TGO3 - Buttress, Shoring, Buttress - Issued for Bid

Questions are numbered in the order received. Question numbers missing in the sequence either have been answered or are still under review and will be published in future responses.

Question Number	Question Submission Date	Question	Response
TG0300-0004	8/3/2010	Reference Exhibit A IV.C.20 thru 26 A. Pin piles, micropiles and other deep foundation systems are noted that they may remain in the permanent mat slab once the temporary structures are removed. What is the criteria for locating these items so they do not interfere with permanent foundation system by interrupting mat slab reinforcing, installation of of column base plates or similar? Will design team provide a "stay clear" or "no fly zone" type of instruction orplan related to proximity to permanent building columns, tie downs, permanent walls, and other special regions of the mat? B. See also Page A3-3 of Exhibit A, last item.	1. Pin piles (piles for supporting shoring wall struts) can be placed at the locations determined by the contractor, but they shall not affect the future construction of the columns, walls, elevator pits, etc. The contract documents for other work to be issued in the distant future will include waterproofing details around the pin piles, where pin piles penetrate through the mat slab (this work is not a part of the scope for the BSE package). 2. Micropiles are to be located, in general, in accordance with the typical layout shown on Sheet S1-2024. Minor deviation in location will have only a small effect on the mat slab reinforcement, which the design team will address after receiving micropile layout shop drawings from the contractor. Per note C on S1-2024, the micropile contractor shall coordinate the locations of the micropiles with the shoring contractor. 3. Trestle piles: Trestle piles are to be located and detailed in the shop drawings and submitted for review. Trestle pile locations shall be coordinated with pin piles and micropiles by the contractor.
TG0300-0011	8/3/2010	Reference drawing sheet GT 1110 & specifications 31 63 29 & 31 56 13 A. Please confirm that if the internal bracing is designed to adequatecy support the loading as indicated on Dwg GT 1110, and the Work is installed (and top buttress removed) in compliance with the specifications, that the design for the drilled shafts (31-63 -29) and CDSM shoring wall (31-56-13) is adequate to prevent further movement of 301 Mission St. and trade subcontractor's professional liability would not extend to the owners design.	The internal bracing engineer is responsible for the performance of systems it engineers. Insurance policies cover the entity holding the policy.
TG0300-0013	8/4/2010	Reference Exhibit A - Trade Subcontractor Package Page 15 Milestones state, "All submittals are to be provided within 10 days of NTP#1." Please clarify the expectation ("All" submittals?), and how this Milestone relates to Milestone NTP#2 Start date.	Exhibit A, Page 15, NTP #01 - The last sentence will be changed to state, "Submittal schedule shall be provided to Contractor within 10 days of NTP #01." This will be included in Addendum #2.
TG0300-0048	8/12/2010	Reference Instruction To Bidders, subparagraph D. Reference is made to Part III. Instruction to Bidders, Subparagraph D., Bidding Process and Procedures, Item 6. Statutory Bidding Requirements, Subitem b) Bidders Qualification Statement (1) which states that “Bidder shall list on the Bidder's Qualification Statement (BQS in Forms Section) its current contractor license number. . .” we can not find such a form. Please provide.	The BQS form is not required. This will be removed from the Project Bidding Manual in a future addendum.

Question Number	Question Submission Date	Question	Response
TG0300-0053	8/13/2010	Reference specification 31 55 00. Section 1.5 N states that primary struts are to be proof loaded to 125% of maximum design force. This appears to be either in conflict with 1.5 O, or is referring to something other than pre-loading by jacking. We note that proof load is defined, but the definition appears to be similar to what is generally understood by pre-load. Please clarify intent of proof loading.	Proof load and preload are not the same. There is no conflict.
TG0300-0054	8/13/2010	Reference drawing sheet GT-1110 Loads for re-bracing struts or rakers are not given on sheet GT-1110. Please clarify required loads.	Strut loads in the build-out case can be determined by the contractor based on the information provided on GT-1110.
TG0300-0055	8/13/2010	Reference drawing sheet GT-2101. Is the use of tiebacks acceptable for support of this wall segment? Is the project planning on eventually taking the properties under which such tiebacks would be placed?	Temporary tiebacks are acceptable on wall segment X1-1. The embedded length of tieback shall not exceed 50 ft. The property is identified for property acquisition.
TG0300-0056	8/13/2010	Reference Exhibit A, Attachment 3 A. We note that the access trestle is to be coordinated with permanent construction, not conflict with the permanent structure except for penetrations, and is to be at the same level of the temporary bridges at the connections. This would appear to require that the trestle deck be below the bottom of the ground floor permanent structure section, with built-up ramps to match the street bridges. We also note that the permanent ground level structure is lower at the street crossings than elsewhere. This would push the trestle deck further down, conflicting with the limits of placement of the top level bracing strut. No guidance is given regarding how the future Trade Subcontractor will want to use the trestle to construct the ground floor or the superstructure. Please clarify where the top of trestle deck is intended to be located, and whether it is acceptable to locate the trestle deck at ground floor level, such that it could be used for sequential construction of the ground floor and superstructure.Is there an upturned longitudinal beam down the middle of the street crossings? . Schedule A on S1-3201 only indicates a 30” slab.	A. Per Exhibit A Attachment 3, "The level of the Access Trestle shall be the same as the level of the Temporary Bridges at the connections." B. There are N/S transverse upturned beams at the center of the street crossings as noted on S1-3201 in Schedule A, at grid line 18 and grid line 26.

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TG0300-0058	8/13/2010	Reference drawing sheet GT-1111 Legend. A. Please help to clarify the strut and waler system stiffness requirements. Our initial interpretation and the associated analyses indicate that strut and waler sizes increase very significantly over what would be required by strength considerations alone. Please provide a sample calculation or procedure for determining stiffness for comparison with the values given in kip per foot, per foot of wall. B. Pre-loading will take out a portion of the axial shortening of the struts. We assume that it is appropriate to subtract out that deflection from the stiffness calculation. Please confirm.	The strut and waler system stiffnesses are governed by the need to control ground movements outside the excavation. Consequently, the operational stresses in struts and walers implied by the specified stiffnesses will be lower than would be obtained by factoring ultimate stresses. See Attached SSK-RFI TG0300-058. Question B is not clear.
TG0300-0059	8/13/2010	Reference D-1076 (Existing Terminal Demo). Existing Terminal Demolition Drawing D-1076 indicates (E) Cantilever Wall for 301 Mission St Building (60 story Tower) to be relocated by others. Please confirm this will be completed prior to the TG03 Work in this area.	Confirmed.
TG0300-0060	8/13/2010	Reference Exhibit A Section V Milestones indicates the Trade Subcontractor is to provide all submittals within 10 days of NTP #1. This contradicts innumerable sections of the specifications which provide specific and reasonable time frames for submittals. It is not reasonable to expect all submittals to be delivered within 10 days of NTP #1. Please provide clarification on the contract requirements for delivery of submittals.	Refer to response TG0300-0013.
TG0300-0066	8/17/2010	Reference Proect Bidding Manual, IV.A.17(a) Project Bidding Manual states, "Contractor will provide temporary power to distribution points in the Site Logistics plan (see Exhibit A) for the project. Subcontractor shall be responsible for all temporary power needs to complete their work beyond the distribution points provided by Contractor. Contractor will not provide temporary power for welding." A.Will the Owner (TJPA) pay for temporary power consumption, or does the Trade Subcontractor put thisin our Bid? B. Will the distribution points require separate metering for welding?	A. Refer to response TG0300-0035 (Q&A #1). B. Refer to Project Bidding Manual, Section IV.17.
TG0300-0068	8/17/2010	A.Will the OCS system be removed to allow crane access across the temp bridges? If so, when? B. What closures (time/duration) will be allowed for the installation of the temporary bridges?	A. OCS system can be removed and reinstalled by the Trade Subcontractor anytime at its convenience, as coordinated with local agencies. This shall be included in the scope of the work. B. Please refer to the traffic control specification. This shall be included in an upcoming addendum.

Question Number	Question Submission Date	Question	Response
TG0300-0069	8/17/2010	Reference Project Bidding Manual, IV.A.6 and specification 01 14 10. Project Bidding Manual IV.4.6 a0 states "Trade Subcontractor shall obtain all required ancillary permits to complete their scope in a timely manner. Refer to Specifications Section 01 14 10 for project permits" Specification 01 14 10 does not distinguish between the Contractor and the Trade Subcontractor. Please clarify specifically which permits are considered "ancillary" and not reimbursed by TJPA. (I.e DPW Tree Planting / Removal, Rock Wheel? SFMTA Traffic Control Plan?, etc.)	Refer to response TG0300-0024 (Q&A #1).
TG0300-0071	8/17/2010	Reference specification 01 17 20. Who is responsible for utility relocation as-built drawings, TG03 or TG04?	Trade Subcontractors are responsible to provide as-builts for their contract work.
TG0300-0074	8/18/2010	Reference Project Bidding Manual, Section V, paragraph A (BCL), #3 Item # 3 requires each bidder to provide a "Current Business Tax Certificate." Please clarify what specifically what certificate is required. Is this certificate issued by the State or by the Federal government? It is our understanding that General Partnerships are not usually registered with the State of California, therefore this document would presumably be a Federal certificate. Please advise.	Refer to specification section 00 04 54.
TG0300-0075	8/18/2010	Reference specification 01 53 13, paragraph 1.3.A.1 Specification states "design shall include cross bridge travel… including typical semi truck traffic and a fully assembled Manitowoc 999 crane weighing 500,000 lbs traveling from trestle to trestle without a hook load." Please verify it is the intent of the specifications that the 999 crane only travels across the temp street while moving from trestle to trestle and that the temp street design does not have to include the Manitowoc 999 loading at any other area of the temporary street.	Manitowoc 999 crane loading applies to the entire length of the bridge.
TG0300-0076	8/18/2010	Reference Exhibit A Attachment 3, Access Trestle Criteria, states "The level of the access trestle shall be the same as the level of the Temporary Bridges at the connections." Attachment 3 also states "The layout for each member of the Access Trestle…. shall not conflict with the permanent structure…" Tying the trestle to the cross streets will cause the trestle structure (which is approx 7' deep) to conflict with the concrete roof of the follow on structure. It is our understanding that the CM/GC understands this and will coordinate the removal of the acess trestle and the temp streets such that the concrete roof can be constructed after these conflicting structures are removed. Pls confirm.	Coordination is the responsibility of the Trade Subcontractor. Temporary roadways/bridges must remain in place until the permanent structure can support the permanent roadway.

Question Number	Question Submission Date	Question	Response
TG0300-0080	8/18/2010	Reference Exhibit A, Section V Reference NTP #6, 7, 8, 9, and 10. Please provide specifc dates when the Trade Subcontractor will be required to perform the removal work associated with these NTP's. It is not possible to estimate costs for managing and maintaining this project without that specific information.	Refer to Exhibit I, BSE Concept Schedule.
TG0300-0081	8/18/2010	Reference specification 01 15 70, 3.4.A Section states "Contractor shall provide uniformed…police officers… as required by the TJPA representative…" It is our understanding that per the contract definitions, the Contractor is defined to be Webcor/Ohbayashi. Please confirm that Webcor/Ohbayashi will direct and pay the costs for the uniformed officers described herein. If it is the intent of the contract that the Trade Subcontractor direct and pay the costs for these officers, please provide specific guidelines on when these officers will be required. Simply stating "as required by TJPA" will result in exorbitant bid costs due to the lack of specific information provided. Suggest an allowance for this.	The Trade Subcontractor shall pay for the cost of the 10B officers, and this cost will be reimbursable. This will be clarified in an upcoming addendum.
TG0300-0082	8/19/2010	Ref Note 3 "strut loads are working stress level." Regarding 301 Mission Buttress Case Table 3 & 7; is Table 7 loading cumulative, or must Table 3 & Table 7 be additive? Regardless of cumulative or additive do Table 3 & 7 loads represent "working stress level"?	Tables 5, 6, 7, and 8 are additive to Tables 1, 2, 3, and 4, respectively. All loads in these tables are working stress. Note: Tables 3 and 7 are revised in Addendum No. 2.
TG0300-0083	8/19/2010	Reference drawing sheet GT-2101 Verify Shoring Wall Radius (594') at wall segment R2-1 and or dimensions to radius center line (170'-2 1/2" & 220'-9"). Radius & Center as identified do not work with layout as shown.	This will be corrected in an addendum.
TG0300-0084	8/19/2010	Reference drawing sheet GT-2101 Ref Note #16 (RE: Wall Segment X1-1) 1. At what stage of excavation in zone #1 will wall X1-1 be removed? 2. Can tiebacks be used to support wall segment X1-1?	See response TGO300-0055.
TG0300-0085	8/19/2010	Reference drawing sheet GT-2103. Is cutoff wall between grids 33 & 34 required? Schedule appears to show excavation on both sides of this wall going down at the same time.	Refer to Note 12 on drawing GT-2101 regarding location of the cut-off walls.

Question Number	Question Submission Date	Question	Response
TG0300-0086	8/19/2010	Reference drawing sheets GT-5000 & GT-5301. 1. Can wood piles be drilled out and material (Grout) replaced VRS extracted and grouted as shown. 2. How does removal of wood piles and placement buttress piles work with regard to schedule.	1. Evaluation of the Contractor's proposed alternative method for extracting the existing timber piles requires more detail than that included in the question. Except where Non-Ground Deformation Control Methods are noted as acceptable on the drawings, pulling out timber piles directly from the ground and grouting without any precautionary measures to control settlements caused by pile extraction is prohibited. 2. Refer to Exhibit I, BSE Concept Schedule.
TG0300-0087	8/19/2010	Reference drawing sheets S1-2030, S1-2029, & GT-2103 Drawings appear to have made contradiction regarding limits of contract VRS location of shoring wall at both SW and SE project corners.	See response to TG0300-0070 (in Q&A #1).
TG0300-0088	8/19/2010	Will train platforms be constructed prior to/after removal of wall & Trestle/Bridge vertical support removal?	Train platform construction is not in the scope of the work.
TG0300-0089	8/19/2010	Reference specification 01 53 13, 1.3.A.2 Do deflection limits for temp bridges also apply to work trestle?	Yes. Refer to the second paragraph of the "General" section of Attachment 3 in Exhibit A.
TG0300-0090	8/19/2010	Reference drawing sheet GT-1112 Vertical supports of shoring are shown in all stages up to stage 16. Vertical supports will still be required at stage 16 and and beyond to support work trestle & roadways.	Noted.
TG0300-0091	8/19/2010	Reference drawing sheet 2/S1-3003 What is the intent of this detail, how does it work and at what stage of construction is it to be installed?	This is a detail to illustrate the trestle pile design requirements. Trestle pile is a contractor design/build item. Other than supporting the trestle, there are two issues that need to be addressed by the contractor: 1. Trestle pile shall not restrict the mat slab from upward movement. 2. Trestle pile shall have two steel seep rings (as shown) with waterproofing/flashing integrated into the lower ring.

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TG0300-0094	8/23/2010	Reference specification 00 35 65. 1.11.A. States “Limit or prohibit use of construction techniques that create high vibration levels. Do not drive piles” 1.11.C.3. States “Perform vibration intensive activities such as pile driving only on weekdays during daytime hours between 7 a.m. and 8 p.m.” These two sections contradict each other. Please confirm that pile driving, if desired, may be performed on this project.	There will be no hammer-driven piles on this project. References to pile driving in 01 35 65, 1.11.C.3, are for illustrative purposes only. Other construction techniques that may create high vibration levels are limited to the hours and times defined in section 1.11.C.3. Applicable vibration guidelines are issued by the FTA Office of Planning and Environment’s Transit Noise and Vibration Impact Assessment (Table 12-3 for building categories I, II and III).
TG0300-0095	8/23/2010	Reference specification 31 55 00. 31 55 00 Internal Bracing for Shoring Wall 1.5.N Please clarify if primary struts can be proof loaded prior to installation or if they must be proof loaded once in place and all connections made.	Proof load is to be applied to the fully installed element.
TG0300-0097	8/23/2010	Reference drawing sheet GT-1111. GT-1111 requires a minimum stiffness of the internal bracing system which makes strut sizes dependent on the strut's length & spacing regardless of the load. This makes a very inefficient bracing system . Would the Authority consider providing an allowable design deflection criteria, in lieu of the stiffness requirement.	We considered during the design period the best way of providing bidders with these minimum requirements for the shoring wall and the bracing system, given that the design is dominated by the need to control ground movements outside the excavation. We acknowledge that the corner of the excavation will require careful selection of strut lengths, etc. However, at least 80% of this very long excavation is a constant ~175-foot width. We would therefore anticipate that this would make for an efficient bracing of repetitive strut and waling elements. Note that we have provided Action Trigger Level and Maximum Allowable Movement values that are compatible with the required strut stiffnesses.
TG0300-0098	8/23/2010	Reference GT drawing set. The SCDSM cut-off walls are to be located by the contractor as needed. Do these walls serve any purpose for the final design? If not, can other earth retaining systems be used or could they be eliminated if they are not needed by the contractor.	Cut-off walls do not serve any purpose of the final design. Other earth retaining systems can be used or cut-off walls can be eliminated with Trade Subcontractor's means and methods if the Trade Subcontractor can meet the milestone requirements without sectionalized dewatering.
TG0300-0099	8/23/2010	Reference specification 31 23 19, paragraph 1.3.A, drawing sheet S1-2024, Note A Exhibit I, and Schedule (Dewatering). The above ref specification indicates TG03 dewatering system responsibility for duration of TG03 package. The referenced schedule shows dewatering thru March 2016. Note A DWS S1-2024 states dewatering maintained thru all dead load applications. Question: Does TG03 dewatering responsibility end Feb 2015 and remaining dewatering responsibility by subsequent contractors? (Pump Ownership/Pump/etc).	No. TG03 Trade Subcontractor shall have all responsibilities for dewatering work specified in Exhibit A, IV. C18 and C19. Specification Section 31 23 19 will be revised in an upcoming addendum.

Question Number	Question Submission Date	Question	Response
TG0300-0100	8/23/2010	Reference drawing sheet GT-5000, Section 1. Section 1 Stage 3(B) removes existing piles (this stage) Stage 4 notes that (E) Timber piles to be removed during excavation. Please clarify.	The existing piles to be removed in Stage 3 are those at the buttress, as shown on GT-2202.
TG0300-0107	8/24/2010	Reference specification 31 55 00. In Spec Section 31 55 00 on Page 5 Sub-Section 1.5.B.3. it says that we are to include incidental loads defined by the Contractor (Webcor/Ob??). Can you Please define these loads now during the Bidding Process?	The incidental loads shall be identified by Trade Subcontractor's internal bracing designer and included in the internal bracing design.
TG0300-0111	8/24/2010	Reference BSE Concept Schedule. Activity UT-204400, titled "Available: Start Shoring Zone 1" has a start date of 14Jul11. Please explain what this date means. Is the trade subcontractor to understand it cannot begin any zone 1 cdsm work (including pre-trenching) until this date? If so, is the date still accurate. Please clarify.	The attached schedule is a concept schedule for this particular Trade Package. The Trade Subcontractor shall provide a schedule that accurately represents its work plan in accordance with the contract documents. Work in Zone 1 may commence upon the receipt of NTP #03.
TG0300-0112	8/24/2010	Reference BSE Concept Schedule. Activity UT-204500, titled "Available: Start Shoring Zone 2" has a start date of 14Jul11. Please explain what this date means. Is the trade subcontractor to understand it cannot begin any zone 2 cdsm work (including pre-trenching) until this date? If so, is the date still accurate. Please clarify.	The attached schedule is a concept schedule for this particular Trade Package. The Trade Subcontractor shall provide a schedule that accurately represents its work plan in accordance with the contract documents. Work in Zone 2 may commence upon the receipt of NTP #04.
TG0300-0113	8/24/2010	Reference BSE Concept Schedule. Activity UT-201800, titled "Available: Start Phase 1 Cross Cross Shoring @ 1st Street". Please explain what this activity represents. What work is the Trade Subcontractor unable to perform before 15Jul11? Is this date still accurate? Please clarify.	The attached schedule is a concept schedule for this particular Trade Package. The Trade Subcontractor shall provide a schedule that accurately represents its work plan in accordance with the contract documents. Work in Zone 2 may commence upon the receipt of NTP #04.
TG0300-0114	8/24/2010	Reference BSE Concept Schedule. Activity UT-202400, titled "Franchise Utilities Phase 2 @ 1st". Please explain what specific work this activity represents.	UT-202400 represents the public utilities relocation required after the installation of the traffic bridge at First Street.

Question Number	Question Submission Date	Question	Response
TG0300-0115	8/24/2010	Reference BSE Concept Schedule. Activity UT-200600, titled "Available: Start Shoring @ Zone 1 & 2 Minna"has a start date of 15Jul11. Please explain what this date means. Is the trade subcontractor to understand it cannot begin any zone 1 and 2 cdsm work (including pre-trenching) until this date? If so, is the date still accurate? Please clarify.	The attached schedule is a concept schedule for this particular Trade Package. The Trade Subcontractor shall provide a schedule that accurately represents its work plan in accordance with the contract documents. Work in Zone 1 and Zone 2 may commence upon the receipt of NTP #03 and NTP #04, respectively.
TG0300-0116	8/24/2010	Reference BSE Concept Schedule. Activity UT-200900, titled "Start Shoring @ Zone 1 & 2 Natoma" has a start date of 02JUn11. Please explain what this date means. Is the trade subcontractor to understand it cannot begin any zone 1 and 2 cdsm work (including pre-trenching) until this date? If so, is the date still accurate? Please clarify.	The attached schedule is a concept schedule for this particular Trade Package. The Trade Subcontractor shall provide a schedule that accurately represents its work plan in accordance with the contract documents. Work in Zone 1 and Zone 2 may commence upon the receipt of NTP #03 and NTP #04, respectively.
TG0300-0117	8/24/2010	Reference BSE Concept Schedule. Activity UT-203720, titled "Available: Start Shoring Zone 4" has a start date of 25Mar11. Please explain what this date means. Is the trade subcontractor to understand it cannot begin any zone 4 cdsm work (including pre-trenching) until this date? If so, is the date still accurate? Please clarify.	The attached schedule is a concept schedule for this particular Trade Package. The Trade Subcontractor shall provide a schedule that accurately represents its work plan in accordance with the contract documents. Work in Zone 4 may commence upon the receipt of NTP #02.
TG0300-0118	8/24/2010	Reference BSE Concept Schedule. Activity UT-201100, titled "Available: Start Shoring @ Zone 3 Natoma" has a start date of 18Mar11. Please explain what this date means. Is the trade subcontractor to understand it cannot begin any zone 3 cdsm work (including pre-trenching) until this date? If so, is the date still accurate? Please clarify.	The attached schedule is a concept schedule for this particular Trade Package. The Trade Subcontractor shall provide a schedule that accurately represents its work plan in accordance with the contract documents. Work in Zone 3 may commence upon the receipt of NTP #05.
TG0300-0121	8/25/2010	Referene drawing sheet U-2009. Per Transbay Transit Center Program Relocation of Utilities Project drawing sheet U-1121 (30 of 172) issued 8-6-10 there are 2 large vaults indicated on the SW corner of Minna and 1st Streets. According to the Demolition and Construction Sequence note 6 “after electric services are connected and existing electric ductbank is abandoned by PG&E, demolish as indicated existing electrical ductbank manholes, and contents to the limits shown” as well as all other utilities that run North and South on 1st Street between Minna and Natoma. Drawing sheet U-2009 (50 of 172) do not indicate these utilities in the Composite Utility Plan and Elevation. Please confirm as per Transbay Transit Center Program Butress/ Shoring/ Excavation drawing D-2230 detail 1 Remove Utilities that the utilities removal will be complete by the TG03 contract start date.	Refer to Exhibit I, BSE Concept Schedule.

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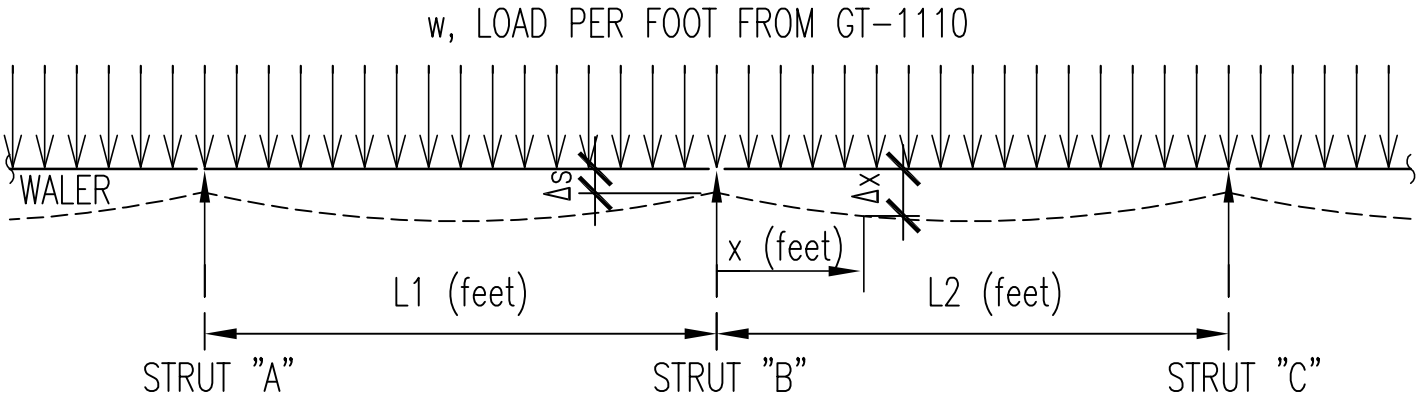
TG0300-0122	8/25/2010	Reference Project Bid Manual IV.A.12.a, 27.b, and Site Logistics Exhibit A. These sections reference material/personnel hoists. Is the TG03 Contractor to provide access for the follow on trade subcontracts? Please provide specifications for size, type, and capacity, otherwise hoists will be designed to minimum requirements for this Trade Subcontractor to complete its work.	1. Yes, the Trade Subcontractor shall provide the access. Refer to Exhibit A. 2. Minimum hoist requirement shall be dual hoists, each with 10,000 lb capacity, approximately 5' x 12' inside dimensions, and non hydraulic system. This will be included in an upcoming addendum.



AVERAGE STIFFNESS TRIBUTARY TO STRUT "B", k avg

$$\Delta_X = \Delta_S + \Delta_X \text{ beam}$$

$$k_X = w / \Delta_X$$

$$k \text{ avg} = \frac{\sum_{i=1 \text{ foot}}^{(L1+L2)/2} k_{X_i} + \frac{w\,(L1 + L2)/2}{\Delta_S}}{(L1 + L2)/2}$$

NOTES

1. THE CALCULATION ABOVE SHOWS ONE METHOD FOR DETERMINING THE AVERAGE STIFFNESS OF THE INTERNAL BRACING SYSTEM TRIBUTARY TO A GIVEN STRUT (k avg) FOR COMPLIANCE WITH THE STIFFNESS REQUIREMENTS SHOWN ON GT-1111.

2. THIS CALCULATION SHALL BE MODIFIED AS NECESSARY TO SUIT OTHER BRACING CONFIGURATIONS CHOSEN BY THE CONTRACTOR.

SSK-RFI TG0300-0058

ARUP 8/20/2010