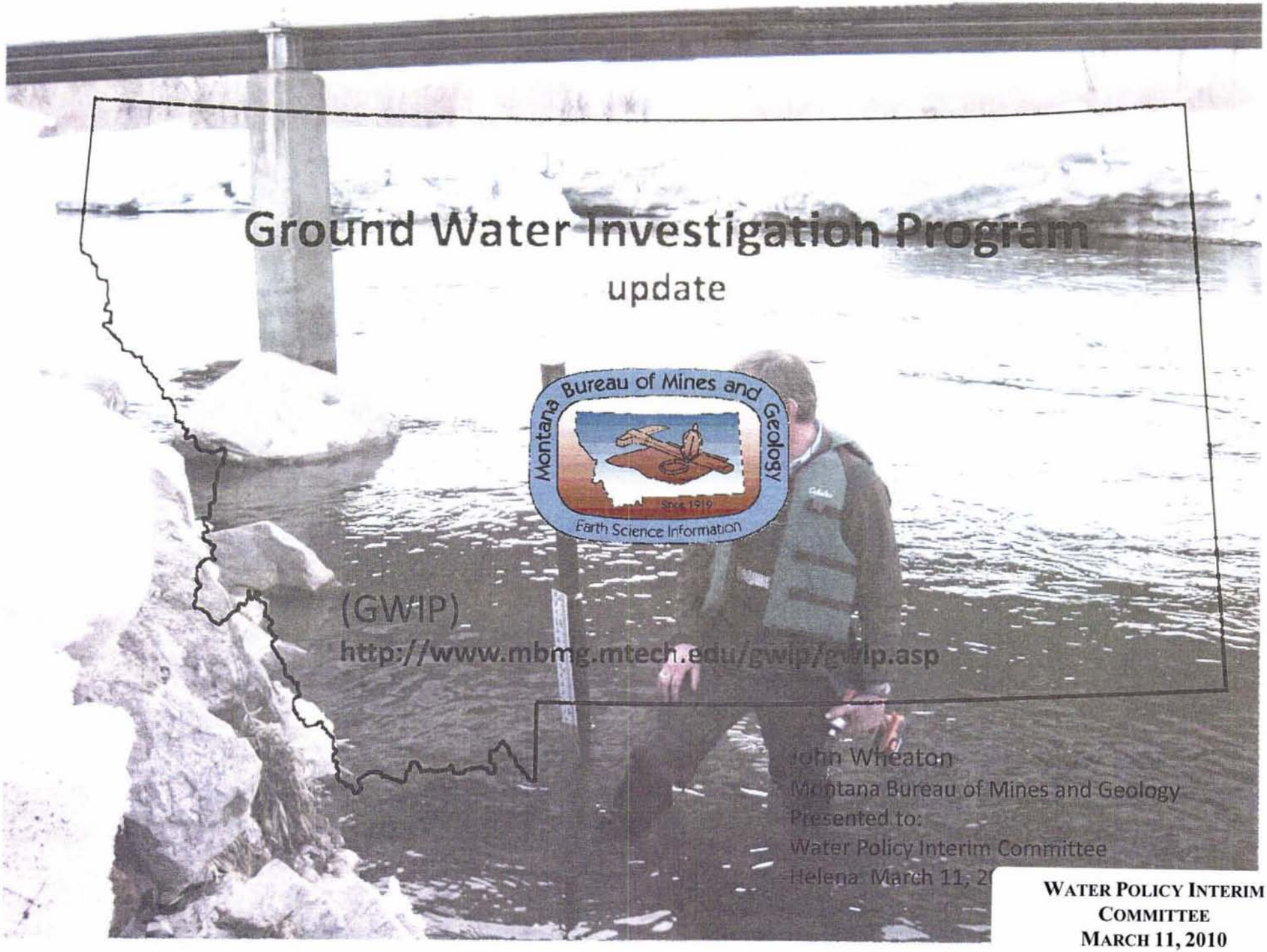
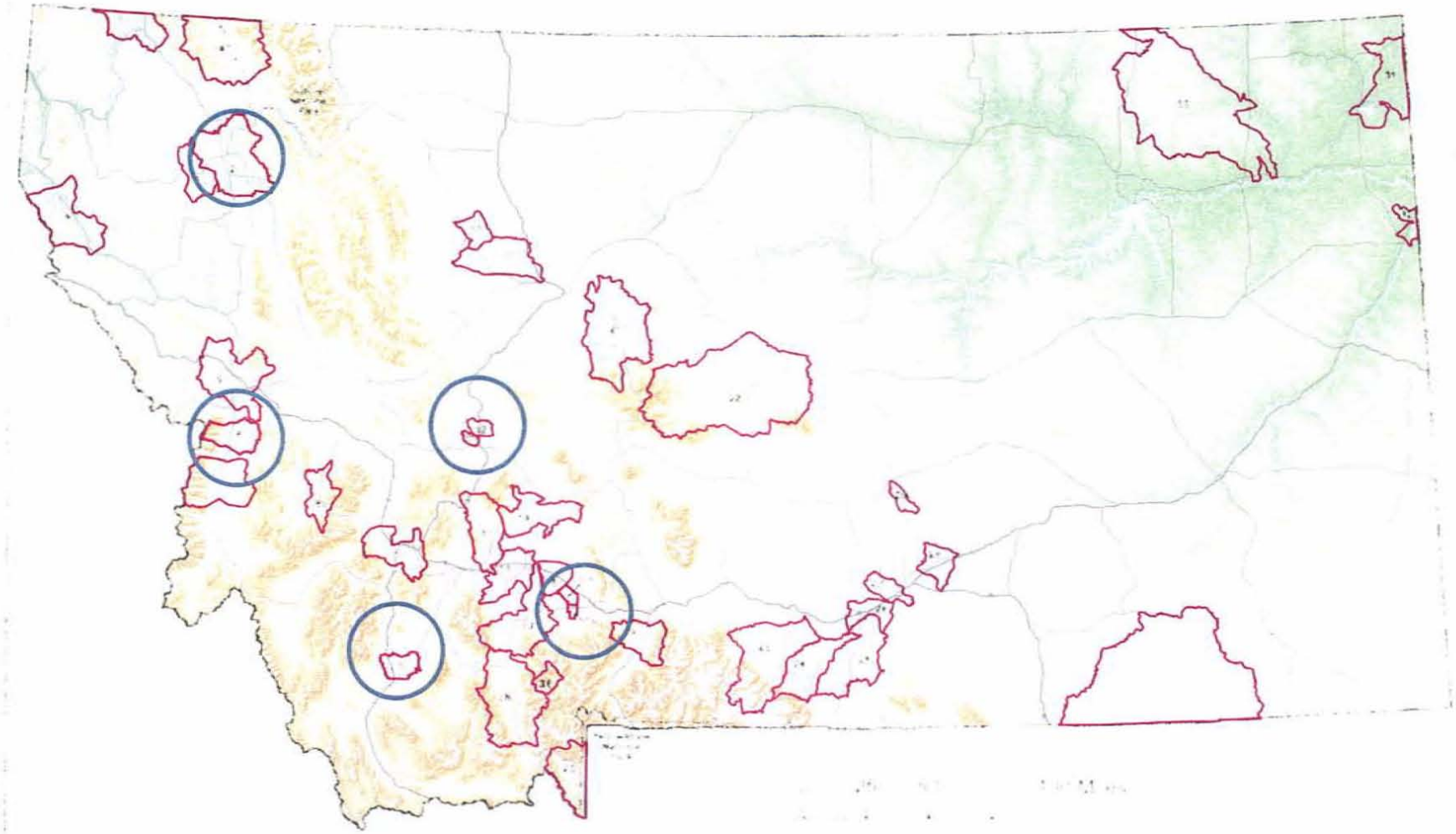


WATER POLICY INTERIM COMMITTEE
MARCH 11, 2010
EXHIBIT 9

Groundwater Investigation Program Project Sites

Red = Nominated Blue = Active



2 Flathead Valley 6 Florence 12 North Hills 13 Scratchgravel Hills

17 Belgrade 18 Four Corners 35 Beaverhead – west

Projects for the next biennium

30 left over from current biennium

We have received inquires for additional nominations

Water storage is becoming a higher profile and more important issue. We expect some nominations for ASR.

We see no decrease in groundwater issues

Active Projects for the current biennium

North Hills (Helena)
Four Corners (Bozeman)
Belgrade - (Bozeman area)
Lower Beaverhead River west side (Dillon)
Scratchgravel Hills (Helena)
Bitterroot Valley – (Florence)
Flathead Valley Deep Aquifer (Kalispell)

Overview of Activities

This is a busy data collection time of year

Preparing for spring and summer field work

Consolidating existing data

Modeling is generally on hold right now

Activities:

Contracts

METRIC ET

Drilling: 6 contracts, about 30 holes completed

Aquifer Testing: 2 multiple day tests are completed

Assistance : 2 contracts for local assistance,
such as Water Quality District

Consulting : 2 contracts with consulting companies

Bids out

Drill : 2 bids are ready to open
2 more requisitions are nearly ready to submit

Aquifer Test : 2

Monitoring networks

Wells : 233

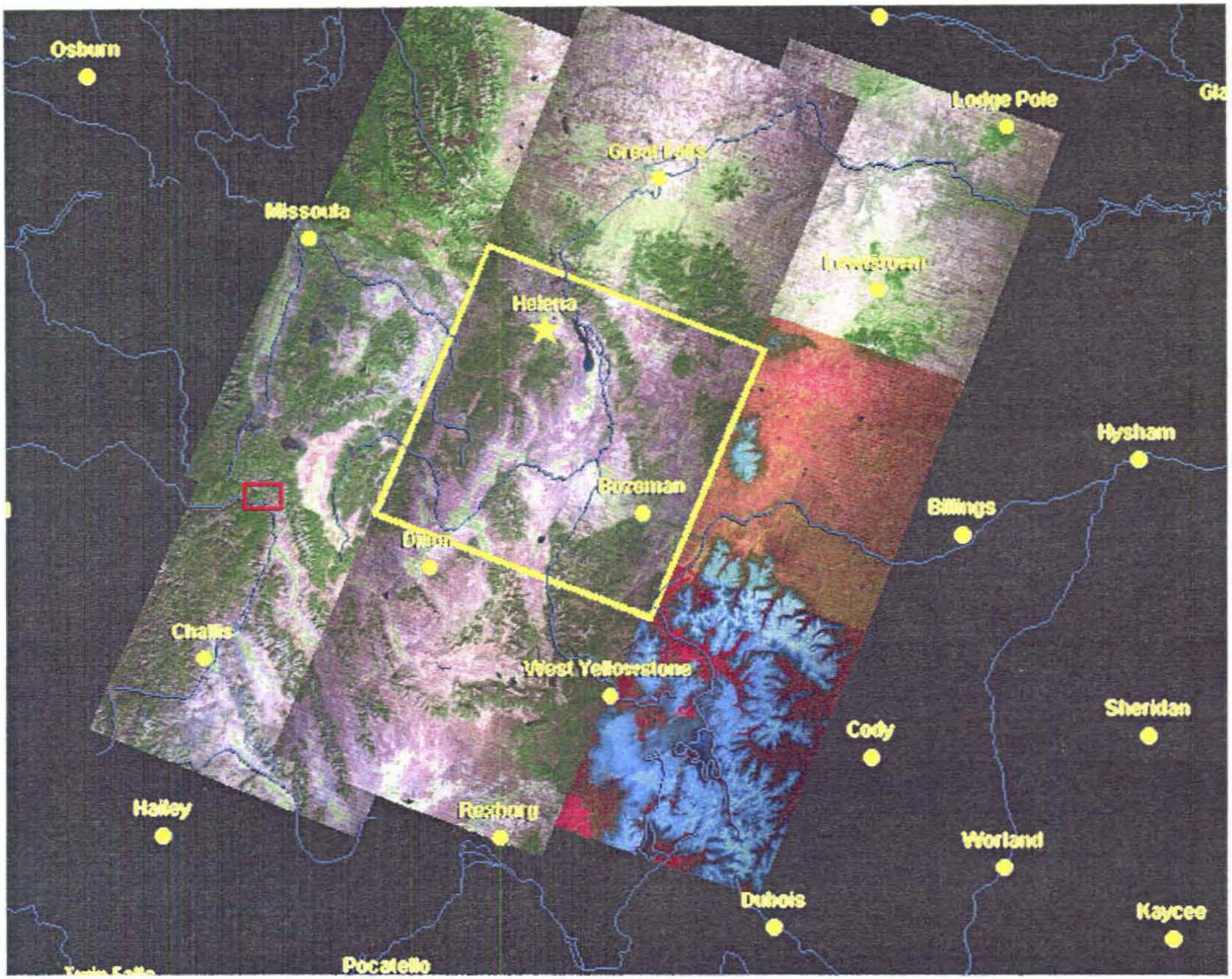
Stream sites : 36

Student hires:

7 currently working on the project

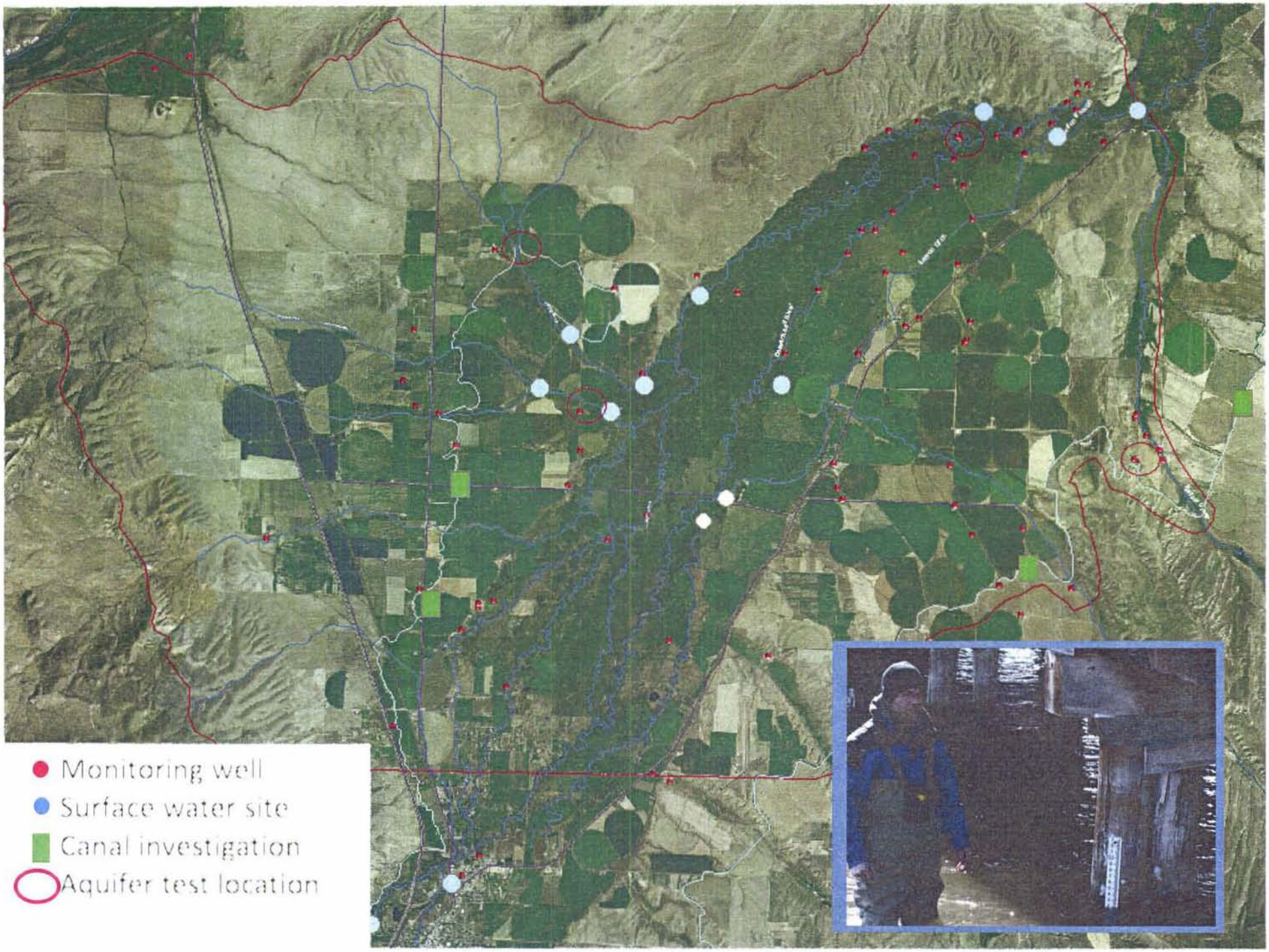
Provides very valuable experience to the student and good assistance to the project.

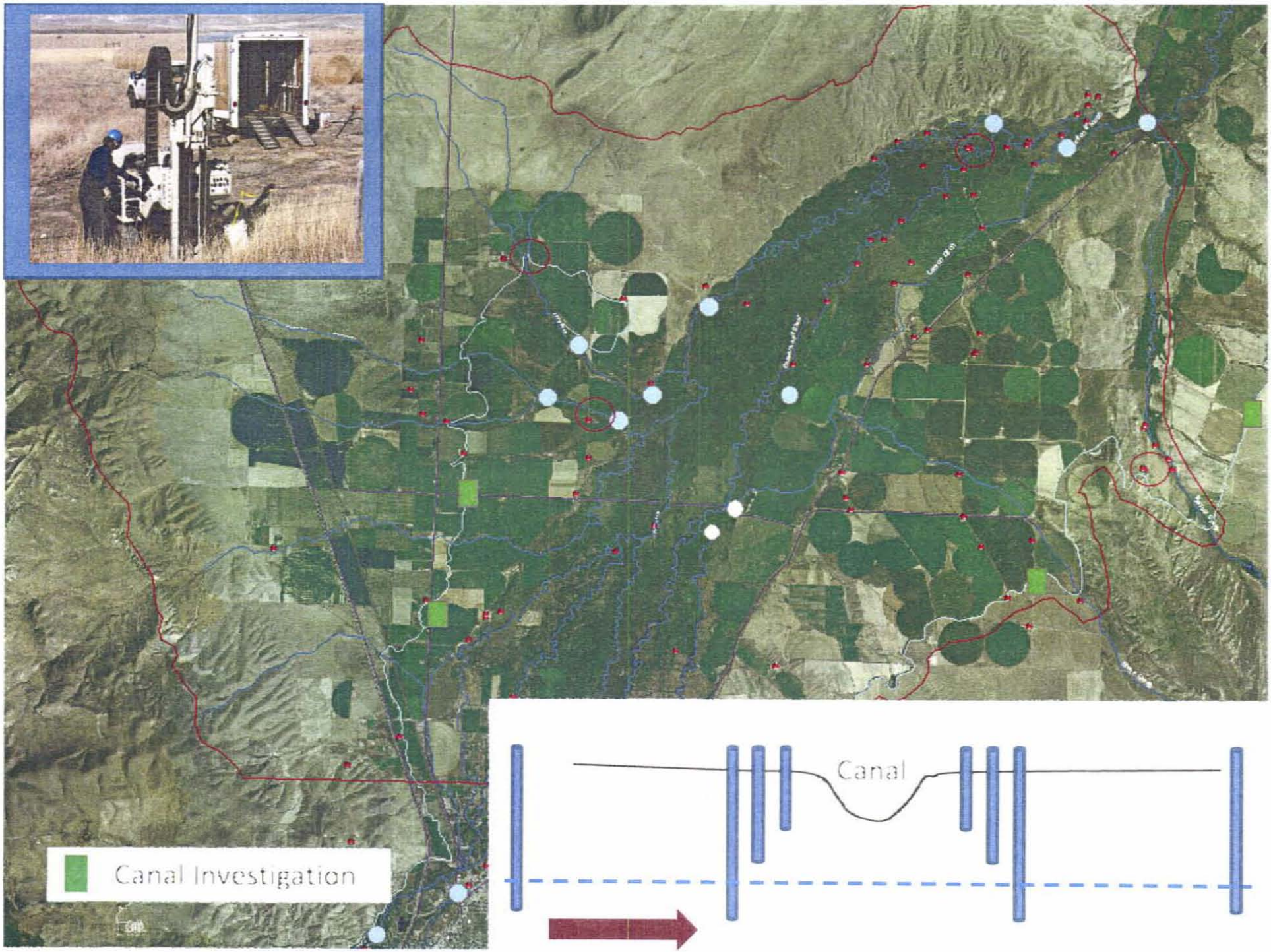
METRIC - Using Landsat images to calculate Et

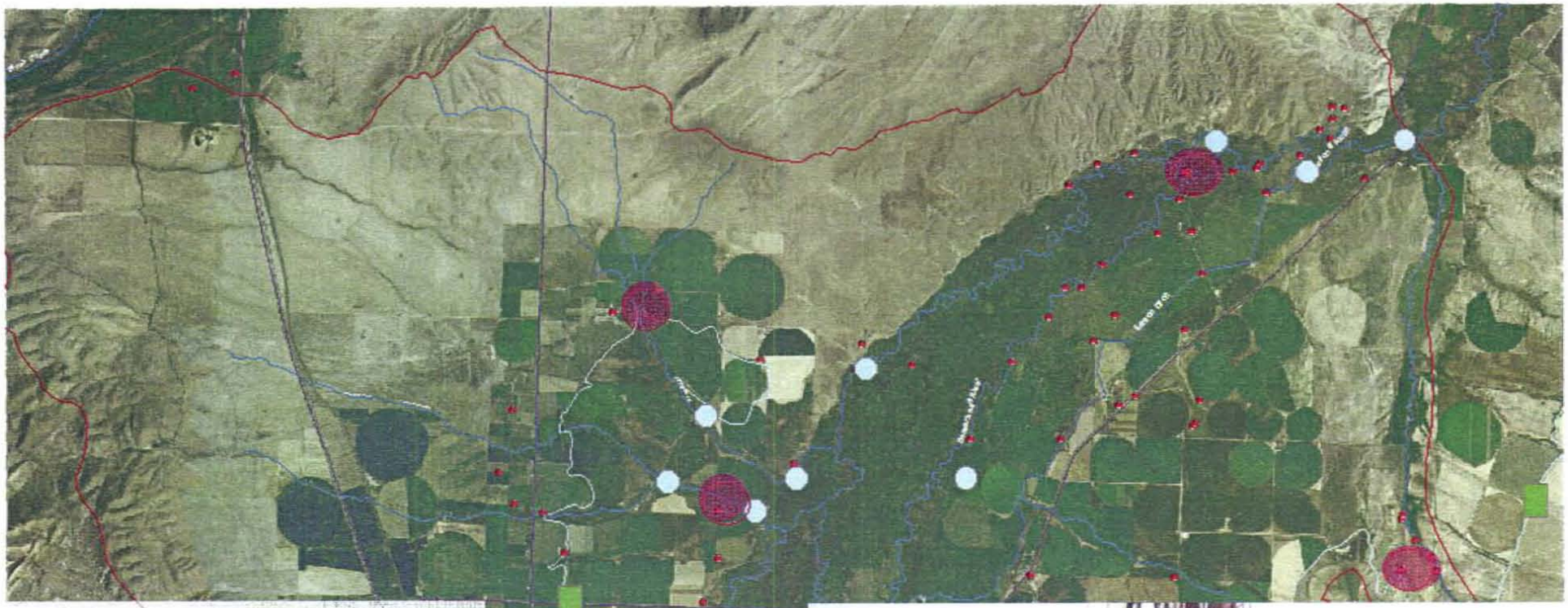


Beaverhead River Valley West

Ground-Water Investigation Program


Monitoring well
Surface water site
Canal investigation
Aquifer test location


Canal Investigation
Canal



Drilling

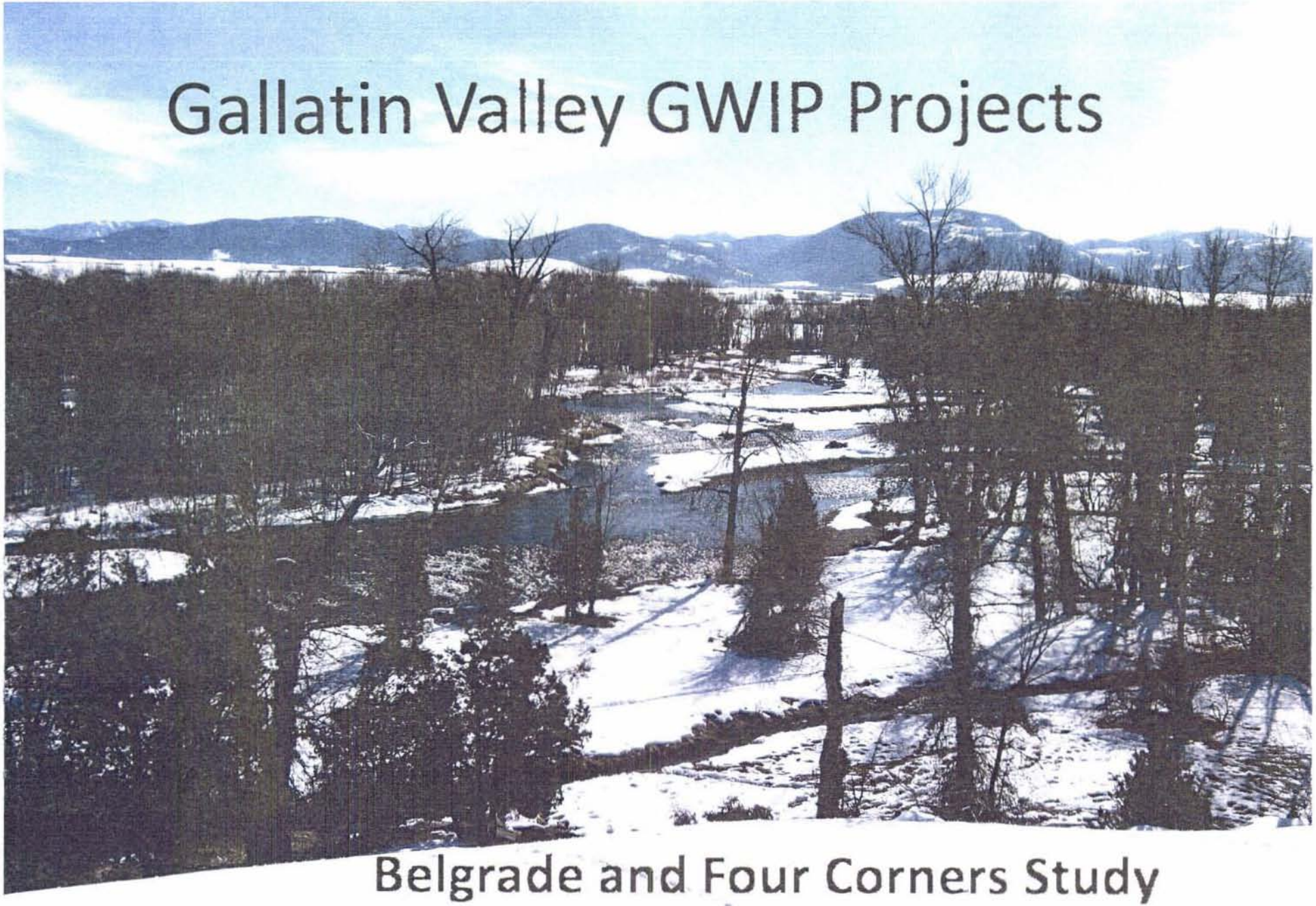
- Define stratigraphy
- Aquifer types
- Observation wells

Aquifer Testing

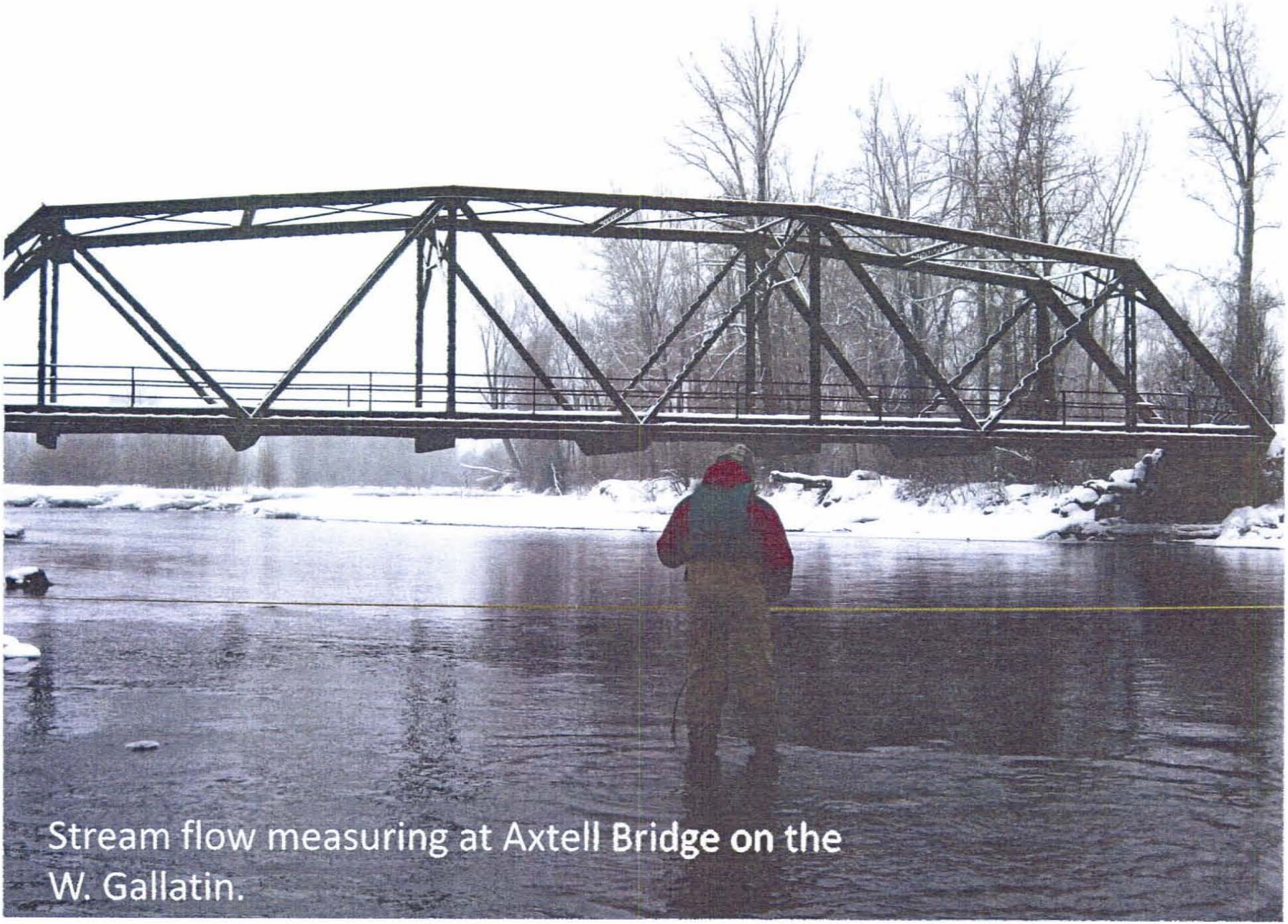
Aquifer Parameters

- Volcanic bedrock
- West side sediments

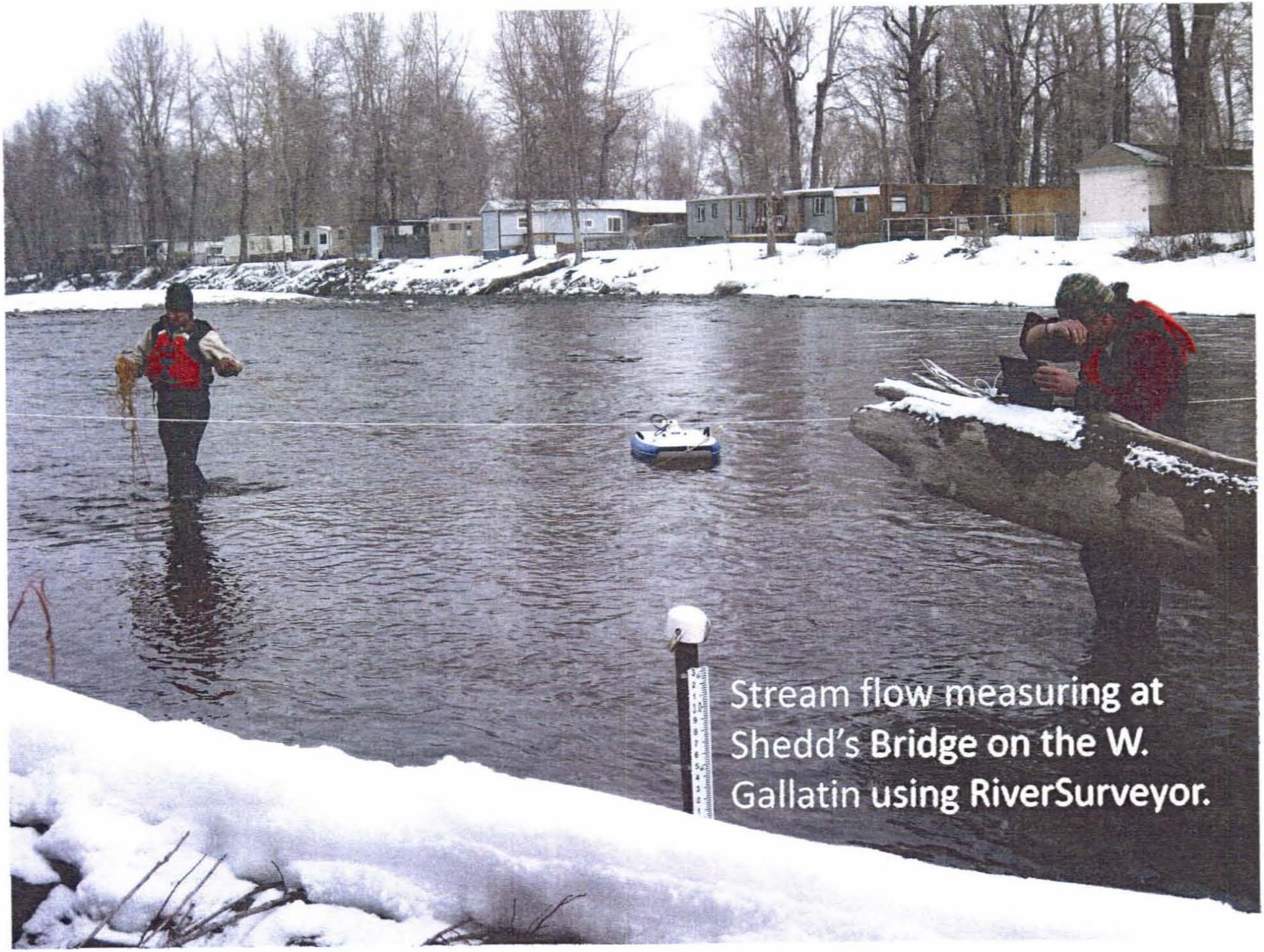
Gallatin Valley GWIP Projects



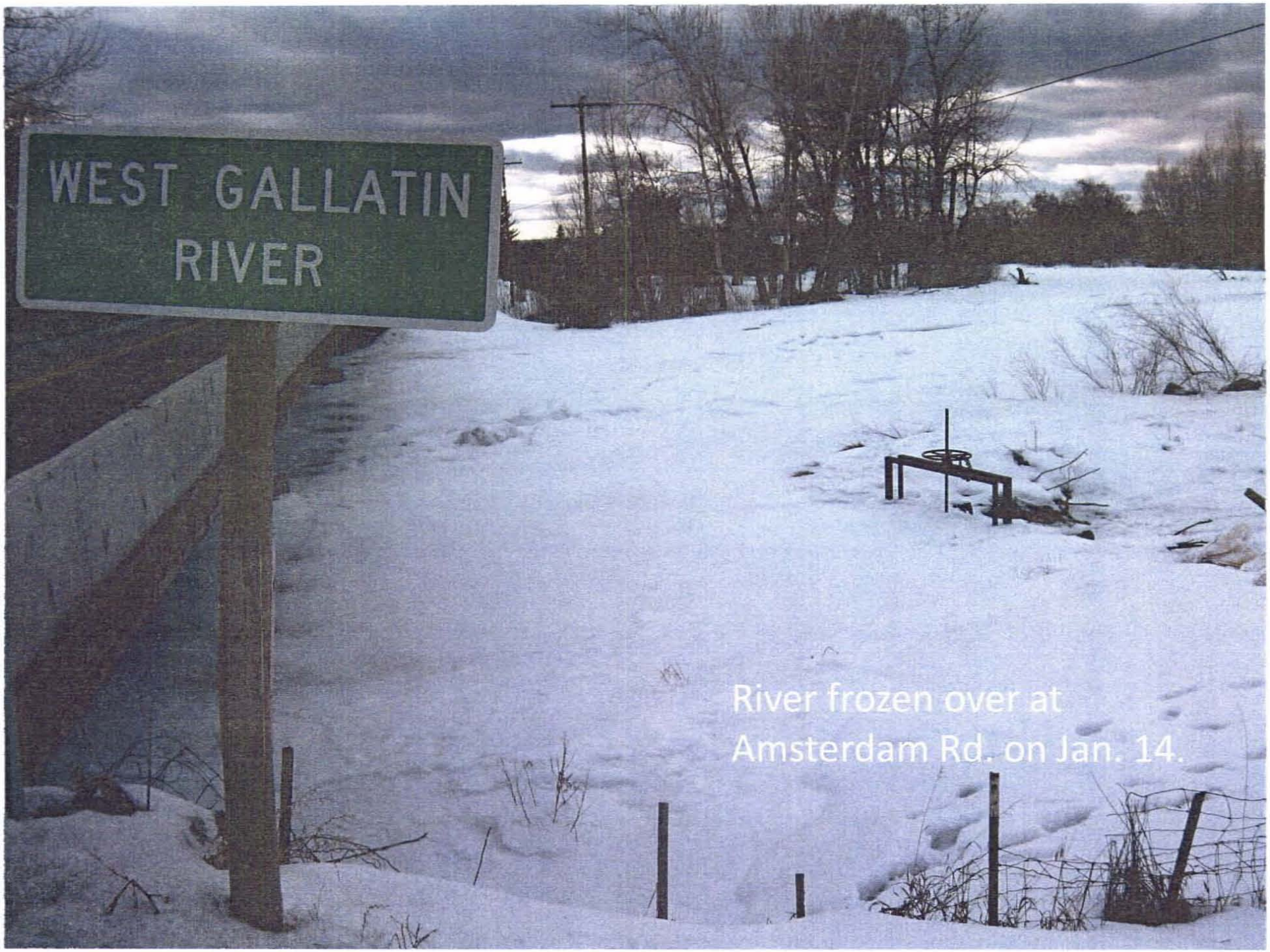
Belgrade and Four Corners Study Areas



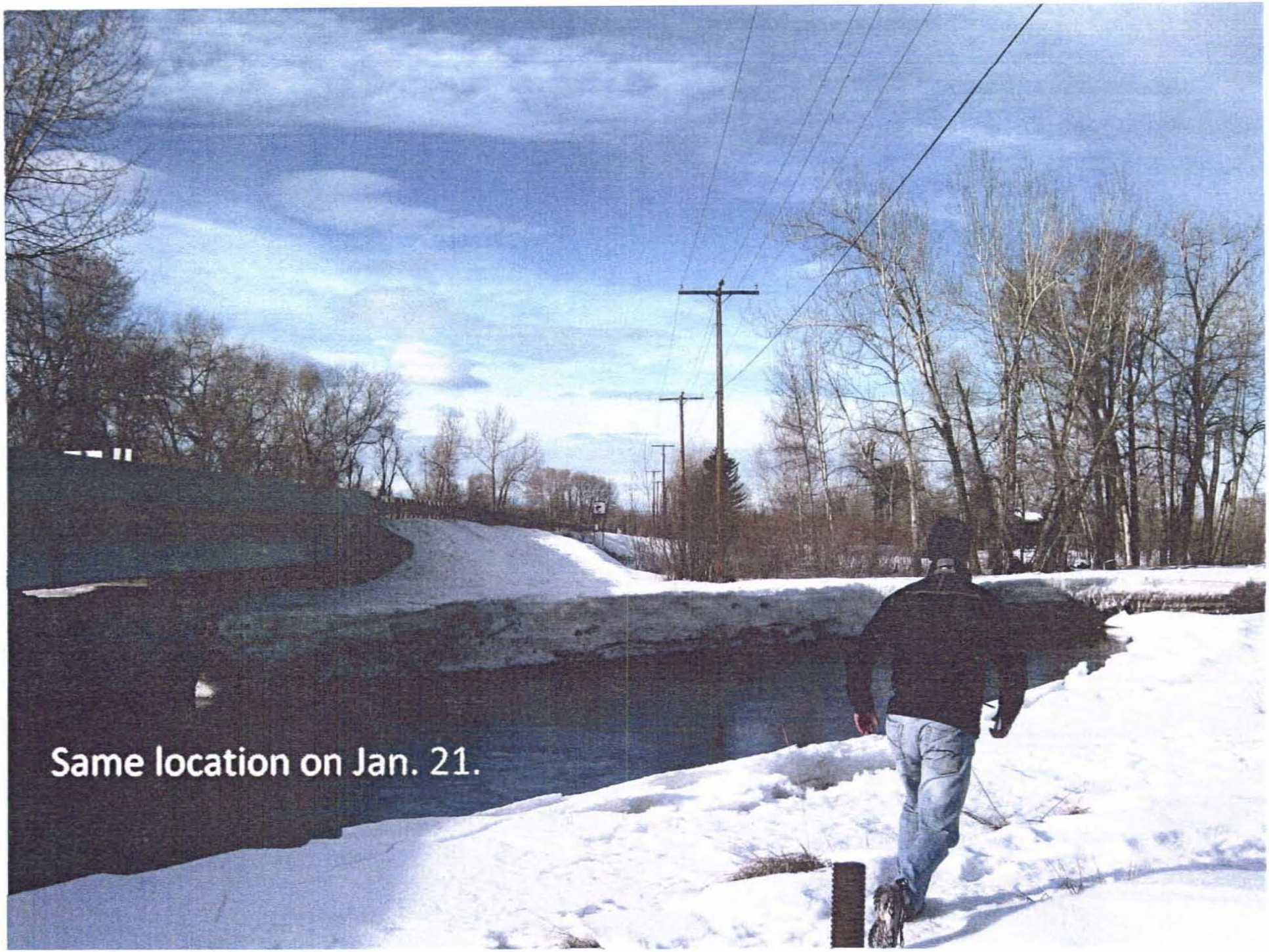
Stream flow measuring at Axtell Bridge on the W. Gallatin.

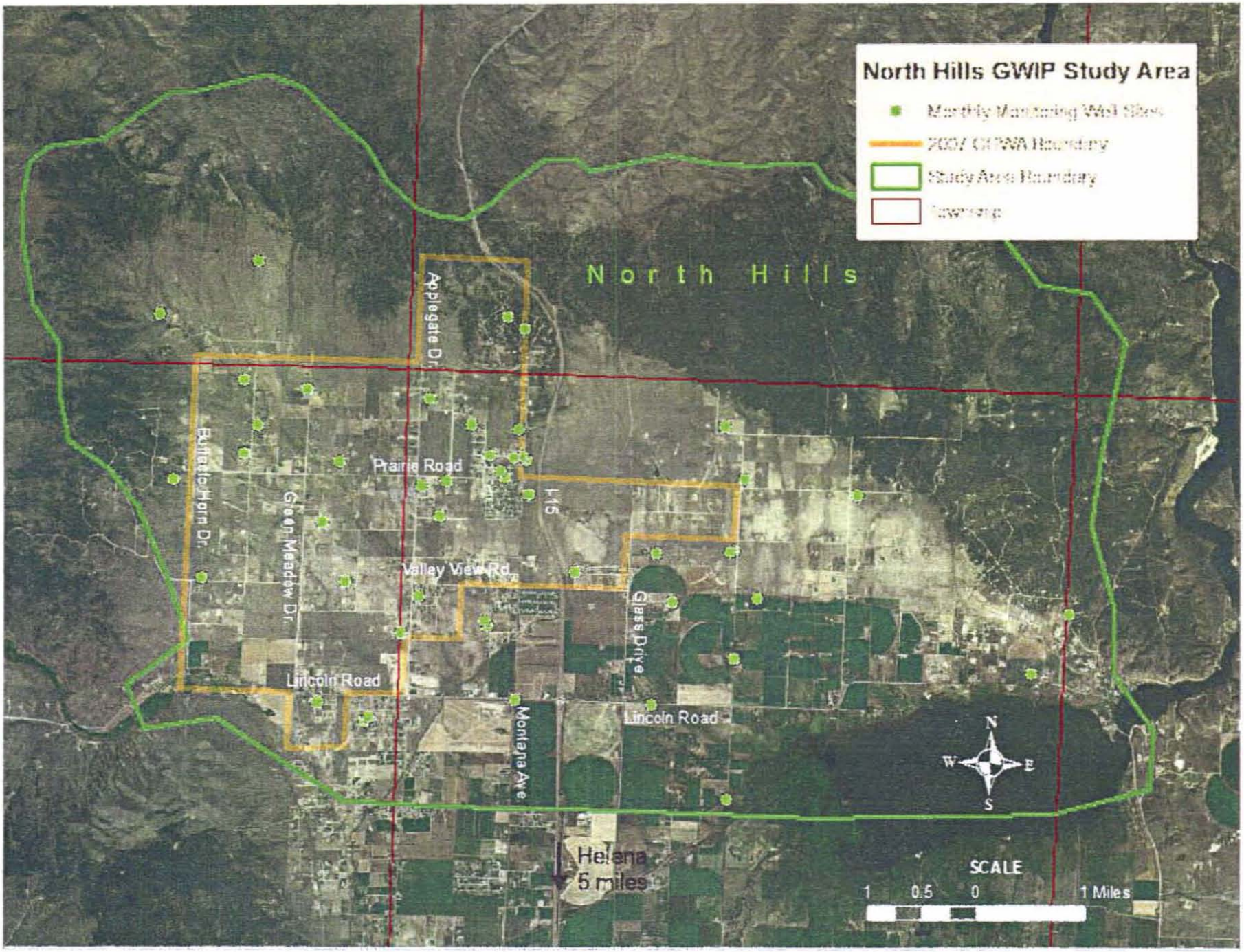


Stream flow measuring at Shedd's Bridge on the W. Gallatin using RiverSurveyor.



River frozen over at
Amsterdam Rd. on Jan. 14.


Same location on Jan. 21.


North Hills GWIP Study Area
Monthly Monitoring Well Sites
2007 CERCLA Boundary
Study Area Boundary
Township
North Hills
Applegate Dr.
Prairie Road
Buffalo Horn Dr.
Green Meadow Dr.
I-15
Valley View Rd.
Glass Drive
Lincoln Road
Lincoln Road
Montana Ave
Helena
5 miles
N
W
E
S
SCALE
1
0.5
0
1 Miles

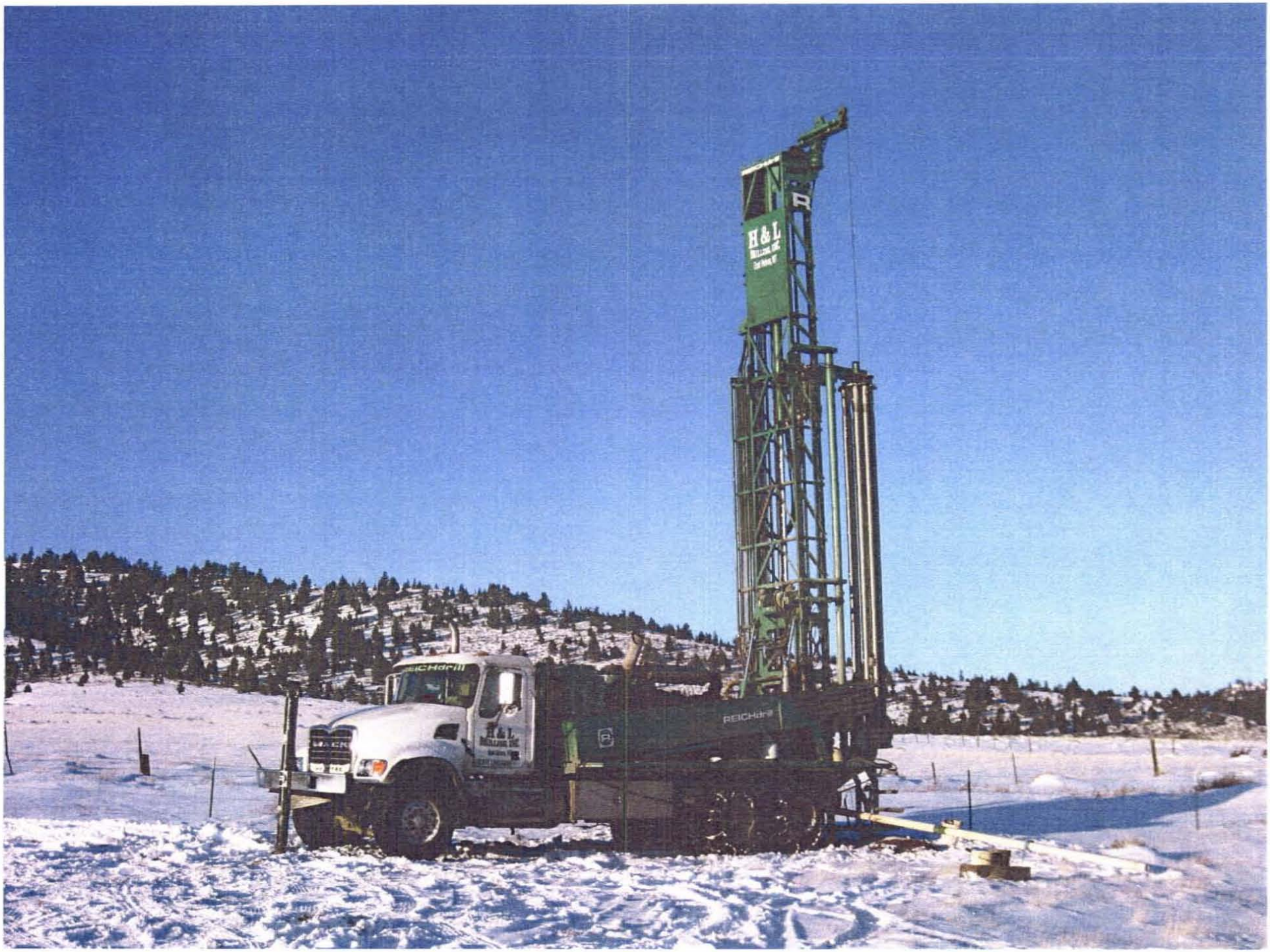
Helena are projects: North Hills and Scratchgravel Hills

Coordinating field work and data collection with local Water Quality District

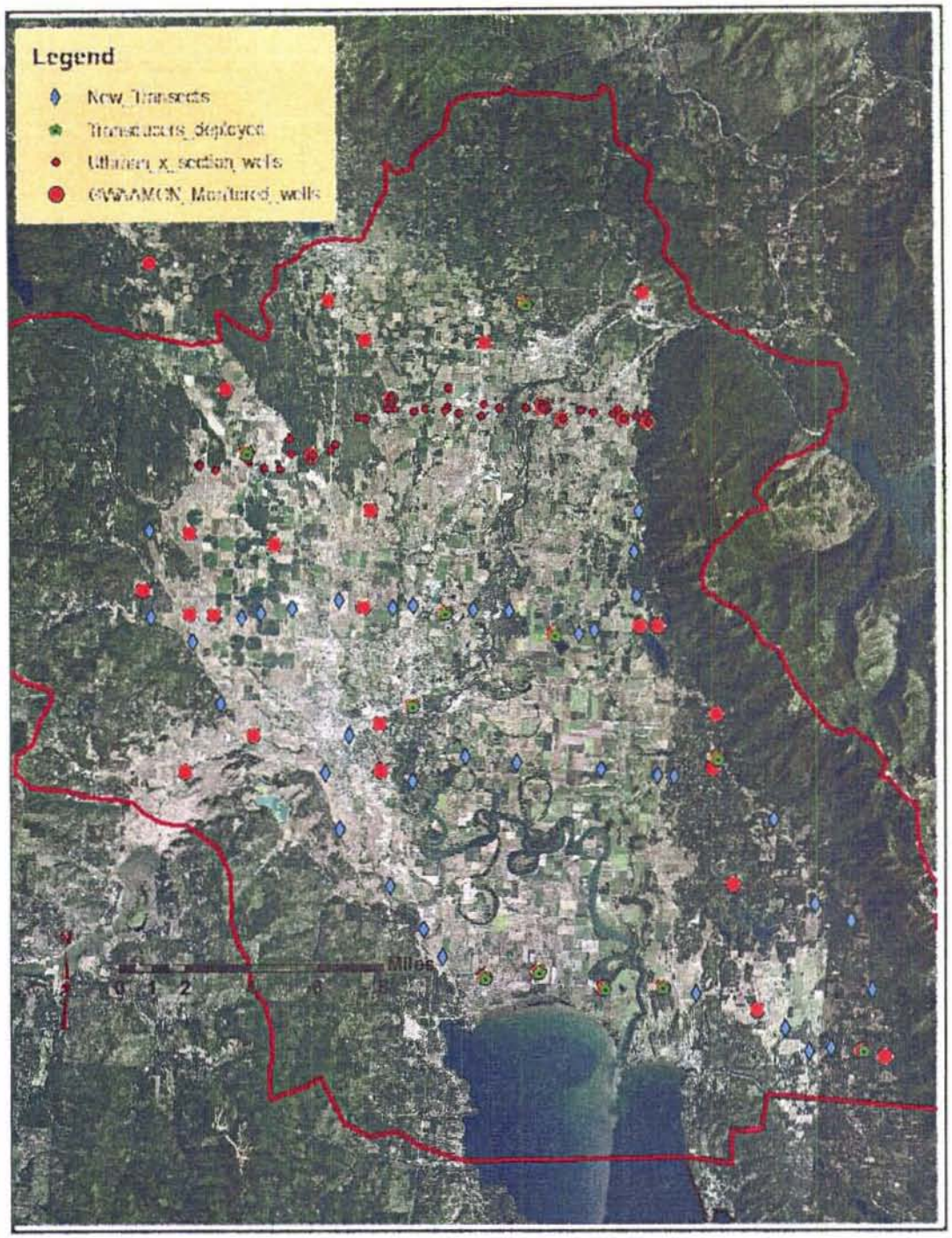
Entering well log data for over 200 wells in 3D graphics program to help understand geology and to pinpoint data gaps

Collected isotope samples during March

Contracted with two consultants to organize and prepare meteorological data and some private existing data


H&L
REICHdrill

EDGE



Flathead Valley Deep Aquifer
(Kalispell)

a Kalispell valley

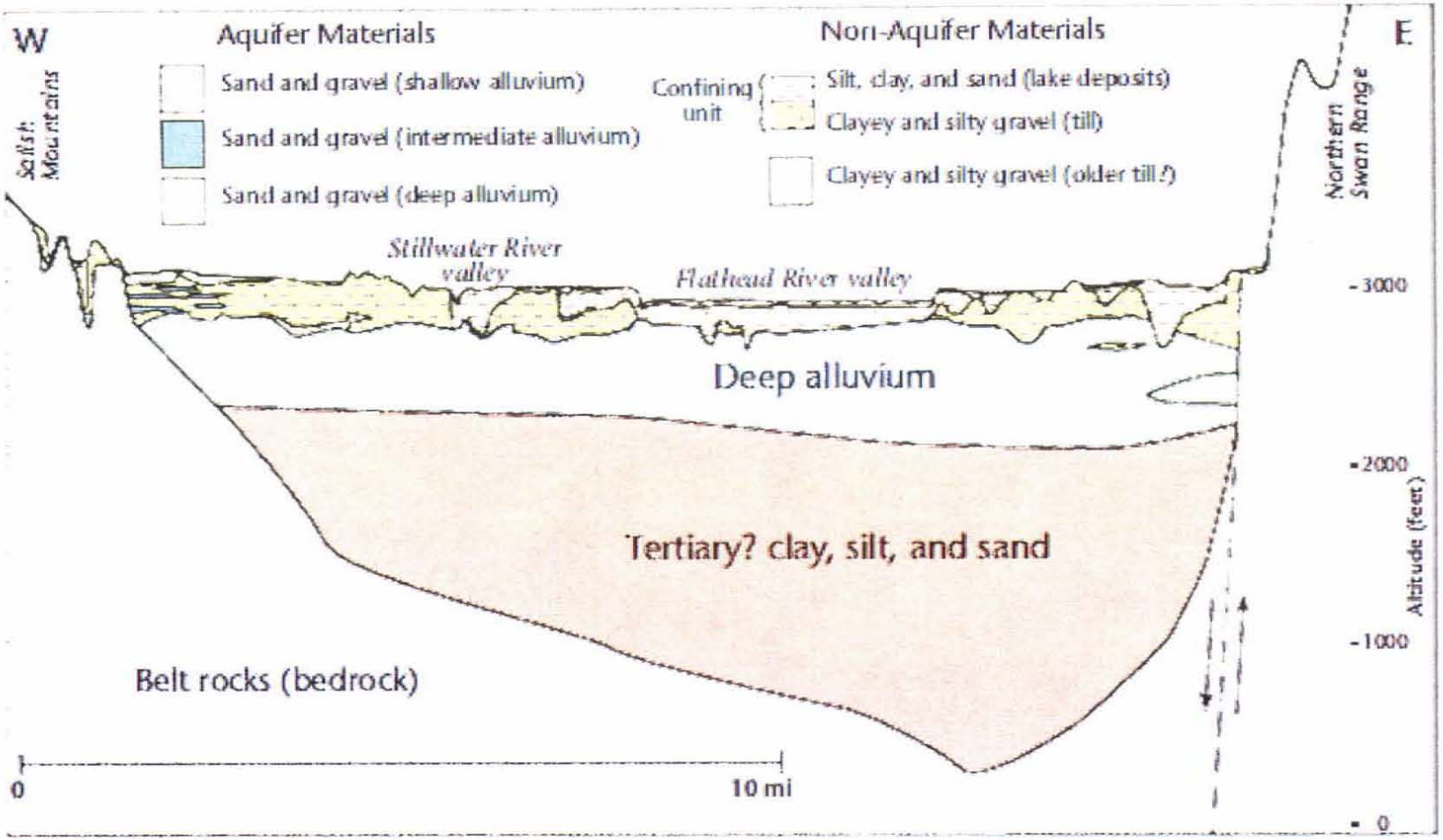
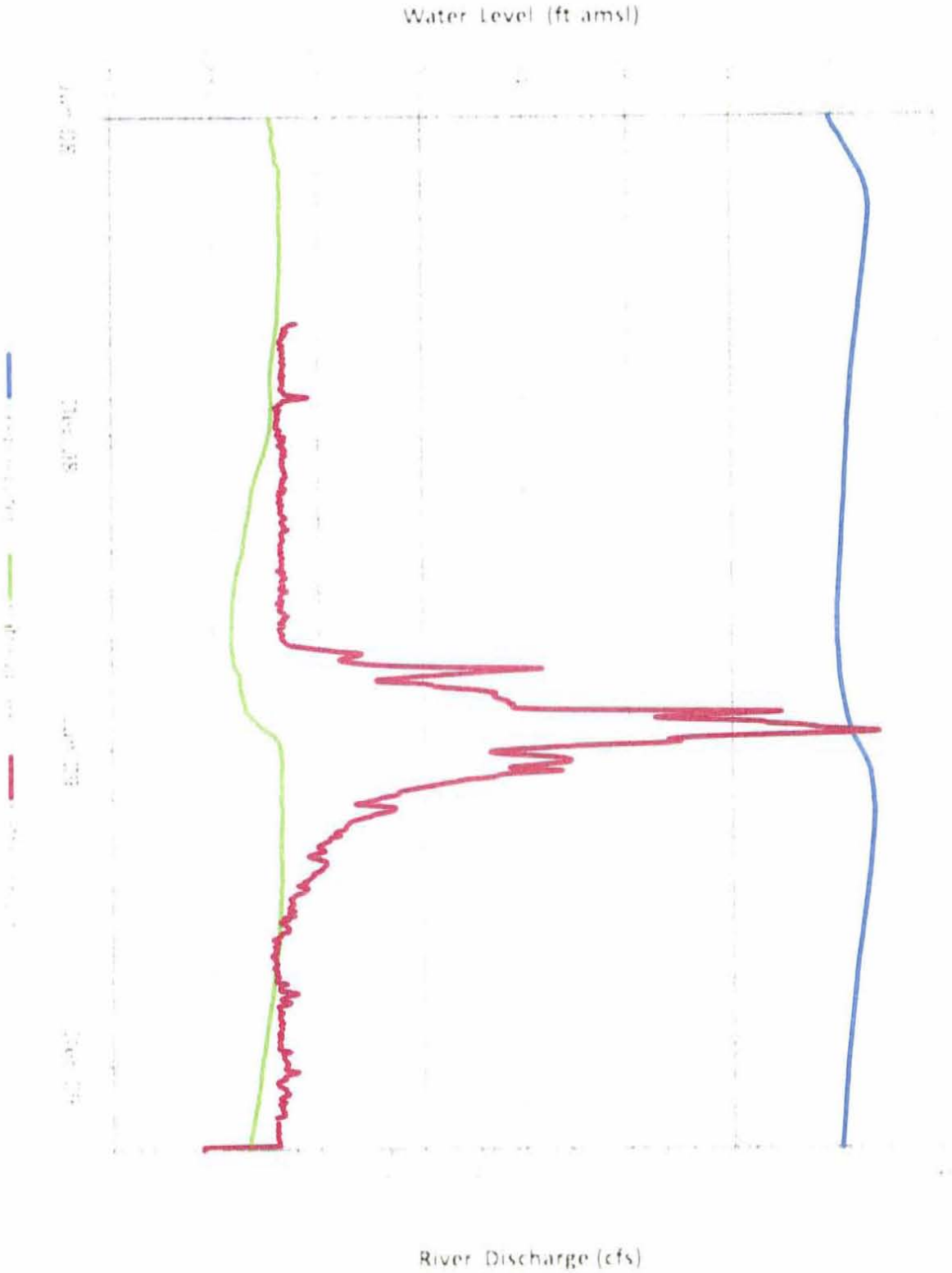
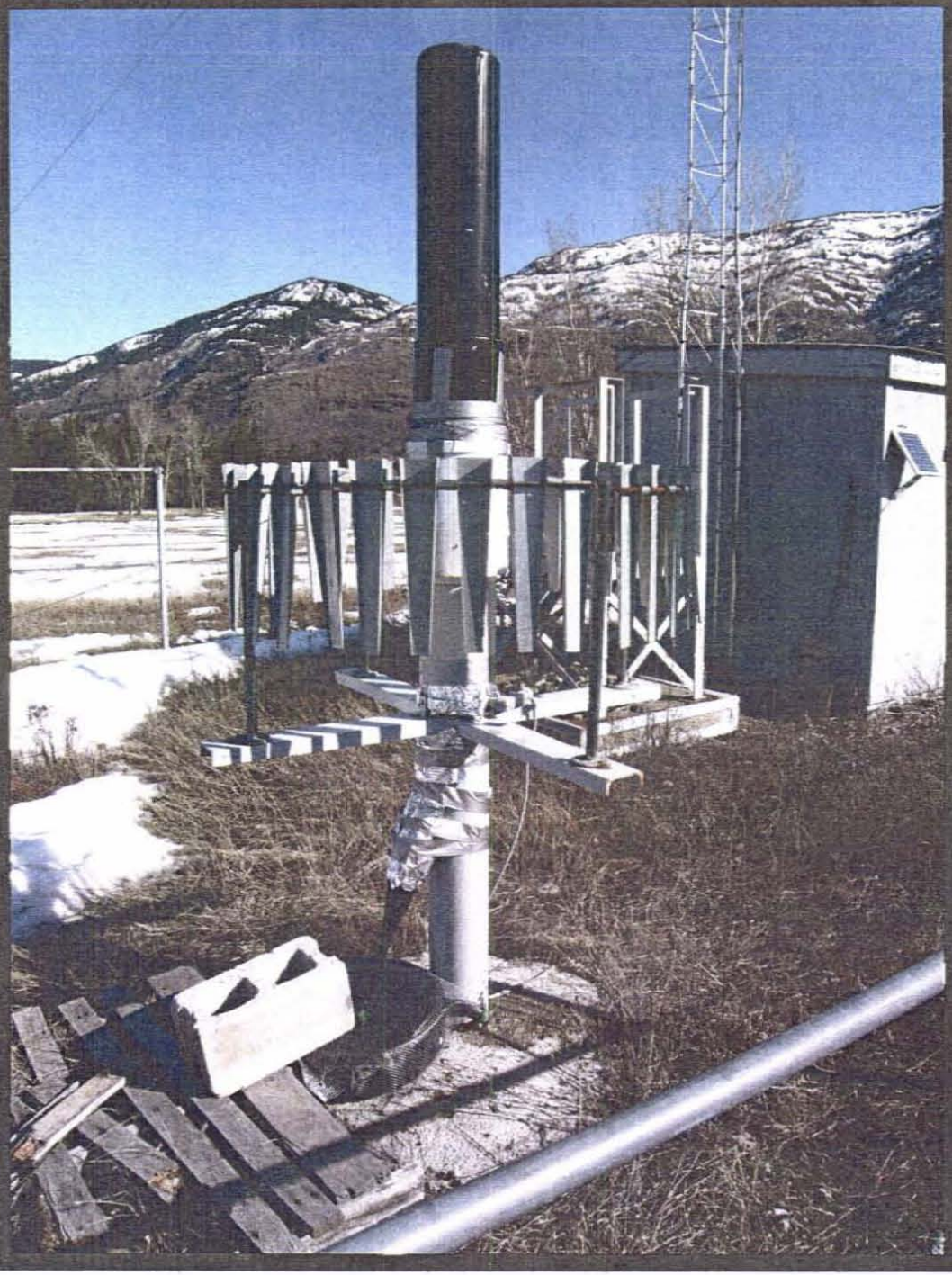


Figure 10. (a) A nearly valley-wide confining unit separates shallow and deep alluvial units in the Kalispell valley.


Water Level (ft amsl)
River Discharge (cfs)