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November 12, 2009

Johnson's Island Road Commission c/o David Klugman 174 Plymouth Drive Cleveland, Ohio 44140

> Re: JIRC Drainage Agreement Johnson's Island, Marblehead, Ohio

Dear Mr. Klugman,

Per your request, I have reviewed the submitted preliminary road drainage schematic and the proposed JI Drainage Agreement and offer the following:

- 1) Based on the limited information discernible on the overall plan sheets provided, the current and proposed outlet locations seem appropriate.
- 2) I would suggest that if JIRC is going to use a plastic drainpipe, that if be of adequate quality, durability and at a depth sufficient enough to withstand a reasonable amount of weight passing over it without deforming. Also a rodent resistant material is recommended, as muskrats, woodchucks and similar creatures have been known to eat through the walls of some pipe causing blockages and collapse. An adequate anchoring system at the ends of each pipe should be installed to avoid the upward migration of the pipe ends over time.
- 3) The agreement seems to be straightforward and easy to understand. Since I am not an attorney, I offer no opinion as to the legal ramifications associated with its execution. It should provide an adequate means of accomplishing the intended drainage program as proposed. Be sure that proper and constructive notice is given and evidenced to the current owners, the associations involved, and future owners to forestall difficulties in the future to the maximum extent possible.

Sincerel

I hope that this communication is helpful in achieving a proper long-term remedy to the roadway drainage issues that you spoke of in our discussion.

David Brunkhorst PE, RS Ottawa County Engineer

Corr/Twp/Danbury/jircdrainage