

DATE: 4-25-2024

FILE REF: NA

TO: Mike Polkinghorn, Limit Calculator; Carson Johnson, Compliance Engineer

FROM: Madeline Roberts, Stream Biologist; Kristi Minahan, Water Quality Standards; Diane Figiel, Limit Calculator Coordinator

SUBJECT: Village of Clayton, Clayton Branch (WBIC 2625100) to South Branch Beaver Brook (WBIC 2624400), Polk County

Overview of issue

In preparation for reissuance of the Village of Clayton permit, staff were requested to do a site visit to determine the appropriate stream classifications for the receiving waters. Clayton has an option to continuously discharge from Dec-Feb and June-Aug with annual average design flow of 0.0909 MGD, but they sometimes do not discharge during these time frames. They have noncontinuous discharge in the other months, with a permitted daily maximum flow of 0.17 MGD for March, 0.26 MGD for April and Sept.-Nov., and 0.07 MGD for May (0.26 , 0.40, and 0.11 cfs respectively).

At some time between 1976 and 1978, the outfall was moved from a location next to the treatment ponds to their current outfall location ~2,500 ft west of the facility, via a pipe. This is documented in historical memos from 1976 (Moe & Teske) and 1978 (Oehmcke). The current outfall is located west of US HWY 63 just north of Clayton Br. with a very short flow path (about 50 ft.) to Clayton Br.

The facility's previous permit limits were based on LAL for 0.1 mile from the outfall, though this appears to be a misinterpretation of the location of the LAL in code (which was based on the old outfall location). The downstream portion of Clayton Branch and the South Branch Beaver Brook has been treated as warmwater, and downstream protection limits for phosphorus for these segments are included in the permit.

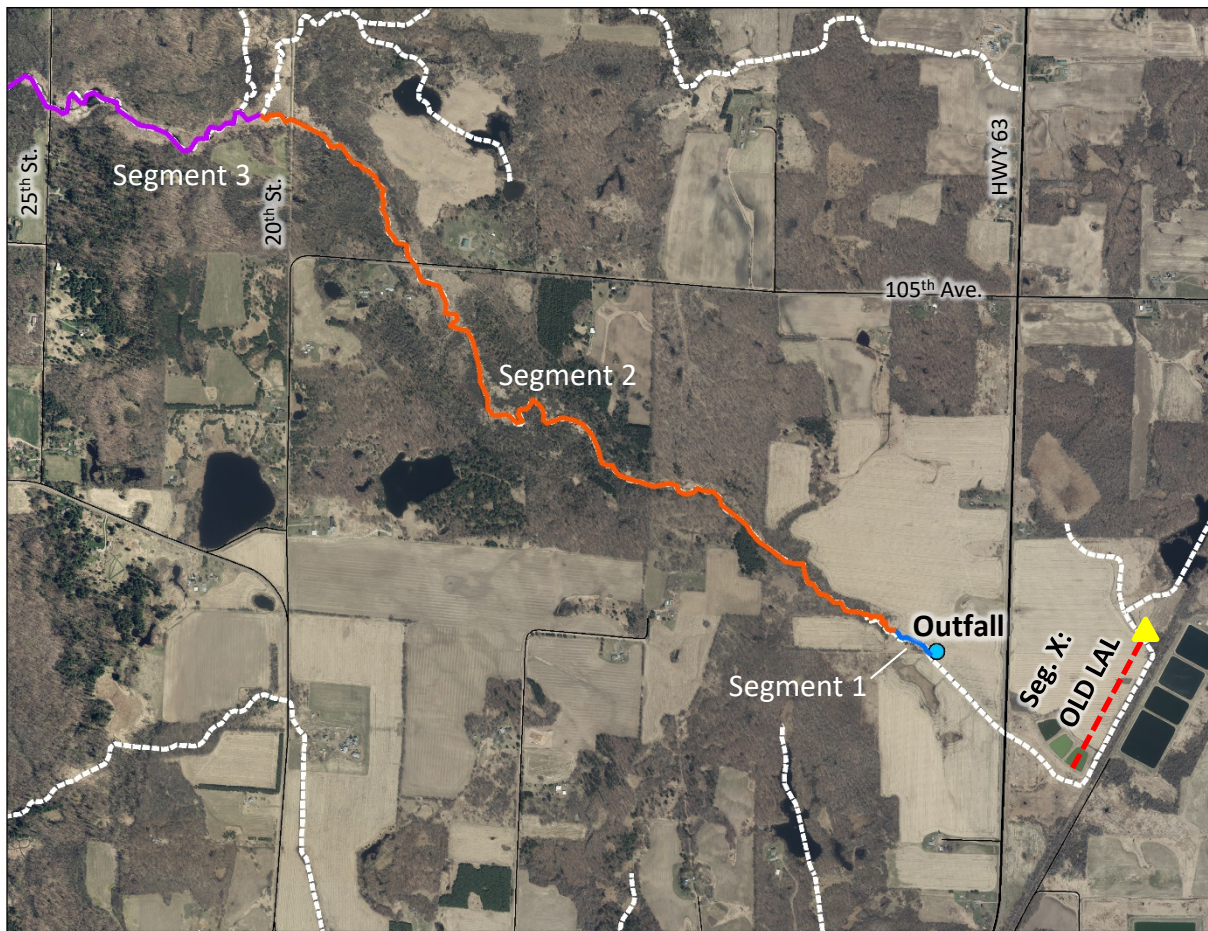
Water resources staff visited the site on Sept. 11, 2023. The objective of the site visit was to determine the appropriate stream classifications for Clayton Branch at the point of discharge and downstream. Staff were unable to do a fish survey in Clayton Branch on that date due to limited flow and extensive reed canary grass in the stream and lack of permission at downstream crossings. However, a previous fish survey was available from 2002 for Clayton Branch. A fish survey farther downstream on South Branch of Beaver Brook was conducted on August 8, 2023.

Summary of recommendations

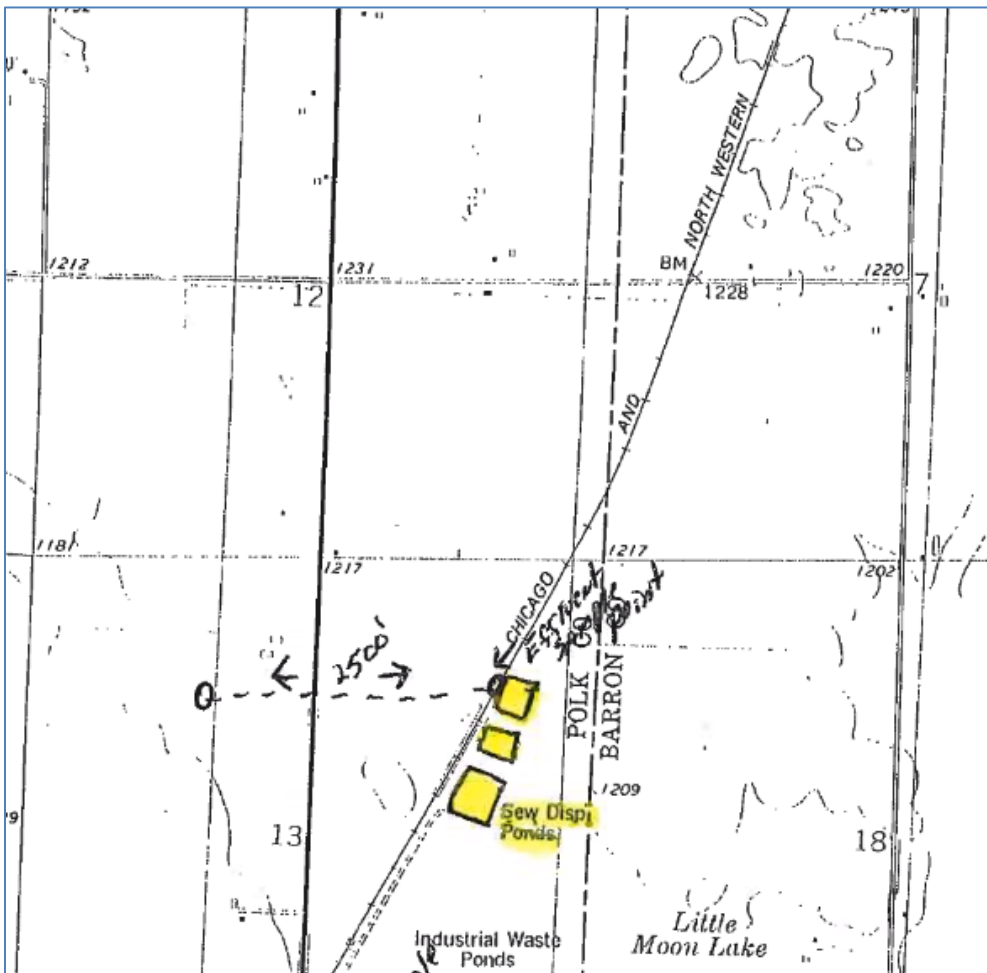
- **Segment X: OLD LAL (no longer relevant to facility's discharge path): Clayton Branch (WBIC 2625100, aka "unnamed tributary to the S. Br. Beaver Brook") from outfall to old railroad crossing (~0.1 mi)**
 - *Codified designated use:* There was a short stretch immediately downstream of the 1976 outfall location near the treatment ponds, east of an old railroad crossing that was initially listed in the 1970s (and is still listed) in ch. NR 104 as Limited Aquatic Life (LAL, part of WBIC 2625100). The general location is shown on Map 1 and the exact location of this segment is documented in the 1976 memo/map. In 1978 and in 2003 it was recommended that this LAL listing be removed because the outfall was no longer located there. NR 104 lists this as LAL-Diffuse surface water for the following extent: "Drainage – Tributary – South Branch Beaver Brook (Clayton) – Drainage area east of railroad tracks in W1/2, SE1/4, NE1/4, Sec. 13, T33N, R15W". The railroad tracks were converted to the Cattail State Trail (see Map 1 for old track location), but the extent of this segment is shown on the map based on the PLSS in code.
 - *Classification used for previous permit issuance:* LAL for ~0.1 mile
 - *Previous stream class recommendations:* The 2003 recommendations proposed removing this LAL portion and replacing it with an LFF farther downstream (see Seg. 1).
 - *Modeled Natural Community:* Cool-Cold Headwater

- *New recommended Natural Community and Designated Use:* Not evaluated since the discharge location is farther downstream. Recommend removing LAL from code.
- **Segment 1: Clayton Branch from current outfall to ~0.1 mi downstream at private crossing**
 - *Codified designated use:* Not listed in NR 104 as LAL or LFF, so defaults to full fish and aquatic life-Warmwater
 - *Classification used for previous permit issuance:* Facility's limits have been based on 0.1 mile LAL and Warmwater after that. However, this appears to be a misinterpretation of the LAL segment, which does not apply to Seg. 1.
 - *Previous stream class recommendations:*
 - At one point, the 2003 recommendations proposed "LFF from the WWTP outfall in the NWQ T33N R15W S13 for 1.5 miles to the east-west town road in T33N R15W S11" (which we interpret to mean 105th Ave in S11)".
 - However, the historic file records indicate an email exchange on May 21, 2003 between Laura Bub and Jim Cahow, indicating that the overall recommendation was that Clayton Branch be removed from the code altogether (no longer LAL or LFF). This was proposed to be done in "Phase II" of the code revisions (the above recommendation was for an interim revision for Phase I). Jim Cahow, Stream Biologist, had conducted field surveys in 2002 which concluded that all of Clayton Branch should be considered full fish and aquatic life. A portion from Hwy 63 down one mile was Macroinvertebrate, with the portion from there to S. Br. Beaver Brook recommended as Diverse Fish & Aquatic Life--Non-Gamefish Community Waters (an older classification terminology).
 - *Modeled Natural Community:* Cool-Cold Headwater
- *New recommended Natural Community and Designated Use:* Designated Use is recommended as either LFF or Warmwater. NC Verification not done at this time.
- **Segment 2: Clayton Branch from private crossing to S. Br. Beaver Brook**
 - *Codified designated use:* Not listed in NR 104 as LAL or LFF, so defaults to full fish and aquatic life-Warmwater
 - *Classification used for previous permit issuance:* Warmwater
 - *Previous stream class recommendations:* NA
 - *Modeled Natural Community:* Cool-Cold Headwater
 - *New recommended Natural Community and Designated Use:* Full fish and aquatic life-Warmwater. NC not verified at this time.
- **Segment 3: South Branch Beaver Brook (2624400)**
 - *Codified designated use:* Not in NR 104 as LAL or LFF, so defaults to Warmwater
 - *Classification used for previous permit issuance:* Warmwater
 - *Previous stream class recommendations:* NA
 - *Modeled Natural Community:* Cool-Cold Headwater
 - *New recommended NC & DU:* Full fish and aquatic life-Warmwater. NC not verified at this time due to high number of tolerant species.

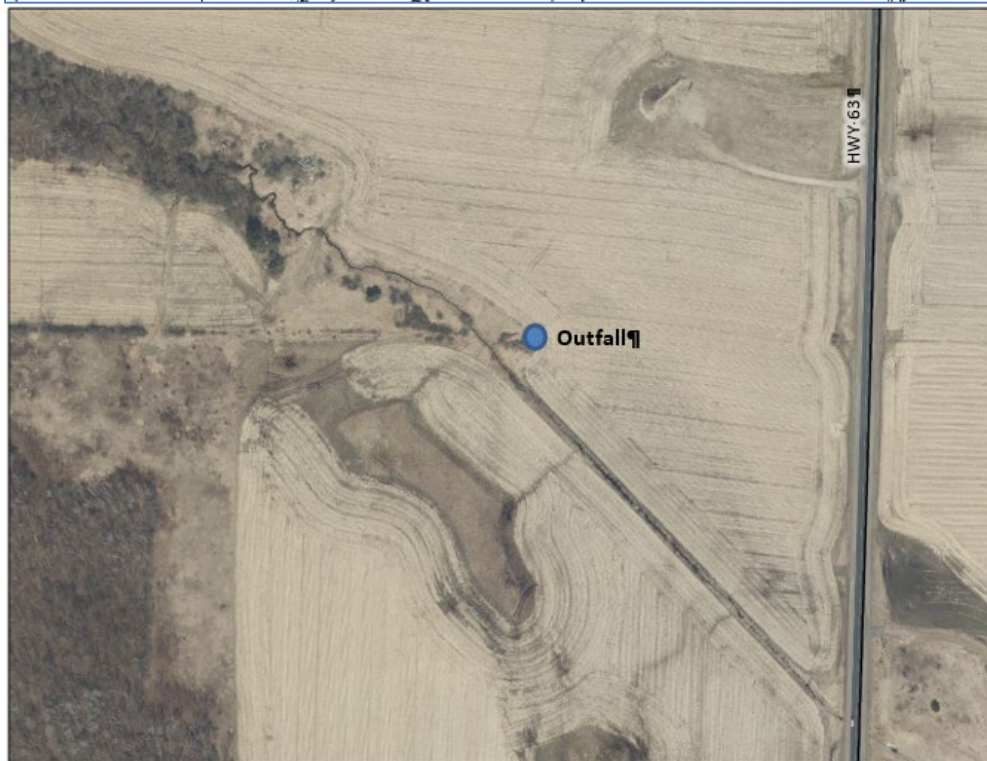
Site overview maps



Map 1. Site map of Clayton WWTP current outfall (blue dot), Clayton Branch (WBIC 2625100, segment 1 & 2), and South Branch of Beaver Brook (Segment 3, WBIC 2624400). Fish survey was done on Segment 3 100m downstream of 25th Street. The 1976 outfall location (yellow triangle) was either proposed but never used or was discontinued by 1978. The LAL segment listed in ch. NR 104 (red dashed line) is shown in relation to the proposed 1976 outfall point.



Map 2. Map included in the permit application submitted by facility and received by DNR in 2000, showing what may be a pipe (dashed line) running East to West for 2,500 feet to the outfall at the current location. This map also shows the former railroad line. (Handwriting says “effluent sample point”).



Map 3. Blue dot shows outfall, west of Hwy 63. This location is based on visit with facility operator on September 11, 2023.

Historic Recommendations and Memos

- *1976 memo from Terry Moe and David Teske.* The historic LAL recommendation in ch. NR 104 for a segment of Clayton Branch along the previously existing railroad tracks was based on the 1976 site visit by Terry Moe. At that time, the program expected the outfall to be constructed along that segment near the lagoons and railroad track.
- *1978 memo from A. A. Oehmcke.* In 1978 the outfall was recorded in its current location (in the field west of the facility and old track location) during a site visit done by A. A. Oehmcke. Oehmcke recommended that the LAL portion be removed from code, because the outfall was not at that location. It also recommended an LFF segment be added from the current outfall location through the southern half of Section 11. This was then used as the basis for a 2003 recommendation for a code update to remove the LAL portion and add an LFF portion; however, the code was never updated.
- *2002 memo by Jim Cahow.* In this memo, the stream had water present most of the year even up to highway 63 during an above average precipitation year. At that time the stream was experiencing runoff from a manure pit that was overflowing as well as runoff from cheese waste that was landspread upstream of Highway 63. Cahow stated that with improved agricultural practices the stream would likely see an improvement in its biological community. Staff sampled macroinvertebrates ~400m downstream of Highway 63 near the outfall location. Macroinvertebrates found included narrow-winged damselflies, northern case-maker caddisflies, finger-net caddisflies, water boatmen, a predaceous diving beetle, a *Helisoma* snail, fingernail clams, tubifex worms, leeches, scuds (*Hyalella azteca*), chironomids, chaoborus, and daphnia magna. A fish survey was also done downstream of 125th Avenue. Due to soft sediment the survey was limited to 20m. Forty-eight total fish and 6 species were captured, including 39 brook stickleback, 3 fathead minnow, 2 northern redbelly dace, 2 brassy minnow, 1 pearl dace, and 1 finescale dace. If a full survey had been possible, it is likely more fish and possibly more species would have been captured. Clayton Branch was recommended to be listed as full aquatic macroinvertebrate life near the outfall and full fish and aquatic life downstream. This recommendation was meant to supersede the Oehmcke recommendation.
- *2003 draft code recommendations table prepared by Laura Bub.* In the 2003 recommendations table, Clayton Branch was presented as several segments. However, a subsequent email (May 21, 2003 between Laura Bub and Jim Cahow) revealed that the 2003 recommendation should have been based on Cahow's more recent 2002 site visit and fish survey, and therefore the entire extent of Clayton Branch should be considered full fish and aquatic life-Warmwater (forage fish/non-gamefish). Historic (lettered) segments illustrating the 2003 recommendation from the Laura Bub table (shown in Map 4) are as follows:
 - Segment X "OLD LAL" was a short stretch immediately downstream of the 1976 outfall location near the treatment ponds, east of an old railroad crossing. This segment is still listed in ch. NR 104 as Limited Aquatic Life (LAL, WBIC 2625100; the general location is shown on Map 1 and the exact location of this segment is documented in the 1976 memo/map). In 2003 it was recommended that this LAL listing be removed.
 - Seg. A is a segment proposed in 2003 to be added as a new Limited Forage Fish (LFF) segment, from the current outfall (blue dot on Maps 1-3) extending 1.5 miles to what we believe is 105th Ave. (same WBIC).
 - Segment B is the remainder of Clayton Branch (same WBIC) down to its confluence with South Branch Beaver Brook (Segment C, WBIC 2624400).
 - **Note again that the 2003 recommendations in the Laura Bub table were determined to be in error based on the email exchange with Jim Cahow, so Map 4 is simply for explanatory purposes of the historic record.



Map 4. Shows the current outfall location (blue dot), old proposed 1976 outfall location (black triangle), with Segment X (OLD LAL) and Segs. A-B. (DNR Water Condition Viewer)

Current Site Observations

Water resources staff visited the site in August and September 2023. The objective of the site visits were to determine the appropriate stream classifications for Clayton Branch at the point of discharge and downstream and determine if a fish survey was possible.

Upstream of Segment 1 the stream was dry at the crossing of HWY 63 on 2 site visits, one in August and one in September. Conditions in the summer of 2023 were dry, with Clayton in a moderate drought. The Village of Clayton was discharging on September 11, 2023 during the site visit. Downstream of Highway 63 the stream was dry and had many wetland plants within the channel. The outfall is a clay drainage tile pipe. The effluent was flowing over broken clay tile pieces and grass (photo 1). The flow path becomes a more defined channel approximately 6 feet long with sand bottom before emptying into Clayton Branch. A short distance upstream of where the outfall joins Clayton Branch, the channel was covered in reed canary grass and sedges with water present ~ 6 inches deep.

- **Segment 1: Clayton Branch from current outfall to ~0.1 mi downstream at private crossing**
Downstream of the outfall water was present. Dense reed canary grass prevented sampling and inhibited staff's ability to follow the flow.
- **Segment 2: Clayton Branch from private crossing to S. Br. Beaver Brook**
Water was in the stream channel both upstream and downstream of the 105th Avenue crossing. Upstream of 105th Avenue there is a defined channel leading into a pool that is surrounded by wetland plants. Downstream of 105th Avenue is very similar to the upstream side with a plunge pool and channel that flows through wetlands.

- **Segment 3: South Branch Beaver Brook (2624400)**

Upstream and downstream of 20th Street the stream has a defined channel with increased stream width that flows through wetlands. Fish were observed downstream of 20th Street. Upstream of 25th Street there is a large pool/ponded area in a wetland complex. Downstream of 25th Street the stream has a large plunge pool that becomes a 3m wide channel through wetlands. Fish were observed on the downstream end by the culvert.

Fish and Habitat Survey Results

Staff conducted a site visit on September 11, 2023 at Clayton Branch. Large stands of reed canary grass in the channel and limited water prevented them from doing a fish survey. Water depth and instream habitat were also difficult to determine with the conditions. Staff did not have permission to access the stream below the outfall or upstream/downstream of 105th Avenue. Since the crossing at 105th Avenue held water all summer during a drought year, it likely holds water year round. Approximately 0.1 miles downstream of the outfall the stream becomes more meandering and appears to hold more water on aerial photos. This could be the transition between an intermittent stream and where the stream holds water more consistently and would support a full fish community.

A 100m fish survey and qualitative habitat survey was done downstream of 25th Avenue on South Branch of Beaver Brook on August 8, 2023. A total of 147 fish were caught from 9 species, including one game fish: northern pike (Table 1). Depth and habitat was good, with many pool areas, bends, and undercut banks (Table 2). A diverse aquatic plant community was present. Overall qualitative habitat score was 65. Thick aquatic vegetation inhibited capture of fish, so more were present than what is reported. Habitat and stream conditions are similar to the crossing at 20th Street. Clayton Branch at 105th Avenue is likely similar in habitat with a smaller channel width.

Fish Survey Data for South Branch of Beaver Brook

Site	Station length (m)	Fish species	Count	Length
downstream of 25 th Street	100	Creek chub	23	4.9
		Central mudminnow	82	
		White sucker	12	
		Common shiner	1	
		Hornyhead chub	3	
		Northern pike	1	
		Johnny darter	1	
		Black bullhead	3	
		Western blacknose dace	11	
Total			147	

Table 1. Fish survey data for South Branch of Beaver Brook (WBIC 2624400). Fish survey was conducted on August 8, 2023.

Habitat Survey Results for South Branch of Beaver Brook

Site	Mean Stream Width (m)	Riparian buffer width	Bank erosion	Pool area	Width:depth ratio	Riffle:riffle or bend:bend ratio	Fine sediments	Cover for fish	Overall score
Downstream of 25 th Street	3	Good (10)	Good (10)	Excellent (10)	Good (10)	Good (10)	Poor (0)	Excellent (15)	65

Table 2. Qualitative Habitat Survey for South Branch of Beaver Brook (WBIC 2624400) conducted on August 8, 2023. Survey was done on the same segment as the fish survey.

Discussion and Designated Use Recommendations

Note: Recommendations from this site visit are shown at the top of this memo.

Overall Clayton Branch transitions from an intermittent stream that likely provides habitat for fish seasonally to a perennial stream with a fish community. Clayton Branch is impacted by the agriculture upstream of the outfall, where it has been channelized and has a limited buffer. The channelization likely limits how long water is held within the stream and reduces available habitat. Agricultural land use can also lead to high peak flows and lower base flows (i.e. flashy hydrology) which may be contributing to the intermittent flows observed. Clayton Branch's lower section has a forested and wetland riparian corridor and more consistent water. South Branch of Beaver Brook below the confluence with Clayton Branch is a perennial stream that flows through wetlands and a fish community.

- **Segment 1: Clayton Branch from current outfall to ~0.1mi downstream at private crossing**

This segment had water on the day of the site visit. Close to the outfall, the stream likely has flow when the WWTP is discharging, during rain events, and likely seasonally in spring and fall since upstream of the outfall no water was present during the site visit and in August. This is also supported by the 2002 memo. The extent of time when water is present directly below the outfall is unknown. Agricultural land use and channelization likely limit flows and habitat in this segment. Continuous water is likely present downstream of the outfall approximately 0.1 miles where the stream becomes more meandering based on aerial photos. This change in stream characteristics could be the transition between an intermittent stream and where the stream has water more consistently. This location is also close to where the 2002 segment change from "macroinvertebrate full aquatic life" to "full and diverse aquatic life warmwater" was recommended. Because the distance between the intermittent and continuous segments is not very long, it is likely that fish would move up to this segment and upstream of the outfall seasonally when water is present. A good fish community was present in 2002 downstream from this point even through significant agricultural impacts were present. Habitat has likely improved since the 2002 field visit as the manure pit and cattle impacts are no longer present. For these reasons the designated use for segment 1 could appropriately be limited forage fish; however, an LFF designation may require a Use Attainability Analysis (UAA) and Administrative Code revision. If a UAA found that a warmwater use is attainable if controllable conditions were controlled, then a warmwater use would apply.

- **Segment 2: Clayton Branch from private crossing to S. Br. Beaver Brook**

This segment had water present upstream and downstream of 105th Avenue and where it joins S. Br. Beaver Brook near 20th Street in a dry year. This indicates that this segment is perennial. The habitat is likely similar to S. Br. Beaver Brook downstream of 25th Street. Clayton Branch upstream of 105th Avenue has a smaller width, but it is expected to support a full fish and aquatic life based on available habitat and the fish observed in 2002. Three of the six species observed in 2002 are classified as headwater species, which fits the habitat for this segment. The change in stream characteristics below the private crossing indicate that water is likely present more often than in segment 1. With more water present, it is likely that this segment supports a full fish community. Thus the recommended Designated Use is warm water forage fish community.

- **Segment 3: South Branch Beaver Brook (2624400)**

A full fish community is present downstream of 25th Street. Water levels and habitat are very similar from 20th Street to downstream of 25th Street. While a natural community verification could not be done, the observed fish community is typical of a cool-warm headwater community. If land use practices improved, the observed fish community could change. South Branch of Beaver Brook's recommended Designated Use is full fish and aquatic life-Warmwater.

Are code changes and/or a Use Attainability Analysis needed?

- The LAL portion should be removed from code as it is no longer relevant to the facility's effluent path; additionally, the location description of the segment is very unclear.
- The designated use for segment 1 could appropriately be limited forage fish; however, an LFF designation may require a Use Attainability Analysis (UAA) and Administrative Code revision. A future fish survey during a spring/early summer timeframe may be useful in verifying the fish community. If a UAA found that a warmwater use is attainable if controllable conditions were controlled, then a warmwater use would apply.
- The modeled natural community for South Branch Beaver Brook is Cool-Cold Headwater, which would be a coldwater designated use category, so verification is needed on the appropriate classification for Segment 3. The classification of S. Br. Beaver Brook would not be likely to affect permit limits so is a lower priority to survey.

Photos taken 8-1-2023, 8-8-2023, & 9-11-2023

Photo 1. Outfall pipe.



Photo 2. Upstream view of flow path from outfall pipe before it joins Clayton Branch.



Photo 3. Clayton Br. above outfall confluence looking upstream.



Photo 4. Clayton Br. Near outfall confluence looking downstream.



Photo 5. Clayton Br looking upstream at 105th Avenue.



Photo 6. Clayton Br looking downstream at 105th Avenue.



Photo 7. Clayton Br.-S. Br. Beaver Brook looking upstream at 20th Street.



Photo 8. S. Branch of Beaver Brook looking downstream at 20th Street.



Photo 9. S. Branch of Beaver Brook looking upstream at 25th Street.



Photo 10. S. Branch of Beaver Brook looking downstream at 25th Street.



Photo 11. S. Branch of Beaver Brook looking upstream at fish survey end.



Photo 12. S. Branch of Beaver Brook looking downstream in fish survey.



Photo 11. S. Branch of Beaver Brook looking downstream



Photo 11. S. Branch of Beaver Brook looking downstream



Bub, Laura A

From: Cahow, James M
Sent: Wednesday, May 21, 2003 2:43 PM
To: Bub, Laura A
Cc: Prusak, Peter J; Jaeger, William C
Subject: RE: Clayton Branch (S. Branch of Beaver Brook)

Hi Laura, it was my understanding that any reclassification of surface waters using the new guidance would wait until Phase II. I think the stream should be listed as Clayton Branch (a tributary to the South Branch of Beaver Brook); but, since it is reverting to FAL and won't need to be listed the point is mute. If you have any more questions respond to this e-mail or give me a call at the Barron DNR office (715/537-5046). Pete or Bill if you have a different understanding please respond to Laura's comments below. Thanks talk with you all later.

-----Original Message-----

From: Bub, Laura A
Sent: Wednesday, May 21, 2003 9:54 AM
To: Cahow, James M
Subject: Clayton Branch (S. Branch of Beaver Brook)

Hi Jim,

I'm looking at the S. Branch of Beaver Brook, unnamed trib (V. of Clayton WWTP). I have a couple of questions. The revised reports that you sent in mid/late March indicate that you have done recent fieldwork on two segments of the stream, and have determined that they should be classified as follows (I just want to confirm that I have my story straight):

Segment 1 (headwaters): This site is currently codified as LAL, and is proposed to be reclassified to LFF during current NR 104 revisions. Your report states that it should be classified as FFAL. Should this classification change take place in Phase 1 or Phase 2 revisions?

Segment 2 : this segment is not currently listed in NR 104, therefore it defaults to FAL. The report that you submitted indicates that this should remain the case.

So, basically, both segments would (eventually?) be dropped from the list, and default to a FAL classification?

Also, this stream segment(s) is currently listed as " Beaver Brook, S. Branch, trib to." I notice that you refer to the waterbody name as "Clayton Branch"--should I change the waterbody name currently in NR 104, and if so, how should it read?

Does this all make sense to you? If it doesn't let me know, and I can try to clarify. If you have answer these questions, I'd appreciate it!

Thanks-
Laura

Laura Bub

Water Quality Standards Specialist
Bureau of Watershed Management
Wisconsin Department of Natural Resources
PO Box 7921, Madison, WI 53707
(608) 261-4385
Laura.Bub@dnr.state.wi.us

Clayton Branch (Headwaters Segment) ← Segment 1 of 2
7.0 REPORTING DESIGNATED USES Rec'd 3-22-03

Surface water designated uses that will be codified, or will be used to develop effluent limits require formal reports approved by Basin Leaders and the Water Quality Standards Section Chief. The Fish and Aquatic Life Designated use Form should be used to report the results of classification studies, designated use recommendations, and approved designated uses. Additional narrative and data can be added to supplement the form as needed. Please provide as much information as you can on the form. However, the first page including approvals, discharger data on the second page, and fish community data on page 5 are required for all use classifications. **In addition, if the recommended designated use is Tolerant Fish and Aquatic Life or Very Tolerant Aquatic Life, page 7 must be completed.** Surface water designated uses can be controversial and may be contested. Therefore, more information and data is always preferred. The form is available on the intranet at _____.

FISH AND AQUATIC LIFE DESIGNATED USE FORM

(Attach supporting data sheets)

WATERBODY NAME Clayton Branch trib to S. Branch of Beaver Brook WBIC# _____

REGION Northern BASIN St Croix COUNTY Polk

Segment Shown on Clayton Quad. Map _____

Reference Site(s) None currently selected, Attach class. form for ref. site/cond.

SEGMENT DESCRIPTION for Segment 1 of 2 (headwater = segment 1)

From: Hwy 63	lat/long	tn, rng, 1/4, 1/4, section
downstream <u>1 Mile</u>		
To: a half mile upstream of 105 th Ave crossing or the center of the SW 1/4 of the SE 1/4, Section 11, T33N - R15W as was described in Sept 30 th 1976 evaluation conducted by Terry Moe & David Teske classification write up by A. A. Oemcke on July 12 th , 1978.	lat/long	tn, rng, 1/4, 1/4, section

See attached site map and photos showing stream segment (these are not currently available on this electronic form and will be added latter with the hard copies going to central office). Point of Discharge or outfall pipe was not located during 2002 survey.

DESIGNATED USE INFORMATION:

New Classification DFAL, Standards Review _____, Ref. Site _____, Date field work conducted/completed 11/10/2002

Current FAL Designated use Limited Forage Fishery, Date 7/12/1978 (attach)

Existing FAL Use Based on current data DFAL (2.3.3 - Macroinvertebrate Community Waters), Date 11/10/2002

Recommended Attainable Designated use DFAL (2.3.3 - Macroinvertebrate Community Waters)

Seasonal Designated use(s)/Dates Dependent upon water year (2002 was a high water year and resulted in continuous flows up to Hwy 63 throughout the summer capable of supporting a diverse macroinvertebrate community stucture with approximately 30% having a HBI value of 5 or less.

Other Applicable Uses: ORW _____, ERW _____, Recreation _____, Wild Life _____...

Submitted By: Jim Cahow

Date: 12/3/2002

Reviewed By: Pete Prusack	Date:
Approved Basin Leader: Kathy Bartilson	Date:
WQS Sect. Chief, or Designee:	Date:

Water Body Name Clayton Branch, WBIC# _____, Date _____

DISCHARGER INFORMATION:

Municipality/Company Clayton WWTP, Permit # _____

Outfall Location Over 1,000 yards of pipe carry the effluent to a point in the NE 1/4 NW 1/4, Sec 13, T33N - R15W approximately 275 yards west of Hwy 63.

Contact Person _____, Contact Date(s) _____

Did A Representative Observe Field Work? No _____, Yes _____

Representative Name _____, Date(s) _____

Comments about facility, representative's observations, etc.: _____

BASIS FOR DESIGNATED USE DECISION (List and briefly discuss key elements for the decision)
Current agricultural impacts limit the biological potential of the stream in the headwaters section immediately downstream of Hwy 63. An overflowing manure pit from the Tom Nonemacher farm had caused significant impacts to the biological community at the time of this assessment (fall 2002). The existing biological community is not attaining its full biological potential because of these impacts. If proper manure management practices were implemented more sensitive or intolerant species would make up a greater portion of the overall macroinvertebrate community structure.

2002 was an above average water year. During lower precipitation years the headwaters (within 1 mile of Hwy 63) may be more intermittent in character and limit the ability of this segment to support a diverse aquatic macroinvertebrate community. Fish were not sampled in this segment; but, without additional agriculturally related BMP's it is doubtful that it could support anything but a tolerant forage fishery dominated by sticklebacks and mudminnows. The amount of sediments and nutrients deposited in the stream channel from historic runoff pollution will continue to limit habitat quality. These lower gradient stretches do not flush out regularly. It may take decades or longer to flush the sediments and nutrients out of the stream channel and to allow for the break down of organic matter.

Of those macroinvertebrates present within the sample that had assigned tolerance values, 30% had assigned tolerance values of 5 or lower (see section 2.3.3 in the July 2002 Guidelines for Designating Fish and Aquatic Life Uses). Macroinvertebrate communities with greater than 25% with an assigned tolerance value of 5 or less should receive the DFAL classification based on subsection 2.3.3.

Point of discharge was not located at the time of this classification. A return trip when the WWTP is discharging from their treatment lagoons should be considered to help determine the exact point of discharge. This may help to separate out potential agriculturally related impacts from those related to the point of discharge **(talk with Pete about this!)**.

Limits Calculator: _____ Date: _____

Watershed Expert _____ Date: _____

Fish and Habitat Expert _____ Date: _____

Bureau of Endangered Resources when these species are present _____ Date _____
Send final report to:

Facility Village of Clayton WWTP Date: _____

Basin Wastewater Eng. Pete Prusack Date: _____

Other interested parties (list) _____ Date: _____

Water Body Name Clayton Branch, WIBC# _____, Date _____

LITERATURE REVIEW

1. Cite here and attach previous classification reports and designated uses.
Sept 30th 1976 evaluation conducted by Terry Moe & David Teske classification write up by A. A. Oemcke on July 12th, 1978.
2. Cite here and attach all previous studies and data associated with the water body that are applicable to use classification.

Sept 30th 1976 evaluation conducted by Terry Moe & David Teske classification write up by A. A. Oemcke on July 12th, 1978.

3. If applicable, cite here and attach a copy of the page from *Wisconsin Trout Streams*, and any other publication listing the stream as trout water.
4. Cite here and attach any other literature applicable to the fish and aquatic life designated use.

July 2002 Draft of the "Guidelines for Designating Fish and Aquatic Life Uses"

Hilsenhoff, W.L. 1987. An improved biotic index of organic stream pollution. *The Great Lakes Entomol.* 20:31-39

Summarize and interpret the literature available and how it relates to and supports the classification and the recommended designated use:

July 2002 Draft of the "Guidelines for Designating Fish and Aquatic Life Uses" identifies 3 types of streams that should receive the protection classification of Diverse Fish and Aquatic Life (DFAL) communities. These include DFAL Game Fish Community Waters (sect 2.3.1), Non-game fish community waters (sect 2.3.2), and Macroinvertebrate community waters (sect 2.3.3).

This stream segment falls within the criteria laid out in the DFAL section under sub-section 2.3.3 for Macroinvertebrate community waters.

Water Body Name Clayton Branch, WIBC# _____, Date _____

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FIELD ASSESSMENT DATA AND OBSERVATIONS

Assessment dates: 10/25/2002 to 11/10/2002

PHYSICAL/CHEMICAL DATA

SEGMENT LENGTH 1600 Yards, DEPTH, AVG. 0.3 ft MAX. 2 ft AVG. WIDTH 5 ft

SEGMENT GRADIENT _____, VELOCITY <0.5 ft/sec

SUBSTRATE MATERIAL %silt 40 %sand 15 %gravel 5
 %rubble _____ %organic 40 %other _____

NATURAL FLOW _____ cfs, (MEASURED _____, ESTIMATED 0.2 cfs).

Flow was high X, normal _____, low _____, very low _____

Q7,2 flow _____, Q7,10 flow _____, estimated _____ or measured _____

EFFLUENT FLOW: 24 hr. average _____, measured _____, estimated _____

Design flow _____

TEMPERATURE _____, Instantaneous _____ or 24 hr. max. average _____, Date(s) _____

DISSOLVED OXYGEN:

Instantaneous _____ mg/L, Time of day _____, Date _____

Continuous: Minimum _____ mg/L, Range _____ mg/L to _____ mg/L

Dates / time measured: _____ to _____, total = _____ hrs.

CHEMICAL DATA COLLECTED:

BREIF INTERPRETATION/COMMENTS:

Water Body Name Clayton Branch, WIBC# _____, Date _____

BIOLOGICAL DATA

FISH: were not collected as a part of this segments survey. See part 2 of 2

MACROINVERTEBRATES: Sampling date 11/10/2002, HBI/FBI _____

Survey location(s) approximately 400 yards West (Downstream) of Hwy 63 crossing

Sampling Procedure Kick net sampling

< 100 organisms found, list dominant genera, numbers and HBI values:

> 100 organisms found, attach taxonomy bench sheet or other analyses:

The organisms with assigned tolerance values included: 22 *Hyaella azteca*; a tolerant amphipod with a tolerance rating of 8 on a scale from 1 to 10 with 10 being extremely tolerant of pollution, 10 *Limnephilidae* caddis flies belonging to the genus *Anabolia*, and 3 *Phryganeidae* caddis flies belonging to the genus *Ptilostomis* both have assigned tolerance values of 5. A unique dipteran *Chaoborus* also occurred within the sampled reach and 8 individuals with an assigned tolerance of 8 were collected. Further taxonomic resolution within the sample can be gained by mounting the 23 aquatic midges collected on microscope slides allowing for species identification and enumeration and further determination of assigned species tolerance values.

None HBI organisms included 4 damselflies of the *Ischnura/Anomalagrion* complex, *Hygrotus* a Dytiscid predaceous diving beetle, *Sigara* a water boatman, 35 *Daphnia magna*, and a variety of leaches, snails, clams, and oligochaetes.

% individuals with HBI value 5 or less 30%

OTHER BIOLOGICAL DATA/OBSERVATIONS:

Organic enrichment stemming from the overflow of Tom Nonemacher's manure pit makes it difficult to assess if there are any impacts from the existing WWTP discharge. Agricultural runoff from adjacent crop fields could be reduced by increasing buffer widths and expanding unmowed grass waterways. Changing agricultural service and access roads and ditches could significantly reduce the amount of sediments and nutrients being delivered in runoff. Changing drainage patterns through barnyards, loafing areas and intensively grazed pastures could reduce NPS impacts and result in improved biological potential.

The biological potential of this segment is likely to vary greatly from year to year depending on amount of precipitation and the intensity in which it is delivered. Low water years or drought years will impact the ability of this segment to sustain or maintain aquatic communities.

INTERPRETATIONS BASED ON EXISTING FISH AND AQUATIC LIFE COMMUNITY:

Based on aquatic macroinvertebrate community structure as laid out in section 2.3 DFAL subsection 2.3.3 this segment should receive the protective classification of DFAL. See additional discussions and attached taxonomic bench sheets.

This also makes it difficult to determine the true/FBI biotic potential for stream segment

Water Body Name Clayton Branch, WIBC# _____, Date _____

HABITAT

Procedure _____

Habitat rating _____, attach habitat rating forms

Significant problems affecting use attainment:

low flow X sedimentation X bank erosion _____ ditching X fish cover _____ depth _____

Other Manure management practices or the lack there of.

Observations About Habitat Quality:

Habitat quality is impaired by excess or controllable agriculturally related runoff including manure pit overflows. Habitat quality may very greatly depending upon water year. Higher precipitation years, as in 2002, may support a diverse and healthy aquatic macroinvertebrate community structure up to Hwy 63. During drought or low flow years the channel may dry up leaving intermittent pools to the center of the SW $\frac{1}{4}$ of the SE $\frac{1}{4}$, Section 11, T33N - R15W.

WATERSHED DATA AND OBSERVATIONS

AREA

Approximate size 300 acres above point of discharge

Land use: % crop land 50, % pasture 10, % forest 10,

% grass land 15, % urban 5, % wetland 10,

No. feedlots/barn yards near stream 1

Other NPS Manure pits, Barnyards, Ag fields, and field service or access roads

Is this watershed currently or proposed to receive NPS management under a State, Federal or local organization? Yes _____, no X. List dates and explain:

Discuss NPS impacts and controllability, and NPS relationship to fish and aquatic life existing and attainable uses. Include factors such as bank erosion, land cover/use near stream, gully erosion, barn yards, etc. (attach additional sheets if required):

Manure management is a problem for many smaller farms that are trying to carry to many head of cattle for the limited acreages available for spreading manure and the limited holding capacity of their smaller pits. This gives them little residual capacity to deal with extended wet weather that periodically hampers their ability to haul or spread the manure. Location and proximity of the barn yard and loafing areas with poorly laid out service or access roads increases the likelihood that NPS impacts will continue to limit the biological potential of the headwaters. Service or access roads to back fields provide areas of concentrated flow which enhance delivery of runoff.

Water Body Name Clayton Branch, WIBC# _____, Date _____

=====

THIS PAGE MUST BE COMPLETED WHEN THE RECOMMENDED DESIGNATED USE IS TOLERANT FISH AND AQUATIC LIFE OR VERY TOLERANT AQUATIC LIFE.

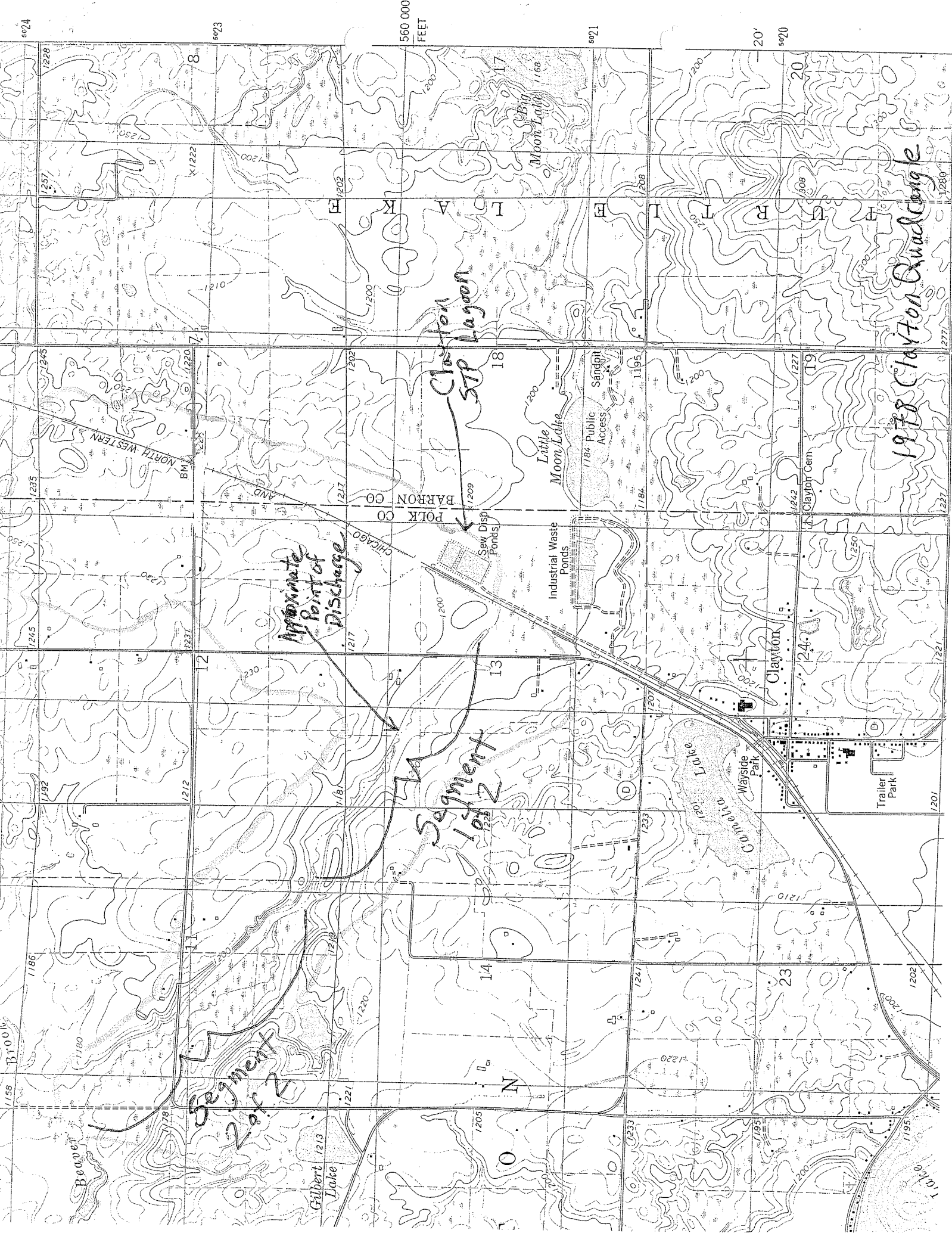
RECOMMENDED DESIGNATED USE _____

Tolerant and Very Tolerant Designated uses

Tolerant Fish and Aquatic Life and Very Tolerant Aquatic Life designated uses are not defined as full fish and aquatic life uses. In most cases an TFAL or VTAL use is the best that can be attained by these resources due to natural habitat or water quality limitations. A designated use recommendation into one of these sub-categories must be based on one or more of the following factors (s. 283.15(4), Stats.). Check all that apply to this designated use and provide a brief description of the situation:

- ☐ a. Naturally occurring pollutant concentrations prevent the attainment of a full fish and aquatic life community.
- ☐ b. Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of a full fish and aquatic life community, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating water conservation requirements.
- ☐ c. Human caused conditions or sources of pollution prevent the attainment of a full fish and aquatic life community and cannot be remedied or would cause more environmental damage to correct than to leave in place.
- ☐ d. Dams, diversions or other types of hydrologic modifications preclude the attainment of a full fish and aquatic life community, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of a full fish and aquatic life community.
- ☐ e. Physical conditions related to the natural features of the water body, such as the lack of proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of a full fish and aquatic life community.

DESCRIPTION:



Clayton Branch 2002.0 - - Downstream of Hwy 60 ~ 400 meters → HBI Sample

Taxa	Tolerance Value	Organism Count				
		Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Coenagrionidae - Ischnura / Anomalagrion Complex	NA	4				
Limnephilidae → Anabolia	5.0	10				
Phryganeidae → Ptilostomis	5.0	3				
Dytiscidae - Hygrotus	NA	1				
Corixidae - Sigara	NA	1				
Diptera - Chironomidae	NA	23				
Chaoboridae - Chaoborus	8.0	8				
Gammaridae - Hylella azteca	8.0	22				
Daphnia Magna		35				
Annelidae - leaches 5 small - 1 larger -						
Snail - Helisoma		1				
Sphaeriidae → fingernail Clams		2				
Oligochaeta → Tubifex worms		47				
Total = 157 organisms						

There is a total of 43 individuals with assigned HBI tolerance values
30% of those have an assigned tolerance value of 5 or less

See section 2.3 in the July 2002 Draft of "Guidelines For Designating Fish and
Aquatic Life Uses For Wisconsin Surface Waters" #3 types of Diverse Fish
and Aquatic Life Communities (DFAL)
and see subsection 2.3.3

7.0 REPORTING DESIGNATED USES

Surface water designated uses that will be codified, or will be used to develop effluent limits require formal reports approved by Basin Leaders and the Water Quality Standards Section Chief. The Fish and Aquatic Life Designated use Form should be used to report the results of classification studies, designated use recommendations, and approved designated uses. Additional narrative and data can be added to supplement the form as needed. Please provide as much information as you can on the form. However, the first page including approvals, discharger data on the second page, and fish community data on page 5 are required for all use classifications. **In addition, if the recommended designated use is Tolerant Fish and Aquatic Life or Very Tolerant Aquatic Life, page 7 must be completed.** Surface water designated uses can be controversial and may be contested. Therefore, more information and data is always preferred. The form is available on the intranet at _____.

FISH AND AQUATIC LIFE DESIGNATED USE FORM

(Attach supporting data sheets)

WATERBODY NAME Clayton Branch WBIC# _____

REGION Northern BASIN St Croix COUNTY Polk

Segment Shown on Clayton Quad. Map

Reference Site(s) None selected, Attach class. form for ref. site/cond.

SEGMENT DESCRIPTION for Segment 2 of 2 (headwater = segment 1)

From: the center of the SW ¼ SE ¼, Sec 11, T33N- R15W or from approximately ½ mile upstream of 105 th Avenue	lat/long N45°21'37"	tn, rng, ¼, ¼, section
downstream <u>1</u> mi.	W92°11'34"	
To: confluence with South Branch Beaver Brook	lat/long	tn, rng, ¼, ¼, section

See attached site map and photos showing stream segment. **Point of discharge was not located at the time of this survey, a return trip during the time of discharge from the WWTP lagoons would help locate the outfall and help to separate out agriculturally related impacts. Talk with Pete about this!**

DESIGNATED USE INFORMATION:

New Classification _____, Standards Review _____, Ref. Site _____,

Date field work conducted/completed 10/16/2002

Current FAL Designated use Full Fish and Aquatic Life, Date 9/30/1976 (attach)

Existing FAL Use Based on current data DFAL – Non-game fish community waters, Date 10/16/2002

Recommended Attainable Designated use DFAL – Non-game fish community waters

Seasonal Designated use(s)/Dates Variability in biological potential can be more limited by water year than season – although spring flows are expected to be greater most years and provide at least limited inundation even during most low flow or drought years.

Other Applicable Uses: ORW _____, ERW _____, Recreation _____, Wild Life _____

Submitted By: Jim Cahow	Date: 11/7/2002
Reviewed By: Pete Prusack	Date:
Approved Basin Leader: Kathy Bartilson	Date:
WQS Sect. Chief, or Designee:	Date:

Water Body Name Clayton Branch, WBIC# _____, Date 10/16/2002

DISCHARGER INFORMATION:

Municipality/Company Clayton WWTP, Permit # _____

Outfall Location Over 1,000 yards of pipe carry the effluent to a point in the NE ¼ NW ¼, Sec 13, T33N – R15W approximately 275 yards west of Hwy 63.

Contact Person _____, Contact Date(s) _____

Did A Representative Observe Field Work? No _____, Yes _____

Representative Name _____, Date(s) _____

Comments about facility, representative's observations, etc.:

BASIS FOR DESIGNATED USE DECISION (List and briefly discuss key elements for the decision)

Fishery community consisted of at least six forage species. A standard length of stream could not be sampled (100 meters); because, fine sediments dominate the stream bed and made wading difficult to impossible above and below the sampled point at 105th Ave. Approximately 20 meters of stream was sampled immediately below 105th Avenue. Fish species and counts are as follows: Brook Stickleback; 39 individuals, Fathead minnow; 3 individuals, Northern Redbelly Dace; 2 individuals, Brassy Minnow; 2 individuals, Pearl Dace; 1 individual, Finescale Dace; 1 individual. A crude extrapolation would seem to indicate that with 6 species and 48 fish sampled in 20 meters, if a full 100 meters had been sampled there would have been more species encountered and a minimum population of 50 fish per 100 meters sampled would have been easily documented in accordance with subsection 2.3.2. The July 2002 Draft "Guidelines for designating fish and aquatic life uses for Wisconsin surface waters – Data collection and interpretation procedures" under subsection 2.3.2 would support the classification of DFAL under the Non-game fish community waters subcategory.

Invertebrate community was not sampled in detail; but, based on several dip net samples, was dominated by Gammarus Pseudolimnaeus which has an assigned HBI tolerance value of 4. According to the July 2002 Use Designation Guidance under section 2.3.3 "Macroinvertebrate Community Waters" it would support at least a Diverse Fish and Aquatic Life use classification.

Limits Calculator: _____ Date: _____

Watershed Expert _____ Date: _____

Fish and Habitat Expert _____ Date: _____

Bureau of Endangered Resources when these species are present _____ Date _____

Send final report to:

Facility _____ Date: _____

Basin Wastewater Eng. Pete Prusack _____ Date: _____

Other interested parties (list) _____ Date: _____

Water Body Name Clayton Branch, WIBC# _____, Date 10/16/2002

LITERATURE REVIEW

1. Cite here and attach previous classification reports and designated uses.
Terry Moe & David Teske's September 30th, 1976 survey summarized by A. A. Oehmcke July 12th, 1978 memo (see attachments).
2. Cite here and attach all previous studies and data associated with the water body that are applicable to use classification.
Terry Moe & David Teske's September 30th, 1976 survey summarized by A. A. Oehmcke July 12th, 1978 memo (see attachments).
3. If applicable, cite here and attach a copy of the page from *Wisconsin Trout Streams*, and any other publication listing the stream as trout water.
4. Cite here and attach any other literature applicable to the fish and aquatic life designated use.
July 2002 Draft "Guidelines for designating fish and aquatic life uses for Wisconsin surface waters – Data collection and interpretation procedures".

Summarize and interpret the literature available and how it relates to and supports the classification and the recommended designated use:

"Guidelines for designating fish and aquatic life uses for Wisconsin surface waters – Data collection and interpretation procedures" clearly support the designation of this stream segment as DFAL under both the Non-game fish community waters subsection 2.3.2 and the Macroinvertebrate community waters subsection 2.3.3 based on sampled community structure.

Water Body Name Clayton Branch, WIBC# _____, Date 10/16/2002

=====

FIELD ASSESSMENT DATA AND OBSERVATIONS

Assessment dates: 10/16/2002 to 11/8/2002

PHYSICAL/CHEMICAL DATA

SEGMENT LENGTH 20 Meters, DEPTH, AVG. 18" MAX. 40" AVG. WIDTH 6'

SEGMENT GRADIENT _____, VELOCITY 0.5 ft/sec _____

SUBSTRATE MATERIAL %silt 50% %sand 10% %gravel _____

 %rubble _____ %organic 40% %other _____

NATURAL FLOW _____ cfs, (MEASURED 2.08 cubic ft/sec – suspect meter problems).

Flow was high X, normal _____, low _____, very low _____

Q7,2 flow _____, Q7,10 flow _____, estimated _____ or measured _____

EFFLUENT FLOW: 24 hr. average _____, measured _____, estimated _____

 Design flow _____

TEMPERATURE _____, Instantaneous _____ or 24 hr. max. average _____, Date(s) _____

DISSOLVED OXYGEN:

Instantaneous _____ mg/L, Time of day _____, Date _____

Continuous: Minimum _____ mg/L, Range _____ mg/L to _____ mg/L

Dates / time measured: _____ to _____, total = _____ hrs.

CHEMICAL DATA COLLECTED:

BREIF INTERPRETATION/COMMENTS:

Point of discharge was not located at the time of this classification. A return trip when the WWTP is discharging from their treatment lagoons should be considered to help determine the exact point of discharge. This may help to separate out potential agriculturally related impacts from those related to the point of discharge (talk with Pete about this!).

Water Body Name Clayton Branch, WIBC# _____, Date 10/16/2002

BIOLOGICAL DATA

FISH: Sampling date 10/16/2002, Attach species list and IBI forms if applicable

Survey Location(s) Downstream of 105th Avenue approximately 0-20 meters

Distance sampled 20 meters Sampling Gear Back Pack Shocker and large frame kick net

No. of species 6, Total fish 48

No. of species not listed as tol. to low DO 4, Total fish 48, % not listed 12.5%

Endangered or other special category species _____

Warm B species _____, Total no. _____

MACROINVERTEBRATES: Sampling date 10/16/2002, HBI/FBI no formal sample was collected, only field observations; but, with the community structure dominated by Gammarus the HBI would have been between 4.0 and 5.0.

Survey location(s) Downstream of 105 th Avenue

Sampling Procedure Multi-habitat Kick net sampling

< 100 organisms found, list dominant genera, numbers and HBI values:

Gammarus psuedolimnaeus made up approximately 70% of the invertebrates sampled. Its assigned tolerance value is 4.0.

Anabolia sp. Made up approximately 10% and has an assigned tolerance value of 5.0

Ischnura/Anomalagrion species complex made up approximately 10%

Sigara spp. Made up approximately 10%

Ptilostomis sp. was identified as present, but not numerous.

Caecitodea intermedius (formerly Assellus) was identified as present, but not numerous.

> 100 organisms found, attach taxonomy bench sheet or other analyses:

% individuals with HBI value 5 or less no formal sample was collected, only field observations - approximately 70%

OTHER BIOLOGICAL DATA/OBSERVATIONS:

INTERPRETATIONS BASED ON EXISTING FISH AND AQUATIC LIFE COMMUNITY:

During 2002, a higher than normal water year, sustained flows made it possible to support a stream classification of Diverse Fish and Aquatic Life (DFAL) based on either the Non-game fish community waters subsection 2.3.2 or the Macroinvertebrate waters subsection 2.3.3.

Point of discharge was not located at the time of this classification. A return trip when the WWTP is discharging from their treatment lagoons should be considered to help determine the exact point of discharge. This may help to separate out potential agriculturally related impacts from those related to the point of discharge (talk with Pete about this!).

Water Body Name Clayton Branch, WIBC# _____, Date 10/16/2002

HABITAT

Procedure _____

Habitat rating _____, attach habitat rating forms

Significant problems affecting use attainment:

low flow _____ sedimentation X bank erosion _____ ditching _____ fish cover _____ depth _____

Other Manure Management Practices upstream of 105th Ave overflowing manure pit, barnyard runoff or runoff from loafing areas with service roads providing areas of concentrated flow for direct delivery to the stream.

Observations About Habitat Quality:

Sedimentation limits the availability of coarse rock rubble and gravel spawning substrates and fills in and eliminates pool habitat.

WATERSHED DATA AND OBSERVATIONS

AREA

Approximate size 500 acres / sq. miles

Land use: % crop land 30, % pasture 15, % forest 20,

% grass land 10, % urban 5, % wetland 20,

No. feedlots/barn yards near stream 1

Other NPS overflow from manure pit, barnyards and associated loafing areas, service roads and ditches, row crops, and pastures.

Is this watershed currently or proposed to receive NPS management under a State, Federal or local organization? Yes _____, no _____. List dates and explain:

Discuss NPS impacts and controllability, and NPS relationship to fish and aquatic life existing and attainable uses. Include factors such as bank erosion, land cover/use near stream, gully erosion, barn yards, etc. (attach additional sheets if required):

Existing macroinvertebrate and forage fish community structure merits **DFAL** classification; but, has the potential to improve if overflows from the Tom Nonemacher manure pit are remedied. Overland flow through barnyard and loafing areas and the adjacent service roads continue to provide sediments and nutrients which limit the biological potential. Difficulty in confirming the exact location of the point of discharge for the Clayton WWTP outfall pipe makes it difficult to separate out or identify any impacts which may be associated with the WWTP discharge.

Water Body Name Clayton Branch, WIBC# _____, Date 10/16/2002

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**THIS PAGE MUST BE COMPLETED WHEN THE RECOMMENDED DESIGNATED USE IS
TOLERANT FISH AND AQUATIC LIFE OR VERY TOLERANT AQUATIC LIFE.**

RECOMMENDED DESIGNATED USE _____

Tolerant and Very Tolerant Designated uses

Tolerant Fish and Aquatic Life and Very Tolerant Aquatic Life designated uses are not defined as full fish and aquatic life uses. In most cases an TFAL or VTAL use is the best that can be attained by these resources due to natural habitat or water quality limitations. A designated use recommendation into one of these sub-categories must be based on one or more of the following factors (s. 283.15(4), Stats.). Check all that apply to this designated use and provide a brief description of the situation:

- ☐ a. Naturally occurring pollutant concentrations prevent the attainment of a full fish and aquatic life community.
- ☐ b. Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of a full fish and aquatic life community, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating water conservation requirements.
- ☐ c. Human caused conditions or sources of pollution prevent the attainment of a full fish and aquatic life community and cannot be remedied or would cause more environmental damage to correct than to leave in place.
- ☐ d. Dams, diversions or other types of hydrologic modifications preclude the attainment of a full fish and aquatic life community, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of a full fish and aquatic life community.
- ☐ e. Physical conditions related to the natural features of the water body, such as the lack of proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of a full fish and aquatic life community.

DESCRIPTION:

STREAM: Clayton Branch

DATE 10/16/2002

STATION LENGTH 20 meters $\rightarrow$ deep silt deposits prevent further sampling

STATION LOCATION *downstream of 105th Avenue*

SPECIES	TALLY	FINAL COUNT	AGGREGATE WEIGHT
BROOK Stickleback		39	
Fathead Minnows		3	
Northern Redbelly Dace		2	
BRASSY Minnow		2	
Pearl Dace		1	
Fine Scale Dace		1	
Crew Present	Jim Cahow, Craig Roessler, Bill Jaeger, Pam Stuebe, Jim Klosiewski		

Date: July 12, 1978

To: Central Office - Madison

File Ref: 3200

DNR

From: A. A. Oehmcke

JUL 13 1978

Subject: Revised Surface Water Classification - Clayton, Polk County
And Revision Of NR 104

The Village of Clayton discharges wastewater from a two cell stabilization lagoon to Clayton Branch, a tributary to South Branch Beaver Brook. The lagoon is operated on a continuous flow basis. Over 1,000 yards of pipe carry the effluent to a point in the NE $\frac{1}{4}$ NW $\frac{1}{4}$, Section 13, T33N - R15W approximately 275 yards west of State Highway "63". The discharge occurs on property owned by J. C. Jackson.

Clayton Branch above the point of discharge is an agricultural ditch apparently dug to drain the wetlands south of the sewage lagoon and it is probably noncontinuous. During inspections on June 8 and 27, 1978, flow in this segment consisted largely of dairy process runoff from a spray irrigation system set up in the wetland area by Stella Cheese Company. On June 8, the in-stream BOD-5 was 225mg/l and dissolved oxygen was zero. This spraying by Stella Cheese was discontinued in mid-June.

The segment of Clayton Branch from the point of discharge into the SW $\frac{1}{4}$ SE $\frac{1}{4}$, Section 11, T33N - R15W, a length of approximately 1,600 yards, is shown on the USGS quadrangle (1952) as noncontinuous. It has a defined streambed and would probably support aquatic life during times of flow if dairy process waste is excluded from the stream. This segment is bordered by agricultural land and is used for cattle watering.

The remainder of Clayton Branch is shown as continuous on the USGS quadrangle. It is probably perpetually wet even in times of zero flow. The segment in the NE $\frac{1}{4}$ SW $\frac{1}{4}$, Section 11 is bordered by wetland and would support aquatic life in the absence of dairy process waste.

The segment of Clayton Branch in the NW $\frac{1}{4}$ of Section 11, north of the east-west town road, would support a balanced aquatic community in the absence of dairy process wastes as does the South Branch Beaver Brook.

RECOMMENDATION

Clayton Branch, receiving effluent from the Village of Clayton stabilization lagoon, is noncontinuous (NR 104.02(1)(e)) from its headwaters into the SW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 11, T33N - R15W and continuous (NR 104.02(1)(f)) from this point to its confluence with South Branch Beaver Brook.

Clayton Branch, in Section 13 and the southern one-half of Section 11, T33N - R15W, shall be classified as surface water not supporting a balanced aquatic community (NR 104.02(3)(a)). *Limited forage fish*

In the NW $\frac{1}{4}$ Section 11, Clayton Branch shall be classified for fish and aquatic life as shall South Branch Beaver Brook.

These recommendations shall supersede all previous classifications.

RECOMMENDED NR 104 REVISIONS

NR 104.09 Table 7 Number 6, 7, 8, 11, 16, 18, 20, 21, and 28 shall be deleted and included in NR 104.10 Table 8.

For Clayton, Table 8 shall read:

Surface water (facility affected) Clayton Branch (Clayton)

Reach description From Clayton STP discharge to center of SW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 11, T33N - R15W

Hydrologic Classification Non-Continuous
Applicable Criteria I
Effluent Limitations A

Reach Description From center of SW $\frac{1}{4}$ SE $\frac{1}{4}$, Section 11, T33N - R15W to east-west town road in Section 11.

Hydrologic Classification Continuous
Application Criteria I
Effluent Limitations NA

TRS:mm

cc: → Steve Skavroneck
Municipal Wastewater Section
John Paddock
Richard Cornelius
Terry Moe

Attachment



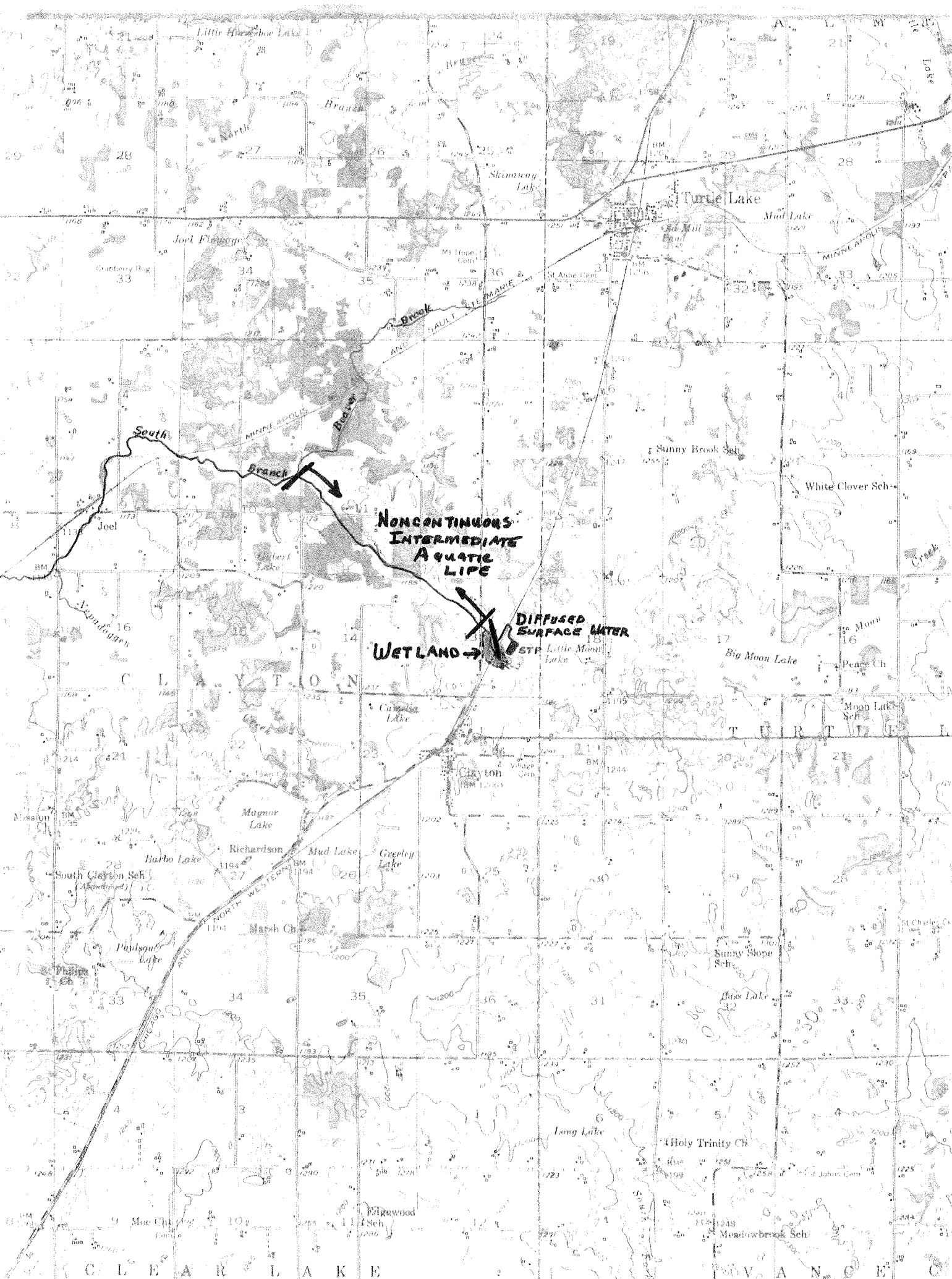
RECOMMENDATIONS:

Discharge receiving area for the Clayton WWSP shall be classified diffused surface water downstream about 1,000 feet to the wetland. The wetland shall be classified wetland and downstream flow to the west shall be classified noncontinuous intermediate aquatic life into section 11.

EVALUATION DATE: September 30, 1976

PERSONNEL:

Terry A. Moe - Water Pollution Biologist - WCD
David J. Teske - Environmental Engineer - WCD



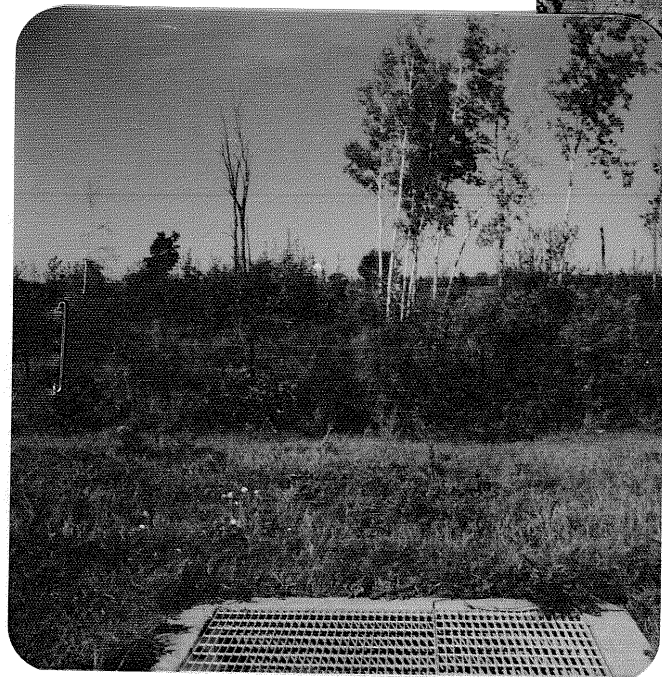
CLAYTON, POLK COUNTY

WASTEWATER RECEIVING STREAM CLASSIFICATION

Receiving stream - Drainage area tributary to South Branch Beaver Brook.

Discharge from the Clayton WWSP drains west about 100 feet to the east side of a railroad right-of-way. From that point flow is north 200 feet then west under the tracks to a field ditch along the west side of the tracks. Flow in the field ditch joins a small cattail wetland approximately 500 feet to the south. The wetland drains west through farm fields and is a headwater tributary of South Branch Beaver Brook. The preceding description from stabilization pond to wetland is approximate as all drainage systems were dry and tracing flow patterns was difficult.

Land in the drainage area is covered with natural vegetation surrounded by forage crop agricultural use.



From lagoon discharge control facing railroad to west



Discharge route - 200' north along east side of tracks



Drainage route tributary to South Branch Beaver Brook, looking west, south of lagoons