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Betsy La Force
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Dear Betsy,

I am writing with respect to your question regarding a message that I received from Matt Fountain, Director of Stormwater Management for the City of Charleston, on the morning of August 10, 2020.

In the message Matt Fountain responded to my concerns and questions in the following way: “A very abbreviated and somewhat simplified answer is the City required no increase from pre to post development in the peak water surface elevation of the receiving conveyance system for a 24-hour, 100 year, storm event as a way to demonstrate what ‘capacity’ was available in the downstream system. The City also required the no increase in water surface elevation condition in the system upstream of the development in Laurel Park that flows through the property currently.”

I understand that you would like me to answer the following question: Did the response from Matt Fountain adequately address all of the concerns and questions expressed in my report entitled “Potential Impact of New Urban Development on Flooding on James Island, Charleston, South Carolina” and in my memos to Matt Fountain dated July 26 and August 7, 2020?

My answer is a most emphatic **NO**. I will explain in detail below.

I understand that Matt Fountain is responding to my concerns regarding the following requirement in the 2013 Stormwater Design Standards Manual: “The post-development, peak discharge rates [are] restricted to one-half the pre-development rates for the 2 and 10-year 24-hour storm event **or to the downstream system capacity, whichever is less**” (emphasis added).

This is my paraphrase of what Matt Fountain is saying: Suppose that during a 24-hour, 100-year storm, the neighborhood downstream from the proposed Central Park development would be flooded to a depth of 15 feet above sea level. That depth of flooding would not be increased due to the construction of the Central Park development.



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In the first place, even carrying out the calculation that Matt Fountain is describing would require that the current stormwater infrastructure be known and be known to be in good condition. In my report I argue that the current stormwater infrastructure is generally undocumented and in poor condition where it is documented. I will not belabor this point any further.

The most important point is that Matt Fountain is claiming that the following statements are equivalent (quotes simplified for clarity):

2013 Stormwater Manual: “The post-development, peak discharge rates are restricted...for the 2 and 10-year 24-hour storm event...to the downstream system capacity.”

Matt Fountain: “The City required no increase from pre to post development in the peak water surface elevation of the receiving conveyance system for a 24-hour, 100 year, storm event....”

I cannot see any way in which the above two statements might be equivalent. First, the 2013 stormwater manual is referring to the impacts of 2-year and 10-year storms, while Matt Fountain is referring to the impact from a 100-year storm. Second, the 2013 stormwater manual is referring to a discharge rate (measured in cubic feet per second), while Matt Fountain is referring to a change in water surface elevation (measured in feet). The 2013 stormwater manual must be referring to “system capacity” as a discharge rate as, otherwise, it would make no sense to state that the “peak discharge rate” cannot exceed the “downstream system capacity.” In fact, the 2013 stormwater manual draws an explicit distinction between “water surface elevation” and “system capacity” by further stating, “All construction, development and redevelopment activities which disturb one (1) acre or more shall perform an hydraulic analysis to determine the impacts of the proposed development during 100-year 24-hour storm event (precipitation only). The project shall not...increase water surface elevations **or** reduce system capacity” (emphasis added).

In summary, neither Seamon Whiteside nor the City of Charleston has yet demonstrated that the peak discharge rate from the proposed Central Park development would not exceed the downstream system capacity. In fact, neither organization has even addressed this subject.

Please let me know if I can help with anything else.

Best wishes,

A handwritten signature in black ink that reads "Steven H. Emerman".

Steven H. Emerman