

REESEVILLE TRIBUTARY TO BEAVER DAM RIVER

TRIENNIAL STANDARDS REVIEW

REESEVILLE WWTP

AUGUST 1991

MARK SESING, SOUTHERN DISTRICT

BUREAU OF WATER RESOURCES MANAGEMENT
WISCONSIN DEPARTMENT OF NATURAL RESOURCES

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SUMMARY

The Reeseville Tributary to Beaver Dam River has been designated for Limited Forage Fish Communities, LFF(e), with a non-continuous flow. A review of the stream's biologic and physical characteristics supports the initial designation and it is recommended that the biological use classification remain LFF(e).

The Village of Reeseville is permitted (WPDES permit #W10028509-3) to discharge treated wastewater to a small tributary of the Beaver Dam River. Reeseville received a water quality variance classification (INT-D) authorized under Chapter NR 104 of the Wisconsin Administrative Code because they qualified under one or more of the following criteria.

- a) The presence of in-place pollutants
- b) Low natural stream flow
- c) Natural background conditions
- d) Irrecoverable cultural alterations

The recreational uses are limited to partial body contact only due to limited size of the stream.

GENERAL DESCRIPTION

The Reeseville tributary is a small non-continuous flowing stream which originates west of town and winds its way eastward through primarily agricultural land. Stormwater from Reeseville is partly directed to the tributary, and non-point sources from agriculture appear significant. No other point sources are known to impact the stream.

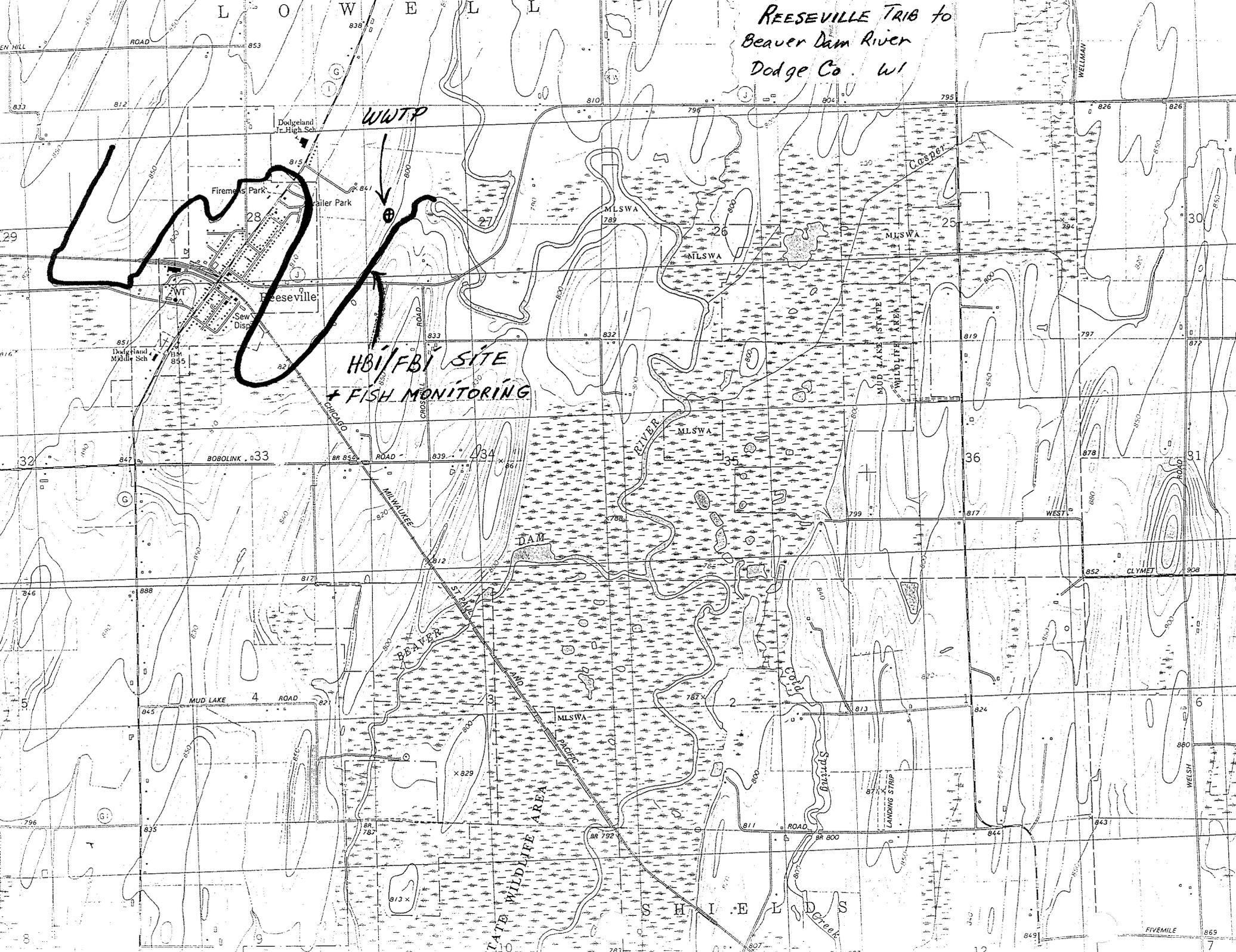
The tributary joins the Beaver Dam River at T10-11N-R14E, Section 27, SE¼ of NW¼, Town of Lowell, Dodge County. The stream has been ditched along the majority of its approximate 3 mile length (see map).

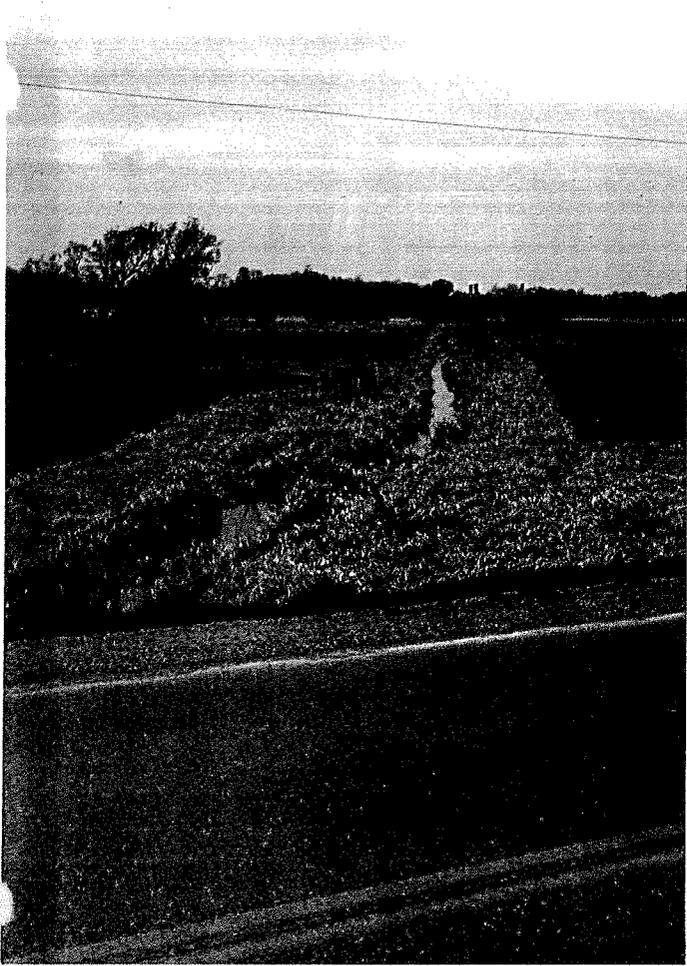
USGS has determined the $Q_{7,10}$ to be 0.0 CFS. Six flow values obtained between 1972 and 1976 average out to 0.07 CFS. Per NR 104 the hydrologic classification is appropriately designated non-continuous.

STREAM HABITAT, WATER QUALITY, AND BIOLOGY

Stream macroinvertebrates were obtained within a riffle reach below CTH J. The sampled substrate was dominated by chironomids and isopods (Asellidae), considered to be relatively tolerant of organic pollution. Simuliids (black flies) and gammarus sp. were also present. A Family Biotic Index (FBI) was calculated for the sample and the resulting index value of 6.28 indicates significant organic loads are entering the stream. This value agrees with the calculated HBI value of 6.64 (Appendix 2). Electroshocking results for fish correlate with the indicators obtained using the macroinvertebrate sampling.

REESEVILLE TRIB TO
Beaver Dam River
Dodge Co. WI

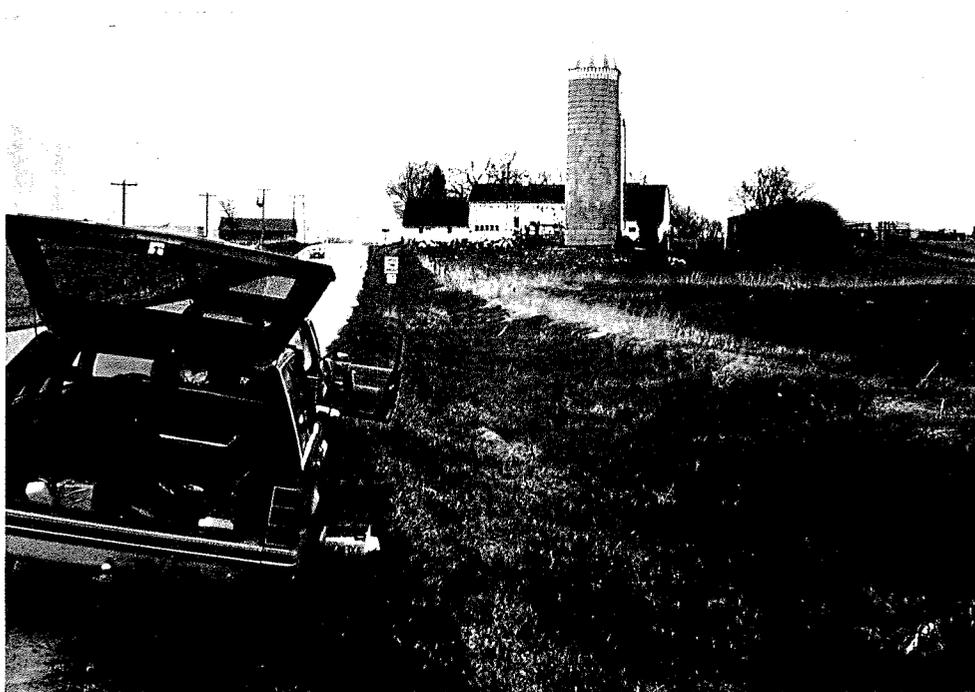




Reeseville trib. S of CTH J



Reeseville trib N of CTH J



Barnyard source to Reeseville trib on CTH J

Pollution tolerant fathead minnows, brook sticklebacks and green sunfish made up the entire sample. All invertebrate and fish samples were obtained upstream of the WWTP discharge outfall.

Habitat characteristics are not supportive of intolerant fish and aquatic life. The habitat rating (Ball) barely put it into the "Fair" category with a value of 199. Ditching has degraded the morphometry of the stream by reducing physical diversity of the streambed and banks.

Average depths are approximately 0.3 m. and widths in most reaches less than 2 meters. Instream cover is poor and bank vegetation provides most of the available cover. Filamentous algae and duckweed are common. Sedimentation is moderate over the parent substrate of gravel, sand, and silt. In-stream cover may increase due to macrophyte growth later in the season. Shading is <25% and a stream canopy is lacking in most reaches which likely results in elevated water temperatures.

The available biological, habitat, and physical characteristics of the Reeseville Tributary indicate an unbalanced biological aquatic community which is likely due to irretrievable cultural alterations created through massive channelization and non-point sources of urban and agricultural origin. Additionally, low flows, likely exacerbated by ditching, reduce the biological potential.

It is recommended that the biological use classification originally designated for the Reeseville tributary remain LFF(e). The original hydrologic classification of non-continuous flow was also appropriately designated and should remain as indicated.

in Reeseville Reach Location Downstream CTH J Reach Score/Rating 193
 County Dodge Date 5-4-89 Evaluator Spang Classification INT D

Rating Item	Category							
	Excellent	Good	Fair	Poor				
Watershed Erosion	No evidence of significant erosion. Stable forest or grass land. Little potential for future erosion. 8	Some erosion evident. No significant "raw" areas. Good land mgmt. practices in area. Low potential for significant erosion. 10	Moderate erosion evident. Erosion from heavy storm events obvious. Some "raw" areas. Potential for significant erosion. 14	Heavy erosion evident. Probable erosion from any run off. 16				
Watershed Nonpoint Source	No evidence of significant source. Little potential for future problem. 8	Some potential sources (roads, urban area, farm fields). 10	Moderate sources (small wetlands, tile fields, urban area, intense agriculture). 14	Obvious sources (major wetland drainage, high use urban or industrial area, feed lots, impoundment). 16				
Bank Erosion, Failure	No evidence of significant erosion or bank failure. Little potential for future problem. 4	Infrequent, small areas, mostly healed over. Some potential in extreme floods. 8	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow. 16	Many eroded areas. "Raw" areas frequent along straight sections and bends. 20				
Bank Vegetative Protection	90% plant density. Diverse trees, shrubs, grass. Plants healthy with apparently good root system. 6	70-90% density. Fewer plant species. A few barren or thin areas. Vegetation appears generally healthy. 9	50-70% density. Dominated by grass, sparse trees and shrubs. Plant types and conditions suggest poorer soil binding. 15	<50% density. Many raw areas. Thin grass, few if any trees and shrubs. 18				
Lower Bank Channel Capacity	Ample for present peak flow plus some increase. Peak flow contained. W/D ratio <7. 8	Adequate. Overbank flows rare. W/D ratio 8-15. 10	Barely contains present peaks. Occasional overbank flow. W/D ratio 15-25. 14	Inadequate, overbank flow common. W/D ratio >25. 16				
Lower Bank Deposition	Little or no enlargement of channel or point bars. 6	Some new increase in bar formation, mostly from coarse gravel. 9	Moderate deposition of new gravel and coarse sand on old and some new bars. 15	Heavy deposits of fine material, increased bar development. 18				
Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition. 4	5-30% affected. Scour at constrictions and where grades steepen. Some deposition in pools. 8	30-50% affected. Deposits and scour at obstructions, constrictions and bends. Some filling of pools. 16	More than 50% of the bottom changing nearly year long. Pools almost absent due to deposition. 20				
Bottom Substrate/ Available Cover	Greater than 50% rubble, gravel or other stable habitat. 2	30-50% rubble, gravel or other stable habitat. Adequate habitat. 7	10-30% rubble, gravel or other stable habitat. Habitat availability less than desirable. 17	Less than 10% rubble gravel or other stable habitat. Lack of habitat is obvious. 22				
Avg. Depth Riffles and Runs	Cold >1'	0	6" to 1'	6	3" to 6"	18	<3"	24
	Warm >1.5'	0	10" to 1.5'	6	6" to 10"	18	<6"	24
Avg. Depth of Pools	Cold >4'	0	3' to 4'	6	2' to 3'	18	<2'	24
	Warm >5'	0	4' to 5'	6	3' to 4'	18	<3'	24
Flow, at Rep. Low Flow	Cold >2 cfs	0	1-2 cfs	6	.5-1 cfs	18	<.5 cfs	24
	Warm >5 cfs	0	2-5 cfs	6	1-2 cfs	18	<1 cfs	24
Pool/Riffle, Run/Bend Ratio (distance between riffles ÷ stream width)	5-7. Variety of habitat. Deep riffles and pools. 4	7-15. Adequate depth in pools and riffles. Bends provide habitat. 8	15-25. Occasional riffle or bend. Bottom contours provide some habitat. 16	>25. Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. 20				
Aesthetics	Wilderness characteristics, outstanding natural beauty. Usually wooded or un-pastured corridor. 8	High natural beauty. Trees, historic site. Some development may be visible. 10	Common setting, not offensive. Developed but uncluttered area. 14	Stream does not enhance aesthetics. Condition of stream is offensive. 16				

Column Totals: 27 142 18 124

Column Scores E 27 + G 124 + F 48 + P 24 = 193 = Score

<70 = Excellent, 71-129 = Good, 130-200 = Fair, >200 = Poor

27
124
48
199

Reeseville Trib to Beaver Dam River

5-4-89

- Segment downstream of Reeseville has been ditched along a majority of it's length. Riparian and in-stream habitat is limited to bank veg. Depths generally less than 1 foot.
- FBI value indicates signif organic pollution upstream of the WWTP (6.28) (Asellidae, Chironomidae, Simuliidae and Gommarus)
- Fish in 300' reach below CTH J =
 - 6 fatheads
 - 2 sticklebacks
 - 4 green sunfish
- Schlessel, Bainb, Marshall assisted
- In-stream cover poor; reach type mostly long run w/ v. minimal riffles.
- Substrate pubbly-gravel - silt - sand →
- Filamentous algae significant

MACROINVERTEBRATE FIELD AND BENCH SHEET

Department of Natural Resources

Form 3200-81

9-86

Sample ID # 890504-14 - 01 Waterbody Name Reeseville Trib to Beaver Dam River
 Y Y M M D D Cnty Field #

Water Temp (Celsius) _____ Dissolved Oxygen (mg/l) _____

Sample Location: SE SE 28 10-11N 14E Master Waterbody # 0833000
 1/16 1/4 Sec. Tn., Rng.

Project Name Triennial Standards Storet Station # _____

Ave. Stream Width (Ft.) at Site 7.0 Ave. Stream Depth (Ft.) at Site 0.75'

Collector Searing / Schlessor Field # 01 (Rep 1) Rep 2 Rep 3
 (Last Name, First Initial) Measured Velocity (fps) _____

Sorter SELDENSTICKER J Est. Velocity (fps) V. Slow (<0.2)
 Est. % of sample sorted 7% Slow (0.2-0.5)
 Taxonomist Dimick, J. Moderate (0.5-1.5)
 Fast (1.5- >)

Location Description Riffle 20 ft downstream of CTH J Sampled Habitat: 1 Riffle 2. Run
at easternmost intersection of trib and CTH J 3. Pool 4. Lake

Sampling Device: 1 D Frame, 2. Artificial Substrate, 3. Surber, Est. Time Spent Sampling (Min.) 4
 4. Other _____

Substrate at Site Location (%)
 Bedrock _____ Rubble (2.5 -10.0" dia.) 5 Sand 20 Clay _____ Muck _____
 Boulders (10.0" dia.) 55 Gravel (0.1 - 2.5" dia.) 20 Silt _____ Detritus _____ Debris/Veg _____

Substrate Sampled (%) (Same as above NO)
 Bedrock _____ Rubble (2.5 - 10.0" dia.) 10 Sand 10 Clay _____ Muck _____
 Boulders (10.0 dia.) 70 Gravel (0.1 - 2.5" dia.) 10 Silt _____ Detritus _____ Debris/Veg _____

Aquatic Vegetation _____ % of Total Stream Channel at Sample Site

Observed Instream Water Quality Indicators (Perceived WQ: Excellent, Good, Fair, Poor)

	Not Present	Insignificant	Significant	Comments
Turbidity	<u>1</u>	2	3	* Fish shocked and FBI/HBI sampling conducted
Chlorine or Toxic Scour	<u>1</u>	2	3	
Macrophytes	1	<u>2</u>	3	
Filamentous Algae	1	2	<u>3</u>	
Planktonic Algae	1	<u>2</u>	3	
Slimes	1	<u>2</u>	3	
Iron Bacteria	<u>1</u>	2	3	

Factors Which May Be Affecting Habitat Quality

	Not Present	Insignificant	Significant	Comments
Sludge Deposits	1	<u>2</u>	3	
Silt and Sediment	1	2	<u>3</u>	
Channel Ditching	1	2	<u>3</u>	
Down/Up Stream Impoundment	<u>1</u>	2	3	
Low Flows	1	2	<u>3</u>	
Wetlands	1	<u>2</u>	3	

Pollutant Sources

	Not Present	Insignificant	Significant	Comments
Livestock Pasturing	<u>1</u>	2	3	
Barnyard Runoff	1	<u>2</u>	3	
Cropland Runoff	1	2	<u>3</u>	
Drains	<u>1</u>	2	3	
Septic Systems	<u>1</u>	2	3	
Streambank Erosion	<u>1</u>	2	3	
Urban Runoff	1	<u>2</u>	3	
Construction Runoff	<u>1</u>	2	3	
Point Source (Specify Type)	1	2	<u>3</u>	Reeseville WWTP
Other (Specify)	1	2	3	

SOUTHERN DISTRICT District Biotic Index Report

HBI _ 6.641 Rep1 _ 0.000 Rep2 _ 0.000 Rep3 _____
 Sample ID # _B90504-14-01 Waterbody Name _REESEVILLE TRIB/BEAVER DAM R
 Water Temp (Celsius) _ _____ Dissolved Oxygen (mg/l) _ _____
 Sample Location: SE SE S28 T10N R14E_ Master Waterbody # _0833000
 Project Name _TRIENNIAL STANDARDS Storet Station # _
 Ave. Stream Width (Ft.) at Site _7.0 Ave. Stream Depth (Ft.) at Site _0.75
 Collector _SESING/SCHLESSER Field # 01 Rep 1_
 Measured Velocity (fps) _
 Est. Velocity (fps) _
 Sorter _SEIDENSTICKER, J. _Moderate (0.5-1.5)
 Est % of sample sorted _7
 Taxonomist _DIMICK, J. _Sampled Habitat
 Location Description _RIFFLE 20 FT DOWNSTREAM OF CTH J _1. Riffle
 _AT EASTERNMOST INTERSECTION OF TRIB AND _____
 _CTH J _____

Est. Time Spent Sampling (Min.) _ 4__

Sampling Device _1. D Frame

Substrate at Site Location (%)

0.0 Bedrock	5.0 Rubble	20.0 Sand	0.0 Clay	0.0 Muck
0.0 Boulders	55.0 Gravel	20.0 Silt	0.0 Detritus	0.0 Debris/Veg

Substrate Sampled (%) (Same as above No_)

0.0 Bedrock	10.0 Rubble	10.0 Sand	0.0 Clay	0.0 Muck
0.0 Boulders	70.0 Gravel	10.0 Silt	0.0 Detritus	0.0 Debris/Veg

Aquatic Vegetation 0 % of Total Stream Channel at Sampling Site

Observed Instream Water Quality Indicators (Perceived WQ _____)

	Not Present	Insig- nificant	Sig- nificant	Comments
Turbidity	1			* FISH SHOCKED AND FBI/HBI
Chlorine or Toxic Scour	1			SAMPLING CONDUCTED
Macrophytes		2		
Filamentous Algae			3	
Planktonic Algae		2		
Slimes		2		
Iron Bacteria	1			

Factors Which May Be Affecting Habitat Quality

Sludge Deposits	2		
Silt and Sediment			3
Channel Ditching			3
Down/Up Stream Impoundment	1		
Low Flows			3
Wetlands	2		

Pollutant Sources

Livestock Pasturing	1		
Barnyard Runoff		2	
Cropland Runoff			3
Tile Drains	1		
Septic Systems	1		
Stream Bank Erosion	1		
Urban Runoff		2	
Construction Runoff	1		
Point Source (Specify Type)			3 REESEVILLE WWTP
Other (Specify)			

*** SOUTHERN DISTRICT DISTRICT BIOTIC INDEX REPORT ***

SAMPLE ID# 890504-14-01

PAGE 2

	*** TAXA ***	*** SPECIES ***	TAXONOMIC TOL		ORGANISM ID	ORGANISM COUNT		
			KEY USED	VAL		REP1	REP2	REP3
COLEOPTERA								
ELMIDAE								
STENELMIS		CRENATA	*1	5.00	07020601	1	0	0
DIPTERA								
CERATOPOGONIDAE								
BEZZIA/PALPOMYIA			*2	6.00	08030215	1	0	0
CHIRONOMIDAE								
		PUPAE	*3		08050002	17	0	0
CHAETOCLADIUS		SP.A	*1	5.00	08050503	1	0	0
CRICOTOPUS		SP.A	*1	6.00	08051304	3	0	0
		SP.C	*1	7.00	08051306	1	0	0
EUKIEFFERIELLA		SP.A	*1	8.00	08052301	9	0	0
ORTHOCLADIUS		SP.B	*1	3.00	08054002	10	0	0
		SP.D	*1	5.00	08054004	5	0	0
		SP.E	*1	8.00	08054005	33	0	0
THIENEMANNIMYIA			*1		08057000	1	0	0
CONCHAPELOPIA			*1	6.00	08058200	1	0	0
SIMULIIDAE								
CNEPHIA		ORNITHOPHILA	*4		08110102	6	0	0
SIMULIUM		**POOR SPECIMEN**	*4		08110210	12	0	0
		VENUSTUM	*4	5.00	08110215	8	0	0
		VERECUNDUM	*4	6.00	08110216	9	0	0
		VITTATUM	*4	7.00	08110217	2	0	0
TABANIDAE								
CHRYSOPS			*2	6.00	08130100	1	0	0
AMPHIPODA								
GAMMARIDAE								
GAMMARUS		PSEUDOLIMNAEUS	*5	4.00	09010201	3	0	0
ISOPODA								
ASELLIDAE								
ASELLUS		INTERMEDIUS	*6	8.00	10010101	15	0	0
*** TOTALS: ***						139	0	0
*** BIOTIC INDEX: ***						6.641		

Taxonomic Key Code References

- *1 Hilsenhoff 1981,85
- *2 Hilsenhoff 1981
- *3 Merritt,Cummins 84
- *4 Hilsenhoff 1985
- *5 Holsinger 1972
- *6 Williams 1972

FIELD NOTES

Sample ID # 090504-14-RV Waterbody Name Reeseville trib to B. DAM RIVER
 Y Y M M D D Cnty Field #

Temp (Celsius) _____ Dissolved Oxygen (mg/l) do not submit

Sample Location: _____ Master Waterbody # 0833000
 1/16 1/4 Sec. Tn., Rng.

Project Name Trianal Stnds Review Storet Station # _____

Ave. Stream Width (Ft.) at Site 7' Ave. Stream Depth (Ft.) at Site 0.75'

Collector Sesing/Schlesser Field # RV Rep 1 Rep 2 Rep 3
 (Last Name, First Initial) Measured Velocity (fps) _____

Sorter _____ Est. Velocity (fps) V. Slow (<-0.2)
 Slow (0.2-0.5)
 Est. % of sample sorted _____ Moderate (0.5-1.5)
 Fast (1.5->)

Taxonomist _____ Taxonomist
 Location Description Riffle 20' downstream of CTH J Sampled Habitat: 1. Riffle 2. Run
 3. Pool 4. Lake

Sampling Device: 1. D Frame, 2. Artificial Substrate, 3. Surber, 4. Other _____ Est. Time Spent Sampling (Min.) 3

Substrate at Site Location (%)

Bedrock	<u>5</u>	Rubble (2.5 - 10.0" dia.)	<u>20</u>	Sand	Clay	Muck
Boulders (10.0" dia.)	<u>55</u>	Gravel (0.1 - 2.5" dia.)	<u>20</u>	Silt	Detritus	Debris/Veg

Substrate Sampled (%) (Same as above)

Bedrock	<u>5</u>	Rubble (2.5 - 10.0" dia.)	<u>10</u>	Sand	Clay	Muck
Boulders (10.0 dia.)	<u>75</u>	Gravel (0.1 - 2.5" dia.)	<u>10</u>	Silt	Detritus	Debris/Veg

Aquatic Vegetation _____ % of Total Stream Channel at Sample Site

Observed Instream Water Quality Indicators (Perceived WQ: Excellent, Good, Fair, Poor)

	Not Present	Insignificant	Significant	Comments
Turbidity	<u>1</u>	2	3	
Chlorine or Toxic Scour	<u>1</u>	2	3	
Macrophytes	1	<u>2</u>	3	duckweed
Filamentous Algae	1	2	<u>3</u>	
Planktonic Algae	1	<u>2</u>	3	
Slimes	1	<u>2</u>	3	
Iron Bacteria	<u>1</u>	2	3	

~ 300 ft below bridge
6 Fatheads
2 sticklebacks
4 Green sunfish

Factors Which May Be Affecting Habitat Quality

	Not Present	Insignificant	Significant	Comments
Sludge Deposits	1	<u>2</u>	3	
Silt and Sediment	1	2	3	
Channel Ditching	1	2	<u>3</u>	
Down/Up Stream Impoundment	<u>1</u>	2	3	
Low Flows	1	2	<u>3</u>	
Wetlands	1	<u>2</u>	3	

(VAL) FBI SAMPLE
6 - 18 chironomid
6 - 5 simuliid
8 - 25 asellidae
4 - 16 gammarus
64
 108
 30
 220
64
402 = 6.25
 FBI

Pollutant Sources

	Not Present	Insignificant	Significant	Comments
Livestock Pasturing	<u>1</u>	2	3	
Barnyard Runoff	1	<u>2</u>	3	
Cropland Runoff	1	2	<u>3</u>	
Drains	1	2	3	
Public Systems	<u>1</u>	2	3	
Streambank Erosion	<u>1</u>	2	3	
Urban Runoff	1	<u>2</u>	3	
Construction Runoff	<u>1</u>	2	3	
Point Source (Specify Type)	1	2	<u>3</u>	Reeseville WTP
Other (Specify)	1	2	3	

TO:

~~Tom Cambridge SDH~~
~~JOE BALL / WR2~~

FROM:

Mark Seising Horizon
Gelf IF

SUBJECT - MESSAGE

RE: Resseville WWT P (Dodge Co)

The "Resseville tributary" to the Beaver Dam river
should be deleted from NR 104 as the
discharge is no longer directed to trail but
enters the Beaver Dam river —

cc. J Ball / wr 2

SIGNED

Mark S.

DATE

10/4-91

REPLY

SENDER RETAIN THIS COPY

SIGNED _____

DATE _____

REESEVILLE
DODGE COUNTY

July 16, 1975

The Reeseville wastewater treatment plant treats domestic sewage from Reeseville and industrial wastes from the Dee Food Market. The effluent is discharged into the Reeseville tributary, which has a TQ10 of less than .01 cfs. The tributary appears to be a modified stream that flows through agricultural land for 1.4 miles before joining the Beaver Dam River. The stream banks seem adequately buffered with tall grasses in most areas and the stream bed was heavy with aquatic vegetation. There was a noted absence of pool and riffle sites due to the stream's channelized nature. The Reeseville Tributary is a slow moving stream whose fishery consists primarily of forage species with game fish species in its lower reaches.

RECOMMENDATIONS

The Reeseville Tributary in its entirety should be classified as noncontinuous, intermediate and aquatic life. The above recommendations represent a concurrence of opinion of the stream classification team who are as follows: Bob Weber, District Engineer; Jim Congdon, Area Fish Manager; Tom Bainbridge, Stream Classification Coordinator.


Tom Bainbridge
Stream Classification Coordinator

TB:lg

10



Reeseville - STP on Left; Looking Downstream.



Reeseville - From Railroad tracks to First Town Rd. Bridge.

Reeseville - From first Town Road Bridge; Looking Upstream to Railroad Tracks.



Reeseville - Downstream at First Town Road Bridge.



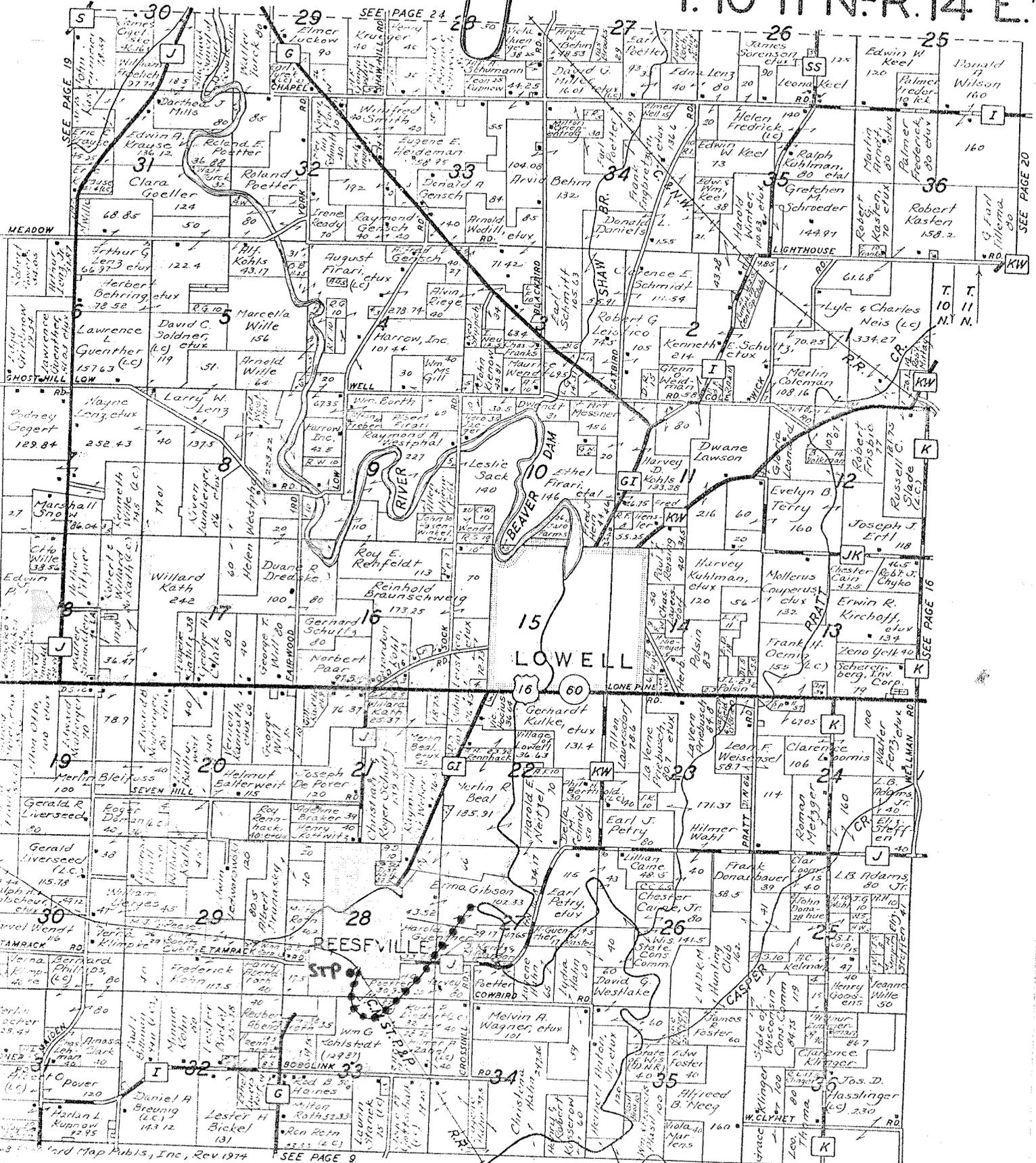
TRIBUTARY - BEAVER DAM RIVER

REESEVILLE

T. 10-11 N. R. 14 E. 15

NORTH PART

LOWELL



Map Publs, Inc, Rev 1974

SEE PAGE 9

Dodge County, Wis.

JOHN LEISTICO AGENCY

INSURANCE - FARM AUCTION SERVICE

213 South Main - Reeseville, Wisconsin 53579

PHONE: BUSINESS 927-5293 - HOME 927-3631

HUSTISFORD
FARMERS MUTUAL
INSURANCE
COMPANY

AMERICAN FAMILY
INSURANCE
AUTO-FIRE-HEALTH LIFE