SSO REDUCTION PROGRAM

CAPACITY, MANAGEMENT, OPERATION, AND MAINTENANCE ALTERNATIVES ANALYSIS

Project Scoping Report
2020 CMOM Package 1

PREPARED FOR: San Antonio Water System

PREPARED BY: Steven Anthes/Camille Constantine

DATE: March 5, 2020

Revision	Date	Revision Description	Approved By
0	2/14/20	Draft Submittal	Steven Anthes/Camille Constantine
1	2/27/20	Draft Submittal Rev.1	Steven Anthes
2	2/27/20	Final Draft QC	Project Controls
3	3/5/20	Final Submittal	Christopher Jackson

This report is released for the purpose of defining the scope of this project and providing recommendations to be verified during the design phase. This report is not to be used for construction, bidding, or permitting purposes.

Christopher J. Jackson, P.E.

1.0 Executive Summary

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 Capacity, Management, Operation, and Maintenance (CMOM) alternatives analysis for approximately 8,353 linear feet of selected gravity sewer lines. **Table-1.1** summarizes the proposed construction methods and their estimated costs. The recommendations in this report may be further modified during subsequent design and construction phases, as appropriate, based on additional data and findings.

Table-1.1: Proposed Construction Method and Estimated Costs

Type of Work	Length (ft)	Line Size Range (in)	Estimated Construction Cost
CIPP	8,353	8 - 60	$ 4,010,061.80

2.0 Evaluation

Pipe segments chosen to be rehabilitated on this package have contributed to previous SSOs, and/or are likely to cause or significantly contribute to the future of occurrence of SSOs.

A meeting was held on February 27, 2020 to discuss pipe prioritization under major roads. At said meeting, it was decided that all remaining identified "E" rated large diameter mains under major roads not already on a project would be included in the scope of this package. The scope was then increased to capture these mains.

3.0 Coordination

Street Projects

The City of San Antonio (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. 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 during design. Please note that pipes may be required to have the construction expedited where street projects are forthcoming.

Table-3.1: Pipes Improvement Project Located on CoSA

Compkey	Street Location	Type of Project
974982	FREDERICKSBURG RD	Mill & Overlay - Contract
3534297	WEST DR	Mill & Overlay – Inhouse
994866	ROOSEVELT	Corridor Improvements

High and Medium Pavement Condition Index (PCI) Roads

CoSA provides an ArcGIS layer that has the estimated PCI of roads in the city. All mains on this package will be rehabilitated via CIPP, but may have an impact on high and medium PCI roads.

Other Considerations

Pipes that are located in sensitive areas that may require additional permits have been listed below in **Table-3.3**.

Table-3.3: Pipes that need additional coordination

Compkey	Reason
1012380	100Yr Floodplain
973498	100Yr Floodplain
974887	100Yr Floodplain, UPRR
1008942	100Yr Floodplain
980898	100Yr Floodplain and Martinez Creek
980897	100Yr Floodplain
974804	100Yr Floodplain, Martinez Creek
974982	100Yr Floodplain, Martinez Creek
3534297	100Yr Floodplain, Martinez Creek
974981	100Yr Floodplain, Martinez Creek
965183	100Yr Floodplain, Martinez Creek
1012725	100Yr Floodplain
1002970	100Yr Floodplain
994502	100Yr Floodplain
986592	100Yr Floodplain
986734	100Yr Floodplain

4.0 Planning Budget

The planning budget provided below is based on historical data from similar bids between 2016 and 2018. The data in **Table-4.1** 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 was calculated based on: pipe size, rehabilitation method, number of estimated point repairs, internal repairs, lateral reconnections, and the pavement condition index of all impacted roads. The planning budget should be revised by the Project Design Consultant during the design based on AACE International standards.

Table-4.1: Estimated CIPP Cost

Description	Quantity	Unit	Unit Price	Total
8 – inch CIPP	88	LF	$ 181.82	$ 16,000.00
24 – inch CIPP	1604	LF	$ 292.39	$ 469,000.00
27 – inch CIPP	360	LF	$ 327.78	$ 118,000.00
33 – inch CIPP	328	LF	$ 396.34	$ 130,000.00
36 – inch CIPP	1736	LF	$ 433.18	$ 752,000.00
42 – inch CIPP	1453	LF	$ 505.16	$ 734,000.00
48 – inch CIPP	1093	LF	$ 589.20	$ 644,000.00
54 – inch CIPP	993	LF	$ 648.54	$ 644,000.00
60 – inch CIPP	698	LF	$ 720.63	$ 503,000.00
			Total	**$ 4,010,000.00**

5.0 Planning Recommendation

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.

Table-5.1: Recommendation Summary

PipeID	Actions	Diameter	Length	Material	Install Year	Comments
983967	CIPP	24	465.8	RL	1965	Major Road Crossing. Large CoSA strm crossing, alignment right, wrong mat: CI. Encrustation throughout pipe. CIPP - CC. CJ Agree with CIPP
986734	CIPP	36	388.6	RCP	1988	Opportunity main – D rated adjacent, CIPP – SA. CJ Agree with CIPP
1012725	CIPP	54	992.8	RCP	1985	Medium PCI. Upstream of 1012915, in 100yr floodplain, hanging gasket, & sections of reinforcement visible. CIPP - CC. CJ Agree with CIPP. Install a new drop structure downstream to correct turbidity issue
974804	CIPP	33	121.2	RCP	1968	Downstream of CRM M-11. Under a storm channel, 100yr floodplain. Recommended CIPP. SA. CJ Agree with CIPP
984447	CIPP	36	350	RCP	1965	Major Road Crossing. CoSA strm crossing, ragging, left & right alignments, encrustation, and deposits settled hindering camera from moving forward. CIPP - CC. CJ Wrong material CI. Agree with CIPP
974982	CIPP	33	62.6	RCP	1968	Crossing under road bridge, Apache Creek, 100yr Floodplain, CIPP - SA. CJ Agree with CIPP
993555	CIPP	24	78	VCP	1963	Opportunity main – D rated adjacent, included bypass, CIPP – SA. CJ Agree with CIPP
3349243	CIPP	60	348	RCP	1966	Opportunity main - Medium PCI, E rated inline, small bypass impact, CIPP - SA. CJ Agree with CIPP
1008942	CIPP	24	320	VCP	1967	Under 410 overpass near columns, crosses 8” AC and 12” PVC water mains, 100yr Floodplain, wrong material – Cast Iron, No casing on As-Builts, JBT - SA. CJ Changed to CIPP. Requested new CCTV
995532	CIPP	48	714.2	RCP	1985	Opportunity main - High PCI, D rated adjacent, small bypass impact, reinforcement protruding, CIPP - SA. CJ Agree with CIPP
983571	CIPP	36	150	CT	1965	E Opportunity main – Downstream of 984447. Incomplete CCTV with clay tile main. Use light cleaning to avoid impacting tiles. CIPP - CJ
1002970	CIPP	24	314.5	CAS	1971	Crosses a 24” CSC water main, 8” gas main, 100 year floodplain, included in the 2023 capacity RM plan with E-74 Rosillo Creek Inline Storage proposal, No CCTV due to encrustation, Monitor – SA. CJ Change to CIPP as project is not addressing condition
983572	CIPP	36	15.8	CT	1965	E Opportunity main – Upstream of 984447. Incomplete CCTV but short main. Appears to be good candidate for CIPP - CJ
994866	CIPP	60	331	RCP	1966	Major Road Crossing, part of a CoSA Bond Project Roosevelt Corridor Imp. under an overpass, CIPP Recommended. SA. CJ Agree with CIPP
3349244	CIPP	60	19	RCP	1966	Opportunity main - Medium PCI, D rated inline, small bypass impact, CIPP - SA. CJ Agree with CIPP
980897	CIPP	36	506	RCP	1958	100Yr floodplain and 24” WTM crossing. Running along an access road. Large hwy lights. Wrong mat: VCP. Cracks, concrete patch, old MH covered, and defective tap. CIPP - CC. CJ Agree with CIPP
2390423	CIPP	48	378.9	RCP	1962	Downstream of M-6A. Reinforcement visible. CIPP - CC. CJ Agree with CIPP
980898	CIPP	27	160.9	RCP	1949	100yr Floodplain, Crosses Martinez Creek, CIPP - SA. CJ Agree with CIPP
971791	CIPP	36	100	RCP	1991	Medium PCI. Reinforcement visible, build up on pipe walls. At bridge crossing highway. CIPP - CC. CJ Agree with CIPP

PipeID	Actions	Diameter	Length	Material	Install Year	Comments
988385	CIPP	24	395.4	DIP	1968	Major Road Crossing. Crosses under 281, tuberculation, possible hole, some ragging and encrustation. CIPP - CC. CJ Agree with CIPP
974981	CIPP	33	25.7	RCP	1968	Opportunity main - E rated adjacent - CIPP - SA. CJ Agree with CIPP
3534297	CIPP	8	88	RL	9999	Opportunity main – D rated adjacent, potential hole under small road, wrong material VCP, CIPP – SA. CJ Agree with CIPP. Will need to install MH at bend.
974887	CIPP	42	402	RCP	1967	Major Road Crossing. Under Jackson Keller main. Surface aggregate visible & loose gasket. Monitor - CC. CJ Changed to CIPP due to proximity to Hwy and reinforcement being visible
1012380	CIPP	27	199.2	RCP	1989	Major Road Crossing, Crosses 16” AC water main, and 16” gas main, 100 year floodplain, near French Creek, CIPP – SA due to under Bandera and near a channel crossing for easy bypass. CJ Agree with CIPP
994502	CIPP	24	30.4	VCP	1971	Opportunity main – Downstream of 1002970 and upstream of E-74. CJ Heavy encrustation. Agree with CIPP
965183	CIPP	33	118.1	RCP	1968	Opportunity main - E rated inline with bypass, CIPP – SA. CJ Agree with CIPP
973498	CIPP	42	610	RCP	1967	Medium PCI, under Jackson Keller just downstream of 974887 on CMOM under Hwys, only surface aggregate visible and infiltration at joints only rated a C in 13'. Recommend Monitor. SA. CJ Change to CIPP due to proximity to other mains and gusher defects
987235	CIPP	42	440.8	RCP	1949	Major Road Crossing. Main can be lined but has a diameter change in middle of segment that will require variance. Liner will need transition and have some wrinkles due to change in diameter. CIPP - CJ
986592	CIPP	36	226	RCP	1988	Major Road Crossing near a bridge crossing over SA River and mission reach, infiltration at the MH24269, no reinforcement visible. Recommend Monitor. SA. CJ Changed to CIPP due to reinforcement near DS MH. May need to install drop at DS MH

6.0 Proposed Project Schedule

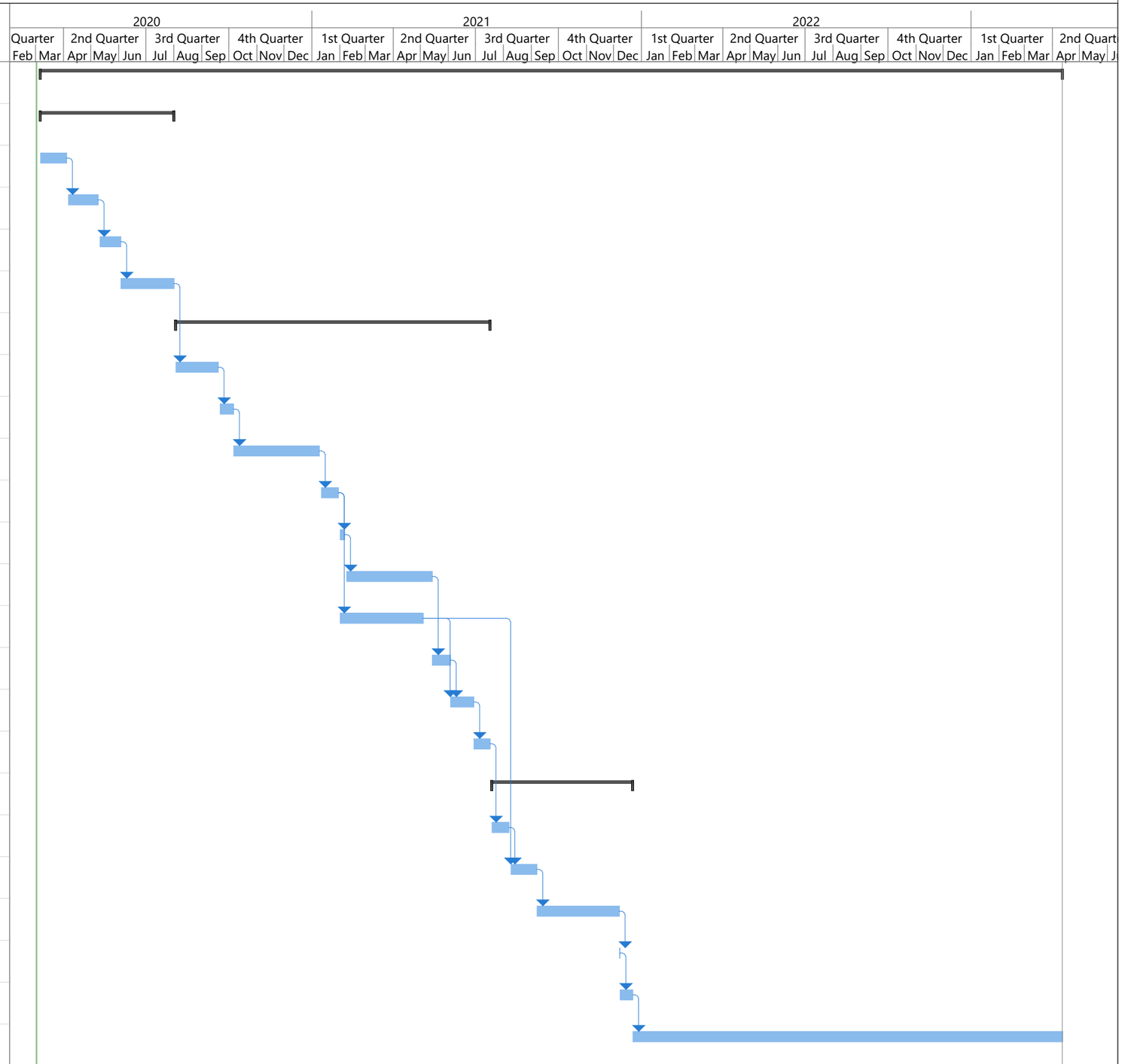
Table-6.1 provides a proposed project schedule which includes a timeframe for engineering design (plans, permits, right-of-entry, etc.), bidding, and construction phases based CIP board funding and previous schedules from similar projects. These should be reviewed and revised by the consultant during the contract negotiation.

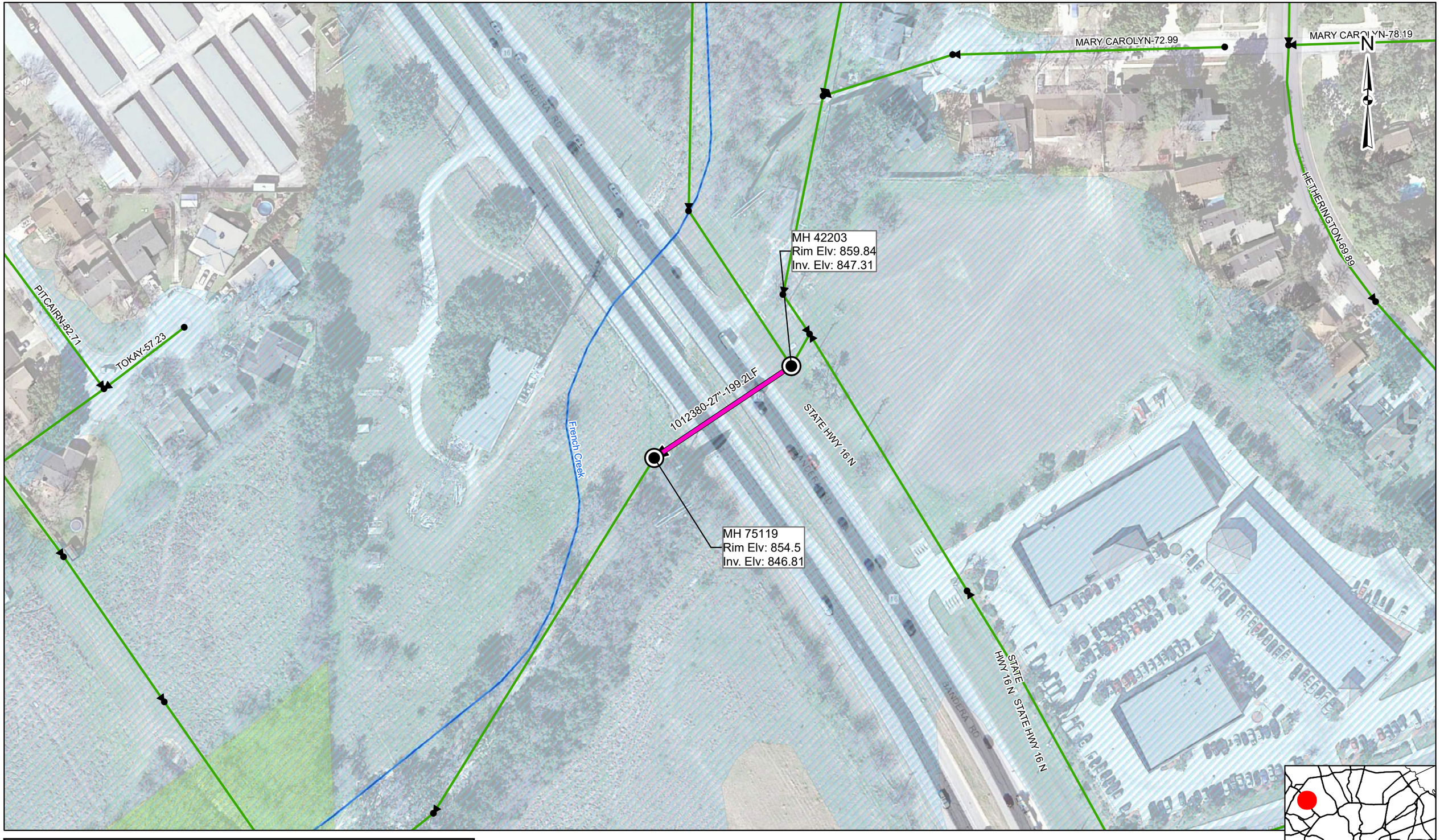
7.0 Detailed Maps

In the detailed maps attached are the CoSA street projects, the estimated PCI for all CoSA roads, and relevant sensitive areas.

Table 6.1 - Proposed Project Schedule

ID	Task Name	Calendar Days	Start	Finish
1	**2020 CMOM Package 1**	**1132**	**Fri 3/6/20**	**Tue 4/11/23**
2	**Contract Execution**	**148**	**Fri 3/6/20**	**Fri 7/31/20**
3	RFQ	29	Fri 3/6/20	Fri 4/3/20
4	Selection	33	Mon 4/6/20	Fri 5/8/20
5	Negotiation	23	Mon 5/11/20	Tue 6/2/20
6	Execute Contract	59	Wed 6/3/20	Fri 7/31/20
7	**Design**	**348**	**Mon 8/3/20**	**Fri 7/16/21**
8	Validation TM	47	Mon 8/3/20	Fri 9/18/20
9	Validation TM Review	15	Mon 9/21/20	Mon 10/5/20
10	60% Design	95	Tue 10/6/20	Fri 1/8/21
11	60% Design Review	19	Mon 1/11/21	Fri 1/29/21
12	Plan in Hand Walk Through	5	Mon 2/1/21	Fri 2/5/21
13	90% Design	95	Mon 2/8/21	Thu 5/13/21
14	ROE Acquisition	92	Mon 2/1/21	Mon 5/3/21
15	90% Design Review	20	Fri 5/14/21	Wed 6/2/21
16	100% Design	26	Thu 6/3/21	Mon 6/28/21
17	100% Design Review	18	Tue 6/29/21	Fri 7/16/21
18	**Solicitation**	**156**	**Mon 7/19/21**	**Tue 12/21/21**
19	100% Deisgn - Contracting Review	19	Mon 7/19/21	Fri 8/6/21
20	Advertisement	29	Mon 8/9/21	Mon 9/6/21
21	Board Prep	91	Tue 9/7/21	Mon 12/6/21
22	Board Date	1	Tue 12/7/21	Tue 12/7/21
23	Execute Contract	14	Wed 12/8/21	Tue 12/21/21
24	Construction	476	Wed 12/22/21	Tue 4/11/23

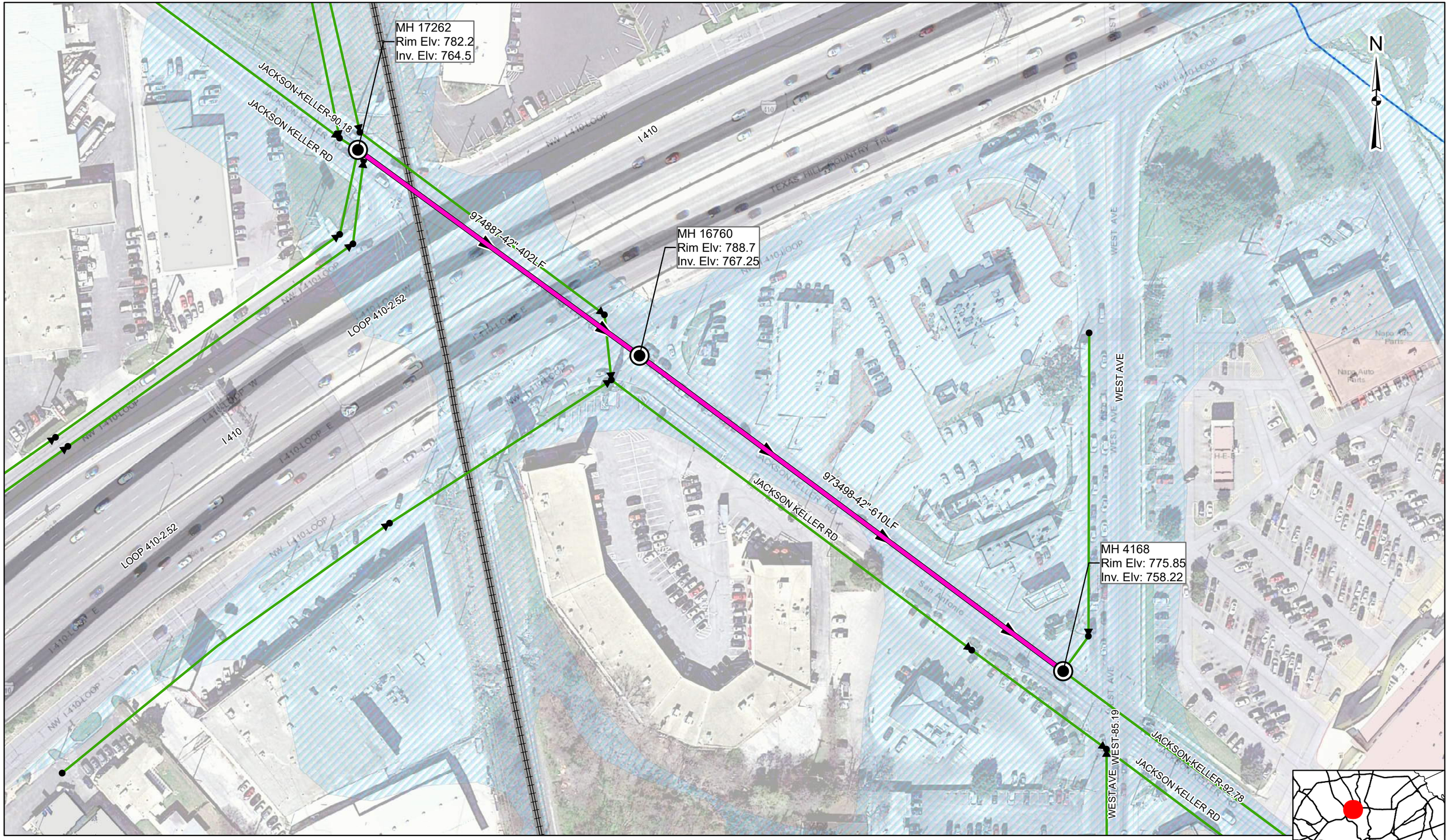




Manhole
Proposed CIPP
2019-2023 CoSA Street Project
2017-2022 CoSA Bond Projects
Railroad
100Yr Floodplain
Creeks
CoSA Park

2020 CMOM Package 1

03/05/2020



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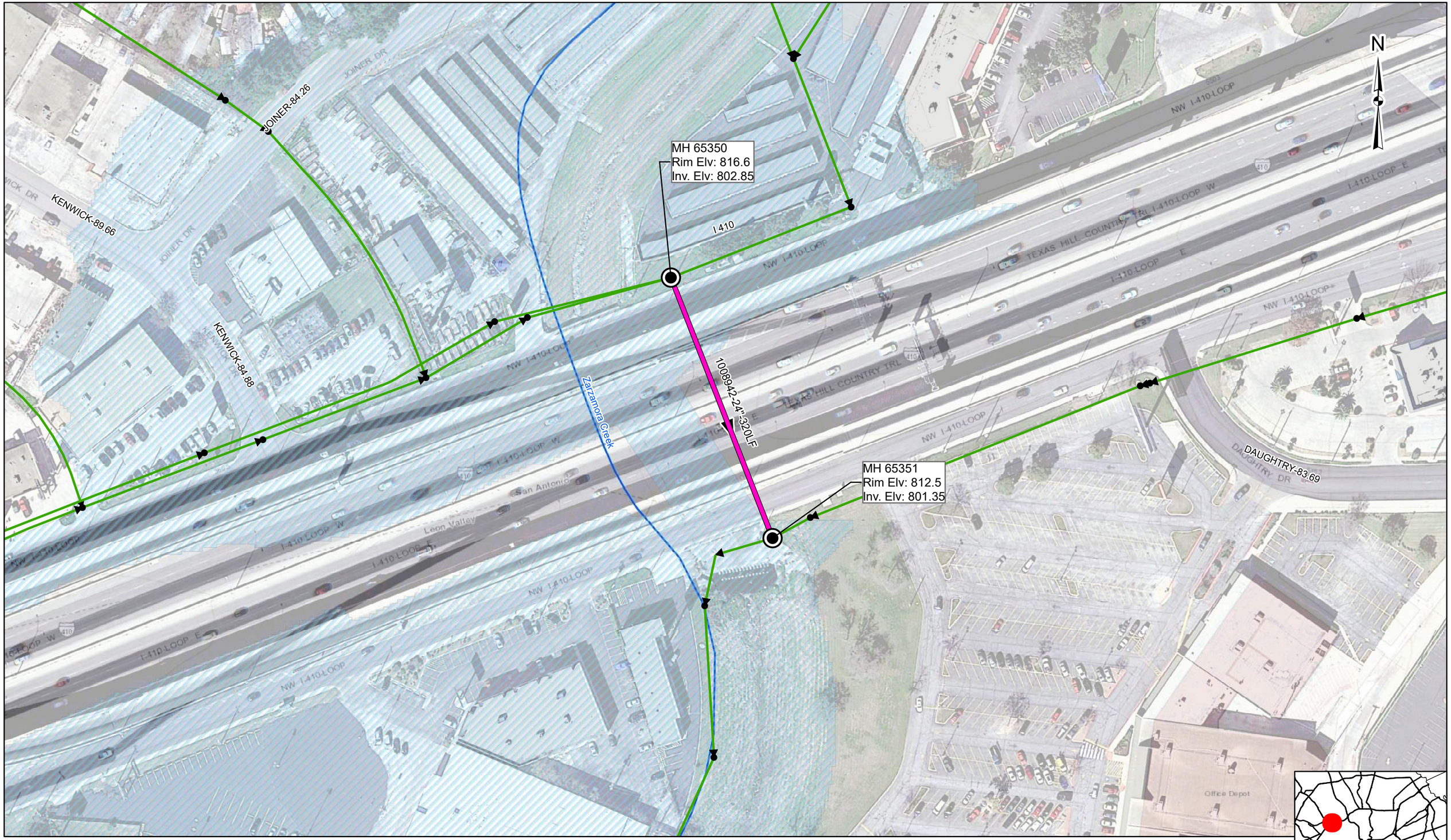

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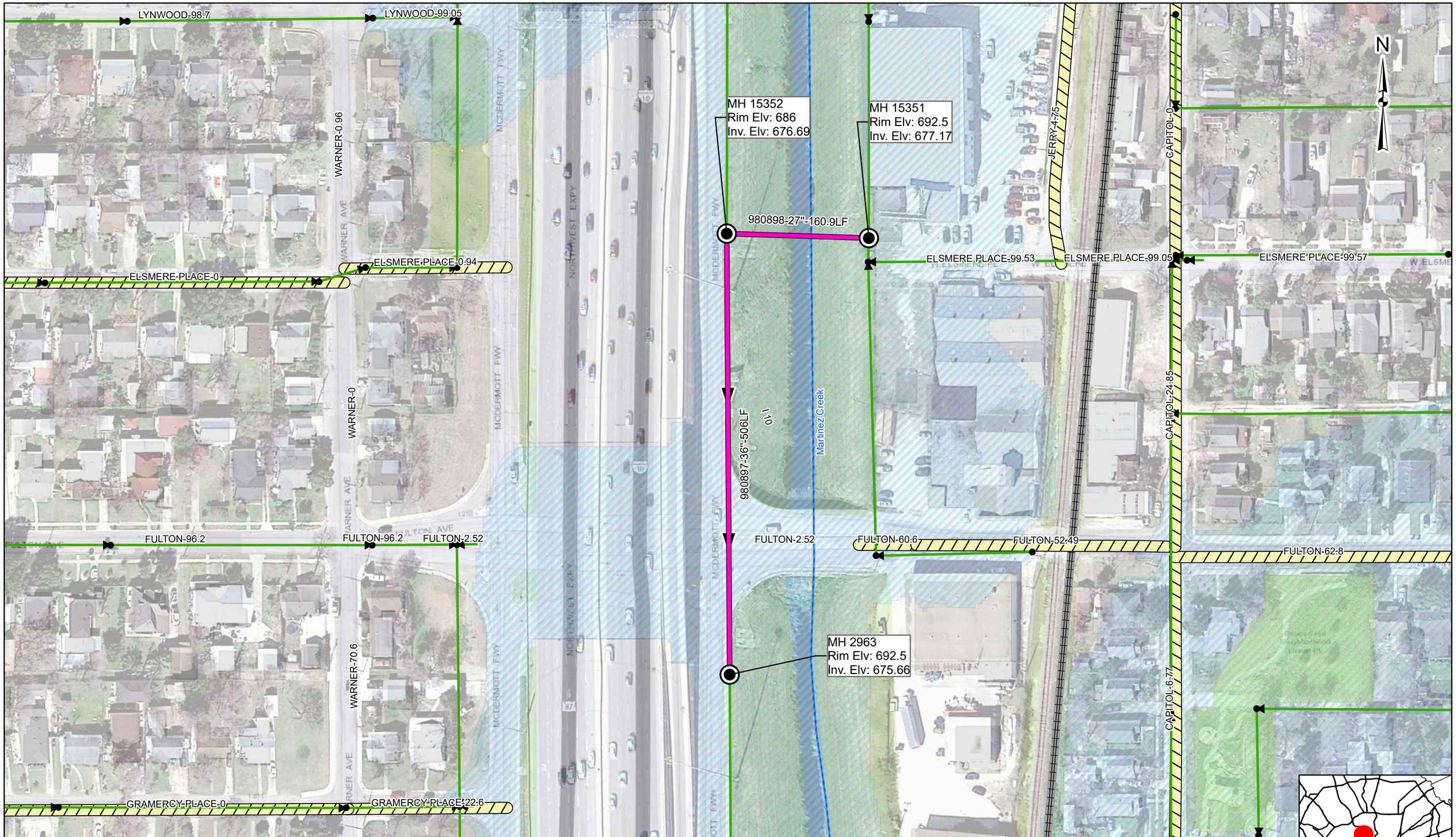

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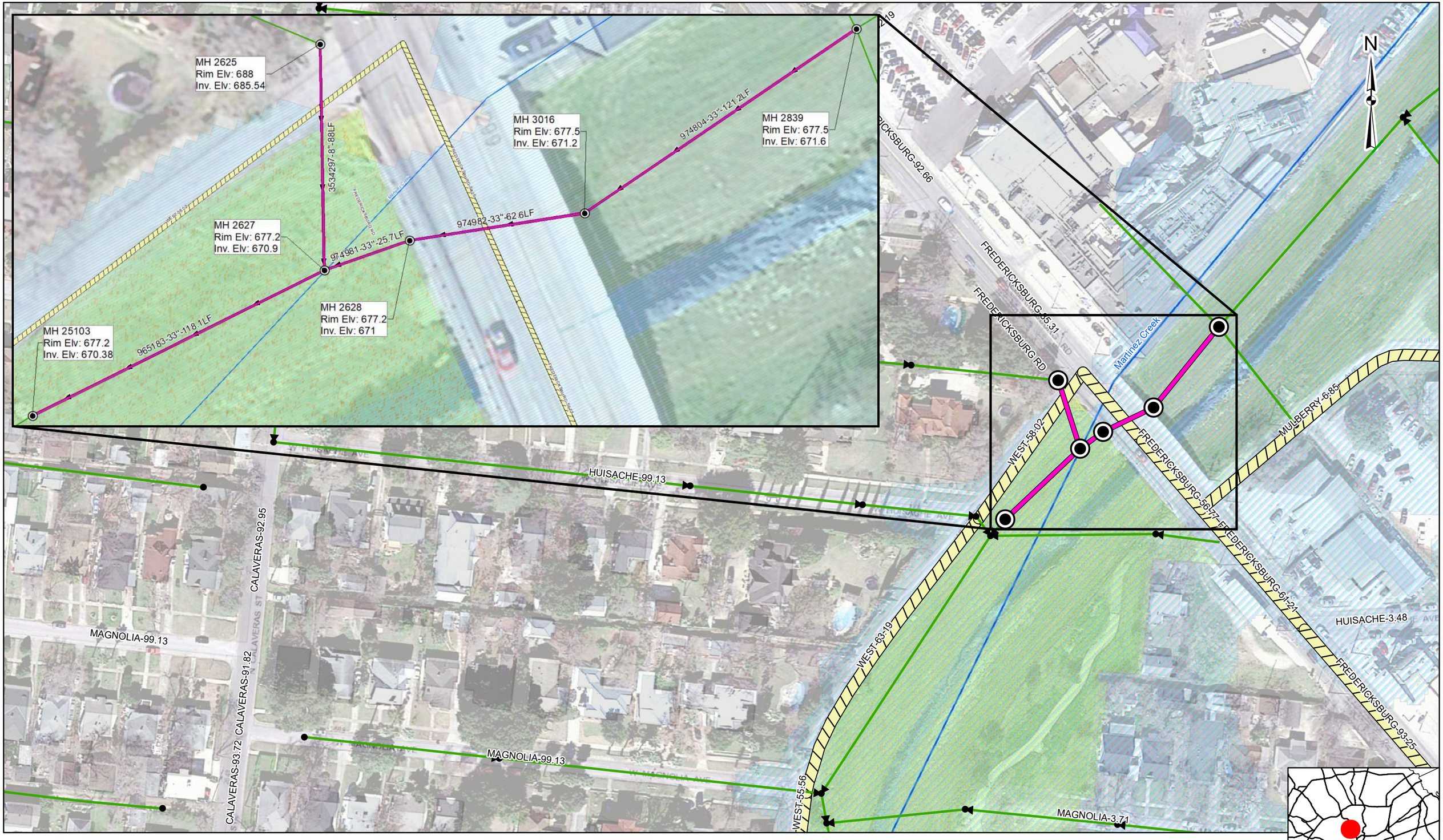

Manhole
Gravity Main
2019-2023 CoSA Street Project
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Railroad
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MH 30587
Rim Elv: 677.37
Inv. Elv: 662.32

MH 30573
Rim Elv: 670.93
Inv. Elv: 662.68

988385-24"-395.4LF

MAGNOLIA-77.07
MAGNOLIA-2.52
KINGS-89.84
KINGS-86.34
KINGS-90.44
KINGS-91.6
VALENTINO PLACE-76.65
MISTLETOE-88.56
MISTLETOE-88.56
MISTLETOE-55.61
ST MARY'S-91.02
ST MARY'S-90.87
WOODLAWN-66.04
UNNAMED RD AT E WOODLAWN-44.13
ST MARY'S-85.69
ST MARY'S-61.61
US HWY 281
EASTEX FWY
MAGNOLIA-98.21
MAGNOLIA-95.45
DEWBERRY-95.85
OSTROM-96
OSTROM-98.06
LINDELL PLACE-97.02
MAGNOLIA-95.13
DEWBERRY-96.24
MISTLETOE-95.5
LINDELL PLACE-96.5
E MISTLETOE A DEWBERRY-97.74
WOODLAWN-45.25
LINDELL PLACE-55.27
LINDELL PLACE-74.73
LINDELL PLACE-92.95
LINDELL PLACE-98.79
LINDELL PLACE-95.47
ARMOUR-95.28
WOODLAWN-96.83

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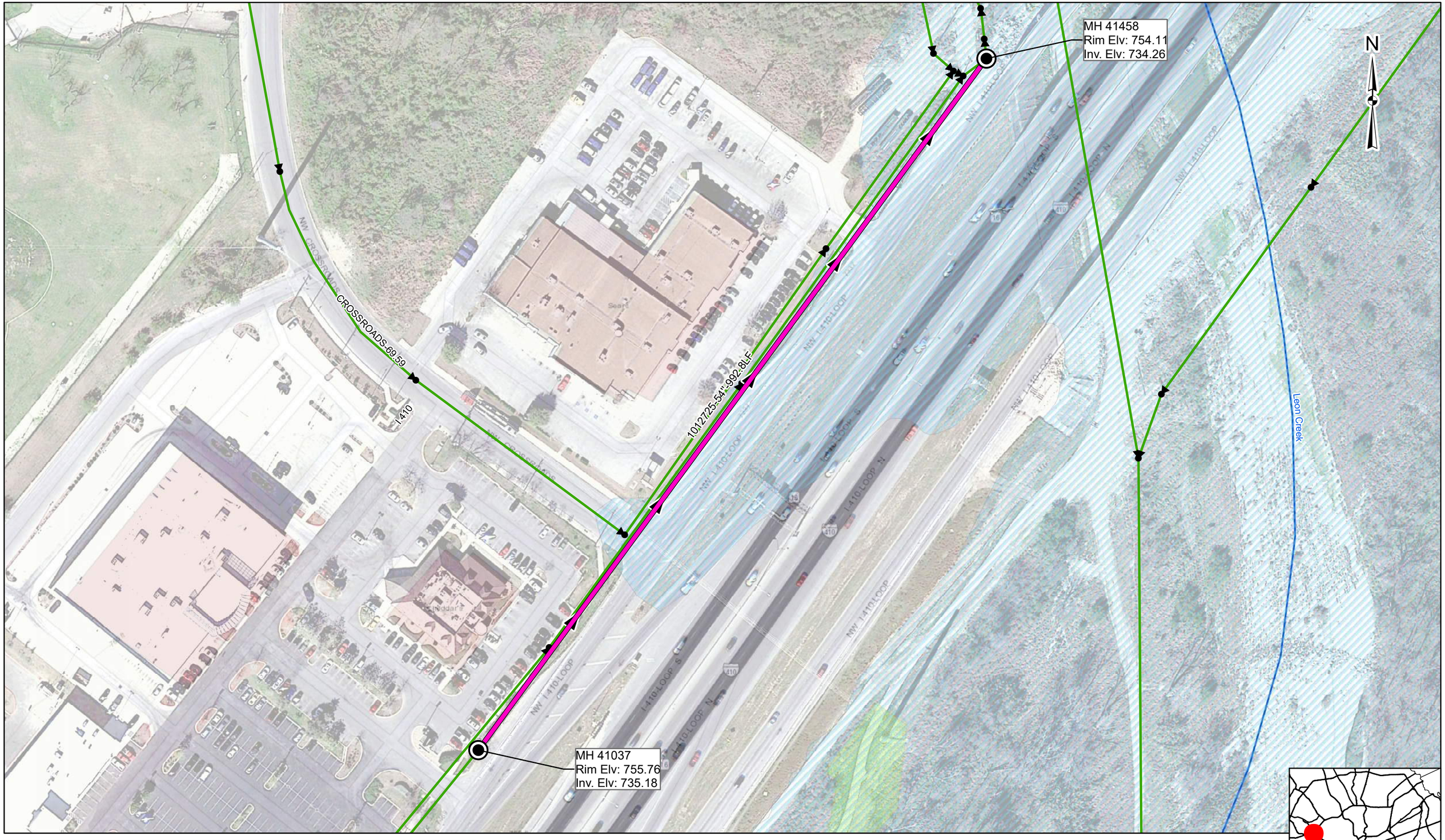

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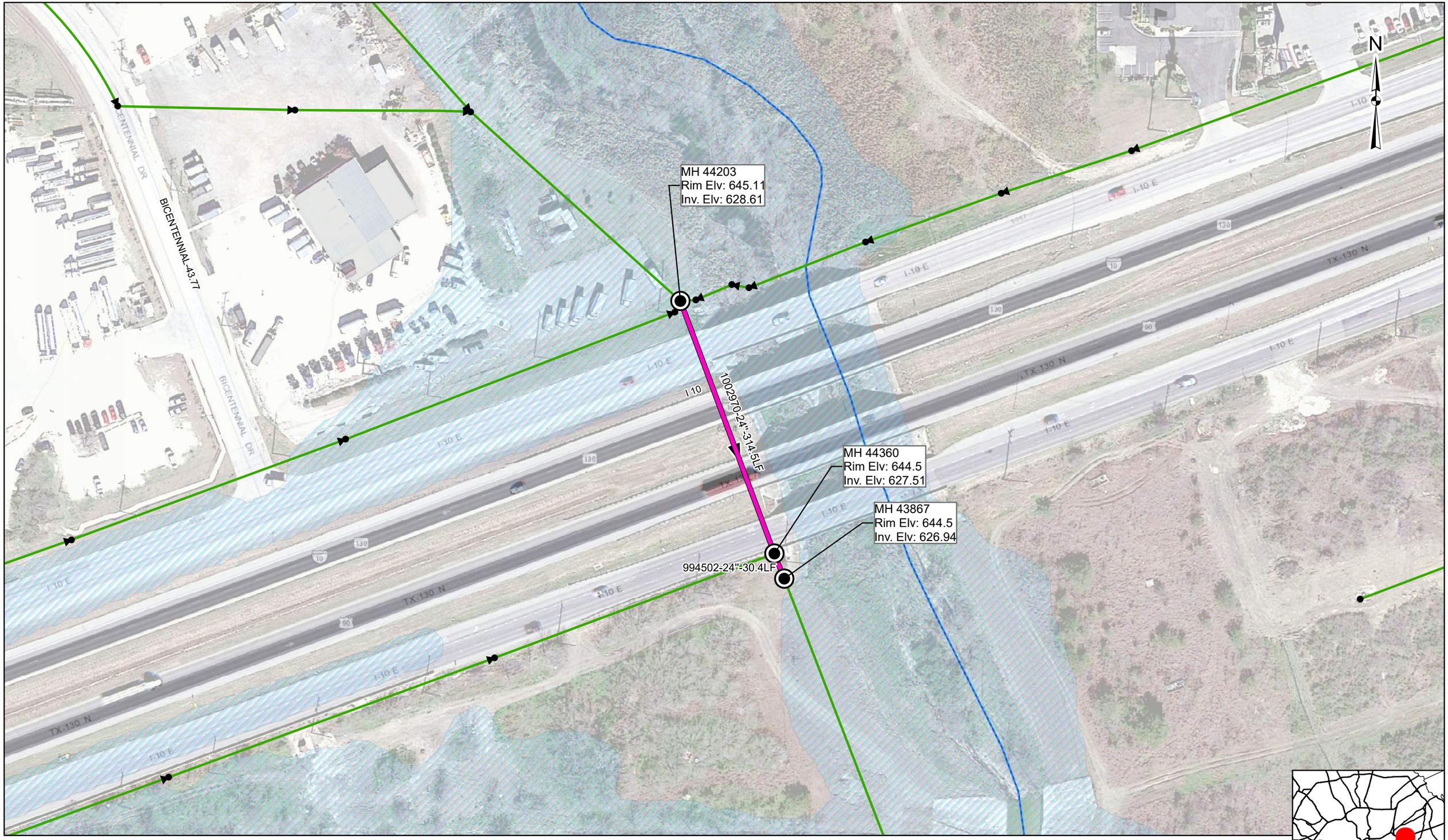

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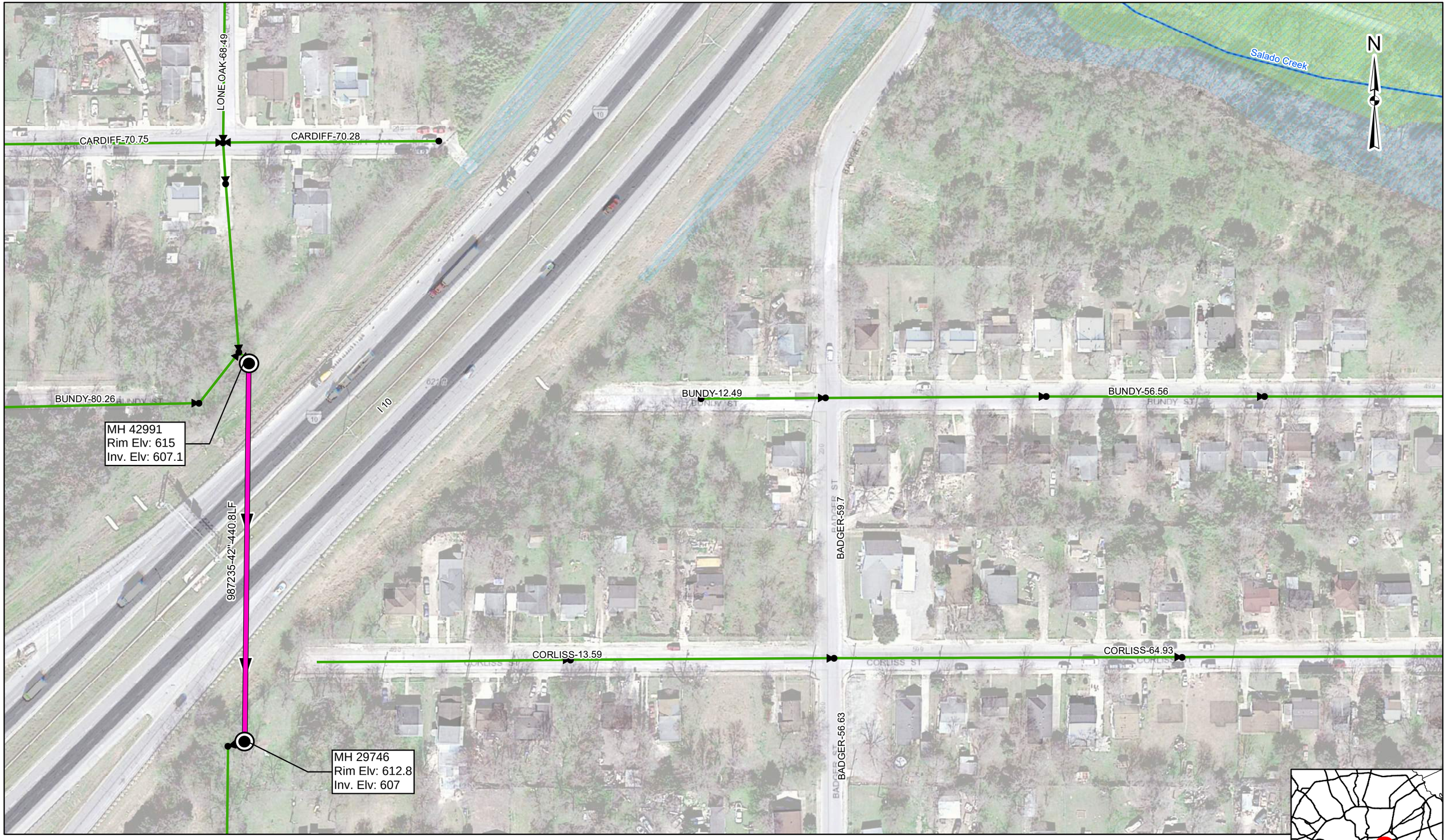

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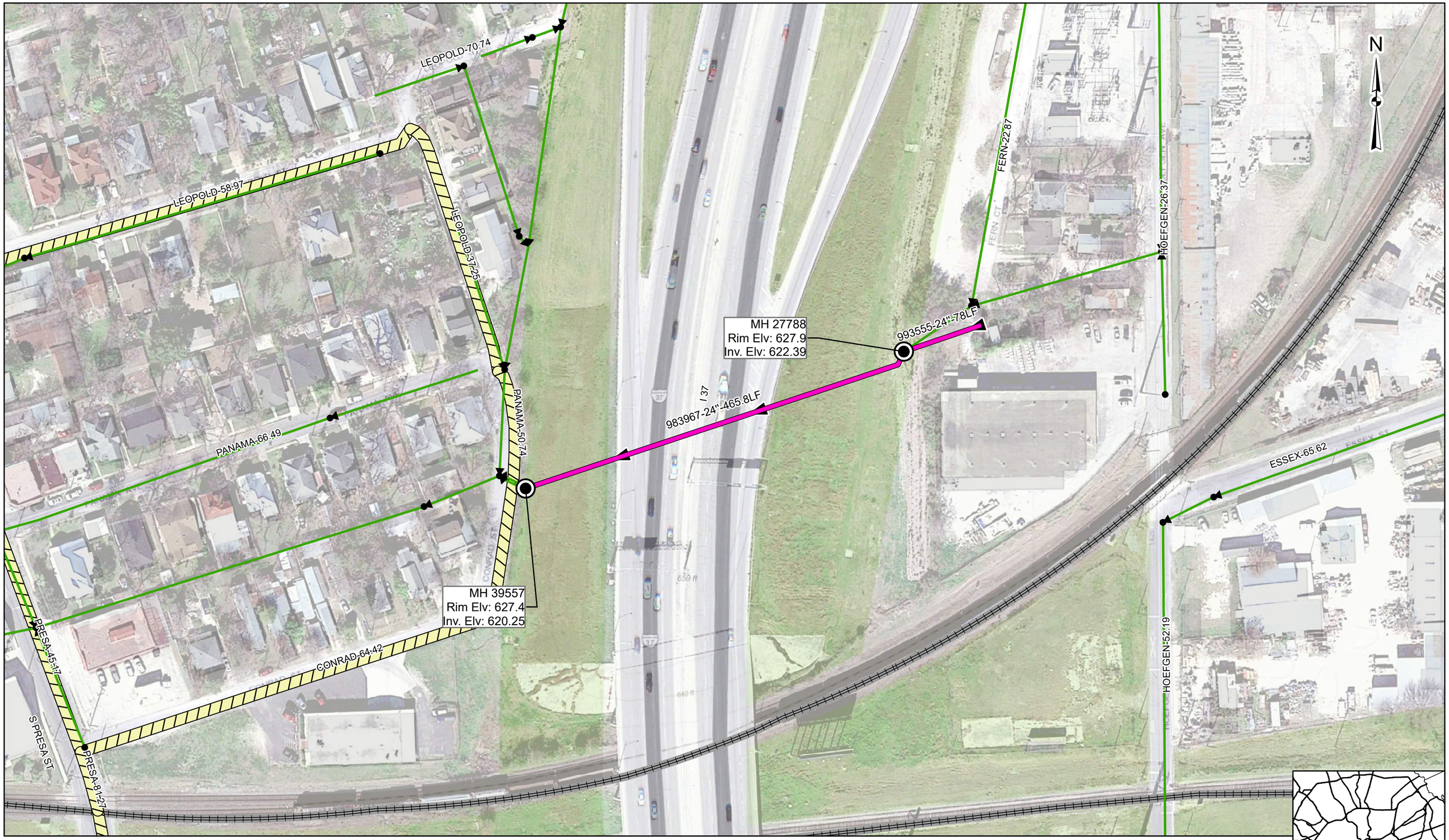

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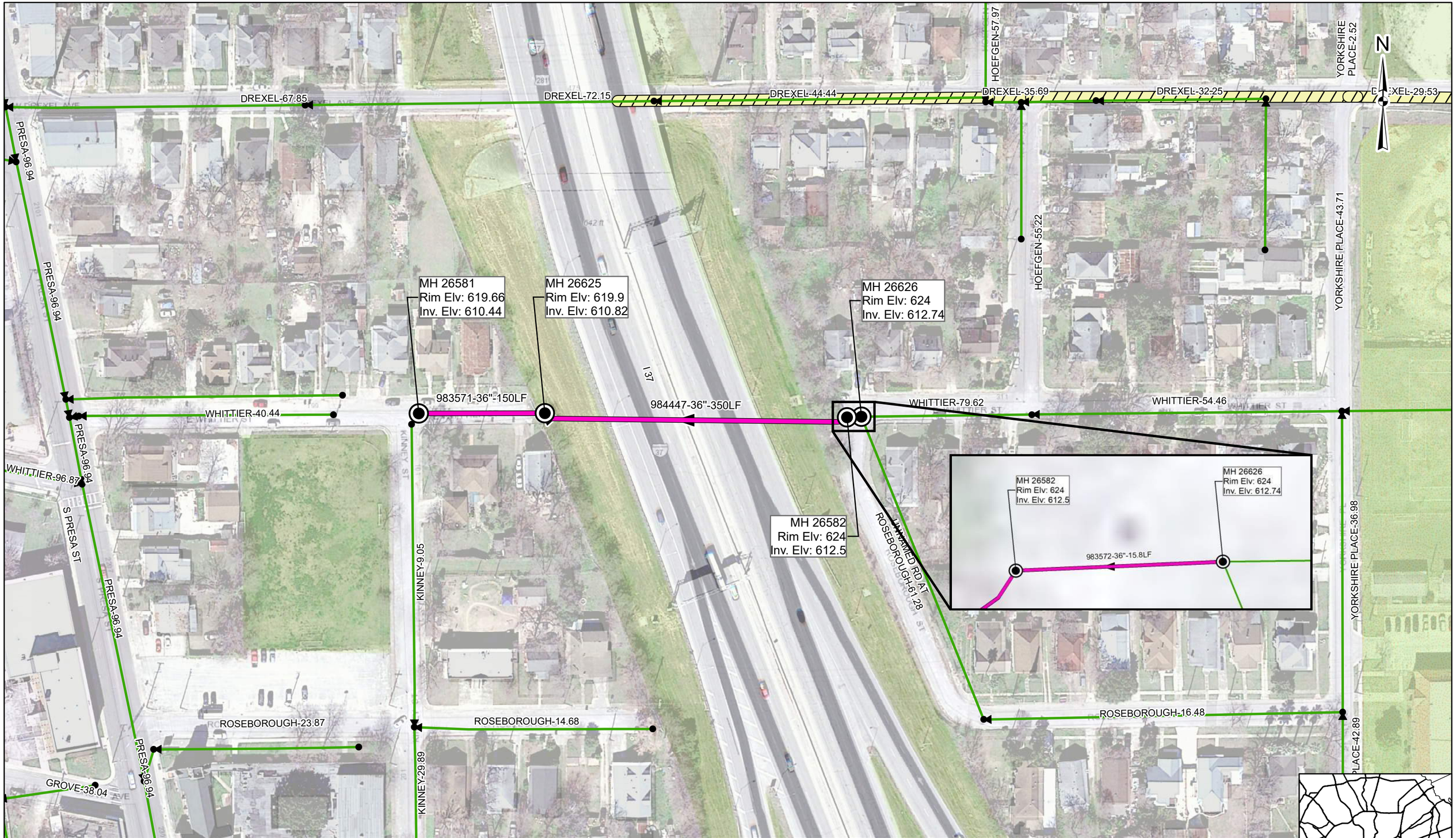

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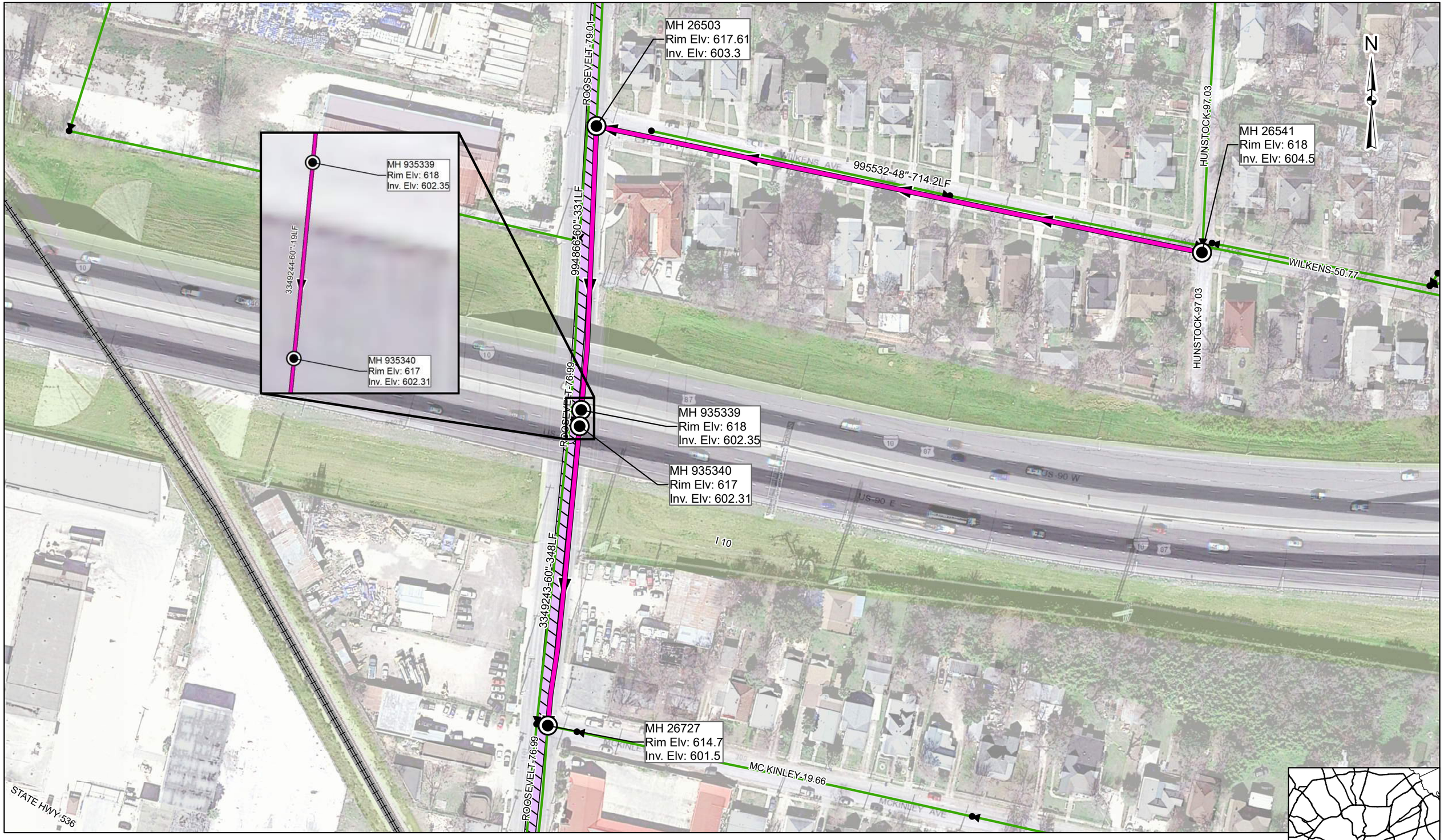

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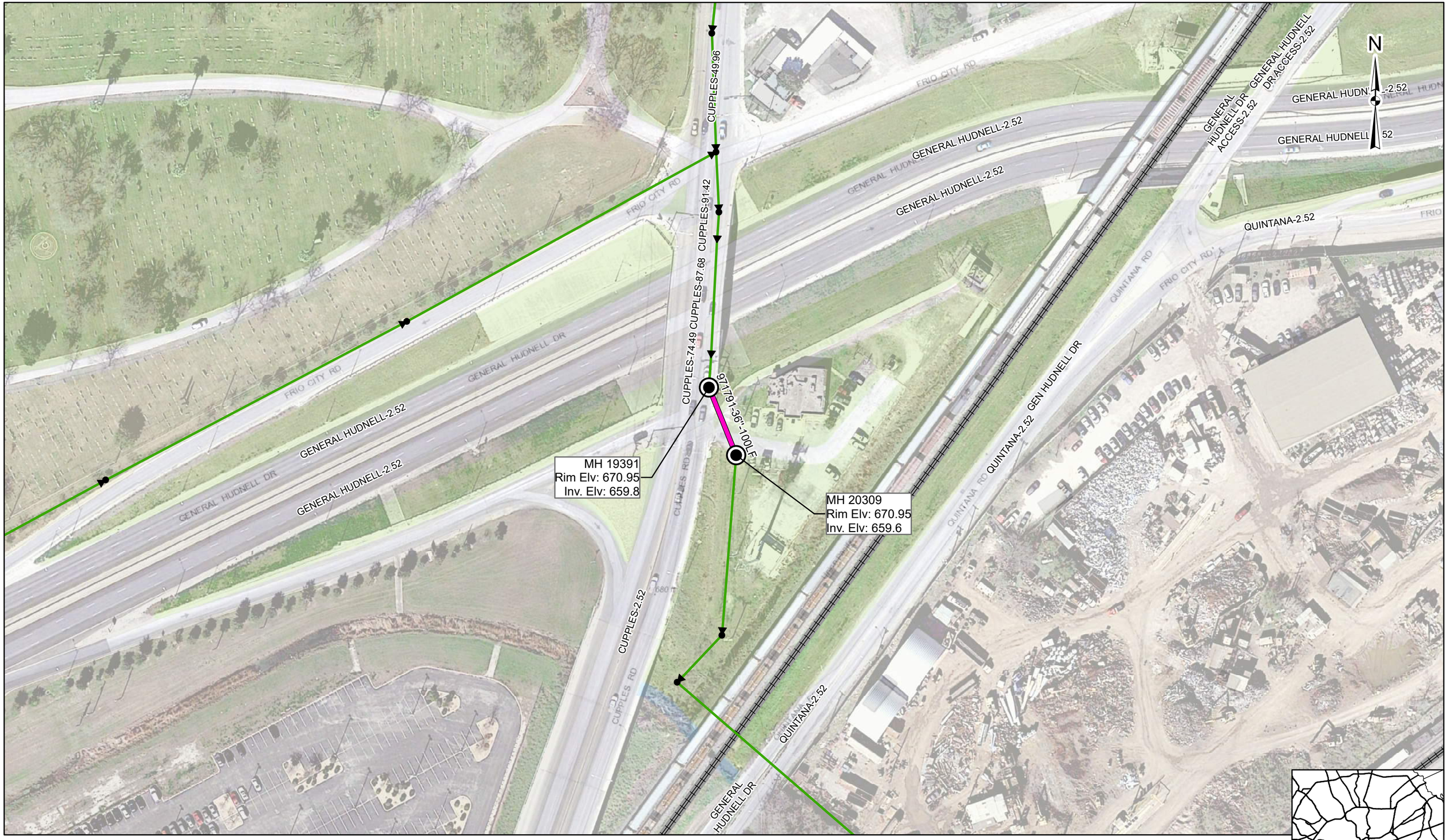

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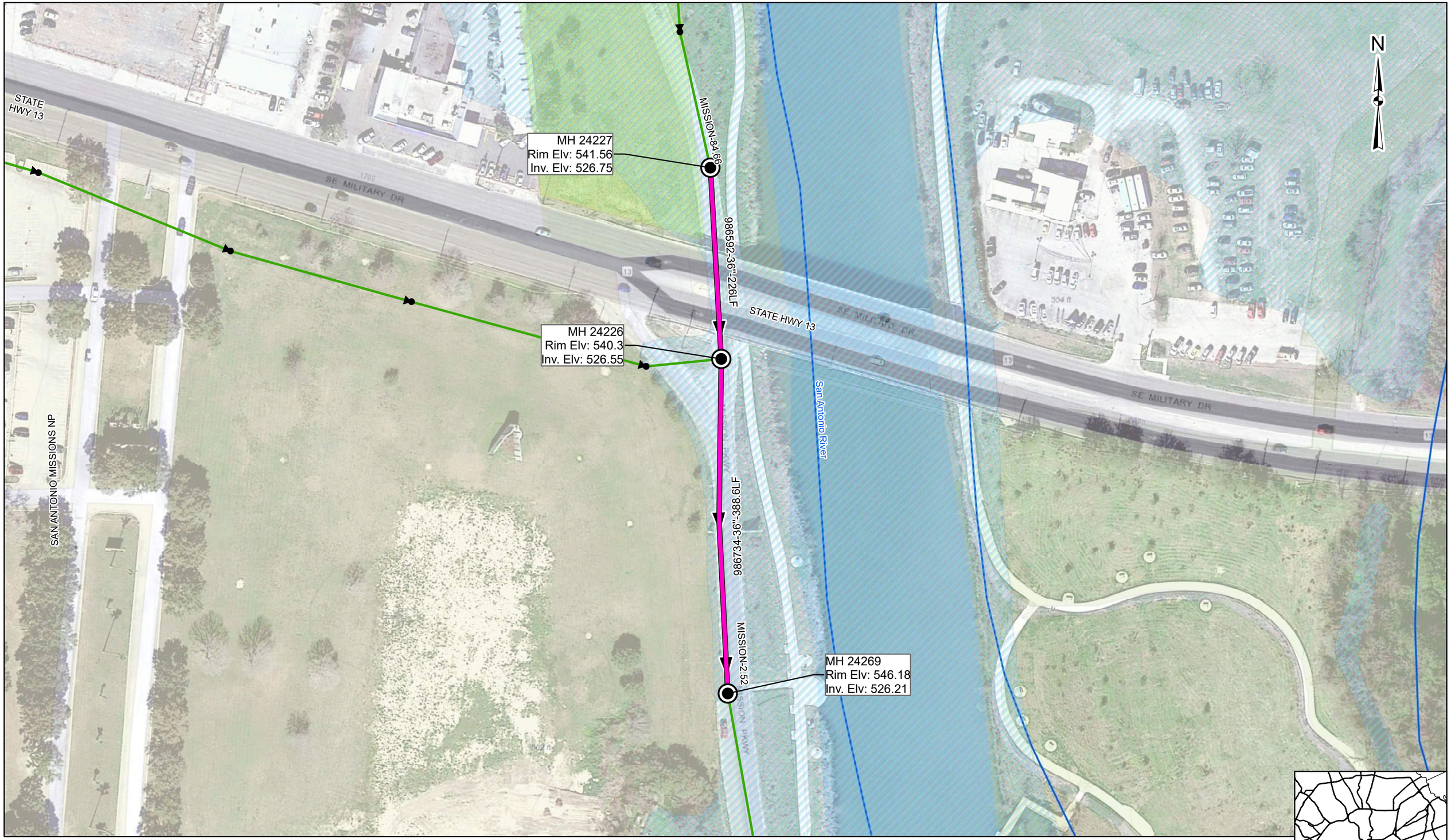

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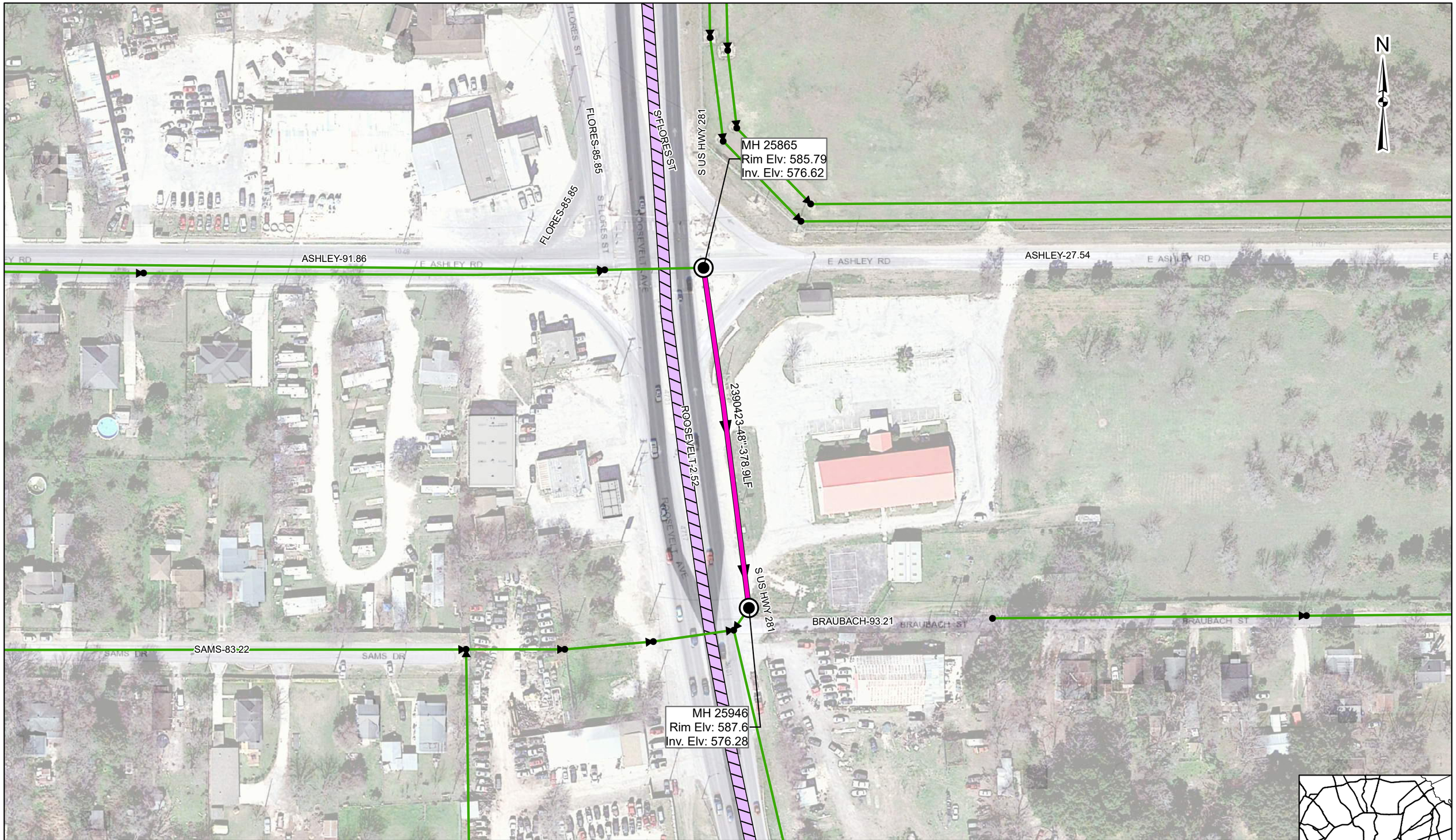

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