

**TECHNICAL MEMORANDUM**

**SARPY COUNTY SEWER INSPECTION**  
Calendar Year 2008

**for**

**SARPY COUNTY, NEBRASKA**



**WLA Project No. 149-005**

**January 2009**

**Revision 0**

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## **SECTION 1.0 INTRODUCTION**

### **1.1 Purpose**

The purpose of this Technical Memorandum (TM) is to evaluate the condition of the Sarpy County Sanitary Sewer system for calendar year 2008 and identify points within the sewer system that require repair. These items are documented and accompanied by maintenance recommendations.

### **1.2 Background**

The Sarpy County Sanitary Sewer System consists of several sewer lines, including the: Sarpy County South Papillion Creek Outfall, Wood Hollow, Pink Industrial Park Outfall, Hilltop, Valley Ridge, Prairie Corners, Prairie Corners II, and Highway Crossing Outfall Sewer. Sarpy County does not have the title to all of the above sewers but does have plans to obtain them.

An annual inspection aids the county in maintaining the good condition of the sanitary sewer system. Deficiencies that are found during the inspections are documented and monitored. It is understood that no major repairs or modifications were made to the respective sewer system in calendar year 2008.

### **1.3 Field Activity**

The Sarpy County Sanitary Sewer System was visually inspected on November 17<sup>th</sup> and November 24<sup>th</sup> of 2008. The inspection included taking photographs and notes of areas with observable flaws. Areas documented on previous inspection reports and during WLA's field work this summer were revisited and the current conditions were noted.

### **1.4 Sanitary Sewer Evaluation**

The overall condition of the Sarpy County Sanitary Sewer System is excellent. Presented in Section 2 are specific locations that have deficiencies and should be considered for repair. A form has been filed out for each location documenting the outfall sewer, manhole number, field observations, and pictures. Locations are referred to the sewer names and manhole numbering a previously provided to Sarpy County by WLA on the Sanitary Sewer Map.



## SECTION 2.0 SANITARY SEWER SYSTEM EVALUATION

### 2.1 Sanitary Sewer Observations

Presented below are specific locations recommended for repair. Each location referenced in this section is shown on the sewer system map included in Appendix A. The visual inspection indicated that the sewer system, in general, is very sound. No manholes were found to exhibit more than a minimal degree of corrosion from sewer gas.

Inspector: WLA Consulting, Inc.

#### **Location No. 1:**

**Outfall ID:** Pink Industrial

**Manhole ID:** 72500-7

**Severity:** Minor

**Observations:** Erosion under Manhole Ring.

**Recommendation:** Monitor for Progression of Erosion.



Manhole 72500-7  
Date: November 17, 2008

**Location No. 2:**

**Outfall ID:** Pink Industrial

**Manhole ID:** 72500-8, 72500-9

**Severity:** Major

**Observations:** Manhole 72500-8 is buried. Large amount of erosion taking place between top of hill and the sewer line. Reinforcement fabric has been placed along the hillside to slow the erosion. Northeast of Manhole 72500-9 significant erosion has occurred and is traveling toward sewer line.

**Recommendation:** Continue to monitor erosion. If erosion accelerates, the washed out area should be repaired.



Approximate location of Manhole 72500-8



Erosion occurring Northeast of Manhole 72500-9



Erosion occurring uphill of Manhole 72500-9

Date: November 17, 2008

**Location No. 3:**

**Outfall ID:** Valley Ridge

**Manhole ID:** 32599-2

**Severity:** Minor

**Observations:** Erosion around Concrete Collar of Manhole.

**Recommendation:** Monitor for Progression of Erosion.



Manhole 32599-2  
Date: November 17, 2008

**Location No. 4:**

**Outfall ID:** Valley Ridge

**Manhole ID:** 32599-3

**Severity:** Minor

**Observations:** Erosion around Concrete Collar of Manhole.

**Recommendation:** Monitor for Progression of Erosion.



Manhole 32599-3  
Date: November 17, 2008

**Location No. 5:**

**Outfall ID:** Valley Ridge

**Manhole ID:** 32599-5

**Severity:** Minor

**Observations:** Erosion around Concrete Collar of Manhole.

**Recommendation:** Monitor for Progression of Erosion.



Manhole 32599-5

Date: November 17, 2008

**Location No. 6:**

**Outfall ID:** Wood Hollow

**Manhole ID:** 10173-36

**Severity:** Major

**Observations:** Manhole filled with trash and debris. No cover present.

**Recommendation:** Replace manhole cover. Remove debris.



Manhole 10173-36

Date: July 17, 2008

**Location No. 7:**

**Outfall ID:** South Papillion Creek

**Manhole ID:** 4896-53

**Severity:** Minor

**Observations:** Erosion around concrete collar.

**Recommendation:** Monitor for progression of erosion.



West side of Manhole 4896-53



East side of Manhole 4896-53

Date: November 24, 2008

**Location No. 8:**

**Outfall ID:** Wood Hollow

**Manhole ID:** 10173-8, 10173-9

**Severity:** Major

**Observations:** Erosion between Manholes 10173-8 and 10173-9 has increased since 2007 inspection. Water flowing from the field to the creek is creating a large washout that continues to move toward the sewer line. If the erosion continues, the sanitary sewer line is endangered of being exposed.

**Recommendation:** Continue to monitor erosion and if it worsens, the washed out area should be repaired.



Erosion occurring above creek bank



Looking at Manhole 10173-9 from  
Manhole 10173-8



Erosion occurring uphill of  
Manhole 10173-8

Date: November 24, 2008

**Location No. 9:**

**Outfall ID:** Hilltop

**Manhole ID:** 22703-1, 22703-2, 22703-3

**Severity:** Minor

**Observations:** Erosion around Concrete Collar of Manholes.

**Recommendation:** Monitor for progression of erosion.



Manhole 22703-1



Manhole 22703-2



Manhole 22703-3

Date: November 24, 2008

**Location No. 10:**

**Outfall ID:** Hilltop

**Manhole ID:** 73097-1

**Severity:** Minor

**Observations:** Manhole is buried. Large sink has occurred, exposing the manhole rim and collar.

**Recommendation:** Fill and seed sink hole. Reset Manhole Cover.



Sink hole adjacent to Manhole 73097-1



Exposed rim and collar of Manhole 73097-1

Date: November 24, 2008

## 2.2 Other Observations

South Papillion Creek: Manholes 4896-1 through 4896-8 are buried. This area is the sod farm near 111<sup>th</sup> and Giles Road.

Commerce Business Park: Manhole 92601-16 Evident of maintenance since calendar year 2007 inspection.

Pink Industrial Park: Manholes 72500-01 through 72500-09 known as the Pink Industrial Park sewer are still buried due to erosion. It is recommended that Sarpy County request that these manholes be raised.

Prairie Corners III: Manhole 2298-10 - There is evidence of maintenance since calendar year 2007 inspection.



## SECTION 3.0 ESTIMATED REPAIR COSTS

Table 3-1 and 3-2 were prepared to illustrate the estimated cost of repairs for each of the locations outlined in section 2.1.

**Table 3-1  
Estimated repair costs**

| <b>Location</b>           | <b>Type</b>                      | <b>Estimated Cost</b> |
|---------------------------|----------------------------------|-----------------------|
| 1 and 2 - Pink Industrial | Erosion and Buried Manholes      | \$22,000              |
| 3, 4 and 5 - Valley Ridge | Erosion                          | No Repair Necessary   |
| 6 - Wood Hollow           | No Cover, Debris in Manhole      | \$1,200               |
| 7 - South Papillion Creek | Erosion                          | No Repair Necessary   |
| 8 - Wood Hollow           | Erosion and Subsidence           | \$15,000              |
| 9 - Hilltop               | Erosion                          | No Repair Necessary   |
| 10 - Hilltop              | Erosion and Buried Manhole Cover | \$750                 |

**Table 3- 2  
Other Recommended Repairs**

| <b>Location</b>           | <b>Type</b>              | <b>Estimated Cost</b> |
|---------------------------|--------------------------|-----------------------|
| Valley Ridge <sup>1</sup> | Erosion                  | \$17,000              |
| South Papillion Creek     | Buried Manholes (Qty. 8) | \$5,000               |

<sup>1</sup> See Location 5 in the 2007 Inspection Report.



## **APPENDIX A**

---

Field Notes



1640 "L" STREET, SUITE D  
LINCOLN, NE 68508-2581  
PHONE: (402) 475-8588  
FAX: (402) 477-1956

|  |  |                 |  |
|--|--|-----------------|--|
| SANITARY SEWER ID: 4896-8  |  | PICTURE ID: 914 |  |
| DATE: 7/9/08   |  | TIME: 9:45      |  |
| OBSERVATION NOTES: close to road, just west of 117 <sup>th</sup> St & Giles intersection |  |                 |  |
| SANITARY SEWER ID: 4896-7  |  | PICTURE ID: 915 |  |
| DATE: 7/9/08   |  | TIME:           |  |
| OBSERVATION NOTES: Found within 5' radius, buried at least 1' deep                       |  |                 |  |
| SANITARY SEWER ID: 4896-6  |  | PICTURE ID: 916 |  |
| DATE: 7/9/08   |  | TIME:           |  |
| OBSERVATION NOTES: Buried  |  |                 |  |
| SANITARY SEWER ID: 4896-5  |  | PICTURE ID: 917 |  |
| DATE: 7/9/08   |  | TIME:           |  |
| OBSERVATION NOTES: Buried  |  |                 |  |
| SANITARY SEWER ID: 4896-4  |  | PICTURE ID: 918 |  |
| DATE: 7/9/08   |  | TIME: 10:15     |  |
| OBSERVATION NOTES: Buried  |  |                 |  |
| SANITARY SEWER ID: 4896-3  |  | PICTURE ID: 919 |  |
| DATE: 7/9/08   |  | TIME:           |  |
| OBSERVATION NOTES: Buried  |  |                 |  |
| SANITARY SEWER ID: 4896-2  |  | PICTURE ID: 920 |  |
| DATE: 7/9/08   |  | TIME:           |  |
| OBSERVATION NOTES: Buried  |  |                 |  |

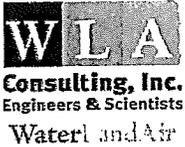
|  |  |  |  |
|--|--|--|--|
| SANITARY SEWER ID: 4896-1  |  | PICTURE ID: 921 & 922  |  |
| DATE: 7/9/08   |  | TIME: 10:45  |  |
| OBSERVATION NOTES: Buried, large area that is sensitive to detector  |  |  |  |
| SANITARY SEWER ID: 4896-9  |  | PICTURE ID: 923 & 924 <sup>Sampling</sup> See monitoring manhole pics. |  |
| DATE: 7/9/08   |  | TIME: 11:00  |  |
| OBSERVATION NOTES: Collar exposed. Significant erosion around <del>man</del> Sampling Manhole pipes on drawings. NO head |  |  |  |
| SANITARY SEWER ID: 4896-10   |  | PICTURE ID: 925  |  |
| DATE: 7/9/08   |  | TIME: 11:20  |  |
| OBSERVATION NOTES: Manhole buried > 1'   |  |  |  |
| SANITARY SEWER ID: 4896-11   |  | PICTURE ID: 926  |  |
| DATE: 7/9/08   |  | TIME: 11:30  |  |
| OBSERVATION NOTES: concrete collar visible. Appears to be in good condition.   |  |  |  |
| SANITARY SEWER ID: 4896-12   |  | PICTURE ID: 927  |  |
| DATE: 7/9/08   |  | TIME: 12:00  |  |
| OBSERVATION NOTES: Lid partially covered in concrete. seems to be in good shape.   |  |  |  |
| SANITARY SEWER ID: 4896-14   |  | PICTURE ID: 928  |  |
| DATE: 7/9/08   |  | TIME: 2:04   |  |
| OBSERVATION NOTES: near road (120th Street)  |  |  |  |
| SANITARY SEWER ID: 4896-13   |  | PICTURE ID: 929  |  |
| DATE: 7/9/08   |  | TIME: 2:08   |  |
| OBSERVATION NOTES: buried in trees   |  |  |  |

|   |  |                     |  |
|---|--|---------------------|--|
| SANITARY SEWER ID: 4896-15  |  | PICTURE ID:         |  |
| DATE: 7/9/08  |  | TIME:               |  |
| OBSERVATION NOTES:  |  |                     |  |
|   |  |                     |  |
| SANITARY SEWER ID: 4896-17  |  | PICTURE ID: 933     |  |
| DATE: 7/9/08  |  | TIME: 3:15          |  |
| OBSERVATION NOTES: symon, flagon tree, go north<br>tree line              |  |                     |  |
|   |  |                     |  |
| SANITARY SEWER ID: <del>4896</del> 7250-1                                 |  | PICTURE ID: 934     |  |
| DATE: 7/9/08  |  | TIME: 3:20          |  |
| OBSERVATION NOTES: inside tree line from mh w/ concrete<br>on edge of lot |  |                     |  |
|   |  |                     |  |
| SANITARY SEWER ID: 7250-2   |  | PICTURE ID: 935     |  |
| DATE: 7/9/08  |  | TIME: 3:22          |  |
| OBSERVATION NOTES: outside lot line & before tree line                    |  |                     |  |
|   |  |                     |  |
| SANITARY SEWER ID: ? 4696-15  |  | PICTURE ID: 936-937 |  |
| DATE: 7/9/08  |  | TIME: 3:45          |  |
| OBSERVATION NOTES: sensitive to detector                                  |  |                     |  |
|   |  |                     |  |
| SANITARY SEWER ID: 4896-17A   |  | PICTURE ID: 938     |  |
| DATE: 7/9/08  |  | TIME: 4:00          |  |
| OBSERVATION NOTES: by burnt out bus!                                      |  |                     |  |
|   |  |                     |  |
| SANITARY SEWER ID: 4896-18  |  | PICTURE ID: 939     |  |
| DATE: 7/9/08  |  | TIME: 4:35          |  |
| OBSERVATION NOTES: hole that was started                                  |  |                     |  |
|   |  |                     |  |

|   |  |                 |  |
|---|--|-----------------|--|
| SANITARY SEWER ID: 4896-22  |  | PICTURE ID: 940 |  |
| DATE: 7/2/08  |  | TIME: 5:30      |  |
| OBSERVATION NOTES: In the E of road                                     |  |                 |  |
|   |  |                 |  |
| SANITARY SEWER ID: 10173-2  |  | PICTURE ID: 978 |  |
| DATE: 7/14/08   |  | TIME: 9:25 a.m. |  |
| OBSERVATION NOTES: Above grade collar in good conditions.               |  |                 |  |
|   |  |                 |  |
| SANITARY SEWER ID: 10173-3  |  | PICTURE ID: 979 |  |
| DATE: 7/14  |  | TIME: 9:30 a.m. |  |
| OBSERVATION NOTES: Above-grade collar in good conditions.               |  |                 |  |
|   |  |                 |  |
| SANITARY SEWER ID: 10173-4  |  | PICTURE ID: 980 |  |
| DATE: 7/14  |  | TIME: 9:30 a.m. |  |
| OBSERVATION NOTES: Above grade collar appears to be in good conditions. |  |                 |  |
|   |  |                 |  |
| SANITARY SEWER ID: 10173-5  |  | PICTURE ID: 981 |  |
| DATE: 7/14  |  | TIME: 9:35      |  |
| OBSERVATION NOTES: Above grade collar in good conditions.               |  |                 |  |
|   |  |                 |  |
| SANITARY SEWER ID: 10173-6  |  | PICTURE ID: 982 |  |
| DATE: 7/14  |  | TIME: 9:40      |  |
| OBSERVATION NOTES: Above grade collar in good conditions.               |  |                 |  |
|   |  |                 |  |
| SANITARY SEWER ID: 10173-7  |  | PICTURE ID: 983 |  |
| DATE: 7/14  |  | TIME: 9:45      |  |
| OBSERVATION NOTES: Above grade collar, good conditions.                 |  |                 |  |
|   |  |                 |  |

|   |  |                 |  |
|---|--|-----------------|--|
| SANITARY SEWER ID: 10173-8  |  | PICTURE ID: 984 |  |
| DATE: 7/14  |  | TIME: 9:45      |  |
| OBSERVATION NOTES: Above grade collar in good condition<br>just past 126 <sup>th</sup> dead end |  |                 |  |
| SANITARY SEWER ID: 10173-9  |  | PICTURE ID: 985 |  |
| DATE: 7/14  |  | TIME: 9:50      |  |
| OBSERVATION NOTES: Above grade collar, minor concrete<br>damage no repair required.             |  |                 |  |
| SANITARY SEWER ID: 10173-10   |  | PICTURE ID: 986 |  |
| DATE: 7/14  |  | TIME: 9:52      |  |
| OBSERVATION NOTES: Above grade collar, good condition.  |  |                 |  |
| SANITARY SEWER ID: 10173-11   |  | PICTURE ID: 980 |  |
| DATE: 7/14  |  | TIME: 10:25     |  |
| OBSERVATION NOTES: Above grade collar, good condition.  |  |                 |  |
| SANITARY SEWER ID: 10173-12   |  | PICTURE ID: 989 |  |
| DATE: 7/14  |  | TIME: 10:15     |  |
| OBSERVATION NOTES: Above Grade collar, good condition   |  |                 |  |
| SANITARY SEWER ID: 10173-13   |  | PICTURE ID: 988 |  |
| DATE: 7/14  |  | TIME: 10:10     |  |
| OBSERVATION NOTES: Above grade collar, good condition.  |  |                 |  |
| SANITARY SEWER ID: 10173-14   |  | PICTURE ID: 987 |  |
| DATE: 7/14  |  | TIME: 10:05     |  |
| OBSERVATION NOTES: Above grade collar good condition<br>just N. of combuster                    |  |                 |  |

|  |  |                 |  |
|--|--|-----------------|--|
| SANITARY SEWER ID: 10173-14                              |  | PICTURE ID: 997 |  |
| DATE: 7/14   |  | TIME: 10:05     |  |
| OBSERVATION NOTES: Above grade collar in good condition. |  |                 |  |
| N/A cornhusker.  |  |                 |  |
| SANITARY SEWER ID: 10173-15                              |  | PICTURE ID: 991 |  |
| DATE: 7/14   |  | TIME: 10:40     |  |
| OBSERVATION NOTES: Above grade collar, good condition.   |  |                 |  |
| SANITARY SEWER ID: 10173-16                              |  | PICTURE ID: 992 |  |
| DATE: 7/14   |  | TIME: 10:50     |  |
| OBSERVATION NOTES: Above grade, good condition<br>collar |  |                 |  |
| SANITARY SEWER ID: 10173-17                              |  | PICTURE ID: 993 |  |
| DATE: 7/14   |  | TIME: 10:55     |  |
| OBSERVATION NOTES: Above grade collar, good condition    |  |                 |  |
| SANITARY SEWER ID: 10173-18                              |  | PICTURE ID: 994 |  |
| DATE: 7/14   |  | TIME: 10:57     |  |
| OBSERVATION NOTES: Above grade collar, good condition.   |  |                 |  |
| SANITARY SEWER ID: 10173-19                              |  | PICTURE ID: 995 |  |
| DATE: 7/14   |  | TIME: 10:58     |  |
| OBSERVATION NOTES: Above grade collar, good condition.   |  |                 |  |
| SANITARY SEWER ID: 10173-20                              |  | PICTURE ID: 996 |  |
| DATE: 7/14   |  | TIME: 11:00     |  |
| OBSERVATION NOTES: Above grade collar, good condition.   |  |                 |  |



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|   |                                  |
|---|----------------------------------|
| SANITARY SEWER ID: 16173-21   | PICTURE ID: 997 <del>1002</del>  |
| DATE: 7/14  | TIME: 10:25                      |
| OBSERVATION NOTES: Middle at cornfield, above grade collar, good conditions. Put reference flag outside of corn |                                  |
| SANITARY SEWER ID: 16173-22   | PICTURE ID: 998                  |
| DATE: 7/14  | TIME: 10:30                      |
| OBSERVATION NOTES: Above grade collar, good condition middle at cornfield, reference flag outside of corn       |                                  |
| SANITARY SEWER ID: 10173-23   | PICTURE ID: 999                  |
| DATE: 7/14  | TIME: 11:45                      |
| OBSERVATION NOTES: Above Grade Collar, good condition, in corn field, reference flag outside of corn.           |                                  |
| SANITARY SEWER ID: 10173-24   | PICTURE ID:                      |
| DATE: 7/14  | TIME: 11:50                      |
| OBSERVATION NOTES: Above Grade Collar, good condition, in corn field, reference flag outside of corn.           |                                  |
| SANITARY SEWER ID: 10173-25   | PICTURE ID: 1001                 |
| DATE: 7/14  | TIME: 12:00                      |
| OBSERVATION NOTES: Above Grade Collar, in field, good condition, reference flag outside of corn                 |                                  |
| SANITARY SEWER ID: 16173-26   | PICTURE ID: <del>1002</del> 1003 |
| DATE: 7/14  | TIME: 12:05                      |
| OBSERVATION NOTES: Above Grade collar, in field, good condition, reference flag outside of corn                 |                                  |
| SANITARY SEWER ID: 10173-27   | PICTURE ID: <del>1003</del> 1005 |
| DATE: 7/14  | TIME:                            |
| OBSERVATION NOTES: Above grade collar good condition, just W. of 132 <sup>nd</sup>                              |                                  |

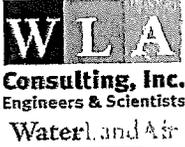
|   |                              |
|---|------------------------------|
| SANITARY SEWER ID: 10173-28   | PICTURE ID: 1006             |
| DATE: 7/14  | TIME: 12:15                  |
| OBSERVATION NOTES: Above Grade collar good condition.   |                              |
|   |                              |
| SANITARY SEWER ID: 10173-29   | PICTURE ID: 1007             |
| DATE: 7/14  | TIME: 12:30                  |
| OBSERVATION NOTES: Above Grade collar, good condition.  |                              |
|   |                              |
| SANITARY SEWER ID: 10173-30   | PICTURE ID: 1008             |
| DATE: 7/14  | TIME: 12:40                  |
| OBSERVATION NOTES: Above grade collar, good condition.  |                              |
|   |                              |
| SANITARY SEWER ID: 13074-1  | PICTURE ID: 1009 -?          |
| DATE: 7/14  | TIME: 2:25                   |
| OBSERVATION NOTES: Above Grade collar, good condition.  |                              |
|   |                              |
| SANITARY SEWER ID: 112002-1   | PICTURE ID: 1010, 1011, 1012 |
| DATE: 7/14  | TIME: 2:30                   |
| OBSERVATION NOTES: Manhole <del>collar</del> collar above grade, good condition, 13074 line is plugged 112002 line angles into the manhole. |                              |
|   |                              |
| SANITARY SEWER ID: 10173-31   | PICTURE ID: 1013             |
| DATE: 7/14  | TIME: 2:35                   |
| OBSERVATION NOTES: Collar above grade good condition.   |                              |
|   |                              |
| SANITARY SEWER ID: 10173-32   | PICTURE ID: 1014             |
| DATE: 7/14  | TIME: 2:45                   |
| OBSERVATION NOTES: Above grade collar, good condition<br>Just N. of Hwy 370   |                              |

|  |  |                       |  |
|--|--|-----------------------|--|
| SANITARY SEWER ID: 10173-33  |  | PICTURE ID: 1015      |  |
| DATE: 7/14   |  | TIME: 2:55            |  |
| OBSERVATION NOTES: Above grade collar, good condition<br>Just S. of Hwy 370  |  |                       |  |
| SANITARY SEWER ID: 10177-34  |  | PICTURE ID: 1016      |  |
| DATE: 7/14   |  | TIME: 3:00            |  |
| OBSERVATION NOTES: Above Ground collar, good condition.<br>Just S. of 370  |  |                       |  |
| SANITARY SEWER ID: 10173-35  |  | PICTURE ID: 1017      |  |
| DATE: 7/14   |  | TIME: 3:01            |  |
| OBSERVATION NOTES: Above grade collar, good condition,<br>slight erosion. Hard to tell if there is any flow from SW.   |  |                       |  |
| SANITARY SEWER ID: 10173-36  |  | PICTURE ID: 1018      |  |
| DATE: 7/14   |  | TIME: 3:45            |  |
| OBSERVATION NOTES: M.H. Just South of creek, no flow,<br>ring above grade, no collar, no cover. Needs attention<br>promptly. Full of debris, no observable influent pipe |  |                       |  |
| SANITARY SEWER ID: 10173-37  |  | PICTURE ID: N/A       |  |
| DATE: 7/14   |  | TIME:                 |  |
| OBSERVATION NOTES: Could not locate, I don't think it's there<br>try and locate w/ GPS from 35.  |  |                       |  |
| SANITARY SEWER ID: 10173-38  |  | PICTURE ID: N/A       |  |
| DATE: 7/14   |  | TIME:                 |  |
| OBSERVATION NOTES: Could not locate, I don't think it exists<br>try and locate from 36 w/ GPS.   |  |                       |  |
| SANITARY SEWER ID: 4896-55A  |  | PICTURE ID: 1056 1057 |  |
| DATE: 7/17   |  | TIME:                 |  |
| OBSERVATION NOTES: Manhole close by  |  |                       |  |

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|  |  |                              |  |
|--|--|------------------------------|--|
| SANITARY SEWER ID: 4896-56   |  | PICTURE ID: 1058             |  |
| DATE: 7/17/08  |  | TIME: 10:50                  |  |
| OBSERVATION NOTES:<br>Manhole adjacent seems to be connection from houses.<br>(City of Omaha)              |  |                              |  |
| SANITARY SEWER ID: 4896-57   |  | PICTURE ID: 1059             |  |
| DATE: 7/17/08  |  | TIME: <del>10:50</del> 10:53 |  |
| OBSERVATION NOTES:<br><del>Residence</del> Residence connection adjacent                                   |  |                              |  |
| SANITARY SEWER ID: 4896-58   |  | PICTURE ID: 1060             |  |
| DATE: 7/17/08  |  | TIME: 10:56                  |  |
| OBSERVATION NOTES:<br>Residence connection adjacent  |  |                              |  |
| SANITARY SEWER ID: 4896- <del>58</del> 59  |  | PICTURE ID: 1061             |  |
| DATE: 7/17/08  |  | TIME: 10:58                  |  |
| OBSERVATION NOTES:<br>Residence connection adjacent  |  |                              |  |
| SANITARY SEWER ID: 4896-60   |  | PICTURE ID: 1062             |  |
| DATE: 7/17/08  |  | TIME: 11:00                  |  |
| OBSERVATION NOTES:<br>Residence Connection Adjacent.<br>Green line connecting to the West. Need to verify. |  |                              |  |
| SANITARY SEWER ID: 4896-55   |  | PICTURE ID: 1063             |  |
| DATE: 7/17/08  |  | TIME: 11:20                  |  |
| OBSERVATION NOTES:<br>Siphon <sup>TM</sup> corner of apartment complex parking lot                         |  |                              |  |
| SANITARY SEWER ID: 4896-54   |  | PICTURE ID: 1064             |  |
| DATE: 7/17/08  |  | TIME: 11:23                  |  |
| OBSERVATION NOTES:<br>next to corn field raised w/ concrete collar   |  |                              |  |

|   |                                       |
|---|---------------------------------------|
| SANITARY SEWER ID: 4896-53  | PICTURE ID: <del>7065</del>           |
| DATE: 7/15/08   | TIME: 11:43                           |
| OBSERVATION NOTES:<br>Other manhole adjacent? Are there two manholes for one line? In field above ground.                         |                                       |
| SANITARY SEWER ID: 4896-51  | PICTURE ID: 10685 10686               |
| DATE: 7/15/08   | TIME: 11:58                           |
| OBSERVATION NOTES:<br>Side of field, other manhole to the NW<br>Large concrete collar. Staked in row to find.                     |                                       |
| SANITARY SEWER ID: 4896-52  | PICTURE ID: 10687                     |
| DATE: 7/17/08   | TIME: 12:00                           |
| OBSERVATION NOTES:<br>Other manhole adjacent. Marked with row w/ stake next to well<br>In field out of ground w/ concrete collar. |                                       |
| SANITARY SEWER ID: 4896-50  | PICTURE ID: <del>1068</del> 1070 1068 |
| DATE: 7/17/08   | TIME: 2:43                            |
| OBSERVATION NOTES:<br>In fence of walkers. SW of Fuel Farm  |                                       |
| SANITARY SEWER ID: 4896-48  | PICTURE ID: <del>1068</del> 1070 1069 |
| DATE: 7/17/08   | TIME: 2:46                            |
| OBSERVATION NOTES:<br>on top ramp   |                                       |
| SANITARY SEWER ID: 4896-49  | PICTURE ID: <del>1071</del> 1070      |
| DATE: 7/17/08   | TIME:                                 |
| OBSERVATION NOTES:<br>On top ramp close to edge   |                                       |
| SANITARY SEWER ID: 4896-44  | PICTURE ID: 1071                      |
| DATE: 7/17  | TIME: 3:19                            |
| OBSERVATION NOTES:<br>X = 2704917, 06666688<br>Y = 513822, 916261357  |                                       |



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| SANITARY SEWER ID: 4896-40                                     |  | PICTURE ID: 1072 |  |
| DATE: 7/17/08  |  | TIME:            |  |
| OBSERVATION NOTES: In parking lot                              |  |                  |  |
|  |  |                  |  |
| SANITARY SEWER ID: 4896-39A                                    |  | PICTURE ID: 1073 |  |
| DATE: 7/18/08  |  | TIME: 4:06       |  |
| OBSERVATION NOTES: Between buildings - center of road.         |  |                  |  |
|  |  |                  |  |
| SANITARY SEWER ID: 4896-39                                     |  | PICTURE ID: 1074 |  |
| DATE: 7/17/08  |  | TIME:            |  |
| OBSERVATION NOTES:   |  |                  |  |
|  |  |                  |  |
| SANITARY SEWER ID: 4896-38                                     |  | PICTURE ID: 1075 |  |
| DATE: 7/17/08  |  | TIME:            |  |
| OBSERVATION NOTES: Next to building.                           |  |                  |  |
|  |  |                  |  |
| SANITARY SEWER ID: 4896-41                                     |  | PICTURE ID: 1076 |  |
| DATE: 7/17/08  |  | TIME: 4:20       |  |
| OBSERVATION NOTES:   |  |                  |  |
|  |  |                  |  |
| SANITARY SEWER ID: 4896-37                                     |  | PICTURE ID: 1077 |  |
| DATE: 7/17/08  |  | TIME: 4:38       |  |
| OBSERVATION NOTES: South of Giles. access from shop-pro equip. |  |                  |  |
|  |  |                  |  |
| SANITARY SEWER ID: 4896-36                                     |  | PICTURE ID: 1078 |  |
| DATE: 7/17/08  |  | TIME: 4:45       |  |
| OBSERVATION NOTES:   |  |                  |  |
|  |  |                  |  |



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| SANITARY SEWER ID: 4896-35                          |  | PICTURE ID: 1079 |  |
| DATE: 7/17/08                                       |  | TIME: 4:45       |  |
| OBSERVATION NOTES:                                  |  |                  |  |
|   |  |                  |  |
|   |  |                  |  |
| SANITARY SEWER ID: 4896-34                          |  | PICTURE ID: 1080 |  |
| DATE: 7/17  |  | TIME:            |  |
| OBSERVATION NOTES: middle Weak Storage fence        |  |                  |  |
|   |  |                  |  |
|   |  |                  |  |
| SANITARY SEWER ID: 4896-33                          |  | PICTURE ID: 1081 |  |
| DATE: 7/17  |  | TIME:            |  |
| OBSERVATION NOTES: East of Weak Storage parking lot |  |                  |  |
|   |  |                  |  |
|   |  |                  |  |
| SANITARY SEWER ID: 4896-32                          |  | PICTURE ID: 1082 |  |
| DATE: 7/17/08                                       |  | TIME: 4:53       |  |
| OBSERVATION NOTES:                                  |  |                  |  |
| Next to fence off interstate:                       |  |                  |  |
|   |  |                  |  |
|   |  |                  |  |
| SANITARY SEWER ID: 4896-31                          |  | PICTURE ID:      |  |
| DATE:   |  | TIME:            |  |
| OBSERVATION NOTES:                                  |  |                  |  |
|   |  |                  |  |
|   |  |                  |  |
| SANITARY SEWER ID:                                  |  | PICTURE ID:      |  |
| DATE:   |  | TIME:            |  |
| OBSERVATION NOTES:                                  |  |                  |  |
|   |  |                  |  |
|   |  |                  |  |
| SANITARY SEWER ID:                                  |  | PICTURE ID:      |  |
| DATE:   |  | TIME:            |  |
| OBSERVATION NOTES:                                  |  |                  |  |
|   |  |                  |  |
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|--|--|------------------|--|
| SANITARY SEWER ID: 4896-46   |  | PICTURE ID: 1083 |  |
| DATE: 7/21/08  |  | TIME: 1:10       |  |
| OBSERVATION NOTES: not buried, fairly easy to find behind pipe yard  |  |                  |  |
| SANITARY SEWER ID: 4896-47   |  | PICTURE ID: 1084 |  |
| DATE: 7/21/08  |  | TIME: 1:14       |  |
| OBSERVATION NOTES: not buried, behind pipe yard                      |  |                  |  |
| SANITARY SEWER ID: 4896-31   |  | PICTURE ID: 1085 |  |
| DATE: 7/21/08  |  | TIME: 2:05       |  |
| OBSERVATION NOTES: Even with ground. 10' from fence                  |  |                  |  |
| SANITARY SEWER ID: 4896-30   |  | PICTURE ID: 1086 |  |
| DATE: 7/21/08  |  | TIME: 2:15       |  |
| OBSERVATION NOTES: off of intersection of 132 <sup>nd</sup> & Gilson |  |                  |  |
| SANITARY SEWER ID: 4896-29   |  | PICTURE ID: 1087 |  |
| DATE: 7/21/08  |  | TIME: 2:50       |  |
| OBSERVATION NOTES: Buried approx. 1 foot. Hit it when digging.       |  |                  |  |
| SANITARY SEWER ID: 4896-28   |  | PICTURE ID: 1088 |  |
| DATE: 7/21/08  |  | TIME:            |  |
| OBSERVATION NOTES: buried, off of raked roadway                      |  |                  |  |
| SANITARY SEWER ID: 4896-27   |  | PICTURE ID:      |  |
| DATE: 7/21/08  |  | TIME:            |  |
| OBSERVATION NOTES: buried  |  |                  |  |



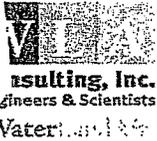
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| SANITARY SEWER ID: 4896-26  |  | PICTURE ID: 1089, 1090 |  |
| DATE: 7/21/08   |  | TIME:                  |  |
| OBSERVATION NOTES: burned   |  |                        |  |
|   |  |                        |  |
| SANITARY SEWER ID: 83101-10   |  | PICTURE ID: 112-1285   |  |
| DATE: 9/3/08  |  | TIME:                  |  |
| OBSERVATION NOTES: Verified that forremain is not plugged but does tie into line to the East. There were two lines branching into the MH and one out. Smaller line coming in is assumed to be building service connection |  |                        |  |
| SANITARY SEWER ID:  |  | PICTURE ID:            |  |
| DATE:   |  | TIME:                  |  |
| OBSERVATION NOTES:  |  |                        |  |
|   |  |                        |  |
| SANITARY SEWER ID:  |  | PICTURE ID:            |  |
| DATE:   |  | TIME:                  |  |
| OBSERVATION NOTES:  |  |                        |  |
|   |  |                        |  |
| SANITARY SEWER ID:  |  | PICTURE ID:            |  |
| DATE:   |  | TIME:                  |  |
| OBSERVATION NOTES:  |  |                        |  |
|   |  |                        |  |
| SANITARY SEWER ID:  |  | PICTURE ID:            |  |
| DATE:   |  | TIME:                  |  |
| OBSERVATION NOTES:  |  |                        |  |
|   |  |                        |  |
| SANITARY SEWER ID:  |  | PICTURE ID:            |  |
| DATE:   |  | TIME:                  |  |
| OBSERVATION NOTES:  |  |                        |  |
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| SANITARY SEWER ID: 72500-3  | PICTURE ID: 28                  | SRC |
| DATE: 11/17/08  | TIME: 9:30 a                    |     |
| OBSERVATION NOTES: Ring + Cover in good condition. May need to be raised, now level w/ grade.   |                                 |     |
| SANITARY SEWER ID: 72500-7  | PICTURE ID: 29                  | SRC |
| DATE: 11/17/08  | TIME: 10:00 a                   |     |
| OBSERVATION NOTES: Erosion under MH ring ; minor  |                                 |     |
| SANITARY SEWER ID: 72500-8  | PICTURE ID: 30-32               | SRC |
| DATE: 11/17/08  | TIME: 10:10 a                   |     |
| OBSERVATION NOTES: Can not see MH. Large depression in expected location. Further attention needed!   |                                 |     |
| SANITARY SEWER ID: 72500-9  | PICTURE ID: 33-35               | SRC |
| DATE: 11/17/08  | TIME: 10:15 a                   |     |
| OBSERVATION NOTES: Marker where MH should be, but MH is buried large amount of erosion from line toward creek. Netting was placed uphill along washout. |                                 |     |
| SANITARY SEWER ID: 32599-3  | PICTURE ID: <del>37</del> 37-39 | SRC |
| DATE: 11/17/08  | TIME: 11:00 a                   |     |
| OBSERVATION NOTES: Two MHS. North MH has erosion around concrete collar, minor.   |                                 |     |
| SANITARY SEWER ID: 32599-5  | PICTURE ID: 36                  | SRC |
| DATE: 11/17/08  | TIME: 11:25 a                   |     |
| OBSERVATION NOTES: Erosion around concrete collar.  |                                 |     |
| SANITARY SEWER ID: 32599-2  | PICTURE ID: 40                  | SRC |
| DATE: 11/17/08  | TIME: 11:35 a                   |     |
| OBSERVATION NOTES: Some erosion around concrete collar, minor.  |                                 |     |



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|--|-----------------------|
| SANITARY SEWER ID: 10173-33  | PICTURE ID: 1015      |
| DATE: 7/14   | TIME: 2:55            |
| OBSERVATION NOTES: Above grade collar, good condition<br>Just S. of Hwy 370  |                       |
| SANITARY SEWER ID: 10177-34  | PICTURE ID: 1016      |
| DATE: 7/14   | TIME: 3:00            |
| OBSERVATION NOTES: Above ground collar, good condition.<br>Just S. of 370  |                       |
| SANITARY SEWER ID: 10173-35  | PICTURE ID: 1017      |
| DATE: 7/14   | TIME: 3:01            |
| OBSERVATION NOTES: Above grade collar, good cond. - tons,<br>slight erosion. Hard to tell if there is any flow from<br>SW.   |                       |
| SANITARY SEWER ID: 10173-36  | PICTURE ID: 1018      |
| DATE: 7/14   | TIME: 3:45            |
| OBSERVATION NOTES: M.H. just South of creek, no flow,<br>ring above grade, no collar, no cover. Needs attention<br>promptly. Full of debris, no observable influent pipe |                       |
| SANITARY SEWER ID: 10173-37  | PICTURE ID:           |
| DATE: 7/14   | TIME:                 |
| OBSERVATION NOTES: Could not locate, I don't think it's there<br>try and locate w/ GPS from 35.  |                       |
| SANITARY SEWER ID: 10173-38  | PICTURE ID:           |
| DATE: 7/14   | TIME:                 |
| OBSERVATION NOTES: Could not locate, I don't think it exists<br>try and locate from 36 w/ GPS.   |                       |
| SANITARY SEWER ID: 4896-55A  | PICTURE ID: 1056 1057 |
| DATE: 7/17   | TIME:                 |
| OBSERVATION NOTES: Manhole close by  |                       |

|   |                                |
|---|--------------------------------|
| 1476 1477   |                                |
| SANITARY SEWER ID: 4896-53  | PICTURE ID: 1478. 8PC          |
| DATE: 11/24/08  | TIME: 1:30 p                   |
| OBSERVATION NOTES: Lots of erosion around collar. Needs attention   |                                |
|   |                                |
| SANITARY SEWER ID: 1073-8+9   | PICTURE ID: 1479 1480 1481 8PC |
| DATE: 11/24/08  | TIME: 1:45 p                   |
| OBSERVATION NOTES: Erosion from creek moving toward sewer line. Also erosion from field endangering line next to MH #8. Picture looking toward MH #9 (SW) |                                |
|   |                                |
| SANITARY SEWER ID: 22703-1  | PICTURE ID: 1482               |
| DATE: 11/24/08  | TIME: 2:15 p                   |
| OBSERVATION NOTES: Erosion around concrete collar.  |                                |
|   |                                |
| SANITARY SEWER ID: 22703-2  | PICTURE ID: 1483               |
| DATE: 11/24/08  | TIME: 2:20 p                   |
| OBSERVATION NOTES: Erosion around concrete collar   |                                |
|   |                                |
| SANITARY SEWER ID: 22703-3  | PICTURE ID: 1484               |
| DATE: 11/24/08  | TIME: 2:30 p 8PC               |
| OBSERVATION NOTES: Erosion around concrete collar.  |                                |
|   |                                |
| SANITARY SEWER ID: 2298-10  | PICTURE ID: 1485 1486          |
| DATE: 11/24/08  | TIME: 2:50 p 8PC               |
| OBSERVATION NOTES: Substantial erosion under rim. Needs attention. Evidence of maintenance from prior inspection  |                                |
|   |                                |
| 73097-1   |                                |
| SANITARY SEWER ID: 2298-11  | PICTURE ID: 1487 1488 1489     |
| DATE: 11/24/08  | TIME: 3:10 p                   |
| OBSERVATION NOTES: Buried; covered. Sink next to MH needs attention.  |                                |

