Bob, Jim Baumann

4-15 ~~03~~ Unnamed Trib to S. Branch of Manitowoc R.

Chloride - criteria (acute) same for all classes
criteria (chronic) "

- report:
→ how does it look using current DRAFT UD & doc
- Joe Reviewed... it is proposed in database as phase II CW.

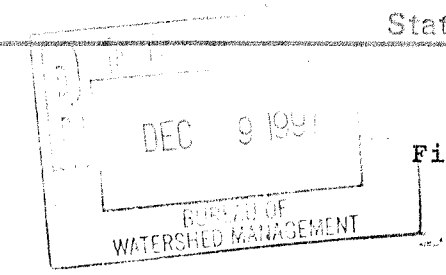
JB → file drainage could be source of pollution --
it could also be a source of cooler water.
If you remove files to fix degredation problem, you may also warm the water up.

(fishable/swimmable)

BM → what should "attainable use" be -- interim goal of CWA, or "ultimate" goal of CWA?
(biological integrity)

CORRESPONDENCE/MEMORANDUM

State of Wisconsin



Date: December 8, 1997

File Ref:

To: Duane Schuettpelz - WT/2
Joe Ball - WT/2

From: Mary Gansberg - NER
Mary

Subject: Classification of an Unnamed Tributary to the South Branch Manitowoc River

Attached is a revised version of my stream classification report for the "Unnamed Tributary to South Branch Manitowoc River" dated August 28, 1996.

In this latest version, I more clearly explain how I came to the conclusions that I did. I hope this clarifies things.

Please discard the old version and replace it with this copy dated December 8, 1997.

Thank you.

C: Mark Stanek - Oshkosh Service Center
Mike Reif - Oshkosh Service Center

Stream Classification
Unnamed Tributary to South Branch Manitowoc River

Manitowoc River Basin
South Branch Manitowoc River Watershed (MA05)
Township of Chilton, Calumet County

Submitted by Mary Gansberg
Wisconsin Department of Natural Resources
Northeast Region Headquarters
August 28, 1996
(Revised December 8, 1997)

INTRODUCTION

In July and August 1996, I conducted monitoring on an unnamed tributary to the South Branch Manitowoc River for the purpose of determining the streams classification. The tributary discharges the South Branch Manitowoc River at T18N, R19E, Sec 24, SW1/4 NE1/4 SW1/4 in the Township of Chilton, Calumet County. Foremost Farms, located at the intersection of CTH F and CTH BB, discharges to this tributary in Section 11. This report summarizes the assessment of the streams existing biological use and recommends the stream classification. See attached map for stream location.

METHODS

Monitoring was conducted at several locations along the tributary to determine the existing and potential biological uses. Monitoring included the following:

Dissolved oxygen and temperature - grab samples were collected on three occasions at several locations along the tributary using a YSI Model 55 Handheld meter.

Macroinvertebrate communities - aquatic invertebrates were collected with a D-frame net at three locations and identified to families.

Aquatic plants - macrophytes in the stream were identified and recorded.

Fish communities - a backpack stream shocker was use to collect fish. Fish were identified and released.

Stream habitat evaluation - aquatic life habitat was evaluated at several sites along the tributary and recorded on a Stream Habitat Evaluation Form (#3200-68).

Stream flow - stream flows were calculated using a Flowmate 2000 or estimated in cubic feet per second.

RESULTS AND DISCUSSION

A stream is classified based on the watersheds natural physical and chemical characteristics, cultural influences of the stream system, and its potential biological use. These factors affect the ability of the surface water to support certain uses. I evaluated the streams existing biological use and determined what its potential use could be in the absence of controllable impacts.

The upper-most reaches of this tributary have cold water and are severely impacted by controllable agricultural nonpoint source impacts. Several tiles discharge to the tributary. Nonpoint sources have degraded water quality with the addition of nutrients and sediments and by changing flow patterns. Water temperatures ranged from 10.3 to 14.7 °C. Dissolved oxygen ranged between 4.8 to 9.4 mg/l. Two orders of aquatic macroinvertebrates were collected. The order Diptera was represented by three families; Chironomidae, Simuliidae, and Syrphidae. The order Isopoda was represented by the single family Asellidae. These organisms are fairly tolerant to very tolerant to organic pollution and indicate poor water quality. The stream banks are fairly stable with tall grasses shading the stream.

Below Foremost Farms discharge, the macroinvertebrate community consisted of only two families of the order Diptera; Chironomidae and Syrphidae. These organism are very tolerant to organic pollution and indicate poor water quality. The lack of a diverse population and the presence of only tolerant organisms, indicate gross pollution problems. Sphaerotilus, a filamentous bacterium found in heavily contaminated waters, was present below the discharge. This organism requires nutrients for growth (sugars) that are provided only by organic rich sources such as dairy processing and paper mills. It also requires continually flowing water for a continued supply of nutrients and oxygen. It will survive at very low dissolved oxygen levels and does well in cold as well as warm water.

Another tributary to this stream at CTH F (T18N R19E S11 SE1/4 SW1/4), had an average water temperature of 14.3 °C. Dissolved oxygen averaged 7.3 mg/l.

Where the main tributary crossed CTH F (T18N R19E SEC 11 SW1/4 SE1/4), water temperatures ranged from 17.2 to 20.1 °C. Dissolved oxygen was very low and averaged 1.9 mg/l. Three orders of aquatic macroinvertebrates were collected. The order Coleoptera was represented by the family of Dryopidae; the order Diptera was represented by the families of Chironomidae and Simuliidae; and the order Isopoda was represented by the family Asellidae. These organism are fairly tolerant to very tolerant to organic pollution. A habitat evaluation rated this section of the tributary as fair habitat. The overhanging tall grasses provide shade to the creek. The substrate has some hard bottom, but is mostly muck. Filamentous algae is very thick in the entire stream channel and sphaerotilus was present on the vegetation. Stream flow was less than 1 cfs. Callitriche (water starwort) was present in the stream. Several central mudminnows and two brook stickleback were the only forage fish species present just above CTH F. Stickleback are tolerant to environmental degradation and severe environmental conditions, but require cool to cold water. Mudminnows are very tolerant and can be found in both cold and warm water.

Downstream at Court Road, dissolved oxygen was 0.5 on August 15, 1996 and 1.4 mg/l on July 30, 1996. Water temperature ranged from 18.3°C on August 15 to 21 °C on July 30. A habitat evaluation rated this section as poor habitat. Even though the tributary travels through a large wetland between CTH F and Quinney Road, there are pools, relatively deep runs and decent habitat for a wetland stream. The habitat in terms of depth and cover provided by depth and vegetation is sufficient to support a fish community. This stream and adjoining wetland complex would be conducive to spring spawning runs of warm water sport fish such as northern pike with the reduction of point and nonpoint sources of pollution.

Further downstream at Quinney Road, average dissolved oxygen was 2.5 mg/l and average water temperature was 19°C. A habitat evaluation rated this section as poor habitat based on the habitat evaluation procedures. Nonetheless, the overhanging grasses and shrubs which protect the banks also provide some habitat. The substrate is mostly soft sediment.

At the last road crossing before the tributary discharges to the South Branch Manitowoc River at STH 151, water temperature was 18.2 °C and dissolved oxygen was 4.5 mg/l. A habitat evaluation rated this section as fair habitat. The substrate was mostly soft sediment with some gravel present. Filamentous algae was abundant and bank vegetation was generally healthy. Stream flow was less than 1 cfs.

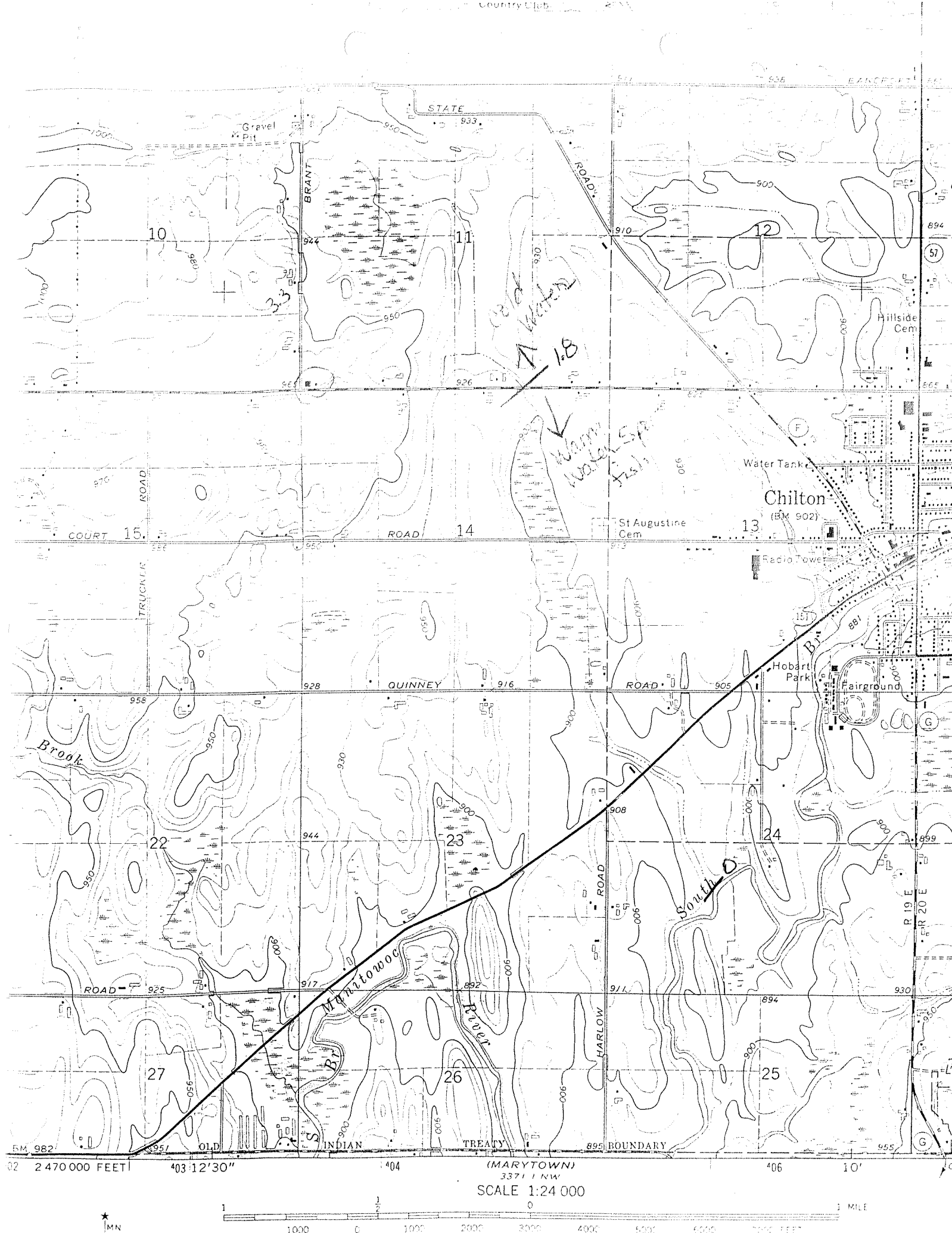
CONCLUSION

The water temperatures in the upper reaches of this tributary are cold. The lower reaches from CTH E downstream to the South Branch Manitowoc River are warm. Apparent controllable water quality impact from point and nonpoint sources are keeping the entire tributary from meeting its full potential uses. There is sufficient habitat to support better fish communities than it currently supports with the reduction of point and nonpoint sources of pollution. With the cold water and habitat available, cold water communities could exist in the upper reaches. With the habitat and the proximity to the South Branch Manitowoc River, warm water sport fish communities could utilize the lower reaches. Water quality, in particular, dissolved oxygen, would improve if pollution was controlled. The recovery of dissolved oxygen downstream also suggests the upstream low dissolved oxygen is a function of point source impacts. The presence of Sphaerotilus is a definite indicator of inputs from point source.

In summary, based on the streams natural and cultural characteristics, the stream received the following use classifications:

The existing biological use of the tributary from the headwaters downstream to CTH F (3.3 to 1.8 stream miles) is limited forage fish communities. This section of stream has the potential to support a cold water community; therefore, the classification should be **cold water communities**.

The existing biological use of the section of stream downstream of CTH F to the confluence of the South Branch Manitowoc River (1.8 to 0 stream miles) is also limited forage fish communities. This section of stream has the potential to support a warm water sport fish community; therefore, the classification should be **warm water sport fish communities**.


Country Club
STATE
ROAD
Gravel Pit
BRANT
10
11
12
Hillside Cem
Water Tank
Chilton
(PK 902)
St Augustine Cem
COURT
15
ROAD
14
13
TRUCKER
ROAD
Radio Tower
Hobart Park
Fairground
QUINNEY
ROAD
Brook
22
23
24
ROAD
South D
R 19 E
R 20 E
Manitowoc River
S Br
HARLOW
ROAD
27
26
25
BM 982
OLD INDIAN TREATY BOUNDARY
2 470 000 FEET
403
12'30"
404
(MARYTOWN)
3371 I NW
406
10'
SCALE 1:24 000
MILE
MN

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: August 28, 1996 FILE REF:

TO: Duane Schuettpelz - WT/2

FROM: Mary Gansberg - NER Mary

SUBJECT: Stream Classification of Unnamed Tributary to the South Branch Manitowoc River - Calumet County

Attached is the classification of the Unnamed tributary to the South Branch Manitowoc River.

C: Diane Figiel - WT/2
Mike Goettel - WT/2
Mark Stanek - WT/2
Mike Reif - Oshkosh Service Center

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Unnamed Tributary to South Branch Manitowoc River

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Township of Chilton, Calumet County

Submitted by Mary Gansberg
Wisconsin Department of Natural Resources
Northeast Region Headquarters
August 28, 1996

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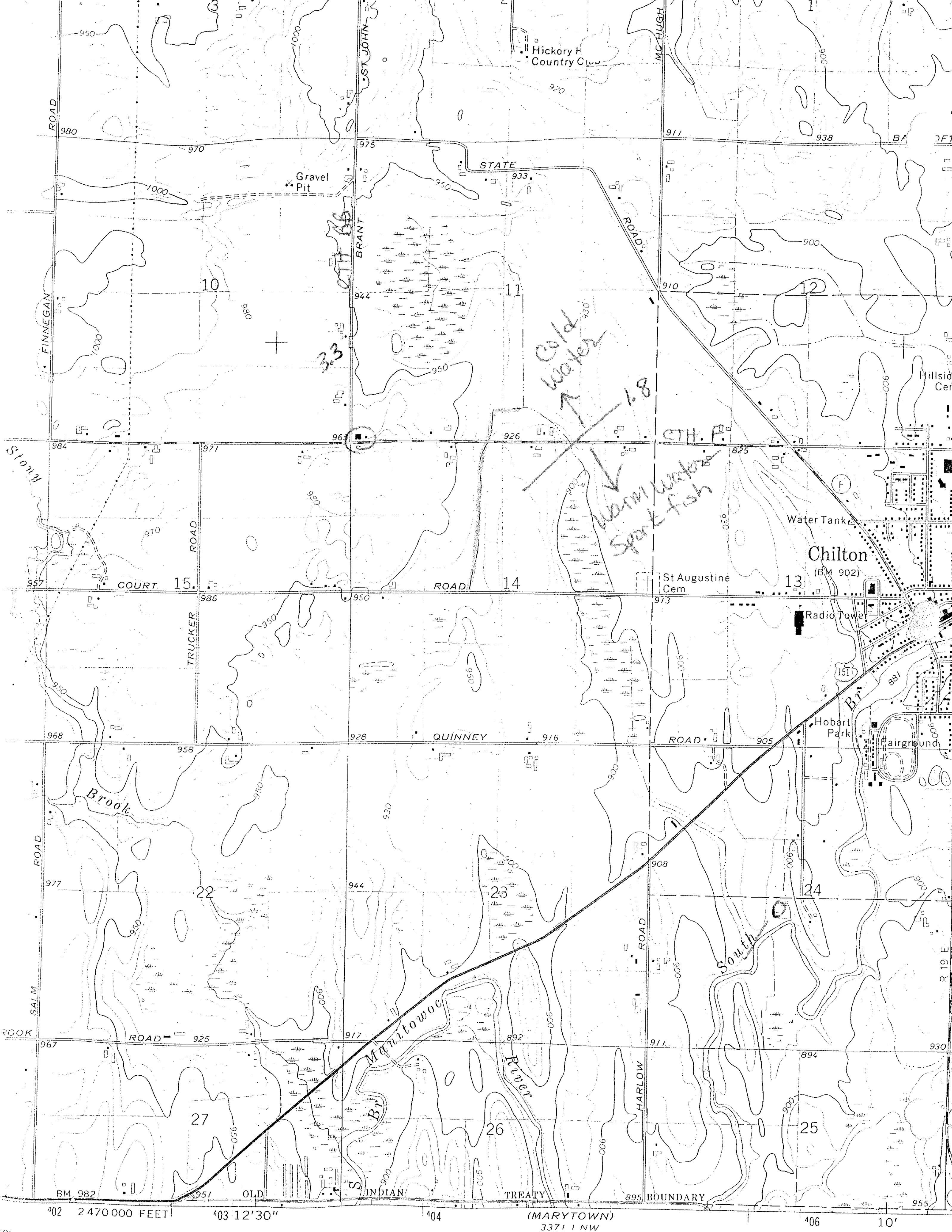
Hickory Hill Country Club
Gravel Pit
ST JOHN
MC HUGH
STATE
ROAD
BRANT
FINNEGAN
ROAD
Cold Water
1.8
CTH F
Warm Water Sport fish
CTH G
33
Stony
COURT
ROAD
TRUCKER
ROAD
QUINNEY
ROAD
Water Tank
Chilton
(BM 902)
St Augustine Cem
Radio Tower
Hobart Park
Fairground
151
Br
Brook
ROAD
SALM
ROOK
ROAD
South
Br
Manitowoc
River
S. Br
HARLOW
ROAD
BM 982
OLD
INDIAN
TREATY
BOUNDARY
402
2 470 000 FEET
403 12'30"
404
(MARYTOWN)
3371 I NW
406
10'
R 19 E
Hillside Cem
10
11
12
13
14
15
22
23
24
25
26
27

A. Monitoring Requirements and Effluent Limitations - Surface Water Discharge

Outfall 001 Discharge from outfall 001 shall be limited to treated dairy process wastewater, cooling water, reverse osmosis permeate, water softener backwash and condensate of whey. Samples shall be collected prior to discharge to the surface water. The discharge from outfall 001 shall comply with the limitations and be monitored as follows; however the monitoring requirements and limitations for NH_3, Chlorides, Phosphorus are not applicable until the new wastewater treatment system is operational and the permittee begins discharging treated process wastewater to the surface water :

EFFLUENT LIMITATIONS					MONITORING REQUIREMENTS	
Parameters	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Sample Frequency	Sample Type
Flow (MGD)					Daily	Continuous
BOD_5	40 mg/L			20 mg/L	3X/Week	24-Hr Composite
Total Suspended Solids	40 mg/L			20 mg/L	3X/Week	24-Hr Composite
pH	9.0 s.u.	6.0 s.u.			2x/Month	Grab
NH_3 (summer) May-October			3 mg/L		Weekly	24-Hr Composite
NH_3 (winter) Nov-April			6 mg/L		Weekly	24-Hr Composite
Chlorides	1514 mg/L		** 800 mg/L		Weekly	24-Hr Composite
Dissolved Oxygen	4.0 mg/L (minimum)				Monthly	Grab
Phosphorus, Total				** mg/L	2x/Month	24-Hr Composite
Total Recoverable Copper					Annual	24-Hr Composite
Total Recoverable Lead					Annual	24-Hr Composite
Total Recoverable Zinc					Annual	24-Hr Composite
Hardness					Annual	24-Hr Composite

** alternative chloride limit to be determined at a later date in accordance with compliance schedule
** phosphorus limit to be determined at a later date in accordance with compliance schedule