

August 26, 2013

453 Wayout Rd
Goodview, MN

Applied Solutions
Winona State University
Winona, MN

To Whom It May Concern,

I'm investigating housing developments on the bluffs overlooking Winona and was wondering if you would be able to assist me on understanding the following laws about bluff development and how they apply to the three instances below.

The law states the following:

- i. The slope (in %) over a parcel of land is calculated by the difference in elevations of the highest and lowest points divided by the horizontal length between them, then multiplied by 100.
- ii. A bluff is any 100-ft section of land where the slope exceeds 30%.
- iii. The "top of the bluff" is defined to be the highest point on a 100-ft parcel of land adjacent to or overlapping with a bluff and with a slope exceeding 15%.
- iv. All construction must be 100-ft back from the top of the bluff.

I have the following information regarding the homes of three of Winona's elite:

- a) The land surveyed in front of the house of the president of St. Mary's college, Fr. Bernard, is as follows:

Dist. From Hwy 61 (in ft)	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
Elev. (in ft)	879	942	997	1023	1039	1066	1089	1112	1121	1126	1131	1135	1139

He built his house at a distance of 1146-ft (horizontally) from Highway 61. Was this within the law?

- b) The owner of Slow'n'One, Jake Rivest, built his house at a distance of 804-ft (horizontally) from Highway 61. Our newspaper obtained the enclosed cross-section (see next page) of the land in front of his property. Was it legal for him to build there?
- c) The mayor, Thomas Budd, wants to build his house legally, but as close to the top of the bluff as he can. The land surveyed in front of his house for distances between 0 and 1000 feet can be modeled by the function:

$$E(d) = 900 - 300 \cos\left(\frac{d^* \pi}{1000}\right)$$

where $E(d)$ is the elevation (in ft) at a distance d (in ft) from the highway. After a 1000 feet, the land is flat with an elevation of 1200 ft. How close to the highway can he legally construct his house?

Thanks for your help!

Sincerely,



Lance Scidman

