

2017



2017 PROJECT INSPECTION REPORT

The mission of the Clearwater River Watershed District is to promote, preserve, and protect water resources within the boundaries of the district in order to maintain property values and quality of life as authorized by MS 103D.

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Overview

This 2017 Project Inspection Report serves to summarize the results of project inspections conducted April-May of 2017. These on-site, visual inspections were performed to provide status updates and recommendations on maintenance and modification needs for the majority of District projects on the landscape. Staff that conducted the inspections are not licensed professional engineers; consideration should be given to the need for professional engineering input and oversight.

Tables 1 & 2 below summarize the estimated costs for recommended and optional maintenance and modification activities based on respective funds. Costs are estimated based on past work and are subject to change. Please note that several activities do not have estimated costs due to the need for further information.

Table 3 on page 4 summarizes inspection results and recommendations of maintenance activities with estimated costs. The detail descriptions section provides more information on each inspection. The included appendices provide further information on several maintenance and modification activities.

Table 1: Cost estimate summary for maintenance/ modification activities

Project Name	Fund	Prioritization	Estimated Cost
Clearwater Chain of Lakes (1980): Annandale Wetland Treatment System	210	Primary	\$25,000-50,000
		Secondary	DN (Determination Needed)
		Optional	DN
Clearwater Chain of Lakes (1980): Kingston Wetland Treatment System	210	Primary	DN
		Secondary	\$150
		Optional	DN
Clearwater Chain of Lakes (1980): Upper Watkins Wetland Isolation Project (North)	210	Primary	DN
		Secondary	\$1,500
		Optional	DN
Clearwater Chain of Lakes (1980): Watkins Wetland Treatment System	210	Primary	\$26,500-51,500
		Secondary	DN, \$1,500
		Optional	DN
Clearwater Chain of Lakes (1980): Aerator Buildings	210	Primary	DN
		Secondary	N/A
		Optional	DN
Clearwater Chain of Lakes (1980): Nistler-Geislinger Basin	210	Primary	N/A
		Secondary	N/A
		Optional	N/A
Clearwater Chain of Lakes (1980): Lake Augusta Erosion Control	210	Primary	DN, \$750
		Secondary	DN
		Optional	DN
Kimball Stormwater Projects	210	Primary	\$850
		Secondary	N/A
		Optional	N/A
Pleasant Lake Outlet Control	203	Primary	\$500
		Secondary	N/A
		Optional	N/A
School Section Lake Outlet Control	206	Primary	\$100, DN

Project Name	Fund	Prioritization	Estimated Cost
		Secondary	N/A
		Optional	DN
		Primary	\$50
East Swartout Treatment Area	210	Secondary	N/A
		Optional	N/A
		Primary	\$750
Old Highway 55 Treatment Area	210	Secondary	N/A
		Optional	N/A
		Primary	DN
Project #06-1: Fish Barriers	215	Secondary	N/A
		Optional	N/A
		Primary	\$1,000
Project #06-1: Segner Pond	215	Secondary	N/A
		Optional	DN
		Primary	\$600
Other Projects: Norton Ave, Eddie Schultz Buffer, Clear Lake South Weir	100	Secondary	N/A
		Optional	N/A
		Primary	\$1,550
Wastewater Treatment Systems	610-630	Secondary	N/A
		Optional	N/A
		Primary	\$32,800- \$57,800
TOTALS (of known estimates)			

Table 2: Cost estimate summary by priority and fund

Project Name	Fund	Estimated Cost
Primary	100	\$600
	203	\$500
	206	\$100 & DN (determination needed)
	210	\$53,900- \$103,900
	215	\$1,000
	610-630	\$1,550
Secondary	210	\$3,150 & DN (determination needed)
Optional	206	DN
	210	DN
	215	DN
TOTALS (of known estimates)		\$32,800- \$57,800

The CRWD Board of Managers should indicate to staff which activities to undertake, and should provide staff with the option to prioritize implementation. This prioritization should be based on: timeframes, other District matters, cost-saving and cash flow analysis.

Table 3: 2017-18 Proposed Maintenance/ Modification Activities

Project: Modification/ Maintenance Activities	Prioritization			Estimated Cost
	Primary	Secondary	Optional	
Annandale Wetland Treatment System [Fund 210]				
1. Continue technical & engineering work in order to determine repair winter 2017-18	✓			Contractor: ~\$25- 50K based on past work
2. Decide on repair/ replacing fencing along west channel		✓		DN (Determination Needed)
3. Conduct survey to determine easement & place signage			✓	DN
Kingston Wetland Treatment System [Fund 210]				
1. Conduct fall site visit to determine whether beaver dam is causing damage		✓		Staff: ~4 hours
2. Develop agreement with adjacent property owners for sediment disposal site	✓			DN
3. Survey limestone filter, plunge pool and sediment basin next time project surveying is needed		✓		DN
Upper Watkins Wetland Isolation Project (North) [Fund 210]				
1. Address sedimentation from adjacent agricultural fields	✓			DN [Work is in progress]
2. Treat noxious weeds (as needed)	✓			Time & material ~\$1,500
3. Decide on repair/ replacing fencing along west channel		✓		DN
Watkins Wetland Treatment System (South) [Fund 210]				
1. Cleanout of channel section where sedimentation has occurred	✓			Contractor: ~\$25-50K based on past work
2. Repair breach in berm	✓			
3. Evaluate repairing low spots or convert to overflows		✓		DN
4. Clear remaining woody brush from berm and treat		✓		Staff or CCM crew: \$1,500
5. Treat noxious weeds (as needed)	✓			Time & material ~\$1,500
6. Decide on repair/ replacing fencing along west channel			✓	DN
Aerator Buildings [Fund 210]				
1. Consider whether buildings should continue to be maintained or abandoned	✓			DN
2. Conduct survey to determine easement & place signage			✓	DN

Project: Modification/ Maintenance Activities	Prioritization			Estimated Cost
	Primary	Secondary	Optional	
Nistler-Geislinger Basin [Fund 210]				
1. Basin in good condition				NO ACTION NEEDED
Lake Augusta Erosion Control Project [Fund 210]				
1. Continue to work on quote solicitation for noted repairs	✓			DN
2. Remove trees from basin area to protect infrastructure	✓			Time & material ~\$750
3. Remove trees from outlet pipe portion of easement		✓		DN
4. Conduct survey to determine easement & place signage			✓	DN
Kimball Stormwater Infrastructure [Fund 210]				
1. Rain garden: Grease agri-drain baffle slides	✓			Staff: \$100
2. Speak with city staff regarding cleaning of underground sumps	✓			Staff: minimal
3. Hwy. 55 Basin: place add'l riprap	✓			Staff: \$750
Ostmark Basin [Fund 100]				
1. Basin in good condition			✓	NO ACTION NEEDED
Pleasant Lake Outlet Project [Fund 203]				
1. Repairs to rebar; replace broken hinge and lock; tighten loose board; grease guillotine valve	✓			Time & material ~\$500
School Section Lake Outlet Project [Fund 206]				
1. Grease guillotine valve	✓			Time & material ~\$100
2. Clear blockage in inlet pipe, install missing trash guards	✓			DN
3. Consider installation of trash guards as part of ice barrier replacement planned for 2017	✓			DN
4. Conduct survey to determine easement & place signage			✓	DN
East Swartout Treatment Area [Fund 215]				
1. Straighten reflectors	✓			Time ~\$50
2. Finish fish barrier modifications	✓			Under current work order
Old Highway 55 Treatment Area [215]				
1. Repair erosion around tile outlet and in limestone swale	✓			Time & Material ~\$750
Cedar Lake Subwatershed Fish Barriers [215]				
1. [Henshaw] Work with township and MN DNR to replace barrier	✓			DN
2. [Swartout Outlet] Partner with Wright County to integrate fish barrier into CO RD 6 culvert	✓			DN

Project: Modification/ Maintenance Activities	Prioritization			Estimated Cost
	Primary	Secondary	Optional	
3. Illsley Ave.: make necessary repairs by year-end	✓			DN
Segner Pond [Fund 215]				
1. Treat noxious weeds (as needed)	✓			Time & material ~\$1,000
2. [Segner Pond] Consider modification to barrier to lessen buildup of debris			✓	DN
Highway 55 Fish Trap [Fund 210]				
1. Recently repaired, Board ordered trap in open position for all of 2017				NO ACTION NEEDED
Norton Ave Sediment Basin[Fund 100]				
1. Basin in good condition, remove baffles	✓			Time ~\$50
Eddie Schultz Buffer[Fund 100]				
1. Buffer in good condition, remove baffles	✓			Time ~\$50
Clear Lake North Notch Weir [Fund 100]				
1. Notch weir outlet structure in good condition				NO ACTION NEEDED
Clear Lake South Notch Weir & Sand-Iron Filter [Fund 100]				
1. Brace agri-drain	✓			Time & material ~\$500
Wastewater Treatment Systems [Funds 610-630]				
1. CH/HR: Multiple fence sections need repair	✓			Time & material ~\$1,000
2. System operator to control woody vegetation and noxious weeds				NO ACTION NEEDED
3. Treat western sediment basin at RAW for algae, clear blockage	✓			Contract Vendor: Estimated \$500; Time ~\$50
DN- Determination Needed				

Detailed Descriptions of Project Inspections

Annandale Wetland Treatment System

Table 4: Annandale Wetland Treatment System - Components Inspected

Inspection Year	Components							
	West Channel & Berm	West Diversion Berm	West Channel Ports	East Channel & Berm	East Diversion Berm	East Channel Ports	Center Diversion Structure	Fencing
2014	I	I	I	I	I	I	I	I
2015	NI	NI	NI	NLI	NLI	NLI	I	NI
2016-17	I	I	I	NLI	NLI	NLI	I	NI

I = inspected, NI = not inspected, NLI = no longer inspected

Table 5: Annandale Wetland Treatment System – 2017 Inspection Results by Component

Components	Inspection results	Recommended future inspection schedule
West Channel & Berm	Breach in berm, sedimentation in channel	Visual- A; GPS survey- 2018, 2025
West Diversion Berm	Needs woody veg. clearing	Visual- A; GPS survey- 2018, 2025
West Channel Ports	Multiple ports no longer function	Visual- A; GPS survey- 2018, 2025
East Channel Berms, Diversion Berm and Ports	NLI per engineer recommendations	None
Center Diversion Structure	IWO	Visual- A
Fencing	NI	ND

A = annually, IWO = in working order, ND = not decided, NI = not inspected, NLI = no longer inspected

Site inspection was conducted April 27, 2017. Wes Boll of Wenck Associates and Dennis Loewen, Assistant Administrator, completed the inspection. Inspection confirmed findings of previous year's inspection.

As part of the CRWD Board of Managers 2017 Plan of Work, staff has begun technical & engineering work in order to perform repair work in winter 2017-18.

Recommendation: Continue technical & engineering work in order to determine level of repair work needed for winter 2017-18 in order to achieve water quality benefits.

In addition to repair work, the CRWD should decide what to do with fencing in place, as multiple sections are bent and broken.

Recommendation: One potential solution would be to remove the fencing and replace with signage instead; similar to what is done for state land (ex. WMAs, state parks, etc.). This is a lower priority than the noted repair work.

OPTIONAL: Conduct a legal survey to clearly delineate the easements for this project on a drawing and in current geospatial terms.

Prior to any work, the District may wish to contact easement holders to inform them of work to be undertaken in order to avoid any potential confusion.



Kingston Wetland Treatment System

Table 6: Kingston Wetland Treatment System - Components Inspected

Inspection Year	Components						
	Low flow channel	Limestone filter berm	Rock riffle structure & plunge pool	Sediment basin w/ forebay	High flow channel & berm	High flow overflow structures	Fencing
2014	I	I	I	I	NI	NI	I
2015	I	NI	NI	I	NI	NI	I
2016-17	I	I	I	I	NLI	NLI	NI

I = inspected, NI = not inspected, NLI = no longer inspected

Table 7: Kingston Wetland Treatment System – 2017 Inspection Results by Component

Components	Inspection results	Recommended future inspection schedule
Low flow channel and diversion	IWO; small beaver dam present downstream from diversion, does not seem to be causing an issue	Visual- A; GPS survey- 2020, 2025
Limestone filter berm	NI (underwater)	Visual- A; GPS survey- 2020, 2025
Rock riffle structure	IWO	Visual- A; GPS survey- 2020, 2025
Sediment basin w/ forebay	Need decision on sedimentation	Visual- A; GPS survey- 2020, 2025
High flow channel & berm	NLI per engineer recommendations	NLI per engineer recommendations
High flow overflow structures	NLI per engineer recommendations	NLI per engineer recommendations
Pool at State Hwy 55	NI (underwater)	NI
Fencing	NI	ND

A = annually, IWO = in working order, ND = not decided, NI = not inspected, NLI = no longer inspected

Site inspection was conducted April 27, 2017. Inspection was conducted via Unmanned Aerial Vehicle as part of a free demonstration by Wenck Associates, Inc. Video and aerial photography was taken and is on file at the CRWD office.

The pool at the end of the river channel near State Hwy. 55 was not examined due to being underwater.

Inspection indicated the re-meandered low-flow channel was in good condition; its shape seems to be very stable, and vegetation is established. One smaller beaver dam was noted along the low flow channel a few hundred feet from the high-flow/ low-flow diversion. At this time the dam does not seem to be causing an issue. It is unclear whether beaver remain in the area.

Recommendation: A fall site visit to determine whether the dam is causing any damage to the low flow channel.

The sediment basin has had significant deposit within the area that was cleaned out in early 2015. This seems to confirm suspicions that a large amount of sediment would deposit in this basin during periods of high flow. Aerial imagery seems to indicate there remains enough room in the basin such that cleanout is not necessary this year.

Recommendation: A GPS survey of the basin should be planned no later than 2020. Survey could be timed with other surveys noted below.

Recommendation: The CRWD should develop an agreement with the adjacent property owners to provide a disposal site for future sediment removal from this basin.

The limestone filter berm and rock riffle structures were underwater. As such, no inspection occurred.

Recommendation: Survey the filter and rock riffle structure the next time surveying is called for at the project.

Recommendation: Determine whether removing sediment from the plunge pool is necessary for the project to maintain operational effectiveness.

Prior to any work, the District may wish to contact easement holders to inform them of work to be undertaken in order to avoid any potential confusion.

Upper Watkins Wetland Isolation Project (North)

Table 8: Upper Watkins Wetland Isolation Project (North) - Components Inspected

Inspection Year	Components				
	<i>Isolation Berm</i>	<i>Diversion Channel</i>	<i>Wooden Weir Structures</i>	<i>Upper Culvert Crossing</i>	<i>Fencing</i>
2014	I	I	I	I	I
2015	I	I	I	I	I
2016-17	I	I	I	DNE	I

I = inspected, NI = not inspected, DNE = does not exist, NLI = no longer inspected

Table 9: Upper Watkins Wetland Isolation Project (North) – 2017 Inspection Results by Component

Components	Inspection results	Future inspection schedule
Isolation Berm	IWO	Visual- A, GPS survey- 2020, 2025
Diversion Channel	IWO	Visual- A, GPS survey- 2020, 2025
Wooden Weir Structures	IWO	Visual- A, GPS survey- 2020, 2025
Upper Culvert Crossing	No longer exists	Visual- A, GPS survey- 2020, 2025
Fencing	NI	ND

A = annually, IWO = in working order, ND = not decided, NI = not inspected, NLI = no longer inspected

Site inspection was conducted April 27, 2017. Inspection was conducted via Unmanned Aerial Vehicle as part of a free demonstration by Wenck Associates, Inc. Video and aerial photography was taken and is on file at the CRWD office.

Repair work was recently completed for multiple sections of the project channel. As-built surveying will be completed soon after final site restoration is complete by repair contractor. As part of this repair, the upper culvert crossing was removed due to no longer being needed by landowners.

Work continues with upstream landowners to control sediment runoff from agricultural fields into the noted channels.

Recommendation: Sediment accumulation in the channel seems to be driven in several locations from runoff from adjacent agricultural fields. Options to address these areas to prevent future sedimentation should be evaluated and implemented where possible.

The wooden weir diversion structures are in good condition. Fencing around the Project is in good condition in most areas; in some, the fencing is broken, missing, or overgrown.

Recommendation: Consider repairing portions of broken fencing, or remove broken portions and replace with signage. The fencing work is a lower priority than other noted work items.

Prior to any work, the District may wish to contact easement holders to inform them of work to be undertaken in order to avoid any potential confusion.

Watkins Wetland Treatment System (South)

Table 10: Upper Watkins Wetland Treatment System (South) - Components Inspected

Inspection Year	Components				
	<i>Diversion Berm</i>	<i>Diversion Channel</i>	<i>Diversion Ports</i>	<i>Diversion Overflow Structures</i>	<i>Fencing</i>
2014-17	I	I	I	I	I

I = inspected, NI = not inspected, NLI = no longer inspected

Table 11: Watkins Wetland Treatment System (South) – 2017 Inspection Results by Component

Components	Inspection results	Future inspection schedule
Diversion Berm	Breach in berm	Visual- A, GPS survey- 2020, 2025
Diversion Channel	IWO, sedimentation present in multiple locations	Visual- A, GPS survey- 2020, 2025
Diversion Ports	Several ports need cleaning	Visual- A, GPS survey- 2020, 2025
Diversion Overflow Structures	IWO	Visual- A, GPS survey- 2020, 2025
Fencing	Broken or missing in large sections	Visual- A

A = annually, IWO = in working order, ND = not decided, NI = not inspected, NLI = no longer inspected

Site inspection was conducted May 8, 2017. Wetland was walked by Dennis Loewen. Last year a detailed survey was conducted of the wetland; please refer to the 2016 Project Inspection Report, appendix A, for further information.

Overall, channel A and corresponding diversion berm are in good condition, with few channel sections where sedimentation has occurred. Channel B has several sections where sedimentation has occurred. Flow seems to not be significantly restricted; however, capacity of the ditch is affected by this sedimentation.



Recommendation: Cleanout of channel sections where sedimentation has occurred is likely needed to return channel to design capacity and mitigation potential drainage concerns of upstream properties.

Most of the diversion ports are in good working order, but there are a couple that need to be cleaned to return to operational effectiveness. However, the CRWD undertook action a number of years ago to install overflow structures that may negate the need to keep the ports clean. The overflows seem to be in good condition.

Recommendation: No action needed for overflow structures.

Several low spots were noted in the diversion berm, principally along channel B.

Recommendation: Evaluate need to repair low spots or convert into new overflow structures.

There is a significant breach located on the far eastern end of the northern diversion channel. This beach looks to be caused by some type of machinery. The result of the breach is flow circumventing the wetland treatment system.

Recommendation: Breach should be repaired. Signage should be placed to inform local residents that no alteration to the system may occur without permission of the CRWD.

Beaver activity was noted on banks of channel B. At this time it does not seem beaver activity is causing an issue, but this should be monitored going forward.

Treating noxious weeds that may grow on the berm should continue as needed. There are several sections along the berm where woody vegetation should be cleared. Large sections of fencing are either missing, damaged, or overgrown.

Recommendation: Remove woody vegetation from the diversion berm. Treat noxious weeds that grow on the berm. Consider repairing portions of broken fencing, or remove broken portions and replace with signage. The fencing work is a lower priority than other noted work items.

OPTIONAL: Conduct a legal survey to clearly delineate the easements for this project on a drawing and in current geospatial terms.

Prior to any work, the District may wish to contact easement holders to inform them of work to be undertaken in order to avoid any potential confusion.

Aerator Buildings

Table 12: Aerator Buildings - Components Inspected

Inspection Year	Components	
	Lake Augusta Aerator Building	Lake Marie Aerator Building
2014-17	I	I

I = inspected, NI = not inspected, NLI = no longer inspected

Table 13: Aerator Buildings - 2017 Inspection Results by Component

Components	Inspection results	Future inspection schedule
Lake Marie Aerator Building	IWO, small woodpecker holes present and slight trim damage	Visual- A, Compressor oil & turn over- A
Lake Augusta Aerator Building	Damage to soffits, eaves, and perhaps foundation; new coat of paint; remove excess dirt and debris from building	Visual- A, Compressor oil & turn over- A

A = annually, IWO = in working order

Site inspection was conducted April 26 & 28, 2017. Staff only viewed the outside of the building. Maintenance personnel Kevin Wittrock goes inside the buildings each year to oil and turn over the compressor cylinder.

The Lake Marie aerator building is in good condition, except as noted above. The Lake Augusta aerator building is in need of a new coat of paint, as well as work to its soffits, eaves, and potentially its foundation. In addition, recent work on the lake access road located adjacent to the building has resulted in a large amount of dirt and debris pushed against the lake Augusta aerator building. The CRWD Board has its attorney drafting an opinion on how to proceed with O&M for these buildings.



Recommendation: The CRWD should consider whether this building should continue to be maintained or abandoned, considering the amount of time that has transpired since the aerators were active.

If the CRWD wishes to continue to maintain, the soffits and eaves of the Lake Augusta building should be repaired. A more in-depth review of this building’s foundation should be conducted in the next year or so to determine whether it needs repair work.

OPTIONAL: Conduct a legal survey to clearly delineate the easements for this project on a drawing and in current geospatial terms.

Nistler-Geislinger Basin

Table 14: Nistler-Geislinger Basin - Components Inspected

Inspection Year	Components	
	<i>Sediment Basin South Cell</i>	<i>Sediment Basin North Cell</i>
2014-16	I	I
2017	Scheduled	Scheduled

I = inspected, NI = not inspected, NLI = no longer inspected

Table 15: Nistler-Geislinger Basin – 2017 Inspection Results by Component

Components	Inspection results	Future inspection schedule
Sediment Basin South Cell	Scheduled	Visual- A; Depth Survey- 2022, 2027
Sediment Basin North Cell	Scheduled	Visual- A; Depth Survey- 2022, 2027

A = annually, IWO = in working order

This site is due for a sedimentation depth survey; as such, site inspection is currently scheduled to occur at the same time other surveying work occurs (ex. Watkins Stormwater Project). Visually, the site seems to be in good condition. Last depth survey was conducted in 2012, and indicated a slight buildup of sediment in the northern cell of the basin.

Overall, basin seemed to be in good condition.

Recommendation: No further action warranted at this time.

Other items to note: 1) the placement of the notch weir above the inlet to the basin should lead to less sediment entering the basin, increasing the basin’s useful life, 2) the source of the delta that formed on the southwestern end of the southern cell has been rectified due to the District’s cooperative effort with Forest Prairie Township in improving the road ditching and drainage above that location.



Lake Augusta Erosion Control Project

Table 16: Lake Augusta Erosion Control - Components Inspected

Inspection Year	Components				
	<i>Southern drop structures</i>	<i>Western drop structures</i>	<i>Sediment basin and riser</i>	<i>Basin outlet</i>	<i>Fencing</i>
2014-17	I	I	I	I	I
I = inspected, NI = not inspected, NLI = no longer inspected					

Table 17: Lake Augusta Erosion Control - 2017 Inspection Results by Component

Components	Inspection results	Future inspection schedule
Southern drop structures	Tile clogged, sump lid damaged, erosion around bottom of culvert, trash guards needed	Visual- A, depth survey- 2021, 2026, 2031
Western drop structures	Trash guards needed	Visual- A, depth survey- 2021, 2026, 2031
Sediment basin	IWO, several trees need to be removed	Visual- A, depth survey- 2021, 2026, 2031
Basin outlet	IWO	Visual- A, depth survey- 2021, 2026, 2031
Fencing	IWO	Visual- A
A = annually, IWO = in working order		

Site inspection was conducted April 29, 2017. The southern drop structure has multiple repair needs. The tile that drains local groundwater in an effort to stabilize the ravine is clogged. The drop structure's lid has been damaged and needs to be reset. Significant erosion has occurred around the bottom of the culvert at the base of the ravine such that the anti-seepage collar is exposed. Multiple trash guards are in need of repair.

The western drop structure is in need of repaired trash guards. Both ravines would likely benefit from tree thinning to promote ground cover. Several trees need to be cut down within the basin fence in order to protect underground culverts from damage. The southern and western inlets are in good working order.



Portions of the fence around the basin are bent due to woody vegetation growth.

Recommendation: Continue to work on request for quotes to complete noted repair items.

Recommendation: Cut select trees within basin fence to protect infrastructure; treat stumps.

The outlet into Lake Augusta West Channel is in good condition. However, small planted trees are located in the easement for this outlet.

Recommendation: Remove trees from easement before they become too large and cause issues with the outlet pipe, including ingress and egress.

OPTIONAL: Conduct a legal survey to clearly delineate the easements for this project on a drawing and in current geospatial terms.

Kimball Stormwater Infrastructure

Table 18: Kimball Stormwater Infrastructure - Components Inspected

Inspection Year	Components						
	<i>Willow Creek (WC) – Rain Garden and Agri-drain</i>	<i>WC – Reuse Basin and Emergency Overflow</i>	<i>Highway 55 Sediment Basin</i>	<i>Magnus Johnson Stabilization</i>	<i>Hendricks East Basin</i>	<i>Hendricks West Basin</i>	<i>Hendricks Emergency Overflow</i>
2014	I	I	DNE	DNE	DNE	DNE	DNE
2015	I	I	DNE	DNE	I	I	I
2016-17	I	I	I	I	I	I	I

I = inspected, NI = not inspected, DNE = did not exist

Table 19: Kimball Stormwater Infrastructure - 2017 Inspection Results by Component

Components	Inspection results	Future inspection schedule
Willow Creek (WC) – Rain Garden and Agri-drain	IWO, vegetation maintenance under contract	Visual- A
WC – Reuse Basin and Emergency Overflow	IWO, vegetation maintenance under contract	Visual- A
Highway 55 Sediment Basin	Slight maintenance needs	Visual- A, GPS Survey- 2020, 2025
Magnus Johnson Stabilization	IWO	Visual- A
Hendricks East Basin	IWO	Visual- A, GPS Survey- 2020, 2025
Hendricks West Basin	IWO	Visual- A, GPS Survey- 2020, 2025
Hendricks Emergency Overflow	Significantly modified by work in Hendricks' yard, CRWD does not hold easement in this area, so nothing can be done	Visual- A, likely discontinue inspection in future years due to modification

A = annually, IWO = in working order

Site inspection was conducted May 2, 2017.

Raingarden and Agri-drain: Water level in rain garden low due to agri-drain being in fully open position per O&M plan. Agri-drain baffles slide easily after last year's maintenance. Trash removed from rain garden. Minor sediment accumulation in rain garden and corresponding inlet was noted, likely source is flow from contributing watershed. Sediment load is expected to decrease due to recent paving of nearby parking lot.

City of Kimball should be contacted to inspect upstream sump to see if vacuuming is warranted. Native plantings may need additional work; this should be determined by vegetation maintenance vendor. Riprap missing from outlet; after speaking with City staff, determined to be not an issue at this time, but needs to be monitored.

Recommendation:

- Monitor riprap around outlet
- Speak with City of Kimball on checking upstream sump to see if vacuuming is needed
- Set agri-drain baffles to winter condition in late fall, grease as needed



- Work with vegetation contractor to see if additional work outside current contract is warranted

Reuse basin and emergency overflow: The basin is in good condition; lots of native plant growth. There was minimal water present when inspected due to recent rain. Riprap was missing from inlet/ outlet; after speaking with City staff, it was determined this was not an issue at this time, but needs to be monitored. Additional wood chips around bridge overflow likely needed in the next couple of years; City staff should be contacted about this. Trash removed from basin.

Recommendation:

- Monitor riprap around inlet/outlet
- Work with vegetation maintenance contractor to see if additional work outside current contract is warranted

Highway 55 Sediment Basin: Basin was not surveyed with GPS equipment. Noted too early to determine if last year's seeding/ plug planting effort is taking well; check with contracted firm later in the year on this matter. There is some erosion around the riprap on the outlet of basin. Some of this erosion seems to be occurring due to snow melt from neighboring property.

Recommendation:

- Place additional riprap as needed around basin outlet
- Work with vegetation contractor to see if additional work is warranted to improve seeded area

Hendricks East Basin: Basin was not surveyed with GPS equipment. Basin seemed to be in good working order. Vegetation maintenance work is now under contract.

Recommendation:

- Speak with City of Kimball to ensure underground sumps upstream are checked and vacuumed if needed

Hendricks West Basin: Basin was not surveyed with GPS equipment. Noted seemed to be in good working order. Vegetation maintenance work is now under contract.



Hendricks Emergency Overflow: Noted that due to expansion of lot at Hendricks' Sand and Gravel Inc. that a significant portion of the overflow has been altered. The alteration will have a constricting effect on flow. However, the CRWD does not hold an easement over this area, as it is in railroad right-of-way.

Ostmark Basin

Table 20: Ostmark Basin - Components Inspected

Inspection Year	Components		
	Basin	Diversion Berm	Tile intake / outlet
2014-17	I	I	I

I = inspected, NI = not inspected, NLI = no longer inspected

Table 21: Ostmark Basin – 2017 Inspection Results by Component

Components	Inspection results	Future inspection schedule
Basin	IWO	Visual- A
Diversion Berm	IWO	Visual- A
Tile intake / outlet	IWO	Visual- A

A = annually, IWO = in working order

Site inspection was conducted April 28, 2017. Visual inspection indicated all three components seemed to be in good working condition. Staff noted the immediate area around the basin has been mowed and cleared by some other party; the CRWD will want to watch this closely to ensure future actions near the basin do not affect the basins operation.

Recommendation: No further action warranted at this time.



Pleasant Lake Outlet Control Structure

Table 22: Pleasant Lake Outlet Control Structure - Components Inspected

Inspection Year	Components	
	Outlet Structure	Guillotine Valve and Manhole
2014-15	I	I
2016	I	NI
2017	I	NI

I = inspected, NI = not inspected, NLI = no longer inspected

Table 23: Pleasant Lake Outlet Control Structure - 2017 Inspection Results by Component

Components	Inspection results	Future inspection schedule
Outlet Structure	IWO, rebar trash guards need replacing	Visual- A
Guillotine Valve and Manhole	NI	Visual- A
Outlet Culvert	IWO	Visual- A

A = annually, IWO = in working order, NI = not inspected

Site inspection was conducted April 19, 2017. Project components viewed included the lake outlet structure and the outlet of the culvert.

Overall, the outlet control structure is in fair condition. The rebar trash guards on the front of the structure are missing. One board on top of the structure is loose. One hinge on door access is broken, and the door is missing its lock. Last year it was noted the outlet guillotine valve does not completely close so as to make a watertight seal.



Recommendations: The rebar trash guards should be repaired, hinge and lock should be replaced, and the loose board should be tightened. In addition, the guillotine valve should be greased by maintenance personnel to promote ease of operation.

School Section Lake Outlet Control Structure

Table 24: School Section Lake Outlet Control Structure - Components Inspected

Inspection Year	Components			
	Outlet Structure	Guillotine Valve, Weir and Manhole	Ice breaker	Multiple Conveyance Culverts
2014-15	I	I	DNE	I
2016	I	I	I	I
2017	I	NI	I	I

I = inspected, NI = not inspected, NLI = no longer inspected

Table 25: School Section Lake Outlet Control Structure - 2017 Inspection Results by Component

Components	Inspection results	Future inspection schedule
Outlet Structure	Partially blocked by sand and debris	Visual- A
Guillotine Valve, Weir and Manhole	Not inspected	Visual- A
Ice breaker	Damaged	Visual- A
Multiple Conveyance Culverts	IWO, trash guards needed	Visual- A

A = annually, IWO = in working order

Site inspection was conducted April 17, 2017.

The lake outlet pipe has sand and debris in it that has caused a partial blockage to occur. It will need to be cleared in order to return the outlet to operational effectiveness.

Recommendations: Either a vendor should be brought in to clear the blockage or the blockage should be addressed as part of the ice barrier replacement planned for 2017.



The remainder of the outlet systems seems to be in good operational order. The stop log weir in the manhole was returned to its previous concrete configuration. Several of the culverts are missing trash guards.

Recommendations: The guillotine valve should be greased by maintenance personnel to promote ease of operation. This can occur as part of ice barrier replacement.

Recommendations: Consider the installation of trash guards as part of ice barrier replacement planned for 2017.

OPTIONAL: Conduct a legal survey to clearly delineate the easements for this project on a drawing and in current geospatial terms.

East Swartout Treatment Area

Table 26: East Swartout Treatment Area - Component Inspected

Inspection Year	Components			
	<i>Limestone Filter</i>	<i>Sheet Pile Weir</i>	<i>Tile Drain</i>	<i>Channel</i>
2017	I	I	I	I

I = inspected, NI = not inspected, NLI = no longer inspected

Table 27: East Swartout Treatment Area – 2017 Inspection Results by Component

Components	Inspection results	Future inspection schedule
Sand-Iron Filter	IWO	Visual- A
Stream Sheet-Pile Weir	IWO	Visual- A
Filter Sheet-Pile Weir	IWO	Visual- A
Outlet Pipe	IWO	Visual- A
Fish Barrier	Not finished	Visual- A

A = annually, IWO = in working order

Site inspection was conducted April 28, 2017. Additional inspection will occur in the fall during drawdown of filter. Sand-iron filter was submerged. Flow was present in outlet pipe.

Recommendations: Reflectors on cleanouts need to be straightened prior to winter; this can be accomplished during fall drawdown.

Both stream and filter sheet-pile weirs were in good working order.

Fish barrier is working well. Additional modifications are needed to finish installation

Recommendations: Complete modifications to recently installed fish barrier.

Project sign was in good shape. Vegetation is managed under contract with a professional firm.



Old Highway 55 Treatment Area

Table 28: Old Highway 55 Treatment Area - Component Inspected

Inspection Year	Components			
	Limestone Filter	Sheet Pile Weir	Tile Drain	Channel
2016-17	I	I	I	I

I = inspected, NI = not inspected, NLI = no longer inspected

Table 29: Old Highway 55 Treatment Area – 2017 Inspection Results by Component

Components	Inspection results	Future inspection schedule
Limestone Filter	IWO	Visual- A
Sheet Pile Weir	IWO	Visual- A
Tile Drain	Critter guard modified and cleaned; slight erosion around tile outlet	Visual- A
Low-flow channel	IWO, slight erosion around and limestone swale on NE side of channel	Visual- A

A = annually, IWO = in working order

Site inspection was conducted April 26, 2017.

Limestone filter was in good condition. Additional vegetation management will likely be needed in 2017 on the berm to control nuisance growth.

Slight erosion is occurring around tile outlet and around limestone swale on the northeastern side of the low flow channel. Low flow channel in good condition.

Recommendations: Smaller limestone rock should be brought in to fill voids in the swale. Rock should be brought in to stop erosion around tile outlet.

Sheet pile weir was is good working order. Signage around weir was in good working order. Project sign was in good shape. Vegetation is managed under contract with a professional firm.



Cedar Lake Subwatershed Fish Barriers

Table 30: Cedar Lake Subwatershed Fish Barriers - Component Inspected

Inspection Year	Components			
	<i>Henshaw Barrier</i>	<i>Swartout Inlet Barrier</i>	<i>Swartout Outlet Barrier</i>	<i>Illsley Avenue Barrier</i>
2014-15	I	I	I	I
2016	I	DNE	I	I
2017	I	Part of East Swartout	I	I

I = inspected, NI = not inspected, NLI = no longer inspected

Table 31: Cedar Lake Subwatershed Fish Barriers – 2017 Inspection Results by Component

Components	Inspection results	Future inspection schedule
Henshaw Barrier	Not functioning, left partially open due to filamentous algae in Henshaw Lake	Visual- A, recommend replacement with other method
Swartout Outlet Barrier	Temporary patches to-be-placed, in operation	Visual- A, may be modified as part of future road work
Illsley Avenue Barrier	Damaged by fallen tree, currently in open position	Visual- A

A = annually, IWO = in working order

These sites were inspected multiple times during the months of April- May. All barriers require cleaning through the season to minimize blockage.

Henshaw: Slight erosion is occurring around barrier ends. Staff recommends barrier be replaced, perhaps by incorporating with culvert adjacent to barrier.

Recommendation: Work with township and MNDNR to replace.

Swartout Outlet: temporary fish bars are planned to be deployed in May. The barrier is operating, but in order to cut down on maintenance, modifications to this barrier should be considered. One option would be to work with the road authority to integrate a fish barrier into the road culvert.



Recommendation: Partner with Wright County to integrate a fish barrier into the replacement culvert.

Illsley Avenue: The barrier has been damaged by a fallen tree. The tree has been removed, and repairs are planned for May 2017. Barrier is currently in open position. The steel panels in placed to shore up the wrings of the barrier are deteriorating; replacement with riprap is needed. Finally, evidence of beaver activity is present. Trapping may be needed in the future.

Recommendation: Institute needed repairs by end of year.

Recommendation: Replace steel panels with riprap.

Recommendation: Keep track of beaver activity; trapping may be needed in future.

Segner Pond

Table 32: Segner Pond - Components Inspected

Inspection Year	Components			
	<i>Diversion Berm</i>	<i>Inlet Channel</i>	<i>Limestone Filter Berm</i>	<i>Sedimentation Pond and Mitigation Wetland</i>
2014-17	I	I	I	I
I = inspected, NI = not inspected, NLI = no longer inspected				

Table 33: Segner Pond - 2017 Inspection Results by Component

Components	Inspection results	Future inspection schedule
Diversion Berm	IWO	Visual- A, GPS survey 2019, 2022, 2025
Inlet Channel	IWO	Visual- A, GPS survey 2019, 2022, 2025
Limestone Filter Berm	IWO	Visual- A, GPS survey 2019, 2022, 2025
Fish barrier	IWO	
Sedimentation Pond and Mitigation Wetland	IWO	Visual- A, depth survey in 2021, 2026, 2031
A = annually, IWO = in working order		

This site was inspected on April 28, 2017.

Project components inspected included the: diversion structure, inlet channel, limestone filter berm, fish barrier, sedimentation pond and mitigation wetland. A sonar survey of the basin was completed last year. The mitigation wetland was noted to be performing well considering site conditions.

Segner Pond Fish Barrier: this barrier is in good working order. No further work is needed.

OPTIONAL: Modifying the barrier would result in less maintenance due to buildup of debris.

The diversion structure was determined to be functioning as designed. Several areas of the limestone filter berm were observed to be lower than the design elevation. Signage is in fair condition.

Recommendation: Continue to monitor areas of lower elevation on filter berm to determine if additional maintenance is needed in 2018.

Recommendation: Treat noxious weeds as needed.



Wastewater Treatment Systems

Operation of Hidden River, Clearwater Harbor, and Rest-A-While Sewer Systems is contracted out to Septic Check Inc. Wandering Pond Sewer System is contracted out to WRM Services Inc. As such, District staff inspections focus on woody and noxious vegetation management, fencing and signage, and Rest-A-While sedimentation basins.

Recommendations: Several sections of fencing around Clearwater Harbor and Hidden River Treatment Areas need to be repaired. The standpipe in the eastern sedimentation basin at Rest-A-While needs to be cleared. Woody and noxious vegetation needs to be maintained at all systems' treatment areas.

Other Projects

The table below summarizes other District projects that are relatively simple and do not warrant a full page to describe their status.

Table 34: Other Projects - Inspection Results and Potential Actions

Project	Date of Inspection	Inspection Results	Future inspection schedule	Potential Actions
Highway 55 Fish Barrier	04/29/2017	Recently repaired, streambed condition unknown	Visual- A	Board ordered trap to remain in open position (not in operation) for 2017
Norton Avenue Sediment Basin	04/28/2017	IWO; baffles need to be removed due to erosion around culverts	Visual- A	Remove baffles
Eddie Schultz Buffer	04/28/2017	IWO; baffles need to be removed due to erosion around culverts	Visual- A	Remove baffles
Clear Lake North Notch Weir	04/27/2017	IWO	Visual- A	None, in good condition
Clear Lake South Notch Weir & Sand-Iron Filter	04/27/2017	IWO, need additional bracing for agri-drain	Visual- A	Have staff install bracing
				A = annually, IWO = in working order