

## AGC/WSDOT Structures Team April 25th, 2014 Meeting Minutes

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Meeting minutes were prepared by Marco Foster.

**Topics – Presentation on GCCM contract to replace Coleman Dock;  
Constructability Review – Southworth Ferry Trestle; UW Mandrel Pile Detail;  
ADSC/WSDOT Joint Training; PCPS Equalization; New Steel – stripe coat; Soil  
Bearing capacity for temporary footings/mudsills**

### **1. Welcome & Review of Agenda**

Mark welcomed the group and reviewed the agenda. With a large number of visitors in attendance, introductions were made around the table. Mark announced a couple of team member changes – Eric Bowles will be replacing Millard Barney and representing Concrete Tech on the team. Monica Blanchard will join Rob Reller in representing Manson Construction.

**Action Item:** Mark to update the list of active Team members accordingly.

### **2. Presentation on GCCM contract to replace Coleman Dock**

Genevieve Rucki presented an upcoming WSF GCCM project that will rehabilitate the Coleman Ferry Dock Terminal. Coleman Dock serves two routes and approximately eight million commuters a year. The existing terminal is basically two docks; a newer concrete trestle to the south and an aging timber trestle to the north. The terminal building is situated on the old trestle. This facility is seismically deficient. The project will replace the timber trestle, the transfer span, and the terminal building.

The team reviewed plans for the future layout of the facility. Genevieve provided details of the project improvements and reviewed project timelines. NEPA is expected to be complete mid-June. Anticipate GC/CM selection in fall 2014 with permitting completed in early 2015. The project cost is estimated to be \$268 M.

\$207 for terminal building

\$48 for span replacement

\$13 for passenger only facility

Anticipated phasing of the project was reviewed. One of the biggest challenges of this project is maintenance of operations during construction. Temporary bridges are anticipated to shift traffic around work zones and maintain ferry service.

Mark Johnson from CH2Mhill provided additional detail on the structural components of the work. This project will have in water work/fish windows that are anticipated to be August/September to mid-February. Completing enough in water work (primarily pile driving) to advance year round construction may be challenging but is very important to the completion schedule. Modifications to the pile design

have been considered to support this effort. Existing soils are anticipated to make for tough driving. Mark reviewed both the north deck plan and south deck plan demonstrating the large number of piling that need to be driven. Concrete filled steel piling are planned to reduce long term maintenance costs.

Mark provided an overview of three options for constructing pile caps; precast with large blockouts for piling reinforcing, precast with corrugated sleeves for piling reinforcing, and cast-in-place.

Getting traffic thru the locations where so many piles are being driven is a significant concern. Environmental mitigation will be needed for noise (bubble curtains) and increased shading over the water.

Mark G. asked the team if they had any questions about the GCCM process. Ryan O. asked how Contractors get selected for these types of projects and if this method of delivery will be expanded to Highway projects? Mark G. is unaware of any pending future projects but that WSDOT will be evaluating and monitoring the Coleman project closely to determine how to use GCCM for future work.

Bill B asked why this method of delivery was chosen over DB. Genevieve indicated owner desire to be more involved in details/design of the facilities. There was some open discussions on how WSDOT choses one type of delivery method over another. Lei commented that the operations of the ferry system during construction also drove the desire to control design and construction at Coleman Dock.

Action Item: No action needed.

### **3. Constructability Review – Southworth Ferry Trestle**

Lei Lu introduced the project providing background and plans. The project will replace the existing timber trestle with a concrete trestle, retrofit the existing concrete bridge seat and tower foundation, and construct a new terminal building. Project is scheduled to go to Ad in May 2016 and is currently over budget by \$2M

Lei went over the anticipated phasing of the work. Details of the construction staging and the work were reviewed. Avoiding eel grass is a concern. Ground improvements are planned behind the bulkhead.

Chris Stearns then went into further details with regards to structural concerns. Eelgrass and tidal limitations were reviewed as this will limit support barge locations. Crane requirements were also discussed and reviewed. Loads on the trestle from crawler cranes would exceed the trestle capacity and affect design of the dock.

- Construction in the water would be limited to August – February.
- Anticipated 2 seasons will be required to complete the work.
- Noise attenuation will be required during pile driving.
- Storage of materials will be a challenge due to limited space on land.
- Precast pile caps were detailed and suggested to accelerate work schedule.

The team was asked if they felt the work as anticipated is constructible using crawler cranes and derrick barges within the timeline anticipated. Geoff Owen – commented on precast elements – make sure there is enough play to accommodate pile alignment. Other team members commented that permitting for a temporary trestle from Bents 1 to 5 would be advantageous. A recommendation was made to look closely at how the eel grass limits are conveyed to the contractor. Since the limits vary seasonally and could have a significant impact on work access, accurately defining the limits becomes important.

It was suggested/recommend that the Contractor be given the option to use precast or CIP pile caps to optimize loads and crane size.

**Action Item:** No action needed.

**4. Review of UW mandrel pile design.**

The University of Washington has been conducting research to develop pile driving methods to reduce the noise generated during driving. They attended a WSDOT/AGC meeting last year to discuss their efforts. Based on comments received then, they have made some changes to their design. The UW research team is almost ready to embark on a test pile contract to evaluate their work.

Tim reviewed the revised double wall pile design. Both open ended and closed ended details were discussed as well as the options for fabricating driving shoes. Weld locations were discussed to facilitate ease of construction. The design needs to be evaluated to insure heat generated from welding the driving shoe does not damage the spring assembly that transfers energy from the driving casing to the permanent steel pile.

Tim went thru the details of the mandrel/pile connection. The intent is that a water tight seal is formed between the mandrel pile and the outer pile during driving. This is necessary to maintain noise attenuation of the system. There was some open discussion if this will be successful and some remedial options (pumping) to be implemented should the seal be breached.

The test pile program will evaluate the double pile design against the mandrel shoe design to evaluate acoustic properties of each. They also hope to drive an un-attenuated pile for data comparison purposes.

Tim asked the Team how they would sequence work in production – no real consensus was reached by the team. It was discussed that the double pile design will probably be more efficient however the cost and weights associated with installation will be higher.

Tim asked why steel piling is driven and filled instead of precast concrete. The length and weight of the piles are too high to drive longer precast concrete. Also, when piles

are being driven to specified capacity, it is difficult to use precast concrete piles (difficult to splice).

Is auguring soils out from inside the pile and filling with concrete off-shore an issue? The team commented this is common practice and that they tremie place the concrete from bottom up to displace the water. Tim asked about the feasibility of grouting the annulus between the double piles. It was generally felt by the team that this would not be an insurmountable problem.

Tim then provided a brief overview of acoustic testing and how it works

There was some discussion amongst the group on alignment of the shoe/pile connection and how “hard” driving may cause deformation that damages the shoe and prevent extraction of the mandrel.

Tim provided an overview of the test area off the Port of Tacoma and the geotechnical conditions. Planned test date is August 15<sup>th</sup>. Some of the Team members expressed interest in attending the test.

**Action Item:** Mark to keep the Team updated as the work progresses. He will look at a possible field trip with the test program starts.

**5. Review of December minutes**

No comments were provided.

**Action Items:** Mark will post the minutes to the web.

**6. ADSC/WSDOT Joint Training**

Mark informed the team that the joint training will be on May 13<sup>th</sup> and encouraged any team members that want to attend to submit a registration form.

**Action Item:** No action needed.

**7. Action Items:**

**a) PCPS Equalization**

This item will be moved to the next meeting.

**Action Item:** Mark to include on the agenda for the next meeting.

**b) New Steel - Stripe Coat**

This item will be moved to the next meeting.

**Action Item:** Mark to include on the agenda for the next meeting.

**8. Soil bearing capacity for temporary footings/mudsills**

This item was discussed briefly by the Team and Mark handed out a proposed change to the Standard Specifications that was provided by Mary Frye from the Geotechnical Division. Charlie and Ryan have both dealt with this issue on past projects. They will review the proposed changes and provide input back to Mark. This will be included on the agenda for the next meeting.

Action Item: Ryan and Charlie to review proposed specification changes and comment/edit as needed. Mark to keep this on the agenda for the next meeting.

**9. Additional Items**

Request was made for WSDOT to take a look at electronic file sharing during bids. It was also requested that WSDOT provide electronic versions of comma-separated bid tabs. These will be addressed by WSDOT and/or added to a future agenda.

**Future meeting date: June 6<sup>th</sup>**

## AGC/WSDOT Structures Team June 6th, 2014 Meeting Minutes

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### Guests

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Meeting minutes were prepared by Marco Foster.

**Topics – GCCM Update and Discussion; Proposed changes to submittal and working drawing specs; Proposed changes from Project Engineer to Engineer; Use of hollow rebar in drilled shafts; PCPS Equalization; New Steel – stripe coat; Soil Bearing capacity for temporary footings/mudsills; Design files during Ad period, Future specification changes, AGC team year in review.**

**1. Welcome & Review of Agenda**

Mark welcomed the group and reviewed the agenda. It was a small group today – introductions were quickly done. No agenda items were added.

**Action Item:** Mark will update the list of active Team members.

**2. Review of April 14<sup>th</sup> meeting minutes**

No other comments were provided.

**Action Item:** Mark will post the meeting minutes to the web.

**3. GCCM update and discussion**

Last meeting there was a presentation on using General Contractor/Construction Manager (GC/CM) as a method of delivering complex highway improvement projects. WSF is currently moving forward with the development of a GC/CM contract to rebuild the Coleman Dock Ferry Terminal. Currently, WSDOT is looking at the funding situation for the project. It's possible that the project will be delayed until 2015. WSF is continuing to work on the project and assemble the contract in anticipation of getting construction funding.

Mark asked the AGC members if they had thought about last month's presentation and had any input to offer WSDOT about using GC/CM. Mark advised the team that he is still participating in the development of GC/CM policy and procedures with individuals from WSF and the City of Seattle.

Mark also mentioned there has been some discussion about setting up an AGC/WSDOT task force to develop policy associated with GC/CM contracting. This would be an opportunity for industry to learn more about GC/CM and get feedback from contractors with regards to crafting WSDOT policy in utilizing GC/CM.

John Q. raised a concern related to how GC/CM would deal with union labor. Would a GC/CM union agreement prevent them from utilizing other union members or non-union employment? This would significantly limit competition. There was some discussion amongst the group with regards to the GC limiting competition by requiring only union shops.

Geoff stated that his experience with GC/CM process was positive.

Charlie and Pete have pursued some work in GC/CM and they were not encouraged about the experience. Both elaborated that they felt there was a lot of risk associated with the agreements and the coordination with other subs for which they would ultimately be responsible. Charlie also felt that the GC/CM process may not provide the best value to the owner/tax payer.

Mark spoke briefly on some of the challenges of using DBE goals on GC/CM. There was a request from the Contractors to put some additional emphasis on how Good

Faith Effort is addressed in GC/CM and conventional contracts where mandatory goals are established.

**Action Item:** Mark will investigate how the union/nonunion issues have been dealt with on other GC/CM contracts. Jeff Carpenter will work with the AGC/WSDOT Lead Team with regards to establishing a temporary AGC/WSDOT GC/CM task force.

#### **4. Proposed changes to submittal and working drawings spec's**

Mark reviewed proposed changes to the Standard Specifications to replace WSDOT approval of some submittals with comment only. These proposed changes would help to insure that liability associated with a particular submittal stays with the Engineer that prepared/developed them (the Contractor). These changes also clean up the Standard Specifications by moving most submittal requirements to a single location in the book (6-01.9 and 6-02.3(16) are consolidated and moved to 1-05.3). The proposed changes also modify the requirements for paper submittals and make electronic submittals (PDF format) the standard.

Mark reviewed some of the specific language revisions with the team. There was some discussion/concern about the Contractor proceeding with work prior to receiving comment. Minor edits were suggested and it was agreed to eliminate the sentence referencing the Contractor could proceed with the work if they had not received comment within 20 days. There were many comments amongst the team regarding how this new language equates to the old "AAN" vs. "RFC".

The Standard Specifications on formwork and false work will be revised to reference the new 1-05.3 specification. Mark pointed out that 6-02.3(16) allows the Contractors to get their formwork and false work plans pre-approved if they want to. Some of the team members expressed concerns about doing this.

**Action Item:** Mark will incorporate comments/changes discussed. He will also work on updates to the Construction Manual to provide guidance to Project Engineers on how they should manage the administration of submittals and how to evaluate for change orders.

#### **5. Proposed changes from "Project Engineer" to "Engineer"**

WSDOT will be deleting reference to "Project Engineer" and using the term "Engineer". Currently, both terms are used and it occasionally creates confusion. Mark has revised the Standard Specification, Construction Manual, and the Special Provision defining who the "Engineer" is, and that the "Engineer" is responsible for the administration of the Contract. Bob H commented that there are some minor discrepancies between the documents that need to be cleaned up for consistency.

**Action Item:** Mark will make changes to insure consistency.

#### **6. Use of hollow rebar in drilled shafts**

WSDOT is reviewing a new product that may be available and considered on future projects. Con-Tech Systems Ltd. has developed hollow threaded rebar that can be

used for CSL testing and also provide structural capacity (can be used as a reinforcing steel substitute). Mark felt that this might be something the Contractors would consider using at their discretion but WSDOT would not require it. The Contractors were skeptical that this would save any time or money. There was also concern this would add risk to picking larger cages.

**Action Item:** Mark will respond to the manufacture/supplier of the hollow core product to let them know about the concerns expressed and that there did not seem to be a lot of interest in the product. The consensus of the group was to have the supplier work directly with the Contractors if they see a place where the product might be beneficial.

### **Action Items:**

#### **a) PCPS Equalization**

Mark reviewed potential changes that the Bridge office is considering to 6-02.3(25) O. The current specifications allow the weld tie block-outs to be poured back with the deck pour. The weld ties may be used to maintain girder equalization until the deck concrete reaches strength. Brian has recently analyzed potential stresses concentrated at the weld tie and determined that in some cases, such as short deck bulb tee girders (BTG's), it is possible that the weld tie could fail if the keyway is not grouted prior to removing equalization equipment. There was some discussion on who should own this risk and that it mostly likely should be the Contractor. It was mentioned that a failed weld tie would not be easy to repair and would take significant effort to chip out concrete to replace the broken tie. Basically – the risk may be low but the consequence high if the tie did fail.

Brian also mentioned that the Bridge office is working on new bulb tee designs based upon WF girder sections that have wider top flanges. One version, a 3" minimum thickness top flange "thin flange girder" would eliminate the need for deck forms and weld ties. The flanges of the new girders simply butt up to the flange of the adjacent girder, then a 5" minimum structural concrete topping is placed on top of the flanges. A second version would have a 6" minimum thickness top flange, weld-ties, and grouted keyway similar to existing deck bulb tee girders and would receive an HMA overlay. There was also some discussion about the backer rod used to fill the gap, and that on longer girders, any horizontal curvature could make filling the gap between girders difficult.

Mark asked Brian if we can consider eliminating equalizing the girders when a 5" deck is cast on top.

**Action Item:** Brian will evaluate eliminating equalization on bridges with a CIP deck. Mark and Brian will continue to develop the specification revisions, and will bring back to the Team at a future meeting.

#### **b) New Steel – Stripe Coat**

Mark first discussed some specification changes that would allow shear connectors to either be done in the field or in the shop. This was discussed several years ago with the team but the Standard Specifications were never corrected to allow this alternative (current spec requires shear connectors installed in the field). The specification will be revised to allow shop installation.

Mark reviewed some proposed changes to 6-07.3(9)I. After further review of the current language and discussions with Dewayne Wilson, it appears that the proposed changes may be requiring more areas to receive a stripe coat than is really necessary. It's likely that the stripe coat is important at bolted splice locations, but can probably be omitted at most other locations described in the revised specification.

**Action Item:** Mark to continue working with the Bridge Office to develop the specification, and will bring back to the Team at the next meeting.

**c) Bearing capacity for temporary footings/mudsills**

Ryan Olson was not in attendance today so this action item will be deferred to the next meeting.

**Action Item:** Mark to include on the agenda for the next meeting.

**d) Design files during Ad period**

After discussions within the Construction Office, it was determined that providing this data during the Ad period is something that WSDOT should allow. The Contractors described the benefits of having this information and felt it should ultimately help WSDOT too. Mark mentioned that the WSDOT Design Office has some reservations about releasing this information while it was not complete, checked or final and that we are still working to address those concerns. The group felt that we could include disclaimers that the plan sheets are draft.

**Action Item:** Mark will follow up and include on the agenda for the next meeting

**7. Future specification work items**

Mark put forth some potential specifications for the team to update. Now that he is spending more time on policy issues he is proposing the following ideas.

1. Cold weather protection
2. Hot weather concreting
3. Steel escalation
4. Headed reinforcing bars
5. Self-consolidating concrete for cast-in-place applications
6. Wet setting anchor bolts (Contractors indicated this may not be a problem)
7. Slope stability

**Other items**

1. Design files during Ad
2. WSDOT/AGC GCCM team

3. Standardized GSPs
4. Traffic barrier – slip form curing vs. wet cure on CIP

**Action Item:** Mark will bring some of these issues back to the team next fall.

**8. AGC Structures Team a year in review**

Mark highlighted current Team membership and asked the group if we should make adjustments to the team make up. The general consensus is the make up and size of the team is about right. Scott will call a couple of the other AGC Contractors performing bridge work on WSDOT projects (that are currently not represented) to see if they would be interested in participating. Mark will also work to add two additional WSDOT members representing Project Offices to the staff.

**Additional Items**

Mark encouraged the team to put forth agenda items for next year.

**Future meeting dates:**

**September 26<sup>th</sup>, November, 21st, January 16th**

## AGC/WSDOT Structures Team September 26th, 2014 Meeting Minutes

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Meeting minutes were prepared by Marco Foster.

**Topics** – Update on Team Members; Discussion on Pump Truck Requirements; Use of Recycled Concrete for Aggregate; GCCM update and discussion; Review of new Steel Cost Adjustment Special Provision; Proposed changes to shaft spoils measurement/payment; PCPS Equalization; New Steel – stripe coat; Soil Bearing capacity for temporary footings/mudsills; Design files during Ad period; Installation of welded shear studs; Review of specifications for CIP SCC; Future specification changes.

**1. Welcome & Review of Agenda**

Mark welcomed the group and reviewed the agenda. It was a small group today – introductions were quickly done. No new agenda items were added.

**Action Item:** Mark will update the list of active Team members.

**2. Update on new Team Members (AGC and WSDOT)**

Mark introduced several new team members to the group. There are also several folks on the team that have not participated lately. Ricky Bhalla from WSDOT Olympic Region will be joining the team. Will Smith from SC Region will be joining the team. Mark requested the AGC please provide some names for new membership.

**Action Item:** Scott Ayers/AGC to nominate new members

**3. Discussion on Pump Truck Requirements**

Mark reminded the team about last year's discussion with WACA regarding the need for certified pump trucks. Bruce Chatten has come back to the team to further this discussion. WACA has researched what guidelines are available to review and approve the acceptability of pump trucks. After some looking it doesn't appear that there are good standards that establish the quality and suitability of pump trucks.

A best practice has been to discuss pump truck performance at the pre-construction meeting. Another option is to try pump trucks on non-critical pours to determine the acceptability of the pump truck prior to critical concrete placements.

Bruce suggested that WSDOT consider pump truck certification. ACPA certification is carried by most pump truck drivers. Certification includes placement practices, safety and procedures.

Pete recalled that the team discussed point of acceptance and would WSDOT consider testing out of the truck. Mark asked team members if they have experienced problems with pump trucks. Pete says they have had issues with safety. Kiewit also has experienced blow out of the pipe.

Mark commented that there have been some recent changes to the pre-deck pour meeting requirements. The spec requiring the pre-deck pour has been expanded to

require attendance by more key personnel. Perhaps pump truck companies should be included. This approach could insure that the pump truck checklist be addressed during the meeting.

Testing out of the pump and how the sample is obtained was discussed. The question was asked – how representative is the sample that we are getting. There was some lengthy discussion if WSDOT would consider testing out of the truck in lieu of the end of the pump. There was some discussion with regards to freeze/thaw durability and porosity of the concrete. Bruce acknowledged we all recognize the benefits of insuring the proper air content in the deck concrete. Typically – air is lost thru pumping due to the negative pressure (vacuum) generated by pumping.

Bruce would appreciate continued discussion on the topic until we can collectively define what an acceptable checklist for pump trucks might look like.

Tom asked the team if we should consider revising the location of where the sample is taken. Open discussion ensued.

Mark also informed the team that Eric Ferluga from the Bridge Office is compiling data with regards to cracking and the new performance mix designs. This research is focused on determining if differential temperature is affecting deck cracking.

**Action Item:** WSDOT will look at revising maximum air content. Bruce will review pre deck pour checklist. Group to consider revised testing locations and send Mark thoughts. Bruce to review ACPA certification and the team can consider if we want to require. AGC team members to research how many companies are already ACPA certified.

#### **4. Use of recycled concrete for aggregate**

Mark provided a quick introduction to the topic. The problem is that the supply of recycled concrete is increasing and it is not being re-used as quickly and it is stockpiling. Bruce believes the hesitancy on using this resides with environmental concerns. Many of the locations stockpiling the materials are full.

Bruce asked the Contractors what they are seeing on their projects and why they think the material is not being used. This problem is at the national level. Are there obstacles to using the product? Ryan suggested it seems to be a project specific issue based on environmental constraints. If near bodies of water the pH issue is a big concern and processing high pH water is too expensive. Kiewit representative agreed with Ryan – basically it was not worth the hassle. One AGC Member cited an example where the recycled product did not perform well. Based on this bad experience, he was not interested in using recycled concrete for aggregate on future projects. It was also discussed that the cost savings between recycled concrete and naturally-occurring aggregate is minimal; use of recycled aggregate doesn't save enough to justify the hassle.

Discussion then focused on using the recycled material in concrete production. It is being used for commercial concrete and it is being allowed using small percentages. Comment was made that it would be acceptable for the production of CDF.

**Action Item:** Mark to look at using recycled concrete as CDF aggregate.

#### **5. Update on new DBE specification change**

Mark provided an overview of draft DBE revisions and invited the team to review and comment. The team did not much provide much feedback but is invited to do so. There was some discussion with regards to FA and how much can be counted towards utilization. There was also some brief discussion with regards to joint checks. Mark also highlighted changes to DBE trucking and how we may address change orders.

New DBE participation would be incentivized and underutilization would be penalized.

**Action Item:** AGC team members to provide Mark any comments they may have.

#### **6. Review of new steel escalation cost adjustment special provision**

Mark reviewed proposed changes to WSDOT special provision for steel cost escalation. This topic has been discussed by the team for about a year. The new spec will use a new index – Mark highlighted some of the significant changes. One major change is that the spec will allow the designer to identify specific steel components to insure high risk items get identified and are eligible for adjustment.

Mark also discussed the opt-in/opt-out option and the form that the Contractor will be required to complete and submit with the bid.

Using the \$0.40/lb. will be assumed to establish the base cost for the raw cost of steel. Ricky suggested that the base cost be a fill in so it can be adjusted for each contract.

**Action Item:** Mark will incorporate some of the comments/changes discussed.

#### **7. Fabrication Inspection Expense**

Dave Jones from the WSDOT Materials Lab provided a copy of an upcoming specification change that will require the Contractor to reimburse WSDOT for fabrication inspection expenses. The AGC members provided some feedback with regards to the proposed charges.

There were some clarifying questions asked on how charges get disbursed between contracts is you have one fabrication inspector reviewing several contracts in a day.

The fabrication office will send bill to PEO to deduct charges from the Contract.

Mark requested that team members provide written comment back to him on the proposed specification. The team in general thought this would be a difficult item to estimate.

**Action Item:** AGC to provide comments to Mark.

**8. Proposed changes to shaft spoils measurement/payment**

Mark reviewed proposed changes to WSDOT special provision. This item needs to be vetted thru the ADSC team as well. Charlie asked what prompted the change. Mark explained past problems with the specification. The Contractors generally did not feel this was a problem.

Mark previewed a proposed change that he believes will address WSDOT's problem/issue with the current specifications.

There was some open discussion and opinions expressed on variations of what was being proposed. Pros and Cons were discussed.

**Action Item:** Mark will add a measurement discussion to the spec and will send revision back to the team. We will also bring the proposed change to the ADSC for review and comment.

**9. GCCM update and discussion**

Mark provided an update on the status of the Coleman Dock project. Currently – the project is schedule is still trying to get approval for use of GCCM method of delivery.

We anticipate a 6 week review during bid

3 tier approach to the procurement

Short list of proposers

Interviews with proposers

Cost proposals for the work

A draft copy of a GCCM RFP was not quite ready for release.

While GCCM has been used for many years in the building construction industry, it is a relatively new delivery method for heavy civil projects. It has taken quite a bit of effort to make adjustments to accommodate heavy civil work. Mark will send the draft GCCM contract out to the group as WSDOT is very interested in getting feedback from the Contractors before we put out the contract.

**10. Action Items:**

**a) PCPS Equalization**

Mark reviewed a revised specification for equalizing bulb T girders (6-02.3(25) O). On some recent projects contractors have been requesting to pour back block outs with the deck pour and rely solely on weld tie to keep the girders in place (equalized). Brian recently analyzed potential stresses concentrated at the weld tie and determined that on short BTG it is very possible that the weld tie could fail if not grouted. Brian provided a quick update on his review/analyses.

The revised specification has two scenarios – one scenario requires grouted shear key be completed prior to release and the other allows release prior to grouting.

The determination to grout prior to release will be made during design.

**Action Item:** Brian will evaluate what compressive strength will be required from the grout before equalization can be released.

**b) New Steel – Stripe Coat**

Mark will defer this item until next meeting.

**Action Item:** Mark to provide more information next meeting.

**c) Bearing capacity for temporary footings/mudsills**

Ryan Olson summarized the issue as he has experienced problems with the current specification and reference to soil classifications. The current specification requires the Contractor retain a geotechnical engineer. Another approach would be to use AASHTO guidelines to demonstrate the adequacy of the proposed design. Ryan provided a draft Spec revision which would allow both options (retain geotech or conduct test) to the Contractor.

In Ryan's discussion with Geotechnical engineers they believe conducting the ASSTHO test provides better data for designing mudsills and footings.

The current GDM requirements of the specification create problems for the Contractor.

**Action Item:** Mark will take the proposed revisions back to Mark Frye of the Geotechnical office.

**d) Design files during Ad period**

Mark reminded the group of previous discussions and suggested that WSDOT is generally in agreement that we can provide this information during at bid time.

Mark did say that the Project Development Engineers around the State are still apprehensive about doing this as plans could potentially change all the way to bid opening. This discussion is ongoing and there is a desire to make available all information as reasonable during the bid period. WSDOT is already providing

server access to many of the contract documents – making plan sheets available does make sense.

**Action Item:** Mark will continue to provide periodic updates on this topic.

**e) Installation of welded shear connectors**

Mark provided a quick update on a spec change to address field installation of shear connectors. After some research and discussion with steel fabricators, it was determined that the mist coat needs to be removed before shear connectors are field welded. The removal can be as simple as using a wire brush. There is no need for a field touch up of the paint in the area of the stud.

**Action Item:** Mark will review requirements for soldier pile studs and paint touch up.

**11. Review specification for CIP SCC**

This item was deferred to the next meeting.

**Action Item:** Mark to include on the agenda for the next meeting.

**Future meeting dates:**

**November, 14<sup>th</sup>, January 16<sup>th</sup>**

## AGC/WSDOT Structures Team November 14th, 2014 Meeting Minutes

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Meeting minutes were prepared by Mark Gaines.

**Topics** – Update on Team Members; Colman Dock PRC application; Electronic plans, pre-Ad design files, etc.; 3D modeling in design and construction; PCPS Equalization; New Steel – stripe coat; Soil Bearing capacity for temporary footings/mudsills; Update on Construction Manual revisions; Update on pile driving research; Review specifications for CIP SCC; Discuss AGC/WSDOT Annual Meeting; Review cold/hot weather concreting.

**1. Welcome & Review of Agenda**

Mark welcomed the group and reviewed the agenda. He mentioned that there was an item added towards the end of the agenda to discuss the AGC/WSDOT Annual Meeting.

**Action Item:** No action required.

**2. Review of minutes from last meeting**

Minutes from the previous meeting were reviewed by the Team with no comments.

**Action Item:** Mark to post minutes to the web site.

**3. Update on new Team Members (AGC and WSDOT)**

Mark welcomed Will Smith from WSDOT's SC Region to the Team. Scott confirmed that several of the listed AGC members can be removed from the membership list (Kevin Parrish, Shawn Plichta and Jim Schettler). He also mentioned that Flatiron will be joining the Team shortly. Mark said that we are still a little short on the Contractor side. A question was raised about FHWA participation of the AGC Structures Team. Mark agreed to check in with them and see if they will be participating in the future.

**Action Item:** Mark to follow up with FHWA and report back to the Team.

**4. Colman Dock Project Review Committee Application**

Mark provided the Team with an update on the Colman Dock project and the upcoming Project Review Committee (PRC) application. Development of the Request for Proposal (RFP) is currently underway. The RFP is being developed by Washington State Ferries with input from a consultant (Parametrix) and WSDOT HQ. It is anticipated that a draft version of the RFP will be released for Contractor/industry feedback before the Thanksgiving holiday. After a feedback period and review/incorporation of the comments received, the final RFP should be released sometime in January 2015.

The Colman Dock Team will have the application for General Contractor/Construction Manager (GC/CM) delivery reviewed by the PRC in December. WSDOT has legislative authority to deliver Design-Bid-Build projects, and to deliver Design-Build projects that are greater than \$10M in value. For smaller Design-Build contracts and for GC/CM projects, WSDOT needs to apply to the PRC and receive their approval.

A question was asked about the RFP review process. Mark discussed that the plan was still evolving, but will likely include an open house to give Contractors an opportunity to meet with the project team and ask questions or provide comments.

**Action Item:** Mark to provide updates at future meetings.

**5. Work on electronic plans, pre-Ad design files, etc.**

Mark shared that the movement to providing electronic design files during the Ad period is gaining some momentum. During a recent Project Development Engineers conference call, Pasko Bakotich (WSDOT State Design Engineer) emphasized the importance of moving forward on this initiative. There remains some lingering concern about WSDOT taking on liability if these files are released to the Contractors. There is concern from some parties that this data could be used to find flaws with the contract, unbalance bidding, etc. Mark noted that a number of other agencies have been releasing electronic design files for some time, and there is no documentation that these sorts of issues are occurring.

Charlie and Kelly both emphasized that the base map files are probably the most useful design files for the Contractors. They help to provide an understanding of how the job will progress, and are useful when looking at traffic shifts, staging, etc.

Mark said he is hopeful that we will try this out on some projects within the next six months or so. Ed Barry from the WSDOT HQ Design Office is heading up the effort, but Mark is providing regular input and support.

**Action Item:** Mark to provide an updated at the next meeting..

**6. 3D Modeling in Design and Construction**

Mark recently attended a two-day FHWA conference in Boise, Idaho that focused on 3D construction. He shared highlights of a couple of the presentations from this conference with the Team. Much of the conference was centered on Automated Machine Grading. The Team discussed this briefly, but noted that this would be a better topic for the AGC/WSDOT Roadway Team.

Mark also mentioned that WSDOT is working on piloting software called Headlight that turns iPads into field inspection tools. This program was recently discussed at the WSDOT Project Engineer's annual meeting, and Mark asked Bob Hilmes to provide some highlights for the Team:

- Used to make field observations with GPS locations of the observations.
- Includes use of voice notes
- Excellent ability to take and categorize site photos (in conjunction with the GPS tracking).
- Automatically populates the Inspector's Daily Report (IDR).
- IDR is instantly available for review by the PE Office.

This program is currently being used by several Project Offices as a pilot. Jeff Carpenter has made a proposal that would fund an expanded pilot program (100+ iPads deployed to the field).

**Action Item:** No action required.

## 7. Action Items

### a) PCPS Equalization

The action item from the last meeting was for WSDOT to evaluate the compressive strength requirements for the joint grout used with PCPS Members. Brian Aldrich is still working on this.

Action Item: Brian to review compressive strength requirements. Mark to keep on the agenda for the next meeting.

### b) New Steel – Stripe Coat

Mark sent the Team an upcoming specification change that WSDOT was considering. A couple of years back, WSDOT specifications for painting steel were modified to require a strip coat to be applied to corners, edges, etc. for new steel bridge painting. The extra coats at these locations were found to be beneficial because these areas frequently “crack” due to shrinkage of the coating as it cures. The new revisions will require stripe coats to be applied when re-painting existing steel structures. The Team had no comments on the proposed revisions.

The AGC asked Mark to take a look at the durations required in the Standard Specifications for time between paint coats. It appears that WSDOT requires more time between coats than recommended by the paint suppliers. Mark will check with DeWayne Wilson and get back to the Team.

Action Item: Mark to review timing between paint coats and get back to the Team.

### c) Bearing Capacity for Temporary Footings/Mudsills

Mark sent the Team a copy of some proposed revisions that were put together by the WSDOT Geotechnical Division. The proposed revisions essentially replace all of the current requirements with a statement that the footings/mudsills shall be designed by a licensed engineer using AASHTO LRFD and the Geotechnical Design Manual.

There was general support from the Team for these revisions. However, concerns were raised about using the Geotechnical Design Manual (GDM) for footing/mudsill design. Specifically:

- The GDM is not written in contract document format. It can be difficult to determine if what is stated in the GDM is an actual requirement for the shoring design, or if it is instead just a recommendation.
- Since the GDM is written for permanent structures, is it really intended for design of temporary works like shoring? Is it ultra conservative for a shoring design?

Additional discussion is needed. Mark will coordinate with Mark Frye, and may look at bringing him to an upcoming meeting.

**Action Item:** Mark will continue working on this, and will coordinate with Mark Frye.

#### **8. Updated on Construction Manual Revisions**

Mark discussed upcoming changes to the Construction Manual (CM). The current lay-out of the CM is not user friendly. There is poor alignment between the Construction Manual and the Standard Specifications; this makes it difficult to locate the portion of the CM that is tied to the Standard Specifications.

The re-structuring will revise the section numbers of the CM so they align with the Standard Specifications. There will also be an effort to reduce redundancy, delete old information that is out-of-date, and update to conform to current WSDOT practices. The January 2015 updates to the CM will include a completely re-structured Chapter 6. Mark intends to wait until this has been out for a couple of months, then solicit feedback from the WSDOT Regions. If the changes are well received, it's likely that the rest of the CM see a similar update in the near future.

**Action Item:** No action needed.

#### **9. Update on Pile Driving Research**

Mark mentioned that the University of Washington's pile driving field tests were completed on October 31<sup>st</sup>. The number of piles driven had to be scaled back from five to three due to budget issues, but the overall testing was a success. Both versions of the isolated piles (mandrel and non-mandrel versions) achieved noise reductions of about 20 dB. The full test report will be released in January, and there may be a seminar to present the results.

**Action Item:** Mark to keep the Team informed about the research results and possible seminar.

#### **10. Review of Specifications for cast-in-place SCC**

Mark handed out draft specifications for cast-in-place self-consolidating concrete (SCC). Based on new research and success on a number of WSDOT projects, the Bridge and Structures Office is open to expanding the use of SCC. Once these specifications are finalized and incorporated into the Standard Specifications, they will allow SCC to be used in lieu of conventional concrete for most applications. There will be some situations where WSDOT won't allow SCC. For example, it is unlikely that WSDOT will allow SCC for bridge decks (at least at this time).

There are a couple of parts of this specification that still need work. The most significant is the requirements for a mock-up. The draft language requires a full-scale mock-up for all SCC applications. However, for most applications, this is probably unnecessary and could add cost and eliminate SCC as a viable option. WSDOT is

currently reviewing to determine what the mock-up requirements should be. We are also working with the prestressed concrete industry to review mock-up requirements for prestressed girders.

One Contractor relayed some issues they had experienced with achieving the required air content in cast-in-place SCC.

**Action Item:** Mark to provide additional updates to the Team as work on the specification progresses..

#### **11. Discussion on AGC/WSDOT Annual Meeting**

The AGC/WSDOT Annual Meeting is scheduled for January 8<sup>th</sup> at the Elks Club at the Allenmore Golf Course in Tacoma. Jeff Carpenter is looking for prospective project presentations for this meeting. Kiewit Construction will be providing a presentation on the SR520 work. If any of the other Contractors are interested in presenting, please send a note to Mark and he will forward on to Jeff.

**Action Item:** No action needed.

#### **12. Review Cold/Hot Weather Concreting**

As an informational item, Mark mentioned that he is going to spend some time re-working the hot and cold weather concreting sections of the Standard Specifications. Both specifications are cumbersome and may not have the same importance as they did in the past. For example, the hot weather evaporation requirements and the Nomo-graph to determine evaporation rates aren't really needed with the current performance bridge deck concrete requirements. Current deck construction requires 100% fogging with a "wet sheen" to be present on the surface of the concrete until the wet cure is established. This makes the evaporation rate unimportant

Mark is also going to try and re-write the cold weather requirements. He would like to get away from cold weather protection that is based on a forecast, and instead use the actual temperature of the in-place concrete. He asked the Team for feedback on whether on requiring expanded use of maturity meters, and protection requirements that are based on in-place temperatures. The Team responded that maturity meters are inexpensive. There was no concern with requiring more maturity meters to be incorporated in concrete pours.

It was suggested that the Local Programs division be consulted as changes are proposed to this section. Based on the experience of the AGC, local agencies rely on these specifications, and may not have fully adopted the bridge deck performance specifications like WSDOT has. It was also suggested that WSDOT address mass concrete pours in the Standard Specifications.

**Action Item:** No action needed.

The meeting adjourned at 11:55. The next meeting is scheduled for January 16<sup>th</sup> from 9:00 until noon at Corson.