CONTRACTOR'S PERSPECTIVE WORKING ON LARGE/COMPLEX PROJECTS

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SAFETY always

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Contractor's Perspective Working on Large Projects

- Procurement: Pre-Bid / Bid Stage
- Contract Commencement
- Communications during the Contract
- Technical Audit of processes
- Contract Close-out
- Final Comments

Pre-Bid / Bid Stage

Pre-Bid / Bid Stage

Early Exchange of Information

- Draft specifications
- Industry day / Contractor's input

Procurement Type

- Early Contractor Involvement
- Best Value
- Lowest Price Technically Acceptable

Geotechnical data

Prescriptive vs Performance Specifications

Experience and Qualifications

Interaction Owner/Contractor during Solicitation

Early Exchange of Information

Industry day / Contractor's input

Early sharing of scope of work

- Design Intent
- Performance requirements
- Initially considered construction approaches

Early interaction with the industry is important and promotes the development of a wider range of construction solutions to address the needs of a specific project.

Draft specifications Shared with the Industry

Allow contractors to take a first view of

- Construction approaches anticipated
- Construction/project constrains that can impact construction schedule and price
- Specific requirements which could impact type of resources needed for the project

Procurement Type

Early Contractor Involvement

It enables the Contractor to be an active part in the finalization of the design, construction approach and suggest value engineering changes. In addition, the Contractor contributes to the project also bringing innovations, advise on constructability, sequencing and possible construction risks.

Our experience has shown that this procurement Results in time and costs savings.

Tuttle Creek Dam Foundation Remediation

Manhattan, KS - USACE Kansas City District

Original Contract → ITP $250 M / 6 years

- Phase 1 – Upstream COW and Large-Scale Test Section
- Main Option – Downstream Stabilization
- Design to be finalize and negotiated during Phase 1
- Original design → Soil Stabilization by DMM and JG

Final Contract Amount → $123 M / 14 mo. ahead of schedule

- Performance of Large-Scale Test
- Removal of Upstream Cutoff wall
- Installation of Shear Walls by Self Hardening Slurry Buttresses
- No REAs / No Claims - Partnering

Procurement Type

Early Contractor Involvement

LPV111 East Back Levee Improvement Project

New Orleans, LA - USACE New Orleans District

Formal ECI type of Contract

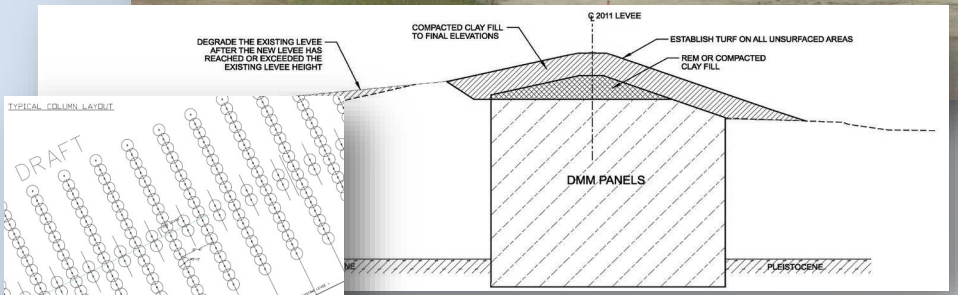
DMM Scope

Initial Target Price → $115.3 M / 522 cd duration

- Completion of Design by Construction Team and Owner/Designer
- Alternative Solution proposed by Contractor

Project completed ahead of Schedule and below target Price

- Final Contract Amount → $98.8 M / 438 cd duration
- Innovative design and utilization of Recycled Embankment Material (REM, aka DMM spoil…)
- No REAs / No Claims - Partnering



Procurement Type

Early Contractor Involvement

Boone Dam Cutoff Wall

Kingsport, TN – Tennessee Valley Authority

Constructability Review Contract
Engaged Industry with Formal review of draft specifications.

Construction Contract procurement similar in spirit to a Best Value Approach typical of the USACE

Award took into consideration Construction Approach developed considering the specific site conditions with focus on Dam Safety

Procurement Type

Best Value

It favors innovation and the development of alterative solutions tailored to the specific project conditions that are fully explained in the technical proposal (which is afterwards evaluated and integrated in the Contract). Essentially a two-part proposal: Technical and Price.

It reduces the uncertainties and associated risks:

- On the Owner as to the ability of the contractor to safely, timely and successfully complete the project.
- On the Contractor, as to the understanding of what has been scheduled and priced.

Examples

- Walter F George Dam, AL
- Wolf Creek Dam, KY
- Bolivar Dam, OH
- Wood River Dam, IL
- Herbert Hoover Dike Gap Closure, FL
- Herbert Hoover Dike Cutoff Wall Extension, FL

PROCUREMENT TYPE

LOWEST PRICE TECHNICALLY ACCEPTABLE

A two steps approach not often used for large/complex projects:

- Simple Prequalification Sources are more conventional prequalification mainly based on *Company track records and past experience,* and generally not used for large/complex projects
- MATOC-type solicitations. These solicitations are more suitable for large/complex projects and results in the *preselection of Shortlisted Contractors through* formal submittal of Technical Proposal and Qualification of companies and personnel. MATOC solicitation could benefit from a mechanism to allow the contractor to offer *Technical Variations* to the originally accepted technical Proposal to address specific conditions/needs of one or more of the TOs

Examples

- Herbert Hoover Dike Reach 1 , FL
  MATOC 1 - 8
- Herbert Hoover Dike Dam Modification, FL
  MATOC 1 - 5

GEOTECHNICAL DATA REPORT AND GEOTECHNICAL BASELINE REPORT

Issuance of a detailed Geotechnical Report is instrumental to allow the contractor to understand the subsurface conditions of the Projects for proper selection of the construction approach tailored to the actual site conditions.

- **Geotechnical Data Report** – generally very detailed, containing information and history of the subsurface conditions of the project. For large/complex projects the data has become more and more complete to allow for an in-depth understanding of the geotechnical features characterizing the project. At times it can be challenging to review the amount of information contained in the GDR due to time available for the review and preparation of the Proposal.

- **Geotechnical Baseline Report** – the presence of a GBR is considered beneficial to the Project. In addition to the summary of the data contained in the geotechnical report, the GBR *establishes* a set of documents where ***contractual statements describe the geotechnical conditions to be anticipated*** and/or assumed during construction. The presence of the GBR ***results in a more educated risk assessment*** of the subsurface where, conditions consistent or less adverse to those of the baseline are the responsibilities of the Contractor, while conditions more adverse are accepted by the Owner.

Type of Specifications

Performance Specifications

Describe the results required from the completed project. Instead of giving detailed instructions on how to achieve the desired final product, performance specs describe the desired results with criteria for verifying compliance, but without stating the methods for achieving the required results.

For instance, requirements can include Dimensions (width, depth, continuity), UCS, Permeability.

This leaves the ability to the Contractor to select the construction approach and methods to achieve the required results listed in the Specifications.

Generally, performance specs will invariably include extensive testing provisions to ensure that the project meets all the requirements are a Technique Area where the Contractor can demonstrate the selected approach.

TYPE OF SPECIFICATIONS

PRESCRIPTIVE SPECIFICATIONS

Provide step-by-step details and instructions on the desired installation method and types of materials to be used. These type of specs generally split into three subcategories.

- General Provisions: these provisions will reference codes and standards to comply with.
- Required Products: lists type of products/materials required, based on the detailed requirements.
- Execution Procedures: details the methods of installation and how to measure quality or effectiveness.

In recent years these type of specifications for large dam/levee remediation projects have morphed into Prescriptive Specifications with ***very strict*** *performance* ***requirements***. In these cases, the requirements must be meet by the execution of ***specified construction techniques following a defined set of procedures***.

This approach removes the ability of the contractor to innovate, propose new techniques and solutions intended to improve quality, favor timely completion and within budget.

If prescriptive specifications are driven by contractual constrains, it is recommended that a full understanding of the prescriptions imposed is achieved by early interaction with the industry.

Required Experience

Project/Scope Experience

Generally, for large/complex projects requires **Contractors** to provide **Past Experience** in similar application *to confirm ability to perform in unique conditions.* This is an important part also in considerations of the risks associated with Construction.

In the rare cases where the market does not necessarily have the Solicitation required experience the Contractors ability to meet the new requirements shall be weighted from past successful experience.

Key Personnel Experience

This is another key requirement for large/complex project.

At times, the specified experience may include requirements that are not clear or do not seem to bring added value to the projects. Few examples:

- Favoring States *certifications* in lieu of extensive experience in similar type projects (QCM with PE stamp)
- Requiring multiple years of continuous experience in lieu of Specialized experience (SSHO with 10 years continuous experience but no specific requirements on specialized type of work)
- Specialized equipment operators with required number of project in lieu of more dedicated experience in similar applications for techniques/soil conditions.

Conditional Approval is an important tool to be considered.

Early Interaction and Q&A

Prior Solicitations

During the early stage of Projects definition and later during Industry Days and Pre-solicitation period, it is important to consider “One-on-One” where the Contractors will have the opportunity to more openly discuss past experiences, lessons learned, and possible construction approached for the consideration of the Owners and in the best interest of the Projects

During Solicitation

Via email - Usually quicker and more direct

Via PROJNET (Typical for Best Value Solicitations):

- It can be a very slow process; causing time extension requests due to late replies and need of requestioning
- Not necessarily clear with Answers limited to “bid as specified”… leaving open items and potential additional risks with associated increased time and cost in the proposal.
- The famous “Bid Time Extensions” request especially when related to pending Q&A… the answer should be as timely as possible

Contract Commencement

Award Process

Notice of Award

Important to start the coordination with the Owner.

Notice to Proceed

Generally, a set hard date.

Based on experience a coordinated, and possibly ***Phased NTP*** can benefit the Project especially in Solicitations that have experienced delays in the procurement and award.

A phased NTP would allow to progress the work, especially on the initial submittals and required paperwork, with limited use of contractually available time.

COMMUNICATIONS

Communications

Interpretation of the Specifications

Documenting Project Issues

Contract Management Issue resolution process

Partnering

UNDERSTANDING OF THE SPECIFICATIONS

Wording vs. Intent

In very large/complex projects, having specifications that contemplate any potential scenario or all possible combination of events is not possible. Often, the wording does not capture the intent and an experienced/educated interpretation is needed.

In the event of a difference in the interpretation of specific sections of the specifications, apart from documenting disagreement, meeting to discuss intent vs. wording could help establishing the most efficient path forward while reducing the risk of litigation.

Flexibility in the Interpretation of the Specs

“Flexibility” in the interpretation of the specifications comes from comprehensive understanding of the intent, experience and common sense.

It an approach which allows for more efficient contract management which meets the intent of the contract.

Documenting Project Issues

Documentation of Issues

Timely and clear documentation of Project Issues is a key component of project/contract management.

After submittal and Owner review (the shorter the better…), **coordination meetings**, in lieu of a mere back and forth of correspondence, help in mutual understanding of respective positions and ease the path for early resolution of the issue at hand.

A quick resolution allows key players to focus on prosecution of the work, to optimize costs and schedule.

RISKS ON THE MANAGEMENT OF CONTRACTUAL ISSUES

- A *disconnect* from the initial spirit and intent of the specifications, which *can grow in disputes* that with dialog and partnering can be minimized and/or avoided.
- Collaborative *negotiation can become adversarial*, especially when parties rely on early involvement of lawyers to protect their interests.
- When the focus is on the particulars of one single issue, with insufficient attention to the relationship between the parties.
- Failure to capture the values and motivating vision of the parties sufficiently or at all, may result in a deficiency of contextual reference points which can assist parties who need to navigate the agreement when unanticipated events arise.
- An "*all or nothing*" approach to dispute and breach situations, which can render a potentially remedy-able situation adversarial, in turn *resulting in a breakdown of a constructive relationship*.

Issues Resolution Process

Requests for Equitable Adjustment (REA)

When contractual issues arise, REA are a good tool to communicate within the boundaries of the Contract.

An early negotiation of the REAs provides certainties to the parties as to the impacts associated with the issues at hand, both from a cost and schedule stand-point. It also prevents bringing outstanding issues to the end of the project when the knowledge from both parties regarding the matters at stake can be partially or totally lost, thus making the process long, convoluted and of more difficult resolution.

Issue Resolution Process

In addition to the formal mechanisms set in the contract, it is recommended that an *Issue Resolution Process* be established, within the contract, to *facilitate an early resolution of any type of possible conflicts/issues*. Often this is established within the *Partnering agreement* with the establishment of ***Issue Resolution Ladder***.

This process should identify levels of where, mainly through meetings, the issues are treated with the intent of getting to resolution. Each of these levels shall have clearly assigned personnel with the ability to take decisions at that level and a time frame for the resolution of the problem at stake. If after this time frame the conflict is not solve it should be escalated to the following level up to reaching the highest level within the organization. Typically, at least three levels are identified.

The goal of this process is always to favor the resolution of problems at the lowest possible level

PARTNERING

Partnering is a broad term generally used to describe a **Collaborative** management approach that encourages Openness and Trust between parties to a contract **to achieve mutually beneficial goals** established early in the Project.

It involves an agreement in principle to create a **cooperative attitude** to complete the Project **sharing** the **risks involved**, and to establish and promote a true partnership environment.

Partnering can be arranged either by use of a traditional contract with a separate partnering agreement, or by use of a contract with an aligned partnering agreement (Alliance).

Problem resolution procedures needs to be based on solutions with clear procedures and benchmarks to ensure continuous improvement.

Successful partnering enables long-term Integration of the entire Project Team and requires expertise and, most importantly, continuous Commitment and Buy-in from all parties involved.

PARTNERING

*"Clearly, the best dispute resolution is **dispute prevention**. Acting to prevent disputes before they occur is key to building new cooperative relationships. By taking the time at the start of a project to identify common goals, common interests, lines of communication, and a commitment to cooperative problem solving, we encourage the will to resolve disputes and achieve project goals."*

LTG H. J. Hatch, Commander, U.S. Army Corps of Engineers, 1990

PARTNERING

WALTER F GEORGE DAM
USACE MOBILE DISTRICT

TREVIICOS / RODIO JV

Partnering for Safety and Success

US ARMY CORPS OF ENGINEERS · MOBILE DISTRICT
WALTER F. GEORGE LOCK & DAM · CUTOFF WALL 2002

PARTNERING AGREEMENT
30 MAY 2002

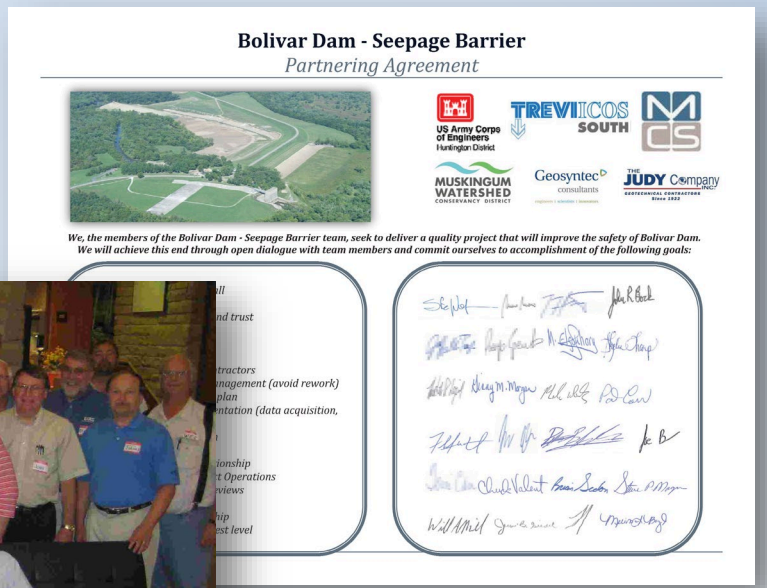
The Treviicos/Rodio and the U. S. Army Corps of Engineers Partnership will continually strive to meet our customers expectations by meeting or exceeding the following goals:

I. No lost time accidents
II. First rate quality defined as a positive cutoff under the dam
III. Finish ahead of schedule
IV. Save money while maintaining contractor pr
V. Keeping the door open for innovative and ne
VI. Solve problems at the lowest possible level w goal of no open issues at the completion of co

Meeting these goals will produce a quality project that be publicize as a model for the future. Collectively, we will sign our work.

WOLF CREEK DAM
USACE NASHVILLE DISTRICT

BOLIVAR DAM
USACE HUNTINGTON DISTRICT



Bolivar Dam - Seepage Barrier
Partnering Agreement

US Army Corps of Engineers Huntington District
TREVIICOS SOUTH
MUSKINGUM WATERSHED CONSERVANCY DISTRICT
Geosyntec consultants
THE JUDY Company

We, the members of the Bolivar Dam - Seepage Barrier team, seek to deliver a quality project that will improve the safety of Bolivar Dam. We will achieve this end through open dialogue with team members and commit ourselves to accomplishment of the following goals:

Technical Audit of Processes

Technical Audit of Processes

Data Management

Panels of Experts

DATA MANAGEMENT

Large/complex projects generate Gigabytes of information daily, and Terabytes during the project. Efficient compilation, storage and meaningful use of this information requires of an interface which allows to engage the entire Project Team (Owner and Contractor) practically in real time.

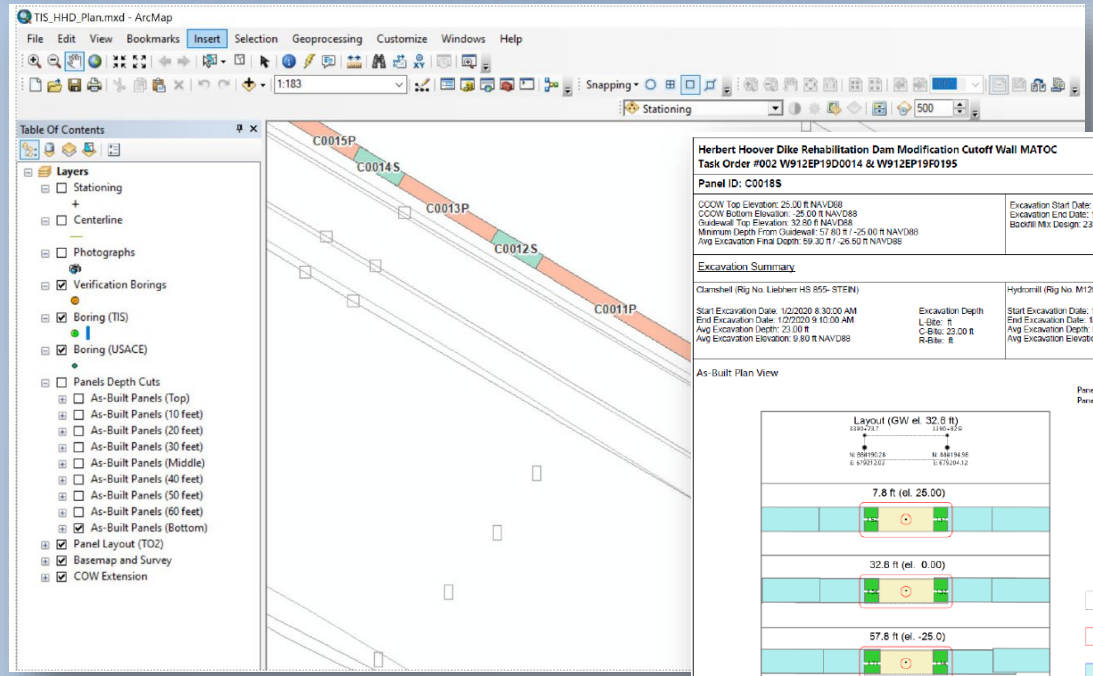
The need of real time Data Management has become an integral part of Construction and while there are several tools in the market that can be used, project of big complexity requires some customization.

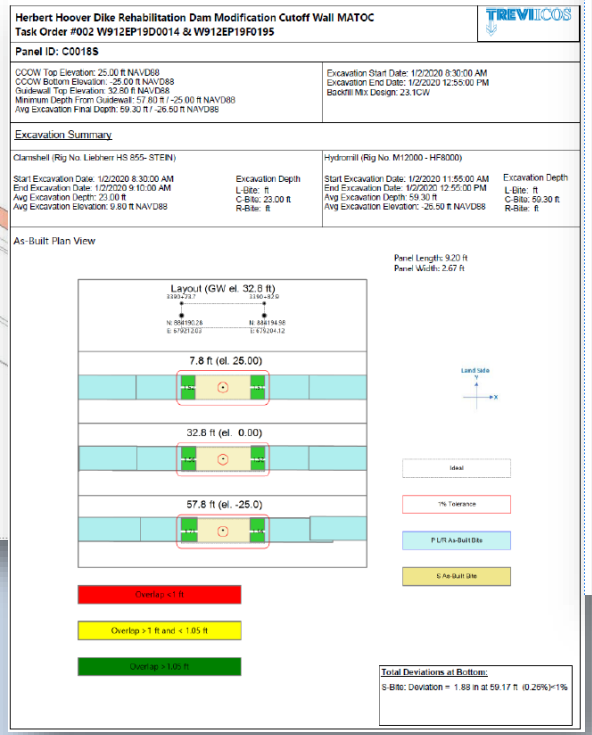
The use of GIS mapping tools embraces a computer-based system for gathering, checking, storing and providing spatial data. GIS serves as an effective tool for planning, managing and monitoring construction activities. The ability to integrate this systems in an interface which allows a consistent and quick access to the data being generated, takes significant relevance to validate their use in large and complex projects.

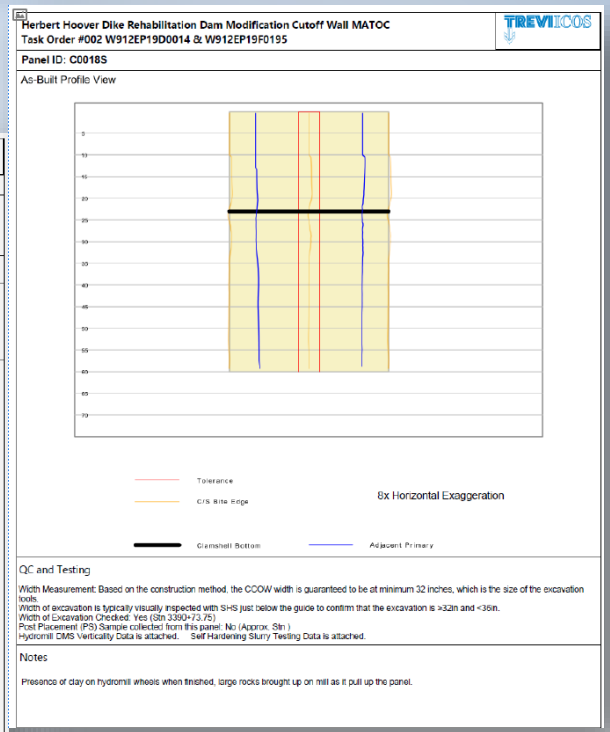
Proper and comprehensive Data Management allows for quicker review and final approval of project completion, and it outweigh the apparent high-cost face value.

Wolf Creek Dam cutoff wall was accepted 6 days after the completion of the construction of the last COW element

DATA MANAGEMENT







PANELS OF EXPERTS

Large/complex projects are often unique and first of their kind, and as such can present technical challenges during the work. The ability to collaborate to solve these technical challenges requires that, in a partnering effort, both parties involve the best of their teams to focus on the progress of the work and solution of potential challenges.

The use of a Panel of Experts, Board of Consultants by the Owner, and Internal Advisory Panel by the Contractor, have proven to be a great mechanism to get independent views on the progress of the work (through regular periodic meetings), on potential challenges arisen and recommendations on their resolutions.

The Project Team and the Panel of Experts interaction are of Technical nature, with the understanding that there are no commitments to change any of the performance requirements and/or construction approaches.

In the case of technical challenges encountered during the execution of the project, if a technical solution is recommended by the Panel of Experts in collaboration with the Project Team, contractual consideration will follow to determine viability, associated time and cost of implementation.

Project Close-out

RESOLUTION OF OUTSTANDING ISSUES

Proper and successful Contract Management approach always target resolution of issues as early as possible and in any case during the performance of the contract

It has been our experience that outstanding issues not closed during the execution of the work have been resolved before final project close-out without entering into a litigation process…

Similarly to the Partnering discussed earlier, this has been the is the result of continuous communication and commitment of the parties to issues resolution.

There are other mechanisms within the contract that, although not used in our experience, can be considered: Mediation, Arbitration and Litigation

OWNER EVALUATIONS

The issuance by the Owner of interim and final performance evaluations, particularly in large/complex and long projects, helps both Owner and Contractor in identifying areas of improvement, as well as incentivizing the contract to maintain or improve an already good performance or track records.

The use of structured Performance Evaluation Systems, such as CPARS for DOD contracts, provides for interim and final evaluations which address compliance with Quality, Schedule, Cost Control, Management, Small Business Subcontracting, Regulatory Compliance, Safety and others. While clear guidelines are present, at times their implementation does not account for what can be considered the “weight” of the non-compliant or marginal items, thus resulting in what can be considered not fully representatives rating. It is our experience that a more holistic rating of the performance should be considered.

Owner Evaluation are extremely important to the Contractors, they can be considered the “*report card*” on Project performance and are always used for future references on past experience.

Final Comments

Final Comments

The GBR is an important document, with contractual statements describing geotechnical conditions and possible associated risks to be anticipated. In its absence, the GDR shall continue to include all available information, and be as comprehensive as possible providing physical facts and, when required, cautionary statements

An early involvement of the contractors has proven to favor innovation, a better performance, with Project delivery on or ahead of schedule, on or below budget and with excellent quality.

A more fluent interaction during the Solicitation helps to better understand the scope, asses the potential associated risks, and more efficiently schedule and price the work.

Best Value procurements, and where feasible ECI, are the preferred and most suitable options for large/complex projects.

The use of performance specifications, allow the contractor to propose new approaches, optimizing schedule and costs.

Final Comments

The requirements for Project Experience and Key Personnel Experience are important to reduce risks during execution. For personnel, these requirements should be coupled with conditional approval based on specific experiences.

The use of panels of experts, both at owner and contractor level, provides for an independent frame of discussion where the best technical solution can be found more efficiently.

The use of Value Engineering Proposals should be promoted and streamlined so they can be timely implemented, thus becoming a concrete option for the benefit of the project.

A true partnership between the main stakeholders has proven to be essential for the successful completion of the projects, a more efficient contract management and, when present, the resolution of conflicts during the progression of the work.

DISCUSSION

SPECIALTY GEOTECHNICAL WORKSHOP FOR DAM + LEVEE INVESTIGATIONS + MODIFICATIONS

Fort Lauderdale, FL | Dec 6-8, 2021

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...Thank You