

**WETLAND INVESTIGATION REPORT
FOR
PHASE 1 ENVIRONMENTAL STUDY
SANITARY SEWER COLLECTION SYSTEM
CITY OF STORM LAKE, IOWA
GRIGGS ENVIRONMENTAL STRATEGIES LLC
PROJECT NO. 10-255**

June 28, 2011

Prepared For:

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**GES PROJECT No. 10-255
JUNE 28, 2011**

EXECUTIVE SUMMARY

An investigation of the boundaries of jurisdictional wetlands and other waters within the project area of the proposed Storm Lake Sanitary Sewer Collection System Project identified four jurisdictional wetland areas are present. The proposed project will require discharge of fill material, excavation, and mechanized land clearing near this area.

1.0 INTRODUCTION

GRIGGS ENVIRONMENTAL STRATEGIES LLC (GES) has completed a wetland investigation for the above-referenced project. The principal objective of this investigation was to provide an evaluation of potential jurisdictional waters subject to protection of the Clean Water Act, Section 404 (33 U.S.C. 1344) and to prepare recommendations for the Environmental Assessment and subsequently, project design. The investigation and this subsequent report were completed by Kevin M. Griggs PWS, CWB, Environmental Consultant.

1.1 Purpose of the Project

The purpose of the project is to construct new sub-surface sanitary sewer pipe facilities to improve capacity and efficiency of sanitary sewer facilities

for the City of Storm Lake.

Discharges of dredged or fill material, excavation and mechanized land clearing in waters of the U.S. requires authorization from the U.S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act. The actual limits of jurisdictional waters for permitting purposes must be verified by Corps Regulatory Staff. The wetland delineations and determinations presented in this report may be used for planning and informational purposes. Final authorization for activities in waters of the U.S. must be provided by the Corps' District Engineer.

Wetland delineations have been conducted in accordance with the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory, 1987; referred to as '87 Manual) for non-agricultural wetlands and for agricultural wetlands, the National Food Security Act Manual, 5th Addition (United States Department of Agriculture (USDA) – Natural Resources Conservation Service (NRCS), 2010; referred to as NFSAM).

1.2 Project Description

The total project alignment is approximately 9.0 miles in length and is located within and south of the City of Storm Lake, Iowa in southwest Buena Vista County (Figure 1). The project alignment begins in the north central part of the city and travels west across primarily agricultural land to an area near the intersection of State Highways 7 and 110. From here this alignment follows Highway 110 to the south, along the western edge of the lake to West Marina Road. The alignment follows West Marina Road to the east to near the lake shore where it turns generally south to County Road C65. The alignment follows County Road C65 to the east to its end at the existing City water treatment plant (Figure 2). The project is located

in Sections 32-34 of Township 91-North, Range 37-West (Washington Township) and Sections 5, 8, 14-17, and 23 of Township 90-North, Range 37-West (Hayes Township). This wetland investigation assumed an approximately 50-foot wide utility corridor area where construction is planned.

The Universal Transverse Mercator (UTM) coordinates for the beginning of the alignment are X=319514, Y=4725045 and the coordinates for the end of the alignment are X=322559, Y=4718826 (UTM Zone 15, Meters, NAD83). The City of Storm Lake proposes to construct new sanitary sewer facilities which will require site excavation and grading improvements. Additional right-of-way may be required. No off-site borrows were identified for investigation. Construction of the project is expected to begin following completion of a Finding of No Significant Impact and final design and approval of the utility project. A target letting date has not been established.

1.3 Project History

The City of Storm Lake has received a Federal Emergency Management Agency (FEMA) grant to construct a secondary sanitary sewer collection system backbone within the City of Storm Lake. The second collection system backbone will divide the sanitary sewer system in half (currently the entire collection system is routed to the east around the lake) and take half of the flow to the west around the lake. The project includes the construction of several miles of new underground sanitary sewer pipe and new lift stations along the proposed project route.

2.0 JURISDICTIONAL WATERS

2.1 Landscape Setting

The project area is located in the Iowa and Mississippi Deep Loess Hills—Major Land Resource Area of western Iowa. The area is within the North Raccoon Hydrologic Unit Code 8 (HUC 8) watershed. The project area may be described as commercial, agricultural, and residential.

2.2 Pre-field Work

Prior to a field investigation, existing data sources were reviewed to assess the project area and identify potential wetlands. The data reviewed included:

- Preliminary site alignment map from Veenstra & Kimm, Inc. (Figure 2)
- Soil Survey of Buena Vista County, Iowa (Figure 3)
- U.S. Fish & Wildlife Service National Wetlands Inventory (NWI) Map (Figure 4)
- Hydric Soils of Buena Vista County List
- Climatological Data from USDA - NRCS (Appendix A)
- Precipitation Data from WeatherUnderground.com (Appendix A)

All potential wetlands and other jurisdictional waters areas within the property boundaries were identified for field survey using this information.

2.3 Field Conditions

Field survey of the project area was completed on May 31, 2011 by Kevin M. Griggs. In the 30 days prior to the field survey (from May 1 to May 30, 2011) the area received 4.36 inches of precipitation which is normal compared to the 30-year average of 4.14 inches for May.

Recent and historical precipitation data are located in Appendix A.

The National Wetland Inventory map of the project area indicates several areas of mapped wetlands within the vicinity, mainly associated with Storm Lake and Little Storm Lake (Figure 4).

2.4 Wetland Delineations

Non-agricultural wetlands within the project area were identified and their boundaries delineated using the Routine On-Site Determination Method defined in the '87 Manual and Regional Supplement. Nine data forms were completed and are provided in Appendix B. Photo-documentation of the project area is provided in Appendix C.

2.5 Wetland Determinations

Because the project area includes agricultural land, the area was investigated for potential wetland impacts using NFSAM methodology, including the Iowa Wetland Mapping Conventions. FSA aerial compliance slides for selected years were reviewed and documented from the Storm Lake USDA Service Center. Four FSA Offsite Determinations for Agricultural Lands Determination Data Forms are included in Appendix B.

2.6 Investigation Findings and Results

The investigation revealed that four areas within the project study area (assumed 50' corridor) are identified as wetland. All four identified wetland areas appear to be jurisdictional wetlands according to the most recent Clean Water Act guidance. The total wetland area to potentially be impacted by project construction includes 2.23 acres of primarily Palustrine Emergent wetland.

Wetland SL1 is approximately 0.45 acres in size and considered Palustrine Emergent (PEM) and Palustrine Forested (PFO) wetland. The wetland boundaries are identified by changes in vegetation, soils and hydrology. The wetland extends well beyond the study corridor to the west and north.

Wetland SL2 is approximately 1.56 acres in size and considered a PEM wetland (sedge meadow). The wetland extends beyond the study corridor limits to the south and is part of a USDA wetland restoration project.

Wetland SL3 is approximately 0.09 acres in size and considered a PEM wetland (sedge meadow). The wetland is a closed depression adjacent to the lake.

Wetland SL4 is approximately 0.13 acres on size and considered a PEM wetland. The wetland is a remnant oxbow adjacent to Outlet Creek.

In addition to the identified wetland impacts, the project alignment crosses jurisdictional waters of the U.S. (open water and stream crossings) at three locations: the lake inlet, an unnamed stream adjacent to wetland SL3, and Outlet Creek. No other potentially jurisdictional waters are located within the project area.

3.0 THREATENED AND ENDANGERED SPECIES INVESTIGATION

Federally listed protected species for the project area include Western prairie fringed orchid (*Platanthera praeclara*), Prairie bush clover (*Lespedeza leptostachya*), and Topeka shiner (*Notropis topeka*). No potentially supporting habitats exist within the project area for Western prairie fringed orchid and Prairie bush clover.

The project is located within the designated Critical Habitat area for Topeka shiners (Figure 5). Because the project alignment crosses Outlet Creek and several other unnamed perennial streams, design and construction of the project must consider potential impacts to this protected species. Suitable mitigation may include avoiding direct disturbance of the streams by direction boring or other construction techniques.

4.0 CONCLUSIONS

Four jurisdictional wetlands totaling 2.23 acres were identified during this investigation. The identified wetland areas represent the worst case scenario should disturbance, filling, and or draining of all areas be required to construct the project. Based on the preliminary project details and expected impacts to regulated waters of the U.S., this project may be authorized by Nationwide Permit 12 Utility Line Activities. Due to expected impacts to waters of the U.S., authorization requires submittal of a Pre-Construction Notice to the U.S. Army Corps of Engineers, Rock Island District (Corps) prior to construction.

5.0 RECOMMENDATIONS

GES understands that the objective of the sewer facility project is to improve the efficiency and capacity to meet current standards and needs. To ensure timely Corps approval, **GES** recommends submitting this Wetland Investigation Report along with a Pre-Construction Notice to the Corps and requesting concurrence of Section 404 Authorization prior to construction.

6.0 LITERATURE CITED

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Weather Underground. Climate Data for Storm Lake, Iowa. Accessed
June 15, 2011.

<http://weatherunderground.com>

FIGURE 1 – LOCATION MAP

**FIGURE 2 – PRELIMINARY ALIGNMENT AND WETLAND DELINEATION
MAP**

FIGURE 3 – SOILS MAP

MAP LEGEND

- Area of Interest (AOI)**
 -  Area of Interest (AOI)
- Soils**
 -  Soil Map Units
- Soil Ratings**
 -  All Hydric
 -  Partially Hydric
 -  Not Hydric
 -  Unknown Hydric
 -  Not rated or not available
- Political Features**
 -  Cities
- Water Features**
 -  Oceans
 -  Streams and Canals
- Transportation**
 -  Rails
 -  Interstate Highways
 -  US Routes
 -  Major Roads

MAP INFORMATION

Map Scale: 1:50,800 if printed on A size (8.5" x 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840. Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: UTM Zone 15N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Buena Vista County, Iowa
 Survey Area Data: Version 15, May 13, 2009
 Date(s) aerial images were photographed: 9/13/2006; 10/14/2006

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Hydric Rating by Map Unit— Summary by Map Unit — Buena Vista County, Iowa				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
6	Okoboji silty clay loam, 0 to 1 percent slopes	All Hydric	65.4	0.7%
31	Afton silty clay loam, 0 to 2 percent slopes	All Hydric	136.0	1.4%
32	Spicer silty clay loam, 0 to 2 percent slopes	All Hydric	37.4	0.4%
34B	Estherville sandy loam, 2 to 5 percent slopes	Not Hydric	3.6	0.0%
55	Nicollet loam, 1 to 3 percent slopes	Not Hydric	168.7	1.7%
62C	Storden loam, 5 to 9 percent slopes	Not Hydric	16.3	0.2%
62D	Storden loam, 9 to 14 percent slopes	Not Hydric	41.2	0.4%
73C	Salida gravelly sandy loam, 5 to 9 percent slopes	Not Hydric	3.3	0.0%
77B	Sac silty clay loam, loam substratum, 2 to 5 percent slopes	Not Hydric	1,599.7	16.3%
77C2	Sac silty clay loam, loam substratum, 5 to 9 percent slopes, moderately eroded	Not Hydric	88.7	0.9%
91	Primghar silty clay loam, 0 to 2 percent slopes	Partially Hydric	806.9	8.2%
91B	Primghar silty clay loam, 2 to 4 percent slopes	Partially Hydric	640.4	6.5%
92	Marcus silty clay loam, 0 to 2 percent slopes	All Hydric	634.1	6.4%
95	Harps loam, 0 to 2 percent slopes	All Hydric	8.8	0.1%
107	Webster silty clay loam, 0 to 2 percent slopes	All Hydric	378.3	3.8%
108	Wadena loam, moderately deep, 0 to 2 percent slopes	Not Hydric	47.2	0.5%
108B	Wadena loam, moderately deep, 2 to 5 percent slopes	Not Hydric	332.1	3.4%
108C2	Wadena loam, moderately deep, 5 to 9 percent slopes, moderately eroded	Not Hydric	2.4	0.0%
133	Colo silty clay loam, 0 to 2 percent slopes	All Hydric	94.8	1.0%
138B	Clarion loam, 2 to 5 percent slopes	Not Hydric	332.2	3.4%
138C2	Clarion loam, 5 to 9 percent slopes, moderately eroded	Not Hydric	65.3	0.7%
202	Cylinder loam, moderately deep, 0 to 2 percent slopes	Partially Hydric	135.1	1.4%

Hydric Rating by Map Unit— Summary by Map Unit — Buena Vista County, Iowa				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
203	Cylinder loam, deep, 0 to 2 percent slopes	Partially Hydric	62.0	0.6%
259	Biscay clay loam, deep, 0 to 2 percent slopes	All Hydric	148.9	1.5%
274	Rolfe silt loam, 0 to 1 percent slopes	All Hydric	5.8	0.1%
310	Galva silty clay loam, 0 to 2 percent slopes	Not Hydric	0.3	0.0%
310B	Galva silty clay loam, 2 to 5 percent slopes	Not Hydric	233.1	2.4%
354	Marsh	All Hydric	69.0	0.7%
504	Fill land	Unknown Hydric	162.1	1.6%
507	Canisteo silty clay loam, 0 to 2 percent slopes	All Hydric	240.5	2.4%
558	Talcot clay loam, moderately deep, 0 to 2 percent slopes	All Hydric	39.7	0.4%
559	Talcot clay loam, deep, 0 to 2 percent slopes	All Hydric	22.2	0.2%
577B	Everly clay loam, 2 to 5 percent slopes	Not Hydric	21.9	0.2%
577C2	Everly clay loam, 5 to 9 percent slopes, moderately eroded	Not Hydric	3.1	0.0%
733	Calco silty clay loam, 0 to 2 percent slopes	All Hydric	53.4	0.5%
SL	Sewage lagoon	Unknown Hydric	4.4	0.0%
W	Water	Unknown Hydric	3,133.1	31.8%
Totals for Area of Interest			9,837.2	100.0%

Rating Options

Aggregation Method: Absence/Presence

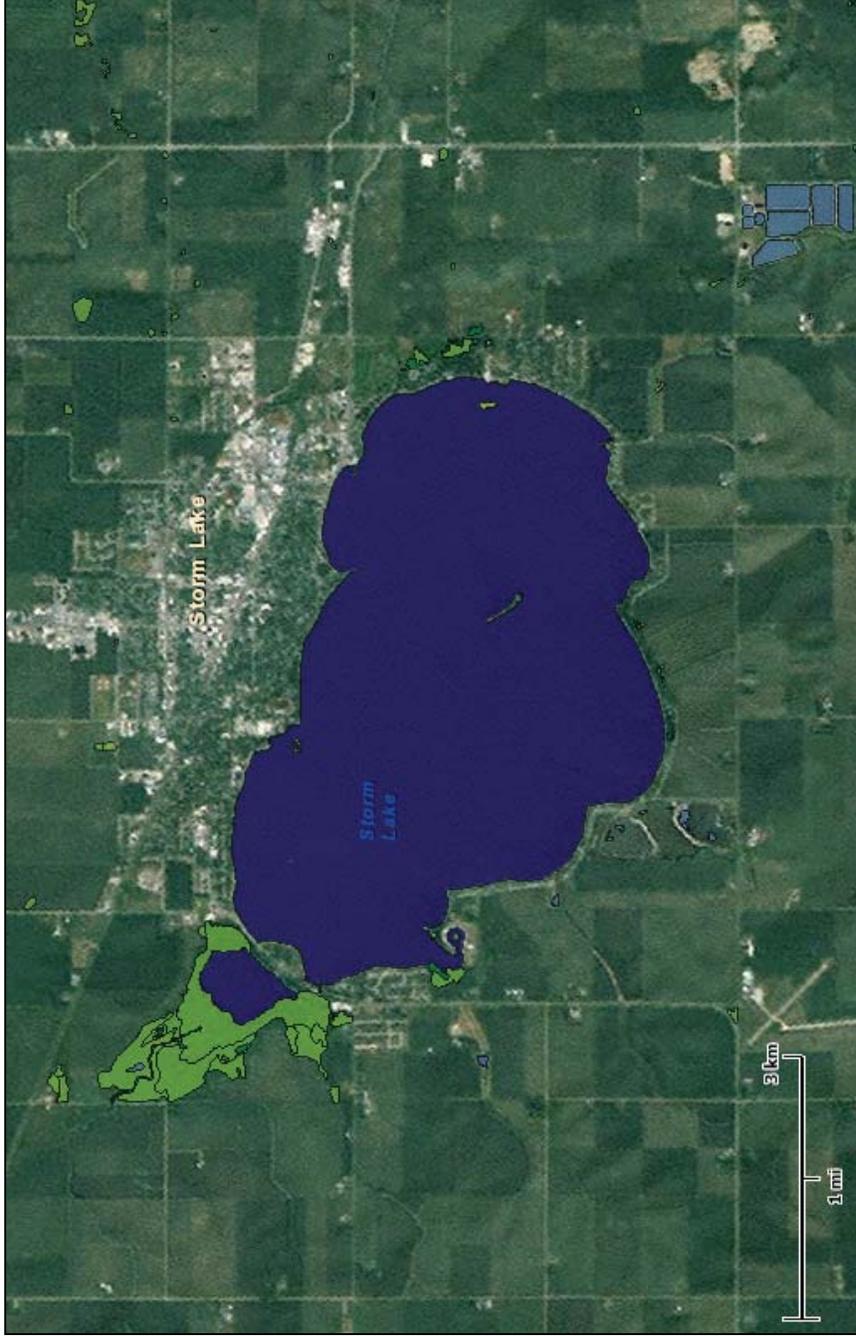
Tie-break Rule: Lower

FIGURE 4 – NATIONAL WETLAND INVENTORY MAP



U.S. Fish and Wildlife Service National Wetlands Inventory

Jun 28, 2011



Wetlands

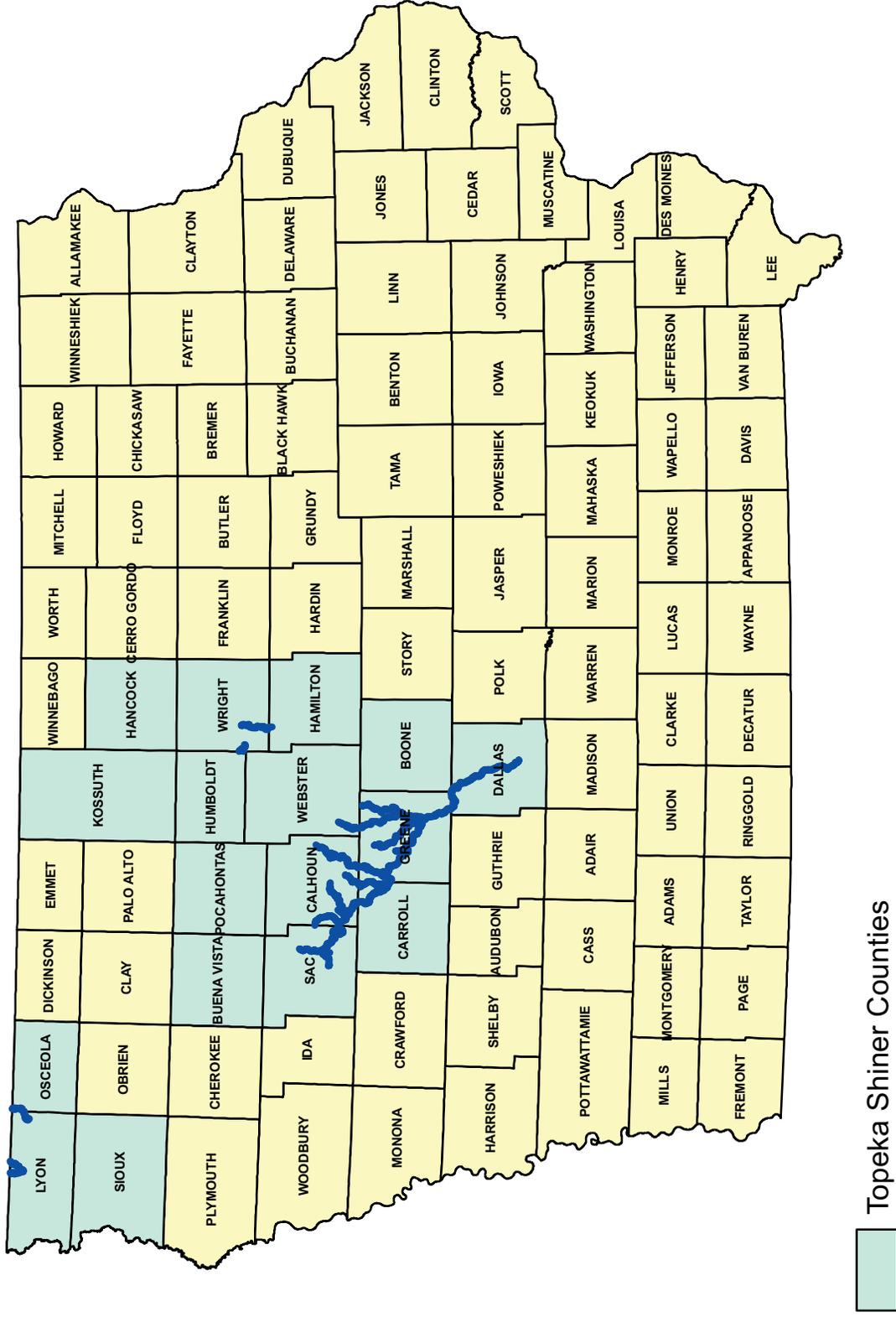
- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

FIGURE 5 – TOPEKA SHINER RANGE MAP

Topeka Shiner Range and Designated Critical Habitat in Iowa



Counties listed as of 5-23-11
 Contact the U.S. Fish & Wildlife Service Rock Island Field Office
 at 309-757-5800 for additional Topeka shiner information.

APPENDIX A: PRECIPITATION AND CLIMATE DATA

Appendix A: Precipitation Recorded at Storm Lake, Iowa

Date	Precipitation (in)	Events
------	-----------------------	--------

May-11

Date	Average Temp	Precipitation	Events
1	45		0
2	43		0
3	42		0
4	52		0
5	56		0
6	58		0
7	59		0
8	66	0.01	Rain
9	77		0
10	82		0
11	70	0.25	Rain
12	60	0.62	Rain , Thunderstorm
13	46	0.56	Rain
14	46	0.02	Rain
15	50	0.37	Rain
16	52		0
17	56		0
18	56		0
19	62		0
20	60	0.61	Rain
21	68	0.35	Rain
22	64	0.01	Rain
23	64		0
24	66		0
25	56	1.35	Rain , Thunderstorm
26	53		0
27	50	0.14	Rain , Thunderstorm
28	60		0
29	60	0.07	Rain , Thunderstorm
30	78		0

Total **4.36**

Appendix A_BV WETS Table

WETS Station : STORM LAKE 2 E, IA7979 Creation Date: 09/05/2002
 Latitude: 4238 Longitude: 09511 Elevation: 01420
 State FIPS/County(FIPS): 19021 County Name: Buena Vista
 Start yr. - 1971 End yr. - 2000

Month	Temperature (Degrees F.)			Precipitation (Inches)				
	avg daily max	avg daily min	avg	avg	30% chance will have		avg # of days w/.1 or more	avg total snow fall
					less than	more than		
January	24.4	5.7	15.1	0.71	0.26	0.86	1	7.6
February	30.4	11.6	21.0	0.64	0.29	0.80	2	6.7
March	42.9	23.0	33.0	2.00	0.84	2.47	4	6.6
April	57.7	34.7	46.2	3.66	1.86	4.48	6	2.4
May	70.2	46.9	58.5	4.14	3.08	4.84	7	0.0
June	79.5	56.8	68.1	5.21	3.55	6.22	7	0.0
July	82.8	61.2	72.0	4.55	2.71	5.52	6	0.0
August	80.5	58.8	69.6	4.64	2.84	5.62	6	0.0
September	73.5	49.7	61.6	3.49	2.05	4.24	5	0.0
October	61.2	37.7	49.4	2.48	1.43	3.01	4	0.3
November	42.2	24.1	33.1	1.62	0.69	2.03	3	4.6
December	28.5	11.2	19.8	0.88	0.39	1.13	1	6.7
Annual	-----	-----	-----	-----	28.12	37.76	--	-----
Average	56.2	35.1	45.6	-----	-----	-----	--	-----
Total	-----	-----	-----	34.02	-----	-----	52	34.9

GROWING SEASON DATES

Probability	Temperature		
	24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *	4/ 6 to 10/26 203 days	4/18 to 10/13 178 days	4/29 to 10/ 5 159 days
70 percent *	4/ 2 to 10/30 211 days	4/13 to 10/18 188 days	4/25 to 10/ 9 168 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

APPENDIX B: DELINEATION AND DETERMINATION DATA SHEETS

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Sanitary Sewer Collection System City/County: Storm Lake Sampling Date: 5/31/11
 Applicant/Owner: City of Storm Lake State: Iowa Sampling Point: SL WUS 1
 Investigator(s): Kevin M. Griggs Section, Township, Range: Sec 5, Twp 90N, Rng 37W
 Landform (hillslope, terrace, etc.): lake shore Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 316443.53 Long: 4722830.5 Datum: UTM NAD 83 Zone 15N
 Soil Map Unit Name: 354 Marsh NWI or WWI classification: PEMF

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: Inlet crossing is a water of the U.S.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	Y	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25.00</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>20</u> (A) <u>40</u> (B) Prevalence Index = B/A = <u>2.00</u>
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____	_____	Y	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				
1. <i>Phalaris arundinacea</i>	<u>20</u>	Y	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>20</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____	_____	Y	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____				
Remarks: (Include photo numbers here or on a separate sheet.) Photos 1 and 2				

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Sanitary Sewer Collection System City/County: Storm Lake Sampling Date: 5/31/11
 Applicant/Owner: City of Storm Lake State: Iowa Sampling Point: SL WUS 2
 Investigator(s): Kevin M. Griggs Section, Township, Range: Sec 5, Twp 90N, Rng 37W
 Landform (hillslope, terrace, etc.): lake shore Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 317317.18 Long: 4720800.02 Datum: UTM NAD 83 Zone 15N
 Soil Map Unit Name: 133 Colo silty clay loam NWI or WWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: Stream crossing is a water of the U.S.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	Y	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25.00</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>200</u> (B) Prevalence Index = B/A = <u>2.00</u>
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____	_____	Y	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				
1. <i>Phalaris arundinacea</i>	<u>100</u>	Y	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____	_____	Y	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				

Hydrophytic Vegetation Indicators:
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No _____

Remarks: (Include photo numbers here or on a separate sheet.)

 Photo 7

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Sanitary Sewer Collection System City/County: Storm Lake Sampling Date: 5/31/11
 Applicant/Owner: City of Storm Lake State: Iowa Sampling Point: SL WUS 3
 Investigator(s): Kevin M. Griggs Section, Township, Range: Sec 5, Twp 90N, Rng 37W
 Landform (hillslope, terrace, etc.): stream crossing Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 322365.12 Long: 4719163.28 Datum: UTM NAD 83 Zone 15N
 Soil Map Unit Name: 133 Colo silty clay loam NWI or WWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: Stream crossing is a water of the U.S.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	Y	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25.00</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>200</u> (B) Prevalence Index = B/A = <u>2.00</u>
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____	_____	Y	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				
1. <i>Phalaris arundinacea</i>	<u>100</u>	Y	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____	_____	Y	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____				
Remarks: (Include photo numbers here or on a separate sheet.) Photo 9				

SOIL

Sampling Point: SL WUS 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/1	100					silt	

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Sanitary Sewer Collection System City/County: Storm Lake Sampling Date: 5/31/11
 Applicant/Owner: City of Storm Lake State: Iowa Sampling Point: SL1-1
 Investigator(s): Kevin M. Griggs Section, Township, Range: Sec 5, Twp 90N, Rng 37W
 Landform (hillslope, terrace, etc.): lake shore Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 316430.8 Long: 4722810.12 Datum: UTM NAD 83 Zone 15N
 Soil Map Unit Name: 354 Marsh NWI or WWI classification: PEMF

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Inlet crossing is a water of the U.S.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____		Y		Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.00</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>45</u> x 1 = <u>45</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>75</u> (A) <u>105</u> (B) Prevalence Index = B/A = <u>1.40</u>
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____		Y		
2. _____				
3. _____				
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				
1. <u>Phalaris arundinacea</u>	30	Y	FACW	
2. <u>Typha spp.</u>	25	Y	OBL	
3. <u>Phragmites spp.</u>	20	Y	OBL	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
75 = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____		Y		
2. _____				
_____ = Total Cover				

Hydrophytic Vegetation Indicators:
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

 Photo 3

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Sanitary Sewer Collection System City/County: Storm Lake Sampling Date: 5/31/11
 Applicant/Owner: City of Storm Lake State: Iowa Sampling Point: SL1-2
 Investigator(s): Kevin M. Griggs Section, Township, Range: Sec 5, Twp 90N, Rng 37W
 Landform (hillslope, terrace, etc.): lake shore Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 316382.4 Long: 4722726.07 Datum: UTM NAD 83 Zone 15N
 Soil Map Unit Name: 354 Marsh NWI or WWI classification: PEMF

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: Inlet crossing is a water of the U.S.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Populus deltoides</u>	85	Y	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.67</u> (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
<u>85</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>45</u> x 1 = <u>45</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>85</u> x 3 = <u>255</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>160</u> (A) <u>360</u> (B) Prevalence Index = B/A = <u>2.25</u>	
<u>Sapling/Shrub Stratum</u> (Plot size: _____)		Dominant Species?	Indicator Status		
1. _____		Y			Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	
<u>Herb Stratum</u> (Plot size: <u>5'</u>)		Dominant Species?	Indicator Status		
1. <u>Phalaris arundinacea</u>	30	Y	FACW		Remarks: (Include photo numbers here or on a separate sheet.) Photo 4
2. <u>Typha spp.</u>	25	Y	OBL		
3. <u>Phragmites spp.</u>	20	Y	OBL		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
<u>75</u> = Total Cover					
<u>Woody Vine Stratum</u> (Plot size: _____)		Dominant Species?	Indicator Status		
1. _____		Y			
2. _____					
_____ = Total Cover					

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Sanitary Sewer Collection System City/County: Storm Lake Sampling Date: 5/31/11
 Applicant/Owner: City of Storm Lake State: Iowa Sampling Point: SL2-1
 Investigator(s): Kevin M. Griggs Section, Township, Range: Sec 8, Twp 90N, Rng 37W
 Landform (hillslope, terrace, etc.): road right of way Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 316591.91 Long: 47211460.75 Datum: UTM NAD 83 Zone 15N
 Soil Map Unit Name: 31 Afton Silty Clay Loam NWI or WWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Inlet crossing is a water of the U.S.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: _____)				Dominance Test worksheet:
1. _____		Y	NI	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40.00</u> (A/B)
4. _____				
5. _____				
			= Total Cover	Prevalence Index worksheet:
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				Total % Cover of: _____ Multiply by: _____
1. _____		Y		OBL species <u>40</u> x 1 = <u>40</u>
2. _____				FACW species <u>70</u> x 2 = <u>140</u>
3. _____				FAC species <u>0</u> x 3 = <u>0</u>
4. _____				FACU species <u>0</u> x 4 = <u>0</u>
5. _____				UPL species <u>0</u> x 5 = <u>0</u>
			= Total Cover	Column Totals: <u>110</u> (A) <u>180</u> (B)
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				Prevalence Index = B/A = <u>1.64</u>
1. <u>Phalaris arundinacea</u>	70	Y	FACW	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Carex spp. 1</u>	30	Y	OBL	
3. <u>Carex spp. 2</u>	10	N	OBL	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
	110		= Total Cover	
<u>Woody Vine Stratum</u> (Plot size: _____)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____		Y		
2. _____				
			= Total Cover	
Remarks: (Include photo numbers here or on a separate sheet.) Photo 5				

SOIL

Sampling Point: SL2-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10YR 3/1	100					loam	

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Sanitary Sewer Collection System City/County: Storm Lake Sampling Date: 5/31/11
 Applicant/Owner: City of Storm Lake State: Iowa Sampling Point: SL2-2
 Investigator(s): Kevin M. Griggs Section, Township, Range: Sec 8, Twp 90N, Rng 37W
 Landform (hillslope, terrace, etc.): road right of way Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 316850.45 Long: 4721460.75 Datum: UTM NAD 83 Zone 15N
 Soil Map Unit Name: 31 Afton Silty Clay Loam NWI or WWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Inlet crossing is a water of the U.S.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____		Y	NI	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40.00</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>50</u> x 1 = <u>50</u> FACW species <u>70</u> x 2 = <u>140</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>120</u> (A) <u>190</u> (B) Prevalence Index = B/A = <u>1.58</u>
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____		Y		
2. _____				
3. _____				
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				
1. <i>Phalaris arundinacea</i>	70	Y	FACW	
2. <i>Carex spp. 1</i>	30	Y	OBL	
3. <i>Carex spp. 2</i>	20	N	OBL	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
120 = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____		Y		
2. _____				
_____ = Total Cover				

Hydrophytic Vegetation Indicators:
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

 Photo 6

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Sanitary Sewer Collection System City/County: Storm Lake Sampling Date: 5/31/11
 Applicant/Owner: City of Storm Lake State: Iowa Sampling Point: SL3
 Investigator(s): Kevin M. Griggs Section, Township, Range: Sec 8, Twp 90N, Rng 37W
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave
 Slope (%): 0 Lat: 317348.07 Long: 4720772.15 Datum: UTM NAD 83 Zone 15N
 Soil Map Unit Name: 92 Marcus silty clay NWI or WWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Inlet crossing is a water of the U.S.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____		Y	NI	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40.00</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>50</u> x 1 = <u>50</u> FACW species <u>50</u> x 2 = <u>100</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>150</u> (B) Prevalence Index = B/A = <u>1.50</u>
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____		Y		
2. _____				
3. _____				
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Phalaris arundinacea</u>	50	Y	FACW	
2. <u>Carex spp. 1</u>	50	Y	OBL	
3. _____			NI	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
100 = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____		Y		
2. _____				
_____ = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)

Photo 8

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Sanitary Sewer Collection System City/County: Storm Lake Sampling Date: 5/31/11
 Applicant/Owner: City of Storm Lake State: Iowa Sampling Point: SL4
 Investigator(s): Kevin M. Griggs Section, Township, Range: Sec 8, Twp 90N, Rng 37W
 Landform (hillslope, terrace, etc.): depression (oxbow) Local relief (concave, convex, none): concave
 Slope (%): 0 Lat: 322378.66 Long: 4718897.39 Datum: UTM NAD 83 Zone 15N
 Soil Map Unit Name: 133 Colo silty clay loam NWI or WWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Inlet crossing is a water of the U.S.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____		Y	NI	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40.00</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>20</u> x 1 = <u>20</u> FACW species <u>80</u> x 2 = <u>160</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>180</u> (B) Prevalence Index = B/A = <u>1.80</u>
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____		Y		
2. _____				
3. _____				
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				
1. <u>Phalaris arundinacea</u>	80	Y	FACW	
2. <u>Carex spp. 1</u>	20	Y	OBL	
3. _____			NI	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
100 = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____		Y		
2. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.) Photo 10				
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

APPENDIX C: GROUND LEVEL PHOTOGRAPHS



PHOTO 1 – VIEW OF INLET CROSSING (WUS) FACING NORTHEAST.



PHOTO 2 – VIEW OF INLET CROSSING (WUS) FACING NORTHEAST.

SITE PHOTOGRAPHS
STORM LAKE, IOWA
SANITARY SEWER COLLECTION SYSTEM
GES PROJECT NO: 10-255
PICTURE DATE: MAY 31, 2011

GRIGGS ENVIRONMENTAL STRATEGIES

1613 – 120th Street, Boone IA 50036
Phone 515-230-7044
www.griggs-strategies.com



APPENDIX

C



PHOTO 3 – VIEW WETLAND SL1 FACING SOUTHWEST.



PHOTO 4 – VIEW OF WETLAND SL1 FACING NORTHEAST.

SITE PHOTOGRAPHS
STORM LAKE, IOWA
SANITARY SEWER COLLECTION SYSTEM
GES PROJECT NO: 10-255
PICTURE DATE: MAY 31, 2011

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APPENDIX

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PHOTO 5 – VIEW WETLAND SL2 FACING WEST.



PHOTO 6 – VIEW OF WETLAND SL2 FACING WEST.

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PHOTO 7 – VIEW OF UNNAMED STREAM CROSSING (WUS) FACING NORTH.



PHOTO 8 – VIEW OF WETLAND SL3 FACING NORTHWEST.

SITE PHOTOGRAPHS
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APPENDIX

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PHOTO 9 – VIEW OF OUTLET CREEK CROSSING (WUS) FACING SOUTH.



PHOTO 10 – VIEW OF WETLAND SL4 FACING SOUTH.

SITE PHOTOGRAPHS
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