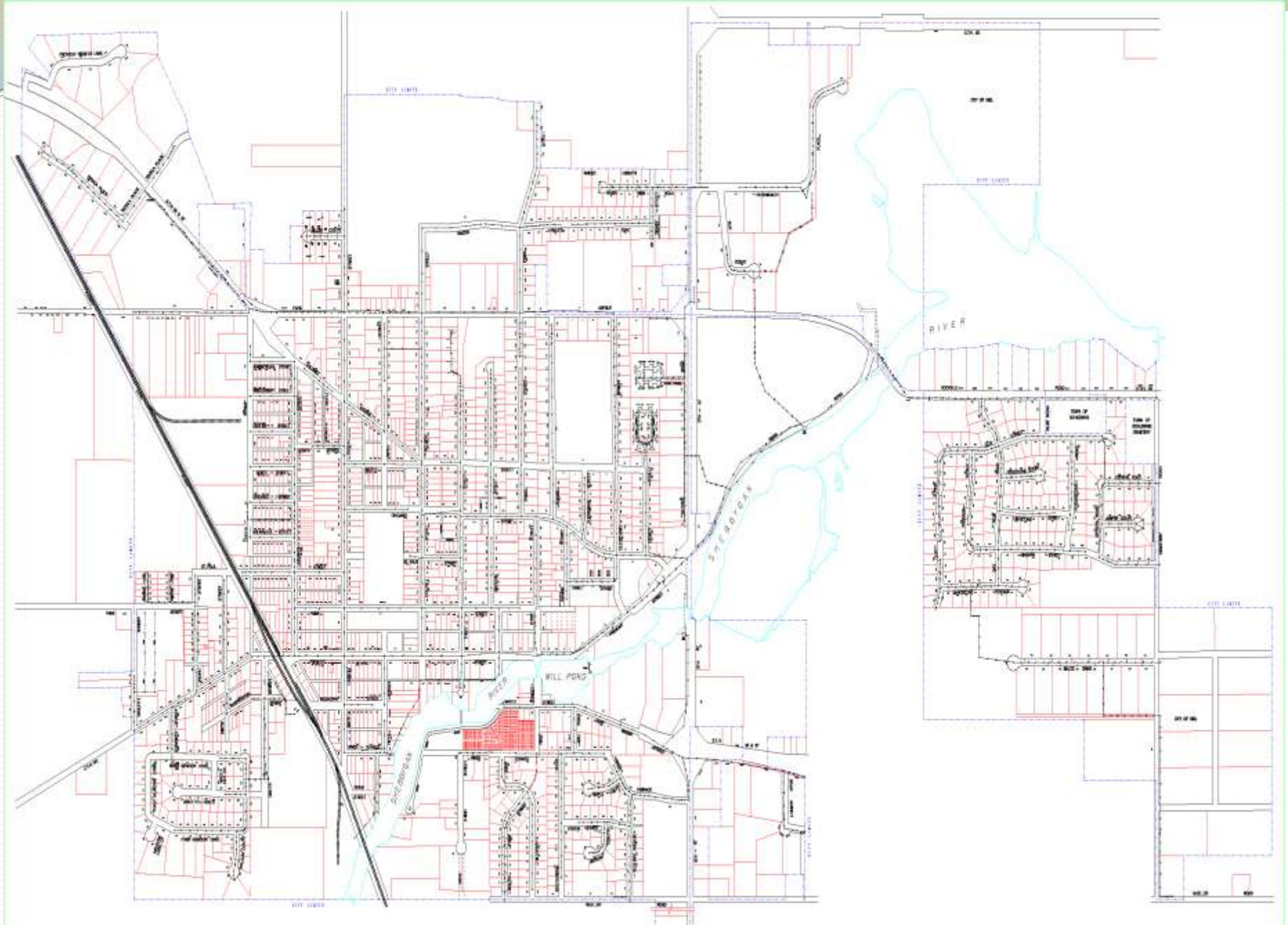


Kiel Wastewater Utility CMOM Case History

Kris August
General Manager

Kiel
POPULATION 3738





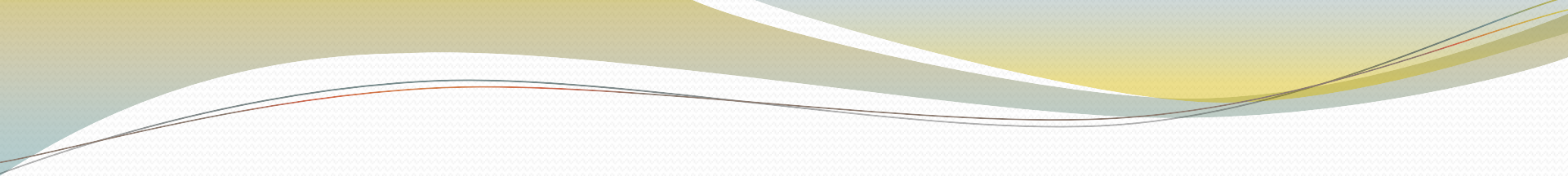


17.9 miles of Sewer

500 Manholes

5 Lift Stations

1 Main Pump Station



COMPLIANCE AGREEMENT BY
THE DEPARTMENT OF NATURAL RESOURCES
AND
THE CITY OF KIEL
OF APPLICABLE REGULATIONS AND
ACTIONS REQUIRED TO RETURN TO
COMPLIANCE

- Kiel shall notify the Department both verbally and in writing of any sanitary sewer overflows as required by the Permit.
- By no later than February 1, 2009, Kiel shall submit documentation that construction of the new lift station in the southern end of 8th Street (i.e. the Kieland Meadows lift station) as well as new sanitary sewer in this area has been completed. Include documentation that the two existing lift stations in 8th and 11th Streets have been removed.
- By no later than Feb. 28, 2010, Kiel shall submit an infiltration/inflow (I/I) analysis for the sewage collection system. (A conditional compliance schedule for a Sewer System Evaluation Survey will be included in the next WPDES permit.).
- By no later than July 31, 2010, Kiel shall develop a written Sanitary Sewer Capacity Management, Operation & Maintenance (CMOM) program. The CMOM program shall include the following elements at a minimum: goals, organization, legal authority, maintenance activities, overflow emergency response plan, capacity assurance, and annual self-auditing of the CMOM Program.

Kiel's CMOM

- Goals
- Organization
- Legal Authority
- O&M
- Emergency
- Capacity Assurance
- Self - Audit

Wisconsin CMOM



Goals

The City of Kiel has developed this Capacity, Management, Operation and Maintenance Program (CMOM) to put in place the ideals, concepts and procedures to be used to prevent sewer overflows to the extent possible and practicable. The goals of the plan are:

- **Prevent overflows** from the sanitary sewer to the extent possible and practicable.
- **Manage the assets** of the Kiel Wastewater Utility inclusive of personnel and equipment to affect a regular maintenance program and to be able to respond to emergency overflows of the system.
- Through the use of analytical and engineering methods, develop a system to **assess and prioritize maintenance, rehabilitation and replacement activities for the portions of the collection system under operational control** of the Kiel Wastewater Utility.
- Through effective management, **develop and enforce appropriate ordinances** that will help to better manage the performance of the collection system.

Goals 2010

- SSES study to evaluate the assets and set correction schedule.
- Clean 25% and known trouble areas yearly.
- Implement FOG and Sand Trap Program.

Currently

- 10 Year plan



Organization

- Municipal Code
- Chart
- Job Descriptions
- Training



Mayor

Administrator (**General Manager of Utilities**)

Wastewater Superintendent
(Implementing & Reporting)
(Scheduling & Operations)

Department of Public Works
(Emergency Contact & Engineering)

Plant Operators
(Lift Stations & Sewer Maintenance)

Streets Crew
(Sewer Maintenance)

Outside services

- 
- 2008

Superintendent

5 Operators

- 2010

Superintendent

4 Operators

- 2015

General Manager

4 Operators



Job Descriptions

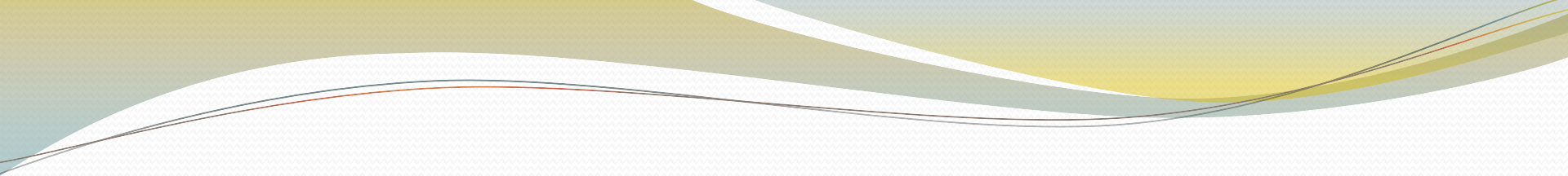
Training



Legal Authority

Municipal Code – Sewer Ordinance

- Add FOG
- Add Private Lateral
- Add Clearwater



FOG



07/30/2008

- **FLOATABLE OIL.** Oil, fat or grease in a physical state such that it will separate by gravity from wastewater by treatment in an approved pretreatment facility. Wastewater shall be considered free of floatable oil if it is properly pretreated and the wastewater does not interfere with the collection system.
- **GREASE, OIL AND SAND INTERCEPTORS.** Grease, oil and sand interceptors shall be provided when, in the opinion of the Approving Authority, they are necessary for the proper handling of liquid wastes containing floatable grease in amounts in excess of those specified in this chapter, or any flammable wastes, sand or other harmful ingredients. Interceptors shall not be required for private living quarters or dwelling units. All interceptors shall be of a type and capacity approved by the Approving Authority, and shall be so located as to be readily and easily accessible for cleaning and inspection. In maintaining these interceptors, the owner shall be responsible for the proper removal and disposal by appropriate means of the captured material and shall maintain records of the dates and means of disposal which are subject to review by the Approving Authority. Disposal of the collected materials performed by owner's personnel or currently licensed waste disposal firms must be in accordance with currently acceptable Department of Natural Resources rules and regulations.

(8) FAT, OIL, GREASE (FOG) AND SAND INTERCEPTORS.

- (a) Trap/interceptors shall be referred to as traps from this point on, shall be required and installed at all food service, industrial and commercial facilities for the proper handling of liquid wastes containing grease, oil, flammable wastes, sand and other harmful ingredients.
- (b) Private living quarters and dwelling units are exempt.
- (c) All FOG and Sand traps shall be constructed in accordance with the Wisconsin Administration Code and shall be located as to be readily and easily accessible for easy cleaning and inspection. Exterior FOG and Sand traps must be constructed in such a manner as to protect trap from storm water runoff. A description of the FOG and Sand trap system, the manufacturer, dimensions and location thereof shall be submitted to the Approving Authority at the time of permit application.

- 9) FOG AND SAND TRAP PERMIT. Will be issued by the Approving Authority to comply with the City of Kiel Wastewater Utility CMOM program.
- (a) Permit shall contain the following. Facility name and owner, date of permit issuance, permit number, trap size and manufacturer, location, required frequency of maintenance.
 - (b) All Permitted facilities must comply with Best Management Practices (BPMs) found in the City of Kiel CMOM Program for preventing introduction of FOG and Sand into the Sanitary Sewer and Storm Water Systems.
 - (c) All FOG and Sand traps shall be maintained by the owner at his or her expense in continuing, efficient operation at all times. Disposal of trap contents shall be done in accordance with Department of Natural Resources standards.
 - (d) Maintenance reports detailing all maintenance performed during the previous year shall be submitted to the Approving Authority annually, by January 31st. Forms are provided by the Approving Authority upon request. Any user delinquent in filing a maintenance report shall be notified of the delinquency and the penalty for failure to report. Any user who has not submitted the required annual maintenance report by March 1 shall be assessed a fee of **\$50.00** per day, with each day constituting a separate fee. The fee shall be assessed from March 1 until the maintenance report has been received by the Approving Authority. The fee shall be placed on the account of the service address relating to the permit.
 - (e) All permitted FOG and Sand trap are to be inspected biennial by the Approving Authority. If a failed inspection occurs, a Notice of Violation will be issued in five (5) working days. The permit holder has thirty (30) days to correct the failure. If the Notice of Violation is not corrected in thirty (30) days, then Failure of Compliance will be issued. If Failure of Compliance is not corrected in ninety (90) days, a fee of **\$250.00** per day will be assessed, with each day constituting a separate fee. The fee shall be assessed until the Failure of Compliance has been corrected followed by an inspection from the Approving Authority. The fee shall be placed on the account of the service address relating to the permit.
 - (f) Blockages downstream of a FOG and/or Sand Permitted Facilities shall be investigated. If investigation determines that an upstream FOG or Sand Permitted Facility caused interference or blockage in the sanitary system, then that FOG or Sand Permitted Facility shall reimburse the Kiel Wastewater Utility for all labor, equipment, supplies and disposal costs incurred in correcting interference or blockage.
 - (g) No permitted facility shall push FOGS material down lateral at time of cleaning to public sewer main without prior approval from the Approving Authority.

- City of Kiel Grease Cleaning Guidance

The City of Kiel Wastewater Utility has set the following guidance for the cleaning of grease traps. The frequency of the grease trap cleaning is calculated by the formula provided for food service establishments. Industrial customers are calculated separate from this guidance.

$S \times GS \times (HR / 12) \times LF =$ gallons required for annual cleaning (GC)

S = Number of seats in dining area

GS = Gallons used per seat (use 2 for china dishes and or automatic dishwasher,
Use 1 gallon for restaurants with paper or basket and no dishwasher.)

HR = Number of hours restaurant is open (Week)

LF = Loading Factor	Restaurant	0.75
	Fast Food/Bar	0.5

Interior Grease Traps

$GC / PR =$ Number of cleanings required annually

GC= Gallons required for annual cleaning

PR = Pound rating of grease trap

Exterior Grease Interceptor

Frequency of cleaning is annual, unless the calculation of gallons required for annual cleaning exceeds interceptor size.

A food service establishment may request in writing a variance to the frequency of cleaning calculated in the guidance formula if the criteria listed below can be verified by the Utility.

1. Solids do not exceed the invert of the outlet during any time.
2. Total volume of captured grease and solid material displaces more than 25% of the capacity of the trap.
3. Interceptor is retaining or capturing oils and grease longer than calculation.

-
Note: The City of Kiel Wastewater Utility may require a more frequent cleaning than calculated if it determines fat, oil, grease (FOG) and/or Sand is entering the sanitary sewer system.

-

City of Kiel Sand and Oil Traps Guidance

The City of Kiel has set the following guidance for cleaning of sand and oil traps. The frequency of the trap cleaning is calculated by the formula provided for in this document. All commercial, industrial and governmental facilities fall under this guidance and it is through this guidance that the permit requirements are calculated.

The minimum allowable sand and oil trap size is 105 gallons of trap capacity (36" dia x 24" sump).

Sand and Oil Trap Sizing:

$((SQ\ FT / FF) \times 7.48) \times 2 = \text{Traffic Rated Size Gallons Annual Cleaning}$

SQFT = square footage of facility area

FF = Facility Factor

7.48 = Gallons per cu.ft of water

2 = Retention Time of 2 hours

Facility Factor

15 - Truck washes, heavy equipment wash

50 - Automatic car wash

75 - Car wash with hand held spray

100 - Maintenance Repair shop mixed use

300 -Automotive repair/paint shop, vehicle detailing

500 - Printers

2000- Parking garages

Facilities not listed above are calculated by the approving authority.

Frequency of cleaning is annual, unless actual installed size is less than the calculation of gallons required for annual cleaning trap size.

Note: The City of Kiel Wastewater Utility will use calculation for building permit approval.

Kiel Wastewater Utility Grease Trap Certification (Form B)

Every food service facility in the Kiel Wastewater Utility service area must have their grease trap inspected biennial, as required by their FOGS Permit, to verify that all components of the grease control equipment are present and in good working condition.

Facility Name _____

Phone _____

Address _____

City _____

WI _____ ZIP _____

1. Grease trap completely emptied and cleaned before inspection?
2. There is access to all trap chambers for cleaning?
3. Flow restrictor device is installed (before grease trap or at grease trap inlet)?
4. Flow restrictor device installation is correct (proper flow direction and orientation)?
5. Grease trap vented (vent on flow restrictor)?
6. Grease Trap has NO visible holes or leaks?
7. Baffle(s) (inlet, middle and outlet...depending on design) are secure and operational?
8. Automatic or machine dishwasher is NOT connected to the grease trap?
9. No sewer clean-out covers missing or damaged?
10. Cleaning frequency met?

PASS	FAIL	Temp

PASS	FAIL

* Important required information & Response: If the answer to any of the above questions is FAIL, the equipment has failed certification. A statement of the plan of action to be taken, with date to be completed, needs to be provided in comments section.

Inspector Certification- This grease trap has Passed Failed

Comments _____

Inspected by _____ Date _____

print name



PRIVATE LATERALS

13.28 SYSTEM REQUIREMENTS.

- (1) All sanitary sewer mains and laterals, both public and private, shall be constructed and maintained in such a fashion that the effects of clear water on the system are held to an absolute minimum.
- (2) All work, construction technique, and materials incorporated into the project shall be in strict conformance with state and local codes, or the American Society for Testing and Materials (ASTM) and Water Pollution Control Federation (WPCF) Manual of Practice No. 9 Design and Construction of Sanitary and Storm Sewers.
 - (a) Permitted Materials. Permitted materials are specified in the City of Kiel Wastewater Utility Capacity, Maintenance, Operation and Management (CMOM) guidance.
 - (b) Defects Requiring Repair.
 - (1) Any visible leak.
 - (2) Open, improperly formed, or root intruded joints.
 - (3) Improper materials such as soil or orangeburg pipe.
 - (4) Visible crack.
 - (5) Improper connections such as a palmer valve.
 - (6) Any defect determined by the City of Kiel to require repair to comply with the system standards identified herein.

Lateral Survey pictures of 722 Milwaukee St.

for City of Kiel

Work Order 12179	Media Num 12-02	Surveyed On 05/17/2012	Direction Upstream	Setup 6
Street Name Milwaukee St.	City Name Kiel	Weather Dry		
Location Light Highway	Main Line MH E87085S to MH E87080S			

Date: 5/17/2012 12:50:15 PM
Distance: 25.8 Ft
Obs: Roots Medium Joint



Comments:

Date: 5/17/2012 12:52:19 PM
Distance: 46.0 Ft
Obs: Roots Ball Joint



Comments:

Date: 5/17/2012 12:53:01 PM
Distance: 47.6 Ft
Obs: Roots Medium Connection



Comments:
AT 6" TO 4" TRANSITION

13.29 BACKWATER VALVES. (1) Backwater valves shall be required on all building sewers new or reconstructed at a location approved by the approving authority. (2) When in the best interest of the City, require the installation of a backwater valve in building sewers servicing buildings not listed in this subsection. (3) Continue to encourage the installation of floor drain backflow preventers in one- and two-family buildings without backwater valves.

13.30 Sanitary Sewer Lateral Fees.

- (1) Sewer lateral fees. The following fees are hereby created and imposed, each fee separately at the rate of \$50.00 per month, payable in monthly installments and billed with the regular monthly billing for City of Kiel Utility services: (a) Televising refusal fee. A \$50.00 monthly fee is hereby imposed for connection of sewer laterals against every property connected to the City of Kiel sanitary sewerage system, in the utility, which owner refuses to consent to televising of the sewer lateral by the city. This fee will be imposed beginning 30 days after request has been made by the city for permission to televise the owner's sewer lateral. This fee will continue until the property owner consents to televising by the city. (b) Failure to correct fee. A \$50.00 monthly fee is also hereby imposed for connection of sewer laterals against every property connected to sanitary sewerage system, in the utility, which owner fails to take corrective action upon request by the city to repair sewer laterals leaking freshwater into the sewerage system. This fee will be imposed beginning 30 days following notice by the city to the owner that corrective action is required and has not been completed on schedule and will continue until corrective action by the owner has been taken.
- (2) Fee exemptions. The following are the exemptions and procedures from lateral fees: (a) Televising exemption. Upon request by the City of Kiel Wastewater Utility to televise a sewer lateral connected to a sewer main, in the utility, the property owner may grant consent to televise the lateral by signing a consent form approved by the city. Upon receipt of such signed consent form, the city is authorized to access the private sewer lateral and adjacent property for purposes of televising the lateral. Owners complying with this section are exempt from the televising refusal fee. (b) Corrective fee exemption. Each owner that repairs all laterals determined by the city to be leaking freshwater into the sewerage system shall be exempt from the failure to correct fee beginning at such time that verification of corrective action has been provided by the owner to the city

City of Kiel Wastewater Utility
100 Rockville Road
P.O. Box 98
Kiel, WI 53042

{Date}

{Owner}

{Owner 2}

{Mailing Address}

{City, State Zip}

Dear Property Owner:

During the reconstruction process of the water main abutting your property, **{property address and county}** it has come to the City attention that the water lateral on your property is lead.

As the owner of the above property, you are in violation of Sec.13.27 System Reconstruction and/or Sec.13.28 System Requirements of the City of Kiel Code of Ordinances. As such, you are required to make the necessary repairs to correct the deficiencies.

Your sanitary sewer has been found to have the following deficiency(ies):

- (1) Any visible leak.
- (2) Open, improperly formed, or root intruded joints.
- (3) Improper materials such as soil or orangeburg pipe.
- (4) Visible crack.
- (5) Improper connections such as a palmer valve.
- (6) Any defect determined by the City of Kiel to require repair to

comply with the system standards identified herein.

A copy of the sanitary sewer lateral inspection report is included with this letter for your review.

The City of Kiel contract with the awarded contractor will repair all sanitary sewer laterals from the sanitary sewer main to the property line. The property line to the building is to be repaired by the property owner at their expense.

Your sanitary sewer lateral repair options are listed below:

1. You may use the contractor under contract with the City of Kiel during the reconstruction of the sanitary sewer main. Prices will be determined after bid acceptance by the City of Kiel Council for the repair of the sanitary sewer laterals at the time of construction. This repair is at the property owner's expense and can be paid in full or special assessed on the taxes for the property.
2. You may make the sanitary sewer lateral repairs with a contractor of your choice and at your expense.
3. You may make the sanitary sewer lateral repair yourself meeting all state and local plumbing codes at your expense.

You must have repairs or replacement work of the sanitary sewer lateral completed one (1) year after the completion of the City of Kiel contract with contractor. The completion date of the contract will be set at September 19, 2014.

If you do not correct the deficiency(ies) by one (1) year of the date given above, a \$50.00 fee will be imposed each month per Sec.13.30 Sanitary Sewer Lateral Fees..

If you have any question regarding this letter please feel free to contact me.

Kris August Superintendent
Kiel Wastewater Utilities

Private Laterals

Inside Fee \$900.00

Average Cost \$35.00/foot

Average 25 feet

Completed

7 blocks over the last 4 years.



CLEAR WATER



SUMP PUMP REQUIREMENT.

Where during construction of a residential, commercial or industrial building, there is evidence of a high water table, or where the grade of the building is not sufficient to cause water to disperse promptly from said property, the building inspector shall in his discretion determine whether a sump pump shall be required in said building as a condition of the granting of a permit for construction of said building.

13.26 SUMP PUMPS

(1) Inspections. It shall be the duty of the utility to cause surveys to be made of all properties serviced by the utility. **Surveys shall be made on a ten (10) year interval, or at the time of sale of property.** All sump pumps shall conform to the specifications in section 13.17 of this code.

- (6) **STORMWATER AND GROUND WATER.** Stormwater and groundwater drain connections are prohibited as follows: (a) No person shall allow the discharge or cause to be discharged into any sanitary sewer any stormwater, surface water, groundwater, roof runoff, subsurface drainage, uncontaminated cooling waste or unpolluted industrial process waters. All stormwater, surface water, groundwater, roof runoff, subsurface drainage, uncontaminated cooling water and all other unpolluted drainage and clear water shall be discharged into such sewers as are designated as storm sewers whenever reasonably available; further provided that if no storm sewer is available, in no event shall any such waters be discharged into any sanitary sewer. (b) All sump pumps installed for the purpose of discharging clear waters from foundation drains, basement drains and ground infiltration shall discharge into a storm sewer whenever available, and, if no storm sewer is available shall discharge into an underground conduit leading to a drainage ditch, drywell or onto the ground at a point which is not less than three feet from the building and is above permanent grade. No sump pump is allowed to flow on or across a public sidewalk. (c) In carrying out the provisions of this chapter, Approving Authority or the Director of Public Works shall have the authority to enter upon private premises at reasonable times to determine whether any of the water drainage hereinabove described exists thereon and whether such drainage complies with the provisions of this chapter. No person shall refuse to permit the Approving Authority or the Director of Public Works to enter upon any premises at reasonable times to exercise their duties under this article. (d) It shall be rebuttably presumed that clear water is being discharged in a sanitary sewer if it is shown that existing sump pumps or other means of clear water discharge have or can be readily connected to drains, pipes or other mechanisms of discharge connected to the sanitary sewer drain within the premises. (e) Disconnection time frame; exception. All existing downspouts or groundwater drains, etc., connected directly or indirectly to a sanitary sewer must be disconnected within 60 days of the date of an official written notice from the Approving Authority. Exceptions to this subsection may be made by the Approving Authority. (f) Stormwater and groundwater failure to correct fee. A **\$50.00 monthly fee is also hereby imposed for failure to correct stormwater and groundwater connection found not conforming to specifications in section 13.17 of this code. This fee will be imposed beginning 60 days following notice by the city to the owner that corrective action is required and has not been completed on schedule and will continue until corrective action by the owner has been taken**

Inspection # _____

City of Kiel Wastewater Utility
100 Rockville Road
Kiel, WI 53042
(920) 894-2133

Parcel # _____

Physical Address _____

Clear Water Inspection

Date Requested: _____

Requester: _____

Date Scheduled: _____

Phone# _____

Owner's Name: _____

Address: _____

Pass		
Failed	Failed 2nd Attempt	Failed 3rd Attempt

The Wisconsin Administration Code Comm. 82.36(3) and the City of Kiel Ordinance Chapter 13 forbids the discharge of clear water into the sanitary sewer system.

I observed the following violations:

- ____ 1. Your sump pump is connected directly to the sanitary sewer.
- ____ 2. Your sump pump is cross-connected to the sanitary sewer. (There is a tee in the discharge pipe, which can lead to floor drain.)
- ____ 3. The floor drain is connected to the footing tile, roof leader, and or other.
- ____ 4. The sump pump pit has a bypass to the floor drain.
- ____ 5. Foundation wall leak goes to floor drain.
- ____ 6. The discharge piping on the sump pump is not of material approved in Comm.84.30 of the State Plumbing Code. (PVC or ABS, Copper, Galvanized Steel, Cast Iron, Brass)
- ____ 7. The down spouts are connected to the sanitary sewer system.
- ____ 8. Floor drain(s) non-accessible at time of inspection.
- ____ 9. One or more downspout leaders exist.
- ____ 10. Outside cleanout defective.
- ____ 11. No inspection at time of sale and/or allowance of inspection.

Comments: _____

The following corrections must be made no later than (60 days) _____

- ____ 1. The cross-connection to the sanitary sewer must be removed and the sump pump must discharge to the outside of the dwelling.
- ____ 2. You must remove, plug or correct the cross-connection of the floor drain. (Plugging the cross-connection without installing a sump pump may result in water damage to the foundation and/or water accumulating on the basement floor. We recommend installing a sump pit and pump.)
- ____ 3. The bypass from the sump pit to floor drain must be capped or plugged and the bypass piping removed.
- ____ 4. The discharge pipe from the sump pump must conform to Comm. 84.30. (See #6 above)
- ____ 5. The downspouts must be disconnected and/or the pipe plugged with cement or mortar.
- ____ 6. The outside cleanout must be repaired.
- ____ 7. Inspection of parcel.

It is the owner's responsibility to call for re-inspection when the violations have been corrected.

Inspection made by: _____ Date: _____

Violations Corrected on: _____

Owner: _____ Date: _____

_____ Date: _____

CITY OF KIEL

RESIDENTIAL CROSS-CONNECTION CONTROL INSPECTION FORM

PARCEL #: _____ ADDRESS: _____

Inspector: _____ Account # _____

SINGLE FAMILY: MULTIPLE FAMILY: # OF UNITS: _____ APARTMENT: # OF UNITS: _____ CONDO: # OF UNITS: _____

INSPECTION INFORMATION		SIZE OF WATER METERS:	PRESSURE REGULATOR	INSPECTION COMPLIANCE:
DATE OF INSPECTION: _____		POTABLE WATER: _____	YES <input type="checkbox"/>	YES <input type="checkbox"/>
		LAWN IRRIGATION: _____	NO <input type="checkbox"/>	NO <input type="checkbox"/>
		WELL: _____		

HAZARD INFORMATION													
TYPE OF WATER USE	Y/N		QTY	PROPERLY ISOLATED		APPROVED DEVICE							
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WATER SOFTENER	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LAUNDRY SINK	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INSIDE HOSE BIBB(S)	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BOILER	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
HUMIDIFIER	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OUTSIDE HOSE BIBB(S)	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LAWN IRRIGATION SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SWIMMING POOL	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTHER _____	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ADDITIONAL NOTES: _____

RESIDENTIAL SANITARY CLEARWATER INSPECTION		Pass <input type="checkbox"/>
1. Your sump pump is cross-connected to the sanitary sewer. (There is a tee in the discharge pipe, which can lead to floor drain.)		
2. The floor drain is connected to the footing tile, roof leader, and or other.		
3. Foundation wall leak goes to floor drain.		
4. The discharge piping on the sump pump is not of material approved in Comm.84.30 of State Plumbing Code. (PVC or ABS, Copper, Galvanized Steel, Cast Iron, Brass)		
5. One or more downspout leaders exist.		
6. Outside cleanout defective.		
ADDITIONAL NOTES: _____		

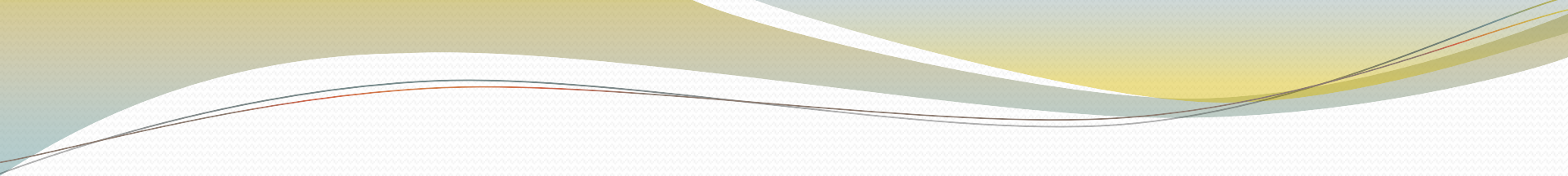




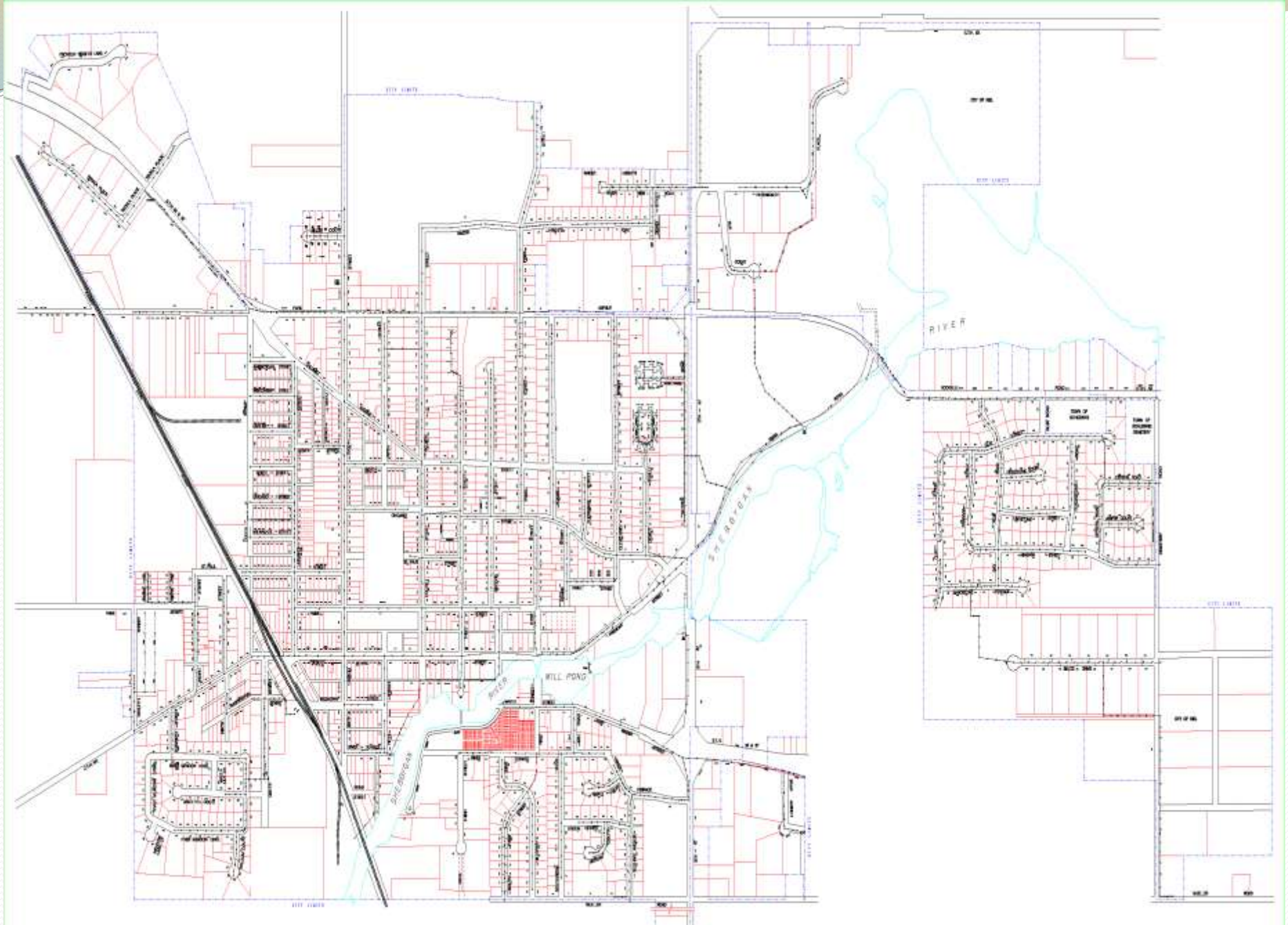








O & M





Jetting

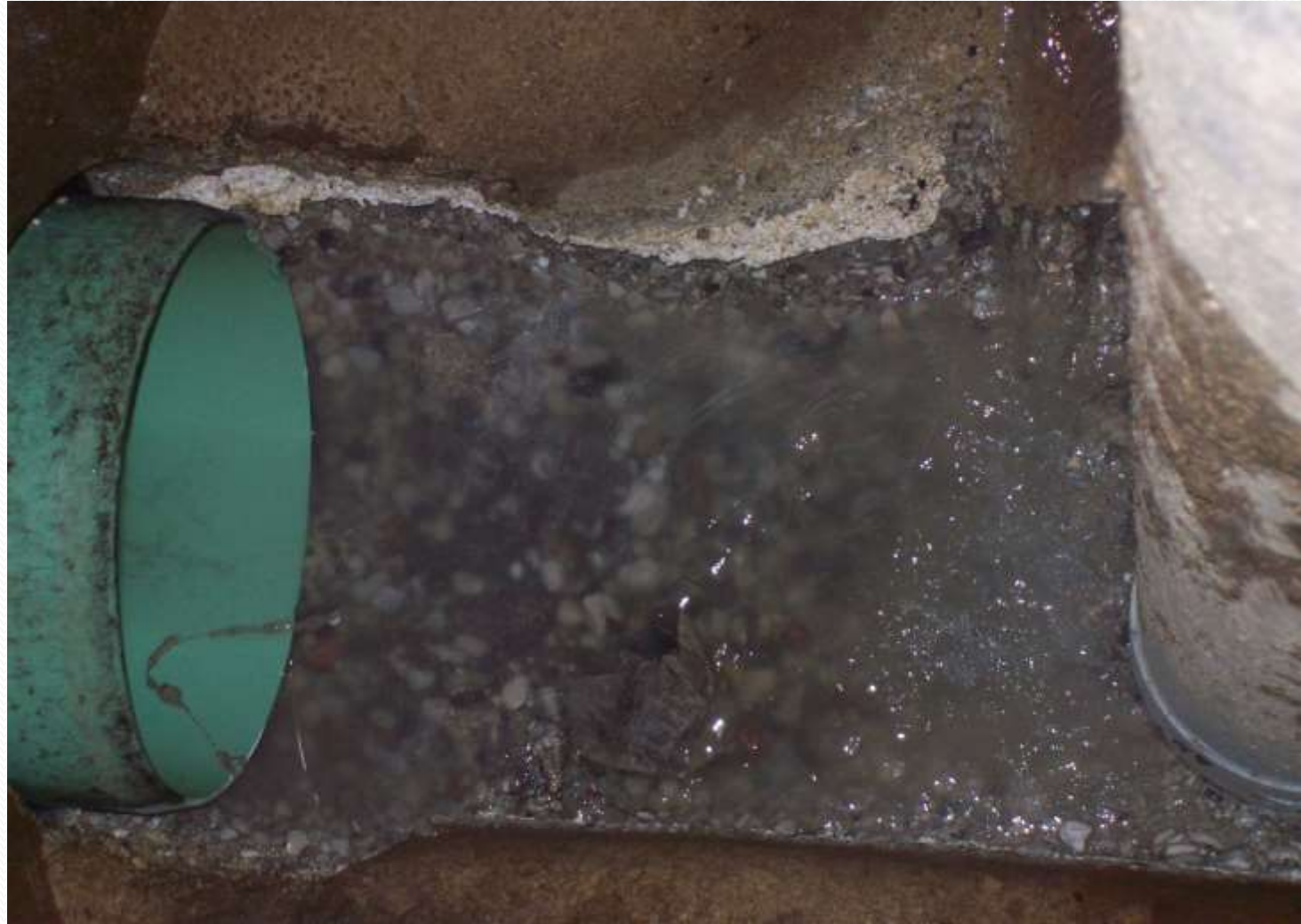
In-house

Contract out

CCTV

In-House

Contract Out



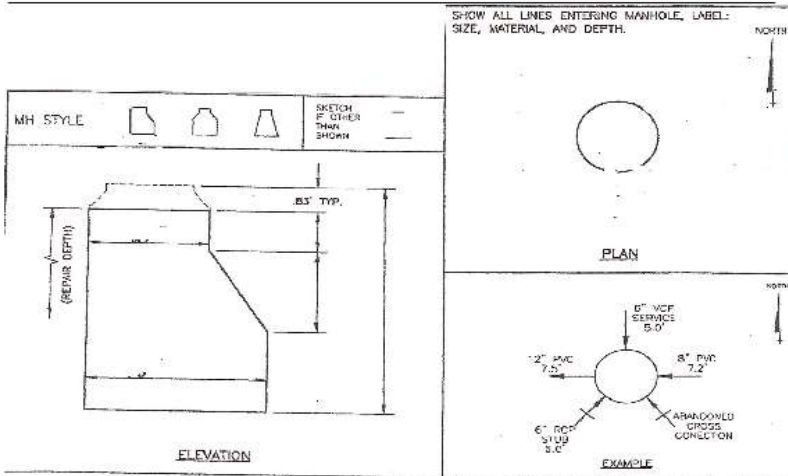
Group	Code	Descriptor	Code	Modifier	Code
Crack	C	Circumferetial	C	Displaced	D
		Longitudinal	L		
		Multiple	M		
Fracture	F	Circumferetial	C		
		Longitudinal	L		
		Multiple	M		
Rise	R	Pipe	P		
Sag	SA	Pipe	P		
Pipe Failures	F	Broken	B	Soil Visible	SV
		Hole	H	Soil Visible	SV
Collapse	X	Pipe	P		
Deformed	D	Pipe	P		
Joint	J	Offset (displaced)	O	Med	M
				Large	L
		Serated (open)	S	Med	M
				Large	L
Surface Damage Chemical	S	Roughness increased	RI		
		Surface Spalling	SS		
		Aggregate Visible	AV		
		Aggregate Missing	AM		
		Reinforcement Visible	RV		
Deposit Attached	DA	Encrustation	E		
		Grease	G		
		Brick/Debrie	BR		
		Ragging	R		
Infiltration	I	Weeper	W		
		Dripper	D		
		Runner	R		
		Gusher	G		
Roots	R	Present	P		
		Curtain	C		
		Blockage	B		
Lateral	L	Service Left	SL	Cracked	C
		Service Right	SR	Protruding	P
		Blind Left	BL	Soil Visible	SV
		Blind Right	BR	Blocked	BL
				Roots	R
				Clean	CL
				Infiltration	I
Overall Condition	OC	Replace	R		
		Repair	RE		
		Satis/Maintenance	SM		
		Satisfactory	S		
		New	N		

Manhole Inspection Report

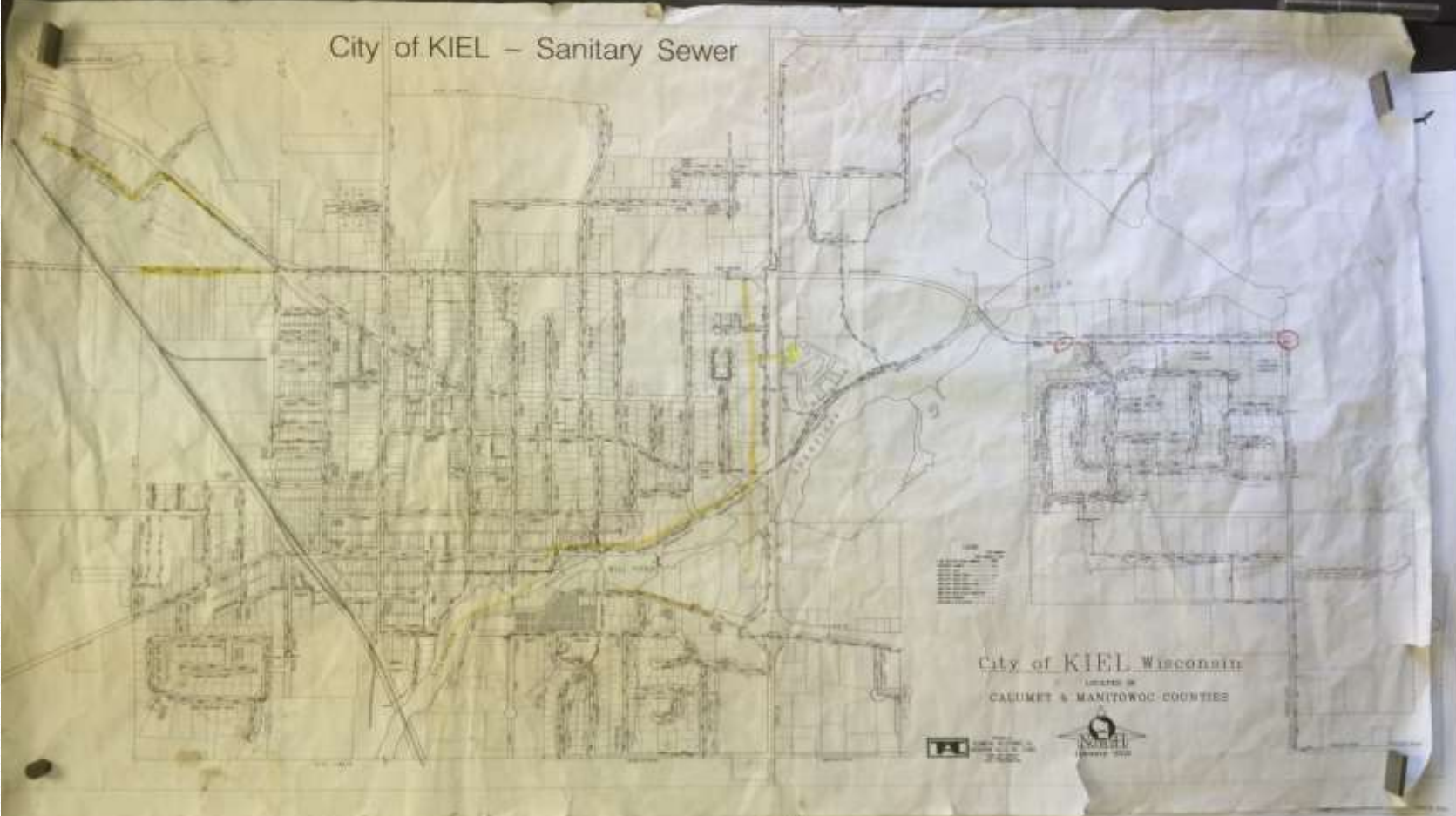
City of Kiel

Project: _____ Date: _____
 Structure: _____ Crew: _____
 Use: Sanitary Storm Water Other _____
 Location: _____

Placement: Crown Gutter BLVD Ditch _____
 Surrounding Surface: Asphalt Gravel Concrete Sod
 Settling Around Manhole: yes no
 Subject to Runoff: yes no Area _____ sf.
 Runoff Enters: thru lid under frame thru rings
 Cover Dia. _____
 Frame: Satisfactory Reset Replace
 Frame: Non-rocking Self-Sealing Locking Other
 Pickholes: Open Concealed Other
 Ring(s): yes no
 Offset: yes no Satisfactory Repair
 Boot: yes no Internal External
 Wall: Precast Block Brick Other _____
 Wall: Satisfactory Repair Replace
 Steps: yes no Safe: yes no Repair: yes no
 Step Type: C.I. Rebar Plastic Alum _____
 Bench: Satisfactory Repair Replace
 Entering Manhole: Services yes no Stub Lines: yes no
 Drop Manhole: yes no inside outside Cleanout Depth _____
 Flow Depth: _____ ft
 Surcharging: yes no height _____ ft
 Infiltration: Not Evident Seeper Dripper Runner Gusher
 Comments: _____



City of KIEL – Sanitary Sewer



City of KIEL Wisconsin
LOCATED IN
CALUMET & MANITOWOC COUNTIES

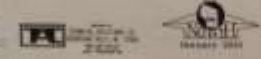


City of KIEL - Sanitary Sewer

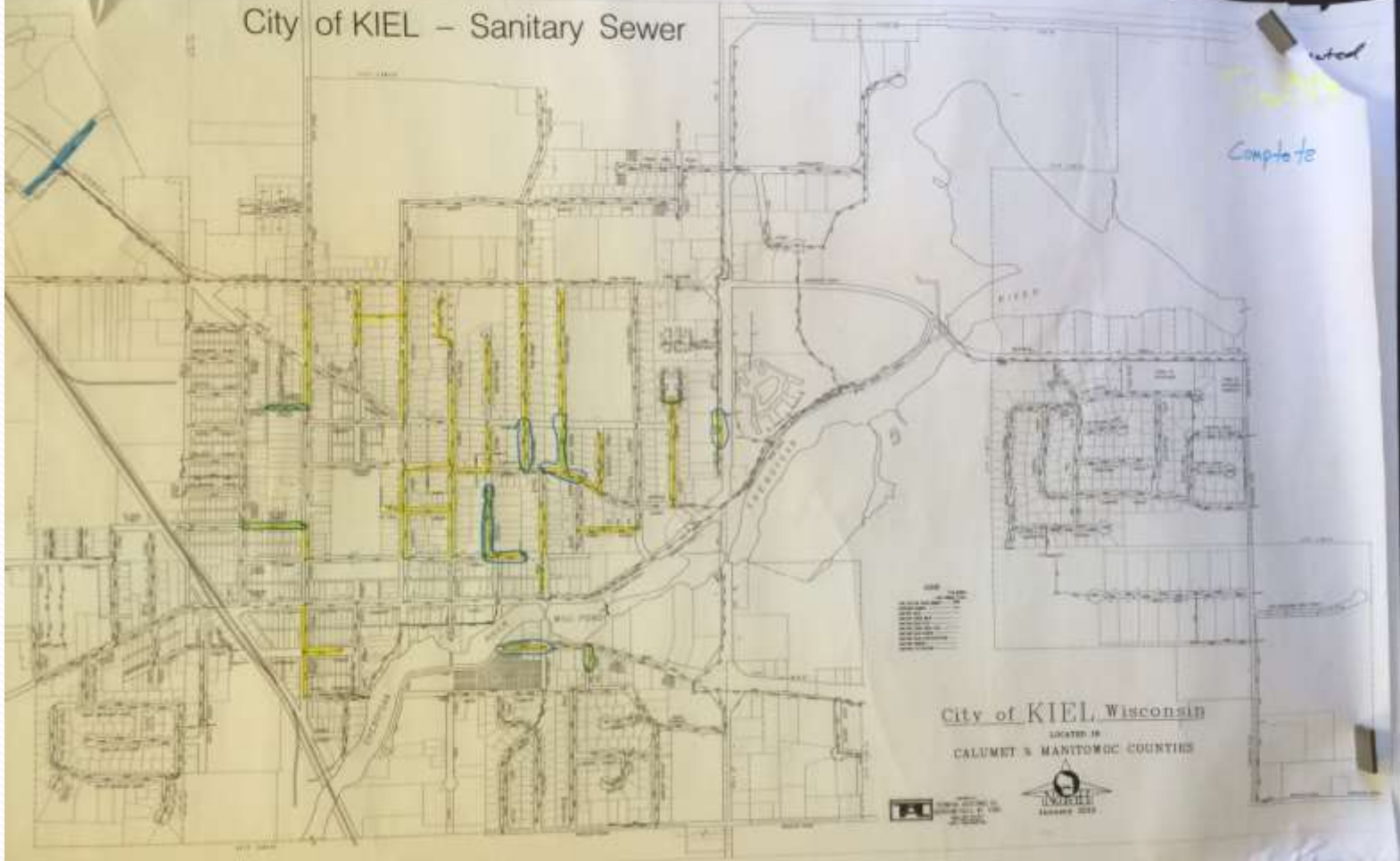
2010 Jetting
2010 I/I Removal
2010 Flushing



City of KIEL Wisconsin
Located in
CALUMET & MANITOWOC COUNTIES

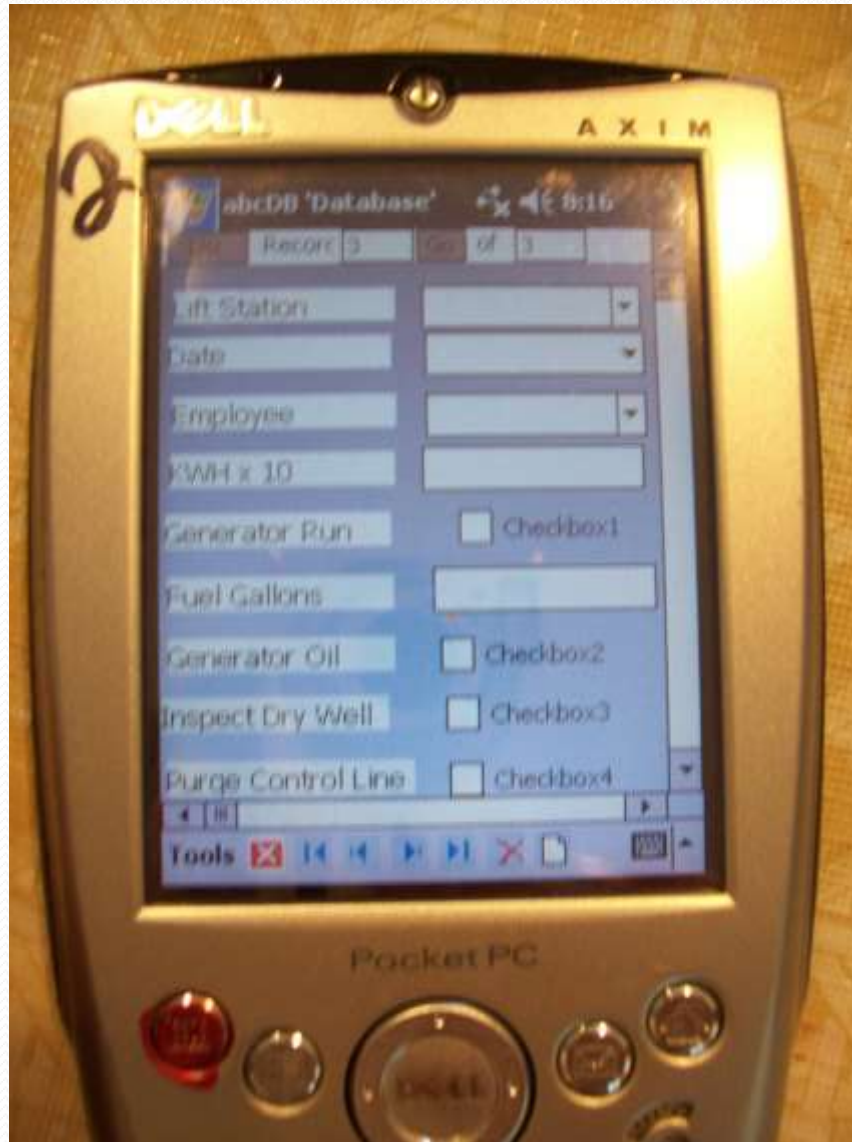


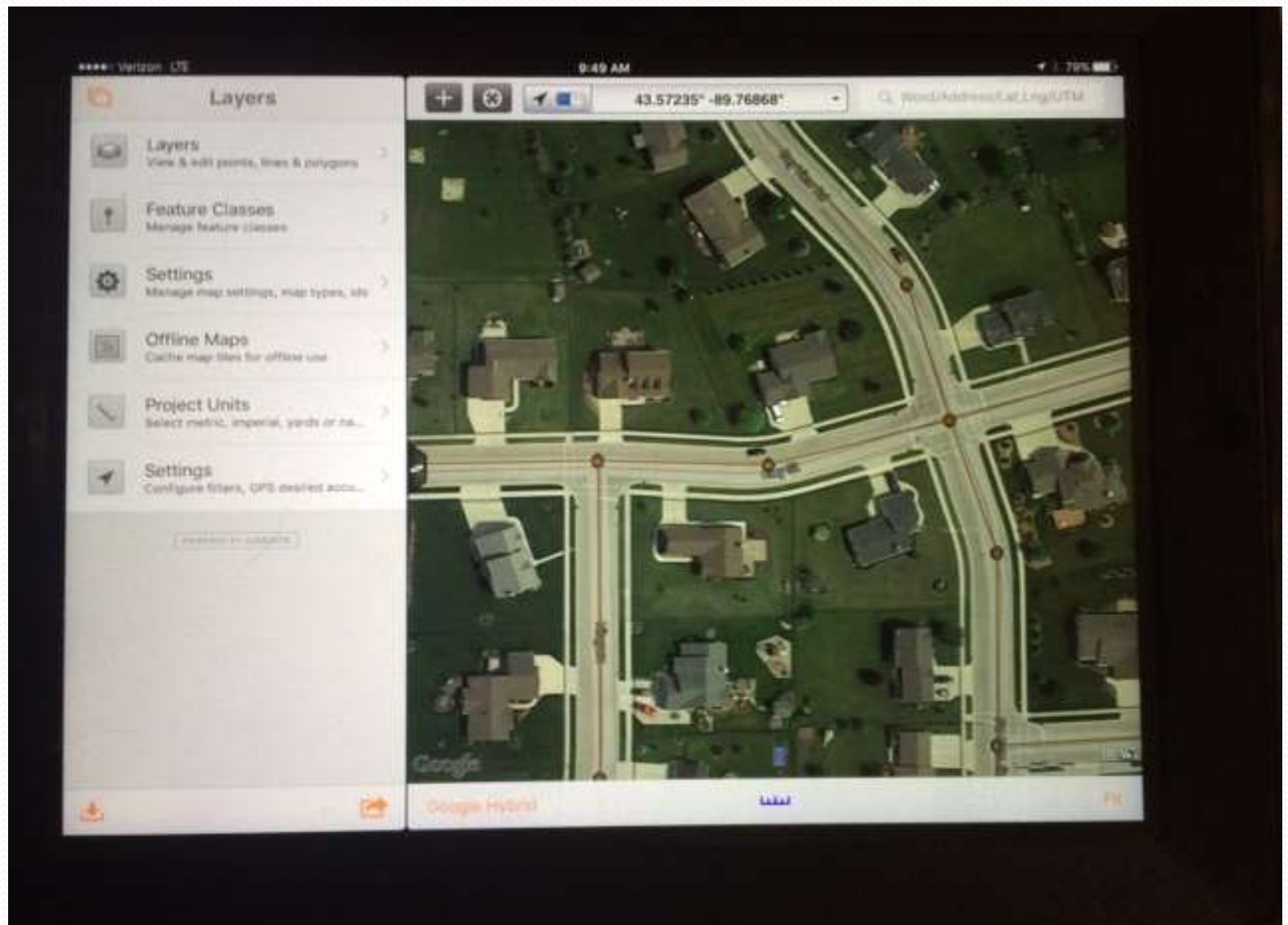
City of KIEL – Sanitary Sewer



Completed









Emergency



Planning

(Capacity Assurance)

City of KIEL - Sanitary Sewer









I/I study

SSES

Paser

Lead Water Laterals

Public Opinion



Self Audit



Questions?