



SAS Superstructure

Location: 04-SF-80-13.2 / 13.9

Client Name: CalTrans

Run date 21-Nov-14

Time 11:24 PM

Daily Diary Report by Bid Item

Contract No.: 04-0120F4

Diary #: 544 Const Calendar Day: 938 Date: 03-Apr-2012 Tuesday

Inspector Name: Bruce, Matt Title: Transportation Engineer

Inspection Type: Continuous

Shift Hours: 12:00 am 08:30 am Break: 00:30 Over Time:

Federal ID:

Location:

Reviewer: Schmitt, Alex Approved Date: Status: Submit

04-0120F4
04-SF-80-13.2/13.9
Self-Anchored
Suspension Bridge

Weather

Temperature 7 AM 40 - 50 12 PM 50 - 60 4PM 50 - 60

Precipitation 0.02"

Condition Overcast to partly cloudy

Working Day [] If no, explain:

Diary:

Dispute

Work description.

- Checked the "rough" layout marks placed by ABF surveyors on the South Sidespan with the assistance of Damon Brown, Sami Daouk, John Lyons, and Daryoush Bahar. Used the calibrated (68F and 11lb tension) steel tape to perform the QA check where the marks were placed on cable strand number 83 by ABF surveyors. Cable strand number 124 was used for our point of reference, which is located close to the top dead center of the compacted cable. The survey began at 12:35am and ended at 3:15am with the following conditions:

Table with 3 columns: Variable, Start, End. Contains weather and survey conditions data.

Taping started from the W2E west deviation saddle where a 1.000m offset was made from the saddle face to enable an accurate pull with the weight scale. The tape was pulled to a length of 52.000m where cable bands at panel points 9,10, 12, 14, and 16 were checked against ABF marks. The marks between the two groups was estimated to be no more than +/-25mm. This is acceptable given the uncompacted condition of the cable strands, access, and reference locations (cable strand 83 vs 124) between ABF surveyors and Caltrans engineers.

Only one chain break was made for the sole reason of access to the top of the cable strand. I climbed on top of the cable strand stack to pull the steel tape while John and Damon stood on the strand in the rollers to place the scotch tape on top of the steel tape during the pull. As we attempted to start the next chain break it was discovered that the height of the cable strand bundle was getting higher than the catwalk coupled with the slope of the cable strand bundle made the operation/survey unfeasible. ABF surveyors used ladders on the catwalk to overcome this obstacle. It was decided at 2:30am to stop the check until better access is provided.

GPS measurements were taken at 5 epochs each on the South Sidespan for cable bands located at panel points 9, 16, and 24 . The reason for using GPS equipment is to check the marks placed by Caltrans engineers against bridge datum calculated to the top dead center of the compacted cable.

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The other reason for performing the "rough" QA check for the cable band location is to familiarize Caltrans engineers with this operation/survey to become efficient and timely when performing the same task on the compacted cable.

The digital thermometer was used to measure both the ambient and steel temperatures. The green dual thermometer and anemometer was used to check the ambient temperature and wind speed. The steel temperature measurements were taken with the digital thermometer placed on the outer cable strand wires. Wind speeds were also obtained from weather.com at the time of the measurements.

- John Lyons, Sami Dauok, Damon Brown, Phil Latasa, and myself checked the out to out distance for the cable strands today as Damon's and my measurements are tabulated below. Damon and I were responsible for both the north/south sidespans. Damon assisted me with the measurements and tabulating the data as I took all of the measurements unless otherwise noted. I used the Victor Tree Gauge (#2) to take the out to out measurements of the cable strands. Sami and Phil were responsible for checking the north/south mainspans and west-loop today.

All measurements by both crews were reported to John who was stationed in the Caltrans conex recording and analyzing the data. When all of the measurements were completed, John was responsible for reviewing the measurements with ABF engineer Zach Lauria. See John's diary for more details related to the acceptance or rejection of cable strand sag adjustment.

The digital thermometer was used to measure both the ambient and steel temperatures. The green dual thermometer and anemometer was used to check the ambient temperature and wind speed. The steel temperature measurements were taken with the digital thermometer placed on the outer cable strand wires. Wind speeds were also obtained from weather.com at the time of the measurements.

The official sunrise time per weather.com for San Francisco today was at 6:50am. The following measurements were taken of the relative sag from cable strand number 1 at the given times below:

// South Sidespan //

Time = 3:30am

Ambient Temperature = 48.2F

Condition = Cloudy

Wind = W @ 16mph

ABF Surveyor(s) = None at this time

Caltrans Engineer(s) = Matt Bruce and John Lyons

Cable Strand (mm)	Steel Temperature (F)	O-O (#2) CT / ABF (mm)	Theor (mm)	CT Delta
1	49.2	Baseline or Zero	78	0
126	48.8	830 (-61) = 769 / 762	626	+ 143
127	48.6	870 - 147 = 723 / 721	693	+ 30
128	48.6	931(-61) = 870 / 862	760	+ 110

Comments: All cable strands were considered to be free-hanging at the time of measurement on the south sidespan. John took all of the measurements while I assisted him with setting up the targets, being level, normal to cable, etc. A timber block was used on cable strand number 1 to obtain measurements where the dimension is in () millimeters. Cable strand number 129 was floated and 130 was in the rollers at the time of measurements. Since the target couldn't be placed directly on cable strand number 127 due to the strand being buried in the stack, a torpedo level, target on 128, and a stick tape was used to measure 147mm between the two strands.

// North Sidespan //

Time = 4:30am

Ambient Temperature = 49.6F

Condition = Partly cloudy



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Inspector Name Bruce, Matt

Diary #: 544

Date: 03-Apr-2012

Tuesday

Wind = W @ 5mph

ABF Surveyor(s) = James Allen and Ken Woon

Caltrans Engineer(s) = Matt Bruce and Damon Brown

Cable Strand (mm)	Steel Temperature (F)	O-O (#2) CT / ABF (mm)	Theor (mm)	CT Delta
1	50.5	Baseline or Zero	78	0
124	48.3	943 +40 (-61) = 922 / 925	894	+ 28
124*	48.3	955 (-61) = 894 / 892	894	0
125	48.7	582 (-61) = 521 / 515	573	- 52
125*	48.7	670 (-61) = 609 / 611	573	+ 36
125*	48.7	634 (-61) = 573 / 570	573	0
126	48.5	839 (-61) = 778 / 781	638	+ 140
126*	48.5	697 (-61) = 636 / 629	638	- 2
127	48.3	903 (-61) = 842 / 840	703	+ 139
127*	48.3	781 (-61) = 720 / 718	703	+ 17
127*	48.3	763 (-61) = 702 / 706	703	- 1
128	48.3	939 (-61) = 878 / 870	767	+ 111
128*	48.3	820 (-61) = 759 / 758	767	- 8

Comments: All cable strands were considered to be free-hanging at the time of measurement on the south sidespan. I took all of the measurements while Damon assisted me with setting up the targets, being level, normal to cable, etc. A timber block was used on cable strand number 1 to obtain measurements where the dimension is in () millimeters. Cable strand number 129 was floated and 130 was in the rollers at the time of measurements. Since cable strand number 124 was higher than the scale on the Victor Tree gauge (#2), the 40mm increment on the target was read to obtain the measurement.

Immediately after preliminary measurements were taken on the cable strands on the south sidespan ABF began "Live-Adjustment". Once the cable strand was adjusted ABF surveyors would take a measurement followed by Caltrans engineers. Numbers amongst the two groups were compared to expedite final buy-off. Cable strand numbers with an * next to it denote that the cable strand was measured after "Live-Adjustment".

The following is a summary of the cable strand release at the tower inspected by Daryoush Bahar where the calculated numbers were based off of my measurements:

CS#	Calc. Req Length at Tower (mm)	Meas. Length at Tower (mm)	Meas. Sag at Midspan (mm)
124	3.11-West	4-West	3.11-West
125	5.78-East	10-East, 5-East	9.78-East + 4West =
5.78East			
126	15.56-West	15-West	15.78-West
127	15.44-West	18-West, 21-West	15.56-West
128	12.33-West	15-West	13.22-West

This table is a cross check using the theoretical sag ratio on the side spans of 1:9 to confirm measurements at the midspan.

// South Sidespan //

Time = 6:43am

Ambient Temperature = 48.7F

Condition = Partly cloudy

Wind = WSW @ 5mph

ABF Surveyor(s) = James Allen and Ken Woon

Caltrans Engineer(s) = Matt Bruce and Damon Brown

Cable Strand	Steel Temperature (F)	O-O (#2) CT / ABF (mm)	Theor (mm)	CT Delta
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(mm)		Baseline or Zero		
1	49.2		78	0
126	48.0	701,700 (-61) - Ave = 640 / 630, 631	626	+ 14
127	47.4	743 (-61) = 682 / 680	693	- 11
127	47.4	753 (-61) = 692 / 699	693	- 1
128	48.0	827 (-61) = 766 / 773	760	+ 6

Comments: All cable strands were considered to be free-hanging at the time of measurement on the south sidespan. I took all of the measurements while Damon assisted me with setting up the targets, being level, normal to cable, etc. A timber block was used on cable strand number 1 to obtain measurements where the dimension is in () millimeters.

Immediately after preliminary measurements were taken on the cable strands on the north sidespan ABF began "Live-Adjustment". Once the cable strand was adjusted ABF surveyors would take a measurement followed by Caltrans engineers. Numbers amongst the two groups were compared to expedite final buy-off.

The following is a summary of the cable strand release at the tower inspected by Daryoush Bahar where the calculated numbers were based off of my measurements:

CS#	Calc. Req Length at Tower (mm)	Meas. Length at Tower (mm)	Meas. Sag at Midspan (mm)
126	15.89-West	18-West	14.33-West
127	3.33-West	7-West, 5-West, 4-West	3.44-West
128	12.22-West	13-West	11.56-West

This table is a cross check using the theoretical sag ratio on the side spans of 1:9 to confirm measurements at the midspan.

- All of the prescribed measurements for the sidespans were completed at 7:15am and conveyed to John. As mentioned in the comments section of the measurement tabulations, live adjustments were performed by ABF ironworkers. An adjustment would be made and then ABF surveyors and Caltrans engineers would measure the cable strand to verify the correct sag adjustment was done before moving on to adjusting another strand.

Both crews of ironworkers at the east anchorage and tower saddle began their shift at 5:00am respectively. See Daryoush Bahar's diary for comments, measurements, labor, and equipment at the tower saddle. See Bob Brignano's diary for comments, measurements, labor, and equipment at the east anchorage.