

Lake Sarah Meeting

August 26, 2004

Tom Hovey
DNR Waters



Ordinary High Water Level

- Elevation 979.9' (formerly 979.5')
- Boundary of public waters and p.w. Wetlands
- An elevation...highest water level that has been maintained for a sufficient period of time to leave evidence on the landscape

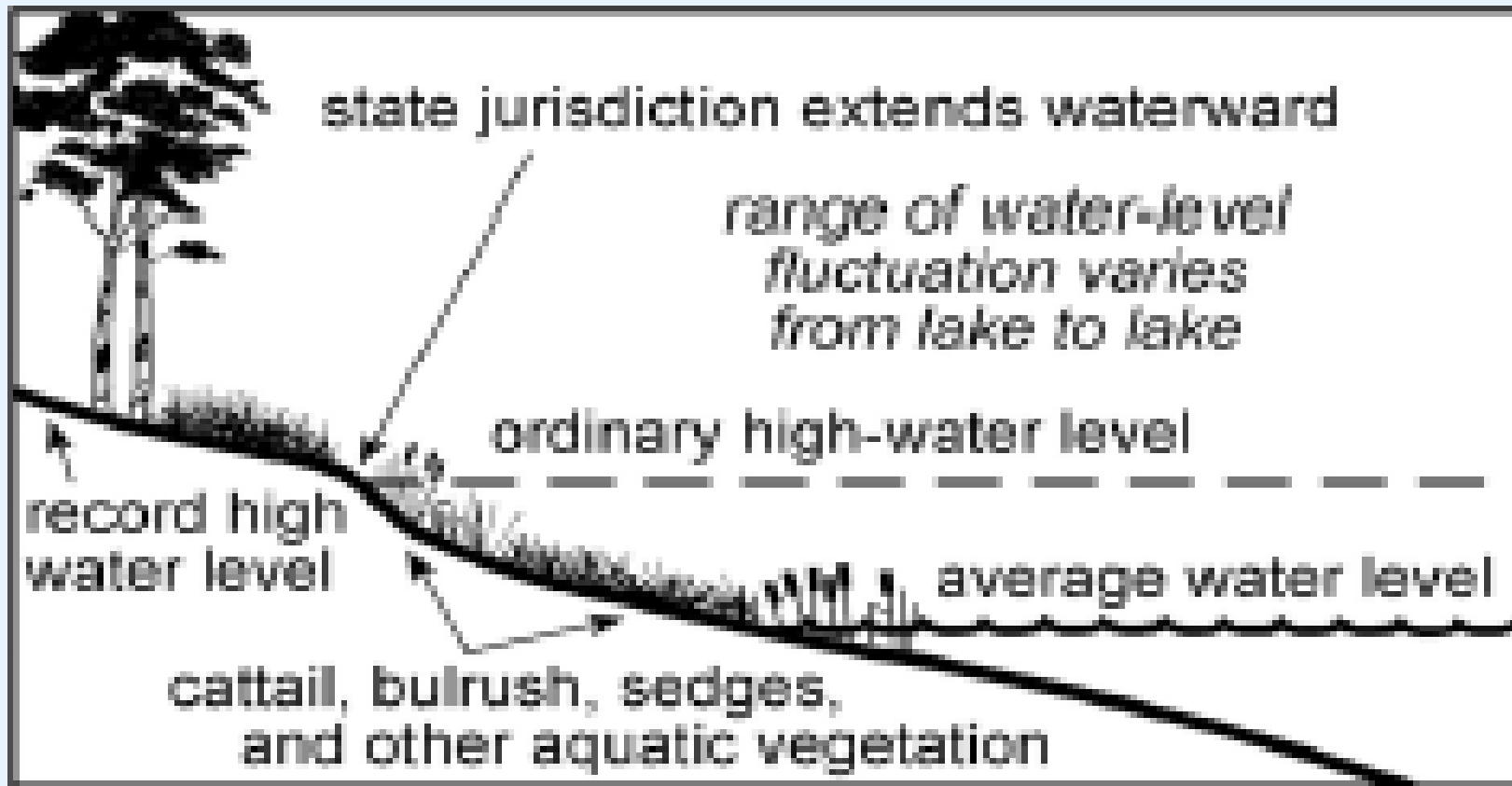


100 Year Flood Elevation

- 981.2' (FEMA Flood Insurance Study)
- Synonymous with 1% chance flood and regional flood



Ordinary High Water Level



Shoreline cross section.

Runout Elevation



That elevation at which water begins to
flow out of a basin



Brief History

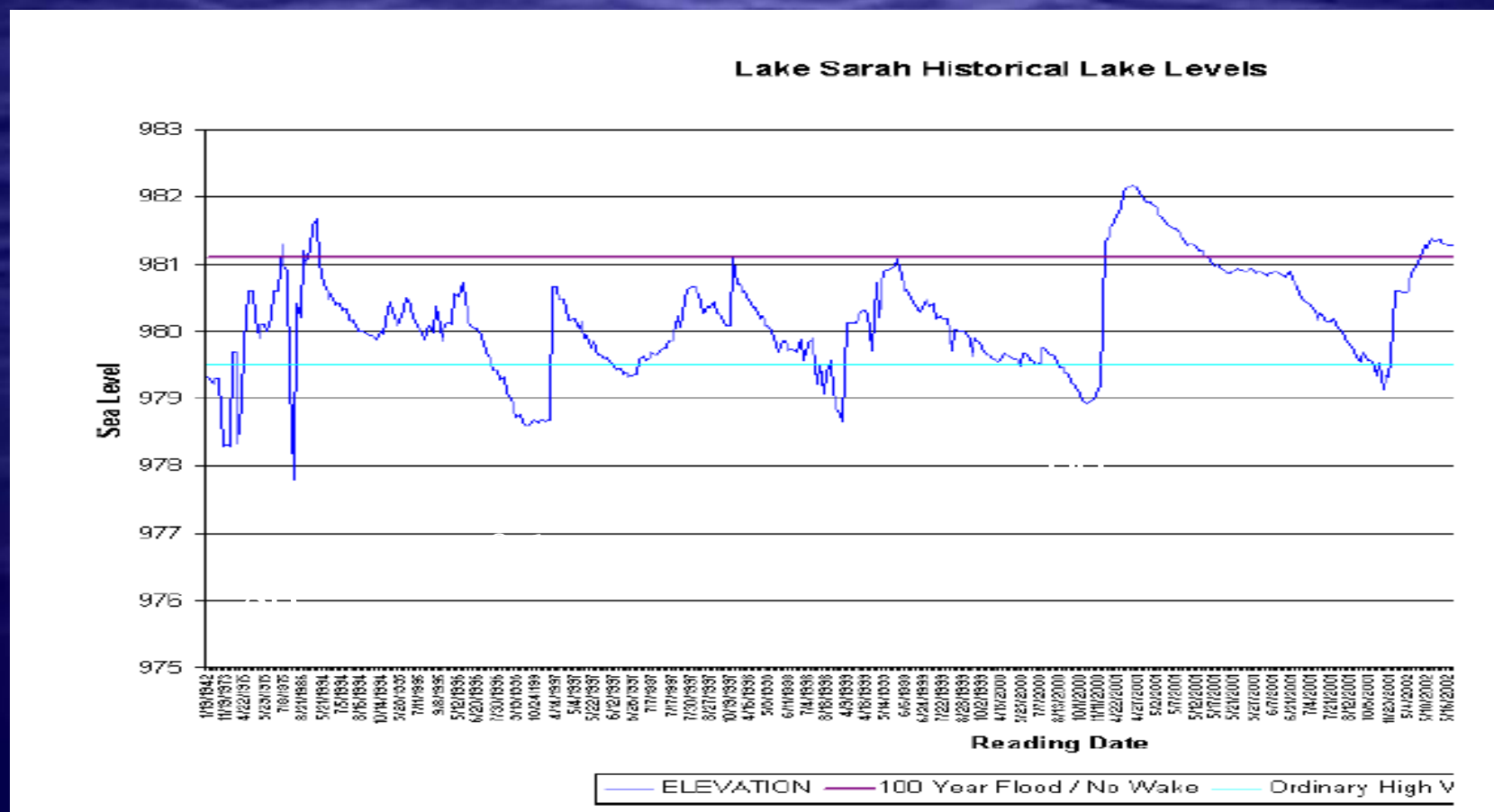
- Water levels
- Runout levels



Air Photo - 2000



Historic Lake Levels thru '02



Relevant Elevations

- 100 year flood elevation - 981.2'
- Ordinary High Water Elevation – 979.9'
- Outlet Elevation (2003) – 979.3'
- Approximate Runout Elevation Today – 978.5'
- Water Surface Today (8/26/04) – 978.8'
- Suggested Range – 978.3' to 978.8'
- Runout Elevation (1986) – 978.2'
- Runout Elevation (1974) – 977.9'
- Runout Elevation (1942) – 977.3'



Lake Sarah Outlet - 1941



5-47

Outlet Lake Sarah

7-2-41

R. J. O.



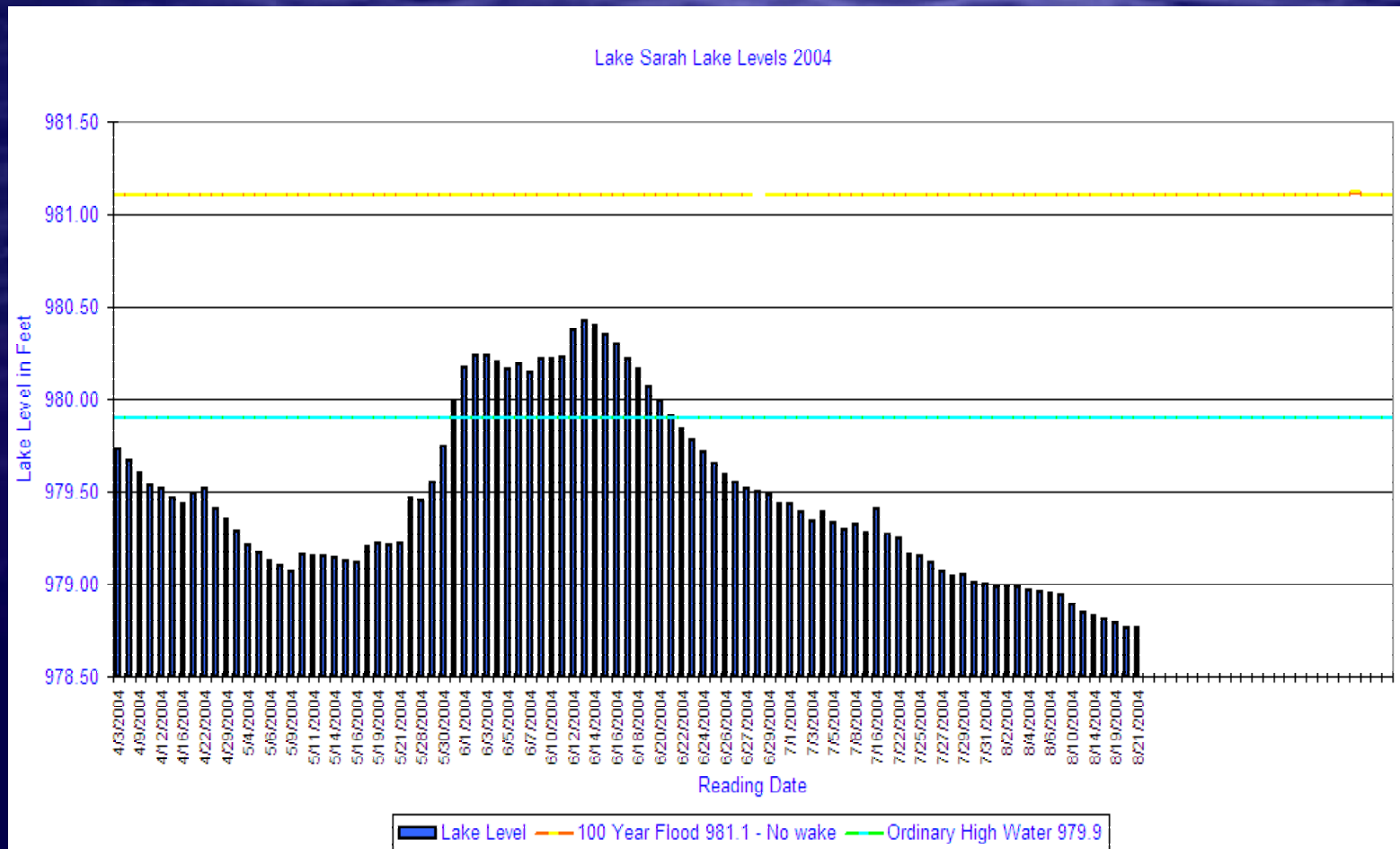
Lake Sarah Outlet - 1976



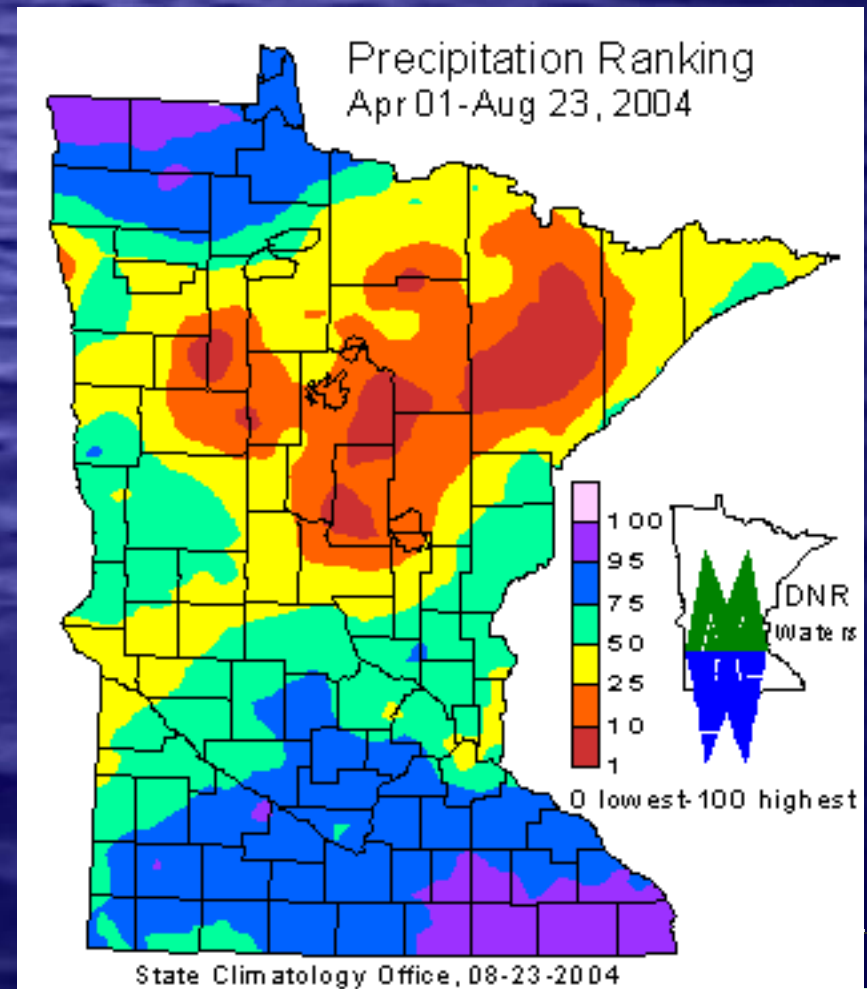
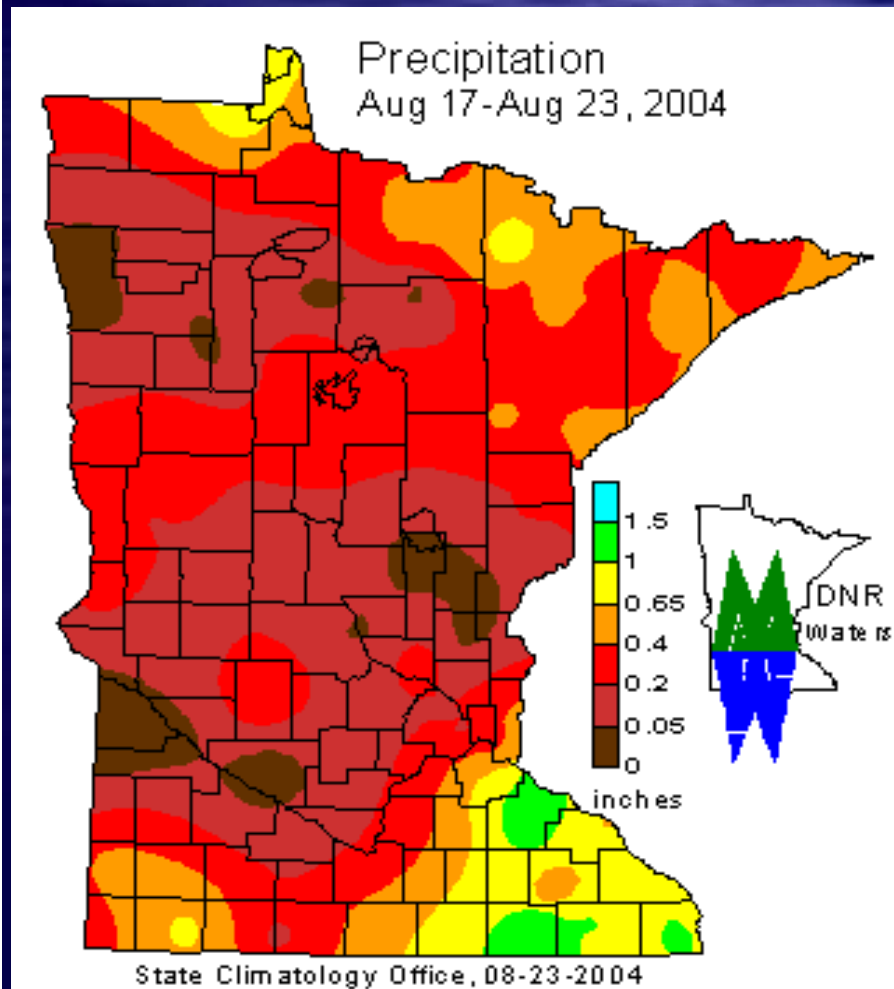
Lake Sarah Outlet - 2004



Water Levels - 2004



Precipitation 2004



Unauthorized Alterations



May 2004

- More harm
than good?



Laws Affecting Project

- Minnesota Statutes 103G
- Minnesota Rules, Part 6115
 - -- Structures in Public Waters
 - -- Water Level Controls
- Local and Regional Plans and programs



Permit No. 2004-3025

- Originally authorized excavation of the channel, and lowering the runout by 6” to 12”
- Amendment requested to authorize placement of the cable concrete product
- Runout should be within elevation range recommended in DNR Lake Sarah Outlet report.



Factors Affecting Decision

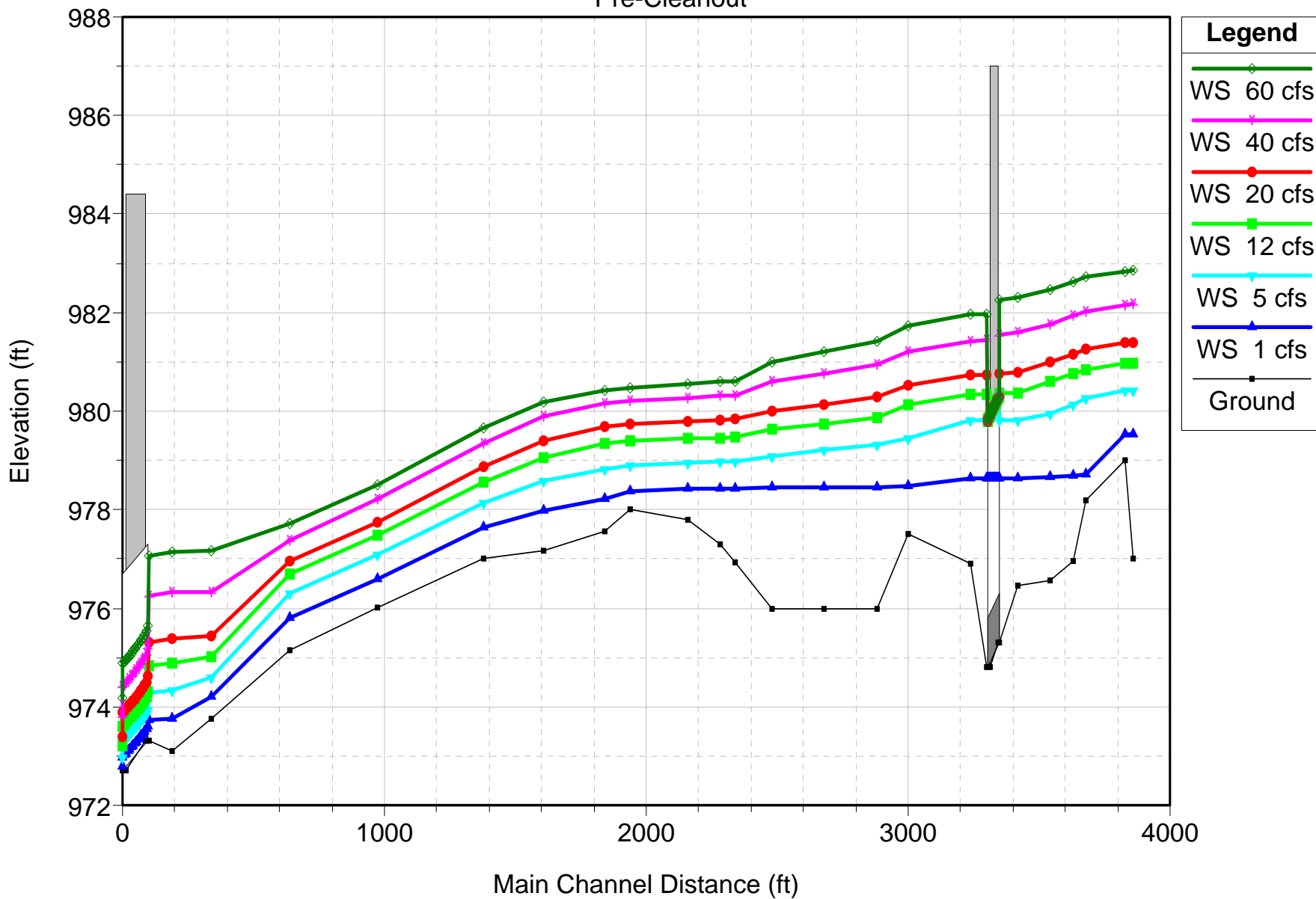
- History of outlet elevation
- Need for project
- Building based on flood elevation of 981.2'
- Relationship of runout to the OHW
- Effects on recreation
- Maintenance requirements
- Opportunity



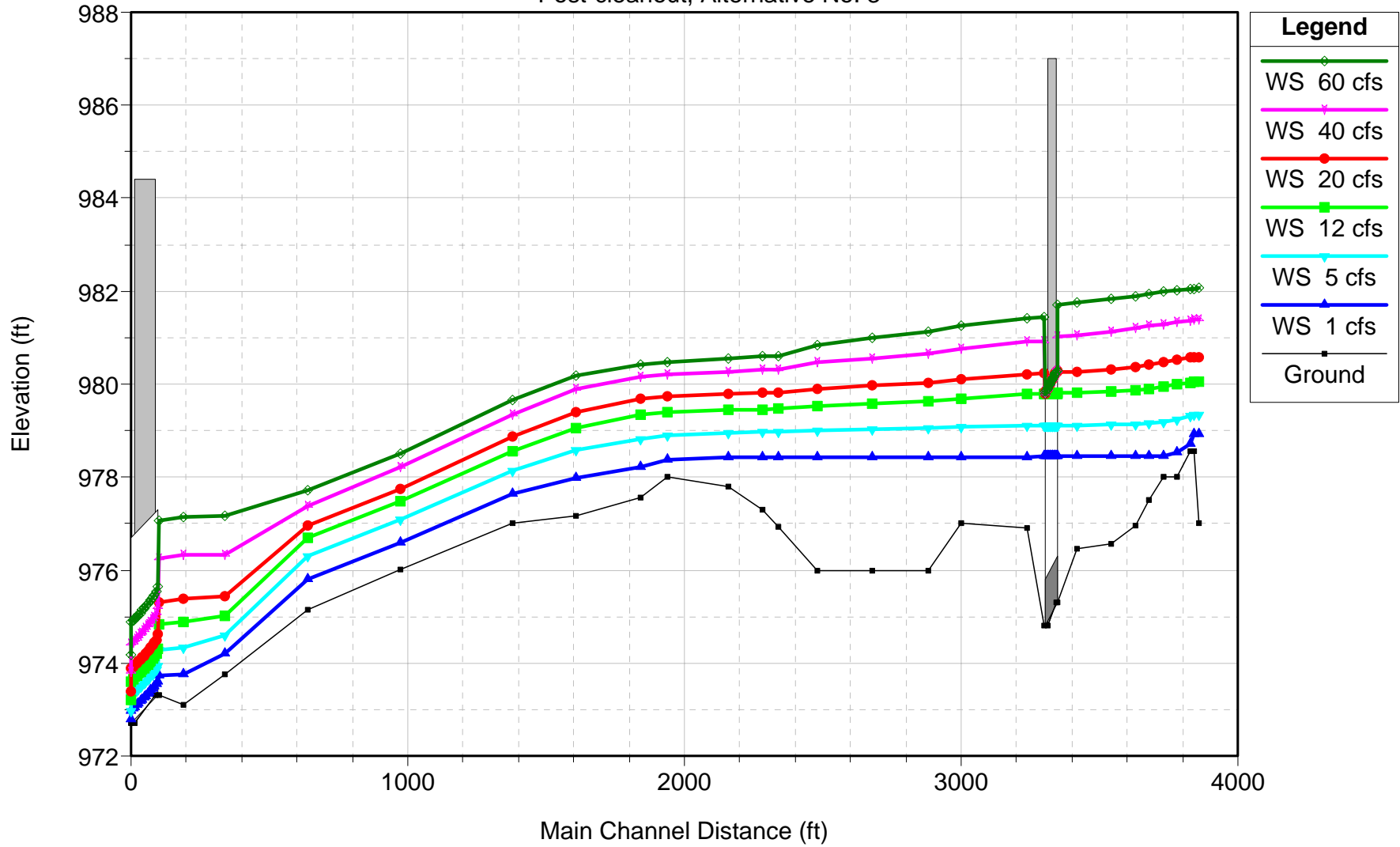
Physical Realities vs. Regulatory



Sarah Lake Outlet Channel Pre-Cleanout



Sarah Lake Outlet Channel
Post-cleanout, Alternative No. 3



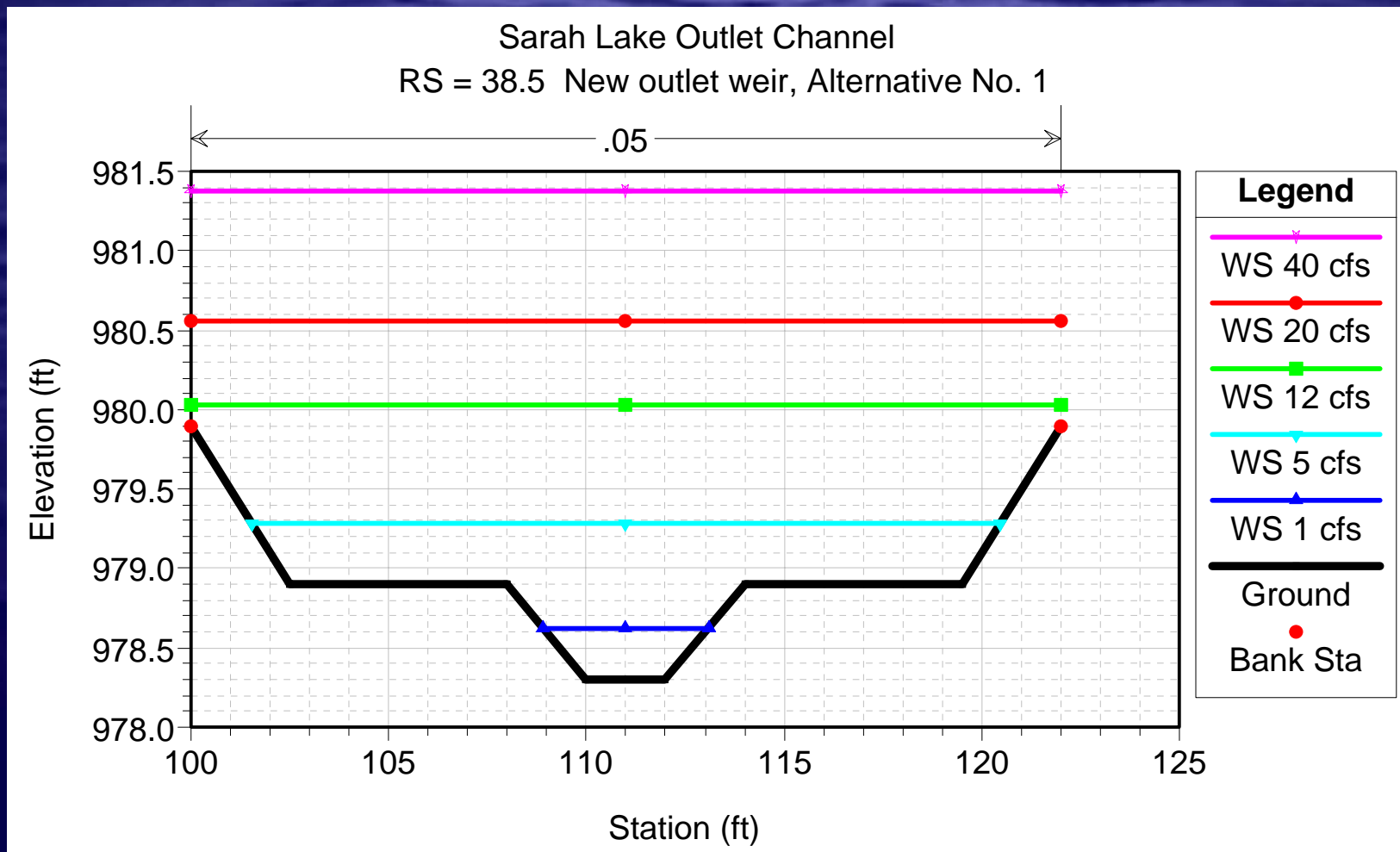
Alternatives Table

100-yr; 10-day storm
peak lake level

	<u>Runout</u>	<u>upper weir</u>	<u>above Alt. No.1</u>
Alternative 1:	2 ft @ 978.3	978.9	0.0
Alternative 2:	2 ft @ 978.8	979.3	0.23 ft
Alternative 3:	2 ft @ 978.55	979.05	0.10 ft
Alternative 4:	6 ft @ 978.8	979.2	<i>0.10 ft</i>
Alternative 5:	4 ft @ 978.7	979.1	0.12 ft

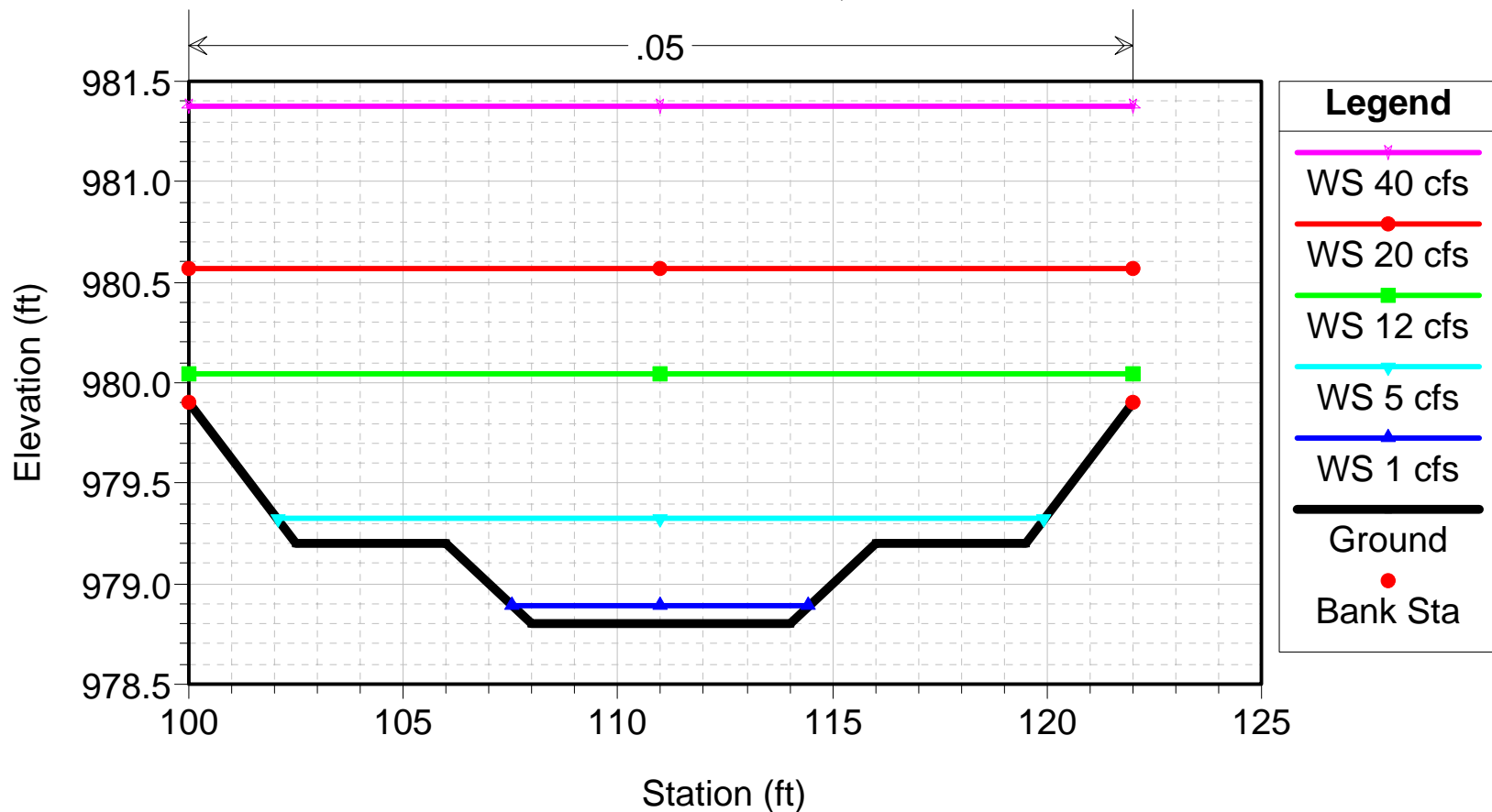


Cable Crete Alternative 1



Alternative 4

Sarah Lake Outlet Channel
RS = 38.5 New outlet weir, Alternative No. 4



Higher Outlet = Lost Storage

27-365W – Extra Storage



Lake Sarah



The Outlet - Sept. 2003



Co. Rd. 92

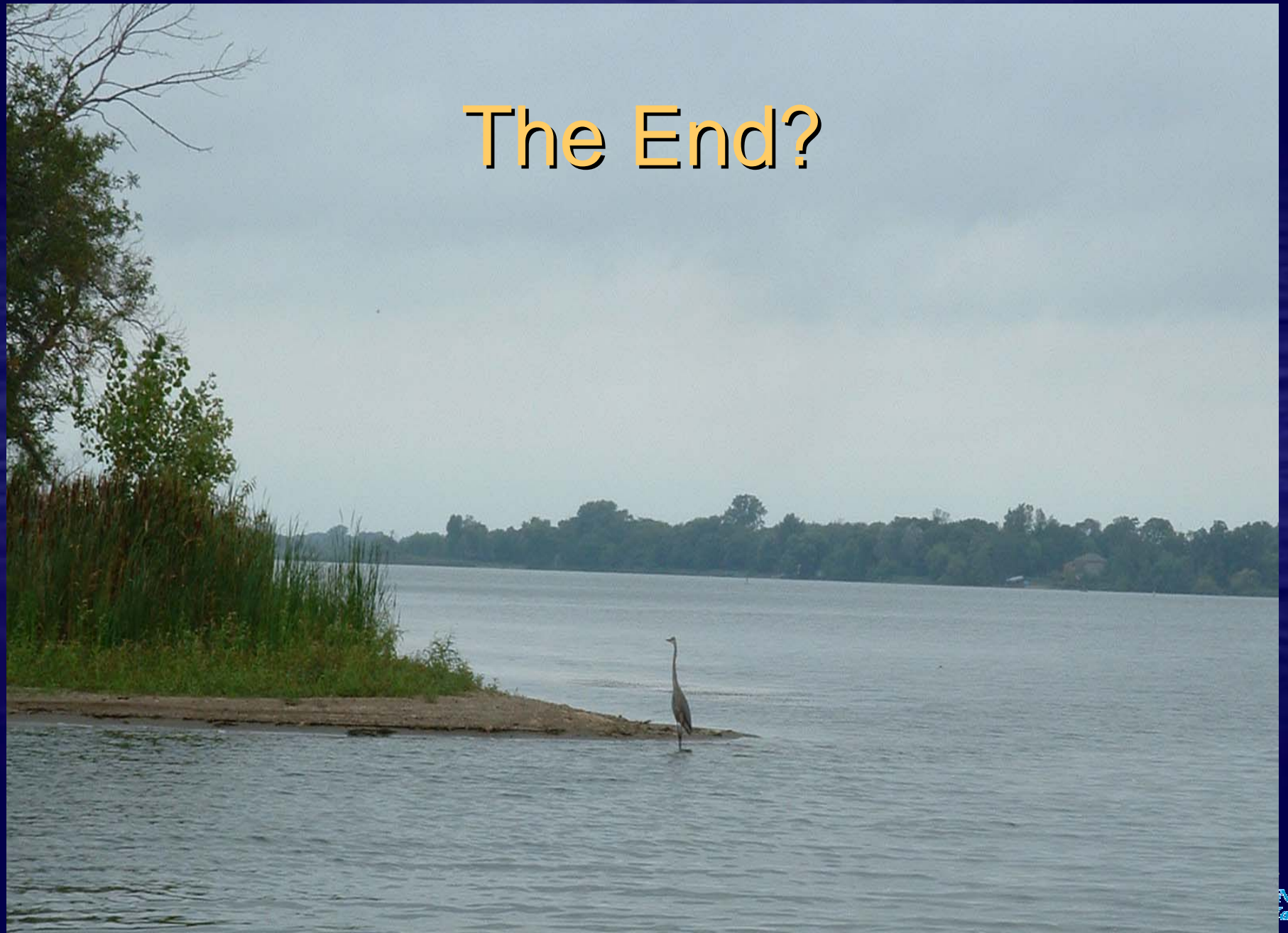


Channel in
27-365W

U.S. end 60" RR Culvert

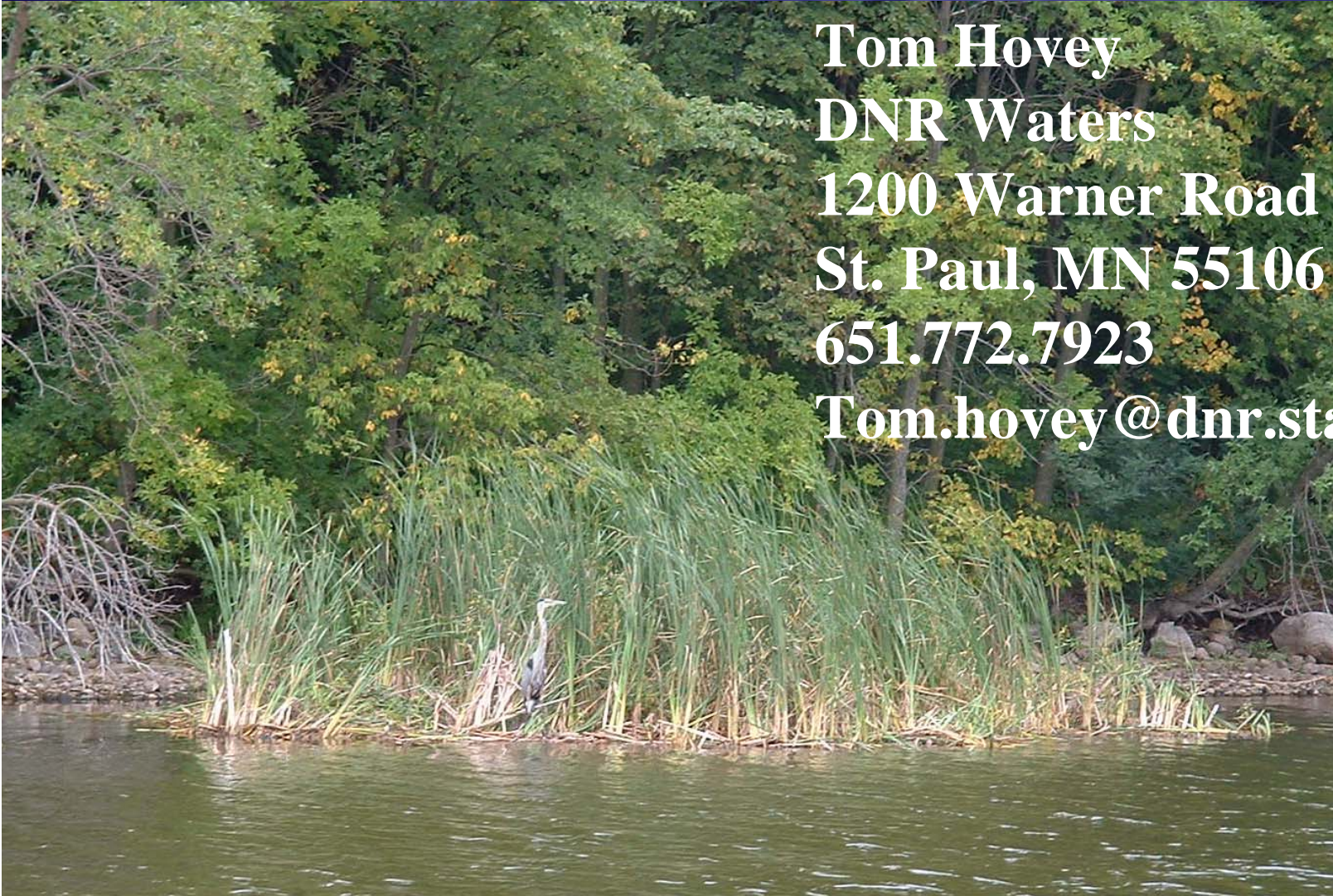


The End?



For More Info.

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Shady Beach Resort



Lake Sarah Recreation



J. H. ESCHMAN SUMMER RESORT, NORTH SHORE, LAKE SARAH, MINNESOTA

114897

