TYPICAL PROJECT PHASES

1. Preliminary Phase (3-6 Months)

2. Design Phase (6-12 Months)

3. Construction Phase
PRELIMINARY PHASE

♦ Gather field data (survey)
♦ Define the problem
♦ Develop alternative solutions
♦ Public input meetings
♦ Prepare preliminary engineering report
  - Recommendation
♦ Owner selects preferred alternative
♦ Owner decides whether to proceed with project
DESIGN PHASE

♦ Define design parameters
♦ Environmental clearance
♦ Prepare preliminary plans & specifications
♦ Public meetings/hearings
♦ Right-of-way acquisition
♦ Conduct plan and field review
♦ Finalize plans & specifications
♦ Advertise for bidders (Solicit Contractors)
♦ Conduct Bid Opening
CONSTRUCTION PHASE

♦ Prepare tabulation of bids
♦ Send Notice of Award
♦ Send Notice to Proceed
♦ Prepare construction contracts
♦ Conduct pre-construction conference
♦ Observe & document construction progress
♦ Prepare pay estimates for contractor
♦ Finalize construction records
♦ Final payment & close out of project
SUMMARY OF BLUEMONT LAKES PROJECT

PURPOSE AND SCOPE

The purpose of this study was to evaluate strategies for repairing damage to the shorelines surrounding the lakes at Bluemont Lakes.

The scope of work for phase 1 included:

1. Obtain survey data to develop contours for all three lakes.
2. Generate Contour Maps for all three lakes.
3. Prepare a written report outlining repair recommendations.
5. Furnish copies of report to the Bluemont Lakes Association.
EXISTING CONDITIONS

Two distinct types of shoreline failure appear to be occurring around the lakes at Bluemont Lakes:

1. Bank Erosion

2. Slumping and Sliding

- Erosion is a surface type of failure
- Siding and slumping are signs of failures beneath the surface.
- Due to presence of slumping and sliding, a more in-depth study was needed.
Fremont Lake:

* Constructed in 1981
* Oldest, deepest lake
* Volume => 15.6 million gallons
* Surface area => 5.9 acres
* At deepest point => 20-22 feet deep
* Showing the most signs of distress
* Bank erosion evident around most of the lake
* Settlement in several areas along the shoreline
* Riprap added in mid 1980’s
* No substantial work performed since that time
Sibley Lake:

* Constructed in 1986
* Smallest Lake
* Volume => 9.6 million gallons
* Surface area => 5.7 acres
* At deepest point => 20-22 feet deep
* Bank erosion evident around most of the lake
* Heaviest erosion and most severe settlement in the southeast portion
* Prevailing winds from N.W. accelerating effects of bank erosion and settlement
* Riprap was placed in 1986 before being filled
* Landowners installed further protection => more riprap and placing fabric
Terry Lake:

* Constructed in 1986
* Largest by area
* Volume => 15.6 million gallons
* Surface Area => 9.9 acres
* At deepest point => 17-19 feet
* Fewest signs of distress
* Bay in the N.E. corner showing most substantial signs of erosion and settlement
* Riprap placed in 1986 before being filled
* Several landowners installed further erosion protection
ALTERNATES TO BE CONSIDERED

1. Repair all lakes the same
2. Address each lake individually

Possible Repair strategies

A. Sheet Piling (Various Types)
B. Timber Wall
C. Concrete Retaining Wall
D. Landscape Block Retaining Wall
E. Slope Flattening & Riprap
DESIGN CONSIDERATIONS

♦ Soil Conditions fit the type of repair proposed
♦ Surface drainage
♦ Water level fluctuations
♦ Depth of lake
♦ Slope of bank
♦ Distance from shoreline to houses
♦ Disruption to properties
♦ Access for construction equipment