

and Building Enclosures

13 August 2018

Mr. Eric Dausman General Manager Sutro Tower Inc. 1 La Avanzada Street San Francisco, CA 94131

Project 067199.11 – Condition Assessment of Sutro Tower, 2018 Inspections 2017 Maintenance and Inspection Program

Dear Mr. Dausman:

At your request, Simpson Gumpertz & Heger Inc. (SGH) provided oversight and engineering support for tower condition assessment and repair work performed in 2017. Under agreement with the City of San Francisco (the "Standard Conditions") Sutro Tower performs annual inspections of 1/3 of the tower, consisting of one of the three legs and the horizontal framing on one face, each year. In accordance with the inspection protocol, these inspections are typically rotated such that the entire tower is inspected over a three-year period.

On a five-year schedule, the inspection agreement calls for an in-depth inspection to identify problems which may not be readily detectable with a visual review in the annual inspection, such as evaluation of guy wire tension and inspection of welds of tower leg columns to their base plates.

In a meeting with the neighborhood liaisons in March 2014, it was agreed that the 2014 inspections would encompass two tower legs and two tower faces. Thus we are now one year ahead of schedule in performing these inspections. Accordingly, the inspections performed in 2017 are those originally scheduled for 2018 and include: Leg A, Mast A, the north facing trusses, and, the attachment of appurtenances to these portions of the Tower.

SGH provided Electronics Research, Inc. (ERI) and Sutro Tower inspection protocols and a series of standard forms for recording observations. ERI included the completed forms and accompanying photographs in a series of two reports:

- Field Inspection Report: West Leg A & North Truss Level 2-5, ERI Project 35473A, Addendum 2, 977 Ft Self-Support Tower, San Francisco, CA ASRN 1001289, dated 25 June 2018.
- 2. Field Inspection Report: West Stack A & North Truss (Level 6), ERI Project 35473, 977 Ft Self-Support Tower, San Francisco, CA ASRN 1001289, dated 13 April 2018.

We reviewed these reports and performed on-site observations of conditions reported therein as needed to clarify the conditions reported. We also performed calculations as necessary to determine if corrective action was required for items reported as structural damage. Table 1 below summarizes the conditions reported by ERI as requiring additional engineering evaluation

and the results of our further review. Observation 60 in the 24 June 2018 report can be repaired using details like those previously used for this purpose. We will provide details for this location and recommend you make repairs this season. Observation 140 in the same report is not a safety issue but should be addressed to improve comfort of individuals using the stair. We will provide details for this condition as well.

**Table 1: Summary of Exception Items Evaluation** 

ERI Report No.	Observ. No.	Description	Action Required
1	14	Bent flange on I-beam	No action required.
1	47	Bent angle leg on diagonal	No action required.
1	60	Bent angle leg on diagonal	Repair required.
1	61	Bent angle leg on cladding support	No action required.
1	70	Bent angle leg on diagonal	No action required.
1	79	Bent flange on I beam at vertical truss	No action required.
1	138	Cladding cutouts	Repaired since report
1	140	Stairway needs support	Will provide repair detail
1	141	Strands kinked and unraveled	No action required
1	144	Strands slightly unraveled	No action required
2	45	Wind bracing angle torch cut	No action required
2	52	Bent angle leg ear mid-span bolt	No action required
2	53	Bent angle leg upper end diagonal	No action required

In addition to the items listed in Table 1 above, ERI identified numerous locations where rust is starting to form on bolt heads and nuts, or on the sides of steel members or gussets. None of these conditions appear particularly severe, however, they should be addressed by removal of rust and recoating as part of routine tower maintenance.

Sincerely yours,

Ronald O. Hamburger, S.E.

Senior Principal

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