

Region WCR County St. Croix Report Date 2/1994 Classification LAL

Water Body: S-Branch Kinnickinnic River

Discharger: Hammond WWTTP

If stream is classified as Limited Forage Fish (LFF) or Limited Aquatic Life (LAL), check any of the following Use Attainability Analysis factors that are identified in the classification report:

- Naturally occurring pollutant concentrations prevent the attainment of use
- Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met
- Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place
- Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or operate such modification in a way that would result in the attainment of the use
- Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses
- Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact

Supporting Evidence in the report (include comments on how complete/thorough data is)

- Biological Data (fish/invert)
- Chemical Data (temp, D.O., etc.)
- Physical Data (flow, depth, etc.)
- Habitat Description
- Site Description/Map
- Other:

Historical Reports in file:

- 2/3/94 - Paul Laliberte
- 5/20/80 - Paul Laliberte - memo
- 1/29/70 - Terry Moe et al.

Additional Comments/How to improve report:

wetland = LAL (default)

OK.

WATER QUALITY STANDARDS REVIEW FOR A WETLAND IN THE
WATERSHED OF THE SOUTH BRANCH KINNICKINNIC RIVER
NEAR HAMMOND, WI

February 3, 1994

PAUL LA LIBERTE

WETLAND DESCRIPTION

A wetland located in the center of the N1/2 of S28, 29N, 17W was classified for inclusion in NR104, Wisconsin Administrative Code, in 1976. That evaluation described the area as a "diffuse surface water". The area appears to have historically been a low spot with tight soils which probably made growing agricultural crops difficult. The 1982 DNR wetlands inventory described the area as a wetland having emergent, narrow leaved persistent vegetation and described the hydrology as wet soil, palustrine (abandoned cropland). This inventory was based on a 1966 aerial photograph. At some point in the past, when the Village of Hammond built its first wastewater treatment plant, a portion of the wetland was excavated to receive partially treated wastewater. A lobe of the wetland to the Southeast was not excavated. Since the flat land surrounding the site allows flow to leave the area only during the highest of runoff events, most of the runoff water and wastewater entering the wetland likely entered the groundwater. In recent years, the excavated portion of the wetland has contained standing water year-round.

TREATMENT PLANT DESCRIPTION

In 1983, a new WWTP was constructed west of the wetland which included a seepage cell. For a few years, Hammond's wastewater was discharged to groundwater via the seepage cells and did not enter the wetland. One of the seepage cells failed in 1985, resulting a breach of the dike and wastewater flowing over a corn field back into the wetland. In 1987, one seepage cell was modified in an attempt to create an artificial wetland. Also, a L-shaped dike was placed along the west margin of the wetland. This ponded the effluent from the artificial wetland in the former cornfield and fostered movement into the groundwater. The dike contains an overflow structure which can allow effluent to enter the same portion of the wetland where the effluent from the original WWTP was directed. Flow through this overflow structure occurred only under very wet conditions and has not occurred in recent years. Uncertainty about the future operations of this facility is the reason for retaining the surface water outfall in the permit.

TREATMENT PLANT OPERATION

The facility disposes of treated wastewater by alternately using the remaining internal seepage cell or the artificial wetland followed by the external seepage cell (behind the L-shaped dike). Preference is given to using the artificial wetland during the growing season to take advantage of the nitrogen utilization by the wetland plants. The artificial wetland was found to remove nitrogen during only a few summer months and actually export nitrogen in winter. The facility has been unable to meet a limit of 20 mg/L total nitrogen on wastewater entering the two seepage cells. It is in compliance with other limitations. The facility formerly used a six month cycle on the seepage cells. They will be going to a cycle that does not include any discharges during the winter. This will result in higher loading during the remaining months and is being done to reduce the number of total nitrogen limit violations. The Department is monitoring the success of operational changes at the facility via

groundwater monitoring wells. As long as a trend of decreasing groundwater nitrogen concentrations is maintained, a facility upgrade is not being required.

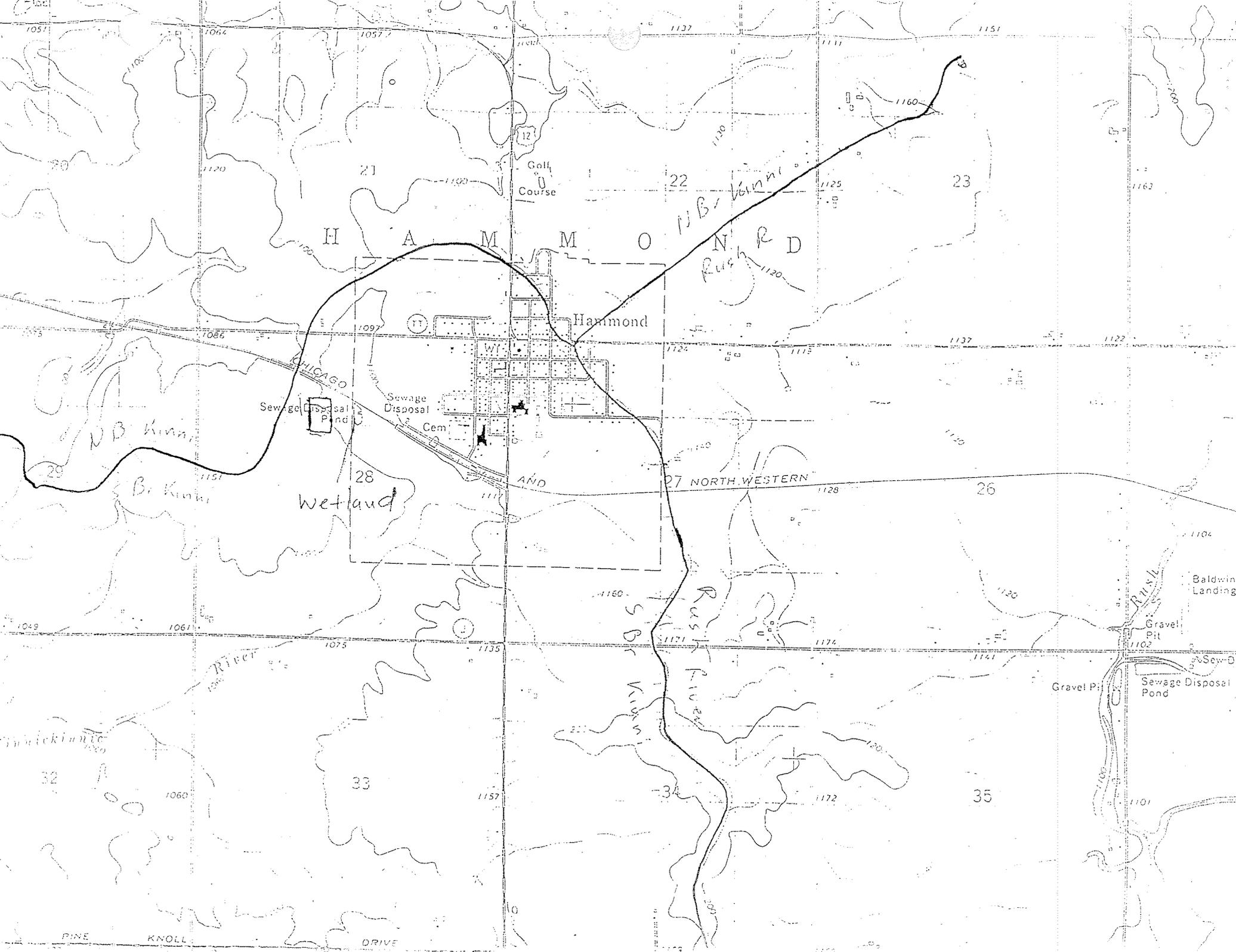
WETLAND IMPACTS

Even though the facility typically does not discharge to surface water, it has the potential to affect the adjacent wetland through affecting groundwater levels. While the general groundwater flow direction is to the Southwest, ponding of water in the northeast seepage cell could raise the water level in the adjacent wetland. Cessation of hydraulic loading to the northeast seepage cell could result in a lowering of water levels in the wetland. Monitoring well MW-5 is in a position to monitor this effect. When the permit for this facility is re-issued, possible effects on the wetland should be examined using the water level record in the monitoring well and the facility's record of seepage cell usage.

RECOMMENDED CLASSIFICATION

The wetland is currently listed in NR104 with a hydrologic classification of diffuse surface water. This should be changed to wetland. The recommended criteria and effluent limitations should remain the same.

cc. J. Ball - WR-2
K. Barrett - WR/2
P. Skorseth - WR/2



Paul J. J. J. J.

Observations @ Hammond on 7-9-93

The former canal converted to wetland via
dikes had no outfall structures or signs of
overflow despite a very wet year.

CORRESPONDENCE/MEMORANDUM

STATE OF WISCONSIN

Date: 5-20-86

File Ref: 3,700

To: Tom Benavitz WFD

From: Paul J. Liberty WCD

Subject: Verification of Hammond stream classification.

The current discharge at Hammond travels over a corn field to a small wetland where the effluent seeps into the ground. There is no continuous flowing stream in the area. In absence of effluent the wetland may even dry up completely. The stream classification should remain marginal (see class E) fish and aquatic life. See previous report by Terry Noel dated

11-29-76.

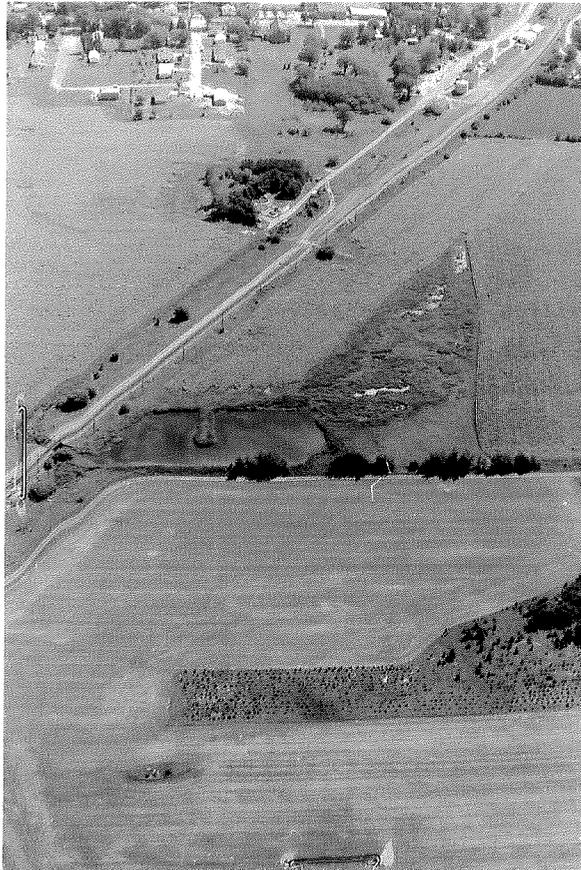
CC ECA

HAMMOND, ST. CROIX COUNTY

WASTEWATER RECEIVING STREAM CLASSIFICATION

Receiving stream - drainage area diffuse.

Effluent from Hammond STP is piped west underground to a railroad bridge. The bridge is over a flow concentration area of snow melt and rainfall runoff from upgrade cropland. At this point the discharge emerges and flows south about 100 feet into an area modified to represent a stabilization pond. Flow beyond this point only collects in a cropland low spot. Land use around the entire area is agricultural.



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Hammond STP and discharge receiving area, facing east

RECOMMENDATIONS:

The discharge receiving area for the Hammond STP shall be classified diffuse surface water.

EVALUATION DATE: October 7, 1976; November 29, 1976

PERSONNEL:

Terry A. Moe - Water Pollution Biologist - WCD (10/7/76, 11/29/76)
Kenneth Thiele - District Engineer - WCD (11/29/76)

