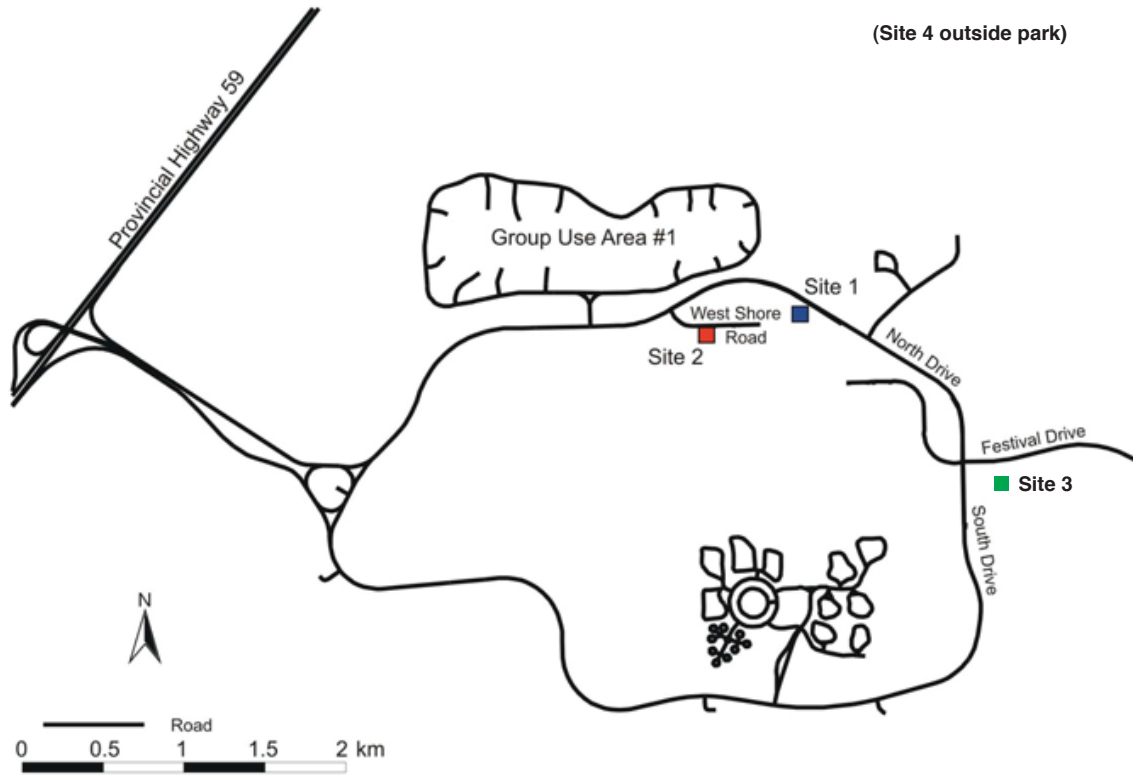


University of Manitoba
2009 Geophysics Field School

Birds Hill Project: Day 2 or 3 (April 29 or 30)
DC Resistivity Survey



Schedule: Group 2, April 29th, afternoon; group 3, April 30th, morning; group 1, April 30th, afternoon. Allow about 2.5 hours for data collection.

Goals: Birds Hill is an esker complex, with a sandy composition very different from the rest of the Red River valley. Today you will characterize its electrical resistivity structure, and compare the results of seismic and electrical soundings.

No.	Item	Specific components
1	Syscal Resistivity Meter	Console
		4 electrodes for Wenner arrays
		4 reels of wire
		24 electrodes & connectors for dipole-dipole arrays
		Spread cable for dipole-dipole arrays
		Mallet for electrodes (if needed)
		12V battery
2	Field laptop	
3	Surveying	1 x 100 m tape and 3 x 50 m tapes
		GPS & compass
		Wooden stakes (4)

1. Read the project instruction sheets in full prior to commencing the survey.
2. Familiarize yourself with the basic mode of operation of the Syscal DC-resistivity instrument.
3. Complete a battery check and record the results.
4. Pack all necessary equipment carefully into the vehicle.

FIELD SURVEY INSTRUCTIONS

You will be completing a DC-resistivity survey. The group will work on the project together and the data collection phase will be evaluated using one or two log books, containing the survey details and resistivity measurements. The latter should have the data collection sheets taped into the log book.

1. Complete Wenner DC soundings at the designated location. Record the survey location and instrument details and include a sketch map of the site. Record the survey data in a format similar to Table 1. I suggest that you start with an offset of about 5 m and then work back to smaller offsets before switching back to 5 m and completing longer offsets. Decrease to as small offsets as possible (*e.g.* 5 cm). Collect data out to the maximum spacing allowed by the area or the instrument. As much as possible, the line should be parallel to that used for the hammer seismic experiment.

2. As time allows, complete one or more dipole-dipole sections across the survey area.

POST-SURVEY INSTRUCTIONS

1. Pack the vehicle carefully for the return trip paying particular attention to the gravimeter.

2. At the university return the equipment to Room 3i5 or 3i6 and inform the instructors of any problems with the equipment or of a need to add another set of batteries.
3. Charge the internal batteries of the resistivity instrument as well as the external 12V battery.

The data table in your logbook should look like this:

TABLE 1 - WENNER RESISTIVITY SOUNDING					
Location Information					
Spacing (m)	Reader	V (Volts)	I (Amps)	ρ_a ($\Omega.m$)	Comments

Include an error estimate (+/-) with your measurements!