



# Advanced Engineering & Surveying, LLC

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December 29, 2006

City of Rapid City  
300 Sixth Street  
Rapid City, SD 57701

Attn: Travis Tegethoff

Re: Civil Site Submittal, IGT Subdivision, Hwy 16, Rapid City, SD  
AES Project No.: 06-079

Dear Travis:

I have enclosed four (4) sets of the civil sheets for the above referenced site as well as Dean Scott's plat submittal. This submittal is intended to address the issues identified in your staff report dated September 7, 2006.

I have included drainage calculations for the proposed improvements. As my calculation show, the 100 year developed flows increase from current flows by only 0.89 cfs. The current flow is to the north into the same drainage as my proposed improvements provide for. I do not see any problems for the existing drainage to handle the additional flows. Twin 24 inch CM pipe cross Berglund just north of Fox Road (photo attached).

The site plan indicates existing and proposed drainage features. No improvements are currently planned on Lot 2. All improvements are planned in dedicated public right of way and the drainage flow patterns are not being altered by the road improvements. I am suggesting that any drainage issues regarding Lot 2 improvements will need to be addressed at the time of building permit is issued. At this time, the site is being subdivided to enable Lot 2 to be sold, however, the extent and type of improvements are not known at this time.

As the Site Plan shows, the proposed sewer service is from Hwy 16 due to elevations on Berglund Road. The exact location will be determined once Lot 2 is developed.

The proposed improvements include the following:

## Fox Road

- Construct a 26 foot wide asphalt street with curb & gutter on portion that is not paved
- Dedicate an additional 9.5 feet of public right of way on the south side of Fox Road
- Install water and sewer in the easement south of Fox Road

## Requested variances:

- Variance for street light conduit on Fox Road. This variance is being requested due to the public concern for additional lighting in the area. The homes are upscale large homes

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- with large lots and minimal lighting. Very little development is able to occur and the need for lighting is minimized.

### **Berglund Road**

- Construct a 26 foot wide asphalt street with curb & gutter from Fox Road south to the access easement to Squirrelly Acres Subdivision (aprox. to the ¼ line). The major street plan does not show Berglund developed south of the ¼ line. We are proposing to develop it to just south of the ¼ line, which should agree with the major street plan.
- Install water on this portion of Berglund Road

### **Requested variances:**

- Variance for street light conduit on Berglund Road
- Variance for sewer on Berglund Road due to the lack of service area (See attached map showing aprox area that could be served)

This variance is being requested due to site topography. The majority of homes in Squirrelly Acres will not be able to be gravity served by a line on Berglund due to elevations. Homes would require individual residential lift stations or a lift station for the area. Very little additional ground is available to develop in this area.

The area north of Fox Road will also be limited for service due to a large draw that runs parallel to fox Road. A gravity system will not function across this draw. Bury depth is also a concern. As the plans show, I have designed the sewer with minimum grades from Hwy 16 and am at aprox 3.5 feet of bury at Fox Road and Berglund. In fact, there is a very small area just north of Fox Road that can be served by a gravity system.

- Variance to improve the section line south of the access to Squirrelly Acres due to topographic issues. A sketch plan currently in Growth Management is asking for a portion of the section line to be vacated which, if approved, would eliminate the possibility to develop the section line road. Access to all undeveloped lots in Squirrelly Acres can be obtained from Berglund Road.
- Variance to dedicate the west half of the section line right of way due to being under different ownership.

### **Hwy 16 Service Road**

- Variance to waive improvements of pavement, curb, gutter, street light conduit, water and sewer per Chapter 16 of the Rapid City Code with a condition to sign a WRP. Staff has previously recommended approval of this variance.

If I can be further of assistance, please contact me at 605-718-8825.

Sincerely,  
Advanced Engineering & Surveying



Ronald A. Bengs, PE  
Owner

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Rational Method

	Areas SF	Areas SF	Areas AC	C10	
	Historical	Developed			C100
Total Area	36,597	36,597	0.84		
Roof	0	0		0.90	0.90
Grass	18,417	15,596		0.20	0.40
Concrete	384	4,000		0.88	0.89
Gravel	17,160	0		0.35	0.65
Asphalt	636	17,001		0.90	0.93
	36,597	36,597			

Intensity	
I10	I100
4.17	6.28

15 min duration

C10 Composite Historical	Roof	Grass	Conc	Asphalt	Gravel	Total
	0.00	0.10	0.01	0.02	0.16	0.29

C10 Composite Developed	Roof	Grass	Conc	Asphalt	Gravel	Total
	0.00	0.09	0.10	0.42	0.00	0.60

C100 Composite Historical	Roof	Grass	Conc	Asphalt	Gravel	Total
	0.00	0.20	0.01	0.02	0.30	0.53

C100 Composite Developed	Roof	Grass	Conc	Asphalt	Gravel	Total
	0.00	0.17	0.10	0.43	0.00	0.70

Q10 Hist	CIA	1.01 CFS
Q10 Dev		2.10 CFS
Q100 Hist		2.80 CFS
Q100 Dev		3.69 CFS

Difference (Dev - Hist)	
Q10	Q100
1.09	0.89

