

1 Q. **Reference: *Structural Capacity Assessment of the Labrador Island Transmission Link (LITL)*,**
2 **EFLA, April 28, 2020, page 23.**

3 *“A review of tower models, tower detailing and tower design was not part of the scope of this*
4 *study.”*

5 Please explain the reasoning for EFLA to make changes to the PLS-CADD and PLS-Tower files, as
6 described on the bottom of page 23 and the top of page 24 of the EFLA report, when a review of
7 tower models, tower detailing and tower design were not part of the scope for the EFLA study.

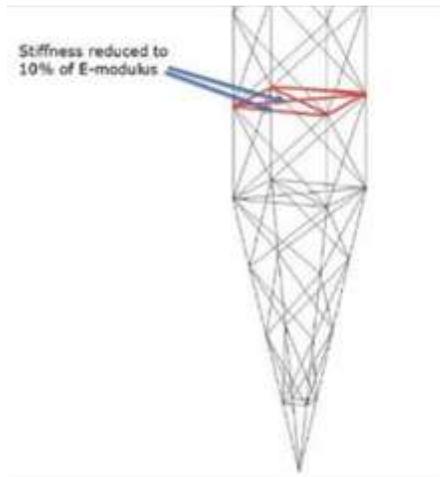
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10 A. All models provided results when the DESIGN and CSA-50-year loads were applied. Once the
11 loading was increased to the CSA-150 and CSA-500 loads a few tower models resulted in
12 erroneous results. This triggered inspection of the models to understand the reason for the
13 results. The investigation led to the changes described below. Modifications were limited to the
14 towers which would have the most impact on results.

15 **Modified Stiffness of Elements**

16 The stiffness of the red elements in the figure below were reduced by a factor of ten in towers
17 128, 282, 286, 288, 1225, 1324 and 1687. The reduction in stiffness can be likened to removing
18 the members altogether. The diagonals directly below the red elements had unrealistically high
19 utilization before modifications of the models. The results were deemed unrealistic as a small
20 increase in load resulted in a very high increase in utilization. With the reduction in stiffness, the
21 tower still has sufficient capacity to support the applied load. This modelling problem/issue is
22 known when using linear Finite Element programs for tower analysis. EFLA Consulting Engineers
23 has used this approach of reducing the element stiffness to overcome the modelling issue in
24 many designs.



1 **Modified Earth Wire Peak for Tower 1219**

2 The red elements in the figure below were modelled with reduced strength when compared to
3 the actual strength. The model of the earth peak was done in a simple manner and
4 underestimated the actual strength of the tower top. The simplification of the models worked
5 well for the DESIGN and CSA-50-year loads. Once the loading was increased to the CSA-150 and
6 CSA-500 loads, the limitation of the modelling became apparent and the model detail needed to
7 be improved in tower 1219. The figures below shows the attachment points for the optical
8 ground wire and the corresponding Finite Element model.

