

Merin Road Community

Special Use Permit Planned Development

Response to Ms. Martha Mersereau's Concerns addressed to the
Stormwater Advisory Board

Evidence of problems downstream from Merin Road from current development

Statement #1: Ms. Mersereau stated that new development in Carrboro and Chapel Hill is creating significant stormwater problems by causing more runoff, flooding, and higher velocities.

Response #1: This type of calculation should be left up to professional staff employed by the Town of Chapel Hill in the stormwater department and reviewed at the construction drawing phase of a project as set out by the Land Use Management Ordinance.

Statement #2: Ms. Mersereau claims damage to roadway and pedestrian bridges are a result of stormwater runoff under current conditions.

Response #2A: Bridges that handle vehicular traffic have standard design requirements that require solid foundation supports, which are typically keyed into bedrock, and are designed to account for seasonal flooding and scouring.

Response #2B: The Winmore pedestrian bridge was constructed long before large scale development existed in the area and yet we have accounts of it flooding 50 years ago. Recently with the development of Winmore the bridge was redesigned to handle large scale construction equipment capable of supporting over 70,000 lbs. With the Winmore construction completed its intended use is a pedestrian bridge owned and maintained by the Winmore Homeowners Association.

Statement #3: Ms. Mersereau feels additional development, including the Merin Road Community project, will further damage downstream bridges, roads, and property.

Response #3: Chapel Hill did not adopt their current Stormwater Regulations till January 27, 2003. The project will meet the Town's current stormwater regulations and will not increase runoff up to the 25-year storm event.

The additive effect of runoff from Merin Road and Burch Kove

Statement #1: Ms. Mersereau provided runoff calculations based on only impervious area for both Merin Road and Burch Kove. It is her intent to show volume of runoff in gallons. Ms. Mersereau calculated 241,068 gallons of runoff from the Merin Road Community Project.

Response #1: Ms. Mersereau's analysis did not include the use of a stormwater control measure that would capture the volume of runoff generated from 1-inch of rainfall and release it over a 2-5 day period. The three combined stormwater control measures will provide a total storage of 277,433 gallons, which exceeds the volume generated from 1-inch of rainfall.

The additive effect of runoff from Merin Road and Burch Kove – Continued

Storm Event (yr)	Pre-Development Peak Runoff Rate (cfs)	Post-Development Peak Runoff Rate without BMP (cfs)	Post-Development Peak Runoff Rate with BMPs (cfs)	Percent Decrease/Increase in Runoff (%)
1	5.25	35.68	1.83	- 65%
2	10.69	51.34	3.53	- 67%
10	33.14	102.87	18.93	- 43%
25	48.67	134.56	36.66	- 25%
100	74.80	184.64	87.36	17%

Storm Event (yr)	Pre-Development Peak Runoff Volume (cf)	Post-Development Peak Runoff Volume without BMP (cf)	Post-Development Peak Runoff Volume with BMPs (cf)	Percent Decrease/Increase in Runoff (%)
2	51,286	105,737	41,927	- 18%

Consideration of the simultaneous overtopping of retention ponds:

Statement #1: Ms. Mersereau states the previous chart she provided does not take into consideration the timing and duration of rainfall. The peak flow of stormwater increases significantly in very heavy rainfall events. For instance, two inches of rainfall in two hours will have a much greater impact downstream than two inches of rainfall in 24 hours.

Response #1: 2-inches of rainfall over a 2-hour period is the same volume as 2-inches of rainfall over a 24-hour period. Per Table 2-A-2 in the Town's Design Manual a total rainfall of 2-inches over a duration of 2 hours closely approximates a 2-year storm. The Town's stormwater regulations require the post-development runoff volume cannot exceed the pre-development runoff volume for the 2-year. The Merin Road project reduces runoff in accordance with Town Standards.

Consideration of the simultaneous overtopping of retention ponds – Continued:

Statement #1: Ms. Mersereau states if the retention ponds from Burch Kove and Merin Road were overtopped at the same time, the potential flooding problem would be greatly exacerbated.

Response #1: Dams associated with the stormwater control measures are designed for the 100-year storm and must provide at least 1-foot of freeboard.

Case for a study of culverts and bridges from Merin Rd. to Bolin creek:

Statement #1: Ms. Mersereau states it would be ideal to have a study of this sub-watershed of the Bolin Creek watershed, it is important to at least model water volumes and flow velocities immediately downstream. The runoff from Merin Rd. will eventually flow into Bolin Creek,

Response #1: The west pond discharges to a unnamed tributary that is 3,168 feet, well over ½ mile, from Bolin Creek. North pond discharges to the same unnamed tributary that is 4,752 feet from Bolin Creek. Bolin Creek is not immediately downstream or abutting the property. The Merin Road Site does not contain perennial or intermittent streams. All road crossings and culverts identified in Ms. Mersereau's letter are within Carrboro's planning and zoning district. Rogers Road westward is in Carrboro. Any studies conducted of the existing structures would need to be conducted by the Town of Carrboro and would be independent of this development.

Conclusion:

Statement #1: I request that you recommend that the Town Council declines to change the current zoning and postpones making a decision about this very dense development at Merin Rd.

Response #1A: The Merin Road Community project is not requesting a zoning change.

Response #1B: The Merin Road Community project is not a dense urban high density development. Merin Road is a more in line with a low density development Current zoning allows 78 units. The project proposes 71 units, which equates to 2.6 units per acre. R-1 zoning allows 3 units per acre.

Statement #2: In the event that you wish to go ahead with this dense, urban development, I ask that you have the developer demonstrate prior to approval that the development will not increase stormwater volume or rate of flow compared to predevelopment levels as required by LUMO 5.4.

Response #2: Again the Merin Road Community project is not a dense urban high density development. The project has demonstrated compliance with Section 5.4 of the Land Use Management Ordinance.

Summary

- The project is in compliance with Town of Chapel Hill's Stormwater regulations as outlined in the Section 5.4 of the LUMO.
- The project will not increase the rate of runoff up to the 25-year storm
- The project will not increase the volume of runoff up to the 2-year storm
- The pre-existing concerns with stormwater runoff were created and existed prior to the adoption of the current stormwater regulations.