

DATE: February 3, 2023 FILE REF: Brillion WWTF

TO: Nicole Krueger, Limit Calculator

FROM: Mary Gansberg and Claire Hetzel, Stream Biologists; Kristi Minahan, Water Quality Standards; Diane Figiel, Limit Calculator Coordinator

SUBJECT: Brillion WWTF and receiving water Unnamed Trib WBIC 77100*, in Calumet County

Overview of issue

The City of Brillion Wastewater Treatment Facility currently discharges to Unnamed Tributary* WBIC 77100 (called UNT 77100 hereafter) to Spring Creek (WBIC 76900) in Calumet County within the Brillion Wildlife Area. The history of the Brillion receiving water classification is complex because the facility changed its location and its outfall was moved from Spring Creek to the Unnamed Tributary. The old receiving water, Spring Creek, is listed in ch. NR 104 as LAL, but the new receiving water, UNT 77100, is not listed in NR 104 (see attached memo and maps for more detail on the old and new locations). The 2018 permit limits were based on the old NR 104 listing of LAL, with phosphorus limits based on the North Branch Manitowoc River. Biologists were asked to conduct a site survey on the UNT to determine what the appropriate classification is.

* The unnamed tributary WBIC 76900 has also been called Black Creek in some previous documentation/maps, but on DNR's data viewers only the stream south of the facility is shown as Black Creek, and not the facility's receiving water. It appears the local name of Black Creek has been applied at various times to both the stream north & south of the facility. In this memo we will refer to the receiving water as UNT 77100.

Summary of recommendations

- *Segment 1 (most upstream):* UNT 77100, from outfall to confluence with Spring Cr. (WBIC 76900)
 - *Codified designated use:* Not listed in NR 104 so considered Warmwater
 - *Classification used for previous permit issuance:* LAL, with downstream protection for phosphorus based on the N Br Manitowoc R.
 - *Previous stream class recommendations:* None for the UNT. However, 2018 Memo from Kristi Minahan recommended deleting the NR 104 references to Spring Cr. where the facility used to be located (attached). There was also a 1996 memo from Mary Gansberg but it was in reference to Spring Cr. instead of UNT 77100.
 - *Modeled Natural Community:* Warm Headwater
 - *New recommended Natural Community and Designated Use:* Warmwater

- *Segment 2:* Spring Creek (WBIC 76900) from UNT 77100 to confluence with North Branch Manitowoc River
 - *Codified designated use:* Not listed in NR 104 so considered Warmwater
 - *Classification used for previous permit issuance:* LAL (considered a wetland)
 - *Previous stream class recommendations:* None for the stretch of Spring Cr below the confluence with the UNT (Mary Gansberg's 1996 memo recommended Warmwater Forage Fish from Glenview Ave upstream)
 - *Modeled Natural Community:* Warm Headwater
 - *New recommended NC & DU:* Warmwater

Site visit

On September 1, 2022, Mary Gansberg and Claire Hetzel attempted to conduct a wadeable fish survey downstream from the City of Brillion Wastewater Treatment Facility discharge. Weather underground (www.wunderground.com) indicated 0.5 inches of rain 4 days prior to our survey so we assumed the stream would not be dry. We walked to the discharge location from the treatment facility building off Clearwater Drive. UNT 77100 is not wadeable from CTH PP road crossing downstream to the discharge location.

Brillion WWTF discharge location, UNT 77100 and Spring Creek.



Water depth at the discharge location was approximately 1-1.5 feet deep, but the soft sediment was too deep to wade, therefore a fish survey could not be completed. Several dozen fish were observed swimming around the discharge pipe (see photos below) and we were able to capture four fathead minnows using a net although other fish species were also observed but not captured. Specific conductivity at the point of discharge in the stream was 2723 uS/cm, which is higher than would be expected in a natural stream; this would have precluded use of a fish shocker.

UNT 77100 has a defined stream channel with standing water. Emergent aquatic plant species such as cattails and bur reed make up most of the stream banks. UNT 77100 clearly supports a fish community although a wadeable stream survey could not be conducted because of the deep soft sediment. Since fish are obviously present in the stream, we recommend the UNT be considered to support a Warmwater Full Fish and Aquatic Life community.

A code change is not needed in order to apply a warmwater classification to the facility's current discharge location on UNT 77100, since their discharge site is not listed in ch. NR 104 as LAL or LFF. However, we recommend updating NR 104 to delete the obsolete listing at the facility's old location on Spring Creek.

Dozens of fish observed at discharge pipe



At discharge pipe facing downstream



Approximately 100 meters downstream of discharge pipe



Notes on Spring Cr & Brillion Sewage Treatment Plant, Calumet Co., Kristi Minahan, 10-2018

We are currently working on a rule revision to NR 104 in which we are proposing to delete LAL/LFF status of waterbodies that no longer have an individually permitted discharger. The waters that are deleted from 104 will revert to having a Designated Use based on their modeled Natural Community, like other waters in the state that have not yet received an NC verification in order to put them into a specific DU.

We are proposing to delete the NR 104 listings in Table 5, number 7:

7. Tributary-Spring Creek (Brillion)

Channel from Brillion STP to Spring Creek	Effluent Ditch	LAL
Spring Creek upstream from Brillion Marsh	Continuous	LFF

This was a confusing case so I am documenting our findings after investigating the file and speaking with permits staff (Dick Sachs, Dave Gerdman, Diane Figiel).

- A. **Original location of STP.** The original location for the Brillion STP was in town (shown in hand drawn map from 1975 in this folder), between Glenview Ave & Co. Hwy. PP (formerly STH 114). It discharged to a wastewater effluent channel (LAL) that then entered Spring Creek (LFF, WBIC 76900). In 1981, a new STP was built in the location below.
- B. **Discharge location of new STP & duplicate stream names.** The new STP facility built in 1981 was located between a stream to the north (WBIC 77100, here called “north stream” for purposes of explanation) and a stream to the south (WBIC 77000, here called “south stream”).
 - a. Although the STP is located closer to south stream, the discharge from the STP flows via pipe to north stream, WBIC 76900. There is no longer an effluent channel since the discharge is via pipe. (An additional point of confusion is that in the 1977 hand drawn map the proposed facility location looks like it’s closer to the north stream, but the final location was closer to the south stream. However the hand-drawn map did indicate discharge to the north stream, which is correct.)
 - b. The discharge location was complicated by the fact that the north & south stream have duplicate names...
 - i. The north stream originates at Grass Lake and flows west to join Spring Creek (WBIC 76900). North stream is called “Unnamed” on the Surface Water Data Viewer; however, in GoogleMaps and in some of the documents in the file folder it is called “Black Creek” (documents in file using “Black Creek” include the 2003 “File Memo” from Michael Reif, and 1999 memo from Jeff Haack).
 - ii. The south stream is called “Black Creek” on the Surface Water Data Viewer. Therefore when the files said it discharged to Black Creek it was easy to think they were referring to the south stream, but that is not the case. Though it is unclear on the 24K Hydrography map layer which direction this intermittent creek flows and what it connects with, on the Natural Community map layer it appears that this south stream joins the north stream to the west and then flows to Spring Cr.
- C. **Remove effluent ditch LAL.** Because there is no longer an effluent ditch (there is no discharge at old effluent ditch location; effluent travels via pipe from new location), it is appropriate to remove the effluent ditch LAL listing in 104.
- D. **Remove Spring Creek’s LFF classification.** Because Brillion STP is no longer discharging to Spring Creek on the segment previously classified as LFF, it is appropriate to remove the LFF classification from that segment.
 - a. Note that there was also a former company called Brillion Ironworks that used to have an individual WPDES permit farther north from the old Brillion STP location, but the ironworks

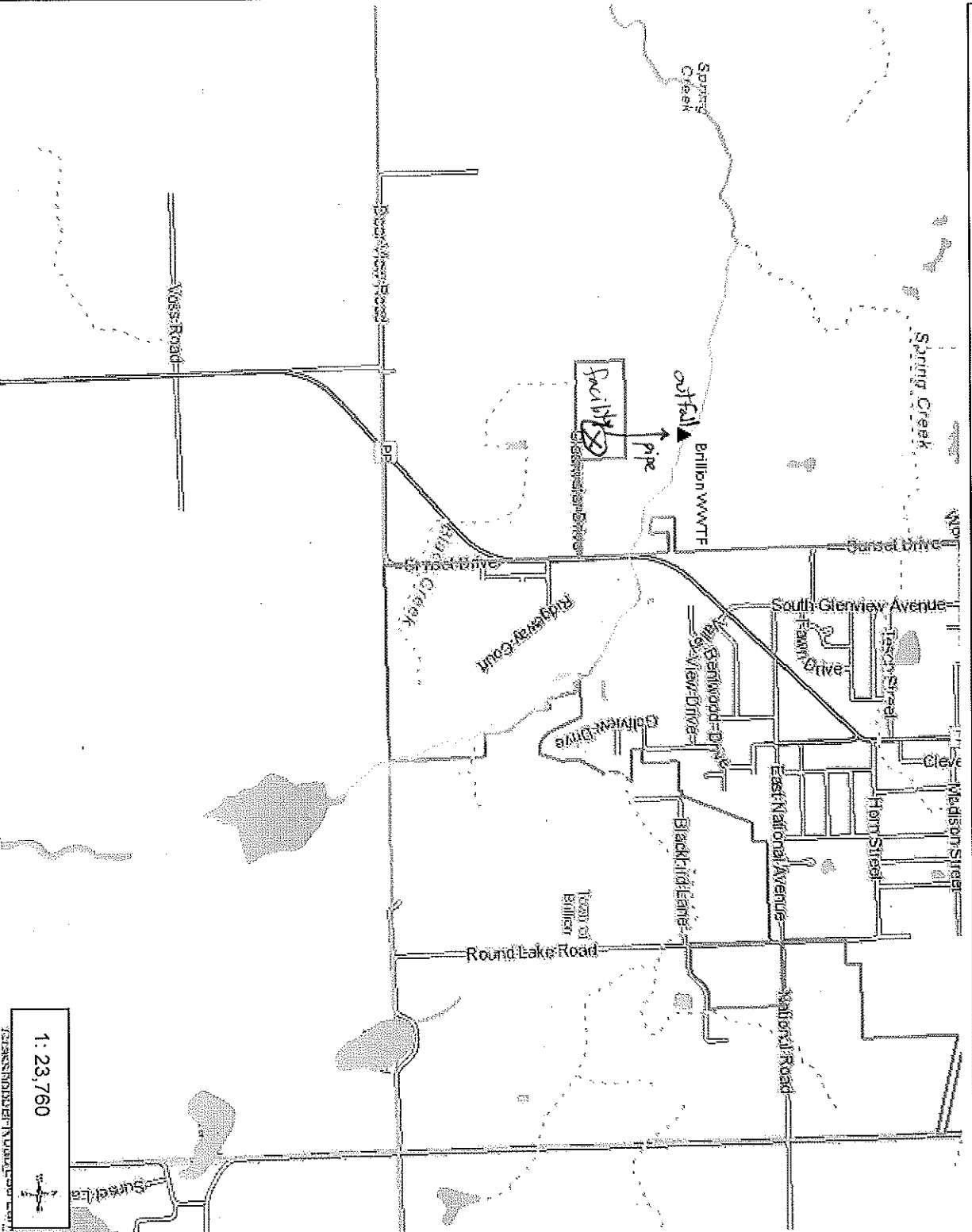
is no longer active. The ironworks facility was bought recently by Ariens, but they anticipate converting to residential and do not expect to seek an individual discharge permit.

- b. By deleting the LFF status of this portion of Spring Creek, it will revert to its modeled natural community of Cool-Warm Headwater, which would receive a Warm Des. Use. In Jeff Haack's limits memo in 1996 he also indicated that under a 1996 classification report by Mary Gansberg, Spring Creek was proposed to be changed from LFF to Warm Water Forage Fish, so a change to Warm under the model is likely appropriate.
- c. On a side note, there is mention in one of the docs in the file folder that Spring Creek was rerouted at some point in time, but I have not found any further information on that.

E. **Future verification of north stream recommended.** In the future, a Natural Community/Designated Use classification of the STP's current receiving water (north stream, WBIC 77100 (*corrected WBIC in 6-17-2022; was incorrect in 2018 doc*)) may be appropriate. Until such time, this stream will continue to receive the default Warm classification (NC model=Warm Headwater = Warm Des. Use). Per permit staffs' observations, there is definitely flow in this stream, and probably could sustain small fish.



Water Condition Viewer



Legend

- ▲ Surface Water Outfalls
- Intermittent Streams
- 24K Hydrography Streams and C
- Cities, Towns & Villages
- City
- Village
- Civil Town
- Municipality
- State Boundaries
- County Boundaries
- == Major Roads
- == Interstate Highway
- == State Highway
- == US Highway
- == County and Local Roads
- County HWY
- == Local Road
- Railroads
- Tribal Lands
- Rivers and Streams
- Intermittent Streams
- Lakes and Open water

Notes

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0.8
0
0.38
0.8 Miles

NAD_1983_HARN_Wisconsin_TM
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LOCATION OF PREVIOUS FACILITY (RELOCATED ~1981?)

