

DEPARTMENT OF TRANSPORTATION - District 4 Toll Bridge Program

333 Burma Rd.
Oakland, CA 94607
(510) 622-5660, (510) 286-0550 fax



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June 30, 2008

Contract No. 04-0120F4
04-SF-80-13.2 / 13.9
Self-Anchored Suspension Bridge
Letter No. 05.03.01-002297

Michael Flowers
Project Executive
American Bridge/Fluor, A JV
375 Burma Road
Oakland, CA 94607

Submittal 724 - May 2008 Proposed Revision Schedule

Dear Michael Flowers,

The Department has reviewed submittal ABF-SUB-000724R00 which provides a proposed revision schedule with a data date of May 2008. The record shows that this May 08 schedule revision was received by the Department, prior to the ABFJV submission of three different iterations of the April 08 revised schedule. However, it is the Department's understanding that this May revision incorporates numerous corrections and changes not included in the April revisions. The Department has reviewed this May 2008 schedule revision in a corporative effort to continue the development of a manageable CPM Schedule.

The following revision changes have been noted in the table below:

Description	January Accepted (U16 S0)	January Revision (B4 R1)	January OBG FAB	January T1 FAB-3	April Revision (U19 R1)	April OBG FAB (U19)	April T1 FAB U19-1	May Revision (U20)	May OBG (U20)	May T1 (U20)
Total Activities	6,690	7,374	6,073	4,349	7,897	6,073	4,349	8010	6073	2136
Activities not started	3,473	4,130	6,018	4,347	4,036	5,602	4,283	3833	5406	2067
Activities In progress	290	307	2	-	326	2	9	306	15	25
Activities Completed	2,927	2,937	53	2	3,535	469	57	3871	652	44
No. of Relationships	18,898	40,569	22,479	9,320	42,121	22,479	11,661	32544	22479	5764
No. of Constraints	37	43	7	-	43	7	-	43	217	-
Activities without Predecessors	1	1	5	2	3	5	2	9	5	2
Activities without Successors	11	693	4	-	694	4	-	682	4	0
Out of sequence activities	156	158	-	-	228	346	55	228	3	42
Activities with Actuals > DD	-	-	-	-	-	-	-	4	-	-
Milestones with Invalid Replationships	-	-	2	-	1	-	-	1	-	-
Activities scheduled/leveled		4,437	6,073	4,349	4,362	4,347	4,349	4139	5421	2092
Relationships with other projects	6,300	28,449	12,048	4,586	28,459	12,048	6,927	18547	12048	3404
Latest EF dates	4/15/13	5/16/13	4/7/09	7/24/09	8/8/13	10/23/09	1/8/10	8/29/13	10/20/09	1/25/10
Critical Activities (Float < 0)	22	462	-	1,287	756	80	1,938	n/a	n/a	n/a
Critical Activities (LP)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	171	14	47
Activities with Unsatisfied Constraints	3	5	-	-	11	-	-	11	1	-
Activities with Unsatisfied relationships	54	63	-	-	90	-	-	47	15	14
Activities with external dates	-	-	-	1	-	1	1	-	-	-
Activities Delayed due to Predecessor	-	-	-	-	-	1317	1268	-	1401	633
Activities Delayed due to leveling	-	-	-	-	-	2911	2891	-	3713	1309
Activities that cannot be leveled	-	-	-	-	-	5	5	-	-	-
Activities that cannot be leveled backwards	-	-	-	-	-	150	145	-	81	100

The ABF May 2008 schedule submission is not acceptable for the following, but not limited, reasons:

Progress and Schedule Status:

- A1. Multiple schedules with external links to each of the schedule files is the method which ABFJV has chosen to develop and present the schedule. Currently, a complete schedule submission contains a main project schedule, a detailed deck fabrication schedule (deck and cross beam only) and a detailed tower fabrication schedule. It is noted that there also exists a fourth, RFI Schedule file which is considered by the Department as information only and will not be reviewed unless included in a TIA submission. The use of multiple schedule files for a single submission is not only beyond the industry standard practice but has resulted in a difficult to manage, fragmented schedule that is full of out-of-sequence logic, excessive logic ties and has resulted in an inefficient utilization of the Primavera program. It currently takes the Department approximately 6 to 7 hours just to load the multiple schedules files, which is unacceptable. As a direct affect of this both ABFJV and the Department are forced to spend an excessive amount of time in getting the data to match and loading revision(s) that should be spent reviewing schedules. The Department has preformed analysis, which indicates that the elimination of the LOE type of activities summarizing fabrication would improve the load time significantly. The Department believes that the combining of the 3 separate schedule files, and elimination of the fabrication LOE type of activities will result in a project schedule which is more manageable, contain less redundancy, provide a cleaner as-built record, report more realistic total float values and allow for the development of delay mitigation plans. It is recommended that ABFJV consolidate the three files or provide a detailed explanation of the benefits of keeping the three files separate. Consolidation will also allow accurate schedule comparisons from Claim Digger and or Schedule Analyzer Pro. The Department is willing to participate in helping to consolidate the files.
- A2. 682 activities without successors potentially contribute to erroneous total float calculations. This problem may be in large part resolved by the removal of the fabrication Level of Effort ("LOE") type of activities. As previously discussed during our weekly schedule meetings, remove the LOE activities in the fabrication section of the main schedule. These activities (671) have little or no value and cause excessive logic ties (15,452) slowing down the program. ABF has suggested replacing these activities with WBS activities; this may be acceptable but needs further review; another option would be to add no new activities and simply use a summary of the existing WBS coding.
- A3. There are 260 constrained activities that contribute to erroneous Total Float calculations. As stated in the April 2008 review letter.... "Although the use of constraints is not generally precluded, the standard and practice is to limit the use of constraints, excluding those required by contract, as the over use of constraints can become problematic in the calculation of the schedules total float": Inaccurate results will occur during the calculation of the Longest Path in a schedule with excessive constraints. The effects of the proposed added constraints in the fabrication schedule could be achieved by other methods including appropriate logic ties and or resource leveling. The shipping constraints in the fabrication schedule create a

separate base of float counts for the OBG fabrication activities making them incomparable to other parts of the schedule. The Department has removed a few constraints in previous submittals in order to gain schedule acceptance. This practice may have been suitable when there was just a few of constraints. At a minimum remove the constraints for saddle fabrication, OBG shipping, and OBG Deck Fabrication. The Department is willing to review various options available to achieve ABF work plan during our weekly meetings.

- A4. As previously agreed, activities with durations greater than 20 days and that are anticipated to start within the next 6 months would be reviewed and more details provided as necessary to monitor the work. The detailed OBG fabrication schedule provides sufficient details for the deck and cross beam fabrication but has not addressed other fabrication areas. Similarly, the detailed tower fabrication schedule does not address other tower fabrication components. The Department has requested that activities > 20 days in duration be discussed during the weekly meeting. We suggest that a workshop be set-up to decide and document which activities should have additional detail necessary to monitor the work.
- A5. 273 Out of Sequence activities contributes to erroneous total float calculations. Each out of sequence condition must be reviewed and their relationships either verified or changed. This review should be done during our weekly meetings and agreement reached between the schedule teams. Typically, an out of sequence condition left unresolved documents a misleading and incorrect as-built record, and also results in inaccurate total float calculation. As previously pointed out, many of these relationships can be easily fixed. It has also been noted that new activities have been added to the schedule with incorrect and out of sequence logic ties. Correcting out of sequence logic will allow the schedule to be calculated utilizing the Primavera Retained Logic option, pursuant to standard industry practice and provide the project with more accurate activity float calculations.
- A6. 136 expected finish dates were used in the schedule. It was agreed to limit the use of expected finishes to submittal preparation. 30 expected finishes were added to Caltrans reviews which we agreed would be based on duration % complete. T1 fabrication schedule also has 26 expected finish dates which are 6 months ahead of the schedule dates. The continued use of expected finish constraints causes problems with maintaining Original Durations values. Review the enclosed file "Expected Finish Dates-May 08Schedules.pdf" and remove all unnecessary expected finish dates. For expected finish dates that ABF maintains are necessary, provide an explanation why the remaining durations can not be forecasted.
- A7. Unsatisfactory progress continues in this May 2008 schedule, with the current Phase 1 Milestone reporting 103-days behind schedule, the Phase 2 Milestone at 175-days behind schedule and the Phase 3 Milestone at 126-days behind schedule. The continued slippage of approximately 1-month for every month worked does not constitute an acceptable plan to complete the project. There are 235 activities reporting progress in the April 08 schedule, which report no progress during this May 08 reporting period. In addition there were 93 activities which indicate diminishing progress this period and 17 activities which have been stasued as having started but have no progress reported. ABF has not provided any explanation regarding the slippage between the two revisions.

As stated in the Department's letter No. 05.03.01- 002080 regarding the January and April 2008 schedule submissions, once the tower mockups are acceptable and fabrication work is full production, the Department will expect the submission of a revised CPM network providing proposals for mitigation of the tower fabrication delays. In addition, to the tower delays other near critical paths have also been delayed including, but not limited to, deck fabrication, temporary tower fabrication and temporary tower construction. Delays along these paths may also require mitigation plans.

- A8. The narrative report has limited information regarding the thousands of changes made to the schedule which makes it extremely difficult for the Department to determine what has changed between the revision files. A narrative description should be provided for all proposed schedule changes. In addition to the Table above, the following issues are noted with the May revision schedule :
- 1772 activities with total float changes greater the update period. Typically this does not occur unless major logic changes have occurred or the remaining durations previously reported were extremely inaccurate. ABF has not provided a narrative describing either of these situations.
 - 11 in-progress activities were added to the schedule without explanation.
 - 145 activities had actual dates added that were prior to the May 08 reporting period with no explanation.
 - 68 actual start dates added that were prior to the May 08 reporting period without sufficient explanation.
 - 3 activities have modified or changed actual dates after the May 08 data date, with no explanation.
 - 9 activities have modified actual start dates, with no explanation.
 - 35 activity notes were deleted from this schedule with no explanation. These notations are a part of the project record and may be lost due to unilateral deletion. These notations involve comments that may be critical to the clarification of the extent and scope of a particular activity, and should be submitted to the Department for review prior to deletion. It was agreed that any deletions or additions to the notes field would be reviewed and accepted by the Department.
- A9. "NOTA" codes for secondary responsibility have not been fully updated/revised. Update all code values.
- A10. Regarding 1.4.2.1 - The Department disagrees with ABFJV's statement concerning their inability to finalize CCO activities and logic relationships until the CCO is formally executed. There are currently 33-Approved Contract Change Orders, and the Schedule contains 59 activities identified as CCOs. Pursuant to contract the CCO's activities should not even be in the schedule until they are approved and until they have been included in the monthly revision narrative as a "proposed schedule change". However, and since they are in the schedule, the Department believes that the Contractor should be capable of finalizing the logic accordingly. The schedule contains the following 10 CCO activities, with all of the respective successors completed. The Department understands that a lot of these completed

successors are start-to-start with the CCO activity, which realistically leads to an open-end condition. It is unacceptable for the activities to remain open ended, riding the data date. ABFJV is required to assign these activities actual finishes, propose successive logic to add, or justify the open-end condition.

CCO Activities With Completed Successors Without Actual Finish

- PGCCO0023S0 CCO #023 - Revise W2 Cap & E2 Cross Beams
- PGCCO0021S0 CCO #021 - OBG Crossbeam & Tower Splice Plate Alteration
- PGCCO0045S0 CCO #045 - Paint Primer on Ductile Iron Pipe
- PGCCO0027S0 CCO #027 - Bearing Block & OBG Access Cutout Rev at PP8
- PGCCO0034S0 CCO #034 - Contractor ISDs at W2 - Post Tensioning
- PGCCO0034S1 CCO #034-S1 - Contractor ISDs at W2 – Rebar
- PGCCO0038S0 CCO #038 - Crossbeam Kink (Detailing Costs)
- PGCCO0046S0 CCO #046 - Additional Macalloy HS Prestressing Rods
- PGCCO0031S1 CCO #031-S1 - Tower Riser Pipe Support
- PGCCO0034S2 CCO #034-S2 - Contractor ISDs at E2

A11. Regarding 1.5.2.1 - It is our understanding that the shear leg barge is on schedule for a mid-July completion and a start for China commissioning. ABF does not anticipate any shipping delays on the submersible ship despite the negative float. ABF has been unable to obtain a schedule from ZPMC on the submersible ship.

A12. Regarding 1.5.3.1- It is noted that the actual start date for activity PGCON000010 was changed. However, there is no mention that following the as-built dates were also changed on 8 other activities:

- Actual Start Change - BDFABCB0731 FROM: 23MAR08 TO: 28MAR08
- Actual Start Change - BDFABCB0742 FROM: 17APR08 TO: 31MAR08
- Actual Start Change - BDFABCB0755 FROM: 08APR08 TO: 28APR08
- Actual Start Change - PGCCO0041S0 FROM: 03JUL07 TO: 07MAY08
- Actual Start Change - T1FABCB0025 FROM: 21MAR08 TO: 03APR08
- Actual Start Change - T1FABCB0035 FROM: 20MAR08 TO: 02APR08
- Actual Start Change - T1SUB001600 FROM: 28JUN06 TO: 19APR08

C. Temporary Tower

C1. Activity TICON000040 appears to have incorrect logic ties with its predecessor review and correct this logic as necessary.

C2. Pile Driving for the Temporary Towers is shown in the schedule as concurrent for both the West and East, which indicates the utilization of two pile driving rigs. Verify that two pile driving rigs will be utilized or make the necessary adjustments to the logic with an explanation. Also equipment resources associated with the pile driving operations have not been included. Provide all resources as requested.

D. OBG / Bridge Deck

- D1. OBG segment 7 AE does not have the correct OBG location codes.
- D2. The crossbeams OBG location codes are all listed as CB1 these should be switched to the appropriate CB1, CB2, CB3... codes unless an explanation is provided.
- D3. OBG location codes are not complete for the cross beam locations.
- D4. OBG activities "Shop-assembling - Transport Segment xxx to Preassembly" are utilizing the "SHO" (Shop assembly) resource for 5 days decreasing the availability of shop space for other more critical activities. This resource may need to be assigned to a separate resource for example, "segment transport vehicle" or a more realistic duration assigned.
- D5. OBG segment 8BW appears to have incorrect activities assigned to fabrication. Review the enclosed files named "May-08Segment Assembly Data-CPM Review.pdf", "May-08 analysis-Shopparts assembly8BW.pdf" and "May-08 analysis-Shopparts assembly.pdf" and correct the activities accordingly.
- D6. OBG segment assembly of floor beams have an original duration of 4 days regardless of whether there is 1 floor beam or 6 floor beams. This drastically changes the production of welders in the assembly bays. These durations should be reviewed and revised accordingly.
- D7. OBG segment assembly activities have been stasured as started prior to completion of the required predecessors. For example, segment assembly of floor beams has begun prior to starting the segment assembly of side plate to bottom plates. Correct and revise these actual starts.

E. T1 Fabrication

- E1. T1 WBS structure and the "Group" coding need further edification. We suggest that this be discussed during a workshop meeting.
- E2. It is noted that ~2000 activities have been deleted and the activities codes changed. However, the T1 activity codes are not consistently implemented. What coding will be used for future added activities in both the T1 and OBG fabrication sections? This should be worked out prior to submitting another revision which may potentially change the activity coding structure again.
- E3. Several activities in the T1 fabrication schedule have started and the remaining duration set for only a day or two. However, there are several weeks of delay before the activities are completed. For example, activity 01ESKP005 which has an actual start, original duration of 2 days, an actual duration of 35 days, a remaining duration of 1 day but is delayed for approximately 1 month. Review these non-contiguous activities and correct accordingly.

AMERICAN BRIDGE/FLUOR, A JV

June 30, 2008

Page 7 of 7

It is suggested that both ABF and Caltrans schedule teams meet twice a week to resolve the issues noted above and put the highest priority to obtaining a manageable and workable project schedule. The Department is willing to meet on Tuesdays, Wednesdays, and Thursdays until an acceptable schedule is obtained.

Sincerely,



GARY PURSELL
Resident Engineer

cc: Bill Shedd, Don Ross

file: 05.03.01, 26.05