Use Attainability Analysis

1 Water Body Name	Bacon Creek
2 Segment Description	Mouth to Leech Ave.
3 Segment Length (mi)	0.81 miles
4 Drainage Area (sq. mi.)	8
5 Segment Start Latitude, Longitude (DD)	42.47621, -96.38482
6 Segment End Latitude, Longitude (DD)	42.48766, -96.38273
7 Route of Flow (Next Downstream Adopted Designated Use)	Bacon Creek (general use, proposed) to Missouri River (A1, BWW1, HH)
8 NPDES Facility and Permit Number (If Applicable)	Curly's Foods, Inc. (9778148)
9 Sample Site ID(s)	1273-1
10 Segment County Name(s)	Woodbury
11 Field Work Date(s)	10/8/2015

12 Aquatic Life Use Attainability Analysis - Conclusion

Recommended Highest Attainable Use: Aquatic Life Use	General Use
40 CFR 131.10(g)(2) (Flow)	The natural low flow conditions of the stream segment are insufficient to create the habitat necessary to support a community of fish (see Site Observations Table). A BWW1 designation requires multiple species and age ranges of game fish to be viable. A BWW2 designation requires permanent flow. A BWW3 designation requires intermittent flow with perennial pools. This segment has none of those. Therefore, the highest attainable use for this stream segment is general use. As this stream segment was identified as perennial by the U.S. Geological Survey 1:100,000 DLG Hydrography Data Map (published July 1993) as described in 567 IAC 61.3(1)"b", it requires rulemaking for the removal of the presumed aquatic life designation (BWW1).
40 CFR 131.10(g)(5) (Physical Conditions)	Physical conditions related to the natural features of the water body are insufficient to support a community of fish (see Site Observations Table). Drainage area, stream width, average depth, and maximum depth fall within the "consistently negative" game fish indicator responses (see Table 2 in Appendix I). A BWW1 designation requires multiple species and age ranges of game fish to be viable. A BWW2 designation requires enough habitat beyond non-flowing perennial pools to support an aquatic community. A BWW3 designation requires habitat in perennial pools to support an aquatic community. This segment has none of those. Therefore, the highest attainable use for this stream segment is general use. As this stream segment was identified as perennial by the U.S. Geological Survey 1:100,000 DLG Hydrography Data Map (published July 1993) as described in 567 IAC 61.3(1)"b", it requires rulemaking for the removal of the presumed aquatic life designation (BWW1).

13 Recreational Use Attainability Analysis - Conclusion

Recommended Highest Attainable Use: Recreational Use	General Use
40 CFR 131.10(g)(2) (Flow)	The natural low flow conditions and water levels of the stream segment prevent the attainment of any recreational use (see Site Observations Table). A1, A2, and A3 designations require the ability to recreate in and

	on the water. This segment has only an inch of water and is inaccessible to the public. Therefore, the highest attainable use for this segment is general use. As this stream segment was identified as perennial by the U.S. Geological Survey 1:100,000 DLG Hydrography Data Map (published July 1993) as described in 567 IAC 61.3(1)"b", it requires rulemaking for the removal of the presumed recreational use (A1).

14 Flow

Field Work Date	Description
10/8/2015	USGS stream gage data for the area indicated stream flows were above normal at the time of assessment.

Use Attainability Analysis - Data

Site Observations

Use	Site parameter	Site ID #1273-1
AL/R	**15 Latitude, Longitude (DD)**	42.48217, -96.38415
AL/R	**16 Average Depth (in)**	1
AL/R	**17 Maximum Depth (in)**	2
AL/R	**18 Stream Width (ft)**	4
AL/R	**19 Pools Observed?**	No
AL only	**20 Non-Game Fish Present and Counts (Species: Number)**	None
	21 Game Fish Present and Counts (Species (Size Range): Number)	None
	22 Stream Habitat (See also: #29 Site Photos)	This segment is a shallow concrete waterway. The streambed is a concrete waterway with steep concrete banks.
R only	**23 Evidence of Use for Primary Contact Recreation? (Yes*/No)**	No. There is fencing present to prevent public access.
	24 Evidence of Use by Children? (Yes*/No)	No. There is fencing present to prevent public access.
	25 Evidence of Use for Secondary Contact Recreation? (Yes*/No)	No. There is fencing present to prevent public access.
AL/R	**26 Additional Description**	N/A

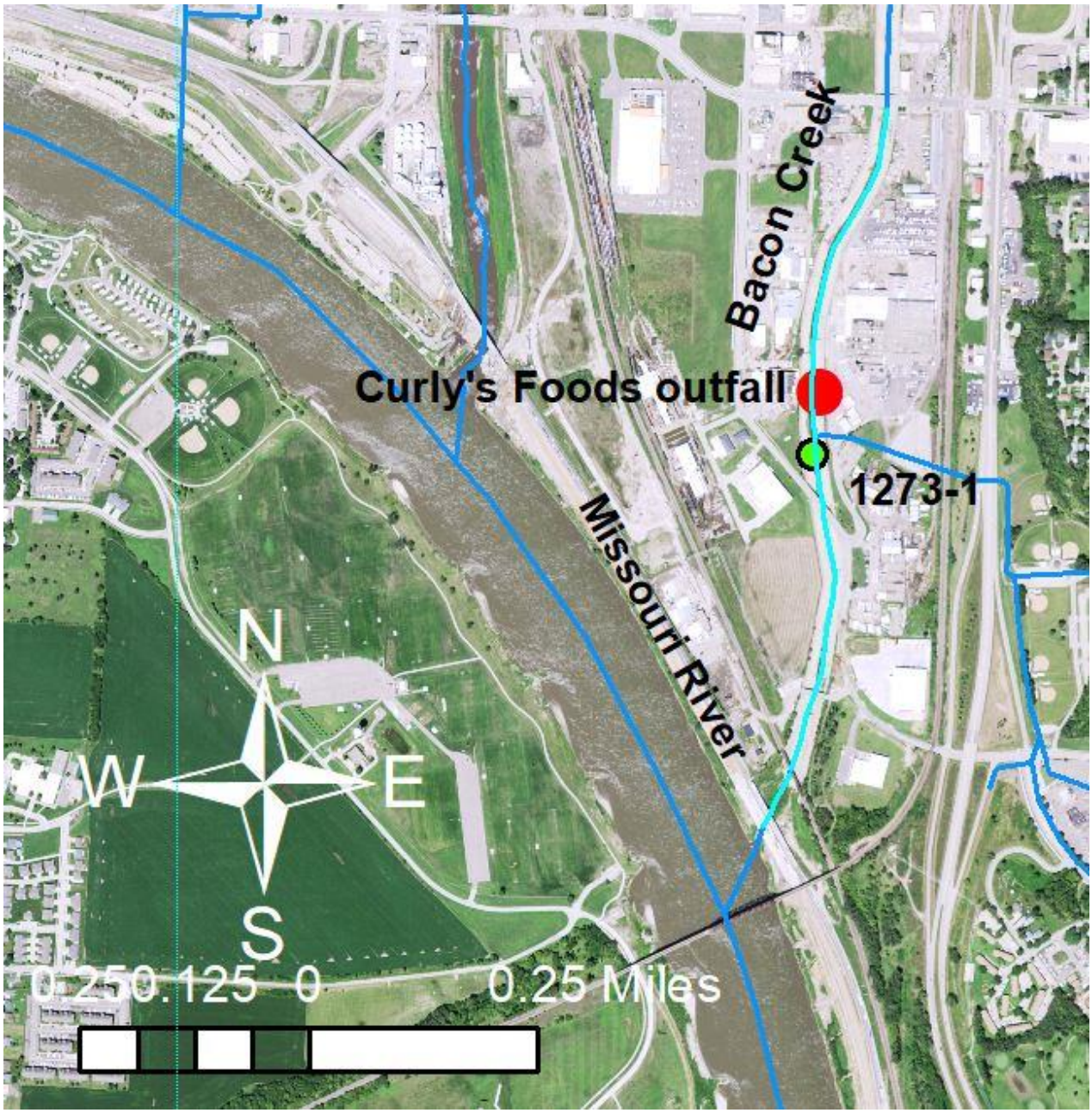
AL = Aquatic Life
R = Recreation
*If yes, elaborate.

27 Supplemental Data

Desktop review verified that the UAA field work is still valid.

Historical aerial imagery revealed that most years, with the exception of 2011, appeared similar to the timeframe during which sampling was taken. There never appeared to be more than a trickle of water in the concrete channel, except in 2011, during which there was flooding, and the channel was full.

28 Map of Segment, Outfall, and Site(s)



29 Site Photos

Figure 1. 1273-1 Concrete waterway looking upstream.

Figure 2. 1273-1 Concrete waterway looking downstream.

Figure 3. 1273-1 Looking down at concrete waterway.

Figure 4. 1273-1 Looking down into concrete ditch.

Figure 5. 1273-1 Water flowing in concrete waterway.

Appendix I.

c. Stream Flow and Habitat Data

Data analysis results for stream flow and habitat variables were similar to game fish indicator results. Stream width, average thalweg depth, maximum depth, and flow appear to be the characteristics that correlate the best with consistently positive game fish indicators. Stream flow and habitat dimensions (where available) were consistently larger for streams with watershed sizes exceeding 275 square miles. Habitat measurements are not available for the largest sample sites that were sampled by boat instead of the typical wading method.

Ranges of stream size, habitat and flow associated with varying levels of game fish indicator responses are listed in Table 2. These are general statewide values, which may assist in decision making related to the recommendation of warm water aquatic life use designations. In general terms, stream segments that have watershed area, flow and habitat characteristics in the green shaded boxes have a greater probability that game fish indicators will be consistently positive (i.e., consistent with Class B(WW-1)), while stream habitat and flow levels that equate to the red boxes are much less likely to support game fish populations (i.e., Class B(WW-2) or Class B(WW-3)). Stream segments that have a mixture of characteristics, mainly in the yellow range, may require consideration of the additional habitat features collected during the field assessment, to determine the appropriate aquatic life use designation.

Table 2. Generalized statewide ranges of stream habitat indicator levels and associated game fish indicator responses.

Game Fish Indicator Responses	Stream Watershed Area (sq.mi.)	Stream Flow (typical base flow - cfs)	Stream Width Average (ft)	Average Depth (ft)	Avg. Thalweg Depth (ft)	Maximum Depth (ft)
Consistently Positive	>275	>30	>65	>1.2	>2.2	>4.4
Mixed	25-275	0.8-30	11-65	0.2-1.2	0.8-2.2	1.8-4.4
Consistently Negative	<25	<0.8	<11	<0.2	<0.8	<1.8

Iowa uses U.S. EPA's Level IV Ecoregions as a template for wadeable stream biological condition assessment. Stream flow and habitat characteristics can vary from ecoregion to ecoregion. To provide additional insight into where the area of overlap exists between Class B(LR/WW-2) and Class B(WW/WW-1) streams, a query of Iowa's bioassessment database produced 476 habitat assessment records from which a summary of habitat characteristics was prepared (Table 3a-f) (see appendix for full spreadsheet). The summary is grouped by ecoregion and **former** designated uses in order to illustrate the extremes and ranges of overlap in habitat characteristics.