

MEMORANDUM

Date: March 4, 2022

To: Board of Directors
Cherry Hills North Metropolitan District

From: Chris Purrington, P.E.

Re: 2022 Sanitary Sewer Maintenance Program

2022 SANITARY SEWER MAINTENANCE

The District's Sanitary Sewer Maintenance Program consists of a two (2) year jet cleaning and video cycle. The District is divided into two (2) basins, the East Basin (6,792 linear feet) and the West Basin (5,198 linear feet). During even numbered years, the East Basin is jet cleaned and the West Basin is inspected by video. During odd numbered years, the West Basin is jet cleaned and the East Basin is inspected by video.

The 2022 Sanitary Sewer Maintenance Program was completed by Dale's Environmental Services (DES) and reviewed by our office. The following is a summary of the 2022 Program.

1. Jet Cleaning Program

The 2022 Jet Cleaning Program consisted of cleaning the East Basin. DES completed the cleaning January 2022.

2. Video Program

The 2022 Video Program consisted of video inspection of the West Basin. DES completed the video inspection January 2022.

Video Inspection Summary

Below is a summary of the 2021 Video Program

- **Roots**

Roots were minimal and no lines in this Basin required root cutting.

- **Roots in Service Lines**

Thirteen (13) service connections with roots were identified. We recommend that letters be provided, including photos of the blocked service lines, as a courtesy to the homeowner. The addresses with root blockage are listed below.

| Service Line Addresses |
|-------------------------------|
| 3920 South Dahlia Street |
| 3980 South Dahlia Street |
| 4040 South Dahlia Street |
| 4070 South Hudson Way |
| 4060 South Hudson Way |
| 3911 Nassau Circle East |
| 4901 Nassau Circle East |
| 3941 Nassau Circle West |
| 3940 Nassau Circle West |
| 5091 Nassau Circle West |
| 5070 Nassau Circle West |
| 5272 Nassau Circle West |
| 5302 Nassau Circle West |

- **Defective Service Lines**

Twelve (12) service connections with defects were identified. These defects can be repaired through top hat repairs. The addresses with defects are listed below.

| Service Line Addresses |
|-------------------------------|
| 4911 Sanford Circle West |
| 5030 Sanford Circle West |
| 5031 Sanford Circle West |
| 5070 Sanford Circle West |
| 3981 Nassau Circle West |
| 3960 Nassau Circle West |
| 3961 Nassau Circle West |
| 3921 Nassau Circle East |
| 5131 Nassau Circle West |
| 5130 Nassau Circle West |
| 5191 Nassau Circle West |
| 5211 Nassau Circle East |

- **Pipe Repairs**

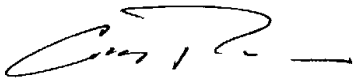
Based on our review, we've identified two (2) segments of main line with fractures. We recommend these segments be added to a future CIPP repair schedule.

Future CIPP Project Schedule

| Zone | Street | MH | MH | Pipe Length |
|-------------|-------------------|-----------|---------------------|--------------------|
| 1 | Nassau Circle E/W | MH-12 | MH-11 | 404 |
| 1 | Nassau Circle W | MH-4 | MH-3 | 315 |
| | | | Total Length | 719 |

Please do not hesitate to contact me with any questions or if you need additional information.

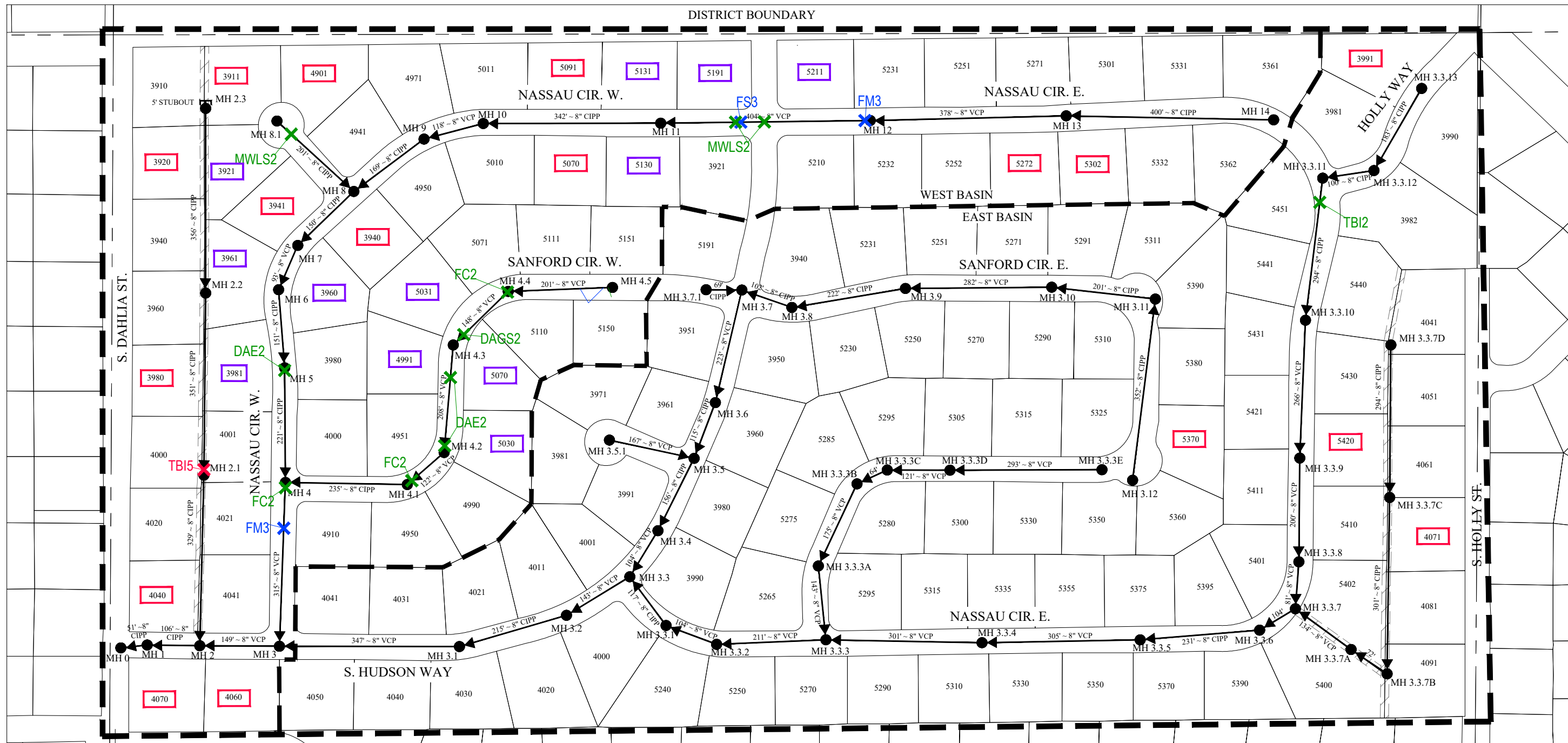
Sincerely,
PURRINGTON CIVIL, LLC



Chris Purrington, P.E.

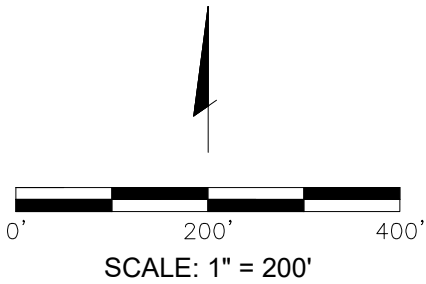
Attachments:

- Pipe Defects Map
- Root Infiltration Map
- CIPP Lining Map



PIPE DEFECTS LEGEND

| | | |
|--------------------------------------|-------------------------------------------|----------------------------------|
| CODE | CODE | CODE |
| BPVV = BROKEN PIPE VOID VISIBLE | FS = FRACTURE SPIRAL | STRUCTURAL GRADE |
| CH(#) = CRACK HINGE (# OF CRACKS) | JOL = JOINT OFFSET LARGE | 1 = MINOR (NOT SHOWN) |
| CC = CRACK CIRCUMFERENTIAL | LFB = LINING FAILURE BLISTERED | 2 = MINOR TO MODERATE |
| CL = CRACK LONGITUDINAL | LFCCS = " CONNECTION CUT SHIFTED | 3 = MODERATE |
| CM = CRACK MULTIPLE | LFD = LINING FAILURE DETACHED | 4 = SIGNIFICANT |
| CS = CRACK SPIRAL | LFDE = LINING FAILURE DEFECTIVE END | 5 = MOST SIGNIFICANT |
| DH = DEFORMED HORIZONTALLY | LFUC = LINING FAILURE UNDERCUT CONNECTION | |
| DAE = DEPOSITS ATTACHED ENCRUSTATION | LFW = LINING FAILURE WRINKLED | |
| DAGS = DEPOSITS ATTACHED GREASE | MWLS = MISC WATER LEVEL SAG | |
| DSF = DEPOSITS SETTLED FINE | MWM = MISC WATER MARK | |
| DSC = DEPOSITS SETTLED COMPACTED | OPM = OBSTACLE PIPE MATERIAL | |
| ISSR = INTRUDING SEALING RING | TBC = TAP BREAK-IN CAPPED | ROOTS IN SERVICE = [Red Box] |
| FC = FRACTURE CIRCUMFERENTIAL | TBI = TAP BREAK-IN INTRUDING | DEFECTIVE SERVICE = [Purple Box] |
| FL = FRACTURE LONGITUDINAL | TSI = TAP SADDLE INTRUDING | |
| FM = FRACTURE MULTIPLE | | |



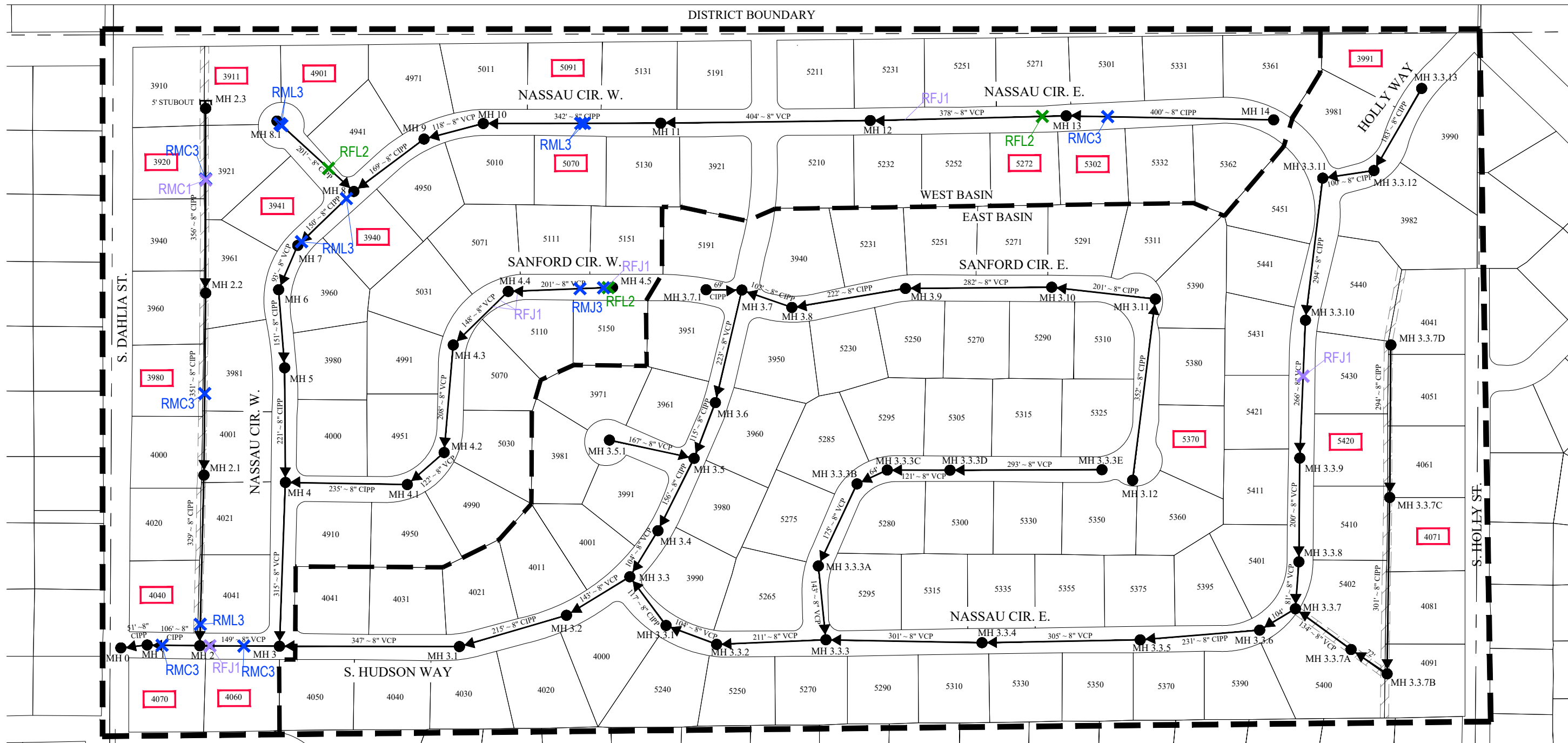
CHERRY HILLS NORTH METROPOLITAN DISTRICT

| | |
|----------|--|
| BY | |
| DATE | |
| REVISION | |

2022 KEY MAPS
CHERRY HILLS NORTH
METROPOLITAN DISTRICT

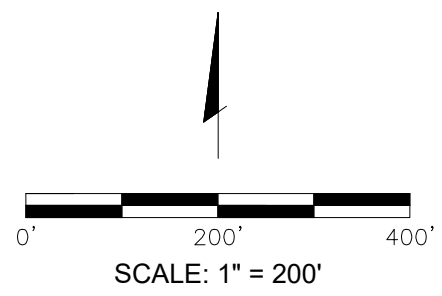
PURRINGTON CIVIL LLC
 1299 WASHINGTON AVENUE
 SUITE 280
 GOLDEN CO. 80401
 Phone: 303.956.8365
 www.PurrringtonCivil.com

2022 DEFECTS MAP
SCALE: AS NOTED



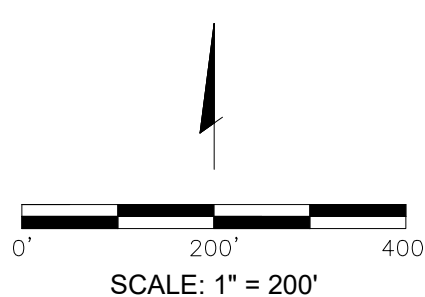
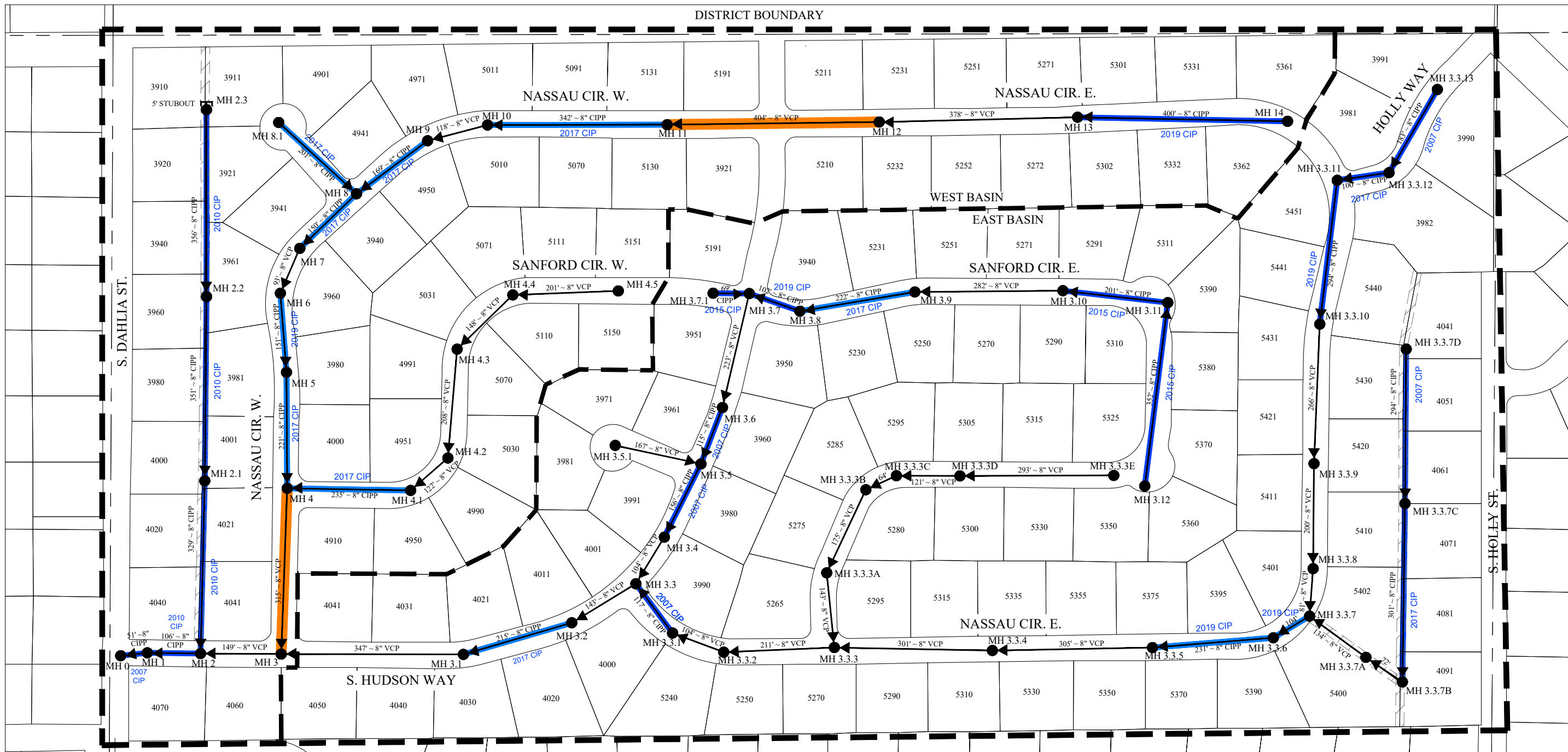
ROOTS LEGEND

| | | |
|----------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------|
| CODE | CODE | STRUCTURAL GRADE |
| RBB = ROOT BALL BARREL | RMB = ROOT MEDIUM BARREL | 1 = MINOR |
| RBC = ROOT BALL CONNECTION | RMC = ROOT MEDIUM CONNECTION | 2 = MINOR TO MODERATE |
| RBL = ROOT BALL LATERAL | RML = ROOT MEDIUM LATERAL | 3 = MODERATE |
| RFB = ROOT FINE BARREL | RMJ = ROOT MEDIUM JOINT | 4 = SIGNIFICANT |
| RFC = ROOT FINE CONNECTION | RTB = ROOT TAP BARREL | |
| RFL = ROOT FINE LATERAL | RTC = ROOT TAP CONNECTION | |
| RFJ = ROOT FINE JOINT | RTL = ROOT TAP LATERAL | ROOTS IN SERVICE = |



CHERRY HILLS NORTH METROPOLITAN DISTRICT

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| DATE | REVISION | | | | | | | | |
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| <p>PURRINGTON CIVIL LLC</p> <p>1299 WASHINGTON AVENUE SUITE 280 GOLDEN CO. 80401 Phone: 303.956.8363 www.PurrringtonCivil.com</p> | | | | | | | | | |
| <p>ROOTS MAP</p> | | | | | | | | | |
| <p>SCALE: AS NOTED</p> | | | | | | | | | |



CURED-IN-PLACE PIPE (CIPP) LEGEND

| | LINEAR FOOTAGE | SEGMENTS | PERCENTAGE |
|-----------------|------------------|-----------|-------------|
| EXISTING 8" VCP | 5,872 LF | 30 | 49.0% |
| CIPP | 6,118 LF | 29 | 51.0% |
| TOTAL | 11,990 LF | 59 | 100% |

CURED-IN-PLACE PIPE (CIPP) LEGEND

| | LINEAR FOOTAGE | SEGMENTS |
|----------------|----------------|----------|
| FUTURE REPAIRS | 719 LF | 2 |

CHERRY HILLS NORTH METROPOLITAN DISTRICT

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| | | |
| | | |
| | | |

2022 KEY MAPS
CHERRY HILLS NORTH
METROPOLITAN DISTRICT

PURRINGTON
CIVIL LLC

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CIPP LINING
EXHIBIT

SCALE: AS NOTED