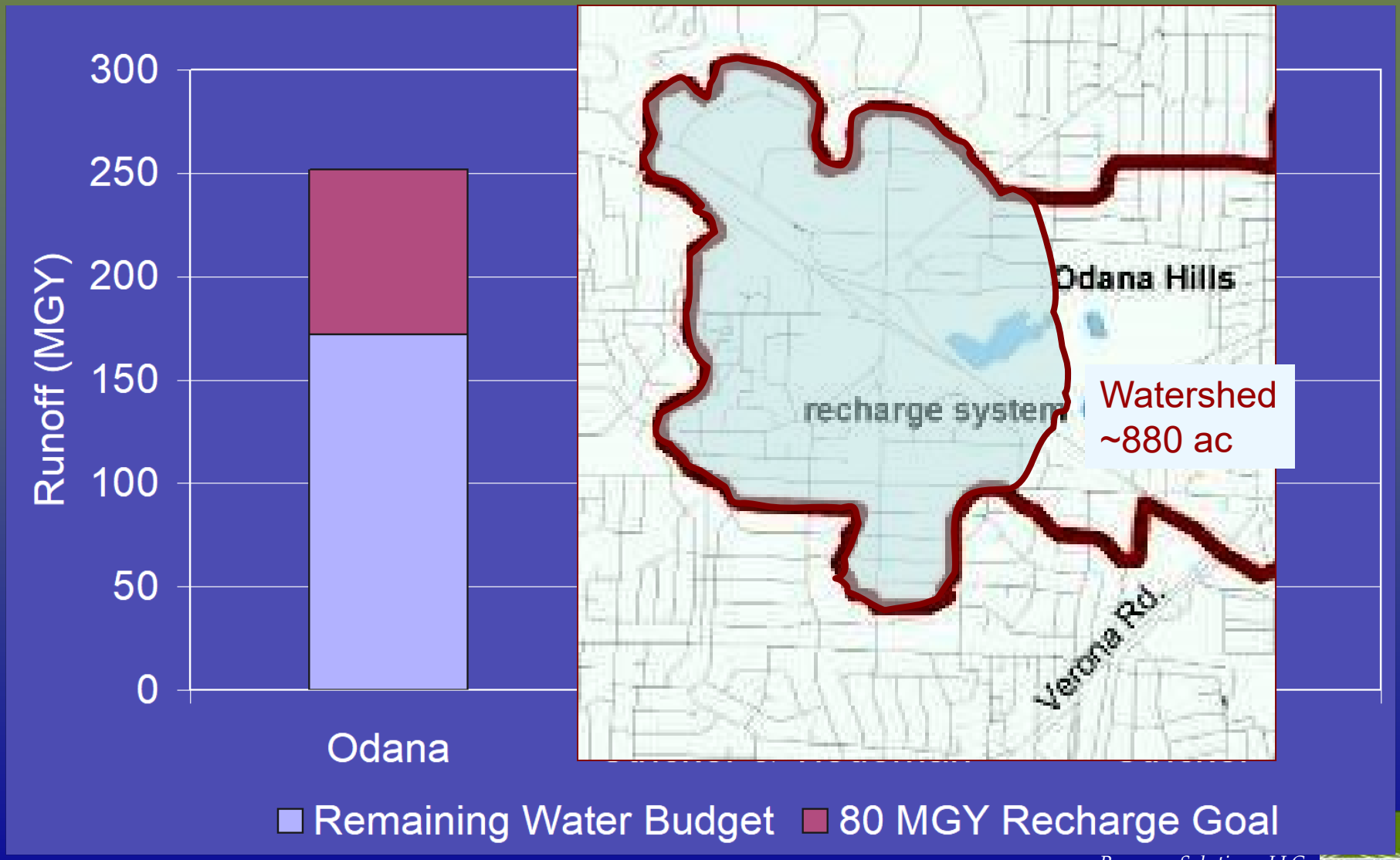
Odana Hills Recharge System

- Built by MG&E and UW-Madison
- Draws stormwater from pond
- Filters water
- Pumps to subsurface infiltration bed
- Recharges ~50 million gallons per year to groundwater

Runoff Available to Meet Recharge Goal



Odana Pond Provides Storage

Pond Intake


Sanitary sewer
filter
backwash line
pond
intake
supply pipeline
infiltration
bed

Filters

- Microfiltration (0.1 μm) removes sediment that could clog recharge bed & particulate pollutants.
- Backwash discharged to sanitary sewer.

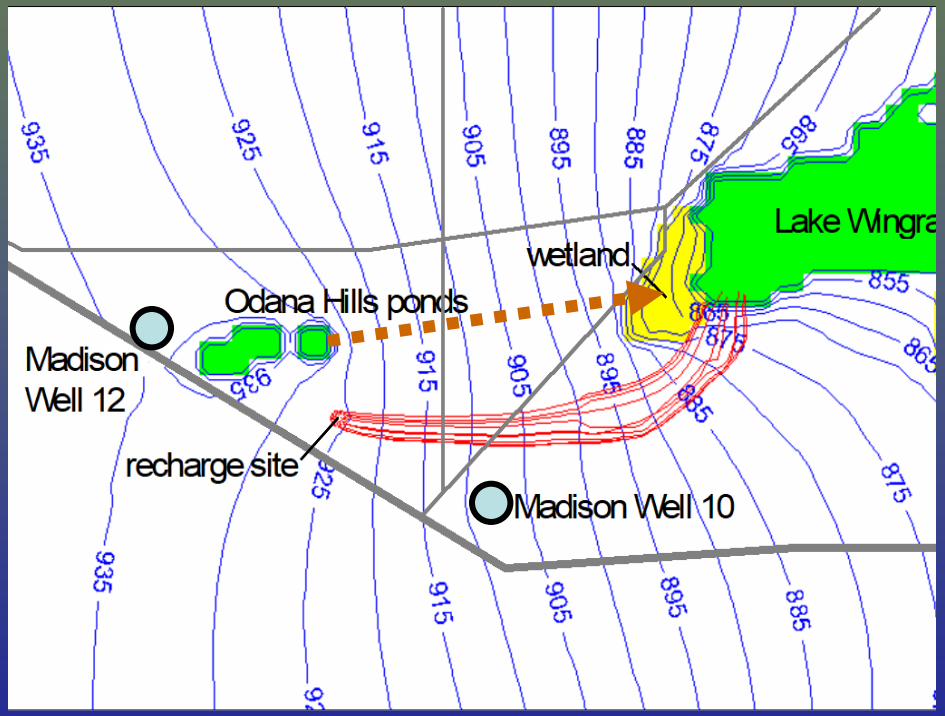
Soil & Hydrogeologic Evaluation

- Soil borings and monitoring wells
- Laboratory tests for soil grain size & permeability
- Field field infiltration tests & aquifer tests
- Soil (just) permeable enough at depth

Subsurface Recharge Bed

- Excavated ~10 ft deep
- Clear stone & piping to distribute water
- Monitoring wells

Where does the water go?



(Model from Swanson, 2000)

- Groundwater model predicted gradual flow to Lake Wingra over several decades
- Recharged water not in predicted well capture zones

Recharge Volumes: 2007-2009

	Flow, million gallons / year		
Year	Pumped from Pond	Filtrate recharged	Backwash to sewer
2007	60	55	5
2008	79	71	8
2009	67	60	7
Average	**69**	**62**	**7**

Groundwater Quality

- Road salt in runoff has limited time of year of operation to avoid chloride loading to groundwater.
- Chloride in groundwater near state Preventive Action Limit. Beltline runoff also appears to be a source.
- Manganese and arsenic slightly elevated in groundwater. Cause(s) are uncertain.