



Friendship Dam Updates

April 9, 2016


Municipal Dam Grant

- Ayres is proceeding with the assumptions that the dam is **SIGNIFICANT HAZARD**
- Therefore, the grant could cover:
 - Concrete repairs
 - Embankment repairs
 - Safety fencing
 - Tainter gate and hoist painting
 - New gate chains
 - Deicing aerator


Municipal Dam Grant

DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE	GRANT ELIGIBLE (IN MY OPINION)
1 Mobilization & Site Prep.	LS	1	\$ 10,000	\$ 10,000	\$ 10,000
2 Set benchmarks and pins for embankment movement	EA	4	\$ 250	\$ 1,000	\$ 1,000
3 Furnish and install staff gauge	EA	1	\$ 500	\$ 500	\$ 500
4 Fence near tailrace	LF	21	\$ 50	\$ 1,050	\$ 1,050
5 Erosion control and stormwater compliance	LS	1	\$ 3,500	\$ 3,500	\$ 3,500
6 Riprap on upstream embankment	CY	100	\$ 65	\$ 6,500	\$ 6,500
7 Raise low areas of embankment	CY	140	\$ 25	\$ 3,500	\$ 3,500
8 Deep spill repairs for concrete walls	SF	150	\$ 125	\$ 18,750	\$ 18,750
9 Shallow spill repairs for concrete walls	SF	200	\$ 60	\$ 12,000	\$ 12,000
10 Dewater tainter gate and bypass minimum flows with turbine	LS	1	\$ 5,000	\$ 5,000	\$ 5,000
11 Paint tainter gate (coal tar epoxy, tented)	LS	1	\$ 5,000	\$ 5,000	\$ 5,000
12 Paint hoist	LS	1	\$ 2,000	\$ 2,000	\$ 2,000
13 Replace gate chains with high alloy chain	EA	2	\$ 1,000	\$ 2,000	\$ 2,000
14 Furnish and install aerator for deicing	EA	1	\$ 700	\$ 700	\$ 700
15 Replace track and support beams	SF	108	\$ 100	\$ 10,800	\$ 10,800
16 Furnish and install Avogard crack gauge	EA	1	\$ 100	\$ 100	\$ 100
17 Replace broken entry doors	EA	2	\$ 800	\$ 1,600	\$ 1,600
18 Replace broken windows	LS	1	\$ 5,000	\$ 5,000	\$ 5,000
19 Site Restoration	LS	1	\$ 5,000	\$ 5,000	\$ 5,000
Construction Total for a General Contractor					\$113,900
Ayres Current Contract for the Dam Failure Analysis, EAP, O&M, O&R, and Grant					\$21,000
Local Contractor - Possible electrical repairs					\$4,500
Local Contractor - Possible rockpointing repairs					\$9,000
Local Contractor - Possible roof / parapet repairs					\$7,000
Over to see about other repairs necessary underwarrant					\$8,000
Slope stability study with riprap and embankment raise design					\$19,000
Concrete spill repairs design through bidding					\$5,000
Construction Observation and Administration					\$12,000
Construction Total					\$146,200




Municipal Dam Grant

- Next Steps
 - Sign Grant Application
 - Provide 2 resolutions (1 combined)
 - Ayres will mail application
 - We wait until June 1 for results

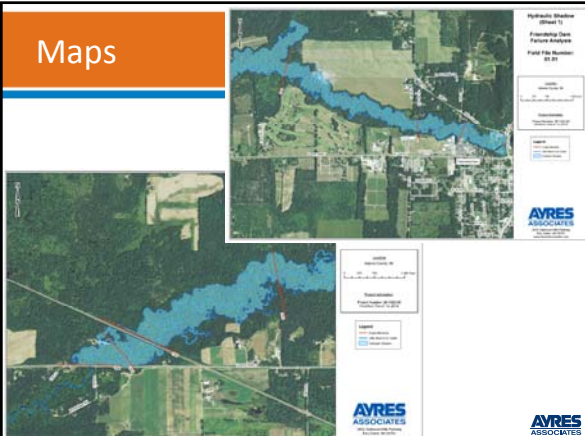


Dam Failure Analysis

- Update
 - DNR insists that either we accept downstream flood elevations or we submit LOMR
 - Accepting the 1990 results means we need to update the model and maps
 - Is the dam High or Significant hazard?
 - DNR says dam operator cannot open gates quickly
 - The IOMP is our proposed solution
 - We need the FLD to “implement” the IOMP checklist
 - This approval process may take 6 months



Maps



Latest Aerial



Spillway Section

