

CHARLES TOWN UTILITY BOARD, WEST VIRGINIA

CONDITION ASSESSMENT REPORT

NOVEMBER 2019

HYDROSTRUCTURES®

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1. INTRODUCTION

The City of Charles Town Utility Board (CTUB), West Virginia, has contracted Hydrostructures to conduct smoke testing and infiltration & inflow study for the following areas of the wastewater collection system:

- Tuscarawilla Hills
- Locust Hills
- Orchard Hills
- Pump station 4-4 service Area
- Southwest Ranson Area

These areas have a history of high pump run times at lift stations and excessive flows during rain events. They are the highest priority areas for CTUB to perform smoke testing and evaluate potential inflow and infiltration. The areas are spread throughout the system and are not adjacent to one another, nor do any of these areas convey flows to one another. Tuscarawilla Hills has its own WWTP whereas the other areas all convey flows to the Charles Town WWTP. This report summarizes the Phase I SSES field activity – Smoke testing in the above-mentioned areas.

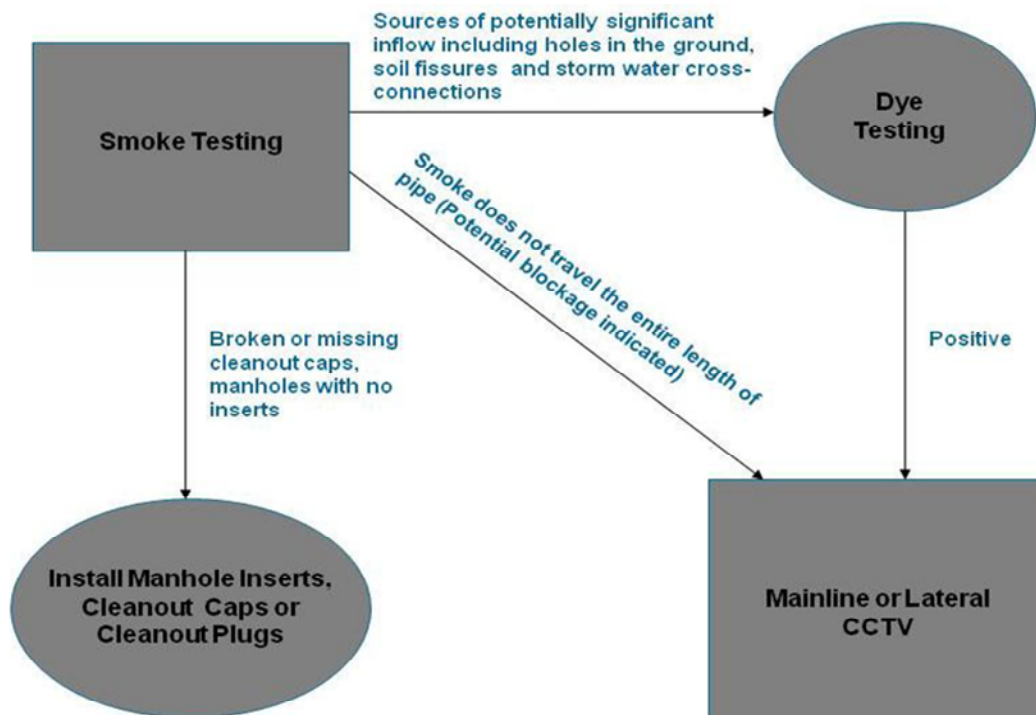
2. PROJECT BACKGROUND

SSES field services are necessary to identify system defects that are potential sources of I/I within specific basins. The SSES activities are divided into two phases. Phase I activities generally include Manhole Inspections, Zoom Camera inspections, Smoke Testing, Night Flow Isolation and measurements for manhole inserts. Phase II activities are generally dependent on the results of Phase I activities and include: Manhole Insert Installation, Cleanout Plug Installation, Mainline sewer cleaning and CCTV inspections, Lateral Sewer CCTV inspections and Dye testing/flooding. A more detailed description of the Phase I and Phase II activities and how they interact is described in detail in the sections below.

For this project, we are tasked with smoke testing and provide recommendations for additional Phase I tasks based on the data acquired from smoke testing. The data collected is then compiled, analyzed and presented in this Condition Assessment Report.

3. FIELD ACTIVITY: SMOKE TESTING AND DATA TABLES

Smoke tests are carried out to identify potential sources of wet weather inflow within the basin. Defects identified by smoke testing potentially include broken or missing cleanout caps, holes in the ground, grease/blockage in the mainline, storm water cross-connections and defective plumbing. Results from smoke testing generally trigger Phase II field investigations such as CCTV inspections and dye testing. For example, if smoke does not reach the entire stretch of pipe, the cause may stem from either a blockage, severe root intrusion, or a sagging pipe. To verify the cause, a CCTV inspection would then be scheduled. When smoke is observed emanating from a broken or missing cleanout cap or a manhole with potential for inflow during rain events, cleanout plugs, and manhole inserts are recommended for installation. The Figure below illustrates how follow-up field activities are determined based on smoke testing results.



Smoke testing defect maps are attached in **Appendix A**.

Table
below

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Table 1 Smoke Test Codes	
INFLOW SOURCE TYPE CODE	RESULTS CODE
ABS- Abandoned Service	1. POSITIVE
AD- Area Drain	2. SUSPECT
BCO- Broken Cleanout	3. NEGATIVE
BRV- Building Roof Vent (no Smoke)	4. CANNOT TEST
CBX- Catch Basin	
CNL- Could not locate asset	DEFECT STATUS CODE
DEP- Defective Plumbing	1. PUBLIC
DWD- Driveway Drain	2. PRIVATE
EXP- Exposed Pipe	
FCL- Frame Cover Leaks	SMOKE CODE
FDD- Foundation Drain	1. LIGHT
HOL- Soil Fissure	2. MEDIUM
HSD- Fissures in Storm Ditch	3. HEAVY
MCC- Missing Cleanout Cover	
MFC- Manhole Frame Cover	RUNOFF CODE
MHS- Manhole Structure	1. NO PAVING
MLK- Multiple Soil Fissures	2. 25% PAVING
RLD- Roof Leader Connect	3. 50% PAVING
SAG- Pipe sag/blockage	4. 75% PAVING
SMH- Storm Manhole	5. 100% PAVING
SWD- Stairwell Drain	
WWD- Window Well Drain	

summarizes the smoke test codes used during inspections.

The below Table 2 summarizes the results from the smoke testing from all the basins

LOCUST HILL															
Smoke Test Completion Date	Service Area	Blower Location(s) (MH_ID)	Upstream MH	Down-stream MH	Segment Length (LF)	Result Code	Defect Status (public/private)	Source Type	Distance from upstream MH	distance right	Distance left	Smoke Code	Catchment Area (sq. Ft)	Runoff Code	Comments
7/29/2019	LH	LH-2	LH-1	LH-2		1	1	MFC	0	0	0	3	2' X 2'	5	Coming from holes in cover
7/29/2019	LH	LH-2	LH-1	LH-2		1	1	MCC	51	0	0	3	.5' X .5'	1	Holes in current clean out cap factory made
8/6/2019	LH	LH-8	LH-10	LH-9	219.09	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal, also seems to be from frame seal smoke coming from ground around MH
8/6/2019	LH	LH-8	LH-10	LH-9		1	1	BCO	14	0	0	3		1	Bco
8/6/2019	LH	LH-105	LH-100	LH-101	74.46	1	1	FCL	0	0	0	3	2' X 2'	1	Coming from hole in cover and seal
8/6/2019	LH	LH-105	LH-101	LH-102	170.60	1		MFC	0	0	0		2' X 2'	1	Coming from holes in cover and cover seal
8/6/2019	LH	LH-105	LH-102	LH-103	175.28	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/6/2019	LH	LH-105	LH-103	PS_UNK	92.55	3						2			CNL
8/6/2019	LH	LH-105	LH-104	LH-100	168.93	1	1	MFC	0	0	0	3	2' X 2'	5	Sheeting, coming from hole in cover and cover seal
8/6/2019	LH	LH-105	LH-105	LH-104	58.98	1	1	MFC	0	0	0	3	2' X 2'	5	Sheeting one hole in cover
8/6/2019	LH	LH-105	LH-106	LH-105	111.08	1	1	MCC	0	0	0	3	2' X 2'	5	Coming from holes in cover and cover seal
8/6/2019	LH	LH-105	LH-107	LH-106	117.55	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes and cover seal
8/6/2019	LH	LH-105	LH-108	LH-107	206.57	1	1	MFC	0	0	0	1	2' X 2'	5	Light smoke coming from cover seal
8/6/2019	LH	LH-105	LH-108	LH-107		1	1	BCO	109	31	0	3		1	Bco
8/6/2019	LH	LH-105	LH-109	LH-105	113.95	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and cover holes
8/6/2019	LH	LH-8	LH-11	LH-12	159.71	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover
8/6/2019	LH	LH-8	LH-11	LH-12		1	1	MCC	101	3	0	3		1	Missing cap
8/6/2019	LH	LH-105	LH-110	LH-109	183.32	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal
8/6/2019	LH	LH-113	LH-111	LH-110	181.38	1	1	MFC	0	0	0	1	2' X 2'	5	Sheeting coming from cover seal
8/6/2019	LH	LH-113	LH-112	LH-111	169.80	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/6/2019	LH	LH-113	LH-113	LH-111	220.12	1	1	MFC	0	0	0	3	2' X 2'	5	While in cover
8/6/2019	LH	LH-113	LH-114	LH-113	110.96	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes
8/6/2019	LH	LH-113	LH-114	LH-113		1	1	BCO	0	48	0	3		1	Bco
8/6/2019	LH	LH-113	LH-115	LH-114	250.40	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from holes in cover
8/6/2019	LH	LH-113	LH-115	LH-114		1	1	BCO	0	55	0	3		1	Bco
8/6/2019	LH	LH-113	LH-115	LH-114		1	1	BCO	0	0	56	3		1	Bco
8/6/2019	LH	LH-113	LH-115	LH-114		2	1	BCO	0	0	56			1	Broken clean out no smoke
8/6/2019	LH	LH-113	LH-115	LH-114		1	1	BCO	100	41	0	3		1	Bco

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8/6/2019	LH	LH-113	LH-115	LH-114		1	1	BCO	173	0	42	3		1	Bco
8/6/2019	LH	LH-113	LH-116	LH-113	177.24	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes and cover seal
8/6/2019	LH	LH-113	LH-116	LH-113		1	1	BCO	53	37	0	3		1	Bco
8/6/2019	LH	LH-113	LH-116	LH-113		1	1	BCO	64	37	0	3		1	Bco has rock yard decor
8/6/2019	LH	LH-113	LH-117	LH-116	263.01	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes and cover seal
8/6/2019	LH	LH-113	LH-117	LH-116		1	1	BCO	115	0	38	3		1	Bco no cap
8/7/2019	LH	LH-119	LH-118	LH-117	318.06	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes and cover seal
8/7/2019	LH	LH-119	LH-119	LH-118	261.91	1	1	MFC	0	0	0	3	2' X 2'	5	Cover has holes
8/6/2019	LH	LH-8	LH-12	LH-13	86.19	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover
8/7/2019	LH	LH-119	LH-120	LH-119	408.91	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes and cover seal
8/7/2019	LH	LH-125	LH-121	LH-122	165.05	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal
8/7/2019	LH	LH-125	LH-122	LH-124	158.56	3						2			Good seal
8/7/2019	LH	LH-125	LH-123	LH-122	178.59	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and cover holes
8/7/2019	LH	LH-125	LH-124	LH-125	83.87	3						2			Good seal
8/7/2019	LH	LH-125	LH-125	LH-90	192.32	1	1	MFC	0	0	0	3	2' X 2'	1	Cover has holes
8/7/2019	LH	LH-125	LH-125	LH-90		1	1	MCC	82	42	0	3	.5' X .5'	1	Mcc recessed cleanout
8/7/2019	LH	LH-39	LH-126	LH-48	363.85	3						2			Good seal
8/6/2019	LH	LH-130	LH-127	LH-128	187.82	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from hole in cover and cover seal
8/6/2019	LH	LH-130	LH-127	LH-128		1	1	BCO	0	0	61	3		1	Bco
8/6/2019	LH	LH-130	LH-128	LH-129	170.32	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover hole and cover seal
8/6/2019	LH	LH-130	LH-128	LH-129		1	1	BCO	4	0	34	3		1	Bco
8/6/2019	LH	LH-130	LH-128	LH-129		1	1	BCO	219	20	0	3		1	Bco cap
8/6/2019	LH	LH-130	LH-129	LH-130	214.58	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes and cover seal
8/6/2019	LH	LH-130	LH-129	LH-130		1	1	HOL	89	31	0	3		1	Coming from ground above service lateral
8/6/2019	LH	LH-130	LH-129	LH-130		1	2	BCO	125	68	0	3		1	Bco cap
8/6/2019	LH	LH-8	LH-13	LH-14	249.12	1	1	MCC	100	0	31	3		1	LH-13 is CNL Missing clean out cap
8/6/2019	LH	LH-130	LH-130	LH-131	138.74	1	1	MFC	0	0	0	3	2' X 2'	5	Hole in cover sheeting possible
8/6/2019	LH	LH-130	LH-131	LH-132	69.06	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from hole in cover and cover seal
8/6/2019	LH	LH-130	LH-131	LH-132		1	1	HOL	61	19	0	3		1	Coming from ground
7/29/2019	LH	LH-2	LH-14	LH-15	327.65	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/7/2019	LH	LH-15	LH-15	LH-20	353.46	1	1	MFC	0	0	0	3	2' X 2'	1	Holes in cover
8/7/2019	LH	LH-15	LH-16	LH-15	322.24	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/7/2019	LH	LH-15	LH-17	LH-16	102.72	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and cover holes

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8/7/2019	LH	LH-15	LH-18	LH-17	104.01	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal in bush
8/7/2019	LH	LH-15	LH-19	LH-16	139.06	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cove and cover seal
8/7/2019	LH	LH-15	LH-19	LH-16		1	1	BCO	21	0	0	3	.5' X .5'	1	Bco clean out recessed into ground
7/29/2019	LH	LH-2	LH-2	LH-3	135.27	1	1	MFC	0	0	0	3	2' X 2'	1	Hole in cover
8/7/2019	LH	LH-15	LH-20	LH-21	367.75	1	1	MFC	0	0	0	3	2' X 2'	2	Coming from cover holes and cover seal
8/7/2019	LH	LH-15	LH-21	LH-22	232.09	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/7/2019	LH	LH-15	LH-22	LH-23	205.75	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/7/2019	LH	LH-15	LH-23	LH-35	260.00	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/7/2019	LH	LH-24	LH-24	LH-23	426.22	1	1	MFC	0	0	0	3	2' X 2'	1	Cover has holes
8/7/2019	LH	LH-24	LH-25	LH-24	302.64	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes
8/7/2019	LH	LH-24	LH-26	LH-25	152.27	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/7/2019	LH	LH-24	LH-27	LH-26	292.92	1	1	MFC	0	0	0	1	2' X 2'	1	Coming from cover holes and cover seal
8/7/2019	LH	LH-24	LH-28	LH-27	249.34	1	1	MFC	0	0	0	3		1	Coming from cover seal and holes
8/7/2019	LH	LH-24	LH-29	LH-28	421.77	3						2			Good seal
7/29/2019	LH	LH-2	LH-3	LH-14	319.21	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal, also looks like MH structure
8/7/2019	LH	LH-24	LH-30	LH-29	41.03	3						2			Good seal
8/7/2019	LH	LH-24	LH-31	LH-30	100.09	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal, frame is broken
8/7/2019	LH	LH-24	LH-32	LH-30	143.53	1	1	MFC	0	0	0	3		1	Coming from frame seal it is not attached
8/7/2019	LH	LH-24	LH-33	LH-32	222.94	1	1	MFC	0	0	0	3		1	Coming from cover holes and cover seal
8/7/2019	LH	LH-24	LH-34	LH-33	108.68	1	1	MFC	0	0	0	3		1	Coming from cover holes
8/7/2019	LH	LH-15	LH-35	LH-36	294.80	1	1	MFC	0	0	0	3	2' X 2'	1	Cover is recessed into ground about 3 inches, smoke coming g from cover holes
8/7/2019	LH	LH-39	LH-37	LH-36	287.18	1	1	MFC	0	0	0	3		1	Coming from holes in cover
8/7/2019	LH	LH-39	LH-38	LH-37	292.06	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes
8/7/2019	LH	LH-39	LH-39	LH-38	336.63	1	1	MFC	0	0	0	3	2' X 2'	1	Holes in cover
8/6/2019	LH	LH-2	LH-4	LH-2	95.41	3						2			CNL
8/7/2019	LH	LH-39	LH-40	LH-133	182.17	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/7/2019	LH	LH-39	LH-133	LH-39	141.65	1	1	MFC	175	0	0	3	2' X 2'	1	New MH coming from cover holes and cover seal
8/7/2019	LH	LH-46	LH-41	LH-40	212.71	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/7/2019	LH	LH-46	LH-42	LH-41	193.18	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal, also frame seal
8/7/2019	LH	LH-46	LH-43	LH-42	206.50	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal

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Smoke Test Completion Date	Service Area	Blower Location(s) (MH_ID)	Upstream MH	Down-stream MH	Segment Length (LF)	Result Code	Defect Status (public/private)	Source Type	Distance from upstream MH	distance right	Distance left	Smoke Code	Catchment Area (sq. Ft)	Runoff Code	Comments
8/7/2019	LH	LH-46	LH-44	LH-43	153.37	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and cover holes
8/7/2019	LH	LH-46	LH-45	LH-44	50.79	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/7/2019	LH	LH-46	LH-46	LH-45	117.24	1	1	MFC	0	0	0	3	2' X 2'	1	Cover has holes
8/7/2019	LH	LH-46	LH-47	LH-46	259.82	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover and cover seal
8/7/2019	LH	LH-39	LH-48	LH-39	171.07	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/7/2019	LH	LH-55	LH-49	LH-48	194.36	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/7/2019	LH	LH-55	LH-49	LH-48		1	2	MCC	101	76	0	3	.5' X .5'	1	Missing cap on cleanout butted next to house
8/6/2019	LH	LH-2	LH-5	LH-4	197.80	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover hole
8/6/2019	LH	LH-2	LH-5	LH-4		1	1	BCO	0	0	56	3	.5' X .5'	1	Bco
8/6/2019	LH	LH-2	LH-5	LH-4		1	1	BCO	70	26	0	3	.5' X .5'	1	Bco
8/7/2019	LH	LH-55	LH-50	LH-49	155.38	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover and cover seal
8/8/2019	LH	LH-507	LH-500	LH-110	131.86	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and cover holes
8/8/2019	LH	LH-507	LH-500	LH-110		1	1	BCO	1	58	0	3	.5' X .5'	1	Bco cap is broken
8/8/2019	LH	LH-507	LH-500	LH-110		1	1	BCO	20	0	8	3	.5' X .5'	1	Bco pipe is broken under ground clean out moves
8/8/2019	LH	LH-504	LH-501	LH-502	204.49	1	1	MHS	0	0	0	3	2' X 2'	5	Coming from cover holes and cover seal
8/8/2019	LH	LH-503	LH-502	LH-503	203.15	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and cover holes
8/8/2019	LH	LH-503	LH-503	LH-504	399.56	1	1	MFC	0	0	0	3	2' X 2'	5	Cover has holes
8/8/2019	LH	LH-503	LH-503	LH-504		1	1	HOL	125.2	0	40.2	3	10' X 10'	1	Coming from ground
8/8/2019	LH	LH-503	LH-504	LH-104	419.80	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and cover holes
8/8/2019	LH	LH-503	LH-504	LH-104		1	1	BCO	165.5	0	31.2	3	.5' X .5'	1	Bco cover broken
8/8/2019	LH	LH-503	LH-504	LH-104		1	1	BCO	174.9	0	31.2	3	.5' X .5'	1	Bco cover broken
8/8/2019	LH	LH-507	LH-505	LH-506	215.41	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal
8/8/2019	LH	LH-507	LH-506	LH-507	311.00	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and cover hole
8/8/2019	LH	LH-507	LH-507	LH-511	176.19	1	1	MFC	0	0	0	3	2' X 2'	1	Cover has holes
8/8/2019	LH	LH-507	LH-508	LH-509	148.38	3						1			Good seal
8/8/2019	LH	LH-507	LH-509	LH-510	248.48	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal ponding possible
8/7/2019	LH	LH-55	LH-51	LH-50	147.69	1	1	MFC	0	0	0	3		1	Coming from cover holes and cover seal
8/8/2019	LH	LH-507	LH-510	LH-507	215.35	1	1	MFC	0	0	0	1	2' X 2'	1	Cover seal
8/8/2019	LH	LH-507	LH-510	LH-507		1	1	BCO	9.3	0	42.9	3	.5' X .5'	1	Bco cap broken
8/8/2019	LH	LH-507	LH-511	LH-110	157.10	1	1	MFC	0	0	0	3	2' X 2'	1	Ponding definite coming g from cover seal
8/8/2019	LH	stub	LH-512	LH-515	292.51	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover hole and cover seal
8/8/2019	LH	LH-514	LH-513	LH-88	195.06	1	1	MFC	0	0	0	3	2' X 2'	5	Cover holes and cover seal

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8/8/2019	LH	LH-514	LH-514	LH-513	349.77	1	1	MFC	0	0	0	3	2' X 2'	5	Possible cover seal
8/8/2019	LH	stub	LH-515	LH-68	120.87	1	1	MFC	0	0	0	1		1	Coming from cover holes and cover seal
8/8/2019	LH	LH-516	LH-516	LH-31	116.14	1	1	MFC	0	0	0	3	2' X 2'	5	Cover has holes
8/8/2019	LH	LH-516	LH-517	LH-516	243.42	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes and cover seal
8/8/2019	LH	LH-516	LH-517	LH-516		1	1	BCO	201.9	30.3	0	3	2' X 2'	1	Bco cap broken
8/8/2019	LH	LH-516	LH-518	LH-516	252.73	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes and cover seal
8/8/2019	LH	LH-516	LH-519	LH-516	152.75	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes and cover seal
8/8/2019	LH	LH-516	LH-519	LH-516		1	1	BCO	55.3	0	13.8	3	.5' X .5'	1	Bco clean out recessed into ground
8/8/2019	LH	LH-516	LH-519	LH-516		1	2	HOL	55.3	0	32	3	10' X 5'	1	Coming from ground in bushes next to cleanout
8/7/2019	LH	LH-55	LH-52	LH-50	294.30	3						2			Good seal, on cart path
8/8/2019	LH	LH-516	LH-520	LH-519	184.84	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover lock and cover seal
8/8/2019	LH	LH-516	LH-520	LH-519		1	1	BCO	161.3	0	63.5	3	.5' X .5'	1	Bco clean out recessed into ground
8/8/2019	LH	stub	LH-521	LH-118	178.83	1	1	MCC	0	0	0	3	2' X 2'	5	Coming from cover holes and cover seal
8/8/2019	LH	LH-522	LH-522	LH-523	408.00	1	1	MFC	0	0	0	3	2' X 2'	5	Cover has holes
8/8/2019	LH	LH-522	LH-523	LH-97	164.49	1	1	MFC	0	0	0	1	2' X 2'	5	Coming from cover seal
8/12/2019	LH	LH-524	LH-524	LH-529	174.30	1	1	MFC	0	0	0	3	2' X 2'	5	
8/12/2019	LH	LH-524	LH-525	LH-526	400.53	1	1	BCO	196	0	37.9	3	.5' X .5'	1	Bco clean out recessed into ground
8/12/2019	LH	LH-524	LH-526	LH-524	386.27	1	1	MFC	0	0	0	2	2' X 2'	5	Coming from cover seal
8/12/2019	LH	LH-524	LH-526	LH-524		1	1	BCO	289	0	40.2	3	.5' X .5'	1	Bco cap
8/12/2019	LH	LH-524	LH-527	LH-528	400.39	1	1	BCO	176	0	37.6	3	.5' X .5'	1	Bco has cap but broken on side
8/12/2019	LH	LH-524	LH-528	LH-524	389.14	1	1	MFC	0	0	0	1	2' X 2'	5	Coming from cover seal
8/12/2019	LH	LH-524	LH-529	LH-530	311.88	1	1	MFC	0	0	0	3	3' X 3'	1	Coming from cover seal and frame seal
8/7/2019	LH	LH-55	LH-53	LH-52	181.83	1	1	MFC	0	0	0	3		1	Coming from cover holes and cover seals
8/12/2019	LH	LH-524	LH-530	LH-123	171.28	1	1	MFC	0	0	0	2	2' X 2'	1	Coming from cover seal
8/12/2019	LH	LH-532	LH-531	LH-532	379.33	1	1	MFC	0	0	0	2	2' X 2'	5	Coming from cover seal
8/12/2019	LH	LH-532	LH-531	LH-532		1	1	BCO	87	0	38	3		1	Bco cap broken
8/12/2019	LH	LH-532	LH-532	LH-533	269.03	1	1	MFC	0	0	0	3	2' X 2'	5	
8/12/2019	LH	LH-532	LH-533	LH-534	186.54	1	1	MFC	0	0	0	2	2' X 2'	5	Coming from cover seal
8/12/2019	LH	LH-532	LH-534	LH-536	168.14	3						1			Good seal
8/12/2019	LH	LH-532	LH-535	LH-534	105.65	1	1	MFC	0	0	0	2	2' X 2'	5	Coming from cover seal
8/12/2019	LH	LH-532	LH-536	LH-117	414.06	1	1	BCO	32	40	0	3	.5' X .5'	1	Bco and cap broken
8/7/2019	LH	LH-55	LH-54	LH-53	158.19	1	1	MFC	0	0	0	3		1	Coming from cover holes and cover seal
8/7/2019	LH	LH-55	LH-55	LH-54	166.68	1	1	MFC	0	0	0	3		1	Holes in cover

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8/7/2019	LH	LH-55	LH-56	LH-55	115.48	1	1	MFC	0	0	0	3		1	Coming from cover holes and cover seal, also frame is broken six in chunk missing from edge
8/7/2019	LH	LH-55	LH-57	LH-56	373.05	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover
8/7/2019	LH	LH-55	LH-58	LH-57	175.79	3						2			Good seal
8/7/2019	LH	LH-55	LH-59	LH-55	297.26	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover and cover seal
8/6/2019	LH	LH-8	LH-6	LH-11	122.02	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from holes in cover
8/6/2019	LH	LH-62	LH-60	LH-59	242.61	1	1	MFC	0	0	0	3	2' X 2'	1	Ponding and coming from holes
8/6/2019	LH	LH-62	LH-61	LH-60	196.93	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and holes also coming from concrete possible MH structure
8/6/2019	LH	LH-62	LH-62	LH-61	365.30	1	1	MFC	0	0	0	3	2' X 2'	1	Cover holes
8/6/2019	LH	LH-62	LH-62	LH-61		1	1	BCO	233	2	0	3	.5' X .5'	1	Bco
8/6/2019	LH	LH-62	LH-63	LH-62	152.75	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and seal, frame is broken missing about a quarter of frame also MH structure is smoking
8/6/2019	LH	LH-62	LH-64	LH-63	321.37	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover and cover seal
8/6/2019	LH	LH-62	LH-65	LH-64	185.07	3						2			CNL
8/6/2019	LH	LH-62	LH-66	LH-65	101.96	3						2			CNL
8/6/2019	LH	LH-68	LH-67	LH-60	254.35	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and cover holes and MH structure
8/6/2019	LH	LH-68	LH-68	LH-67	215.05	1	1	MFC	0	0	0	3	2' X 2'	1	Holes in cover
8/6/2019	LH	LH-68	LH-69	LH-68	162.74	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seals
8/6/2019	LH	LH-8	LH-7	LH-6	192.05	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from holes in cover
8/6/2019	LH	LH-68	LH-70	LH-69	290.59	3						2			CNL
8/6/2019	LH	LH-68	LH-71	LH-70	89.36	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/6/2019	LH	LH-68	LH-72	LH-71	365.86	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/6/2019	LH	LH-68	LH-73	LH-72	51.17	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and holes
8/6/2019	LH	LH-68	LH-74	LH-73	114.70	3						2			CNL
8/6/2019	LH	LH-68	LH-75	LH-72	76.61	3						2			CNL
8/6/2019	LH	LH-68	LH-76	LH-75	128.62	1	1	MCC	119	0	0	3	2' X 2'	1	Missing clean out cap behind MH
8/6/2019	LH	LH-68	LH-77	LH-76	162.91	3						2			Good seal
8/6/2019	LH	LH-68	LH-78	LH-68	213.66	3						2			Good seal
8/6/2019	LH	LH-68	LH-79	LH-78	184.39	3						2			Good seal
8/6/2019	LH	LH-8	LH-8	LH-7	225.03	1	1	MFC	0	0	0	3	2' X 2'	5	Holes in cover
8/6/2019	LH	LH-8	LH-8	LH-7		1	1	BCO	129	27	0	3	.5' X .5'	1	Bco

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8/6/2019	LH	LH-8	LH-8	LH-7		1	1	BCO	154	0	27	3		1	Clean out cap broken
8/6/2019	LH	LH-84	LH-80	LH-81	80.72	1	1	MFC	0	0	0	3		1	Coming from holes in cover and cover seal
8/6/2019	LH	LH-84	LH-80	LH-81		1	1	BCO	7	0	0	3	.5' X .5'	1	Bco pipe recessed into ground
8/6/2019	LH	LH-84	LH-81	LH-82	136.18	1	1	MFC	0	0	0	3		1	Coming from cover holes and cover seal
8/6/2019	LH	LH-84	LH-81	LH-82		1	1	BCO	120	0	20	3		1	Cap leaking
8/6/2019	LH	LH-84	LH-82	LH-83	166.77	1	1	MFC	0	0	0	3		1	Coming from cover holes and cover seal and frame seal
8/6/2019	LH	LH-84	LH-83	LH-84	396.46	1	1	MFC	0	0	0	3		1	Coming from holes in cover and cover seal
8/6/2019	LH	LH-84	LH-83	LH-84		1	1	BCO	137	15	0	3		1	Cleanout is broken but has cap
8/6/2019	LH	LH-84	LH-84	LH-85	355.35	1	1	MFC	0	0	0	3	2' X 2'	1	Cover has holes
8/6/2019	LH	LH-84	LH-85	LH-86	194.25	1	1	MFC	0	0	0	3		1	Coming from cover holes and cover seal
8/6/2019	LH	LH-84	LH-85	LH-86		1	1	BCO	81	0	46	3	.5' X .5'	1	Bco
8/6/2019	LH	LH-84	LH-85	LH-86		1	1	BCO	179	0	38	3	.5' X .5'	1	Bco recessed clean out
8/6/2019	LH	LH-84	LH-86	LH-87	137.82	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover
8/6/2019	LH	LH-84	LH-87	LH-88	202.85	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover
8/7/2019	LH	LH-125	LH-89	LH-90	307.58	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and cover holes
8/6/2019	LH	LH-8	LH-9	LH-8	260.05	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from holes in cover
8/6/2019	LH	LH-8	LH-9	LH-8		1	1	BCO	208	0	28	3	.5' X .5'	1	Bco
8/7/2019	LH	LH-125	LH-90	LH-91	210.22	3						2			CNL
8/7/2019	LH	LH-96	LH-91	LH-92	380.08	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and cover holes
8/7/2019	LH	LH-96	LH-92	LH-93	363.43	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/7/2019	LH	LH-96	LH-93	LH-94	336.99	1	1	MFC	0	0	0	2	2' X 2'	1	Coming from cover seal
8/7/2019	LH	LH-96	LH-94	LH-95	313.00	1	1	MFC	0	0	0	2	2' X 2'	1	Coming g from frame seal
8/7/2019	LH	LH-96	LH-95	LH-96	359.21	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from frame seal
8/7/2019	LH	LH-96	LH-96	LH-97	198.40	1	1	MFC	0	0	0	3	2' X 2'	1	Hokes in cover
8/7/2019	LH	LH-96	LH-97	LH-98	388.09	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and cover holes
8/7/2019	LH	LH-96	LH-98	LH-99	432.17	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and holes
8/6/2019	LH	LH-105	LH-99	LH-100	134.35	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover frame
8/8/2019	LH	LH-507	Stub	LH-508	225.32	1	1	BCO	128	30.2	0	3	.5' X .5'	1	Stub CNL Bco cap broken
8/7/2019	LH	LH-15	Stub	LH-18	166.70	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from holes in cover
8/7/2019	LH	LH-15	Stub	LH-18		1	1	BCO	30	0	0	3	.5' X .5'	1	Bco cap has hole in it
8/7/2019	LH	LH-15	Stub	LH-18		1	1	BCO	88	11	0	3	.5' X .5'	1	Bco
8/7/2019	LH	LH-15	Stub	LH-19	200.41	1	1	BCO	0	10	0	3	.5' X .5'	1	Bco clean out recessed in the ground

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8/7/2019	LH	LH-24	Stub	LH-33	142.48	3						2			CNL
8/7/2019	LH	LH-24	Stub	LH-34	110.87	1	1	BCO	0	0	0	3	.5' X .5'	1	Missing stub cap
8/7/2019	LH	LH-46	Stub	LH-47	82.60	3						2			CNL
8/7/2019	LH	LH-46	Stub	LH-47	162.72	3						2			Good seal
8/7/2019	LH	LH-46	LH-134	LH-47	205.46	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/7/2019	LH	LH-46	Stub	LH-47		1	1	BCO	0	0	24	3	.5' X .5'	1	Bco
8/8/2019	LH	LH-507	Stub	LH-500	0.00	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/8/2019	LH	LH-507	Stub	LH-500		1	1	MCC	196	60	0	3	.5' X .5'	1	Mcc
8/8/2019	LH	LH-507	Stub	LH-500		1	1	BCO	36	59	0	3	.5' X .5'	1	Bco cap is broken
8/8/2019	LH	LH-503	Stub	LH-501	155.33	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes and cover seal
8/8/2019	LH	LH-503	Stub	LH-501		1	1	MCC	28.5	0	53	3		1	Mcc
8/8/2019	LH	LH-507	Stub	LH-505	146.06	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and cover hole
8/7/2019	LH	LH-55	Stub	LH-51	133.09	3						2			Good seal, on golf course
8/8/2019	LH	stub	Stub	LH-512	218.10	1	1	MFC	0	0	0	3	2' X 2'	5	On concrete sidewalk cover has holes
8/8/2019	LH	LH-516	Stub	LH-517	142.43	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal
8/7/2019	LH	LH-516	Stub	LH-518	101.03	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes and cover seal
8/7/2019	LH	LH-55	Stub	LH-52	104.08	1	1	BCO	0	22	0	3	.5' X .5'	1	Bco, clean out is recessed into ground
8/7/2019	LH	LH-55	Stub	LH-52	250.53	3						2			Good seal
8/8/2019	LH	LH-516	Stub	LH-520	142.79	3						1			CNL
8/8/2019	LH	LH-516	Stub	LH-520	186.00	1	1	MFC	0	0	0	3		1	Coming from cover holes and cover seal
8/8/2019	LH	stub	Stub	LH-521	191.31	1	1	MFC	0	0	0	3	2' X 2'	5	Cover has holes
8/8/2019	LH	LH-522	Stub	LH-522	342.05	3						1			Good seal
8/12/2019	LH	LH-524	Stub	LH-525	411.58	1	1	MCC	41	0	0	3	.5' X .5'	1	Mcc, 41 ft upstream diagonal 2 of
8/12/2019	LH	LH-524	Stub	LH-525		1	1	BCO	253.3	0	50.8	3	.5' X .5'	1	Bco
8/12/2019	LH	LH-524	Stub	LH-527	245.37	1	1	BCO	76	0	0	3	.5' X .5'	1	Bco ,missing cap
8/12/2019	LH	LH-532	Stub	LH-531	148.38	1	1	BCO	41.5	44	0	3		1	Bco cap broken
8/12/2019	LH	LH-532	Stub	LH-535	331.98	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal
8/7/2019	LH	LH-55	Stub	LH-58	179.80	3						2			CNL
8/6/2019	LH	LH-62	Stub	LH-61	109.30	3						2			Good seal
8/6/2019	LH	LH-68	Stub	LH-68	80.35	3						2			CNL
8/7/2019	LH	LH-39	TW-35	LH-37	137.47	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
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ORCHARD HILLS															
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8/14/2019	OH	OH-2	OH-1	PSD-CC1	197.37	3									CNL
8/14/2019	OH	OH-11	OH-10	OH-11	138.52	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/14/2019	OH	OH-11	OH-11	OH-13	33.59	1	1	MFC	0	0	0	3	2' X 2'	5	
8/14/2019	OH	OH-11	OH-12	OH-13	288.74	1	1	BCO	20	20	0	3	.5' X .5'	1	Good seal Bco no cap recessed into ground
8/14/2019	OH	OH-11	OH-12	OH-13		1	1	BCO	120	11	0	3		1	Bco cap broken
8/15/2019	OH	OH-11	OH-12	OH-13		1	1	BCO	120	0	62	3		1	Bco has cap
8/14/2019	OH	OH-11	OH-12	OH-13		1	1	HOL	126	0	37	3		1	Coming from lateral line
8/14/2019	OH	OH-11	OH-13	OH-14	217.70	1	1	MFC	0	0	0	2	2' X 2'	1	Coming from cover seal
8/14/2019	OH	OH-11	OH-13	OH-14		1	1	HOL	92	5.5	0	3		1	Coming from main line
8/14/2019	OH	OH-11	OH-14	OH-15	143.42	3									CNL
8/14/2019	OH	R-15	OH-15	OH-16	164.15	1	1	BCO	50	0	78	3	.5' X .5'	1	MH CNL Bco no cap
8/14/2019	OH	R-15	OH-15	OH-16		1	1	BCO	105	14	0	3	.5' X .5'	1	Bco has cap
	OH		OH-16	OH-17	-										Does not exist
8/15/2019	OH	R-15	OH-17	OH-16	346.45	1	1	BCO	224	0	47	3		1	MH Good seal Broken cap bco
8/14/2019	OH	R-15	OH-18	OH-17	103.22	1	1	BCO	30	0	6	3	.5' X .5'	1	MH CNL Bco no cap
8/14/2019	OH	OH-22	OH-19	OH-20	249.64	3									Good Seal ta possible blockage
8/13/2019	OH	OH-2	OH-2	OH-1	229.77	1	1	MFC	0	0	0	3	2.5 x 2.5	1	
8/13/2019	OH	OH-2	OH-2	OH-1		1	1	MCC	158	6	0	3	.5' X .5'	1	Mcc
8/14/2019	OH	OH-22	OH-20	OH-21	210.70	3									Good Seal or possible blockage
8/14/2019	OH	OH-22	OH-21	OH-22	143.16	3									CNL or possible blockage
8/14/2019	OH	OH-22	OH-22	OH-27	284.35	1	1	MFC	0	0	P	3	2' X 2'	1	Good Seal possible blockage
8/14/2019	OH	OH-22	OH-23	OH-22	82.36	3									Good Seal or possible blockage
8/14/2019	OH	OH-22	OH-24	OH-23	51.28	3									Good Seal or possible blockage
8/14/2019	OH	OH-22	OH-25	OH-24	272.63	3									CNL or possible blockage
8/14/2019	OH	OH-22	OH-26	OH-25	143.90	3									Good seal or possible blockage
8/14/2019	OH	OH-22	OH-27	OH-28	171.54	3									CNL or possible blockage
8/15/2019	OH	OH-28	OH-28	OH-36	313.50	1	1	MFC	0	0	0	3	2' X 2'	3	
8/15/2019	OH	OH-28	OH-28	OH-36		1	1	BCO	63	0	86	3	.5' X .5'	1	Cap broken
8/14/2019	OH	OH-28	OH-29	OH-28	208.78	1	1	BCO	56	116	0	3	.5' X .5'	1	MH CNL Bco mcc
8/14/2019	OH	OH-2	OH-3	OH-2	117.84	3									Good seal
8/14/2019	OH	OH-28	OH-30	OH-29	224.91	3									Good Seal
8/14/2019	OH	OH-28	OH-31	OH-28	251.67	1	1	BCO	72	53	0	3	.5' X .5'	1	MH good sea Bco cover to small

ORCHARD HILLS															
Smoke Test Completion Date	Service Area	Blower Location(s) (MH_ID)	Upstream MH	Downstream MH	Segment Length (LF)	Result Code	Defect Status (public = 1 / private= 2)	Source Type	Distance from upstream MH	distance right	Distance left	Smoke Code	Catchment Area (sq. Ft)	Runoff Code	Comments
8/14/2019	OH	OH-28	OH-32	OH-31	253.84	1	1	BCO	0	34	0	3	.5' X .5'	1	MH good seal Bco cap broken
8/14/2019	OH	OH-28	OH-33	OH-31	124.91	1	1	BCO	34	0	86	3	.5' X .5'	1	MH CNL Bco mcc
8/15/2019	OH	R-30	OH-34	OH-35	177.32	3									CNL, smoke coming from houses on this test but not test 66
8/15/2019	OH	R-30	OH-35	OH-36	295.56	3									CNL, got smoke from houses off this test but not test 66
8/15/2019	OH	OH-43	OH-36	PSD-AA30	64.57	3									Good Seal
8/15/2019	OH	OH-43	OH-36	OH-36	128.65	3									CNL
8/15/2019	OH	OH-39	OH-37	PSD-AA30	316.90	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover hole
8/15/2019	OH	OH-39	OH-38	OH-37	177.98	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from hole in cover
8/15/2019	OH	OH-39	OH-39	OH-37	60.98	1	1	MFC	0	0	0	3	2' X 2'	1	
8/13/2019	OH	OH-2	OH-4	OH-1	240.00	1	1	BCO	186	75	0	3	.5' X .5'	1	Good seal Bco no cap recessed into ground
8/15/2019	OH	OH-39	OH-40	OH-39	354.40	1	1	BCO	156	12	0	3	.5' X .5'	1	MH CNL Bco mcc
8/15/2019	OH	OH-43	OH-41	OH-36	122.95	3									CNL
8/14/2019	OH	OH-43	OH-42	OH-41	115.62	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/14/2019	OH	OH-43	OH-43	OH-41	281.32	1	1	MFC	0	0	0	3	2' X 2'	5	
8/15/2019	OH	OH-43	OH-44	OH-43	391.81	3									CNL
8/15/2019	OH	OH-43	OH-45	OH-44	209.67	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/15/2019	OH	OH-43	OH-45	OH-44		1	1	BCO	145	0	35	3	.5' X .5'	1	No cap bco
8/14/2019	OH	OH-50	OH-46	OH-47	94.34	3									Good Seal
8/14/2019	OH	OH-50	OH-47	OH-49	312.95	3									Good Seal
8/14/2019	OH	OH-50	OH-48	OH-47	347.72	1	1	BCO	36	0	0	3	.5' X .5'	1	Good Seal Bco mcc 10 oc diagonal from MH
8/14/2019	OH	OH-50	OH-48	OH-47		1	1	BCO	80	0	0	3	.5' X .5'	1	Bco mcc 10 oc diagonal from MH
8/14/2019	OH	OH-50	OH-49	OH-51	292.50	3									Good Seal
8/13/2019	OH	OH-2	OH-5	OH-4	197.00	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/14/2019	OH	OH-50	OH-50	OH-49	357.59	1	1	MFC	0	0	0	3	2' X 2'	1	
8/14/2019	OH	OH-53	OH-51	OH-54	273.52	1	1	MFC	0	0	0	2	2' X 2'	1	Coming from cover seal
8/14/2019	OH	OH-53	OH-52	OH-51	211.11	3									Good seal
8/14/2019	OH	OH-53	OH-53	OH-52	249.40	1	1	MFC	0	0	0	3	2' X 2'	5	
8/14/2019	OH	OH-53	OH-54	PSD-CC1	177.09	3									Good seal
8/15/2019	OH	OH-53	OH-54	OH-53	236.39	1	1	MFC	0	0	0	1	2' X 2'	1	Coming from cover seal
8/15/2019	OH	OH-53	OH-54	OH-53		1	1	AD	98	0	0	3	40' X 40'	1	Yard drain, 2 oc diagonal
8/15/2019	OH	OH-53	OH-54	OH-53		1	1	MCC	9	0	53	2	.5' X .5'	1	Mcc, homeowner duct tapped top of clean out
8/15/2019	OH	OH-53	OH-54	OH-53		1	1	BCO	157	0	60	3	.5' X .5'	1	Bco no cap

ORCHARD HILLS															
Smoke Test Completion Date	Service Area	Blower Location(s) (MH_ID)	Upstream MH	Downstream MH	Segment Length (LF)	Result Code	Defect Status (public = 1 / private= 2)	Source Type	Distance from upstream MH	distance right	Distance left	Smoke Code	Catchment Area (sq. Ft)	Runoff Code	Comments
8/13/2019	OH	OH-6	OH-6	OH-7	40.24	1	1	MFC	0	0	0	3	2' X 2'	1	
8/13/2019	OH	OH-6	OH-7	OH-8	155.27	1	1	MFC	0	0	0	3	2' X 2'	1	Buried mfc
8/14/2019	OH	OH-11	OH-9	OH-10	20.39	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
					10,871.16										

PS4																
Smoke Test Completion Date	Service Area	Blower Setup Number	Blower Location(s) (MH_ID)	Upstream MH	Downstream MH	Segment Length (LF)	Result Code	Defect Status (public = 1 / private= 2)	Source Type	Distance from upstream MH	distance right	Distance left	Smoke Code	Catchment Area (sq. Ft)	Runoff Code	Comments
8/13/2019	CT	55	CT-379	CG-1	CT-379	161.31	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal
8/12/2019	CG	54	CG-8	CG-10	CG-9	102.68	3									Good seal
8/12/2019	CG	54	CG-8	CG-11	CG-10	377.28	1	1	BCO	25.7	0	23.3	3	.5' X .5'	1	Manhole has a good seal. Bco
8/12/2019	CG	54	CG-8	CG-11	CG-10		1	1	BCO	133	0	24.7	3	.5' X .5'	1	Bco no cap
8/12/2019	CG	54	CG-8	CG-12	CG-13	300.97	1	1	BCO	100	0	29.5	3	.5' X .5'	1	MH has a good seal. Bco broken cap
8/12/2019	CG	54	CG-8	CG-12	CG-13		1	1	BCO	167	18.5	0	3	.5' X .5'	1	Bco
8/12/2019	CG	54	CG-8	CG-12	CG-13		1	1	BCO	253	0	27	3	.5' X .5'	1	Bco
8/12/2019	CG	54	CG-8	CG-13	CG-8	240.15	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal
8/12/2019	CG	54	CG-8	CG-14	CG-13	280.94	1	1	BCO	34.6	0	0	3	.5' X .5'	1	MH has a good seal. Bco
8/12/2019	CG	54	CG-8	CG-14	CG-13		1	1	BCO	0	0	19.5	3	.5' X .5'	1	Bco
8/12/2019	CG	54	CG-8	CG-14	CG-13		1	1	BCO	23	29.2	0	3	.5' X .5'	1	Bco
8/12/2019	CG	54	CG-8	CG-14	CG-13		1	1	BCO	39	0	16	3	.5' X .5'	1	Bco
8/12/2019	CG	54	CG-8	CG-14	CG-13		1	1	BCO	81	0	16	3	.5' X .5'	1	Bco
8/12/2019	CG	54	CG-8	CG-14	CG-13		1	1	BCO	140	27	0	3	.5' X .5'	1	Bco
8/12/2019	CG	54	CG-8	CG-14	CG-13		1	1	BCO	180	0	18	3	.5' X .5'	1	Bco cap broken
8/12/2019	CG	54	CG-8	CG-14	CG-13		1	1	BCO	186	27.5	0	3	.5' X .5'	1	Bco below ground level
8/12/2019	CG	54	CG-8	CG-14	CG-13		1	1	BCO	228	28	0	3	.5' X .5'	1	Bco has cap
8/12/2019	CG	54	CG-8	CG-2	PS4-7	18.98	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/12/2019	CG	54	CG-8	CG-3	CG-4	50.24	1	1	BCO	21	23.5	0	3	.5' X .5'	1	MH has a good seal. Bco no cap
8/12/2019	CG	54	CG-8	CG-3	CG-4		1	1	BCO	29	0	0	3	.5' X .5'	1	Bco 10 oc diagonal
8/12/2019	CG	54	CG-8	CG-4	CG-2	111.88	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/12/2019	CG	54	CG-8	CG-5	CG-4	210.45	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes
8/12/2019	CG	54	CG-8	CG-5	CG-4		1	1	BCO	7.5	0	22.1	3	.5' X .5'	1	Cap broken
8/12/2019	CG	54	CG-8	CG-5	CG-4		1	1	BCO	48	0	19.3	3	.5' X .5'	1	Bco missing cap
8/12/2019	CG	54	CG-8	CG-5	CG-4		1	1	BCO	120	0	19.1	3	.5' X .5'	1	Bco
8/12/2019	CG	54	CG-8	CG-5	CG-4		1	1	BCO	128	20.6	0	3	.5' X .5'	1	Bco
8/12/2019	CG	54	CG-8	CG-5	CG-4		1	1	BCO	130	29	0	3	.5' X .5'	1	Bco
8/12/2019	CG	54	CG-8	CG-5	CG-4		1	1	BCO	163	20.4	0	3	.5' X .5'	1	Bco
8/12/2019	CG	54	CG-8	CG-6	CG-5	232.99	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover hole
8/12/2019	CG	54	CG-8	CG-6	CG-5		1	1	BCO	100	0	29	3	.5' X .5'	1	Bco

PS4																
Smoke Test Completion Date	Service Area	Blower Setup Number	Blower Location(s) (MH_ID)	Upstream MH	Downstream MH	Segment Length (LF)	Result Code	Defect Status (public = 1 / private= 2)	Source Type	Distance from upstream MH	distance right	Distance left	Smoke Code	Catchment Area (sq. Ft)	Runoff Code	Comments
8/12/2019	CG	54	CG-8	CG-7	CG-8	276.69	1	1	BCO	26.4	0	0	3	.5' X .5'	1	MH has a good seal. Bco, 10 oc diagonal from end cap
8/12/2019	CG	54	CG-8	CG-7	CG-8		1	1	BCO	20	22.4	0	3	.5' X .5'	1	Bco cap broken
8/12/2019	CG	54	CG-8	CG-7	CG-8		1	1	BCO	62	20.1	0	3	.5' X .5'	1	Bco cap missing
8/12/2019	CG	54	CG-8	CG-7	CG-8		1	1	BCO	106	20.8	0	3	.5' X .5'	1	Bco, no cap
8/12/2019	CG	54	CG-8	CG-7	CG-8		1	1	BCO	145	36.7	0	3	.5' X .5'	1	Bco no cap
8/12/2019	CG	54	CG-8	CG-7	CG-8		1	1	BCO	150	23	0	3	.5' X .5'	1	Bco no cap
8/12/2019	CG	54	CG-8	CG-7	CG-8		1	1	BCO	183	23.4	0	3	.5' X .5'	1	Bco cap broken
8/12/2019	CG	54	CG-8	CG-7	CG-8		1	1	BCO	223	23	0	3	.5' X .5'	1	Bco, has cover
8/12/2019	CG	54	CG-8	CG-8	CG-6	151.62	1	1	MFC	0	0	0	3	2' X 2'	5	Cover has holes
8/12/2019	CG	54	CG-8	CG-9	CG-8	202.12	1	1	BCO	26	0	24	3	.5' X .5'	1	Bco
8/12/2019	CG	54	CG-8	CG-9	CG-8		1	1	BCO	21	38	0	3	.5' X .5'	1	Bco, broken below ground level
8/12/2019	CG	54	CG-8	CG-9	CG-8		1	1	BCO	61	38.4	0	3	.5' X .5'	1	Bco, broken below ground level
8/12/2019	CG	54	CG-8	CG-9	CG-8		1	1	BCO	61	0	22.9	3	.5' X .5'	1	Bco broken below ground level
8/12/2019	CG	54	CG-8	CG-9	CG-8		1	1	BCO	143	0	21.3	3	.5' X .5'	1	Bco cap has hole
8/12/2019	CG	54	CG-8	CG-9	CG-8		1	1	BCO	176	0	19.2	3	.5' X .5'	1	Bco no cap
8/13/2019	CT	57	CT-376	CT-374	CT-375	201.74	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/13/2019	CT	57	CT-376	CT-374	CT-375		1	1	HOL	60	75	0	3	10' X 10'	1	Coming from ground no clean out
8/13/2019	CT	57	CT-376	CT-375	CT-376	296.49	1		MHS	0	0	0	3	2' X 2'	1	Coming from out side of cover
8/13/2019	CT	57	CT-376	CT-376	PSD-B1	148.01	1	1	MFC	0	0	0	3	2' X 2'	1	
8/13/2019	CT	55	CT-379	CT-378	PSD-B1	70.94	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/13/2019	CT	55	CT-379	CT-379	CT-378	83.85	1	1	MFC	0	0	0	3	2' X 2'	5	Cover has holes also has plastic insert good conditions
8/13/2019	CT	55	CT-379	CT-379	CT-378		1	1	BCO	50	0	32.5	3	.5' X .5'	1	Bco
8/13/2019	CT	55	CT-379	CT-380	CT-379	32.73	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal ponding possible
8/13/2019	CT	55	CT-379	CT-381	CT-380	137.12	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal grass over grown ponding possible
8/13/2019	CT	55	CT-379	CT-381	CT-380		1	1	BCO	10	32.3	0	3	.5' X .5'	1	Bco
8/13/2019	CT	55	CT-379	CT-381	CT-380		1	1	MCC	32	0	9	3	.5' X .5'	1	Mcc
8/13/2019	CT	55	CT-379	CT-381	CT-380		1	1	BCO	32	0	73	3	.5' X .5'	1	Has graded cap recessed into ground
8/13/2019	CT	55	CT-379	CT-381	CT-380		1	1	BCO	130	0	6	3	.5' X .5'	1	Bco
8/13/2019	CT	55	CT-379	CT-382	CT-381	228.36	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/13/2019	CT	55	CT-379	CT-383	CT-382	253.84	1	1	BCO	12	0	0	3	.5' X .5'	1	Bco pipe broken under ground level

PS4																
Smoke Test Completion Date	Service Area	Blower Setup Number	Blower Location(s) (MH_ID)	Upstream MH	Downstream MH	Segment Length (LF)	Result Code	Defect Status (public = 1 / private= 2)	Source Type	Distance from upstream MH	distance right	Distance left	Smoke Code	Catchment Area (sq. Ft)	Runoff Code	Comments
8/13/2019	CT	55	CT-379	CT-383	CT-382		1	1	BCO	141	82.4	0	3	.5' X .5'	1	Bco broken under ground level
8/13/2019	CT	55	CT-379	CT-384	CG-1	305.76	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/13/2019	CT	55	CT-379	CT-384	CG-1		1	1	MCC	63	0	12.7	3	.5' X .5'	1	Mcc
8/13/2019	CT	55	CT-379	CT-385	CT-384	152.61	1	1	MFC	0	0	0	3	3' X 3'	1	Coming from cover seal and frame seal
8/13/2019	CT	55	CT-379	CT-386	CT-385	159.61	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/13/2019	CT	55	CT-379	CT-387	CT-386	155.08	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and frame seal
8/13/2019	CT	55	CT-379	CT-387	CT-386		1	1	MCC	3	0	10	3	.5' X .5'	1	Mcc
8/13/2019	CT	56	CT-389	CT-388	CT-389	198.76	1	1	BCO	106	11.9	0	3	.5' X .5'	1	MH is CNL. Bco cap broken
8/13/2019	CT	56	CT-389	CT-389	CT-398	27.78	1	1	MFC	0	0	0	3	2' X 2'	1	Potential for ponding
8/13/2019	CT	56	CT-389	CT-390	CT-389	181.19	1	1	MFC	0	0	0	1	2' X 2'	1	Coming from cover seal, ponding possible
8/13/2019	CT	56	CT-389	CT-391	CT-390	190.21	1	1	MFC	0	0	0	3	2' X 2'	4	Coming from cover seal
8/13/2019	CT	56	CT-389	CT-391	CT-390		1	1	BCO	33	0	6	3	.5' X .5'	1	Mcc and bco
8/13/2019	CT	56	CT-389	CT-392	CT-391	260.80	1	1	MFC	0	0	0	3	2' X 2'	4	Coming from cover seal
8/13/2019	CT	56	CT-389	CT-392	CT-391		1	1	BCO	129	0	3	3	.5' X .5'	1	Clean out recessed into ground bco
8/13/2019	CT	56	CT-389	CT-392	CT-391		1	1	BCO	175	0	11	3	.5' X .5'	1	Cap broken bco
8/13/2019	CT	56	CT-389	CT-393	CT-392	218.09	3									Good seal
8/13/2019	CT	56	CT-389	CT-394	CT-395	126.23	1	1	BCO	0	0	4	3	.5' X .5'	1	Bco no cap
8/13/2019	CT	56	CT-389	CT-395	CT-396	126.12	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/13/2019	CT	56	CT-389	CT-395	CT-396		1	1	BCO	28	0	20	3	.5' X .5'	1	Bco
8/13/2019	CT	56	CT-389	CT-396	CT-397	239.60	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/13/2019	CT	56	CT-389	CT-396	CT-397		1	1	BCO	108	89	0	3	.5' X .5'	1	Bco no cap
8/13/2019	CT	56	CT-389	CT-396	CT-397		1	1	BCO	108	0	102	3	.5' X .5'	1	Bco
8/13/2019	CT	56	CT-389	CT-397	CT-398	153.68	1	1	MFC	0	0	0	1	2' X 2'	1	Coming from cover seal
8/13/2019	CT	56	CT-389	CT-398	BELVEDERE	130.19	1	1	MFC	0	0	0	2	2' X 2'	1	Coming from cover seal
8/12/2019	GM	53	GM-3	GM-1	GM-8	140.86	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/12/2019	GM	53	GM-3	GM-2	GM-1	109.18	3									Good seal
8/12/2019	GM	53	GM-3	GM-3	GM-2	228.08	1	1	MFC	0	0	0	3	2' X 2'	5	Has holes in cover

PS4																
Smoke Test Completion Date	Service Area	Blower Setup Number	Blower Location(s) (MH_ID)	Upstream MH	Downstream MH	Segment Length (LF)	Result Code	Defect Status (public = 1 / private= 2)	Source Type	Distance from upstream MH	distance right	Distance left	Smoke Code	Catchment Area (sq. Ft)	Runoff Code	Comments
8/12/2019	GM	53	GM-3	GM-3	GM-2		1	1	MCC	94	32.8	0	3	.5' X .5'	1	Mcc
8/12/2019	GM	53	GM-3	GM-4	GM-3	267.92	1	1	BCO	122	33.1	0	3	.5' X .5'	1	Bco
8/12/2019	GM	53	GM-3	GM-4	GM-3		1	1	BCO	198.6	35	0	3	.5' X .5'	1	Bco has cap
8/12/2019	GM	53	GM-3	GM-5	GM-4	221.29	1	1	BCO	12	0	36	3	.5' X .5'	1	Bco has cap
8/12/2019	GM	53	GM-3	GM-5	GM-4		1	1	BCO	68	0	59.5	3	.5' X .5'	1	Bco, clean out comes out of the ground
8/12/2019	GM	53	GM-3	GM-5	GM-4		1	1	BCO	130	0	35.4	3	.5' X .5'	1	Bco has cap
8/12/2019	GM	53	GM-3	GM-6	GM-7	170.70	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/12/2019	GM	53	GM-3	GM-7	GM-2	138.46	1	1	BCO	0	54.8	0	3	.5' X .5'	1	MH has a good seal. Bco cap
8/12/2019	GM	53	GM-3	GM-8	PS4-7	6.66	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes, inside pump station
						8,080.26										

SW RANSON															
Smoke Test Completion Date	Service Area	Blower Location(s) (MH_ID)	Upstream MH	Downstream MH	Segment Length (LF)	Result Code	Defect Status (public = 1 / private= 2)	Source Type	Distance from upstream MH	distance right	Distance left	Smoke Code	Catchment Area (sq. Ft)	Runoff Code	Comments
8/19/2019	R	R-15	OH-16	R-15	111.89	3									Good seal
8/20/2019	R	OH-6	OH-8	R-11	268.11	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and frame seal
8/20/2019	R	OH-6	R-10	R-9	107.46	3									CNL
8/20/2019	R	OH-6	R-11	R-10	35.14	3									CNL
8/20/2019	R	OH-6	R-12	R-11	181.71	3									GOOD SEAL
8/14/2019	R	R-15	R-13	R-14	231.14	1	1	MFC	0	0	0	3		1	Coming from cover seal
8/14/2019	R	R-142	R-139	R-141	291.84	1	1	BCO	237	0	7	3	.5' X .5'	1	MH Good Seal Bco has cover, cover broken
8/14/2019	R	R-15	R-14	R-15	183.00	3									CNL
8/15/2019	R	R-142	R-141	R-142	116.23	1	1	MFC	0	0	0	1	2' X 2'	5	Coming from cover seal
8/20/2019	R	R-142	R-141	R-142		1	1	HOL	80	8	0	3	.5' X .5'	1	Service lateral broken big hole in ground
8/20/2019	R	R-142	R-142	R-143	290.14	1	1	MFC	0	0	0	3		1	
8/13/2019	R	R-142	R-142	R-143		1	1	BCO	180	0	344	3	.5' X .5'	1	Bco mcc
8/19/2019	R	R-55	R-143	R-144	52.43	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/19/2019	R	R-55	R-144	R-148	86.81	3									CNL, PAVED OVER
8/20/2019	R	R-55	R-145	R-144	272.60	3									CNL, paved over
8/15/2019	R	R-55	R-148	R-149	357.24	3									CNL, PAVED OVER
8/20/2019	R	R-55	R-149	R-150	259.94	1	1	MFC	0	0	0	2	2' X 2'	5	Coming from cover seal
8/20/2019	R	R-15	R-15	R-16		1	1	MFC	0	0	0	3	2' X 2'	2	
8/20/2019	R	R-151	R-150	R-151	308.86	1	1	MFC	0	0	0	1	2' X 2'	1	Ponding definite
8/20/2019	R	R-151	R-151	R-232	316.78	1	1	MFC	0	0	0	3	2' X 2'	5	
8/20/2019	R	R-151	R-151	R-232		1	1	AD	105	0	67	3	50' X 50'	5	Open grate
8/20/2019	R	R-151	R-152	R-151	344.19	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes
8/20/2019	R	R-151	R-153	R-152	399.73	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes
8/20/2019	R	R-220	R-217	R-220	181.26	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and cover holes
8/20/2019	R	R-220	R-217	R-220		1	1	HOL	113	0	49	3	10' X 10'	1	Service lateral sf
8/15/2019	R	R-220	R-220	R-221	152.47	1	1	MFC	0	0	0	3	2' X 2'	5	
8/15/2019	R	R-220	R-220	R-221		1	1	MCC	75	0	13	3	.5' X .5'	1	Mcc
8/19/2019	R	R-220	R-221	R-222	183.77	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and cover holes
8/20/2019	R	R-220	R-221	R-222		1	1	BCO	16	79	0	3	.5' X .5'	1	Bco also note looks like gutter hook up to clean out pipe
8/20/2019	R	R-220	R-222	R-224	148.31	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
8/20/2019	R	R-220	R-223	R-222	260.14	1	1	MCC	16	0	0	3	.5' X .5'	1	MH is CNL Mcc
8/20/2019	R	R-226	R-224	R-225	257.50	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and cover holes
8/19/2019	R	R-226	R-225	R-229	331.73	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes
8/19/2019	R	R-226	R-225	R-229		1	1	ABS	8	0	35	3	.5' X .5'	1	Abandon service no cleanout

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8/13/2019	R	R-226	R-225	R-229		1	1	BCO	225	0	40	3	.5' X .5'	1	Bco mcc
8/20/2019	R	R-226	R-226	R-225	172.69	1	1	MFC	0	0	0	3	2' X 2'	5	Cover has holes
8/19/2019	R	R-226	R-227	R-226	449.34	1	1	HOL	100	37	0	3	10' X 10'	1	MH is Paved over Service lateral sf
8/20/2019	R	R-226	R-227	R-226		1	1	MLK	100	59	0	3	10' X 10'	1	Service lateral msf
8/14/2019	R	R-226	R-227	R-226		1	1	HOL	238	60	0	3	10' X 10'	1	Service lateral sf
8/20/2019	R	R-226	R-227	R-226		1	1	BCO	300	81	0	3	.5' X .5'	1	Bco cap broken
8/20/2019	R	R-226	R-227	R-226		1	1	BCO	340	0	60	3	.5' X .5'	1	Bco cap broken
8/20/2019	R	R-226	R-227	R-226		1	1	ABS	340	0	70	3	.5' X .5'	1	Former cleanout
8/14/2019	R	R-226	R-227	R-226		1	1	BCO	354	9	0	3	.5' X .5'	1	Bco
8/20/2019	R	R-226	R-228	R-227	49.63	3									CNL
8/14/2019	R	R-226	R-229	R-230	139.10	3									
8/14/2019	R	R-226	R-230	R-231	189.14	3									Good seal
8/14/2019	R	R-151	R-231	R-232	143.62	1	1	MFC	0	0	0	3		1	Coming from frame seal and cover holes
8/20/2019	R	R-151	R-231	R-232		1	1	BCO	87	0	30	3	.5' X .5'	1	Bco mcc
8/15/2019	R	R-151	R-232	R-233	135.01	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal
8/20/2019	R	R-151	R-233	R-234	175.80	3									Good Seal, ponding definite
8/20/2019	R	R-235	R-234	R-235	349.46	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal
8/13/2019	R	R-235	R-234	R-235		1	1	HOL	135	0	27	3	20' X 20'	1	Service lateral
8/20/2019	R	R-235	R-234	R-235		1	1	BCO	262	0	20	3	.5' X .5'	1	Bco mcc
8/19/2019	R	R-235	R-235	R-236	310.30	1	1	MFC	0	0	0	3	2' X 2'		
8/15/2019	R	R-235	R-235	R-236		1	1	BCO	97	0	54	3	.5' X .5'	1	Bco
8/15/2019	R	R-235	R-235	R-236		1	1	HOL	132	0	85	3	20' X 20'	1	Big dip in ground no clean out or service lateral found
8/15/2019	R	R-238	R-236	R-241	360.84	1	1	MFC	0	0	0	2	2' X 2'	1	Coming from cover seal
8/15/2019	R	R-238	R-237	R-236	183.73	3									CNL
8/19/2019	R	R-238	R-238	R-237	168.72	1	1	MFC	0	0	0	3	2' X 2'	1	
8/20/2019	R	R-235	R-239	R-235	176.15	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and cover holes
8/19/2019	R	R-235	R-240	R-239	240.10	1	1	BCO	42	0	0	3	.5' X .5'	1	MH is Paved over Bco mcc, 10 oc diagonal
8/19/2019	R	R-238	R-241	R-242	199.27	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/19/2019	R	R-242	R-242	R-246	159.13	1	1	MFC	0	0	0	3	2' X 2'	1	
8/20/2019	R	R-242	R-242	R-246		1	1	HOL	75	3	0	3	10' X 10'	1	Coming from ground over main line
8/19/2019	R	R-242	R-243	R-242	163.15	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and cover holes
8/19/2019	R	R-242	R-244	R-243	81.37	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes
8/19/2019	R	R-242	R-245	R-244	177.44	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and cover holes
8/19/2019	R	R-242	R-246	R-247	282.16	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal

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8/19/2019	R	R-242	R-246	R-247		1	1	BCO	0	101	0	3	.5' X .5'	1	Bco mcc
8/14/2019	R	R-242	R-246	R-247		1	1	MCC	194	0	3	3	.5' X .5'	1	Mcc
8/15/2019	R	R-247	R-247	R-249	341.83	1	1	MFC	0	0	0	3	2' X 2'	5	
8/19/2019	R	R-247	R-247	R-249		1	1	MLK	37	0	59	2	10' X 10'	1	Msf
8/19/2019	R	R-247	R-247	R-249		1	1	BCO	72	0	59	3	.5' X .5'	1	Bco, has cap, coming from under ground
8/19/2019	R	R-247	R-247	R-249		1	1	MLK	18	0	54	2	10' X 10'	1	Msf
8/19/2019	R	R-247	R-247	R-249		1	1	HOL	6	0	54	3	10' X 10'	1	Sf
8/20/2019	R	R-247	R-247	R-249		1	1	BCO	87	40	0	3	.5' X .5'	1	Bco mcc
8/15/2019	R	R-247	R-249	R-250	153.29	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes
8/20/2019	R	R-247	R-250	R-251	79.10	3									Good Seal
8/14/2019	R	R-247	R-251	R-259	71.27	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and cover holes
8/19/2019	R	R-247	R-252	R-251	14.54	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/19/2019	R	R-255	R-253	R-252	212.00	3									Good seal
8/15/2019	R	R-255	R-254	R-253	197.25	1	1	MFC	0	0	0	3	2' X 2'	1	Frame seal not good also coming from cover seal
8/20/2019	R	R-255	R-255	R-254	283.23	1	1	MFC	0	0	0	3	2' X 2'	5	
8/14/2019	R	R-255	R-255	R-254		1	1	BCO	192	62	0	3	.5' X .5'	1	Bco coming from bottom of hole
8/20/2019	R	R-255	R-256	R-255	297.42	1	1	BCO	0	63	0	3	.5' X .5'	1	Has cover but doesn't fit
8/19/2019	R	R-255	R-256	R-255		1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and cover holes
8/20/2019	R	R-255	R-256	R-255		1	1	BCO	183	0	34	3	.5' X .5'	1	Bco and cap broken
8/20/2019	R	R-255	R-256	R-255		1	1	BCO	253	0	44	3	.5' X .5'	1	Bco and cap broken
8/14/2019	R	R-255	R-257	R-255	282.33	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and cover holes
8/14/2019	R	R-255	R-258	R-257	232.07	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and cover holes
8/20/2019	R	R-30	R-26	R-27	163.07	1	1	BCO	42	31	0	3	.5' X .5'	1	MH CNL Bco mcc
8/15/2019	R	R-30	R-26	R-27		1	1	AD	129	32	0	3	50' X 50'	1	Cover has slits for draining
8/19/2019	R	R-247	R-260	R-247	316.93	1	1	HOL	190	0	80	3	10' X 10'	1	MH is CNL Service lateral sf
8/15/2019	R	R-247	R-260	R-247		1	1	MCC	190	0	86	3	.5' X .5'	1	Mcc
8/14/2019	R	R-247	R-260	R-247		1	1	BCO	224	9	0	3	.5' X .5'	1	Bco cap broken
8/15/2019	R	R-247	R-261	R-260	147.42	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and cover holes
8/14/2019	R	R-247	R-261	R-260		1	1	HOL	54	28	0	3	10' X 10'	1	Servais lateral sf
8/20/2019	R	R-247	R-261	R-260		1	1	MCC	61	11	0	3	.5' X .5'	1	Bco mcc
8/20/2019	R	R-247	R-262	R-261	171.76	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and cover holes
8/20/2019	R	R-265	R-263	R-262	160.95	3									CNL, PAVED OVER
8/14/2019	R	R-265	R-264	R-263	370.19	1	1	MFC	0	0	0	3	2' X 2'	5	Smoke coming from hole cut out over MH
8/19/2019	R	R-265	R-265	R-264	130.33	1	1	MFC	0	0	0	3	2' X 2'	5	Cover has holes

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8/19/2019	R	R-265	R-266	R-265	38.97	3									CNL
8/14/2019	R	R-265	R-267	R-266	354.50	1	1	MFC	0	0	0	3	2' X 2'	5	Cover holes
8/20/2019	R	R-271	R-268	R-263	172.30	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes
8/13/2019	R	R-271	R-269	R-268	145.05	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes
8/14/2019	R	R-271	R-269	R-268		1	1	HOL	93	0	59	3	10' X 10'	1	Service lateral sf
8/15/2019	R	R-30	R-27	R-28	184.90	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/15/2019	R	R-271	R-270	R-268	124.66	1	1	MFC	0	0	0	3	2' X 2'	3	Coming from cover holes
8/15/2019	R	R-271	R-270	R-268		1	1	HOL	108	0	26	3	10' X 10'	1	Service lateral sf
8/15/2019	R	R-271	R-271	R-270	179.65	1	1	MFC	0	0	0	3	2' X 2'	5	
8/20/2019	R	R-271	R-271	R-270		1	1	BCO	50	0	0	3	.5' X .5'	1	Bco mcc
8/15/2019	R	R-271	R-272	R-271	345.24	3									CNL
8/15/2019	R	R-271	R-273	R-270	143.40	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and cover holes
8/15/2019	R	R-271	R-273	R-270		1	1	HOL	78	0	35	3	10' X 10'	1	Service lateral sf
8/15/2019	R	R-271	R-274	R-273	173.93	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and cover holes
8/15/2019	R	R-271	R-274	R-273		1	1	BCO	7	0	23	3	.5' X .5'	1	Bco , cap broken
8/19/2019	R	R-276	R-275	R-273	179.70	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover seal and cover holes
8/15/2019	R	R-276	R-275	R-273		1	1	BCO	102	0	16	3	.5' X .5'	1	Bco cover broken too
8/15/2019	R	R-276	R-275	R-273		1	1	HOL	102	0	11	3	10' X 10'	1	Service lateral sf
8/20/2019	R	R-276	R-276	R-275	147.38	1	1	MFC	0	0	0	3	2' X 2'	5	
8/15/2019	R	R-276	R-276	R-275		1	1	MCC	122	63	0	3	.5' X .5'	1	Mcc
8/19/2019	R	R-278	R-277	R-276	152.17	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and cover holes
8/15/2019	R	R-278	R-278	R-277	214.85	1	1	MFC	0	0	0	3	2' X 2'	5	
8/15/2019	R	R-278	R-278	R-277		1	1	BCO	147	0	15	3		1	Bco
8/20/2019	R	R-220	R-279	R-280	36.21	3									CNL
8/15/2019	R	R-30	R-28	R-29	202.38	3									CNL
8/19/2019	R	R-220	R-280	R-281	443.54	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes and cover seal
8/19/2019	R	R-220	R-280	R-281		1	1	BCO	182	0	15	3	.5' X .5'	1	Bco
8/15/2019	R	R-220	R-281	R-220	180.68	1	1	MFC	0	0	0	3	2' X 2'	5	Coming from cover holes and cover seal
8/14/2019	R	R-30	R-29	R-33	283.45	3									CNL
8/20/2019	R	R-30	R-30	R-29	20.43	1	1	MFC	0	0	0	3		1	
8/20/2019	R	R-30	R-31	R-30	107.08	3									CNL
8/19/2019	R	R-30	R-32	R-31	168.01	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/20/2019	R	R-30	R-33	R-35	38.58	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/19/2019	R	R-30	R-34	R-33	225.17	3									CNL

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8/20/2019	R	R-39	R-35	R-36	117.66	3									CNL
8/15/2019	R	R-39	R-36	R-37	98.54	1	1	BCO	60	107	0	3	.5' X .5'	1	MH Good Seal Bco mcc
8/19/2019	R	R-39	R-37	R-38	284.19	3									CNL
8/19/2019	R	R-39	R-38	R-41	181.52	3									CNL
8/19/2019	R	R-39	R-39	R-38	156.25	1	1	MFC	0	0	0	3	2' X 2'	5	
8/14/2019	R	R-39	R-39A	R-39	193.84	3									CNL
8/20/2019	R	R-39	R-40	R-39	355.99	1	1	MCC	205	0	73	3		1	MH CNL Mcc
8/19/2019	R	R-39	R-40	R-39		1	1	BCO	224	40	0	3	.5' X .5'	1	Bco mcc
8/19/2019	R	R-151	R-400	R-233	42.74	1	1	MFC	0	0	0	3		1	Coming from frame seal and cover holes
8/20/2019	R	R-39	R-41	R-43	393.46	1	1	BCO	260	60	0	3		1	MH Good seal Bco has cap
8/15/2019	R	R-39	R-42	R-41	474.79	1	1	BCO	352	40	0	3	.5' X .5'	1	MH Good Seal Bco mcc
8/15/2019	R	R-39	R-42	R-41		1	1	BCO	352	107	0	3	.5' X .5'	1	Bco cap broken
8/15/2019	R	R-39	R-43	R-44	347.00	3									Good Seal
8/20/2019	R	R-49	R-44	R-54	82.76	1	1	MFC	0	0	0	3		1	Coming from cover seal and frame seal
8/19/2019	R	R-49	R-45	R-44	71.93	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/15/2019	R	R-49	R-46	R-45	168.20	3									CNL
8/14/2019	R	R-49	R-47	R-46		1	1	BCO	98	0	17	3	.5' X .5'	1	MH Good Seal Bco mcc
8/15/2019	R	R-49	R-47	R-46		1	1	BCO	119	0	17	3	.5' X .5'	1	Bco mcc
8/15/2019	R	R-49	R-47	R-46		1	1	BCO	135	0	17	3	.5' X .5'	1	Bco mcc
8/20/2019	R	R-49	R-47	R-46		1	1	BCO	181	0	40	3	.5' X .5'	1	Bco mcc
8/19/2019	R	R-49	R-48	R-47	184.58	3									CNL
8/15/2019	R	R-49	R-49	R-44	185.88	1	1	MHS	0	0	0	3		1	Leaking from manhole structure
8/15/2019	R	R-49	R-50	R-49	253.03	1	1	BCO	2	0	9	3	.5' X .5'	1	MH Good Seal Cap doesn't fit smoke coming from concrete lateral broken
8/20/2019	R	R-49	R-50	R-49		1	1	BCO	26	0	11	3	.5' X .5'	1	Bco below ground
8/14/2019	R	R-49	R-50A	R-50	109.71	3									CNL
8/19/2019	R	R-49	R-51	R-49	181.52	1	1	MFC	0	0	0	3		1	Coming from cover seal
8/15/2019	R	R-49	R-52	R-51	294.33	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from hole in cover
8/13/2019	R	R-49	R-53	R-52	269.06	3									Good Seal
8/19/2019	R	R-55	R-54	R-55	369.78	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
8/20/2019	R	R-55	R-55	R-149	50.02	1	1	MFC	0	0	0	3	2' X 2'	1	
8/20/2019	R	OH-6	R-9	R-8	399.04	3									CNL
8/19/2019	R	R-226	Stub	R-229	145.50	1	1	EXP	0	0	0	3	.5' X .5'	1	Broken pipe stub
8/20/2019	R	R-226	Stub	R-229		yes									
8/15/2019	R	R-226	Stub	R-230	133.62	3									Good seal

SW RANSON															
Smoke Test Completion Date	Service Area	Blower Location(s) (MH_ID)	Upstream MH	Downstream MH	Segment Length (LF)	Result Code	Defect Status (public = 1 / private= 2)	Source Type	Distance from upstream MH	distance right	Distance left	Smoke Code	Catchment Area (sq. Ft)	Runoff Code	Comments
8/14/2019	R	R-235	Stub	R-234	316.18	1	1	BCO	126	6	0	3	.5' X .5'	1	Stub CNL Bco cap broken
8/15/2019	R	R-235	Stub	R-234		1	1	HOL	187	0	0	3	20' X 20'	1	Over top of main line
8/19/2019	R	R-238	Stub	R-237	210.58	1	1	BCO	0	0	0		.5' X .5'	1	MH is CNL Broken stub pack full of dirt no smoke
8/20/2019	R	R-238	Stub	R-237		1	1	HOL	23	15	0	2	10' X 10'	1	Bco no cap
8/20/2019	R	R-238	Stub	R-238	113.23	1	1	BCO	102	0	0	3	.5' X .5'	1	MH is CNL Broken cap, 2 oc diagonal
8/20/2019	R	R-235	Stub	R-240	80.74	3									Paved over
8/19/2019	R	R-247	Stub	R-249	247.22	yes									
8/19/2019	R	R-247	Stub	R-249		1	1	BCO	0	0	0	3	.5' X .5'	1	Bco
8/20/2019	R	R-247	Stub	R-249		1	1	MLK	440	0	0	3	10' X 10'	1	Possible separated joints in lateral along side of building, MSF
8/19/2019	R	R-247	Stub	R-249		1	1	HOL	450	0	0	3	10' X 10'	1	SF, over main line lateral from building last clean out
8/15/2019	R	R-247	Stub	R-249		1	1	HOL	458	78	0	2	10' X 10'	1	SF
8/15/2019	R	R-271	Stub	R-269	226.10	3									CNL
8/15/2019	R	R-271	Stub	R-269	71.07	3									CNL
8/19/2019	R	R-271	Stub	R-272	136.74	3									
8/19/2019	R	R-271	Stub	R-274	79.73	3									CNL
8/20/2019	R	R-276	Stub	R-275	231.51	3									CNL
8/20/2019	R	R-278	Stub	R-278	188.71	3									CNL
					25,370.53										

TUSCAWILLA HILLS															
Smoke Test Completion Date	Service Area Number	Blower Location(s) (MH_ID)	Upstream MH	Downstream MH	Segment Length (LF)	Result Code	Defect Status (public = 1 / private= 2)	Source Type	Distance from upstream MH	distance right	Distance left	Smoke Code	Catchment Area (sq. Ft)	Runoff Code	Comments
7/30/2019	TW	TW-98	TW-99	TW-98	175.26	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and holes
7/30/2019	TW	TW-98	TW-98	TW-97	143.84	1	1	MFC	0	0	0	3	2' X 2'	1	
7/30/2019	TW	TW-98	TW-97	TW-95	30.11	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and seal
7/30/2019	TW	TW-98	TW-96	TW-95	230.61	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and holes
7/30/2019	TW	TW-98	TW-95	TW-94	186.02	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and holes, also frame seal broken
7/30/2019	TW	TW-98	TW-94	TW-93	133.39	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and holes
7/30/2019	TW	TW-98	TW-93	TW-89	181.11	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and seal
7/30/2019	TW	TW-98	TW-92	TW-91	326.66	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from seal and holes of cover
7/30/2019	TW	TW-98	TW-91	TW-89	391.69	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and holes
7/30/2019	TW	TW-98	TW-90	TW-89	416.16	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
7/30/2019	TW	TW-8	TW-9	TW-8	191.84	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover and cover seal
7/30/2019	TW	TW-98	TW-89	TW-88	313.37	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and frame seal
7/31/2019	TW	TW-84	TW-88	TW-87	180.43	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and holes, and frame seal
7/31/2019	TW	TW-84	TW-87	TW-84	252.34	3						2			CNL
7/31/2019	TW	TW-84	TW-86	TW-85	264.27	3						2			CNL
7/31/2019	TW	TW-84	TW-85	TW-84	248.95	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and holes
7/31/2019	TW	TW-84	TW-84	TW-83	356.34	1	1	MFC	0	0	0	3	2' X 2'	1	
7/31/2019	TW	TW-84	TW-84	TW-83		1	2	BCO	124	0	95	3	.5' X .5'	1	Missing c/o cap
7/31/2019	TW	TW-82	TW-83	TW-81	249.15	1	1	MFC	0	0	0	3		1	Coming from cover seal
7/31/2019	TW	TW-82	TW-82	TW-81	156.61	1	1	MFC	0	0	0	3	2' X 2'	2	Slightly in road cover has holes no insert run off
7/31/2019	TW	TW-82	TW-81	TW-80	151.96	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
7/31/2019	TW	TW-82	TW-80	TW-79	225.77	3						2			CNL
7/30/2019	TW	TW-8	TW-8	TW-11	86.33	1	1	MFC	0	0	0	3	2' X 2'	1	
7/31/2019	TW	TW-82	TW-79	TW-78	154.95	3						2			CNL
7/31/2019	TW	TW-82	TW-78	TW-77	204.16	3						2			CNL
7/31/2019	TW	TW-102	TW-77	TW-100	282.29	1	1	MFC	0	0	0	3	3' X 3'	1	Coming from frame seal
7/31/2019	TW	TW-73	TW-76	TW-77	308.68	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and seal
7/31/2019	TW	TW-73	TW-75	TW-74	165.18	1	1	MHS	0	0	0	3	10' X 10'	1	Coming from frame seal and chimney
7/31/2019	TW	TW-73	TW-74	TW-73	140.60	1	1	MFC	0	0	0	3		1	Coming from holes in cover and seal
7/31/2019	TW	TW-73	TW-73	TW-141	197.08	1	1	MFC	0	0	0	3	2' X 2'	1	
7/31/2019	TW	TW-73	TW-73	TW-141		1	1	HOL	126	0	0	3	20' X 10'	1	Coming over top of main line
7/31/2019	TW	TW-69	TW-72	TW-70	152.05	1	1	MFC	0	0	0	2	2' X 2'	1	Coming from hole in cover
7/31/2019	TW	TW-69	TW-70	TW-69	343.33	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from center hole in cover
7/30/2019	TW	TW-8	TW-7	TW-8	150.07	1	1	MFC	0	0	0	2	2' X 2'	1	MH buried
7/31/2019	TW	TW-69	TW-69	TW-144	183.94	1	1	MFC	0	0	0	3		1	Coming from frame seal
7/31/2019	TW	TW-69	TW-144	TW-73	286.94	1	1	MFC	187	0	0	3	2' X 2'	1	New MH Coming from holes, definite run off potential

TUSCAWILLA HILLS															
Smoke Test Completion Date	Service Area Number	Blower Location(s) (MH_ID)	Upstream MH	Downstream MH	Segment Length (LF)	Result Code	Defect Status (public = 1 / private= 2)	Source Type	Distance from upstream MH	distance right	Distance left	Smoke Code	Catchment Area (sq. Ft)	Runoff Code	Comments
7/31/2019	TW	TW-69	TW-68	TW-140	188.22	1	1	MFC	0	0	0	3		1	Coming from cover holes and seal
7/31/2019	TW	TW-69	TW-67	TW-68	215.99	1	2	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and seal
7/30/2019	TW	TW-60	TW-66	TW-65	205.18	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover
7/30/2019	TW	TW-60	TW-66	TW-65		1	1	BCO	139	0	112.8	3	.5' X .5'	1	Clean out cap broken/ missing
7/30/2019	TW	TW-60	TW-65	TW-63	82.82	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover
7/30/2019	TW	TW-60	TW-64	TW-142	129.94	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover
7/30/2019	TW	TW-60	TW-63	TW-60	244.19	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from MH and Frame seal
7/30/2019	TW	TW-60	TW-62	TW-61	176.98	3						2			CNL
7/30/2019	TW	TW-60	TW-61	TW-60	112.56	1	1	MFC	0	0	0	2	2' X 2'	1	MH is buried about six inches
7/30/2019	TW	TW-60	TW-60	TW-57	140.15	1	1	MFC	0	0	0	3	2' X 2'	1	
7/30/2019	TW	TW-8	TW-6	TW-7	185.01	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes and cover seal
7/30/2019	TW	TW-57	TW-59	TW-57	207.66	1	1	MFC	0	0	0	1	2' X 2'	1	Coming from holes in cover
7/30/2019	TW	TW-57	TW-58	TW-57	101.50	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover and cover seal, frame broken
7/30/2019	TW	TW-57	TW-57	TW-56	133.16	1	1	MFC	0	0	0	3	2' X 2'	1	
7/30/2019	TW	TW-57	TW-56	TW-54	203.72	1	1	MHS	0	0	0	3	10' X 10'	1	Coming from MH cover and frame seal. Smoke coming from base of manhole
7/30/2019	TW	TW-53	TW-55	TW-54	58.10	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover and frame seal
7/30/2019	TW	TW-53	TW-54	TW-53	138.80	1	1	MHS	0	0	0	3	2' X 2'	1	Coming from concrete chimney of MH
7/30/2019	TW	TW-53	TW-54	TW-53		1	1	BCO	35.8	0	93.9	3		1	Broken pipe
7/30/2019	TW	TW-53	TW-53	TW-67	172.33	1	1	MFC	0	0	0	3	2' X 2'	1	
7/30/2019	TW	TW-53	TW-52	TW-51	194.77	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover and frame seal
7/30/2019	TW	TW-53	TW-51	TW-53	59.43	1	1	MFC	0	0	0	2	2' X 2'	1	Coming from grass just outside MH
7/30/2019	TW	TW-53	TW-50	TW-51	259.92	1	1	MFC	0	0	0	3		1	Coming from holes in cover
7/30/2019	TW	TW-1	TW-5	TW-6	267.15	1	1	MFC	0	0	0	3	3' X 3'	1	Coming from holes in cover and seal
7/30/2019	TW	TW-53	TW-49	TW-50	108.82	3						2			Good seal
7/30/2019	TW	TW-53	TW-48	TW-49	261.01	3						2			Seals good
7/30/2019	TW	TW-44	TW-47	TW-43	335.28	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover
7/30/2019	TW	TW-44	TW-46	TW-45	263.85	1	1	MHS	0	0	0	3	2' X 2'	1	Also coming from holes in cover
7/30/2019	TW	TW-44	TW-45	TW-44	57.59	3						2			No defects located MH has good seal
7/30/2019	TW	TW-44	TW-44	TW-43	267.54	1	1	MFC	0	0	0	3	2' X 2'	1	
7/30/2019	TW	TW-44	TW-43	TW-48	118.94	1	1	MFC	0	0	0	3		1	Coming from holes in cover
7/29/2019	TW	TW-42	TW-42	TW-28	139.38	1	1	MFC	0	0	0	3	2' X 2'	1	
7/29/2019	TW	TW-40	TW-40	TW-42	197.33	1	1	MFC	0	0	0	2	2' X 2'	1	
7/30/2019	TW	TW-1	TW-4	TW-5	72.45	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and holes
7/29/2019	TW	TW-37	TW-39	TW-38	82.37	1	1	MFC	0	0	0	1	3' X 3'	5	MFC
7/29/2019	TW	TW-37	TW-38	TW-37	34.09	3						2			CNL

TUSCAWILLA HILLS															
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7/29/2019	TW	TW-37	TW-37	TW-40	272.29	1	1	MFC	0	0	0	2	3' X 3'	1	MFC
7/29/2019	TW	TW-37	TW-36	TW-37	21.53	3						3			Good seal on MH
8/7/2019	LH	TW-30	TW-33	TW-32	81.11	3						2			Good seal
8/7/2019	LH	TW-30	TW-32	TW-31	41.79	1	1	MFC	0	0	0	3	2' X 2'	1	Coming g from cover holes and cover seal
8/7/2019	LH	TW-30	TW-31	TW-30	124.44	3						2			CNL, on golf course cart path
8/7/2019	LH	TW-30	TW-30	TW-29	65.36	1	1	MFC	0	0	0	3	2' X 2'	1	Cover has holes
7/30/2019	TW	TW-1	TW-3	TW-4	132.88	1	1	MFC	0	0	0	3	2' X 2'	1	MH is buried about a foot
8/7/2019	LH	TW-30	TW-29	PS_UNK	123.90	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and cover seal
7/29/2019	TW	TW-42	TW-28	CHT-B15	369.75	1	1	MFC	0	0	0	2	2' X 2'	1	Coming from seal of frame
7/29/2019	TW	TW-42	TW-27	TW-42	139.37	1	1	MFC	0	0	0	3	3' X 3'	1	
7/29/2019	TW	TW-42	TW-26	TW-27	232.20	3						2			Seals good
7/29/2019	TW	TW-42	TW-25	TW-26	186.28	1	1	MFC	0	0	0	3	2' X 2'	1	
7/29/2019	TW	TW-23	TW-24	TW-25	117.02	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes and seal
7/29/2019	TW	TW-23	TW-23	TW-24	154.67	1	1	MFC	0	0	0	3	2' X 2'	1	
7/29/2019	TW	TW-23	TW-22	TW-23	82.70	1	1	MFC	0	0	0	3	2' X 2'	1	
7/29/2019	TW	TW-23	TW-21	TW-20	104.08	1	1	MFC	0	0	0	2	2' X 2'	1	Coming from cover holes
7/29/2019	TW	TW-23	TW-20	TW-19	284.44	1	1	MFC	0	0	0	2	2' X 2'	1	Coming from cover
7/30/2019	TW	TW-1	TW-2	TW-3	348.15	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
7/30/2019	TW	TW-1	TW-2	TW-3		1	1	BCO	304	0	9.3	3	.5' X .5'	1	Bco
7/30/2019	TW	TW-1	TW-2	TW-3		1	1	HOL	300	0	0	3	10' X 10'	1	Coming from main line between MH
7/29/2019	TW	TW-23	TW-19	TW-22	287.51	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes
7/30/2019	TW	TW-15	TW-18	TW-17	101.48	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes and cover seal
7/30/2019	TW	TW-15	TW-17	TW-15	210.39	1	1	MFC	0	0	0	1	2' X 2'	1	Coming from holes in cover
7/29/2019	TW	TW-23	TW-16	TW-19	302.66	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes
7/30/2019	TW	TW-15	TW-15	TW-16	178.75	1	1	MFC	0	0	0	3	2' X 2'	1	Cover and holes in cover from earlier smoke testing
7/29/2019	TW	TW-40	TW-143	TW-40	168.17	1	1	MFC	0	0	0	3	2' X 2'	1	MFC
7/30/2019	TW	TW-60	TW-142	TW-63	158.08	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover and cover seal
7/31/2019	TW	TW-73	TW-141	TW-76	340.60	1	1	MFC	0	0	0	3		1	MH buried, coming from ground
7/31/2019	TW	TW-69	TW-140	TW-69	177.81	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from frame seal
7/30/2019	TW	TW-15	TW-14	TW-15	314.94	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover
8/5/2019	TW	TW-137	TW-139	TW-138	114.78	1	1	BCO	0	0	127	3	.5' X .5'	1	BCO/ MCO
8/5/2019	TW	TW-137	TW-138	TW-137	227.72	3						2			MH Buried
8/5/2019	TW	TW-137	TW-137	TW-136	183.47	1	1	MFC	0	0	0	3	2' X 2'	1	
8/5/2019	TW	TW-137	TW-137	TW-136		1	1	HOL	102	0	0	3	10' X 10'	1	Coming from ground over main line
8/5/2019	TW	TW-137	TW-136	TW-135	242.86	1	1	HOL	0	0	0	3	50' X 50'	5	MH Buried Possible pending on MH, coming from concrete structure
8/5/2019	TW	TW-137	TW-136	TW-135		1	1	HOL	383	0	0	3		1	Coming from ground over main line

TUSCAWILLA HILLS															
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8/5/2019	TW	TW-133	TW-135	TW-134	130.78	1	1	MHS	0	0	0	3	2' X 2'	5	MH risk for pounding, smoke coming from MH concrete structure
8/5/2019	TW	TW-133	TW-134	TW-133	274.90	1	1	MFC	0	0	0	3	2' X 2'	5	Gap in cover to frame very loose, heavy smoke from previous test
8/5/2019	TW	TW-133	TW-133	TW-130	342.77	1	1	MFC	0	0	0	3	2' X 2'	4	Hole in cover and cover seal loose
8/5/2019	TW	TW-133	TW-133	TW-130		1	1	BCO	138	0	80	3		1	Hole in clean out cap
8/5/2019	TW	TW-133	TW-132	TW-131	175.66	1	1	MFC	0	0	0	3		1	Cover has holes, also coming from frame seal
8/5/2019	TW	TW-133	TW-131	TW-130	185.12	1	1	MFC	0	0	0	3	20' X 20'	1	Coming from cover seal
8/5/2019	TW	TW-133	TW-130	TW-129	181.57	3						2			CNL
7/30/2019	TW	TW-8	TW-13	TW-14	244.49	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover and cover seal
8/5/2019	TW	TW-133	TW-129	TW-127	274.24	1	1	MFC	0	0	0	3	2' X 2'	5	Possible pending, holes in cover
8/5/2019	TW	TW-133	TW-128	TW-127	242.95	1	1	MHS	0	0	0	3		1	Coming from frame seal, cover holes and MH structure
8/5/2019	TW	TW-133	TW-127	TW-126	105.96	3						2			CNL
8/5/2019	TW	TW-124	TW-126	TW-124	70.70	1	1	MFC	0	0	0	3	2' X 2'	5	Holes in cover , possible pounding over cover
8/5/2019	TW	TW-124	TW-125	TW-124	111.10	3						2			CNL, possibly paved over
8/5/2019	TW	TW-124	TW-124	TW-123	247.71	1	1	MFC	0	0	0	3	2' X 2'	1	Possible pending cover frame is recessed into to dirt
8/5/2019	TW	TW-124	TW-123	TW-122	132.41	1	1	MFC	0	0	0	3	2' X 2'	1	Buried under ground
8/5/2019	TW	TW-124	TW-122	TW-118	90.10	3						2			CNL, possibly buried or paved over
8/5/2019	TW	TW-119	TW-121	TW-120	89.03	1	1	MLK	0	0	0	3	10' X 10'	1	MH CNL Possible MH
8/5/2019	TW	TW-119	TW-121	TW-120		1	1	HOL	2	0	6	3	10' X 10'	1	Coming from base of power pole
8/5/2019	TW	TW-119	TW-120	TW-119	186.96	3						2			CNL
7/30/2019	TW	TW-8	TW-12	TW-13	129.62	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and vent holes
8/5/2019	TW	TW-119	TW-119	TW-118	168.61	1	1	MFC	0	0	0	3	2' X 2'	1	Definite ponding MH is 1 foot below ground d level
8/5/2019	TW	TW-119	TW-118	TW-117	178.66	1	1	MFC	0	0	0	2	2' X 2'	1	Definite ponding over MH, buried about 2 ft below ground level
8/5/2019	TW	TW-119	TW-117	TW-116	148.72	3						2			CNL
8/5/2019	TW	TW-119	TW-116	TW-114	130.96	3						2			CNL
8/5/2019	TW	TW-111	TW-115	TW-114	121.05	3						2			CNL, Possible blockage NO smoke coming from houses off this line
8/5/2019	TW	TW-111	TW-114	TW-113	181.76	3						2			CNL
8/5/2019	TW	TW-111	TW-113	TW-107	174.19	3						2			CNL
8/5/2019	TW	TW-111	TW-112	TW-111	136.03	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal and hole, frame hole and looks to be structure as well
8/5/2019	TW	TW-111	TW-111	TW-110	110.42	1	1	MFC	0	0	0	3	2' X 2'	5	One hole in cover
8/5/2019	TW	TW-111	TW-110	TW-109	324.64	1	1	MFC	0	0	0	3	2' X 2'	3	Ponding possible, coming from cover seal
7/30/2019	TW	TW-8	TW-11	TW-12	153.75	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes and seal
8/5/2019	TW	TW-111	TW-109	TW-108	230.26	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from hole in cover
8/5/2019	TW	TW-111	TW-109	TW-108		1	1	MFC	148	0	0	3	3' X 3'	1	Coming from ramen sealant cover seal
8/5/2019	TW	TW-111	TW-108	TW-107	118.21	3						2			Good seal
8/5/2019	TW	TW-111	TW-107	PS_UNK	168.14	3						2			CNL

TUSCAWILLA HILLS															
Smoke Test Completion Date	Service Area Number	Blower Location(s) (MH_ID)	Upstream MH	Downstream MH	Segment Length (LF)	Result Code	Defect Status (public = 1 / private= 2)	Source Type	Distance from upstream MH	distance right	Distance left	Smoke Code	Catchment Area (sq. Ft)	Runoff Code	Comments
8/5/2019	TW	TW-111	TW-106	PS_UNK	318.19	3						2			CNL
8/5/2019	TW	TW-102	TW-104	TW-105	92.02	3						2			CNL
7/31/2019	TW	TW-102	TW-103	TW-102	193.41	1	1	MHS	0	0	0	3	2' X 2'	5	Coming from hole in cover and from concrete surrounding MH
7/31/2019	TW	TW-102	TW-102	TW-104	364.90	1	1	MFC	0	0	0	3	2' X 2'	1	Cover has holes
7/31/2019	TW	TW-102	TW-101	TW-102	154.76	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover and cover seal
7/31/2019	TW	TW-102	TW-100	TW-101	140.94	3						1			CNL
7/30/2019	TW	TW-8	TW-10	TW-9	131.43	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from holes in cover and cover seal
7/30/2019	TW	TW-8	TW-10	TW-9		1	2	HOL	86.3	23	0	3	10' X 10'	1	Coming from power meter box
7/30/2019	TW	TW-8	TW-10	TW-9		1	1	BCO	127	0	12.3	3	.5' X .5'	1	Broken cleanout
7/30/2019	TW	TW-1	TW-1	TW-3	139.28	1	1	MFC	0	0	0	3	2' X 2'	1	
7/30/2019	TW	TW-98	Stub	TW-99	89.30	3						2			Good seal
7/30/2019	TW	TW-98	Stub	TW-99	128.00	3						2			Good seal
7/30/2019	TW	TW-98	Stub	TW-92	153.53	3						2			CNL
7/30/2019	TW	TW-8	Stub	TW-9	81.65	1	1	HOL	97	1	0	3	10' X 10'	1	Coming from power box
7/31/2019	TW	TW-84	Stub	TW-88	233.95	3						2			CNL
7/31/2019	TW	TW-84	Stub	TW-87	235.22	3						2			Good seal
7/31/2019	TW	TW-84	Stub	TW-86		1	1	BCO	145	0	3	3	.5' X .5'	1	Stub is 145 ft down stream of original location
7/31/2019	TW	TW-84	Stub	TW-86	153.75	1	1	EXP	0	0	0	3	20' X 30'	1	Pipe stub buried into ground high run off area
7/31/2019	TW	TW-82	Stub	TW-82	146.23	3						2			CNL
7/31/2019	TW	TW-82	Stub	TW-80	140.36	3						2			CNL
7/30/2019	TW	TW-8	Stub	TW-8	198.44	3						2			Good seal
7/31/2019	TW	TW-82	Stub	TW-79	172.10	3						2			CNL
7/31/2019	TW	TW-73	Stub	TW-75	378.63	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover seal
7/31/2019	TW	TW-73	Stub	TW-74	99.31	3						2			CNL
7/31/2019	TW	TW-73	Stub	TW-74	197.00	1	1	EXP	0	0	0	3	10' X 10'	1	Pipe buried, smoke coming from ground
7/31/2019	TW	TW-69	Stub	TW-72	106.12	3						2			Good seal
7/31/2019	TW	TW-69	Stub	TW-72	179.00	3						2			CNL
7/31/2019	TW	TW-69	Stub	TW-68	124.32	1	1	MFC	0	0	0	3	2' X 2'	1	Coming from cover holes
7/30/2019	TW	TW-60	Stub	TW-66	309.79	1	1	HOL	0	0	0	3	10' X 10'	1	Coming from pipe seal under ground
7/30/2019	TW	TW-60	Stub	TW-66	205.00	3						2			Seals good
7/30/2019	TW	TW-60	Stub	TW-64	139.37	3						2			Seals good
7/30/2019	TW	TW-60	Stub	TW-62	92.05	3						2			CNL
7/30/2019	TW	TW-57	Stub	TW-59	52.57	1	1	BCO	105	39	0	3	.5' X .5'	1	Broken clean out
7/30/2019	TW	TW-57	Stub	TW-58	78.66	1	1	HOL	0	0	0	3	10' X 10'	1	Broken at base of stub
7/30/2019	TW	TW-53	Stub	TW-55	83.00	3						2			Good seal
7/30/2019	TW	TW-53	Stub	TW-55	76.00	3						2			Good seal

TUSCAWILLA HILLS															
Smoke Test Completion Date	Service Area Number	Blower Location(s) (MH_ID)	Upstream MH	Downstream MH	Segment Length (LF)	Result Code	Defect Status (public = 1 / private= 2)	Source Type	Distance from upstream MH	distance right	Distance left	Smoke Code	Catchment Area (sq. Ft)	Runoff Code	Comments
7/30/2019	TW	TW-53	Stub	TW-52	177.03	3						2			Seals good
7/30/2019	TW	TW-53	Stub	TW-52	162.00	3						2			Seals good
7/30/2019	TW	TW-44	Stub	TW-47	191.46	1	1	EXP	0	0	0	3	.5' X .5'	1	Broken cap
7/30/2019	TW	TW-44	Stub	TW-46	65.17	3						2			
7/29/2019	TW	TW-37	Stub	TW-36	233.39	3						2			CNL
8/7/2019	LH	LH-39	Stub	TW-35	100.46	3						2			Good seal
8/7/2019	LH	LH-39	Stub	TW-35	88.00	3						2			Good seal
8/7/2019	LH	TW-30	Stub	TW-33	125.36	3						2			Good seal
8/7/2019	LH	TW-30	Stub	TW-32	102.27	3						2			CNL
7/29/2019	TW	TW-23	Stub	TW-24	300.13	3						2			CNL
7/29/2019	TW	TW-23	Stub	TW-23	367.73	1	1	EXP	0	0	0	3	.5' X .5'	1	Broken cap
7/29/2019	TW	TW-23	Stub	TW-22	378.01	3						2			CNL
7/29/2019	TW	TW-23	Stub	TW-21	212.41	3						3			Tight seal.
7/29/2019	TW	TW-23	Stub	TW-20	291.20	1	1	MFC	257	0	0	2	2' X 2'	1	It's a MH coming From hole in cover
7/30/2019	TW	TW-1	Stub	TW-2	73.75	1	1	EXP	0	0	0	3	.5' X .5'	1	0
7/30/2019	TW	TW-15	Stub	TW-18	147.20	3						2			CNL
7/30/2019	TW	TW-15	Stub	TW-17	317.15	3						2			CNL
7/29/2019	TW	TW-23	Stub	TW-16	96.11	3						2			CNL
7/29/2019	TW	TW-40	Stub	TW-143	138.37	1	1	MCC	15.4	0	1.2	3	.5' X .5'	1	Stub is CNL Missing c/o cap
7/31/2019	TW	TW-73	Stub	TW-141	218.85	1	1	EXP	0	0	0	2	10' X 10'	1	Pipe under ground smoke coming from ground
8/5/2019	TW	TW-137	Stub	TW-139	156.01	3						2			CNL
8/5/2019	TW	TW-137	Stub	TW-137	72.08	3						2			CNL
8/5/2019	TW	TW-137	Stub	TW-136	152.69	3						2			Good seal
8/5/2019	TW	TW-133	Stub	TW-132	40.82	3						2			CNL
8/5/2019	TW	TW-133	Stub	TW-132	64.00	3						2			Good seal
8/5/2019	TW	TW-133	Stub	TW-131	78.97	3						2			Good Seal
8/5/2019	TW	TW-133	Stub	TW-128	362.88	1	1	EXP	0	0	0	3	3' X 3'	1	Stub broken
8/5/2019	TW	TW-124	Stub	TW-125	164.65	3						2			Good seal
8/5/2019	TW	TW-124	Stub	TW-123	183.61	1	1	EXP	87	0	21	2	10' X 10'	1	MH CNL Coming from under ground of clean out
8/5/2019	TW	TW-119	Stub	TW-121	72.96	3						2			Good seal
8/5/2019	TW	TW-111	Stub	TW-115	431.36	3						2			CNL, possible blockage no smoke from surrounding houses
8/5/2019	TW	TW-111	Stub	TW-112	129.40	1	1	HOL	24	0	0	3	10' X 10'	1	Coming from ground over main line
8/5/2019	TW	TW-111	Stub	TW-106	173.30	3						2			CNL
7/31/2019	TW	TW-102	Stub	TW-103	130.49	3						2			CNL
7/30/2019	TW	TW-8	Stub	TW-10	117.49	3						2			Good seal
7/30/2019	TW	TW-1	Stub	TW-1	154.63	3						2			Good seal

TUSCAWILLA HILLS															
Smoke Test Completion Date	Service Area Number	Blower Location(s) (MH_ID)	Upstream MH	Downstream MH	Segment Length (LF)	Result Code	Defect Status (public = 1 / private= 2)	Source Type	Distance from upstream MH	distance right	Distance left	Smoke Code	Catchment Area (sq. Ft)	Runoff Code	Comments
7/30/2019	TW	TW-1	Stub	TW-1	219.00	1	1	EXP	0	0	0	3	20' X 20'	1	Stub buried no cap/ broken
8/7/2019	LH	TW-30	LH-36	TW-29	170.00	3						2			CNL
					36,379.09										

4. SUMMARY AND RECOMMENDATIONS

I. CLEANOUT CAPS

Based on the smoke testing results, property line cleanout caps are recommended to be installed where broken or missing. Cleanout caps prevent extraneous flows from entering the sewer.

Table 3 summarizes the cleanouts recommended for cap installation.

Table 3: List of Cleanouts recommended for Cleanout cap Replacement			
Service Area	Upstream MH	Downstream MH	Recommendation
LH	LH-1	LH-2	Cleanout Cap Replacement
LH	LH-10	LH-9	Cleanout Cap Replacement
LH	LH-106	LH-105	Cleanout Cap Replacement
LH	LH-108	LH-107	Cleanout Cap Replacement
LH	LH-11	LH-12	Cleanout Cap Replacement
LH	LH-114	LH-113	Cleanout Cap Replacement
LH	LH-115	LH-114	Cleanout Cap Replacement
LH	LH-115	LH-114	Cleanout Cap Replacement
LH	LH-115	LH-114	Cleanout Cap Replacement
LH	LH-115	LH-114	Cleanout Cap Replacement
LH	LH-115	LH-114	Cleanout Cap Replacement
LH	LH-116	LH-113	Cleanout Cap Replacement
LH	LH-116	LH-113	Cleanout Cap Replacement
LH	LH-117	LH-116	Cleanout Cap Replacement
LH	LH-125	LH-90	Cleanout Cap Replacement
LH	LH-127	LH-128	Cleanout Cap Replacement
LH	LH-128	LH-129	Cleanout Cap Replacement
LH	LH-128	LH-129	Cleanout Cap Replacement
LH	LH-129	LH-130	Cleanout Cap Replacement
LH	LH-13	LH-14	Cleanout Cap Replacement
LH	LH-19	LH-16	Cleanout Cap Replacement
LH	LH-49	LH-48	Cleanout Cap Replacement
LH	LH-5	LH-4	Cleanout Cap Replacement
LH	LH-5	LH-4	Cleanout Cap Replacement
LH	LH-500	LH-110	Cleanout Cap Replacement
LH	LH-500	LH-110	Cleanout Cap Replacement
LH	LH-504	LH-104	Cleanout Cap Replacement
LH	LH-504	LH-104	Cleanout Cap Replacement
LH	LH-510	LH-507	Cleanout Cap Replacement

Table 3: List of Cleanouts recommended for Cleanout cap Replacement

Service Area	Upstream MH	Downstream MH	Recommendation
LH	LH-517	LH-516	Cleanout Cap Replacement
LH	LH-519	LH-516	Cleanout Cap Replacement
LH	LH-520	LH-519	Cleanout Cap Replacement
LH	LH-521	LH-118	Cleanout Cap Replacement
LH	LH-525	LH-526	Cleanout Cap Replacement
LH	LH-526	LH-524	Cleanout Cap Replacement
LH	LH-527	LH-528	Cleanout Cap Replacement
LH	LH-531	LH-532	Cleanout Cap Replacement
LH	LH-536	LH-117	Cleanout Cap Replacement
LH	LH-62	LH-61	Cleanout Cap Replacement
LH	LH-76	LH-75	Cleanout Cap Replacement
LH	LH-8	LH-7	Cleanout Cap Replacement
LH	LH-8	LH-7	Cleanout Cap Replacement
LH	LH-80	LH-81	Cleanout Cap Replacement
LH	LH-81	LH-82	Cleanout Cap Replacement
LH	LH-83	LH-84	Cleanout Cap Replacement
LH	LH-85	LH-86	Cleanout Cap Replacement
LH	LH-85	LH-86	Cleanout Cap Replacement
LH	LH-9	LH-8	Cleanout Cap Replacement
LH	Stub	LH-508	Cleanout Cap Replacement
LH	Stub	LH-18	Cleanout Cap Replacement
LH	Stub	LH-18	Cleanout Cap Replacement
LH	Stub	LH-19	Cleanout Cap Replacement
LH	Stub	LH-34	Cleanout Cap Replacement
LH	Stub	LH-47	Cleanout Cap Replacement
LH	Stub	LH-500	Cleanout Cap Replacement
LH	Stub	LH-500	Cleanout Cap Replacement
LH	Stub	LH-501	Cleanout Cap Replacement
LH	Stub	LH-52	Cleanout Cap Replacement
LH	Stub	LH-525	Cleanout Cap Replacement
LH	Stub	LH-525	Cleanout Cap Replacement
LH	Stub	LH-527	Cleanout Cap Replacement
LH	Stub	LH-531	Cleanout Cap Replacement
OH	OH-12	OH-13	Cleanout Cap Replacement
OH	OH-12	OH-13	Cleanout Cap Replacement
OH	OH-12	OH-13	Cleanout Cap Replacement
OH	OH-15	OH-16	Cleanout Cap Replacement
OH	OH-15	OH-16	Cleanout Cap Replacement
OH	OH-17	OH-16	Cleanout Cap Replacement

Table 3: List of Cleanouts recommended for Cleanout cap Replacement

Service Area	Upstream MH	Downstream MH	Recommendation
OH	OH-18	OH-17	Cleanout Cap Replacement
OH	OH-2	OH-1	Cleanout Cap Replacement
OH	OH-28	OH-36	Cleanout Cap Replacement
OH	OH-29	OH-28	Cleanout Cap Replacement
OH	OH-31	OH-28	Cleanout Cap Replacement
OH	OH-32	OH-31	Cleanout Cap Replacement
OH	OH-33	OH-31	Cleanout Cap Replacement
OH	OH-4	OH-1	Cleanout Cap Replacement
OH	OH-40	OH-39	Cleanout Cap Replacement
OH	OH-45	OH-44	Cleanout Cap Replacement
OH	OH-48	OH-47	Cleanout Cap Replacement
OH	OH-48	OH-47	Cleanout Cap Replacement
OH	OH-54	OH-53	Cleanout Cap Replacement
OH	OH-54	OH-53	Cleanout Cap Replacement
CG	CG-11	CG-10	Cleanout Cap Replacement
CG	CG-11	CG-10	Cleanout Cap Replacement
CG	CG-12	CG-13	Cleanout Cap Replacement
CG	CG-12	CG-13	Cleanout Cap Replacement
CG	CG-12	CG-13	Cleanout Cap Replacement
CG	CG-14	CG-13	Cleanout Cap Replacement
CG	CG-14	CG-13	Cleanout Cap Replacement
CG	CG-14	CG-13	Cleanout Cap Replacement
CG	CG-14	CG-13	Cleanout Cap Replacement
CG	CG-14	CG-13	Cleanout Cap Replacement
CG	CG-14	CG-13	Cleanout Cap Replacement
CG	CG-14	CG-13	Cleanout Cap Replacement
CG	CG-14	CG-13	Cleanout Cap Replacement
CG	CG-14	CG-13	Cleanout Cap Replacement
CG	CG-14	CG-13	Cleanout Cap Replacement
CG	CG-3	CG-4	Cleanout Cap Replacement
CG	CG-3	CG-4	Cleanout Cap Replacement
CG	CG-5	CG-4	Cleanout Cap Replacement
CG	CG-5	CG-4	Cleanout Cap Replacement
CG	CG-5	CG-4	Cleanout Cap Replacement
CG	CG-5	CG-4	Cleanout Cap Replacement
CG	CG-5	CG-4	Cleanout Cap Replacement
CG	CG-5	CG-4	Cleanout Cap Replacement
CG	CG-6	CG-5	Cleanout Cap Replacement
CG	CG-7	CG-8	Cleanout Cap Replacement
CG	CG-7	CG-8	Cleanout Cap Replacement

Table 3: List of Cleanouts recommended for Cleanout cap Replacement

Service Area	Upstream MH	Downstream MH	Recommendation
CG	CG-7	CG-8	Cleanout Cap Replacement
CG	CG-7	CG-8	Cleanout Cap Replacement
CG	CG-7	CG-8	Cleanout Cap Replacement
CG	CG-7	CG-8	Cleanout Cap Replacement
CG	CG-7	CG-8	Cleanout Cap Replacement
CG	CG-7	CG-8	Cleanout Cap Replacement
CG	CG-9	CG-8	Cleanout Cap Replacement
CG	CG-9	CG-8	Cleanout Cap Replacement
CG	CG-9	CG-8	Cleanout Cap Replacement
CG	CG-9	CG-8	Cleanout Cap Replacement
CG	CG-9	CG-8	Cleanout Cap Replacement
CG	CG-9	CG-8	Cleanout Cap Replacement
CT	CT-379	CT-378	Cleanout Cap Replacement
CT	CT-381	CT-380	Cleanout Cap Replacement
CT	CT-381	CT-380	Cleanout Cap Replacement
CT	CT-381	CT-380	Cleanout Cap Replacement
CT	CT-381	CT-380	Cleanout Cap Replacement
CT	CT-383	CT-382	Cleanout Cap Replacement
CT	CT-383	CT-382	Cleanout Cap Replacement
CT	CT-384	CG-1	Cleanout Cap Replacement
CT	CT-387	CT-386	Cleanout Cap Replacement
CT	CT-388	CT-389	Cleanout Cap Replacement
CT	CT-391	CT-390	Cleanout Cap Replacement
CT	CT-392	CT-391	Cleanout Cap Replacement
CT	CT-392	CT-391	Cleanout Cap Replacement
CT	CT-394	CT-395	Cleanout Cap Replacement
CT	CT-395	CT-396	Cleanout Cap Replacement
CT	CT-396	CT-397	Cleanout Cap Replacement
CT	CT-396	CT-397	Cleanout Cap Replacement
GM	GM-3	GM-2	Cleanout Cap Replacement
GM	GM-4	GM-3	Cleanout Cap Replacement
GM	GM-4	GM-3	Cleanout Cap Replacement
GM	GM-5	GM-4	Cleanout Cap Replacement
GM	GM-5	GM-4	Cleanout Cap Replacement
GM	GM-5	GM-4	Cleanout Cap Replacement
GM	GM-7	GM-2	Cleanout Cap Replacement
R	R-139	R-141	Cleanout Cap Replacement
R	R-142	R-143	Cleanout Cap Replacement
R	R-220	R-221	Cleanout Cap Replacement

Table 3: List of Cleanouts recommended for Cleanout cap Replacement

Service Area	Upstream MH	Downstream MH	Recommendation
R	R-221	R-222	Cleanout Cap Replacement
R	R-223	R-222	Cleanout Cap Replacement
R	R-225	R-229	Cleanout Cap Replacement
R	R-227	R-226	Cleanout Cap Replacement
R	R-227	R-226	Cleanout Cap Replacement
R	R-227	R-226	Cleanout Cap Replacement
R	R-231	R-232	Cleanout Cap Replacement
R	R-234	R-235	Cleanout Cap Replacement
R	R-235	R-236	Cleanout Cap Replacement
R	R-240	R-239	Cleanout Cap Replacement
R	R-246	R-247	Cleanout Cap Replacement
R	R-246	R-247	Cleanout Cap Replacement
R	R-247	R-249	Cleanout Cap Replacement
R	R-247	R-249	Cleanout Cap Replacement
R	R-255	R-254	Cleanout Cap Replacement
R	R-256	R-255	Cleanout Cap Replacement
R	R-256	R-255	Cleanout Cap Replacement
R	R-256	R-255	Cleanout Cap Replacement
R	R-26	R-27	Cleanout Cap Replacement
R	R-260	R-247	Cleanout Cap Replacement
R	R-260	R-247	Cleanout Cap Replacement
R	R-261	R-260	Cleanout Cap Replacement
R	R-271	R-270	Cleanout Cap Replacement
R	R-274	R-273	Cleanout Cap Replacement
R	R-275	R-273	Cleanout Cap Replacement
R	R-276	R-275	Cleanout Cap Replacement
R	R-278	R-277	Cleanout Cap Replacement
R	R-280	R-281	Cleanout Cap Replacement
R	R-36	R-37	Cleanout Cap Replacement
R	R-40	R-39	Cleanout Cap Replacement
R	R-40	R-39	Cleanout Cap Replacement
R	R-41	R-43	Cleanout Cap Replacement
R	R-42	R-41	Cleanout Cap Replacement
R	R-42	R-41	Cleanout Cap Replacement
R	R-47	R-46	Cleanout Cap Replacement
R	R-47	R-46	Cleanout Cap Replacement
R	R-47	R-46	Cleanout Cap Replacement
R	R-47	R-46	Cleanout Cap Replacement
R	R-50	R-49	Cleanout Cap Replacement

Table 3: List of Cleanouts recommended for Cleanout cap Replacement			
Service Area	Upstream MH	Downstream MH	Recommendation
R	R-50	R-49	Cleanout Cap Replacement
R	Stub	R-234	Cleanout Cap Replacement
R	Stub	R-237	Cleanout Cap Replacement
R	Stub	R-238	Cleanout Cap Replacement
R	Stub	R-249	Cleanout Cap Replacement
TW	TW-84	TW-83	Cleanout Cap Replacement
TW	TW-66	TW-65	Cleanout Cap Replacement
TW	TW-54	TW-53	Cleanout Cap Replacement
TW	TW-2	TW-3	Cleanout Cap Replacement
TW	TW-139	TW-138	Cleanout Cap Replacement
TW	TW-133	TW-130	Cleanout Cap Replacement
TW	TW-10	TW-9	Cleanout Cap Replacement
TW	Stub	TW-86	Cleanout Cap Replacement
TW	Stub	TW-59	Cleanout Cap Replacement
TW	Stub	TW-143	Cleanout Cap Replacement

II. DYE TESTS and CCTV

Dye tests are performed in conjunction with mainline CCTV inspections wherever potentially significant inflow sources or cross connections are revealed during Phase I smoke testing procedures. These potential cross connections and inflow sources range from a smoking storm drain manhole (SMH) or stormwater catch basin (CBX) to a hole or multiple fissures (MLK) in the ground. The CCTV camera is positioned in the pipe at the suspected inflow source to document the sections of pipe where dye water is observed entering the system. Whenever dye water is observed entering the system from a service connection, a Lateral CCTV inspection is scheduled to potentially identify and document that point of entry. The following dye tests are recommended:

Table 4: List of Segments recommended for Dye tests and CCTV			
Service Area	Upstream MH	Downstream MH	Recommendation
LH	LH-129	LH-130	Dye Test & CCTV
LH	LH-131	LH-132	Dye Test & CCTV
LH	LH-503	LH-504	Dye Test & CCTV
LH	LH-519	LH-516	Dye Test & CCTV
CT	CT-374	CT-375	Dye Test & CCTV

Table 4: List of Segments recommended for Dye tests and CCTV

Service Area	Upstream MH	Downstream MH	Recommendation
OH	OH-12	OH-13	Dye Test & CCTV
OH	OH-13	OH-14	Dye Test & CCTV
R	R-141	R-142	Dye Test & CCTV
R	R-217	R-220	Dye Test & CCTV
R	R-227	R-226	Dye Test & CCTV
R	R-227	R-226	Dye Test & CCTV
R	R-227	R-226	Dye Test & CCTV
R	R-234	R-235	Dye Test & CCTV
R	R-235	R-236	Dye Test & CCTV
R	R-242	R-246	Dye Test & CCTV
R	R-247	R-249	Dye Test & CCTV
R	R-247	R-249	Dye Test & CCTV
R	R-247	R-249	Dye Test & CCTV
R	R-260	R-247	Dye Test & CCTV
R	R-261	R-260	Dye Test & CCTV
R	R-269	R-268	Dye Test & CCTV
R	R-270	R-268	Dye Test & CCTV
R	R-273	R-270	Dye Test & CCTV
R	R-275	R-273	Dye Test & CCTV
R	Stub	R-234	Dye Test & CCTV
R	Stub	R-237	Dye Test & CCTV
R	Stub	R-249	Dye Test & CCTV
R	Stub	R-249	Dye Test & CCTV
R	Stub	R-249	Dye Test & CCTV
TW	TW-73	TW-141	Dye Test & CCTV
TW	TW-2	TW-3	Dye Test & CCTV
TW	TW-137	TW-136	Dye Test & CCTV
TW	TW-136	TW-135	Dye Test & CCTV
TW	TW-136	TW-135	Dye Test & CCTV
TW	TW-121	TW-120	Dye Test & CCTV

Table 4: List of Segments recommended for Dye tests and CCTV

Service Area	Upstream MH	Downstream MH	Recommendation
TW	TW-121	TW-120	Dye Test & CCTV
TW	TW-10	TW-9	Dye Test & CCTV
TW	Stub	TW-9	Dye Test & CCTV
TW	Stub	TW-66	Dye Test & CCTV
TW	Stub	TW-58	Dye Test & CCTV
TW	Stub	TW-112	Dye Test & CCTV

III. MANHOLE INSPECTIONS

These Manhole revealed that there is smoke emanating from the vent holes or along the frame and seal. The manholes are in low-lying or flood prone areas are possible points of rainwater inflow and we recommend manhole inspections.

Table 5: List of Manholes recommended for Manhole Inspection

Service Area	Downstream MH	Recommendation
LH	LH-2	MH Inspection
LH	LH-9	MH Inspection
LH	LH-101	MH Inspection
LH	LH-102	MH Inspection
LH	LH-103	MH Inspection
LH	LH-100	MH Inspection
LH	LH-104	MH Inspection
LH	LH-106	MH Inspection
LH	LH-107	MH Inspection
LH	LH-105	MH Inspection
LH	LH-12	MH Inspection
LH	LH-109	MH Inspection
LH	LH-110	MH Inspection
LH	LH-111	MH Inspection
LH	LH-111	MH Inspection
LH	LH-113	MH Inspection
LH	LH-114	MH Inspection
LH	LH-113	MH Inspection
LH	LH-116	MH Inspection

Table 5: List of Manholes recommended for Manhole Inspection		
Service Area	Downstream MH	Recommendation
LH	LH-117	MH Inspection
LH	LH-118	MH Inspection
LH	LH-13	MH Inspection
LH	LH-119	MH Inspection
LH	LH-122	MH Inspection
LH	LH-122	MH Inspection
LH	LH-90	MH Inspection
LH	LH-128	MH Inspection
LH	LH-129	MH Inspection
LH	LH-130	MH Inspection
LH	LH-131	MH Inspection
LH	LH-132	MH Inspection
LH	LH-15	MH Inspection
LH	LH-20	MH Inspection
LH	LH-15	MH Inspection
LH	LH-16	MH Inspection
LH	LH-17	MH Inspection
LH	LH-16	MH Inspection
LH	LH-3	MH Inspection
LH	LH-21	MH Inspection
LH	LH-22	MH Inspection
LH	LH-23	MH Inspection
LH	LH-35	MH Inspection
LH	LH-23	MH Inspection
LH	LH-24	MH Inspection
LH	LH-25	MH Inspection
LH	LH-26	MH Inspection
LH	LH-27	MH Inspection
LH	LH-14	MH Inspection
LH	LH-30	MH Inspection
LH	LH-30	MH Inspection
LH	LH-32	MH Inspection
LH	LH-33	MH Inspection
LH	LH-36	MH Inspection
LH	LH-36	MH Inspection
LH	LH-37	MH Inspection
LH	LH-38	MH Inspection
LH	LH-133	MH Inspection

Table 5: List of Manholes recommended for Manhole Inspection		
Service Area	Downstream MH	Recommendation
LH	LH-39	MH Inspection
LH	LH-40	MH Inspection
LH	LH-41	MH Inspection
LH	LH-42	MH Inspection
LH	LH-43	MH Inspection
LH	LH-44	MH Inspection
LH	LH-45	MH Inspection
LH	LH-46	MH Inspection
LH	LH-39	MH Inspection
LH	LH-48	MH Inspection
LH	LH-4	MH Inspection
LH	LH-49	MH Inspection
LH	LH-110	MH Inspection
LH	LH-502	MH Inspection
LH	LH-503	MH Inspection
LH	LH-504	MH Inspection
LH	LH-104	MH Inspection
LH	LH-506	MH Inspection
LH	LH-507	MH Inspection
LH	LH-511	MH Inspection
LH	LH-510	MH Inspection
LH	LH-50	MH Inspection
LH	LH-507	MH Inspection
LH	LH-110	MH Inspection
LH	LH-515	MH Inspection
LH	LH-88	MH Inspection
LH	LH-513	MH Inspection
LH	LH-68	MH Inspection
LH	LH-31	MH Inspection
LH	LH-516	MH Inspection
LH	LH-516	MH Inspection
LH	LH-516	MH Inspection
LH	LH-519	MH Inspection
LH	LH-523	MH Inspection
LH	LH-97	MH Inspection
LH	LH-529	MH Inspection
LH	LH-524	MH Inspection
LH	LH-524	MH Inspection

Table 5: List of Manholes recommended for Manhole Inspection		
Service Area	Downstream MH	Recommendation
LH	LH-530	MH Inspection
LH	LH-52	MH Inspection
LH	LH-123	MH Inspection
LH	LH-532	MH Inspection
LH	LH-533	MH Inspection
LH	LH-534	MH Inspection
LH	LH-534	MH Inspection
LH	LH-53	MH Inspection
LH	LH-54	MH Inspection
LH	LH-55	MH Inspection
LH	LH-56	MH Inspection
LH	LH-55	MH Inspection
LH	LH-11	MH Inspection
LH	LH-59	MH Inspection
LH	LH-60	MH Inspection
LH	LH-61	MH Inspection
LH	LH-62	MH Inspection
LH	LH-63	MH Inspection
LH	LH-60	MH Inspection
LH	LH-67	MH Inspection
LH	LH-68	MH Inspection
LH	LH-6	MH Inspection
LH	LH-70	MH Inspection
LH	LH-71	MH Inspection
LH	LH-72	MH Inspection
LH	LH-7	MH Inspection
LH	LH-81	MH Inspection
LH	LH-82	MH Inspection
LH	LH-83	MH Inspection
LH	LH-84	MH Inspection
LH	LH-85	MH Inspection
LH	LH-86	MH Inspection
LH	LH-87	MH Inspection
LH	LH-88	MH Inspection
LH	LH-90	MH Inspection
LH	LH-8	MH Inspection
LH	LH-92	MH Inspection
LH	LH-93	MH Inspection

Table 5: List of Manholes recommended for Manhole Inspection		
Service Area	Downstream MH	Recommendation
LH	LH-94	MH Inspection
LH	LH-95	MH Inspection
LH	LH-96	MH Inspection
LH	LH-97	MH Inspection
LH	LH-98	MH Inspection
LH	LH-99	MH Inspection
LH	LH-100	MH Inspection
LH	LH-18	MH Inspection
LH	LH-47	MH Inspection
LH	LH-500	MH Inspection
LH	LH-501	MH Inspection
LH	LH-505	MH Inspection
LH	LH-512	MH Inspection
LH	LH-517	MH Inspection
LH	LH-518	MH Inspection
LH	LH-520	MH Inspection
LH	LH-521	MH Inspection
LH	LH-535	MH Inspection
LH	LH-37	MH Inspection
OH	OH-11	MH Inspection
OH	OH-13	MH Inspection
OH	OH-14	MH Inspection
OH	OH-1	MH Inspection
OH	OH-27	MH Inspection
OH	OH-36	MH Inspection
OH	PSD-AA30	MH Inspection
OH	OH-37	MH Inspection
OH	OH-37	MH Inspection
OH	OH-41	MH Inspection
OH	OH-41	MH Inspection
OH	OH-44	MH Inspection
OH	OH-4	MH Inspection
OH	OH-49	MH Inspection
OH	OH-54	MH Inspection
OH	OH-52	MH Inspection
OH	OH-53	MH Inspection
OH	OH-7	MH Inspection
OH	OH-8	MH Inspection

Table 5: List of Manholes recommended for Manhole Inspection		
Service Area	Downstream MH	Recommendation
OH	OH-10	MH Inspection
CT	CT-379	MH Inspection
CG	CG-8	MH Inspection
CG	PS4-7	MH Inspection
CG	CG-2	MH Inspection
CG	CG-4	MH Inspection
CG	CG-5	MH Inspection
CG	CG-6	MH Inspection
CT	CT-375	MH Inspection
CT	CT-376	MH Inspection
CT	PSD-B1	MH Inspection
CT	PSD-B1	MH Inspection
CT	CT-378	MH Inspection
CT	CT-379	MH Inspection
CT	CT-380	MH Inspection
CT	CT-381	MH Inspection
CT	CG-1	MH Inspection
CT	CT-384	MH Inspection
CT	CT-385	MH Inspection
CT	CT-386	MH Inspection
CT	CT-398	MH Inspection
CT	CT-389	MH Inspection
CT	CT-390	MH Inspection
CT	CT-391	MH Inspection
CT	CT-396	MH Inspection
CT	CT-397	MH Inspection
CT	CT-398	MH Inspection
CT	BELVEDERE	MH Inspection
GM	GM-8	MH Inspection
GM	GM-2	MH Inspection
GM	GM-7	MH Inspection
GM	PS4-7	MH Inspection
R	R-11	MH Inspection
R	R-14	MH Inspection
R	R-142	MH Inspection
R	R-143	MH Inspection
R	R-144	MH Inspection
R	R-150	MH Inspection

Table 5: List of Manholes recommended for Manhole Inspection		
Service Area	Downstream MH	Recommendation
R	R-16	MH Inspection
R	R-151	MH Inspection
R	R-232	MH Inspection
R	R-151	MH Inspection
R	R-152	MH Inspection
R	R-220	MH Inspection
R	R-221	MH Inspection
R	R-222	MH Inspection
R	R-224	MH Inspection
R	R-225	MH Inspection
R	R-229	MH Inspection
R	R-225	MH Inspection
R	R-232	MH Inspection
R	R-233	MH Inspection
R	R-235	MH Inspection
R	R-236	MH Inspection
R	R-241	MH Inspection
R	R-237	MH Inspection
R	R-235	MH Inspection
R	R-242	MH Inspection
R	R-246	MH Inspection
R	R-242	MH Inspection
R	R-243	MH Inspection
R	R-244	MH Inspection
R	R-247	MH Inspection
R	R-249	MH Inspection
R	R-250	MH Inspection
R	R-259	MH Inspection
R	R-251	MH Inspection
R	R-253	MH Inspection
R	R-254	MH Inspection
R	R-255	MH Inspection
R	R-255	MH Inspection
R	R-257	MH Inspection
R	R-260	MH Inspection
R	R-261	MH Inspection
R	R-263	MH Inspection
R	R-264	MH Inspection

Table 5: List of Manholes recommended for Manhole Inspection		
Service Area	Downstream MH	Recommendation
R	R-266	MH Inspection
R	R-263	MH Inspection
R	R-268	MH Inspection
R	R-28	MH Inspection
R	R-268	MH Inspection
R	R-270	MH Inspection
R	R-270	MH Inspection
R	R-273	MH Inspection
R	R-273	MH Inspection
R	R-275	MH Inspection
R	R-276	MH Inspection
R	R-277	MH Inspection
R	R-281	MH Inspection
R	R-220	MH Inspection
R	R-29	MH Inspection
R	R-31	MH Inspection
R	R-35	MH Inspection
R	R-38	MH Inspection
R	R-233	MH Inspection
R	R-54	MH Inspection
R	R-44	MH Inspection
R	R-44	MH Inspection
R	R-49	MH Inspection
R	R-51	MH Inspection
R	R-55	MH Inspection
R	R-149	MH Inspection
TW	TW-98	MH Inspection
TW	TW-97	MH Inspection
TW	TW-95	MH Inspection
TW	TW-95	MH Inspection
TW	TW-94	MH Inspection
TW	TW-93	MH Inspection
TW	TW-89	MH Inspection
TW	TW-91	MH Inspection
TW	TW-89	MH Inspection
TW	TW-89	MH Inspection
TW	TW-8	MH Inspection
TW	TW-88	MH Inspection

Table 5: List of Manholes recommended for Manhole Inspection		
Service Area	Downstream MH	Recommendation
TW	TW-87	MH Inspection
TW	TW-84	MH Inspection
TW	TW-83	MH Inspection
TW	TW-81	MH Inspection
TW	TW-81	MH Inspection
TW	TW-80	MH Inspection
TW	TW-11	MH Inspection
TW	TW-100	MH Inspection
TW	TW-77	MH Inspection
TW	TW-74	MH Inspection
TW	TW-73	MH Inspection
TW	TW-141	MH Inspection
TW	TW-70	MH Inspection
TW	TW-69	MH Inspection
TW	TW-8	MH Inspection
TW	TW-144	MH Inspection
TW	TW-73	MH Inspection
TW	TW-140	MH Inspection
TW	TW-68	MH Inspection
TW	TW-65	MH Inspection
TW	TW-63	MH Inspection
TW	TW-142	MH Inspection
TW	TW-60	MH Inspection
TW	TW-60	MH Inspection
TW	TW-57	MH Inspection
TW	TW-7	MH Inspection
TW	TW-57	MH Inspection
TW	TW-57	MH Inspection
TW	TW-56	MH Inspection
TW	TW-54	MH Inspection
TW	TW-54	MH Inspection
TW	TW-53	MH Inspection
TW	TW-67	MH Inspection
TW	TW-51	MH Inspection
TW	TW-53	MH Inspection
TW	TW-51	MH Inspection
TW	TW-6	MH Inspection
TW	TW-43	MH Inspection

Table 5: List of Manholes recommended for Manhole Inspection		
Service Area	Downstream MH	Recommendation
TW	TW-45	MH Inspection
TW	TW-43	MH Inspection
TW	TW-48	MH Inspection
TW	TW-28	MH Inspection
TW	TW-42	MH Inspection
TW	TW-5	MH Inspection
TW	TW-38	MH Inspection
TW	TW-40	MH Inspection
LH	TW-31	MH Inspection
LH	TW-29	MH Inspection
TW	TW-4	MH Inspection
LH	PS_UNK	MH Inspection
TW	CHT-B15	MH Inspection
TW	TW-42	MH Inspection
TW	TW-26	MH Inspection
TW	TW-25	MH Inspection
TW	TW-24	MH Inspection
TW	TW-23	MH Inspection
TW	TW-20	MH Inspection
TW	TW-19	MH Inspection
TW	TW-3	MH Inspection
TW	TW-22	MH Inspection
TW	TW-17	MH Inspection
TW	TW-15	MH Inspection
TW	TW-19	MH Inspection
TW	TW-16	MH Inspection
TW	TW-40	MH Inspection
TW	TW-63	MH Inspection
TW	TW-76	MH Inspection
TW	TW-69	MH Inspection
TW	TW-15	MH Inspection
TW	TW-136	MH Inspection
TW	TW-134	MH Inspection
TW	TW-133	MH Inspection
TW	TW-130	MH Inspection
TW	TW-131	MH Inspection
TW	TW-130	MH Inspection
TW	TW-14	MH Inspection

Table 5: List of Manholes recommended for Manhole Inspection		
Service Area	Downstream MH	Recommendation
TW	TW-127	MH Inspection
TW	TW-127	MH Inspection
TW	TW-124	MH Inspection
TW	TW-123	MH Inspection
TW	TW-122	MH Inspection
TW	TW-13	MH Inspection
TW	TW-118	MH Inspection
TW	TW-117	MH Inspection
TW	TW-111	MH Inspection
TW	TW-110	MH Inspection
TW	TW-109	MH Inspection
TW	TW-12	MH Inspection
TW	TW-108	MH Inspection
TW	TW-108	MH Inspection
TW	TW-102	MH Inspection
TW	TW-104	MH Inspection
TW	TW-102	MH Inspection
TW	TW-9	MH Inspection
TW	TW-3	MH Inspection
TW	TW-75	MH Inspection
TW	TW-68	MH Inspection
TW	TW-20	MH Inspection

IV. MANHOLES WHICH COULD NOT BE LOCATED (CNL)

These Manholes on the below table could not be located as they may be paved over or buried, subsequently no smoke was observed. We recommend locating these manholes and perform a visual manhole inspection.

Table 6: List of Manholes which could not be located		
Service Area	Downstream MH	Comments
LH	PS_UNK	CNL
LH	LH-2	CNL
LH	LH-64	CNL
LH	LH-65	CNL
LH	LH-69	CNL
LH	LH-73	CNL

Table 6: List of Manholes which could not be located

Service Area	Downstream MH	Comments
LH	LH-72	CNL
LH	LH-91	CNL
LH	LH-33	CNL
LH	LH-47	CNL
LH	LH-520	CNL
LH	LH-58	CNL
LH	LH-68	CNL
OH	PSD-CC1	CNL
OH	OH-15	CNL
OH	OH-17	Does not exist
OH	OH-22	CNL or possible blockage
OH	OH-24	CNL or possible blockage
OH	OH-28	CNL or possible blockage
OH	OH-35	CNL, smoke coming from houses on this test but not test 66
OH	OH-36	CNL, got smoke from houses off this test but not test 66
OH	OH-36	CNL
OH	OH-36	CNL
OH	OH-43	CNL
CT	CT-389	MH is CNL. Bco cap broken
R	R-9	CNL
R	R-10	CNL
R	R-15	CNL
R	R-148	CNL, PAVED OVER
R	R-144	CNL, paved over
R	R-149	CNL, PAVED OVER
R	R-227	CNL
R	R-236	CNL
R	R-262	CNL, PAVED OVER
R	R-265	CNL
R	R-271	CNL
R	R-280	CNL
R	R-29	CNL
R	R-33	CNL

Table 6: List of Manholes which could not be located

Service Area	Downstream MH	Comments
R	R-30	CNL
R	R-33	CNL
R	R-36	CNL
R	R-38	CNL
R	R-41	CNL
R	R-39	CNL
R	R-45	CNL
R	R-47	CNL
R	R-50	CNL
R	R-8	CNL
R	R-269	CNL
R	R-269	CNL
R	R-274	CNL
R	R-275	CNL
R	R-278	CNL
TW	TW-84	CNL
TW	TW-85	CNL
TW	TW-79	CNL
TW	TW-78	CNL
TW	TW-77	CNL
TW	TW-61	CNL
TW	TW-37	CNL
LH	TW-30	CNL, on golf course cart path
TW	TW-137	MH Buried
TW	TW-129	CNL
TW	TW-126	CNL
TW	TW-124	CNL, possibly paved over
TW	TW-118	CNL, possibly buried or paved over
TW	TW-119	CNL
TW	TW-116	CNL
TW	TW-114	CNL
TW	TW-114	CNL, Possible blockage NO smoke coming from houses off this line
TW	TW-113	CNL

Table 6: List of Manholes which could not be located

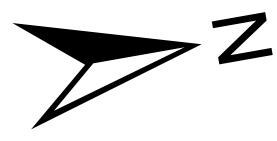
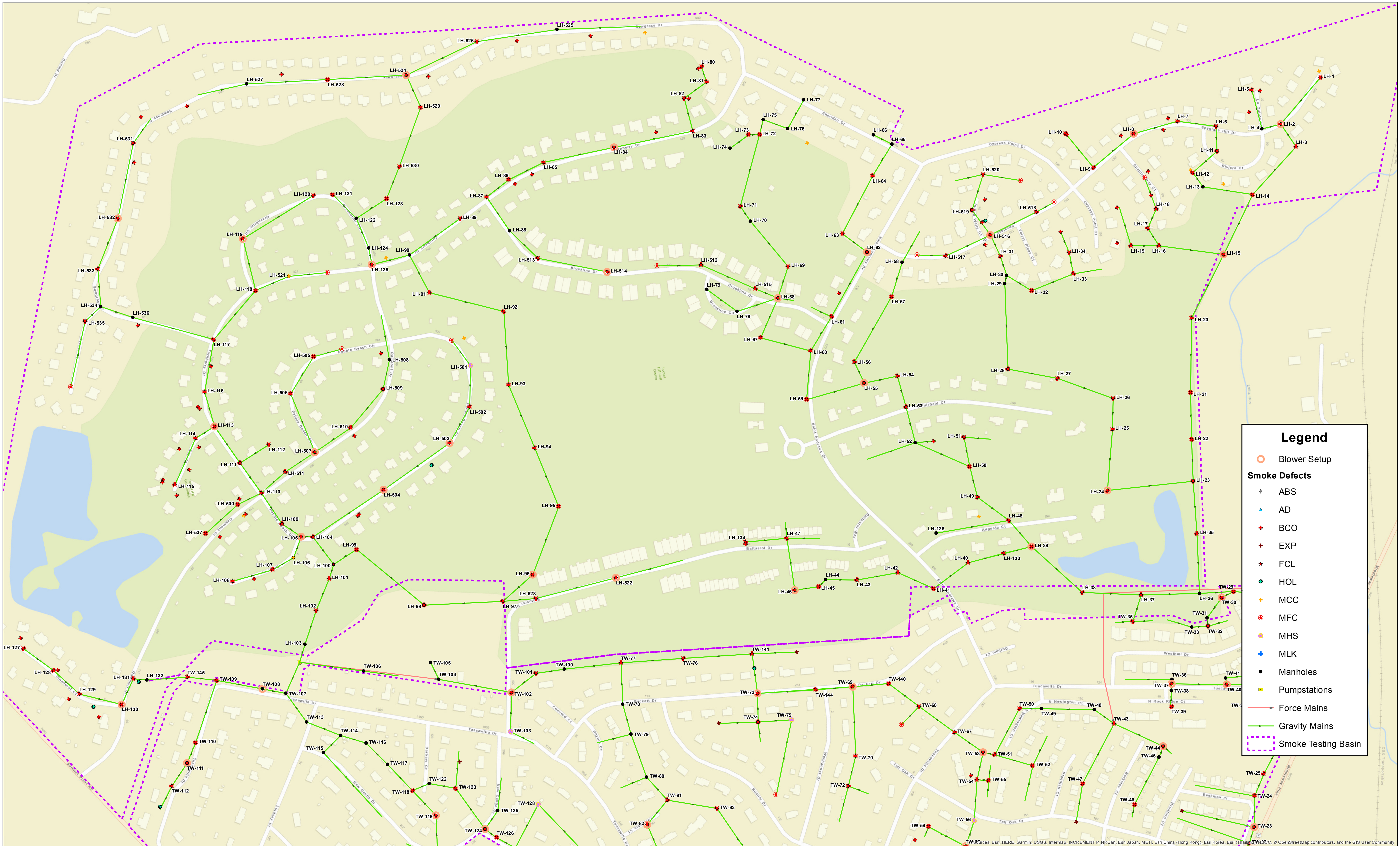
Service Area	Downstream MH	Comments
TW	TW-107	CNL
TW	PS_UNK	CNL
TW	PS_UNK	CNL
TW	TW-105	CNL
TW	TW-101	CNL
TW	TW-92	CNL
TW	TW-88	CNL
TW	TW-82	CNL
TW	TW-80	CNL
TW	TW-79	CNL
TW	TW-74	CNL
TW	TW-72	CNL
TW	TW-62	CNL
TW	TW-36	CNL
LH	TW-32	CNL
TW	TW-24	CNL
TW	TW-22	CNL
TW	TW-18	CNL
TW	TW-17	CNL
TW	TW-16	CNL
TW	TW-139	CNL
TW	TW-137	CNL
TW	TW-132	CNL
TW	TW-115	CNL, possible blockage no smoke from surrounding houses
TW	TW-106	CNL
TW	TW-103	CNL
LH	TW-29	CNL

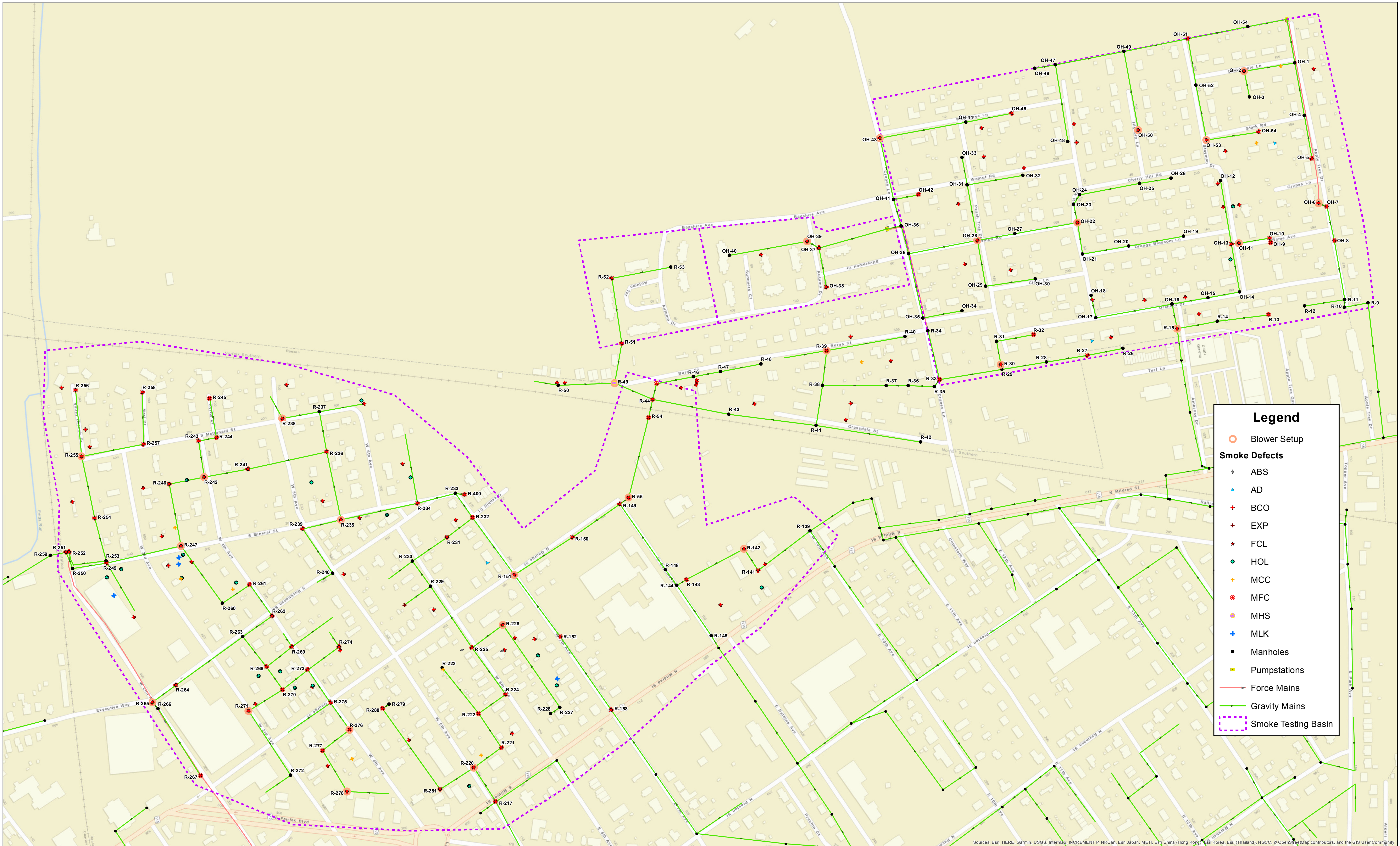
V. SUMMARY TABLE

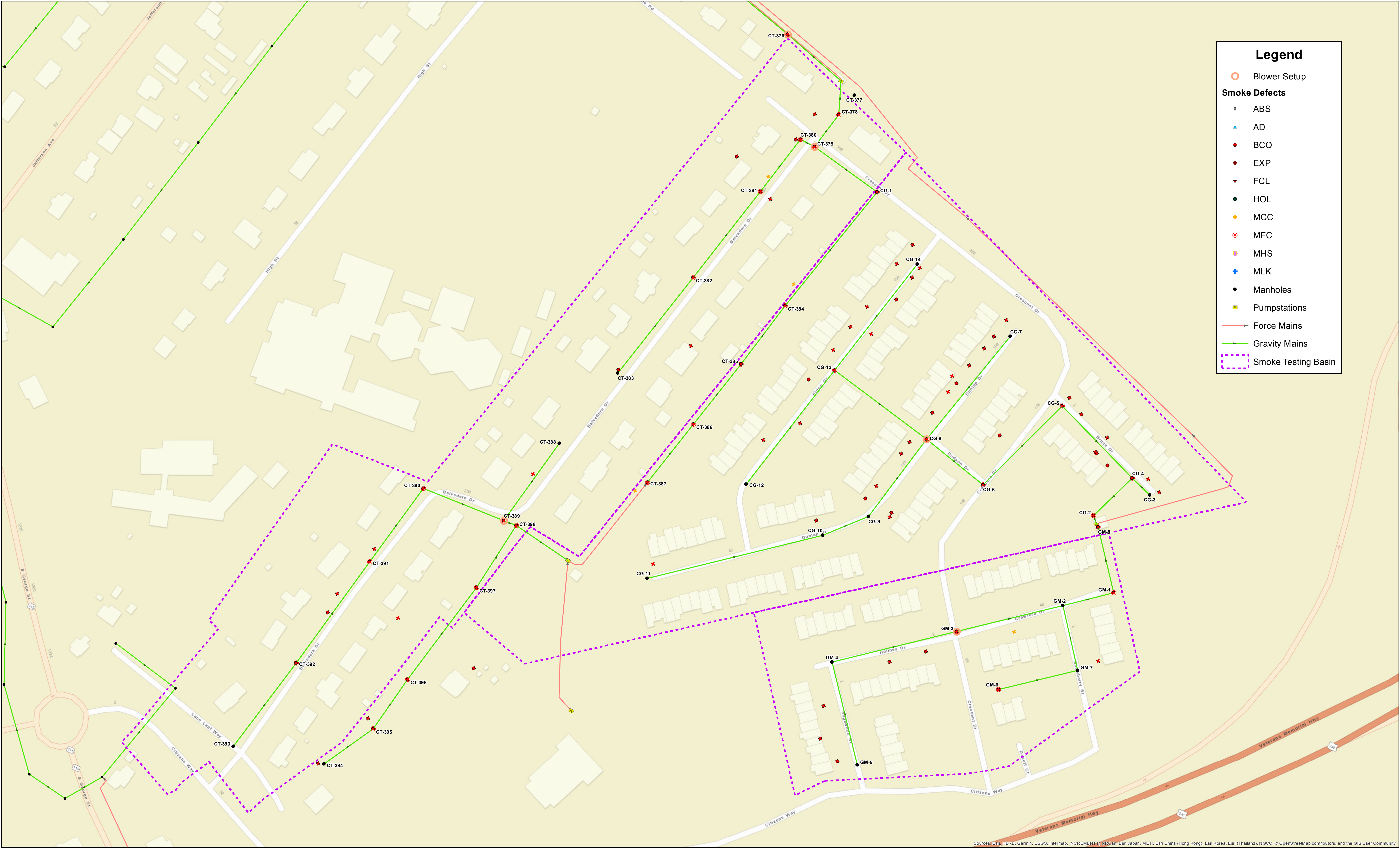
Table 7 below summarizes the results from smoke testing.

Table 7: Smoke Test Defect Summary	
Defect	
<i>Abatement Activity/Field Investigation</i>	
Smoke from Manhole Frame and Cover	
<i>Recommended for Manhole Inspection</i>	383
Manholes which Could not be Located	
<i>Recommend for Manhole Locating and Inspection</i>	99
Smoke from Broken Cleanout or Missing Cleanout Cap/Plug	
<i>Recommended for Cleanout Cap Replacement</i>	200
Smoke Emanating from Ground or Storm Structure	
<i>Recommended for Dye Testing and CCTV</i>	41

APPENDIX A – DEFECT MAPS







Legend

○

Blower Setup

Smoke Defects

◇

ABS

▲

AD

✕

BCO

+

EXP

★

FCL

●

HOL

+

MCC

⊙

MFC

●

MHS

+

MLK

●

Manholes

■

Pumpstations

→

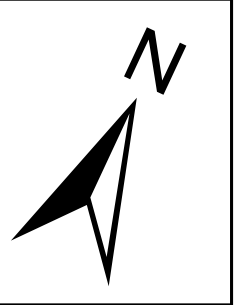
Force Mains

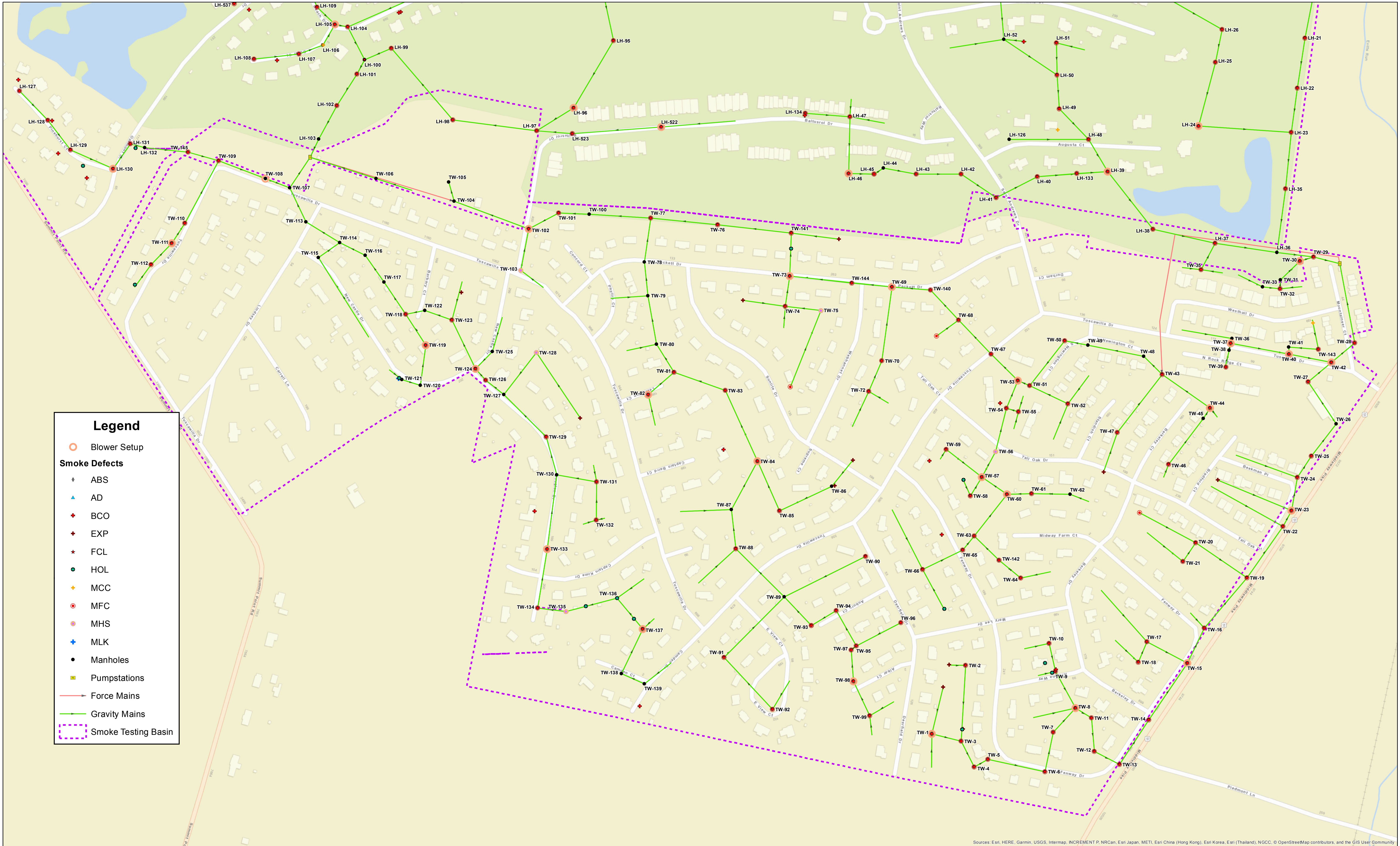
→

Gravity Mains

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Smoke Testing Basin





Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community