



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**ENGINEER'S DAILY REPORT**  
LAN Engineering Consultant

---

REPORT NO.	380	DATE	December 28, 2007	MTWTFSS (DAY)	M T W T <b>F</b> S S
NORMAL WORK HOUR:		START: 6:00AM	STOP: 3:00PM	WEATHER:	RAIN/OVERCAST
LOCATION :		Construction Field Office :	333 Burma Road, Oakland 94607		
		Working Drawing Campus Office :	375 Burma Road, Oakland 94607		

04-SF-80-13.2/13.9  
Contract No. 04-0120F4  
{SAS Superstructure}

Caltrans Supervisor:  
Gary Lai  
Senior Bridge Engineer

**Office Work:**

❖ **Contract Change Order Meeting ( Caltrans-PB-T.Y. Lin)**  
Subject: Status or CCO, RCC, New Items.

- Covered the CCO's being developed and submitted.
- Covered the CCR's being developed by TY Lin and PB.
- Covered all the outstanding issues on the CCO process.

❖ **Shop Drawing Submittals.**  
Subject: Reviewing and processing the shop drawings associated with the PB Redlines.

- Develop MEP Penetration charts to accompany the submittals.
- Worked on the master penetration chart.

❖ **RFI #941 – Tower Marker Lights, MAP type, at Tower Head.**

- Received a call from PB (Al Guggemos) about my comments on the PB response to RFI #941. We discussed my comments and I answered all of Al's Questions.
- Received an Email from Al Guggemos (PB) with his responses to my comments.
- Sent an email to Al Guggemos with my responses to his responses and referenced our phone conversation about RFI # 941.
- Sadeed dropped by to see if Al had called and we discussed the issues about RFI # 941.
- See attachments.



❖ **Electrical CCO # 42 Review.**

- Received the package from PB Friday of Last week.
- Will start reviewing after completion of the CCO #44 review.

❖ **Electrical CCO # 44 Review.**

- Ongoing review of the CCO package.

*Any questions or comments you can reach me at (916) 919-7158. My E-Mail address is [Mike.Travis@LANEngineering.com](mailto:Mike.Travis@LANEngineering.com) or [Michael\\_Travis@dot.ca.gov](mailto:Michael_Travis@dot.ca.gov)*

**END OF REPORT**



**ATTACHMENTS :**

1. Email from PB responding to my comments on RFI # 941.
2. Email returned to PB covering my comments to their responses to RFI # 941.

SIGNATURE

Name

Michael F. Travis

TITLE

Electrical Engineer – LAN Engineering

Attachment #1 (1/4)

 You replied on 12/28/2007 11:24 AM.

Attachments can contain viruses that may harm your computer. Attachments may not display correctly.

**Mike Travis**

**From:** Guggemos, Al [Guggemos@pbworld.com] **Sent:** Fri 12/28/2007 8:36 AM  
**To:** Shahmirzai, Saeed  
**Cc:** Mike Travis; Garcia, Rocky; Sugiyama, Eric  
**Subject:** FW: RFI 941 comments  
**Attachments:**  [FW RFI 941 comments .htm\(159KB\)](#)

Saeed,

Please review the attached e-mail from December 19th which includes my comments. I'd like confirmation that Mike Travis has reviewed them before we proceed with any discussion. Thanks.

Al Guggemos

PB Power, Supervising Electrical Designer

303 Second Street - Suite 700N

San Francisco, CA 94107

Office: 415.243.4768; Cell: 510.823.4844

[guggemos@pbworld.com](mailto:guggemos@pbworld.com)

-----Original Message-----

From: Garcia, Rocky

Sent: Friday, December 28, 2007 7:24 AM

To: Guggemos, Al

Subject: FW: RFI 941 comments

Al,

Let's discuss before we send our response. Thanks.

Regards,

Attachment #1 (2/4)

Rocky Garcia

PB Power

A Parsons Brinckerhoff Company

303 Second Street, Suite 700 North

San Francisco, California 94107

Tel: (415) 243-4735

Email: [garciaR@pbworld.com](mailto:garciaR@pbworld.com)

NOTICE: This email is intended solely for the use of the individual to whom it is addressed and may contain information that is privileged, confidential or otherwise exempt from disclosure. If the reader of this email is not the intended recipient or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please immediately notify us by telephone and return the original message to us at the listed email address. Thank You.

-----Original Message-----

From: Saeed Shahmirzai [[mailto:Saeed\\_Shahmirzai@dot.ca.gov](mailto:Saeed_Shahmirzai@dot.ca.gov)]

Sent: Thursday, December 27, 2007 11:10 AM

To: Garcia, Rocky

Cc: Martin Chandrawinata; [Mike.Travis@lanengineering.com](mailto:Mike.Travis@lanengineering.com)

Subject: Fw: RFI 941 comments

Rocky,

Please review all comments (below) made by Mike Travis on RFI 941. I would like you to either incorporate the comments into the RFI response or

Attachment #1 (3/4)

discuss the reason why any of the comments should not be incorporated with Mike and be on the same page with him.

Please feel free to contact Mike Travis directly to discuss his comments at 916-919-7158 Cell.

Thanks

Saeed Shahmirzai

Senior Design / Construction Liaison

925-765-0859

----- Forwarded by Saeed Shahmirzai/D04/Caltrans/CAGov on 12/27/2007 11:03

AM -----

Martin

Chandrawinata/D04

/Caltrans/CAGov

To

Saeed

12/27/2007 09:09

Shahmirzai/D04/Caltrans/CAGov@DOT

AM

cc

Subject

Fw: RFI 941 comments

Attachment #1 (4/4)

Saeed,

May I follow up with you on the status of this RFI? Mike has some comments that I'd like to have you look at it before I returned the response to ABF.

If you want to discuss, Mike and I are available today and tomorrow.

Thanks,

Martin P. Chandrawinata

SAS Bridge Construction

Ph. 510-286-0535

[www.baybridgeinfo.org](http://www.baybridgeinfo.org)

----- Forwarded by Martin Chandrawinata/D04/Caltrans/CAGov on 12/27/2007

09:08 AM -----

"Mike Travis"

<Mike.Travis@lane

ngineering.com>

To

"Sugiyama, Eric"

12/18/2007 01:52 <Sugiyama@pbworld.com>, "Martin

PM Chandrawinata"

<Martin\_Chandrawinata@dot.ca.gov>,

Attachment #2 (1/10)

 Attachments can contain viruses that may harm your computer. Attachments may not display correctly.

**Mike Travis**

**From:** Mike Travis **Sent:** Fri 12/28/2007 3:25 PM  
**To:** Guggemos, Al; Shahmirzai, Saeed  
**Cc:** Garcia, Rocky; Sugiyama, Eric; Takaki, Maxwell; Martin Chandrawinata [Martin\_Chandrawinata@dot.ca.gov]; Bill Shedd [bill\_shedd@dot.ca.gov]; Gary J Lai; grady\_hart@dot.ca.gov  
**Subject:** RE: RFI 941 comments Reply by Michael Travis  
**Attachments:**  [RFI #941 Response to 13 comments by PB.pdf\(50KB\)](#)

Saeed / Al,

I have responded to all the comment that were made on my previous comments.

The response is on the attached document.

**I made the comments in blue and labeled them " MFT 1-13".**

Any questions or comments please let me know.

**Michael Travis**  
Supervising Electrical/Structural Construction Engineer

**Lim And Nascimento Eng. Corp.**  
11344 Coloma Road, Suite 590  
Gold River, CA 95670  
916.919.7158 cell

Attachment #2 (2/10)

**From:** Guggemos, Al  
**Sent:** Tuesday, December 18, 2007 3:13 PM  
**To:** Sugiyama, Eric  
**Cc:** Garcia, Rocky; Lucas, Ellery  
**Subject:** FW: RFI 941 comments

Eric,

I have 13 comments embedded.

Al Guggemos  
PB Power, Supervising Electrical Designer  
303 Second Street - Suite 700N  
San Francisco, CA 94107  
Office: 415.243.4768; Cell: 510.823.4844  
guggemos@pbworld.com

-----Original Message-----

From: Mike Travis [mailto:Mike.Travis@lanengineering.com]  
Sent: Tuesday, December 18, 2007 1:53 PM  
To: Sugiyama, Eric; Martin Chandrawinata; grady\_hart@dot.ca.gov; Bill Shedd  
Cc: Garcia, Rocky; Lucas, Ellery; Guggemos, Al; Bill Shedd; tho@tylin.com;  
Saeed\_Shahmirzai@dot.ca.gov; Gary J Lai  
Subject: RE: RFI 941 comments

Eric,

Below are my comments on the responses to my comments for RFI 941.  
Note the responses are in green with the number and the letter "R".

Eric, Also this is the review comments that I provided after reviewing the approved FAA Permit:

Note # 3.... This is what I found out about the possible acceptable location of the Aviation light on tower top.

I will look further further into the regulations as to the requirements if you want me too.

FAA Aeronautical Study No. 2007-AWP-5869-OE Review

The following are my comments on the conformation that the SAS Structure has been marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, red lights - Chapter 4, 5(red), & 12:

1. All obstruction light units being installed will follow the guidelines indicated under AC 70/7460-1K Change 2 Chapter 4 "Lighting Guidelines" section 41 "Standards.

2. One (L-864) flashing omnidirectional beacon will be installed on the tower top and two steady burning beacons (L-810) will be mounted at intervals not to exceed 150 on the cable structure at two ascending locations on either side of the tower. This conforms to the FAA Advisory circular 70/7460-1 K Change 2 Chapter 5 section 51"Standards" and section 57 "Prominent Buildings, Bridges, and similar extensive obstructions".

Attachment #2 (3/10)

3. The obstruction light indicated in the application on the tower top appurtenance (Boom Mast) will not be installed because the mast is incapable of supporting a red flashing beacon. Under FAA Advisory circular 70/7460-1 K Change 2 Chapter 5 section 53(3) "Appurtenances 40 feet (12m) or less it states that the beacon can be mounted at the base of the unit. The Beacon on the tower top as indicated in # 2 above will be the only beacon on the tower top. Also under Chapter 4 section 46 "Placement Factor" the light levels can be adjusted not to exceed 10 feet (3m) the single beacon on the tower top in #2 above is the only one required. The Boom mast height is approximately 4 meters.

4. The two white flashing marker lights mounted approximately 3 meters below the tower top are not required to complete the FAA obstruction light system. The marker lights are for architectural purposes only. Under FAA Advisory circular 70/7460-1 K Change 2 Chapter 6 "medium intensity flashing white obstruction light systems" section 61 "Standards" the use of white flashing light systems are not recommended for observation light systems in urban/populated areas. These lights will only be used for tower architectural purposes only and are not part of the FAA obstruction lighting system.

5. The United States Coast guard was contacted and the obstruction lighting system was reviewed and approved was obtained per FAA Advisory circular 70/7460-1 K Change 2 Chapter 5 section 57 "prominent Buildings, Bridges, and similar extensive obstructions".

Michael Travis  
Supervising Electrical/Structural Construction Engineer

Lim And Nascimento Eng. Corp.  
11344 Coloma Road, Suite 590  
Gold River, CA 95670  
916.919.7158 cell

---

From: Sugiyama, Eric [mailto:Sugiyama@pbworld.com]  
Sent: Fri 12/14/2007 11:36 AM  
To: Martin Chandrawinata  
Cc: Garcia, Rocky; Lucas, Ellery; Guggemos, Al; Mike Travis; Bill Shedd; tho@tylin.com; Saeed\_Shahmirzai@dot.ca.gov  
Subject: RE: RFI 941 comments

Martin,

Here are our response to the comments in red below.

Regards,  
Eric Sugiyama  
Parsons Brinckerhoff  
Phone (510) 808-4610  
Cell (213) 595-1843  
email Sugiyama@pbworld.com <mailto:Sugiyama@pbworld.com>

-----Original Message-----

Attachment #2 (4/10)

From: Martin Chandrawinata [mailto:Martin\_Chandrawinata@dot.ca.gov]

Sent: Thursday, December 13, 2007 4:39 PM

To: Sugiyama, Eric; tho@tylin.com

Cc: Bill Shedd; Michael Travis

Subject: Fw: RFI 941 response

Eric, Tom:

Please find below comments from Mike.

I believe comments no. 1 & 4 pertain to TYL. Comments no. 2, 3, and 5 are to PB.

Regards,

Martin P. Chandrawinata

SAS Bridge Construction

Ph. 510-286-0535

[www.baybridgeinfo.org](http://www.baybridgeinfo.org)

----- Forwarded by Martin Chandrawinata/D04/Caltrans/CAGov on 12/13/2007

04:35 PM -----

Michael  
Travis/HQ/Caltran  
s/CAGov

To  
Martin  
12/13/2007 06:53  
Chandrawinata/D04/Caltrans/CAGov@DO

AM

T

Bill Shedd/D04/Caltrans/CAGov@DOT<sup>cc</sup>

Subject

Re: Fw: RFI 941 response (Document

link: Martin

Chandrawinata)

I have the following comments on the issues listed below:

**Attachment #2 (5/10)**

1. Junction Box. TY Lin indicated that a junction box for connection to the Marker Lights shown on sheet 245 is not required. Can we exclude the junction box?

If not, will NEMA 4X size 6"x6"x4"D as originally proposed by TY Lin be sufficient? We still need to get the detail on how this box will be supported & mounted.

The junction box is needed to properly feed the two marker lights and to interface with the transformer.

There seems to be a possibility of more than one junction box due to the routing proposal. see below for comments about additional junction boxes.

1. Junction box is not needed.

1R. I still believe a junction box is need to supply the wiring to the two marker lights and provide some type of fuse-splice connection.

The inclosure of the transformer whould probably be large enough for these purposes in my opinion.

***AWG 1- The secondary output of the xfmr can be double tapped to feed the two marker lights. A fuse is not shown on the schematic diagram. We will also add a primary disconnect at the xfmr.***

***MFT 1- As discussed on the phone with AI I pointed out that some type of branch feed has to take place in a junction type enclosure. If the feeds to the light fixtures are taking place from the transformer then that would work if there is enough room to perform this type of tapped feed within the transformer enclosure. The fused splice connecter is indicated in the standard specifications and will provide isolation of any problems that develop within each of the fixtures so both fixates will not be effected and the source of the problem can be determined for repair. If a primary protection disconnect is being added then this could be used as not only a local disconnect but also as proper protection of the transformer.***

***Location of the proposed equipment was discussed during the phone conversation. The location of either next to or within the railing on top of the Tower Head Diaphragm Plate or within one of the tower pylon structure.***

2. Conduit Routing & Support. PB proposed the use of Liquid tight flexible metallic conduits routed via Main Cable messenger along handrope stanchion, across shroud for main suspender cables, and around dehumidification ducts.

Mike, you mentioned yesterday that there might be issue/conflict with this routing. Can you please clarify if this routing is acceptable or not?

2a. We don't see a problem , but we will check.

2aR. The routing of the flex conduit will probably have to go around several obstructions and have several turns to it. That would mean it will exceed the Code requirements for installation.

I would suggest that this installation be reviewed for constructability and accessibility.

**Attachment #2 (6/10)**

***AWG 2- I don't see a problem but it is unclear how much space we actually have.***

***MFT 2- As discussed on the phone with AI I pointed out that routing of flex conduit on the tower head diaphragm plated around obstructions is not a prudent way of installing a conduit feed. As soon as the flex comes off the cables it should transition to rigid conduit. See aviation light feeds off cable plan sheet #291.***

The proposed routing has a few un-addressed issues involved in how and if it is possible to accomplish.

Using flex Conduit would mean that the terminating ends need to be in pull boxes.

2b. Flex does not need a junction box but will use conduit bodies, preferably the mogul type.

2aR. The use of conduit bodies for the purpose of termination of flex at this specific location does not seem to be practical.

Routing of flex needs to be properly indicated to not provide too many bends that would make it difficult to pull conductors.

2c. Notes will clarify the number of bends between conduit bodies (pull fittings) and maximum bending radius.

***AWG 3- The sketch you are reviewing is in the process of being revised and my previous responses allude to additional notes and information (details, etc.) that will clarify the use and cautions of using LFMC.***

***MFT 3- Will wait for the revised plan sheets to see if what we discussed over the phone and the type of conduit and routing gets incorporated in the new plan sheets.***

2cR. I did not find anything (Notes) to indicate the installation requirements for this in PB RFI-941-SK-001 as indicated in your response above.

The routing of the Aviation light is a separate run so there should be at least four junction boxes on the tower at the cable location.

***AWG 4- See comment above.***

***MFT 4- See comment MFT 3 above.***

2d. There are two junction boxes a field located conduit bodies (pull fittings) to accommodate the routing of RGS conduit.

Attachment #2 (7/10)

2dR. The flex does terminate in the junction boxes and RGS is being routed to each JB and to Tower Aviation Light as shown on RFI-941-942-SK-001.

If FlexConduit is used in the routing than the conduit needs to be terminated in a junction box.

**AWG 5- The NEC does not require a junction box for LFMC terminations. Conduit bodies (fittings) are reasonable, acceptable and cost effective.**

*MFT 2- I agree that NEC does not require a junction box for terminations but I do not find using conduit bodies on bridge structures a reasonable or cost effective for this location. Caltrans has certain requirements that exceed the basic requirements of the NEC code. The Code is only the minimum requirement for this project. When design changes are made the final approval of the changes are to be made by the owner (Caltrans). The original design as shown on the contact sheet # 291 clearly shows the transition of LFMC to rigid steel at a junction box from cable to diaphragm plate. This design concept should be followed at all transition points.*

2e. Junction boxes are not required, but conduit bodies (pull fittings) are, preferably the mogul type.

2eR. The location of the conduit body shown in Detail 3 on sheet RFI-941-942-SK-001 is not particle where is shown.

Cannot get to without placing maintenance personnel in a un-safe location. This needs to be considered when placing boxes, conduit bodies, etc. on plans..

**AWG 6- It is the most likely route of approach. Regardless of how the conduit is routed to the light a person still has to work at the fixture location to install and terminate. It wouldn't do any good to route the conduit inside the tower structure because the light doesn't have a bottom feed entry point.**

*MFT 6 As discussed on the phone the conduit at the edge of the structure is not a safe are for maintenance people to perform and work. Turning the conduit body so the access is on top would be an improvement but as discussed routing inside the structure would be more acceptable. I understand the fixture is not a bottom feed so penetrating adjacent to the mounting base would be the best option in my opinion. The fixture needs to be mounted more towards the middle of the tower pylon.*

3. Transformer. PB specified the 2.5kVA transformer. The two marker lights were reduced from 1000W to 250W, thus this 2.5kVA maybe too large.

3. The 2.5kVA transformer was sized for servicing a maximum of two 1000W marker lights. Since it is already accounted for in the contract it should not be changed to a smaller transformer. If the Marker Light design is ever changed thereby requiring more power (increased number of lights or higher rating) it will already be available. The wiring terminations are the responsibility of the contractor who will determine the proper terminal connectors.

**Attachment #2 (8/10)**

3R. I have no problem with not resizing the transformer but do have a problem with the location. The location shown on the plans does not work. The area between the plates is small and with stiffeners and an access inspection open below the transformer makes it a hazard for maintenance personnel to get to the location. Working on electrical equipment in a confined space as indicated is not practical. This needs to be relocated to a better place to get safe access.

In my opinion the transformer is too large and possibly sized for the marker light indicated in the schedule on PB sheet 249.

***AWG 7- It is larger than a typical crawl space and shouldn't be a problem. We should try to eliminate congestion above the Tower Head Diaphragm plate.***

***MFT 7- A crawl space is one thing but a working space for equipment is another. If you research the location of this equipment and what it takes to get the location you might find that it is a bad location to place electrical equipment. Also it conflicts with other accesses and equipment. I would not install anything in this area.***

4. Marker Lights. We responded to the submittals to have the UL Listed.

I heard that the fixture mounting plate will not fit and has to be custom made, but I don't understand why. Mike, do you know what issues ABF have?

4. Joint Venture to respond.

I called the manufacturer that Anna supplied to me and talked to them. The GMU is not equal to the UL standards.

The UL listed Fixture does not include the 4-lamp changer type fixture.

Therefore a different fixture would have to be provided if a UL listing is required.

Another possibility is to change the specifications so a fixture can be provided with a UL listing and still maintain the artistic intent of the lighting.

5. RFI-941 Sketch. I will ask PB to resubmit a more legible sketch.

Yes, I agree that the submitted sheet cannot be read so evaluation of this proposal cannot be done.

**Attachment #2 (9/10)**

Until a clear copy is submitted I cannot review the proposal any further.

5. Attached sketch is a more readable version.

5. In reviewing the sketches that were sent I have several comments pertaining to them.

The following are a few of the major ones. And I will send a more comprehensive list as soon as I complete the review.

\* The Aviation Detail 3 is not for this type of fixture. Needs to be revised.

**AWG 8- Currently in the works ... will be adding more conduit bodies and LFMC to routing.**

**MFT 8- Will be available to review the changes.**

\* The mounting of the transformer at location shown is not practical need to evaluate the location for accessibility.

**AWG 9- Location deemed as accessible.**

**MFT 2- As discussed on the phone I do not believe this location is deemed accessible. As discussed there are two other locations that would be deemed accessible.**

\* The Aviation Light is too close to the edge of the tower structure.

**AWG 10- The Aviation Light was located per project recommendations. Please advise if you have a better location and why.**

**MFT 10- Please bear this in mind that the aviation lights were not installed in the contract plans per the approved FAA document back in the beginning. That is why Caltrans had to resubmit for an approved permit again. The original design recommendations were not followed in the beginning – Sheet 291 has the wrong locations for the aviation lights from the original approved permit. This was discussed with Jens a few months ago.**

\*\* Unsafe location to perform maintenance.

\*\* Unassessable location to perform maintenance. **AWG 11- ?**

**MFT 11- As discussed on the phone having a fixture on the edge of a structure with a 160M drop off on two sides is an inaccessible location for maintenance to me. There is no railing or Pad eyes close by.**

\*\* Location and elevation of Aviation light is not practical.

Attachment #2 (10/10)

**AWG 12- The location of the Aviation Light is determined by the project. A better XY coordinate can be considered. The elevation is per project direction. Per the sketch you have it the mounting flange is ~300mm above top of Tower. As of last week it is 762mm above top of Tower.**

**MFT 12- Please read the "FAA Aeronautical Study No. 2007-AWP-5869-OE Review" at the beginning of this document to see what the location of the light should be per FAA regulations.**

\*\* Routing of conduit not completely identified as to boxes, conduit bodies, etc.

**AWG 13- Currently in the works ... will be adding more information to the routing.**

**MFT 13-I am looking forward to reviewing the completed design.**

(See attached file: RFI-941-TYL.pdf)

Martin P. Chandrawinata

SAS Bridge Construction

Ph. 510-286-0535

[www.baybridgeinfo.org](http://www.baybridgeinfo.org)