

AGC/WSDOT Structures Team January 16, 2015 Meeting Minutes

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Guests

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Meeting minutes were prepared by Marco Foster.

Topics – Update on Team Members; SR 520 Portage Bay Bridge Constructability Review; Duportail Bridge Constructability review; PCPS Equalization; New Steel – stripe coat; Soil Bearing capacity for temporary footings/mudsills; Update on Pile Driving Research; Update on Coleman Dock and GC/GM; Thin Flange girder barrier construction; future meeting dates.

1. Welcome & Review of Agenda

Marco welcomed the group and reviewed the agenda. There were several visitors in attendance for the days constructability review so introductions were made.

Action Item: No action required.

2. Review of minutes from last meeting

Minutes from the previous meeting were reviewed by the Team with minor comments provided by Bob and Tom.

Action Item: Marco will make corrections and post minutes to the web site.

3. SR 520 Portage Bay Bridge constructability review

The project team used a power point presentation to provide the Team an overview of the project. Of primary concern to the Design Team was the presence of the existing NOAA facility immediately adjacent the project site. Sensitive instrumentation along with ESA listed fish make the facility extremely intolerant of any noise and vibrations. Topics discussed with the team included;

- A concept of vibrating sheet piles in and construction of a temporary soil filled work area was suggested.
- Using wire saws to demolish of existing bridge in large pieces.
- Conducting a test pile program to evaluate pile installation alternatives prior to contract.
- Consider relocating the NOAA facility. This may be the least expensive option when you factor in added cost associated with time (work windows).

Action Item: No action items identified.

4. Duportail Bridge Constructability Review

Stuart Bennion provided an overview of the project for the team. This new bridge construction project has some tough challenges associated with geotechnical conditions (relatively shallow soft soil over hard basalt layers) and very high steep access on the north. Also, at the top of the steep slope to the north there is a canal that must remain unimpeded for the majority of the year; this further complicates access

on that side of the river. The issues associated with access for drilled shaft construction could be resolved by constructing a land access from the south side of the river however this would not address challenges associated with setting girders over the river. A trestle could be installed, but winter maintenance to protect the trestle from ice buildup would be a concern. A suggestion was made to add a force account item for debris removal during the winter months.

Stability of the work trestle was discussed – temp piling would be relatively shallow so developing the necessary lateral stability required for oscillator/rotator shaft construction would be a challenge.

There was some discussion focused on launching girders to avoid/minimize trestle installation – but there were concerns raised about the downhill grade and safety of the operation. Comment was made there are winch systems that could be used in this situation but negative grade would be a concern. One of the Contractors also asked about splicing girders in an attempt to reduce weight and crane sizes necessary to set girders.

Action Item: No action items identified.

5. **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 believes 2500 psi would be acceptable for the release of equalizing equipment. The ultimate strength of the grout would still need to be a minimum 4000psi. The Contractors felt that the 2500 psi requirement is acceptable/reasonable and what would typically be expected after one day of cure.

Action Item: Mark to update the Standard Specification to reflect the suggested change.

b) **New Steel – Stripe Coat**

Mark to discuss stripe coats with paint manufactures and get back to the Team.

Action Item: This item will stay on the agenda as an action item.

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.

The Contractors still expressed concern about needing to hire a geotechnical engineer every time temporary a mudsill/footing is required. It was requested that this item remain on the agenda so further discussion can take place with Mark Frye and Mark Gaines.

It was also noted that the proposed language still references approval and requires 6 sets of submittals be submitted (no reference to electronic submittals).

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

d) Update on Pile Driving research

Marco asked the team if anyone had any comment on the draft report. No comments were provided and the team was reminded of the upcoming symposium on pile driving February 2nd.

Action Item: No action items.

e) Electronic files during bid

Marco informed the team that WSDOT will have pilot projects that will include making electronic plan files available to bidders during bid time. Contractors will be required to sign and submit a hold harmless form prior to receiving access to the files. The hold harmless clause was reviewed and it was generally felt by the team to be acceptable.

Bob H. asked the question if the waiver would need to be signed and submitted by subcontractors too. It was discussed that since the Contract is between the Prime and the State that just requiring the Prime to submit should be sufficient.

Action Item: No action items.

6. Updated on Coleman Dock and GC/GM

Marco informed the team that the RFP date has been pushed to the week of January 20th. Also, an AGC/ACEC/WSDOT GCCM team is going to be formed to assist in developing future policy guidelines for using GCGM contracting. Geoff Owen has agreed to co-chair the team.

Action Item: Mark will continue to provide periodic updates on Coleman Dock project and GCGM.

7. Thin flange girder barrier construction

Brian requested the team provide some comment with regards overhang bracket falsework – would it be beneficial to find a way to eliminate the need for overhangs?

General feedback from the team is the overhangs are generally desirable to support the bridge construction by providing worker access, safety, and other constructability benefits (place for Bidwell rails, etc.).

Action Item: No Action items.

8. Delete Bridge deck test slab

Marco asked the team for their opinion on deleting the requirement for a test slab. The pros and cons were briefly discussed and it was suggested that possibly a separate bid item for test slab be included.

Bob H. would like to see the test slab requirement be moved to GSP so that the Region has the option of including or not depending on the location of the project and the concrete suppliers available to perform the work.

Action Item: Marco will take this information back to Mark for further consideration.

9. Future agenda items

Some ideas put forth included;

- Cold/hot weather protection – this item is brought up frequently but we never really find resolution to the issues raised (Kelly)
- Permanent shotcrete fascia requirements (Marco)
- Two piece bars vs Mechanical Splice requirements (Bob H)

Action Item: Mark to add these items to future agenda.

10. Feedback on annual AGC meeting

The general feedback from the Team is that the meeting went well. Folks found legislative comments with regards to the Governor's budget interesting. The Department's commitment and focus the DBE program was also acknowledged.

11. Select future meeting dates

April 10th, and May 29th

AGC/WSDOT Structures Team May 29th, 2015 Meeting Minutes

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Meeting minutes were prepared by Marco Foster.

Topics – Changes in WSDOT Leadership; Constructability Review - SR 520 Portage Bay Bridge; Constructability Review – ECC and SMA for Bridge Columns; Presentation on fish passage standards and new deck girders for ABC; New Steel – stripe coat; Soil Bearing capacity for temporary footings/mudsills; ACPA Certification for pump trucks; Deck Preconstruction meetings; Proposed changes to 6-19.4 and 6-19.5; Proposed changes to 1-07.1 Safety Plans, Digital plans and as-built process; future meeting dates.

1. Welcome & Review of Agenda

Mark welcomed the group and reviewed the agenda. There were several visitors in attendance for the days constructability review so introductions were made. Kelly Griffith asked why cold weather protection and been removed from the agenda. Mark responded that he wasn't sure, but he would get it added back to the agenda in the fall.

Action Item: Mark to add cold weather protection to the agenda in the fall.

2. Changes in WSDOT Leadership

Mark provided an update on changes in WSDOT leadership. Former Director of Construction Jeff Carpenter will assume the Director of Program Development position, former Director of Maintenance Chris Christopher will assume the Director of Construction position, and former Director of Project Development Pasco Bakotich will assume the Director of Maintenance. These transitions are taking place now and should be in place by June 15th.

Action Item: No further action needed.

3. Constructability Review - SR 520 Portage Bay Bridge

The project team used a power point presentation to provide the Team an overview of the project. Of primary concern to the Design Team was the presence of the existing NOAA facility immediately adjacent the project site. Sensitive instrumentation along with ESA listed fish make the facility extremely intolerant of noise and vibrations. Mark G. provided a brief summary of a recent meeting with NOAA that he attended. Although NOAA is becoming better educated on highway/bridge construction means and methods, there are still many noise mitigating measures being requested that restrict when certain work activities can be done.

The primary focus today was a review and validation of the proposed project schedule, which spans several years due to work restrictions/work windows being required for pile driving. The Portage Bay bridges are approximately 2700' in length (EB&WB) – 11 spans. A quick review of proposed staging was provided. The north bridge will be constructed first, traffic put on new bridge, the existing bridge demolished and then the new eastbound bridge will be constructed. Currently it is envisioned this work will be accomplished with two separate contracts.

A brief discussion of the structural design was provided. Architectural treatment was discussed (desired to minimize overhang) - it will require some added work/challenges during construction. Shaft caps need to be constructed below the mudline to accommodate recreational boating in the area. This will require the installation of deep cofferdams at some of the piers.

Charlie McCoy has been providing input to the Design Team on constructability and requested the AGC team focus their comments on the schedule, particularly production rates and durations. Some time was spent discussing the proposed schedule and assumptions. The end result is the project that will most likely take 6 years to complete both bridges.

Pete W. asked about the 30 feet/day work bridge production rate (aggressive and would not provide any float). Ryan O. also questioned if this production rate is sustainable/doable. Some time was spent discussing pile installation and access from barges.

A question was asked about why there are two separate contracts are being proposed. The response was that it depends on funding; the project may ultimately come out as a single contract if funding is secured. Tom A. was asked about drilled shaft installation – he estimated 3 to 4 days per shaft. The foundations work will only be on the critical path for a few weeks, then the critical path will shift to the rest of the structure.

Cofferdams will end up being approximately 50' x 50' and fairly deep. Pete asked if the cofferdams could be round. Seals are estimated to be 10' to 12' thick. Access for pouring the seals would be a challenge – approximately 1000 CY/seal. The schedule estimated approximately 1 week to install each cofferdam. Driving pile at night will most likely not be allowed so additional time may need to be added to the schedule for cofferdam construction.

There was discussion about whether the shaft caps could be eliminated – this is structurally not an option. Allowing the shaft caps above the mud line will not be allowed. Precast shaft caps were discussed briefly but deemed not be practical.

Charlie D. questioned some concurrent activities on the proposed schedule which may not be possible due to access on and off the work bridge.

Mark G. requested team members please provide any further comment in writing and he will forward them on to the design team.

Action Item: Mark G. to forward any additional comments received to the design team.

4. Constructability Review – ECC and SMA for bridge columns

Tim Moore and Jed Bingle made a presentation on the use of engineered materials that will provide better service during/after seismic events. IBRD – Innovation Bridge Research & Development has funded this work. Tim explained that the research work is complete and ready to be incorporated into upcoming AWW South Access connection contract.

Jed provided a presentation to explain the materials that WSDOT plans to use in the project. The innovative materials are intended to improve the structure's response to seismic loading. Current structural design codes are designed to prevent bridge from collapsing during seismic events, however they often need to be taken out of service after the event due to significant damage. Critical elements that are prone to permanent damage are the columns.

Shape Memory Alloy (SMA) bars will be used in conjunction with Engineered Cementitious Composites (ECC) to provide a system that will be able to withstand seismic events with minimal damage and immediate serviceability. Jed spent some time discussing the science behind both of the products.

A new south access connection structure (NB on ramp) will be three spans (two intermediate piers). The columns at the two intermediate piers are designed with SMA and ECC at the plastic hinge zones adjacent to the column/crossbeam connection. The SMA bars have already been procured and will be provided to the Contractor for installation. The ECC is being procured and will also be provided to the project with technical support. The South Access Contractor will be responsible for some fabrication and installation the SMA bars and mixing and placing the ECC. Since the mixing and placement of the ECC may require adjustment during construction, it was thought this work could be accomplished using force account to compensate the contractor.

Tim asked the Contractors if they had any concerns with mixing and placing the ECC and operating the cooling system under force account payment. Mark G. suggested the cooling system could be incidental to the other work if scope of that work was clear. Ryan O. and Charlie D liked the idea of keeping both items force account so WSDOT can retain control.

Tim suggested the details of the cooling system would be included in the plans and could be easily bid – however operation of the system would be force account. Bob suggested that the project team consider a mock-up that includes the planned construction joint between the ECC and structural concrete (including simulated

splices between the SMA and conventional rebar) to insure constructability of this detail.

Overall, the Team expressed little concern with the proposed products and method of payment.

Action Item: No further action needed.

5. Presentation on fish passage standards and new deck girders for ABC

Bijan provided a power point presentation to inform the team on fish passage projects and WSDOT's desire to use ABC construction to assist in rapid culvert replacements. This fish passage program will add a significant number of structures to the WSDOT bridge inventory over the next 10 years. ABC construction may be beneficial in reducing the time needed to replace culverts with short single span bridges and large precast concrete culverts.

It is estimated that the fish barrier program will result in approximately 330 new short span bridges. Bijan spent some time discussing lateral sliding of these new bridges to minimize road closures and asked the team about the concept. The concept builds the new bridge off to the side, switch traffic off existing alignment and onto new bridge, construct new substructure on permanent/existing alignment, and then slide the new bridge onto the new foundations during a weekend closure. The team questioned the economics of sliding the permanent bridge. There was some discussion amongst the team on alternatives. Most of the Team felt that it would be more efficient and less expensive to use temporary bridges to detour traffic around the bridge site while the new structure is being constructed. It was noted that we are often replacing culverts with relatively short spans, so the detour structures could also (presumably) have pretty short spans or be constructed using temporary culverts.

New wide flange bulb tee girders were discussed. The connection between girders is challenging (closure is a challenge to form and pour) and prone to cracking. Bijan recapped research that is being done by the University of Washington and Washington State University using ultra high performance concrete (UHPC) for the closure. The use of UHPC would help to eliminate contact splices in the reinforcing steel at the closures. The team was asked for feedback on the size of these closure pours. The team suggested smaller is better – 9" was suggested. There was some concern expressed about reinforcing bars conflicting with each other in this small gap. Bigger bars in the closure would increase spacing and reduce potential conflict. Using smaller #5 bars would allow for field bending, however bar spacing and potential conflict is increased due to closer spacing.

UHPC is very expensive and the Contractors expressed a lot of concern about it. Some of the AGC Members had experience using UHPC on past projects, and struggled with the limited availability and lack of suppliers of this product. There was discussion about using headed bars with normal-strength concrete in the closures in lieu of UHPC. The cost of head bars is more, but the overall cost may be less than

UHPC, and the risk associated with field-placed UHPC would be eliminated. An overlay of the wide flange bridges will most likely be required. The future use of lightweight aggregate will most likely also be expanded.

The fish passage program is also constructing quite a few large span precast concrete culverts. Bijan discussed some of the challenges and details of the pre-cast design. Shipping and handling the large segments was discussed. Designing a post into the segment to facilitate picking the segment off the truck was discussed. The post concept would allow the segment to be transported upside down (lower center of gravity, easier shipping) but would allow the Contractor to “spin” the segment into its proper position. The Team felt the proposed details for the connections (both closure and footings) would not be a problem.

Action Item: Charlie to send details of the post-type connection to Mark. Scott to send Mark written comments on the presentation.

6. **Action Items**

a) **New Steel – Stripe Coat**

Mark reported that he wasn’t able to make any progress on this item.

Action Item: Mark will keep on the agenda for next meeting.

b) **Bearing Capacity for Temporary Footings/Mudsills**

Mark didn’t make any progress on this item since the last meeting. He reported that he will work to get Mark Frye involved and will bring this item forward for more work at an upcoming meeting.

Action Item: Mark will keep on the agenda for next meeting.

7. **ACPA Certification for Pump Trucks**

Bruce Chattin came back to the Team to discuss concrete pump certification. Bruce was pleased that there has been some progress made in recognizing the effect of pump trucks on air content. He also suggested that projects that have pre-deck pour meetings go better than those that don’t.

Bruce is still promoting better communication between concrete supplier, pump truck operators, Prime Contractor and the owner. There is also still a desire to get pump trucks certified. There is a certification process in place currently through ACPA – a short discussion on what the certification provides was shared. The certification does cost some money and is focused primarily on safety. The certification is good for 2 years. While the certification could be beneficial, there was concern that it wouldn’t really help to address the underlying issue. It was also noted that virtually every pump truck operator providing services on WSDOT projects already holds this certification. Considering these facts, the value of adding certification as a contract requirement was questioned.

Bruce expressed the concern that we (as an industry) need to find ways to reduce the amount of concrete that gets returned to the plant. Bruce suggested 5% to 7% of concrete gets rejected. Mark asked that WACA bring back more information on these rejected trucks. For example, how much of the concrete supplied to WSDOT projects is rejected, what are the reasons for the rejection, etc. Without understanding the reasons that rejection is occurring, it will be difficult to “fix the problem”.

There was discussion on whether or not the allowable air content range could be expanded. It was also discussed that WSDOT could expand the slump ranges allowed for concrete. Once the reasons for truck rejection are tabulated, it will better inform the sort of changes that may reduce the rejection.

Testing at the discharge/chute and then correlating that to testing air at the end of the pump was discussed. Problems and past experiences were shared.

Putting ACAP certification into the Standard Specifications was discussed. The consensus is that the pump truck operators should be certified. This item will be brought back for additional discussion at the next meeting.

Action Item: Mark requested that Bruce bring back additional data to the team to better understand why the concrete is being rejected. Mark to keep this on the agenda for more discussion at the next meeting.

8. Deck Preconstruction Meetings

Most of the team acknowledged pre-deck pour meetings are happening. Perhaps the concrete Suppliers are not always being invited. This will be brought back to the Construction office for further discussion.

Action Item: No further action needed.

9. Proposed changes to 6-19.4 and 6-19.5

Due to a lack of time, this item was not discussed.

Action Item: Mark will keep on the agenda for next meeting.

10. Proposed changes to 1-07.1 Safety Plans

Due to a lack of time, this item was not discussed.

Action Item: Mark will keep on the agenda for next meeting.

11. Presentation on Digital plans and as-built process

Due to a lack of time, this item was not discussed.

Action Item: Mark will keep on the agenda for next meeting.

12. Select future meeting dates

September 11th, October 23rd, December 4th

AGC/WSDOT Structures Team September 25th, 2015 Meeting Minutes

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Meeting minutes were prepared by Marco Foster.

Topics – Recycled Concrete/Aggregate Specification; How will WSDOT select contract delivery method in the future; Update on WSDOT’s GCCM legislation; New Steel – stripe coat; Soil Bearing capacity for temporary footings/mudsills; ACPA Certification for pump trucks; Proposed changes to 6-19.4 and 6-19.5; Proposed changes to 1-07.1 Safety Plans, Discuss elimination of closure pour for

girder replacements; Proposed shotcrete specification for permanent application; Review of Cold Weather protection specifications.**1. Welcome & Review of Agenda**

Mark welcomed the group and reviewed the agenda. There were a couple of new members in attendance so introductions were made. Jeff Firth will replace Kevin Parrish for Hamilton. Ben Tornberg will replace Monica Blanchard for Manson. No new agenda items were brought forward. Pete asked about upcoming projects that are part of the new funding package. Mark briefly discussed the recent revenue package and stated the money/cash flow will be different than the previous revenue packages (Nickle and TPA). Rather than this being bonded money, the funds will be expended as they are accumulated from gas tax revenue. Marco suggested there may be some presentations with regards to new projects lists available by next meeting that we can share with the team. Bob H. mentioned that the Eastern Region will have some new North-South Corridor projects as a result of the new revenue package. Construction is probably two years out based on cash flow. Method of delivery has not been set in stone but there will most likely be several DBB projects. Tom stated WSDOT will know more about the timing of upcoming AWW projects once tunneling resumes this winter. Susan Fell provided a brief update on SW Region projects that are funded with Connecting Washington package. Susan thought that several of the projects would likely be DB method of delivery. Will Smith stated that SC Region also has a Connecting Washington project on I-90 and that some of this funding has been slated for Bridge Deck rehabilitation.

Action Item: Mark to bring back more information regarding a new projects list associated with Connecting Washington next meeting.

2. Recycled Concrete/Aggregate Specifications

Mark provided a copy of new legislation requiring WSDOT projects to encourage the use of and document the volume/amount of recycled concrete and aggregate used on its projects. Mark provided a brief overview of the legislation and highlighted some of the important components in the bill. Bottom line – WSDOT is now required to track the use of recycled concrete and aggregate and to target 25% of the aggregate used on its projects to be from recycled aggregate sources.

The Contractors were concerned about the use of high pH recycled concrete and suggested this has discouraged use in the past. The Contractors also suggested they already/currently conduct business that is most economical that the reporting simply adds more paper work.

Mark will discuss this topic further with Environmental staff to see if there are certain applications where we are not concerned with the pH of recycled concrete to assist Contractors in knowing when and where it can be used.

Bob H. noted that our current specification places limits on the use of recycled materials (9-03.21(1) E).

New Standard Specification language and Construction Manual guidelines were also reviewed with the Team. A recycled utilization plan is now required. Mark discussed some of the details of the reporting. He also pointed out that the intent of this legislation is not to add costs to our Contracts. If a Contractor is not able to achieve the 25% recycled aggregate utilization due to added cost, documentation meeting requirements of a Type 1 Working Drawing will be required.

Action Item: No action needed.

3. How will WSDOT select contract delivery methods in the future

Mark provided an update on WSDOT's draft plan to evaluate project delivery methods (PDM) in the future. There is new language in the funding legislation (Connecting Washington) that requires all projects be evaluated for method of delivery (DBB, DB, and GCCM). Mark spent some time discussing how WSDOT has decided which method to utilize in the past. WSDOT is working on standardizing how project delivery methods are selected. Mark shared a presentation on "Project Delivery Method Selection Guidance".

A team has been formed to help develop the process. The new process identifies a probable PDM during scoping, and then validates this PDM later in design (prior to the 30% design level). A checklist has been developed to assist in evaluating projects. Mark spent some time reviewing flowcharts to demonstrate how the process will be followed. This is a new process and will need refinement as it is implemented.

Geoff asked if the process allows input from the industry. There was agreement in the group that this is a good thought and should be considered. This step in the process would allow for transparency within the construction community and also provide more information when reporting back to the legislature.

The PDM evaluation process has been reviewed by a variety of stakeholders (AGC/ACEC/WSDOT DB Team, WSDOT Project Development Engineers, WSDOT Executives, etc.) and is in final stages of review.

Action Item: Mark to forward the PDM presentation to the team members and will keep the group informed as this plan progresses.

4. Update on WSDOT's GCCM legislation and the AGC/ACEC/WSDOT GCCM Task Force

Mark reviewed WSDOT's proposed GCCM legislation. Current DB legislation has allowed WSDOT to refine and develop how we manage DB contracting. WSDOT is now considering pursuit of the same legislative flexibility for GCCM. WSDOT is also interested in setting up a AGC/ACEC/WSDOT GCCM Task Force to help develop WSDOT's use of GCCM Contracting. Mark Gaines and Geoff Owen have been identified as potential co-chairs of this Task Force. Both of these items will be topics of further discussion between WSDOT and the AGC.

Action Item: No action items identified.

5. Action Items

a) New Steel – Stripe Coat

Mark has not worked on this item but it will be kept on the agenda.

Action Item: Mark will keep on the agenda for next meeting.

b) Bearing Capacity for Temporary Footings/Mudsills

Mark has not worked on this item recently but the item will remain on the agenda for next meeting. WSDOT Geotechnical Engineer Mark Frye will be invited for the next meeting to further this discussion along and identify clarity/improvements to the current specification.

Action Item: Mark will keep on the agenda for next meeting.

c) ACPA Certification for Pump Trucks

At the previous WSDOT/AGC meeting in May - Bruce Chatten from WACA came to the team to discuss concrete pump certification and the rejection of concrete on WSDOT Contracts. Bruce suggested that as much as 20% of the concrete they produce gets returned to the plant. Mark requested – that WACA bring back more information/data to determine how many concrete trucks are rejected for out of specification air content.

Mark asked the Team what they thought about changing the spec to require pump truck certification. There was some open discussion amongst the Team. There was still uncertainty of the root problem. Would requiring concrete pump truck drivers to be certified address the perceived problem of concrete being rejected due to low air?

After discussion, there was some consensus that requiring the pump certification was **not** addressing the problem of rejecting low air concrete out of the end of the pump. The discussion then focused again on increasing the air out of the chute to insure adequate air out of the pump.

Testing at the discharge/chute and then correlating that to testing air at the end of the pump was discussed. Problems and past experiences were shared.

In conclusion, the Contractors were not convinced that requiring ACPA certification was necessary or would address the root problem.

Action Item: Mark will discuss further with Bruce the concept of raising the upper limit on air.

6. Proposed changes to 6-19.4 and 6-19.5

Mark highlighted recent revisions to these specifications. Measurement for drilled shaft cages was refined to be clearer. The specification now requires the steel weight be computed per 6-02.4. Standard Specification 6-02.4 has been modified to clarify that reinforcing steel will be measured and weight calculated based on the detail shown in the plans. Mechanical splices will be measured based on the weight specified in the Manufacturer's catalog.

There was discussion about payment for bracing and CSL tubes. There have been no recent issues related to payment for these items so it was decided to not make further revisions.

Standard Specification 6-19.5 – Mark highlighted some slight modifications to drilled shaft specifications and FA obstruction removal. Damage to casing, cutting teeth, and kelly bars will be paid for if damaged by the obstruction removal, and will be compensated via FA. A comment was made that the Construction Manual should be updated to reflect this change and provide further guidance to WSDOT staff.

The issue of time related to obstruction removal was raised again. The current requirement to expend all FA money before receiving contract time presents a high risk for the Prime Contractors to deal with.

Action Item: Mark will make adjustments to the CM to reinforce the intent of the specification change. The issue of contract time associated with obstruction removal will also be kept on the agenda.

7. Proposed changes to 1-07.1 Safety Plans

Mark provided some background on why WSDOT is proposing the specification change regarding Safety Plans. The modifications were the result of accidents that happened last construction season. Current proposed changes were developed in conjunction with the WSDOT AGC Administration Team.

Ryan provided some recommended changes to keep the requirement to site-specific safety plans. The Contractor has many many safety plans so keeping the focus to those safety plans pertinent to the specific project site is appropriate.

Pete suggested WSDOT may want to consider reviewing contractor incident rates as a pre-requisite. Some other agencies use this as a measure. Mark will take this comment back to the WSDOT/AGC Administration team for further consideration. Perhaps part of the WSDOT pre-qualification process could consider accident incident rates? There was general discussion amongst the group with regards to WSDOT employee training. Sometimes it's necessary to have WSDOT training for WSDOT employees, other times it would make sense for there to be shared/combined WSDOT/Contractor training. This should be addressed on a case by case basis.

Action Item: Mark will discuss Contractor incident rates with the WSDOT/AGC Admin Team to determine if current practice be amended to give consideration to Contractor accident incident rates.

8. Discuss elimination of closure pour for a girder replacement

Mark discussed WSDOT current practice of requiring a closure pour on girder replacement projects and benefits of doing so. He then asked the Team about their thoughts on eliminating the girder closure pour between the existing structure and the replacement girder. WSDOT has always included these closures, and there are definitely some benefits to keeping in in place. However, it may be possible to construct this without using a closure pour.

There was open discussion amongst the team and debate if the elimination of the closure would work without negatively impacting reinforcing steel extending from the existing bridge. There was some discussion about pouring the entire replacement area quickly to obtain girder settlement and then consolidate/finish the deck after the dead load is applied.

Another option discussed was pour the diaphragms first to lock in the girder and then pour the deck.

The Contractors did not have a strong opinion with regards and requested that construction sequence be clear in the contract so that everyone knows what is allowed as structurally acceptable.

Action Item: Mark will provide feedback from the team to the Bridge office.

9. Proposed Shotcrete Specification for permanent applications.

Mark discussed past experience and concerns with using permanent shotcrete fascia walls on WSDOT projects. Primary concerns have been the long-term durability of shotcrete and its ability to provide adequate corrosion protection of the reinforcing steel. Though used more commonly in other states and on local agency and private projects, WSDOT use has been minimal.

The I-90 Snoqualmie Pass project recently constructed several shotcrete walls. The team reviewed project photos that show the line and grade of the walls are very good; however shrinkage cracking was also very evident. It is recognized that the high cement content of the shotcrete mix design is a major contributor to early cracking; this increases the importance of fogging and wet curing during construction.

Mark then reviewed proposed shotcrete specification that would allow the construction of permanent shotcrete fascia on several walls on the AWW North Access contract. The specifications focus on the Contractor providing a performance-based wall that limits permeability and provides adequate freeze thaw durability through an assessment of the air void structure in the hardened concrete. Photos and a video of test panels being constructed were then viewed.

Research funding has been obtained to further evaluate best practices for shotcrete wall construction, and the draft specification will be refined as more data and research documentation is obtained.

Action Item: No further action required.

10. Review of cold weather protection specifications.

This topic will be kept on the agenda as a future topic.

Action Item: No further action required.

11. Items for future meetings

Mark reminded the team to send any agenda items they would like to see added to future meetings for discussion.

Action Item: No further action required.

12. Review/adjust future meeting dates

The Team agreed on the following meeting dates:

November 13th, January 15th

AGC/WSDOT Structures Team November 13th, 2015 Meeting Minutes

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X	Ayers, Scott ¹	Graham Constr.	206-631-2358	scotta@grahamus.com
	Bhalla, Ricky	WSDOT	360-538-8502	bhallar@wsdot.wa.gov
	Binnig, Bill	Kiewit Pacific	425-255-8333	bill.binnig@kiewit.com
X	Bowles, Eric	Conc. Tech.	253-383-3545	ebowles@concretetech.com
X	DeGasparis, Charlie	Atkinson Constr.	425-255-7551	charlie.degasparris@atkn.com
X	Fell, Susan	WSDOT-SWR	360-759-1312	fells@wsdot.wa.gov
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X	Gaines, Mark ¹	WSDOT-HQ	360-705-7827	gainesm@wsdot.wa.gov
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X	Welch, Pete	Granite Constr.	425-551-3100	pete.welch@gcinc.com

¹ Team co-chair

Guests

Attendee	Company	Phone	E-mail
Mark Frye	WSDOT	360-709-5469	fryem@wsdot.wa.gov
Dustin Fairbrook	Kiewit	402-490-4752	dustin.fairbrook@kiewit.com

Meeting minutes were prepared by Marc Gaines.

Topics – Summary of AGC/WSDOT Lead Team Mtg., AGC/WSDOT Annual Mtg., Temporary Footings and Mudsills, SS Section 2-09.3(3)B Excavation, Update on Project Delivery Method Selection Guidance, Update on GCCM Legislation and AGC/ACEC/WSDOT GCCM Task Force, Prestressed Girder Temp. Top Strands,

Review of Hot/Cold Weather Protection Specifications, Changes to Mech. Coupler Specs. and Const. Manual, Update on Connecting Washington Projects**1. Welcome & Review of Agenda**

Mark welcomed the group and reviewed the agenda. There were a couple of guests so introductions were made. There were no additions to the agenda.

Action Item: No action needed.

2. Summary of AGC/WSDOT Lead Team Meeting

The AGC/WSDOT Lead Team met on November 2nd. All four of the AGC/WSDOT Teams were represented at the meeting. Highlights of the discussion included:

- Organizational changes in WSDOT.
- Connection Washington projects – summary of the projects being supported by this funding, including a draft list of the major Design-Build projects.
- New AGC/WSDOT/ACEC Team forming – will review GCCM contracting in the Puget Sound, work on developing WSDOT's GCCM policies, and move toward legislation in 2017.
- Disputes Review Boards – WSDOT is considering updating our DRB policies and potentially changing the DRB model entirely.
- Inspector Certification – WSDOT plans on having all construction inspectors certified in two years. Also considering ways to open up the certification process to Contractors (for Design-Build contracting).
- Project Delivery Method Selection Guidance (PDMSG).
- Small business/minority business issues.

The Lead Team discussed meeting more frequently than once per year. Future meetings will be scheduled on a semi-annual or quarterly basis.

Action Item: No action needed.

3. AGC/WSDOT Annual Meeting

Mark reminded the Team that the AGC/WSDOT Annual Meeting will take place on January 7th and the Tacoma Elks Club Lodge at Allenmore Golf & Events Center. He passed out a draft agenda for the meeting. They have decided to keep the meeting a little shorter this year; adjournment is scheduled for 3:15 pm.

Action Item: No action needed.

4. Temporary Footings and Mudsills

Mark Frye from the WSDOT Geotechnical Division attended the meeting to provide input on this item and the next item. The Team briefly reviewed the history of this item and where things were left off more than a year ago. The challenges the Contractors are encountering include:

- The AASHTO load bearing test for mudsills listed in the Standard Specifications is no longer an approved test.

- The term “geotechnical engineer” used in the Geotechnical Design Manual creates challenges.

Mark F. explained that the shortcoming with the plate bearing test is that it provides no verification that the deeper soils are capable of carrying the mudsill load. Many of the mudsills and temporary foundations used by Contractors carry significant loads and the consequences of failure would be significant.

Mark F. agreed that the term “geotechnical engineer” needs to be clarified. What WSDOT is looking for is a competent civil engineer experienced in geotechnical engineering. Mark F. will work on updating/correcting this in the Geotechnical Design Manual. Mark G. will work with Mark Frye and Charlie DeGasparis to put together a specification for review and an upcoming meeting. Mark G. will also look at adding WSDOT Construction Manual language to provide guidance to the Project Engineer on the review and processing of temporary footing/mudsill submittals.

Action Item: Mark F. and Mark G. to work on specification and Construction Manual language for review at a future meeting.

5. Standard Specifications Section 2-09.3(3)B Excavation

The requirements of this section have created challenges for the Contractors because they apply to all excavations regardless of depth, slope, etc. The goal of these requirements is to insure that protection of existing infrastructure (bridges, walls, roadways) from construction activities. While there are safety implications as well, WISHA/OSHA have jurisdiction in this area and WSDOT doesn't want to repeat or duplicate existing safety requirements.

The Team discussed how WSDOT can make sure that existing infrastructure is being protected while providing relief to Contractors for excavations that pose a low risk. Some of the ideas generated by the team included defining a zone of influence near existing structures, identifying all specific locations where an engineered submittal is required, or identifying specific criteria for different structure types (i.e. three shaft diameters for shaft-supported elements, two feet and a 2:1 slope for spread footings, etc.)

The Team agreed in general that an engineered submittal should only be required when it is needed to protect existing infrastructure. All other excavation will simply need to meet WAC requirements. Mark F. and Mark G. will work on developing specification language to identify the proximity to existing infrastructure that will trigger an engineered submittal. This will be brought to a future meeting for additional Team review and discussion.

Kelly asked for an agenda item at a future meeting to discuss groundwater pumping vs. placing a concrete seal when constructing foundations.

Action Item: Mark G. and Mark F. will work on specification revisions to bring back to the Team at a future meeting. Mark G. will add a new item to an upcoming agenda to discuss groundwater pumping vs. constructing a seal.

6. Update on Project Delivery Method Selection Guidance

This was addressed during the AGC/WSDOT Lead Team agenda item.

Action Item: No action needed.

7. Update on WSDOT's GCCM legislation and AGC/ACEC/WSDOT GCCM Task Force

This was addressed during the AGC/WSDOT Lead Team agenda item.

Action Item: No action needed.

8. Prestressed Girder Temporary Top Strands

Eric asked for feedback from the Team on the details that Concrete Tech is using for temporary top strands, including the foam block-outs used to allow the strands to be cut. The Contractors were all happy with the current detailing practice. Kelly noted that the biggest concern they have is the requirement to cast the bridge deck within 30 days of cutting the strands. Mark G. noted that the updated prestressed concrete Standard Specification language has eliminated this timing requirement.

Action Item: No action needed.

9. Action Items

a) New Steel – Stripe Coat

Mark wasn't prepared to discuss this item at the meeting today. This will be included on the agenda for a future meeting.

Action Item: Mark to include this item on a future agenda.

b) Review of cold/hot weather protection specs.

Mark provided some draft specifications for changes to the cold and hot weather protection specifications:

Hot Weather

Since bridge decks are now kept saturated from the time concrete is placed until the wet cure is established, there is really no need for the evaporation curve in the Standard Specifications. This curve and the associated evaporation limits have only historically been applied to bridge deck construction. Mark is proposing to eliminate these requirements. He is also proposing to remove a lot of antiquated language from the specifications. The Team agreed with the suggestions.

Cold Weather

The major changes to the cold weather specifications are that the contract requirement will now be to keep all concrete above 40 degrees F for the Cold Weather Protection Period. The Cold Weather Protection Period is defined as seven days from concrete placement or the duration of the cure period, whichever is longer. While this will be a requirement for all concrete placement and all times of year, the proposed language also includes specific monitoring requirements to be implemented when the temperature is forecast to fall below 35 degrees F within seven days of placement.

The Team thought the proposed language was an improvement. Some of their comments included:

- Consider allowing temperature to drop to 35 degrees F after seven days.
- Remove these requirements for larger concrete placements (i.e. large crossbeams, mass concrete pours).
- Should address whether cold temperatures are considered an unworkable day.

Action Item: Mark will make additional revisions to incorporate comments from the Team. The specification will be brought back for additional review at a future meeting.

10. Changes to mechanical couple specifications and Construction Manual

In the interest of time, this item was not discussed.

Action Item: Mark to include this item in a future meeting.

11. Discuss changing the next meeting date to Jan 22nd.

Mark has a conflict for the next meeting date and requested changing it to January 22nd. The Team agreed.

Action Item: Mark to update the agenda to make the next meeting January 22nd.

12. Update on Connecting Washington projects

Mark gave a brief update on the Connecting Washington funding package and the approximate project schedule for some of the major elements of work.

Action Item: No further action required.

Adjourn

Next meeting: January 22nd.