

Public Works Department 117 N Molalla Avenue PO Box 248 Molalla, Oregon 97038 Phone: (503) 829-6855

Fax: (503) 829-3676

February 12, 2019

Mike Pinney, PE, Sr. Environmental Engineer Oregon DEQ – Northwest Region 700 NE Multnomah St, Suite 600 Portland, OR 97232

RE: 2018 ANNUAL INFLOW & INFILTRATION REPORT

This report provides an annual summary of some of the more important I/I reduction actions the City of Molalla has taken for the 2018 calendar year, in accordance with City's Inflow and Infiltration Assessment and Reduction Plan and NPDES Permit No. 101514.

In 2018 the City cleaned 9733LF, grouted 101 Manholes, repaired 105 smoke test issues, reduced I/I at the WWTP measurably by over 6% as experienced during a 2.8" rain event, completed it's Master Plan, performed comprehensive Flow Poking, added telemetry to three of its lift stations (which alert the City of abnormal I/I flows), and performed spot repairs throughout the system as identified by detailed analysis of the CCTV information from 2016/17.

The City continued significant investment in its Wastewater Treatment Plant operations, including new filter media, pumps, actuators, DAF coagulation chamber repairs, variable speed drives, and the addition of 1.0 FTE staff.

Please feel free to contact me (503) 759-0220 if you have any questions.

Regards,

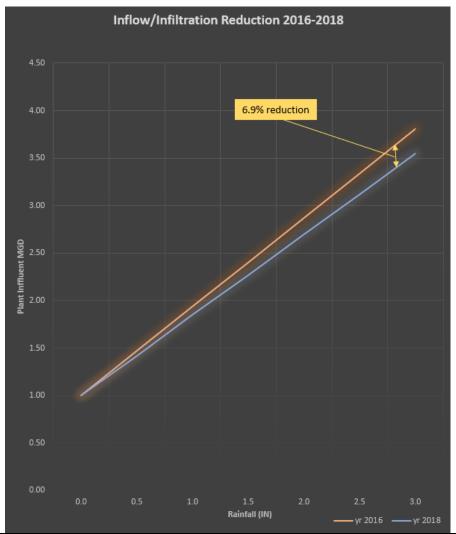
Andy Peters Operations Supervisor

Cc: Gerald Fisher, Public Works Director Dan Huff, City Manager

Project/Task Description & Information

Measuring Success

I/I reduction efforts made by the City of Molalla in 2018 resulted in a 6.9% reduction in I/I at the WWTP Headworks plume as measured during a 2.8" rainfall event (when compared to an equivalent rain event from 2016 flow data). The explanation of those efforts constitutes the remainder of this report.



Manhole Inspections and Grouting Public Works followed through on the grout-sealing of 101 Manholes with AV202 grout in 2018. Before and After maps are attached as Appendix B showing this progress.

System Assessment

In addition to the Smoke Testing that was reported in 2017 the City completed a comprehensive Flow Poking assessment of the system, which is attached as Appendix C. This is an important baseline which will be used to measure the success of capital projects over the next 5 years.

Sewer Line Cleaning

Sewer CMOM Cleaning in 2018 was conducted as follows:

WO# 3234 completed on 10/4/18 -

- Peterkin's downtown (low flows cause backups)
- 1318 Meadowlark PI (fighting roots under sidewalk)

Total: 395LF

WO# 3356 completed on 10/4/18 (SW quadrant) South of Molalla Ave, West of the Union Pacific RR Tracks, and South of the 15-inch concrete line that runs from Molalla Ave directly to the WWTP: Hydro-jetted and maintained the following lines.

- Fountain Valley Center (off Industrial Way)
- Commercial
- W Heintz
- Carol Ct
- Kae Ct
- Arbor Ter by-pass
- Lynn Ln
- Bronco&Probe
- Dixon Ridings
- West Lane
- S Cole &211 @beginning of line
- Peterkins Commercial Coral Prince

Total: 2500LF

WO# 3357 completed on 10/3/18

- E. 3rd
- Eckart, the Moose Lodge
- Hood St
- Hood Ct
- S. Cole
- E 8th
- Mathias Ct

Total: 2045LF

WO# 3709 completed on 11/6/18

- Industrial Way
- Storey Dr
- Andrian
- Kalugin
- The Bypass line at Lynn Ln
- Toliver & Leroy
- Trinity
- Wedgewood
- Kae Ct
- W. Heintz
- Carol Ct
- West Lane
- Ridings

- Prince
- Dixon

Total: 4437LF

Total Sewer Cleaning 2018: 9377 LF

CCTV Inspections and Repairs

In 2018 City GIS staff performed a comprehensive review of all CCTV that was reported in the 2017 Annual I/I Report. The results were divided into (a) issues that will be addressed by the projects identified in the 2018 Master Plan, and (b) isolated repairs that were to be addressed by City Crews. The following repairs were released to Public Works in 2018 as (b) repairs:

TL_A2_2 - TL_A2_5 - E 7th ST

- Heavy infiltration at pipe joints 50' from TL_A2_5
- STATUS: RELEASED ON WO# 4332, Jan 2019

TL A1 4 - EOL CO - E8th ST

- Heavy infiltration at pipe joint 5.6' from TL_A1_4
- STATUS: RELEASED ON WO# 4334, March 2019

TL_A1_6 - EOL CO - E 8th ST

- Infiltration from bottom 49.6' from TL_A1_6
- STATUS: RELEASED ON WO# 4335, May 2019

BC A3 10 - BC A3 17 - Sweigle Ave

- Bad joint at 53' from BC A3 10
- STATUS: RELEASED ON WO# 4337, July 2019

TL B 20 - TL B 21 - Fenton Ave

- I&I from joint runners at 32' and 173' from TL_B_20
- Heavy I&I from lateral leakage @ 218' from TL_B_20
- STATUS: ON MASTER-PLAN CIP

BC_A3_2 – EOL CO: – Metzler Ave NOTE: Wrong MH #s on report but this is the correct report

- Replace EOL Cleanout minor I&I
- STATUS: ON MASTER-PLAN CIP

TL_B_5 - TL_B_2 - Patrol ST

- Heavy infiltration at 256' and 277' from TL_B_2
- STATUS: ON MASTER-PLAN CIP

I&I Budget	In Fiscal Year 2018-2019, the City budgeted a total of \$135,000 for infiltration and inflow repairs. The City is on track to expend all of the funds on repairs before the end of the fiscal year.
I&I Repairs	On the 2017 Annual I/I report the City submitted a comprehensive smoke testing inspection of the Town. In 2018 City Crews repaired 105 of these issues. Each of the original smoke test reports are attached in Appendix C, indicating the Work Order on which the issue was resolved.
	WO# 908 addressed reports 1-3; 1-6; 1-7; 1-8; 1-9; 1-10; 1-12; 1-13; 1-15; 1-17 and was completed on 3/21/18.
	WO# 956 addressed reports 1-24; 1-27; 1-31; 1-32; 1-34; 1-35; 1-36; 1-37; 1-38; 1-41 and was completed on 3/8/18.
	WO# 1038 addressed reports 1-43; 1-44; 1-45; 1-46; 1-47; 1-49; 1-50; 1-51; 1-53; and was completed on 3/12/18.
	WO# 1066 addressed reports 2-4; 2-5; 2-7; 2-8; 2-9; 2-10; 2-11; 2-12; 2-20; 2-22; 2-23 and was completed on 4/3/18.
	WO# 1384 addressed reports 2-25; 2-26; 2-27; 2-28; 2-30; 2-32; 2-33; 2-37; 2-38; 2-40 and was completed on 4/12/18.
	WO# 1529 addressed reports 2-41; 2-43; 2-44; 2-46; 2-48; 2-49; 2-50; 2-51; 2-52; 2-53 and was completed on 8/14/18
	WO# 3150 addressed reports 2-54; 2-55; 2-56; 2-58; 2-60; 2-62; 2-63; 3-4; 3-5; 3-6 and was completed on 8/21/18
	WO# 3224 addressed reports 3-9; 3-10; 3-11; 3-12; 3-13; 3-14;3-17; 3-19; 3-20; 3-21; 3-22 and was completed on 9/10/18
	WO# 3445 addressed reports 3-24; 3-25; 3-27; 3-29; 3-30; 3-31; 3-33; 3-36; 3-37; 3-38 and was completed on 9/13/18
	WO# 3515 addressed reports 3-41; 4-6; 4-7; 4-8; 4-10; 4-11; 4-15; 4-16; 4-21; 4-25 and was completed on 10/9/18
	WO# 3858 addressed reports 4-27; 4-28; 4-30 ;4-32 ;4-36 and was completed on 10/22/18

APPENDIX

APPENDIX	TITLE
Α	MANHOLE INFILTRATION – BEFORE 2018 GROUTING
	MANHOLE INFILTRATION – AFTER 2018 GROUTING
В	2018 SMOKE TESTING REPORTS – UPDATED TO SHOW PROGRESS
С	2018 FLOW POKING REPORT

APPENDIX A

MANHOLE INFILTRATION – BEFORE 2018 GROUTING AFTER 2018 GROUTING



MANHOLE INFILTRATION - BEFORE 2018 GROUTING MIVIEW LIN JUNE DR MEADOW DR RACHEL LIN MEADOWLARK PL ESCORT ST CHURCH ST MEADOWLAWN PL BOARDWALK AVE RIVERS LIN KALUGIN CT 21"Concrete MILLER ST TOLIVER RD 5"CSP 15"CSP LYNN LN FRANCES ST HEINTZ ST CHRISTOPHER 57 SHIRLEY ST 8^tConcrete MAIN ST HWY 211 MEINTZ ST WAS BOOK ST WAS BOOK ST BLAC WEST UN ROBBINS ST MAIN ST CROMPTONS LN COMMERCIAL 12"ASTIN D 3034 SDR 35 ROSS ST GRANGE 12"ASTM D 30B4 ; 8"ASTMD LOWE RD 2ND ST SHAVER SWIEGEE AVE MAIN ST SCONDICIO ENVERTO ST BENNERY AVE HART AVE MOLALLA FOREST RO A S A SECONDARIAN SECO SECTION//ST/ THY ST SE 6TH ST Infiltration Major Minor

MANHOLE INFILTRATION - AFTER 2018 GROUTING MT VIEW LN HOMESTEAD PL JUNE DR MEADOW DR ERIC DR ANNE IN ESCORT ST MEADOWLARK PL EXPLOSE ST AVEC ON THE PROPERTY OF THE PROPERT MEADOWLAWN PL CHURCH ST GLORY IN TOLIVER RD BOARDWALK AVE BURGHARDT DR RIVERS LN TOLIVER CT MILLER ST LAKOTA LN LYNN LN CHRISTOPHER ST HWY 211 MAIN ST WEST LN MAIN ST ROBBINS ST CROMPTONS LN HWY 211 ROSS ST OAK ST KIMBERLY CT LOWE RD ENGE AVE MAINST A AUTO ANE SECTION ST THH ST **Observed Infiltration** Grouted (105) 6TH ST Major Infiltration (27) Minor Infiltration (48) No Infiltration Observed

APPENDIX B

SMOKE TESTING REPORTS – UPDATED TO SHOW PROGRESS

The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study		Toliver Court		
Project Name :		Location / Addre	SS:	
100.26 1-3		TL E C/O – TL E 1		
Project No.	Report No.	Basin:	MH No. / Main:	
Chilton Peck			10.16.17	
Tested By:			Date:	

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO

Comments

- Located in concrete driveway for 120 Toliver Ct.
- Smoke coming from cleanout cap, Did not open to verify actual issue
- ____

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study		Toliver Rd.		
Project Name :		Location / Address:		
100.26 1-6		TL C/O - TL SB3 1		
Project No.	Report No.	Basin:	MH No. / Main:	
Chilton Peck			10.16.17	
Tested By:			Date:	

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO

Comments

Smoke coming from around the rim of the cleanout

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study		103 Toliver Rd.	
Project Name :		Location / Address:	
100.26 1-7		TL C/O - TL SB3 1	
Project No.	Report No.	Basin:	MH No. / Main:
Chilton Peck			10.16.17
Tested By:			Date:

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description OCO

Comments

- Smoke coming from behind wooden fence, could not gain access to verify issue
 There was an exposed section of PVC pipe at the fence.

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

205 W. Heintz St Unit #728 Molalla I/I Study Project Name : Location / Address: 100.26 1-9 TL TL_21 - TL_22 Project No. Basin: MH No. / Main: Report No. 10.16.17 Chilton Peck Tested By: Date:

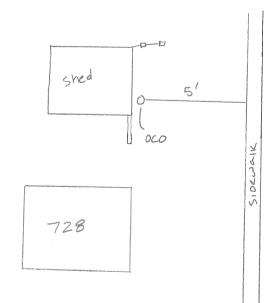
TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description OCO ————————————————————————————————

Comments

- Located at Unit #728 of Twin Firs Mobile Home Park
- Smoke coming from open cleanout, located behind the shed
- __

SKETCH





727

The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study 205 W. Heintz St Unit #723 Project Name : Location / Address: 100.26 1-10 TL TL 21 - TL 22 Project No. Report No. Basin: MH No. / Main: Chilton Peck 10.16.17 Tested By: Date:

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description OCO - overall OCO - open c/o behind the shed OCO - broken cap on c/o next to shed

Comments

- Located at Unit #723 of Twin Firs Mobile Home Park
- Smoke coming from open cleanout, located behind the shed
- Smoke coming out of broken cleanout cap on the side of the shed

SKETCH



I a

The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study 317 Kennel Ave Project Name : Location / Address: 100.26 TL_D_8 - TL_D_14 1-12 TL D Project No. Report No. Basin: MH No. / Main: Chilton Peck 10.16.17 Tested By: Date:

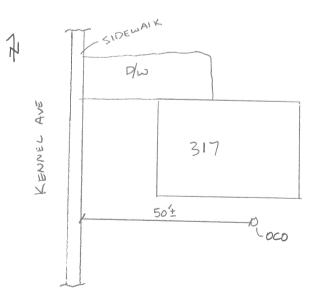
TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description OCO ————————————————————————————————

Comments

- Smoke coming from open cleanout
- .
- .
- -

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study 270 N. Molalla Ave Project Name : Location / Address: 100.26 TL D 8 - TL D 14 1-13 TL D Project No. Report No. Basin: MH No. / Main: Chilton Peck 10.16.17 Tested By: Date:

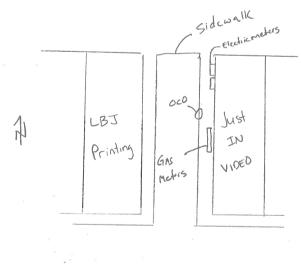
TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO

Comments

- Smoke coming from cleanout cap,
- Located in the sidewalk along the west wall of building 270 N. Molalla (Just In video)
- ____

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study 138 Shirley St, Unit #16 Project Name : Location / Address: 100.26 1-15 TL C TL_16 - TL_17 Project No. Report No. Basin: MH No. / Main: Chilton Peck 10.16.17 Tested By: Date:

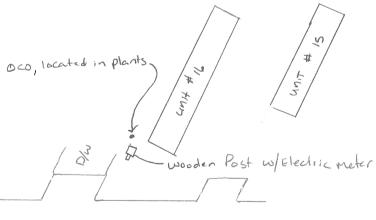
TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO

Comments

- Smoke coming from open cleanout with no cap
- Located in Molalla Mobile Manor
- .
- .

SKETCH





-7->

The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study	lalla I/I Study 135 Fenton Av		nue
Project Name :		Location / Address:	
100.26	1-17	TL_B	TL_B_20 - TL_B_21
Project No.	Report No.	Basin:	MH No. / Main:
Chilton Peck			10.16.17
Tested Bv:			Date:

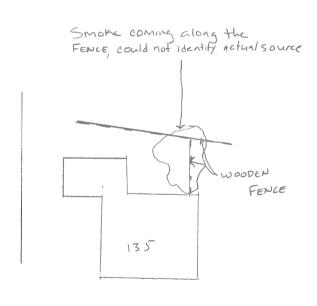
TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO

Comments

Smoke coming behind the fence, could not identify the source.

SKETCH





Repaired on WO#908

The Dyer Partnership, Engineers & Planners, Inc.

 Molalla I/I Study
 920 Shirley St

 Project Name :
 Location / Address:

 100.26
 1-24
 TL_B
 TL_B 27 - TL_B 7

 Project No.
 Report No.
 Basin:
 MH No. / Main:

 Chilton Peck
 10.16.17

 Tested By:
 Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO

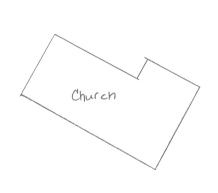
Comments

- Smoke coming out of open cleanout next to shop T@ Church of the Nazarene
- •

SKETCH







HMY ZII

The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study		716 N. Molalla Ave	
Project Name:		Location / Address:	
100.26	1-27	TL C	TL C 22 - TL C 23
Project No.	Report No.	Basin:	MH No. / Main:
Chilton Peck	•		10.17.17
Tested Bv:			Date:

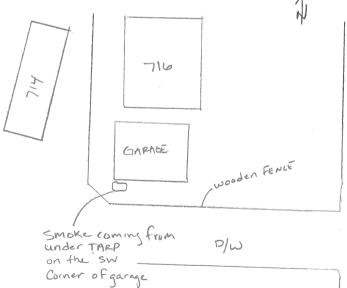
TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO

Comments

- Smoke coming out from under the tarp on the southwest corner of the garage

SKETCH





1. MOLALLA AVE

The Dyer Partnership, Engineers & Planners, Inc.

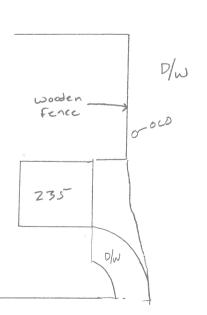
Molalla I/I Study	,	237 Shirley S	St	
Project Name :		Location / Addres	SS:	
100.26	1-31	TL C	TL C 38	
Project No.	Report No.	Basin:	MH No. / Main:	
Chilton Peck			10.17.17	
Tested By:			Date:	

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description OCO OCO

Comments

SKETCH





237

The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study		207 Lola Ave	
Project Name :		Location / Address:	
100.26	1-32	TL_A	TL A 19 - TL A 22
Project No.	Report No.	Basin:	MH No. / Main:
Chilton Peck			10.17.17
Tested Bv:			Date:

TESTING CODE		Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. 1 2 3	Description OCO LSL – smoke coming from ground Smoke coming from ground

Comments

- Resident has a plastic plate fastened down over the cleanout, smoke coming out of the ground near the road and the gas meter
- •

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study		104 S. Cole Ave		
Project Name:		Location / Address		
100.26	1-34	TL_A	TL A 3 - TL A 29	
Project No.	Report No.	Basin:	MH No. / Main:	
Chilton Peck			10.17.17	
Tested By:			Date:	

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 CB

Comments

Smoke leaking around the cleanout cap

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

 Molalla I/I Study
 813 E. 3rd St.

 Project Name :
 Location / Address:

 100.26
 1-36
 TL_A
 TL_A 14 - TL_A 8

 Project No.
 Report No.
 Basin:
 MH No. / Main:

 Chilton Peck
 10.17.17

 Tested By:
 Date:

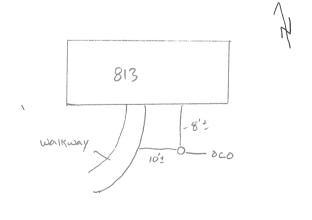
TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO

Comments

- Smoke coming out of cleanout
- •
- •

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study 824 E. 5th St. Project Name: Location / Address: 100.26 1-37 TL A TL_A_11 - TL_A_23 Project No. Report No. MH No. / Main: Basin: Chilton Peck 10.17.17 Tested By: Date:

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description OCO ————————————————————————————————

Comments

- Smoke coming out of cleanout, located in recessed house vent

SKETCH



wa IKway

Repaired on WO#956

D/W

The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study		827 E. 5th St.	
Project Name :		Location / Address:	
100.26	1-38	TL_A	TL A 11 - TL A 23
Project No.	Report No.	Basin:	MH No. / Main:
Chilton Peck			10.17.17
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO 2 LSL 3 OCO

Comments

- 1. Smoke leaking around cleanout cap
- 2. Smoke coming out of irrigation valve box
- 3. Smoke coming out of cleanout with no cap

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study 506 S. Mathias Rd. Project Name : Location / Address: 100.26 1-41 TL A 10 - C/O TL A Project No. Report No. Basin: MH No. / Main: Chilton Peck 10.17.17 Tested By: Date:

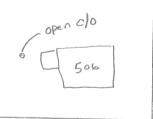
TESTING CODE	Photographs	
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO	

Comments

- Smoke coming out of cleanout with no cap

SKETCH





E. 6th ST

The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study		522 E. Main St	
Project Name :		Location / Address:	
100.26	1-43	TL A	TL A 31 - TL A 32
Project No.	Report No.	Basin:	MH No. / Main:
Chilton Peck			10.18.17
Tested Bv:			Date:

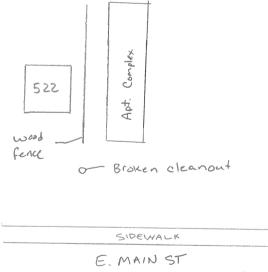
TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO

Comments

- Smoke coming out of broken cleanout
- ____
- ____
- ___

SKETCH





4

The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study		514 & 518 E. Main St		
Project Name :		Location / Addres	SS:	
100.26	1-44	TL_A	TL A 31 - TL A 32	
Project No.	Report No.	Basin:	MH No. / Main:	
Chilton Peck			10.18.17	
Tested Bv:			Date:	

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description OCO for Unit #514 OCO for Unit #518

Comments

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study 124 Berkley Ave Project Name: Location / Address: 100.26 BC A3 1-45 BC A3 12 - BC A3 18 Project No. Report No. MH No. / Main: Basin: Chilton Peck 10.18.17 Tested By: Date:

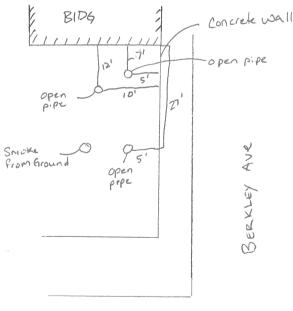
TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO

Comments

- Vacant lot has multiple open pipes and multiple area where smoke was coming from the ground.
- ___
- ___

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study		415 Berkley Ave		
Project Name :		Location / Address	:	
100.26	1-46	BC_A3	BC_A3_14 - C/O	
Project No.	Report No.	Basin:	MH No. / Main:	
Chilton Peck			10.18.17	
Tested Bv:			Date:	

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO

Comments

Smoking coming out of cleanout

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study		411 Berkley Av	ve	
Project Name :		Location / Address:		
100.26	1-47	BC_A3	BC_A3_14 - C/O	
Project No.	Report No.	Basin:	MH No. / Main:	
Chilton Peck			10.18.17	
Tested By:			Date:	

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO

Comments Smoking coming out of cleanout with no cap

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study		312 E. 2nd St.	
Project Name :		Location / Address:	
100.26	1-49	BC_A3	BC_A3_10 - BC_A3_12
Project No.	Report No.	Basin:	MH No. / Main:
Chilton Peck			10.18.17
Tested Bv:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO

Comments

Smoking coming out around the cleanout, located in the street.

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study		111 Swiegle Ave	
Project Name :		Location / Address:	
100.26	1-50	BC_A3	BC_A3_18 - BC A3 12
Project No.	Report No.	Basin:	MH No. / Main:
Chilton Peck			10.18.17
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO & LSL

Comments

- Smoke coming out of open cleanout with chunks of concrete covering it up. Smoke coming out at the joint of the AC pavement and the curb.

SKETCH



- 1. Smoke from open cleanout
- 2. Smoke from joint between road and curb,

The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study		120 Engle Ave - Pregnancy Care Center		
Project Name:		Location / Address	5.	
100.26 1-51		BC_A3	BC A3 4 - BC A3 19	
Project No.	Report No.	Basin:	MH No. / Main:	
Chilton Peck			10.18.17	
Tested By:			Date:	

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO

Comments Smoke coming out next the building, could not identify the source

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla I/I Study		314 S. Molalla Ave		
Project Name :		Location / Address	S:	
100.26 1-53		BC A3 BC A3 3 - BC A3 16		
Project No.	Report No.	Basin:	MH No. / Main:	
Chilton Peck			10.18.17	
Tested By:			Date:	

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 OCO

Comments Smoke coming out of open cleanout, no cap

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		Toliver Dr.	
Project Name :		Location / Addres	S:
100.26 2-4		TL_E	TL_E_6
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Monday, October 16, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from mainline cleanout lid ———————————————————————————————————

Comments

Mainline cleanout on Toliver Dr., +/-65' south of manhole TL_E_6.

I

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		Hauser Ct.	
Project Name :		Location / Addres	SS:
100.26	2-5	TL_E TL_E_3	
Project No.	Report No.	Basin: MH No. / Main:	
Ryan Quigley			Monday, October 16, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from mainline cleanout lid ———————————————————————————————————

Comments

Mainline cleanout on Hauser Ct., +/-185' north of manhole TL_E_3.

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

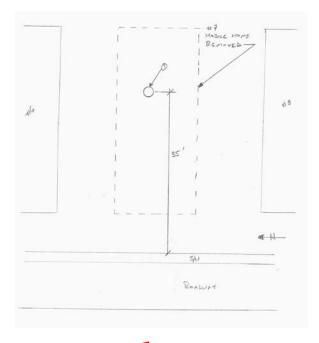
Molalla Smoke	: Lesting	Heintz St. –	Lot #/ I win Fir Mobile Home Park
Project Name :		Location / Addres	ss:
100.26	2-7	TL_D	TL_D_6
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Monday, October 16, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from open cleanout/connection

Comments

- Mobile home has been removed from Lot #7. Sewer connection wasn't capped and covered with plywood.
- •
- •
- •

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

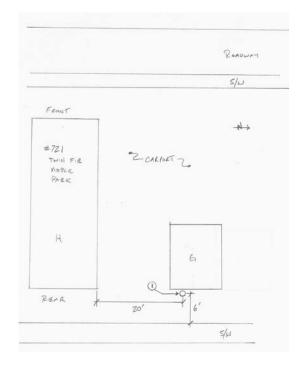
Molalla Smoke Testing		/21 Heintz St. (Twin Fir Mobile Home Park) Location / Address:		
Project Name :				
100.26 2-8		TL	TL_21	
Project No.	Report No.	Basin:	MH No. / Main:	
Ryan Quigley			Monday, October 16, 2017	
Tested By:			Date:	

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from open cleanout/connection

<u>Comments</u>

<u> </u>	oninents	
•	Open sewer connection/cleanout behind garage.	
•		
•		
•		
•		

SKETCH





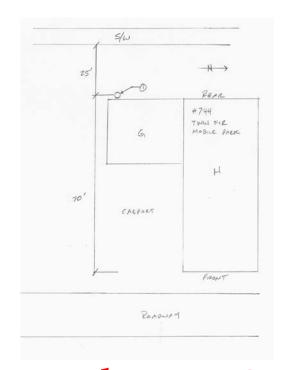
The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		/44 Heintz St. (Twin Fir Mobile Home Park)	
Project Name :		Location / Addre	SS:
100.26	2-9	TL	TL_21
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Monday, October 16, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from broken cleanout

<u>ا0 ک</u>	<u>mments</u>
•	Broken sewer cleanout cap behind garage.
•	
•	
•	
•	

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

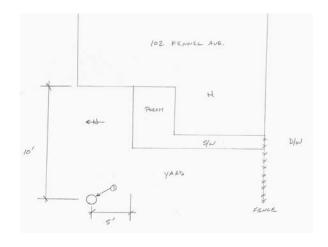
Molalia Smoke Testing		102 Kennel Ave.	
Project Name :		Location / Address:	
100.26	2-10	TL_D	TL_D_13
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Monday, October 16, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from broken cleanout

Comments

•	Broken sewer cleanout cap in front yard.
•	
•	
-	

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

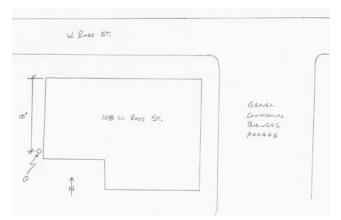
Molalla Smoke Testing		102 W. Ross St.	
Project Name :		Location / Address:	
100.26	2-11	TL_D	TL_D_13 and TL_D_6
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Monday, October 16, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from broken cleanout

Comments

Cleanout without cap. Covered with cinder block.

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		E. Ross St.	
Project Name :		Location / Addres	ss:
100.26	2-12	TL_D	TL_D_12
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Monday, October 16, 2017
Tested By:			Date:

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from mainline cleanout lid

Comments

Smoke from cleanout located 80' east of manhole TL_D_12.

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

 Molalla Smoke Testing
 120 Fenton Ave.

 Project Name :
 Location / Address:

 100.26
 2-20
 TL_B
 TL_B_21 and TL_B_22

 Project No.
 Report No.
 Basin:
 MH No. / Main:

 Ryan Quigley
 Monday, October 16, 2017

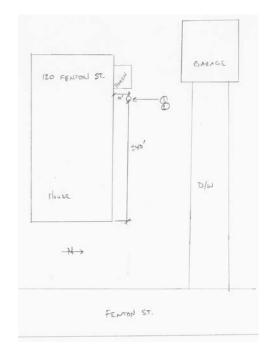
 Tested By:
 Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. 1 Smoke from cleanout 2 Smoke from cleanout

Comments

.	miono
•	Smoke from cleanout area. It appears the area is currently under repair/construction.
•	
•	
•	

SKETCH







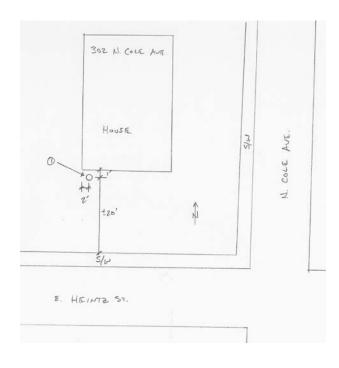
The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		302 N. Cole Ave.	
Project Name :		Location / Addres	ss:
100.26	2-22	TL_B	TL_B_1 and TL_B_16
Project No. Report No.		Basin:	MH No. / Main:
Ryan Quigley			Monday, October 16, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from broken cleanout cap

Comments

SKETCH





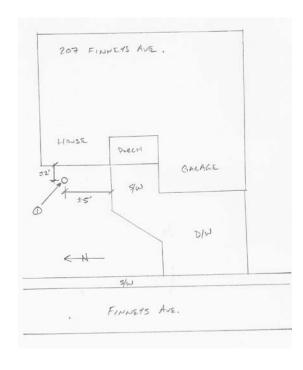
The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		207 Finneys Ave.	
Project Name :		Location / Addres	ss:
100.26	2-23	TL_B	TL_B_1 and TL_B_16
Project No. Report No.		Basin: MH No. / Main:	
Ryan Quigley			Monday, October 16, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from broken cleanout cap

Comments

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		Park Pl.	
Project Name :		Location / Addres	ss:
100.26	2-25	TL_B	TL_B_8
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Monday, October 16, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from mainline cleanout

Comments

• Smoke coming from mainline cleanout in Park Pl. cul-de-sac.

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		N. Cole Ave.	
Project Name :		Location / Addres	SS:
100.26 2-26		TL_B TL_B_31	
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Monday, October 16, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from mainline cleanout

Comments

Smoke coming from mainline cleanout 15' south of manhole TL_B_31.

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

 Molalla Smoke Testing
 704 Patrol St.

 Project Name :
 Location / Address:

 100.26
 2-27
 TL_B
 TL_B_2 and TL_B_5

 Project No.
 Report No.
 Basin:
 MH No. / Main:

 Ryan Quigley
 Monday, October 16, 2017

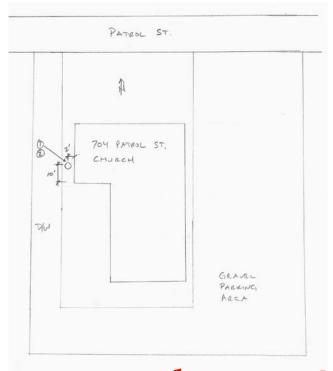
 Tested By:
 Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from cleanout with no cap Smoke from cleanout with no cap

Comments

- _

SKETCH







The Dyer Partnership, Engineers & Planners, Inc.

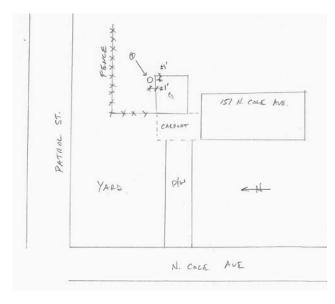
Molalla Smoke Testing		151 N. Cole Ave.	
Project Name :		Location / Address	S:
100.26	2-28	TL_B	TL_B_2 and TL_B_28
Project No. Report No.		Basin:	MH No. / Main:
Ryan Quigley			Monday, October 16, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from cleanout

Comments

Smoke from cleanout located adjacent to the northeast corner of the garage, behind fence.
 Image: Corner of the garag

SKETCH





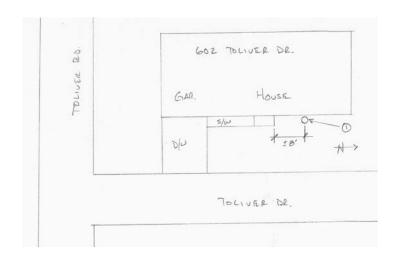
The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		602 Toliver Dr.	
Project Name :		Location / Address:	
100.26	2-30	TL	TL_21 and TL_SB1_3
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Tuesday, October 17, 2017
Tested By:			Date:

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from broken cleanout cap

Comments

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

 Molalla Smoke Testing
 709 N. Molalla Ave.

 Project Name :
 Location / Address:

 100.26
 2-32
 TL_C
 TL_C_22 and TL_C_39

 Project No.
 Report No.
 Basin:
 MH No. / Main:

 Ryan Quigley
 Tuesday, October 17, 2017

 Tested By:
 Date:

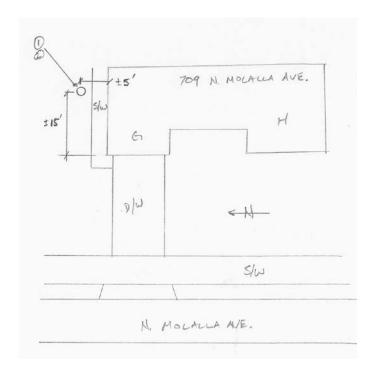
TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. 1 Smoke from broken cleanout cap 2 Smoke from broken cleanout cap

Comments

Broken cleanout cap on north side of garage, adjacent to concrete sidewalk.

I a a sidewa

SKETCH







The Dyer Partnership, Engineers & Planners, Inc.

 Molalla Smoke Testing
 705 N. Molalla Ave.

 Project Name :
 Location / Address:

 100.26
 2-33
 TL_C
 TL_C_22 and TL_C_39

 Project No.
 Report No.
 Basin:
 MH No. / Main:

 Ryan Quigley
 Tuesday, October 17, 2017

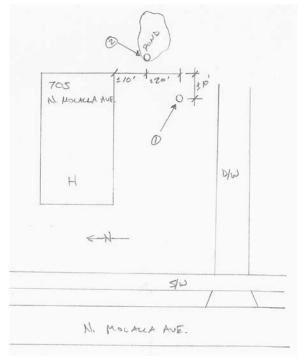
 Tested By:
 Date:

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from broken cleanout cap Smoke from broken cleanout cap Smoke from landscape pond

Comments

- Broken cleanout cap on south side of house, between house and driveway.
- Smoke from landscape pond overflow pipe. Pond is southeast of house.
- •
- •
- •

SKETCH









The Dyer Partnership, Engineers & Planners, Inc.

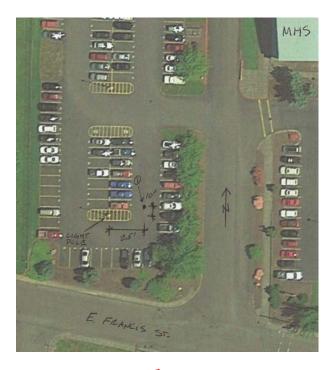
Molalla Smoke Testing Project Name:		Molalla High School Location / Address:	
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Tuesday, October 17, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from parking lot cleanout

Comments

<u> </u>	comments		
•	Smoke coming from cleanout in the southwest parking lot of Molalla High School.		
•			
•			
•			

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

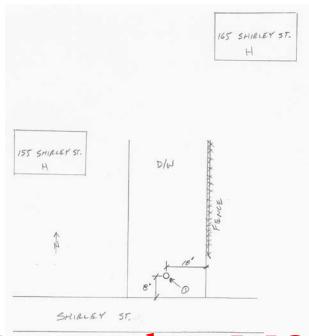
Molalla Smoke Testing Project Name:		165 Shirley St. Location / Address:	
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Tuesday, October 17, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from driveway cleanout

Comments

Smoke coming from cleanout in the driveway serving flag lots at 165 Shirley St.

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

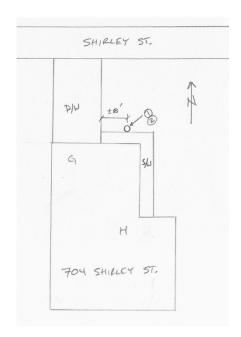
Molalla Smoke Lesting		704 Shirley St.	
Project Name :		Location / Address:	
100.26	2-40	TL_C	TL_C_5 and TL_C_6
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Tuesday, October 17, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS	
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from broken cleanout cap	

Comments

<u> </u>	
•	.Smoke from broken cleanout cap, located next to concrete walkway, under planter.
•	
•	
•	
-	

SKETCH







The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		Molalla Buckaroo Grounds	
Project Name :	-	Location / Addres	S:
100.26	2-41	TL_C	TL_C_3 and TL_C_27
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Tuesday, October 17, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS		
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from broken cleanout cap		

Comments

- Smoke from broken cleanout cap inside a water meter box. Cleanout is located on the north east side
 of the gravel parking area.
- •
- •
- •
- .

SKETCH







The Dyer Partnership, Engineers & Planners, Inc.

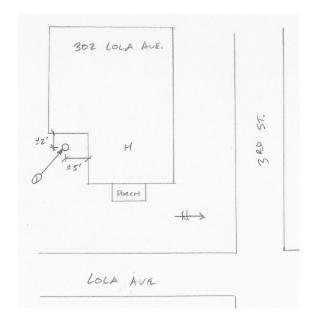
Molalla Smoke Testing		302 Lola Ave.		
Project Name :	-	Location / Addres	S:	
100.26 2-43		TL_A	TL_A_22 and TL_A_19	
Project No.	Report No.	Basin:	MH No. / Main:	
Ryan Quigley			Tuesday, October 17, 2017	
Tested By:			Date:	

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from cleanout area

Comments

Smoke from cleanout area. Could not confirm if the cap was broken or missing.

SKETCH





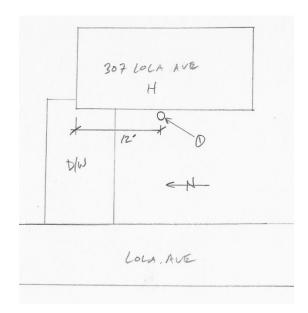
The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		307 Lola Ave.		
Project Name :	-	Location / Address	3:	
100.26 2-44		TL_A	TL_A_22 and TL_A_19	
Project No.	Report No.	Basin:	MH No. / Main:	
Ryan Quigley			Tuesday, October 17, 2017	
Tested By:			Date:	

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from broken cleanout cap

Comments

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

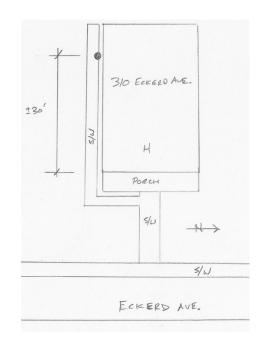
Molalla Smoke Testing		310 Eckerd Ave.	
Project Name :		Location / Address:	
100.26	2-46	TL_A	TL_A_17 and TL_A_18
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Tuesday, October 17, 2017
Tested By:			Date:

TESTING CODE		PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. 1	<u>Description</u> Smoke from cleanout area

Comments

<u> </u>	
•	Smoke from cleanout area. Could not confirm if the cap was broken or missing.
•	
•	
•	
-	

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

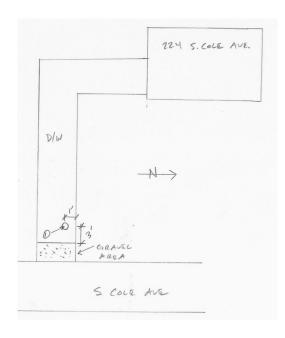
Molalla Smoke Testing 224 S. Cole Ave. Project Name : Location / Address: TL_A_2 and TL_A_3 100.26 2-48 TL_A Project No. Report No. MH No. / Main: Basin: Ryan Quigley Tuesday, October 17, 2017 Tested By: Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from driveway cleanout

Comments

Smoke from cleanout in flag lot driveway.

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

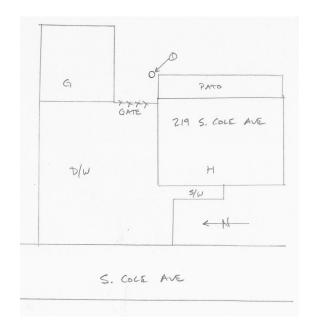
Molalla Smoke Lesting		219 S. Cole Ave.		
Project Name :		Location / Address:		
100.26	2-49	TL_A	TL_A_2 and TL_A_3	
Project No.	Report No.	Basin:	MH No. / Main:	
Ryan Quigley			Tuesday, October 17, 2017	
Tested By:			Date:	

TESTING CODE		PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. 1	<u>Description</u> Smoke from cleanout area

Comments

•	Smoke from cleanout area. Could not confirm broken or missing cleanout cap.
•	
•	
•	
_	

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

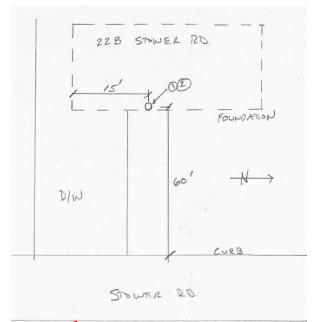
Molalla Smoke Testing 228 Stower Rd. Project Name : Location / Address: TL_A_7 and TL_A_8 100.26 2-50 TL_A Project No. Report No. MH No. / Main: Basin: Ryan Quigley Tuesday, October 17, 2017 Tested By: Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. 1 Smoke from cleanout/sewer connection Smoke from cleanout/sewer connection Smoke from cleanout/sewer connection

Comments

- House has been removed. Smoke from uncovered sewer connection in foundation.
- -
- __
- _

SKETCH







The Dyer Partnership, Engineers & Planners, Inc.

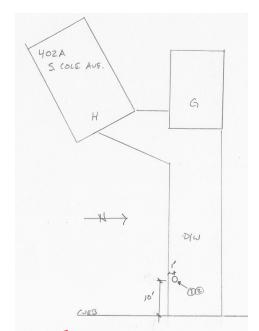
Molalla Smoke Testing 402A S. Cole Rd. Project Name : Location / Address: TL_A_6 and TL_A_8 100.26 2-51 TL_A Project No. MH No. / Main: Report No. Basin: Tuesday, October 17, 2017 Ryan Quigley Tested By: Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. 1 Smoke from driveway cleanout Smoke from driveway cleanout Smoke from driveway cleanout

Comments

- Smoke from driveway cleanout cover on south side of driveway.
- Smoke is also coming up from edge of asphalt, adjacent to the cleanout cover.
- •
- •
- •

SKETCH







The Dyer Partnership, Engineers & Planners, Inc.

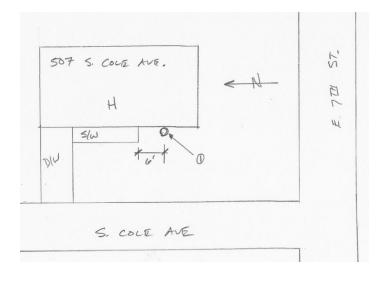
Molalla Smoke Testing		507 S. Cole Rd.	
Project Name :		Location / Address	S:
100.26	2-52	TL_A	TL_A_4 and TL_A_8
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Tuesday, October 17, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS	
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from open cleanout	

Comments

Smoke from open cleanout, south of front porch, adjacent to front of house.
Image: Smoke from open cleanout, south of front porch, adjacent to front of house.
Image: Smoke from open cleanout, south of front porch, adjacent to front of house.
Image: Smoke from open cleanout, south of front porch, adjacent to front of house.

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		503 Stower Rd.	
Project Name :	-	Location / Addres	S:
100.26	2-53	TL_A	TL_A_3 and TL_A_4
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Tuesday, October 17, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from mainline cleanout cover

Comments

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

 Molalla Smoke Testing
 621 Main St.

 Project Name :
 Location / Address:

 100.26
 2-54
 TL_A
 TL_A_30 and TL_A_31

 Project No.
 Report No.
 Basin:
 MH No. / Main:

 Ryan Quigley
 Wednesday, October 18, 2017

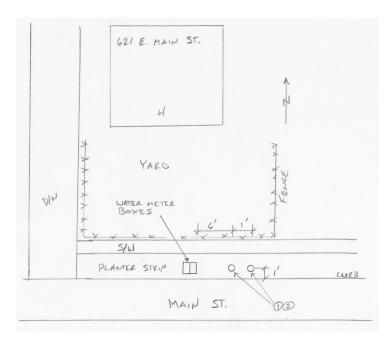
 Tested By:
 Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. 1 Smoke from two broken cleanout covers Smoke from two broken cleanout covers Smoke from two broken cleanout covers

Comments

- Smoke from two, adjacent cleanout covers, in beauty strip grass in front of 621 Main St.
- ____
- ____
- •
- •

SKETCH







The Dyer Partnership, Engineers & Planners, Inc.

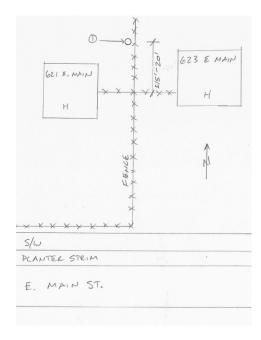
Molalla Smoke Testing 621 and 623 Main St. Project Name : Location / Address: 100.26 2-55 TL A TL A 30 and TL A 31 Project No. Report No. MH No. / Main: Basin: Ryan Quigley Wednesday, October 18, 2017 Tested By: Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from cleanout area

Comments

- Smoke from fence line, between backyards of 621 and 623 Main St.
- Could not confirm broken or uncovered cleanout.
- •
- •
- •

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing
Project Name:

100.26
Project No.
Report No.

Ryan Quigley
Tested By:

812 E. Main St.
Location / Address:

TL_A
Basin:

TL_A_26 and TL_A_27

MH No. / Main:
Wednesday, October 18, 2017

Date:

TESTING CODE		Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line	<u>No.</u> 1/2	<u>Description</u> Smoke from cleanout area
CB = Catch Basin	3	Smoke from buried service lateral
LMH = Leaking Manhole	4	Smoke from open pipe stub
OCO = Open Cleanout	5/6	Smoke from buried service lateral
PHV = Plugged House Vent RD = Roof Drain		

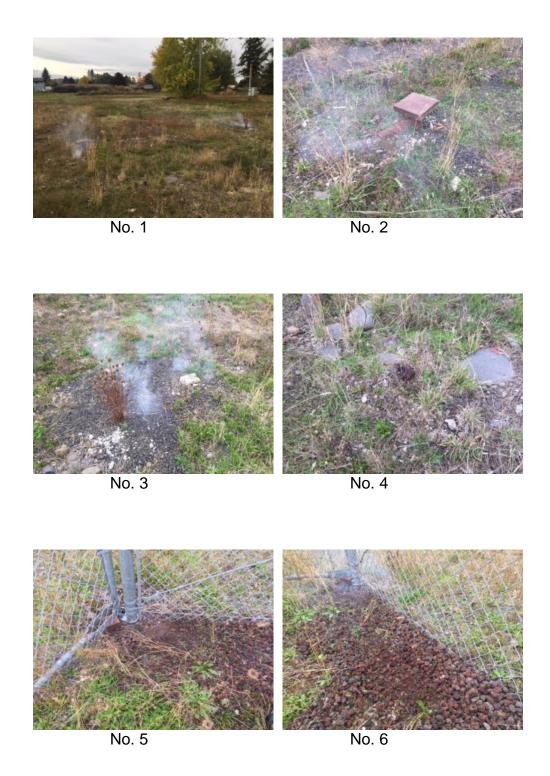
Comments

- See aerial for picture locations.
- No. 2 Cleanout covered with concrete block and open stub out pipe.
- No. 3 Smoke from gravel area covering broken service lateral.
- No. 5/6 Smoke from fence line. Possible broken service lateral under fence line.

SKETCH



Molalla Smoke Testing Report No. 2-56 812 E. Main St.



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		323 E. 3 ¹ St.	
Project Name :	-	Location / Address:	
100.26	2-58	BC_A3	BC_A3_13 and BC_A3_14
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Wednesday, October 18, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from broken cleanout cap

Comments

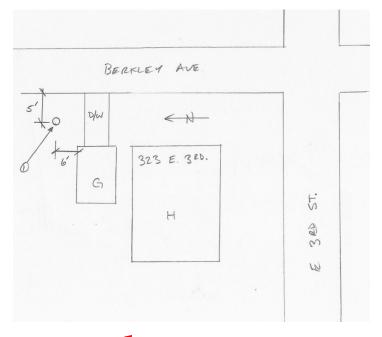
Broken cleanout cap, located in gravel area under trailer.

 Under trailer.

 Under trailer.

 Under trailer.

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

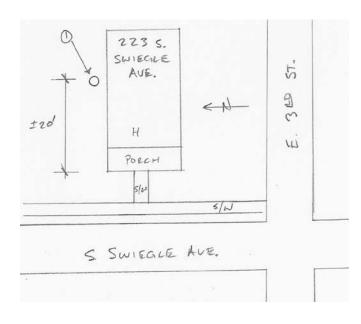
Molalla Smoke Testing 223 Swiegle Ave. Project Name : Location / Address: 100.26 BC_A3 BC_A3_9 and BC_A3_10 2-60 Project No. Report No. MH No. / Main: Basin: Ryan Quigley Wednesday, October 18, 2017 Tested By: Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from cleanout area

Comments

- Smoke from cleanout area on north side of house. Could not confirm broken or missing cap.
- .

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		Fox Park	
Project Name :		Location / Address	:
100.26	2-62	BC_A3	BC_A3_3
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Wednesday, October 18, 2017
Tested By:			Date:

TESTING CODE		PHOTOGRAPHS
LSL = Leaking Service Lateral	No.	Description
LML = Leaking Main Line	1	Smoke from splash pad drain
CB = Catch Basin	2	Smoke from broken clean out cap
LMH = Leaking Manhole	3	Smoke from lawn area
OCO = Open Cleanout	4	Smoke from lawn area
PHV = Plugged House Vent	-	
RD = Roof Drain		

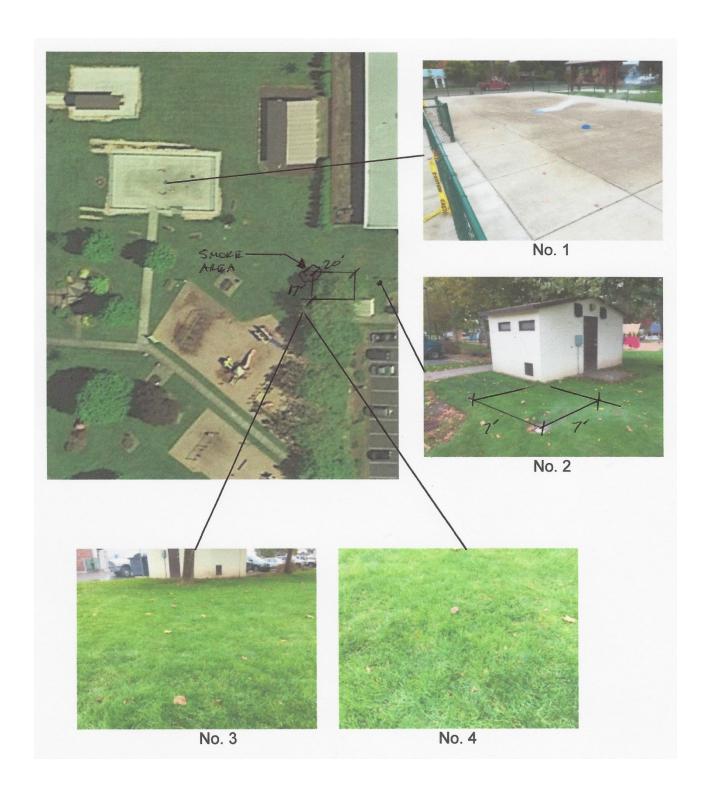
Comments

- See attached aerial for locations.
- Picture No. 1 Smoke coming up from the new splash pad play area drain.
- Picture No. 3 & 4 Approximate 10 sq. ft. area in the lawn was smoking. No cleanout found. Assumed to be broken sewer lateral or main. 20' north and 17' west of northwest bathroom corner.
- •

.

SKETCH

See Attached



Repaired on WO#3150

The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		Metzler Ave.	
Project Name :	-	Location / Address	:
100.26	2-63	BC_A3	BC_A3_2
Project No.	Report No.	Basin:	MH No. / Main:
Ryan Quigley			Wednesday, October 18, 2017
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Smoke from mainline cleanout cover

Comments

Smoke from mainline cleanout cover located at 4th St. and Metzler Ave.

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		1000 Harvey Ln	
Project Name :		Location / Address:	
100.26 3-4		BC_C BC_C_10 to BC_C_22	
Project No.	Report No.	Basin:	MH No. / Main:
Andy Hall			10/16/17
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open Cleanout

Comments

•	Cleanout has broken pipe and missing lid.
•	
•	
•	
•	

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		1413 Meadowlawn PL		
Project Name :		Location / Addres	s:	
100.26	3-5	BC_C	BC_C_26 to BC_C_59	
Project No.	Report No.	Basin:	MH No. / Main:	
Andy Hall			10/16/17	
Tested By:			Date:	

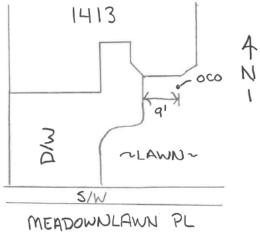
TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 Open Cleanout

Comments

•	Cleanout has broken lid.
•	
•	
•	

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

 Molalla Smoke Testing
 1419 Meadowlawn PL

 Project Name :
 Location / Address:

 100.26
 3-6
 BC_C
 BC_C_26 to BC_C_59

 Project No.
 Report No.
 Basin:
 MH No. / Main:

 Andy Hall
 10/16/17

 Tested By:
 Date:

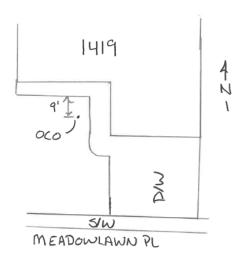
TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open Cleanout

Comments

- Cleanout does not have lid.
- .
- •

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing 737 Trinity Ct			
Project Name :		Location / Address:	
100.26 3-9		TL TL_SB6_2 to TL_SB6_3	
Project No.	Report No.	Basin:	MH No. / Main:
Andy Hall			10/16/17
Tested By:			Date:

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 Open Cleanout

Comments

•	Above grade cleanout does not have lid.
•	
•	
•	

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		730 Trinity Ct		
Project Name :		Location / Address:		
100.26	3-10	TL	TL_SB6_2 to TL_SB6_4	
Project No.	Report No.	Basin:	MH No. / Main:	
Andy Hall			10/16/17	
Tested By:			Date:	

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 Open Cleanout?

Comments

<u> </u>	
•	Behind gate. Could not confirm (Private property).
•	
•	
•	

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		707 Toliver Road		
Project Name :		Location / Address:		
100.26 3-11		TL	TL_ 27 to TL_28	
Project No.	Report No.	Basin:	MH No. / Main:	
Andy Hall			10/16/17	
Tested By:			Date:	

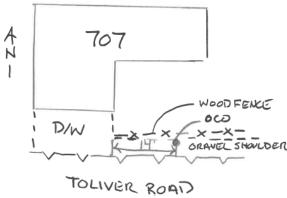
TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open Cleanout

Comments

•	Broken cleanout lid.
•	
•	
•	
•	

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		Lakota Ln (Near Toliver Road)		
Project Name :		Location / Address:		
100.26	3-12	TL	TL_ 24 to TL_25	
Project No.	Report No.	Basin:	MH No. / Main:	
Andy Hall			10/16/17	
Tested By:			Date:	

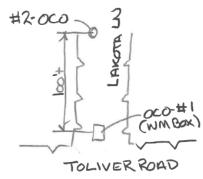
TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 Open Cleanout 2 Open Cleanout ———————————————————————————————————

Comments

- Photo 1: Water meter lid smoking below grade.
- Photo 2: Smoke around cleanout lid and cracks in pavement.
- .
- •
- •

SKETCH







The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke	e Lesting	405 Ridings	Avenue
Project Name :		Location / Addres	SS:
100.26	3-13	TL_F	TL_F_2 to TL_F_29
Project No.	Report No.	Basin:	MH No. / Main:
Andy Hall			10/17/17
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open Cleanout

Comments Above grade cleanout lid has holes drilled in top.

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke	e Testing	406 Ridings	Avenue
Project Name :		Location / Addres	SS:
100.26	3-14	TL_F	TL_F_2 to TL_F_20
Project No.	Report No.	Basin:	MH No. / Main:
Andy Hall			10/17/17
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open Cleanout Open Cleanout

Comments

•	Cleanout has grated lid.
•	
•	
•	

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke	e Testing	W Heintz Str	eet
Project Name :		Location / Addres	is:
100.26	3-17	TL_F	East of MH TL_F_11
Project No.	Report No.	Basin:	MH No. / Main:
Andy Hall			10/17/17
Tested Bv:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open Cleanout

Comments

Cleanout lid recessed below pavement grade. Smoke coming from sides of lid and center.

Cleanout lid recessed below pavement grade. Smoke coming from sides of lid and center.

Cleanout lid recessed below pavement grade. Smoke coming from sides of lid and center.

Cleanout lid recessed below pavement grade. Smoke coming from sides of lid and center.

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		Lynn Ln.	
Project Name :		Location / Addres	SS:
100.26	3-19	TL_F	West of MH TL_F_18
Project No.	Report No.	Basin:	MH No. / Main:
Andy Hall			10/17/17
Tested By:			Date:

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open Cleanout Open Cleanout

Comments

Cleanout pipe broken next to ditch.

Cleanout pipe broken next to ditch.

Cleanout pipe broken next to ditch.

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

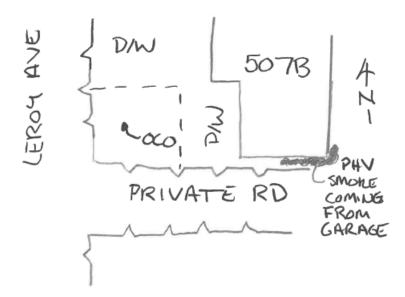
Molalla Smok	e Testing	509 & 507B	Leroy Avenue (Map shows same lot)
Project Name :		Location / Addres	SS:
100.26	3-20	TL_F	TL_F_9 to TL_F_18
Project No.	Report No.	Basin:	MH No. / Main:
Andy Hall			10/17/17
Tested By:			Date:

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description None Output

Comments

- OCO (509 Leroy Ave): Cleanout had cast iron lid but was smoking from sides in yard.
- PHV (507B Leroy Ave): Garage off of house 507B had smoke coming from underneath.
- •
- ___

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		317 Leroy Avenue	
Project Name :		Location / Address:	
100.26	3-21	BC_A4	BC_A4_1 to BC_A4_2
Project No.	Report No.	Basin:	MH No. / Main:
Andy Hall			10/17/17
Tested By:			Date:

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 Open Cleanout

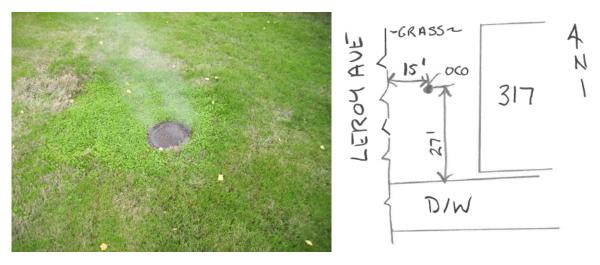
Comments

Cleanout with cast iron lid smoking from sides of lid in yard.

Cleanout with cast iron lid smoking from sides of lid in yard.

Cleanout with cast iron lid smoking from sides of lid in yard.

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		Les Schwab	
Project Name :		Location / Address:	
100.26	3-22	TL_SB10	TL_SB10_1 to TL_SB10_2
Project No.	Report No.	Basin:	MH No. / Main:
Andy Hall			10/17/17
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 Open Cleanout

Comments

•	Broken cleanout pipe.
•	
•	
•	

SKETCH



Repaired on WO#3224

The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing 453 Industrial Way Project Name: Location / Address: BC_SB2_6 to BC_SB2_8 MH No. / Main: 100.26 BC_SB2 Project No. Report No. Basin: Andy Hall 10/17/17 Tested By: Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open Cleanout

Comments

<u> </u>	
•	Smoke coming from ground at base of cleanout riser pipe.
•	
•	
•	

SKETCH



-00 (BC-5B2-6) (453 INDUSTRIAL WAY)

The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		1406 W Main Street	
Project Name :		Location / Address:	
100.26	3-25	BC_B	BC_B_10 to BC_B_15
Project No.	Report No.	Basin:	MH No. / Main:
Andy Hall			10/17/17
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open Cleanout

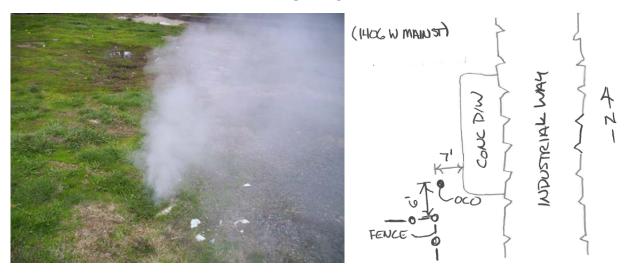
Comments

Cleanout pipe broken at surface.

Cleanout pipe broken at surface.

Cleanout pipe broken at surface.

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		500 W Main St (O'Reilly Auto Parts)		
Project Name :		Location / Address:		
100.26	3-27	BC_A2	BC_A_41 to BC_A2_2	
Project No.	Report No.	Basin:	MH No. / Main:	
Andy Hall			10/17/17	
Tested By:			Date:	

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open Cleanout

Comments

•	Broken cleanout cap.
•	
•	
•	
•	

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

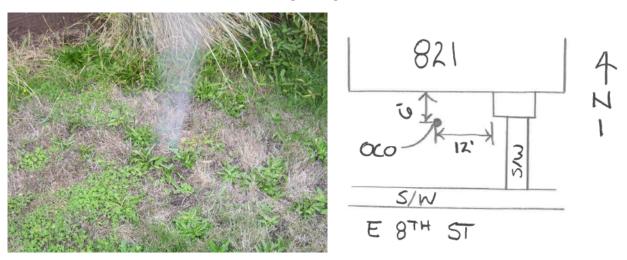
Molalla Smoke	e Testing	821 E 8" Stree	et
Project Name :		Location / Address:	
100.26	3-29	TL_A1	TL_A1_1 to TL_A1_6
Project No.	Report No.	Basin: MH No. / Main:	
Andy Hall			10/17/17
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open Cleanout

Comments

- Cleanout has grated lid.
- •

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke	e Testing	802 Mathias	Ct.
Project Name :		Location / Address	S:
100.26	3-30	TL_A1 TL_A1_4 to TL_A1_6	
Project No.	Report No.	Basin:	MH No. / Main:
Andy Hall			10/17/17
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open Cleanout

Comments

Cleanout does not have cap.

Illustration

Cleanout does not have cap.

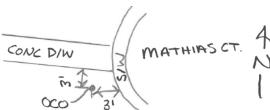
Illustration

Cleanout does not have cap.

SKETCH







The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		E 7 th Street		
Project Name :		Location / Address	S:	
100.26	3-31	TL_A2	East of TL_A2_5	
Project No.	Report No.	Basin:	MH No. / Main:	
Andy Hall			10/17/17	
Tested By:			Date:	

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 Open Cleanout

Comments

Smoke coming from cracks in asphalt around cleanout lid.

SKETCH



Repaired on WO#3445

The Dyer Partnership, Engineers & Planners, Inc.

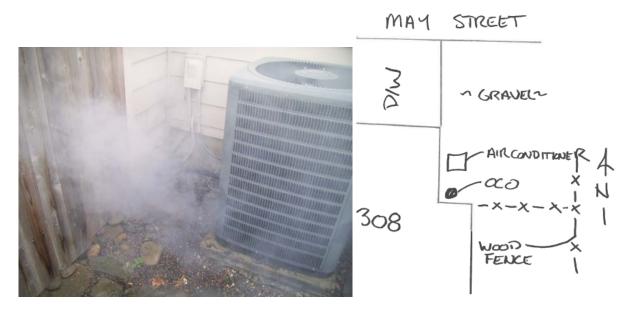
Molalla Smoke Testing		308 May Street	
Project Name :		Location / Address	S:
100.26 3-33		BC_A1	BC_A1_4 to BC_A1_5
Project No.	Report No.	Basin:	MH No. / Main:
Andy Hall			10/18/17
Tested By:			Date:

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open Cleanout?

Comments

Could not identify source of smoke.
Image: Could not

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		612 S Molalla Avenue	
Project Name :		Location / Addres	S:
100.26	3-36	BC_A	BC_A_15 to BC_A_16
Project No.	Report No.	Basin:	MH No. / Main:
Andy Hall			10/18/17
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 Open Cleanout

Comments

Cleanout does not have cap.

Cleanout does not have cap.

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		508 Metzler Avenue	
Project Name :		Location / Addres	S:
100.26 3-37		BC_A BC_A_14 to BC_A_24	
Project No.	Report No.	Basin:	MH No. / Main:
Andy Hall			10/18/17
Tested By:			Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open Cleanout

Comments

Cleanout smoking around cast iron lid. Plastic cleanout cap behind cast iron lid also smoking.

Cleanout smoking around cast iron lid. Plastic cleanout cap behind cast iron lid also smoking.

Cleanout smoking around cast iron lid. Plastic cleanout cap behind cast iron lid also smoking.

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		604 S Molalla Avenue		
Project Name :		Location / Addres	s:	
100.26	3-38	BC_A	East of BC_A_24	
Project No.	Report No.	Basin:	MH No. / Main:	
Andy Hall			10/18/17	
Tested By:			Date:	

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 Open Cleanout

Comments

- OCO (Apartment No. 9): Smoke coming from cleanout pipe at ground level in brush.
- PHV (Apartment No. 3): Smoke coming from bathroom sink.
- •
- •

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		205 W 4 th Street		
Project Name :		Location / Addres	s:	
100.26 3-41		BC_A East of BC_A_10		
Project No.	Report No.	Basin:	MH No. / Main:	
Andy Hall			10/18/17	
Tested By:			Date:	

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open Cleanout

Comments

•	Smoke coming from broken cleanout cap.
•	
•	
•	

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		1015 Mountain View		
Project Name :		Location / Addres	s:	
100.26	4-6	BC_C	BC C 49 to BC C 50	
Project No.	Report No.	Basin:	MH No. / Main:	
Tyler J. Molatore			10/16/2017	
Tested By:			Date:	

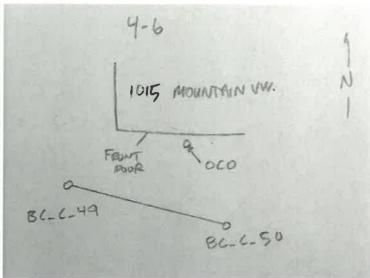
TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open cleanout

Comments

- Open cleanout located immediately to the right of the front door. Right next to hose reel.
- Also refer to aerial on following page.

SKETCH





AERIAL



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		1045 Cascade Lane		
Project Name :		Location / Addres	s:	
100.26	4-7	BC_C	BC_C 39 to BC_C 46	
Project No.	Report No.	Basin:	MH No. / Main:	
Tyler J. Molatore			10/16/2017	
Tested By:			Date:	

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open cleanout

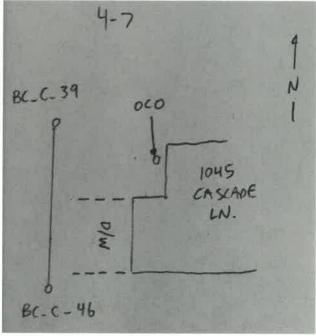
Comments

- Open cleanout located about 10 ft to the left of the front door. Right in front of the front window.
- Also refer to aerial on following page.

- .

SKETCH





AERIAL



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		906 Toliver Rd		
Project Name :		Location / Addre	SS:	
100.26	4-8	TL	TL 31 and TL 32	
Project No.	Report No.	Basin:	MH No. / Main:	
Tyler J. Molatore			10/16/2017	
Tested By:			Date:	

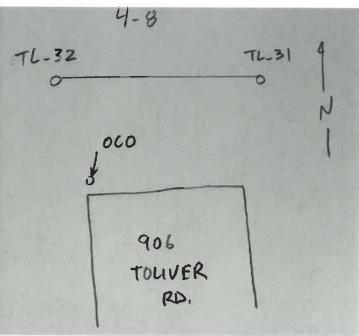
TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open cleanout

Comments

- Open cleanout. House was undergoing some landscaping and upgrades. Open cleanout may only be temporary.
- Also refer to aerial on following page.
- .

SKETCH





AERIAL



The Dyer Partnership, Engineers & Planners, Inc.

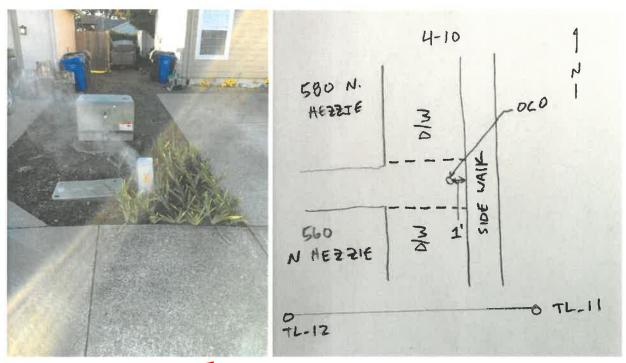
Molalla Smoke Testing Project Name:		580 N. Hezzie Location / Address:		
100.26	4-10	TL	TL_11 to TL_12	
Project No.	Report No.	Basin:	MH No. / Main:	
Tyler J. Molatore			10/16/2017	
Tested By:			Date:	

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open cleanout

Comments

- Open cleanout adjacent to electrical box, in between driveways.
- Also refer to aerial on following page.
- _

SKETCH



AERIAL



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		806 Toliver Rd		
Project Name :		Location / Addre	SS:	
100.26	4-11	TL	TL 30 to TL 42	
Project No.	Report No.	Basin:	MH No. / Main:	
Tyler J. Molatore			10/16/2017	
Tested Bv:			Date:	

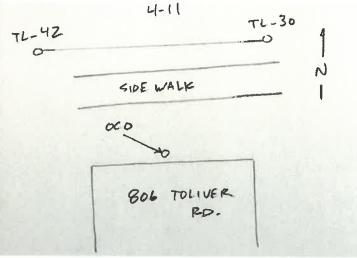
TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open cleanout

Comments

	Open cleanout located to the right of the front porch.
•	

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

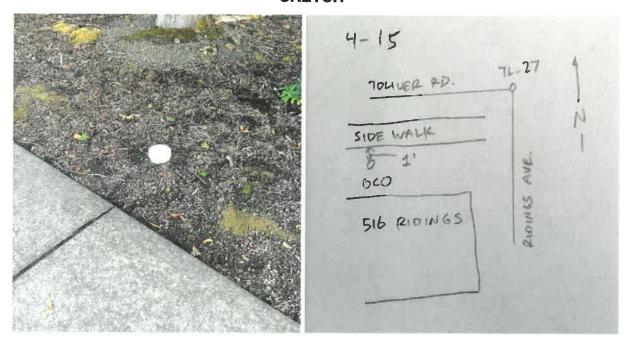
Molalla Smoke Testing		516 Ridings		
Project Name :		Location / Address:		
100.26	4-15	TL	TL_27 and TL_28	
Project No.	Report No.	Basin:	MH No. / Main:	
Tyler J. Molatore		10/16/2017		
Tested By:			Date:	

TESTING CODE	Photographs
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open cleanout

Comments

	Open cleanout west of side walk. Exposed pipe was cracked.
•	

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing		745 Zepher Way	
Project Name :		Location / Addre	SS:
100.26	4-16	TL	TL SB4 2 and TL SB4 3
Project No. Report No.		Basin:	MH No. / Main:
Tyler J. Molatore			10/17/2017
Tested By:			Date:

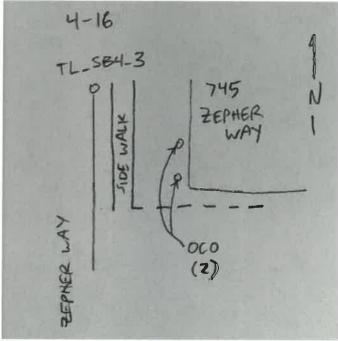
TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Two open cleanouts

Comments

- Two open cleanouts located approximately two and five feet from north side of drive way.
- ___
- _

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

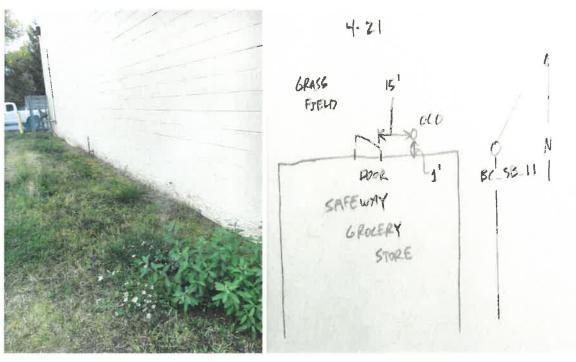
Molalla Smoke Testing 1535 Highway 211 Project Name : Location / Address: 100.26 BC SB1 11 to SB SB1 6 4-21 BC SB1 Project No. Report No. MH No. / Main: Basin: Tyler J. Molatore 10/17/2017 Tested By: Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open cleanout

Comments

- There was an open cleanout to the north of the Safeway building. The pipe is a few inches below ground level, and probably receives quite a bit of inflow.
- Also refer to aerial on following page.
- •
- •
- .

SKETCH



AERIAL



The Dyer Partnership, Engineers & Planners, Inc.

825 East 7th St. Molalla Smoke Testing Project Name : Location / Address: 100.26 4-25 TL A2 TL A2 2 and TL A2 5 Project No. Report No. MH No. / Main: Basin: Tyler J. Molatore 10/17/2017 Tested By: Date:

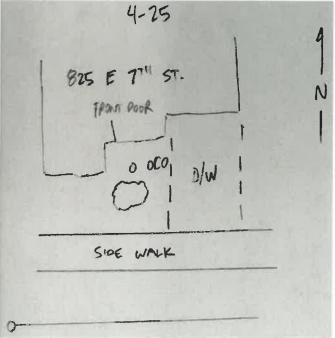
TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open cleanout

Comments

- Open cleanout located immediately to the right of the front door.
- __
- ___
- -

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

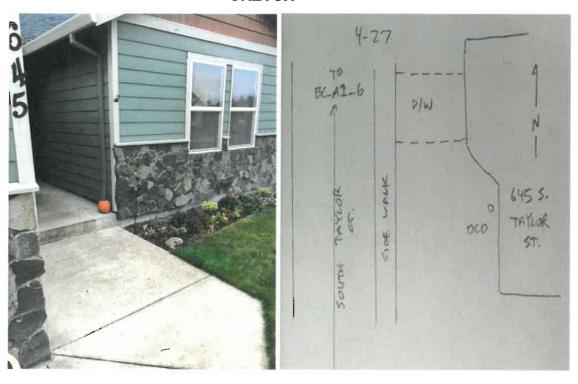
Molalla Smoke Testing 645 South Taylor Street Project Name : Location / Address: 100.26 4-27 BC A1 BC_A1_6 and BC_A1_16 Project No. Report No. Basin: MH No. / Main: Tyler J. Molatore 10/18/2017 Tested By: Date:

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open cleanout

Comments

- Open cleanout located immediately to the right of the walk way, in the flower patches. It was leaking around the cleanout, suggesting something deficient underground.
- 8

SKETCH



The Dyer Partnership, Engineers & Planners, Inc.

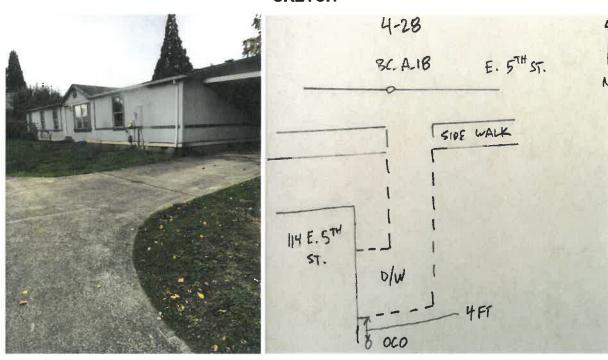
Molalla Smok	e Testing	114 East 5th		
Project Name :		Location / Addres	s:	
100.26	4-28	BC A	BC_A_17 and BC_A_18	
Project No.	Report No.	Basin:	MH No. / Main:	
Tyler J. Molat	ore		10/18/2017	
Tested By:			Date:	

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description 1 Open cleanout

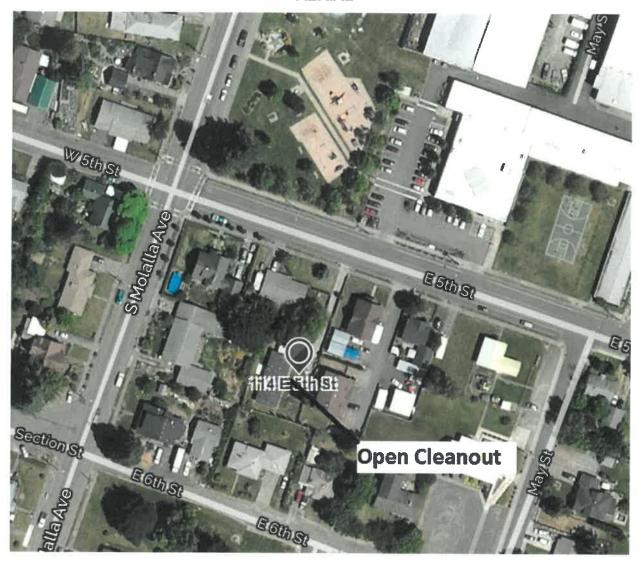
Comments

- Open cleanout located south of the concrete drive way, and just north of the electric meter.
- Also refer to aerial on following page.
- _
- _

SKETCH



AERIAL



The Dyer Partnership, Engineers & Planners, Inc.

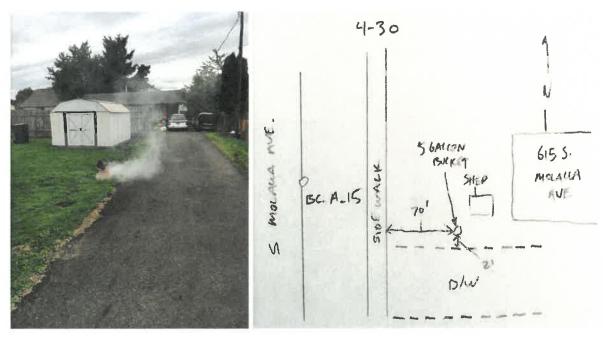
Molalla Smoke Testing		615 South Molalla		
Project Name :		Location / Addres	S:	
100.26	4-30	BC_A	BC_A_15 and BC_A1_1	
Project No.	Report No.	Basin:	MH No. / Main:	
Tyler J. Molate	ore		10/18/2017	
Tested By:			Date:	

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open cleanout

Comments

- Open cleanout is located to the north of the drive way. Suspected cleanout has 5 gallon bucket and concrete footing located above it. Smoke exited rapidly.
- Also refer to aerial on following page.
- Also refer to derial off following page

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

Molalla Smoke Testing 612 South Molalia Project Name : Location / Address: 100.26 4-32 BC A BC_A_15 and BC_A_16 Project No. Report No. MH No. / Main: Basin: Tyler J. Molatore 10/18/2017 Tested By: Date:

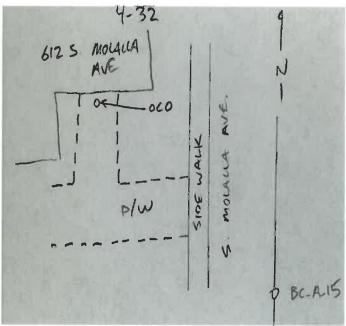
TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open cleanout

Comments

- Open cleanout located north of the driveway, immediately adjacent to the house.
- _

SKETCH





The Dyer Partnership, Engineers & Planners, Inc.

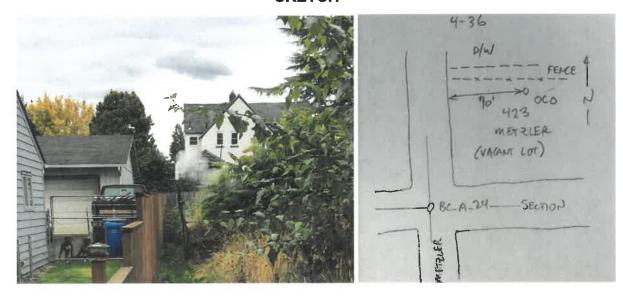
Molalla Smoke To	esting	370 Metzler		
Project Name :		Location / Address:		
100.26	4-36	BC A	BC_A_16 and BC_A_26	
Project No.	Report No.	Basin:	MH No. / Main:	
Tyler J. Molatore			10/18/2017	
Tooted Dur			Date:	

TESTING CODE	PHOTOGRAPHS
LSL = Leaking Service Lateral LML = Leaking Main Line CB = Catch Basin LMH = Leaking Manhole OCO = Open Cleanout PHV = Plugged House Vent RD = Roof Drain	No. Description Open cleanout

Comments

- Open cleanout located to the south of the fence. Pipe extends approximately six feet into the air.
 Property is an abandoned house.
- Also refer to aerial on following page.
- -

SKETCH



AERIAL



APPENDIX C 2018 FLOW POKING REPORT

City of Molalla Clackamas County, Oregon

I/I FLOW MAPPING

OCTOBER 2018





The Dyer Partnership Engineers & Planners, Inc.

1330 Teakwood Avenue Coos Bay, Oregon 97420 (541) 269-0732 Fax (541) 269-2044 www.dyerpart.com 759 West Central Avenue Sutherlin, Oregon 97479 (541) 459-4619

Project No. 100.26

1165 South Park Street Lebanon, Oregon 97355 (541) 451-0089

City of Molalla Clackamas County, Oregon

I/I Flow Mapping

October 2018

Project No. 100.26



EXPIRES: 12/31/2019



The Dyer Partnership Engineers & Planners, Inc.

1165 S. Park St. Lebanon, Oregon 97355 (541) 405-4520 www.dyerpart.com

Table of Contents

SECTION 1	: EXECUTIVE SUMMARY	
1.1	Executive Summary	1-1
SECTION 2	2: INTRODUCTION	
2.1	General	2-1
2.2	Scope of Study	2-1
SECTION 3	B: EXISTING CONDITIONS	
3.1	Field Investigation	3-1
3.2	Flow Mapping	3-2
SECTION 4	: CONCLUSIONS AND RECOMMENDATIONS	
4.1	Summary	4-1
APPEND	DICES	
Appendix A Appendix B	Key Map I/I Flow Mapping (Figures A. B. C. and D)	

SECTION 1:

EXECUTIVE SUMMARY

SECTION 1: EXECUTIVE SUMMARY

1.1 Executive Summary

The following report summarizes a wastewater collection system study performed for the City of Molalla (City). Continuous strain upon the City's wastewater treatment system has prompted this study to alleviate specific problems within the collection system. Findings identified can assist the City in locating and isolating deficiencies that when repaired will result in a reduction of infiltration and inflow (I/I) problems occurring within the collection system.

The following report is the culmination of a detailed investigation of I/I in the City of Molalla's wastewater collection system. The project included the following investigative efforts that are summarized within this report:

- Preliminary investigation,
- Flow field survey (flow measurements in manholes),
- Flow mapping,
- Analysis and report.

There was a wide range of deficiencies found in the City of Molalla. These problems burden the City's wastewater treatment plant by increasing hydraulic loading. If gone unchecked, the wastewater collection system will continue to degrade, I/I will increase and thereby occupying valuable WWTP capacity, increasing treatment cost and cause increasing wear on wastewater process equipment.

SECTION 2:

INTRODUCTION

SECTION 2: INTRODUCTION

2.1 General

Infiltration and inflow (I/I) is an ongoing problem affecting many Oregon communities, including the City of Molalla. Infiltration and inflow, which is defined as groundwater and rainwater that enters a sanitary sewer collection system, creates many wastewater related problems. Rain induced sewer flows can hydraulically overload a wastewater treatment plant or pump station, increase the cost of operations, potentially cause a discharge of inadequately treated effluent, and lead to regulatory compliance issues. Wastewater collection systems continue to degrade over time, if gone unchecked I/I will increase. In addition, I/I can cause flows to exceed the capacity of the pipes, compromising the collection system and overloading a wastewater treatment plant.

2.2 Scope of Study

This report is intended to assist the City of Molalla's ongoing maintenance of the collection system for the reduction of I/I.

Field Survey

Field surveys were performed to identify I/I by taking instantaneous flow measurements at selected manholes within the collection system. Each manhole at the flow measuring locations was inspected for defects leading to ground water infiltration and surface inflow.

Flow Mapping

The results from the flow mapping were utilized to determine potential areas with significant sources of I/I.

Conclusions and Recommendations

Conclusions and recommendations were developed that identify portions of the City of Molalla's sewer collection system that need improvement work or further investigation. Television inspection of these areas is anticipated to provide confirmation and exact locations of these additional sources of I/I.

SECTION 3:

EXISTING CONDITIONS

SECTION 3: EXISTING CONDITIONS

3.1 Field Investigation

Field investigations were performed on January 29, 2018 to determine the quantity and sources of extraneous water that enters Molalla's sewer collection system. Potential sources of infiltration include: manhole joint failure, manhole channel defects, cracks in pipes, pipe joint failures, leaking pipe penetrations, and root intrusions. Potential sources of inflow include storm drains, roof drains, and contributions from manhole lids or open clean-outs.

Flow measurements consisted of instantaneous water depth recording using "Flow Poke" equipment at incoming pipe segments within manholes as well as general observations. Flow measurements were conducted by two crews of two persons each, including one person from City staff. Crews moved from manhole to manhole in as short a time as possible between 10:30 P.M. and 5:00 A.M., when domestic and commercial sewage contributions were minimal.

Flow measurements were taken at selected manholes by using portable Flow Poke equipment. These meters allowed the flow mapping team to take instantaneous measurements without physically entering the manhole. The flow meter measures water depth across a V-notch weir and can be used for pipes up to 12-inches in diameter. Accuracy is plus or minus five percent for flows up to 640 gallons per minute (gpm). This accuracy is considerably higher than having to physically measure the water depth, as was done prior to the invention of the portable flow 'flow poke equipment.' When flows were encountered that were less than 5 gpm, no further investigation was performed in the upstream collection system.

By determining the relative increases in measured flow between manhole sections, problem areas can be identified and prioritized. The flow poking indicated a number of deficiencies that need to be addressed. The findings are summarized as follows:

Flow Poking Findings

- Excess flow of 24 gpm along Fenton Avenue from TL_B_19 to TL_B_22, and including TL_B_21 to TL_B_24 along Kimberly Court.
- Excess flow of 32 gpm along Patrol St. from TL_B_2 to TL_B_27.
- Manhole TL_B_2 has leakage.
- Excess flow of 80 gpm from TL_5 to TLA_48 along Grange Avenue, from TL_A_48 to TL_A_30 along E Main Street, and along Lola Avenue from TL_A_33 to TL_A_22.
- Manhole TL A 30 has leakage.
- Excess flow of 14 gpm from TL_A_22 on East 2nd to TL_A_18 on Eckerd Avenue.
- Excess flow of 18 gpm from TL A 18 to TL A 16 along Eckerd Avenue.
- Excess flow of 14 gpm along S. Swiegle from BC_A3_17 to BC_A3_7.
- Excess flow of 10 gpm along Berkley Avenue from BC_A3_12 to clean-out located south of BC_A3_14 near East 5th St.
- Excess flow of 18 gpm from BC_A3_18 on East Main Street, to BC_A3_12 on Berkley Avenue.
- Excess flow of 38 gpm from TL_A_28 to TL_A_26 along East Main Street.
- Excess flow of 23 gpm beginning at the S. Molalla Pump Station, continuing to manhole BC_A1_2, and terminating at the clean-out located east of manhole BC_A1_3. Additional smoke testing and TVing is recommended. A portion of this sewer line extends into an abandoned subdivision that presents a higher risk of infiltration and inflow.

- Excess flow of 16 gpm beginning at manhole BC_A3_21 and continuing south on Metzler to BC_A3_2, terminating at clean-out at the intersection of Metzler and West 4th Street.
- Excess flow of 14 gpm beginning at BC_A3_20 along S. Molalla Avenue, and continuing to BC_A3_3, and terminating at a clean-out located in the City Park. Includes service laterals extending east on 2nd Street.
- Excess flow of 12 gpm beginning at TL_A2_6, continuing south on S. Cole Avenue until TL_A2_4, and then continuing east on East 7th Street until TL_A2_3.
- Excess flow of 11 gpm starting at TL_A2_3 and terminating at the clean-out east of manhole TL_A2_5.
- Manhole TL_A2_6 has leakage.
- Excess flow of 10 gpm beginning at TL_B_2 along North Cole Avenue, and terminating at the clean-out south of TL_B_31, including TL_B_29 along Garden Court until TL_B_4.
- Excess flow of 15 gpm beginning at TL_B_8 along Oak Street, and continuing to clean-out east of TL_B_12.
- Excess flow of 10 gpm beginning at TL_B_8 on East Heintz Street to TL_B_9, continuing to TL_B_10 on East Park Avenue.
- Manhole TL_C_6 has leakage.
- Manhole TL_C_4 has leakage.
- Excess flow of 10 gpm beginning at BC_B_1 along South Molalla Forest Road to BC_B_18. Includes 8" sewer line extending west to BC_B_10.
- Excess flow of 10 gpm beginning at BC C 71 along Meadowlawn Place to BC C 59.
- Manhole TL_50 has leakage.
- Manhole TL_28 has leakage.
- Manhole TL_F_22 has leakage.
- Manhole BC_A_47 has leakage.
- Manhole BC_A_39 has leakage.
- Excess flow of 10 gpm beginning at TL_A1_5, continuing to TL_A1_1 on East 8th Street, continuing east on East 8th Street until TL_A1_6, and then terminating at the clean-out at the end of Mathias Court. Additional inspections and TVing is required in subbasin TL_A1 to determine deficiencies.
- Manhole BC A 45 has leakage.
- Excess flow of 10 gpm beginning at TL_C2_11 along Explorer Avenue, continuing to TL_C2_6 along Escort Street, continuing to TL_C2_5 along Bronco Avenue, and continuing along Glory Ln to TL_C2_1. Includes TL_C2_15 along Probe Street terminating at TL_C2_16. Additional inspections and TVing is required in subbasin TL_C2 to identify and isolate deficiencies.

Based on visual inspections of numerous manholes, excess flow was present on the Bear Creek main, from manhole TL_40 to BC_A_45. Excess flow was also identified on the Toliver main, from manhole TL_46 continuing to TL_39 to TL_20 along Toliver Road, from TL_20 to TL_19 along Kennel Avenue, and from TL_19 to TL_2 along East Heintz Street. These lines require TV viewing to identify deficiencies.

3.2 Flow Mapping

Flow mapping results, using the City's existing collection system map, are provided in the Appendices. Appendix A is a Key Map indexing the locations of the flow maps provided in Appendix B. Appendix B includes Figures A, B, C, and D. Line segments have been color coded to illustrate the approximate I/I flow that was measured and recorded.

SECTION 4:

CONCLUSIONS AND RECOMMENDATIONS

SECTION 4: CONCLUSIONS AND RECOMMENDATIONS

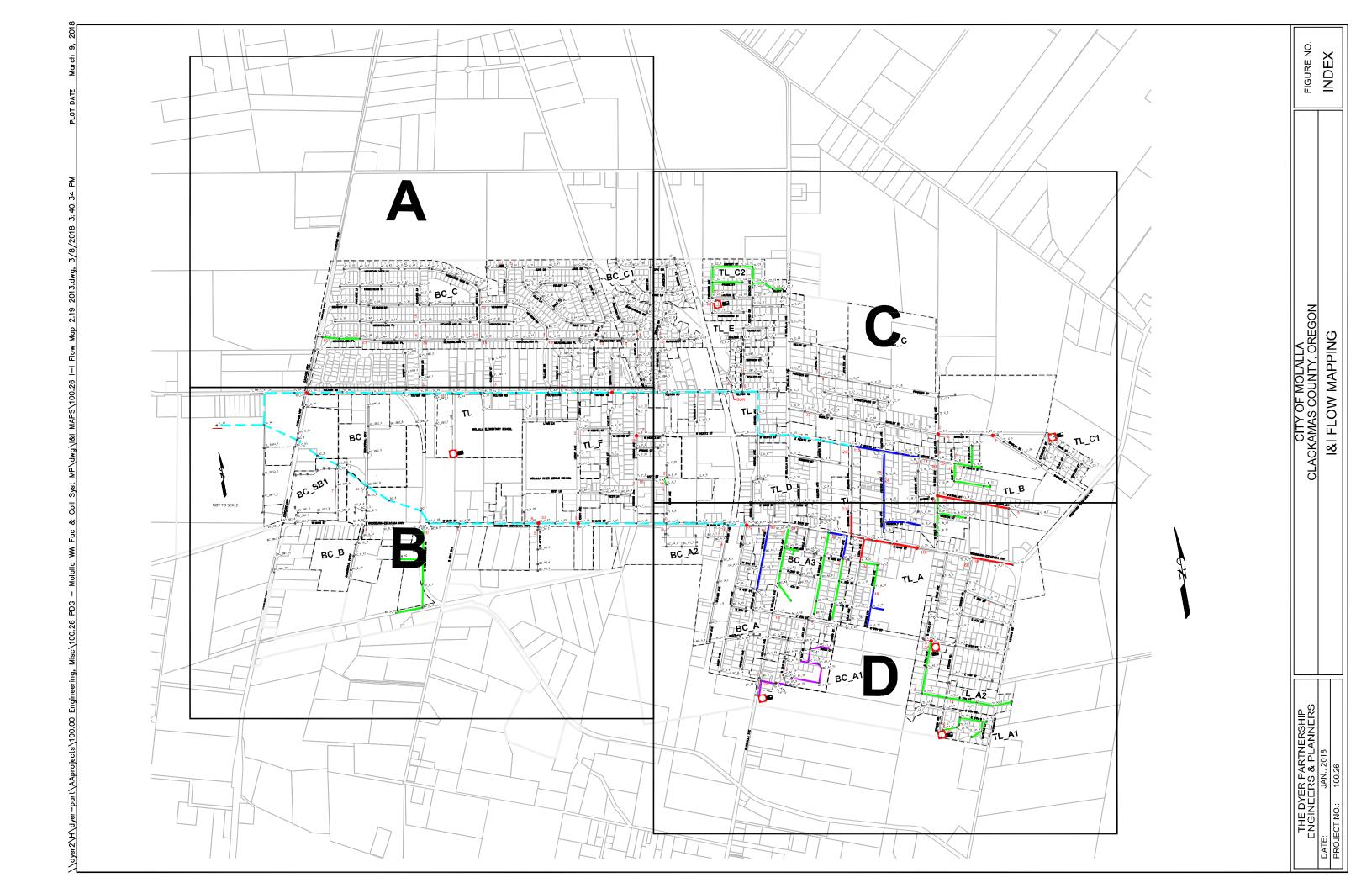
4.1 Summary

Infiltration and inflow is a major problem with the City's collection system. Several areas with high infiltration and inflow were identified during field investigations. High infiltration rates will likely require subsequent investigations performed by the City (i.e. television inspection), and smoke testing of select areas to refine the scope of work related to each I/I repair project. Field investigations also revealed several manholes that were leaking. Manhole repairs can be performed without further investigation.

Cost estimates will be provided in the City's Wastewater Facility and Collection System Master Plan for high priority areas. Conservatively, cost estimates will be based on full main line and manhole replacement. However, prior to design, each area should be further investigated to determine the best approach to addressing each collection system deficiency and mitigating infiltration and inflow.

APPENDICES

APPENDIX A: KEY MAP



APPENDIX B: I/I Flow Mapping (Figures A, B, C, and D)



