

Conor McCormack

Subject: RE: Rice Pond Village -- Review comment in regard to drainage system capacity in storms >25 year

From: James Tetreault <jamest@azimuthlanddesign.co>

Sent: Monday, November 29, 2021 5:09 PM

To: Laurie Connors <LConnors@townofmillbury.net>; Stephanie Collins <SCollins@townofmillbury.net>; Glenn, David <david.glenn@stantec.com>; Steve Venincasa <sv@svcasa.com>; James Venincasa <jimcasa@icloud.com>

Subject: Rice Pond Village -- Review comment in regard to drainage system capacity in storms >25 year

Laurie:

Attached is a PDF copy of revised Rational Method Calculations dated today for the Rice Pond Village drainage system using a 100 year storm as the basis for choosing the "i" or intensity value in the equation $Q=CiA$.

These calculations are offered in response to the peer reviewer's comment, on page 5 of 8 of his review letter dated 11/17/2021, that the applicant should examine the functioning of the system in storms larger than the Town required standard of a 25 year return frequency storm.

These calculations show that every single proposed drainage pipe, with one exception, the 15" pipe from DMH 9+85 to DMH 10+60 also had sufficient capacity to convey 100 year storm flows without backup. That pipe can be made to an 18" pipe and it will then have more than adequate capacity to carry 100 year flows.

The peer reviewer also wanted us to make particular note as to whether using the higher, 100 year storm event rainfall intensity, "i", values would show that excessive flows would then have to be captured by the grates of any of the catch basins from the peak of Hillcrest Circle, near station 5+00 down to the project entrance off Rice Road at station 0+00. The answer is no. All of these catch basins pick up relatively small areas. Even in a 100 year storm, these are the rational method calculation flows to each of the catch basins in question (in cubic feet per second):

3+50Right -- 0.76

3+30Left -- 0.68

2+15Right -- 1.41

1+75Left -- 0.63

0+62Left -- 0.59

0+62Right -- 0.69

All are in the range of reasonable capacity for a catch basin grate to capture. If you have any questions or would like any additional information, please contact me.

James

-----XX-----

James Tetreault, PE, CPESC

Azimuth Land Design, LLC

325 Donald Lynch Boulevard. Suite 100

Marlborough, MA 01752

(508)485-0137

jamest@azimuthlanddesign.co