SUMMIT
DESIGN AND ENGINEERING SERVICES

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February 14, 2020

Jeremiah P. LeRoy
Sustainability Office
Buncombe County Government
200 College Street
Asheville, NC 28801

OWEN MIDDLE SCHOOL – 730 OLD US HWY 70, SWANNANOA, NC 28778

Dear Mr. LeRoy:

At your request, Summit visited the subject property on February 4, 2020. The purpose of the site visit was to observe the existing structural framing systems and their overall condition for support of proposed solar panel assemblies as specified by Pisgah Energy Design & Development.

Partial structural building plans for the subject property were made available to assist in the evaluation though those plans only describe additions and renovations build in 2004. The existing structure is a single-story masonry building. The original construction date was not available to the inspection team. Three areas of the building are scoped to receive solar panels: The auditorium, the gymnasium, and the center wing south of the cafeteria. At the time of inspection, only the framing supporting the gymnasium roof was directly visible. The gymnasium roof structural system consists of a flat roof framed with steel truss girders spaced at 20 feet on center. Roof framing in the auditorium is indicated on the partial structural drawings as trusses at approximately 22 ft on center. The auditorium is also a flat roof similar to the gymnasium and of similar span. The building wing considered during the inspection is indicated on the available architectural drawings as steel bar joists though the spacing is unknown.

Access to observe the existing framing and associated connectors directly was not provided at the time of inspection for the building wing and auditorium. However, ceiling finishes and edges at bearing walls were observed and did not indicate distress or deterioration of the supporting structure. Based on our observations and previous experience with roof framing of these types, it is comfortably assumed the existing structure is in good condition. In the gymnasium, the existing framing and associated connectors observed at the time of inspection were in generally good condition. The proposed solar panels are to be supported on both flush-mounted rails and ballasted racks with a total assembly weight of approximately 3 and 5 pounds per square foot, respectively.

The assumed and observed existing structural framing was evaluated based on Section 402.3 of the *2018 NCSBC Existing Building Code*. Calculations showed that the proposed loading condition does not increase the design gravity load by more than 10 percent. Therefore, the gravity load-

carrying structural elements are not required to be strengthened, supplemented, replaced, or altered.

The content of this report represents our professional opinion based on the areas observed at time of inspection. Based on the assessments noted in the previous section, it is our professional opinion that the proposed solar panel assemblies may be installed without any modifications to the existing structural system.

We appreciate the chance to assist you. Please feel free to contact us if you have any questions or require additional information.

Respectfully,

Wes Taylor, PE, SE
Summit Design and Engineering
Senior Structural Engineer