October 26, 2023

Stormwater Management Report
All Metal Roofing and Siding
Parker, Florida

Project Number: FL0016-22
Project Title: All Metal Roofing and Siding
909 West Street
Parker, Florida 32404
Bay County

Storm Calculation Summary

The proposed All Metal Roofing and Siding project and contributing area were analyzed to determine the pre-development and post-development storm runoff rates for the 100-year critical storm event, as well as storage volumes and recovery times. The calculations include the 1 hour, 2-hour, 4-hour, 8 hour, and 24-hour durations. The calculations also include pre-development and post-development storm runoff rates for the 25-year 1-hour, 2-hour, 4-hour, 8-hour, and 24-hour storm events. PondPackV8i and the design parameters in the Bay County Land Development Regulations and the Florida Department of Environmental Protection and Northwest Florida Water Management District's Environmental Resource Permit Applicant's Handbook, Volume II were used to perform the calculations. The results of the calculations are summarized as follows:

Pre-Development:
The pre-development site and contributing area consists of one (1) subarea. This is named "Pre Development Area". Its properties are as follows:

"Pre Development Area" is area that flows to the southwest corner of the property. It consists of 2.88 acres with a curve number of 74.1 (35/157). Its time of concentration is 5 minutes (28/157). The pre-development peak flows to the outfall ("Pre Outfall") are 11.24 cfs, 10.93 cfs, 6.04 cfs, 7.31 cfs, and 2.31 cfs for the 1-hour, 2-hour, 4-hour, 8-hour, and 24-hour durations of the 25-year storm event, respectively and 15.72 cfs, 15.39 cfs, 8.39 cfs, 9.77 cfs, and 3.38 cfs for the 1-hour, 2-hour, 4-hour, 8-hour, and 24-hour durations of the 100-year storm event, respectively. (3/157).

Post-Development:
The proposed site and contributing area consists of three (3) subareas. These are "Post to West", "Post to South", and "Post Outfall". Their properties are as follows:

"Post to West" is area that will be detained within the proposed dry detention pond ("Western Pond"). It will consist of 1.212 acres with a curve number of 70.5 (34/157). Its time of concentration is to be 5.0 minutes (minimum).

"Post to South" is area that will be detained within the proposed dry detention pond ("Southern Pond"). It will consist of 0.364 acres with a curve number of 85.4 (33/157). Its time of concentration is to be 5.0 minutes (minimum).

"Post Outfall" is area that will not reach a detention system and is to be released directly to the outfall ("Post Outfall"). It will consist of 1.308 acres with a curve number of 43.0 (32/157). Its time of concentration is to be 5.0 minutes (18/157). The post-development peak flows to the outfall are to be 0.42 cfs, 0.49 cfs, 0.79 cfs, 1.17 cfs, and 0.42 cfs for the 1-hour, 2-hour, 4-hour, 8-hour, and 24-hour durations of the 25-year storm event, respectively and 1.11 cfs, 1.49 cfs, 1.41 cfs, 2.01 cfs, and 0.77 cfs for the 1-hour, 2-hour, 4-hour, 8-hour, and 24-hour durations of the 100-year storm event (2/157).

The post-development peak flows to the outfall ("Post Outfall") are to be 2.65 cfs, 2.98 cfs, 2.99 cfs, 4.25 cfs, and 0.90 cfs for the 1-hour, 2-hour, 4-hour, 8-hour, and 24-hour durations of the 25-year storm event, respectively and 6.80 cfs, 8.16 cfs, 4.65 cfs, 6.41 cfs, and 1.66 cfs for the 1-hour, 2-hour, 4-hour, 8-hour, and 24-hour durations of the 100-year storm event (3/157).

The greatest post development discharge to the "Post Outfall" outfall occurs during the 2-hour, 100-year storm event. Therefore, the 2-hour, 100-year storm event is the critical storm event for this outfall.

Post-Development Detention:
The proposed site and contributing area will contain two (2) dry detention ponds. These are "Western Pond" and "Southern Pond". Their properties are as follows:

"Western Pond" will provide 0.081 ac-ft of storage volume between the elevations of 18.00 and 20.00 (120/157). The maximum stormwater elevation reached in the pond is to be 19.95, which occurs during the 2-hour, 100-year storm (4/157), thereby being contained within the proposed dry detention system. The infiltration rate of 15.4 in/hr with a factor of safety of 2.0 (equaling 7.7 in/hr) was used in the design of this dry detention system. A weir (Outlet-1) was modeled as an outlet device in the western edge of the pond with an elevation of 19.75 (123/157) to prevent over-topping in the event of severe flooding. The required maximum treatment height for this pond is 19.68', therefore the required treatment volume is reached before any outflow occurs.

"Southern Pond" will provide 0.062 ac-ft of storage volume between the elevations of 19.33 and 21.75 (118/157). The maximum stormwater elevation reached in the pond is to be 21.64, which occurs during the 2-hour, 100-year storm (4/157), thereby being contained within the proposed dry detention system. The infiltration rate of 15.4 in/hr with a factor of safety of 2.0 (equaling 7.7 in/hr) was used in the design of this dry detention system. A weir (Outlet-2) was modeled as an outlet device in the south edge of

the pond with an elevation of 21.50 (127/157) to prevent over-topping in the event of severe flooding. The required maximum treatment height for this pond is 20.81', therefore the required treatment volume is reached before any outflow occurs.

Conclusion:
The results show that the routed peak flows for the developed site are less than or equal to the peak flows for the pre-developed site for the critical storm events with the critical storm events being controlled within the detention systems. The results also show that the routed peak flows for the developed site are less than or equal to the peak flows for the pre-developed site for all 25-year and 100-year storm events, thus they are being controlled within the detention systems.

The attached detailed report includes:

- Required treatment volume calculations
- Recovery time calculations
- PondPack Stormwater report

Please let me know if you have any questions or need any additional information.

Sincerely,

Phillip E. Santora, P.E.
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