Site Visit Summary

Arcadis and MSDGC visited all the CSOs in the Ludlow Project Area. Maps and CSO sketches were provided for each CSO location (see attached). Photos were taken and have been included in this summary.

**CSO 151/109**
- These two locations are on the northern end of the project area in a wooded area. CSO 151 is accessed from a gravel road from Groesbeck Road. CSO 109 is accessed from dead-end of Redcedar Road.
- MSDGC commented that maintenance requirements at these locations are limited due to low activations. Arcadis requested CSO maintenance reports for all CSOs as a result of this discussion.
- No comments on additional data needs at this time.

**CSO 110**
- CSO is accessed from Edna Street. GIS data does not include some invert data, the structure sketches will be reviewed to complete missing data information.

**CSO 111/112**
- CSO 111 has been moved to the street for better access. GIS data does not include some invert data, the CSO structure sketches will be reviewed to complete missing information.
- CSO 112 is located behind a resident’s house and permission was given by property owner during site visit to view the diversion structure. No comments on additional data needs at this time.
- A resident reported high storm water flows through the area during storm events coming through the
culvert beneath Springlawn Avenue.

**CSO 162**

- Located upstream of where Ludlow Run enters into large box culvert. Accessed from behind business on Springlawn Avenue. No comments on additional data needs at this time.

**CSO 024**

- Largest of the CSOs located directly on the Mill Creek. No comments on additional data needs at this time.

**Ludlow Run Inlet to Closed Pipe**

- Large amount of debris on the trash rack at the inlet was observed.

**New Development**

- Arcadis requested information on current new development requests in the area and recent development builds to evaluate and understand their effects on the collection system.

**Attachments:**

- Site Handouts
CSO 151 Photos

Generated by: ARCADIS
CSO 110 Photos (cont’d)
CSO 112 Photos

NOTICE: CSO 112
Combined Sewer Overflow
Untreated storm water and sewage may discharge during and after rainfall. May contain harmful bacteria.

[Images of various photos related to CSO 112, including a notice sign, an open manhole, and a map view.]
CSO 112 (storm channel through adjacent yard)
Ludlow Run Inlet Photos (cont’d)
Survey of manhole rim (location as marked in the field) conducted by LAND CONSULTANTS on 10/24/2017 on NGVD29: 817.53 FT

Distance from manhole rim (northern-most edge) to lowest point in overflow pipe (P2) measured by RJN on 12/1/2016: 8.41 FT

Rim Elevation: 817.53 FT
Distance to Pipe: 8.41 FT
Calculated Overflow Elevation: 809.12 FT
CSO SITE REPORT

NAME: GROESBECK GRATING
EPA STATION: 1PX00022403
LOCATION: SOUTH OF #1225 GROESBECK RD.
DRAINAGE AREA: SOUTH BRANCH MILL CREEK
INTERCEPTOR: AUX. MILL CREEK

VICINITY SKETCH:

[Diagram showing a map with labeled locations and measurements]

APARTMENT BUILDING
#1225
#1221
#1217
GROESBECK RD.
GRAVEL RD.

15" 15"

#151

54"

R.D. ZANDE & ASSOCIATES, INC.
<table>
<thead>
<tr>
<th>CSO TYPE: DROP GRATE OVERFLOW</th>
<th>CSO NO: 151</th>
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<tbody>
<tr>
<td><strong>COMMENTS:</strong></td>
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<tr>
<th><strong>DIVERSION STRUCTURE:</strong></th>
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<td>SIZE: 5.00'</td>
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</tr>
<tr>
<td>DIV. DAM HEIGHT 0.75'</td>
<td></td>
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<tr>
<td>DIV. DAM ELEV: NA</td>
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<tr>
<td>GRATE SIZE: NA</td>
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</tr>
<tr>
<td>COVER: VENT</td>
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</tr>
<tr>
<td>CONDITION: FAIR</td>
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<tr>
<th><strong>REGULATOR STRUCTURE:</strong></th>
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<td>DEPTH:</td>
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<td>COVER:</td>
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<td>CONDITION:</td>
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<td><strong>COMMENTS:</strong></td>
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<table>
<thead>
<tr>
<th><strong>PIPE SIZES:</strong></th>
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<tr>
<td>UPSTREAM OF STRUCTURE: 4.50'</td>
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<tr>
<td>DOWNSTREAM OF STRUCTURE: 4.50'</td>
<td></td>
</tr>
<tr>
<td>INTERCEPTOR: 8.00'</td>
<td></td>
</tr>
<tr>
<td>CONNECTING PIPE: 1.25'</td>
<td></td>
</tr>
<tr>
<td><strong>COMMENTS:</strong></td>
<td></td>
</tr>
</tbody>
</table>

| **HIGH WATER PROTECTION:**    | NO          |
| **TYPE:**                     |             |
| **CRITICAL RIVER STAGE:**     |             |
| **COMMENTS:**                 |             |

| **SAFETY:**                   |             |
| **TRAFFIC:**                  | NONE        |
| **GAS INVESTIGATION:**        | STD         |
| **STEPS:**                    | NONE        |
| **ACCESS:**                   | DIVERSION STRUCT. |
| **COMMENTS:**                 |             |

| **INDUSTRIAL INFORMATION:**   |             |
| **SEE NEXT PAGE FOR LISTING:**| □           |
| **NONE IN CSO TRIBUTARY AREA:**| ✓           |
Survey of manhole rim (location as marked in the field) conducted by LAND CONSULTANTS on 10/24/2017 on NGVD29: 807.56 FT

Distance from manhole rim (northern-most edge) to lowest point on overflow weir measured by RJN on 12/1/2016: 5.05 FT

Rim Elevation: 807.56 FT
Distance to Weir: 5.05 FT
Calculated Overflow Elevation: 802.51 FT
CSO SITE REPORT

CSO NO: 109

NAME: HILLCREST NORTH GRATING
EPA STATION: 1PX00022382

LOCATION: NORTH OF HILLCREST RD WEST OF
LUDLOW RUN CREEK

DRAINAGE AREA: SOUTH BRANCH MILL CREEK
INTERCEPTOR: AUX. MILL CREEK

VICINITY SKETCH:

24" OVERFLOW PIPE

8" ELEVATED 4 FT. +/-

#109

R.D. ZANDE & ASSOCIATES, INC.
CSO TYPE: DROP GRATE OVERFLOW
COMMENTS: SINGLE GRATE

DIVERSION STRUCTURE:
SIZE: 4.00'
DIV. DAM HEIGHT: NA
DIV. DAM ELEV: NA
GRATE SIZE: 1' X 1'
COVER: STD VENT
CONDITION: FAIR

REGULATOR STRUCTURE:
SIZE: NONE
GATE SIZE: 
DEPTH: 
COVER: 
CONDITION: BRICK MANHOLE
COMMENTS: 

PIPE SIZES:
UPSTREAM OF STRUCTURE: 1.67'
DOWNSTREAM OF STRUCTURE: 1.67'
INTERCEPTOR: 8.00'
CONNECTING PIPE: 0.67'
COMMENTS: 

HIGH WATER PROTECTION: NO
TYPE: 
CRITICAL RIVER STAGE: 
COMMENTS: 

SAFETY:
TRAFFIC: NONE
GAS INVESTIGATION: STD
STEPS: NONE
ACCESS: DIVERSION STRUCT.
COMMENTS: 

INDUSTRIAL INFORMATION:
SEE NEXT PAGE FOR LISTING: 
NONE IN CSO TRIBUTARY AREA
Survey of manhole rim (location as marked in the field) conducted by STANTEC on 8/16/2017 on NGVD29: 583.462 FT

Distance from manhole rim (northern-most edge) to lowest point on overflow weir measured by RJN on 12/1/2016: 5.44 FT

Rim Elevation 583.462 FT
Distance to Weir 5.44 FT
Calculated Overflow Elevation: 578.022 FT
CSO SITE REPORT

NAME: 4710 HOWARD GRATING
LOCATION: IN RAVINE BEHIND # 4716 HOWARD AV.
DRAINAGE AREA: SOUTH BRANCH MILL CREEK
INTERCEPTOR: AUX. MILL CREEK

VICINITY SKETCH:

EDNA AVE.

HOWARD AVE.

HART AVE.

R.D. ZANDER & ASSOCIATES, INC.
CSO TYPE: DROP GRATE OVERFLOW
CSO NO: 110

COMMENTS: SINGLE GRATE

DIVERSION STRUCTURE:
SIZE: 4.00'
DIV. DAM HEIGHT: 0.50'
DIV. DAM ELEV: NA
GRATE SIZE: 1' X 1'
COVER: STD VENT
CONDITION: FAIR

REGULATOR STRUCTURE:
SIZE: NONE
GATE SIZE:
DEPTH:
COVER:
CONDITION: BRICK MANHOLE
COMMENTS:

PIPE SIZES:
UPSTREAM OF STRUCTURE: 1.25'
DOWNSTREAM OF STRUCTURE: 1.25'
INTERCEPTOR: 8.00'
CONNECTING PIPE: 0.67'
COMMENTS:

HIGH WATER PROTECTION: NO
TYPE:
CRITICAL RIVER STAGE:
COMMENTS:

SAFETY:
TRAFFIC: NONE
GAS INVESTIGATION: STD
STEPS: NONE
ACCESS: DIVERSION STRUCT.
COMMENTS:

INDUSTRIAL INFORMATION:
SEE NEXT PAGE FOR LISTING: 
NONE IN CSO TRIBUTARY AREA 

R.D. Zande & Associates
1559 Spring Lawn Ave
Cincinnati, OH 45223

US and DS Invert Data
not available for small 8" segment & 60"
(2 pipes here from meter to CSO)

Legend

- mon_perm
- MSD_CS0-111 & 112
- MSD_Sewer_Lines
- MSD_Sewer_Manholes
Survey of manhole rim (location as marked in the field) conducted by LAND CONSULTANTS on 10/24/2017 on NGVD29: 562.26 FT

Distance from manhole rim (northern-most edge) to lowest point on overflow weir measured by RJN on 11/16/2016: 8.85 FT

Rim Elevation 562.26 FT
Distance to Weir 8.85 FT
Calculated Overflow Elevation: 553.41 FT
Survey of manhole rim (location as marked in the field) conducted by STANTEC on 8/16/2017 on NGVD29: 538.571 FT

Distance from manhole rim (northern-most edge) to lowest point on overflow weir measured by RJN on 12/1/2016: 4.53 FT

Rim Elevation: 538.571 FT
- Distance to Weir: 4.53 FT
Calculated Overflow Elevation: 534.041 FT
NAME: 1547 SPRINGLAWN GRATING

LOCATION: BEHIND # 1549 SPRINGLAWN AV.

DRAINAGE AREA: SOUTH BRANCH MILL CREEK

INTERCEPTOR: AUX. MILL CREEK

VICINITY SKETCH:
CSO TYPE: DROP GRATE OVERFLOW  
COMMENTS: SINGLE GRATE  

DIVERSION STRUCTURE:  
SIZE: 4.00'  
DIV. DAM HEIGHT: 0.20'  
DIV. DAM ELEV: NA  
GRATE SIZE: 1.5' X 1.5'  
COVER: STD VENT  
CONDITION: FAIR  

REGULATOR STRUCTURE:  
SIZE: NONE  
GATE SIZE:  
DEPTH:  
COVER:  
CONDITION:  
COMMENTS:  

PIPE SIZES:  
UPSTREAM OF STRUCTURE: 1.50'  
DOWNSTREAM OF STRUCTURE: 1.50'  
INTERCEPTOR: 8.00'  
CONNECTING PIPE: 0.67'  
COMMENTS:  

HIGH WATER PROTECTION: NO  
TYPE:  
CRITICAL RIVER STAGE:  
COMMENTS:  

SAFETY:  
TRAFFIC: NONE  
GAS INVESTIGATION: STD  
STEPS: NONE  
ACCESS: DIVERSION STRUCT.  
COMMENTS:  

INDUSTRIAL INFORMATION:  
SEE NEXT PAGE FOR LISTING: ☐  
NONE IN CSO TRIBUTARY AREA ☑
Survey of manhole rim (location as marked in the field) conducted by LAND CONSULTANTS on 10/24/2017 on NGVD29: 515.32 FT

Distance from manhole rim (northern-most edge) to lowest point on overflow weir measured by RJN on 3/29/2018: 6.34 FT

Rim Elevation 515.32 FT

Distance to Weir 6.34 FT

Calculated Overflow Elevation: 508.98 FT
CSO SITE REPORT

NAME: THOMPSON HEIGHTS GRATING
EPA STATION: 1PX00022404

LOCATION: 900' NORTH OF THE EAST TERMINUS OF THOMPSON HEIGHTS AV.

DRAINAGE AREA: SOUTH BRANCH MILL CREEK
INTERCEPTOR: AUX. MILL CREEK

VICINITY SKETCH:

LUDLOW RUN

LANGLAND

THOMPSON HGT.

#162

#1410

8''

18''

20''

24''

24''

12''

900'

R.D. ZANDE & ASSOCIATES, INC.
**CSO TYPE:** DROP GRATE OVERFLOW

**CSO NO:** 162

**COMMENTS:** SINGLE GRATE

**DIVERSION STRUCTURE:**

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<th>SIZE:</th>
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<tbody>
<tr>
<td>DIV. DAM HEIGHT</td>
<td>0.20'</td>
</tr>
<tr>
<td>DIV. DAM ELEV:</td>
<td>NA</td>
</tr>
<tr>
<td>GRATE SIZE:</td>
<td>1' X 1'</td>
</tr>
<tr>
<td>COVER:</td>
<td>STD VENT</td>
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<tr>
<td>CONDITION:</td>
<td>GOOD</td>
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**REGULATOR STRUCTURE:**

| SIZE: | NONE |
| GATE SIZE: | |
| DEPTH: | |
| COVER: | |
| CONDITION: | |
| COMMENTS: | |

**PIPE SIZES:**

- **UPSTREAM OF STRUCTURE:** 2.00'
- **DOWNSTREAM OF STRUCTURE:** 2.00'
- **INTERCEPTOR:** 8.00'
- **CONNECTING PIPE:** 0.67'
- **COMMENTS:**

**HIGH WATER PROTECTION:**

- **TYPE:**
- **CRITICAL RIVER STAGE:**
- **COMMENTS:**

**SAFETY:**

- **TRAFFIC:** NONE
- **GAS INVESTIGATION:** STD
- **STEPS:** FAIR
- **ACCESS:** DIVERSION STRUCT.
- **COMMENTS:**

**INDUSTRIAL INFORMATION:**

- SEE NEXT PAGE FOR LISTING: □
- NONE IN CSO TRIBUTARY AREA ✓
Legend

- Star: mon_perm
- Green Circle: MSD_CS0
- Blue Line: MSD_Sewer_Lines
- Black Circle: MSD_Sewer_Manholes

US and DS Invert Data not available for 18" Sewer

4108 Dane Ave
Cincinnati, OH 45223

Legend

- Star: mon_perm
- Green Circle: MSD_CS0
- Blue Line: MSD_Sewer_Lines
- Black Circle: MSD_Sewer_Manholes

4108 Dane Ave
Cincinnati, OH 45223

Legend

- Star: mon_perm
- Green Circle: MSD_CS0
- Blue Line: MSD_Sewer_Lines
- Black Circle: MSD_Sewer_Manholes

US and DS Invert Data not available for 18" Sewer

4108 Dane Ave
Cincinnati, OH 45223

Legend

- Star: mon_perm
- Green Circle: MSD_CS0
- Blue Line: MSD_Sewer_Lines
- Black Circle: MSD_Sewer_Manholes

US and DS Invert Data not available for 18" Sewer

4108 Dane Ave
Cincinnati, OH 45223

Legend

- Star: mon_perm
- Green Circle: MSD_CS0
- Blue Line: MSD_Sewer_Lines
- Black Circle: MSD_Sewer_Manholes

US and DS Invert Data not available for 18" Sewer

4108 Dane Ave
Cincinnati, OH 45223

Legend

- Star: mon_perm
- Green Circle: MSD_CS0
- Blue Line: MSD_Sewer_Lines
- Black Circle: MSD_Sewer_Manholes

US and DS Invert Data not available for 18" Sewer

4108 Dane Ave
Cincinnati, OH 45223
Survey of manhole rim (location as marked in the field) conducted by STANTEC on 8/16/2017 on NGVD29: 488.860 FT

Distance from manhole rim (northern-most edge) to lowest point on overflow weir measured by RJN on 11/17/2016: 15.50 FT

Rim Elevation 488.860 FT
-Distance to Weir 15.50 FT
Calculated Overflow Elevation: 473.36 FT
**CSO TYPE:** DUAL CHAMBER REGULATOR

**CSO NO:** 024

**COMMENTS:**

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<td>SIZE: 10.00'</td>
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<tr>
<td>DIV. DAM HEIGHT: 1.17'</td>
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</tr>
<tr>
<td>DIV. DAM ELEV: 471.70'</td>
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<td>GRATE SIZE: NA</td>
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<tr>
<td>COVER: STD VENT</td>
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<td>CONDITION: GOOD</td>
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<tr>
<td>SIZE: 5' X 8'</td>
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<tr>
<td>GATE SIZE: NA</td>
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</tr>
<tr>
<td>DEPTH: 20.20'</td>
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<tr>
<td>COVER: STD VENT</td>
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<tr>
<td>CONDITION: GOOD</td>
<td></td>
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<tr>
<td>COMMENTS: FLOAT CHAMBER SIZE: 3' X 4'</td>
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**PIPE SIZES:**

| UPSTREAM OF STRUCTURE: | 10.00' |  |
| DOWNSTREAM OF STRUCTURE: | 10.00' |  |
| INTERCEPTOR: | 8.00' |  |
| CONNECTING PIPE: | 1.00' |  |
| COMMENTS: |  |

**HIGH WATER PROTECTION:** YES

| TYPE: FLAP GATE |  |
| CRITICAL RIVER STAGE: |  |
| COMMENTS: |  |

**SAFETY:**

| TRAFFIC: NONE |  |
| GAS INVESTIGATION: STD |  |
| STEPS: FAIR |  |
| ACCESS: DIVERSION STRUCT. |  |
| COMMENTS: |  |

**INDUSTRIAL INFORMATION:**

SEE NEXT PAGE FOR LISTING: NONE IN CSO TRIBUTARY AREA

R.D. Zande & Associates