

CONDITION REMEDIATION ALTERNATIVES ANALYSIS

Project Scoping Report

Multiple Sewershed Package 15

PREPARED FOR: San Antonio Water System

PREPARED BY: Camille Constantine

DATE: February 4, 2019

Revision	Date	Revision Description	Approved By
0	1/25/19	Draft Submittal	Camille Constantine
1		Final Submittal	Christopher Jackson, PE

Purpose

San Antonio Water System (SAWS) entered into a Consent Decree (CD) with the United States Environmental Protection Agency (EPA) on July 23, 2013. As part of the CD, SAWS is required to assess the condition of approximately 2,100 miles of gravity sewer mains and identify condition remedial measures on pipes with a “Very Poor” condition rating. This report presents the results of condition remedial measures alternatives analysis for approximately 9,619 linear feet of selected gravity sewer lines.

1.0 Methodology

1.1 Capacity Remediation Capital Improvement Projects

Based on current available information, the pipe segments included in this package are not part of any capacity improvement projects.

1.2 Sanitary Sewer Overflow (SSO) Locations

Based on current available information, the pipe segments included in this package have not had any SSOs.

1.3 I/I Reduction

Based on current available information, the pipe segments included in this package are not part of any inflow/infiltration (I/I) reduction projects.

1.4 Condition Improvement

The mains on this package, due to their poor condition and risk of failure, have been selected for renewal using the methods of Cured in Place Pipe (CIPP), Pipeburst and Replacement.

2.0 Utility Coordination

2.1 Street Projects

CoSA provides an ArcGIS layer of street projects throughout the City. **Table 3-1** below lists the pipes that are located near or within identified street projects. This information has also been overlaid into the detailed location maps provided in the Exhibits section. It is our understanding that the actual dates of the projects are subject to change. It is recommended that SAWS coordinate with CoSA to determine the timing of the street projects. Please note that pipes may be required to be moved into current IDIQ contracts to expedite the construction where street projects are forthcoming.

Table 3-1: Pipes Located on CoSA Improvement Project

Index Page	Compkey	Street Location	Type of Project
14	1058816	S Laredo St	5 Year Improvement Street Maintenance
19	975610	W Mayfield	5 Year Improvement Street Maintenance
20	990585	S Presa St	2017 – 2022 Bond Project

2.2 Rail Road

All pipe segments in this project will be located in either alongside or intersecting a rail road. This project will require sufficient coordination for permits and access to be completed.

3.0 Planning Budget

The planning budget provided below is based historical data from similar bids between 2016 and 2019. The data provides cost estimating metrics for the different methods of sewer pipeline rehabilitation and replacement (CIPP, pipe bursting, pipe replacement) for the typical sewer pipe sizes. The unit pricing includes costs for possible work related items such as: mobilization, CCTV, site restoration, service line replacement, testing, manhole rehabilitation, etc. The planning budget will revised by the Project Design Consultant during the design based on design recommendations and updated unit pricing.

3.1 Cured in Place Pipe (CIPP)

Description	Quantity	Unit	Unit Price	Total
10 – inch CIPP	2,019	LF	\$155.00	\$313,000.00
21 – inch CIPP	900	LF	\$325.50	\$293,000.00
24 – inch CIPP	1,214	LF	\$372.00	\$452,000.00
36 – inch CIPP	163	LF	\$558.00	\$91,000.00
			Total	\$1,149,000.00

3.2 Pipeburst

Description	Quantity	Unit	Unit Price	Total
6 – inch Pipeburst	364	LF	\$120.00	\$44,000.00
8 – inch Pipeburst	945	LF	\$160.00	\$151,000.00
10 – inch Pipeburst	1,524	LF	\$200.00	\$305,000.00
12 – inch Pipeburst	540	LF	\$240.00	\$130,000.00
15 – inch Pipeburst	432	LF	\$300.00	\$130,000.00
			Total	\$760,000.00

3.3 Replacement

Description	Quantity	Unit	Unit Price	Total
8 – inch Replacement	325	LF	\$248.00	\$81,000.00
10 – inch Replacement	57	LF	\$310.00	\$17,000.00
			Total	\$98,000.00

3.4 Jack Bore and Tunnel

Description	Quantity	Unit	Unit Price	Total
12 – inch Jack Bore/Tunnel	277	LF	\$660.00	\$183,000.00
24 – inch Jack Bore/Tunnel	146	LF	\$1,320.00	\$193,000.00
30 – inch Jack Bore/Tunnel	359	LF	\$1,650.00	\$592,000.00
42 – inch Jack Bore/Tunnel	354	LF	\$2,310.00	\$818,000.00
			Total	\$1,786,000.00

Type of Work	Length (ft)	Line Size Range (in)	Estimated Construction Cost
Cured in Place Pipe	4,296	10-36	\$1,149,000.00
Pipeburst	3,805	6-15	\$760,000.00
Open Cut	382	8-10	\$98,000.00
Jack Bore and Tunnel	1,136	12-42	\$1,786,000.00
Total	9,619		\$3,793,000.00

* Total amounts have been rounded to nearest \$1000.

4.0 Planning Recommendation

4.1 General

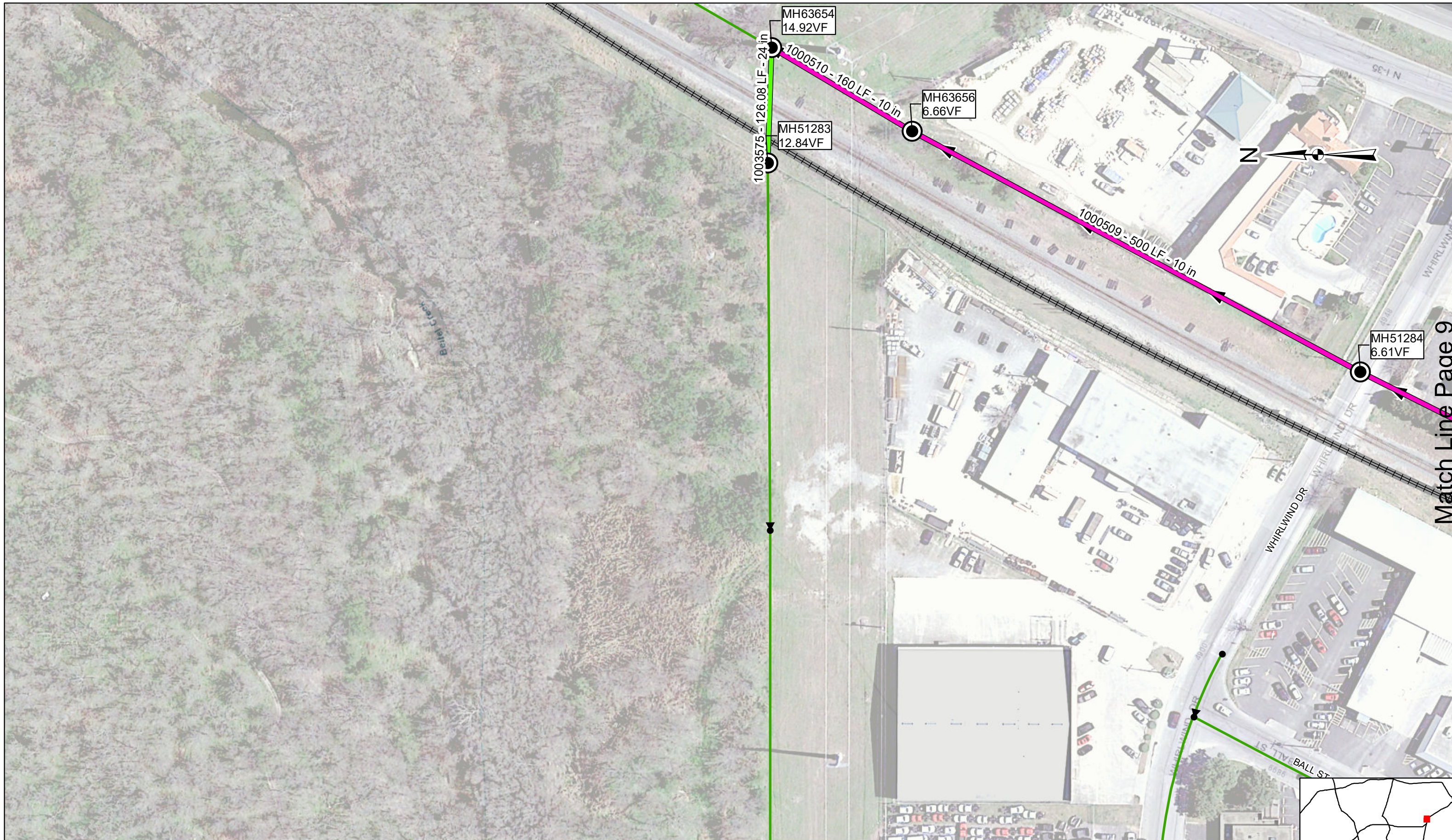
Table 5-1 provides detailed information, the preliminary remediation method, as well as the reason behind each method chosen for each pipe segment included in this package. The location maps are provided in the Exhibits section of this report.

Table 5- 1: Recommendation Summary

Compkey	As-built No.	Block Map No.	Install Year	Dia. (in.)	Material	Avg. Depth (ft)	Length (ft)	Verified Cond. Rating	Preliminary Remediation Method	IAP Comments
1000768	DJ-4576	192616	1963	10	VCP	7	326	E	CIPP	Majority of pipe can be lined, but broken pipe would need a PR.
1003567	DJ-4576	192616	1963	10	VCP	7	533	E	CIPP	Pipe can be lined.
1000769	DJ-4576	192616	1963	10	VCP	7	500	E	CIPP	Roots throughout but can be lined.
1000510	DJ-4576	192616	1963	10	CP	7	160	D	CIPP	Can be lined but will need a PR
1000509	DJ-4576	192616	1963	10	VCP	7	500	E	CIPP	Rehab w/lining. No serious defects.
1003575	OM-588	192616	1968	24	DIP	14	126	D	Replacement	Was part of E-4 but no casing was found. new bore required
967017	DJ-0844	148614	1959	15	CP	7	432	E	Pipeburst	PB as this would be most cost effective
3454653	DJ - 3979	168546	1967	8	VCP	5	300	E	Pipeburst	Would recommend PB. Can rehab w/method for US/DS mains.
967369	OM - 3994	162604	1972	36	RCP	8	163	E	CIPP	No serious defects, can be lined.
968575	DJ - 3621	164604	1949	21	CP	11	301	D	CIPP	Changed to lining with PR
969222	OM - 3202	162602	1969	24	RCP	10	411	E	CIPP	Would say lining, if not PB because of deforms.
967699	DJ - 3621	162602	1949	21	CP	11	300	D	CIPP	Changed to lining with PR
967698	OM - 3202	162602	1969	24	RCP	8	399	D	CIPP	Can be lined.
966767	DJ - 3621	162602	1949	21	CP	11	299	D	CIPP	Changed to lining with PR
968434	OM - 3202	162602	1969	24	RCP	5	404	D	CIPP	Added to package due to being adjacent. Can be CIPP
965297	OM - 119	158594	1950	6	CT	3	364	E	Pipeburst	Could be line but due to old CCTV PB is preferred.
1058816	OM - 1349	154574	1915	30	RCP	13	359	E	Replacement	Needs to be bored. Consultant should look into CIPP if UPRR will allow
980238	DJ - 0048	154574	1962	42	RCP	18	354	E	Replacement	Pipe is collapsed. Will need to be replaced

Compkey	As-built No.	Block Map No.	Install Year	Dia. (in.)	Material	Avg. Depth (ft)	Length (ft)	Verified Cond. Rating	Preliminary Remediation Method	IAP Comments
970923	DJ - 0260	144566	1950	10	CP	6	381	E	Pipeburst	Would recommend PB from segment 971901 through to this main
971901	DJ - 0260	144566	1950	10	CP	6	381	E	Pipeburst	Would propose PB and possibly a PR if pipe has collapsed where hole was located.
971551	DJ - 0260	144566	1950	8	CP	6	500	E	Pipeburst	Changed to PB due to proximity to mains
971550	DJ - 0260	144566	1950	10	CP	5	381	D	Pipeburst	Added it to package as PB as we are doing upstream and downstream
971531	DJ - 0260	144566	1950	8	CT	6	445	E	Pipeburst	Method PB. Curve/bend near MH 19146.
971530	DJ - 0260	144566	1950	10	CP	7	381	E	Pipeburst	Some missing pipe w/soil visible. Agree with PB.
972471	Om - 894	144564	1936	8	CP	0	325	E	Replacement	Pipe has large sections of missing pipe wall. Would replace.
983950	DJ - 1429	164564	1982	10	PVC	9	57	E	Replacement	Broken pipe and has caused debris build-up. Would recommend replacing pipe.
981908	DJ - 4316A	166558	1990	24	RCP	16	20	D	Replacement	Added to scope due to be in very poor shape. Can be lined if needed
975610	OM - 107	146556	1935	12	CP	11	295	E	Pipeburst	Changed back to PB due to missing pipe
3363992	OM - 107	146556	1935	12	CP	10	245	E	Pipeburst	Added as it is an E adjacent to pipe we are doing. Could be lined but chose PB due to proximity to other mains
990585	DJ - 3644	170554	1956	12	VCP	9	277	E	Replacement	Will need to be bored to put in casing. Consultant needs to explore CIPP

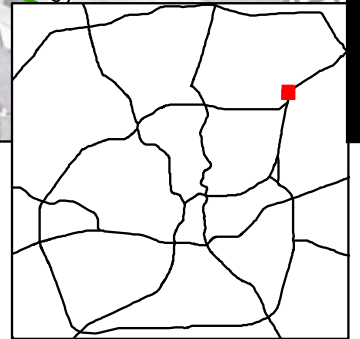
EXHIBITS: Detailed Map

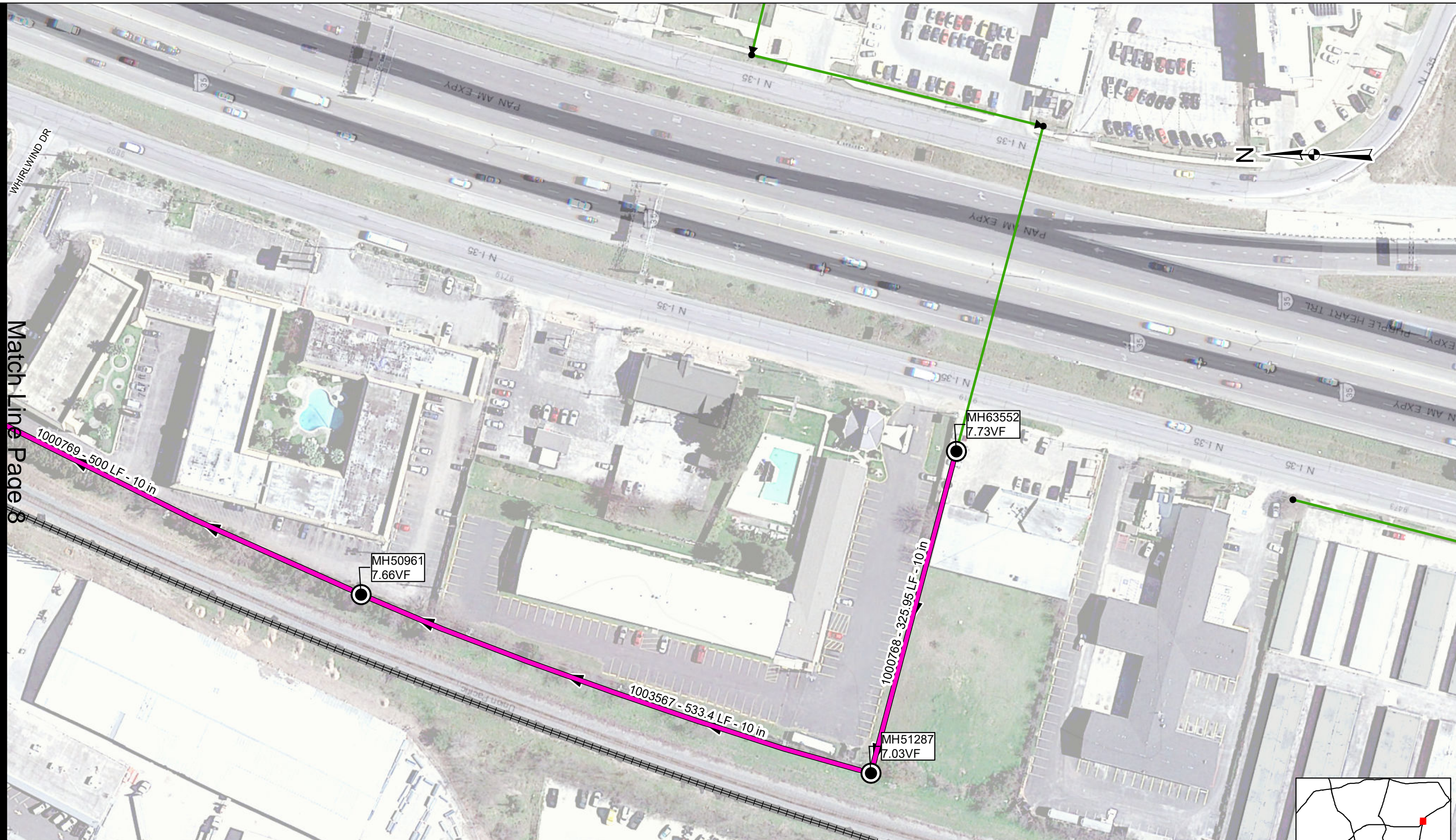


Match Line Page 9

Multiple Sewershed Package 15 UPRR

	MHs in Scope		Proposed PB		Rail Roads
	Proposed CIPP		Proposed Replacement		5 Year IMP Street Maintenance
					2017-2022 Bond Projects

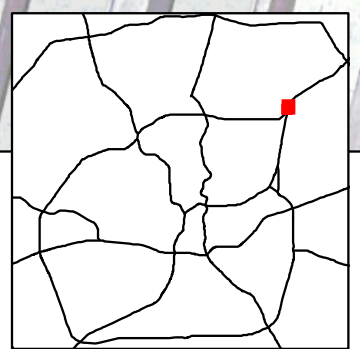


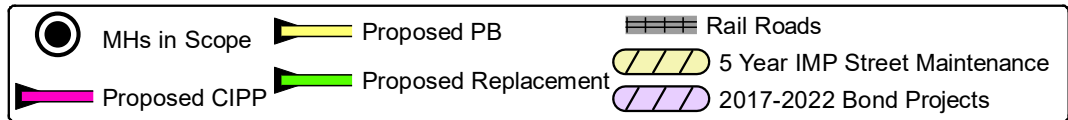


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Multiple Sewershed Package 15 UPRR

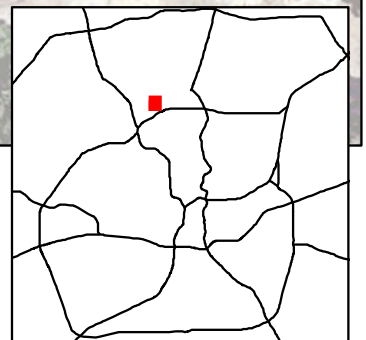
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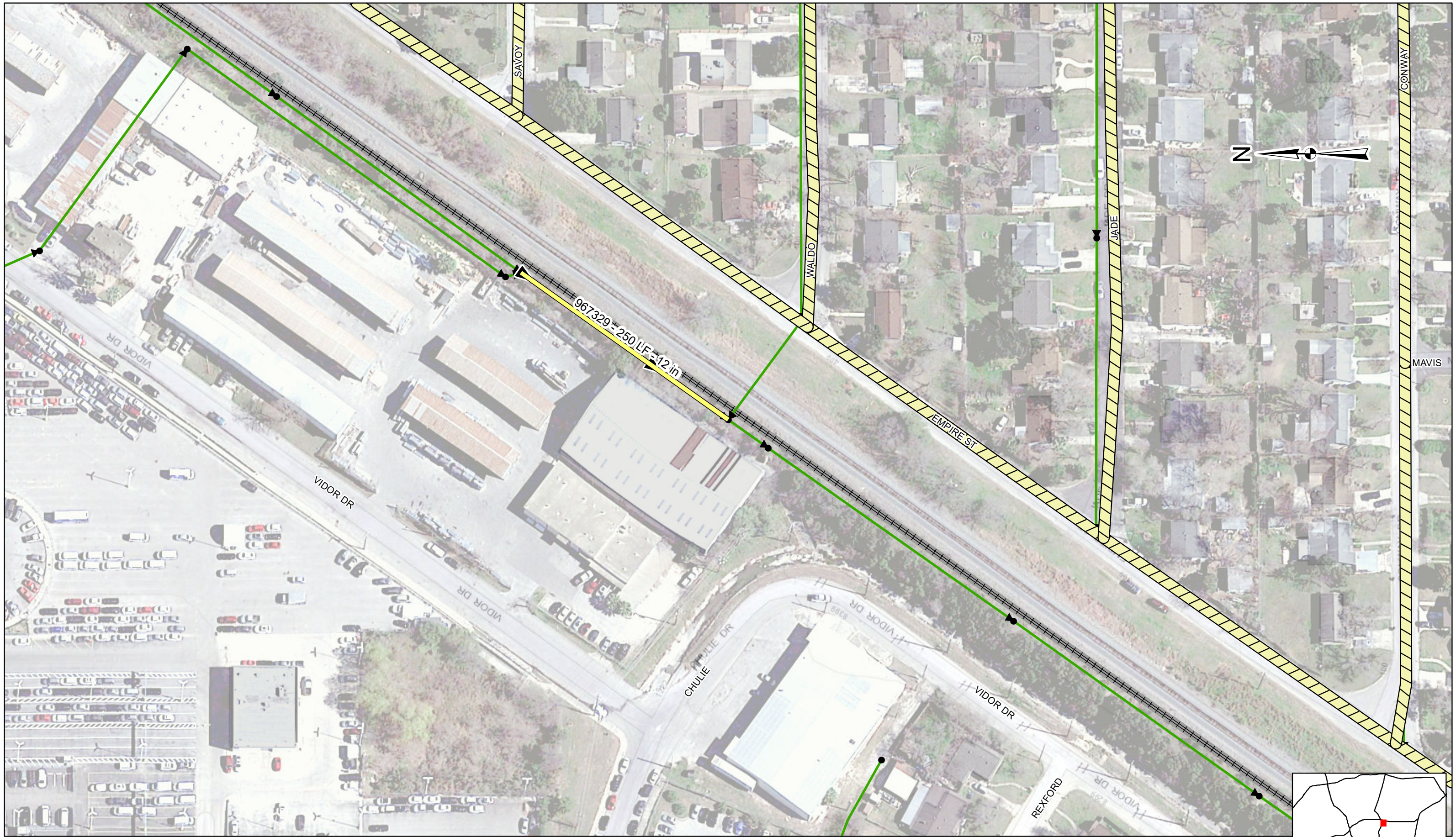




Multiple Sewershed Package 15

UPRR

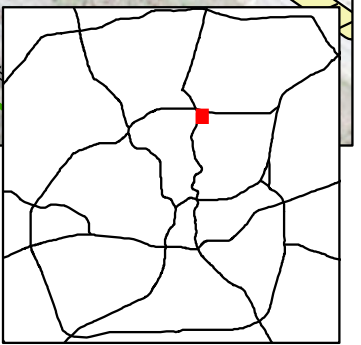


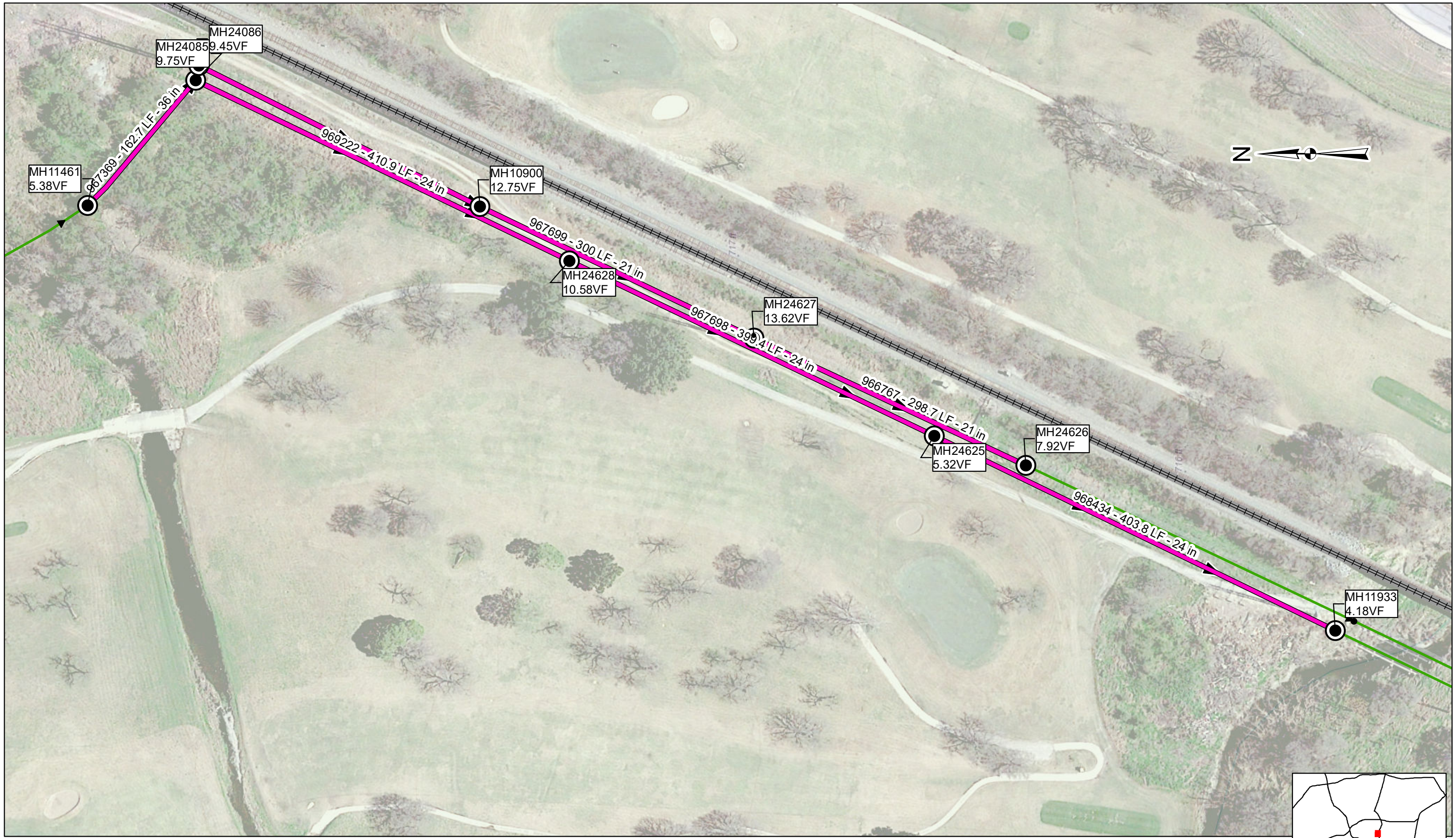


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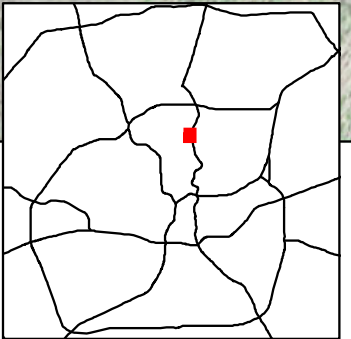
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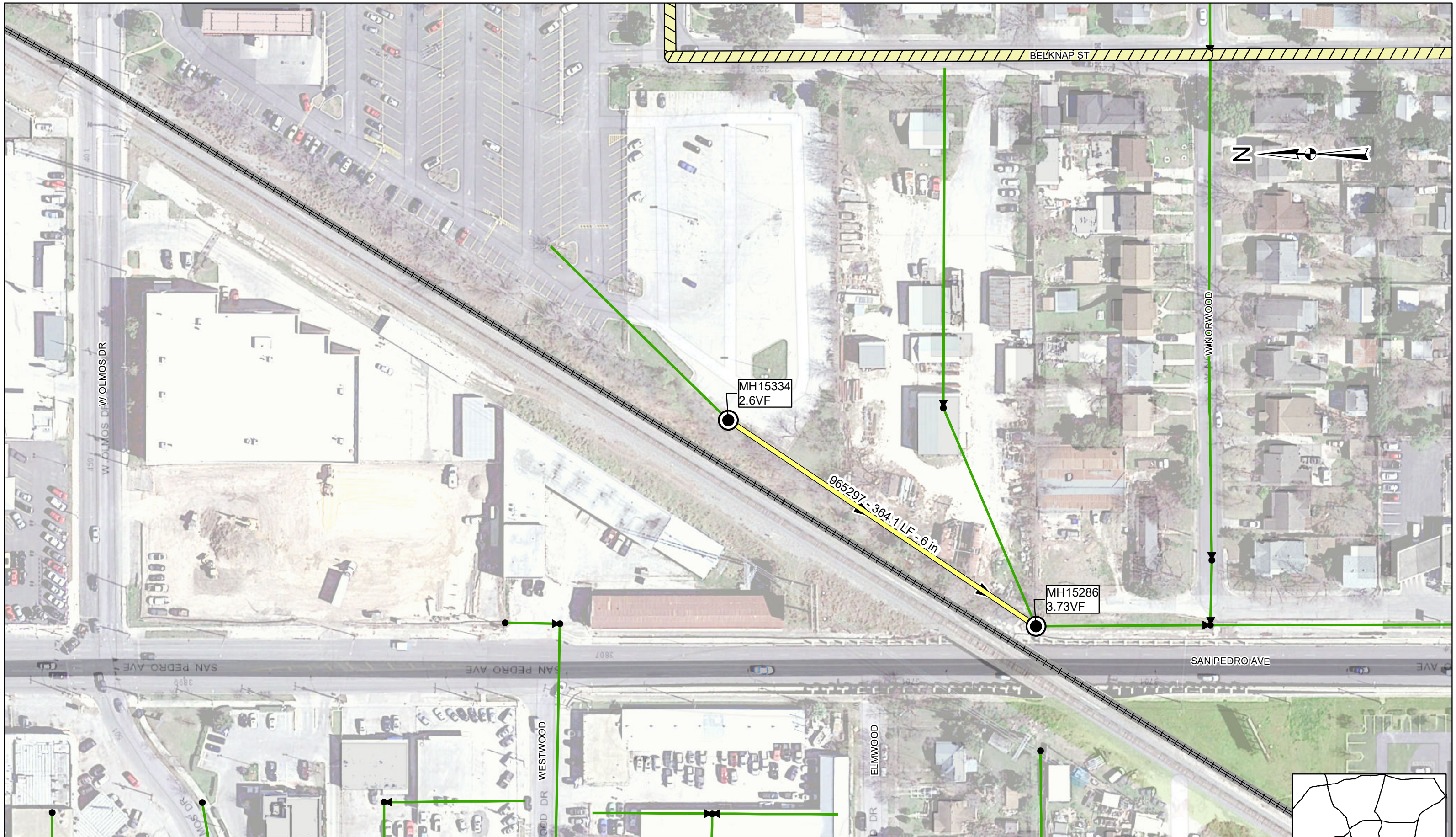




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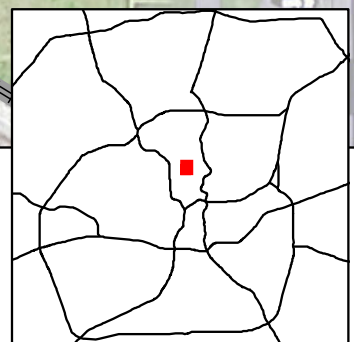


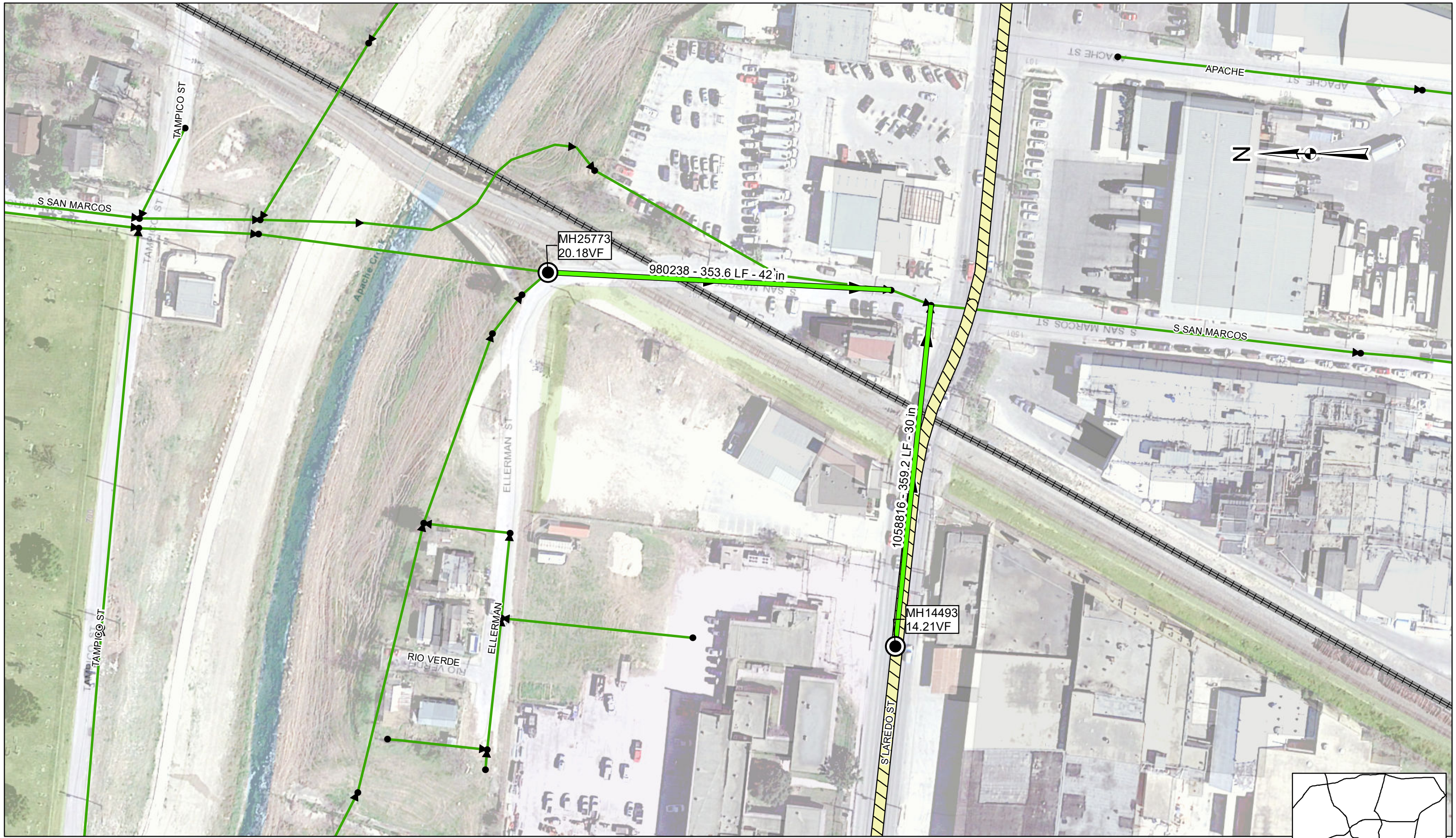


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UPRR

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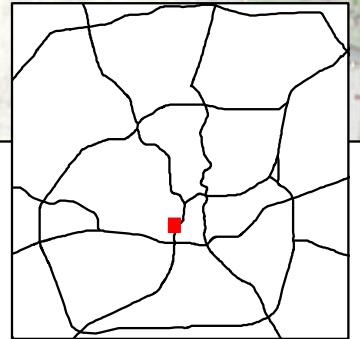


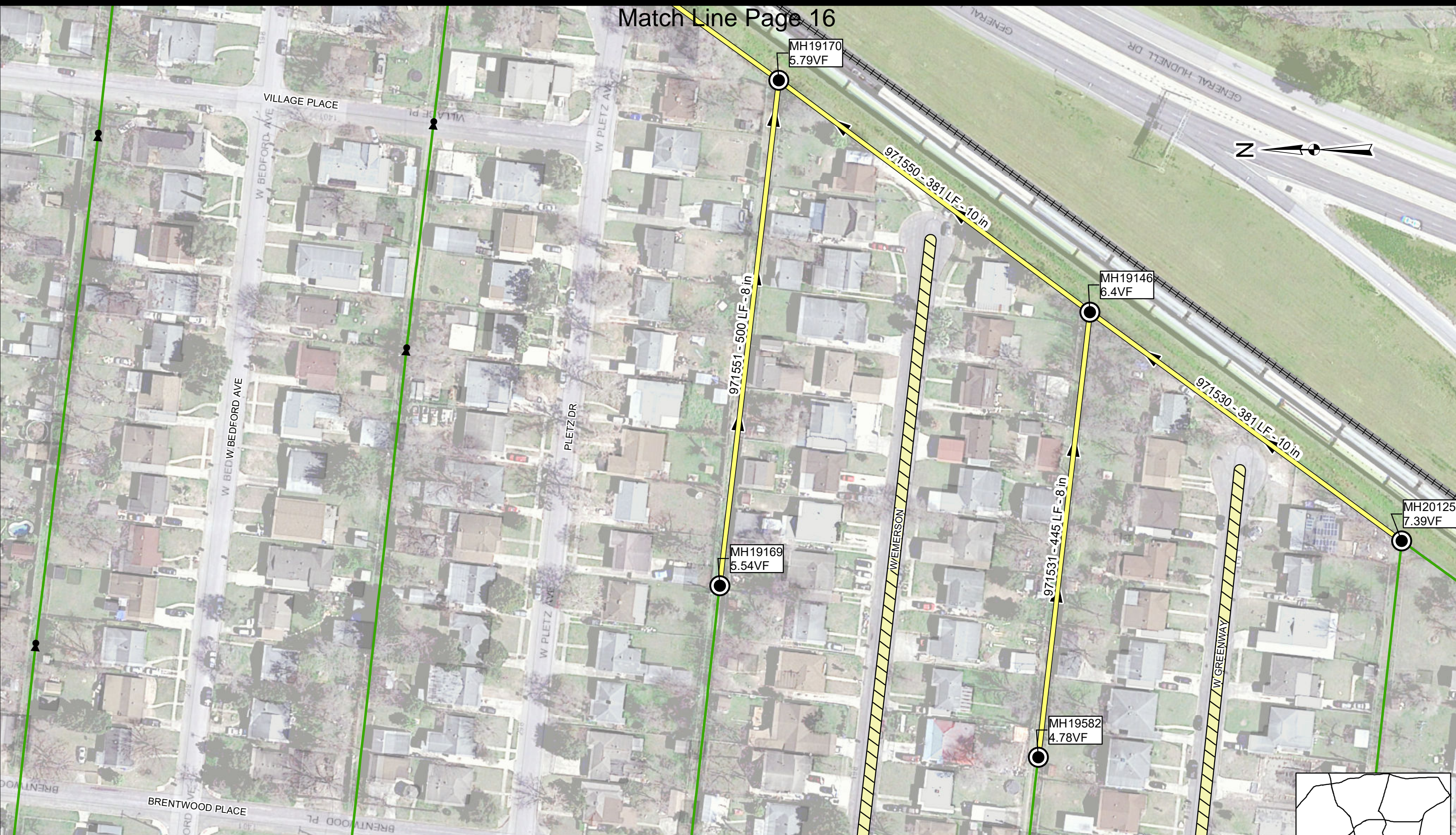


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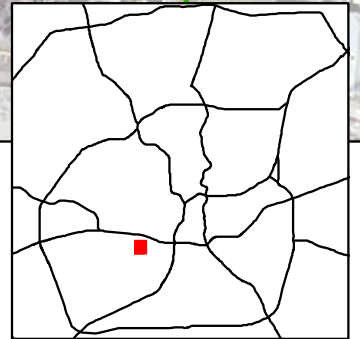


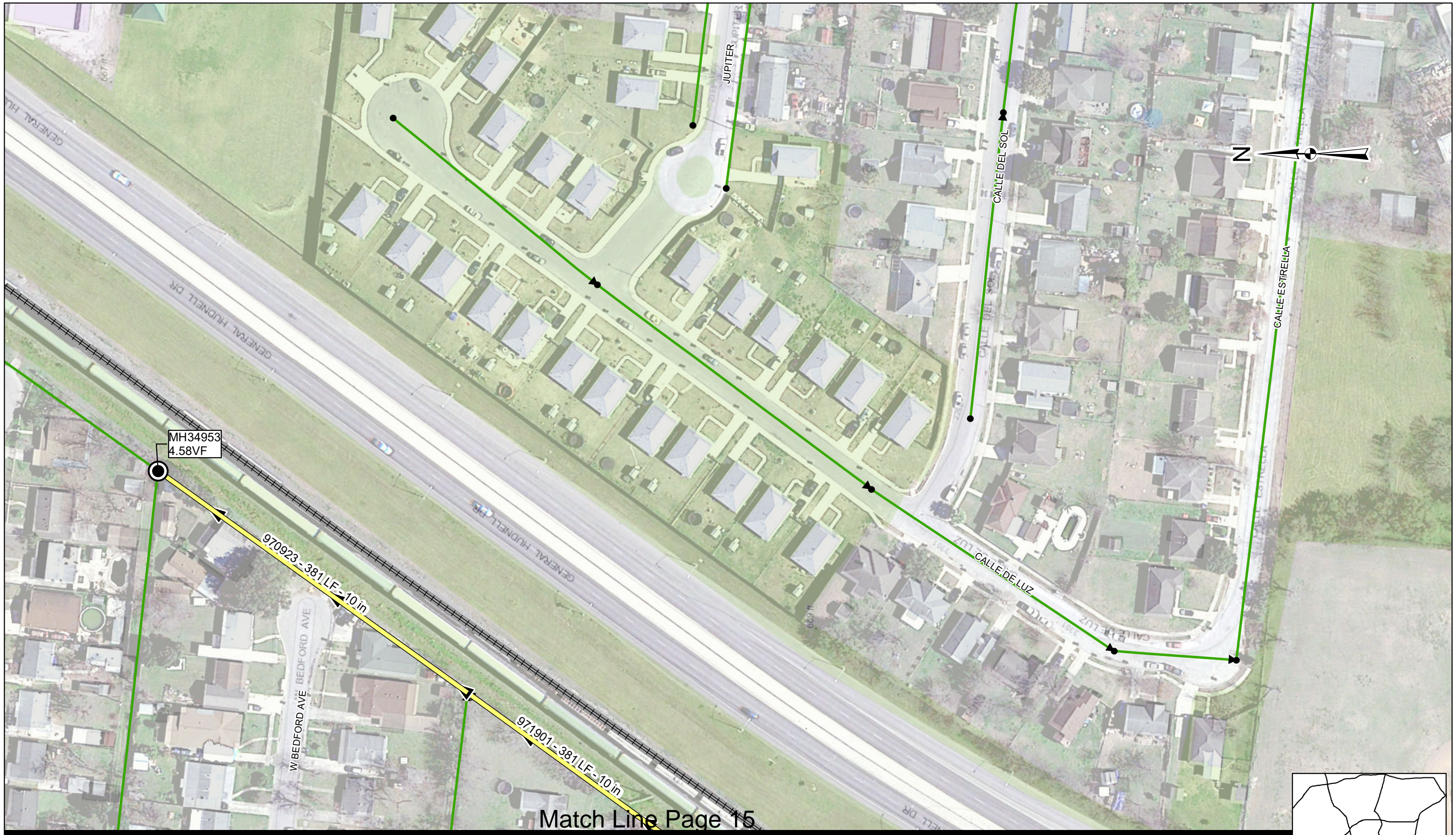


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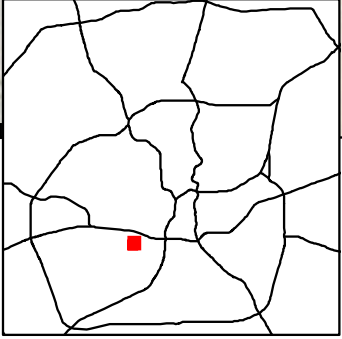


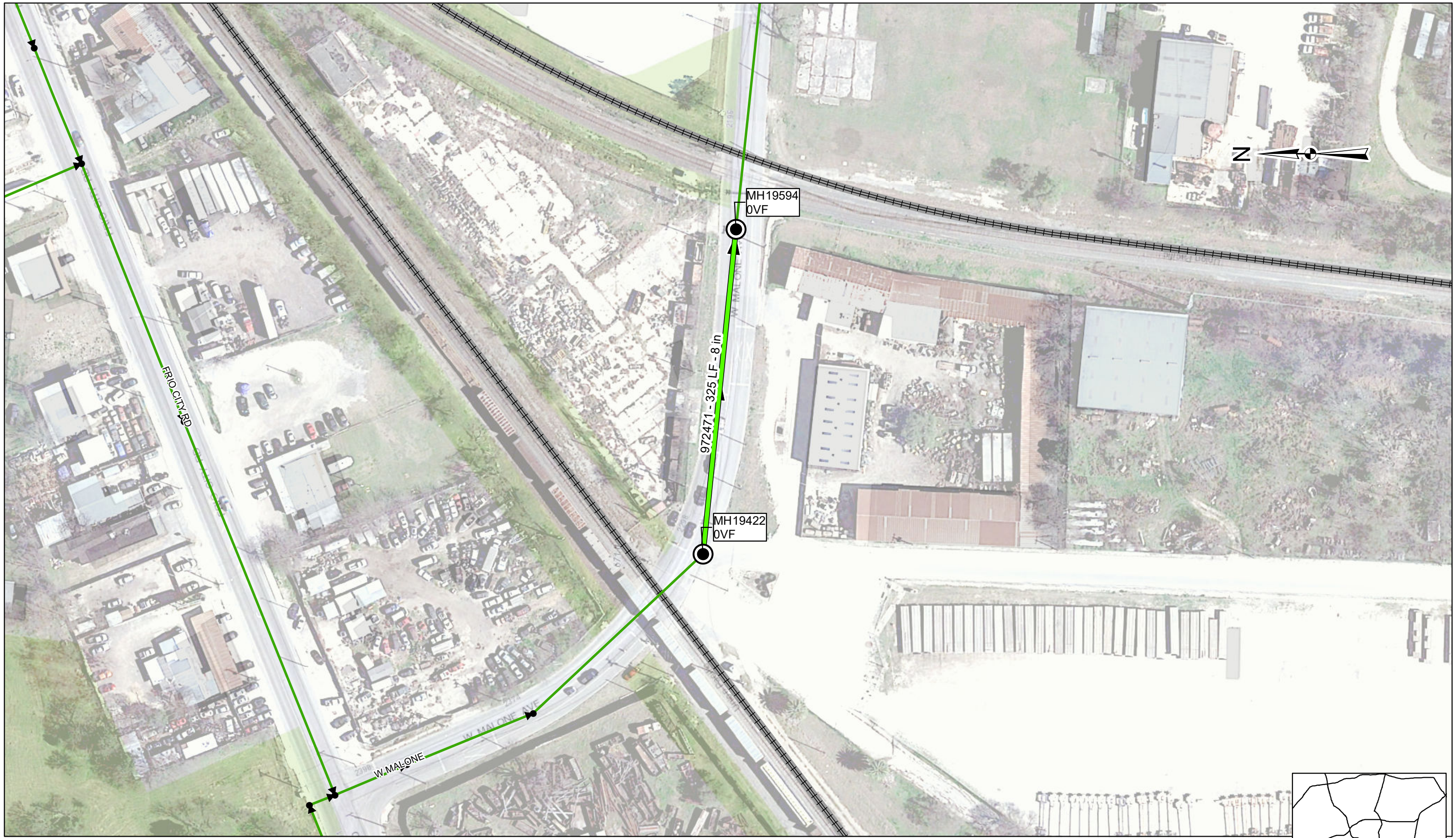


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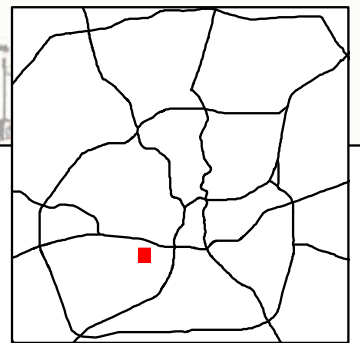




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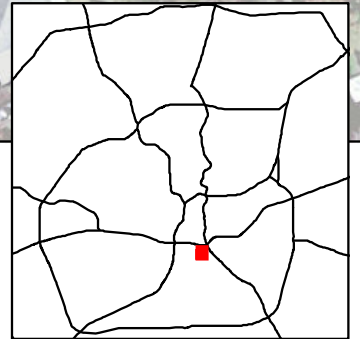


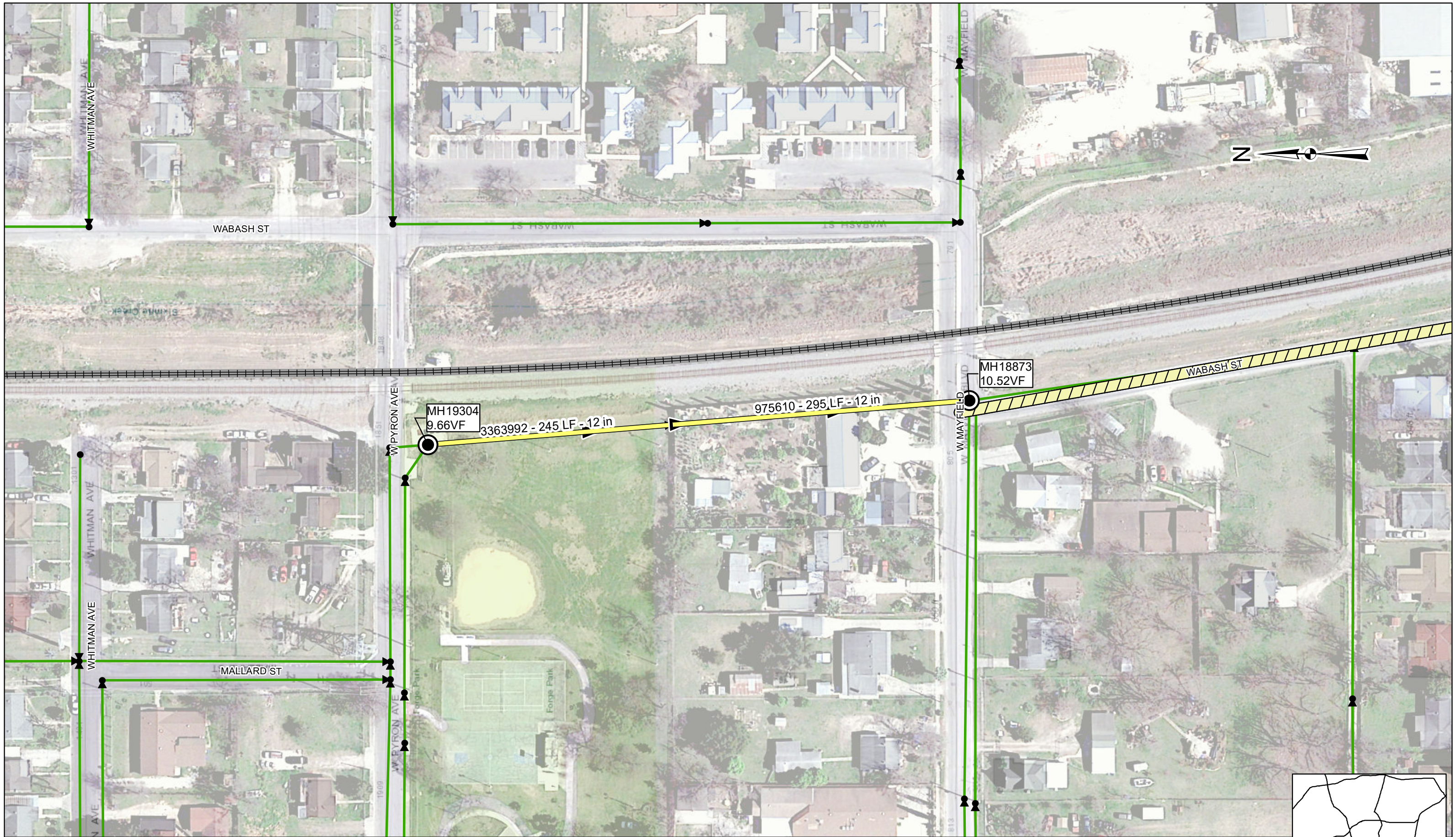


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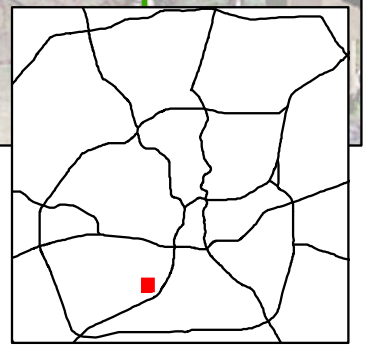
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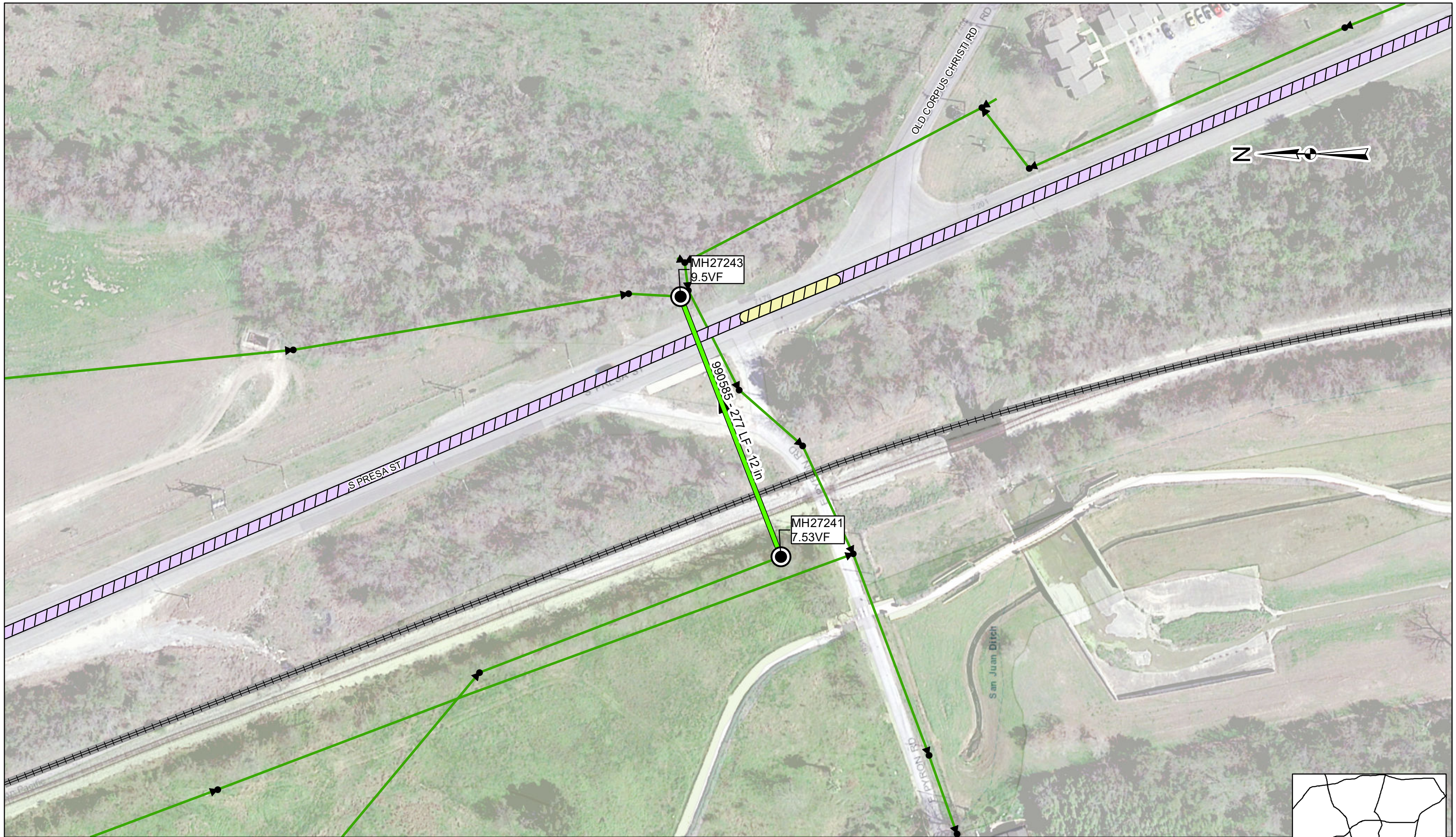




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