



**CIVIL & ENVIRONMENTAL
ENGINEERING, SURVEYING**

2002 Small Business of the Year



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Presenters:



Water Irrigation System Components

- Onsite Well
 - 6" diameter well, 80'-100' deep
 - Estimated water yield of 65 gpm (105 ac-ft /yr)
 - Wells with 100-300 gpm are located within 1/2 mile of the site
- Irrigation system design based off of Southeast MN State Veterans Cemetery in Preston, MN
 - Hunter 2 wire decoder system
 - 1" lateral lines
 - I-25 stainless steel sprinkler heads

Electric Utility System Components

- Overhead electric is located on the south side of Lakewood Road
- Underground electrical run from power pole
- 120/240 single phase service in conduit
- Electrical pedestal located by Owner
- Service fees depend upon length of service

Site Drainage

- Surface water
 - The site currently drains to an internal low point
 - Shallow ditch along Lakewood Rd makes storm sewer use difficult
 - Storm sewer likely not required with regrading
- Surface Soils
 - Loamy soils
- Subsurface
 - Sandy soils
 - No limiting layers expected
 - Subsurface drainage system not needed



Utility Delivery Dates

- Clear and grub the site
 - Assume complete by May 1, 2015
- Electric
 - Service provided 1-2 months after request is made
 - May 1, 2015
- Water
 - 4 week installation once the site has been prepped
 - June 1, 2015
- Storm Sewer
 - N/A

Legal Process

- Water
 - WDNR Well Notification Permit
 - \$50 fee for wells under 70 gpm
- Electric
 - Wisconsin Public Service application
 - No fee
- Storm Sewer
 - N/A

Utility Costs

	Initial Cost	Annual Maintenance Cost
Water	\$150,000 - \$160,000	\$2,000
Electric	No fee (<125' service)	\$1,000
Total	\$150,000 - \$160,000	\$3,000

Utility Costs

- Water
 - Maintenance cost includes Spring start-up & winterization
- Electric
 - Approx. 125' of service is installed at no charge
 - Up to approx. 250' = \$1,000
 - Up to approx. 350' = \$2,500

Site Access

- Lakewood Road provides access to the site
- Site is heavily wooded
 - Cost to clear and grub is typically \$2,500/acre
- Town of Cassian driveway permit required
 - \$50 application fee
 - Min requirements
 - 12' driving surface
 - 16' wide x 14' high cleared area
 - 15" diameter x 24' long culvert