



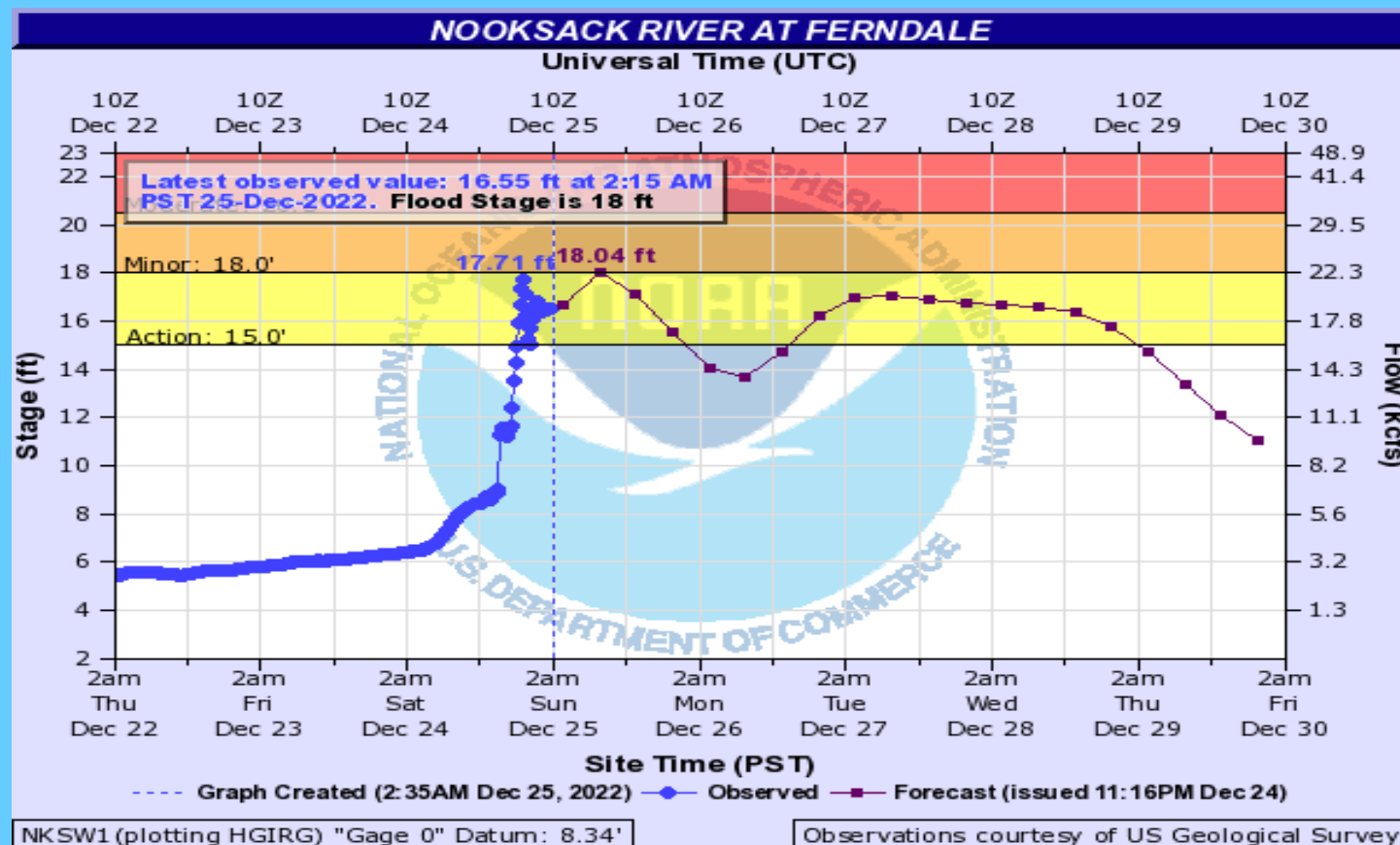
Christmas Eve Ice Jam Flood and Marine Drive Levee Damages

Whatcom County Public Works
Department
River & Flood Division
January 2023

December 16



Ferndale Gage Graph Christmas Eve



Ferndale Gage Readings Christmas Eve

12/24 23:15	16.05ft	17.9kcfs
12/24 23:00	15.68ft	17.2kcfs
12/24 22:45	15.02ft	16kcfs
12/24 22:30	15.22ft	16.4kcfs
12/24 22:15	16.18ft	18.1kcfs
12/24 22:00	17.11ft	20.2kcfs
12/24 21:45	17.71ft	21.6kcfs
12/24 21:30	17.33ft	20.7kcfs
12/24 21:15	16.68ft	19.2kcfs
12/24 21:00	15.93ft	17.6kcfs
12/24 20:45	14.91ft	15.8kcfs
12/24 20:30	14.30ft	14.8kcfs
12/24 20:15	13.51ft	13.5kcfs
12/24 20:00	12.37ft	11.7kcfs
12/24 19:45	11.62ft	10.5kcfs
12/24 19:30	11.47ft	10.3kcfs
12/24 19:15	11.18ft	9.9kcfs
12/24 19:00	11.28ft	10kcfs
12/24 18:45	11.45ft	10.3kcfs
12/24 18:30	11.49ft	10.4kcfs
12/24 18:15	11.53ft	10.4kcfs
12/24 18:00	11.23ft	9.97kcfs
12/24 17:45	9.05ft	6.96kcfs
12/24 17:30	8.85ft	6.69kcfs

Handwritten notes on the table:

- Left margin: 10:30, 10:15, 9:00, 8:00, 7:00, 6:00, 5:30
- Center margin: ICE DAM
- Right margin: 2.69', 4.54', 9.66', 4-HR.

Ice Jam Below Slater Road

- Ice jam below Slater road started backing up the river about 5:30 PM 12/24, by 9:30 PM the Ferndale gauge had risen 8.66 ft. At about 10:00 PM the County sign crew reported to Travis that the river had stopped flowing at Marine Drive. At about the same time water was flowing over the Rayhorst Levee (100- year LOP) and water was beginning to flow into Marietta (about 1-1:30 AM 12/25).
- King tide at 8:00 AM
- River Crest in Ferndale about 10:00 AM at 18-Ft

Photo looking upriver from the Marine Drive
Bridge about 1:00 AM Christmas Morning



View of the Marine Drive Levee Breach

(Photo provided by the Lummi Natural Resources 12/28/2022)



Levee Breach 12/29/2022 with
ice barked trees in the background.
(same location as USACE repair in 2021)



Additional levee damage below the breach (This is one of many areas)



This area was (Temp.) repaired last summer



US Army Corps of Engineers in cooperation
with the Lummi Nation and Whatcom County
started repairs on 12/31/2022



Progress

12/29/2022



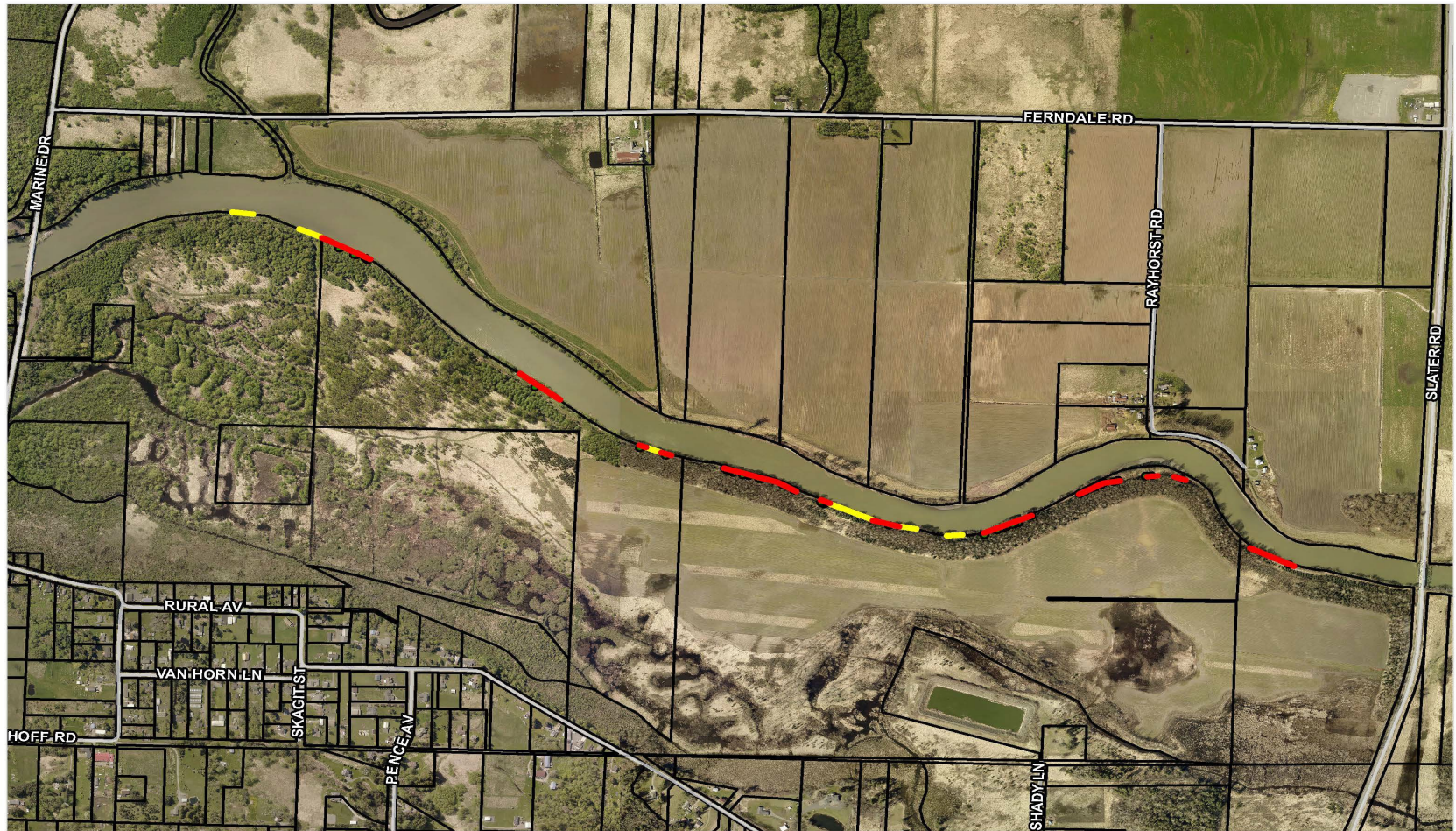
1/2/2023



Finished Levee 1/8/2022



Additional Damage to the Levee



0 500 1,000
Feet

DAMAGES 2021 FLOOD: 1,630 LF

DAMAGES 2022 FLOOD: 2,875 LF

TOTAL DAMAGED LEVEE: 4,505 LF