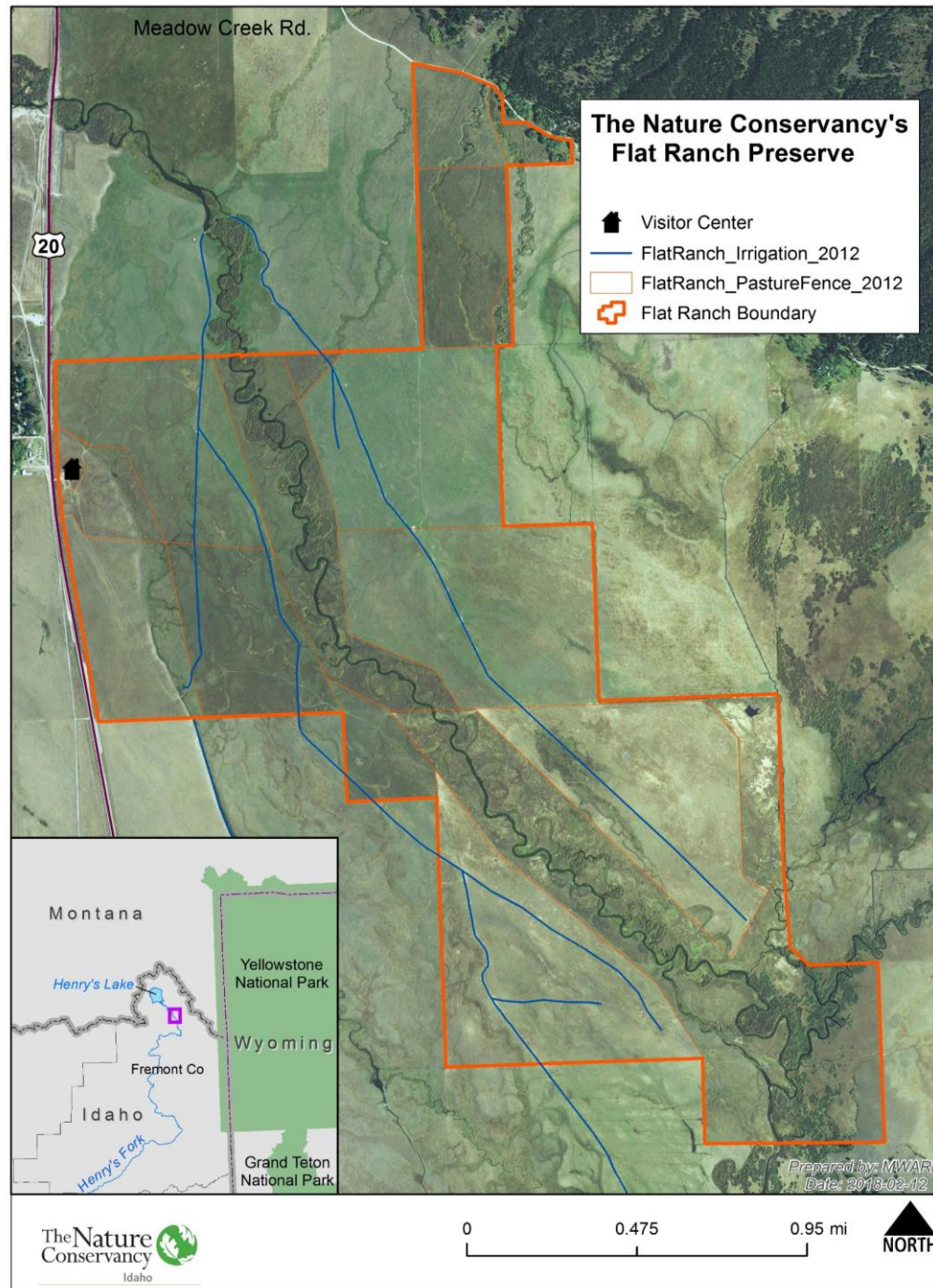


Flat Ranch Preserve Wetland Enhancement Project





Flat Ranch Preserve

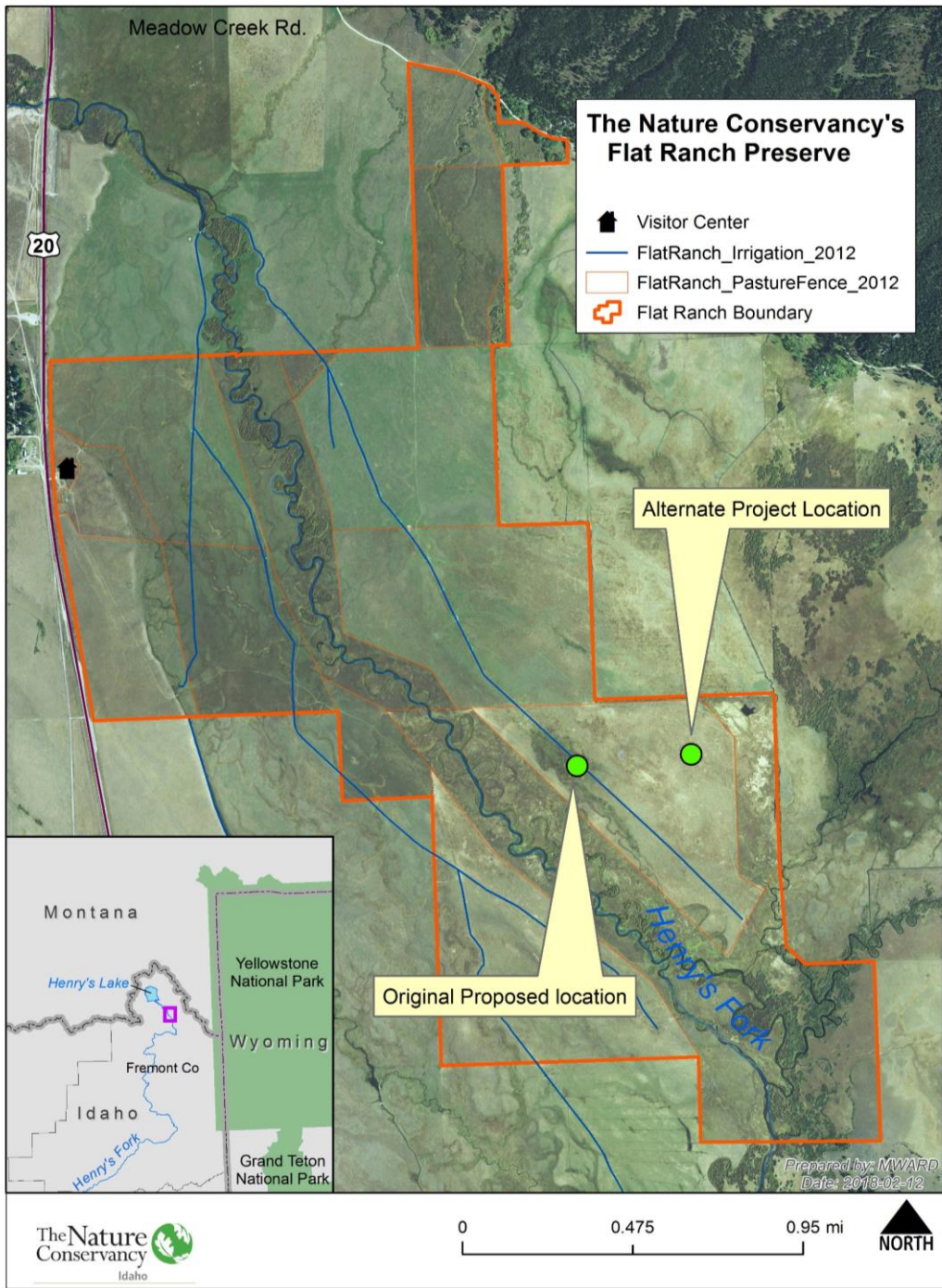
- Livestock Production
- Wildlife and Fisheries Habitat
- Public Access and Recreation
- Hunting
- Fishing



Project Sponsors

- Idaho Department of Fish and Game
- Intermountain West Joint Venture
- US Fish and Wildlife Service
- Bureau of Land Management
- The Trumpeter Swan Society
- Northern Rockies Conservation Cooperative





Project Benefits

- Restore a historic nest site for trumpeter swans.
- Improve breeding and foraging habitat for a wide variety of water birds, shore birds.
- Provide Improved recreational opportunities, through enhanced waterfowl hunting and bird watching opportunities.
- Improve stock water options for cattle operation, especially during late season.

Why Swans?

- Regional and State Conservation Priority
- Listed in Idaho as a Species of Greatest Conservation Need
- Low breeding pair success in the state



Why swans cont.

- Idaho is the only state that has not met its breeding objectives.
- Breeding objectives in the upper Henrys Fork is 8 pairs.
- Two broods produced in Island Park in 2017 .
- Statewide only nine pairs produced broods in 2017.



Feasibility Study

- 2016 and 2017
Initial site 2016-2017
Alternative site 2017
- Topography
GPS survey
Lidar
- Soils
Pits (≈ 5 ft)
Permeability tests
- Hydrology
Shallow wells (≈ 5 ft)
Biweekly monitoring May-Oct.



Existing Land Use and Vegetation

- Flood-irrigated pasture
- Mosaic of sub-irrigated meadow and sedge wetlands



Design Constraints

- Flat Topography
- No natural depressions



Design constraints cont.

- Groundwater depth
and fluctuation
0.5-2 ft early and late
season
1.5-4 ft mid growing
season



Design constraints cont.

- Surface soil quality and thickness
Clay/silt-rich surface layer
<1 to >3 ft thick
Ponds water from rain, snowmelt and flood irrigation



Design constraints cont.

- Subsurface gravels
Coarse gravel with
some sand and silt
Highly permeable
Shallow alluvial aquifer



Design Concept

Broad Shallow Impoundment

3.5 ft maximum depth

Flood on grade

Water ponded on top of existing ground surface

Dike with water control structure

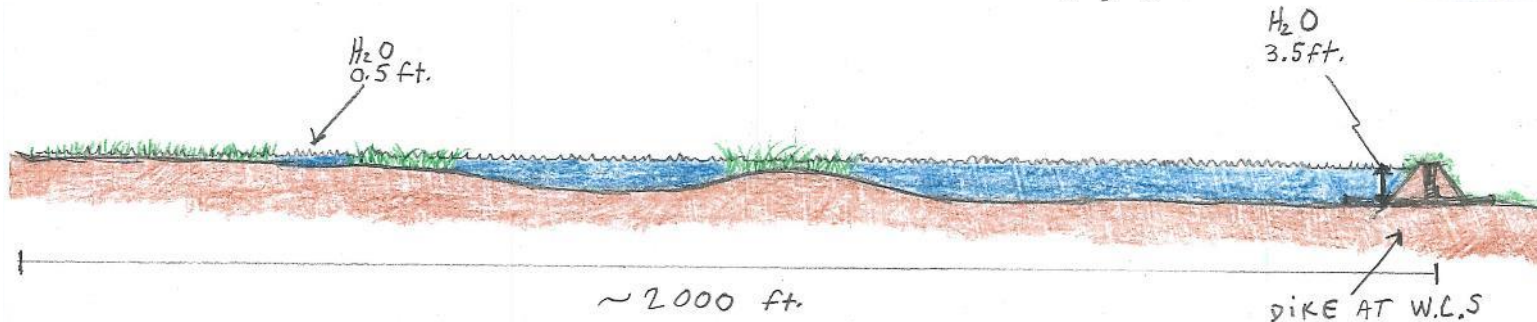
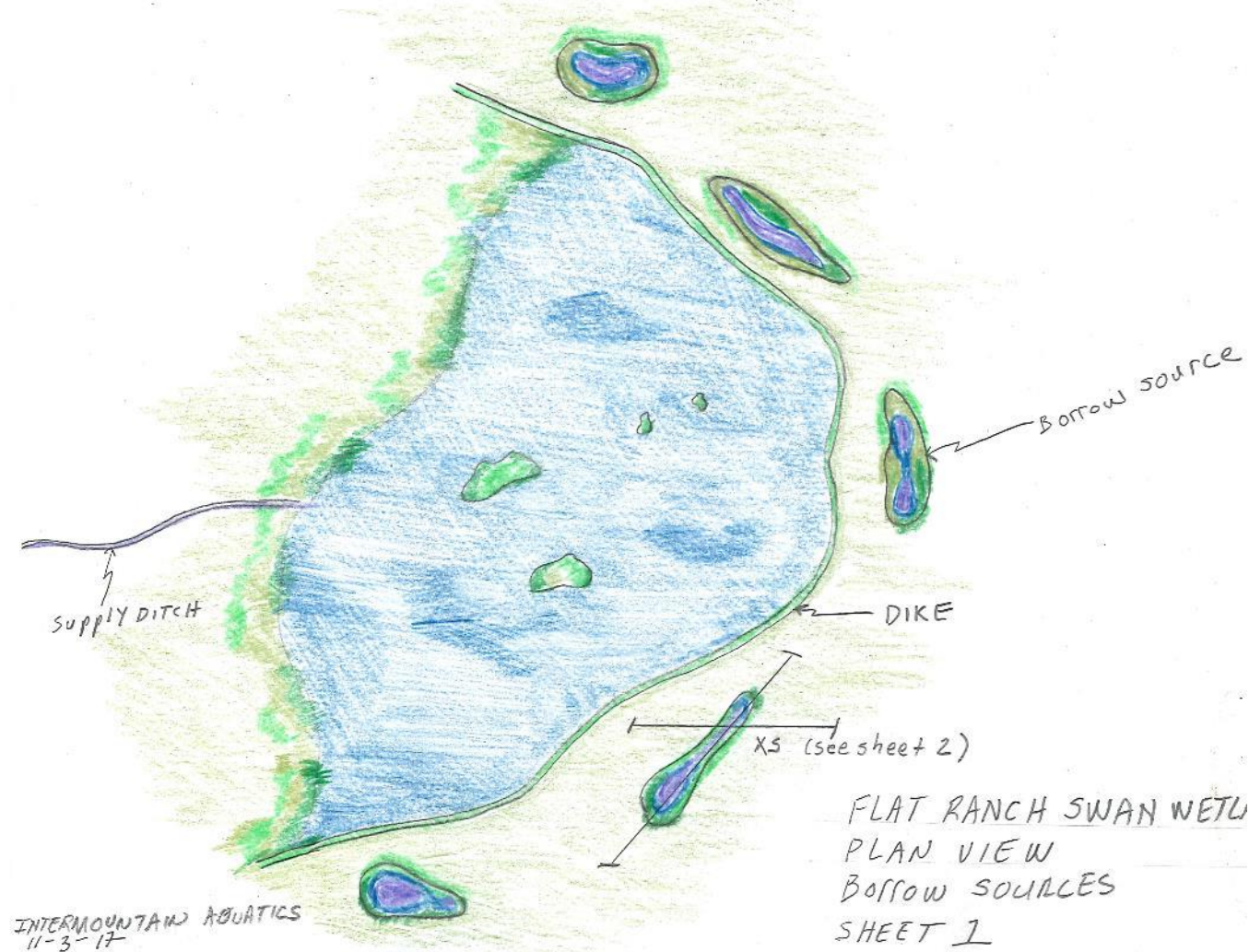
1-4 ft high

Like narrow road prism

Small borrow pits

Outside flooded footprint

Revegetate as habitat



TYPICAL X.S.
SCALE HORIZ 1" = 200 ft.
VERT 1" = 8 ft.

Wetland Water Budget Estimate

- 10-20 acres
- Flooded May-October
- Evaporation ≈ 1 ft (10-21 ac-ft)
- Seepage ≈ 1 ft (10-21 ac-ft)
- Total input ≈ 21 -42 ac-ft
- Equivalent to input of ≈ 0.07 -0.14 cfs
- Does not include ditch losses







