Houston-Beaumont Region Freight Study: 2024 Update Draft

Glidden Subdivision

November 2024

Texas Department of Transportation

Contents

1. Introduction & Background

This 2024 Update report on the Glidden Subdivision continues efforts from the Houston-Beaumont Region Freight Study prepared in 2021, which focused on identification and potential concept development for freight rail network and roadway improvement projects, and the 2024 Update in April 2024, which developed additional concepts in the region. The potential concepts reviewed within the 2024 Update are within the 11-county region with project prioritization determined through process described in Section 3 of this report and in concert with the Houston Area Region Transformation (HART) committee, which includes representatives from TxDOT, the City of Houston, Gulf Cost Rail District, Houston-Galveston Area Council (H-GAC), Class I railroads, METRO, and counties and ports within the study area.

The efforts along the Glidden Subdivision – which travels through southwest Houston, Stafford, Sugar Land, Richmond, and Rosenberg – are to define initial high-level concepts for railroad and roadway-rail improvements and determine feasibility and viability for priority locations in the corridor.

Project Background / Scope

The Houston Complex is a major hub for Union Pacific Railroad (UPRR) and BNSF Railway (BNSF) freight operations with significant yard infrastructure, connections to ports, and multiple mainlines converging within the heart of the Houston region. Impacts due to the number and length of trains, staging of those trains, and associated freight operations are felt by the public at over 2,000 roadway-rail crossings through the 11-county study area. Significant travel delays have been identified by agencies within the region that, if resolved, could result in substantial public benefits with infrastructure investments that alleviate challenges for both trains and vehicles within the Complex.

The Glidden Subdivision portion of the 2024 Update report is a continuation of ongoing planning activities from the 2021 Houston-Beaumont Region Freight Study for further evaluation of railroad operations concepts and additional critical roadway-rail crossing locations with significant public impacts from train movements. The Update report and appendices are the results from review of specific railroad design concepts to improve operations within the Houston complex and review of grade crossings for potential solutions to alleviate impacts to the traveling public from roadway-rail crossings.

The Glidden Subdivision review scope includes the following tasks:

- Grade Crossing Improvements – This focuses on identification of improvements at grade crossings along the Glidden Subdivision and development of concepts for those improvements. The improvements may include grade separations, crossing closures, and other roadway improvements.
- Railroad Operations Improvements – This scope item evaluates two potential railroad operations improvements along the Glidden Subdivision and involves a conceptual engineering review as well as Rail Traffic Controller (RTC) modeling efforts to determine anticipated benefits from each of the improvements.

- Benefit-Cost Analysis – The benefit-cost analysis (BCA) review is for up to ten improvements and includes a spreadsheet-based analysis framework that supports the evaluation of project benefits and costs based on federal guidance.
- Technical Memorandum – This item includes preparation of a memo to summarize the findings related to this scope effort.

Previous Studies

This Glidden Subdivision 2024 Update and previous 2021 report/2024 Update utilized prior studies and data from other reports prepared by TxDOT and other regional agencies. A summary of the previous reports and memos used in this study is below.

Houston Region Freight Study (2007)

The Houston Region Freight Study (2007) was developed by the Texas Department of Transportation (TxDOT) under the guidance of a regional steering committee. This study completed a needs assessment report for the stakeholders in the Houston region to address deficiencies in the Houston region's freight network (roads, ports, and railroads) and to develop ways to accommodate and capitalize on future freight movements. The report identifies $3.4 billion in improvements in four areas: grade separations, grade crossing closures, existing railroad infrastructure (improving capacity and connectivity on existing rail lines), and new railroad corridors.

Houston- Beaumont Region Freight Study (2021)

Developed to revisit and update the results from the 2007 study, the Houston-Beaumont Region Freight Study (September 2021) reviews over 2,000 grade crossings within the 11-county study area and identifies potential grade separation solutions for selected crossing locations. The Study also focused on the identification of freight rail bottlenecks within the Houston Complex and possible rail infrastructure options to alleviate congestion and improve operations through the area.

Houston- Beaumont Region Freight Study: 2024 Update (2024)

The initial 2024 Update to the Houston-Beaumont Region Freight Study (April 2024) focused on a set of grade crossings and railroad improvements in the East End of the Houston area as well as critical crossings in other locations within the region. The Update developed concepts for three railroad operations improvements and multiple grade crossings and compared the improvements with potential grant opportunities for viability.

Texas Rail Plan Update (2019)

The 2019 Texas Rail Plan Update (December 2019) was performed by TxDOT to update the 2016 State Rail Plan. It is a federally mandated document detailing the state of the rail system in Texas and opportunities for improvement and sets the direction for rail planning and project development. The Plan was developed in conjunction with the Texas Freight Mobility Plan and the Texas Transportation Plan 2040 and recommends potential short- and long-range freight and passenger projects to meet the state's identified rail needs.

2. RTC Methodology

To determine the railroad operational benefits of the potential project concepts and changes in duration of grade crossing blockages simulation modeling was used. The simulation model used in this study was Rail Traffic Controller (RTC) from Berkeley Simulation Software. RTC is used by all Class 1 railroads and is the railroad industry standard for the simulation of both passenger and freight train operations. RTC requires detailed operations and infrastructure inputs and attempts to resolve conflicts between trains in the same manner as an actual railroad dispatcher. This allows for quantification of "what-if" scenarios including increased train volumes, changes in infrastructure, and adjustments to railroad operations.

Three base cases were developed representing freight operations without any infrastructure changes in 2023, 2035, and 2045. These cases were compared to the operations after the proposed projects to determine their benefit.

RTC Model Development

The base RTC case for this study was originally built for the Houston-Beaumont Region Freight Study in 2021 with support of UPRR and BNSF. The operations for the case simulations operations in and around Houston extend close to 100 miles in each direction and were developed based on 2019 operations with UPRR's review for accuracy in representing operations in the Houston Complex. After the 2021 study, the model has been updated several times to reflect changes to operations and infrastructure and better reflect actual grade crossing blockage durations since the original development.

The RTC simulation model includes routes and operations between Victoria, Galveston, and Beaumont. A subpart of the model was used for this study to avoid results due to impacts separate from the projects in consideration. The RTC study limits for this study are listed below:

- UPRR Houston Subdivision: Heacker (376.9) to Tower 26 (360.7)
- UPRR Harrisburg Subdivision: West Junction (12.6) to T&NO Junction (4.6)
- BNSF Galveston Subdivision: Wallis (80.8) to Alvin (28.6)
- UPRR Glidden Subdivision: Glidden (89.3) to Heacker (13.8)
- Houston West Belt Subdivision: Tower 26 (232.5) to T&NO Junction (238.0)
- CPKC Rosenberg Subdivision: Rosenberg (0.0) to Louise (48.4)

Each RTC Simulation consists of a model warm-up, statistical period, and a cool-down period with only the trains that start during the statistical period included in the results. The purpose of the model warm-up and cool-down is to obtain a steady state of network operation. During the model warm-up period, trains populate the network, allowing for the trains to enter a fully populated network. The model cool-down period provides time for the trains that started during the statistical period to fully complete their simulation. For this study, each RTC case will consist of seven days, with one day of model warm-up, four simulation days, and two days of model cool-down. Ten random scenarios were performed for each case to represent a wide variety of operating conditions.

Once a simulation is complete, the model provides detailed information for each train in the statistical period. These metrics include the simulated time and distance a train traveled by node, as well as delay and train stop time. Two main metrics are considered in the study: train delay and grade crossing blockage time.

Delay is a metric that measures congestion and is defined as the difference between the pure, or minimum, train runtime and the simulated runtime. Gate Crossing Blockage Time is based on the time trains are blocking each crossing link in the model plus 20 seconds for gate activation time. The reduction in delay is evaluated to determine the potential freight operational benefits, and gate downtime is evaluated to determine benefits to the public through increased train speeds and better locations to hold trains.

Future Growth Rates

To create a model representing freight operations in 2035 and 2045, the 2023 train volumes were increased using publicly available growth rates by train type. The growth rate was assumed to be the same for each of the routes from the junctions at Rosenberg and West Junction.

The growth rates were obtained from the USDOT freight analysis framework (FAF). This source projects nationwide growth trends in rail transportation by commodity. This enables determination of train type specific growth. **Table 1** details these growth rates by type of train.

Table 1: Overall Growth Rates by Train Type

	2023-2035	2023-2045
Merchandise	26.5%	55.1%
Bulk	-13.5%	-16.3%
Intermodal	39.0%	81.2%
Auto	43.9%	89.5%

3. Grade Crossing Review Methodology

The Houston-Beaumont Region Freight Study focused on grade crossings delays based primarily on roadway traffic volumes and train volumes with the goal of eliminating delays through roadway-rail grade separations or other means. While traffic and train volumes detail delay challenges for areas of major roadway and rail lines, this methodology did not define delays at grade crossings due to slower-moving trains, yard movements, or idling trains due to operations issues.

This section reviews 39 grade crossings on the Glidden Subdivision as part of an overall approach to minimize or eliminate the impacts of vehicle delay due to trains at the grade crossings. The potential solutions at the grade crossings present opportunities for substantial benefits for both the roadway users and railroads.

Table 2 identifies roadway crossing locations for review along the Glidden Subdivision with applicable data such as train and traffic counts, while **Figure 1** shows location of the grade crossings for review.

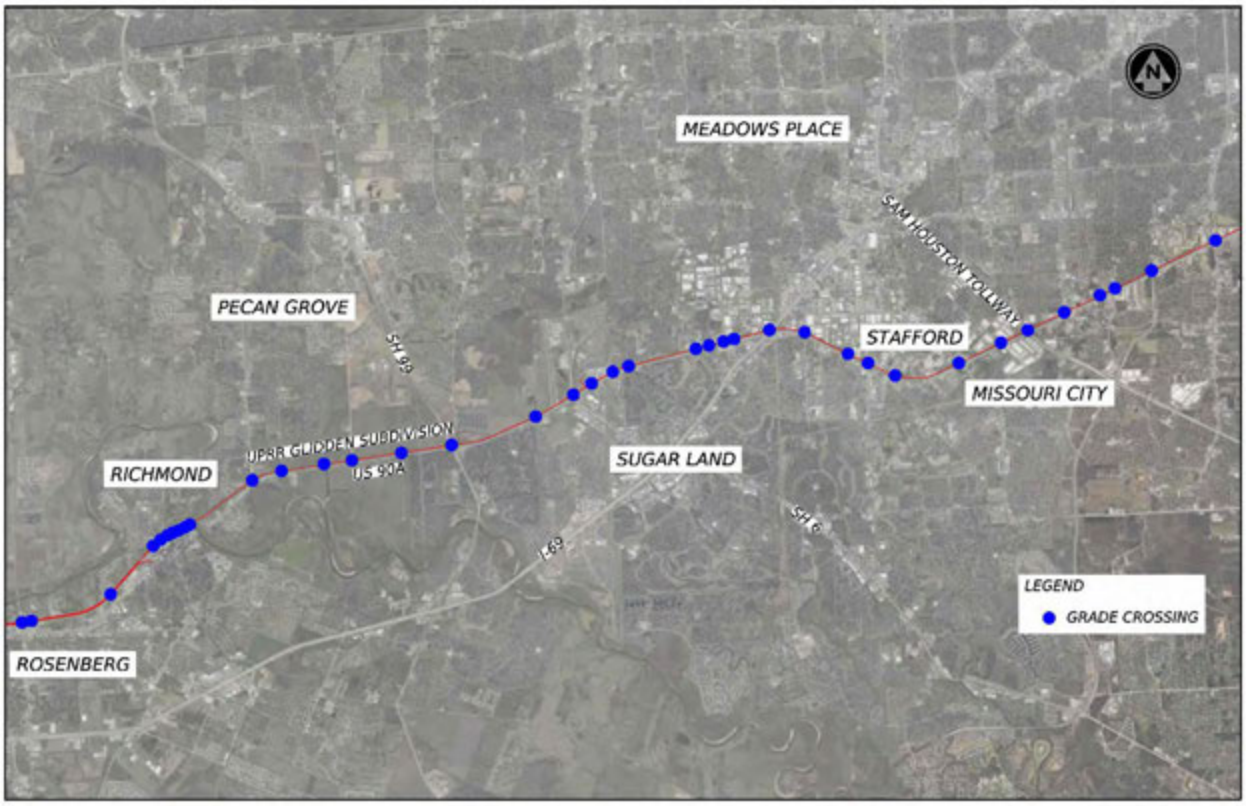
Table 2: Roadway Crossing Locations for Review

DOT #	Roadway	AADT*	# Trains
755618Y	Post Oak Rd NB Frtg	9,302	37
440652H	Post Oak Rd SB Frtg	9,354	37
755621G	Chimney Rock Rd	11,805	37
755622N	Hillcroft Ave	13,521	37
755623V	Haviland St	1,795	37
755624C	Fondren Rd	23,803	37
743688E	Cravens Rd	1,888	37
743689L	Gessner Rd	11,598	37
924006U	Stafford Rd NB Frtg	2,230	37
924007B	Stafford Rd SB Frtg	2,434	37
924008H	FM 1092/Murphy Rd NB Frtg	4,141	37
924009P	FM 1092/Murphy Rd SB Frtg	2,037	37
412514U	Promenade Blvd	3,652	37
743695P	Kirkwood Rd	12,729	37
745044J	Dairy Ashford Rd	15,978	37

743698K	Industrial Blvd	4,900	37
748393E	Schlumberger Dr	310	37
745055W	Gillingham Ln	4,865	37
743699S	FM 1876/Eldridge Rd	15,500	37
743703E	Main St	8,206	37
743704L	Brooks St	1,159	37
743706A	Ulrich St	3,616	37
743706A	Stadium Dr	8,895	37
922512N	SH 6 NB Frtg	6,836	37
922513V	SH 6 SB Frtg	6,675	37
743709V	Circle Dr	310	37
743712D	Jones Dr	1	37
743713K	Harlem Rd	7,474	37
743714S	Private	1	37
743716F	Pitts Rd	4,157	37
743719B	2nd St	5,036	37
743720V	4th St	317	37
743722J	6th St	452	37
743723R	8th St	573	37
743724X	10th St	2,471	37
743725E	Douglas St	310	37
743726L	FM 3155/Collins Rd	9,321	37
743727T	Rawson Dr	5,593	52
743731H	3rd St	6,858	52

*AADT based on FRA Grade Crossing Inventory form data as available. Jones Drive and private crossing AADT are from 1970 based on inventory form date. Stadium Drive AADT is based on closest available online data to the crossing location.

Figure 1: Map of Roadway Crossing Locations for Review



Grade Crossing Review Methodology

The TxDOT Priority Index was used as an initial step in determining the relative need and ranking of the grade crossings within the Glidden Subdivision study area. The Priority Index formula is:

$$PI = V \times T \times (S \times 0.10) \times P_f \times A^{1.15} \times 0.01$$

where:

- V = average daily traffic — number of vehicles per day
- T = number of trains in a 24-hour period
- S = speed — maximum speed of the trains
- Pf = protection factor — a factor weighted according to the type of existing traffic control device

A summary of results from the Priority Index calculations are available in **Appendix A**.

An initial review of each grade crossing in an Evaluation Matrix was conducted to determine high-level feasibility and viability. The Evaluation Matrix review included:

- Consideration of prioritization based on the TxDOT Priority Index calculations
- Consideration of existing cross-street traffic volumes over the grade crossing
- Individual review of feasibility of a grade separation over the railroad, including existing traffic movements and connectivity to existing businesses/residences
- Review of potential impact of crossing closure for each grade crossing location
- Consideration of other roadway improvements that may eliminate the at-grade crossing

Data used in the TxDOT Priority Index and Evaluation Matrix grade crossings reviews include:

- FRA databases – Crossing-specific data, such as reported crashes, traffic volumes, and other pertinent data, are downloaded and reviewed to identify any consistency between the FRA data and other data points that may further define delays or impacts at the crossing.
- Available online data – Identification of potential alternate routes for blocked crossings/active warning utilized Google Maps for distances and anticipated timeframe of route. Design of grade separations incorporated publicly available aerial photography for review of existing roadway, drainage, and utility elements as visible.
- Information from previous studies – Review of previous potential grade separations, crossing closures, and other data provided a guide for initial ideas and concepts where applicable.

A full list of data utilized in this study is included in **Appendix B**.

Grade Separations

Potential locations for conversion of at-grade crossings to cross-street grade separations at the Glidden Subdivision are reviewed as part of Section 5 of this report. In many cases the grade separation may require adjustments to US 90A, including to an at-grade section, and associated frontage road/ramp connections.

Table 3 lists the grade crossing locations within the study limits that are evaluated for a potential grade separation. Further details on the potential grade separation concepts are in Section 5.

Table 3: Potential Grade Separation Locations for Review

DOT #	Roadway	AADT*	# Trains
755621G	Chimney Rock Rd	11,805	37
755622N	Hillcroft Ave	13,521	37
755624C	Fondren Rd	23,803	37
743689L	Gessner Rd	11,598	37
743695P	Kirkwood Rd	12,729	37
745044J	Dairy Ashford Rd	15,978	37
748939E	Schlumberger Drive	310	37
743699S	FM 1876/Eldridge Rd	15,500	37
743703E	Main St	8,206	37
743706A	Stadium Dr	8,895	37
922512N	SH 6 NB Frtg	6,836	37
922513V	SH 6 SB Frtg	6,675	37
743713K	Harlem Rd	7,474	37
743716F	Pitts Rd	4,157	37
743719B	2nd St	5,036	37
743724X	10th St	2,471	37
743726L	FM 3155/Collins Rd	9,321	37
743727T	Rawson Dr	5,593	52

Crossing Closures

Review of potential crossing closure locations associated with existing or potential grade separations is included within Section 5 of the report. Crossing closures were identified at grade crossings within the study area with lower traffic volumes and alternate grade-separated travel routes across the Glidden Subdivision.

Table 4 details the potential crossing closure locations along the Glidden Subdivision as part of the report evaluation. Additional information on these locations is in Section 5.

Table 4: Potential Crossing Closure Locations for Review

DOT #	Roadway	AADT*	# Trains
755623V	Haviland St	1,795	37
743688E	Cravens Rd	1,888	37
412514U	Promenade Blvd	3,652	37
743698K	Industrial Blvd	4,900	37
745055W	Gillingham Lane	4,865	37
743704L	Brooks St	1,159	37
743706A	Ulrich St	3,616	37
743709V	Circle Dr	310	37
743712D	Jones Dr	1	37
743714S	Private	1	37
743720V	4th St	317	37
743722J	6th St	452	37
743723R	8th St	573	37
743725E	Douglas St	310	37
743731H	3rd St	6,838	52

Remaining Crossings

Crossings that were not reviewed as a potential grade separation or crossing closure are included in **Table 5** below. These locations have apparent fatal flaws for grade separation/crossing closure consideration with further discussion on those fatal flaws in this section.

Table 5: Crossings Not Reviewed as Grade Separation/Crossing Closure Candidates

DOT #	Roadway	AADT*	# Trains
755618Y	Post Oak Rd NB Frtg	9,302	37
440652H	Post Oak Rd SB Frtg	9,354	37
924006U	Stafford Rd NB Frtg	2,230	37
924007B	Stafford Rd SB Frtg	2,434	37
924008H	FM 1092/Murphy Rd NB Frtg	4,141	37
924009P	FM 1092/Murphy Rd SB Frtg	2,037	37

Post Oak Road NB and SB Frontage Roads at UPRR Glidden Subdivision (DOTs# 755618Y/440652H)

Post Oak Road NB and SB Frontage Roads are one-way, two-lane roadways with an at-grade crossing across the UPRR Glidden Subdivision in southwest Houston. US 90A is adjacent to the railroad corridor south of the tracks with an overpass for US 90A mainlanes and at-grade frontage roads connecting to the Post Oak Road NB and SB Frontage Roads. Additionally, Post Oak Road mainlanes also are grade-separated over the railroad tracks and at-grade intersection. Businesses along the EB US 90A frontage road near the Post Oak Road NB and SB Frontage Roads intersection use these at-grade connections for access.

A grade separation was determined to be fatally flawed due to the existing Post Oak Road mainlanes grade separation and required at-grade access/connectivity to US 90A via its frontage roads. A crossing closure was not considered due to traffic volumes higher than a typical closure.

Stafford Road NB and SB Frontage Roads at UPRR Glidden Subdivision (DOTs# 924006U/924007B)

The Stafford Road NB and SB Frontage Roads roadway-rail grade crossings are in Stafford with an existing section for each roadway consisting of two one-way roadway lanes. US 90A is parallel to the railroad corridor south of the at-grade crossing connecting at grade with Stafford Road NB and SB Frontage Roads. Stafford Road mainlanes are also grade-separated under the railroad tracks and at-grade intersection. Existing businesses connect to US 90A near the Stafford Road NB and SB Frontage Road intersection area.

A grade separation was determined to be fatally flawed due to the existing Stafford Road mainlanes grade separation and required at-grade access/connectivity to US 90A. A crossing closure was not considered due to traffic volumes higher than a typical closure.

FM 1092/Murphy Road NB and SB Frontage Roads at UPRR Glidden Subdivision (DOTs# 924008H/924009P)

FM 1092/Murphy Road NB and SB Frontage Roads are one-way, two- and four-lane roadways (respectively) with an at-grade crossing across the UPRR Glidden Subdivision in Stafford. US 90A is

adjacent to the railroad corridor south of the tracks with an at-grade intersection connecting to the FM 1092/Murphy Road NB and SB Frontage Roads. Additionally, FM 1092/Murphy Road mainlanes are grade-separated under the railroad tracks and at-grade intersection. Businesses along the WB and EB US 90A lanes near the FM 1092/Murphy Road NB and SB Frontage Roads intersection use these at-grade connections for access.

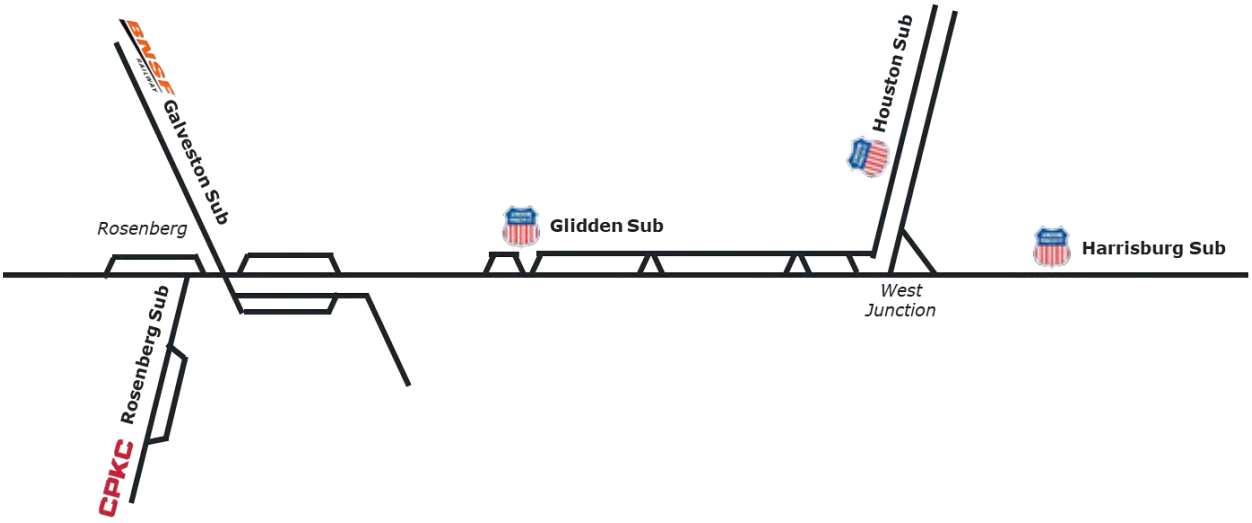
A grade separation was determined to be fatally flawed due to the existing FM 1092/Murphy Road mainlanes grade separation and required at-grade access/connectivity to US 90A. A crossing closure was not considered due to traffic volumes higher than a typical closure.

4. Railroad Operations Improvements

The UPRR Glidden Subdivision connects with the BNSF Galveston Subdivision and CPKC Rosenberg Subdivision at Rosenberg. From these junctions at Rosenberg to West Junction the three railroads operate between 30 to 35 trains per day with trains traveling to and from destinations within the Houston Complex, to and from Mexico, and throughout the United States. **Figure 2** details the track connections and single-/double-track sections along the Glidden Subdivision from Rosenberg to West Junction.

The train volumes have the potential to impact not only railroad efficiency but the public due to slower train speeds at pinch points in the network and longer wait times for goods to arrive at their destinations. This section provides a review of potential railroad operational improvements along the Glidden Subdivision from an engineering and modeling perspective and defines conceptual track design and order-of-magnitude cost estimates to implement these improvements.

Figure 2: Glidden Subdivision and Track Connections



Identification of Potential Projects

Approximately 19.8 of the 23.6 miles between Rosenberg and West Junction is a double-track section with two single-track sections of 3.4 miles and 0.4 miles within these limits. These single-track segments require trains to wait if there is another train traveling in the opposite direction. In addition, the route has a high density of grade crossings with 37 crossings. Since freight trains attempt to avoid blocking crossings for extended periods of time, trains are limited in locations to stop and can result in trains holding 15 miles or more from the single-track segments.

To reduce freight train delays and blocked crossings, three projects were initially considered:

- Second track between Richmond Siding and Harlem Siding (3.4 miles) on the UPRR Glidden Subdivision.
- Second track across SH 99 (0.4 miles) on the UPRR Glidden Subdivision.

These projects will shorten or eliminate the single-track bottlenecks allowing for trains to operate on the segment with little or no delays. Due to the high volume of grade crossings, adding a second track will allow trains to not need to hold within the Houston Rail Complex, freeing track capacity to that will increase fluidity of operations.

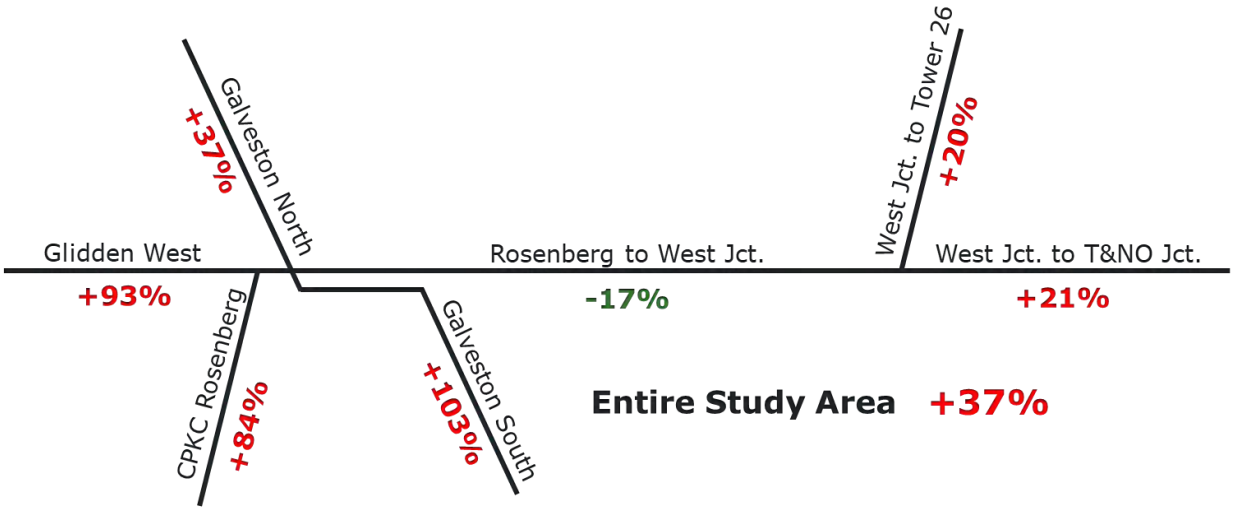
- Moore Bar Siding on the BNSF Galveston Subdivision.

A third project was considered on the BNSF Galveston Subdivision north of Rosenberg (3 miles). Eastbound trains from the BNSF Galveston Subdivision that connect onto UPRR Glidden Subdivision can be delayed waiting for an available slot in the traffic, or westbound BNSF trains on the UPRR Glidden Subdivision can be delayed waiting to get on the BNSF Galveston Subdivision. This results in trains blocking traffic on either subdivision. By providing a siding, trains can hold and wait to travel on the UPRR Glidden Subdivision without blocking other traffic.

RTC Modeling Results and Discussion

As train volumes increase in Houston the congestion and delays will increase. In 2045 the additional train volumes increased delays by 37% within the study area. Delays on the key segment from Rosenberg to West Junction decreased due to the inability to hold trains for trains meets and staging with the higher volumes. However, all the segments adjacent to the Rosenberg to West Junction segment saw significant increases. **Figure 3** details this change in delay between the two study years.

Figure 3: Change in Delay by Key Segments between 2024 and 2045

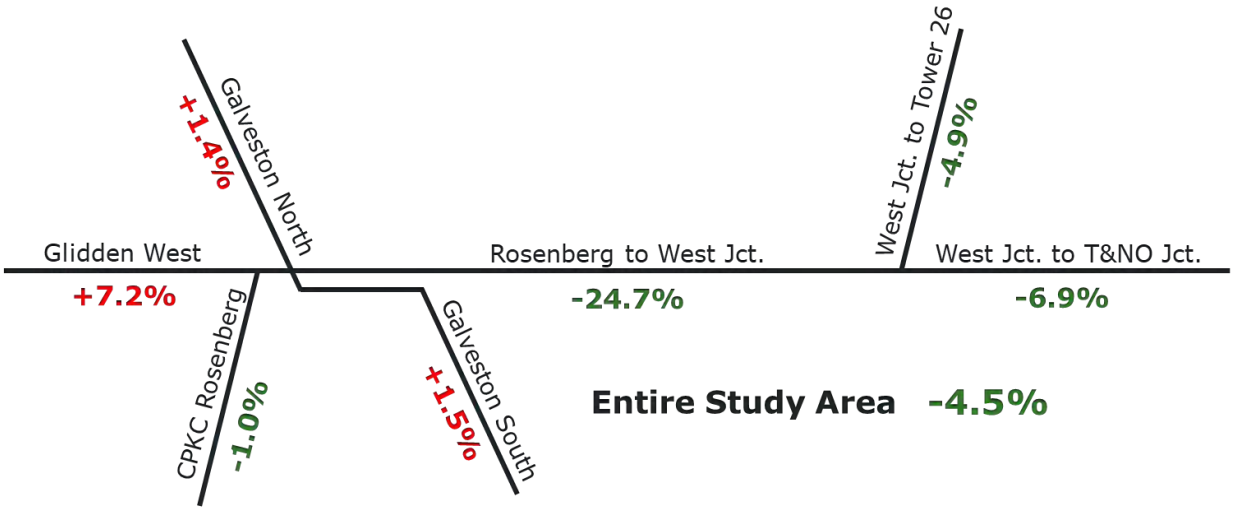


SH 99 Second Track

Adding a second track across SH 99 extends the existing double-track segment between West Junction and SH 99 by 2.7 miles. This will shorten the time trains are holding for the single track and increases capacity. However, west of SH 99 there is an existing siding that can be used to hold trains clear of other traffic and to meet trains if required. While a second track is better for the railroad operations, the potential benefit is muted by the current use of the siding.

The project reduces delays within the study area by 4.5%. The biggest reduction is on the key segment between Rosenberg and West Junction, where the delay was reduced by 24.7%. However, a portion of the improvement is due to some of the delays being shifted off to the Glidden to Rosenberg segment. This is the result of Harlem Siding, which had been a good location to stage a train, no longer being available for that purpose since it is part of the double-track section. The two BNSF Galveston Subdivision segments (Galveston North and Galveston South) saw slight increases in delay due to the project. The loss of holding location at Harlem results in some trains holding on the BNSF track instead of at Harlem. **Figure 4** shows the change in delay for this project in 2045.

Figure 4: Change in Delay in Adjacent Segments from SH 99 Double Track in 2045



The project reduces grade crossing blockages from Rosenberg to West Junction and Galveston North with an overall reduction of 20.3 hours per day within the study area. The largest changes in blockage time are at Easton Avenue (743709V), located immediately to the east of the existing single-track section at SH 99, and Harlem Road (743713K), located within the existing Harlem Siding. The project shifts the location where trains hold for the single track between Richmond and Harlem to the west as well as the corresponding delays. However, the increased fluidity and shorter single-track segment reduces the overall blockage time within the study area. **Table 6** details the change in delay for select crossings.

Table 6: Crossings with a Change of Greater than One Hour in Delay Minutes per Day in Blockage Time per Day with SH 99 Second Track in 2045

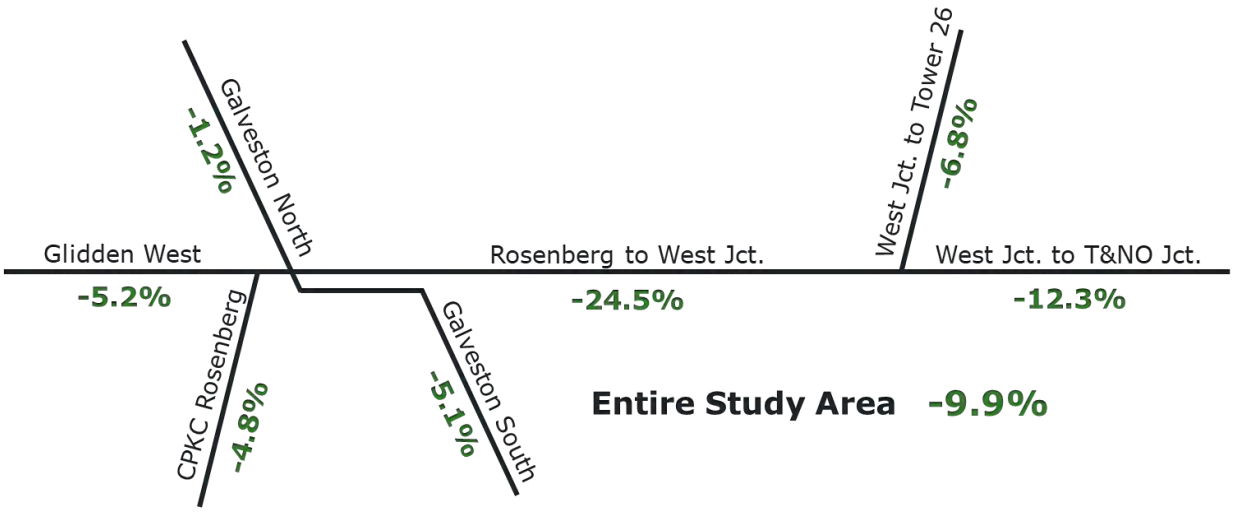
DOT #	Segment	Roadway	Change in Min of Delay
743709V	Rosenberg to West Jct	Easton Ave	-310
922513V	Rosenberg to West Jct	SH 6 SB Frontage Rd	-102
022719K	Galveston North	2nd St	-97
022693K	Galveston North	3rd St	-90
022718D	Galveston North	10th St	-82
743731H	Rosenberg to West Jct	3rd St	-80
441027B	Rosenberg to West Jct	University Blvd	-72
922512N	Rosenberg to West Jct	SH 6 NB Frontage Rd	-71
743703E	Rosenberg to West Jct	Main St	-63
743713K	Rosenberg to West Jct	Harlem Rd	+156

Harlem to Richmond Second Track

Connecting the west end of Harlem Siding to the east end of Richmond Siding with a second track adds 3.4 miles of new double-track section. This leaves only one segment of single track from Rosenberg to West Junction at SH 99. The project allows the trains to avoid being delayed on either end for the remaining single-track section. On the west end this reduces delays on the BNSF Galveston Subdivision, CPKC Rosenberg Subdivision, and UPRR Glidden Subdivision west of Rosenberg as well as greatly reducing the delays between Rosenberg and West Junction. Due to the high number of crossings between Rosenberg and West Junction, adding the second track reduces the frequency and duration of trains holding across crossings for the single-track constraint.

Adding a second track between Harlem and Richmond, instead of at SH 99, provides nearly twice as much reducing in delay. The project reduces delays within the study area by 9.9%. While the reduction on the key segment between Rosenberg and West Junction was slightly less to the benefit with the SH 99 Second Track (-24.5% vs. -24.7%), with the Harlem to Richmond Second Track all the segments saw reductions in delay. This indicates that this project does not shift delays and increases fluidity of the study area. **Figure 5** shows the change in delay for this project in 2045.

Figure 5: Change in Delay in Adjacent Segments from Harlem to Richmond Second Track in 2045



The project reduces grade crossing blockages from Rosenberg to West Junction and Galveston North with an overall reduction of 24.3 hours per day within the study area. The crossing with the greatest reduction in delay is Harlem Road, the same crossing with the largest increase with the SH 99 Second Track project. The large reduction in delays due to the single track reduce the length of time trains are holding for the single-track segment. Three crossings (743731H, 743719B, 743726L) saw increased blockages due to delays being shifted to the west. Trains that used to hold at Harlem Siding are now able to continue westward with fewer delays and now are delayed at Rosenberg waiting for delays on the single-track CPKC Rosenberg, BNSF Galveston, and UPRR Glidden Subdivisions. **Table 7** details the change in delay for select crossings.

Table 7: Crossings with a Change of Greater than One Hour in Delay Minutes per Day in Blockage Time per Day with Richmond to Harlem Second Track in 2045

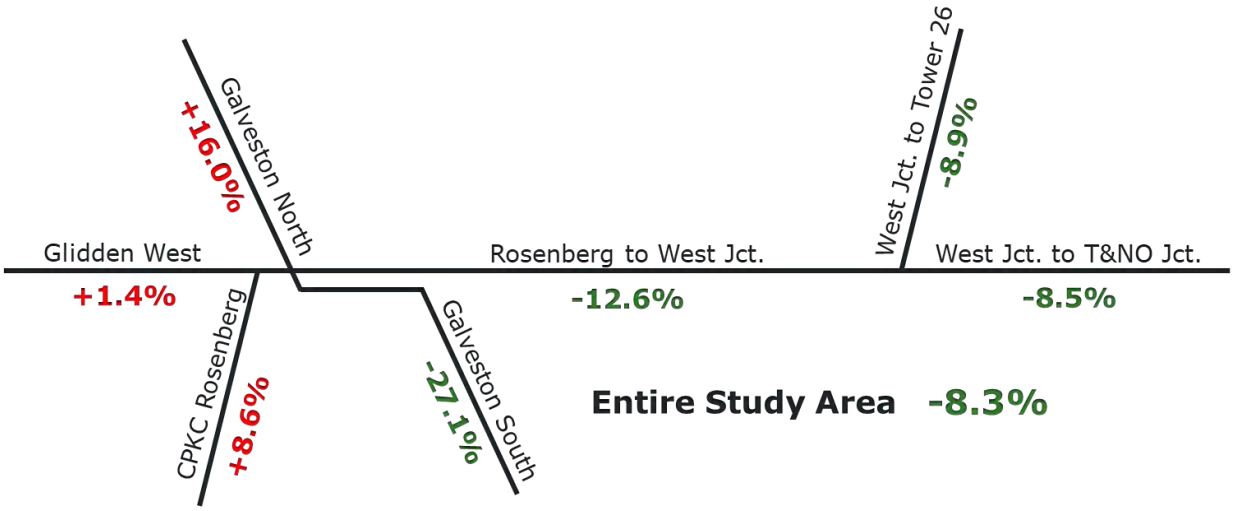
DOT #	Segment	Roadway	Change in Min of Delay
743713K	Rosenberg to West Jct	Harlem Rd	-314
743727T	Rosenberg to West Jct	Rawson Rd	-186
743709V	Rosenberg to West Jct	Easton Ave	-105
922513V	Rosenberg to West Jct	SH 6 SB Frontage Rd	-83
022688N	Galveston North	Rawson Rd	-69
743703E	Rosenberg to West Jct	Main St	-67
441027B	Rosenberg to West Jct	University Blvd	-63
022695Y	Galveston North	Walnut Ave	-61
743731H	Rosenberg to West Jct	3rd St	+67
743719B	Rosenberg to West Jct	Second St	+84
743726L	Rosenberg to West Jct	FM 3155/Collins Rd	+86

Moore Bar Siding

Adding a siding immediately north of Rosenberg on the BNSF Galveston Subdivision provides a location for a BNSF train to either hold waiting to get on the UPRR Glidden Subdivision or enable to train to exit the UPRR Glidden Subdivision, keeping both subdivisions clear of other train traffic.

The siding provides greater benefits than the SH 99 Second Track (-8.3% vs. -4.5%) but less than the Richmond to Harlem Second Track (-8.3% vs. -9.9%). By providing a location to hold trains north of Rosenberg, the delays on the Galveston North segment increase, but these result in a large reduction in delays to the Galveston South segment. While there is benefit east of Rosenberg, the project does not provide any benefit – and some increased delay – west of Rosenberg (Glidden West and CPKC Rosenberg). **Figure 6** shows the change in delay for this project in 2045.

Figure 6: Change in Delay in Adjacent Segments from Moore Bar Siding in 2045



The project reduces grade crossing blockages with an overall reduction of 16.7 hours per day within the study area. This project changes grade crossings blockages differently than the two projects between Rosenberg and West Junction. The siding reduces grade crossing blockages on the West Junction to Tower 26 segment and the Galveston South segment by providing an alternative location to hold trains. However, this results in increased blockages of crossings within and adjacent to the siding on the Galveston North segment. A grade separation, coupled with grade crossing closures and consolidations as part of the project, would reduce these potential increases. **Table 8** details the change in delay for select crossings.

Table 8: Crossings with a Change of Greater than One Hour in Delay Minutes per Day in Blockage Time per Day with Moore Bar Siding in 2045

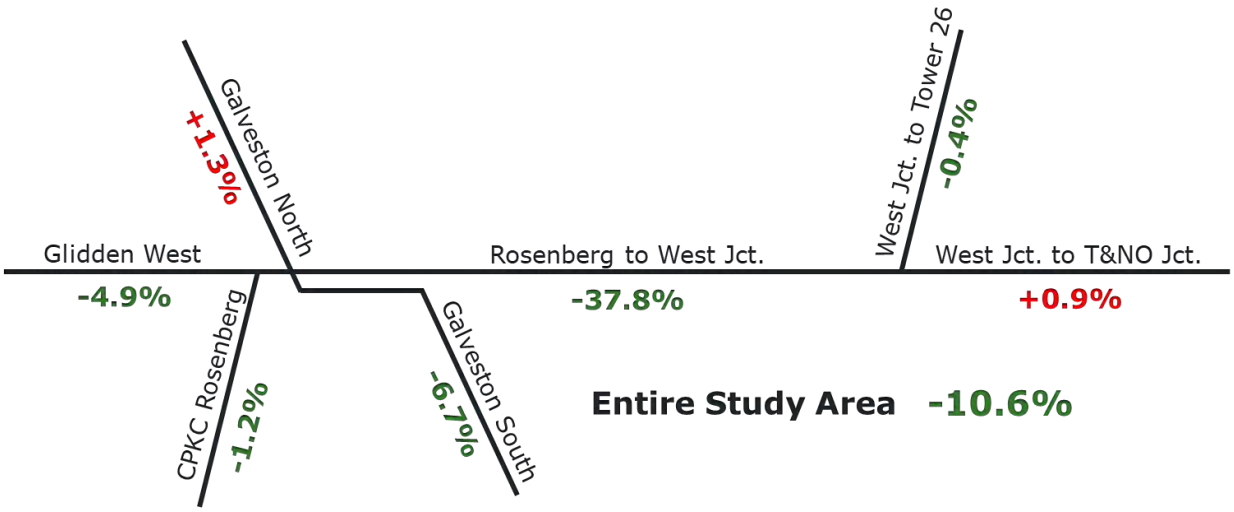
DOT #	Segment	Roadway	Change in Min of Delay
022693K	Galveston North	3rd St	-753
743731H	Rosenberg to West Jct.	3rd St	-181
912021M	West Jct. to Tower 26	I-610 WB Frontage	-99
758535V	West Jct. to Tower 26	Parker St	-77
758534N	West Jct. to Tower 26	N Shepherd Dr	-756
022673Y	Galveston South	Royal Lakes Blvd	-76
758533G	West Jct. to Tower 26	Durham Dr	-71
022684L	Galveston South	Lamar St	-66
022674F	Galveston South	Nelson Ln	-65
758521M	West Jct. to Tower 26	Braeswood Blvd	63
022695Y	Galveston North	Walnut Ave	84
022719K	Galveston North	2nd St	95
022718D	Galveston North	10th St	153
022698U	Galveston North	Moore Rd	311

SH 99 to Harlem to Richmond Second Track (combination of first and second improvements)

Completing both the SH 99 and Richmond Siding Second Track projects provides a second track between Rosenberg and West Junction and eliminates any delays for trains holding for meets on the segment. There are still delays for trains waiting to travel west onto the single-track UPPR Glidden Subdivision, BNSF Galveston Subdivision, and CPKC Rosenberg Subdivision. The project also adds a crossover at milepost 29.7 that was not included in each project individually.

The combination of SH 99 and Harlem to Richmond Second Track projects provides a small improvement to the overall delays as compared to the individual projects but a much larger benefit to the Rosenberg to West Junction segment. By completing the second track trains no longer are holding anywhere on Rosenberg to West Junction segment for delays due to single track. **Figure 7** shows the change in delay for this project in 2045.

Figure 7: Change in Delay in Adjacent Segments from SH 99 Second Track and Harlem to Richmond Second Track in 2045



The project reduces grade crossing blockages from Rosenberg to West Junction and Galveston South with an overall reduction of 31.8 hours per day within the study area. Crossings along the Rosenberg to West Junction segment saw significant improvements due to the fewer number of trains holding for single track delays. The increased fluidity on the Galveston South segment also resulted in lower delays due to the project for crossings within Booth Siding. **Table 9** details the change in delay for select crossings.

Table 9: Crossings with a Change of Greater than One Hour in Delay Minutes per Day in Blockage Time per Day in 2045 with SH 99 Second Track and Harlem to Richmond Second Track in 2045

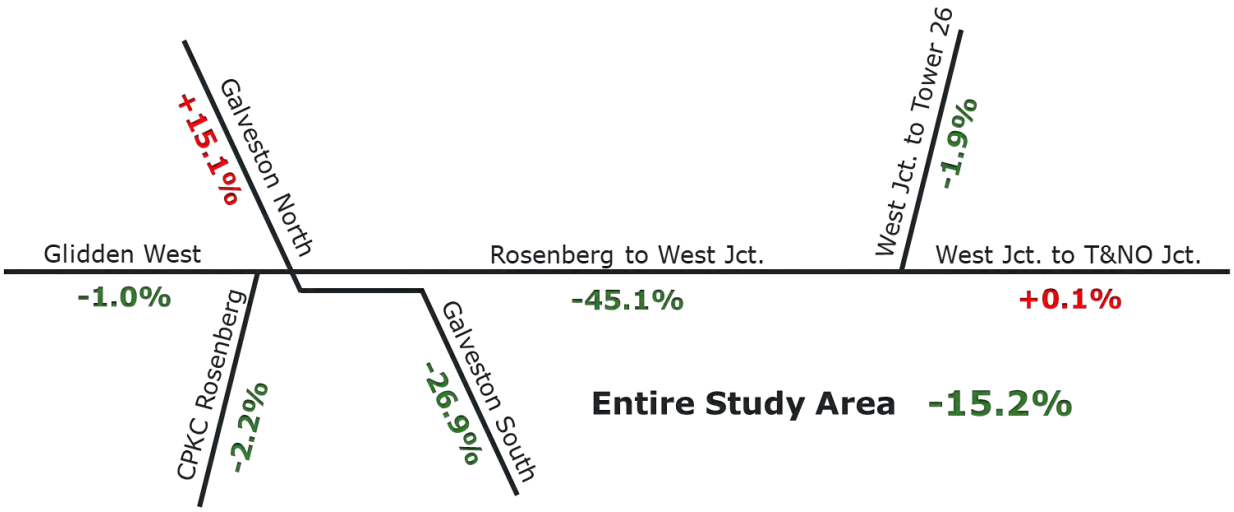
DOT #	Segment	Roadway	Change in Min of Delay
743713K	Rosenberg to West Jct.	Harlem Rd	-446
743709V	Rosenberg to West Jct.	Easton Ave	-326
743727T	Rosenberg to West Jct.	Rawson Rd	-242
922513V	Rosenberg to West Jct.	SH 6 SB Frontage Rd	-109
022673Y	Galveston South	Royal Lakes Blvd	-102
441027B	Rosenberg to West Jct.	University Blvd	-71
743703E	Rosenberg to West Jct.	Main St	-70
022674F	Galveston South	Nelson Ln	-69
743716F	Rosenberg to West Jct.	Pitts Rd	-69
922512N	Rosenberg to West Jct.	SH 6 NB Frontage Rd	-69

SH 99 to Richmond Siding Second Track and Moore Bar Siding (combination of all three improvements)

Adding the Moore Bar Siding to the entire second track between Rosenberg and West Junction reduces delays by decreasing the BNSF trains holding to exit the corridor and the traffic on the BNSF Galveston Subdivision.

The combination of the project reduces delays within the study area by over 15% and on the heavily traveled Rosenberg to West Junction segment by over 45%. Moore Bar Siding results in an increase in delay on the Galveston North segment as trains that previously held on the Rosenberg to West Junction and Galveston South segments hold in the new siding. The net benefit of the siding to the projects as compared to the two second-track projects is significant. The siding alone provided the least benefit as it did not resolve the key single-track bottlenecks on the Rosenberg to West Junction segment. However, once those bottlenecks are removed the largest delays are due to trains waiting to get on and off the BNSF Galveston Subdivision, delaying both traffic on the UPRR Glidden and BNSF Galveston Subdivisions. **Figure 8** shows the change in delay for this project in 2045.

Figure 8: Change in Delay in Adjacent Segments from SH 99 Second Track and Harlem to Richmond Second Track in 2045



The project reduces grade crossing blockages within the study area by 48.6 hours per day. Crossings along the Rosenberg to West Junction segment, with a number in the town of Richmond, saw significant improvements due to the fewer number of trains holding for single track delays. The Moore Bar Siding reduced grade crossings blockages an additional 16.8 hours, similar when the project was evaluated alone. The second-track projects and Moore Bar Siding address delays at other locations and provide strong synergies to reducing grade crossing blockages within the area. A few crossings saw some increase in blockage immediately to the east of the junction at Rosenberg on the Glidden Subdivision and within the proposed siding on the BNSF Galveston Subdivision. **Table 10** details the change in delay for select crossings.

Table 10: Crossings with a Change of Greater than One Hour in Delay Minutes per Day in Blockage Time per Day in 2045 with SH 99 Second Track and Harlem to Richmond Second Track in 2045

DOT #	Segment	Roadway	Change in Min of Delay
022693K	Galveston North	3rd St	-763
743713K	Rosenberg to West Jct	Harlem Rd	-449
743709V	Rosenberg to West Jct	Easton Ave	-323
743727T	Rosenberg to West Jct	Rawson Rd	-246
922513V	Rosenberg to West Jct	SH 6 SB Frontage Rd	-109
022674F	Galveston South	Nelson Ln	-79
441027B	Rosenberg to West Jct	University Blvd	-74
743724X	Rosenberg to West Jct	Tenth St	-73
743716F	Rosenberg to West Jct	Pitts Rd	-72
743723R	Rosenberg to West Jct	8th St	-71
743722J	Rosenberg to West Jct	6th St	-70
922512N	Rosenberg to West Jct	SH 6 NB Frontage Rd	-70
743703E	Rosenberg to West Jct	Main St	-69
022684L	Galveston North	Lamar St	-67
758532A	West Jct to Tower 26	Roy St	-62
022721L	Galveston North	Legion Rd	-62
743731H	Rosenberg to West Jct	3rd St	68
022698U	Galveston North	Moore Rd	313

Design Considerations

Design considerations for the railroad operations improvements include:

- Existing track and structures are anticipated to remain with proposed/new track and structures constructed adjacent to existing track. Review of the condition of existing track and structures

is not part of this report's scope and would need to be confirmed by the owning railroad if design progresses.

- Potential railroad improvements follow *UPRR-BNSF Guidelines for Railroad Grade Separation Projects*, public projects manuals, and design standards as applicable in this concept review.
- Survey information is not available at this concept design stage. Railroad concepts are based on USGS profile data and available Google aerial photography for design concept review.
- High-level fatal-flaw reviews were conducted for drainage, utilities, and environmental constraints to identify any major concerns with the concept that may significantly increase cost or not meet railroad requirements.

Railroad Operations Concepts

The two potential railroad improvements were moved forward from RTC modeling results and reviewed for feasibility, operations, potential design challenges, and anticipated order-of-magnitude construction cost. Each rail improvement is designed below with any challenges and design details. See **Appendix C** for concept exhibits for each of the railroad operations concepts and **Appendix D** for anticipated order-of-magnitude construction cost estimates for each concept.

UPRR Glidden Subdivision Second Track (at SH 99/Grand Parkway)

This project is proposed to add a second track on the UPRR Glidden Subdivision between the two double-track sections on either side of SH 99/Grand Parkway. The second mainline track is assumed on the north side of the existing track and would connect to a previously constructed rail structure under the existing SH 99 roadway mainlanes with a new structure over the SH 99 frontage roads (structure type is to be determined in future efforts if design progresses).

A fatal-flaw review was conducted for this segment of proposed railroad improvements. There is a FEMA 100-year floodplain encroaching the railroad ROW on the north side.

Construction phasing of the second track could be built through the following sequencing plan:

- Phase 1 – Construct new track/structures up to 15' of existing siding tracks.
- Phase 2 – Track outage. Remove existing turnouts at siding locations.
- Phase 3 – Remove siding track as necessary and construction new track to siding to complete second track.

The UPRR Glidden Subdivision Second Track (at SH 99/Grand Parkway) is anticipated to have an order-of-magnitude construction cost of $26.3 million in 2024$.

UPRR Glidden Subdivision Second Track (Harlem Siding to Richmond Siding)

The proposed rail improvement project would incorporate a second track on the UPRR Glidden Subdivision from Richmond Siding to east of Pitts Road to an existing siding. The second track is proposed to the north of the existing track and includes a new, second structure over the Brazos River (structure type is to be determined in future efforts if design progresses) constructed to the north of the existing structure at a 25-foot track centerline offset. A crossover is proposed west of the Brazos River bridge in Richmond to provide operational flexibility between the two mainline tracks.

A fatal-flaw review was conducted for this segment of proposed railroad improvements. There is a FEMA 100-year floodplain encroaching the railroad ROW on the north side. Railroad improvements, including embankment, is proposed to impact this floodplain, and those impacts could require additional drainage improvements for detention.

Construction phasing of the second track could follow the following sequencing plan:

- Phase 1 – Realign roadways in Richmond area to allow for railroad construction (Calhoun Street, access road north of track).
- Phase 2 – Construct new track/structures up to 15' of existing tracks where possible, including switches and grade crossings
    - STA 103+00 to STA 210+00 (new track 1)
    - STA 212+00 to STA 228+00 (new track 2, including Brazos River bridge)
    - STA 230+00 to STA 288+00 (new track 1)
- Phase 3a – Track outage. Remove existing turnout at siding location and install straight rail (STA 100+00 to STA 105+00). Construct new turnout and connect to new track 1 for crossover (STA 108+50 to STA 112+00 and STA 121+00 to STA 125+00).
- Phase 3b – Track outage. Remove existing turnout at siding location and install straight rail (STA 208+50 to STA 214+00).
- Phase 4a – Track outage. Remove existing track and connect mainline tracks between STA 226+00 to STA 231+50.
- Phase 4b – Track outage. Remove existing track and connect mainline tracks between STA 283+00 to STA 294+00.

The UPRR Glidden Subdivision Second Track (Harlem Siding to Richmond Siding) is anticipated to have an order-of-magnitude construction cost of $157.3 million in 2024$.

5. Grade Crossings Review

Many of the Houston region's roadways have vehicular delays at roadway-rail crossings due to the volume of trains throughout the network. One solution to resolving these roadway-rail crossing delays is elimination of the crossing by implementing a grade separation over the railroad, while reductions in delay can be accomplished through rerouting of traffic during train movements at grade crossings. This report section includes review of constraints and considerations for each grade crossing listed in **Table 2** as well as grade separation concepts and order-of-magnitude construction costs for each crossing location.

Design Constraints and Prioritization

As part of the initial review of the Glidden Subdivision study area crossings in Section 3, an analysis of possible challenges in implementing particular improvements at the grade crossing location was conducted to determine feasibility of an option. Each location has multiple design constraints, which is generally expected due to the proximity of US 90A to the Glidden Subdivision and associated development adjacent to the corridor. Common design constraints include:

- ROW width: The existing roadway ROW width at the grade crossings may be constrained by adjacent commercial buildings and residences near or abutting the roadway ROW. ROW acquisition needs may include displacement and additional costs if additional ROW is needed for a grade separation.
- Natural features: Existing waterways, such as ditches and bayous, could influence possible design decisions based on changes to the existing roadway configuration.
- Environmentally sensitive sites: Schools, parks, places of worship, cemeteries, and other areas that may be considered 4(f) or 6(f) impacts per NEPA may be adjacent to the roadway ROW or within the potential grade separation's influence. Potential adverse impacts within the environmental review process would be anticipated with any effects to these sites.
- Changes to or removal of access: Many vehicle access points – from local and collector streets to individual residences and businesses – are likely within the influence of the grade separation. Access changes may include entry from a different side street or location, while removal of access could landlock a parcel and be a displacement to the property.
- Public and utility infrastructure impacts: Roadway infrastructure such as bike lanes and sidewalks may be impacted by grade separation improvements, which could require revised routes if necessary. Also, grade separations could impact connections to other roadways depending on location and configuration.

The major design constraints are included in **Table 11** below.

Table 11: Major Design Constraints for Grade Separations

Constraint	Potential Impact
Minimal available ROW width	Possible acquisition of additional ROW to accommodate grade separation needs
Natural features	Adjustments to grade separation design or determination of infeasible options
Street access/closures	Adjustments to existing vehicle travel patterns
Schools/parks/places of worship/cemeteries/etc.	Environmental 4(f)/6(f) impact ranging from minor access/ property impact to more substantial impact such as removal of access
Residential/business impacts to access/property	Removal of or limitations to property access, with most significant impacts resulting in property/business acquisition
Major utilities	Relocation or avoidance of utility, which could result in additional project cost and time for relocation
Roadway infrastructure impacts (bike lanes, toll roads)	Adjustment to existing vehicle/bikeway movements or revenue impacts

Design Considerations

In addition to the design constraints noted in the previous subsection, other considerations were taken into account in the development of potential grade separations or other improvements. These considerations provide additional guidance in design of grade separation concepts to further evaluate feasibility and viability of the potential improvements. Considerations for the design of concepts include:

- Roadway geometry requirements: These requirements may include roadway lane, shoulder, and pedestrian/bicycle lane width requirements from the agency (TxDOT, City of Houston, etc.), horizontal alignment requirements, and other features such as traffic rail widths and heights.
- Vertical clearance over railroad ROW: Grade separation vertical clearances are set through the UPRR-BNSF Guidelines for Railroad Grade Separation Projects and are assumed as minimum vertical clearance of 23’-4” for the UPRR corridor. An assumption of 7 feet was made for the roadway bridge depth (top of roadway to bottom of beam) to confirm these vertical clearances at this early development stage.
- Access to properties and roadways: Property access is a priority to maintain; if property access is removed it would need to be acquired as part of the project. Efforts were made to

provide access as best as possible to properties within grade separation and other improvements locations.

- Minimal impacts: The grade separations and other improvements are anticipated to have impacts ranging from access to/from roadways and properties to utility infrastructure to visual impacts. Where possible, impacts were minimized and noted in the concept discussions.

Engineering judgment has been used in cases where two considerations might conflict.

Grade Separation Concepts

Based on identified locations from Section 3, potential grade separation concepts were developed in concert with design constraints and considerations in the previous subsections of Section 5. Concept layouts for grade separations are included in **Appendix E** with details of each grade separation concept further defined in this subsection. **Appendix F** includes order-of-magnitude construction cost estimates for the grade separation concepts.

Chimney Rock Road at UPRR Glidden Subdivision (DOT# 755621G)

Chimney Rock Road is a four-lane roadway with a large, unpaved median between northbound and southbound lanes with an at-grade crossing across the UPRR Glidden Subdivision in southwest Houston. US 90A is adjacent to the railroad corridor south of the tracks, and the Fort Bend Parkway connects to US 90A via direct connectors east of the US 90A/Chimney Rock Road intersection and continues south of US 90A. Land use is generally residential in this area with commercial properties east of Chimney Rock Road/Fort Bend Parkway.

Anticipated challenges with implementing a grade separation at this location include:

- Existing US 90A overpass – The existing roadway configuration near the railroad crossing has US 90A mainlanes over the at-grade Chimney Rock Road. A Chimney Rock Road grade separation over the railroad may conflict with the US 90A mainlanes and may require reconstruction of US 90A mainlanes to at-grade to compliment the Chimney Rock Road grade separation.
- Fort Bend Parkway direct connectors – Existing direct connections to/from US 90A and Fort Bend Parkway go over the US 90A mainlanes near Chimney Rock Road, and these have the potential to be in conflict with a potential Chimney Rock grade separation over the railroad.
- Access/connectivity to properties – Connectivity to adjacent properties along the eastbound US 90A frontage road and properties north of the existing grade crossing may be challenging due to different interchange levels.
- Connectivity to Southminster Drive – Due to the anticipated footprint of the Chimney Rock Road grade separation the current unsignalized intersection at Southminster Drive may not operate similar to existing. Alternate access via Airport Boulevard may be required for certain movements.

A grade separation concept has been developed for this location and is included in **Appendix E**. The concept requires reconstructing US 90A at grade and connecting Chimney Rock Road grade separation directly to Fort Bend Parkway mainlanes. Westbound US 90A has access to/from Chimney Rock Road, but eastbound US 90A access is not accommodated due to existing property access along US 90A;

further verification of vertical clearances for the westbound ramp from US 90A to the Chimney Rock Road grade separation under the existing Fort Bend Parkway direct connector would be needed if the concept is moved forward in design development. An access road is included adjacent to the Chimney Rock Road grade separation from Airport Boulevard south to the railroad with a turnaround north of the railroad.

A fatal-flaw review of floodplain, drainage, and utilities were conducted for this grade separation concept. Additional detention may need to be identified due to the impacts of the grade separation concept to existing detention facilities south of US 90A and north of the end of the Fort Bend Parkway mainlanes.

The Chimney Rock Road crossing at the UPRR Glidden Subdivision is anticipated to have an order-of-magnitude construction cost of $90.2 million in 2024 dollars.

Hillcroft Avenue at UPRR Glidden Subdivision (DOT# 755622N)

The Hillcroft Avenue roadway-rail grade crossing is in southwest Houston with an existing section consisting of four roadway lanes and a large, unpaved median between the roadway lanes. US 90A is parallel to the railroad corridor south of the at-grade crossing with an overpass over and frontage roads connecting at grade with Hillcroft Avenue. Most of the adjacent land use is commercial with a residential neighborhood in the northeast quadrant of the grade crossing.

Anticipated challenges with implementing a grade separation at this location include:

- Existing US 90A overpass – The existing roadway configuration near the railroad crossing has US 90A mainlanes over the at-grade Hillcroft Avenue. A Hillcroft Avenue grade separation over the railroad may conflict with the US 90A mainlanes and may require reconstruction of US 90A mainlanes to at-grade to compliment the Hillcroft Avenue grade separation.
- Access/connectivity to properties – Connectivity to adjacent properties along the eastbound US 90A frontage road and properties north of the existing grade crossing may be challenging due to the Hillcroft Avenue grade separation.
- Connectivity to Greencraig Drive – Due to the anticipated footprint of the Hillcroft Avenue grade separation the current unsignalized intersection at Greencraig Drive may not maintain existing traffic movements. Alternate access via Alvarado Drive may be required for certain movements.

A grade separation concept has been developed for this location and is included in **Appendix E**. US 90A would be reconstructed at grade to accommodate the Hillcroft Avenue grade separation with an elevated ramp providing access between US 90A and the grade separation. An access road is included adjacent to the Hillcroft Avenue grade separation from south of Farwell Drive to the railroad with a turnaround north of the railroad as well as south of US 90A to the at-grade section of Hillcroft Avenue.

A fatal-flaw review of floodplain, drainage, and utilities were conducted for this grade separation concept. The FEMA 500-year floodplain extends into the northern portion of the grade separation concept. Additionally, there is a water transmission line in the project area as well.

The Hillcroft Avenue grade separation at the UPRR Glidden Subdivision is anticipated to have an order-of-magnitude construction cost of $72.9 million in 2024 dollars.

Fondren Road at UPRR Glidden Subdivision (DOT# 755624C)

Fondren Road is a six-lane roadway with a small median between northbound and southbound lanes with an at-grade crossing across the UPRR Glidden Subdivision in southwest Houston. US 90A is adjacent to the railroad corridor south of the tracks with an overpass for US 90A mainlanes and frontage roads connecting to Fondren Road at grade. Land use is generally commercial in this area with some residential properties away from the grade crossing.

Anticipated challenges with implementing a grade separation at this location include:

- Existing US 90A overpass – The existing roadway configuration near the railroad crossing has US 90A mainlanes over the at-grade Fondren Road. A Fondren Road grade separation over the railroad may conflict with the US 90A mainlanes and may require reconstruction of US 90A mainlanes to at-grade to compliment the Fondren Road grade separation.
- Access/connectivity to properties – Connectivity to adjacent properties along the eastbound US 90A frontage road and properties north of the existing grade crossing may be challenging due to the Fondren Road grade separation.
- Connectivity to Hampton Circle – Due to the anticipated footprint of the Fondren Road grade separation the current unsignalized intersection at Hampton Circle may not operate similar to existing. Alternate access via Gregory Boulevard may be required for certain movements.

A grade separation concept has been developed for this location and is included in **Appendix E**. US 90A would be reconstructed at grade to accommodate the Fondren Road grade separation with elevated ramps providing access between US 90A and the grade separation. An eastbound access road is provided for US 90A to provide connectivity to existing properties in the corridor. An access road is also included adjacent to the Fondren Road grade separation from Gregory Boulevard to the railroad with a turnaround north of the railroad as well as south of US 90A to the at-grade section of Fondren Road.

A fatal-flaw review of floodplain, drainage, and utilities were conducted for this grade separation concept. The FEMA 500-year floodplain extends into the northern portion of the Fondren Road grade separation concept embankment.

The Fondren Road grade separation at the UPRR Glidden Subdivision is anticipated to have an order-of-magnitude construction cost of $87.8 million in 2024 dollars.

Gessner Road at UPRR Glidden Subdivision (DOT# 743689L)

The Gessner Road roadway-rail grade crossing is in Missouri City with an existing section consisting of four roadway lanes and a small, unpaved median between the roadway lanes. US 90A is parallel to the railroad corridor south of the at-grade crossing with an overpass over and frontage roads connecting at grade with Gessner Road. Most of the adjacent land use is commercial with one multi-family residential property south of US 90A and a place of worship east of the US 90A/Gessner Road intersection.

Anticipated challenges with implementing a grade separation at this location include:

- Existing US 90A overpass – The existing roadway configuration near the railroad crossing has US 90A mainlanes over the at-grade Gessner Road. A Gessner Road grade separation over the railroad may conflict with the US 90A mainlanes and may require reconstruction of US 90A mainlanes to at-grade to compliment the Gessner Road grade separation.
- Access/connectivity to properties – Connectivity to adjacent properties along the eastbound US 90A frontage road and properties north of the existing grade crossing may be challenging due to the Gessner Road grade separation.
- Connectivity to Industrial Drive – Due to the anticipated footprint of the Gessner Road grade separation the current unsignalized intersection at Industrial Drive may not maintain existing traffic movements. There does not appear to be a viable alternate access intersection for Industrial Drive to maintain a southbound movement on Gessner Road without a u-turn location or use of a combination of other streets.

A grade separation concept has been developed for this location and is included in **Appendix E**. Westbound US 90A has access to/from Gessner Road, but eastbound US 90A access is not accommodated due to existing property access along US 90A. An eastbound access road is provided for US 90A to provide connectivity to existing properties in the corridor. An access road is also included adjacent to the Gessner Road grade separation from north of Pike Road to the railroad with a turnaround north of the railroad as well as south of US 90A to the at-grade intersection of Fondren Road/5th Street.

A fatal-flaw review of floodplain, drainage, and utilities were conducted for this grade separation concept. No fatal flaws were identified as part of the review.

The Gessner Road grade separation at the UPRR Glidden Subdivision is anticipated to have an order-of-magnitude construction cost of $80.1 million in 2024 dollars.

Kirkwood Road at UPRR Glidden Subdivision (DOT# 743695P)

Kirkwood Road is a four-lane roadway with an unpaved median between northbound and southbound lanes with an at-grade crossing across the UPRR Glidden Subdivision in the city of Stafford. US 90A is adjacent to the railroad corridor south of the tracks with an overpass for US 90A mainlanes and frontage roads connecting to Kirkwood Road at grade. Land use is mixed in this area: an industrial complex in the northeast quadrant, commercial properties in the northwest and southeast quadrants, and a single-family residential subdivision southwest of the intersection.

Anticipated challenges with implementing a grade separation at this location include:

- Existing US 90A overpass – The existing roadway configuration near the railroad crossing has US 90A mainlanes over the at-grade Kirkwood Road. A Gessner Road grade separation over the railroad may conflict with the US 90A mainlanes and may require reconstruction of US 90A mainlanes to at-grade to compliment the Kirkwood Road grade separation.
- Access/connectivity to properties – Connectivity to adjacent properties along the eastbound US 90A frontage road and properties north of the existing grade crossing may be challenging due to the Kirkwood Road grade separation.

A grade separation concept has been developed for this location and is included in **Appendix E**. US 90A would be reconstructed at grade to accommodate the Kirkwood Road grade separation with elevated ramps providing access between US 90A and the grade separation. An access road is also included adjacent to the Kirkwood Road grade separation from the Wright Road/Cash Road intersection to the railroad with a turnaround north of the railroad as well as south of US 90A to the at-grade section of Kirkwood Road at Country Club Boulevard.

A fatal-flaw review of floodplain, drainage, and utilities were conducted for this grade separation concept. An existing electrical transmission line (low voltage) runs parallel to the proposed project improvements.

The Kirkwood Road grade separation at the UPRR Glidden Subdivision is anticipated to have an order-of-magnitude construction cost of $104.8 million in 2024 dollars.

Dairy Ashford Road at UPRR Glidden Subdivision (DOT# 745044J)

The Dairy Ashford Road roadway-rail grade crossing is in the city of Sugar Land with an existing section consisting of six roadway lanes and an unpaved median between the roadway lanes. US 90A is parallel to the railroad corridor south of the at-grade crossing with an at-grade intersection with Dairy Ashford Road for all roadway lanes. Most of the adjacent land use is commercial within this area with a detention pond northeast of the grade crossing.

Anticipated challenges with implementing a grade separation at this location include:

- Access/connectivity to properties – Connectivity to adjacent properties along eastbound US 90A and properties north of the existing grade crossing may be challenging due to the Dairy Ashford Road grade separation but may be mitigated based in US 90A/Dairy Ashford Road intersection design.

A grade separation concept has been developed for this location and is included in **Appendix E**. A connection to and from the Dairy Ashford Road grade separation is included with elevated ramps providing access between westbound US 90A and the grade separation; however, an eastbound connection to/from US 90A is not part of the design due to constrained ROW and maintaining access to properties south of and along US 90A. An access road is also included adjacent to the Dairy Ashford Road grade separation from the Julie Rivers intersection to the railroad with a turnaround north of the railroad as well as south of US 90A to the at-grade section of Dairy Ashford Road at Parklane Boulevard.

A fatal-flaw review of floodplain, drainage, and utilities were conducted for this grade separation concept. There are multiple pipelines in conflict with the proposed grade separation improvements, ranging from 8 to 12 inches in diameter.

The Dairy Ashford Road grade separation at the UPRR Glidden Subdivision is anticipated to have an order-of-magnitude construction cost of $47.0 million in 2024 dollars.

Schlumberger Drive at UPRR Glidden Subdivision (DOT# 748393E)

The Schlumberger Drive roadway-rail grade crossing is in the city of Sugar Land with an existing section consisting of four roadway lanes and a median between the roadway lanes. US 90A is parallel

to the railroad corridor south of the at-grade crossing with an at-grade intersection with Schlumberger Drive for all roadway lanes. Macco Drive and Pierre Schlumberger are parallel to the railroad north of the tracks. Most of the adjacent land use is commercial within this area with a school in the southwest corner of the intersection.

Anticipated challenges with implementing a grade separation at this location include:

- Connectivity to Macco Drive/Pierre Schlumberger – Connectivity to these streets is shown to need 8% vertical grades to maintain existing property access from the Schlumberger Drive grade separation.
- Access/connectivity to properties – Connectivity to adjacent properties along eastbound US 90A and properties north of the existing grade crossing may be challenging due to the Schlumberger Drive grade separation but may be mitigated based on the US 90A/Schlumberger Drive intersection design.

A grade separation concept has been developed for this location and is included in **Appendix E**. A connection to and from the Schlumberger Drive grade separation is included with elevated ramps providing access between US 90A and the grade separation. Macco Drive/Pierre Schlumberger are elevated up to the grade separation to maintain access to Schlumberger Drive. An access road is included adjacent to the grade separation south of US 90A to the at-grade section of Commerce Green Boulevard at Sugar Creek Center Boulevard.

The Schlumberger Drive grade separation at the UPRR Glidden Subdivision is anticipated to have an order-of-magnitude construction cost of $59.0 million in 2024 dollars.

FM 1876/Eldridge Road at UPRR Glidden Subdivision (DOT# 743699S)

FM 1875/Eldridge Road is a four-lane roadway with an unpaved median between northbound and southbound lanes with an at-grade crossing across the UPRR Glidden Subdivision in the city of Sugar Land. US 90A is adjacent to the railroad corridor south of the tracks with all lanes connecting to FM 1876/Eldridge Road at grade. The south leg of the intersection (Lombardy Drive) is a two-lane collector to a residential neighborhood. Land use is generally single-family residential with a multi-business commercial property northeast of the grade crossing.

Anticipated challenges with implementing a grade separation at this location include:

- Access/connectivity to properties – Connectivity to adjacent properties along Lombardy Drive south of US 90A and north of Piedmont Street may be challenging due to the FM 1876/Eldridge Road grade separation. Similarly, a portion of Piedmont Street may need to be raised to accommodate an intersection with the grade separation, which may have access impacts.
- Waterways – The existing lake south of US 90A and the waterway provides a constraint to additional infrastructure south of the existing US 90A ROW.

A grade separation concept has been developed for this location and is included in **Appendix E**. A connection to and from the FM 1875/Eldridge Road grade separation is shown with elevated ramps providing access between US 90A and the grade separation. It is anticipated that most of existing US

90A would be able to remain in this concept. Reconstruction of the Piedmont Street and Neal Drive intersections are anticipated to accommodate the FM 1875/Eldridge Road grade separation.

A fatal-flaw review of floodplain, drainage, and utilities were conducted for this grade separation concept. The FEMA 500-year floodplain encroaches into the grade separation south of US 90A.

The FM 1876/Eldridge Road grade separation at the UPRR Glidden Subdivision is anticipated to have an order-of-magnitude construction cost of $43.7 million in 2024 dollars.

Main Street at UPRR Glidden Subdivision (DOT# 743703E)

The Main Street roadway-rail grade crossing is in the city of Sugar Land with an existing section consisting of one roadway lane and one bike lane in each direction. US 90A is parallel to the railroad corridor south of the at-grade crossing with an at-grade intersection with Main Street for all roadway lanes. Kempner Street also parallels the railroad corridor north of the tracks and west of Main Street. Residential properties and undeveloped properties are north of the US 90A/Main Street intersection, while businesses, residences, and a park are south of the intersection.

Anticipated challenges with implementing a grade separation at this location include:

- Access/connectivity to properties – Connectivity to adjacent properties along eastbound US 90A and south of US 90A along Bay View Drive may be challenging due to the Main Street grade separation. Travel patterns may need to be adjusted for access to certain properties.
- Connectivity to Kempner Street – Due to the anticipated footprint of the Main Street grade separation the current unsignalized intersections at Kempner Street may not maintain existing traffic movements. Alternate access may be required for certain movements.
- Sugar Lakes Park – Impacts to the park south of US 90A and east of Bay View Drive should be avoided if possible as part of the Main Street/Glidden Subdivision grade separation from an environmental perspective.
- Distance from existing UPRR bridge – UPRR requirements for grade separation projects require at least 200 feet from edge of grade separation to any existing UPRR bridge. The Main Street grade separation would likely be within that 200-foot threshold for a UPRR bridge west of the potential grade separation.

A grade separation concept has been developed for this location and is included in **Appendix E**. Connections to and from the Main Street grade separation is included with elevated ramps providing access between US 90A mainlanes and the grade separation. The west leg of Kempner Street is elevated to connect with the Main Street grade separation, and the east leg of Kempner Street is realigned to intersect Main Street closer to grade. Bay View Drive would remain at grade and is not connected to the Main Street grade separation; an at-grade signalized intersection with US 90A would be similar to existing, but Bay View Drive will not have access to Main Street north of the tracks.

A fatal-flaw review of floodplain, drainage, and utilities were conducted for this grade separation concept. The waterway west of Main Street contains a FEMA 100-year floodplain. Further, an inactive water tower near the Main Street/Kempner Street intersection is near the project and is considered a historic structure.

The Main Street grade separation at the UPRR Glidden Subdivision is anticipated to have an order-of-magnitude construction cost of $43.5 million in 2024 dollars.

Stadium Drive at UPRR Glidden Subdivision (DOT# 441027B)

Stadium Drive is a four-lane roadway with an unpaved median between northbound and southbound lanes with an at-grade crossing over the UPRR Glidden Subdivision in the city of Sugar Land. US 90A is adjacent to the railroad corridor south of the tracks with all lanes connecting to Stadium Drive at grade. The south leg of the intersection (University Boulevard) is also a four-lane roadway section. Land use is generally commercial with some undeveloped parcels in the area.

Anticipated challenges with implementing a grade separation at this location include:

- Access/connectivity to properties – Connectivity to adjacent properties along eastbound US 90A and along Stadium Drive/University Boulevard near the tracks/US 90A may be challenging due to the Stadium Drive grade separation. Travel patterns may need to be adjusted for access to certain properties.
- Place of worship – Impacts to the Epicenter Church south of US 90A and east of University Boulevard should be avoided if possible as part of the Stadium Drive/Glidden Subdivision grade separation from an environmental perspective.

A grade separation concept has been developed for this location and is included in **Appendix E**. US 90A remains at grade with an elevated ramp providing access between US 90A and the grade separation. An access road is also included adjacent to the Stadium Drive grade separation north of the railroad with a turnaround prior to the removed crossing as well as south of US 90A along University Boulevard.

A fatal-flaw review of floodplain, drainage, and utilities were conducted for this grade separation concept. A FEMA 500-year floodplain crosses the south side of the grade separation.

The Stadium Drive grade separation at the UPRR Glidden Subdivision is anticipated to have an order-of-magnitude construction cost of $72.0 million in 2024 dollars.

SH 6 Northbound Frontage at UPRR Glidden Subdivision (DOT# 922512N)

The SH 6 northbound frontage road roadway-rail grade crossing is in the city of Sugar Land with an existing section consisting of two roadway lanes and an outside shoulder. US 90A is parallel to the railroad corridor south of the at-grade crossing with an at-grade intersection with the SH 6 frontage road. SH 6 through traffic uses a grade separation over the Glidden Subdivision/US 90A, and a waterway exists north of the at-grade crossing. Most areas around this intersection are either undeveloped, utilized for detention, or are businesses further south of the intersection.

Anticipated challenges with implementing a grade separation at this location include:

- Existing SH 6 mainlanes overpass – The existing roadway configuration near the railroad crossing has US 90A and the SH 6 frontage roads at-grade and the SH 6 mainlanes over the railroad and US 90A. A SH 6 northbound frontage road grade separation over the railroad (in concert with a southbound frontage road grade separation) creates a challenge to connect with

US 90A without additional reconstruction of US 90A or SH6 mainlanes to compliment the SH 6 frontage roads over the railroad.

- Waterway north of crossing – The existing waterway north of the tracks is currently on a bridge for the SH 6 mainlanes and frontage roads. While the waterway does not adversely impact the potential for a roadway overpass for the SH 6 frontage roads, it would significantly complicate the potential for a roadway underpass at the tracks.

A grade separation at the SH6 northbound frontage road at the Glidden Subdivision is not included as part of this memo due to the challenges of an elevated SH 6 northbound frontage road/US 90A elevated intersection with the existing SH 6 mainlanes grade separation.

SH 6 Southbound Frontage at UPRR Glidden Subdivision (DOT# 922513V)

The SH 6 southbound frontage road is a two-lane roadway with an outside shoulder with an at-grade crossing over the UPRR Glidden Subdivision in the city of Sugar Land. US 90A is adjacent to the railroad corridor south of the tracks with all lanes connecting to the SH 6 frontage roads at grade. SH 6 through traffic uses a grade separation over the Glidden Subdivision/US 90A, and a waterway exists north of the at-grade crossing. Land use is generally undeveloped with detention facilities and a couple businesses south of the US 90A/SH 6 intersection.

Anticipated challenges with implementing a grade separation at this location include:

- Existing SH 6 mainlanes overpass – The existing roadway configuration near the railroad crossing has US 90A and the SH 6 frontage roads at-grade and the SH 6 mainlanes over the railroad and US 90A. A SH 6 southbound frontage road grade separation over the railroad (in concert with a northbound frontage road grade separation) creates a challenge to connect with US 90A without additional reconstruction of US 90A or SH6 mainlanes to compliment the SH 6 frontage roads over the railroad.
- Waterway north of crossing – The existing waterway north of the tracks is currently on a bridge for the SH 6 mainlanes and frontage roads. While the waterway does not adversely impact the potential for a roadway overpass for the SH 6 frontage roads, it would significantly complicate the potential for a roadway underpass at the tracks.

A grade separation at the SH6 southbound frontage road at the Glidden Subdivision is not included as part of this memo due to the challenges of an elevated SH 6 southbound frontage road/US 90A elevated intersection with the existing SH 6 mainlanes grade separation.

Harlem Road at UPRR Glidden Subdivision (DOT# 743713K)

The Harlem Road roadway-rail grade crossing is in the city of Richmond with an existing section consisting of two roadway lanes in each direction. US 90A is parallel to the railroad corridor south of the at-grade crossing with an at-grade intersection with Harlem Road; Harlem Road does not continue south of US 90A. Most property in this area is currently undeveloped with an existing residence and business off a driveway from Harlem Road.

Anticipated challenges with implementing a grade separation at this location include:

- Access/connectivity to properties – Connectivity to adjacent properties along Harlem Road north of the tracks may be challenging due to the Harlem Road grade separation. Travel pattern adjustments or a revised connection may be needed for access to those properties.

A grade separation concept has been developed for this location and is included in **Appendix E**. US 90A is to remain at grade with connections to and from the Harlem Road grade separation designed with elevated ramps providing access between US 90A mainlanes and the grade separation. The driveway north of the tracks are adjusted to meet Harlem Road at grade to maintain access to the properties.

A fatal-flaw review of floodplain, drainage, and utilities were conducted for this grade separation concept. This area is included within the FEMA 100-year floodplain.

The Harlem Road grade separation at the UPRR Glidden Subdivision is anticipated to have an order-of-magnitude construction cost of $49.4 million in 2024 dollars.

Pitts Road at UPRR Glidden Subdivision (DOT# 743716F)

Pitts Road is a two-lane roadway with an at-grade crossing over the UPRR Glidden Subdivision in the city of Richmond. US 90A is adjacent to the railroad corridor south of the tracks with all lanes connecting to Pitts Road at grade. While Pitts Road does not continue south of US 90A, a local connection provides access to businesses and homes for that leg of the intersection. Land use is generally commercial with single family residential south of US 90A and northwest of the crossing with undeveloped land northeast of the crossing.

Anticipated challenges with implementing a grade separation at this location include:

- Access/connectivity to properties – Connectivity to adjacent properties along US 90A and along Pitts Road near the tracks may be challenging due to the Pitts Road grade separation. Travel patterns may need to be adjusted for access to certain properties.
- Connectivity to private roads – Due to the anticipated footprint of the Pitts Road grade separation private roads just north of the grade crossing and south of US 90A across from Pitts Road may not maintain existing traffic movements. Alternate access may be required for certain movements.

A grade separation concept has been developed for this location and is included in **Appendix E**. US 90A is to remain at grade with connections to and from the Pitts Road grade separation designed with elevated ramps providing access between US 90A mainlanes and the grade separation. Driveways north of the tracks are adjusted to meet Pitts Road at grade to maintain access to the properties.

A fatal-flaw review of floodplain, drainage, and utilities were conducted for this grade separation concept. The north side of the grade separation concept and the southern US 90A mainlanes are shown in the FEMA 100-year floodplain.

The Pitts Road grade separation at the UPRR Glidden Subdivision is anticipated to have an order-of-magnitude construction cost of $48.5 million in 2024 dollars.

2nd Street at UPRR Glidden Subdivision (DOT# 743719B)

The 2nd Street roadway-rail grade crossing is in the city of Richmond with an existing section consisting of two roadway lanes in each direction. Calhoun Street is parallel to the railroad corridor south of the at-grade crossing, and a turnaround area down to the Brazos River (below the railroad bridge) connects on both sides of the railroad crossing. All properties in this area are commercial or undeveloped/vacant in the crossing area.

Anticipated challenges with implementing a grade separation at this location include:

- Access/connectivity to properties – Connectivity to adjacent properties along the 2nd Street grade separation limits may be challenging due to the limited existing ROW. Vehicular access may not be feasible to certain properties.
- Connectivity to Preston, Calhoun, and Morton Streets – Due to the anticipated footprint of the 2nd Street grade separation the current unsignalized intersections at Preston Street, Calhoun Street, and Morton Street may not maintain existing traffic movements. Alternate access may be required for certain movements.
- Distance from existing UPRR bridge – UPRR requirements for grade separation projects require at least 200 feet from edge of grade separation to any existing UPRR bridge. The 2nd Street grade separation would likely be within that 200-foot threshold.
- Distance to US 90A – US 90A is approximately 560 feet from the track to the edge of the 2nd Street/westbound US 90A intersection, which is a short distance for a roadway overpass.

A grade separation at 2nd Street at the Glidden Subdivision is not included as part of this memo due to the impacts at US 90A since the grade separation would not be able to meeting UPRR clearance requirements without impacts to access at businesses along 2nd Street between the Glidden Subdivision and US 90A.

10th Street at UPRR Glidden Subdivision (DOT# 743724X)

The 10th Street roadway-rail grade crossing is in the city of Richmond with an existing section consisting of two roadway lanes in each direction. Calhoun Street is parallel to the railroad corridor south of the at-grade crossing, and a turnaround area down to the Brazos River (below the railroad bridge) connects on both sides of the railroad crossing. All properties in this area are commercial or undeveloped/vacant in the crossing area.

Anticipated challenges with implementing a grade separation at this location include:

- Access/connectivity to properties – Connectivity to adjacent properties along the 10th Street grade separation limits may be challenging due to the limited existing ROW. Vehicular access may not be feasible to certain properties.
- Connectivity to Preston and Morton Streets – Due to the anticipated footprint of the 10th Street grade separation the current unsignalized intersections at Preston Street and Morton Street may not maintain existing traffic movements. Alternate access may be required for certain movements.
- Distance to US 90A – US 90A is approximately 540 feet from the track to the edge of the 10th Street/US 90A intersection, which is a short distance for a roadway overpass.

A grade separation at 10th Street at the Glidden Subdivision is not included as part of this memo due to the impacts at US 90A since the grade separation would not be able to meet UPRR clearance requirements without impacts to access at businesses along 10th Street from north of Preston Street to US 90A.

FM 3155/Collins Road at UPRR Glidden Subdivision (DOT# 743726L)

FM 3155/Collins Road is a two-lane roadway with an at-grade crossing over the UPRR Glidden Subdivision in the city of Richmond. US 90A is 300 feet south of the railroad corridor. Land use is generally commercial/industrial with undeveloped/vacant properties north of the crossing.

Anticipated challenges with implementing a grade separation at this location include:

- Access/connectivity to properties – Connectivity to adjacent properties along FM 3155/Collins Road near the tracks may be challenging due to the FM 3155/Collins Road grade separation. Alternate travel patterns are feasible but limited due to these anticipated impacts.
- Connectivity to driveways near US 90A – It is anticipated that the intersection with US 90A would need to be raised as part of the FM 3155/Collins Road grade separation. This would require additional connections to provide access to properties near the US 90A intersection.

A grade separation concept has been developed for this location and is included in **Appendix E**. US 90A is to remain at grade with connections to and from the Pitts Road grade separation designed with elevated ramps providing access between US 90A mainlanes and the grade separation. Driveways north of the tracks are adjusted to meet FM 3155/Collins Road at grade to maintain access to the properties. A signalized intersection is proposed to remain at grade at the existing FM 3155/Collins Road and US 90A location to allow for continued access and movements for adjacent properties to the intersection.

A fatal-flaw review of floodplain, drainage, and utilities were conducted for this grade separation concept. An existing electrical transmission line (low voltage) runs parallel to the proposed project improvements.

The FM 3155/Collins Road grade separation at the UPRR Glidden Subdivision is anticipated to have an order-of-magnitude construction cost of $48.4 million in 2024 dollars.

Rawson Drive at UPRR Glidden Subdivision (DOT# 743727T)

The Rawson Drive roadway-rail grade crossing is in the city of Rosenberg with an existing section consisting of one roadway lane in each direction. Old Richmond Road is parallel to the railroad corridor south of the at-grade crossing. Most properties in this area are single-family residences except for the place of worship south and west of the Old Richmond Road/Rawson Drive intersection and a sports complex east of the intersection.

Anticipated challenges with implementing a grade separation at this location include:

- Connectivity to driveways along Old Richmond Road – It is anticipated that the intersection with Old Richmond Road would need to be raised as part of the Rawson Drive grade separation. This would require additional connections to provide access to properties near the Old Richmond Road intersection.

- Connectivity to River Road and Riverwood Drive – Due to the anticipated footprint of the Rawson Street grade separation the current unsignalized intersection at River Road/Riverwood Drive may not maintain existing traffic movements. Alternate access may be required for access to properties along these roadways.

A grade separation concept has been developed for this location and is included in **Appendix E**. Old Richmond Road is elevated to meet the elevated Rawson Drive grade separation with a local access road for eastbound traffic for properties south of Old Richmond Road. River Road/Riverwood Drive will be closed at Rawson Drive due to the grade separation's retaining walls; access to Riverwood Drive via Rawson Drive will be through existing streets, while access to River Road via Rawson Drive will require acquisition of an existing residential property/structure.

The Rawson Drive grade separation at the UPRR Glidden Subdivision is anticipated to have an order-of-magnitude construction cost of $23.9 million in 2024 dollars.

Crossing Closure Concepts

Potential crossing closure locations were initially determined and listed in Section 3 with many of the crossing closures near existing or potential grade separations over the Glidden Subdivision. Concept layouts for crossing closures are included in **Appendix G** with details of each crossing closure concept further defined in this subsection.

Crossing closures are identified in these locations to:

- Eliminate the potential for conflicts between vehicles and trains at the grade crossing
- Increase safety at the crossing locations for vehicles and pedestrians
- Utilize existing grade separation opportunities for safe passage across the tracks

Haviland Street at UPRR Glidden Subdivision (DOT# 755623V)

Haviland Street is a two-lane roadway at an at-grade crossing in southwest Houston and is a closure candidate at its crossing with the Glidden Subdivision in concert with a potential grade separation at Hillcroft Avenue as part of this study. Access is maintained to all properties by closing Haviland Street from US 90A through the grade crossing to Rihab Street and the associated driveways.

Alternate grade-separated routes for access to Haviland Street have been identified utilizing the Hillcroft Avenue grade separation concept within this memo. Access to Haviland Street via the Hillcroft Avenue grade separation concept may be maintained through Densmore Drive.

A crossing closure concept with alternative access routes has been developed for this location and is included in **Appendix G**. The Haviland Street crossing closure at the UPRR Glidden Subdivision is anticipated to have a construction cost of approximately $100,000 (not including other roadway closure improvements) in 2024 dollars.

Cravens Road at UPRR Glidden Subdivision (DOT# 743688E)

Located in Missouri City, Cravens Road is an existing at grade crossing with three roadway lanes (two southbound and one northbound) at the Glidden Subdivision. The crossing is considered a potential

closure candidate based on its proximity to the existing Beltway 8 grade separation and the potential Gessner Road grade separation. Access remains to all properties in a possible Cravens Road crossing closure with removal of the roadway from US 90A to the southernmost business driveway on Cravens Road.

Alternate grade-separated routes for access to Cravens Road have been identified utilizing the existing Beltway 8 northbound and southbound frontage road grade separations. Northbound access from Cravens Road to the southbound Beltway 8 frontage road can connect through Citypark Drive, while southbound access to Cravens Road would be through the northbound Beltway 8 frontage road via Gessner Road.

A crossing closure concept with alternative access routes has been developed for this location and is included in **Appendix G**. The Cravens Road crossing closure at the UPRR Glidden Subdivision is anticipated to have a construction cost of approximately $100,000 (not including other roadway closure improvements) in 2024 dollars.

Promenade Boulevard at UPRR Glidden Subdivision (DOT# 412514U)

Promenade Boulevard is a four-lane roadway at an at-grade crossing in Stafford and is a closure candidate at its crossing with the Glidden Subdivision in concert with an existing grade separation at Murphy Road and a potential grade separation at Kirkwood Road as part of this study. Access is maintained to all properties by closing Promenade Boulevard from US 90A to the southernmost business driveway on Promenade Boulevard.

Alternate grade-separated routes for access to Promenade Boulevard have been identified utilizing the Kirkwood Road grade separation concept within this memo. Access to Promenade Boulevard via the Kirkwood Road grade separation concept may be maintained through Cash Road.

A crossing closure concept with alternative access routes has been developed for this location and is included in **Appendix G**. The Promenade Boulevard crossing closure at the UPRR Glidden Subdivision is anticipated to have a construction cost of approximately $100,000 (not including other roadway closure improvements) in 2024 dollars.

Industrial Boulevard at UPRR Glidden Subdivision (DOT# 743698K)

Industrial Boulevard is a four-lane roadway at an at-grade crossing in Sugar Land and is a closure candidate at its crossing with the Glidden Subdivision in concert with a proposed grade separation at Dairy Ashford Road as part of this study. Access is maintained to all properties by closing Industrial Boulevard from US 90A to the southernmost business driveway on Industrial Boulevard.

Alternate grade-separated routes for access to Industrial Boulevard have been identified utilizing the Dairy Ashford Road grade separation concept within this memo. Northbound access from Industrial Boulevard to southbound Dairy Ashford Road can connect through Reed Road and Julie Rivers Drive, while southbound access to Industrial Boulevard would be through the northbound Dairy Ashford Road via Century Square Boulevard, Parklane Boulevard, Reed Road, and Julie Rivers Drive.

A crossing closure concept with alternative access routes has been developed for this location and is included in **Appendix G**. The Industrial Boulevard crossing closure at the UPRR Glidden Subdivision is

anticipated to have a construction cost of approximately $100,000 (not including other roadway closure improvements) in 2024 dollars.

Gillingham Lane at UPRR Glidden Subdivision (DOT# 745055W)

Gillingham Lane is a two-lane roadway at an at-grade crossing in Sugar Land and is a closure candidate at its crossing with the Glidden Subdivision in concert with a proposed grade separation at Schlumberger Drive as part of this study. Access is maintained to all properties by closing Gillingham Lane from US 90A to Macco Drive.

Alternate grade-separated routes for access to Gillingham Lane have been identified utilizing the Eldridge Road grade separation concept within this memo. Access to Gillingham Lane via the Eldridge Road grade separation concept may be maintained through Lakeview Drive.

A crossing closure concept with alternative access routes has been developed for this location and is included in **Appendix G**. The Gillingham Lane crossing closure at the UPRR Glidden Subdivision is anticipated to have a construction cost of approximately $100,000 (not including other roadway closure improvements) in 2024 dollars.

Brooks Street at UPRR Glidden Subdivision (DOT# 743704L)

Located in Sugar Land, Brooks Street is an existing at grade crossing at the Glidden Subdivision with four roadway lanes connecting US 90A and Kempner Street across UPRR ROW. The crossing is considered a potential closure candidate based on its proximity to the potential Main Street grade separation. Access remains to all properties in a possible Brooks Street crossing closure with removal of the roadway from US 90A to Kempner Street.

Alternate grade-separated routes for access to Brooks Street have been identified utilizing the Main Street grade separation concept within this memo. Access to Brooks Street via the Main Street grade separation concept may be maintained through Kempner Street.

A crossing closure concept with alternative access routes has been developed for this location and is included in **Appendix G**. The Brooks Street crossing closure at the UPRR Glidden Subdivision is anticipated to have a construction cost of approximately $100,000 (not including other roadway closure improvements) in 2024 dollars.

Ulrich Street at UPRR Glidden Subdivision (DOT# 743706A)

Ulrich Street is a two-lane roadway with an at-grade crossing in Sugar Land and is a closure candidate at its crossing with the Glidden Subdivision in concert with a potential grade separation at Main Street as part of this study. Access is maintained to all properties by closing Ulrich Street from US 90A to the Kempner Street.

Alternate grade-separated routes for access to Ulrich Street have been identified utilizing the Main Street grade separation concept within this memo. Access to Ulrich Street via the Main Street grade separation concept may be maintained through Kempner Street.

A crossing closure concept with alternative access routes has been developed for this location and is included in **Appendix G**. The Ulrich Street crossing closure at the UPRR Glidden Subdivision is

anticipated to have a construction cost of approximately $100,000 (not including other roadway closure improvements) in 2024 dollars.

Circle Drive at UPRR Glidden Subdivision (DOT# 743709V)

The crossing at Circle Drive, which is a two-lane roadway north of US 90A, was reviewed for potential closure at the UPRR Glidden Subdivision. However, an alternative route was not identified without additional roadway construction and right-of-way access.

Jones Drive (private crossing) at UPRR Glidden Subdivision (DOT# 743712D)

The crossing at Jones Drive, which is a private crossing north of US 90A, is a one-lane roadway with an at-grade crossing in Richmond and is a closure candidate at its crossing with the Glidden Subdivision in concert with a potential grade separation at Harlem Road as part of this study. Access is maintained to all properties by closing the private crossing at Jones Road from US 90A to the north side of UPRR ROW.

Alternate grade-separated routes for access to Jones Drive have been identified utilizing the Harlem Road grade separation concept within this memo. Access to Jones Drive via the Harlem Road grade separation concept may be maintained through a private east-west road connecting to Harlem Road.

A crossing closure concept with alternative access routes has been developed for this location and is included in **Appendix G**. The Jones Drive private crossing closure at the UPRR Glidden Subdivision is anticipated to have a construction cost of approximately $100,000 (not including other roadway closure improvements) in 2024 dollars.

Private crossing at UPRR Glidden Subdivision (DOT# 743714S)

Located in Richmond, the private crossing between Harlem Road and Pitts Road is an existing at grade crossing at the Glidden Subdivision with one roadway lane. The crossing is considered a potential closure candidate based on its proximity and existing access to the potential Pitts Road grade separation. Access remains to all properties in a possible private crossing closure with removal of the roadway from US 90A to north of UPRR ROW.

Alternate grade-separated routes for access to the private drive have been identified utilizing the Pitts Road grade separation concept within this memo. Access to the private drive via the Pitts Road grade separation concept may be maintained through a private east-west road connecting to Pitts Road.

A crossing closure concept with alternative access routes has been developed for this location and is included in **Appendix G**. The private crossing closure at the UPRR Glidden Subdivision is anticipated to have a construction cost of approximately $100,000 (not including other roadway closure improvements) in 2024 dollars.

4th Street at UPRR Glidden Subdivision (DOT# 743720V)

The crossing at 4th Street is a two-lane roadway with an at-grade crossing in Richmond and is a closure candidate at its crossing with the Glidden Subdivision in concert with a potential grade separation at 2nd Street as part of this study. Access is maintained to all properties by closing 4th Street from North Calhoun Street to South Calhoun Street.

There is not a grade-separated alternate route identified near this location. However, closure of 4th Street would require using the grade crossing at 2nd Street via Preston Street and Morton Street.

A crossing closure concept with alternative access routes has been developed for this location and is included in **Appendix G**. The 4th Street crossing closure at the UPRR Glidden Subdivision is anticipated to have a construction cost of approximately $100,000 (not including other roadway closure improvements) in 2024 dollars.

6th Street at UPRR Glidden Subdivision (DOT# 743722V)

Located in Richmond, the 6th Street crossing is an existing at grade crossing at the Glidden Subdivision with two roadway lanes. The crossing is considered a potential closure candidate based on its proximity and existing access to the potential 2nd Street grade separation. Access remains to all properties in a possible crossing closure with removal of the roadway between North Calhoun Street and South Calhoun Street.

There is not a grade-separated alternate route identified near this location. However, closure of 6th Street would require using the grade crossing at 2nd Street or 10th Street via Preston Street and Morton Street.

A crossing closure concept with alternative access routes has been developed for this location and is included in **Appendix G**. The 6th Street crossing closure at the UPRR Glidden Subdivision is anticipated to have a construction cost of approximately $100,000 (not including other roadway closure improvements) in 2024 dollars.

8th Street at UPRR Glidden Subdivision (DOT# 743723R)

The crossing at 8th Street is a two-lane roadway with an at-grade crossing in Richmond and is a closure candidate at its crossing with the Glidden Subdivision in concert with a potential grade separation at 2nd Street as part of this study. Access is maintained to all properties by closing 8th Street from South Calhoun Street to the northern UPRR ROW line.

There is not a grade-separated alternate route identified near this location. However, closure of 8th Street would require using the grade crossing at 10th Street via Preston Street and Morton Street.

A crossing closure concept with alternative access routes has been developed for this location and is included in **Appendix G**. The 8th Street crossing closure at the UPRR Glidden Subdivision is anticipated to have a construction cost of approximately $100,000 (not including other roadway closure improvements) in 2024 dollars.

Douglas Street at UPRR Glidden Subdivision (DOT# 743725E)

Located in Richmond, the Douglas Street crossing is an existing at grade crossing at the Glidden Subdivision with two roadway lanes. The crossing is considered a potential closure candidate based on its proximity and existing access to the potential FM 3155/Collins Road grade separation. Access remains to all properties in a possible crossing closure with removal of the roadway between Calhoun Street and the southern UPRR ROW line.

Alternate grade-separated routes for access to Douglas Street have been identified utilizing the FM 3155/Collins Road grade separation concept within this memo. Access to Douglas Street via the FM 3155/Collins Road grade separation concept may be maintained through Preston Street and US 90A.

A crossing closure concept with alternative access routes has been developed for this location and is included in **Appendix G**. The Douglas Street crossing closure at the UPRR Glidden Subdivision is anticipated to have a construction cost of approximately $100,000 (not including other roadway closure improvements) in 2024 dollars.

3rd Street at UPRR Glidden Subdivision (DOT# 743731H)

The crossing at 3rd Street is a two-lane roadway with an at-grade crossing in Rosenberg and is a closure candidate at its crossing with the Glidden Subdivision in concert with an existing grade separation at 1st Street. Access is maintained to all properties by closing 3rd Street from Walnut Avenue to Avenue F.

Alternate grade-separated routes for access to 3rd Street have been identified utilizing the existing 1st Street grade separation. Access to 3rd Street via the 1st Street grade separation concept may be maintained through Avenue D and Avenue H/US 90A.

A crossing closure concept with alternative access routes has been developed for this location and is included in **Appendix G**. The 3rd Street crossing closure at the UPRR Glidden Subdivision is anticipated to have a construction cost of approximately $100,000 (not including other roadway closure improvements) in 2024 dollars.

6. Benefit-Cost Analysis

This Benefit-Cost Analysis Screening covers ten proposed rail grade separation projects in the Glidden Subdivision. All projects are grade separations. The results of this analysis are high-level and are intended as a first-level evaluation of project grant competitiveness.

All dollar figures in the tables below are presented in 2022 dollars and are discounted at a rate of 3.1 percent, except for carbon dioxide emissions which are discounted at a rate of 2.0 percent, which is in alignment 2024 USDOT Benefit-Cost Analysis Guidance. The Benefit Cost Analysis results are summarized in **Table 12**.

Table 12: Screen-Level BCA Results

Projects	Discounted Capital Cost	Discounted Net Benefits	Net Present Value	Benefit-Cost Ratio (BCR)
Fondren Road	$68,754,539	$31,535,905	($37,218,634)	**0.46**
Hillcroft Avenue	$57,088,341	$13,404,432	($43,683,909)	**0.23**
Chimney Rock Road	$70,617,341	$20,365,132	($50,252,210)	**0.29**
Dairy Ashford Road	$36,783,878	$9,512,643	($27,271,235)	**0.26**
Rawson Road	$18,717,283	$10,270,896	($8,446,388)	**0.55**
FM 3155/Collins Road	$37,923,171	$9,189,734	($28,733,437)	**0.24**
Main Street	$34,080,114	$4,251,460	($29,828,654)	**0.12**
FM 1876/Eldridge Road	$34,214,010	$8,593,503	($25,620,507)	**0.25**
Kirkwood Road	$82,022,011	$12,914,874	($69,107,137)	**0.16**
Gessner Road	$62,722,162	$17,116,735	($45,605,427)	**0.27**

Methodology

This Benefit Cost Analysis (BCA) was prepared in accordance with the 2024 USDOT BCA Guidance for Discretionary Grant Programs using total quantifiable project costs and benefits, adjusted for inflation, and discounted to reflect the time value of money. In summary, the BCA followed the following steps:

1. Identifying the each of the Project's benefits and costs in terms of proposed improvements versus a No-Build condition;
2. Deriving current and projected rail and vehicle traffic levels for the baseline and the "build case";
3. Denominating all benefits and costs in constant 2022 dollars;
4. Assuming inflation based on the Implicit Price Deflators for Gross Domestic Product;
5. Discounting benefits and costs by 3.1 percent per year to reflect the time value of money;
6. Value of carbon dioxide (CO_2) emissions discounted at a 2 percent rate per year; and
7. Setting an appropriate analysis period of 25 years for each project's development, construction, and subsequent operational service.

Inputs for some benefits, specifically gate down times and number of trains, were derived from a Rail Traffic Controller (RTC) model, which is an industry standard rail software package used for simulating large freight networks. Crash data at specific crossings were downloaded from the FRA's predicted collisions metric. Further, standard unit values for travel time savings, emissions, operating costs, and crash costs were calculated for each project following 2024 USDOT BCA guidelines.

BCA results do not include any potential crossing closures in the vicinity of the possible grade separation locations.

Program Benefits

There were three benefits that were calculated related to grade separations. The specific benefits and their descriptions are outlined in **Table 13**. More detail on how these benefits were calculated follow the table.

Table 13: Project Benefits, Detailed

Grade Separation Benefits	Descriptions
Travel Time Savings	*Monetizes the direct travel time savings that are associated with grade separations*
Reduction in Crashes	*Monetizes the direct reduction in crashes that are associated with grade separations*
Reduction in Emissions Damage	*Monetizes the direct reduction in emissions that are associated with grade separations*

Firstly, travel time savings was calculated by taking the product of the annual traffic at an at-grade crossing and the calculated average delay time for each vehicle during gate down times. This resulted in totals for delays at crossings in vehicle-hours per year, which was converted to person-hours per year using a vehicle occupancy assumption, per federal guidance. Person-hours per year were then monetized using a value of time assumption, per federal guidance, which also assumed that truck

value of time is valued at a higher rate than passenger vehicle value of time. It is assumed that the grade crossing would eliminate all delay, and therefore, all benefit from the elimination of the delay was captured.

Secondly, reduction in crashes was calculated by taking the product of the FRA's predicted collision rate at each crossing and the average cost of rail-crossing accidents in the area. The average cost of rail-crossing accidents was calculated by taking the product of total crashes by severity at Harris County crossing for the previous five years of data (2019-2023) and the monetized costs by severity according to federal guidance. This calculation produced a generalizable average crash cost number that was used to multiply by the FRA's prediction collision at each crossing, yielding annualized costs in crashes at each crossing. It is assumed that the grade crossing would eliminate all crash conflicts at crossing, and therefore, all benefit from the elimination of crashes was captured.

Thirdly, reduction in emissions damage was calculated by taking the difference between the emissions of vehicles idle at the crossing during gate down times and the new estimated emissions created from vehicles passing over a grade separation. Both were calculated in totals for vehicle-hours per year, which were then monetized for four specific pollutants, which include carbon dioxide, nitrogen oxides, particulate matter 2.5, and sulfur oxides, per official guidance.

Residual value has also been considered as a benefit, which refers to the estimated value of the physical asset following full depreciation. In this analysis, the useful life for all projects was assumed to be 25 years.

A summary of each of these described benefits is presented in **Table 14**.

Table 14: Project Benefits Results, Detailed

Projects	Travel Time Savings	Reduction in Crashes	Reduction in Emissions Damage	Residual Value
Fondren Road	$29,234,301	$856,064	$17,233	$19,101,112
Hillcroft Avenue	$11,563,622	$648,929	$5,927	$15,860,055
Chimney Rock Road	$18,442,775	$443,813	$11,540	$19,618,628
Dairy Ashford Road	$8,504,400	$240,544	$3,551	$10,219,150
Rawson Road	$9,439,664	$436,518	$5,881	$5,199,961
FM 3155/Collins Road	$8,363,260	$34,398	$4,260	$10,535,664
Main Street	$3,101,245	$440,809	$1,425	$9,468,001
FM 1876/Eldridge Road	$7,641,537	$237,757	$3,448	$9,505,200
Kirkwood Road	$11,160,168	$45,178	$5,604	$22,787,028

Gessner Road	$15,155,880	$649,559	$8,305	$17,425,221

Program Costs

Estimates for costs on each project include preliminary engineering, construction, final design, right-of-way, utilities, environmental mitigation, contingency, and oversight/management. Operations and maintenance (O&M) costs were also considered on an annual basis, calculated by taking the product of a rate of one and a half percent and the project's construction cost which was a project engineering estimate. All dollar figures in the table below are presented in 2022 dollars and are discounted at a rate of 3.1 percent, per federal guidance. Costs for each project are summarized in **Table 15**.

Table 15: Estimated Project Costs

Projects	Construction Costs	O&M Costs
Fondren Road	$68,754,539	$17,672,805
Hillcroft Avenue	$57,088,341	$14,674,102
Chimney Rock Road	$70,617,341	$18,151,624
Dairy Ashford Road	$36,783,878	$9,455,002
Rawson Road	$18,717,283	$4,811,128
FM 3155/Collins Road	$37,923,171	$9,747,848
Main Street	$34,080,114	$8,760,021
FM 1876/Eldridge Road	$34,214,010	$8,794,438
Kirkwood Road	$82,022,011	$21,083,103
Gessner Road	$62,722,162	$16,122,231

Summary

All dollar figures in the tables below are presented in 2022 dollars and are discounted at a rate of 3.1 percent, except for carbon dioxide emissions which are discounted at a rate of 2.0 percent, per federal guidance. The table with itemized benefits and costs is summarized in **Table E**.

Table P: Full Summary Table

Projects	Travel Time Savings	Reduction in Crashes	Reduction in Emissions Damage	Residual Value	Construction Cost	O&M Cost	Benefit /Cost Ratio
Fondren Road	$29,234,301	$856,064	$17,233	$19,101,112	$68,754,539	$17,672,805	**0.46**
Hillcroft Avenue	$11,563,622	$648,929	$5,927	$15,860,055	$57,088,341	$14,674,102	**0.23**
Chimney Rock Road	$18,442,775	$443,813	$11,540	$19,618,628	$70,617,341	$18,151,624	**0.29**
Dairy Ashford Road	$8,504,400	$240,544	$3,551	$10,219,150	$36,783,878	$9,455,002	**0.26**
Rawson Road	$9,439,664	$436,518	$5,881	$5,199,961	$18,717,283	$4,811,128	**0.55**
FM 3155 / Collins Road	$8,363,260	$34,398	$4,260	$10,535,664	$37,923,171	$9,747,848	**0.24**
Main Street	$3,101,245	$440,809	$1,425	$9,468,001	$34,080,114	$8,760,021	**0.12**
FM 1876 / Eldridge Road	$7,641,537	$237,757	$3,448	$9,505,200	$34,214,010	$8,794,438	**0.25**
Kirkwood Road	$11,160,168	$45,178	$5,604	$22,787,028	$82,022,011	$21,083,103	**0.16**
Gessner Road	$15,155,880	$649,559	$8,305	$17,425,221	$62,722,162	$16,122,231	**0.27**

On the whole, projects had the highest benefits in the travel times savings benefit. By a significant margin, Fondren Road had the highest travel time savings benefit in this category, at over $29 million in benefits. In all, five of the evaluated projects had over $10 million in benefits for travel time savings, including Fondren Road ($29.2m), Hillcroft Avenue ($18.4m), Chimney Rock Road ($15.2m), South Dairy Ashford Road ($11.6m), and Rawson Road ($11.2m). Across all projects, the total raw benefit for travel time savings was $122.6 million.

The other two benefit categories, crashes and emissions, produced lower benefits than travel time savings. Again, Fondren Road had the highest benefits for both crash reduction ($856k) and reduction in emissions ($17k). For crash reductions, the five highest benefits came from the same projects that produced the highest benefits in the travel time savings category, which were Fondren Road, Hillcroft Avenue ($650k), Chimney Rock Road ($649k), South Dairy Ashford Road ($444k), and Rawson Road

($441k). Across all projects, the total benefit for crash reduction was $4.0 million and for reduced emissions was $67 thousand, both well under the raw benefit from travel time savings.

Two proposals stood out for producing the highest benefit/cost ratios over the others, which were Rawson Road (0.55) and Fondren Road (0.46). As noted, Fondren Road had the highest benefits of any proposal across all 3 benefit categories, though, like all projects, this was offset by the construction cost ($68.8m) and the O&M cost ($17.7m). While not producing the same degree of benefits as some other proposals, Rawson Road has the lowest construction cost ($18.7m) and O&M cost ($4.8m) of any of the proposals.

In summary, none of the evaluated projects reached a benefit-cost ratio of 1 or higher. This is not to say that the projects are of no tangible benefit—for instance, Fondren Road has a very high benefit of nearly $50 million, including residual value. However, the 3 calculated benefits are a function of AADT, gate down times, and crashes, and in all cases, these metrics are not significant enough to outweigh the estimated project costs.

Appendix A
Priority Index Calculations for UPRR Glidden Subdivision Grade Crossings

Appendix A

Priority Index Calculations for UPRR Glidden Subdivision Grade Crossings

DOT#	Roadway	V	T	S	Pf	A	Priority Index	Ranking		Notes
755624C	Fondren Road	23803	37	30	0.1	5	16818	1		
755622N	Hillcroft Avenue	13521	37	60	0.1	4	14782	2		
755621G	Chimney Rock Road	11805	37	60	0.1	2	5816	3		
440652H	Post Oak Road SB frontage road	9354	37	60	0.1	2	4608	4		AADT data from 2016
743689L	Gessner Road	11598	37	30	0.1	3	4554	5		
743703E	Main Street	8206	37	60	0.1	2	4043	6		
745044J	Dairy Ashford Road	15978	37	60	0.1	1	3547	7		
743699S	FM 1876/Eldridge Road	15500	37	60	0.1	1	3441	8		
922513V	SH 6 SB frontage road	6675	37	60	0.1	2	3288	9		
743731H	3rd Street	6838	52	60	0.15	1	3200	10		
743726L	FM 3155/Collins Road	9321	37	60	0.15	1	3104	11		
743695P	Kirkwood Road	12729	37	60	0.1	1	2826	12		
743719B	2nd Street	5036	37	45	0.15	2	2791	13		
743727T	Rawson Drive	5593	52	60	0.15	1	2618	14		
755618Y	Post Oak Road NB frontage road	9302	37	60	0.1	1	2065	15		AADT data from 2016
441027B	Stadium Drive	8895	37	60	0.1	1	1975	16		AADT data is not at crossing, but is the closest available information
743688E	Cravens Road	1888	37	30	0.1	7	1964	17		
743713K	Harlem Road	7474	37	60	0.1	1	1659	18		
922512N	SH 6 NB frontage road	6836	37	60	0.1	1	1518	19		
743716F	Pitts Road	4157	37	60	0.15	1	1384	20		
743698K	Industrial Boulevard	4900	37	60	0.1	1	1088	21		
745055W	Gillingham Lane	4865	37	60	0.1	1	1080	22		
924008H	FM 1092/Murphy Road NB frontage road	4141	37	60	0.1	1	919	23		
755623V	Haviland Street	1795	37	60	0.1	2	884	24		
743724X	10th Street	2471	37	60	0.15	1	823	25		
412514U	Promenade Boulevard	3652	37	60	0.1	1	811	26		
743706A	Ulrich Street	3616	37	55	0.1	1	736	27		
924007B	Stafford Road SB frontage road	2434	37	60	0.1	1	540	28		
924006U	Stafford Road NB frontage road	2230	37	60	0.1	1	495	29		
924009P	FM 1092/Murphy Road SB frontage road	2037	37	60	0.1	1	452	30		AADT 2022 data noticably lower vs 2021, 2020, etc (2000 vs 4000+)
743704L	Brooks Street	1159	37	55	0.1	1	236	31		
743723R	8th Street	573	37	60	0.15	1	191	32		
743722J	6th Street	452	37	60	0.15	1	151	33		
743725E	Douglas Street	310	37	60	0.15	1	103	34		
743720V	4th Street	317	37	45	0.15	1	79	35		
748393E	Schlumberger Drive	310	37	60	0.1	1	69	36		
743709V	Circle Drive	310	37	60	0.1	1	69	36		AADT from 2019
743712D	Jones Drive	1	37	60	1	1	2	38		AADT from 1970, no crash data
743714S	Private	1	37	60	1	1	2	38		AADT from 1970, no crash data

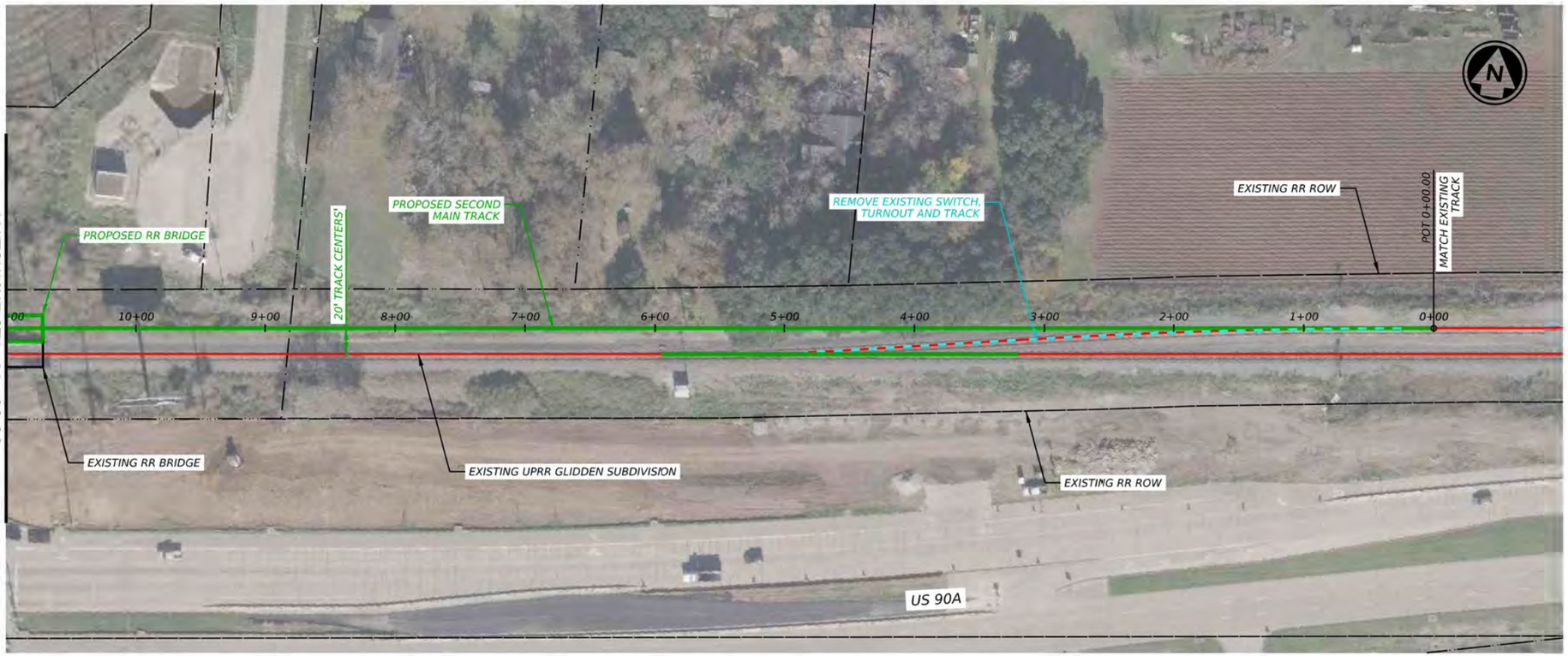
Appendix B

Data Sources Used in Study Update

Data	Reference Used
Aerial Photography (concepts)	Bing Maps
Existing Ground Profile	USGS
Street Level Review	Google Maps/Google Street View
ROW / Parcel Data	Publicly available GIS parcel data
Track Charts	Railroad owners (as applicable)
ROW Ownership	Local appraisal districts (Harris/Fort Bend)
Roadway Traffic Volumes	FRA Grade Crossing Inventory forms
Train Volumes	Railroad owners (as applicable)
Crash Information	TxDOT Crash Records Information System (CRIS)

Appendix C

Railroad Concept Exhibits



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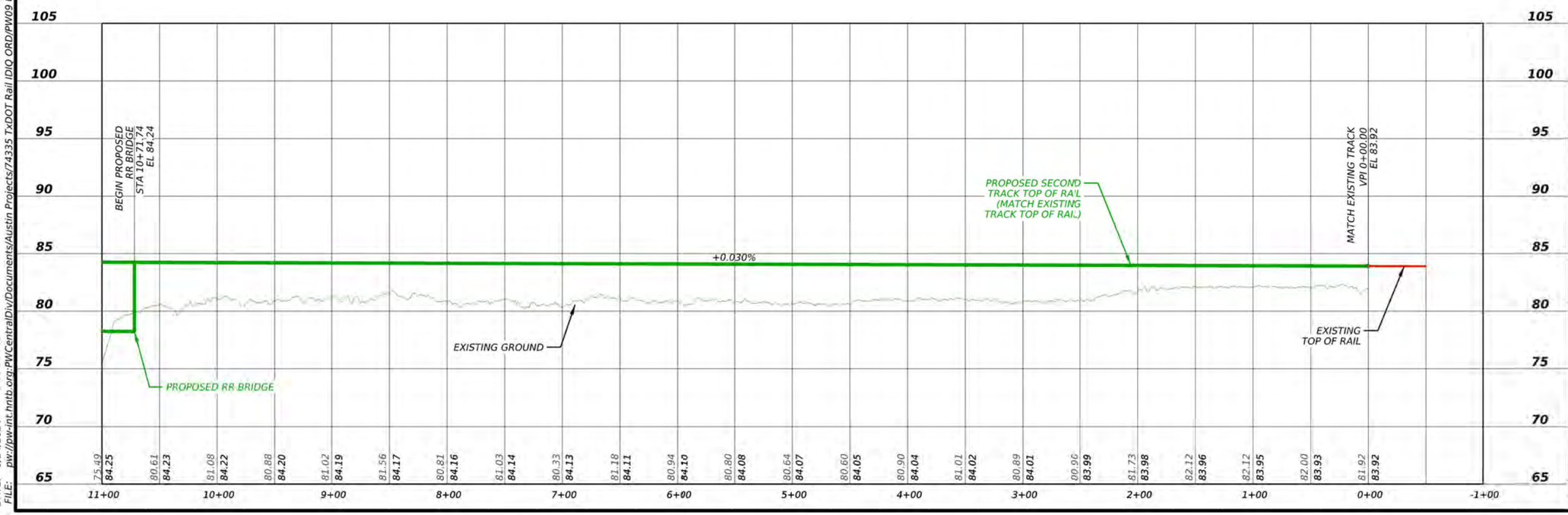

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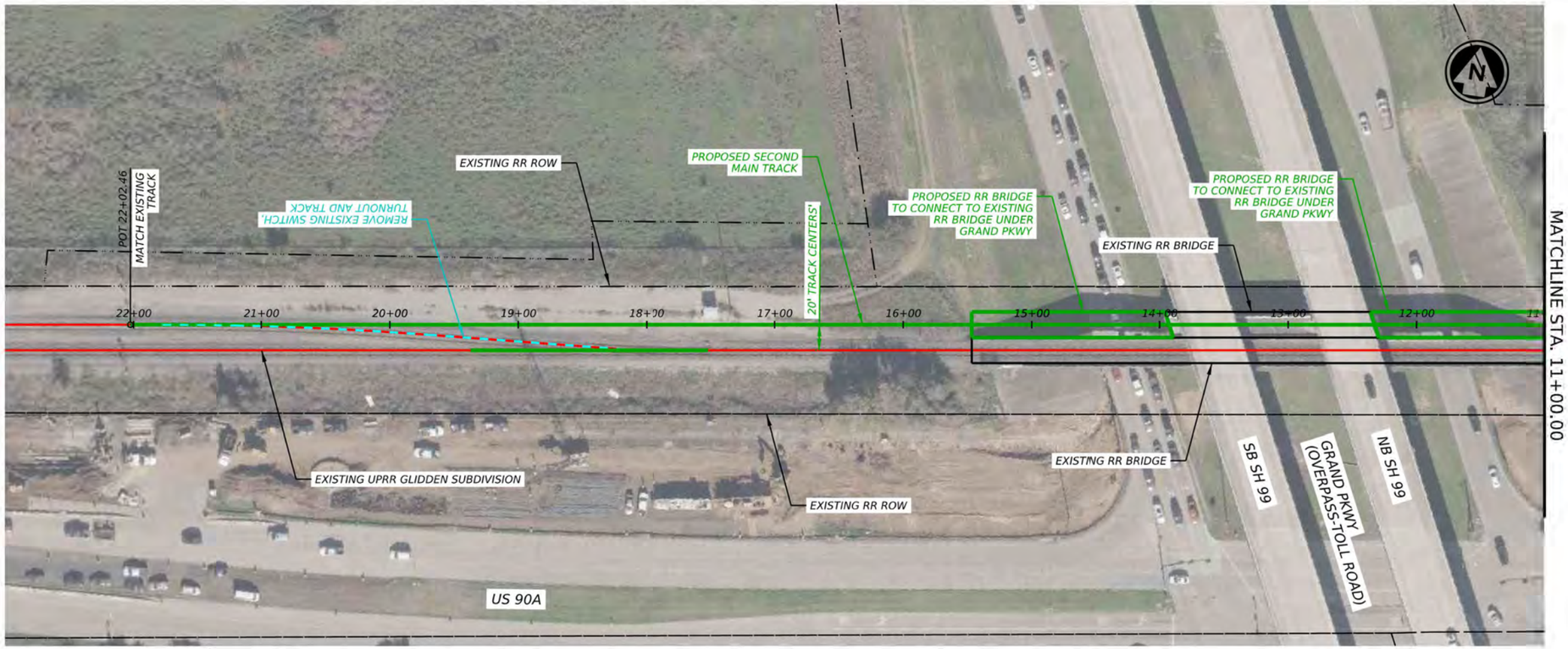

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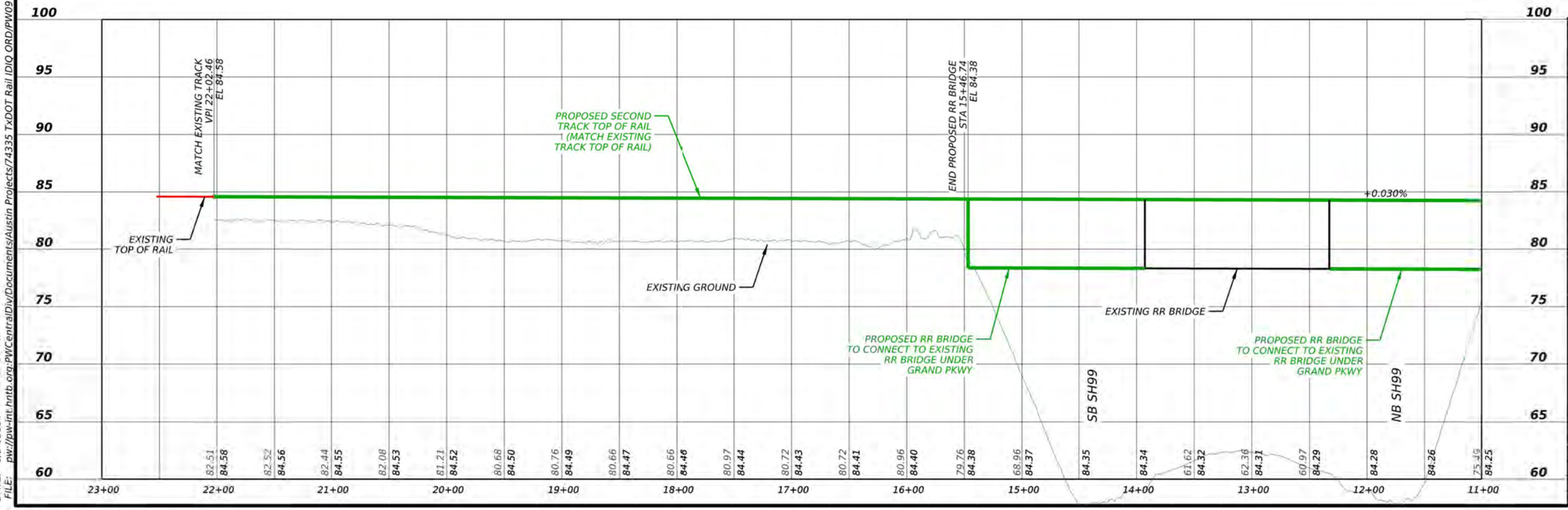

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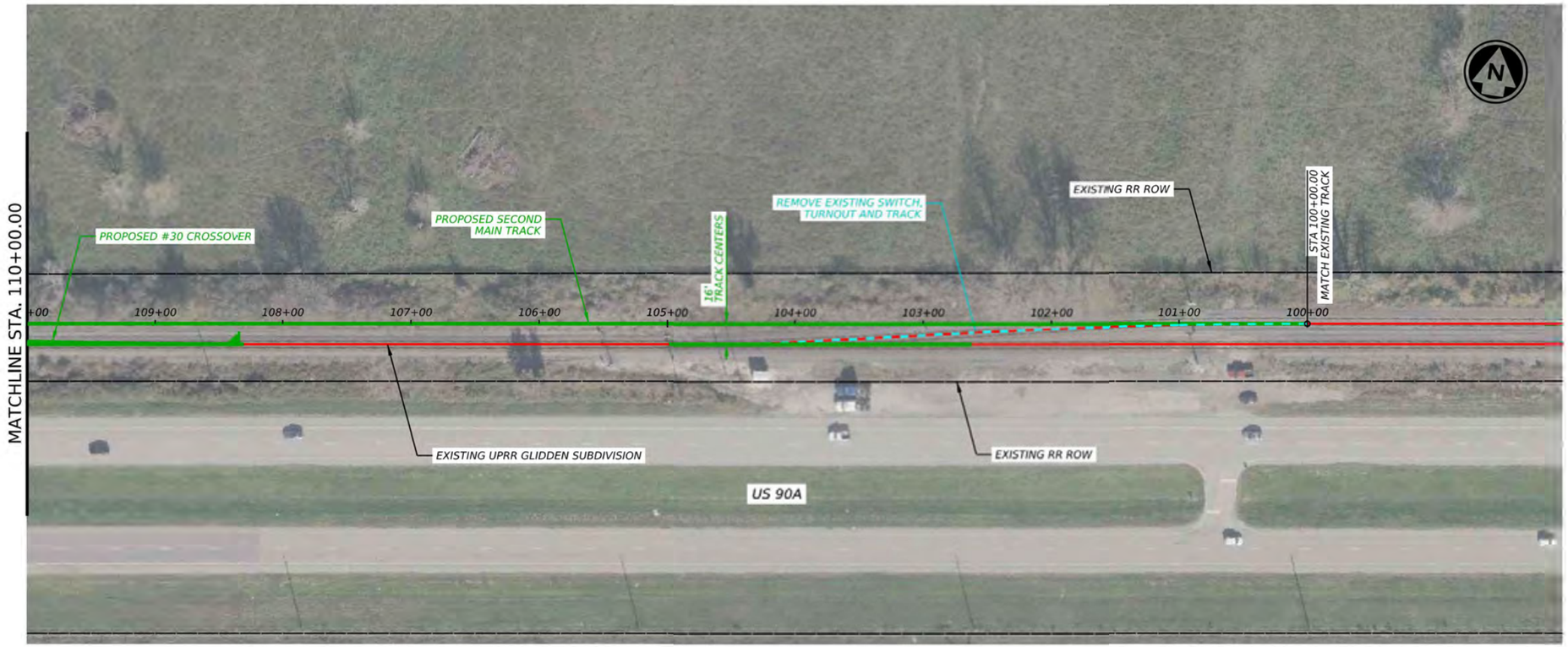

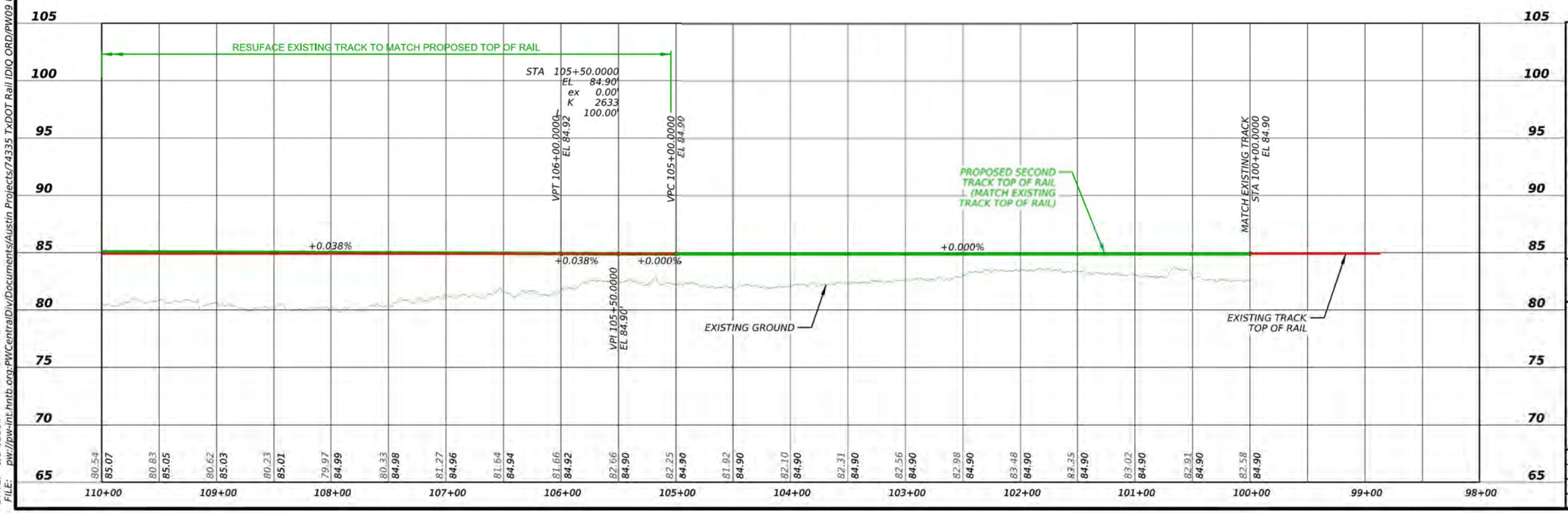

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NOTE:

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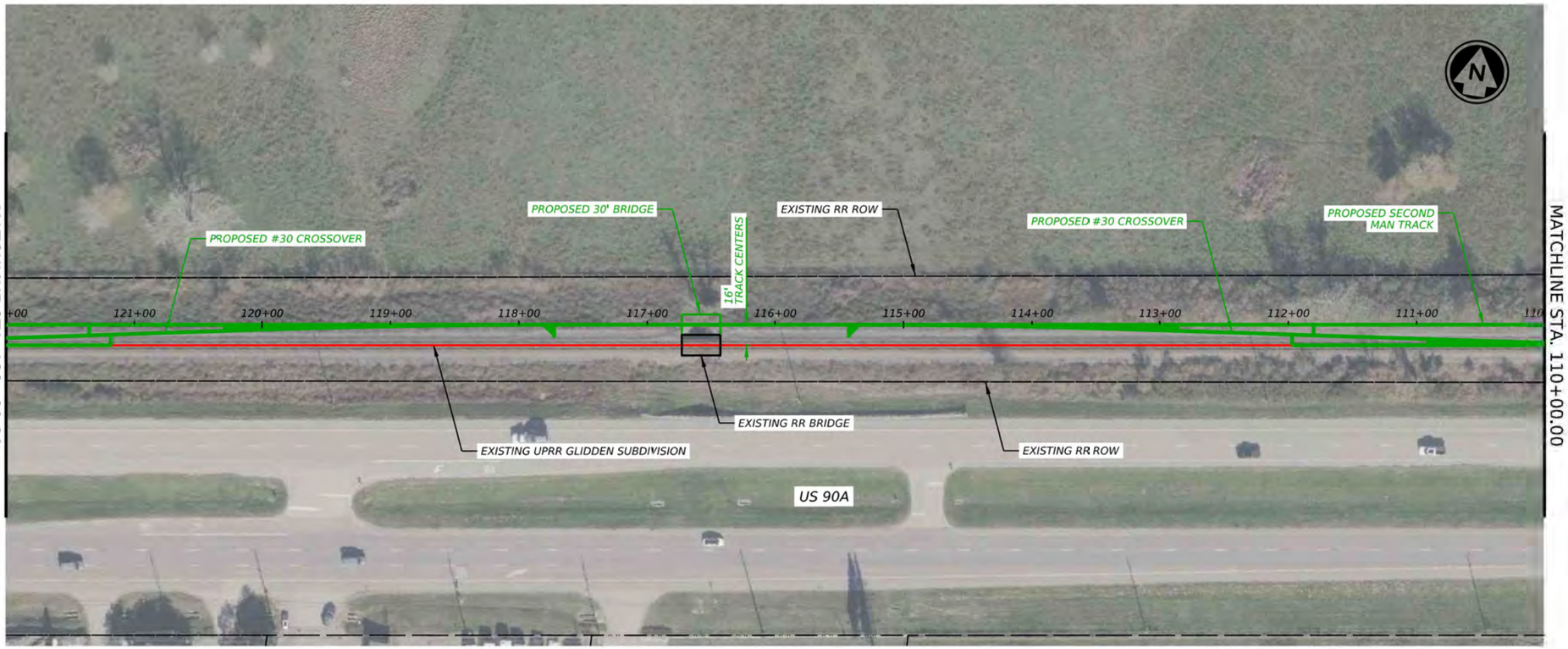

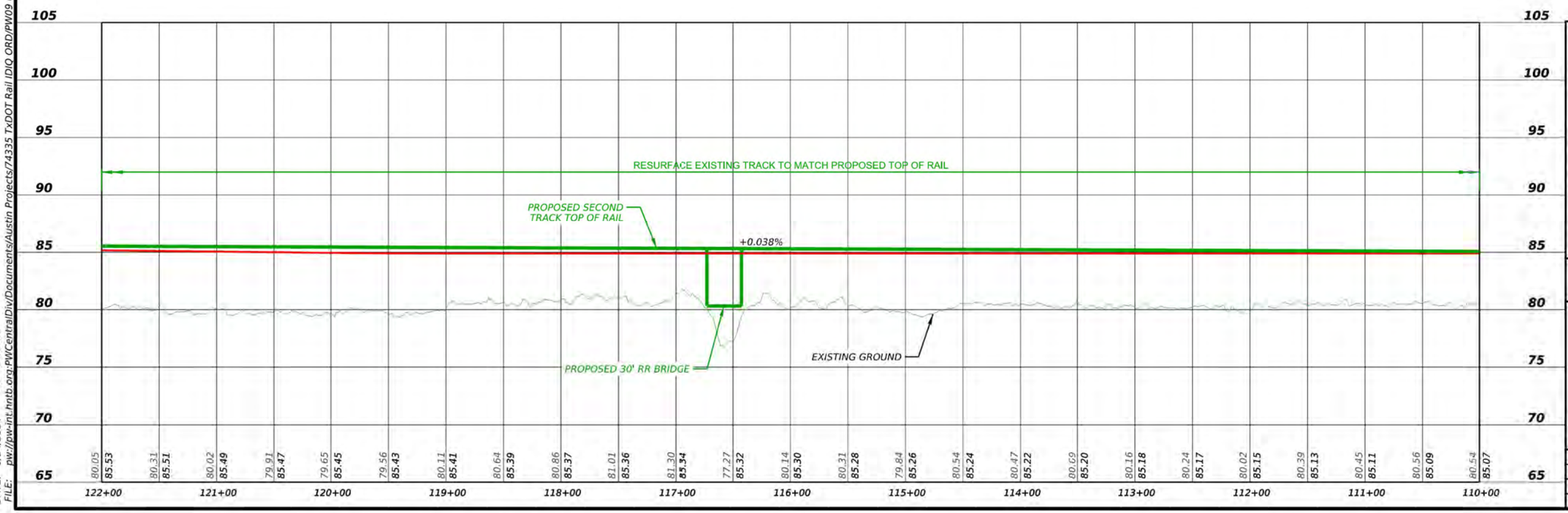

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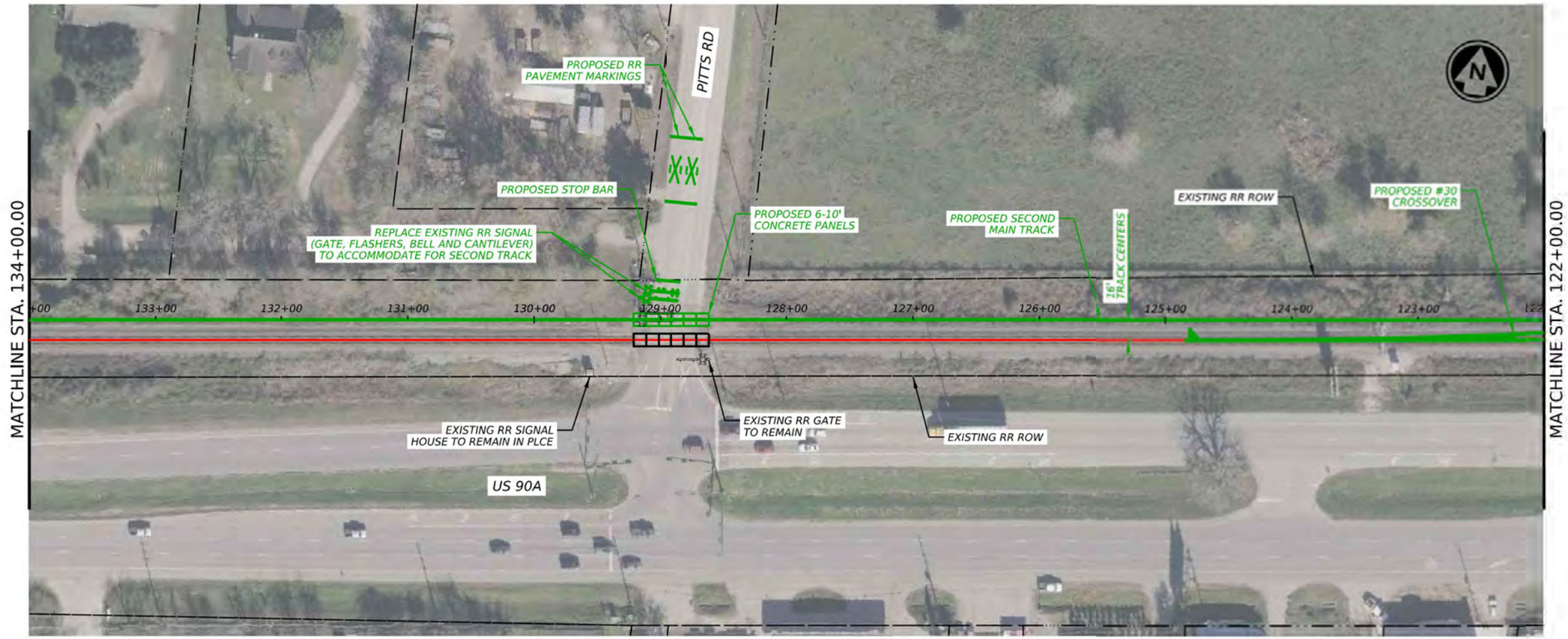

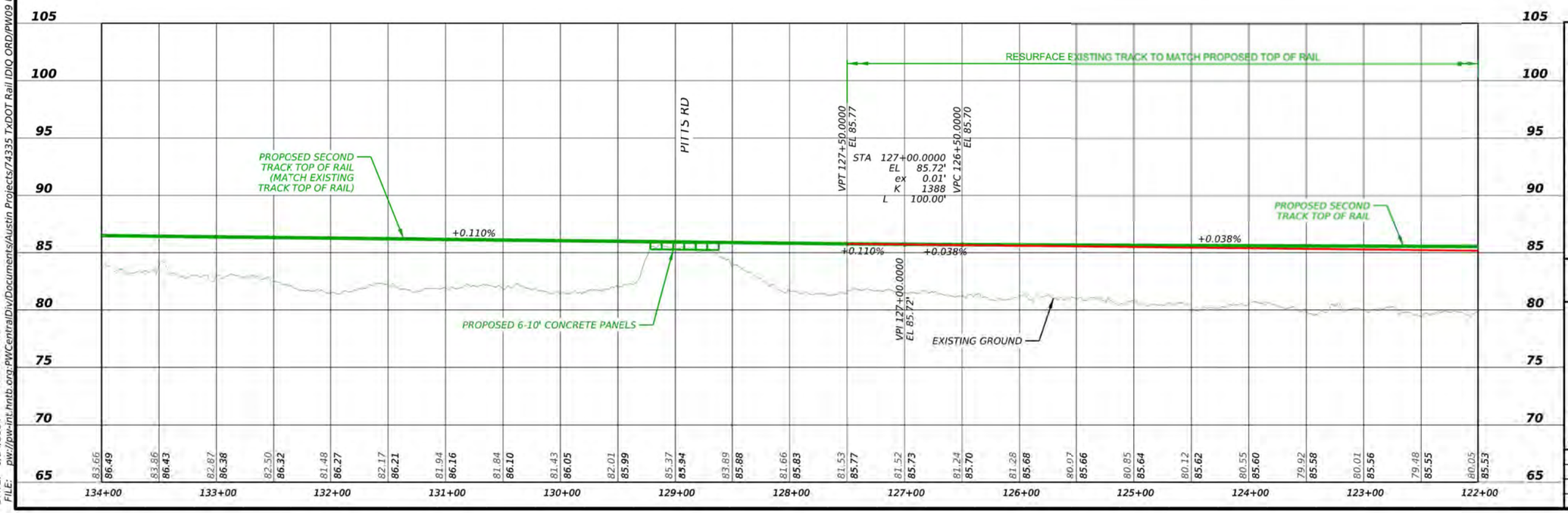

LEGEND:

- EXISTING TRACK
- EXISTING BRIDGE
- REMOVE EXISTING TRACK
- LINEOVER/SHIFT EXISTING TRACK
- PROPOSED TRACK
- PROPOSED BRIDGE

NOTE:

RAILROAD IMPROVEMENTS DO NOT INCLUDE POSSIBLE GRADE SEPARATION OR CROSSING CLOSURE CONCEPTS.

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET

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JOSHUA A MIETH, P.E.
NO. 97346

ON: 9/24/2024

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HNTB
TBPE FIRM Registration No. 420

Texas Department of Transportation

UPRR GLIDDEN SUB

RAIL IMPROVEMENTS SECOND MAIN TRACK PLAN AND PROFILE STA 122+00 TO STA 134+00

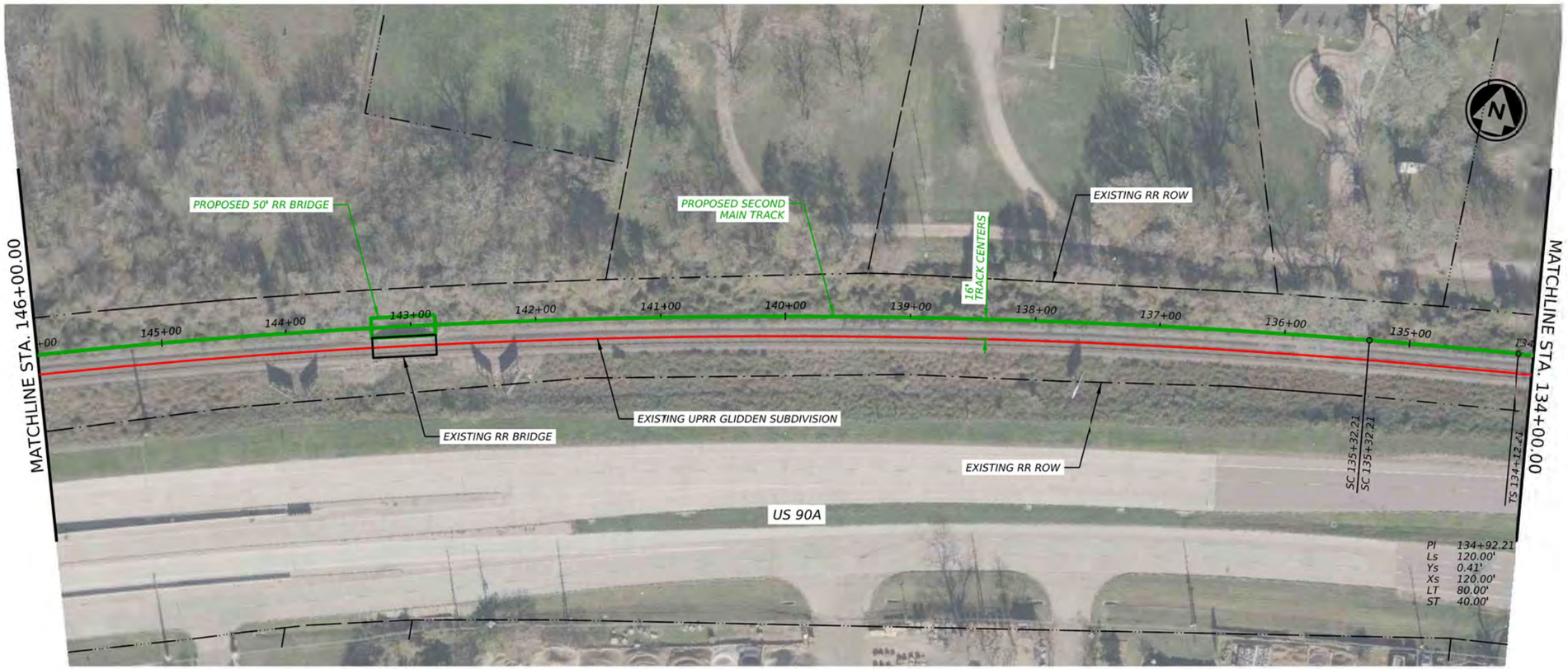
SHEET 3 OF 17

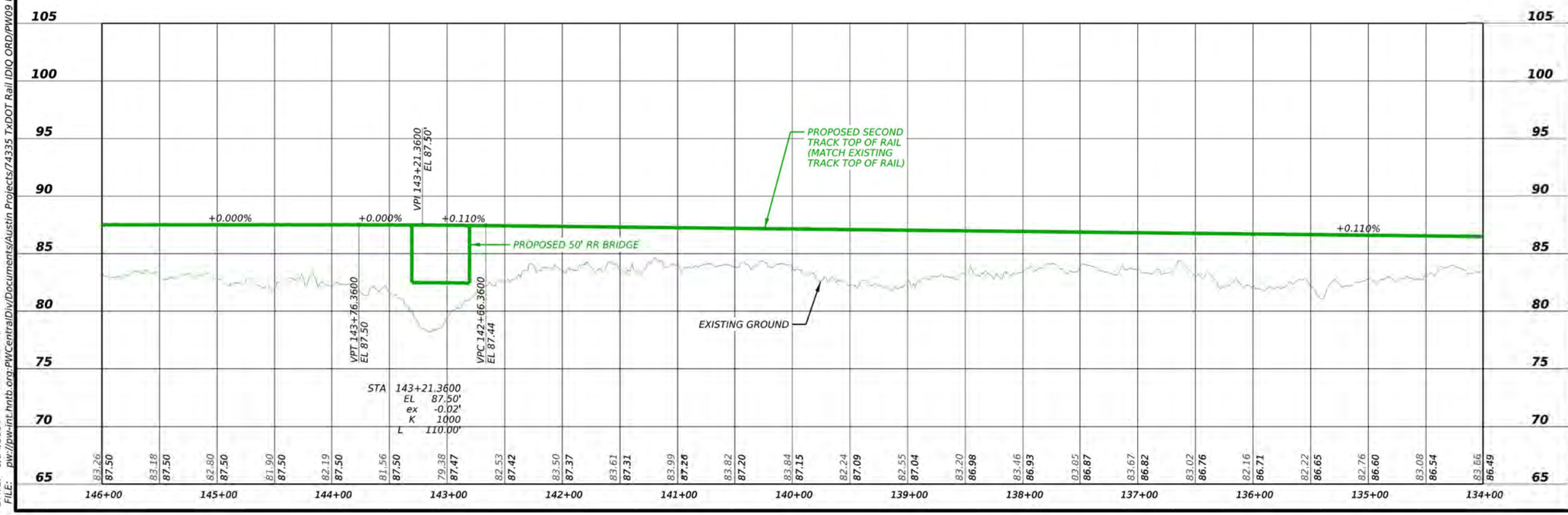
CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	3

DATE: 9/24/2024 11:27:01 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Rail-Improvements/Rail-Imp-UPRR-Trk-Alg2-PP.dgn

DW: AK,JB,NZ,RN CK: JM,JR DW: AK,JB,NZ,RN CK: JM,JR





LEGEND:

- EXISTING TRACK
- EXISTING BRIDGE
- REMOVE EXISTING TRACK
- LINEOVER/SHIFT EXISTING TRACK
- PROPOSED TRACK
- PROPOSED BRIDGE

NOTE:

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0 50 100
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0 2 4 6 8 10
V : SCALE IN FEET

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Texas Department of Transportation

UPRR GLIDDEN SUB

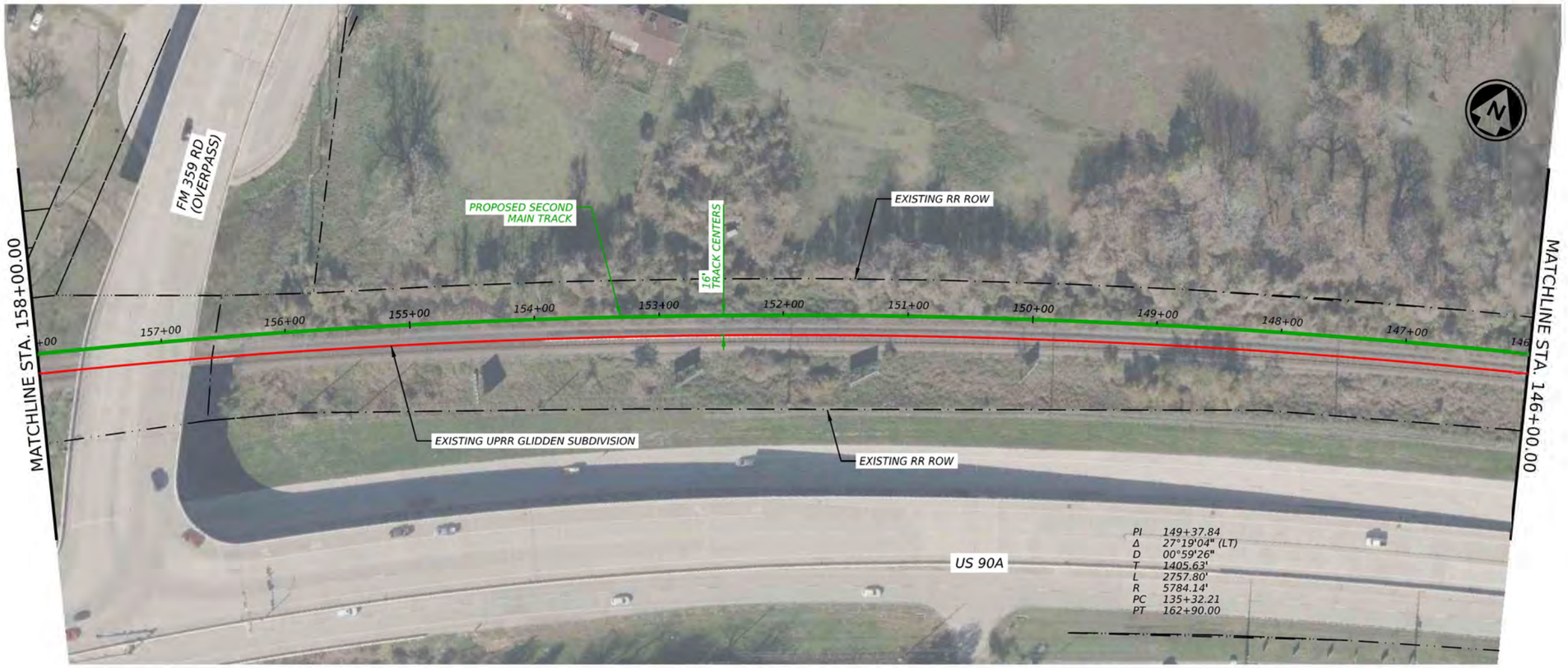
RAIL IMPROVEMENTS SECOND MAIN TRACK PLAN AND PROFILE STA 134+00 TO STA 146+00

SHEET 4 OF 17

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		4

DATE: 9/24/2024 11:27:13 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Rail-Improvements/Rail-Imp-UPRR-Trk-Alg2-PP.dgn

DW: AK,JB,NZ,RN CK: JM,JR
DW: AK,JB,NZ,RN CK: JM,JR



LEGEND:

- EXISTING TRACK
- EXISTING BRIDGE
- REMOVE EXISTING TRACK
- LINEOVER/SHIFT EXISTING TRACK
- PROPOSED TRACK
- PROPOSED BRIDGE

NOTE:

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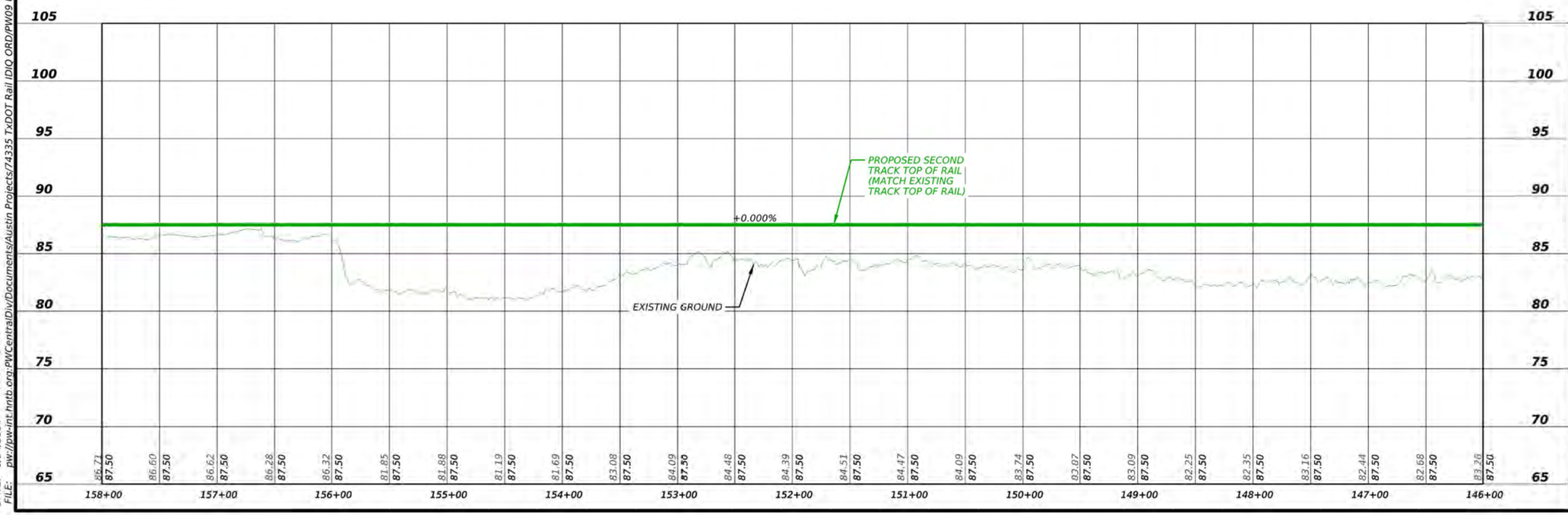
0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET



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Texas Department of Transportation

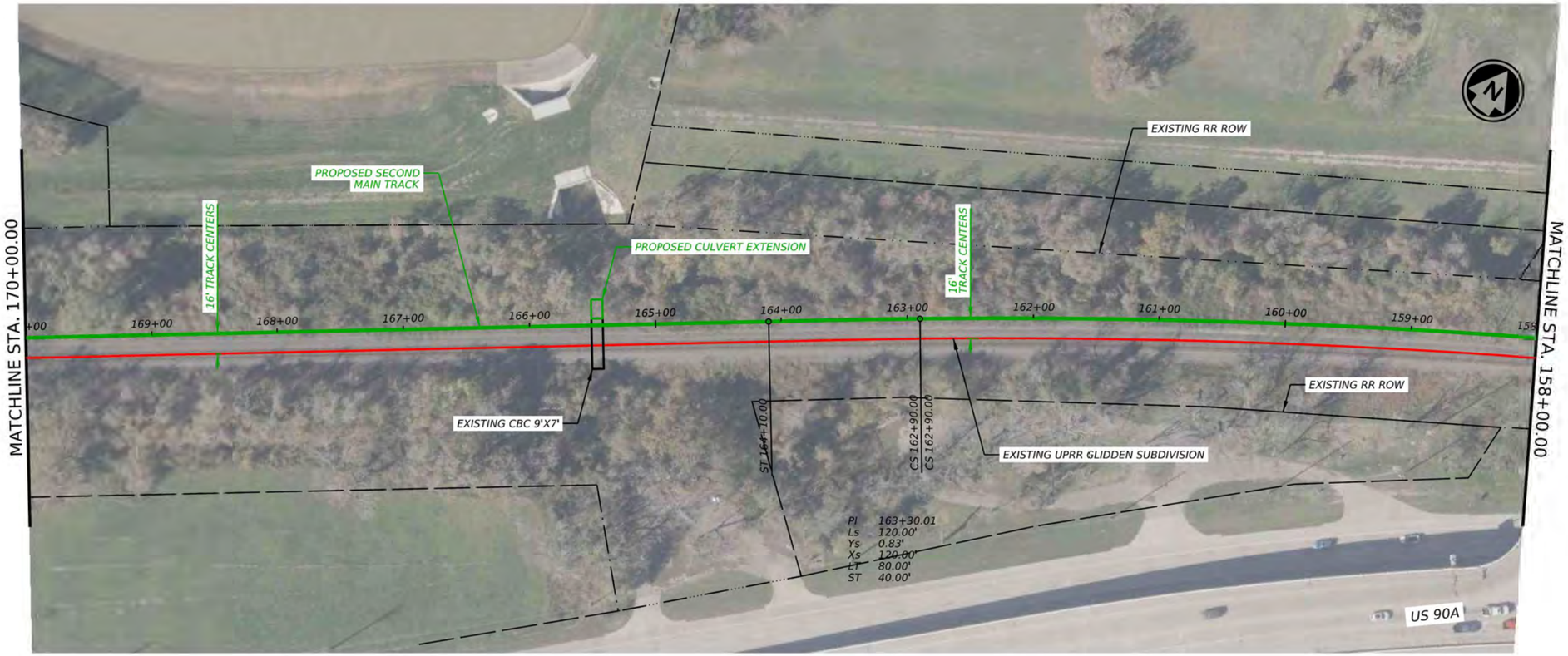
UPRR GLIDDEN SUB

RAIL IMPROVEMENTS SECOND MAIN TRACK PLAN AND PROFILE STA 146+00 TO STA 158+00

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		5

DATE: 9/24/2024 11:27:28 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Rail-Improvements/Rail-Imp-UPRR-Trk-Alg2-PP.dgn

DW: AK,JB,NZ,RN CK: JM,JR DW: AK,JB,NZ,RN CK: JM,JR



LEGEND:

- EXISTING TRACK
- EXISTING BRIDGE
- REMOVE EXISTING TRACK
- LINEOVER/SHIFT EXISTING TRACK
- PROPOSED TRACK
- PROPOSED BRIDGE

NOTE:

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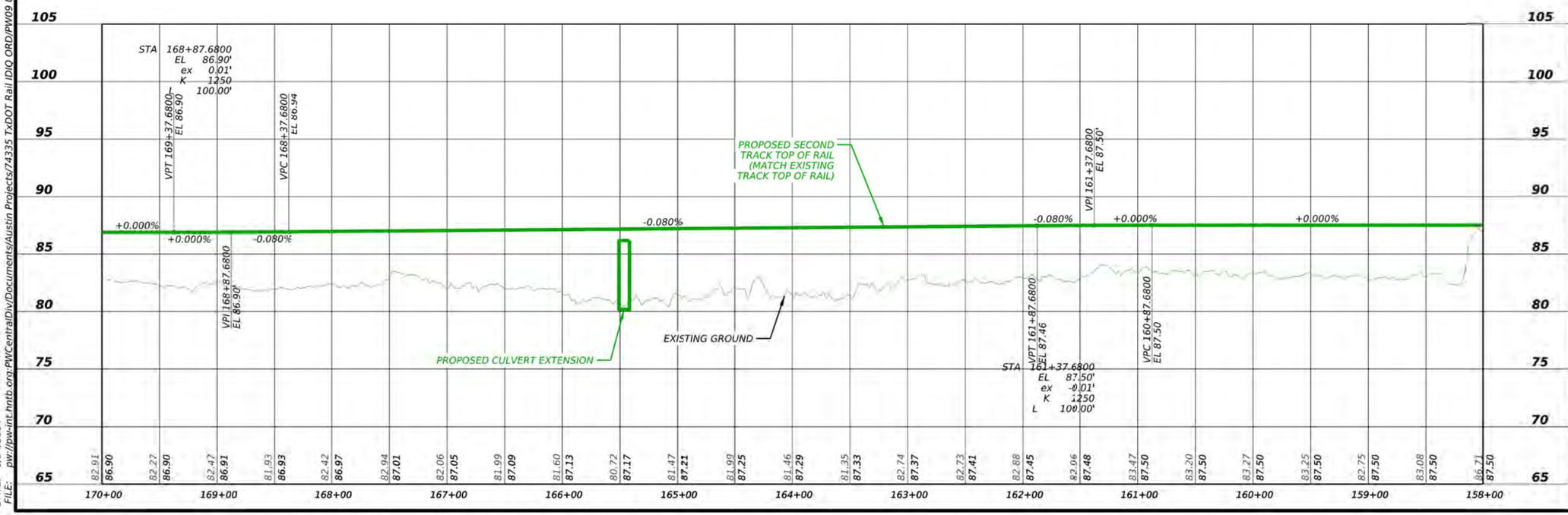
0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET



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UPRR GLIDDEN SUB

RAIL IMPROVEMENTS SECOND MAIN TRACK PLAN AND PROFILE STA 158+00 TO STA 170+00

SHEET 6 OF 17

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		6

DATE: 9/24/2024 11:27:41 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Rail-Improvements/Rail-Imp-UPRR-Trk-Alg2-PP.dgn

LEGEND:

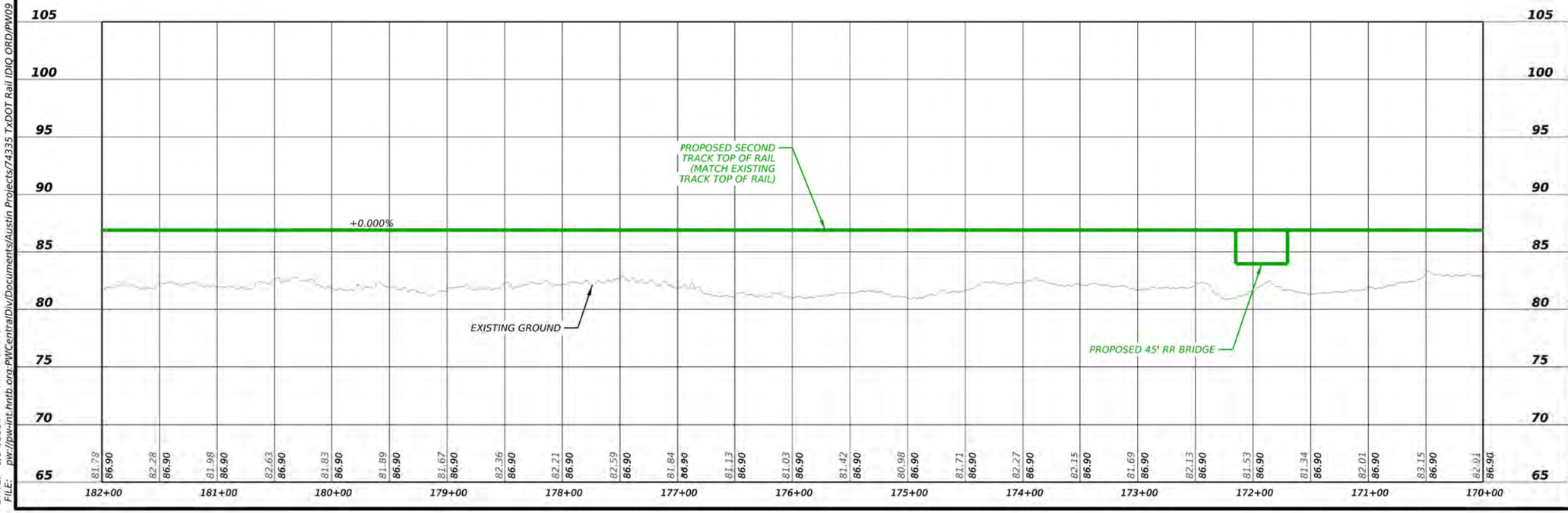
- EXISTING TRACK
- EXISTING BRIDGE
- REMOVE EXISTING TRACK
- LINEOVER/SHIFT EXISTING TRACK
- PROPOSED TRACK
- PROPOSED BRIDGE

NOTE:

RAILROAD IMPROVEMENTS DO NOT INCLUDE POSSIBLE GRADE SEPARATION OR CROSSING CLOSURE CONCEPTS.

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET



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UPRR GLIDDEN SUB

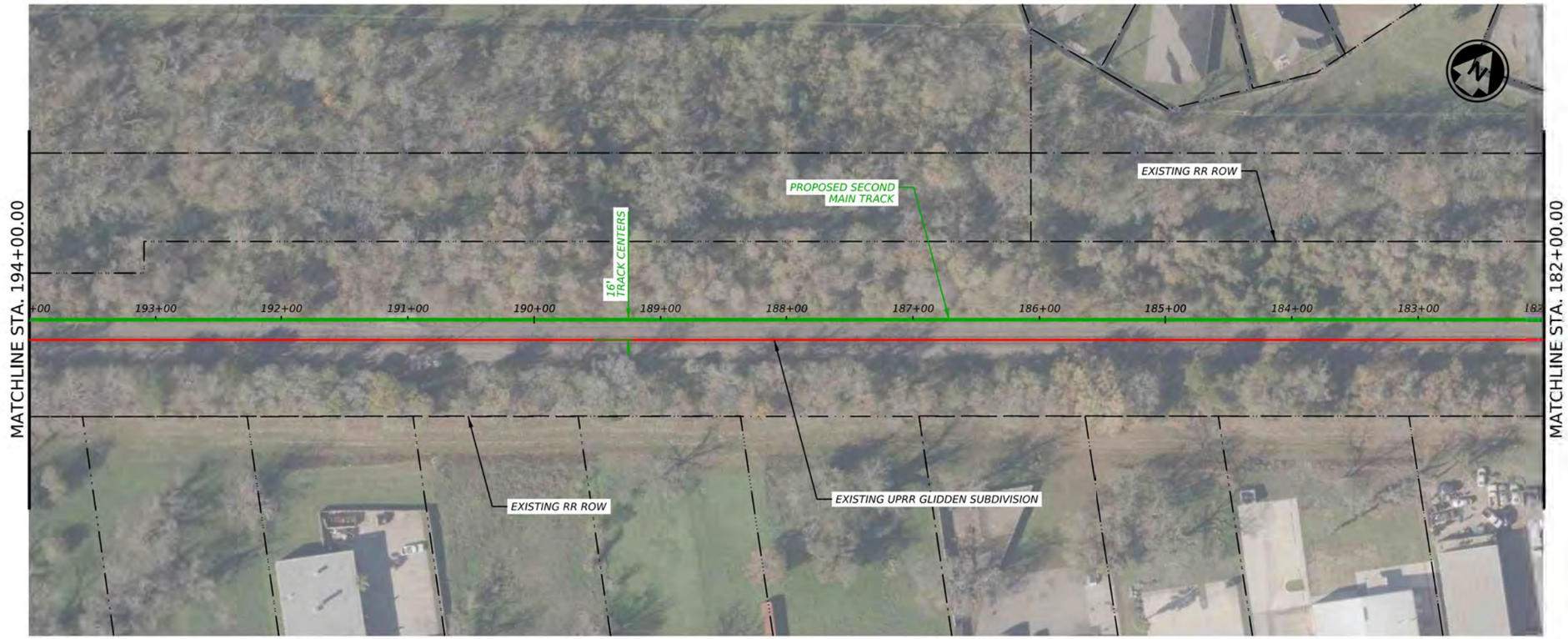
RAIL IMPROVEMENTS SECOND MAIN TRACK PLAN AND PROFILE STA 170+00 TO STA 182+00

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	7

DATE: 9/24/2024 11:27:55 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Rail-Improvements/Rail-Imp-UPRR-Trk-Alg2-PP.dgn

DW: AK,JB,NZ,RN CK: JM,JR DW: AK,JB,NZ,RN CK: JM,JR



LEGEND:

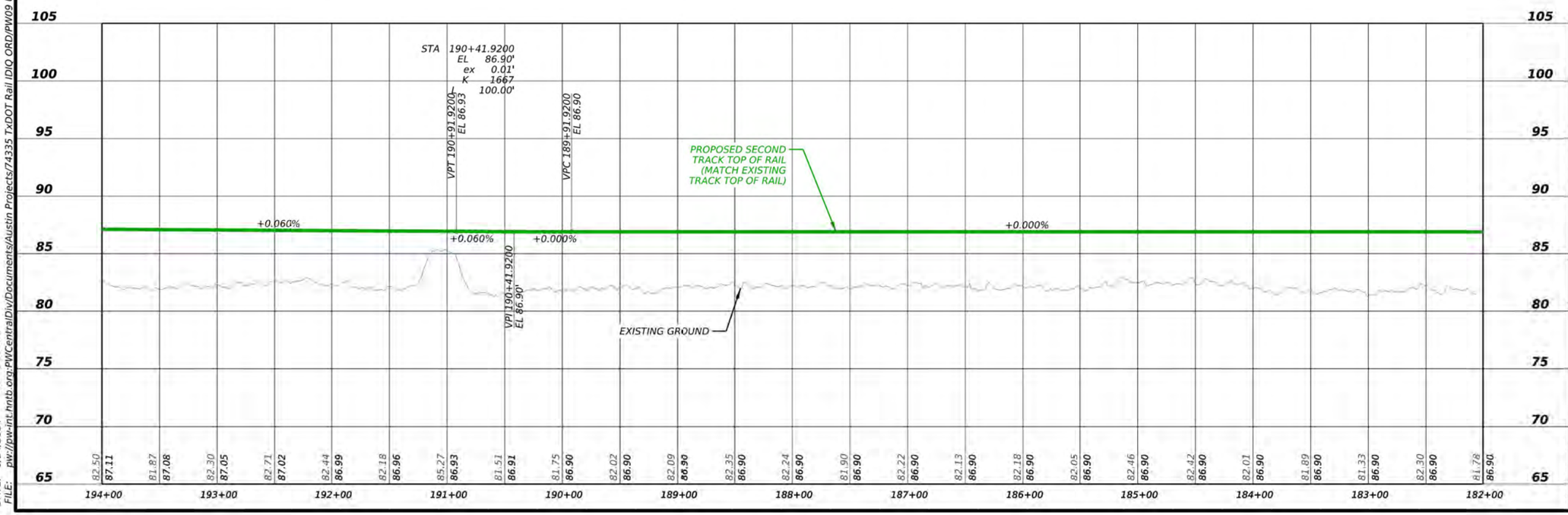
- EXISTING TRACK
- EXISTING BRIDGE
- REMOVE EXISTING TRACK
- LINEOVER/SHIFT EXISTING TRACK
- PROPOSED TRACK
- PROPOSED BRIDGE

NOTE:

RAILROAD IMPROVEMENTS DO NOT INCLUDE POSSIBLE GRADE SEPARATION OR CROSSING CLOSURE CONCEPTS.

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET



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ROADWAY NAME

RAIL IMPROVEMENTS
SECOND MAIN TRACK
PLAN AND PROFILE
STA 182+00 TO STA 194+00

SHEET 8 OF 17

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	8

DATE: 9/24/2024 11:28:09 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Rail-Improvements/Rail-Imp-UPRR-Trk-Alg2-PP.dgn

DW: AK,JB,NZ,RN CK: JM,JR DW: AK,JB,NZ,RN CK: JM,JR

DW: AK, JB, NZ, RN CK: JM, JR DW: AK, JB, NZ, RN CK: JM, JR

LEGEND:

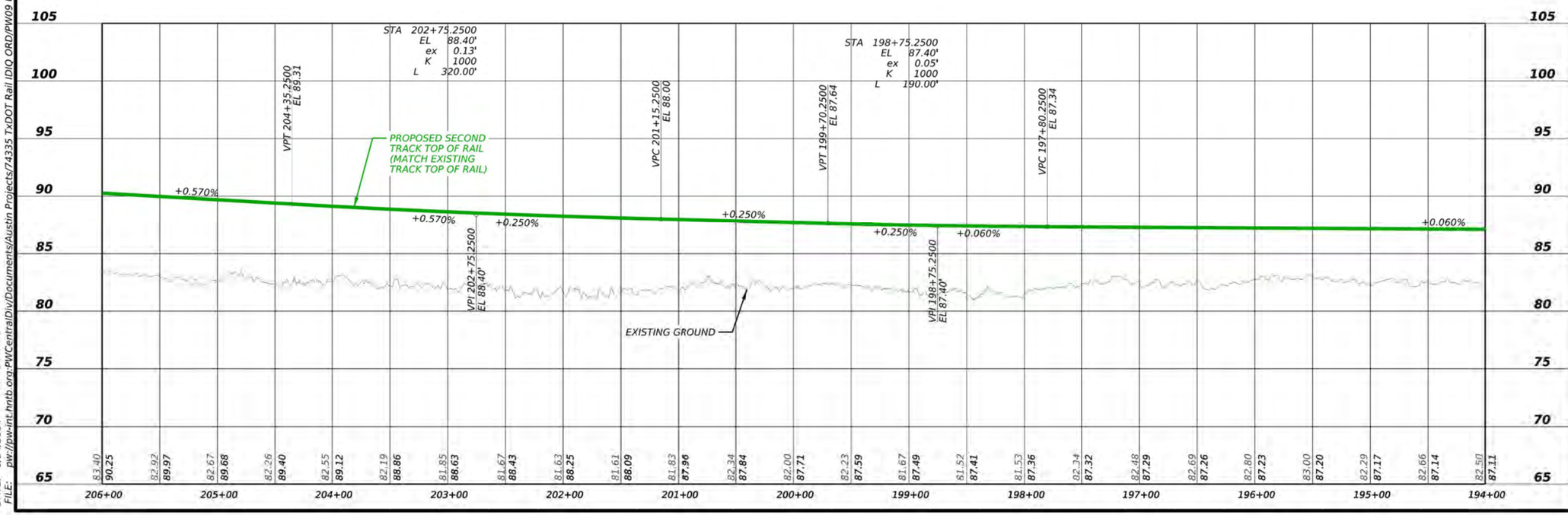
🟥	EXISTING TRACK
☐	EXISTING BRIDGE
- - -	REMOVE EXISTING TRACK
—	LINEOVER/SHIFT EXISTING TRACK
🟩	PROPOSED TRACK
☐	PROPOSED BRIDGE

NOTE:

RAILROAD IMPROVEMENTS DO NOT INCLUDE POSSIBLE GRADE SEPARATION OR CROSSING CLOSURE CONCEPTS.

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET



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Registration No. 420

Texas Department of Transportation

UPRR GLIDDEN SUB

RAIL IMPROVEMENTS
SECOND MAIN TRACK
PLAN AND PROFILE
STA 194+00 TO STA 206+00

SHEET 9 OF 17

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	9

DATE: 9/24/2024 11:28:24 AM
FILE: pw://pw-int.hntb.org:PWCentral/Div/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Rail-Improvements/Rail-Imp-UPRR-Trk-Alg2-PP.dgn

DW: AK, JB, BZ, RN | CK: JM, JR | DW: AK, JB, BZ, RN | CK: JM, JR

LEGEND:

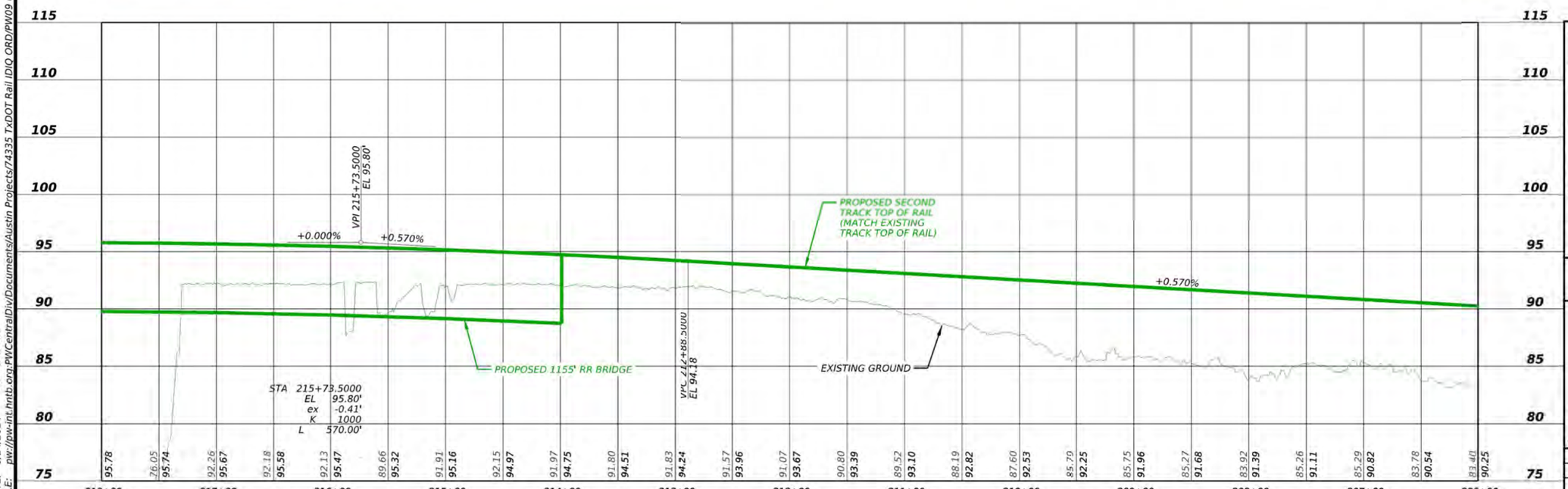
- EXISTING TRACK
- EXISTING BRIDGE
- REMOVE EXISTING TRACK
- LINEOVER/SHIFT EXISTING TRACK
- PROPOSED TRACK
- PROPOSED BRIDGE

NOTE:

RAILROAD IMPROVEMENTS DO NOT INCLUDE POSSIBLE GRADE SEPARATION OR CROSSING CLOSURE CONCEPTS.

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET



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Texas Department of Transportation

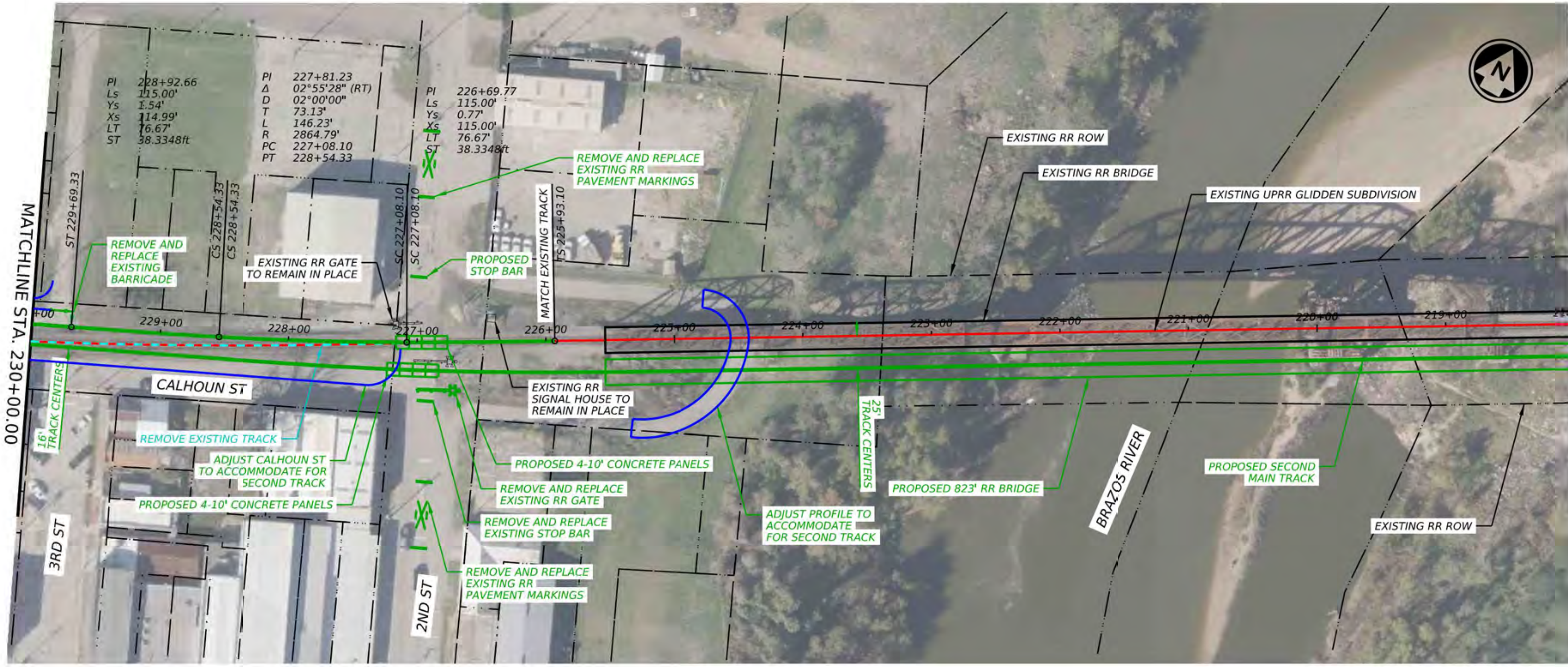
UPRR GLIDDEN SUB

RAIL IMPROVEMENTS SECOND MAIN TRACK PLAN AND PROFILE STA 206+00 TO STA 218+00

SHEET 10 OF 17

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		10

DATE: 9/24/2024 11:28:42 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Rail-Improvements/Rail-Imp-UPRR-Trk-Alg2-PP.dgn



LEGEND:

- EXISTING TRACK
- EXISTING BRIDGE
- REMOVE EXISTING TRACK
- LINEOVER/SHIFT EXISTING TRACK
- PROPOSED TRACK
- PROPOSED BRIDGE

NOTE:

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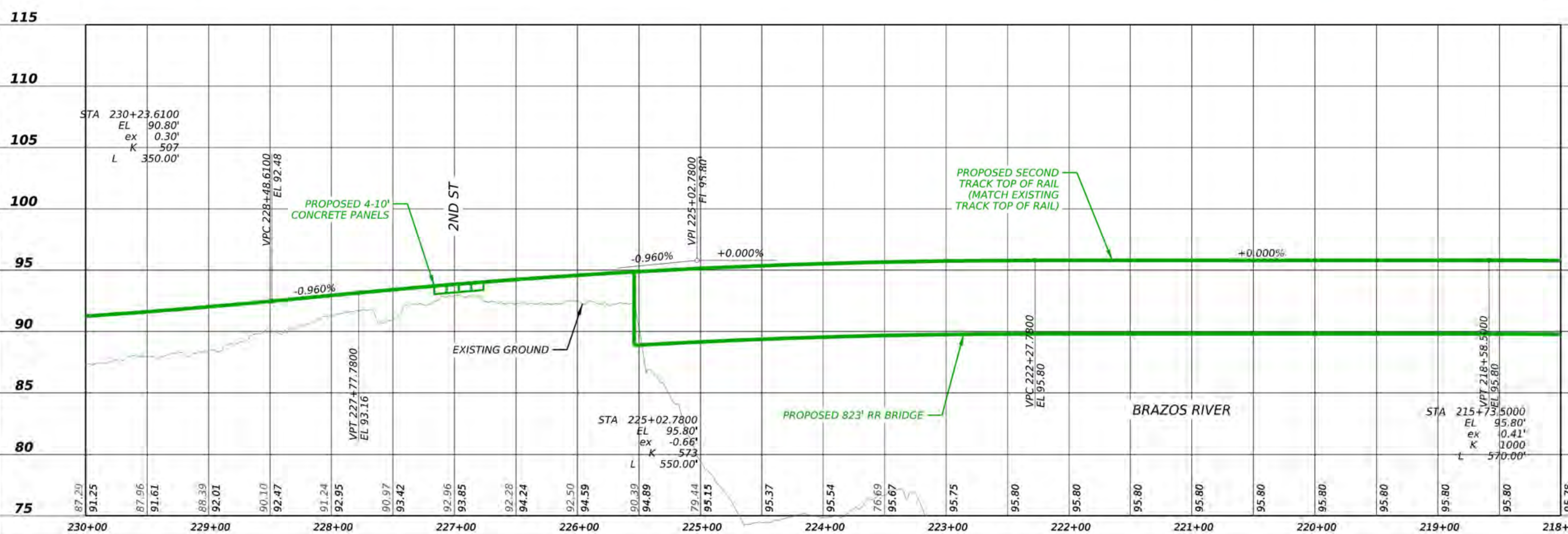
0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET



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UPRR GLIDDEN SUB

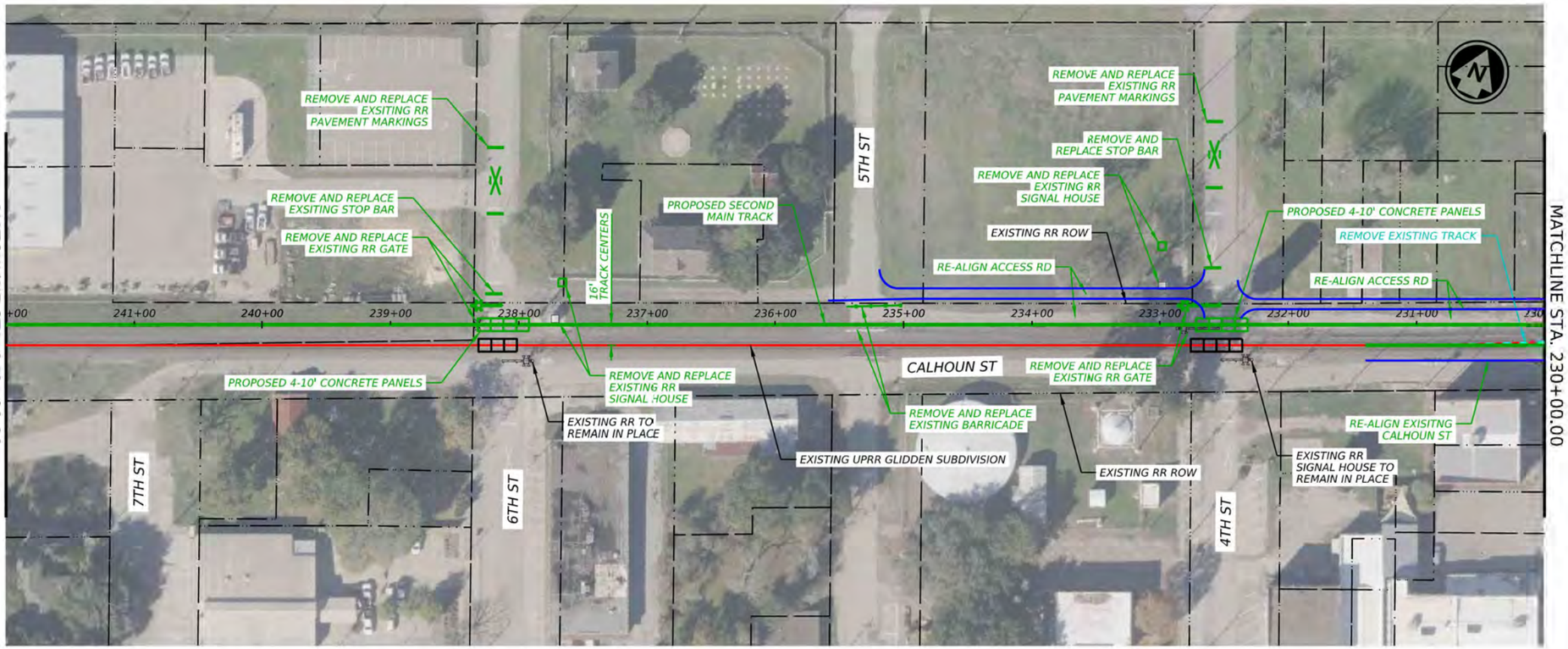
RAIL IMPROVEMENTS
SECOND MAIN TRACK
PLAN AND PROFILE
STA 218+00 TO STA 230+00

SHEET 11 OF 17

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	11

DATE: 9/24/2024 11:28:56 AM
FILE: pw://pw-int.hntb.org:PWCentral/Div/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Rail-Improvements/Rail-Imp-UPRR-Trk-Alg2-PP.dgn



LEGEND:

- EXISTING TRACK
- EXISTING BRIDGE
- REMOVE EXISTING TRACK
- LINEOVER/SHIFT EXISTING TRACK
- PROPOSED TRACK
- PROPOSED BRIDGE

NOTE:

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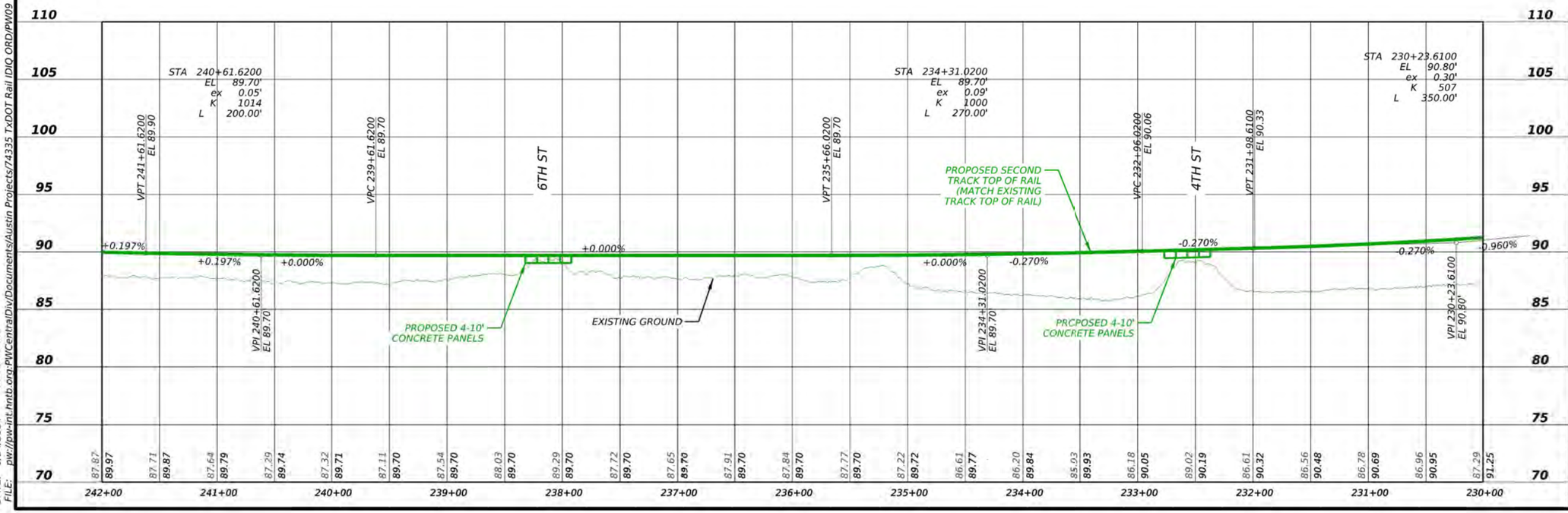
0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET



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UPRR GLIDDEN SUB

RAIL IMPROVEMENTS SECOND MAIN TRACK PLAN AND PROFILE STA 230+00 TO STA 242+00

SHEET 12 OF 17

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		12

DATE: 9/24/2024 11:29:10 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Rail-Improvements/Rail-Imp-UPRR-Trk-Alg2-PP.dgn

DW: AK,JB,NZ,RN CK: JM,JR
DW: AK,JB,NZ,RN CK: JM,JR

MATCHLINE STA. 254+00.00

REMOVE AND REPLACE EXISTING RR PAVEMENT MARKINGS
REMOVE AND REPLACE EXISTING STOP BAR
REMOVE AND REPLACE EXISTING RR GATE
PROPOSED SECOND MAIN TRACK
PROPOSED 3-10' CONCRETE PANELS
PROPOSED 44' RR BRIDGE
EXISTING RR ROW
16' TRACK CENTERS
REMOVE AND REPLACE EXISTING RR PAVEMENT MARKINGS
REMOVE AND REPLACE EXISTING STOP BAR
REMOVE AND REPLACE EXISTING RR GATE
PROPOSED 4-10' CONCRETE PANELS
REMOVE AND REPLACE EXISTING RR GATE
EXISTING UPRR GLIDDEN SUBDIVISION
EXISTING RR ROW
EXISTING RR GATE TO REMAIN IN PLACE
SC 247+11.95
SC 247+11.95
TS 245+86.95
EXISTING RR GATE TO REMAIN IN PLACE
REMOVE AND REPLACE EXISTING RR GATE
CALHOUN ST
10TH ST
9TH ST
8TH ST

PI 246+70.29
Ls 125.00'
Xs 0.16'
Xs 125.00'
LT 83.33'
ST 41.67'

253+00 252+00 251+00 250+00 249+00 248+00 247+00 246+00 245+00 244+00 243+00

MATCHLINE STA. 242+00.00

LEGEND:
- EXISTING TRACK
- EXISTING BRIDGE
- REMOVE EXISTING TRACK
- LINEOVER/SHIFT EXISTING TRACK
- PROPOSED TRACK
- PROPOSED BRIDGE

NOTE:
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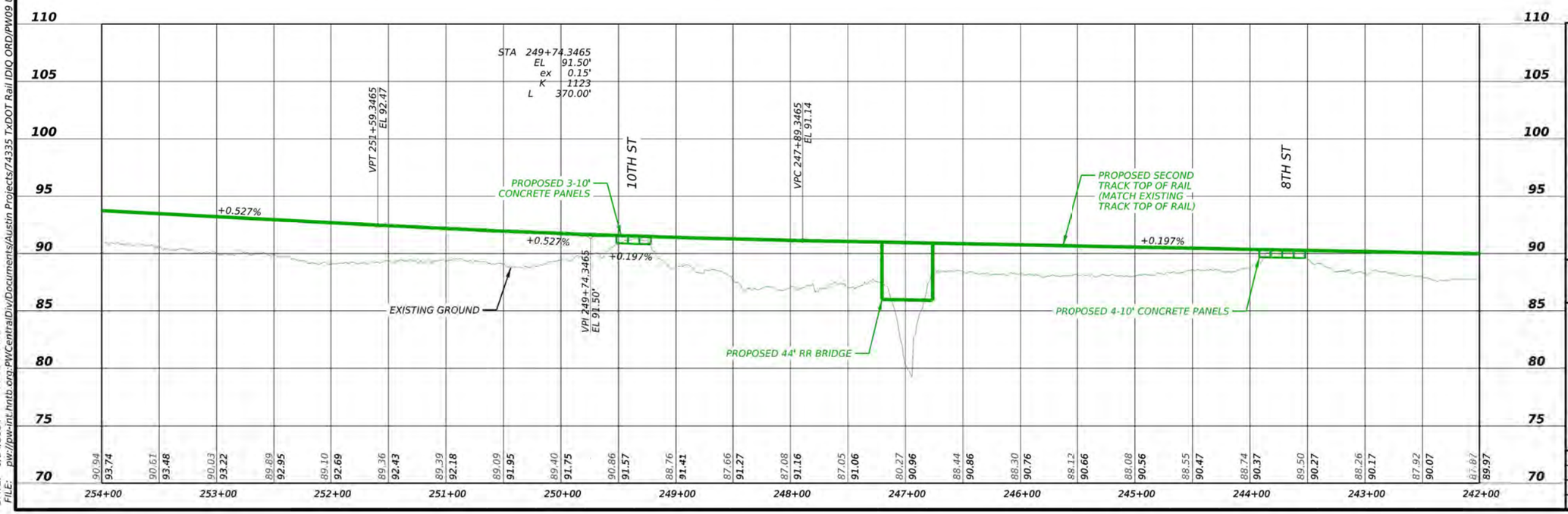
0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET



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Texas Department of Transportation

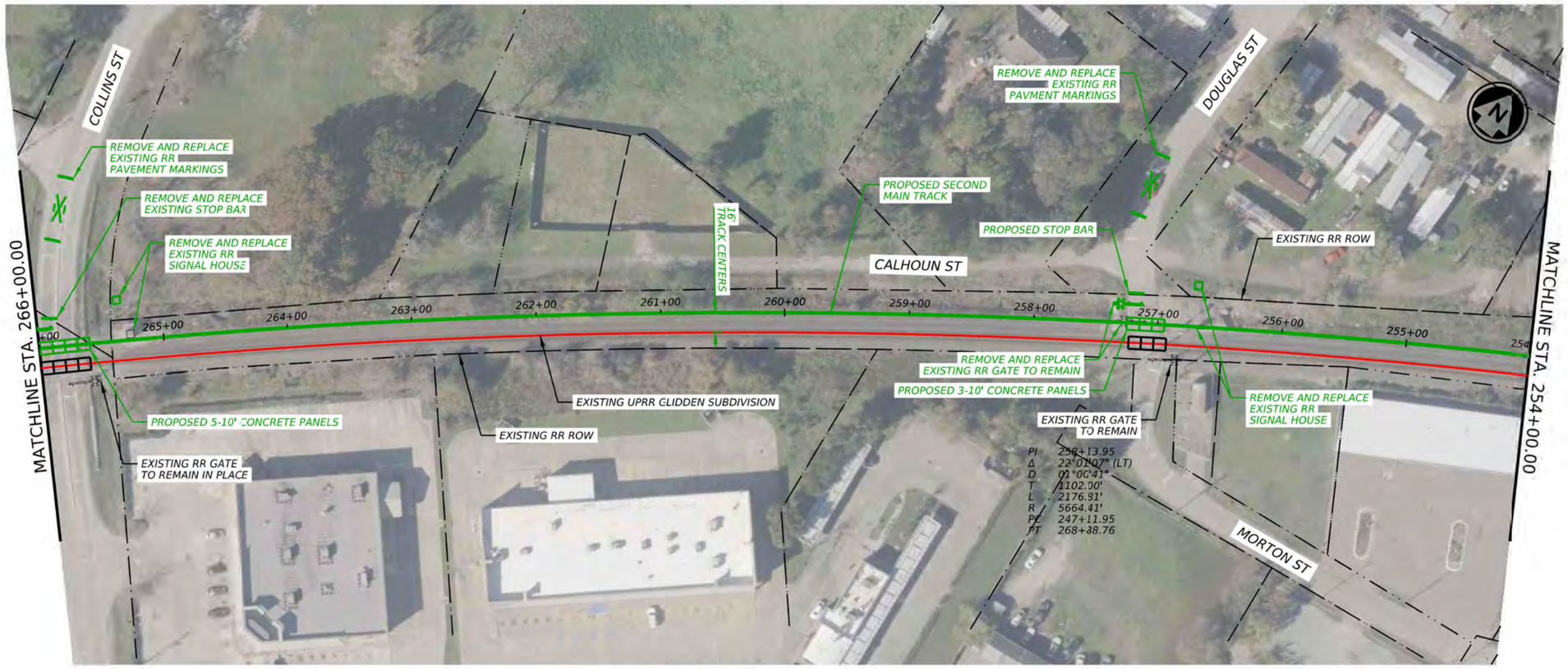
UPRR GLIDDEN SUB

RAIL IMPROVEMENTS SECOND MAIN TRACK PLAN AND PROFILE STA 242+00 TO STA 254+00

SHEET 13 OF 17

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		13

DATE: 9/24/2024 11:29:24 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Rail-Improvements/Rail-Imp-UPRR-Trk-Alg2-PP.dgn



LEGEND:

- EXISTING TRACK
- EXISTING BRIDGE
- REMOVE EXISTING TRACK
- LINEOVER/SHIFT EXISTING TRACK
- PROPOSED TRACK
- PROPOSED BRIDGE

NOTE:

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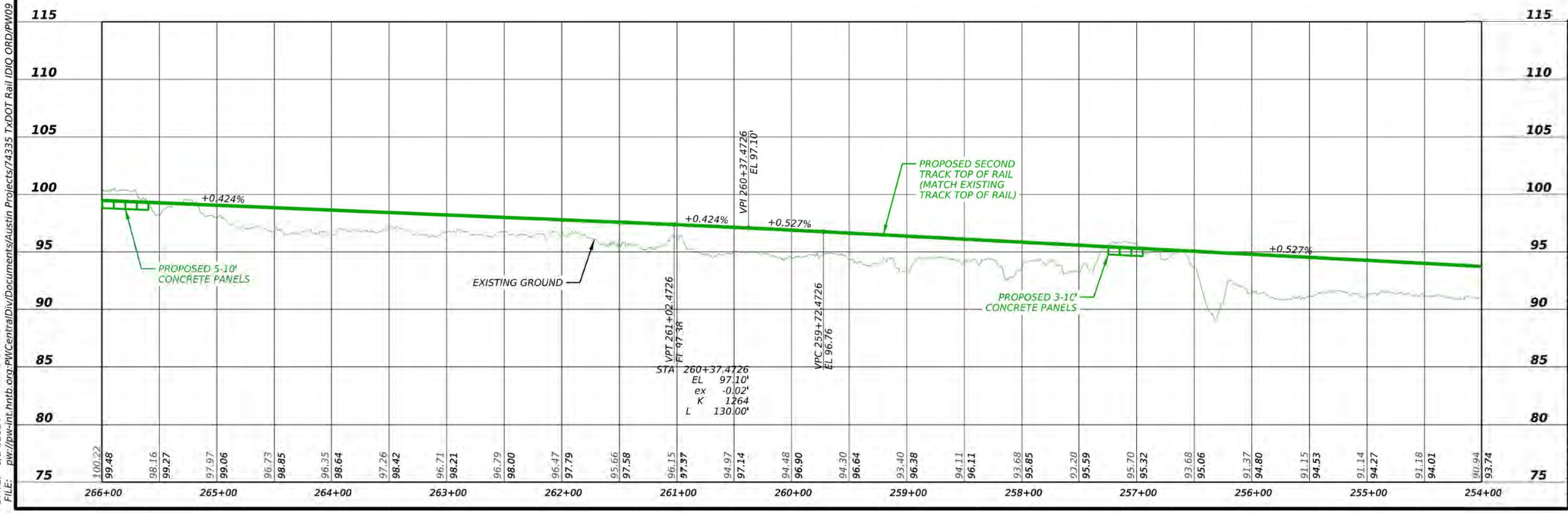
H: SCALE IN FEET 0 50 100

V : SCALE IN FEET 0 2 4 6 8 10



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Texas Department of Transportation

UPRR GLIDDEN SUB

RAIL IMPROVEMENTS SECOND MAIN TRACK PLAN AND PROFILE STA 254+00 TO STA 266+00

SHEET 14 OF 17

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		14

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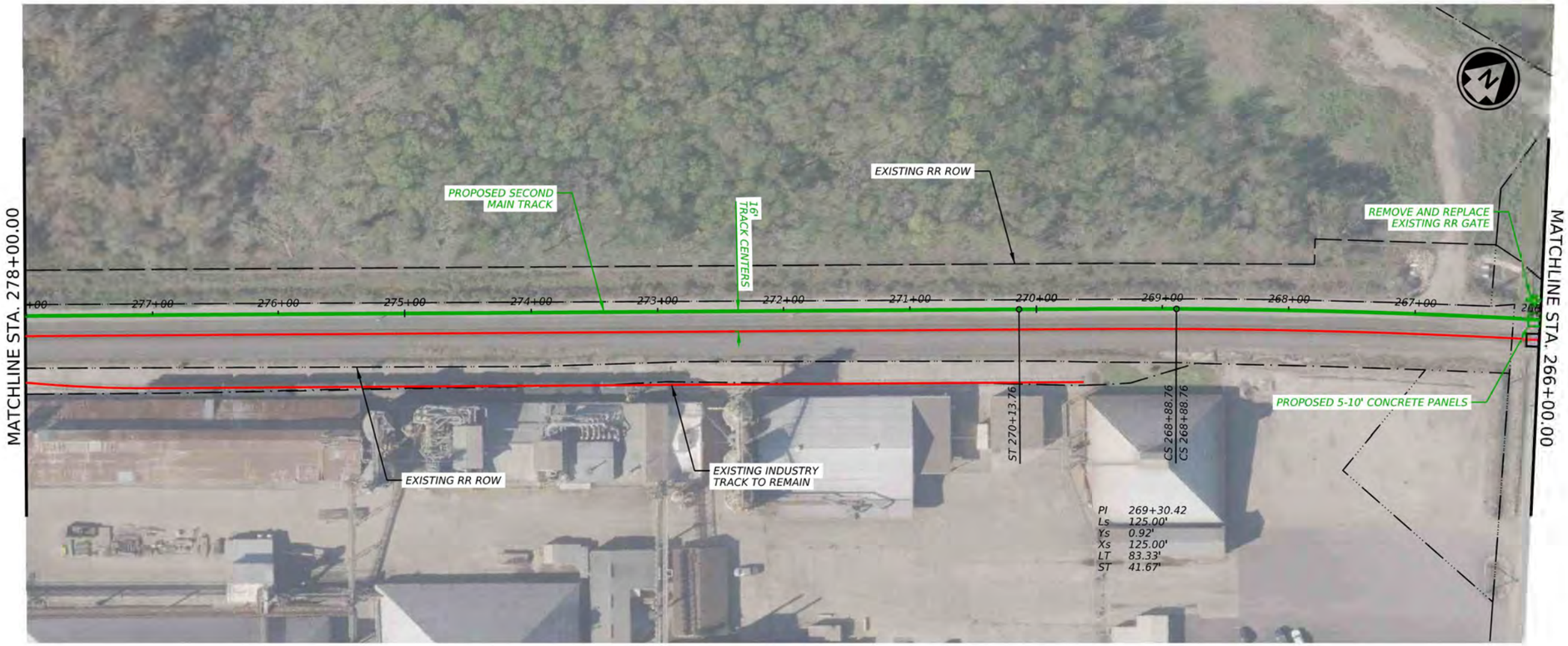
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Rail-Improvements/Rail-Imp-UPRR-Trk-Alg2-PP.dgn

DW: JK, JB, NZ, RN CK: JM, JR



LEGEND:

- EXISTING TRACK
- EXISTING BRIDGE
- REMOVE EXISTING TRACK
- LINEOVER/SHIFT EXISTING TRACK
- PROPOSED TRACK
- PROPOSED BRIDGE

NOTE:

RAILROAD IMPROVEMENTS DO NOT INCLUDE POSSIBLE GRADE SEPARATION OR CROSSING CLOSURE CONCEPTS.

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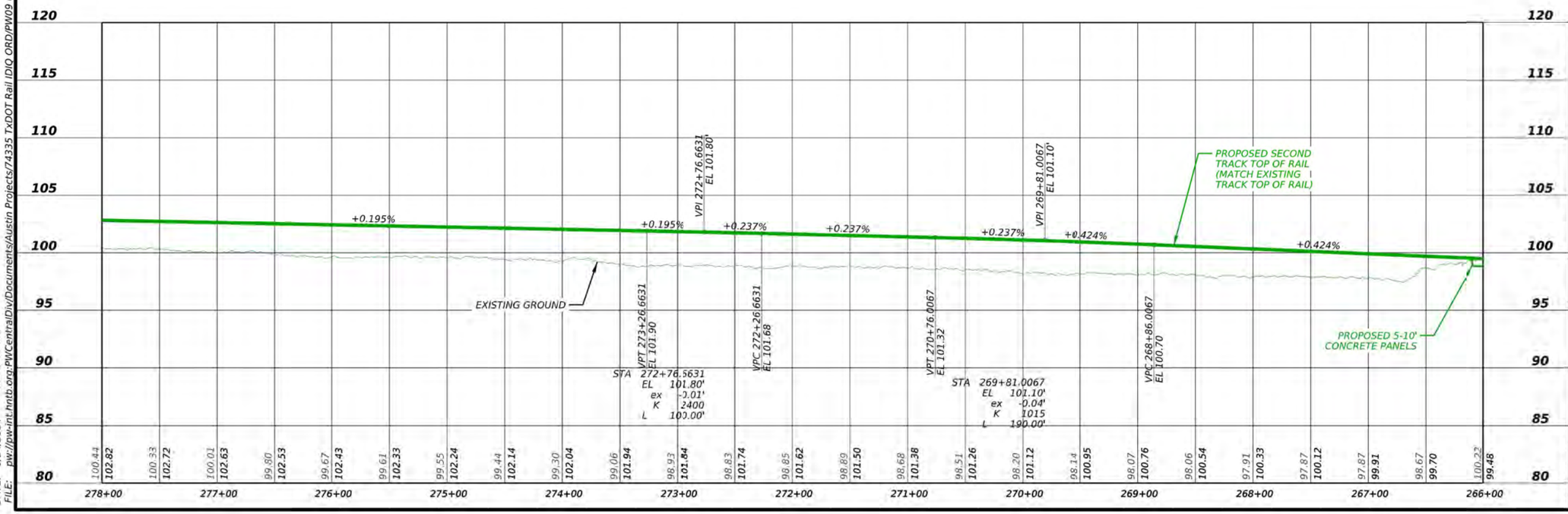
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET



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JOSHUA A MIETH, P.E.
NO. 97346

ON: 9/24/2024

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HNTB
TBPE FIRM Registration No. 420

Texas Department of Transportation

ROADWAY NAME

RAIL IMPROVEMENTS
SECOND MAIN TRACK
PLAN AND PROFILE
STA 266+00 TO STA 278+00

SHEET 15 OF 17

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		15

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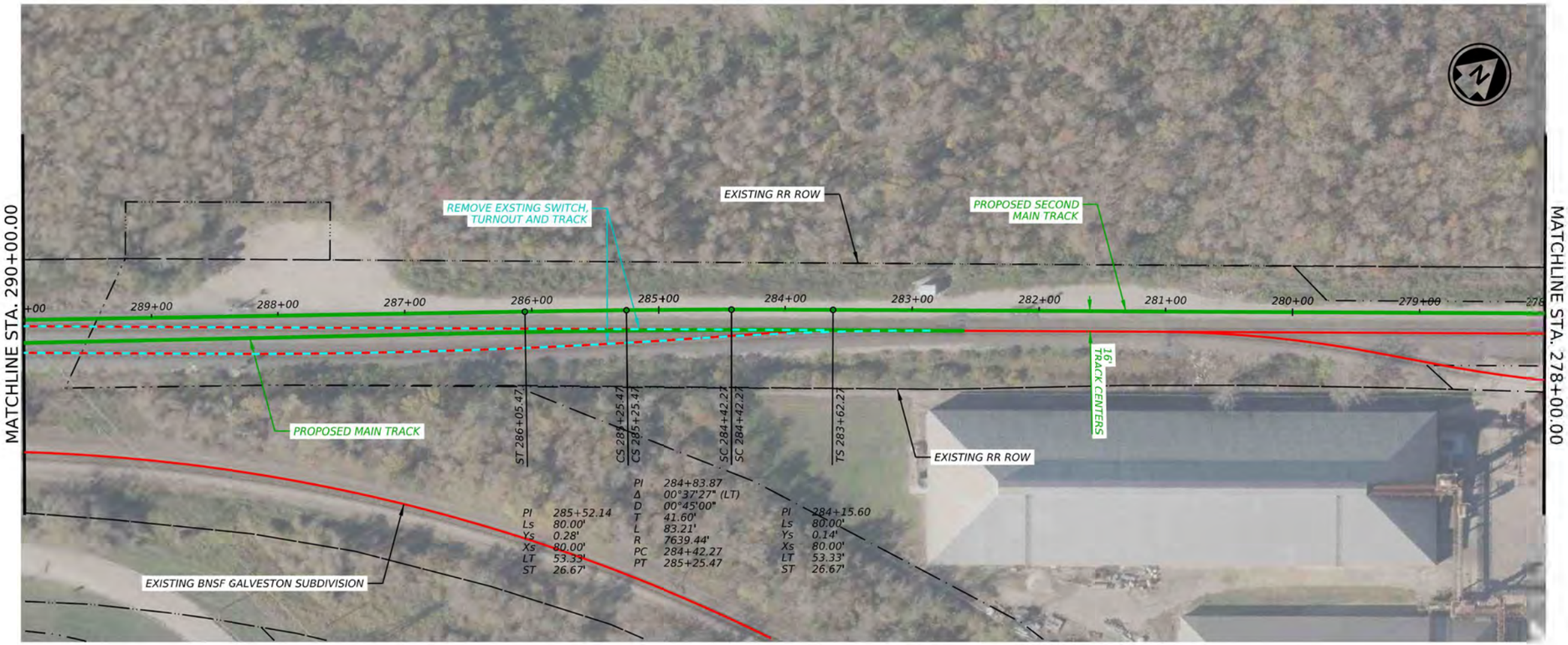

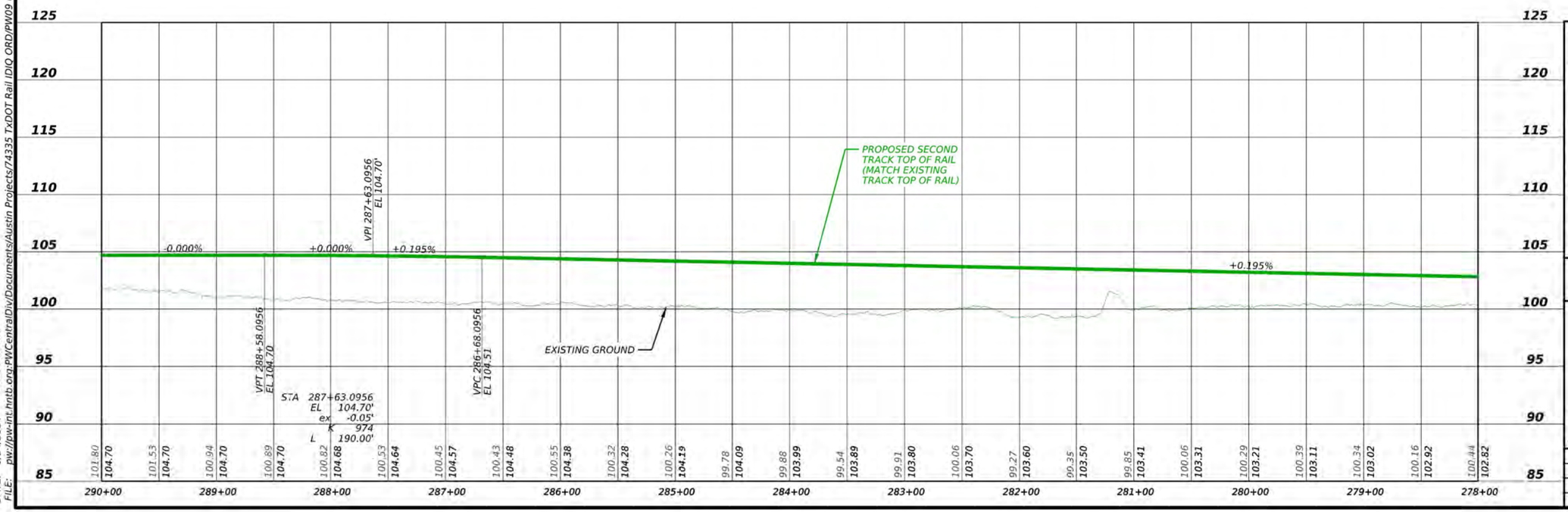

LEGEND:

- EXISTING TRACK
- EXISTING BRIDGE
- REMOVE EXISTING TRACK
- LINEOVER/SHIFT EXISTING TRACK
- PROPOSED TRACK
- PROPOSED BRIDGE

NOTE:

RAILROAD IMPROVEMENTS DO NOT INCLUDE POSSIBLE GRADE SEPARATION OR CROSSING CLOSURE CONCEPTS.

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET

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UPRR GLIDDEN SUB

RAIL IMPROVEMENTS SECOND MAIN TRACK PLAN AND PROFILE STA 278+00 TO STA 290+00

SHEET 16 OF 17

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
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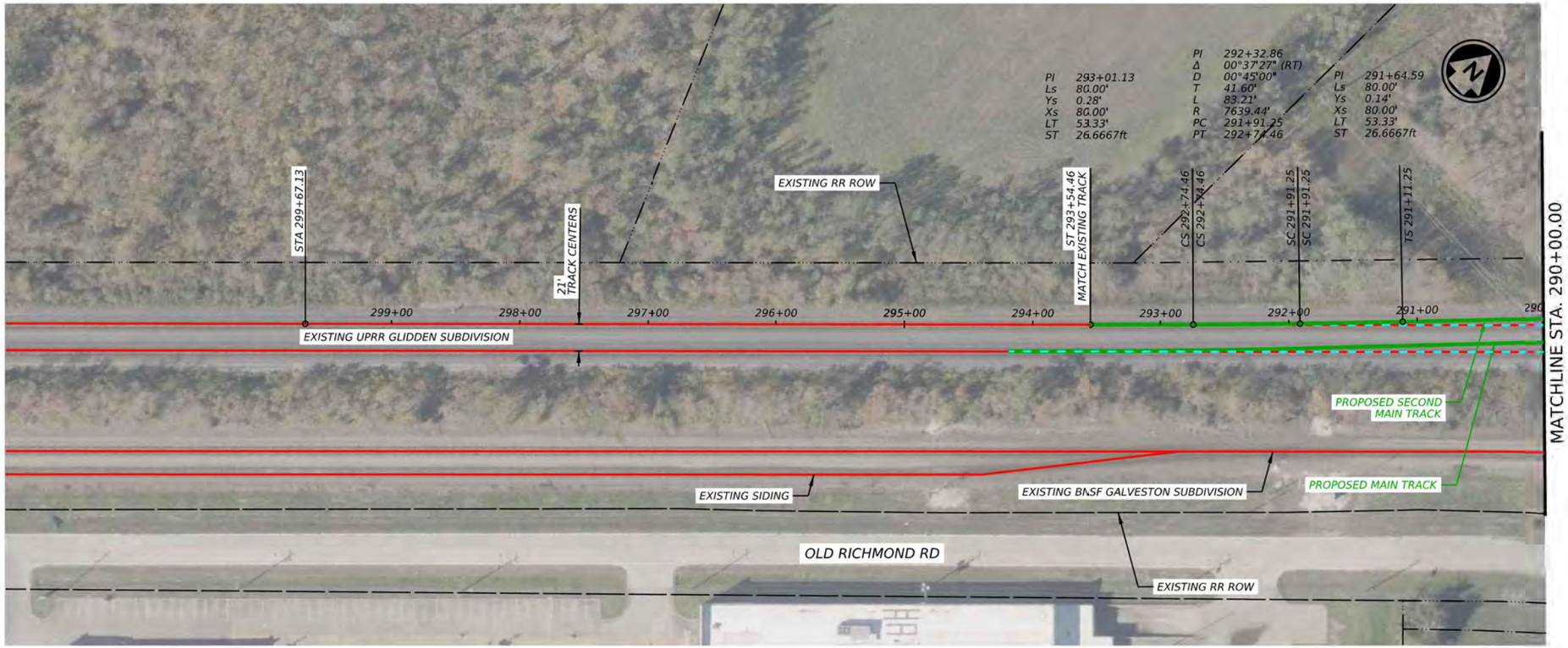

LEGEND:

- EXISTING TRACK
- EXISTING BRIDGE
- REMOVE EXISTING TRACK
- LINEOVER/SHIFT EXISTING TRACK
- PROPOSED TRACK
- PROPOSED BRIDGE

NOTE:

RAILROAD IMPROVEMENTS DO NOT INCLUDE POSSIBLE GRADE SEPARATION OR CROSSING CLOSURE CONCEPTS.

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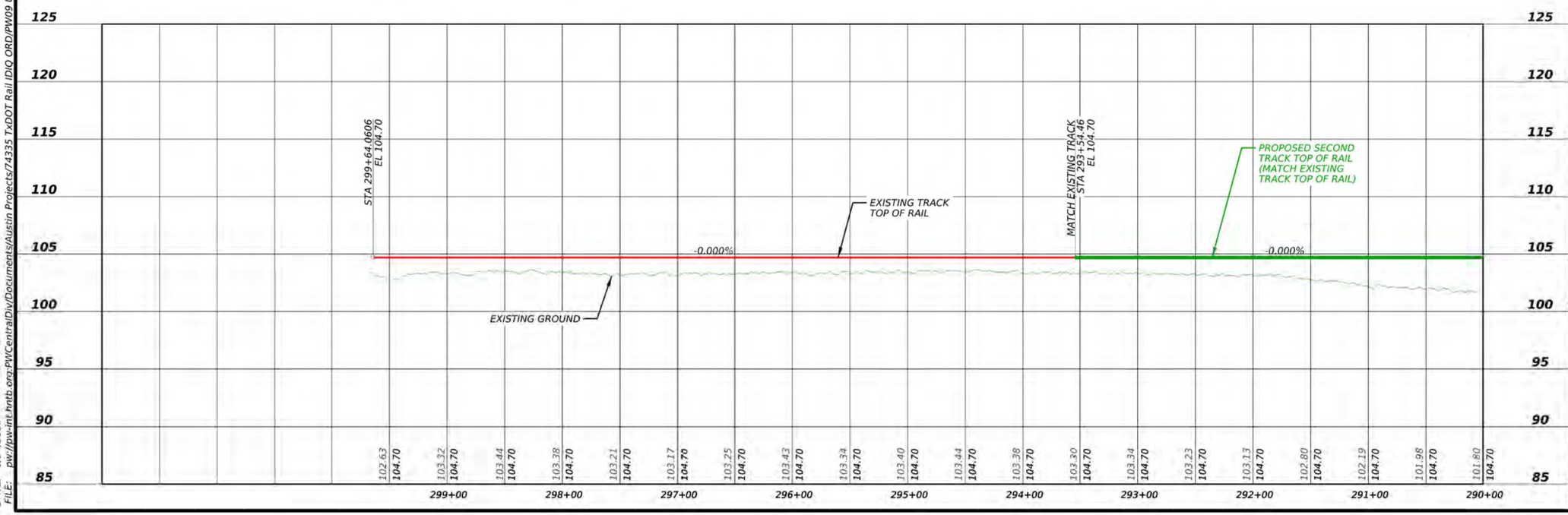
V : SCALE IN FEET



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Texas Department of Transportation

UPRR GLIDDEN SUB

RAIL IMPROVEMENTS SECOND MAIN TRACK PLAN AND PROFILE STA 290+00 TO STA 293+54.46

SHEET 17 OF 17

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		17

Appendix D

Railroad Concept Order-of-Magnitude Construction Cost Estimates

UPRR Glidden Subdivision - SH99 Second Track

Railroad Improvements

Item	Quantity	Units	Price	Probable Cost
Earthwork	0.42	MI	$ 300,000	$ 125,000
At-Grade Crossings (minor)		EA	$ 800,000	$ -
At-Grade Crossings Closure		EA	$ 60,000	$ -
Remove Track	1,308	TF	$ 175	$ 229,000
Remove Bridge		TF	$ 100	$ -
Railroad Trackbed	2,662	TF	$ 300	$ 799,000
Railroad Track	2,662	TF	$ 550	$ 1,464,000
Railroad Positive Train Control \ Signal	1	LS	$ 712,000	$ 712,000
Railroad Crossover (#20 power)		EA	$ 1,000,000	$ -
Railroad Turnout (#20 power)		EA	$ 400,000	$ -
Railroad Bridges	325	LF	$ 40,000	$ 13,000,000
Shoofly Track (for construction phasing)		LF	$ 1,200	$ -
Subtotal I				**$ 16,329,000**
Mobilization		10% of Subtotal I		$ 1,633,000
Construction Sequencing		2% of Subtotal I		$ 327,000
Stormwater Pollution Prevention Plan		1% of Subtotal I		$ 163,000
Utilities		2% of Subtotal I		$ 327,000
Drainage		MI	$ 400,000	$ -
Subtotal II				**$ 2,450,000**
Contingency		30% of Subtotal I & II		$ 5,634,000
Engineering		10% of Subtotal I & II		$ 1,878,000
Total of Construction				**$ 26,291,000**
Right-of-Way Acquisition				$ -
STUDY YEAR (2024) GRAND TOTAL				**$ 26,291,000**
FUTURE YEAR (2028) GRAND TOTAL				**$ 30,757,000**

The costs shown in this estimate represent an estimate of probable costs prepared in good faith and with reasonable care. HNTB has no control over the costs of construction labor, materials, or equipment, nor over competitive bidding or negotiating methods and does not make any commitment or assume any duty to assure that bids or negotiated prices will not vary from this estimate.

UPRR Glidden Subdivision - Harlem to Richmond Second Track

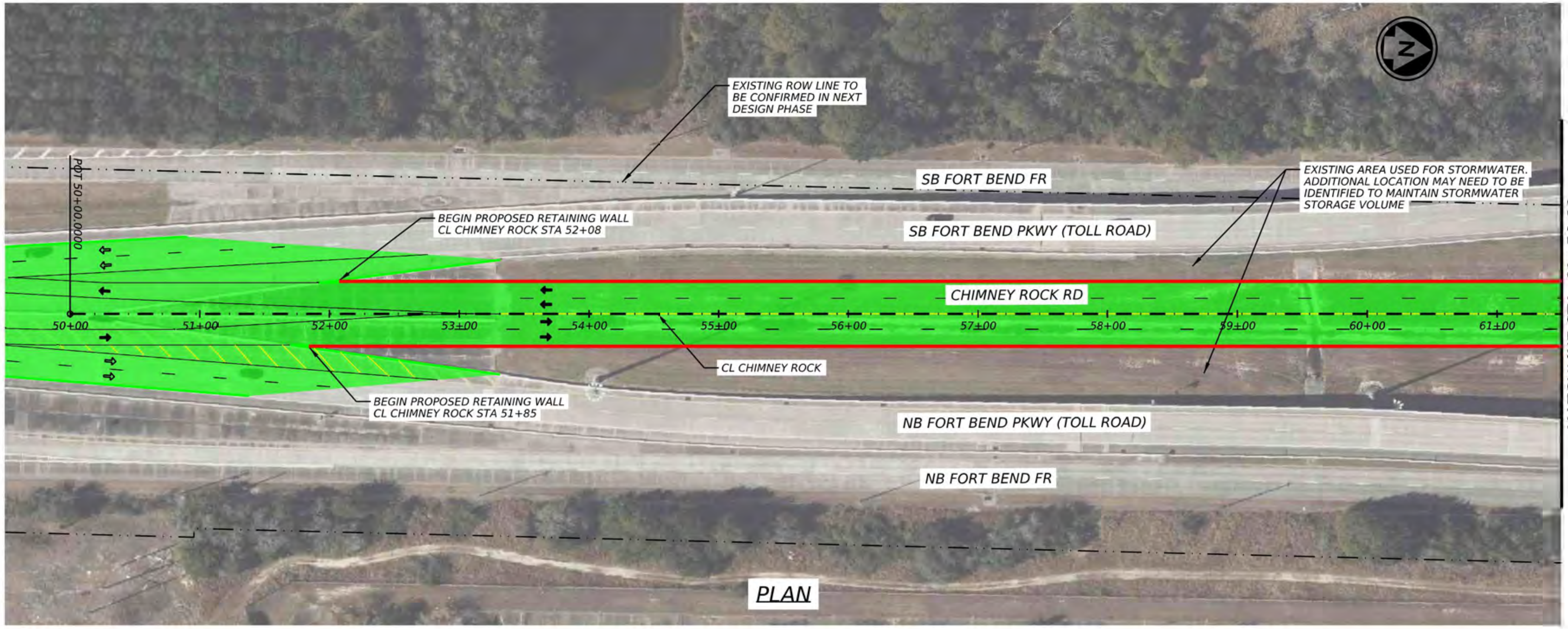
Railroad Improvements

Item	Quantity	Units	Price	Probable Cost
Earthwork	6.04	MI	$ 300,000	$ 1,812,000
At-Grade Crossings (minor)	8	EA	$ 800,000	$ 6,400,000
At-Grade Crossings Closure		EA	$ 60,000	$ -
Remove Track	4,419	TF	$ 175	$ 773,000
Remove Bridge		TF	$ 100	$ -
Railroad Trackbed	31,883	TF	$ 300	$ 9,565,000
Railroad Track	31,883	TF	$ 550	$ 17,536,000
Railroad Positive Train Control \ Signal	1	LS	$ 6,135,400	$ 6,135,000
Railroad Crossover (#30 power)	2	EA	$ 1,250,000	$ 2,500,000
Railroad Turnout (#20 power)		EA	$ 400,000	$ -
Railroad Bridges	1,325	LF	$ 40,000	$ 53,000,000
Shoofly Track (for construction phasing)		LF	$ 1,200	$ -
Subtotal I				**$ 97,721,000**
Mobilization		10%	of Subtotal I	$ 9,772,000
Construction Sequencing		2%	of Subtotal I	$ 1,954,000
Stormwater Pollution Prevention Plan		1%	of Subtotal I	$ 977,000
Utilities		2%	of Subtotal I	$ 1,954,000
Drainage		MI	$ 400,000	$ -
Subtotal II				**$ 14,657,000**
Contingency		30%	of Subtotal I & II	$ 33,713,000
Engineering		10%	of Subtotal I & II	$ 11,238,000
Total of Construction				**$ 157,329,000**
Right-of-Way Acquisition				$ -
STUDY YEAR (2024) GRAND TOTAL				**$ 157,329,000**
FUTURE YEAR (2028) GRAND TOTAL				**$ 184,053,000**

The costs shown in this estimate represent an estimate of probable costs prepared in good faith and with reasonable care. HNTB has no control over the costs of construction labor, materials, or equipment, nor over competitive bidding or negotiating methods and does not make any commitment or assume any duty to assure that bids or negotiated prices will not vary from this estimate.

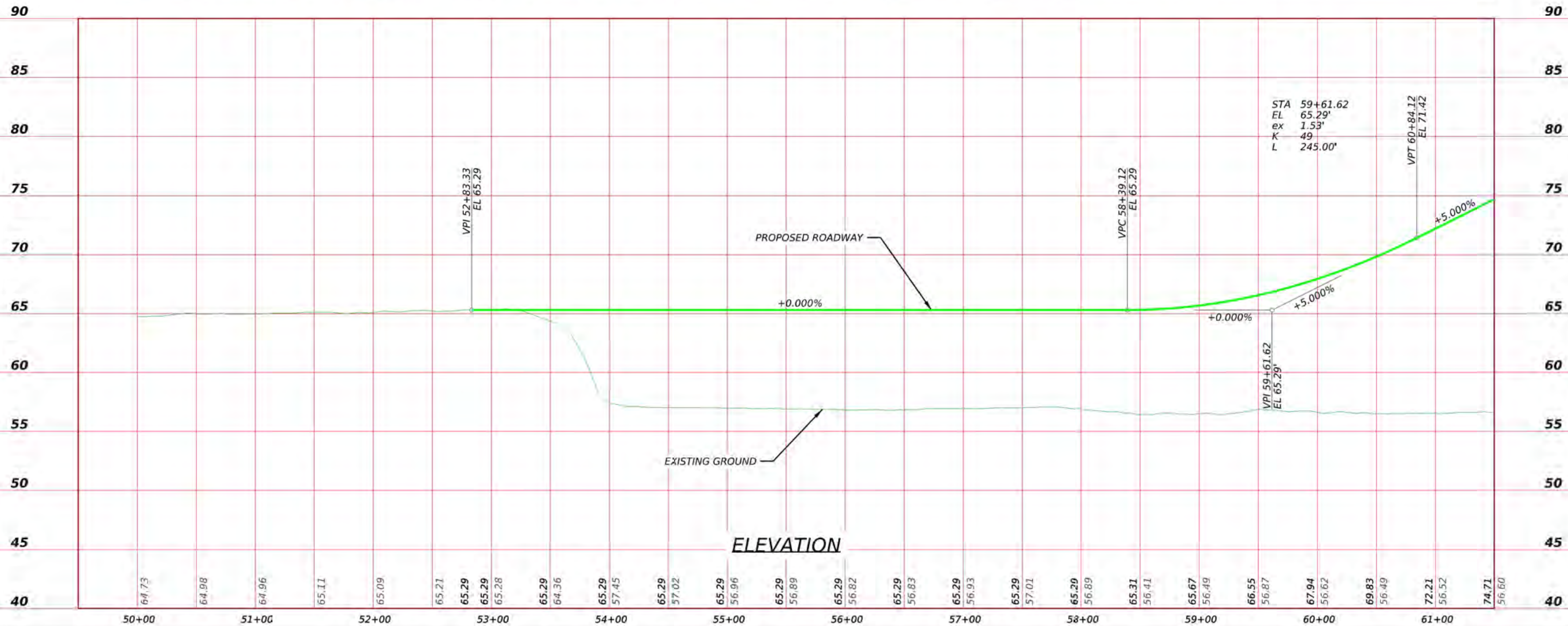
Appendix E

Grade Separation Concept Exhibits



CHIMNEY ROCK ROAD DESIGN SPEEDS
EXISTING = 35 MPH
PROPOSED = 35 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



0 50 100
H: SCALE IN FEET

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V : SCALE IN FEET

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TBPE FIRM Registration No. 420

Texas Department of Transportation

CHIMNEY ROCK RD

GRADE SEPARATION CONCEPT
PLAN AND PROFILE
DOT #755621G

SHEET 1 OF 4

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	HARRIS		1

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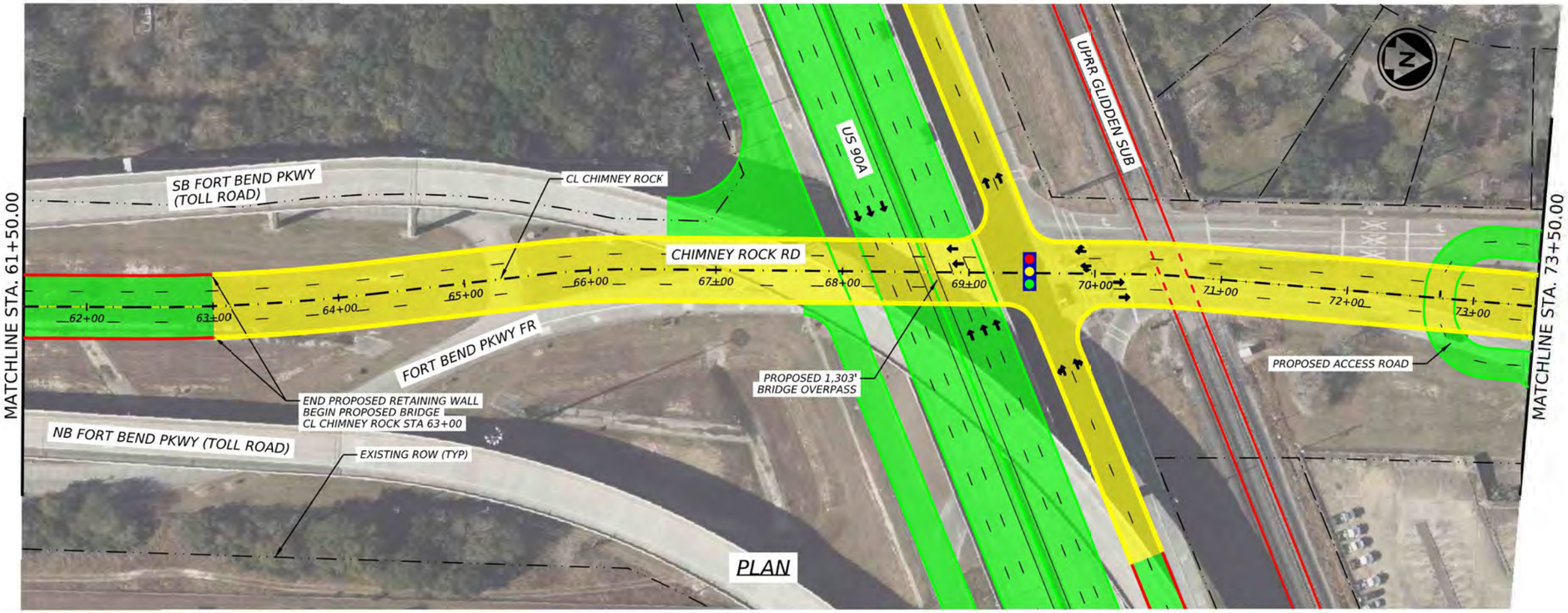
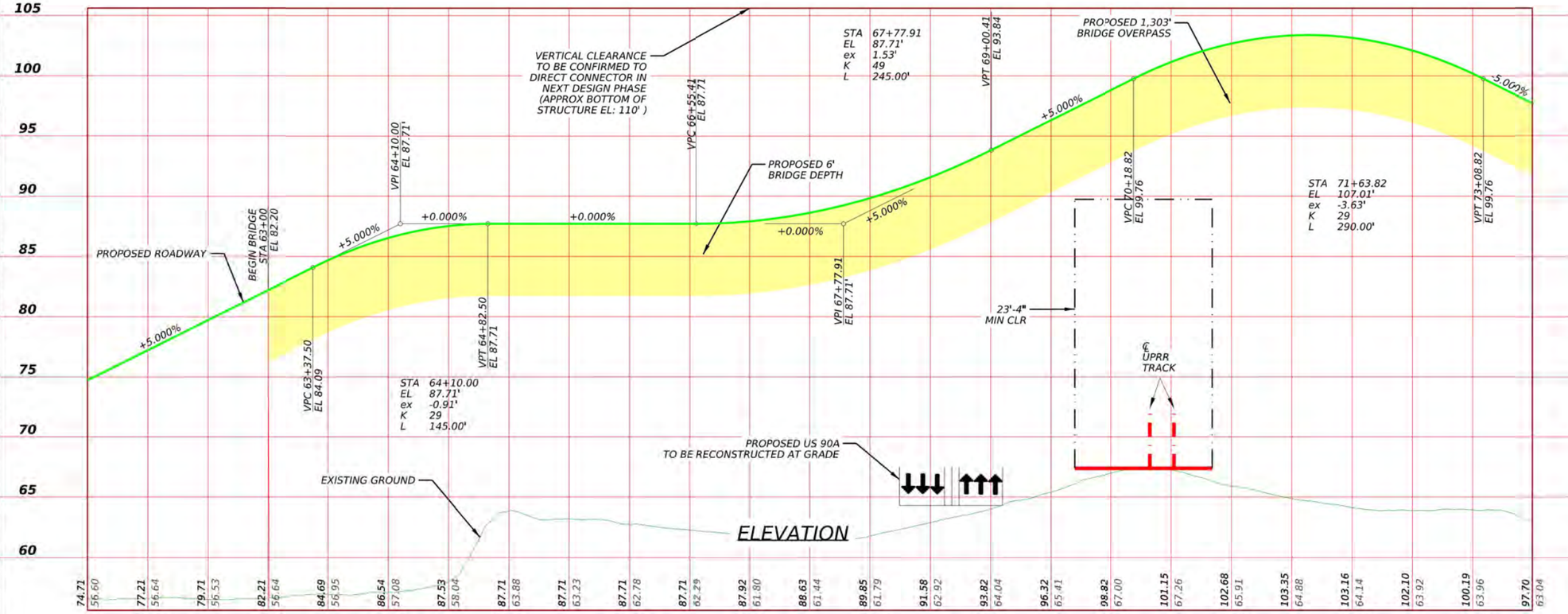


CHIMNEY ROCK ROAD DESIGN SPEEDS

EXISTING = 35 MPH
PROPOSED = 35 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



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V : SCALE IN FEET: 0 2 4 6 8 10

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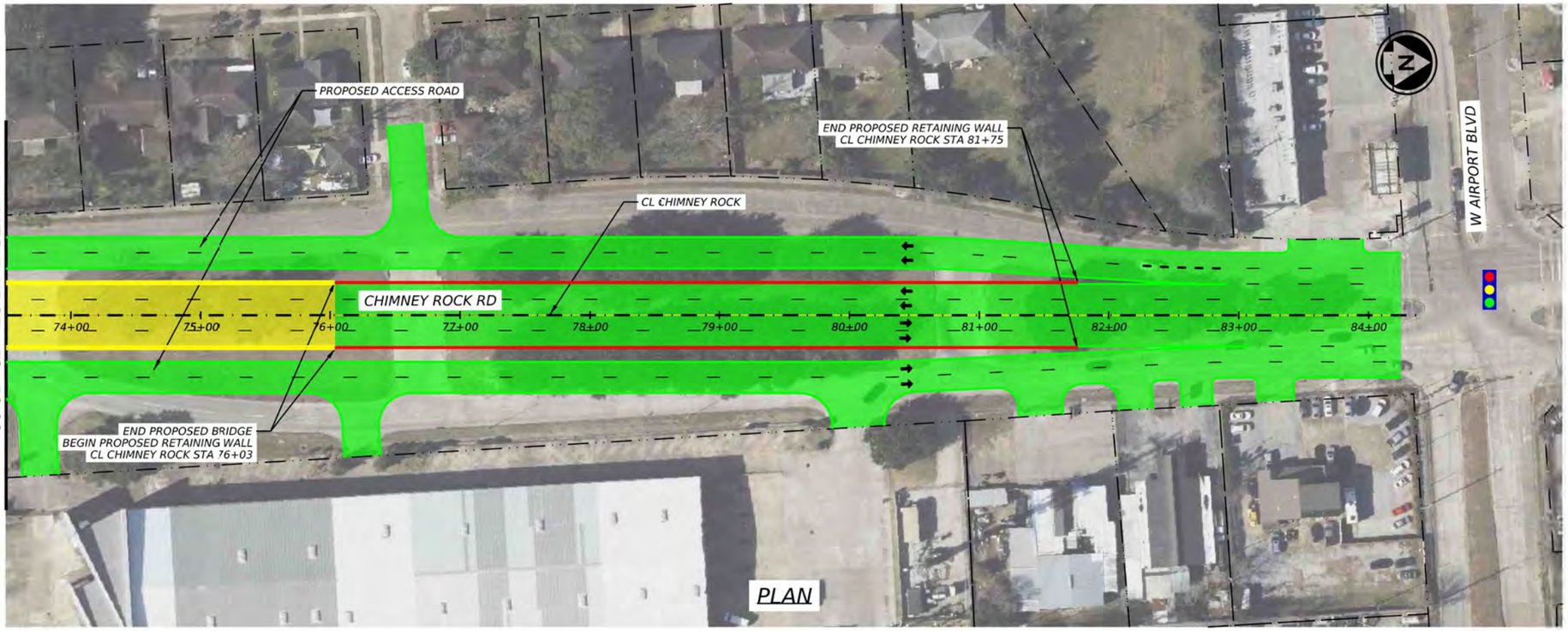
CHIMNEY ROCK RD

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #755621G

SHEET 2 OF 4

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	HARRIS		2

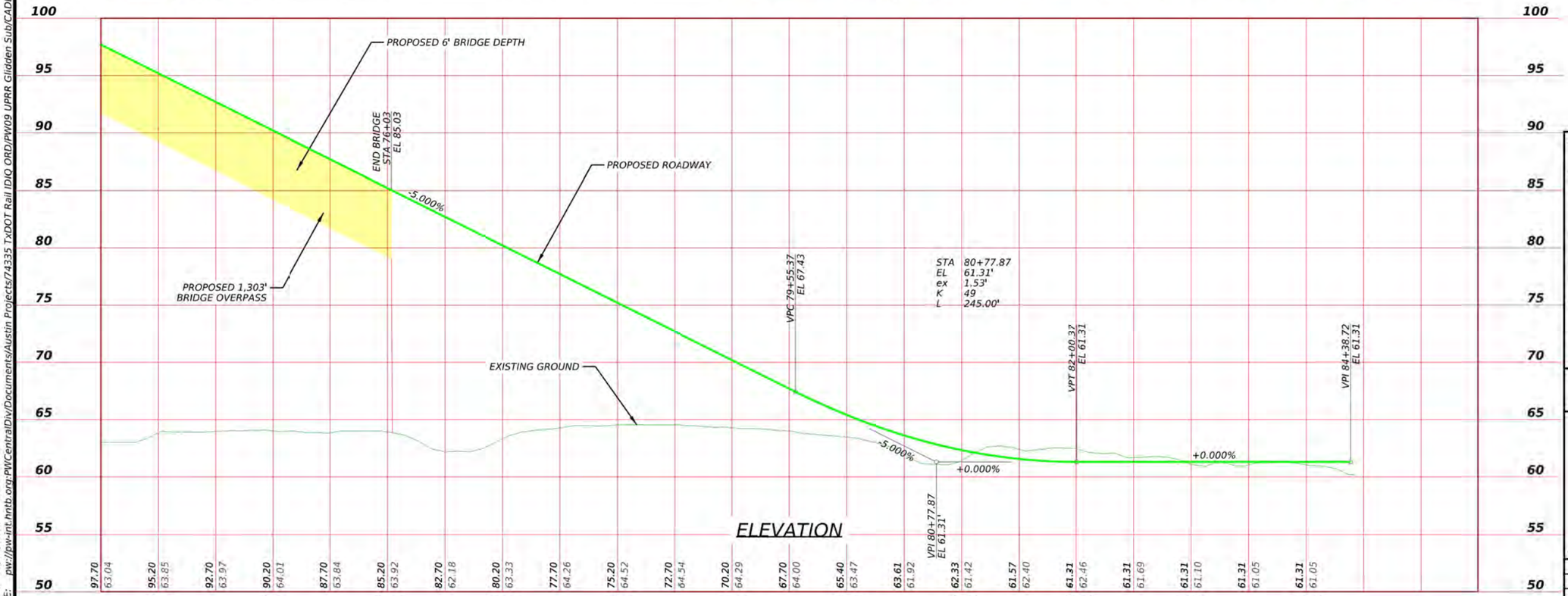


CHIMNEY ROCK ROAD DESIGN SPEEDS

EXISTING = 35 MPH
PROPOSED = 35 MPH

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



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V : SCALE IN FEET

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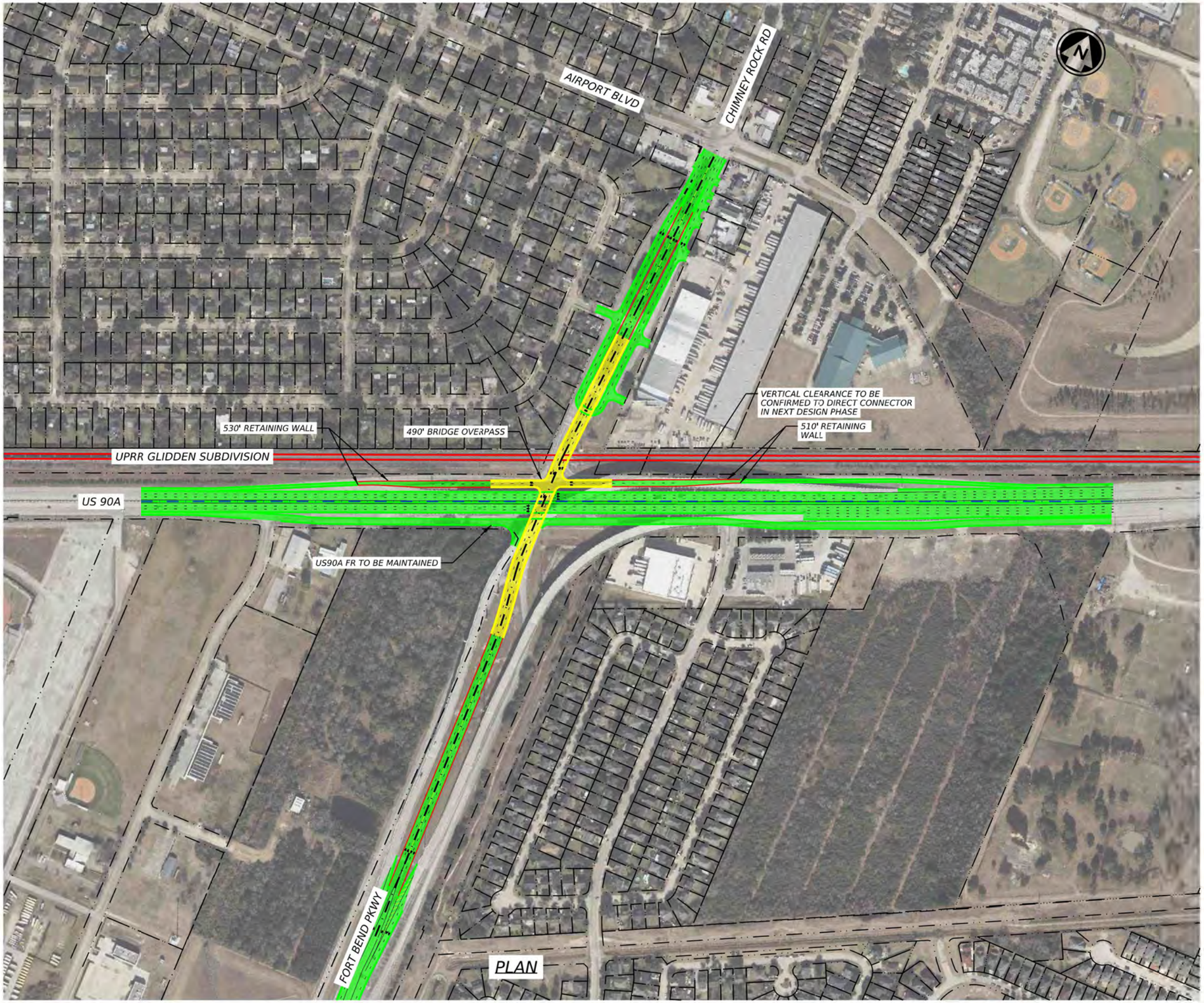
CHIMNEY ROCK RD

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #755621G

SHEET 3 OF 4

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	HARRIS	3



LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 200 400
SCALE IN FEET

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CHIMNEY ROCK RD

GRADE SEPARATION CONCEPT US 90A AT-GRADE RECONSTRUCTION

SHEET 4 OF 4

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	HARRIS	4

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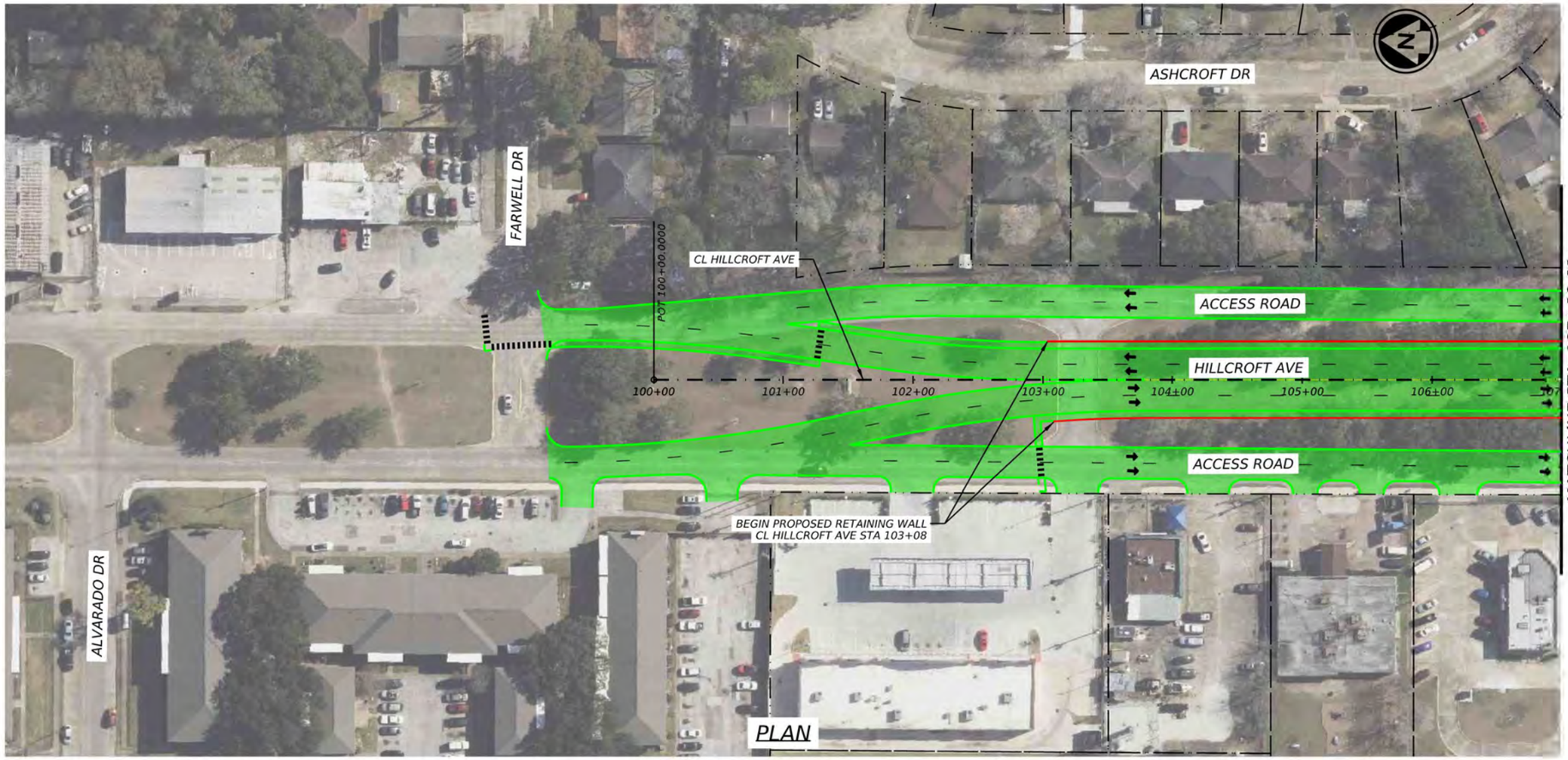

PLAN

HILLCROFT AVENUE DESIGN SPEEDS
EXISTING = 35 MPH
PROPOSED = 35 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

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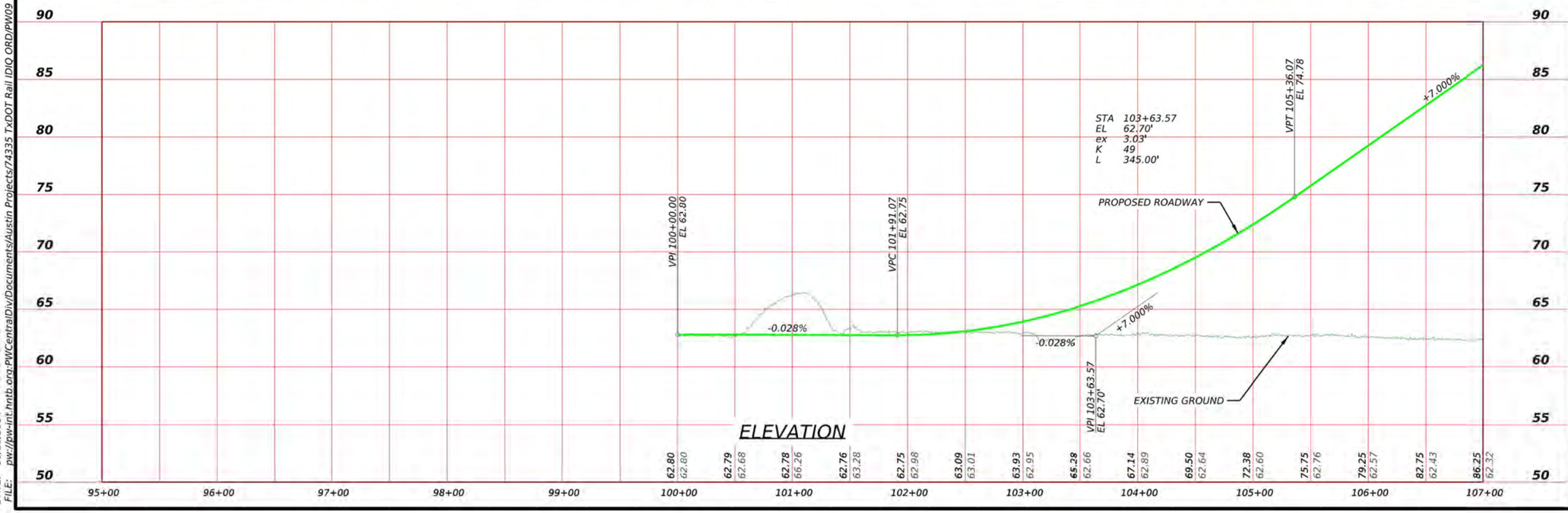

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Texas Department of Transportation

HILLCROFT AVE

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #755622N

SHEET 1 OF 6

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	HARRIS	1

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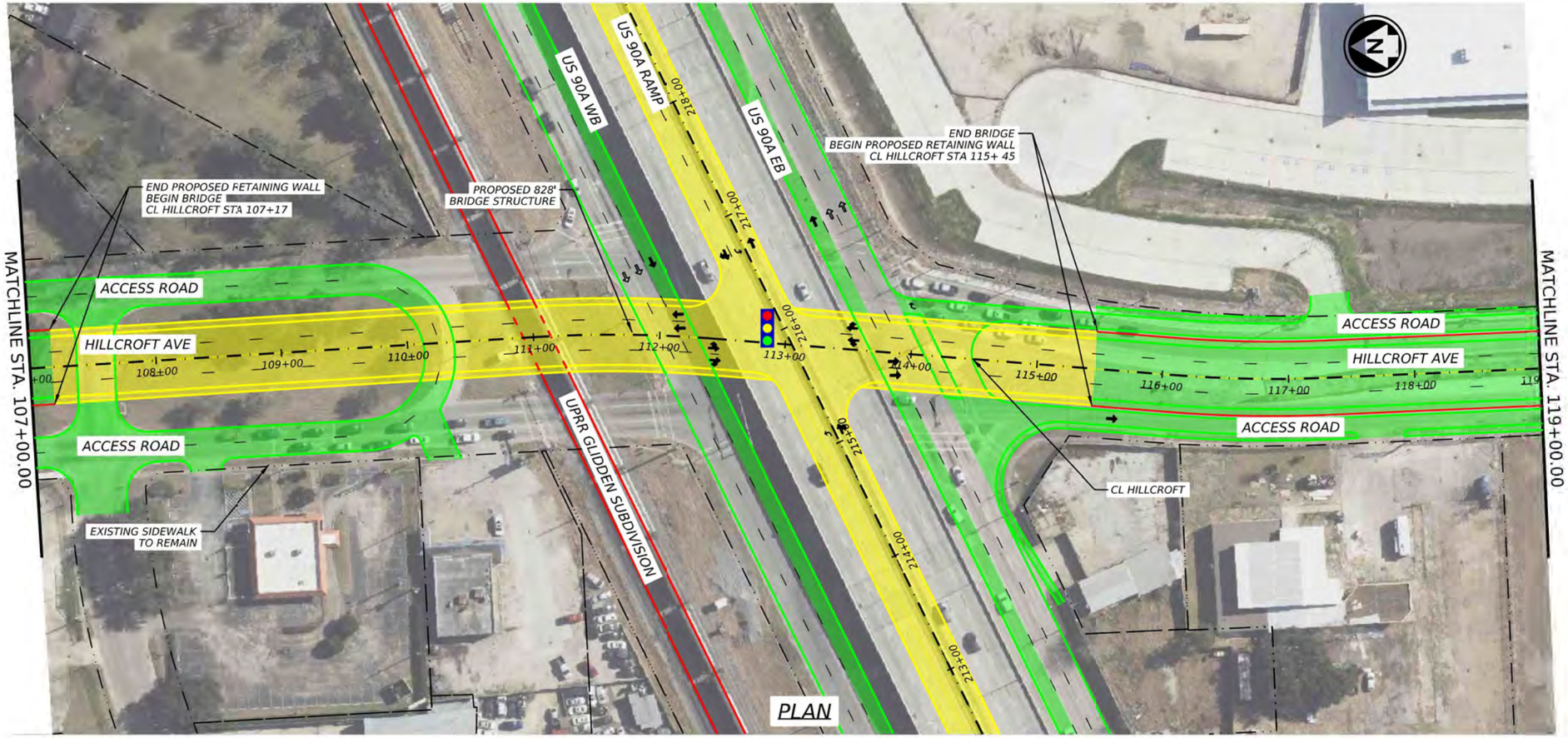
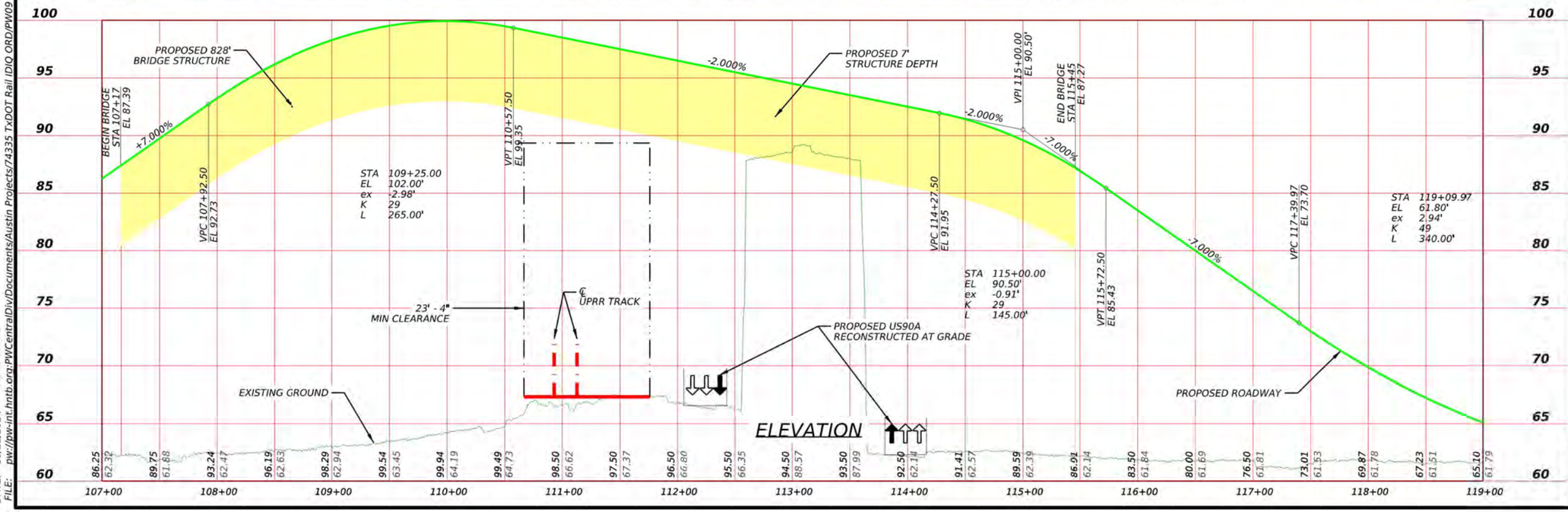
DW: AK,JB,NZ,RN CK: JM,JR



HILLCROFT AVENUE DESIGN SPEEDS
EXISTING = 35 MPH
PROPOSED = 35 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET



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HILLCROFT AVE

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #755622N

SHEET 2 OF 6

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	HARRIS	2

DATE: 10/21/2024 10:19:19 AM
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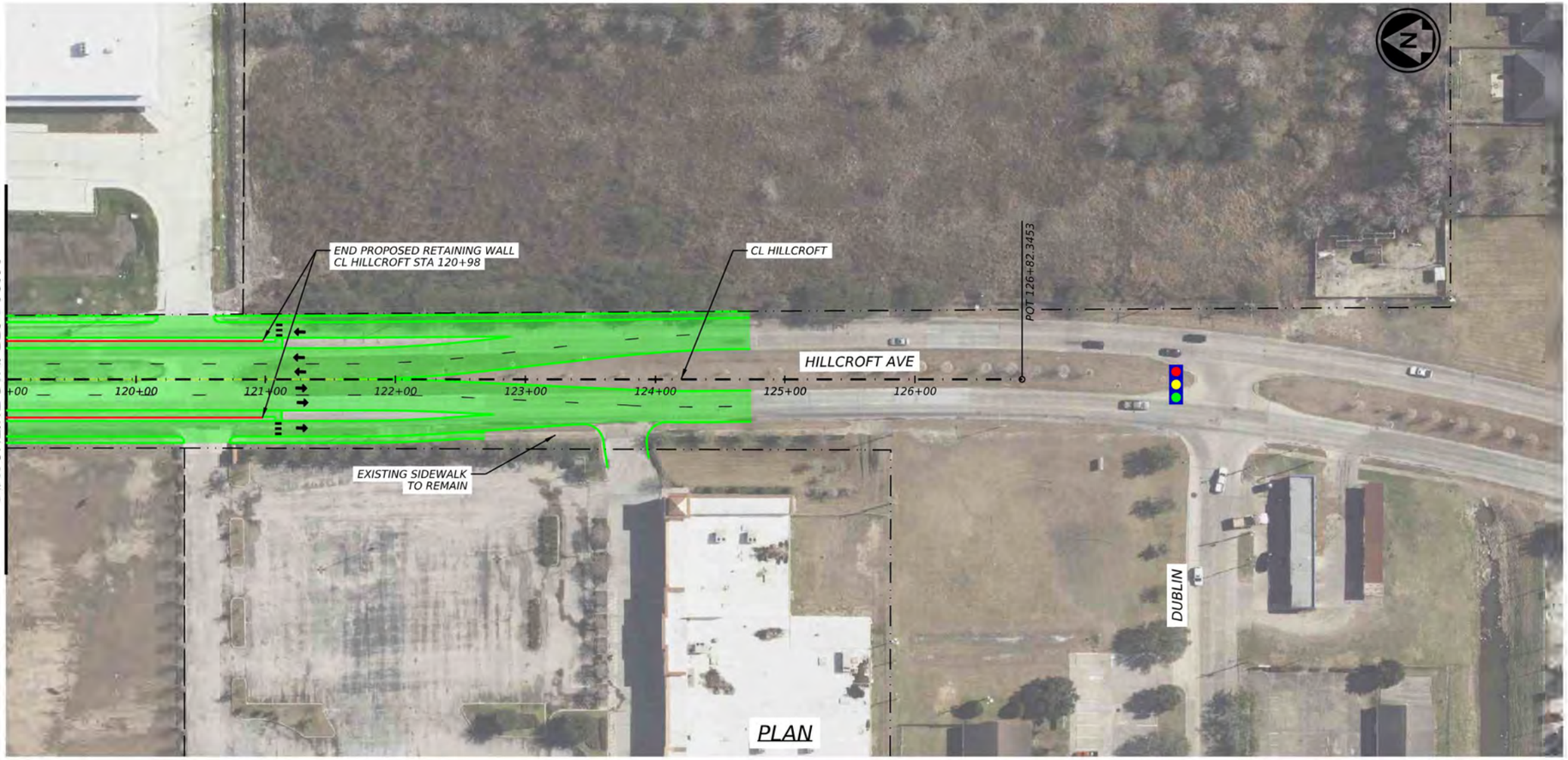
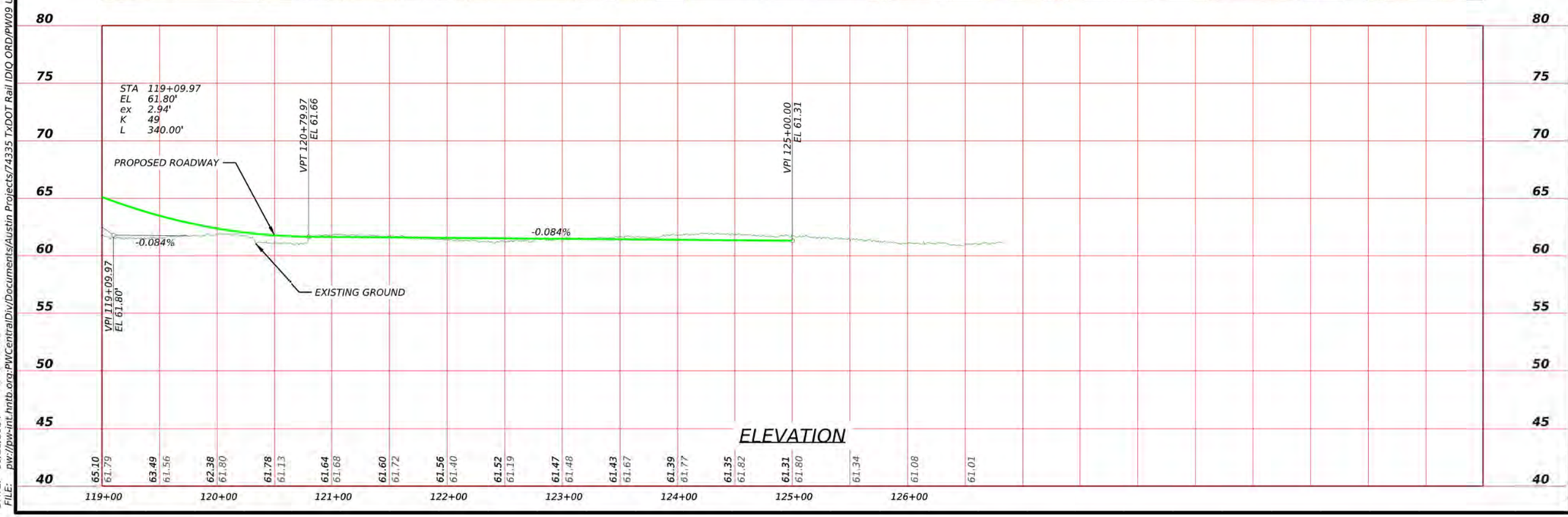


PLAN



ELEVATION

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
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- EXISTING TRACK

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HILLCROFT AVE

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #755622N

SHEET 3 OF 6

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	HARRIS		3

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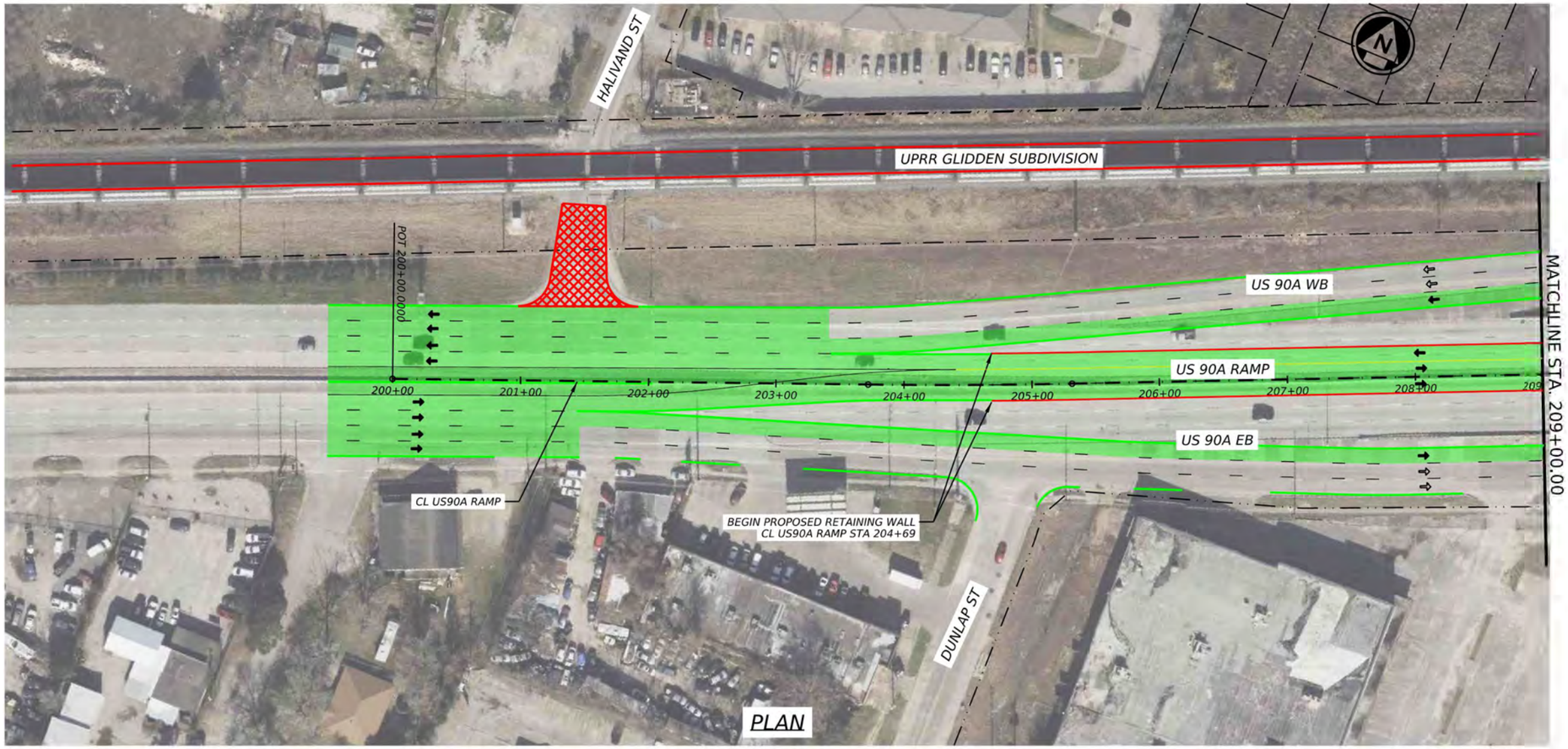
DW: AK,JB,NZ,RN CK: JM,JR



PLAN

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

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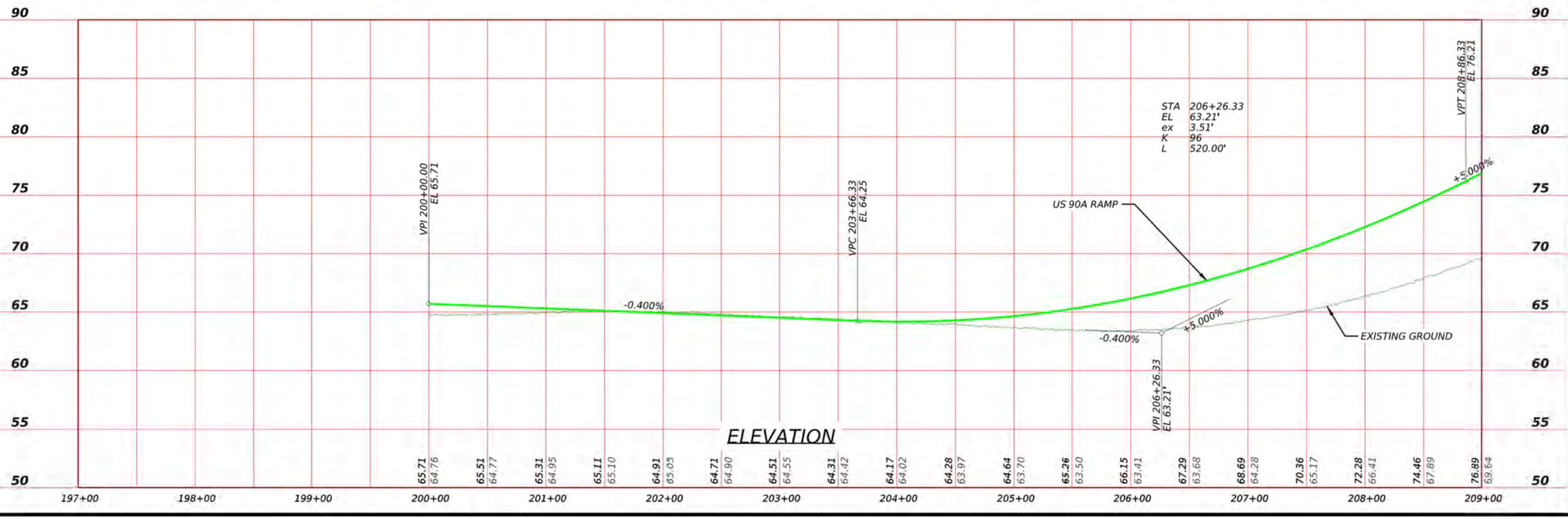
0 2 4 6 8 10
V : SCALE IN FEET



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HILLCROFT AVENUE

GRADE SEPARATION CONCEPT US 90A AT GRADE RECONSTRUCTION

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	HARRIS		4

DATE: 10/21/2024 10:20:02 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-HillcroftAve-Sheets.dgn

DW: AK,JB,NZ,RN CK: JM,JR
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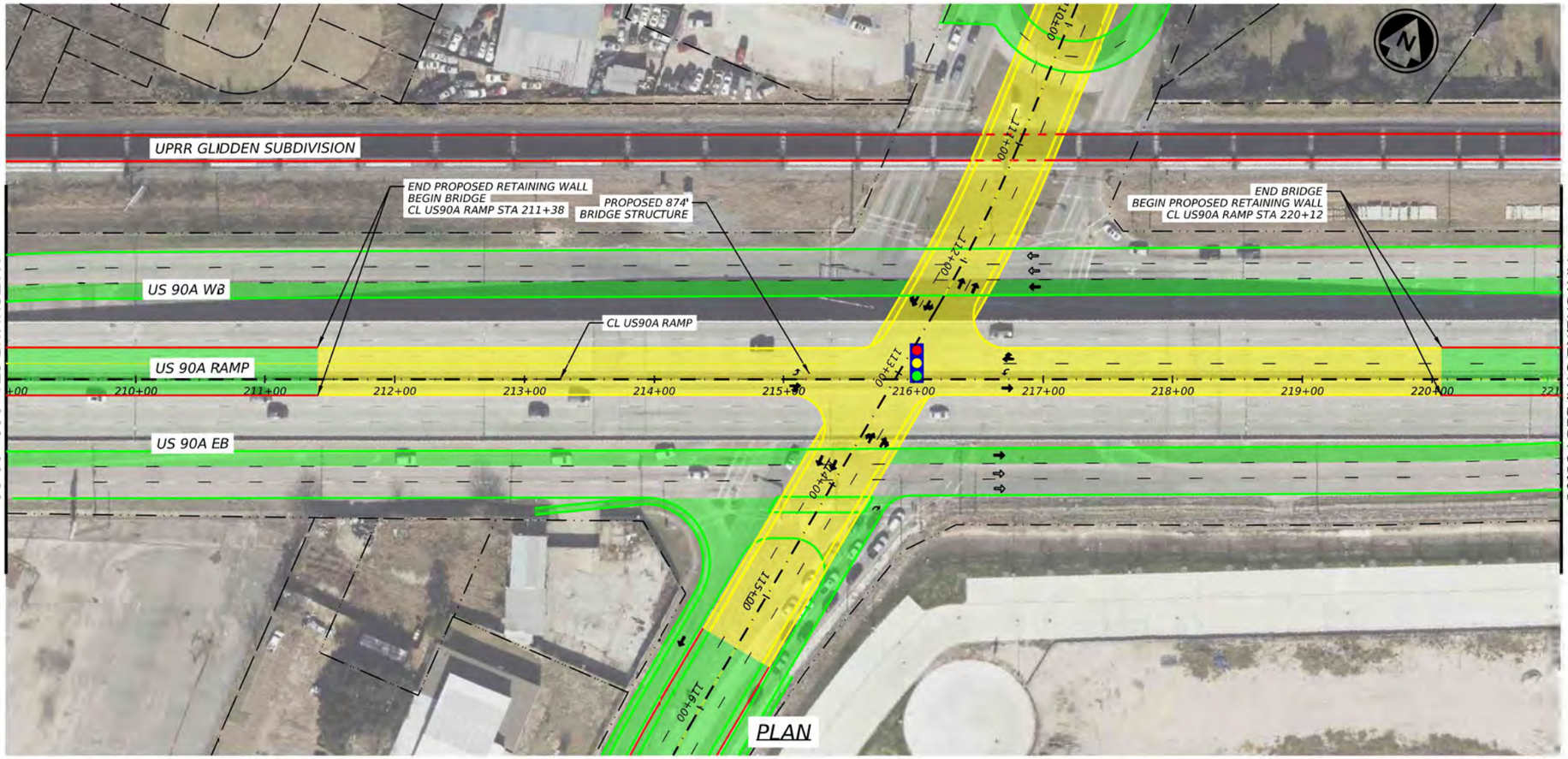
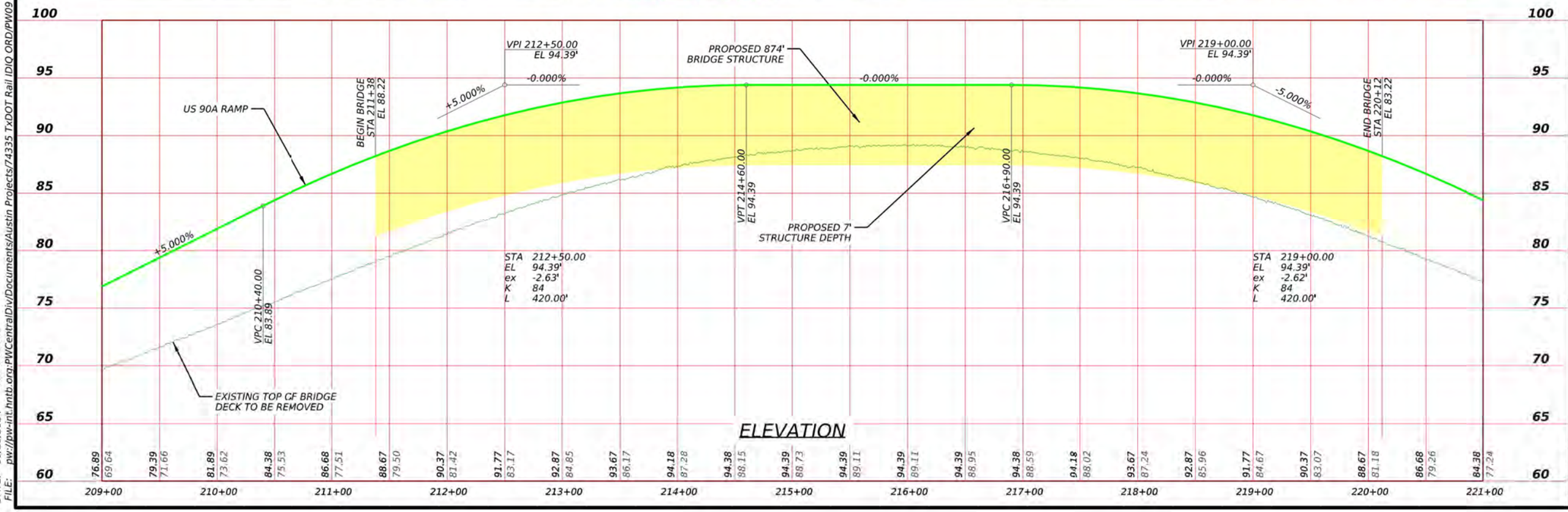


LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

H: SCALE IN FEET 0 50 100

V : SCALE IN FEET 0 2 4 6 8 10



ELEVATION

PRELIMINARY

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JOSHUA A MIETH, P.E.
NO. 97346

ON: 10/21/2024

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HNTB
TBPE FIRM Registration No. 420

Texas Department of Transportation

HILLCROFT AVENUE

GRADE SEPARATION CONCEPT US 90A AT-GRADE RECONSTRUCTION

SHEET 5 OF 6

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	HARRIS	5

DATE: 10/21/2024 10:20:25 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-HillcroftAve-Sheets.dgn

DW: JA, JB, NZ: RN | CK: JM, JR
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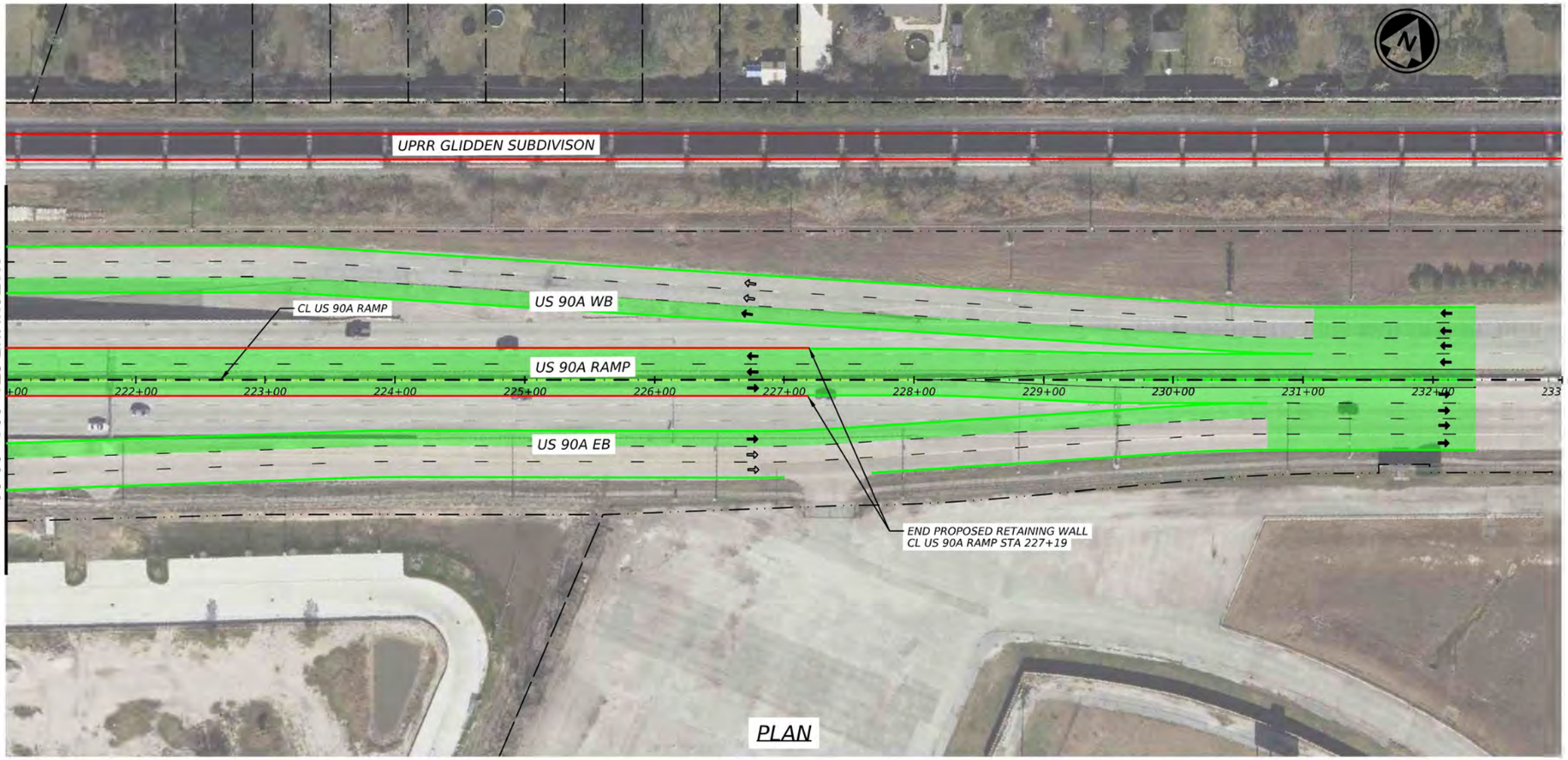
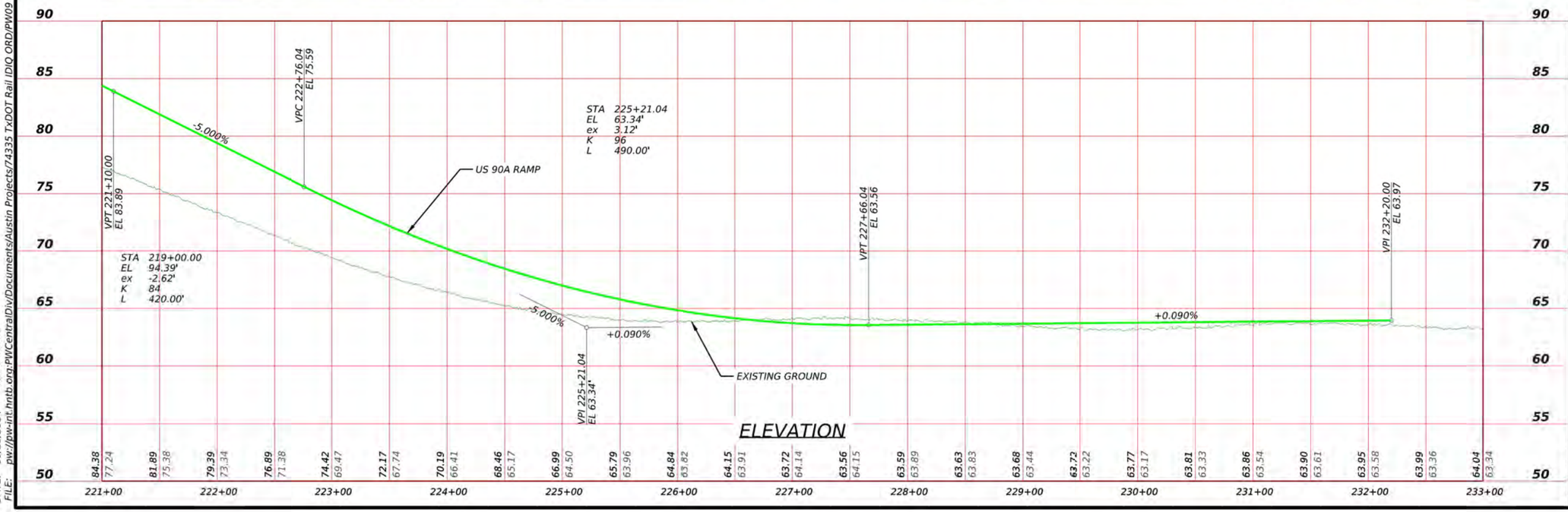


PLAN

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

H: SCALE IN FEET 0 50 100

V : SCALE IN FEET 0 2 4 6 8 10



ELEVATION

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Texas Department of Transportation

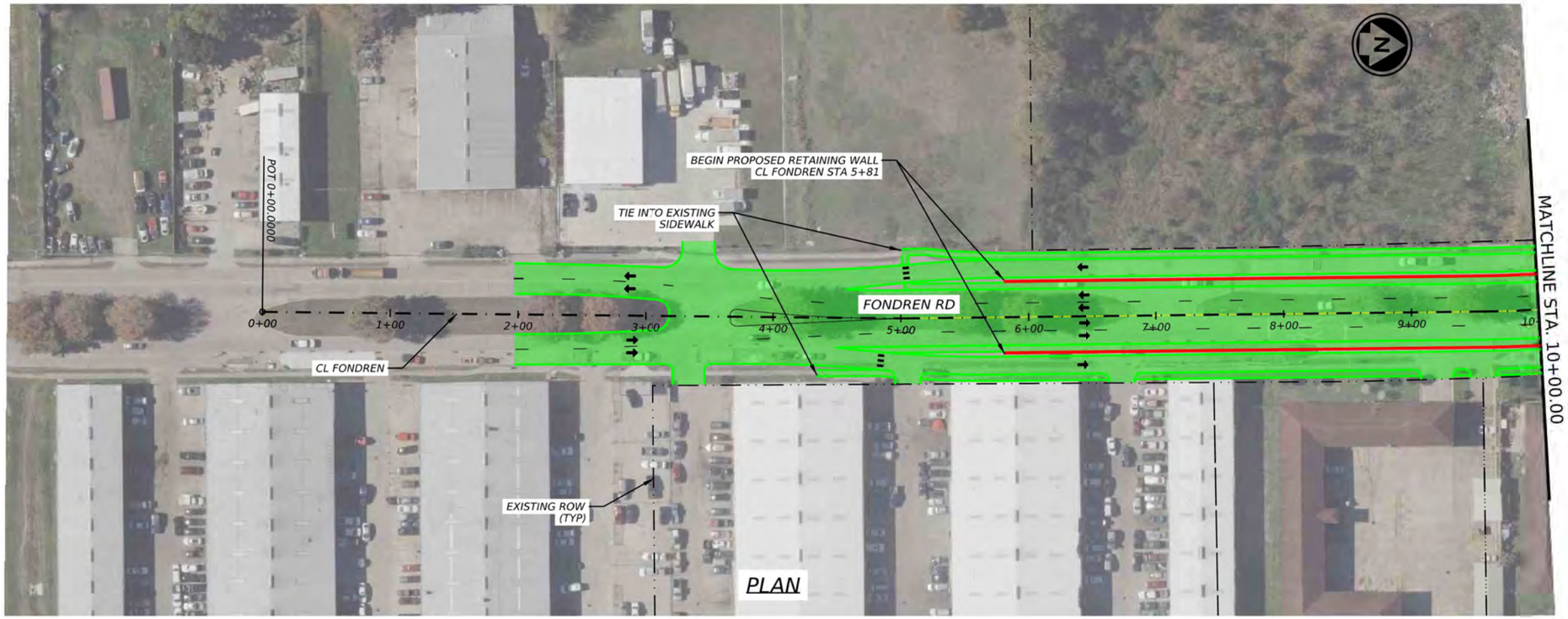
HILLCROFT AVENUE

GRADE SEPARATION CONCEPT US 90A AT-GRADE RECONSTRUCTION

SHEET 6 OF 6

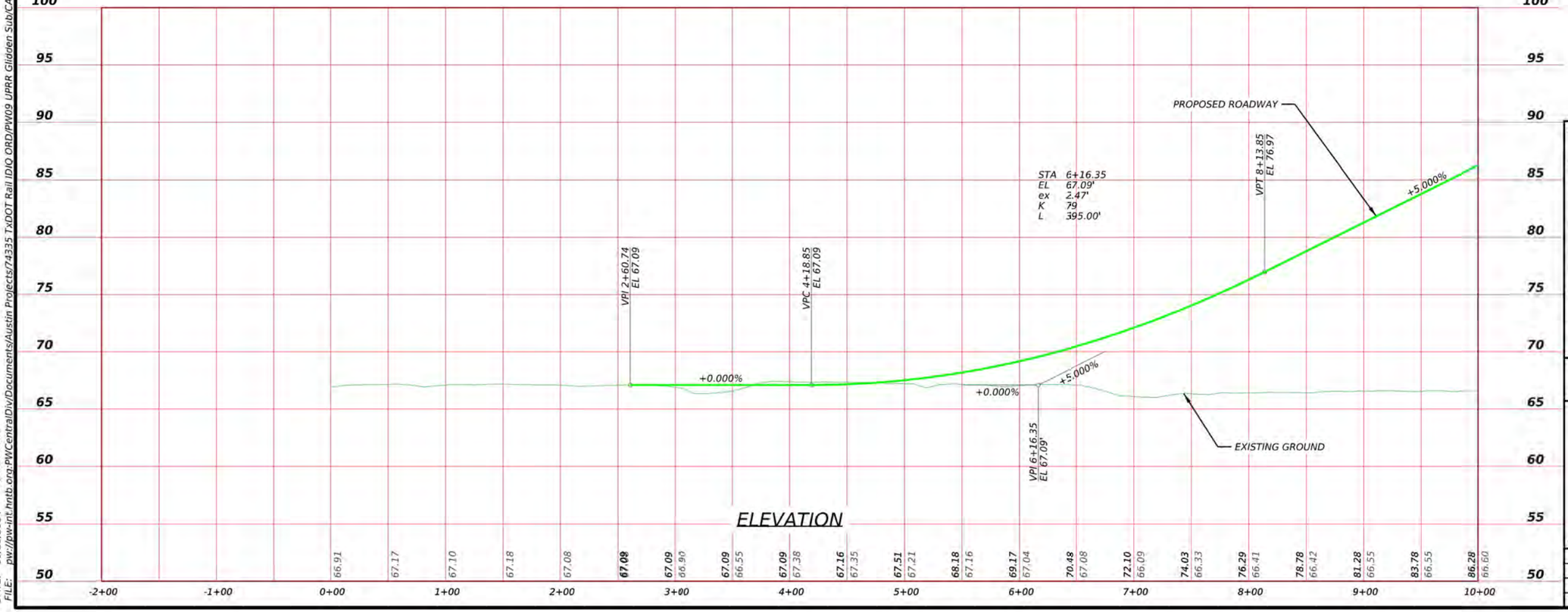
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	HARRIS		6

DATE: 10/21/2024 10:20:40 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-HillcroftAve-Sheets.dgn



FONDREN ROAD DESIGN SPEEDS
EXISTING = 45 MPH
PROPOSED = 45 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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FONDREN RD

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #755624C

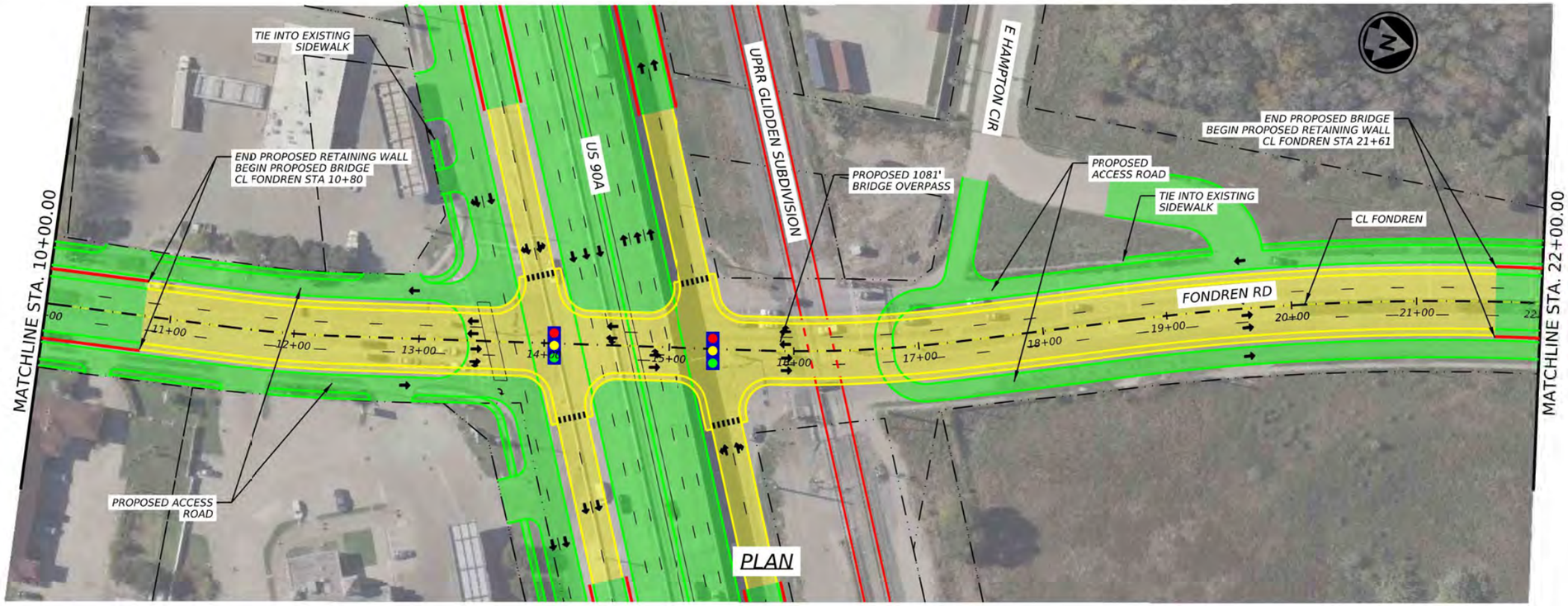
SHEET 1 OF 4

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	HARRIS		1

DATE: 10/21/2024 10:15:20 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Gilden Sub/CADD/Sheets/Grade-Separations/GS-FondrenRd-Sheets.dgn

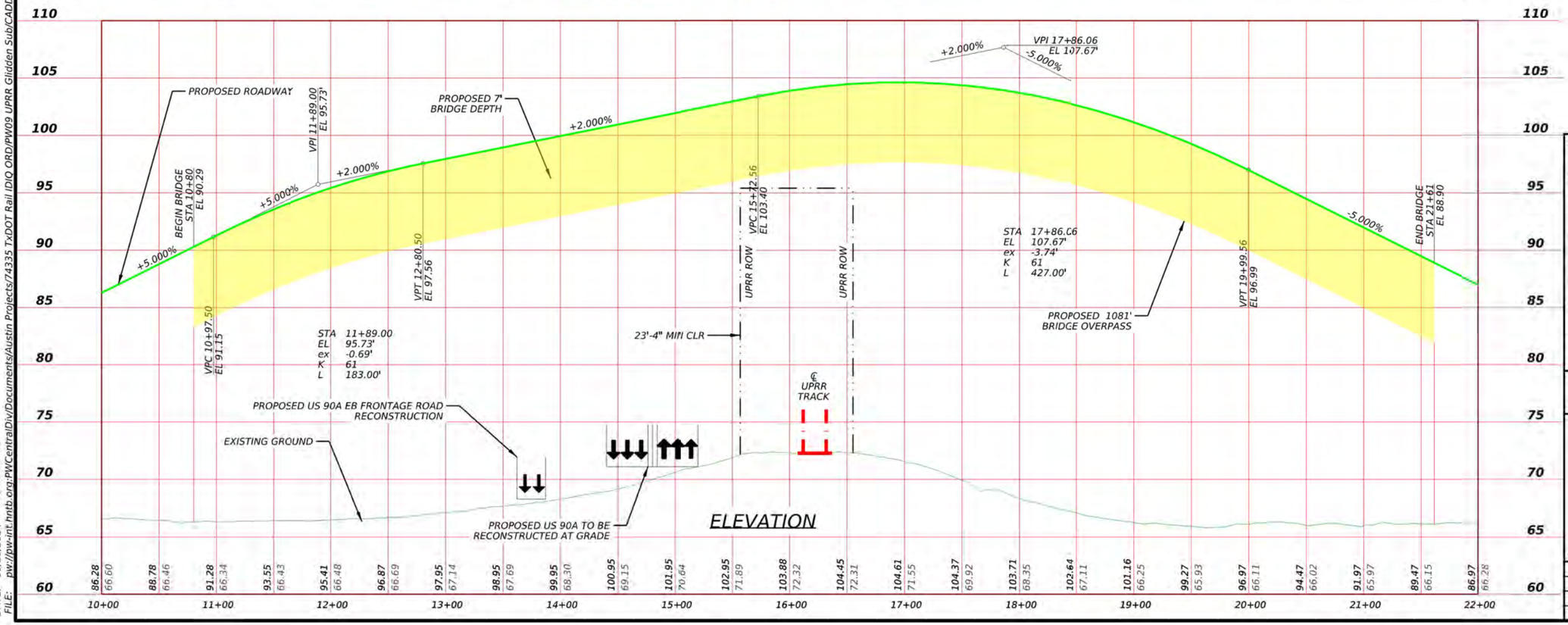
DW: AK, JR, NZ, RN | CK: JM, JR
DW: AK, JR, NZ, RN | CK: JM, JR

DW: JK, JR, NZ, RN | CK: JM, JR
DW: JK, JR, NZ, RN | CK: JM, JR



FONDREN ROAD DESIGN SPEEDS
EXISTING = 45 MPH
PROPOSED = 45 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



H: SCALE IN FEET 0 50 100
V : SCALE IN FEET 0 2 4 6 8 10

PRELIMINARY

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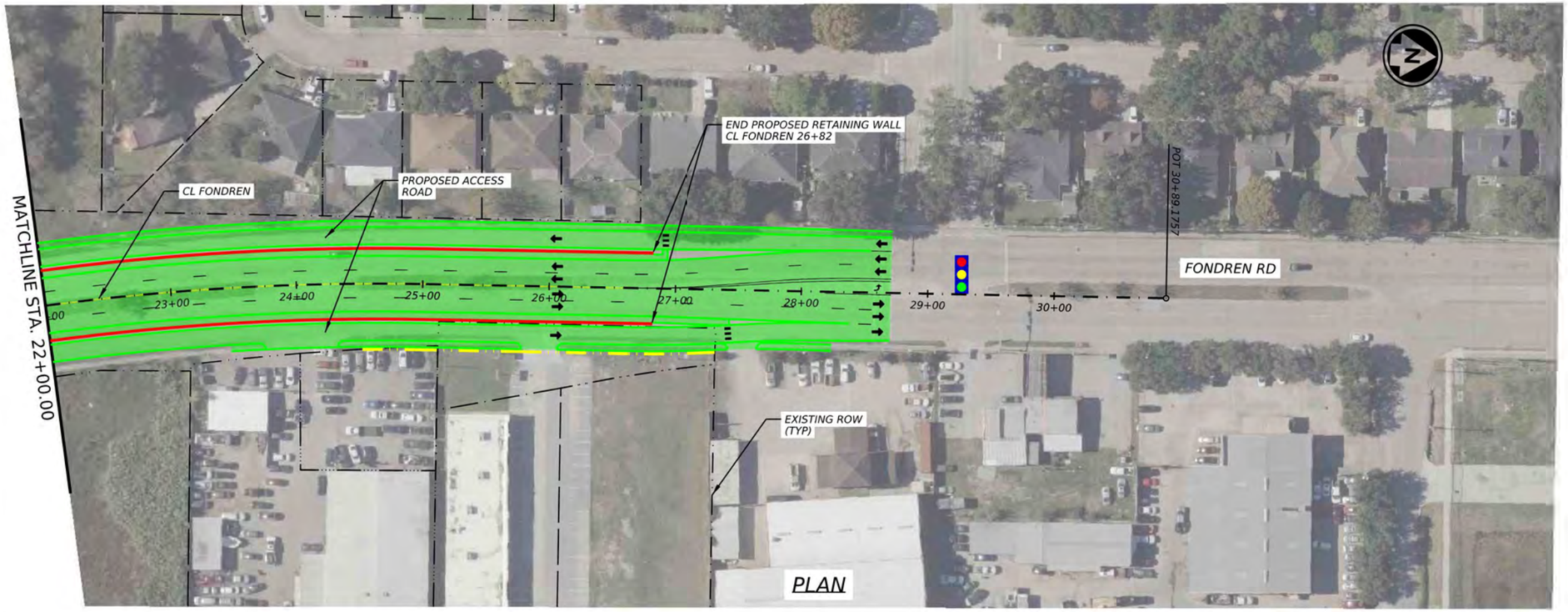
FONDREN RD

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #755624C

SHEET 2 OF 4

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	HARRIS		2

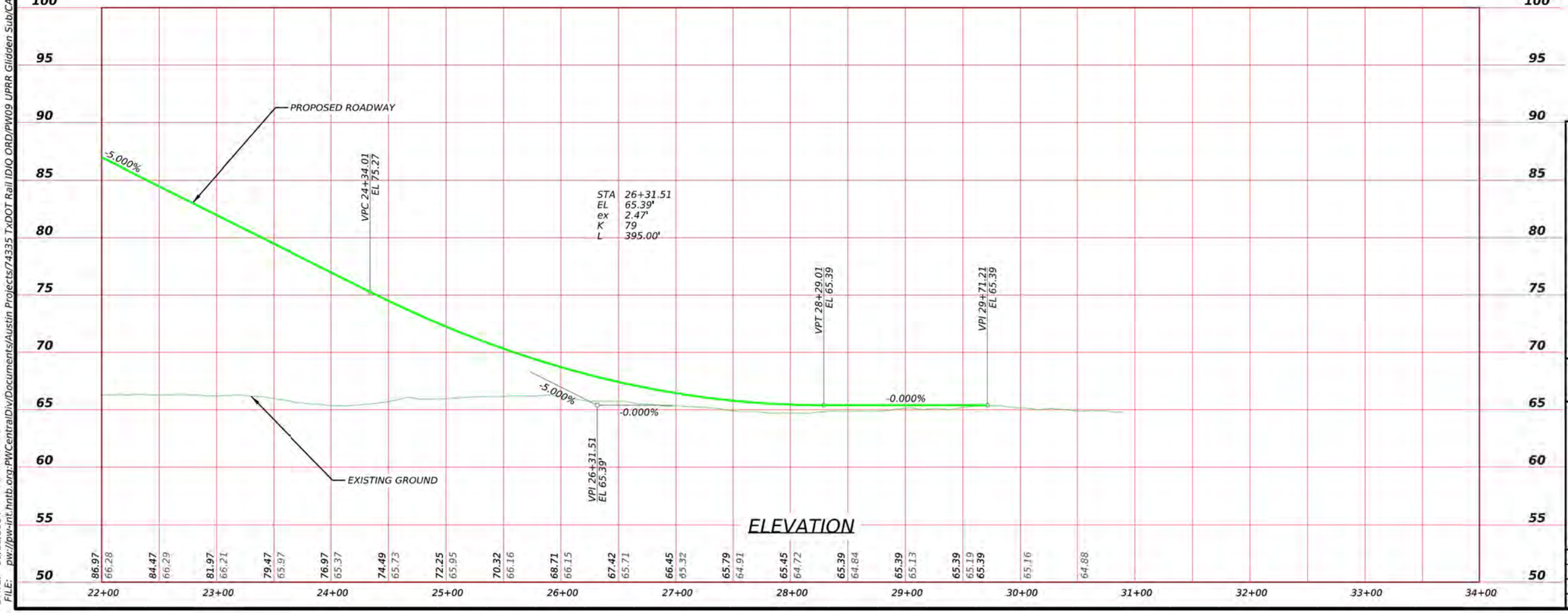
DATE: 10/21/2024 10:15:36 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-FondrenRd-Sheets.dgn



PLAN

FONDREN ROAD DESIGN SPEEDS
EXISTING = 45 MPH
PROPOSED = 45 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



ELEVATION

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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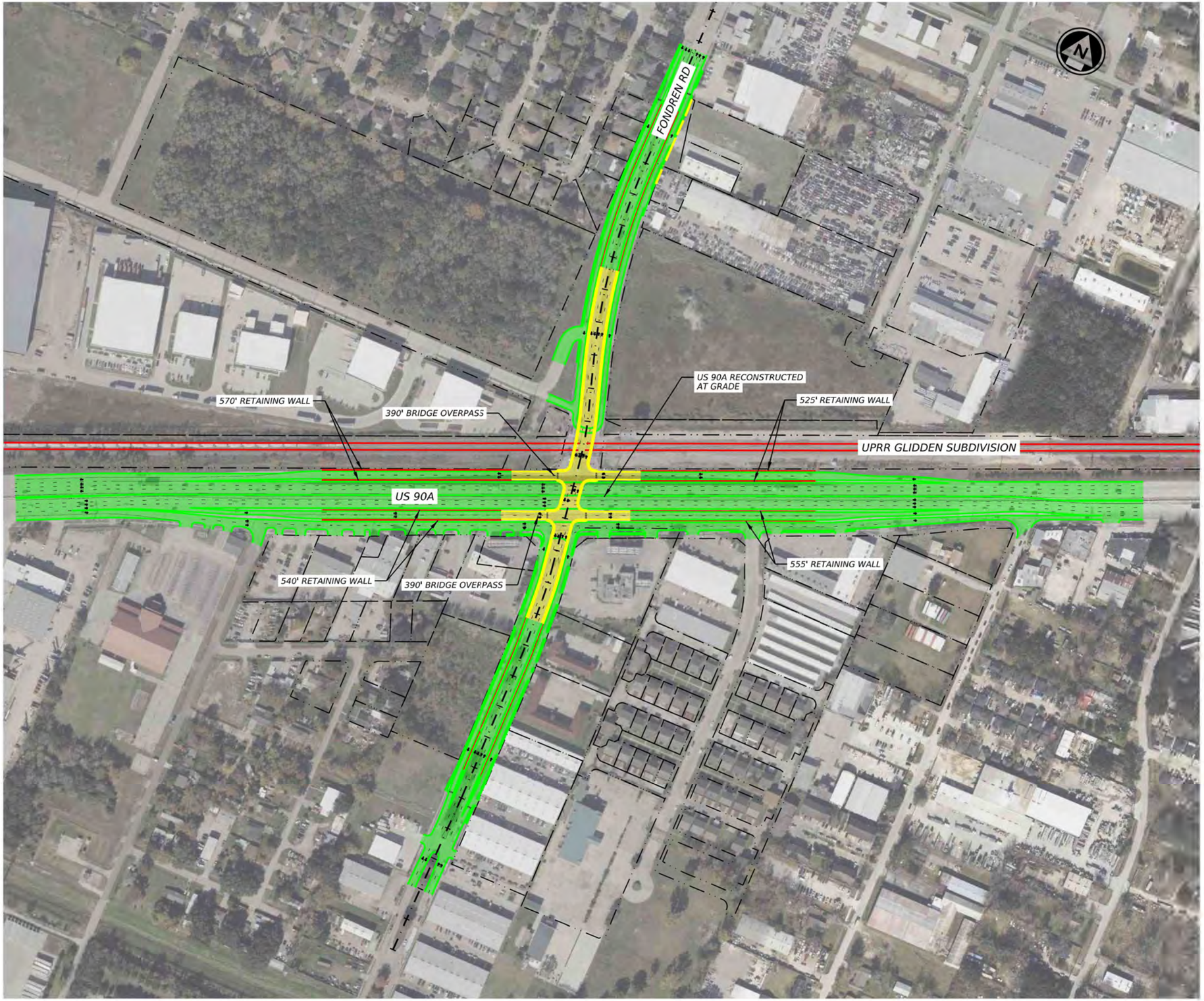
FONDREN RD

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #755624C

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	HARRIS	3



LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 100 200 300

SCALE IN FEET

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Texas Department of Transportation

FONDREN ROAD

GRADE SEPARATION CONCEPT US 90A AT-GRADE RECONSTRUCTION

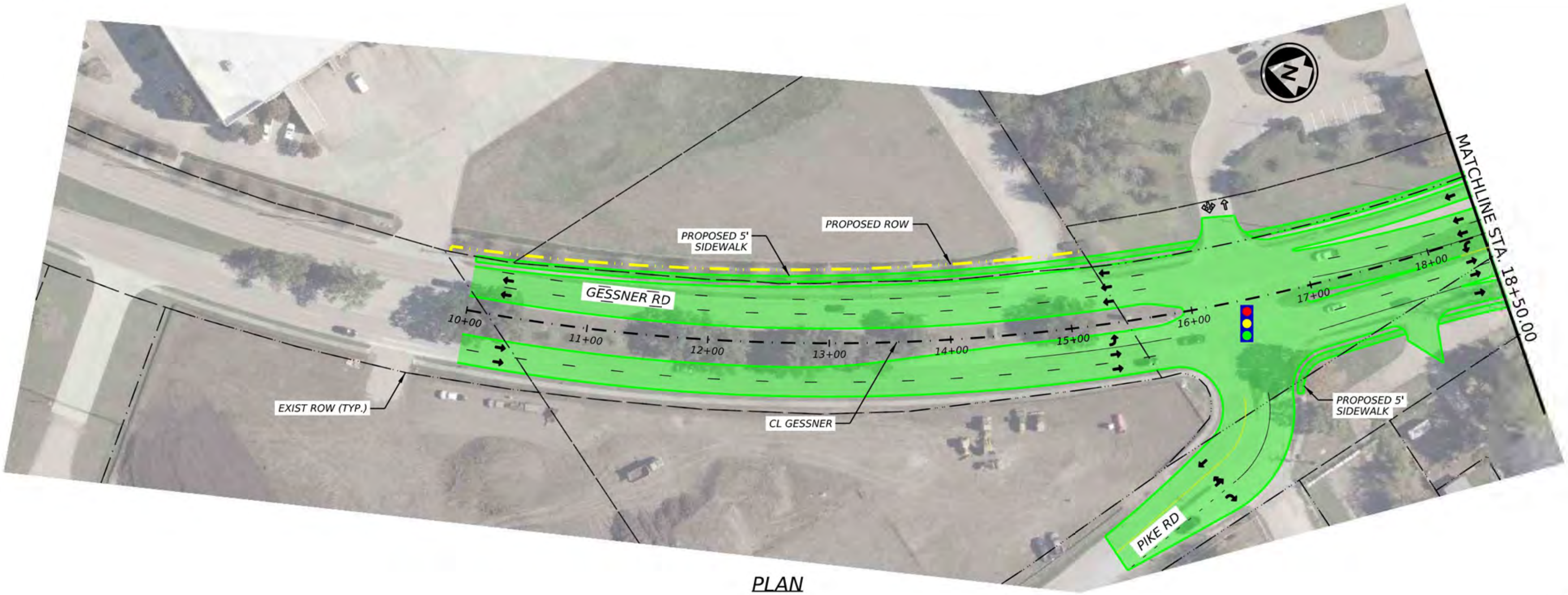
SHEET 4 OF 4

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	HARRIS	4

DW: AK, JB, NZ, RN | CK: JM, JR | DW: AK, JB, NZ, RN | CK: JM, JR

DATE: 10/21/2024 10:16:07 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-FondrenRd-Sheets.dgn



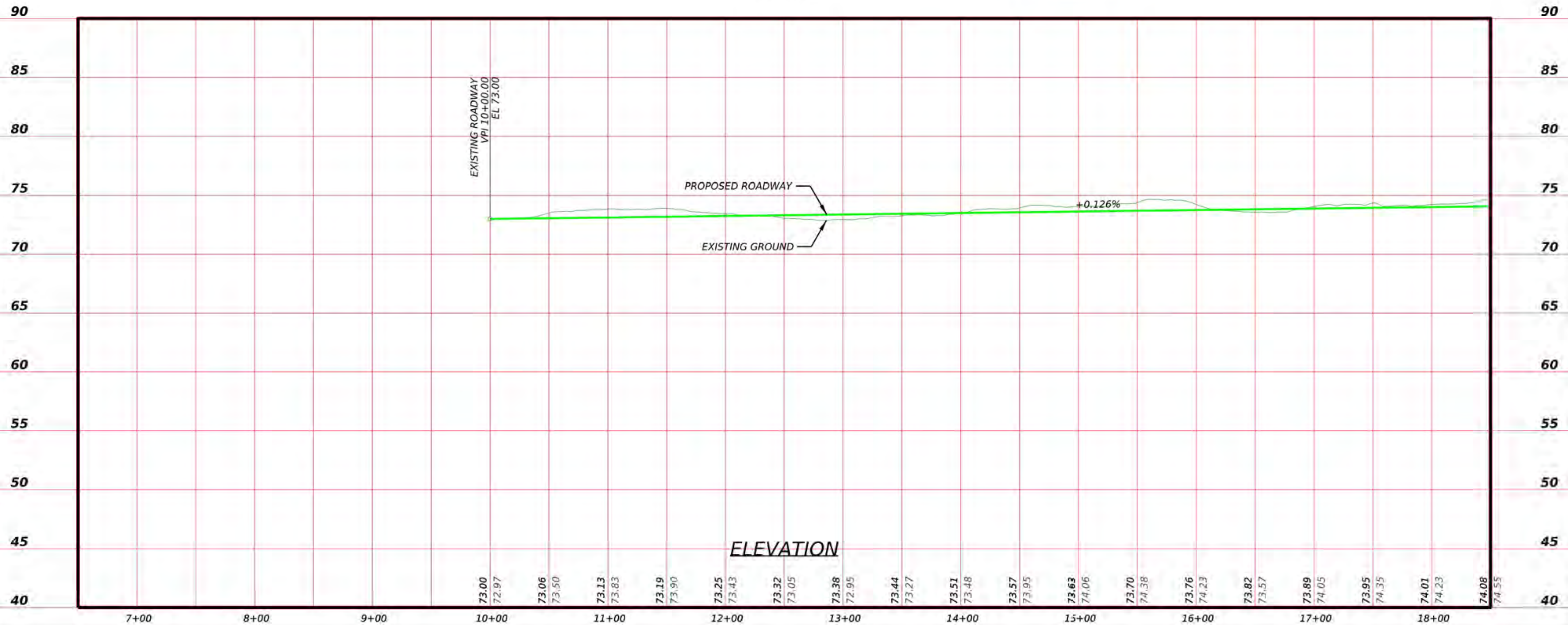
PLAN

GESSNER ROAD DESIGN SPEEDS
EXISTING = 45 MPH
PROPOSED = 45 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET



ELEVATION

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Texas Department of Transportation

GESSNER RD

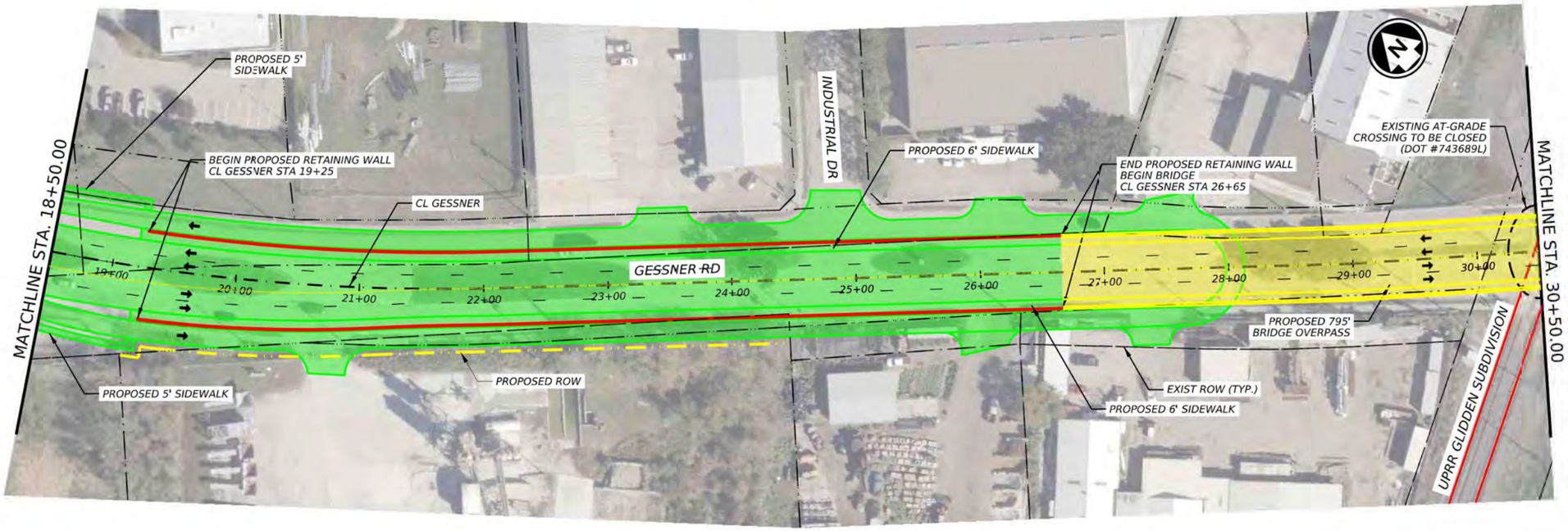
GRADE SEPARATION CONCEPT PLAN AND PROFILE
DOT# 743689L

SHEET 1 OF 8

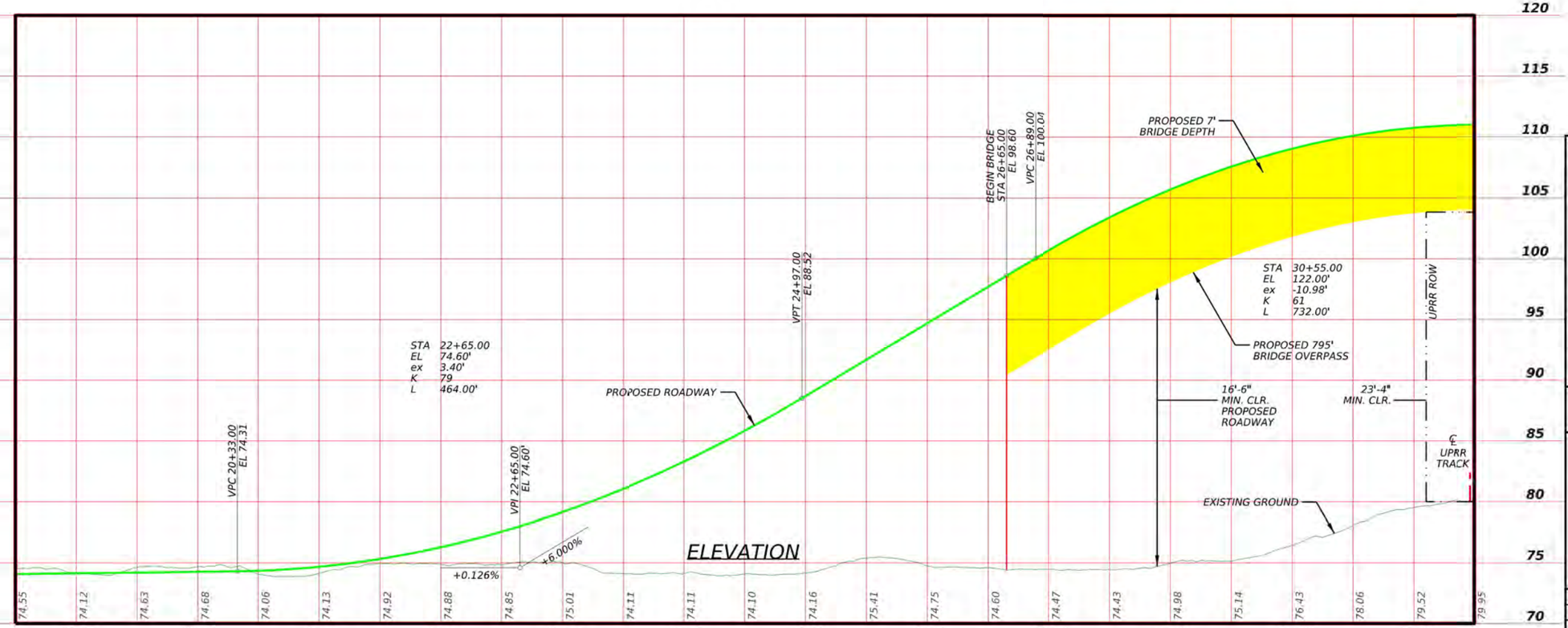
CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	1

DATE: 10/21/2024 10:32:18 AM
FILE: pw://pw-int.hntb.org:PWCentral/Div/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-GessnerRd-SheetsBase.dgn



PLAN



ELEVATION

GESSNER ROAD DESIGN SPEEDS

EXISTING = 45 MPH
PROPOSED = 45 MPH

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

GESSNER RD

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT# 743689L

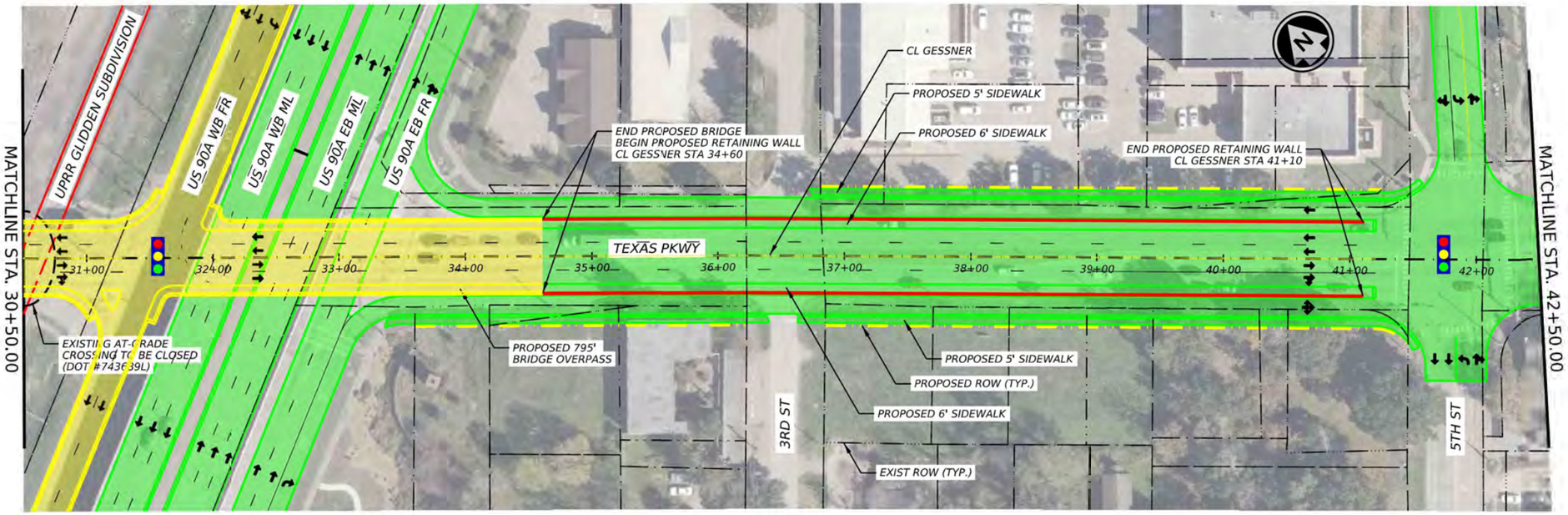
SHEET 2 OF 8

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	2

DW: JK,JB,NZ,RN CK: JM,JR
DW: JK,JB,NZ,RN CK: JM,JR

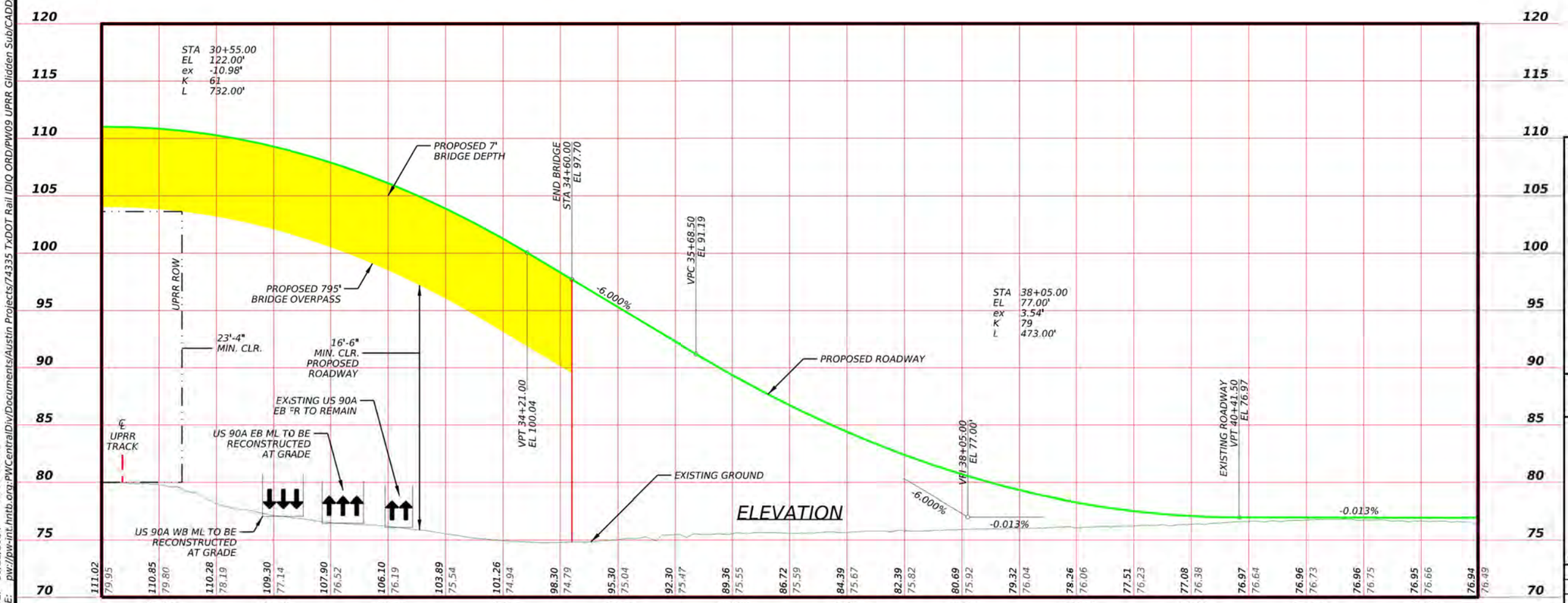
DATE: 10/21/2024 10:32:41 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-GessnerRd-SheetsBase.dgn



PLAN

GESSNER ROAD DESIGN SPEEDS
EXISTING = 45 MPH
PROPOSED = 45 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

GESSNER RD

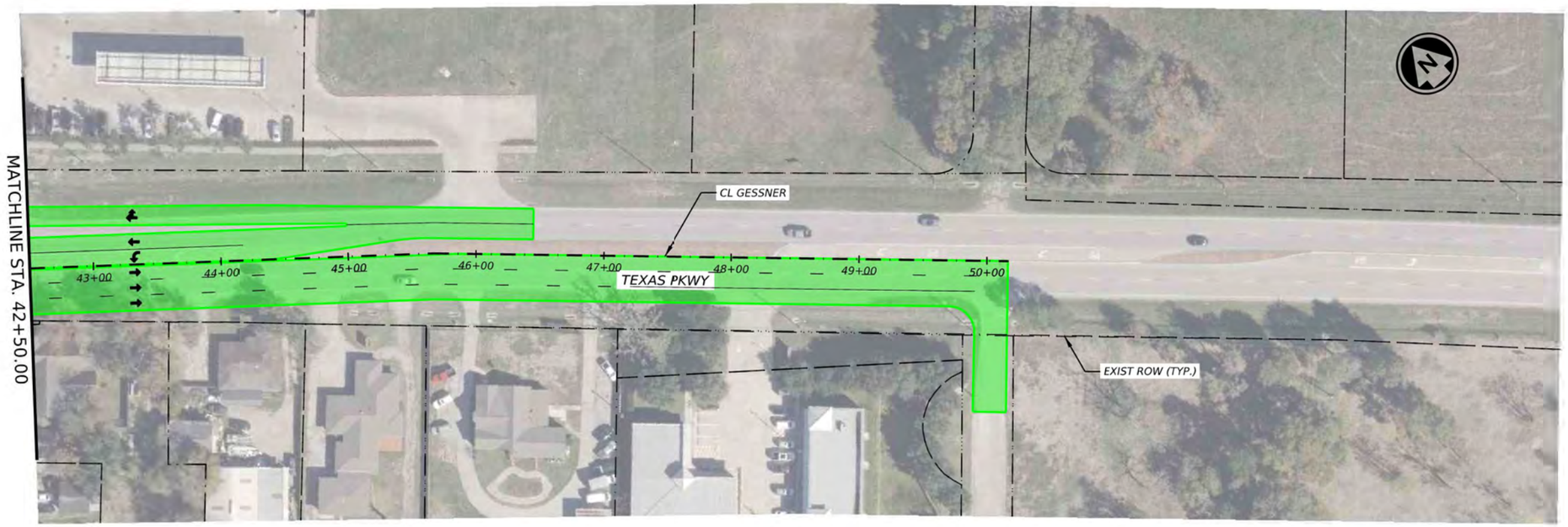
GRADE SEPARATION CONCEPT
PLAN AND PROFILE
DOT# 743689L

SHEET 3 OF 8

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		3

DATE: 10/21/2024 10:32:59 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-GessnerRd-SheetsBase.dgn

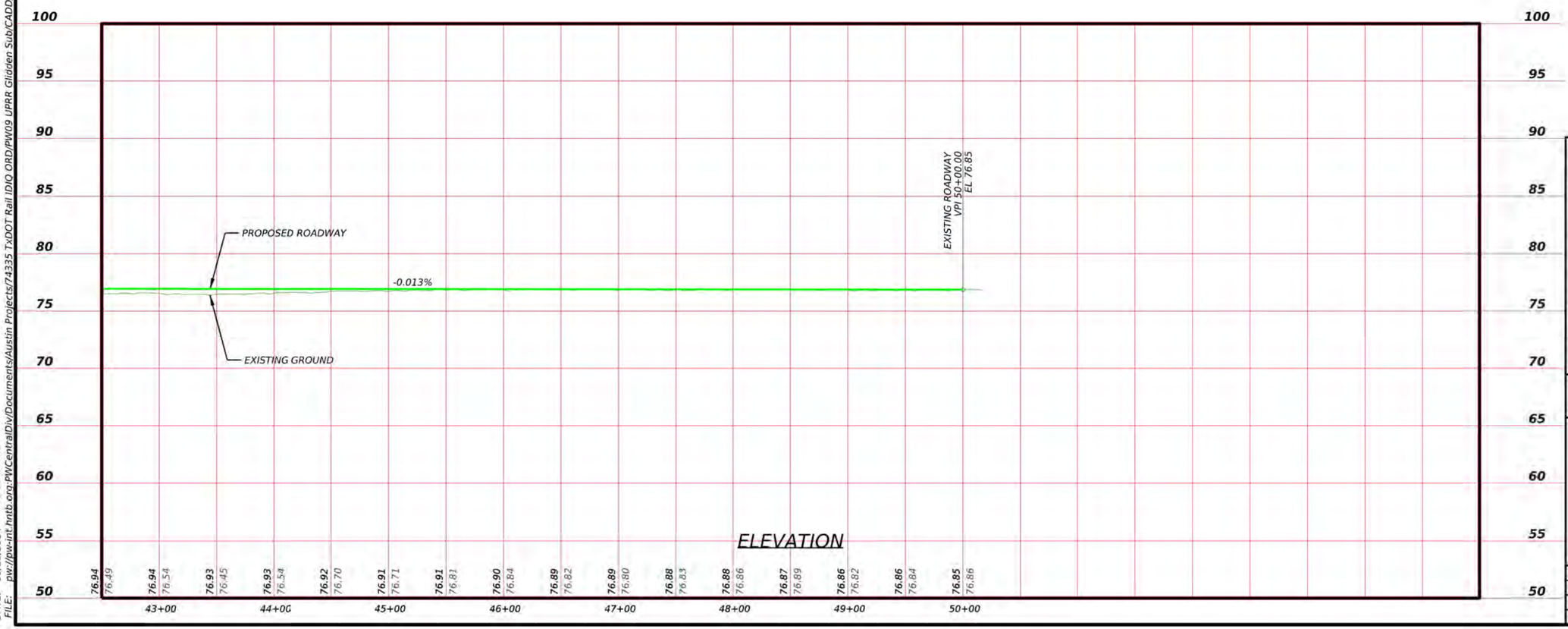
DW: JA, JB, NZ, RN CK: JM, JR



PLAN

GESSNER ROAD DESIGN SPEEDS
EXISTING = 45 MPH
PROPOSED = 45 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



ELEVATION

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

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TBPE FIRM Registration No. 420

Texas Department of Transportation

GESSNER RD

GRADE SEPARATION
CONCEPT
PLAN AND PROFILE
DOT# 743689L

SHEET 4 OF 8

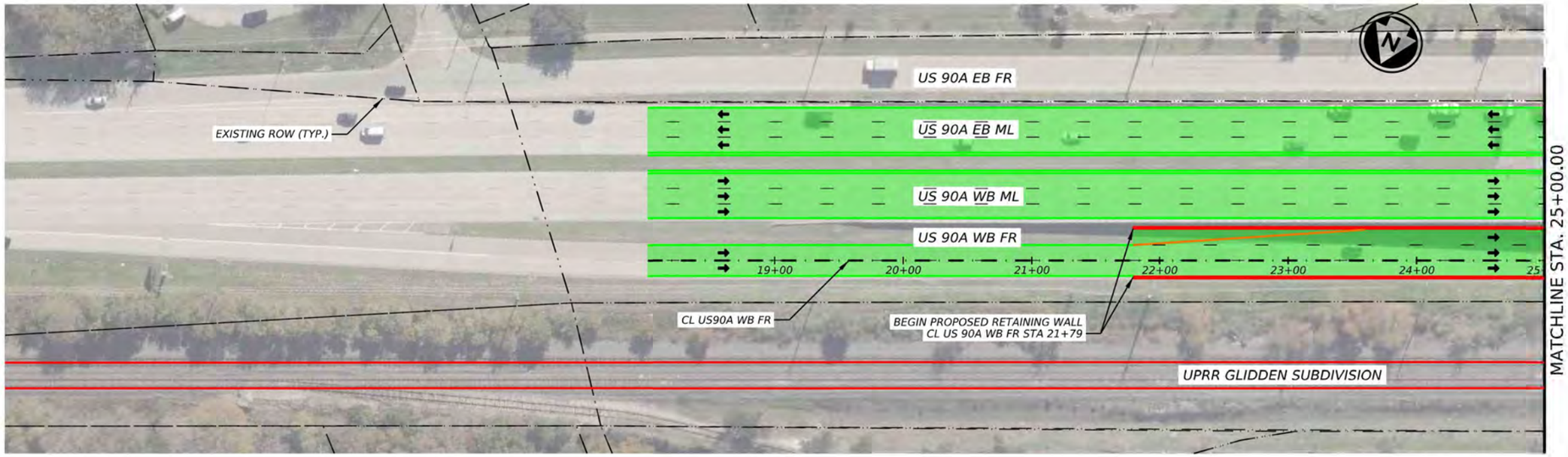
CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	4

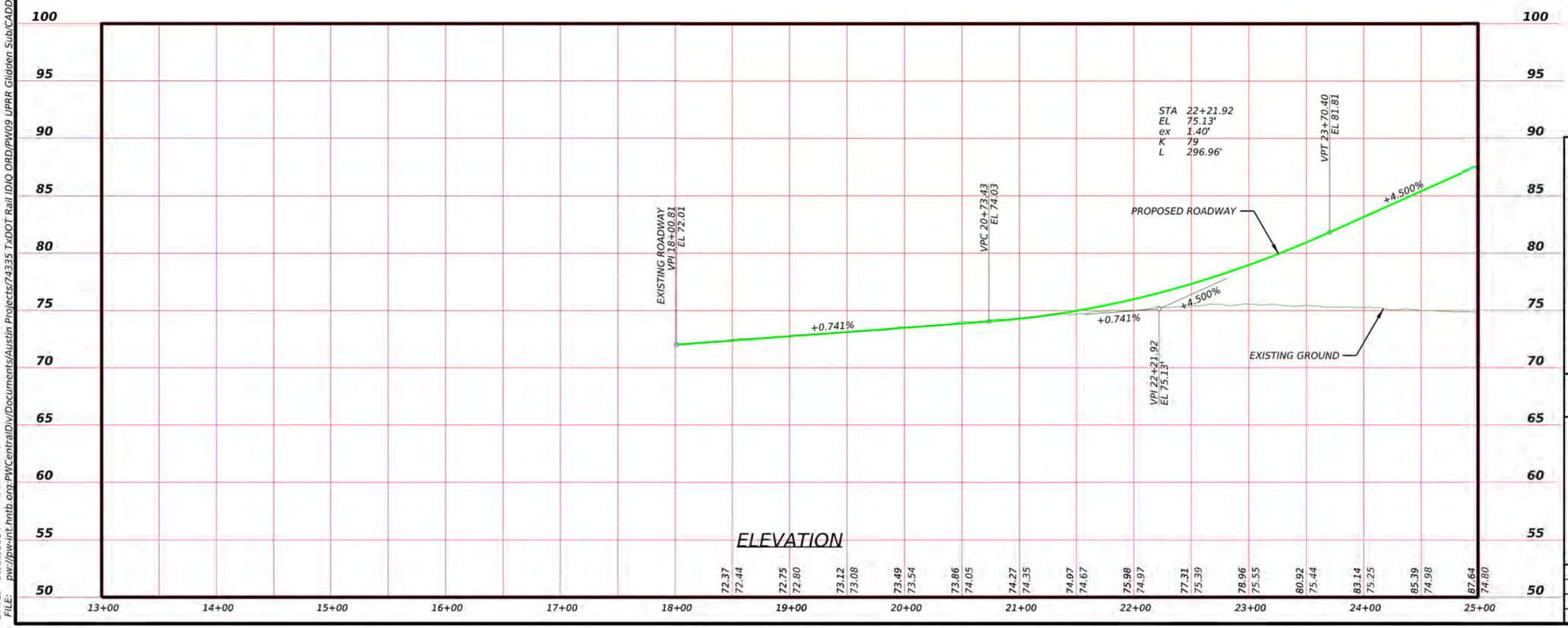
DATE: 10/21/2024 10:33:17 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-GessnerRd-SheetsBase.dgn

DW: AK,JB,NZ,RN CK: JM,JR
DW: AK,JB,NZ,RN CK: JM,JR

DW: AK,JB,NZ,RN | CK: JM,JR | DW: AK,JB,NZ,RN | CK: JM,JR



PLAN



ELEVATION

US 90A DESIGN SPEEDS
EXISTING = 55 MPH
PROPOSED = 55 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET

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Texas Department of Transportation

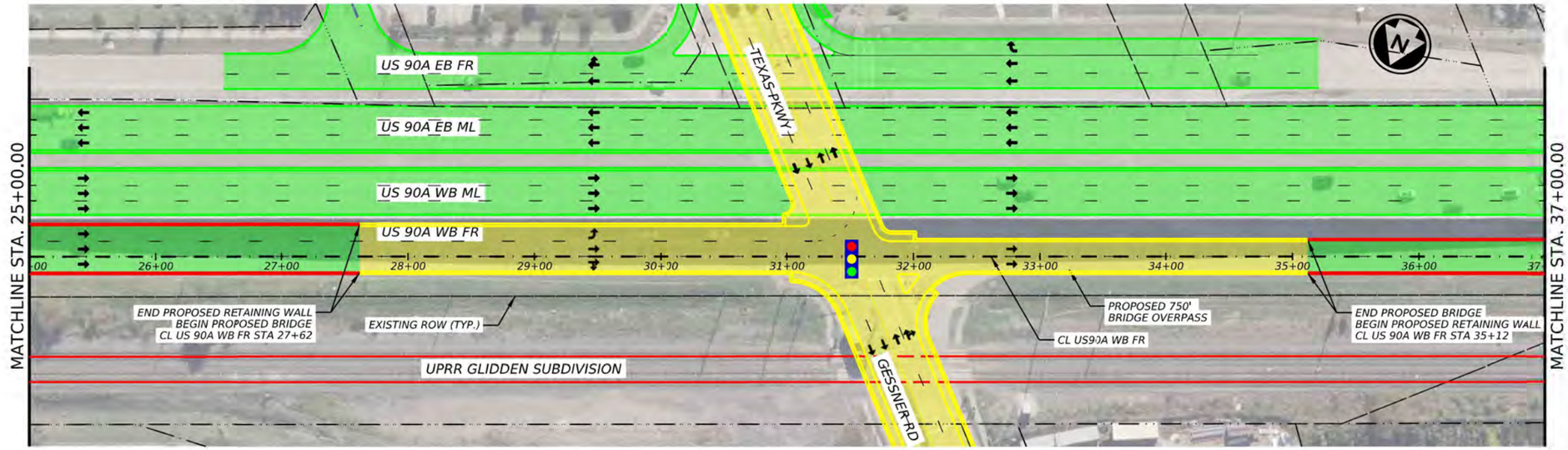
GESSNER RD

GRADE SEPARATION
CONCEPT
US 90A
RECONSTRUCTION

SHEET 5 OF 8

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		5

DATE: 10/21/2024 10:33:33 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-GessnerRd-SheetsBase.dgn



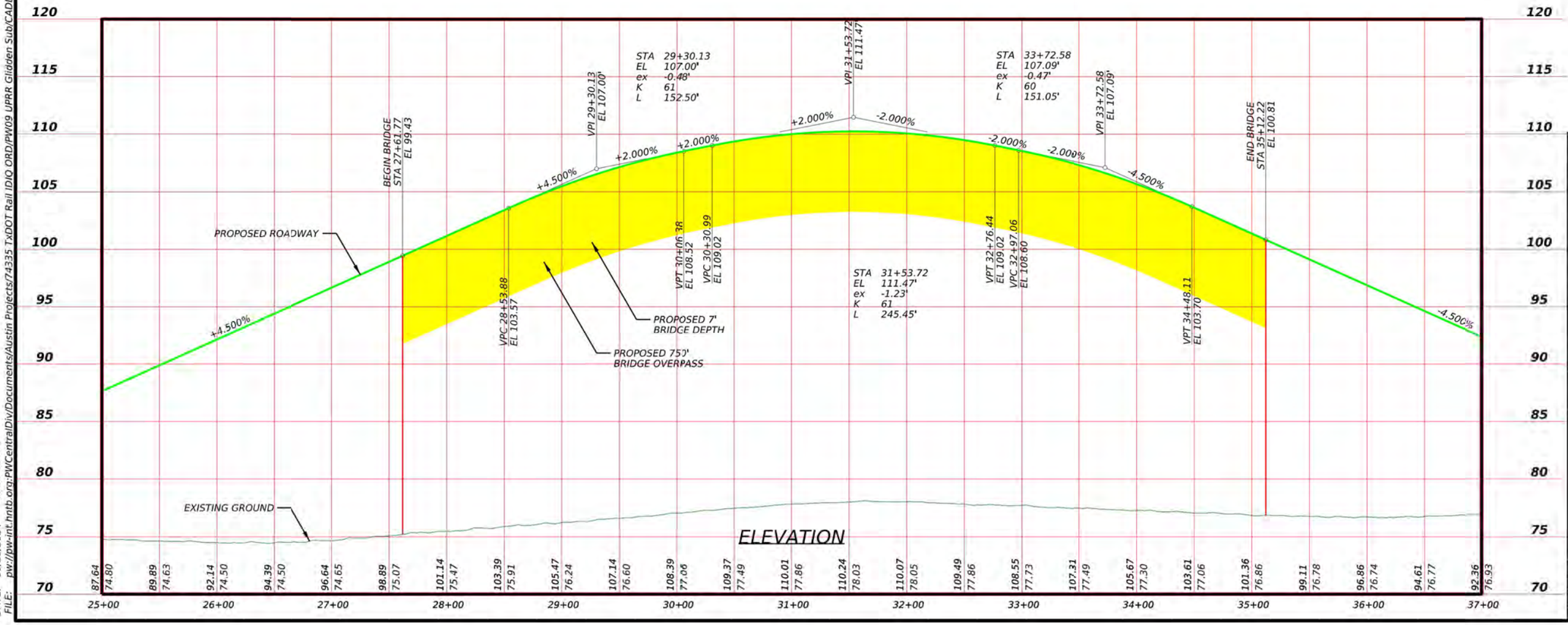
PLAN

US 90A DESIGN SPEEDS

EXISTING = 55 MPH
PROPOSED = 55 MPH

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



ELEVATION

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET

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GESSNER RD

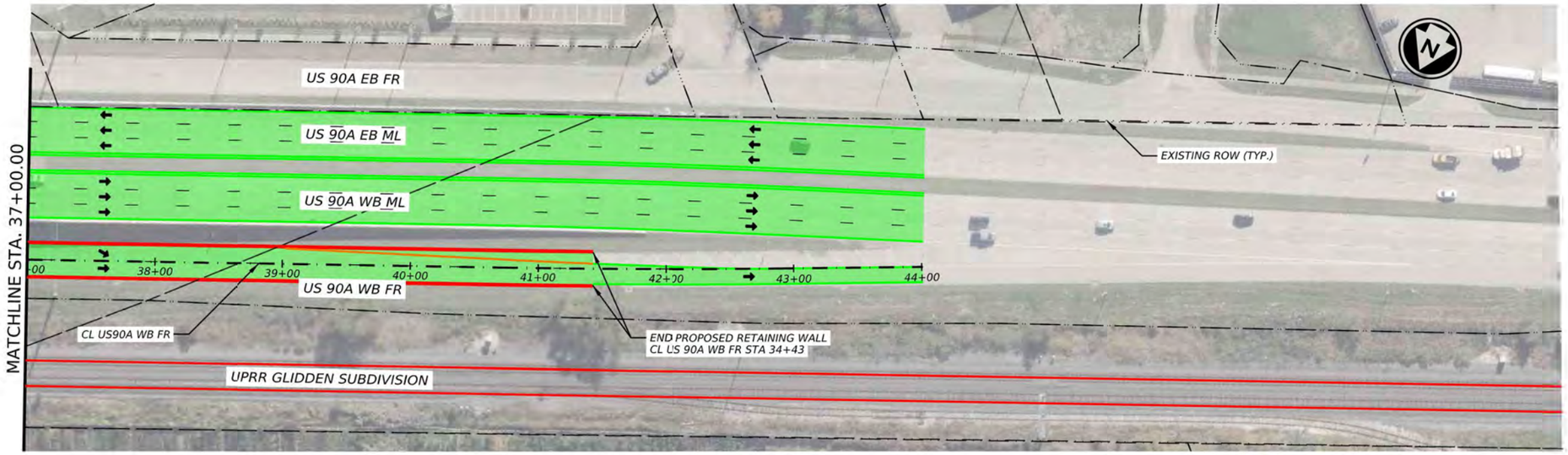
GRADE SEPARATION CONCEPT US 90A RECONSTRUCTION

SHEET 6 OF 8

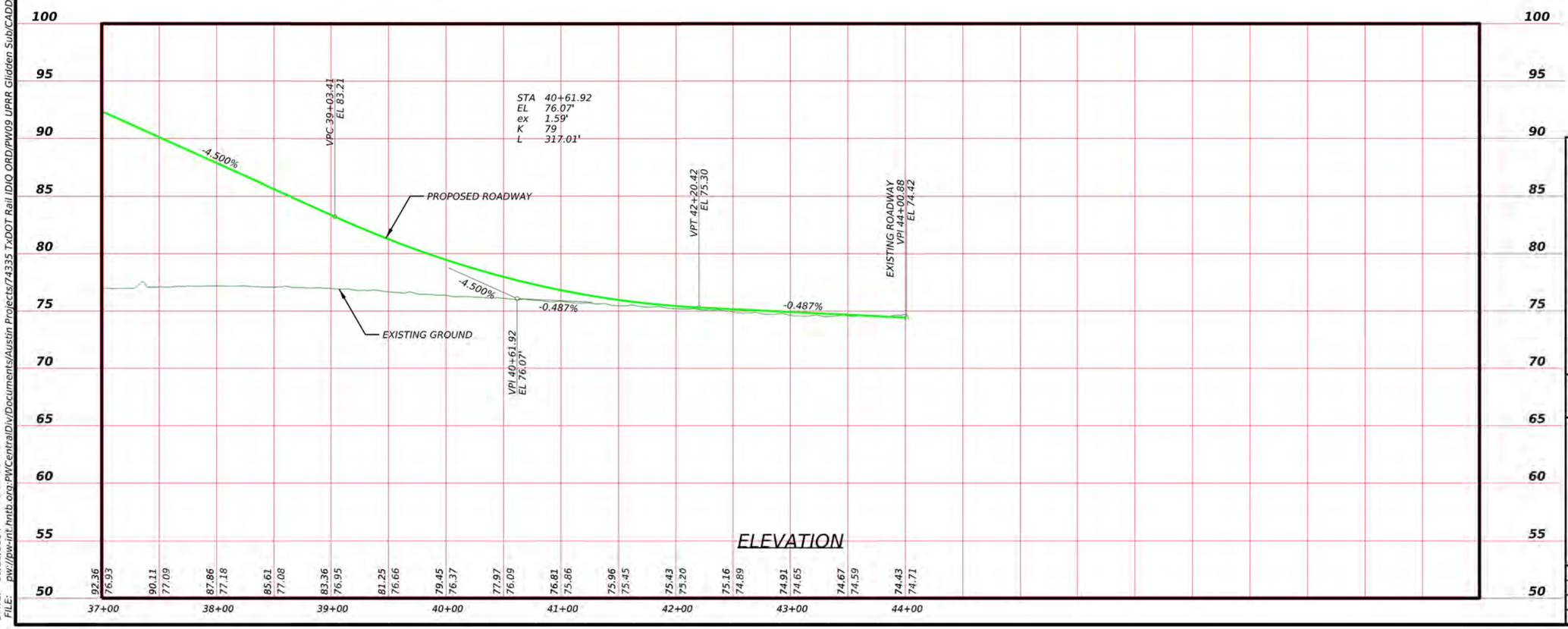
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		6

DW: JK,JB,NZ,RN CK: JM,JR
DW: JK,JB,NZ,RN CK: JM,JR

DATE: 10/21/2024 10:33:56 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-GessnerRd-SheetsBase.dgn



PLAN



ELEVATION

US 90A DESIGN SPEEDS

EXISTING = 55 MPH
PROPOSED = 55 MPH

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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JOSHUA A MIETH, P.E.
NO. 97346

ON: 10/21/2024

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HNTB
TBPE FIRM Registration No.: 420

Texas Department of Transportation

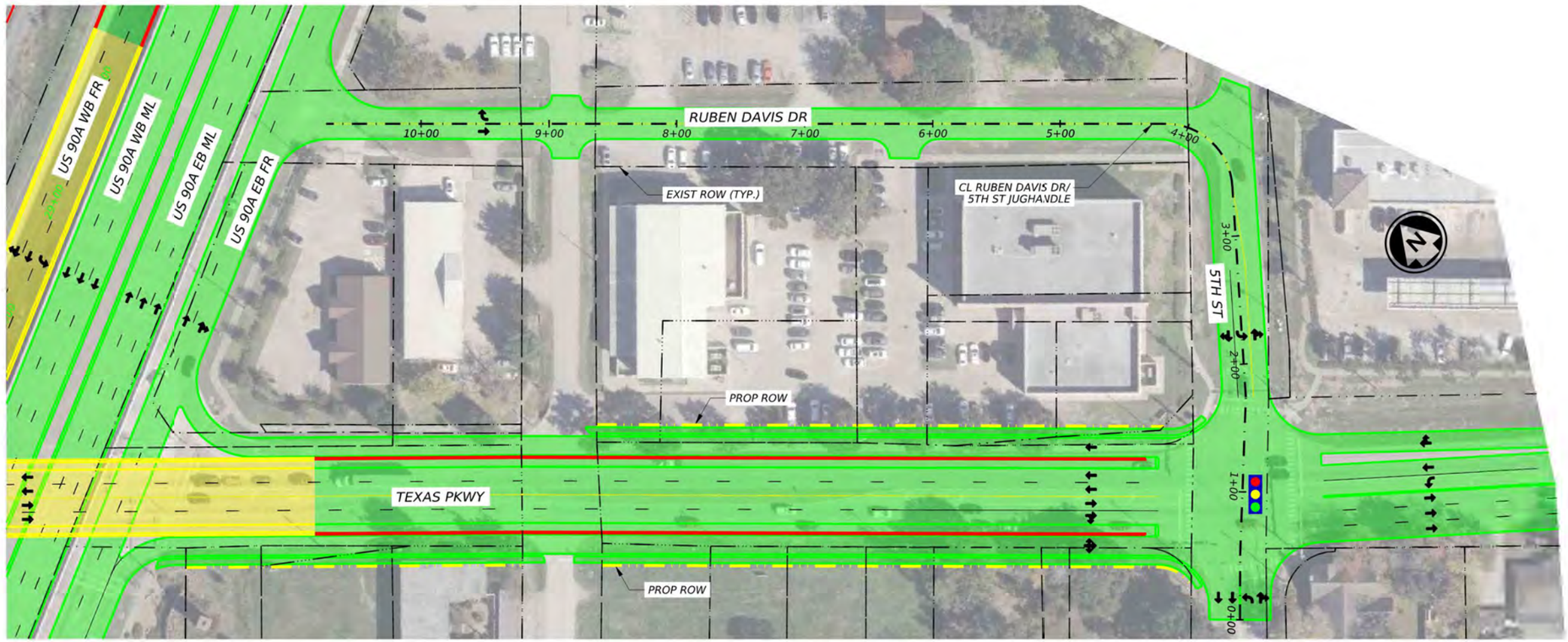
GESSNER RD

GRADE SEPARATION CONCEPT US 90A RECONSTRUCTION

SHEET 7 OF 8

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	7



PLAN

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100

SCALE IN FEET

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Texas Department of Transportation

GESSNER RD

GRADE SEPARATION CONCEPT
RUBEN DAVIS DR / 5TH ST CONNECTION

SHEET 8 OF 8

CONT	SECT	JOB	HIGHWAY

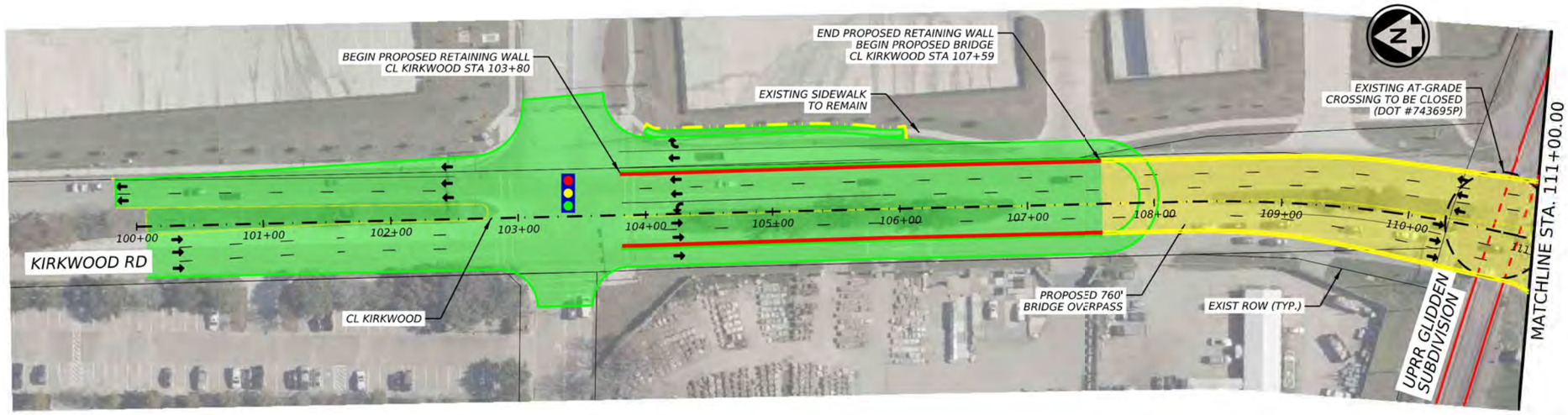
DIST	COUNTY	SHEET NO.
HOU	FORT BEND	8

DW: JK, JB, NZ, RN CK: JM, JR DW: AK, JB, NZ, RN CK: JM, JR

DATE: 10/21/2024 10:34:18 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-GessnerRd-SheetsBase.dgn

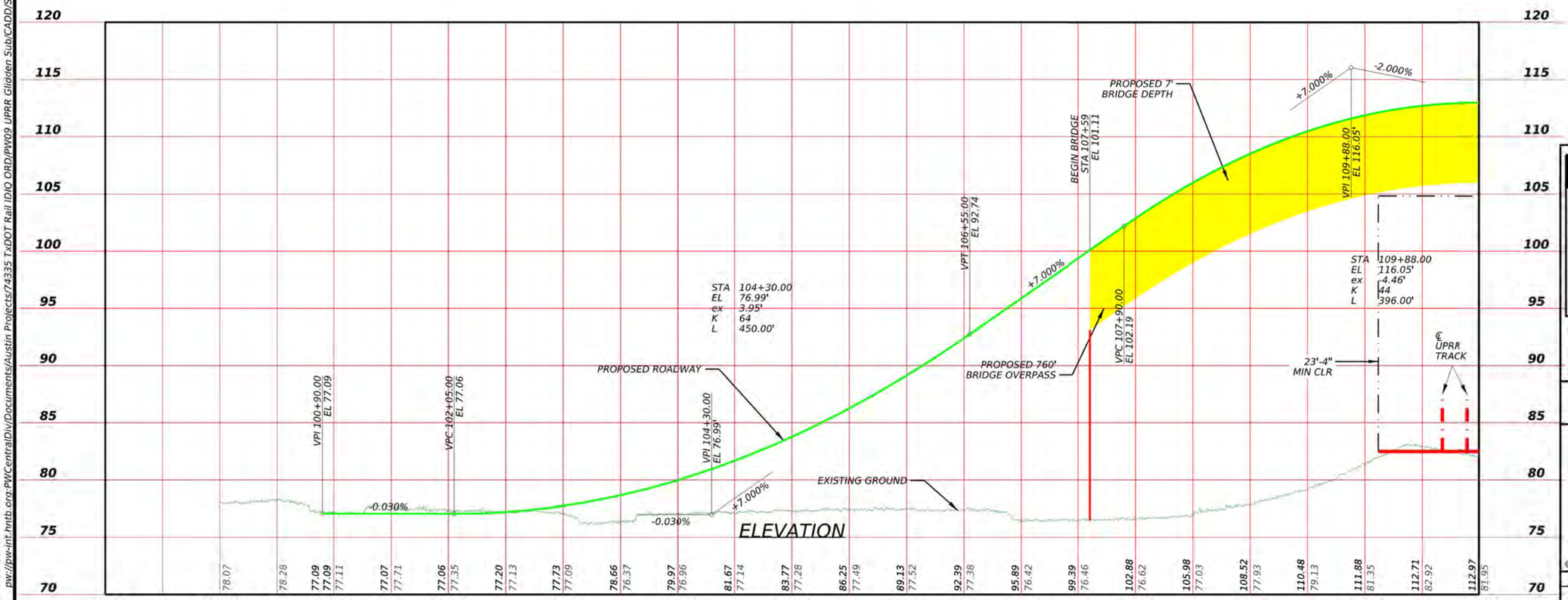
DW: AK,JB,NZ,RN CK: JM,JR
DW: AK,JB,NZ,SN CK: JM,JR

KIRKWOOD RD DESIGN SPEEDS
EXISTING = 40 MPH
PROPOSED = 40 MPH



PLAN

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

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Texas Department of Transportation

KIRKWOOD RD

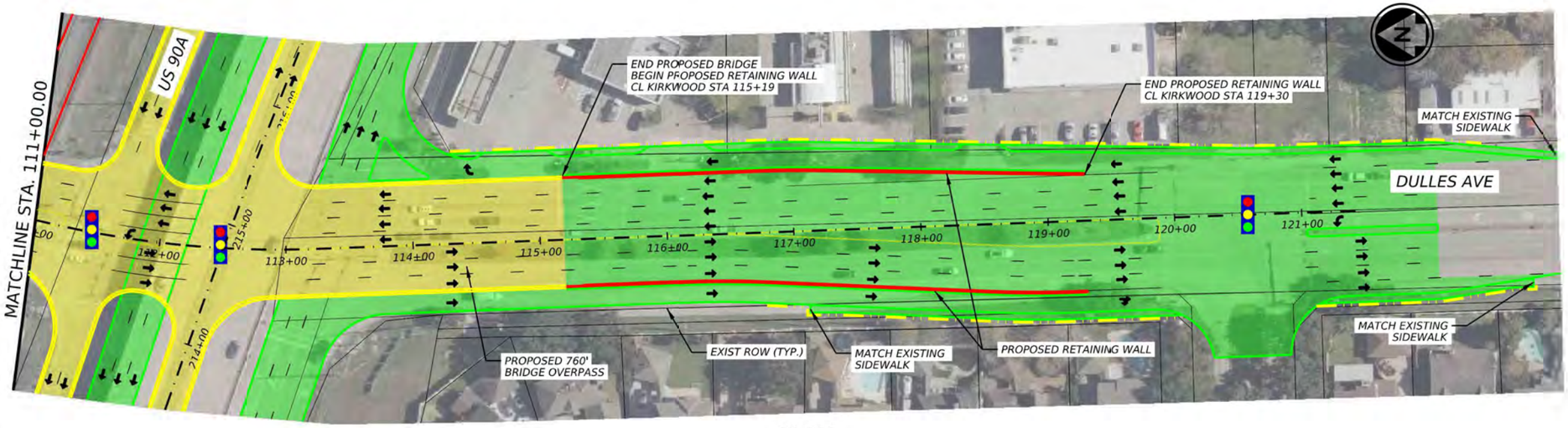
GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT 743695P

 SHEET 1 OF 5

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		1

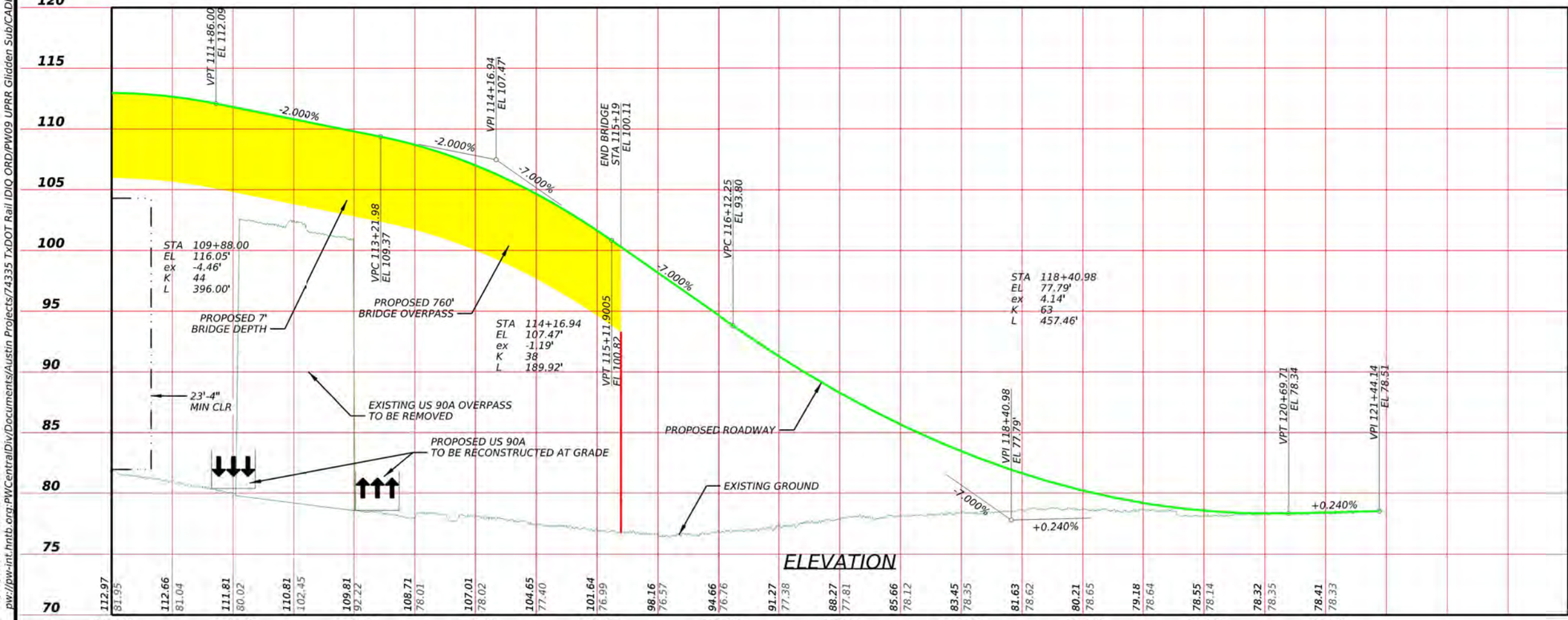
DATE: 10/16/2024 11:21:04 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-Kirkwood/Rd-SheetsBase.dgn

KIRKWOOD RD DESIGN SPEEDS
EXISTING = 40 MPH
PROPOSED = 40 MPH



PLAN

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



ELEVATION

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

KIRKWOOD RD

GRADE SEPARATION
CONCEPT
PLAN AND PROFILE
DOT 743695P

SHEET 2 OF 5

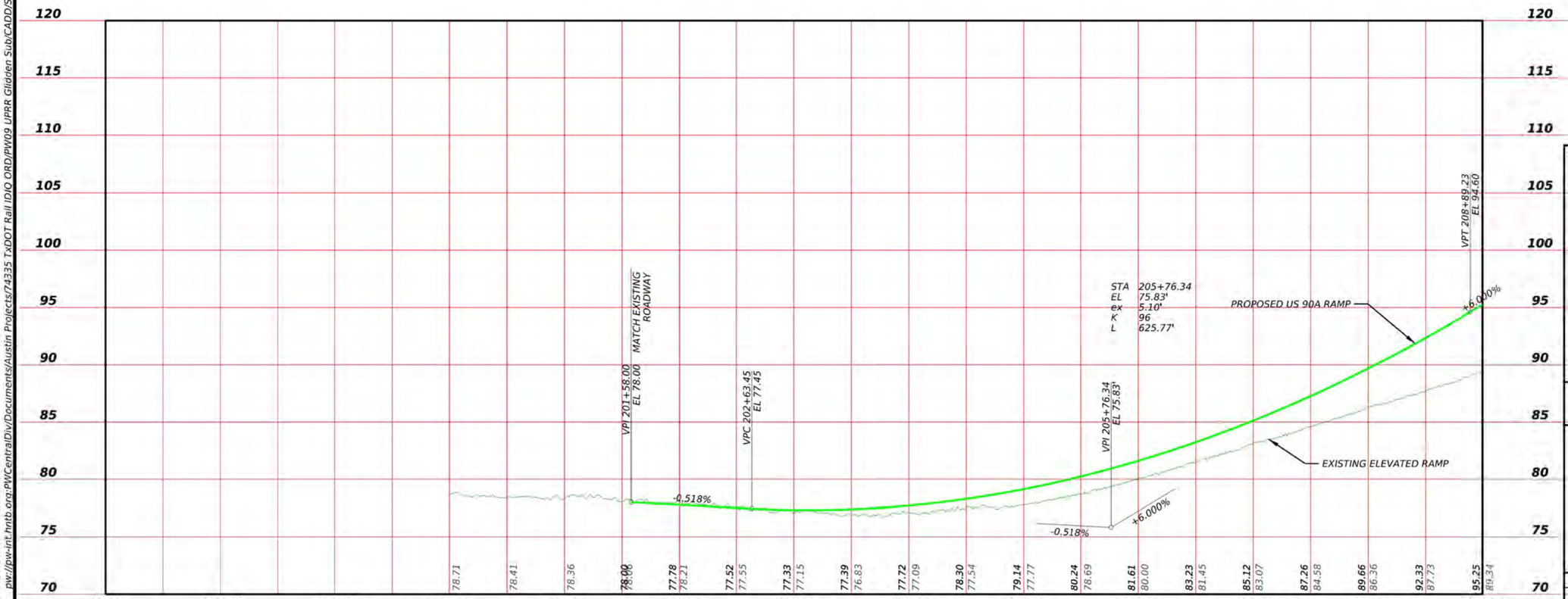
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		2

DW: JK,JB,NZ,RN | CK: JM,JR | DW: AK,JB,NZ,RN | CK: JM,JR

DATE: 10/16/2024 11:21:39 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-K/rkwoodRd-SheetsBase.dgn

US 90A DESIGN SPEEDS
EXISTING = 50 MPH
PROPOSED = 50 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

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Texas Department of Transportation

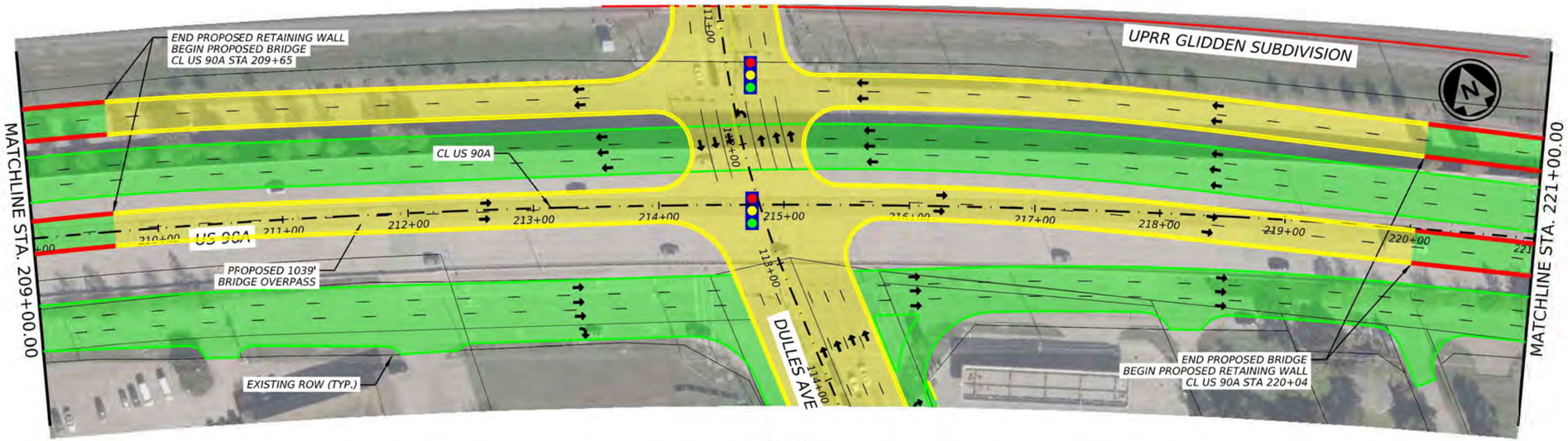
US 90A

RECONSTRUCTION CONCEPT PLAN AND PROFILE DOT 743695P

CONT	SECT	JOB	HIGHWAY

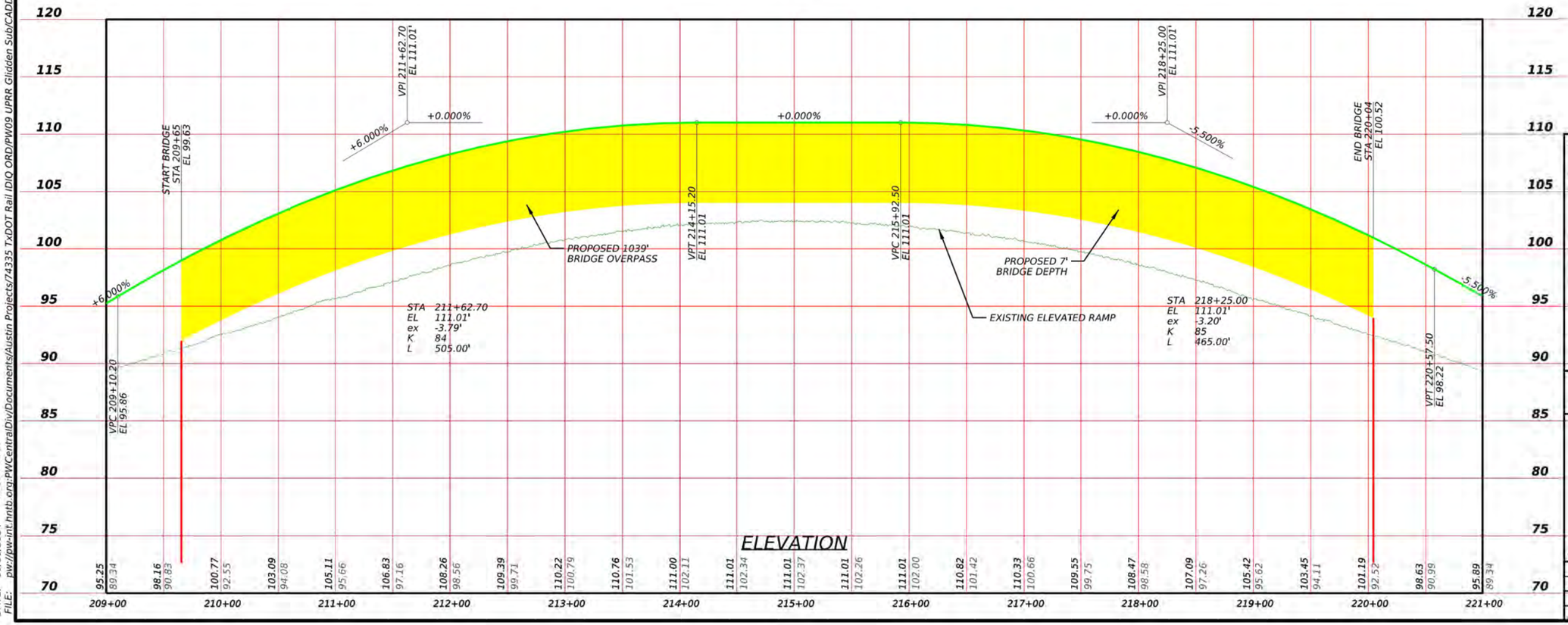
DIST	COUNTY	SHEET NO.
HOU	FORT BEND	3

US 90A DESIGN SPEEDS
EXISTING = 50 MPH
PROPOSED = 50 MPH



PLAN

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



ELEVATION

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

US 90A AT DULLES AVE RECONSTRUCTION CONCEPT PLAN AND PROFILE DOT 743695P

SHEET 4 OF 5

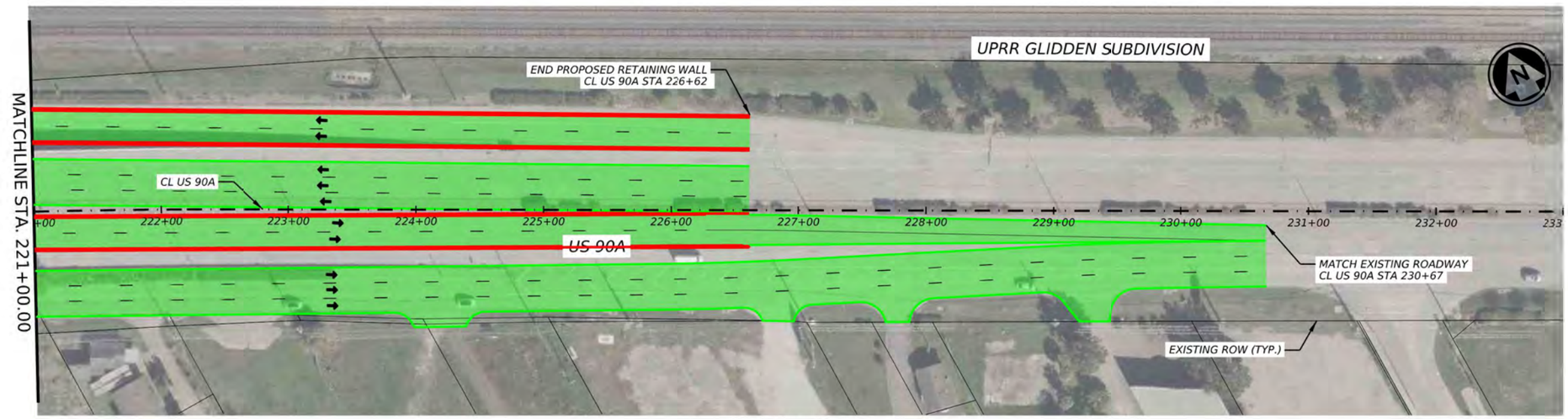
CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	4

DW: AK,JB,NZ,RN | CK: JM,JR | DW: AK,JB,NZ,RN | CK: JM,JR

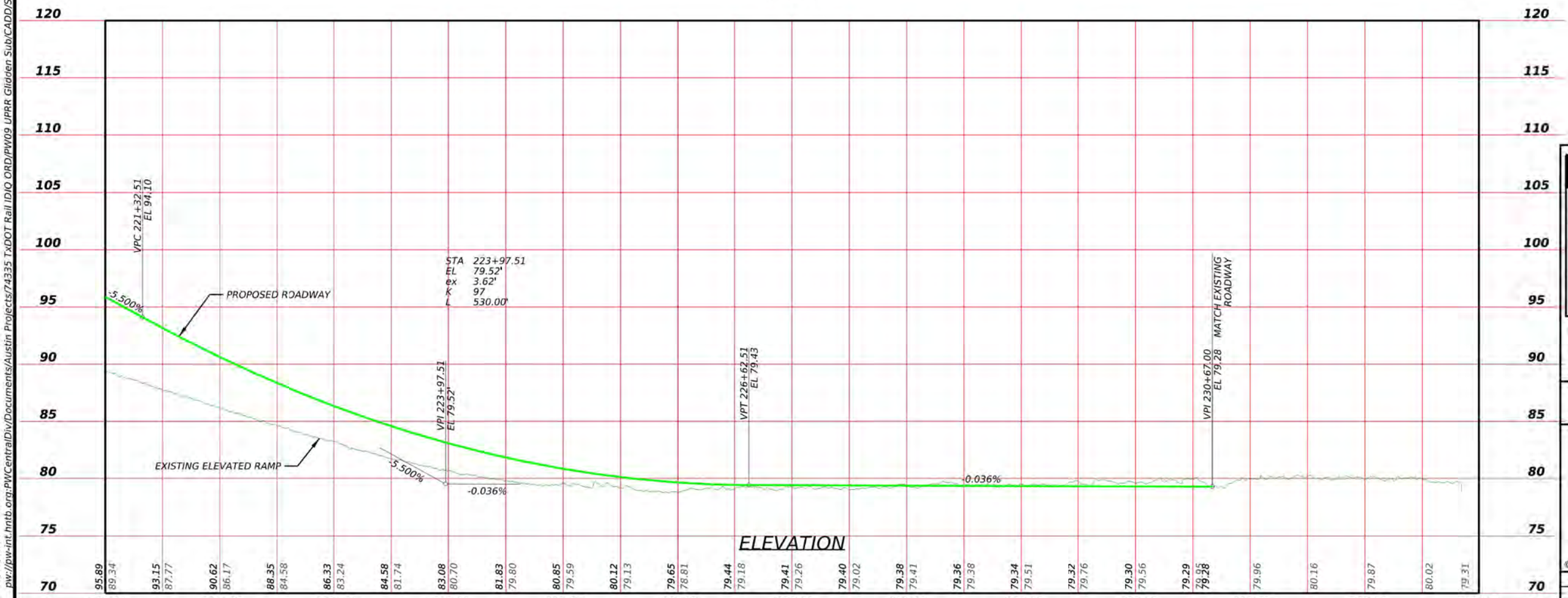
DATE: 10/16/2024 11:22:03 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/GD/Sheets/Grade-Separations/GS-K/rkwoodRd-SheetsBase.dgn

US 90A DESIGN SPEEDS
EXISTING = 50 MPH
PROPOSED = 50 MPH



PLAN

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



ELEVATION

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

US 90A

RECONSTRUCTION
CONCEPT
PLAN AND PROFILE
DOT 743695P

 SHEET 5 OF 5

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		5

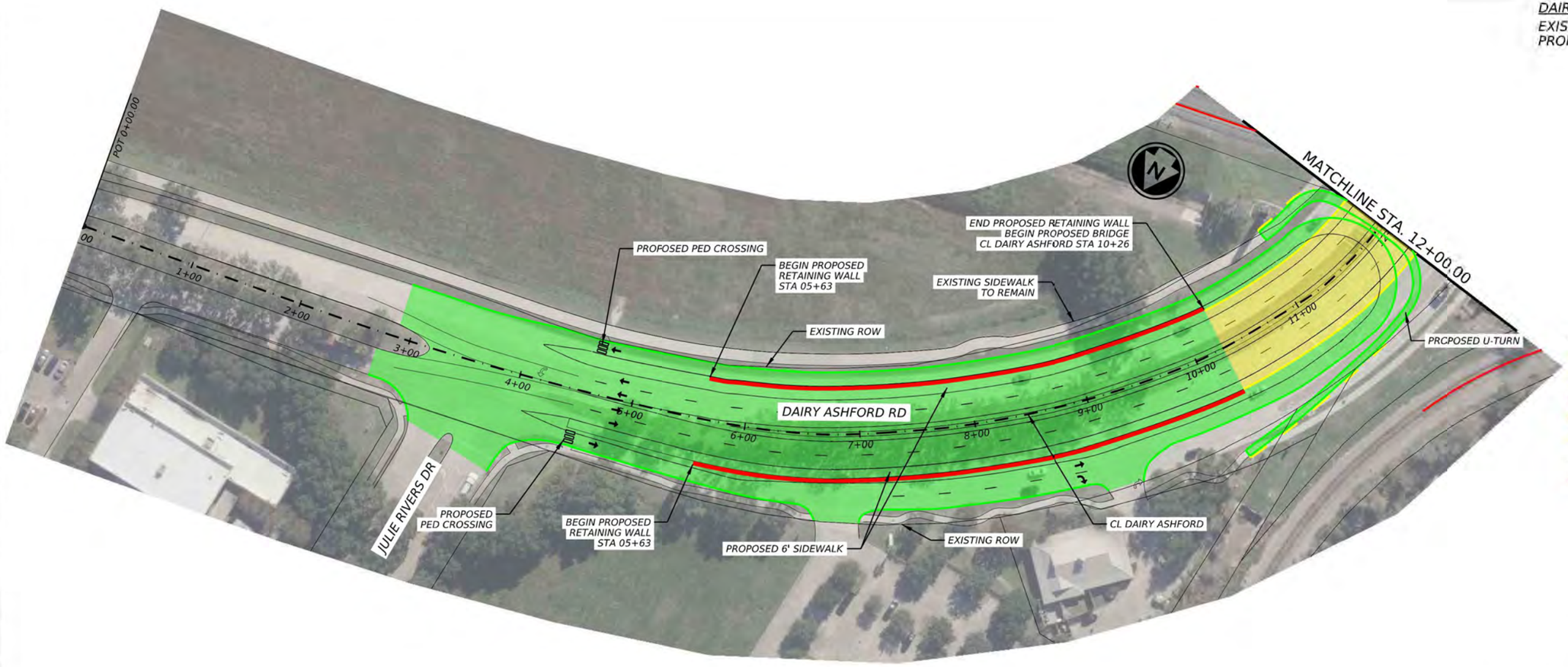
DW: AK, JB, NZ, RN | CK: JM, JR

DW: AK, JB, NZ, RN | CK: JM, JR

DATE: 10/16/2024 11:42:05 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-DairyAshfordRd-SheetsBase.dgn

DAIRY ASHFORD ROAD DESIGN SPEEDS

EXISTING = 30 MPH
PROPOSED = 30 MPH



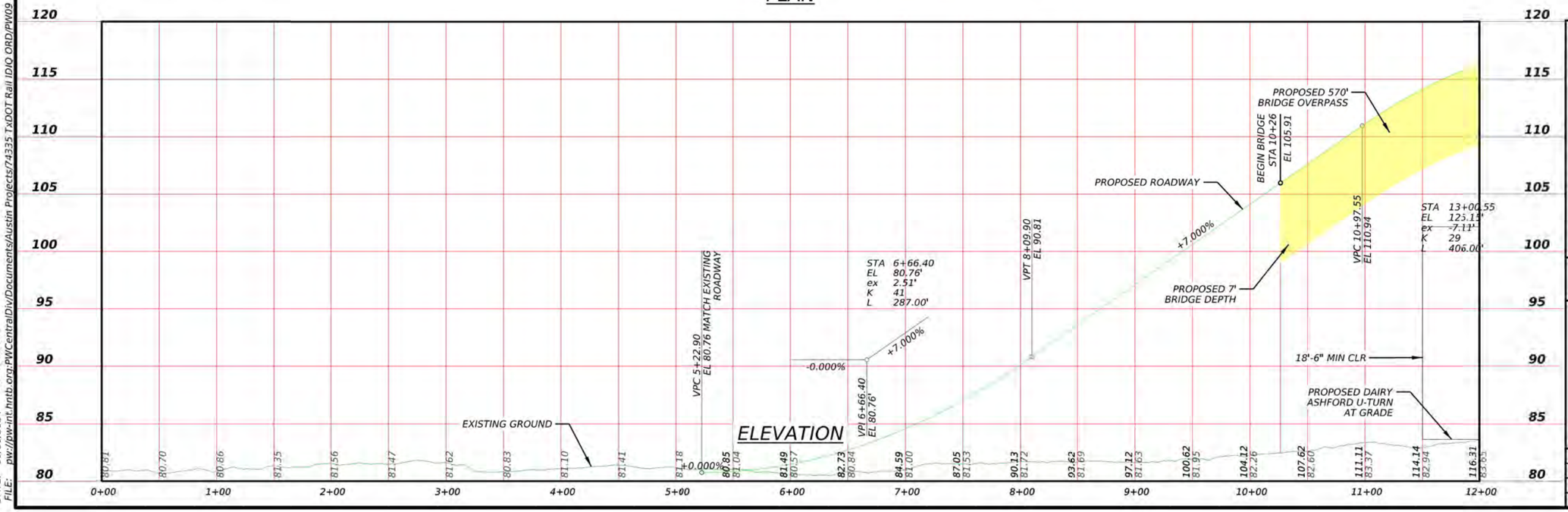
LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET

PLAN



ELEVATION

PRELIMINARY

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TBPE FIRM Registration No. 420

Texas Department of Transportation

DAIRY ASHFORD RD

GRADE SEPARATION CONCEPT PLAN AND PROFILE

DOT #745044J

SHEET 1 OF 3

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	1

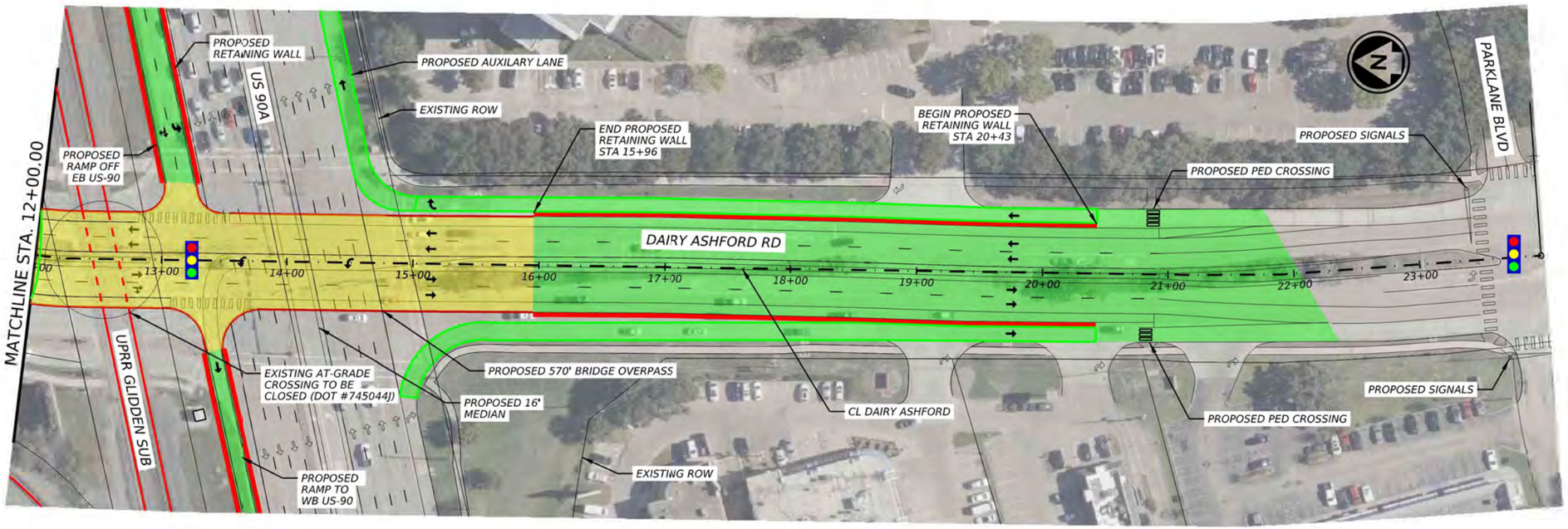
DW: JK, JR, NZ, RN | CK: JM, JR

DW: JK, JR, NZ, RN | CK: JM, JR

DATE: 10/16/2024 11:42:35 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-DairyAshfordRd-SheetsBase.dgn

DAIRY ASHFORD ROAD DESIGN SPEEDS

EXISTING = 30 MPH
PROPOSED = 30 MPH



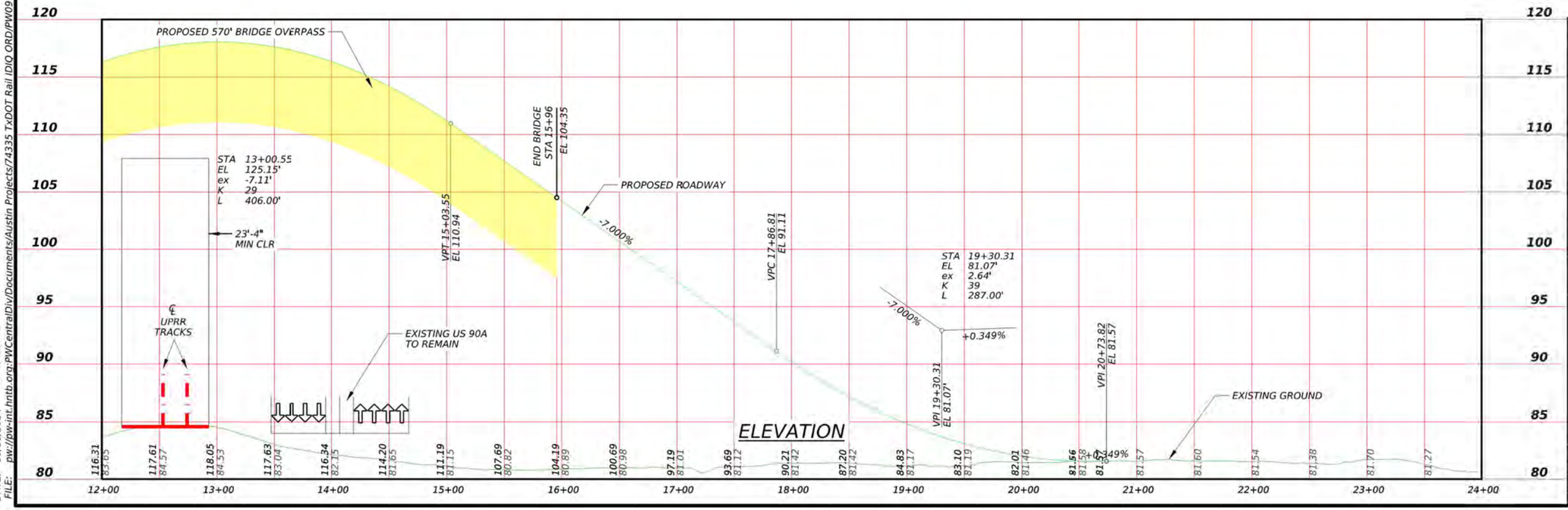
LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V: SCALE IN FEET

PLAN



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DAIRY ASHFORD RD

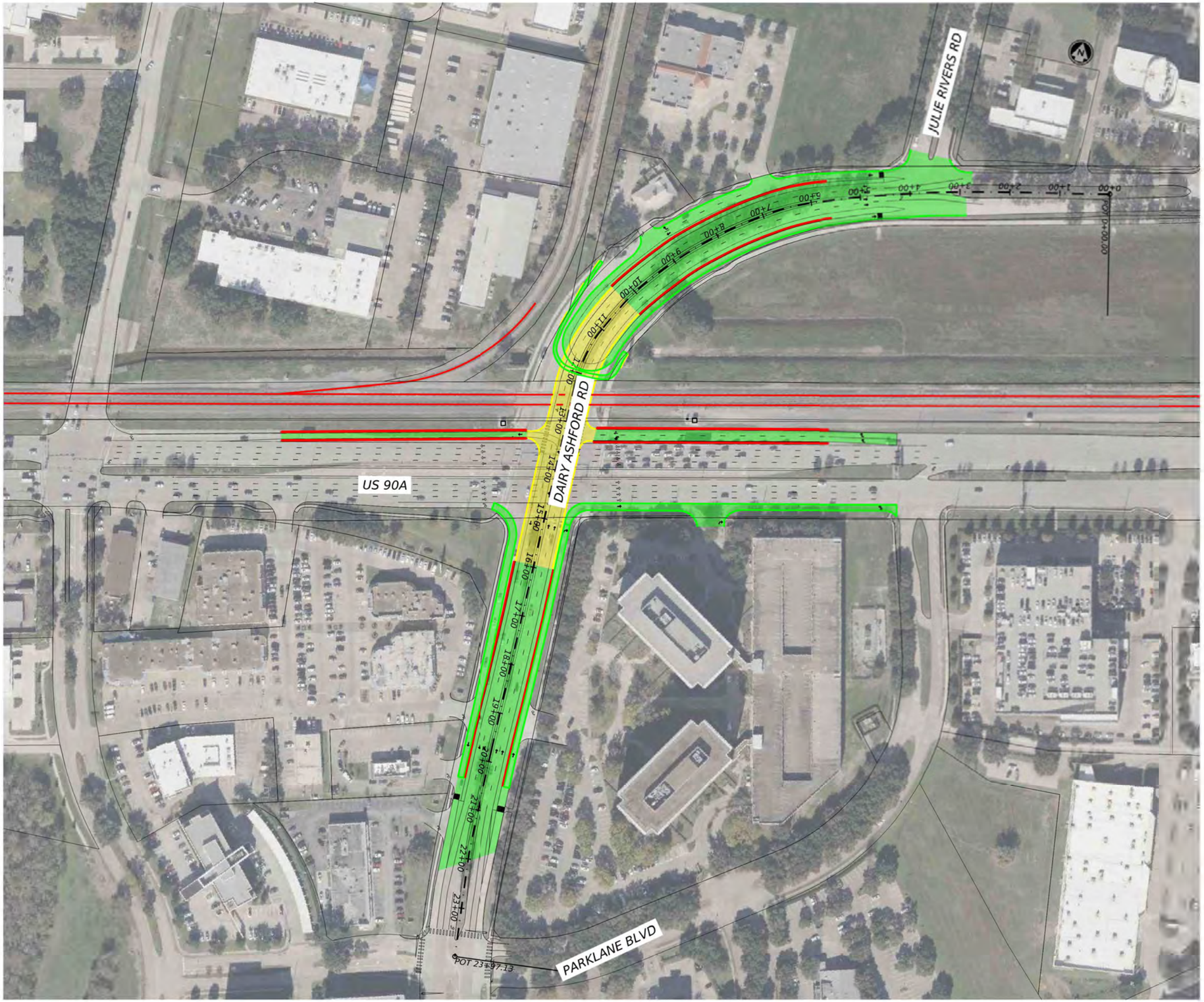
GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #745044J

SHEET 2 OF 3

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	2

DW: AK, JB, NZ, RN | CK: JM, JR
DW: AK, JB, NZ, RN | CK: JM, JR



LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 100 200
SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

DAIRY ASHFORD RD

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #745044J

SHEET 3 OF 3

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	3

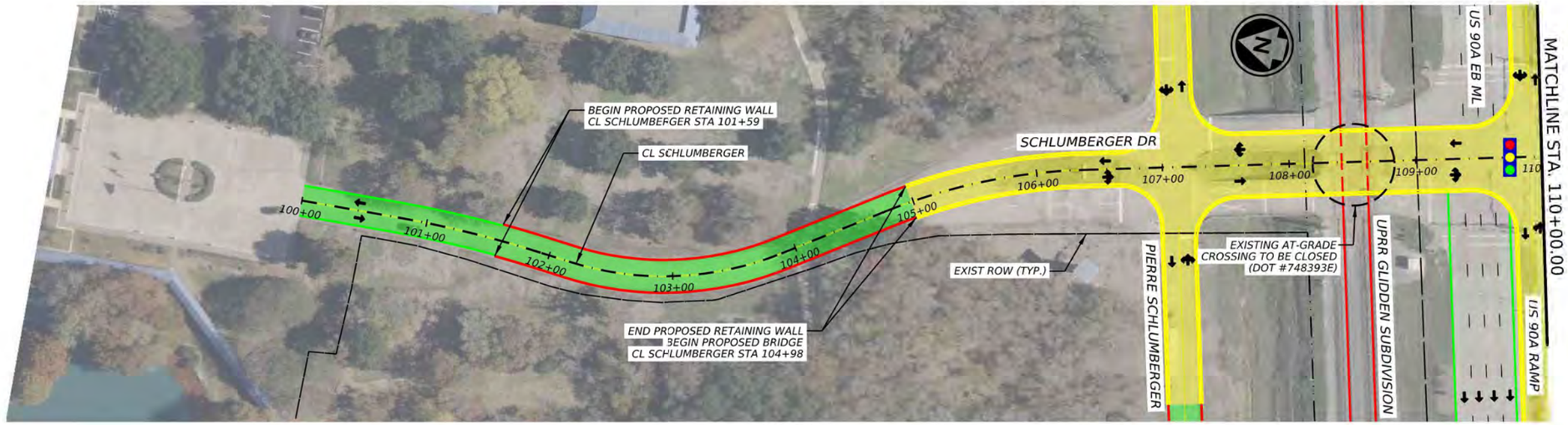
DATE: 10/16/2024 11:43:01 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-DairyAshfordRd-SheetsBase.dgn

DW: JK, JR, NZ, RN | CK: JM, JR | DW: AK, JR, NZ, RN | CK: JM, JR

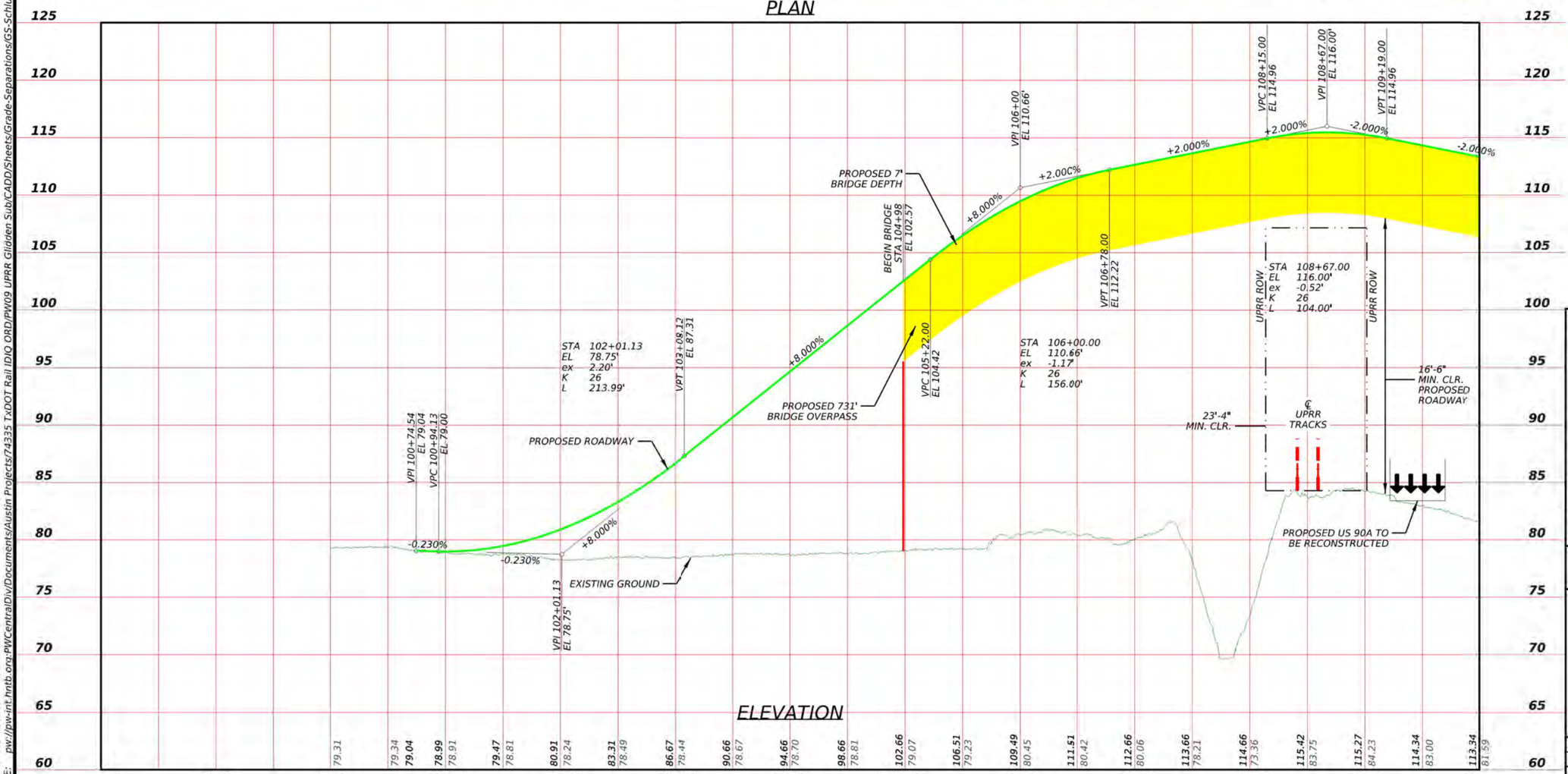
DATE: 10/17/2024 10:56:33 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-SchlumbergerDr-SheetsBase.dgn

SCHLUMBERGER DR DESIGN SPEEDS

EXISTING = 30 MPH
PROPOSED = 25 MPH



PLAN



ELEVATION

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET

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Texas Department of Transportation

SCHLUMBERGER DR

GRADE SEPARATION
CONCEPT
PLAN AND PROFILE
DOT #748393E

SHEET 1 OF 7

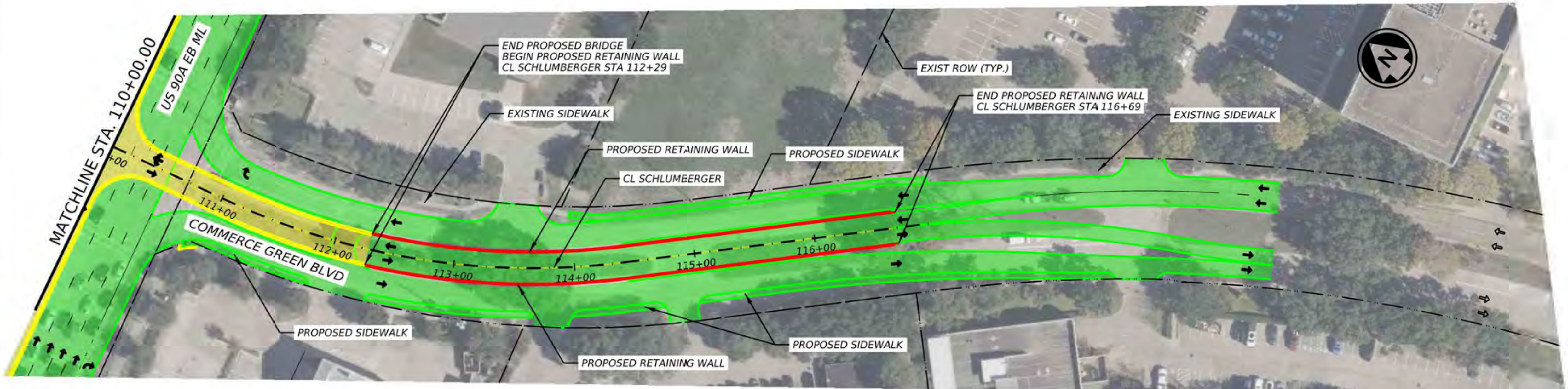
CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	1

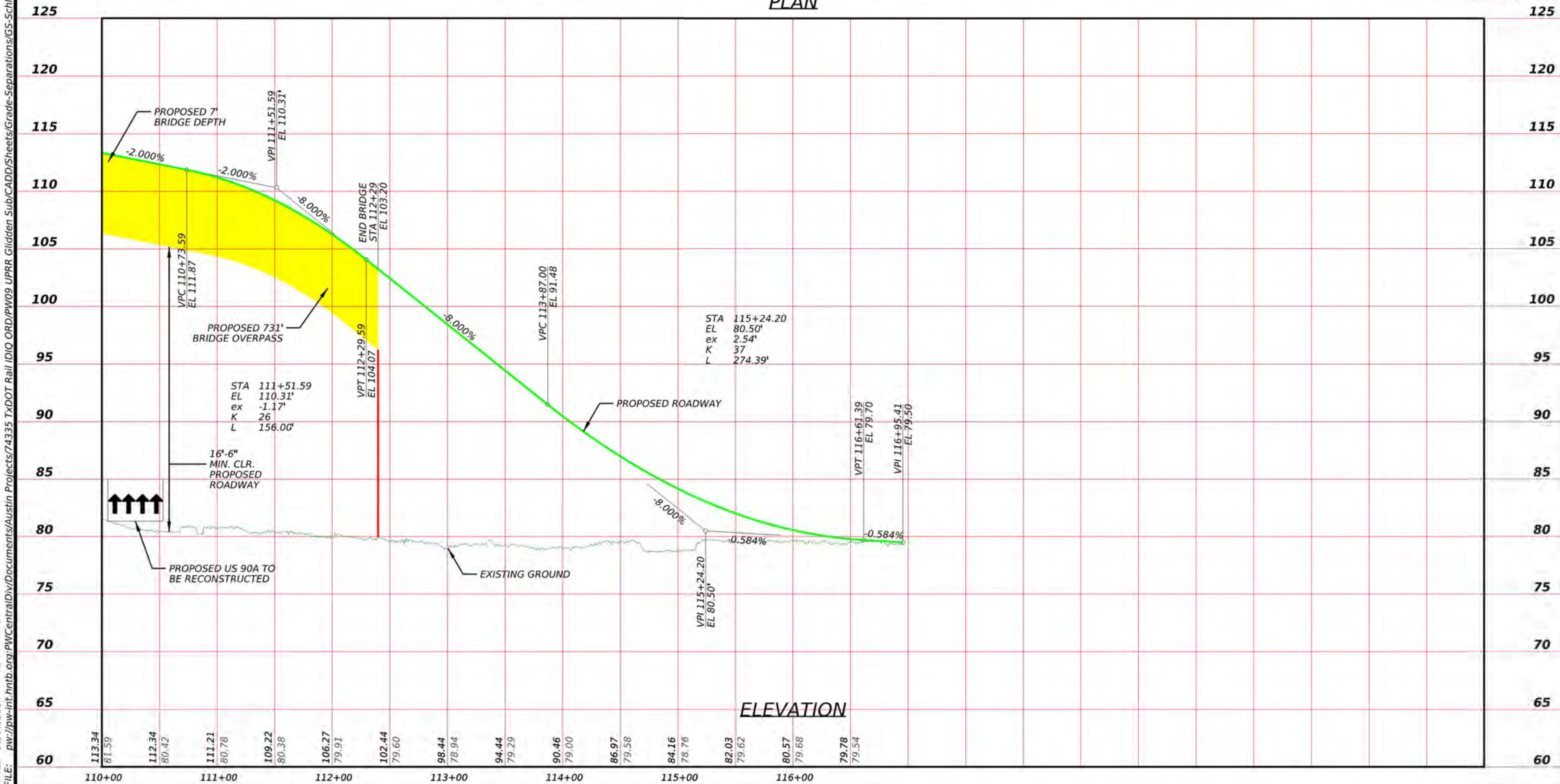
SCHLUMBERGER DR DESIGN SPEEDS

EXISTING = 30 MPH

PROPOSED = 25 MPH



PLAN



ELEVATION

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100

H: SCALE IN FEET

0 2 4 6 8 10

V: SCALE IN FEET

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Texas Department of Transportation

SCHLUMBERGER DR

GRADE SEPARATION CONCEPT

PLAN AND PROFILE

DOT #748393E

SHEET 2 OF 7

CONT	SECT	JOB	HIGHWAY

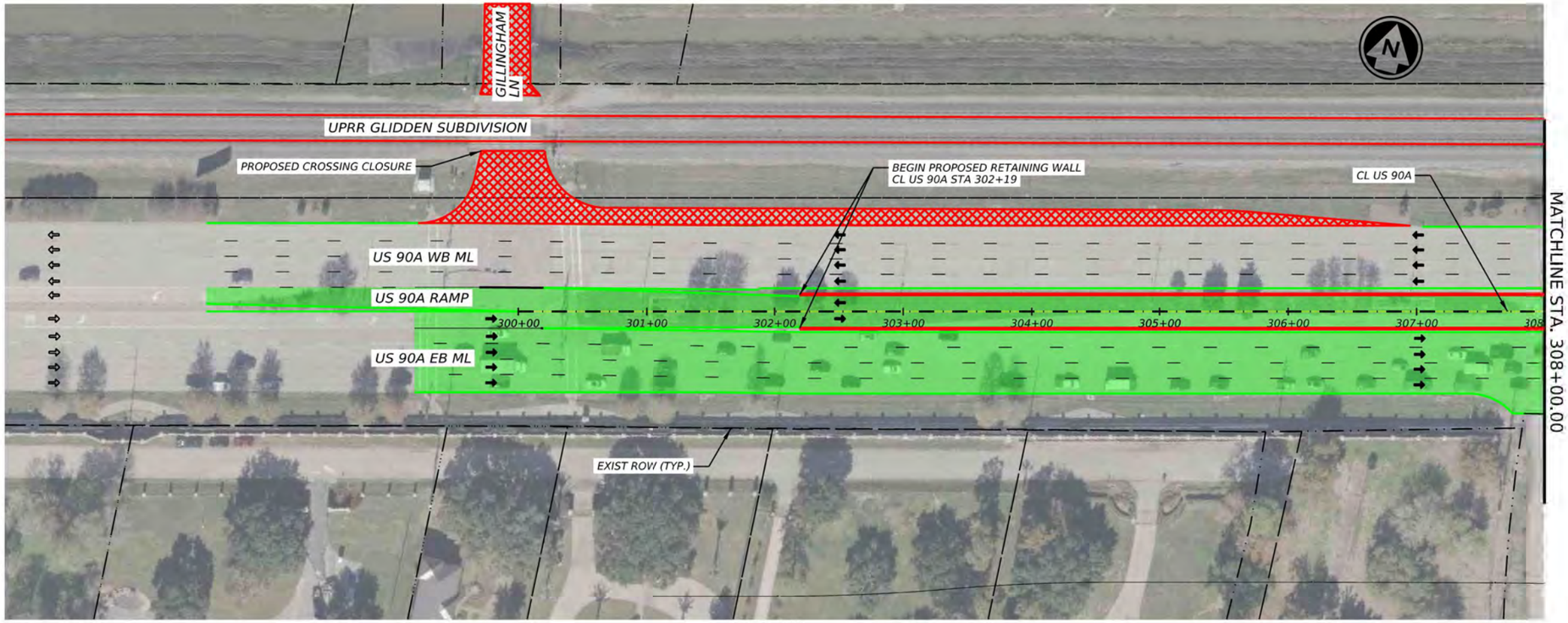
DIST	COUNTY	SHEET NO.
HOU	FORT BEND	2

DATE: 10/17/2024 10:57:18 PM

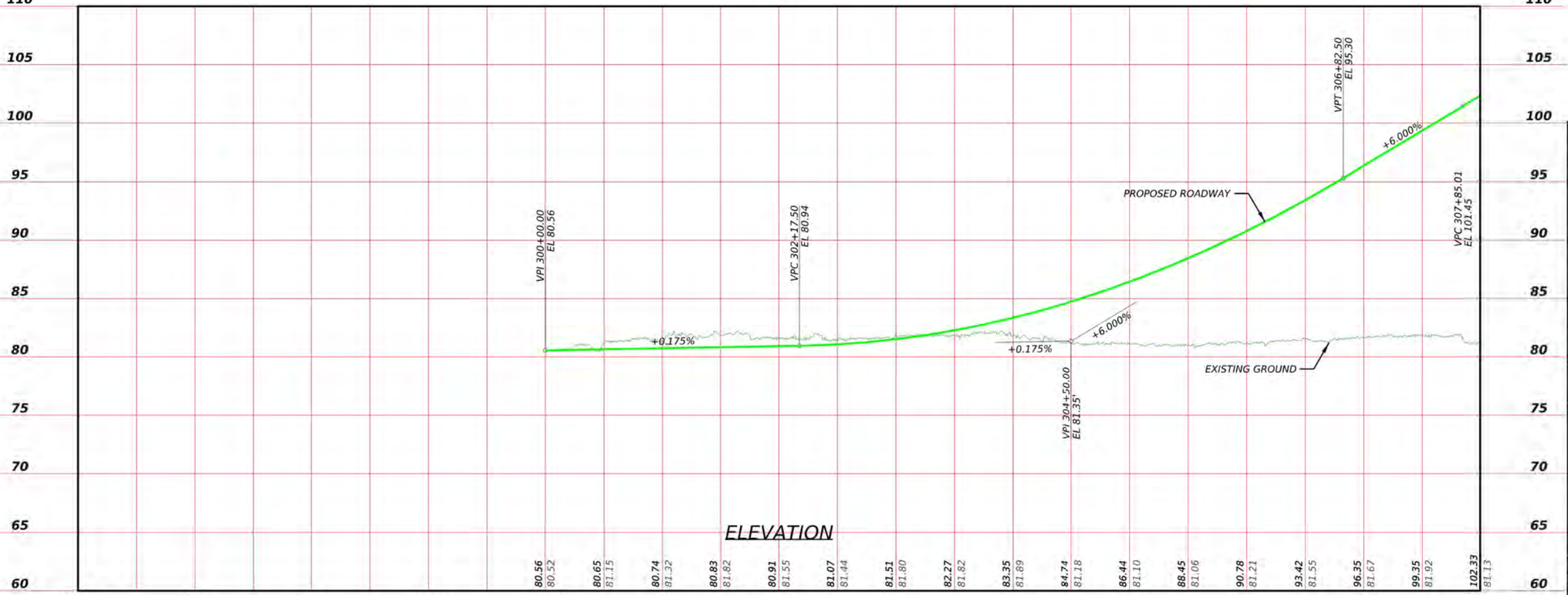
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-SchlumbergerDr-SheetsBase.dgn

DW: AK,JB,NZ,RN | CK: JM,JR

DW: AK,JB,NZ,RN | CK: JM,JR



PLAN



ELEVATION

US 90A DESIGN SPEEDS
EXISTING = 50 MPH
PROPOSED = 50 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
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0 2 4 6 8 10
V : SCALE IN FEET

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Texas Department of Transportation

SCHLUMBERGER DR

GRADE SEPARATION CONCEPT US 90A RECONSTRUCTION

SHEET 3 OF 7

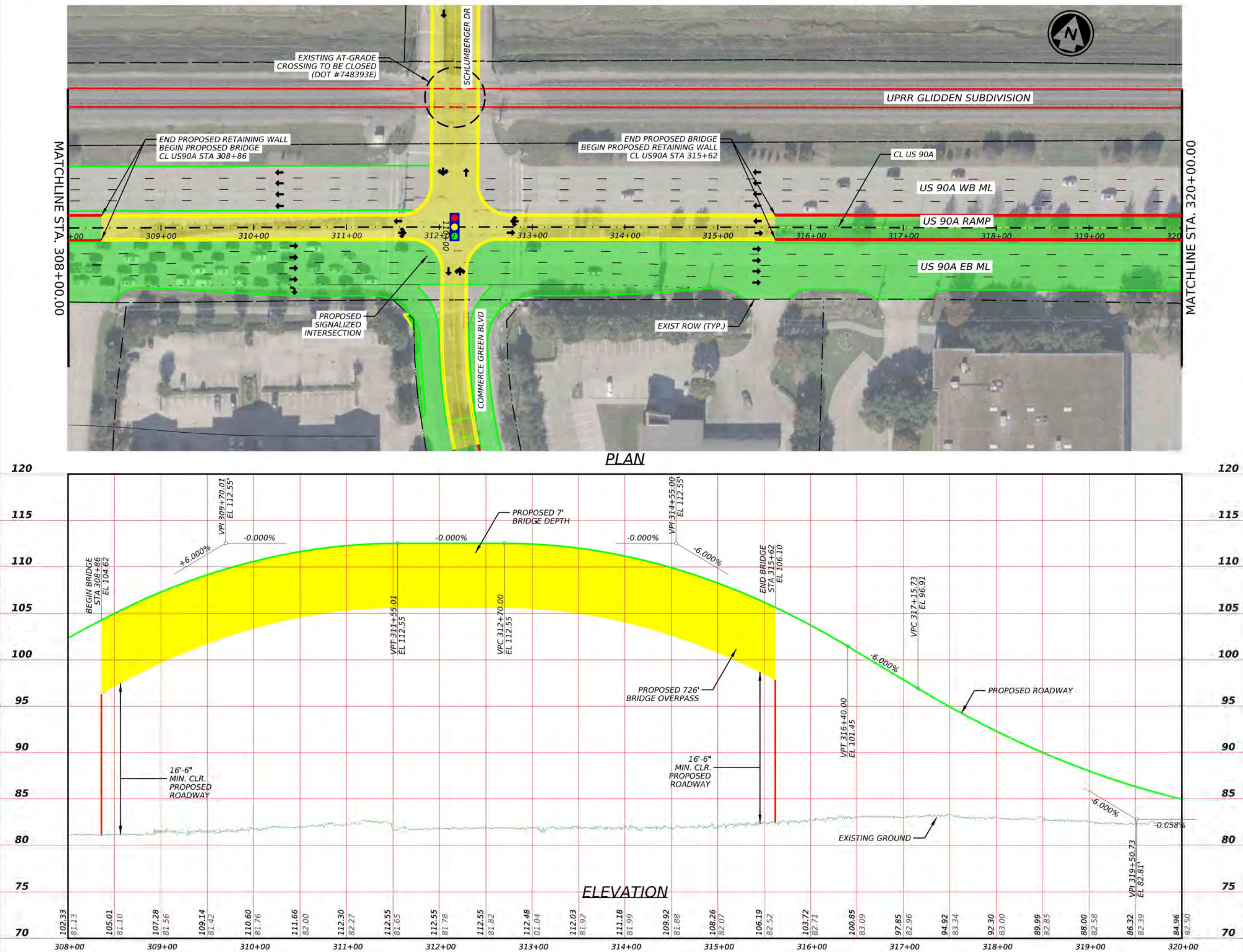
CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	3

DATE: 10/17/2024 10:57:54 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-SchlumbergerDr-SheetsBase.dgn

US 90A DESIGN SPEEDS

EXISTING = 50 MPH
PROPOSED = 50 MPH



LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

H: SCALE IN FEET (0, 50, 100)

V: SCALE IN FEET (0, 2, 4, 6, 8, 10)

PRELIMINARY

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTORITY OF:

JOSHUA A MIETH, P.E.
NO. 97346

ON: 10/17/2024

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HNTB
TBPE FIRM Registration No. 420

Texas Department of Transportation

SCHLUMBERGER DR

GRADE SEPARATION CONCEPT US 90A RECONSTRUCTION

SHEET 4 OF 7

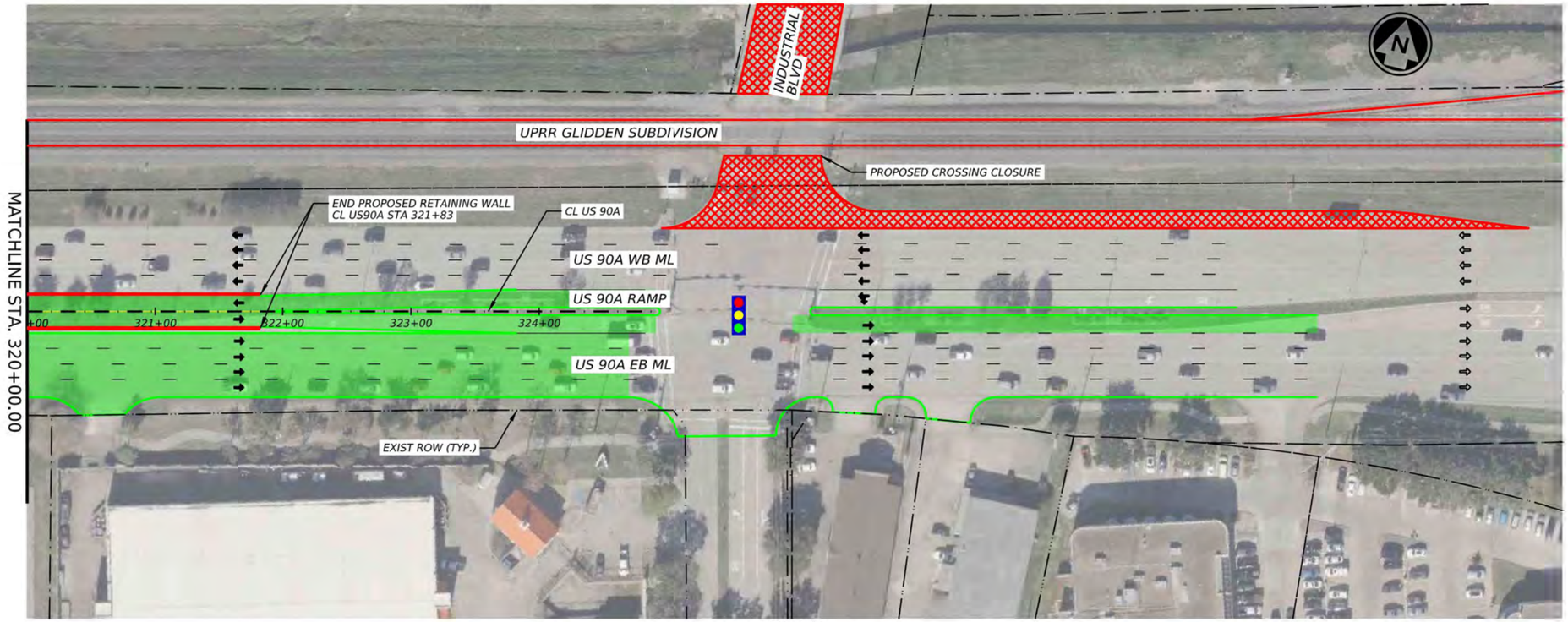
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		4

DATE: 10/17/2024 10:58:22 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-SchlumbergerDr-SheetsBase.dgn

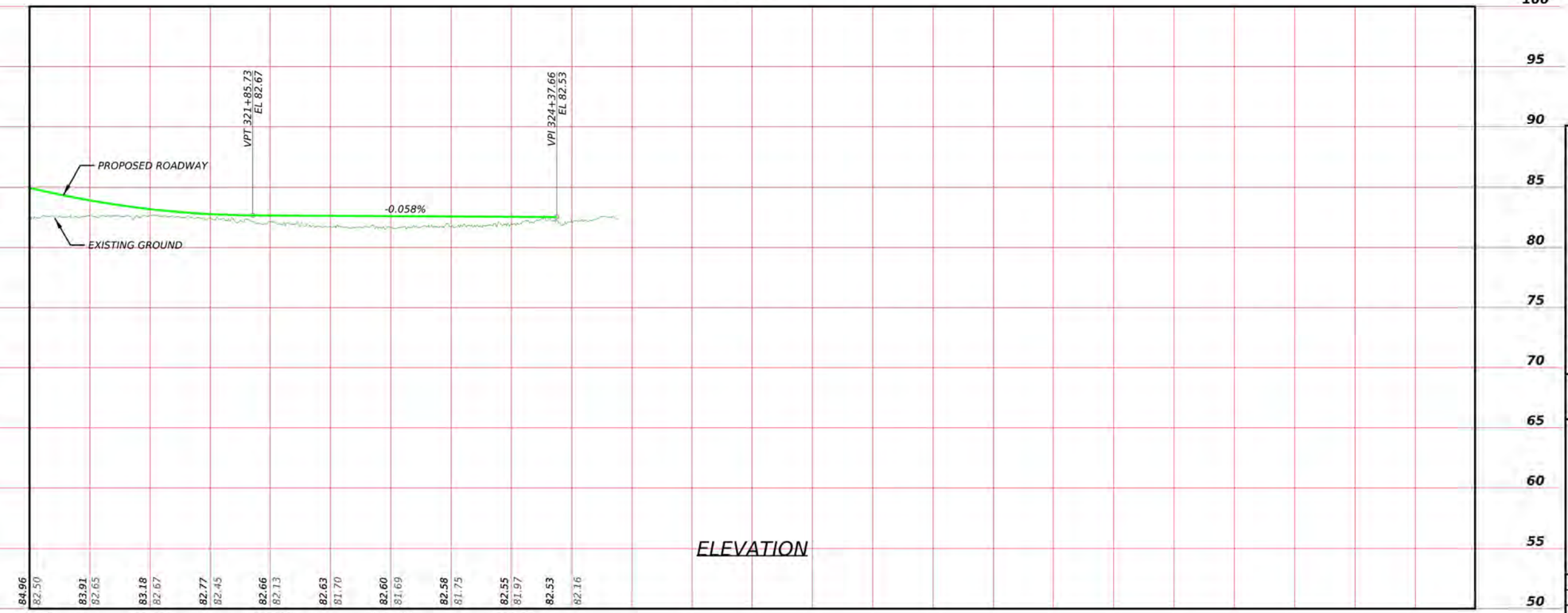
DW: JK, JB, NZ, RN | CK: JM, JR

DW: JK, JB, NZ, RN | CK: JM, JR

DATE: 10/17/2024 10:58:47 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-SchlumbergerDr-SheetsBase.dgn



PLAN



ELEVATION

US 90A DESIGN SPEEDS
EXISTING = 50 MPH
PROPOSED = 50 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

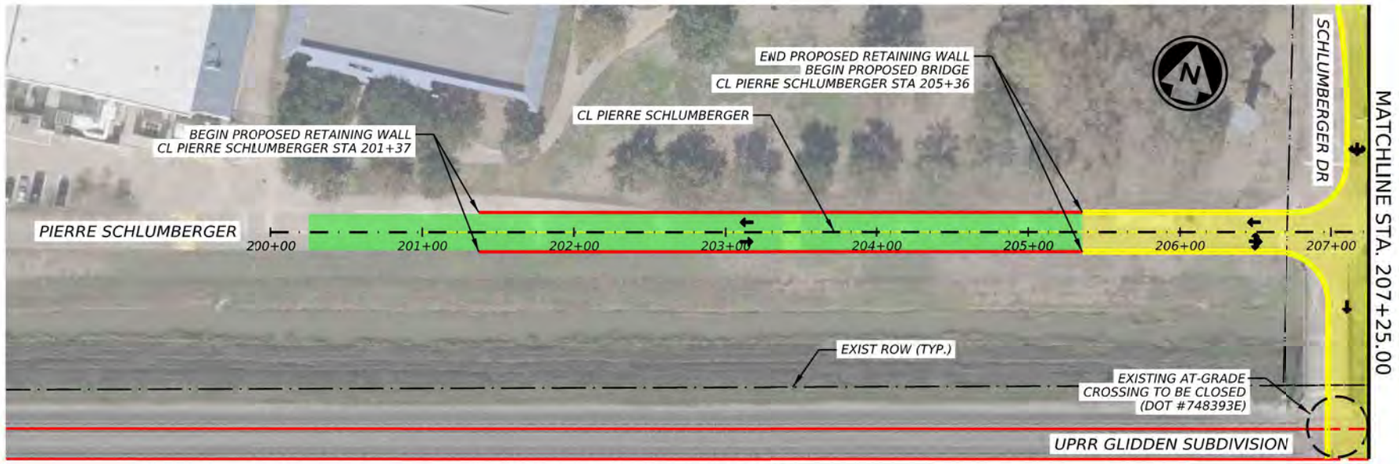
SCHLUMBERGER DR

GRADE SEPARATION CONCEPT US 90A RECONSTRUCTION

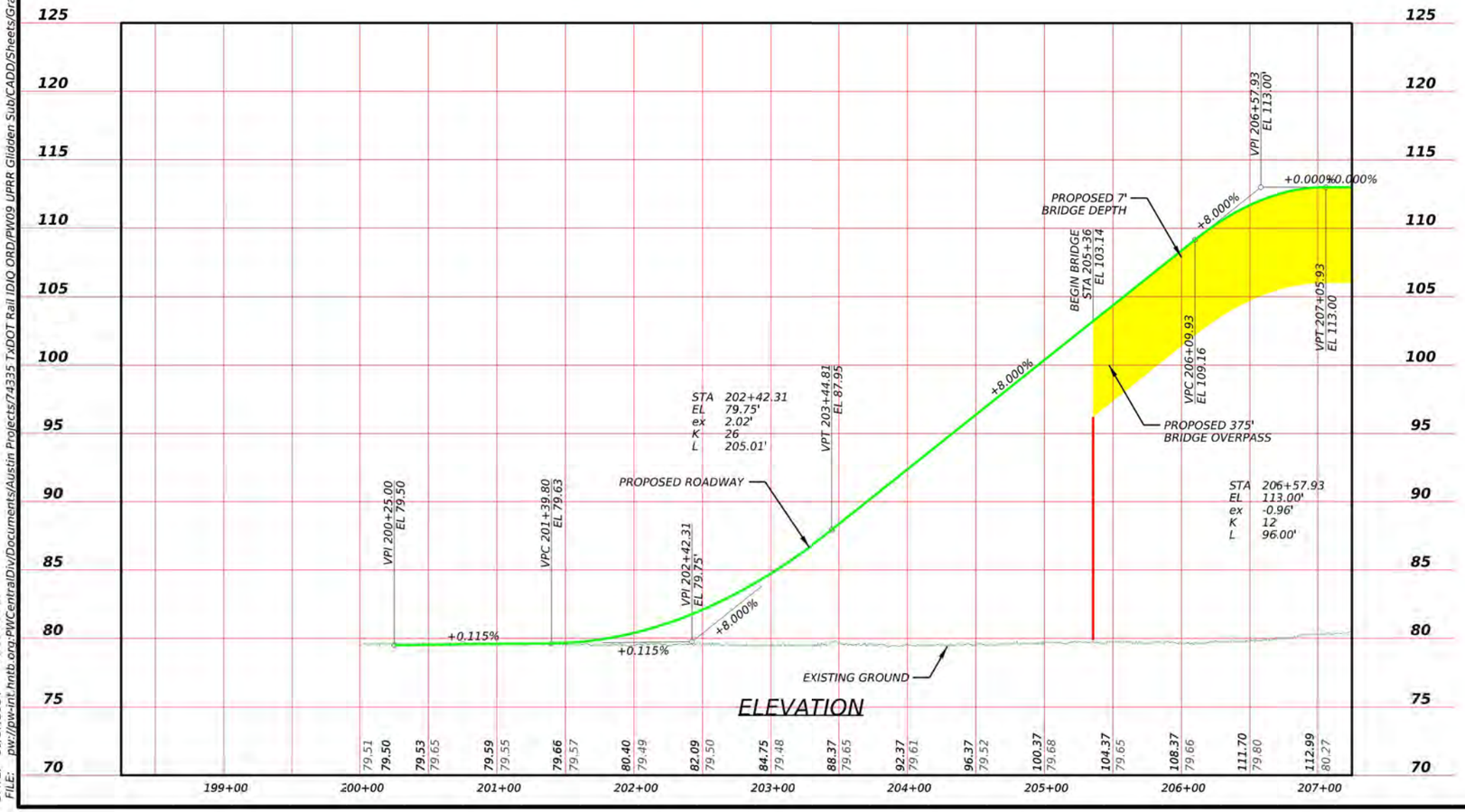
CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	5

PIERRE SCHLUMBERGER DESIGN SPEEDS
EXISTING = 30 MPH
PROPOSED = 25 MPH



PLAN



ELEVATION

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V: SCALE IN FEET

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

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Texas Department of Transportation

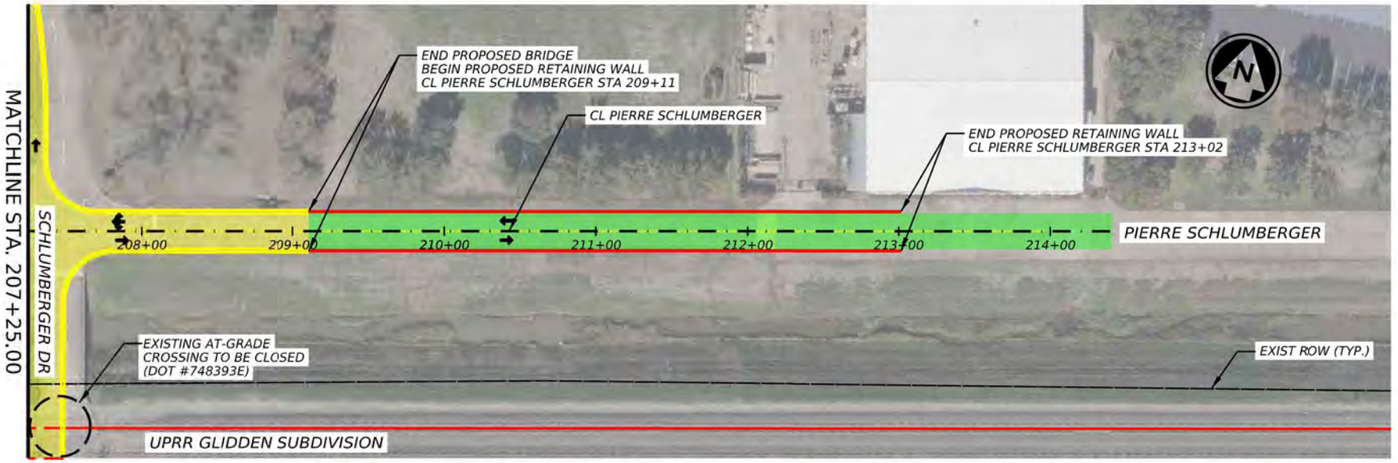
SCHLUMBERGER DR

GRADE SEPARATION
CONCEPT
PIERRE SCHLUMBERGER
RECONSTRUCTION

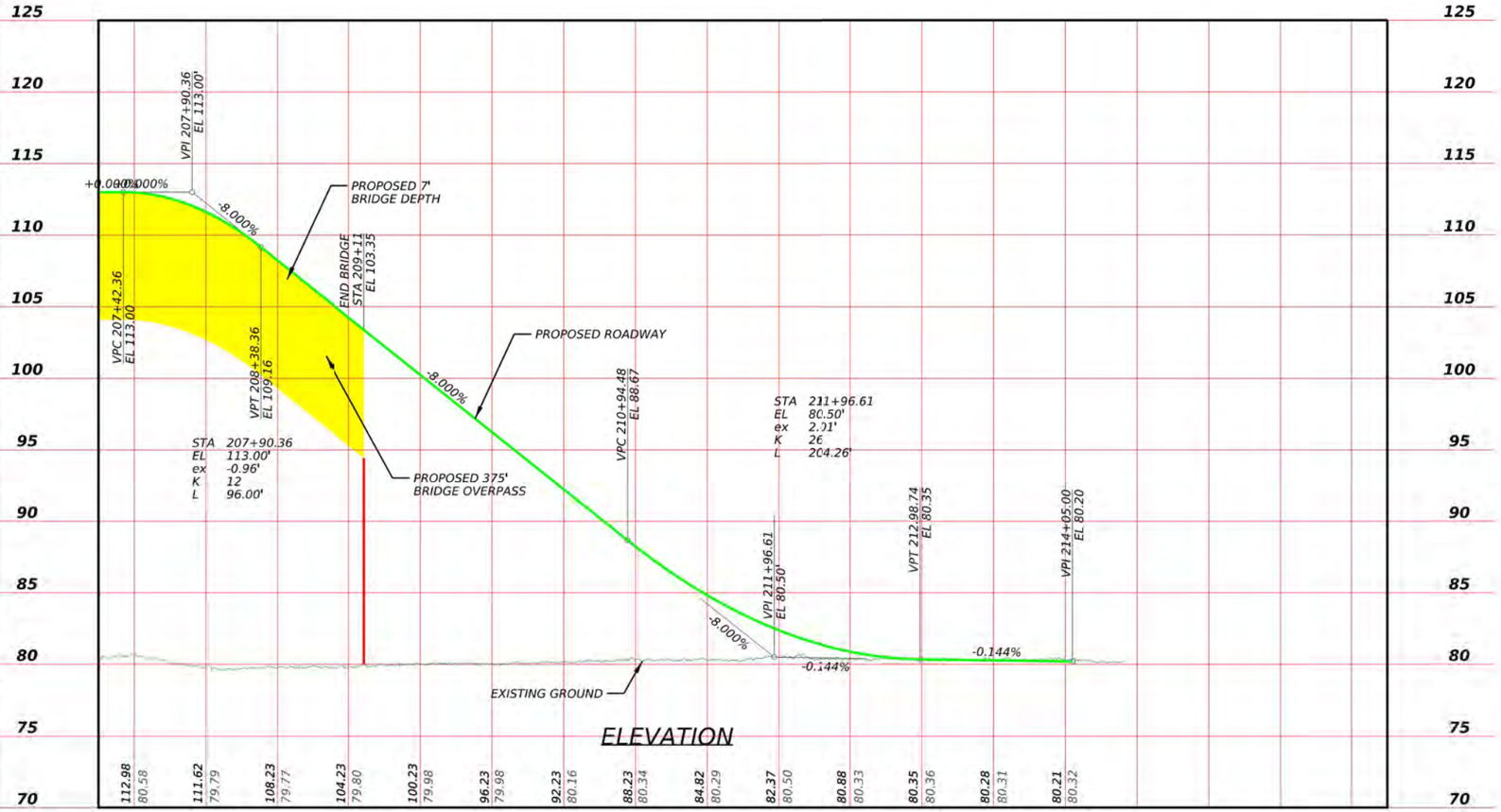
 SHEET 6 OF 7

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		6

PIERRE SCHLUMBERGER DESIGN SPEEDS
EXISTING = 30 MPH
PROPOSED = 25 MPH



PLAN



ELEVATION

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V: SCALE IN FEET

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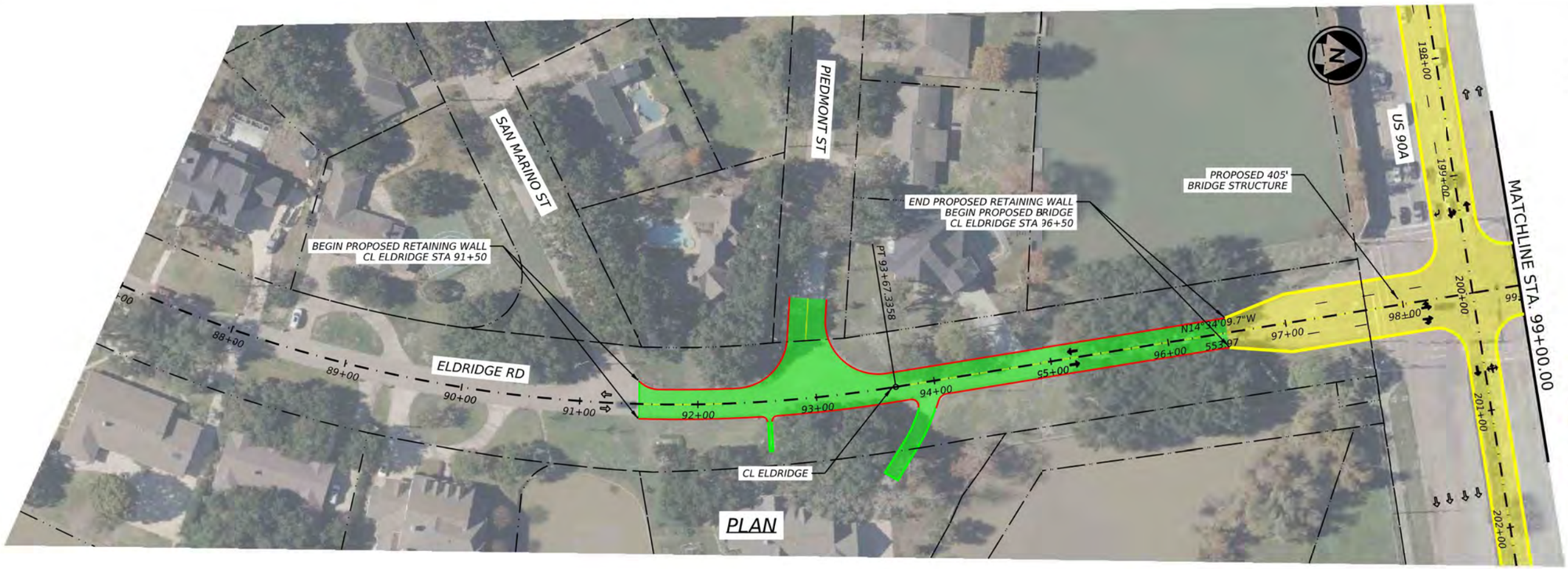
Texas Department of Transportation

SCHLUMBERGER DR

GRADE SEPARATION CONCEPT PIERRE SCHLUMBERGER RECONSTRUCTION

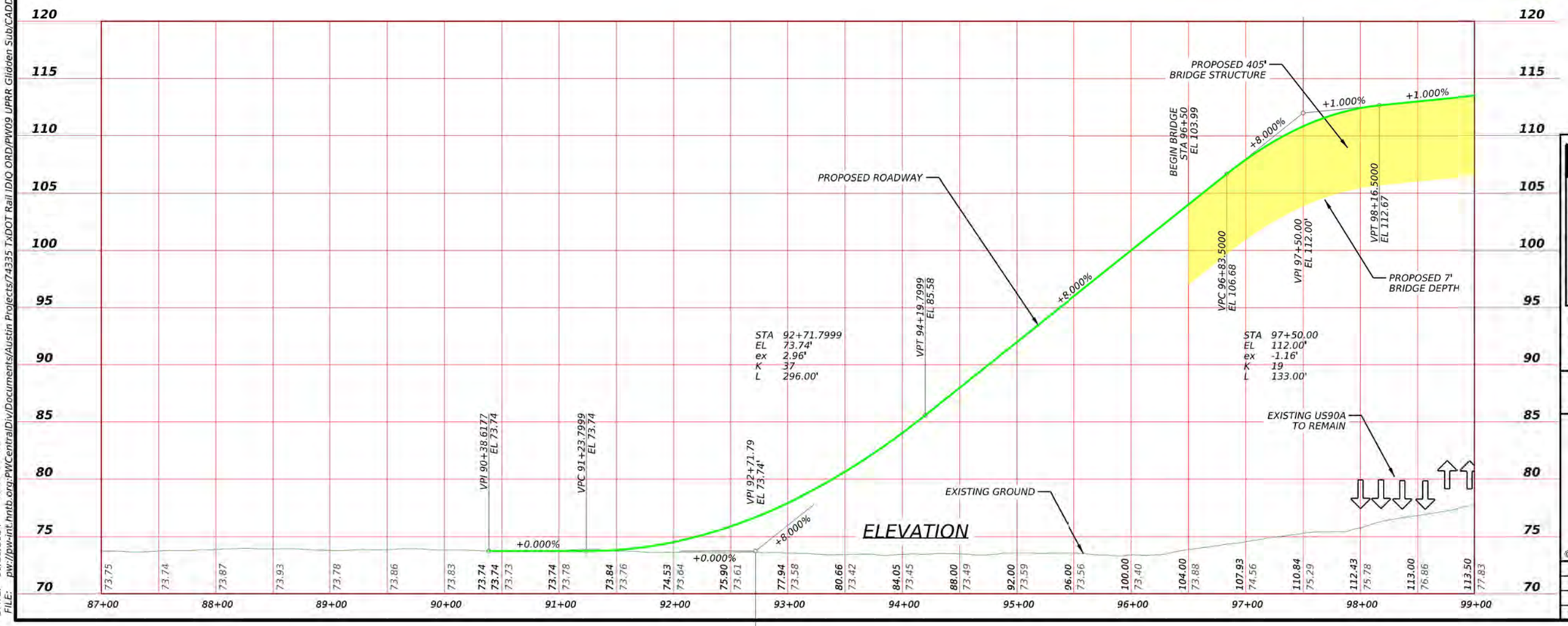
SHEET 7 OF 7

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		7



ELDRIDGE ROAD DESIGN SPEEDS
EXISTING = 30 MPH
PROPOSED = 30 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

ELDRIDGE RD

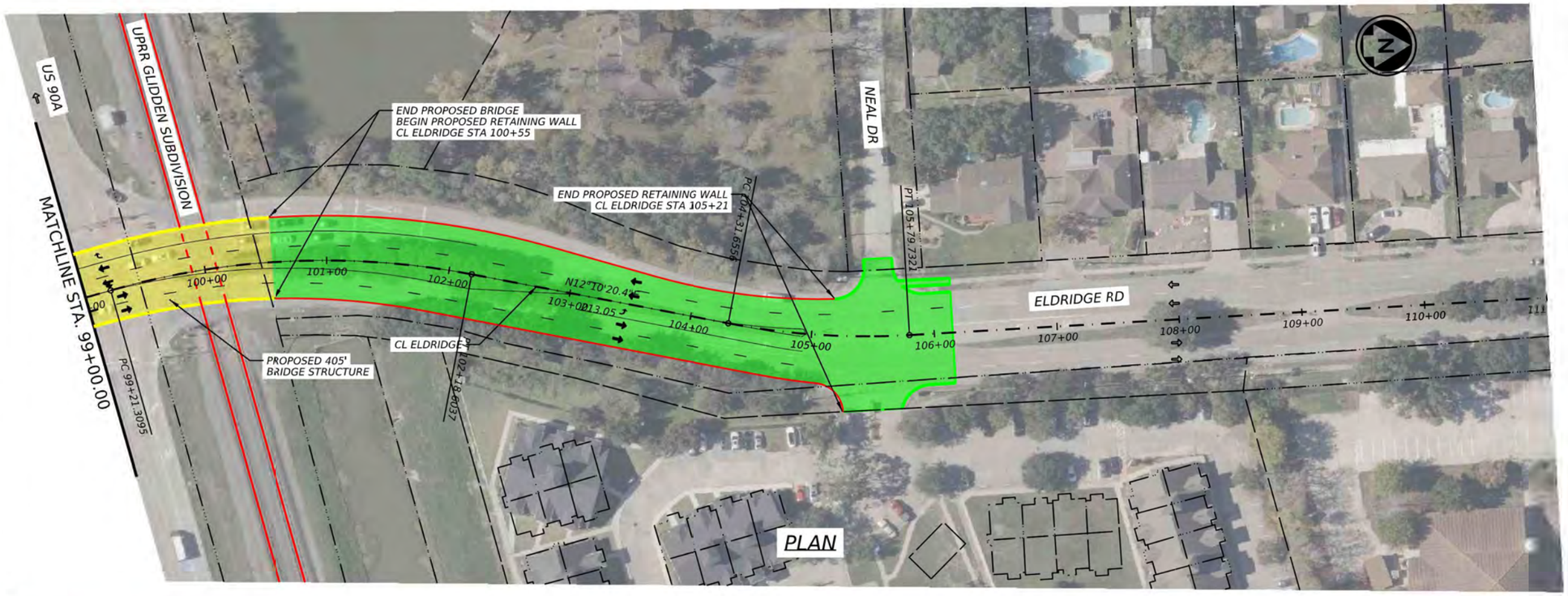
GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #743699S

SHEET 1 OF 6

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		1

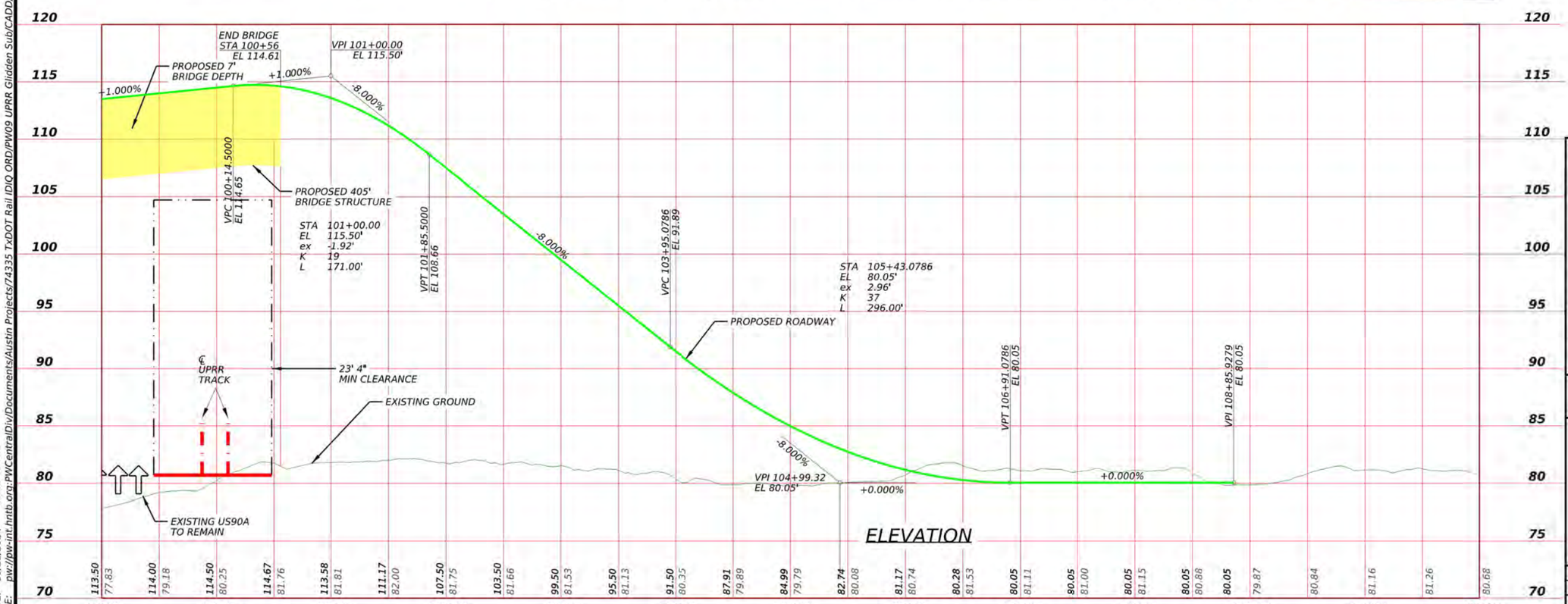
DATE: 10/21/2024 10:02:51 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-EldridgeRd-Sheets.dgn

DW: JK, JR, NZ, RN CK: JM, JR
DW: JK, JR, NZ, RN CK: JM, JR



ELDRIDGE ROAD DESIGN SPEEDS
EXISTING = 30 MPH
PROPOSED = 30 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

ELDRIDGE RD

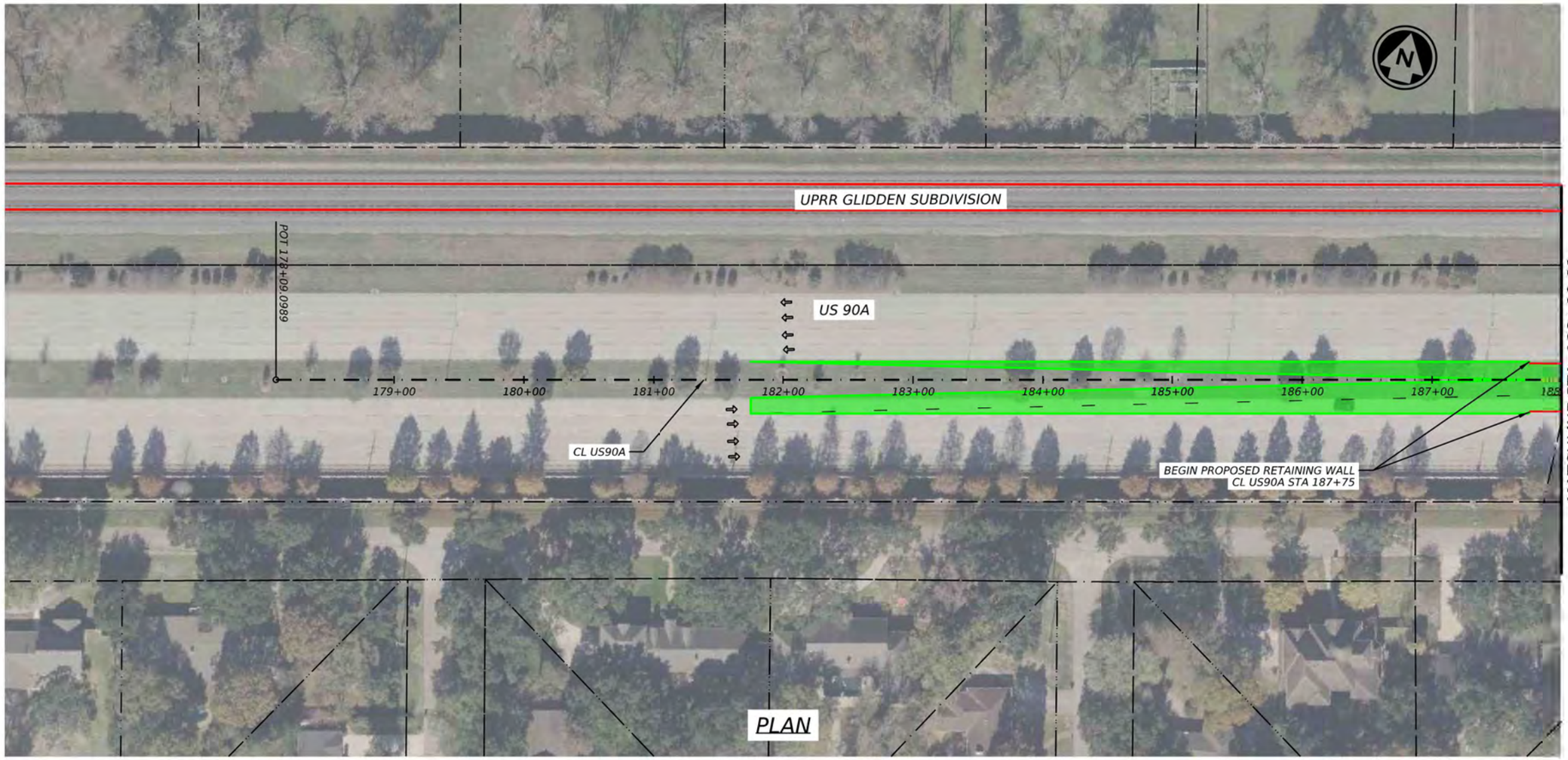
GRADE SEPARATION
CONCEPT
PLAN AND PROFILE
DOT #743699S

SHEET 2 OF 6

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		2

DATE: 10/21/2024 10:03:21 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-EldridgeRd-Sheets.dgn

DW: AK, JB, NZ, RN | CK: JM, JR
DW: AK, JB, NZ, RN | CK: JM, JR



PLAN

US 90A DESIGN SPEEDS
EXISTING = 50 MPH
PROPOSED = 50 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET

ELEVATION

PRELIMINARY

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TBPE FIRM Registration No.: 420

Texas Department of Transportation

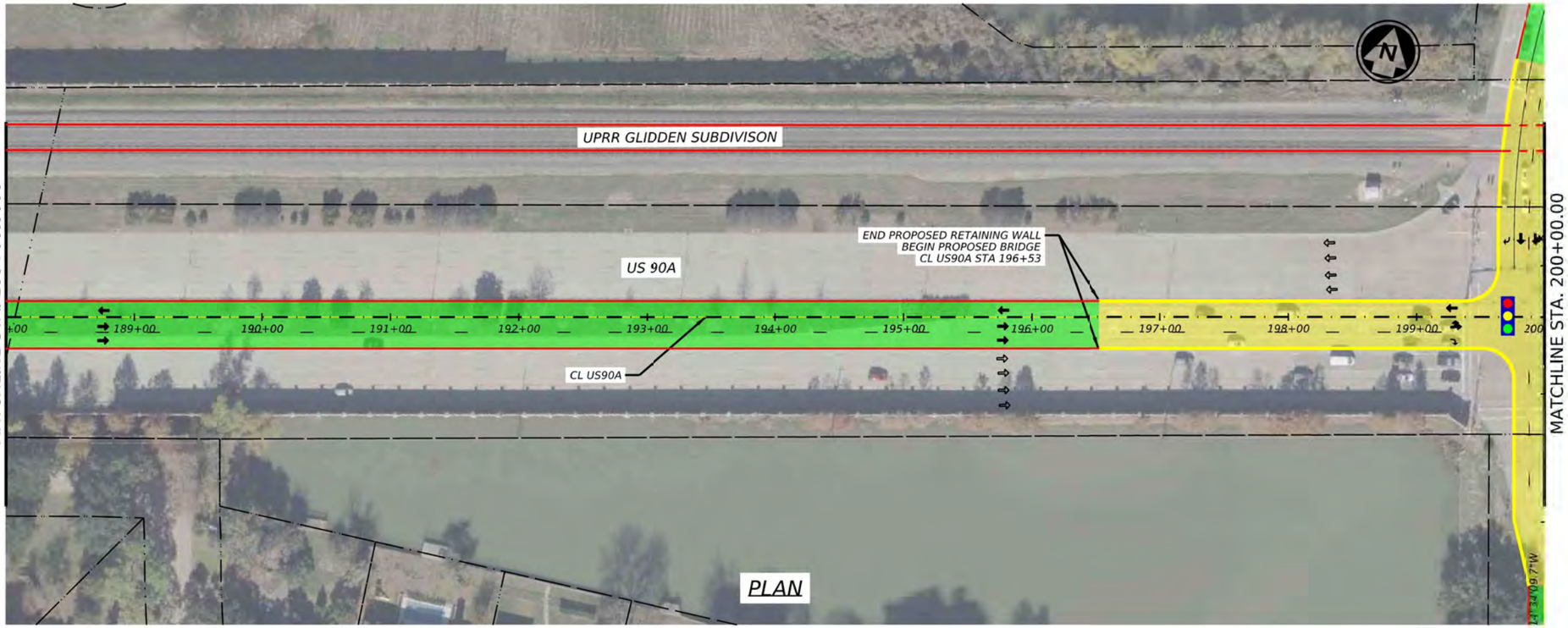
ELDRIDGE RD

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #743699S

SHEET 3 OF 6

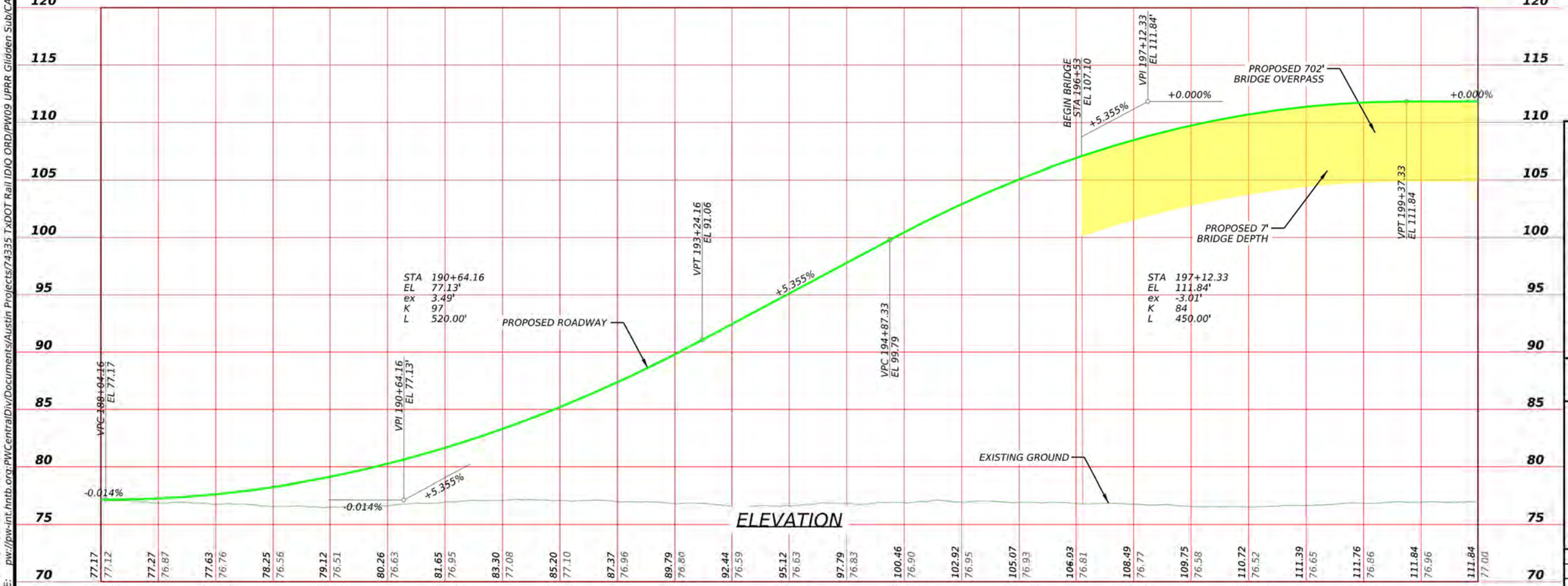
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		3

DATE: 10/21/2024 10:03:44 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-EldridgeRd-Sheets.dgn



US 90A DESIGN SPEEDS
EXISTING = 50 MPH
PROPOSED = 50 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

ELDRIDGE RD

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #743699S

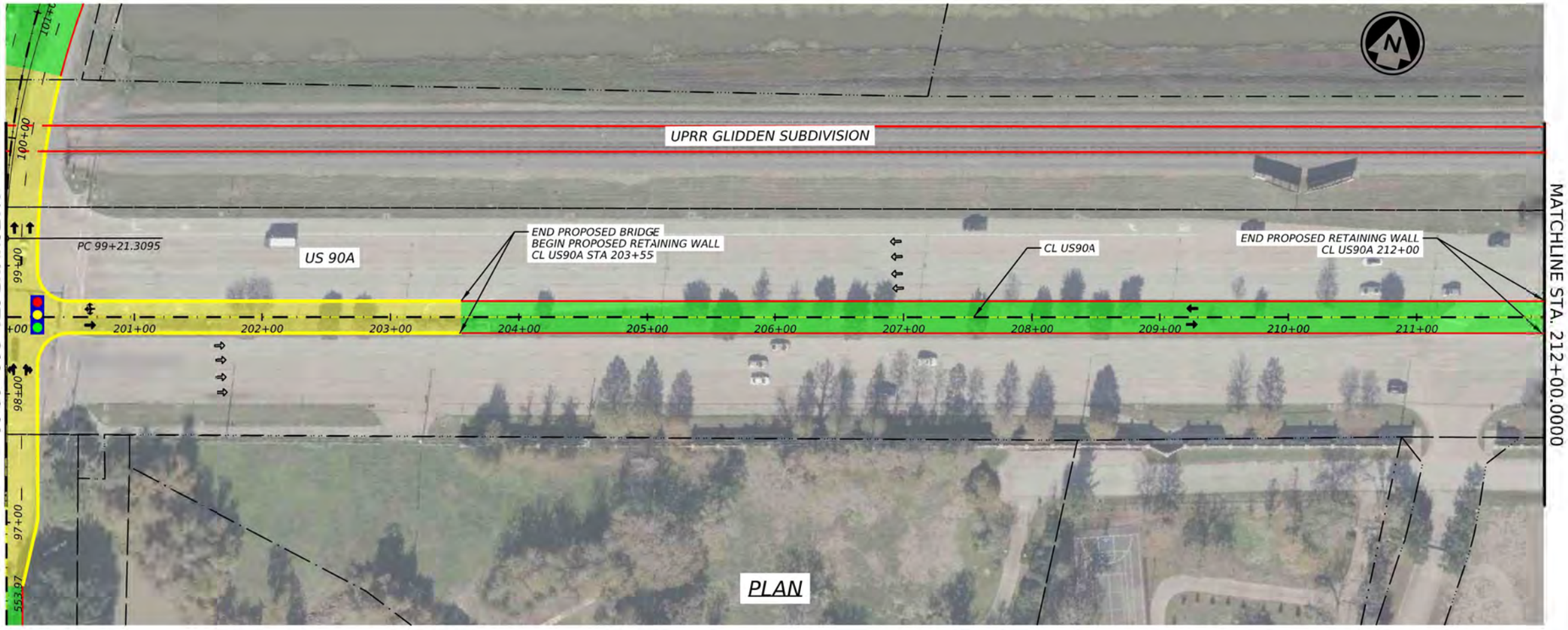
SHEET 4 OF 6

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	4

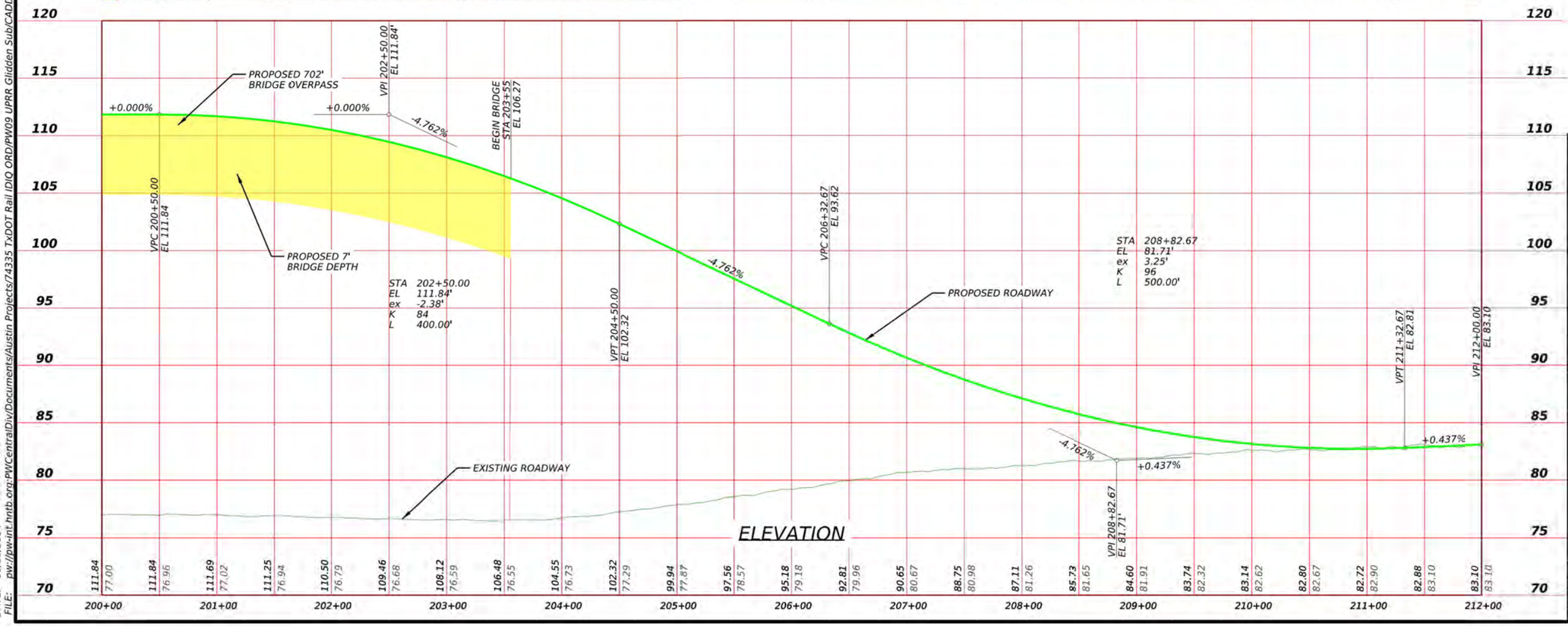
DATE: 10/21/2024 10:04:17 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glideen Sub/CADD/Sheets/Grade-Separations/GS-EldridgeRd-Sheets.dgn

DW: AK,JB,NZ,RN CK: JM,JR
DW: AK,JB,NZ,RN CK: JM,JR



US 90A DESIGN SPEEDS
EXISTING = 50 MPH
PROPOSED = 50 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

ELDRIDGE RD

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #743699S

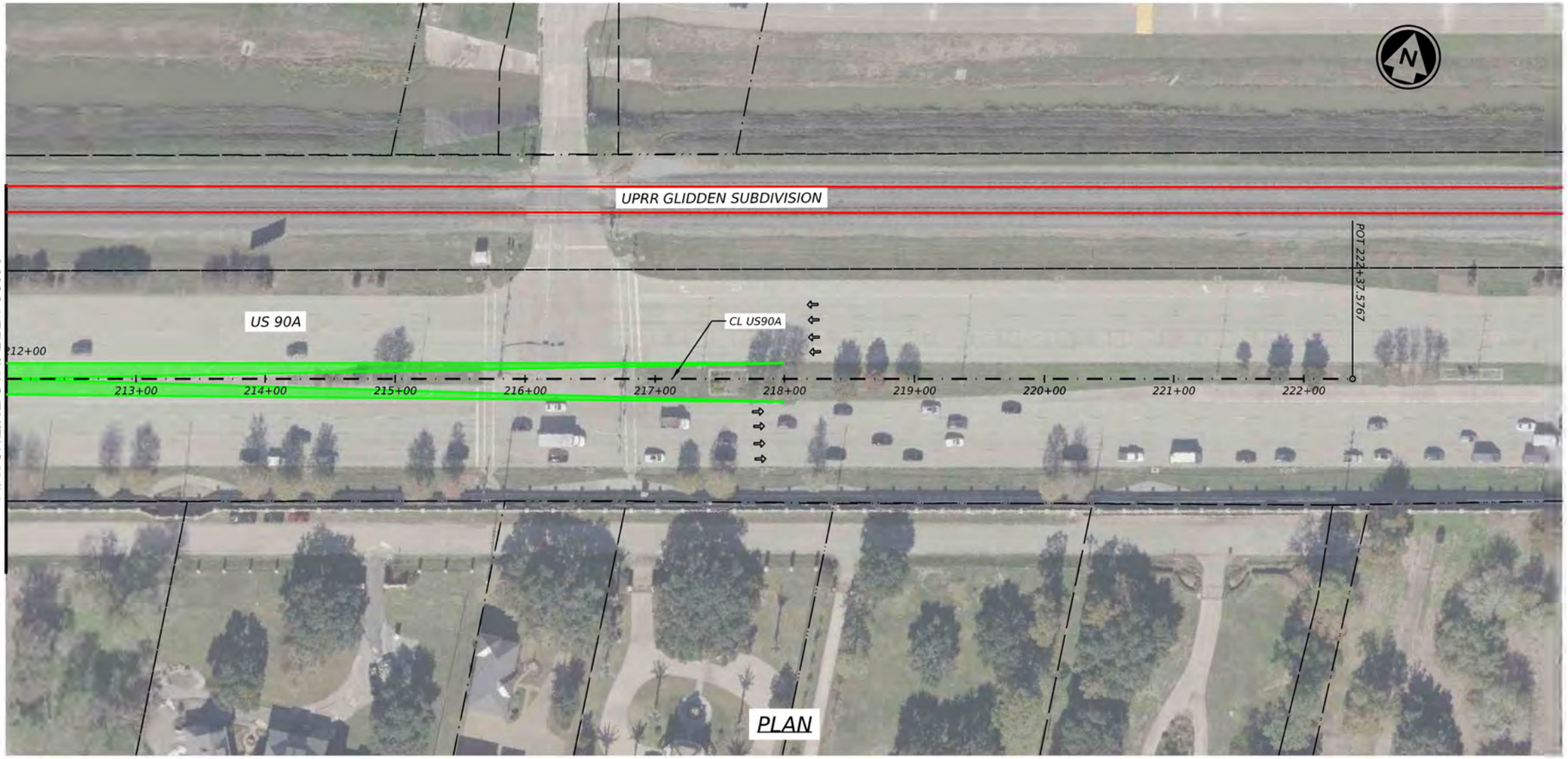
SHEET 5 OF 6

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		5

DATE: 10/21/2024 10:04:26 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-EldridgeRd-Sheets.dgn

DW: JK,JB,NZ,RN CK: JM,JR

DW: JA, JB, NZ, RN | CK: JM, JR | DW: JA, JB, NZ, RN | CK: JM, JR



PLAN

US 90A DESIGN SPEEDS
EXISTING = 50 MPH
PROPOSED = 50 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET

ELEVATION

PRELIMINARY

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NO. 97346

ON: 10/21/2024

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Texas Department of Transportation

ELDRIDGE RD

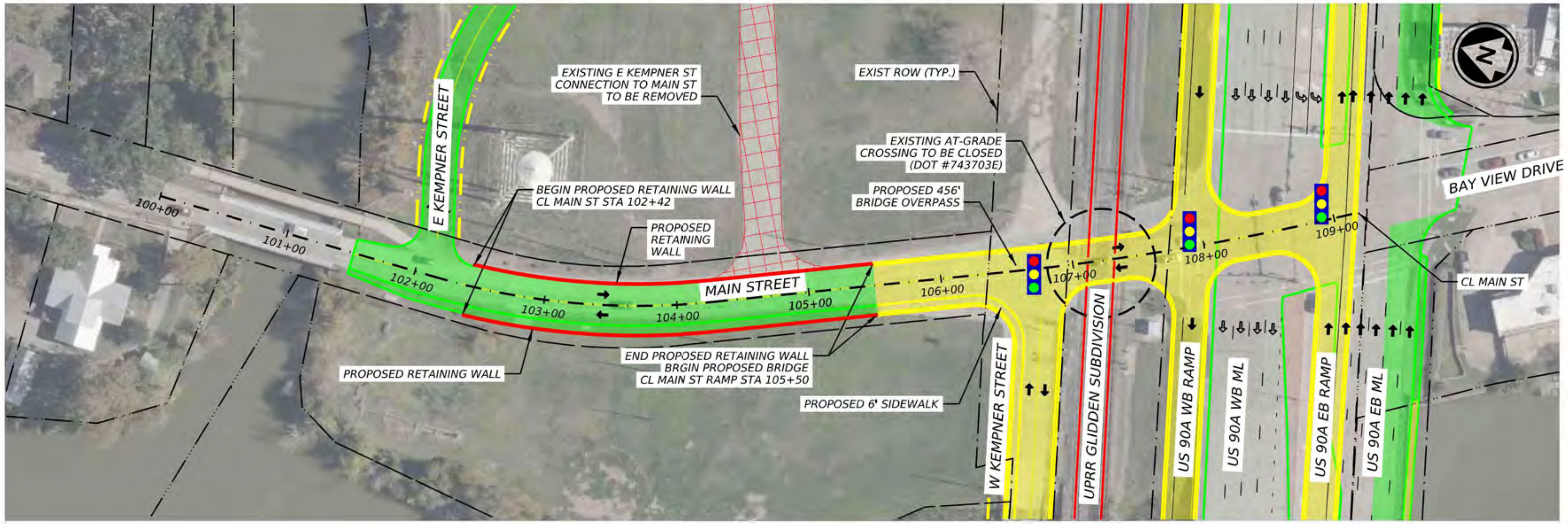
GRADE SEPARATION
CONCEPT
PLAN AND PROFILE
DOT #743699S

 SHEET 6 OF 6

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		6

DATE: 10/21/2024 10:04:40 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-EldridgeRd-Sheets.dgn

MAIN STREET DESIGN SPEEDS
EXISTING = 30 MPH
PROPOSED = 30 MPH

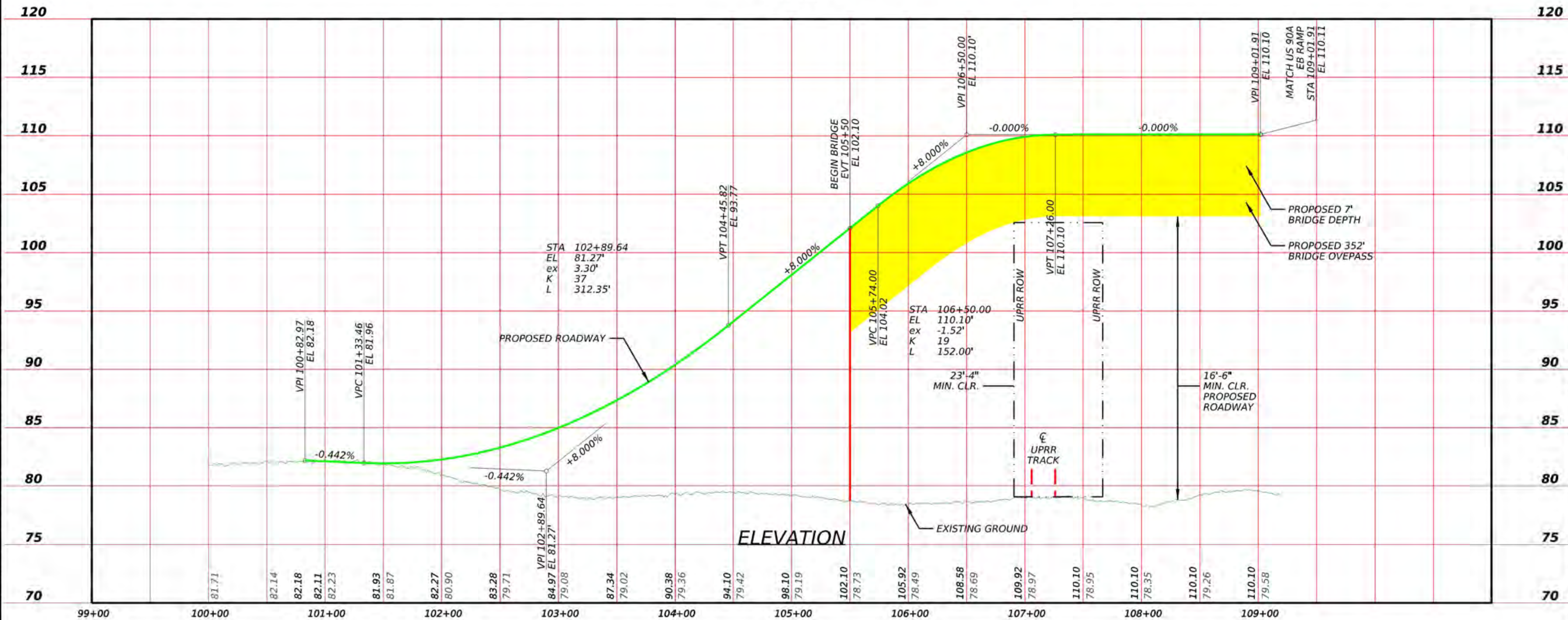


PLAN

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET



PRELIMINARY

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ON: 10/17/2024

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Texas Department of Transportation

MAIN ST

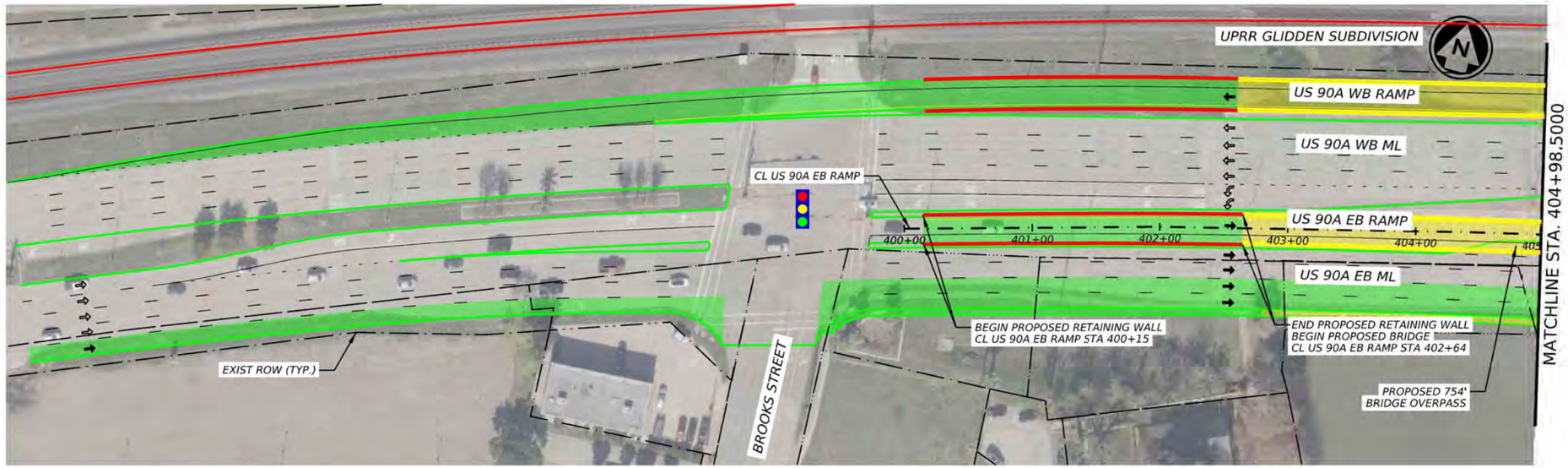
GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #743703E

 SHEET 1 OF 7

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	1

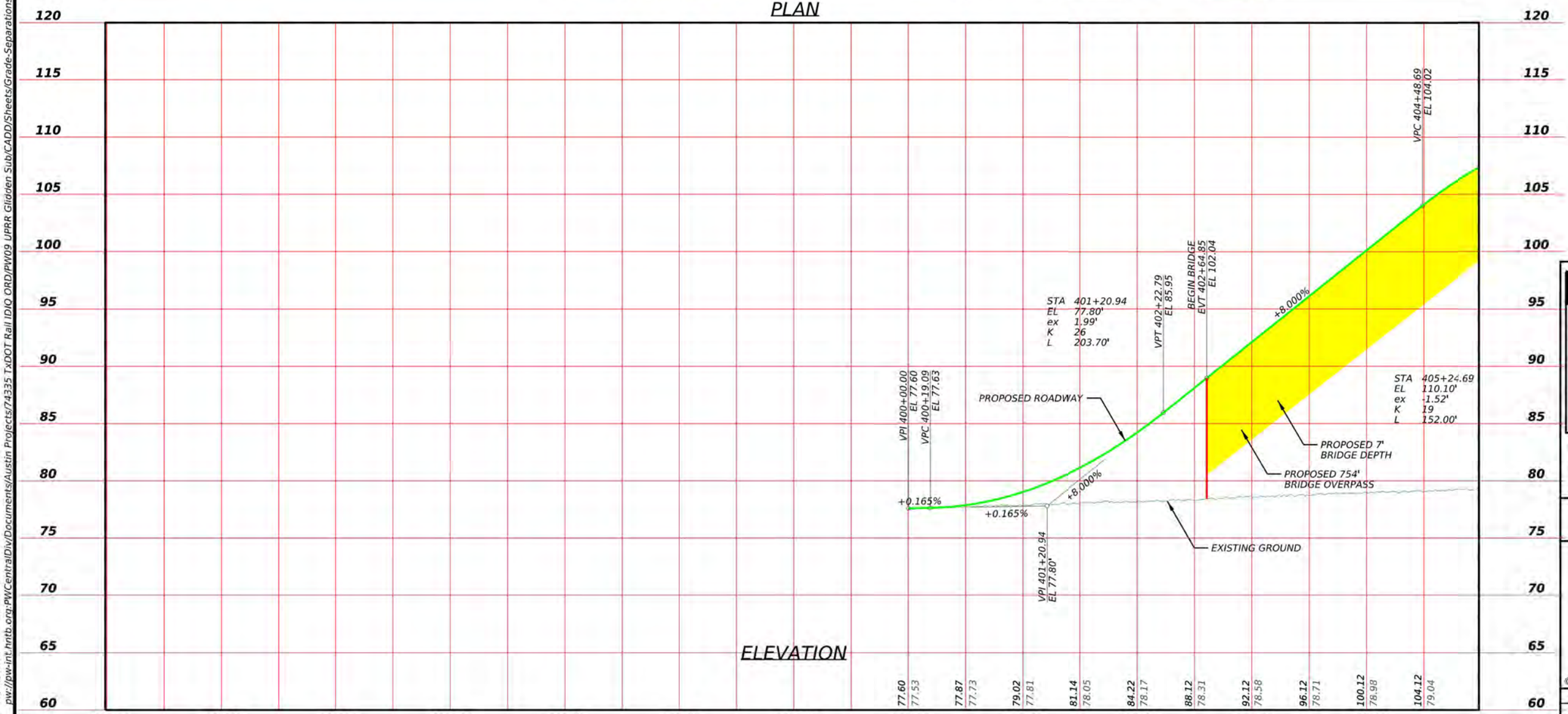
DATE: 10/17/2024 4:38:05 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-MainSt-SheetsBase.dgn



PLAN

US 90A DESIGN SPEEDS
EXISTING = 50 MPH
PROPOSED = 50 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



ELEVATION

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

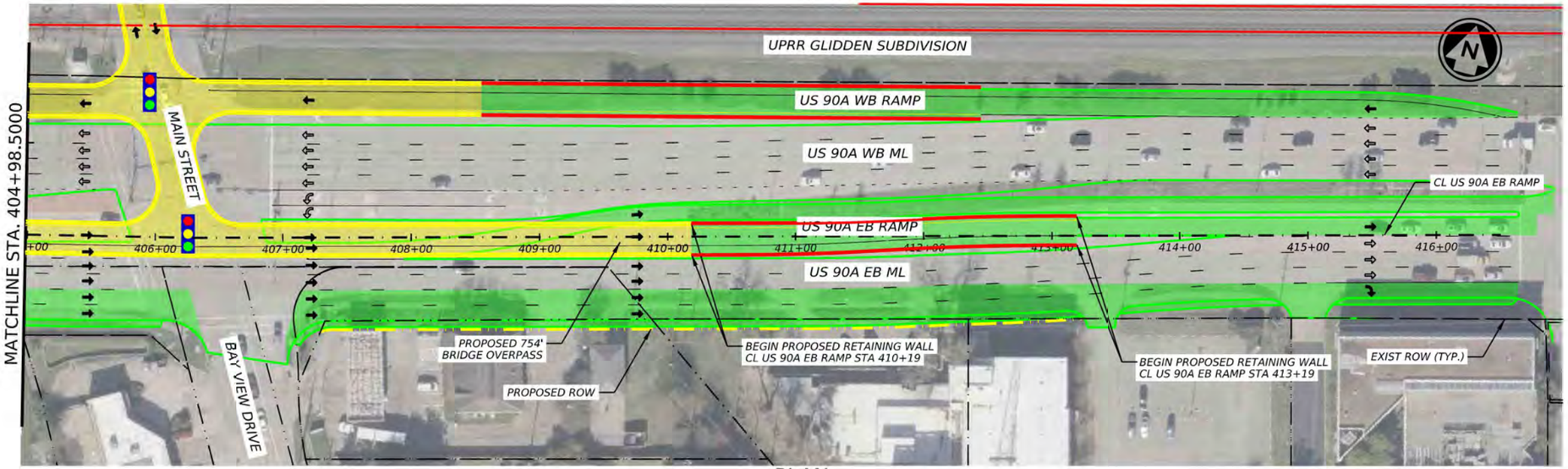
MAIN ST

GRADE SEPARATION CONCEPT US 90A RECONSTRUCTION

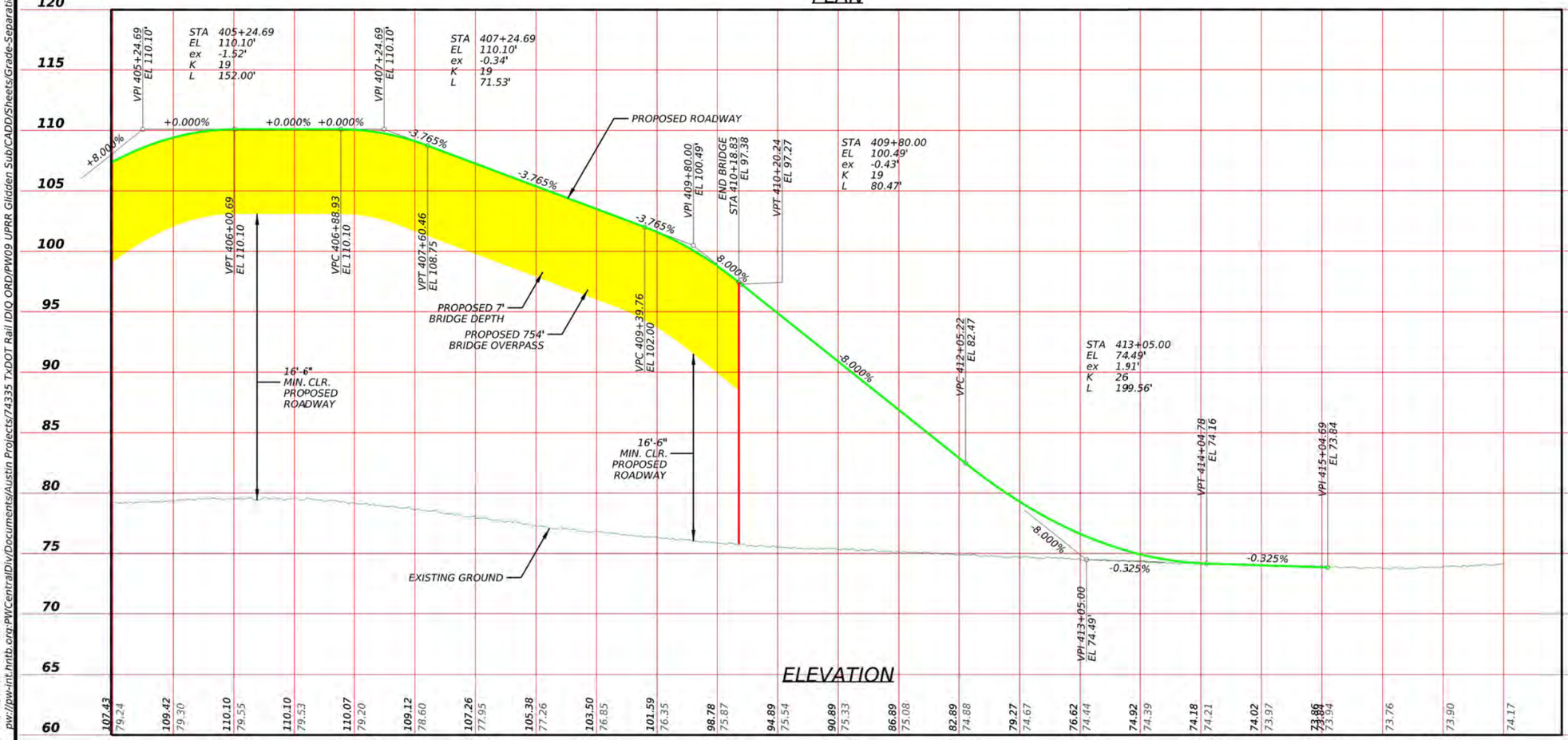
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		2

DATE: 10/17/2024 4:38:31 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/GS-MainSt-SheetsBase.dgn

DW: JK,JR, NZ, RN CK: JM, JR
DW: JK,JR, NZ, RN CK: JM, JR



PLAN



ELEVATION

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

US 90A DESIGN SPEEDS

EXISTING = 50 MPH
PROPOSED = 50 MPH

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

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JOSHUA A MIETH, P.E.
NO. 97346

ON: 10/17/2024

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HNTB
TBPE FIRM Registration No. 420

Texas Department of Transportation

MAIN ST

GRADE SEPARATION CONCEPT US 90A RECONSTRUCTION

SHEET 3 OF 7

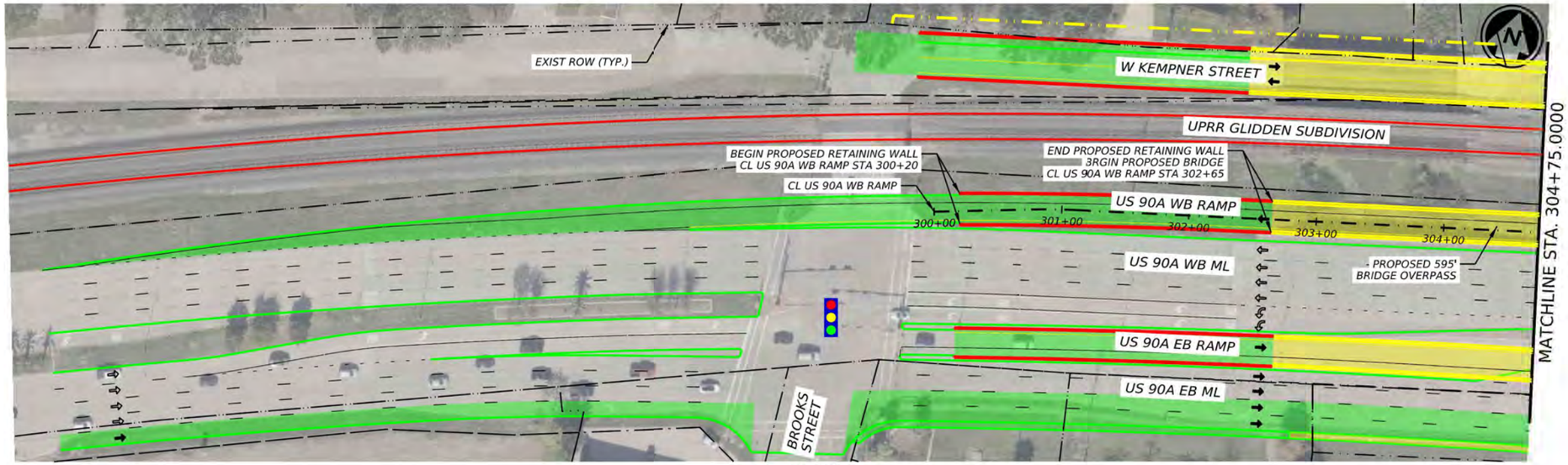
CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	3

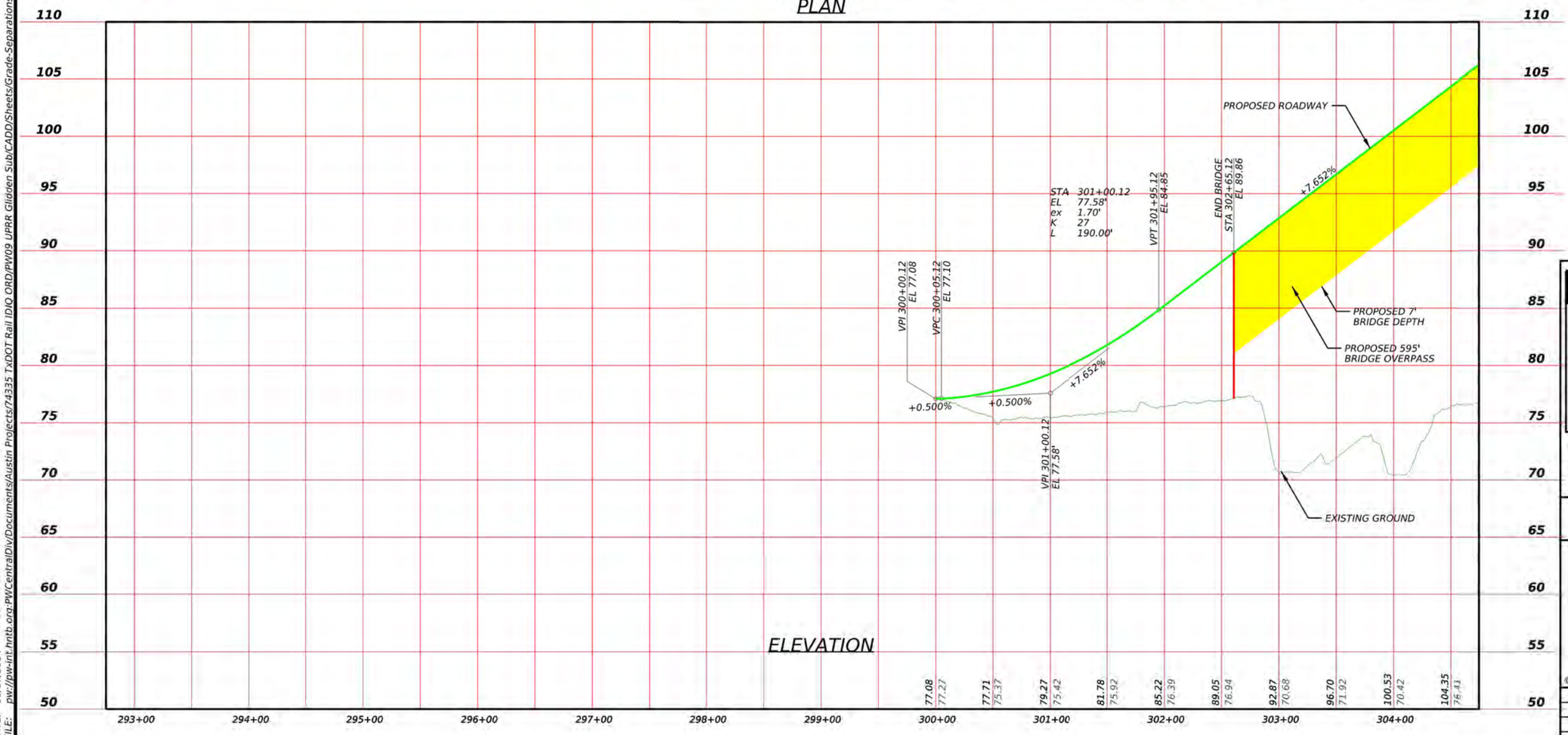
DATE: 10/17/2024 4:38:48 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-MainSt-SheetsBase.dgn

DW: JK,JR,NZ,RN CK: JM,JR

DW: JK,JB,NZ,RN | CK: JM,JR
DW: JK,JB,NZ,RN | CK: JM,JR



PLAN



ELEVATION

US 90A DESIGN SPEEDS
EXISTING = 50 MPH
PROPOSED = 50 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

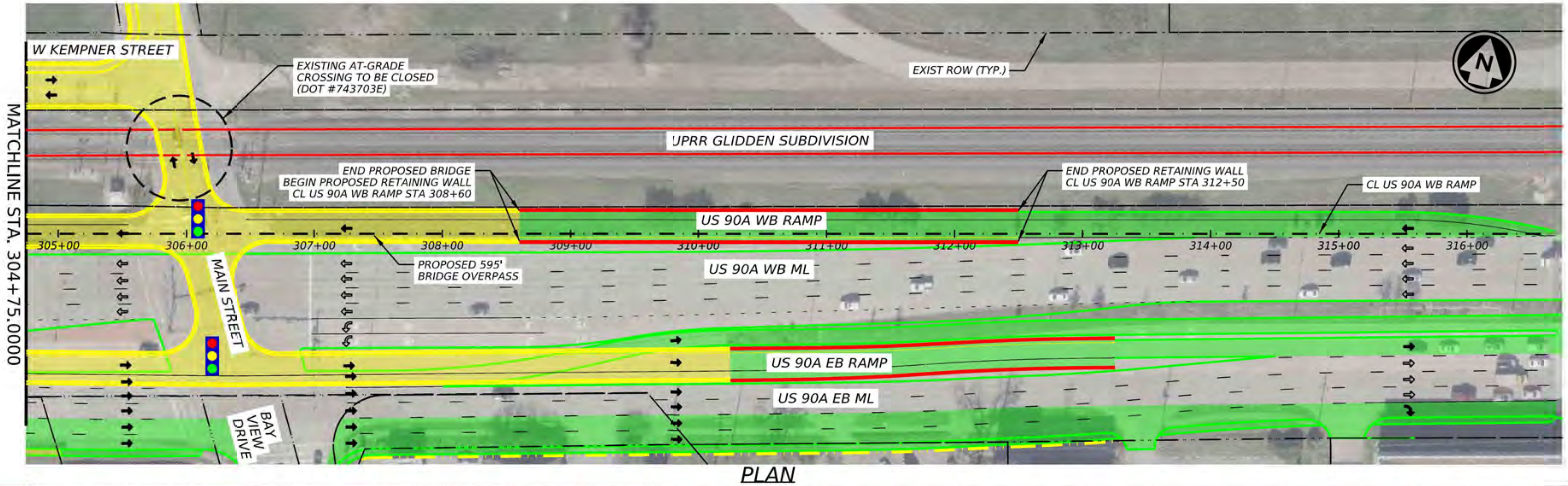
MAIN ST

GRADE SEPARATION CONCEPT US 90A RECONSTRUCTION

SHEET 4 OF 7

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		4

DATE: 10/17/2024 4:39:04 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-MainSt-SheetsBase.dgn



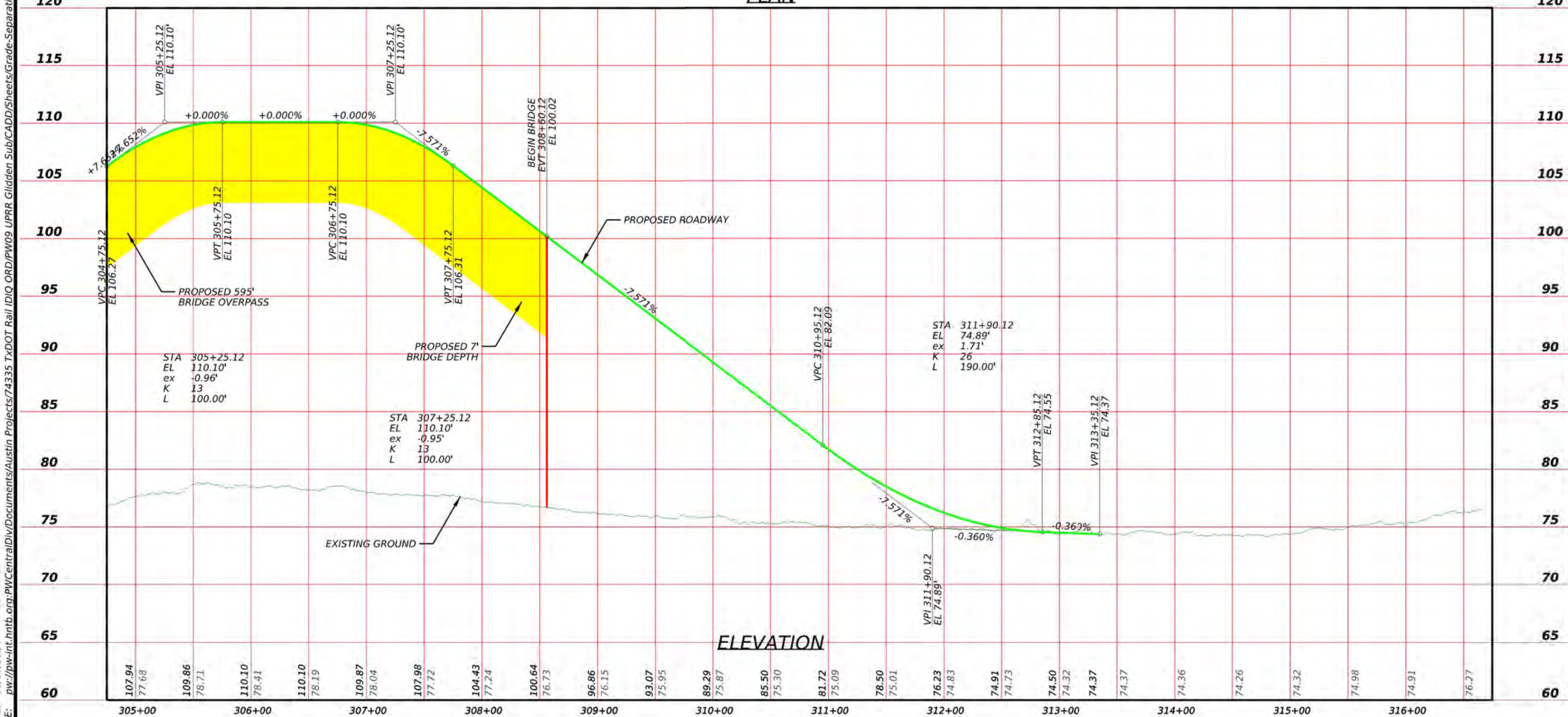
PLAN

US 90A DESIGN SPEEDS

EXISTING = 50 MPH
PROPOSED = 50 MPH

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET

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Texas Department of Transportation

MAIN ST

GRADE SEPARATION CONCEPT US 90A RECONSTRUCTION

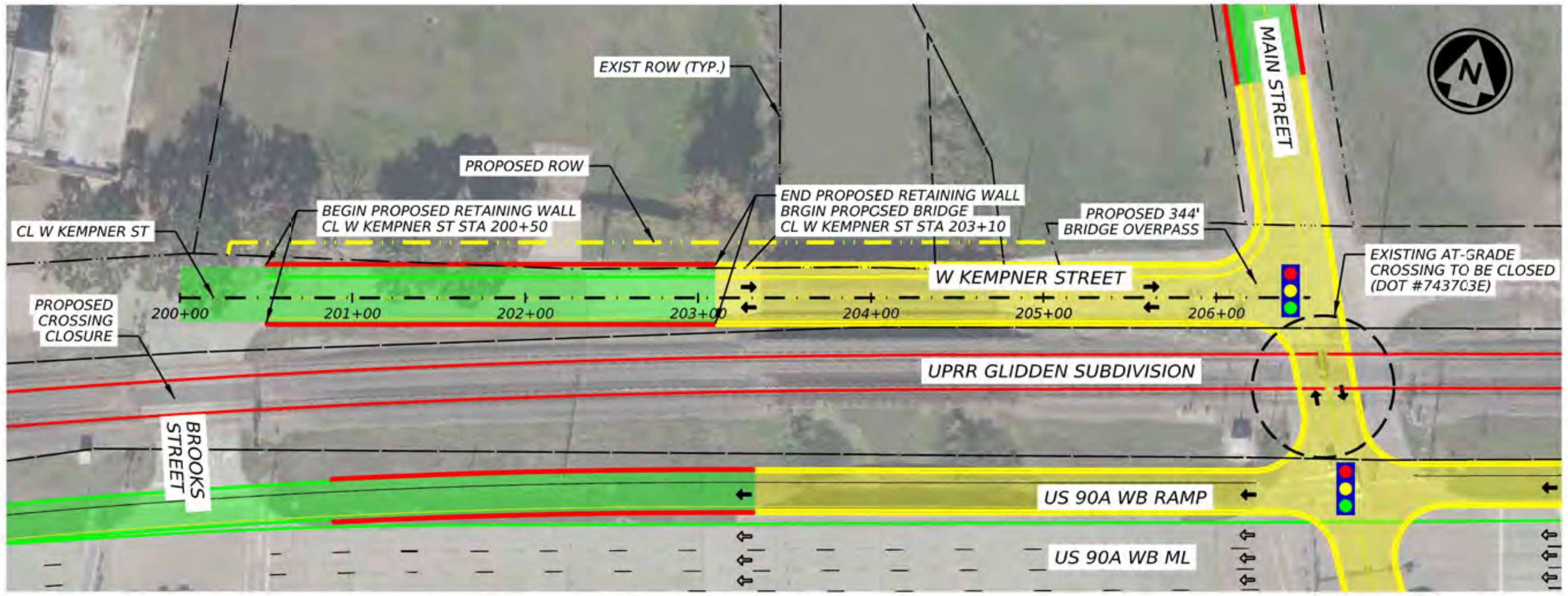
SHEET 5 OF 7

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	5

DATE: 10/17/2024 4:39:10 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-MainSt-SheetsBase.dgn

KEMPNER STREET DESIGN SPEEDS
EXISTING = 30 MPH
PROPOSED = 30 MPH



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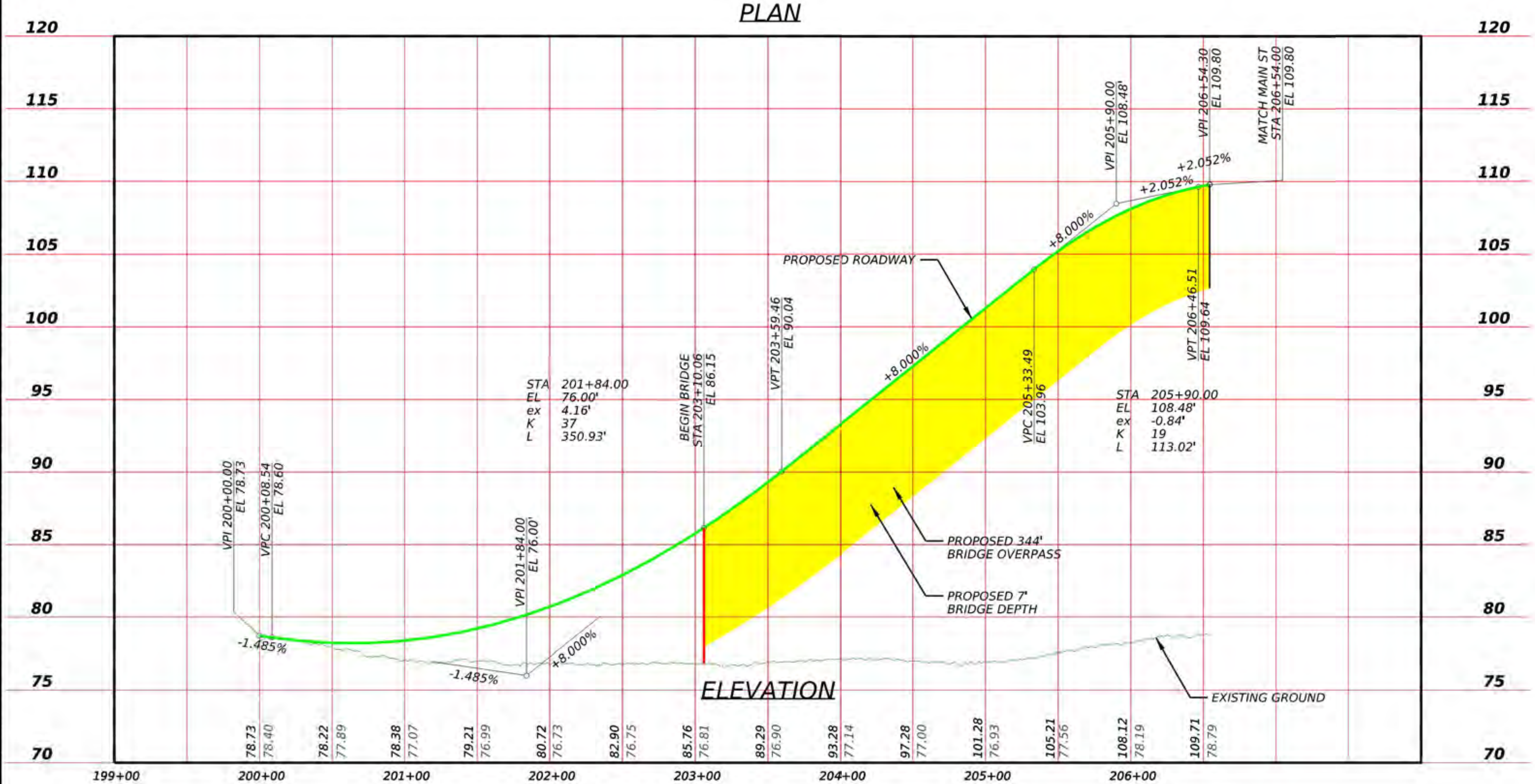

ELEVATION

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V: SCALE IN FEET

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Texas Department of Transportation

MAIN ST
GRADE SEPARATION CONCEPT
W KEMPNER ST RECONSTRUCTION

SHEET 6 OF 7

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		6

DATE: 10/17/2024 4:39:16 PM
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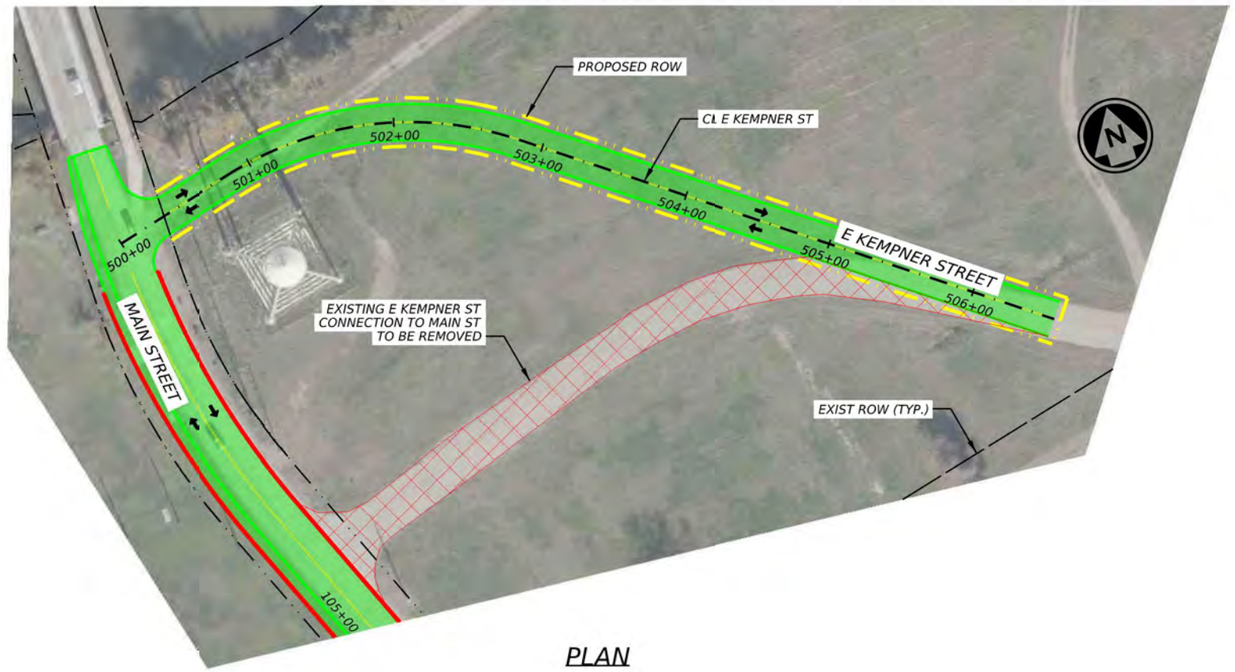
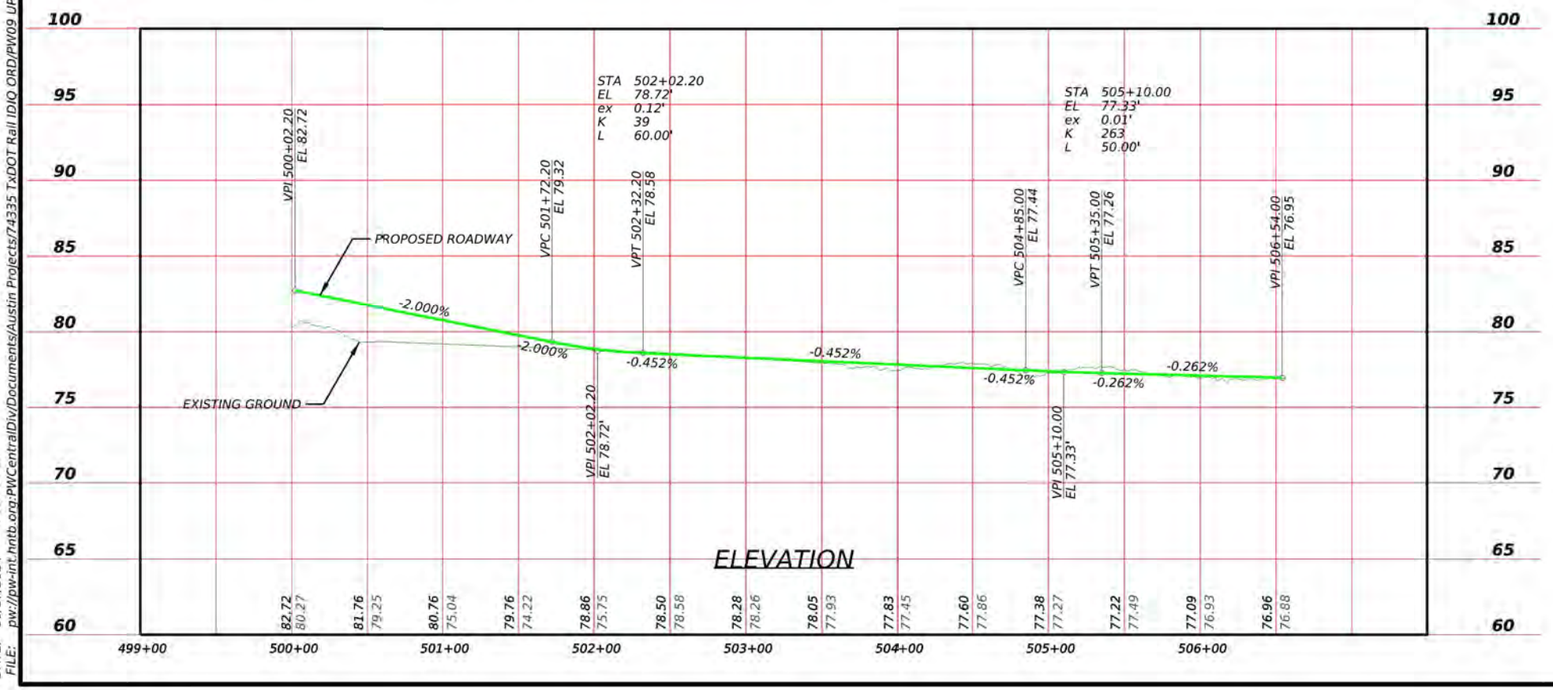


PLAN



ELEVATION

KEMPNER STREET DESIGN SPEEDS

EXISTING = 30 MPH
PROPOSED = 30 MPH

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V: SCALE IN FEET

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TBPE FIRM Registration No. 420

Texas Department of Transportation

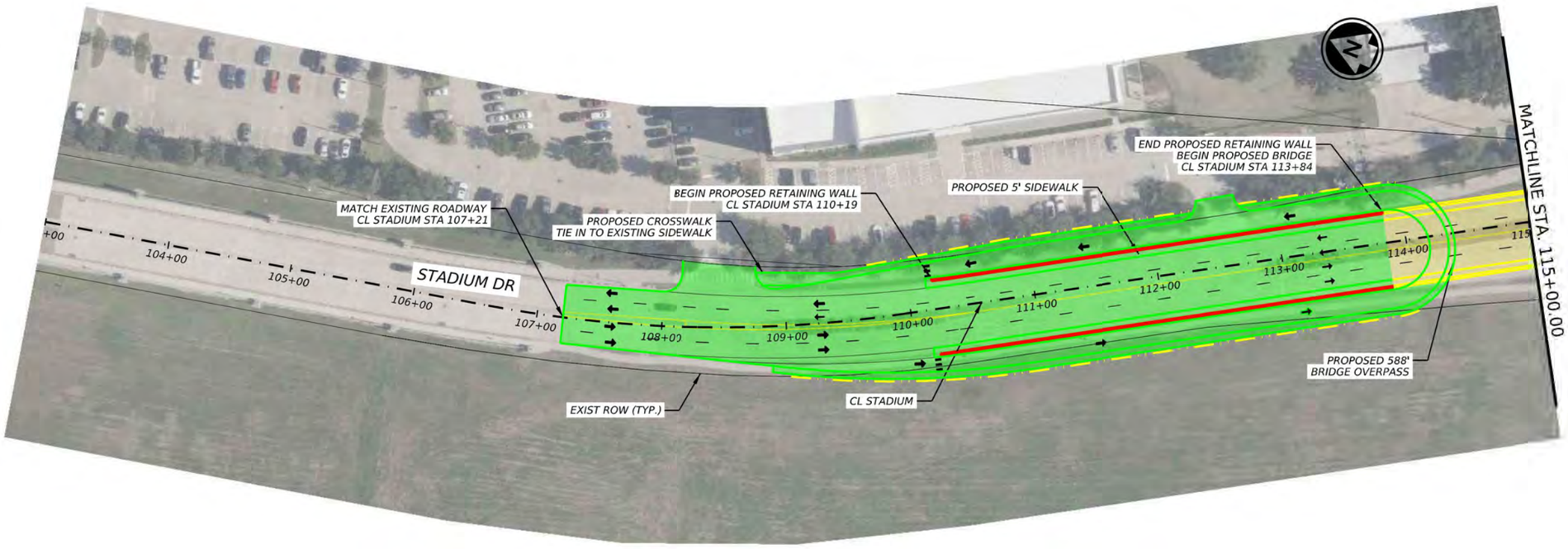
MAIN ST

GRADE SEPARATION CONCEPT
E KEMPNER ST RECONSTRUCTION

 SHEET 7 OF 7

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		7

STADIUM DR DESIGN SPEEDS
EXISTING = 40 MPH
PROPOSED = 30 MPH



PLAN

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

PRELIMINARY

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Texas Department of Transportation

STADIUM DR

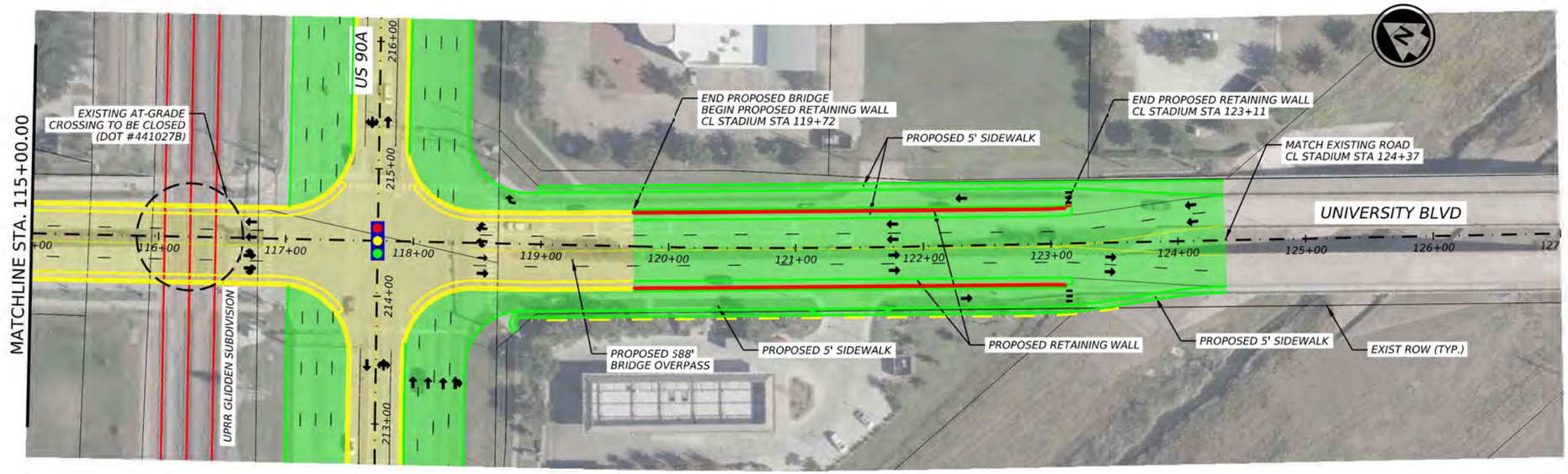
GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT 441027B

SHEET 1 OF 6

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		1

DW: JK, JR, NZ, RN | CK: JM, JR
DW: JK, JR, NZ - RN | CK: JM, JR
DATE: 10/16/2024 12:13:11 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIO ORD/PW09 UPRR Glidden Sub/CADD/Sheets/GS-Stadium-Univ-SheetsBase.dgn

UNIVERSITY BLVD DESIGN SPEEDS
EXISTING = 40 MPH
PROPOSED = 30 MPH



PLAN

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V: SCALE IN FEET

PRELIMINARY

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TBPE FIRM Registration No.: 420

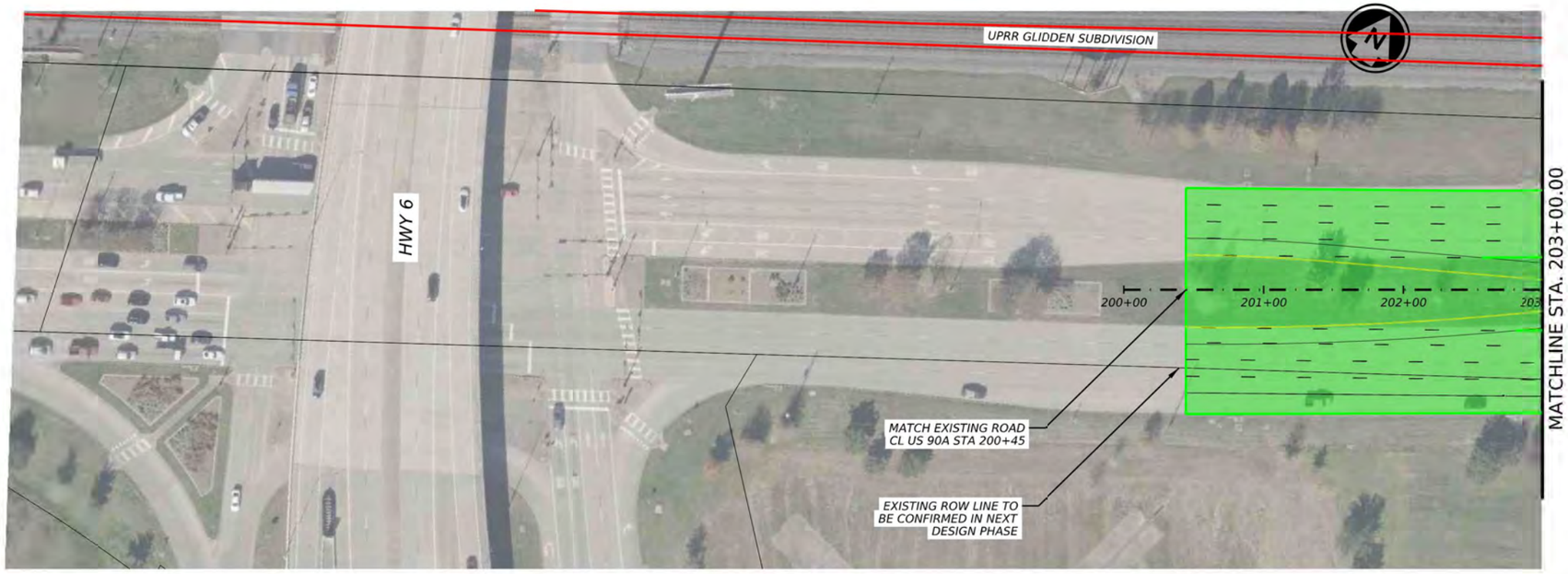
Texas Department of Transportation

UNIVERSITY BLVD

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT 441027B

SHEET 2 OF 6

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		2



LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
SCALE IN FEET

PRELIMINARY

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ON 10/16/2024

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TBPE FIRM
Registration No. 420

Texas Department of Transportation

US 90A

GRADE SEPARATION
CONCEPT
PLAN AND PROFILE
DOT 441027B

SHEET 3 OF 6

CONT	SECT	JOB	HIGHWAY

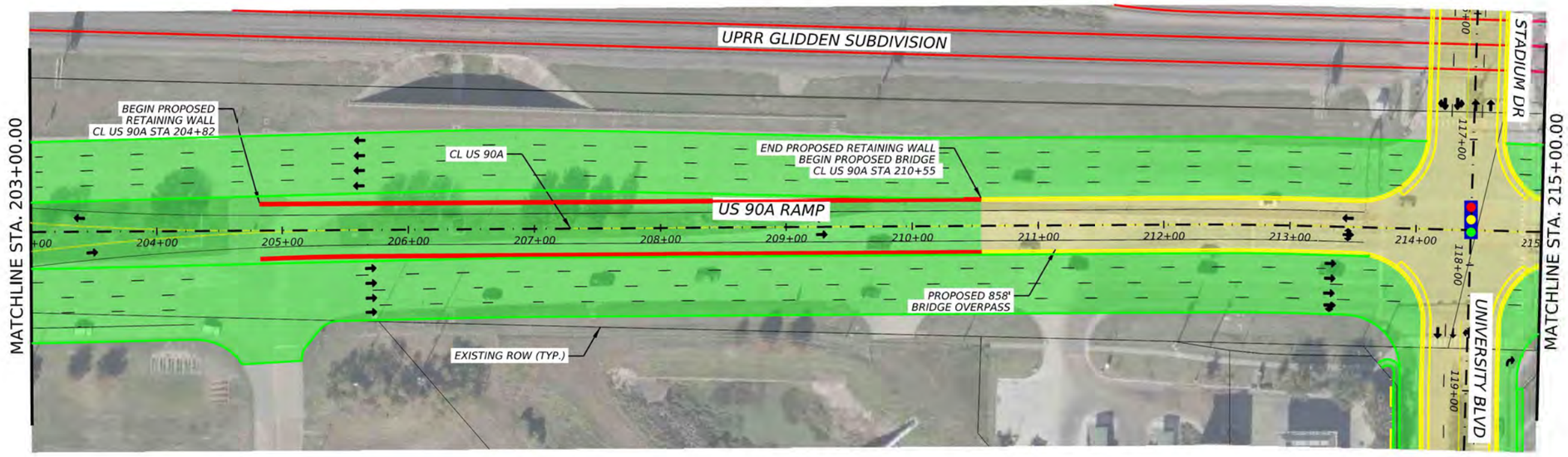
DIST	COUNTY	SHEET NO.
HOU	FORT BEND	3

DW: JK, JB, NZ, RN | CK: JM, JR | DW: JK, JB, NZ, RN | CK: JM, JR

DATE: 10/16/2024 12:13:50 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-Stadium-Univ-SheetsBase.dgn

DW: JA, JB, NZ, RN | CK: JM, JR
DW: JA, JB, NZ, RN | CK: JM, JR

US 90A DESIGN SPEEDS
EXISTING = 50 MPH
PROPOSED = 50 MPH



PLAN

ELEVATION

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

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Texas Department of Transportation

US 90A AT UNIVERSITY BLVD GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT 441027B

SHEET 4 OF 6

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		4

DATE: 10/16/2024 12:29:24 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-Stadium-Univ-SheetsBase.dgn

DW: JK, JR, NZ, RN | CK: JM, JR

DW: JK, JR, NZ, RN | CK: JM, JR

DATE: 10/16/2024 12:14:49 PM
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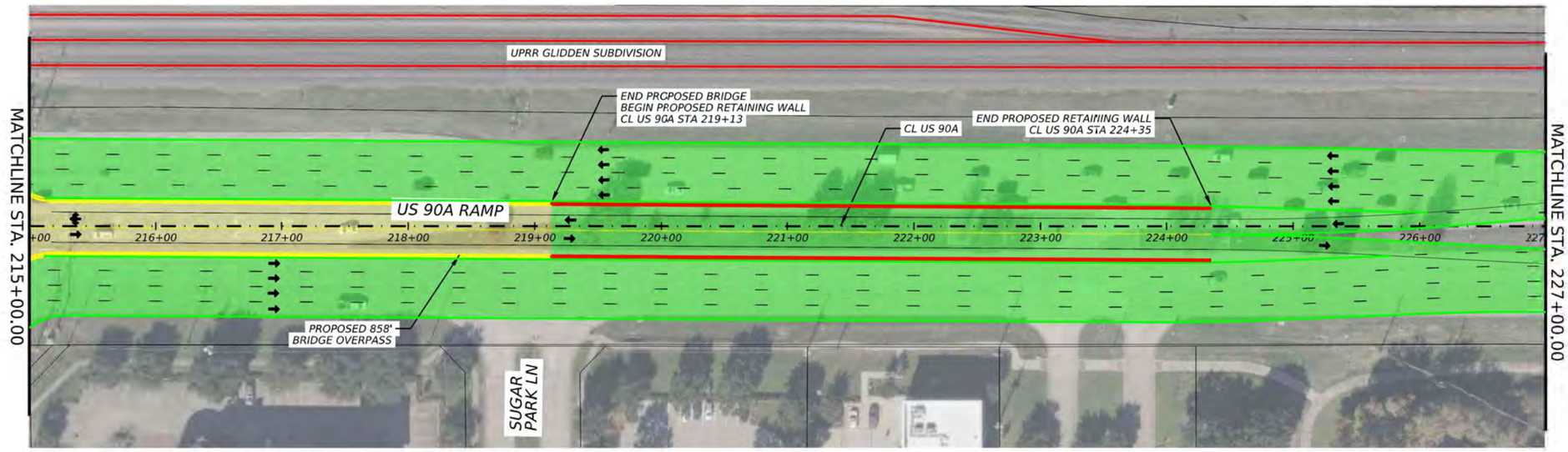
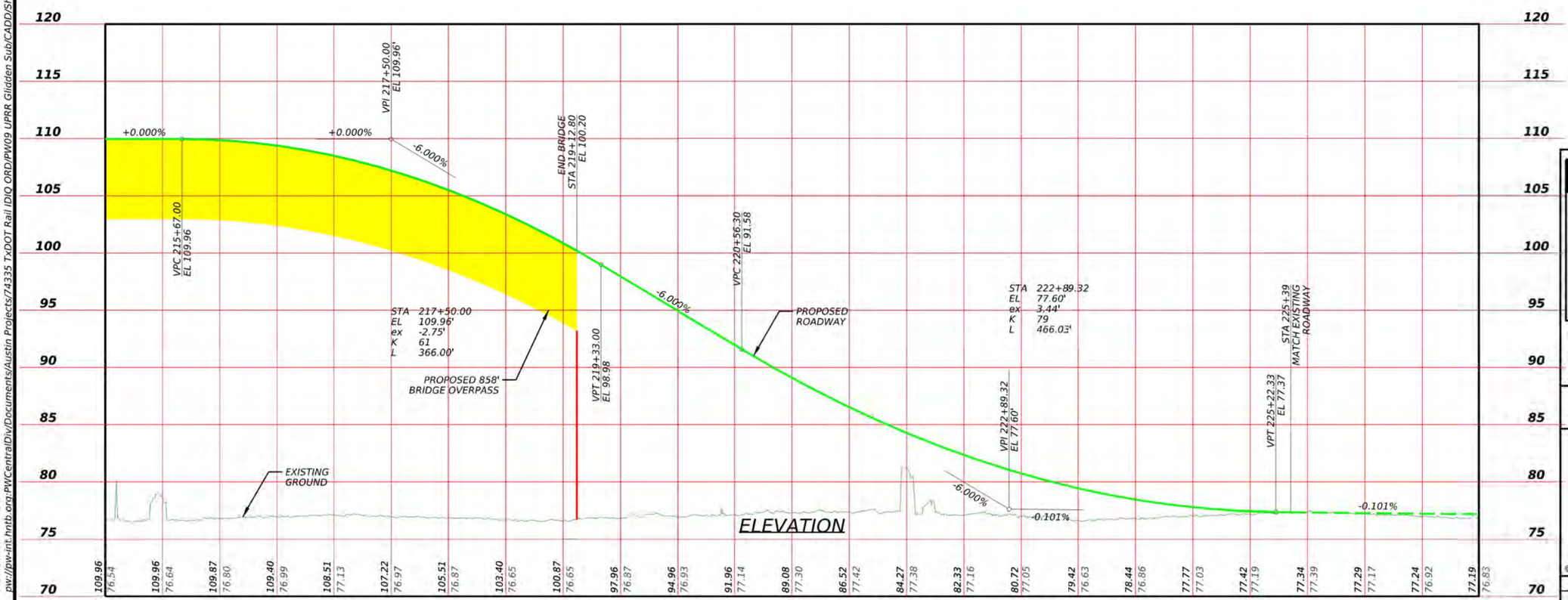
US 90A DESIGN SPEEDS
EXISTING = 50 MPH
PROPOSED = 50 MPH



PLAN



ELEVATION

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

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Texas Department of Transportation

US 90A

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT 441027B

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	5

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V: SCALE IN FEET

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Texas Department of Transportation

US 90A

GRADE SEPARATION
CONCEPT
PLAN AND PROFILE
DOT 441027B

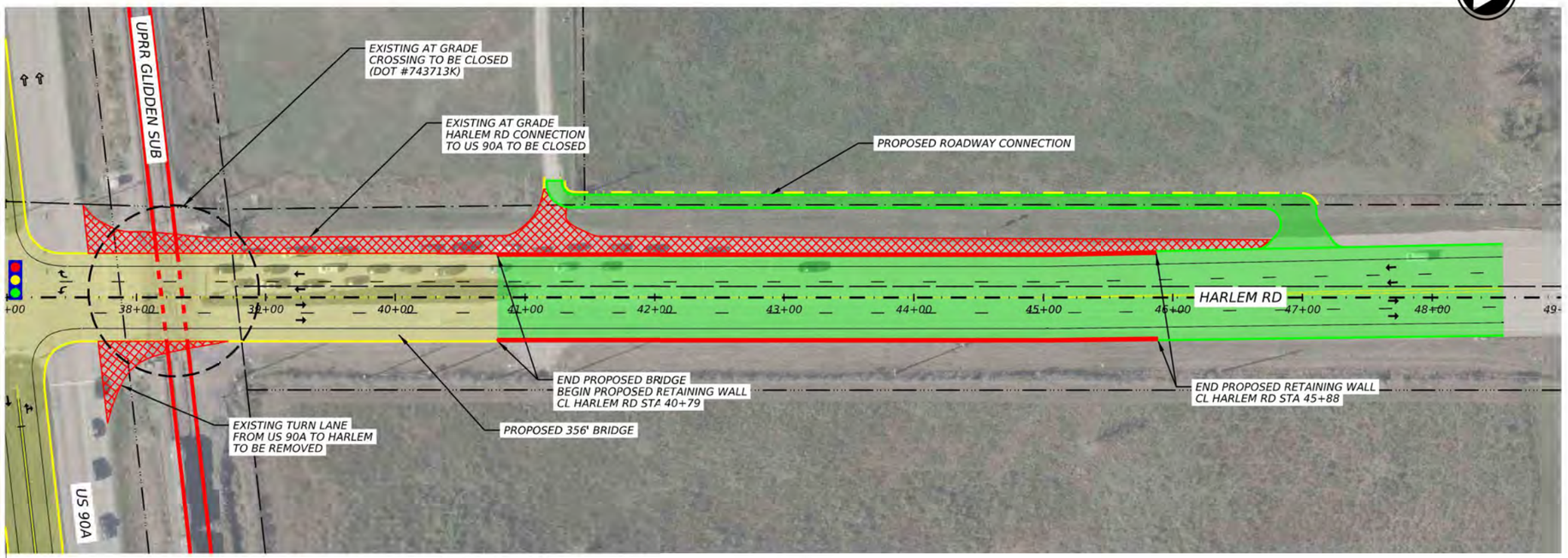
 SHEET 6 OF 6

CONT	SECT	JOB	HIGHWAY

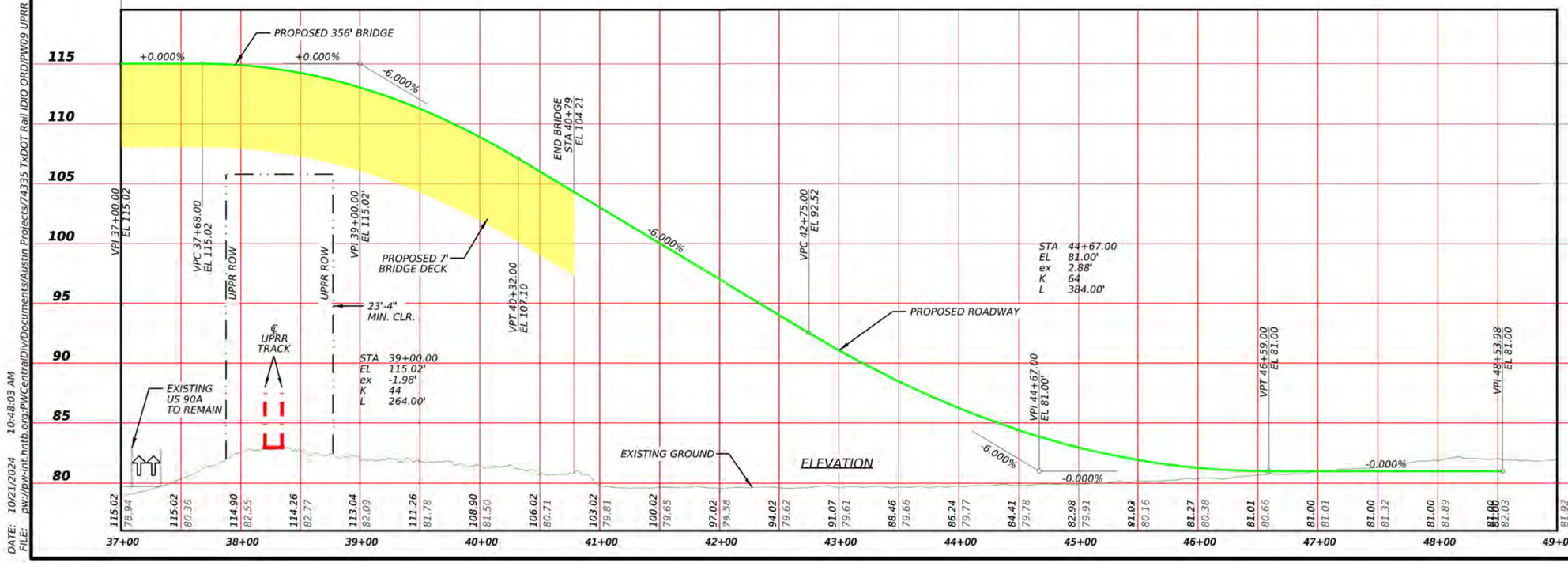
DIST	COUNTY	SHEET NO.
HOU	FORT BEND	6

DW: AK,JB,NZ,RN CK: JM,JR
DW: AK,JB,NZ,RN CK: JM,JR

DATE: 10/16/2024 12:15:21 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-Stadium-Univ-SheetsBase.dgn



PLAN



ELEVATION

HARLEM ROAD DESIGN SPEEDS

EXISTING = 50 MPH
PROPOSED = 50 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET

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Texas Department of Transportation

HARLEM RD

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #743713K

SHEET 1 OF 6

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		1

DATE: 10/21/2024 10:48:03 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-HarlemRd_SheetsBase.dgn

DW: AK, JB, NZ: RN | CK: JM, JR | DW: AK, JB, NZ: RN | CK: JM, JR

US90A DESIGN SPEEDS

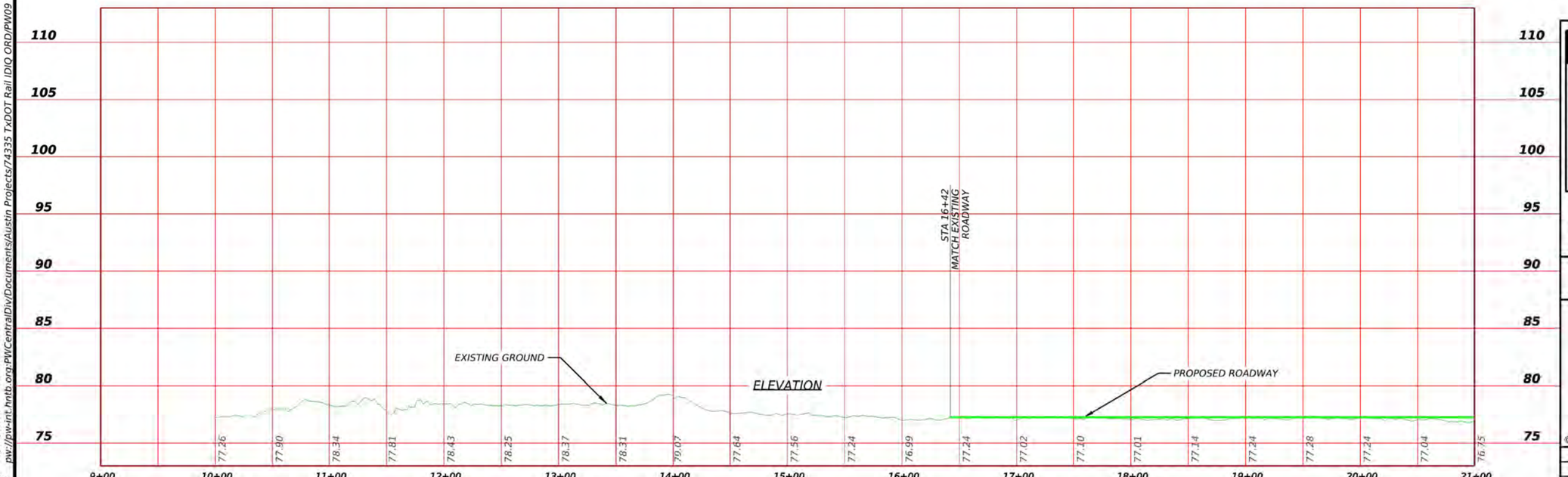
EXISTING = 55 MPH
PROPOSED = 55 MPH

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET



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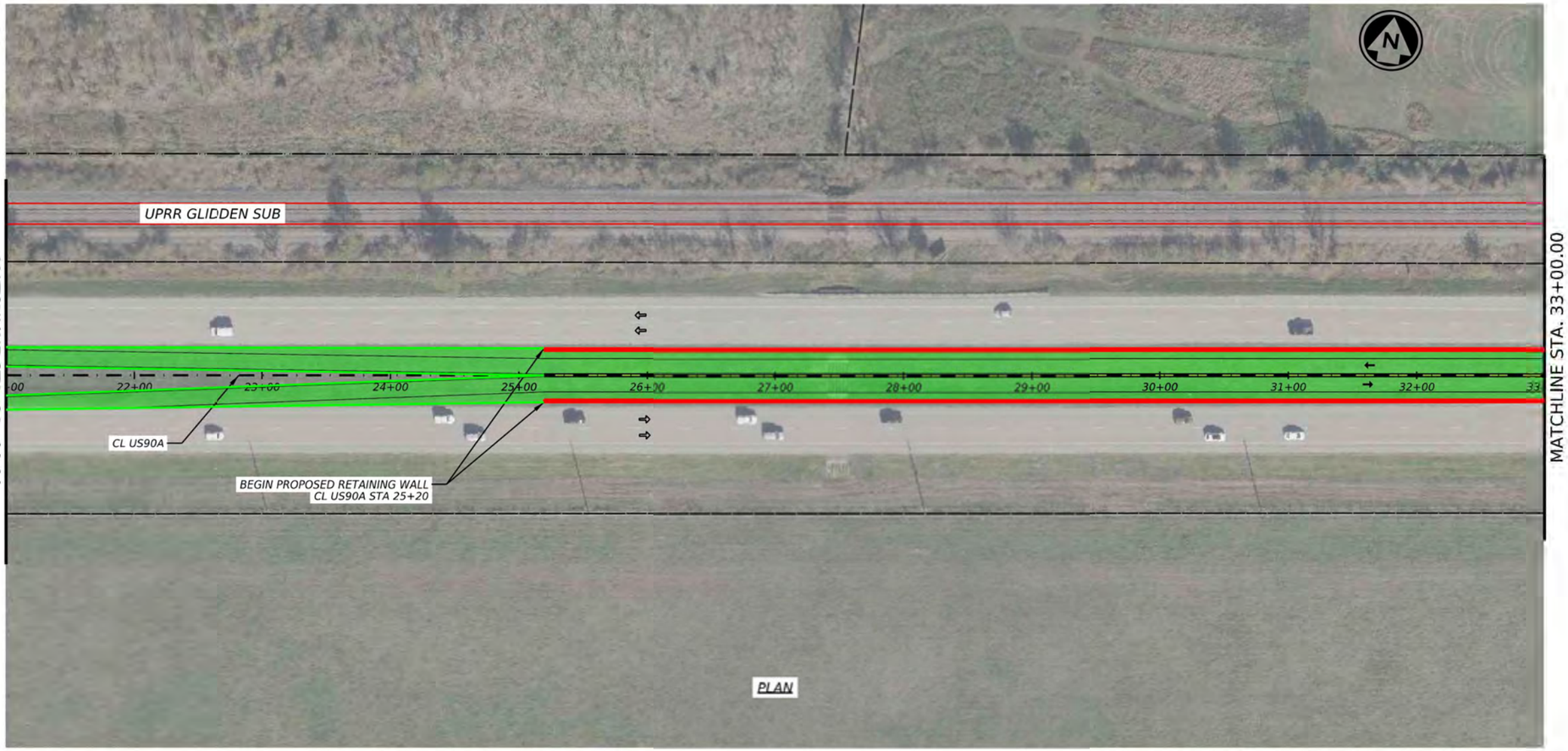
HARLEM RD

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #743713K

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		2

DATE: 10/21/2024 10:48:27 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-HarlemRd_SheetsBase.dgn

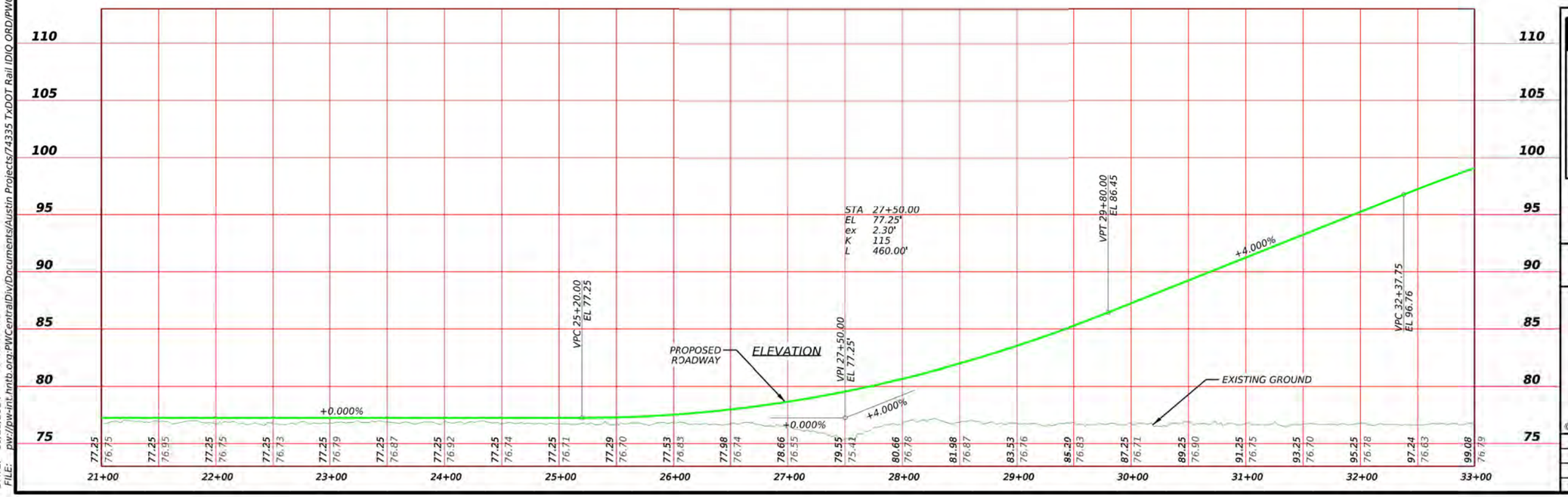


US90A DESIGN SPEEDS

EXISTING = 55 MPH
PROPOSED = 55 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET



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Texas Department of Transportation

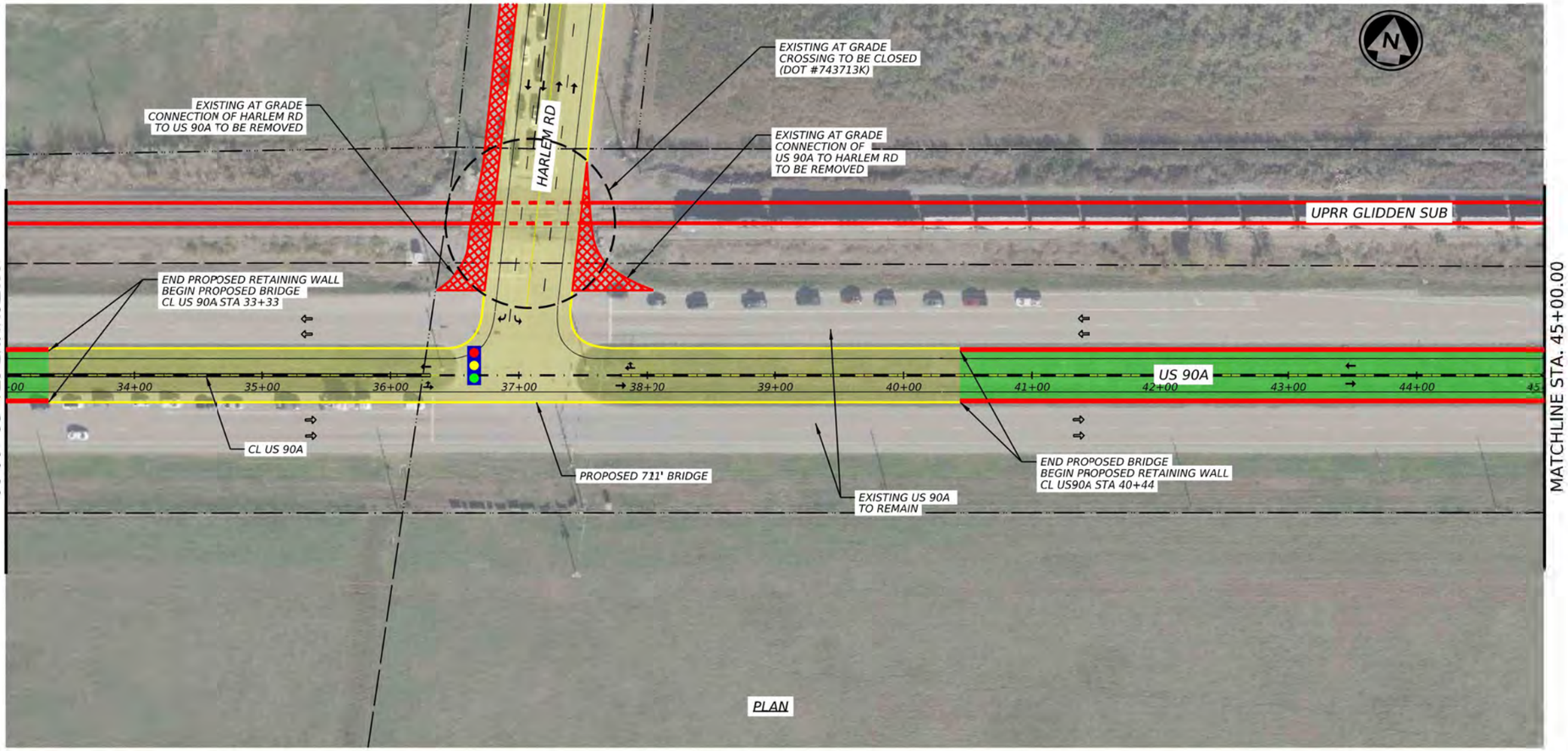
HARLEM RD

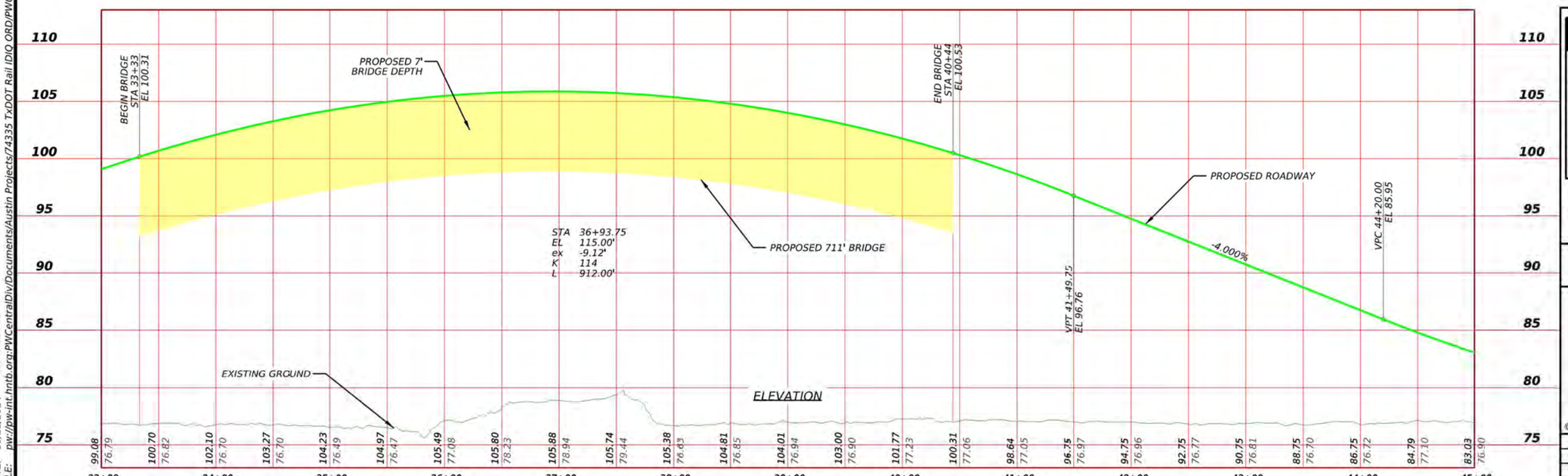
GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #743713K

SHEET 3 OF 6

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		3

DW: AK,JR,NZ,RN | CK: JM,JR
DW: AK,JR,NZ,RN | CK: JM,JR





US90A DESIGN SPEEDS

EXISTING = 55 MPH
PROPOSED = 55 MPH

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTORITY OF:

JOSHUA A MIETH, P.E.
NO. 97346

ON: 10/21/2024

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HNTB
TBPE FIRM Registration No. 420

Texas Department of Transportation

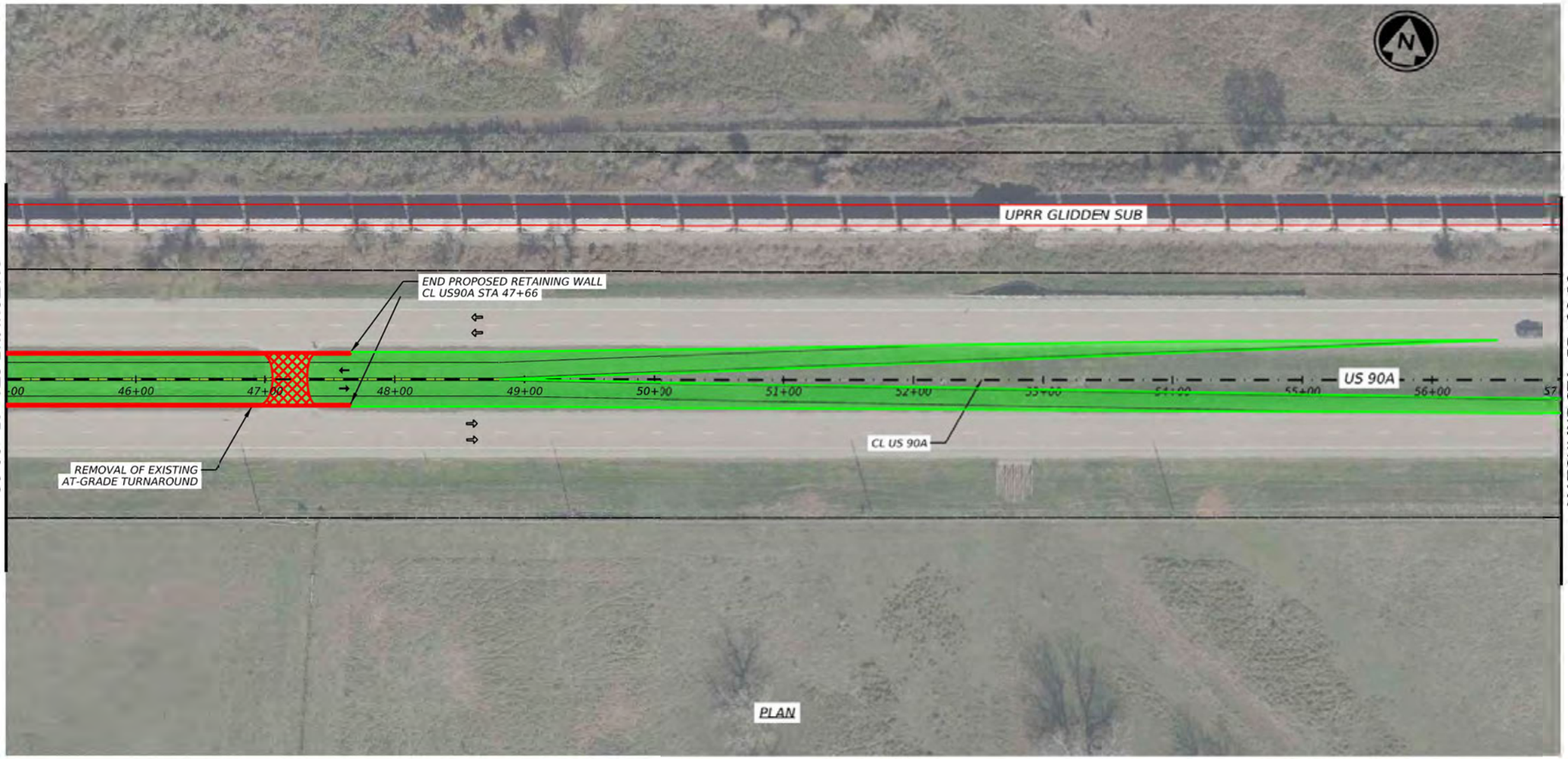
HARLEM RD

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #743713K

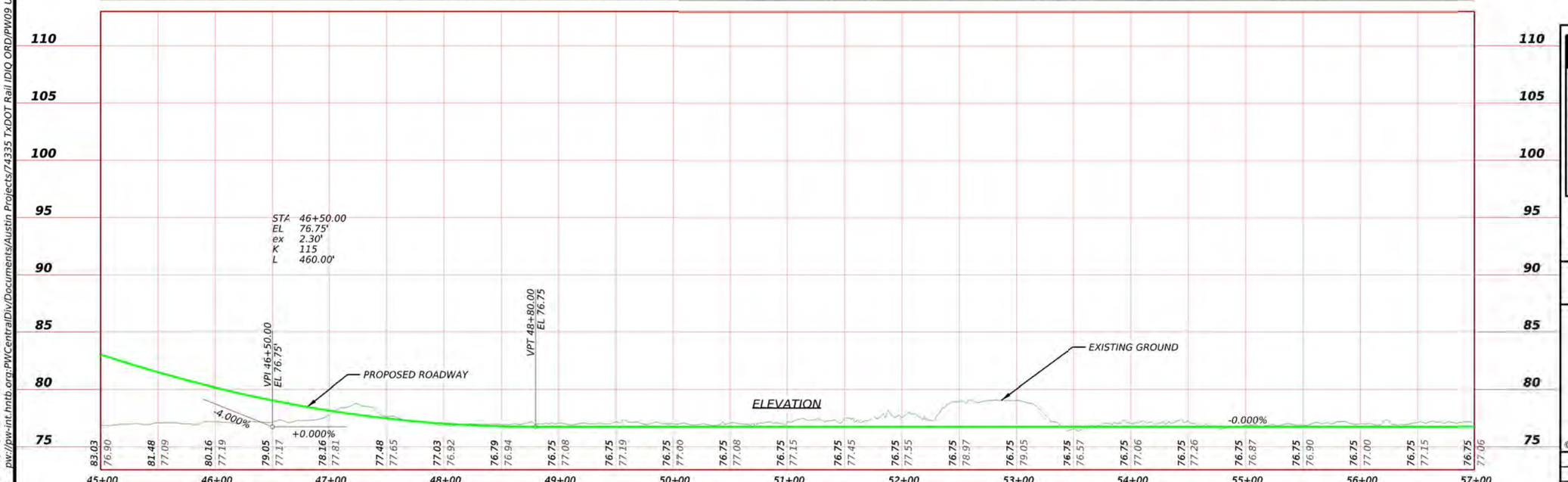
SHEET 4 OF 6

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		4

DATE: 10/21/2024 10:48:53 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-HarlemRd_SheetsBase.dgn



PLAN



US90A DESIGN SPEEDS

EXISTING = 55 MPH
PROPOSED = 55 MPH

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

HARLEM RD

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #743713K

SHEET 5 OF 6

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		5

DATE: 10/21/2024 10:49:08 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-HarlemRd_SheetsBase.dgn

DW: AK,JB,NZ,RN CK: JM,JR

US90A DESIGN SPEEDS

EXISTING = 55 MPH
PROPOSED = 55 MPH

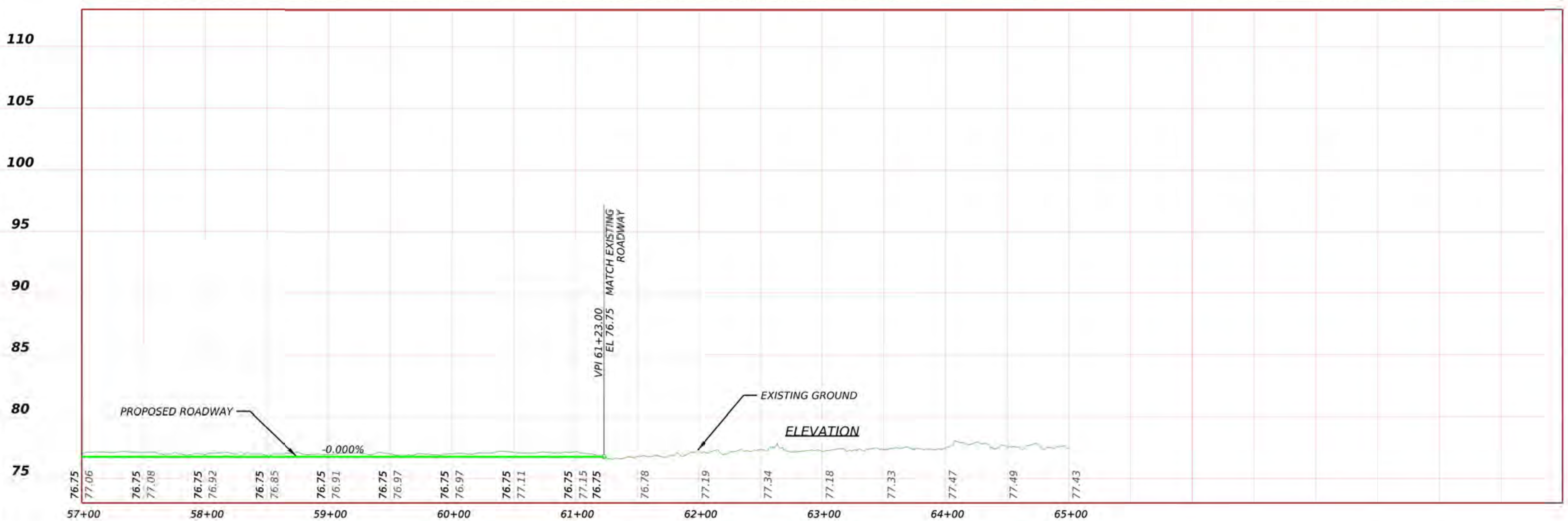
PLAN

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET



ELEVATION

PRELIMINARY

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Texas Department of Transportation

HARLEM RD

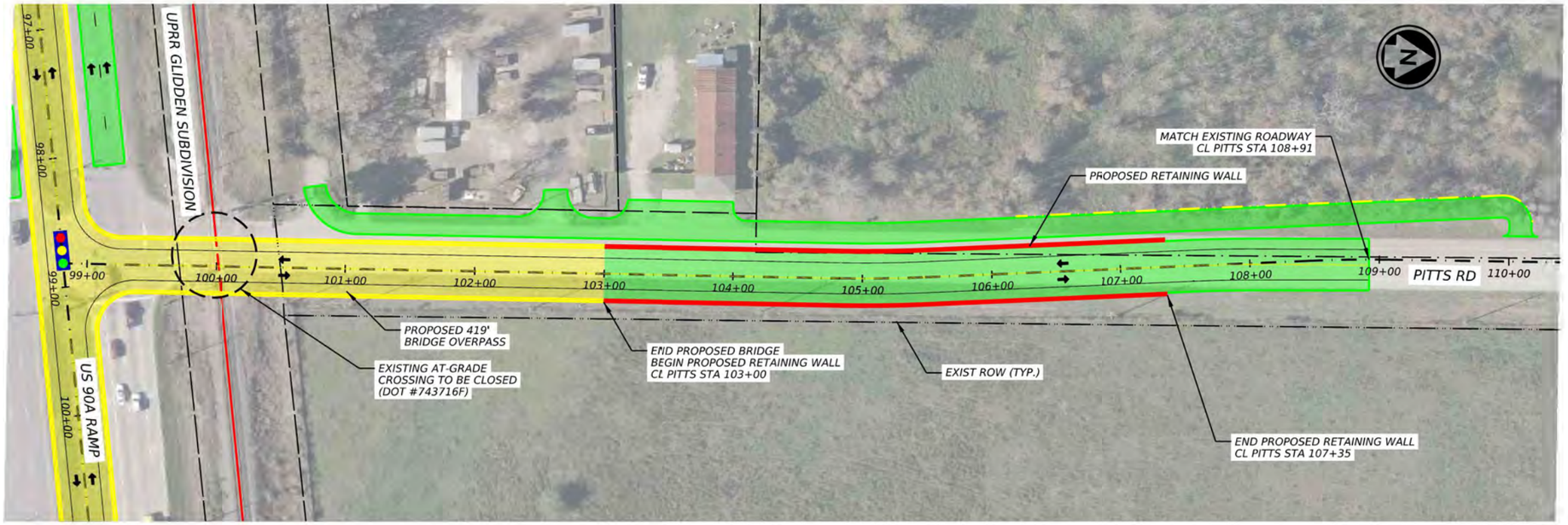
GRADE SEPARATION CONCEPT
PLAN AND PROFILE
DOT #743713K

SHEET 6 OF 6

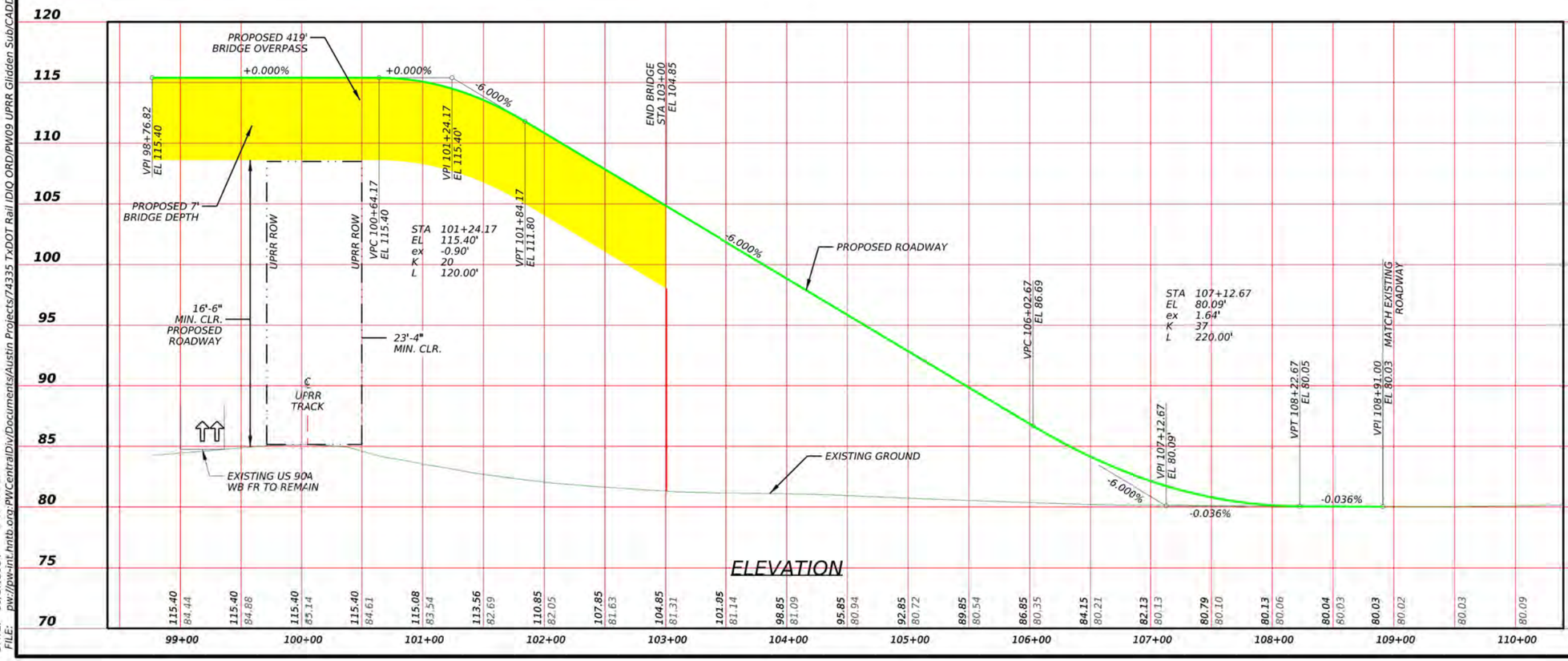
CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	6

DATE: 10/21/2024 10:49:24 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-HarlemRd SheetsBase.dgn



PLAN



ELEVATION

PITTS ROAD DESIGN SPEEDS
EXISTING = 45 MPH
PROPOSED = 30 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V: SCALE IN FEET

PRELIMINARY

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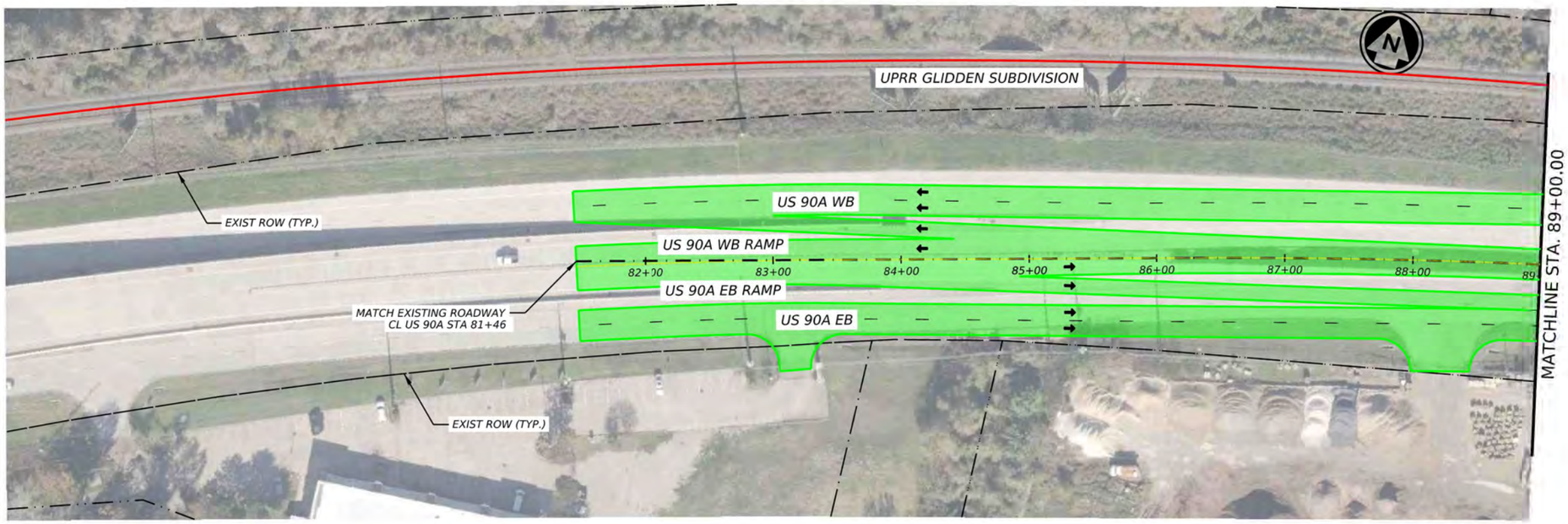
Texas Department of Transportation

PITTS RD

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT 743716F

SHEET 1 OF 5

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		1



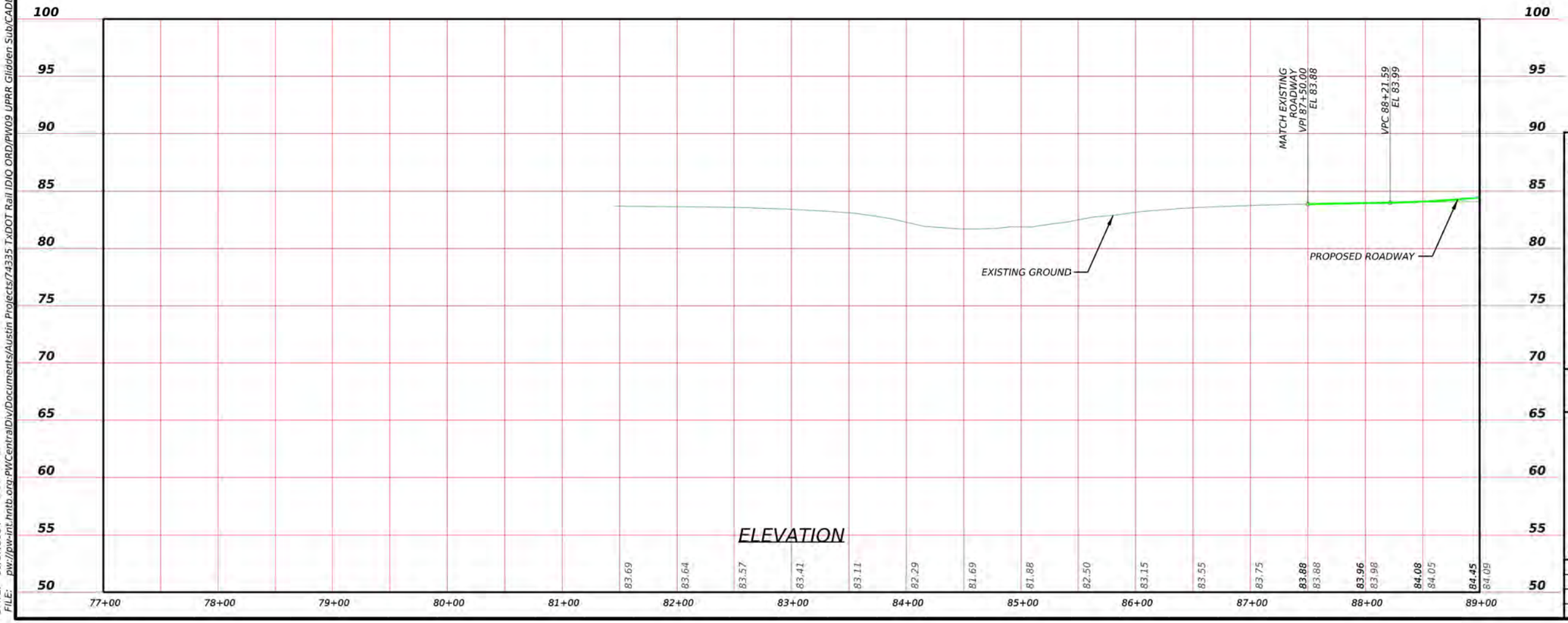
PLAN

US 90A DESIGN SPEEDS

EXISTING = 55 MPH
PROPOSED = 50 MPH

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



ELEVATION

H: SCALE IN FEET
0 50 100

V : SCALE IN FEET
0 2 4 6 8 10

PRELIMINARY

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Texas Department of Transportation

PITTS RD

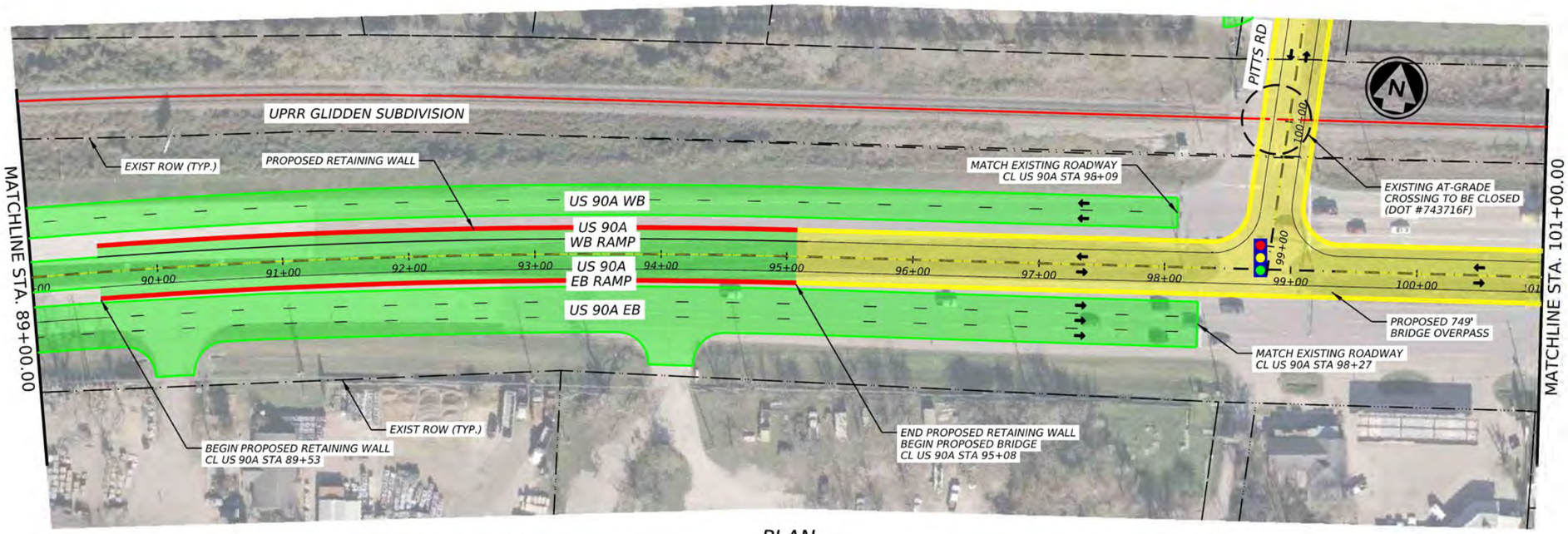
GRADE SEPARATION CONCEPT
US 90A AT-GRADE RECONSTRUCTION

SHEET 2 OF 5

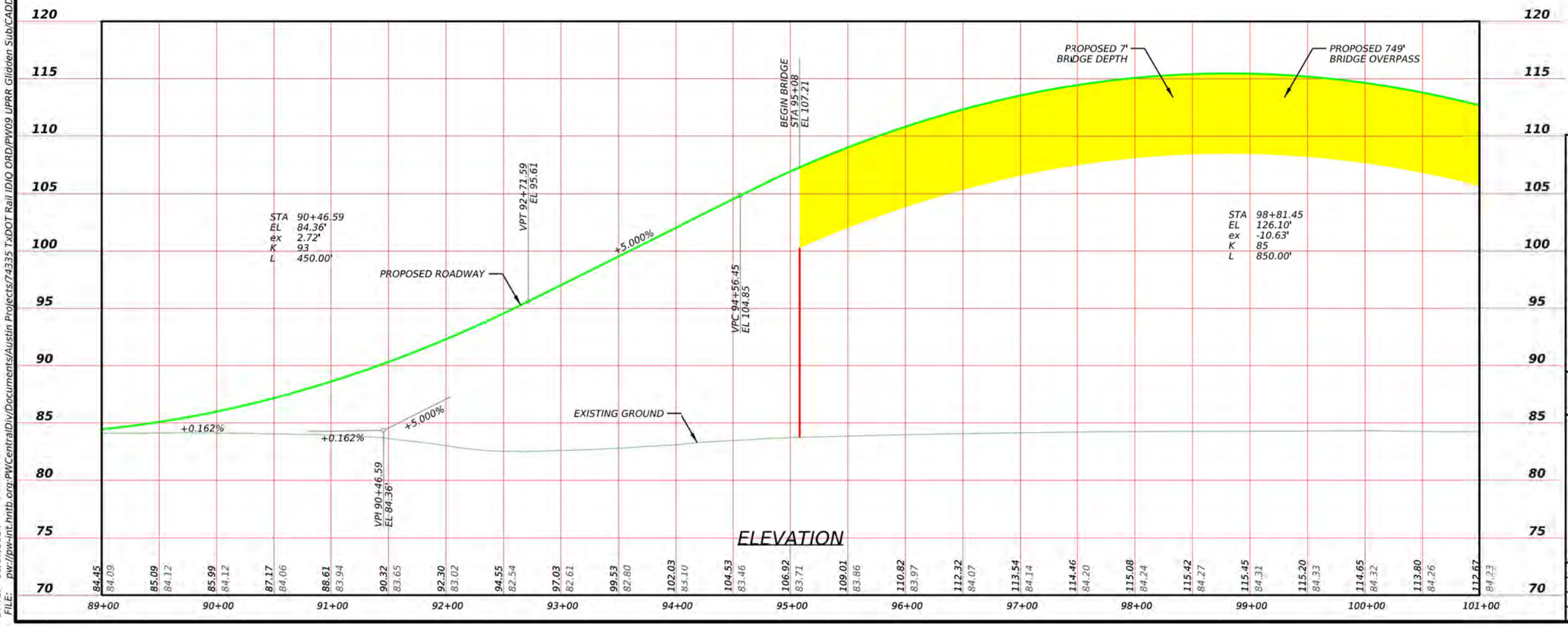
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		2

DATE: 10/17/2024 3:50:11 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-PittsRd-Sheets.dgn

DW: AK,JB,NZ,RN CK: JM,JR
DW: AK,JB,NZ,RN CK: JM,JR



PLAN



ELEVATION

US 90A DESIGN SPEEDS
EXISTING = 55 MPH
PROPOSED = 50 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

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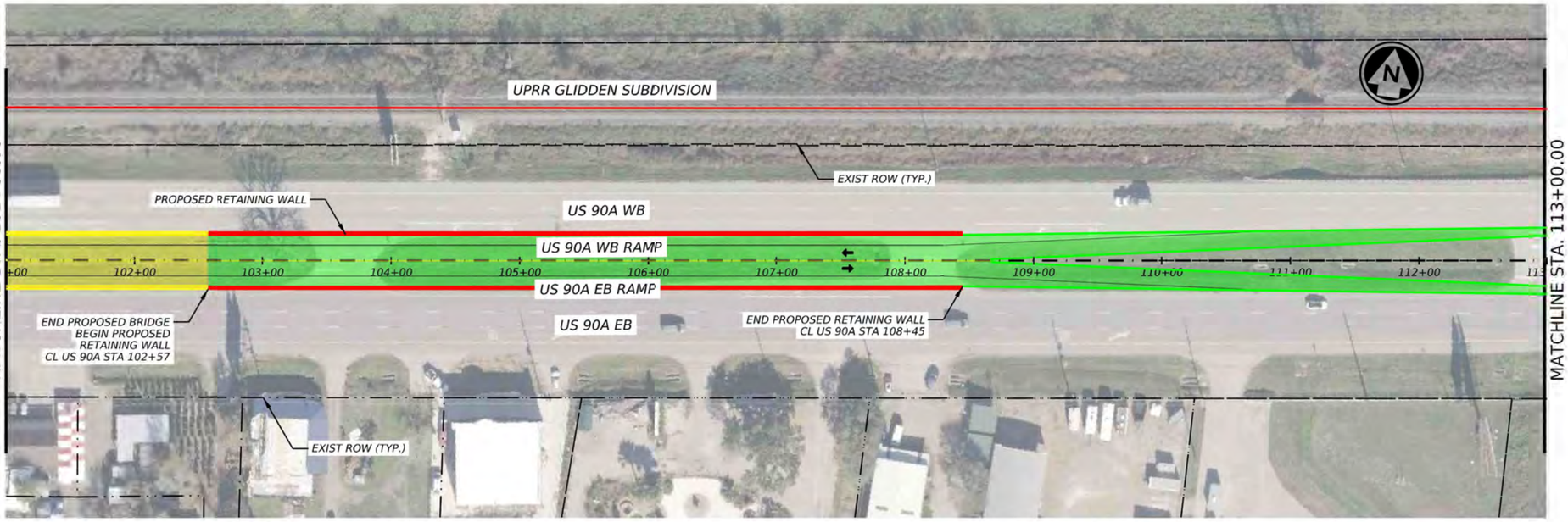
PITTS RD

GRADE SEPARATION CONCEPT
US 90A AT-GRADE RECONSTRUCTION

SHEET 3 OF 5

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		3

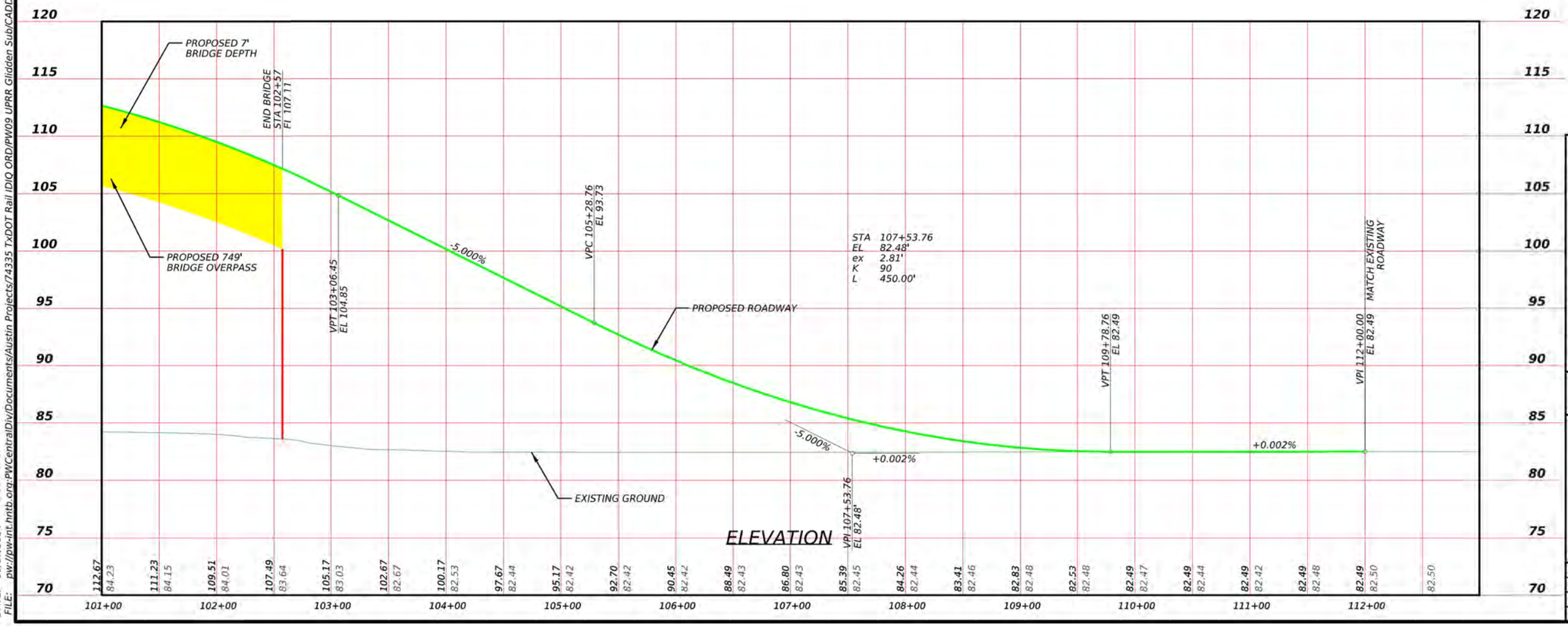
DATE: 10/17/2024 3:50:39 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-PittsRd-Sheets.dgn



PLAN

US 90A DESIGN SPEEDS
EXISTING = 55 MPH
PROPOSED = 50 MPH

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



ELEVATION

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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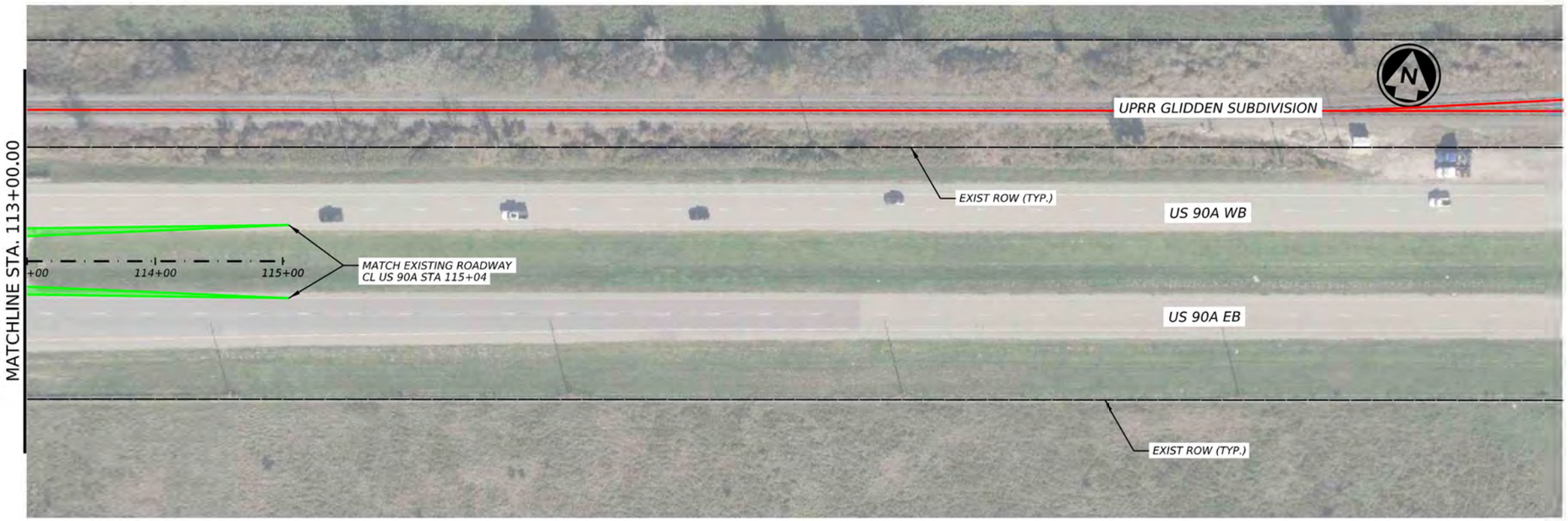
PITTS RD

GRADE SEPARATION CONCEPT
US 90A AT-GRADE RECONSTRUCTION

SHEET 4 OF 5

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		4



PLAN

US 90A DESIGN SPEEDS

EXISTING = 55 MPH
PROPOSED = 50 MPH

LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
SCALE IN FEET

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Texas Department of Transportation

PITTS RD

GRADE SEPARATION CONCEPT
US 90A AT-GRADE RECONSTRUCTION

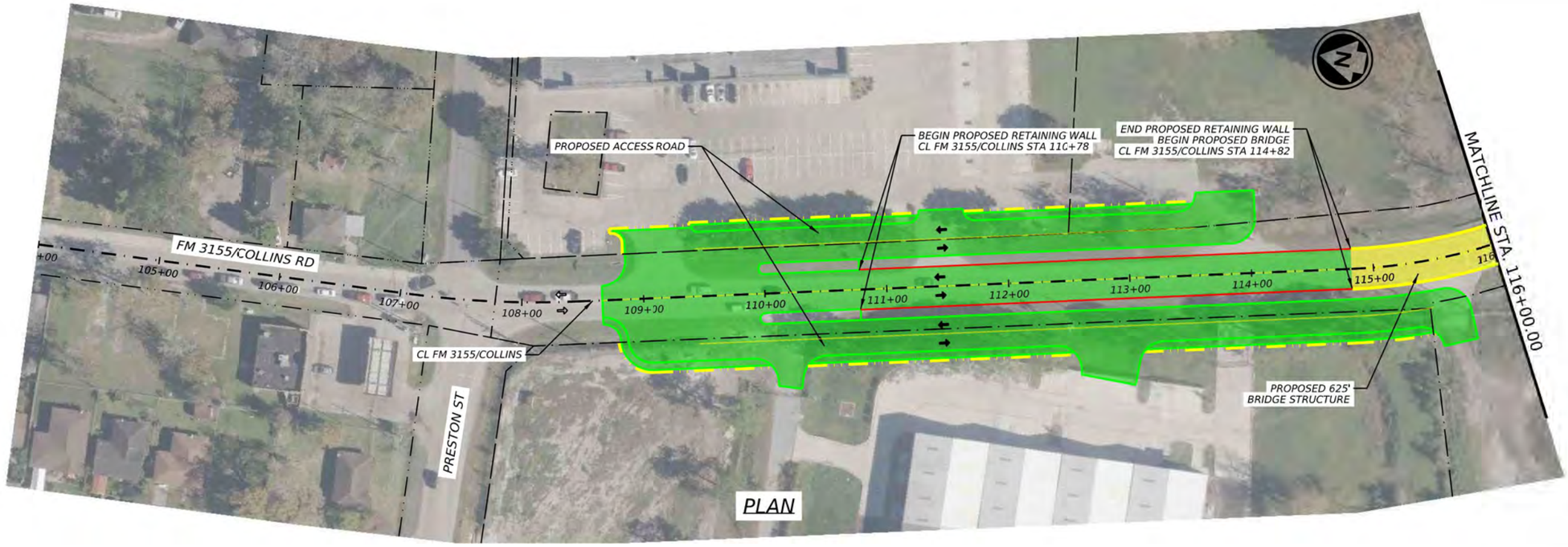
CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	5

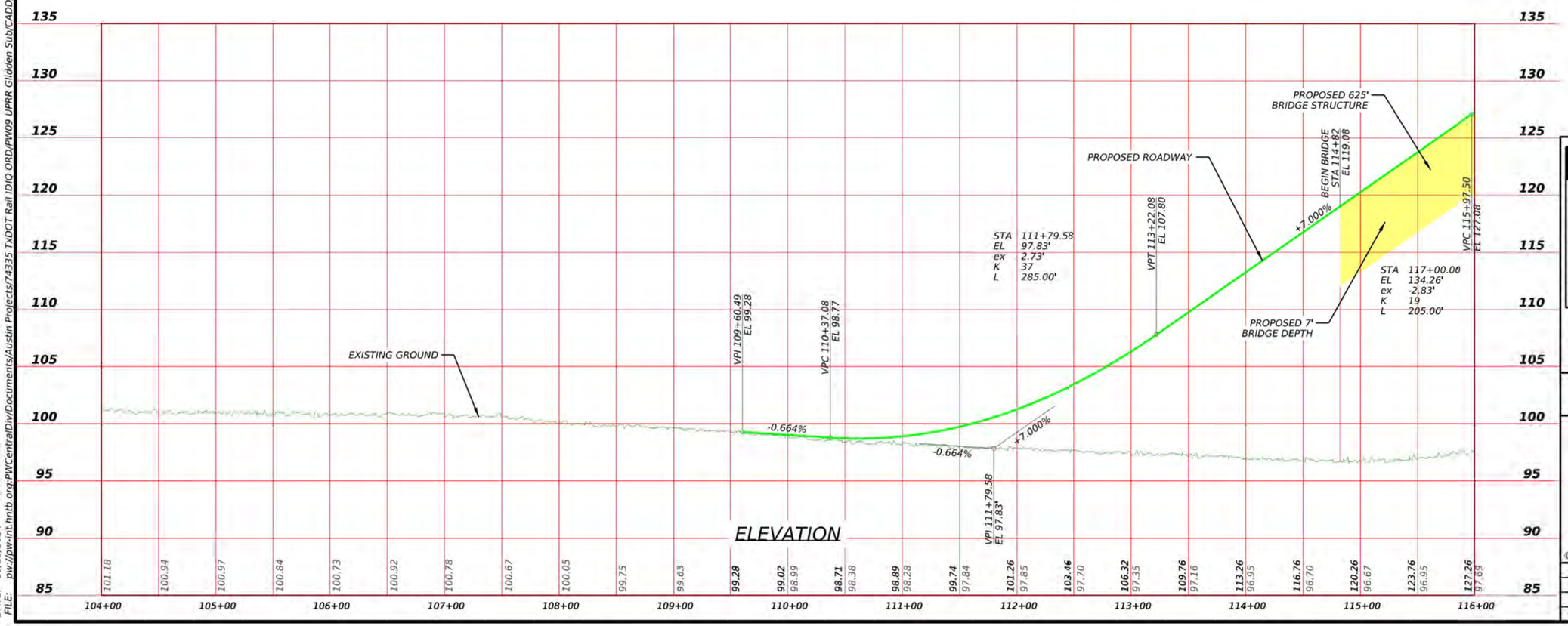
DW: AK,JB,NZ,RN CK: JM,JR
DW: AK,JB,NZ,RN CK: JM,JR

DATE: 10/17/2024 3:51:13 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-PittsRd-Sheets.dgn

DW: AK,JB,NZ,RN CK: JM,JR
DW: AK,JB,NZ,RN CK: JM,JR



PLAN



ELEVATION

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

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Texas Department of Transportation

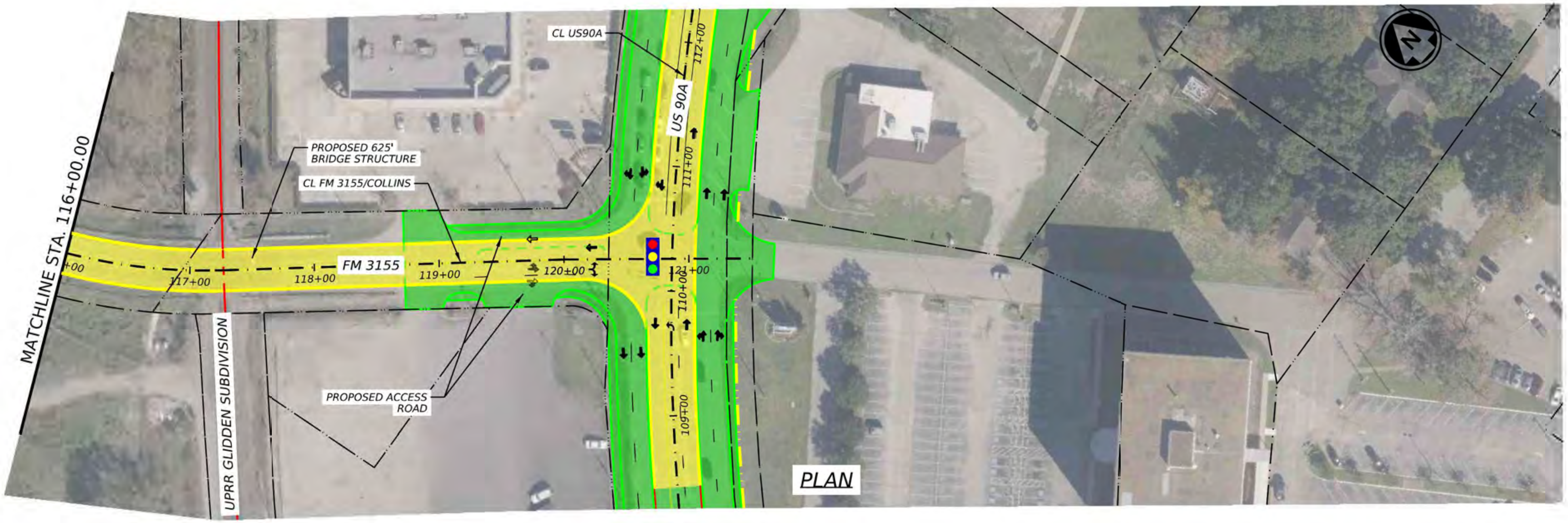
FM 3155

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #743726L

SHEET 1 OF 4

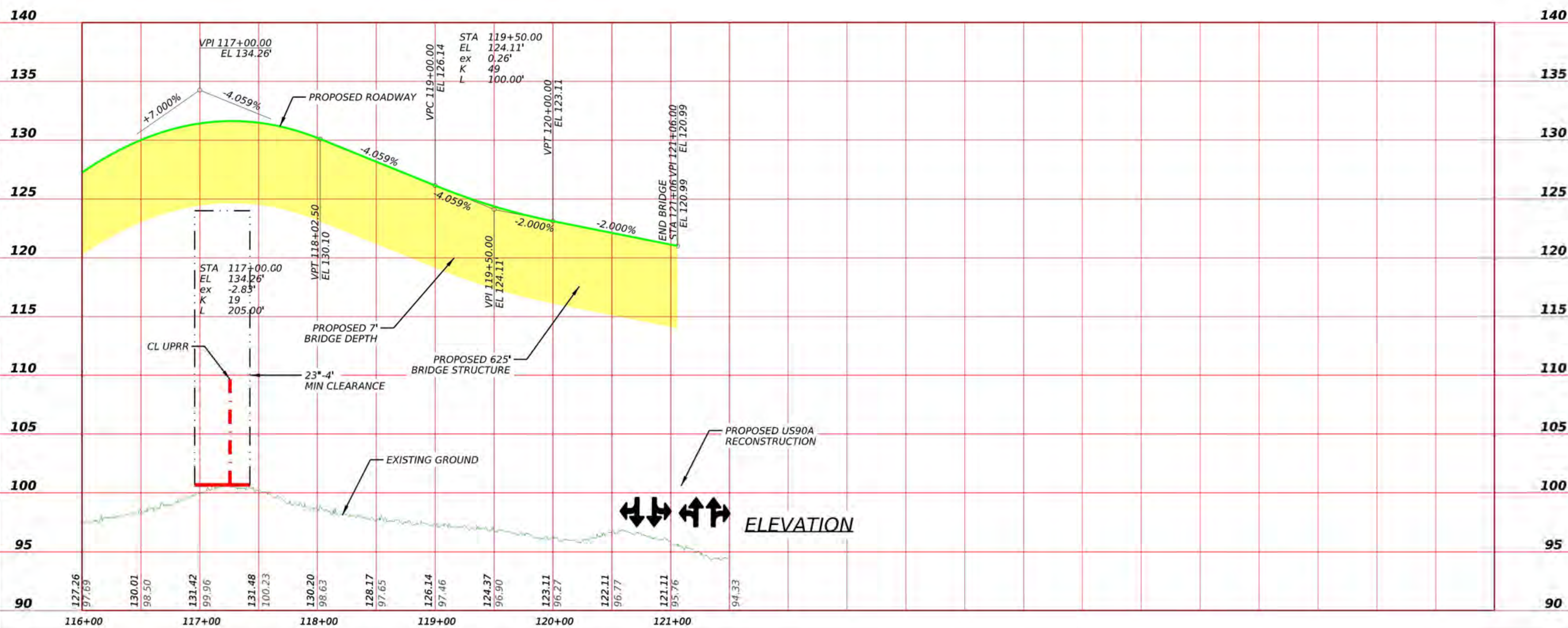
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		1

DATE: 10/21/2024 10:11:20 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-FM3155-Sheets.dgn



LEGEND:

- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

FM 3155

GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT #743726L

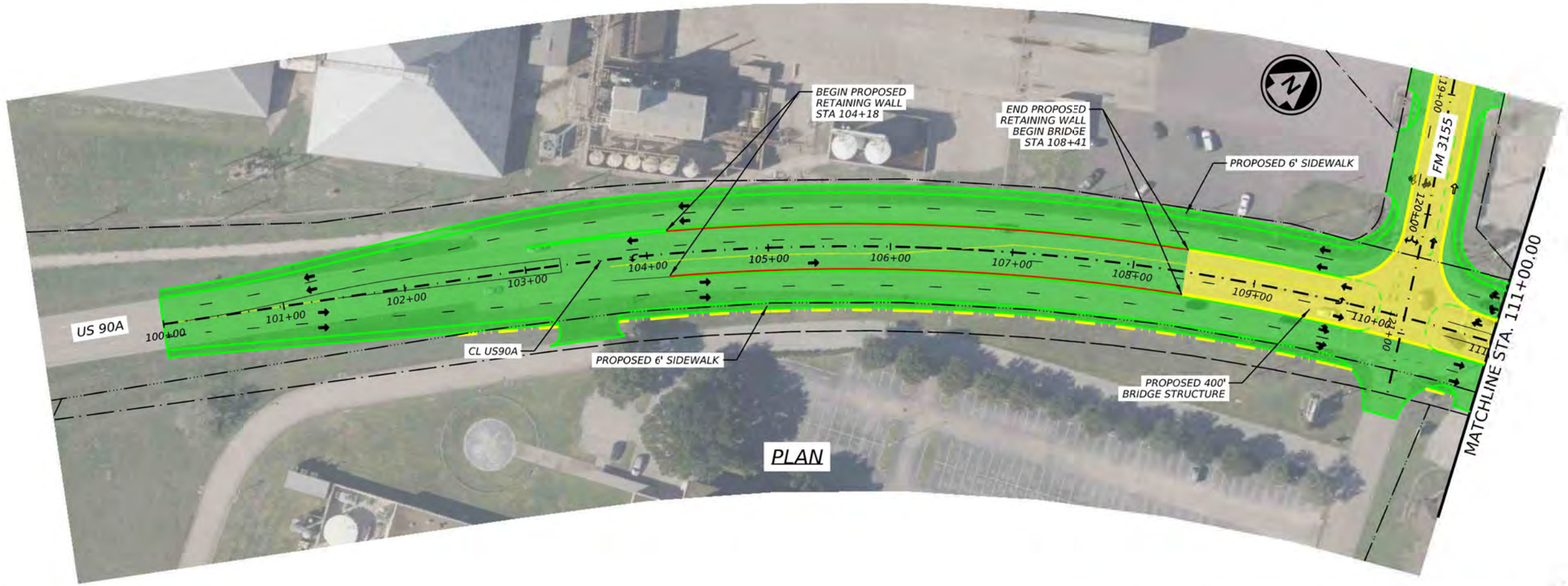
SHEET 2 OF 4

CONT	SECT	JOB	HIGHWAY

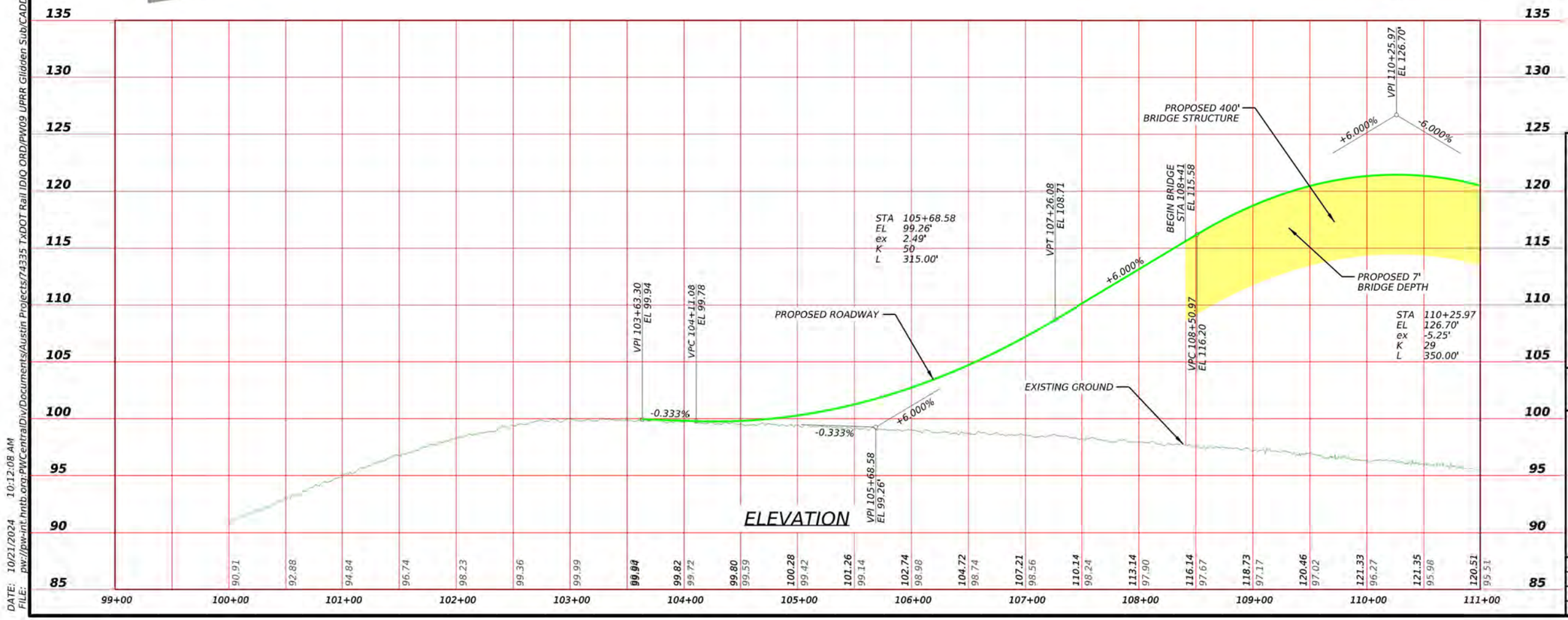
DIST	COUNTY	SHEET NO.
HOU	FORT BEND	2

DATE: 10/21/2024 10:11:47 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-FM3155-Sheets.dgn

DW: AK,JB,NZ,RN CK: JM,JR
DW: AK,JB,NZ,RN CK: JM,JR



LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

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Texas Department of Transportation

FM 3155

GRADE SEPARATION CONCEPT US 90A RECONSTRUCTION

SHEET 3 OF 4

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		3

DATE: 10/21/2024 10:12:08 AM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-FM3155-Sheets.dgn

DW: AK,JR, NZ, RN | CK: JM, JR | DW: AK, JR, NZ, RN | CK: JM, JR

DATE: 10/21/2024 10:12:18 AM
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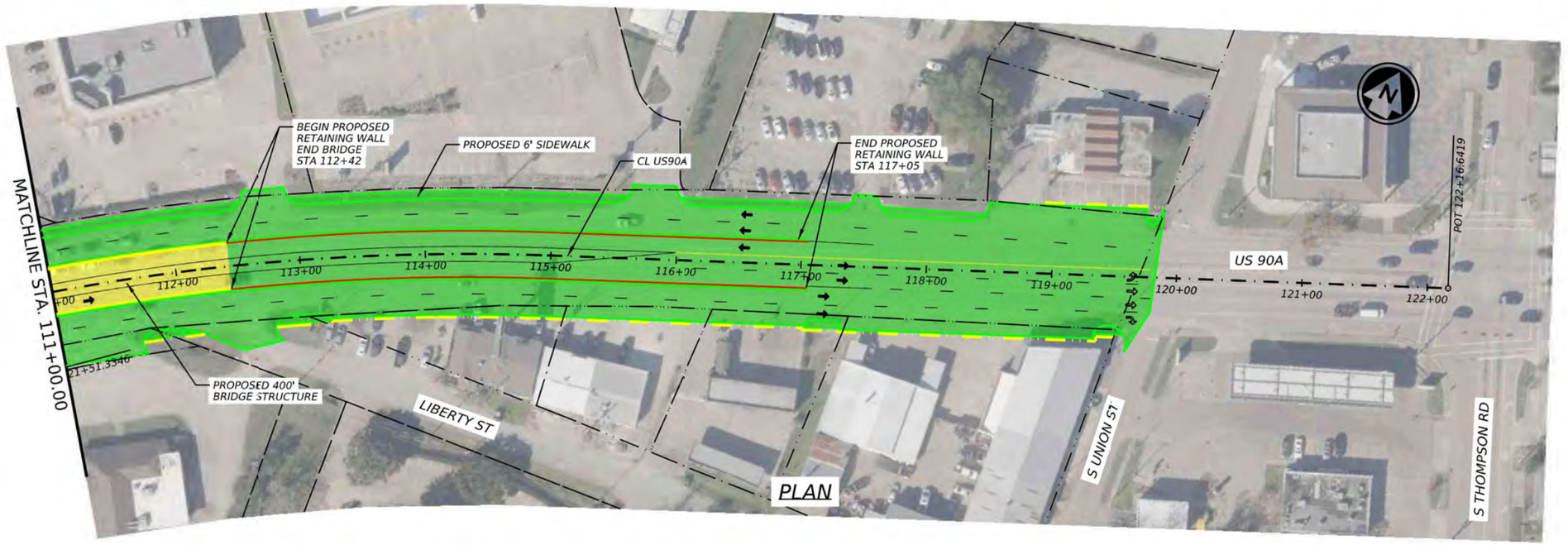
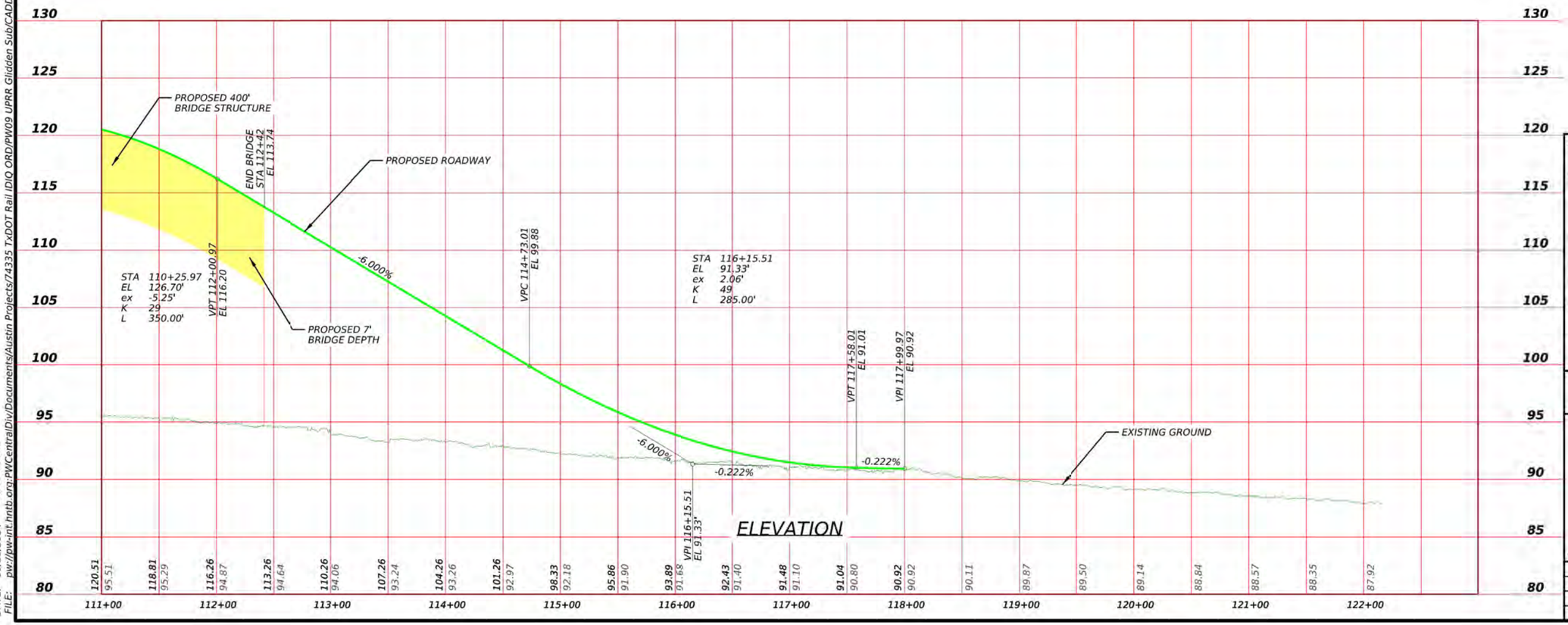


LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



0 50 100
H: SCALE IN FEET
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FM 3155

GRADE SEPARATION CONCEPT US 90A RECONSTRUCTION

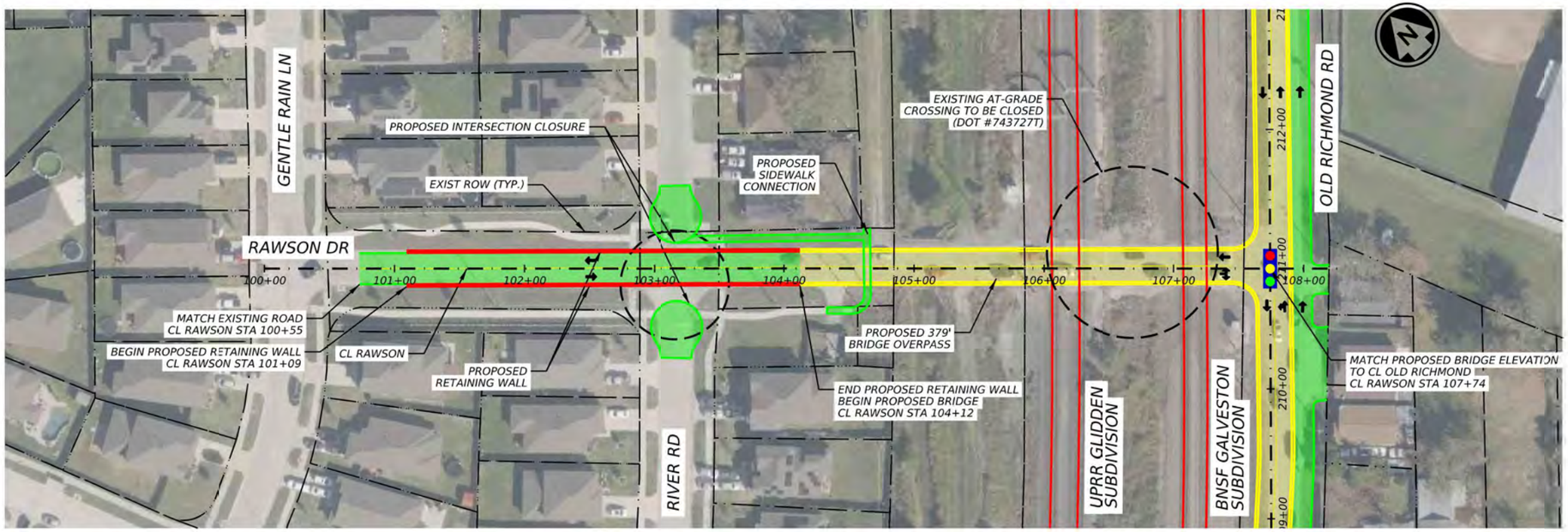
SHEET 4 OF 4

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		4

DW: AK,JB,NZ,RN CK: JM,JR
DW: AK,JB,NZ,RN CK: JM,JR

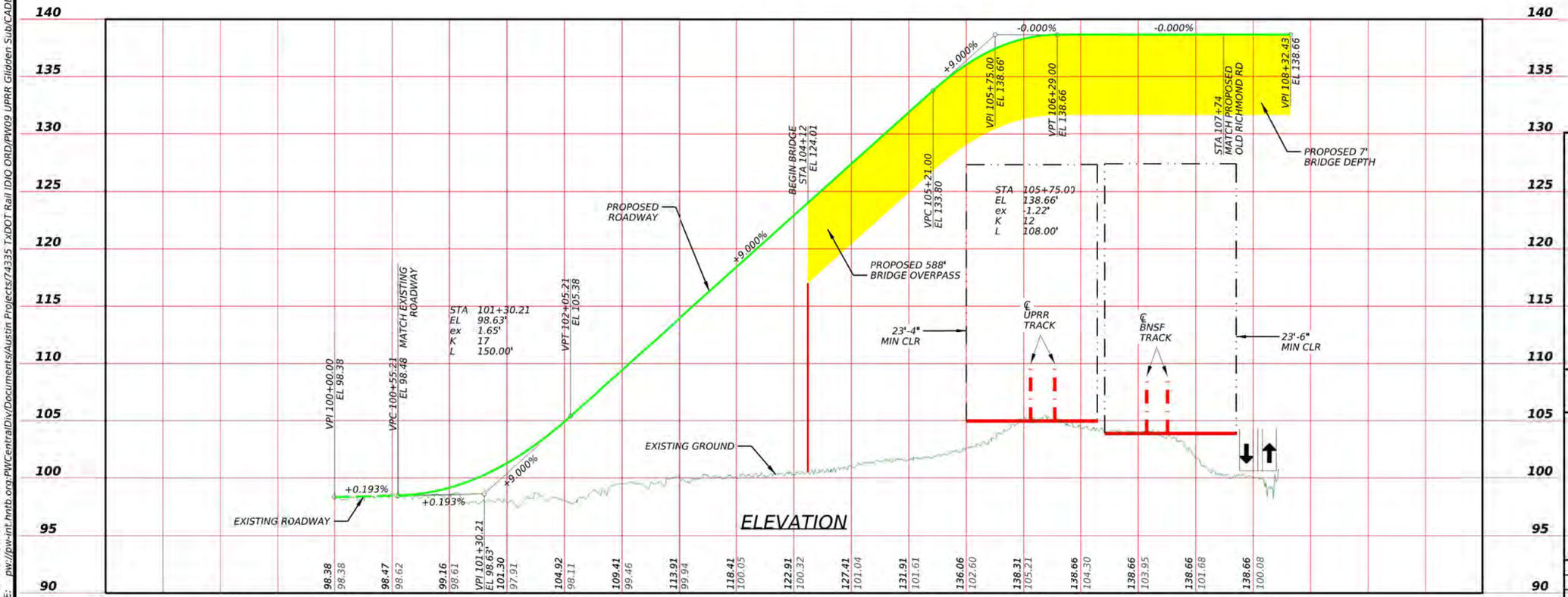
DATE: 10/16/2024 12:45:43 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-RawsonRd-Sheets.dgn

RAWSON DR DESIGN SPEEDS
EXISTING = 30 MPH
PROPOSED = 20 MPH



LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

PLAN



ELEVATION

0 50 100
H: SCALE IN FEET
0 2 4 6 8 10
V : SCALE IN FEET

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TBPE FIRM Registration No. 420

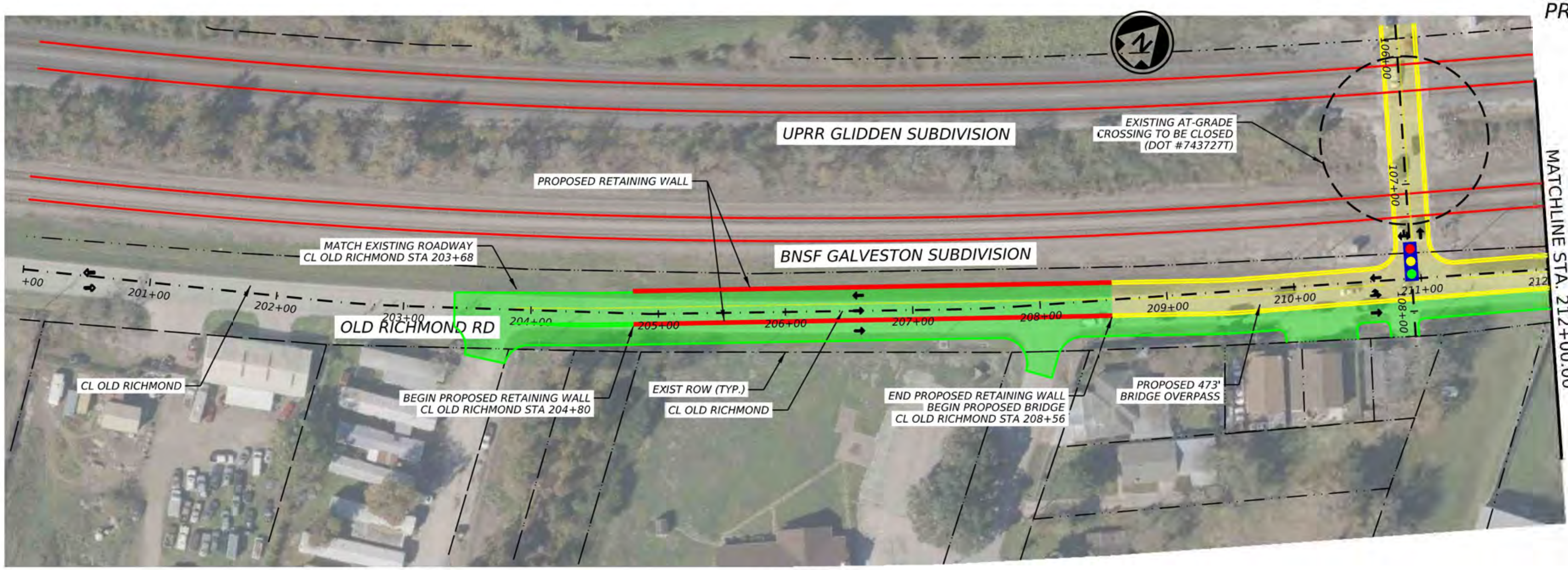
Texas Department of Transportation

RAWSON DR
GRADE SEPARATION CONCEPT PLAN AND PROFILE DOT 743727T

SHEET 1 OF 4

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		1

# OLD RICHMOND RD DESIGN SPEEDS
EXISTING = 30 MPH
PROPOSED = 30 MPH

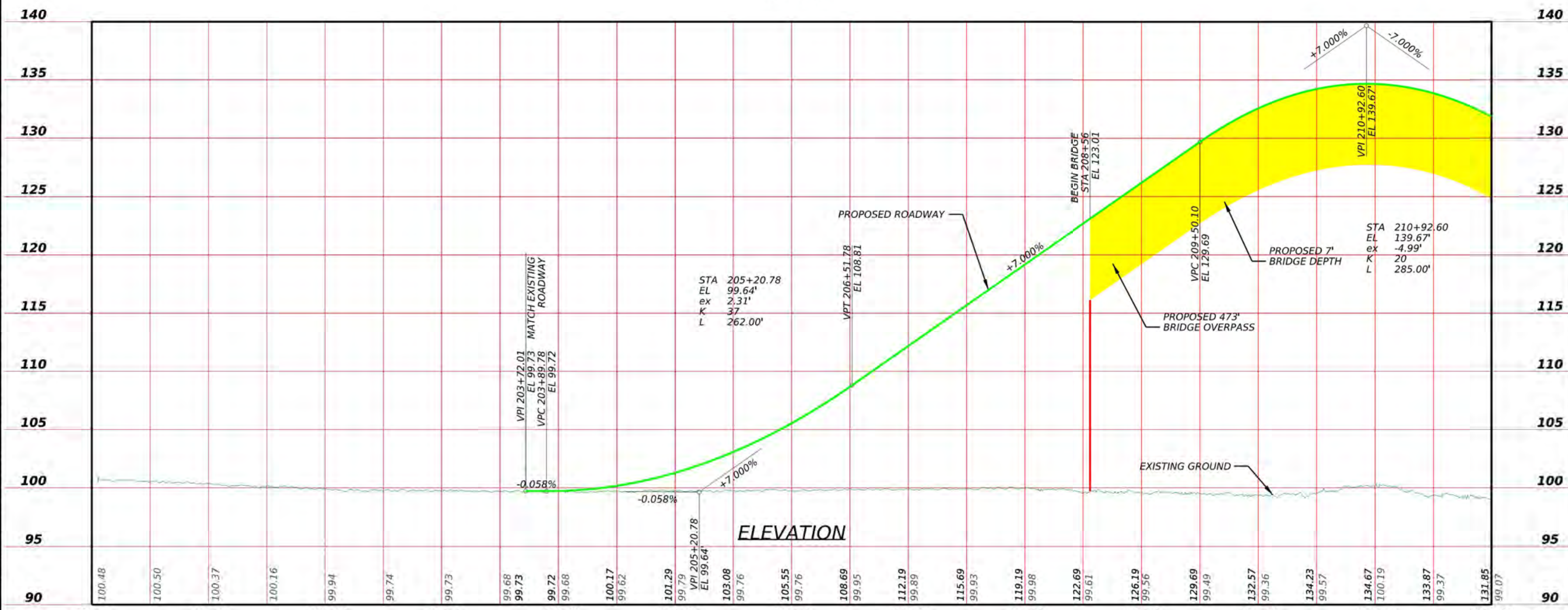


PLAN

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
H: SCALE IN FEET

0 2 4 6 8 10
V : SCALE IN FEET



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NO. 97346

ON: 10/16/2024

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

HNTB
TBPE FIRM Registration No. 420

Texas Department of Transportation

RAWSON DR

GRADE SEPARATION CONCEPT
OLD RICHMOND DR
PLAN AND PROFILE

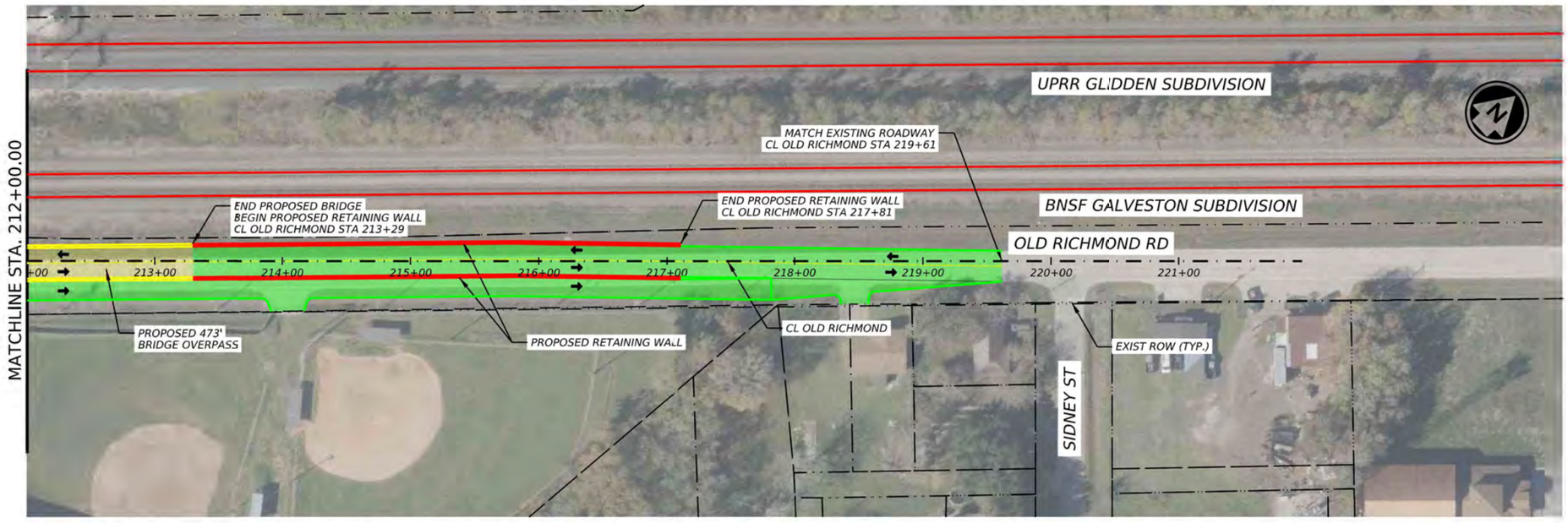
SHEET 2 OF 4

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		2

DATE: 10/16/2024 12:46:15 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Grade-Separations/GS-RawsonRd-Sheets.dgn

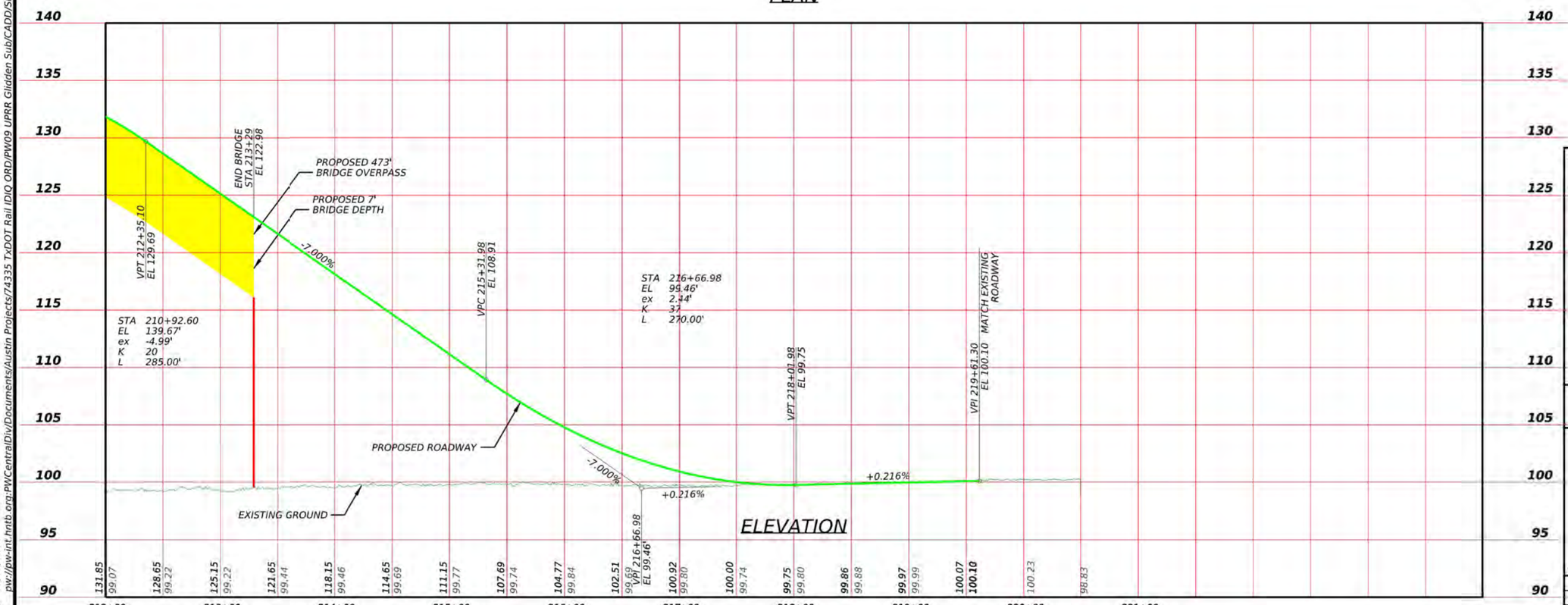
DW: AK,JR,NZ,RN CK: JM,JR
DW: AK,JR,NZ,RN CK: JM,JR

# OLD RICHMOND RD DESIGN SPEEDS
EXISTING = 30 MPH
PROPOSED = 30 MPH



PLAN

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK



ELEVATION

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PRELIMINARY

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTORITY OF:

JOSHUA A MIETH, P.E.
NO. 97346

ON: 10/16/2024

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TBPE FIRM Registration No. 420

Texas Department of Transportation

RAWSON DR

GRADE SEPARATION CONCEPT
OLD RICHMOND DR
PLAN AND PROFILE

 SHEET 3 OF 4

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		3

DATE: 10/16/2024 12:46:31 PM
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PLAN

LEGEND:
- PROPOSED ROADWAY/SIDEWALK
- PROPOSED BRIDGE
- REMOVALS
- RETAINING WALL
- PROPOSED ROW
- EXISTING ROW
- EXISTING TRACK

0 50 100
SCALE IN FEET

PRELIMINARY

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ON 10/16/2024

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HNTB
TBPE FIRM Registration No. 420

Texas Department of Transportation

RAWSON DR

GRADE SEPARATION
CONCEPT
ROADWAY
CONNECTION

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	4

DW: AK,JB,NZ,RN CK: JM,JR
DW: AK,JB,NZ,RN CK: JM,JR

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Appendix F

Grade Separation Concept Order-of-Magnitude Construction Cost Estimates

Chimney Rock Road (DOT# 755621G)

Grade Separation Improvements

Item	Quantity	Units	Price	Probable Cost
ROW Preparation/Pavement Removal	73	STA	$ 16,000	$ 1,168,000
Earthwork	79,768	CY	$ 40	$ 3,191,000
Sidewalk	0	SY	$ 135	$ -
Rigid Pavement	77,057	SY	$ 150	$ 11,559,000
Retaining Wall (MSE)	56,178	SF	$ 55	$ 3,090,000
Bridge - Concrete I-Beam	80,497	SF	$ 300	$ 24,149,000
Existing Railroad Crossing Removal	1	EA	$ 75,000	$ 75,000
Traffic Signals	2	EA	$ 300,000	$ 600,000
Subtotal I				**$ 43,832,000**
Note: If any of the following items do not pertain to the subject grade separation project, please utilize 0% for the quantity				
Mobilization		10%	of Subtotal I	$ 4,383,000
Traffic Control		8%	of Subtotal I	$ 3,507,000
Stormwater Pollution Prevention Plan		2%	of Subtotal I	$ 877,000
Drainage		5%	of Subtotal I	$ 2,192,000
Detention Pond Adjustment				$ 1,000,000
Signing and Pavement Markings		3%	of Subtotal I	$ 1,315,000
Lighting		2%	of Subtotal I	$ 877,000
Utility Adjustments		10%	of Subtotal I	$ 4,383,000
Landscaping		1%	of Subtotal I	$ 438,000
Subtotal II				**$ 18,972,000**
Contingency		40%	of Subtotal I & II	$ 25,122,000
Preliminary Engineering/Environmental		6%	of Subtotal I & II	$ 1,507,000
Engineering		10%	of Subtotal I & II	$ 589,000
Construction Phase Services		4%	of Subtotal I & II	$ 164,000
Total of Construction				**$ 90,186,000**
Right-of-Way Acquisition				$ -
STUDY YEAR (2024) GRAND TOTAL				**$ 90,186,000**
FUTURE YEAR (2028) GRAND TOTAL				**$ 109,725,000**

The costs shown in this estimate represent an estimate of probable costs prepared in good faith and with reasonable care. HNTB has no control over the costs of construction labor, materials, or equipment, nor over competitive bidding or negotiating methods and does not make any commitment or assume any duty to assure that bids or negotiated prices will not vary from this estimate.

Hillcroft Ave (DOT# 755622N)

Grade Separation Improvements

Item	Quantity	Units	Price	Probable Cost
ROW Preparation/Pavement Removal	58	STA	$ 16,000	$ 928,000
Earthwork	58,269	CY	$ 40	$ 2,331,000
Sidewalk	2,028	SY	$ 135	$ 274,000
Rigid Pavement	41,001	SY	$ 150	$ 6,150,000
Retaining Wall (MSE)	49,667	SF	$ 55	$ 2,732,000
Bridge - Concrete I-Beam	77,382	SF	$ 300	$ 23,215,000
Existing Railroad Crossing Removal	1	EA	$ 75,000	$ 75,000
Traffic Signals	1	EA	$ 300,000	$ 300,000
Subtotal I				**$ 36,005,000**
Note: If any of the following items do not pertain to the subject grade separation project, please utilize 0% for the quantity				
Mobilization	10%	of Subtotal I		$ 3,601,000
Traffic Control	8%	of Subtotal I		$ 2,880,000
Stormwater Pollution Prevention Plan	2%	of Subtotal I		$ 720,000
Drainage	5%	of Subtotal I		$ 1,800,000
Signing and Pavement Markings	3%	of Subtotal I		$ 1,080,000
Lighting	2%	of Subtotal I		$ 720,000
Utility Adjustments	10%	of Subtotal I		$ 3,601,000
Landscaping	1%	of Subtotal I		$ 360,000
Subtotal II				**$ 14,762,000**
Contingency	40%	of Subtotal I & II		$ 20,307,000
Preliminary Engineering/Environmental	6%	of Subtotal I & II		$ 1,218,000
Engineering	10%	of Subtotal I & II		$ 482,000
Construction Phase Services	4%	of Subtotal I & II		$ 134,000
Total of Construction				**$ 72,908,000**
Right-of-Way Acquisition				$ -
STUDY YEAR (2024) GRAND TOTAL				**$ 72,908,000**
FUTURE YEAR (2028) GRAND TOTAL				**$ 88,704,000**

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Fondren Road (DOT# 755624C)

Grade Separation Improvements

Item	Quantity	Units		Price		Probable Cost
ROW Preparation/Pavement Removal	61	STA	$	16,000	$	968,000
Earthwork	85,643	CY	$	40	$	3,426,000
Sidewalk	2,549	SY	$	135	$	344,000
Rigid Pavement	69,031	SY	$	150	$	10,355,000
Retaining Wall (MSE)	71,682	SF	$	55	$	3,943,000
Bridge - Concrete I-Beam	76,635	SF	$	300	$	22,991,000
Existing Railroad Crossing Removal	1	EA	$	75,000	$	75,000
Traffic Signals	3	EA	$	300,000	$	900,000
Subtotal I					**$**	**43,002,000**
Note: If any of the following items do not pertain to the subject grade separation project, please utilize 0% for the quantity						
Mobilization		10%	of Subtotal I		$	4,300,000
Traffic Control		8%	of Subtotal I		$	3,440,000
Stormwater Pollution Prevention Plan		2%	of Subtotal I		$	860,000
Drainage		5%	of Subtotal I		$	2,150,000
Signing and Pavement Markings		3%	of Subtotal I		$	1,290,000
Lighting		2%	of Subtotal I		$	860,000
Utility Adjustments		10%	of Subtotal I		$	4,300,000
Landscaping		1%	of Subtotal I		$	430,000
Subtotal II					**$**	**17,630,000**
Contingency		40%	of Subtotal I & II		$	24,253,000
Preliminary Engineering/Environmental		6%	of Subtotal I & II		$	1,455,000
Engineering		10%	of Subtotal I & II		$	576,000
Construction Phase Services		4%	of Subtotal I & II		$	161,000
Total of Construction					**$**	**87,077,000**
Right-of-Way Acquisition					$	730,000
STUDY YEAR (2024) GRAND TOTAL					**$**	**87,807,000**
FUTURE YEAR (2028) GRAND TOTAL					**$**	**106,831,000**

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Gessner Road (DOT# 743789L)

Grade Separation Improvements

Item	Quantity	Units	Price	Probable Cost
ROW Preparation/Pavement Removal	75	STA	$ 16,000	$ 1,206,000
Earthwork	65,341	CY	$ 40	$ 2,614,000
Sidewalk	1,332	SY	$ 135	$ 180,000
Rigid Pavement	59,028	SY	$ 150	$ 8,854,000
Retaining Wall (MSE)	53,624	SF	$ 55	$ 2,949,000
Bridge - Concrete I-Beam	67,726	SF	$ 300	$ 20,318,000
Existing Railroad Crossing Removal	1	EA	$ 75,000	$ 75,000
Traffic Signals	2	EA	$ 300,000	$ 600,000
Subtotal I				**$ 36,796,000**
Note: If any of the following items do not pertain to the subject grade separation project, please utilize 0% for the quantity				
Mobilization	10%	of Subtotal I		$ 3,680,000
Traffic Control	8%	of Subtotal I		$ 2,944,000
Stormwater Pollution Prevention Plan	2%	of Subtotal I		$ 736,000
Drainage	5%	of Subtotal I		$ 1,840,000
Signing and Pavement Markings	3%	of Subtotal I		$ 1,104,000
Lighting	2%	of Subtotal I		$ 736,000
Utility Adjustments	10%	of Subtotal I		$ 3,680,000
Landscaping	1%	of Subtotal I		$ 368,000
Subtotal II				**$ 15,088,000**
Contingency	40%	of Subtotal I & II		$ 20,754,000
Preliminary Engineering/Environmental	6%	of Subtotal I & II		$ 1,245,000
Engineering	10%	of Subtotal I & II		$ 493,000
Construction Phase Services	4%	of Subtotal I & II		$ 137,000
Total of Construction				**$ 74,513,000**
Right-of-Way Acquisition				$ 5,590,000
STUDY YEAR (2024) GRAND TOTAL				**$ 80,103,000**
FUTURE YEAR (2028) GRAND TOTAL				**$ 97,458,000**

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Kirkwood Road (DOT# 743695P)

Grade Separation Improvements

Item	Quantity	Units	Price	Probable Cost
ROW Preparation/Pavement Removal	20	STA	$ 16,000	$ 323,000
Earthwork	62,873	CY	$ 40	$ 2,515,000
Sidewalk	740	SY	$ 135	$ 100,000
Rigid Pavement	42,074	SY	$ 150	$ 6,311,000
Retaining Wall (MSE)	69,169	SF	$ 55	$ 3,804,000
Bridge - Concrete I-Beam	116,137	SF	$ 300	$ 34,841,000
Existing Railroad Crossing Removal	1	EA	$ 75,000	$ 75,000
Traffic Signals	3	EA	$ 300,000	$ 900,000
Subtotal I				**$ 48,869,000**
Note: If any of the following items do not pertain to the subject grade separation project, please utilize 0% for the quantity				
Mobilization	10%	of Subtotal I		$ 4,887,000
Traffic Control	8%	of Subtotal I		$ 3,910,000
Stormwater Pollution Prevention Plan	2%	of Subtotal I		$ 977,000
Drainage	5%	of Subtotal I		$ 2,443,000
Signing and Pavement Markings	3%	of Subtotal I		$ 1,466,000
Lighting	2%	of Subtotal I		$ 977,000
Utility Adjustments	10%	of Subtotal I		$ 4,887,000
Overhead Transmission Relocation				$ 2,000,000
Landscaping	1%	of Subtotal I		$ 489,000
Subtotal II				**$ 22,036,000**
Contingency	40%	of Subtotal I & II		$ 28,362,000
Preliminary Engineering/Environmental	6%	of Subtotal I & II		$ 1,702,000
Engineering	10%	of Subtotal I & II		$ 659,000
Construction Phase Services	4%	of Subtotal I & II		$ 183,000
Total of Construction				**$ 101,811,000**
Right-of-Way Acquisition				$ 2,940,000
STUDY YEAR (2024) GRAND TOTAL				**$ 104,751,000**
FUTURE YEAR (2028) GRAND TOTAL				**$ 127,446,000**

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Dairy Ashford Road (DOT# 745044J)

Grade Separation Improvements

Item	Quantity	Units		Price		Probable Cost
ROW Preparation/Pavement Removal	32	STA	$	16,000	$	519,000
Earthwork	46,565	CY	$	40	$	1,863,000
Sidewalk	317	SY	$	135	$	43,000
Rigid Pavement	20,783	SY	$	150	$	3,117,000
Retaining Wall (MSE)	42,892	SF	$	55	$	2,359,000
Bridge - Concrete I-Beam	44,980	SF	$	300	$	13,494,000
Existing Railroad Corssing Removal	1	EA	$	75,000	$	75,000
Traffic Signals	1	EA	$	300,000	$	300,000
Subtotal I					**$**	**21,770,000**
Note: If any of the following items do not pertain to the subject grade separation project, please utilize 0% for the quantity						
Mobilization		10%	of Subtotal I		$	2,177,000
Traffic Control		8%	of Subtotal I		$	1,742,000
Stormwater Pollution Prevention Plan		2%	of Subtotal I		$	435,000
Drainage		5%	of Subtotal I		$	1,089,000
Signing and Pavement Markings		3%	of Subtotal I		$	653,000
Lighting		2%	of Subtotal I		$	435,000
Utility Adjustments		10%	of Subtotal I		$	2,177,000
Pipeline Relocations					$	2,000,000
Landscaping		1%	of Subtotal I		$	218,000
Subtotal II					**$**	**10,926,000**
Contingency		40%	of Subtotal I & II		$	13,078,000
Preliminary Engineering/Environmental		6%	of Subtotal I & II		$	785,000
Engineering		10%	of Subtotal I & II		$	296,000
Construction Phase Services		4%	of Subtotal I & II		$	82,000
Total of Construction					**$**	**46,937,000**
Right-of-Way Acquisition					$	40,000
STUDY YEAR (2024) GRAND TOTAL					**$**	**46,977,000**
FUTURE YEAR (2028) GRAND TOTAL					**$**	**57,155,000**

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Schlumberger Drive (DOT# 748393E)

Grade Separation Improvements

Item	Quantity	Units	Price	Probable Cost
ROW Preparation/Pavement Removal	64	STA	$ 16,000	$ 1,024,000
Earthwork	41,718	CY	$ 40	$ 1,669,000
Sidewalk	231	SY	$ 135	$ 31,000
Rigid Pavement	37,188	SY	$ 150	$ 5,578,000
Retaining Wall (MSE)	52,684	SF	$ 55	$ 2,898,000
Bridge - Concrete I-Beam	57,610	SF	$ 300	$ 17,283,000
Existing Railroad Crossing Removal	1	EA	$ 75,000	$ 75,000
Traffic Signals	2	EA	$ 300,000	$ 600,000
Subtotal I				**$ 29,158,000**
Note: If any of the following items do not pertain to the subject grade separation project, please utilize 0% for the quantity				
Mobilization	10%	of Subtotal I		$ 2,916,000
Traffic Control	8%	of Subtotal I		$ 2,333,000
Stormwater Pollution Prevention Plan	2%	of Subtotal I		$ 583,000
Drainage	5%	of Subtotal I		$ 1,458,000
Signing and Pavement Markings	3%	of Subtotal I		$ 875,000
Lighting	2%	of Subtotal I		$ 583,000
Utility Adjustments	10%	of Subtotal I		$ 2,916,000
Landscaping	1%	of Subtotal I		$ 292,000
Subtotal II				**$ 11,956,000**
Contingency	40%	of Subtotal I & II		$ 16,446,000
Preliminary Engineering/Environmental	6%	of Subtotal I & II		$ 987,000
Engineering	10%	of Subtotal I & II		$ 390,000
Construction Phase Services	4%	of Subtotal I & II		$ 109,000
Total of Construction				**$ 59,046,000**
Right-of-Way Acquisition				$ -
STUDY YEAR (2024) GRAND TOTAL				**$ 59,046,000**
FUTURE YEAR (2028) GRAND TOTAL				**$ 71,838,000**

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FM1876/Eldridge Road (DOT# 743699S)

Grade Separation Improvements

Item	Quantity	Units	Price	Probable Cost
ROW Preparation/Pavement Removal	55	STA	$ 16,000	$ 880,000
Earthwork	39,296	CY	$ 40	$ 1,572,000
Sidewalk	0	SY	$ 135	$ -
Rigid Pavement	13,396	SY	$ 150	$ 2,009,000
Retaining Wall (MSE)	66,769	SF	$ 55	$ 3,672,000
Bridge - Concrete I-Beam	43,562	SF	$ 300	$ 13,069,000
Existing Railroad Crossing Removal	1	EA	$ 75,000	$ 75,000
Traffic Signals	1	EA	$ 300,000	$ 300,000
Subtotal I				**$ 21,577,000**
Note: If any of the following items do not pertain to the subject grade separation project, please utilize 0% for the quantity				
Mobilization	10%	of Subtotal I		$ 2,158,000
Traffic Control	8%	of Subtotal I		$ 1,726,000
Stormwater Pollution Prevention Plan	2%	of Subtotal I		$ 432,000
Drainage	5%	of Subtotal I		$ 1,079,000
Signing and Pavement Markings	3%	of Subtotal I		$ 647,000
Lighting	2%	of Subtotal I		$ 432,000
Utility Adjustments	10%	of Subtotal I		$ 2,158,000
Landscaping	1%	of Subtotal I		$ 216,000
Subtotal II				**$ 8,848,000**
Contingency	40%	of Subtotal I & II		$ 12,170,000
Preliminary Engineering/Environmental	6%	of Subtotal I & II		$ 730,000
Engineering	10%	of Subtotal I & II		$ 289,000
Construction Phase Services	4%	of Subtotal I & II		$ 81,000
Total of Construction				**$ 43,695,000**
Right-of-Way Acquisition				$ -
STUDY YEAR (2024) GRAND TOTAL				**$ 43,695,000**
FUTURE YEAR (2028) GRAND TOTAL				**$ 53,162,000**

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Main Street (DOT# 743703E)

Grade Separation Improvements

Item	Quantity	Units	Price	Probable Cost
ROW Preparation/Pavement Removal	65	STA	$ 16,000	$ 1,047,000
Earthwork	25,948	CY	$ 40	$ 1,038,000
Sidewalk	51	SY	$ 135	$ 7,000
Rigid Pavement	12,448	SY	$ 150	$ 1,867,000
Retaining Wall (MSE)	49,296	SF	$ 55	$ 2,711,000
Bridge - Concrete I-Beam	45,304	SF	$ 300	$ 13,591,000
Existing Railroad Crossing Removal	1	EA	$ 75,000	$ 75,000
Traffic Signals	3	EA	$ 300,000	$ 900,000
Subtotal I				**$ 21,236,000**
Note: If any of the following items do not pertain to the subject grade separation project, please utilize 0% for the quantity				
Mobilization	10%	of Subtotal I		$ 2,124,000
Traffic Control	8%	of Subtotal I		$ 1,699,000
Stormwater Pollution Prevention Plan	2%	of Subtotal I		$ 425,000
Drainage	5%	of Subtotal I		$ 1,062,000
Signing and Pavement Markings	3%	of Subtotal I		$ 637,000
Lighting	2%	of Subtotal I		$ 425,000
Utility Adjustments	10%	of Subtotal I		$ 2,124,000
Landscaping	1%	of Subtotal I		$ 212,000
Subtotal II				**$ 8,708,000**
Contingency	40%	of Subtotal I & II		$ 11,978,000
Preliminary Engineering/Environmental	6%	of Subtotal I & II		$ 719,000
Engineering	10%	of Subtotal I & II		$ 284,000
Construction Phase Services	4%	of Subtotal I & II		$ 79,000
Total of Construction				**$ 43,004,000**
Right-of-Way Acquisition				$ 520,000
STUDY YEAR (2024) GRAND TOTAL				**$ 43,524,000**
FUTURE YEAR (2028) GRAND TOTAL				**$ 52,954,000**

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Stadium Drive (DOT# 441027B)

Grade Separation Improvements

Item	Quantity	Units		Price		Probable Cost
ROW Preparation/Pavement Removal	45	STA	$	16,000	$	712,000
Earthwork	65,684	CY	$	40	$	2,627,000
Sidewalk	1,286	SY	$	135	$	174,000
Rigid Pavement	48,033	SY	$	150	$	7,205,000
Retaining Wall (MSE)	40,260	SF	$	55	$	2,214,000
Bridge - Concrete I-Beam	73,886	SF	$	300	$	22,166,000
Existing Railroad Corssing Removal	1	EA	$	75,000	$	75,000
Traffic Signals	1	EA	$	300,000	$	300,000
Subtotal I					**$**	**35,473,000**
Note: If any of the following items do not pertain to the subject grade separation project, please utilize 0% for the quantity						
Mobilization	10%	of Subtotal I			$	3,547,000
Traffic Control	8%	of Subtotal I			$	2,838,000
Stormwater Pollution Prevention Plan	2%	of Subtotal I			$	709,000
Drainage	5%	of Subtotal I			$	1,774,000
Signing and Pavement Markings	3%	of Subtotal I			$	1,064,000
Lighting	2%	of Subtotal I			$	709,000
Utility Adjustments	10%	of Subtotal I			$	3,547,000
Landscaping	1%	of Subtotal I			$	355,000
Subtotal II					**$**	**14,543,000**
Contingency	40%	of Subtotal I & II			$	20,006,000
Preliminary Engineering/Environmental	6%	of Subtotal I & II			$	1,200,000
Engineering	10%	of Subtotal I & II			$	475,000
Construction Phase Services	4%	of Subtotal I & II			$	133,000
Total of Construction					**$**	**71,830,000**
Right-of-Way Acquisition					$	170,000
STUDY YEAR (2024) GRAND TOTAL					**$**	**72,000,000**
FUTURE YEAR (2028) GRAND TOTAL					**$**	**87,599,000**

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Harlem Road (DOT# 743713K)

Grade Separation Improvements

Item	Quantity	Units	Price	Probable Cost
ROW Preparation/Pavement Removal	66	STA	$ 16,000	$ 1,049,000
Earthwork	42,498	CY	$ 40	$ 1,700,000
Sidewalk	0	SY	$ 135	$ -
Rigid Pavement	19,354	SY	$ 150	$ 2,903,000
Retaining Wall (MSE)	44,648	SF	$ 55	$ 2,456,000
Bridge - Concrete I-Beam	52,995	SF	$ 300	$ 15,899,000
Existing Railroad Crossing Removal	1	EA	$ 75,000	$ 75,000
Traffic Signals	1	EA	$ 300,000	$ 300,000
Subtotal I				**$ 24,382,000**
Note: If any of the following items do not pertain to the subject grade separation project, please utilize 0% for the quantity				
Mobilization	10%	of Subtotal I		$ 2,438,000
Traffic Control	8%	of Subtotal I		$ 1,951,000
Stormwater Pollution Prevention Plan	2%	of Subtotal I		$ 488,000
Drainage	5%	of Subtotal I		$ 1,219,000
Signing and Pavement Markings	3%	of Subtotal I		$ 731,000
Lighting	2%	of Subtotal I		$ 488,000
Utility Adjustments	10%	of Subtotal I		$ 2,438,000
Landscaping	1%	of Subtotal I		$ 244,000
Subtotal II				**$ 9,997,000**
Contingency	40%	of Subtotal I & II		$ 13,752,000
Preliminary Engineering/Environmental	6%	of Subtotal I & II		$ 825,000
Engineering	10%	of Subtotal I & II		$ 326,000
Construction Phase Services	4%	of Subtotal I & II		$ 91,000
Total of Construction				**$ 49,373,000**
Right-of-Way Acquisition				$ 70,000
STUDY YEAR (2024) GRAND TOTAL				**$ 49,443,000**
FUTURE YEAR (2028) GRAND TOTAL				**$ 60,155,000**

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Pitts Road (DOT# 743716F)

Grade Separation Improvements

Item	Quantity	Units	Price	Probable Cost
ROW Preparation/Pavement Removal	50	STA	$ 16,000	$ 800,000
Earthwork	38,492	CY	$ 40	$ 1,540,000
Sidewalk	0	SY	$ 135	$ -
Rigid Pavement	25,515	SY	$ 150	$ 3,827,000
Retaining Wall (MSE)	38,395	SF	$ 55	$ 2,112,000
Bridge - Concrete I-Beam	50,770	SF	$ 300	$ 15,231,000
Existing Railroad Crossing Removal	1	EA	$ 75,000	$ 75,000
Traffic Signals	1	EA	$ 300,000	$ 300,000
Subtotal I				**$ 23,885,000**
Note: If any of the following items do not pertain to the subject grade separation project, please utilize 0% for the quantity				
Mobilization	10%	of Subtotal I		$ 2,389,000
Traffic Control	8%	of Subtotal I		$ 1,911,000
Stormwater Pollution Prevention Plan	2%	of Subtotal I		$ 478,000
Drainage	5%	of Subtotal I		$ 1,194,000
Signing and Pavement Markings	3%	of Subtotal I		$ 717,000
Lighting	2%	of Subtotal I		$ 478,000
Utility Adjustments	10%	of Subtotal I		$ 2,389,000
Landscaping	1%	of Subtotal I		$ 239,000
Subtotal II				**$ 9,795,000**
Contingency	40%	of Subtotal I & II		$ 13,472,000
Preliminary Engineering/Environmental	6%	of Subtotal I & II		$ 808,000
Engineering	10%	of Subtotal I & II		$ 320,000
Construction Phase Services	4%	of Subtotal I & II		$ 89,000
Total of Construction				**$ 48,369,000**
Right-of-Way Acquisition				$ 100,000
STUDY YEAR (2024) GRAND TOTAL				**$ 48,469,000**
FUTURE YEAR (2028) GRAND TOTAL				**$ 58,970,000**

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FM 3155/Collins Road (DOT# 743762L)

Grade Separation Improvements

Item	Quantity	Units		Price		Probable Cost
ROW Preparation/Pavement Removal	33	STA	$	16,000	$	520,000
Earthwork	25,892	CY	$	40	$	1,036,000
Sidewalk	2,645	SY	$	135	$	357,000
Rigid Pavement	24,345	SY	$	150	$	3,652,000
Retaining Wall (MSE)	21,636	SF	$	55	$	1,190,000
Bridge - Concrete I-Beam	36,087	SF	$	300	$	10,826,000
Existing Railroad Crossing Removal	1	EA	$	75,000	$	75,000
Traffic Signals	2	EA	$	300,000	$	600,000
Subtotal I					**$**	**18,256,000**
Note: If any of the following items do not pertain to the subject grade separation project, please utilize 0% for the quantity						
Mobilization		10%	of Subtotal I		$	1,826,000
Traffic Control		8%	of Subtotal I		$	1,460,000
Stormwater Pollution Prevention Plan		2%	of Subtotal I		$	365,000
Drainage		5%	of Subtotal I		$	913,000
Signing and Pavement Markings		3%	of Subtotal I		$	548,000
Lighting		2%	of Subtotal I		$	365,000
Utility Adjustments		10%	of Subtotal I		$	1,826,000
Overhead Transmission Line Adjustments					$	2,000,000
Landscaping		1%	of Subtotal I		$	183,000
Subtotal II					**$**	**9,486,000**
Contingency		40%	of Subtotal I & II		$	11,097,000
Preliminary Engineering/Environmental		6%	of Subtotal I & II		$	666,000
Engineering		10%	of Subtotal I & II		$	249,000
Construction Phase Services		4%	of Subtotal I & II		$	68,000
Total of Construction					**$**	**39,822,000**
Right-of-Way Acquisition					$	8,610,000
STUDY YEAR (2024) GRAND TOTAL					**$**	**48,432,000**
FUTURE YEAR (2028) GRAND TOTAL					**$**	**58,925,000**

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Rawson Dr (DOT# 743727T)

Grade Separation Improvements

Item	Quantity	Units		Price		Probable Cost
ROW Preparation/Pavement Removal	23	STA	$	16,000	$	372,000
Earthwork	16,748	CY	$	40	$	670,000
Sidewalk	67	SY	$	135	$	9,000
Rigid Pavement	7,250	SY	$	150	$	1,087,000
Retaining Wall (MSE)	24,910	SF	$	55	$	1,370,000
Bridge - Concrete I-Beam	23,210	SF	$	300	$	6,963,000
Existing Railroad Crossing Removal	2	EA	$	75,000	$	150,000
Traffic Signals	1	EA	$	300,000	$	300,000
Subtotal I					**$**	**10,921,000**
Note: If any of the following items do not pertain to the subject grade separation project, please utilize 0% for the quantity						
Mobilization		10%	of Subtotal I		$	1,092,000
Traffic Control		8%	of Subtotal I		$	874,000
Stormwater Pollution Prevention Plan		2%	of Subtotal I		$	218,000
Drainage		5%	of Subtotal I		$	546,000
Signing and Pavement Markings		3%	of Subtotal I		$	328,000
Lighting		2%	of Subtotal I		$	218,000
Utility Adjustments		10%	of Subtotal I		$	1,092,000
Landscaping		1%	of Subtotal I		$	109,000
Subtotal II					**$**	**4,477,000**
Contingency		40%	of Subtotal I & II		$	6,159,000
Preliminary Engineering/Environmental		6%	of Subtotal I & II		$	370,000
Engineering		10%	of Subtotal I & II		$	146,000
Construction Phase Services		4%	of Subtotal I & II		$	41,000
Total of Construction					**$**	**22,114,000**
Right-of-Way Acquisition					$	1,790,000
STUDY YEAR (2024) GRAND TOTAL					**$**	**23,904,000**
FUTURE YEAR (2028) GRAND TOTAL					**$**	**29,083,000**

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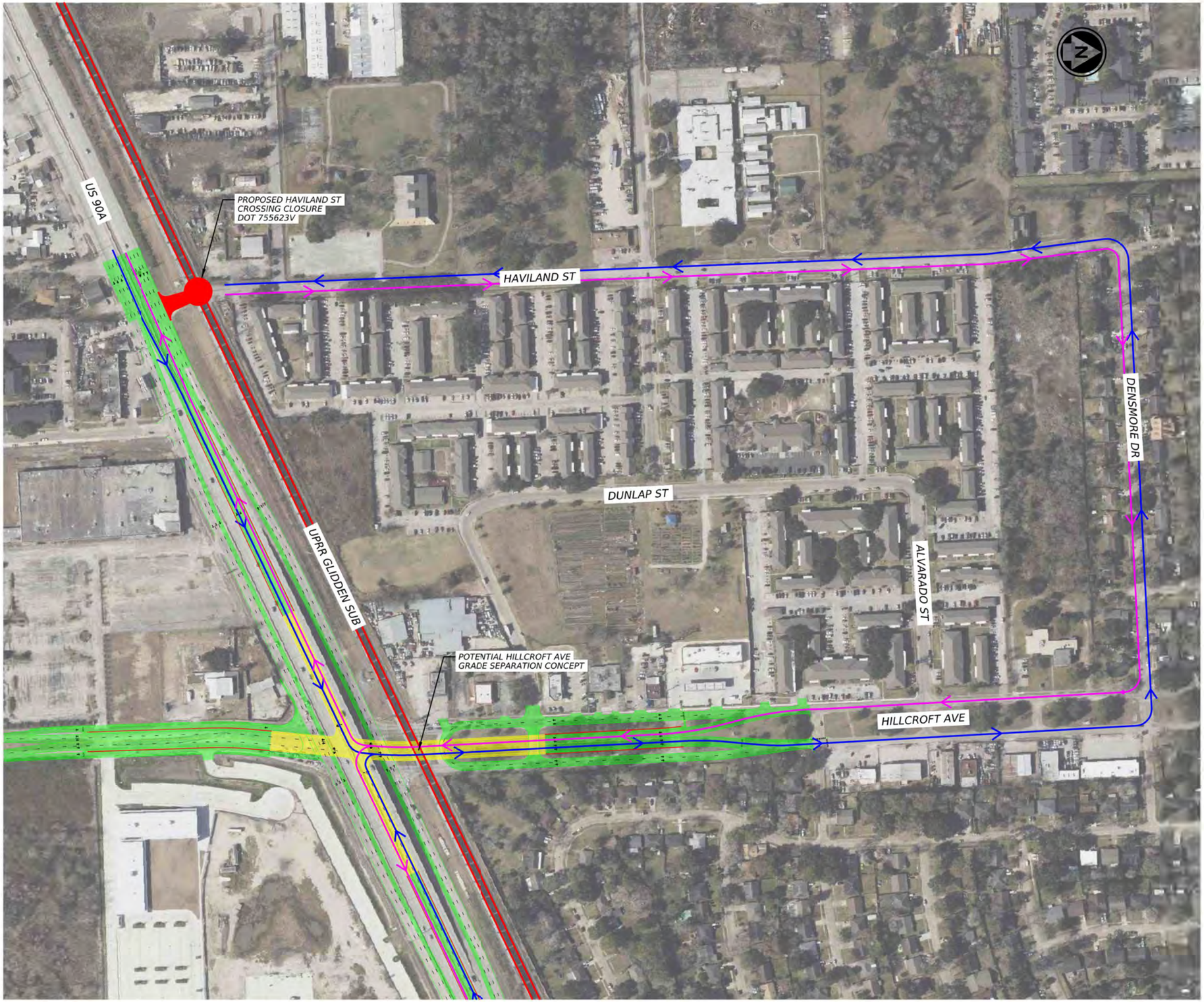
Appendix G

Crossing Closure Concept Exhibit



LEGEND:

- EXISTING TRACK
- POTENTIAL GRADE SEPARATION ROADWAY
- POTENTIAL GRADE SEPARATION BRIDGE
- PROPOSED CROSSING CLOSURE
- ALTERNATE ROUTE FOR CROSSING CLOSURE

0 100 200 300
SCALE IN FEET

PRELIMINARY

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JOSHUA A MIETH, P.E.
NO. 97346

ON: 9/24/2024

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HNTB
TBPE FIRM Registration No.:420

Texas Department of Transportation

UPRR GLIDDEN SUB

HAVILAND ST CROSSING CLOSURE CONCEPT PLAN DOT 755623V

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		1

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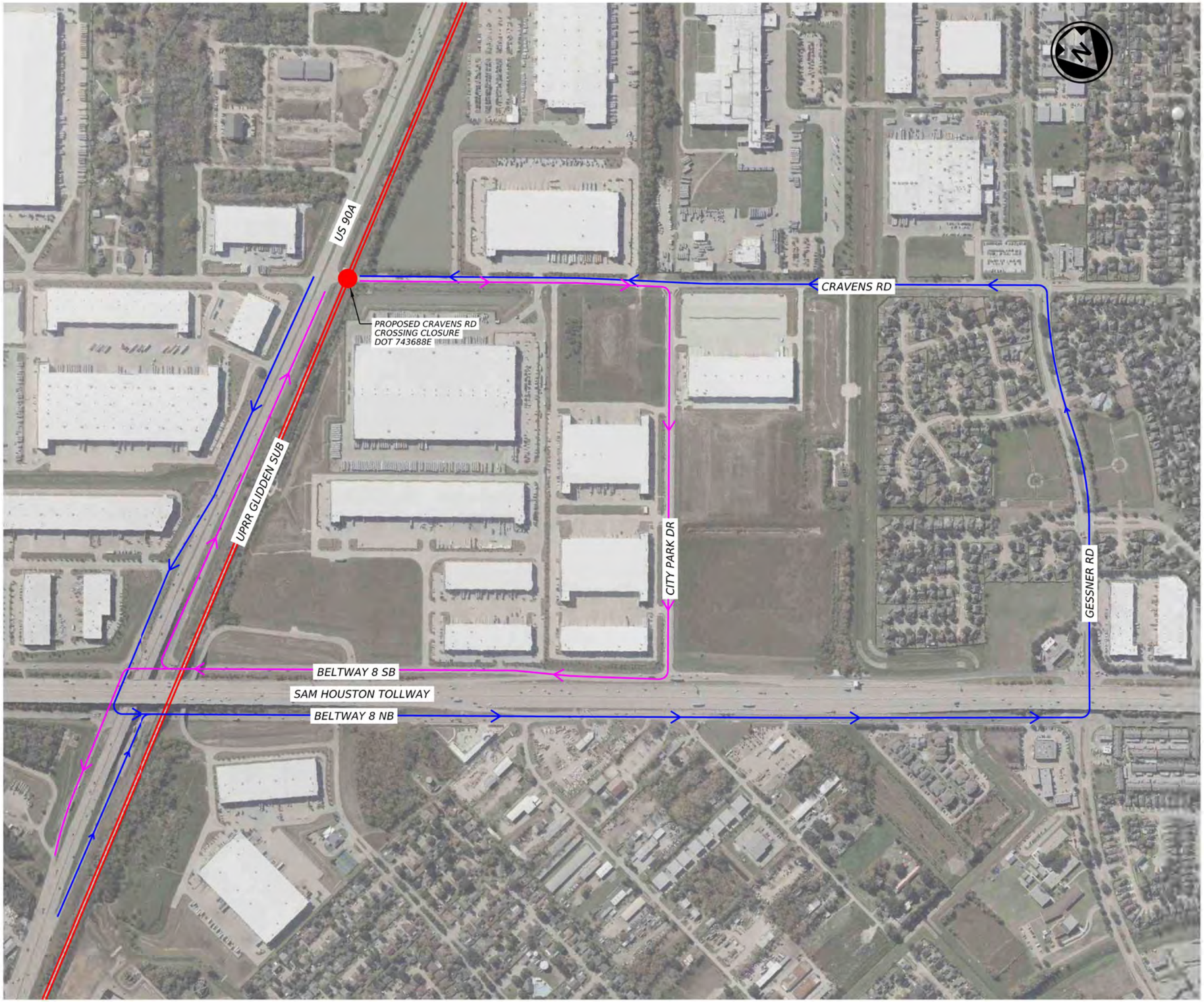
DW: AK, JB, NZ, RN | CK: JM, JR | DW: AK, JB, NZ, RN | CK: JM, JR



LEGEND:

- EXISTING TRACK
- POTENTIAL GRADE SEPARATION ROADWAY
- POTENTIAL GRADE SEPARATION BRIDGE
- PROPOSED CROSSING CLOSURE
- ALTERNATE ROUTE FOR CROSSING CLOSURE

0 200 400 600
SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

UPRR GLIDDEN SUB

CRAVENS RD CROSSING CLOSURE CONCEPT PLAN DOT 743688E

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		1

DATE: 9/24/2024 12:08:56 PM
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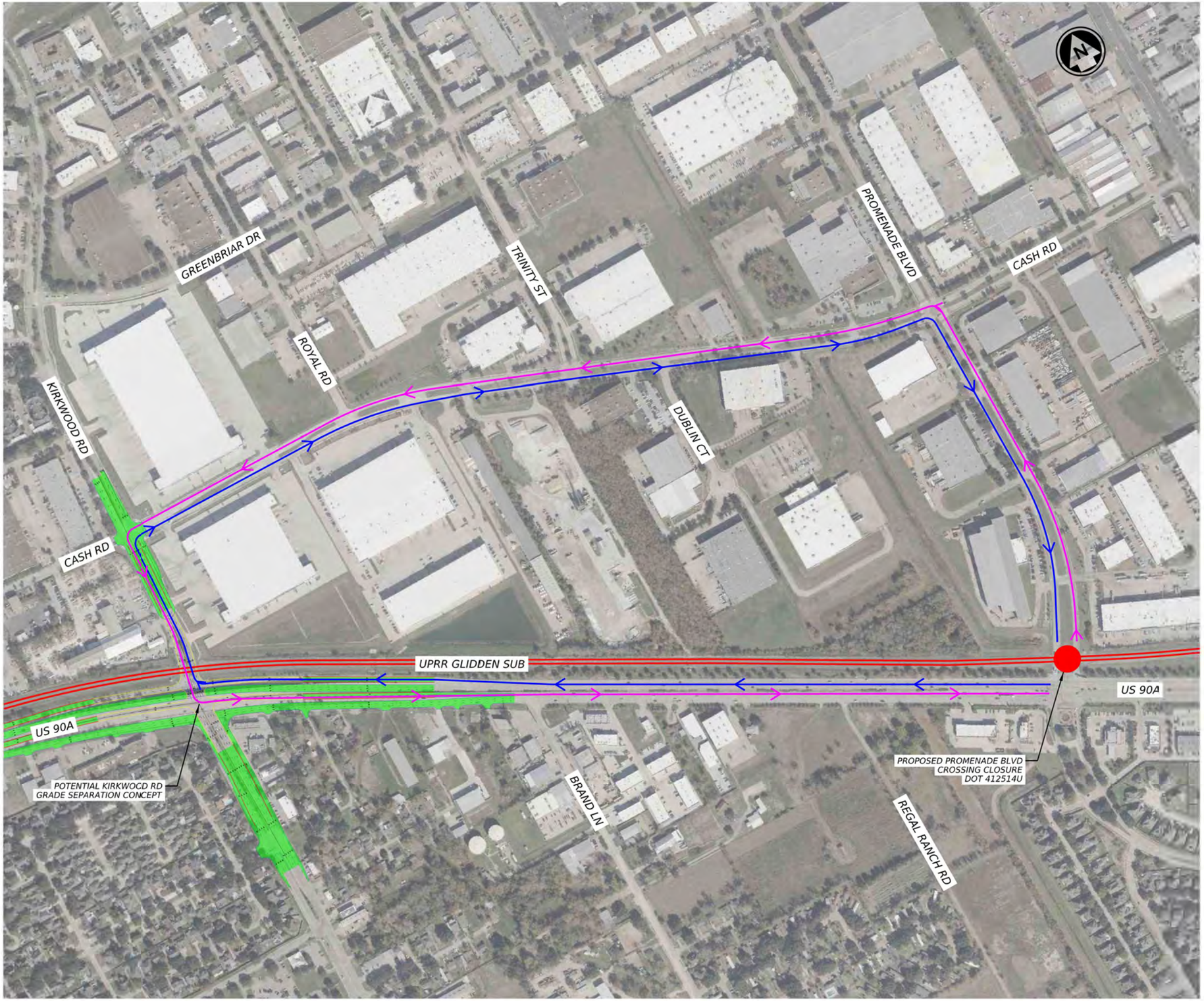
DW: JK, JB, NZ, RN | CK: JM, JR

DW: JK, JB, NZ, RN | CK: JM, JR



LEGEND:

- EXISTING TRACK
- POTENTIAL GRADE SEPARATION ROADWAY
- POTENTIAL GRADE SEPARATION BRIDGE
- PROPOSED CROSSING CLOSURE
- ALTERNATE ROUTE FOR CROSSING CLOSURE

0 500

SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

UPRR GLIDDEN SUB

PROMENADE BLVD CROSSING CLOSURE CONCEPT PLAN DOT 412514U

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	1

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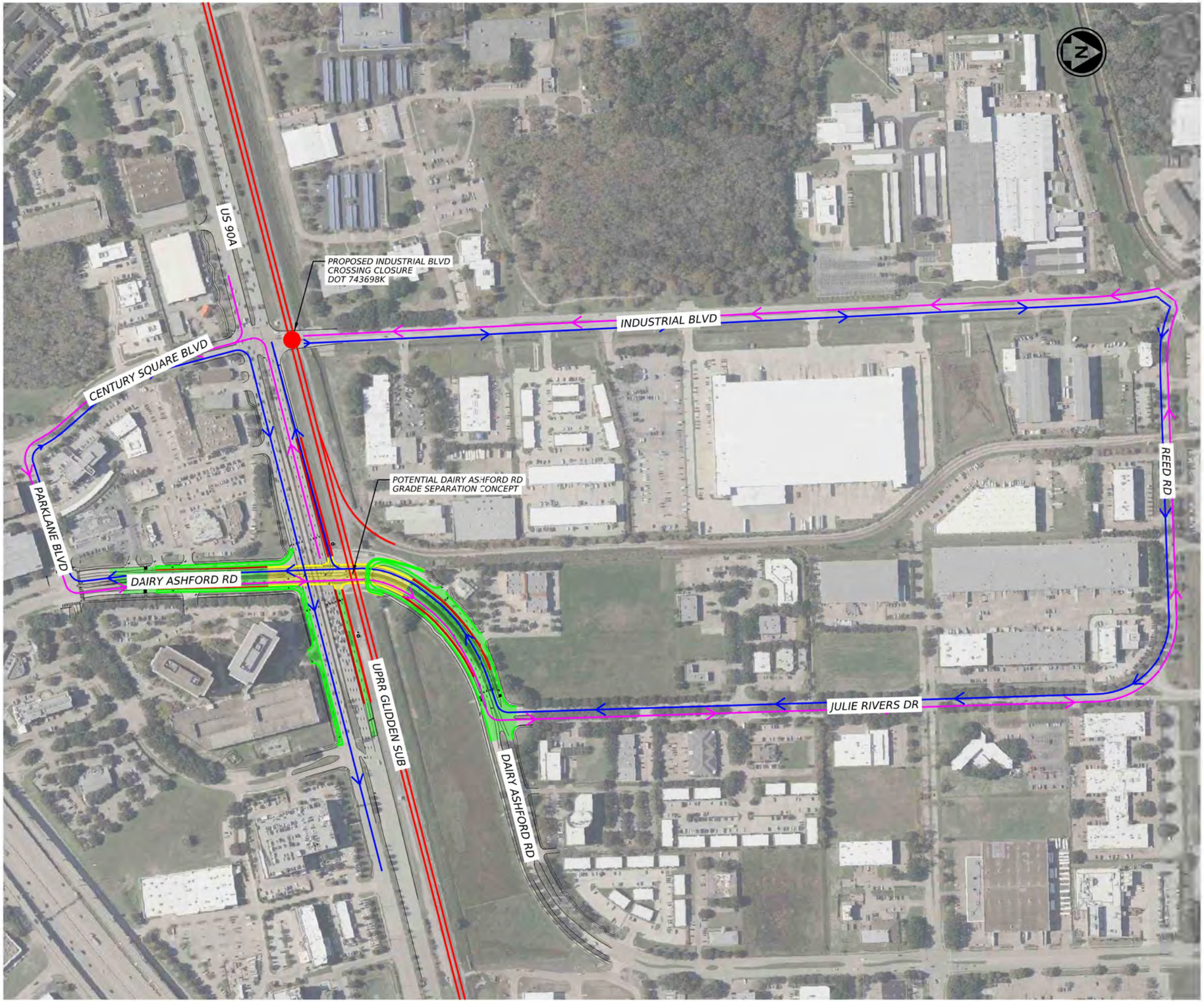

LEGEND:

- EXISTING TRACK
- POTENTIAL GRADE SEPARATION ROADWAY
- POTENTIAL GRADE SEPARATION BRIDGE
- PROPOSED CROSSING CLOSURE
- ALTERNATE ROUTE FOR CROSSING CLOSURE

0 200 400
SCALE IN FEET

PRELIMINARY

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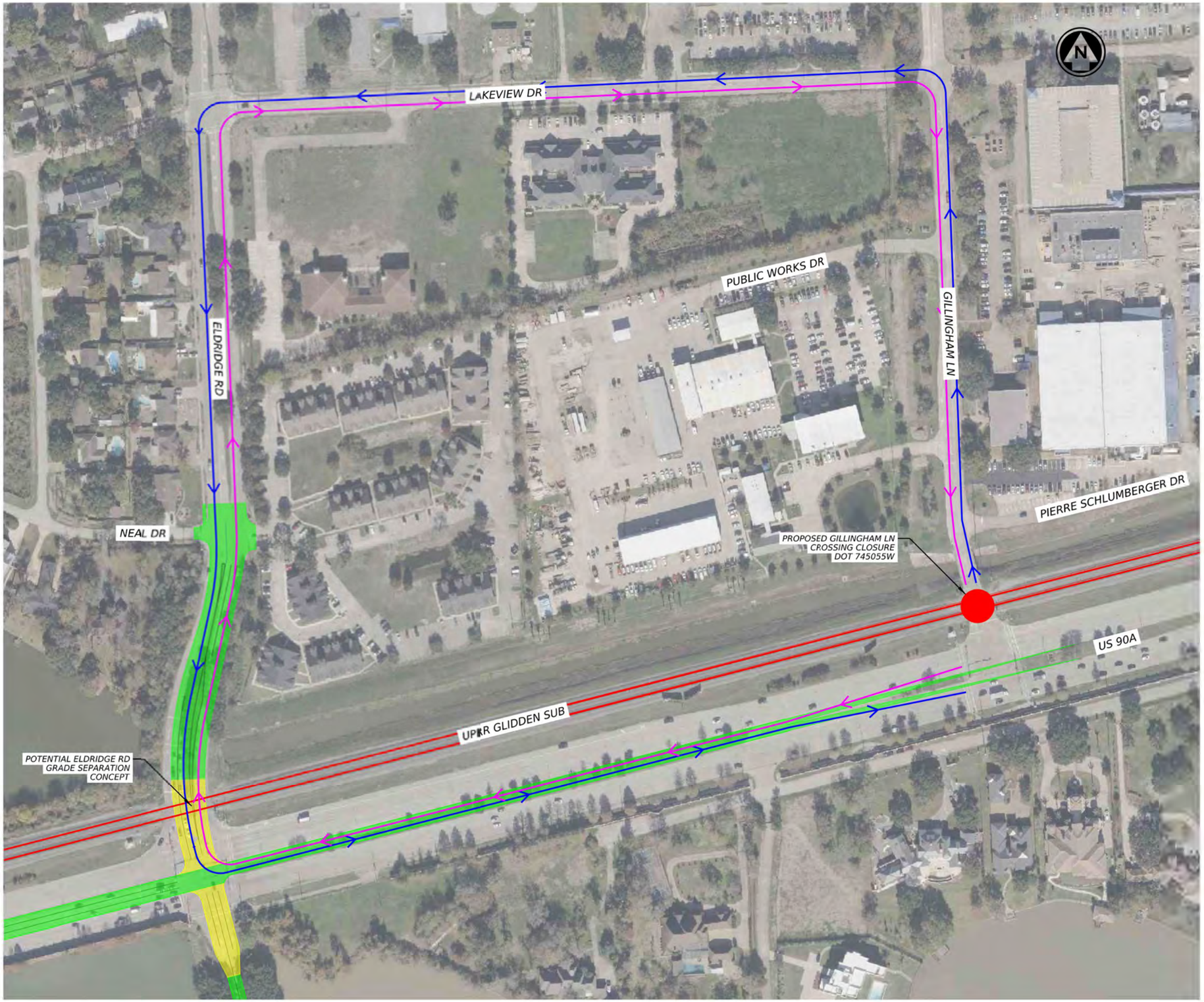
Texas Department of Transportation

UPRR GLIDDEN SUB

INDUSTRIAL BLVD CROSSING CLOSURE CONCEPT PLAN DOT 743698K

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		1



LEGEND:

- EXISTING TRACK
- POTENTIAL GRADE SEPARATION ROADWAY
- POTENTIAL GRADE SEPARATION BRIDGE
- PROPOSED CROSSING CLOSURE
- ALTERNATE ROUTE FOR CROSSING CLOSURE

0 100 200

SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

UPRR GLIDDEN SUB

GILLINGHAM LN CROSSING CLOSURE CONCEPT PLAN DOT 745055W

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	1

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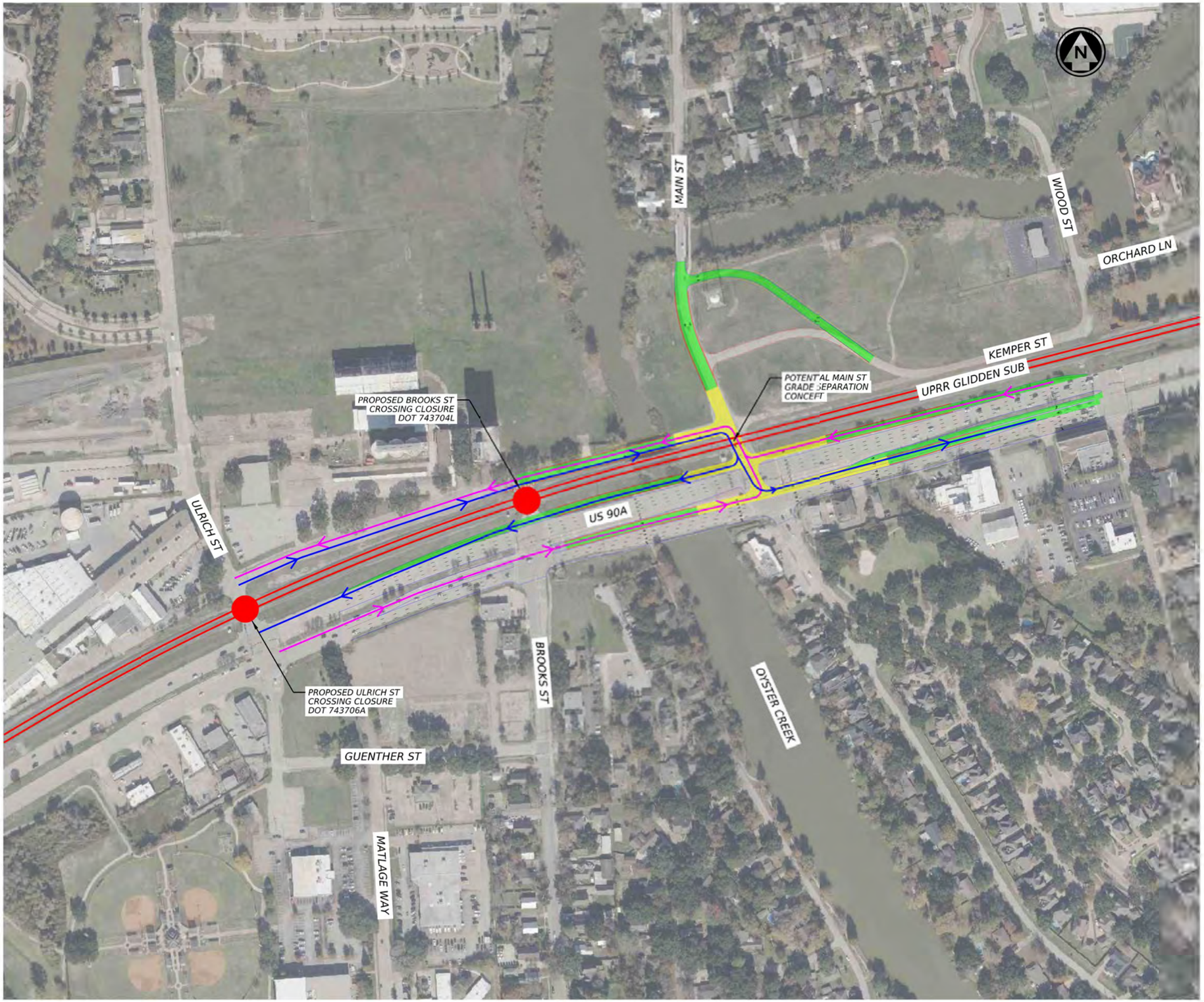

LEGEND:

- EXISTING TRACK
- POTENTIAL GRADE SEPARATION ROADWAY
- POTENTIAL GRADE SEPARATION BRIDGE
- PROPOSED CROSSING CLOSURE
- ALTERNATE ROUTE FOR CROSSING CLOSURE

0 100 200 300

SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

UPRR GLIDDEN SUB

BROOKS ST AND ULRICH ST CROSSING CLOSURES CONCEPT PLAN DOT 743704L & 743706A

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	1

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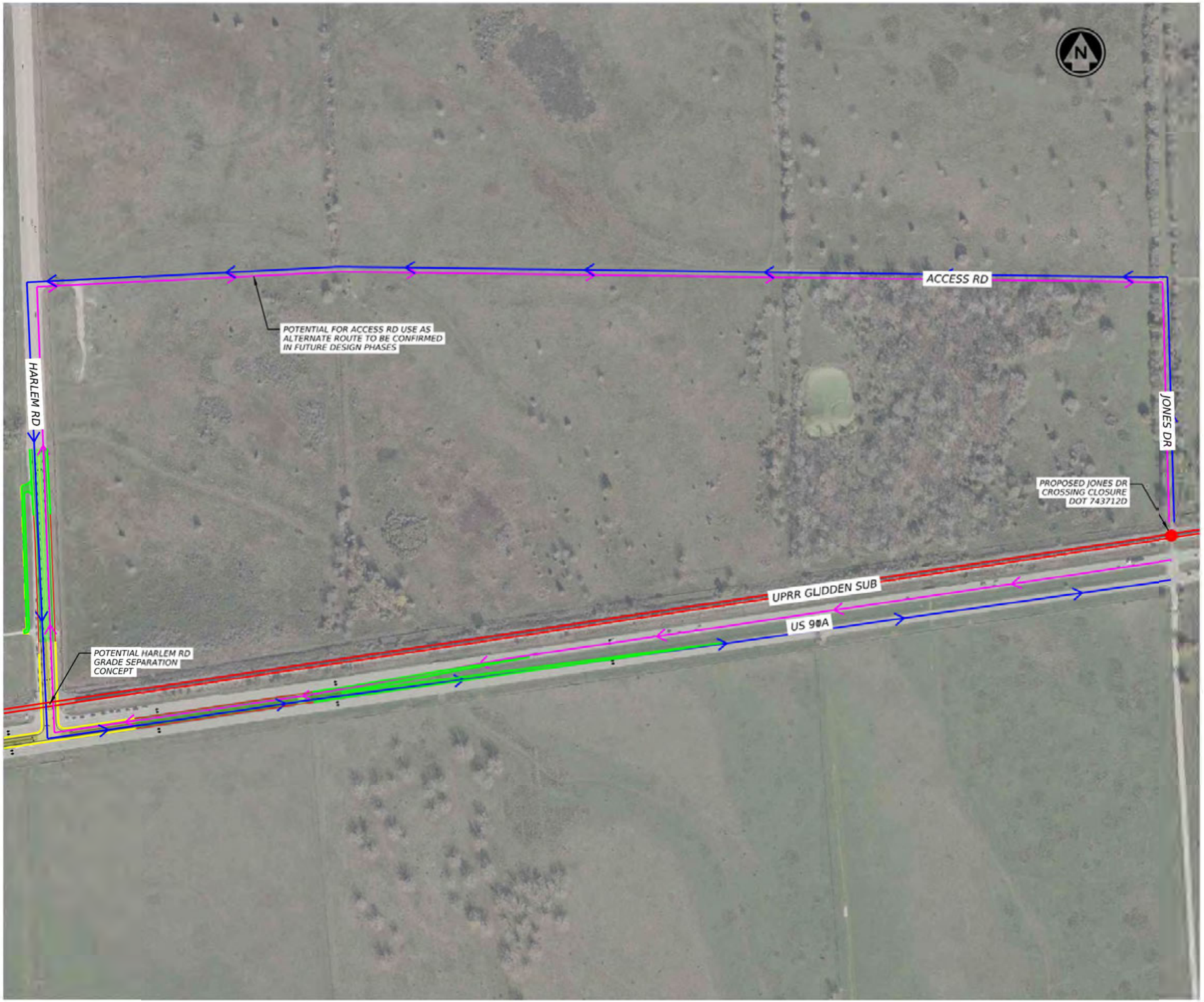

LEGEND:

- EXISTING TRACK
- POTENTIAL GRADE SEPARATION ROADWAY
- POTENTIAL GRADE SEPARATION BRIDGE
- PROPOSED CROSSING CLOSURE
- ALTERNATE ROUTE FOR CROSSING CLOSURE

0 200 400

SCALE IN FEET

PRELIMINARY

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HNTB

TBPE FIRM Registration No. 420

Texas Department of Transportation

UPRR GLIDDEN SUB

JONES DR CLOSING CLOSURE CONCEPT PLAN DOT 743712D

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	1

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LEGEND:

- EXISTING TRACK
- POTENTIAL GRADE SEPARATION ROADWAY
- POTENTIAL GRADE SEPARATION BRIDGE
- PROPOSED CROSSING CLOSURE
- ALTERNATE ROUTE FOR CROSSING CLOSURE

0 200 400

SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

UPRR GLIDDEN SUB

PRIVATE RD (W OF PITTS RD) CROSSING CLOSURE CONCEPT PLAN DOT (NONE)

SHEET 1 OF 50

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	1

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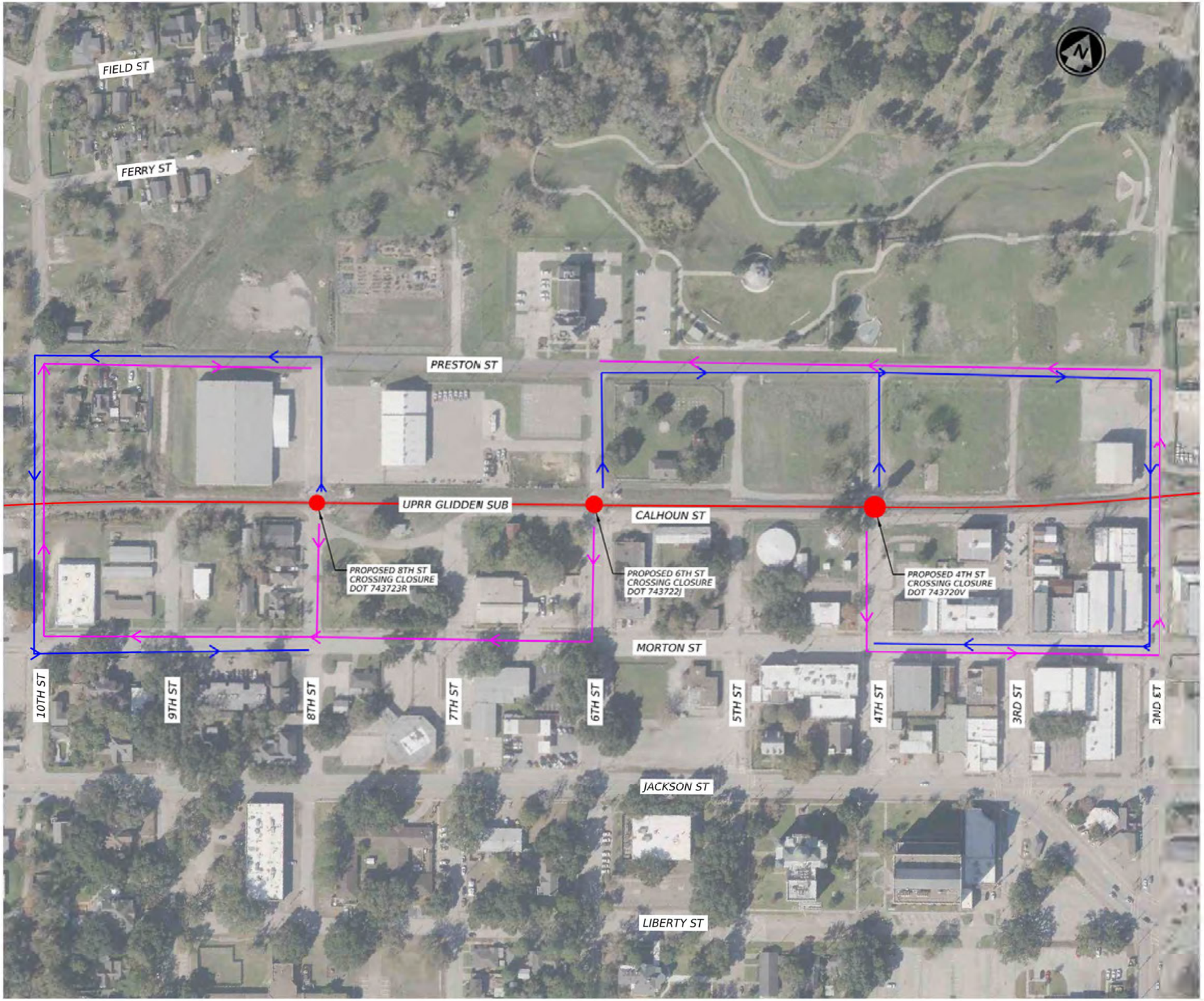

LEGEND:

- EXISTING TRACK
- POTENTIAL GRADE SEPARATION ROADWAY
- POTENTIAL GRADE SEPARATION BRIDGE
- PROPOSED CROSSING CLOSURE
- ALTERNATE ROUTE FOR CROSSING CLOSURE

0 100 200
SCALE IN FEET

PRELIMINARY

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NO. 97346

ON: 9/24/2024

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HNTB
TBPE FIRM Registration No.:420

Texas Department of Transportation

UPRR GLIDDEN SUB

4TH ST, 6TH ST & 8TH ST CROSSING CLOSURES CONCEPT PLAN

DOT 743720V, 743722J & 743723R

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	1

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DW: JA, JB, NZ, RN CK: JM, JR

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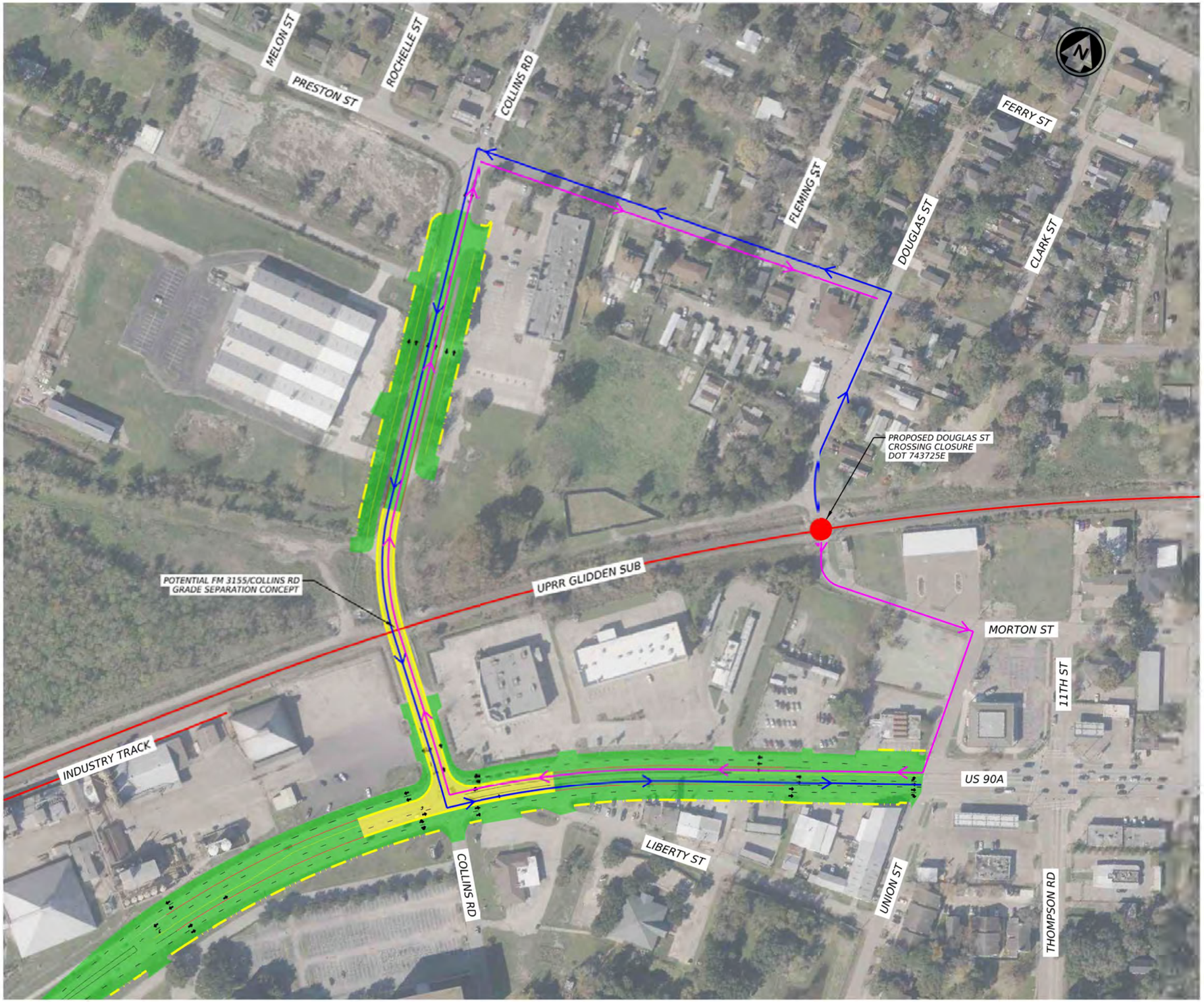

LEGEND:

- EXISTING TRACK
- POTENTIAL GRADE SEPARATION ROADWAY
- POTENTIAL GRADE SEPARATION BRIDGE
- PROPOSED CROSSING CLOSURE
- ALTERNATE ROUTE FOR CROSSING CLOSURE

0 100 200

SCALE IN FEET

PRELIMINARY

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Texas Department of Transportation

UPRR GLIDDEN SUB

DOUGLAS ST CROSSING CLOSURE CONCEPT PLAN DOT 743725E

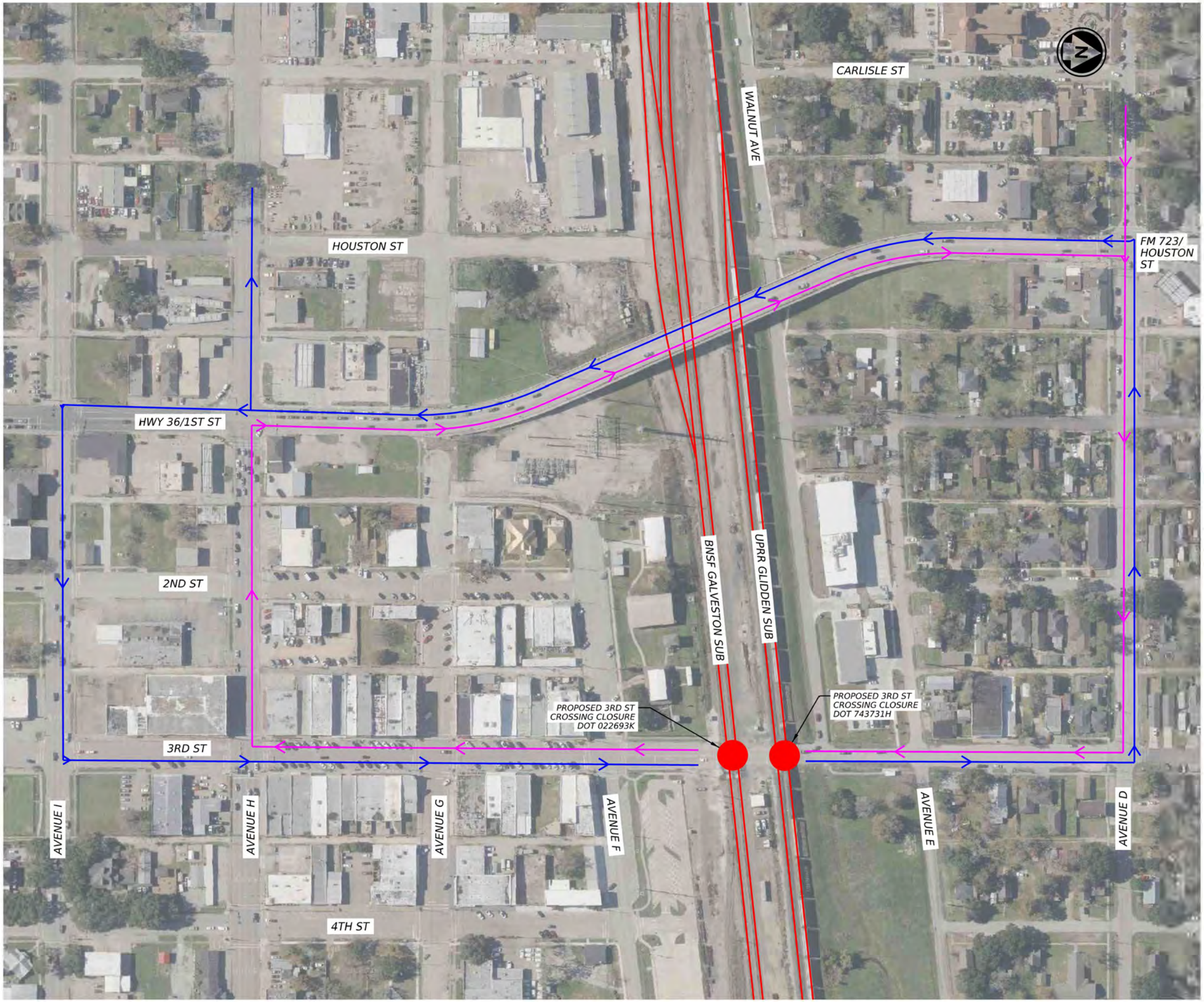
SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	1

DW: AK,JB,NZ,RN | CK: JM,JR | DW: AK,JB,NZ,RN | CK: JM,JR

DATE: 9/24/2024 12:09:17 PM
FILE: pw://pw-int.hntb.org:PWCentralDiv/Documents/Austin Projects/74335 TxDOT Rail IDIQ ORD/PW09 UPRR Glidden Sub/CADD/Sheets/Crossing-Closures/CC-DouglasSt.dgn



LEGEND:

- EXISTING TRACK
- POTENTIAL GRADE SEPARATION ROADWAY
- POTENTIAL GRADE SEPARATION BRIDGE
- PROPOSED CROSSING CLOSURE
- ALTERNATE ROUTE FOR CROSSING CLOSURE

0 100 200
SCALE IN FEET

PRELIMINARY

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTORITY OF:

JOSHUA A MIETH, P.E.
NO. 97346

ON: 9/24/2024

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

HNTB
TBPE FIRM Registration No.:420

Texas Department of Transportation

UPRR GLIDDEN SUB

3RD ST CROSSING CLOSURE CONCEPT PLAN DOT 743731H & DOT 022693K

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		1

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