



AGENDA

INFRASTRUCTURE COMMISSION

Infrastructure Commission : May 14, 2026 at 6:00 PM
Village Hall 740 Hillgrove Avenue, Western Springs, IL 60558

- A. **Call to Order**
- B. **Approval of Minutes**
- C. **Public Comment**
- D. **New Business**
 - 1. 2025 Referendum Scoping Studies — Pre-Final Findings
- E. **Other Business**
- F. **Adjournment**

Individuals with disabilities who plan to attend / participate in this meeting and who require accommodations to allow them to observe and participate, or who have questions regarding accessibility of the meeting or facilities, please email accommodations@wsprings.com or contact Jill Izzo at 708-246-1800, extension 127.

Infrastructure Commission Meeting
Thursday, October 14, 2025, 5:45 p.m.
Village Hall Board Room
740 Hillgrove Avenue
Western Springs IL 60558

Call to Order: 5:47 p.m.

Commission Chair-Shawn Murphy Presiding

Commission Members Present:

Shawn Murphy – Chairman
Tom Mitoraj – Commission Member
Eric Haas – Commission Member
Dan Ciecko-Commission Member
Tom Kelleher, Commission Member

Commission Members Absent:

Michael Prim

Present:

Scott Lewis, Village Trustee
Heidi Rudolph, Village President

Staff Present:

Ellen Baer, Village Manager
Matthew Supert, Director of Municipal Services
Jeff Koza, Village Engineer
Ron Derengowski- Water Plant Superintendent

Roll Call

As noted above.

Approval of Minutes:

Chair Murphy motioned to approve the minutes from September, 25, 2025, seconded by Commissioner Tom Kelleher. Motion passed unanimously on a voice vote.

Public Comment: None

New Business:

Presentation of Water and Sewer Rate Study by Baxter & Woodman

Director Matthew Supert introduced two Baxter & Woodman representatives in attendance, and they will report their preliminary findings and recommendations regarding the Water/Sewer Usage Rate. No action taken at this time and discussion continued.

Water Treatment Plant Assessment by Carollo Engineering

Ron Derengowski, Water Plant Superintendent presented to the Commissioners the report that was completed of the facility and equipment assessment of the Village's Water Treatment Plant by Carollo Engineers. The information gathered identified capital improvement projects for the treatment plant in several capital timeline targets along with cost estimates for budgeting purposes. Discussion continued. No action currently.

Water System Update

Superintendent Ron Derengowski reported the administrative report on the water system in July-September 2025. No action at this time. Ron reported there is a need for replacement for the membranes on Reverse Osmosis Well 4 Skid. It is highly recommended that the membranes of the unit be replaced to optimize the treatment process. Maintenance and replacement of the cartridges will be over \$25,000.00. The requests for proposals will be in September and the Public Works and Water Committee in October. No action at this time.

Go-Painters were in town and completed painting of 200 fire hydrants. Private hydrants are red and hydrants off transmission are painted blue.

Springdale Park Detention Basin and Watermain Project has installed approximately 1440 feet of 8" water main. The new main is off 52nd Street from Caroline Avenue to Howard Avenue.

Eaton 1600 Amp Breaker was installed in the new main by Eaton at the Water Treatment Plant. It was a successful installation and minimal downtime in operations.

Phase 2 IEPA Loan Application, the Village will be submitting for this loan for the Phase 2 Lead Service line replacements. HR Green feels confident that Western Springs should be in good position to receive funds.

Millenium Contracting has completed 16 out of 42 lead service lines, and costs of the overall project may be reduced.

It is anticipated that the 53rd Street Water Main replacement project will begin the week of October 6th. Temporary easement arrangements are currently being generated and distributed to the four residences and 2 HOA's impacted. Discussion continued.

Schedule for the Next Meeting

The Infrastructure Commission next meeting tentative 10/14/2025 5:45pm

Adjourn Chair, Shawn Murphy, Chairman motioned to adjourn meeting, seconded by Commission member Eric Haas. Motion passed unanimously on a voice vote. Meeting adjourned at 7:45 p.m.

Respectfully Submitted: Jenny Pesek

**Joint Public Works & Water and
Infrastructure Commission Meeting
Tuesday, November 4, 2025, 5:15 p.m.
Village Hall Board Room
740 Hillgrove Avenue
Western Springs IL 60558**

Call to Order: 5:19 p.m.

Commission Chair-Shawn Murphy Presiding

Commission Members Present:

Shawn Murphy – Chairman
Tom Mitoraj – Commission Member
Eric Haas – Commission Member
Tom Kelleher, Commission Member

Heidi Rudolph, President

Trustee: Scott Lewis Chair

Trustee: Karen Martin

Commission Members Absent:

Michael Prim
Dan Lewis

Staff Present:

Ellen Baer, Village Manager
Matthew Supert, Director of Municipal Services
Jeff Koza, Village Engineer
Inga Cebelis, Staff Engineer
John Mastandana, Finance Director
Casey Biernacki, Deputy Village Manager
Diana Puga, Municipal Services Coordinator
Christopher Breakey, PW Superintendent
Ron Derongowski, Water Plant Superintendent
Jenny Pesek, Municipal Services Administrative Assistant

Roll Call

As noted above.

Approval of Minutes: None

Public Comment: None

New Business:

FY2026 Budget Presentation Director Matthew Supert reported the Municipal Services Department has the largest capital and operating budget covering multiple funds. Public Works and Water Committee review the following budget accounts:

Motor Fuel
Roadway (Referendum)
Water Administration
Water Production
Water Distribution
Water Meters
Sewer Administration
Serwer Maintenance
Storm Utility Fee

Director Supert reported on the fund summary. **Capital (Vehicles)** the total expenditure for vehicles across the Capital Fund, Water, and Sewer is currently expected at \$369,084.00. Discussion continued regarding the current leasing agreements and vehicles proposed for replacement.

Roadway and Referendum Staff is currently completing scoping studies with four engineering firms in the 2025 referendum. Discussion continued.

Water Fund

The Village has adjusted the 2026 forecast for chemicals in 2026, revised to \$325,000. Carollo Study currently be completed focusing on distribution and filtration. The Village increased the amount of funds for lead service line replacements based on the bid information. Sewer lining new storm sewers and will be incorporated in line with the roadway improvements. Discussion continued.

Schedule for the Next Meeting

The Infrastructure Commission next meeting TBD

Adjourn Chair, Scott Lewis motioned to adjourn meeting, seconded by Trustee Karen Martin. Motion passed unanimously on a voice vote. Meeting adjourned at 6:06 p.m.

Respectfully Submitted: Jenny Pesek



AGENDA ITEM SUMMARY

INFRASTRUCTURE COMMISSION

Infrastructure Commission : May 14, 2026

AGENDA ITEM D.1.

To: Infrastructure Commission

From: Matthew Supert, Director of Municipal Services, Jeff Koza, Director of Engineering Services

CC: Ellen Baer, Village Manager, Casey Biernacki, Deputy Village Manager, John Mastandona, Director of Finance

RE: 2025 Referendum Scoping Studies — Pre-Final Findings

Recommendation

Review and refer to Public Works Committee

Summary

The Commission will review final and pre-final engineering scoping studies prepared by Village engineering consultants to advance the Capital Plan projects funded by the 2025 Referendum.

Background

While developing the Capital Improvement Program (CIP), the evaluation identified approximately \$215 million in priority infrastructure needs, representing the top 15% of assets with the highest risk scores. The plan was adopted by the Village Board and staff subsequently coordinated the scoping studies. Focus was placed on the priority status and potential impact of the projects, and consideration was given to limiting disruption to the community. The initial project list outlined projects that were estimated to cost approximately \$45 million. This list was reviewed at public meetings of the Village Board, committees, and commissions. The Village Board of Trustees approved the funding request of \$45 million and presented the request to voters as part of the 2025 Infrastructure Referendum. The referendum passed and a refinement of the project scoping began.

As the Village proceeded into detailed scoping and Phase 1 engineering, the studies prepared for the priority project areas identified additional deficiencies in water main condition and replacement needs, expanding the estimated scope of improvements within the original \$45 million project list. Given these updated findings, staff will be preparing revisions to the CIP to recommend advancing the most critical projects while retaining sufficient capacity for critical maintenance programs. The addition of hydrant and valve replacements, sewer lining, stormwater structure repairs, and similar preventative tasks will be essential in preserving system reliability as we systematically address the larger critical needs throughout the community.

Next Steps

The scoping reports provide detailed evaluations of water distribution, stormwater conveyance, sanitary sewer condition, roadway pavement performance, and drainage challenges across several high-priority areas, including the following locations:

- 51st Street Corridor
- LTHS South Campus Water Main Loop
- Ridgewood Area B (Southeast)
- Ridgewood Woodland/Birch corridors,
- various roadway and utility segments identified as high-priority in the Capital Improvement Program.

Using a combination of field inspections, CCTV sewer review, geotechnical borings, hydraulic modeling, and utility risk scoring, the studies outline targeted solutions to address aging water mains, depression roadway flooding, inadequate fire flow, sewer defects, roadway failures, and long-standing overland flow issues.

Staff requests the Commission review and refer the matter for discussion by the Public Works & Water Committee. The final project and funding approvals will be part of the Village Board Capital Budget.

Financial Impact

To be determined

Recommended Motion

I move to advance the item to the Public Works & Water Committee for review.

Strategic Plan Alignment

Infrastructure Improvements

File Attachments

1. V3 Scoping Report
2. HR Green Scoping Report Final Draft
3. CBBEL Scoping Report Draft
4. Ridgewood Area Study
5. Technical Memorandum LTHS



**VILLAGE OF WESTERN SPRINGS
CAPITAL IMPROVEMENT
PROGRAM**

SCOPING REPORT

PROJECT SITE:
Village of Western Springs
Cook County, Illinois

PREPARED FOR:
Village of Western Springs
Department of Municipal Services
740 Hillgrove Avenue
Western Springs, IL 60558

PREPARED BY:
V3 Companies
7325 Janes Avenue
Woodridge, Illinois 60517
630.724.9200

January 21, 2026



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INTRODUCTION

In April 2025, residents of Western Springs voted to approve the 2025 Infrastructure Referendum, authorizing the issuance of \$45 million in General Obligation bonds to construct, repair and maintain the Village’s infrastructure over the next decade. The referendum passed with 72% approval, reflecting strong community support.

The referendum marks a major investment in the future of Western Springs, one that responds to infrastructure deficiencies identified in the Village’s recently completed Capital Infrastructure Plan (CIP) which lays out over \$200 million in critical infrastructure needs over the next 30-40 years.

This scoping report is the Village’s first major action following approval of the referendum. Its purpose is to establish the basis for how referendum bond funds will be allocated by evaluating existing conditions, confirming project needs and estimating costs for near-term infrastructure projects. This information will guide the Village as it prioritizes and budgets projects under the 2025 Infrastructure Referendum.

As part of this effort, the Village initiated a team of consultants to conduct a comprehensive evaluation of pavement conditions, curb and gutter, sidewalks, watermain, and sanitary and storm sewer. V3 specifically examined 15 street segments totaling approximately 3.6 miles of roadway. The street segments include:

- Garden Avenue from 39th Street to Cul-de-sac
- Rose Avenue from 39th Street to Cul-de-sac
- Rose Avenue from Oak Street to Cul-de-sac
- 39th Street from Wolf Road to Clausen Avenue
- Ellington Avenue from Ogden Avenue to Cul-de-sac
- Linden Avenue from 39th Street to Hillgrove Avenue
- Maple Street from Western Avenue to Rose Avenue
- Central Avenue from Maple Street to Hillgrove Avenue
- Sunset Terrace from Dead-End to Hampton Avenue
- Reid Street from Hampton Avenue to Prospect Avenue
- Harvey Avenue from Burlington Avenue to 46th Street
- Howard Avenue from Burlington Avenue to 47th Street
- Caroline Avenue from 54th Place to 53rd Street
- 53rd Street from Howard Avenue and Caroline Avenue
- Ridgewood Oaks Drive from Wolf Road to Wolf Road

Exhibit 1 illustrates the various streets included in this scoping report.



EXHIBIT 1 - LOCATIONS OF THE VARIOUS STREET SEGMENTS



This report summarizes the findings of those evaluations and provides planning-level recommendations and cost estimates to support the Village’s budgeting efforts under the newly funded referendum. The results are presented in the Street Evaluations section, which includes a segment-by-segment summary table and a color-coded map of proposed improvements.

DESIGN CRITERIA & CONSIDERATIONS

To ensure consistency across all project evaluations and between scoping documents, the following design criteria and considerations were applied. This approach provides a uniform basis for comparison, helping the Village clearly evaluate needs and prioritize projects as referendum-funded improvements move forward.

Pavement Condition Evaluation

Pavement inspections were conducted using Pavement Condition Index (PCI) procedure. Distress types, severity, and extent were documented, and a composite PCI rating (16+ = failed, 9-15 = Moderate to poor and 0-8 = new to good condition) was assigned to each segment.

- Segments with a PCI rating 16+ were considered to be candidates for full reconstruction.
- Segments with a PCI rating between 9-15 were considered to be candidates for resurfacing, with possible pavement patching and crack filling.
- Segments with a PCI rating between 0-8 no improvements are recommended at this time.

In addition to the pavement ratings, a pavement core was taken at every street to determine pavement thickness, type and aggregate base thickness. Streets with utility work and/or to be reconstructed, a soil boring to a depth of 10 feet was provided to determine pavement thickness, type, base material and soil stability. See Appendix A for the complete geotechnical report.

Below is a summary of the pavement core and boring information:

Segment #	Road	From	To	Pavement thickness	Pavement thickness 2	Pavement thickness 3	Aggregate Thickness	Aggregate Thickness 2	Aggregate Thickness 3	Soil Boring performed	Pavement Recommendation	Resurface	Reconstruction	sidewalks
1	Garden Ave	39th St	Cul-de-sac	5.75" HMA	5.75" HMA		4.5"	4			Mill and Resurface 1.5" surface 2.25" binder	x		x
2	Rose Ave	39th St	Cul-de-sac	5.5" HMA	2" HMA		6"	4.5"			Mill and Resurface 1.5" surface 2.25" binder	x		x
4	Rose Ave	Oak St	Cul-de-sac	5" HMA							Mill and Resurface 1.5" surface 2.25" binder	x		x
5	39th St	Wolf Rd	Gilbert Ave	5.5" HMA	5.00" HMA	2.9" HMA	12.5	3	6.25	X	Mill and Resurface 1.5" surface 2.25" binder	x		x
6	Ellington Ave	Odgen Ave	Cul-de-sac	3.5" HMA	3.25" HMA 5" PCC	9.6" PCC	11.5	9.5	6.5	X	Mill to concrete and replace with surface and binder where only 3.5" mill to 5"	x		x
7	Linden Ave	39th St	Hillgrove Ave	3" HMA 6.5" PCC	2.75" HMA 6" PCC	2.75" HMA 2.75" PCC	20.5	NA	23.25		Mill to concrete and replace with surface	x		
8	Maple St	Western Ave	Rose Ave	6.5" HMA	3.25" HMA		NA	NA			Mill and resurface 1.5" surface 3.5"	x		x
9	Central Ave	Maple St	Hillgrove Ave	8.5" HMA	8" HMA	9.5" HMA	3	15.5	12.5	X			x	
10	Sunset Terrace	Dead End	Hampton Ave	7.9" HMA			14.5				Mill and resurface 1.5" surface 2.25"	x		x
11	Reid St	Hampton Ave	Prospect Ave								Mill and resurface 1.5" surface 3.5"	x		x
13	Harvey Ave	Burlington Ave	47th St	3" HMA 8" PCC	2.5" HMA 6.75" PCC	3" HMA 9" PCC	NA	NA	NA	X			x	
14	Howard Ave	Burlington Ave	45th St	3.5" HMA 6.25" PCC	3.5" HMA 6.25" PCC		NA	NA			Mill to concrete and replace with surface	x		
15	Caroline Ave	54th Pl	53rd St	3.5" HMA	4.25" HMA		3.75"	6.5"		X			x	
16	53rd St	Howard Ave	Caroline Ave											
17	Ridgewood Oaks Dr	Wolf Rd	Wolf Rd	2.4" HMA			8.25				Mill and resurface 1.5" surface 3.5"	x		

Pavement Improvement Recommendations

Throughout the evaluation process the Village and V3 discussed the pavement condition, geotechnical information, and type of improvements to be considered. The following describes the pavement recommendations:

- Roadway Resurfacing section:
 - Condition 1 - 3.75" Hot Mix Asphalt (HMA) removal, new 1.5" HMA surface and 2.25" HMA binder. This condition is based on an existing pavement section thicker than 5" at any given pavement core location.
 - Condition 2 – 5" HMA removal, new 1.5" HMA surface and 3.5" HMA binder. This condition is based on an existing pavement section 5" or less at any given pavement core location.
- Roadway Reconstruction (HMA) section: 1.5" HMA surface, 4" HMA binder, 12" aggregate subgrade improvement.
- Roadway Reconstruction (PCC) section: 8" PCC jointed pavement, 12" aggregate subgrade improvement.
- Roadway Undercutting/Pavement Patching: Assumed 1' undercut for 15% of resurfaced roads no undercuts on reconstruction streets.

Curb Replacement

Based on V3's field assessment of all 15 segments the curb was in generally good condition. Streets to be resurfaced will include partial curb repairs. Full curb and gutter replacement is anticipated for streets identified for complete reconstruction

Driveway Aprons

For all driveway aprons within the ROW the pavement section will be 7" PCC on 2" Aggregate base meeting the Village's current design standards. The average size of the driveway will be 20' x 15'. The cost for the complete driveway removal and replacement is included in the cost estimates provided. Decorative driveways, such as brick pavers, will be evaluated on an individual basis to determine if impacts to the driveway can be avoided with the proposed roadway improvements.

Water Main Replacement

Replacement was considered for water mains ranging in size from 4" to 12" in diameter and were installed prior to 1950. Any existing 4" water main will be replaced with an 8" watermain. Additionally, water mains within the project limits that had a high frequency of breaks based on data provided by the Village were also designated for replacement. Lastly, streets like Harvey Ave with two water mains services various residents will be replaced with one new water main.

Sanitary Sewer Repairs

The combined sewer and sanitary sewers have been televised on all street segments being evaluated by V3. See Appendix B for the complete sanitary sewer televising report. V3 has evaluated each segment and provided our findings and recommendations in the Sewer Evaluation section of this report.

ADA Compliance

All sidewalk ramps that do not meet compliance standards will be reconstructed with appropriate slopes and detectable warnings. We've estimated an average of four ramps per block. A detailed evaluation of ADA compliant ramps and number of ramps to be replaced will be done during the detailed survey and engineering phase. Additionally, we also assessed the sidewalk segments between ramps and identified areas requiring replacement due to potential trip and fall hazards. Quantities for sidewalk removal and replacement have been included.

STREET EVALUATIONS

Each of the street segments were evaluated in the field for pavement condition, curb and sidewalk deterioration, drainage features, and utility infrastructure. These observations, combined with Village input and the design considerations previously outlined, were used to develop recommended improvements on a segment-by-segment basis.

The results of the evaluations are summarized in Table 2, which outlines pavement type, segment limits, recommended improvements, and planning-level cost estimates. These estimates include anticipated construction costs and Phase III engineering costs and are intended to support budgeting and planning of referendum-funded projects.

A separate street evaluation matrix will be provided to the Village as a separate document.



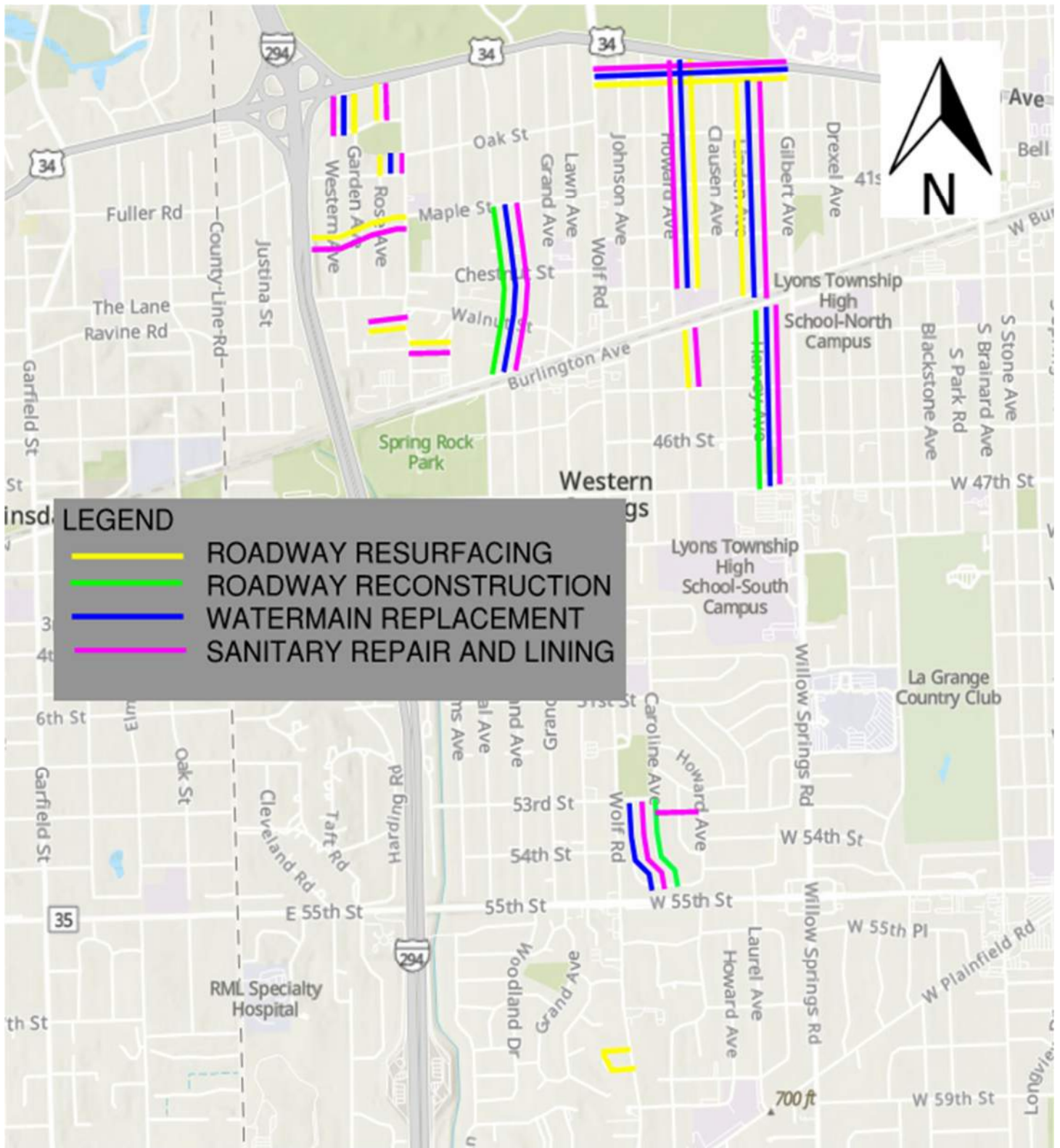
VILLAGE OF WESTERN SPRINGS
CAPITAL IMPROVEMENT PROGRAM - SCOPING REPORT

TABLE 1 - STREET EVALUATIONS SUMMARY

Segment #	PCI Rating	Road	From	To	Pavement Material	Length (FT)	Width (FT)	Roadway	Watermain	Sanitary	Roadway Cost	Watermain Cost	Sanitary Repair and Lining Cost	Phase II Fee	Phase III Fee	Total Cost
1	16+	Garden Ave	39th St	Cul-de-sac	HMA	450	23	Resurfacing	Yes	Yes	\$ 119,940.49	\$ 389,500.00	\$ 110,000.00	\$ 25,905.00	\$ 25,472.02	\$ 670,817.51
2	16+	Rose Ave	39th St	Cul-de-sac	HMA	410	24	Resurfacing		Yes	\$ 112,285.39		\$ 102,000.00	\$ 11,607.00	\$ 5,614.27	\$ 231,506.66
4	16+	Rose Ave	Oak St	Cul-de-sac	HMA	260	24	Resurfacing	Yes	Yes	\$ 88,471.39	\$ 305,266.67	\$ 72,000.00	\$ 16,538.00	\$ 19,886.90	\$ 501,962.96
5	9-15	39th St	Wolf Rd	Gilbert Ave	HMA	2,620	24	Resurfacing		Yes	\$ 618,701.79	\$ 1,351,533.33	\$ 684,000.00	\$ 118,214.11	\$ 98,511.76	\$ 2,870,960.99
6	0-8	Ellington Ave	Odgen Ave	Cul-de-sac	HMA	3,000	24	Resurfacing	Yes	Yes	\$ 794,904.99	\$ 1,444,000.00	\$ 700,000.00	\$ 134,334.30	\$ 111,945.25	\$ 3,185,184.54
7	9-15	Linden Ave	39th St	Hillgrove Ave	HMA	2,770	24	Resurfacing		Yes	\$ 575,541.79	\$ 1,418,033.33	\$ 574,000.00	\$ 119,614.51	\$ 99,678.76	\$ 2,786,868.39
8	9-15	Maple St	Western Ave	Rose Ave	HMA	700	24	Resurfacing		Yes	\$ 362,083.66		\$ 240,000.00	\$ 17,313.00	\$ 18,104.18	\$ 637,500.84
9	16+	Central Ave	Maple St	Hillgrove Ave	HMA	2,350	24	Reconstruction	Yes	Yes	\$ 3,159,129.11	\$ 1,007,000.00	\$ 530,000.00	\$ 214,585.16	\$ 268,231.46	\$ 5,178,945.73
10	9-15	Sunset Terrace	Dead End	Hampton Ave	HMA	460	24	Resurfacing		Yes	\$ 119,644.39		\$ 112,000.00	\$ 10,273.00	\$ 5,982.22	\$ 247,899.61
11	9-15	Reid St	Hampton Ave	Prospect Ave	HMA	540	24	Resurfacing		Yes	\$ 163,780.59		\$ 128,000.00	\$ 11,253.00	\$ 8,189.03	\$ 311,221.62
13	9-15	Harvey Ave	Burlington Ave	47th St	HMA	2,370	26	Reconstruction	Yes	Yes	\$ 3,256,965.78	\$ 1,884,188.89	\$ 534,000.00	\$ 205,646.19	\$ 257,057.73	\$ 6,137,858.59
14	0-8	Howard Ave	Burlington Ave	45th St	HMA	820	24	Resurfacing		Yes	\$ 234,299.79		\$ 204,000.00	\$ 14,057.99	\$ 11,714.99	\$ 464,072.77
15	9-15	Caroline Ave	54th Pl	53rd St	HMA	1,840	24	Reconstruction	Yes	Yes	\$ 2,721,322.44	\$ 775,200.00	\$ 408,000.00	\$ 177,396.90	\$ 221,746.12	\$ 4,303,665.46
16		53rd St	Howard Ave	Caroline Ave		645							\$ 129,000.00	\$ 19,737.00	\$ 16,447.50	\$ 165,184.50
17	16+	Ridge wood Oaks Dr	Wolf Rd	Wolf Rd	HMA	890	22	Resurfacing		Yes	\$ 184,687.80			\$ 11,081.27	\$ 9,234.39	\$ 205,003.46
																\$28,069,721.49



EXHIBIT 2 - STREET EVALUATIONS MAP



SEWER EVALUATIONS

Each of the street segments were televised to evaluate the condition of the combined sewer or sanitary sewer. During the televising process the following are typical issues that may be present in an aging sewer system:

1. Breaks in the existing pipe
2. Sags in the pipe
3. Heavy roots protruding into the pipe
4. Heavy cleaning needed to televise the pipe
5. Services protruding too far into the pipe
6. Service connections into the pipe
7. Private utilities going through the sewer

We have provided an overall chart in Table 3 summarizing our findings. Based on the findings there are quite a few areas where sagging pipes are present. In addition to sagging pipes there were lines with noticeable breaks. Both contribute to the sewer lines backing up. The estimates provided in this report include one line break in each segment and all mains to be lined, excluding Ridgewood Oaks. In addition, we will coordinate with the Public Works department during the detailed design, to include additional repairs deemed necessary based on the sag condition of the pipe.

TABLE 2 - SEWER TELEVISION EVALUATIONS

ROAD	FROM	TO	MANHOLE LIST (NORTH TO SOUTH OR WEST TO EAST)	MATERIAL TYPE	BREAKS TO REPAIR	SAGS IN LINE	SAG WATER LEVEL %	HEAVY CLEANING WAS REQUIRED	UTILITY CONFLICT	PIPE CRACKS OBSERVED	ROOTS IN PIPE OBSERVED
GARDEN AVENUE	CUL-DE-SAC	39TH STREET	MH-1, MH-2	CLAY, PVC, DIP	1	1	20%	NO	NONE	NO	NO
ROSE AVENUE	CUL-DE-SAC	39TH STREET	MH-3, MH-4	PVC	2	0	-	YES	NONE	NO	YES
SEREDA PARK	ROSE AVENUE CUL-DE-SAC	HAMPTON AVENUE	MH-5, MH-6, MH-7	CLAY	0	0	-	NO	NONE	NO	YES
39TH STREET	WOLF ROAD	GILBERT AVENUE	MH-8, MH-9, MH-10, MH-11, MH-12, MH-17, MH-16, MH-15, MH-14, MH-13	DIP, CLAY, PVC, TRUSS, BRICK, RCP	2	1	30%	YES	UTILITY THROUGH MH-16 TO MH-17	YES	YES
LINDEN AVENUE	39TH STREET	HILLGROVE AVENUE	MH-15, MH-25, MH-24, MH-23, MH-22, MH-21, MH-20, MH-19, MH-18	PVC, CLAY	0	5	35%, 35%, 45%, 40%, 50%, 20%	NO	NONE	YES	YES
ELLINGTON AVENUE	OGDEN AVENUE	HILLGROVE AVENUE	MH-38, MH-17, MH-37, MH-36, MH-35, MH-34, MH-33, MH-32, MH-31, MH-26, MH-27, MH-28, MH-29, MH-30	PVC, CLAY, CONCRETE	4	3	20%, 30%, 30%	YES	NONE	YES	YES
CAROLINE AVENUE	53RD STREET	54TH STREET	MH-45, MH-44, MH-43, MH-42, MH-41, MH-40, MH-39	PVC, CLAY	1	2	50%, 30%, 45%	YES	NONE	YES	YES
53RD STREET (BETWEEN HOUSE)	CAROLINE AVENUE	HOWARD AVENUE	MH-44, MH-46, MH-47	CLAY, PVC	0	2	30%, 40%, 30%, 25%	YES	NONE	YES	NO
CENTRAL AVENUE	MAPLE STREET	HILLGROVE AVENUE	MH-55, MH-54, MH-53, MH-52, MH-51, MH-48, MH-49, MH-50	CLAY, PVC	3	0	-	YES	UTILITY THROUGH MH-53 TO MH-54	YES	YES
REID STREET	HAMPTON AVENUE	PROSPECT AVENUE	MH-57, MH-56	PVC	0	0	-	YES	NONE	YES	YES
SUNSET TERRACE	HAMPTON AVENUE	WILLOW STREET	MH-58, MH-59, MH-60, MH-61, MH-62	PVC, CLAY	1	1	40%	NO	NONE	YES	YES
HOWARD AVENUE	BURLINGTON AVENUE	45TH STREET	MH-73, MH-72, MH-71, MH-70, MH-69, MH-68	PVC, CLAY	0	2	30%, 35%	YES	NONE	YES	YES
HARVEY AVENUE	BURLINGTON AVENUE	47TH STREET	MH-83, MH-82, MH-81, MH-80, MH-79, MH-78, MH-77, MH-76, MH-75, MH-74	CLAY, PVC	1	0	-	YES	UTILITY THROUGH MH-80 TO MH-81	YES	YES



SUMMARY

This scoping report represents the Village’s first step in moving forward with critical infrastructure projects funded by the 2025 Infrastructure Referendum. The evaluations completed by V3 and presented here include 15 street segments across 3.6 miles of roadway. These assessments document existing pavement and utility conditions, identify needed improvements, and provide planning-level recommendations and cost estimates to guide budgeting.

The recommendations in this report are intended to serve as a foundation for setting priorities and aligning projects with available funding. Coordination with other Village programs will be key to minimizing disruption and delivering improvements efficiently.

By establishing project needs, costs and coordination considerations, the Village is well-positioned to act on the referendum with confidence and accountability to residents, ensuring that infrastructure investments address today’s most pressing needs while advancing the long-term Capital Infrastructure Plan.

Appendix A

Geotechnical Report



www.nstengr.com

**GEOTECHNICAL EXPLORATION/FEASIBILITY STUDY AND PAVEMENT
THICKNESS DETERMINATION REPORT FOR
Various Roadways in
Western Springs, Illinois**

PROJECT NUMBER 2025-1301-16G

Prepared For

**Mr. Jason Holy
V3 Companies
7325 Janes Avenue
Woodridge, IL 60517**



www.nstengr.com

**Mr. Jason Holy
V3 Companies
7325 Janes Avenue
Woodridge, IL 60517**

Date: 10/9/2025

RE: Geotechnical Exploration/Feasibility Study and Pavement Thickness Determination Report for Various Roadways in Western Springs, IL

Dear Mr. Holy:

Following your written authorization on August 21, 2025, of our proposal dated August 13, 2025; we have completed this geotechnical exploration. Enclosed you will find the results of our field exploration, related laboratory testing, and geotechnical report. This report is the instrument of service defined in our proposal; we are also submitting electronic copies.

We have enjoyed working with you on this phase of the project. Should you have any questions or if we can be of further assistance, please do not hesitate to contact us.

Sincerely,
NASHnal Soil Testing, LLC

Umar T. Ahmad, PE
Registered Professional Engineer, Illinois
Registration # 062-055148



Expires 11/30/2025



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GEOTECHNICAL EXPLORATION/FEASIBILITY STUDY AND PAVEMENT THICKNESS DETERMINATION REPORT FOR Various Roadways in Western Springs, Illinois

PROJECT NUMBER 2025-1301-16G

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INTRODUCTION

It is our understanding that you are providing design engineering services to improve various roadways and City Streets in Western Springs, Illinois.

At the time of our initial site visit, the area consisted of existing paved roadways/Streets. The topography of the site was observed to be relatively sloping towards the west and south with surface elevations ranging from 638.00 to 674.00 between our borings. Elevations were assigned based on GPS coordinates and Google Earth. We strongly recommend that your project surveyor tie these elevations to National Geodetic Vertical Datum.

The design traffic count is not available for us to review at this time. To evaluate the subsurface soil profile for the client requested to drill twelve (12) soil borings, to a depth of 10.0 feet BEG, sample every 2.5 feet to 10 feet depth. Additionally, NST was instructed to obtain pavement cores at the twelve (12) boring locations along with additional twenty (20) pavement cores at various streets to determine pavement sections.

Based upon our findings in this subsurface investigation, we believe that there are no major limiting geotechnical concerns present in the profile except in borings B-1, 3.5 feet of soft lean clay & high moisture content encountered in B-9 at 2.0 feet below existing pavement surface.

SCOPE OF SERVICES

The purpose of this report is to describe the soil and groundwater conditions encountered in our geotechnical exploration, review and evaluate these conditions with respect to the proposed project and present our recommendations for feasible methods for subgrade support and earthwork design and construction. Our scope of services for this project, as outlined in our proposal, is limited to the following elements.

1. Exploration of the subsurface soil by drilling and sampling twelve (12) soil borings extending to a depth of 10.0 feet BEG for the street improvement and retrieving thirty-two (32) bituminous cores including twelve (12) cores from the boring locations to determine the pavement thickness.
2. Laboratory testing of selected samples for index classification and strength purposes and visual/manual classification of all recovered samples.
3. Development of Geotechnical recommendations, and preparation of this report presenting our findings, evaluations, and recommendations.



FIELD EXPLORATION PROCEDURES

A total of twelve (12) soil borings extending to a depth of 10 feet each below existing grade (BEG) were drilled. The drilled soil boring locations are shown on the enclosed Plates 2 (Boring Location Diagram). The client specified the number depth and the location of the borings.

The borings were drilled with a truck mounted Geoprobe drill rig, using hollow stem augers to advance the borehole. The soil sampling was performed in accordance with the split-barrel procedure (ASTM: D 1586) with an automatic hammer, and in-situ undisturbed samples were retrieved using a split spoon sampler. The crew prepared field logs noting the drilling and sampling methods along with Standard Penetration Test values (N-values, "blows per foot"), observed groundwater levels, and preliminary soil classifications. Representative samples of the recovered soils were placed in sealed jars to reduce moisture loss before being submitted to our laboratory for examination, testing, and final classification by a Geotechnical Engineer.

If present, groundwater levels in the boreholes were measured during and after drilling. The levels of any encountered water are noted on the respective logs. The observed groundwater levels are discussed under the "Groundwater Conditions" section of this report. The drill crew backfilled the boreholes with soil cuttings after completing the groundwater measurements.

LABORATORY TESTING AND CLASSIFICATION

A Geotechnical Engineer initiated the laboratory classification program by examining each sample to determine the major and minor components, while also noting the color, degree of saturation, and lenses or seams found in the samples. The Engineer directed that selected samples be tested for moisture content and unconfined compressive strength (by hand penetrometer). The test results are shown on the respective logs in the Appendix.

The Geotechnical Engineer visually/manually classified the soils on the basis of texture and plasticity in accordance with the Unified Soil Classification System (USCS). The capital letters in parentheses following the written soil descriptions on the boring logs are estimated group symbols based on this system. A chart describing the properties of the groups under this system is also included in the Appendix. After the classification, the Geotechnical Engineer grouped the soils by type into the strata shown on the boring logs. The stratification lines shown are approximate, *in situ*, as the transition between soil types may be abrupt or gradual in both the horizontal and vertical directions.

Soil samples will be retained for ninety (90) days after the date of this report. Please notify us if there is a desire to have the samples retained beyond this period; otherwise, the samples will be discarded.



SITE CONDITIONS

Topography/Surface Features

At the time of our initial site visit, the area consisted of existing paved roadways/streets. The topography of the site was observed to be relatively sloping towards the west and south with surface elevations ranging from 638.00 to 674.00 between our borings. Elevations were assigned based on GPS coordinates and Google Earth. We strongly recommend that your project surveyor tie these elevations to National Geodetic Vertical Datum (NGVD).

Soil Conditions

The soils encountered are shown on the borehole log in the Appendix of this report. The soil characteristics have been established only at specific boring locations and under environmental conditions at the time of our field exploration. Variations in the soil stratigraphy, compressive strength of the soil, and moisture content were encountered; and additional variations probably exist between and around the borings. The nature and extent of these variations would not become evident until exposed by construction excavation.

In general, underlying the surficial asphalt, concrete and aggregate base, the site is predominately formed of firm to hard lean clay at all borings. The soil profile described below is a generalized description of the conditions encountered at the boring location. The borehole log should be referred to for more specific information.

Street Improvement:

Ellington Avenue

In boring B-1, approximately 3.5 inches of asphalt and 11.5 inches of aggregate base were noted at the surface followed by soft, gray lean clay (CL) to an approximate depth of 3.5 feet below BEG. Underlying the gray lean clay (CL), very loose, gray silty sand seam (SM) was encountered to an approximate depth of 6.0 feet BEG followed by stiff, gray lean clay (CL) to an approximate depth of 8.5 feet BEG. Underlying the gray lean clay (CL) we encountered wet, loose, dark gray sand and gravel (GP-SP) to the boring termination depth of 10.0 feet BEG. Free groundwater was encountered at 8.5 feet BEG during drilling.

In boring B-2, approximately 3.25 inches of asphalt, 5 inches of concrete and 9.5 inches of aggregate base were noted at the surface followed by hard, brown lean clay (CL) to the boring termination depth of 10.0 feet BEG. No free groundwater was encountered during or after drilling.

In boring B-3, approximately 9.6 inches of concrete and 6.5 inches of aggregate base were noted at the surface followed by very stiff, gray lean clay (CL) to an approximate depth of 3.5 feet below BEG. Underlying the gray lean clay (CL), very stiff, brown and gray lean clay (CL) was encountered to an approximate depth of 6.0 feet BEG followed by very stiff, brown lean clay (CL)



to the boring termination depth of 10.0 feet BEG. No free groundwater was encountered during or after drilling.

Maple Street

In boring B-4, approximately 8.75 inches of asphalt and 11.5 inches of aggregate base were noted at the surface followed by very stiff, dark brown lean clay (CL) to an approximate depth of 3.5 feet below BEG. Underlying the dark brown lean clay (CL), we encountered very stiff to hard, brown lean clay (CL) to the boring termination depth of 10.0 feet BEG. No free groundwater was encountered during or after drilling.

Central Avenue

In boring B-5, approximately 8.5 inches of asphalt and 3.0 inches of aggregate base were noted at the surface followed by stiff to hard, brown lean clay (CL) to an approximate depth of 6.0 feet below BEG. Underlying the brown lean clay (CL), we encountered hard to very stiff, gray lean clay (CL) to the boring termination depth of 10.0 feet BEG. No free groundwater was encountered during or after drilling.

In boring B-6, approximately 8.0 inches of asphalt and 15.5 inches of aggregate base were noted at the surface followed by stiff to hard, brown lean clay (CL) to an approximate depth of 6.0 feet below BEG. Underlying the brown lean clay (CL), we encountered hard to very stiff, gray lean clay (CL) to the boring termination depth of 10.0 feet BEG. No free groundwater was encountered during or after drilling.

In boring B-7, approximately 9.5 inches of asphalt and 12.5 inches of aggregate base were noted at the surface followed by very stiff, brown lean clay (CL) to an approximate depth of 3.5 feet below BEG. Underlying the brown lean clay (CL), we encountered stiff, brown and gray lean clay (CL) to an approximate depth of 6.0 feet BEG followed by stiff to hard, brown lean clay (CL) to the boring termination depth of 10.0 feet BEG. No free groundwater was encountered during or after drilling.

Harvey Avenue

In boring B-8, approximately 3.0 inches of asphalt and 8.0 inches of concrete were noted at the surface followed by stiff to very stiff, brown lean clay (CL) to an approximate depth of 6.0 feet below BEG. Underlying the brown lean clay (CL), we encountered hard to very stiff, gray lean clay (CL) to the boring termination depth of 10.0 feet BEG. No free groundwater was encountered during or after drilling.

In boring B-9, approximately 2.5 inches of asphalt and 6.75 inches of concrete were noted at the surface followed by stiff to very stiff, brown lean clay (CL) to an approximate depth of 6.0 feet below BEG. Underlying the brown lean clay (CL), we encountered hard to very stiff, brownish gray lean clay (CL) to the boring termination depth of 10.0 feet BEG. No free groundwater was encountered during or after drilling.

In boring B-10, approximately 3.0 inches of asphalt and 9.0 inches of concrete were noted at the



surface followed by very stiff to stiff, brown lean clay (CL) to an approximate depth of 6.0 feet below BEG. Underlying the brown lean clay (CL), we encountered hard, brownish gray lean clay (CL) to an approximate depth of 8.5 feet BEG followed by stiff to hard, gray lean clay (CL) to the boring termination depth of 10.0 feet BEG. No free groundwater was encountered during or after drilling.

Caroline Avenue

In boring B-11, approximately 3.5 inches of asphalt and 3.75 inches of aggregate base were noted at the surface followed by very stiff to hard, brownish gray lean clay (CL) to an approximate depth of 6.0 feet below BEG. Underlying the brownish gray lean clay (CL), we encountered hard, brown lean clay (CL) to an approximate depth of 8.5 feet BEG followed by very stiff, brownish gray lean clay (CL) to the boring termination depth of 10.0 feet BEG. No free groundwater was encountered during or after drilling.

In boring B-12, approximately 4.25 inches of asphalt and 6.5 inches of aggregate base were noted at the surface followed by very stiff to stiff, brown lean clay (CL) to an approximate depth of 6.0 feet below BEG. Underlying the brown lean clay (CL), we encountered very stiff, brownish gray lean clay (CL) to an approximate depth of 8.5 feet BEG followed by hard, gray lean clay (CL) to the boring termination depth of 10.0 feet BEG. No free groundwater was encountered during or after drilling.

The stiff to hard consistency of silty clay was exhibited by calibrated pocket penetrometer resistance (PPR) values of 0.5 ton per square foot (tsf) to more than 4.5 tsf. Natural moisture content in silty clay was tested to be ranging from 12.9 to 29.7 percent.

Groundwater Conditions

Groundwater level observations were made during and upon completion of drilling. During drilling, no free ground water encountered at all borings except at B-1 where free groundwater was encountered at 8.5 feet BEG. No free groundwater was encountered at all borings after drilling.

It should be noted that groundwater levels are subject to seasonal and long-term variations in response to climatic conditions and man-made influences. Groundwater levels particularly in less permeable cohesive soils (clay) like those found at the site occasionally, may not have had adequate time to stabilize prior to backfilling the boreholes. The hydrostatic groundwater level and any perched water levels will vary in elevation seasonally and annually depending on local amounts of precipitation, evaporation, surface-runoff, infiltration, and land use. If detailed information about the groundwater levels is required, we recommend installing piezometers or monitoring wells to permit long-term observation of the groundwater levels and the fluctuations in these levels.

Brown and gray coloration is typically an indication of a semi-permanent groundwater table. The brown and gray coloration of clay soils is indicative of oxidation whereas the gray



coloration is indicative of a lack of oxidation which tends to occur below the lowest level of groundwater.

REVIEW AND RECOMMENDATIONS

Discussion

Based upon our analysis of the soil conditions, limited laboratory analysis, and the available project information, the following recommendations were developed. If the project characteristics are changed from those assumed herein, our recommendations should be reviewed to see whether any modifications are needed. The soil conditions that were found will permit the use of this area for the proposed construction with recommended upgrading of the existing soil where needed.

Site Preparation

Prior to any construction, soils within the proposed roadway improvements (if found unsuitable) especially in the vicinity of boring B-1 B-9, should be upgraded to carry the design traffic loads. All existing topsoil and/or any other unsuitable fill materials, along with organic clays should be re-evaluated or removed below the design elevation. Voids created in doing this should be backfilled with select compacted granular fill. All existing utilities/structures (if encountered) should also be properly removed, and trenches should be backfilled with compacted granular fill.

The exposed, naturally occurring subgrade soil should be observed and tested by a Geotechnical Engineer or an experienced Materials Technician from **NASHnal Soil Testing, LLC** office to identify the unsuitable soils. The subgrade soil should be carefully observed & proof rolled, and any unsuitable or unstable materials should be removed from the pavement subgrade areas. If perched water is encountered or if rain or snowfall occurs, dewatering may be required in these areas when exposed or if subjected to any other form of water infiltration that would saturate the area.

To backfill the over-excavated areas, if any under the roadway, we recommend using imported granular material meeting the gradation requirements of IDOT CA-6. Clayey soils can also be used as backfill, however, it is difficult to compact clayey soils in the narrow trenches in order to achieve the project specifications.

Granular fill meeting the CA-6 gradation specifications should be placed in 8 to 10-inch loose lifts and compacted to at least 95% of the maximum Modified Proctor dry density (ASTM: D 1557). If used, clayey materials should be placed in 6 to 8-inch loose lifts and compacted to at least 95% of the maximum Modified Proctor dry density (ASTM: D 1557) or 98% of the maximum Standard Proctor dry density (ASTM: D 698). Please refer to the notes in the report Appendix concerning placement of compacted fill soils.



Flexible, Rigid and Permeable Pavement

The pavement design calculation was not part of NST's scope, however, based upon the minimal traffic information provided by the client and the field core thicknesses retrieved from the locations for this phase of inspection, it is our professional opinion in general, that flexible bituminous, rigid and permeable pavement can be constructed.

If permeable pavers are used, we recommend creating finger drains below the stone layers to drain the water away from the porous subgrade stone as in general the soil layer below recommended stone will not absorb much water as it is carrying high moisture content in some areas as it exists.

CONSTRUCTION CONSIDERATIONS

Groundwater

Based on the conditions found in the borings, groundwater is expected during the excavation for footings or during the soil improvement process. Any water which enters excavations from perched groundwater seepage, surface run-off, or direct precipitation, must be promptly pumped out. Water must not be allowed to pond on the subgrade soils since it could soften and disturb them. The contractor should be prepared to handle both surface and groundwater encountered during the construction. The contractor shall plan an appropriate dewatering scheme so that all construction activities are performed in dry and stable conditions, especially to avoid potential post construction settlement in sandy materials with shallow groundwater.

Structural fill and pavement should not be placed in standing water or on wet or disturbed soils. Placing fill, asphalt, or concrete into standing water or over disturbed soil can trap softened soil under the structure and lead to excessive post-construction settlement/cracking & rutting, even if the softened zone is only a few inches thick.

Equipment Selection/Soil Disturbance

The soil types at this site, particularly the silty clays when they are saturated or during freeze/thaw conditions, could be disturbed by construction equipment. It is the contractor's responsibility to choose equipment and work procedures, which will not unduly disturb the subgrade soils in the construction and landscaped areas. The contractor should also route construction traffic away from areas of planned pavement and slabs, to minimize soil disturbance.

If the equipment that is chosen causes rutting or pumping of the soil, it is the contractor's responsibility to switch to other types of equipment. The responsibility to properly select construction equipment to avoid disturbing soil on the site lies solely with the contractor. A note to this effect should be included in the project specifications.



Winter Construction

If the construction of this project begins or extends into the winter, the contractors must take special precautions. Only unfrozen fill and backfill should be used, and contractors may charge extra for importing unfrozen soil or keeping stockpiles of backfill from freezing. Clay soil will be especially difficult to work with under cold wet and/or freezing conditions. Placement of fill and/or asphalt/concrete must not be permitted on frozen soil, and the bearing soils or subgrade should not be allowed to freeze after the concrete is placed. All footing excavations should be protected from freezing conditions and maintained free of ponded water before asphalt/concrete placement. The footings should be cast as soon as possible after excavation is prepared and backfilled as soon as possible after the concrete has attained its strength.

Construction Safety

All excavations must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P "Excavations and Trenches." This document states that excavation safety is solely the responsibility of the contractor; the determination of SAFE slopes for excavation and trenches is to be made by the contractor's "competent person." Reference to this OSHA requirement should be included in the job specifications. The temporary excavation slopes greater than 5 feet in depth should conform to OSHA regulations. In general, such slopes should not be steeper than 1.5 horizontal to 1 vertical (OSHA Soil Type C), unless shoring is used.

The responsibility to provide safe working conditions on this site for earthwork, construction, or any associated operations, is not borne in any manner by NASHnal Soil Testing, LLC.

Field Observation and Testing

Proper observation and testing during the construction phase of this project is an integral part of our recommendations. On-site observation during site preparation, fill placement, compaction, and footing construction, should be done by qualified personnel from **OUR** office. Exposed soils in excavations for backfill should be tested by means of hand auguring, and with a Dynamic Cone Penetrometer (DCP) in sandy soils or a Static Cone Penetrometer (SCP) in clayey soils.

Proposed fill materials should be submitted to our lab for Proctor compaction tests, and tests to check compliance with our recommendations and project specifications. A representative number of field density tests should be taken in compacted fill to aid in judging its suitability. The building materials should be tested in accordance with the project specifications. We would be pleased to provide the testing services for this project.



GENERAL QUALIFICATIONS

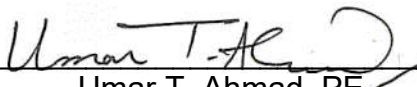
This report has been prepared based on the soil and groundwater conditions found in our borings and on the design data that you have related to us. This report is intended solely for this project at the specific locations identified in the Introduction and Scope of Services. If there are any changes in size, scope, elevation, structural loads, location, use or nature of the structure from those discussed in the introduction of this report, or if our understanding of the project is incorrect or incomplete, we should be given the opportunity to review or modify our recommendations. If changes are made in the design and we are not given the opportunity to review these changes relative to our recommendations and to respond in writing, or we are not provided with the opportunity to confirm the soil conditions are as expressed in this report during the construction of this project, our recommendations will not be considered valid. No specific efforts were performed to determine the thickness of the topsoil layer, the topsoil thickness given in our logs is an estimate. If the true thickness of topsoil is required, we recommend that numerous detailed hand augur probes be performed throughout this parcel.

For this geotechnical exploration, we drilled twelve (12) soil borings in the specified areas. Variations in the subsurface conditions may be found during construction, and it is probable that additional variations exist on the site that cannot be determined from our boring or the site reconnaissance. These variations, which could include greater or shallower depths of unsuitable soils than found at our borings, would not become apparent until the excavation is started. No warranty, express or implied, is presented in this report with respect to the soil and groundwater conditions on this site.

STANDARD OF CARE

The recommendations and opinions contained in this report are based on our interpretation of the subsurface conditions and represent our professional judgment. These judgments were determined in accordance with currently accepted engineering practices at this time and location, by professionals working under similar time and budget constraints. No other warranty is implied or intended.

Prepared by:


Umar T. Ahmad, PE
Registered Professional Engineer, Illinois
Registration # 062-055148



Expires 11/30/2025



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Geotechnical Exploration and Pavement Thickness Determination
for Various Roadways. in Western Springs, IL
Project Number 2025-1301-13G
October 9, 2025

APPENDIX

SITE LOCATION DIAGRAM (Plate No. 1)

BORING LOCATION DIAGRAMS (Plate No. 2)

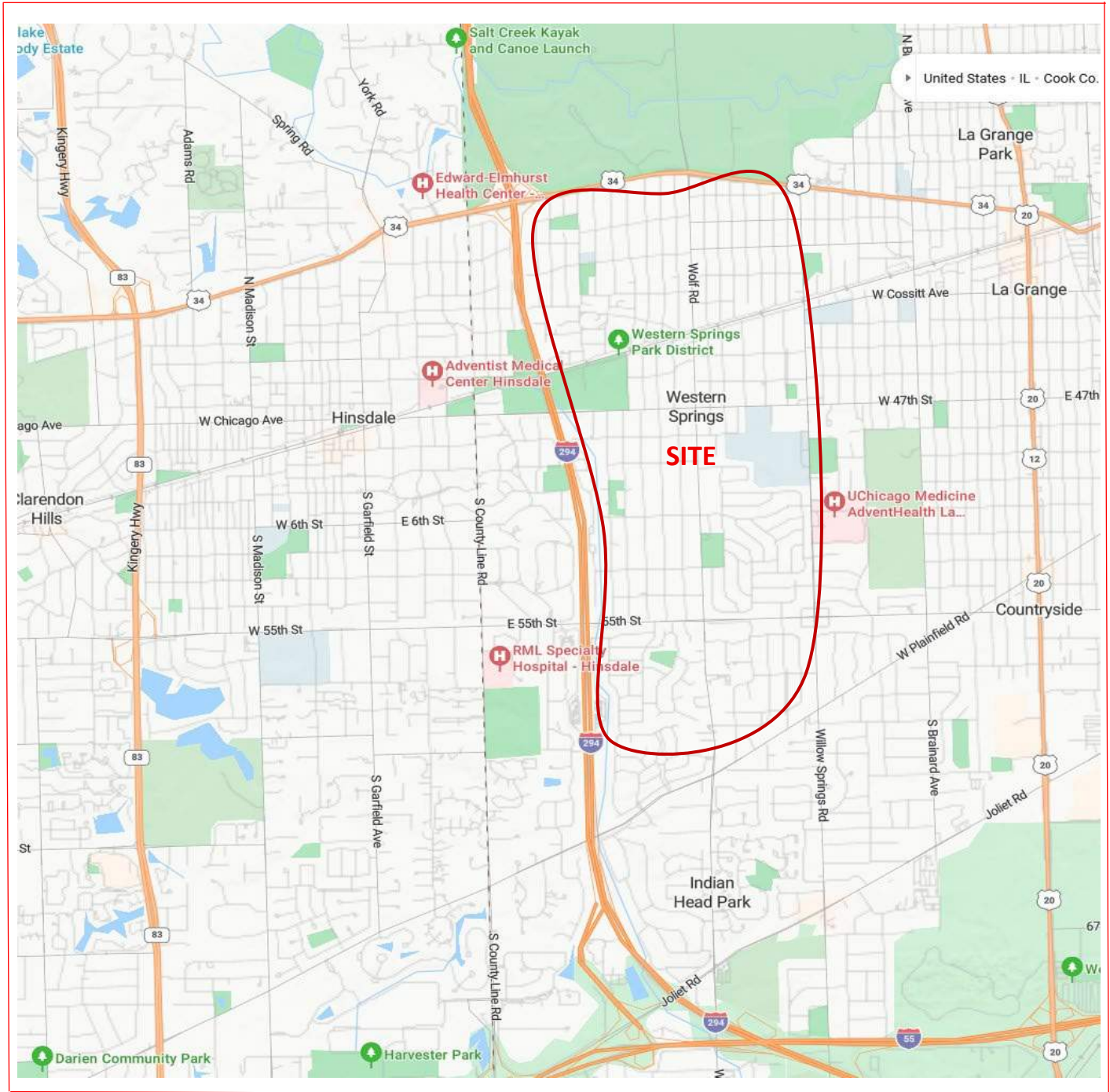
BORING LOGS (Plate No. 3 to 14)

PAVEMENT CORE THICKNESS (Plate No. 15)

KEY TO TEST DATA

CLASSIFICATION OF SOILS

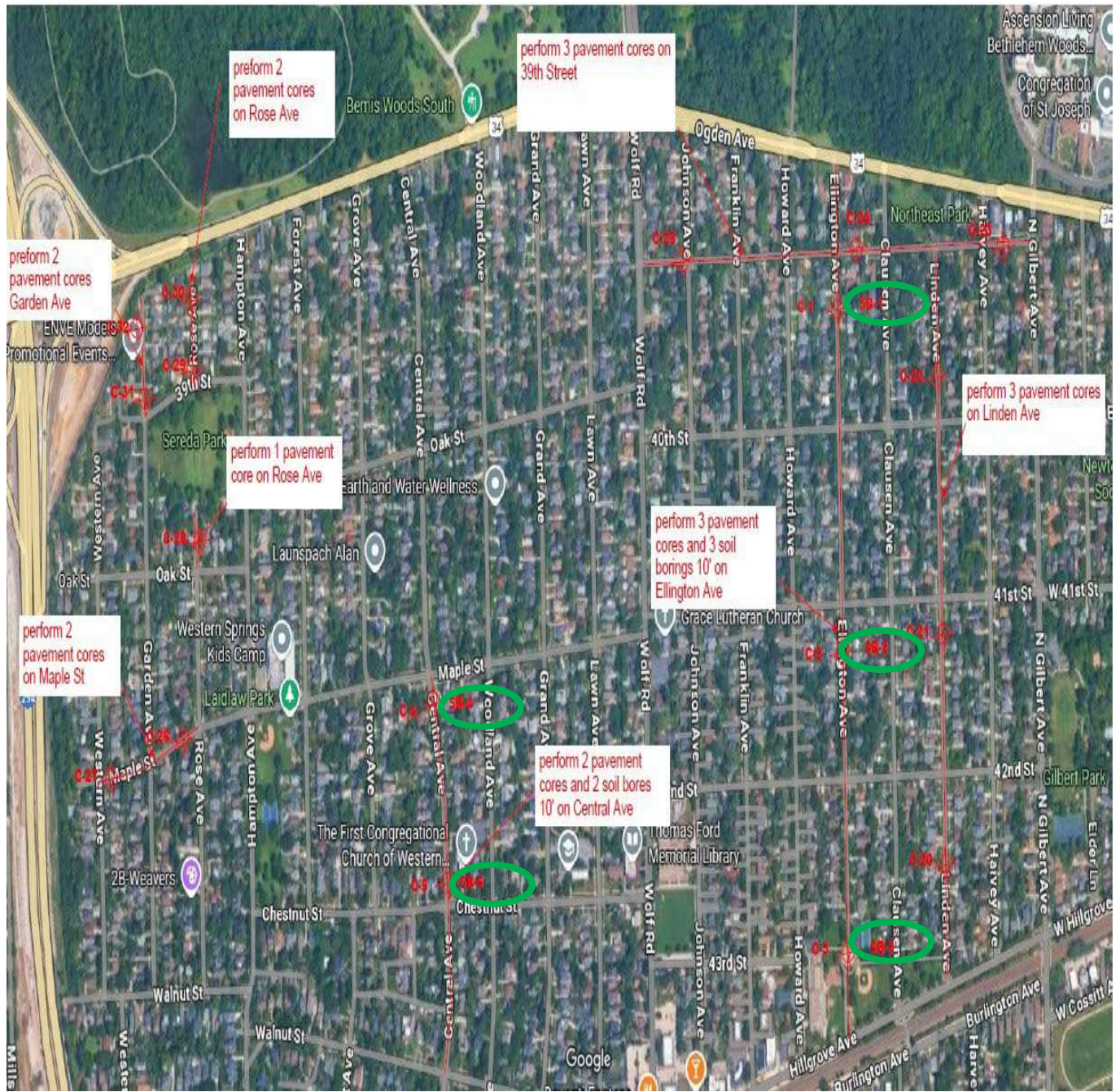
NOTES ON PLACEMENT OF COMPACTED FILL



2025-1301-16G

Plate No. 1

**Geotechnical Exploration and Pavement Thickness Determination at
Various Streets
Western Springs, IL
Site Location Diagram**



2025-1301-16G

Plate No. 2A

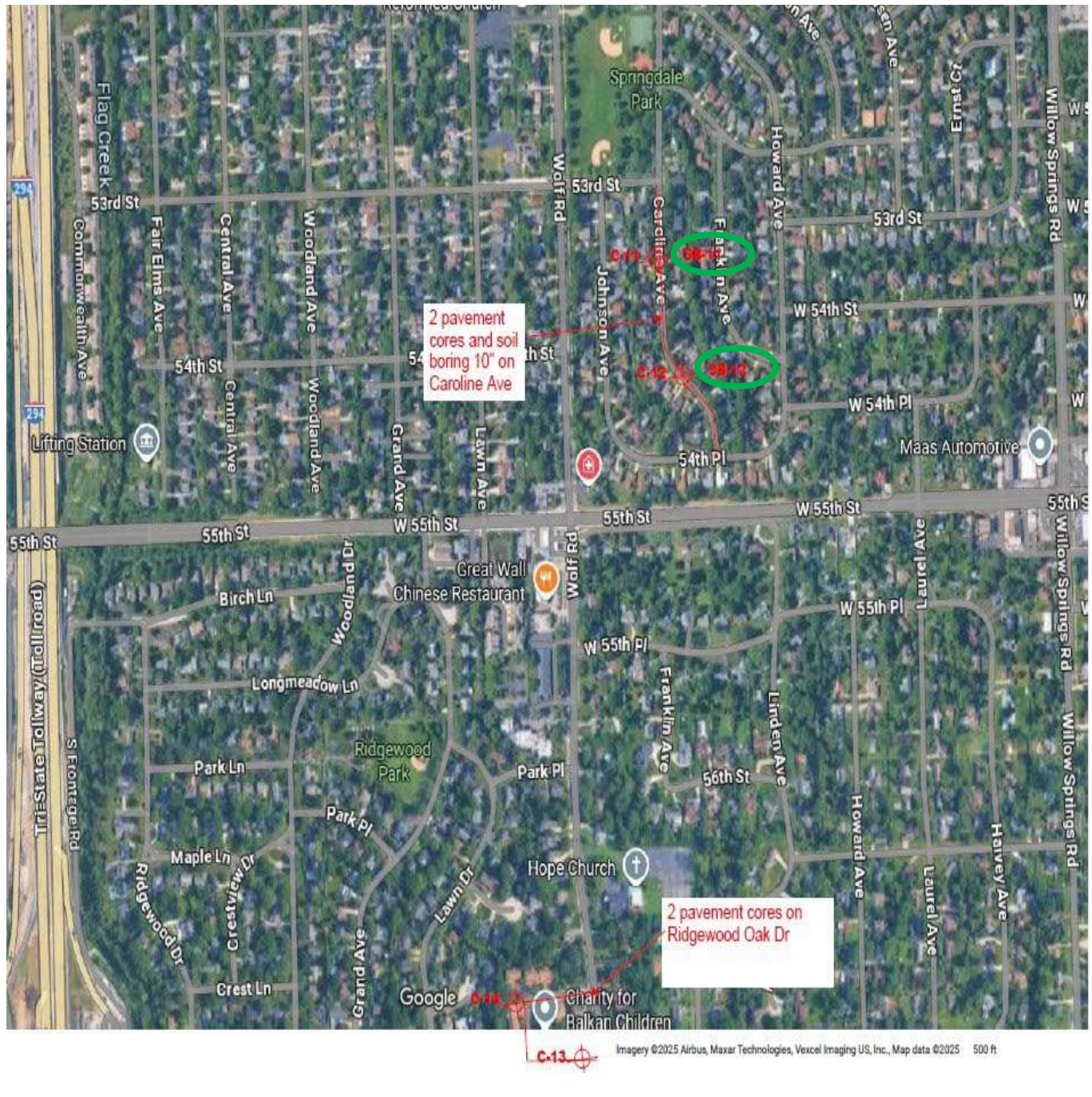
**Geotechnical Exploration and Pavement Thickness Determination at
 Various Streets
 Western Springs, IL
 Boring Location Diagram**



2025-1301-16G

Plate No. 2B

**Geotechnical Exploration and Pavement Thickness Determination at
 Various Streets
 Western Springs, IL
 Boring Location Diagram**



2025-1301-16G

Plate No. 2C

**Geotechnical Exploration and Pavement Thickness Determination at
Various Streets
Western Springs, IL
Boring Location Diagram**



BOREHOLE LOG

Number
B - 1
Plate 3

23856 W. Andrew Rd, Unit 103, Plainfield, IL

Client	V3 Companies
Location	3900 Ellington Ave., Western Springs, IL
Job Number	2025-1301-16G
Drill Rig Type	Geoprobe 7822
Sampler Type	Split Spoon (SS)
Boring Location	See Plate 2 (41°49'07.7"N,87°53'39.3"W)
Boring Elevation (ft)	638 Date: 9/10/2025

Sample #	Sampling Method	Qp (tsf)	Sample Recovery (in)	Moisture Content (%)	Driving Resistance Blows/Ft (N)	Depth (ft)	Sample Depth	Graphic	Soil Description	Elevation (ft)
						0.5		AS	3.5 inches of Asphalt	637.50
						1.0		AGG	11.5 inches of Aggregate Base	637.00
						1.5				636.50
1	SS	0.50	12.0	20.2	1	2.0		CL	Gray Lean Clay (CL)	636.00
						2.5			Trace of Sand and Gravel, Firm	635.50
						3.0				635.00
						3.5				634.50
						4.0		SM	Gray Silty Sand (SM)	634.00
2	SS	NA	11.0	NA	3	4.5			Very Loose	633.50
						5.0				633.00
						5.5				632.50
						6.0			632.00	
						6.5		CL	Gray Lean Clay (CL)	631.50
3	SS	1.50	8.0	18.4	5	7.0			Trace Sand and Gravel, Stiff	631.00
						7.5				630.50
						8.0				630.00
						8.5			629.50	
						9.0		GP-SP	Dark Gray Sand and Gravel (GP-SP)	629.00
4	SS	NA	12.0	NA	4	9.5			Loose, wet	628.50
						10.0				628.00

WL-WD

End of Boring at 10.0'
 Water Level While Drilling : 8.5 Feet
 Water Level After Drilling : 0.0 Feet
 Cave In Depth : 3 Feet

Note: Soil group symbol and group name are determined based on visual classification. Plasticity index and liquid limit were estimated using ASTM D2488 due to insufficient material availability



BOREHOLE LOG

Number
B - 2
Plate 4

23856 W. Andrew Rd, Unit 103, Plainfield, IL

Client	V3 Companies
Location	4106 Ellington Ave., Western Springs, IL
Job Number	2025-1301-16G
Drill Rig Type	Geoprobe 7822
Sampler Type	Split Spoon (SS)
Boring Location	See Plate 2 (41°48'54.2"N, 87°53'38.7"W)
Boring Elevation (ft)	652 Date: 9/10/2025

Sample #	Sampling Method	Qp (tsf)	Sample Recovery (in)	Moisture Content (%)	Driving Resistance Blows/Ft (N)	Depth (ft)	Sample Depth	Graphic	Soil Description	Elevation (ft)
						0.5		AS	3.25 inches of Asphalt	651.50
						1.0		CONC	5 inches of Concrete	651.00
						1.5		AGG	9.5 inches of Aggregate Base	650.50
						2.0				650.00
1	SS	4.00	8.0	19.7	2	2.5		CL	Brown Silty Clay (CL)	649.50
						3.0			Trace Sand, Gravel and Organics, Hard	649.00
						3.5				648.50
						4.0				648.00
2	SS	4.00	8.0	19.1	3	4.5			Trace Sand and Gravel	647.50
						5.0				647.00
						5.5				646.50
						6.0				646.00
						6.5				645.50
3	SS	4.50	15.0	19.5	9	7.0				645.00
						7.5			644.50	
						8.0			644.00	
						8.5			643.50	
						9.0			643.00	
4	SS	4.50	14.0	20.3	15	9.5			642.50	
						10.0			642.00	

End of Boring at 10.0'

Water Level While Drilling : None
 Water Level After Drilling : None
 Cave In Depth : None

Note: Soil group symbol and group name are determined based on visual classification. Plasticity index and liquid limit were estimated using ASTM D2488 due to insufficient material availability



BOREHOLE LOG

Number

B - 3

Plate 5

Client: V3 Companies

Location: 4234 Ellington Ave., Western Springs, IL

Job Number: 2025-1301-16G

Drill Rig Type: Geoprobe 7822

Sampler Type: Split Spoon (SS)

Boring Location: See Plate 2 (41°48'43.0"N, 87°53'38.2"W)

Boring Elevation (ft): 651 Date: 9/10/2025

23856 W. Andrew Rd, Unit 103, Plainfield, IL

Sample #	Sampling Method	Qp (tsf)	Sample Recovery (in)	Moisture Content (%)	Driving Resistance Blows/Ft (N)	Depth (ft)	Sample Depth	Graphic	Soil Description	Elevation (ft)
						0.5				650.50
						1.0		CONC	9.6 inches of Concrete	650.00
						1.5		AGG	6.5 inches of Aggregate Base	649.50
1	SS	2.25	10.0	23.50	3	2.0			Grey Lean Clay (CL)	649.00
						2.5			Trace of Sand and Gravel, Very Stiff	648.50
						3.0		CL		648.00
						3.5				647.50
						4.0			Brown and Grey Lean Clay (CL)	647.00
2	SS	2.50	12.0	23.60	5	4.5			Trace of Sand and Gravel, Very Stiff	646.50
						5.0		CL		646.00
						5.5				645.50
						6.0				645.00
						6.5			Brown Lean Clay (CL)	644.50
3	SS	3.00	16.0	21.60	9	7.0			Trace of Sand and Gravel, Very Stiff	644.00
						7.5				643.50
						8.0		CL		643.00
						8.5				642.50
						9.0				642.00
4	SS	3.25	13.0	23.20	14	9.5				641.50
						10.0				641.00

End of Boring at 10.0'

Water Level While Drilling : No

Water Level After Drilling : No

Cave In Depth : No

Note: Soil group symbol and group name are determined based on visual classification. Plasticity index and liquid limit were estimated using ASTM D2488 due to insufficient material availability



23856 W. Andrew Rd, Unit 103, Plainfield, IL

BOREHOLE LOG

Number

B - 4

Plate 6

Client	V3 Companies
Location	1201 Maple St., Western Springs, IL
Job Number	2025-1301-16G
Drill Rig Type	Geoprobe 7822
Sampler Type	Split Spoon (SS)
Boring Location	See Plate 2 (41°48'52.5"N, 87°54'15.0"W)
Boring Elevation (ft)	660 Date: 9/10/2025

Sample #	Sampling Method	Qp (tsf)	Sample Recovery (in)	Moisture Content (%)	Driving Resistance Blows/Ft (N)	Depth (ft)	Sample Depth	Graphic	Soil Description	Elevation (ft)
						0.5		AS	8.75 inches of Asphalt	659.50
						1.0				659.00
						1.5		AGG	11.5 inches of Aggregate Base	658.50
						2.0				658.00
1	SS	2.50	12.0	22.00	2	2.5		CL	Dark Brown Lean Clay (CL) Trace Sand and Gravel, Very Stiff	657.50
						3.0				657.00
						3.5				656.50
						4.0		CL	Brown Lean Clay (CL) Trace Sand and Gravel, Very Stiff	656.00
2	SS	3.00	10.0	22.10	4	4.5				655.50
						5.0				655.00
						5.5				654.50
						6.0				654.00
						6.5				653.50
3	SS	3.50	12.0	18.80	5	7.0		CL		653.00
						7.5				652.50
						8.0				652.00
						8.5				651.50
						9.0				651.00
4	SS	4.50	13.0	16.90	14	9.5		CL	Consistency changes into Hard	650.50
						10.0				650.00

End of Boring at 10.0'

Water Level While Drilling : None
 Water Level After Drilling : None
 Cave In Depth : None

Note: Soil group symbol and group name are determined based on visual classification. Plasticity index and liquid limit were estimated using ASTM D2488 due to insufficient material availability



BOREHOLE LOG

Number
B - 5
Plate 7

23856 W. Andrew Rd, Unit 103, Plainfield, IL

Client	V3 Companies
Location	4224 Central Ave., Western Springs, IL
Job Number	2025-1301-16G
Drill Rig Type	Geoprobe 7822
Sampler Type	Split Spoon (SS)
Boring Location	See Plate 2 (41°48'44.8"N, 87°54'13.4"W)
Boring Elevation (ft)	668 Date: 9/10/2025

Sample #	Sampling Method	Qp (tsf)	Sample Recovery (in)	Moisture Content (%)	Driving Resistance Blows/Ft (N)	Depth (ft)	Sample Depth	Graphic	Soil Description	Elevation (ft)
						0.5		AS	8.5 inches of Asphalt	667.50
						1.0		AGG	3 inches Aggregate Base	667.00
						1.5		CL	Brown Lean Clay (CL) Trace Sand and Gravel, Stiff Consistency changes into Hard	666.50
1	SS	1.50	18.0	15.40	5	2.0				666.00
						2.5				665.50
						3.0				665.00
						3.5				664.50
						4.0				664.00
2	SS	4,50+	16.0	18.30	7	4.5				663.50
						5.0				663.00
						5.5				662.50
						6.0				662.00
						6.5		661.50		
3	SS	4.50	13.0	13.90	7	7.0		Grey Lean Clay (CL) Trace Sand and Gravel, Hard	661.00	
						7.5		660.50		
						8.0		660.00		
						8.5		659.50		
						9.0		659.00		
4	SS	2.50	16.0	17.90	6	9.5		Consistency changes into Very Stiff	658.50	
						10.0		658.00		

End of Boring at 10.0'

Water Level While Drilling None
 Water Level After Drilling : None
 Cave In Depth : None

Note: Soil group symbol and group name are determined based on visual classification. Plasticity index and liquid limit were estimated using ASTM D2488 due to insufficient material availability



BOREHOLE LOG

Number

B - 6

Plate 8

Client V3 Companies

Location 4317 Central Ave., Western Springs, IL

Job Number 2025-1301-16G

Drill Rig Type Geoprobe 7822

Sampler Type Split Spoon (SS)

Boring Location See Plate 2 (41°48'41.7"N, 87°54'13.4"W)

Boring Elevation (ft) 674 **Date:** 9/10/2025

23856 W. Andrew Rd, Unit 103, Plainfield, IL

Sample #	Sampling Method	Qp (tsf)	Sample Recovery (in)	Moisture Content (%)	Driving Resistance Blows/Ft (N)	Depth (ft)	Sample Depth	Graphic	Soil Description	Elevation (ft)
						0.5		AS	8 inches of Asphalt	673.50
						1.0			15.5 inches of Aggregate Base	673.00
						1.5		AGG		672.50
						2.0				672.00
1	SS	2.25	10.0	19.20	7	2.5			Brown Lean Clay (CL)	671.50
						3.0			Trace of Sand and Gravel, Stiff	671.00
						3.5				670.50
						4.0		CL	Consistency changes into Hard	670.00
2	SS	4.00	13.0	17.80	7	4.5				669.50
						5.0				669.00
						5.5				668.50
						6.0				668.00
						6.5				667.50
3	SS	4.5+	15.0	16.60	9	7.0			Grey Lean Clay (CL)	667.00
						7.5			Trace of Sand and Gravel, Hard	666.50
						8.0		CL		666.00
						8.5				665.50
						9.0			Consistency changes into Very Stiff	665.00
4	SS	3.00	14.0	17.10	7	9.5				664.50
						10.0				664.00

End of Boring at 10.0'

Water Level While Drilling None

Water Level After Drilling : None

Cave In Depth : None

Note: Soil group symbol and group name are determined based on visual classification. Plasticity index and liquid limit were estimated using ASTM D2488 due to insufficient material availability



23856 W. Andrew Rd, Unit 103, Plainfield, IL

BOREHOLE LOG

Number

B - 7

Plate 9

Client	V3 Companies
Location	4383 Central Ave., Western Springs, IL
Job Number	2025-1301-16G
Drill Rig Type	Geoprobe 7822
Sampler Type	Split Spoon (SS)
Boring Location	10/31/1901
Boring Elevation (ft)	668

Date: 9/10/2025

Sample #	Sampling Method	Qp (tsf)	Sample Recovery (in)	Moisture Content (%)	Driving Resistance Blows/Ft (N)	Depth (ft)	Sample Depth	Graphic	Soil Description	Elevation (ft)
						0.5		AS	9.5 inches of Asphalt	667.50
						1.0				667.00
						1.5		AGG	12.5 inches of Aggregate Base	666.50
						2.0				666.00
1	SS	2.50	14.0	13.90	2	2.5		CL	Brown Lean Clay (CL) Trace of Sand and Gravel, Very Stiff	665.50
						3.0				665.00
						3.5				664.50
						4.0		CL	Brown and Gray Lean Clay (CL) Trace of Sand and Gravel, Stiff	664.00
2	SS	1.50	15.0	18.70	2	4.5				663.50
						5.0				663.00
						5.5				662.50
						6.0				662.00
						6.5		CL	Brown Lean Clay (CL) Trace of Sand and Gravel, Stiff	661.50
3	SS	1.50	18.0	23.70	7	7.0				661.00
						7.5				660.50
						8.0				660.00
						8.5				659.50
						9.0		CL	Consistency changes into Hard	659.00
4	SS	3.50	14.0	16.50	12	9.5				658.50
						10.0			658.00	

End of Boring at 10.0'

Water Level While Drilling None
 Water Level After Drilling : None
 Cave In Depth : None

Note: Soil group symbol and group name are determined based on visual classification. Plasticity index and liquid limit were estimated using ASTM D2488 due to insufficient material availability



BOREHOLE LOG

Number

B - 8

Plate 10

Client V3 Companies

Location 4433 Harvey Ave., Western Springs, IL

Job Number 2025-1301-16G

Drill Rig Type Geoprobe 7822

Sampler Type Split Spoon (SS)

Boring Location See Plate 2 (41°48'35.3"N, 87°53'26.9"W)

Boring Elevation (ft) 664 **Date:** 9/10/2025

23856 W. Andrew Rd, Unit 103, Plainfield, IL

Sample #	Sampling Method	Qp (tsf)	Sample Recovery (in)	Moisture Content (%)	Driving Resistance Blows/Ft (N)	Depth (ft)	Sample Depth	Graphic	Soil Description	Elevation (ft)
						0.5		AS	3 inches of Asphalt	663.50
						1.0		CONC	8 inches of Concrete	663.00
						1.5		CL	Brown Lean Clay (CL) Trace of Sand and Gravel, Stiff Consistency changes into Very Stiff	662.50
1	SS	1.50	12.0	18.00	2	2.0				662.00
						2.5				661.50
						3.0				661.00
						3.5				660.50
						4.0				660.00
2	SS	3.00	13.0	19.90	4	4.5				659.50
						5.0				659.00
						5.5				658.50
						6.0				658.00
						6.5		657.50		
3	SS	3.25	15.0	21.30	9	7.0		CL	Grey Lean Clay (CL) Trace of Sand and Gravel, Very Stiff Consistency changes into Hard	657.00
						7.5				656.50
						8.0				656.00
						8.5				655.50
						9.0				655.00
4	SS	4.00	12.0	18.60	6	9.5			654.50	
						10.0			654.00	

End of Boring at 10.0'

Water Level While Drilling None

Water Level After Drilling : None

Cave In Depth : None

Note: Soil group symbol and group name are determined based on visual classification. Plasticity index and liquid limit were estimated using ASTM D2488 due to insufficient material availability



BOREHOLE LOG

Number

B - 9

Plate 11

Client V3 Companies

Location 4500 Harvey Ave., Western Springs, IL

Job Number 2025-1301-16G

Drill Rig Type Geoprobe 7822

Sampler Type Split Spoon (SS)

Boring Location See Plate 2 (41°48'29.2"N, 87°53'26.9"W)

Boring Elevation (ft) 663 **Date:** 9/11/2025

23856 W. Andrew Rd, Unit 103, Plainfield, IL

Sample #	Sampling Method	Qp (tsf)	Sample Recovery (in)	Moisture Content (%)	Driving Resistance Blows/Ft (N)	Depth (ft)	Sample Depth	Graphic	Soil Description	Elevation (ft)
						0.5		AS	2.5 inches of Asphalt	662.50
						1.0		CONC	6.75 inches of Concrete	662.00
						1.5		CL	Brown Lean Clay (CL) Trace of Sand and Gravel, Stiff Consistency changes into Very Stiff	661.50
1	SS	1.00	12.0	29.70	3	2.0				661.00
						2.5				660.50
						3.0				660.00
						3.5				659.50
						4.0				659.00
2	SS	2.75	15.0	18.70	4	4.5				658.50
						5.0				658.00
						5.5				657.50
						6.0				657.00
						6.5		656.50		
3	SS	4.00	17.0	17.50	9	7.0		CL	Brownish Grey Lean Clay (CL) Trace of Sand and Gravel, Hard Consistency changes into Very Stiff	656.00
						7.5				655.50
						8.0				655.00
						8.5				654.50
						9.0				654.00
4	SS	3.00	18.0	19.10	8	9.5			653.50	
						10.0			653.00	

End of Boring at 10.0'

Water Level While Drilling None

Water Level After Drilling : None

Cave In Depth : None

Note: Soil group symbol and group name are determined based on visual classification. Plasticity index and liquid limit were estimated using ASTM D2488 due to insufficient material availability



BOREHOLE LOG

Number
B - 10
Plate 12

23856 W. Andrew Rd, Unit 103, Plainfield, IL

Client	V3 Companies
Location	4622 Harvey Ave., Western Springs, IL
Job Number	2025-1301-16G
Drill Rig Type	Geoprobe 7822
Sampler Type	Split Spoon (SS)
Boring Location	See Plate 2 (41°48'20.1"N, 87°53'26.2"W)
Boring Elevation (ft)	667 Date: 9/11/2025

Sample #	Sampling Method	Qp (tsf)	Sample Recovery (in)	Moisture Content (%)	Driving Resistance Blows/Ft (N)	Depth (ft)	Sample Depth	Graphic	Soil Description	Elevation (ft)
						0.5		AS	3 inches of Asphalt	666.50
						1.0		CONC	9 inches of Concrete	666.00
						1.5		CL	Brown Lean Clay (CL)	665.50
1	SS	3.25	12.0	19.90	3	2.0			Trace of Sand and Gravel, Very Stiff	665.00
						2.5				664.50
						3.0				664.00
						3.5				663.50
						4.0			Consistency changes into Stiff	663.00
2	SS	1.75	16.0	24.40	4	4.5				662.50
						5.0				662.00
						5.5				661.50
						6.0				661.00
						6.5		CL	Brownish Grey Lean Clay (CL)	660.50
3	SS	4.5+	15.0	16.90	15	7.0			Trace of Sand and Gravel, Hard	660.00
						7.5				659.50
						8.0				659.00
						8.5				658.50
						9.0		CL	Grey Lean Clay (CL)	658.00
4	SS	4.5+	18.0	12.90	12	9.5			Trace of Sand and Gravel, Hard	657.50
						10.0			657.00	

End of Boring at 10.0'

Water Level While Drilling None
 Water Level After Drilling : None
 Cave In Depth : None

Note: Soil group symbol and group name are determined based on visual classification. Plasticity index and liquid limit were estimated using ASTM D2488 due to insufficient material availability



BOREHOLE LOG

Number
B - 11
Plate 13

Client V3 Companies
Location 5304 Caroline Ave., Western Springs, IL
Job Number 2025-1301-16G

23856 W. Andrew Rd, Unit 103, Plainfield, IL

Drill Rig Type Geoprobe 7822
Sampler Type Split Spoon (SS)
Boring Location See Plate 2 (41°47'35.4"N, 87°53'45.7"W)
Boring Elevation (ft) 653 **Date:** 9/11/2025

Sample #	Sampling Method	Qp (tsf)	Sample Recovery (in)	Moisture Content (%)	Driving Resistance Blows/Ft (N)	Depth (ft)	Sample Depth	Graphic	Soil Description	Elevation (ft)
						0.5		AS	3.5 inches of Asphalt	652.50
						1.0		AGG	3.75 inches of Aggregate Base	652.00
						1.5		CL	Brownish Gray Lean Clay (CL) Trace of Sand and Gravel, Very Stiff	651.50
1	SS	3.50	13.0	19.30	8	2.0				651.00
						2.5				650.50
						3.0				650.00
						3.5				649.50
						4.0				649.00
2	SS	4.5+	15.0	19.40	9	4.5				648.50
						5.0				648.00
						5.5				647.50
						6.0				647.00
						6.5		646.50		
3	SS	4.5+	7.0	19.10	11	7.0		CL	Brown Lean Clay (CL) Trace of Sand and Gravel, Hard	646.00
						7.5		645.50		
						8.0		645.00		
						8.5		644.50		
						9.0		644.00		
4	SS	2.50	18.0	18.90	10	9.5		CL	Brownish Gray Lean Clay (CL) Trace of Sand and Gravel, Very Stiff	643.50
						10.0			643.00	

End of Boring at 10.0'
 Water Level While Drilling None
 Water Level After Drilling : None
 Cave In Depth : None

Note: Soil group symbol and group name are determined based on visual classification. Plasticity index and liquid limit were estimated using ASTM D2488 due to insufficient material availability



BOREHOLE LOG

Number
B - 12
Plate 15

23856 W. Andrew Rd, Unit 103, Plainfield, IL

Client	V3 Companies
Location	5412 Caroline Ave., Western Springs, IL
Job Number	2025-1301-16G
Drill Rig Type	Geoprobe 7822
Sampler Type	Split Spoon (SS)
Boring Location	See Plate 2 (41°47'28.9"N, 87°53'44.2"W)
Boring Elevation (ft)	659 Date: 9/11/2025

Sample #	Sampling Method	Qp (tsf)	Sample Recovery (in)	Moisture Content (%)	Driving Resistance Blows/Ft (N)	Depth (ft)	Sample Depth	Graphic	Soil Description	Elevation (ft)
						0.5		AS	4.25 inches of Asphalt	658.50
						1.0		AGG	6.5 inches of Aggregate Base	658.00
						1.5		CL	Brown Lean Clay (CL) Trace of Sand and Gravel, Very Stiff	657.50
1	SS	2.50	12.0	19.40	2	2.0				657.00
						2.5				656.50
						3.0				656.00
						3.5				655.50
						4.0				655.00
2	SS	1.50	13.0	20.50	3	4.5				654.50
						5.0				654.00
						5.5				653.50
						6.0				653.00
						6.5		652.50		
3	SS	3.25	17.0	18.80	5	7.0		CL	Brownish Gray Lean Clay (CL) Trace of Sand and Gravel, Very Stiff	652.00
						7.5		651.50		
						8.0		651.00		
						8.5		650.50		
						9.0		650.00		
4	SS	4.5+	18.0	15.20	14	9.5		CL	Gray Lean Clay (CL) Trace of Sand and Gravel, Hard	649.50
						10.0			649.00	

End of Boring at 10.0'
 Water Level While Drilling None
 Water Level After Drilling : None
 Cave In Depth : None

Note: Soil group symbol and group name are determined based on visual classification. Plasticity index and liquid limit were estimated using ASTM D2488 due to insufficient material availability

Project Name: Pavement Coring & Soil Borings for Various Roadways	Project No: 2025-1301-16G
Location of the Project : Western Spring	Cored Date: 09/10/2025

Core Dimensions and Locations

Sample Name	Total Thickness(in)	Asphalt Thickness(in)	Concrete Thickness(in)	Estimated Aggregate Thickness(in)	Latitude	Longitude
C-1 (S.B-1)	3.50"	3.5"	N/A	11.5"	41°49'07.7"N	87°53'39.3"W
C-2 (S.B-2)	8.25"	3.25"	5"	9.5"	41°48'54.2"N	87°53'38.7"W
C-3 (S.B-3)	9.60"	N/A	9.60"	6.5"	41°48'43.0"N	87°53'38.2"W
C-4 (S.B-4)	8.75"	8.75"	N/A	11.5"	41°48'52.5"N	87°54'15.0"W
C-5 (S.B-5)	8.50"	8.50"	N/A	3"	41°48'44.8"N	87°54'13.4"W
C-6 (S.B-6)	8"	8"	N/A	15.5"	41°48'41.7"N	87°54'13.4"W
C-7 (S.B-7)	9.50"	9.50"	N/A	12.5"	41°48'34.7"N	87°54'14.7"W
C-8 (S.B-8)	11.00"	3"	8.00"	N/A	41°48'35.3"N	87°53'26.9"W
C-9 (S.B-9)	9.25"	2.50"	6.75"	N/A	41°48'29.2"N	87°53'26.9"W
C-10(S.B-10)	12.00"	3.0"	9.00"	N/A	41°48'20.1"N	87°53'26.2"W
C-11 (S.B-11)	3.50"	3.50"	N/A	3.75"	41°47'35.4"N	87°53'45.7"W
C-12 (S.B-12)	4.25"	4.25"	N/A	6.5"	41°47'28.9"N	87°53'44.2"W
C-13	N/A	N/A	N/A	15.5"	41°47'02.2"N	87°53'51.0"W
C-14	2.40"	2.40"	N/A	8.25"	41°47'04.4"N	87°53'54.4"W
C-15	9.75"	3.50"	6.25"	N/A	41°48'30.9"N	87°53'40.0"W
C-16	9.75"	3.50"	6.25"	N/A	41°48'35.3"N	87°53'40.1"W
C-17	7.75"	N/A	7.75"	N/A	41°48'31.4"N	87°53'50.9"W
C-18	N/A	N/A	N/A	N/A	41°48'35.5"N	87°54'26.5"W
C-19	7.90"	7.90"	N/A	14.5"	41°48'37.2"N	87°54'35.0"W
C-20	9.50"	3"	6.50"	20.5"	41°48'45.9"N	87°53'29.7"W
C-21	8.75"	2.75"	6"	N/A	41°48'55.2"N	87°53'30.0"W
C-22	5.50"	2.75"	2.75"	23.25"	41°49'05.2"N	87°53'30.6"W
C-23	5.50"	5.50"	N/A	12.5"	41°49'09.3"N	87°53'25.6"W
C-24	5.00"	5.00"	N/A	3"	41°49'08.9"N	87°53'38.0"W
C-25	2.90"	2.90"	N/A	6.25"	41°49'08.5"N	87°53'53.2"W
C-26	6.50"	6.50"	N/A	N/A	41°48'50.8"N	87°54'35.9"W
C-27	3.25"	3.25"	N/A	N/A	41°48'49.3"N	87°54'42.8"W
C-28	7.50"	7.50"	N/A	N/A	41°48'58.1"N	87°54'35.3"W
C-29	5.50"	5.50"	N/A	6"	41°49'04.5"N	87°54'35.7"W
C-30	2.0"	2.0"	N/A	4.5"	41°49'07.7"N	87°54'35.8"W
C-31	5.75"	5.75"	N/A	4.5"	41°49'03.1"N	87°54'40.0"W
C-32	5.75"	5.75"	N/A	4"	41°49'06.6"N	87°54'40.1"W



KEY TO TEST DATA

DRILLING & SAMPLING SYMBOLS:

- | | |
|---|---------------------------------|
| SL = SS with Liner | ST = 3" Shelby Tube |
| SS = Split Spoon — 1 1/2" I.D., 2" O.D., unless otherwise noted | HS = Hollow Stem Auger |
| ST = Shelby Tube — 2" O.D., unless otherwise noted | WS = Wash Sample |
| PA = Power Auger | FT = Fish Trail |
| DB = Diamond Bit — NX: BX: AX | RB = Rock Bit |
| AS = Auger Sample | BS = Bulk Sample |
| JS = Jar Sample | PM = Pressuremeter test—in situ |
| VS = Vane Shear | |

Standard "N" Penetration = Blows per foot of a 140 pound hammer falling 30 inches on a 2-inch OD split spoon, except where noted.

WATER TABLE MEASUREMENT SYMBOLS

- | | |
|-------|-----------------------|
| WL = | Water Level |
| WCI = | Cave In |
| DCI = | Dry Cave In |
| WS = | While Sampling |
| WD = | While Drilling |
| BC = | Before Casing Removal |
| ACR = | After Casing Removal |
| AB = | After Boring |

Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. In pervious soils, the indicated elevations are considered reliable ground water levels. In impervious soils, the accurate determination of ground water elevations is not possible even after several days observation, and additional evidence of ground water elevations must be sought.

GRADATION DESCRIPTION & TERMINOLOGY

Coarse Grained or Granular Soils have more than 50% of their dry weight retained on a #200 sieve; they are described as: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are described as: clays or clayey silts if they are cohesive, and silts if they are non-cohesive. In addition to gradation, granular soils are defined on the basis of their relative in-place density and fine grained soils on the basis of their strength or consistency, and their plasticity.

<u>Major Component Of Sample</u>	<u>Size Range</u>	<u>Descriptive Term(s) (Of Components Also Present in Sample)</u>	<u>Percent of Dry Weight</u>
Boulders	Over 8 in. (200mm)	Trace	1 — 9 .
Cobbles	8 in. to 3 in. (200mm to 75mm)	Little	10 — 19
Gravel	3 in. to #4 sieve (75mm to 2mm)	Some	20 — 34
Sand	#4 to #200 sieve (2mm to .074mm)	And	35 — 50
Silt	Passing #200 sieve (0.074mm to 0.005mm)		
Clay	Smaller than 0.005mm		

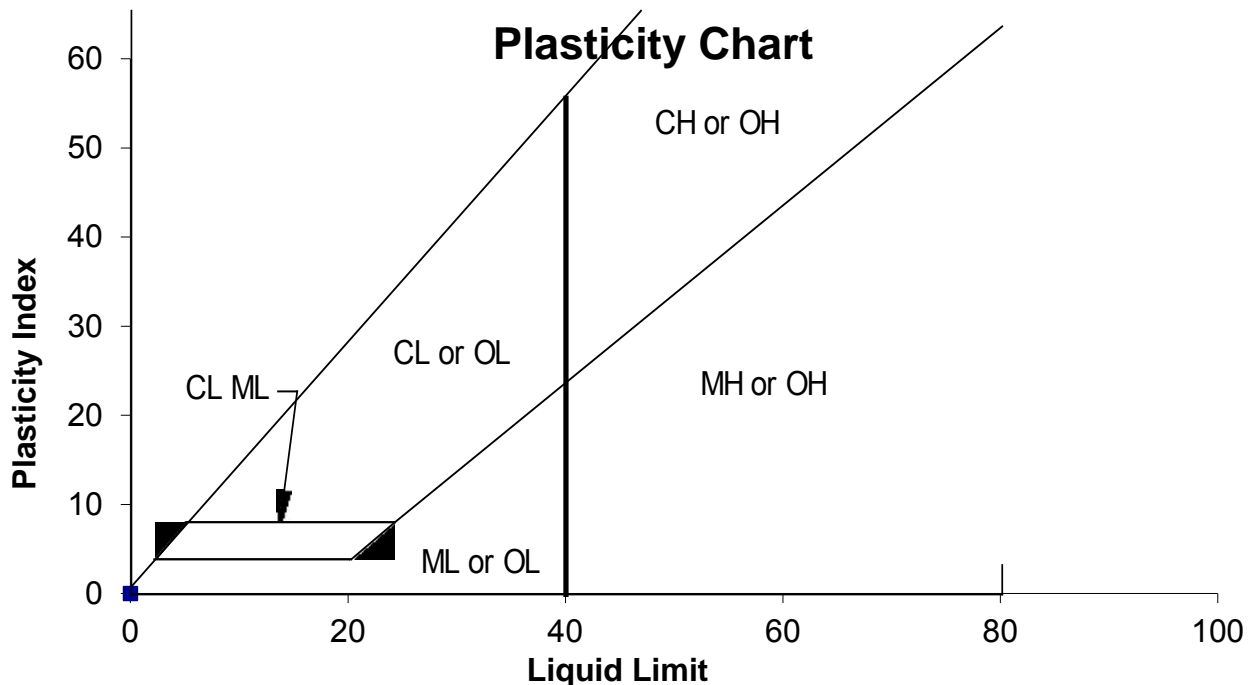
CONSISTENCY OF COHESIVE SOILS

RELATIVE DENSITY OF GRANULAR SOILS

<u>Unconfined Comp. Strength, Qu, tsf</u>	<u>Consistency</u>	<u>N — Blows/ft.</u>	<u>Relative Density</u>
<0.25 —	Very Soft	0 — 3	Very Loose
0.25 — 0.49	Soft	4 — 9	Loose
0.50 — 0.99	Medium (Firm)	10 — 29	Medium Dense
1.00 — 1.99	Stiff	30 — 49	Dense
2.00 — 3.99	Very Stiff	50 — 80	Very Dense
4.00 — 8.00	Hard	80 +	Extremely Dense
>8.00	Very Hard		

UNIFIED SOIL CLASSIFICATION CHART

CRITERIA FOR ASSIGNING GROUP NAMES & GROUP SYMBOLS USING LABORATORY TEST RESULTS				Soil Classification	
				Group Symbol	Group Name
COURSE-GRAINED SOILS More than 50% retained on #200 Sieve	GRAVELS More than 50% of course fractions are retained on #4 sieve	CLEAN GRAVELS Less than 5% fines	$Cu \leq 4$ and $1 \leq Cc \leq 3$	GW	Well Graded Gravel
			$Cu < 4$ and/or $1 > Cc > 3$	GP	Poorly Graded Gravel
		GRAVELS With more than 12% fines	Fines classify as ML or MH	GM	Silty Gravel
			Fines classify as CL or CH	GC	Clayey Gravel
	SANDS 50% or more of course fractions passes #4 sieve	CLEAN SANDS Less than 5% fines	$Cu \leq 6$ and $1 \leq Cc \leq 3$	SW	Well Graded Sand
			$Cu < 6$ and/or $1 > Cc > 3$	SP	Poorly Graded Sand
		SANDS With more than 12% fines	Fines classify as ML or MH	SM	Silty Sand
			Fines classify as CL or CH	SC	Clayey Sand
FINE-GRAINED SOILS 50% or More Passed the #200 Sieve	SILTS & CLAYS Liquid Limit Lower than 50%	Inorganic	$PI > 7$ and plots on or above "A" line	CL	Non to Low Plasticity Clay
			$PI < 4$ and plots below "A" line	ML	Silt
		Organic	$\frac{\text{Liquid Limit (Oven Dried)}}{\text{Liquid Limit (Not Dried)}} < 0.75$	OL	Organic Clay or Silt
			SILTS & CLAYS Liquid Limit 50% or Higher	Inorganic	PI plots on or above "A" line
	PI plots below "A" line	MH			Elastic Silt
	Organic	$\frac{\text{Liquid Limit (Oven Dried)}}{\text{Liquid Limit (Not Dried)}} < 0.75$		OH	Organic Clay or Silt
Highly Organic Soils		Primarily organic material, darker and with organic odor		PT	Peat



NOTES ON PLACEMENT OF COMPACTED FILL SOIL

GENERAL

The placement of compacted fill for support of foundations, floor slabs, pavements, or earth structures should be carried out by an experienced excavator with the proper equipment. The excavator must be prepared to adapt his procedures, equipment, and materials to the type of project, to weather conditions, and the structural requirements of the architect and engineer. Methods and materials used in summer may not be applicable in winter; fill used in dry excavations may not be suitable in wet excavations or during periods of precipitation; proposed fill soil may require wetting or drying for proper placement and compaction. Conditions may also vary during the course of a project or in different areas of the site. These needs should be addressed in the project drawings and specifications.

EXCAVATION/BACKFILL BELOW THE WATER TABLE

It is common to have to excavate and replace unsuitable soils below the water table for site correction. As a general rule of prudent construction technique, we recommend that excavation/backfill below the water table not be permitted, unless the excavation is dewatered. Numerous problems can develop when this procedure is attempted without dewatering.

- Inability of the equipment operators and soil technicians to observe that all unsuitable soil/materials have been removed from the base of the excavation.
- Inability to observe and measure that proper lateral oversizing is provided.
- Inability to prevent or correct sloughing of excavation sidewalls, which can result in unsuitable soils trapped within the select backfill.
- Inability of the contractor to adequately and uniformly compact the backfill.
- Possibility of disturbance of the suitable soils at the base of the excavation.

The dewatering methods, normally chosen at the contractor's option, should follow prudent construction practice. Excavations in clay can often be dewatered with sump pits and pumps; this technique would not be applicable for excavation extending into permeable granular soil, especially for depths significantly below the water table. Dewatering granular soils should normally be done with well points or wells. When dewatering is needed, we strongly recommend that the procedures be discussed at pre-bid or pre-construction meetings. The architect and engineer should review the dewatering technique chosen by the contractor before construction starts; it should not be left until excavation is under way.

The selection of proper backfill materials is important when working in dewatered excavations. Even with dewatering, the base is usually wet and the contractor must be careful not to disturb the base. We recommend that the first lifts of backfill be a clean medium to coarse grain sand with less than 5% passing the #200 sieve. The use of silty sand, clayey sand, or cohesive/semi-cohesive soils is not recommended for such situations. The excavator should be required to submit samples of the proposed material(s) he plans to use as backfill before the fill is hauled to the site, so that it can be tested for suitability.

WINTER EARTHWORK CONSTRUCTION

Winter earthwork presents its own range of problems, which must be overcome; the situation may be complicated by the need for dewatering discussed above.

During freezing conditions, the fill used must not be frozen when delivered to the site. It also must not be allowed to freeze during or after compaction. Since the ability to work the soil while keeping it from freezing depends in part on the soil type, the specifications should require the contractor to submit a sample of his proposed fill before construction starts, for laboratory testing. If the soil engineer and structural engineer determine that it is not suitable, it should be rejected. In general, silty sand, clayey sand, and cohesive/semi-cohesive soils should not be used as fill under freezing conditions. All frozen soil of any type should be rejected for use as compacted fill.

It is important that compacted fill be protected from freezing after it is placed. The excavator should be required to submit a plan for protecting the soil. The plan should include details on the type and amount of material (straw, blankets, extra loose fill, topsoil, etc.) proposed for use as frost protection. The need to protect the soil from freezing is ongoing throughout construction and applies both before and after concrete is placed, until backfilling for final frost protection is completed. Foundations placed on frozen soil can experience heaving and significant settlement, rotation, or other movement as the soil thaws. Such movement can also occur if the soil is allowed to freeze after the concrete is placed and then allowed to thaw. The higher the percentage of fines (clay and silt, P-200 material) in the fill, the more critical is the need for protection from freezing.

Appendix B

Sewer Televising Report



CHICAGOLAND TRENCHLESS
REHABILITATION
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#101, NILES, IL, 60714
847-588-1145

www.ctrssystem.com

dan@ctrssystem.com

PROJECT PACKAGE	
Project	Report date
21575 - VILLAGE OF WESTERN SPRINGS - 2025 / V3	12/15/2025

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NONE	
UPSTREAM:	MH-1
DOWNSTREAM:	MH-2
DIRECTION:	Downstream

CHICAGOLAND TRENCHLESS
REHABILITATION
7400 N. WAUKEGAN RD. / #101
NILES, IL, 60714
847-588-1145

STREET:	GARDEN AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	207.20		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	8/28/2025



Started at Upstream :MH-1:0 .Started @AMH : UPSTREAM MH-1.Water Level 5%



40.5 Tap Factory At:3

46.1 Material Change .CLAY TO PVC. 48.9 Water Level Sag 20%

50.4 Material Change .PVC TO CLAY



Flow



101.5 Tap Factory At:3

127.5 Water Level Sag 20%



174.6 Tap Break-in/Hammer At:2



205.9 Broken At:11 To:4. 206.7 Material Change .CLAY TO PVC.Joint Offset Large . 207.2 Survey Abandoned .END DUE TO OFFSET JOINT



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NONE	
UPSTREAM:	MH-1
DOWNSTREAM:	MH-2
DIRECTION:	Downstream

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[Downstream:MH-2 Inspected Distance: 207.2\(ft\)](#)



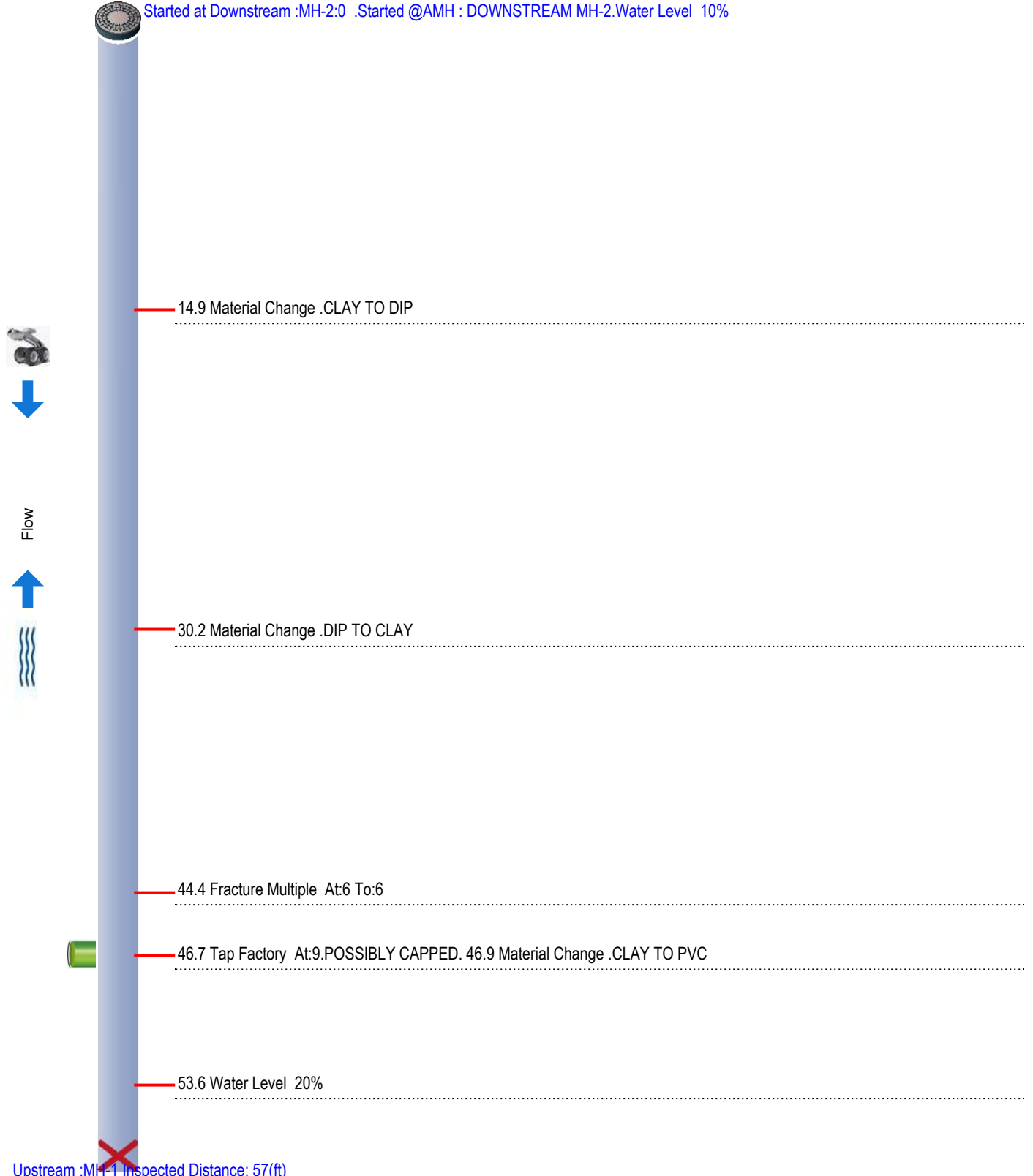
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NONE	
UPSTREAM:	MH-1
DOWNSTREAM:	MH-2
DIRECTION:	Upstream

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STREET:	GARDEN AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	57.00		
SHAPE:	Circular	SIZE:	8	PURPOSE:		DATE:	8/28/2025

Started at Downstream :MH-2:0 .Started @AMH : DOWNSTREAM MH-2.Water Level 10%



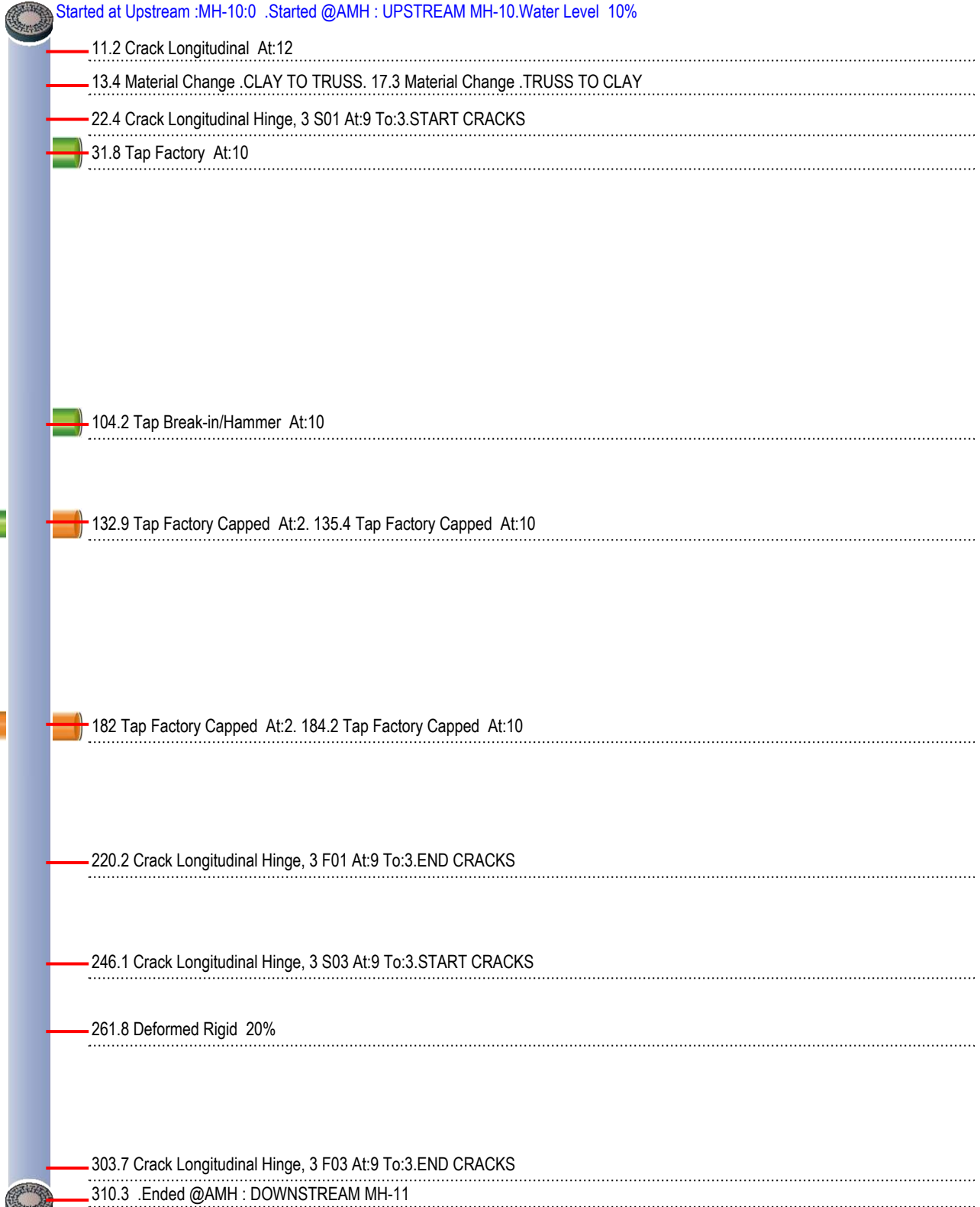


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NONE	
UPSTREAM:	MH-10
DOWNSTREAM:	MH-11
DIRECTION:	Downstream

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STREET:	39TH ST	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	310.30		
SHAPE:	Circular	SIZE:	15	PURPOSE		DATE:	9/26/2025



Downstream:MH-11 Inspected Distance: 310.3(ft)



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NONE	
UPSTREAM:	MH-11
DOWNSTREAM:	MH-12
DIRECTION:	Downstream

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STREET:	39TH ST	CITY:	WESTERN SPRINGS				
MATERIAL:	Reinforced Concrete Pipe	TOTAL:	.00	SURVEYED:	26.10		
SHAPE:	Circular	SIZE:	18	PURPOSE:		DATE:	9/26/2025



Started at Upstream :MH-11:0 .Started @AMH : UPSTREAM MH-11.Water Level 25%



Flow



17 Broken At:8

26.1 .Ended @AMH : DOWNSTREAM MH-12

Downstream:MH-12 Inspected Distance: 26.1(ft)



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NONE	
UPSTREAM:	MH-13
DOWNSTREAM:	MH-14
DIRECTION:	Downstream

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STREET:	39TH ST	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	317.50		
SHAPE:	Circular	SIZE:	12	PURPOSE		DATE:	9/26/2025





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NONE	
UPSTREAM:	MH-14
DOWNSTREAM:	MH-15
DIRECTION:	Downstream

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STREET:	39TH ST	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	92.60		
SHAPE:	Circular	SIZE:	18	PURPOSE		DATE:	9/26/2025



Started at Upstream :MH-14:0 .Started @AMH : UPSTREAM MH-14.Water Level 15%

3 Material Change .CLAY TO PVC.Shape/Size Change .18 TO 15

11.1 Material Change .PVC TO CLAY.Shape/Size Change .15 TO 18



Flow



90.1 Tap Break-in/Hammer At:2

91.8 Broken At:9 To:2. 92.6 Survey Abandoned .END DUE TO LARGE BROKEN PIPE

Downstream:MH-15 Inspected Distance: 92.6(ft)

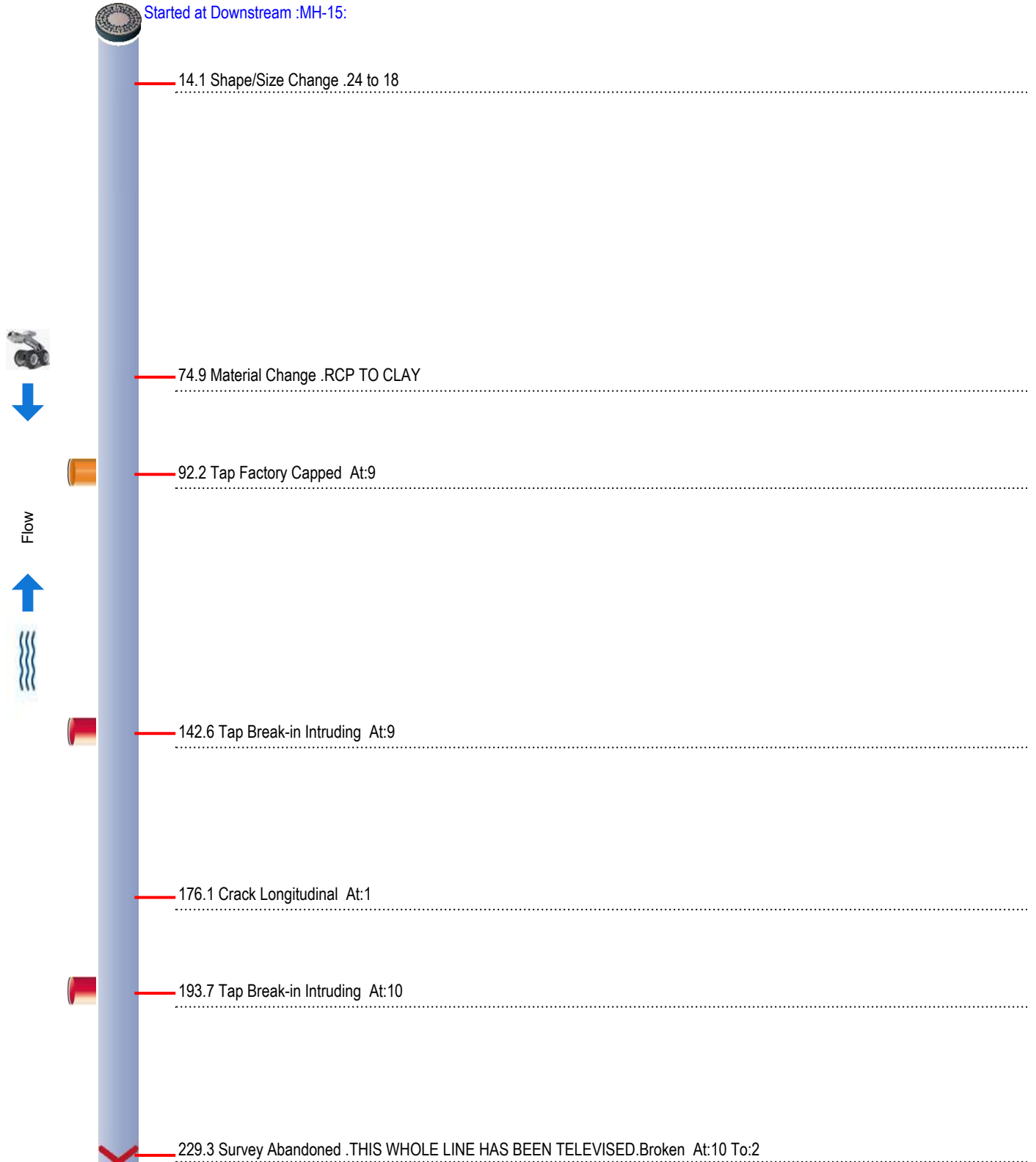


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NONE	
UPSTREAM:	MH-14
DOWNSTREAM:	MH-15
DIRECTION:	Upstream

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STREET:	39TH ST	CITY:	WESTERN SPRINGS				
MATERIAL:	Reinforced Concrete Pipe	TOTAL:	.00	SURVEYED:	229.30		
SHAPE:	Circular	SIZE:	24	PURPOSE		DATE:	9/30/2025



Upstream :MH-14 Inspected Distance: 229.3(ft)



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NONE	
UPSTREAM:	MH-15
DOWNSTREAM:	MH-16
DIRECTION:	Downstream

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STREET:	39TH ST	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	324.90		
SHAPE:	Circular	SIZE:	24	PURPOSE		DATE:	9/29/2025



Started at Upstream :MH-15:0 .Started @AMH : UPSTREAM MH-15.Water Level 25%

19.3 General Observation .HEAVY CLEANING DUE TO DEBRIS

79.1 Shape/Size Change .24 TO 18

93.3 Crack Multiple S01 At:12 To:3.START CRACKS



Flow



139.1 Material Change .CLAY TO CONCRETE.Crack Multiple F01 At:12 To:3.END CRACKS

180.3 Material Change .CONCRETE TO CLAY.Crack Multiple At:7 To:3



220.8 Tap Break-in/Hammer At:11



292 Material Change .CLAY TO BRICK.Shape/Size Change .PIPE GETS BIGGER

316.2 General Observation .POINT REPAIR. 319.4 Tap Break-in Capped At:3. 319.5 General Observation .30" BRICK

320.7 Tap Break-in Capped At:9. 324.9 .Ended @AMH : DOWNSTREAM MH-16

Downstream:MH-16 Inspected Distance: 324.9(ft)

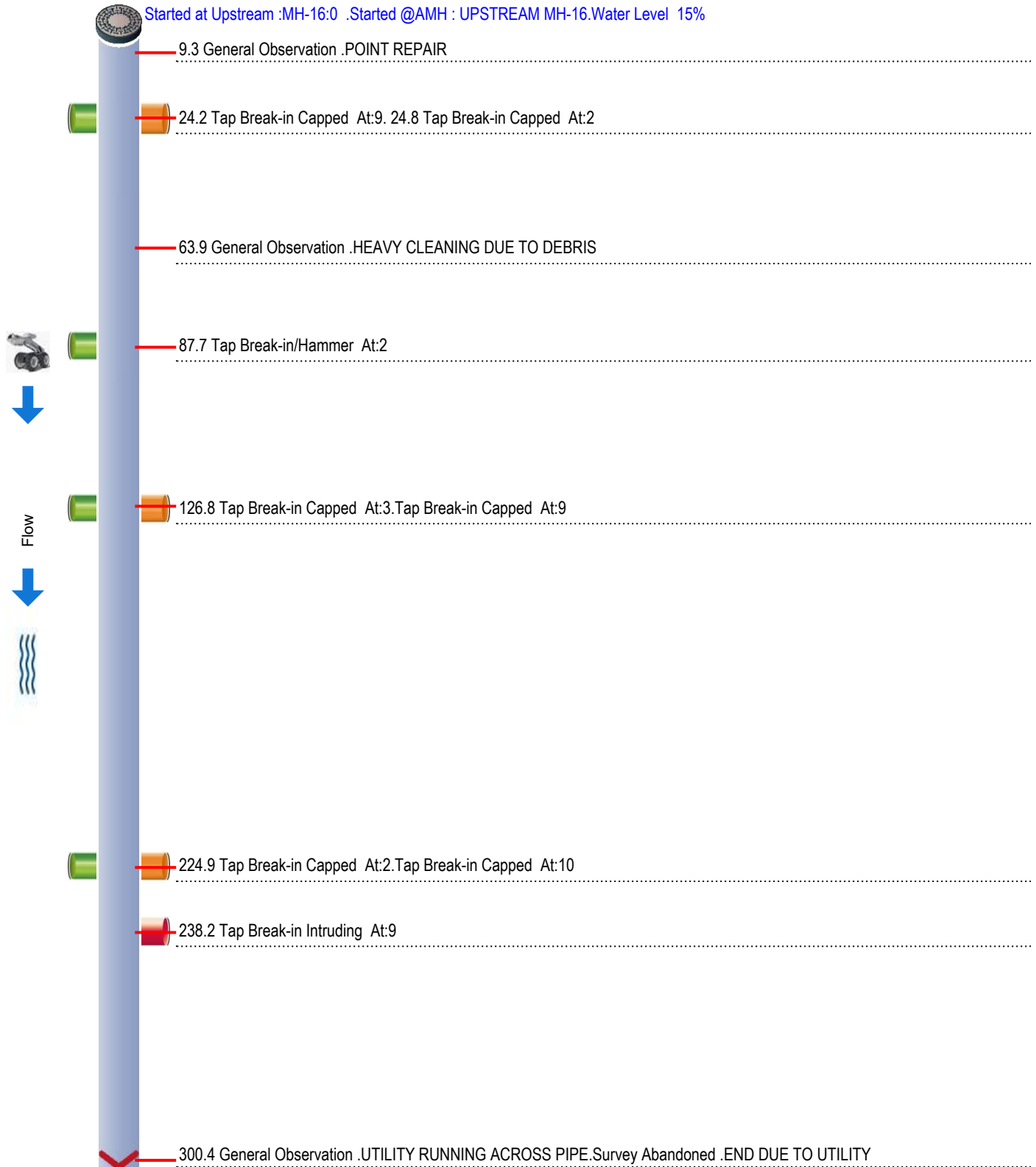


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NONE	
UPSTREAM:	MH-16
DOWNSTREAM:	MH-17
DIRECTION:	Downstream

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STREET:	39TH ST	CITY:	WESTERN SPRINGS				
MATERIAL:	Brick	TOTAL:	.00	SURVEYED:	300.40		
SHAPE:	Circular	SIZE:	30	PURPOSE		DATE:	10/6/2025



Downstream:MH-17 Inspected Distance: 300.4(ft)



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NONE	
UPSTREAM:	MH-16
DOWNSTREAM:	MH-17
DIRECTION:	Upstream

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STREET:	39TH ST	CITY:	WESTERN SPRINGS				
MATERIAL:	Brick	TOTAL:	.00	SURVEYED:	20.20		
SHAPE:	Circular	SIZE:	30	PURPOSE:		DATE:	10/6/2025



Started at Downstream :MH-17:0 .Started @AMH : DOWNSTREAM MH-17.Water Level 15%



3 Tap Break-in/Hammer At:3.Tap Break-in/Hammer At:10



Flow



20.2 General Observation .UTILITY RUNNING ACROSS LINE.Survey Abandoned .THIS WHOLE LINE HAS BEEN TELEVIEWED

Upstream :MH-16 Inspected Distance: 20.2(ft)

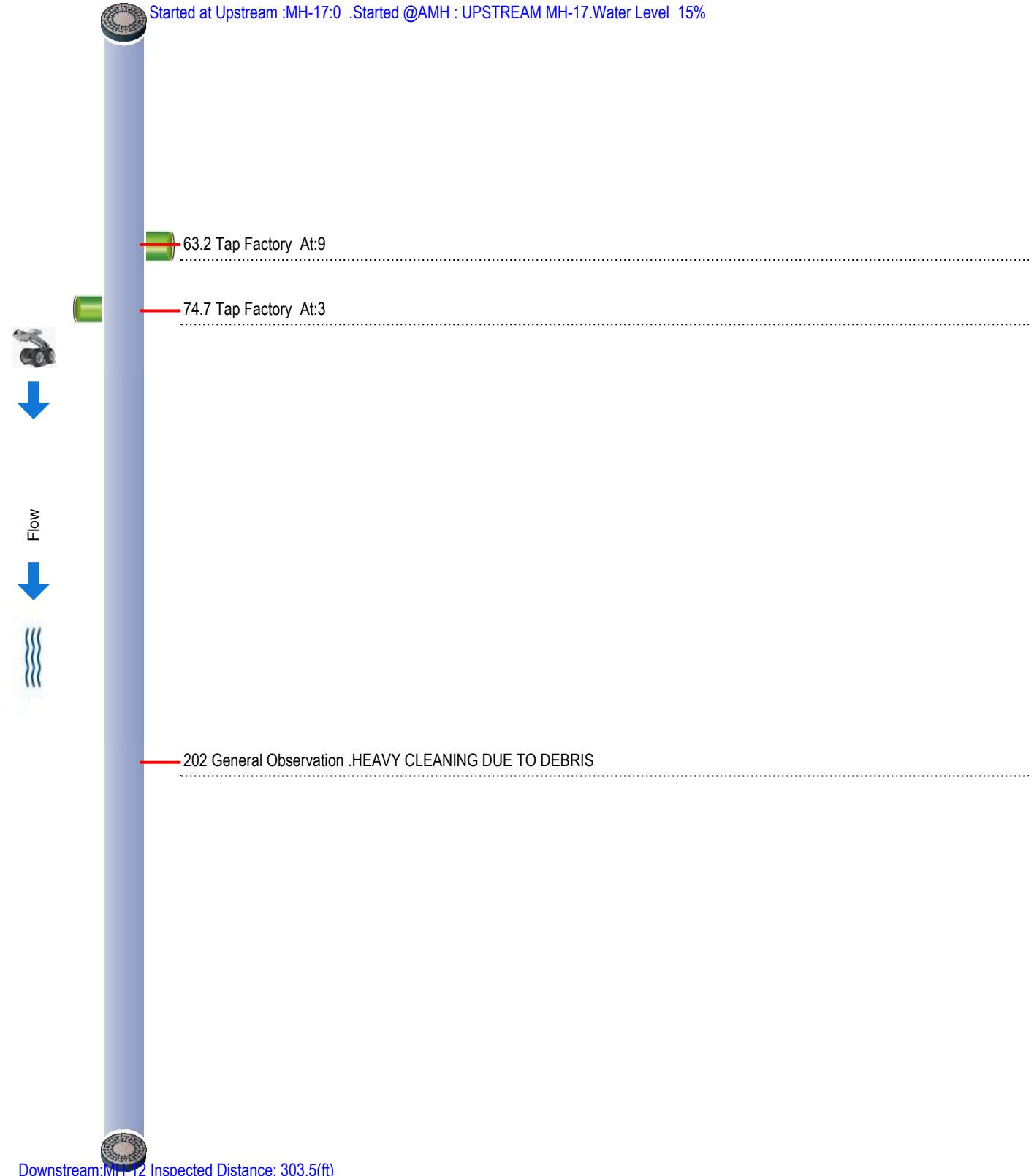


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NONE	
UPSTREAM:	MH-17
DOWNSTREAM:	MH-12
DIRECTION:	Downstream

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STREET:	39TH ST	CITY:	WESTERN SPRINGS				
MATERIAL:	Reinforced Concrete Pipe	TOTAL:	.00	SURVEYED:	303.50		
SHAPE:	Circular	SIZE:	36	PURPOSE		DATE:	10/6/2025



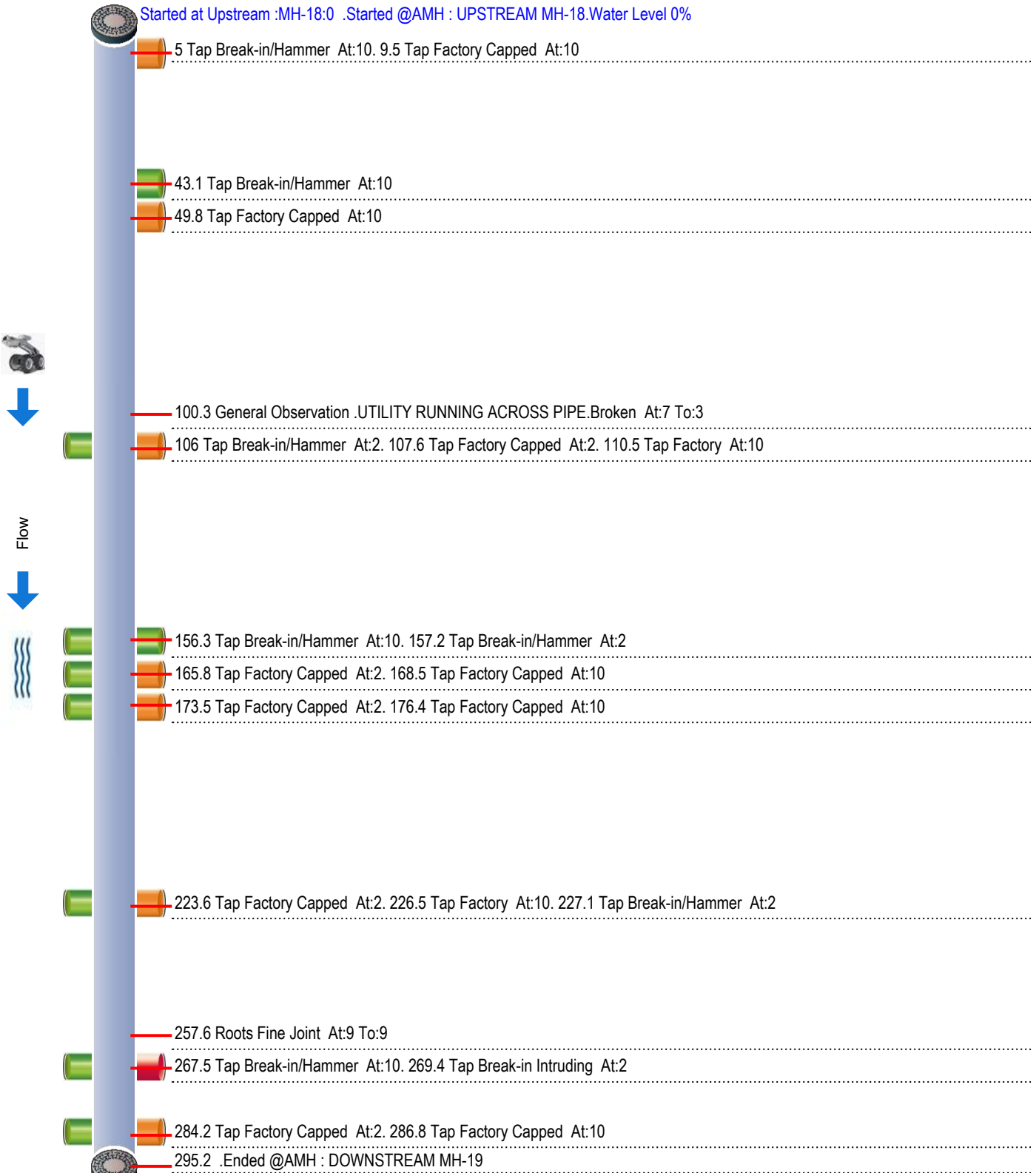


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NONE	
UPSTREAM:	MH-18
DOWNSTREAM:	MH-19
DIRECTION:	Downstream

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STREET:	LINDEN AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	295.20		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	10/6/2025



Downstream:MH-19 Inspected Distance: 295.2(ft)

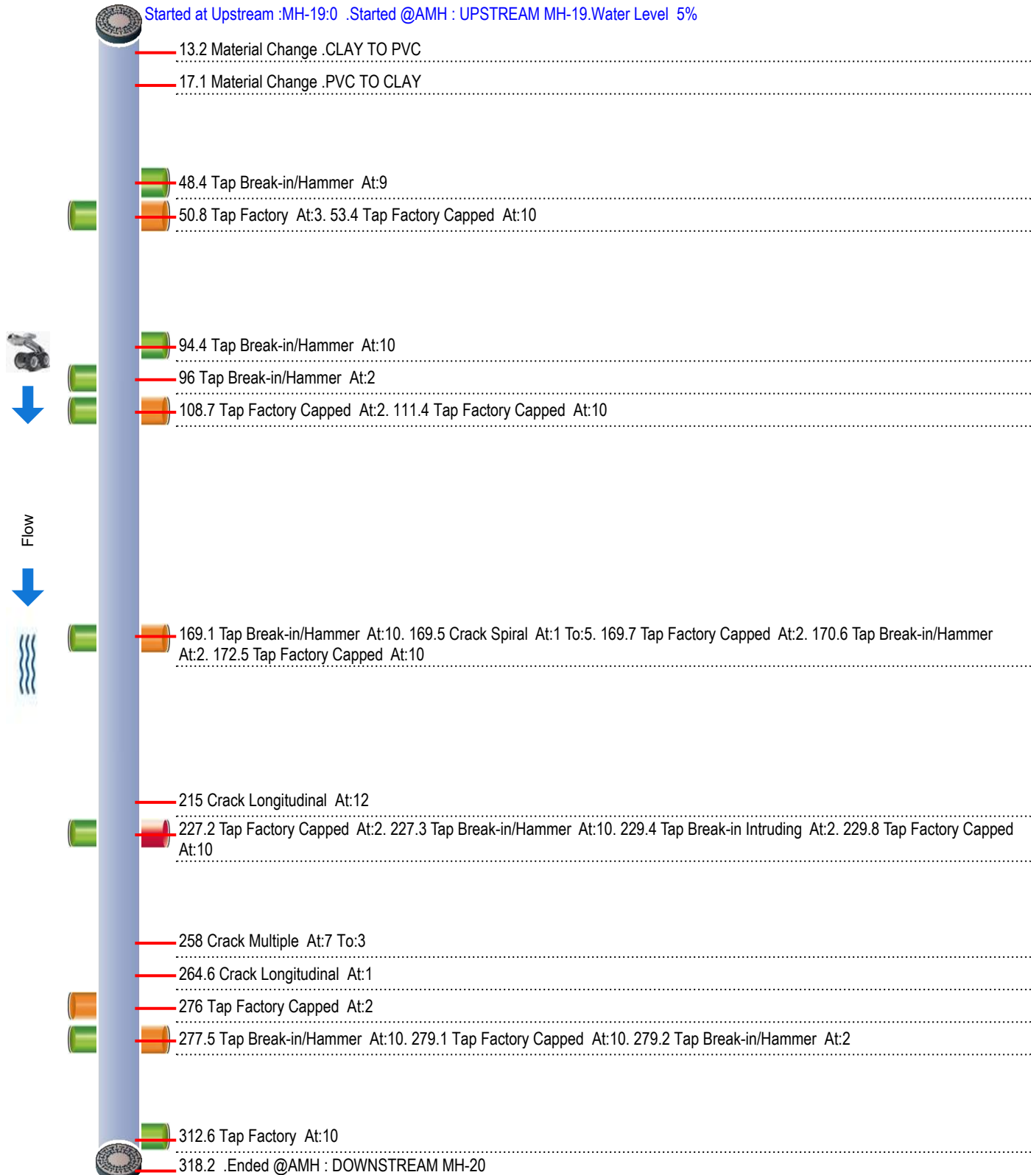


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NONE	
UPSTREAM:	MH-19
DOWNSTREAM:	MH-20
DIRECTION:	Downstream

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STREET:	LINDEN AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	318.20		
SHAPE:	Circular	SIZE:	8	PURPOSE:		DATE:	10/6/2025



Downstream:MH-20 Inspected Distance: 318.2(ft)



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Monday, December 15, 2025



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NONE	
UPSTREAM:	MH-19
DOWNSTREAM:	MH-20
DIRECTION:	Downstream

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NONE	
UPSTREAM:	MH-20
DOWNSTREAM:	MH-21
DIRECTION:	Downstream

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STREET:	LINDEN AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	329.10		
SHAPE:	Circular	SIZE:	10	PURPOSE:		DATE:	11/10/2025





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Downstream:MH-21 Inspected Distance: 329.1(ft)

NONE	
UPSTREAM:	MH-20
DOWNSTREAM:	MH-21
DIRECTION:	Downstream

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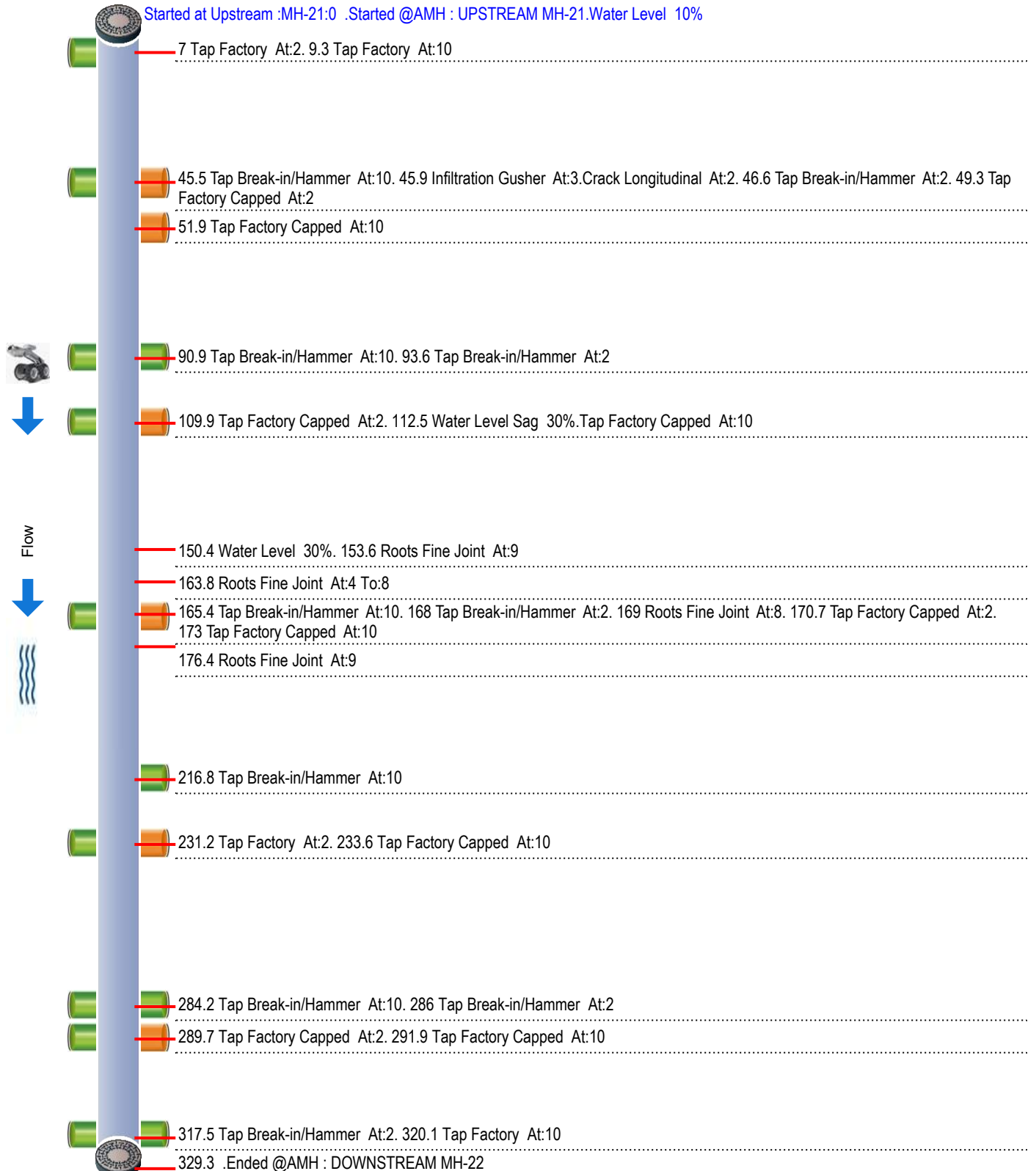


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NONE	
UPSTREAM:	MH-21
DOWNSTREAM:	MH-22
DIRECTION:	Downstream

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STREET:	LINDEN AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	329.30		
SHAPE:	Circular	SIZE:	10	PURPOSE		DATE:	11/10/2025



Downstream:MH-22 Inspected Distance: 329.3(ft)



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NONE	
UPSTREAM:	MH-21
DOWNSTREAM:	MH-22
DIRECTION:	Downstream

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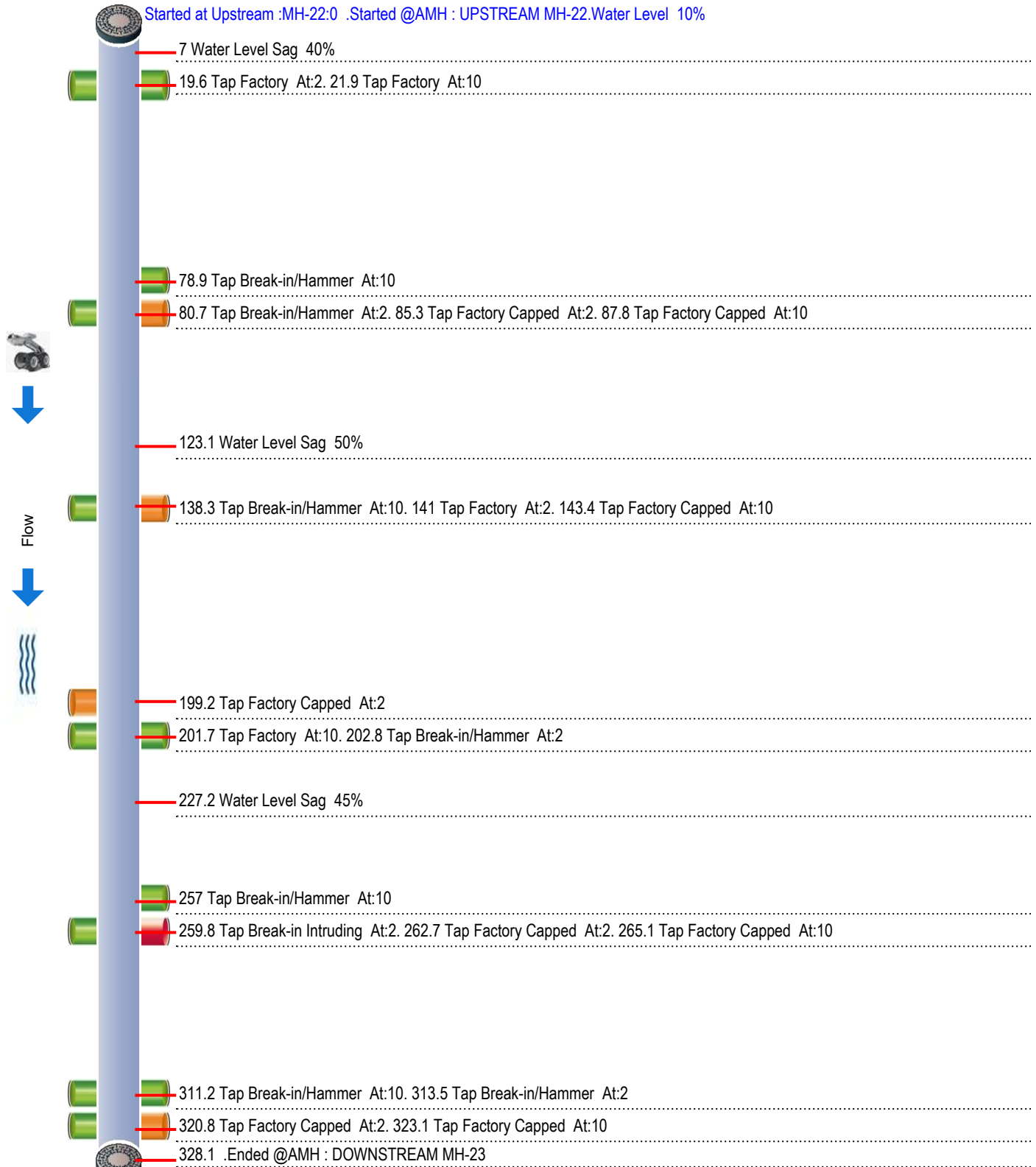


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NONE	
UPSTREAM:	MH-22
DOWNSTREAM:	MH-23
DIRECTION:	Downstream

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STREET:	LINDEN AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	328.10		
SHAPE:	Circular	SIZE:	10	PURPOSE		DATE:	11/10/2025



Downstream:MH-23 Inspected Distance: 328.1(ft)

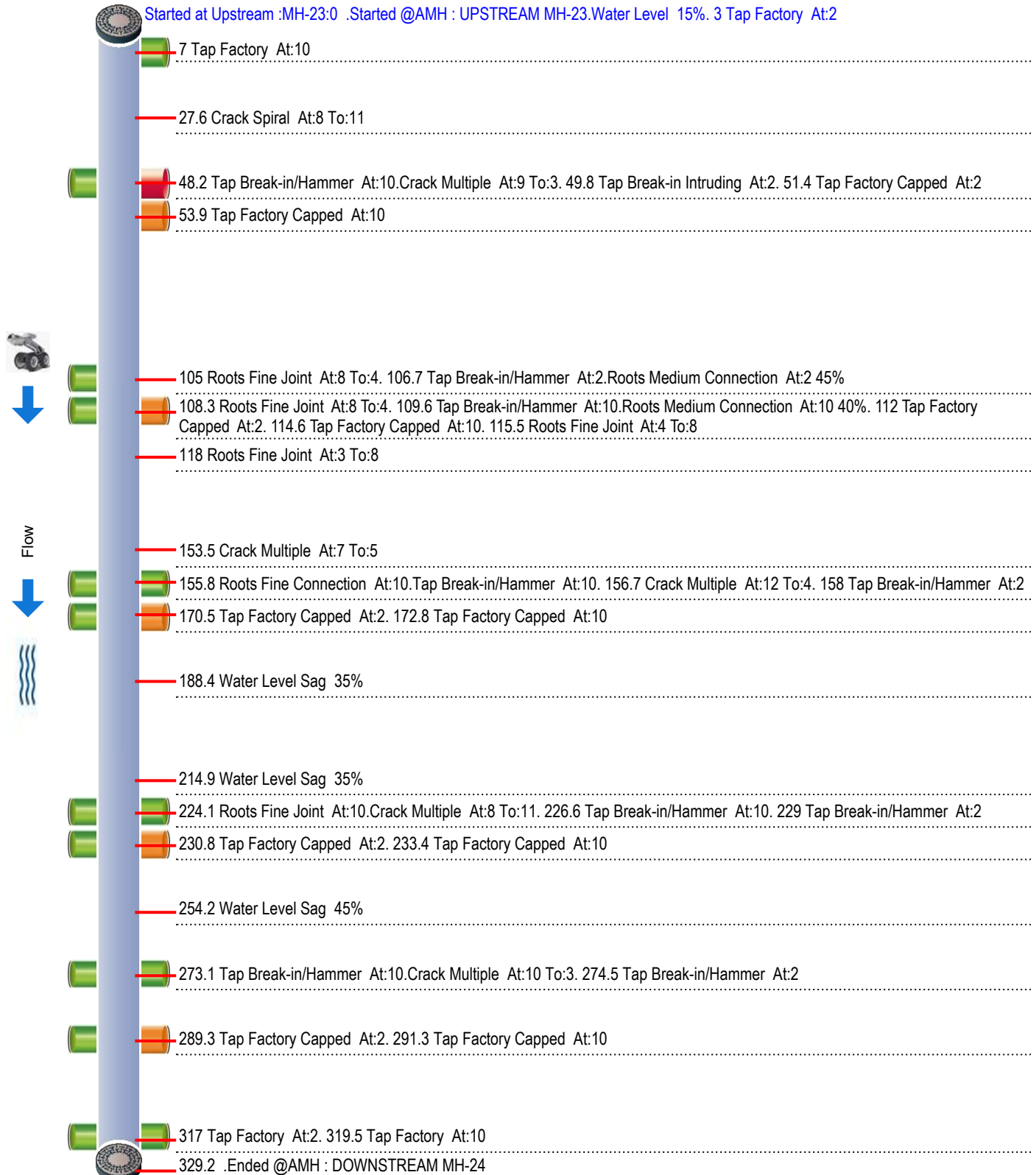


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NONE	
UPSTREAM:	MH-23
DOWNSTREAM:	MH-24
DIRECTION:	Downstream

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STREET:	LINDEN AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	329.20		
SHAPE:	Circular	SIZE:	10	PURPOSE		DATE:	11/10/2025



Downstream:MH-24 Inspected Distance: 329.2(ft)



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NONE	
UPSTREAM:	MH-23
DOWNSTREAM:	MH-24
DIRECTION:	Downstream

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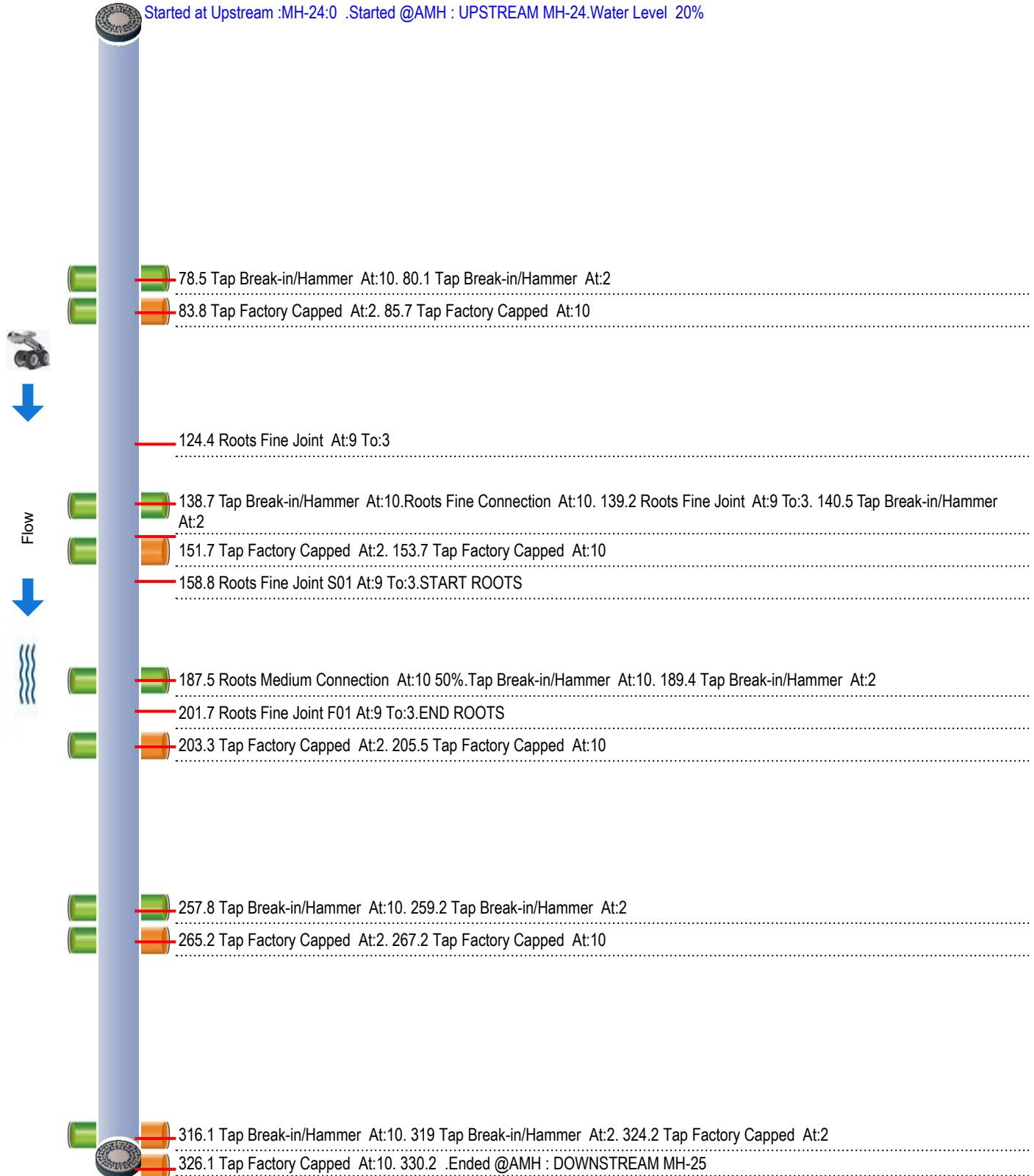


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NONE	
UPSTREAM:	MH-24
DOWNSTREAM:	MH-25
DIRECTION:	Downstream

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STREET:	LINDEN AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	330.20		
SHAPE:	Circular	SIZE:	10	PURPOSE		DATE:	11/10/2025



Downstream:MH-25 Inspected Distance: 330.2(ft)



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NONE	
UPSTREAM:	MH-24
DOWNSTREAM:	MH-25
DIRECTION:	Downstream

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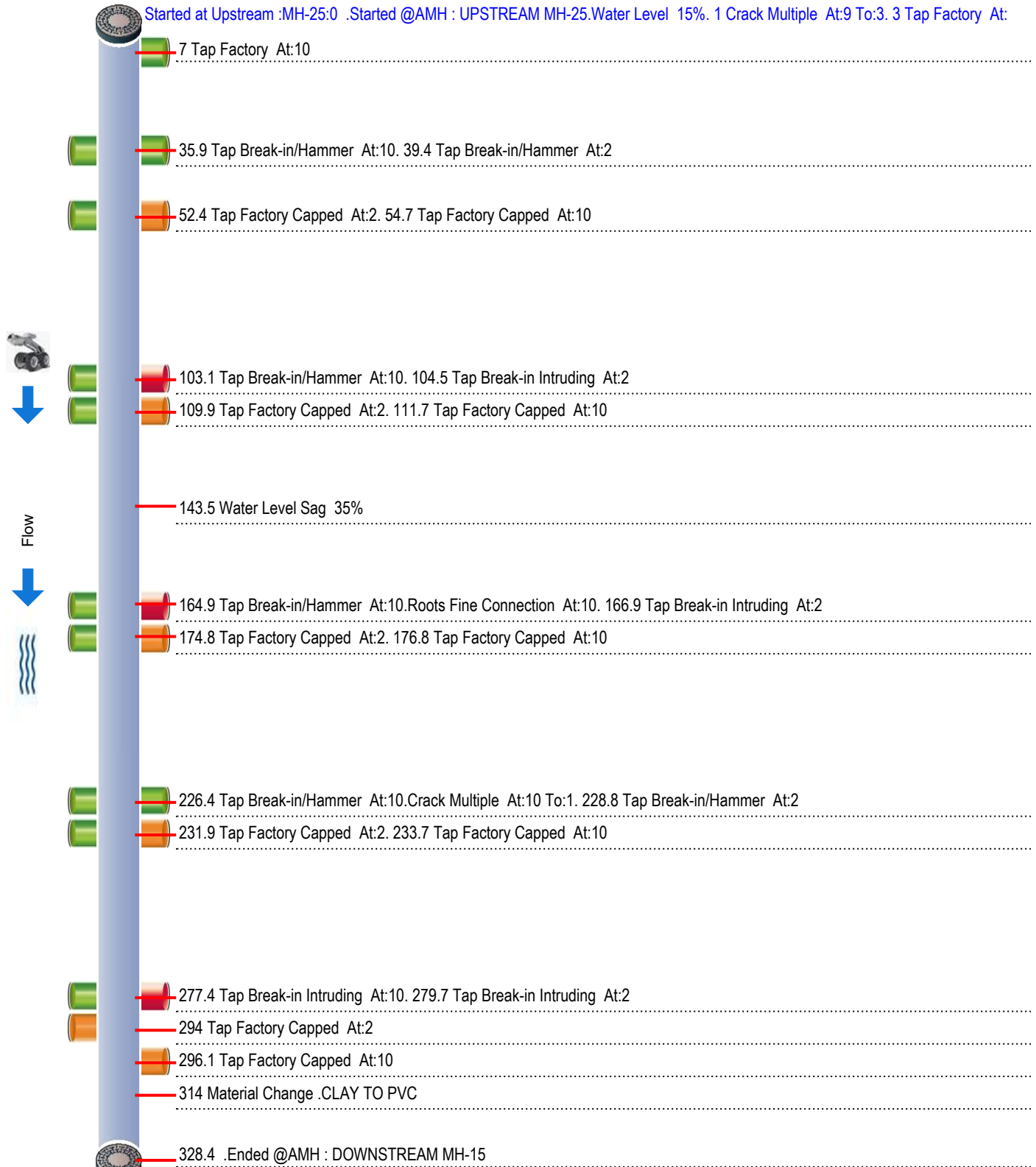


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NONE	
UPSTREAM:	MH-25
DOWNSTREAM:	MH-15
DIRECTION:	Downstream

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STREET:	LINDEN AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	328.40		
SHAPE:	Circular	SIZE:	10	PURPOSE		DATE:	11/10/2025



Downstream:MH-15 Inspected Distance: 328.4(ft)

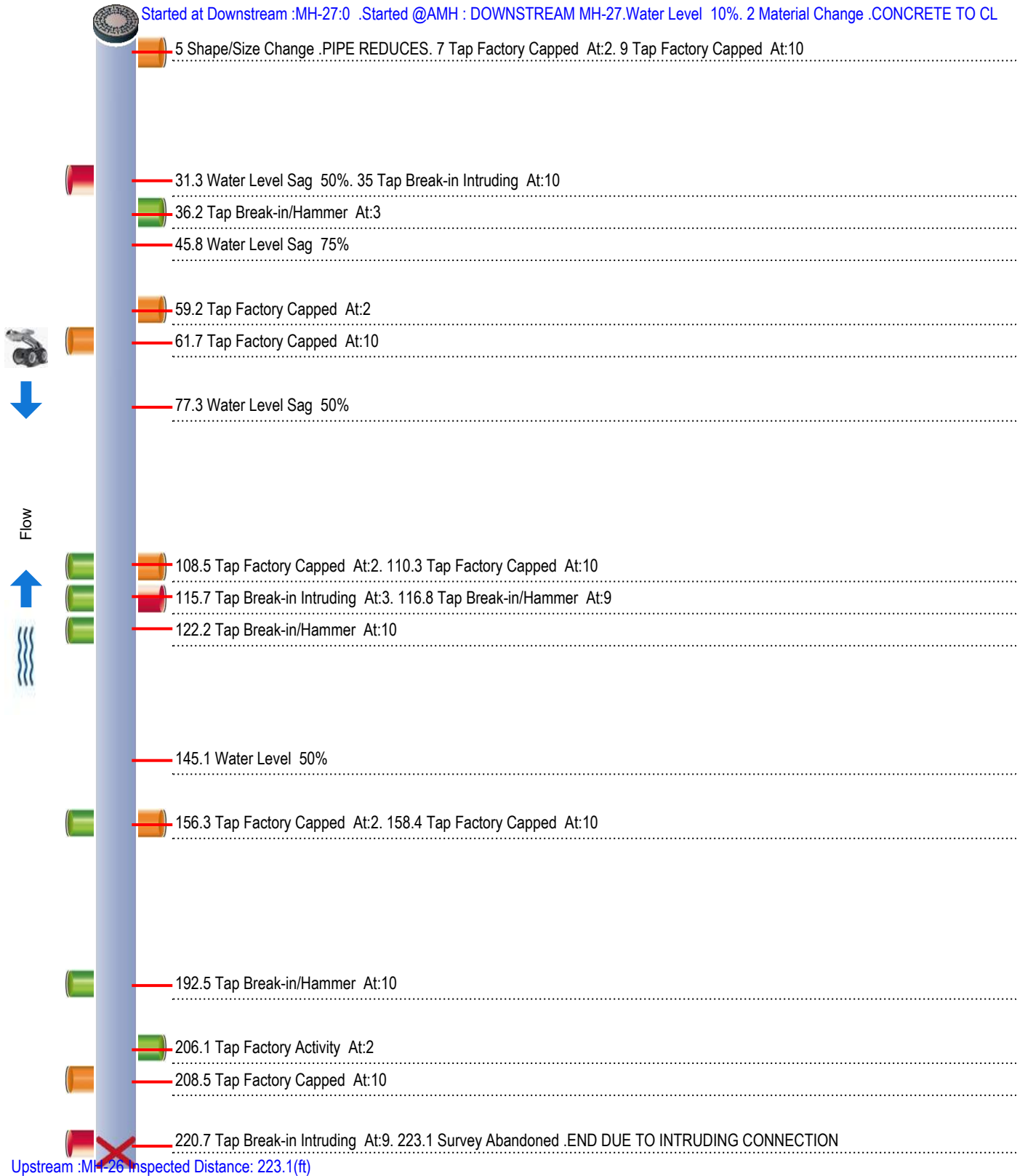


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NONE	
UPSTREAM:	MH-26
DOWNSTREAM:	MH-27
DIRECTION:	Upstream

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STREET:	ELLINGTON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Concrete Pipe non-reinforced	TOTAL:	.00	SURVEYED:	223.10		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/11/2025





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NONE	
UPSTREAM:	MH-27
DOWNSTREAM:	MH-28
DIRECTION:	Downstream

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STREET:	ELLINGTON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Concrete Pipe non-reinforced	TOTAL:	.00	SURVEYED:	47.60		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/11/2025





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NONE	
UPSTREAM:	MH-27
DOWNSTREAM:	MH-28
DIRECTION:	Downstream

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[Downstream:MH-28 Inspected Distance: 47.6\(ft\)](#)



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NONE	
UPSTREAM:	MH-27
DOWNSTREAM:	MH-28
DIRECTION:	Upstream

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STREET:	ELLINGTON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Concrete Pipe non-reinforced	TOTAL:	.00	SURVEYED:	50.30		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/11/2025



Started at Downstream :MH-28:0 .Started @AMH : DOWNSTREAM MH-28.Water Level 30%

3 Material Change .CONCRETE TO CLAY

8 Tap Factory Capped At:2

9.4 Tap Factory Capped At:10



Flow



27.4 Water Level Sag 30%

41.5 Crack Multiple At:9 To:3

43.2 Fracture Longitudinal At:3

47.7 Crack Multiple At:7 To:5

50.3 Survey Abandoned .BURRIED STRUCTURE, THIS WHOLE LINE HAS BEEN TELEVISED

Upstream :MH-27 Inspected Distance: 50.3(ft)

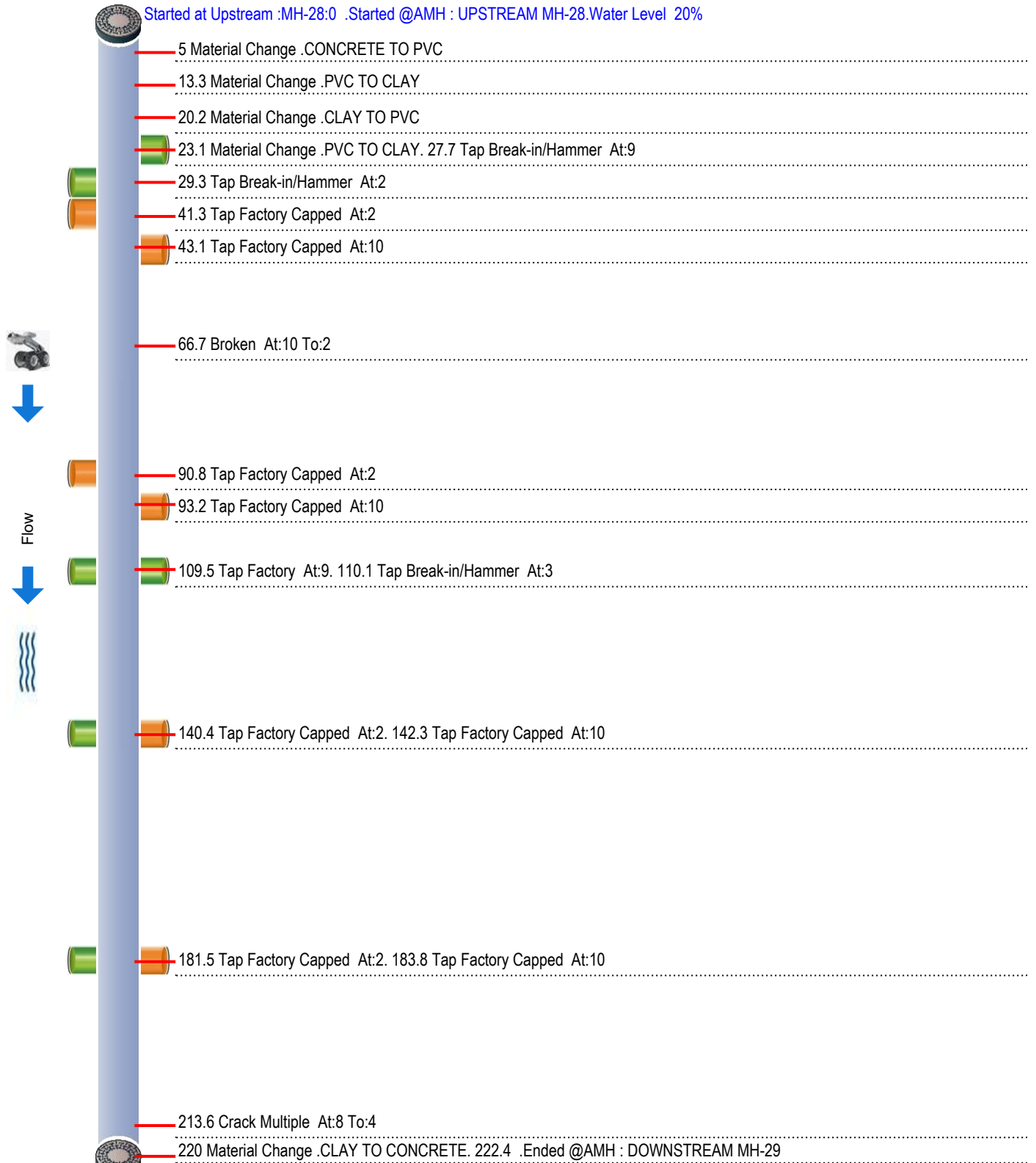


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NONE	
UPSTREAM:	MH-28
DOWNSTREAM:	MH-29
DIRECTION:	Downstream

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STREET:	ELLINGTON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Concrete Pipe non-reinforced	TOTAL:	.00	SURVEYED:	222.40		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/11/2025



Downstream:MH-29 Inspected Distance: 222.4(ft)

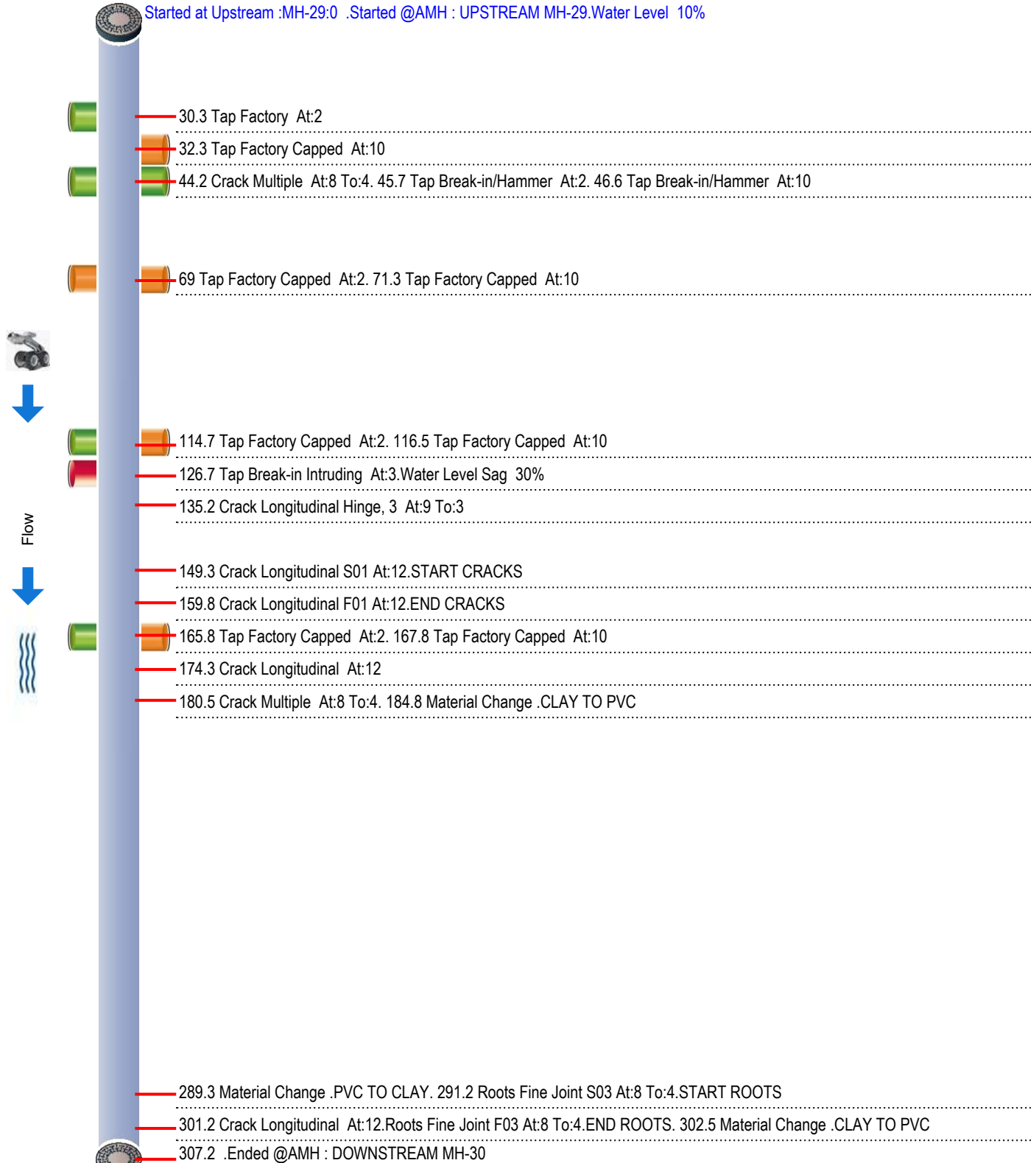


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NONE	
UPSTREAM:	MH-29
DOWNSTREAM:	MH-30
DIRECTION:	Downstream

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STREET:	ELLINGTON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	307.20		
SHAPE:	Circular	SIZE:	10	PURPOSE		DATE:	11/11/2025



Downstream:MH-30 Inspected Distance: 307.2(ft)



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NONE	
UPSTREAM:	MH-3
DOWNSTREAM:	MH-4
DIRECTION:	Upstream

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STREET:	ROSE AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Polyvinyl Chloride	TOTAL:	.00	SURVEYED:	7.00		
SHAPE:	Circular	SIZE:	8	PURPOSE:		DATE:	8/28/2025



Started at Downstream :MH-4:0 .Started @AMH : DOWNSTREAM MH-4. Water Level 20%



Flow



3 Joint Offset Large

Upstream :MH-3 Inspected Distance: 7(ft)



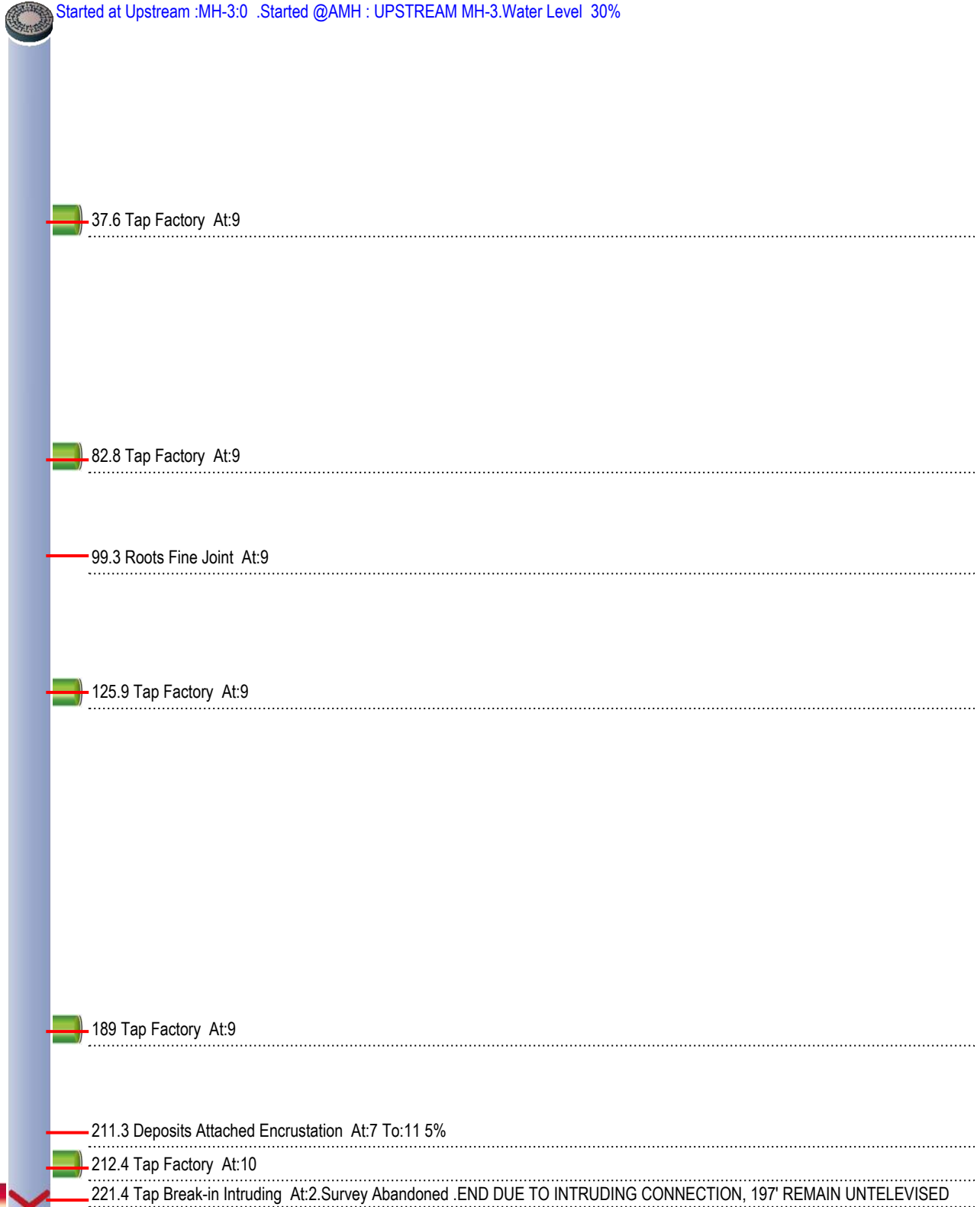


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NONE	
UPSTREAM:	MH-3
DOWNSTREAM:	MH-4
DIRECTION:	Downstream

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STREET:	ROSE AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	221.40		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	8/28/2025



Downstream:MH-4 Inspected Distance: 221.4(ft)



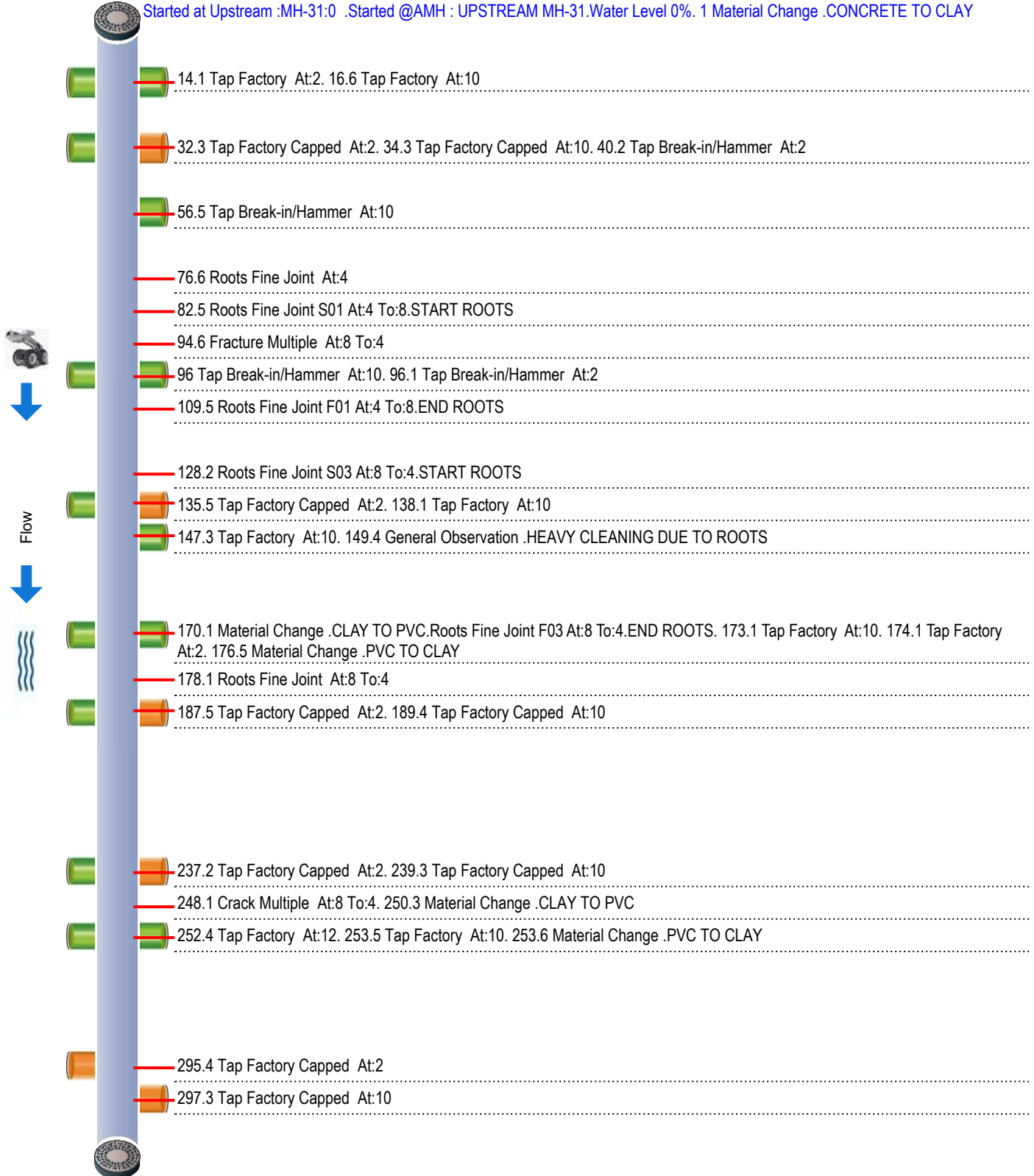
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NONE	
UPSTREAM:	MH-31
DOWNSTREAM:	MH-32
DIRECTION:	Downstream

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STREET:	ELLINGTON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Concrete Pipe non-reinforced	TOTAL:	.00	SURVEYED:	319.00		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/11/2025

Started at Upstream :MH-31:0 .Started @AMH : UPSTREAM MH-31.Water Level 0%. 1 Material Change .CONCRETE TO CLAY



Downstream:MH-32 Inspected Distance: 319(ft)



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NONE	
UPSTREAM:	MH-31
DOWNSTREAM:	MH-32
DIRECTION:	Downstream

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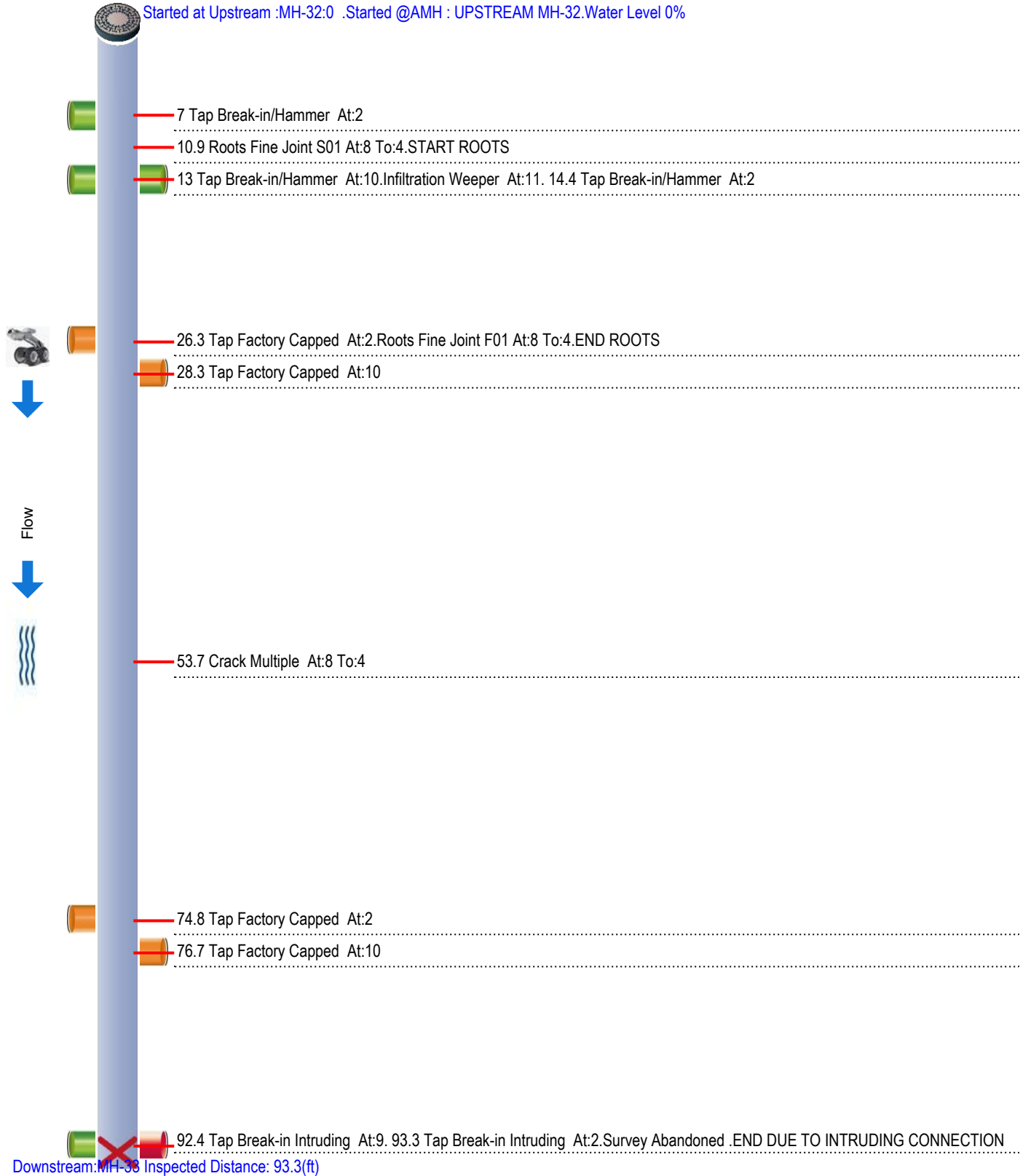


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NONE	
UPSTREAM:	MH-32
DOWNSTREAM:	MH-33
DIRECTION:	Downstream

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STREET:	ELLINGTON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	93.30		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/11/2025





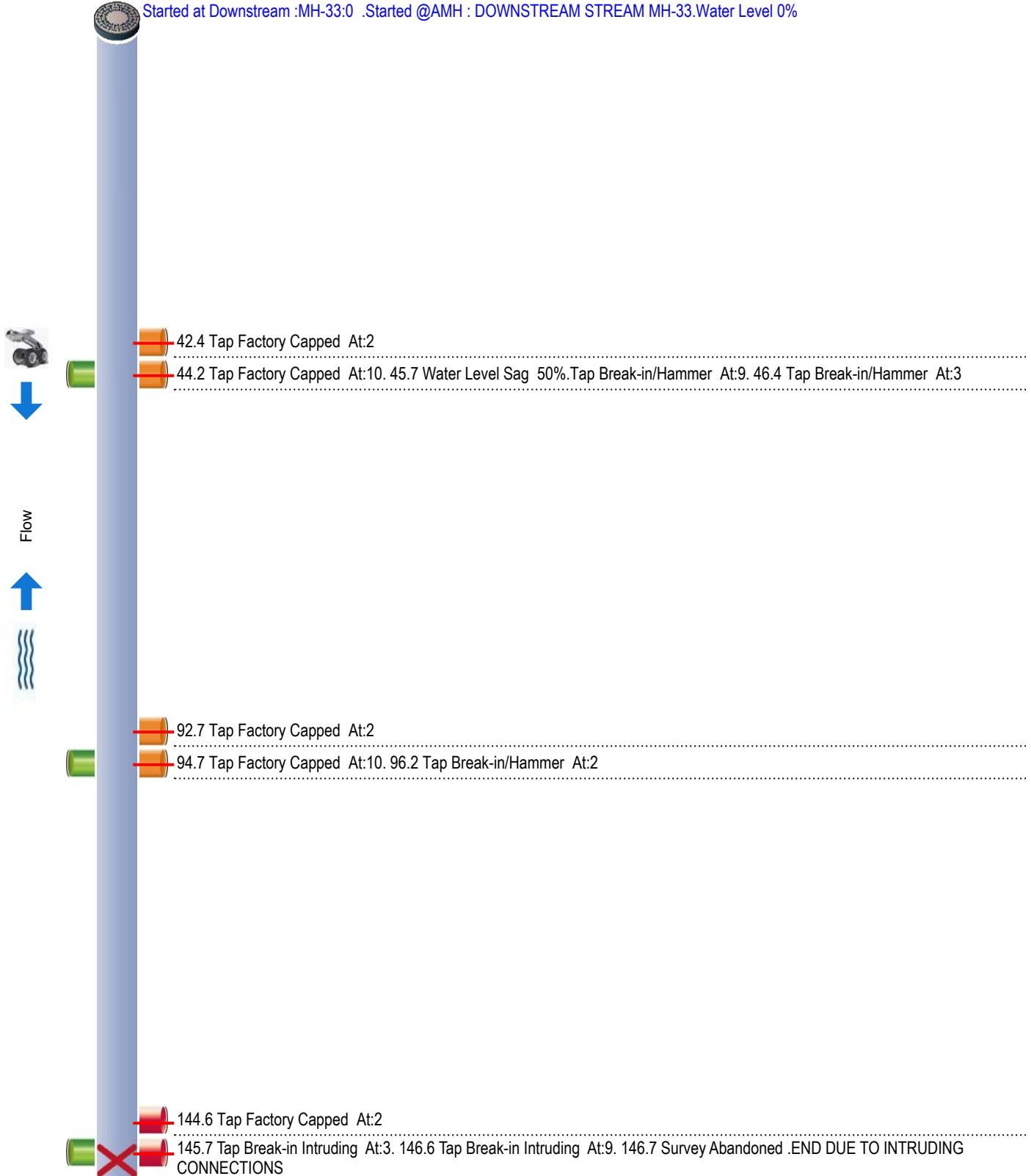
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NONE	
UPSTREAM:	MH-32
DOWNSTREAM:	MH-33
DIRECTION:	Upstream

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STREET:	ELLINGTON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	146.70		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/11/2025

Started at Downstream :MH-33:0 .Started @AMH : DOWNSTREAM STREAM MH-33.Water Level 0%





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NONE	
UPSTREAM:	MH-32
DOWNSTREAM:	MH-33
DIRECTION:	Upstream

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[Upstream :MH-32 Inspected Distance: 146.7\(ft\)](#)

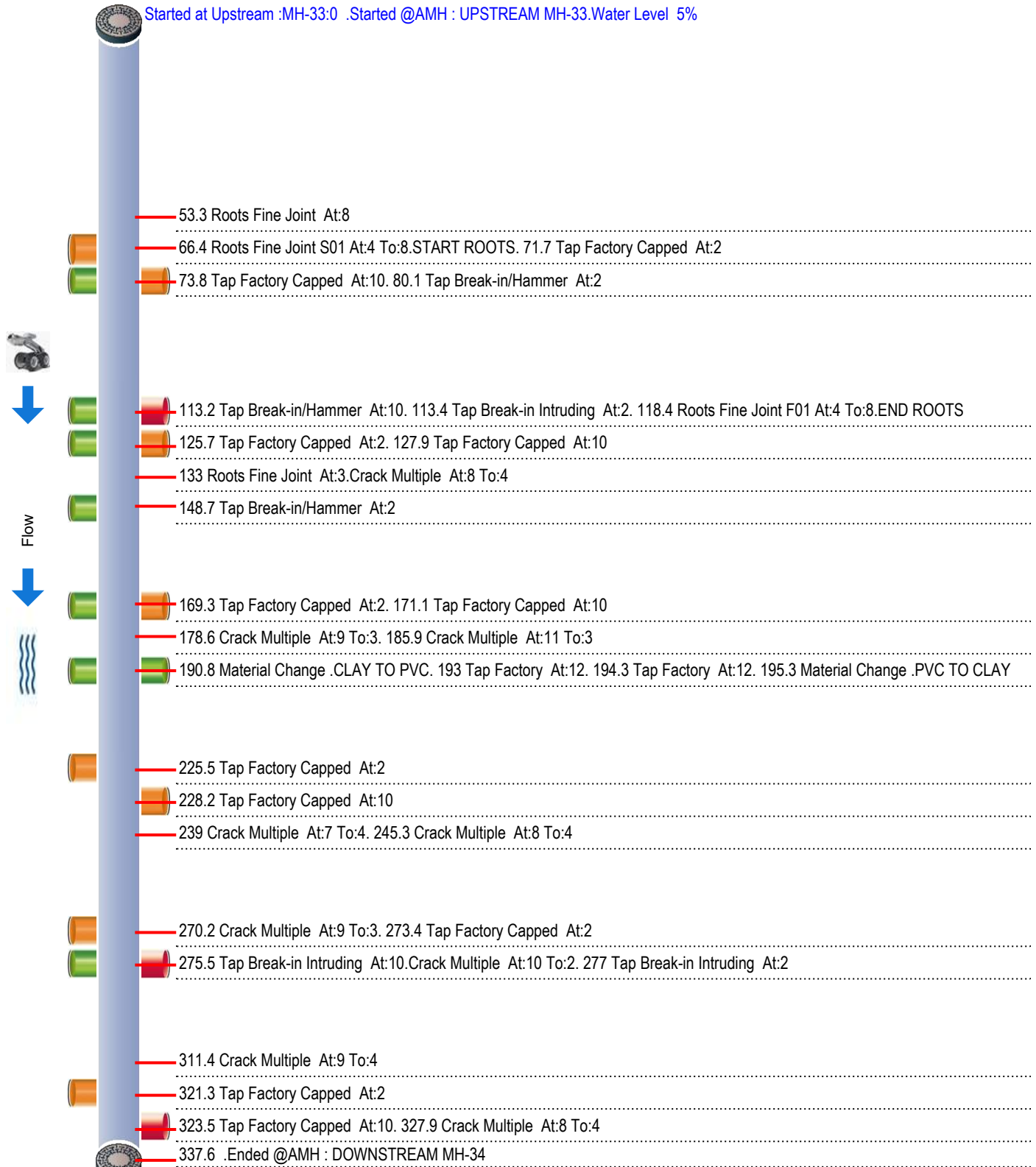


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NONE	
UPSTREAM:	MH-33
DOWNSTREAM:	MH-34
DIRECTION:	Downstream

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STREET:	ELLINGTON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	337.60		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/11/2025



Downstream:MH-34 Inspected Distance: 337.6(ft)

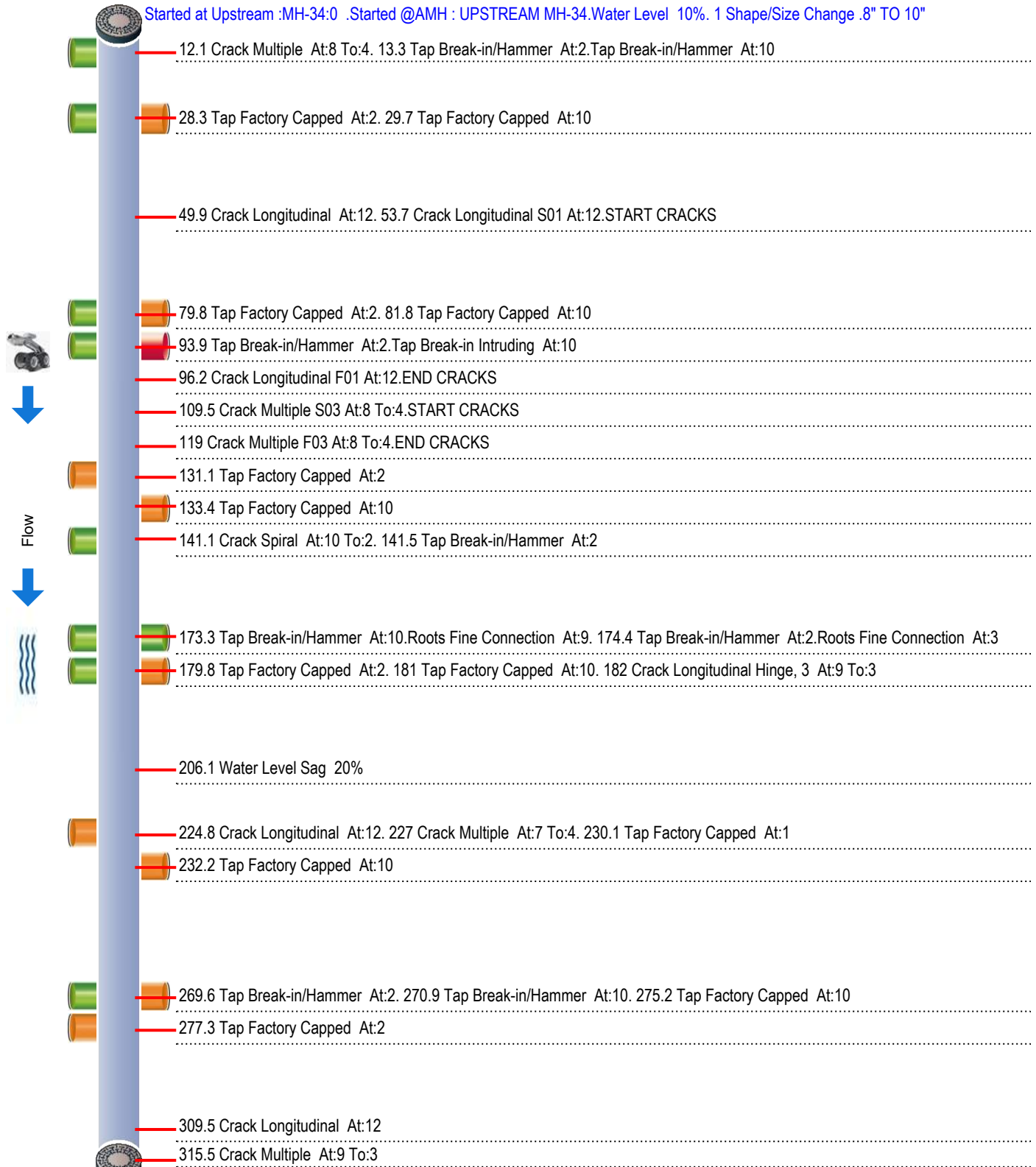


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NONE	
UPSTREAM:	MH-34
DOWNSTREAM:	MH-35
DIRECTION:	Downstream

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STREET:	ELLINGTON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	317.00		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/14/2025



Downstream:MH-35 Inspected Distance: 317(ft)

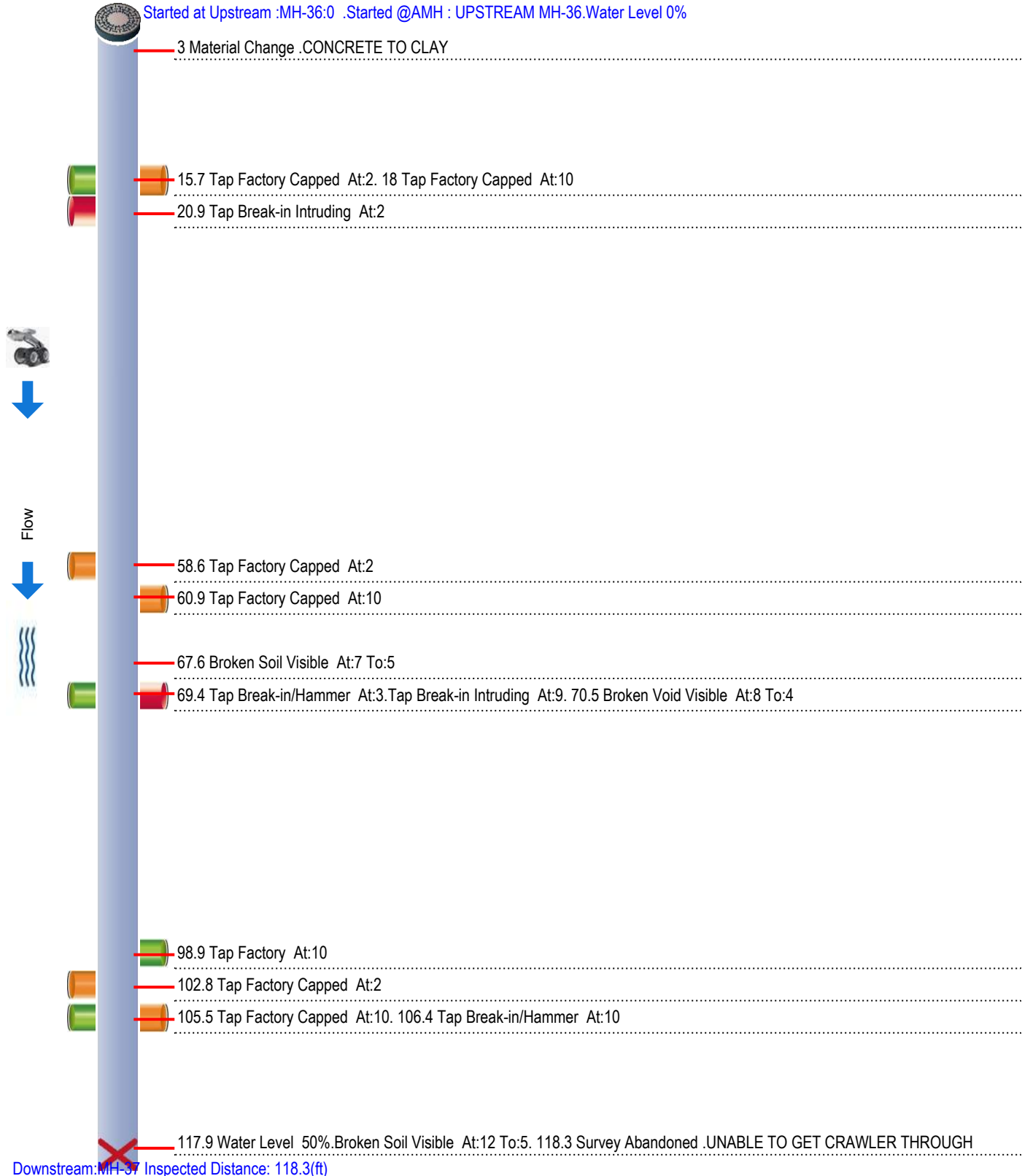


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NONE	
UPSTREAM:	MH-36
DOWNSTREAM:	MH-37
DIRECTION:	Downstream

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STREET:	ELLINGTON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Concrete Pipe non-reinforced	TOTAL:	.00	SURVEYED:	118.30		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/17/2025



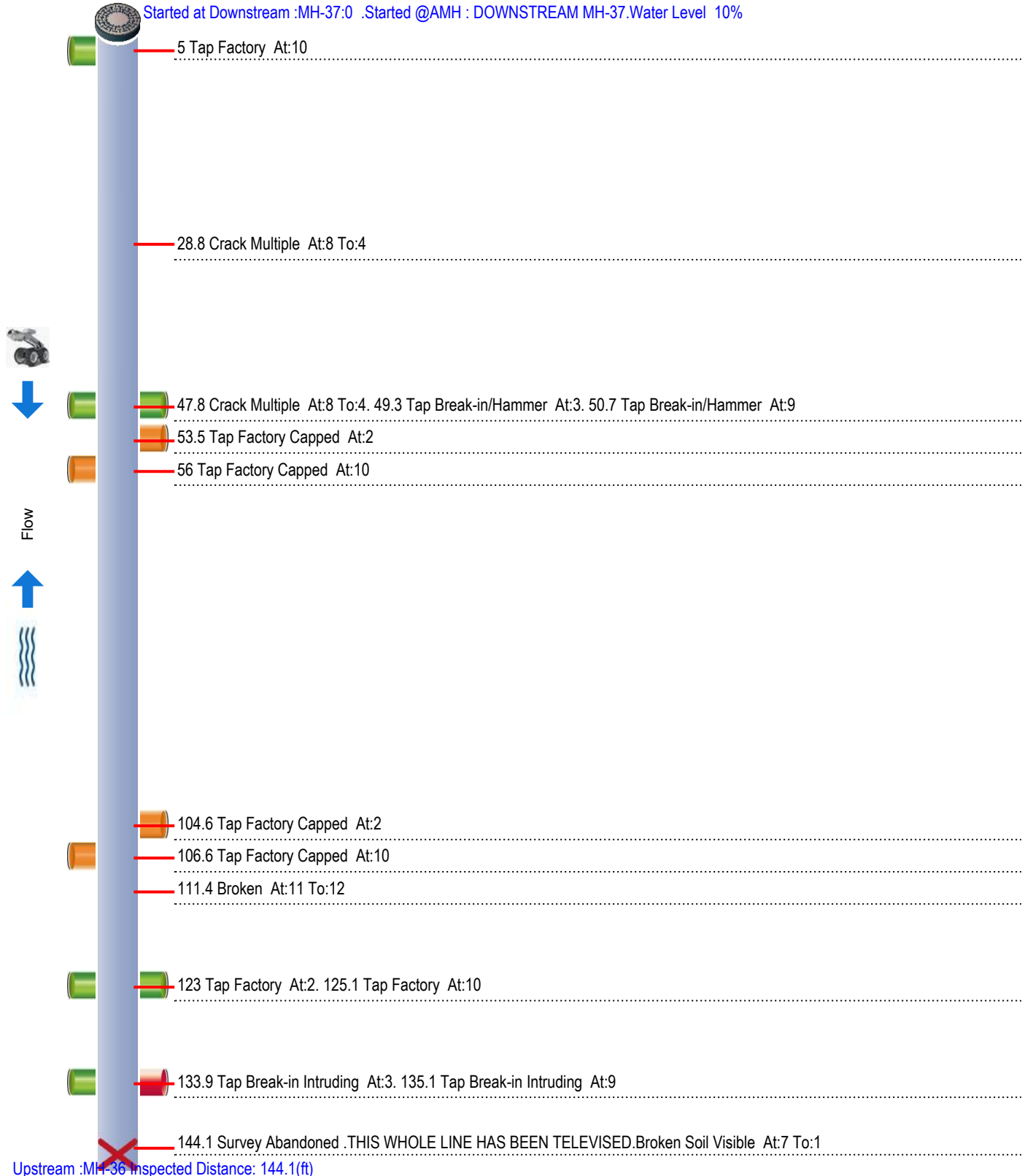


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NONE	
UPSTREAM:	MH-36
DOWNSTREAM:	MH-37
DIRECTION:	Upstream

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STREET:	ELLINGTON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	144.10		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/17/2025





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NONE	
UPSTREAM:	MH-37
DOWNSTREAM:	MH-17
DIRECTION:	Downstream

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STREET:	ELLINGTON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	29.90		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/17/2025



Started at Upstream :MH-37:0 .Started @AMH : UPSTREAM MH-37.Water Level 10%.Broken Soil Visible At:3

3 Broken Soil Visible At:3

7.6 Roots Fine Joint At:9 To:3



Flow



27.5 Tap Break-in Intruding At:3

28.1 Tap Break-in/Hammer At:9.Hole At:9 To:4

29.9 Survey Abandoned .UNABLE TO GET THROUGH

Downstream:MH-17 Inspected Distance: 29.9(ft)



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NONE	
UPSTREAM:	MH-37
DOWNSTREAM:	MH-17
DIRECTION:	Upstream

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STREET:	ELLINGTON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Polyvinyl Chloride	TOTAL:	.00	SURVEYED:	47.90		
SHAPE:	Circular	SIZE:	8	PURPOSE:		DATE:	11/17/2025



Started at Downstream :MH-17:0 .Started @AMH : DOWNSTREAM MH-17.Water Level 20%



16.2 Water Level Sag 100%.Material Change .PVC TO CLAY

Flow



47.9 Camera Underwater .UNDER WATER, UNABLE TO GO FURTHER.Survey Abandoned .END DUE TO QUALITY OF PIPE

Upstream :MH-37 Inspected Distance: 47.9(ft)



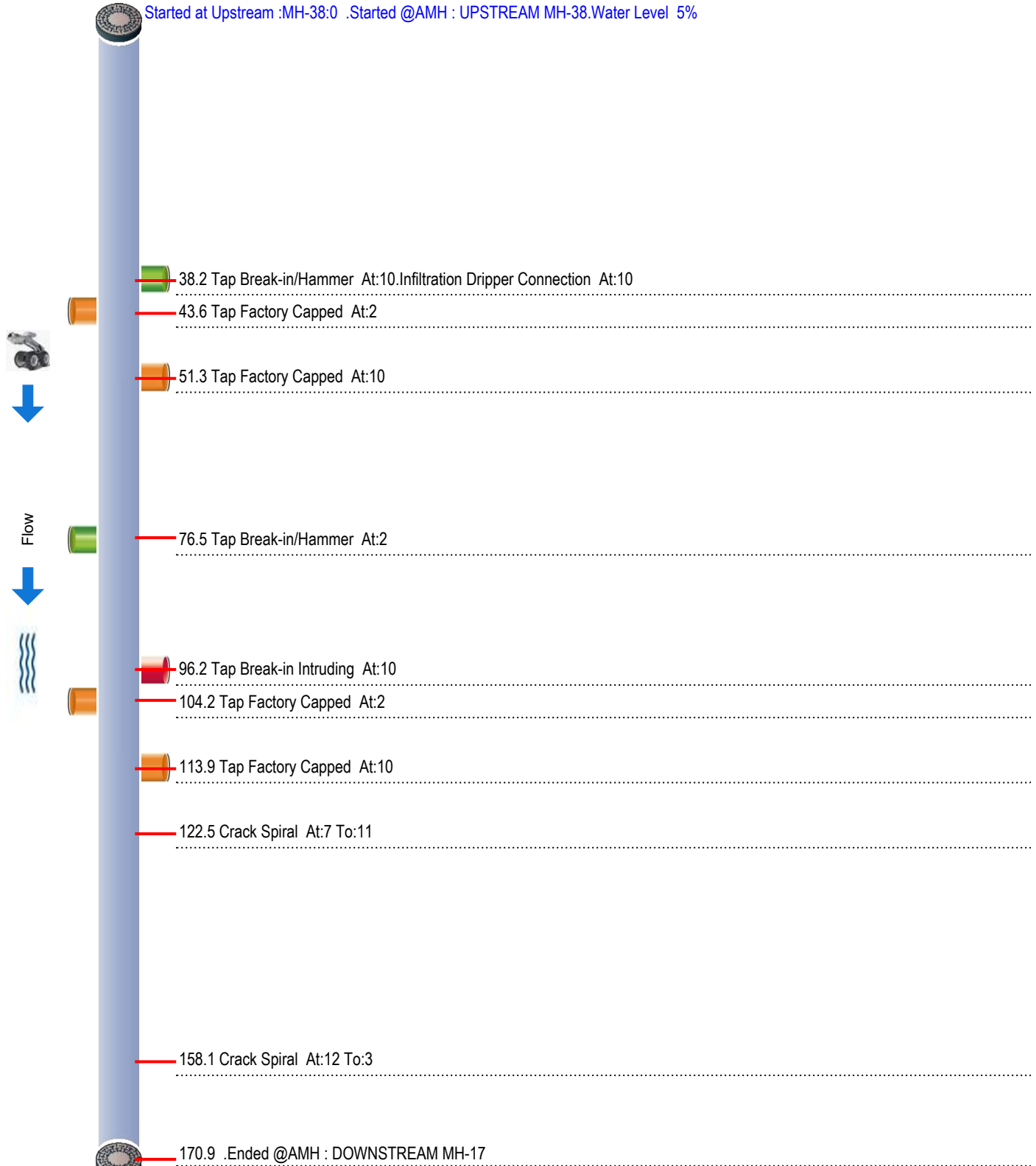


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NONE	
UPSTREAM:	MH-38
DOWNSTREAM:	MH-17
DIRECTION:	Downstream

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STREET:	ELLINGTON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	170.90		
SHAPE:	Circular	SIZE:	12	PURPOSE		DATE:	11/17/2025



Downstream:MH-17 Inspected Distance: 170.9(ft)



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NONE	
UPSTREAM:	MH-39
DOWNSTREAM:	MH-40
DIRECTION:	Downstream

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STREET:	CAROLINE AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	45.10		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/17/2025



Started at Upstream :MH-39:0 .Started @AMH : UPSTREAM MH-39. Water Level 5%



Flow



18 Roots Fine Joint At:1 To:3

26.8 Roots Fine Joint At:8

30 Roots Fine Joint At:8

41.6 Roots Fine Joint At:8 To:9

43.8 Hole Void Visible At:3 To:5

45.1 Survey Abandoned .END DUE TO HOLE IN PIPE

Downstream:MH-40 Inspected Distance: 45.1(ft)



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NONE	
UPSTREAM:	MH-39
DOWNSTREAM:	MH-40
DIRECTION:	Upstream

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STREET:	CAROLINE AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	15.60		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/17/2025



Started at Downstream :MH-40:0 .Started @AMH : DOWNSTREAM MH-40.Water Level 10%

1 Crack Multiple S01 At:7 To:5.START CRACKS



Flow



8.2 Roots Fine Joint At:3 To:4



12.7 Tap Factory At:9

14.1 Roots Medium Barrel At:8 To:4 30%



15.2 Tap Break-in/Hammer At:3



15.6 General Observation .PIPE IN POOR CONDITION, UNABLE TO SEND CUTTER.Survey Abandoned .CRAWLER CANNOT GET THROUGH.Crack Multiple F01 At:7 To:5.END CRACKS



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NONE	
UPSTREAM:	MH-39
DOWNSTREAM:	MH-40
DIRECTION:	Upstream

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[Upstream :MH-39 Inspected Distance: 15.6\(ft\)](#)

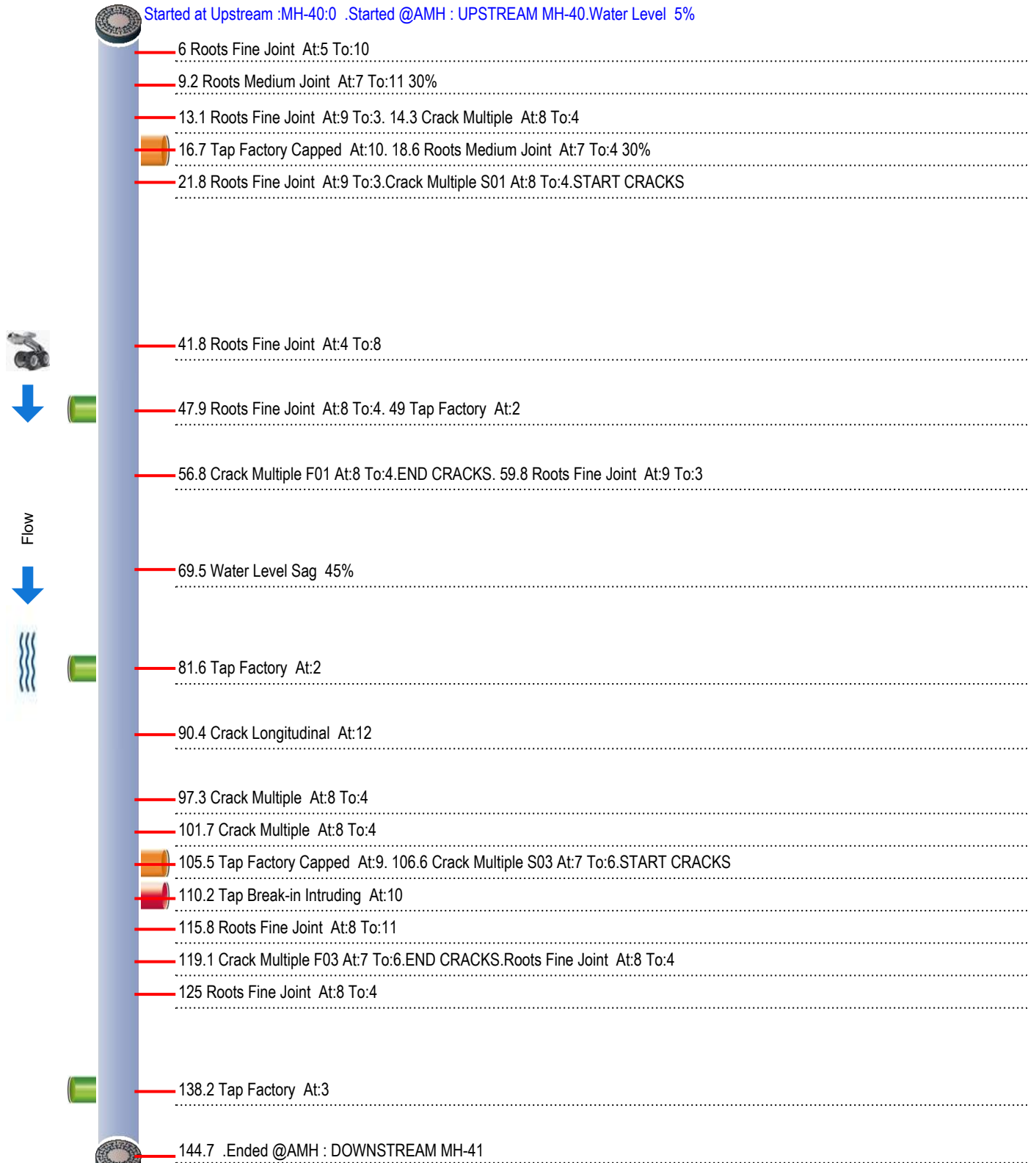


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NONE	
UPSTREAM:	MH-40
DOWNSTREAM:	MH-41
DIRECTION:	Downstream

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STREET:	CAROLINE AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	144.70		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/17/2025



Downstream:MH-41 Inspected Distance: 144.7(ft)

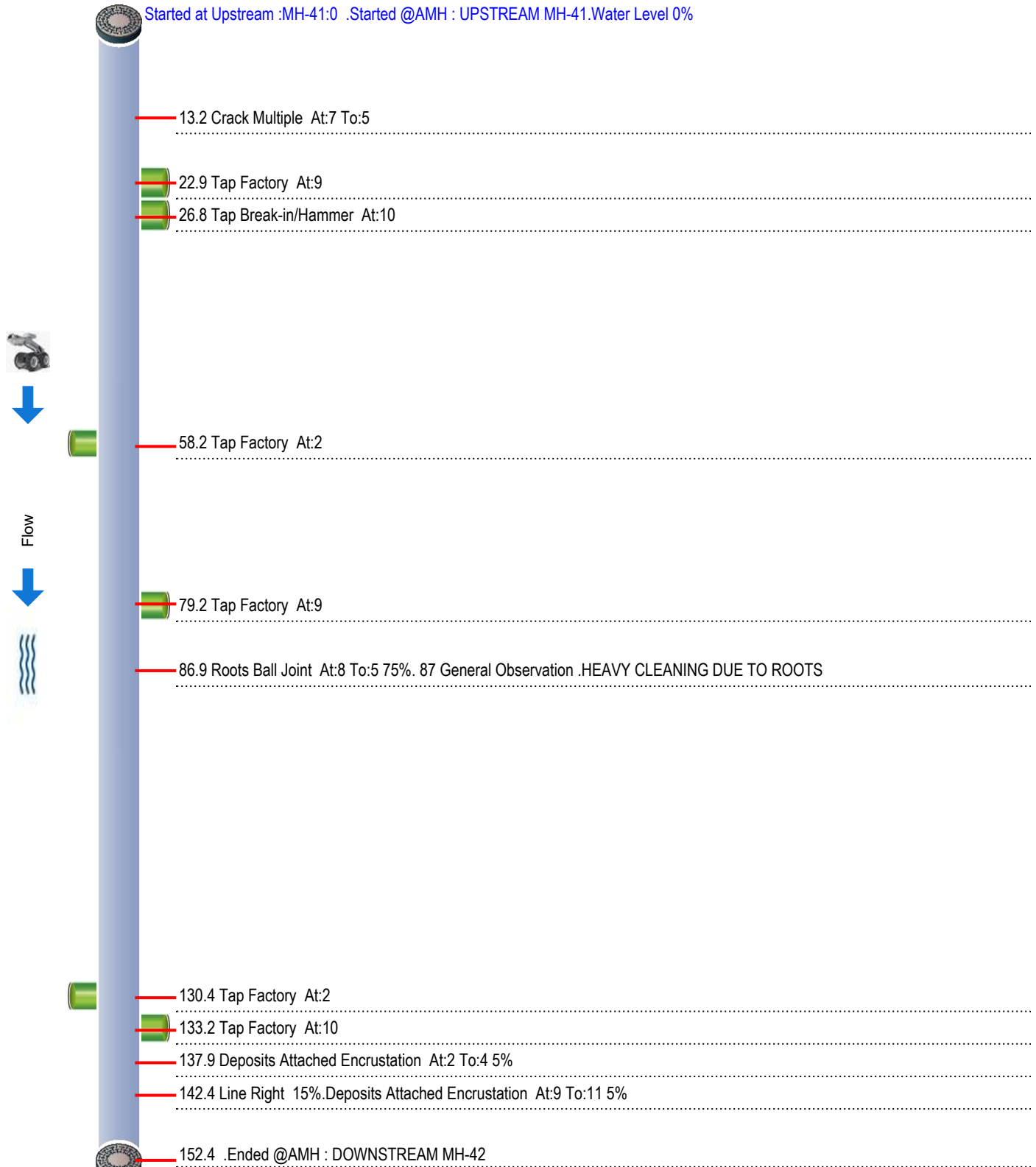


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NONE	
UPSTREAM:	MH-41
DOWNSTREAM:	MH-42
DIRECTION:	Downstream

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7400 N. WAUKEGAN RD. / #101
NILES, IL, 60714
847-588-1145

STREET:	CAROLINE AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	152.40		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/17/2025



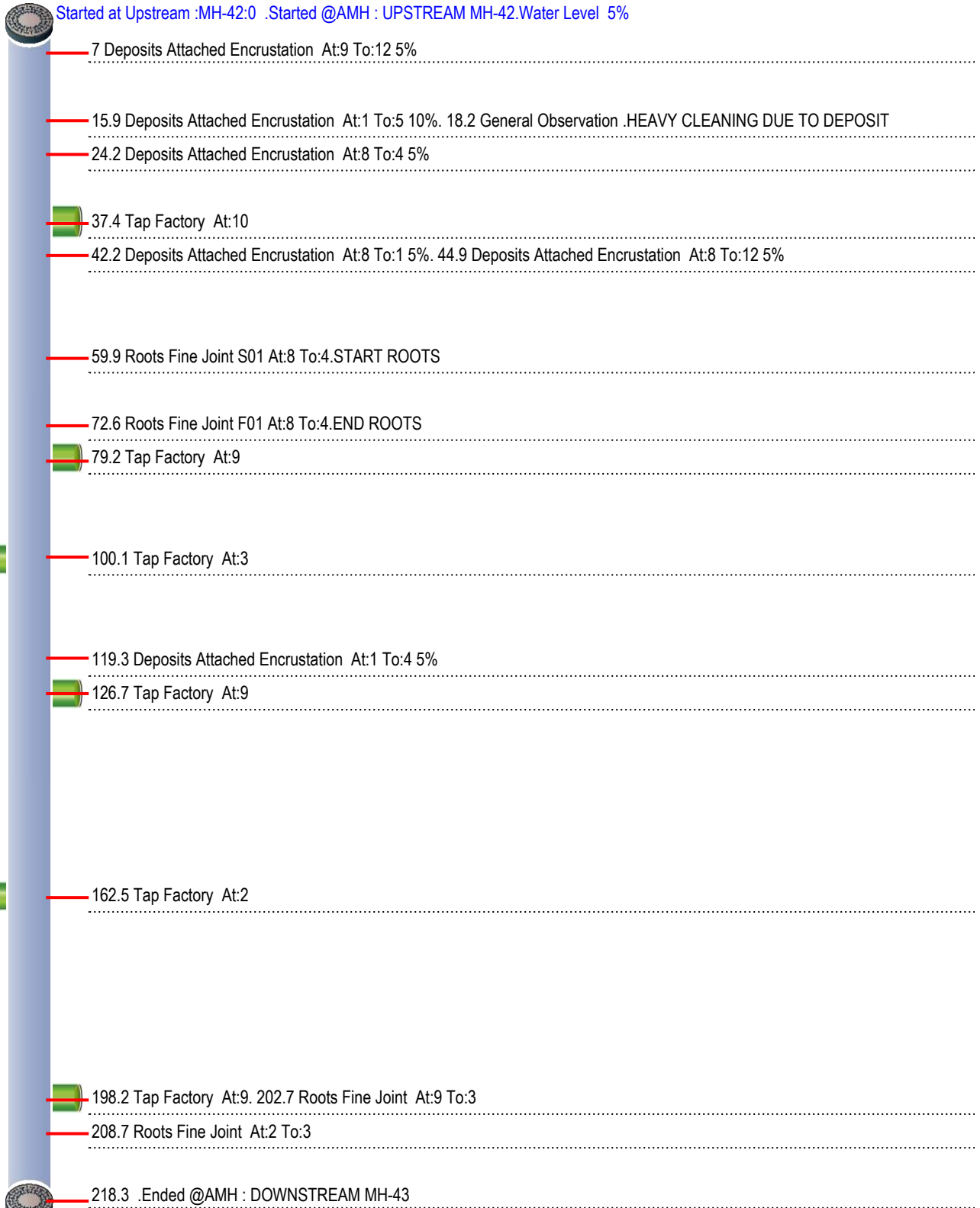


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NONE	
UPSTREAM:	MH-42
DOWNSTREAM:	MH-43
DIRECTION:	Downstream

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NILES, IL, 60714
847-588-1145

STREET:	CAROLINE AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	218.30		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/17/2025



Downstream:MH-43 Inspected Distance: 218.3(ft)

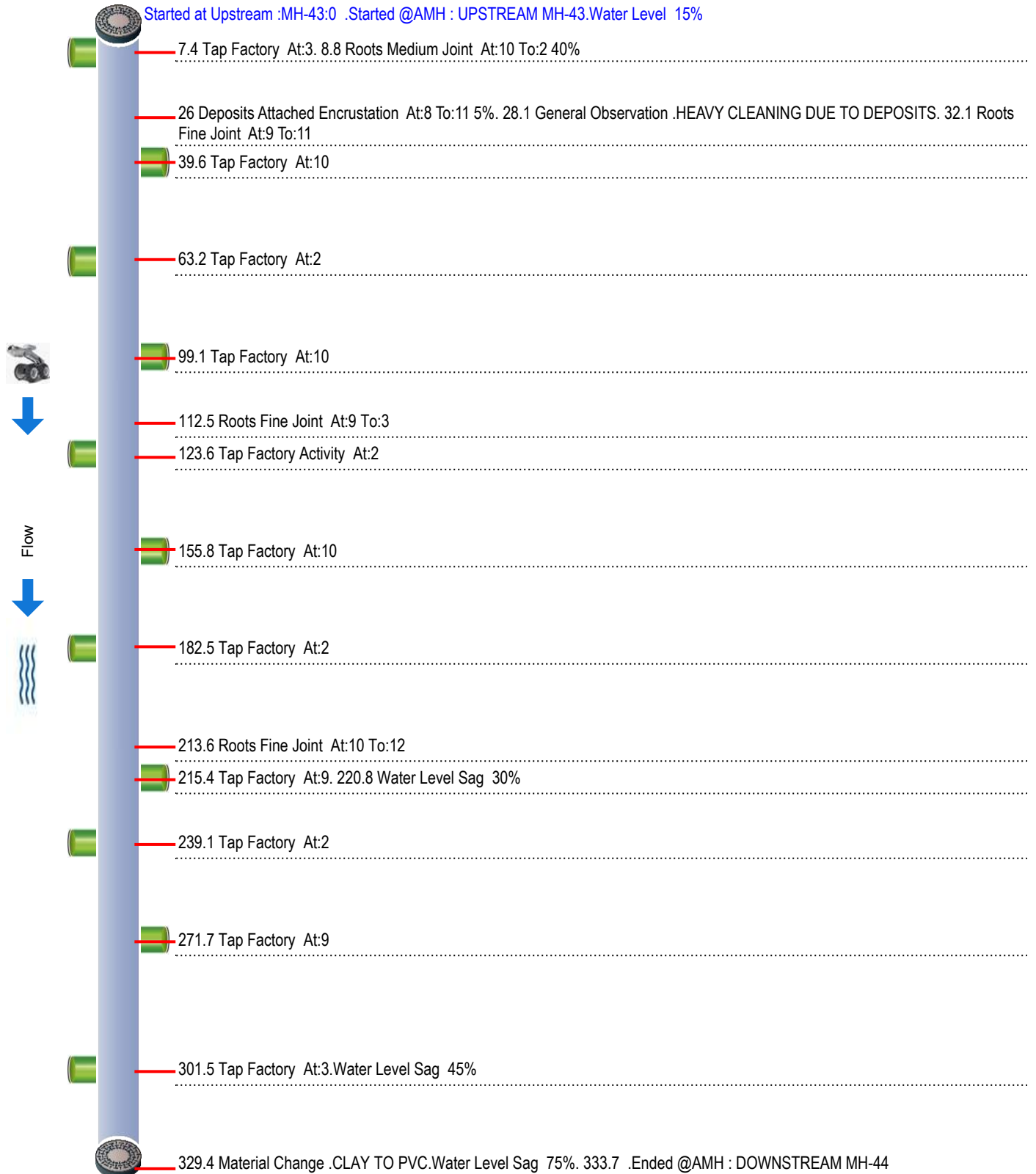


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NONE	
UPSTREAM:	MH-43
DOWNSTREAM:	MH-44
DIRECTION:	Downstream

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STREET:	CAROLINE AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	333.70		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/19/2025



Downstream:MH-44 Inspected Distance: 333.7(ft)



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NONE	
UPSTREAM:	MH-43
DOWNSTREAM:	MH-44
DIRECTION:	Downstream

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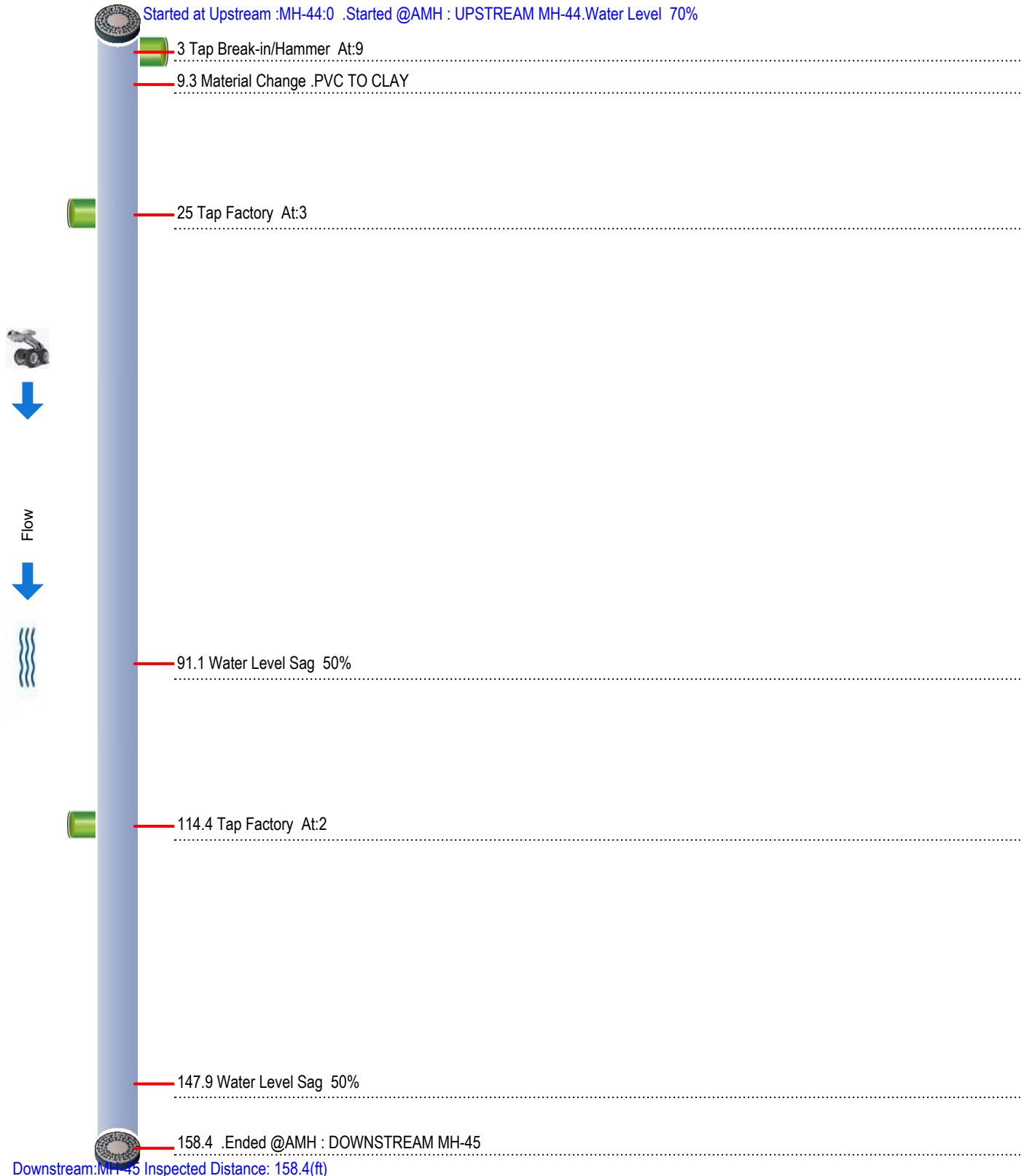


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NONE	
UPSTREAM:	MH-44
DOWNSTREAM:	MH-45
DIRECTION:	Downstream

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NILES, IL, 60714
847-588-1145

STREET:	CAROLINE AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Polyvinyl Chloride	TOTAL:	.00	SURVEYED:	158.40		
SHAPE:	Circular	SIZE:	8	PURPOSE:		DATE:	11/19/2025





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NONE	
UPSTREAM:	MH-46
DOWNSTREAM:	MH-44
DIRECTION:	Downstream

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STREET:	FRANKLIN AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	317.60		
SHAPE:	Circular	SIZE:	8	PURPOSE:		DATE:	11/19/2025



Started at Upstream :MH-46:0 .Started @AMH : UPSTREAM MH-46. Water Level 10%

22.9 Water Level Sag 30%



Flow



202.7 Water Level Sag 40%

254.8 Crack Multiple At:8 To:4



315.2 Material Change .CLAY TO PVC. 317.6 .Ended @AMH : DOWNSTREAM MH-44

Downstream:MH-44 Inspected Distance: 317.6(ft)



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NONE	
UPSTREAM:	MH-47
DOWNSTREAM:	MH-46
DIRECTION:	Downstream

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STREET:	HOWARD AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Polyvinyl Chloride	TOTAL:	.00	SURVEYED:	306.20		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/20/2025



Started at Upstream :MH-47:0 .Started @AMH : UPSTREAM MH-47. Water Level 10%. 3 Material Change .PVC TO CLAY

26.1 Deposits Attached Encrustation At:9 To:11 5%

82.3 Deposits Attached Encrustation At:1 To:4 5%

91.2 Deposits Attached Encrustation At:8 To:11 10%

92.4 General Observation .HEAVY CLEANING DUE TO DEPOSIT

109.3 Deposits Attached Encrustation At:1 To:3 5%

141.6 Crack Spiral At:2 To:10

190.1 Water Level Sag 30%

213.1 Crack Longitudinal At:12

237.5 Crack Multiple S01 At:9 To:3.START CRACKS

252.8 Crack Multiple F01 At:9 To:3.END CRACKS

271.7 Water Level Sag 25%. 275.1 Roots Fine Joint At:10 To:2

306.2 .Ended @AMH : DOWNSTREAM MH-46



Flow



Downstream:MH-46 Inspected Distance: 306.2(ft)

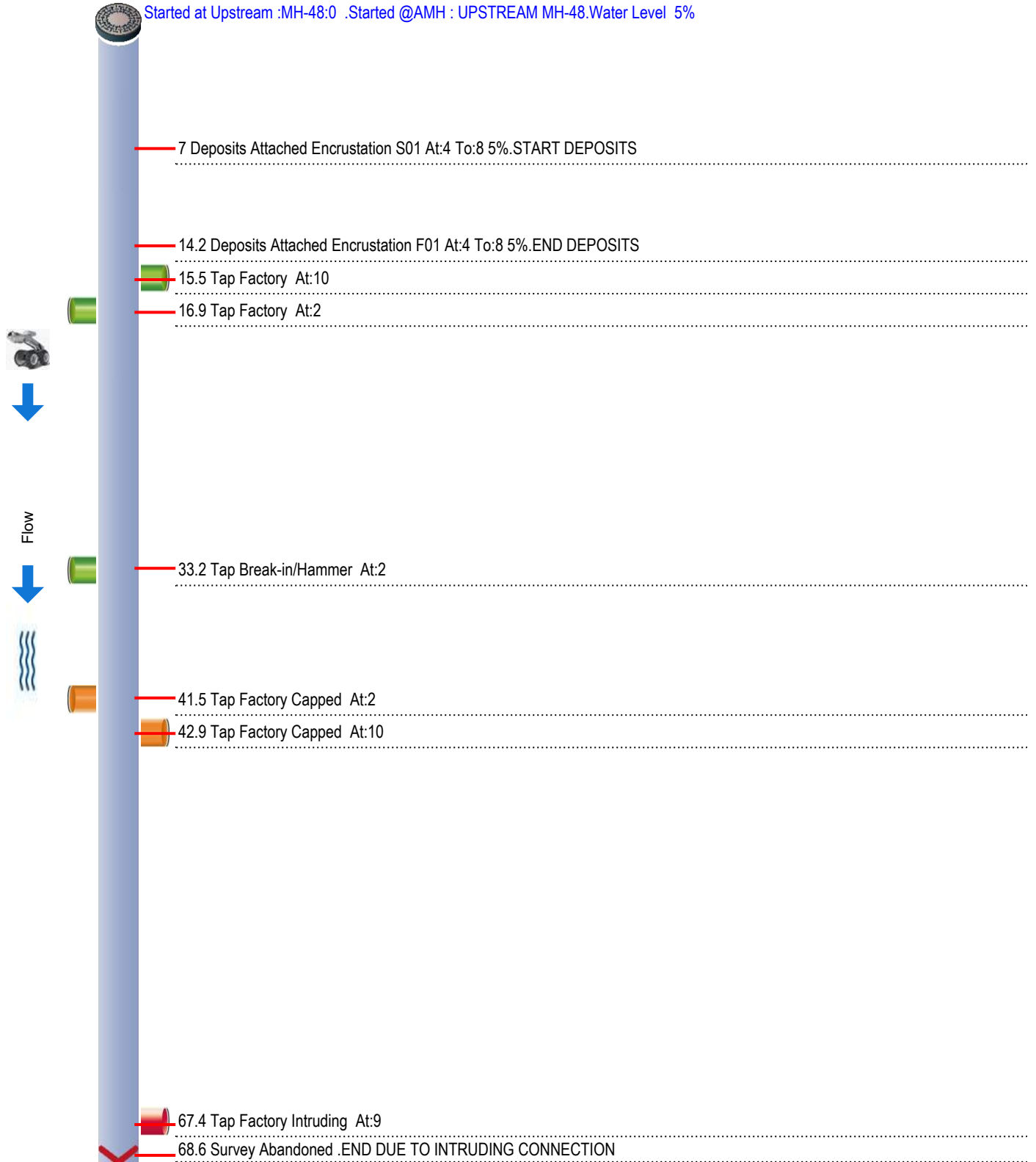


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NONE	
UPSTREAM:	MH-48
DOWNSTREAM:	MH-49
DIRECTION:	Downstream

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REHABILITATION
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STREET:	CENTRAL AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	68.60		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/20/2025



Downstream:MH-49 Inspected Distance: 68.6(ft)

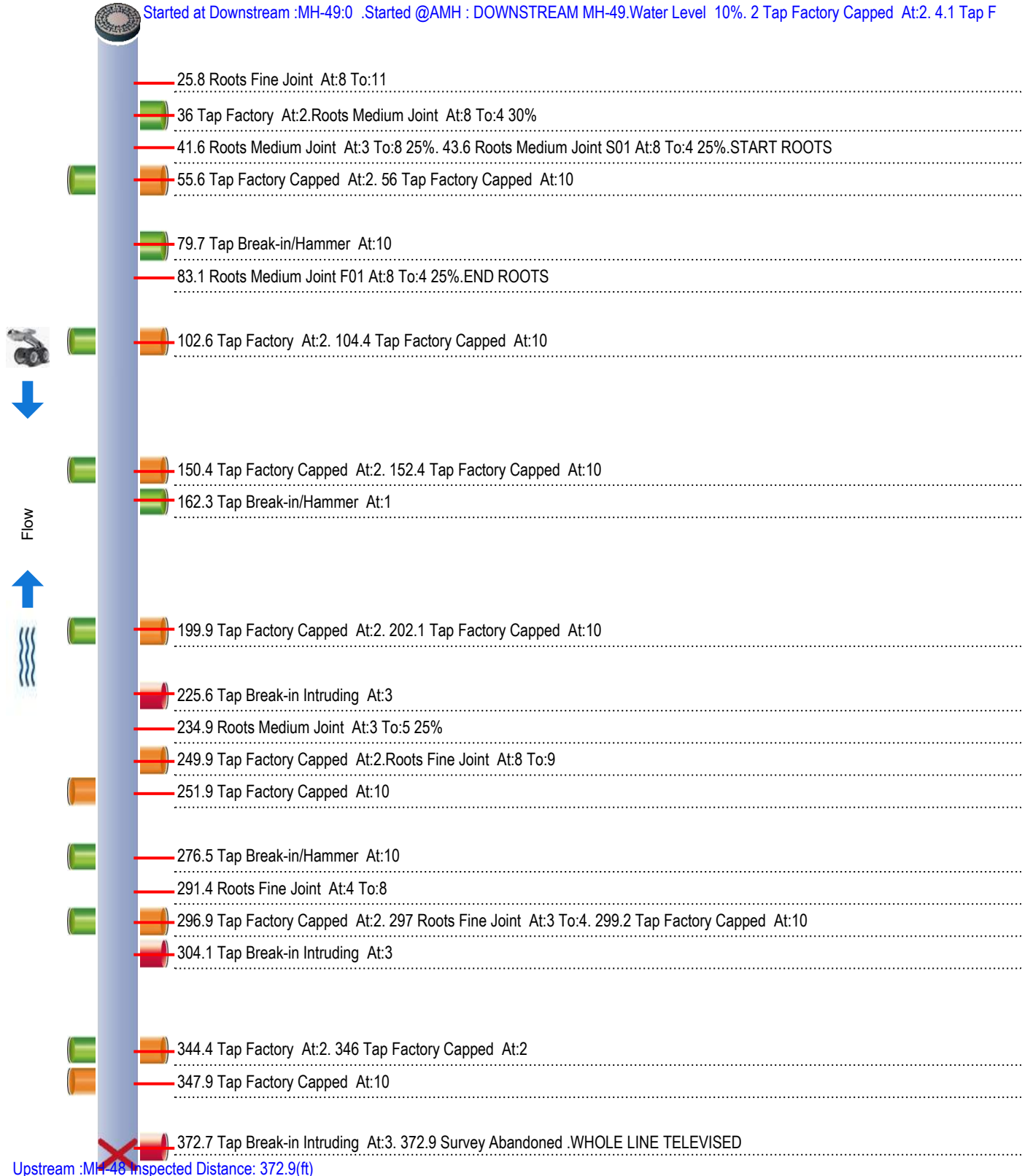


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NONE	
UPSTREAM:	MH-48
DOWNSTREAM:	MH-49
DIRECTION:	Upstream

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STREET:	CENTRAL AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	372.90		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/20/2025



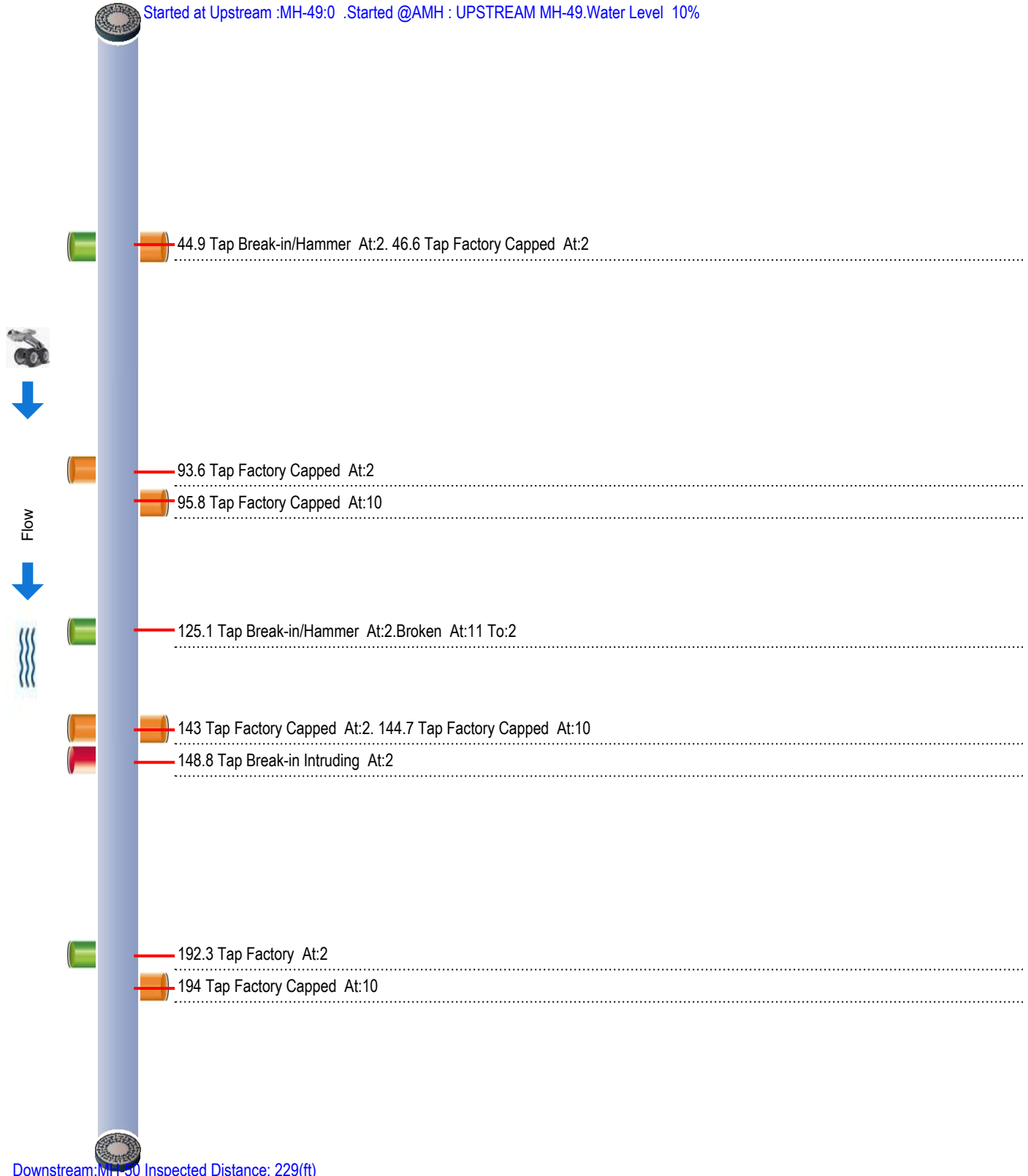


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NONE	
UPSTREAM:	MH-49
DOWNSTREAM:	MH-50
DIRECTION:	Downstream

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STREET:	CENTRAL AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	229.00		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/20/2025





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NONE	
UPSTREAM:	MH-5
DOWNSTREAM:	MH-6
DIRECTION:	Downstream

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STREET:	ROSE AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	330.10		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	8/29/2025



Started at Upstream :MH-5:0 .Started @AMH : UPSTREAM MH-5.Water Level 0%

13.8 Roots Fine Joint At:2

128.9 Roots Fine Joint At:3

153 Deposits Attached Encrustation At:12 To:2 5%

172.8 Roots Fine Joint At:9 To:1

176.7 Fracture Multiple At:12 To:12



Flow



330.1 .Ended @AMH : DOWNSTREAM MH-6

Downstream:MH-6 Inspected Distance: 330.1(ft)



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NONE	
UPSTREAM:	MH-51
DOWNSTREAM:	MH-52
DIRECTION:	Downstream

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STREET:	CENTRAL AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	395.70		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/20/2025



Downstream:MH-52 Inspected Distance: 395.7(ft)

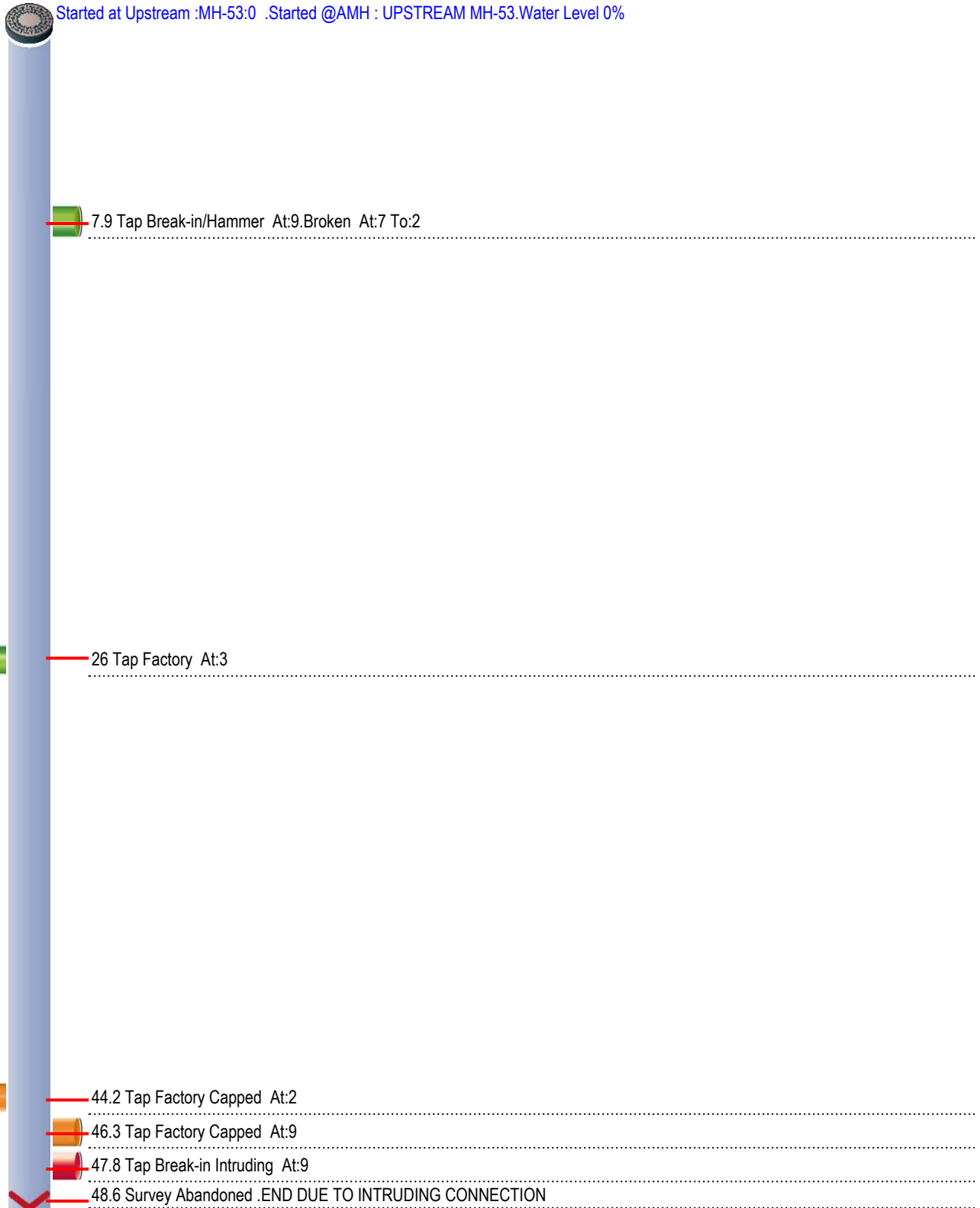


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NONE	
UPSTREAM:	MH-53
DOWNSTREAM:	MH-52
DIRECTION:	Downstream

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STREET:	CENTRAL AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	48.60		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/21/2025





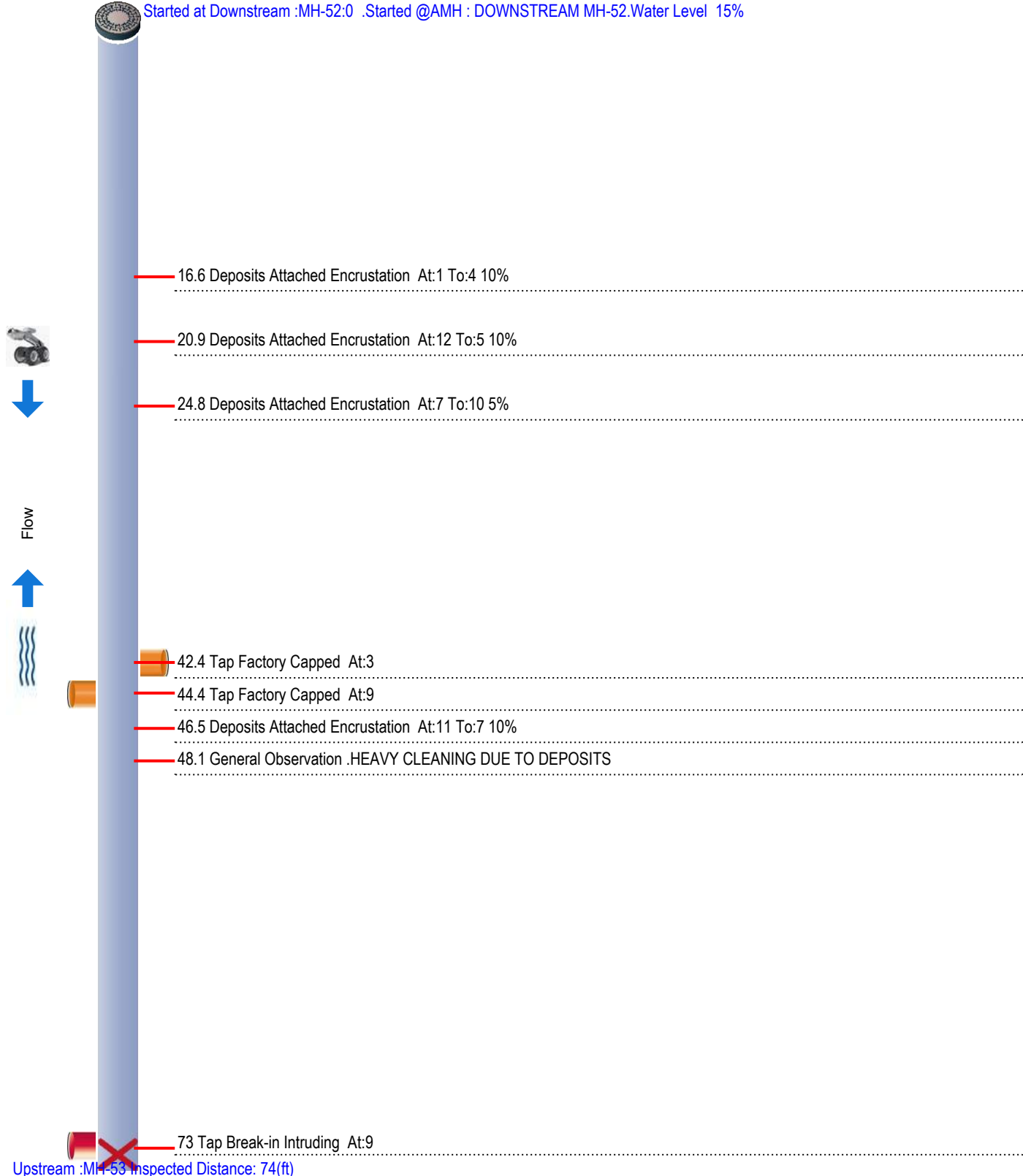
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NONE	
UPSTREAM:	MH-53
DOWNSTREAM:	MH-52
DIRECTION:	Upstream

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STREET:	CENTRAL AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	74.00		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/21/2025

Started at Downstream :MH-52:0 .Started @AMH : DOWNSTREAM MH-52.Water Level 15%



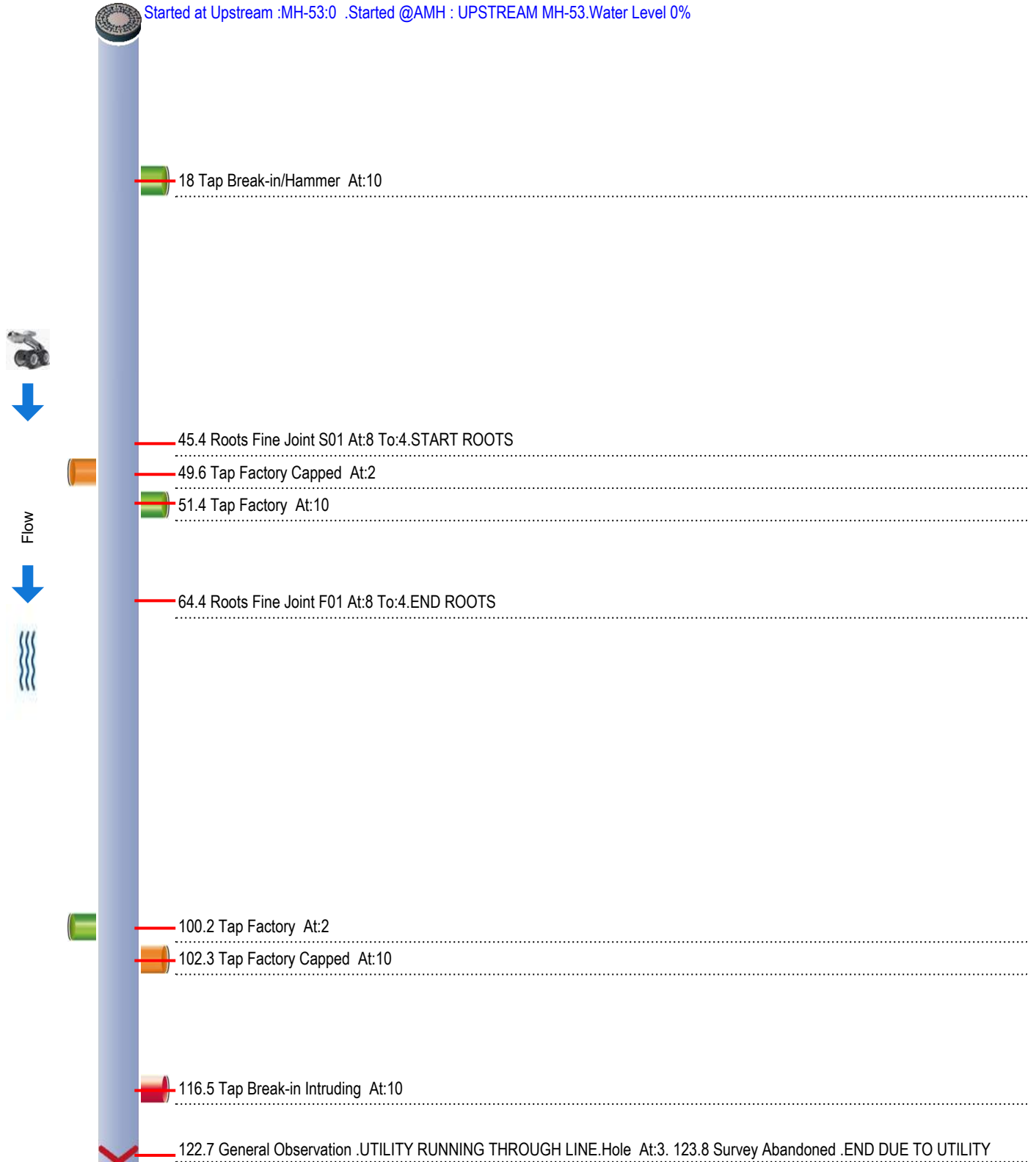


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NONE	
UPSTREAM:	MH-53
DOWNSTREAM:	MH-54
DIRECTION:	Downstream

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STREET:	CENTRAL AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	123.80		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/21/2025



Downstream:MH-54 Inspected Distance: 123.8(ft)



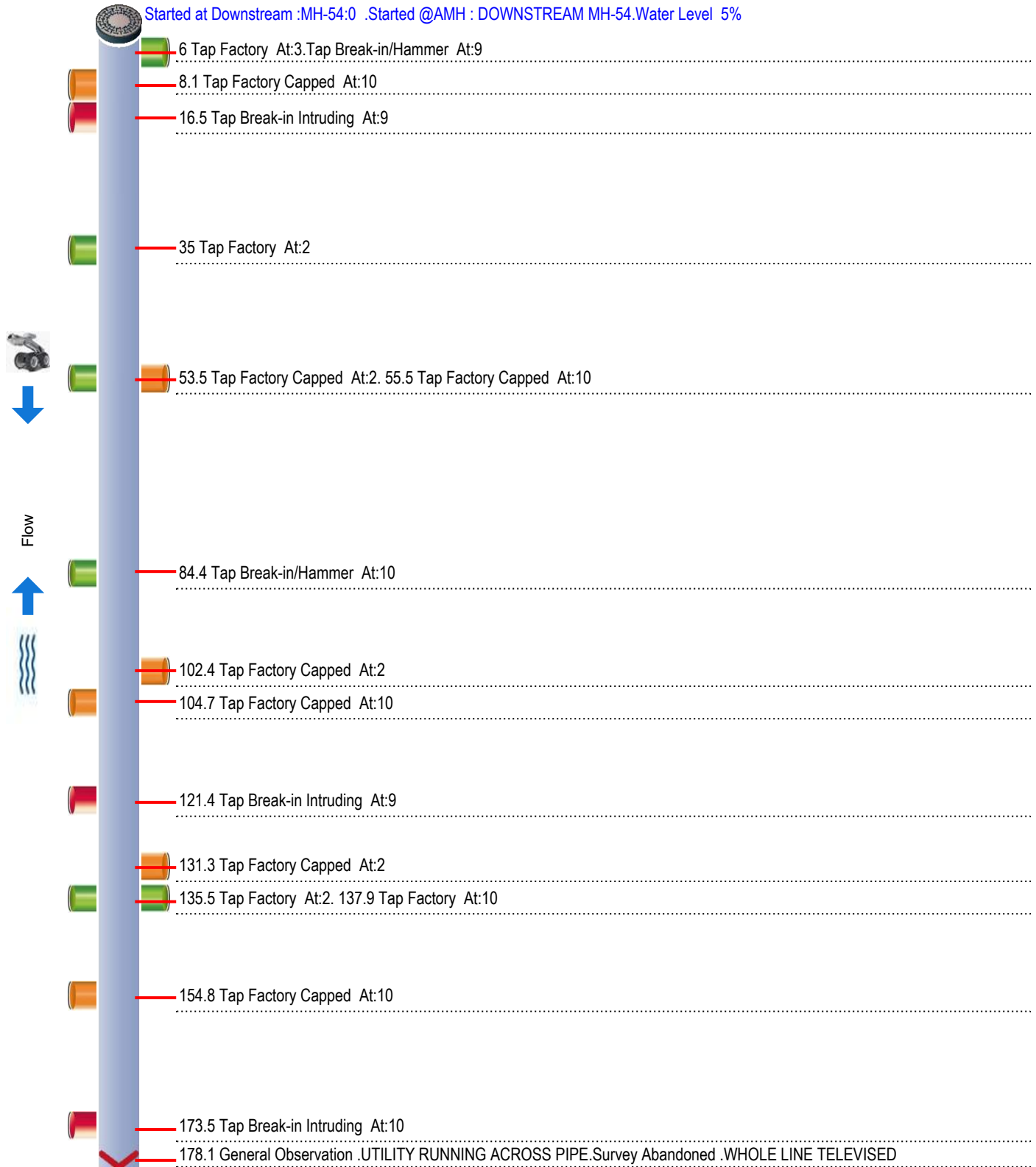


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NONE	
UPSTREAM:	MH-53
DOWNSTREAM:	MH-54
DIRECTION:	Upstream

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STREET:	CENTRAL AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	178.10		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/21/2025



Upstream :MH-53 Inspected Distance: 178.1(ft)

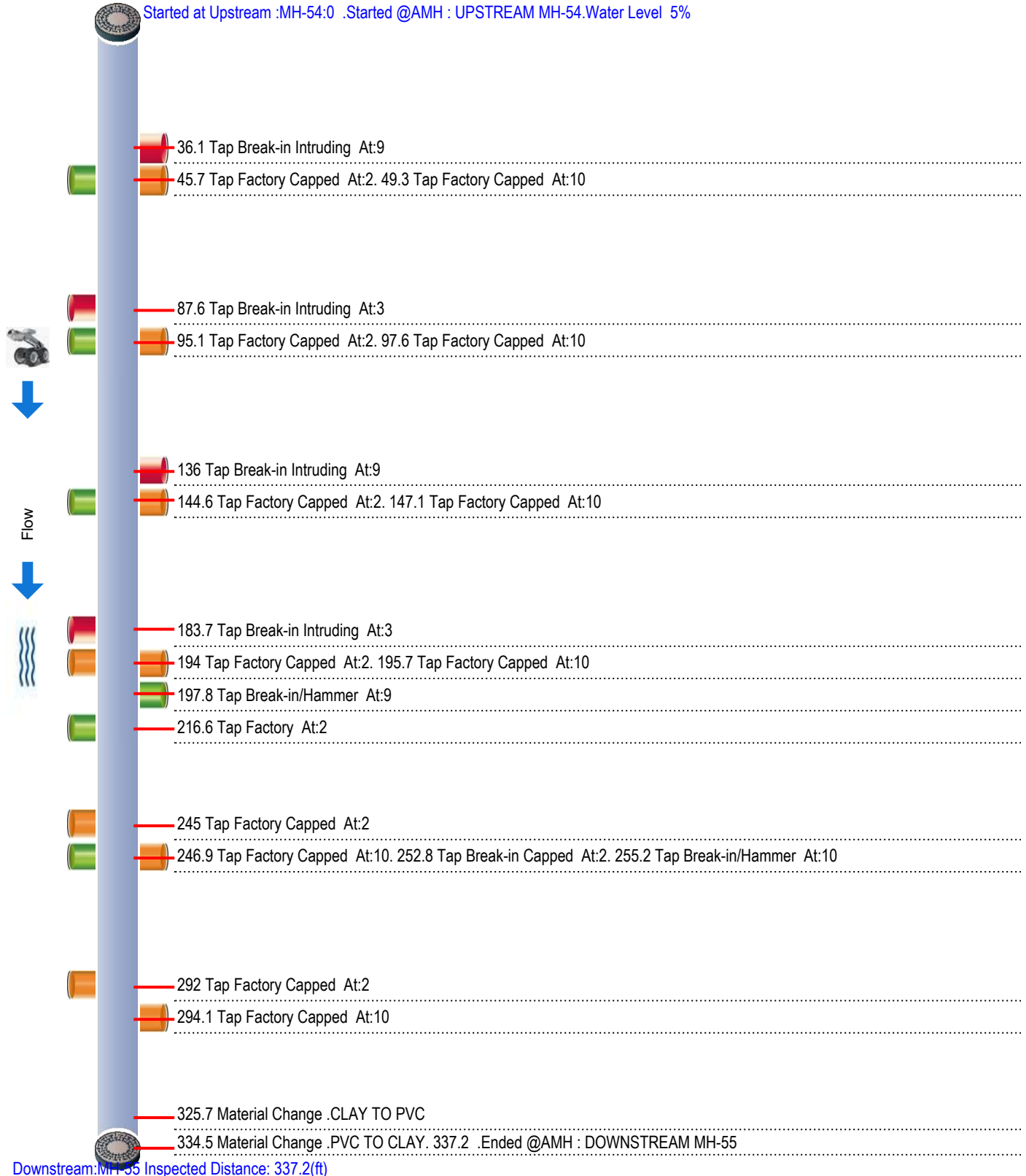


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NONE	
UPSTREAM:	MH-54
DOWNSTREAM:	MH-55
DIRECTION:	Downstream

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STREET:	CENTRAL AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	337.20		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/21/2025





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NONE	
UPSTREAM:	MH-56
DOWNSTREAM:	MH-57
DIRECTION:	Downstream

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STREET:	REID ST	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	505.30		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/21/2025



Downstream:MH-57 Inspected Distance: 505.3(ft)



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NONE	
UPSTREAM:	MH-56
DOWNSTREAM:	MH-57
DIRECTION:	Downstream

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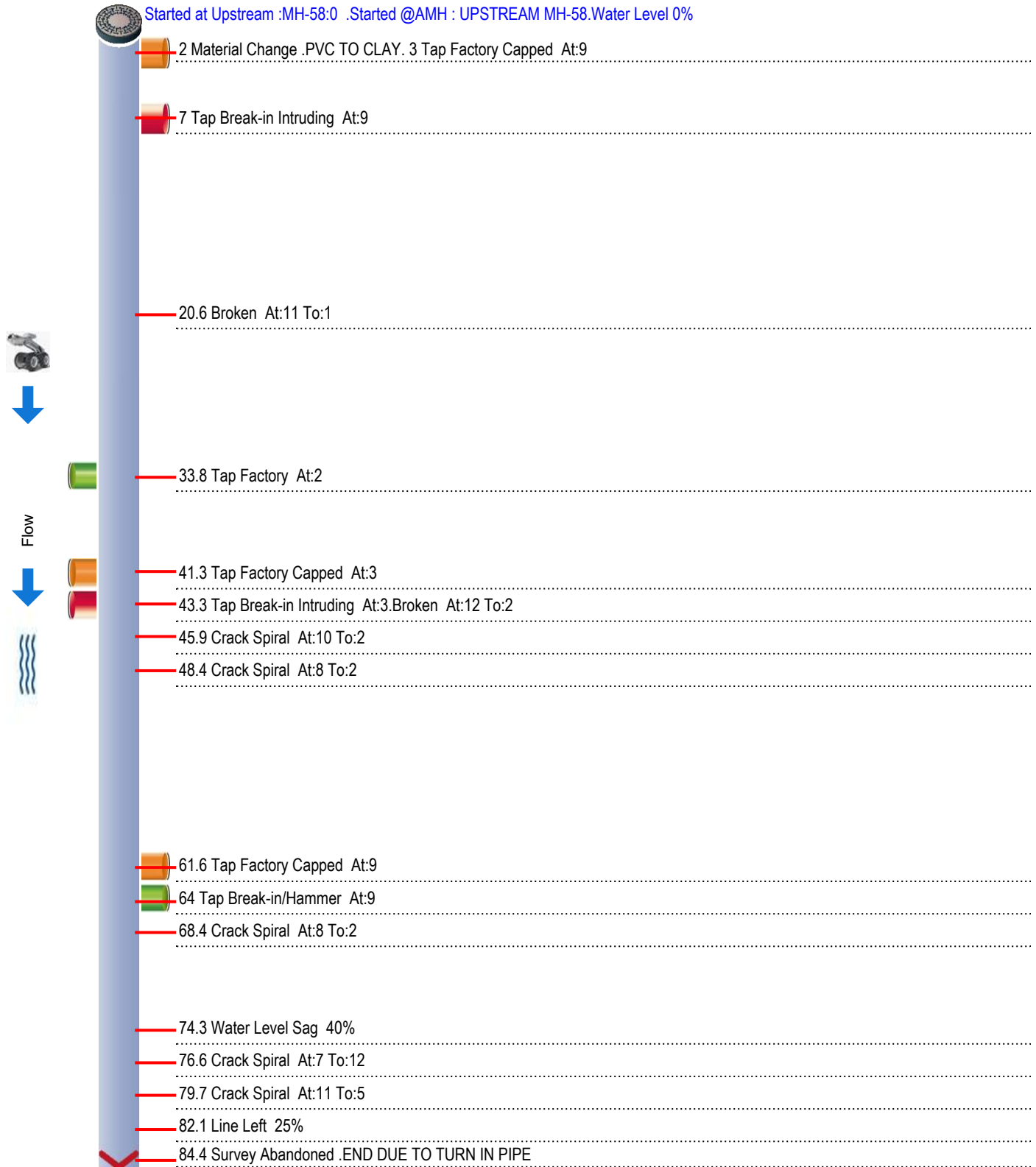


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NONE	
UPSTREAM:	MH-58
DOWNSTREAM:	MH-59
DIRECTION:	Downstream

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STREET:	SUNSET TER	CITY:	WESTERN SPRINGS				
MATERIAL:	Polyvinyl Chloride	TOTAL:	.00	SURVEYED:	84.40		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/24/2025



Downstream:MH-59 Inspected Distance: 84.4(ft)

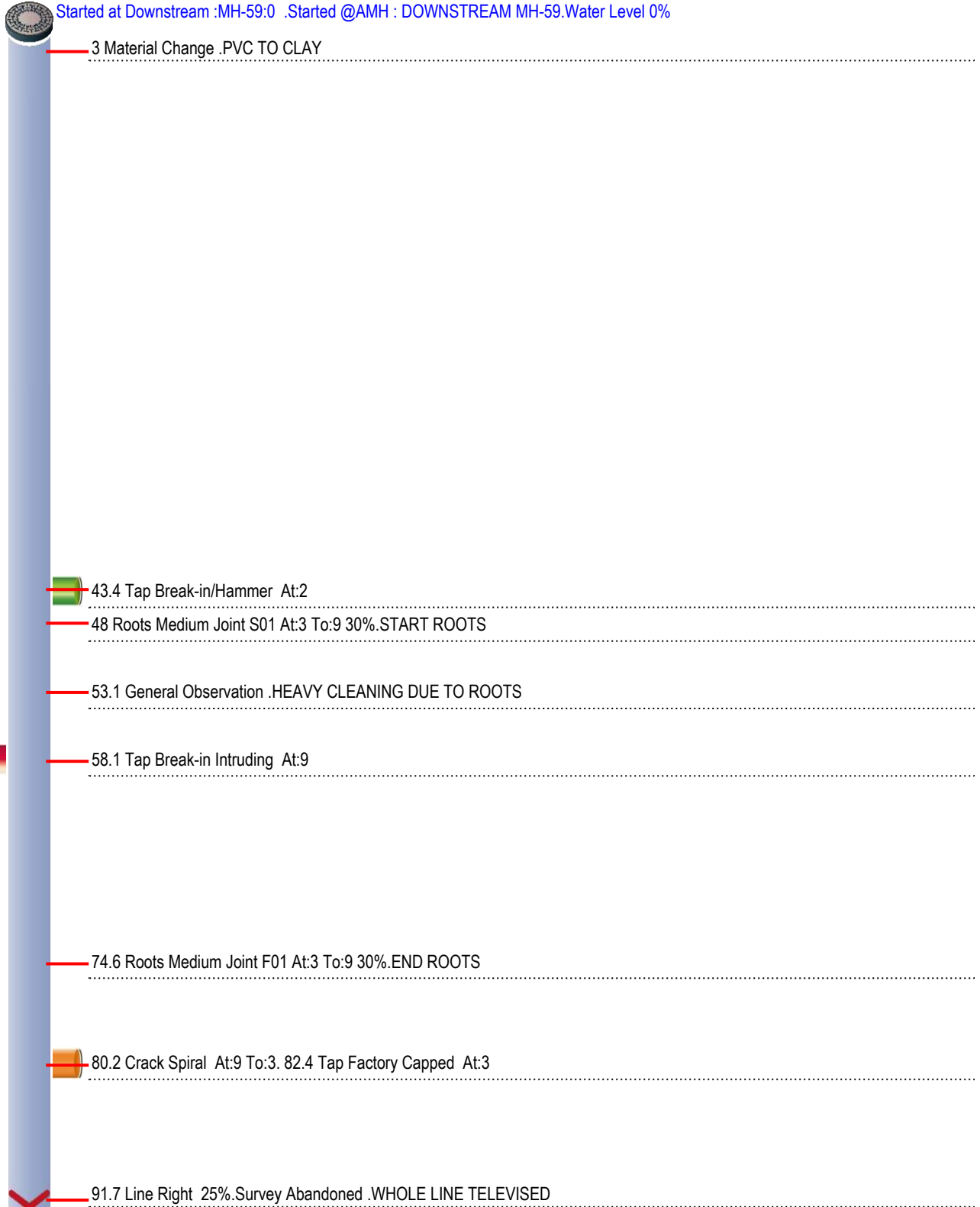


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NONE	
UPSTREAM:	MH-58
DOWNSTREAM:	MH-59
DIRECTION:	Upstream

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STREET:	SUNSET TER	CITY:	WESTERN SPRINGS				
MATERIAL:	Polyvinyl Chloride	TOTAL:	.00	SURVEYED:	91.70		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/24/2025



Upstream :MH-58 Inspected Distance: 91.7(ft)

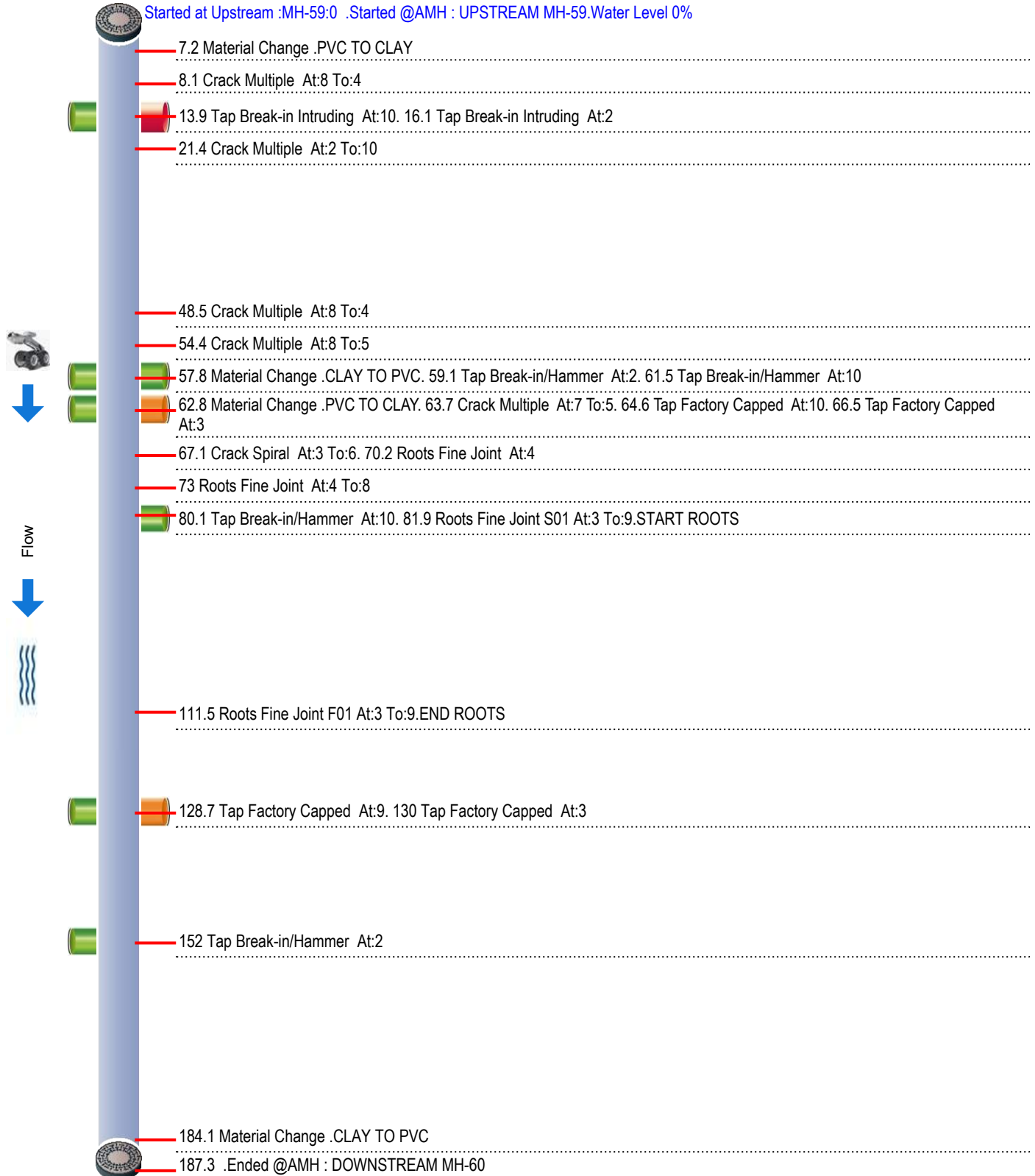


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NONE	
UPSTREAM:	MH-59
DOWNSTREAM:	MH-60
DIRECTION:	Downstream

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STREET:	SUNSET TER	CITY:	WESTERN SPRINGS				
MATERIAL:	Polyvinyl Chloride	TOTAL:	.00	SURVEYED:	187.30		
SHAPE:	Circular	SIZE:	8	PURPOSE:		DATE:	11/24/2025



Downstream:MH-60 Inspected Distance: 187.3(ft)



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NONE	
UPSTREAM:	MH-59
DOWNSTREAM:	MH-60
DIRECTION:	Downstream

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NONE	
UPSTREAM:	MH-6
DOWNSTREAM:	MH-7
DIRECTION:	Downstream

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STREET:	HAMPTON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	44.70		
SHAPE:	Circular	SIZE:	8	PURPOSE:		DATE:	8/29/2025



Started at Upstream :MH-6:0 .Started @AMH : UPSTREAM MH-6.Water Level 0%



44.7 .Ended @AMH : DOWNSTREAM MH-7

Downstream:MH-7 Inspected Distance: 44.7(ft)



Flow



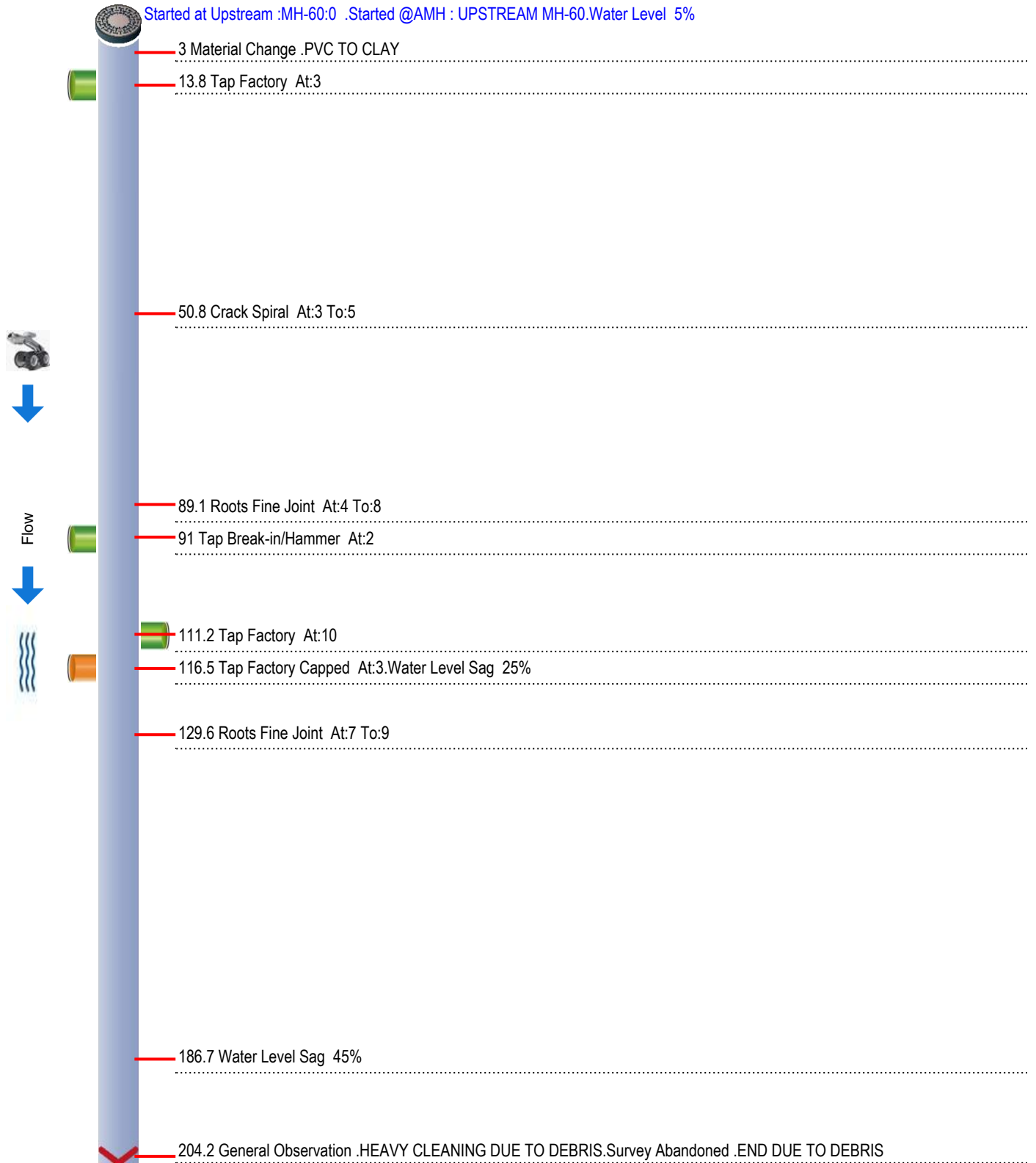


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NONE	
UPSTREAM:	MH-60
DOWNSTREAM:	MH-61
DIRECTION:	Downstream

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STREET:	SUNSET TER	CITY:	WESTERN SPRINGS				
MATERIAL:	Polyvinyl Chloride	TOTAL:	.00	SURVEYED:	204.20		
SHAPE:	Circular	SIZE:	8	PURPOSE		DATE:	11/24/2025



Downstream:MH-61 Inspected Distance: 204.2(ft)





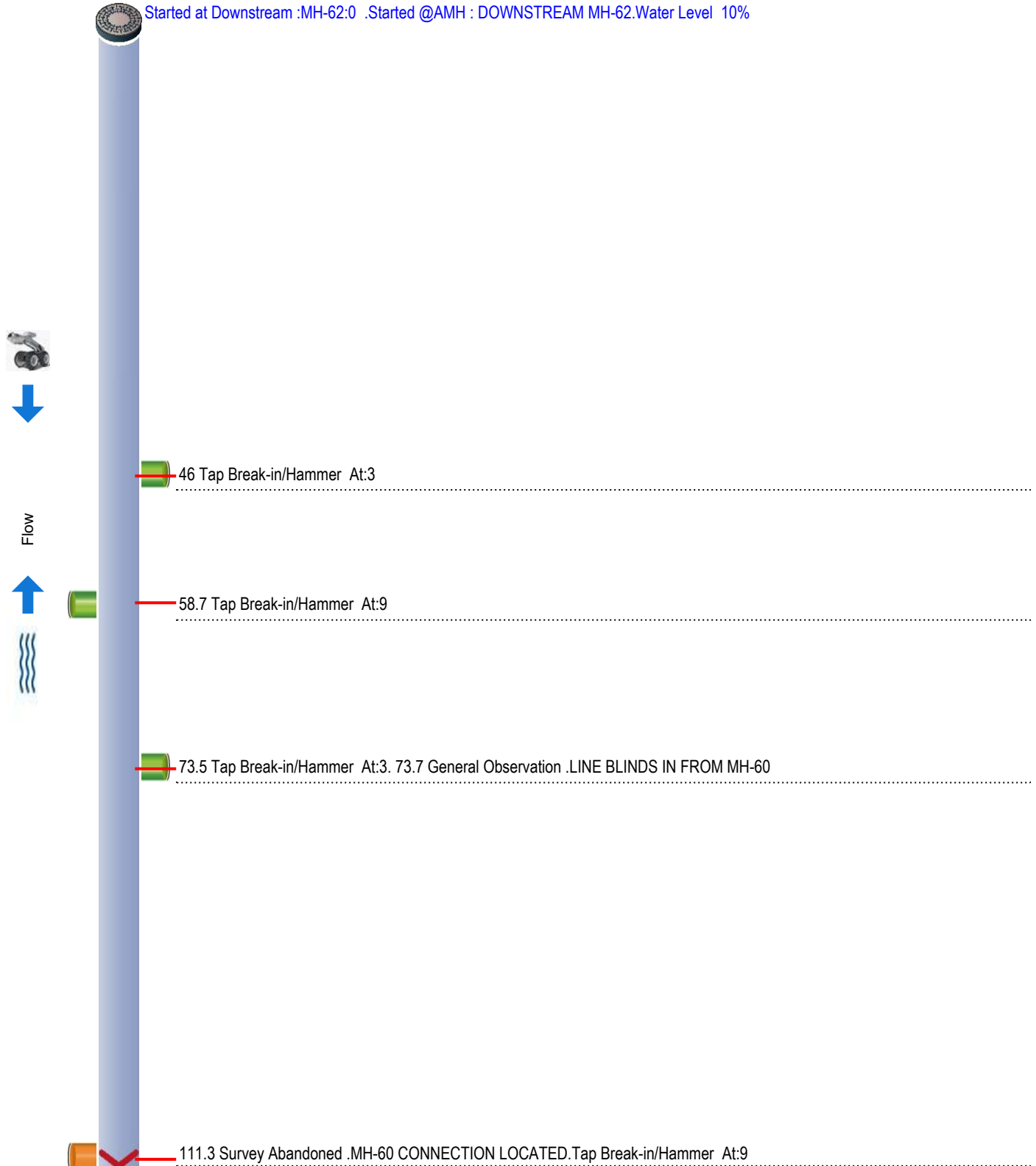
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NONE	
UPSTREAM:	MH-61
DOWNSTREAM:	MH-62
DIRECTION:	Upstream

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STREET:	WILLOW ST	CITY:	WESTERN SPRINGS				
MATERIAL:	Concrete Pipe non-reinforced	TOTAL:	.00	SURVEYED:	111.30		
SHAPE:	Circular	SIZE:	15	PURPOSE		DATE:	11/24/2025

Started at Downstream :MH-62:0 .Started @AMH : DOWNSTREAM MH-62.Water Level 10%



Upstream :MH-61 Inspected Distance: 111.3(ft)



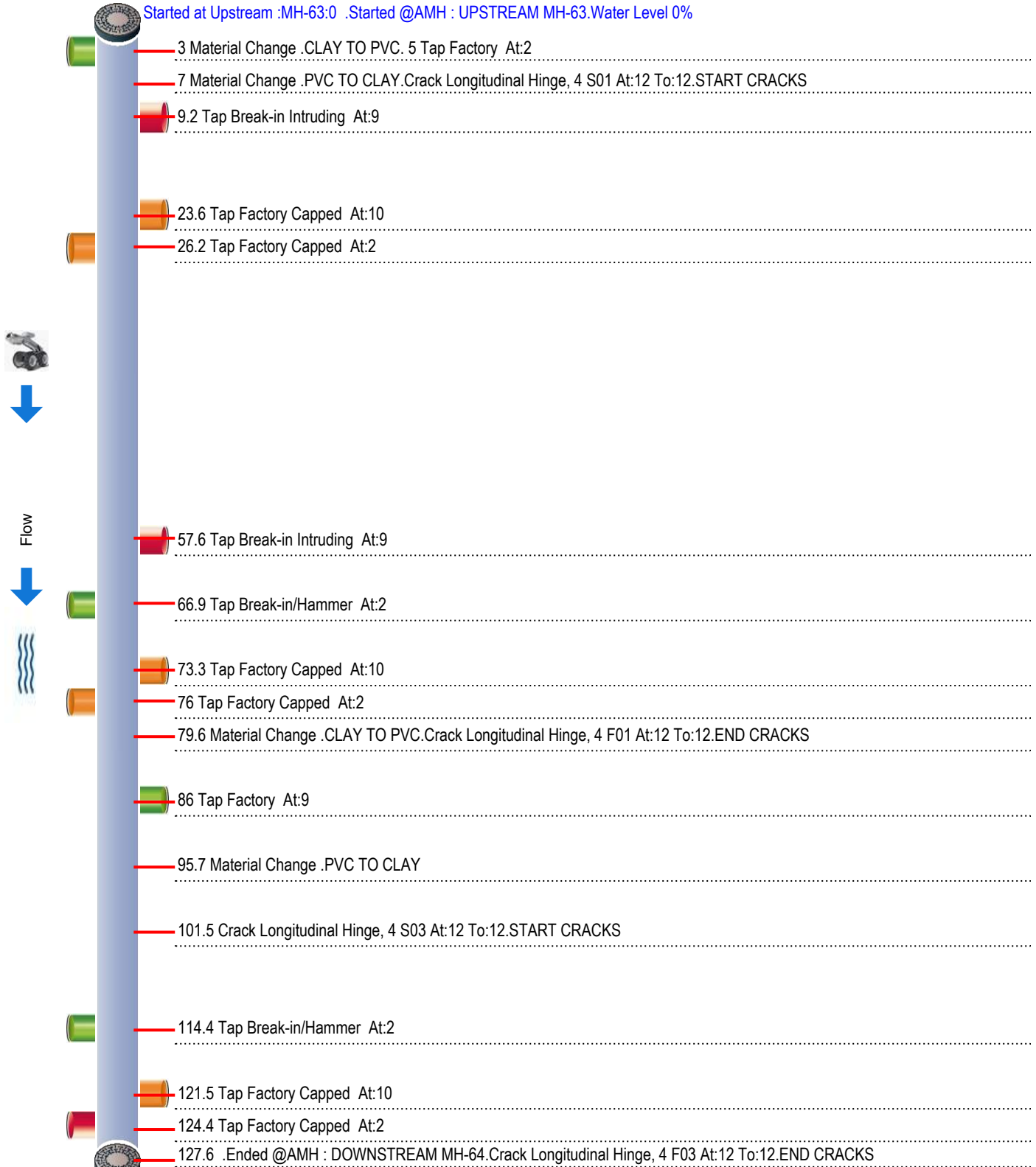


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NONE	
UPSTREAM:	MH-63
DOWNSTREAM:	MH-64
DIRECTION:	Downstream

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STREET:	JOHNSON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	127.60		
SHAPE:	Circular	SIZE:	10	PURPOSE		DATE:	11/24/2025



Downstream:MH-64 Inspected Distance: 127.6(ft)

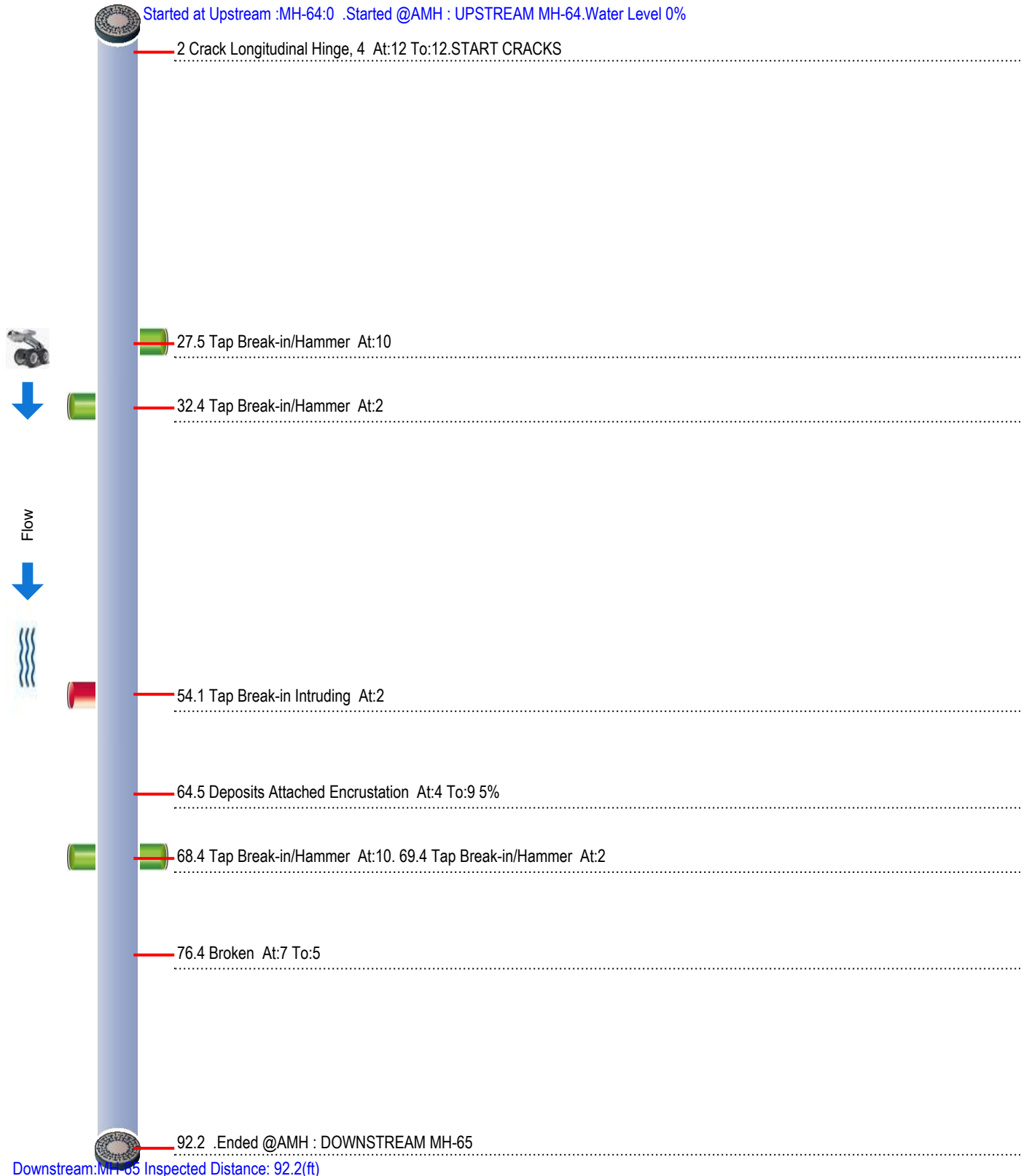


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NONE	
UPSTREAM:	MH-64
DOWNSTREAM:	MH-65
DIRECTION:	Downstream

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STREET:	JOHNSON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	92.20		
SHAPE:	Circular	SIZE:	10	PURPOSE		DATE:	11/24/2025



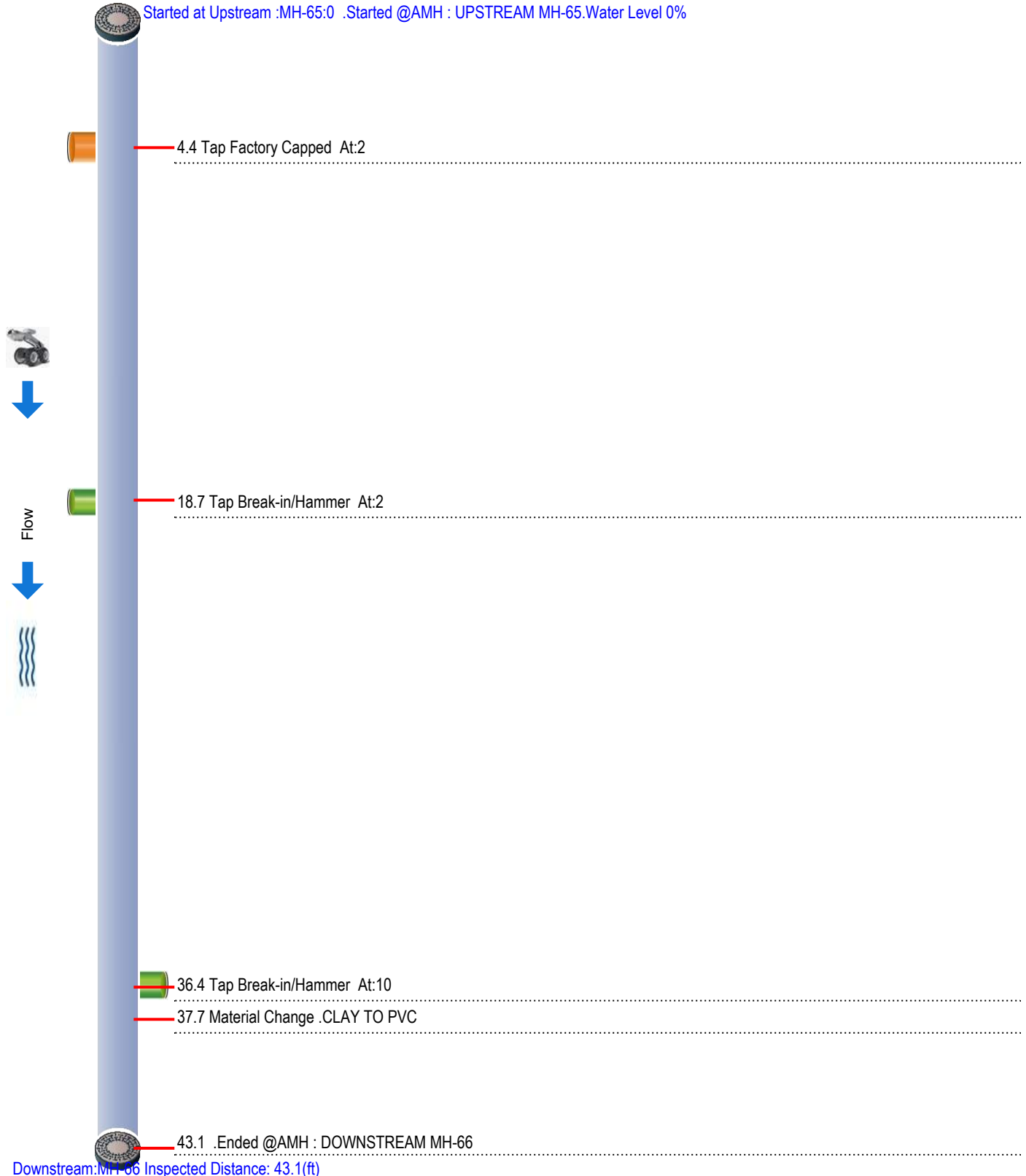


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NONE	
UPSTREAM:	MH-65
DOWNSTREAM:	MH-66
DIRECTION:	Downstream

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STREET:	JOHNSON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	43.10		
SHAPE:	Circular	SIZE:	10	PURPOSE		DATE:	11/24/2025



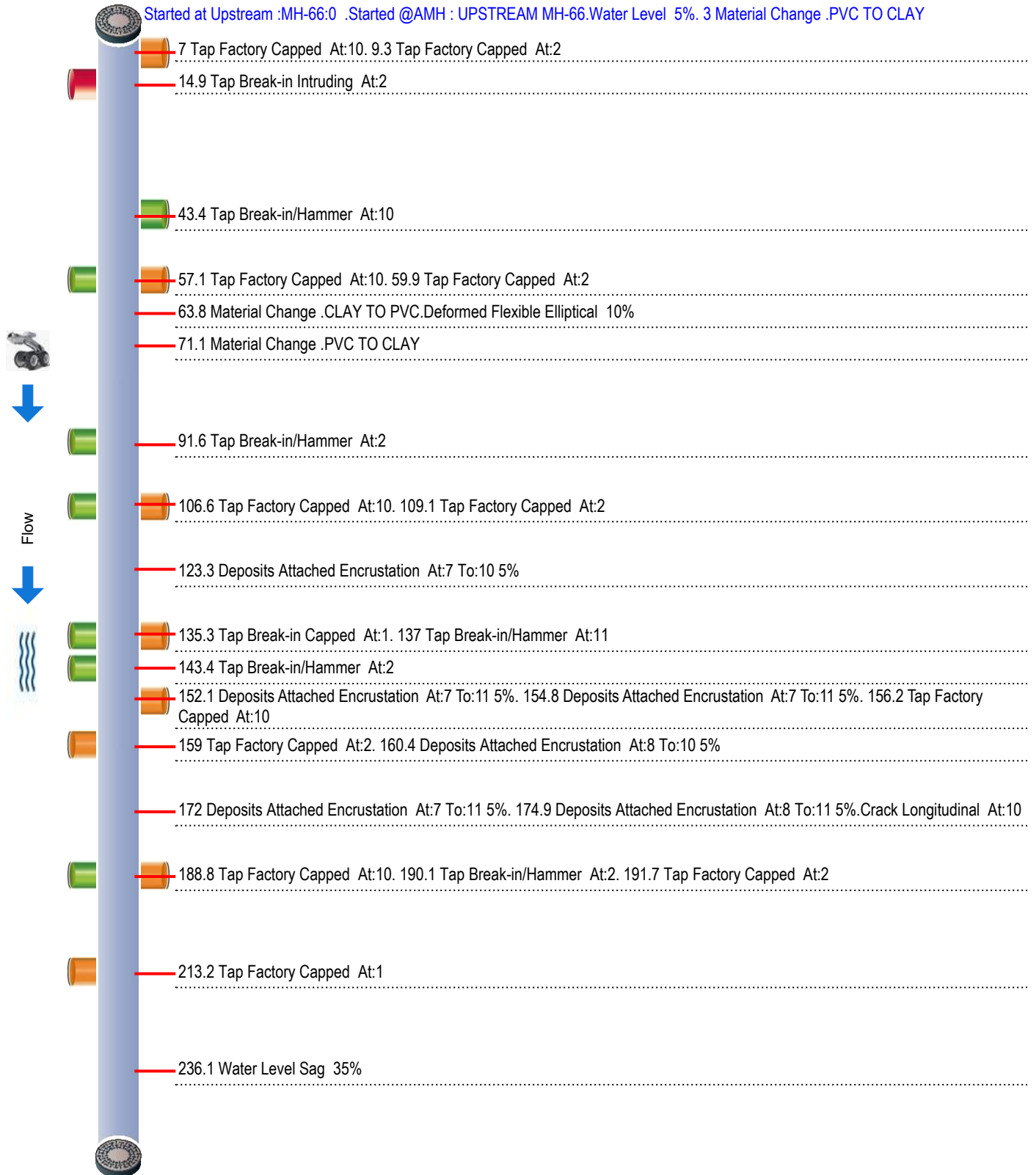


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NONE	
UPSTREAM:	MH-66
DOWNSTREAM:	MH-67
DIRECTION:	Downstream

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STREET:	JOHNSON AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Polyvinyl Chloride	TOTAL:	.00	SURVEYED:	254.50		
SHAPE:	Circular	SIZE:	10	PURPOSE		DATE:	11/24/2025



Downstream:MH-67 Inspected Distance: 254.5(ft)



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NONE	
UPSTREAM:	MH-66
DOWNSTREAM:	MH-67
DIRECTION:	Downstream

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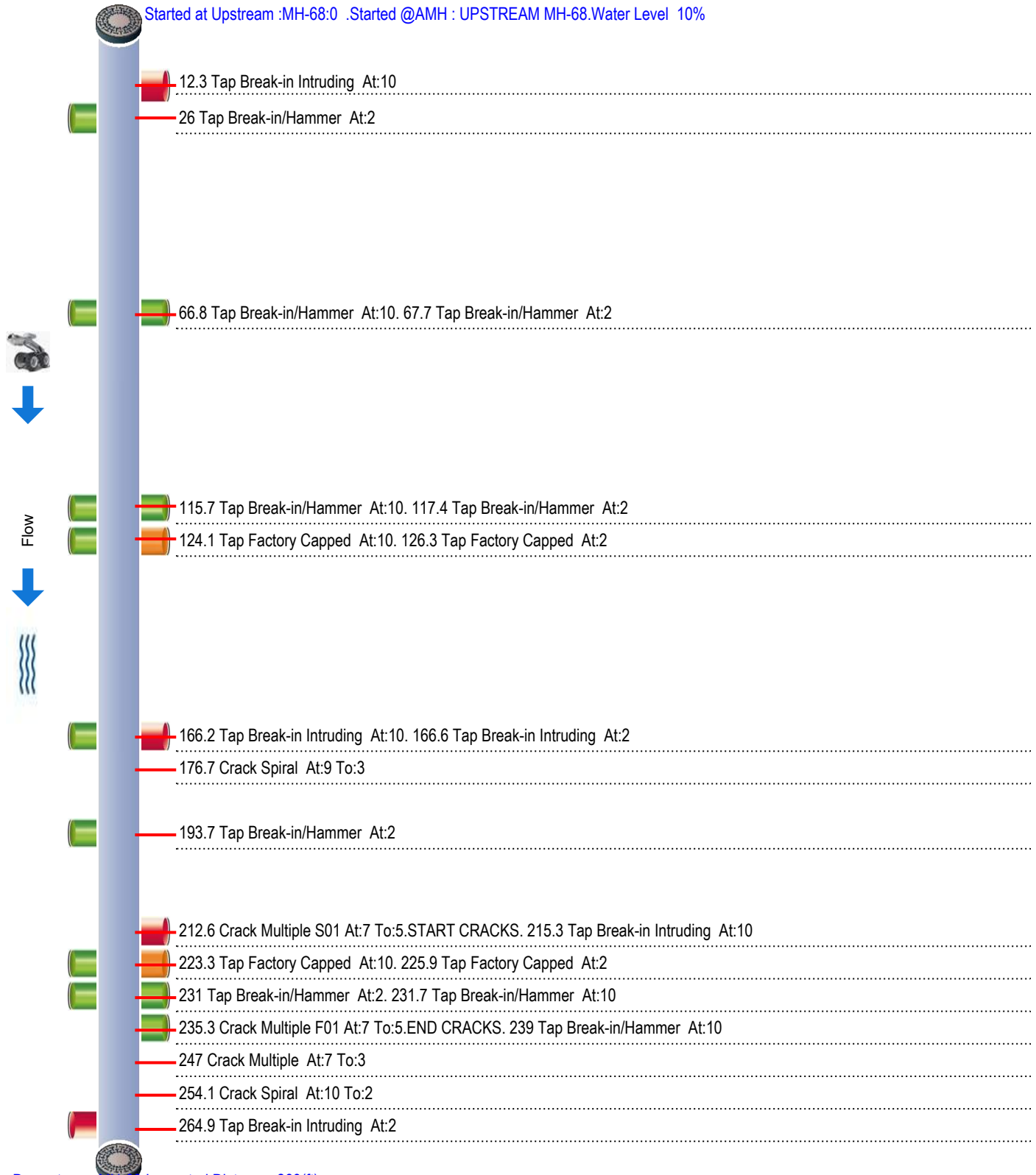


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NONE	
UPSTREAM:	MH-68
DOWNSTREAM:	MH-69
DIRECTION:	Downstream

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REHABILITATION
7400 N. WAUKEGAN RD. / #101
NILES, IL, 60714
847-588-1145

STREET:	HOWARD AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	269.00		
SHAPE:	Circular	SIZE:	15	PURPOSE		DATE:	11/25/2025



Downstream:MH-69 Inspected Distance: 269(ft)

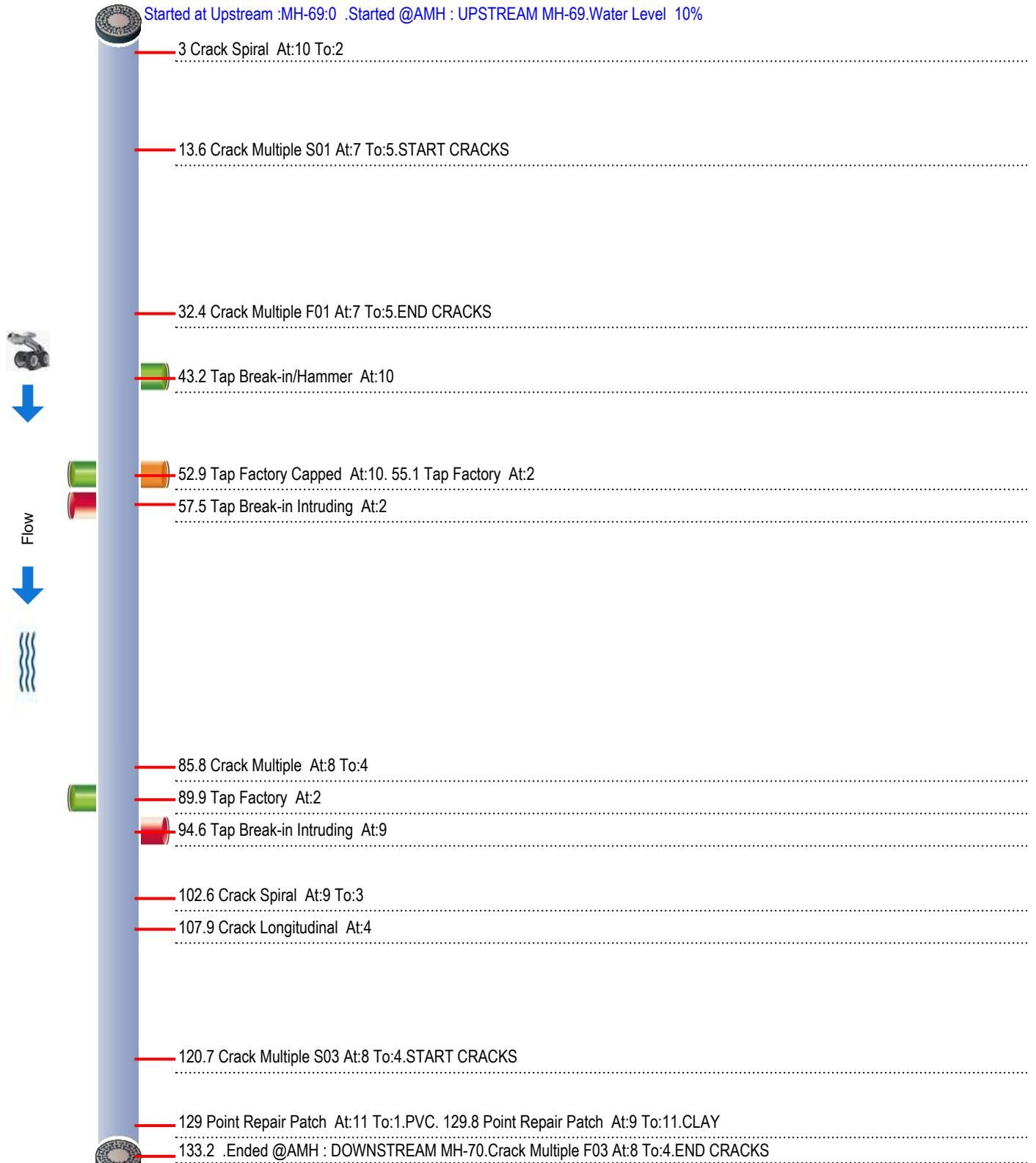


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NONE	
UPSTREAM:	MH-69
DOWNSTREAM:	MH-70
DIRECTION:	Downstream

CHICAGOLAND TRENCHLESS
REHABILITATION
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NILES, IL, 60714
847-588-1145

STREET:	HOWARD AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	133.20		
SHAPE:	Circular	SIZE:	15	PURPOSE		DATE:	11/25/2025



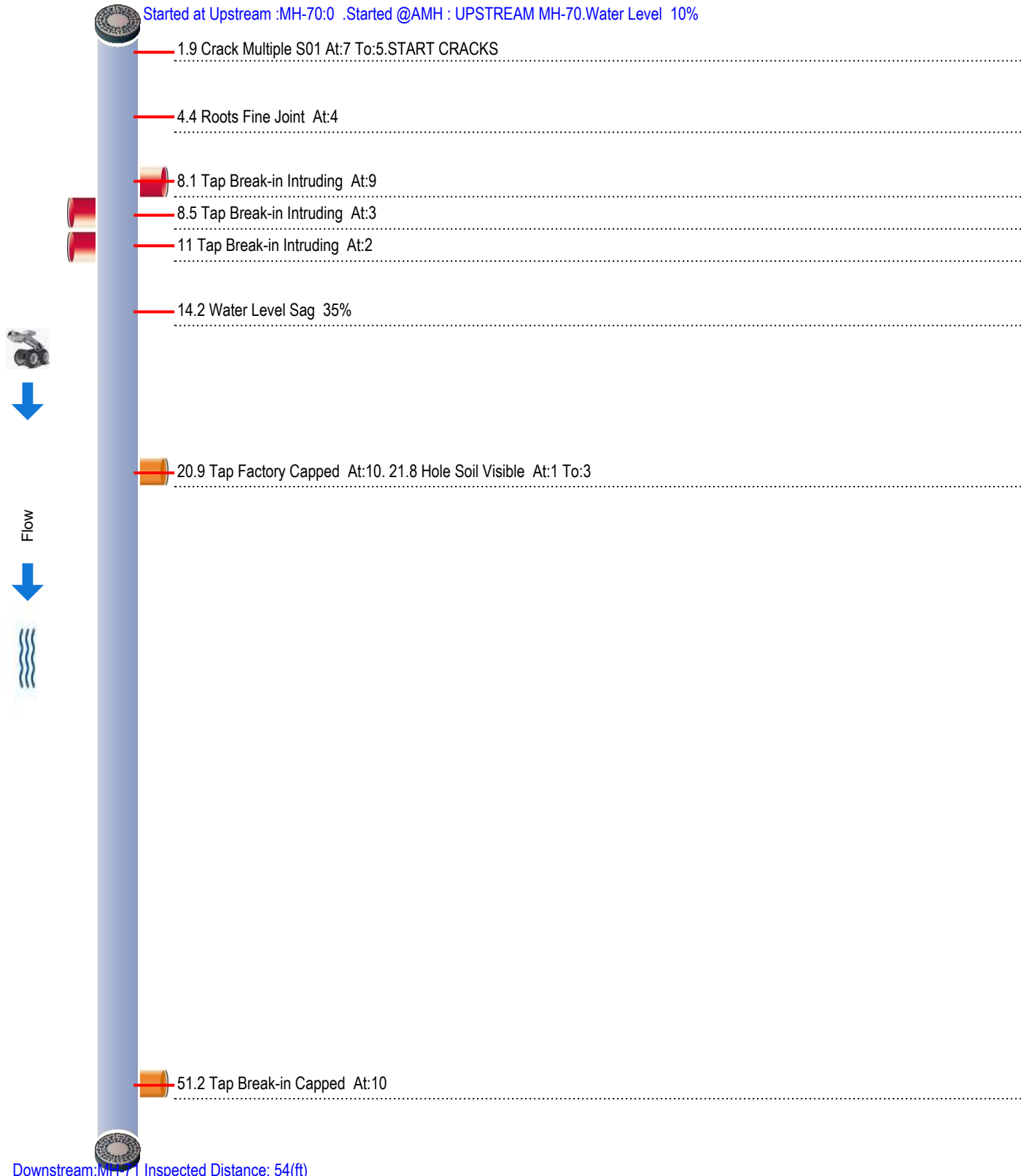


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NONE	
UPSTREAM:	MH-70
DOWNSTREAM:	MH-71
DIRECTION:	Downstream

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REHABILITATION
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NILES, IL, 60714
847-588-1145

STREET:	HOWARD AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	54.00		
SHAPE:	Circular	SIZE:	15	PURPOSE:		DATE:	11/25/2025



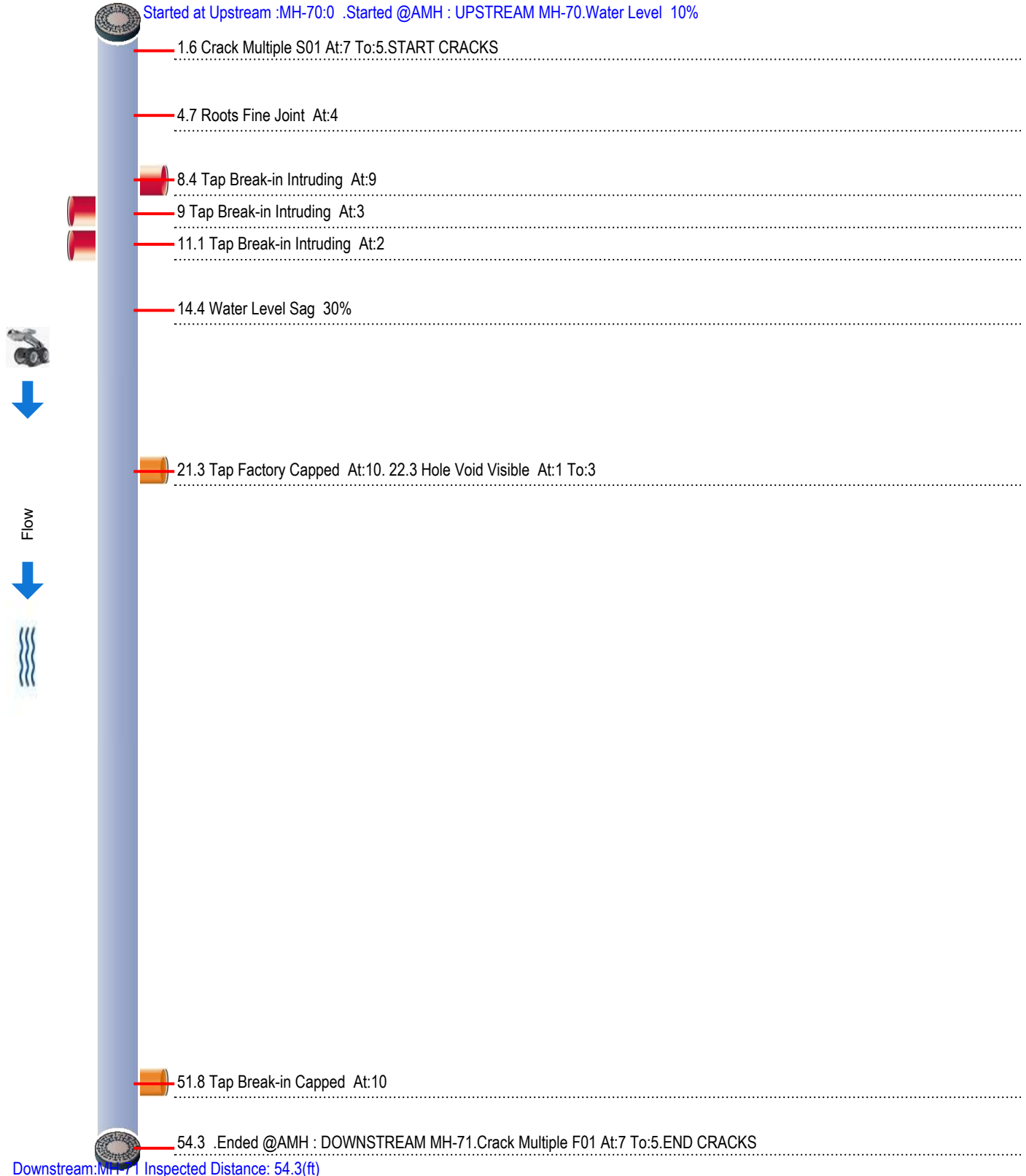


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NONE	
UPSTREAM:	MH-70
DOWNSTREAM:	MH-71
DIRECTION:	Downstream

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REHABILITATION
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NILES, IL, 60714
847-588-1145

STREET:	HOWARD AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	54.30		
SHAPE:	Circular	SIZE:	15	PURPOSE		DATE:	11/25/2025



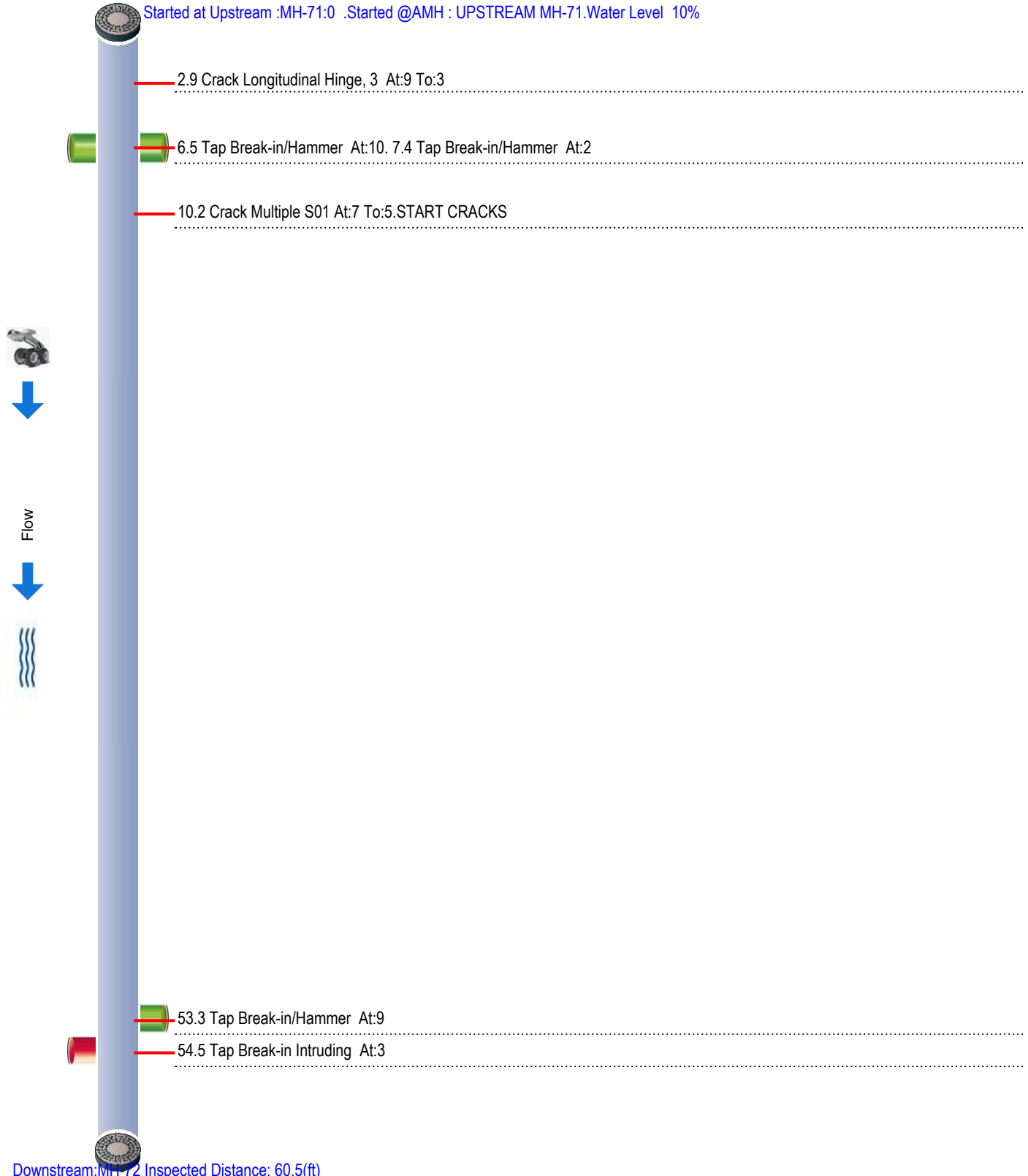


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NONE	
UPSTREAM:	MH-71
DOWNSTREAM:	MH-72
DIRECTION:	Downstream

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REHABILITATION
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NILES, IL, 60714
847-588-1145

STREET:	HOWARD AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	60.50		
SHAPE:	Circular	SIZE:	15	PURPOSE		DATE:	11/25/2025



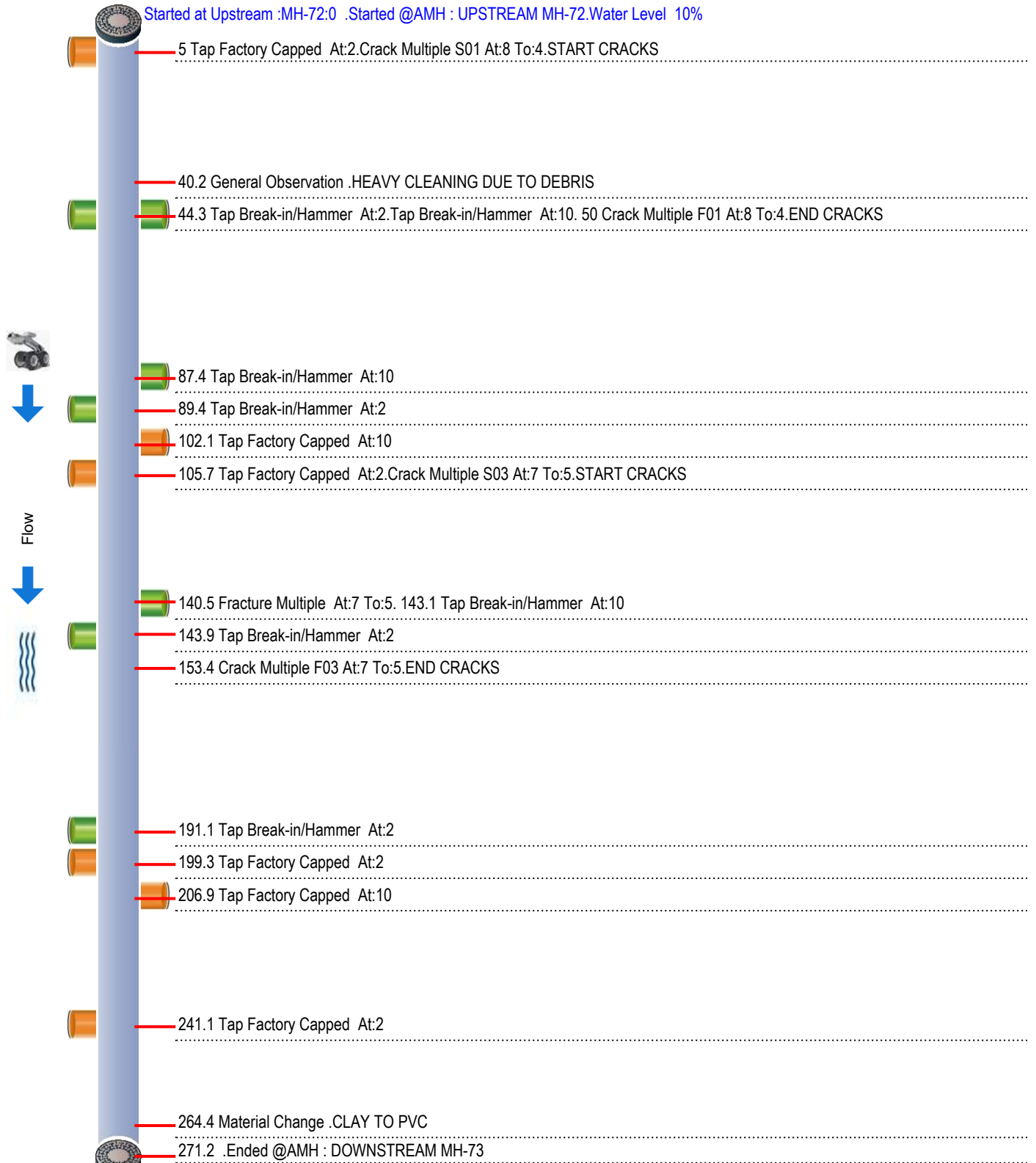


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NONE	
UPSTREAM:	MH-72
DOWNSTREAM:	MH-73
DIRECTION:	Downstream

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REHABILITATION
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NILES, IL, 60714
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STREET:	HOWARD AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	271.20		
SHAPE:	Circular	SIZE:	15	PURPOSE		DATE:	11/25/2025



Downstream:MH-73 Inspected Distance: 271.2(ft)



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NONE	
UPSTREAM:	MH-74
DOWNSTREAM:	MH-75
DIRECTION:	Downstream

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REHABILITATION
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NILES, IL, 60714
847-588-1145

STREET:	HARVEY AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	298.50		
SHAPE:	Circular	SIZE:	12	PURPOSE		DATE:	11/25/2025



Started at Upstream :MH-74:0 .Started @AMH : UPSTREAM MH-74. Water Level 15%



Flow



39.3 General Observation .HEAVY CLEANING DUE TO DEBRIS

60.4 Crack Longitudinal At:12

67.6 Crack Longitudinal Hinge, 3 S01 At:9 To:3.START CRACKS

91 Crack Longitudinal Hinge, 3 F01 At:9 To:3.END CRACKS

119.7 Tap Break-in/Hammer At:10. 120.7 Tap Break-in/Hammer At:2. 123.6 Crack Multiple S03 At:8 To:4.START CRACKS

150 Crack Multiple F03 At:8 To:4.END CRACKS

168.2 Crack Multiple S05 At:8 To:4.START CRACKS

182.6 Tap Break-in Intruding At:9

194.4 Tap Factory Capped At:9. 197.4 Tap Factory Capped At:2

224.8 Crack Multiple F05 At:8 To:4.END CRACKS

234.7 Tap Break-in/Hammer At:10. 238 Crack Spiral At:4 To:8

248.2 Crack Multiple At:10 To:4. 249.5 Tap Break-in/Hammer At:10. 250.6 Tap Break-in/Hammer At:2

288.6 Tap Factory Capped At:10. 292.4 Tap Factory Capped At:2

298 Tap Break-in Intruding At:9

Downstream:MH-75 Inspected Distance: 298.5(ft)



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NONE	
UPSTREAM:	MH-74
DOWNSTREAM:	MH-75
DIRECTION:	Upstream

CHICAGOLAND TRENCHLESS
REHABILITATION
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NILES, IL, 60714
847-588-1145

STREET:	HARVEY AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	19.30		
SHAPE:	Circular	SIZE:	12	PURPOSE		DATE:	11/25/2025



Started at Downstream :MH-75:0 .Started @AMH : DOWNSTREAM MH-75.Water Level 10%

1 Crack Multiple S01 At:7 To:5.START CRACKS

3 Infiltration Runner At:12



Flow



9.4 Crack Multiple F01 At:7 To:5.END CRACKS

17.8 Tap Break-in Intruding At:9

19.3 Tap Break-in Intruding At:3.Survey Abandoned .WHOLE LINE TELEVISED

Upstream :MH-74 Inspected Distance: 19.3(ft)

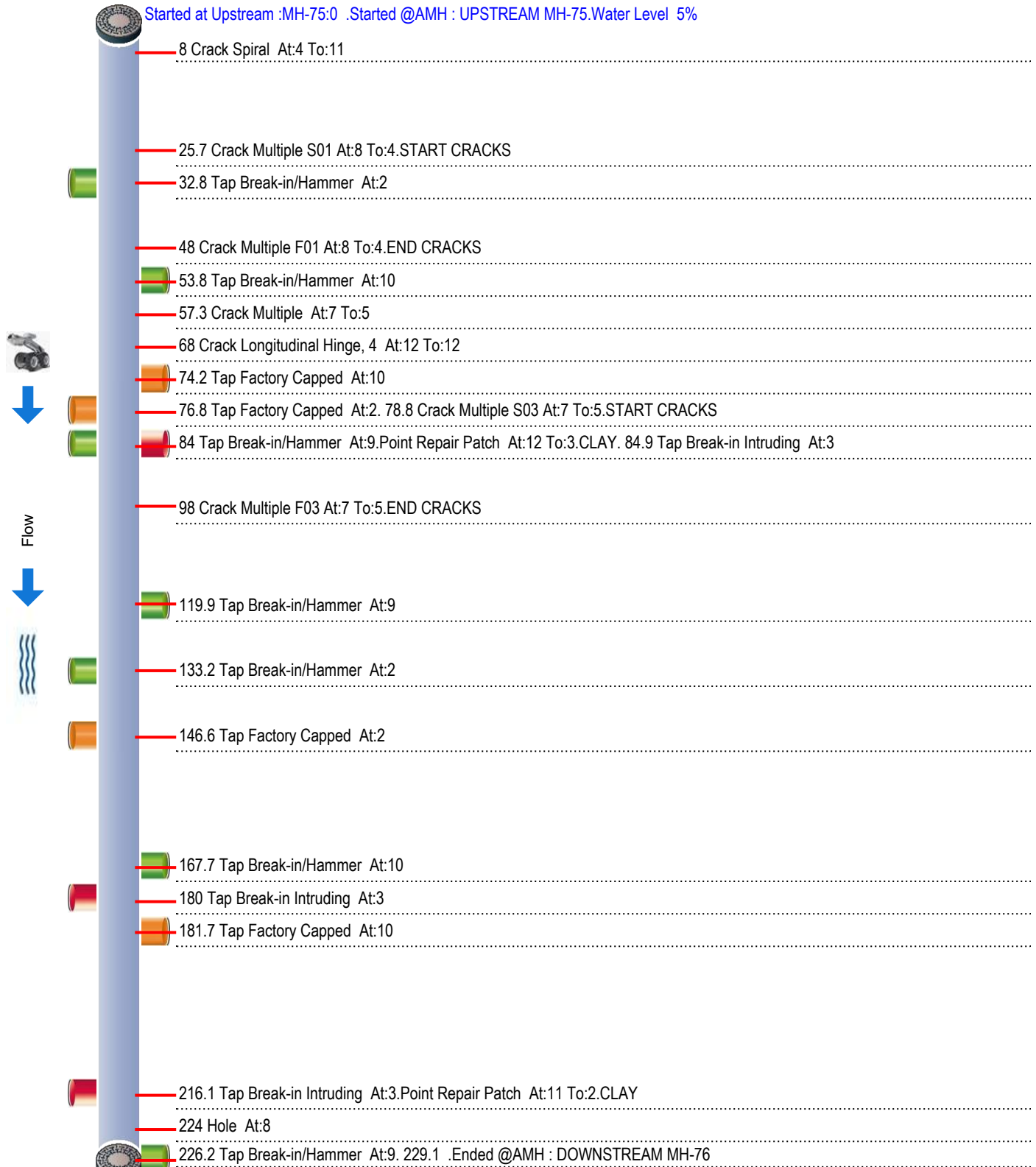


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NONE	
UPSTREAM:	MH-75
DOWNSTREAM:	MH-76
DIRECTION:	Downstream

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REHABILITATION
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NILES, IL, 60714
847-588-1145

STREET:	HARVEY AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	229.10		
SHAPE:	Circular	SIZE:	12	PURPOSE		DATE:	11/25/2025



Downstream:MH-76 Inspected Distance: 229.1(ft)

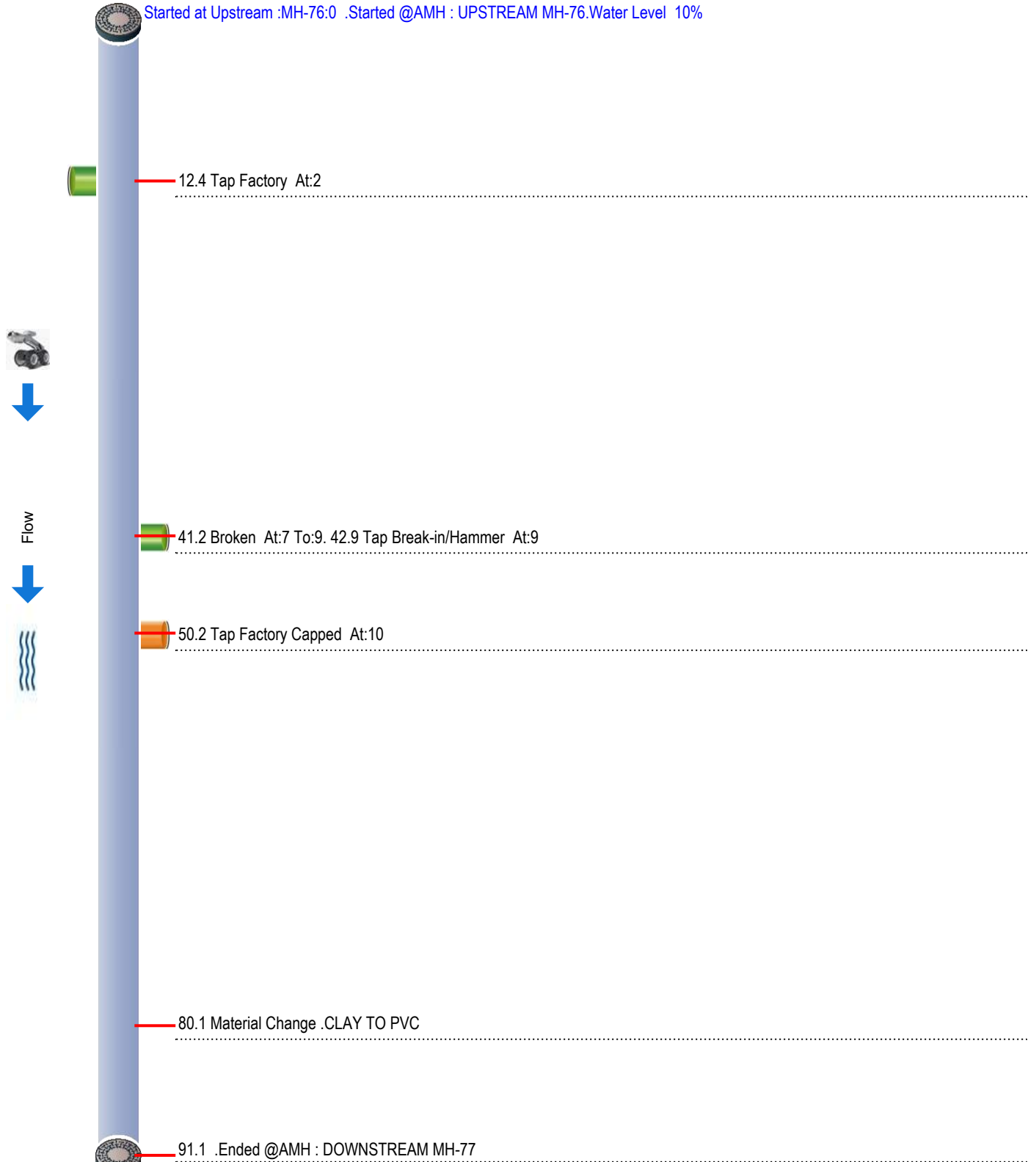


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NONE	
UPSTREAM:	MH-76
DOWNSTREAM:	MH-77
DIRECTION:	Downstream

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REHABILITATION
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NILES, IL, 60714
847-588-1145

STREET:	HARVEY AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	91.10		
SHAPE:	Circular	SIZE:	12	PURPOSE		DATE:	11/26/2025



Downstream:MH-77 Inspected Distance: 91.1(ft)





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NONE	
UPSTREAM:	MH-77
DOWNSTREAM:	MH-78
DIRECTION:	Downstream

CHICAGOLAND TRENCHLESS
REHABILITATION
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NILES, IL, 60714
847-588-1145

STREET:	HARVEY AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	60.50		
SHAPE:	Circular	SIZE:	12	PURPOSE		DATE:	11/26/2025



Started at Upstream :MH-77:0 .Started @AMH : UPSTREAM MH-77.Water Level 10%



Flow



- 59.1 General Observation .BROKEN RODER
- 59.7 General Observation .HEAVY CLEANING DUE TO DEBRIS

Downstream:MH-78 Inspected Distance: 60.5(ft)





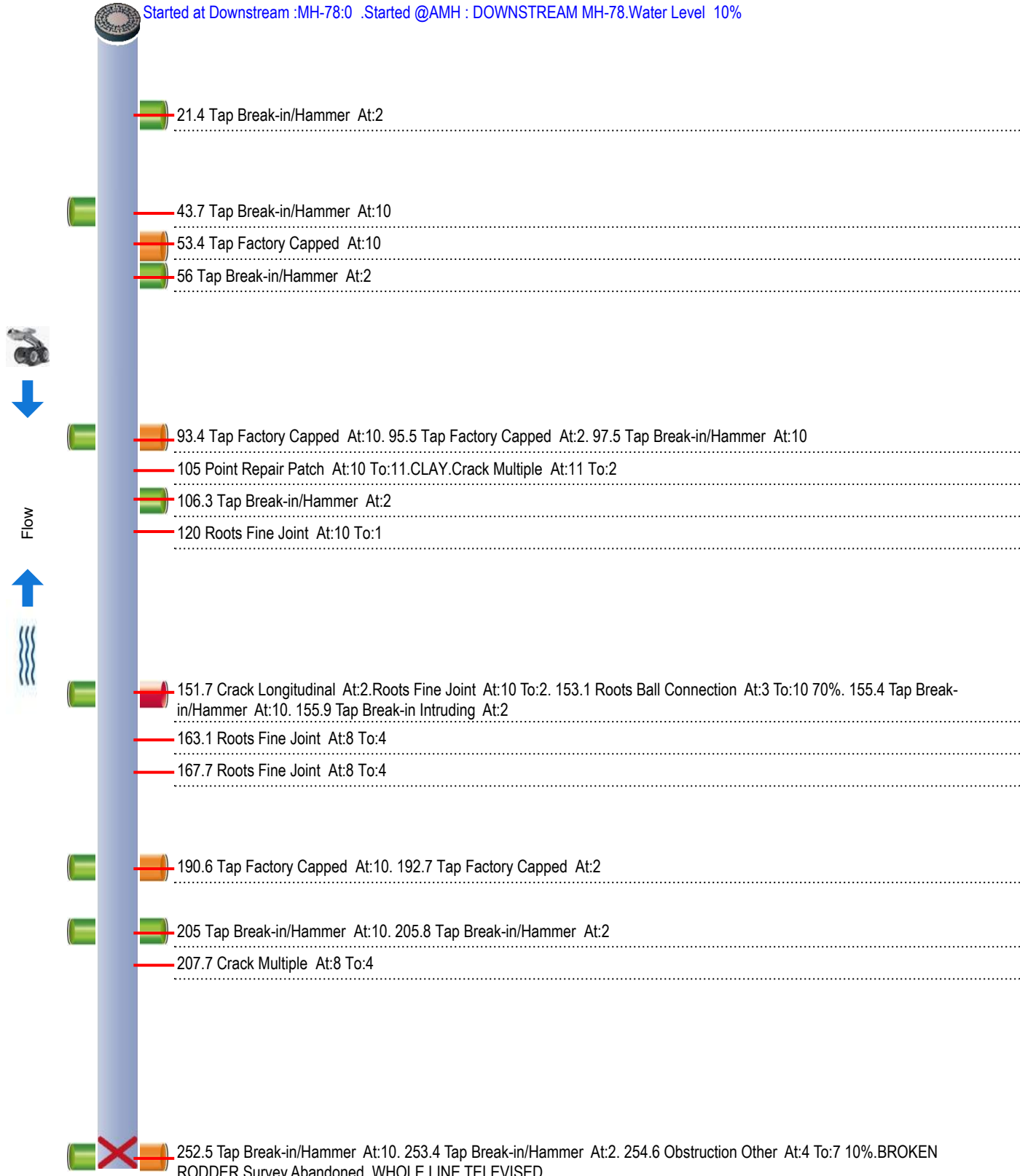
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NONE	
UPSTREAM:	MH-77
DOWNSTREAM:	MH-78
DIRECTION:	Upstream

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REHABILITATION
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NILES, IL, 60714
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STREET:	HARVEY AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	254.60		
SHAPE:	Circular	SIZE:	12	PURPOSE		DATE:	11/26/2025

Started at Downstream :MH-78:0 .Started @AMH : DOWNSTREAM MH-78.Water Level 10%





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NONE	
UPSTREAM:	MH-77
DOWNSTREAM:	MH-78
DIRECTION:	Upstream

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[Upstream :MH-77 Inspected Distance: 254.6\(ft\)](#)

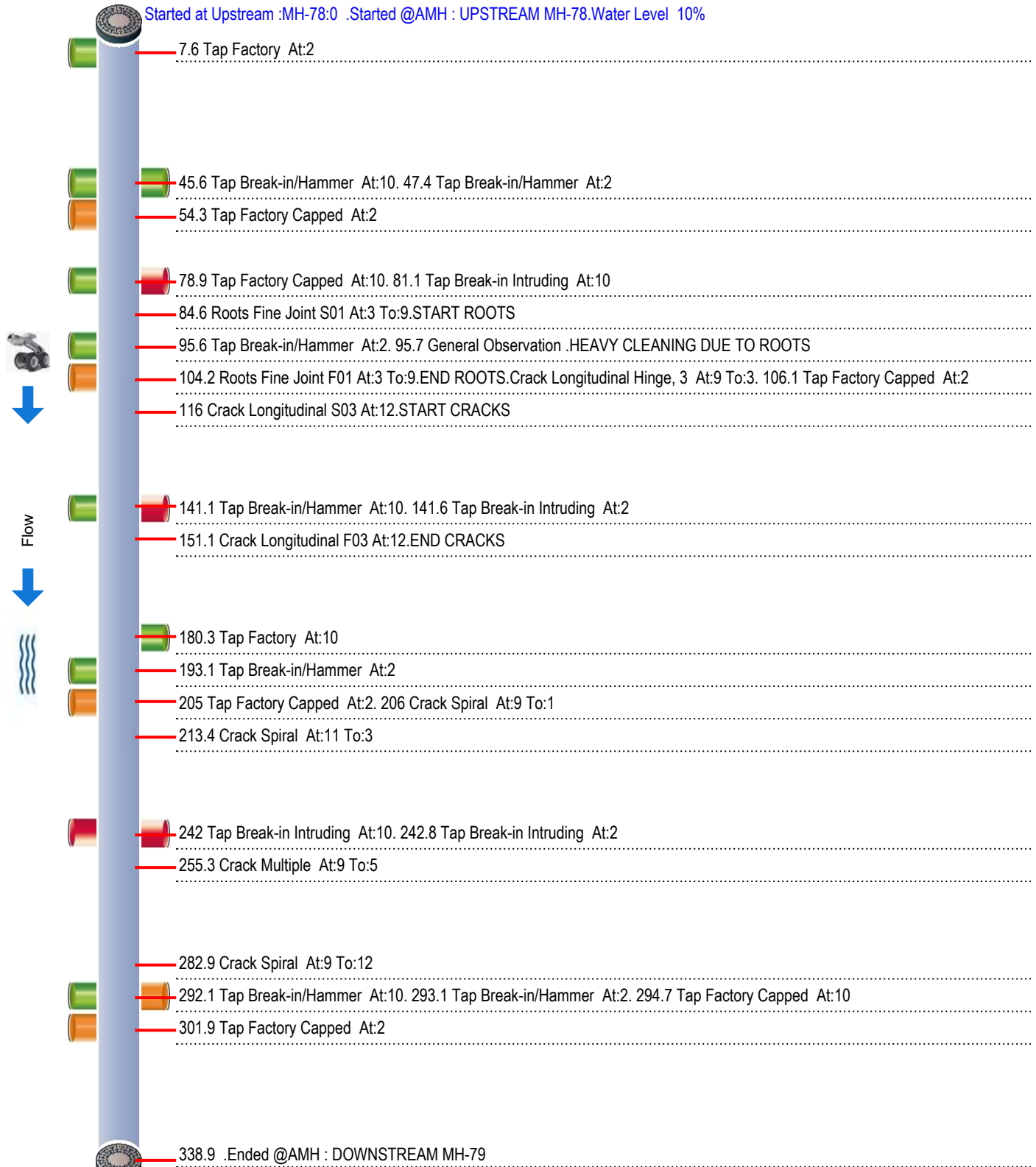


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NONE	
UPSTREAM:	MH-78
DOWNSTREAM:	MH-79
DIRECTION:	Downstream

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STREET:	HARVEY AVE			CITY:	WESTERN SPRINGS	
MATERIAL:	Vitrified Clay Pipe		TOTAL:	.00	SURVEYED:	338.90
SHAPE:	Circular	SIZE:	12	PURPOSE	DATE:	11/26/2025



Downstream:MH-79 Inspected Distance: 338.9(ft)

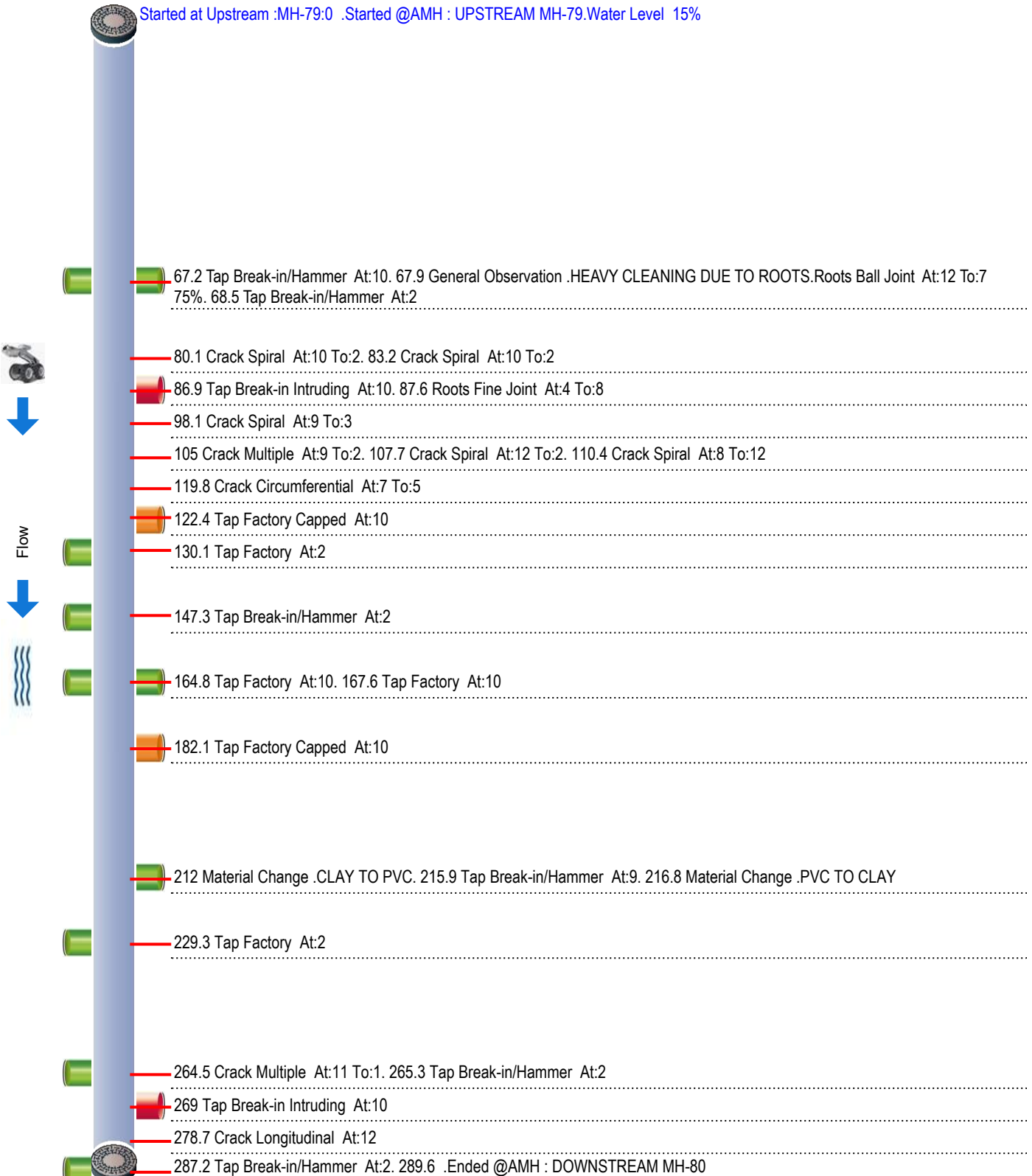


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NONE	
UPSTREAM:	MH-79
DOWNSTREAM:	MH-80
DIRECTION:	Downstream

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STREET:	HARVEY AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	289.60		
SHAPE:	Circular	SIZE:	15	PURPOSE		DATE:	11/26/2025





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NONE	
UPSTREAM:	MH-79
DOWNSTREAM:	MH-80
DIRECTION:	Downstream

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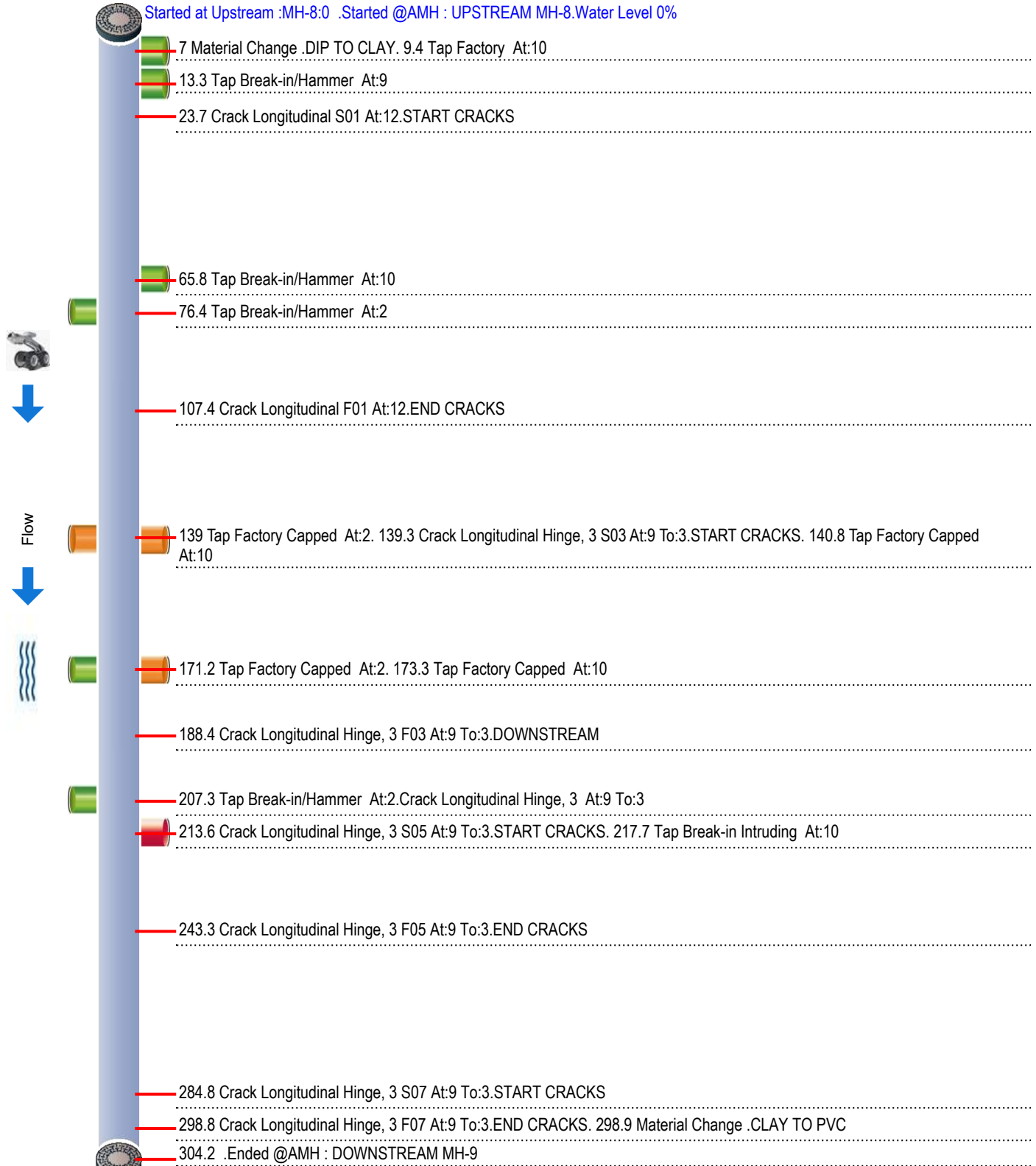


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NONE	
UPSTREAM:	MH-8
DOWNSTREAM:	MH-9
DIRECTION:	Downstream

CHICAGOLAND TRENCHLESS
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NILES,IL,60714
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STREET:	39TH ST	CITY:	WESTERN SPRINGS				
MATERIAL:	Ductile Iron Pipe	TOTAL:	.00	SURVEYED:	304.20		
SHAPE:	Circular	SIZE:	12	PURPOSE		DATE:	9/26/2025



Downstream:MH-9 Inspected Distance: 304.2(ft)

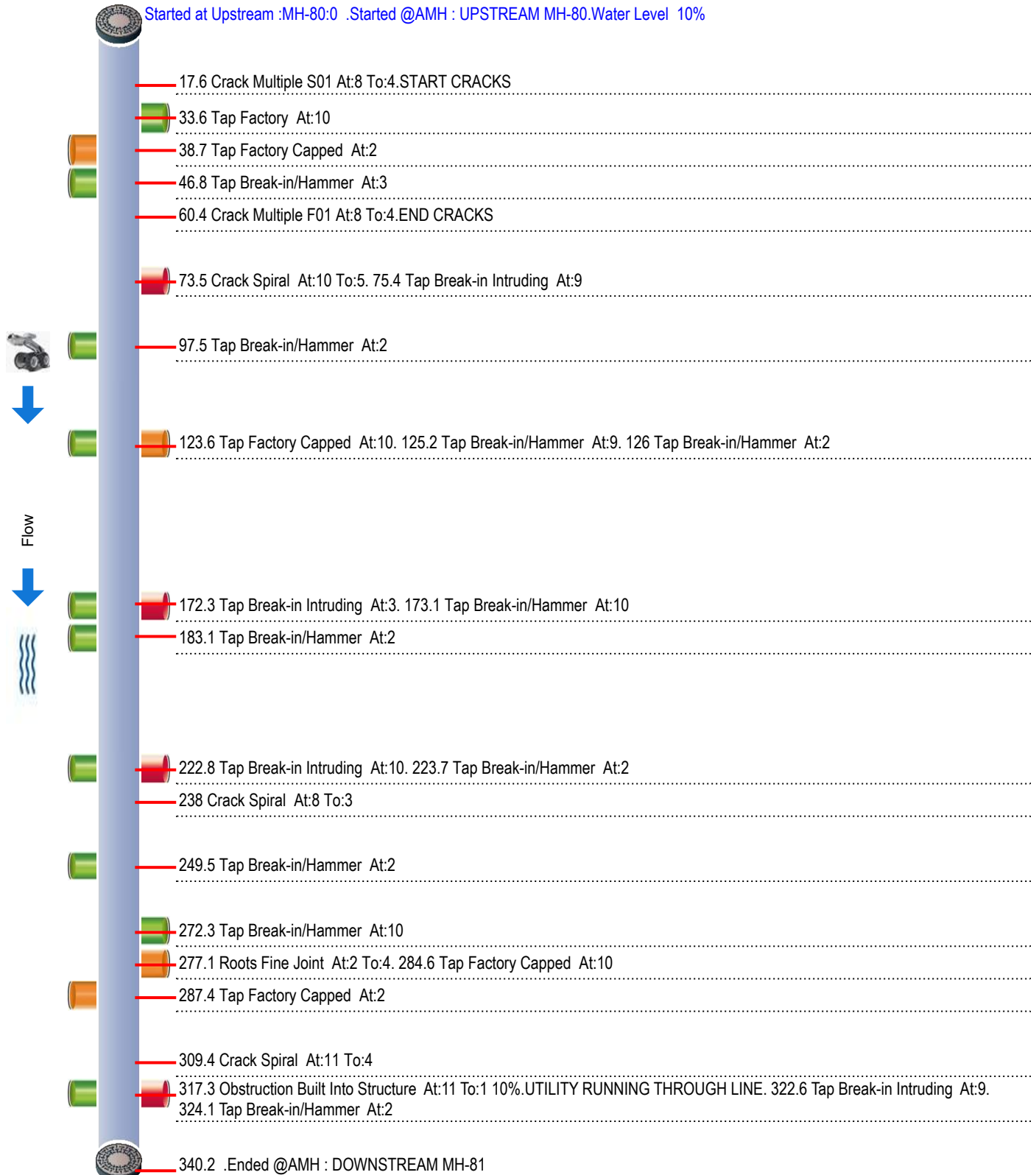


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NONE	
UPSTREAM:	MH-80
DOWNSTREAM:	MH-81
DIRECTION:	Downstream

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REHABILITATION
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NILES, IL, 60714
847-588-1145

STREET:	HARVEY AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	340.20		
SHAPE:	Circular	SIZE:	15	PURPOSE		DATE:	11/26/2025



Downstream:MH-81 Inspected Distance: 340.2(ft)



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Monday, December 15, 2025



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NONE	
UPSTREAM:	MH-80
DOWNSTREAM:	MH-81
DIRECTION:	Downstream

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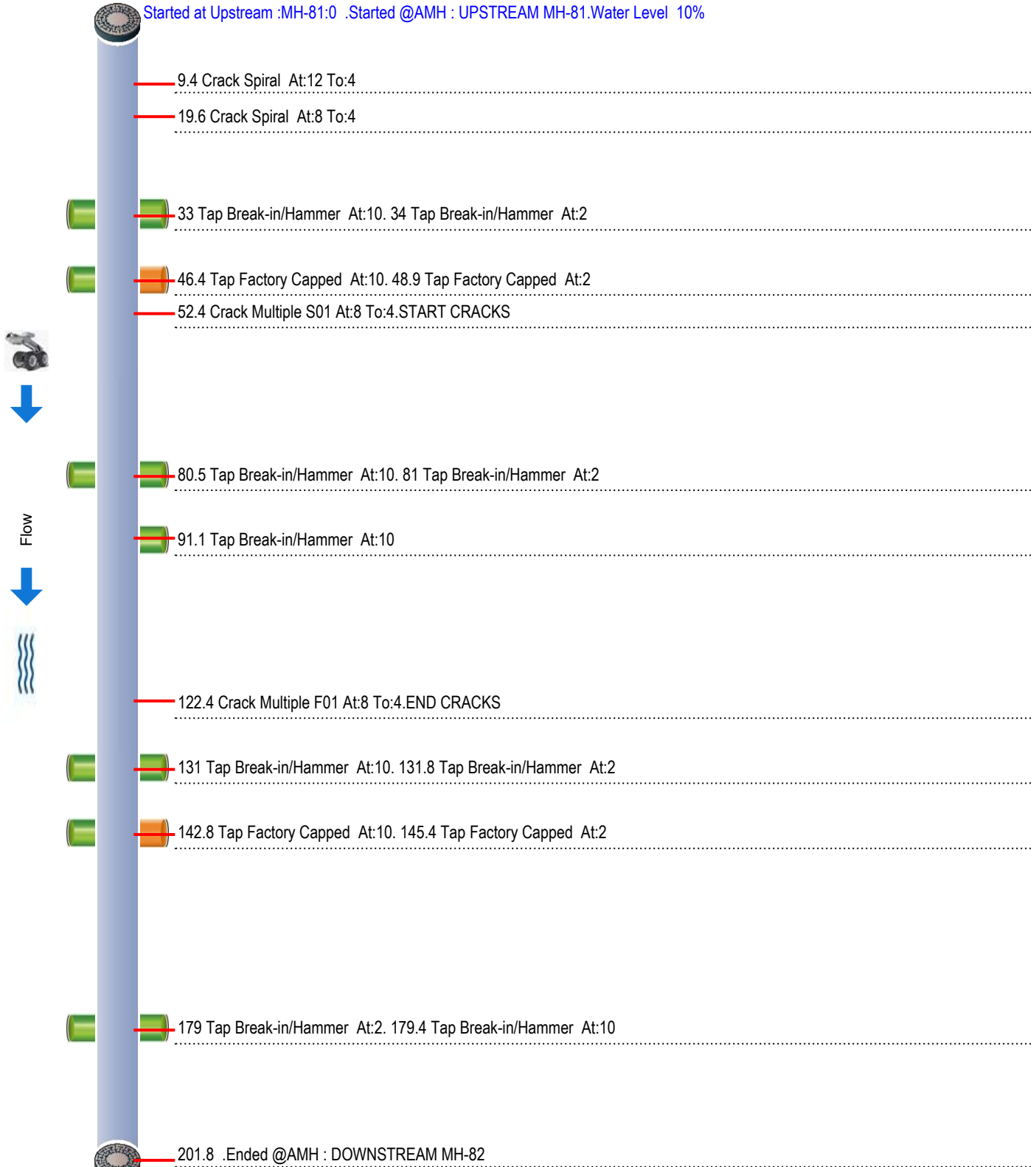


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NONE	
UPSTREAM:	MH-81
DOWNSTREAM:	MH-82
DIRECTION:	Downstream

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STREET:	HARVEY AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	201.80		
SHAPE:	Circular	SIZE:	15	PURPOSE		DATE:	12/3/2025



Downstream:MH-82 Inspected Distance: 201.8(ft)

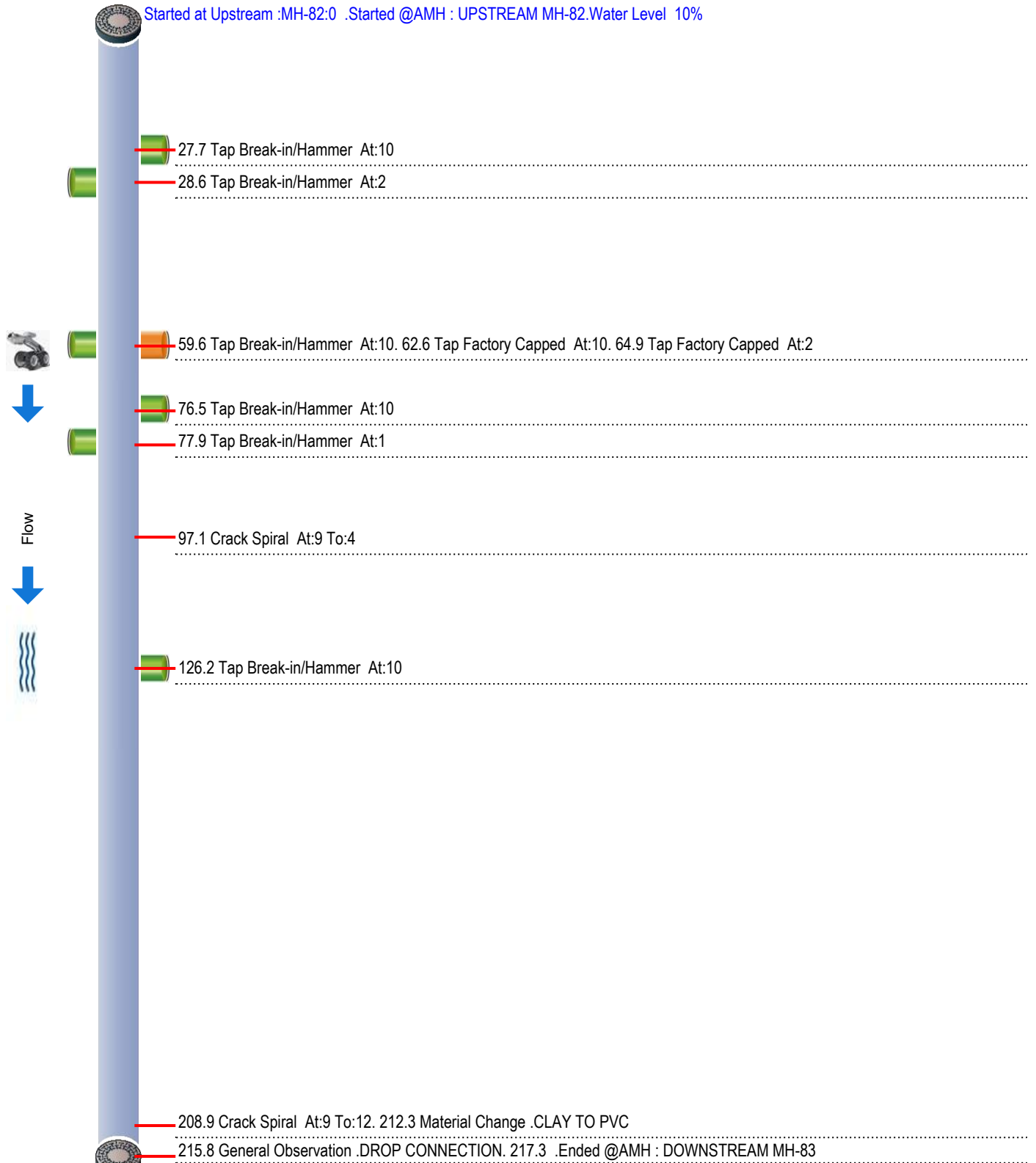


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NONE	
UPSTREAM:	MH-82
DOWNSTREAM:	MH-83
DIRECTION:	Downstream

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REHABILITATION
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NILES, IL, 60714
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STREET:	HARVEY AVE	CITY:	WESTERN SPRINGS				
MATERIAL:	Vitrified Clay Pipe	TOTAL:	.00	SURVEYED:	217.30		
SHAPE:	Circular	SIZE:	15	PURPOSE		DATE:	12/3/2025



Downstream:MH-83 Inspected Distance: 217.3(ft)

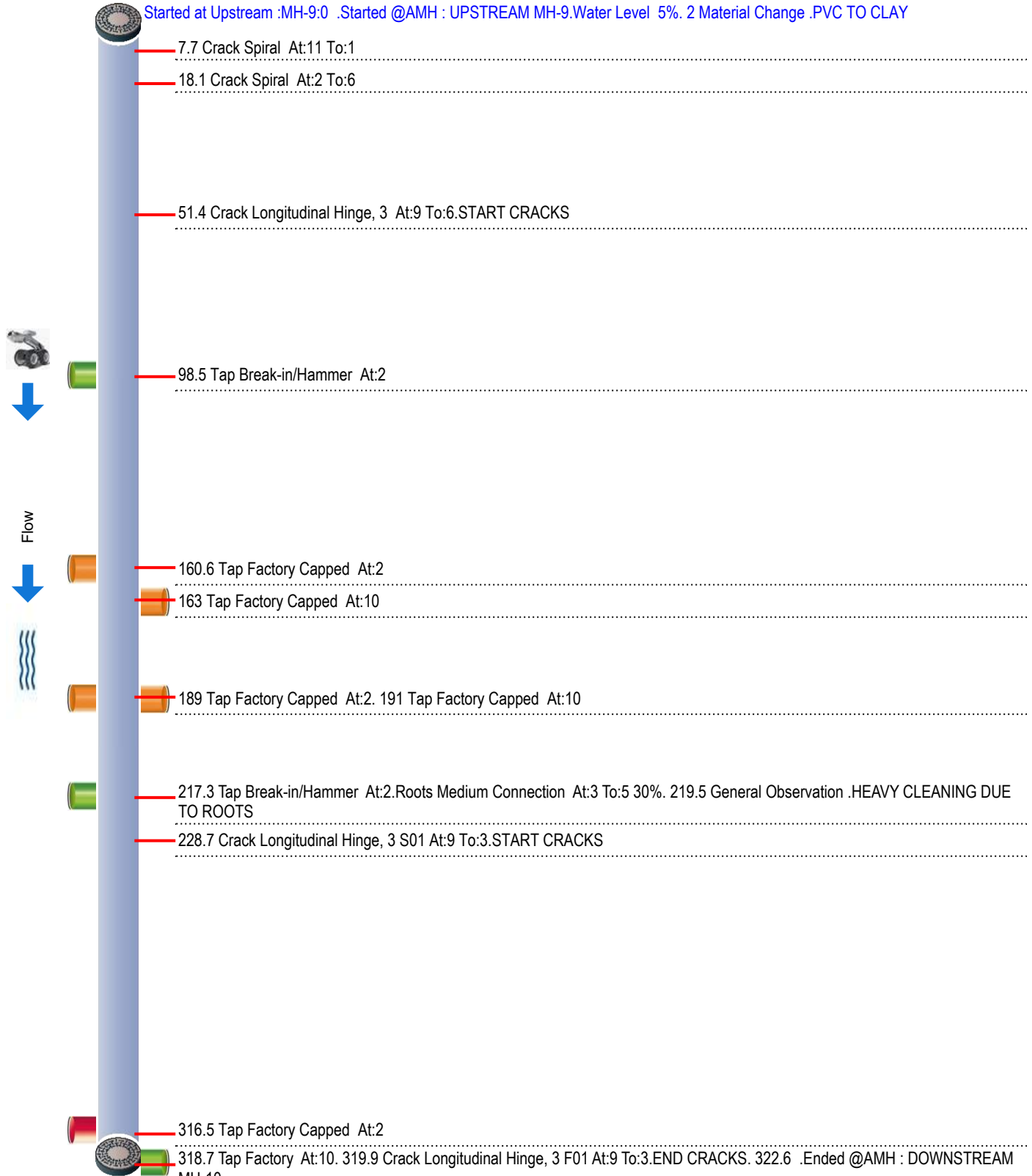


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NONE	
UPSTREAM:	MH-9
DOWNSTREAM:	MH-10
DIRECTION:	Downstream

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REHABILITATION
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847-588-1145

STREET:	39TH ST	CITY:	WESTERN SPRINGS				
MATERIAL:	Polyvinyl Chloride	TOTAL:	.00	SURVEYED:	322.60		
SHAPE:	Circular	SIZE:	15	PURPOSE		DATE:	9/26/2025





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NONE	
UPSTREAM:	MH-9
DOWNSTREAM:	MH-10
DIRECTION:	Downstream

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[Downstream:MH-10 Inspected Distance: 322.6\(ft\)](#)

Technical Memorandum

**2025 Infrastructure Referendum:
Commonwealth Subdivision Infrastructure Improvements**

May 6th, 2026

HR Green Project No: 2502734

Prepared For:

Village of Western Springs
740 Hillgrove Avenue
Western Springs, IL 60558





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- Appendix 3: Conceptual Intersection- Commonwealth Ave - W 48th Street
- Appendix 4: Preliminary Opinion of Probable Costs
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 - Sanitary Sewer Improvements Phase 1 & 2
 - Roadway & Sidewalk Rehabilitation Phase 1
 - Summary of Quantities
 - Cost Estimate
 - Roadway & Sidewalk Rehabilitation Phase 2
 - Summary of Quantities
 - Cost Estimate
 - Conceptual Intersection for Commonwealth Ave. and W. 48th Street
 - Booster Station & PRV for Emergency Interconnect
- Appendix 5: Geotechnical Report
- Appendix 6: Sewer Televising Reports

I. Introduction

As part of the recent \$45 Million Infrastructure Referendum, the Village of Western Springs has programmed infrastructure improvements for the Commonwealth Subdivision North & South project area located south of 47th Street, west of Flagg Creek, east of I294, and north of 55th Street. Included in the FY2029 construction season are proposed infrastructure improvements consisting of watermain and service replacements, to be followed by roadway and sidewalk rehabilitation (i.e.: patching, resurfacing, spot replacement of combination concrete curb and gutter (CCC&G) and PCC Sidewalk) for this residential neighborhood.

The Village of Western Springs (Village) contracted HR Green to perform a preliminary engineering assessment for the Village's infrastructure located within the Commonwealth Subdivision in the North and South areas. This technical memo summarizes the findings from the field assessments, including a field review meeting with the Village, geotechnical assessment, and sanitary sewer televising. This memo also provides recommendations for infrastructure upgrades, including watermain alignment adjustments, roadway & sidewalk rehabilitation, and sanitary sewer rehabilitation. The proposed recommendations have been subdivided into two main phases. Phase 1 consists of the area located south of 47th Street and north of 49th Court South. Phase 2 consists of the area located between south of 49th Court South and the southernmost limits of the Commonwealth Subdivision at the cul-de-sac. Lastly, the memo provides preliminary cost estimates for the proposed improvements.

II. Field Assessments

II.A Field Review Meeting with Key Staff

On October 30th, 2025, HR Green and the Village of Western Springs conducted an onsite field review meeting within the Commonwealth Subdivision. The meeting included a site walkthrough, field investigation, data collection, and a discussion on potential watermain routes. HR Green also conducted a field assessment of the existing roadway and sidewalk infrastructure to assist with determining the proposed rehabilitation for the roadway, including patching, CCC&G repairs, and sidewalk replacement. HR Green used data collected in the field to finalize the proposed watermain alignments, recommendations, and to prepare budgetary estimates for the project.

II.B Geotechnical Assessment

HR Green's subconsultant, Seeco Consultants, Inc., prepared a geotechnical assessment within the project area. Nine soil borings were drilled and sampled to a depth of 10-foot below existing ground level. **Figure 1** provides the Soil Boring Location Map. According to the report, the soils along Creek Drive (Boring No. 6) and southern limits of Commonwealth Avenue (Boring No. 9) were found to be unsuitable and may require undercut excavation up to 2 feet below typical watermain invert depth (see **Table 1**). Seeco Consultants recommends filling the undercut with compact IDOT CA-6 crushed stone. The remaining seven soil borings appeared to have suitable soils. The average thickness of the existing roadway pavement was found to be approximately 4 inches with an average crushed stone base course thickness of approximately 14 inches (see **Table 2**). According to the geotechnical report, the existing hard/very stiff dark gray clay fill and very stiff dark gray and gray clay fill subgrade below the existing pavement are suitable as subgrade. The detailed geotechnical report, boring logs, and design recommendations are provided in **Appendix 5**.



Figure 1: Boring Location Map (from Geotech Report)

Table 1: Anticipated soil conditions at the watermain invert depth (from Geotech Report). Boring No. 6 and No. 9 (highlighted in yellow) had unsuitable soils which may require up to 2 feet of undercut excavation.

Boring No	Name of Street	Approximate Depth to Top of the Watermain b.e.g.l.* (feet)	Approximate Depth of the Watermain Invert b.e.g.l. (feet)	Type of Soil to be Encountered at the Proposed Location of Watermain Invert
B-1	Commonwealth Ave.	5	5.67	Hard to Very Stiff Dark Gray Clay Fill
B-2	Commonwealth Ave.	5	5.67	Hard to Very Stiff Dark Gray Clay Fill (A-6)
B-3	Commonwealth Ave.	5	5.67	Medium Dense Brown and Gray Clayey Sand (A-2-6)
B-4	Creek Dr.	5	5.67	Very Stiff Gray and Dark Gray Clay Fill (A-6)
B-5	49 th Ct. S.	5	5.67	Medium Dense Brown and Gray Silty Sand (A-2-6)
B-6	Creek Dr.	5	5.67	Very Stiff Black Clay Topsoil (A-7-5)
B-7	Commonwealth Ave.	5	5.67	Very Stiff Dark Gray and Gray Clay Fill (A-6)
B-8	Commonwealth Ave.	5	5.67	Very Stiff Dark Gray, Trace Brown and Gray Clay Fill
B-9	Commonwealth Ave.	5	5.67	Very Stiff Black and Dark Gray Clay Topsoil (A-7-5)

*b.e.g.l.= below existing ground level

Table 2: Existing pavement conditions (from Geotech Report)

Boring No	Name of Street	Approximate Thickness of Bituminous Concrete Pavement (inches)	Approximate Thickness of Crushed Stone Base Course (inches)
B-1	Commonwealth Ave.	5	6
B-2	Commonwealth Ave.	3.5	10.5
B-3	Commonwealth Ave.	4.5	16.5
B-4	Creek Dr.	4	10
B-5	49 th Ct. S.	4	18
B-6	Creek Dr.	3.75	18.25
B-7	Commonwealth Ave.	4	17
B-8	Commonwealth Ave.	4	17
B-9	Commonwealth Ave.	4	16

II.C Sanitary Sewer Televising

HR Green’s subconsultant (National Power Rodding- NPR) televised approximately 5,187 linear feet of 8-inch and 10-inch sanitary sewer along Commonwealth Avenue, Creek Drive, 49th Court North and 49th Court South. HR Green assessed the video footage and identified problem areas. **Appendix 6** provides the sewer televising reports. **Section VII** of the report summarizes the defects and proposed improvements within the project limits.

III. Assessment of Culvert along 49th Street Ditch at Creek Drive Crossing

Per the Village’s request, HR evaluated the condition of the existing culvert along the 49th Street Ditch at the Creek Drive crossing. The existing culvert consists of a 71” x 103” corrugated metal pipe (CMP) that was originally coated with bitumen for corrosion control. Overall, the culvert appeared to be in satisfactory condition (see **Figure 2**). However, it was observed that the bitumen coating on the lower third of the CMP has deteriorated to a point that no visible material remains in the bottom portion and corrosion was observed as beginning in the base of the culvert. This culvert base is constantly emersed in wet muddy material and is typically where these types of CMP culverts begin to fail. It was estimated that this CMP culvert has an approximate remaining life span of 10 years or more before replacement should be considered. The existing east and west cast-in-place headwalls display cracking which is fairly typical. The wider cracking on the west peak should be repaired with Epoxy Filler. Lastly it was observed that erosion of the embankment at the northwest corner of the structure is occurring and we recommend adding riprap to stabilize this area. The recommended short-term improvements for this culvert consist of the following:

1. The west headwall was observed to be cracked in three locations and should be repaired
2. Riprap appears to be missing along the bank on the west side of Creek Drive, just north of the culvert. Consider reinforcing the bank with approximately 60 square feet of RR4 with RR1 bedding.

The Village should confirm culvert ownership prior to completing the improvements.



Figure 2: Existing CMP along 49th Street Ditch at the Creek Drive crossing appears to be in fair condition. Some cracking is visible along the west headwall.

IV. Reverse Siphon

The Village requested for HR Green to investigate the reverse siphon along Flagg Creek, located between 49th Court North and 49th Court South along the 49th Street Ditch. Upon review of the FEMA floodplain maps, it appears that this area of Flagg Creek is located within FIRM panel 17031C0466J and became effective on August 19th, 2008. Additionally, a Letter of Map Revision (LOMR) was completed in this area which became effective on October 28th, 2022. **Figure 3** shows how the LOMR revised the floodplain and floodway near the reverse siphon location along 49th Street Ditch. The reverse siphon is now located within the Flagg Creek floodway and floodplain while before it was located in floodplain only. Improvements to the reverse siphon would require involvement of the IDNR-OWR and FEMA in the form of a conditional letter of map revision (CLOMR) and LOMR. The permit application can be costly, lengthy, and extensive. To the Village's knowledge, the Village does not own the reverse siphon and is not responsible for the maintenance and function of this structure. HR Green does not recommend improvements to this structure at this time. However, the Village should confirm ownership of the reverse siphon in case the structure needs to be repaired or maintained in the future.



Figure 3: FEMA FIRMette before and after LOMR 21-05-1260P became effective on 10/28/2022. Approximate location of reverse siphon is shown with red arrow.

V. Watermain Alignment Assessment

The Village of Western Springs is interested in evaluating the watermain alignments within the Commonwealth Subdivision. The primary objective of this assessment is to identify the optimal watermain alignment with respect to constructability, cost, and performance.

V.A Existing Condition Assessment

The following describes the condition and constraints associated with the existing watermain within the project limits:

- The existing watermain located roughly from the 47th Street intersection to the bridge crossing Flagg Creek consists of 12-inch ductile iron pipe which was constructed in 1988. According to Village staff, the watermain in this area is very deep and considered a maintenance challenge during watermain break incidents. The watermain is so deep that the Village cannot complete the repairs with in-house crews and has to hire a Contractor each time a watermain break occurs along this trunkline. With longer response times required to address the break, this stretch of watermain is considered higher risk.
 - In 2024, the Village experienced a watermain break at 4720 Commonwealth Avenue. The watermain in this area was 24 feet deep and could not be repaired in-house.
- The existing watermain trunk line running parallel with the west side of Flagg Creek floodway consists of an 8-inch ductile iron pipe (DIP) which was constructed in 1958. There is an existing 60-inch sanitary sewer owned by Flagg Creek Water Reclamation District which runs parallel to the existing watermain trunkline from 47th Street to the southernmost limits of the subdivision. On the north side of the Commonwealth bridge, this aging watermain is underneath a heavily wooded, undeveloped area. Meanwhile, on the south side of the Commonwealth bridge the watermain is located within residential back yards adjacent to mature trees. The watermain in this area is approaching the end of its useful life and has a high likelihood of failure. Additionally, this watermain is not easily accessible by Village staff for repairs.
 - In 2025, the Village experienced a watermain break at 4815 Creek Drive. The watermain in this area was very deep and only 7-feet from the edge of the building, making repair of this watermain very difficult.
- The Commonwealth subdivision also includes 6-inch ductile iron pipe which loops along Creek Drive (north of 49th Ct North), 49th Ct North, Commonwealth Avenue and 49th Court South. This watermain was constructed in 1994 and therefore has a lower likelihood of failure.
- The watermain trunkline from 49th Court North to the southernmost limits of the Commonwealth subdivision consists of cast iron pipe constructed in 1924. The watermain in this area has surpassed its useful life and has a high likelihood of failure.
 - In 2024, the Village experienced a watermain break at 5219 Commonwealth Avenue. The watermain in this area was deep and the Village did not have the proper equipment to complete the repair in-house.

V.B Proposed Alignment

HR Green investigated potential watermain alignments by using the following criteria:

- Relocating the watermain to right-of-way and away from the 100-year floodplain and floodway where practicable
- Maintaining 10-foot horizontal separation from existing storm and sanitary sewers
- Relocating watermain from heavily wooded areas which are difficult to access if a watermain break were to occur.
- Prioritizing replacement of aging watermain with high likelihood of failure
- Prioritizing constructability and future maintenance

The proposed watermain alignments are provided in **Appendix 1**. Improvements were subdivided into Phase 1 and Phase 2 with 49th Court South serving as the dividing line between the two phases. Within Phase 1, there is also a Phase 1 Alternate for the additional cost required to re-route the watermain for the future emergency interconnect at 47th Street. Within Phase 2, there is Phase 2A which includes the option to relocate an existing 6-inch watermain off private property and into the right of way. The purpose of subdividing the project into multiple phases is to distribute the project costs among multiple fiscal years and to split the work into smaller, more manageable project sizes. **Figure 4** provides an overall map showing the location of the phase boundaries.



Figure 4: Overall map showing the phasing proposed for the Commonwealth Subdivision improvements

Alignments are considered conceptual and may change during the design phase based on detailed topographic survey collected during the design phase. Construction sequencing will be developed during the design phase. A summary of the proposed improvements for each phase are below:

Phase 1

Appendix 1 provides detailed exhibits showing the proposed improvements in Phase 1. A general description of the improvements is as follows:

- Install new 12-inch DIP along Commonwealth Avenue from an existing valve just north of 47th Street to the cul-de-sac on Creek Drive. The depth of the watermain will be adjusted to roughly 5.5 feet below surface, or as required during design. Connect to existing 6-inch watermain along W 48th Street. Abandon the old 12-inch DIP.
- Abandon the existing 8-inch watermain from the Commonwealth bridge to 49th Court South.
- Install new 8-inch watermain along Creek Drive between 49th Ct North and 49th Ct South. Connect to existing watermain on both ends.
- Install new 6-inch watermain along Commonwealth Avenue 49th Ct North and 49th Ct South to create a watermain loop within the subdivision. Connect to existing watermain on both ends.
- Trenchless installation will be required under 47th Street, under Flagg Creek at Commonwealth, and under the existing culvert at Creek Drive via steel casing pipe, bored and jacked. A 24-inch casing pipe was assumed for the 12-inch watermain and 16-inch casing pipe was assumed for the 8-inch watermain.
- The existing 6-inch DIP watermain within the subdivision which was constructed in 1994 shall remain.
- If Phase 1 Alternate is not implemented, the 8-inch north of the Commonwealth Avenue bridge shall remain and shall be connected to.

Phase 1 Alternate

Appendix 1 provides detailed exhibits showing the proposed improvements in Phase 1 Alternate. Phase 1 Alternate consists of watermain improvements for the potential emergency interconnect with the Village of Hinsdale. A general description of the improvements is as follows:

- Abandon the existing 8-inch watermain along Flagg Creek from the Commonwealth Avenue bridge to 47th Street.
- Re-route the watermain for the future emergency interconnect with new 8-inch watermain along 47th Street. The portion of the watermain underneath the existing sidewalk was assumed to be installed via trenchless methods (assumed horizontal directional drilling).
- Connect to the new 12-inch watermain at the intersection of 47th Street and Commonwealth Avenue.

Phase 2

Appendix 1 provides detailed exhibits showing the proposed improvements in Phase 2. A general description of the improvements is as follows:

- Abandon the existing 8-inch watermain from 49th Court South to 53rd Street. Install new 8-inch DIP within the existing right-of-way as shown in the exhibits in **Appendix 1.**
- Abandon the existing 8-inch watermain from 53rd Street to the southern limits of the Commonwealth near the cul-de-sac. Install new 8-inch watermain within the existing right-of-way as shown in the exhibits in **Appendix 1.**
- The existing 6-inch DIP watermain within the subdivision which was constructed in 1994 shall remain.
- Connect to existing watermain as shown in **Appendix 1.**

Phase 2A

Appendix 1 provides detailed exhibits showing the proposed improvements in Phase 2A. This phase includes the option to relocate an existing 6-inch watermain along Commonwealth which is currently located very close to existing homes. Given that the existing watermain was constructed in the mid 1990's, this is considered a lower priority project (not mapped) and budgetary costs were provided per the Village's request. A general description of the improvements is as follows:

- Abandon existing 6-inch watermain along Commonwealth Avenue which is currently very close to existing homes from 49th Court South to the Commonwealth and Creek Drive intersection. Install new 6-inch watermain within the right-of-way.

Table 3 provides a summary of the proposed watermain lengths and sizes for each phase.

Table 3: Proposed watermain lengths and sizes for the three project phases

Proposed Watermain for Each Phase						
		Phase 1	Phase 1 Alternate	Phase 2	Phase 2A	Total
Ductile Iron Water Main, 6"	LF	383			656	1,039
Ductile Iron Water Main, 8"	LF	295	600	3,521		4,416
Ductile Iron Water Main, 12"	LF	1,261				1,261
Total Watermain (LF)						6,716

VI. Roadway and Sidewalk Rehabilitation

The roadway within the Commonwealth Subdivision was constructed in the mid 1990's. Since initial construction, the Village has completed some maintenance on the pavement, including microsurfacing. Based on the field assessment of the existing roadway and sidewalk infrastructure, HR Green developed roadway rehabilitation and sidewalk improvements for Phase 1 and Phase 2. The proposed pavement rehabilitation will consist of cold milling 2 inches of pavement and replacing with 2 inches of Hot Mix Asphalt (HMA) surface course. As previously shown in **Table 2 of Section II.B**, the existing pavement ranges between 3.5 inches and 5 inches in thickness, which appears to be sufficient thickness for cold milling off 2 inches of pavement for the proposed pavement improvements. Class "D" patches are also recommended for potholes identified during the field assessment. Lastly, sidewalk in poor condition was identified for removal and replacement.

Phase 1

Table 4 provides a conceptual summary of quantities for the roadway and sidewalk improvements for Phase 1. See **Appendix 4** for the detailed summary of quantities and cost estimates.

Table 4: Conceptual summary of quantities for Phase 1 roadway & sidewalk improvements

Phase 1 Roadway & Sidewalk Improvements					
Roadway Name	Roadway Limits	Length (foot)	Width (foot)	Class "D" Patches (SY)	Sidewalk Removal & Replacement (SF)
Commonwealth Ave.	End of newer pavement to 49th Ct. N.	420	25	59	-
Commonwealth Ave.	49th Ct. N. to end of North curve	1,050	25	146	-
Commonwealth Ave.	North curve to 47th Street	266	37	54	-
49th Ct. S.	Commonwealth to Creek Dr.	183	25	35	35
Creek Dr.	49th Ct. S. to 49th Ct. N.	234	25	33	55
49th Ct. N.	Beginning to end	235	25	45	-
Creek Dr.	49th Ct. N. to cul-de-sac	317	25	77	-
Length Total		2,705	-	449	90

Phase 2

Table 5 provides a conceptual summary of quantities for the roadway and sidewalk improvements for Phase 2. During the field assessment, a portion of Commonwealth Avenue was identified as newer pavement which did not appear to require replacement and was therefore omitted from the listed improvements. The newer area is located from the start of newer pavement near 5113 Commonwealth Avenue to the end of the newer pavement section just south of 49th Court S. See **Appendix 4** for the detailed summary of quantities and cost estimates.

Table 5: Conceptual summary of quantities for Phase 2 roadway & sidewalk improvements

Phase 2 Roadway & Sidewalk Improvements					
Roadway Name	Roadway Limits	Length (foot)	Width (foot)	Class "D" Patches (SY)	Sidewalk Removal & Replacement (SF)
Commonwealth Ave.	Cul-De-Sac to 53rd St.	885	25	74	-
Commonwealth Ave.	53rd St. to S. Creek Dr. S.	440	25	49	-
Commonwealth Ave.	S. Creek Dr. S. to C. Creek Dr. S.	495	25	69	-
Commonwealth Ave.	C. Creek Dr. S to 5113 Commonwealth (north of Creek Drive)	285	25	40	-
Commonwealth Ave.	Paving omission -paving not necessary; From newer pavement on 5113 Commonwealth (north of Creek Drive) to newer pavement south of 49 th Ct S.	1,340	25	-	-
S. Creek Dr.	Beginning to end	310	25	47	96
C. Creek Dr.	Beginning to end	303	25	49	128
N. Creek Dr.	Commonwealth to 49th Ct. S.	564	25	79	-
Length Total		3,280	-	407	224

VI.A Conceptual Intersection

The Village requested HR Green to develop a conceptual intersection design to connect the existing W 48th Street cul-de-sac to Commonwealth Avenue. Currently, the two roadways do not intersect, but are separated by a 10-foot wide parkway with sidewalk (see **Figure 5**). The existing cul-de-sac has substandard geometry with a center island which makes it difficult to perform snowplowing activities in the winter months. Please see **Appendix 3** for the conceptual exhibit.



Figure 5: Parkway between W 48th Street cul-de-sac (left) and Commonwealth Avenue (right), looking southwest

VII. Sanitary Sewer Rehabilitation

The sanitary sewer in this area was constructed in the mid-1990's and consists of PVC pipes. PVC sanitary sewers typically have a lifespan of over 100 years, which means that the sewer in this area is not expected to need lining or major rehabilitation in the near future. Based on the sanitary sewer televising assessment, HR Green prepared a list of recommended improvements to address identified deficiencies. Overall, the sanitary sewer was in fair condition with some point repairs needed. The main recommendations include removing and replacing approximately 230 feet of 8-inch sanitary sewer in Phase 1 and 40 feet in Phase 2. The primary reason for removing and replacing these sewers is to address pipe sags which contribute to standing water within the sewers and reduce the sewer capacities. There were also a few sewers identified with large offsets in the sewer joints which can contribute to soil contamination. Additionally, a few sanitary sewer services require connection repairs and a few manholes require repairs to existing frames and lids. **Tables 6 and 7** summarize the defects and the proposed improvements. **Figures 6 and 7** provide the corresponding photos for each defect. See **Appendix 2** for a map of the proposed improvements.

Table 6: Phase 1 Sanitary Sewer Improvements

Phase 1 Sanitary Sewer Improvements			
Photo #	Sewer Location	Defect	Proposed Improvement
1	210 ft downstream of MH-376 at 4711 Commonwealth	Intruding sanitary service is blocking approximately 50% of sanitary sewer pipe	Sanitary service repair
2	Sewer between MH-1901 and MH-1902	Pipe sag / standing water / grease deposits in sewer	Remove & replace ~4 LF sewer; heavy duty clean ~40 LF of sewer
2	MH-1902	Heavy grease deposits in manhole	Heavy clean existing sewer manhole
3	Sewer between MH-1902 and MH-977	Large pipe sag at both ends of sewer / standing water / heavy grease deposits in sewer	Remove and replace ~78 LF of sewer
4	Sewer between MH-977 and MH-1903	Pipe sag / standing water in sewer	Remove & replace ~49 LF of sewer
5	MH-1903	Manhole is buried	Adjust frame & lid
6	Sewer between MH-1903 and MH-377	Sewer almost completely full of water	Remove and replace ~99 LF of sewer
7	MH-1904	Manhole lid is shifted and cracked. Rubber seal is visible from underneath	Remove & replace frame & lid

Table 7: Phase 2 Sanitary Sewer Improvements

Phase 2 Sanitary Sewer Improvements			
Photo #	Sewer Location	Defect	Proposed Improvement
8	204 ft downstream of MH-1928	Large offset on sewer joint	Remove & replace ~4 LF of sewer; reconnect 1 sanitary service
9	292 ft downstream of MH-1928	Large offset on sewer joint	Remove & replace ~4 LF of sewer; reconnect 2 sanitary services
10	From 364 ft downstream of MH-1909 to MH-1912	Pipe sag; standing water in sewer	Remove & replace ~32 LF of sewer



Figure 6: Corresponding photos showing sanitary sewer defects outlined in Table 6.

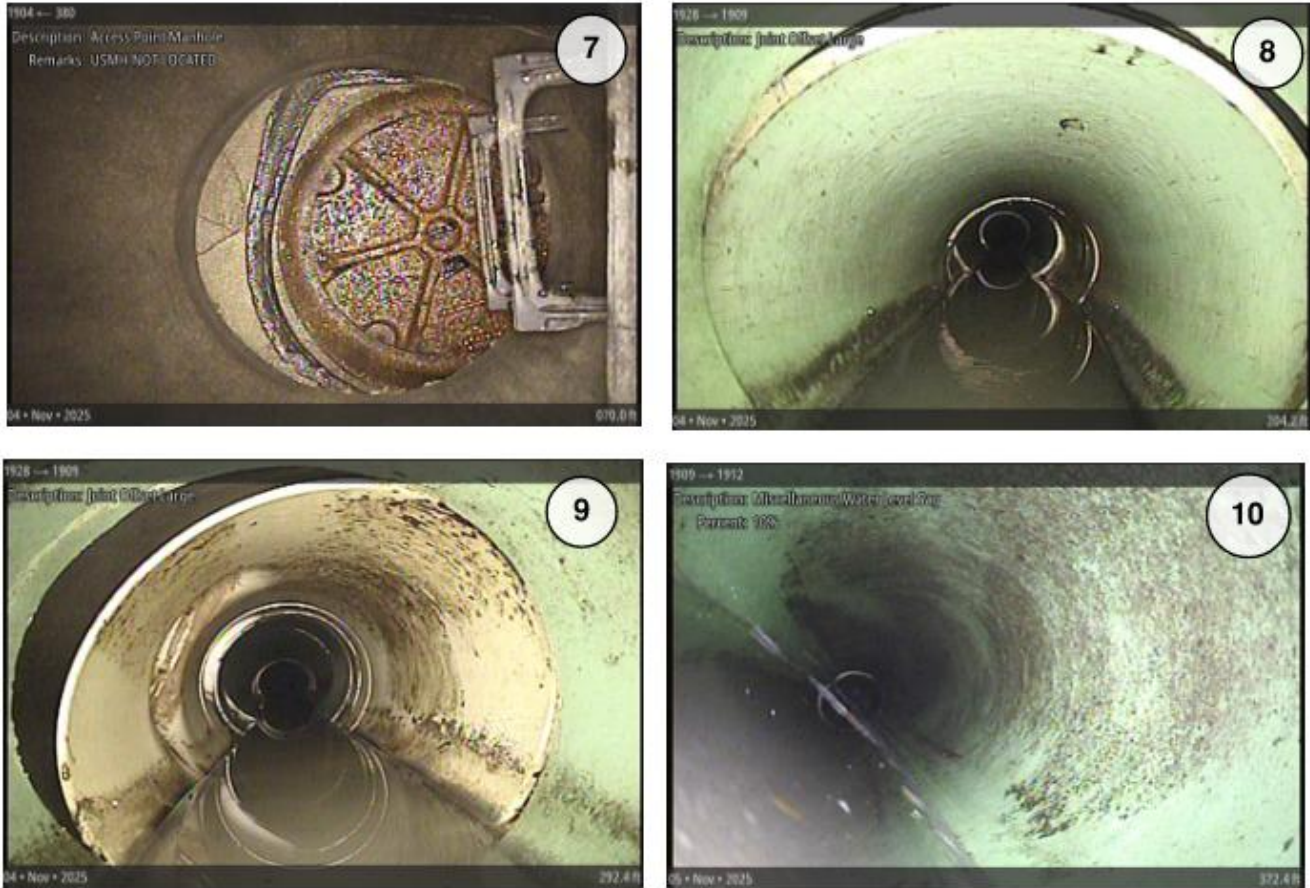


Figure 7: Corresponding photos showing sanitary sewer defects outlined in Table 6 and 7.

VIII. Emergency Interconnect Assessment

The Village is interested in assessing the benefits, challenges, and costs for potential emergency interconnect locations with the Village of Hinsdale. It is our understanding that the interconnect of interest at 51st Street is no longer a feasible option and has been removed from consideration. An existing 30-inch RCP casing exists underneath I-294 near 47th Street which was rehabilitated in 2025 as part of the I-294 corridor improvements and which can be used as a future interconnect location with the Village of Hinsdale.

The Village of Hinsdale is supplied with water from the DuPage Water Commission (DWC). Hinsdale's water system includes two ground storage tanks and a booster station located at the DWC water delivery point, as well as a distribution storage standpipe. In the event of planned maintenance or unplanned loss of supply from DWC, Hinsdale uses three (3) emergency wells as a backup water supply. Hinsdale's standpipe, located at W 57th and S. Madison Street, operates at a high-water line of 828 feet.

Western Springs' water system includes three active groundwater wells. Wells #3, #4, and #5 are pumped directly to the Village's water treatment plant, and then into a finished water reservoir. The high service pumps at the water treatment plant pump water from the reservoir to the distributions system. Western Spring's elevated storage tank operates at a high-water line of 785 feet, while the standpipe operates at 783.9 feet.

At the potential connection point, the Village of Western Spring’s pressure is significantly lower than the pressure within the Village of Hinsdale’s system. The pressure difference is about 22 psi and the difference in the high-water line is about 43 feet. **Table 8** provides a water system comparison for both communities.

Table 8: Comparison of Western Springs and Hinsdale water systems for potential emergency interconnect

Water System Comparison for Emergency Interconnect		
	Western Springs	Hinsdale
Average Day Water Demand (MGD)	1.73	2.46
Maximum Day Water Demand (MGD)	2.18	4.55
Maximum Water Supply (MGD)	3.02	4.61
Connector Pipe Size at 47th Street	6" PVC	6" PVC
Pressure at 47th Street (psi)	57	79
High Water Line (HGL) (feet)	785	828
Storage Capacity (MG)	3.5	4.5
Water Source	Groundwater	Lake Michigan

When simply comparing the water system water demands and maximum water supplies, the Village of Hinsdale appears to have an excess capacity of approximately 2.15 MGD based on average day demand and 0.06 MGD based on maximum day demand that may be offered to the Village of Western Springs. Meanwhile, Western Springs has excess capacity of 1.29 MGD based on average day demand and 0.84 MGD based on maximum demand that may be offered to Hinsdale. The amount of flow that can be conveyed through the interconnect will depend on the pipe size and flow velocity. **Table 9** summarizes the approximate theoretical flow ranges based on pipe velocity and pipe diameter. Note that this current study is limited to a high-level evaluation of the connection points; a combined water model of both water systems should be compiled to verify the effect of the interconnection on each Village’s water distribution system. It should be noted that the Village of Hinsdale currently does not have a water system model and is not planning to complete one in the near future; therefore, a more detailed study does not appear feasible at this time.

Table 9: Theoretical Flow Based on Pipe Velocity and Pipe Diameter

Theoretical Flow Based on Pipe Velocity and Pipe Diameter		
Pipe Size	Flow at 5 ft/s	Flow at 7 ft/s
6-Inch Watermain	440 gpm	617 gpm
8-Inch Watermain	783 gpm	1,096 gpm
12-Inch Watermain	1,762 gpm	2,466 gpm

It should also be noted that the water sources between the two communities are different, with Western Springs sourcing from groundwater and Hinsdale sourcing from Lake Michigan water. A further assessment of the intermixing of the two water supplies should be considered to determine potential challenges that may arise with water quality and temperature. It should be noted that the emergency interconnect would not be for normal use, but only in case of an emergency where either Western Springs or Hinsdale would not have the ability to supply water to its own residents.

The Village of Western Springs may need to install pressure-reducing valve (PRV) station to prevent possible overflow of its existing storage tanks. Meanwhile, Hinsdale may need a booster pump station to be installed to receive water from the Village of Western Springs. **Appendix 4** summarizes the preliminary opinion of probable costs for a booster station & PRV for an emergency interconnect.

IX. Water Model

In April 2025, HR Green completed an existing water system analysis which consisted of a computer model created using WaterGEMS Connect by Bentley Systems, Inc. Information about the Village of Western Springs' distribution system was entered into the computer model and WaterGEMS performed hydraulic calculations to determine flows and pressures for the entire Village water system.

Figure 8 provides the minimum pressure within the subdivision during the average day demand (left) and the available fire flow (right). As shown in the figure, the minimum pressures are between 50 psi and 60 psi while the fire flows range between 1,000 gpm to 5,000 gpm depending on watermain size. The fire flow is lowest within the existing 6-inch watermain where flows range between 1,000 to 2,000 gpm. For proper fire protection, flows provided for a single-family residential area are typically a minimum of 1,000 gpm while maintaining a minimum system pressure of 20 psi. For industrial and commercial areas, the available fire flow goal is 2,500 gpm. Therefore, the existing watermain within the subdivision appears to maintain the recommended available flow for fire protection.

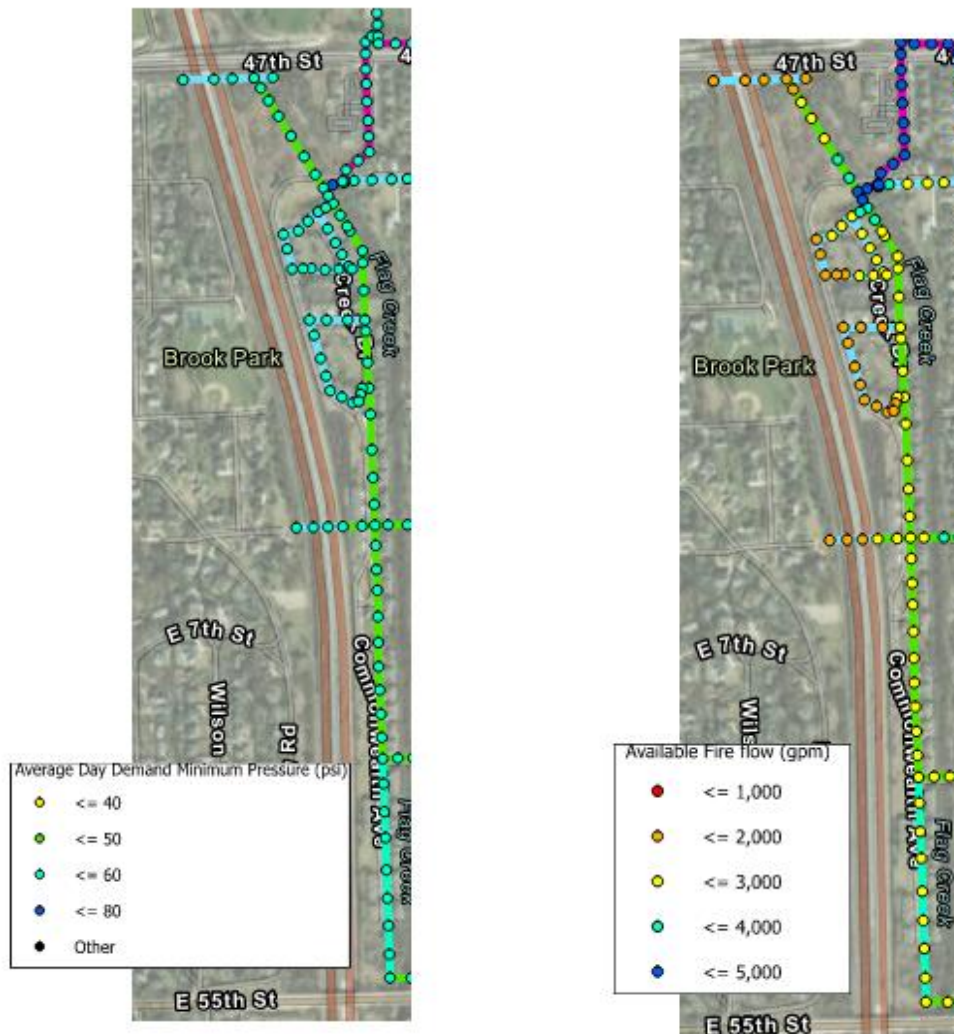


Figure 8: Existing minimum pressures at average day demand (left) and available fire flow (right) within the project area.

HR Green modeled the proposed watermain alignment to confirm if the new configuration will impact the water system. The minimum system pressures during the average day demand remained between 50 psi and 60 psi. The new configuration will improve fire protection along the 6-inch watermain with new fire flows ranging between 2,000 to 3,000 gpm, as shown in **Figure 9**.



Figure 9: Available Fire Flow for proposed watermain alignment

X. Preliminary Cost Summary

HR Green prepared budgetary cost estimates for the proposed improvements to the culvert along 49th Street Ditch at Creek Drive, the watermain alignment adjustments, the sanitary sewer rehabilitation, the roadway & sidewalk rehabilitation, and the conceptual intersection. The total cost for all phases of improvements would be **\$8,374,077**. **Table 10** provides a summary of the budgetary cost estimates. **Appendix 4** provides a more detailed breakdown of the preliminary opinion of probable costs.

Table 10: Summary of Budgetary Cost Estimates

Summary of Budgetary Cost Estimates				
Improvement	Phase 1	Phase 1 Alternate	Phase 2	Phase 2A
Culvert at Creek Drive	\$17,007	\$0	\$0	\$0
Watermain Alignment Adjustments	\$1,266,219	\$215,795	\$2,123,229	\$341,878
Sanitary Sewer Rehabilitation	\$94,243	\$0	\$36,747	\$0
Roadway & Sidewalk Rehabilitation	\$212,098	\$0	\$228,417	\$0
Conceptual Intersection	\$119,866	\$0	\$0	\$0
Booster Station & PRV for Emergency Interconnect	\$0	\$712,500	\$0	\$0
Subtotal	\$1,709,433	\$928,295	\$2,388,392	\$341,878
Contingency (30%)	\$512,830	\$278,489	\$716,518	\$102,563
Design Engineering (10%)	\$222,226	\$120,678	\$310,491	\$44,444
Construction Engineering (10%)	\$222,226	\$120,678	\$310,491	\$44,444
Total	\$2,666,715	\$1,448,140	\$3,725,892	\$533,329

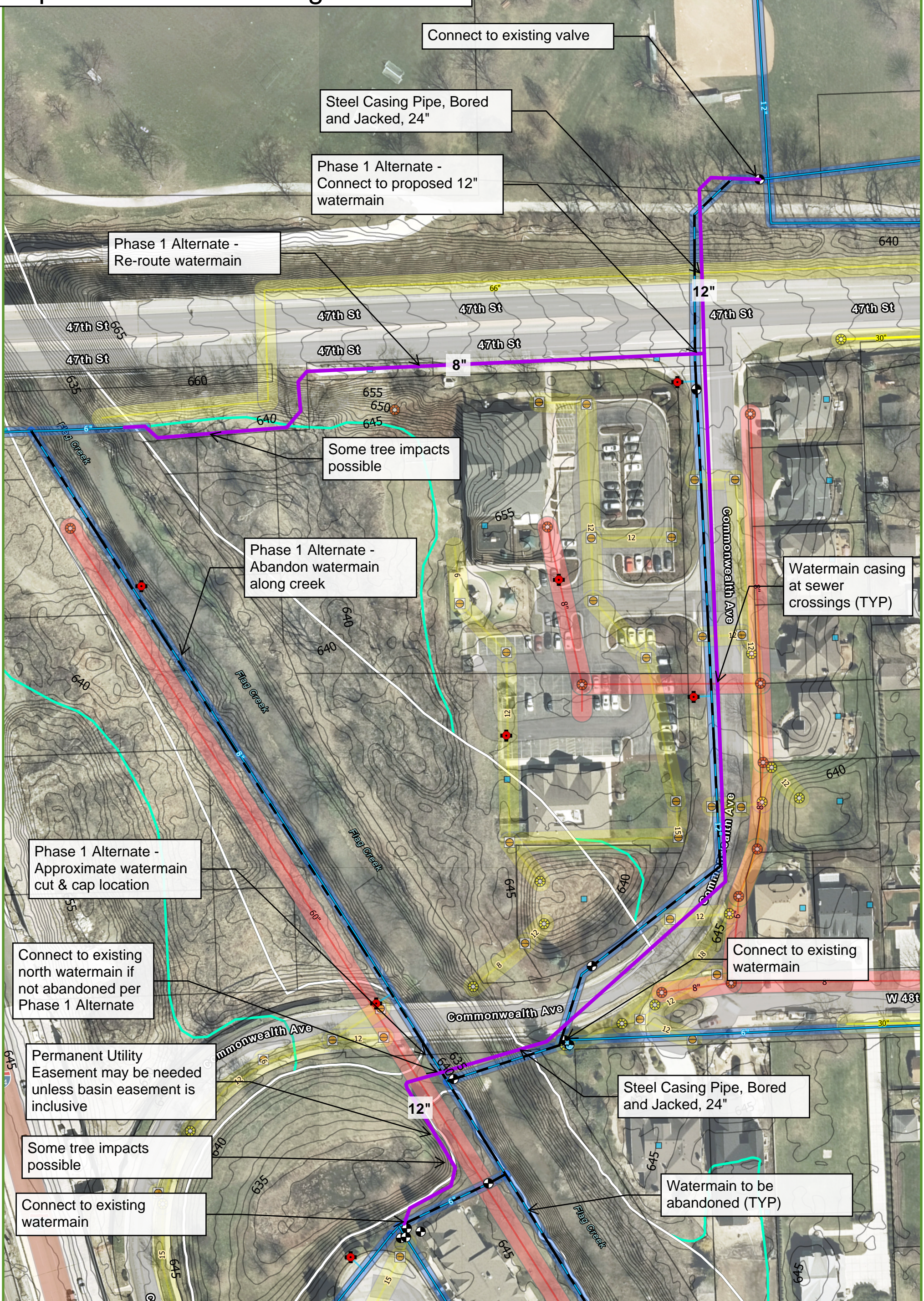
XI. Conclusion

This technical memo summarized a preliminary engineering assessment completed for the Commonwealth Subdivision in the Village of Western Springs. Infrastructure upgrades recommended within this subdivision included watermain alignment adjustments, roadway & sidewalk rehabilitation, and sanitary sewer rehabilitation. The recommendations were subdivided into two main phases. Phase 1 consists of the area located south of 47th Street and north of 49th Court South. Phase 2 consists of the area located between south of 49th Court South and the southernmost limits of the Commonwealth Subdivision at the cul-de-sac. Additionally, Phase 1 Alternate consists of watermain and interconnect improvements while Phase 2A includes the option to relocate an existing 6-inch watermain along Commonwealth which is currently located very close to existing homes. The preliminary cost estimate, including design/construction engineering, is estimated to be approximately \$2.67 million for Phase 1, \$1.45 million for Phase 1 Alternate, \$3.73 million for Phase 2, and \$0.53 million for Phase 2A. The total cost for all phases of improvements would be **\$8,374,077**.

Phase 1 and Phase 2 prioritize improvements to aging infrastructure which should be considered higher priority projects when compared to Phase 1 Alternate and Phase 2A. Phase 1 Alternate is considered a redundancy and resiliency improvement which would provide Western Springs with an emergency interconnect with Hinsdale in case Western Springs experiences a major water system failure. Phase 2A consists of relocating watermain away from existing homes to improve future maintenance and response activities in case of a watermain break; the Phase 2A watermain was constructed in the mid-1990's, meaning that it should still have a long useful life. The Village should carefully assess the improvements outlined in this report while considering funding availability, project costs, the risks associated with the existing infrastructure, and the benefits of each improvement.

Appendix 1

Proposed Watermain Alignments



Option1: Proposed Watermain	Sanitary Sewer
Option1: Watermain to be Abandoned	Sanitary Sewer 10 ft Separation Buffer
Existing Village Water Main	Storm Sewer
Existing Watermain 5 ft Separation Buffer	Storm Lateral 10 ft Separation Buffer
100-Year Floodplain	Inlets
Floodway	Outfalls
Parcels	Water Service Point
Storm Manhole	WaterValve
Sanitary Manhole	Hydrant
LS Lift Stations	Hydrant Leads

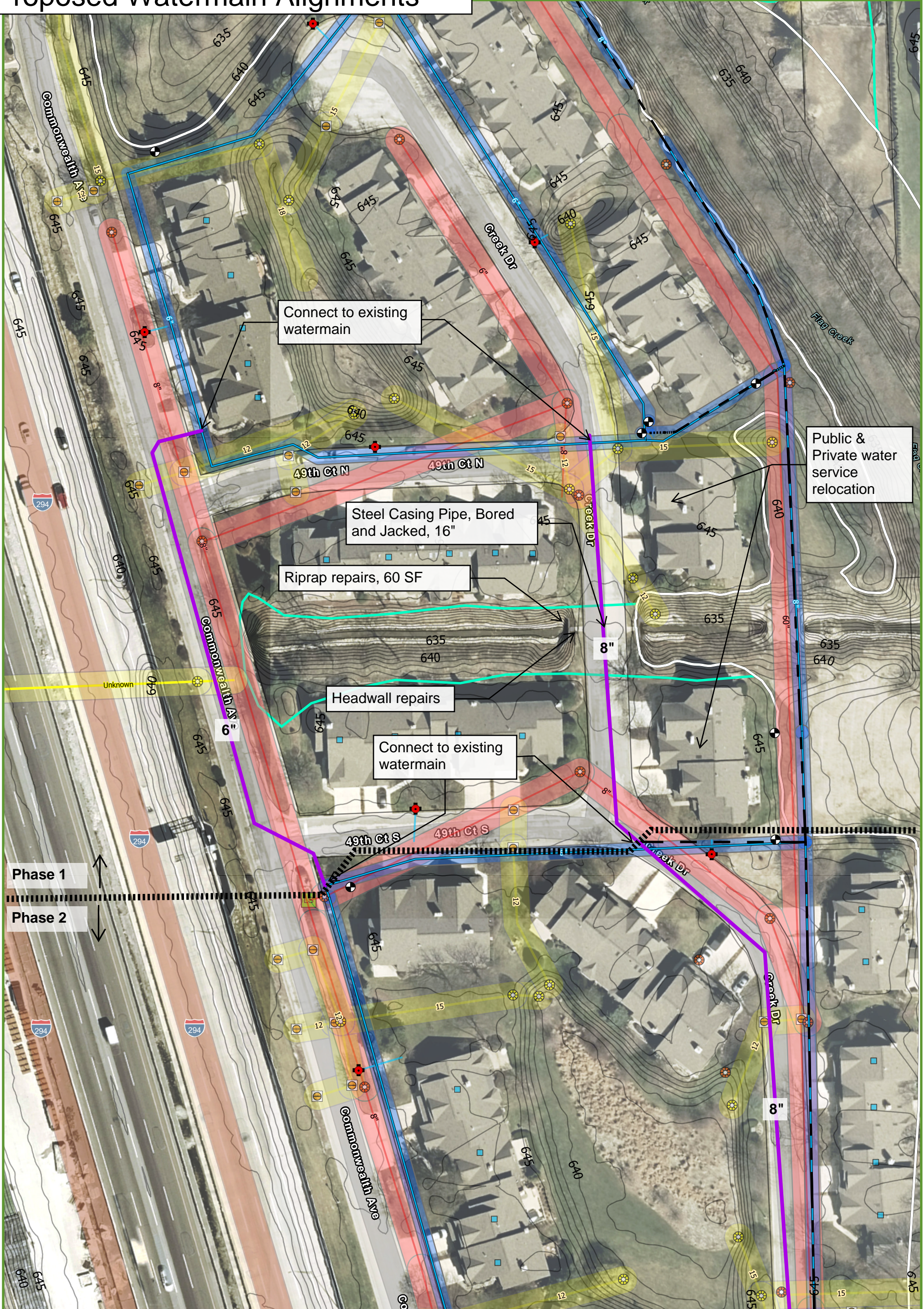
Commonwealth Subdivision
Water Infrastructure Assessment
 Western Springs, IL

Sheet 1

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Feet

HRGreen

Proposed Watermain Alignments



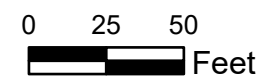
Phase 1

Phase 2

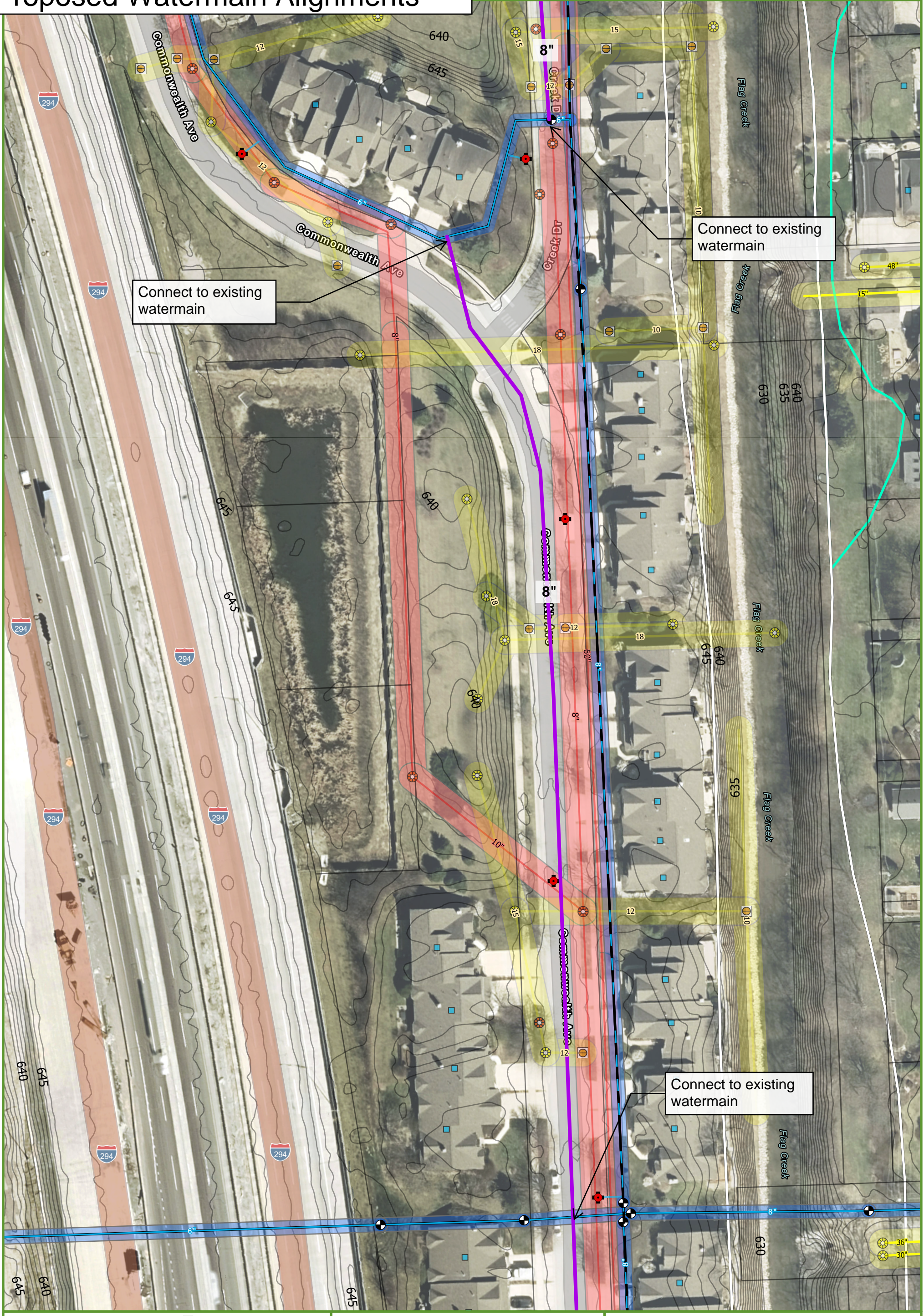
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Commonwealth Subdivision Water Infrastructure Assessment Western Springs, IL

Sheet 2



Proposed Watermain Alignments



Connect to existing watermain

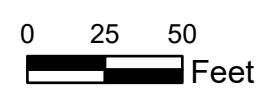
Connect to existing watermain

Connect to existing watermain

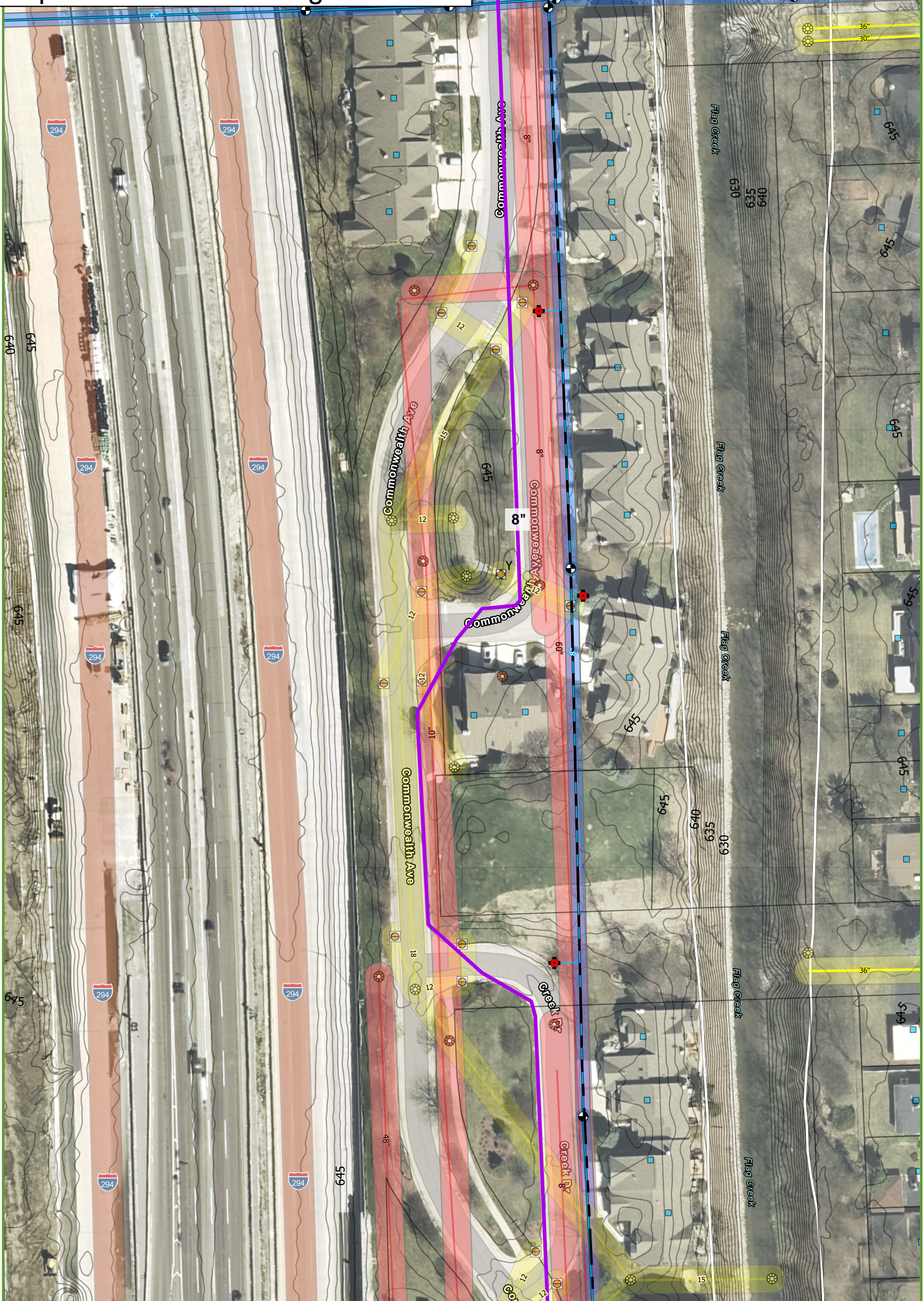
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Commonwealth Subdivision Water Infrastructure Assessment Western Springs, IL

Sheet 3



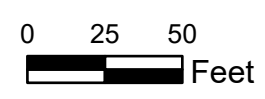
Proposed Watermain Alignments



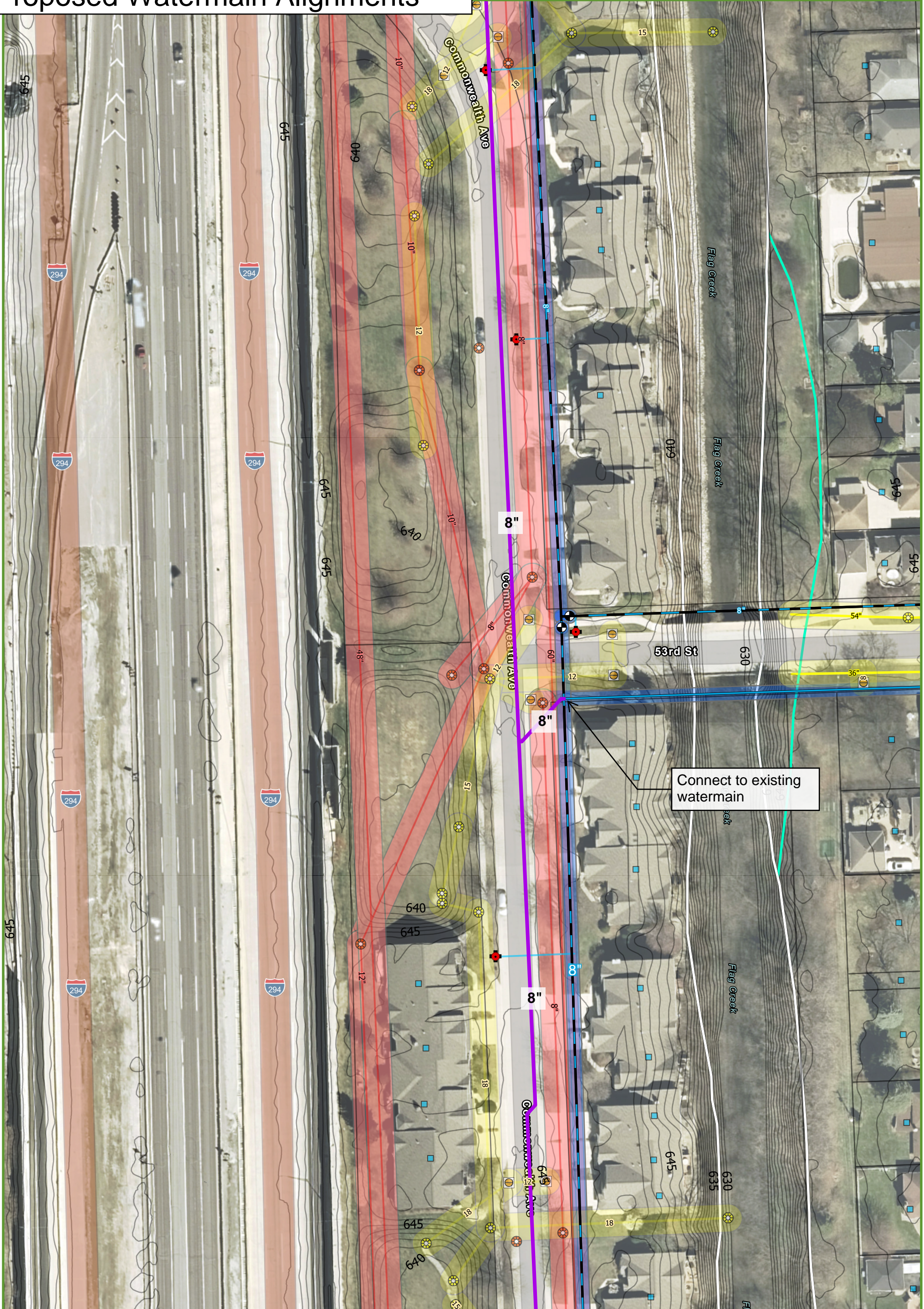
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- - - Option1: Watermain to be Abandoned
- Existing Village Water Main
- Existing Watermain 5 ft Separation Buffer
- 100-Year Floodplain
- Floodway
- Parcels
- Storm Manhole
- Sanitary Manhole
- LS Lift Stations
- Sanitary Sewer 10 ft Separation Buffer
- Storm Sewer
- Storm Lateral 10 ft Separation Buffer
- Inlets
- Outfalls
- Water Service Point
- Water Valve
- Hydrant
- Hydrant Leads

Commonwealth Subdivision Water Infrastructure Assessment Western Springs, IL

Sheet 4



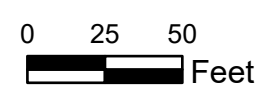
Proposed Watermain Alignments



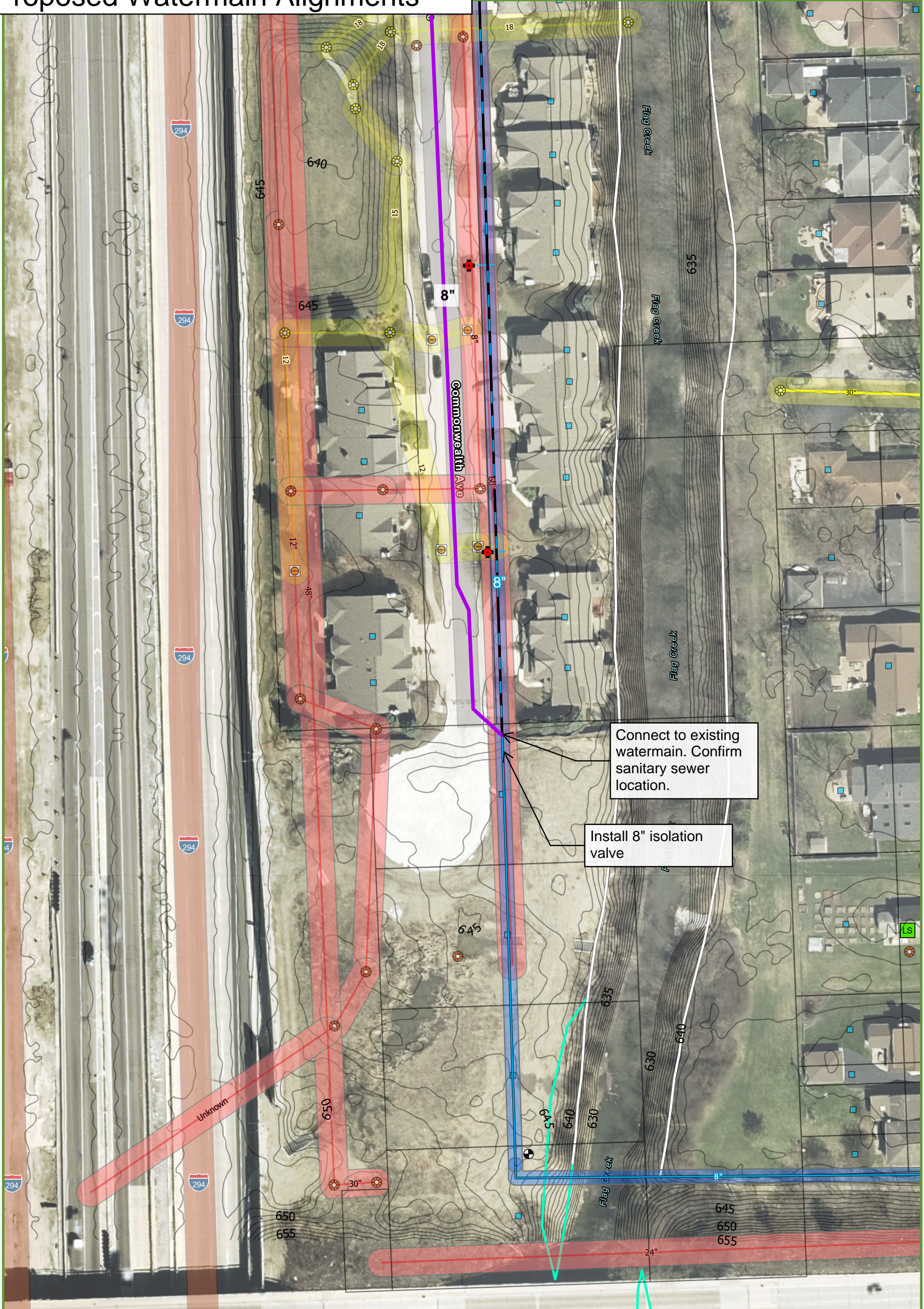
- | | |
|---|--|
| Option1: Proposed Watermain | Sanitary Sewer |
| Option1: Watermain to be Abandoned | Sanitary Sewer 10 ft Separation Buffer |
| Existing Village Water Main | Storm Sewer |
| Existing Watermain 5 ft Separation Buffer | Storm Lateral 10 ft Separation Buffer |
| 100-Year Floodplain | Inlets |
| Floodway | Outfalls |
| Parcels | Water Service Point |
| Storm Manhole | Water Valve |
| Sanitary Manhole | Hydrant |
| Lift Stations | Hydrant Leads |

Commonwealth Subdivision Water Infrastructure Assessment Western Springs, IL

Sheet 5



Proposed Watermain Alignments



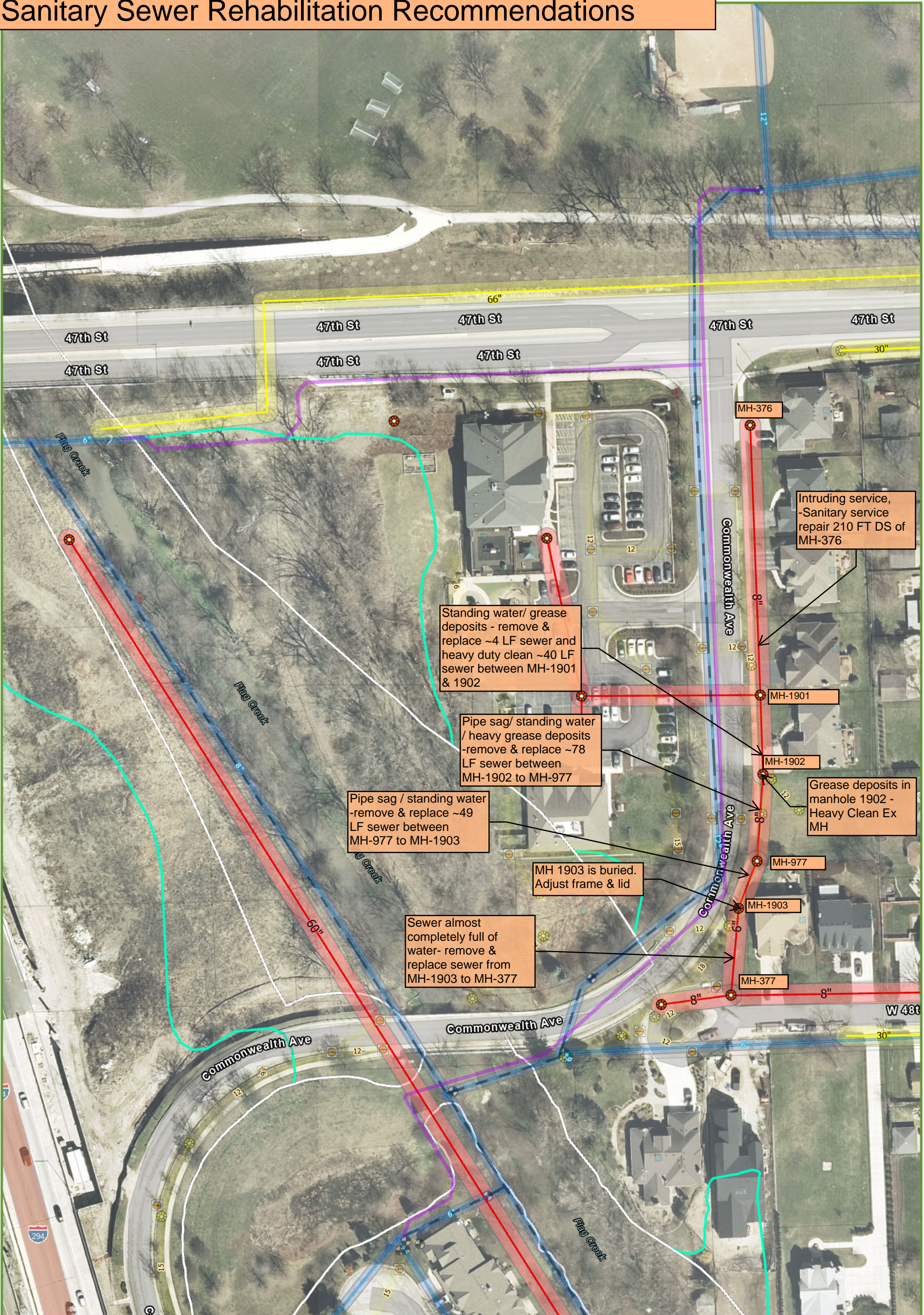
- | | |
|---|--|
| Option1: Proposed Watermain | Sanitary Sewer 10 ft Separation Buffer |
| Option1: Watermain to be Abandoned | Storm Sewer |
| Existing Village Water Main | Storm Lateral 10 ft Separation Buffer |
| Existing Watermain 5 ft Separation Buffer | Inlets |
| 100-Year Floodplain | Outfalls |
| Floodway | Water Service Point |
| Parcels | Water Valve |
| Storm Manhole | Hydrant |
| Sanitary Manhole | Hydrant Leads |
| Lift Stations | extrawatermain53rdstreet |

Commonwealth Subdivision
Water Infrastructure Assessment
 Western Springs, IL
Sheet 6



Appendix 2

Sanitary Sewer Rehabilitation Recommendations



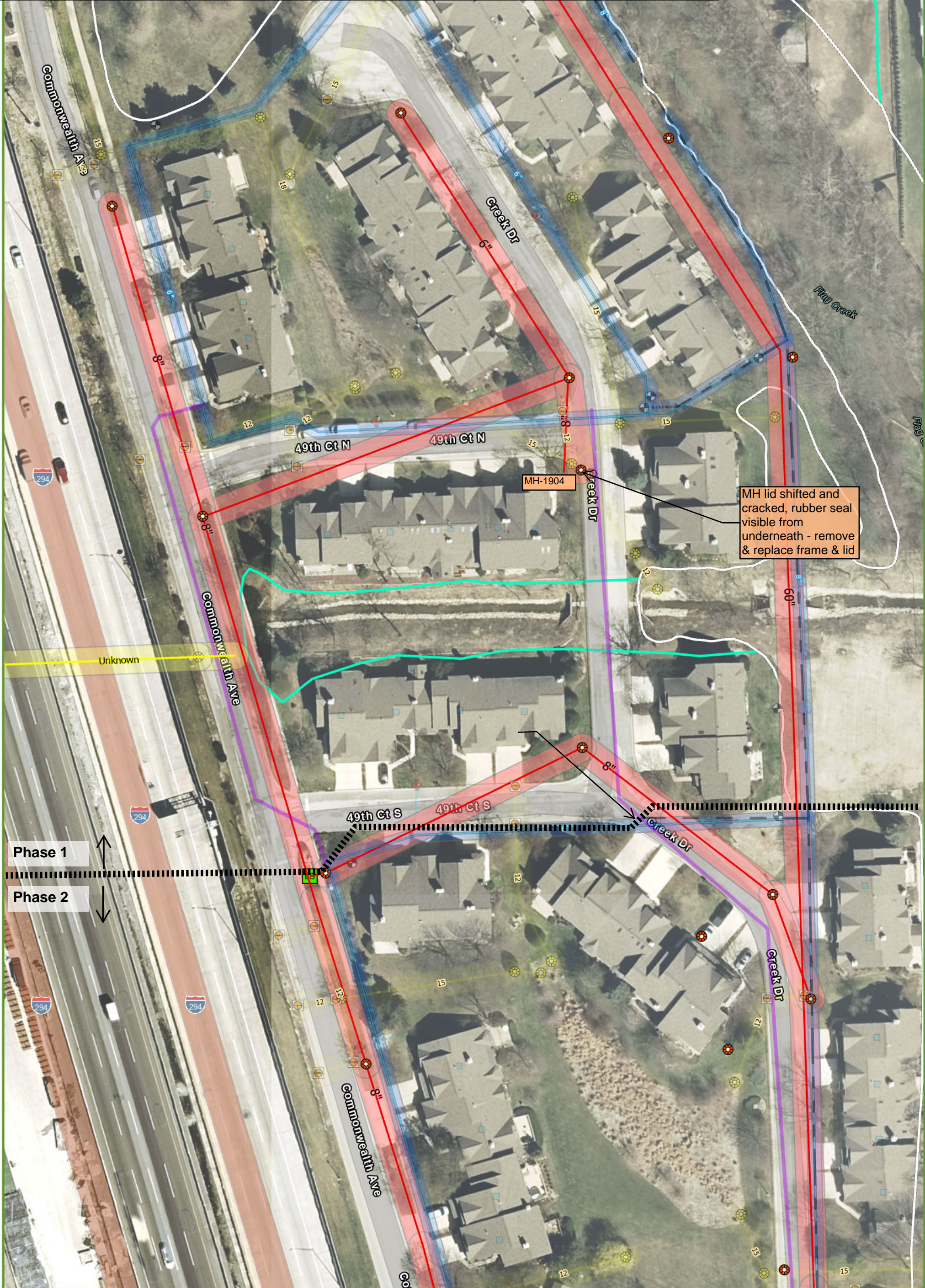
- | | |
|--|--|
| <ul style="list-style-type: none"> — Option1: Proposed Watermain - - - - Option1: Watermain to be Abandoned — Existing Village Water Main - - - - Existing Watermain 5 ft Separation Buffer — 100-Year Floodplain Floodway Parcels ● Storm Manhole ● Sanitary Manhole LS Lift Stations | <ul style="list-style-type: none"> — Sanitary Sewer Sanitary Sewer 10 ft Separation Buffer — Storm Sewer Storm Lateral 10 ft Separation Buffer ● Inlets ● Outfalls ● Water Service Point ● Water Valve ● Hydrant — Hydrant Leads |
|--|--|

Commonwealth Subdivision
Water Infrastructure Assessment
 Western Springs, IL

Sheet 1

0 25 50
Feet

Sanitary Sewer Rehabilitation Recommendations



MH lid shifted and cracked, rubber seal visible from underneath - remove & replace frame & lid

Phase 1

Phase 2

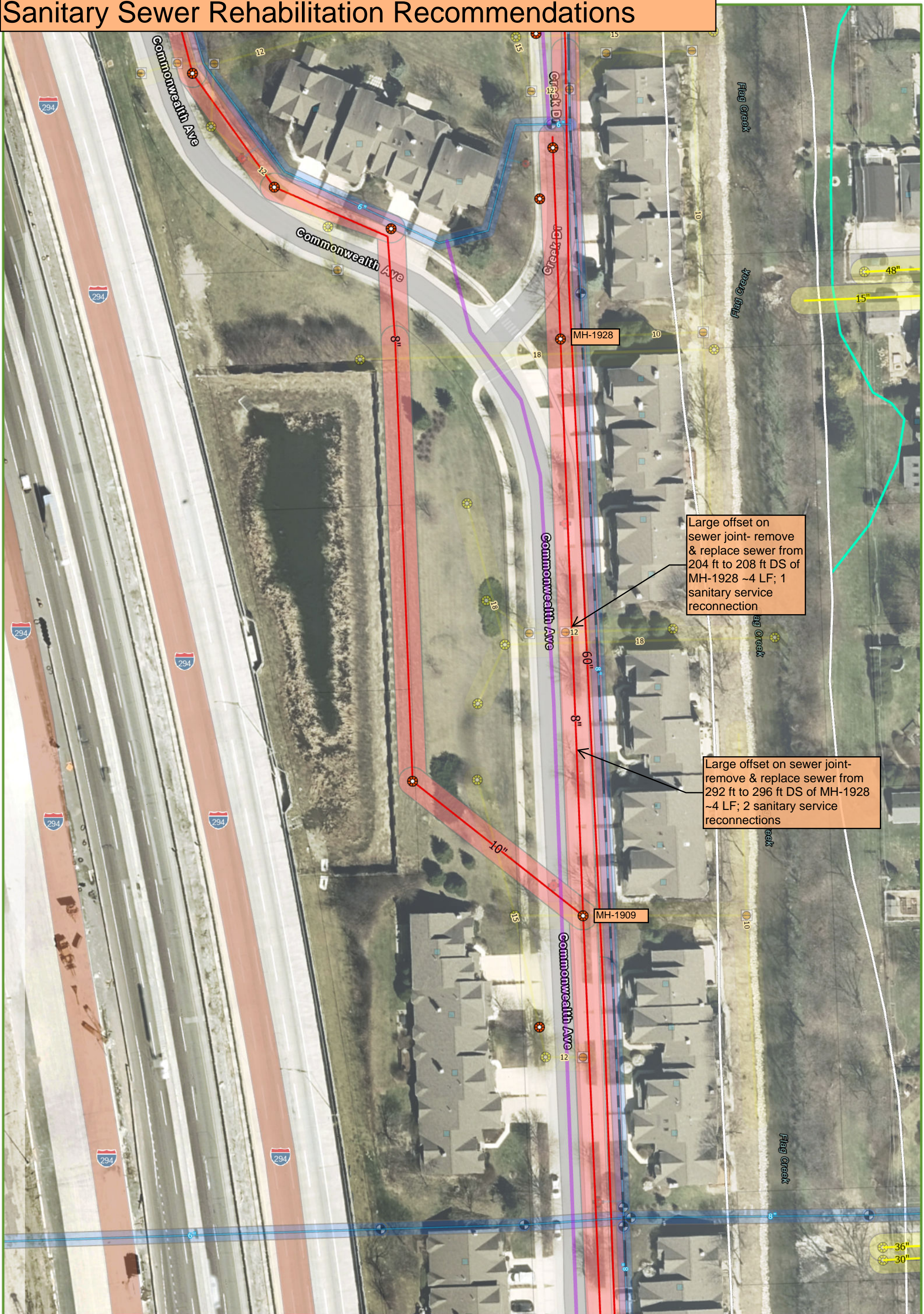
- Option1: Proposed Watermain
- - - - Option1: Watermain to be Abandoned
- Existing Village Water Main
- - - - Existing Watermain 5 ft Separation Buffer
- Storm Sewer
- - - - Storm Lateral 10 ft Separation Buffer
- 100-Year Floodplain
- Floodway
- Parcels
- Storm Manhole
- Sanitary Manhole
- LS Lift Stations
- Sanitary Sewer
- - - - Sanitary Sewer 10 ft Separation Buffer
- Storm Lateral
- - - - Storm Lateral 10 ft Separation Buffer
- Inlets
- Outfalls
- Water Service Point
- WaterValve
- Hydrant
- Hydrant Leads

Commonwealth Subdivision
Water Infrastructure Assessment
Western Springs, IL

Sheet 2



Sanitary Sewer Rehabilitation Recommendations



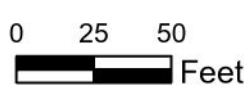
Large offset on sewer joint- remove & replace sewer from 204 ft to 208 ft DS of MH-1928 ~4 LF; 1 sanitary service reconnection

Large offset on sewer joint- remove & replace sewer from 292 ft to 296 ft DS of MH-1928 ~4 LF; 2 sanitary service reconnections

- | | |
|--|--|
| <ul style="list-style-type: none"> — Option1: Proposed Watermain - - - - Option1: Watermain to be Abandoned — Existing Village Water Main - - - - Existing Watermain 5 ft Separation Buffer — 100-Year Floodplain Floodway Parcels ● Storm Manhole ● Sanitary Manhole LS Lift Stations | <ul style="list-style-type: none"> — Sanitary Sewer 10 ft Separation Buffer — Storm Sewer - - - - Storm Lateral 10 ft Separation Buffer ● Inlets ● Outfalls ● Water Service Point ● Water Valve ● Hydrant — Hydrant Leads — extrawatermain53rdstreet |
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Commonwealth Subdivision Water Infrastructure Assessment Western Springs, IL

Sheet 3



Sanitary Sewer Rehabilitation Recommendations



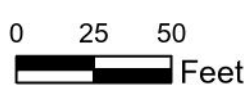
Pipe sag / standing water - remove & replace ~32 LF of sewer from 364 ft DS of MH-1909 to MH 1912

MH-1912

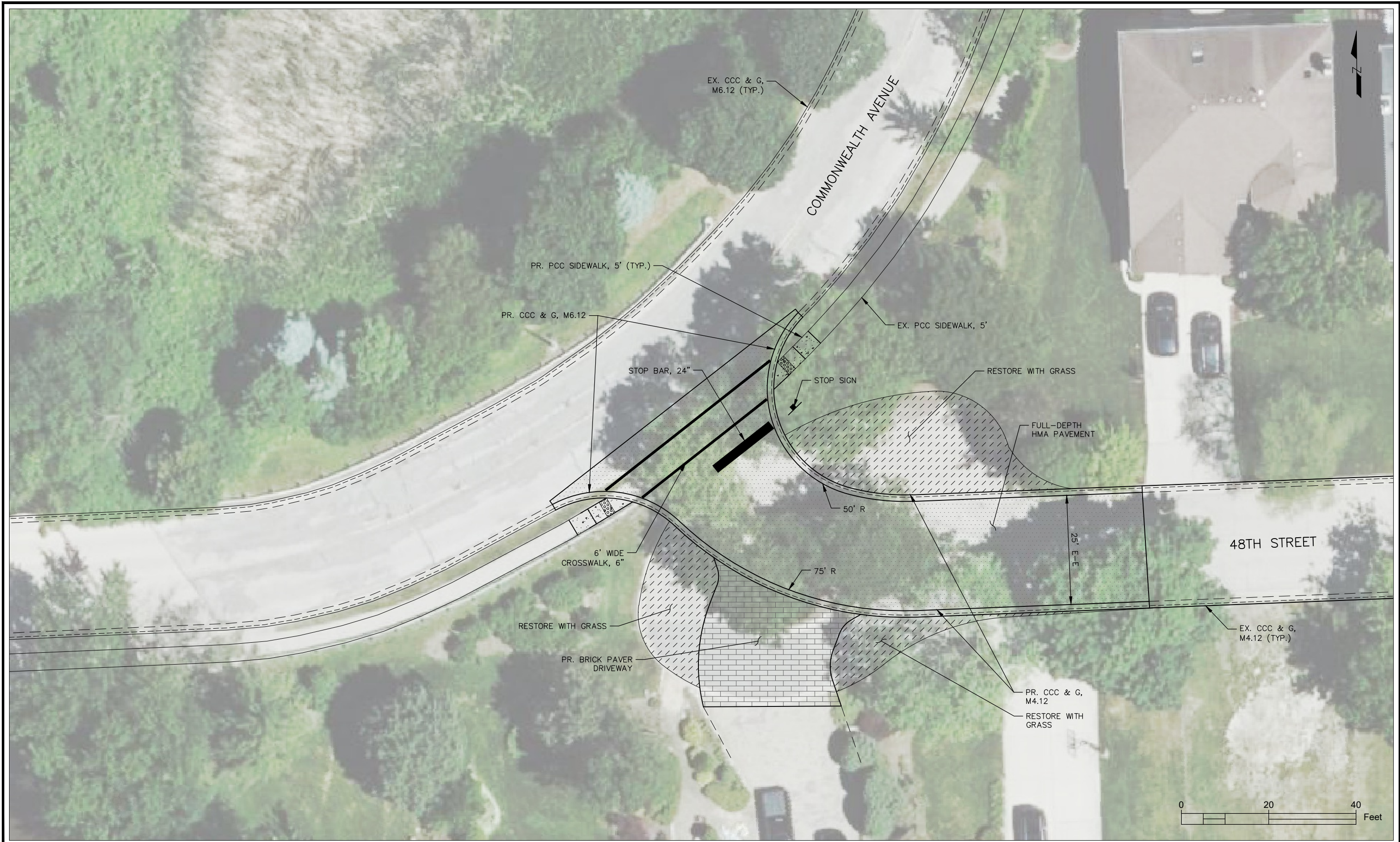
- | | |
|--|---|
| <ul style="list-style-type: none"> — Option1: Proposed Watermain ---- Option1: Watermain to be Abandoned — Existing Village Water Main ---- Existing Watermain 5 ft Separation Buffer — 100-Year Floodplain ---- Floodway — Parcels ● Storm Manhole ● Sanitary Manhole LS Lift Stations | <ul style="list-style-type: none"> — Sanitary Sewer 10 ft Separation Buffer — Storm Sewer — Storm Lateral 10 ft Separation Buffer ● Inlets ● Outfalls ● Water Service Point ● Water Valve ● Hydrant — Hydrant Leads — extrawatermain53rdstreet |
|--|---|

Commonwealth Subdivision Water Infrastructure Assessment Western Springs, IL

Sheet 4



Appendix 3



DRAWN BY: _____ JOB DATE: 2026
 APPROVED: _____ JOB NUMBER: 2502734
 CAD DATE: 5/6/2026 7:08:54 AM
 CAD FILE: J:\2025\2502734\CAD\Dwgs\Exhibit\2502734-Righ in-out Concept.dwg

BAR IS ONE INCH ON OFFICIAL DRAWINGS.
 IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

NO.	DATE	BY	REVISION DESCRIPTION



ROADWAY IMPROVEMENTS 48TH ST & COMMONWEALTH AVE
 VILLAGE OF WESTERN SPRINGS
 WESTERN SPRINGS, ILLINOIS

CONCEPT
 COMMONWEALTH AVE-W 48TH ST
 CONCEPTUAL CONNECTION

SHEET NO.

Appendix 4



Project: Commonwealth Subdivision Infrastructure Assessment
Client: Village of Western Springs
Consultant: HR Green, Inc.
Project Number: 2502734
Date: 3/6/2026

Preliminary Opinion of Probable Costs (2026 Dollars)

Phase 1: Culvert Repairs at Creek Drive Crossing					
Item Number	Item	Unit	Quantity	Unit Price	Total
1	MOBILIZATION	LS	1	\$5,000	\$5,000
2	STONE RIPRAP, CLASS A4	SY	7	\$60	\$400
3	STONE RIPRAP, CLASS A1	SY	7	\$80	\$533
4	HEADWALL REPAIRS	LS	1	\$4,000	\$4,000
7	SODDING, SALT TOLERANT (COMPLETE)	SY	26	\$42	\$1,073
8	TRAFFIC CONTROL AND PROTECTION	LS	1	\$3,000	\$3,000
9	SEDIMENT AND EROSION CONTROL	LS	1	\$3,000	\$3,000
Subtotal					\$17,007
Contingency (30%)					\$5,102
Design Engineering (10%)					\$2,211
Construction Engineering (10%)					\$2,211
Total					\$26,530



Project: Commonwealth Subdivision Infrastructure Assessment
Client: Village of Western Springs
Consultant: HR Green, Inc.
Project Number: 2502734
Date: 5/6/2026

Preliminary Opinion of Probable Costs (2026 Dollars)

Phase 1: Watermain Improvements					
Item Number	Item	Unit	Quantity	Unit Price	Total
1	MOBILIZATION	LS	1	\$36,000	\$36,000
2	TREE TRUNK PROTECTION	EA	16	\$200	\$3,200
3	TREE ROOT PRUNING	EA	16	\$200	\$3,200
4	DUCTILE IRON WATER MAIN, 6"	LF	383	\$150	\$57,450
5	DUCTILE IRON WATER MAIN, 8"	LF	295	\$180	\$53,149
6	DUCTILE IRON WATER MAIN, 12"	LF	1,261	\$220	\$277,404
7	WATER VALVE AND VALVE BOX, 6"	EA	2	\$3,500	\$7,000
8	WATER VALVE AND VALVE BOX, 8"	EA	6	\$4,000	\$24,000
9	WATER VALVE AND VALVE BOX, 12"	EA	5	\$6,000	\$30,000
10	STEEL CASING PIPE, BORED AND JACKED, 24"	LF	295	\$600	\$177,100
11	STEEL CASING PIPE, BORED AND JACKED, 16"	LF	79	\$500	\$39,333
12	WATERMAIN CASING, 20"	LF	110	\$200	\$22,000
13	WATERMAIN CASING, 16"	LF	154	\$150	\$23,100
14	NON PRESSURE CONNECTION TO EXISTING WATER MAIN, 12"	EA	1	\$6,000	\$6,000
15	NON PRESSURE CONNECTION TO EXISTING WATER MAIN, 8"	EA	2	\$4,000	\$8,000
16	NON PRESSURE CONNECTION TO EXISTING WATER MAIN, 6"	EA	1	\$3,000	\$3,000
17	PRESSURE CONNECTION TO EXISTING WATER MAIN, 6"	EA	6	\$7,500	\$45,000
18	FIRE HYDRANTS TO BE REMOVED	EA	2	\$1,000	\$2,000
19	FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX	EA	5	\$13,000	\$65,000
20	TRENCH BACKFILL	CY	1267	\$60	\$75,994
21	Public Water Service Replacement, Trenchless Method, 1.5" (Long)	EA	11	\$8,000	\$88,000
22	Private Water Service Replacement, Trenchless Method, 1"	EA	6	\$70	\$420
23	Public Water Service Replacement, Trenchless Method 3" (Short)	EA	2	\$6,000	\$12,000
24	Curb boxes to be removed and relocated	EA	6	\$2,000	\$12,000
25	CUT AND CAP EXISTING WATERMAIN, 12"	EA	4	\$3,000	\$12,000
26	CUT AND CAP EXISTING WATERMAIN, 8"	EA	2	\$2,000	\$4,000
27	CUT AND CAP EXISTING WATERMAIN, 6"	EA	2	\$1,500	\$3,000
28	SODDING, Salt Tolerant (Complete)	SY	247	\$42	\$10,388
29	TRAFFIC CONTROL AND PROTECTION	LS	1	\$50,000	\$50,000
30	SEDIMENT AND EROSION CONTROL	LS	1	\$20,000	\$20,000
31	CLASS D PAVEMENT PATCHES, 6"	SY	1072	\$60	\$64,321
32	Private Water Service Replacement, Trenchless Method, 1"	SY	1072	\$30	\$32,161
Subtotal					\$1,266,219
Contingency (30%)					\$379,866
Design Engineering (10%)					\$164,608
Construction Engineering (10%)					\$164,608
Total					\$1,975,302



Project: Commonwealth Subdivision Infrastructure Assessment
Client: Village of Western Springs
Consultant: HR Green, Inc.
Project Number: 2502734
Date: 3/6/2026

Preliminary Opinion of Probable Costs (2026 Dollars)

Phase 1 Alternate: Interconnect Re-Route & Watermain Abandonment					
Item Number	Item	Unit	Quantity	Unit Price	Total
1	MOBILIZATION	LS	1	\$10,000	\$10,000
2	TREE TRUNK PROTECTION	EA	20	\$200	\$4,000
3	TREE ROOT PRUNING	EA	20	\$200	\$4,000
4	DUCTILE IRON WATER MAIN, 8"	LF	600	\$200	\$119,908
5	WATER VALVE AND VALVE BOX, 8"	EA	2	\$4,000	\$8,000
6	NON PRESSURE CONNECTION TO EXISTING WATER MAIN, 12"	EA	1	\$6,000	\$6,000
7	NON PRESSURE CONNECTION TO EXISTING WATER MAIN, 6"	EA	1	\$3,000	\$3,000
8	FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX	EA	1	\$13,000	\$13,000
9	CUT AND CAP EXISTING WATERMAIN, 8"	EA	2	\$2,000	\$4,000
10	SODDING, Salt Tolerant (Complete)	SY	167	\$42	\$7,000
11	TRAFFIC CONTROL AND PROTECTION	LS	1	\$20,000	\$20,000
12	SEDIMENT AND EROSION CONTROL	LS	1	\$10,000	\$10,000
13	TREE REMOVAL	ACRE	0.11	\$60,000	\$6,887
Subtotal					\$215,795
Contingency (30%)					\$64,739
Design Engineering (10%)					\$28,053
Construction Engineering (10%)					\$28,053
Total					\$336,640



Project: Commonwealth Subdivision Infrastructure Assessment
Client: Village of Western Springs
Consultant: HR Green, Inc.
Project Number: 2502734
Date: 5/6/2026

Preliminary Opinion of Probable Costs (2026 Dollars)

Phase 2: Watermain Improvements					
Item Number	Item	Unit	Quantity	Unit Price	Total
1	MOBILIZATION	LS	1	\$65,000	\$65,000
2	TREE TRUNK PROTECTION	EA	5	\$200	\$1,000
3	TREE ROOT PRUNING	EA	5	\$200	\$1,000
4	DUCTILE IRON WATER MAIN, 6"	LF	3,521	\$150	\$528,107
7	WATER VALVE AND VALVE BOX, 8"	EA	10	\$4,000	\$40,000
13	WATERMAIN CASING, 16"	LF	682	\$150	\$102,300
15	NON PRESSURE CONNECTION TO EXISTING WATER MAIN, 8"	EA	1	\$4,000	\$4,000
16	NON PRESSURE CONNECTION TO EXISTING WATER MAIN, 6"	EA	2	\$3,000	\$6,000
17	PRESSURE CONNECTION TO EXISTING WATER MAIN, 8"	EA	4	\$8,000	\$32,000
18	PRESSURE CONNECTION TO EXISTING WATER MAIN, 6"	EA	2	\$7,500	\$15,000
21	FIRE HYDRANTS TO BE REMOVED	EA	12	\$1,000	\$12,000
22	FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX	EA	12	\$13,000	\$156,000
23	TRENCH BACKFILL	CY	2448	\$60	\$146,859
24	Public Water Service Replacement, Trenchless Method 1.5" (Short)	EA	15	\$4,000	\$60,000
25	Public Water Service Replacement, Trenchless Method, 1.5" (Long)	EA	74	\$8,000	\$592,000
31	CUT AND CAP EXISTING WATERMAIN, 8"	EA	6	\$2,000	\$12,000
32	CUT AND CAP EXISTING WATERMAIN, 6"	EA	2	\$1,500	\$3,000
33	SODDING, Salt Tolerant (Complete)	SY	89	\$42	\$3,733
34	TRAFFIC CONTROL AND PROTECTION	LS	1	\$70,000	\$70,000
35	SEDIMENT AND EROSION CONTROL	LS	1	\$30,000	\$30,000
36	CLASS D PAVEMENT PATCHES, 6"	SY	2703	\$60	\$162,153
37	PAVEMENT REMOVAL	SY	2703	\$30	\$81,077
Subtotal					\$2,123,229
Contingency (30%)					\$636,969
Design Engineering (10%)					\$276,020
Construction Engineering (10%)					\$276,020
Total					\$3,312,237



Project: Commonwealth Subdivision Infrastructure Assessment
Client: Village of Western Springs
Consultant: HR Green, Inc.
Project Number: 2502734
Date: 5/6/2026

Preliminary Opinion of Probable Costs (2026 Dollars)

Phase 2A: Watermain Improvements					
Item Number	Item	Unit	Quantity	Unit Price	Total
1	MOBILIZATION	LS	1	\$10,000	\$10,000
4	DUCTILE IRON WATER MAIN, 6"	LF	656	\$150	\$98,400
7	WATER VALVE AND VALVE BOX, 6"	EA	2	\$3,500	\$7,000
13	WATERMAIN CASING, 16"	LF	110	\$150	\$16,500
16	NON PRESSURE CONNECTION TO EXISTING WATER MAIN, 6"	EA	1	\$3,000	\$3,000
21	FIRE HYDRANTS TO BE REMOVED	EA	2	\$1,000	\$2,000
22	FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX	EA	2	\$13,000	\$26,000
23	TRENCH BACKFILL	CY	434	\$60	\$26,058
25	Public Water Service Replacement, Trenchless Method, 1.5" (Long)	EA	8	\$8,000	\$64,000
32	CUT AND CAP EXISTING WATERMAIN, 6"	EA	2	\$1,500	\$3,000
34	TRAFFIC CONTROL AND PROTECTION	LS	1	\$30,000	\$30,000
35	SEDIMENT AND EROSION CONTROL	LS	1	\$10,000	\$10,000
36	CLASS D PAVEMENT PATCHES, 6"	SY	510	\$60	\$30,613
37	PAVEMENT REMOVAL	SY	510	\$30	\$15,307
Subtotal					\$341,878
Contingency (30%)					\$102,563
Design Engineering (10%)					\$44,444
Construction Engineering (10%)					\$44,444
Total					\$533,329



Project: Commonwealth Subdivision Infrastructure Assessment
Client: Village of Western Springs
Consultant: HR Green, Inc.
Project Number: 2502734
Date: 5/6/2026

Preliminary Opinion of Probable Costs (2026 Dollars)

Phase 1: Sanitary Sewer Improvements					
Item Number	Item	Unit	Quantity	Unit Price	Total
1	MOBILIZATION	LS	1	\$5,000	\$5,000
2	SANITARY SEWER SERVICE RECONNECTION, 8"	EA	1	\$3,000	\$3,000
3	SANITARY SEWER REMOVE AND REPLACE, 8"	LF	230	\$300	\$69,000
4	HEAVY CLEANING OF SANITARY SEWER, 8"	LF	40	\$5	\$200
5	HEAVY SEWER MANHOLE CLEANING	EA	1	\$1,000	\$1,000
6	FRAMES AND LIDS TO BE ADJUSTED	EA	1	\$750	\$750
7	FRAMES AND LIDS TO BE REMOVED AND REPLACED	EA	1	\$1,000	\$1,000
8	SODDING, SALT TOLERANT (COMPLETE)	SY	102	\$42	\$4,293
9	TRAFFIC CONTROL AND PROTECTION	LS	1	\$5,000	\$5,000
10	SEDIMENT AND EROSION CONTROL	LS	1	\$5,000	\$5,000
Subtotal					\$94,243
Contingency (30%)					\$28,273
Design Engineering (10%)					\$12,252
Construction Engineering (10%)					\$12,252
Total					\$147,020

Phase 2: Sanitary Sewer Improvements					
Item Number	Item	Unit	Quantity	Unit Price	Total
1	MOBILIZATION	LS	1	\$5,000	\$5,000
2	SANITARY SEWER SERVICE RECONNECTION TO NEW SANITARY SEWER, 8"	EA	3	\$3,000	\$9,000
3	SANITARY SEWER REMOVE AND REPLACE, 8"	LF	40	\$300	\$12,000
4	SODDING, SALT TOLERANT (COMPLETE)	SY	18	\$42	\$747
5	TRAFFIC CONTROL AND PROTECTION	LS	1	\$5,000	\$5,000
6	SEDIMENT AND EROSION CONTROL	LS	1	\$5,000	\$5,000
Subtotal					\$36,747
Contingency (30%)					\$11,024
Design Engineering (10%)					\$4,777
Construction Engineering (10%)					\$4,777
Total					\$57,325

2026 COMMONWEALTH SUBDIVISION RESURFACING PROJECT SUMMARY - PHASE 1: From 47th Street To 49th Ct. S.

ROADWAY NAME	ROADWAY LIMITS	LENGTH	WIDTH	EXTRA AREA	AREA	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT (NOTE #1)	HOT-MIX ASPHALT SURFACE REMOVAL, 1-3/4"	BITUMINOUS MATERIALS (TACK COAT)	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N50, 2"	CLASS "D" PATCHES, 6"	COMB. CONC. CURB & GUTTER REMOVAL-SPECIAL (NOTE #2)	COMB. CONC. CURB & GUTTER TY. M-3.12	COMB. CONC. CURB & GUTTER TY. B-6.12	SIDEWALK REMOVAL	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	DETECTABLE WARNING	FRAMES AND LIDS TO BE ADJUSTED	FRAMES AND LIDS TO BE REPLACED	PAINT PAVEMENT MARKING - LINE 12" (WHITE)	PAINT PAVEMENT MARKING - LINE 24" (WHITE)	TRAFFIC CONTROL AND PROTECTION (SPECIAL)	STREET TOTAL ESTIMATE			
		FOOT	FOOT	SQ YD	SQ YD	SQ YD	SQ YD	POUNDS	TON	SQ YD	FOOT	FOOT	FOOT	SQ FT	SQ FT	SQ FT	EACH	EACH	FOOT	FOOT	LSUM				
COMMONWEALTH AVE.	END OF NEWER PAVEMENT TO 49TH CT. N.	420	25		1,167	28	1,139	525	140	59	27		27							13	0.14	\$28,138.44			
COMMONWEALTH AVE.	49TH CT. N. TO END OF NORTH CURVE	1,050	25		2,917		2,917	1313	330	146	125		125				5	1			0.14	\$71,518.61			
COMMONWEALTH AVE.	NORTH CURVE TO 47TH STREET	266	37		1,079	41	1,038	486	130	54											0.14	\$24,827.36			
49TH CT. S.	COMMONWEALTH TO CREEK DR.	183	25	184	693		693	312	80	35				35	35	10				54	13	0.14	\$17,223.98		
CREEK DR.	49TH CT. S. TO 49TH CT. N.	234	25		650		650	293	80	33				55	55	20						0.14	\$17,371.11		
49TH CT. N.	BEGINNING TO END	235	25	232	885		885	399	100	45										54	13	0.14	\$19,894.69		
CREEK DR.	49TH CT. N. TO CUL-DE-SAC	317	25	649	1,530		1,530	689	180	77												0.14	\$33,123.72		
48TH STREET	NEW INTERSECTION WITH COMMONWEALTH																								
	LENGTH TOTAL =	2,705.0																							
TOTAL QUANTITIES						68	8,851	4,017	1,040	449	152	0	152	90	90	30	5	1	108	39	1				
<p>NOTE #1: HOT-MIX ASPHALT SURFACE REMOVAL BUTT JOINT AREA SHALL BE 10' LONG BY THE WIDTH OF THE STREET FROM EDGE/PAVEMENT TO EDGE/PAVEMENT.</p> <p>NOTE #2: COMBINATION CONCRETE CURB & GUTTER REMOVAL - SPECIAL SHALL BE PER APPLICABLE PORTIONS OF IDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION AND SHALL INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED TO REMOVE AND PROPERLY DISPOSE OF ALL NOTED TYPES OF CCC&G.</p> <p>NOTE #3: TRAFFIC CONTROL & PROTECTION SHALL BE PER STANDARDS 701006, 701301, 701311, 701501, 701801, & 701901. ALL MATERIAL, LABOR, EQUIPMENT REQUIRED FOR TRAFFIC CONTROL AND PROTECTION (SPECIAL) SHALL BE INCLUDED IN THE UNIT PRICE PER LUM SUM AS BID FOR TRAFFIC CONTROL AND PROTECTION (SPECIAL).</p>																									
UNIT COSTS						\$15.00	\$3.00	\$0.25	\$120.00	\$60.00	\$9.50	\$62.00	\$50.00	\$3.00	\$12.00	\$40.00	\$750.00	\$750.00	\$4.00	\$6.50	\$15,000.00				
TOTAL COST						\$ 1,025.00	\$ 26,552.41	\$ 1,004.25	\$ 124,800.00	\$ 26,940.00	\$ 1,444.00	\$ -	\$ 7,600.00	\$ 270.00	\$ 1,080.00	\$ 1,200.00	\$ 3,750.00	\$ 750.00	\$ 432.00	\$ 250.25	\$ 15,000.00	\$ 212,097.91			
																				Contingency =		15%		\$ 31,814.69	
																				Total =				\$ 243,912.59	



Local Public Agency

Village of Western Springs

County

Cook

Section Number

HRG# 2502734

Route(s)/Street-Road Name

Commonwealth Ave., Creek Dr., 49th Ct. N., 49th Ct. S.

Project Length

2,705 feet (0.51 Miles)

Project Termini

PHASE 1 - From 47th Street To 49th Ct. S.

Item #	Item	Unit of Measure	Base Bid Quantity	Unit Price	Base Bid Estimated Cost
1	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	SQ YD	68	\$ 15.00	\$ 1,025.00
2	HOT-MIX ASPHALT SURFACE REMOVAL, 1-3/4"	SQ YD	8,851	\$ 3.00	\$ 26,552.41
3	BITUMINOUS MATERIALS (TACK COAT)	POUNDS	4,017	\$ 0.25	\$ 1,004.25
4	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N50, 2"	TON	1,040	\$ 120.00	\$ 124,800.00
5	CLASS "D" PATCHES, 6"	SQ YD	449	\$ 60.00	\$ 26,940.00
6	COMB. CONC. CURB & GUTTER REMOVAL-SPECIAL	FOOT	152	\$ 9.50	\$ 1,444.00
7	COMB. CONC. CURB & GUTTER TY. M-3.12	FOOT	0	\$ 62.00	\$ -
8	COMB. CONC. CURB & GUTTER TY. B-6.12	FOOT	152	\$ 50.00	\$ 7,600.00
9	SIDEWALK REMOVAL	SQ FT	90	\$ 3.00	\$ 270.00
10	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	90	\$ 12.00	\$ 1,080.00
11	DETECTABLE WARNING	SQ FT	30	\$ 40.00	\$ 1,200.00
12	FRAMES AND LIDS TO BE ADJUSTED	EACH	5	\$ 750.00	\$ 3,750.00
13	FRAMES AND LIDS TO BE REPLACED	EACH	1	\$ 750.00	\$ 750.00
14	PAINT PAVEMENT MARKING - LINE 12" (WHITE)	FOOT	108	\$ 4.00	\$ 432.00
15	PAINT PAVEMENT MARKING - LINE 24" (WHITE)	FOOT	39	\$ 6.50	\$ 250.25
16	TRAFFIC CONTROL AND PROTECTION (SPECIAL)	LSUM	1	\$ 15,000.00	\$ 15,000.00
	SUB-TOTAL =				\$ 212,097.91
	CONTINGENCY =		15%		\$ 31,814.69
				Total Overall Estimated Cost:	\$ 243,912.59

Prepared By

Joe Wesel

Date

12/30/2025

Verified By

Scott Creech

Date

12/30/2025

2026 COMMONWEALTH SUBDIVISION RESURFACING PROJECT SUMMARY - PHASE 2: From 47th Street To 49th Ct. S.

ROADWAY NAME	ROADWAY LIMITS	LENGTH	WIDTH	EXTRA AREA	AREA	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT (NOTE #1)	HOT-MIX ASPHALT SURFACE REMOVAL, 1 3/4"	BITUMINOUS MATERIALS (TACK COAT)	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N50, 2"	CLASS "D" PATCHES, 6"	COMB. CONC. CURB & GUTTER REMOVAL-SPECIAL (NOTE #2)	COMB. CONC. CURB & GUTTER TY. M-3.12	COMB. CONC. CURB & GUTTER TY. B-6.12	SIDEWALK REMOVAL	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	DETECTABLE WARNING	FRAMES AND LIDS TO BE ADJUSTED	FRAMES AND LIDS TO BE REPLACED	PAINT PAVEMENT MARKING - LINE 12" (WHITE)	PAINT PAVEMENT MARKING - LINE 24" (WHITE)	TRAFFIC CONTROL AND PROTECTION (SPECIAL)	STREET TOTAL ESTIMATE
		FOOT	FOOT	SQ YD	SQ YD	SQ YD	SQ YD	POUNDS	TON	SQ YD	FOOT	FOOT	FOOT	SQ FT	SQ FT	SQ FT	EACH	EACH	FOOT	FOOT	LSUM	
COMMONWEALTH AVE.	CUL-DE-SAC TO 53RD ST.	885	25		2,458	28	2,431	1107	280	74							7				0.14	\$53,417.94
COMMONWEALTH AVE.	53RD ST. TO S. CREEK DR. S.	440	25		1,222	36	1,187	550	140	49							2				0.14	\$27,613.69
COMMONWEALTH AVE.	S. CREEK DR. S. TO C. CREEK DR. S.	495	25		1,375		1,375	619	160	69							2				0.14	\$31,262.61
COMMONWEALTH AVE.	C. CREEK DR. S TO START OF NEWER PAVEMENT	285	25		792	28	764	357	90	40							5				0.14	\$21,890.44
COMMONWEALTH AVE.	PAVING OMISSION PAVING NOT NECESSARY; START OF NEWER PAVEMENT TO END OF NEWER PAVEMENT																					
S. CREEK DR.	BEGINNING TO END	310	25	65	926		926	417	110	47	17	17		96	96	30	1				0.14	\$25,649.77
C. CREEK DR.	BEGINNING TO END	303	25	132	974		974	439	110	49				128	128	40			150	30	0.14	\$25,620.77
N. CREEK DR.	COMMONWEALTH TO 49TH CT. S.	564	25	5	1,572	28	1,544	708	180	79	56	56					7				0.14	\$42,962.19
	LENGTH TOTAL =	3,282.0																				
TOTAL QUANTITIES						119	9,199	4,197	1,070	407	73	73	0	224	224	70	24	0	150	30	1.0	
<p>NOTE #1: HOT-MIX ASPHALT SURFACE REMOVAL BUTT JOINT AREA SHALL BE 10' LONG BY THE WIDTH OF THE STREET FROM EDGE/PAVEMENT TO EDGE/PAVEMENT.</p> <p>NOTE #2: COMBINATION CONCRETE CURB & GUTTER REMOVAL - SPECIAL SHALL BE PER APPLICABLE PORTIONS OF IDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION AND SHALL INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED TO REMOVE AND PROPERLY DISPOSE OF ALL NOTED TYPES OF CCC&G.</p> <p>NOTE #3: TRAFFIC CONTROL & PROTECTION SHALL BE PER STANDARDS 701006, 701301, 701311, 701501, 701801, & 701901. ALL MATERIAL, LABOR, EQUIPMENT REQUIRED FOR TRAFFIC CONTROL AND PROTECTION (SPECIAL) SHALL BE INCLUDED IN THE UNIT PRICE PER LUM SUM AS BID FOR TRAFFIC CONTROL AND PROTECTION (SPECIAL).</p> <p>NOTE #4:</p>																						
UNIT COSTS						\$15.00	\$3.00	\$0.25	\$120.00	\$60.00	\$9.50	\$62.00	\$50.00	\$3.00	\$12.00	\$40.00	\$750.00	\$750.00	\$4.00	\$6.50	\$15,000.00	
TOTAL COST						\$ 1,783.33	\$ 27,597.83	\$ 1,049.25	\$ 128,400.00	\$ 24,420.00	\$ 693.50	\$ 4,526.00	\$ -	\$ 670.50	\$ 2,682.00	\$ 2,800.00	\$18,000.00	\$ -	\$ 600.00	\$ 195.00	\$ 15,000.00	\$ 228,417.42
																				Contingency = 15%		\$ 34,262.61
																				Total =		\$ 262,680.03



Local Public Agency

Village of Western Springs

County

Cook

Section Number

HRG# 2502734

Route(s)/Street-Road Name

Commonwealth Ave., Creek Dr.

Project Length

3,282 Feet (0.62 Miles)

Project Termini

PHASE 2 - From 49th Ct. S. To Southern Cul-De-Sac

Item #	Item	Unit of Measure	Base Bid Quantity	Unit Price	Base Bid Estimated Cost
1	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	SQ YD	119	\$ 15.00	\$ 1,783.33
2	HOT-MIX ASPHALT SURFACE REMOVAL, 1-3/4"	SQ YD	9,199	\$ 3.00	\$ 27,597.83
3	BITUMINOUS MATERIALS (TACK COAT)	POUNDS	4,197	\$ 0.25	\$ 1,049.25
4	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N50, 2"	TON	1,070	\$ 120.00	\$ 128,400.00
5	CLASS "D" PATCHES, 6"	SQ YD	407	\$ 60.00	\$ 24,420.00
6	COMB. CONC. CURB & GUTTER REMOVAL-SPECIAL	FOOT	73	\$ 9.50	\$ 693.50
7	COMB. CONC. CURB & GUTTER TY. M-3.12	FOOT	73	\$ 62.00	\$ 4,526.00
8	COMB. CONC. CURB & GUTTER TY. B-6.12	FOOT	0	\$ 50.00	\$ -
9	SIDEWALK REMOVAL	SQ FT	224	\$ 3.00	\$ 670.50
10	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	224	\$ 12.00	\$ 2,682.00
11	DETECTABLE WARNING	SQ FT	70	\$ 40.00	\$ 2,800.00
12	FRAMES AND LIDS TO BE ADJUSTED	EACH	24	\$ 750.00	\$ 18,000.00
13	FRAMES AND LIDS TO BE REPLACED	EACH	0	\$ 750.00	\$ -
14	PAINT PAVEMENT MARKING - LINE 12" (WHITE)	FOOT	150	\$ 4.00	\$ 600.00
15	PAINT PAVEMENT MARKING - LINE 24" (WHITE)	FOOT	30	\$ 6.50	\$ 195.00
16	TRAFFIC CONTROL AND PROTECTION (SPECIAL)	LSUM	1	\$ 15,000.00	\$ 15,000.00
	SUB-TOTAL =				\$ 228,417.42
	CONTINGENCY =		15%		\$ 34,262.61
				Total Overall Estimated Cost:	\$ 262,680.03

Prepared By

Joe Wesel

Total Overall Estimated Cost:

\$ 262,680.03

Date

12/30/2025

Verified By

Scott Creech

Date

12/30/2025



Local Public Agency

County

Section Number

Village of Western Springs

Cook

HRG# 2502734

Route(s)/Street-Road Name

Project Length

CONCEPT: Commonwealth Ave. & W. 48th St. Connector

N/A

Project Termini

Commonwealth Ave. to W. 48th St. Cul-De-Sac Connector (Conceptual)

Item #	Item	Unit of Measure	Base Bid Quantity	Unit Price	Base Bid Estimated Cost
1	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNITS	12	\$ 50.00	\$ 600.00
2	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNITS	20	\$ 60.00	\$ 1,200.00
3	EARTH EXCAVATION	CU YD	267	\$ 65.00	\$ 17,355.00
4	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	SQ YD	33	\$ 15.00	\$ 500.00
5	PAVEMENT REMOVAL	SQ YD	365	\$ 12.00	\$ 4,380
6	CURB AND GUTTER REMOVAL	FOOT	437	\$ 15.00	\$ 6,555
7	SIDEWALK REMOVAL	SQ FT	288	\$ 5.00	\$ 1,440
8	DRIVEWAY PAVEMENT REMOVAL	SQ YD	33	\$ 35.00	\$ 1,155
9	BITUMINOUS MATERIALS (TACK COAT)	POUNDS	175	\$ 5.00	\$ 875.25
10	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N50, 2"	TON	50	\$ 150.00	\$ 7,500.00
11	HOT-MIX ASPHALT BINDER COURSE, N50, 6"	TON	150	\$ 145.00	\$ 21,750.00
12	AGGREGATE BASE COURSE, TY B. (8 INCH)	TON	176	\$ 40.00	\$ 7,040.00
13	COMB. CONC. CURB & GUTTER REMOVAL-SPECIAL	FOOT	437	\$ 10.00	\$ 4,370.00
14	COMB. CONC. CURB & GUTTER TY. M-4.12	FOOT	250	\$ 60.00	\$ 15,000.00
15	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	130	\$ 15.00	\$ 1,950.00
16	DETECTABLE WARNING	SQ FT	20	\$ 50.00	\$ 1,000.00
17	INLETS TY. A WITH TYPE 3 FRAME & GRATE	EACH	2	\$ 2,500.00	\$ 5,000.00
18	STORM SEWER CLA, 12 INCH	FOOT	65	\$ 52.00	\$ 3,380.00
19	FRAMES AND LIDS TO BE ADJUSTED	EACH	4	\$ 750.00	\$ 3,000.00
20	BRICK DRIVEWAY PAVEMENT (SPECIAL)	SQ YD	93	\$ 75.00	\$ 6,975.00
21	PAINT PAVEMENT MARKING - LINE 12" (WHITE)	FOOT	65	\$ 4.00	\$ 260.00
22	PAINT PAVEMENT MARKING - LINE 24" (WHITE)	FOOT	12	\$ 6.75	\$ 81.00
23	CONSTRUCTION LAYOUT	LSUM	1	\$ 3,500.00	\$ 3,500.00
24	TRAFFIC CONTROL AND PROTECTION (SPECIAL)	LSUM	1	\$ 5,000.00	\$ 5,000.00
SUB-TOTAL =					\$ 119,866.25
CONTINGENCY =					\$ 35,959.88
Sub-Total Estimate Construction Cost =					\$ 155,826.13
Design Engineering Estimate (10%) =					\$ 15,582.61
Construction Observation Estimate (10%) =					\$ 15,582.61
Total Overall Estimated Cost =					\$ 186,991.35

Prepared By

Date

Scott Creech

5/6/2026

Verified By

Date



Project: Commonwealth Subdivision Infrastructure Assessment
Client: Village of Western Springs
Consultant: HR Green, Inc.
Project Number: 2502734
Date: 3/6/2026

Preliminary Opinion of Probable Costs (2026 Dollars)

Booster Station & PRV for Emergency Interconnect					
Item Number	Item	Unit	Quantity	Unit Price	Total
1	PREFAB BOOSTER STATION & PRV (ABOVE GROUND)	LS	1	\$400,000	\$400,000
2	INSTALLATION	LS	1	\$30,000	\$30,000
3	CONCRETE PAD	LS	1	\$55,000	\$55,000
4	ELECTRICAL	LS	1	\$50,000	\$50,000
5	SITE CIVIL PIPING	LS	1	\$35,000	\$35,000
6	GENERAL CONDITIONS/OVERHEAD/PROFIT	LS	1	\$142,500	\$142,500
Subtotal					\$712,500
Contingency (30%)					\$213,750
Design Engineering (10%)					\$92,625
Construction Engineering (10%)					\$92,625
Total					\$1,111,500

Appendix 5

**January 6, 2026
SEECO JOB No. 13921G**

**SUBSURFACE EXPLORATION, LABORATORY TESTING
AND GEOTECHNICAL ENGINEERING AND ANALYSIS FOR THE
PROPOSED IMPROVEMENTS TO COMMONWEALTH SUBDIVISION
WESTERN SPRINGS, IL**

PREPARED FOR:

**MR. T. SCOTT CREECH, P.E.
HR GREEN, INC.
323 ALANA DRIVE
NEW LENOX, IL 60451-1766**

PREPARED BY:

**SEECO CONSULTANTS, INC.
7350 DUVAN DRIVE
TINLEY PARK, ILLINOIS 60477
(708) 429-1666**

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REPORT SUMMARY

This geotechnical report is prepared for the proposed improvements to Commonwealth Subdivision in the Village of Western Springs, Illinois. The project includes the assessment and selection of a proposed preferred alignment for the installation of new 8-inch water main ductile iron pipe throughout the Subdivision, and pavement rehabilitation for the Commonwealth Subdivision from 47th Street to South of 53rd Street.

The proposed 8-inch water main will be installed with a minimum 5 feet of cover from existing ground surface to the pipe crown, using open-cut trench excavation with trench box protection. As per Mr. T. Scott Creech, P.E, a cold mill surface and overlay pavement scheme will be utilized for the pavement rehabilitation along Commonwealth Avenue, Creek Drive, 49th Court North and 49th Court South at this project site. The pavement rehabilitation will consist of cold milling off 2 inches of existing bituminous concrete pavement and replacing it with 2 inches of Hot Mix Asphalt (HMA) surface course pavement placed and compacted per the "Standard Specifications for Road and Bridge Construction, January 1, 2022 Edition. If any potholes are found to need patching, the existing pavement will be patched with a Class D – 6" Patch at appropriate locations. The roadway curb and gutter will be designated as IDOT B-6-12.

The recommendations in this report are based on the project information provided above and email conversations between Mr. T. Scott Creech, P.E. and Joseph C. Wesel of HR Green, Inc., and the principal author of this report from December 17, 2025, to January 5, 2026. At present, no plans and profiles for the new utility lines and roadways are available to the authors of this report.

On October 6, 2025, SEECO Consultants Inc. drilled and sampled nine soil borings (B-1, B-2, B-3, B-7, B-8 and B-9 on Commonwealth Ave.; B-4 and B-6 on Creek Dr.; and B-5 on 49th Ct. S.) at the project site, using a rubber tire truck mounted drill rig Diedrich Model D-50. The approximate location of each boring is shown in **Boring Location Plan** section of **Appendix**. All Borings were drilled and sampled to the termination depth of 10 feet. No groundwater was encountered in all borings drilled and sampled on October 6, 2025, by SEECO Consultants, Inc. Underneath the asphalt pavement, virgin soils encountered in the Soil Borings at the project site mostly consist of medium dense brown and gray clayey sand, medium dense brown and gray sand, medium dense brown and gray silty sand, stiff/very stiff brown and gray clay, very stiff black clay topsoil, very stiff dark gray clay, very stiff gray little brown clay, and stiff gray clay. It is recommended that the **Borings Logs** in the **Appendix** of this report be referred for the detail

site soil and groundwater conditions encountered in each of the soil borings.

Bedrock was not encountered in any of the nine (9) soil borings for the entire drilling depth of 10 feet each. Therefore, bedrock excavation is not anticipated for the installation of the proposed water mains using the open-cut method. The soils at the bottom of the inverts for the proposed water main invert depths in the location are suitable for the direct placement of the pipe bedding material, except in the areas of Borings B-6 and B-9 where it is recommended to undercut the buried clay topsoil until suitable bearing soils consisting of virgin very stiff brown and gray clay are encountered, and to refill with compacted select engineered granular fill before the placement of the pipe bedding material.

Since the depths of excavation will be greater than 5 feet, open cut excavation with vertical side walls will not be safe. Therefore, it is recommended that the excavations should be braced. The trench box should be designed for lateral earth pressure based on the apparent lateral earth pressure distribution for braced excavations based on Peck's criteria for stiff clays. For open-cut trench excavations, the steel trench box sidewalls and struts should be capable of resisting an approximate maximum lateral pressure of 820 psf per foot of length (for maximum 10-foot depth) of lateral earth pressure in comparison with the trench box allowable structural lateral pressure capacity. Refer to the **Apparent Lateral Earth Pressure Diagram for Trench Protection Box Design in Clayey Soils** for excavation depths 10 feet or less as given in the **Appendix** of this report. The utility contractor is responsible for the design of the trench protection box. The new water main construction should be done in accordance with the ISPE "Standard Specifications for Water & Sewer Main Construction in Illinois," Eighth Edition, dated 2020.

Detailed recommendations regarding the installation of the water main using open-cut trench excavation with box protection, and the pavement rehabilitation are given in the body of this report.

PROJECT OVERVIEW

Introduction

This geotechnical report is prepared for the proposed improvements to Commonwealth Subdivision in the Village of Western Springs, Illinois. The project involves the assessment and selection of proposed preferred alignment for the installation of new 8-inch water main and the pavement rehabilitation for the Commonwealth Subdivision from 47th Street to South of 53rd Street. The main components of the project are summarized per HR Green, Inc. as follows:

- Installation of approximately 7,620 linear feet of 8-inch diameter ductile iron pipe (DIP) water main along a proposed preferred alignment in Commonwealth Ave., Creek Dr., 49th Ct N. and 49th Ct S. to replace the existing water mains in these streets at the project site.
- Pavement rehabilitation consisting of approximately 2,110 TON of Hot Mix Asphalt Surface Course, IL-9.5, MIX "D", N50, 2" along Commonwealth Ave., Creek Dr., 49th Ct N. and 49th Ct S.

The purpose of this report is to describe the subsurface soil conditions encountered at the various areas of the project site, to evaluate the physical characteristics of the soil by means of a geotechnical laboratory testing program and to provide general recommendations for the pavement rehabilitation, and the installation of the proposed water main using open cut trench excavation method with trench box protection, along with engineering recommendations on general construction procedures and address problems due to soil and/or prevalent groundwater conditions at the project site.

This scope of work was authorized by Mr. Scott Creech, P.E., of HR Green, Inc. per SEECO's Proposal and Contract dated July 11, 2025.

General Project Description

This project site is located in a residential area of the Village of Western Springs in Illinois. The project, which involves evaluating and selecting a proposed preferred alignment for the installation of a new 8-inch water main and pavement rehabilitation in the Commonwealth Subdivision from 47th Street to south of 53rd Street, is currently in the preliminary phase. General project information was provided by Mr. Scott Creech, P.E., and Joseph C. Wesel, of HR Green, Inc., through email conversations with the principal author of this report on

December 17, 2025, through January 5, 2026. At present, there are no plans and profiles for the new utility lines and roadways.

The project includes the installation of approximately 7,620 linear feet of new 8-inch diameter DIP water main along a preferred alignment to replace the existing water mains in the Commonwealth Subdivision in Western Springs, Illinois. In addition, the project includes pavement rehabilitation consisting of approximately 2,110 TON of Hot Mix Asphalt Surface Course, IL-9.5, MIX "D", N50, 2" along Commonwealth Ave., Creek Dr., 49th Ct N. and 49th Ct S. The pavement rehabilitation consists of milling and resurfacing 2 inches of existing pavement with Hot Mix Asphalt (HMA), installing 6-inch Class D asphalt patches where needed, performing spot replacement of curb, curb and gutter (CCC&G), and replacing damaged sections of Portland Cement Concrete (PCC) sidewalk on a spot basis in the various streets at the project site. The roadway curb and gutter will be designated as IDOT B-6-12. The proposed watermain will be provided with a minimum vertical cover of approximately 5 feet from the existing ground level to the crown of the watermain pipe, and the proposed watermain installation will be completed using the open-cut trench excavation with trench box protection.

Site Geology

The native soils at the project site are the product of the result of Wisconsinan Stage of the Continental Glacier. The Wisconsinan Ice was the last to cover the North American Continent, receding from this area some 13,500 years ago. Present landforms in this area are the results of the Wisconsinan glaciation action during the Pleistocene Epoch. The soils were formed from the natural deposition erosion and weathering processes that have prevailed to the present time. The Pre-Wisconsin glacial deposits are found only in deep bedrock valleys and ravines where they were sheltered from the erosive action of the Wisconsinan Ice.

According to the Illinois State Geological Survey (ISGS) Surficial Geology of The Chicago Region (Willman, H.B. and Lineback, Jerry A., 1970), the soils at this project site have been assigned to the Cahokia Alluvium deposited during the Woodfordian, Twocreekan, Valderan, and younger substage of the Wisconsinan and Holocene stage. These soil deposits are described as deposits in floodplains and channels of modern rivers and streams; mostly poorly sorted silt and sand containing local deposits of sandy gravel; in many places overlies relatively well sorted glacial outwash of the Henry Formation.

The nine (9) soil borings performed for this project on October 6, 2025, by SEECO Consultants, Inc. indicate that virgin soils below the asphalt pavement at this project site primarily consist of medium dense brown and gray sand, medium dense brown and gray silty sand, stiff/very stiff brown and gray clay, very stiff black clay topsoil, very stiff dark gray clay, very stiff gray little brown clay, and stiff gray clay. These soil borings in general, confirm the ISGS published surficial geology map for this area. The details of the onsite soil conditions can be found in the **Site Soil Conditions** paragraph of the **FIELD AND LABORATORY ANALYSIS AND RESULTS** section of this Report and **Boring Logs** given in the **Appendix** of this Report.

FIELD AND LABORATORY ANALYSIS AND RESULTS

Subsurface Site Exploration Procedure

Nine (9) soil borings (B-1, B-2, B-3, B7, B-8 and B-9 on Commonwealth Ave.; B-4 and B-6 on Creek Dr.; and B-5 on 49th Ct. S.) were drilled and sampled to a termination depth of 10 feet each below the existing ground level by a two-man drill crew from SEECO Consultants, Inc. with a truck mounted Diedrich D-50 drill rig on October 6, 2025. The soil borings for this project were performed at the approximate locations indicated on the **Boring Location Plan** given in the **Appendix** of this report. The soil borings were laid out in the field by a representative from SEECO Consultants, Inc. at the approximate locations selected by Mr. T. Scott Creech, P.E. of HR Green, Inc., and as shown on the **Boring Location Plan** given in the **Appendix** of this report. No approximate ground surface elevations at each boring could be estimated as this project is in a preliminary phase, and plans and profiles for the new utility lines and roadways are not yet available per HR Green, Inc. at this time (January 6, 2026).

All nine (9) soil borings (B-1 through B-9) were drilled and sampled by a 2-man drill crew from SEECO Consultants, Inc. utilizing a truck-mounted rotary-type Diedrich (Model D-50) drill rig which advances the borehole by the hollow stem auger method. The soil samples were obtained utilizing a split spoon sampler in accordance with ASTM D 1586-18. In the split barrel sampling procedure, a split spoon sampler having a two-inch outside diameter and inside diameter of 1-3/8 inches and a length of two feet is driven into the soil. The sampler is advanced by driving with a 140-pound weight falling freely from a height of 30 inches with Standard Penetration Resistance being recorded as the number of blows required to advance the sampling spoon a distance of 12 inches after an initial driving of six inches has been used to

seat the sampler. The standard penetration blow counts are for last two 6 inches increments of driving the split spoon which is indicated on the **Boring Log** in the **Appendix** of this report. This “N” value is a measure of the consistency of a clay soil or the relative density of primarily cohesionless soils and is in general related to the bearing capacity of the material. Representative portions of the split spoon samples were placed in glass containers with screw-type lids and taken to our geotechnical laboratory for further examination and testing.

Geotech Laboratory Testing Program

The geotechnical laboratory testing program consists of performing in-situ natural moisture content, visual classification of all soil samples and unconfined compressive strength tests on the basis of calibrated penetrometer readings on all cohesive soil samples.

In-situ moisture content or natural water content is determined in the Geotech laboratory as follows: (ASTM D 2216-19). A portion of each sample, consisting of a one-inch piece is weighed, oven-dried at $105^{\circ}\pm 5^{\circ}\text{C}$, and reweighed to obtain the weight of water in the sample. The moisture content is a ratio of the weight of water in the soil sample to the weight of the dry soil expressed as a percentage of the total dry weight of the soil sample.

After completion of the Geotech testing program, each soil sample was visually classified on the basis of texture and plasticity in accordance with the **Unified Soil Classification System** (ASTM D 2487-17 and D 2488-17). The estimated group symbol according to this system is included following the description of the soil on the **Boring Logs**. A brief explanation of the **Unified Soil Classification System** is included in the **Appendix** of this report. All laboratory test data is noted on the **Boring Logs** which are also included in the **Appendix** of this report.

Environmental Laboratory Soil Testing Program

A geoenvironmental engineer from SEECO Consultants, Inc. environmentally screened the soil samples in the SEECO Consultants Inc. Geotech laboratory using an RKI-GX-6000 4 GAS METER Photo-Ionization Detector (PID) in conjunction with visual and olfactory observations to determine the presence of petroleum contamination in the subsurface soils. The PID reading results for the soil samples of the nine soil borings (B-1 through B-9) were 0.0 ppm with no petroleum odors or staining observed. The PID reading values are presented on the **Boring Logs** given in the **Appendix** of this report. Based on the PID readings and visual and olfactory observations, it is determined that the soil samples are not contaminated with volatile organic

compounds at the location of the boreholes drilled and sampled for this exploration. Any statements in this report or on the boring logs regarding odors, colors, or unusual or suspicious items or conditions are strictly for the information of the client.

Site Soil Conditions

The general site soil profile according to descending depths at this project site is as follows:

1. All Soil Borings B-1 to B-6 encountered approximately 3.5 to 5 inches of bituminous concrete pavement which was underlaid by 6 to 18.25 inches of gray crushed stone base course.
2. Underneath the asphalt pavement, Borings B-1 through B-9 encountered various clay fills consisting generally of hard to very stiff dark gray clay fill, very stiff brown and gray little dark gray clay fill, very stiff dark gray and gray clay fill, to depths varying from 3.5 feet to 10 feet below the existing ground level.
3. Underneath the clayey fills, Boring B-3 encountered medium dense brown and gray clayey sand, underlaid by very stiff brown and gray clay and medium dense brown and gray sand to the termination depth of 10 feet below the existing ground level.
4. Underneath the clayey fills, Boring B-4 encountered medium dense brown and gray silty sand, underlaid by medium dense brown and gray sand to the termination depth of 10 feet below the existing ground level.
5. Underneath the clayey fills, Borings B-5 and B-7 encountered medium dense brown and gray silty sand to depths of 6 feet and 8.5 feet respectively, underlaid by very stiff brown and gray clay and very stiff dark gray clay respectively, to the termination depth of 10 feet below the existing ground level.
6. Underneath the clayey fill, Boring B-8 encountered very stiff gray, little brown clay to the termination depth of 10 feet below the existing ground level.
7. Underneath the clayey fill, Borings B-6 and B-9 encountered very stiff black and dark gray clay topsoil to the depth of 6 feet below the existing ground level. Below this clay topsoil, Borings B-6 and B-9 encountered very stiff brown and gray clay to depths of 9 feet and 8.5 feet respectively. Then, medium dense brown and gray silty sand and stiff gray clay are encountered in Borings B-6 and B-9, respectively, to the termination depth of 10 feet below the existing ground level.

It is recommended that the **Borings Logs** in the **Appendix** of this report be referred for the detail site soil conditions encountered in each of the soil borings.

Site Groundwater Conditions

Groundwater was not encountered in any of the nine (9) soil borings (B-1 through B-9) drilled and sampled to a termination depth of 10 feet at this project site during this subsurface exploration of October 6, 2025, while drilling, sampling, and after the removal of the hollow stem augers from the boreholes. However, daily, monthly, yearly and seasonal fluctuations in the groundwater levels are possible due to changes in hydrogeological conditions at this site over time.

ENGINEERING ANALYSIS AND RESULTS

Water Main Installation Using Open-Cut Method

New 8-inch diameter water main ductile iron pipes are proposed to replace along a preferred alignment the existing water main pipes throughout the Commonwealth Subdivision at the project site. The proposed 8-inch diameter DIP watermain will be provided with a minimum 5 feet of vertical cover from the existing ground level to the DIP watermain crown. In order to limit the footprint area of the excavation on the ground surface for the proposed water main, the proposed water main should be installed using open cut trench method of excavation with trench protection box. The construction recommendation for open cut trench method with trench box protection procedure is given in this report.

Since clayey fills and virgin clay soils were primarily encountered within the nine soil borings drilled and sampled at this project site, and the clay glacial till soils generally have resistivity values of 500 to 1200 Ohm.cm which is corrosive to ductile iron pipe, therefore, it is recommended that the proposed 8-inch diameter DIP watermain should be wrapped with polyethylene wrap for corrosion protection. It is recommended to use polyethylene wrap based on the life cycle analysis in which polyethylene wrap lasts exponentially longer than manufacture zinc coatings according to Ductile Iron Pipe Research Association (DIPRA).

The anticipated proposed water main invert depth will be approximately 5.67 feet below the existing pavement ground level. Bedrock was not encountered in the Soil Borings drilled and sampled to a termination depth of 10 feet at this project site on October 6, 2025, below the existing ground level. Therefore, bedrock excavation is not anticipated for the proposed watermain replacement. See the following **Table No. 1: Anticipated Soil Conditions at the Watermain Invert Depth** for more information on the type of soil at the proposed pipe invert depths.

Table No. 1: Anticipated Soil Conditions at the Watermain Invert Depth

Boring No	Name of Street	Approximate Depth to Top of the Watermain b.e.g.l.* (feet)	Approximate Depth of the Watermain Invert b.e.g.l. (feet)	Type of Soil to be Encountered at the Proposed Location of Watermain Invert
B-1	Commonwealth Ave.	5	5.67	Hard to Very Stiff Dark Gray Clay Fill
B-2	Commonwealth Ave.	5	5.67	Hard to Very Stiff Dark Gray Clay Fill (A-6)
B-3	Commonwealth Ave.	5	5.67	Medium Dense Brown and Gray Clayey Sand (A-2-6)
B-4	Creek Dr.	5	5.67	Very Stiff Gray and Dark Gray Clay Fill (A-6)
B-5	49 th Ct. S.	5	5.67	Medium Dense Brown and Gray Silty Sand (A-2-6)
B-6	Creek Dr.	5	5.67	Very Stiff Black Clay Topsoil (A-7-5)
B-7	Commonwealth Ave.	5	5.67	Very Stiff Dark Gray and Gray Clay Fill (A-6)
B-8	Commonwealth Ave.	5	5.67	Very Stiff Dark Gray, Trace Brown and Gray Clay Fill
B-9	Commonwealth Ave.	5	5.67	Very Stiff Black and Dark Gray Clay Topsoil (A-7-5)

*b.e.g.l.= below existing ground level

Except for the areas of Borings B-6 and B-9, the soils at the bottom of the excavation for the proposed watermain trenches in the location of these borings are suitable, and the pipe bedding material can be placed directly on these soils. Since Borings B-6 and B-9 encountered approximately 1.5 feet of buried clay topsoil from approximately 4.5 to 6 feet below the existing ground level at each boring, selective undercut in an excavate-refill scheme with undercut excavation up to approximately 2 feet (below the proposed water main invert depth of 5.67 feet below the existing ground level) is recommended until suitable bearing soils consisting of virgin very stiff brown and gray clay (in Borings B-6 and B-9) are encountered. The undercut excavation should be then refilled with compacted select engineered granular fill IDOT CA-6

crushed stone as per Illinois Standard Specifications for Road and Bridge Construction, 2022 Edition, and be placed in maximum eight-inch loose lifts with each lift compacted to a minimum of 95% of the maximum dry density in accordance with ASTM D 1557 (Modified Proctor Test). Then, the pipe bedding material can be placed on the compacted select engineered granular fill.

Braced Excavations for Water Main Installation

Any excavation that extends greater than five (5) feet in depth should be designed in accordance with the U.S. Department of Labor, Occupational Safety and Health Administration 1989 (OSHA) "Occupational Safety and Health Standards – Excavations; Final Rule" 29 CFR, Part 1926 Subpart P. Since the depth of excavation will be greater than 5 feet for the proposed water main improvements, open cut excavation with vertical side walls will not be safe. Therefore, it is recommended that the trench excavations should be braced. The trench excavation with accompanying steel trench protection box should not have major problems when excavating for the proposed water main.

The trench box is introduced into the trench and protects personnel in the trench and the work under construction from damage or injury which might be caused by the collapse of the trench sidewalls. The trench box is designed to brace the two (2) parallel walls of the trench against each other. The walls of the box are constructed from sheet steel, usually double wall thickness, with a diaphragm between the two (2) sheets to provide structural rigidity. The pipe is laid inside the box after placing the bedding material and the men at the bottom of the trench join the pipe. The trench box is advanced as the excavation is dug and backfill material is placed.

The pre-fabricated steel trench protection box can be used for this project in order to protect personnel in the trench during construction and must conform to OSHA CFR 29, Part 1926, Subject P, July 1997, and keep the work under construction from damage or personnel injury which might be caused by the collapse of the trench sidewalls.

The trench box should be designed for lateral earth pressure based on the apparent lateral earth pressure distribution for braced excavations based on Peck's criteria for stiff clays. The soil conditions at this project site are mostly very stiff cohesive clayey soils, and the minimum live load surcharge from construction equipment should be considered to be 600 psf per running foot of bracing. The anticipated approximate depths of the water main inverts will be 5.67 feet. However, lateral earth pressure diagram is provided to 10 feet below the existing ground level for the proposed watermain. For trench excavations, the steel trench box sidewalls and struts

should be capable of resisting an approximate maximum lateral earth pressure of 820 psf per foot of length (for maximum 10-foot depth) of lateral earth pressure in comparison with the trench box allowable structural lateral pressure capacity. Refer to the **Apparent Lateral Earth Pressure Diagram for Trench Protection Box Design in Clayey Soils** for excavation depths 10 feet or less as given in the **Appendix** of this report. The utility contractor is responsible for the design of the trench protection box.

The parallel walls of the box are braced apart by adjustable pipe struts. The adjustment permits the use of the box in trenches of different widths. The box is open at both ends. The rear opening permits movement of the box along the trench while allowing passage of the completed pipe utility out of the back of the box. The front of the box is open to permit dragging the box forward through unstable ground. The top of the box is open to permit introduction of the pipe bedding and new portion of the pipe into the trench. The bottom of the box is open to permit placement of trench bedding directly on the bottom of the trench.

Trench boxes must not only be wide enough to permit the introduction of the required utility pipe or conduit together with the specified sidewall backfill cover, but also wide enough to permit passage of the backhoe bucket into the box to clean the base or bottom of the trench. Trench boxes are dragged forward by the backhoe (a hydraulic excavator) digging the trench on the front side. The backhoe hooks its bucket behind the leading pipe strut and pulls the box toward itself.

The stability of the bottom of trench excavation is controlled by the type of soil at the bottom of the trench and its underlying soils of the excavation trench. For the proposed water mains, the bottom of an excavation in the very stiff brown and gray clay or very stiff dark gray clay fill (depending on the areas) is stable for failure by plastic clay bottom heave since the bottom heave Factor of Safety is greater than 1.5 for the proposed temporary water main trench excavation.

For conventional open cut and cover excavation construction, the following bedding and trench backfill recommendations are applicable for the proposed water main improvements project.

Pipe Bedding

Bedding material should comply with Article 1003.04 of the IDOT Standard Specifications for Road and Bridge Construction, 2022 Edition. The bedding material should be a well-graded

granular material equivalent to IDOT FA-1, FA-2 or FA-6. A minimum 4.0 inches of bedding material is required to be placed below the water mains. The bedding material must be placed in maximum 4.0-inch loose lifts and compacted to a minimum 95% of the maximum density according to AASHTO T-99. The placement of bedding material must comply with Article 550.04 of the IDOT Standard Specifications for Road and Bridge Construction, 2022 Edition.

Trench Backfill

The soils excavated from the water main trenches cannot be used as backfill of the trenches under driveways, roads or street pavements. The approved granular trench backfill material should be placed in maximum eight-inch loose lifts with each lift compacted to a minimum of 95% of maximum density as per AASHTO T-99 to the proposed subgrade of the street. Trench backfill material should be FA-1, FA-2, FA-6 or CA-6 of the IDOT Standard Specifications for Road and Bridge Construction, 2022 Edition. However, the final one foot of trench backfill should be compacted to 100% of maximum density as obtained according to AASHTO T-99.

Cold Mill Surface and Overlay Recommendation

Per Mr. T. Scott Creech, P.E., a cold mill surface and overlay pavement scheme will be utilized for the pavement rehabilitation along Commonwealth Avenue, Creek Drive, 49th Court North and 49th Court South at this project site. The pavement rehabilitation will consist of cold milling off 2 inches of existing bituminous concrete pavement and replacing it with 2 inches of compacted Hot Mix Asphalt (HMA) surface course pavement placed and compacted per the “Standard Specifications for Road and Bridge Construction, January 1, 2022 Edition. If any potholes are found to need patching, the existing pavement will be patched with a Class D – 6” Patch at appropriate locations.

The existing pavement is approximately 3.5 to 5 inches (average of 4.08 inches) of bituminous concrete pavement sufficient thickness for cold milling off 2” of bituminous concrete overlying approximately 6 inches to 18.25 inches (average of 14.36 inches) of crushed stone base course. Also, the existing hard/very stiff dark gray clay fill, and very stiff dark gray and gray clay fill subgrade below the existing pavement are suitable as subgrade.

Site Preparation for Cold Mill and Overlay Pavement

The thickness of the existing pavement section encountered at each boring location is summarized in the following **Table No. 2**.

Table No. 2: Existing Pavement Conditions

Boring No	Name of Street	Approximate Thickness of Bituminous Concrete Pavement (inches)	Approximate Thickness of Crushed Stone Base Course (inches)
B-1	Commonwealth Ave.	5	6
B-2	Commonwealth Ave.	3.5	10.5
B-3	Commonwealth Ave.	4.5	16.5
B-4	Creek Dr.	4	10
B-5	49 th Ct. S.	4	18
B-6	Creek Dr.	3.75	18.25
B-7	Commonwealth Ave.	4	17
B-8	Commonwealth Ave.	4	17
B-9	Commonwealth Ave.	4	16

For the bituminous pavement cold mill and overlay scheme for the proposed improvements to Commonwealth subdivision, it is recommended that the cold milled 2-inch existing bituminous concrete pavement (the existing bituminous drives and parking lots) be hauled off to an asphalt batch plant for recycling. The cold milled surface should be power broomed and air blasted/vacuum to remove any dust, debris, and any substance that would prevent the new bituminous material from adhering to the existing cold milled surface. The cold milled surface should also be free of standing water. Next, before the new HMA surface course is placed and compacted, a tack coat should be applied to the existing surface of the exposed cold milled asphalt pavement. The tack coat type should be from the table on Note 1 of the Section 406.02 as defined in Article 406 Hot-Mix Asphalt Binder and Surface Course of the “Standard Specifications for Road and Bridge Construction”, January 1, 2022 Edition. The tack coat application rate should result in a residual asphalt rate on the prepared surface of 0.05 lb/ft² per section 406.05 (c)(1) of the “Standard Specifications for Road and Bridge Construction”, January 1, 2022 Edition.

Pavement Design Recommendations

For the new proposed flexible pavement, the HMA surface course should consist of bituminous concrete mixtures as defined in Section 1030. Hot Mix Asphalt of the State of Illinois “Standard Specifications for Road and Bridge Construction,” January 1, 2022 Edition. The HMA surface

course should be compacted to a minimum 93% and maximum 97% theoretical density as determined by AASHTO T 209-20. This is the IDOT Big “D” value which is used with the nuclear density testing of the asphalt in order to determine the percentage of in place compaction achieved in the field.

Other Pavement Design Considerations

PETROMAT may be placed on top of the cold milled section, if needed, to retard any reflective cracking that may occur from the existing cold milled bituminous base course, if desired. In addition, if areas of the existing pavement are alligator cracked (stress cracked) all the way through the existing pavement section thus resulting in a deteriorated or non-stable base (i.e. exposed cold milled surface), a discrete HMA patch may be needed to replace the pavement in these select pavement areas. The “Standard Specifications for Road and Bridge Construction”, January 1, 2022 Edition should be referred to if the PETROMAT or HMA patches are to be utilized.

Routine Maintenance

SEECO Consultants, Inc. recommends that a routine maintenance program is implemented to help extend the life of the resulting bituminous pavement (cold mill and overlay). This would include an inspection of the pavement areas at least once a year, preferably in April/May after the ground has thawed out from winter frost and any deterioration from winter plowing equipment can be more readily identified. Any cracks should be filled to prevent deterioration such as water getting in them and causing bigger cracks when they expand in volume when the water freezes. In addition, seal coating the bituminous pavement every 3 to 5 years depending on the need is good practice to seal cracks and maintain an aesthetically pleasing pavement appearance. Lastly any deteriorated pavement segments over time should be removed and replaced with an HMA patch. Failure to do any yearly inspection and maintenance may result in a shortened pavement life.

Potential Construction Problems

No groundwater was encountered in any of the nine (9) soil borings (B-1 through B-9) drilled and sampled to a termination depth of 10 feet at this project site during this subsurface exploration of October 6, 2025. Thus, the groundwater problem will generally be minimal based

on these soil borings, where excavating for the proposed watermain installation. However, during the rainy season and under normal conditions, surface runoff and seepage water that may accumulate overnight or momentarily in the excavation trenches can be removed by means of standard sump and pump procedures. Construction dewatering and excavation schemes are the sole responsibility of the installing utility contractor.

Any excavation that extend greater than five feet in depth should be designed in accordance with U.S. Department of Labor, Occupational Safety and Health Administration 1989 (OSHA) "Occupational Safety and Health Standards-Excavations; Final Rule" 29 CFR, Part 1926, Subpart P. Excavations with properly sloped or braced excavation earth retention systems (such as trench boxes) to prevent excavation instability and to provide safety are the responsibility of the utilities contractor. Also, the means and methods of excavating the soil materials are at the discretion of the utilities contractor, and are the responsibility of the utilities contractor.

Construction Consultation Engineering

A Field Engineering Technician or Field Geotechnical Engineer from SEECO Consultants Inc. should be present during the utilities excavation operations to ensure compliance with the specifications during construction. Field density tests to determine the degree of trench backfill compaction should be performed by a Field Engineering Technician or Field Geotechnical Engineer from SEECO Consultants Inc. once the watermain pipes are installed and the backfilling begins.

For pavement rehabilitation, field density tests to determine the degree of compaction of the new HMA surface course should be performed by a Field Engineering Technician or Field Materials Engineer from SEECO Consultants Inc. during onsite construction.

Closing remarks

We trust this report and the information contained herein is sufficient for your present requirements. We have welcomed the opportunity to be of service to you on this project. If there are any questions regarding this report, please contact us at your convenience.

Respectfully submitted,

SEECO Consultants, Inc.



Cocou D. Ruben Aza-Gnandji, PhD
Staff Geotechnical Engineer

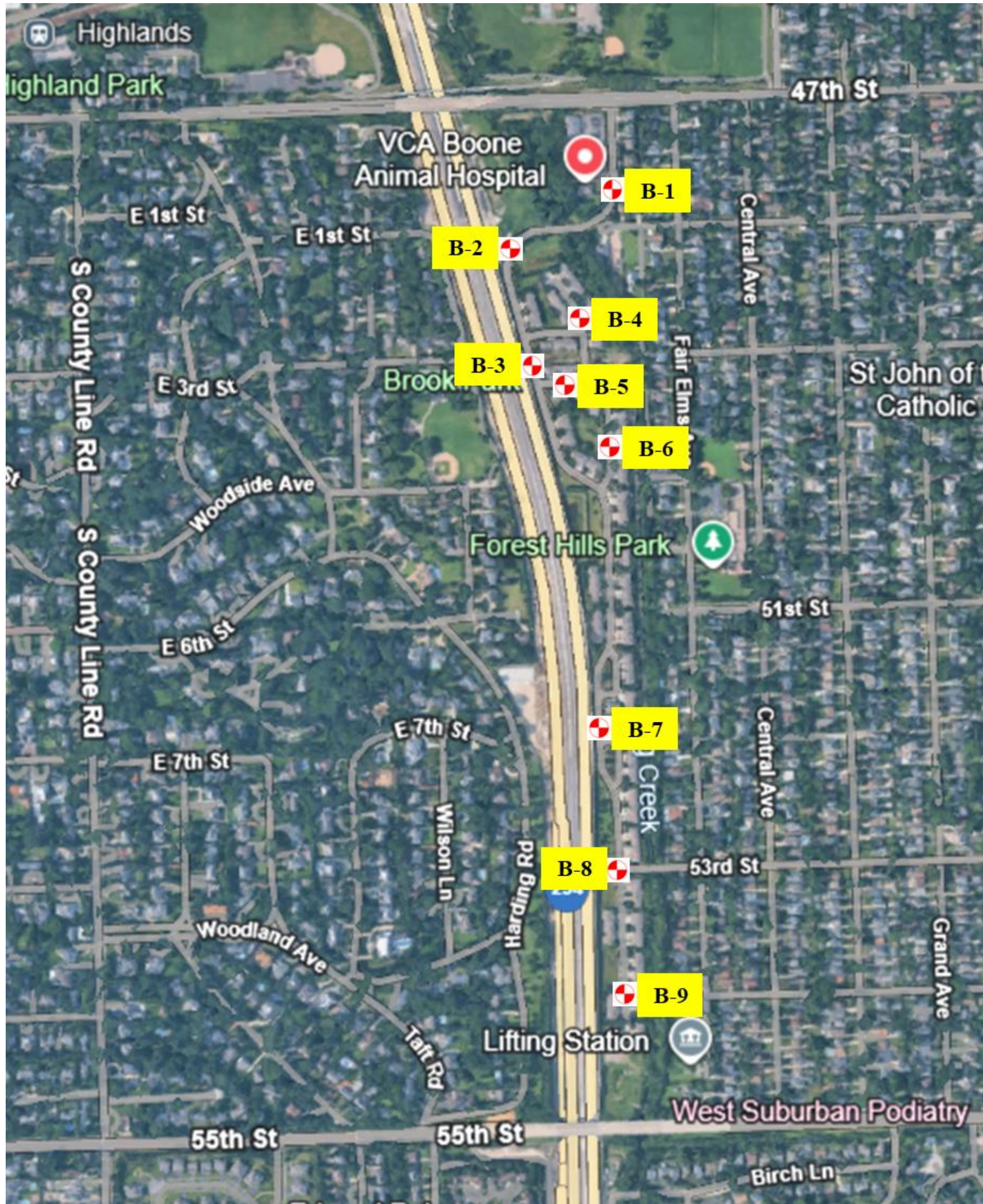


Collin W. Gray, S.E., P.E.
President

APPENDIX


1. BORING LOCATION PLAN
2. GENERAL NOTES
3. BORING LOGS
4. UNIFIED CLASSIFICATION
5. APPARENT LATERAL EARTH PRESSURE
DIAGRAM FOR TRENCH PROTECTION BOX DESIGN IN
CLAYEY SOILS ($H \leq 10$ FEET DEEP)
6. PROJECT SITE PRELIMINARY PLANS
7. GENERAL REMARKS

APPENDIX 1



LEGEND

 APPROXIMATE BORING LOCATION

<i>DRAWN BY</i> CA	<i>APPROVED</i> CWG	<i>DATE</i> 01/05/2026	BORING LOCATION PLAN
<i>SCALE</i> N.T.S.	<i>FIGURE</i> 1 of 1	<i>JOB No</i> 13921G	
 SEECO Consultants, Inc. 7350 DuVan Drive, Tinley Park, Illinois 60477 OFFICE: (708) 429-1666 FAX: (708) 429-1689			<i>CLIENT</i> HR Green, Inc.
<i>PROJECT NAME & LOCATION</i> Proposed Improvements to Commonwealth Subdivision Western Springs, IL			

APPENDIX 2

DRILLING AND SAMPLING SYMBOLS

SS	SPLIT SPOON	1-3/8" I.D. x 2" O.D. (EXCEPT WHERE NOTED)
2T	THINWALL TUBE SAMPLER	2" O.D. x 1-7/8" I.D.
3T	THINWALL TUBE SAMPLER	3" O.D. x 2-7/8" I.D.
3P	PISTON SAMPLER	3" O.D. THINWALL TUBE
FA	CONTINUOUS FLIGHT AUGER	4" O.D.
HS	HOLLOW STEM AUGER	6-3/4" O.D. x 3-1/4" I.D.
HA	HAND AUGER	
RB	ROLLER ROCK BIT	
FT	FISHTAIL BIT	
DB	DIAMOND BIT	
AX	ROCK CORE	1-3/16" DIAMETER
BX	ROCK CORE	1-5/8" DIAMETER
NX	ROCK CORE	2-1/8" DIAMETER
AS	AUGER SAMPLE	
WS	WASH SAMPLE	
CA	COMBINED ANALYSIS	
SA	SIEVE ANALYSIS	

Standard "N" Penetration: Blows per foot of a 140 pound hammer falling 30 inches on a two inch O.D. split spoon, except where noted.

WATER LEVEL MEASUREMENT SYMBOLS

<u>▼</u>	WATER LEVEL OBSERVATION	WD	WHILE DRILLING
WCI	WET CAVE-IN	BCR	BEFORE CASING REMOVAL
DCI	DRY CAVE-IN	ACR	AFTER CASING REMOVAL
WS	WHILE SAMPLING	AB	AFTER BORING

Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. In pervious soils, the indicated elevations are considered reliable groundwater levels. In impervious soils, the accurate determination of groundwater elevations are not possible in even several days observation, and additional evidence on groundwater elevations must be sought.

SOIL IDENTIFICATION TERMINOLOGY

COHESIONLESS SOILS

<u>COMPONENT</u>	<u>SIZE RANGE</u>	<u>DESCRIPTIVE TERM</u>	<u>PERCENT OF WEIGHT</u>
BOULDERS	OVER 8"	TRACE	0 – 10
COBBLES	8" TO 3"	LITTLE	10 – 20
GRAVEL	3" TO #4 SIEVE (4.75 mm)	SOME	20 – 35
SAND	#4 TO #200 SIEVE (0.074 mm)	AND	35 – 50
SILT	PASSING #200 SIEVE (0.074 mm)		

SOIL IDENTIFICATION TERMINOLOGY (Cont'd)

COHESIVE SOILS

<u>DESCRIPTIVE TERM</u>	<u>PLASTICITY INDEX</u>
CLAYEY SILT OR ORGANIC CLAYEY SILT	4 – 7
SILTY CLAY OR ORGANIC SILTY CLAY	8 – 30
CLAY OR ORGANIC CLAY	> 30

INTERMEDIATE SOILS

<u>DESCRIPTIVE TERM</u>	<u>PLASTICITY INDEX</u>
SILT	0 – 3

Unconfined compression tests are generally not applicable for intermediate soils.

CONSISTENCY OF COHESIVE SOILS

RELATIVE DENSITY OF GRANULAR SOILS

1-3/8" I.D. x 2" O.D. with 140 pound hammer falling 30"

UNCONFINED COMP. STRENGTH, Qu, TSF

CONSISTENCY

N – BLOWS/FT.

RELATIVE DENSITY

<0.25	VERY SOFT	0 – 3	VERY LOOSE
0.25 - 0.49	SOFT	4 – 9	LOOSE
0.50 - 1.00	MEDIUM	10 – 29	MEDIUM DENSE
1.01 - 1.99	STIFF	30 – 49	DENSE
2.00 - 3.99	VERY STIFF	50 – 80	VERY DENSE
4.00 - 8.00	HARD	>80	EXTREMELY DENSE
>8.00	VERY HARD		

CONSISTENCY OF COHESIVE SOILS

N – BLOWS/FT.

RELATIVE DENSITY

0 – 2	VERY SOFT
2 – 4	SOFT
4 – 8	MEDIUM
8 – 15	STIFF
15 – 30	VERY STIFF
>30	HARD

APPENDIX 3

BORING LOG

CLIENT HR Green, Inc.	PROJECT Proposed Improvements to Commonwealth Subdivision
ENGINEER HR Green, Inc.	LOCATION Western Springs, IL

DEPTH ELEVATION	SAMPLE NO.	SAMPLER TYPE	SAMPLE REC. (%)	SOIL GRAPHIC LOG	BORING NUMBER B-1		OVM ppm	Unconfined Compressive Strength, Tons/Ft. ²					REMARKS	
					SURFACE ELEVATION (M.S.L.)			1	2	3	4	5		
					NORTHING	EASTING		PL		MC	LL			
					DESCRIPTION OF MATERIALS (LABORATORY CLASSIFICATION)			STD "N" PENETRATION BLOWS PER FT.						
								10	20	30	40	50		
				XXXX	5" BITUMINOUS CONCRETE PAVEMENT									
					6" CRUSHED STONE BASE COURSE, Gray									
1	SS		89		FILL: CLAY, Dark Gray, Trace Sand , Trace to Little Gravel, Trace Roots, Contains Glass Pieces, Hard to Very Stiff, Moist		0	⊗	×		●			
2.5														
2	SS		89				0	⊗		×				
5.0														
3	SS		89		FILL: CLAY, Brown and Gray, Little Dark Gray, Trace Sand, Little Gravel, Very Stiff, Moist (A-6)		0	⊗	×	●				
7.5														
4	SS		22		FILL: CLAY, Dark Gray, Trace Sand and Gravel, Contains Wood Pieces, Very Stiff, Moist (Low Recovery as a Piece of Wood Was Caught in Split Spoon Shoe, Driller's Observation)		0	⊗	×	●				
10.0					End of Boring at 10 Feet									
12.5					Notes: 1) All soil samples were screened with a RKI-GX-6000 4 GAS METER photo-ionization detector (PID) and by utilizing olfactory senses. No petroleum odors were detected in all samples and all PID = 0 ppm.									

● Calibrated Penetrometer Unconfined Compression

Water Level Observations			SEECO Consultants, Inc. 7350 Duvan Drive, Tinley Park, IL 60477 Approved GG Job No. 13921G			Boring Started		10/6/25			
W.L.						Boring Completed		10/6/25			
W.L. DRY WS/WD		DRY ACR				Driller		EN	Rig		D-50
W.L.						Approved GG		Job No. 13921G	Drawn By		CA

BORING LOG

CLIENT HR Green, Inc.	PROJECT Proposed Improvements to Commonwealth Subdivision
ENGINEER HR Green, Inc.	LOCATION Western Springs, IL

DEPTH ELEVATION	SAMPLE NO.	SAMPLER TYPE	SAMPLE REC. (%)	SOIL GRAPHIC LOG	BORING NUMBER B-2		OVM ppm	Unconfined Compressive Strength, Tons/Ft. ²					REMARKS															
					SURFACE ELEVATION (M.S.L.)			<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; text-align: center;">1</td> <td style="width: 20%; text-align: center;">2</td> <td style="width: 20%; text-align: center;">3</td> <td style="width: 20%; text-align: center;">4</td> <td style="width: 20%; text-align: center;">5</td> </tr> <tr> <td style="text-align: center;">PL</td> <td style="text-align: center;">MC</td> <td style="text-align: center;">LL</td> <td colspan="2"></td> </tr> <tr> <td style="text-align: center;">▲</td> <td style="text-align: center;">×</td> <td style="text-align: center;">▲</td> <td colspan="2"></td> </tr> </table>						1	2	3	4	5	PL	MC	LL			▲	×	▲		
					1	2		3	4	5																		
					PL	MC		LL																				
▲	×	▲																										
NORTHING		EASTING		STD "N" PENETRATION BLOWS PER FT.																								
DESCRIPTION OF MATERIALS (LABORATORY CLASSIFICATION)				<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; text-align: center;">10</td> <td style="width: 20%; text-align: center;">20</td> <td style="width: 20%; text-align: center;">30</td> <td style="width: 20%; text-align: center;">40</td> <td style="width: 20%; text-align: center;">50</td> </tr> </table>					10	20	30	40	50															
10	20	30	40	50																								
				⊗	3.5" BITUMINOUS CONCRETE PAVEMENT																							
				⊗	10.5" CRUSHED STONE BASE COURSE, Gray																							
	1	SS	89	⊗	FILL: CLAY, Dark Gray, Trace Sand and Gravel, Very Stiff, Moist (A-6) (Trace Brown at 1'-2.5')		0	⊗	×	●																		
2.5		HS																										
	2	SS	0	⊗	(No Sample at 3.5-5' as a Piece of Gravel Was Caught in Split Spoon Shoe, Driller's Observation) (Large Gravel at 4')		0	⊗																				
5.0		HS																										
	3	SS	78	⊗			0	⊗	●																			
7.5		HS																										
	4	SS	89	⊗			0	⊗	×	●																		
10.0																												
					End of Boring at 10 Feet																							
					Notes: 1) All soil samples were screened with a RKI-GX-6000 4 GAS METER photo-ionization detector (PID) and by utilizing olfactory senses. No petroleum odors were detected in all samples and all PID = 0 ppm.																							
12.5																												

● Calibrated Penetrometer Unconfined Compression

Water Level Observations			SEECO Consultants, Inc. 7350 Duvan Drive, Tinley Park, IL 60477			Boring Started		10/6/25			
W.L.						Boring Completed		10/6/25			
W.L. DRY WS/WD DRY ACR						Driller		EN	Rig		D-50
W.L.						Approved		GG	Job No.		13921G
			Drawn By		CA	Sheet		1 of 1			

BORING LOG

CLIENT HR Green, Inc.	PROJECT Proposed Improvements to Commonwealth Subdivision
ENGINEER HR Green, Inc.	LOCATION Western Springs, IL

DEPTH ELEVATION	SAMPLE NO.	SAMPLER TYPE	SAMPLE REC. (%)	SOIL GRAPHIC LOG	BORING NUMBER B-3		OVM ppm	Unconfined Compressive Strength, Tons/Ft. ²					REMARKS										
					SURFACE ELEVATION (M.S.L.)			<table style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <td style="width: 20%;">1</td> <td style="width: 20%;">2</td> <td style="width: 20%;">3</td> <td style="width: 20%;">4</td> <td style="width: 20%;">5</td> </tr> <tr> <td>PL ▲</td> <td></td> <td>MC ✕</td> <td></td> <td>LL ▲</td> </tr> </table>						1	2	3	4	5	PL ▲		MC ✕		LL ▲
					1	2		3	4	5													
					PL ▲			MC ✕		LL ▲													
NORTHING	EASTING	STD "N" PENETRATION BLOWS PER FT.																					
DESCRIPTION OF MATERIALS (LABORATORY CLASSIFICATION)		10	20	30	40	50																	
				XXXX	4.5" BITUMINOUS CONCRETE PAVEMENT																		
				XXXX	16.5" CRUSHED STONE BASE COURSE, Gray																		
1	SS	89		XXXX	FILL: CLAY, Dark Gray and Gray, Trace Sand and Gravel, Very Stiff, Moist (A-6)		0	✕	✕	●													
2.5				XXXX																			
				XXXX	CLAYEY SAND, Brown and Gray, Little Gravel, Medium Dense, Moist (A-2-6)		0	✕	✕														
2	SS	89		XXXX																			
5.0				XXXX																			
				XXXX	CLAY, Brown and Gray, Trace Sand and Gravel, Very Stiff, Moist (A-6)		0	✕	✕	●													
3	SS	89		XXXX																			
7.5				XXXX																			
				XXXX	SAND, Brown and Gray, Some Gravel, Medium Dense, Moist (A-1-b)		0	✕	✕														
4	SS	89		XXXX																			
10.0				XXXX	End of Boring at 10 Feet																		
12.5				XXXX	Notes: 1) All soil samples were screened with a RKI-GX-6000 4 GAS METER photo-ionization detector (PID) and by utilizing olfactory senses. No petroleum odors were detected in all samples and all PID = 0 ppm.																		

● Calibrated Penetrometer Unconfined Compression

Water Level Observations			SEECO Consultants, Inc. 7350 Duvan Drive, Tinley Park, IL 60477			Boring Started		10/6/25			
W.L.						Boring Completed		10/6/25			
W.L. DRY WS/WD DRY ACR						Driller		EN	Rig		D-50
W.L.						Approved		GG	Job No.		13921G
			Drawn By		CA	Sheet		1 of 1			

BORING LOG

CLIENT HR Green, Inc.	PROJECT Proposed Improvements to Commonwealth Subdivision
ENGINEER HR Green, Inc.	LOCATION Western Springs, IL

DEPTH ELEVATION	SAMPLE NO.	SAMPLER TYPE	SAMPLE REC. (%)	SOIL GRAPHIC LOG	BORING NUMBER B-4		OVM ppm	Unconfined Compressive Strength, Tons/Ft. ²					REMARKS
					SURFACE ELEVATION (M.S.L.)	+		1	2	3	4	5	
				4" BITUMINOUS CONCRETE PAVEMENT									
				10" CRUSHED STONE BASE COURSE, Gray									
1	SS	33		FILL: CLAY, Gray and Dark Gray, Trace Brown, Trace Sand and Gravel, Very Stiff, Moist (A-6)	0		X	X	●				
2.5		HS											
2	SS	78			0		X	X	●				
5.0		HS											
3	SS	78		SILTY SAND, Brown and Gray, Little Gravel, Medium Dense, Moist (A-2-4)	0		X	X					
7.5		HS											
4	SS	89		SAND, Brown and Gray, Trace Gravel, Medium Dense, Dry (A-1-b)	0		X	X					
10.0				End of Boring at 10 Feet									
12.5				Notes: 1) All soil samples were screened with a RKI-GX-6000 4 GAS METER photo-ionization detector (PID) and by utilizing olfactory senses. No petroleum odors were detected in all samples and all PID = 0 ppm.									

● Calibrated Penetrometer Unconfined Compression

Water Level Observations			SEECO Consultants, Inc. 7350 Duvan Drive, Tinley Park, IL 60477			Boring Started		10/6/25				
W.L.						Boring Completed		10/6/25				
W.L.	DRY WS/WD	DRY ACR				Driller	EN	Rig	D-50			
W.L.						Approved	GG	Job No.	13921G		Drawn By	CA

BORING LOG

CLIENT HR Green, Inc.	PROJECT Proposed Improvements to Commonwealth Subdivision
ENGINEER HR Green, Inc.	LOCATION Western Springs, IL

DEPTH ELEVATION	SAMPLE NO.	SAMPLER TYPE	SAMPLE REC. (%)	SOIL GRAPHIC LOG	BORING NUMBER		OVM	Unconfined Compressive Strength, Tons/Ft. ²					REMARKS
					B-6			1 2 3 4 5 ————— PL MC LL ▲ × ▲ STD "N" PENETRATION BLOWS PER FT. ————— 10 20 30 40 50					
				XXXX	3.75" BITUMINOUS CONCRETE PAVEMENT								
				XXXX	18.25" CRUSHED STONE BASE COURSE, Gray								
1	SS	89		XXXX	FILL: CLAY, Dark Gray, Trace Sand, Little Gravel, Hard, Moist (A-6)		0	8	X	●			
2.5	HS												
2	SS	89		XXXX	CLAY TOPSOIL, Black, Trace Sand and Gravel, Very Stiff, Wet (A-7-5)		0	8	X	●			
5.0	HS												
3	SS	89		XXXX	CLAY, Brown and Gray, Trace Sand and Gravel, Very Stiff, Moist (A-6)		0	8	X	●			
7.5	HS												
4	SS	89		XXXX	SILTY SAND, Brown and Gray, Trace Gravel, Medium Dense, Moist (A-2-4)		0	8	X	●			
10.0													
					End of Boring at 10 Feet								
					Notes: 1) All soil samples were screened with a RKI-GX-6000 4 GAS METER photo-ionization detector (PID) and by utilizing olfactory senses. No petroleum odors were detected in all samples and all PID = 0 ppm.								
12.5													

● Calibrated Penetrometer Unconfined Compression

Water Level Observations			SEECO Consultants, Inc. 7350 Duvan Drive, Tinley Park, IL 60477			Boring Started		10/6/25					
W.L.						Boring Completed		10/6/25		Driller		EN Rig	
W.L. DRY WS/WD DRY ACR						Approved		GG		Job No.		13921G	
W.L.			Drawn By		CA		Sheet		1 of 1				

BORING LOG

CLIENT HR Green, Inc.	PROJECT Proposed Improvements to Commonwealth Subdivision
ENGINEER HR Green, Inc.	LOCATION Western Springs, IL

DEPTH ELEVATION	SAMPLE NO.	SAMPLER TYPE	SAMPLE REC. (%)	SOIL GRAPHIC LOG	BORING NUMBER B-7		OVM ppm	Unconfined Compressive Strength, Tons/Ft. ²					REMARKS
					SURFACE ELEVATION (M.S.L.)	+		1	2	3	4	5	
					NORTHING	EASTING							
					DESCRIPTION OF MATERIALS (LABORATORY CLASSIFICATION)								
					4" BITUMINOUS CONCRETE PAVEMENT								
					17" CRUSHED STONE BASE COURSE, Gray								
1	SS	89			FILL: CLAY, Dark Gray and Gray, Little Sand and Gravel, Very Stiff, Moist (A-6)		0						
2.5	HS												
2	SS	89					0						
5.0	HS												
3	SS	89			SILTY SAND, Brown and Gray, Trace Gravel, Medium Dense, Moist (A-2-4)		0						
7.5	HS												
4	SS	89			CLAY, Dark Gray, Little Sand and Gravel, Very Stiff, Moist (A-6)		0						
10.0					End of Boring at 10 Feet								
12.5					Notes: 1) All soil samples were screened with a RKI-GX-6000 4 GAS METER photo-ionization detector (PID) and by utilizing olfactory senses. No petroleum odors were detected in all samples and all PID = 0 ppm.								

● Calibrated Penetrometer Unconfined Compression

Water Level Observations			SEECO Consultants, Inc. 7350 Duvan Drive, Tinley Park, IL 60477 Approved GG Job No. 13921G			Boring Started 10/6/25	
W.L.						Boring Completed 10/6/25	
W.L.	DRY WS/WD	DRY ACR				Driller EN	Rig D-50
W.L.						Drawn By CA	Sheet 1 of 1

BORING LOG

CLIENT HR Green, Inc.	PROJECT Proposed Improvements to Commonwealth Subdivision
ENGINEER HR Green, Inc.	LOCATION Western Springs, IL

DEPTH ELEVATION	SAMPLE NO.	SAMPLER TYPE	SAMPLE REC. (%)	SOIL GRAPHIC LOG	BORING NUMBER		OVM ppm	Unconfined Compressive Strength, Tons/Ft. ²					REMARKS
					B-8			1 2 3 4 5 ————○————— ————○—————					
					SURFACE ELEVATION (M.S.L.)			PL MC LL ▲ × ▲					
					NORTHING	EASTING		STD "N" PENETRATION BLOWS PER FT. ————○————— ————○—————					
				4" BITUMINOUS CONCRETE PAVEMENT 17" CRUSHED STONE BASE COURSE, Gray									
1	SS	78		FILL: CLAY, Dark Gray, Trace Brown and Gray, Little Sand and Gravel, Very Stiff, Moist	0	○ ×	○ ×	○ ×	○ ×	○ ×			
2.5	HS												
2	SS	89		(Trace Black at 3.5'-5') (Contains Glass Pieces at 3.5'-5')	0	○ ×	○ ×	○ ×	○ ×	○ ×			
3	SS	78			0	○ ×	○ ×	○ ×	○ ×	○ ×			
3.75	HS												
4	SS	89		CLAY, Gray, Little Brown, Trace Sand and Gravel, Very Stiff, Moist (A-6)	0	○ ×	○ ×	○ ×	○ ×	○ ×			
10.0				End of Boring at 10 Feet Notes: 1) All soil samples were screened with a RKI-GX-6000 4 GAS METER photo-ionization detector (PID) and by utilizing olfactory senses. No petroleum odors were detected in all samples and all PID = 0 ppm.									

Calibrated Penetrometer Unconfined Compression

Water Level Observations		SEECO Consultants, Inc. 7350 DuVan Drive, Tinley Park, IL 60477	Boring Started		10/6/25		
W.L.			Boring Completed		10/6/25		
W.L.	DRY WS/WD		DRY ACR	Driller	EN	Rig	D-50
W.L.			Approved	GG	Job No.	13921G	Drawn By CA

APPENDIX 4

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

ASTM Designation: D 2487-10

(Based on United Soil Classification System)

SEECO Consultants, Inc.

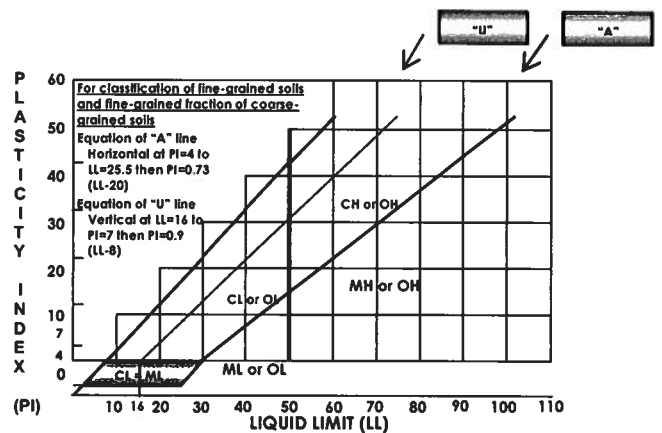
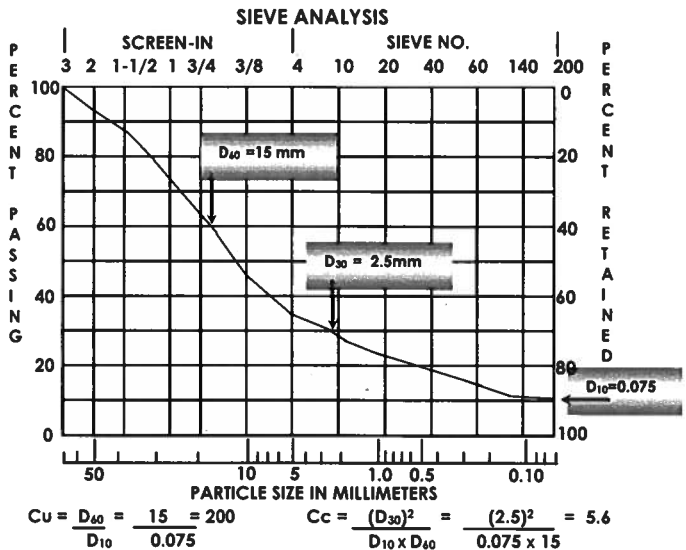
Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests^A

			Soil Classification			
			Group Symbol	Group Name ^B		
Coarse Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines ^C	$Cu \geq 4$ and $1 \leq Cc \leq 3^E$	GW	Well graded gravel ^F	
			$Cu \geq 4$ and/or $1 > Cc > 3^E$	GP	Poorly graded gravel ^F	
		Gravels with fines More than 12% fines ^C	Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}	
			Fines classify as CL or CH	GC	Clayey gravel ^{F, G, H}	
	Sands 50% or more of coarse fraction passes No. 4 sieve		$Cu \geq 6$ and $1 \leq Cc \leq 3^E$	SW	Well-graded sand ^I	
		Clean Sands Less than 5% fines ^D	$Cu < 6$ and /or $1 > Cc > 3^E$	SP	Poorly graded sand ^I	
		Sands with fines More than 12% fines ^D	Fines classify as ML or MH	SM	Silty sand ^{G, H, I}	
			Fines classify as CL or CH	SC	Clayey sand ^{G, H, I}	
	Fine-Grained Soils 50% or more passes the No. 200 sieve	Silts and Clays Liquid limit less than 50	Inorganic	$PI > 7$ and plots on or above "A" line ^J	CL	Lean clay ^{K, L, M}
				$PI < 4$ or plots below "A" line ^J	ML	Silt ^{K, L, M}
Organic			Liquid limit –oven dried <0.75	OL	Organic clay ^{K, L, M, N}	
			Liquid limit –not dried	OL	Organic silt ^{K, L, M, O}	
Silts and Clays Liquid limit 50 or more		Inorganic	PI plots on or above "A" line	CH	Fat clay ^{K, L, M}	
			PI plots below "A" line	MH	Elastic silt ^{K, L, M}	
		Organic	Liquid limit –oven dried <0.75	OH	Organic clay ^{K, L, M, P}	
			Liquid limit –not dried	OH	Organic silt ^{K, L, M, Q}	
Highly organic soils		Primarily organic matter, dark in color, and organic odor		PT	Peat	

^ABased on the material passing the three inch (75 MM) sieve
^BIf field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name
^CGravels with 5 to 12% fines require dual symbols:
 GW-GM well-graded gravel with silt
 GW-GC well-graded gravel with clay
 GP-GM poorly graded gravel with silt
 GP-GC poorly graded gravel with clay

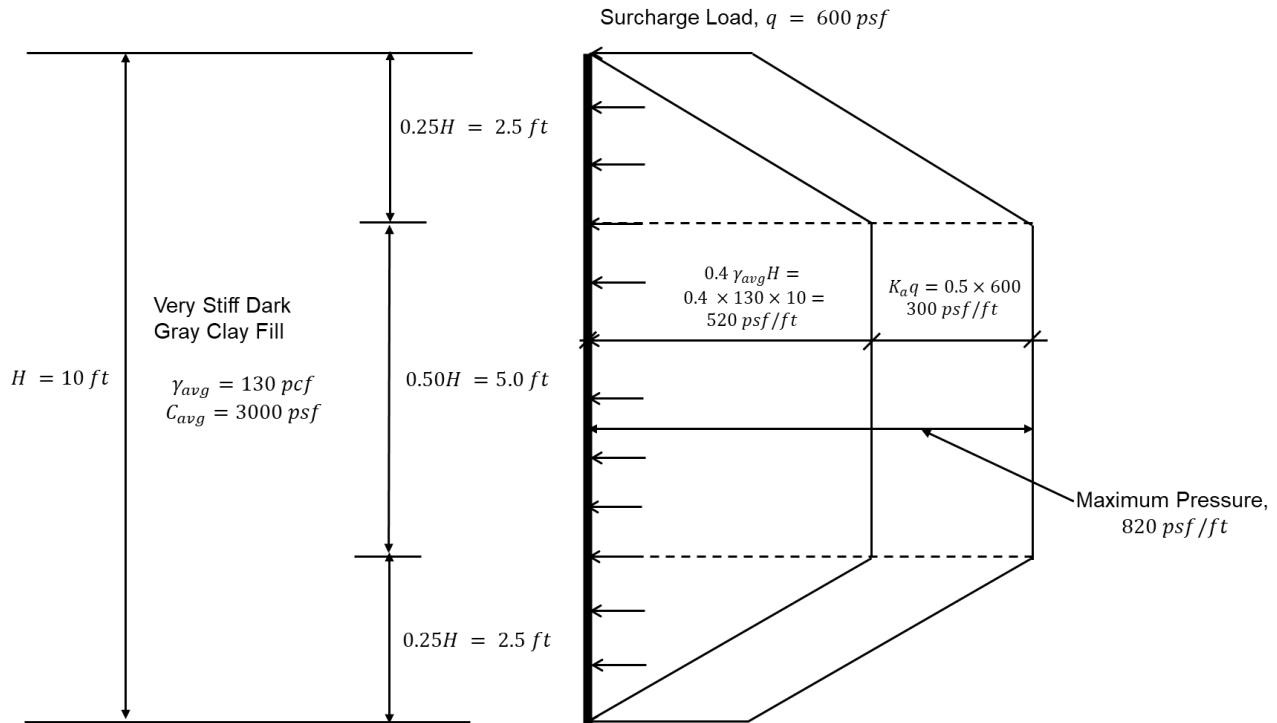
^DSands with 5 to 12% fines require dual symbols:
 SW-SM well-graded sand with silt
 SW-SC well-graded sand with clay
 SP-SM poorly graded sand with silt
 SP-SC poorly graded sand with clay
^E $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
^FIf soil contains $\geq 15\%$ sand, add "with sand" to group name
^GIf fines classify as CL-ML, use dual symbol GC-GM, or SC-SM
^HIf fines are organic, add "with organic fines" to group name
^IIf soils contains $\geq 15\%$ gravel, add "with gravel" to group name

^JIf Atterberg limits plot in hatched area, soil is a CL-ML, silty clay
^KIf soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant
^LIf soil contains $\geq 30\%$ plus No. 200, predominantly sand, add "sandy" to group name
^MIf soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name
^N $PI \geq 4$ and plots on or above "A" line
^O $PI < 4$ or plots below "A" line
^P PI plots on or above "A" line
^Q PI plots below "A" line



APPENDIX 5

Apparent Lateral Earth Pressure Diagram For Trench Protection Box Design in Clayey Soils ($H \leq 10$ Feet Deep)



Note: Pressure Diagram for a braced excavation through the clay is determined by equilibrium and by assuming the area is predeewatered to the bottom of the excavation

$$\gamma_{avg} = 130 \text{ pcf} \ \& \ C_{avg} = 3000 \text{ psf}$$

$$\frac{\gamma_{avg} H}{C_{avg}} = \frac{130 \times 10}{3000} = 0.433 \leq 4$$

$$\begin{aligned} \sigma_a &= 0.4 \gamma_{avg} H + K_a q \\ &= 0.4 \times 130 \times 10 + 0.50 \times 600 \\ &= 820 \text{ psf/ft} \end{aligned}$$

Assumption: Water table is below the bottom of excavation

<i>DRAWN BY</i> CA	<i>APPROVED</i> CWG	<i>DATE</i> 01/05/2026	APPARENT LATERAL BRACED EARTH PRESSURE DIAGRAM FOR TRENCH PROTECTION BOX DESIGN IN COHESIVE SOILS
<i>SCALE</i> N.T.S.	<i>FIGURE</i> 1 of 1	<i>JOB No</i> 13921G	<i>CLIENT</i> HR Green, Inc.
SEECO Consultants, Inc. 7350 Duvan Drive, Tinley Park, Illinois 60477 OFFICE: (708) 429-1666 FAX: (708) 429-1689			<i>PROJECT NAME & LOCATION</i> Proposed Improvements to Commonwealth Subdivision Western Springs, IL

APPENDIX 7

GENERAL REMARKS

This report has been prepared in order to aid in the evaluation of this property and to assist the architect and/or engineer in the design of this project. The scope is limited to the specific project and location described herein, and our description of the project represents our understanding of the significant aspects relevant to soil and foundation characteristics. In the event that any changes in the design or location of the building(s) as outlined in this report are planned, we should be informed so the changes can be reviewed and the conclusions of this report modified as necessary in writing by the geotechnical engineer. As a check, we recommend that we be authorized to review the project plans and specifications to confirm that the recommendations contained in this report have been interpreted in accordance with our intent. Without this review, we will not be responsible for misinterpretation of our data, our analysis, and/or our recommendations, nor how these are incorporated into the final design.

It is recommended that all construction operations dealing with earthwork and foundations be reviewed by an experienced geotechnical engineer to provide information on which to base a decision whether the design requirements are fulfilled in the actual construction. If you wish, we would welcome the opportunity to provide field construction services for you during construction.

The analysis and recommendations submitted in this report are based upon the data obtained from the soil borings performed at the locations indicated on the location diagram and from any other information discussed in this report. This report does not reflect any variations which may occur between these borings. In the performance of subsurface explorations, specific information is obtained at specific locations at specific times. However, it is a well-known fact that variations in soil and rock conditions exist on most sites between boring locations and also such situations as groundwater levels vary from time to time. The nature and extent of variations may not become evident until the course of construction. If variations then appear evident, it will be necessary for re-evaluation of the recommendations of this report after performing on-site observations during the construction period and noting the characteristics of any variations.

Appendix 6



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="13.0 ft"/>	<input type="text" value="15.0 ft"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

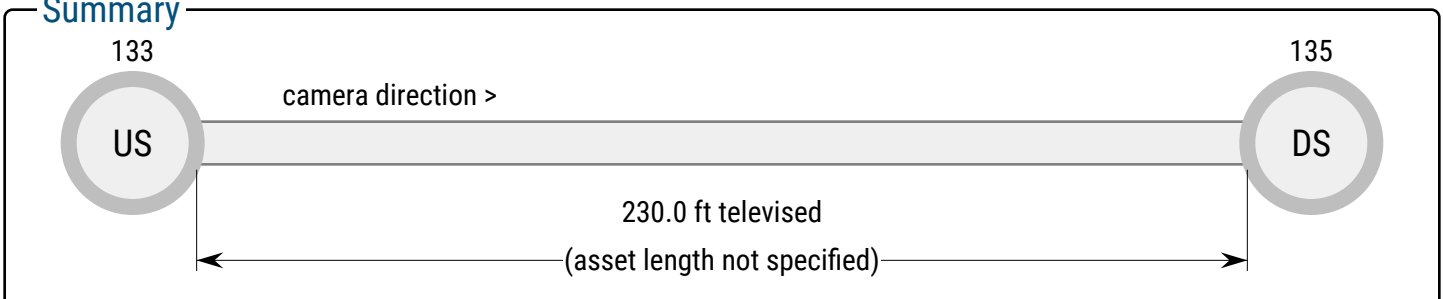
Location Code:

Location Details:

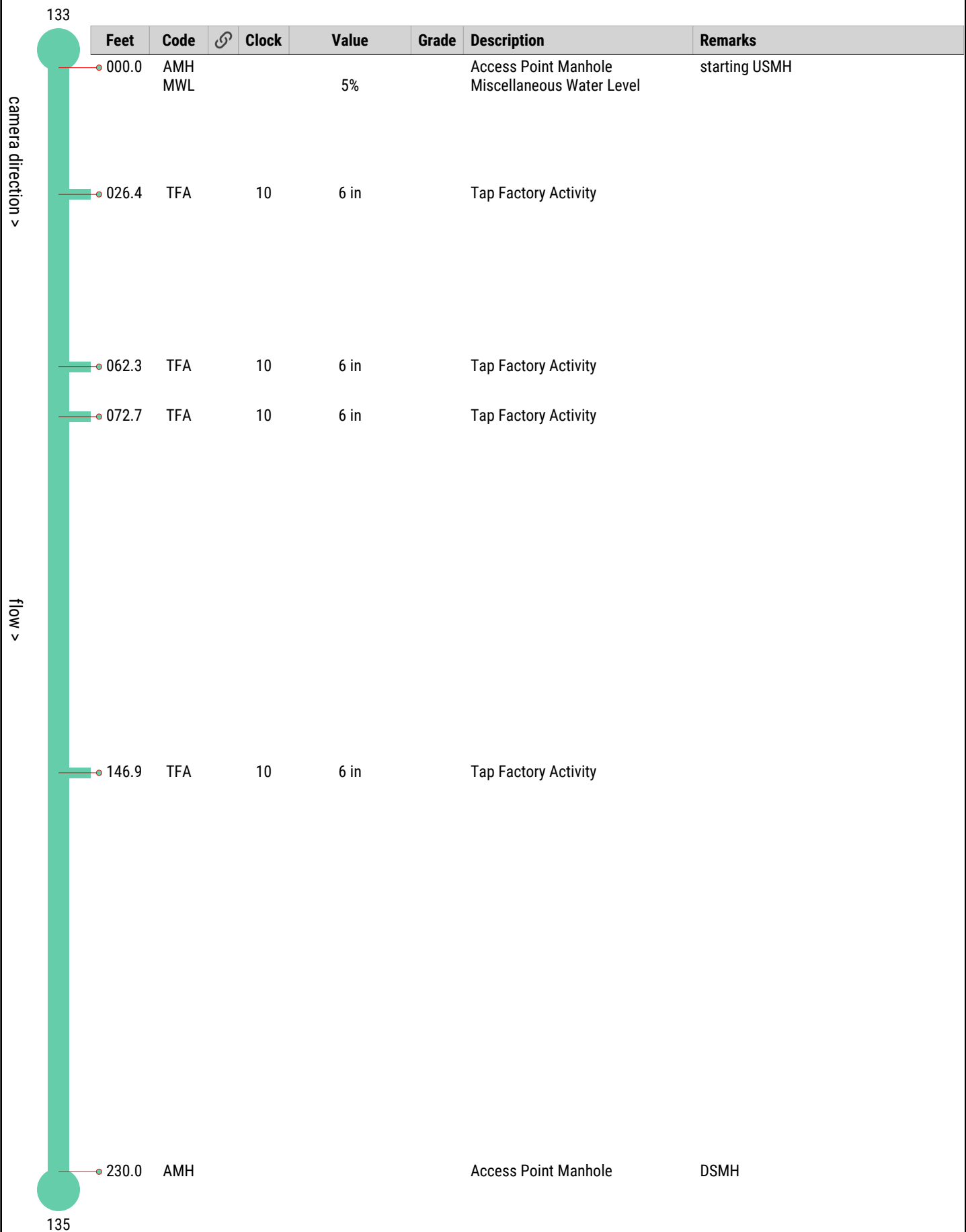
Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="0000"/>	<input type="text" value="0000"/>	<input type="text" value="0000"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Rating Index:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations



Snapshots



Access Point Manhole at 000.0 ft | starting USMH



Miscellaneous Water Level at 000.0 ft



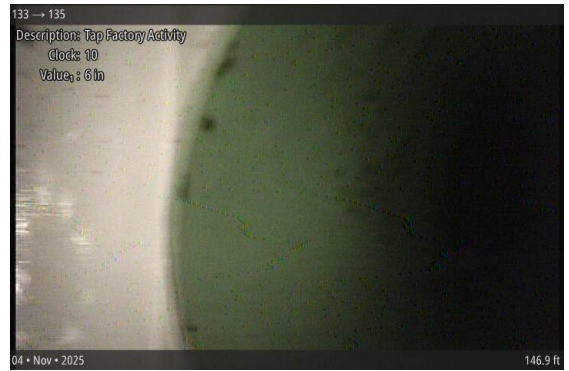
Tap Factory Activity at 026.4 ft, 10 o'clock



Tap Factory Activity at 062.3 ft, 10 o'clock



Tap Factory Activity at 072.7 ft, 10 o'clock



Tap Factory Activity at 146.9 ft, 10 o'clock



Access Point Manhole at 230.0 ft | DSMH



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="15.0 ft"/>	<input type="text"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

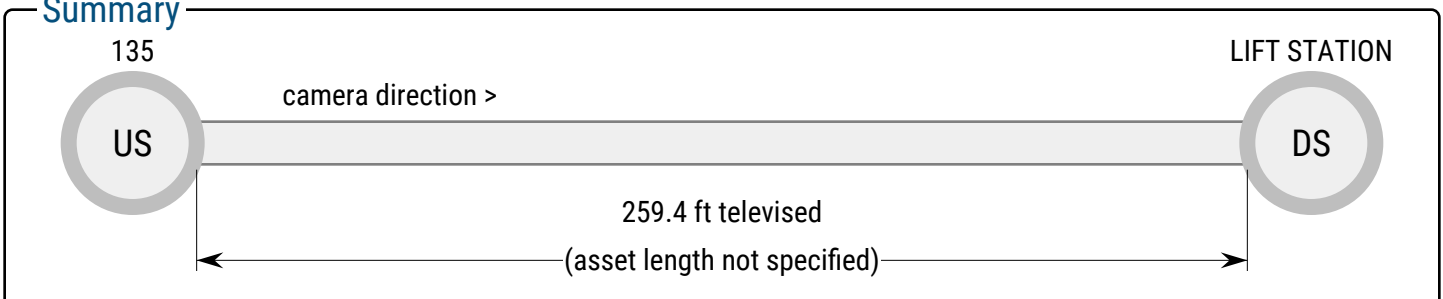
Location Code:

Location Details:

Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="0000"/>	<input type="text" value="4100"/>	<input type="text" value="4100"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="0"/>	<input type="text" value="4"/>	<input type="text" value="4"/>
Rating Index:	<input type="text" value="0"/>	<input type="text" value="4"/>	<input type="text" value="4"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations

135

camera direction >

flow >

Feet	Code	Clock	Value	Grade	Description	Remarks
------	------	-------	-------	-------	-------------	---------

000.0	AMH MWL		5%		Access Point Manhole Miscellaneous Water Level	starting USMH
-------	------------	--	----	--	---	---------------

153.1	TFA	10	6 in		Tap Factory Activity	
-------	-----	----	------	--	----------------------	--

259.4	MCU MSA				Miscellaneous Camera Underwater Miscellaneous Survey Abandoned	NO ACCESS TO LIFT STATION, CAMERA UNDER WATER, WAITED TO SEE IF LIFT STATION WOULD TURN ON AND DRAW WATER DOWN
-------	------------	--	--	--	--	--

4

LIFT STATION

Snapshots



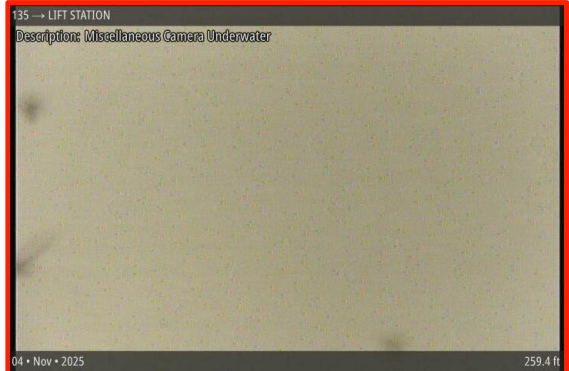
Access Point Manhole at 000.0 ft | starting USMH



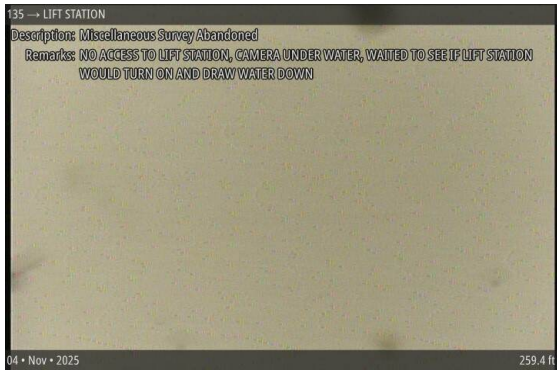
Miscellaneous Water Level at 000.0 ft



Tap Factory Activity at 153.1 ft, 10 o'clock



[Grade 4] Miscellaneous Camera Underwater at 259.4 ft



Miscellaneous Survey Abandoned at 259.4 ft | NO ACCESS TO LIFT STATION, CAMERA UNDER WATER,



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="14.0 ft"/>	<input type="text" value="14.0 ft"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

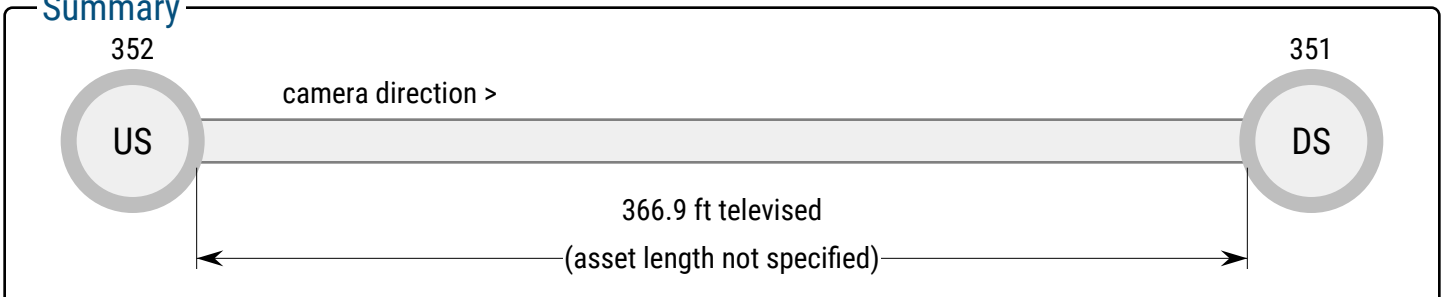
Location Code:

Location Details:

Ratings


	Structural	O & M	Overall
Quick:	<input type="text" value="0000"/>	<input type="text" value="0000"/>	<input type="text" value="0000"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Rating Index:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations

352

Feet	Code		Clock	Value	Grade	Description	Remarks
000.0	AMH MWL			5%		Access Point Manhole Miscellaneous Water Level	starting USMH

camera direction >

flow >



351

366.9 AMH

Access Point Manhole

DSMH

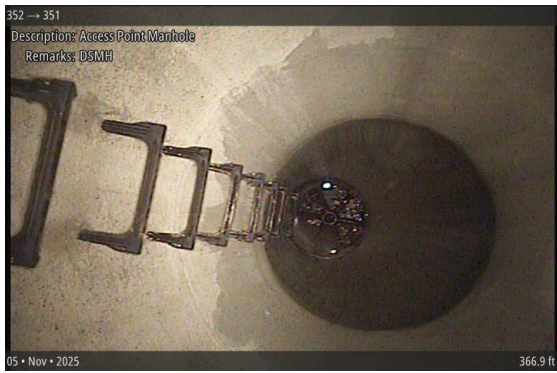
Snapshots



Access Point Manhole at 000.0 ft | starting USMH



Miscellaneous Water Level at 000.0 ft



Access Point Manhole at 366.9 ft | DSMH



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="14.0 ft"/>	<input type="text" value="15.0 ft"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

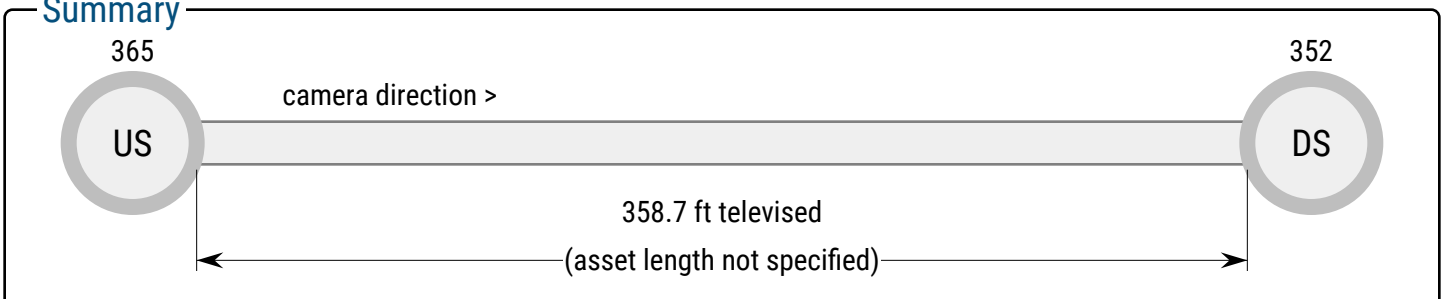
Location Code:

Location Details:

Ratings


	Structural	O & M	Overall
Quick:	<input type="text" value="0000"/>	<input type="text" value="0000"/>	<input type="text" value="0000"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Rating Index:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations

365

Feet	Code		Clock	Value	Grade	Description	Remarks
000.0	AMH MWL			10%		Access Point Manhole Miscellaneous Water Level	starting USMH

camera direction >

flow >



352

358.7 AMH

Access Point Manhole

DSMH

Snapshots



Access Point Manhole at 000.0 ft | starting USMH



Miscellaneous Water Level at 000.0 ft



Access Point Manhole at 358.7 ft | DSMH



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text"/>	<input type="text"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

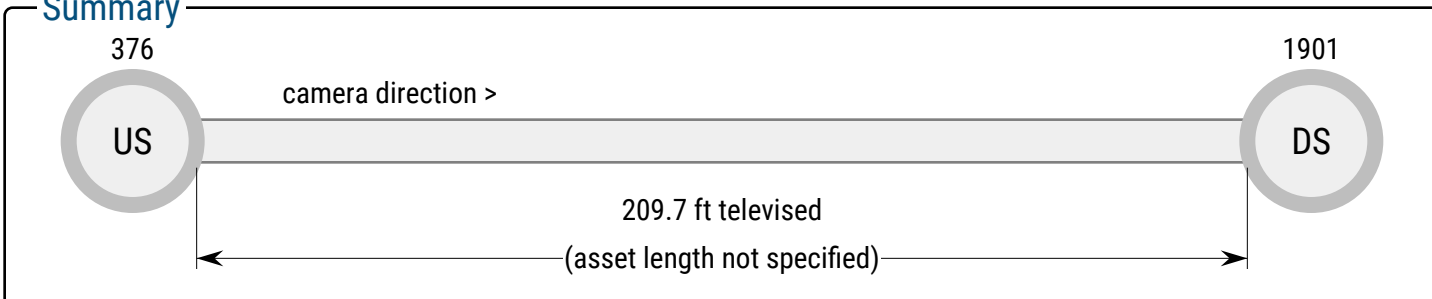
Location Code:

Location Details:

Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="0000"/>	<input type="text" value="5100"/>	<input type="text" value="5100"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="0"/>	<input type="text" value="5"/>	<input type="text" value="5"/>
Rating Index:	<input type="text" value="0"/>	<input type="text" value="5"/>	<input type="text" value="5"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations

376

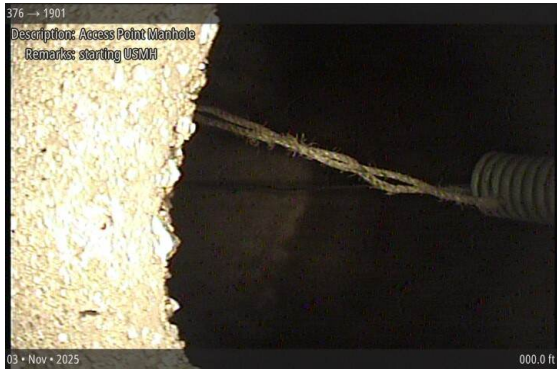
camera direction >

flow >

Feet	Code		Clock	Value	Grade	Description	Remarks
000.0	AMH MWL			5%		Access Point Manhole Miscellaneous Water Level	starting USMH
008.0	TFA		9	6 in		Tap Factory Activity	
083.3	TFA		9	6 in		Tap Factory Activity	
158.5	TFA		9	6 in		Tap Factory Activity	
209.7	TBI MSA		11	6 in 4 in	5	Tap Break-in Intruding Miscellaneous Survey Abandoned	INTRUDING SERVICE

1901

Snapshots



Access Point Manhole at 000.0 ft | starting USMH



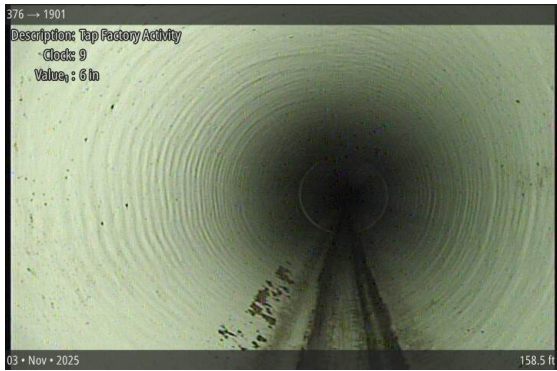
Miscellaneous Water Level at 000.0 ft



Tap Factory Activity at 008.0 ft, 9 o'clock



Tap Factory Activity at 083.3 ft, 9 o'clock



Tap Factory Activity at 158.5 ft, 9 o'clock



[Grade 5] Tap Break-in Intruding at 209.7 ft, 11 o'clock



Miscellaneous Survey Abandoned at 209.7 ft | INTRUDING SERVICE



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="8.0 ft"/>	<input type="text" value="9.0 ft"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

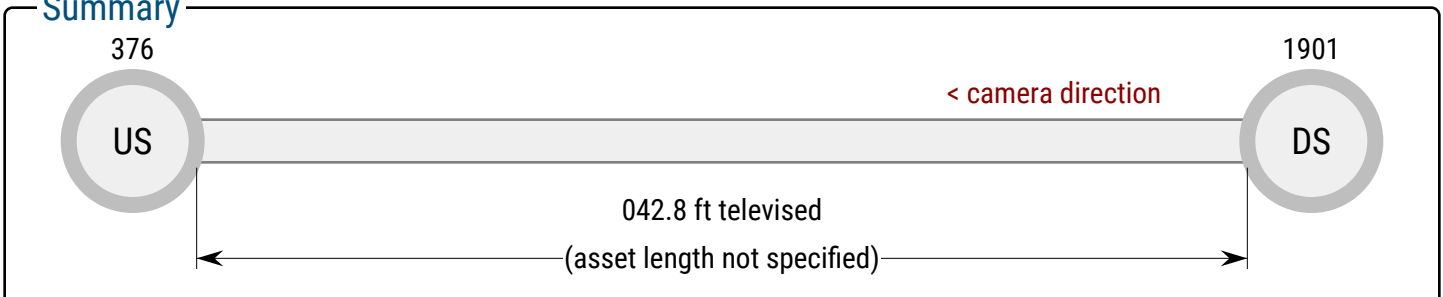
Location Code:

Location Details:

Ratings

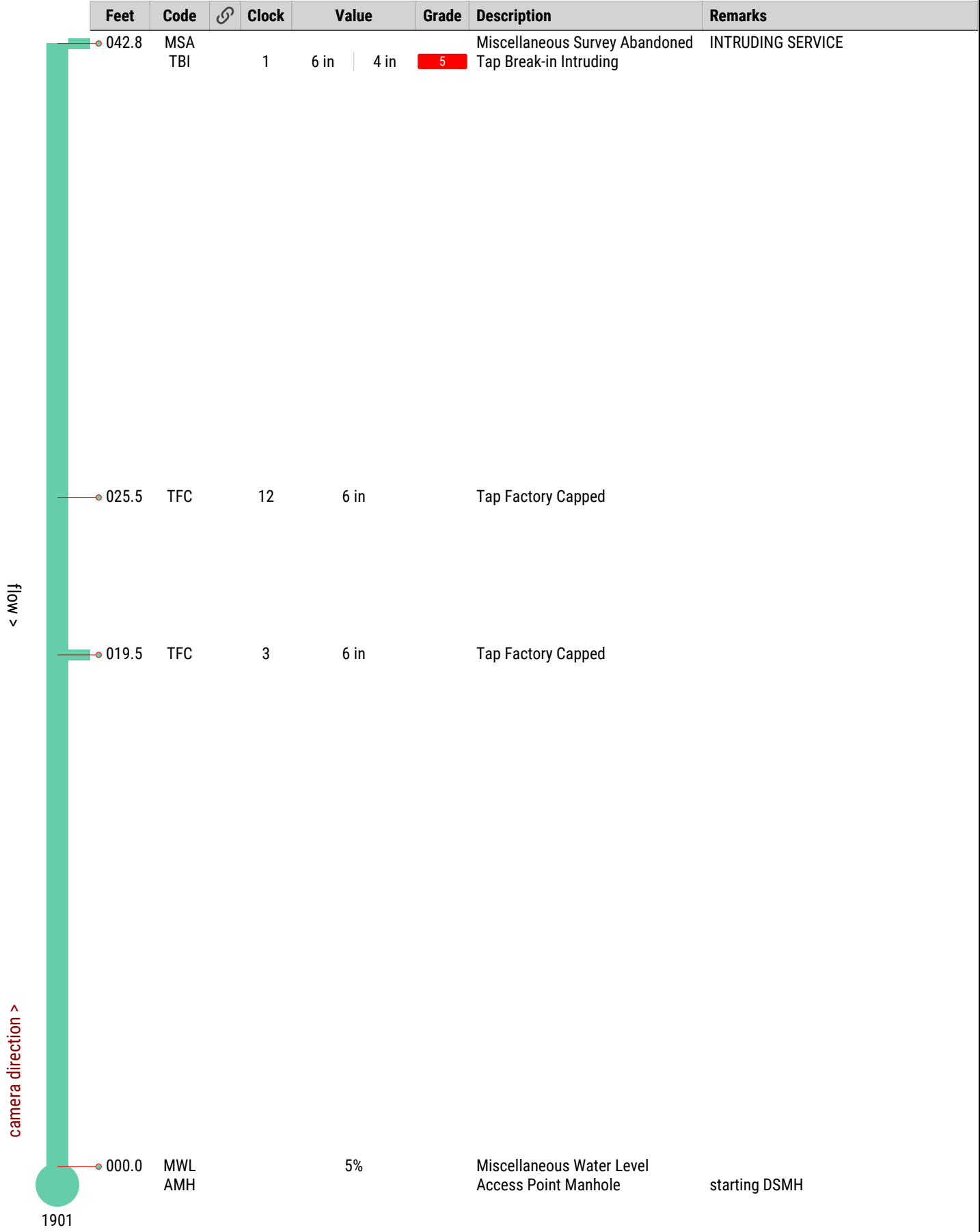
	Structural	O & M	Overall
Quick:	<input type="text" value="0000"/>	<input type="text" value="5100"/>	<input type="text" value="5100"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="0"/>	<input type="text" value="5"/>	<input type="text" value="5"/>
Rating Index:	<input type="text" value="0"/>	<input type="text" value="5"/>	<input type="text" value="5"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations

376



1901

Snapshots



Access Point Manhole at 000.0 ft | starting DSMH



Miscellaneous Water Level at 000.0 ft



Tap Factory Capped at 019.5 ft, 3 o'clock



Tap Factory Capped at 025.5 ft, 12 o'clock



[Grade 5] Tap Break-in Intruding at 042.8 ft, 1 o'clock



Miscellaneous Survey Abandoned at 042.8 ft | INTRUDING SERVICE



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="9.0 ft"/>	<input type="text" value="11.0 ft"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

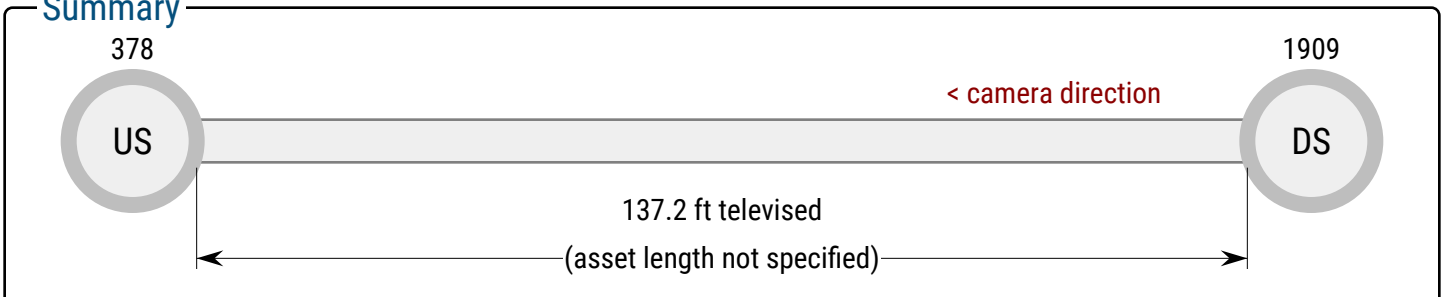
Location Code:

Location Details:

Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="2100"/>	<input type="text" value="0000"/>	<input type="text" value="2100"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="2"/>	<input type="text" value="0"/>	<input type="text" value="2"/>
Rating Index:	<input type="text" value="2"/>	<input type="text" value="0"/>	<input type="text" value="2"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations

378

Feet	Code	Link	Clock	Value	Grade	Description	Remarks
------	------	------	-------	-------	-------	-------------	---------

137.2	AMH					Access Point Manhole	USMH
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079.3	MWLS			10%	2	Miscellaneous Water Level Sag	
-------	------	--	--	-----	---	-------------------------------	--

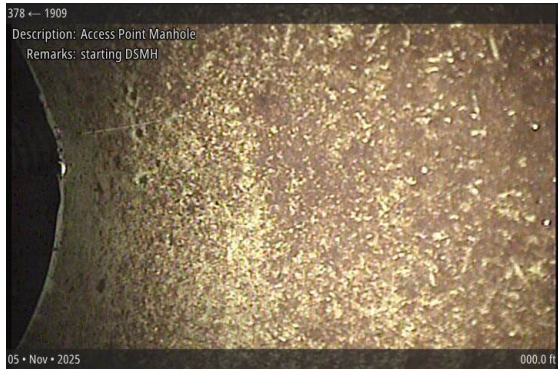
000.0	MWL AMH			5%		Miscellaneous Water Level Access Point Manhole	starting DSMH
-------	------------	--	--	----	--	---	---------------

< MOlfj

camera direction >

1909

Snapshots



Access Point Manhole at 000.0 ft | starting DSMH



Miscellaneous Water Level at 000.0 ft



[Grade 2] Miscellaneous Water Level Sag at 079.3 ft



Access Point Manhole at 137.2 ft | USMH



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="10.0 ft"/>	<input type="text" value="9.0 ft"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

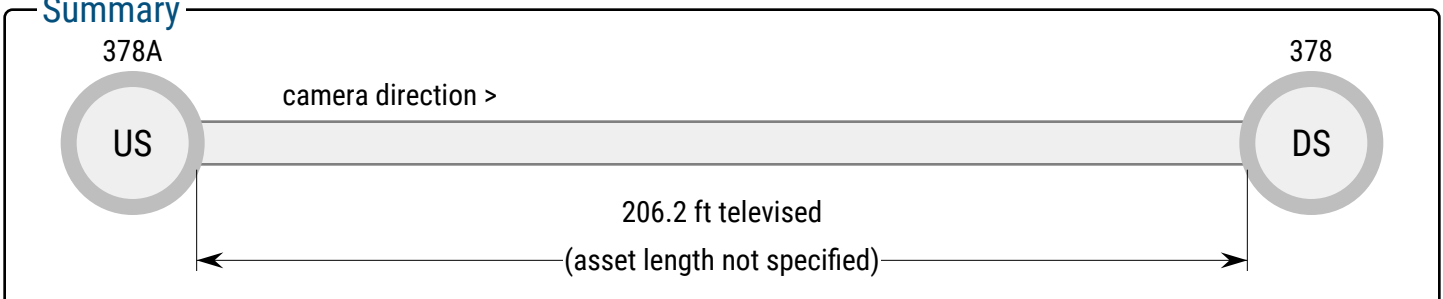
Location Code:

Location Details:

Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="0000"/>	<input type="text" value="0000"/>	<input type="text" value="0000"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Rating Index:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Consequence of Failure:	<input type="text"/>		

Summary




Observations

378A

camera direction >

flow >

Feet	Code		Clock	Value	Grade	Description	Remarks
000.0	AMH MWL			15%		Access Point Manhole Miscellaneous Water Level	starting USMH NOT ON MAP



206.2 AMH

Access Point Manhole

DSMH

378

Snapshots



Miscellaneous Water Level at 000.0 ft



Access Point Manhole at 000.0 ft | starting USMH NOT ON MAP



Access Point Manhole at 206.2 ft | DSMH



Asset

Owner:

PSR:

Upstream MH: 379

Downstream MH: LIFT STATION

	USMH	DSMH
Rim to Invert:	13.0 ft	<input type="text"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry: 8 in (Circular)

Material: Polyvinyl Chloride

Lining Method:

Coating Method:

Year Constructed:

Pipe Use: Sanitary Sewage Pipe

Total Length: (unspecified)

Project

Project:

Job #: HRG100-3

Customer: H R GREEN

PO Number:

Additional Info:

Inspection

Media Date/Time: 04 • Nov • 2025 09:49

Contractor: National Power Rodding

Surveyed By: C EARLING (U-1211-13957)

Reviewed By:

Camera Direction: Downstream

Purpose:

Technology:

Pre-Cleaning: Light Cleaning

Date Cleaned:

Flow Control:

Length Surveyed: 211.3 ft

Weather:

Location

Address: 49TH CT S, WESTERN SPRINGS

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

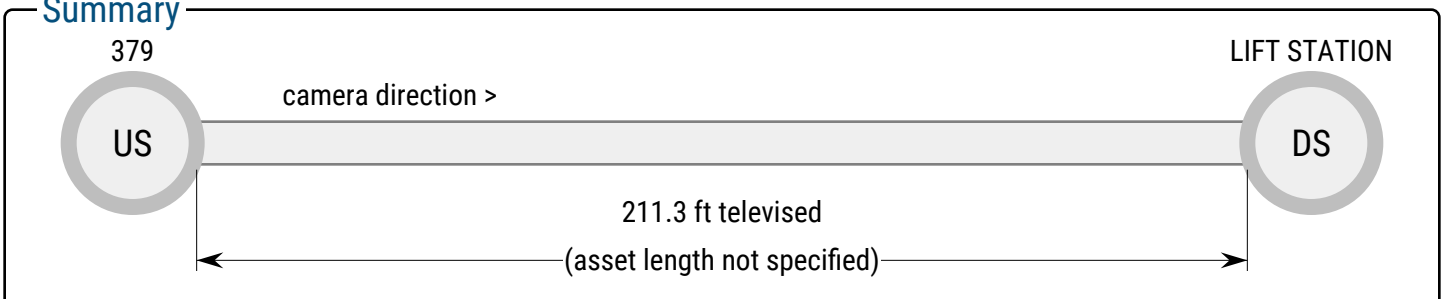
Location Code: Easement/Right of Way

Location Details:

Ratings

	Structural	O & M	Overall
Quick:	0000	0000	0000
$\sum_{i=1}^5 SG_i$ Pipe Rating:	0	0	0
Rating Index:	0	0	0
Consequence of Failure:	<input type="text"/>		

Summary



Observations

379

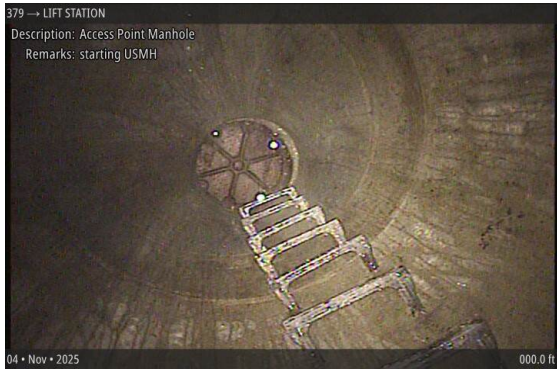
camera direction >

flow >

Feet	Code	Clock	Value	Grade	Description	Remarks
000.0	AMH MWL		5%		Access Point Manhole Miscellaneous Water Level	starting USMH
013.5	TFA	2	6 in		Tap Factory Activity	
021.4	TFA	12	6 in		Tap Factory Activity	
159.7	TFA	10	6 in		Tap Factory Activity	
211.3	MGO AOC				Miscellaneous General Observation Access Point Special Chamber	NO MANHOLE 386 LIFT STATION

LIFT STATION

Snapshots



Access Point Manhole at 000.0 ft | starting USMH



Miscellaneous Water Level at 000.0 ft



Tap Factory Activity at 013.5 ft, 2 o'clock



Tap Factory Activity at 021.4 ft, 12 o'clock



Tap Factory Activity at 159.7 ft, 10 o'clock



Miscellaneous General Observation at 211.3 ft | NO MANHOLE 386



Access Point Special Chamber at 211.3 ft | LIFT STATION



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="9.0 ft"/>	<input type="text" value="9.0 ft"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

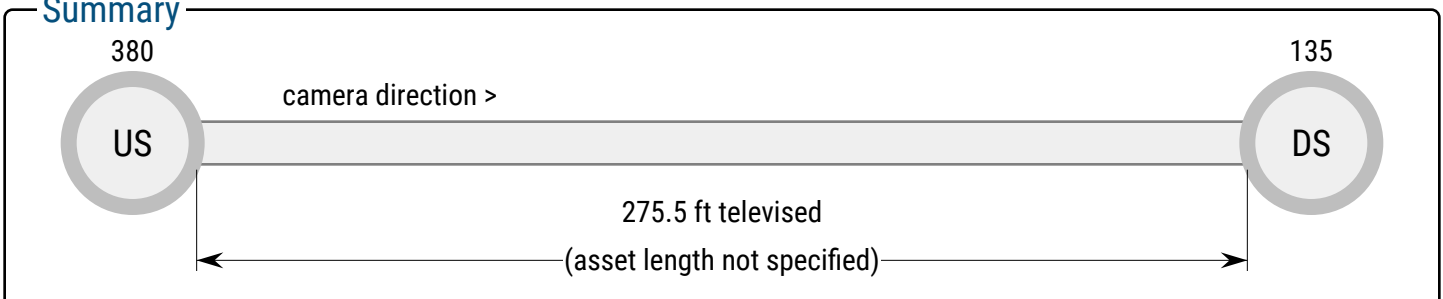
Location Code:

Location Details:

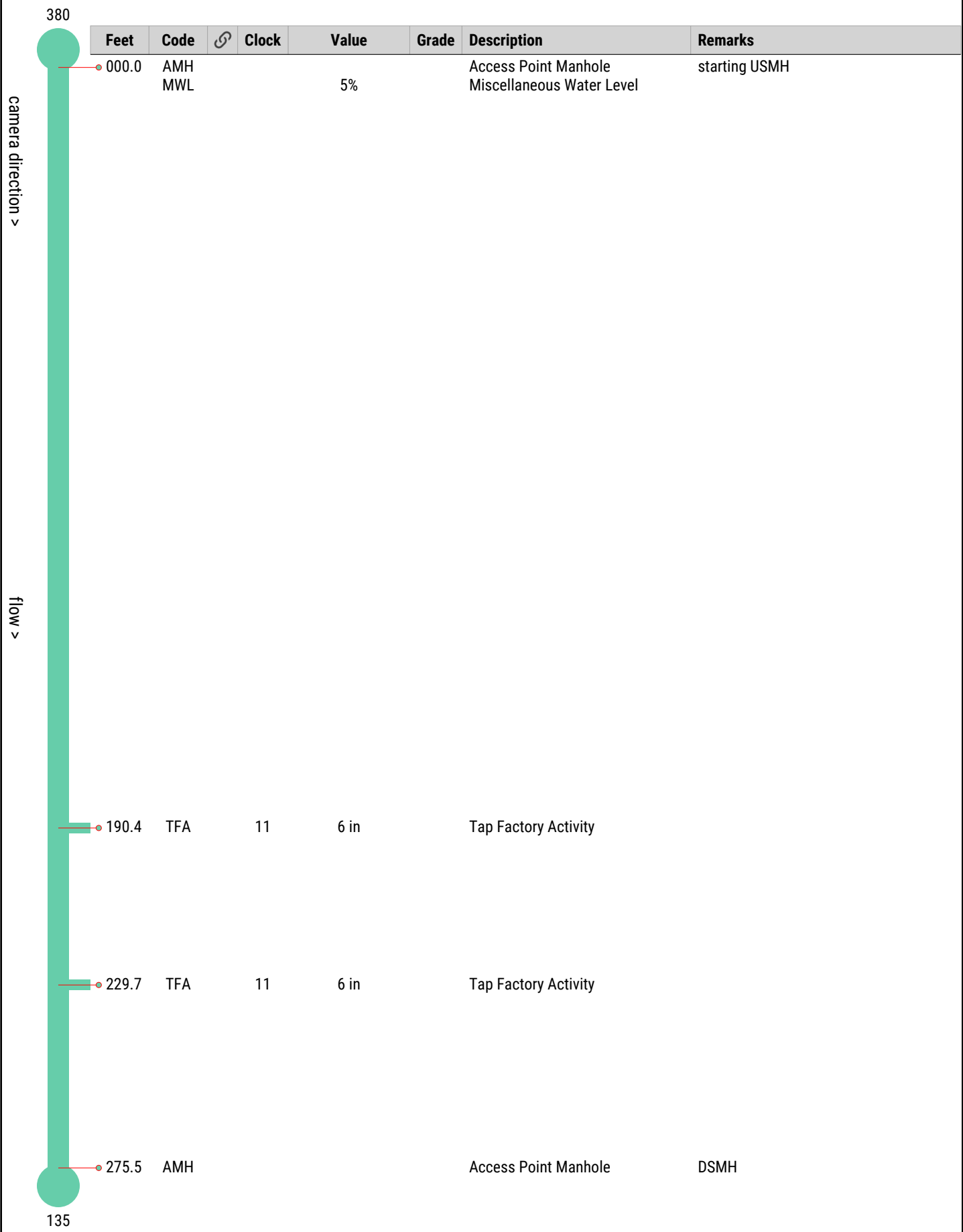
Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="0000"/>	<input type="text" value="0000"/>	<input type="text" value="0000"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Rating Index:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Consequence of Failure:	<input type="text"/>		

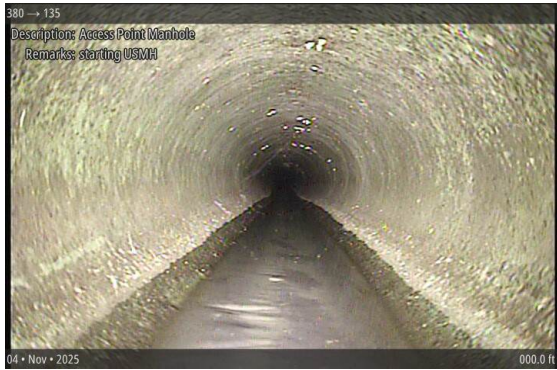
Summary



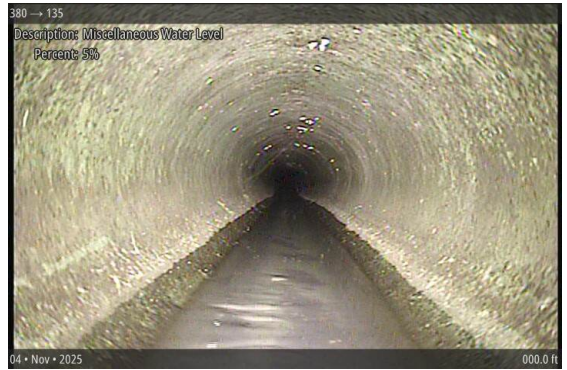
Observations



Snapshots



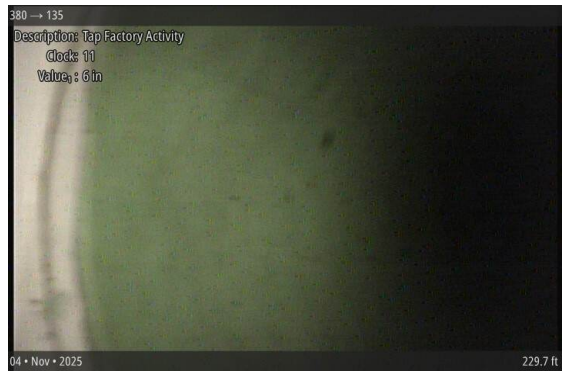
Access Point Manhole at 000.0 ft | starting USMH



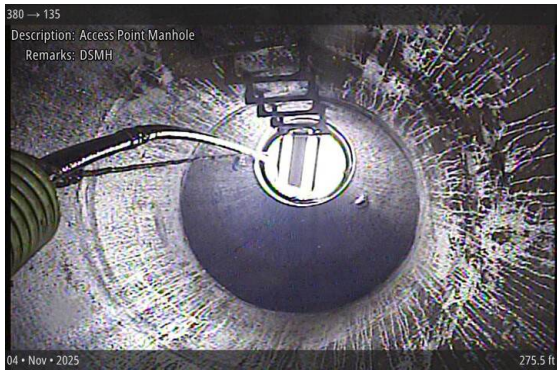
Miscellaneous Water Level at 000.0 ft



Tap Factory Activity at 190.4 ft, 11 o'clock



Tap Factory Activity at 229.7 ft, 11 o'clock



Access Point Manhole at 275.5 ft | DSMH



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="6.0 ft"/>	<input type="text" value="9.0 ft"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

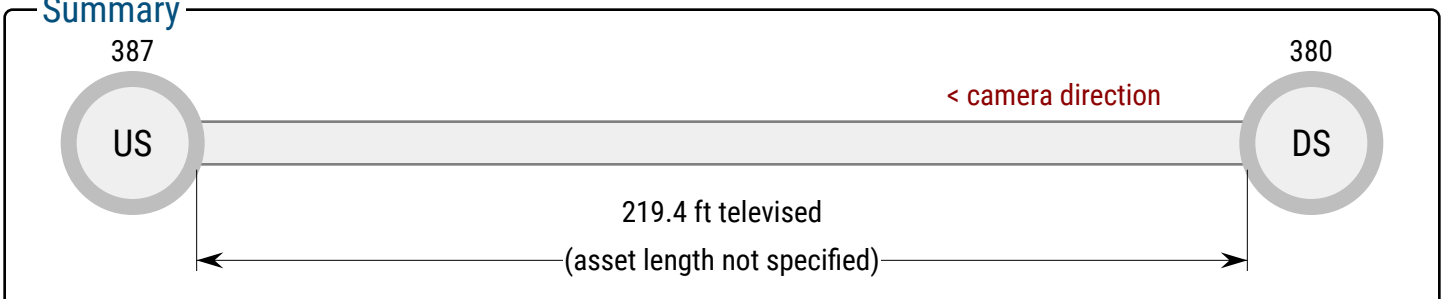
Location Code:

Location Details:

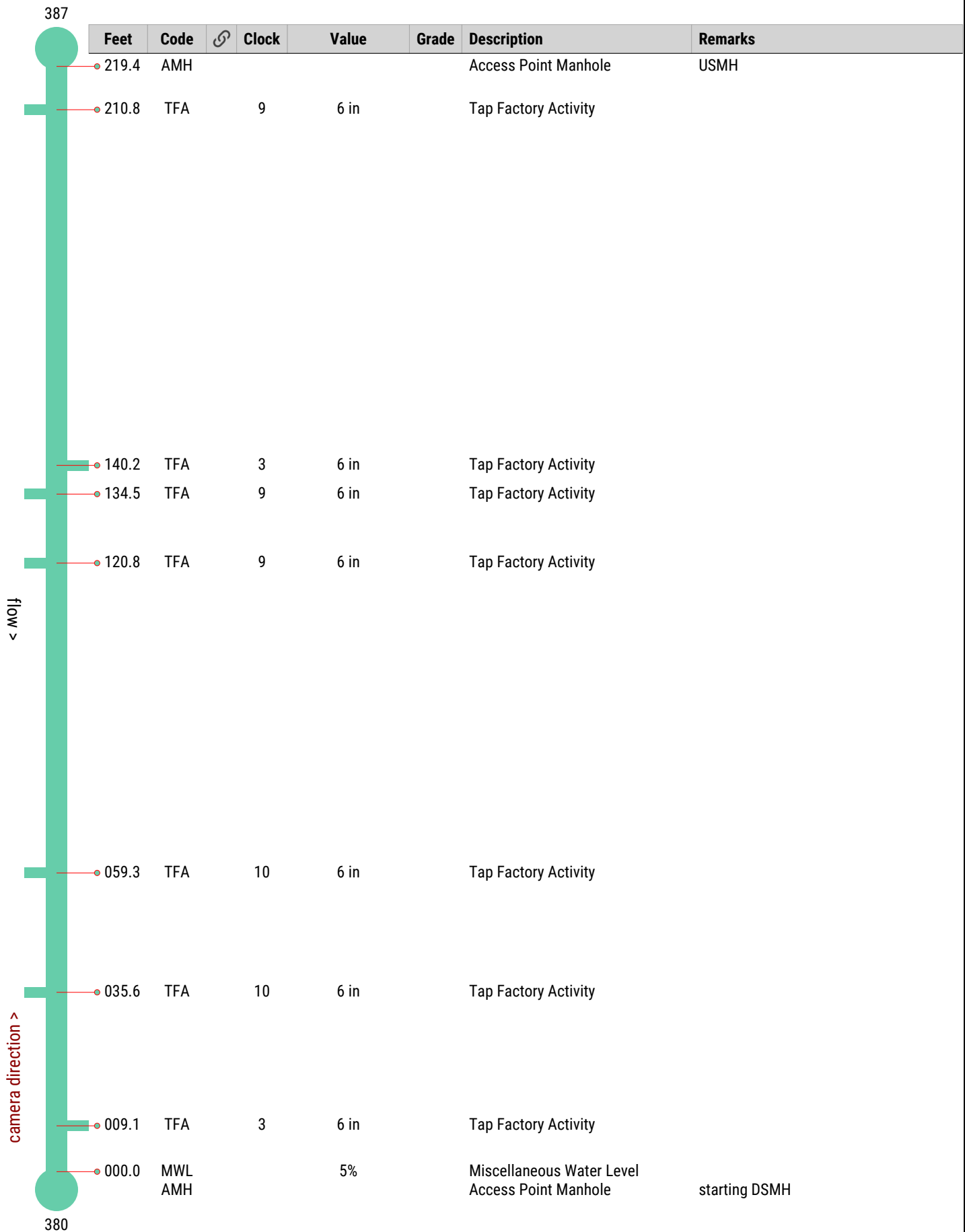
Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="0000"/>	<input type="text" value="0000"/>	<input type="text" value="0000"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Rating Index:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Consequence of Failure:	<input type="text"/>		

Summary



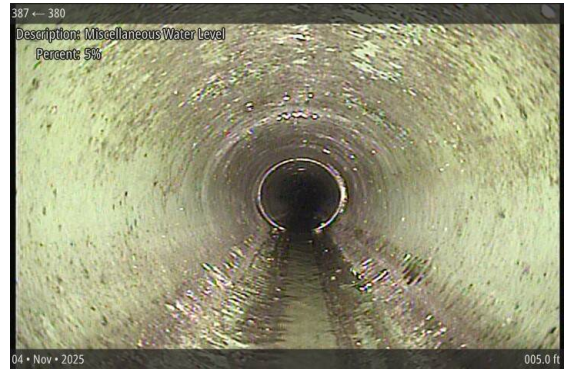
Observations



Snapshots



Access Point Manhole at 000.0 ft | starting DSMH



Miscellaneous Water Level at 000.0 ft



Tap Factory Activity at 009.1 ft, 3 o'clock



Tap Factory Activity at 035.6 ft, 10 o'clock



Tap Factory Activity at 059.3 ft, 10 o'clock



Tap Factory Activity at 120.8 ft, 9 o'clock



Tap Factory Activity at 134.5 ft, 9 o'clock



Tap Factory Activity at 140.2 ft, 3 o'clock

Snapshots



Tap Factory Activity at 210.8 ft, 9 o'clock



Access Point Manhole at 219.4 ft | USMH



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

USMH **DSMH**

Rim to Invert:

Rim to Grade:

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

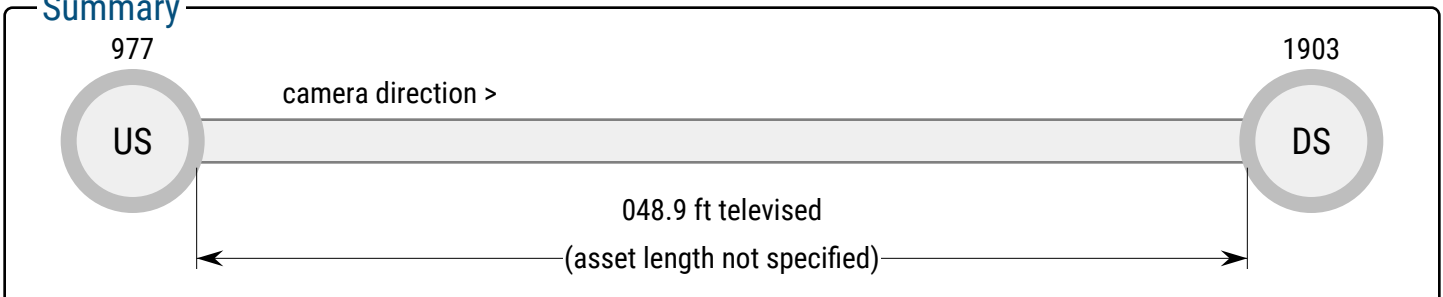
Location Code:

Location Details:

Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="3A00"/>	<input type="text" value="0000"/>	<input type="text" value="3A00"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="30"/>	<input type="text" value="0"/>	<input type="text" value="30"/>
Rating Index:	<input type="text" value="3"/>	<input type="text" value="0"/>	<input type="text" value="3"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations

977

camera direction >

flow >

Feet	Code		Clock	Value	Grade	Description	Remarks
000.0	AMH			25%		Access Point Manhole	starting USMH
	MWL					Miscellaneous Water Level	
000.2	MWLS			40%	3	Miscellaneous Water Level Sag	

048.7	MWLS			40%	x10	Miscellaneous Water Level Sag	
048.9	AMH					Access Point Manhole	DSMH BURIED NOT LOCATED!!!

1903

Snapshots



Access Point Manhole at 000.0 ft | starting USMH



Miscellaneous Water Level at 000.0 ft



[Grade 3] Miscellaneous Water Level Sag (start) at 000.2 ft



[Grade 3] Miscellaneous Water Level Sag (finish) at 048.7 ft



Access Point Manhole at 048.9 ft | DSMH BURIED NOT LOCATED!!!



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text"/>	<input type="text"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

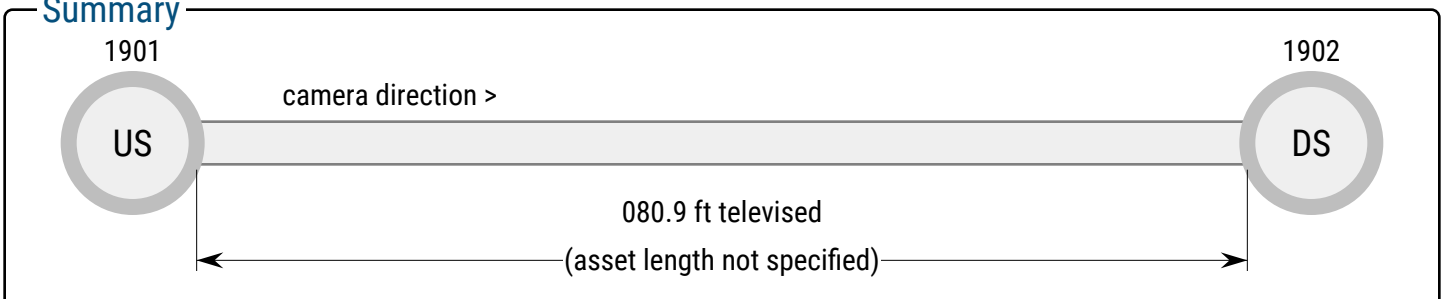
Location Code:

Location Details:

Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="5100"/>	<input type="text" value="2800"/>	<input type="text" value="5128"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="5"/>	<input type="text" value="16"/>	<input type="text" value="21"/>
Rating Index:	<input type="text" value="5"/>	<input type="text" value="2"/>	<input type="text" value="2.3"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations

1901

camera direction >

flow >

Feet	Code		Clock	Value	Grade	Description	Remarks
------	------	--	-------	-------	-------	-------------	---------

000.0	AMH MWL			5%		Access Point Manhole Miscellaneous Water Level	starting USMH
-------	------------	--	--	----	--	---	---------------

037.2	DAGS	01	11 - 1	5%	2	Deposits Attached Grease	
-------	------	--	--------	----	---	--------------------------	--

056.9	TFA		9	6 in		Tap Factory Activity	
-------	-----	--	---	------	--	----------------------	--

079.1	MWLS			80%	5	Miscellaneous Water Level Sag	
-------	------	--	--	-----	--	-------------------------------	--

	DAGS	01	11 - 1	5%	x8	Deposits Attached Grease	
--	------	--	--------	----	--	--------------------------	--

080.9	AMH					Access Point Manhole	DSMH
-------	-----	--	--	--	--	----------------------	------

1902

Snapshots



Access Point Manhole at 000.0 ft | starting USMH



Miscellaneous Water Level at 000.0 ft



[Grade 2] Deposits Attached Grease (start) at 037.2 ft, 11 - 1 o'clock



Tap Factory Activity at 056.9 ft, 9 o'clock



[Grade 5] Miscellaneous Water Level Sag at 079.1 ft



[Grade 2] Deposits Attached Grease (finish) at 079.1 ft, 11 - 1 o'clock



Access Point Manhole at 080.9 ft | DSMH



Asset

Owner:

PSR:

Upstream MH: 1902

Downstream MH: 977

USMH **DSMH**

Rim to Invert:

Rim to Grade:

Pipe Geometry: 8 in (Circular)

Material: Polyvinyl Chloride

Lining Method:

Coating Method:

Year Constructed:

Pipe Use: Sanitary Sewage Pipe

Total Length: (unspecified)

Project

Project:

Job #: HRG100-3

Customer: H R GREEN

PO Number:

Additional Info:

Inspection

Media Date/Time: 03 • Nov • 2025 10:54

Contractor: National Power Rodding

Surveyed By: C EARLING (U-1211-13957)

Reviewed By:

Camera Direction: Downstream

Purpose:

Technology:

Pre-Cleaning: Light Cleaning

Date Cleaned:

Flow Control:

Length Surveyed: 075.2 ft

Weather:

Location

Address: COMMONWEALTH AVE, WESTERN

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

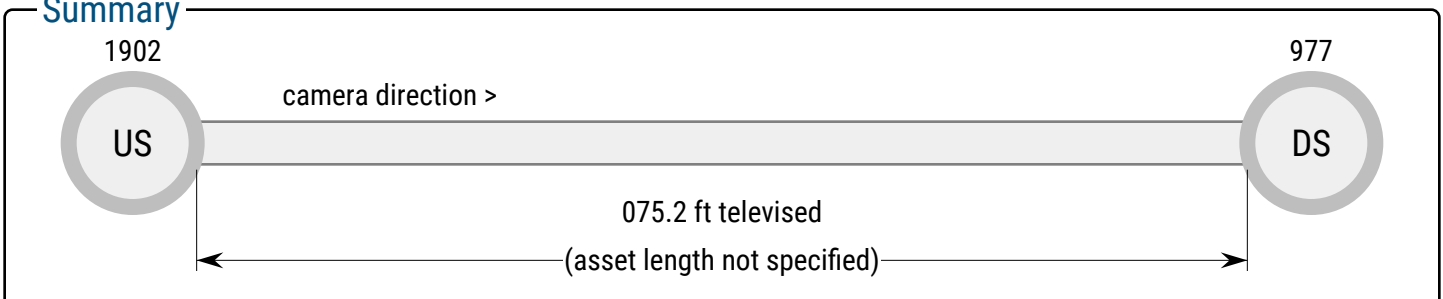
Location Code: Easement/Right of Way

Location Details:

Ratings

	Structural	O & M	Overall
Quick:	5B00	0000	5B00
$\sum_{i=1}^5 SG_i$ Pipe Rating:	75	0	75
Rating Index:	5	0	5
Consequence of Failure:	<input type="text"/>		

Summary



Observations

1902

camera direction >

flow >

Feet	Code	Clock	Value	Grade	Description	Remarks
------	------	-------	-------	-------	-------------	---------

000.0	AMH				Access Point Manhole	starting USMH IN A BIG SAG AND COVERED OVER IN GREASE
000.1	MWL MWLS	01	80% 100%	5	Miscellaneous Water Level Miscellaneous Water Level Sag	



977

075.1	MWLS	01	100%	x15	Miscellaneous Water Level Sag	
075.2	AMH				Access Point Manhole	DSMH

Snapshots



Access Point Manhole at 000.0 ft | starting USMH IN A BIG SAG AND COVERED OVER IN GREASE



[Grade 5] Miscellaneous Water Level Sag (start) at 000.1 ft



Miscellaneous Water Level at 000.0 ft



[Grade 5] Miscellaneous Water Level Sag (finish) at 075.1 ft



Access Point Manhole at 075.2 ft | DSMH



Asset

Owner:

PSR:

Upstream MH: 1903

Downstream MH: 377

USMH **DSMH**

Rim to Invert:

Rim to Grade:

Pipe Geometry: 8 in (Circular)

Material: Polyvinyl Chloride

Lining Method:

Coating Method:

Year Constructed:

Pipe Use: Sanitary Sewage Pipe

Total Length: (unspecified)

Project

Project:

Job #: HRG100-3

Customer: H R GREEN

PO Number:

Additional Info:

Inspection

Media Date/Time: 03 • Nov • 2025 11:45

Contractor: National Power Rodding

Surveyed By: C EARLING (U-1211-13957)

Reviewed By:

Camera Direction: Upstream

Purpose:

Technology:

Pre-Cleaning: Light Cleaning

Date Cleaned:

Flow Control:

Length Surveyed: 099.3 ft

Weather:

Location

Address: COMMONWEALTH AVE, WESTERN

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

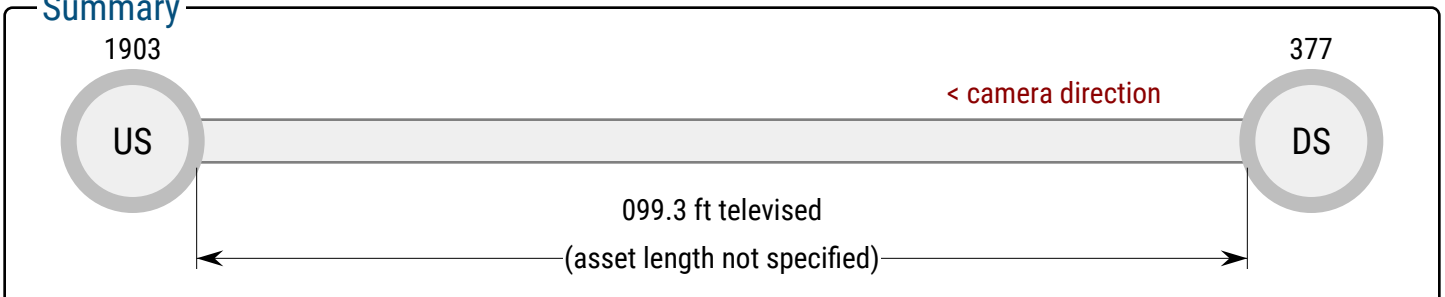
Location Code: Easement/Right of Way

Location Details:

Ratings

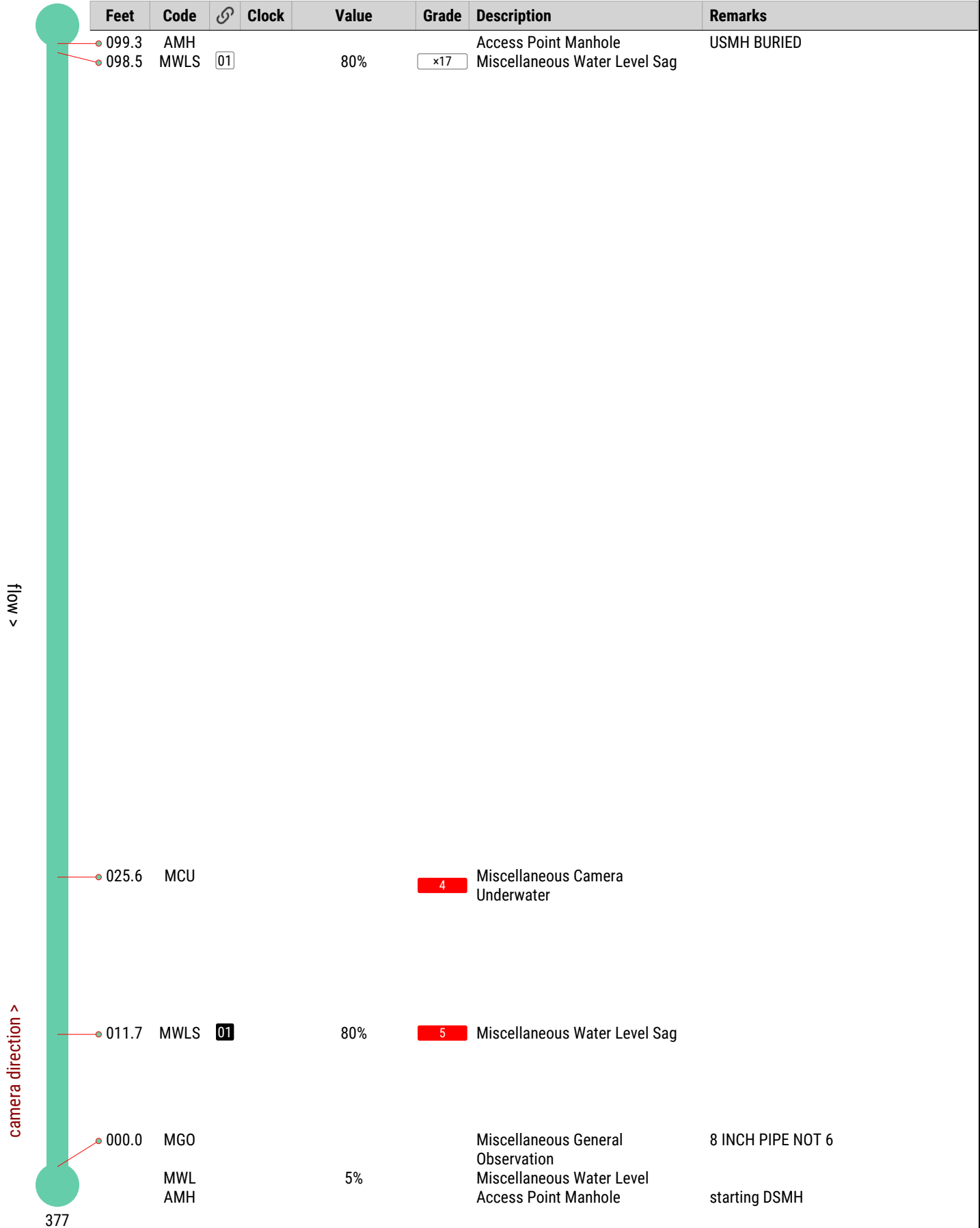
	Structural	O & M	Overall
Quick:	5B00	4100	5B41
Pipe Rating: $\sum_{i=1}^5 SG_i$	85	4	89
Rating Index:	5	4	4.9
Consequence of Failure:	<input type="text"/>		

Summary



Observations

1903

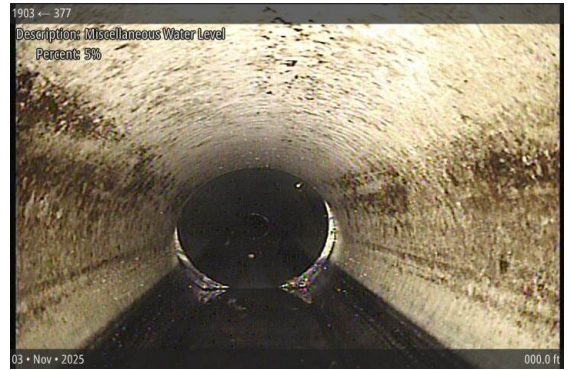


377

Snapshots



Access Point Manhole at 000.0 ft | starting DSMH



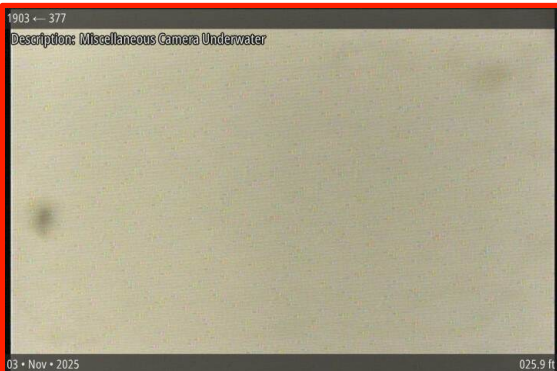
Miscellaneous Water Level at 000.0 ft



Miscellaneous General Observation at 000.0 ft | 8 INCH PIPE NOT 6



[Grade 5] Miscellaneous Water Level Sag (start) at 011.7 ft



[Grade 4] Miscellaneous Camera Underwater at 025.6 ft



[Grade 5] Miscellaneous Water Level Sag (finish) at 098.5 ft



Access Point Manhole at 099.3 ft | USMH BURIED



Asset

Owner:

PSR:

Upstream MH: 1904

Downstream MH: 380

	USMH	DSMH
Rim to Invert:	<input type="text"/>	9.0 ft
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry: 8 in (Circular)

Material: Polyvinyl Chloride

Lining Method:

Coating Method:

Year Constructed:

Pipe Use: Sanitary Sewage Pipe

Total Length: (unspecified)

Project

Project:

Job #: HRG100-3

Customer: H R GREEN

PO Number:

Additional Info:

Inspection

Media Date/Time: 04 • Nov • 2025 07:46

Contractor: National Power Rodding

Surveyed By: C EARLING (U-1211-13957)

Reviewed By:

Camera Direction: Upstream

Purpose:

Technology:

Pre-Cleaning: Light Cleaning

Date Cleaned:

Flow Control:

Length Surveyed: 070.0 ft

Weather:

Location

Address: CREEK DR, WESTERN SPRINGS

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

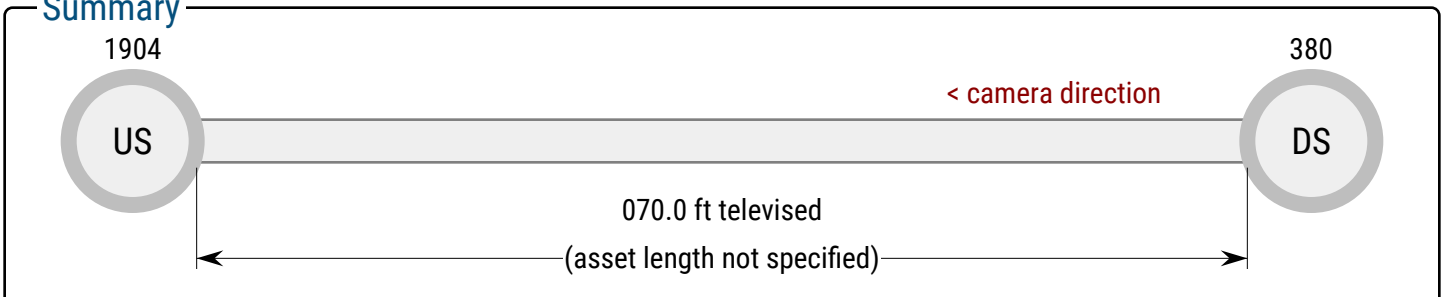
Location Code: Easement/Right of Way

Location Details:

Ratings


	Structural	O & M	Overall
Quick:	0000	0000	0000
$\sum_{i=1}^5 SG_i$ Pipe Rating:	0	0	0
Rating Index:	0	0	0
Consequence of Failure:	<input type="text"/>		

Summary



Observations

1904

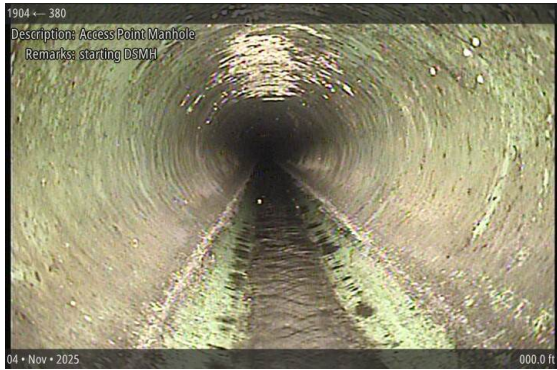
Feet	Code		Clock	Value	Grade	Description	Remarks
070.0	AMH					Access Point Manhole	USMH NOT LOCATED
067.0	TFA		9	6 in		Tap Factory Activity	
000.0	MWL AMH			5%		Miscellaneous Water Level Access Point Manhole	starting DSMH

< MOJf

camera direction >

380

Snapshots



Access Point Manhole at 000.0 ft | starting DSMH



Miscellaneous Water Level at 000.0 ft



Tap Factory Activity at 067.0 ft, 9 o'clock



Access Point Manhole at 070.0 ft | USMH NOT LOCATED



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="11.0 ft"/>	<input type="text" value="10.0 ft"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

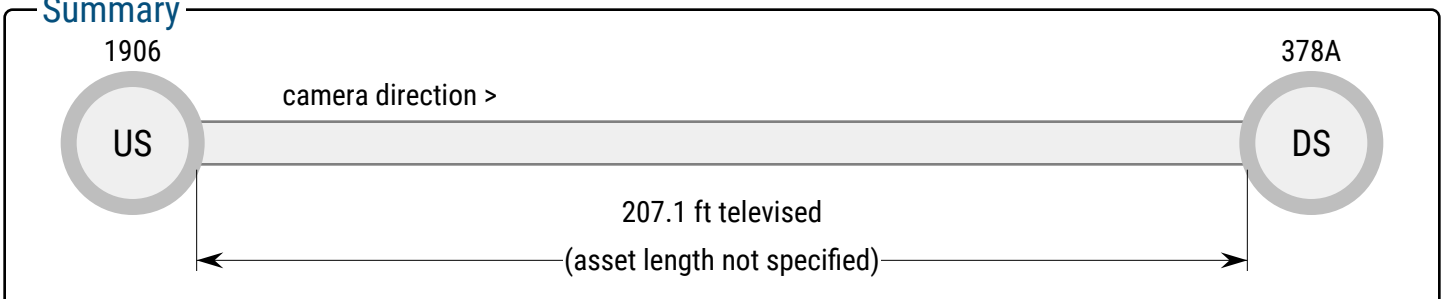
Location Code:

Location Details:

Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="0000"/>	<input type="text" value="0000"/>	<input type="text" value="0000"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Rating Index:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations

1906

camera direction >

flow >

Feet	Code	⌛	Clock	Value	Grade	Description	Remarks
000.0	AMH MWL			5%		Access Point Manhole Miscellaneous Water Level	starting USMH

378A

207.1	AMH					Access Point Manhole	DSMH NOT ON MAP
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Snapshots



Access Point Manhole at 000.0 ft | starting USMH



Miscellaneous Water Level at 000.0 ft



Access Point Manhole at 207.1 ft | DSMH NOT ON MAP



Asset

Owner:

PSR:

Upstream MH: 1907

Downstream MH: 379

	USMH	DSMH
Rim to Invert:	11.0 ft	13.0 ft
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry: 8 in (Circular)

Material: Polyvinyl Chloride

Lining Method:

Coating Method:

Year Constructed:

Pipe Use: Sanitary Sewage Pipe

Total Length: (unspecified)

Project

Project:

Job #: HRG100-3

Customer: H R GREEN

PO Number:

Additional Info:

Inspection

Media Date/Time: 04 • Nov • 2025 09:42

Contractor: National Power Rodding

Surveyed By: C EARLING (U-1211-13957)

Reviewed By:

Camera Direction: Downstream

Purpose:

Technology:

Pre-Cleaning: Light Cleaning

Date Cleaned:

Flow Control:

Length Surveyed: 171.1 ft

Weather:

Location

Address: CREEK DR, WESTERN SPRINGS

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

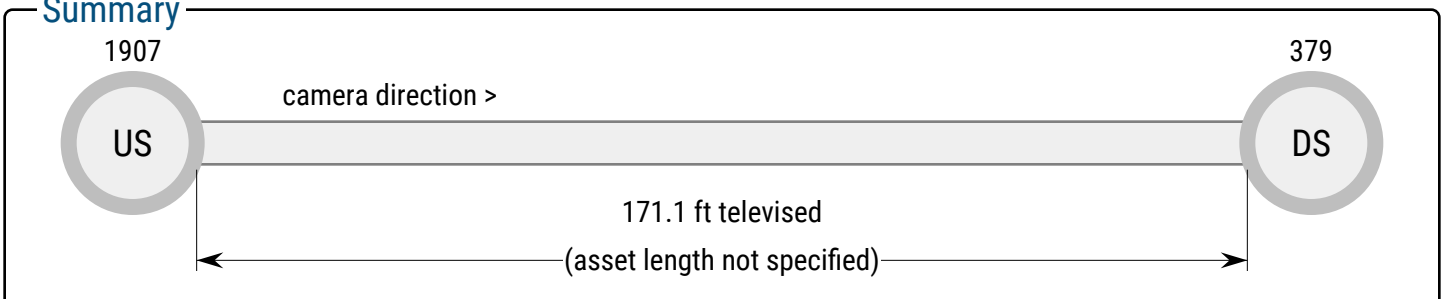
Location Code: Easement/Right of Way

Location Details:

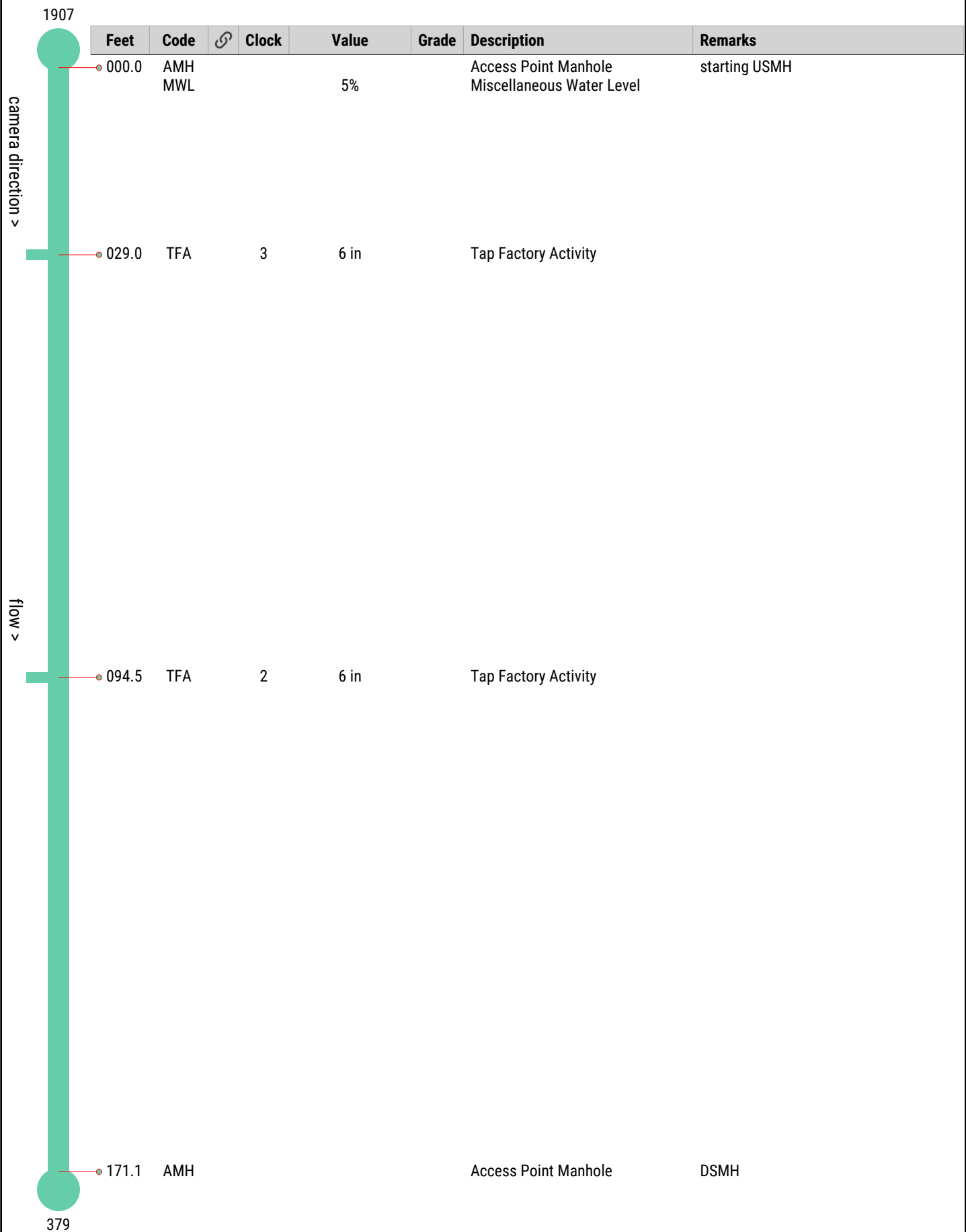
Ratings

	Structural	O & M	Overall
Quick:	0000	0000	0000
$\sum_{i=1}^5 SG_i$ Pipe Rating:	0	0	0
Rating Index:	0	0	0
Consequence of Failure:	<input type="text"/>		

Summary



Observations



Snapshots



Access Point Manhole at 000.0 ft | starting USMH



Miscellaneous Water Level at 000.0 ft



Tap Factory Activity at 029.0 ft, 3 o'clock



Tap Factory Activity at 094.5 ft, 2 o'clock



Access Point Manhole at 171.1 ft | DSMH



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text"/>	11.0 ft
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

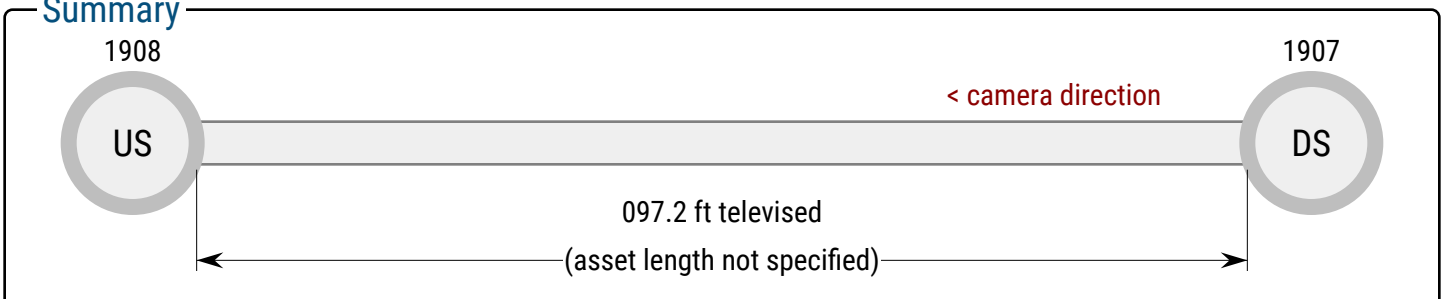
Location Code:

Location Details:

Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="0000"/>	<input type="text" value="0000"/>	<input type="text" value="0000"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Rating Index:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations

1908

Feet	Code		Clock	Value	Grade	Description	Remarks
097.2	AMH					Access Point Manhole	USMH NOT LOCATED
094.2	TFA		9	6 in		Tap Factory Activity	
079.7	TFA		3	6 in		Tap Factory Activity	
000.0	MWL AMH			5%		Miscellaneous Water Level Access Point Manhole	starting DSMH

< MOJf

camera direction >

1907

Snapshots



Access Point Manhole at 000.0 ft | starting DSMH



Miscellaneous Water Level at 000.0 ft



Tap Factory Activity at 079.7 ft, 3 o'clock



Tap Factory Activity at 094.2 ft, 9 o'clock



Access Point Manhole at 097.2 ft | USMH NOT LOCATED



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="11.0 ft"/>	<input type="text" value="15.0 ft"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

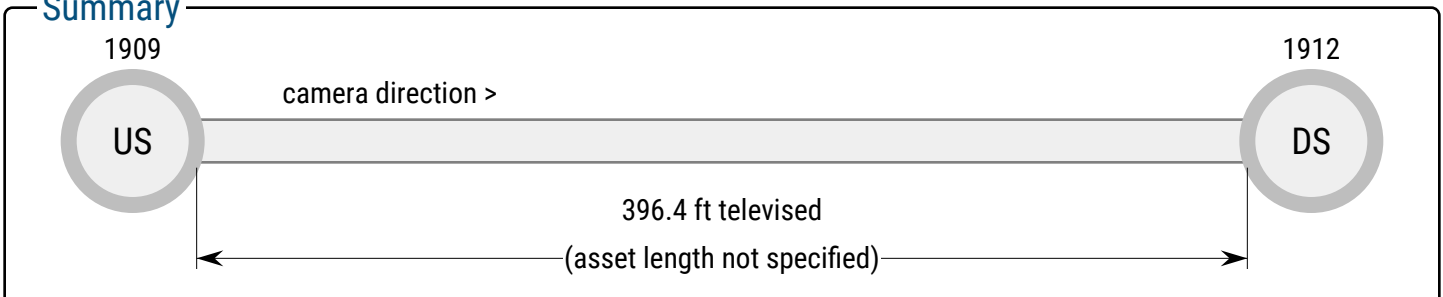
Location Code:

Location Details:

Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="2100"/>	<input type="text" value="0000"/>	<input type="text" value="2100"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="2"/>	<input type="text" value="0"/>	<input type="text" value="2"/>
Rating Index:	<input type="text" value="2"/>	<input type="text" value="0"/>	<input type="text" value="2"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations

1909

	Feet	Code		Clock	Value	Grade	Description	Remarks
camera direction >	000.0	AMH					Access Point Manhole	starting USMH
		MWL			5%		Miscellaneous Water Level	
	005.9	TBA		10	6 in		Tap Break-in Activity	
	016.3	TFA		2	6 in		Tap Factory Activity	
	019.1	TFA		10	6 in		Tap Factory Activity	
flow >	072.2	TFA		2	6 in		Tap Factory Activity	
	074.9	TFA		10	6 in		Tap Factory Activity	
	083.1	TFA		2	6 in		Tap Factory Activity	
	108.3	TFA		10	6 in		Tap Factory Activity	
	111.8	TFA		2	6 in		Tap Factory Activity	
	139.4	TFA		2	6 in		Tap Factory Activity	
	177.1	TFA		10	6 in		Tap Factory Activity	
	231.9	TFA		10	6 in		Tap Factory Activity	
	240.2	TFA		2	6 in		Tap Factory Activity	
	291.9	TFA		2	6 in		Tap Factory Activity	
296.4	TFA		10	6 in		Tap Factory Activity		
300.2	TFA		2	6 in		Tap Factory Activity		
304.5	TFA		10	6 in		Tap Factory Activity		
372.4	TFA		2	6 in		Tap Factory Activity		
	MWLS			10%	2	Miscellaneous Water Level Sag		
383.1	TFA		10	6 in		Tap Factory Activity		
396.4	AMH					Access Point Manhole	DSMH	

1912

Snapshots



Access Point Manhole at 000.0 ft | starting USMH



Miscellaneous Water Level at 000.0 ft



Tap Break-in Activity at 005.9 ft, 10 o'clock



Tap Factory Activity at 016.3 ft, 2 o'clock



Tap Factory Activity at 019.1 ft, 10 o'clock



Tap Factory Activity at 072.2 ft, 2 o'clock



Tap Factory Activity at 074.9 ft, 10 o'clock

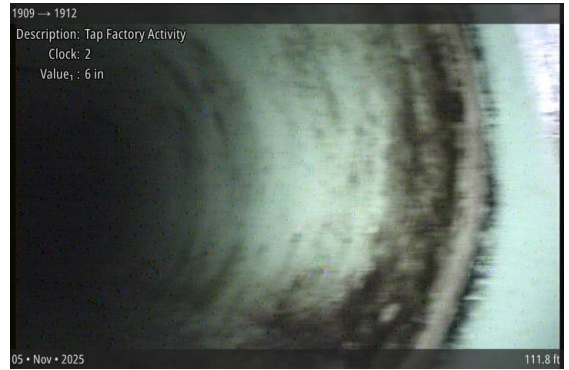


Tap Factory Activity at 083.1 ft, 2 o'clock

Snapshots



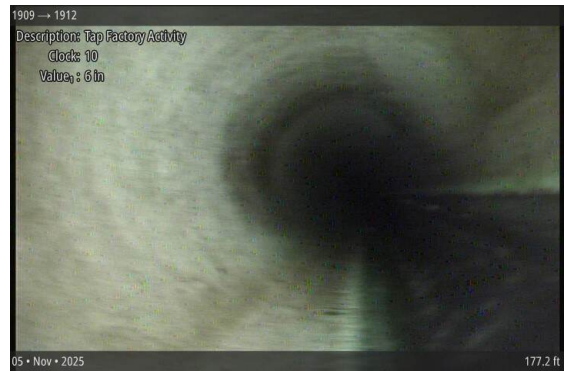
Tap Factory Activity at 108.3 ft, 10 o'clock



Tap Factory Activity at 111.8 ft, 2 o'clock



Tap Factory Activity at 139.4 ft, 2 o'clock



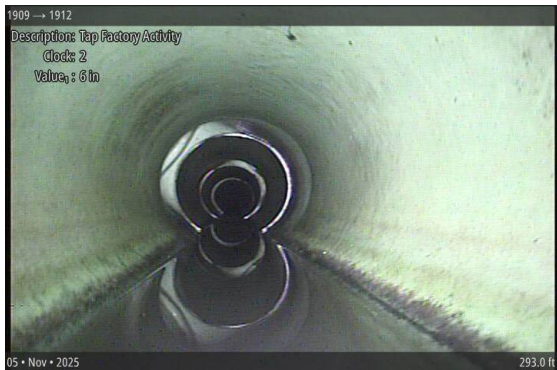
Tap Factory Activity at 177.2 ft, 10 o'clock



Tap Factory Activity at 231.9 ft, 10 o'clock



Tap Factory Activity at 240.2 ft, 2 o'clock



Tap Factory Activity at 291.9 ft, 2 o'clock

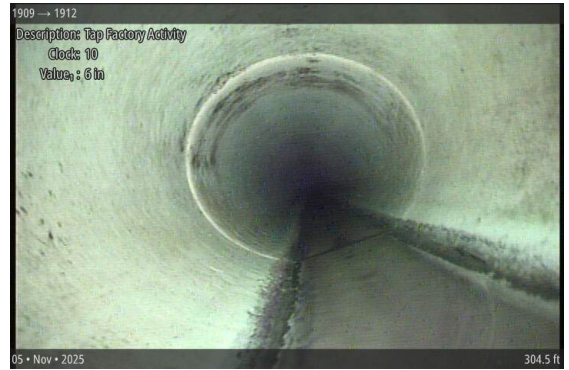


Tap Factory Activity at 296.4 ft, 10 o'clock

Snapshots



Tap Factory Activity at 300.2 ft, 2 o'clock



Tap Factory Activity at 304.5 ft, 10 o'clock



Tap Factory Activity at 372.4 ft, 2 o'clock



[Grade 2] Miscellaneous Water Level Sag at 372.4 ft



Tap Factory Activity at 383.1 ft, 10 o'clock



Access Point Manhole at 396.4 ft | DSMH



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="10.0 ft"/>	<input type="text" value="10.0 ft"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

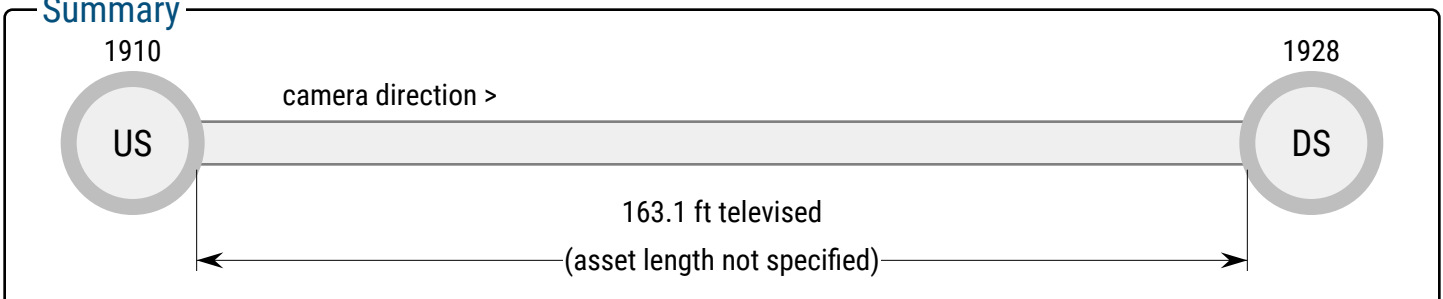
Location Code:

Location Details:

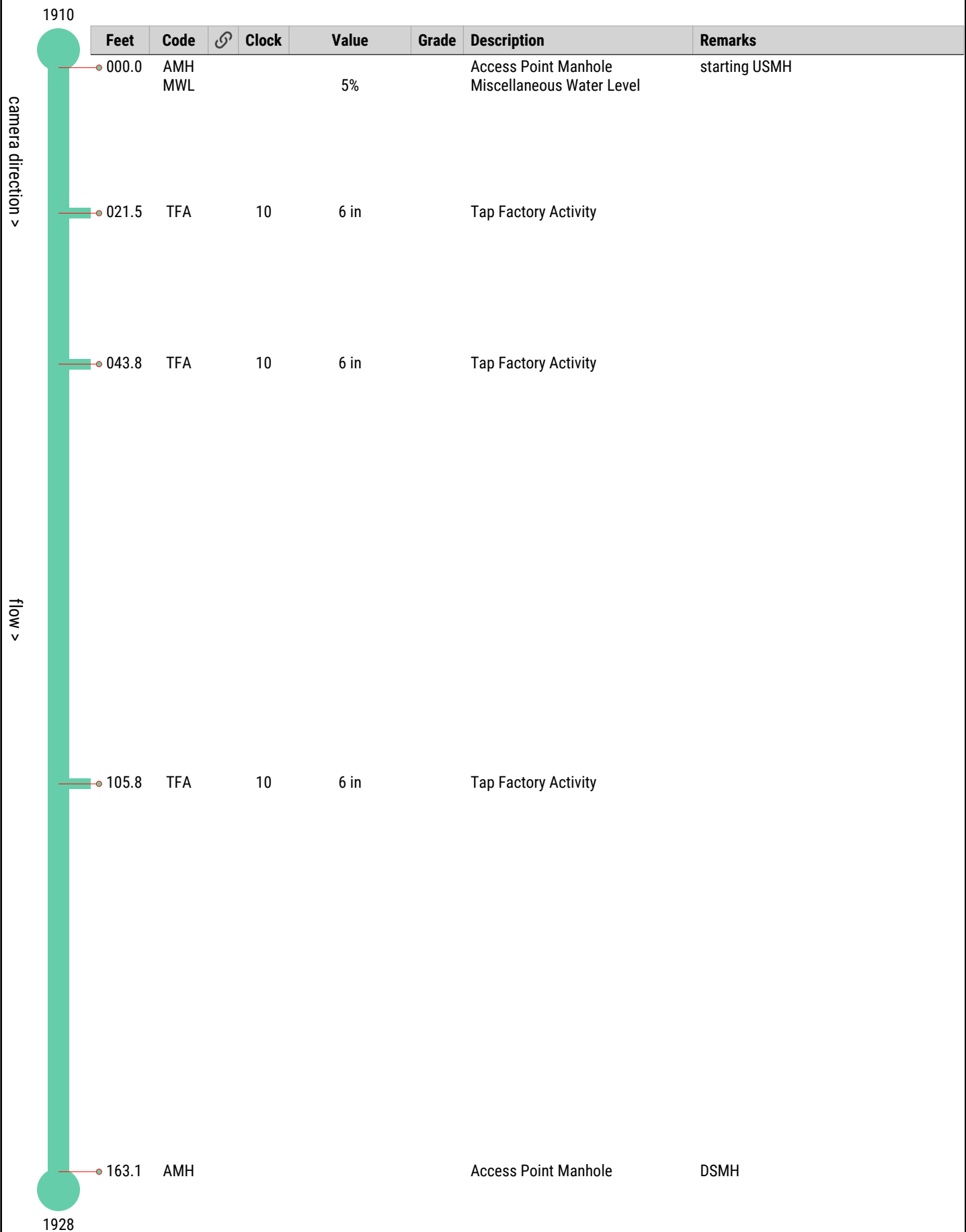
Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="0000"/>	<input type="text" value="0000"/>	<input type="text" value="0000"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Rating Index:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations



Snapshots



Access Point Manhole at 000.0 ft | starting USMH



Miscellaneous Water Level at 000.0 ft



Tap Factory Activity at 021.5 ft, 10 o'clock



Tap Factory Activity at 043.8 ft, 10 o'clock



Tap Factory Activity at 105.8 ft, 10 o'clock



Access Point Manhole at 163.1 ft | DSMH



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="14.0 ft"/>	<input type="text" value="14.0 ft"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

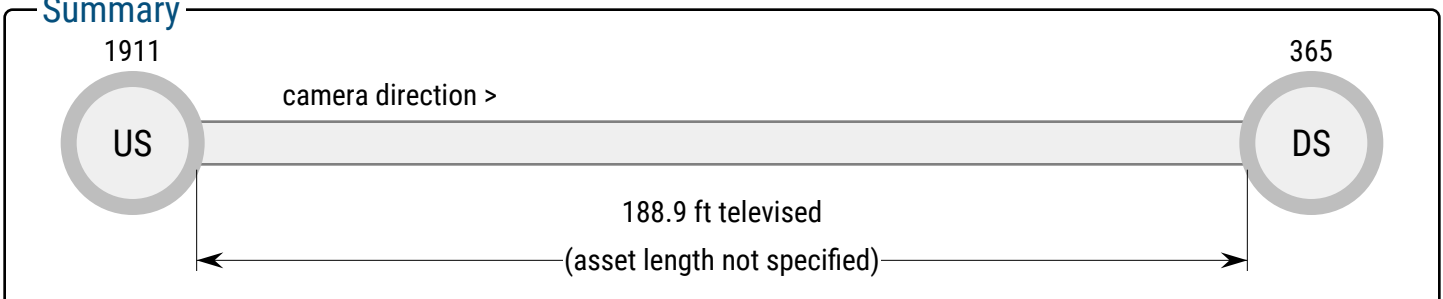
Location Code:

Location Details:

Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="0000"/>	<input type="text" value="0000"/>	<input type="text" value="0000"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Rating Index:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Consequence of Failure:	<input type="text"/>		

Summary




Observations

1911

camera direction >

flow >

Feet	Code		Clock	Value	Grade	Description	Remarks
000.0	AMH MWL			5%		Access Point Manhole Miscellaneous Water Level	starting USMH

188.9

AMH

Access Point Manhole

DSMH

365

Snapshots



Access Point Manhole at 000.0 ft | starting USMH



Miscellaneous Water Level at 000.0 ft



Access Point Manhole at 188.9 ft | DSMH



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="15.0 ft"/>	<input type="text" value="14.0 ft"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

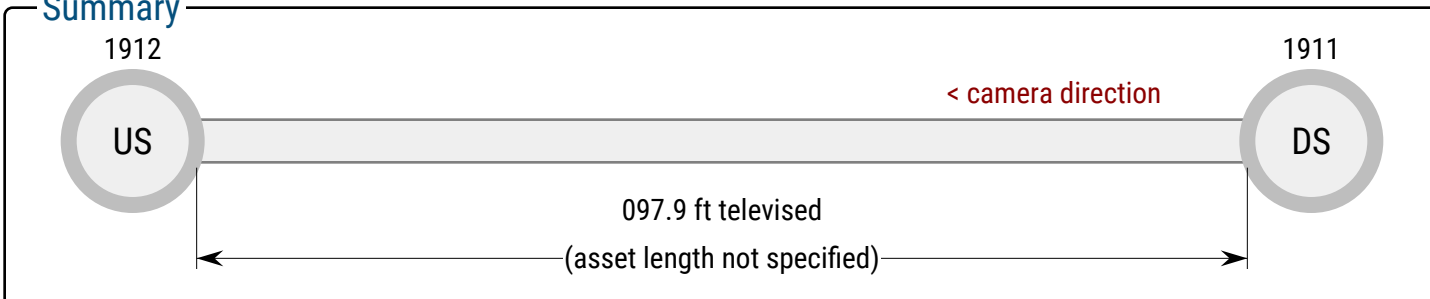
Location Code:

Location Details:

Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="0000"/>	<input type="text" value="0000"/>	<input type="text" value="0000"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Rating Index:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations

1912

Feet	Code		Clock	Value	Grade	Description	Remarks
------	------	---	-------	-------	-------	-------------	---------

097.9	AMH					Access Point Manhole	USMH
-------	-----	--	--	--	--	----------------------	------

< MOJf

camera direction >

000.0

000.0	MWL AMH			15%		Miscellaneous Water Level Access Point Manhole	starting DSMH
-------	------------	--	--	-----	--	---	---------------

1911

Snapshots



Access Point Manhole at 000.0 ft | starting DSMH



Miscellaneous Water Level at 000.0 ft



Access Point Manhole at 097.9 ft | USMH



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="9.0 ft"/>	<input type="text" value="15.0 ft"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

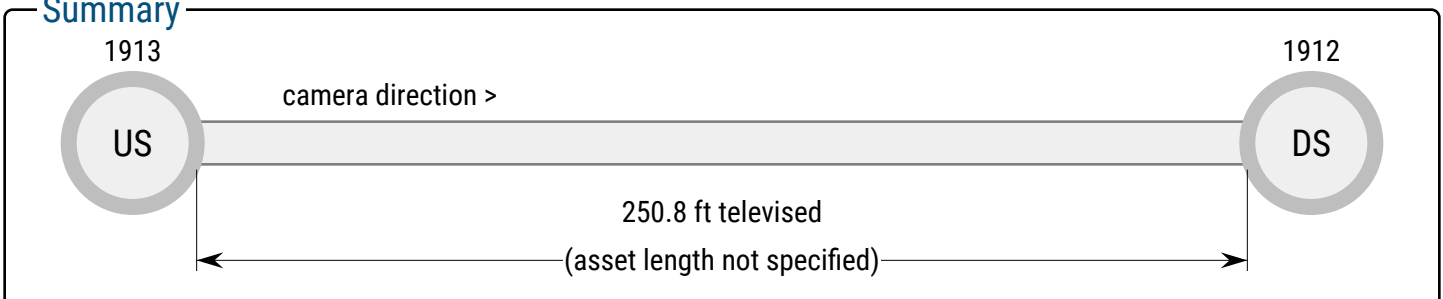
Location Code:

Location Details:

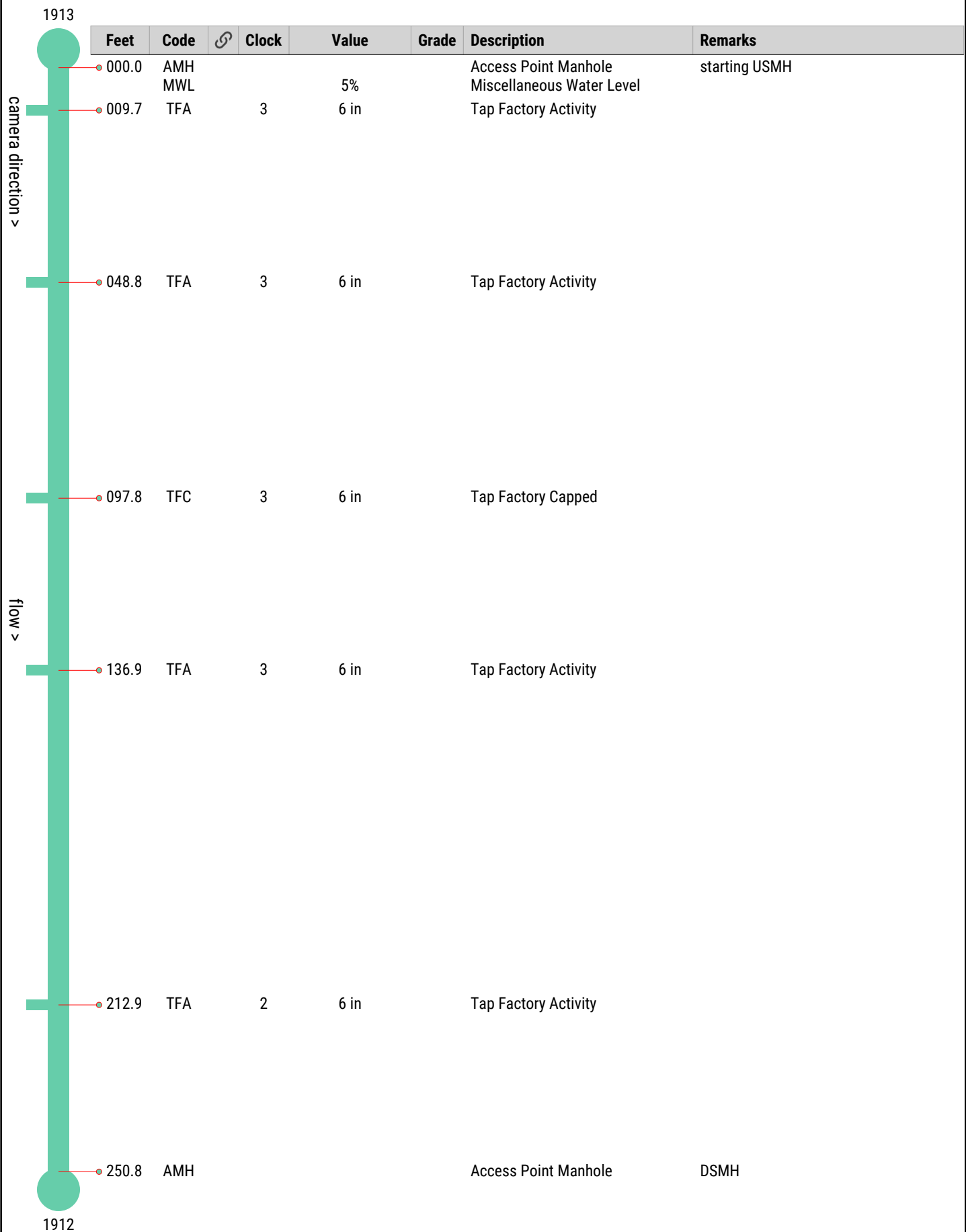
Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="0000"/>	<input type="text" value="0000"/>	<input type="text" value="0000"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Rating Index:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations



Snapshots



Access Point Manhole at 000.0 ft | starting USMH



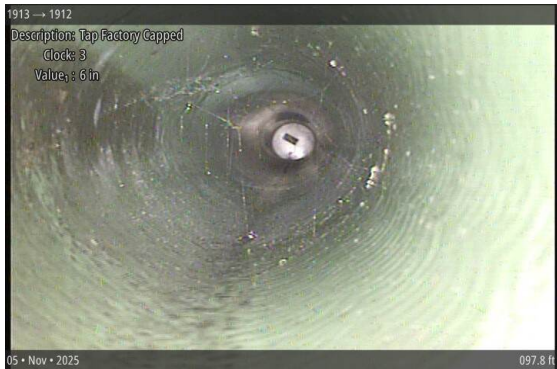
Miscellaneous Water Level at 000.0 ft



Tap Factory Activity at 009.7 ft, 3 o'clock



Tap Factory Activity at 048.8 ft, 3 o'clock



Tap Factory Capped at 097.8 ft, 3 o'clock



Tap Factory Activity at 136.9 ft, 3 o'clock



Tap Factory Activity at 212.9 ft, 2 o'clock



Access Point Manhole at 250.8 ft | DSMH



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="10.0 ft"/>	<input type="text" value="10.0 ft"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

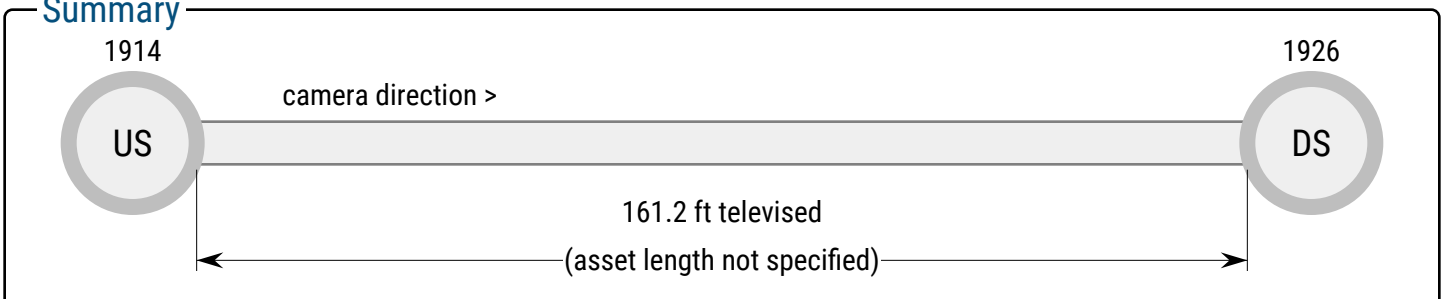
Location Code:

Location Details:

Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="0000"/>	<input type="text" value="0000"/>	<input type="text" value="0000"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Rating Index:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations

1914

camera direction >

flow >

Feet	Code	Clock	Value	Grade	Description	Remarks
------	------	-------	-------	-------	-------------	---------

000.0	AMH MWL		5%		Access Point Manhole Miscellaneous Water Level	starting USMH
-------	------------	--	----	--	---	---------------

028.5	TFA	9	6 in		Tap Factory Activity	
-------	-----	---	------	--	----------------------	--

039.1	TFA	9	6 in		Tap Factory Activity	
-------	-----	---	------	--	----------------------	--

119.0	TFA	9	6 in		Tap Factory Activity	
-------	-----	---	------	--	----------------------	--

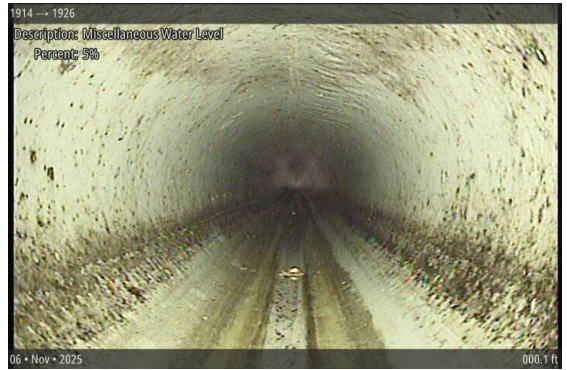
161.2	AMH				Access Point Manhole	DSMH
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1926

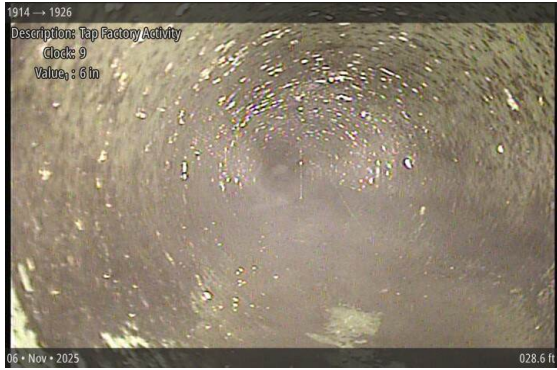
Snapshots



Access Point Manhole at 000.0 ft | starting USMH



Miscellaneous Water Level at 000.0 ft



Tap Factory Activity at 028.5 ft, 9 o'clock



Tap Factory Activity at 039.1 ft, 9 o'clock



Tap Factory Activity at 119.0 ft, 9 o'clock



Access Point Manhole at 161.2 ft | DSMH



Asset

Owner:

PSR:

Upstream MH: 1915

Downstream MH: 353

	USMH	DSMH
Rim to Invert:	15.0 ft	15.0 ft
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry: 8 in (Circular)

Material: Polyvinyl Chloride

Lining Method:

Coating Method:

Year Constructed:

Pipe Use: Sanitary Sewage Pipe

Total Length: (unspecified)

Project

Project:

Job #: HRG100-3

Customer: H R GREEN

PO Number:

Additional Info:

Inspection

Media Date/Time: 06 • Nov • 2025 08:09

Contractor: National Power Rodding

Surveyed By: C EARLING (U-1211-13957)

Reviewed By:

Camera Direction: Downstream

Purpose:

Technology:

Pre-Cleaning: Light Cleaning

Date Cleaned:

Flow Control:

Length Surveyed: 076.0 ft

Weather:

Location

Address: COMMONWEALTH AVE, WESTERN

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

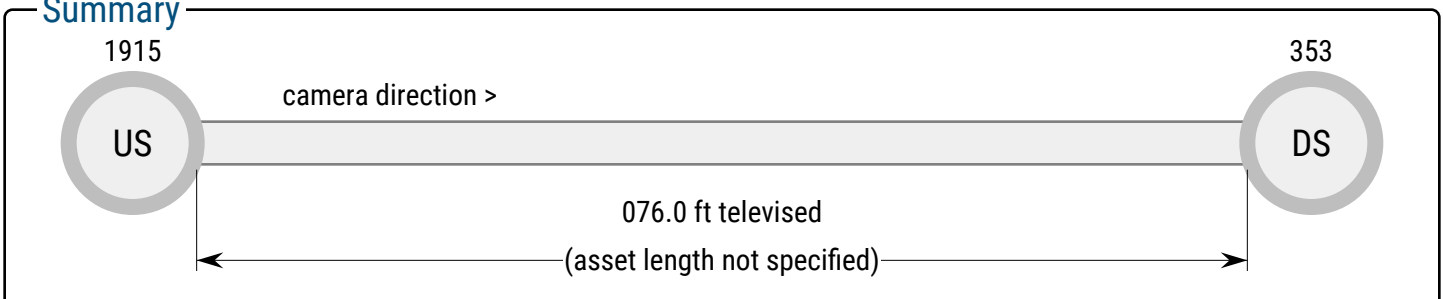
Location Code: Local/Rural Street

Location Details:

Ratings

	Structural	O & M	Overall
Quick:	0000	0000	0000
$\sum_{i=1}^5 SG_i$ Pipe Rating:	0	0	0
Rating Index:	0	0	0
Consequence of Failure:	<input type="text"/>		

Summary




Observations

1915

camera direction >

flow >

Feet	Code		Clock	Value	Grade	Description	Remarks
000.0	AMH MWL			15%		Access Point Manhole Miscellaneous Water Level	starting USMH

076.0

AMH

Access Point Manhole

DSMH DROP CONNECT

353

Snapshots



Access Point Manhole at 000.0 ft | starting USMH



Miscellaneous Water Level at 000.0 ft



Access Point Manhole at 076.0 ft | DSMH DROP CONNECT



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="15.0 ft"/>	<input type="text" value="18.0 ft"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

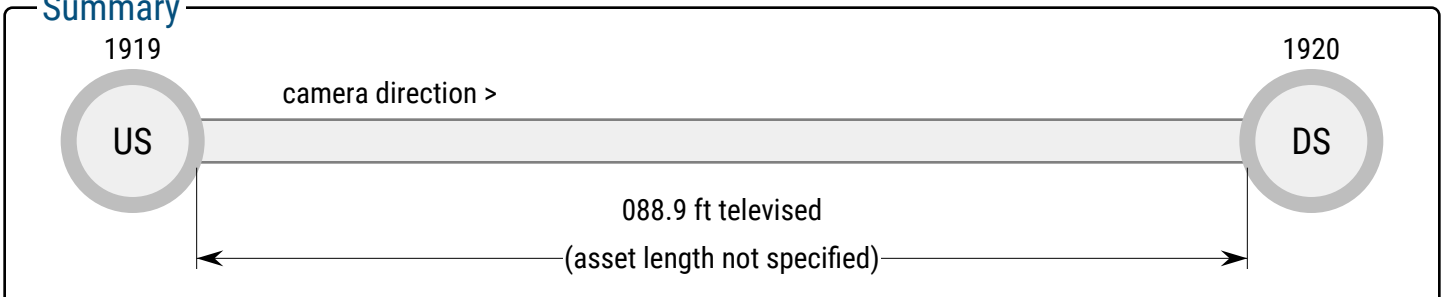
Location Code:

Location Details:

Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="0000"/>	<input type="text" value="0000"/>	<input type="text" value="0000"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Rating Index:	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations

1919

camera direction >

flow >

Feet	Code		Clock	Value	Grade	Description	Remarks
------	------	--	-------	-------	-------	-------------	---------

000.0	AMH MWL			5%		Access Point Manhole Miscellaneous Water Level	starting USMH
-------	------------	--	--	----	--	---	---------------

009.9	TFC		9	6 in		Tap Factory Capped	
-------	-----	--	---	------	--	--------------------	--

011.8	TFC		9	6 in		Tap Factory Capped	
-------	-----	--	---	------	--	--------------------	--

088.9	AMH					Access Point Manhole	DSMH
-------	-----	--	--	--	--	----------------------	------

1920

Snapshots



Access Point Manhole at 000.0 ft | starting USMH



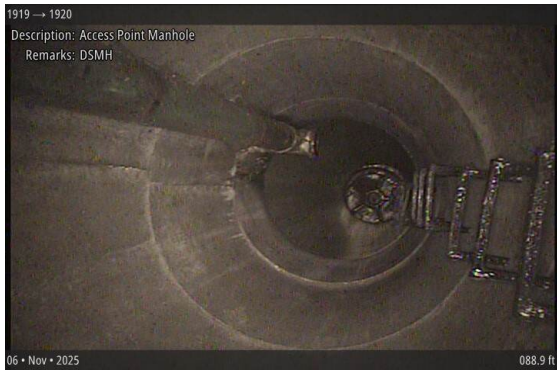
Miscellaneous Water Level at 000.0 ft



Tap Factory Capped at 009.9 ft, 9 o'clock



Tap Factory Capped at 011.8 ft, 9 o'clock



Access Point Manhole at 088.9 ft | DSMH



Asset

Owner:

PSR:

Upstream MH:

Downstream MH:

	USMH	DSMH
Rim to Invert:	<input type="text" value="10.0 ft"/>	<input type="text" value="13.0 ft"/>
Rim to Grade:	<input type="text"/>	<input type="text"/>

Pipe Geometry:

Material:

Lining Method:

Coating Method:

Year Constructed:

Pipe Use:

Total Length:

Project

Project:

Job #:

Customer:

PO Number:

Additional Info:

Inspection

Media Date/Time:

Contractor:

Surveyed By:

Reviewed By:

Camera Direction:

Purpose:

Technology:

Pre-Cleaning:

Date Cleaned:

Flow Control:

Length Surveyed:

Weather:

Location

Address:

Drainage Area:

Latitude:

Longitude:

Elevation:

GPS Accuracy:

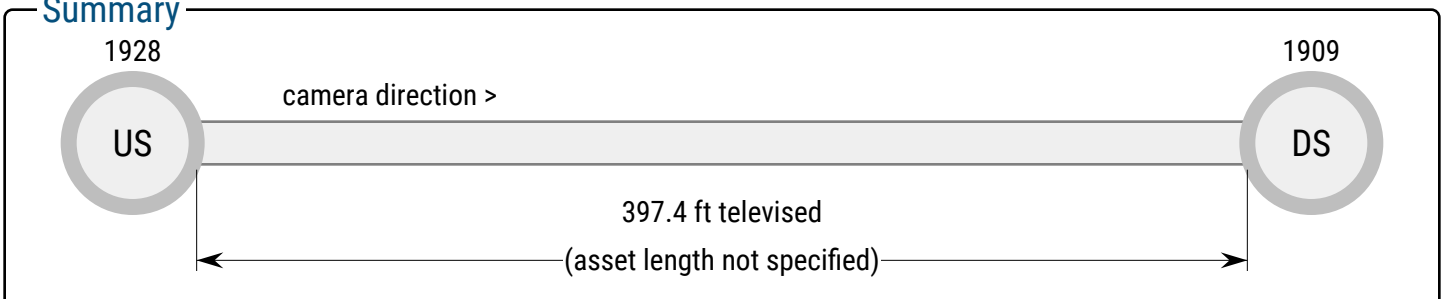
Location Code:

Location Details:

Ratings

	Structural	O & M	Overall
Quick:	<input type="text" value="4322"/>	<input type="text" value="0000"/>	<input type="text" value="4322"/>
$\sum_{i=1}^5 SG_i$ Pipe Rating:	<input type="text" value="16"/>	<input type="text" value="0"/>	<input type="text" value="16"/>
Rating Index:	<input type="text" value="3.2"/>	<input type="text" value="0"/>	<input type="text" value="3.2"/>
Consequence of Failure:	<input type="text"/>		

Summary



Observations

1928

camera direction >

flow >

Feet	Code	Clock	Value	Grade	Description	Remarks
000.0	AMH MWL		5%		Access Point Manhole Miscellaneous Water Level	starting USMH
024.2	TFA	10	6 in		Tap Factory Activity	
082.9	TFA	10	6 in		Tap Factory Activity	
086.6	TFA	10	6 in		Tap Factory Activity	
160.9	TFA	10	6 in		Tap Factory Activity	
204.2	JOL			4	Joint Offset Large	
204.4	RPR				Repair Point Pipe Replaced	PVC REPAIR
206.5	MWLS		10%	2	Miscellaneous Water Level Sag	
207.4	TFA	10	6 in		Tap Factory Activity	
208.4	JOL			4	Joint Offset Large	
214.1	TFA	10	6 in		Tap Factory Activity	
292.4	RPR				Repair Point Pipe Replaced	PVC REPAIR
292.4	JOL			4	Joint Offset Large	
293.8	TFA	10	6 in		Tap Factory Activity	
295.2	TFA	10	6 in		Tap Factory Activity	
299.9	TFA	10	6 in		Tap Factory Activity	
300.8	MWLS		10%	2	Miscellaneous Water Level Sag	
301.0	TFA	10	6 in		Tap Factory Activity	
369.1	TFA	10	6 in		Tap Factory Activity	
397.4	AMH				Access Point Manhole	DSMH

1909

Snapshots



Access Point Manhole at 000.0 ft | starting USMH



Miscellaneous Water Level at 000.0 ft



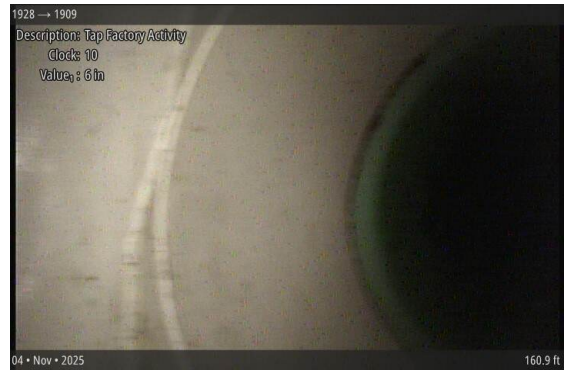
Tap Factory Activity at 024.2 ft, 10 o'clock



Tap Factory Activity at 082.9 ft, 10 o'clock



Tap Factory Activity at 086.6 ft, 10 o'clock



Tap Factory Activity at 160.9 ft, 10 o'clock



[Grade 4] Joint Offset Large at 204.2 ft



Repair Point Pipe Replaced at 204.4 ft | PVC REPAIR

Snapshots



[Grade 2] Miscellaneous Water Level Sag at 206.5 ft



Tap Factory Activity at 207.4 ft, 10 o'clock



[Grade 4] Joint Offset Large at 208.4 ft



Tap Factory Activity at 214.1 ft, 10 o'clock



[Grade 4] Joint Offset Large at 292.4 ft



Repair Point Pipe Replaced at 292.4 ft | PVC REPAIR



Tap Factory Activity at 293.8 ft, 10 o'clock



Tap Factory Activity at 295.2 ft, 10 o'clock

Snapshots



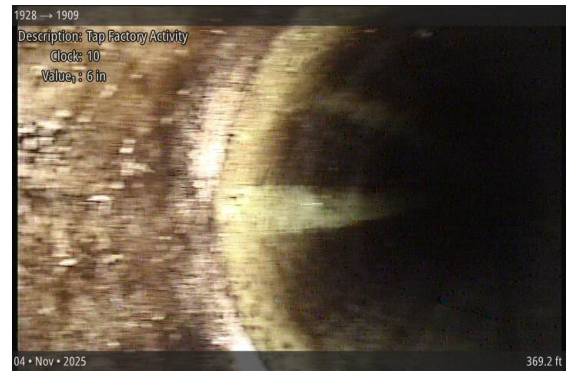
Tap Factory Activity at 299.9 ft, 10 o'clock



[Grade 2] Miscellaneous Water Level Sag at 300.8 ft



Tap Factory Activity at 301.0 ft, 10 o'clock



Tap Factory Activity at 369.1 ft, 10 o'clock



Access Point Manhole at 397.4 ft | DSMH



MEMORANDUM

Subject: 51st Street Stormwater Analysis
Village of Western Springs



Date: 3/18/2026

To: Jeff Koza, PE – Village Engineer **From:** Joe Wilk, PE, CFM
Jeff Julkowski, PE, CFM

Christopher B. Burke Engineering, Ltd. (CBBEL) was hired by the Village of Western Springs (Village) to provide professional engineering services for the 51st Street Road Reconstruction and Water Main Replacement project. During the initial Site Investigation phase of project development, CBBEL collected existing conditions information and analyzed existing infrastructure needs. In analyzing the existing infrastructure, one of CBBEL’s tasks was to perform a detailed stormwater analysis to understand the drainage problems in the watershed. The purpose of this memorandum is to summarize the findings of the detailed stormwater analysis along 51st Street in the Village. Please see **Exhibit 1** for a location map.

Data Collection and Study Development

Storm sewer data, including location, elevation, and size were collected by field survey, design and as-built documents, and the Village’s GIS database. **Exhibit 2** contains a storm sewer map of the entire study area.

A previous stormwater study performed by CBBEL in the nearby Springdale Subdivision, titled “Southeast Stormwater Study”, was used as a basis for this new study, as there is a hydraulic connection between 51st Street and Springdale Park. The newly completed drainage upgrades on Howard Avenue at 54th Street and at Springdale Park were incorporated into this new study.

A majority of the watershed consist of 1/4-acre to 1/3-acre single family homes. Other notable locations include a 12-acre site for St. John Parish, a 52-acre site for Lyons Township High School, and a 12-acre site for the Garden Market Shopping Center. The three known locations of notable stormwater detention within the watershed include: Lyons Township High School, St. John Parish, and the newly completed Springdale Park basin. It is not known whether there is stormwater detention for the Market Garden Shopping Center.

Stormwater Analysis

CBBEL performed a stormwater analysis of the project area to identify drainage problems and potential improvements that may be practical to construct as part of the 51st Street Road Reconstruction and Water Main Replacement project. An approximate 365-acre watershed

was studied in detail by creating a PC-SWMM hydrologic and hydraulic model. The model was developed based on surveyed storm sewers in conjunction with the Village GIS database, design and as-built documents, and multiple site visits. It is a continuation of the Springdale Subdivision drainage study hydraulic model previously completed by CBBEL.

The drainage subbasins were delineated with all available data and can be found on **Exhibit 3**. The watershed contains four stormwater outfalls to Flagg Creek, each with their own drainage areas, as seen on **Exhibit 4**.

- 36" Diameter RCP at 51st Street = 25.6 Acre Drainage Area
- 30" Diameter RCP at 51st Street = 18.2 Acre Drainage Area
- 54" Diameter RCP at 53rd Street = 273.5 Acre Drainage Area
- 36" Diameter RCP at 52nd Street = 48.2 Acre Drainage Area

The 36" diameter reinforced concrete pipe (RCP) storm sewer running along 51st Street between Wolf Road and Flagg Creek is owned and maintained by the Cook County Department of Transportation & Highways (CCDOH). This sewer was installed in the 1990's and drains Wolf Road. It also drains significant overland flow from upstream areas that are not directly connected to the CCDOH system. The CCDOH storm sewer can be seen more clearly on **Exhibits 5 & 6**.

The 30" diameter RCP running along 51st Street between Wolf Road and Flagg Creek is a Village storm sewer which originates at Lawn Avenue and 51st Street. Both storm sewers on 51st Street discharge into Flagg Creek and run parallel to each other on the south side of the roadway and beneath the parkway. Based on a site visit conducted by CBBEL staff on January 16, 2026, it appears these two outfalls to Flagg Creek were recently reconstructed. When these outfalls were likely reconstructed, the Village outfall was replaced with a 30" RCP instead of a 36" RCP, which is the size of the storm sewer from Fair Elms Avenue and back to Woodland Avenue.

The 54" diameter RCP at the 53rd Street outfall drains nearly 75% of the studied watershed. This large diameter storm sewer originates at Caroline and 51st Street and runs alongside Springdale Park. It eventually discharges into Flagg Creek at 53rd Street. The Springdale Park/53rd Street system was included in this analysis due to its proximity to 51st Street, its contribution of overland flows to the 51st Street system, and the potential for the 51st Street project to improve stormwater problems in adjacent areas.

The 36" diameter RCP at 52nd Street was incorporated into the PC-SWMM model to account for excess runoff from 51st Street which may bypass inlets and overland flow south down the side streets west of Wolf Road.

Modeling Results

CBBEL modeled the 10-year and 100-year Bulletin 75 design storm events for Northeast Illinois. The 2-hour storm duration was determined to be the critical duration, as it also was in the previous Springdale Subdivision drainage study. The modeling results showed several drainage problem areas throughout the watershed. These problems were mainly due to inadequate storm sewer conveyance without enough available storage volume on the surface. The attached **Exhibits 7-10** show stormwater ponding locations for each storm event modeled.

Four significant ponding areas in the vicinity of the 51st Street Road Reconstruction and Water Main Replacement project were identified:

- Caroline Avenue at 50th Place.
 - This depressional area has a 10-year and 100-year water ponding depth at the curb line of 1.2' and 1.7', respectively. No structures appear to be at risk of flooding. Per a 2001 design engineering plan sheet for the St. John Parish School renovation, the finished-floor-elevation (FFE) of the building is 656.1', which is approximately 0.6' higher than the 100-year water ponding elevation the computer model calculated. At this 'T' intersection, there is approximately 102-acres tributary to a 36" RCP storm sewer. This is a substantial area for such a storm sewer size. Ponding from the 10-year storm event, which reaches a depth of 1.2', overflows to the south and west down 51st Street but is then picked up by the Village storm sewer. However, the runoff produced from the 100-year storm event, which reaches a ponding depth of 1.7', creates a significant amount of overflow down 51st Street heading west towards Wolf Road. This overflow from the depressional area and storm sewer surcharging at Caroline Avenue and 51st Street results in 51st Street acting conveying significant overland flow and causing the road to be impassable.
- Wolf Road just south of 51st Street.
 - This depressional area has a 10-year and 100-year water ponding depth at the curb line of 0.0' and 1.0', respectively. The storm sewer network, which is owned and maintained by CCDOTH, is able to effectively convey the 10-year storm event, however, the 100-year storm event results in significant roadway ponding making Wolf Road impassable to vehicular traffic. This problem area results from the overland flow coming down 51st Street from Caroline Avenue, as mentioned in the previous paragraph. Per the 2022 Cook County Digital-Terrain-Model (DTM), we estimate that two residential structures on the west side of Wolf Road may be at risk of flooding. An FFE survey would be required to accurately determine this potential risk. The significant ponding at this

location is due primarily to overland flow coming from the intersection of 51st Street and Caroline Avenue.

- 51st Street just west of Harvey Road.
 - This depressional area has a 10-year and 100-year water ponding depth at the curb line of 0.5' and 2.6', respectively. This sag in the roadway is located at the far eastern portion of the 51st Street project limits. Although there are only 16-acres tributary to a 24" RCP storm sewer, there is not enough conveyance capacity in the sewer to effectively convey the runoff nor is there enough surface depressional storage volume to effectively store the excess runoff at a safe depth. 51st Street would be impassable to vehicular traffic for storms much larger than a 10-year event. Per the 2022 Cook County DTM, we estimate up to nine residential structures may be at risk from overland flooding resulting from the 100-year storm event. An FFE survey would be required to accurately determine this potential risk.
- Rugeley Road & 50th Place
 - This depressional area has a 10-year and 100-year water ponding depth at the curb line of 0.8' and 1.9', respectively. This sag in the roadway is located outside of the 51st Street reconstruction and watermain replacement area, however, is within the watershed and contributes to the flooding at Caroline Avenue at 51st Street. Although there are only 10-acres directly tributary to the sag in the roadway, which is drained via a 27" RCP storm sewer, there is over 33-acres of drainage area from the Lyons Township High School which conveys runoff to this intersection via a 24" and 27" RCP storm sewer. Runoff from Lyons Township High School overwhelms the 27" RCP storm sewer and surcharges onto the roadway, which in turn does not have enough surface depressional storage volume to effectively store the excess runoff at a safe depth. However, per the Cook County 2022 DTM, we estimate that no structures would be at risk from overland flooding as a result of the 100-year storm event.

Alternatives Analysis

CBBEL was directed by the Village was to develop potential stormwater improvement projects that improve the significant ponding areas in the vicinity of the 51st Street project. The design criteria established by the Village for potential projects were that there can be no more than one foot of ponding at the curb line resulting from the 10-year storm event and no structure flooding risk resulting from the 100-year storm event.

Multiple stormwater improvement alternatives were analyzed. Note that none of these alternatives address the Rugeley Road ponding area because modeled conditions do not exceed the Village’s ponding depth and structure risk criteria. This area is also outside of the project limits and could be addressed at any time with a stand-alone project.

The alternatives are summarized as follows:

Alternative 1A – 51st Street, Caroline to Flag Creek, 10-Year Design:

Alternative 1A was developed to meet the Village’s suggested criteria with no more than one foot of ponding on the road surface for a 10-year storm event and no structures considered at risk of flooding for a 100-year storm event. The Village’s storm sewer on 51st Street between Woodland Avenue and Lawn Avenue would be removed and upsized as shown in the **Figure 1** and **Exhibits 11 & 12**. The storm sewer would also be extended east across Wolf Road, as shown in **Figure 2**, to help alleviate ponding and overland flow on Caroline between 50th and 51st to meet the suggested criteria. The existing Village storm sewer west of Woodland, a 36” RCP and subsequent 30” RCP outfall, and the CCDOTH storm sewer would remain undisturbed. Although the Village storm sewer downsizes to a 30” RCP at Flag Creek, the drop in profile is substantial enough to not create adverse impacts to the hydraulic-grade-line (HGL). See **Figure 3** for a 10-year storm event profile of the Village storm sewer from Lawn Avenue to Flag Creek with Alternative 1A.



Figure 1. Upsized Village Storm Sewer between Woodland Ave & Lawn Ave

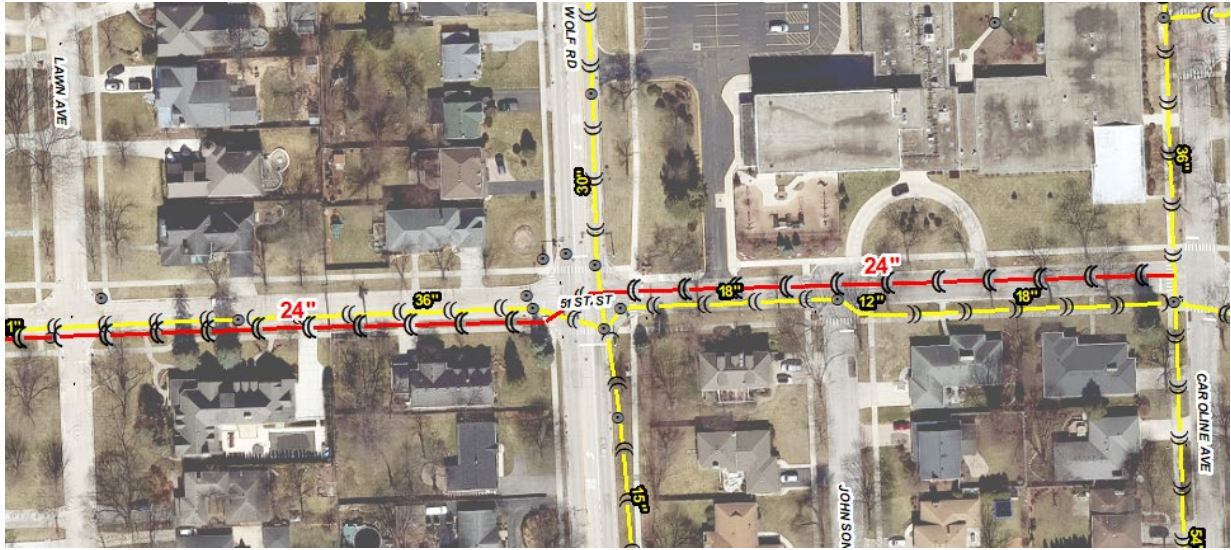


Figure 2. New Storm Sewer between Lawn Ave & Caroline Ave

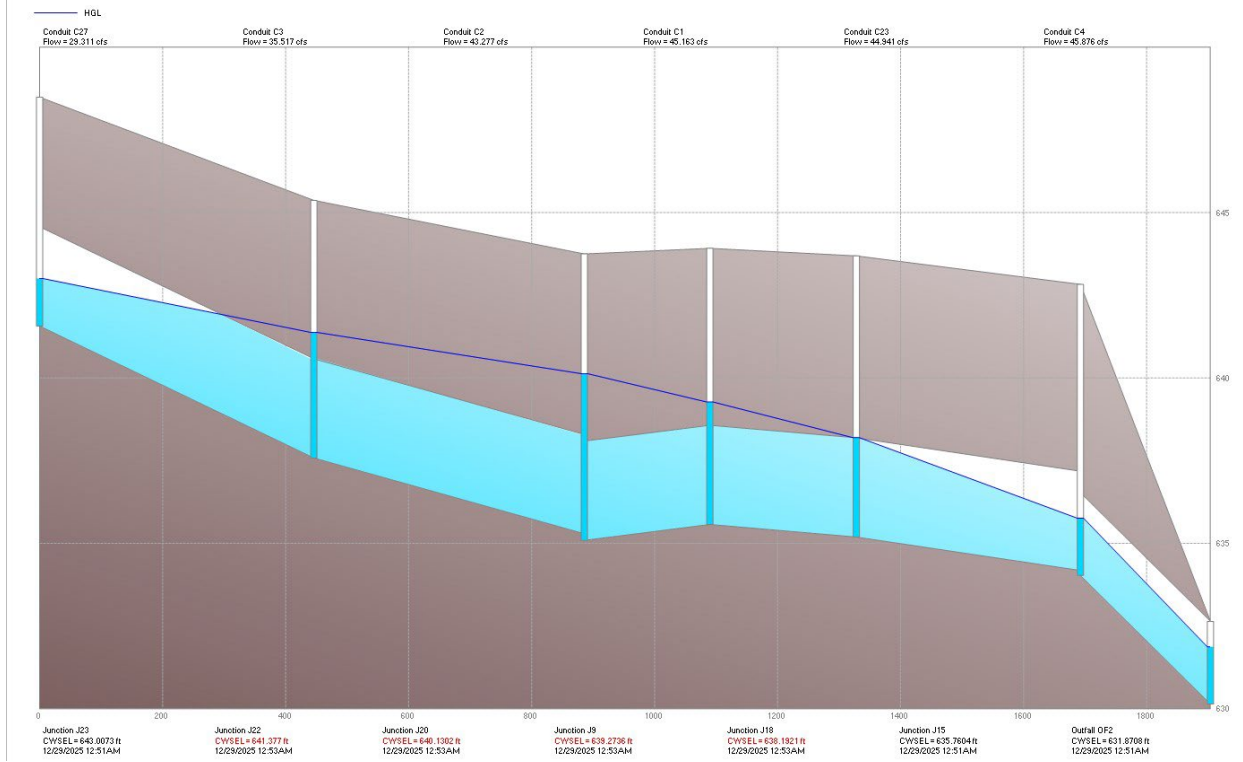


Figure 3. PCSWMM 10-Year Profile of Upsized and Existing Village Storm Sewer from Lawn Ave to Flagg Creek.

Note that this alternative provides modest benefits as it only improves the 50th/51st/Caroline Avenue intersection by 0.2' to meet the Village's design criteria and does not improve any surrounding areas.

Estimated Construction Cost: \$X.XM

Alternative 1B – 51st Street, Caroline to Flagg Creek, 100-Year Design:

Alternative 1B was developed to examine the improvements that would be required to provide further protection so that 100-year ponding depth is limited to approximately one foot at the curblines. The entirety of the Village's 51st Street storm sewer would be removed and upsized from Caroline Avenue to the Flagg Creek as shown on **Figure 4** and **Exhibits 13 & 14**. The existing CCDOTH storm sewer would remain undisturbed.

This alternative would significantly reduce ponding on Wolf Road so that it would remain passable to vehicular traffic in a 100-year storm event. It would also provide benefits to the area between 51st and 53rd Streets west of Wolf Road by reducing the amount of overland flow that reaches this area. The depths of ponding would be reduced by approximately 0.2' in those areas.



Figure 4. Upsized and New Storm Sewer on 51st Street from Caroline Ave to Flagg Creek

Estimated Construction Cost: \$X.XM

Alternative 2A – Combine Village and CCDOTH Storm Sewer, 10-Year Design:

Alternative 2A is similar to Alternative 1A, however the new storm sewer down 51st Street west of Wolf Road is sized to replace both the CCDOTH and Village storm sewer by combining them into a singular pipe, as shown on **Figure 5** and **Exhibits 15 & 16**. A new 24” RCP will be installed between Caroline Avenue and Wolf Road on 51st Street to reduce the overland flow coming down 51st street from Caroline Avenue. Combining these systems would reduce the storm sewer footprint in the 51st Street Corridor and provide more space for other utility improvements, including construction of a new Village water main.

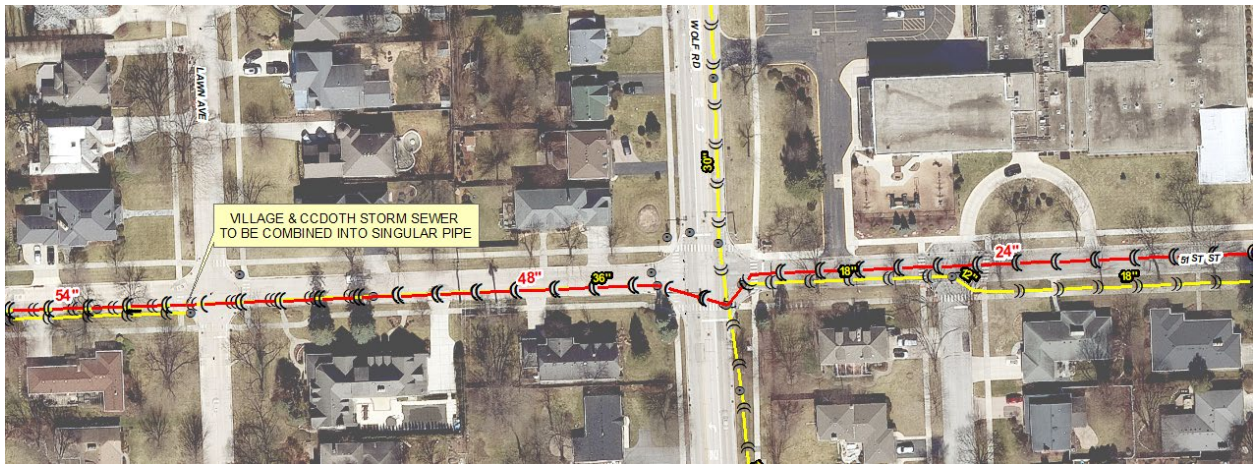


Figure 5. New Storm Sewer and Combining of Village & CCDOTH Storm Sewer on 51st Street

Estimated Construction Cost: \$X.XM

Alternative 2B – Combine Village and CCDOTH Storm Sewer, 100-Year Design:

Alternative 2B is similar to Alternative 1B, however the new storm sewer down 51st Street west of Wolf Road is sized to replace both the CCDOTH and Village storm sewer by combining them into a singular pipe, as shown on **Figure 6** and **Exhibits 17 & 18**. A new 48” RCP will be installed between Caroline Avenue and Wolf Road on 51st Street to reduce the overland flow coming down 51st Street from Caroline Avenue. Combining these systems would reduce the storm sewer footprint in the 51st Street Corridor and provide more space for other utility improvements, including construction of a new Village water main.

This alternative would significantly reduce ponding on Wolf Road so that it would remain passable to vehicular traffic in a 100-year storm event. It would also provide benefits to the area between 51st and 53rd Streets west of Wolf Road by reducing the amount of overland flow that reaches this area. The depths of ponding would be reduced by approximately 0.2’ in those areas.

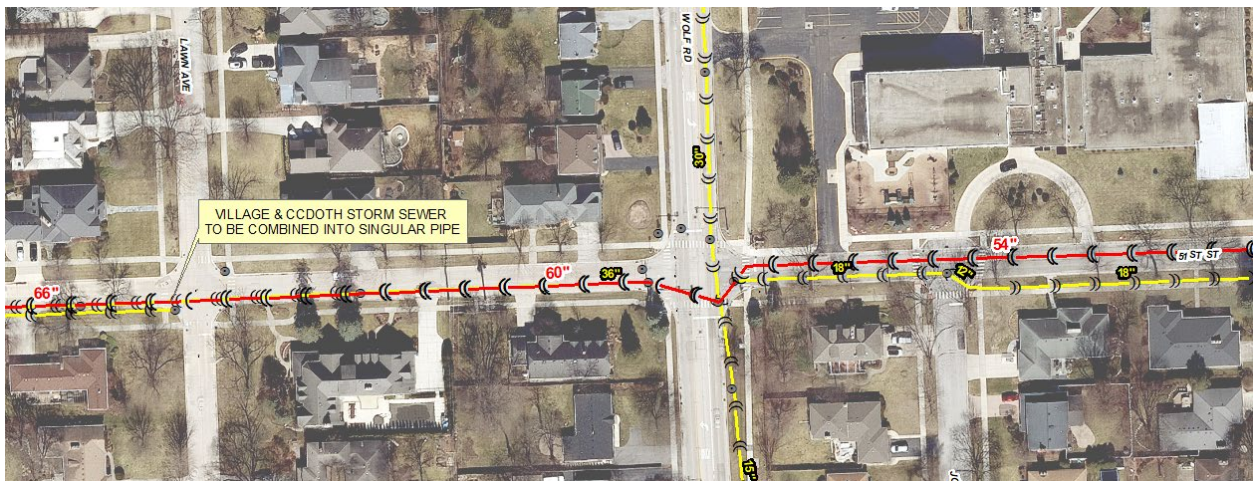


Figure 6. New Storm Sewer and Combining of Village & CCDOTH Storm Sewer on 51st Street

Estimated Construction Cost: \$X.XM

Alternative 3 – Harvey Avenue Depressional Area

Alternative 3 would address the 51st Street & Harvey Avenue water ponding issue through the use of underground storage. Conveyance options were not considered because this area drains to the Caroline/Springdale Park system and not the 51st Street outfall. If Alternative 1B or 2B are ultimately pursued and a large new storm sewer will be constructed on 51st street, it can be evaluated whether a further upsizing of that system to address the depressional flooding is preferred over underground storage.

This alternative would involve constructing approximately 1.0 ac-ft of underground storage volume in the 100 block of 51st Street right of way. The layout of this system and the ability to locate other necessary utilities in the right of way needs to be further examined. To increase the feasibility of this option, a greater invert depth is needed to minimize the required footprint of a vault system. A small diameter storm sewer (+/- 8") would be constructed on 51st Street with the sole function of draining the vault system to a downstream point in the system with a lower invert elevation. This line would cut through a ridge and could be in the 15' or more depth range.

Figure 7 and Exhibits 19 & 20 show the layout of this alternative. Note that this option would only address flooding on 51st Street near Harvey Avenue. Alternatives 1 or 2 would still be needed to address the western portion of the project area if so desired by the Village.

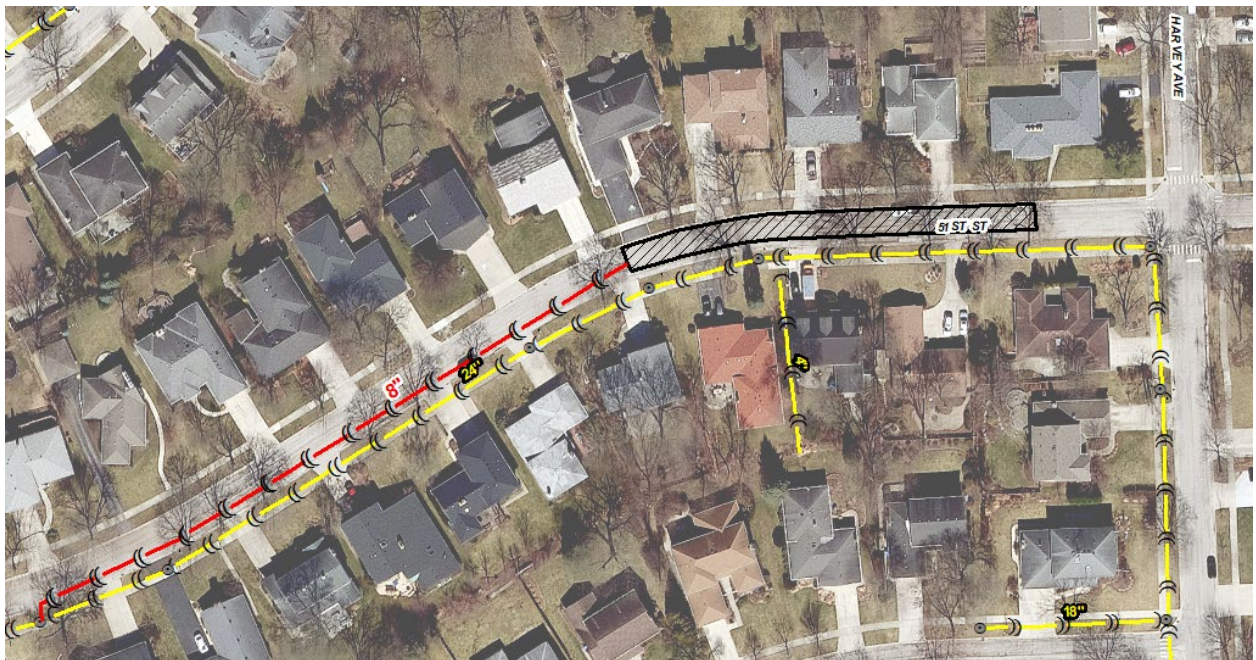


Figure 7. New Underground Vault and Outlet Storm Sewer

Estimated Construction Cost: \$X.XM

Alternatives Discussion

The alternatives presented were developed to provide a high-level examination of the stormwater problems that could be improved as part of the 51st Street reconstruction project. The following bullet points are provided for further background to assist the Village with selection of an alternative(s):

- The project limits show minimal ponding in a 10-year event in the existing condition. One option not specifically presented is to leave the system as it is without major improvements. If selected, this option would leave no viable options to improve the ponding on Caroline near 50th Place which is significant during larger storm events, since improvement options would be reliant upon downstream conveyance along 51st Street.
- Alternatives 1A and 2A meet the design criteria by reducing the 10-year ponding depth by 0.2', but are not recommended as they do not noticeably improve the existing system performance for the 100-year storm event and appear to have a minimal cost-benefit ratio.
- Flooding of the Wolf Road / 51st Street intersection occurs for storms greater than a 10-year event. If the Village wants to eliminate this ponding, **Alternative 1B or 2B** are required.
- **Alternative 2B**, which combines the Village and CCDOTH storm sewers into a single pipe, has similar performance as **Alternative 1B** but would simplify construction and minimize conflicts.
- Comparing **Alternatives 1B and 2B**, combining the Village and CCDOTH systems does not require a huge increase in pipe size and should be investigated further with CCDOTH.
- A majority of at-risk structures identified are at the east end of 51st Street near Harvey Avenue. This area drains to the Springdale/53rd Street system. An underground storage solution was selected because a conveyance option would require upsizing of pipes outside of the project limits – such as on Caroline Avenue into Springdale Park – and was assumed to not be feasible. If addressing at-risk structures is the only desired criteria, **Alternative 3** could be a stand-alone alternative.
- The Rugeley Road ponding area has a 10-year and 100-year ponding depth of 0.8' and 1.9', respectively, but no apparent at-risk structures. Storage-based solutions to this area do not appear to be contingent on any potential 51st Street project improvements and therefore have not been incorporated into the study.

- The alternatives presented have been preliminarily evaluated for utility conflicts. Although conflicts exist, we believe they can be resolved during design and that all alternatives presented are feasible.
- All alternatives presented in this memorandum would require a Watershed Management Permit from the Metropolitan Water Reclamation District of Greater Chicago (MWRD) in accordance with Watershed Management Ordinance (WMO) regulations. MWRD permit application fees are typically waived for municipality sewer projects.

Floodplain Analysis

Federal Emergency Management Agency (FEMA) Regulatory Zone AE Floodplain and Floodway is associated with Flagg Creek at the far western portion of 51st Street, as seen on **Exhibit 21**. This floodplain is restricted to the main channel of Flagg Creek, with no overbank flooding. The Base-Flood-Elevation (BFE) at the stormwater outfalls along Flagg Creek at 51st Street is 642.0'. If the stormwater outfalls are reconfigured or reconstructed, the project would require a permit from the Illinois Department of Natural Resources Office of Water Resources (IDNR-OWR), and the work would qualify for authorization under Regional Permit #3. A formal permit application submittal to IDNR-OWR for projects covered by Regional Permit #3 is usually not needed and is discouraged by IDNR-OWR. The Village will review the project for compliance and issue the local floodplain development permit. There is no fee anticipated for this permit.

In addition, if existing outfalls are modified or new outfalls are constructed by the Village project, a Watershed Management Permit will be required from the MWRD in accordance with WMO regulations. Any fill in the floodplain will need to be compensated appropriately at the WMO ratio of 1.1:1. MWRD permit application fees are typically waived for municipality sewer projects.

51st Street Reconstruction and Watermain Replacement

Village of Western Springs, Illinois
 Engineer's Opinion of Cost (Preliminary)

5/1/2026

	<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Cost</u>
WATER MAIN	Trench Backfill	Cu Yd	7,760	\$50	\$388,000
	DIWM, 6"	Foot	660	\$175	\$115,500
	DIWM, 8"	Foot	2,565	\$185	\$474,525
	DIWM, 12"	Foot	6,340	\$235	\$1,489,900
	DIWM, 12" (Directional Bore)	Foot	750	\$375	\$281,250
	Valve in Vault, 12"	Each	55	\$12,000	\$660,000
	Water Service Replacement (Main to B-Box)	Each	110	\$5,000	\$550,000
	Lead Water Service Replacement (B-Box to Meter)	Each	16	\$12,000	\$192,000
	Fire Hydrant and Auxiliary Valve	Each	31	\$12,000	\$372,000
	Shutdown Connection to Existing Water Main	Each	30	\$9,000	\$270,000
ROADWAY	PCC Pavement, 8" (Jointed)	Sq Yd	23,290	\$100	\$2,329,000
	Aggregate Base Course, 6"	Sq Yd	27,930	\$15	\$418,950
	Earth Excavation	Cu Yd	9,320	\$55	\$512,600
	Curb and Gutter Removal	Foot	16,910	\$8	\$135,280
	Curb and Gutter, Type B-6.12	Foot	16,910	\$45	\$760,950
	Sidewalk Removal & Replacement	Sq Ft	16,175	\$18	\$291,150
	Detectable Warnings	Sq Ft	860	\$40	\$34,400
	Driveway Pavement Removal	Sq Yd	2,840	\$25	\$71,000
	Pavement Removal	Sq Yd	23,290	\$15	\$349,350
	PCC Driveway Pavement	Sq Yd	2,840	\$110	\$312,400
Landscape Restoration (Sodding)	Sq Yd	22,860	\$20	\$457,200	
MISC.	Sanitary Sewer Repairs	L Sum	1	\$1,256,605	\$1,256,605
	Construction Layout (1%)	L Sum	1	\$117,223	\$117,223
	Traffic Control (4%)	L Sum	1	\$468,886	\$468,886
	Mobilization (5%)	L Sum	1	\$586,105	\$586,105

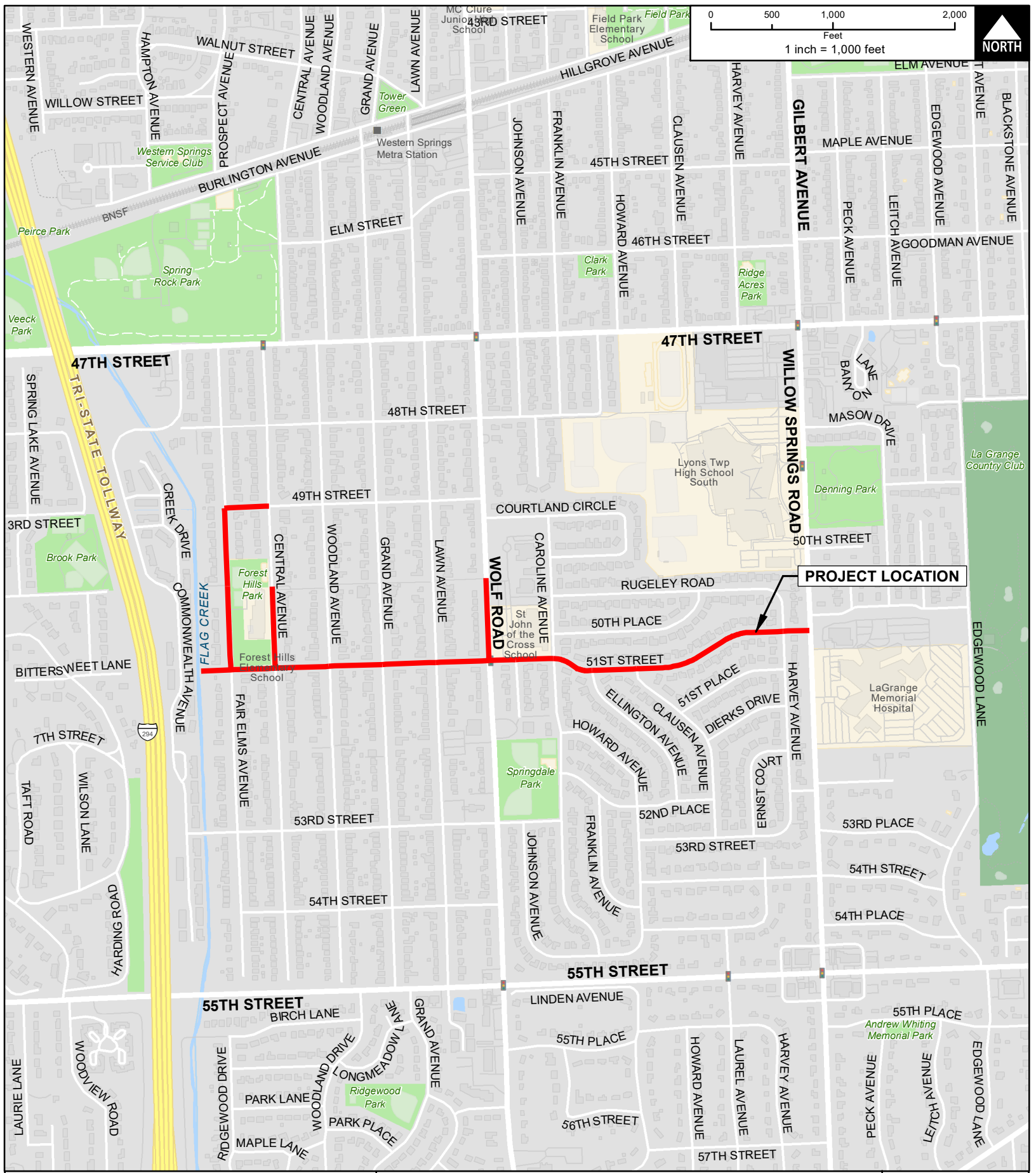
Drainage Improvements have been estimated separately and are not included in the above estimate, see below

Sub-Total	\$12,894,274
15% Contingency & Minor Items	\$1,934,142
Total Construction Cost (2026 Dollars)	\$14,828,416
5% Construction Cost Escalation (2027 Construction)	\$741,421
Total Construction Cost (2027 Dollars)	\$15,569,837
Design Engineering & Permitting (7.5%)	\$1,112,131
Construction Engineering (10%)	\$1,482,842
Engineering Total (See Note 6)	\$2,594,973
Total Project Cost (2027 Dollars)	\$18,164,810

Potential Drainage Improvement Costs					
Drainage Alternative	Estimated Construction Cost (2026 Dollars)	5% Construction Cost Escalation (2027 Const.)	Design Engineering (7.5%)	Construction Engineering (10%)	Total Drainage Improvement Cost (2027 Dollars)
1A	\$2,565,990.00	\$128,300.00	\$192,450.00	\$256,599.00	\$3,143,339.00
1B	\$7,226,520.00	\$361,326.00	\$541,989.00	\$722,652.00	\$8,852,487.00
2A	\$6,625,950.00	\$331,298.00	\$496,947.00	\$662,595.00	\$8,116,790.00
2B	\$7,876,290.00	\$393,815.00	\$590,722.00	\$787,629.00	\$9,648,456.00
3	\$1,232,820.00	\$61,641.00	\$92,462.00	\$123,282.00	\$1,510,205.00

Assumptions:

- All unit prices are in 2026 dollars.
- Cost estimate does not include private utility relocation work.
- This estimate assumes all excavated material to be hauled-off meets CCDD requirements.
- Cost for lead service replacement includes new copper service line from B-Box to the existing water meter and costs for interior home restoration necessary to replace service to meter.
- This estimate does not include right-of-way acquisition or easements.
- Engineering costs are calculated percentages of the total construction costs excluding escalation.
- Potential Drainage Improvement Costs would be in addition to the total project cost listed above for water main replacement and road reconstruction.



CLIENT: 

TITLE: **PROJECT LOCATION MAP**
51ST STREET STORMWATER ANALYSIS

PROJ. NO. 250230
 DATE: 3/6/2026
 SHEET 1 OF 1
 DRAWING NO.

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FILE:	EXH 1_Location Map		

EXH 1
 Page 352 of 475

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





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Feet
1 inch = 520 feet



SPRINGDALE PARK

Legend

-  PROJECT CORRIDOR
-  STORM MANHOLE
-  STORM SEWER
-  FLAGG CREEK
-  VILLAGE BOUNDARY

CLIENT:



TITLE:

**51ST STREET STORMWATER ANALYSIS
- STORM SEWER MAP**

PROJ. NO. 250230

DATE: 3/6/2026

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EXH 2

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1 inch = 520 feet



Legend

- SUBBASINS
- FLAGG CREEK
- VILLAGE BOUNDARY

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TITLE:

51ST STREET STORMWATER ANALYSIS - SUBBASIN MAP

PROJ. NO. 250230

DATE: 3/6/2026

SHEET 1 OF 1

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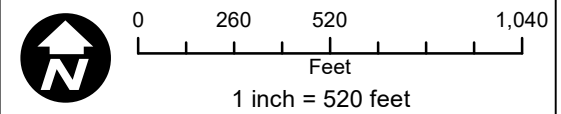
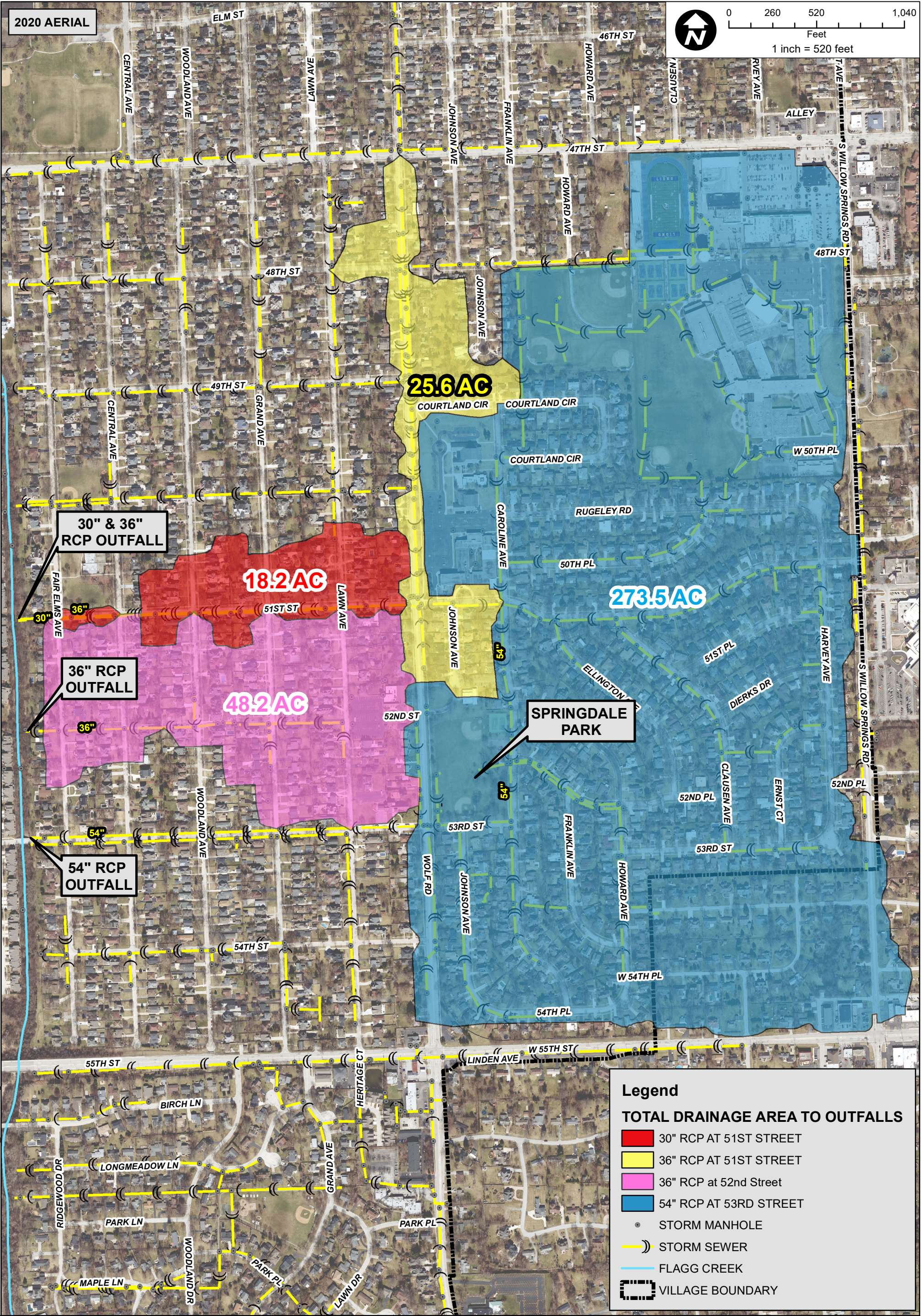


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EXH 3

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Legend

TOTAL DRAINAGE AREA TO OUTFALLS

- 30" RCP AT 51ST STREET
- 36" RCP AT 51ST STREET
- 36" RCP AT 52nd Street
- 54" RCP AT 53RD STREET
- STORM MANHOLE
- STORM SEWER
- FLAGG CREEK
- VILLAGE BOUNDARY

CLIENT:



TITLE:

**51ST STREET STORMWATER ANALYSIS
-TOTAL DRAINAGE AREAS TO OUTFALLS**

PROJ. NO. 250230

DATE: 3/6/2026

SHEET 1 OF 1

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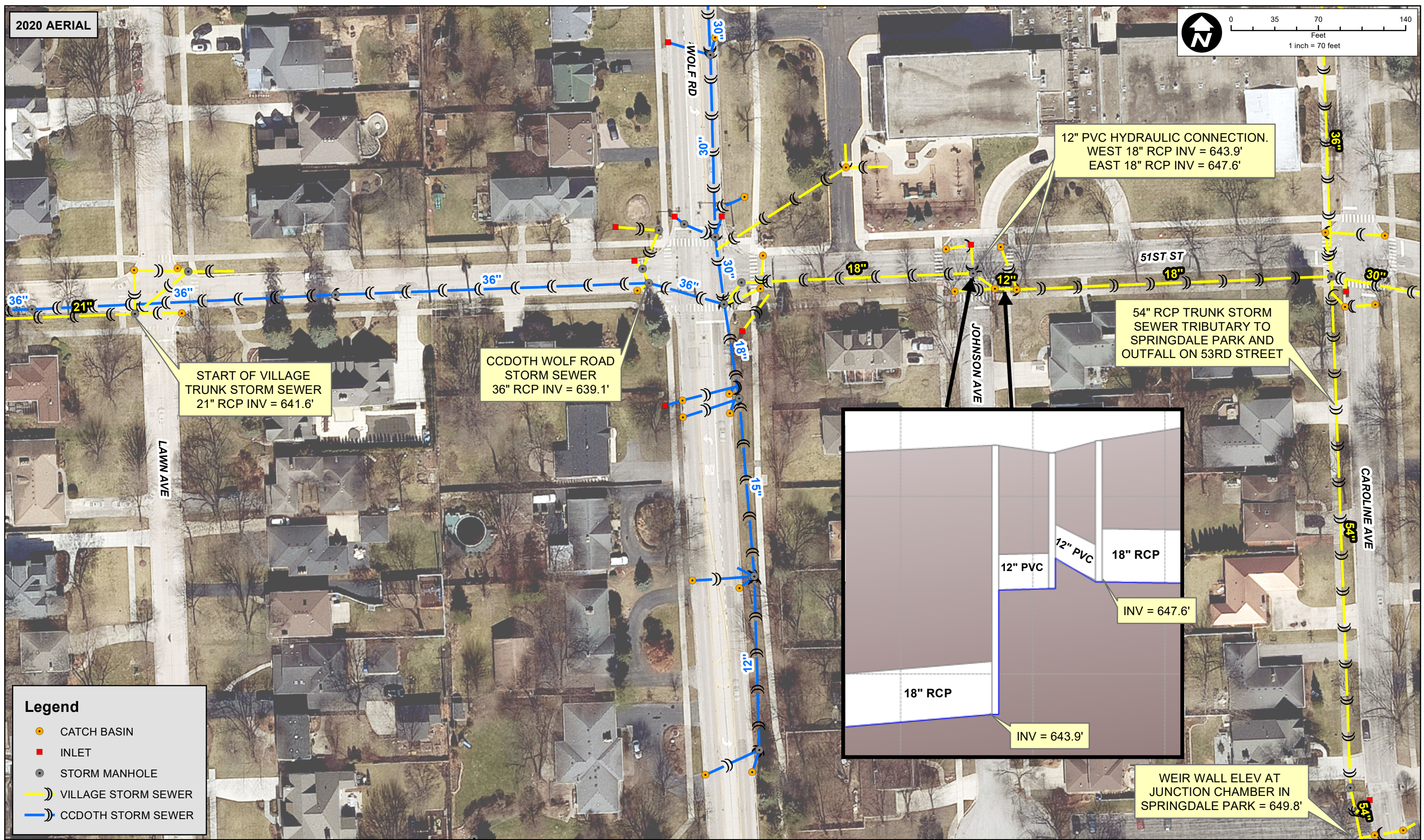
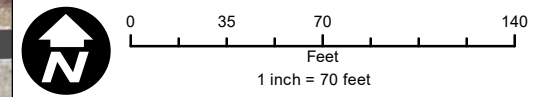
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EXH 4

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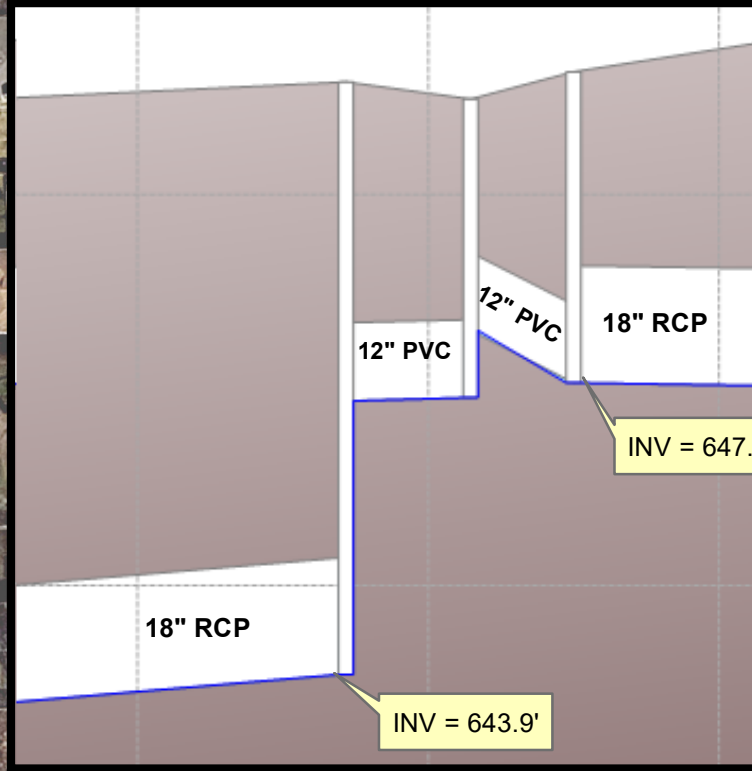


START OF VILLAGE TRUNK STORM SEWER
21" RCP INV = 641.6'

CCDOTH WOLF ROAD STORM SEWER
36" RCP INV = 639.1'

12" PVC HYDRAULIC CONNECTION.
WEST 18" RCP INV = 643.9'
EAST 18" RCP INV = 647.6'

54" RCP TRUNK STORM SEWER TRIBUTARY TO SPRINGDALE PARK AND OUTFALL ON 53RD STREET



WEIR WALL ELEV AT JUNCTION CHAMBER IN SPRINGDALE PARK = 649.8'

- Legend**
- CATCH BASIN
 - INLET
 - STORM MANHOLE
 - VILLAGE STORM SEWER
 - CCDOTH STORM SEWER

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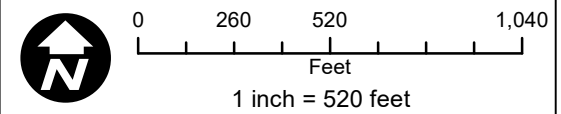
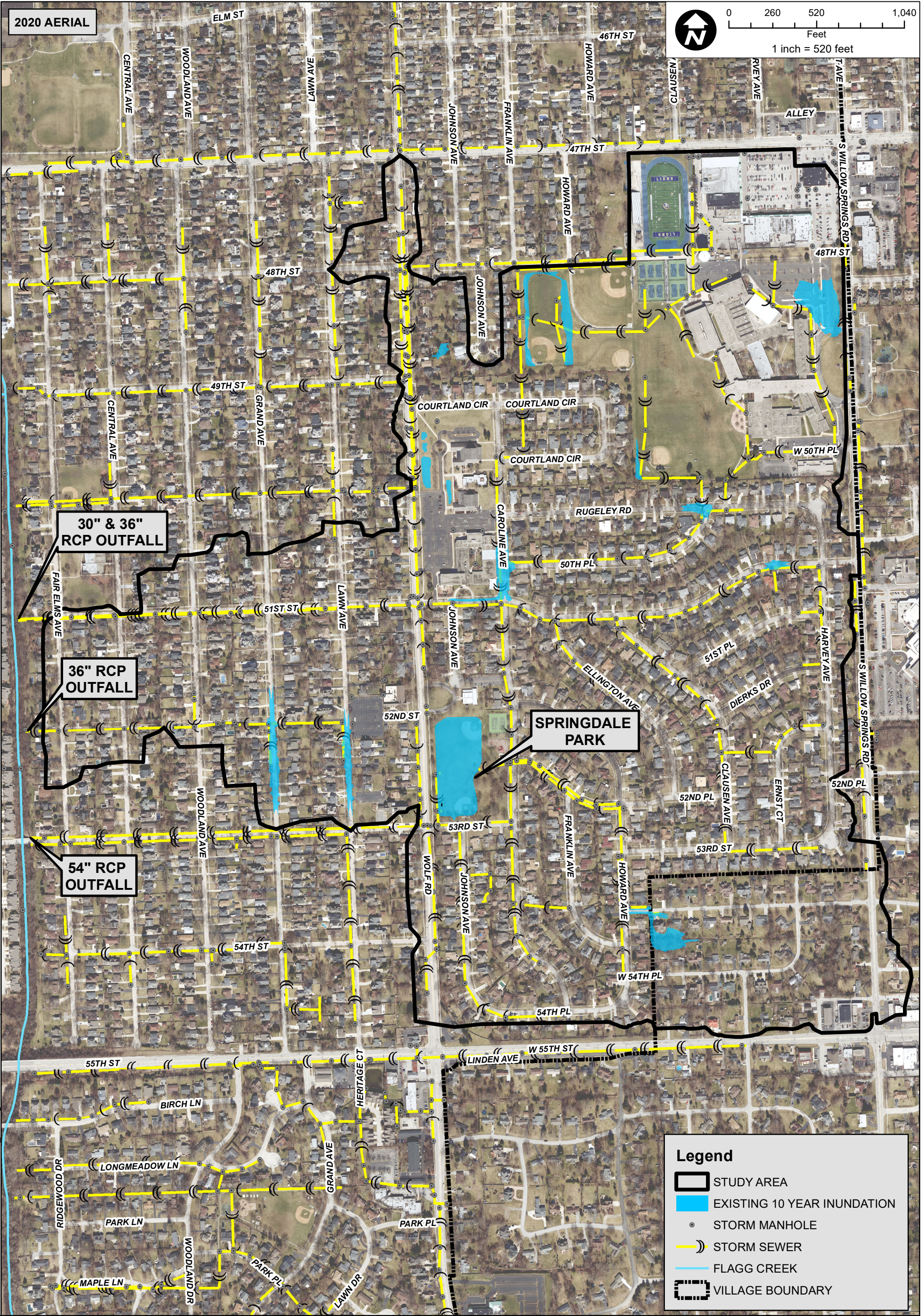


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**51ST STREET STORMWATER ANALYSIS
- HYDRAULIC CONNECTION AT 51ST
STREET AND JOHNSON AVENUE**

PROJ. NO. 250230
DATE: 3/10/26
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EXH 6



Legend	
	STUDY AREA
	EXISTING 10 YEAR INUNDATION
	STORM MANHOLE
	STORM SEWER
	FLAGG CREEK
	VILLAGE BOUNDARY

CLIENT:



TITLE:

**51ST STREET STORMWATER ANALYSIS
- EXISTING 10 YEAR INUNDATION**

PROJ. NO. 250230

DATE: 3/6/2026

SHEET 1 OF 1

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CHKD.		PLOT DATE:	3/6/2026
FILE:	EXH 7_Existing 10 Year Inundation Map		

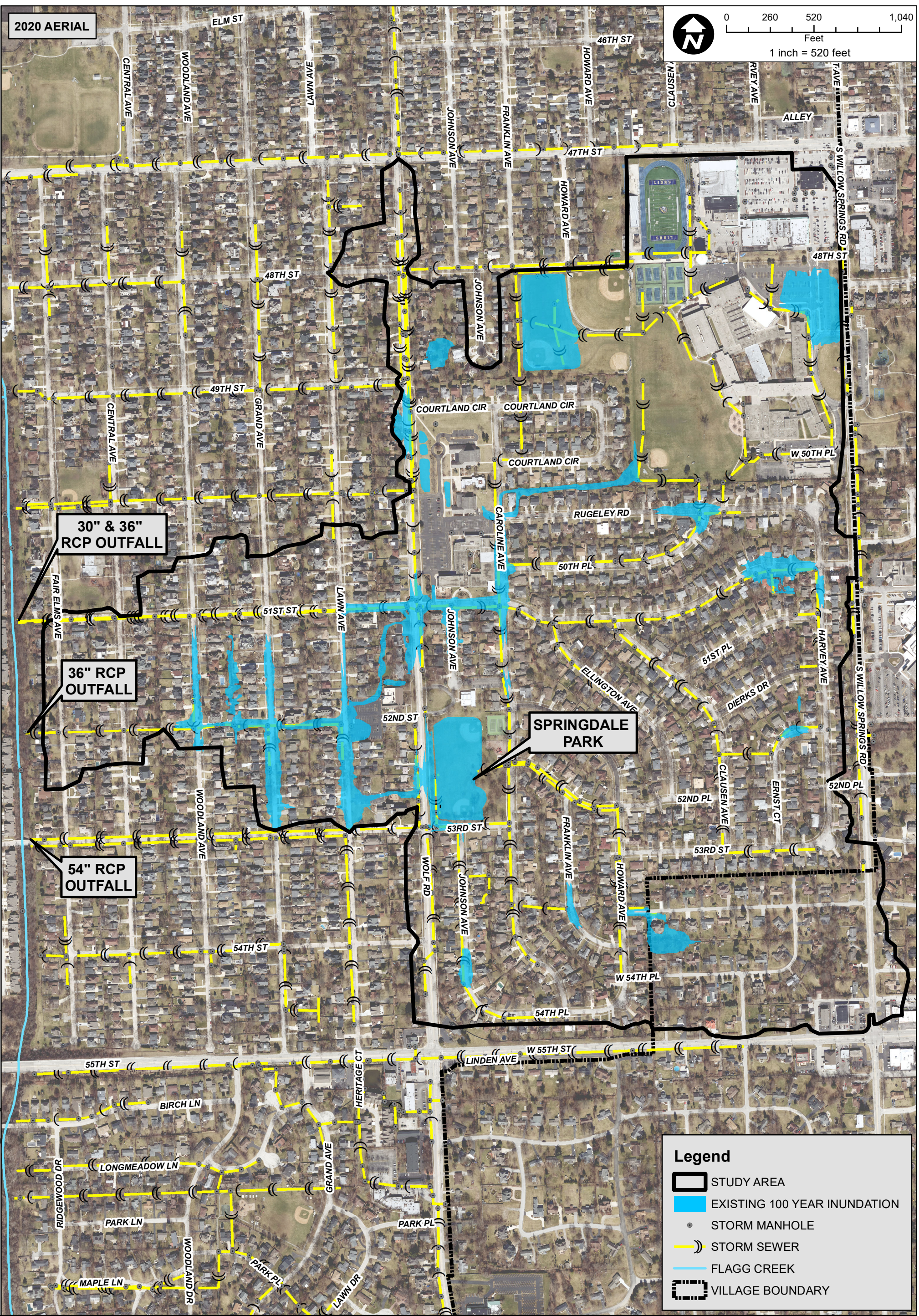
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Feet
1 inch = 520 feet



Legend

- STUDY AREA
- EXISTING 100 YEAR INUNDATION
- STORM MANHOLE
- STORM SEWER
- FLAGG CREEK
- VILLAGE BOUNDARY

CLIENT:



TITLE:

**51ST STREET STORMWATER ANALYSIS
-EXISTING 100 YEAR INUNDATION**

PROJ. NO. 250230

DATE: 3/17/2026

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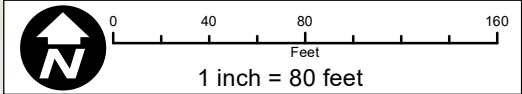
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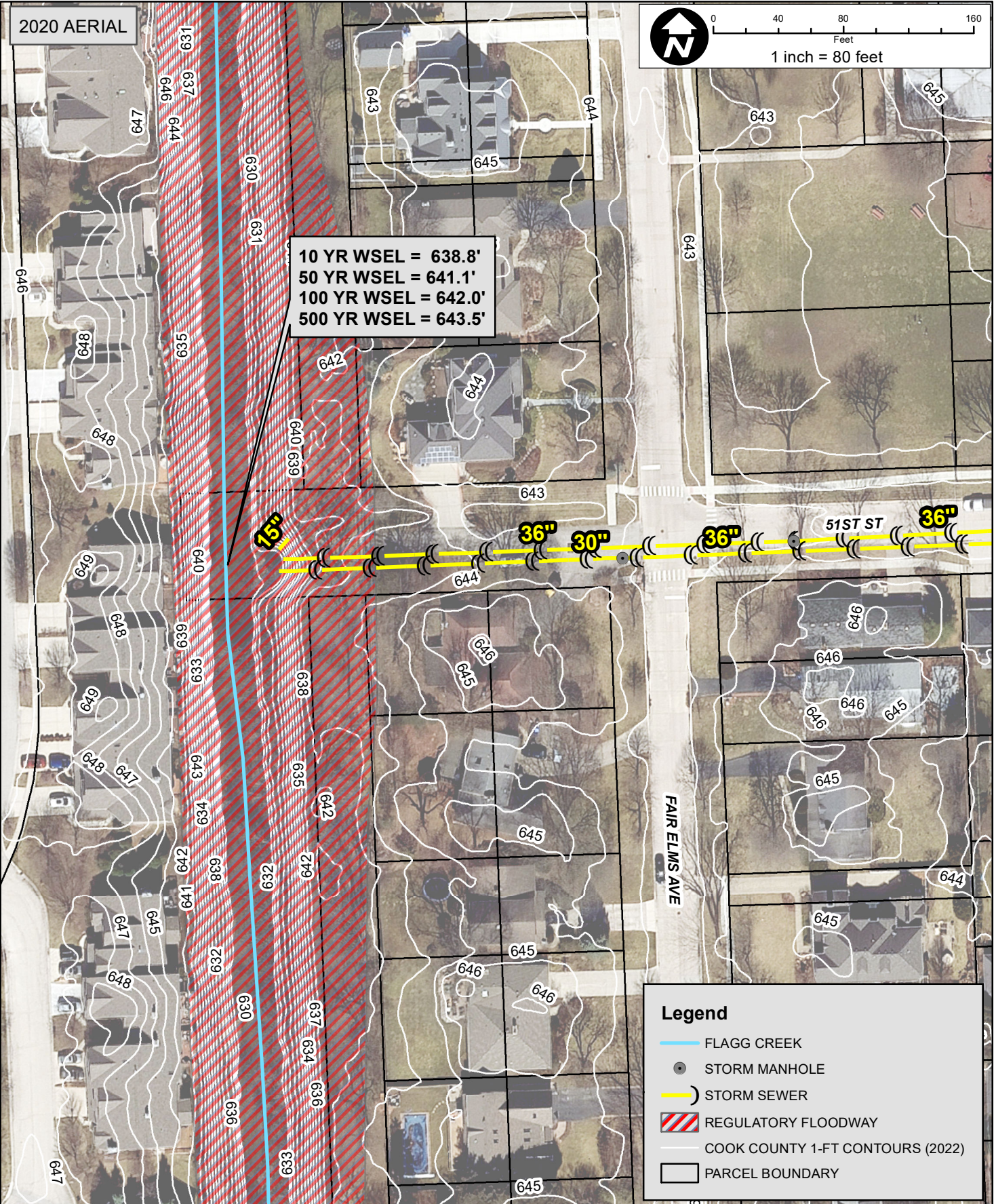
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2020 AERIAL



10 YR WSEL = 638.8'
 50 YR WSEL = 641.1'
 100 YR WSEL = 642.0'
 500 YR WSEL = 643.5'



Legend

- FLAGG CREEK
- STORM MANHOLE
- STORM SEWER
- REGULATORY FLOODWAY
- COOK COUNTY 1-FT CONTOURS (2022)
- PARCEL BOUNDARY

CLIENT:

TITLE: **51ST STREET STORMWATER ANALYSIS - REGULATORY FLOODPLAIN MAP AT 51ST STREET**

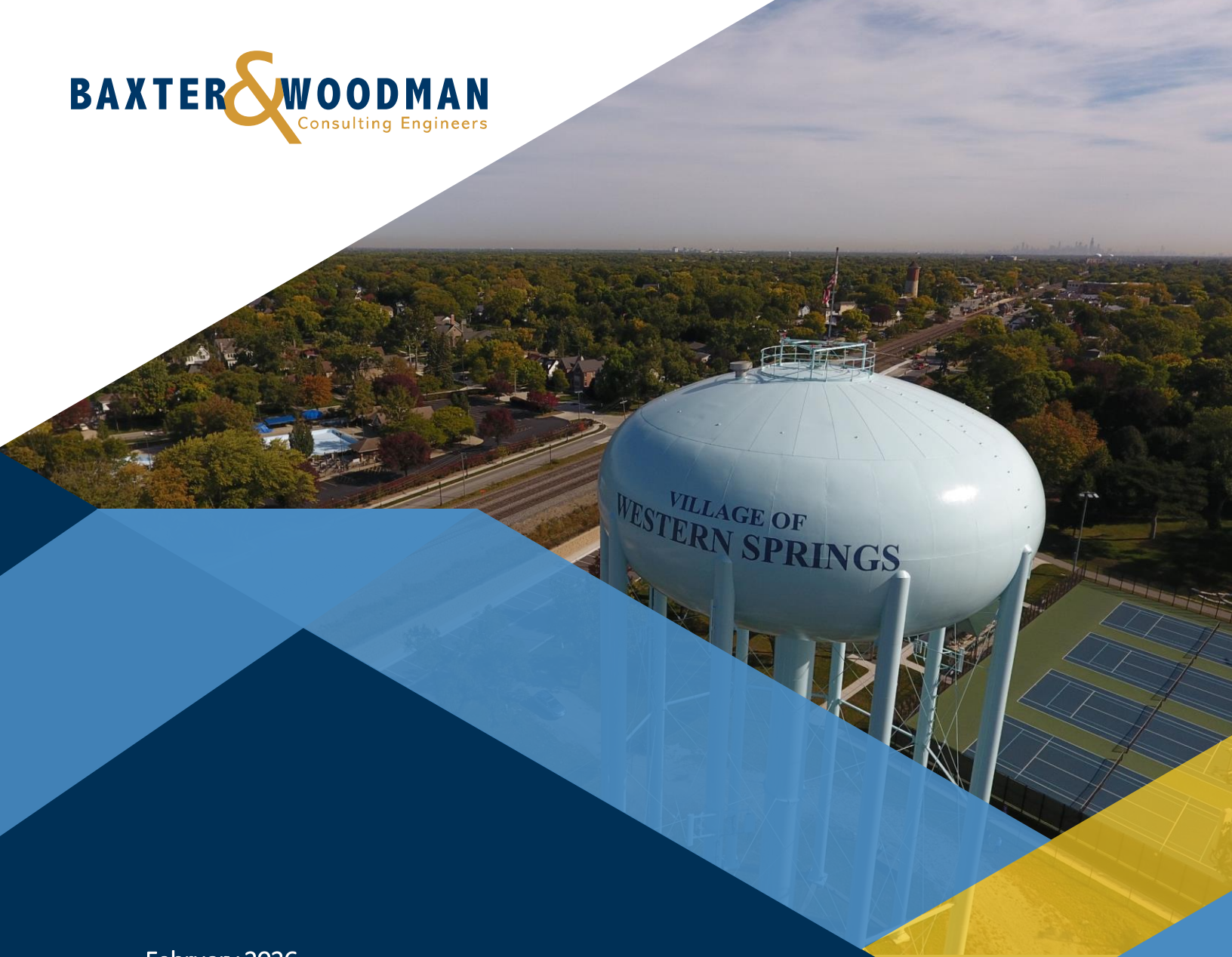
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CHKD.	JJJ	PLOT DATE:	3/17/2026
FILE:	EXH 21_Regulatory Floodplain Map		

EXH 21

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February 2026

Phase 1 Engineering - Ridgewood Planning Area

2500823.01

Village of Western Springs
Western Springs, Illinois

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1. Executive Summary

1.1. Study Purpose and Goal

The Village of Western Springs is evaluating multiple infrastructure projects that were first identified as part of the 2024 Capital Infrastructure Plan (CIP). In April 2025, Village residents voted to invest in the Village's infrastructure via Referendum 2025. The purpose of this Study is to review the infrastructure of the Ridgewood Area B and Woodland and Birch planning areas and provide recommendations and cost estimates for proposed improvements.

1.2. Water System

The water mains in the study area were installed over 50 years ago and have experienced high break frequency, low fire flow, high water age, and some documented lower chlorine residuals. The water system was evaluated using an un-calibrated WaterGEMS model of the Village's distribution system which was provided by the Village and completed by another engineering firm. Multiple alternatives were modeled for each area.

Full replacement of the mains along Woodland Drive, Birch Lane, and Area B is recommended. Model results do not support the additional expense of extending a main down Wolf Road and through rear-yards for extra looping to Area B. Future replacements through other CIP projects along 55th Street and elsewhere along the primary water system flow path to the area are expected to further improve fire flow.

1.3. Sewer System

The project also included a condition assessment of storm and sanitary sewers within the project area. National Power Rodding Corp. completed a cleaning and televising program for approximately 6,500 linear feet (L.F.) of sewers, ranging in size from 8 to 18-inch diameter. One emergency sanitary sewer repair was identified and communicated to Village staff. Five immediate repairs and 13 non-immediate repairs were identified throughout the study area. The remaining sewers were earmarked for televising again in 5-10 years.

1.4. Drainage

The study also included a review of past drainage studies and their proposed drainage improvements. Additional hydraulic analysis is recommended to model downstream impacts of the proposed pipe upsizing and to incorporate the impacts of the Ridgewood Drive and Ridgewood Oaks detention basin projects.

1.5. Pavements

Pavement cores were collected on all streets in this study to identify existing pavement thicknesses, and a field evaluation was conducted by engineering staff to analyze conditions of existing pavements and curbs. Based on existing conditions, Baxter & Woodman recommends a full pavement reconstruction strategy for all streets in Ridgewood Area B and full-depth HMA resurfacing on Woodland Drive and Birch Street.

2. Engineering Analysis

The study included an assessment of the water, sewer, and pavement infrastructure of the Ridgewood Area B and Woodland and Birch planning areas. The planning area limits are described below.

Ridgewood Area B

- Lawn Drive from Grand Avenue to Linden Court
- Park Place from Lawn Drive to Wolf Road
- Lawn Court from Lawn Drive to the cul-de-sac
- Lawn Circle from Lawn Drive to the cul-de-sac
- Linden Court from Lawn Drive to the cul-de-sac
- Linden Lane from Linden Court to Linden Circle
- Linden Circle from Lawn Drive to the cul-de-sac

Woodland and Birch

- Birch Lane from Flagg Creek to Woodland Drive
- Woodland Drive from 55th Street to Ridge Lane

2.1. Water System

Approximately 75% of the Village's 52 miles of mains were installed before the 1970s, including over 20 miles of existing main from the 1920s. These older mains were installed with sand-cast iron and have reached or are rapidly approaching the end of their useful life expectancy. The Village experienced over 700 breaks between 2000-2023, over 90% of which occurred on mains installed before the 1970s. As shown on **Figure 1**, the Village's break frequency of 65 breaks per year greatly exceeds the American Water Works Association (AWWA) annual benchmark of 25 breaks per 100 miles of main.

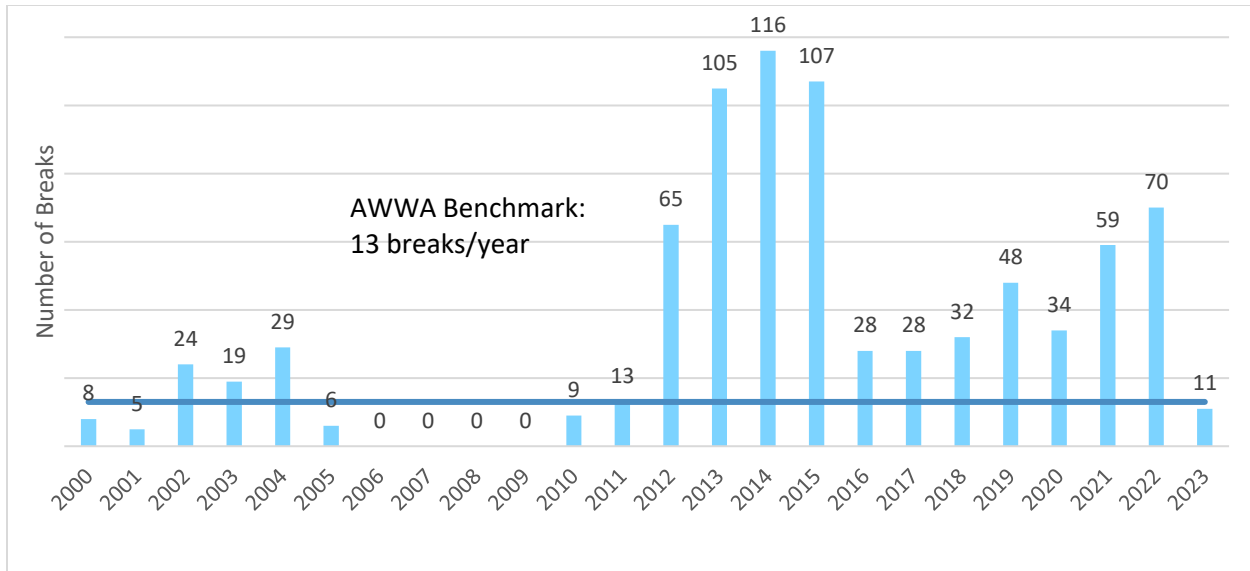


Figure 1 – Water Main Breaks Per Year

An un-calibrated WaterGEMS model of the Village’s distribution system was provided by the Village and completed by another engineering firm. This model was used to assess the existing and proposed water system. Water distribution models, such as WaterGEMS, are virtual representations of water systems containing applicable information for pumps, pipes, and tanks within the system. They can be used to evaluate water main sizing, potential operational changes, or any number of other revisions.

2.1.1. Ridgewood Area B

This subdivision was constructed in the 1970s, and the mains have had 5 recorded breaks since 2000. The mains generally received low or moderate risk scores in the 2024 CIP assessment, although a segment on Park Place received a score in the 97th percentile due to required fire flow for a medical practice at the intersection with Wolf Road. While the facility may not be as high-risk as a hospital, this segment is still critical to providing water to the neighborhood via the 12-inch main on Wolf Road, which is not looped to any of the dead-ends further south.

The 2016 Ridgewood Area Infrastructure Study included several recommendations for this area that were considered during the evaluation, including:

- Looping along Linden Court, or installing 8-inch main only on the westernmost 400 feet
- Installation of an automated flushing station or chlorine booster station to address water quality
- Upsizing of older cast iron mains on the flow paths from the water treatment plant and elevated tank to the subdivision

2.1.1.1. Alternative 1: Replace with 8-inch Except Dead Ends

The first alternative analyzed replacement of a majority of the existing 6-inch mains in the area with 8-inch ductile iron to match Village standards. The dead ends on Linden Court, Lawn Court, and Lawn Circle

would remain as 6-inch to help address high water age in the area. As discussed in the 2016 Infrastructure Study, these dead ends do not have high enough demand to turn over the larger volume of water in 8-inch pipes. The proposed limits and pipe sizes are shown on Exhibit 1.

2.1.1.2. Alternative 2: Linden Court Flushing Station

A flushing station was installed on Linden Court after the 2016 Infrastructure Study but has not been regularly operated due to rattling issues. This alternative uses the same proposed configuration of 6-inch and 8-inch pipes as Alternative 1 but includes the addition of a replacement flushing station at the end of Linden Court. The proposed structure is intended to increase water turnover without causing the rattling issues caused by the current inactive station.

Mueller and Kupferle were identified as the most viable manufacturers for the flushing station. Both companies offer underground cold-weather tolerant stations with flow rates up to 200 gallons per minute (gpm). While the exact cause of the rattling issue is unknown, a purpose-built underground station could offer improvements over the existing retrofitted system. The design should consider additional restrained-joint type (RJT) pipe or thrust blocking to reduce water hammer. A consistent flow rate could also help to reduce rattling but may not be viable based on available water supply.

The station was simulated in the model as an additional demand at the end of the Linden Court main. The demand was simulated as 20 gpm throughout the day and increased to 100 gpm overnight when system demand was at a minimum.

Like the existing system, the flow would discharge below grade and would ultimately flow to the adjacent storm sewer. The additional flow could be a potential concern given the historic flooding on the street. Sewer capacity should be assessed if this alternative is selected.

2.1.1.3. Alternative 3: Wolf Road Extension with Rear Yard Looping

To address water age and fire flow in the area, Alternative 3 extends the existing 12-inch main on Wolf Road from Park Place to south of Ridgewood Oaks Drive. As shown on Exhibit 2, this scenario includes a proposed 8-inch extension to Linden Court and 6-inch extension to Lawn Court via rear-yard easements.

2.1.1.4. Additional Considerations

Smaller pipe sizing was also considered for Alternatives 1 and 3. Although standard practice generally suggests a minimum of 8-inch mains outside of dead-ends, Lawn Drive was also modeled as a 6-inch water main to minimize the volume of stagnant water within the neighborhood. The model results indicated lower available fire flow for both Alternatives and no appreciable improvements to water age ($\pm 1\%$). Since the alternate sizing did not produce the intended decrease in water age, the standard 8-inch pipe sizing was selected for further consideration.

2.1.2. Woodland and Birch

The mains along Woodland Drive and Birch Lane were installed in the 1960s and have experienced 20 recorded breaks since 2000. The 2024 CIP assessed the mains in this area with risk scores between the 65th-93rd percentiles, primarily due to break frequency, age, and inadequate fire flow in the 6-inch mains. The CIP included a section of main replacement on Woodland Drive from Crest Lane to Crestview Drive as part of the Ridgewood Area C recommendations. The 2016 Ridgewood Area Infrastructure Study also

assessed water system needs in the area, including a recommendation to upsize the mains on Woodland Drive and either Birch Lane or Ridgewood Drive.

The original scope of the water system evaluation for this study was limited to Woodland Drive between Ridge Lane and Crestview Drive. After discussing with Village staff, the review was expanded to the entire length of Woodland Drive from Ridge Lane to 55th Street, as well as Birch Lane from its western dead end to Woodland Drive. The mains were evaluated as 8-inch pipes to match village standards.

2.1.2.1. Alternative 4: Original Limits

The first alternative for this area was restricted to the original limits on Woodland Drive between Ridge Lane and Crestview Drive, as shown on Exhibit 3.

2.1.2.2. Alternative 5: Replace Existing on Woodland and Birch

This alternative replaces all existing mains on Woodland Drive and Birch Lane, upgrading all pipes to 8-inch except for the dead end. Exhibit 4 illustrates the proposed limits, including the gap maintained on Woodland Drive between Longmeadow Lane and Birch Lane.

2.1.2.3. Alternative 6: Improve Connectivity on Woodland and Birch

The final alternative for this area includes the addition of approximately 650 feet of 8-inch main to connect the gap on Woodland Drive, as shown on Exhibit 5. While all three alternatives address higher-risk mains, this alternative had the greatest improvements to fire flow and was selected as the final limits for the Woodland and Birch area. Alternative 8 was modeled for all hydraulic simulations for Area B.

2.1.3. Hydraulic Evaluation

While the uncalibrated WaterGEMS model cannot be used for quantitative flow or pressure results, it can provide qualitative feedback on relative performance between alternatives. All proposed scenarios were compared to the baseline fire flow, pressure, and water age results of the Existing Conditions scenario that matches the current pipe sizes and connectivity.

2.1.3.1. Fire Flow

The model calculates the total available fire flow while maintaining a minimum of 20 psi residual pressure. **Table 1** summarizes the minimum and average available fire flow for all nodes within the Ridgewood study area bounded by 55th Street, Wolf Road, Ridgewood Drive, and Ridge Lane.

Table 1 – Fire Flow Results

Scenario	Minimum Available Fire Flow (gpm) ¹	Average Available Fire Flow (gpm) ¹
Existing Conditions	534	1,645
Alternative 1	743	1,922
Alternative 2	711	1,881
Alternative 3	1,064	1,972

¹ Model results are uncalibrated. Values should be used only as a qualitative measure.

As expected, the lowest available fire flows were seen along Linden Court, which is not only a dead end but also the most distant point from the water tower and water plant.

All three scenarios increased both the minimum and average available fire flow in the study area. The minimum flows along Linden Court increased by over 33% for all scenarios and doubled in Alternative 3 with the rear-yard loop between the dead end and new Wolf Road extension.

The average fire flow in the area saw less drastic improvements, as the area is bottlenecked by existing 6-inch mains along 55th Street and Wolf Road. Additional fire flow improvements are unlikely without replacing the water mains along the primary water system flow path to the Ridgewood planning area.

2.1.3.2. Water Age

The model calculated the maximum water age in each pipe over a 720-hour test extended period simulation. The average results across all pipes in the study area are shown in **Table 2**.

Table 2 – Water Age Results

Scenario	Average Water Age (Hours) ²	
	Overall Study Area	Ridgewood Area B
Existing Conditions	72.6	93.0
Alternative 1	69.1	77.2
Alternative 2	65.4	85.7
Alternative 3	70.2	80.2

Water age is affected by factors such as pipe size, proximity to chlorination points, reservoir turnover and mixing, and local demands, among other factors. Each alternative reduced the average water age in the study area by 5-10% and by 8-17% in Ridgewood Area B. The area’s high water age can be partially attributed to looping, low turnover, and the distance from the tower and treatment plant. Area B’s slightly higher water age can be attributed to the four existing dead ends off Linden Lane/Lawn Drive.

The addition of the flushing station in Alternative 2 had the intended goal of reducing overall water age in the study area, demonstrating an additional 5% reduction in water age compared to Alternative 1. However, when focusing on Area B results, Alternative 2 had the smallest reduction in local water age. Model results show the additional demand changed the area’s primary source from Park Place to Grand Avenue, which reduced water age to the west but decreased turnover from the 12-inch main on Wolf Road.

The Wolf Road and rear-yard extensions in Alternative 3 produced similar results to Alternative 1. The additional looping can help address network connectivity if enough demand is present, but the additional piping presents more volume to turn over. The model indicates that the configuration in Alternative 1 results in lower water age in both the overall area and Area B based on demand assumptions.

² Model results are uncalibrated. Values should be used only as a qualitative measure.

2.2. Sewer System

Approximately 75% of the Village's 72 miles of sanitary sewer mains were installed before the 1970s, including nearly 30 miles of existing main from the 1920s. These older sewers, primarily constructed of brick, vitrified clay pipe (VCP), and reinforced concrete pipe, have reached or are rapidly approaching the end of their useful life expectancy. The Village maintains the system through annual cleaning, televising, and rehabilitation programs to identify structural defects, reduce inflow and infiltration (I/I), and mitigate basement backup risks.

The 2024 Comprehensive CIP identified Risk of Failure scores for existing sewer mains throughout the Village to quantify the consequence of failure. Risk scores range from 0 to 70 and consider factors such as pipe size and material, remaining useful life, sewer type, flooding history, and location-specific impacts. Lower scores indicate limited consequences of failure, while higher scores indicate sewer segments where failure would result in greater service disruption, flooding potential, or system performance impacts.

2.2.1. Sewer Cleaning and Televising Program

Closed-circuit television (CCTV) inspection videos are reviewed in accordance with the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP). Structural defects observed during CCTV review are assigned PACP Structural Ratings to quantify pipe condition. PACP ratings, evaluated in conjunction with the Risk of Failure scores, are used to prioritize rehabilitation needs and establish appropriate repair timing. This combined approach ensures that sewer segments with both severe structural defects and high consequence of failure are prioritized for near-term rehabilitation, while lower-risk segments are monitored through continued maintenance and re-inspection.

2.2.1.1. *Repair Priority Categories*

Recommended sewer repairs are categorized by urgency based on the combined PACP Structural Rating and Risk of Failure score, as summarized in **Table 3**. Priority categories include Emergency, Immediate, Non-Immediate, and No Repair (Re-televising in 5 to 10 Years).

1. **Emergency** – Repairs recommended for severe structural defects with PACP structural ratings of 4 or 5, where conditions are expected to worsen in the next year and could result in significantly higher repair costs if deferred. Sewers requiring emergency repairs would typically be out-of-round. Typical defects include collapsed pipe, deformed pipe, broken pipe, and visible voids. Sewers of this category should be repaired in the next 6 months.
2. **Immediate** – Repairs recommended for defects with PACP structural ratings of 4 or 5 or defects with PACP structural ratings of 3 located in higher-risk areas. Sewers requiring immediate repairs would typically retain the sewer's original shape. Typical defects include broken pipe, fractured pipe, multiple cracks, and visible soil. Sewers of this category should be repaired in the next year.
3. **Non-Immediate** – Repairs recommended for minor to moderate structural defects throughout a large portion of the sewer. Sewers requiring non-immediate repairs retain the sewer's original shape and have lower consequence of failure. Repairs for inflow and infiltration mitigation only are included in this category. Typical defects of sewers categorized as a non-immediate repair

include cracked pipes, root intrusions, mineral deposits, offset joints, angle joints, and separated joints. Sewers of this category should be repaired in the next two to five years.

4. **No Repair (Re-televis in 5 to 10 Years)** – Repairs are not recommended for sewers with minor structural defects and minimal evidence of inflow and infiltration. Sewers of this category should be re-inspected and evaluated in five to ten years.

Table 3 – PACP Structural Rating and Risk of Failure Score

Priority	Risk of Failure				
	41 - 70	31 - 41	21 - 31	1 - 21	
PACP Structural Rating	4.0 - 5.0	Emergency	Emergency	Emergency / Immediate	Immediate / Non-Immediate
	3.0 - 4.0	Emergency / Immediate	Immediate	Immediate / Non-Immediate	Non-Immediate / Re-televis
	2.0 - 3.0	Immediate / Non-Immediate	Non-Immediate	Non-Immediate	Re-televis
	1.0 - 2.0	Non-Immediate / Re-televis	Re-televis	Re-televis	Re-televis
	0.0 - 1.0	Re-televis	Re-televis	Re-televis	Re-televis

2.2.2. Ridgewood Area B

National Power Rodding, Inc. completed cleaning and CCTV inspection of approximately 6,500 linear feet of storm and sanitary sewers within Ridgewood Area B in November 2025. Inspected pipe diameters ranged from 8 to 18 inches and included both storm sewers constructed of reinforced concrete pipe (RCP) and sanitary sewers constructed of vitrified clay pipe (VCP). **Table 4** provides a summary of sewer diameter and televised length by street within the Ridgewood area.

Table 4 – Ridgewood Area B Sewer Televising Summary

Street	8-inch	12-inch	15-inch	18-inch	Total Televised Length, L.F.
Grand Avenue	66	0	0	0	66
Lawn Drive	1,428	377	0	133	1,938
Park Place	366	0	0	0	366
Lawn Ct	368	0	0	0	368
Lawn Circle	221	0	0	0	221
Linden Ct	824	0	0	426	1,250

Street	8-inch	12-inch	15-inch	18-inch	Total Televised Length, L.F.
Linden Lane	658	0	0	0	658
Easement (Lawn Dr-Grand Ave)	275	0	0	662	937
Easement (Lawn Cir-Linden Ct)	0	0	0	321	321
Easement (Lawn Dr-Lawn Cir)	0	0	387	0	387
Total Length, L.F.	4,205	377	387	1,542	6,511

2.2.3. Storm Sewer Review

Nineteen (19) storm sewer segments were cleaned and televised, including 2,406 linear feet of 8-inch, 12-inch, 15-inch and 18-inch RCP Storm Sewer.

Findings include:

- No storm sewers require emergency repair.
- Two storm sewers require immediate repairs.
- Two storm sewers require non-immediate repairs.
- Fifteen storm sewers are recommended for re-televising in five to ten years.

Exhibit 8 shows the location of sewers televised and recommended repairs by priority.

2.2.4. Sanitary Sewer Review

Twenty-three (23) sanitary sewer segments were cleaned and televised, including 4,104 linear feet of 8-inch VCP sanitary sewer.

Findings include:

- One sanitary sewer requires emergency repair.
- Three sanitary sewers require immediate repairs.
- Eleven sanitary sewers require non-immediate repairs.
- Eight sanitary sewers are recommended for re-televising in five to ten years.

Exhibit 9 shows the location of sewers televised and recommended repairs by priority.

window wells, and garage floors. Suggested drainage paths were split near Birch Lane, Park Lane, and Crest Lane.

2.3.2. Ridgewood Area Infrastructure Study, 2016

This Baxter & Woodman study evaluated the water, sanitary, storm, and roadway infrastructure throughout the subdivision. The analysis confirmed additional flooding issues at the fire station parking lot south of 55th Street and Grand Avenue, rear yard flooding at the Longmeadow Lane cul-de-sac, drainage to Linden Court through a side-yard easement, ponding on Birch Lane where there is no storm sewer, and flooding at low points throughout Ridgewood Area B.

The study included an assessment of several alternatives in the subdivision, working primarily downstream-to-upstream from Flagg Creek. The report recommended a “Combination” project to address flooding along Ridgewood Drive (Alternate 1B) and the Heritage Estates Detention Basin (Alternate 2B). Alternate 1B proposed the installation of 60” and 48” RCP outfalls to replace the structures at Longmeadow Lane and Maple Lane, respectively. Alternate 2B proposed the installation of approximately 2,500 lineal feet of sewer to convey flow from the Heritage Estates detention basin to a new outfall on Flagg Creek, including new curb inlets on Birch Lane.

The other Alternates included a standalone sewer extension on Birch Lane, alternate sizing on Ridgewood Drive and the Heritage Estates Detention Basin, and an alternate flow path from the detention basin to the 55th Street drainage ditch. Only the Birch Lane alternate was suggested as a secondary recommendation, although modeling showed its benefits would be limited to frequent, low intensity events. The report did not complete thorough analysis of the known flooding areas in Ridgewood Area B and suggested additional modeling to evaluate potential solutions.

2.3.3. Ridgewood Subdivision South East Storm Water Drainage Investigation, 2016

JJ Benes completed a detailed evaluation of drainage conditions in the southeast corner of the subdivision between Lawn Drive and Wolf Road, similar to the limits of Ridgewood Area B.

The investigation used Hydraflow Hydrology to model ponding and overland flows within the study area. The report identified multiple overland flow routes along Linden Court, Lawn Circle, and Lawn Drive as well as four ponding areas, including the existing Ridgewood Oaks Detention Basin.

The study evaluated six potential alternatives to address the southeast area drainage issues and ultimately recommended the construction of two near-term and one long-term project:

Near-Term Project 1

Replace existing 15-inch sewer south of 904/906 Linden Ct with a 21-inch RCP pipe and high-capacity inlet to reduce overland flow from Timberview Estates.

Near-Term Project 2

Refurbish Ridgewood Oaks detention pond to reduce overland flow through Ridgewood subdivision. Construct proposed detention wall adjacent to west fence and restrict release discharge.

In 2017, the Village began collaborating with the Ridgewood Oaks Condominium Association (HOA) to repair and improve the detention basin. The Village and HOA reached an agreement in August 2025 to approve engineering plans from the HOA that would increase the basin's capacity from 0.59 to 0.87 acre-feet of storage. The work is ready for construction pending MWRD permit approval.

Long-Term Improvements

Upsize trunk and collection storm sewer from Flagg Creek to Lawn Drive to reduce overland flows in the subdivision. Sewers would be sized to accommodate flows from a 10-year storm (10% annual probability) event. The study included an exhibit with proposed pipe diameters but did not include an assessment of downstream impacts west of Lawn Drive.

The study also suggested the Village implement a green initiatives campaign for stormwater. Suggestions included the promotion of rain barrel use, rain garden construction, and implementation of storage chambers to promote groundwater infiltration.

2.3.4. Ridgewood Subdivision Flagg Creek Study, 2023

Baxter & Woodman evaluated the hydraulic impacts of the outlet improvements of Alternate 1A recommended in the 2016 Infrastructure Study, including a full analysis of flood profile impacts. The results showed minor impacts to the downstream profile. The work included coordination with the Metropolitan Water Reclamation District of Greater Chicago (MWRD), Illinois Department of Natural Resources / Office of Water Resources, and U.S. Army Corps of Engineers.

The Alternate 1A outfall improvements were later refined and developed into the Ridgewood Subdivision Improvements project, slated for construction in summer 2026.

2.4. Pavements

The purpose of this section is to present existing conditions of the pavements of the streets identified for utility improvements in this study. The Comprehensive CIP prepared for the Village by Baxter & Woodman in June of 2024 in which all existing Village Streets were analyzed for conditions and recommendations were provided for scoping improvements. In September of 2025, pavement cores were collected on all streets in this study to identify existing pavement thicknesses, and a field evaluation was conducted by engineering staff to analyze conditions of existing pavements and curbs. The full pavement core report is provided in **Appendix A**.

2.4.1. Ridgewood Area B

The 2024 Comprehensive CIP Memo Identified a medium to high risk scores for all streets, except for Lawn Court and Linden Lane, which had low risk scores. The original recommendation in this area for all streets was to reconstruct with PCC pavement.

The 2024 Comprehensive CIP recommendation regarding sidewalk was that Village policy should always include sidewalk installation on all projects that include road improvements to connect sidewalk network north of 55th Street. These areas are not part of the existing sidewalk network, so no new sidewalk recommendation was made.

The Field Evaluation conducted in September 2025 identified significant amounts of block cracking, alligator cracking and rutting on all streets in the area. Staff quantified a percentage of patching needs based on observations of the conditions of pavements; this corresponds to the condition of the existing aggregate base and can be correlated to the percentage of aggregate base considered to be failing. Staff also quantified a percentage of failing curb along the streets. Road conditions from the field evaluation are shown in **Table 5**.

Pavement Cores collected in September 2025 revealed several failures in the bituminous pavement on Woodland Drive and Birch Street. Existing HMA pavement thicknesses are summarized in **Table 5**.

Table 5 – Existing Road Conditions

	Pavement Cores			Field Evaluation	
	Average HMA	Average AGG Base	Average Total Pavement	% Failing Curb	% Failing Base
Birch Lane	5"	12.75"	17.75"	19%	30%
Woodland Drive	5.25"	8.75"	14"	24%	40%
Lawn Drive	6"	8.5"	14.5"	31%	30%
Park Place	5.25"	8"	13.25"	29%	25%
Lawn Court	2.5"	9"	11.5"	20%	30%
Lawn Circle	11"	3.5"	14.5"	31%	25%
Linden Court	4.75"	7"	11.75"	21%	25%
Linden Lane	6"	9"	15"	31%	30%
Lincen Circle	6"	13"	19"	19%	25%

2.4.2. Woodland and Birch

The 2024 Comprehensive CIP Identified low risk score for Birch Street and no specific road recommendation was made.

The 2024 Comprehensive CIP Identified a moderate to high risk score for Woodland Drive as part of both Ridgewood Areas A and C. The original recommendation in this area was to reconstruct with PCC pavement in area C and to resurface the HMA pavement in area A.

The 2024 Comprehensive CIP recommendation regarding sidewalk was that Village policy should always include sidewalk installation on all projects that include road improvements to connect sidewalk network north of 55th Street. These areas are not part of that network, so no recommendation was made.

The Field Evaluation conducted in September 2025 identified significant amounts of alligator cracking and moderate amounts of rutting on Birch Street and significant amounts of alligator cracking and rutting on Woodland Drive. Staff quantified a percentage of patching needs based on observations of the conditions of pavements; this corresponds to the condition of the existing aggregate base and can be correlated to the percentage of aggregate base considered to be failing. Staff also quantified a percentage of failing curb along the streets. Road conditions from the field evaluation are shown in **Table 5**.

Pavement Cores collected in September 2025 revealed some failures in the bituminous pavement on Woodland Drive and Birch Street. However, the existing aggregate base is considerably thick, as summarized in **Table 5**.

2.5. Utility Conflict Review

Baxter & Woodman completed a design-stage request with JULIE to determine if any high-priority utility conflicts would impact the proposed improvements. All relevant utilities were contacted, and atlases were reviewed for conflicts. A summary of potential conflicts is included below:

AT&T: Crossings on Park Place, Woodland Drive, and Lawn Drive. Underground line in rear yards would impact Alternative 3 or 5 for Area B.

ComEd: Crossings on Park Place, Woodland Drive, and Lawn Drive. Underground line in rear yards would impact Alternative 3 or 5 for Area B.

Comcast: Crossings on Park Place and Woodland Drive. Conduits along Woodland Drive could impact Alternative 3 for Woodland and Birch, and conduits on Wolf Road could impact Alternatives 3 or 5 for Area B.

Nicor: Coordinate during design stage to maintain 4' horizontal and 1' vertical clearance in residential areas. No large-diameter gas mains were identified.

Verizon: No conflicts identified.

3. Recommendations

3.1. Water

This section presents recommended rehabilitation methods and associated costs for water main improvements within the Ridgewood Area B and Woodland and Birch project areas, based on the findings outlined in the Engineering Analysis.

3.1.1. Preliminary Opinion of Probable Costs

A quantity take-off was completed for each alternative, estimating the approximate quantities of water main, hydrants, valves, and other assets, as well as mobilization and restoration costs. The complete cost estimates in 2026 dollars and all related assumptions are attached as **Appendix B. Table 6** summarizes the Phase 1 opinion of probable cost for each alternative for Ridgewood Area B, including construction subtotal, engineering fees, and contingency. Items are rounded for planning-level estimates.

Table 6 – Summary of Projected Costs, Ridgewood Area B (2026 Dollars)

Scenario	Estimated Construction Costs	Engineering Fees (15%)	Contingency (30%)	EOPC
Alternative 1	\$1,730,000	\$260,000	\$520,000	\$2,500,000
Alternative 2	\$1,770,000	\$270,000	\$540,000	\$2,600,000
Alternative 3	\$2,499,000	\$380,000	\$750,000	\$3,600,000 ³

Table 7 summarizes the Phase 1 opinion of probable cost for each alternative for Ridgewood Area B, including construction subtotal, engineering fees, and contingency.

Table 7 – Summary of Projected Costs, Woodland and Birch (2026 Dollars)

Scenario	Estimated Construction Costs	Engineering Fees (15%)	Contingency (30%)	EOPC
Alternative 4	\$760,000	\$120,000	\$230,000	\$1,100,000
Alternative 5	\$1,670,000	\$260,000	\$510,000	\$2,400,000
Alternative 6	\$1,920,000	\$290,000	\$580,000	\$2,800,000

Material and permitting costs for Alternative 6 could be reduced if the connection to 55th Street is completed south of the IDOT right-of-way. The remaining work would then be completed as part of the separate 55th Street project proposed in the CIP.

³ EOPC for Alternative 3 includes additional estimated fees for permits and easement acquisition.

Cost estimates for both areas assume the mains will be installed in the parkway, which will be restored with sod. Installing the mains within the roadway is typically more expensive but could be a more cost-effective option when combined with roadway improvements, particularly when pavements are fully reconstructed.

3.1.2. Ridgewood Area B

Although the rear-yard loop does raise the minimum fire flow on Linden Court, Alternative 3 does not appear to offer significant improvements over Alternative 1. Given the increased costs and complexity with installing rear-yard mains and extending along a CCDOH route, this option is not recommended.

Alternatives 1 and 2 both appear viable. It is recommended that a more thorough review of flushing stations is completed during the design stage, ideally using a calibrated WaterGEMS model. The current simulation does not accurately account for demand patterns throughout the system, which may impact the water age results that saw a shift in the Area B flow patterns for Alternative 2.

3.1.3. Woodland and Birch

The original scope identified in Alternative 6 does address a majority of pipes with recent breaks, but the risk scores support replacement of the entirety of Woodland Drive and Birch Lane due to their age and break history. The model results also suggest that replacing the pipes with new 8-inch mains will improve both water age and fire flow in the neighborhood. Alternative 6 also benefits from economies of scale, as one combined project will be more cost-effective than replacing smaller block-by-block sections. The proposed project is not anticipated to impact the storm sewer improvements designed as part of the Ridgewood Subdivision Improvements projects, which will be completed south of the Birch Lane limits.

Table 8 summarizes the recommended alternative for both project areas.

Table 8 – Summary of Projected Costs, Woodland and Birch (2026 Dollars)

Scenario	Estimated Construction Costs	Engineering Fees (15%)	Contingency (30%)	EOPC
Alternative 1	\$1,730,000	\$260,000	\$519,000	\$2,510,000
Alternative 6	\$1,917,000	\$288,000	\$575,000	\$2,780,000
TOTAL	\$3,647,000	\$548,000	\$1,094,000	\$5,290,000

Both project areas should see improved fire flow as cast iron pipe is replaced and upsized, particularly with the replacement of the three 6-inch pipes feeding the area from 55th Street and Wolf Road.

Water age is more unpredictable given the low demand in the subdivision. The 2016 Infrastructure Study suggested the addition of a chlorine booster to help with residuals in this area with high water age. A booster is not recommended without a detailed chlorine study. The need for a chlorine booster should be assessed as part of or after the 55th Street project design, as the pipe sizing and connectivity will have significant impacts on flow to the subdivision.

3.2. Sewer Rehabilitation Recommendations

This section presents recommended rehabilitation methods and associated costs for sewer segments within Ridgewood Area B, based on the findings outlined in the Engineering Analysis. Recommendations align with the defined priority categories (Emergency, Immediate, Non-Immediate, and Re-televising/No Repair).

The following subsections present recommended rehabilitation methods and associated costs for storm and sanitary sewer segments within Ridgewood Area B. Repair methods vary based on material, defect type, and constructability considerations.

3.2.1. Storm Sewer Repairs

Table 9 summarizes the opinion of probable cost, including construction cost estimate, engineering (15%), and contingency (30%), for storm sewers in Ridgewood Area B and the following recommended repair methods:

1. **Full Length Replacement** – Excavation and replacement of the entire sewer pipe segment from manhole to manhole. This repair method is recommended for defects where the sewer has severe structural defects and the cross-sectional area of the pipe is reduced to less than 90% of the pipe’s original cross-sectional area for more than 50% of the pipe’s length or for pipes that are not candidates for a cured-in-place pipe. **There is 1 segment recommended for full length replacement.**

2. **Point Repair** – Excavation and replacement of sewer pipe at specific defect locations. The length of replaced pipe ranges between five feet and 20 feet depending on defect severity and presence of other defects in the vicinity of the repair. This repair method is recommended for defects where the sewer is out-of-round, or the cross-sectional area of the pipe is reduced to less than 90% of the pipe’s original cross-sectional area. **There are 3 segments recommended for point repairs.**

Table 9 – Ridgewood Area B Storm Sewer Recommendations

Ridgewood Storm Sewers						
From Str.	To Str.	Recommendation	Estimated Constr. Costs	Engineering Fees (15%)	Contingency (30%)	EOPC
Immediate Repairs						
1059	1060	(2) Point Repairs	\$ 12,000	\$ 2,000	\$ 4,000	\$ 18,000
CB1	1079	Full Replacement	\$ 6,000	\$ 1,000	\$ 2,000	\$ 9,000
Subtotal						\$ 30,000
Non-Immediate Repairs						
1099	1076	Point Repair	\$ 5,000	\$ 1,000	\$ 2,000	\$ 8,000
1641	1076	Point Repair	\$ 13,000	\$ 2,000	\$ 4,000	\$ 19,000
Subtotal						\$ 30,000
Engineer’s Opinion of Probable Cost						\$ 60,000

Appendix C provides detailed information from each inspection in addition to the recommended repairs for mainline sewer televised.

3.2.2. Sanitary Sewer Repairs

Table 10 summarizes the opinion of probable cost, including construction cost estimate, engineering (15%), and contingency (30%), for sanitary sewers in Ridgewood Area B and the following recommended repair methods:

1. **Full Length Liner** – Installation of a cured-in-place pipe in the existing sewer. This is a trenchless method that requires no excavation. Service laterals can typically be reinstated within 8-12 hours of the start of installation. This repair method is recommended for defects where the sewer has structural defects but retains its original shape. **There are 9 segments recommended for lining.**
2. **Trim Intruding Tap(s)** – Trenchless method of cutting service laterals that protrude into the sewer more than one inch. This repair is typically performed prior to a liner installation but can be performed independent of other repairs. **There is 1 segment recommended for trimming intruding taps in addition to lining.**
3. **Point Repair** – Excavation and replacement of sewer pipe at specific defect locations. The length of replaced pipe ranges between five feet and 20 feet depending on defect severity and presence of other defects in the vicinity of the repair. This repair method is recommended for defects where the sewer is out-of-round or the cross-sectional area of the pipe is reduced to less than 90% of the pipe’s original cross-sectional area. **There are 7 segments recommended for point repairs.**

Table 10 – Ridgewood Area B Sanitary Sewer Recommendations

Ridgewood Sanitary Sewers						
From Str.	To Str.	Recommendation	Estimated Constr. Costs	Engineering Fees (15%)	Contingency (30%)	EOPC
Emergency Repairs						
549	550	Point Repair & Full Length Liner	\$ 20,000	\$ 3,000	\$ 6,000	\$ 29,000
Subtotal						\$ 30,000
Immediate Repairs						
598	982	Point Repair	\$ 4,000	\$ 1,000	\$ 2,000	\$ 7,000
573	572	Point Repair	\$ 2,000	\$ 1,000	\$ 1,000	\$ 4,000
550	603	Point Repair	\$ 4,000	\$ 1,000	\$ 2,000	\$ 7,000
Subtotal						\$ 20,000
Non-Immediate Repairs						
982	599	Full Length Liner	\$ 28,000	\$ 5,000	\$ 9,000	\$ 42,000
650	527	Full Length Liner	\$ 17,000	\$ 3,000	\$ 6,000	\$ 26,000

Ridgewood Sanitary Sewers						
648	650	Full Length Liner	\$ 22,000	\$ 4,000	\$ 7,000	\$ 33,000
645	646	Full Length Liner	\$ 18,000	\$ 3,000	\$ 6,000	\$ 27,000
603	573	(2) Point Repairs	\$ 11,000	\$ 2,000	\$ 4,000	\$ 17,000
599	601	Point Repair	\$ 6,000	\$ 1,000	\$ 2,000	\$ 9,000
576	602	Full Length Liner	\$ 2,000	\$ 1,000	\$ 1,000	\$ 4,000
555	982	Point Repair	\$ 27,000	\$ 5,000	\$ 9,000	\$ 41,000
526	549	Point Repair	\$ 3,000	\$ 1,000	\$ 1,000	\$ 5,000
524	523	Point Repair	\$ 12,000	\$ 2,000	\$ 4,000	\$ 18,000
523	554	Full Length Liner	\$ 23,000	\$ 4,000	\$ 7,000	\$ 34,000
Subtotal						\$ 260,000
Engineer's Opinion of Probable Cost						\$ 310,000

Appendix D provides detailed information from each inspection in addition to the recommended repairs for mainline sewer televised.

3.2.3. Summary

Recommended improvements for Ridgewood Area B include a combination of full-length lining, full-length replacement, and point repairs to address defects identified through the 2025 sewer inspection program. The total estimated cost is \$60,000 for storm sewer rehabilitation and \$310,000 for sanitary sewer rehabilitation. These improvements address segments requiring Emergency, Immediate, and Non-Immediate repairs, with additional segments scheduled for future re-televising.

3.3. Drainage Improvements

3.3.1. Ridgewood Area B

The 2016 Infrastructure Study recommended several minor improvements in Area B that fell outside the area analyzed in XP-SWMM. Without detailed modeling, the report did not include a preliminary design and instead noted that the areas should be reviewed with site survey and detailed drainage analysis.

The South East Storm Water Drainage Investigation completed a detailed hydraulic review of Ridgewood Area B and identified three proposed projects, including proposed pipe and structure sizing and configuration.

However, we recommend additional hydraulic analysis before these recommendations are implemented. The 2016 investigation was completed before national rainfall data was updated in 2019, and the proposed sizing may no longer meet the proposed design standards. Additionally, the Hydraflow analysis was limited to the southeast area and did not consider downstream impacts.

A new drainage analysis study would utilize XP-SWMM or similar hydrologic modeling software to assess the proposed sizing and model the impacts on the downstream sewers and overland flow routes between Lawn Drive and Flagg Creek, including the current design for the outfall project. The study should include a phasing analysis to determine if the improvements could be installed as proposed by implementing

restrictors to limit downstream flow, or whether additional downstream upsizing is needed before the southeast area upsizing.

3.3.2. Woodland and Birch

The Ridgewood Subdivision Improvements project planned for 2026 is expected to address a majority of the major flooding issues along Ridgewood Drive and the adjacent streets. The limits of the proposed work stop west of Woodland Drive and are not expected to have any impact on any of the proposed water main alternatives for the area.

The 2016 Infrastructure Study recommended the Combined alternate to address flooding along Ridgewood Drive, Birch Lane, and the fire station near the Heritage Estates Detention Basin. Only the work along Ridgewood Drive proceeded to final design, as the 2023 study showed that work on Birch Lane did not contribute to flooding reductions for the 100-year event.

However, the standalone storm sewer extension could address overland flow concerns on Birch Lane during low-intensity rainfall events. The proposed limits for the Birch Lane project are shown in **Figure 3**.

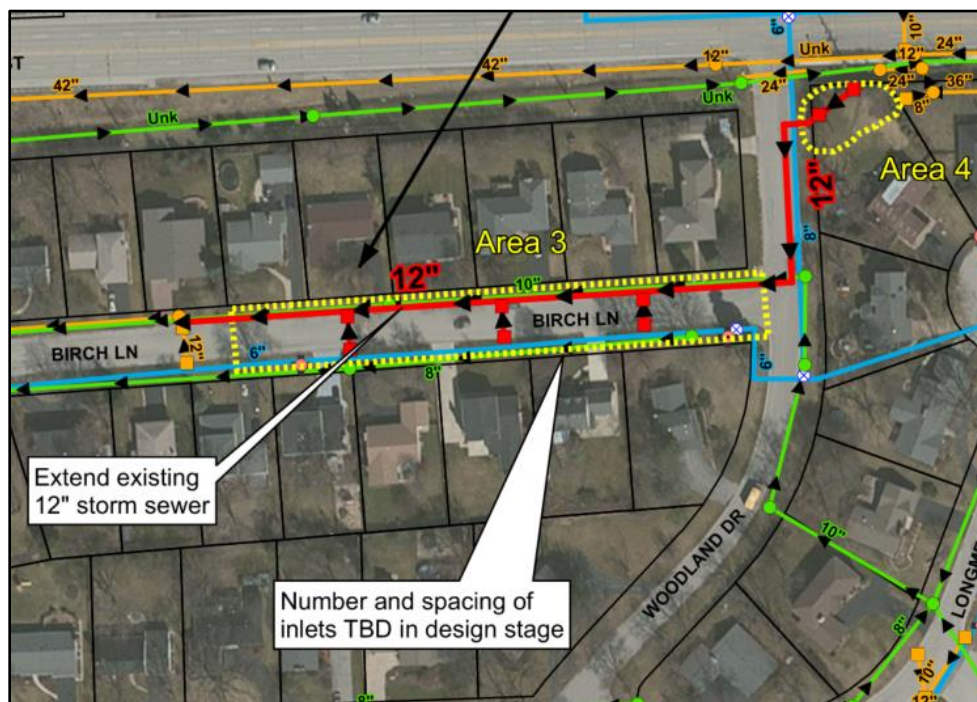


Figure 3 – 2016 Birch Lane Recommendations

The design had an estimated construction cost of approximately \$530,000 in 2015 dollars, approximately \$730,000 in 2026 dollars after accounting for inflation. The estimate assumed the work was completed as a standalone project and would be significantly reduced if paired with water and road improvements.

The limited benefits of this alternative are a major concern regarding its viability. The 2016 Infrastructure Study noted that minor flooding will still occur after the improvements, even in events as frequent as a 2-year event. If additional modeling is completed for Ridgewood Area B, the existing XPSWMM scenario for Birch could be re-evaluated with current rainfall data to determine if the potential impacts have improved.

3.4. Pavements

The purpose of this section is to present our recommendations for pavement rehabilitation for these areas based on all the data collected and analyzed in the Engineering Analysis section.

3.4.1. Ridgewood Area B

Existing pavements for all streets in this area are in extremely poor condition. The amount of pavement deterioration identified, including block cracking, alligator cracking, and rutting, indicates a significant failure in aggregate base. Additionally, a significant amount of failing curb was identified in the entire area.

Baxter & Woodman recommends a full pavement reconstruction strategy for all streets in this area. The Village’s standard strategy for roadway reconstructions per the CIP is to install PCC pavement. The recommended PCC pavement thickness is 8”, with a 6” aggregate base, and subgrade improvement.

Table 11 summarizes the preliminary estimate of cost for each street in this area. Additional estimate was compiled to add sidewalk on one side of each street, should the Village decide to do so. Sidewalk costs are assumed to be in addition to pavement work and are not considered standalone costs. Costs do not include contingency or engineering. Subtotals are rounded for planning-level purposes.

Table 11 – Summary of Projected Costs, Pavements and Sidewalks, Ridgewood Area B (2026 Dollars)

Street	Estimated Pavement Costs	Estimated Sidewalk Costs	Total Pavements & Sidewalks EOPC
Lawn Drive	\$1,460,000.00	\$90,000.00	\$1,550,000.00
Park Place	\$340,000.00	\$19,000.00	\$359,000.00
Lawn Court	\$440,000.00	\$14,000.00	\$454,000.00
Lawn Circle	\$380,000.00	\$7,000.00	\$387,000.00
Linden Court	\$690,000.00	\$30,000.00	\$720,000.00
Linden Lane	\$270,000.00	\$12,000.00	\$282,000.00
Linden Circle	\$280,000.00	\$4,000.00	\$284,000.00
Total	\$3,860,000.00	\$180,000.00	\$4,040,000.00

3.4.2. Woodland and Birch

While existing pavements on both Woodland Drive and Birch Street appear to be in poor condition, the pavement cores revealed a considerably thick aggregate base section. This aggregate base can be utilized to avoid reconstruction all together by rehabilitating with a full depth HMA removal and resurfacing with heavy quantity for undercutting and base repair to address areas of thinner and failing aggregate base.

We recommend a full depth HMA resurfacing and undercutting strategy on Woodland Drive and Birch Street, with a proposed HMA pavement thickness of 6”.

Table 12 summarizes the preliminary estimate of cost for each street in this area. Additional estimate was compiled to add sidewalk on one side of each street, should the Village decide to do so. Sidewalk costs are assumed to be in addition to pavement work and are not considered standalone costs. Costs do not include contingency or engineering. Subtotals are rounded for planning-level purposes.

Table 12 – Summary of Projected Costs, Pavements and Sidewalks, Woodland & Birch (2026 Dollars)

Street	Estimated Pavement Costs	Estimated Sidewalk Costs	Total Pavements & Sidewalks EOPC
Woodland Drive	\$ 610,000.00	\$300,000.00	\$910,000.00
Birch Lane	\$ 340,000.00	\$140,000.00	\$480,000.00
Total	\$950,000.00	\$440,000.00	\$1,390,000.00

3.5. Summary of Recommendations

The recommended improvements include over \$3.5 million in proposed water main work, \$250,000 in sewer rehabilitation, and nearly \$5 million in road improvements. **Table 13** summarizes the overall costs by street, and **Appendix E** further divides the construction estimate by category for water, sewer, drainage, pavements, sidewalk, and mobilization. Subtotals are rounded for planning-level purposes.

Table 13 – Summary of Projected Costs, Woodland and Birch (2026 Dollars)

Location	Estimated Construction Costs	Engineering Fees (15%)	Contingency (30%)	EOPC
Ridgewood Area B				
Lawn Drive	\$2,510,000.00	\$380,000.00	\$760,000.00	\$3,650,000.00
Park Place	\$610,000.00	\$100,000.00	\$190,000.00	\$900,000.00
Lawn Court	\$640,000.00	\$100,000.00	\$200,000.00	\$940,000.00
Lawn Circle	\$590,000.00	\$90,000.00	\$180,000.00	\$860,000.00
Linden Court	\$1,150,000.00	\$180,000.00	\$350,000.00	\$1,680,000.00
Linden Lane	\$490,000.00	\$80,000.00	\$150,000.00	\$720,000.00
Linden Circle	\$300,000.00	\$50,000.00	\$90,000.00	\$440,000.00
Rear Yards / Easement (Lawn Dr - Grand Ave)	\$20,000.00	\$10,000.00	\$10,000.00	\$40,000.00
Rear Yards / Easement (Lawn Circle - Linden Ct)	\$20,000.00	\$10,000.00	\$10,000.00	\$40,000.00
Subtotal	\$6,330,000.00	\$1,000,000.00	\$1,940,000.00	\$9,300,000.00

Location	Estimated Construction Costs	Engineering Fees (15%)	Contingency (30%)	EOPC
Woodland & Birch				
Woodland Drive	\$2,260,000.00	\$340,000.00	\$680,000.00	\$3,280,000.00
Birch Lane	\$1,470,000.00	\$230,000.00	\$450,000.00	\$2,150,000.00
Subtotal	\$3,730,000.00	\$570,000.00	\$1,130,000.00	\$5,400,000.00
Total	\$10,060,000.00	\$1,570,000.00	\$3,070,000.00	\$14,700,000.00

APPENDICES

APPENDIX A

SMC Pavement Investigation Results



SOIL AND MATERIAL CONSULTANTS, INC.

Office: 847-870-0544
 Fax: 847-870-0661
 us@soilandmaterialconsultants.com
 www.soilandmaterialconsultants.com

September 25, 2025
 File No. 28954

Mr. Colin P. McGovern, P.E.
 Baxter & Woodman, Inc.
 8430 W. Bryn Mawr Avenue, Suite 400
 Chicago, Illinois 60631

Re: Pavement Investigation
 Ridgewood Subdivision
 Resurfacing Improvements
 Western Springs, Illinois

Dear Mr. McGovern:

We are submitting the results of our pavement investigation for the above referenced project in the Village of Western Springs, Illinois. The investigation was requested to determine existing pavement sections.

The field investigation included obtaining 18 pavement cores at the requested locations. The pavement materials were returned to our laboratory for identification and thickness verification. The results are included in the summary with this submittal. Please refer to the pictures and core logs for more detailed information. The following table summarizes the pavement conditions encountered:

Core	HMA Surface (in.)	HMA Binder (in.)	Total HMA (in.)	Granular Base (in.)	Total Pavement (in.)
<u>Birch Lane</u>					
1	1.75	4.5	6.25	13.75+	20.0+
2	2.75	2.0	4.75	12.25	17.0
3	2.5	1.75	4.25	12.25	16.5
<u>Woodland Drive</u>					
4	2.5	2.75	5.25	4.75	10.0
5	2.75	3.75	6.5	12.75	19.25
6	3.0	2.25	5.25	8.75	14.0
7	3.0	2.0	5.0	9.0	14.0
8	2.5	1.5	4.0	8.0	12.0

BOLD indicates a failure in the bituminous concrete

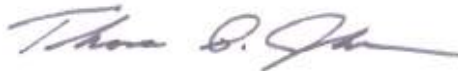
<u>Core</u>	HMA Surface (in.)	HMA Binder (in.)	Total HMA (in.)	Granular Base (in.)	Total Pavement (in.)
<u>Lawn Drive</u>					
9	2.75	1.75	4.5	8.0	12.5
10	2.0	6.25	8.25	9.0	17.25
11	3.0	2.0	5.0	8.5	13.5
<u>Park Place</u>					
12	3.0	2.25	5.25	8.0	13.25
<u>Lawn Court</u>					
13	2.5	---	2.5	9.0	11.5
<u>Lawn Circle</u>					
14	3.0	8.0	11.0	3.5	14.5
<u>Linden Court</u>					
15	3.0	1.0	4.0	7.0	11.0
16	4.0	1.5	5.5	7.0	12.5
<u>Linden Lane</u>					
17	3.0	3.0	6.0	9.0	15.0
<u>Linden Circle</u>					
18	4.0	2.0	6.0	13.0	19.0

BOLD indicates a failure in the bituminous concrete

If you should have any questions concerning the enclosed information, please feel free to contact our office at anytime.

Very truly yours,

SOIL AND MATERIAL CONSULTANTS, INC.

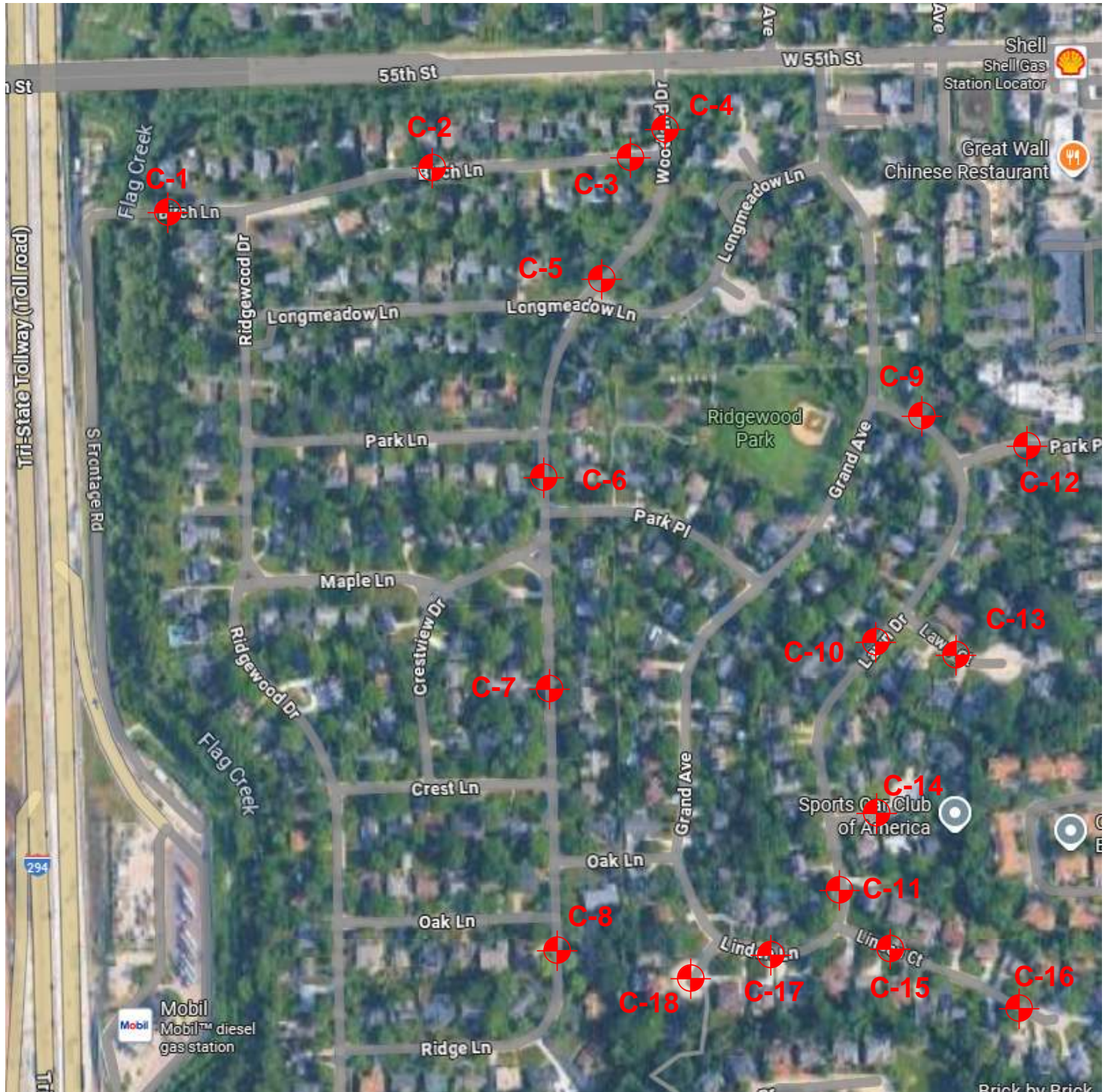


Thomas P. Johnson, P.E.
 President

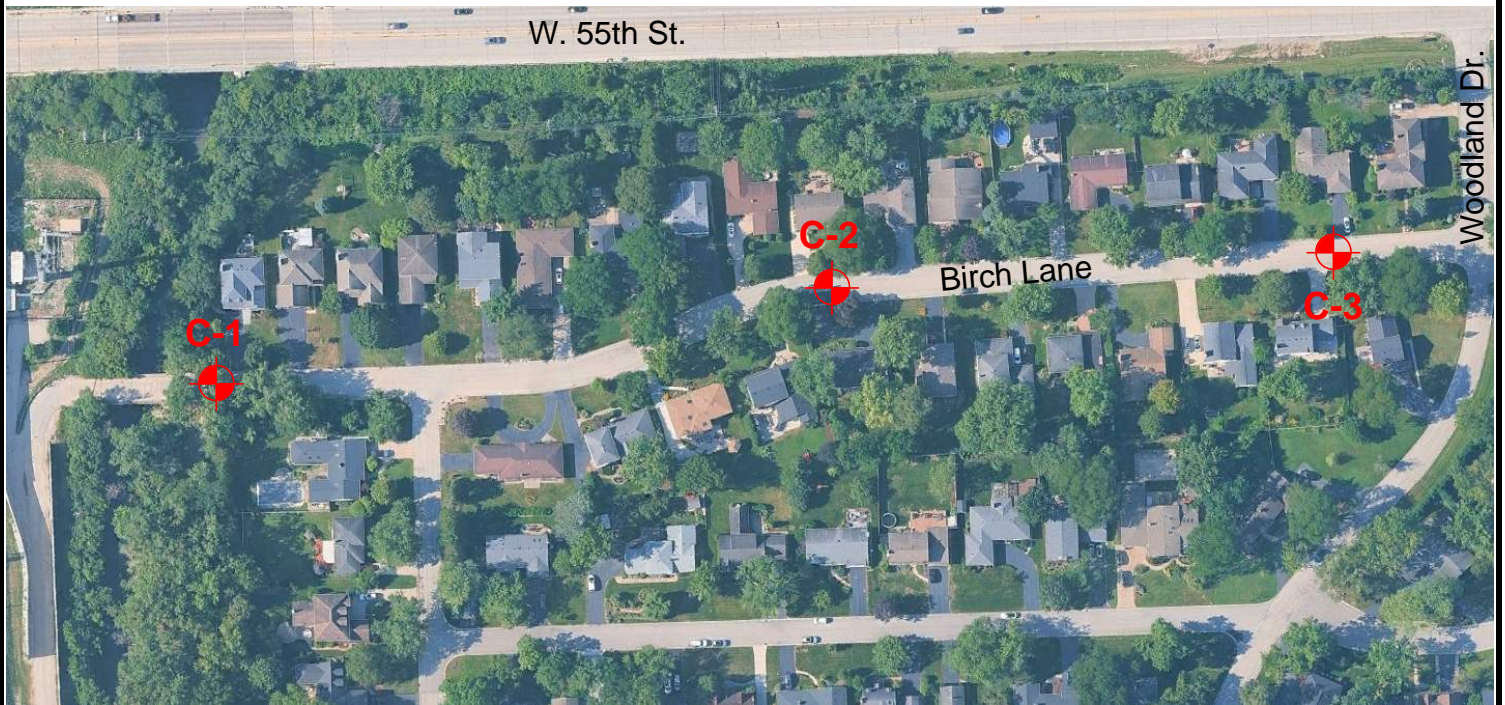


David Rak, E.I.T.
 Project Engineer

TPJ:DJR:ek
 Enc.



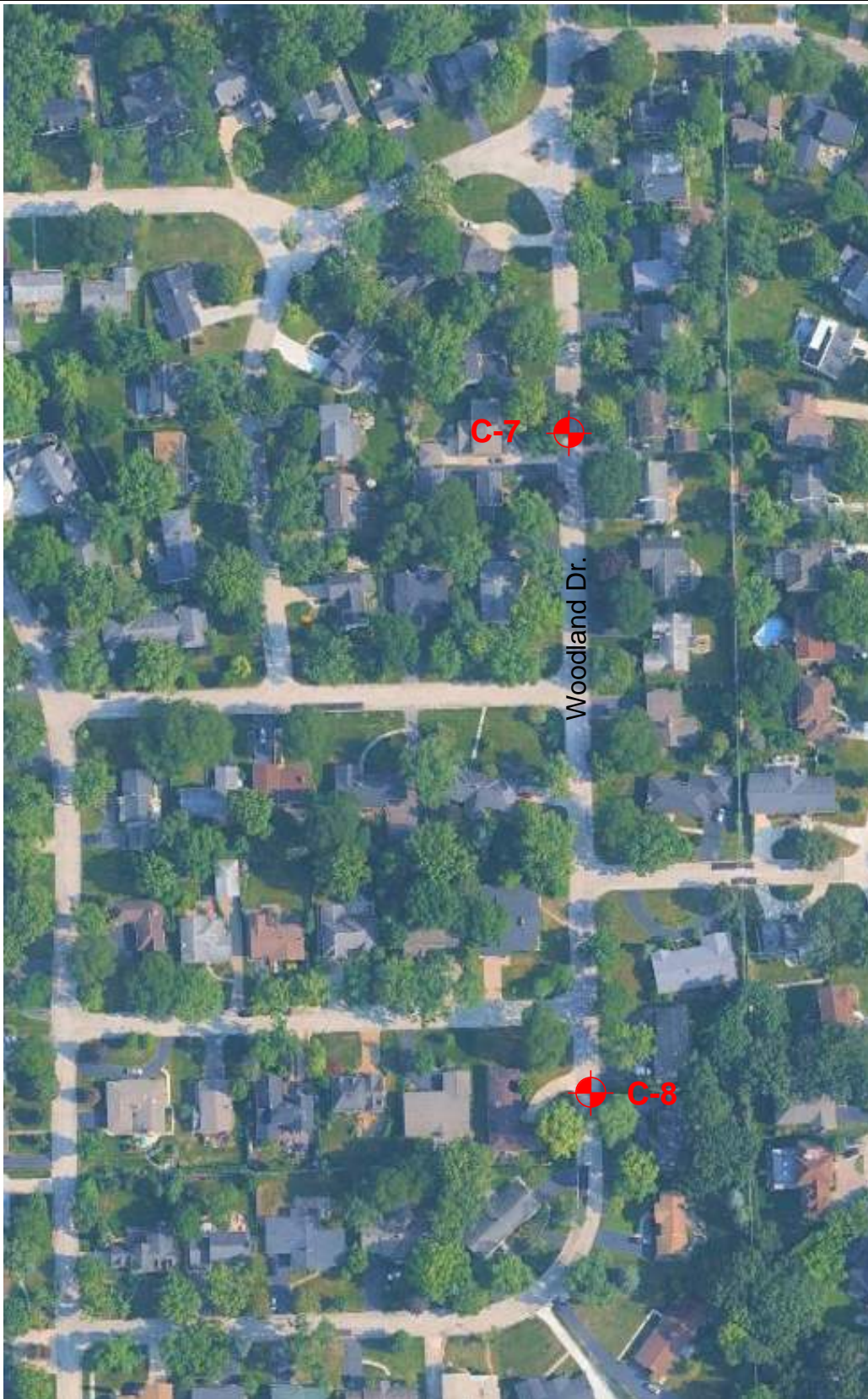
SMC		SOIL AND MATERIAL CONSULTANTS, INC.	LOCATION SKETCH
Client:	BAXTER & WOODMAN		
Project:	RIDGEWOOD SUBDIVISION RESURFACING IMPROVEMENTS		
Location:	WESTERN SPRINGS, ILLINOIS		
File No.	28954	Date: 9-23-25	Scale: NONE



SMC		SOIL AND MATERIAL CONSULTANTS, INC.	LOCATION SKETCH
Client:	BAXTER & WOODMAN		
Project:	RIDGEWOOD SUBDIVISION RESURFACING IMPROVEMENTS		
Location:	WESTERN SPRINGS, ILLINOIS		
File No.	28954	Date: 9-23-25	Scale: NONE



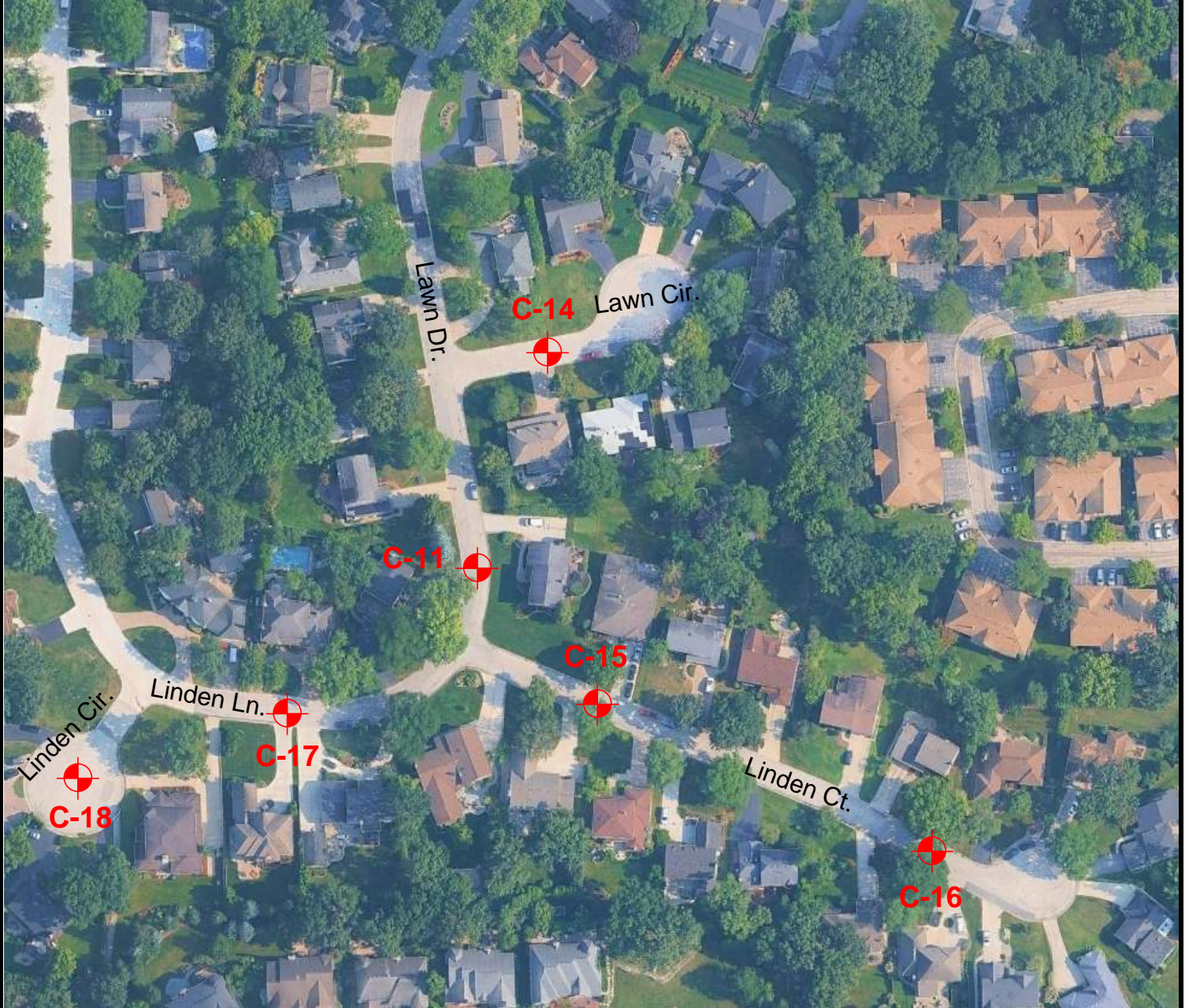
SMC		SOIL AND MATERIAL CONSULTANTS, INC.	LOCATION SKETCH
Client:	BAXTER & WOODMAN		
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File No.	28954	Date: 9-23-25	Scale: NONE



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Location:	WESTERN SPRINGS, ILLINOIS		
File No.	28954	Date: 9-23-25	Scale: NONE



SMC		SOIL AND MATERIAL CONSULTANTS, INC.	LOCATION SKETCH
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Location:	WESTERN SPRINGS, ILLINOIS		
File No.	28954	Date:	9-23-25
		Scale:	NONE



SMC		SOIL AND MATERIAL CONSULTANTS, INC.	LOCATION SKETCH
Client:	BAXTER & WOODMAN		
Project:	RIDGEWOOD SUBDIVISION RESURFACING IMPROVEMENTS		
Location:	WESTERN SPRINGS, ILLINOIS		
File No.	28954	Date:	9-23-25
		Scale:	NONE



SOIL AND MATERIAL CONSULTANTS, INC.

Date: 9/23/25

File No.: 28954

8 W. COLLEGE DR. • SUITE C • ARLINGTON HEIGHTS, IL 60004

CORE LOG

Client: Baxter & Woodman, Inc. Reference Ridgewood Subdiv. Resurfacing Improv. Western Springs, IL

Core No: 1 Work Done By: DB & AD

Location of Core: 1156 Birch Ln., 9' N. of CL

Comments: _____

(Depth, In.)	Type of Material	Recovery
0 ---		
1 ---	1-3/4" Bituminous concrete - surface	Full
2 ---	1-1/2" Bituminous concrete - binder	Full
3 ---	no bond	
4 ---	1-1/2" Bituminous concrete - surface	Full
5 ---	1-1/2" Bituminous concrete - binder	Full
6 ---		
7 ---		
8 ---		
9 ---		
10 ---		
11 ---		
12 ---	13-3/4+ Crushed limestone with fines, some large	Partial
13 ---		
14 ---		
15 ---		
16 ---		
17 ---		
18 ---		
19 ---		
20 ---	Total 20-0"+	
	E.O.C.	

G-333



SOIL AND MATERIAL CONSULTANTS, INC.

Date: 9/23/25

File No.: 28954

8 W. COLLEGE DR. • SUITE C • ARLINGTON HEIGHTS, IL 60004

CORE LOG

Client: Baxter & Woodman, Inc. Reference Ridgewood Subdiv. Resurfacing Improv. Western Springs, IL

Core No: 2 Work Done By: DB & AD

Location of Core: 1123 Birch Ln., 6' S. of CL

Comments: _____

(Depth, In.)	Type of Material	Recovery
0 ---	1-0" Bituminous concrete - surface	Full
1 ---		no bond
2 ---	1-3/4" Bituminous concrete - surface	Full
3 ---		no bond
4 ---	2-0" Bituminous concrete - binder (failed)	Partial
5 ---		
6 ---		
7 ---		
8 ---		
9 ---		
10 ---	12-1/4" Crushed limestone with fines	Partial
11 ---		
12 ---		
13 ---		
14 ---		
15 ---		
16 ---		
17 ---	Total 17-0"	
18 ---	E.O.C.	
19 ---		
20 ---		



SOIL AND MATERIAL CONSULTANTS, INC.

Date: 9/23/25

File No.: 28954

8 W. COLLEGE DR. • SUITE C • ARLINGTON HEIGHTS, IL 60004

CORE LOG

Client: Baxter & Woodman, Inc. Reference: Ridgewood Subdiv. Resurfacing Improv. Western Springs, IL

Core No: 3 Work Done By: DB & AD

Location of Core: 1102 Birch Ln., 8' N. of CL

Comments:

(Depth, In.)	Type of Material	Recovery
0 ---	1-1/4" Bituminous concrete - surface	Full
1 ---		
2 ---		
3 ---	1-3/4" Bituminous concrete - binder	Full
4 ---		
5 ---	12-1/4" Crushed limestone with fines	Partial
6 ---		
7 ---		
8 ---		
9 ---		
10 ---		
11 ---		
12 ---		
13 ---		
14 ---		
15 ---		
16 ---		
17 ---	E.O.C.	
18 ---		
19 ---		
20 ---		



SOIL AND MATERIAL CONSULTANTS, INC.

Date: 9/23/25

File No.: 28954

8 W. COLLEGE DR. • SUITE C • ARLINGTON HEIGHTS, IL 60004

CORE LOG

Client: Baxter & Woodman, Inc. Reference Ridgewood Subdiv. Resurfacing Improv. Western Springs, IL

Core No: 4 Work Done By: DB & AD

Location of Core: 5500 Woodland Dr., 8' E. of CL

Comments: _____

(Depth, In.)	Type of Material	Recovery
0 ---	1-1/4" Bituminous concrete - surface	Full
1 ---		
2 ---	1-1/4" Bituminous concrete - surface	Full
3 ---	2-3/4" Bituminous concrete - binder	Full
4 ---		
5 ---		
6 ---	4-3/4" Crushed limestone with fines	Partial
7 ---		
8 ---		
9 ---		
10 ---	Total 10-0"	
11 ---	E.O.C.	
12 ---		
13 ---		
14 ---		
15 ---		
16 ---		
17 ---		
18 ---		
19 ---		
20 ---		



SOIL AND MATERIAL CONSULTANTS, INC.

Date: 9/23/25

File No.: 28954

8 W. COLLEGE DR. • SUITE C • ARLINGTON HEIGHTS, IL 60004

CORE LOG

Client: Baxter & Woodman, Inc. Reference Ridgewood Subdiv. Resurfacing Improv. Western Springs, IL

Core No: 5 Work Done By: DB & AD

Location of Core: 5524 Woodland Dr., 7' W. of CL

Comments: _____

(Depth, In.)	Type of Material	Recovery
0 --	1-0" Bituminous concrete - surface	Full
1 --		
2 --	1-3/4" Bituminous concrete - surface	Full
3 --		
4 --	1-3/4" Bituminous concrete - binder	Full
5 --		
6 --	2-0" Bituminous concrete - surface	Full
7 --		
8 --		
9 --		
10 --		
11 --		
12 --	12-3/4" Crushed limestone with fines	Partial
13 --		
14 --		
15 --		
16 --		
17 --		
18 --		
19 --	Total 19-1/4"	
20 --	E.O.C.	



SOIL AND MATERIAL CONSULTANTS, INC.

Date: 9/23/25

File No.: 28954

8 W. COLLEGE DR. • SUITE C • ARLINGTON HEIGHTS, IL 60004

CORE LOG

Client: Baxter & Woodman, Inc. Reference: Ridgewood Subdiv. Resurfacing Improv. Western Springs, IL

Core No: 6 Work Done By: DB & AD

Location of Core: 5621 Woodland Dr., 6' E. of CL

Comments:

(Depth, In.)	Type of Material	Recovery
0 ---		
1 ---	1-1/4" Bituminous concrete - surface	Full
2 ---	1-3/4" Bituminous concrete - surface	Full
3 ---		
4 ---	2-1/4" Bituminous concrete - binder	Full
5 ---		
6 ---		
7 ---		
8 ---		
9 ---	8-3/4" Crushed limestone with fines	Partial
10 ---		
11 ---		
12 ---		
13 ---		
14 ---	Total 14-0"	
15 ---	E.O.C.	
16 ---		
17 ---		
18 ---		
19 ---		
20 ---		



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CORE LOG

Client: Baxter & Woodman, Inc. Reference Ridgewood Subdiv. Resurfacing Improv. Western Springs, IL

Core No: 7 Work Done By: DB & AD

Location of Core: 5716 Woodland Dr., 6' W. of CL

Comments:

(Depth, In.)	Type of Material	Recovery
0 ---		
1 ---	1-0" Bituminous concrete - surface	Full
2 ---	2-0" Bituminous concrete - surface	Full
3 ---		
4 ---	2-0" Bituminous concrete - binder	Full
5 ---		
6 ---		
7 ---		
8 ---		
9 ---	9-0" Crushed limestone with fines	Partial
10 ---		
11 ---		
12 ---		
13 ---		
14 ---	Total 14-0"	
15 ---	E.O.C.	
16 ---		
17 ---		
18 ---		
19 ---		
20 ---		



SOIL AND MATERIAL CONSULTANTS, INC.

Date: 9/23/25

File No.: 28954

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CORE LOG

Client: Baxter & Woodman, Inc. Reference Ridgewood Subdiv. Resurfacing Improv. Western Springs, IL

Core No: 8 Work Done By: DB & AD

Location of Core: 5805 Woodland Dr., 6' E. of CL

Comments: _____

(Depth, In.)	Type of Material	Recovery
0 ---	1-1/4" Bituminous concrete - surface	Full
1 ---		
2 ---		1-1/4" Bituminous concrete - surface (failed) no bond
3 ---	1-1/2" Bituminous concrete - binder (failed)	Partial
4 ---	8-0" Crushed limestone with fines	Partial
5 ---		
6 ---		
7 ---		
8 ---		
9 ---		
10 ---		
11 ---		
12 ---	Total 12-0"	
13 ---	E.O.C.	
14 ---		
15 ---		
16 ---		
17 ---		
18 ---		
19 ---		
20 ---		

8 W. COLLEGE DR. • SUITE C • ARLINGTON HEIGHTS, IL 60004

CORE LOG

Client: Baxter & Woodman, Inc. Reference: Ridgewood Subdiv. Resurfacing Improv. Western Springs, IL
 Core No: 9 Work Done By: DB & AD
 Location of Core: 5601 Lawn Dr., 7' S. of CL

Comments: _____

(Depth, In.)	Type of Material	Recovery
0 --	1-0" Bituminous concrete - surface	Full
1 --		
2 --		
3 --	1-3/4" Bituminous concrete - surface	Full
4 --		
5 --	1-3/4" Bituminous concrete - binder	Full
6 --		
7 --		
8 --	8-0" Crushed limestone with fines	Partial
9 --		
10 --		
11 --	Total 12-1/2"	
12 --		
13 --	E.O.C.	
14 --		
15 --		
16 --		
17 --		
18 --		
19 --		
20 --		



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Date: 9/23/25

File No.: 28954

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CORE LOG

Client: Baxter & Woodman, Inc. Reference Ridgewood Subdiv. Resurfacing Improv. Western Springs, IL

Core No: 10 Work Done By: DB & AD

Location of Core: 5707 Lawn Dr., 6' E. of CL

Comments: _____

(Depth, In.)	Type of Material	Recovery
0 ---		
1 ---	2-0" Bituminous concrete - surface	Full
2 ---		no bond
3 ---	3-1/4" Bituminous concrete - binder	Full
4 ---		
5 ---		
6 ---		
7 ---	3-0" Bituminous concrete - binder	Full
8 ---		
9 ---		
10 ---		
11 ---		
12 ---	9-0" Crushed limestone with fines	Partial
13 ---		
14 ---		
15 ---		
16 ---		
17 ---	Total 17-1/4"	
18 ---	E.O.C.	
19 ---		
20 ---		



SOIL AND MATERIAL CONSULTANTS, INC.

Date: 9/23/25

File No.: 28954

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CORE LOG

Client: Baxter & Woodman, Inc. Reference: Ridgewood Subdiv. Resurfacing Improv. Western Springs, IL

Core No: 11 Work Done By: DB & AD

Location of Core: 5811 Lawn Dr., 7' W. of CL

Comments:

(Depth, In.)	Type of Material	Recovery
0 ---		
1 ---	1-1/2" Bituminous concrete - surface	Full
2 ---		
3 ---	1-1/2" Bituminous concrete - surface	Full
4 ---		
5 ---	2-0" Bituminous concrete - binder	Full
6 ---		
7 ---		
8 ---		
9 ---	8-1/2" Crushed limestone with fines, some large	Partial
10 ---		
11 ---		
12 ---		
13 ---		
14 ---	Total 13-1/2"	
15 ---	E.O.C.	
16 ---		
17 ---		
18 ---		
19 ---		
20 ---		



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Date: 9/23/25

File No.: 28954

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CORE LOG

Client: Baxter & Woodman, Inc. Reference Ridgewood Subdiv. Resurfacing Improv. Western Springs, IL

Core No: 12 Work Done By: DB & AD

Location of Core: 905 Park Pl., 8' N. of CL

Comments: _____

(Depth, In.)	Type of Material	Recovery
0 ---		
1 ---	1-1/2" Bituminous concrete - surface	Full
2 ---	1-1/2" Bituminous concrete - surface	Full
3 ---	no bond	
4 ---	2-1/4" Bituminous concrete - binder	Full
5 ---		
6 ---		
7 ---		
8 ---		
9 ---	8-0" Crushed limestone with fines	Partial
10 ---		
11 ---		
12 ---		
13 ---	Total 13-1/4"	
14 ---	E.O.C.	
15 ---		
16 ---		
17 ---		
18 ---		
19 ---		
20 ---		



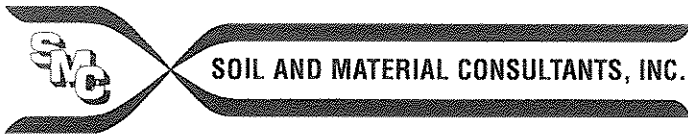
8 W. COLLEGE DR. • SUITE C • ARLINGTON HEIGHTS, IL 60004

CORE LOG

Client: Baxter & Woodman, Inc. Reference: Ridgewood Subdiv. Resurfacing Improv. Western Springs, IL
Core No: 13 Work Done By: DB & AD
Location of Core: 923 Lawn Ct., 6' S. of CL

Comments:

(Depth, In.)	Type of Material	Recovery
0 ---	1-1/4" Bituminous concrete - surface (failed)	Partial
1 ---		
2 ---	1-1/4" Bituminous concrete - surface (failed)	Partial
3 ---	9-0" Crushed limestone with fines	Partial
4 ---		
5 ---		
6 ---		
7 ---	Total 11-1/2"	
8 ---		
9 ---		
10 ---		
11 ---		
12 ---	E.O.C.	
13 ---		
14 ---		
15 ---		
16 ---		
17 ---		
18 ---		
19 ---		
20 ---		



Date: 9/23/25
 File No.: 28954

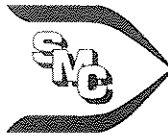
8 W. COLLEGE DR. • SUITE C • ARLINGTON HEIGHTS, IL 60004

CORE LOG

Client: Baxter & Woodman, Inc. Reference Ridgewood Subdiv. Resurfacing Improv. Western Springs, IL
 Core No: 14 Work Done By: DB & AD
924 Lawn Cir., 6' N. of CL
 Location of Core: _____

Comments: _____

(Depth, In.)	Type of Material	Recovery
0 ---	1-1/4" Bituminous concrete - surface	Full
1 ---		
2 ---	1-3/4" Bituminous concrete - surface	Full
3 ---		
4 ---	4-0" Bituminous concrete - binder	Full
5 ---		
6 ---		
7 ---	4-0" Bituminous concrete - binder	Full
8 ---		
9 ---		
10 ---		
11 ---	3-1/2" Crushed limestone with fines	Partial
12 ---		
13 ---		
14 ---	Total 14-1/2"	
15 ---		
16 ---	E.O.C.	
17 ---		
18 ---		
19 ---		
20 ---		



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CORE LOG

Client: Baxter & Woodman, Inc. Reference: Ridgewood Subdiy. Resurfacing Improv. Western Springs, IL
Core No: 15 Work Done By: DB & AD
Location of Core: 923 Linden Ct., 6' N. of CL

Comments:

(Depth, In.)	Type of Material	Recovery
0 ---	1-1/2" Bituminous concrete - surface (failed)	Partial
1 ---		
2 ---	1-1/2" Bituminous concrete - surface (failed)	Partial
3 ---		
4 ---	1-0" Bituminous concrete - binder (failed)	Partial
5 ---	7-0" Crushed limestone with fines	Partial
6 ---		
7 ---		
8 ---		
9 ---	Total 11-0"	
10 ---		
11 ---	E. O. C.	
12 ---		
13 ---		
14 ---		
15 ---		
16 ---		
17 ---		
18 ---		
19 ---		
20 ---		

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CORE LOG

Client: Baxter & Woodman, Inc. Reference Ridgewood Subdiv. Resurfacing Improv. Western Springs, IL
 Core No: 16 Work Done By: DB & AD
 Location of Core: 908 Linden Ct., 5' S. of CL

Comments: _____

(Depth, In.)	Type of Material	Recovery
0 ---		
1 ---	2-0" Bituminous concrete - surface	Full
2 ---		no bond
3 ---	2-0" Bituminous concrete - surface	Full
4 ---		
5 ---	1-1/2" Bituminous concrete - binder	Full
6 ---		
7 ---		
8 ---		
9 ---	7-0" Crushed limestone with fines	Partial
10 ---		
11 ---		
12 ---	Total 12-1/2"	
13 ---	E. O. C.	
14 ---		
15 ---		
16 ---		
17 ---		
18 ---		
19 ---		
20 ---		



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CORE LOG

Client: Baxter & Woodman, Inc. Reference: Ridgewood Subdiv. Resurfacing Improv. Western Springs, IL

Core No: 17 Work Done By: DB & AD

Location of Core: 1029 Linden Ln., 8' S. of CL

Comments:

(Depth, In.)	Type of Material	Recovery
0 ---	1-0" Bituminous concrete - surface	(failed) Partial no bond
1 ---		
2 ---	2-0" Bituminous concrete - surface	Full no bond
3 ---		
4 ---	3-0" Bituminous concrete - binder	Full
5 ---		
6 ---		
7 ---	9-0" Crushed limestone with fines	Partial
8 ---		
9 ---		
10 ---		
11 ---	Total 15-0"	
12 ---		
13 ---		
14 ---		
15 ---		
16 ---	E.O.C.	
17 ---		
18 ---		
19 ---		
20 ---		



SOIL AND MATERIAL CONSULTANTS, INC.

Date: 9/23/25

File No.: 28954

8 W. COLLEGE DR. • SUITE C • ARLINGTON HEIGHTS, IL 60004

CORE LOG

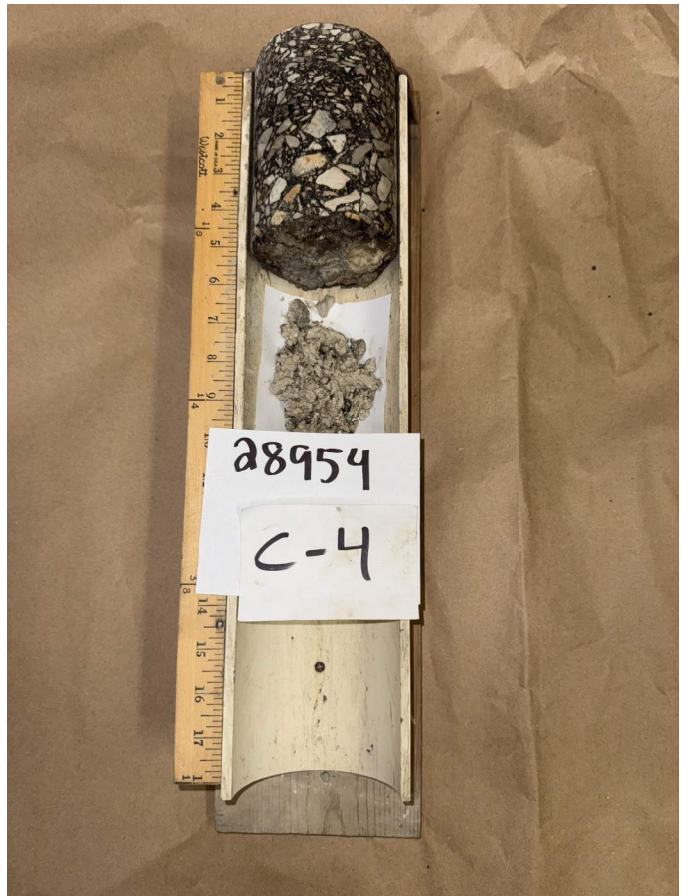
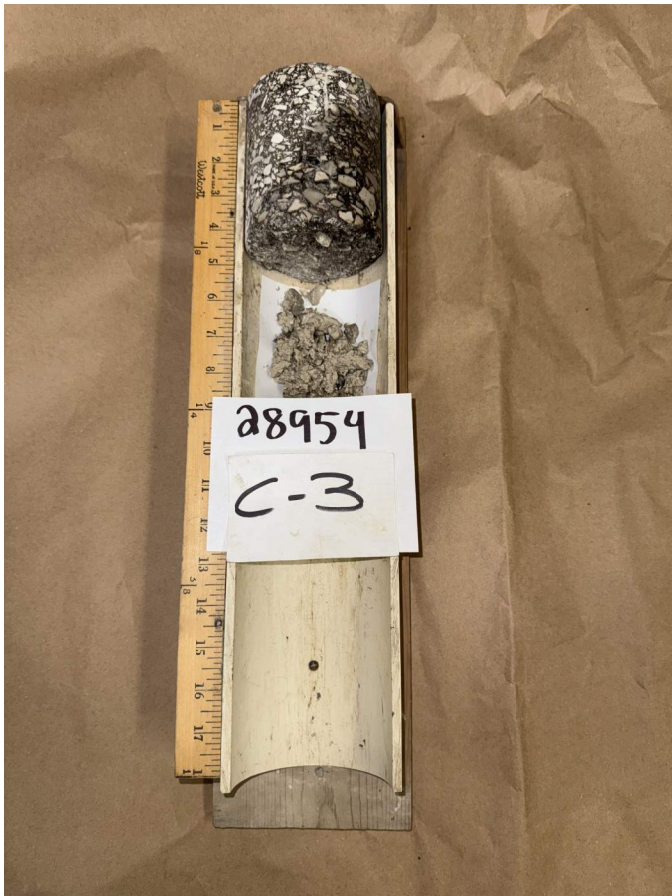
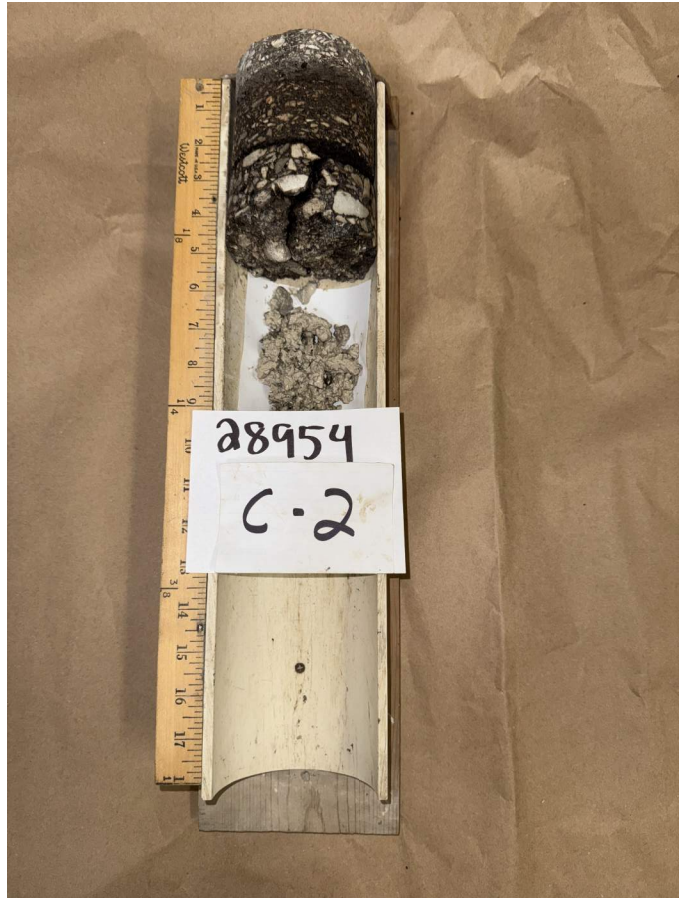
Client: Baxter & Woodman, Inc. Reference: Ridgewood Subdiv. Resurfacing Improv. Western Springs, IL

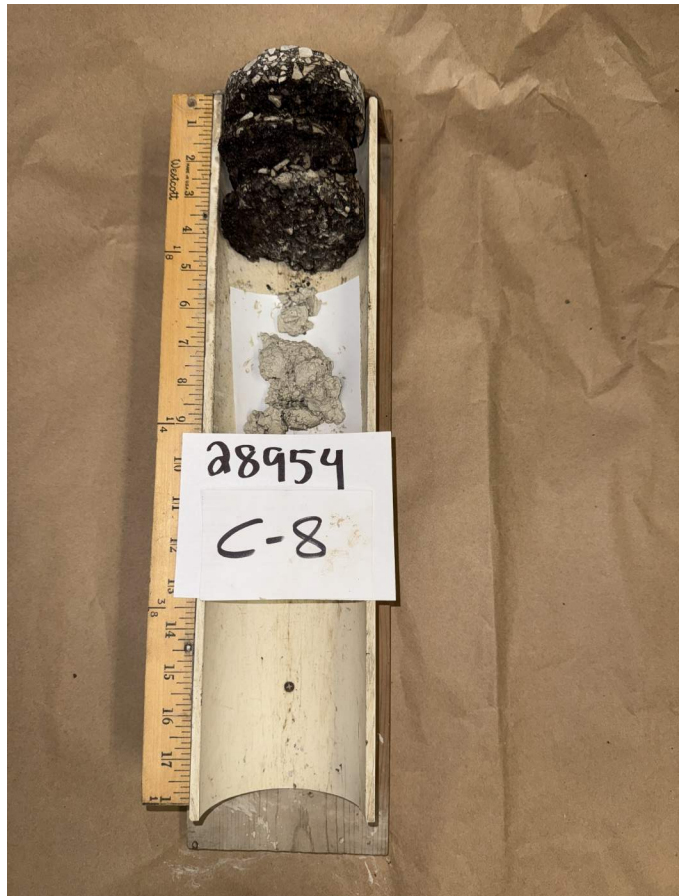
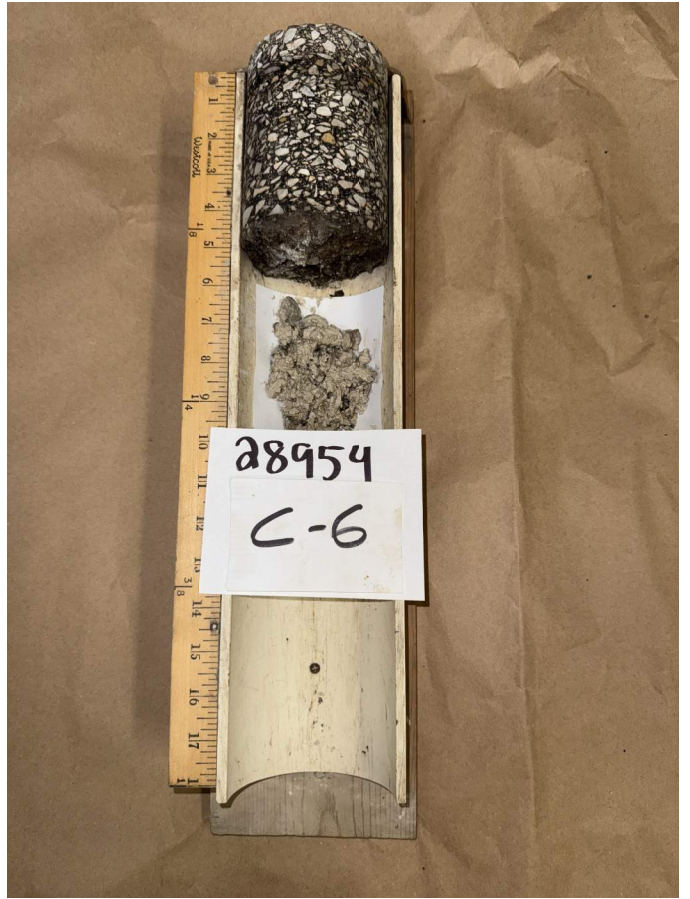
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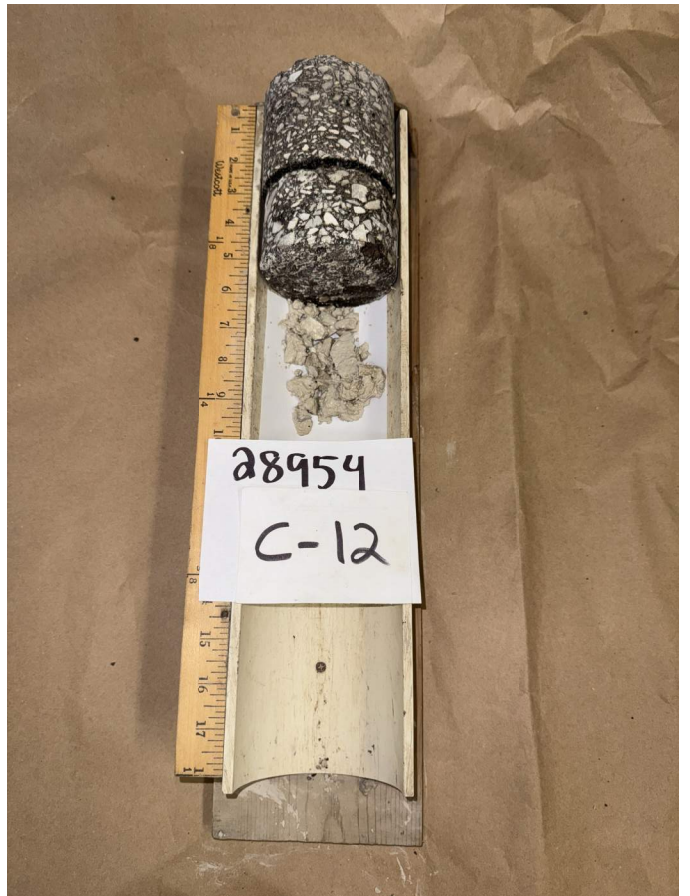
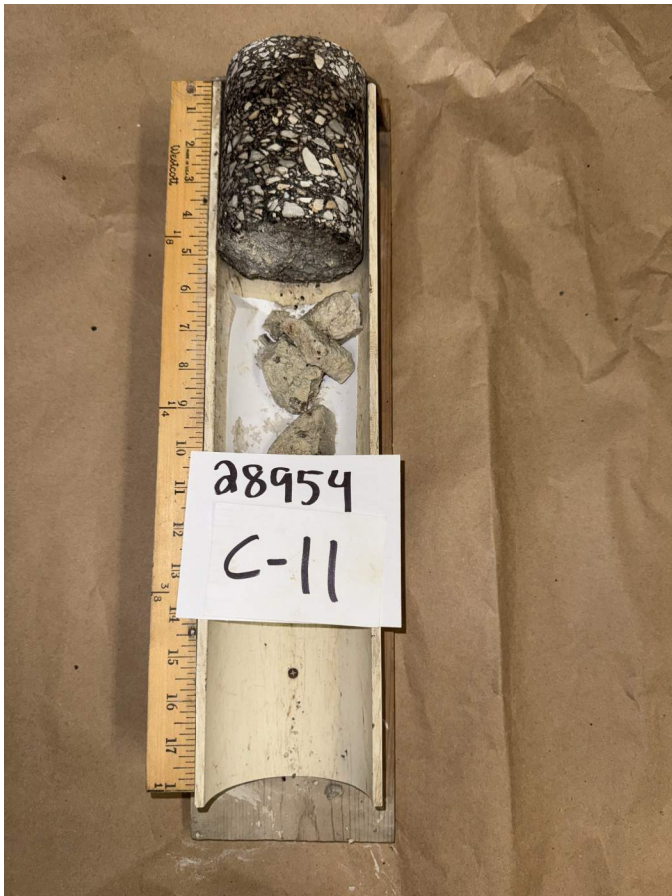
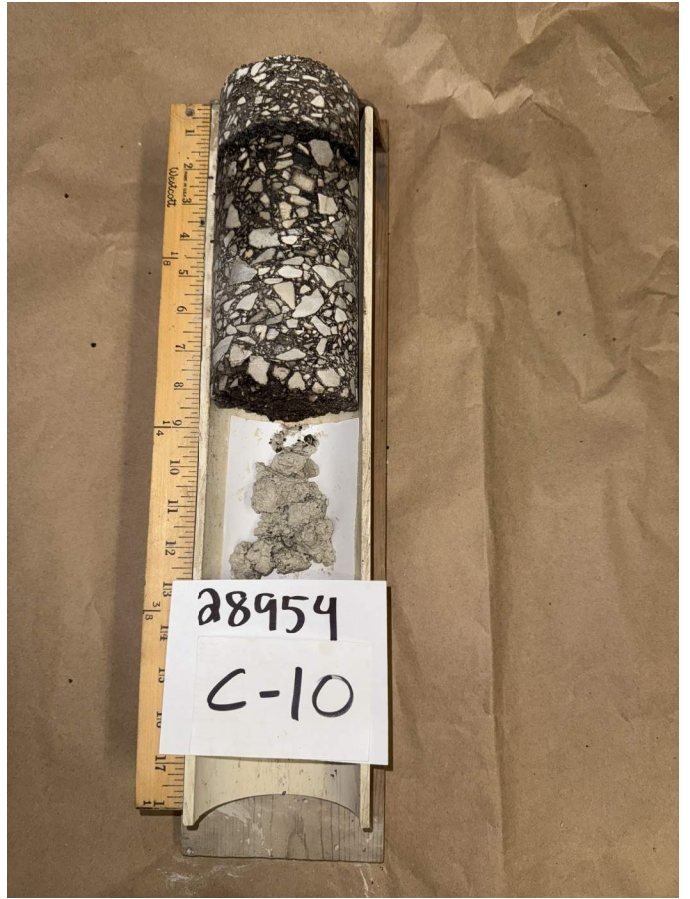
Location of Core: Center of Linden Cir.

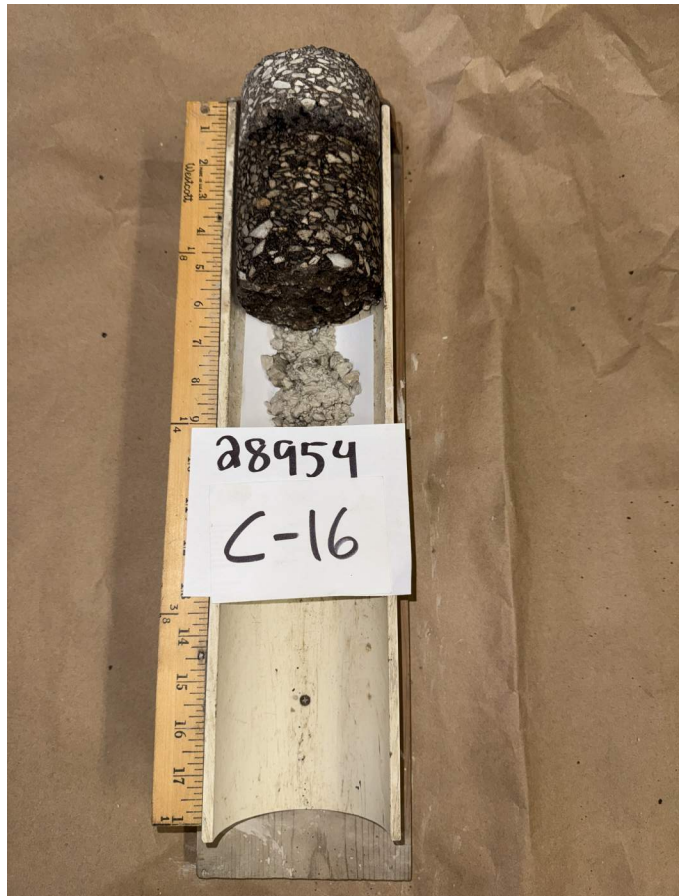
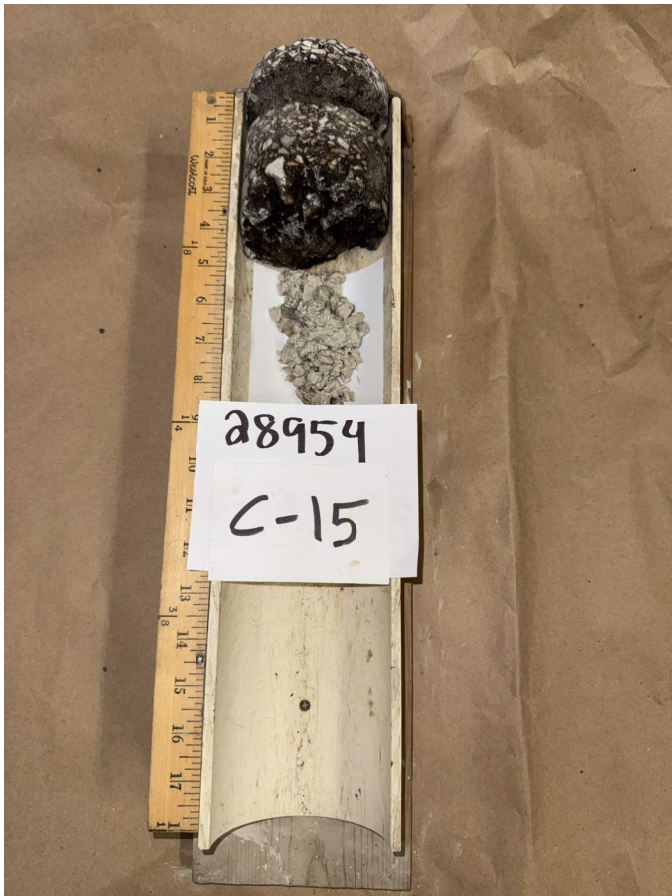
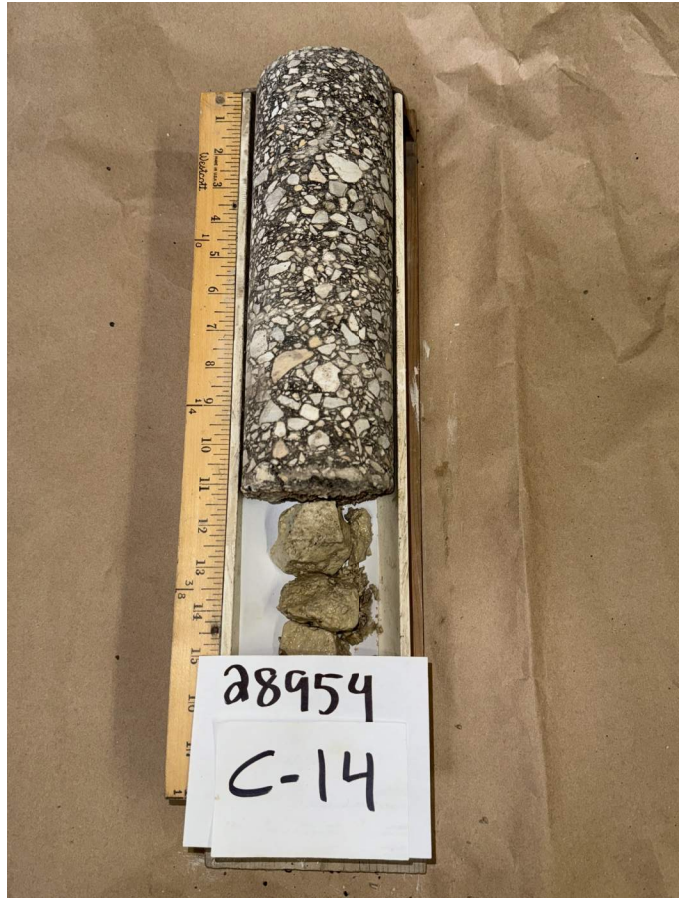
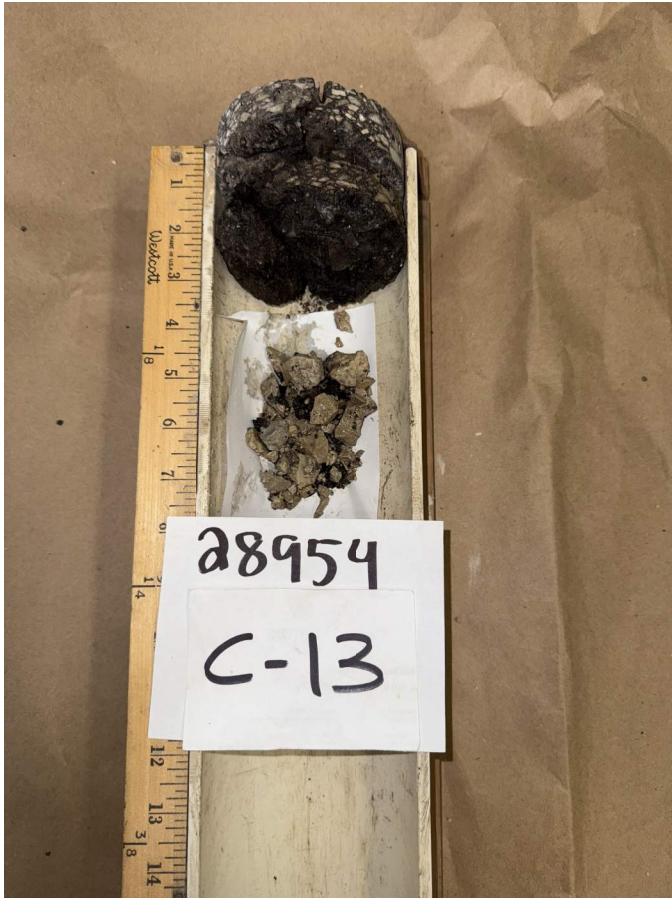
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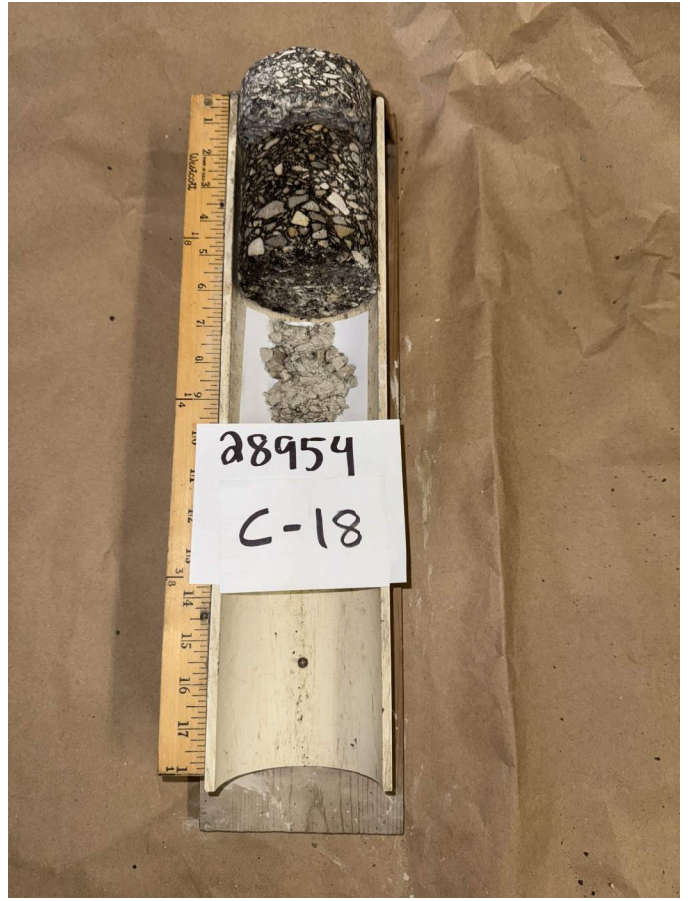
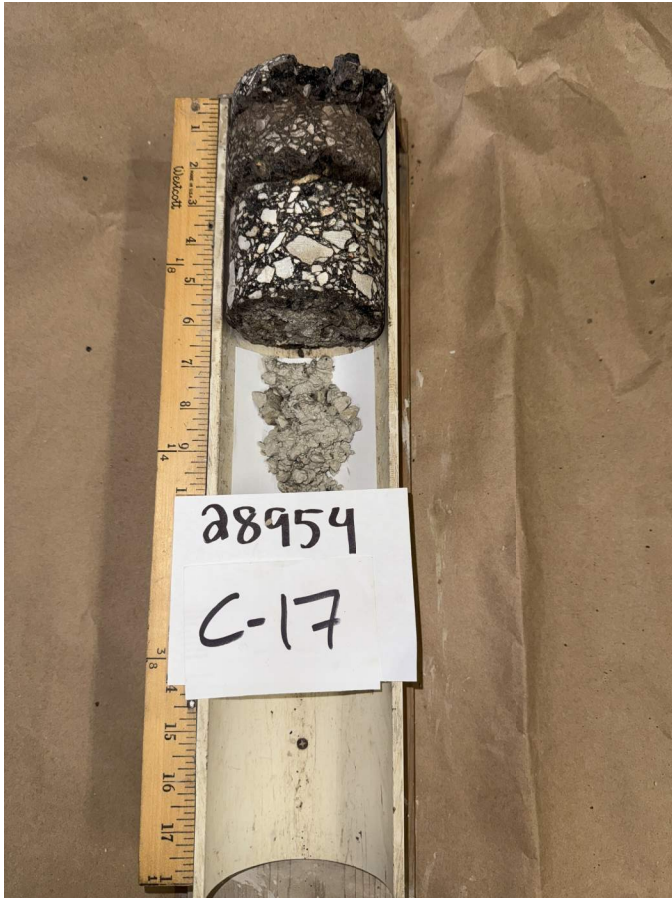
(Depth, In.)	Type of Material	Recovery
0 ---	1-1/2" Bituminous concrete - surface	Full
1 ---		
2 ---	2-1/2" Bituminous concrete - surface (failed)	Partial
3 ---		
4 ---	2-0" Bituminous concrete - binder	Full
5 ---		
6 ---	13-0" Crushed limestone with fines	Partial
7 ---		
8 ---	Total 19-0"	
9 ---		
10 ---	E. O. C.	
11 ---		
12 ---		
13 ---		
14 ---		
15 ---		
16 ---		
17 ---		
18 ---		
19 ---		
20 ---		











APPENDIX B

Preliminary Opinion of Probable Costs

**Village of Western Springs - Ridgewood Area B Water Main Improvements
Preliminary Opinion of Probable Cost**

Item No.	Description	Approximate		Alternative 1 - 8" Except Dead Ends		Alternative 2 - Automatic Flusher on Linden		Alternative 3 - 8" with Wolf loop, 6" on Lawn Cir/Ct	
		UNIT PRICE	Unit	Engineers Estimate		Engineers Estimate		Engineers Estimate	
				APPROXIMATE QUANTITY	TOTAL COST	APPROXIMATE QUANTITY	TOTAL COST	APPROXIMATE QUANTITY	TOTAL COST
1	MOBILIZATION	VARIES	LSUM	1	\$ 50,000	1	\$ 50,000	1	\$ 125,000
2	TRENCH BACKFILL	\$ 50	CUYD	3,450	\$ 172,500	3,450	\$ 172,500	4,150	\$ 207,500
3	WATER MAIN, 6-INCH	\$ 180	LF	1,010	\$ 181,800	1,010	\$ 181,800	925	\$ 166,500
4	WATER MAIN, 8-INCH	\$ 200	LF	2,525	\$ 505,000	2,525	\$ 505,000	3,300	\$ 660,000
5	WATER MAIN, 12-INCH	\$ 300	LF	0	\$ -	0	\$ -	1,500	\$ 450,000
6	GATE VALVE, 6-INCH	\$ 3,500	EACH	2	\$ 7,000	2	\$ 7,000	3	\$ 10,500
7	GATE VALVE, 8-INCH	\$ 4,500	EACH	9	\$ 40,500	9	\$ 40,500	10	\$ 45,000
8	GATE VALVE, 12-INCH	\$ 5,500	EACH	0	\$ -	0	\$ -	3	\$ 16,500
9	VALVE BOX	\$ 600	EACH	11	\$ 6,600	11	\$ 6,600	13	\$ 7,800
10	FIRE HYDRANT	\$ 10,000	EACH	12	\$ 120,000	12	\$ 120,000	15	\$ 150,000
11	AUTOMATIC FLUSHING STATION AND SCADA INTEGRATION	\$ 20,000	EACH	0	\$ -	1	\$ 35,000	0	\$ -
12	WATER MAIN CONNECTION (NON-PRESSURE), 6-INCH	\$ 7,000	EACH	2	\$ 14,000	2	\$ 14,000	2	\$ 14,000
13	WATER MAIN CONNECTION (NON-PRESSURE), 8-INCH	\$ 8,500	EACH	2	\$ 17,000	2	\$ 17,000	2	\$ 17,000
14	WATER MAIN CONNECTION (NON-PRESSURE), 12-INCH	\$ 10,000	EACH	1	\$ 10,000	1	\$ 10,000	1	\$ 10,000
15	WATER SERVICE REPLACEMENT, SHORT SIDE, 1.5-INCH	\$ 6,000	EACH	35	\$ 210,000	35	\$ 210,000	35	\$ 210,000
16	WATER SERVICE REPLACEMENT, LONG SIDE, 1.5-INCH	\$ 7,500	EACH	37	\$ 277,500	37	\$ 277,500	37	\$ 277,500
17	ABANDONMENT OF EXISTING WATER MAIN AND APPURTENANCES	\$ 50,000	LSUM	1	\$ 50,000	1	\$ 50,000	1	\$ 50,000
18	SODDING	\$ 20	SQYD	2,400	\$ 48,000	2,400	\$ 48,000	2,900	\$ 58,000
19	REMOVAL AND REPLACEMENT OF UNSUITABLE MATERIAL	\$ 80	CUYD	170	\$ 13,600	170	\$ 13,600	210	\$ 16,800
20	SOIL TESTS FOR CONTAMINANTS	\$ 1,000	EACH	2	\$ 2,000	2	\$ 2,000	2	\$ 2,000
21	CONTAMINATED WASTE DISPOSAL	\$ 125	CUYD	35	\$ 4,375	35	\$ 4,375	40	\$ 5,000
	Estimated Construction Total				\$ 1,730,000		\$ 1,770,000		\$ 2,500,000
	30% Contingency				\$ 519,000		\$ 531,000		\$ 750,000
	Easement Acquisition [†]				\$ -		\$ -		\$ 97,500
	Design Engineering (7.5%)				\$ 130,000		\$ 133,000		\$ 188,000
	Construction Engineering (7.5%)				\$ 130,000		\$ 133,000		\$ 188,000
	Preliminary Opinion of Probable Cost				\$ 2,500,000		\$ 2,600,000		\$ 3,700,000

Unit prices are based on current 2026 estimates. Costs are not based on survey and should be reevaluated during design once more detailed information is available.

Design engineering is estimated to be completed in the year preceding construction. Construction engineering and contingency are applied to the planned construction year.

Mobilization costs include traffic control, erosion control, and construction layout.

Prices do not include relocating other utilities. Existing utility easements shall be utilized unless otherwise noted.

[†]Easement acquisition is based on \$10/SF for 15' utility easements. Price includes right-of-way acquisition and easement documentation.

**Village of Western Springs - Woodland and Birch Water Main Improvements
Preliminary Opinion of Probable Cost**

Item No.	Description	Approximate		Alternative 1 - Ridge to Crestview		Alternative 2 - Woodland and Birch		Alternative 3 - Additional Looping on Woodland	
		UNIT PRICE	Unit	Engineers Estimate		Engineers Estimate		Engineers Estimate	
				APPROXIMATE QUANTITY	TOTAL COST	APPROXIMATE QUANTITY	TOTAL COST	APPROXIMATE QUANTITY	TOTAL COST
1	MOBILIZATION	VARIES	LSUM	1	\$ 50,000	1	\$ 50,000	1	\$ 100,000
2	TRENCH BACKFILL	\$ 50	CUYD	1,400	\$ 70,000	3,450	\$ 172,500	4,150	\$ 207,500
3	WATER MAIN, 6-INCH	\$ 180	LF	20	\$ 3,600	275	\$ 49,500	280	\$ 50,400
4	WATER MAIN, 8-INCH	\$ 200	LF	1,400	\$ 280,000	3,275	\$ 655,000	3,950	\$ 790,000
5	GATE VALVE, 8-INCH	\$ 4,500	EACH	10	\$ 45,000	10	\$ 45,000	10	\$ 45,000
6	VALVE BOX	\$ 600	EACH	10	\$ 6,000	10	\$ 6,000	10	\$ 6,000
7	FIRE HYDRANT	\$ 10,000	EACH	4	\$ 40,000	10	\$ 100,000	11	\$ 110,000
8	WATER MAIN CONNECTION (NON-PRESSURE), 6-INCH	\$ 7,000	EACH	6	\$ 42,000	9	\$ 63,000	10	\$ 70,000
9	WATER MAIN CONNECTION (NON-PRESSURE), 8-INCH	\$ 8,500	EACH	0	\$ -	2	\$ 17,000	2	\$ 17,000
10	INCH	\$ 6,000	EACH	8	\$ 48,000	29	\$ 174,000	29	\$ 174,000
11	INCH	\$ 7,500	EACH	13	\$ 97,500	30	\$ 225,000	30	\$ 225,000
12	ABANDONMENT OF EXISTING WATER MAIN AND APPURTENANCES	\$ 40,000	LSUM	1	\$ 40,000	1	\$ 40,000	1	\$ 40,000
13	SODDING	\$ 20	SQYD	1,000	\$ 20,000	2,400	\$ 48,000	2,900	\$ 58,000
14	MATERIAL	\$ 80	CUYD	70	\$ 5,600	170	\$ 13,600	210	\$ 16,800
15	SOIL TESTS FOR CONTAMINANTS	\$ 1,000	EACH	1	\$ 1,000	2	\$ 2,000	2	\$ 2,000
16	CONTAMINATED WASTE DISPOSAL	\$ 125	CUYD	15	\$ 1,875	35	\$ 4,375	40	\$ 5,000
	Estimated Construction Total - Water Main				\$ 760,000		\$ 1,670,000		\$ 1,920,000
	30% Contingency				\$ 228,000		\$ 501,000		\$ 576,000
	Design Engineering (7.5%)				\$ 57,000		\$ 125,000		\$ 144,000
	Construction Engineering (7.5%)				\$ 57,000		\$ 125,000		\$ 144,000
	Preliminary Opinion of Probable Cost				\$ 1,100,000		\$ 2,400,000		\$ 2,800,000

Unit prices are based are current for 2026 estimates. Costs are not based on survey and should be reevaluated during design once more detailed information is available.

Design engineering is estimated to be completed in the year preceeding construction. Construction engineering and contingency are applied to the planned construction year.

Mobilization costs include traffic control, erosion control, and construction layout.

Prices do not include relocating other utilities. Existing utility easements shall be utilized unless otherwise noted.

APPENDIX C

2025 Storm Sewer Cleaning & Televising – Rehabilitation Recommendations Summary

**Village of Western Springs - Ridgewood Area Storm Sewer Improvements
2025 Storm Sewer Cleaning & Televising - Rehabilitation Recommendations Summary**

From Structure	To Structure	Street	Material	Diameter (In.)	Televised Length (Ft.)	Services	Structural Rating Index	O&M Rating Index	CIP Risk Score	Segment Recommendation	ESTIMATE OF CONSTRUCTION COST			Engineering Fees (15%)	Contingency (30%)	EOPC
											Point Repair	Full Replacement	Subtotal			
IMMEDIATE REPAIRS (2026)																
CB1	1079	Linden Ct	RCP	18	7.2	0	3.0	0.0	28.84	Full Replacement	\$ -	\$ 6,000	\$ 6,000	\$ 1,000	\$ 2,000	\$ 9,000
1059	1060	Lawn Drive	RCP	12	217.6	0	4.4	5.0	19.04	Point Repair(s)	\$ 12,000	\$ -	\$ 12,000	\$ 2,000	\$ 4,000	\$ 18,000
											Immediate Repairs (1 Year):					\$ 30,000
NON-IMMEDIATE REPAIRS (2027 TO 2030)																
1641	1076	Easement (Lawn Cir-Linden Ct)	RCP	18	321.1	0	2.0	0.0	35.56	Point Repair(s)	\$ 13,000	\$ -	\$ 13,000	\$ 2,000	\$ 4,000	\$ 19,000
1099	1076	Lawn Drive	RCP	12	105.1	0	3.0	0.0	19.04	Point Repair(s)	\$ 5,000	\$ -	\$ 5,000	\$ 1,000	\$ 2,000	\$ 8,000
											Non-Immediate Repairs (2-5 Years):					\$ 30,000
NO REPAIRS - RE-TELEVISION BY 2035																
CB2	CB1	Linden Ct	RCP	18	30	0	0.0	0.0	28.84	Retelevise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1080	CB2	Linden Ct	RCP	18	172.8	2	0.0	2.0	35.56	Retelevise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1079	1078	Linden Ct	RCP	18	118	0	0.0	0.0	35.56	Retelevise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1078	1077	Linden Ct	RCP	18	98	0	0.0	1.5	35.56	Retelevise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1077	1642	Linden Ct	RCP	8	101	0	0.0	1.0	35.56	Retelevise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1075	1074	Lawn Drive	RCP	12	54.2	0	0.0	1.0	19.04	Retelevise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1076	1074	Lawn Drive	RCP	18	85.1	0	0.0	0.0	28.84	Retelevise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1074	1073	Easement (Lawn Dr-Grand Ave)	RCP	18	173.7	0	0.0	0.0	35.56	Retelevise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1073	1072	Easement (Lawn Dr-Grand Ave)	RCP	18	190.9	0	0.0	1.0	37.47	Retelevise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1068	1067	Easement (Lawn Dr-Lawn Cir)	RCP	15	157.6	0	2.0	0.0	19.04	Retelevise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1066	1065	Easement (Lawn Dr-Lawn Cir)	RCP	15	176.2	0	2.0	1.0	19.04	Retelevise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1067	1066	Easement (Lawn Dr-Lawn Cir)	RCP	15	52.7	0	0.0	0.0	19.04	Retelevise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1065	1060	Lawn Drive	RCP	18	47.7	0	0.0	0.0	28.84	Retelevise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1061	1062	Easement (Lawn Dr-Grand Ave)	RCP	18	159.4	0	0.0	0.0	37.47	Retelevise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1060	1061	Easement (Lawn Dr-Grand Ave)	RCP	18	138.1	0	0.0	0.0	35.56	Retelevise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Ridgewood Area Storm Sewer Improvements \$ 60,000

APPENDIX D

2025 Sanitary Sewer Cleaning & Televising – Rehabilitation Recommendations Summary

**Village of Western Springs - Ridgewood Area Sanitary Sewer Improvements
2025 Sanitary Sewer Cleaning & Televising - Rehabilitation Recommendations Summary**

From Structure	To Structure	Street	Material	Diameter (In.)	Televised Length (Ft.)	Services	Intruding Services	Structural Rating Index	O&M Rating Index	CIP Risk Score	Segment Recommendation	ESTIMATE OF CONSTRUCTION COST					Engineering Fees (15%)	Contingency (30%)	EOPC
												Trim Intruding Services	Full Length Cured-In-Place Liner	Reinstate Services	Point Repair	Subtotal			
EMERGENCY																			
549	550	Lawn Drive	VCP	8	135.7	4	1	4.6	1.0	21.84	Point Repair(s) and Full Length Liner	\$ 1,000	\$ 11,000	\$ 4,000	\$ 4,000	\$ 20,000	\$ 3,000	\$ 6,000	\$ 29,000
												Emergency:							\$ 30,000
IMMEDIATE REPAIRS (2026)																			
598	982	Lawn Drive	VCP	8	188	2	0	3.6	2.0	21.84	Point Repair(s)	\$ -	\$ -	\$ -	\$ 4,000	\$ 4,000	\$ 1,000	\$ 2,000	\$ 7,000
573	572	Grand Avenue	VCP	8	66.4	0	0	4.0	0.0	23.01	Point Repair(s)	\$ -	\$ -	\$ -	\$ 2,000	\$ 2,000	\$ 1,000	\$ 1,000	\$ 4,000
550	603	Easement (Lawn Dr-Grand Ave)	VCP	8	145	0	0	3.5	1.5	28.56	Point Repair(s)	\$ -	\$ -	\$ -	\$ 4,000	\$ 4,000	\$ 1,000	\$ 2,000	\$ 7,000
												Immediate Repairs (1 Year):							\$ 20,000
NON-IMMEDIATE REPAIRS (2027 TO 2030)																			
982	599	Lawn Drive	VCP	8	251.2	7	0	3.0	1.8	21.84	Full Length Liner	\$ -	\$ 21,000	\$ 7,000	\$ -	\$ 28,000	\$ 5,000	\$ 9,000	\$ 42,000
650	527	Linden Ct	VCP	8	152.1	4	0	4.3	2.0	12.48	Full Length Liner	\$ -	\$ 13,000	\$ 4,000	\$ -	\$ 17,000	\$ 3,000	\$ 6,000	\$ 26,000
648	650	Linden Ct	VCP	8	206	5	0	2.6	1.5	21.84	Full Length Liner	\$ -	\$ 17,000	\$ 5,000	\$ -	\$ 22,000	\$ 4,000	\$ 7,000	\$ 33,000
645	646	Park Place	VCP	8	187.1	3	0	4.0	1.2	14.82	Full Length Liner	\$ -	\$ 15,000	\$ 3,000	\$ -	\$ 18,000	\$ 3,000	\$ 6,000	\$ 27,000
603	573	Easement (Lawn Dr-Grand Ave)	VCP	8	130.1	0	0	2.0	2.8	30.09	Full Length Liner	\$ -	\$ 11,000	\$ -	\$ -	\$ 11,000	\$ 2,000	\$ 4,000	\$ 17,000
599	601	Lawn Drive	VCP	8	120.3	2	0	3.2	1.0	21.84	Point Repair(s)	\$ -	\$ -	\$ -	\$ 6,000	\$ 6,000	\$ 1,000	\$ 2,000	\$ 9,000
576	602	Linden Lane	VCP	8	80.8	2	0	4.0	0.0	12.48	Point Repair(s)	\$ -	\$ -	\$ -	\$ 2,000	\$ 2,000	\$ 1,000	\$ 1,000	\$ 4,000
555	982	Lawn Circle	VCP	8	220.6	9	0	2.6	2.0	21.84	Full Length Liner	\$ -	\$ 18,000	\$ 9,000	\$ -	\$ 27,000	\$ 5,000	\$ 9,000	\$ 41,000
526	549	Lawn Ct	VCP	8	151.1	2	1	4.0	1.0	11.31	Point Repair(s)	\$ 1,000	\$ -	\$ -	\$ 2,000	\$ 3,000	\$ 1,000	\$ 1,000	\$ 5,000
524	523	Lawn Drive	VCP	8	104.1	3	0	4.0	1.0	11.31	Full Length Liner	\$ -	\$ 9,000	\$ 3,000	\$ -	\$ 12,000	\$ 2,000	\$ 4,000	\$ 18,000
523	554	Lawn Drive	VCP	8	202.4	5	1	4.0	1.2	12.48	Trim Intruding Tap(s) and Full Length Liner	\$ 1,000	\$ 17,000	\$ 5,000	\$ -	\$ 23,000	\$ 4,000	\$ 7,000	\$ 34,000
												Non-Immediate Repairs (2-5 Years):							\$ 260,000
NO REPAIRS - RE-TELEVISION BY 2035																			
649	526	Lawn Ct	VCP	8	217	8	1	3.0	1.4	11.31	Re-televise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
647	648	Linden Ct	VCP	8	105	5	0	2.0	1.0	21.84	Re-televise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
646	524	Park Place	VCP	8	178.6	1	0	2.4	0.0	16.53	Re-televise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
602	598	Lawn Drive	VCP	8	59	0	0	2.0	1.0	21.84	Re-televise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
601	550	Lawn Drive	VCP	8	80.9	3	0	2.0	1.4	21.84	Re-televise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
577	576	Linden Lane	VCP	8	577	3	0	2.0	2.0	12.84	Re-televise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
527	602	Linden Ct	VCP	8	259.8	4	0	2.1	1.0	12.84	Re-televise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
525	549	Lawn Drive	VCP	8	286.2	7	0	2.0	1.1	11.31	Re-televise in 5 to 10 years	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Ridgewood Area Sanitary Sewer Improvements \$ 310,000

APPENDIX E

Preliminary Opinion of Probable Costs (2026 Dollars)

Village of Western Springs - Ridgewood Planning Area Preliminary Opinion of Probable Costs (2026 Dollars)										
Project Title	Mobilization	Water	Sewer	Drainage	Pavements	Sidewalk	Estimated Construction Total	Design/Construction Engineering (15%)	Contingency (30%)	Total Estimated Cost
Ridgewood Area B										
Lawn Drive	\$ 120,000.00	\$ 730,000.00	\$ 110,000.00	\$ -	\$ 1,460,000.00	\$ 90,000.00	\$ 2,510,000.00	\$ 380,000.00	\$ 760,000.00	\$ 3,650,000.00
Park Place	\$ 30,000.00	\$ 200,000.00	\$ 18,000.00	\$ -	\$ 340,000.00	\$ 19,000.00	\$ 610,000.00	\$ 100,000.00	\$ 190,000.00	\$ 900,000.00
Lawn Court	\$ 30,000.00	\$ 150,000.00	\$ 3,000.00	\$ -	\$ 440,000.00	\$ 14,000.00	\$ 640,000.00	\$ 100,000.00	\$ 200,000.00	\$ 940,000.00
Lawn Circle	\$ 30,000.00	\$ 140,000.00	\$ 30,000.00	\$ -	\$ 380,000.00	\$ 7,000.00	\$ 590,000.00	\$ 90,000.00	\$ 180,000.00	\$ 860,000.00
Linden Court	\$ 60,000.00	\$ 320,000.00	\$ 50,000.00	\$ -	\$ 690,000.00	\$ 30,000.00	\$ 1,150,000.00	\$ 180,000.00	\$ 350,000.00	\$ 1,680,000.00
Linden Lane	\$ 30,000.00	\$ 160,000.00	\$ 10,000.00	\$ -	\$ 270,000.00	\$ 12,000.00	\$ 490,000.00	\$ 80,000.00	\$ 150,000.00	\$ 720,000.00
Linden Circle	\$ 14,000.00	\$ -	\$ -	\$ -	\$ 280,000.00	\$ 4,000.00	\$ 300,000.00	\$ 50,000.00	\$ 90,000.00	\$ 440,000.00
Rear Yards / Easement (Lawn Dr - Grand Ave)	\$ 1,000.00	\$ -	\$ 15,000.00	\$ -	\$ -	\$ -	\$ 20,000.00	\$ 10,000.00	\$ 10,000.00	\$ 40,000.00
Rear Yards / Easement (Lawn Circle - Linden Ct)	\$ 1,000.00	\$ -	\$ 13,000.00	\$ -	\$ -	\$ -	\$ 20,000.00	\$ 10,000.00	\$ 10,000.00	\$ 40,000.00
Total	\$ 320,000.00	\$ 1,700,000.00	\$ 250,000.00	\$ -	\$ 3,860,000.00	\$ 180,000.00	\$ 6,330,000.00	\$ 1,000,000.00	\$ 1,940,000.00	\$ 9,300,000.00
Woodland & Birch										
Woodland Drive	\$ 100,000.00	\$ 1,250,000.00	\$ -	\$ -	\$ 610,000.00	\$ 300,000.00	\$ 2,260,000.00	\$ 340,000.00	\$ 680,000.00	\$ 3,280,000.00
Birch Lane	\$ 70,000.00	\$ 620,000.00	\$ -	\$ 300,000.00	\$ 340,000.00	\$ 140,000.00	\$ 1,470,000.00	\$ 230,000.00	\$ 450,000.00	\$ 2,150,000.00
Total	\$ 170,000.00	\$ 1,870,000.00	\$ -	\$ 300,000.00	\$ 950,000.00	\$ 440,000.00	\$ 3,730,000.00	\$ 570,000.00	\$ 1,130,000.00	\$ 5,400,000.00
Total	\$ 490,000.00	\$ 3,570,000.00	\$ 250,000.00	\$ 300,000.00	\$ 4,810,000.00	\$ 620,000.00	\$ 10,060,000.00	\$ 1,570,000.00	\$ 3,070,000.00	\$ 14,700,000.00

General

- 1 Estimated Construction costs have a 30% Contingency and a 15% Design/Construction Engineering Cost added to them to determine the Estimated Total Cost.
- 2 Subtotals over \$20k are rounded for planning-level purposes. The total estimated cost for each study area is rounded to the nearest \$100k.

Water Main

- 1 Water main improvements are estimated to be full replacement of the water main unless otherwise noted for water main lining.
- 2 Water main 8" or less will be replaced with 8" water main. Water main greater than 8" will be replaced with 12" water main.
- 3 The construction cost does not include the cost of easement acquisition.
- 4 The lead service line inventory indicates there are no services with known lead or unknown service materials within project limits.

Sewers

- 1 The construction cost is inclusive of recommended repairs within the project area.

Drainage

- 1 Prices include sanitary sewer and water service relocation/adjustment.
- 2 Unit Prices for sewer replacement vary based on if road improvements will also be included in the project.

Roads

- 1 Road improvements are estimated to be full concrete reconstruction of the road otherwise noted for resurfacing.
- 2 Roads determined to be improved but were found to be in moderate to good condition are indicated for resurfacing.
- 3 Unit prices for Concrete Reconstruction and HMA Resurfacing can be found in the Unit Prices Tab.

Sidewalk

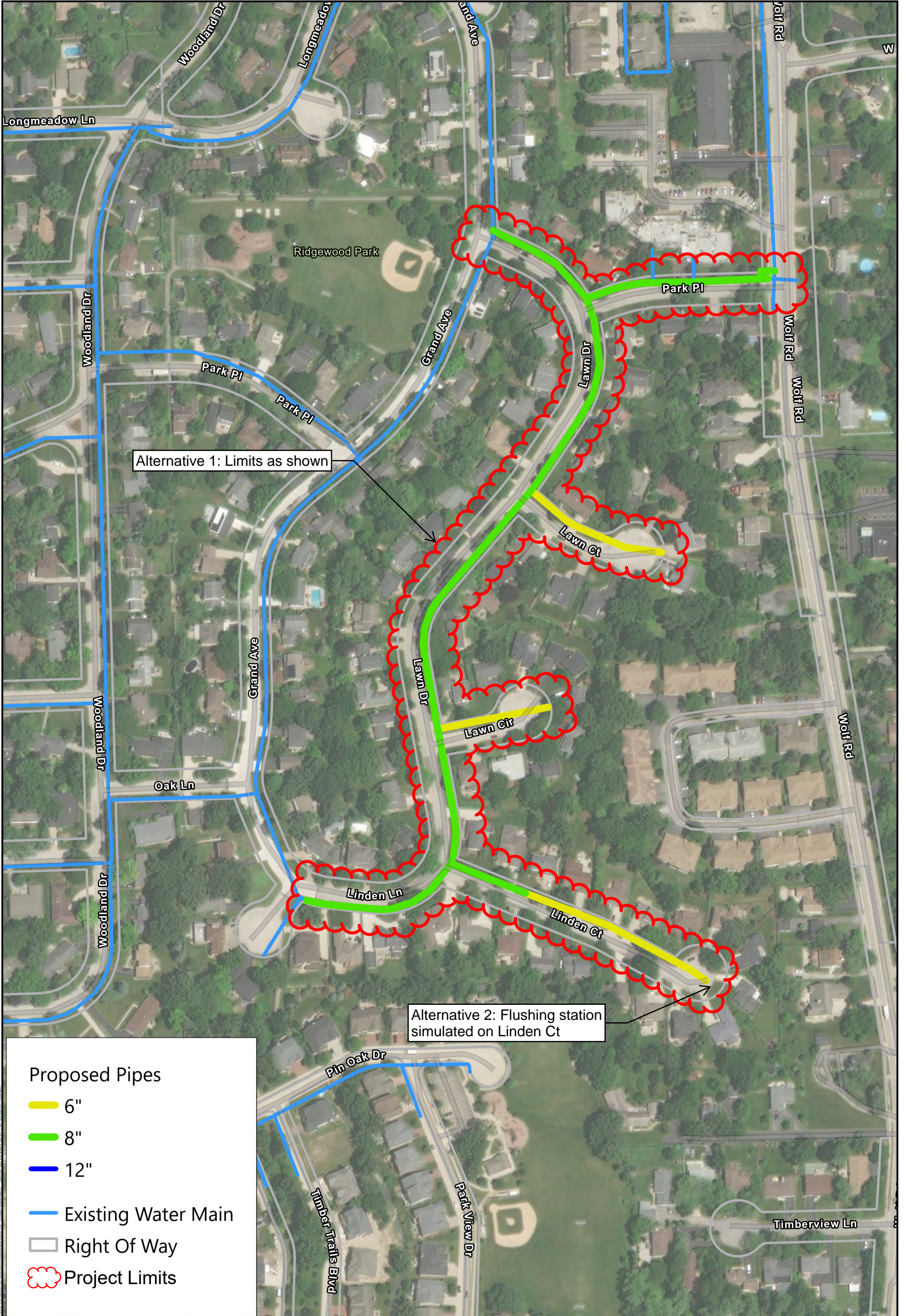
- 1 Sidewalk prices reflect construction on one side of the street only

EXHIBITS

EXHIBIT 1

Ridgewood Area B Water Main Alternatives 1 and 2

ALTERNATIVE 1



Alternative 1: Limits as shown

Alternative 2: Flushing station simulated on Linden Ct

Proposed Pipes

- 6"
- 8"
- 12"

- Existing Water Main
- Right Of Way
- ⊞ Project Limits

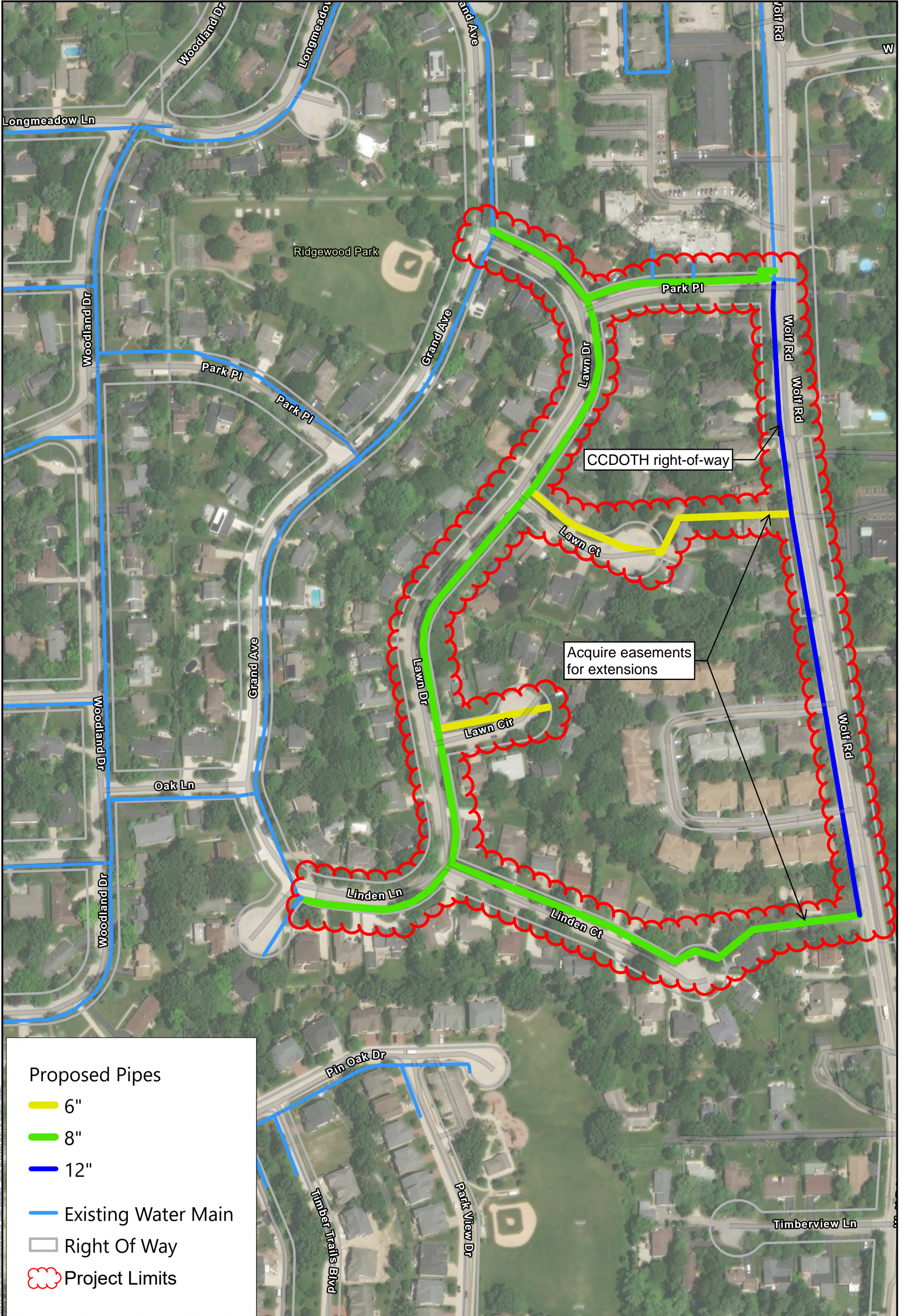
Source(s):



EXHIBIT 2

Ridgewood Area B Water Main Alternative 3

ALTERNATIVE 3



Source(s): S:\V\BPA_GIS\Proposed\Aerial\MapData\MSR\MapData.aprx - Saved: 12/15/2025 12:07 PM. Designer: ccg

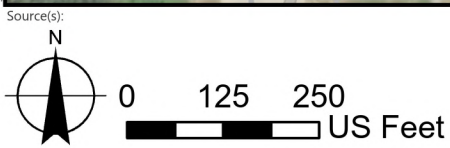
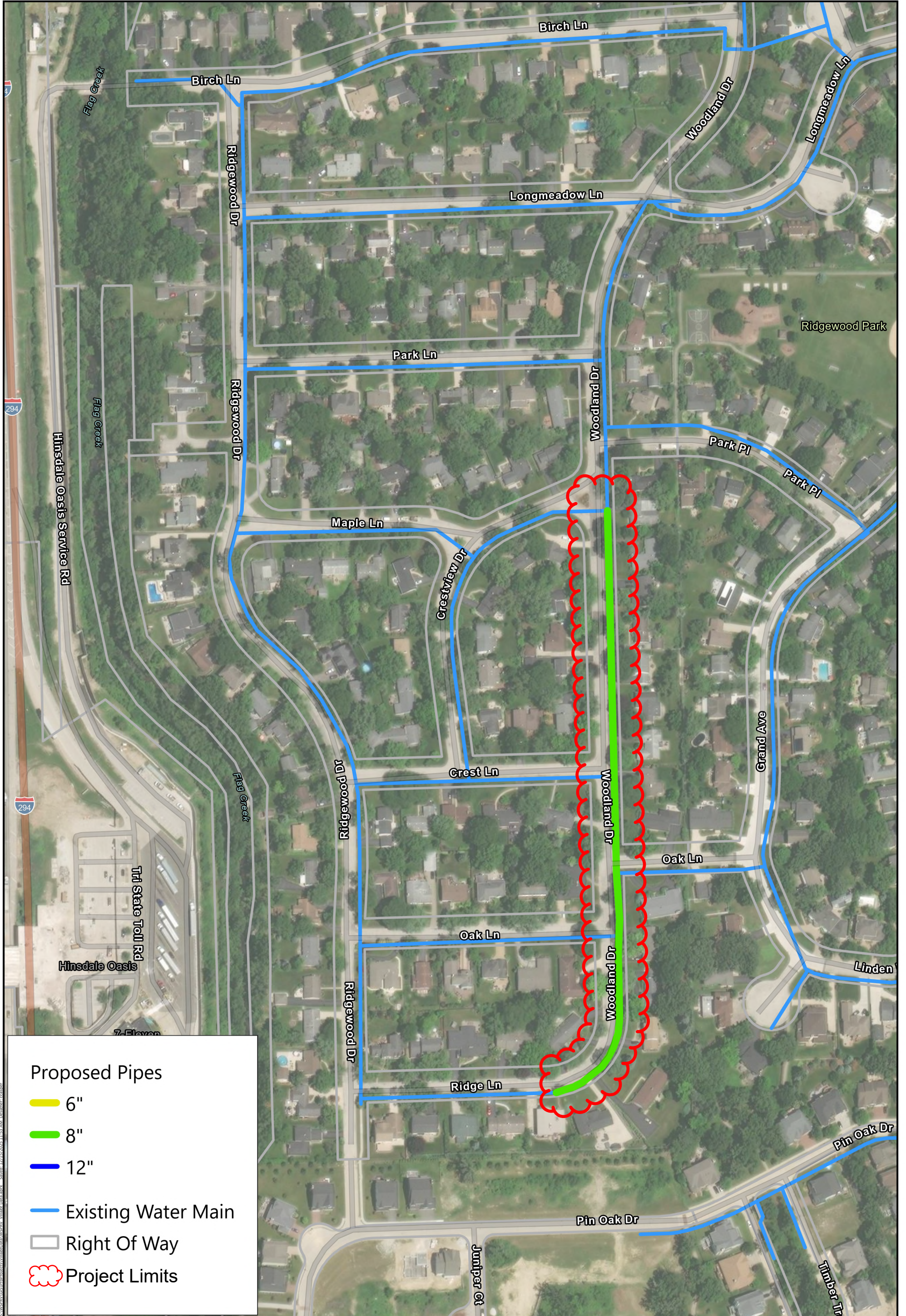


EXHIBIT 3

Woodland and Birch Water Main Alternative 4

ALTERNATIVE 6



Proposed Pipes

- 6"
- 8"
- 12"

— Existing Water Main

Right Of Way

⬮ Project Limits

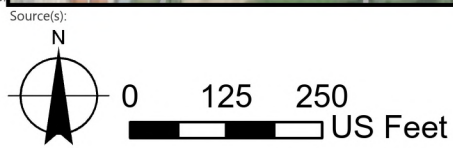
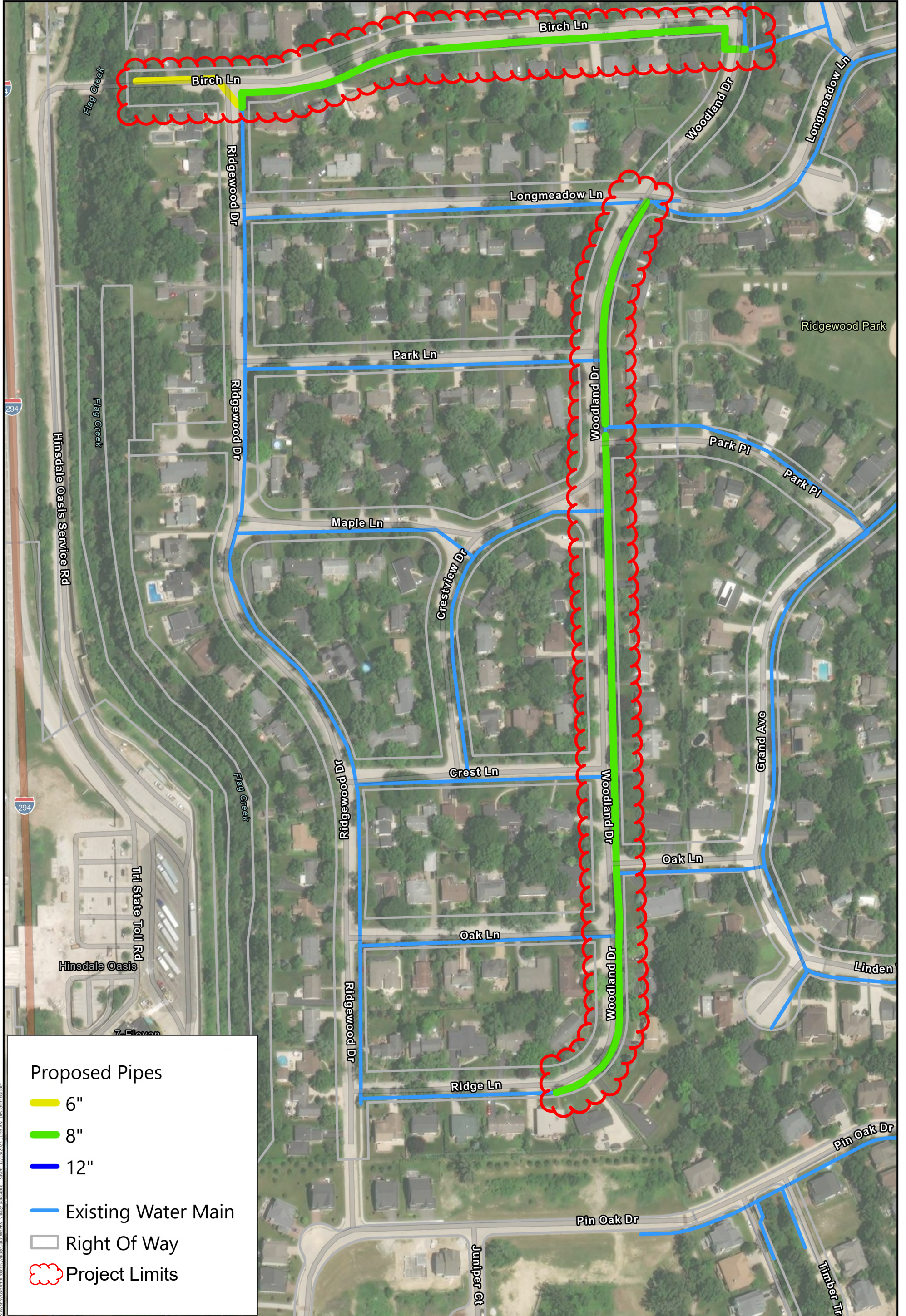


EXHIBIT 4

Woodland and Birch Water Main Alternative 5

ALTERNATIVE 7



Proposed Pipes

- 6"
- 8"
- 12"

— Existing Water Main

Right Of Way

⬮ Project Limits

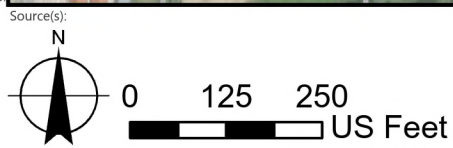
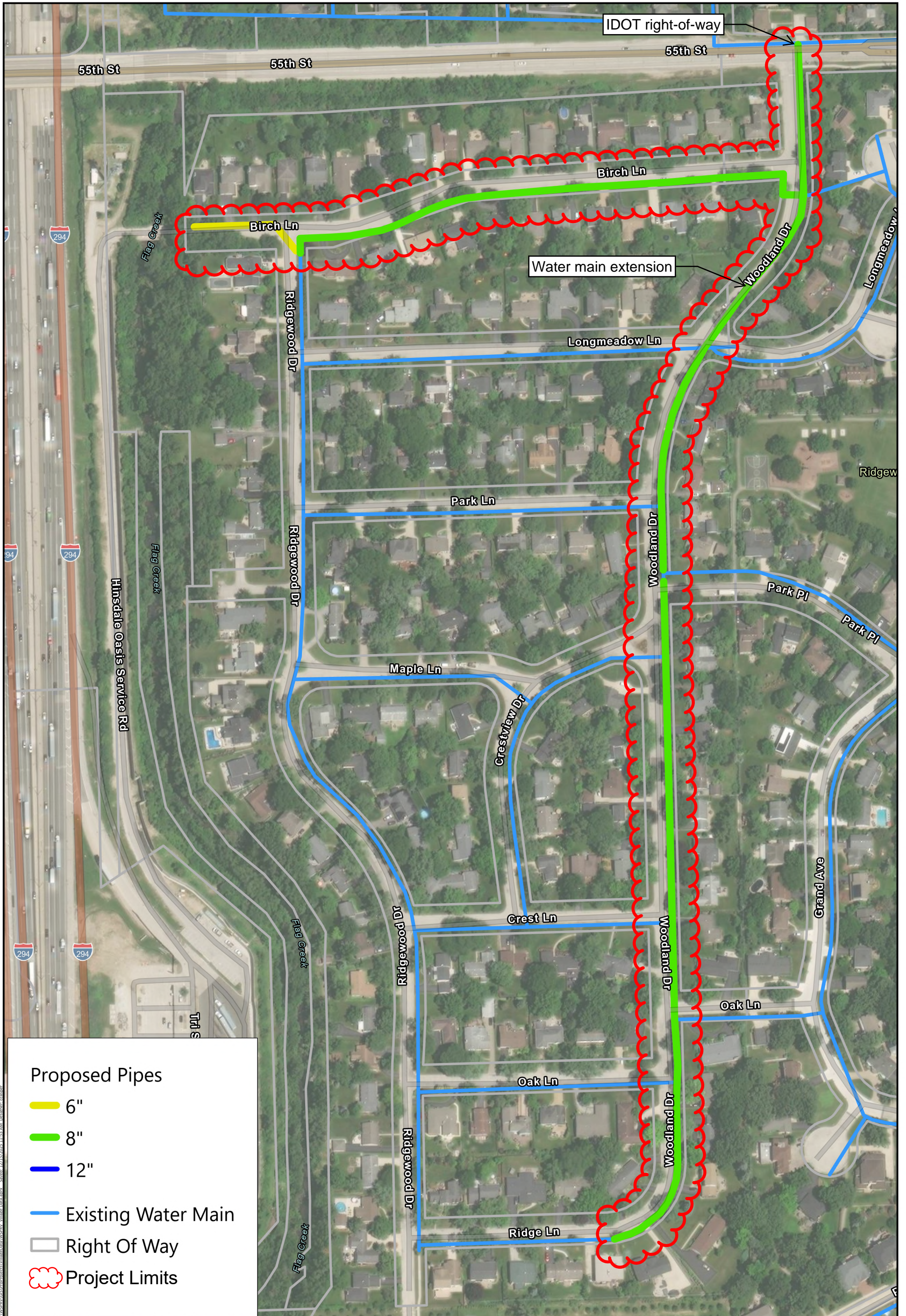


EXHIBIT 5

Woodland and Birch Water Main Alternative 6

ALTERNATIVE 8



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Sources(s):



EXHIBIT 6

Ridgewood Area B 2025 Storm Sewer Rehabilitation Recommendations

RIDGEWOOD - 2025 STORM SEWER REHABILITATION RECOMMENDATIONS

WESTERN SPRINGS, IL

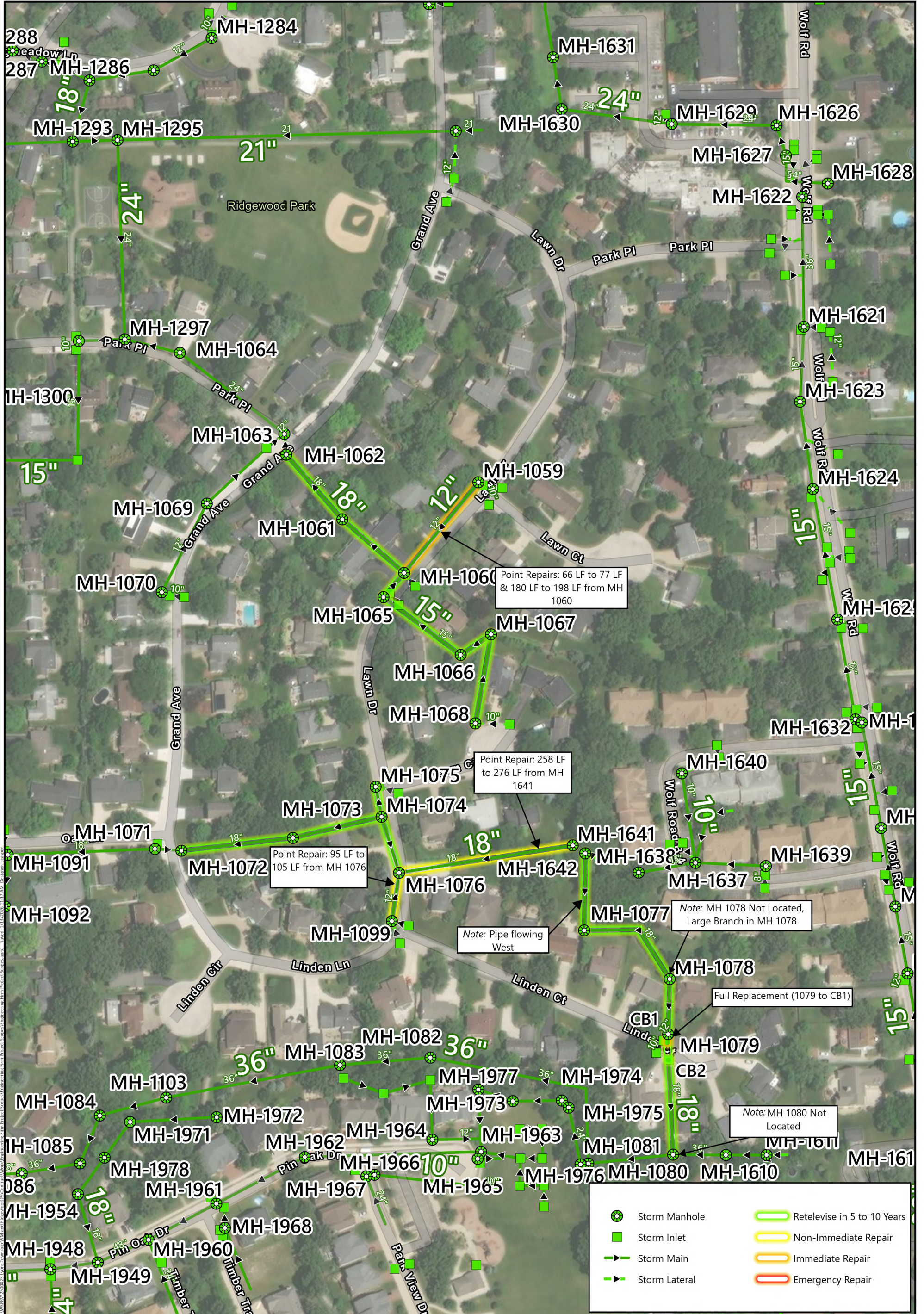


Exhibit 6

EXHIBIT 7

Ridgewood Area B 2025

Sanitary Sewer Rehabilitation Recommendations

RIDGEWOOD - 2025 SANITARY SEWER REHABILITATION RECOMMENDATIONS

WESTERN SPRINGS, IL

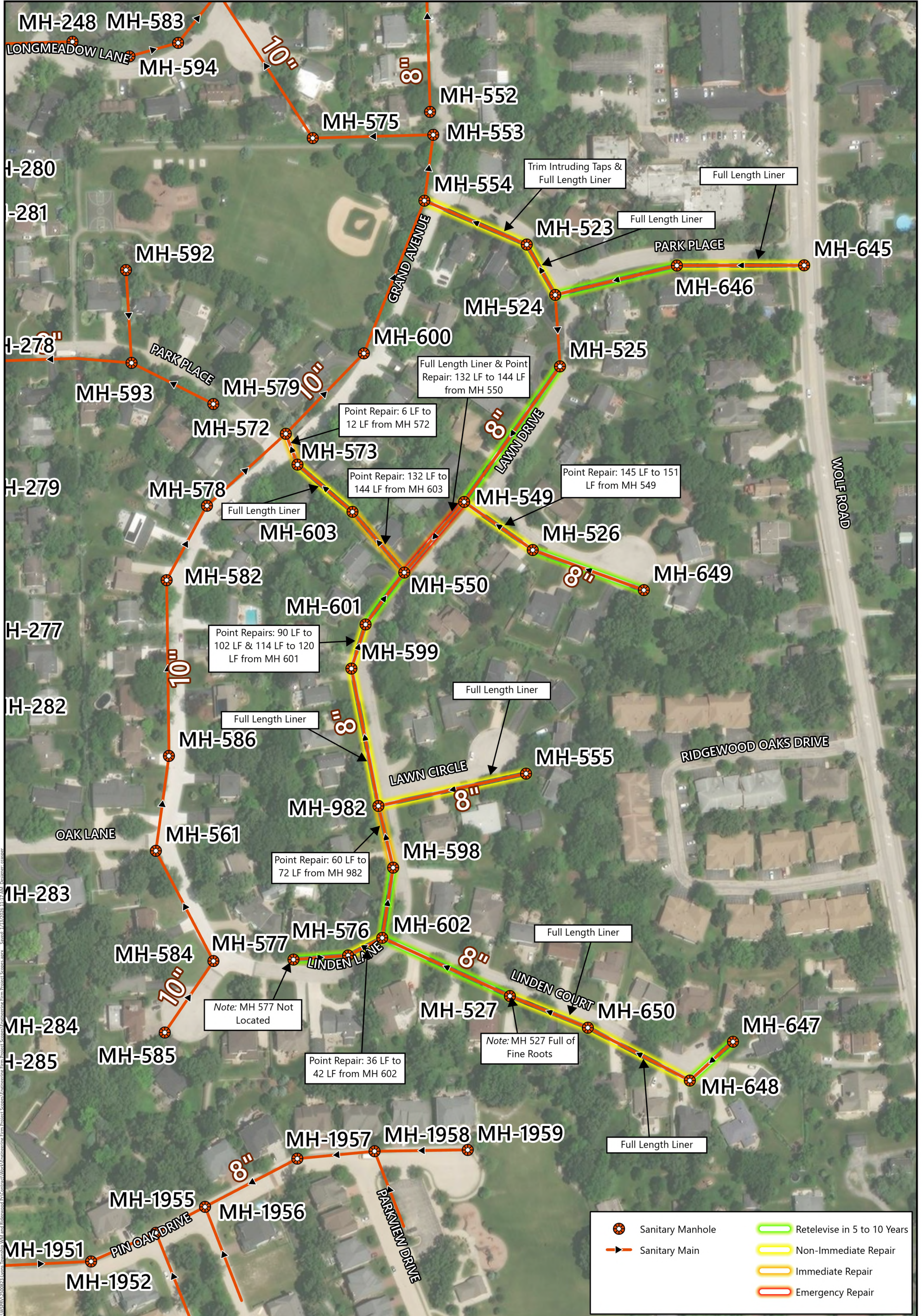
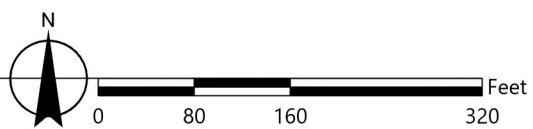


Exhibit 7



Technical Memorandum

Date: December 19, 2025
To: Mr. Matthew Supert
Village of Western Springs
From: Ryan Moeller, EIT and Carolyn Grieves, P.E.
Project No. 2500823.00
Subject **Lyons Township High School Planning Area - Phase 1 Engineering**

Overview

The Village of Western Springs is evaluating multiple infrastructure projects that were first identified as part of the 2024 Capital Infrastructure Plan (CIP). In April 2025, Village residents voted to invest in the Village's infrastructure via Referendum 2025.

The scope of this project included the review of approximately 5,000 linear feet of existing 6" and 8" water main around the Lyons Township High School (LTHS) south campus and along Willow Springs Road from 51st St to 47th St. Additionally, Village staff asked Baxter & Woodman (B&W) to review the existing 12" main along Garden Market St and 47th St from the standpipe to Harvey Ave. Five alternatives for replacement were evaluated using a qualitative hydraulic analysis, cost estimates, and utility review. Two alternatives appear to be viable for the LTHS area and should be discussed in detail with school officials. Alternative 5 should be planned in the future for the Garden Market Shopping Center area, to be completed in coordination with future work to the north on Harvey Ave.

The project also included a condition assessment of storm and sanitary sewers within the project area. National Power Rodding Corp. completed a cleaning and televising program for approximately 1,200 linear feet of sewers, ranging in size from 10 to 24-inch diameter. Non-immediate repairs were identified on three sewer segments, while the rest of the sewers were earmarked for retelevising in 5-10 years.

Water System Evaluation

Existing Conditions

Approximately 75% of the Village's 52 miles of mains were installed before the 1970s, including over 20 miles of existing main from the 1920s. These older mains were installed with sand-cast iron and have reached or are rapidly approaching the end of their useful life expectancy. The Village experienced over 700 breaks between 2000-2023, over 90% of which occurred on mains installed before the 1970s. As shown on Figure 1, the Village's break frequency of 65 breaks per year greatly exceeds the American Water Works Association (AWWA) annual benchmark of 25 breaks per 100 miles of main.

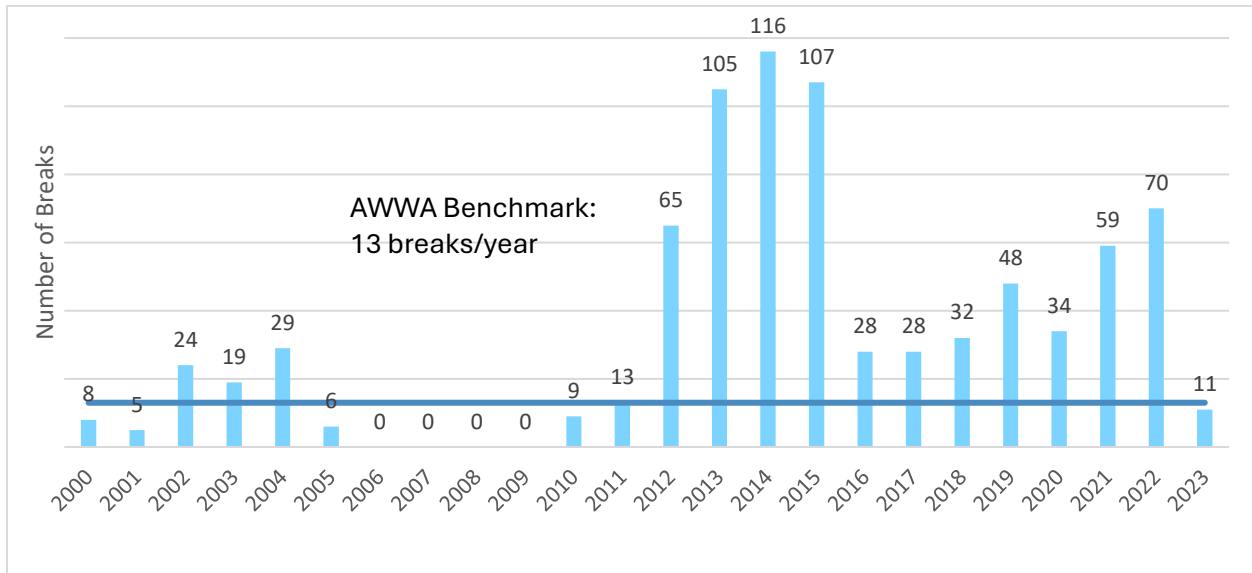


Figure 1 – Water Main Breaks Per Year

Mains within the project area were installed in the 1950s and have experienced three breaks since 2010, including two in 2022.

The analysis from the 2024 CIP calculated a high risk of failure for the mains surrounding the high school and on Willow Springs Rd, primarily due to a combination of break history, main size/age, and fire flow requirements for the school and shopping center. School district staff also noted that recent breaks have caused maintenance issues, and both Village and school staff have expressed an interest in abandoning the western side of the existing loop.

Another goal of the CIP recommendations was the elimination of parallel mains. The existing 8” main on Willow Springs Rd runs parallel to the existing 12” Garden Market Shopping Center loop, with interconnections at 47th St and in the alley south of Mariano’s. Although the loop primarily serves the shopping center, it is considered a Village-operated main since it connects to the system at multiple points. The analysis also included a review of connectivity and main sizing on Willow Springs Rd.

Alternative 1: Replace entire 8” Loop

The first alternative matched the project recommendations from the CIP, including a new 8” Ductile Iron (DI) water main loop around the high school and along Willow Springs Rd (47th St to 50th St). The analysis included two model scenarios to determine the optimal configuration along Willow Springs Rd.

Alternative 1A included new 12” DI water main from 51st St to 48th St, with a new connection to the existing 12” Garden Market loop at 48th St. The existing 8” line would be abandoned from 47th St to 51st St.

Alternative 1B included new 8” DI water main from 51st St to 47th St and did not connect to Garden Market at 48th St.

Fire flow for both model alternatives improved significantly over Existing Conditions and produced water age results within 1% of each other as identified in Table 2. Since the model results between the two alternatives were nearly identical, configuration 1A was used for final evaluation due to its smaller project length and removal of a parallel main. The final limits for Alternative 1 are shown in Exhibit 1.

Alternative 2: Replace Loop, Line West Side

As shown in Exhibit 2, Alternative 2 still replaces the full loop but utilizes trenchless methods to replace the west side. Cured-in-place pipe rehabilitation and pipe bursting were both considered as alternatives to open-cut replacement.

Cured-in-place pipe (CIPP) rehabilitation via water main lining involves installing a resin saturated flexible textile liner within the existing 6-inch water main, which is considered the host pipe. The liner is pulled through the host pipe at planned access pits along the water main route via a small truck. Once installed, the liner is cured in place using hot water or steam, hardening the resin, and creating a new structurally sound pipe within the host pipe. The CIPP material is corrosion-resistant and can function as a fully structural water main independent of the host pipe. Since the existing water main has no services, there is no need to cut open services after installation and risk compromising the material.

Pipe bursting is another trenchless method used to replace existing pipe and involves breaking apart the existing pipe and simultaneously pulling a new pipe into the space created. A new HDPE pipe will be pulled into the location of the existing 6-inch pipe, with a bursting head preceding the new pipe. The bursting head fractures and bursts the existing pipe into fragments, and the new HDPE pipe follows the bursting head and pushes the fragments into the surrounding soil. This method would also require a full geotechnical investigation to determine if soil conditions could cause the trailing pipe to get stuck.

CIPP was selected as the preferred installation method, as it has a shorter design time, lower risk to existing utilities, and fewer geotechnical challenges.

Alternative 3: Abandon West Side of Loop

Alternative 3 abandons the west side of the loop entirely, as shown in Exhibit 3. The north and south sides of the loop are proposed as 8" dead ends extending just past the existing services for the high school and fieldhouse fire prevention system. Notably, IEPA does not typically permit new dead ends in place of existing loops, and the Illinois Department of Public Health often requires the removal of dead ends near schools, hospitals, and other sensitive users.

Alternative 4: Abandon West Side, Install New Looping

Alternative 4 adds new 8" DI water main loops to the north and south to eliminate the dead-end concerns in Alternative 3. The northern extension would pass along or through the LTHS South Campus Driver's Ed lot and connect near the standpipe, while the southern loop will extend west of the current main and turn south through an existing utility easement east of 224 Rugeley Rd. This alternative would require

acquisition of easements with the school district and additional coordination to ensure it is out of the path of any future athletic facility developments.

Alternative 5: Garden Market Utilities – Harvey Ave

Alternative 5 evaluated the existing 12” main on Garden Market St and 47th St from the standpipe to Harvey Ave. Installed during the 1970s, the existing water mains have a longer remaining useful life than other older mains in the system and have not experienced many main breaks. While not part of the CIP recommendations, a new 12” DI main would connect to proposed work at 47th St and Harvey Ave that is being reviewed under a separate study. The limits for the proposed project are shown on Exhibit 5.

Hydraulic Evaluation

An un-calibrated WaterGEMS model of the Village’s distribution system was provided by the Village and completed by another engineering firm. This model was used to assess the existing and proposed water system. Water distribution models, such as WaterGEMS, are virtual representations of water systems containing applicable information for pumps, pipes, and tanks within the system. They can be used to evaluate water main sizing, potential operational changes, or any number of other revisions. While the uncalibrated model cannot be used for quantitative flow or pressure results, it can provide qualitative feedback on relative performance between alternatives. All proposed scenarios were compared to the baseline fire flow, pressure, and water age results of the Existing Conditions scenario that matches the current pipe sizes and connectivity.

Fire Flow

The model calculates the total available fire flow while maintaining a minimum of 20 psi residual pressure. **Table 1** summarizes the minimum and average available fire flow for all nodes within the vicinity of the Lyons Township High School loop and along Willow Springs Rd. Insurance Service Office (ISO) standards recommend 3,500 gallons per minute (gpm) near schools.

Table 1 – Fire Flow Results¹

Scenario	Minimum Available Fire Flow (gpm)	Average Available Fire Flow (gpm)
Existing Conditions	1,068	1,812
Alternative 1	2,859	3,773
Alternative 2	1,255	2,835
Alternative 3	1,430	3,129
Alternative 4	3,236	4,368

¹ Model results are uncalibrated. Values should be used only as a qualitative measure.

All proposed scenarios increased both the minimum and average available fire flow around the school, but the results of Alternatives 1 and 4 confirm that looped 8” mains are required to achieve significant improvements. Alternative 4 produced the highest fire flows, while Alternative 1 produced similar results within the bounds of the existing utility easements.

Water Age

The model calculated the maximum water age in each pipe over a 720-hour test extended period simulation. The average results across all pipes in the study area are shown in **Table 2**.

Table 2 – Water Age Results¹

Scenario	Average Water Age (Hours)
Existing Conditions	108.9
Alternative 1	112.6
Alternative 2	112.0
Alternative 3	246.9
Alternative 4	60.4

Water age is affected by factors such as pipe size, proximity to chlorination points, reservoir turnover and mixing, and local demands, among other factors. Alternatives 1 and 2 increase the pipe diameter without increasing demand, while other factors remain unchanged. As a result, the average water age increases relative to existing conditions. Alternative 3 produced significantly higher water age as a result of the dead ends, which experience turnover only through demand from the high school. Alternative 4 had the lowest average water age, as using two separate loops increased flow-through and removed the “dead area” on the west side of the loop where no services are located.

Utility Conflict Review

B&W completed a design-stage request with JULIE to determine if any high-priority utility conflicts would impact the proposed improvements. All relevant utilities were contacted, and atlases were reviewed for conflicts. A summary of potential conflicts is included below:

AT&T: Minor crossings in LTHS parking lots. Line on Willow Springs Rd is located in La Grange ROW.

ComEd: Potential conflicts along Willow Springs Rd, 48th St ROW, and Garden Market St. Underground line in rear yards along Rugeley Rd would have one crossing for Alternative 4.

Comcast: Potential conflicts along 48th St ROW and Garden Market St. Line on Willow Springs Rd is west of ROW and should pose limited conflict. Underground line in rear yards along Rugeley Rd.

Nicor: Gas main and crossings along Willow Springs Rd. Main appears to be east of centerline in La Grange ROW.

Verizon: Potential conflicts along Willow Springs Rd and 48th St ROW.

Water System Recommendations

Preliminary Opinion of Probable Costs

A quantity take-off was completed for each alternative, estimating the approximate quantities of water main, hydrants, valves, and other assets, as well as mobilization and restoration costs. The complete cost estimates in 2025 dollars and all related assumptions are attached as **Appendix A . Table 3** summarizes the Phase 1 opinion of probable cost for each alternative, including construction subtotal, engineering fees, and contingency.

Table 3 – Summary of Projected Costs (2025 Dollars)

Scenario	Construction Costs	Engineering Fees (15%)	Contingency (30%)	Total EOPC
Alternative 1	\$1,668,000	\$250,000	\$500,000	\$2,420,000
Alternative 2	\$1,740,000	\$262,000	\$522,000	\$2,520,000
Alternative 3	\$1,398,000	\$210,000	\$419,000	\$2,030,000
Alternative 4	\$1,656,000	\$248,000	\$497,000	\$2,490,000 ²
Alternative 5	\$551,000	\$82,000	\$165,000	\$800,000

The mobilization costs assume all work around LTHS will be completed in the summer to avoid service interruptions during the school year. The work will also require significant traffic control. While this section of Willow Springs Rd is not an IDOT route, it experiences an average daily traffic of over 11,000 vehicles and will present significant construction challenges whether the main is located in the parkway or the pavement.

The main must be installed within Western Springs village limits in the west half of the roadway, and utility atlases indicate potential conflicts in both the road and parkway. Wherever possible, the main should be installed in the parkway to reduce restoration and traffic control costs. If initial survey and design indicates that the optimal alignment is in the roadway, directional drilling could be considered as an alternative to limit the length of open-cut excavation along Willow Springs Road. Costs currently assume all pipes are installed via open-cut, except as noted for Alternative 2 along the west side of the loop.

² EOPC for Alternative 4 includes additional estimated fees for easement acquisition.

Conclusions

As noted in the CIP recommendations, the mains on Willow Springs Rd and around the high school should be replaced in full due to their high likelihood and consequence of failure.

Replacing the existing 8" main on Willow Springs Rd and tying into the 12" Garden Market loop helps satisfy the Village's goal of removing redundant parallel mains. Reducing the length of main along Willow Springs Rd will also lower the maintenance of traffic and potential utility conflicts. This alignment is recommended over the full 8" replacement as described in Alternative 1B.

Alternatives 1, 2, and 4 are viable options for replacing the LTHS loop, while Alternative 3 must be ruled out due to the increased risk and permit concerns with constructing new dead ends. Alternatives 1 and 4 stand out as the best options since the 8" water main loops offer the best fire flow improvements around the school.

Alternative 1 offers the most straightforward solution to improving fire flow and replacing the high-risk mains. Alternative 4 does appear to offer greater hydraulic improvements, most significantly with water age, where it was the only scenario that improved water quality in the area.

Village and school district staff expressed concerns with maintaining the west side of the loop. However, a new main without services should have very few maintenance needs for the 50-100 year lifetime of the pipe, and Alternatives 1-4 each include water mains on school property. Alternative 4 has the most potential to impede on the school's athletic facilities, although the proposed alignment avoids all currently planned developments. School staff should be consulted during detailed design to mitigate impacts.

It is recommended that Village staff discuss the findings of this memorandum with school district officials prior to detailed design. Staff should review proposed alignments and discuss easement agreements for Alternative 4 before selecting between the two alternatives.

The CIP analysis determined that the mains for Alternative 5 had a lower risk of failure than those around LTHS and Willow Springs Rd. While the section is not in need of immediate replacement, the mains are 50-years old and could experience future breaks. Immediate replacement is not recommended but should be considered if the proposed work on Harvey Avenue north of 47th St includes work in the intersection. At minimum, the work on the north side of the intersection should extend the connection outside of IDOT right-of-way to the south so Alternative 5 could be constructed without an additional permit.

Sewer System Evaluation

The purpose of this section is to present the findings of our review of the cleaning and televising work performed in the Lyons Township Area by National Power Rodding, Inc. The following has been prepared to prioritize and plan the rehabilitation work necessary based on the cleaning and televising completed.

Inspection videos were reviewed in accordance with the National Association of Sewer Service Companies (NASSCO's) Pipeline Assessment & Certification Program (PACP).

Seven storm sewer segments were cleaned and televised in November 2025. Televised length combines to a total of approximately 1,188 feet of storm sewer, ranging in size from 10 to 24-inch diameter.

Upon review, any recommended repairs identified are categorized according to the urgency of repair:

1. **Emergency** – Sewers of this category contain defects with the worst PACP structural rating of 5 and the structural conditions would likely worsen in the next year. Sewers requiring emergency repairs would typically be out-of-round. Repairing the sewer now would likely save costs from a future, more expensive open-cut repair. Typical defects include collapsed pipe, deformed pipe, broken pipe, and visible voids. Sewers of this category should be repaired in the next 6 months.
2. **Immediate** – Sewers of this category include defects with PACP structural ratings of 4 or 5 and retained the sewer’s original shape. Typical defects include broken pipe, fractured pipe and multiple cracks, and visible soil. Sewers of this category should be repaired in the next year.
3. **Non-Immediate** – These sewers include minor structural defects throughout a large portion of the sewer while retaining the sewer’s original shape. Repairs for inflow and infiltration purposes only are included in this category. Typical defects of sewers categorized as a non-immediate repair include cracked pipes, root intrusions, mineral deposits, offset joints, angle joints, and separated joints. Sewers of this category should be repaired in the next two to five years.
4. **No Repair (Re-televiser in 5 to 10 Years)** – Sewers of this category include five or less minor structural defects and minimal evidence of inflow and infiltration. Sewers of this category should be re-inspected and evaluated in five to ten years.

No storm sewers are categorized as an emergency point repair or as an immediate repair. Three mainline sewers are categorized as non-immediate repairs. Four mainline sewers are categorized as re-televiser in five to ten years.

Table 4 includes the following recommended repair methods:

1. **Full Length Liner** – This repair includes installation of a cured-in-place pipe in the existing sewer. This is a trenchless method that requires no excavation. Service laterals can typically be reinstated within 8-12 hours of the start of installation. This repair method is recommended for defects where the sewer has structural defects but retains its original shape. ***There are 3 segments recommended for lining.***
2. **Trim Intruding Tap(s)** – This repair is a trenchless method of cutting service laterals that protrude into the sewer more than one inch. This repair is typically performed prior to a liner installation but can be performed independent of other repairs. ***There is 1 segment recommended for trimming intruding taps in addition to lining.***

The estimated cost to complete the mainline sewer repairs is \$57,000.00, summarized in **Table 4** below.

Table 4

Lyons Township					
From Structure	To Structure	Televised Length (ft)	Diameter (in)	Recommendation	Construction Cost Est.
Non-Immediate Repairs					
1784	878	238.2	10	Full Length Liner	\$ 17,000.00
1782	1784	235.0	15 / 10		\$ 21,000.00
1781	1780	219.2	12	Trim Intruding Tap(s) & Full Length Liner	\$ 19,000.00
Total		692.4	Total		\$ 57,000.00
No Repairs					
1780A	1782	196.1	18	Reteleviser in 5 to 10 Years	\$ 0.00
1775	1772	149.1	24		
1780A	1780	80.8	18		
1774	1775	69.3	24		
Total		495.3	Total		\$ 0.00
Grand Total		1187.7	Grand Total		\$ 54,000.00

Appendix B provides detailed information from each inspection in addition to the recommended repairs for mainline sewer televised. Exhibit 6 shows the location of sewers televised and recommended repairs by priority.

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APPENDICES

**Village of Western Springs - LTHS Water Main Improvements
Preliminary Opinion of Probable Cost**

Item No.	Description	Approximate		Alternative 1- Full Loop		Alternative 2 - Full Loop with Lining		Alternative 3- Partial Loop		Alternative 4- Partial Looping w/ Easement		Alternative 5- Garden Market to 47th	
		UNIT PRICE	Unit	Engineers Estimate		Engineers Estimate		Engineers Estimate		Engineers Estimate		Engineers Estimate	
				APPROXIMATE QUANTITY	TOTAL COST	APPROXIMATE QUANTITY	TOTAL COST	APPROXIMATE QUANTITY	TOTAL COST	APPROXIMATE QUANTITY	TOTAL COST	APPROXIMATE QUANTITY	TOTAL COST
1	MOBILIZATION	VARIES	LSUM	1	\$ 50,000	1	\$ 75,000	1	\$ 50,000	1	\$ 75,000	1	\$ 25,000
2	TRENCH BACKFILL	\$ 50	CUYD	4,550	\$ 227,500	3,600	\$ 180,000	3,500	\$ 175,000	4,200	\$ 210,000	1,100	\$ 55,000
3	WATER MAIN, 6-INCH CIPP	\$ 250	LF	0	\$ -	1,000	\$ 250,000	0	\$ -	0	\$ -	0	\$ -
4	WATER MAIN, 6-INCH	\$ 150	LF	105	\$ 15,750	155	\$ 23,250	105	\$ 15,750	110	\$ 16,500	15	\$ 2,250
5	WATER MAIN, 8-INCH	\$ 180	LF	2,700	\$ 486,000	1,700	\$ 306,000	1,600	\$ 288,000	2,350	\$ 423,000	0	\$ -
6	WATER MAIN, 12-INCH	\$ 250	LF	1,850	\$ 462,500	1,850	\$ 462,500	1,850	\$ 462,500	1,850	\$ 462,500	1,100	\$ 275,000
7	GATE VALVE, 6-INCH	\$ 3,500	EACH	2	\$ 7,000	4	\$ 14,000	2	\$ 7,000	2	\$ 7,000	1	\$ 3,500
8	GATE VALVE, 8-INCH	\$ 4,500	EACH	4	\$ 18,000	4	\$ 18,000	4	\$ 18,000	6	\$ 27,000	0	\$ -
9	GATE VALVE, 12-INCH	\$ 5,500	EACH	3	\$ 16,500	3	\$ 16,500	3	\$ 16,500	3	\$ 16,500	3	\$ 16,500
10	VALVE BOX	\$ 600	EACH	9	\$ 5,400	11	\$ 6,600	9	\$ 5,400	11	\$ 6,600	4	\$ 2,400
11	FIRE HYDRANT	\$ 10,000	EACH	11	\$ 110,000	11	\$ 110,000	11	\$ 110,000	12	\$ 120,000	3	\$ 30,000
12	WATER MAIN CONNECTION (NON-PRESSURE), 4-INCH	\$ 6,000	EACH	1	\$ 6,000	1	\$ 6,000	1	\$ 6,000	1	\$ 6,000	0	\$ -
13	WATER MAIN CONNECTION (NON-PRESSURE), 6-INCH	\$ 7,000	EACH	2	\$ 14,000	4	\$ 28,000	2	\$ 14,000	2	\$ 14,000	0	\$ -
14	WATER MAIN CONNECTION (NON-PRESSURE), 8-INCH	\$ 8,500	EACH	2	\$ 17,000	2	\$ 17,000	2	\$ 17,000	3	\$ 25,500	1	\$ 8,500
15	WATER MAIN CONNECTION (NON-PRESSURE), 12-INCH	\$ 10,000	EACH	2	\$ 20,000	2	\$ 20,000	2	\$ 20,000	3	\$ 30,000	3	\$ 30,000
16	WATER SERVICE REPLACEMENT, SHORT SIDE, 1.5-INCH	\$ 7,500	EACH	1	\$ 7,500	1	\$ 7,500	1	\$ 7,500	1	\$ 7,500	0	\$ -
17	ABANDONMENT OF EXISTING WATER MAIN AND APPURTENANCES	\$ 50,000	LSUM	1	\$ 50,000	1	\$ 50,000	1	\$ 50,000	1	\$ 50,000	1	\$ 30,000
18	PCC SIDEWALK REMOVAL AND REPLACEMENT	\$ 20	SQFT	1,250	\$ 25,000	1,250	\$ 25,000	1,250	\$ 25,000	1,250	\$ 25,000	500	\$ 10,000
19	HMA PARKING LOT RESTORATION	\$ 60	SQYD	1,100	\$ 66,000	1,100	\$ 66,000	1,100	\$ 66,000	1,200	\$ 72,000	700	\$ 42,000
20	SODDING	\$ 20	SQYD	1,900	\$ 38,000	1,900	\$ 38,000	1,200	\$ 24,000	1,900	\$ 38,000	700	\$ 14,000
21	REMOVAL AND REPLACEMENT OF UNSUITABLE MATERIAL	\$ 80	CUYD	230	\$ 18,400	180	\$ 14,400	180	\$ 14,400	210	\$ 16,800	60	\$ 4,800
22	SOIL TESTS FOR CONTAMINANTS	\$ 1,000	EACH	2	\$ 2,000	2	\$ 2,000	2	\$ 2,000	2	\$ 2,000	1	\$ 1,000
23	CONTAMINATED WASTE DISPOSAL	\$ 125	CUYD	45	\$ 5,625	35	\$ 4,375	35	\$ 4,375	40	\$ 5,000	10	\$ 1,250
	Estimated Construction Total				\$ 1,668,000		\$ 1,740,000		\$ 1,398,000		\$ 1,656,000		\$ 551,000
	20% Contingency				\$ 334,000		\$ 348,000		\$ 280,000		\$ 331,000		\$ 110,000
	Easement Acquisition				\$ -		\$ -		\$ -		\$ 30,000		\$ -
	Design Engineering (7.5%)				\$ 125,000		\$ 131,000		\$ 105,000		\$ 124,000		\$ 41,000
	Construction Engineering (7.5%)				\$ 125,000		\$ 131,000		\$ 105,000		\$ 124,000		\$ 41,000
	Preliminary Opinion of Probable Cost				\$ 2,250,000		\$ 2,350,000		\$ 1,890,000		\$ 2,270,000		\$ 740,000

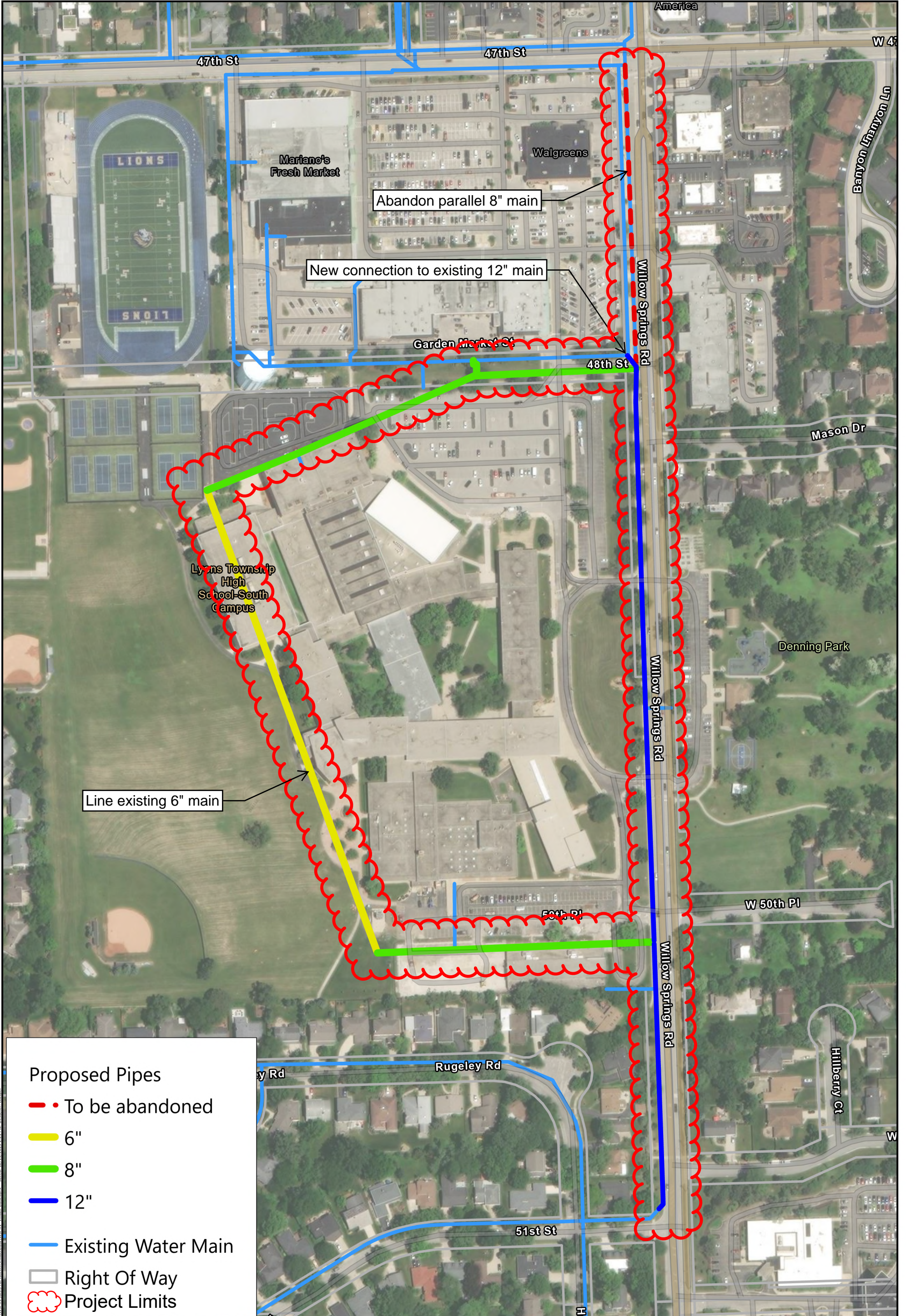
**Village of Western Springs - LTHS Storm Sewer Improvements
2025 Storm Sewer Cleaning & Televising - Rehabilitation Recommendations Summary**

From Structure	To Structure	Street	Material	Diameter (In.)	Televised Length (Ft.)	Services	Intruding Services	Structural			O&M			Segment Recommendation	ENGINEER'S ESTIMATE OF CONSTRUCTION COST			
								Quick	Overall	Rating Index	Quick	Overall	Rating Index		Trim Intruding Services	Full Length Cured-In-Place Liner	Reinstate Services	Subtotal
NON-IMMEDIATE REPAIRS (2026 TO 2029)																		
1784	878	Garden Market St (Easement)	RCP	10	238.2	2	0	322B	42	2.1	4232	38	1.3	Full Length Liner	\$ -	\$ 16,000.00	\$ 1,000.00	\$ 17,000.00
1782	1784	Garden Market St (Easement)	RCP	15	235	2	0	4431	43	2.5	2212	6	1.5	Full Length Liner	\$ -	\$ 20,000.00	\$ 1,000.00	\$ 21,000.00
1781	1780	Garden Market St	RCP	12	219.2	5	1	3200	6	3.0	2300	6	2.0	Trim Intruding Tap(s) and Full Length Liner	\$ 1,000.00	\$ 17,000.00	\$ 2,000.00	\$ 19,000.00
														Non-Immediate Repairs (2-5 Years):		\$ 57,000.00		

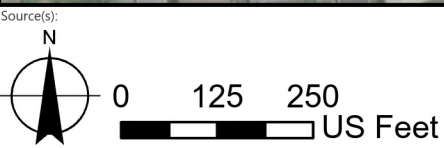
NO REPAIRS - RETELEVISION (BY 2035)																		
1780A	1782	Garden Market St	RCP	18	196.1	0	0	2600	12	2.0	0000	0	0.0	Retelevision in 5 to 10 years	\$ -	\$ -	\$ -	\$ -
1775	1772	Garden Market St	RCP	24	149.1	0	0	2200	4	2.0	2C00	46	2.0	Retelevision in 5 to 10 years	\$ -	\$ -	\$ -	\$ -
1780A	1780	Garden Market St	RCP	18	80.8	0	0	2800	16	2.0	0000	0	0.0	Retelevision in 5 to 10 years	\$ -	\$ -	\$ -	\$ -
1774	1775	Garden Market St	RCP	24	69.3	0	0	3126	15	2.1	0000	0	0.0	Retelevision in 5 to 10 years	\$ -	\$ -	\$ -	\$ -

EXHIBITS

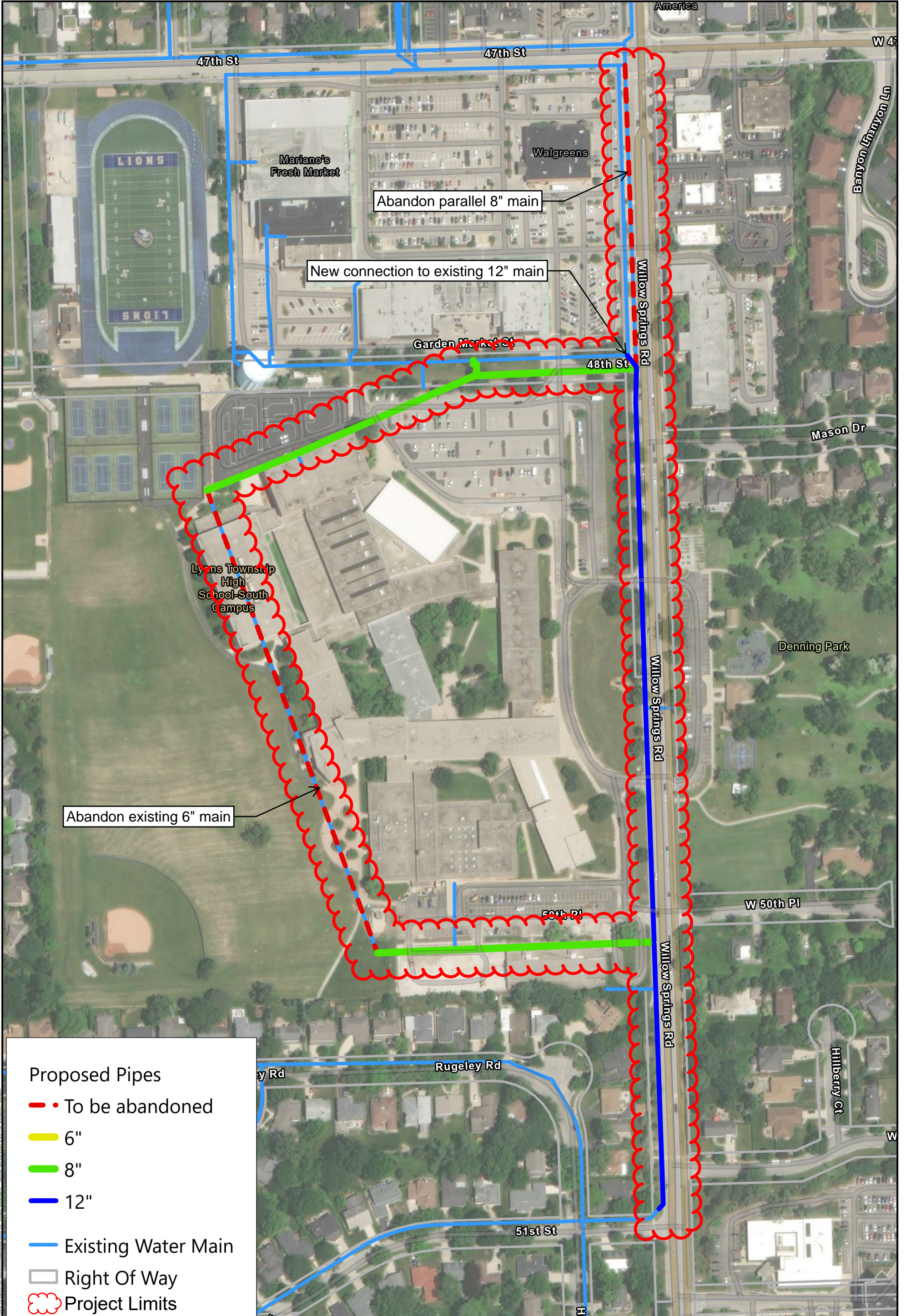
ALTERNATIVE 2



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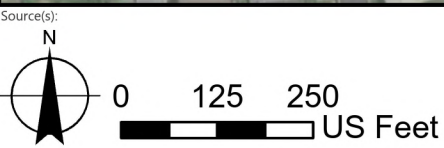


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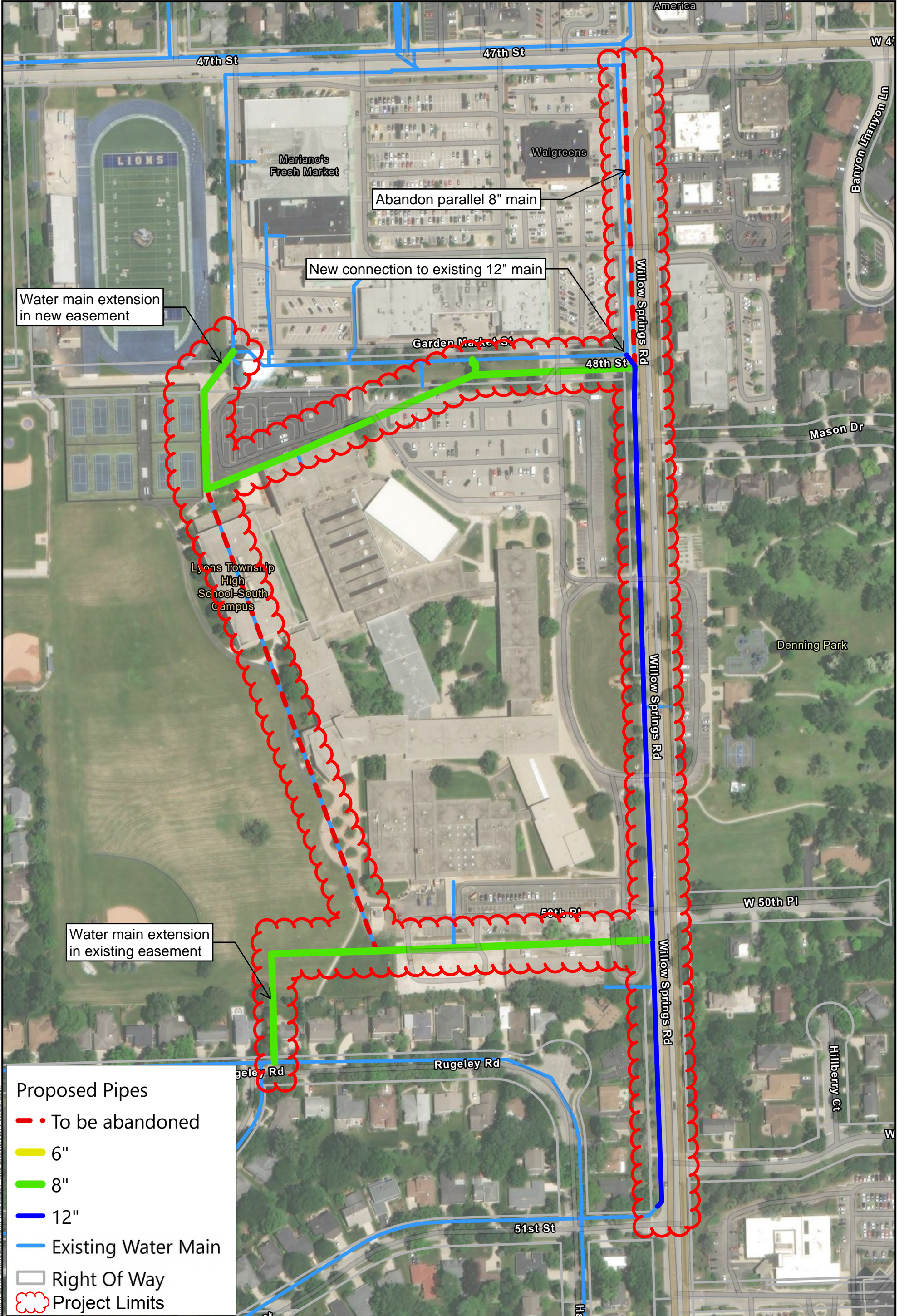


Proposed Pipes

- - - To be abandoned
- 6"
- 8"
- 12"
- Existing Water Main
- Right Of Way
- ⬮ Project Limits



ALTERNATIVE 4

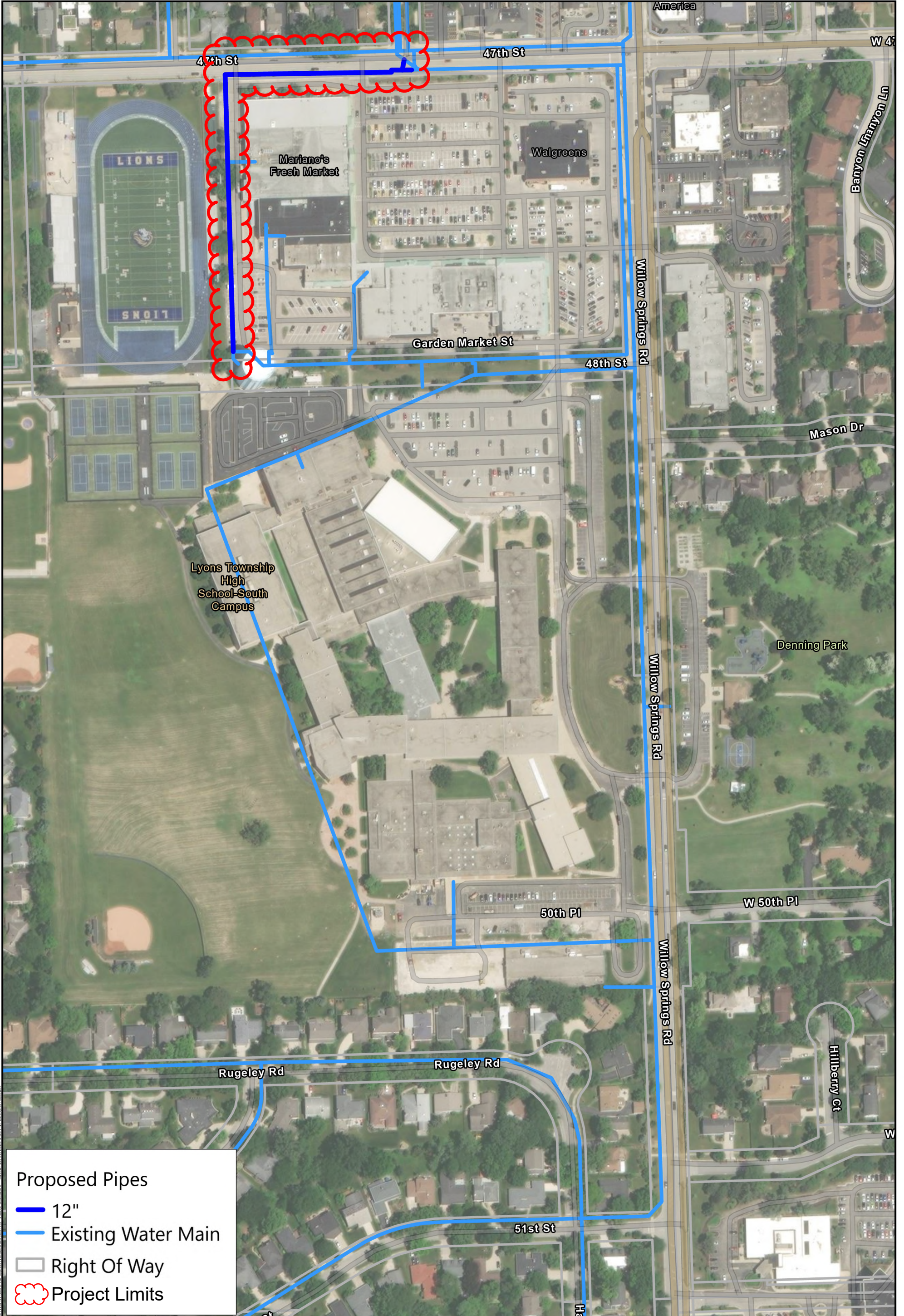


Proposed Pipes

- - - To be abandoned
- 6"
- 8"
- 12"
- Existing Water Main
- Right Of Way
- ⬮ Project Limits

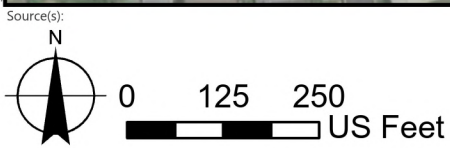


ALTERNATIVE 5



Proposed Pipes

- 12"
- Existing Water Main
- Right Of Way
- ⊞ Project Limits



2025 Lyons Township Storm Sewer Rehabilitation Recommendations

Western Springs, IL

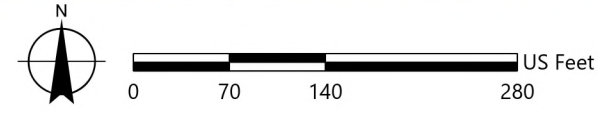
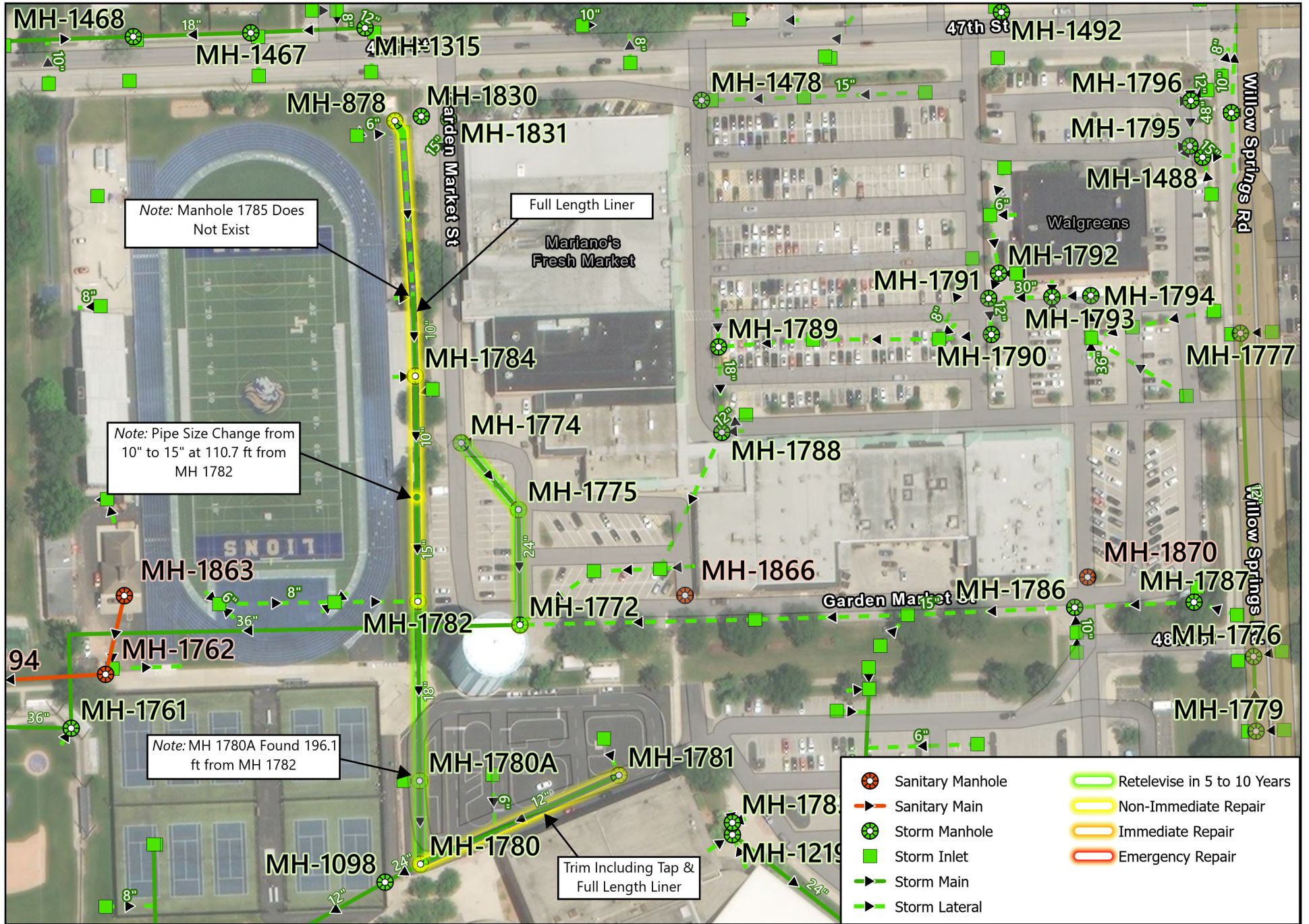


Exhibit 6