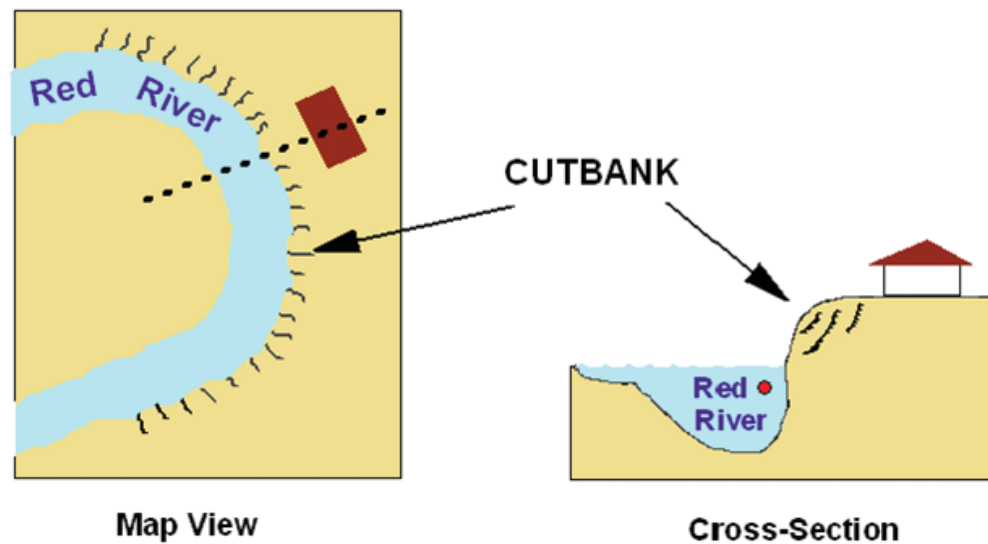


The Moving River

The Living Lab and the rest of the Red River Valley have soils that were left after ancient Lake Agassiz retreated. These soils are fine grained sediments. They have poor engineering strength. These soils are exposed “on edge” when a cut is made for a highway or along the channel of the Red River. As a result they are prone to failure.

Rivers such as the Red River flow across these fine grained sediments and tend to meander. The Living Lab sits on a large meander loop. The meanders of the Red River almost double the distance the Red has to flow from Breckenridge to Lake Winnipeg. A road distance of about 300 miles turns into about 550 river miles.

Meanders are dynamic features. The water tends to move faster on the “outside” of a meander loop and slower on the “inside” of the loop. Because of the faster moving water, there is more bank erosion on the outside loop. Cliffs and cutbanks are formed at this site. The Living Lab is on the outside of a meander loop. However, the river doesn’t get wider because of this erosion. Soil is deposited on the “inside” of the loop where the water moves slower and the river maintains its width.



The slow continual erosion on that outside bank results in the river channel moving in the direction of the cutbanks. (channel migration). As the river channel moves over time parts of the channel may be “abandoned” by the river. In urban areas these abandoned channels often

Don Schwert

become parks. In Fargo they include Lindenwood Park, Island Park and Mickelson Field. Some of these abandoned channels become lakes or sloughs. Johnson Park in Moorhead has an abandoned channel that contains water for part of the summer.

Land that borders these outside meander loops is unstable. Look around the Living Lab. There are many examples here of “slumping” that has occurred because the Lab is on the outside of the meander loop. The Info Center had to be moved to its current location in early 2007. Its foundation was collapsing because of the unstable soil. It used to be located closer to the river. If you were going to build a house in the Red River Valley would you build it on the outside loop of a meander?



Moving the Info Center.

River Keepers

The rate that the meander moves is dependent on many factors including soil moisture (more water “lubricates” the soil making it easier to move), water levels of the river (high water tends to “push” back on the banks), the amount and type of vegetation on the banks (more and deeper roots tend to hold the soil), the amount of structures on top of the slope (the more roads and houses, the more weight pushing down and out.)

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