>	<del>3</del>	<del>2</del>
<del>ECIFP</del>	<del>10</del>	<del>3</del>	<del>2</del>

d) ~~If a final back check review is deemed warranted by the Corps Project Manager due to the non-resolution of any comments, the A-E's reproduction responsibility for the back check review will be as follows for the affected drawings or documents:~~

<del>ITEM</del>	<del>Corps</del>
<del>Drawings (half size)</del>	<del>10</del>
<del>Specifications</del>	<del>10</del>
<del>Basis of Design</del>	<del>10</del>
<del>ECIFP</del>	<del>10</del>

4.24. DELIVERY REQUIREMENTS: The 60% Design, the 90% Design, and 100% Submittal packages shall be delivered directly to the Corps, Department of Water Resources, and SAFCA. The addresses for the Department of Water Resources and SAFCA are as follows:

Department of Water Resources  
 Attn: Mr. Ke Zhong, PE and Kent Zenobia, PE  
 Department of Water Resources, Suite 140  
 3310 El Camino Avenue  
 Sacramento, CA 95821

SAFCA  
 Attn: Mr. Pete Ghelfi  
 1007 Seventh Street  
 Sacramento, California 95814-3407

4.25. REPORTS REPRODUCTION: Draft and Final Reports shall be provided in bound reports with compact disks containing electronic copies of the reports. The A-E shall submit the number of copies listed below for each of the Draft, and Final versions. The Corps will provide sample formats for environmental reports see Section 7 for hard copies of reports.

<u>Product</u>	<u>Copies</u>
Quality Control Plan	5

A submittal letter shall accompany all Items of Work.

4.26. SUPPLEMENTAL INFORMATION: The A-E shall return copies of all documents provided by the Government. All original data, reports, notes, maps, photos, negatives, and other work products developed as part of this Statement of Work shall be provided to the Government upon completion of this work.

4.27. ELECTRONIC MEDIA: All final text files generated under this task order shall be furnished to the Sacramento District in Adobe Portable Document Format (PDF), with a working copy in Microsoft Office MS Word. Drawing files shall be submitted in MicroStation format, in accordance with the current version of the Tri-Service CADD/GIS Technology Center's Architectural, Engineering and Construction (A-E/C) CADD Standards available at <http://cbbs.spk.usace.army.mil/cadd.html>

The Government will only accept final documents found to be fully operational without conversion or reformatting.

A transmittal letter containing, as a minimum, the following information shall accompany each digital media submittal to the Government. The transmittal letter shall be dated and signed by the appropriate contractor's representative. The transmittal letter shall be provided to the Government on 21.59 cm X 27.94 cm 8-1/2" X 11") paper along with a digital copy of the transmittal letter in a MS Office Word 2000format. The transmittal letter shall contain the following:

- (a) The information included on the external label of each media unit (e.g., disk, tape), along with the total number being delivered,
- (b) A list of the names and descriptions of the files on each one shall be in the transmittal letter
- (c) Brief instructions for transferring the files from the media to the Government's target system such as "Geographic Information System (GIS)".
- (d) A statement indicating that the A-E shall retain a copy of all delivered digital media (with all files included) for at least one year and, during this period of time, shall provide up to two (2) additional copies of each to the Government, if requested, at no additional cost.

## 5. SUBMITTAL SCHEDULE

5.1. WORK SCHEDULE: The following work schedule covers the work in this SOW.

<u>Task</u>	<u>Task Completion (Calendar Days)</u>
Task 1 - Quality Control Plan	7 days after Contract Award
Task 2 – Meetings - <i>Written Action Items</i>	<del>120</del> 2 days after <del>Contract Award</del> each meeting.
Task 3 - Civil Designs	<del>60 days after Contract Award</del> <i>Draft: 30 days after receipt of data from the Corps (est. within 30 days from award of Task Order) <del>Contract Award.</del></i> <i>Final: 15 days after receipt of all review comments.</i>
Task 4 - 60% Submittal	<del>120 days after Contract Award</del> <i>Draft: 90 days after receipt of geotechnical design documents (est. within 120 days from award of Task Order).</i> <i>Final: 30 days after receipt of all review comments.</i>
<del>Task 5 – Field Explorations and Laboratory Testing</del>	<del>90 days after Contract Award</del> <i>Plan &amp; Schedule: 7 days after contract award.</i>

~~Draft Report: 30 days after completion of all field explorations and lab testing.~~

~~Final Report: 15 days after receipt of all review comments.~~

~~Option 1—Option 90% Submittal~~

~~60 days after Exercise of Option and receipt of 60% review comments and receipt of 90% geotechnical design documents.~~

~~Option 2—Option 100% Submittal~~

~~30 days after Exercise of Option and receipt of 90% review comments and receipt of 100% geotechnical design documents.~~

5.2. REVIEW SCHEDULE: The following reviews of submittals will be performed by the Corps and sponsors:

- |  |   |
|--|---|
| a) Draft Civil Designs                                   | <del>2 weeks</del> 15 days after receipt of submittal |
| b) 60% <i>Draft</i> Submittal Review                     | <del>2 weeks</del> 30 days after receipt of submittal |
| c) <del>90% Submittal Review if needed</del>             | <del>2 weeks</del> 15 days after receipt of submittal |
| d) <del>100% Submittal Back check Review if needed</del> | 1 week 7 days after receipt of submittal              |

## **6. OVERALL PERIOD OF PERFORMANCE**

All work and services shall be completed within ~~240~~ 270 calendar days after the effective date of the contract action.

## **7. OPTION STATEMENT**

### **7.1. Option 1**

~~7.1.1. The Government may exercise the contract options at any time within 120-337 calendar days from the date of this Task Order at the stated option price.~~

~~7.1.2. All work and services related to this contract option shall be completed within 60-75 calendar days after the option is exercised.~~

### **7.2. Option 2**

~~7.2.1. The Government may exercise the contract options at any time within 180-397 calendar days from the date of this Task Order at the stated option price.~~

~~7.2.2. All work and services related to this contract option shall be completed within 30-60 calendar days after the option is exercised.~~

## **8. AUTHORITIES STATEMENT**

No person other than the Government Contracting Officer has the authority to make any changes to this contract action that impact cost or schedule. Authority from the Contracting Officer to the contractor to make changes that impact cost or schedule will be in the form of an official, signed modification.

## **9. PAYMENTS STATEMENT**

The contractor shall submit invoices on ENG Form 93, available from A-E Administration Section. Separate ENG Form 93 must be submitted for each task order. Multiple task orders or contracts may not be invoiced on the same ENG Form 93. Invoices shall be submitted no more often than monthly. Each line item on an invoice shall give a detailed description of the work item, its negotiated amount, percentage of work completed, and earnings to date.

Upon receipt, the Corps Project Manager will certify that the requested are appropriate before payment will be made. The completed ENG Form 93 shall be mailed to the following address:

District Commander  
Sacramento District U.S. Army Corps of Engineers  
ATTN: CESP-K-ED-SA, A-E Administration Section  
1325 J Street  
Sacramento, California 94814-2922

\_\_\_\_\_/s/\_\_\_\_\_  
Mark Boedtker  
Engineering Technical Lead  
Sacramento District

\_\_\_\_\_/s/\_\_\_\_\_  
Dan Tibbitts  
Project Manager  
Sacramento District

Attachment 1

Attachment 2

Attachment 3

## Section F - Deliveries or Performance

## DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
0001	POP 30-SEP-2009 TO 27-JUN-2010	N/A	USACE SACRAMENTO DISTRICT . ATTN: CONTRACTING DIVISION 1325 J STREET-ROOM 878 SACRAMENTO CA 95814-2922 FOB: Destination	W91238
000101	N/A	N/A	N/A	N/A
000102	N/A	N/A	N/A	N/A

Section G - Contract Administration Data

ACCOUNTING AND APPROPRIATION DATA

AA: 96 NA X 3122.0000 L2 X 08 2451 075522 96042 3230 F5LH75

AMOUNT: \$1,000,000.00

CIN W62N6M92722037000101: \$1,000,000.00

AB: 96 NA X 8862.0000 L2 X 08 2451 075522 96042 3230 7C16J7

AMOUNT: \$36,042.16










CIN W62N6M92722037000102: \$36,042.16

**APPENDIX B  
PROJECT SCHEDULE**

## AMERICAN RIVER COMMON FEATURES (ARCF) NATOMAS BASIN Levee Improvements (Civil Design)

ID	Task Name	Duration	Start	Finish	Septe	Octobe	Novem	Decem	Januar	Febru	March	April	May	June	July
1	<b>NTP</b>	0 days	Fri 10/2/09	Fri 10/2/09		10/2									
2	HDR Prepares Quality Control Plan (7CDs)	6 days	Fri 10/2/09	Fri 10/9/09											
3	<b>HDR Submits Quality Control Plan</b>	0 days	Fri 10/9/09	Fri 10/9/09		10/9									
4	SPK Provides Cross Sections and Tables of Alternatives (30 CD)	22 days	Fri 10/2/09	Mon 11/2/09											
5	HDR Prepares Draft Civil Designs (30 CD)	22 days	Mon 11/2/09	Tue 12/1/09											
6	<b>HDR Submits All Quantities &amp; Estimates</b>	0 days	Tue 12/1/09	Tue 12/1/09											
7	Government Review of Draft Civil Designs (15 CD)	11 days	Wed 12/2/09	Wed 12/16/09											
8	<b>HDR Submits Final Civil Designs (15 CD)</b>	11 days	Thu 12/17/09	Thu 12/31/09											
9	SPK Provides Geotechnical Design Docs (120 CD Fm NTP)	86 days	Fri 10/2/09	Fri 1/29/10											
10	HDR Prepares 60% Plans, Specs, and BDR (90 CD)	65 days	Mon 2/1/10	Fri 4/30/10											
11	<b>HDR Submits Draft 60% Design</b>	0 days	Fri 4/30/10	Fri 4/30/10											
12	Government Review (30 CD)	21 days	Mon 5/3/10	Mon 5/31/10											
13	HDR Prepares Final 60% Plans, Specs, and BDR (30 CD)	21 days	Tue 6/1/10	Tue 6/29/10											
14	<b>HDR Submits Final 60% Civil Design</b>	0 days	Tue 6/29/10	Tue 6/29/10											6/29

Project: ARCF-Natomas\_Sch-100709  
Date: Mon 10/19/09

Task		Milestone		External Tasks	
Split		Summary		External Milestone	
Progress		Project Summary		Deadline	




**APPENDIX C**  
**PROJECT AWARD / BUDGET**



American River Commons Features (ARCF), Natomas Basin  
 Contract No. W91238-09-D-0003  
 PROPOSED LABOR HOURS (Negotiated Labor Rates)

	Principal	Contract Manager	Program for Quality	Task Order Manager	Civil Engr Senior	Civil Engr Staff	Geotech Engr Senior	Geotech Engr Staff	Struct Engr Senior	Struct Engr Staff	Hydraulic Engr Senior	Hydraulic Engr Staff	Electrical Engr. Senior	Road/Bridge Engr Senior	Road/Bridge Engr Staff	Cost Engineer	CADD Senior	CADD Staff	Admin Senior	Admin Staff	Clerical	Task Totals	
	\$ 94.00	\$ 74.79	\$ 74.00	\$ 74.78	\$ 68.50	\$ 59.74	\$ 71.46	\$ 58.29	\$ 71.30	\$ 53.04	\$ 71.00	\$ 57.02	\$ 68.30	\$ 74.30	\$ 58.00	\$ 56.00	\$ 45.85	\$ 39.39	\$ 37.66	\$ 28.18	\$ 21.50		
<b>Task 0</b>																							
Project Management																							
0.1 Project Management																			32.0	40.0		72.0	
0.2 Monthly Status Reports				48.0																24.0	12.0	84.0	
0.3 Maintain Project Files				16.0																96.0	64.0	176.0	
Subtotal Direct Labor Hours	0.0	0.0	0.0	64.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.0	160.0	76.0	332.0	
Subtotal Direct Labor Costs	\$ -	\$ -	\$ -	\$ 4,785.92	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,205.12	\$ 4,508.80	\$ 1,634.00	\$ 12,133.84
<b>Task 1</b>																							
Quality Control Plan																							
1.1 Prepare Quality Control Plan (QCP)		2.0		12.0																6.0	2.0	22.0	
1.2 Independent Technical Review (ITR)	80.0	40.0	160.0	40.0	80.0		40.0		40.0				32.0	40.0		24.0						576.0	
1.3 Reviews (DrChecks system)																						0.0	
Respond to / Incorporate USACEReview Comments	8.0	32.0	16.0	40.0	48.0	20.0	20.0						16.0	8.0	16.0	8.0				40.0	32.0	304.0	
Subtotal Direct Labor Hours	88.0	74.0	176.0	92.0	128.0	20.0	60.0	0.0	40.0	0.0	0.0	0.0	48.0	48.0	16.0	32.0	0.0	0.0	0.0	46.0	34.0	902.0	
Subtotal Direct Labor Costs	\$ 8,272.00	\$ 5,534.46	\$ 13,024.00	\$ 6,879.76	\$ 8,768.00	\$ 1,194.80	\$ 4,287.60	\$ -	\$ 2,852.00	\$ -	\$ -	\$ -	\$ 3,278.40	\$ 3,566.40	\$ 928.00	\$ 1,792.00	\$ -	\$ -	\$ -	\$ 1,296.28	\$ 731.00	\$ 62,404.70	
<b>Task 2</b>																							
Meetings																							
2.1 PDT Meetings (up to 20)		20.0		80.0			20.0								16.0							136.0	
2.2 Up to 30 Local Sponsor Meetings (SMUD, Caltrans, City/County of Sacramento, SAFCA)				40.0	20.0								20.0	40.0	20.0						24.0	16.0	180.0
Subtotal Direct Labor Hours	0.0	20.0	0.0	120.0	20.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	20.0	56.0	20.0	0.0	0.0	0.0	0.0	24.0	16.0	316.0	
Subtotal Direct Labor Costs	\$ -	\$ 1,495.80	\$ -	\$ 8,973.60	\$ 1,370.00	\$ -	\$ 1,429.20	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,366.00	\$ 4,160.80	\$ 1,160.00	\$ -	\$ -	\$ -	\$ -	\$ 676.32	\$ 344.00	\$ 20,975.72	
<b>Task 3</b>																							
Civil Design in Support of the Corps Feasibility Studies Reaches A, B, C and I (approx. 22 miles)																							
3.1 Project Management	2.0	8.0		64.0																		74.0	
3.2 Review Corps Alternatives				8.0	8.0	8.0	4.0	16.0														44.0	
3.3 Develop Draft X-Sect and Plan View Drawings (15 plan views and 30 x-sections)				12.0	32.0	48.0	4.0	8.0						8.0	16.0		176.0	240.0				544.0	
3.3.1 Develop Draft Quantities and Cost Estimates	4.0			8.0	32.0	40.0										40.0						124.0	
3.4 Finalize X-Sect and Plan View Drawings (15 plan views and 30 x-sections)				8.0	8.0	32.0	4.0	8.0						4.0	8.0		16.0	64.0				152.0	
3.4.1 Finalize Quantities and Cost Estimates	4.0			4.0	8.0	24.0								4.0	6.0	24.0			4.0	16.0	16.0	110.0	
3.5 Synthesize Previously Planned and Constructed Work				8.0	12.0	112.0													8.0	24.0	16.0	180.0	
Subtotal Direct Labor Hours	10.0	8.0	0.0	112.0	100.0	264.0	12.0	32.0	0.0	0.0	0.0	0.0	0.0	16.0	30.0	64.0	192.0	304.0	12.0	40.0	32.0	1228.0	
Subtotal Direct Labor Costs	\$ 940.00	\$ 598.32	\$ -	\$ 8,375.36	\$ 6,850.00	\$ 15,771.36	\$ 857.52	\$ 1,865.28	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,188.80	\$ 1,740.00	\$ 3,584.00	\$ 8,803.20	\$ 11,974.56	\$ 451.92	\$ 1,127.20	\$ 688.00	\$ 64,815.52	
<b>Task 4</b>																							
Phase 4B 60% Submittal SREL-4 and ARNL																							
4.1 Project Management	2.0	24.0		176.0																		202.0	
4.2 60% Design, Engineering and Drawings				100.0	160.0	200.0	80.0	80.0	80.0	120.0	20.0	40.0	120.0				400.0	600.0		40.0	16.0	2056.0	
4.3 Roadway and Ramp Design				20.0	40.0	80.0							80.0	120.0	240.0					8.0	8.0	596.0	
4.4 Technical Specifications (includes submittal registry and bid schedule)				20.0	40.0	80.0	16.0	16.0	8.0	8.0	4.0	4.0	16.0	40.0						8.0	8.0	268.0	
4.5 Basis of Design Report	4.0	4.0		8.0	8.0	16.0	8.0	16.0	4.0	16.0	4.0	8.0	8.0	4.0	8.0					8.0	8.0	132.0	
4.6 Corrected 60% Submittal (Drawings, Specifications and Basis of Design)	2.0	4.0		8.0	16.0	32.0	4.0	8.0	4.0	16.0		8.0	12.0	8.0	24.0		20.0	80.0		4.0	4.0	254.0	
Subtotal Direct Labor Hours	8.0	32.0	0.0	332.0	264.0	408.0	108.0	120.0	96.0	160.0	28.0	60.0	236.0	172.0	272.0	0.0	420.0	680.0	0.0	68.0	44.0	3508.0	
Subtotal Direct Labor Costs	\$ 752.00	\$ 2,393.28	\$ -	\$ 24,826.96	\$ 18,084.00	\$ 24,373.92	\$ 7,717.68	\$ 6,994.80	\$ 6,844.80	\$ 8,486.40	\$ 1,988.00	\$ 3,421.20	\$ 16,118.80	\$ 12,779.60	\$ 15,776.00	\$ -	\$ 19,257.00	\$ 26,785.20	\$ -	\$ 1,916.24	\$ 946.00	\$ 199,461.88	

 American River Commons Features (ARCF), Natomas Basin Contract No. W91238-09-D-0003 PROPOSED LABOR HOURS (Negotiated Labor Rates)	Principal	Contract Manager	Program for Quality	Task Order Manager	Civil Engr Senior	Civil Engr Staff	Geotech Engr Senior	Geotech Engr Staff	Struct Engr Senior	Struct Engr Staff	Hydraulic Engr Senior	Hydraulic Engr Staff	Electrical Engr. Senior	Road/Bridge Engr Senior	Road/Bridge Engr Staff	Cost Engineer	CADD Senior	CADD Staff	Admin Senior	Admin Staff	Clerical	Task Totals
		\$ 94.00	\$ 74.79	\$ 74.00	\$ 74.78	\$ 68.50	\$ 59.74	\$ 71.46	\$ 58.29	\$ 71.30	\$ 53.04	\$ 71.00	\$ 57.02	\$ 68.30	\$ 74.30	\$ 58.00	\$ 56.00	\$ 45.85	\$ 39.39	\$ 37.66	\$ 28.18	\$ 21.50
Total Direct Labor Hours	106.0	134.0	176.0	720.0	512.0	692.0	200.0	152.0	136.0	160.0	28.0	60.0	304.0	292.0	338.0	96.0	612.0	984.0	44.0	338.0	202.0	6286.0
Total Direct Labor Cost	\$ 9,964.00	\$ 10,021.86	\$ 13,024.00	\$ 53,841.60	\$ 35,072.00	\$ 41,340.08	\$ 14,292.00	\$ 8,860.08	\$ 9,696.80	\$ 8,486.40	\$ 1,988.00	\$ 3,421.20	\$ 20,763.20	\$ 21,695.60	\$ 19,604.00	\$ 5,376.00	\$ 28,060.20	\$ 38,759.76	\$ 1,657.04	\$ 9,524.84	\$ 4,343.00	\$ 359,791.66



# Quality Control Plan

**American River Common Features,  
Natomas Basin Reach I, Contract 2,  
Design and Engineering Services During  
Construction**

Contract No. W912P7-16-D-0003

Task Order W9123821F0019

*Sacramento County, CA*  
February 11, 2021

Submitted to:  
U.S. Army Corps of Engineers  
Sacramento District

Submitted by:  
HDR Engineering, Inc.  
2365 Iron Point Road, Suite 300  
Folsom, CA 92630

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## Appendices

Appendix A – Project Award, Budget and Statement of Work

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# 1 PROJECT NAME

American River Common Features, Natomas Basin Reach I, Contract 2,  
Design and Engineering Services During Construction, Sacramento County

# 2 CLIENT

U.S. Army Corps of Engineers, Sacramento District  
(USACE SPK) Roxana Ahola, Contract Specialist

Stacey Barksdale,  
Contract Specialist Jin  
Kim, Contracting  
Officer

# 3 INTRODUCTION AND OBJECTIVE

HDR was awarded Task Order (TO) No. W9123821F0019 under Contract No. W912P7-16-D-0003 on January 29, 2021. The Statement of Work (SOW), dated October 20, 2020. This TO requires the A-E firm to develop and execute a Quality Control Plan (QCP) that describes planned quality control (QC) and independent technical review (ITR) efforts on submittals, review schedules and milestones, and TO specific review personnel. The A- E must submit and receive approval of the QCP from the Government before proceeding with the effort under this statement of work.

The objective of this QCP is to define the key members of the project delivery team (PDT) and internal ITR team, project deliverables and review procedures for these deliverables, and technical guidance to be followed. The purpose of this QCP is to provide overview guidance information for the project team involved with the TO to verify a common understanding of the delivery process and procedures necessary to deliver quality professional engineering services and products by HDR to USACE SPK.



## 4 BACKGROUND AND PROJECT DESCRIPTION

The American River Common Features, Natomas Basin Project was authorized by the Water Resources Reform Development Act of 2014. The selected plan described in the 2010 Post-Authorization Change Report divides the Natomas Basin into nine reaches, A through I. This SOW covers Reach I, Contract 2, which is located along the American River.

Reach I, Contract 2 is a continuation of Contract 1 which provided cutoff walls for seepage mitigation in the levees for the entire reach of Natomas Reach I, extending from Northgate Boulevard to Gateway Oaks Drive along the American River levee. Contract 2 includes flattening the landside slope to 2H:1V, relocation of utilities, and installing a 12- foot maintenance road at the landside toe. Required tree removal will be done under a separate contract.

## 5 STATEMENT OF WORK

This Statement of Work (SOW) includes supporting USACE SPK during the ongoing construction effort, in providing engineering services during construction of the Natomas Reach I, Contract 2.

## 6 PROJECT REQUIREMENTS

The scope of services to be performed under this TO is presented in Appendix A. As outlined in the SOW, the services are to be provided under the following tasks:

- Task 1 – Prepare Existing Design Package for Procurement
- Task 2 – Coordination, Meetings, and Project Management
- Task 3 – Engineering Support Services During Construction
- Optional Task 1 – As-Built Drawing Preparation
- Optional Task 2 Additional A-E Services during Construction
- Optional Task 3 Additional A-E Services during Construction
- Optional Task 4 Additional A-E Services during Construction
- Optional Task 5 Additional A-E Services during Construction



## SUBMITTALS AND DELIVERY

The following schedule covers design work shown as Task 1 and Task 2:

Task	Task Completion (calendar days after task order award)
<b>Task 1:</b> <b>Prepare Existing Design Package for Procurement</b> Quality Control Plan Schedule 95% Design Submittal 100% Design Submittal Final Design Submittal	15 Days 25 Days 75 Days 120 Days 150 Days
<b>Task 2 Coordination, Meetings, and Project Management</b> Outside Agency Communications Design Progress Meeting Notes	Three (3) days after Discussion Five (5) days after Meeting
<b>Task 3: Engineering Support Services During Construction</b>	800 Days

# 7 PROJECT QUALITY CONTROL OBJECTIVES / PROCEDURES

## 7.1 Quality Control Objectives

QC for this project will be undertaken following the procedures outlined below. The deliverables discussed above will be reviewed for conformance with the appropriate guidance and/or reference to verify the QC objectives are met.

## 7.2 Quality Control Procedures

Before submittal of a deliverable (Design submittal, RFI from Contractor, Construction Submittal, etc.) to USACE SPK, the production document and supporting materials will undergo internal review. Such reviews will be performed by an individual at or above the technical level of the person performing the work. The reviewer will review components of a deliverable for technical clarity and accuracy and to verify that the content is consistent with the project requirements and technical criteria specified in the project documents (Specifications, Design Document Report (DDR), ECIFP, MII Cost Estimate and Improvement Plans). Following completion of the review, the reviewer will discuss their comments with the person performing the work to convey a clear understanding of required changes, modifications or clarifications to the project deliverable.

Reviews of deliverables shall be completed to help verify, as a minimum:

- Compliance with standard engineering and professional practices
- Compliance with project documents
- Appropriateness of data used, including level of detail
- Accuracy of calculations
- Consistency with standards of practice
- Consistency, accuracy, comprehensiveness, and reasonableness of results.

QC documentation will be maintained in the project file for review by USACE SPK. The Final QCC will verify that procedures outlined in this QCP have been performed and that concerns identified during internal and external QC review have been resolved.

## 8 GUIDANCE / STANDARDS / TECHNICAL CRITERIA

Appropriate provisions of the following Guidance, Standards and Criteria shall be followed during preparation of the project documents required to be developed under the SOW for this project:

- ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug 1999.
- ER 1110-1-12, Engineering and Design Quality Management, 21 Jul 2006.
- ERDC-ITL TR-12-6 A/E/C CAD Standard Release 5.0 Standard and the ERDC ITL TR-12-1 CAD Drafting Standard.
- ER 1110-1-8155, Specification Standards,
- ER 1110-21302, Cost Estimating Standards.
- Architect-Engineer Guide REFP13L0: AE Guide General Information
- Architect-Engineer Guide REFP21L0: AE Guide 35% Submittals
- Architect-Engineer Guide REFP22L0: AE Guide 65% Submittals
- Architect-Engineer Guide REFP23L0: AE Guide 100% Submittals
- Architect-Engineer Guide REFP24L0: AE Guide RFP Submittals
- Secretary of the Interior's Professional Qualifications Standards for



Archeology, see website address [https://www.nps.gov/history/local-law/arch\\_stnds\\_9.htm](https://www.nps.gov/history/local-law/arch_stnds_9.htm)

## 9 REFERENCE DOCUMENTS

The following are reference documents to be used in the execution of the work associated with this project:

- American River Common Features Natomas Basin – Riverside Canal Phase 2 Relocation Project and Reach B Project; Division 00 and 01 Technical Specifications (Volume 1 of 6)
- American River Common Features Natomas Basin – Reach I contract 1, Improvement plans and Geotechnical Basis of Design Report
- American River Common Features Natomas Basin – Riverside Canal Phase 2 Relocation Project and Reach B Project; Division 02, 03, 05, 07, 09, 10, 13, 26, 31, 32, 33, 35, and 40 Technical Specifications (Volume 3 of 6)
- American River Common Features Natomas Basin – Reach B Improvement Plans STA 650+50 to 772+50 (Volume 5 of 6)
- Architect-Engineer Guide (attached as Appendix B):
  - o REFP13LO (AE Guide general info)

## 10 PROJECT DELIVERY AND ITR TEAMS

Overall project delivery efforts will be managed by the HDR Engineering, Inc (HDR) Task Order Manager, Kenric Jameson.

**Contact information for these members of the Project Delivery Team (PDT) is presented below:**

Name	Project Role	Telephone	E-mail
Kenric Jameson	Project Manager	(916) 679.8748	<a href="mailto:Kenric.Jameson@hdrinc.com">Kenric.Jameson@hdrinc.com</a>
Jason Nettleton	Civil Lead	(916) 817-4865	<a href="mailto:Jason.Nettleton@hdrinc.com">Jason.Nettleton@hdrinc.com</a>
Mary Mahoney	Project Coordinator	(916) 817-4823	<a href="mailto:Mary.Mahoney@hdrinc.com">Mary.Mahoney@hdrinc.com</a>
Seth Overby	Engineering support	(916) 817-4919	<a href="mailto:Seth.Overby@hdrinc.com">Seth.Overby@hdrinc.com</a>
Debit Karki	Transportation	(916) 679-8714	<a href="mailto:Debit.Karki@hdrinc.com">Debit.Karki@hdrinc.com</a>
Alicia Jackson	CADD support	(916) 817-4949	<a href="mailto:Alicia.Jackson@hdrinc.com">Alicia.Jackson@hdrinc.com</a>



**Contact information for the senior ITR Team is presented below:**

Name	Project Role	Telephone	E-mail
Daniel Jabbour	Technical Advisor	(916) 817-4943	<a href="mailto:Daniel.Jabbour@hdrinc.com">Daniel.Jabbour@hdrinc.com</a>
Kevin Fellows	Senior Engineer	(916) 817-4792	<a href="mailto:Kevin.Fellows@hdrinc.com">Kevin.Fellows@hdrinc.com</a>
Henry Luu	Senior Engineer	(916) 679-8857	<a href="mailto:Henry.Luu@hdrinc.com">Henry.Luu@hdrinc.com</a>

## 11 PROJECT SCHEDULE AND MILESTONES

The project schedule and milestones that were included in the SOW are presented below. As indicated in SOW, a more detailed project schedule will be developed after the Kickoff meeting

- Task 1 – Engineering Support Services During Construction
- Optional Task 1 – Additional Engineering Support Services During Construction
- Optional Task 2 – As-Builts Drawing Preparation

## 12 PROJECT BUDGET

The TO award documentation (Appendix A) presents the lump sum contract fee negotiated for this project. This document also contains the distribution of the lump sum fee amongst the primary Tasks cited in the SOW.

## 13 TRANSFER OF DATA

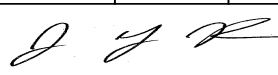
Maintaining the schedule for this project will hinge upon the timely transfer of construction data from USACE SPK to HDR to support the work efforts required. Additionally, it will be important that HDR and USACE SPK maintain a mutually cooperative and timely handling of production documents for review / comment / response focusing on the established schedule dates. The DrChecks system will be used to document the review comment / response process for this project.



## **APPENDIX A**

### **Project Award, Budget and Statement of Work**

# ORDER FOR SUPPLIES OR SERVICES

1. CONTRACT/PURCH. ORDER/ AGREEMENT NO. W912P7-16-D-0003		2. DELIVERY ORDER/ CALL NO. W9123821F0019		3. DATE OF ORDER/ CALL (YYYYMMDD) 2021 Jan 29		4. REQ./ PURCH. REQUEST NO. W62N6M10071154		5. PRIORITY							
6. ISSUED BY USACE SACRAMENTO DISTRICT ATTN: CONTRACTING DIVISION 1325 J STREET SACRAMENTO CA 95814-2922			CODE W91238		7. ADMINISTERED BY (if other than 6) <b>SEE ITEM 6</b>			CODE							
9. CONTRACTOR NAME AND ADDRESS HDR ENGINEERING, INC. 2365 IRON POINT RD STE 300 FOLSOM CA 95630-8712			CODE 4FZ86		FACILITY		10. DELIVER TO FOB POINT BY (Date) (YYYYMMDD) <b>SEE SCHEDULE</b>		11. MARK IF BUSINESS IS <input type="checkbox"/> SMALL <input type="checkbox"/> SMALL DISADVANTAGED <input type="checkbox"/> WOMEN-OWNED						
14. SHIP TO US ARMY CORPS OF ENGINEERS, SACRAMENTO CONTRACTING DIVISION 1325 J STREET SACRAMENTO CA 95814-2922			CODE W91238		15. PAYMENT WILL BE MADE BY USACE FINANCE CENTER CIVIL FUNDED CONTRACTS 5722 INTEGRITY DRIVE ATTN: CEFC-FP MILLINGTON TN 38054-5005			12. DISCOUNT TERMS Net 30 Days		13. MAIL INVOICES TO THE ADDRESS IN BLOCK See SOW "Payments Statement"					
16. TYPE OF ORDER		DELIVERY/ CALL		X		This delivery order/call is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract.									
		PURCHASE				Reference your quote dated Furnish the following on terms specified herein. REF:									
ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.															
NAME OF CONTRACTOR				SIGNATURE				TYPED NAME AND TITLE				DATE SIGNED (YYYYMMDD)			
<input type="checkbox"/> If this box is marked, supplier must sign Acceptance and return the following number of copies:															
17. ACCOUNTING AND APPROPRIATION DATA/ LOCAL USE															
<b>See Schedule</b>															
18. ITEM NO.		19. SCHEDULE OF SUPPLIES/ SERVICES				20. QUANTITY ORDERED/ ACCEPTED*		21. UNIT		22. UNIT PRICE		23. AMOUNT			
		<b>SEE SCHEDULE</b>													
* If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.				24. UNITED STATES OF AMERICA TEL: 916-557-7957 EMAIL: jin.kim@usace.army.mil BY: JIN KIM						25. TOTAL		\$494,662.70			
27a. QUANTITY IN COLUMN 20 HAS BEEN										26. DIFFERENCES					
<input type="checkbox"/> INSPECTED <input type="checkbox"/> RECEIVED <input type="checkbox"/> ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED															
b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE						c. DATE (YYYYMMDD)		d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE							
e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE						28. SHIP NO.		29. DO VOUCHER NO.		30. INITIALS					
f. TELEPHONE NUMBER			g. E-MAIL ADDRESS			<input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL		32. PAID BY		33. AMOUNT VERIFIED CORRECT FOR					
36. I certify this account is correct and proper for payment.															
a. DATE (YYYYMMDD)		b. SIGNATURE AND TITLE OF CERTIFYING OFFICER													
						31. PAYMENT				34. CHECK NUMBER					
						<input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL				35. BILL OF LADING NO.					
37. RECEIVED AT		38. RECEIVED BY		39. DATE RECEIVED (YYYYMMDD)		40. TOTAL CONTAINERS		41. S/R ACCOUNT NO.		42. S/R VOUCHER NO.					

Section B - Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0001	Tasks 1 through 3 FFP	494,662.70	Job	\$1.00	\$494,662.70

PROJECT TITLE AND LOCATION: American River Common Features, Natomas Basin Reach I, Contract 2, Design and Engineering Services During Construction, Sacramento County, California.

The A-E shall perform the following tasks, in accordance with the Statement of Work (SOW) dated 20 October 2020, incorporated herein.

The negotiated total amount for CLIN 0001 is \$494,662.70, broken out as follows:

Task 1 – Prepare Existing Design Package for Procurement	\$ 309,780.96
Task 2 – Coordination, Meetings, and Project Management	\$ 87,347.39
Task 3 – Engineering Support Services During Construction	\$ 97,534.35

All work and services shall be completed in accordance with the Submittal Schedule in the SOW, but not later than 800 calendar days from the effective date of this task order.

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M10071154  
PSC CD: C211

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MAX NET AMT	\$494,662.70
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ACRN AA CIN: W62N6M100711540001	\$494,662.70
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ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0002 OPTION	Optional Task 1 FFP	69,848.84	Job	\$1.00	\$69,848.84

PROJECT TITLE AND LOCATION: American River Common Features, Natomas Basin Reach I, Contract 2, Design and Engineering Services During Construction, Sacramento County, California.

The A-E shall perform Optional Task 1 (As-Built Drawing Preparation), in accordance with the SOW dated 20 October 2020, incorporated herein. The negotiated amount for Optional Task 1 is \$69,848.84.

The Government may exercise Optional Task 1 at the stated option price at any time within the period of performance of this task order. If exercised, all work and services shall be completed within 60 calendar days after the option is exercised.

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M10071154  
PSC CD: C211

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MAX NET AMT \$69,848.84

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0003 OPTION	Optional Task 2 FFP	12,792.47	Job	\$1.00	\$12,792.47

PROJECT TITLE AND LOCATION: American River Common Features, Natomas Basin Reach I, Contract 2, Design and Engineering Services During Construction, Sacramento County, California.

The A-E shall perform Optional Task 2 (Additional A-E Services during Construction), in accordance with the SOW dated 20 October 2020, incorporated herein.

The negotiated amount for Optional Task 2 is \$12,792.47.

The Government may exercise Optional Task 2 at the stated option price at any time within the period of performance of this task order. If exercised, all work and services shall be completed within 60 calendar days after the option is exercised.

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M10071154  
PSC CD: C211

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MAX NET AMT	\$12,792.47
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ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0004 OPTION	Optional Task 3 FFP	12,792.47	Job	\$1.00	\$12,792.47

PROJECT TITLE AND LOCATION: American River Common Features, Natomas Basin Reach I, Contract 2, Design and Engineering Services During Construction, Sacramento County, California.

The A-E shall perform Optional Task 3 (Additional A-E Services during Construction), in accordance with the SOW dated 20 October 2020, incorporated herein.

The negotiated amount for Optional Task 3 is \$12,792.47.

The Government may exercise Optional Task 3 at the stated option price at any time within the period of performance of this task order. If exercised, all work and services shall be completed within 60 calendar days after the option is exercised.

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M10071154  
PSC CD: C211

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MAX NET AMT	\$12,792.47
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ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0005 OPTION	Optional Task 4 FFP	12,792.47	Job	\$1.00	\$12,792.47

PROJECT TITLE AND LOCATION: American River Common Features, Natomas Basin Reach I, Contract 2, Design and Engineering Services During Construction, Sacramento County, California.

The A-E shall perform Optional Task 4 (Additional A-E Services during Construction), in accordance with the SOW dated 20 October 2020, incorporated herein.

The negotiated amount for Optional Task 4 is \$12,792.47.

The Government may exercise Optional Task 4 at the stated option price at any time within the period of performance of this task order. If exercised, all work and services shall be completed within 60 calendar days after the option is exercised.

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M10071154  
PSC CD: C211

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MAX NET AMT	\$12,792.47
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ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0006 OPTION	Optional Task 5 FFP	12,792.47	Job	\$1.00	\$12,792.47

PROJECT TITLE AND LOCATION: American River Common Features, Natomas Basin Reach I, Contract 2, Design and Engineering Services During Construction, Sacramento County, California.

The A-E shall perform Optional Task 5 (Additional A-E Services during Construction), in accordance with the SOW dated 20 October 2020, incorporated herein.

The negotiated amount for Optional Task 5 is \$12,792.47.

The Government may exercise Optional Task 5 at the stated option price at any time within the period of performance of this task order. If exercised, all work and services shall be completed within 60 calendar days after the option is exercised.

FOB: Destination  
PURCHASE REQUEST NUMBER: W62N6M10071154  
PSC CD: C211

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MAX NET AMT \$12,792.47

## Section C - Descriptions and Specifications

TO SOW

CESPK-EDD-A

Date: October 20, 2020

**STATEMENT OF WORK****1. PROJECT DATA**

1.1. PROJECT TITLE AND LOCATION: American River Common Features, Natomas Basin Reach I, Contract 2, Design and Engineering Services During Construction, Sacramento County, California.

1.2. PROJECT NUMBER: 458598

1.3. CONTRACT NO: W912P7-16-D-0003, Task Order **W91238-21-F-0019**

1.4. CONTRACTOR DATA (A-E NAME, ADDRESS, POC, E-MAIL ADDRESS):

HDR Engineering, Inc.  
2365 Iron Point Road, Suite 300  
Folsom, CA 95630  
Telephone: (916) 817-4700  
Contact: Mr. Sergio Jimenez, PE  
Contract Manager  
[Sergio.Jimenez@hdrinc.com](mailto:Sergio.Jimenez@hdrinc.com)

1.5. GOVERNMENT POINTS OF CONTACT (POC):

Technical Lead (Primary POC):  
Adam White  
CESPK-ED-DC  
U.S. Army Corps of Engineers  
1325 J Street  
Sacramento, California 95814-2922  
Telephone (916) 557-7074  
[Adam.V.White2@usace.army.mil](mailto:Adam.V.White2@usace.army.mil)

Project Manager:  
Stacy Pereyda-Hill  
CESPK-PM-C  
U.S. Army Corps of Engineers  
1325 J Street  
Sacramento, California 95814-2922  
Telephone (916) 557-6887  
[Stacy.L.Pereyda-Hill@usace.army.mil](mailto:Stacy.L.Pereyda-Hill@usace.army.mil)

1.6. AUTHORIZATION:

Water Resources Reform and Development Act (WRRDA) of 2014

1.7. SCOPE: Engineering design to prepare contract documents and provide Engineering During Construction (EDC) of the Natomas Reach I, Contract 2 project.

1.8. ESTIMATED CONSTRUCTION COST (ECC): \$5,269,304.00

1.9. DRAWING TITLES: American River Common Features, Natomas Basin, Reach I, Contract 2: STA 0+00 to 115+00 and Reach H – Sub-reach 1, Sacramento County, CA, prepared by HDR and Wood Rodgers.

1.10. CRITERIA:

- 1.10.1. ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug 1999.
- 1.10.2. ER 1110-1-12, Engineering and Design Quality Management, 21 Jul 2006.
- 1.10.3. ERDC-ITL TR-12-6 A/E/C CAD Standard Release 5.0 Standard and the ERDC ITL TR-12-1 CAD Drafting Standard.
- 1.10.4. ER 1110-1-8155, Specification Standards,
- 1.10.5. ER 1110-2-1302, Cost Estimating Standards.
- 1.10.6. Sacramento District Cost Estimate Requirements for Current Working Estimates (CWE)
- 1.10.7. Architect-Engineer Guide General Requirements: AE Guide General Information
- 1.10.8. Architect-Engineer Guide 35%: AE Guide 35% Submittals
- 1.10.9. Architect-Engineer Guide 65%: AE Guide 65% Submittals
- 1.10.10. Architect-Engineer Guide 100%: AE Guide 100% Submittals
- 1.10.11. Secretary of the Interior's Professional Qualifications Standards for Archeology, see website address [https://www.nps.gov/history/local-law/arch\\_stnds\\_9.htm](https://www.nps.gov/history/local-law/arch_stnds_9.htm)
- 1.10.12. California Code of Regulations, Title 23 (CCR Title 23).
- 1.10.13. California Department of Water Resources (DWR 2012), Urban Levee Design Criteria, (DWR Draft ULDC). May 2012.

1.11. GOVERNMENT FURNISHED DATA/MATERIAL: Not Applicable

## **2. BACKGROUND**

- 2.1. The American River Common Features, Natomas Basin Project was authorized by the Water Resources Reform Development Act of 2014. The selected plan described in the 2010 Post-Authorization Change Report divides the Natomas Basin into nine reaches, A through I. This SOW covers Reach I, Contract 2, which is located along the American River.
- 2.2. Reach I, Contract 2 is a continuation of Contract 1 which provided cutoff walls for seepage mitigation in the levees for the entire reach of Natomas Reach I, extending from Northgate Boulevard to Gateway Oaks Drive along the American River levee. Contract 2 includes flattening the landside slope to 2H:1V, relocation of utilities, and installing a 12-foot maintenance road at the landside toe. Required tree removal will be done under a separate contract.
- 2.3. The Contract 2 design package was completed by HDR in 2017. This task order will include conducting a new 95% design review and BCOES review, incorporating comments and updating the package, including cultural monitoring in contract specifications, and coordinating with the City of Sacramento and other utility companies for relocations. It also includes preparing amendments during advertisement, and EDC for reviewing submittals and responding to RFI's.

## **3. GENERAL REQUIREMENTS**

### 3.1. Quality Control:

- 3.1.1. General - The A-E is responsible for quality control (QC) of the technical products, reports, and submissions produced under this statement of work. The A-E's QC activities must consist primarily of:
  - A. Development and execution of a Quality Control Plan (QCP),
  - B. Internal QC including documentation, and
  - C. Quality Control Certification (QCC).

- D. The A-E must allocate any effort necessary for Quality Control (QC)/Quality Assurance (QA)/Independent Technical Review (ITR) outlined in the Quality Control Plan under each applicable tasks

Specific QC requirements are described below:

- 3.1.2. Quality Control Plan (QCP) - The A-E must develop a project specific QCP that describes planned QC efforts on submittals, review schedules and milestones, contains review checklists, and a list of task order specific QC and ITR review personnel on the review team. One plan must be submitted for all efforts. The A-E must describe the experience and background of the selected QC and ITR review personnel and provide justification for their selection on the review team for this project. The selected ITR personnel must not be actively involved in the analysis/design efforts or QC review performed under this statement of work. The A-E must submit a draft project specific QCP along with the proposal. The A-E must submit the final project specific QCP within five (5) calendar days of receipt of Government review comments. The A-E must receive approval of the QCP from the Government before proceeding with the effort under this statement of work.
- 3.1.3. A-E Quality Control (QC) and Independent Technical Review (ITR) – All work products in this statement of work must undergo necessary and appropriate QC and ITR by the A-E. Documentation of QC and ITR activities is required and must be submitted to the Government with each submittal as part of the Government’s Quality Assurance (QA) review activities. QC activities must be documented using either the Corps of Engineers DRChecks review management software or the A-E’s own internal standard practice. QC is an internal review process of work products, implementing basic quality control tools including, but not limited to: quality checks of calculations, analysis and assumptions; supervisory reviews; consistency reviews by design team; reviews for biddability, constructability and operability; and checks for adherence to requirements and criteria in this statement of work. The purpose of the ITR is to check for compliance with standard engineering and professional practices, adequacy of the scope of the associated document, appropriateness of data used, consistency, accuracy, comprehensiveness, and reasonableness of results. ITR activities must be fully documented using the Corps of Engineers DRChecks review management software.
- 3.1.4. The Government will perform the quality assurance (QA) and biddability, constructability, operability, environmental and sustainability (BCOES) reviews for each submittal. QA and BCOES activities will be fully documented using the Corps of Engineers DRChecks review management software, following a comment-response-resolution format. The A-E is responsible for reviewing and addressing all comments. QA documentation must be included with the QCC. The A-E must maintain a log of review comments, and review status of open comments at each design review meeting. The execution of the QCP will occur in subsequent tasks.
- 3.1.5. Quality Control Certification (QCC): The A-E must certify in a Quality Control Certification (QCC), accompanying the Final Submittal under this statement of work, that QC and ITR procedures outlined in the QCP have been performed and that all concerns identified during QC and ITR activities have been resolved. The Corps will provide a model QCC to the A-E. The QCC and ITR documentation must be included with each design submittal.
- 3.2. Progress Reporting:
- 3.2.1. The A-E must prepare progress/status reports to be delivered by tenth (10<sup>th</sup>) of each month. Progress reports must be brief (1-2 pages), describing work performed and a quantitative statement of overall work progress, including percentage of work accomplished on each task.
- 3.2.2. Include a description of the current problems that may impede performance of the tasks outlined in this SOW and suggest corrective actions. This report must also discuss work to be performed in the last and next two (2) weeks and must contain a current submittal schedule. Progress reports must be e-mailed to the COR and provided with every payment estimate (ENG 93).



### 3.3. Antiterrorism and Operation Security (AT/OPSEC) Requirements:

- 3.3.1. AT/OPSEC measures are required as follows. The A-E must allocate the effort for AT/OPSEC under each of the applicable tasks in the SOW.
- 3.3.2. Suspicious Activity Reporting Training (e.g. iWATCH, CorpsWatch, or See Something, Say Something). This standard language is for contractor employees with an area of performance within an Army controlled installation, facility or area. Proposed language: "The contractor and all associated sub-contractors must receive a brief/training (provided by the RA) on the local suspicious activity reporting program. This locally developed training will be used to inform employees of the types of behavior to watch for and instruct employees to report suspicious activity to the project manager, security representative or law enforcement entity. This training must be completed within 30 calendar days of contract award and within 30 calendar days of new employees commencing performance with the results reported to the COR NLT 5 calendar days after the completion of the training."
- 3.3.3. For Contracts that Require OPSEC Training. Per AR 530-1, (Operations Security) contractor employees must complete Level I OPSEC Training within 30 calendar days of contract award. Proposed language: "All new contractor employees will complete Level I OPSEC Training within 30 calendar days of their reporting for duty. Additionally, all contractor employees must complete annual OPSEC awareness training. The contractor must submit certificates of completion for each affected contractor and subcontractor employee, to the COR or to the contracting officer (if a COR is not assigned), within 5 calendar days after completion of training. OPSEC awareness training is available at the following websites: <https://www.iad.gov/ioss/> or <http://www.cdse.edu/catalog/operations-security.html>; or it can be provided by the RA OPSEC Officer in presentation form which will be documented via memorandum."
- 3.3.4. Pre-screen candidates using E-Verify Program. Proposed language: "The Contractor must pre-screen Candidates using the E-verify Program (<http://www.uscis.gov/e-verify>) website to meet the established employment eligibility requirements. The Vendor must ensure that the Candidate has two valid forms of Government issued identification prior to enrollment to ensure the correct information is entered into the E-verify system. An initial list of verified/eligible Candidates must be provided to the COR no later than 3 business days after the initial contract award." \*When contracts are with individuals, the individuals will be required to complete a Form I-9, Employment Eligibility Verification, with the designated Government representative. This Form will be provided to the Contracting Officer and must become part of the official contract file.

### 3.4. Responsibility after Design Completion:

- 3.4.1. The A-E is required to support the Sacramento District should errors or omissions in the documents create problems in bidding or administering the contract for construction. As needed, the A-E will clarify the design intent and correct any errors or omissions in the original documents. The corrections must be done in a timely manner at no additional cost to the Government. The A-E must incorporate amendment changes on the original drawings and/or CADD drawings when requested to do so after the bidding process at no extra cost to the Government. In addition, the A-E must incorporate amendment changes on the submittal registers and submit one copy in SPECSINTACT format on a disk or CD labeled with the project title, location, and construction contract number.
- 3.4.2. During the bidding period, the A-E is required to assist in answering all bidders' inquiries pertaining to the design. If clarifications are required, the A-E will prepare the required amendment to include conformed specs and drawings. The A-E, however, must not receive or respond to any direct inquiries from bidders. All inquiries or responses must be through the Sacramento District COR for the A-E Task Order.

#### **4. DESCRIPTION OF WORK AND SERVICES**

##### **4.1. Task 1 – Prepare Existing Design Package for Procurement**

- 4.1.1. Prepare a schedule for design package completion. The AE must consider all steps necessary to determine a schedule for providing documents to contracting division and include projected duration and specific milestones to achieve a final design submittal within the time period indicated in Section 5. A desired construction start date is during FY22.
- 4.1.2. Revise existing plans to update to current relevant design criteria including USACE, SAFCA, DWR, Reclamation District 1000, City, and Utility Owner standards. The AE must coordinate with all utility owners to verify existing designs, and revise according to current standards and requirements. The AE must resubmit the SMUD “B” letter incorporating any design changes, and incorporate SMUD comments into the plans. The tree tables must be updated to exclude the trees removed during Reach I Contract 1 construction and shown on the as-builts, and must be field verified for accuracy.
- 4.1.3. Revise existing specifications to include cultural monitoring to be provided by the construction contractor. Specifications must also include required updates to meet current USACE, SAFCA, DWR, Reclamation District 1000, City, and all other Utility Owner standards. Coordinate with Corps staff to assure correct wording and scope is provided.
- 4.1.4. Revise existing Design Documentation Report to incorporate all design changes made during the preparation of the revised 95% submittal.
- 4.1.5. Revise existing Engineering Considerations and Instruction for Field Personnel (ECIFP) to incorporate all design changes made during the preparation of the revised 95% submittal. The contacts list must also be updated to current representatives.
- 4.1.6. Revise the existing cost estimate to be in MII - Micro-Computer Aided Cost Estimating System (MCACES) Second Generation format with current pricing provided. It should also be updated to reflect revised bid items and quantities. The estimate may be provided up to two (2) weeks after the other documents listed are provided. The cost estimate must be in compliance with requirements included in the reference document enclosure. A separate bid schedule must also be prepared including all necessary bid items and quantities.
- 4.1.7. Conduct 95% DRChecks design review, address comments for back check, and make necessary plan revisions.
- 4.1.8. Provide a revised package electronically for 100% design review incorporating DRChecks comments, for revised plans, specifications, cost estimate, Design Documentation Report, and the Engineering Considerations and Instructions for Field Personnel (ECIFP).
- 4.1.9. Conduct 100% backcheck review, address open comments by back check, and make necessary plan revisions. Provide a revised package electronically for final review using DRChecks, to include revised plans, specifications, cost estimate, Design Documentation Report, and the Engineering Considerations and Instructions for Field Personnel (ECIFP).
- 4.1.10. Coordinate and complete BCOES and Outside Agency review, address comments, make necessary revisions, and provide final contract documents (plans, specifications, estimate, DDR & ECIFP) in electronic format.

#### 4.2. **Task 2 – Coordination, Meetings, and Project Management**

- 4.2.1. Coordinate design document revisions with Corps staff including obtaining input from civil, geotechnical, real estate, cultural, and environmental disciplines and incorporate changes.
- 4.2.2. Coordinate with Utility Companies and Local Agencies. Determine current status and facilitate coordination with companies and agencies for the timely relocation of utilities, and incorporate design package revisions as necessary to address comments. The A-E must assume eight (8) meetings with two (2) hours attended by teleconference per meeting, plus an additional two (2) hours for preparation prior to the meeting and finalizing meeting notes after the meeting, for a total of four (4) hours of AE project manager staff time per meeting.
- 4.2.3. AE project manager must attend six (6) design progress meetings to be held at the Sacramento District or through teleconference. Design meeting are separate from meetings conducted during construction. The A-E will be given five (5) calendar days' notice by the Technical Lead prior to any scheduled meeting. The meetings will discuss progress to date, project design issues, schedule, and coordination with the Corps of Engineers. The A-E must assume two (2) hours attended by teleconference per meeting, plus an additional two (2) hours for preparation prior to the meeting and finalizing meeting notes after the meeting, for a total of four (4) hours of AE project manager staff time per meeting.

#### 4.3. **Task 3 – Engineering Support Services During Construction**

- 4.3.1. The A-E must provide engineering construction phase support services to the Corps of Engineers (Corps). The A-E must provide 400 hours of construction phase services support to the Corps which includes attending on-site visit/construction meetings (18 total); attendance as requested; review of construction submittals; general coordination with the Corps, construction contractor, and stakeholders as needed; and review and responding to requests for information (RFI's) from the construction contractor; preparation of design revisions; and a detailed cost estimate for design revisions in support of contract modifications for work not associated with any errors and omissions. A contract modification includes changes to specifications, plans, an engineer's cost estimate, and bid items. Work required due to errors or omissions (RFI reviews/responses, design modifications, etc.), as determined by the Corps, must be performed with no additional charge to the Government.
- 4.3.2. All direction, inquiries and responses must be coordinated with the Sacramento District Project Technical Lead. The A-E must take no action under this task order unless directed/approved by the Contracting Officer's Representative (COR). If any request for services is received from other stakeholders (construction contractor, local sponsor, etc.), the A-E must communicate this to the Corps immediately, and receive written approval from the COR prior to taking action on any task. Services rendered without prior direction/approval from the COR will not be approved for payment.
- 4.3.3. Any task estimated to involve more than 4 hours of effort by the A-E must be communicated to the Sacramento District Project Technical Lead, with an estimate of total amount of hours required by A-E to perform task. The A-E must receive approval of the estimated level of effort from COR, prior to proceeding with these tasks. Responses to RFIs, reviews of construction submittals, etc. must be in the narrative form unless otherwise specified by the Technical Lead. If the A-E believes that design revisions, including revised drawings, are necessary to adequately respond to the task, this must be communicated to the Sacramento District Project Technical Lead. The A-E must receive written approval from the COR prior to performing this effort.
- 4.3.4. Retain a record log of all correspondence and submittals related to engineering services during construction. A copy of the electronic record log must be submitted to the Sacramento District Project Technical Lead upon construction contract completion.

- 4.3.5. The A-E must submit a detailed breakdown of tasks performed under this SOW on a monthly basis, at the time of invoice. This detailed breakdown must include the actual number of hours spent on performing each task assigned to the A-E during the month. This is to include time spent on each individual RFI, submittal, meeting attended, design revision, or other eservice rendered. Time spent working on activities related to errors or omissions in original design documents must not be included in the invoice for payment.
- 4.3.6. The A-E must notify the Government in writing when 75% of the allotted hours for this task have been expended to allow the Government time to evaluate the need for additional services.

#### 4.4. **Optional Task 1 – As-Built Drawing Preparation**

- 4.4.1. This Task is for preparation and finalization of the contract as-built drawings. The A-E must attend a meeting and incorporate marked-up revisions and modifications from the Construction Contractor and Corps Resident Engineer into the original award CADD drawings. Assume four (4) hours for the meeting. AE must provide a draft as-built submittal, and a final submittal incorporating any revisions provided. The final submittal must include all marked up drawings from the Construction Contractor and Corps Resident Engineer and the final set in electronic format.

#### 4.5 **Optional Task 2 Additional A-E Services during Construction**

- 4.5.1. This Optional Task must provide an additional estimated 50 hours of construction phase engineering services as described in Task 3 above.

#### 4.6 **Optional Task 3 Additional A-E Services during Construction**

- 4.6.1. This Optional Task must provide an additional estimated 50 hours of construction phase engineering services as described in Task 3 above.

#### 4.7 **Optional Task 4 Additional A-E Services during Construction**

- 4.7.1. This Optional Task must provide an additional estimated 50 hours of construction phase engineering services as described in Task 3 above.

#### 4.8 **Optional Task 5 Additional A-E Services during Construction**

- 4.8.1. This Optional Task must provide an additional estimated 50 hours of construction phase engineering services as described in Task 3 above.

### 5. **SUBMITTALS AND DELIVERY**

#### 5.1. WORK SCHEDULE

- 5.1.1. The following schedule covers design work shown as Task 1 and Task 2:

Task	Task Completion (calendar days after task order award)
<b>Task 1: Prepare Existing Design Package for Procurement</b>	
Quality Control Plan	15 Days
Schedule	25 Days
95% Design Submittal	75 Days
100% Design Submittal	120 Days
Final Design Submittal	150 Days

<b>Task 2 : Coordination, Meetings, and Project Management</b>	
Outside Agency Communications	Three (3) days after Discussion
Design Progress Meeting Notes	Five (5) days after Meeting
<b>Task 3: Engineering Support Services During Construction</b>	800 Days

## 5.2. REVIEW SCHEDULE

- 5.2.1. The Corps and sponsors will be allotted ten (10) working days to review documents provided. Comments will be submitted in DRChecks and the AE must address comments to the satisfaction of the Corps in order to complete the BCOES process.

## 5.3. Items not separately priced:

### 5.3.1. Progress Reporting:

- A. Progress Reports are required at the frequency and per the requirements as stated in Section 3.3.
- B. Reports must be emailed to the Technical Lead and Project Manager.

## 5.4. **Task 3** – Engineering Support Services During Construction.

### 5.4.1. Provide the following to the Technical Lead and Project Manager:

- A. One (1) electronic set of comments and responses to RFI's in memo form in MSWORD and .pdf format, within three (3) calendar days from day of receipt,
- B. Minutes to meetings in MSWORD and .pdf format, within three (3) calendar days of meetings.
- C. For revisions to contract documents (plans, specs, etc.) provide electronic files (e.g., .pdf, MSWORD, .dwg, SpecsIntact) of contract modifications to the plans and specifications (e.g. post award), within seven (7) calendar days of the receipt of request of modification.
- D. A detailed breakdown of hours expended on which activities (meeting attendance, RFI and submittal review, design revisions, etc.) must be submitted by 10th of each month for previous months efforts.
- E. The A-E must e-mail the construction administration correspondence to the Sacramento District Project Technical Lead.

## 5.5. **Optional Task 1 – Prepare As-Builts**

- 5.5.1. The A-E must prepare the as-built drawings from the original set of awarded contract drawings, incorporating all of the marked-up revisions submitted from the Construction Contractor. Assume there will be one in person meeting with the USACE/Contractor to review marked-up revisions. The A-E must submit the as-built drawings for the draft and final in electronic PDF and CADD files in AutoCAD format, via the stated requirements in Section 5.5.2. below, to the Technical Lead and Project Manager.
- 5.5.2. Electronic packages must be sent using one of the following Secure Access File Exchange (SAFE) systems: DoD SAFE (<https://safe.apps.mil/>) or ARL SAFE (<https://safe.arl.army.mil/>). The A-E must send a notification e-mail to the recipients of the deliverables, with a copy of the e-mail to SPK PM, indicating what is being sent and the send date.

**5.6. Optional Task 2 - Additional A-E Services during Construction**

- 5.6.1. The work is typically time sensitive and must be broken down into what can be responded to quickly and what takes more time to redesign. Responses to official requests for information (RFI's) that can be responded to without a redesign effort must be responded to within 3 business days from the time the A-E has all of the information available to be able to process a response. Responses which require a redesign effort must be responded to within 7 calendar days from the time the A-E has all of the information available to be able to process a response.

**5.7. Optional Task 3 - Additional A-E Services during Construction**

- 5.7.1. The work is typically time sensitive and must be broken down into what can be responded to quickly and what takes more time to redesign. Responses to official requests for information (RFI's) that can be responded to without a redesign effort must be responded to within 3 business days from the time the A-E has all of the information available to be able to process a response. Responses which require a redesign effort must be responded to within 7 calendar days from the time the A-E has all of the information available to be able to process a response.

**5.8. Optional Task 4 - Additional A-E Services during Construction**

- 5.8.1. The work is typically time sensitive and must be broken down into what can be responded to quickly and what takes more time to redesign. Responses to official requests for information (RFI's) that can be responded to without a redesign effort must be responded to within 3 business days from the time the A-E has all of the information available to be able to process a response. Responses which require a redesign effort must be responded to within 7 calendar days from the time the A-E has all of the information available to be able to process a response.

**5.9. Optional Task 5 - Additional A-E Services during Construction**

- 5.9.1. The work is typically time sensitive and must be broken down into what can be responded to quickly and what takes more time to redesign. Responses to official requests for information (RFI's) that can be responded to without a redesign effort must be responded to within 3 business days from the time the A-E has all of the information available to be able to process a response. Responses which require a redesign effort must be responded to within 7 calendar days from the time the A-E has all of the information available to be able to process a response.

**5.10. Distribution Information –**

- 5.10.1. Electronic packages must be sent using one of the following Secure Access File Exchange (SAFE) systems: DoD SAFE (<https://safe.apps.mil/>) or ARL SAFE (<https://safe.arl.army.mil/>). The A-E must send a notification e-mail to the recipients of the deliverables, with a copy of the e-mail to SPK PM, indicating what is being sent and the send date.

**6. OVERALL PERIOD OF PERFORMANCE**

- 6.1. All work and services for the base tasks must be completed within 800 calendar days from the time of award.

**7. OPTION STATEMENT**

- 7.1. The Government may exercise the contract options at any time within the period of performance of the task order at the negotiated amount.
- 7.2. Optional Task 1: The work and services in Optional Task 1 must be completed within 60 calendar days of being exercised.

- 7.3. Optional Task 2: The work and services in Optional Task 2 must be completed within 60 calendar days of being exercised.
- 7.4. Optional Task 3: The work and services in Optional Task 3 must be completed within 60 calendar days of being exercised.
- 7.5. Optional Task 4: The work and services in Optional Task 4 must be completed within 60 calendar days of being exercised.
- 7.6. Optional Task 5: The work and services in Optional Task 5 must be completed within 60 calendar days of being exercised.

## **8. AUTHORITIES STATEMENT**

- 8.1. No person other than the Government Contracting Officer has the authority to make any changes to this contract action that impact cost or schedule. Authority from the Contracting Officer to the contractor to make changes that impact cost or schedule will be in the form of an official, signed modification.

## **9. PAYMENTS STATEMENT**

- 9.1. The contractor must submit ENG Form 93 (Payment Estimates), available from the Sacramento District's A-E Administration Section; should you require an ENG Form 93, please send an email request to [ENG93.AE.PaymentEstimates@usace.army.mil](mailto:ENG93.AE.PaymentEstimates@usace.army.mil). A separate ENG Form 93 must be submitted for each task order; multiple task orders or contracts may not be submitted on the same ENG Form 93. The monthly progress report must be submitted with every payment estimate. Payment estimates without a corresponding progress report will be rejected.
- 9.2. Payment estimates must be submitted no more often than monthly. Percentages billed must not be calculated beyond two decimal places for each line item on a payment estimate. Each line item must give a detailed description of:
  - A. The work item being invoiced
  - B. The negotiated amount
  - C. The percentage of work completed for the billing period
  - D. And earnings to date
- 9.3. It is USACE Sacramento District's policy to withhold 10% retains (FAR 52.232-10) on all submitted payment estimates. Retains will be released on task orders at 100% completion, when required documentation is submitted and approved. Please refer to the award document for necessary submittals prior to submitting payment estimates. Upon receipt, the USACE Sacramento District will review and either approve for accuracy or deny the requested earnings before payment will be made. The completed ENG Form 93 Payment Estimates must be officially submitted via email to [ENG93.AE.PaymentEstimates@usace.army.mil](mailto:ENG93.AE.PaymentEstimates@usace.army.mil), and the subject line must include the contract obligation number, task order number and invoice number.

END OF STATEMENT OF WORK

Section E - Inspection and Acceptance

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0001	N/A	N/A	N/A	Government
0002	N/A	N/A	N/A	Government
0003	N/A	N/A	N/A	Government
0004	N/A	N/A	N/A	Government
0005	N/A	N/A	N/A	Government
0006	N/A	N/A	N/A	Government



Section F - Deliveries or Performance

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	DODAAC / CAGE
0001	POP 29-JAN-2021 TO 09-APR-2023	N/A	US ARMY CORPS OF ENGINEERS, SACRAMENTO CONTRACTING DIVISION 1325 J STREET SACRAMENTO CA 95814-2922 FOB: Destination	W91238
0002	N/A	N/A	N/A	N/A
0003	N/A	N/A	N/A	N/A
0004	N/A	N/A	N/A	N/A
0005	N/A	N/A	N/A	N/A
0006	N/A	N/A	N/A	N/A

Section G - Contract Administration Data

ACCOUNTING AND APPROPRIATION DATA

AA: 096 NA X 2020 3122 000 0000 CCS: 511 L2 2020 08 2451 443424 96042 3200 2L17B8  
AMOUNT: \$494,662.70

ACRN	CLIN/SLIN	CIN	AMOUNT
AA	0001	W62N6M100711540001	\$494,662.70

## Section I - Contract Clauses

## CLAUSES INCORPORATED BY FULL TEXT

## 52.217-7 OPTION FOR INCREASED QUANTITY--SEPARATELY PRICED LINE ITEM (MAR 1989)

The Government may require the delivery of the numbered line item, identified in the Schedule as an option item, in the quantity and at the price stated in the Schedule. The Contracting Officer may exercise the option by written notice to the Contractor within the period of performance of the task order as indicated in Section C – Statement of Work. Delivery of added items shall continue at the same rate that like items are called for under the contract, unless the parties otherwise agree.

(End of clause)

## 252.204-7012 SAFEGUARDING COVERED DEFENSE INFORMATION AND CYBER INCIDENT REPORTING (DEC 2019)

(a) Definitions. As used in this clause--

Adequate security means protective measures that are commensurate with the consequences and probability of loss, misuse, or unauthorized access to, or modification of information.

Compromise means disclosure of information to unauthorized persons, or a violation of the security policy of a system, in which unauthorized intentional or unintentional disclosure, modification, destruction, or loss of an object, or the copying of information to unauthorized media may have occurred.

Contractor attributional/proprietary information means information that identifies the contractor(s), whether directly or indirectly, by the grouping of information that can be traced back to the contractor(s) (e.g., program description, facility locations), personally identifiable information, as well as trade secrets, commercial or financial information, or other commercially sensitive information that is not customarily shared outside of the company.

Controlled technical information means technical information with military or space application that is subject to controls on the access, use, reproduction, modification, performance, display, release, disclosure, or dissemination. Controlled technical information would meet the criteria, if disseminated, for distribution statements B through F using the criteria set forth in DoD Instruction 5230.24, Distribution Statements on Technical Documents. The term does not include information that is lawfully publicly available without restrictions.

Covered contractor information system means an unclassified information system that is owned, or operated by or for, a contractor and that processes, stores, or transmits covered defense information.

Covered defense information means unclassified controlled technical information or other information, as described in the Controlled Unclassified Information (CUI) Registry at <http://www.archives.gov/cui/registry/category-list.html>, that requires safeguarding or dissemination controls pursuant to and consistent with law, regulations, and Governmentwide policies, and is--

(1) Marked or otherwise identified in the contract, task order, or delivery order and provided to the contractor by or on behalf of DoD in support of the performance of the contract; or

(2) Collected, developed, received, transmitted, used, or stored by or on behalf of the contractor in support of the performance of the contract.

Cyber incident means actions taken through the use of computer networks that result in a compromise or an actual or potentially adverse effect on an information system and/or the information residing therein.

Forensic analysis means the practice of gathering, retaining, and analyzing computer-related data for investigative purposes in a manner that maintains the integrity of the data.

Information system means a discrete set of information resources organized for the collection, processing, maintenance, use, sharing, dissemination, or disposition of information.

Malicious software means computer software or firmware intended to perform an unauthorized process that will have adverse impact on the confidentiality, integrity, or availability of an information system. This definition includes a virus, worm, Trojan horse, or other code-based entity that infects a host, as well as spyware and some forms of adware.

Media means physical devices or writing surfaces including, but is not limited to, magnetic tapes, optical disks, magnetic disks, large-scale integration memory chips, and printouts onto which covered defense information is recorded, stored, or printed within a covered contractor information system.

Operationally critical support means supplies or services designated by the Government as critical for airlift, sealift, intermodal transportation services, or logistical support that is essential to the mobilization, deployment, or sustainment of the Armed Forces in a contingency operation.

Rapidly report means within 72 hours of discovery of any cyber incident.

Technical information means technical data or computer software, as those terms are defined in the clause at DFARS 252.227-7013, Rights in Technical Data--Noncommercial Items, regardless of whether or not the clause is incorporated in this solicitation or contract. Examples of technical information include research and engineering data, engineering drawings, and associated lists, specifications, standards, process sheets, manuals, technical reports, technical orders, catalog-item identifications, data sets, studies and analyses and related information, and computer software executable code and source code.

(b) Adequate security. The Contractor shall provide adequate security on all covered contractor information systems. To provide adequate security, the Contractor shall implement, at a minimum, the following information security protections:

(1) For covered contractor information systems that are part of an information technology (IT) service or system operated on behalf of the Government, the following security requirements apply:

(i) Cloud computing services shall be subject to the security requirements specified in the clause 252.239-7010, Cloud Computing Services, of this contract.

(ii) Any other such IT service or system (i.e., other than cloud computing) shall be subject to the security requirements specified elsewhere in this contract.

(2) For covered contractor information systems that are not part of an IT service or system operated on behalf of the Government and therefore are not subject to the security requirement specified at paragraph (b)(1) of this clause, the following security requirements apply:

(i) Except as provided in paragraph (b)(2)(ii) of this clause, the covered contractor information system shall be subject to the security requirements in National Institute of Standards and Technology (NIST) Special Publication (SP) 800-171, "Protecting Controlled Unclassified Information in Nonfederal Information Systems and Organizations" (available via the internet at <http://dx.doi.org/10.6028/NIST.SP.800-171>) in effect at the time the solicitation is issued or as authorized by the Contracting Officer.

(ii)(A) The Contractor shall implement NIST SP 800-171, as soon as practical, but not later than December 31, 2017. For all contracts awarded prior to October 1, 2017, the Contractor shall notify the DoD Chief Information Officer (CIO), via email at [osd.dibcsia@mail.mil](mailto:osd.dibcsia@mail.mil), within 30 days of contract award, of any security requirements specified by NIST SP 800-171 not implemented at the time of contract award.

(B) The Contractor shall submit requests to vary from NIST SP 800-171 in writing to the Contracting Officer, for consideration by the DoD CIO. The Contractor need not implement any security requirement adjudicated by an authorized representative of the DoD CIO to be nonapplicable or to have an alternative, but equally effective, security measure that may be implemented in its place.

(C) If the DoD CIO has previously adjudicated the contractor's requests indicating that a requirement is not applicable or that an alternative security measure is equally effective, a copy of that approval shall be provided to the Contracting Officer when requesting its recognition under this contract.

(D) If the Contractor intends to use an external cloud service provider to store, process, or transmit any covered defense information in performance of this contract, the Contractor shall require and ensure that the cloud service provider meets security requirements equivalent to those established by the Government for the Federal Risk and Authorization Management Program (FedRAMP) Moderate baseline (<https://www.fedramp.gov/resources/documents/>) and that the cloud service provider complies with requirements in paragraphs (c) through (g) of this clause for cyber incident reporting, malicious software, media preservation and protection, access to additional information and equipment necessary for forensic analysis, and cyber incident damage assessment.

(3) Apply other information systems security measures when the Contractor reasonably determines that information systems security measures, in addition to those identified in paragraphs (b)(1) and (2) of this clause, may be required to provide adequate security in a dynamic environment or to accommodate special circumstances (e.g., medical devices) and any individual, isolated, or temporary deficiencies based on an assessed risk or vulnerability. These measures may be addressed in a system security plan.

(c) Cyber incident reporting requirement.

(1) When the Contractor discovers a cyber incident that affects a covered contractor information system or the covered defense information residing therein, or that affects the contractor's ability to perform the requirements of the contract that are designated as operationally critical support and identified in the contract, the Contractor shall--

(i) Conduct a review for evidence of compromise of covered defense information, including, but not limited to, identifying compromised computers, servers, specific data, and user accounts. This review shall also include analyzing covered contractor information system(s) that were part of the cyber incident, as well as other information systems on the Contractor's network(s), that may have been accessed as a result of the incident in order to identify compromised covered defense information, or that affect the Contractor's ability to provide operationally critical support; and

(ii) Rapidly report cyber incidents to DoD at <https://dibnet.dod.mil>.

(2) Cyber incident report. The cyber incident report shall be treated as information created by or for DoD and shall include, at a minimum, the required elements at <https://dibnet.dod.mil>.

(3) Medium assurance certificate requirement. In order to report cyber incidents in accordance with this clause, the Contractor or subcontractor shall have or acquire a DoD-approved medium assurance certificate to report cyber incidents. For information on obtaining a DoD-approved medium assurance certificate, see <https://public.cyber.mil/eca/>.

(d) Malicious software. When the Contractor or subcontractors discover and isolate malicious software in connection with a reported cyber incident, submit the malicious software to DoD Cyber Crime Center (DC3) in

accordance with instructions provided by DC3 or the Contracting Officer. Do not send the malicious software to the Contracting Officer.

(e) Media preservation and protection. When a Contractor discovers a cyber incident has occurred, the Contractor shall preserve and protect images of all known affected information systems identified in paragraph (c)(1)(i) of this clause and all relevant monitoring/packet capture data for at least 90 days from the submission of the cyber incident report to allow DoD to request the media or decline interest.

(f) Access to additional information or equipment necessary for forensic analysis. Upon request by DoD, the Contractor shall provide DoD with access to additional information or equipment that is necessary to conduct a forensic analysis.

(g) Cyber incident damage assessment activities. If DoD elects to conduct a damage assessment, the Contracting Officer will request that the Contractor provide all of the damage assessment information gathered in accordance with paragraph (e) of this clause.

(h) DoD safeguarding and use of contractor attributional/proprietary information. The Government shall protect against the unauthorized use or release of information obtained from the contractor (or derived from information obtained from the contractor) under this clause that includes contractor attributional/proprietary information, including such information submitted in accordance with paragraph (c). To the maximum extent practicable, the Contractor shall identify and mark attributional/proprietary information. In making an authorized release of such information, the Government will implement appropriate procedures to minimize the contractor attributional/proprietary information that is included in such authorized release, seeking to include only that information that is necessary for the authorized purpose(s) for which the information is being released.

(i) Use and release of contractor attributional/proprietary information not created by or for DoD. Information that is obtained from the contractor (or derived from information obtained from the contractor) under this clause that is not created by or for DoD is authorized to be released outside of DoD--

(1) To entities with missions that may be affected by such information;

(2) To entities that may be called upon to assist in the diagnosis, detection, or mitigation of cyber incidents;

(3) To Government entities that conduct counterintelligence or law enforcement investigations;

(4) For national security purposes, including cyber situational awareness and defense purposes (including with Defense Industrial Base (DIB) participants in the program at 32 CFR part 236); or

(5) To a support services contractor ("recipient") that is directly supporting Government activities under a contract that includes the clause at 252.204-7009, Limitations on the Use or Disclosure of Third-Party Contractor Reported Cyber Incident Information.

(j) Use and release of contractor attributional/proprietary information created by or for DoD. Information that is obtained from the contractor (or derived from information obtained from the contractor) under this clause that is created by or for DoD (including the information submitted pursuant to paragraph (c) of this clause) is authorized to be used and released outside of DoD for purposes and activities authorized by paragraph (i) of this clause, and for any other lawful Government purpose or activity, subject to all applicable statutory, regulatory, and policy based restrictions on the Government's use and release of such information.

(k) The Contractor shall conduct activities under this clause in accordance with applicable laws and regulations on the interception, monitoring, access, use, and disclosure of electronic communications and data.

(l) Other safeguarding or reporting requirements. The safeguarding and cyber incident reporting required by this clause in no way abrogates the Contractor's responsibility for other safeguarding or cyber incident reporting

pertaining to its unclassified information systems as required by other applicable clauses of this contract, or as a result of other applicable U.S. Government statutory or regulatory requirements.

(m) Subcontracts. The Contractor shall--

(1) Include this clause, including this paragraph (m), in subcontracts, or similar contractual instruments, for operationally critical support, or for which subcontract performance will involve covered defense information, including subcontracts for commercial items, without alteration, except to identify the parties. The Contractor shall determine if the information required for subcontractor performance retains its identity as covered defense information and will require protection under this clause, and, if necessary, consult with the Contracting Officer; and

(2) Require subcontractors to--

(i) Notify the prime Contractor (or next higher-tier subcontractor) when submitting a request to vary from a NIST SP 800-171 security requirement to the Contracting Officer, in accordance with paragraph (b)(2)(ii)(B) of this clause; and

(ii) Provide the incident report number, automatically assigned by DoD, to the prime Contractor (or next higher-tier subcontractor) as soon as practicable, when reporting a cyber incident to DoD as required in paragraph (c) of this clause.

(End of clause)

#### 252.204-7020 NIST SP 800-171 DOD ASSESSMENT REQUIREMENTS (NOV 2020)

(a) Definitions.

Basic Assessment means a contractor's self-assessment of the contractor's implementation of NIST SP 800-171 that--

(1) Is based on the Contractor's review of their system security plan(s) associated with covered contractor information system(s);

(2) Is conducted in accordance with the NIST SP 800-171 DoD Assessment Methodology; and

(3) Results in a confidence level of "Low" in the resulting score, because it is a self-generated score.

Covered contractor information system has the meaning given in the clause 252.204-7012, Safeguarding Covered Defense Information and Cyber Incident Reporting, of this contract.

High Assessment means an assessment that is conducted by Government personnel using NIST SP 800-171A, Assessing Security Requirements for Controlled Unclassified Information that--

(1) Consists of--

(i) A review of a contractor's Basic Assessment;

(ii) A thorough document review;

(iii) Verification, examination, and demonstration of a Contractor's system security plan to validate that NIST SP 800-171 security requirements have been implemented as described in the contractor's system security plan; and

(iv) Discussions with the contractor to obtain additional information or clarification, as needed; and

(2) Results in a confidence level of "High" in the resulting score.

Medium Assessment means an assessment conducted by the Government that--

(1) Consists of--

(i) A review of a contractor's Basic Assessment;

(ii) A thorough document review; and

(iii) Discussions with the contractor to obtain additional information or clarification, as needed; and

(2) Results in a confidence level of "Medium" in the resulting score.

(b) Applicability. This clause applies to covered contractor information systems that are required to comply with the National Institute of Standards and Technology (NIST) Special Publication (SP) 800-171, in accordance with Defense Federal Acquisition Regulation System (DFARS) clause at 252.204-7012, Safeguarding Covered Defense Information and Cyber Incident Reporting, of this contract.

(c) Requirements. The Contractor shall provide access to its facilities, systems, and personnel necessary for the Government to conduct a Medium or High NIST SP 800-171 DoD Assessment, as described in NIST SP 800-171 DoD Assessment Methodology at [https://www.acq.osd.mil/dpap/pdi/cyber/strategically\\_assessing\\_contractor\\_implementation\\_of\\_NIST\\_SP\\_800-171.html](https://www.acq.osd.mil/dpap/pdi/cyber/strategically_assessing_contractor_implementation_of_NIST_SP_800-171.html), if necessary.

(d) Procedures. Summary level scores for all assessments will be posted in the Supplier Performance Risk System (SPRS) (<https://www.sprs.csd.disa.mil/>) to provide DoD Components visibility into the summary level scores of strategic assessments.

(1) Basic Assessments. A contractor may submit, via encrypted email, summary level scores of Basic Assessments conducted in accordance with the NIST SP 800-171 DoD Assessment Methodology to [webptsmh@navy.mil](mailto:webptsmh@navy.mil) for posting to SPRS.

(i) The email shall include the following information:

(A) Version of NIST SP 800-171 against which the assessment was conducted.

(B) Organization conducting the assessment (e.g., Contractor self-assessment).

(C) For each system security plan (security requirement 3.12.4) supporting the performance of a DoD contract--

(1) All industry Commercial and Government Entity (CAGE) code(s) associated with the information system(s) addressed by the system security plan; and

(2) A brief description of the system security plan architecture, if more than one plan exists.

(D) Date the assessment was completed.

(E) Summary level score (e.g., 95 out of 110, NOT the individual value for each requirement).

(F) Date that all requirements are expected to be implemented (i.e., a score of 110 is expected to be achieved) based on information gathered from associated plan(s) of action developed in accordance with NIST SP 800-171.

(ii) If multiple system security plans are addressed in the email described at paragraph (b)(1)(i) of this section, the



Contractor shall use the following format for the report:

System security plan	CAGE codes supported by this plan	Brief description of the plan architecture	Date of assessment	Total score	Date score of 110 will be achieved

(2) Medium and High Assessments. DoD will post the following Medium and/or High Assessment summary level scores to SPRS for each system security plan assessed:

- (i) The standard assessed (e.g., NIST SP 800-171 Rev 1).
  - (ii) Organization conducting the assessment, e.g., DCMA, or a specific organization (identified by Department of Defense Activity Address Code (DoDAAC)).
  - (iii) All industry CAGE code(s) associated with the information system(s) addressed by the system security plan.
  - (iv) A brief description of the system security plan architecture, if more than one system security plan exists.
  - (v) Date and level of the assessment, i.e., medium or high.
  - (vi) Summary level score (e.g., 105 out of 110, not the individual value assigned for each requirement).
  - (vii) Date that all requirements are expected to be implemented (i.e., a score of 110 is expected to be achieved) based on information gathered from associated plan(s) of action developed in accordance with NIST SP 800-171.
- (e) Rebuttals. (1) DoD will provide Medium and High Assessment summary level scores to the Contractor and offer the opportunity for rebuttal and adjudication of assessment summary level scores prior to posting the summary level scores to SPRS (see SPRS User's Guide [https://www.sprs.csd.disa.mil/pdf/SPRS\\_Awardee.pdf](https://www.sprs.csd.disa.mil/pdf/SPRS_Awardee.pdf)).
- (2) Upon completion of each assessment, the contractor has 14 business days to provide additional information to demonstrate that they meet any security requirements not observed by the assessment team or to rebut the findings that may be of question.
- (f) Accessibility.
- (1) Assessment summary level scores posted in SPRS are available to DoD personnel, and are protected, in accordance with the standards set forth in DoD Instruction 5000.79, Defense-wide Sharing and Use of Supplier and Product Performance Information (PI).
  - (2) Authorized representatives of the Contractor for which the assessment was conducted may access SPRS to view their own summary level scores, in accordance with the SPRS Software User's Guide for Awardees/Contractors available at [https://www.sprs.csd.disa.mil/pdf/SPRS\\_Awardee.pdf](https://www.sprs.csd.disa.mil/pdf/SPRS_Awardee.pdf).
  - (3) A High NIST SP 800-171 DoD Assessment may result in documentation in addition to that listed in this clause. DoD will retain and protect any such documentation as "Controlled Unclassified Information (CUI)" and intended for internal DoD use only. The information will be protected against unauthorized use and release, including through

the exercise of applicable exemptions under the Freedom of Information Act (e.g., Exemption 4 covers trade secrets and commercial or financial information obtained from a contractor that is privileged or confidential).

(g) Subcontracts.

(1) The Contractor shall insert the substance of this clause, including this paragraph (g), in all subcontracts and other contractual instruments, including subcontracts for the acquisition of commercial items (excluding COTS items).

(2) The Contractor shall not award a subcontract or other contractual instrument, that is subject to the implementation of NIST SP 800-171 security requirements, in accordance with DFARS clause 252.204-7012 of this contract, unless the subcontractor has completed, within the last 3 years, at least a Basic NIST SP 800-171 DoD Assessment, as described in [https://www.acq.osd.mil/dpap/pdi/cyber/strategically\\_assessing\\_contractor\\_implementation\\_of\\_NIST\\_SP\\_800-171.html](https://www.acq.osd.mil/dpap/pdi/cyber/strategically_assessing_contractor_implementation_of_NIST_SP_800-171.html), for all covered contractor information systems relevant to its offer that are not part of an information technology service or system operated on behalf of the Government.

(3) If a subcontractor does not have summary level scores of a current NIST SP 800-171 DoD Assessment (i.e., not more than 3 years old unless a lesser time is specified in the solicitation) posted in SPRS, the subcontractor may conduct and submit a Basic Assessment, in accordance with the NIST SP 800-171 DoD Assessment Methodology, to [webptsmh@navy.mil](mailto:webptsmh@navy.mil) for posting to SPRS along with the information required by paragraph (d) of this clause.

(End of clause)

#### 252.204-7018 PROHIBITION ON THE ACQUISITION OF COVERED DEFENSE TELECOMMUNICATIONS EQUIPMENT OR SERVICES (DEC 2019)

(a) Definitions. As used in this clause--

Covered defense telecommunications equipment or services means--

- (1) Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation, or any subsidiary or affiliate of such entities;
- (2) Telecommunications services provided by such entities or using such equipment; or
- (3) Telecommunications equipment or services produced or provided by an entity that the Secretary of Defense reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

Covered foreign country means--

- (1) The People's Republic of China; or
- (2) The Russian Federation.

Covered missions means--

- (1) The nuclear deterrence mission of DoD, including with respect to nuclear command, control, and communications, integrated tactical warning and attack assessment, and continuity of Government; or
- (2) The homeland defense mission of DoD, including with respect to ballistic missile defense.

Critical technology means--

(1) Defense articles or defense services included on the United States Munitions List set forth in the International Traffic in Arms Regulations under subchapter M of chapter I of title 22, Code of Federal Regulations;

(2) Items included on the Commerce Control List set forth in Supplement No. 1 to part 774 of the Export Administration Regulations under subchapter C of chapter VII of title 15, Code of Federal Regulations, and controlled--

(i) Pursuant to multilateral regimes, including for reasons relating to national security, chemical and biological weapons proliferation, nuclear nonproliferation, or missile technology; or

(ii) For reasons relating to regional stability or surreptitious listening;

(3) Specially designed and prepared nuclear equipment, parts and components, materials, software, and technology covered by part 810 of title 10, Code of Federal Regulations (relating to assistance to foreign atomic energy activities);

(4) Nuclear facilities, equipment, and material covered by part 110 of title 10, Code of Federal Regulations (relating to export and import of nuclear equipment and material);

(5) Select agents and toxins covered by part 331 of title 7, Code of Federal Regulations, part 121 of title 9 of such Code, or part 73 of title 42 of such Code; or

(6) Emerging and foundational technologies controlled pursuant to section 1758 of the Export Control Reform Act of 2018 (50 U.S.C. 4817).

Substantial or essential component means any component necessary for the proper function or performance of a piece of equipment, system, or service.

(b) Prohibition. In accordance with section 1656 of the National Defense Authorization Act for Fiscal Year 2018 (Pub. L. 115-91), the contractor shall not provide to the Government any equipment, system, or service to carry out covered missions that uses covered defense telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless the covered defense telecommunication equipment or services are covered by a waiver described in Defense Federal Acquisition Regulation Supplement 204.2104.

(c) Procedures. The Contractor shall review the list of excluded parties in the System for Award Management (SAM) at <https://www.sam.gov> for entities that are excluded when providing any equipment, system, or service, to carry out covered missions, that uses covered defense telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless a waiver is granted.

(d) Reporting.

(1) In the event the Contractor identifies covered defense telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, the Contractor shall report at <https://dibnet.dod.mil> the information in paragraph (d)(2) of this clause.

(2) The Contractor shall report the following information pursuant to paragraph (d)(1) of this clause:

(i) Within one business day from the date of such identification or notification: The contract number; the order number(s), if applicable; supplier name; brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 10 business days of submitting the information in paragraph (d)(2)(i) of this clause: Any further available information about mitigation actions undertaken or recommended. In addition, the Contractor shall describe the efforts it undertook to prevent use or submission of a covered defense telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) Subcontracts. The Contractor shall insert the substance of this clause, including this paragraph (e), in all subcontracts and other contractual instruments, including subcontracts for the acquisition of commercial items.

(End of clause)

#### 52.204-25 PROHIBITION ON CONTRACTING FOR CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT (AUG 2020)

(a) Definitions. As used in this clause--

Backhaul means intermediate links between the core network, or backbone network, and the small subnetworks at the edge of the network (e.g., connecting cell phones/towers to the core telephone network). Backhaul can be wireless (e.g., microwave) or wired (e.g., fiber optic, coaxial cable, Ethernet).

Covered foreign country means The People's Republic of China.

Covered telecommunications equipment or services means--

(1) Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities);

(2) For the purpose of public safety, security of Government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities);

(3) Telecommunications or video surveillance services provided by such entities or using such equipment; or

(4) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

Critical technology means--

(1) Defense articles or defense services included on the United States Munitions List set forth in the International Traffic in Arms Regulations under subchapter M of chapter I of title 22, Code of Federal Regulations;

(2) Items included on the Commerce Control List set forth in Supplement No. 1 to part 774 of the Export Administration Regulations under subchapter C of chapter VII of title 15, Code of Federal Regulations, and controlled--

(i) Pursuant to multilateral regimes, including for reasons relating to national security, chemical and biological weapons proliferation, nuclear nonproliferation, or missile technology; or

(ii) For reasons relating to regional stability or surreptitious listening;

(3) Specially designed and prepared nuclear equipment, parts and components, materials, software, and technology covered by part 810 of title 10, Code of Federal Regulations (relating to assistance to foreign atomic energy activities);

(4) Nuclear facilities, equipment, and material covered by part 110 of title 10, Code of Federal Regulations (relating to export and import of nuclear equipment and material);

(5) Select agents and toxins covered by part 331 of title 7, Code of Federal Regulations, part 121 of title 9 of such Code, or part 73 of title 42 of such Code; or

(6) Emerging and foundational technologies controlled pursuant to section 1758 of the Export Control Reform Act of 2018 (50 U.S.C. 4817).

Interconnection arrangements means arrangements governing the physical connection of two or more networks to allow the use of another's network to hand off traffic where it is ultimately delivered (e.g., connection of a customer of telephone provider A to a customer of telephone company B) or sharing data and other information resources.

Reasonable inquiry means an inquiry designed to uncover any information in the entity's possession about the identity of the producer or provider of covered telecommunications equipment or services used by the entity that excludes the need to include an internal or third-party audit.

Roaming means cellular communications services (e.g., voice, video, data) received from a visited network when unable to connect to the facilities of the home network either because signal coverage is too weak or because traffic is too high.

Substantial or essential component means any component necessary for the proper function or performance of a piece of equipment, system, or service.

(b) Prohibition.

(1) Section 889(a)(1)(A) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2019, from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. The Contractor is prohibited from providing to the Government any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104.

(2) Section 889(a)(1)(B) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2020, from entering into a contract, or extending or renewing a contract, with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104. This prohibition applies to the use of covered telecommunications equipment or services, regardless of whether that use is in performance of work under a Federal contract.

(c) Exceptions. This clause does not prohibit contractors from providing--

(1) A service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(2) Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(d) Reporting requirement.

(1) In the event the Contractor identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, or the Contractor is notified of such by a subcontractor at any tier or by any other source, the Contractor shall report the information in paragraph (d)(2) of this clause to the Contracting Officer, unless elsewhere in this contract are established procedures for reporting the information; in the case of the Department of Defense, the Contractor shall report to the website at <https://dibnet.dod.mil>. For indefinite delivery contracts, the Contractor shall report to the Contracting Officer for the indefinite delivery contract and the Contracting Officer(s) for any affected order or, in the case of the Department of Defense, identify both the indefinite delivery contract and any affected orders in the report provided at <https://dibnet.dod.mil>.

(2) The Contractor shall report the following information pursuant to paragraph (d)(1) of this clause:

(i) Within one business day from the date of such identification or notification: The contract number; the order number(s), if applicable; supplier name; supplier unique entity identifier (if known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 10 business days of submitting the information in paragraph (d)(2)(i) of this clause: Any further available information about mitigation actions undertaken or recommended. In addition, the Contractor shall describe the efforts it undertook to prevent use or submission of covered telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) Subcontracts. The Contractor shall insert the substance of this clause, including this paragraph (e) and excluding paragraph (b)(2), in all subcontracts and other contractual instruments, including subcontracts for the acquisition of commercial items.

(End of clause)



## **APPENDIX B**

### **Architect-Engineer Guide**

# Architect-Engineer Guide

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## Scope

The purpose of this Architect-Engineer (A-E) Guide is to inform A-E firms of the general administrative and technical requirements for providing professional services and products relative to their contract with the U.S. Army Corps of Engineers, Sacramento District (SPK). It supplements *EP 715-1-7 Architect-Engineer Contracting* [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>] and the A-E Statement of Work.

## Policy

The A-E Guide applies to A-E firms and members of the Sacramento District staff involved in A-E contract management and administration. It is assumed that the A-E selection process shown in the *Purchasing of Services [PROP08L0]* has been completed and a notification of selection has been transmitted to the A-E. The A-E Firm will begin with the review of the statement of work, criteria and preparation of financial data after the security clearance is obtained. This applies to all types of A-E contract actions including but not limited to: Fixed Price Contracts, Indefinite Delivery Contracts, Task Orders, etc.

## Responsibility

The Chief of A-E Administration Section is responsible for administration of the A-E Guide.

The A-E Administration Section is responsible for coordinating any necessary revisions to the A-E guide within Sacramento District, Engineering Support Branch and Engineering Division. The A-E Administration Section will also assure that this publication is referenced within the statement of work when applicable.

The Project Manager is responsible for referring to this publication in the A-E statement of work, when applicable.

The A-E Firm is responsible for thoroughly reviewing the A-E Guide prior to submission of an A-E cost proposal. The A-E Guide becomes part of the A-E firm's contract when referenced within the A-E statement of work. Therefore, it is essential that the A-E Guide be referred to throughout the execution of the A-E contract. Should there be a conflict between the contract statement of work and the A-E guidance, the contract statement of work shall take precedence. Special emphasis should be placed on scope and cost limitations and the requirements for contract deliverables. Questions and/or conflicts concerning the requirements of this publication should be immediately addressed to the Sacramento District main point of contact (COE POC) designated within the statement of work.

## Distribution

A-E Firm



Chief of A-E Administration Section

Chief of Engineering Division

Assistant Chief of Engineering Division

Chief of Engineering Support Branch

Chief of Design Branch

Chief of Geotechnical & Environmental Engineering Branch

A-E Responsibility Coordinator

Chief of Service and Supply Branch, Contracting Division

A-E Branch, Contracting Division

Project Manager

A-E Negotiator

Small and Disadvantaged Business Utilization (SADBU) Advisor

## Ownership

The Chief of A-E Administration Section  
[[William.D.MulleryD@usace.army.mil?Subject=REFP13L0 - Architect-Engineer Guide](mailto:William.D.MulleryD@usace.army.mil?Subject=REFP13L0 - Architect-Engineer Guide)] is responsible for ensuring that this document is necessary and that it reflects actual practice.

## References

Refer to:

- *Federal Acquisition Regulation (FAR)* [<http://www.arnet.gov/far/>]
- *FAR Subpart 24.2 - Freedom of Information Act*  
[[http://www.acqnet.gov/far/current/html/Subpart 24\\_2.html](http://www.acqnet.gov/far/current/html/Subpart%2024_2.html)]
- *FAR Subpart 36.6 - Architect-Engineer Services*  
[[http://www.acqnet.gov/far/current/html/Subpart 36\\_6.html](http://www.acqnet.gov/far/current/html/Subpart%2036_6.html)]
- *FAR 52.227-14 Rights in Data - General*  
[[http://www.arnet.gov/far/current/html/52\\_227.html - 1109286](http://www.arnet.gov/far/current/html/52_227.html - 1109286)]
- *FAR 52.232-10 Payments under Fixed-Price Architect-Engineer Contracts*  
[[http://www.arnet.gov/far/current/html/52\\_232.html - 1107121](http://www.arnet.gov/far/current/html/52_232.html - 1107121)]
- *FAR 52.232-26 Prompt Payment for Fixed-Price Architect-Engineer Contracts*  
[[http://www.arnet.gov/far/current/html/52\\_232.html - 1107573](http://www.arnet.gov/far/current/html/52_232.html - 1107573)]
- *FAR 52.326-23 - Responsibility of the Architect-Engineer Contractor*  
[[http://www.acqnet.gov/far/current/html/52\\_233\\_240.html](http://www.acqnet.gov/far/current/html/52_233_240.html)]
- *FAR 52.243-1 - Changes - Fixed Price*  
[[http://www.arnet.gov/far/current/html/52\\_241\\_244.html](http://www.arnet.gov/far/current/html/52_241_244.html)]

- 5 USC 552 - Freedom of Information Act (FOIA) [[http://uscode.house.gov/uscode-cgi/fastweb.exe?getdoc+uscview+t05t08+26+0++\(\)++AND+\(\(5\)+AD\]](http://uscode.house.gov/uscode-cgi/fastweb.exe?getdoc+uscview+t05t08+26+0++()++AND+((5)+AD])
- DFARS 236.6 - Architect-Engineer Services  
[[http://www.acq.osd.mil/dpap/dars/dfars/html/current/236\\_6.htm](http://www.acq.osd.mil/dpap/dars/dfars/html/current/236_6.htm)]
- AFARS Subpart 5136.6 - Architect-Engineer Services  
[<http://farsite.hill.af.mil/reghtml/regs/other/afars/afar36.htm>]
- EFARS Subpart 36.6 – Architect-Engineer Services  
[<http://www.hq.usace.army.mil/cepr/efars/part36.pdf>]
- Executive Order E.O. 12906 - Coordinating Geographic Data and Acquisition and Access: The National Spatial Data Infrastructure [<http://www.archives.gov/federal-register/executive-orders/pdf/12906.pdf>]
- USACE Geospatial Data Clearinghouse Node [<http://corpsgeo1.usace.army.mil/>]
- EM 385-1-1 Safety and Health Requirements  
[<http://www.usace.army.mil/inet/usace-docs/eng-manuals/em385-1-1/toc.htm>]
- EP 310-1-6 Graphic Standard Manual [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep310-1-6/toc.htm>]
- EP 715-1-7 Architect-Engineer Contracting [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/toc.htm>]
- ER 5-1-11 U.S. Army Corps of Engineers Business Process  
[<http://www.usace.army.mil/publications/eng-regs/er5-1-11/entire.pdf>]
- ER 1110-1-12 Quality Management [<http://www.usace.army.mil/publications/eng-regs/er1110-1-12/entire.pdf>]
- ER 1110-1-8156 Policies, Guidance, and Requirements for Geospatial Data and Systems [<http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8156/entire.pdf>]
- ER 1110-1-8159 DRCHECKS [<http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8159/entire.pdf>]
- ENG Form 93 - Payment Estimate - Contract Performance  
[<http://www.usace.army.mil/inet/usace-docs/forms/e93.pdf>]
- CESPD R 1110-1-8 South Pacific Division Quality Management Plan  
[<http://www.spd.usace.army.mil/entire.pdf>]
- CADD/GIS Technology Center, A/E/C CADD Standard, ERDC/ITL TR-01-6, Release 2.0, [<https://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp>]
- Content Standard for Digital Geospatial Metadata Workbook  
[[http://www.fgdc.gov/metadata/documents/workbook\\_0501\\_bmk.pdf](http://www.fgdc.gov/metadata/documents/workbook_0501_bmk.pdf)]
- Criteria Bulletin Board System (CBBS) [<http://cbbs.spk.usace.army.mil/>]
- U.S. Army Corps of Engineers, Sacramento District, Engineering Quality System  
[<http://iso9000.spk.usace.army.mil/>]
- Sacramento District Quality Management Plan  
[[http://iso9000.spk.usace.army.mil/qmp\\_s/qmp\\_s.html](http://iso9000.spk.usace.army.mil/qmp_s/qmp_s.html)]
- Sacramento District Quality Management Plan, Appendix F SPK Quality Management Process, Product Development, Technical Review, and Quality Control Certification Forms  
[<http://iso9000.spk.usace.army.mil/docs/AppendixF.pdf>]
- Design Process for Civil Works Projects [[PROP02L0](#)]

- [Design Process for Military Projects \[PROP03L0\]](#)
- [Design Process for Hazardous, Toxic, and Radioactive Waste Projects \[PROP04L0\]](#)
- [Value Engineering \[PROP06L0\]](#)
- [Project Safety and Health Requirements \[PROP07L0\]](#)
- [Purchasing of Services \[PROP08L0\]](#)
- [Creation, Packaging, and Delivery of Project Documents \[PROP09L0\]](#)
- [Geographic Information Systems Design \[PROP17L0\]](#)
- [Preparing BCOE and Quality Control Certificates \[PROP22L0\]](#)
- [Integrating Lessons Learned \[PROA04L0\]](#)
- [A-E Responsibility Management Program \[PROA05L0\]](#)
- [Control of Project Documents \[PROQ02L0\]](#)
- [Managing As-Built & As-Constructed Drawings \[PROQ08L0\]](#)
- [Address and Attention Line Tables \[REFP01L0\]](#)
- [Criteria Locations Table for A-E Firms \[REFP03L0\]](#)
- [Project Specification Examples \[REFP04L0\]](#)
- [General Project Metadata \[REFP05L0\]](#)
- [Architect-Engineer 10% Design Submittals \[REFP18L0\]](#)
- [Architect-Engineer 35% Design Submittals \[REFP21L0\]](#)
- [Architect-Engineer 65% Design Submittals \[REFP22L0\]](#)
- [Architect-Engineer 100% Design Submittals \[REFP23L0\]](#)
- [Request for Proposal Document Submittals \[REFP24L0\]](#)
- [Delivering AutoCAD Drawings \[INSP01L0\]](#)
- [Preparing Project Specifications \[INSP03L0\]](#)
- [Preparing Amendments in SpecsIntact \[INSP04L0\]](#)
- [Delivering Hard Copy Documents \[INSP08L0\]](#)
- [Delivering Project Specifications \[INSP09L0\]](#)
- [Creating CALS Files From AutoCAD \[INSP14L0\]](#)
- [MicroStation DGN to Postscript to CALS \[INSP15L0\]](#)
- [Evaluating a Review Comment \[INSA02L0\]](#)

## Definitions

Refer to the [Glossary of Engineering Quality System Terms and Acronyms \[REFQ10L0\]](#) for definitions not listed here.

## Purpose

### Definition of Common Deliverables

A-E contracts vary greatly in their types of acquisition strategy and execution but still have some processes and products that are the same or similar. Those similar processes and products are Common Deliverables that this A-E Guide will address. Examples are: reports, hard copy paper, CD-ROM, statement of work, the negotiation process, and Quality Control Plans (QCP). Refer to [Architect-Engineer Submittals \[REFP18L0\]](#) for the details of A-E submittal contents.

## Statement of Work Process

### Description

After A-E selection, a copy of the statement of work will be forwarded to the A-E with a request to submit pertinent financial data (e.g., wage, overhead rates, any related direct costs items, subcontractor costs, and profit factors) and possibly the A-E's cost proposal to the Sacramento District. The statement of work will indicate the extent of the work to be accomplished by the A-E and may contain references to project specific criteria. The statement of work serves as the basis for the A-E's fee proposal and the Government's estimate. It will be the basis of a determination of fair and reasonable award price.

### Importance of Statement of Work

The statement of work is a part of the contract between the A-E and the Government. Therefore, it is essential that the two parties mutually agree that the work to be accomplished as described therein is accurate and complete. The goal of the statement of work is to create a measurable product. This means that efforts under a Scope shall be quantified to the maximum extent possible. The intent will not be to say in the Scope "study Problem X and provide solutions." Instead the Scope should say "study problem X and provide solutions at the minimum, optimum, and maximum levels." If an effort cannot be measured then consider a different approach. For example; instead of "study and design a solution," there might have to be a base of "complete the study, and once the recommendations have been evaluated by the Government the design may be awarded as an option." If the basic contract is an Indefinite Delivery Type Contract some statement of work items may be more general in coverage because the Task Order will embody specific efforts. The statement of work shall follow the format defined in *EP 715-1-7* [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>], and as supplemented within local policy under the guidance of the A-E Administration Section. In order to facilitate copying of the scope into the contract document, the statement of work should be in Times New Roman, 10 point font. Do not use headers, footers, page numbers, page breaks, or 'track changes' in the statement of work. Once the contract has been awarded, all changes to the statement of work, pertaining to schedule, price or quality, when necessary, will be made by the Contracting Officer (KO) in writing in accordance with the relevant contract clauses.

## Scope Limitations

### Minor Deviations

The A-E shall provide services and products in accordance with the statement of work. During the progress of the work, the A-E may expect minor changes in criteria within the general statement of the project and should make necessary adjustments accordingly. Minor technical deviations in the statement of supporting items may also be made to accommodate actual field conditions, changes in manufacturing which impact materials, etc.

### Authorized Guidance

The A-E is cautioned to take no guidance from any source, other than the Contracting Officer, during the execution of work, which deviates from the requirements stated in the statement of

work. The A-E shall not depart from, or perform work beyond the scope, or change the criteria upon which it is based without written direction and/or consent from the Contracting Officer. The A-E shall immediately notify the COE POC and/or the Contracting Officer of any such requests. Any problems relating to design, which endanger fulfillment of contractual requirements, shall immediately be brought to the attention of the COE POC. Either the A-E or Sacramento District COE POC shall confirm oral understandings in writing, at request of either party. IN NO CASE ARE CHANGES IN SCOPE TO BE MADE AT THE ACTIVITY LEVEL.

### Obtaining Approval for Deviations

The A-E shall not deviate from the authorized statement of work unless directed otherwise by the KO. The statement of any feature shall not be exceeded without written approval of the KO. THE A-E'S RESPONSIBILITY IS DIRECTLY TO THE GOVERNMENT'S CONTRACTING OFFICER AND ANY REQUESTED DEVIATION FROM THE SCOPE OR ELABORATIONS WITHIN THE SCOPE MUST BE BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER FOR RESOLUTION.

## **Changes in Scope**

### Process

The A-E shall not perform services requested by any person in the COE, other than the Contracting Officer, which the A-E considers to be a change in work or services required by the contract and necessitating an adjustment in contract price until all of the following is completed.

- Receipt of Supplemental Statement of Work from the Contracting Officer's Representative (COR).
- Submitted a proposal to COE covering such extra services,
- Negotiated with an authorized agent of the Government a mutually satisfactory fee, and
- Received an official notice to proceed from the Government Contracting Officer.

### Negotiations

Should MAJOR changes in the Scope be authorized by the Contracting Officer, appropriate modification to the A-E contract will be negotiated in accordance with the Contract Clause *FAR 52.243-1 - Changes - Fixed Price* [[http://www.arnet.gov/far/current/html/52\\_241\\_244.html](http://www.arnet.gov/far/current/html/52_241_244.html)]

## **A-E PROJECT MANAGER DESIGNATION**

One individual of the A-E Firm shall be designated by the A-E as Project Manager. The Project Manager shall be fully cognizant of the requirements of the A-E Contract, performance schedule and contents of this publication. The Project Manager will work directly with the Sacramento District COE POC, who will furnish guidance necessary for the successful execution of the work.

## RELEASE OF PROJECT INFORMATION

### Release by A-E to Public

At any stage of study, planning, design or construction, the A-E shall contact the Sacramento District Public Affairs Office, (916) 557-5104, to obtain a clearance and release before releasing any information for publication or giving public speeches concerning a project.

### Document Ownership

Under the clause "Drawings and Other Data to Become Property of Government" of the Contract Clauses, the ownership of all studies, reports, findings, designs, drawings, specifications, notes, calculations, electronic files, computer programs/software developed specifically to satisfy scope requirements and provide acquired data or other work is vested in the Government.

### The Freedom of Information Act

Of primary concern to the Sacramento District is the release of cost and pricing data that A-Es may consider as privileged and essential to their competitive position in their respective economic sectors. The A-E is advised that the FOIA applies to the data provided for the purpose of negotiations. Therefore, in the event an A-E wishes their cost and pricing data to be privileged and exempt from public release, the Sacramento District PM should be advised in writing and each page containing such data should be appropriately marked. Although the Sacramento District treats all A-E furnished cost and pricing data as being of a confidential nature, the *5 USC 552 - Freedom of Information Act (FOIA)* [[http://uscode.house.gov/uscode-cgi/fastweb.exe?getdoc+uscview+i05t08+26+0++\(\)+AND+\(\(5\)+AD\)](http://uscode.house.gov/uscode-cgi/fastweb.exe?getdoc+uscview+i05t08+26+0++()+AND+((5)+AD))], as amended, requires the release of records held by Government Agencies or Offices when requested by interested parties, unless such records are covered by one of the "exemptions" listed in the law. The *FAR Subpart 24.2 - Freedom of Information Act* [[http://www.acqnet.gov/far/current/html/Subpart\\_24\\_2.html](http://www.acqnet.gov/far/current/html/Subpart_24_2.html)], provides DOD policy and guidance on handling requests for records and exemptions under this Act.

## Correspondence and Transmittals

*Address and Attention Line Tables* [[REFP01L0](#)] shows the appropriate attention lines for the deliverable requirements listed within this A-E Guide. Failure to include the proper attention line within the address of correspondence to the Sacramento District may delay delivery and possibly compromise the A-E contract.

Submitting files via FTP does not relieve the A-E of having to fulfill any, or all, media requirements listed within the statement of work. The COE POC must be concurrently notified by e-mail of all FTP transmissions. For FTP transmissions to be considered as a valid deliverable, they must be acknowledged by the COE POC or PM with "confirmation of receipt" e-mail. An FTP address for the project may be coordinated with Engineering Division's Criteria Management Unit at Sacramento District (916) 557-7670 or [[cbbs@spk.usace.army.mil](mailto:cbbs@spk.usace.army.mil)]



## STANDARD CLAUSES (for emphasis only)

### Architect-Engineer Contract Clauses (where to find)

The A-E should review the standard *FAR* [<http://www.arnet.gov/far/>] and *FAR Subpart 36.6 - Architect-Engineer Services* [[http://www.acqnet.gov/far/current/html/Subpart 36.6.html](http://www.acqnet.gov/far/current/html/Subpart%2036.6.html)]. These clauses are incorporated, by reference, as part of the A-E firm's contract with Sacramento District. Upon request, the Contracting Officer will provide hard copies of the applicable A-E Contract Clauses.

### Cautionary Clause (take direction only from Contracting Officer)

No person other than the Contracting Officer has the authority to make changes to any contract action that impacts cost or schedule. Authority from the Contracting Officer to the A-E to make changes that impact cost or schedule will be in the form of an official, signed modification.

### Pay Estimates

Special emphasis is placed on requirements within Contract Clause *FAR 52.232-10 Payments under Fixed-Price Architect-Engineer Contracts* [[http://www.arnet.gov/far/current/html/52\\_232.html](http://www.arnet.gov/far/current/html/52_232.html) - 1107121] as well as *FAR 52.232-26 Prompt Payment for Fixed-Price Architect-Engineer Contracts* [[http://www.arnet.gov/far/current/html/52\\_232.html](http://www.arnet.gov/far/current/html/52_232.html) - 1107573]. See the PAYMENTS paragraph located within this A-E Guide for Common Deliverables.

### Release of Data Clause

Special emphasis is placed on requirements within clause *FAR 52.227-14 Rights in Data - General* [[http://www.arnet.gov/far/current/html/52\\_227.html](http://www.arnet.gov/far/current/html/52_227.html) - 1109286] and the *FAR Subpart 24.2 - Freedom of Information Act* [[http://www.acqnet.gov/far/current/html/Subpart 24.2.html](http://www.acqnet.gov/far/current/html/Subpart%2024.2.html)]. Also, see paragraph Release by A-E to Public before discussing any parts of the contract and project with the public,

### Quality Control Clause

The A-E is reminded of contractual obligations stated in the contract clause that specifies responsibility for the professional quality, technical accuracy, and the total coordination of all designs, drawings, specifications, and other services furnished

### Alteration of Authorities/Responsibilities Clause

The A-E shall not include any statements during the preparation of contract documents that may be construed as altering the responsibilities and/or authorities regarding the parties (especially that of the Government's) involved in the construction contract.

## SERVICE AND/OR PRODUCT PHILOSOPHY

Before beginning the work, the A-E should review current criteria, instructions and guide specifications shown in *Criteria Locations Table for A-E Firms [REFP03L0]*, and make a thorough study of the requirements of the project and, if applicable, the conditions at the site. If, after an analytical review, the A-E is of the opinion that a deviation from instructions would be of benefit to the Government, the A-E shall bring the matter to the attention of the COE POC for a decision. Sacramento District encourages the A-E to use ingenuity and professional expertise to provide the best possible service and/or product for all elements of the project within the constraints imposed.

## PRE DESIGN (Scope Clarification) CONFERENCE

The A-E may be requested, or may request, to participate in a pre-work (a.k.a. Scope Clarification) conference between the customer and the key members of the A-E's project team. The purpose of such a conference is to discuss the customer's expectations, become more familiar with site conditions, better define the requirements, and if necessary, further clarify the scope for the project prior to preparation of a price proposal. This shall include the types of design, deliverables, review process/responsibilities, and major project tasks and constraints. This meeting may be held in the immediate vicinity of the proposed project, at the Sacramento District Office, or even over the telephone. At this time the A-E is encouraged to propose statement of work changes, which are felt to be in the best interest of the project. To assist in preparation for the conference, the COE POC will provide the A-E information for obtaining the project specific criteria as referenced in the statement of work.

## PREPARATION OF PROPOSAL

### Price Proposal

A-E price proposals shall be submitted to the addresses listed in *Address and Attention Line Tables [REFP01L0]*. Under no circumstance is the A-E to submit additional copies (hard or electronic) to other COE employees without the explicit consent or direction of the A-E Administration Section chief, COR, or the Contracting Officer. The type of deliverable, whether hard copy, electronic, or both should be specified with the Request for Price Proposal. If submitting an electronic proposal, see paragraph Electronic Files. If submitting a hard copy proposal the A-E shall submit the original and one copy to the A-E Administration Section chief, or COR who issued the request for proposal. If the proposal is in excess of \$550,000, an additional copy shall be sent to Construction and A-E Branch, Contracting Division.

### Subcontracting Plan

If the A-E is a large business and the total contracting amount is expected to be \$500,000 or more, the A-E must prepare and submit a subcontracting plan. The Government's SADBUI Advisor, who often will attend the pre-negotiation conference to explain the subcontracting plan requirements, must deem the plan acceptable. One copy of the A-E'S completed subcontracting plan must be sent along with the price proposal. The original of the subcontracting plan must be



sent, at the same time, to the SADBUs at the address listed in *Address and Attention Line Tables [REFP01L0]*.

## Quality Control Plan (QCP)

### Purpose

The purpose of the A-E prepared QCP is to ensure development of a quality product or service from inception through completion of the Quality Control Certification (refer to paragraph A-E Quality Control (QC) Review). The QCP is a project specific document that provides a framework for developing a product and conducting the technical review of a product. The QCP is a living document and becomes part of the Sacramento District's Project Management Plan that is developed for each project by the Project Manager. The A-E QCP establishes the documents and products to be reviewed, the review team and its responsibilities, and schedule and costs for review. It is prepared for every product/service except for those identified as small and low risk. A generic version may be used for routine, minor products, if the appropriate Sacramento District Functional Chief approves. With approval, the A-E updates the QCP as warranted.

### Responsibility

The A-E is responsible for reviewing, checking and coordinating all submittals. The professional quality, technical accuracy and coordination of all design submittals and other services to be provided by the prime A-E and any subcontractors/consultants used is of major importance. A written QCP shall be submitted concurrent with the price proposal, but under separate cover letter, unless the project is highly complex and would require more time for development. In this event, the A-E will be allowed to submit a generic plan with the price proposal followed by a completely detailed plan early in the first phase of work. Refer to *Address and Attention Line Tables [REFP01L0]*. The A-E's performance evaluation will be based in large part on how the deliverables package reflects conformance with the A-E QCP. The A-E's contractual obligation to provide complete, well coordinated, and error free documents has far-reaching consequences. Therefore, the A-E is cautioned to place special emphasis on this aspect of the QCP. In the event damage to the Government results from negligent performance of any of the services to be furnished under this contract, the A-E will be held liable for such damages. The Government's review effort in no way relieves the A-E of contractual responsibilities. For this reason, an effective quality control plan is critical.

### Content

The content of the QCP is dependent on the complexity of the product or service being provided and can range from a generic QCP to a Project/Product/Service Specific QCP. As a minimum all QCPs are to include a schedule of work to be accomplished, a budget, points of contact and their respective lines of authority/coordination, a brief discussion on plan execution with contingency measures when appropriate, A-E review effort, and a A-E quality control checklist. Refer to *ER 1110-1-12 Quality Management [http://www.usace.army.mil/publications/eng-regs/er1110-1-12/entire.pdf]*

## Review of QCP

The COE POC will review the QCP. If comments are generated during this informal review, the A-E shall respond to the comments by E-mail and/or revise the plan accordingly and resubmit prior to initiating design. The A-E will be expected to follow the approved QCP throughout the course of the project to assure a quality end product. Should future events dictate revisions to the approved QCP, the A-E shall notify the COE POC by E-mail and submit the revised plan for approval.

## **PRE-NEGOTIATION CONFERENCE**

As with the Pre-Design Conference, the A-E may be requested, or may request, to participate in a Pre-Negotiation Conference with the COE's designated negotiator, the COE POC and key members of the A-E's project team and/or designated authorized representative. The purpose of this conference is to discuss the requirements of the statement of work. Upon conclusion of the review and adjustment of the statement of work, an acceptable format and appropriate cost breakdown (typically broken down by each task identified by a Period of Service in the statement of work to be used by the A-E for his proposal will be determined. This Pre-Negotiation Conference will also serve to address any other special contracting issues peculiar to this pending contract, as well as provide the A-E an opportunity to ask any questions, or express any concerns, regarding the requirements and administration of the contract. This meeting may be held at the Sacramento District Office, or over the telephone and/or in conjunction with the Pre-work Conference, if there is one.

## **NEGOTIATION CONFERENCE**

Negotiations may be held in Sacramento District offices or telephonically. The objective is to reach an agreement on a fair and reasonable price for the work and services required. This does not mean that there is agreement on each and every item, only major items and the overall cost to the Government. During negotiations the statement of work will again be reviewed as necessary, and the A-E's proposal will be examined and discussed in detail. Major changes in the statement of work are unacceptable at this time unless the A-E has previously notified the COE POC that certain scope changes are necessary. If a major scope change is needed, then the negotiation is stopped until the scope, and any revised proposal or revised IGE is completed.

## **AWARD OF A-E CONTRACT ACTION**

Subsequent to the successful completion of negotiations and upon approval of the Contracting Officer, the A-E will receive a written transmittal letter forwarding the unsigned contract to the A-E for signature approximately 10 days after completion of the negotiations. The signed contract must be faxed back to Sacramento District before the effective contract date. The A-E is authorized to begin work as of the effective contract date. For task order awards, the fully executed task order will be sent to the A-E and is the authority for the A-E to commence work.

## **SUBMITTAL SCHEDULE**

The schedule for contract deliverable submissions is established in the statement of work. MEETING ESTABLISHED SUBMITTAL SCHEDULES IS ESSENTIAL. Late submissions

may jeopardize project funding, construction contract award or user need dates and will have an adverse impact on the A-E's performance evaluation.

## REVIEW PROCESS

### Strategy

The Government review strategy is to accommodate *ER 5-1-11 U.S. Army Corps of Engineers Business Process* [<http://www.usace.army.mil/publications/eng-regs/er5-1-11/entire.pdf>] and utilize the A-E QCP. Refer to paragraph Quality Control Plan (QCP).

### A-E Quality Control (QC) Review

The A-E is responsible for conformance with contract requirements and technical as well as functional criteria. Therefore, the A-E shall provide a QC review of all submittals in accordance with the QCP prior to each submittal.

### Documenting QC Review

The A-E designers shall annotate all comments with responses and make the appropriate adjustments to all applicable documents prior to their resubmission to the Government. The A-E's documented QC comments and responses shall be a separate document and accompany each required submittal.

### Quality Control (QC) Certification

At the time that the final submittal is provided to the Government, the A-E shall provide a QC certification in accordance with the *Sacramento District Quality Management Plan, Appendix F SPK Quality Management Process, Product Development, Technical Review, and Quality Control Certification Forms* [<http://iso9000.spk.usace.army.mil/docs/AppendixF.pdf>].

### Virus Free Certification

The A-E shall also provide a written certification stating that each and all versions of any electronic submittal are virus free. The certification may be included on the Quality Control Certification Letter.

## Government Quality Assurance (QA) Review

### Electronic Process

The Government will provide a QA review of the A-E's work using the program described in *ER 1110-1-8159 DRCHECKS* [<http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8159/entire.pdf>].

### Level of Detail

The Government and other agency review may range from a cursory review of the A-E's QC documentation for relatively straightforward projects to a more detailed review of A-E products for more complex or controversial projects. However in all cases, the review will not identify each and every incidence of an important area needing attention. The comments will address the problem and some of the incidences. The A-E is expected to change all necessary and related items. The Government review effort in no way replaces the A-E's review and quality control requirements.

### Coordination of Comments

All Government review comments will be coordinated by the COE POC prior to submittal to the A-E through the electronic process identified in the statement of work or paragraph Electronic Process. The POC will review the comments for applicability to the project against the project's design criteria, and then notify the prime A-E the comments are ready for evaluation in accordance with *Evaluating a Review Comment [INSA02L0]*. The A-E is responsible for coordinating comments with any subcontractors. Handwritten A-E responses to Government review comments will not be accepted. A-E responses must be made as described within *Evaluating a Review Comment [INSA02L0]*. The A-E is encouraged to call and discuss any problematic comments with the appropriate reviewer. The Government will back check all final A-E submittals after A-E corrections are made to insure compliance with or resolution of comments to the satisfaction of the Government.

## **HEALTH AND SAFETY PLAN**

The A-E shall submit a health and safety plan for the work requiring such a plan. The plan shall cover all A-E actions to insure health and safety of A-E personnel during fieldwork. The plan shall be brief and shall be submitted within 7 calendar days after a contract award and prior to any fieldwork. Refer to *EM 385-1-1 Safety and Health Requirements* [<http://www.usace.army.mil/inet/usace-docs/eng-manuals/em385-1-1/toc.htm>] and *Project Safety and Health Requirements [PROP07L0]*.

## **CONSULTATION WITH THE CLIENT ACTIVITY**

The COE POC is the focal point between all Government representatives and the A-E regarding technical and performance issues. The A-E may be required to consult with the sponsor or local activity having a jurisdiction and impact, or client team concerning local conditions or operational requirements. Technical and design considerations that conflict with the directions from the COE POC shall be brought to the COE POC's attention immediately.

## **Informational Material**

Any "typical" or "example" documents (design analysis, specifications, drawings, etc. from another project or just general in nature) shown to the A-E are for background information only, and are not authorized criteria unless specifically stated within the statement of work.

## FORMAT, CONTENT, and PACKAGING OF DELIVERABLES

### General Instructions

The statement of work will define what types of deliverables are required. Follow the information below for the format of those types. Not all of these may be required by the A-E contract. Sometimes, the statement of work will also define special or additional format requirements. When conflicts arise between the statement of work and this A-E Guide for *A-E Submittals [REFP18L0]*, the statement of work governs. Please notify the COE POC for concurrence. The A-E shall use SPECINTACT and UFGS guide specifications for the preparation of all technical specifications. All hard copy submissions shall include a Project Cover Sheet, as shown in *General Project Metadata [REFP05L0]*. This applies to all sizes of paper (8.5"x11", 11"x17", 22"x34", etc).

### Type of Paper

Unless otherwise directed by the statement of work, all final hard copy CADD drawings, maps, and plates larger than 8.5" x 11" shall be on reproducible vellum. All other submittals, including interim CADD submissions, shall be on white paper with black print

### Electronic Files

#### Project Metadata

All electronic file submissions shall include Project Metadata as shown in *General Project Metadata [REFP05L0]*. This file is to be kept in the root directory of the project directory structure and shall be included with all phases of electronic deliverables.

#### Formats and Software

The statement of work should define the specific software programs and versions mandatory for the contract, especially if the files will ultimately be transferred to a customer. If it doesn't, please notify the COE POC to obtain written concurrence.

#### Geospatial Meta Data

##### Definition

Geospatial data is any data referenced to a point on the earth. This would include (but is not limited to) data the Corps uses to produce river and harbor maps, charts and drawings, real estate maps, environmental and economic studies, engineering studies and drawings. The Federal Geographic Data Committee (FGDC) has published a *Content Standard for Digital Geospatial Metadata Workbook [http://www.fgdc.gov/metadata/documents/workbook\_0501\_bmk.pdf]* that documents all the fields of the metadata standard.

## How to Create

There are several programs available to help create metadata compliant with the Federal Geographic Data Committee standards. For an extensive listing of available packages see the *USACE Geospatial Data Clearinghouse Node* [<http://corpsgeo1.usace.army.mil/>]. Since metadata is only a text file containing certain fields in a certain order, even a word processor could be used to create the files. However, since there are mandatory fields and the order of fields is important, a word processor is not recommended.

## National Clearinghouse

*Executive Order E.O. 12906 - Coordinating Geographic Data and Acquisition and Access: The National Spatial Data Infrastructure* [<http://www.archives.gov/federal-register/executive-orders/pdf/12906.pdf>] requires that all federal agencies create and submit metadata, for all geospatial data collections, to a national clearinghouse. Submission of the metadata to the national clearinghouse is the responsibility of the Sacramento District.

## Guidance

*ER 1110-1-8156 Policies, Guidance, and Requirements for Geospatial Data and Systems* [<http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-1-8156/entire.pdf>], was written to assist USACE commands comply with the Executive Order. Refer to *Geographic Information Systems Design* [[PROPI7L0](#)] for format and content requirements.

## Studies and Reports

### Paper Size

Unless otherwise specified in the statement of work, Study and Report deliverables shall be in accordance with the *EP 310-1-6 Graphic Standard Manual* [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep310-1-6/toc.htm>], Grid B - 8.5"x11" Technical Publications, single column. Any drawings, plates, maps, etc. that require larger paper size shall be as described within Sacramento District Work Instructions.

### Content

The statement of work should describe the requirements and level of detail required to fulfill the requirements of the A-E Contract, or otherwise where to find such requirements.

### Schedules

Any MS Office compatible software may be used to create the schedules specified within the statement of work. Use the information above for delivering hard copy and/or electronic files as required.

## Plans, Drawings, Plates, and Maps

### CADD Standards

To retain clarity and relevance when reproduced in black and white, any graphics prepared for reports or presentations must make use of distinguishing line types and/or hashing patterns to depict different features. Appealing color-coding may also be employed, but not in lieu of line types and hashing. Follow the *CADD/GIS Technology Center, A/E/C CADD Standard, ERDC/ITL TR-01-6, Release 2.0,* [\[https://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp\]](https://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp).

### Scale Factors and Units of Measurement

The required unit of measurement is metric. Drawings should be one-to-one and plotted to appropriate scale for the paper size. Exceptions and specifics will be listed within the statement of work and *Creating Design Drawings for Military Projects* [\[INSP06L0\]](#).

### Border Sheets

Border sheets for various product deliverables are available from the *Sacramento District's CADD Web Page* [\[http://www.spk.usace.army.mil/organizations/cespk-ed/SPKCADD/index.html\]](http://www.spk.usace.army.mil/organizations/cespk-ed/SPKCADD/index.html). SPK CADD border sheets contain specific formats for both AutoCAD and MicroStation that must be followed.

### Content

The A-E has the responsibility to show all information necessary to completely describe the project. Regardless of local practice or procedures, the designer must prepare the drawings with the expectation that both the Corps of Engineers, in the role of product or service manager, and the customer will be able to proceed to the next level of project intent (i.e., bidding, construction or funding) without numerous modifications to correct work deficiencies.

### Interim Submittals

The amount of effort and detail required for interim submittals should be agreed to during negotiations. Some types of deliverables may have Sacramento District Work Instructions that will describe the required details.

### Cost Estimates

### Precautions

The A-E shall be aware of and take such precautionary measures as necessary to maintain the confidential nature of all cost estimates. Refer also to paragraph RELEASE OF PROJECT INFORMATION.

### Packaging and Mailing

All cost estimates shall be prepared in accordance with this section of the A-E Guide and will be bound (or stapled) separately from other submittal data. An electronic copy of the MCACES project file (with related databases) shall also be furnished to the District cost engineer on a CD-ROM.

### Use of MCACES

In general, cost estimates, at the earliest practical stage of project development, are to be prepared using the latest version of MCACES (Micro Computer Aided Cost Estimating System). When MCACES is waived on a given project by formal memorandum issued by the Sacramento District Cost Engineering Section, the cost estimate shall be prepared in accordance with the statement of work of the design contract.

### Cost Growth

The unit costs of all construction cost estimates submitted shall reflect the current pricing at the time of submittal. For all estimates prior to the Final Design, cost growth (escalation) - using the Tri-Services Index - is to be added to the total project cost, projecting costs to the assumed midpoint of construction. For Final Design and later cost estimates, cost growth may or may not be added as directed by the Sacramento District Cost Engineering POC.

## **Engineering Considerations and Instructions for Field Personnel (ECIFP)**

Unless otherwise specified within the statement of work, the A-E consultant shall prepare an ECIFP. This report is used to transmit special design concepts, assumptions, and instructions on how to construct unique design details to field personnel. The report establishes a basis for communication and coordination between design and construction personnel. The ECIFP vary in the level of information necessary to get the field personnel familiar with the project. The following information should be included as a minimum:

- Existing Health and Safety concerns at the site
- Site access protocols
- Site security protocols
- Installation or site points of contact
- USACE points of contact for contract administration
- Regulatory points of contact for emergency notification

### Report Format and Content.

As applicable to your project, include the following information in your report:



- Title Page. List Project title, location and date of report.
- List of Design Personnel. Provide a list of key design personnel that could be contacted for technical assistance during construction. Include name, design specialty and telephone number.
- Special Design Considerations. Provide clear and concise explanation of special design concepts and/or unique features by discipline; Civil, Architectural, Structural, Mechanical, Electrical, etc. such that COE construction personnel can identify and properly inspect these special items of work. Examples of items to discuss include:
  - Step-by-step instructions for constructing complex building features, i.e., do this before that, etc.
  - Critical tolerances
  - Special testing requirements
  - Critical or unusual product and performance specifications such as high pressure, temperatures or capacities.
  - Situations where manufacturer should oversee equipment installation.
  - Long-lead procurement items.
  - Government-furnished equipment.
  - Special operational constraints, i.e., utility outage periods, aircraft runway closures, phasing of work in occupied buildings or other special construction phasing required.
  - Any permits that must be obtained prior to and during construction.
  - Critical safety precautions required, especially in the areas of asbestos, or other minimum quality assurance testing amount/frequency for critical items.
- Shop Drawing Review. Provide a list of items or features of the project where you feel you alone have the expertise to properly review shop drawings involved.
- Schedule of Required Site Visits by Design Personnel. If you deem site visits on certain phases of construction are necessary, a site visitation schedule shall be prepared identifying the critical construction stages and the number of days of notification required from the COE.

## **Significant Discussions and Meeting Minutes**

### Responsible Party

With the exceptions of the PRE-DESIGN CONFERENCE and PRENEGOTIATION CONFERENCE, the A-E shall prepare significant discussion documentation and distribute either electronic or hardcopies to all parties. The COE POC, whether or not they attended or participated in the meeting, shall be provided copies of all information.

### Timeframe for delivery

The COE POC shall receive significant discussion materials within 5 –7 business days after date of occurrence. The COE POC should acknowledge by return e-mail with a "confirmation of receipt."

### Types of Significant Discussions

- Meeting Minutes

- Telephone Conversations

Only those telephone conversations relating to the technical phases of work under the contract are considered significant.

- Written Communications

Furnish to the COE POC a copy of all written communications pertaining to the work under this contract received from other Government agencies. When it is clearly indicated that a copy of the communications has been furnished to the COE POC by the originator, concurrence of action shall be obtained from the COE POC prior to performing such action.

- E-Mail Communications

Immediately transmit to the COE POC a copy of all E-mail communications pertaining to the work under this contract received from other Government agencies. When it is clearly indicated that a copy of the communications has been furnished to the COE POC by the originator, concurrence of action will be obtained from the COE POC prior to performing such action.

- What to include

- Name of Project
- Subject of Meeting
- Date of Meeting
- Attendees
- Record of Issues Discussed
- Action Items
- Suspense Date
- Minutes taken by

## **RESPONSIBILITY AFTER COMPLETION OF WORK**

### **Errors or Omissions (A-E LIABILITY FAR 36.608 and 36.609)**

The A-E is required to support the Sacramento District after completion of the scoped work should errors or omissions in the documents prepared by the A-E create problems in the

subsequent stages of the project, such as in bidding or administering the contract for construction, where the A-E has been tasked to complete the design. The support provided by the A-E shall take whatever form is necessary to correct the errors or omissions in the original documents. Such required design corrections shall be done in a timely manner at no additional cost to the Government.

### **Negligence (A-E LIABILITY FAR 36.608 and 36.609)**

Neither the Government's review, approval or acceptance of, nor payment for, the services required shall be construed to operate as a waiver of any rights under the design contract or any action arising out of the performance of the design contract, and the A-E shall be and remain liable to the Government for all damages caused by the A-E's negligent performance of any of the services furnished. Design errors or omissions, which result in damages or extra cost to the Government, will be evaluated for potential A-E financial liability. If the Government determines that the A-E is financially liable for a design deficiency, the A-E will be so advised by official correspondence. Reimbursement of costs incurred by the Government as a result of the A-E's errors and/or negligent performance will be actively pursued by Sacramento District. The preferred method of settlement of A-E financial liability is for the A-E to accept responsibility and negotiate directly with the Construction Contractor. Where the A-E cannot reach an agreement with the Contractor or if the A-E declines to negotiate or accept responsibility, Sacramento District will arrange settlement directly with the Contractor and will bill the A-E.

### **Services during Construction**

Additional services may be required in direct support of a project's construction, apart from that described as errors or omissions above. If required, these services will be defined in a Supplemental Statement of Work prepared by the Government. No services during construction work shall be performed by the A-E until an appropriate price for the work has been negotiated and a written modification is issued by the contracting officer of the COE. Services may include monthly site visits to the project, conference attendance or special inspections.

### **PERFORMANCE EVALUATIONS (FAR & EFARS 36.604)**

#### Design Phase Evaluation

#### Rating Criteria

The Government will prepare A-E performance evaluations for all Design and Engineering Service Contracts in the Contractor Performance Assessment Reporting System (CPARS) in accordance with *Purchasing of Services [PROPO8LO]*. A-E performance will be rated as Exceptional, Very Good, Satisfactory, Marginal, or Unsatisfactory, taking into consideration such things as technical quality, coordination of design documents, cost effectiveness, maintaining project schedules, cooperativeness, etc. Incomplete submissions, late submissions or resubmissions will have significant adverse impact on an A-E's performance evaluation. In addition, based on schedule and interim requirements, other evaluations may be performed.

### Rating Disposition

Immediately upon completion of engineering services, at end of work or upon completion of each task order, the PM and the project team will evaluate the A-E performance on the services rendered using Architect-Engineer Contract Administration Support System (ACASS). The A-E will be notified through the ACASS database when a draft evaluation is prepared for their review and response. The A-E is required to have a PKI certificate in order to open and maintain a CPARS account. The A-E shall be familiar with the CPARS in order to respond to draft ACASS evaluations and to access completed ACASS evaluations. Refer to EP 715-1-7 [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>], Paragraph 6-10 for A-E rebuttal procedures.

### Interim Performance Evaluations

Interim evaluations may be prepared and used to advise the A-E of their performance during the execution of a contract as considered appropriate by the Contracting Officer. Refer to EP 715-1-7 [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>], Paragraph 6.6.

### Construction Phase Evaluation

The Resident Engineer will submit an evaluation of the performance of the A-E and effectiveness of the A-E prepared contract documents. This evaluation is also maintained in the A-E Contract and Qualification Data File and DOD database. Refer to EP 715-1-7 [<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep715-1-7/entire.pdf>], paragraph 6-8.

### Awards for Excellent Performance

A-E Firms that perform contract services in an excellent manner may be considered for special recognition. The Sacramento District Engineer gives Certificates of Appreciation and Certificates of Commendation. Certificates of Commendation are given for exemplary performance in one or more areas of contract services. In addition, Design Excellence Awards are given (after construction is underway) for exemplary performance in all areas of A-E services. Also, awards for Specifications are made by the evaluation of A-E performance to specifically recognize and reward achievement by A-Es in the preparation of construction specifications of superior quality.

### Affect on Future Selection

Performance evaluations are available to future slate and selection boards and will be considered when subsequent A-E selections are made. Furthermore, copies of evaluations are available for the use of other Federal Design and Construction Agencies in selecting A-Es for their design contracts.

### Poor A-E Performance (Re-Submittal Policy)

If the COE POC determines that a design submittal is unacceptable, thus necessitating a re-submittal, the A-E may be required to send representatives to Sacramento District at no additional cost to the Government to resolve the problems with the submitted work.

### **PAYMENTS (FAR 52.232)**

The A-E is required to submit monthly pay estimates for the value of the design services performed to date. The Sacramento District, A-E Administration Section will provide guidance for preparing and submitting payments in accordance with the Contract Clause *FAR 52.232-10 Payments under Fixed-Price Architect-Engineer Contracts* [[http://www.arnet.gov/far/current/html/52\\_232.html](http://www.arnet.gov/far/current/html/52_232.html) - 1107121]. Monthly or partial payments may be made as the work progresses subject to submission by the A-E of estimates of the value of completed services and certification by the PM that the A-E's performance is satisfactory. The extent of supporting data required from the A-E will vary depending upon the amount of the invoice and past A-E performance. Completed *ENG Form 93 - Payment Estimate - Contract Performance* [<http://www.usace.army.mil/inet/usace-docs/forms/e93.pdf>] shall be mailed to the address and attention line shown in *Address and Attention Line Tables* [REFP01L0].

