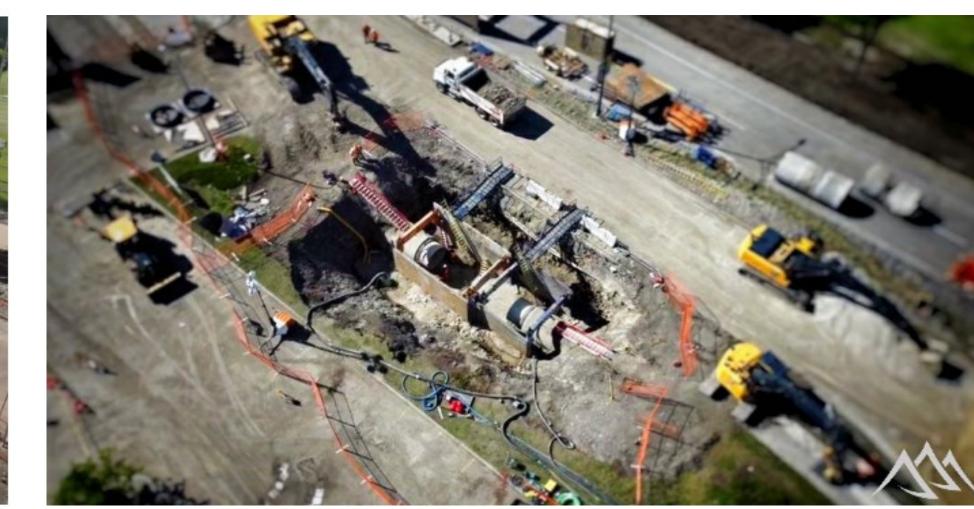


5MRID Lessons from the Calgary Water Crisis and the Montana St. Mary Syphon Failure





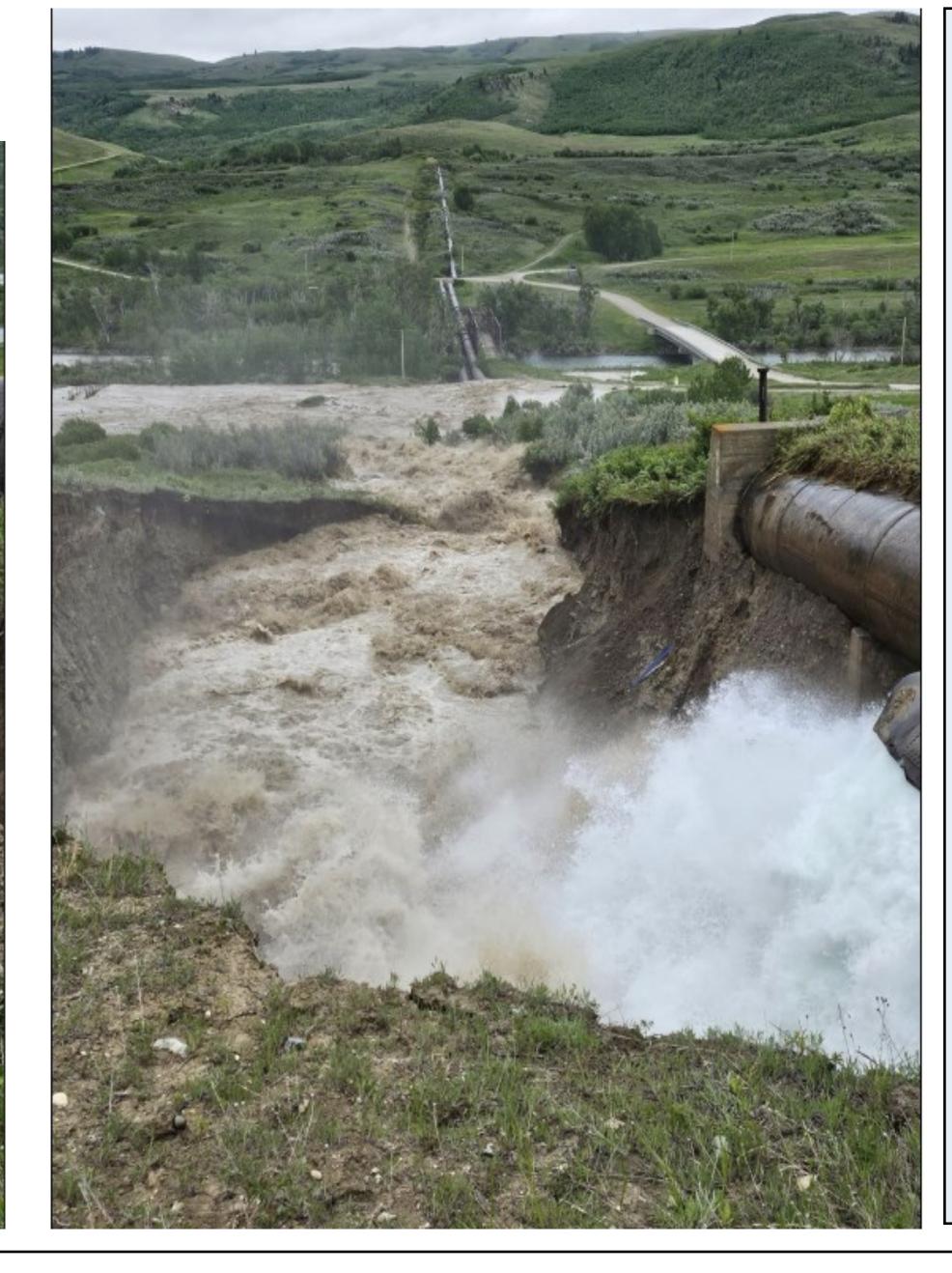


The Bearspaw south water main is 11 km and up to 2 meters wide in some sections.

Drone images of the water feeder main on June 13, 2024, in Calgary, Alberta (Photos by Monty Kruger/CBC).

Babb, Montana - 2024





Currently, the main concerns are on systems with higher pressures (includes Grassy Syphon, 40 Mile Main Canal Syphon and Bow Island 12 Pump station).

SMRID is considering non
-invasive inspections as
well as conducting
several test digs at 40
Mile.

Grassy System
(Syphons across Yellow Lake)

Bow Island 12

40 Mile Main
Canal Syphons

Hyprescon and Concrete Pipe in the SMRID

Diagram showing the construction of the water feeder main. (City of Calgary).

PARTS OF A PRESTRESSED CONCRETE CYLINDER PIPE STEEL PRESTRESSING WIRES OUTER CONCRETE CONCR



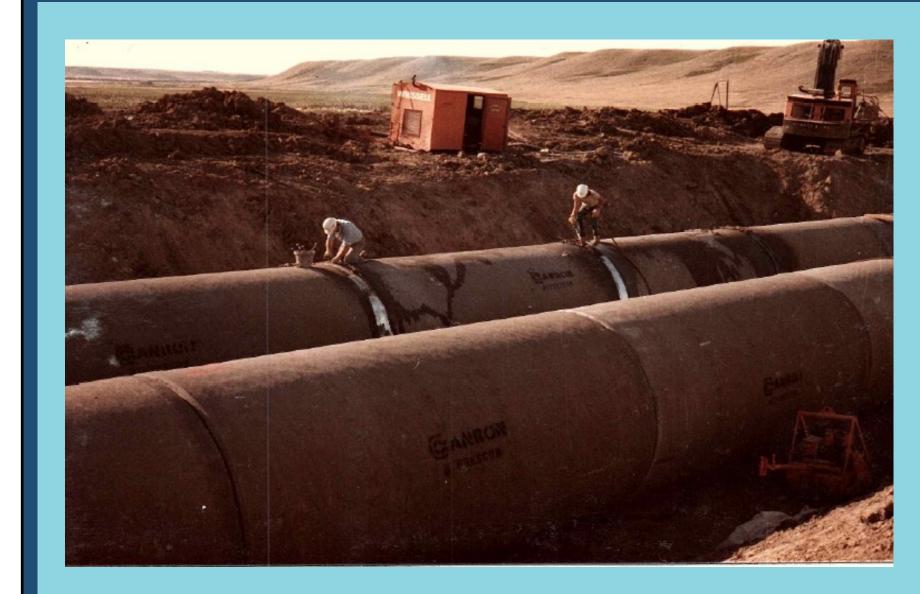


Prestressed concrete syphon pipes being delivered to site. Pipe is 2.44M inside diameter with bell and spigott joint sealed by an "0" ring. Each piece is 6M long and weighs 25 tonnes.

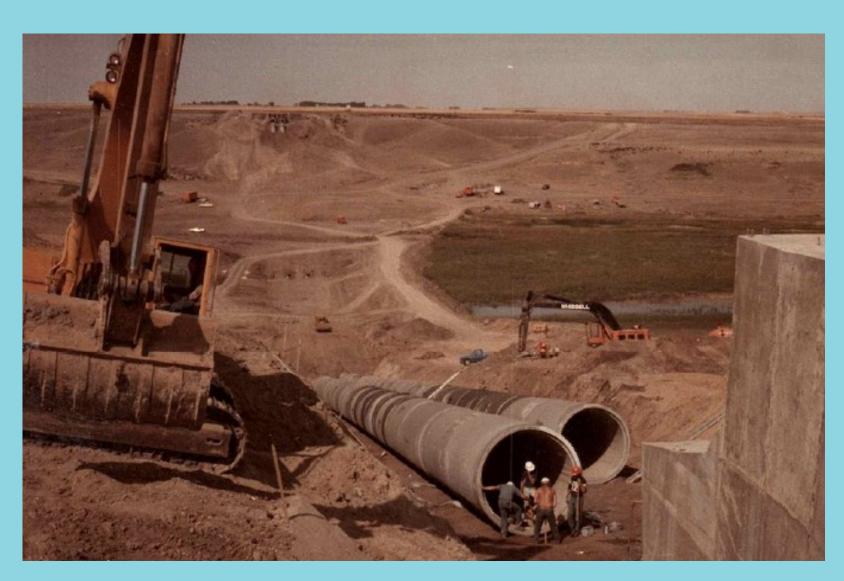
Grouting outside joints of syphon pipe. Grout poured inside a diaper supported by steel bands.

Date of Installation = June to September, 1984

Date of Test of Completed Pipeline = September, 1984



Syphon pipe through wet area at the north side of the coulee. Pipes held in place by 225 ton crane and joints pulled together by cross bar on winch from within pipe.



North coulee from inlet structure.

Exposed pipe and outlet structure shown in background.