



Duffy Engineering & Associates Inc.

09/21/2020

Bob Carl
Carl Advertising
PO Box 82
Garrison, MN 56450

RE: DEA #20701 Foundation for freestanding billboard Signage at

Bob,

At your request, I reviewed the report from Stuart Anderson, a licensed engineer for the State of Minnesota, for the signs that you are currently placing in various areas of the State. I also reviewed the construction drawings of the signs, and I have determined that under the conditions outlined in the attached letter to our office the signs will meet code and resist wind and gravity loads. The base wind speed used for the analysis is a 90 mph 3-second gust which imposes 24 pounds per square foot of force on the face of the signs. The sign used to obtain the loads is the 12' max height and max 40' length. I also used the maximum total sign height of 26' as outlined in the referenced reports. Under these conditions the signs shall need to have the posts spacing at up to 6' on center and placed at a minimum depth of 5' below. The augured holes need to be a minimum of 24" in diameter, filled with either compacted native soil or class 5 gravel, and are required to have wind brace blocking as shown in the attached sketches. The maximum open area beneath the sign is 7'-0". Due to how the wind affects the signs, signs that are smaller and shorter are affected the same way as the larger sign. The difference in wind pressure is small enough that no change in design is needed when smaller signs are installed. Larger or taller signs will require an engineering review to ensure the safety of the design.

This review covers the general design and construction of a single sign, and the liability of the engineer of record is limited to a single sign. Any subsequent sign that is constructed to the specifications outlined in this letter will require an appropriate re-stamp fee, and Duffy Engineering & Associates liability shall be limited to those signs identified with a site address and the engineers original stamp/seal on the plans.

This report is understood to be an expression of professional opinion by this engineer, which is based on his best knowledge, information, experience, and reasonable degree of engineering certainty. As such, it consists of neither a guarantee nor a warranty, expressed or implied. We reserve the right to amend the report at any time if new information is available. If you have any further questions or comments regarding this matter, please contact me at (320) 259-6575.

Regards,

John Holt, PE
Project Engineer
Structural Engineering Dept
Duffy Engineering & Associates, Inc.

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

John M. Holt, P.E.

09/21/2020

No. 49214