Annual MOM Progress Report

2005

Submitted to EPA on February 27, 2006

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

D. Wayne Loveday — 2/27/06

D. Wayne Loveday — Date

KUB

pace10

Partners Acting for a Cleaner Environment

A 10-year Program to Improve Our Waterways

0001676

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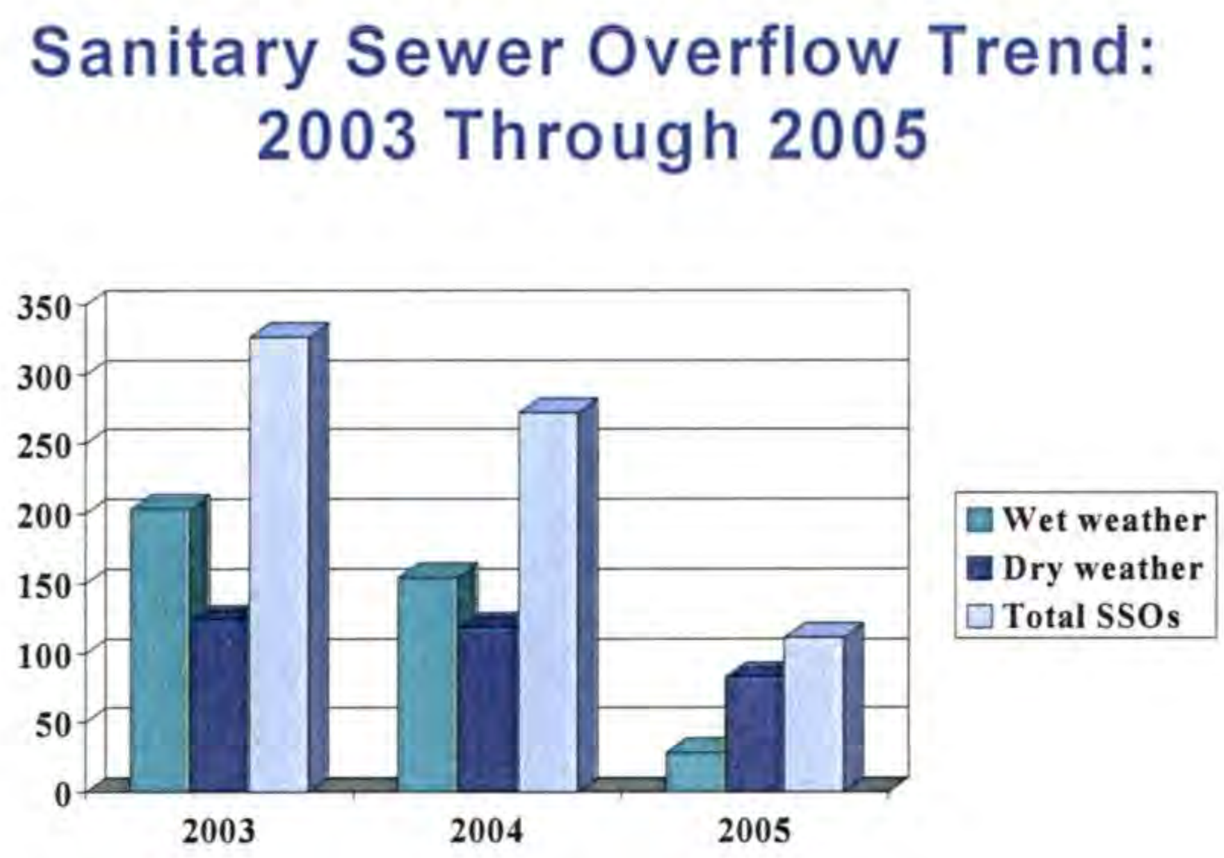
Section 1: Introduction

KUB significantly reduced sanitary sewer overflows (SSOs) in 2005 through improvement projects and ongoing Management, Operations, and Maintenance (MOM) Programs. SSOs declined by 59 percent overall. Wet weather SSOs were down 82 percent, and dry weather 30 percent.

Although the wet weather SSOs decline comes partly from a combination of lower than normal rainfall and completed improvement projects, the decrease in dry weather SSOs links directly to KUB's continued emphasis on MOM programs. We expect trends in both categories to continue downward over the next two years (assuming normal wet-weather conditions of less than a two-year rain event) as we continue to complete improvements and focus on MOM efforts.



The above chart shows a significant decrease in overflow numbers from 2003 to 2005. [*Without the 115 overflows in February 2003, KUB SSO numbers would actually be trending down in 2003 from 2002. Heavy rains over one weekend caused flooding, mudslides, and street closures throughout the area and contributed to an unusual number of SSOs.*]

Dry weather overflows continued downward in 2004 from ongoing grease control efforts and from increased proactive basin cleaning. KUB outsourced Blockage Abatement (BA) efforts in 2004, allowing KUB crews to focus on systematic sub-basin–by–sub-basin cleaning. The BA Program increases the frequency of cleaning in areas with previous problems until KUB schedules projects for more permanent fixes. BA crews cleaned 747,138 linear feet (lf) and televised 170,877 lf of gravity sewers in 2005.

In addition to the BA footage, KUB crews and PACE 10 contractors cleaned 1,374,895 lf of gravity sewers in 2005 and televised 1,299,712 lf of gravity sewers. (PACE 10 is KUB's accelerated 10-year, $530 million wastewater improvement program to aggressively attack the

problem of sewer overflows. "PACE" stands for "Partners Acting for a Cleaner Environment.") The 1,374,895 lf of cleaning is more than double the 650,000 lf goal KUB had set for the year.

Under the PACE 10 program, contractors smoke-tested 1,175,399 lf of gravity sewers and conducted 4206 manhole inspections, with 452 manholes rehabilitated or replaced. More than 145,000 lf of wastewater mains in the KUB system were rehabilitated or replaced.

This first MOM Annual Progress Report, which covers the 2005 calendar year, includes an update on the Sewer Overflow Response Plan (SORP) that governs KUB's response to SSOs and how it communicates about SSOs. The main focus, however, is on the four major programs listed below that helped KUB achieve significant reductions in SSOs:

- Grease Control Program
- Continuing Sewer System Assessment Program (CSSAP)
- Infrastructure Rehabilitation Program (IRP)
- Gravity Line Preventive Maintenance Program (GLPMP).

KUB continues to implement, manage, and refine the Other MOM Programs listed in the Consent Decree Appendix A. Where applicable, any of those programs with changes or significant accomplishments are summarized in Section 7.

In August 2005, KUB launched a new Private Lateral Program (PLP). Under the PLP, KUB inspects customer-owned private laterals, notifies customers with defective laterals or prohibited connections, and enforces repairs. KUB tracks information about the PLP in a Lotus Notes information management system (IMS) called the Private Lateral Tracker. This report includes a summary of the PLP in Section 8.

KUB also developed and continues to refine another IMS that is referred to in several of the MOM programs covered in this report: the Collection System Maintenance (CSM) program. The CSM is an electronic record-keeping tool used by internal and external field crews. This multi-faceted program collects information for the proactive cleaning and condition assessment of system components. It also records the activities of the reactive crews, such as the Hot Crew and First Responders. SubCam software is used in conjunction with the CSM to allow operators to enter condition assessments during the closed circuit television (CCTV) inspection process.

Typical information included in the CSM includes tracking numbers, equipment numbers, the team performing the work (Standby, etc.), date and time, manhole information, pipe information, productivity numbers, and follow-up street or landscaping repairs. The manhole section of the CSM records the assessment during manhole inspections, including manhole IPID (an internal numbering system), latitude and longitude, manhole elevation, etc. It also tracks any Capacity Assurance Program (CAP) credit (based on location, such as riparian, non-riparian, or paved area). The line section tracks factors including smoke testing, CCTV, flushing, and root-cutting.

This progress report shows how KUB achieved a significant reduction in SSOs in 2005 through its MOM programs. It also demonstrates how KUB will continue to use and refine MOM programs in the future to better maintain our system, serve our customers, and protect our environment.

Section 2: Grease Control Program

KUB's Grease Control Program consists of three primary elements:

- Routine inspection of food service facilities (FSFs)
  - Existing FSFs
  - New/remodeled FSFs
- Grease-related SSO Response
- Residential Grease Control Program.

This MOM Progress Report section and the summary tables included in Appendix A provide an overview of the program's activities in 2005. The summary tables provide more detailed information about the elements of KUB's Grease Control Program. They give information pertaining to grease related SSOs, interceptor requirements for FSFs, the number and results of inspections, enforcement actions taken, etc. FSFs in the KUB service area are on a scheduled rotation for inspection. The FSFs included in this report are only those that were inspected in 2005. Each year we will add the FSFs inspected to form a cumulative list.

2.1 Inspections of Food Service Facilities

KUB inspected 384 FSFs on its wastewater system in 2005 and will continue to inspect additional FSFs each year. Because some of the 384 required multiple inspections, KUB actually performed a total of 963 inspections. KUB required 35 of the FSFs to install new traps or interceptors to help prevent grease-related overflows in their areas.

KUB identified two Knox County Schools food-preparation sites as major contributors to growing grease problems in their areas: West and Central high schools. KUB required each school to install at least a 2000-gallon grease interceptor (*see photo below*) to help prevent chronic overflows. KUB also put the affected lines on its BA Program for frequent cleaning to control grease until the schools completed the installations.

KUB also required Michael's Restaurant, which was contributing to a chronic overflow, to install a 1500-gallon interceptor (*see photo below*). Since that installation (and completed construction projects in the Papermill area), there have been no problems at the former chronic site.

KUB's Grease Control personnel also use a "sludge judge" (*see below*) to measure the effectiveness of grease interceptors at FSFs. The tool takes a core sample from the interceptor and measures the percent of solids. If the solids are more than 25 percent, the FSF is required to increase the frequency of its pumping schedule.

2.2 Grease-Related SSO Response and Residential Grease Control Program

The majority of grease-related overflows in the KUB system occur in residential areas. When such an overflow occurs, KUB initiates a Grease Investigation that includes making field inspections and sending information to residential customers.

Based on the location of the SSO, KUB uses the electronic mapping tool LandViewer to place a graphic polygon around the geographic areas upstream of the SSO location. That helps identify all wastewater customers that may be contributing grease to the SSO location. KUB then generates a report containing customers' names and account information.

KUB inspects commercial customers to verify their compliance with KUB's Grease Control Program. Residential customers are mailed a letter, an educational brochure, a *Can the Grease* can, and a refrigerator magnet to remind them not to pour grease down drains.

In 2005, KUB mailed 1890 grease letters to customers near 27 grease-related overflows. KUB also sent 1850 Can the Grease cans to residential customers. [Note: KUB does not send cans to commercial customers, which are required to have grease traps or interceptors.]

Section 3: Continuing Sewer System Assessment Program (CSSAP)

The CSSAP is a systematic evaluation of the entire wastewater collection and transmission system (WCTS) that also assesses capacity to support prioritization of the Corrective Action Plan/Engineering Report (CAP/ER) and the Infrastructure Rehabilitation Program (IRP). It consists of five key programs, each of which includes a method for setting priorities for determining where assessments are to be performed, a list of the tools and methods to be used to conduct assessments, and a performance measure to track progress.

The following table shows the elements of the CSSAP, priority criteria, assessment tools, and performance goal periods:

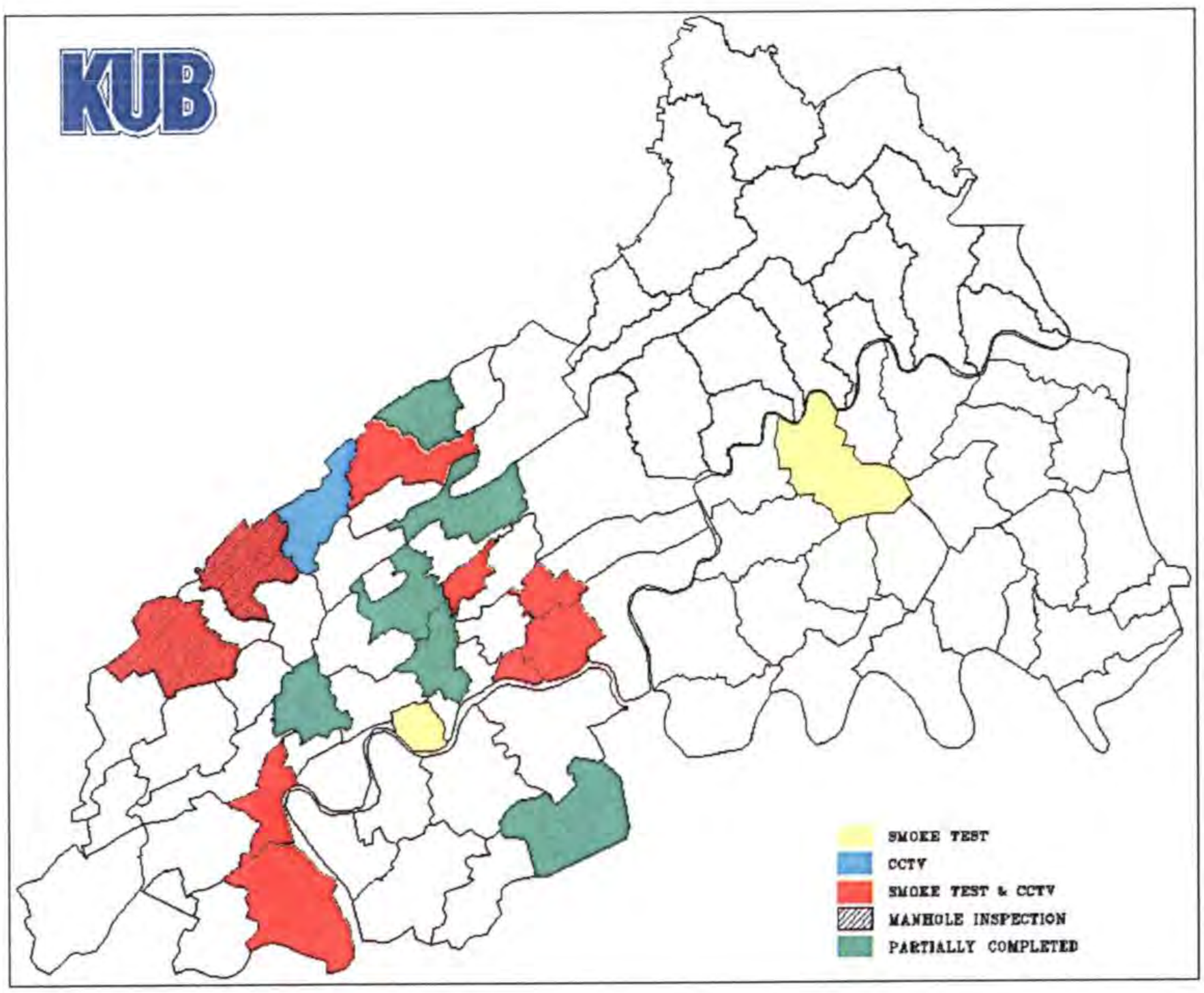
Program Elements	Assessment Tools	Percent Complete in 2005	One Complete Cycle Period
Manhole Condition Assessment	Manhole Inspections Smoke Testing	14 percent	12 Years
Gravity Sewer Condition Assessment	Flow Monitoring Smoke Testing Dye Testing CCTV	21 percent	12 Years
Private Lateral Condition Assessment	Flow Monitoring Smoke Testing Dye Testing CCTV	Smoke tested 17% of the system, which includes approx. 28% of the service connections	12 Years
Force Main Performance Assessment	Corrosion Defect Identification	68 percent	2 Years
Pump Station Performance Assessment	Pump Station Performance and Adequacy	38 percent	2 Years

3.1 Manhole and Gravity Sewer Condition Assessment

We are dedicated to completing one complete cycle of system assessment and cleaning in 12 years. Although the pace may vary in the future, several factors in 2005 enabled KUB to clean and CCTV at higher rates than anticipated. A light rainfall year, for example, made for good working conditions. KUB also supplemented crews' proactive basin cleaning efforts by using contractors to clean and televise six sub-basins in 2005. The map below shows sub-basins where comprehensive system assessments took place in 2005.

KUB, its contract basin cleaning crews, and PACE 10 contractors cleaned 1,374,895 lf of gravity sewers in 2005 and televised 1,299,712 lf. Under PACE 10, contractors smoke-tested 1,175,399 lf of gravity sewers and conducted 4206 manhole inspections, with 452 manholes rehabilitated or replaced. A sample daily program schedule is included in Appendix B. As part of the BA Program, KUB contract crews also televised 170,877 lf to ensure adequate cleaning.

The footage listed in this category in general is unique, first time cleaning and inspection. The repeat work performed in the BA Program is not included in this count. A small percentage (< 2%) may be repeated due to rework or need for more rigorous cleaning. This will be reconciled in the 2006 review of MOM work performed.



During 2006, we will reconcile the inspection and cleaning records from our 2005 efforts to ensure thorough cleaning and inspections were conducted on all assets in the sub-basin. Any assets not assessed will be re-visited in 2006.

3.2 Flow Monitoring and Modeling

Flow monitoring and modeling continue to be important tools to help KUB assess its system and prioritize basins for cleaning and rehabilitation. KUB added five permanent flow meters in 2005, bringing the total number of permanent flow meters strategically placed in the wastewater system to 30. KUB plans to continue to add permanent meters and use

temporary meters to collect data for the system model to help determine what areas to investigate and prioritize for future projects.

In 2005, KUB performed flow monitoring in the Second Creek, Lower Third Creek, Williams Creek, Loves Creek, and Eastbridge basins. Wastewater flows were monitored in each basin for approximately 60 days between late January and the end of April. KUB's contractor installed 102 temporary flow meters and 64 rain gauges for the study.

Flow monitors were placed at system connection points near trunk sewers and at other points identified by KUB to isolate and measure wastewater flows from individual sewersheds. Rainfall gauge locations were selected with the goal of obtaining comprehensive coverage of the basin. The study collected rainfall data to determine the relationship between rainfall volume and the rainfall dependent inflow and infiltration (RD I/I) volume. Data collected from this study will be used to support planning for both Gravity Line Preventive Maintenance, Pump Station and Force Main Preventive Maintenance, and Infrastructure Rehabilitation.

Of the basins studied, Second Creek had the most sub-basins with high RD I/I findings. KUB will schedule further evaluation, such as smoke testing and CCTV, for the Second Creek sub-basins and the others identified with RD I/I per linear foot values above 60 gal/lf. A sample map from the Second Creek basin is included in Appendix C.

3.3 Private Lateral Condition Assessment

Private laterals may also be a major source of RD I/I. Private lateral inspections currently follow PACE 10 wastewater system improvement projects. As part of the projects, KUB replaces the lower lateral (the portion from the sewer main to the cleanout) and installs a two-way cleanout. A contractor televises customers' upper laterals (the portion from the cleanout at the property line to the house) through the new cleanout and scores them using standard Pipeline Assessment and Certification Program (PACP) criteria. PACE 10 Program Manager CH2M Hill reviews the data and makes recommendations on repairs to the KUB Collection System Improvement Department (CSI). Smoke testing collected during inspection of the main lines also indicates private lateral problems such as downspout connections and other inflow sources.

From the launch of the mandatory PLP in August 2005 through December 2005, the contractor televised 415 laterals. KUB identified 114 of those as defective and notified the property owner to make repairs in 120 days or face water service termination. Forty-eight owners completed repairs by the end of 2005. For more information on the PLP, see Section 8.

3.4 Force Main and Pump Station Performance Assessment

As shown in the CSSAP table at the beginning of this section, KUB is committed to assessing all force mains and pump stations on a two-year cycle.

In 2005, KUB performed 429 routine facility inspections and 1781 scheduled preventive maintenance inspections. Appendix D includes maintenance activities and a schedule. Pump station maintenance crews also gather information for KUB consultant Camp, Dresser & McKee (CDM) for modeling purposes. Examples include the following:

- Performing 21 pump efficiency tests at various facilities
- Maintaining 10 flow meters to collect data from various facilities
- Pulling data from the Treatment Plant SCADA run-time database.

KUB's Force Main Condition Assessment Program identifies areas needing corrosion control and uses that information to schedule appropriate maintenance activities. Because steel, cast iron, and ductile iron pipe are susceptible to corrosion damage in areas where air is introduced, KUB is initially focusing assessment efforts around air-relief valves.

In July 2005, KUB started the process of mapping in the GIS all 164 air-relief valves on our force mains for the cleaning contractor. So far, 111 (68%) have been mapped and 76 have been inspected by the contractor. Appendix E contains an example inspection form.

Problems that arose when a developer buried the valves at one subdivision led KUB to establish a valve service box procedure. The box protects the valve and makes it easy to find and to access. It also helps avoid having to disturb homeowners' yards for maintenance work.

Manholes and lines downstream of low-pressure force mains are areas that may experience odor complaints. KUB concentrates hydrogen sulfide monitors and control efforts in areas like those.

Hydrogen sulfide control efforts help reduce odor and corrosion by preventing the formation of hydrogen sulfide. KUB currently feeds ferrous chloride, hydrogen peroxide, or sodium nitrate at 11 pump stations to control the formation of hydrogen sulfide. In 2006 another existing pump station and three new stations will begin using chemical feeds for corrosion and odor control. A chart of stations with chemical injection and odor-control is included in Appendix F.

In the past year, KUB worked closely with two different chemical suppliers to evaluate the effectiveness of their odor control and corrosion prevention products. The chemical products consisted of both liquid chemical feed as well as the addition of beneficial bacteria populations. The effectiveness of both pilot tests was analyzed using both wet chemical analysis and air monitoring of air release valve and force main discharge locations. Monitoring demonstrated that the addition of a magnesium nitrate compound coupled with the addition of beneficial bacteria populations significantly lowered the amount of hydrogen sulfide present in the force main. These two products are now in use at the Forks of the River pump station.

KUB also used caustic flushing to alleviate odor issues on the Forks of the River force main. The use of cleanout check valves has helped resolve odor complaints at five residences. Those techniques may also be options for other areas with odor complaints.

Consultant CDM also finished an odor control study for KUB in late 2005. The objective of the study was to evaluate the current odor and corrosion control program and make recommendations for improvements. The study included tasks to

- Assess KUB's current program, costs, coverage, and effectiveness

- Identify problem areas through review of KUB records, additional field investigations, and predictive modeling
- Develop a recommended sulfide control program including technology options and outsourcing options and an overall implementation plan.

The field monitoring program included vapor phase monitoring and wastewater sampling. KUB installed OdaLogs [by App-Tek International] at each selected force main discharge location and recorded the hydrogen sulfide concentration at five-minute intervals over 24 hours.

Liquid grab samples were collected to assess conditions contributing to sulfide formation in the force mains. Samples were collected at the pump station and at respective terminal manholes. The study sampled 14 pump stations of concern for corrosion and odor.

CDM used two models to look at the study data. The first was a simple force main equation. The second model was CDM's proprietary H2SWINS model.

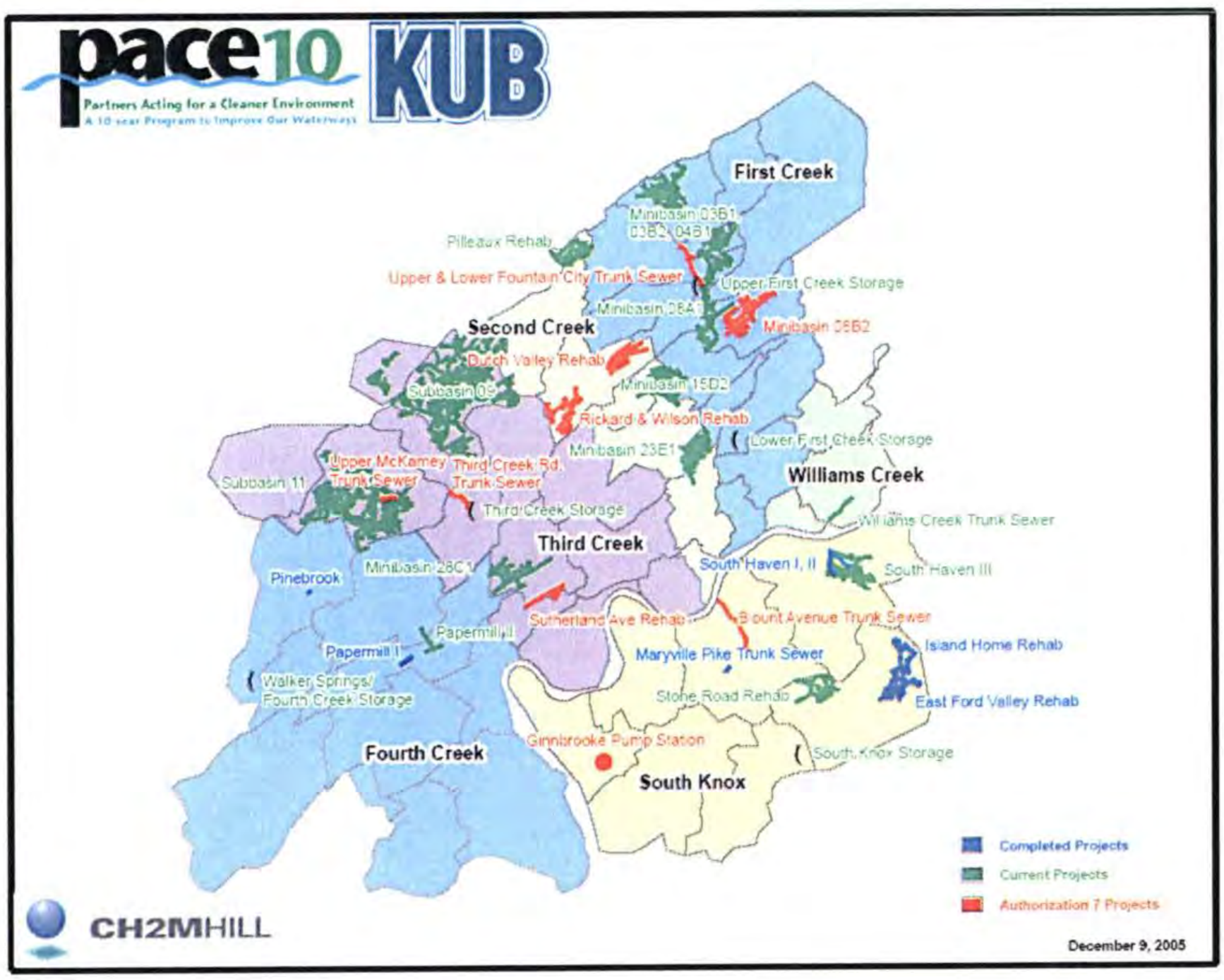
KUB will review the study results and CDM recommendations in early 2006.

Section 4: Infrastructure Rehabilitation Program (IRP)

The main objectives of the IRP are to address inflow and infiltration (I/I) and other causes of SSOs by maintaining or restoring capacity and structural integrity. It addresses both the gravity portion of the WCTS (gravity lines, manholes, etc.) and the transmission components (pump stations and force mains).

4.1 Gravity Lines and Manholes

KUB's IRP rehabilitated or replaced 145,044 linear feet (lf) of gravity sewer mains in 2005. That is about 2 percent of the KUB system, as shown by the map below. Out of 4206 manholes inspected, 452 were rehabilitated or replaced. The mains were rehabilitated or replaced using a mix of cured-in-place pipe, pipe bursting, or open-cut pipe replacement.



As part of PACE 10 wastewater system improvement projects, KUB also replaced approximately 1576 lower laterals and installed lateral cleanouts. KUB amended its standard in 2005 to specify a two-way cleanout to facilitate inspecting customer-owned upper laterals for the PLP. [*See Section 8 for more on the PLP*.] The Standards and Specifications for sewer laterals is included in Appendix G.

Post-rehabilitation/replacement flow monitoring is scheduled to start in February 2006 to evaluate the effectiveness of completed projects in removing I/I from the KUB system. Preliminary indications show those projects had an immediate impact on chronic overflow sites, several of which are experiencing fewer overflows.

The Fountain City rehab work, for example, has greatly minimized overflows near Fountain City Lake. Projects at Island Home and East Ford Valley are also showing results in decreasing overflows.

KUB initially focused heavily on flow monitoring and modeling to direct rehabilitation. As the IRP matures, KUB increasingly uses other components of the CSSAP, such as televising lines and inspecting pump stations, to direct improvements.

4.2 Basin Characterization: Key New Component of IRP

In 2005, KUB started working with the PACE 10 Program Manager on basin characterizations for approximately 600,000 linear feet of sanitary sewer in 25 sub-basins. The new approach represents a change from hot-spot driven reaction to more holistic planning.

The engineer and KUB Basin Owner puts information gathered in the CSSAP into a basin characterization spreadsheet. An example is included in Appendix H. The results include an assessment and recommended action for asset based on physical inspections, such as smoke testing and CCTV, as well as flow monitoring data gathered from previous studies. The analysis also considers hydrology of the area and potential for RD I/I.

The engineer looks at the basin as a whole and at individual lines and manholes that have problems and makes recommendations. The characterization becomes the preliminary design report for work in that basin. The design engineer and KUB Basin Owners discuss the recommendations, and KUB prioritizes and schedules projects to rehabilitate assets.

4.3 Pump Stations and Force Mains

Key performance criteria for pump stations and force mains are hydraulic capacity and structural integrity. Key criteria for pump stations are also mechanical and electrical reliability. KUB's ultimate goal is to upgrade pump station capacities as necessary to certify capacity for new connections in accordance with the requirements of the CAP.

In 2005, KUB added one new pump station [Ball Road] and started work on four new stations that will be operational in 2006. KUB also upgraded the channel grinder at Lyons Creek and installed a channel grinder at Holston Hills and a generator at Woodson Drive. Upgrades started at the Ginnbrooke, Harrison Keepe, and Millertown pump stations will be completed in 2006. Other 2005 facility and equipment work included upgrades at three metering facilities and SCADA upgrades and improvements at various facilities.

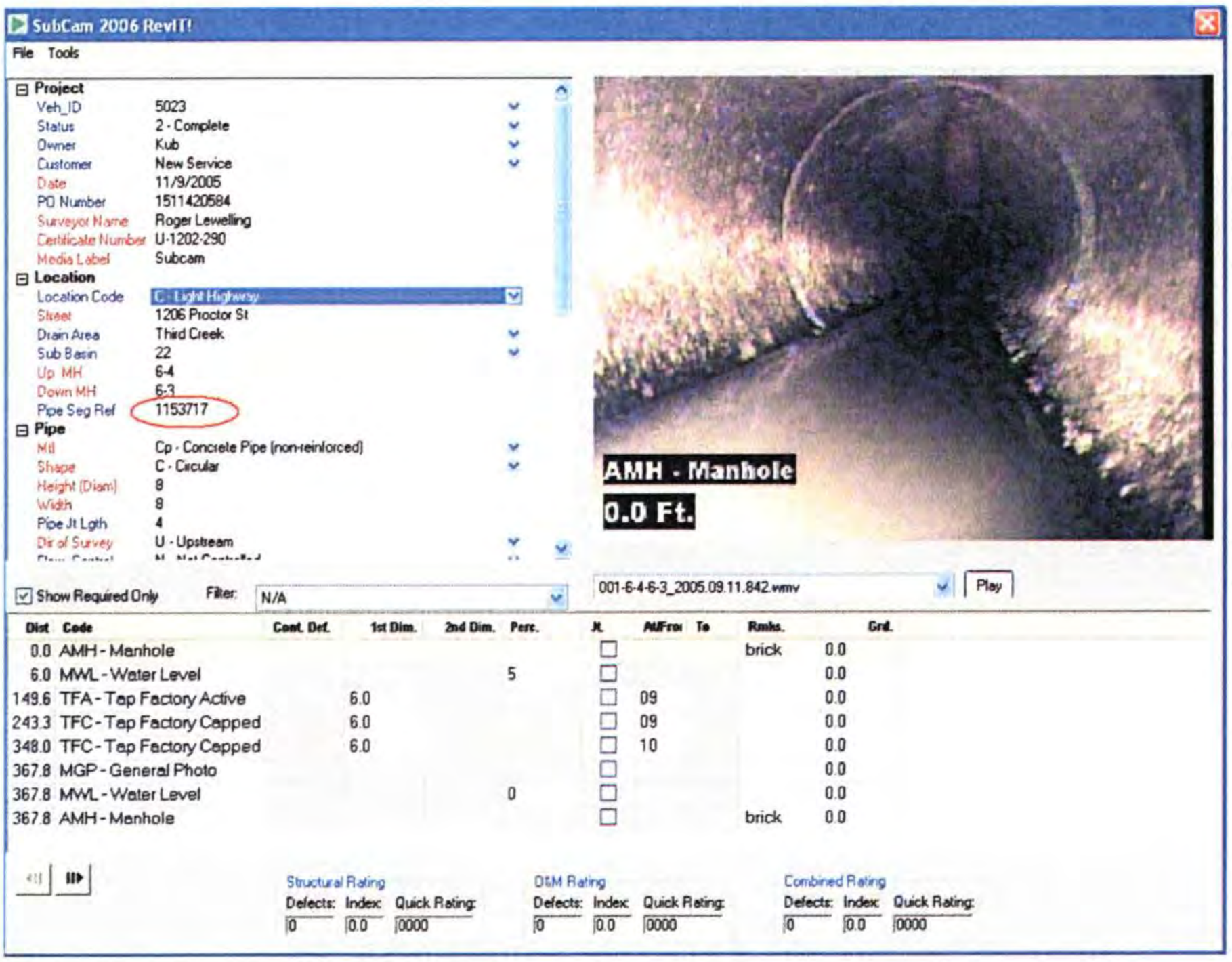
4.4 Information Management Systems Support the IRP

KUB continues to refine its wastewater system hydraulic model that was developed using physical attributes of the system (sewer size, slope, roughness, elevations relative to

grade, pump station capacities) and dry and wet weather flow conditions determined by analyzing flow monitoring. KUB uses new flow data to update and calibrate the model to ensure an accurate reflection of the system.

KUB captures information from investigation crews in the CSM Program, an electronic record-keeping tool. The CSM collects information for the proactive cleaning and assessment of the collections system and records trouble crew activities. All the information is tracked by the IPID number [unique KUB identifier], shown circled in red on the screenshots below. CSM screen shots used for recording information during an SSO response are included in Appendix I.

KUB uses CCTV information management software to record condition assessments. The software provides structured data input and ensures a uniform standard that facilitates office review. Each individual CCTV inspection consists of tabular inspection data, linked still photos, and digital videos. The Defect Listing Plot with Images shown below is an example of the output from the CCTV software. The PACP-certified software fully supports and conforms to PACP Standard Data Format export and/or import guidelines.



Defect Listing Plot with Images

Surveyor Name	Certificate #	Owner	Customer	PO Number	Sht #
Roger Lewelling	U-1202-290	Kub	New Service	1511420584	1

Drain Area	Sub Basin	N/A	Pipe Seg Ref	Date	Time	Media Label
Third Creek	22		1153717	2005/09/11	08:42	Subcam

	Street	Location Details
Knoxville	1206 Proctor St	

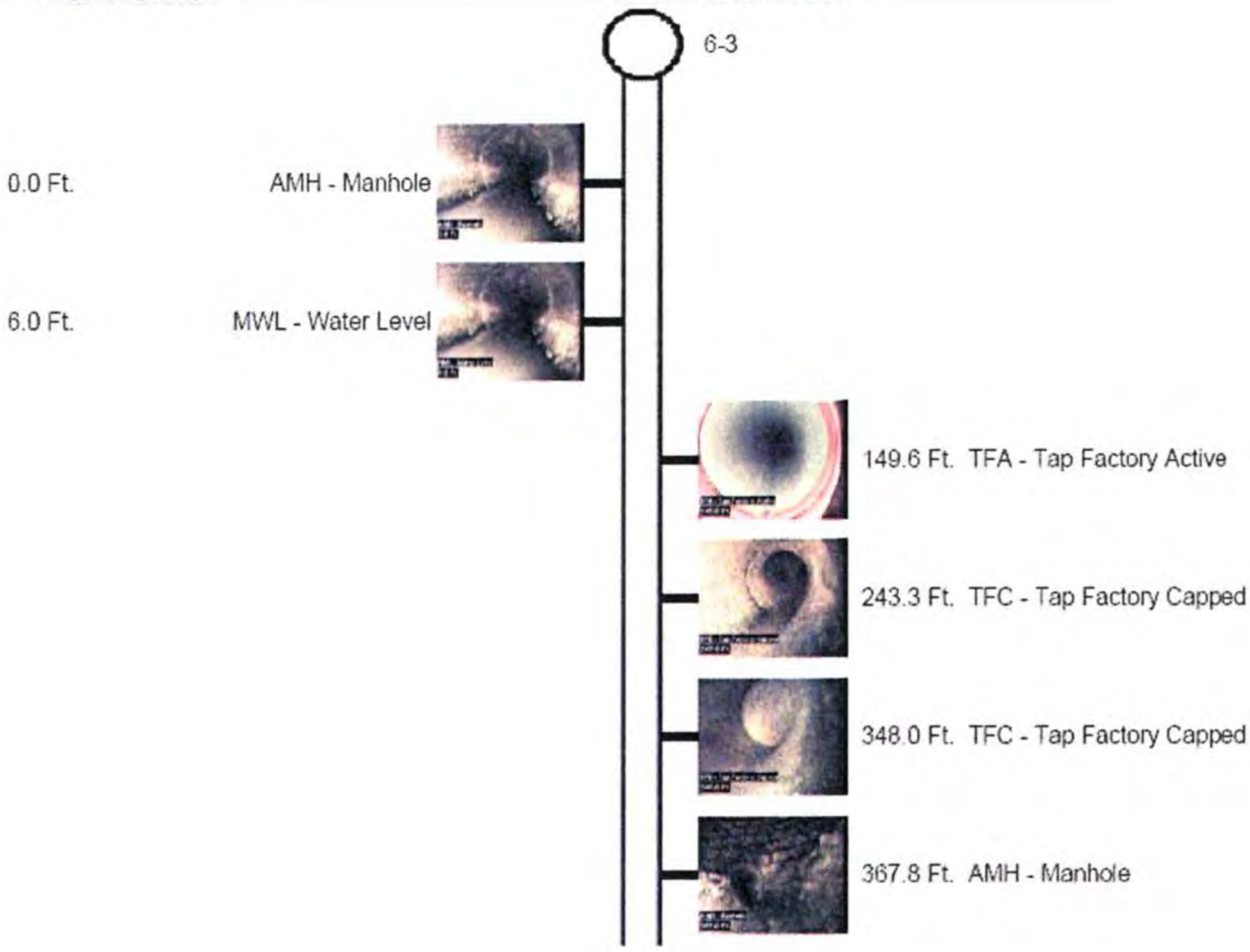
Up MH	Rim to Inv.	Grd to Inv.	Rim to Grd.	Down MH	Rim to Inv.	Grd to Inv.	Rim to Grd.
6-4	10			6-3	9		

Sewer Use	Direction	Flow_Control	Height	Width	Shape
Sanitary	Upstream	Not Controlled	8	8	Circular

Mtl	Lining Method	Pipe Jt. Lgth.	Total Lgth.	Lgth. Surveyed	Year Ld.	Year Rn
:oncrete Pipe (non-reinforcec	Other	4	368	367.8	1900	1900

Purpose	Sewer Category	Pre-Cleaning	Date Cleaned	Weather
Routine Assessment		Not Known	1900/01/01	Dry

Location Code	Addnl_Info
Light Highway	Locate Lateral



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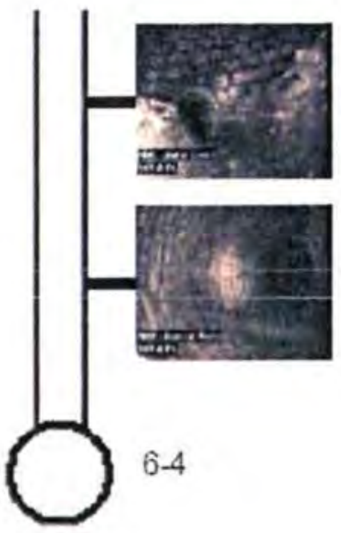
Defect Listing Plot with Images

	Surveyor Name	Certificate #	Date	Sht. No.
Knoxville	Roger Lewelling	U-1202-290	2005/09/11	2

Location Code	Street	Location Details
Light Highway	1206 Proctor St	

Drain Area	Sub Basin		Up MH	Down MH
Third Creek	22	N/A	6-4	6-3

Pipe Seg Ref	Mtl	Shape	Height	Width	Jt. Lgth.	Total Lgth.	Lgth. Surv.
1153717	oncrete Pipe (non-reinforcec	Circular	8	8	4	368	367.8



367.8 Ft. MWL - Water Level

367.8 Ft. MGP - General Photo

6-4

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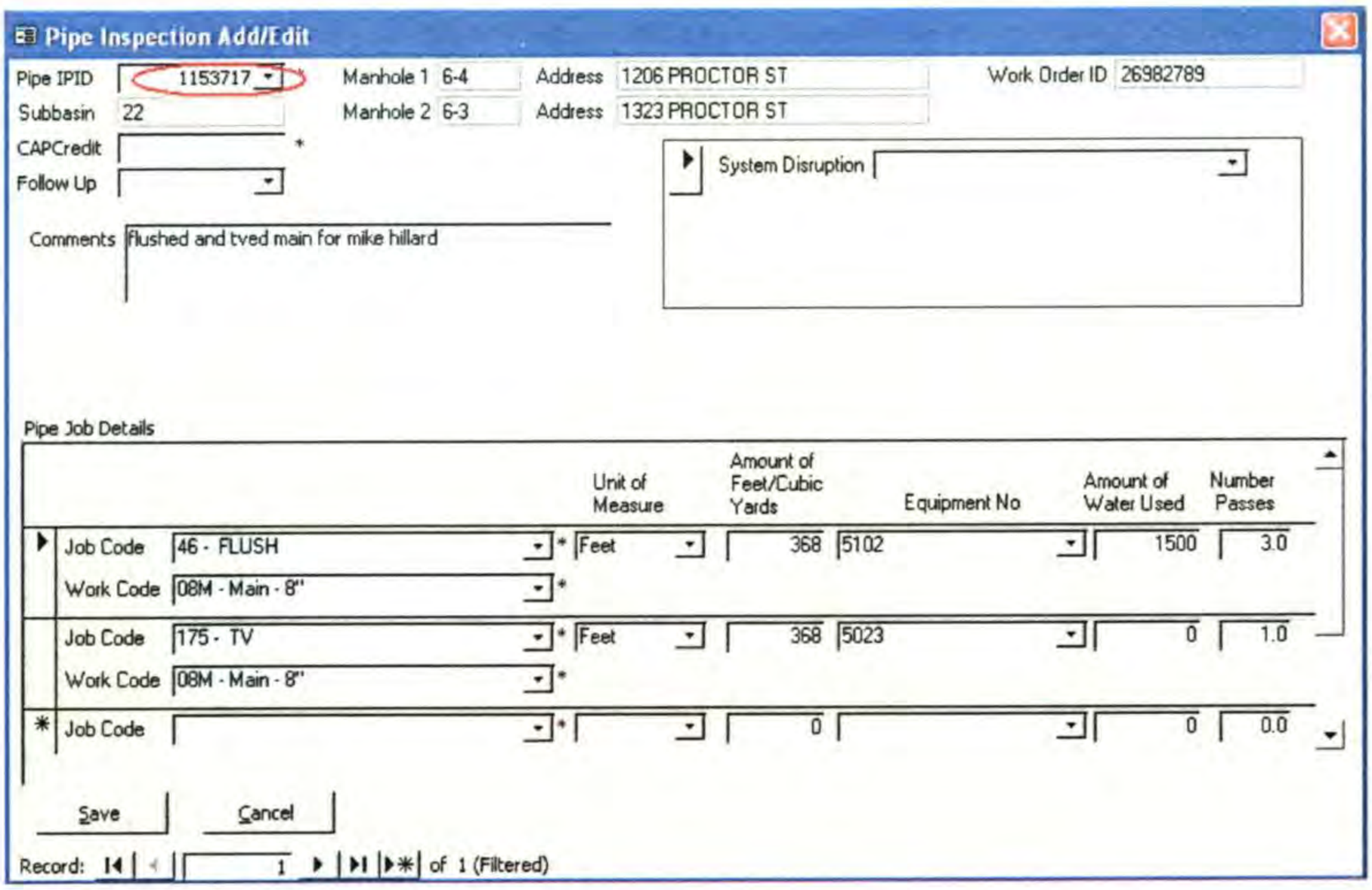


In 2005, KUB upgraded 400 internal licenses for Landviewer GIS viewing software as part of its participation in the Knoxville-Knox County-Knoxville Utilities Board Geographic Information System (GIS). The City and County are working on an upgrade to the GIS base data, which includes streets, parcels, aerial photos, etc.

The GIS is a valuable centralized database for system attribute data and collected information. Information from the IRP is stored in GIS tables to provide easy access to information by Basin Owners, Underground Construction (UGC) field crews, consultants, etc.

The GIS displays map data in layers: streets on one layer, parcels on another, houses on another, etc. That allows almost unlimited flexibility for viewing only the desired features and area. Non-graphic information is also associated with many map features and is stored in databases for immediate retrieval.

For example, users can acquire as-built numbers through GIS. With those numbers, users can quickly pull up the as-built through an Engineering directory database. KUB still plans to implement software to make it possible for users to pull up the as-built directly from the GIS.

Section 5: Gravity Line Preventive Maintenance Program (GLPMP)

The Gravity Line Preventive Maintenance Program (GLPMP) describes KUB's process for preventive cleaning of the wastewater system to improve operation, efficiency, and effectiveness. KUB is committed to cleaning the entire wastewater collection system in 12 years.

The GLPMP is divided into the Comprehensive Hydraulic Cleaning Program (CHCP) and BA Program. Root Control and Manhole Preventive Maintenance are components of both the BA and the CHCP. KUB determines chemical and mechanical root abatement frequency by the condition assessment program.

5.1 The Comprehensive Hydraulic Cleaning Program (CHCP)

The CHCP is a systematic, planned cleaning of the system to reduce debris and grease buildup and root intrusion. It is based on preventing and reducing the initial occurrence of system disruptions and maintaining the original hydraulic capacity of the collection system. It also provides support to the CSSAP by removing any obstruction in the system that would prevent a comprehensive inspection.

KUB, its basin cleaning contractors, and PACE 10 contractors cleaned 1,374,895 linear feet (lf) of gravity sewers in 2005 and televised 1,299,712 lf. That is 22 percent of the KUB gravity collection system cleaned and 21 percent televised. The footage listed in this category in general is unique, first time cleaning and inspection. The repeat work performed in the BA Program is not included in this count. A small percentage (< 2%) may be repeated due to rework or need for more rigorous cleaning. This will be reconciled in the 2006 review of MOM work performed.

5.2 The Blockage Abatement Program

The BA Program is a preventive maintenance approach for addressing operational issues. It uses previous event history and condition assessment information to implement activities that prevent or reduce system disruptions.

KUB outsourced BA efforts in 2004, allowing KUB crews to focus on systematic basin-by-basin cleaning. BA contract crews cleaned 747,138 linear feet (lf) and televised 170,877 lf of gravity sewers in 2005.

KUB adds a line segment to the BA Program when its cleaning frequency under the maintenance cycle proves insufficient to prevent overflows. Each line segment included in the BA Program is assigned a cleaning frequency more aggressive than it had under the maintenance cycle. The frequency of the maintenance activity ranges from one month to 42 months.

5.3 Root Control

Root intrusion into gravity sewer lines can significantly reduce transport capacity and lead to overflows. Roots alone can block sewer lines, and they can contribute to block-

ages by trapping debris and grease. To address this issue, KUB developed the Chemical Root Abatement Program to limit root intrusion and prevent significant capacity reductions and overflows.

Root intrusion occurs primarily along sewer lines within sewer easements. Line segments beneath roadways and other concrete or asphalt surfaces are typically far enough removed from nearby trees to limit root intrusion.

In the spring of 2005, KUB issued a contract for chemical root treatment of 285,000 feet of 8- to 15-inch pipe in four basins [1, 3, 8, and 40]. Contract cost was approximately $430,000. KUB sent letters to 1680 customers in Basin 40 and used doorhangers in the other basins [where PACE 10 work was already under way] to let them know the contractor would use EPA-approved chemicals that are odorless, non-toxic, non-flammable, and that will not harm trees or surface plants.

KUB also uses mechanical root abatement. Both KUB crews and the BA Program contractor have the capability to root cut lines as needed.

The Blockage Abatement Frequency Decision Tool helps the CSI Department determine the initial frequencies for BA line segments and review and modify existing frequencies. It includes influencing factors to help the decision-maker apply sound engineering judgment while considering the historical performance and the current condition of the wastewater system.

Basin owners use the Decision Tool to set the initial frequency for a line segment. That original frequency may be modified later [increased or decreased] based on several factors. KUB Hot Crews may make recommendations based on what they see in the field. The BA contractor who does the cleaning may also advise KUB on any needed changes in the schedule. For efficient and effective scheduling, KUB also considers the frequency schedule of other nearby pipes on BA.

KUB uses the factors in the following Decision Tool to assign and review maintenance frequencies:

Blockage Abatement Frequency Decision Tool	
Frequency (Months)	**Frequency Determining Factors**
1	• Extreme rate of blockage accumulation • Pending grease control enforcement action upstream • Upstream flow considerations – High Risk • Time between two SSO events less than three months

3	• High rate of blockage accumulation • Pending grease control enforcement action upstream • Time between two SSO events less than six months • Upstream flow considerations – Moderate to High Risk
6	• Medium rate of blockage accumulation • Pending grease control compliance action upstream • Upstream flow considerations • Require CCTV Follow-up before cleaning • Initial frequency following a blockage-related SSO • Time between two SSO events less than nine months
9	• Light rate of blockage accumulation • Pending grease control compliance action upstream • Upstream flow considerations • Time between two SSO events less than 12 months
12	• Slow rate of blockage accumulation • Pending grease control compliance action upstream • Upstream flow considerations • Time between two SSO events less than 18 months
18	• Slow rate of blockage accumulation • Pending grease control compliance action upstream • Upstream flow considerations • Time between two SSO events less than 24 months
24	• Slow rate of blockage accumulation • Pending grease control compliance action upstream • Upstream flow considerations • Time between two SSO events less than 36 months • Time span for initial chemical root abatement application
36	• Slow rate of blockage accumulation • Pending grease control compliance action upstream • Upstream flow considerations • Time between two SSO events less than 42 months • Large diameter pipe
42	• Slow rate of blockage accumulation • Pending grease control compliance action upstream • Upstream flow considerations • Time between two SSO events less than 144 months • Line segments upstream of siphons

Section 6: Sewer Overflow Response Plan (SORP)

As reported in the most recent SORP [revised and re-submitted to the U.S. EPA June 27, 2005, and approved July 28, 2005], KUB continues to place a high priority on maintaining and executing a Sewer Overflow Response Plan to help protect our community and our environment. KUB's Emergency Response Plan (ERP), which was approved by EPA on December 12, 2005, dovetails with the SORP. The ERP helps define the level of response that we take for everything from a single, isolated event to system-wide overflows.

KUB reviews the SORP annually. This progress report includes an update on implementation of recent revisions, training, and other areas of interest.

KUB makes all reasonable efforts [without endangering the safety of the responder or the public] to respond to an SSO within 45 minutes. The average response time, tracked using the CSM program since August, was 37 minutes. CSI is still working with UGC supervisors to help ensure crews log responses on their mobile data units promptly to provide an accurate measure of response time.

KUB relies on several measures to help maintain an appropriate quality of SSO response:

- Members of the CSI team, who are knowledgeable in SORP requirements, perform periodic quality assurance audits to evaluate how effectively the crew implemented the SORP. They look at a variety of factors, including containment measures, control zone and signs, and cleaning, and they check that crews followed the disinfection procedure. CSI works closely with crews and supervisors to maintain appropriate standards.
- Underground Construction supervisors monitor crews' work on a day-to-day basis. They also use on-site meetings in the field, coaching opportunities, and regular meetings to emphasize safety and maintaining proper standards. Compliance with established procedures is part of KUB's Performance Management Program measures and has an impact on employee ratings and raises.
- Feedback from customers, concerned citizens, neighborhood associations, City personnel, and organizations (such as the Izaak Walton League or Tennessee Clean Water Network) also helps identify any instances when the quality of response falters. Such feedback is directed to CSI, who works with UGC to correct the issue in that instance and prevent it from recurring in future responses.

Included in Appendix J are sample files detailing KUB's response to both an SSO and a Building Backup.

Safety of responders and of the public is a primary concern for KUB. During 2005, KUB crews responded to 1664 wastewater trouble calls [all calls, not just SSOs] with only one reportable injury incurred by a responder, according to KUB's Safety Department. Appropriate safety training is provided through the KUB Learning Center, and UGC conducts regular safety meetings and discusses safety frequently at tailgate meetings.

6.1 Public Information Program

KUB's SORP includes criteria for posting signs on "non-listed" streams during blockage-related overflows. "Non-listed" refers to streams that are not on the Clean Water Act Section 303d list. KUB periodically reviews the current 303d list and provides updated information to First Responders as it is available.

The first overflow that met the agreed criteria occurred December 16, 2005, at 1204 Woodcrest Drive, on an un-named tributary of First Creek. KUB posted overflow signs every 200 yards [for up to 1,000 yards] or at points of public access to help ensure appropriate public notice. The signs were posted for 48 hours after clean up was completed. KUB uses its standard sign for SSO postings in these instances.

KUB continues to post warning signs, along with yellow warning tape to establish a control zone, at all overflow locations. The KUB Web site also includes a log of SSOs events and safety tips on dealing with overflows.

6.2 SORP Training

In addition to working closely with all departments involved in the SORP on a day-to-day, event-by-event basis, CSI updates appropriate personnel as needed on revisions. After the revisions in June 2005, CSI provided updates on the new posting requirements for streams not on the 303d list and on building backups reporting.

CSI also conducts periodic SORP refresher courses. The last one was on December 15, 2005, for 35 Plant Operations personnel. Refreshers are also planned for UGC, Remote Sites, and Customer Support in early 2006.

In August and November 2005, CSI also conducted 2 classes on how to use the CSM for 14 UGC personnel.

6.3 Wet Weather Surveys

KUB continues to actively investigate sites with a history of overflows during heavy rain events. In 2005, responders made 319 proactive visits to various hot-spot sites after heavy rains. Each responder's truck has a hot-spot book and map, which is updated annually, for reference.

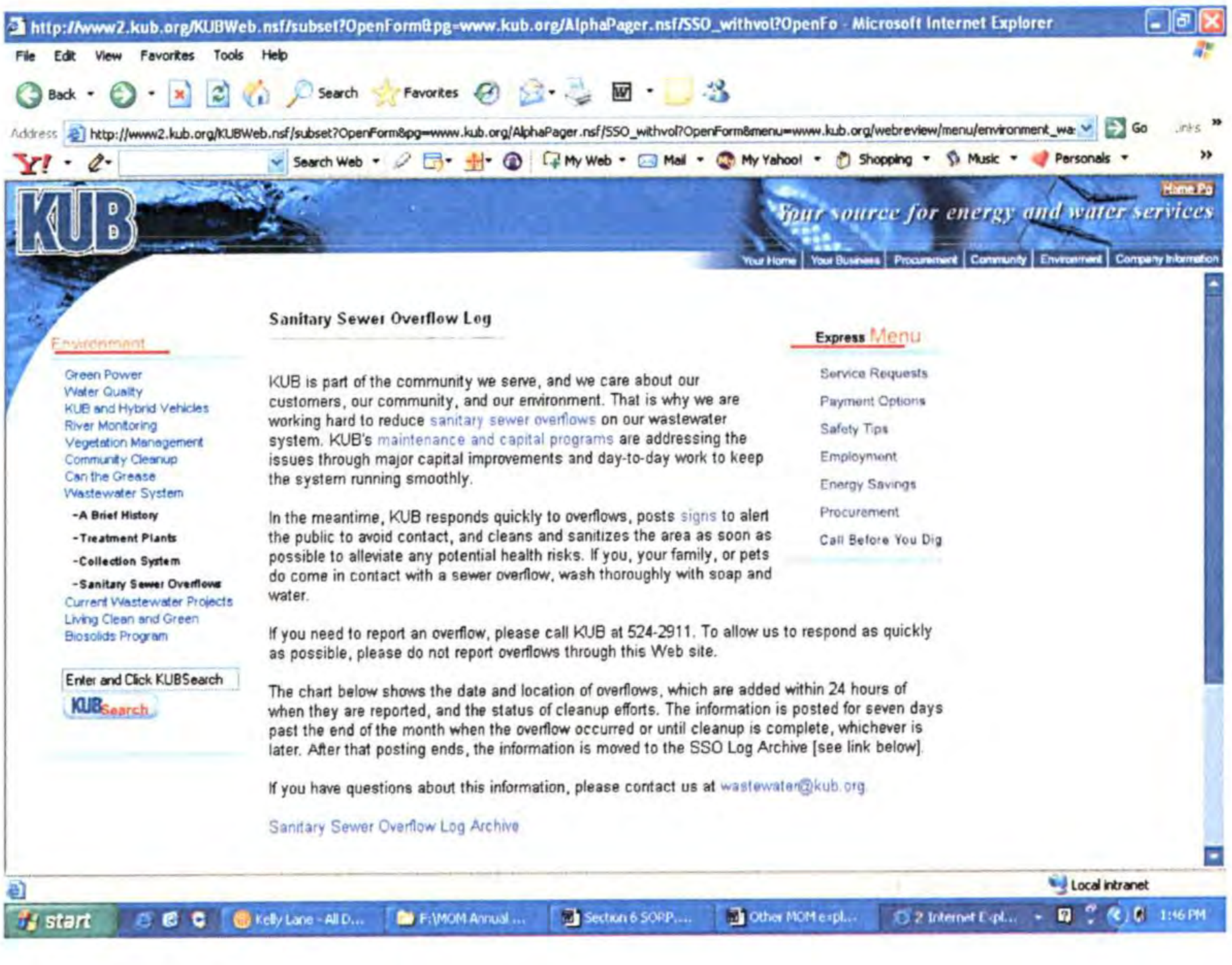
The decision on when to initiate such "windshield surveys" is based on customer notifications, weather, or experience of the CSI staff, UGC supervisors, or the First Responder on duty.

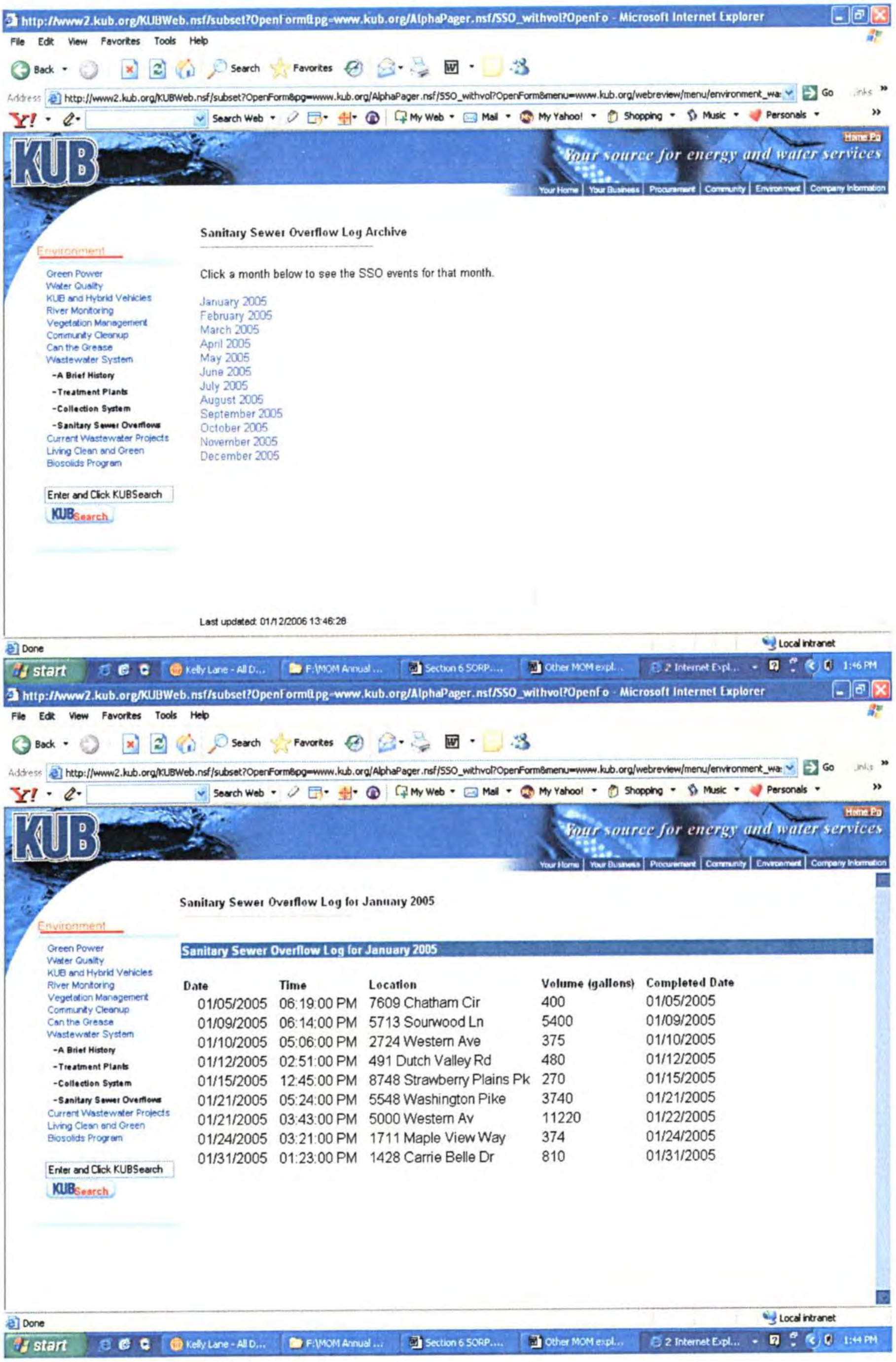
In 2005, KUB also added a tool to help alert responders when wet weather overflows are imminent: Manhole surcharge level sensors. When the level in manholes with a sensor reaches a set point, the sensor sends a page over a cellular system. The page notifies the KUB Operations Center, which dispatches a First Responder and sends an e-mail alert to

CSI. The sensor also sends a second page when the manhole level is back below the set point.

6.4 KUB Web Site

In 2005, KUB added a volume category to the SSO log and added a link to a permanent archive of SSOs by month. The SSO log link is prominently displayed under "Current Topics" on KUB's homepage. The archive includes the same information as the current SSO log: date, time, location, volume in gallons, and completed date.




http://www2.kub.org/KUBWeb.nsf/subset?OpenForm&pg=www.kub.org/AlphaPager.nsf/SSO_withvol?OpenFo - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://www2.kub.org/KUBWeb.nsf/subset?OpenForm&pg=www.kub.org/AlphaPager.nsf/SSO_withvol?OpenForm&menu=www.kub.org/webreview/menu/environment_wa
Go Links
Search Web My Web Mail My Yahoo! Shopping Music Personals
KUB
Your source for energy and water services
Home Pa
Your Home Your Business Procurement Community Environment Company Information
Sanitary Sewer Overflow Log Archive
Environment
Green Power
Water Quality
KUB and Hybrid Vehicles
River Monitoring
Vegetation Management
Community Cleanup
Can the Grease
Wastewater System
-A Brief History
-Treatment Plants
-Collection System
-Sanitary Sewer Overflows
Current Wastewater Projects
Living Clean and Green
Biosolids Program
Enter and Click KUBSearch
KUBSearch
Click a month below to see the SSO events for that month.
January 2005
February 2005
March 2005
April 2005
May 2005
June 2005
July 2005
August 2005
September 2005
October 2005
November 2005
December 2005
Last updated: 01/12/2006 13:46:28
Done
Local intranet
start
Kelly Lane - All D...
F:\MOM Annual ...
Section 6 SORP....
Other MOM expl...
2 Internet Expl...
1:46 PM
Sanitary Sewer Overflow Log for January 2005
Sanitary Sewer Overflow Log for January 2005
Date Time Location Volume (gallons) Completed Date
01/05/2005 06:19:00 PM 7609 Chatham Cir 400 01/05/2005
01/09/2005 06:14:00 PM 5713 Sourwood Ln 5400 01/09/2005
01/10/2005 05:06:00 PM 2724 Western Ave 375 01/10/2005
01/12/2005 02:51:00 PM 491 Dutch Valley Rd 480 01/12/2005
01/15/2005 12:45:00 PM 8748 Strawberry Plains Pk 270 01/15/2005
01/21/2005 05:24:00 PM 5548 Washington Pike 3740 01/21/2005
01/21/2005 03:43:00 PM 5000 Western Av 11220 01/22/2005
01/24/2005 03:21:00 PM 1711 Maple View Way 374 01/24/2005
01/31/2005 01:23:00 PM 1428 Carrie Belle Dr 810 01/31/2005
Done
Local intranet
start
Kelly Lane - All D...
F:\MOM Annual ...
Section 6 SORP....
Other MOM expl...
2 Internet Expl...
1:44 PM

0001700

Section 7: Other MOM Programs

KUB continues to implement and manage the Other MOM Programs in substantially the same manner as previously reported. The following is a brief update on some areas of particular interest or those where there have been changes:

- Sewer Mapping Program
  KUB has added BA information to GIS mapping. Users can view all lines that are in the BA, when they were last televised, cleaned, etc. All information is linked to a KUB IPID number, which is a unique identifier. An on-going Mapping goal is to develop and implement a process to ensure that all wastewater as-builts are completed and mapped into the GIS within three months of the wastewater facilities being placed into service.

- Sewer System Design Program
  KUB worked closely with PACE 10 Program Manager CH2M Hill to review and revise, as needed, KUB's standards and specifications for the Wastewater System. CH2M Hill reviewed existing standards and made recommendations for new construction pipe materials and appurtenances, rehabilitation materials, etc. The KUB Standards Team, which is made up of representatives from CSI, Engineering, Procurement, and System Operations reviewed all recommendations. CH2M Hill took review comments and compiled them into a General Program and Design Guidance document. When approved by KUB, this document will be adopted for all future wastewater system new construction and rehabilitation.

- Sewer Construction Inspection Program
  New sewer lines are air tested to check the integrity of all joints to ensure against infiltration and inflow of extraneous water. New manholes are vacuum tested for the same reasons.

  Testing of pipe bursting includes a visual inspection to ensure that the new pipe goes from manhole to manhole, and an air test is done as above for new sewers.

  Operational and performance testing of all pumping stations is conducted to verify capacity and functionality of all mechanical and electrical components.

- Rehabilitation Inspection Program
  Sewer lines rehabilitated with cured-in-place pipe (CIPP) are air tested to check the integrity of all joints to ensure against infiltration and inflow of extraneous water. CCTV is also used to ensure against liner wrinkles and defects. Sample coupons (small pieces of the installed CIPP) are collected from each CIPP installation and sent to independent labs to verify liner thickness and strength in compliance with specifications.

Rehabilitated manholes are vacuum tested to ensure against I/I of extraneous water. Visual inspections are also made on each manhole to check for staining that may indicate I/I at the frame and cover connection to the manhole itself.

Operational and performance testing of all pumping stations is conducted to verify capacity and functionality of all mechanical and electrical components.

- SSO Reporting, Notification, and Record-Keeping
  In August, 2005, KUB began reporting Building Back-Ups (BBUs) with similar protocols as the SSO reporting. BBU reporting includes the initial and final reports to TDEC. The only differences are that BBUs are not posted on KUB's Web site and are not summarized in the monthly SSO report submitted to TDEC with the Discharge Monitoring Reports.

- Equipment and Tools Management Programs
  In 2005, KUB purchased a new CCTV van and equipment and replaced the cameras for two other vans. The Grease Control Program also purchased a "Sludge Judge" core sample tool to help determine the effectiveness of grease traps.

- Complaint Management Program
  Customers have several avenues to reach KUB with wastewater questions or issues. Most questions and complaints are received from customers who call our Customer Information Center, which is staffed 24 hours a day, seven days a week. Other customers choose to e-mail KUB through the wastewater or customer service links on the KUB Web site. KUB continues to use its Customer Information System and Inservice software in trucks to facilitate response to complaints. In 2005, KUB responded to 1664 wastewater trouble calls. Some examples of the type of trouble calls received include odor complaints, stormwater concerns, and problem on property.

- Force Main Preventive Maintenance Programs
  KUB's Force Main Condition Assessment Program identifies areas needing corrosion control and uses that information to schedule appropriate maintenance activities. Because steel, cast iron, and ductile iron pipe are susceptible to corrosion damage in areas where air is introduced, KUB is initially focusing assessment efforts around air-relief valves.

  In July 2005, KUB started the process of mapping in the GIS all 164 air-relief valves on our force mains for the cleaning contractor. So far, 111 have been mapped and 76 have been flushed by the contractor. Appendix E contains an example inspection form.

  Odor-control efforts also help reduce corrosion by preventing the formation of hydrogen sulfide. KUB currently feeds ferrous chloride, hydrogen peroxide, or sodium nitrate at 11 pump stations to control odor. In 2006 another existing pump station and three new stations will use chemical feeds for odor control.

Section 8: Private Lateral Program (PLP)

As required by the Consent Decree, KUB must operate a mandatory PLP to help protect our environment by ensuring that property owners repair their laterals or remove prohibited connections, like roof downspouts or other sources of stormwater. Defective laterals or prohibited connections can overload KUB's sewer system with rainwater and contribute to sewer overflows. Leaking laterals can also add to pollution in area waterways.

KUB must take these steps as part of the PLP:

- Inspect customers' private laterals and identify defects or prohibited connections.
- Inform property owners of any defects, the process to follow for repairing or replacing laterals, and potential availability of financial aid.
- Ensure owners make lateral repairs or remove prohibited stormwater connections.
- Enforce the PLP by terminating water service to customers who do not make repairs within the 120-day timeframe.

Lateral inspections currently follow PACE 10 wastewater system improvement projects. As part of the improvement projects, KUB replaces the lower lateral (the portion from the sewer main to the cleanout) and installs a two-way cleanout at the homeowner's property line. A contractor televises customers' upper laterals (the portion from the cleanout at the property line to the house) through the new cleanout and scores defects using standard PACP criteria. PACE 10 Program Manager CH2M Hill reviews the data and makes recommendations on repairs to KUB CSI Department.

When defects or prohibited connections are identified, KUB sends letters notifying home-owners that they have 120 days to make repairs to avoid water service termination. The letters also include information about the defective lateral, the inspection and approval process, and funding available through the PACE 10 Residential Assistance Program.

KUB follows up with the customer several times (other mailings, phone calls, and visits, as needed) during the 120 days until the completed work is inspected and approved. KUB developed a Lotus Notes IMS, called the Private Lateral Tracker for the PLP. KUB shares the Tracker with the City of Knoxville, which must inspect and approve lateral repairs, and the Knoxville-Knox County Community Action Committee (CAC), which administers the financial aid portions of the PLP. Each agency has updating ability only for its own section on the Tracker, but each can view the others' pages. Screen shots from the Private Lateral Tracker are in Appendix K.

KUB tracks information on property ownership, enforcement notifications sent and scheduled, the appeal process, and other customer contacts. The City uses the IMS to record when an owner or plumber applies for a permit for a property in the PLP, the date of its inspection of the work, and whether the repair is approved. The CAC records infor-mation about grant and loan applications, cost estimates, plumbers doing the work, and disbursements for successfully completed work.

Low-income KUB wastewater customers who own their homes may be eligible for aid under the KUB Grant Program* or Loan Program. {**This project [Grant Program] was*

undertaken [by KUB] in connection with the settlement of a civil enforcement action taken by the United States for violations of the Clean Water Act.} To help those customers who can least afford the repairs, KUB also voluntarily funded a $2 million no-interest loan program for low-income customers.

The CAC administers both programs. CAC takes applications, qualifies applicants, schedules plumbers, updates KUB, and pays repair/replacement costs from program funds.

If a customer does not make repairs, KUB will stop water service and pull the water meter. KUB will also place a PLP alert on the account in the Customer Information System (CIS), so the water will not be turned back on until repairs are approved. When notified by a city inspector [or KUB inspector, for county laterals] that the work has been approved, KUB will remove the CIS alert, replace the meter, and reinstate service.

The following PLP statistics illustrate actions taken from the launch of the program in August 2005 through the end of this reporting period [December 2005]:

110 laterals identified for repair
112 Notices of Non-Compliance sent*
68 Notices of Violation sent
7 Notices of Termination sent
48 repairs completed
50 permits acquired for work
1 tenant-situation/30-day extension
0 appeals filed
0 enforcement actions
10 grant applications approved
1 loan application approved
*The two additional Notices of Non-Compliance were sent due to changes in ownership of the property.

Laterals that failed smoke testing were passed on to the contractor to be televised in small groups. That allowed time to refine the inspection and evaluation process, interaction between all parties involved, and communications to the customer before a more full-scale roll-out. That also means the 110 laterals identified were staggered over the five-month period, with customers at various points in the 120-day repair window.

Several customers came close to the cut-off deadline before making repairs, but to date none have missed the deadline and had their water service terminated. Although no appeals have been filed, KUB has used the discretion it was given to extend the time-frame 30 days in one tenant situation. [**Note**: That 30-day extension expired January 23, 2006. The customer did make repairs, and water service was not terminated.]

KUB also worked with a customer and the City Plumbing Inspector's office to test using pipe bursting for a lateral repair. Given that customer's circumstances, pipe bursting was more cost efficient than open cut replacement. The City Plumbing Board is considering whether to allow other customers to use the pipe bursting technique.

Appendices

Appendix A

Grease Control Program Summary Tables

Grease Related SSOs Residential Areas

Date	Address	SSO	Building Backup	Grease	Grease & Roots	Grease & Debris	Customers in Area	Letters Mailed	* Cans Mailed	# of Feet Added to PM	Comments/PM Frequency
1/12/2005	491 Dutch Valley Road	Yes		Yes			45	45	44	317	3 months
1/15/2005	8748 Strawberry Plains Pike	Yes		Yes			-	0	0		6 months. It was determined that this was a grease issue at a later date.
1/31/2005	1428 Carrie Belle Drive	Yes		Yes			63	63	63		3 months
2/18/2005	4430 Washington Court	Yes		Yes			73	73	73	256	6 months
2/21/2005	1229 Louisana Avenue	Yes		Yes			69	69	67	171	3 months
2/22/2005	6522 S. Northshore Drive	Yes		Yes			134	134	134		12 months
2/23/2005	125 Tillery Drive	Yes		Yes			54	54	54		6 months
3/8/2005	5525 Lonas Drive	Yes			Yes		52	52	47	245	12 months
3/9/2005	7590 Asheville Highway	Yes		Yes			108	108	108	143	6 months
3/16/2005	5209 Foxwood Road	Yes				Yes	107	107	106	121	12 months
3/19/2005	1700 Sundrop Drive	Yes				Yes	36	36	36	222	12 months
3/28/2005	4701 Minglewood Road	Yes			Yes		191	191	191	667	3 months
3/29/2005	2004 Dutch Valley Road	Yes		Yes			70	70	70	1166	6 months
4/2/2005	2621 Parkview Avenue	Yes		Yes			108	108	103	571	3 months
4/5/2005	612 Edwards Drive	Yes			Yes		16	16	16	410	6 months
4/25/2005	205 Bentley Street	Yes			Yes		13	13	13	582	12 months
4/29/2005	1015 Phillip Fulmer Way	Yes				Yes	47	47	37	392	6 months
5/20/2005	1305 Rickard Drive	Yes		Yes			76	76	76	733	6 months
5/31/2005	717 Ingersoll Avenue	Yes		Yes			71	71	71	773	12 months
6/16/2005	2645 Chukar Road	Yes				Yes	139	139	139	899	6 months
8/1/2005	4218 McCalla Avenue	Yes		Yes			37	37	35	487	12 months
8/8/2005	1135 Rider Avenue		Yes				19	19	19	544	12 months
8/13/2005	1118 Allen Drive		Yes				30	30	30		Not applicable
8/19/2005	1219 Greens Crossing Lane	Yes		Yes			78	78	76		12 months
9/30/2005	4405 Del Mabry Drive	Yes				Yes	123	123	123	795	18 months
10/11/2005	2015 Neyland Drive	Yes		Yes			-	0	0	591	1 month. Occurred at waste hauler dump site. Not in collection system.
10/25/2005	1540 Jourolman Avenue	Yes				Yes	34	34	34	99	3 months
11/11/2005	1720 Cumberland Avenue	Yes				Yes	5	5	2	316	6 months
11/28/2005	4807 Coster Road	Yes		Yes			47	47	44	243	6 months
12/5/2005	2564 Woodbine Avenue		Yes				45	45	44	1170	6 months
	Totals		**3**	**16**	**4**	**7**	**1890**	**1890**	**1855**	**11913**	

**** Cans are mailed only to residential home owners.***

Food Service Facilities

No.	Facility Name	Trap/Interceptor Size	Trap Size Required	Interceptor Size Required	Inspection Letter	Routine Inspections	Initial Inspections	Follow-Up Inspections	Enforcement *NONC Letter*	Enforcement *NOV Letter*	Trap Installed	Comments
1	11th Street Expresso House	30	30			2						
2	A&K Barbeque	20	20			1	1					
3	Agave Azul Mexican Grill	1000		1000		2						
4	AJ's Sports Bar	15	15			2						
5	Alex's Havana Cafe	0	40			1						Grease Control Enforcement in progress.
6	Amber Restaurant #2	30	30			2						
7	American Fresh	30	30			2	1					
8	Ann's Deli	40	40		1	1	1	1			1	
9	Apostolic Kiddie Academy	500		500		2						
10	Applebee's / Central Ave. Pk.	1000		1000		3						
11	Applebee's / Kingston Pk.	1000		1000		1						
12	Applebee's/Knox Center	1000		1000		2						
13	Arby's / Broadway	30	30			2	1					
14	Arby's / Schaad Rd.	1000		1000	2	2		2				
15	Arby's / Strawplains Pk.	40	40			2						
16	Arby's Roast Beef #1497	40	40			1	1					
17	Arby's Roast Beef #618	40	40			1	1					
18	Arby's Roast Beef #719	40	40			1	1					
19	Arby's Roast Beef #153	40	40			2	1					
20	Arby's Roast Beef #567	40	40			1	1					
21	Atria Weston Place	1500		1500	1	1	1	1				
22	Auntie Anne's #1	60	60			1						
23	Auntie Anne's #2	30	30			1						
24	Austin-East High School	1000		1000		1						
25	Austin's Steakhouse	1000		1000	1	2	1	2				
26	Backyard Burgers #1145	1000		1000		1						
27	Baptist Hospital	500		500		1						
28	Barley's Taproom & Pizzeria	1000		1000		1						
29	Barns & Noble Cafe	1000		1000		2	1					
30	Bearden Elementary School	* 50		1500		1	1					See note at the end of the report.
31	Bearden High School	2000		2000		3						
32	Bearden Middle School	* 100		1500		1	1					See note at the end of the report.
33	Bearden United Methodist DCC	40	40			1						
34	Bellacino's Pizza and Grinders	50	50			1	1					
35	Bellacino's Pizza and Grinders	60	60			1						
36	Big Orange Chevron	**** 20	40			3						Existing facilities are allowed to use current traps if grease control is maintained.
37	Bill's Market & Deli	40	40			1	1					
38	BI-LO#361	1000		1000		3						
39	Bogartz	1000		1000		2	1					
40	Bonefish Grill	2000		2000		2						
41	Borders Books Music & Cafe	40	40			1						
42	Bourbon Street Cafe	40	40			2	1					
43	BQ Asian Grill & Bar	1000		1000	1	1	1	3	1	1		Pumped interceptor and met pumping requirements.
44	Bravo's	1500		1500	1	3		2				
45	Breadbox	20	20		1	1	1	1			1	
46	Breaker's Bar and Grill	1000		1000		1						
47	Bri'anos Pizzeria	40	40			1	1					
48	Buddy's Banquet Hall	1000		1000		1						
49	Buddys Bar B Q Kingston Pk	40	40			1						
50	Buddy's Bar B Q / Broadway	40	40			1						
51	Buddys Bar B Q East	100	100			1						
52	Buddy's Barbecue / Chapman	1000		1000		2						

Food Service Facilities

No.	Facility Name	Trap/Interceptor Size	Trap Size Required	Interceptor Size Required	Inspection Letter	Routine Inspections	Initial Inspections	Follow-Up Inspections	Enforcement *NONC Letter*	Enforcement *NOV Letter*	Trap Installed	Comments
53	Buddys Bar-B-Q Bearden	1000		1000		1						
54	Buffalo Wild Wings Grill And Bar	1500		1500		2						
55	Burger King / Middlebrook Pk	1500		1500		2						
56	Burger King #11722	1500		1500		2						
57	Burger King #12141	1500		1500		1						
58	Burger King #13146	1500		1500		1						
59	Burger King #9679	1500		1500		1						
60	Burger King #4677	1000		1000		1						
61	Burger King #321	1000		1000		1						
62	Burger King #5346	1000		1000		1						
63	Burrito Diablo	40	40		1	2	1	1			1	
64	Bush Brothers #1	100	100			5						
65	Bush Brothers #2	1500		1500		5						
66	By The Tracks Bistro	**** 500		1000		1						Existing facilities are allowed to use current traps if grease control is maintained.
67	Calhouns Banquet And Catering Kitchen	1500		1500		1						
68	Calhoun's Commisary	1000		1000		2						
69	Calhouns On Bearden Hill	1500		1500		1						
70	Cancun #1	50	50			3						
71	Cancun #2	200		200		3						
72	Cancun Mexican Restaurant & Cantina	1000		1000	1	2	1	1			1	
73	Captain D's # 3204	1000		1000	1	4		1				
74	Captain D's #3205	1000		1000		1						
75	Captain D's #3406	1000		1000		1						
76	Central High School	** 3000		2000		6					1	FSF exceeded trap sizing requirements.
77	Central Park	1000		1000		2						
78	Cesar Bakery	30	30			1	1					
79	Cha Cha	1500		1500		2	1					
80	Chandler's Deli	40	40			1						
81	Charlie Peppers Restaurant	1500		1500		2						
82	Checkered Flag Deli	20	20			1						
83	Cherokee Country Club	1000		1000		1						
84	Chesapeakes	1000		1000		3						
85	Chick-Fil-A	1000		1000		1						
86	Chik-Fil-A/Clinton Hwy	1500		1500	1	4	1	1				
87	Chili's/Clinton	1500		1500	1	2	1	1				
88	China Garden	1000		1000	1	2		5	1	1		Pumped interceptor and met pumping requirements.
89	China King Buffet	40	40			3						
90	Chop House	2000		2000		3						
91	Chuck E Cheese	1500		1500		2						
92	Clubhouse, The	1000		1000		2						
93	Cold Stone Creamery	40	40			1						
94	Colonels Delicatessen	0	40			1						Grease Control Enforcement in progress.
96	Cool Beans Restaurant	1000		1000		1						
97	Copper Cellar Lounge	1500		1500		6						
98	Corky's Ribs and BBQ	1500		1500		1						
99	Country Table	40	40			1						
100	Coyote Joes	40	40			1						
101	Cracker Barrel # 546	1500		1500		1	1					
102	Cracker Barrel #12	1500		1500		1						
103	Cracker Barrel #170	1500		1500		3						
104	Cross Ministries Church Outreach	** 1000	40			1	1	1			1	FSF exceeded trap sizing requirements.
105	Dairy Queen	1000		1000		1	1					

Food Service Facilities

No.	Facility Name	Trap/Interceptor Size	Trap Size Required	Interceptor Size Required	Inspection Letter	Routine Inspections	Initial Inspections	Follow-Up Inspections	Enforcement *NONC Letter*	Enforcement *NOV Letter*	Trap Installed	Comments
106	Dentons Big Orange Drink & Steakery	1000		1000		1						
107	Doane's Mkt.&Deli	40	40			1						
108	Domino's	30	30		1	4	1	1				
109	Don Pablo's	1000		1000		1						
110	Double D. Lounge	30	30			1						
111	Dynasty Express	40	40			1						
112	East Knox Elementary	* 200		1500		1						See note at the end of the report.
113	East Tennessee Children's Hospital	2000		2000	1	2	1					
114	East TN Regional Juvenile Service Cent.	2000		2000		2						
115	Echo Ridge Retirement Facility	1500		1500		2						
116	El Charro	1500		1500		2						
117	El Chico Restaurant #1	1000		1000		3						
118	Etcetera @ Rocky Hill	1500		1500		1						
119	Eva's To Go	1000		1000		1						
120	Expresso To Go	30	30			1	1	1				
121	Fatboy's Restaurant	40	40		1	2	1	2			1	
122	Fats Barbeque	30	30			1	1	1			1	
123	Fazoli's #5046	1000		1000		3						
124	Fifth Avenue Bapt. Ch. DCC	1000		1000		1						
125	Florence Crittenton Agency Inc.	1000		1000		1						
126	Food City #673	1500		1500		1	1					
127	Food City #674	1000		1000		1	1					
128	Food City #677	1500		1500		1						
129	Food City #655	1000		1000		1						
130	Food City #686	*** 40		1000	1	2	1	1				Grease Control Enforcement in progress.
131	Food City #689	1000		1000		2						
132	Food Lion #1545	1000		1000		2						
133	Fort Sanders Hospital	2000		2000		2						
134	Fountain City Creamery	30	30			1						
135	Frussies Deli	20	20			1						
136	Gino's Pizza And Subs	0	40		1	1	1					Grease Control Enforcement in progress.
137	Ginza Japan Steakhouse & Grill	1000		1000	2	7	1	1				
138	Godfather's	40	40			1						
139	Golden Wok	1000		1000	2	13	1	1	1	1		Pumped interceptor and met pumping requirements.
140	Goodfella's Sports Bar	30	30			1						
141	Great American Steak & Buffet Co.	1500		1500	2	4	1	5	1		1	Installed external grease interceptor per KUB specifications.
142	Green Hills Grill	2000		2000	1	1		1				
143	Green Magnet Math And Science Academy	1500		1500	1	2		2	1		1	Installed external grease interceptor per KUB specifications.
144	Grizzle's Restaurant	1000		1000		2						
145	Gus's Restaurant	40	40			2	1					
146	Hardee's Knoxville #1501785	1000		1000		1						
147	Hillcrest West	1500		1500	1	4	1	1			1	
148	Hillcrest/South	*** 500		1500		1						Grease Control Enforcement in progress.
149	Hong Kong House	1000		1000		3						
150	Hooter's #2	1500		1500	1	2		1				
151	Hungry Howie's Pizza	40	40			2						
152	I Love New York Pizza	40	40			1	1				1	
153	Ingles	1000		1000	1	1		2	1			Pumped interceptor and met pumping requirements.
154	Inskip Food Mart	50	50		1	1	1	2				
155	International House of Pancakes	2000		2000		3	1				1	
156	International House of Pancakes #1	1000		1000		1						
157	Jason's Grill & Deli	40	40			2						

Food Service Facilities

No.	Facility Name	Trap/Interceptor Size	Trap Size Required	Interceptor Size Required	Inspection Letter	Routine Inspections	Initial Inspections	Follow-Up Inspections	Enforcement *NONC Letter*	Enforcement *NOV Letter*	Trap Installed	Comments
158	Jimmy John Gourmet Sand.	40	40			1						
159	John Tarleton Home	30	30			1						
160	Kaleidoscoops	40	40			1	1					
161	Kanpai of Tokyo	1500		1500		1						
162	Kay's Ice Cream	30	30			3					1	
163	Kenjo Market / Central Ave.	30	30		1	3	1	3	1		1	Installed internal grease trap per KUB specifications.
164	Kenjo Market / Chapman Hwy	40	40		1	3	1	1			1	
165	Kenjo Market #187	40	40		1	1	1	1			1	
166	Kenjo Market #30	30	30		1	2	1	2			1	
167	KFC/ Magnolia	1000		1000		1						
168	KFC/Millertown	1500		1500		1						
169	KFC/Shurmard	1500		1500		3						
170	KFC/Western	1000		1000		2						
171	KFC/Chapman	1500		1500	1	5	1	3			1	
172	Kingston Alley L.L.C.	1000		1000		1						
173	Kitts Market Cafe	1500		1500	1	3		1				
174	Knox County Detention Facility	1500		1500		1						
175	Knoxville Billiards	30	30		1	3		1				
176	Knoxville Center Mall	1500		1500		1						
177	Knoxville College Cafeteria	*** 40		1500		1						Grease Control Enforcement in progress.
178	Krispy Kreme #55	1000		1000		1						
179	Kroger / Chapman Hwy	1500		1500		1	1					
180	Kroger # 506	50	50			2	1					
181	Kroger # 513	40	40			1	1					
182	Kroger # 516	40	40			2						
183	Krogers / Asheville Hwy	1000		1000		1						
184	Krystal #6	1500		1500		1						
185	Krystal / Millertown Pk	1000		1000		1						
186	Krystal Co #14	1000		1000		1						
187	Krystal Co #8	1000		1000		1						
188	La Playa Mexican Restaurant	40	40		1	2		1				
189	Lakeshore Mtl Hlth Institute	50	50			3						
190	Lakeside Pizza & Pub	30	30			1						
191	Legends Bar & Rest.	30	30			4	1					
192	Lenny's Sub Shop #1	40	40			2	1				1	
193	Lenny's Sub Shop #2	40	40			1	1					
194	Leo's Cafe	20	20			1						
195	Lightnin's Restaurant	0	40			6		1				Restaurant closed.
196	Linda's Country Kitchen	20	20			1						
197	Little Caesars Pizza #052006	30	30		1	1	1	1				
198	Litton's Market & Restaurant	40	40			2						
199	Logan's Roadhouse	1500		1500	1	4		1				
200	Long's Drug Store	0		1500		1						Grease Control Enforcement in progress.
201	Los Arcos Mexican Restaurant	50	50		1	2		1				
202	Los Molcajetes Mexican	40	40			1						
203	Los Paisano's Mexican Rest.	1000		1000		1	1					
204	Louis' Restaurant	1000		1000	1	6	1	3				
206	Lunch House	40	40			1						
207	Lunchbox Market & Cafe, The	1000		1000		1						
208	Macleod's Restaurant & Pub	40	40		1	3	1	1	1			Pumped trap and met pumping requirements.
209	Mandarin House	1000		1000	1	3						
210	Mandarin House Restaurant	1000		1000		1						

Food Service Facilities

No.	Facility Name	Trap/Interceptor Size	Trap Size Required	Interceptor Size Required	Inspection Letter	Routine Inspections	Initial Inspections	Follow-Up Inspections	Enforcement *NONC Letter*	Enforcement *NOV Letter*	Trap Installed	Comments
211	Mango Restaurant	1000		1000	1	6		3				
212	Marina Mexican Grill	1000		1000		3						
213	Market Square Kitchen	50	50		1	3		1				
214	McAlister's #1126	1000		1000		3	1					
215	McDonalds #10662	1000		1000		1						
216	McDonald's #11484	1000		1000		1						
217	McDonalds #1243	1000		1000		1						
218	McDonald's/Walker Springs	2000		2000	1	3	1	1				
219	Messiah Lutheran Church	1500		1500		1						
220	Metro Village Market	2000		2000		1	1					
221	Michael's	1500		1500	1	4	1	1	1		1	Installed external grease interceptor per KUB specifications.
222	Micko's	40	40			1						
223	Middlebrook Market & Deli	30	30			1						
224	Miyabi Japanese Steak House Lounge	30	30			2						
225	Mocha Cabana	40	40		1	2		1			1	
226	Monterrey Rest.	1000		1000		3						
227	Moto Japanese Rest.	40	40			1						
228	Mr. Gattis #610	40	40			2						
229	Mt. Olive Baptist Church DCC	1000		1000		1						
230	Naples Italian Restaurant	1000		1000		1						
231	Napoli Pizza & Grill	30	30			3	1					
232	New China Restaurant	30	30			1						
233	Nixon's Deli	40	40			1	1					
234	Nixon's Deli/Merchants	30	30		1	7	1	5	1		1	Installed internal grease trap per KUB specifications.
235	Oasis Buffet	40	40		1	2	1	1			1	
236	O'Charley's (Store # 217)	1000		1000	1	6	1	2	1			Pumped trap and met pumping requirements.
237	O'Charley's Lounge (Store # 211)	1000		1000		2						
238	O'Charley's #5	1500		1500		1						
239	Olive Garden Restaurant #92	1000		1000		1						
240	Oodles Restaurant & Bar	40	40		1	2	1	1				
241	Orangery	40	40			1						
242	Original Freeze, The	20	20			1						
243	Outback Steakhouse #1	1000		1000	1	6	1	2	1			Pumped interceptor and met pumping requirements.
244	Outback Steakhouse #2	1000		1000	1	6	1	1	1			Pumped interceptor and met pumping requirements.
245	Outback Steakhouse #43	1000		1000	1	5		1				
246	Outlook Pointe	1500		1500		1						
247	Panda's Chinese Restaurant	40	40			4						
248	Panera Bread	1000		1000	1	3		1				
249	Papa John's Pizza #1	0	40		2	3	1	1				Grease Control Enforcement in progress.
250	Papa John's Pizza #2	30	30			1						
251	Patrick Sullivan's Rocky Hill	1000		1000		1						
252	Paul's Oasis	40	40			1						
253	Pelancho's Mexican Grill	1000		1000		2						
254	Pete's Coffee Shop	1500		1500		1	1					
255	PF Changs China Bistro Inc.	1000		1000		2						
256	Pilot # 187	40	40		1	1	1	1				
257	Pilot Food Mart	40	40		1	2	1	1				
258	Pisano's Pizza	40	40		1	1	1	1			1	
259	Pita Pit	1000		1000		2						
260	Pizza Hut/Broadway	40	40			1						
261	Pizza Hut/Cedar Ln.	1000		1000		1						
262	Pizza Hut/Chapman	40	40			1						

Food Service Facilities

No.	Facility Name	Trap/Interceptor Size	Trap Size Required	Interceptor Size Required	Inspection Letter	Routine Inspections	Initial Inspections	Follow-Up Inspections	Enforcement *NONC Letter*	Enforcement *NOV Letter*	Trap Installed	Comments
263	Pizza Hut/Western	40	40			1						
264	Pleasant Ridge Elementary	* 50		1500		1						See note at the end of the report.
265	PM's Lounge	40	40			1						
266	Preservation Pub	30	30		1	1		1				
267	Processed Foods Corp.	3000		3000		1						
268	Puleo's Grill	1000		1000	1	3		1	1			Pumped interceptor and met pumping requirements.
269	Quaker Steak & Lube	1000		1000		1						
270	Quick Pantry Food Stores	40	40		1	4	1	1	1		1	Installed internal grease trap per KUB specifications.
271	Quizno's #2	1000		1000	1	2	1	1				
272	Rafferty's	1500		1500		3						
273	Rainbow West	40	40			1						
274	Rallys Hamburger	1000		1000		1						
275	Ramsey's Cafeteria	1500		1500		1						
276	Rankin Restaurant	1000		1000	1	3		1			1	
277	Red Lobster # 47	3000		3000		1						
278	Rick's Place	1000		1000	1	10		4	1			Modified external grease interceptor to meet KUB specifications.
279	Rite Stop Food Mart	40	40		1	7		2			1	
280	Rocky Hill Elementary	1000		1000		1						
281	Rogers & Sons Market and Deli	1000		1000	1	5		1				
282	Ronnie's Grill	40	40			2						
283	Roosters	40	40			1	1					
284	Roundup Restaurant & Ice Cream Parlor	40	40			1						
285	Roxy's	1000		1000		1						
286	Ruby Tuesday/Brakebill	1500		1500		2						
287	Ruby Tuesday/Broadway	1500		1500		1						
288	Ruby Tuesday's/Clinton Hwy.	1500		1500		1	1					
289	Ryan's #154	1000		1000		2						
290	Salsarita's Fresh Cantina	1500		1500		1						
291	Sam & Jerry's	30	30			1						
292	Sam's Club #2	1500		1500		1						
293	Sam's Club #8256	1500		1500		5					1	
294	Sam's Restaurant And Deli	40	40		3	4	1	3			1	
295	Save-A-Lot	40	40			2	1					
296	Savelli's Deli	0	40			1						Grease Control Enforcement in progress.
297	Sawyers	1000		1000		1						
298	Schlotsky's Deli	1500		1500	1	2		2				
299	Scrugg's Bar B Q	0	40			1						Grease Control Enforcement in progress.
300	Senor Taco	50	50			2						
301	Seventeenth St. Mkt & Deli	40	40			1						
302	Shoneys #4	1000		1000		2						
303	Shoneys #6	1000		1000		1						
304	Shoneys #8	1000		1000	1	1		1				
305	Shonos In The City	40	40		1	1	1	1				
306	Silver Spoon The American Cafe	1000		1000		1						
307	Sitar Fine Indian Cuisine	1000		1000		1						
308	Skate Town USA #2	0	40			1						Grease Control Enforcement in progress.
309	Soccer Taco	1000		1000		1		1				
310	Soho Cafe	1000		1000	1	1		1				
311	Sonic #4789	1500		1500		1	1					
312	Sonic Drive-In / Cedar Ln.	1000		1000		1						
313	Sonic Drive-In / 5130 Broadway	1000		1000	1	1		1				
314	Sonic Drive-In / Kingston Pk	1500		1500		2						

Food Service Facilities

No.	Facility Name	Trap/Interceptor Size	Trap Size Required	Interceptor Size Required	Inspection Letter	Routine Inspections	Initial Inspections	Follow-Up Inspections	Enforcement *NONC Letter*	Enforcement *NOV Letter*	Trap Installed	Comments
315	Sonic / 3311 Broadway	1000		1000		2	1					
316	Sonic Drive-In / Chapman	1000		1000		4						
317	Spare & Strike Bowling Center	0	40			1						Grease Control Enforcement in progress.
318	St.Marys Medical	** 3000		2000		2						FSF exceeded trap sizing requirements.
319	Starbucks Coffee	1500		1500		2	1	1			1	
320	Starlite Lanes Bloomers	0	40			1						Grease Control Enforcement in progress.
321	Steamboat Sandwiches	0	40			1						Grease Control Enforcement in progress.
322	Subway #12	30	30		1	1	1	1				
323	Subway #21	30	30			1	1					
324	Subway #25	40	40			1	1					
325	Subway #16	40	40			1						
326	Subway #1711	20	20			1						
327	Subway / Western Ave.	30	30			1	1					
328	Subway / Chapman Hwy	40	40		1	1	1	4	1	1	1	Installed internal grease trap per KUB specifications.
329	Sunspot	40	40			1						
330	Super Mandarin	1000		1000	2	7		1				
331	Szechuan Garden	1000		1000		2						
332	T Ho Restaurant	30	30		1	2		1				
333	Taco Bell / Knox Center	1000		1000		1						
334	Taco Bell - Pizza Hut Express #20467	1500		1500		2	1					
335	Taco Bell #16310	1000		1000	1	2		1				
336	Taco Bell #16498	1000		1000	1	1		3	1			Pumped trap and met pumping requirements.
337	Taco Bell #20909	1000		1000	1	2		1				
338	Taco Bell #2302	40	40		1	1		1				
339	Taco Bell #4756	1000		1000	1	2		1				
340	Tekila Mexican Rest.	1000		1000		3						
341	Tennessee School For The Deaf	40	40			2						
342	Teppan Yaki Grill & Bar	1500		1500	1	5	1					
343	Texas Roadhouse #6	1500		1500	1	1		1				
344	Texas Roadhouse #5	1500		1500		1						
345	The Campus Chef	40	40			1	1					
346	Three Ridges Golf Course	500		500		1						
347	Tijuana Taco	40	40		1	1	1	1				
348	Time-Out Deli #2	40	40		1	2	1	1			1	
349	Time Out Deli Market	30	30			1						
350	Time Out Delicatessen	30	30			1						
351	Tomato Head Restaurant	40	40		1	1		1				
352	Tortilla Mac's	40	40			1						
353	Tracy's Restaurant	40	40		1	1		1				
354	Trick Shot Sports Bar	50	50			2						
355	Twisted Churn	1000		1000	1	1	1	1				
356	UT Hospital	1000		1000		2						
357	Vol Market #3	** 100	40			5						FSF exceeded trap sizing requirements.
358	Waffle House #1105	1000		1000		1						
359	Waffle House #766	1000		1000		1						
360	Waffle House #293	1000		1000		1						
361	Wal-Mart #2065	1500		1500		1						
362	Wal-Mart #2310	1000		1000		2						
363	Wasabi Japanese Steak House	1500		1500	1	4						
364	Weigels / Pleasant Ridge Rd	40	40			1	1					
365	Weigels / Washington Pk	1000		1000		1	1					
366	Weigels #43	30	30			1						

Food Service Facilities

No.	Facility Name	Trap/Interceptor Size	Trap Size Required	Interceptor Size Required	Inspection Letter	Routine Inspections	Initial Inspections	Follow-Up Inspections	Enforcement *NONC Letter*	Enforcement *NOV Letter*	Trap Installed	Comments
367	Wendy's #12	1000		1000		1						
368	Wendy's #24	1000		1000		3						
369	Wendy's #28	1000		1000		1						
370	Wendy's #34	1000		1000		1						
371	Wendy's #41	1000		1000		1						
372	Wendy's #01	1000		1000		2						
373	West Haven Restaurant	1000		1000	1	1	1	6			1	
374	West High School	** 3000		2000		5			1		1	FSF exceeded trap sizing requirements.
375	West Town Mall (Main Trap)	1000		1000		2						
376	Western Plaza Bowl	0	40			1						Grease Control Enforcement in progress.
377	Westside Tavern	1000		1000		5						
378	Wing Zone	1000		1000		1						
379	Wishbones	1000		1000		1						
380	Wishbones #2	1000		1000		1						
381	Wok Hay	** 2000		1500		1						FSF exceeded trap sizing requirements.
382	Wok-N-Roll	1000		1000		5						
383	Wong's Palace	1000		1000	2	3		2	1			Pumped interceptor and met pumping requirements.
384	Wright's Cafeteria	40	40			4						
	Totals	**263475**	**5875**	**278200**	**100**	**717**	**104**	**142**	**20**	**4**	**35**	

Foot Note: * Discussions under way with Knox Co. schools for proper interceptor installations.

Appendix B

Sample CSSAP Daily Program Schedule

DATE: 12/13/2005

CONTINUING SEWER SYSTEM ASSESSMENT PROGRAM SCHEDULES

Contractor	STREETS	BASIN	CCTV	SMOKE	MANHOLE INSPECTION	MANHOLE REHAB
UIS	No Work Scheduled	4	X			
771-3658-J. Barringer and Chris - 617-3576						
Chris Brown						
865-806-3539						
Lamar Dunn	No Work Scheduled	09		X	X	
Utility Insp Srvcs		09	X			
Scott Epps						
865-690-6519						
W.L. Hailey Co.	**Dig Crews -** one will be on Karen Lane and the other dig crew will be in an Easement off of Harvey Drive.	3 & 4				
Wayne McNeal - RPR	**Dig Crew -** on Old Broadway & Smithwood Road., also.....	08A1				
Sam Beck - RPR	**CIPP -** on Smithwood Road.					
865-388-0228						
Reynolds Inliner	**Install 8-inch Mainline** on Atlantic Avenue between Pershing Street and Felts Street intersections, and also..**Install 8-inch CIPP -** on Chickamauga Avenue between Hanover Street and Kenyon Street intersections.	15D2				
Roger Egli - RPR						
865-389-1114						
ITG	**Installing 8inch PVC Pipe and also Installing Two(2) Manholes -** beside Stone Road between Royal Heights Drive and Wise Hill Road.	Stone Rd.				
Miller Pipeline	Paving throughout the project at various locations, starting at Stone Road.					
Wayne McNeal - RPR						
865-389-3578						

DATE: 12/13/2005

CONTINUING SEWER SYSTEM ASSESSMENT PROGRAM SCHEDULES

Contractor	STREETS	BASIN	CCTV	SMOKE	MANHOLE INSPECTION	MANHOLE REHAB
Merkel Bros.	**Laying 36inch Hobas Pipe from Manhole #10 toward Manhole #11** in an Easement next to Williams Creek Golf Course and Riverside Drive.	Williams Crk.				
Tech-Con	**No Work Scheduled**	Williams Crk.				
Jake Jacobs - RPR						
205-369-8435						
ITG - Pilleaux Pump Station Rehab	**Lateral Connections -** on Woodberry Road, **Asphalt** - on Pilleaux Drive, and **Pre-TV Work** - on Cumberland Court.	2nd Creek				
Cedar Daniels - RPR						
865-389-2156						
ITG	**Lateral Connections -** on McClung Ave.					
South Haven 3-B						
Cedar Daniels - RPR						
865-389-2156						
PCI	**Manhole Inspections -** on Northshore Drive (between Lyonsview Pike and Westland Drive). and also, on Westland Drive (between Northshore Drive and Kingsford Drive).	Williams Crk.			X	
389-1505		19A2				
Adam Byard - RPR						
865/755-0752						
W L Hailey	**Service Lateral -** on Sutherland Avenue near Tobler Lane. **(Traffic Control Officers will be on Site).**	28B1				
Adam Byard - RPR						
865/755-0752						
UIS	**Manhole Inspections -** on LeConte Drive, Amherst Drive and Mack Drive.	25			X	
617-3576						
Doug Jenkins - RPR						
865/566-1030						

Appendix C

Second Creek Basin Map

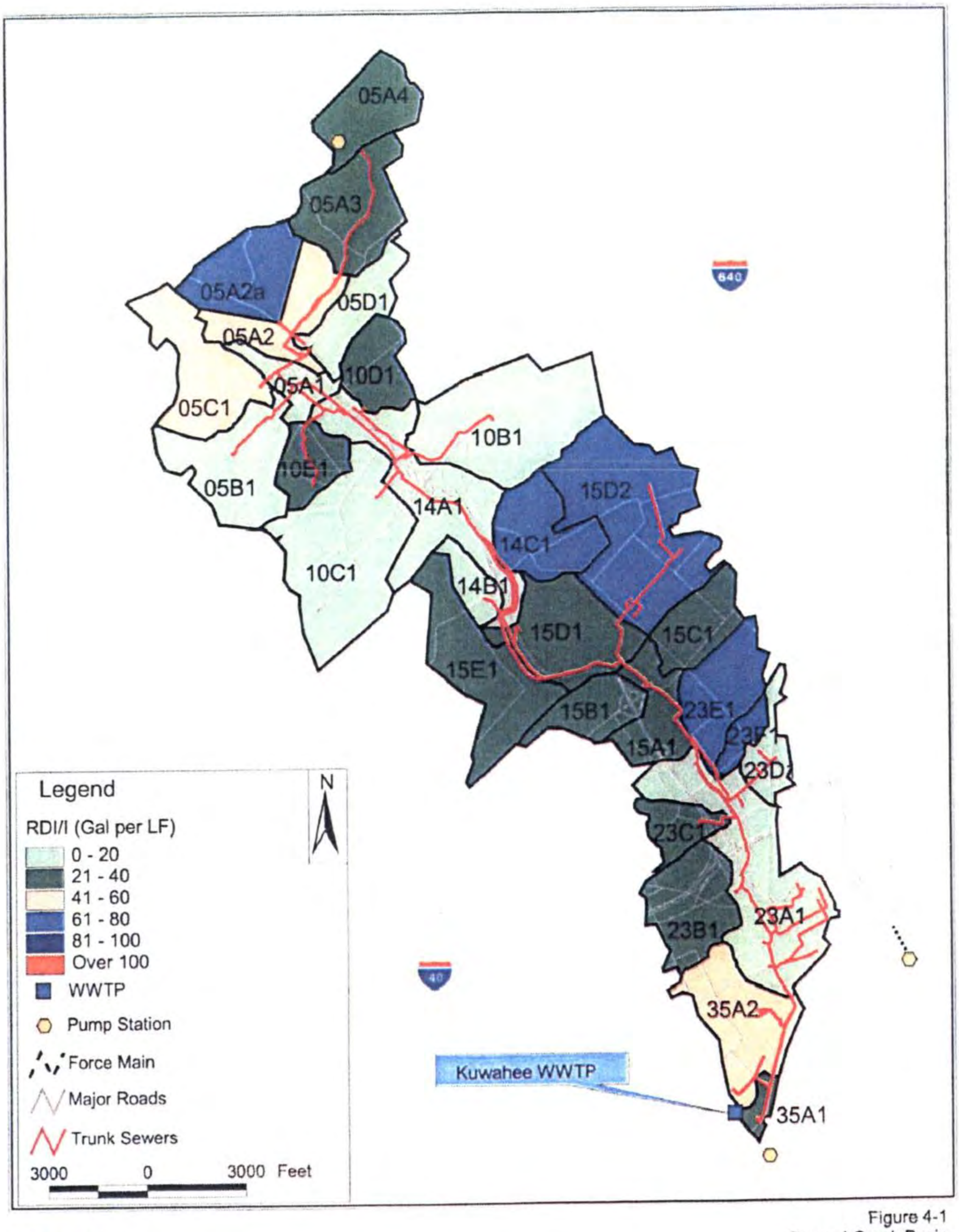


Figure 4-1
Second Creek Basin
RDII by Sewershed

CDM

Appendix D

Pump Station
Maintenance Activities and Schedule

SMSP 2005

FACILTIY & EQUIPMENT UPGRADES

1. Millertown Lift Station upgrades – New development – To be complete 2006
2. Ginnbrooke Lift Station upgrades – New development – To be complete 2006
3. Emily Avenue Lift Station removal – To be complete 2006
4. Harrison Keepe Lift Station wetwell and piping upgrades – To be complete 2006
5. Holston Hills Lift Station channel grinder installation – Completed 2005
6. Woodson Drive Lift Station generator installation – Completed 2006
7. Lyons Creek channel grinder upgrades – Completed 2005
8. (3) Metering facility upgrades – Completed 2005
    - West Knox Meter, Gallaher View Meter, Downtown West Meter
9. SCADA upgrades and improvements at various facilities

NEW FACILITY INSTALLATIONS

1. Gazebo Lift Station – To be complete in 2006
2. Casa Bella Lift Station – To be complete in 2006
3. Whisper Ridge Lift Station – To be complete in 2006
4. Washington Pike Lift Station – To be complete in 2006
5. Ball Road Lift Station Installation – Completed 2005

SYSTEM STUDIES

1. KUB – CDM Odor / Corrosion control study
2. KUB – ICS Chemical trial at Forks of the River

FACILITY INSPECTIONS

1. 429 Routine facility inspections performed in 2005
2. 1781 Preventive Maintenance scheduled facility inspections performed in 2005

OUTSIDE SUPPORT

1. SMSP has performed 21 pump efficiency tests at various facilities and provided information to CDM for modeling purposes.
2. SMSP maintains 10 flow meters and uses these meters for various purposes. SMSP has provided CDM with flow meter data from various facilities for modeling purposes.
3. Treatment Plant SCADA maintains a run-time database for Wastewater Lift Stations. This information is pulled from the SMSP maintained SCADA system as it pertains to lift stations. Various facility run-time data has been provided to CDM for modeling purposes.

SMSP PM Procedure - SMSP002 – RSFAC (Wastewater facility inspection)

( ) 1. Check fence and grounds for security and clean area.

( ) 2. Check doors and locks for proper operation.

( ) 3. Check lighting inside and outside.

( ) 4. Check electrical panel lights.

( ) 5. Check operation of pumps and motors.

( ) 6. Check ventilation and heating systems.

( ) 7. Check dehumidifier operation.

( ) 8. Check sump pump and clean pit if needed.

( ) 9. Check generator:
   a. Oil and Fuel
   b. Coolant
   c. Battery
   d. Visually inspect hoses and belts

( ) 10. Check air compressors:
   a. Check oil
   b. Check filters
   c. Visually inspect belts
   d. Drain water from tank

( ) 11. Check screen room area:
   a. Check grinders
   b. Check screen and rake if needed
   c. Check channels and flush if needed
   d. Check wet well for grease and debris (report findings)
   e. Check gates and controls

( ) 12. Check odor control system:
   a. Pumps
   b. Leaks
   c. Levels in tanks (Document)

(__) 13. Safety equipment
   - Eyewash stations – check for proper operation
   - Emergency showers – check for proper operation

(Correct deficiencies as needed)

If any discrepancies are found, notify SMSP personnel.

Inspect the following stations twice each week.

Ginnebrooke	Holston Hills	Neubert Springs	Woodson Drive
Chapman Highway	Hanover	Sharps Ridge	
Cheowa	John Sevier	Shipetown	
Ford Valley	Jones Street	Smithland	
Forks of the River	Maloneyville	Walker Springs	

The frequencies to inspect these stations meet one or more of the following criteria.

a) Age of the station.
b) Operating history.
c) Size of the station and the amount of flow.
d) The potential for a negative environmental impact.

COMMENTS:_____

_____

_____

SMSP Preventive/Predictive Maintenance Activities and Frequencies

Standard Job Number	Standard Job Description	Frequency/Days
RSACMP	Air Compressor Inspection	365
RSASI	Air Scrubber Inspection/Media Replacement	30
RSLASI	Alarm/Status Points Inspection	180
RSGNA	Annual Generator Inspection	365
RSBPV	Backflow Preventer Inspection	365
RSPM3	Belt Drive Pump Inspection	180
RSBDPA	Belt Drive Pump Inspection – Annual	365
RSCFI	Chemical Feed System Inspection – WW	30
RSCC	Climate Control Equipment Inspection	Combined with weekly facility inspection
RSCRA	Crane Inspection – Annual	365
RSCRH	Crane/Hoist Inspection	30
RSDHM	Dehumidifier Inspection	Combined with weekly facility inspection
RSWDPC	DP Cell Calibration	365
RSEP	Electrical/Lighting Panel Inspection	365
RSELA	Emergency Lights Inspection – Annual	365
RSLER	Emergency Lights Inspection – Routine	30
RSFAC	Facility Inspection	(Once/Twice weekly)
RSFM	Flowmeter Inspection	365
RSFMM	Force Main Gravity Point Monitoring	30
RSPM1	Grease/ Inspect Pump – WW	180
RSMR	Meter Readings/Charts – WW	(Twice weekly)
RSMM	Milltronics Multiranger Inspection	180
RSMMC	Motor Control/Electrical Inspection	365
RSML	Motorized Louvers Inspection	Combined with weekly facility inspection
RSMME	Grinder Inspection	365
RSLET	Pump/Motor Efficiency Testing – WW	365
RSLVA	Pump/Motor Vibration Analysis	90
RSBC	Replace PLC Batteries	5 years
RSPM2	Sump Pump Inspection	Combined with weekly facility inspection
RSCTC	Thermography Inspection – WW	540
RSVFD	VFD Inspection	365
RSCWI	Winterize Facilities	365

Appendix E

Air Release Valve Inspection Form

KUB

Work Order #: 00134897
Equipment ID: SFMTPARV01
IPID 20152753

GENERAL

Pump Station: Three Points PS
Address: 2831 Wendi Ann Dr
Nearest Street:
Easting: 36 03' 59.7"
Northing: 83 46' 19.1"
Sub-Basin: 101
MH Depth (in):

VALVE

Size:
Manufacturer:
Model:
Serial:

FM

Size:
Material:
System Type:

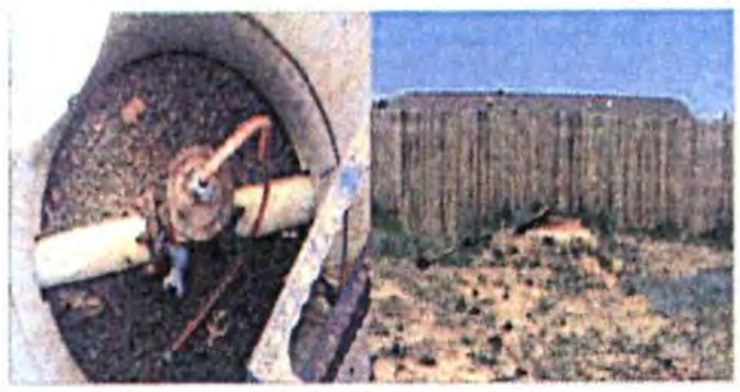
INSPECTION

Date:

By:

Has Corrosion? Yes / No

Failure Type	Failure Cause	Action
Broken Valve	Flooded	Notified planner/schedule
Cannot Flush	Hit by third party	Repaired
Missing	Misaligned	Replaced
	Overpressure	



Comments:

0001727

Appendix F

Summary Table of Pumps Stations using Chemical Injection and Odor Control

Chemical Injection

Facility	Address	Odor control type	Chemical	Comments
Ball Road	Ball Road @ Oak Ridge Hwy.	Chemical Injection	Ferrous Chloride	
Eastwood	740 Bagwell Lane	Chemical Injection	Ferrous Chloride	
Forks of the River	5501 National Drive	Chemical Injection	Sodium Nitrate	
Gazebo	Maloney Road @ Ginn Drive	Chemical Injection	N/A	Chemical feed will be in operation in 2006
Harrison Keepe	2122 Houser Road	Chemical Injection	Peroxide	Chemical feed will be in operation in 2006
Holston Hills	4800 River Place Drive	Chemical Injection	Ferrous Chloride	
Neubert Springs	5941 Neubert Springs	Chemical Injection	Ferrous Chloride	
Power Park	Power Drive @ Alcoa Hwy.	Chemical Injection	Ferrous Chloride	
Ten Mile	757 Ebenezer Road	Chemical Injection	Ferrous Chloride	
Walker Springs	298 Walker Springs	Chemical Injection	Ferrous Chloride	
Washington Pike	Washington Pike @ Roberts Road	Chemical Injection	N/A	Chemical feed will be in operation in 2006
Wayland Road	Wayland Road @ Strawberry Plains	Chemical Injection	Ferrous Chloride	
Whisper Ridge	Maloneyville Road @ Wise Springs	Chemical Injection	N/A	Chemical feed will be in operation in 2006
Woodson Drive	Spring Creek @ Woodson Drive	Chemical Injection	Ferrous Chloride	

On-Site Odor Control

Facility	Address	Odor control type	Chemical	Comments
Ball Road	Ball Road @ Oak Ridge Hwy.	Charcoal scrubber	Purafill Media	
Chestnut Ridge	8009 Chestnut Hill Lane	Charcoal scrubber	Purafill Media	
Clinton Highway	6564 Clinton Highway	Charcoal scrubber	Purafill Media	
Easton Meadows	7224 Rising Road	Charcoal scrubber	Purafill Media	
Gazebo	Maloney Road @ Ginn Drive	Charcoal scrubber	Purafill Media	
Harrison Keepe	2122 Houser Road	Charcoal scrubber	Purafill Media	
Three Points	8516 Three Points Road	Charcoal scrubber	Purafill Media	
Washington Pike	Washington Pike @ Roberts Road	Charcoal scrubber	Purafill Media	
Whisper Ridge	Maloneyville Road @ Wise Springs	Charcoal scrubber	Purafill Media	
Woodson Drive	Spring Creek @ Woodson Drive	Charcoal scrubber	Purafill Media	

Appendix G

Standards and Specifications
Sewer Laterals

SECTION 02532
SANITARY SEWERS (GRAVITY)

2.3 SEWER LATERALS

A. Service laterals shall be replaced to the property line or easement line with minimum 6-inch PVC (SDR 26) service laterals with a minimum slope of 1-percent. Laterals shall be connected to new PVC piping with a PVC tee wye.

B. A new PVC clean out, double sweep tee (SDR 35, Manufactured by Plastic Trends Inc.) shall be provided at the right-of-way or easement line, and shall be set in a metal cleanout box (Dura-Coat cast Iron, Model Z1402 as manufactured by ZURN Industries). Transitions to 4 inch house lateral shall be made with a 6 inch by 4 inch PVC concentric reducer.

C. Service laterals connected to ductile iron pipe shall use ductile iron wyes with Protecto 401 ceramic epoxy lining.

D. Service laterals connected to CCFRPM (HOBAS) or GRP (Flowtite) pipe shall use an "Inserta-Tee" (Inserta Fittings Company).

E. Service laterals connected to CIPP mains shall be replaced with full saddle lateral connection to the liner. This method shall require removing the existing pipe one foot each side of the service lateral connection point to the sewer main to accommodate new service lateral connection.

F. Service lateral connections to pipe bursting (HDPE) mains shall be made with a HDPE electro-fusion saddle or for 15-inch or greater installations an "Inserta-Tee" (Inserta Fittings Company). This method shall require removing the existing burst pipe material one foot each side of the lateral connection point to the sewer main to accommodate new service lateral connection.

PART 3. EXECUTION

3.1 PIPE INSTALLATION

A. All pipe shall be installed in the presence of the OWNER. Do not begin the backfilling of trenches until the pipe in place has been visually inspected by the OWNER. Pipe installation shall begin at the lowest elevation, unless otherwise approved by the OWNER.

B. Before placing sewer pipe in position in the trench, carefully prepare the bottom and sides of the trench, and install any necessary bracing and sheeting as provided in Section 02321, Unclassified Excavation for Utilities.

C. Lasers shall be used to install sewer lines, and the type and procedures shall be approved by the OWNER. Reference points for both line and grade shall be set at each manhole. Where grades are 0.6% or less, check the elevation of the beam each 100 feet with an offset point or engineer's level.

D. Do not allow water to run or stand in the trench while pipe laying is in progress or before the trench has been backfilled. Do not at any time open up more trenches than the available pumping facilities are able to dewater.

E. Trench bottoms that are found to be unsuitable for foundations after pipe laying operations have started shall be corrected by bringing them to exact line and grade with material approved by the OWNER.

F. Carefully inspect each piece of pipe and special fitting before it is placed, and lay no defective pipe in the trench. Pipelaying shall proceed upgrade, starting at the lower end of the grade and with the bells upgrade. When pipe laying is not in progress, keep the ends of the pipe tightly closed with an approved temporary plug.

G. Excavation for bell holes shall be large enough to allow ample room for the pipe joints to be properly made. Excavate out bell holes no more than 2 joints ahead of the pipe laying. Carefully grade the bottom of the trench between bell holes so that each pipe barrel rests on a solid foundation as specified in Section 02321. Install each pipe with a close concentric joint to avoid sudden offsets or inequalities in the flow line.

H. As the work progresses thoroughly clean the interior of the pipe in place. After each line of pipe has been laid, carefully inspect it, and remove and, in accordance with all laws and regulations, dispose of all earth, trash, rags, and other foreign matter from its interior.

I. On new sewer lines install tee wyes in sewer lines to serve properly each lot adjoining the sewer and at such other locations as may be designated by the OWNER. If wyes are not to be used immediately, close them with approved plugs that are held in place to prevent infiltration and withstand all test requirements. On rehabilitated sewer lines provide connection to main per section 2.3.

J. If the work consists of constructing a new sewer to replace an existing one, connect existing laterals to the new line. Laterals which have been disconnected,

cut or abandoned shall be plugged and sealed with a backing block securing the plug.

K. New service laterals shall conform to the Standard Drawings herein.

L. For new laterals to be installed on existing sewer lines, a sewer saddle as specified in Part 2 above may be used in lieu of a tee section. The saddle shall be installed on a clean-cut, properly sized hole on the existing sewer, such that a watertight connection results. The cut in the existing pipe shall be made with a hole saw which retains the coupon. Sewer saddles shall not be used on vitrified clay pipe, or any other pipe deemed unsuitable for this method by the OWNER, unless approved by the OWNER.

M. Install new connections to existing manholes as specified in Section 02530, Manholes-Sewer. Reshape the bottom at the manhole as necessary to fit the invert of the sewer pipe.

N. Carefully protect from damage all existing sewers, water lines, gas lines, sidewalks, curbs, gutters, pavements, electrical lines, and other utilities or structures in the vicinity of the work at all times. If it is necessary to repair, remove, and/or replace any such utility or structure in order to complete the work properly, do so in compliance with the provisions set forth in other sections of these Specifications. Any such work shall be considered incidental to the construction of sewer mains.

O. Water service connections will be repaired or replaced in accordance with per KUB standards, by the CONTRACTOR at his expense as an incidental part of the work.

P. Service or house connections to existing sewers that are damaged or removed shall be repaired or replaced by the CONTRACTOR at his own expense as an incidental part of the work.

R. Wastewater flow must be maintained in the existing sewers. Whenever pipe-laying progresses to the point where this flow must be interrupted, the CONTRACTOR shall plug the sewer upstream of the construction and provide by-pass pumping to the downstream manhole. All downstream pipes, manholes and appurtenances must be tested and acceptable to the OWNER to receive wastewater flow. Discharging raw wastewater to natural waterways will not be permitted. The CONTRACTOR shall notify the OWNER prior to proceeding with by-pass pumping. When working in areas where interruption of wastewater flow may occur, the CONTRACTOR shall have lines and all other equipment in readiness at the site to provide by-pass pumping. A back-up pump and hose is required. CONTRACTOR will be liable for clean-ups, fines, and any other

problems that may occur. All equipment will be checked by OWNER for proper working conditions.

Appendix H

Sample Basin Characterization Spreadsheet

MH	MH Depth	MH Score	MH Insp.	MH	MH Depth	MH Score	MH Insp.	MH Comments	Televised (ft)	Location	Cover	Avg Depth	Diameter	Material	Pipe Score	Rehab/Replace	Comments	Overall Rating
1	8.50	3	Leave as is	7-44	12.60	1	Replace	1: Concrete 7-44: Brick	257	Easement/Creek	Unpaved	11	18	DI	5	Clean	Obstacle 10, 45, 106 ft (10%). Water level sag at 175 ft. Pipe material obstacle (grease?) at 259 ft (25%)	4129
2	12	1	Replace	1	11.7	1	Replace	2: Brick 1: Brick Install water tight frame and lid on MH 1 & 2	236	Easement	Unpaved	12	36	Conc	2	Rehab	Infiltration (weeper) at 100 ft. Obstacle (rocks) at 100, 197, & 235 ft. Intruding tap at 105 ft (<2").	3922
3	18.67	1	Replace	2	12	1	Replace	3: Brick 2: Brick Install water tight frame and lid on MH 1 & 3	144	Easement	Unpaved	15	36	Conc	2	Rehab	Infiltration (dripper) at 74 ft. Deposits at 74 ft. Infiltration (runner) at 76 ft. Intruding tap (2") at 122 ft.	4131
4	~10	1	Replace	3	18.67	1	Replace	4: Brick & in drainage path 3: Brick, install water tight lid	80	Roadway	Paved	18.67	36	Conc	2	Rehab	Infiltration Dripper at 52 ft. Deposits (attached) at 65 ft.	3121
5	19.17	1	Replace	4	~10	1	Replace	4: Brick & in drainage path 5: Brick	260	Parking	Paved	19.17	36	Conc	4	Replace	Infiltration runners at 12, 18, 21, 55, 59, 136, 170, 174, 177. **Replace due to high infiltration.**	4937
6	20.5	1	Replace	5	19.17	1	Replace	6: Brick 5: Brick	606	Roadway/Yard	Paved	20	36	Conc	1	Replace	Infiltration (runners) at nearly every joint past 210 ft. Roots at 25 ft. Encrustation at 46 ft. **Replace due to high infiltration.**	4A31
7	20	3	Leave as is	6	20.5	1	Replace	7: Concrete/Epoxy 6: Brick	421	Creek	Unpaved	20	36	Conc	2	Rehab	Infiltration (weeper) at 22 & 48 ft. Infiltration (dripper) at 197 ft. Infiltration (runner) at 67 & 287 ft. Encrustations at 67, 197, 229, 297, & 357 ft.	4231
65	12.8	2	Rehab	7-39	14.3	3	Leave as is	65: Concrete 7-39: Concrete	13	Roadside	Paved	14	36	Conc	2	Rehab	Clear.	0
66	12.5	3	Leave as is	65	12.8	2	Rehab	66: Concrete 65: Concrete	89	Creek	Unpaved	13	36	Conc	2	Rehab	Slight sag. Pipe is clear.	2100
67	12.5	2	Rehab	66	12.5	3	Leave as is	67: Concrete, water mark/leak <25% & in drainage path 66: Concrete	207	Easement/Roadway	Paved	13	30	Conc	2	Rehab	Sag at 127 ft. Obstacle (rocks) at 16 & 77 ft.	3A21
69	11	3	Replace	68	14	3	Leave as is	69: Concrete 68: Concrete	241	Easement	Unpaved	12	36	Conc	2	Rehab	Infiltration runner at 1 ft.	4100
101	19.60	3	Replace	69	11	3	Replace	101: Concrete 69: Concrete	264	Easement	Unpaved	15	36	Conc	1	Replace	Camera underwater b/t 162-178 ft.	4131
7-32	9.7	1	Replace	7-22	5.6	2	Replace	7-32: Concrete & has been rehabed and is leaking. 7-22: Brick & is in drainage path, replace	200	Roadway	Paved	8	8	Conc	2	Rehab	Infiltration (weeper) at 62 ft. Roots throughout pipe.	3124
7-33	6.20	2	Rehab	7-32	9.7	1	Replace	7-33: Brick 7-32: Concrete & has been rehabed and is leaking.	223	Roadway	Paved	8	8	Conc	3	Rehab	Pipe is clear. (KUB)	-
7-34	6.80	2	Rehab	7-33	6.20	2	Rehab	7-34 Brick 7-33: Brick	177	Roadway	Paved	7	8	Conc	2	Rehab	Intruding tap (~30%). **Trim intruding tap & rehab.** (KUB)	-
7-34	6.80	2	Rehab	EOL	-	-	Install New MH	7-34: Brick EOL: Install new MH	122	Roadway	Paved	7	8	Conc	2	Rehab	Root intrusion at 119 ft (KUB)	-
7-35	15.2	1	Abandon	7-21	15	1	Replace	7-35: Brick, Abandon & fill with flowable fill 7-21: Brick	14	Roadside	Paved	15	30	Conc	1	Re-route	Intruding tap (~1-2") at 4 ft. Dripper at 5 ft. **Re-route to new alignment behind K-Mart Building and abandon existing sewer line.**	3123
7-36	12.6	1	Replace	7-35	15.2	1	Abandon	7-36: Brick w/ coating, bricks are visible 7-35: Brick, Abandon & fill with flowable fill	201	Creek	Unpaved	14	30	Conc	1	Re-route	Infiltration dripper at 41,49, 58, 61 ft. Pipe broken. Infiltration (gusher) at 91 ft. Gusher at 98 ft. **Re-route to new alignment behind K-Mart Building and abandon existing sewer line.**	5441
7-37	11.9	1	Replace	7-36	11.9	1	Replace	7-37: Brick 7-36: Brick w/ coating, bricks are visible	230	Roadside	Paved	12	30	Conc	2	Rehab	Infiltration dripper at 26, 67, & 91. Roots at 178 ft. Encrustation at 185 ft.	3322
7-38	11.8	1	Replace	7-37	11.9	1	Replace	7-38: Brick 7-37: Brick	240	Roadside	Paved	12	30	Conc	2	Rehab	Infiltration dripper at 47 & 78 ft. Infiltration runner at 201 & 221 ft.	5141
7-39	14.3	3	Leave as is	68	13.9	3	Leave as is	7-39: Concrete 68: Concrete	3	Roadside	Paved	14	36	Conc	2	Rehab	Clear.	0
7-39	14.3	3	Leave as is	7-39A	14.3	1	Replace	7-39: Concrete 7-39A: Brick	9	Roadside	Paved	14	36	Conc	2	Rehab	Clear.	0
7-41	15.4	1	Replace	7-114	15.5	1	Replace	7-41: Brick & is located in drainage path. 7-114:	115	Roadside	Paved	15	30	Conc	2	Rehab	Infiltration weeper at 22 ft. Roots fine at 55 ft. Sag at 66 ft.	2311
7-42	14.2	1	Replace	7-41	15.4	1	Replace	7-41: Brick & is located in drainage path. 7-42:	277	Roadway/Roadside	Paved	15	30	Conc	2	Rehab	Infiltration at 80,110, 183 ft. Infiltration (runners) at 217 & 226 ft. Multiple fracture at 227 ft. Hole at 231 ft. Sag at 248 ft.	5144
7-43		-	Covered/Replace	7-42A	-	-	Covered/Replace	Locate and replace both manholes.	111	Easement	Unpaved	14.2	30	Conc	2	Rehab	Intruding tap at 40 ft (~2-3"). Roots at 5,10,40,107 ft. Crack at 40 ft. Infiltration (runner) at 40 ft.	4131
7-44	12.6	1	Replace	7-43	-	-	Covered/Replace	7-44: Brick 7-43: Covered. Locate & Replace	167	Roadway	Paved	12.6	30	Conc	2	Rehab	Dripper at 153 ft. Pipe is clear.	2400
7-45	9.8	2	Rehab	7-44	12.6	1	Replace	7-45: Brick 7-44: Brick	81	Roadway	Paved	11	30	Conc	2	Rehab	Clear.	0
7-46	12.6	1	Replace	7-45	9.8	2	Rehab	7-46: Brick 7-45: Brick	350	Roadway	Paved	11	30	Conc	2	Rehab	Intruding lateral (~2"). Otherwise the pipe is clear. Dig up service & rehab.	2200
7-47	12.10	3	Leave as is	7-46	12.6	1	Replace	7-47: Concrete 7-46: Brick	124	Roadway	Paved	12	30	Conc	3	Rehab	Hole & infiltration runner at 8.5 ft. Surface reinforcement visible at 8.5 ft.	5200
7-48	11.8	3	Leave as is	7-47	12.10	3	Leave as is	7-48: Concrete 7-47: Concrete	28	Roadway	Paved	12	30	Conc	2	Rehab	Clear.	0
7-49	6.6	2	Replace	7-48A		2	Abandon	7-49: Brick 7-48A: Brick	162	Roadside	Paved	6.6	8	Clay/Conc	2	Re-route	Infiltration (weeper) at 47, 71, 74, 80, 83, 98 ft. Multiple fractures at 122, 123, 127 ft. Roots at 137, 143, 151 ft. **Re-route sewer to MH 7-46 and abandon existing sewer.**	4213
7-50	6.4	2	Replace	7-49	6.6	2	Replace	7-50: Brick 7-49: Brick	207	Sidewalk/Roadway	Paved	7	8	Conc	2	Rehab	Encrustations througout pipe ranging from 2-5 %. Infiltration (dripper) at 190 & 196.	322A
7-51	3.50	2	Replace	7-198	3.90	3	Leave as is	7-51: Brick 7-198: Concrete	203	Roadway/Easement	Paved	4	8	PVC	3	Leave as is	Pipe changes from PVC to DIP ? b/t 56 - 120 ft. Pipe is in good condition.	0
7-51	3.50	2	Replace	7-50	6.4	2	Replace	7-51: Brick 7-50: Brick	238	Parking	Paved	5	8	Terra Cotta	1	Replace	Fracture at 228 & 232. Cracked & broke at 234 ft.	3326
7-53	10.6	1	Replace	7-203	10.2	1	Replace	7-53: Brick 7-203: Concrete	56	Easement	Unpaved	10	30	Conc	2	Rehab	Grease at 10, 12 ft. Pipe broken at 26 ft soil is visible. Roots at 26 ft.	4111
7-54	10.10	1	Replace	7-53	10.6	1	Replace	7-54: Brick 7-53: Brick	263	Roadside	Paved	10	30	Conc	2	Rehab	Hole (small) in pipe at 45 ft. Roots at 110. Infiltration runner at 146 ft. Infiltration (dripper) at 146 ft. Deposits at 146 ft. Roots at 183 & 199 ft.	5131
7-56	12.85	1	Abandon	7-204	13.4	3	Replace	7-56: Brick 7-204: Concrete	182	Roadway	Paved	13	8	Conc	1	Replace	Sags at 22, 35, 45, 98, 122, 128, 143, 165, 170, 175 ft (5-35%) Infiltration runner at 175 ft. Material change to PVC at 178 ft. **Abandon sewer with flowable fill. Install new pipe between MH 7-57 & MH 7-204**	4131
7-57	12.7	1	Replace	7-56	12.85	1	Abandon	7-57: Brick 7-56: Brick	14	Roadway	Paved	13	8	Conc	3	Replace	Clear. **Eliminate sewer and fill MH 7-56 with flowable fill. Install new pipe between MH 7-57 & MH 7-204**	0
7-58	12	1	Replace	7-57	12.7	1	Replace	7-58: Brick 7-57: Brick	268	Roadway	Paved	12	8	Conc	2	Rehab	Multiple areas of grease. Infiltration (weeper) at 94 ft. Multiple sags ranging from ~5-15%.	322A
7-59	5.50	2	Rehab	7-58	12	1	Replace	7-59: Brick 7-58: Brick	289	Roadway	Paved	9	8	Conc	2	Rehab	Medium build up of grease throughout pipe. Heavy grease at 282 ft. (KUB)	2A00
7-60	4.80	2	Rehab	7-61	4.50	2	Replace	7-60:concrete 7-61: Brick/Conc	248	Roadway	Paved	5	8	Conc	2	Rehab	Grease at 56 ft. (KUB)	-
7-60	4.80	2	Rehab	7-59	5.50	2	Rehab	7-60:concrete 7-59: Brick	258	Roadway	Paved	5	8	Conc	2	Rehab	Pipe is clear. (KUB)	-

MH	MH Depth	MH Score	MH Insp.	MH	MH Depth	MH Score	MH Insp.	MH Comments	Televised (ft)	Location	Cover	Avg Depth	Diameter	Material	Pipe Score	Rehab/Replace	Comments	Overall Rating
7-62	4.9	2	Replace	7-61	4.5	2	Replace	7-62: Brick 7-61: Brick/Conc	301	Roadway	Paved	5	8	Conc	1	Replace	Multiple cracks in pipe. Defective repair at 55 ft. Intruding tap at 236 ft (~3 ").	5141, reverse: 2100
7-63	5.0	2	Replace	7-62	4.9	2	Replace	7-63: Brick 7-62: Brick	221	Roadway	Paved	5	8	Conc	2	Rehab	Deposits at 114 ft. Deposits at 203 ft.	2100
7-63	5.0	2	Replace	7-64	4.8	2	Replace	7-63: Brick 7-64: Brick	345	Roadside	Paved	5	8	Conc	1	Replace	9 active laterals. Medium offset joint at 41 ft. Material change to PVC at 42-49 ft. Hole (soil is visible) at 63 ft. Root ball lateral at 205	5131
7-64	4.8	2	Replace	7-65	4.8	2	Rehab	7-64: Brick 7-65: Brick, bench in poor cond. Repair and Rehab	175	Roadside	Paved	5	8	Conc	2	Rehab	2 active laterals. Clear.	0
7-66	14	2	Replace	7-58	12	1	Replace	7-66: Concrete 7-58: Brick	322	Parking/Easement	Paved	13	8	Conc	2	Rehab	Rocks at 5 ft (5%). Brick obstacle (5%). Intruding tap at 125 ft. Sag at 135 (5%).	2400
7-67	15	2	Replace	7-66	14	2	Replace	7-67: Concrete 7-66: Concrete	276	Parking Lot	Paved	15	8	Conc	1	Replace	Multiple sags b/t 0-55 ft (20-100%). Camera underwater at 55 ft. Cracks at 61 & 151 ft.	4131
7-68	9	2	Replace	7-67	15	2	Replace	7-68: Concrete 7-67: Concrete	271	Parking/Roadway	Paved	12	8	Conc	1	Replace	Offset joint at 62 ft. Material change: Conc to PVC (62-65 ft). Multiple sags (20%+). Camera underwater at 260 ft.	4231
7-69	9	2	Replace	7-69A	10	3	Leave as is	7-69: Brick/Conc 7-69A: Conc, replace frame. Soil is visible around frame	150	Easement	Unpaved	10	8	PVC	3	Leave as is	Pipe segment not televised.	-
7-69	9	2	Replace	7-68	9	2	Replace	7-69: Conc/Brick 7-68: Brick	265	Easement/Creek	Unpaved	9	8	Conc	1	Re-route	Slight infiltration at 16 ft. Infiltration from 2 capped taps at 39 ft. Multiple sags ranging from 20-45%. Camera underwater at 214 & 244-257 ft. **Re-route sewer to new alignment on east side of creek and abandon existing line.**	4532
7-70	10	3	Leave as is	7-69	9	2	Replace	7-70: Concrete 7-69: Conc/Brick	235	Roadway	Paved	10	8	Conc	2	Rehab	Fracture at 172 ft. Sag at 230 ft (5%). Hole at 233. Infiltration (weeper) at 233. Encrustation at 233 ft. **Repair last segment near MH 7-69 and Rehab line.**	5124
7-70	10	3	Leave as is	7-71	6	2	Repair	7-70: Concrete 7-71Conc, Replace incoming pipe connection	270	Roadway	Paved	8	8	Conc	2	Rehab	Attached deposits at 68. Roots at 87 ft. Obstacle at 155-185 ft. Crack at 205 ft. **Rehab if obstacle can be removed.**	2712
7-72	6.00	2	Replace	7-69	9.00	2	Replace	7-72: Brick/Conc 7-69: Brick/ Conc	371	Easement/Creek	Unpaved	8	8	Conc	1	Replace	Infiltration from multiple fractures at 51.3 ft. Sag b/t 80 & 85 ft (20%). Sag b/t at 91-95 ft (20%). Deposits attached (5%). Multiple sags ranging from 30 to 50%. Camera underwater at 366 ft.	4436
7-72	6	2	Replace	7-73	7	2	Rehab	7-72: Brick/ Conc 7-73: Brick/ Conc	206	Roadway	Paved	7	8	Conc	2	Rehab	5 active laterals. Crack at 198 ft.	0
7-73	7	2	Rehab	7-74	5	1	Repair	7-73: Brick/Conc 7-74: Brick/ Conc, needs water tight lid and frame	151	Roadway	Paved	6	8	Conc	2	Rehab	5 active laterals. Sag at 68 ft (5%). Break in tap at 114 ft. Pipe broken at tap.	5111
7-75	7	2	Rehab	7-72	6	2	Replace	7-75: Brick/Conc 7-72: Brick/ Conc	240	Roadway	Paved	7	8	Conc	2	Rehab	Sag at 129 ft (10%). Sag at 140, 179 & 228 ft. Roots at 132 ft. Crack at 159 & 225 ft.	3125
7-76	9.00	3	Leave as is	7-75	7.00	2	Rehab	7-76: Brick/Conc 7-75: Brick/Conc	234	Roadway	Paved	8	8	Conc	2	Rehab	Sag at 14, 108-120 ft.	2200
7-76	9	3	Leave as is	7-77	11	3	Repair	7-76: Brick/Conc, 7-77: Brick/Conc Install water tight frame/lid	222	Roadway	Paved	10	8	Conc	2	Rehab	Crack at 159 & 165 ft.	0
7-77	11.00	3	Repair	7-78	7.00	3	Leave as is	7-77: Brick/Conc Install water tight frame/lid. 7-78: Conc/Brick	339	Roadway	Paved	9	8	Conc	2	Rehab	Infiltration at crack at 271 ft. Sag at 275-280. Crack at 311. Multiple Crack & roots at 333 ft. Last 7 ft is moderately fractured.	4134
7-77	11	3	Repair	7-79	8	2	Repair	7-77: Brick/ Conc Install water tight frame/lid 7-79: Brick/Conc. Plug	264	Roadway	Paved	10	8	Conc	2	Rehab	8 Active laterals. Crack at 174 ft.	2100
7-80	10.00	2	Rehab	7-85	6.00	2	Repair	7-80: Brick/Conc, Cracked cone 7-85: Concrete, Replace offset frame	180	Roadway	Paved	8	8	Conc	2	Rehab	Pipe appears to be in good condition. Main collector pipe & is in a low area.	0
7-80	10	2	Rehab	7-76	9	3	Leave as is	7-80: Brick/Conc, Cracked cone 7-76: Brick/conc	33	Roadway	Paved	10	8	Conc	2	Rehab	Sag at 20-27 ft. (~10%).	2100
7-81	8.00	3	Leave as is	7-80	10	2	Rehab	7-81: concrete 7-80:Brick/Conc,Cracked cone	114	Roadway	Paved	9	8	Conc	3	Rehab	Pipe in good condition. Clear. Flow appears stagnant. (KUB)	-
7-82	6.00	2	Repair	7-81	8.00	3	Leave as is	7-82: Brick/Conc, Replace offset frame 7-81: Concrete	281	Roadway	Paved	7	8	Conc	3	Rehab	Roots at 4ft. Roots medium at 42 ft. (KUB)	-
7-83	5.00	2	Rehab	7-82	6.00	2	Repair	7-83: Brick/Conc 7-82: Brick/Conc, Replace offset frame	215	Roadway	Paved	6	8	Conc	3	Rehab	Pipe in good condition. Clear (KUB)	-
7-83	5.00	2	Rehab	7-84	6.00	3	Leave as is	7-83: Brick/Conc, 7-84: Brick/Conc	61	Roadside	Paved	6	8	Conc	3	Rehab	Roots at 51 ft. (KUB)	-
7-86	6.00	2	Replace	7-85	6.00	2	Repair	7-86: Brick/Conc 7-85: Concrete,Replace offset frame	190	Roadway	Paved	6	8	Conc	2	Rehab	Sag at 29 ft. Break in tap at 67 ft (protrudes I 1-2 inches). Crack at 121 ft. **Repair tap and Rehab.**	1100
7-87	6.00	2	Rehab	7-88	5.00	2	Repair	7-87: Concrete 7-88: Conc	98	Easement	Unpaved	6	8	Conc	2	Rehab	Roots at joint at 86 ft.	2100
7-87	6	2	Rehab	7-86	6	2	Replace	7-87: Concrete 7-86: Brick/Conc	319	Roadway	Paved	6	8	Conc	2	Rehab	6 active laterals. Infiltration (dripper) & runner at 194 & 316 ft.	4131
7-89	7	2	Repair	7-87	6	2	Rehab	7-89: Concrete, Parking lot drains Install water tight lid & frame 7-87: Concrete	99	Roadway	Paved	7	8	Conc	3	Rehab	Fracture at 0 ft. Roots at 6, 48, 50 ft. Infiltration (seepage) at 39 ft. Offset joint at 93 ft (~2"). No services. **Repair last joint and Rehab.**	4111
7-90	5	2	Rehab	7-89	7	2	Repair	7-90: Conc/Brick, 7-89: Concrete, Parking lot drains Install water tight lid & frame.	333	Roadway/Parking	Paved	6	8	Conc	2	Rehab	5 active laterals. Sag at 50 & 326 ft (5%). Crack at 83 ft & 326 ft. Fracture at 85 ft.	4112
7-91	6	3	Replace	7-86	6	3	Replace	7-91: Concrete 7-86: Brick/Conc	155	Roadway	Paved	6	8	PVC	1	Replace	Infiltration runner at 1ft. Intruding tap saddles at 37 & 58 ft. Sags at 45, 67, 118, 140-152 ft (5-35%). Camera underwater at 145 ft.	4131
7-92	9	3	Leave as is	7-91	6	3	Replace	7-92: Brick/Conc 791: Concrete	399	Roadway	Paved	8	8	Conc	3	Rehab	9 active laterals. Infiltration at 113 & 190 ft.	2200
7-93	8	3	Leave as is	7-92	9	3	Leave as is	7-93: Concrete 7-92: brick/Conc	223	Roadway	Paved	9	8	Conc	3	Rehab	Fracture at 103 ft. Crack at 141 ft. Infiltration (dripper) at 194 ft.	3122
7-93	8	3	Leave as is	7-94	5	3	Leave as is	7-93: Concrete 7-94: Concrete	120	Roadway	Paved	7	8	Conc	3	Rehab	Medium offset at 116 ft (near MH 7-94) **Repair offset & Rehab.**	1100
7-95	7	3	Replace	7-91	6	3	Replace	7-95: Brick/ Conc 7-91: Concrete	382	Roadway	Paved	7	8	Conc	2	Rehab	Crack at 54 ft. Infiltration (runner) at 93 ft from lateral connection. Root ball in lateral at 185 ft. Sag at 293 ft (~5%).	4222
7-96	9	2	Leave as is	7-95	7	3	Replace	7-96: Brick/Conc 7-95: Brick/Conc	226	Roadway	Paved	8	8	Conc	2	Rehab	Infiltration at 61 ft. Sag at 220 ft (5%). Infiltration (runner) at 223 ft.	4222
7-97	9.00	3	Leave as is	7-96	9.00	2	Leave as is	7-97: Concrete 7-96: Brick/Conc	212	Roadway	Paved	9	8	Conc	1	Rehab	Light roots at 10 & 34 ft. Fracture/crack at 31 ft. Encrustation and large hole in pipe at 43 ft. Inflow at joint. Intruding tap (~2%) at 45 ft. Slight offset at 210 ft.	5131
7-98	11	3	Leave as is	7-97	9	3	Leave as is	7-98: Concrete 7-97: Concrete	188	Roadway	Paved	10	8	Conc	2	Rehab	Infiltration (runner) at 14 ft. Crack at 48, 55, 95, 184 ft. Rehab	4221

MH	MH Depth	MH Score	MH Insp.	MH	MH Depth	MH Score	MH Insp.	MH Comments	Televised (ft)	Location	Cover	Avg Depth	Diameter	Material	Pipe Score	Rehab/Replace	Comments	Overall Rating
7-98	11	3	Leave as is	7-99	6	3	Leave as is	7-98: Concrete 7-99: Concrete	46	Roadway	Paved	9	8	Conc	2	Rehab	Sag at 4-12 ft (~5-10%). Sag at 30 ft (~5%). Crack at 44 ft.	2411
3-1	5.4	1	Replace	3	18.67	1	Replace	3-1: Brick, 3: Brick,Install water tight lid and frame on MH 3	45	Easement	Unpaved	12	8	Conc	1	Replace	Medium offset joints at 9 & 24 ft (~3" & ~2"). Material change: conc to PVC	3213
3-2	5.5	2	Replace	3-1	5.4	1	Replace	3-2: Brick 3-1: Brick, Install water tight lid and frame	413	Sidewalk	Unpaved	5	8	Conc	1	Replace	7 active laterals. Multilpe sags throughout pipe. Material change (conc to PVC) b/t 261-265 ft. (joints slightly offset). Many joints have roots.	312A
3-3	6.08	2	Replace	3-2	5.5	2	Replace	3-3: Brick, 3-2: Brick	297	Sidewalk	Unpaved	6	8	Conc	1	Replace	Multiple sags ~ 5%. Large nail pentrates pipe (survey abandoned). Multiple sags b/t 20-40%. Camera underwater at 25 ft.	3323
5-1	14.70	1	Replace	5-2	7.4	2	Replace	5-1: Brick, 5-21 Brick	301	Roadside	Paved	11	8	Conc	1	Replace	Sags b/t 25-164 ft (~5-20%). Pipe is up & down b/t 140-301 ft. Replace for continuity and pipe condition.	3111
5-1	14.70	1	Replace	5	19.17	1	Replace	5-1: Brick, 5: Brick	13	Roadside	Paved	17	8	Conc	5	Replace	Replace due to continuity.	0
5-3	8	2	Replace	5-2	7.4	2	Replace	5-3: Brick, 5-2: Brick	282	Roadway/Yard	Paved	8	8	Conc	1	Replace	Cracks at 161, 247 ft. 7 Active laterals. Multiple roots. Fractures at 247, 252, & 273 ft. Material change from Conc to PVC b/t 254-	4232
5-4	10.00	1	Replace	5-1	14.70	1	Replace	5-4: Brick, 5-1: Brick	329	Roadside/Creek	Paved	12	8	Conc	1	Replace	Camera Underwater at 5 ft. Pipe Failure at 5 ft. (KUB)	-
5-4	10.00	1	Replace	5-5	8	3	Replace	5-4:Brick, 5-5: Brick	57	Roadside	Paved	9	8	Conc	2	Replace	Replace due to continuity. (KUB)	-
5-6	7.00	2	Replace	5-5	8.00	3	Replace	5-6: Brick	267	Roadway	Paved	8	8	Conc	2	Rehab	Sag at 263. Medium offset joint at 265. **Replace last 4 feet & Rehab pipe.**	2100
5-7	6.00	2	Replace	5-6	7.00	2	Replace	5-7 Brick/Conc 5-6: Brick	88	Roadway	Paved	7	8	Conc	2	Replace	Slight sag at 44 ft. Slight intruding tap at 76 ft.	2100
5-7	6.00	2	Replace	5-7A		3	Replace	5-7: Brick/Conc 5-7A: Concrete	66	Easement	Unpaved	6	8	PVC	1	Replace	Water level sag b/t 3 - 16 ft (5-20%). Camera under water at 19 & 27 ft.	4132
5-8	6	1	Replace	5-7	6.00	3	Replace	5-8: Brick 5-7: Brick/Conc	83	Parking / Roadway	Paved	6	8	Conc	2	Replace	Roots at 5 ft. Medium separated joint at 5 ft.	
5-8	7	2	Replace	EOL		-	Install New MH	5-8: Brick, Install new MH at EOL if the line is to remain active	92	Roadway	Paved	7	8	Conc	1	Replace	Material change to PVC at 80 ft. Material change back to conc at 90 ft. Large offset at 90 ft. **If line is no longer active, abandon.**	2100
5-9	7.00	2	Replace	5-5	8.00	2	Replace	5-9: Brick, 5-5: Brick	193	Roadside	Paved	8	8	Conc	1	Replace	Sag at 36 ft. Material change to PVC at 40 ft. Med grease at 44 ft. Material change to conc at 53 ft. Bottom of pipe is missing at 57 & 64 ft. Material change to PVC b/t 86-91 ft. Sidewall missing at 102 ft. Hole in pipe at 166 ft. (KUB)	-
5-9	7	2	Replace	5-10	9.5	2	Replace	5-9: Brick, 5-10: Brick	229	Roadside	Paved	8	8	Conc	3	Replace	**Replace due to continuity. (KUB)**	-
5-10	9.50	2	Replace	5-11	7.00	3	Replace	5-10: Brick, 5-11: Brick	296	Roadway	Paved	8	8	Conc	1	Replace	Debris. Bottom of pipe is missing b/t 0-6 ft. Broken at 27, 44, 60, & 149 ft. Bottom of pipe is missing at 205 ft. Camera will not pass at 223 ft. Reverse: Camera Underwater at 12 ft. Severe grease at 17 ft. Survey abandoned. (KUB)	-
5-11	7	2	Replace	EOL		-	Install New MH	5-11: Brick, EOL: Intall new MH	127	Roadway	Paved	7	8	Conc	1	Replace	Bottom of pipe missing at invert.	5100
5-12	10.00	2	Replace	5-11	7.00	3	Replace	5-12: Brick, 5-11: Brick	315	Roadway	Paved	9	8	Conc	1	Replace	Joint separated medium at 7 ft. Defective tap at 73 ft. Encrustation at 87 ft. Infiltration (weeper) at 140 ft. Material change to PVC b/t 191 - 195 ft. Hole in pipe (soil visible) at 276 ft.	5122
5-13	9.20	2	Rehab	5-10	9.50	3	Replace	5-13: Brick, 5-10: Brick	206	Roadway	Paved	9	8	Conc	2	Rehab	Aggregate visisble at 1& 204 ft. Crack at 54 & 139. Infiltration (weeper) at 151, 184, 198, 201.	3A26
5-14	9.30	3	Rehab	5-13	9.20	2	Rehab	5-14: Brick, 5-13: Brick	298	Roadway	Paved	9	8	Conc	2	Rehab	Multiple fractures at 196 & 275 ft. 7 active laterals & 6 capped laterals.	4200
5-15	9.00	3	Rehab	5-14	9.30	2	Rehab	5-15: Brick, 5-14: Brick	326	Roadway	Paved	9	8	Conc	2	Rehab	Cracks at 32,47,50,66,73,83,167,174,197. Sag at 321 ft. Camera underwater b/t 322 - 325 ft. **Repair last segment and rehab the remaining pipe.**	4134
5-16	9.00	1	Replace	5-15	9.00	2	Rehab	5-16: Brick, 5-15: Brick	114	Roadway	Paved	9	8	Conc	2	Rehab	Infiltration (weeper) at 1 & 6 ft. Fracture at 111 ft.	3123
5-17	7.00	1	Replace	5-16	9.00	1	Replace	5-17: Brick, rehabed and is leaking 5-16: Brick	91	Roadway	Paved	8	8	Conc	2	Rehab	Deposited encrustation (5-10%) at 21, 27, 45, 63, 65 ft. Infiltration (weeper) at 63 ft. **Clean pipe and Rehab.**	3226
5-17	7.00	1	Replace	5-18	6.00	2	Rehab	5-17: Brick, rehabed and is leaking. 5-18:Brick	128	Roadway	Paved	7	8	Conc	2	Rehab	Infiltration (weeper) at 18, 24, 27, 33, 115 ft. Fracture at 18 ft. Crack at 127 ft. Rocks (5%) at 51 ft. Root ball from lateral at 53 ft. Encrustionation (2-5%) at 126 ft. **Clean pipe and Rehab.**	4129
5-19	4.00	1	Replace	5-24	4.00	3	Leave as is	5-19: Brick, 5-24: Concrete	50	Roadway	Paved	4	8	PVC	3	Leave as is	Clear.	0
5-19	4.00	1	Replace	5-18	6.00	2	Rehab	5-19: Brick, 5-18: Brick	298	Roadway	Paved	5	8	Conc	3	Rehab	Roots at every joint. Rootball at laterals at 50 & 111 ft. Crack at 287 ft.	423A
5-20	9.00	1	Replace	5-17	7.00	1	Replace	5-20: Brick 5-17: Brick, rehabed and is leaking	210	Roadway	Paved	8	8	Conc	3	Rehab	Encrustation (5%) at 44 ft. Crack at 207 ft.	2211
5-20	9.00	1	Replace	5-21	9.00	1	Replace	5-20: Brick, 5-21: Brick	134	Roadway	Paved	9	8	Conc	3	Rehab	Encrustation (15%) at 26 ft. Infiltration (weeper) at 26 ft. Obstacle (10% stick?). Infiltration (dripper) at 78 ft. Roots fine barrel at 99 ft. Encrustation (20%) at 106 ft. **Clean and Rehab.**	3323
5-22	14.00	1	Replace	5-21	9.00	1	Replace	5-22: Brick, 5-21: Brick	165	Roadway	Paved	12	8	Conc	2	Rehab	Infiltration (runner) at 122 ft. Encrustation (10%) at 150 ft.	4122
5-23	8.00	2	Replace	5-22	14.00	1	Replace	5-23: Brick, 5-22: Brick	225	Roadway	Paved	11	8	Conc	1	Replace	Roots at serveral joints. Intruding tap at 73 & 152 ft. Fracture at 151 ft. Large Offset at a material change at 223 ft. (survey	2515
5-24	4.00	3	Leave as is	5-25	5.00	3	Leave as is	5-24: Concrete, 5-25: Concrete	52	Roadway	Paved	5	8	PVC	3	Leave as is	Clear.	0
7-1	15.2	1	Replace	7	20	3	Leave as is	7-1: brick, 7: Epoxy/Conc	261	Wooded/Field	Unpaved	18	30	Conc	2	Rehab	Infiltration (runners) at 4 ft. Infiltration (weeper) at 72 ft. Infiltration (drippers) 120,164,235 ft. Intruding tap at 100 ft (~1-2 ft) and 151 (~2").	4133
7-2	13.4	1	Replace	7-1	15.2	1	Replace	7-2: Brick, 7-1: Brick/Conc	338	Wooded/Creek	Unpaved	14	30	Conc	2	Rehab	Infiltration (dripper) at 49,157 ft. Infiltration (weeper) at 177 & 312 ft.	3323
7-3	19.2	1	Replace	7-189	17.22	2	Rehab	7-3: Brick, 7-189: Concrete	130	K-Mart Breezway	Paved	18	30	Conc	2	Rehab	Clear.	3100
7-4	9.3	2	Rehab	7-3	19.2	1	Replace	7-4: Brick, 7-3: Brick	384	Parking Lot	Paved	14	8	Conc	2	Rehab	Crack at 18 ft. Fracture at 84 ft. Encrustation at 184 ft (25 %). Multiple encrustations (5-15%). **Clean pipe and Rehab.**	4131
7-5	8	2	Replace	7-4	9.3	2	Rehab	7-5: Brick, 7-4: Brick	32	Easement/Roadway	Paved	9	8	Conc	2	Rehab	Crack at 10 & 28 ft.	1200
7-6	4.4	2	Rehab	7-5	8	2	Replace	7-6: Brick, 7-5: Brick	248	Sidwalk/Parking	Paved	6	8	Conc	1	Rehab	Roots at 27, 78, 79 ft. Sag at 127 & 231 ft (2-5%). Fracture at 211 ft. Crack at 235 ft. Pipe broken at 230 ft.	5131
7-6	4.4	2	Rehab	7-7	5	2	Replace	7-7: Brick, 7-6: Brick	126	Sidwalk/Parking	Paved	5	8	Conc	2	Rehab	Multiple sags b/t 5-10 %.	2700
7-7	5	2	Replace	EOL		-	Install New MH	7-7: Brick Install new MH at EOL	128	Sidwalk/Parking	Paved	5	8	Conc	1	Rehab	Mulitple sag b/t 5-10%. Slight offset at 60 ft. Material change at 127 ft (pipe deformed) . Camera will not pass. Replace deformed pipe, intall new MH, and replace.	
7-8		-	Covered/Abandon	7-4	9.3	2	Rehab	7-8: paved over, 7-4: Brick	290	Roadway	Paved	5	8	Conc	3	Re-route	Multiple sags b/t 5-20%. Fracture at 198 ft. **Replace due to sags and continuity. Re-route sewer in the right-of-way and abandon existing pipe.**	3111
7-9	8	3	Replace	7-8		-	Covered/Abandon	7-9: Brick, 7-8: Paved Over	280	Roadway	Paved	8	8	Conc	1	Re-route	Sag at 55, 101, & 260 (~5%). Infiltration (runner) at 90 ft. Crack at 136 & 250 ft. Fracture at 200 & 257 ft. 9 active laterals. **Re-route sewer in the right-of-way and abandon existing pipe.**	412A
7-10	15.3	1	Replace	7-9	8	2	Replace	7-10: Brick, 7-9: Brick	208	Easement	Unpaved	12	8	Conc	2	Rehab	Roots at 2,24,27,42,48,97,106,. Sags at 7-12 & 19, 185-189 ft (5-10%). Crack at 106, 109, 115, 127 ft.	291A
7-11	9.5	1	Replace	7-10	15.3	1	Replace	7-11: Brick, water pipe passes through MH 7-10: Brick	194	Roadway	Paved	12	8	Conc	3	Rehab	Crack at 12 ft. Sag at 12 ft (5%). Material changes to DIP. Sag at 46-48 ft (10%). DIP is heavily corroded and passes under RR track. Material changes to conc at 58 ft. Crack at 60, 65, 86, 140, 177 (5%). Roots at 145, 163, 164.	3228
7-11	9.5	1	Replace	7-12	4.7	1	Replace	7-11: Brick, water pipe passes through MH. 7-12: Brick, water pipe passes through MH.	113	Roadway	Paved	7	8	Conc	3	Rehab	Roots at 7,16, 18, 22, 34 ft. Sag at 19 & 103 ft (~5%).	3324
7-13	8.8	3	Rehab	7-12	4.7	1	Replace	7-13: Brick, 7-12: Brick, water pipe passes through MH.	81	Roadway	Paved	7	8	Conc	2	Rehab	Sag at 11&24 (~5%). Crack at 78 ft. Fracture at 78 ft.	2600
7-14	6.5	2	Rehab	7-13	8.8	2	Rehab	7-14: Brick, 7-13: Brick	136	Roadway	Paved	8	8	Conc	2	Rehab	Crack at 2 ft. Infiltration (runner) at lateral at 44 ft. Protruding tap & 65 ft (1-2"). Crack at 114. **Trim intruding tap and rehab pipe.**	4122
7-15	7.7	3	Replace	7-14	6.5	2	Rehab	7-15: Brick, 7-14: Brick	145	Roadway	Paved	7	8	Conc	2	Rehab	Crack at 4,119, & 140 ft.	1400
7-16	8.3	3	Replace	7-15	7.7	2	Replace	7-16: Brick, 7-15: Brick	123	Roadway	Paved	8	8	Conc	1	Replace	Crack at 1, 116, & 118 ft. Material change to PVC at 113. Offset joint (~2") at 113. Material change back to conc at 118 ft.	2114
7-17	6.7	1	Replace	7-16	8.3	3	Replace	7-17: Brick, 7-16: Brick	185	Roadway	Paved	8	8	Conc	2	Rehab	Obstacle rocks (2%). Fine and medium roots. Small cracks.	2A12
7-17	6.7	1	Replace	EOL	-	-	Install New MH	7-17: Brick, EOL: Install new MH	98	Roadway	Paved	6.7	8	Conc	2	Rehab	Roots at 72, 28, 54, 97, & 98 ft. 3 active laterals.	
7-18	18.26	1	Replace	7-3	19.2	1	Replace	7-18: Brick, 7-3: Brick	402	Parking Lot	Paved	19	30	Conc	1	Re-route	Sag at 160 f t (~15%). Camera underwater at 274-320, 336-402 ft. **Re-route to new alignment behind K-Mart Building and abandon existing sewer line. Abandon existing 30" sewer and re-route flow to new 30" alignment behind K-Mart. Install new 8" collector to service active laterals.**	4A3A
7-19	16.5	1	Replace	7-18	18.26	1	Replace	7-19: Brick, 7-18: Brick	406	Parking Lot	Paved	17	30	Conc	3	Re-route	Active taps at 35 & 237 ft. Brick in sewer at 236 ft. Infiltration (drippers) at 295 ft. **Abandon existing 30" sewer. Re-route flow to new 30" realignment behind K-Mart. Install new 8" collector to service active laterals.**	3328
7-20	11.45	1	Replace	7-20X	-	-	Covered	7-20: Brick 7-20X: Locate and abandon	350	Parking Lot	Paved	11.45	30	Conc	1	Abandon	Crack at 103 & 341 ft. Fractures at 104, 169, 181, 198, & 250 ft. Infiltration (dripper) at 331 & 338 ft. Retaining wall at MH 7-20.	3A2A

MH	MH Depth	MH Score	MH Insp.	MH	MH Depth	MH Score	MH Insp.	MH Comments	Televised (ft)	Location	Cover	Avg Depth	Diameter	Material	Pipe Score	Rehab/Replace	Comments	Overall Rating
7-20	11.45	1	Replace	7-19	16.5	1	Replace	7-20: Brick, 7-19: Brick	197	Parking Lot	Paved	14	30	Conc	2	Re-route	Unknown obstacle (appears to be a discharge pipe 4-6" in diameter) at 13 ft. **Re-route flow to new alignment behind K-Mart Building and abandon existing sewer line. Install new 8" collector to service active laterals.**	2200
7-21	15.0	1	Replace	7-20	11.45	1	Replace	7-21: Brick, 7-20: Brick	67	Roadway/Parking	Paved	13	30	Conc	2	Re-route	Unknown obstacle (appears to be a discharge pipe 4-6" in diameter) at 27 ft. **Re-route flow to new alignment behind K-Mart Building and abandon existing sewer line. Install new 8" collector to service active laterals.**	2200
7-21	15.0	1	Replace	7-195	7.4	1	Replace	7-21: Brick, 7-195: Brick	46	Roadside	Paved	11	8	Conc	2	Replace	Medium offset at 3 ft. **Replace pipe and extend to new 8" sewer collect in front of K-Mart.**	1100
7-22	5.6	1	Replace	7-31	7.6	3	Leave as is	7-22: Brick, in drainage path replace, 7-31: Concrete	172	Roadway	Paved	7	8	PVC	3	Leave as is	Pipe in good condition	0
7-26	9.3	1	Replace	7-27	8.4	1	Replace	7-26: Brick, 7-27: Brick	60	Roadway	Paved	9	8	Conc	2	Rehab	Medium joint offset at 1 ft. Infiltration weeper at 10.5. Attached grease at 11, 30, & 56 ft. Infiltration weeper at 42 ft.	2A00
7-26	9.3	1	Replace	7-36	12.6	1	Eliminate	7-26: Brick 7-36: Brick w/ coating, bricks are visible	6		Paved	11	8	Conc	3	Re-route	Sewer is clear. Eliminate Mh 7-36 and Re-route to new sewer alignment behind K-Mart.	0
7-27	8.4	1	Replace	7-28	8	2	Replace	7-27: Brick, 7-28: Brick	282	Roadway	Paved	8	8	Conc	1	Rehab	Infiltration (weeper) at 16, 41, 51, 114, & 189 ft. Crack at 41 & 42. Material change to PVC at 87 ft. Material change to concrete at 102 ft. 6 active laterals.	2A00
7-29	8.30	3	Replace	7-28	8.00	2	Replace	7-29: Brick/Conc, active infiltration 7-28: Brick	180	Roadside	Paved	8	8	Conc	2	Rehab	Roots at 154 ft. **Indirect Storm Sewer Cross Connection.** (KUB)	-
7-30	5.30	1	Replace	7-31	7.60	3	Leave as is	7-30: Brick, Elevate or install water tight lid & frame. 7-31: Concrete	178	Roadway	Paved	6	8	PVC	3	Leave as is	Pipe is clear. (KUB)	-
7-30	5.30	1	Replace	7-29	8.30	3	Replace	7-30: Brick, Elevate or install water tight lid & frame. 7-29: Brick/Conc, active infiltration	349	Roadway	Paved	7	8	Conc	2	Rehab	Root intrusion nearly at every joint. (KUB)	-
5-7B	-	3	Leave as is	5-7A	-	3	Replace	5-7B: Concrete, 5-7A: Concrete	88	Easment/Parking	Paved	8	8	PVC	3	Leave as is	Clear.	0
5-7B	-	3	Leave as is	5-7C	-	3	Leave as is	5-7B: Concrete, 5-7C: Concrete	136	Parking Lot	Paved	8	8	PVC	3	Leave as is	Sag b/t 29 to 34 ft (5-15%).	2300
5-7C	-	3	Leave as is	5-7D	-	3	Leave as is	5-7C: Concrete, 5-7D: Concrete	223	Parking Lot	Paved	8	8	PVC	3	Leave as is	Sag (5%) at 4 & 84 ft.	2200
7-100	6.00	3	Replace	7-95	7.00	3	Replace	7-100: Brick/Conc, 7-95: Brick/Conc	181	Roadway	Paved	7	8	Conc	1	Replace	Crack at 1 & 101 ft. Roots at 29 ft. Offset joint (medium) at 97 ft. Material change to 98-101 ft. Offset joint and material change at 170 ft. Sag at 176 ft.	2115
7-101	6	2	Rehab	7-100	6	3	Replace	7-101: Brick/Conc, 7-100: Brick/Conc	80	Roadway	Paved	6	8	Conc	2	Rehab	Sags at 13, 44, 65, & 72 ft. (5-10%)	2400
7-101	6	2	Rehab	7-102	9	3	Leave as is	7-101: Brick/Conc, 7-102: Concrete	198	Roadway	Paved	8	8	Conc	2	Rehab	Cracks at 23, 51, 157, 158, 161 ft. Fracture 95 & 158 ft. Hole with soil visible at 158. **Pipe is clear for Rehab.**	5141
7-103	10	3	Leave as is	7-102	9	3	Leave as is	7-103: Concrete, 7-102: Concrete	300	Roadway	Paved	10	8	Conc	2	Rehab	Fracture at 1& 55 ft. Cracks at 1, 55, 291, & 300 ft. Roots at 145-147, 178, 217, 240. 260 ft. **Pipe clear for Rehab**.	3225
7-104	7	3	Leave as is	7-103	10	3	Leave as is	7-104: Concrete, 7-103: Concreete	139	Roadway	Paved	9	8	Conc	2	Rehab	Rootball lateral at 10 ft. Roots at 24 ft. Fracture at 102 ft. Infiltration at 102 ft.	4122
7-105	6.00	3	Replace	7-100	6.00	3	Replace	7-105: Brick/Conc 7-100: Brick/Conc	230	Roadway	Paved	6	8	Conc	2	Rehab	Roots fine at 113 ft. Sewer appears good and clear.	4111
7-106	7	3	Replace	7-107	7	3	Leave as is	7-106: Concrete, 7-107: Brick/Conc	35	Roadway	Paved	7	8	Conc	3	Rehab	Crack at 31 ft.	1100
7-106	7	3	Replace	7-105	6	3	Replace	7-106: Concrete, 7-105: Brick/Conc	248	Roadway	Paved	7	8	Conc	1	Replace	7 active laterals. Sags at 222. 237, 239, & 240 (5-40%)	3222
7-108	4	3	Leave as is	7-106	7	3	Replace	7-108: Brick/Conc, 7-106: Concrete	170	Driveway	Paved	6	8	Conc	3	Rehab	Sags (5%) at 40, 111, 132 ft.	2300
7-108	4	3	Leave as is	7-109	-	-	Covered	7-108: Brick/Conc, 7-109: Locate and expose	147	Easement	Unpaved	4	8	Conc	2	Rehab	Roots at 9 ft. Sags (5-10%) at 65, 75, 83 ft.	2411
7-111	7.2	2	Repair	7-114	15.5	1	Replace	7-111: Concrete, Repair incoming & outgoing pipe connections, 7-114: Brick	189	Roadway/640 Exit	Paved	11	8	DI ?	2	Rehab	Infiltration (weeper) at 59,78, 115, & 169 ft. Crack at 91 ft.	2400
7-112	5.5	3	Leave as is	7-111	7.2	2	Repair	7-112: Concrete 7-111: Concrete, Repair incoming & outgoing pipe connections	293	Roadside/Parking	Paved	6	8	PVC	3	Leave as is	Sag b/t 184 - 193 ft (5-10%).	2300
7-114	15.5	1	Replace	67	-	2	Rehab	7-114: Brick 67: Concrete	97	Easement	Unpaved	15.5	30	Conc	2	Rehab	Crack at 26 ft. Infiltration (weeper) at 83 ft. Pipe is clear.	2100
7-115	6.5	1	Replace	7-116	-	-	Does not exist	7-115: Brick, in drainage path, 7-116: ?			Unpaved	6.5			-	Does not exist	Does not exist.	0
7-115	6.5	1	Replace	7-114	15.5	1	Replace	MH 7-115 Brick, in drainage path 7-114: Brick	164	Easement/Roadway	Paved	11	8	Conc	2	Rehab	Sag at 98, 153,155 ft (5-10%). Drainage area.	2300
7-117	-	-	Covered	7-115	6.5	1	Replace	7-17: Locate and expose 7-115: Brick, in drainage path	171	Easement/Roadway	Paved	6.5	8	Conc	2	Rehab	Fracture at 42 ft. Infiltration (weeper) 81 ft. Encrustation 81&102 ft. Multiple cracks at 142 ft.	3125
7-118	5.8	3	Leave as is	7-117	-	-	Covered	7-118: Brick/Conc 7-117: Locate and expose	64	Roadway/Parking	Paved	5.8	8	Conc	2	Rehab	Sag b/t 43-53 (10-15%).	2200
7-119	7.3	2	Repair	7-118	5.8	3	Leave as is	7-118: Brick/Conc, 7-119: Brick/Conc, Replace offset frame & repair ineffective bench	119	Roadway	Paved	7	8	Conc	3	Rehab	Clear.	0
7-119	7.3	2	Repair	7-120	6	2	Replace	7-119:Brick/Conc Replace offset frame & repair ineffective bench 7-120:	212	Roadway	Paved	7	8	Conc	2	Rehab	Intruding tap at 78 ft (~ 1-2 "). **Dig up service and rehab.**	2100
7-119	7.3	2	Repair	EOL	7.3	-	Install New MH	7-119: Replace offset frame & repair ineffective bench, EOL: Install new MH	114	Roadway	Paved	7	8	Conc	2	Rehab	Root ball at EOL.	5131
7-120	6	2	Replace	7-121	6.5	3	Replace	7-120: 7-121: Concrete	230	Roadway	Paved	6	8	Conc	1	Replace	Crack at 72 ft. Intruding tap (30%) at 106 ft. Intruding tap 1-2" at 130 ft. Crack at 137 ft. Pipe broken at 230 ft. Survey abandoned.	5131, reverse: 5112
7-121	6.5	3	Replace	7-122	5.5	2	Rehab	7-121: Concrete, 7-122: Concrete	230	Roadway	Paved	6	8	Conc	2	Rehab	Intruding tap (~1-2") at 54 ft.	2100
7-123	7.5	2	Rehab	7-122	5.5	2	Rehab	7-123: Concrete, 7-122: Concrete	327	Roadway	Paved	7	8	Conc	2	Rehab	Crack at 33, 252, & 279 ft. Intruding tap at 294, 78, 163, 173 ft. Fracture at 60 & 106 ft.	5128
7-124	10.7	2	Rehab	7-123	7.5	2	Rehab	7-124: Concrete, 7-123: concrete	264	Roadway	Paved	9	8	Conc	2	Rehab	Roots at 1, 13, 34, & 86 ft. Sag at 8 ft. Intruding taps at 88 (5%) & 152 (1-2"). Fracture at 152 & 162 ft.	3226
7-124A	-	2	Repair	7-124	10.7	2	Replace	7-124A: Brick/Conc, Replace chimney & frame & lid 7-124: Concrete	88	Roadway	Paved	11	8	PVC	3	Leave as is	No defects.	0

MH	MH Depth	MH Score	MH Insp.	MH	MH Depth	MH Score	MH Insp.	MH Comments	Televised (ft)	Location	Cover	Avg Depth	Diameter	Material	Pipe Score	Rehab/Replace	Comments	Overall Rating
7-124A	-	2	Repair	7-124B	-	-	Covered	7-124A: Replace chimney & frame & lid, 7-124B: Locate &	127	Road/Easement	Paved	11	6	PVC	3	Leave as is	No defects.	0
7-124C	-	3	Leave as is	7-124B	-	-	Covered	7-124C: Concrete, 7-124B: Locate & Expose	188	Parking Lot	Paved	11	6	PVC	3	Leave as is	No defects.	0
7-124C	2	3	Leave as is	7-124D	2	3	Leave as is	7-124C: Concrete, 7-124D: Brick	203	Parking Lot	Paved	2	6	PVC	2	Leave as is	Medium offset joint at 158 ft.	1100
7-125	8.40	3	Replace	7-42	14.2	1	Replace	7-125: Brick 7-42: Brick	209	Roadway	Paved	11	8	Conc	1	Replace	Encrustation at 13.4, 59, 60, 71,101, 124 ft. Sags at 32, 127-147 (5-40%) and 157-203 ft (5-25%). Encrustations and deposits are heavy through out the pipe. Infiltration runner at 101 ft. Infiltration (weeper) at 124 ft.	4238
7-126	4.5	2	Replace	7-125	8.40	2	Replace	7-126: Brick 7-125: Brick	250	Roadway	Paved	6	8	Clay	2	Replace	7 active laterals. Replace due to material and # of laterals.	0
7-127	-	-	Replace/	7-125	8.4	2	Replace	7-127: ?, 7-125: Brick	295	Roadside	Paved	8.4	8	Conc	1	Replace	Pipe completely full. Unable to inspect.	0
7-188	16.5	1	Replace	7-2	13.4	1	Replace	7-188: Brick, 7-2: Brick	101	Parking Lot	Paved	15	30	Conc	2	Rehab	Crack at 9 & 28 ft. Fracture & Infiltration (dripper) at 15 ft. Infiltration (dripper) at 81 ft.	3200
7-189	17.22	2	Rehab	7-188	16.5	1	Replace	7-189: Concrete, 7-188: Brick	173	Parking Lot	Paved	17	30	Conc	2	Rehab	Clear. Near First Creek.	0
7-195	7.4	2	Replace	7-196	-	-	Covered or Does not exist	7-195: Brick, 7-196: Locate and evaluate	87	Roadway	Paved	7.4	8	Conc	2	Rehab	Pipe appears to end at 87 ft. Debris is at the end. Survey abandoned due to debri and EOL	5100
7-197	11.2	1	Abandon / Replace	7-196	-	-	Covered or Does not exist	7-197: Brick, 7-196: Locate and evaluate	224	Roadway	Paved	11	8	Conc	2	Replace	Deposited soil throughout pipe. Varies from some flow to stagnant water. Most taps are capped with the exception of 2 that appear to be abandoned. **Replace if pipe is active. Otherwise, abandon.**	433A
7-198	3.9	3	Leave as is	7-199	6.3	3	Abandon	7-198: Concrete, 7-199: Concrete	134	Easement	Unpaved	5	8	PVC	3	Leave as is	Pipe in good condition.	0
7-199	6.30	3	Abandon	7-200	3.90	3	Abandon	7-199: Concrete, 7-200: Concrete	278	Side of Parking Lot	Paved	5	8	PVC	1	Re-route	Sag at 207 & 217 ft. Camera underwater at 220 ft. End of sag at 228 ft. **Abandon sewer and rerout through adjacent parking lot.**	4122
7-202	11.4	3	Leave as is	7-48	11.8	2	Rehab	7-202: Concrete 7-48: Concrete	56	Roadway	Paved	12	30	Conc	2	Rehab	Clear. Near First Creek.	0
7-203	10.2	1	Replace	EOL	10.2	-	Abandon	7-203: Concrete, EOL: Abandon	154	Creek/Road/Roadside	Paved	10	6	DI	1	Abandon	Multiple sags throughout pipe. Camera underwater at 20, 24, 48, 62 ft. **Lateral, abandon if not in use.**	
7-203	10.2	1	Replace	7-202	11.4	3	Leave as is	7-203: Concrete, 7-202: Concrete	155	Creek	Unpaved	11	30	Conc	2	Rehab	Deposited grease at 3 & 151. Debris at bottom of pipe b/t 80-100 ft.	2A00
7-204	13.4	3	Replace	7-203	10.2	1	Replace	7-204: Concrete, 7-203: Concrete	76	Road/Easement	Paved	12	12	Conc?	2	Rehab	Clear. CCTV data was inconclusisve, video is dark.	0
7-20X	-	-	Covered	7-20XX	-	-	Covered	7-20X: Locate and abandon 7:20XX: Locate and abandon	349	Parking/under KMart?	Paved	19.2	30	Conc	1	Abandon	Crack at 2 ft. Infiltration (dripper) at 11 ft. Crack at 335 ft. Water level begins at 10% and increases to 40% by 266 ft.	3100
7-20XX	-	-	Covered	7-3	19.2	-	Replace	7-20XX: Locate and abandon, 7-3: Brick	395	Parking/under KMart?	Paved	19.2	30	Conc	1	Abandon	Crack at 4 & 252 ft. Water level begins at 40% and increase to 100% by 114 ft. Retaining wall at MH 7-3.	4A00
7-39A	14.3	1	Replace	7-39B		-	Covered/Replace	7-39A: Brick 7-39B: Covered	199	Roadway/Roadside	Paved	14.3	30	Conc	2	Rehab	Slight encrustation at 65 & 185 ft. Clear.	2200
7-39B	-	-	Covered/Replace	7-38	11.8	1	Replace	7-39B: Locate and replace 7-38: Conc/Brick	138	Roadway	Paved	11.8	30	Conc	2	Rehab	Infiltration (weeper) at 16 ft. Runner at 25, 88 ft. Encrustation at 39 & 88 ft.	4224
7-42A	-	-	Covered/Replace	7-42	14.2	1	Replace	7-42A: Locate and replace 7-42: Brick	117	Easement	Unpaved	14.2	30	Conc	2	Rehab	Roots at ~0 ft. Infiltration (weeper) at 55 ft.	2200
7-48A		2	Abandon	7-48	11.8	3	Leave as is	7-48A:Brick, 7-48: Brick	35	Roadway	Paved	11.8	8	Clay/Conc	1	Re-route	Sag at 3 ft (~5%). Material change to PVC at 29 ft. Offset joint and separated joint at 29 ft. **Rerout sewer to MH 7-46 and Abandon existing line.**	2200
7-69A	10	3	Leave as is	7-69B	8	2	Rehab	7-69A: Conc, replace frame. Soil is visible around frame. 7-69B: Conc	184	Easement	Unpaved	9	8	PVC	3	Leave as is	Pipe segment not televised.	-
7-75A	6	3	Leave as is	7-75	7		Rehab	7-75A: ?, 7-75: Brick/Conc	101	Easement	Unpaved	7	8	PVC	3	Leave as is	Clear.	0
7-75B	6	3	Leave as is	7-75A	6	3	Leave as is	7-75B: Locate, and expose 7-75A:?	156	Parking Lot	Paved	6	8	PVC	3	Leave as is	Clear.	0
7-75B	6	3	Leave as is	7-75C	6	-	Covered	7-75B: Conc 7-75C: Locate and expose	176	Easement	Unpaved	6	8	PVC	3	Leave as is	Small Crack at 77 ft. near tap.	2100
7-75D	8	3	Leave as is	7-75C	8	-	Covered	7-75C: Locate & expose	151	Easement	Unpaved	8	8	PVC	2	Leave as is	Infiltration (weeper) at 15 ft. Encrustation at 16 ft. Infiltration weeper at 16 ft. **Replace ~20 feet of pipe near MH 7-75D.**	2300
7-75E	8	2	Rehab	7-75D	8	3	Leave as is	7-75E: Conc 7-75D:Conc	152	Easement	Unpaved	8	8	PVC	3	Leave as is		2800
									38041									

	Lf	% of Basin
Replacement	8540	22.4
Rehab	22342	58.7
Leave as is	3205	8.4
Abandon	1094	2.9
Re-Route	2603	6.8
Clean	257	0.7
Total	38041	100.0

New Pipe	3690

Pipe Diameter	Rehab	Replacement	Leave as is	Abandon	Re-Route	Clean	New Pipe
6"	0	0	518	0	0	0	0
8"	17016	7410	2687	0	1316	0	2460
12"	76	0	0	0	0	0	0
18"	0	0	0	0	0	257	0
30"	4014	0	0	1094	1287	0	1230
36"	1236	1130	0	0	0	0	0
Total	22342	8540	3205	1094	2603	257	3690
% of Basin	58.7	22.4	8.4	2.9	6.8	0.7	N/A

Replace w/48" MH				0-6 ft	6-8 ft	8-10 ft	10-12 ft	12-14 ft	14-16 ft	>16 ft
7-32	8.00	9.70	Replace	0	0	1	0	0	0	0
7-49	8.00	6.60	Replace	0	1	0	0	0	0	0
7-50	8.00	6.40	Replace	0	1	0	0	0	0	0
7-51	8.00	3.50	Replace	1	0	0	0	0	0	0
7-57	8.00	12.70	Replace	0	0	0	0	1	0	0
7-58	8.00	12.00	Replace	0	0	0	0	1	0	0
7-61	8.00	4.50	Replace	1	0	0	0	0	0	0
7-62	8.00	4.90	Replace	1	0	0	0	0	0	0
7-63	8.00	5.00	Replace	1	0	0	0	0	0	0
7-64	8.00	4.80	Replace	1	0	0	0	0	0	0
7-66	8.00	14.00	Replace	0	0	0	0	0	1	0
7-67	8.00	15.00	Replace	0	0	0	0	0	1	0
7-68	8.00	9.00	Replace	0	0	1	0	0	0	0
7-69	8.00	9.00	Replace	0	0	1	0	0	0	0
7-72	8.00	6.00	Replace	0	1	0	0	0	0	0
7-86	8.00	6.00	Replace	0	1	0	0	0	0	0
7-91	8.00	6.00	Replace	0	1	0	0	0	0	0
7-95	8.00	7.00	Replace	0	1	0	0	0	0	0
3-1	8.00	5.40	Replace	1	0	0	0	0	0	0
3-2	8.00	5.50	Replace	1	0	0	0	0	0	0
3-3	8.00	6.08	Replace	0	1	0	0	0	0	0
5-1	8.00	14.70	Replace	0	0	0	0	0	1	0
5-3	8.00	8.00	Replace	0	0	1	0	0	0	0
5-4	8.00	10.00	Replace	0	0	0	1	0	0	0
5-5	8.00	8.00	Replace	0	0	1	0	0	0	0
5-6	8.00	7.00	Replace	0	1	0	0	0	0	0
5-7	8.00	6.00	Replace	0	1	0	0	0	0	0
5-8	8.00	7.00	Replace	0	1	0	0	0	0	0
5-9	8.00	7.00	Replace	0	1	0	0	0	0	0
5-10	8.00	9.50	Replace	0	0	1	0	0	0	0
5-11	8.00	7.00	Replace	0	1	0	0	0	0	0
5-12	8.00	10.00	Replace	0	0	0	1	0	0	0
5-13	8.00	9.20	Replace	0	0	1	0	0	0	0
5-14	8.00	9.30	Replace	0	0	1	0	0	0	0
5-15	8.00	9.00	Replace	0	0	1	0	0	0	0
5-16	8.00	9.00	Replace	0	0	1	0	0	0	0
5-17	8.00	7.00	Replace	0	1	0	0	0	0	0
5-19	8.00	4.00	Replace	1	0	0	0	0	0	0
5-20	8.00	9.00	Replace	0	0	1	0	0	0	0
5-20	8.00	9.00	Replace	0	0	1	0	0	0	0
5-21	8.00	9.00	Replace	0	0	1	0	0	0	0
5-22	8.00	14.00	Replace	0	0	0	0	0	1	0
5-23	8.00	8.00	Replace	0	0	1	0	0	0	0
7-5	8.00	8.00	Replace	0	0	1	0	0	0	0
7-7	8.00	5.00	Replace	1	0	0	0	0	0	0
7-9	8.00	8.00	Replace	0	0	1	0	0	0	0
7-10	8.00	15.30	Replace	0	0	0	0	0	1	0
7-11	8.00	9.50	Replace	0	0	1	0	0	0	0
7-12	8.00	4.70	Replace	1	0	0	0	0	0	0
7-15	8.00	7.70	Replace	0	1	0	0	0	0	0
7-16	8.00	8.30	Replace	0	0	1	0	0	0	0
7-17	8.00	6.70	Replace	0	1	0	0	0	0	0
7-22	8.00	5.60	Replace	1	0	0	0	0	0	0
7-26	8.00	9.30	Replace	0	0	1	0	0	0	0
7-27	8.00	8.40	Replace	0	0	1	0	0	0	0
7-28	8.00	8.00	Replace	0	0	1	0	0	0	0
7-29	8.00	8.30	Replace	0	0	1	0	0	0	0
7-30	8.00	5.30	Replace	1	0	0	0	0	0	0
7-100	8.00	6.00	Replace	0	1	0	0	0	0	0
7-105	8.00	6.00	Replace	0	1	0	0	0	0	0
7-106	8.00	7.00	Replace	0	1	0	0	0	0	0
7-115	8.00	6.50	Replace	0	1	0	0	0	0	0
7-120	8.00	6.00	Replace	0	1	0	0	0	0	0
7-121	8.00	6.50	Replace	0	1	0	0	0	0	0
7-125	8.00	8.40	Replace	0	0	1	0	0	0	0
7-126	8.00	4.50	Replace	1	0	0	0	0	0	0
7-127	8.00	8.00	Replace/ Covered	0	0	1	0	0	0	0
7-197	8.00	11.20	Abandon/Replace	0	0	0	1	0	0	0
7-195	8.00	7.40	Replace	0	1	0	0	0	0	0
		537.98		13	22	24	3	2	5	0
					69					

Replace w/ 72" MH				0-6 ft	6-8 ft	8-10 ft	10-12 ft	12-14 ft	14-16 ft	>16 ft
2	36.00	12.00	Replace	0	0	0	0	1	0	0
3	36.00	18.67	Replace	0	0	0	0	0	0	1
4	36.00	18.00	Replace	0	0	0	0	0	0	1
5	36.00	19.17	Replace	0	0	0	0	0	0	1
6	36.00	20.50	Replace	0	0	0	0	0	0	1
69	36.00	10.50	Replace	0	0	0	0	1	0	0
101	36.00	19.60	Replace	0	0	0	0	0	0	1
7-36	30.00	12.60	Replace	0	0	0	0	1	0	0
7-37	30.00	11.90	Replace	0	0	0	1	0	0	0
7-38	30.00	11.80	Replace	0	0	0	1	0	0	0
7-41	30.00	15.40	Replace	0	0	0	0	0	1	0
7-42	30.00	14.20	Replace	0	0	0	0	0	1	0
7-44	30.00	12.60	Replace	0	0	0	0	1	0	0
7-46	30.00	12.60	Replace	0	0	0	0	1	0	0
7-53	30.00	10.60	Replace	0	0	0	1	0	0	0
7-54	30.00	10.10	Replace	0	0	0	1	0	0	0
7-1	30.00	15.20	Replace	0	0	0	0	0	1	0
7-2	30.00	13.40	Replace	0	0	0	0	1	0	0
7-3	30.00	19.20	Replace	0	0	0	0	0	0	1
7-18	30.00	18.26	Replace	0	0	0	0	0	0	1
7-19	30.00	16.50	Replace	0	0	0	0	0	0	1
7-20	30.00	11.45	Replace	0	0	0	1	0	0	0
7-21	30.00	15.00	Replace	0	0	0	0	0	1	0
7-114	30.00	15.50	Replace	0	0	0	0	0	1	0
7-188	30.00	16.50	Replace	0	0	0	0	0	0	1
7-203	30.00	10.20	Replace	0	0	0	1	0	0	0
7-204	30.00	13.40	Replace	0	0	0	0	1	0	0
7-39A	30.00	14.30	Replace	0	0	0	0	0	1	0
7-43	30.00	10.00	Covered/Replace	0	0	0	1	0	0	0
7-42A	30.00	10.00	Covered/Replace	0	0	0	1	0	0	0
7-39B	30.00	12.00	Covered/Replac	0	0	0	0	1	0	0
		441.15		0	0	0	9	7	6	9
			total	31						

	Rehab		
30"	65	12.80	Rehab
30"	67	12.50	Rehab
	7-33	6.20	Rehab
	7-34	6.80	Rehab
30"	7-45	9.80	Rehab
	7-59	5.50	Rehab
	7-60	4.80	Rehab
	7-65	4.80	Rehab
	7-75	7.00	Rehab
	7-80	10.00	Rehab
	7-83	5.00	Rehab
	7-87	6.00	Rehab
	7-90	5.00	Rehab
	5-18	6.00	Rehab
	7-13	8.80	Rehab
	7-14	6.50	Rehab
	7-101	6.00	Rehab
	7-122	5.50	Rehab
	7-123	7.50	Rehab
	7-124	10.70	Rehab
30"	7-189	17.22	Rehab
	7-75E	8.00	Rehab
	5-15	9.00	Replace
	7-73	7.00	Rehab
	5-13	9.20	Rehab
	5-14	9.30	Rehab
	7-4	9.30	Rehab
	7-5	4.40	Rehab
	4 ft	Total LF	168.30
	6 ft	Total LF	52.32

Repair		
7-82	6.00	Repair
7-85	6.00	Repair
7-88	5.00	Repair
7-89	7.00	Repair
7-111	7.20	Repair
7-119	7.30	Repair
7-124A		Repair
7-77	11.00	Repair
7-79	8.00	Repair
7-74	5.00	Repair
	Total	10

Abandon		
7-56	12.85	Abandon
7-48A	6.00	Abandon
7-20X	15.00	Covered/Abandon
7-20XX	15.00	Covered/Abandon
7-8	8.00	Covered/Abandon
7-199	6.30	Abandon
7-200	3.90	Abandon
7-35	15.20	Abandon
	Total #	8
	Total VF	82.25

Leave As Is		
7-117		Covered/Expose
7-75C	6.00	Covered/Expose
7-124B		Covered/Expose
1	8.50	Leave as is
7	20.00	Leave as is
66	12.50	Leave as is
7-39	14.30	Leave as is
7-47	12.10	Leave as is
7-48	11.80	Leave as is
7-70	10.00	Leave as is
7-76	9.00	Leave as is
7-81	8.00	Leave as is
7-92	9.00	Leave as is
7-93	8.00	Leave as is
7-98	11.00	Leave as is
5-24	4.00	Leave as is
5-7B		Leave as is
5-7B		Leave as is
5-7C		Leave as is
7-103	10.00	Leave as is
7-104	7.00	Leave as is
7-108	4.00	Leave as is
7-112	5.50	Leave as is
7-118	5.80	Leave as is
7-124C	2.00	Leave as is
7-198	3.90	Leave as is
7-202	11.40	Leave as is
7-69A	10.00	Leave as is
7-75A	6.00	Leave as is
7-75B	6.00	Leave as is
7-75B	6.00	Leave as is
7-75D	8.00	Leave as is
68	13.90	Leave as is
7-78	7.00	Leave as is
7-84	6.00	Leave as is
7-94	5.00	Leave as is
7-99	6.00	Leave as is
7-102	9.00	Leave as is
7-124D	2.00	Leave as is
7-96	9.00	Leave as is
7-97	9.00	Leave as is

MH Summary

MH	MH Insp.
7-189	Rehab
1.00	Replace
2	Replace
3	Replace
4	Replace
5	Replace
6	Replace
69	Replace
101	Replace
7-32	Replace
7-35	Abandon
7-28	Replace
7-37	Replace
7-39B	Covered/Replace
7-42A	Covered/Replace
7-38	Replace
7-44	Replace
7-203	Replace
7-53	Replace
7-204	Replace
7-56	Abandon
7-57	Replace
7-58	Replace
7-66	Replace
7-62	Replace
7-64	Replace
7-64	Replace
7-65	Rehab
7-67	Replace
7-69A	Leave as is
7-68	Replace
7-69	Replace
7-72	Replace
7-73	Rehab
7-74	Repair
7-77	Repair
7-79	Repair
7-86	Replace
7-91	Replace
7-102	Leave as is
7-96	Leave as is
7-97	Leave as is
3-1	Replace
3-2	Replace
3-3	Replace
5-1	Replace
5-2	Replace
5-3	Replace
5-4	Replace
5-5	Replace
5-6	Replace
5-7	Replace
5-8	Replace
5-9	Replace
5-10	Replace
5-11	Replace

MH Summary

MH	MH Insp.
5-12	Replace
5-13	Rehab
5-14	Rehab
5-15	Rehab
5-16	Replace
5-17	Replace
5-19	Replace
5-20	Replace
5-21	Replace
5-22	Replace
5-23	Replace
7-1	Replace
7-196	Covered or Does not exist
7-20	Replace
7-4	Rehab
7-5	Replace
7-6	Rehab
7-7	Replace
7-8	Covered/Abandon
7-9	Replace
7-10	Replace
7-11	Replace
7-12	Replace
7-15	Replace
7-16	Replace
7-17	Replace
7-18	Replace
7-195	Replace
7-31	Leave as is
7-21	Replace
7-22	Replace
7-29	Replace
7-28	Replace
7-29	Replace
5-7A	Replace
5-7B	Leave as is
5-7D	Leave as is
7-105	Replace
7-106	Replace
7-114	Replace
7-115	Replace
7-118	Leave as is
7-121	Replace
7-122	Rehab
7-124	Replace
7-124B	Covered
7-124B	Covered
7-188	Replace
7-188	Replace
7-196	Covered or Does not exist
EOL	Abandon
7-20XX	Covered
7-56	Abandon
7-39A	Replace
7-49	Replace
7-71	Repair

MH Summary

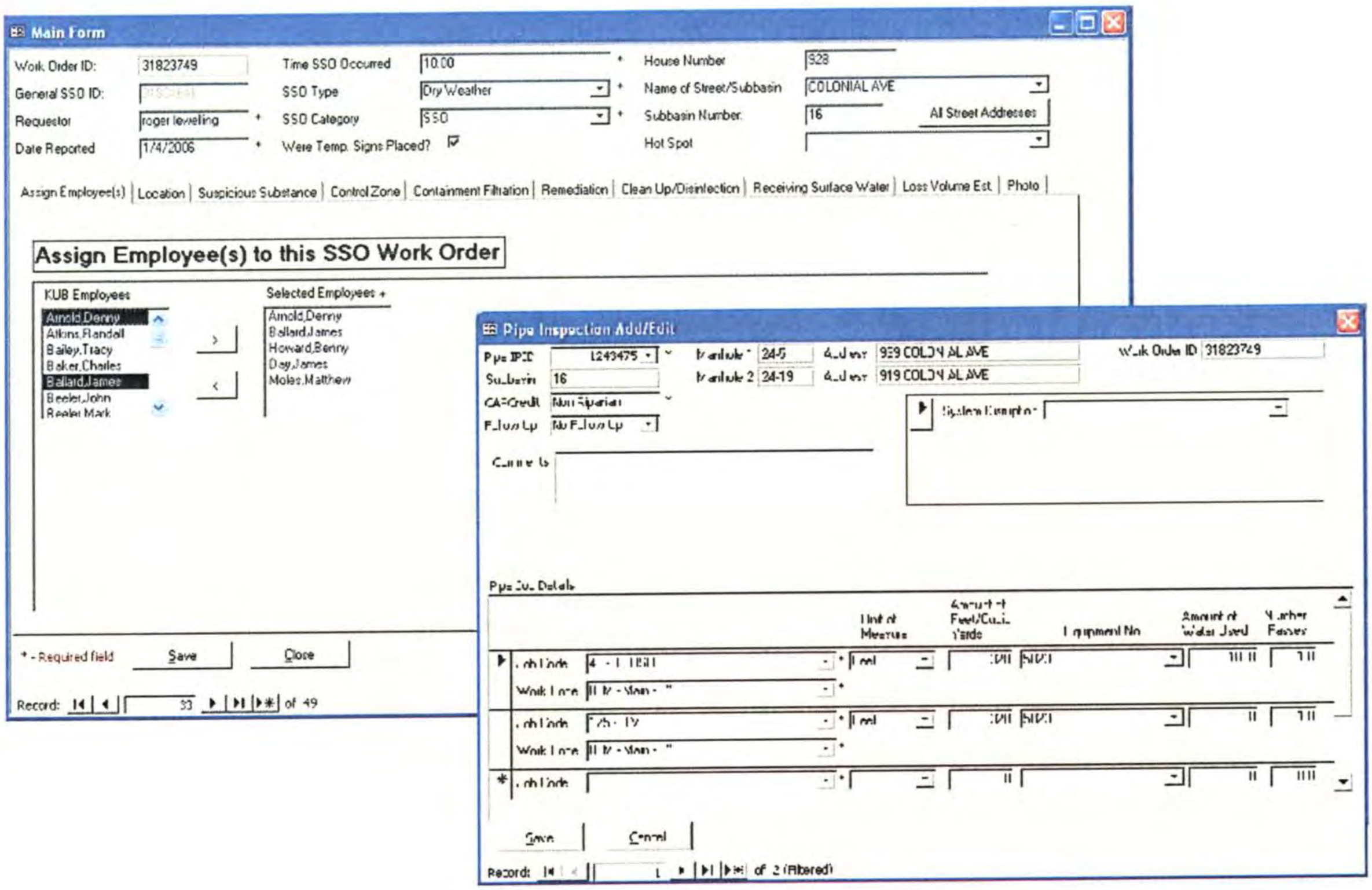
MH	MH Insp.
7-82	Repair
7-85	Repair
7-88	Repair
7-89	Repair
7-116	Does not exist
7-121	Replace
7-124C	Leave as is
65	Rehab
7-114	Replace
7-33	Rehab
7-34	Rehab
7-47	Leave as is
7-42	Replace
7-198	Leave as is
7-61	Replace
7-62	Replace
7-58	Replace
7-75	Rehab
7-80	Rehab
7-83	Rehab
7-87	Rehab
7-90	Rehab
5-24	Leave as is
7-13	Rehab
7-14	Rehab
7-104	Leave as is
7-189	Rehab
7-27	Replace
7-75D	Leave as is
7-75B	Leave as is
7	Leave as is
66	Leave as is
68	Leave as is
7-39	Leave as is
7-48A	Abandon
7-48	Leave as is
7-76	Leave as is
7-78	Leave as is
7-81	Leave as is
7-84	Leave as is
7-92	Leave as is
7-94	Leave as is
7-99	Leave as is
5-18	Rehab
5-25	Leave as is
5-7C	Leave as is
7-95	Replace
7-100	Replace
7-100	Replace
7-107	Leave as is
7-109	Covered
EOL	Install New MH
7-125	Replace
7-50	Replace
7-48	Rehab
7-203	Replace

MH Summary

MH	MH Insp.
7-75C	Covered
7-69B	Rehab
7-75C	Covered
1	Leave as is
7-70	Leave as is
7-93	Leave as is
7-98	Leave as is
7-100	Replace
7-106	Replace
7-112	Leave as is
7-115	Replace
7-126	Replace
7-75A	Leave as is
EOL	Install New MH
EOL	Install New MH
EOL	Install New MH
7-122	Rehab
7-117	Covered
7-200	Abandon
7-44	Replace
7-111	Repair
7-120	Replace
7-42	Replace
7-20X	Covered
7-19	Replace
7-114	Replace
7-43	Covered/Replace
7-75A	Leave as is
7-199	Abandon
7-3	Replace

Appendix I

CSM Screen Shots for SSO Response


Main Form
Work Order ID: 31823749
General SSO ID:
Requestor roger levelling
Date Reported 1/4/2006
Time SSO Occurred 10:00
SSO Type Dry Weather
SSO Category SSO
Were Temp. Signs Placed?
House Number 928
Name of Street/Subbasin COLONIAL AVE
Subbasin Number 16
All Street Addresses
Hot Spot
Assign Employee(s) | Location | Suspicious Substance | Control Zone | Containment Filtration | Remediation | Clean Up/Disinfection | Receiving Surface Water | Loss Volume Est | Photo
Assign Employee(s) to this SSO Work Order
KUB Employees
Arnold,Denny
Atkins,Randall
Bailey,Tracy
Baker,Charles
Ballard,James
Beeler,John
Selected Employees *
Arnold,Denny
Howard,Benny
Day,James
Moles,Matthew
* - Required field
Save
Close
Record: 33 of 49
Pipe Inspection Add/Edit
Pipe ID
Subbasin 16
CA-Credit Non Riparian
Follow Up No Follow Up
Work Order ID 31823749
Comments
Pipe Use Details
Unit of Measure
Amount of Feet/Cubic Yards
Equipment No
Amount of Water Used
Number Passes
Save
Cancel
Record: 1 of 2 (Filtered)

0001747

Main Form

Work Order ID: 31823749
General SSO ID:
Requestor: roger lewelling *
Date Reported: 1/4/2006 *
Time SSO Occurred: 10:00 *
SSO Type: Dry Weather *
SSO Category: SSO *
Were Temp. Signs Placed?
House Number: 928
Name of Street/Subbasin: COLONIAL AVE
Subbasin Number: 16
All Street Addresses
Hot Spot

Assign Employee(s) | Location | Suspicious Substance | Control Zone | Containment Filtration | Remediation | Clean Up/Disinfection | Receiving Surface Water | Loss Volume Est. | Photo |

From Main Line | From Manhole | From Force Main | From Pump Station | Others

Manhole

Manhole IPID: 1243576 *
Manhole Number: 24-20
Manhole Address: 928 COLONIAL AVE
Sub Basin Num: 16

Manhole Cause
- Broken Pipe
- Construction Failure
- Debris
- Grease
- Heavy Rainfall
- Pump Station Failure
- Roots
- WWTP

Manhole Cause: Roots *

* - Required field | Save | Close

Pipe Inspection Add/Edit

Pipe IPID: 1243475 *
Subbasin: 16
CAPCredit: Non Riparian *
Follow Up: No Follow Up
Manhole 1: 24-5 Address: 939 COLONIAL AVE
Manhole 2: 24-19 Address: 919 COLONIAL AVE
Work Order ID: 31823749
System Disruption
Comments

Pipe Job Details

	Job Code	Work Code	Unit of Measure	Amount of Feet/Cubic Yards	Equipment No	Amount of Water Used	Number Passes
▶	46 - FLUSH *	08M - Main - 8" *	Feet	328	5823	1000	1.0
	175 - TV *	08M - Main - 8" *	Feet	328	5023	0	1.0
				0		0	0.0

Manhole Inspection Add/Edit

Manhole ID: 1243576 *
Work Order ID: 31823749

Non-editable Manhole Information

Insp. Status
GIS Discrepancy
Street Address: 928 COLONIAL AVE
MH Number: 24-20
Subbasin #: 16
Latitude
Longitude
Surface Cover
Elevation
CAP Credit

Is Surcharged? Height (FT.): 0.0 Corrosion? H2S(PPM)
Comments:
Photo Name

Component Inspection | Manhole Pipe Connections

New

Pipe Connection	Condition	Connection Type	PipeType	FollowUp
OutGoing Pipe			Concrete pipe	Repair Pipe Connection with MH

Save | Close

Record: 1 of 3 (Filtered)

Work Order Add/Edit

Work Order Information

MIMS Work Order #: su005003 *
CIS FO#: 8119747344
Crew Leader: Lewelling , Roger *

Date Started: 1/4/2006 7:55:47 AM
Date Completed: 1/4/2006
Work Order ID: 31823749

Manhole Information | Yard Cut
Pipe Information | SSO
Time Log | Smoke Test
Street Cut

Complete Order

Save Work Order | Save and Close | Cancel

* - Required field

Time Log

Employee Number	Regular Hours	Overtime Hours	Scheduled OT	Equipment Number	Equipment Hours
3785 *	4.00 *		☐	5023 *	4 *
3806 *	4.00 *		☐	0 *	0 *
5286 *	4.00 *		☐	5823 *	4 *
*	*		☐	*	*

Save and Close | Cancel

Appendix J

Sample SSO and Building Backup Files

1711 MAPLE VIEW WAY

KUB PM & Reactive Sewer Work

COPY

Main ○ Lateral ○ SSO ●

Team ● PM ○ Reactive ○ Standby

Date 01 / 24 / 2005

Tracking Number 184137601 3

WorkOrder# SW 0050002

Total Hrs This W/O 1.50

W/O ID 5764

0001751

Crew Leader 5309

Street # 4839

StreetName JENKINS ST

CrossStreet WOODROW

Employee#	Regular Hours	Overtime Hours	MaterialItem#	Quantity	Equipment#	Hours	Beginning Mileage
3753	1.50				6321	1.50	
3785	1.50				5023	1.50	
5007	1.50				5100	1.50	
5308	1.50						

WorkDone

● Check&Advise ○ RatPoison
○ Check&Refer ○ SealManhole
○ CleanUp ○ DeodorantBlock
○ LocateLateral ○ Other

Delay Reason

DelayTime .

Cones

Barricades

TimeOnJob 12:00 ○ am ● pm

TimeOffJob 1:30 ○ am ○ pm

WorkOrder#

Total Hrs This W/O .

Repair Location
○ POC Garage
○ ECC Garage
○ JacksonShop

PickUpEquip#

DeliverEquip#

PickUpDeliverEmp

Describe Equip Repairs Needed

EasementLine? ○ Yes ● No

OverflowingManhole? ● Yes ○ No

EvidenceOverflowing? ● Yes ○ No

ManholeNo (enter dash) GIS

SewerMap# i1

Length 295 Ft.

Size 08

DrainageBasin# 7

EstimatedDuration . Hrs

EstimatedOverflow . GPM

AmountofLineCleared Ft.

Reason for Overflow: ● Stoppage ○ I&I

Possibly Caused by Commercial Grease? ○ Yes ● No

ForemanComments

Private MH 96' south of Manhole 17-38

MaintType

○ ProbOnPrpty ○ RodWork ○ C.I.P.P. ○ Disposal ○ PointRepair

		FeetYards	TruckNo
● Flush ○ TV	○ RootCut ○ Vac	295	5100
○ Flush ○ TV	○ RootCut ○ Vac		
○ Flush ○ TV	○ RootCut ○ Vac		
○ Flush ○ TV	○ RootCut ○ Vac		

StoppageType:
○ Roots ○ Swag in Line
○ Grease ○ Roots&Grease
● Debris ○ Broken Pipe
○ Flat Line ○ Other

PipeType:
○ Clay ○ HDPE
○ CIPP ○ PVC
○ Concrete ○ Other
○ Ductile Iron

AmountofWaterUsed

UpStreamManholeNo(enter dash) NA

Depth . Ft.

Size In/Dia

FlowConditionofManhole:
○ Surcharged ○ Full Pipe ○ 3/4 Pipe ○ 1/2 Pipe ○ 1/4 Pipe ○ Dry

Type:
○ Brick ○ Concrete

ConditionofManhole:
○ Leaking Walls ○ Leaking Joints ○ Leaking Pipe Connect ○ Bad Cast to MH Connect ○ Other

DownStreamManholeNo(enter dash) 17-38

Depth . Ft.

Size In/Dia

FlowConditionofManhole:
○ Surcharged ○ Full Pipe ○ 3/4 Pipe ○ 1/2 Pipe ○ 1/4 Pipe ○ Dry

Type:
○ Brick ○ Concrete

ConditionofManhole:
○ Leaking Walls ○ Leaking Joints ○ Leaking Pipe Connect ○ Bad Cast to MH Connect ○ Other

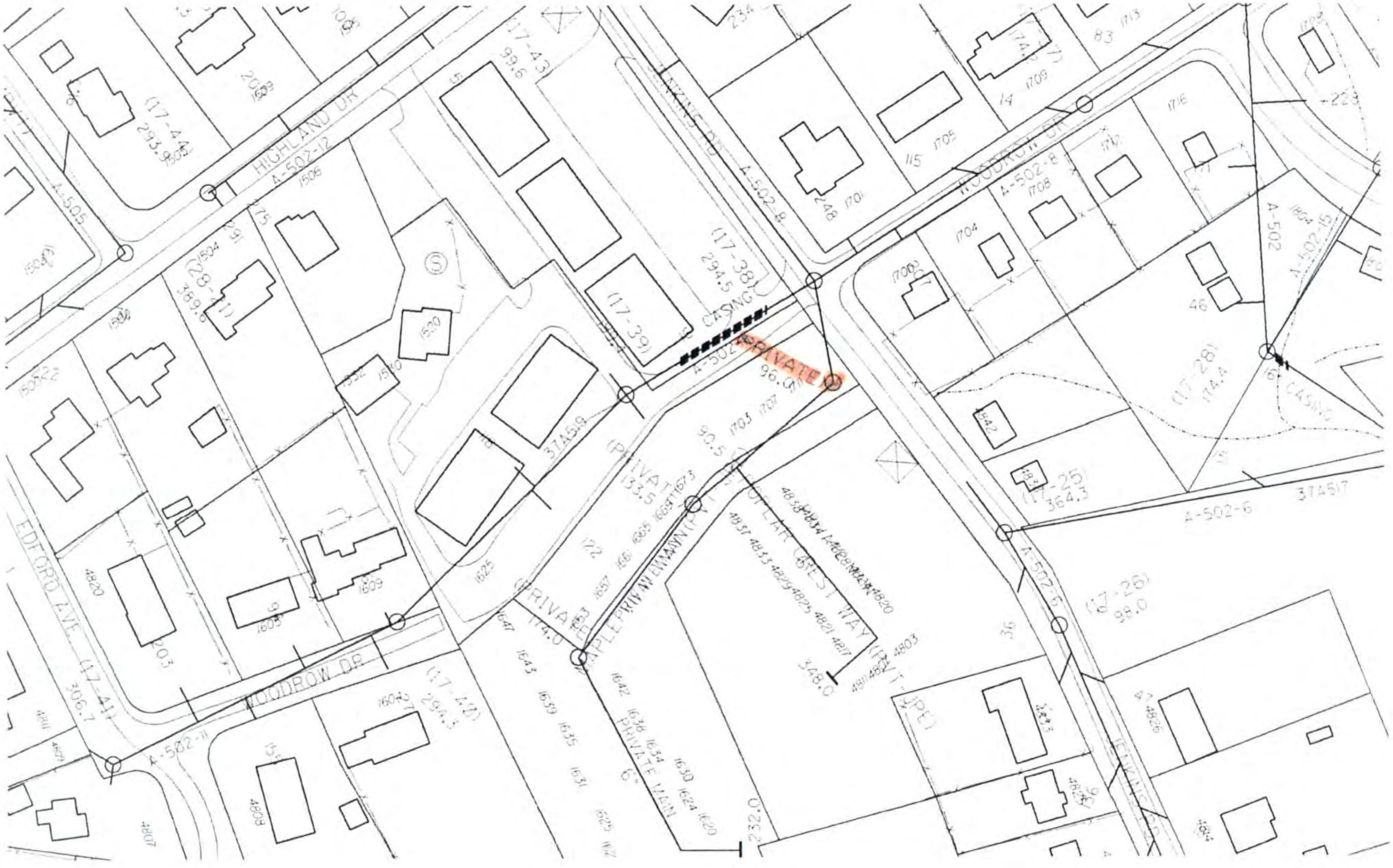
Street Cut Info

○ Asphalt ○ Concrete
Length Width

Yard Cut Info

Area ○ North ○ South ○ East ○ West
CutLength CutWidth StreetAtlas

Jenkins Road and Woodrow Drive (Private SSO)



0001752

1711 Maple View Way (Private Manhole) 01/24/05

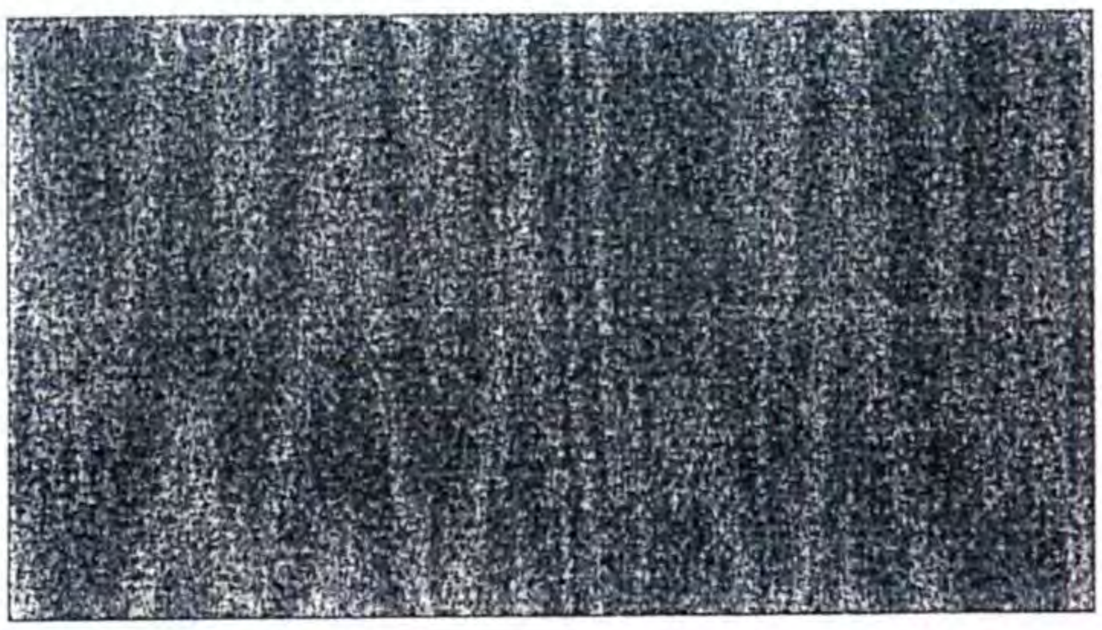
(Before)

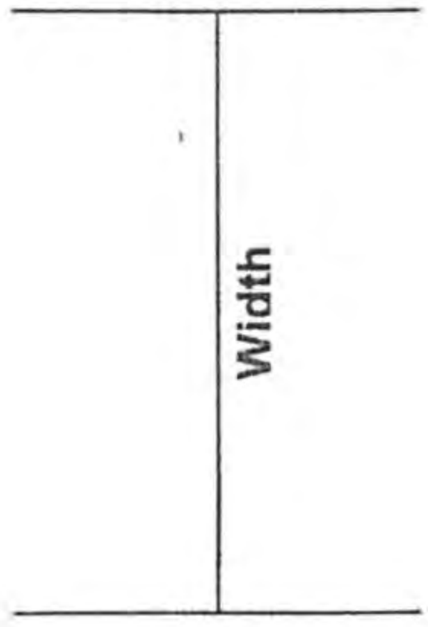
(During)

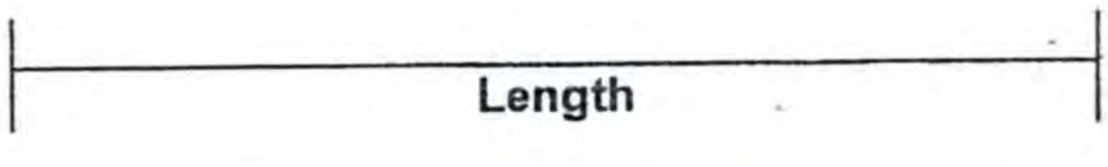
(After)

Volume Discharge Estimation

Calculating Rectangular Spill Areas







Date: 1-24-05 **Location:** 1839 Jenkins **Employee #:** 5309

Length of Spill (Ft): 10 ft *(1)*

Width of Spill (Ft): 10 ft *(2)*

Area of Spill (Sq. Ft) 100 *(3) = (1) x (2)*

Depth of Discharge (Feet): .5 *(4)*
Convert Inches to Feet by Dividing by 12

Estimated Volume of Discharge: 50 *(5) = (3) x (4)*

Convert Cubic Feet to Gallons: 374 *(6) = (5) x 7.48*

Report Estimate Discharge Volume: 374 *(6)*

Example

The approximate spill area is 100 feet by 50 feet and 6 inches deep. What is the Estimated Volume?

Length of Spill (Ft):	***100***	***(1)***
Width of Spill (Ft):	***50***	***(2)***
Area of Spill (Sq. Ft)	***5000***	***(3) = (1) x (2)***
Depth of Discharge (Feet):	***6/12 = 0.5***	***(4)***
Estimated Volume of Discharge:	***2500***	***(5) = (3) x (4)***
Convert Cubic Feet to Gallons:	***18,700***	***(6) = (5) x 7.48***
Report Estimate Discharge Volume:	***18,700 Gallons***	***(6)***

KUB

SSO Cleanup Report

Date: 01 / 24 / 2005

Crew Leader: 5309

○ StandBy

Tracking No: 1841376013

WorkOrderNo: 54 005011

Manhole No: 17 - 32

DrainageBasinNo: 7

TimeOnJob: 12 : 00 ○ AM ● PM

TimeOffJob: 1 : 30 ○ AM ● PM

LengthOfAreaCleaned: 10

WidthOf AreaCleaned: 10

StreetNo: 4839

Street: Searins ST

Please mark all that was used in this cleanup: ○ Rake & Shovel ● Lime ○ Straw ○ DumpTruck ○ Backhoe ○ Trackhoe ○ Bobcat ○ Highlift ○ Broom/Sweep ○ Vac Truck

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Tracking No:

WorkOrderNo:

Manhole No: -

DrainageBasinNo:

TimeOnJob: : ○ AM ○ PM

TimeOffJob: : ○ AM ○ PM

LengthOfAreaCleaned:

WidthOf AreaCleaned:

StreetNo:

Street:

Please mark all that was used in this cleanup: ○ Rake & Shovel ○ Lime ○ Straw ○ DumpTruck ○ Backhoe ○ Trackhoe ○ Bobcat ○ Highlift ○ Broom/Sweep ○ Vac Truck

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Tracking No:

WorkOrderNo:

Manhole No: -

DrainageBasinNo:

TimeOnJob: : ○ AM ○ PM

TimeOffJob: : ○ AM ○ PM

LengthOfAreaCleaned:

WidthOf AreaCleaned:

StreetNo:

Street:

Please mark all that was used in this cleanup: ○ Rake & Shovel ○ Lime ○ Straw ○ DumpTruck ○ Backhoe ○ Trackhoe ○ Bobcat ○ Highlift ○ Broom/Sweep ○ Vac Truck

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Tracking No:

WorkOrderNo:

Manhole No: -

DrainageBasinNo:

TimeOnJob: : ○ AM ○ PM

TimeOffJob: : ○ AM ○ PM

LengthOfAreaCleaned:

WidthOf AreaCleaned:

StreetNo:

Street:

Please mark all that was used in this cleanup: ○ Rake & Shovel ○ Lime ○ Straw ○ DumpTruck ○ Backhoe ○ Trackhoe ○ Bobcat ○ Highlift ○ Broom/Sweep ○ Vac Truck

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Tracking No:

WorkOrderNo:

Manhole No: -

DrainageBasinNo:

TimeOnJob: : ○ AM ○ PM

TimeOffJob: : ○ AM ○ PM

LengthOfAreaCleaned:

WidthOf AreaCleaned:

StreetNo:

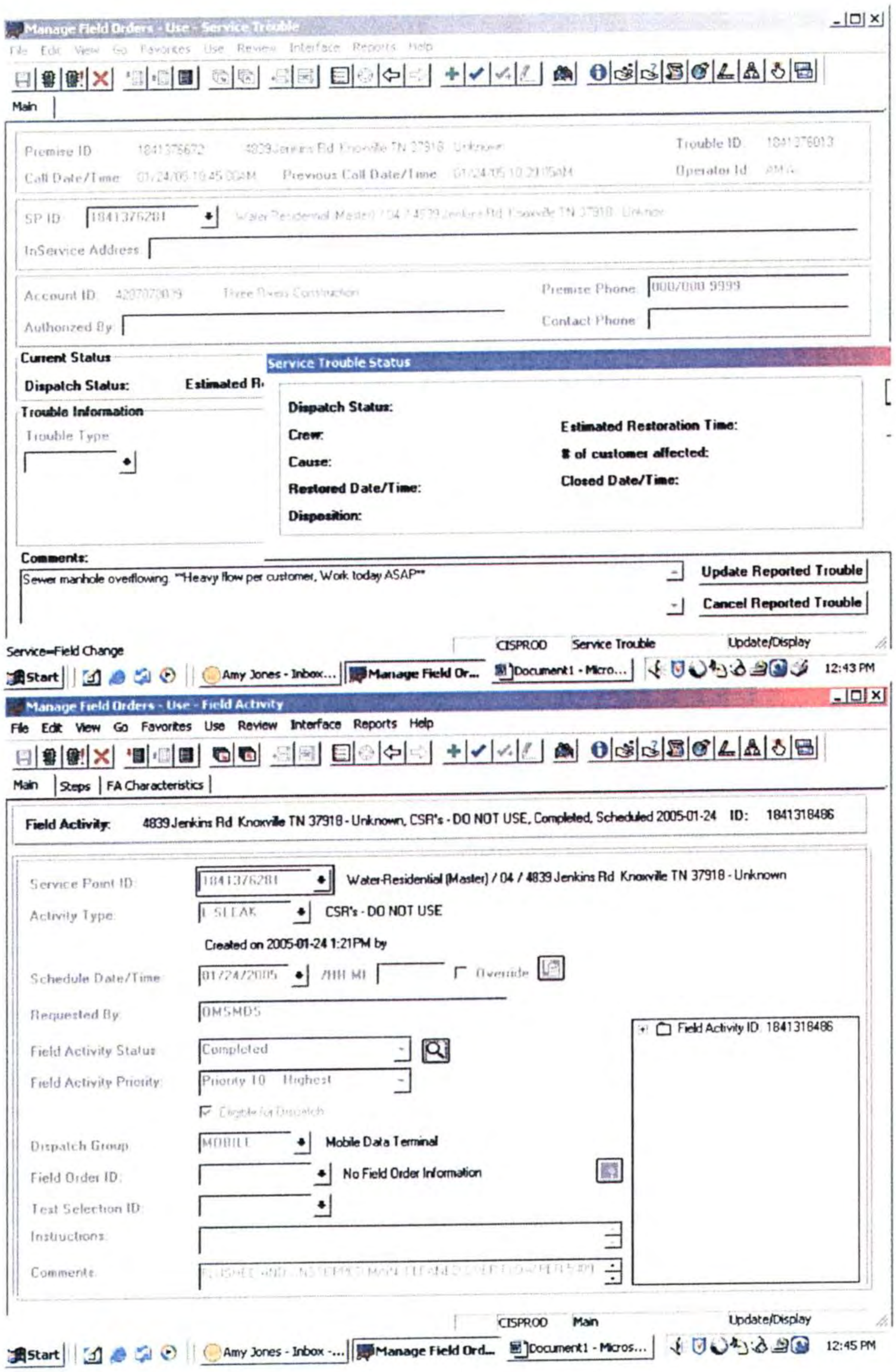
Street:

Please mark all that was used in this cleanup: ○ Rake & Shovel ○ Lime ○ Straw ○ DumpTruck ○ Backhoe ○ Trackhoe ○ Bobcat ○ Highlift ○ Broom/Sweep ○ Vac Truck

SSOCleanUpSheet7-31-03

1179

3212592004


Manage Field Orders - Use - Service Trouble
File Edit View Go Favorites Use Review Interface Reports Help
Main
Premise ID: 1841376672 4839 Jenkins Rd Knoxville TN 37918 Unknown
Trouble ID: 1841376013
Call Date/Time: 01/24/05 10:45:00AM
Previous Call Date/Time: 01/24/05 10:21:05AM
Operator Id: AMA
SP ID: 1841376281
Water Residential Master / 04 / 4839 Jenkins Rd Knoxville TN 37918 Unknown
InService Address:
Account ID: 420707003 Three Rivers Contractor
Premise Phone: 000/000 9999
Authorized By:
Contact Phone:
Current Status
Dispatch Status:
Estimated R
Trouble Information
Trouble Type:
Service Trouble Status
Dispatch Status:
Crew:
Cause:
Restored Date/Time:
Disposition:
Estimated Restoration Time:
# of customer affected:
Closed Date/Time:
Comments:
Sewer manhole overflowing. **Heavy flow per customer, Work today ASAP**
Update Reported Trouble
Cancel Reported Trouble
Service=Field Change
CISPROD Service Trouble Update/Display
Start
Amy Jones - Inbox...
Manage Field Or...
Document1 - Micro...
12:43 PM
Manage Field Orders - Use - Field Activity
File Edit View Go Favorites Use Review Interface Reports Help
Main Steps FA Characteristics
Field Activity: 4839 Jenkins Rd Knoxville TN 37918 - Unknown, CSR's - DO NOT USE, Completed, Scheduled 2005-01-24 ID: 1841318486
Service Point ID: 1841376281
Water-Residential (Master) / 04 / 4839 Jenkins Rd Knoxville TN 37918 - Unknown
Activity Type: L SLEAK
CSR's - DO NOT USE
Created on 2005-01-24 1:21PM by
Schedule Date/Time: 01/24/2005
##
Override
Requested By: OMSMD5
Field Activity Status: Completed
Field Activity Priority: Priority 10 Highest
Eligible for Dispatch
Dispatch Group: MOBILE
Mobile Data Terminal
Field Order ID:
No Field Order Information
Test Selection ID:
Instructions:
Comments:
Field Activity ID: 1841318486
CISPROD Main Update/Display
Start
Amy Jones - Inbox -...
Manage Field Ord...
Document1 - Micros...
12:45 PM

Rhonda
Snow/SYS/EAO/KUB
01/24/2005 03:23 PM

To SSO Email Group
cc
bcc
Subject SSO - 1711 MapleView Way - Initial Overflow Report

The following information is being provided to the Tennessee Department of Environment and Conservation (TDEC) in accordance with the requirements of KUB's NPDES Permits.

Confirmed Sanitary Sewer Overflow (SSO):
Date: 01/24/2005
Time: 03:21:00 PM
Location: 1711 MapleView Way
Collection System: Kuwahee

KUB is responding in accordance with its Sewer Overflow Response Plan. Please direct any questions regarding this correspondence to Dwayne Frye @ 594-8210.

Dwayne Frye/CSI/EAO/KUB
01/24/2005 03:59 PM

To john.west@state.tn.us
cc Ted Tyree/TCH/EAO/KUB@KUB, Joe Snyder/TCH/EAO/KUB@KUB, Tom Dittmaier/ENG/EAO/KUB@KUB, Ben
bcc
Subject Sanitary Sewer Overflow (SSO)
1711 Maple View Way

The following information is being provided to the Tennessee Department of Environment and Conservation (TDEC) in accordance with the requirements of KUB's NPDES Permits.

An SSO has occurred in the Kuwahee Collection System.

Date - January 24, 2005
Location - 1711 Maple View Way (Private Manhole)
Duration - 2 Hours
Est. Volume - 374 gallons
Reason - There was a partial blockage in the sewer main caused by debris.
Action Taken - The sewer main was flushed to clear the blockage. The area was cleaned.

Please call me @ 594-8210 or reply to this email if there are any questions.

Thank you,
Dwayne Frye, P. E.
Collection System Improvements

Roger
Lewelling/UGC/CST/KUB

01/27/2005 06:44 AM

To Dwayne Frye/CSI/EAO/KUB@KUB, Jason Brooks/CSI/EAO/KUB@KUB, Herschel Hall/UGC/CST/KUB@KUB, Thomas

cc

bcc

Subject FOLLOW UP SSO 1711 MAPLE VIEW WAY

TVED MAIN AND FOUND HEAVY ROOTS AT TEE WE ROOT CUT MAIN AND PUT ON PM LIST
THIS WAS A PRIVATE MH THAT OVERFLOWED BUT THE STOPPAGE WAS ON OUR MAIN ON
WOODROW DR BETWEEN MH#17-38 MH#17-37

CSI Follow-up Checklist

CSI Teammember: C.M Tucker **Address of SSO:** 1711 Maple Leaf Way
Date Verified: 1/31/05 **Date of SSO:** 1/24/05

Reporting Information		
Was the following information reported correctly?		
Yes	***No***	***Item***
✓		Date of the occurrence
✓		Manhole Number
✓		Street Address (FINAL REPORT HAD CORRECT ADDRESS)
✓		Name of Collection System
✓		Statement detailing cause of SSO
✓		Statement detailing KUB response
✓		Volume Estimation
✓		Duration of SSO event

Control Zone		
Yes	***No***	***Item***
✓		Was the entire impacted area identified correctly?
	✓	Streams impacted?
	✓	Stormwater infrastructure impacted?
✓		Private Property Impacted?
	✓	Sidewalks/Greenway Impacted?
	✓	Parking Lots Impacted?
		Other? Specify:_____
Comments:		

Containment		
Yes	***No***	***Item***
	✓	Was Containment Practicable?
		If so what volume was contained?
		What method was employed? Specify below:
Comments:		

Filtration		
Yes	***No***	***Item***
	✓	Was Filtration Practicable?
		What method was employed? Specify below:
Comments:		

Clean-up/Disinfection		
Yes	***No***	***Item***
✓		Was all solids, paper, etc. recovered?
✓		Was area thoroughly disinfected?
Comments:		

CSI Teammember Signature: T-M Tucker

Dwayne Frye/CSI/EAO/KUB
12/06/2005 03:50 PM

To SSO Email Group
cc
bcc
Subject Building Back Up (BBU)
2564 Woodbine Avenue

The following information is being provided to the Tennessee Department of Environment and Conservation (TDEC) in accordance with the requirements of KUB's NPDES Permits.

A BBU has occurred in the Kuwahee Collection System.

Date -	December 5, 2005
Time -	12:20 PM
Observer -	KUB Customer - Allene Bryant
Location -	2564 Woodbine Avenue
Reason -	There was a BBU caused by grease.
Action Taken -	The sewer main was flushed to clear the blockage. The building was cleaned.
KUB Responders -	David Lusby and Roger Lewelling
Est. Recovered Vol -	0 gallons
Est. Non-Recovered Vol. -	5 gallons
Duration -	1 Hour
Water of the State -	No
Receiving Water -	None
Photographs -	Copies of photographs are available upon request.

Please call me @ 594-8210 or reply to this email if there are any questions.

Thank you,
Dwayne Frye, P. E.
Collection System Improvements

564 Woodbine Avenue (BBU)

2564 Woodbine Avenue (BBU) Claims Pictures 12/05/05

Ray Edwards/SYS/EAO/KUB

12/05/2005 01:54 PM

To SSO Email Group

cc

bcc

Subject Building Backup - 2564 Woodbine Ave - Building Backup Report

The following information is being provided to the Tennessee Department of Environment and Conservation (TDEC) in accordance with the requirements of KUB's NPDES Permits.

Building Backup Report:
Date: 12/05/2005
Time: 12:20:00 PM
Location: 2564 Woodbine Ave
Collection System: Kuwahee

KUB is responding in accordance with its Sewer Overflow Response Plan. Please direct any questions regarding this correspondence to Dwayne Frye @ 594-8210.

KUB Customer -
Allene Bryant

David Lusby/CLA/FIN/KUB
12/05/2005 04:35 PM

To Dwayne Frye/CSI/EAO/KUB@KUB
cc
bcc
Subject BBU - 2564 Woodbine Avenue

Date: December 5, 2005
Observer: David Lusby
Location: 2564 Woodbine Avenue
Reason: Notified by Dispatch that the main backed-up into basement of structure.
Action Taken: Contacted Servicemaster of the Smokies to clean, disinfect and dry the affected area.

KUB Responders: David Lusby, Risk Management

Estimated Volume: Area affected approximately 6' x 10'

Estimated Volume Not Recovered: Most of the water either drained back into the floor drains when the main was cleared or was extracted by Servicemaster of the Smokies. KUB's flush crew (Roger Llewelling) stated the main was stopped with grease.

Pictures from the affected area.


BBU - Woodbine Avenue 002.jpg


BBU - Woodbine Avenue 001.jpg

Roger
Lewelling/UGC/CST/KUB

12/08/2005 06:41 AM

To Dwayne Frye/CSI/EAO/KUB@KUB, Jason Brooks/CSI/EAO/KUB@KUB, Herschel Hall/UGC/CST/KUB@KUB, Thomas

cc

bcc

Subject FOLLOW UP SSO 2564 WOODBINE AVE

FLUSHED MAIN AND FOUND HEAVY GREASE IN THIS SHORT SECTION. WE ALSO HAVE SOME STRUCTURE PROBLEMS COULD NOT GET A INSPECTION ON LINE. ADVISED TOM HAUCK OF PROBLEM..

Kelly Liford/PLT/EAO/KUB
12/12/2005 09:27 AM

To Joe Snyder/PLT/EAO/KUB@KUB, Thomas Hauck/CSI/EAO/KUB@KUB, Ben Parker/TCH/EAO/KUB@KUB, Kelly
cc Wayne Loveday/CSI/EAO/KUB@KUB, Audrey Byrd/SYS/EAO/KUB@KUB, Gretchen Weir/SYS/EAO/KUB@KUB
bcc
Subject Grease Investigation Report - 2564 Woodbine Ave. Building Back Up (BBU)

A BBU has occurred in the Kuwahee Collection System.

Date -	December 5, 2005
Time -	12:20 PM
Observer -	KUB Customer - Allene Bryant
Location -	2564 Woodbine Avenue
Reason -	There was a BBU caused by grease.
Action Taken -	The sewer main was flushed to clear the blockage. The building was cleaned.
KUB Responders -	David Lusby and Roger Lewelling
Est. Recovered Vol -	0 gallons
Est. Non-Recovered Vol. -	5 gallons
Duration -	1 Hour
Water of the State -	No
Receiving Water -	None
Photographs -	Copies of photographs are available upon request.

Follow-up SSO Investigation Report (Building Back Up (BBU)
Initial Investigation Date: December 12, 2005
Results: 45 residential and one commercial customer were identified as potential grease contributors from a building back up.
Identified Contributor: 45 residential and one commercial customer (Kreative Kids Daycare) were identified as potential grease contributors from a Landviewer query.
Comments: All residential customers will be mailed a grease can, magnet and brochure. I spoke with the Assistant Director (Ms. Lisa Mobley) of Kreative Kids Daycare about their current food prep practices. Ms. Mobley said that the daycare does a small amount of food prep but is well aware of not pouring grease down their drains. She said the daycare practices best management practices (BMPs) at all times.

2564 Woodbine Avenue (BBU).xls

J. Kelly Liford
Grease Program Coordinator
Knoxville Utilities Board
(865) 594-8337

SERVICE #	CUSTOMER	ADDRESS	CITY	STATE	POSTAL	PHONE
2876	Maria C Guiterrez	2639 Woodbine Ave	Knoxville	TN	37914-5239	865/000-9999
2891	Sandra R Jackson	2644 Woodbine Ave	Knoxville	TN	37914-5238	865/522-2461
10352	**Kreative Kids LLC**	2647 Woodbine Ave	Knoxville	TN	37914-5239	865/524-3133
10411	George W Carter	2640 Woodbine Ave Apt 1	Knoxville	TN	37914-5238	865/523-2365
13203	Patricia E Harvey	2521 Woodbine Ave	Knoxville	TN	37914-5237	865/524-0045
13209	Sonja Johnson	2513 Woodbine Ave	Knoxville	TN	37914-5237	865/973-3193
13269	Pamela Y Davenport	2544 Woodbine Ave Lot 1	Knoxville	TN	37914-5236	865/544-0688
14288	Valerie A Mitchell	2540 Woodbine Ave	Knoxville	TN	37914-5236	865/936-9276
14324	Linnie White	2524 Woodbine Ave	Knoxville	TN	37914-5236	
15201	Marlena L Harris	2528 Woodbine Ave	Knoxville	TN	37914-5236	865/524-5619
15671	Helen Oxendine	2632 Woodbine Ave	Knoxville	TN	37914-5238	865/525-7785
15672	Don D Garrett	2638 Woodbine Ave	Knoxville	TN	37914-5238	
15972	Rhyesa L Tate	2630 Woodbine Ave	Knoxville	TN	37914-5238	865/521-0840
16055	Marielena O Komons	2615 Woodbine Ave	Knoxville	TN	37914-5239	865/936-3205
16228	Johnnie Fenderson	2631 Woodbine Ave	Knoxville	TN	37914-5239	865/673-0015
16852	Ray Evans	2529 Woodbine Ave	Knoxville	TN	37914-5237	865/525-9852
17037	Kimberly R Swanson	2527 Woodbine Ave	Knoxville	TN	37914-5237	865/971-4109
17208	Estate of Katherine N Mounger	2537 Woodbine Ave	Knoxville	TN	37914-5237	865/522-7796
17288	Jaffar Alabady	2625 Woodbine Ave	Knoxville	TN	37914-5239	865/455-5430
17754	Brandie L Bogus	2531 Woodbine Ave Apt 1	Knoxville	TN	37914-5237	
17952	Nan P Gray	2635 Woodbine Ave	Knoxville	TN	37914-5239	865/673-8993
18944	Tanaquil S Bomar	2543 Woodbine Ave	Knoxville	TN	37914-5237	865/577-9894
19345	Mae J Turner	2556 Woodbine Ave	Knoxville	TN	37914-5236	865/633-9449
20411	Gene W Forrest	2545 Woodbine Ave	Knoxville	TN	37914-5237	865/525-9532
20695	Ronald L Gilmore	2538 Woodbine Ave	Knoxville	TN	37914-5236	865/696-1773
21703	Annette Howell	2522 Woodbine Ave	Knoxville	TN	37914-5236	865/971-1838
22446	John D Howell Jr	2534 Woodbine Ave	Knoxville	TN	37914-5236	865/546-7200
26867	Allene J Bryant	2564 Woodbine Ave	Knoxville	TN	37914-5236	865/521-7327
26868	Kimberly D Moore	2547 Woodbine Ave	Knoxville	TN	37914-5237	865/971-4776
27297	James M Tate	2605 Woodbine Ave	Knoxville	TN	37914-5239	865/523-0187
27316	Tamiko L Dixon	2548 Woodbine Ave	Knoxville	TN	37914-5236	865/973-5658
28351	Teri S Ortiz	2606 Woodbine Ave	Knoxville	TN	37914-5238	865/544-0864
28507	Jewel Nolen	2554 Woodbine Ave	Knoxville	TN	37914-5236	865/633-5130
29520	Nikisha A Battle	2620 Woodbine Ave	Knoxville	TN	37914-5238	
29708	Judith D Shephard	2624 Woodbine Ave	Knoxville	TN	37914-5238	865/521-3509
29709	Helen B Rogers	2616 Woodbine Ave	Knoxville	TN	37914-5238	865/522-8757
32947	Alice C Cantrell	2607 Woodbine Ave	Knoxville	TN	37914-5239	865/637-6703
34255	Valeryn Stewart	2617 Woodbine Ave	Knoxville	TN	37914-5239	865/544-7569
38130	Hubert R Jennings	2610 Woodbine Ave	Knoxville	TN	37914-5238	865/546-4961
38325	Royce Wright	2612 Woodbine Ave	Knoxville	TN	37914-5238	865/524-8557
38764	Nell Dean	2623 Woodbine Ave	Knoxville	TN	37914-5239	865/522-0860
39462	Michelle D Winston	2553 Woodbine Ave	Knoxville	TN	37914-5237	865/540-1593
39868	Estella Turner	2557 Woodbine Ave	Knoxville	TN	37914-5237	
40032	Charles E Davis	2561 Woodbine Ave	Knoxville	TN	37914-5237	865/525-3301
94602	Annie E Davis	2565 Woodbine Ave	Knoxville	TN	37914-5237	865/637-7169
94976	Ora L Coffer	2574 Woodbine Ave	Knoxville	TN	37914-5236	865/525-7992

Appendix K

Private Lateral Tracker Screen Shots

Owner/Property Information

Save & Close Enter Contact Generate Forms...

Owner/Property | KUB | Notification | Res. Assistance | City of Knoxville | County | Appeal | Contact History

Owner Information

First Name: Last Name: KUB Account #:
Address: SSN:
City: State: TN Zip:
Contact Info:
Occupant: Owner Tenant
City Council Representative:
County Commissioner:

Premise Information

Premise ID: CLT #: Parcel #:
Notes: City County

KUB Inspection Information

Owner/Property | KUB | Notification | Res. Assistance | City of Knoxville | County | Appeal | Contact History

KUB Inspection

Smoke Insp. Date: 16 Inspector: Packet Rcvd: 16
CCTV Insp. Date: 16 Inspector:
Sub-Basin: Repair Replace
PACP Score:
Inspector Remarks:
Comments:
Documentation and Media(This field supports attachments)

Attach...

Description of Lateral Defect

Lateral IPID#: Lateral Material:
Lateral Size: Sewer Main Size:
Description of Defect:
Action Required:

0001770

Notification

Owner/Property | KUB | Notification | Res. Assistance | City of Knoxville | County | Appeal | Contact History

Notification Tracking

Day	Action	Required Date	Complete Date		Received Date
0	Notice of Non-Compliance		16	Certified Mail #:	16
7	PLPC Follow-up Contact	12/23/2005	16	Call Notes:	
30	NOV Letter Sent	01/15/2006	16	Certified Mail #:	16
60	PLPC Follow-up Contact	02/14/2006	16	Call Notes:	
90	Termination Notice Sent	03/16/2006	16	Certified Mail #:	16
110	Doorhanger Date	04/05/2006	16	Delivered by:	
119	Warning Call	04/14/2006	16	Call Notes:	
120	Doorhanger Date	04/15/2006	16	Delivered by:	
120	Water Svc. Terminated	04/15/2006	16		
	Completion Letter Sent		16		
	Codes Enforcement Plumbing Inspector		16		
	Days Elapsed since NONC:	47			
	Appeal Ext. in Days	0		Additional Ext. in days	Refresh

Residential Assistance

Owner/Property | KUB | Notification | Res. Assistance | City of Knoxville | County | Appeal | Contact History

Residential Assistance Information

Referred to CAC: 16

Referred By:

App Sent Date: 16

App Rcvd Date: 16

Decision Date: 16

Asst. Type: Loan Grant

Approved: Yes No

Loan/Grant Notes:

CAC Workflow

CAC met with customer at property: 16

Estimated Cost:

Contract Open for Bids: 16

Contract Closed for Bids: 16

Contractor Name:

Contract Signed: 16

Permit Obtained: 16

Work Completed: 16

Disbursement Amount:

Disbursement Date: 16

Comments:

City of Knoxville

Owner/Property | KUB | Notification | Res. Assistance | City of Knoxville | County | Appeal | Contact History

City of Knoxville Information

Date Notified: 12/16/2005

Notified By:

COK Reminder Sent: 16

Certified Mail #:

COK Reminder Rcvd:

Permit #:

Permit Date: 16

Inspector Name:

Approved Inspection Date: 16

Inspector Phone:

Comments:

Contractor

Contractor Name:

Phone:

Contractor Info:

County

Owner/Property | KUB | Notification | Res. Assistance | City of Knoxville | County | Appeal | Contact History

County Information

Date Notified: 12/16/2005

Notified By:

Inspector Name:

Approved Inspection Date: 16

Inspector Phone:

Contractor

Contractor Name:

Phone:

Contractor Info:

Appeal

Owner/Property | KUB | Notification | Res. Assistance | City of Knoxville | County | Appeal | Contact History

Appeal Process Information

Appeal Request Date (Appeal PacketSent): 16

NOV not yet recieved

Appeal Recieved Date (Appeal Extension Start Date): 16

Appeal Decision Date (Appeal Extension End Date): 16

Decision: Yes No

Appeals Process Checklist

Reason for Appeal:	Documentation provided by Customer	Is documentation sufficient to validate Appeal?
> Technical	> CCTV photos of the interior of the private lateral > Air testing results	Yes No
> Lateral Ownership Dispute	> Deed > Easement clarifying ownership of lateral > Property Survey	Yes No
> Other		Yes No

Contact History

Owner/Property | KUB | Notification | Res. Assistance | City of Knoxville | County | Appeal | Contact History

0001773