

Dallas to Houston High-Speed Rail Final Environmental Impact Statement

Appendix G: Dallas to Houston High-Speed Rail Passenger Service from Houston to Dallas Final Conceptual Engineering Plans and Details Set 2 of 14



**TEXAS
CENTRAL**



**TEXAS
CENTRAL**



DALLAS TO HOUSTON
PASSENGER SERVICE FROM HOUSTON TO DALLAS

PLANS AND DET I
PROJECT DEFINITION FOR FINAL ENVIRONMENTAL IMPACT STATEMENT

JULY 1, 2019



U.S. Department of Transportation
Federal Railroad Administration

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COVER SHEET

GE -





DALLAS TO HOUSTON
PASSENGER SERVICE FROM HOUSTON TO DALLAS

PLANS AND DET I
PROJECT DEFINITION FOR FINAL ENVIRONMENTAL IMPACT STATEMENT
VOLUME - ICAL SECTIONS

JULY 1, 2019



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VOLUME 1B

GENERAL SHEETS

AND TYPICAL SECTIONS

(SEGMENTS IH, NE, EE)

NOTE:

AFTER RELEASE OF THE DRAFT EIS (DEIS), WHICH IDENTIFIED ALTERNATIVE A AS THE PREFERRED ALTERNATIVE, ADDITIONAL DESIGN DEVELOPMENT AND REFINEMENT OF ALTERNATIVE A WAS UNDERTAKEN TO MITIGATE IMPACTS AND TO IMPROVE CONSTRUCTABILITY. THIS REPORT ADDRESSES THE REFINED DESIGN APPROACHES AND DETAILS FOR THE SEGMENTS IN BUILD ALTERNATIVE A. FOR ALL OTHER SEGMENTS NOT A PART OF THE PREFERRED ALTERNATIVE (ELLIS EAST, NAVARRO EAST, AND IH-45 SEGMENTS), NO CHANGES TO DESIGN WERE ADVANCED OTHER THAN ALIGNMENT REVISIONS REQUIRED TO ACCOUNT FOR ALIGNMENT REVISIONS ADVANCED IN ALTERNATIVE A. TO FACILITATE COMPARISON FOR IMPACT ANALYSIS, THE APPENDICES TO THE FCE REPORT INCLUDES ALL SEGMENTS. THE DRAWING SET HAS BEEN ORGANIZED INTO VOLUMES 1A-5A AND 1B-5B, WITH THE PREFERRED ALTERNATIVE DESIGN DRAWINGS INCLUDED IN THE 1A-5A VOLUMES.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
K. SEYMOUR

DRAWN BY
D. THOMPSON

CHECKED BY
R. BURNS

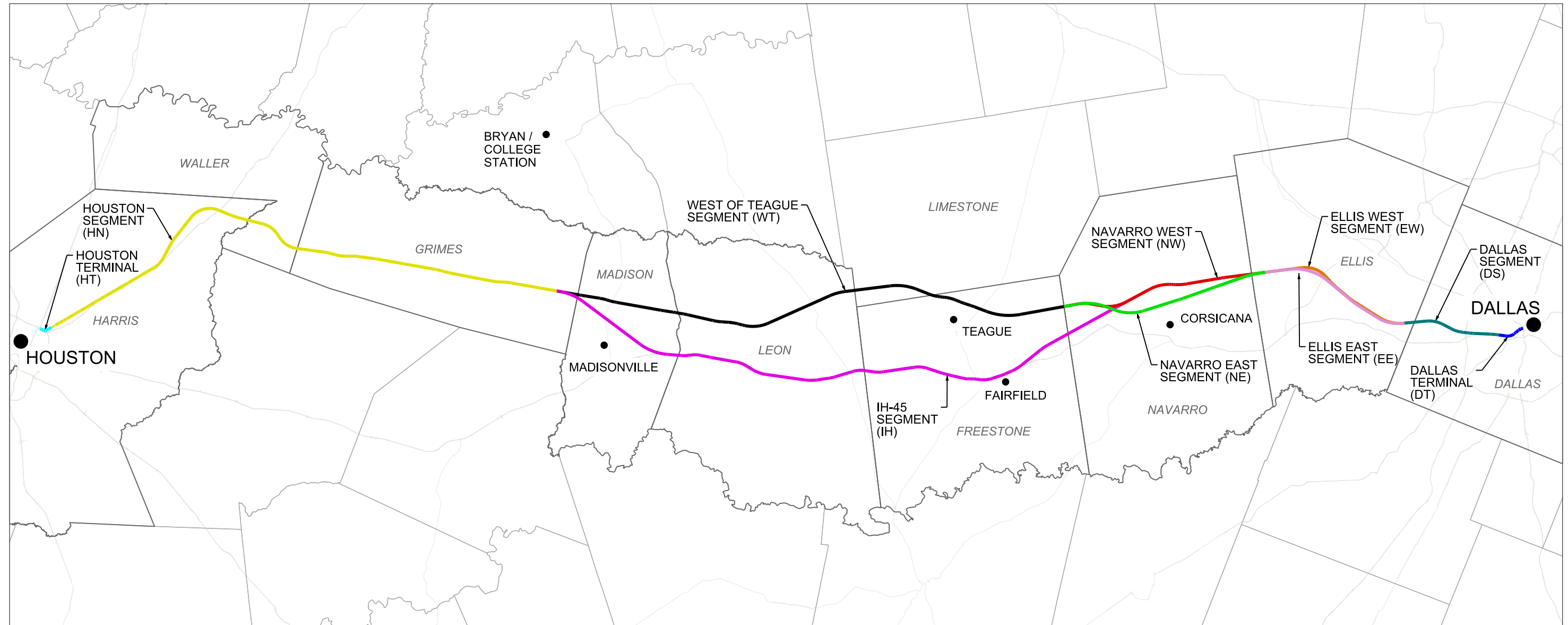
IN CHARGE
C. TAYLOR

DATE
2/25/2019



Drawing Title
GENERAL

Scale NO SCALE		
Drawing Status FINAL		
Job No 234180	Drawing No GEN-00-0000	Rev 01



ALIGNMENT ALTERNATIVE	FRA SEGMENT ID	SEGMENT NAMES	SEGMENT ABBREVIATION
A	5, 4, 3A, 2A, 1	DALLAS SEGMENT, ELLIS WEST SEGMENT, NAVARRO WEST SEGMENT, WEST OF TEAGUE SEGMENT, HOUSTON SEGMENT	DS, EW, NW, WT, HN
B	5, 4, 3B, 2A, 1	DALLAS SEGMENT, ELLIS WEST SEGMENT, NAVARRO EAST SEGMENT, WEST OF TEAGUE SEGMENT, HOUSTON SEGMENT	DS, EW, NE, WT, HN
C	5, 3C, 2A, 1	DALLAS SEGMENT, ELLIS WEST SEGMENT, IH-45 SEGMENT, HOUSTON SEGMENT	DS, EW, IH, HN
D	5, 4, 3A, 2B, 1	DALLAS SEGMENT, ELLIS EAST SEGMENT, NAVARRO WEST SEGMENT, WEST OF TEAGUE SEGMENT, HOUSTON SEGMENT	DS, EE, NW, WT, HN
E	5, 4, 3B, 2B, 1	DALLAS SEGMENT, ELLIS EAST SEGMENT, NAVARRO EAST SEGMENT, WEST OF TEAGUE SEGMENT, HOUSTON SEGMENT	DS, EE, NE, WT, HN
F	5, 3C, 2B, 1	DALLAS SEGMENT, ELLIS EAST SEGMENT, IH-45 SEGMENT, HOUSTON SEGMENT	DS, EE, IH, HN

- NOTES:
 1. REFER TO FCE REPORT FOR SEGMENT NAMES AND ALIGNMENT ALTERNATIVES.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
D. THOMPSON

DRAWN BY
D. THOMPSON

CHECKED BY
R. BURNS

IN CHARGE
C. TAYLOR

DATE
02/25/2019

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DALLAS TO HOUSTON HIGH-SPEED RAIL
 FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title

GENERAL LOCATION PLAN

Scale AS SHOWN		
Drawing Status FINAL		
Job No 234180	Drawing No GEN-00-00002	Rev 01

VOLUME 2A - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Contains drawing entries for 2A-2 WEST OF TEAGUE SEGMENT, including drawings CVL-WT-01253 through CVL-WT-01314.

VOLUME 2A - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Contains drawing entries for 2A-2 WEST OF TEAGUE SEGMENT, 2A-3 NAVARRO WEST SEGMENT, and 2A-4 ELLIS WEST SEGMENT, including drawings CVL-WT-01314-A through CVL-EW-01708.

VOLUME 2A - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Contains drawing entries for 2A-4 ELLIS WEST SEGMENT and 2A-5 DALLAS SEGMENT, including drawings CVL-EW-01708-A through CVL-DS-01926-A.

Revision table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Includes a header row and one data row.

Design and drawing information table with fields: DESIGNED BY (D. THOMPSON), DRAWN BY (D. THOMPSON), CHECKED BY (R. BURNS), IN CHARGE (C. TAYLOR), DATE (02/25/2019).

ARUP logo and contact information: Arup Texas, Inc., 10370 Richmond Ave., Suite 475, Houston, Texas 77042 USA.

FRESE & NICHOLS logo and contact information: 2711 North Haskell Ave., Suite 3300, Dallas, Texas 75204.

DALLAS TO HOUSTON HIGH-SPEED RAIL FINAL CONCEPTUAL ENGINEERING logo and Texas Central logo.

Project information including Drawing Title (GENERAL INDEX SHEET 2 OF 5), Scale (NO SCALE), Drawing Status (FINAL), Job No (234180), Drawing No (GEN-00-00004), and Rev (01).

PLOT TIME: 5/31/2019 9:49:27 AM

PLOT BY: N-YPWICS01S

VOLUME 2B - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Contains drawing numbers CVL-IH-01350 to CVL-IH-01420 and their corresponding descriptions for the IH-45 segment.

VOLUME 2B - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Contains drawing numbers CVL-IH-01421 to CVL-IH-01442 and CVL-NE-01600 to CVL-NE-01631, covering IH-45 and NAVARRO EAST segments.

VOLUME 2B - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Contains drawing numbers CVL-EE-01814 to CVL-EE-01823 and their corresponding descriptions for the ELLIS EAST segment.

Revision table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Includes a header row and several empty rows for revisions.

Design and drawing information table with fields: DESIGNED BY (D. THOMPSON), DRAWN BY (D. THOMPSON), CHECKED BY (R. BURNS), IN CHARGE (C. TAYLOR), DATE (02/25/2019).



Project information including Drawing Title (GENERAL INDEX SHEET 3 OF 5), Scale (NO SCALE), Drawing Status (FINAL), Job No (234180), Drawing No (GEN-00-00005), and Rev (01).

PLOT TIME: 5/24/2018 3:22:14 PM

PLOT BY: M-YPWICS01S

VOLUME 3A - STATIONS, MAINTENANCE FACILITIES AND RAILWAY SYSTEMS SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Includes sections 3A-1 STATIONS, 3A-2 MAINTENANCE FACILITIES, YARDS AND SHOPS, 3A-3 RAILWAY FACILITIES, and 3A-4 ROADWAY FACILITIES.

VOLUME 3B - STATIONS, MAINTENANCE FACILITIES AND RAILWAY SYSTEMS SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Includes sections 3B-1 STATIONS (NOT USED), 3B-2 MAINTENANCE FACILITIES, YARDS AND SHOPS, and 3B-3 RAILWAY FACILITIES.

VOLUME 4B - NOT USED
VOLUME 4B - ROADWAY PLAN SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Section 4B-1 IH-45 SEGMENT listing various drawing numbers and descriptions.

Table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Includes design and in-charge information for D. THOMPSON and C. TAYLOR.



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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING



1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title

GENERAL
INDEX SHEET 4 OF 5

Scale
NO SCALE

Drawing Status
FINAL

Table with columns: Job No, Drawing No, Rev. Values: 234180, GEN-00-00006, 01

VOLUME 4B - ROADWAY PLAN SHEETS

DRAWING NO.	DRAWING DESCRIPTIONS
4B-1 IH-45 SEGMENT	
RDY-IH1-04035	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3070+00 TO IH1 3160+00
RDY-IH1-04036	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3160+00 TO IH1 3250+00
RDY-IH1-04037	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3250+00 TO IH1 3340+00
RDY-IH1-04038	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3340+00 TO IH1 3430+00
RDY-IH1-04039	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3430+00 TO IH1 3520+00
RDY-IH1-04040	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3520+00 TO IH1 3610+00
RDY-IH1-04041	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3610+00 TO IH1 3700+00
RDY-IH1-04042	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3700+00 TO IH1 3790+00
RDY-IH1-04043	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3790+00 TO IH1 3880+00
RDY-IH1-04044	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3880+00 TO IH1 3970+00
RDY-IH1-04045	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3970+00 TO IH1 4060+00
RDY-IH1-04046	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 4060+00 TO IH1 4150+00
RDY-IH1-04047	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 4150+00 TO IH1 4240+00
RDY-IH1-04048	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 4240+00 TO IH1 4329+69
RDY-IH2-04049	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH2 10+00 TO IH2 100+00
RDY-IH2-04050	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH2 100+00 TO IH2 190+00
RDY-IH2-04051	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH2 190+00 TO IH2 280+00
RDY-IH2-04052	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH2 280+00 TO IH2 370+00
RDY-IH2-04053	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH2 370+00 TO IH2 460+00
RDY-IH2-04054	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH2 460+00 TO IH2 540+81
4B-2 NAVARRO EAST SEGMENT	
RDY-NE-01101	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 1 OF 2 NE 10+00 TO NE 1070+00
RDY-NE-01102	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 2 OF 2 NE 1070+00 TO NE 1652+05
RDY-NE-04001	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 10+00 TO NE 100+00
RDY-NE-04002	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 100+00 TO NE 190+00
RDY-NE-04003	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 190+00 TO NE 280+00
RDY-NE-04004	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 280+00 TO NE 370+00
RDY-NE-04005	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 370+00 TO NE 460+00
RDY-NE-04006	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 460+00 TO NE 550+00
RDY-NE-04007	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 550+00 TO NE 640+00
RDY-NE-04008	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 640+00 TO NE 730+00
RDY-NE-04009	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 730+00 TO NE 820+00
RDY-NE-04010	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 820+00 TO NE 910+00
RDY-NE-04011	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 910+00 TO NE 1000+00
RDY-NE-04011A	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - MATCHLINE RDY-NE-04011
RDY-NE-04012	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 1000+00 TO NE 1090+00
RDY-NE-04013	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 1090+00 TO NE 1180+00
RDY-NE-04014	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 1180+00 TO NE 1270+00
RDY-NE-04015	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 1270+00 TO NE 1360+00
RDY-NE-04016	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 1360+00 TO NE 1450+00
RDY-NE-04017	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 1450+00 TO NE 1540+00
RDY-NE-04018	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 1540+00 TO NE 1630+00
RDY-NE-04019	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 1630+00 TO NE 1652+05
4B-3 ELLIS EAST SEGMENT	
RDY-EE-01101	ELLIS EAST SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 1 OF 2 EE 9+56 TO EE 1064+00
RDY-EE-01102	ELLIS EAST SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 2 OF 2 EE 1064+00 TO EE 1232+15
RDY-EE-04001	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 9+56 TO EE 100+00
RDY-EE-04002	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 100+00 TO EE 190+00
RDY-EE-04003	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 190+00 TO EE 280+00
RDY-EE-04004	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 280+00 TO EE 370+00
RDY-EE-04005	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 370+00 TO EE 460+00
RDY-EE-04006	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 460+00 TO EE 550+00
RDY-EE-04007	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 550+00 TO EE 640+00
RDY-EE-04008	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 640+00 TO EE 730+00
RDY-EE-04009	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 730+00 TO EE 820+00
RDY-EE-04010	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 820+00 TO EE 910+00
RDY-EE-04011	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 910+00 TO EE 1000+00
RDY-EE-04012	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 1000+00 TO EE 1090+00
RDY-EE-04013	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 1090+00 TO EE 1180+00
RDY-EE-04014	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 1180+00 TO EE 1232+15

Volume 5A - WILDLIFE CROSSING SHEETS

DRAWING NO.	DRAWING DESCRIPTIONS
Volume 5A	
WLC-DS-04001	DS SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 1 OF 23)
WLC-DS-04002	DS SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 2 OF 23)
WLC-DS-04003	DS SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 3 OF 23)
WLC-EW-04001	EW SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 4 OF 23)
WLC-EW-04002	EW SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 5 OF 23)
WLC-NW-04001	NW SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 6 OF 23)
WLC-NW-04002	NW SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 7 OF 23)
WLC-NW-04003	NW SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 8 OF 23)
WLC-WT-04001	WT SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 9 OF 23)
WLC-WT-04002	WT SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 10 OF 23)
WLC-WT-04003	WT SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 11 OF 23)
WLC-WT-04004	WT SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 12 OF 23)
WLC-WT-04005	WT SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 13 OF 23)
WLC-WT-04006	WT SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 14 OF 23)
WLC-WT-04007	WT SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 15 OF 23)
WLC-HN-04001	HN SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 16 OF 23)
WLC-HN-04002	HN SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 17 OF 23)
WLC-HN-04003	HN SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 18 OF 23)
WLC-HN-04004	HN SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 19 OF 23)
WLC-HN-04005	HN SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 20 OF 23)
WLC-HN-04006	HN SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 21 OF 23)
WLC-HN-04007	HN SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 22 OF 23)
WLC-HN-04008	HN SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 23 OF 23)

VOLUME 5B - WILDLIFE CROSSING SHEETS

DRAWING NO.	DRAWING DESCRIPTIONS
Volume 5B	
WLC-EE-04001	EE SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 1 OF 15)
WLC-EE-04002	EE SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 2 OF 15)
WLC-NE-04001	NE SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 3 OF 15)
WLC-NE-04002	NE SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 4 OF 15)
WLC-NE-04003	NE SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 5 OF 15)
WLC-IH-04001	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 6 OF 15)
WLC-IH-04002	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 7 OF 15)
WLC-IH-04003	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 8 OF 15)
WLC-IH-04004	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 9 OF 15)
WLC-IH-04005	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 10 OF 15)
WLC-IH-04006	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 11 OF 15)
WLC-IH-04007	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 12 OF 15)
WLC-IH-04008	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 13 OF 15)
WLC-IH-04009	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 14 OF 15)
WLC-IH-04010	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 15 OF 15)

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY D. THOMPSON
DRAWN BY D. THOMPSON
CHECKED BY R. BURNS
IN CHARGE C. TAYLOR
DATE 02/25/2019



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1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
GENERAL INDEX SHEET 5 OF 5

Scale NO SCALE	Drawing Status FINAL
Job No 234180	Drawing No GEN-00-00007
	Rev 01

GENERAL NOTES:

- 1. THESE DRAWINGS ACCOMPANY FINAL CONCEPTUAL ENGINEERING (FCE) REPORT.
- 2. DRAWING SET INCLUDES FIVE (5) VOLUMES. AFTER RELEASE OF THE DRAFT EIS (DEIS), WHICH IDENTIFIED ALTERNATIVE A AS THE PREFERRED ALTERNATIVE. ADDITIONAL DESIGN DEVELOPMENT AND REFINEMENT OF ALTERNATIVE A WAS UNDERTAKEN TO MITIGATE IMPACTS AND TO IMPROVE CONSTRUCTABILITY. THIS REPORT ADDRESSES THE REFINED DESIGN APPROACHES AND DETAILS FOR THE SEGMENTS IN BUILD ALTERNATIVE A, FOR ALL OTHER SEGMENTS NOT A PART OF THE PREFERRED ALTERNATIVE (ELLIS EAST, NAVARRO EAST, AND IH-45 SEGMENTS), NO CHANGES TO DESIGN WAS ADVANCED OTHER THAN ALIGNMENT REVISIONS REQUIRED TO ACCOUNT FOR ALIGNMENT REVISIONS ADVANCED IN ALTERNATIVE A. TO FACILITATE COMPARISON FOR IMPACT ANALYSIS. THE APPENDICES TO THE FCE REPORT INCLUDES ALL SEGMENTS. THE DRAWING SET HAS BEEN ORGANIZED INTO VOLUMES 1A-5A AND 1B-5B, WITH THE PREFERRED ALTERNATIVE DESIGN DRAWINGS INCLUDED IN THE 1A-5A VOLUMES.
- 3. CONCEPTUAL ENGINEERING WAS DEVELOPED TO IDENTIFY PROJECT LIMIT OF DISTURBANCE (LOD), OR "PROJECT FOOTPRINT". CONCEPTUAL ENGINEERING DRAWINGS AND FCE REPORT ARE ISSUED TO PROVIDE PROJECT DEFINITION FOR ENVIRONMENTAL ANALYSES ONLY. FINAL DESIGN WOULD BE DEVELOPED TO MITIGATE ANY IMPACTS IDENTIFIED THROUGH ENVIRONMENTAL ANALYSES. NOT FOR CONSTRUCTION.
- 4. FOR STANDARD GENERAL ABBREVIATIONS, SEE DRAWING GEN-00-0009.
- 5. FOR STANDARD GENERAL SYMBOLS, SEE DRAWING GEN-00-0009.
- 6. "ORIGINAL GROUND" SHOWN ON PROFILES REFERS TO THE APPROXIMATE EXISTING GROUND LINE AT HSR CENTERLINE AS SHOWN ON PLAN AND PROFILE DRAWINGS.
- 7. ALL HORIZONTAL AND VERTICAL DISTANCES ARE IN US CUSTOMARY UNITS EXCEPT AS NOTED OTHERWISE.
- 8. GENERAL NOTES FOR PROJECT ELEMENTS INCLUDED ON GENERAL NOTES PAGES. REFER TO INDIVIDUAL DISCIPLINE DRAWINGS FOR ADDITIONAL NOTES.

BASEMAPPING NOTES:

- 1. DTM DATA SHOWN ON THE DRAWINGS WAS OBTAINED FROM THE TEXAS NATURAL RESOURCES INFORMATION SYSTEM (TNRS) AND HOUSTON-GALVESTON AREA COUNCIL (HGAC).
 - DALLAS COUNTY LIDAR, 2009, SOURCED FROM TNRS.
 - HGAC LIDAR, 2008.
 - TNRS LIDAR, 2009-2013.
 - TNRS STRATMAP CONTOURS, 1997.
- 2. LIDAR SOURCES WERE FILTERED TO SHOW ONLY BARE EARTH, AND SUPPLEMENTED BY CONTOUR DATA WHERE LIDAR SOURCES WERE NOT AVAILABLE.
- 3. NAD 83 HORIZONTAL CONTROL DATUM WAS USED FOR HORIZONTAL COORDINATE VALUES.
- 4. NAVD 88 VERTICAL DATUM WAS USED FOR ELEVATION VALUES.
- 5. ALL DATA HAS BEEN REPROJECTED TO TEXAS STATE PLANE, SOUTH CENTRAL, CENTRAL, AND NORTH CENTRAL ZONES, US SURVEY FEET.
- 6. AERIAL IMAGERY WAS OBTAINED FROM ARCGIS ONLINE SERVICES. SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEX, GETMAPPING, AEROGRID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY.
- 7. THE BACKGROUND IMAGERY ON THE PLAN SHEETS MAY SHOW BUILDINGS AND OTHER INFRASTRUCTURE FEATURES THAT HAVE SUBSEQUENTLY BEEN REMOVED AND/OR DEMOLISHED, WHERE IT HAS BEEN VERIFIED THAT BUILDINGS HAVE BEEN REMOVED, DEMOLISHED, RECONFIGURED, OR CONSTRUCTED. THE AERIAL IMAGERY ON THE PLAN SHEET IS MARKED WITH HATCHING.

LOD NOTES:

- 1. THE PROJECT LOD WAS DEVELOPED TO DEFINE A CONSERVATIVE ESTIMATE OF THE POTENTIAL "PROJECT FOOTPRINT" FOR ENVIRONMENTAL ANALYSIS AND DOES NOT REPRESENT THE FINAL HSR RIGHT-OF-WAY (ROW).
- 2. LOD USED FOR EIS ANALYSIS FOOTPRINT. PROPERTY WITHIN THE LOD MAY BE RETURNED TO ADJACENT LANDOWNERS OR OTHER PRIVATE PARTIES FOLLOWING PROJECT CONSTRUCTION OR MAY BE TRANSFERRED TO ROADWAY OR UTILITY AUTHORITY AS APPROPRIATE. PROPOSED PROJECT WORKS WITHIN PRIVATE PROPERTIES WOULD BE SUBJECT TO NEGOTIATION WITH LANDOWNERS. ANY TEMPORARY OR PERMANENT USE OF LAND OWNED BY TXDOT, COUNTY, MUNICIPAL, OR OTHER PUBLIC ENTITIES WOULD REQUIRE APPROPRIATE APPROVALS.

TRACK NOTES:

- 1. THE ALIGNMENT SHOWN ON THE PLAN AND PROFILE DRAWINGS REPRESENTS THE CENTERLINE OF THE TWO-TRACK HSR MAINLINE TRACKS.
- 2. THE PROFILE SHOWN ON THE PLAN AND PROFILE DRAWINGS REPRESENTS THE TOP OF THE LOWER RAIL THROUGH HORIZONTAL CURVES AND SPIRALS FOR THE TWO-TRACK HSR SYSTEM.
- 3. THE PROPOSED HSR SYSTEM INCLUDES TWO TRACKS WITH ADDITIONAL TRACKS AT STATIONS, MAINTENANCE OF WAY FACILITIES, AND TRAINSET MAINTENANCE FACILITIES, AS SHOWN ON DRAWINGS.
- 4. MAINLINE CROSSOVERS ARE PROVIDED AT THE ENTRANCE AND EXIT OF ALL STATIONS, MAINTENANCE OF WAY (MOW) FACILITIES, AND TRAINSET MAINTENANCE FACILITIES (TMF).

PLAN AND PROFILE GENERAL NOTES:

- 1. SECTION TYPE DETAIL SHOWN ON PROFILE SHEETS REPRESENT A SIMPLIFIED SUMMARY OF THE MAJOR STRUCTURAL TYPE OF THE PROPOSED HSR. THE ACTUAL PLAN DIMENSIONS TAKE PRECEDENCE OVER THE SECTION TYPE IDENTIFIED IN PROFILE.
- 2. ALL EXISTING AND PROPOSED STRUCTURAL ELEMENTS SHOWN ARE BASED ON CONCEPTUAL ENGINEERING DESIGN AND AERIAL IMAGERY AND MAY BE REVISED BASED ON MORE ADVANCED SURVEY AND DESIGNS.
- 3. SEE SHEET GEN-00-00010 FOR A KEY TO INFORMATION SHOWN ON PLAN AND PROFILE DRAWINGS.
- 4. LIMITS OF SPECIAL TRACK WORK ARE INDICATED ON THE PLAN SHEETS. ADDITIONAL DETAILS FOR MAINTENANCE OF WAY FACILITIES AND TRAINSET MAINTENANCE FACILITIES ARE SHOWN ON THE VOLUME 3 DRAWINGS.

ROADWAY NOTES:

- 1. EXISTING ROADWAY LOCATIONS ARE APPROXIMATE BASED ON AERIAL IMAGERY BACKGROUNDS.
- 2. PROPOSED ROADWAY WORKS, INCLUDING NEW ROADWAYS, RECONFIGURATION AND REALIGNMENTS OF EXISTING ROADWAYS, AND ROADWAY REMOVALS ARE CONCEPTUAL IN NATURE AND WERE DEVELOPED TO IDENTIFY GENERAL CONFIGURATION AND LOCATION FOR ENVIRONMENTAL IMPACT ANALYSES. ROADWAY WORKS WOULD BE DETAILED DURING FINAL DESIGN AND WOULD COMPLY WITH APPLICABLE STATE, CITY, COUNTY, OR LOCAL REQUIREMENTS.
- 3. SEE SHEET GEN-00-00011 FOR A KEY TO INFORMATION SHOWN ON ROADWAY PLAN DRAWINGS.
- 4. ROADWAY GEOMETRY IS BASED ON TXDOT ROADWAY DESIGN MANUAL. ROAD DESIGN SPEEDS MATCH EXISTING POSTED SPEED LIMITS OR MATCH DESIGN SPEED DETERMINED FROM TXDOT ROADWAY FUNCTIONAL CLASSIFICATION SPEED GUIDELINES, WHICHEVER IS GREATER.
- 5. SUPERELEVATION TRANSITION LENGTHS WERE NOT DETAILED IN ROADWAY APPROACH DESIGN.
- 6. SEE DRAWINGS CVL-00-03030 TO CVL-00-03034B FOR TYPICAL ROADWAY CROSS SECTIONS.
- 7. FOR SEGMENTS HN, WT, NW, EW, AND DS, ROADWAY REMOVALS ARE SHOWN ON RAIL PLAN AND PROFILE SHEETS. FOR SEGMENTS IH, NE, AND EE, ROADWAY REMOVALS ARE NOT SHOWN ON RAIL PLAN AND PROFILE SHEETS. REFER TO ROADWAY PLAN SHEETS IN VOLUME 4 FOR SEGMENT 2B, 3B, AND 4B ROADWAY REMOVALS.
- 8. NOT ALL PRIVATE ROADS AND DRIVEWAYS ARE REPRESENTED ON THE RAIL PLAN AND PROFILE SHEETS.
- 9. THE CLEARANCE ENVELOPES SHOWN ON THE RAIL PLAN AND PROFILE SHEETS REPRESENT THE APPROXIMATE ROADWAY CLEARANCE ENVELOPE. THE BOTTOM OF THE CLEARANCE ENVELOPE REPRESENTS THE TOP OF THE ROADWAY PAVEMENT. CLEARANCE ENVELOPE DOES NOT INCLUDE ROADWAY STRUCTURAL ELEMENTS.
- 10. ROADWAY ELEVATIONS FOR ROADWAY OVER RAILWAY CROSSINGS DO NOT REPRESENT THE PROPOSED ROADWAY ELEVATION, BUT RATHER THE MINIMUM HEIGHT REQUIRED FOR CLEARANCES, INCLUDING ALLOWANCES FOR ROADWAY STRUCTURAL ELEMENTS. SEE FCE REPORT FOR ADDITIONAL INFORMATION.
- 11. ROADWAY TYPICAL SECTIONS ACCOUNT FOR THE NECESSARY SPACE TO CONSTRUCT TEMPORARY ROADWAYS DURING CONSTRUCTION. CLOSE COORDINATION WITH ROADWAY AUTHORITIES, COMMUNITIES, AND EMERGENCY RESPONSE ENTITIES WOULD BE UNDERTAKEN DURING FINAL DESIGN AND CONSTRUCTION TO ENSURE ACCESS DURING THE CONSTRUCTION PHASE.
- 12. USE OF TXDOT RIGHT-OF-WAY FOR PERMANENT IMPROVEMENTS WILL REQUIRE THE APPROPRIATE APPROVAL FROM TXDOT.
- 13. PLANNED ROADS, SUCH AS MTFP ROADS IN HOUSTON, ARE SHOWN IN PROFILES IN VOLUME 2, BUT ARE NOT SHOWN IN PLAN IN VOLUME 2. AS THESE ROADS ARE PLANNED AND NOT EXISTING, THE AERIAL IMAGERY BACKGROUNDS DO NOT SHOW THESE ROADS. PLANNED ROADS ARE SHOWN IN THE FCE REPORT APPENDIX B: ROAD SEPARATION DATABASE.

TYPICAL SECTIONS NOTES:

- 1. SECTIONS ILLUSTRATE TYPICAL REQUIREMENTS TO GUIDE CONCEPTUAL ENGINEERING DESIGN DEVELOPMENT. LOCATION SPECIFIC CONDITIONS WOULD ESTABLISH REQUIREMENTS AT EACH LOCATION AND OVERALL WIDTH OF LIMIT OF DISTURBANCE WOULD VARY AS IDENTIFIED ON DIMENSION LINES AND IN NOTES.
- 2. OFFSET BETWEEN INFRASTRUCTURE ELEMENTS SUCH AS DISTANCE BETWEEN EMBANKMENT, FENCES, DRAINAGE SWALE, ACCESS ROAD, ETC. WOULD VARY BASED ON LOCAL REQUIREMENTS AND SITE SPECIFIC CONDITIONS.
- 3. TYPICAL ROADWAY DRAINAGE SYSTEM PROVIDED AS SHOWN IN TYPICAL SECTIONS. LOCATION SPECIFIC CONFIGURATION AND SIZE WOULD BE ADVANCED DURING MORE DETAILED DESIGN.
- 4. LOCATION SPECIFIC CONDITIONS WOULD DICTATE FENCING REQUIREMENTS.
- 5. EMBANKMENT HEIGHTS AND CUT DEPTHS VARY WITH SURROUNDING GRADE AND RAIL PROFILE ELEVATION.
- 6. CRASH BARRIERS NOT SHOWN. LOCATION SPECIFIC CONDITIONS WILL DICTATE CRASH BARRIER REQUIREMENTS TO ENSURE SAFETY AND TO SATISFY APPLICABLE REGULATORY REQUIREMENTS.
- 7. SUBSURFACE GROUND IMPROVEMENTS ARE NOT SHOWN AND WILL BE BASED ON SITE SPECIFIC REQUIREMENTS.
- 8. RAIL HEIGHT VARIES WITH SURROUNDING GRADE AND RAIL PROFILE. THE BOTTOM OF SUBBALLAST SHALL BE NO LESS THAN 2FT ABOVE 100 YEAR FLOODPLAIN.

UTILITIES NOTES:

- 1. REFER TO THE FCE REPORT FOR A LIST OF MAJOR UTILITY CROSSINGS, THEIR ASSUMED SIZE, AND ASSOCIATED LOCATIONS ALONG THE ALIGNMENT.
- 2. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED ON INFORMATION RECEIVED, AS DOCUMENTED IN THE FINAL CONCEPTUAL ENGINEERING REPORT.
- 3. NO FIELD SURVEYS HAVE BEEN CONDUCTED TO LOCATE AND VERIFY UTILITY LOCATIONS.
- 4. NOT ALL EXISTING UNDERGROUND UTILITIES HAVE BEEN SHOWN. REFER TO THE FCE REPORT FOR MAJOR UTILITIES INCLUDED IN PROJECT MAPPING.
- 5. LOD NOT SHOWN FOR UTILITIES THAT ARE NOT IMPACTED BY THE ALIGNMENT. ONLY MAJOR UTILITIES THAT ARE PROTECTED, RELOCATED OR ELEVATED ARE SHOWN ON THE PLAN AND PROFILE VIEW. REFER TO DRAWING NO. CUT-00-0100 FOR TYPICAL UTILITY CROSSING DETAILS. UTILITY LODS FOR FUTURE PROPOSED CONNECTIONS TO TPSS FACILITIES ARE SHOWN.
- 6. FOR PARALLEL TRANSMISSION LINE CROSSINGS OVER NEW ELEVATED ROADWAYS, A LOD IS SHOWN ON THE PLAN ONLY. REFER TO DRAWING NO. CUT-00-0100 FOR TYPICAL UTILITY CROSSING DETAILS.
- 7. MANY UTILITY CONFLICTS ALONG THE HEMPSTEAD ROAD CORRIDOR IN HOUSTON WOULD BE RESOLVED DURING FINAL DESIGN. A CONTINUOUS LOD IS SHOWN ON THE DRAWINGS TO REPRESENT THAT UTILITIES WOULD BE RELOCATED ON ONE OR BOTH SIDES OF THE ROADWAY AS REQUIRED. ALL WORK WOULD BE COORDINATED WITH UTILITY PROVIDERS TO MINIMIZE IMPACTS AND COORDINATE WITH OTHER PLANNED UTILITY PROJECTS ALONG CORRIDOR.
- 8. FOR UTILITY WORK REQUIRED BY UTILITY COMPANIES, EACH UTILITY OWNER WOULD DEVELOP THE DESIGN IN ACCORDANCE WITH APPLICABLE DESIGN STANDARDS AND REGULATORY AGENCY REVIEW PROCESSES.

DRAINAGE NOTES:

- 1. PROPOSED DETENTION BASIN LOCATIONS AND DIMENSIONS SHOWN ARE APPROXIMATE AND ARE INTENDED FOR PRELIMINARY PLANNING AND ENVIRONMENTAL IMPACT ANALYSIS PURPOSES ONLY. SITE SPECIFIC CONFIGURATIONS WOULD BE DEVELOPED DURING FINAL DESIGN IN ACCORDANCE WITH APPLICABLE REQUIREMENTS.
- 2. EXISTING CULVERTS ARE NOT SHOWN.
- 3. PROPOSED TRACK AND ROADWAY STORMWATER DRAINAGE WOULD BE DEVELOPED DURING FINAL DESIGN IN ACCORDANCE WITH APPLICABLE REQUIREMENTS. REFER TO TYPICAL SECTION DRAWINGS FOR PROPOSED CONFIGURATIONS.
- 4. EXISTING STORMWATER FACILITIES ARE NOT SHOWN.
- 5. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) WATER QUALITY CRITERIA WOULD BE MET FOR STORMWATER RUNOFF AND PROTECTION OF EXISTING WATER RESOURCES.
- 6. CONSTRUCTION OF THE RAIL MAY REQUIRE THE RECONFIGURATION OF PONDS OR STOCK TANKS IMMEDIATELY ADJACENT TO THE RAIL CORRIDOR. IN CASES WHERE THE CURRENT DESIGN NECESSITATES A FULL RELOCATION OF THE POND, ALLOWANCES HAVE BEEN MADE WITHIN THE LOD. IN CASES WHERE THE FULL RELOCATION OF THE POND IS NOT REQUIRED UNDER THE CURRENT DESIGN, ADDITIONAL COORDINATION WITH LANDOWNER WILL BE UNDERTAKEN TO DEVELOP IMPROVEMENTS CONSIDERING LANDOWNER PREFERENCES.

STRUCTURES GENERAL NOTES:

- 1. TYPICAL SECTIONS WERE DEVELOPED TO IDENTIFY GENERAL ARRANGEMENTS AND ALLOWANCES FOR STRUCTURAL ELEMENTS. TYPICAL SECTIONS WERE USED AS THE BASIS FOR DEVELOPMENT OF LOD FOR ENVIRONMENTAL ANALYSIS.
- 2. APPROXIMATE HSR VIADUCT AND BRIDGE STRUCTURE LIMITS AND DEPTHS ARE SHOWN ON THE PROFILES TO SUPPORT ENVIRONMENTAL IMPACT ANALYSIS. LIMITS OF STRUCTURES AND EMBANKMENTS WOULD BE REFINED DURING FINAL DESIGN.
- 3. PLAN AND PROFILE DRAWINGS DO NOT SHOW LIMITS OF STRUCTURES IN PLAN VIEW. SITE SPECIFIC STRUCTURAL DESIGN WOULD BE DEVELOPED DURING FINAL ENGINEERING IN ACCORDANCE WITH APPLICABLE REQUIREMENTS. DESIGN OF FOUNDATIONS, ABUTMENTS, PIERS AND OTHER STRUCTURES WOULD BE DEVELOPED TO MITIGATE ANY IMPACTS IDENTIFIED THROUGH ENVIRONMENTAL ANALYSIS.
- 4. HSR PROFILE WAS DEVELOPED TO PROVIDE A MINIMUM 3FT VERTICAL CLEAR DISTANCE FROM ESTIMATED 100 YEAR FLOOD LEVEL TO BRIDGE SOFFIT FOR RIVER AND FLOODPLAIN CROSSINGS. FINAL DESIGN WOULD BE DEVELOPED TO MEET OR EXCEED THIS REQUIREMENT.
- 5. SPECIAL STRUCTURES WOULD BE REQUIRED TO MITIGATE IMPACTS OR ADDRESS UNIQUE SITE SPECIFIC ISSUES SUCH AS LONG SPANS, CROSSOVER STRUCTURES, AND STRADDLE BENTS TO AVOID OR MITIGATE IMPACTS. THE CONSTRUCTABILITY REPORT IDENTIFIES SPECIAL STRUCTURE LOCATIONS. PLAN AND PROFILE DRAWINGS IDENTIFY ADDITIONAL LOD EXPECTED FOR CONSTRUCTION STAGING AND WORKING AREAS FOR SPECIAL STRUCTURES.

SYSTEMS GENERAL NOTES:

- 1. SYSTEMS SCHEMATICS, SHOWN ON SHEETS SYS-00-02000 THROUGH SYS-00-02006, SHOW LOCATIONS OF SYSTEMS FACILITIES THAT HAVE BEEN INCLUDED FOR EACH END-TO-END ALTERNATIVE.
- 2. AREA FOR SYSTEMS FACILITY SITES HAVE BEEN INCLUDED WITHIN THE PROJECT LOD. THESE AREAS ARE GENERICALLY CALLED OUT AS "RAIL SYSTEMS SITES" ON THE PLAN AND PROFILE SHEETS. REFER TO FCE REPORT TO DETERMINE THE SPECIFIC FACILITY TYPE AT EACH INDIVIDUAL LOCATION.
- 3. TYPICAL LAYOUT PLANS FOR EACH OF THE SYSTEMS FACILITIES ARE INCLUDED IN SHEETS SYS-00-01000 THROUGH SYS-00-01006.
- 4. LOD DEVELOPED FOR ENVIRONMENTAL IMPACT ANALYSIS OF SYSTEMS SITES INCLUDED SPACE FOR A DRIVEWAY AND SPACE TO PARK A LIMITED NUMBER OF MAINTENANCE VEHICLES.
- 5. SYSTEMS BUILDINGS WOULD BE DETAILED DURING FINAL DESIGN TO CONSIDER SITE SPECIFIC CONDITIONS, BE CONTEXT SENSITIVE, AND MINIMIZE VISUAL IMPACT. THE RADIO MAST AT COMMUNICATION FACILITIES WOULD BE APPROXIMATELY 50FT (15M) ABOVE THE TOP OF RAIL ELEVATION.
- 6. TPSS WOULD BE CONNECTED TO THE NEAREST 138KV TRANSMISSION LINES DESIGNED BY UTILITY PROVIDER AND SUBJECT TO ENVIRONMENTAL REVIEW.

FACILITY NOTES:

- 1. PROPOSED HSR FACILITIES WOULD INCLUDE STATIONS AND ASSOCIATED PARKING GARAGES, MAINTENANCE OF WAY (MOW) FACILITIES, TRAINSET MAINTENANCE FACILITIES (TMF), AND RAILWAY SYSTEMS SITES, INCLUDING TRACTION POWER SUPPLY FACILITIES, SIGNAL HOUSES, AND COMMUNICATIONS HOUSES. LOCATIONS, LIMITS OF DISTURBANCE, AND AREAS SHOWN FOR THE VARIOUS PROPOSED FACILITIES ARE FOR PRELIMINARY PLANNING PURPOSES ONLY.
- 2. ALL FACILITIES WOULD BE POWERED FROM THE LOCAL UTILITY GRID.
- 3. ACCESS, SECURITY, AND UTILITY PROVISION REQUIREMENTS FOR ALL FACILITIES WOULD BE DETAILED DURING FINAL DESIGN.

CONSTRUCTION CONSIDERATION NOTES:

- 1. CONSTRUCTION REQUIREMENTS WERE CONSIDERED DURING DEVELOPMENT OF THE CONCEPTUAL ENGINEERING AND ARE DOCUMENTED IN THE PROJECT CONSTRUCTABILITY REPORT.
- 2. TEMPORARY CONSTRUCTION AREAS REQUIRED FOR CONSTRUCTION ACCESS, CONSTRUCTION STAGING, AND PRECASTING FACILITIES WERE IDENTIFIED DURING DEVELOPMENT OF THE CONCEPTUAL ENGINEERING. CONSTRUCTION STAGING AREAS AND PRECAST FACILITIES ARE INCLUDED IN THE PROJECT LOD.
- 3. SPECIAL STRUCTURES REQUIRED TO MITIGATE IMPACTS OR ADDRESS UNIQUE SITE SPECIFIC ISSUES SUCH AS LONG SPANS, CROSSOVER STRUCTURES, AND STRADDLE BENTS ARE IDENTIFIED IN THE CONSTRUCTABILITY REPORT.
- 4. MEASURES REQUIRED TO MITIGATE NOISE, TRAFFIC, AND OTHER ENVIRONMENTAL IMPACTS WOULD BE IDENTIFIED THROUGH THE ENVIRONMENTAL ANALYSES. MORE DETAILED DESIGN INCLUDING DEVELOPMENT OF MAINTENANCE AND PROTECTION OF TRAFFIC AND OTHER CONSTRUCTION SPECIFIC PLANS AND PROCEDURES WOULD BE REQUIRED TO SECURE APPLICABLE PERMITS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS.

REV	DATE	BY	CHK	APP	DESCRIPTION

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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING



1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title

GENERAL NOTES

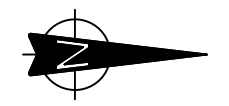
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ABBREVIATIONS

LEGEND

ALT	ALTERNATE ALIGNMENT	SC	SPIRAL CURVE
APPROX	APPROXIMATE	SH	STATE HIGHWAY
ATP	AUTOTRANSFORMER POST	SO	SIDING OFF
AVE	AVENUE	SP	SECTIONING POST
BLVD	BOULEVARD	SSH	SUB-SIGNAL HOUSE
BNSF	BURLINGTON NORTH SANTE FE RAILROAD	SSP	SUB-SECTIONING POST
BOT	BOTTOM	ST	STREET, SPIRAL TO TANGENT
CH	COMMUNICATION HOUSE	STA	STATION
CO RD	COUNTY ROAD	STD	STANDARD
CL	CENTERLINE	SYM	SYMMETRICAL
C	CENTERLINE	TBD	TO BE DETERMINED
CLSM	CONTROLLED LOW STRENGTH MATERIAL	TCEQ	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CO	COUNTY	TEMP	TEMPORARY
CR	COUNTY ROAD	THFN	TEXAS HIGHWAY FREIGHT NETWORK
CS	CURVE TO SPIRAL	TMF	TRAINSET MAINTENANCE FACILITY
CVL	CIVIL	TPSS	TRACTION POWER SUBSTATION
DIA	DIAMETER	TS	TANGENT SPIRAL
DIST	DISTANCE, DISTRICT	TYP	TYPICAL
DR	DRIVE	TOR	TOP OF RAIL
DRG	DRAWING	US	UNITED STATES, UNITED STATES HIGHWAY
DS	DALLAS SEGMENT	UPRR	UNION PACIFIC RAILROAD
DSN	DALLAS SEGMENT NORTH	VAR	VARIABLE
DSS	DALLAS SEGMENT SOUTH	VERT, V	VERTICAL
DT	DALLAS TERMINUS SEGMENT	WB	WESTBOUND
DWY	DRIVEWAY	WT	WEST OF TEAGUE
Ea	ACTUAL SUPERELEVATION	XING	CROSSING
EE	ELLIS EAST SEGMENT	YR	YEAR
ELECT	ELECTRIC		
ELEV	ELEVATION		
EMB	EMBANKMENT		
ENGR	ENGINEER		
EPA	ENVIRONMENTAL PROTECTION AGENCY		
ERMISA	EMERGENCY RESPONSE AND MAINTENANCE STAGING AREA		
Eu	UNBALANCED SUPERELEVATION		
EW	ELLIS WEST SEGMENT		
EXIST, EX.	EXISTING		
EXT	EXTERIOR		
FDN	FOUNDATION		
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY		
FG	FINISHED GRADE		
FIG	FIGURE		
FL	FLOW LINE		
FM	FARM TO MARKET ROAD		
FRS	FREIGHT RAIL SIDING		
FTG	FOOTING		
FWY	FREEWAY		
G	GRADIENT		
GEN	GENERAL		
H	HEIGHT, HIGHWAY BRIDGE		
HN	HOUSTON SEGMENT		
HNN	HOUSTON SEGMENT NORTH		
HNS	HOUSTON SEGMENT SOUTH		
HORIZ, H	HORIZONTAL		
HRW	HIGHWAY RETAINING WALL		
HSR	HIGH SPEED RAIL		
HT	HOUSTON TERMINUS SEGMENT		
HWY	HIGHWAY		
IH	INTERSTATE HIGHWAY		
ISH	INTERMEDIATE SIGNAL HOUSE		
JRC	CENTRAL JAPAN RAILWAY COMPANY		
KV	KILOVOLT		
L	LENGTH		
LN	LANE		
LOD	LIMITS OF DISTURBANCE		
LVC	LENGTH OF VERTICAL CURVE		
MAINT	MAINTENANCE		
MAX	MAXIMUM		
MOW	MAINTENANCE-OF-WAY		
MIN	MINIMUM		
MISC	MISCELLANEOUS		
MPH	MILES PER HOUR		
MSH	MAIN SIGNAL HOUSE		
MTFP	(CITY OF HOUSTON) MAJOR THOROUGHFARE AND FREEWAY PLAN		
NB	NORTHBOUND		
NE	NAVARRO EAST SEGMENT		
NED	NATIONAL ELEVATION DATASET		
NHD	NATIONAL HYDROGRAPHY DATASET		
NLCD	NATIONAL LAND COVER DATASET		
NO	NUMBER		
NTS	NOT TO SCALE		
N/A	NOT APPLICABLE		
NW	NAVARRO WEST SEGMENT, NOISE WALL		
NWI	NATIONAL WETLANDS INVENTORY		
NWIH	PORTION OF NAVARRO WEST ASSOCIATED WITH IH-45 SEGMENT		
OCS	OVERHEAD CATENARY SYSTEM		
OD	OUTSIDE DIAMETER		
OG	ORIGINAL GRADE		
OH	OVERHEAD		
OPP	OPPOSITE		
PKWY	PARKWAY		
POB	POINT OF BEGINNING		
POE	POINT OF END		
PVMT	PAVEMENT		
PVC	POINT VERTICAL CURVATURE		
PVI	POINT VERTICAL INTERSECTION		
PVT	POINT VERTICAL TANGENT		
R	RADIUS, RAIL BRIDGE		
RD	ROAD		
RDWY	ROADWAY		
RM	RANCH TO MARKET ROAD		
ROW	RIGHT OF WAY		
RR, R/R	RAILROAD		
RTE	ROUTE		
RWY	RAILWAY		

PLAN



--- --- ---
CITY / COUNTY BOUNDARY LINE

--- --- ---
MATCH LINE

--- --- ---
CONCEPTUAL ENGINEERING LIMITS OF DISTURBANCE (LOD)

--- --- ---
PROPOSED CENTERLINE OF HIGH-SPEED RAIL WITH STATIONING

--- --- ---
EDGE OF VIADUCT

--- --- ---
PROPOSED ROADWAY EDGE OF PAVEMENT

--- --- ---
CONTOURS

--- --- ---
EXISTING TRANSMISSION LINE

--- --- ---
FENCE

--- --- ---
RETAINING WALL

--- --- ---
CULVERT

PROFILE

--- --- ---
TOP OF RAIL

--- --- ---
EXISTING GROUND

--- --- ---
FEMA 100 YR FLOOD LEVEL

--- --- ---
VIADUCT ABUTMENT AND STRUCTURE SOFFIT

--- --- ---
UTILITY CROSSING

UTILITY / PIPELINE

TEMPORARY CONSTRUCTION AREA

UTILITY LIMIT OF DISTURBANCE (LOD)

RAIL SYSTEMS SITE

DETENTION BASIN

BUILDING TO BE DEMOLISHED

RAIL ON EMBANKMENT (FILL)

RAIL IN CUT

NOTE:

1. FOR ADDITIONAL DETAIL REGARDING INFORMATION SHOWN ON DRAWINGS, SEE RAIL ANNOTATION TO CLARIFY DESIGN INTENT, DRAWING GEN-00-00010. FOR SEGMENTS IH, NE, AND EE, SEE ROAD ANNOTATION TO CLARIFY DESIGN INTENT, DRAWING GEN-00-00011.

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DATE	02/25/2019

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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING

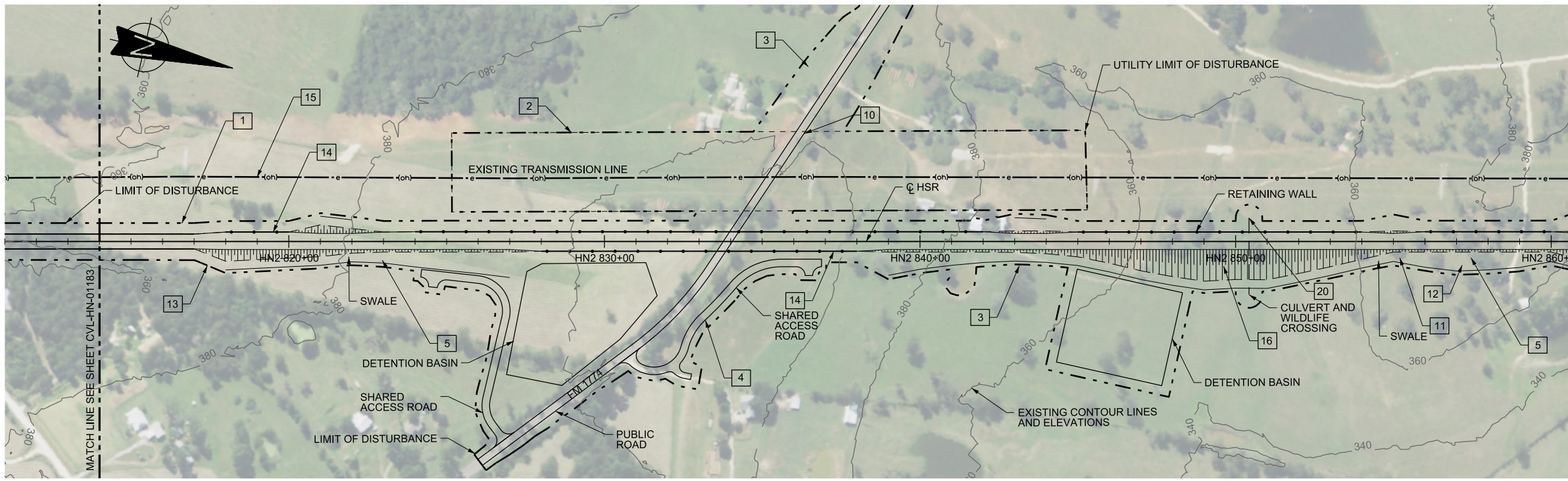


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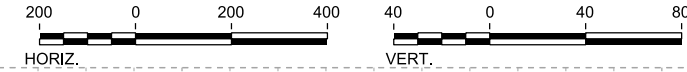
Drawing Title

GENERAL ABBREVIATIONS AND LEGEND

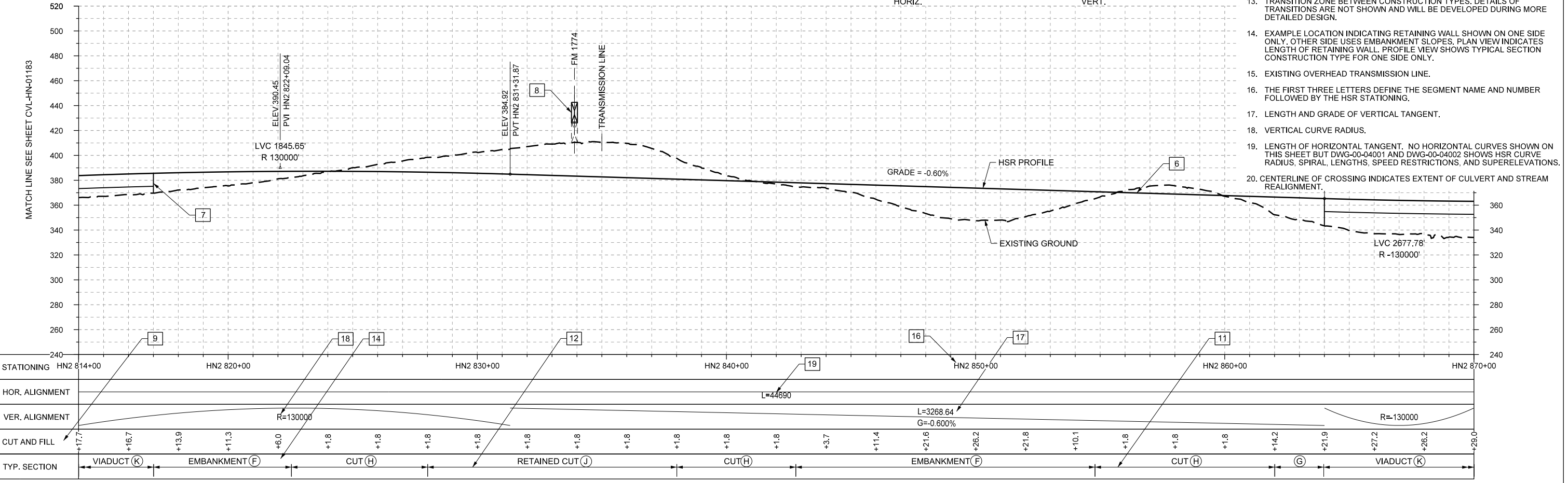
Scale	NO SCALE
Drawing Status	FINAL
Job No	234180
Drawing No	GEN-00-00009
Rev	01



PLAN



- NOTES:
- LIMIT OF DISTURBANCE (LOD) FOR THE PROJECT. LOD VARIES BASED ON IMPACT AT EACH LOCATION. LOD USED FOR ENVIRONMENTAL ANALYSIS.
 - UTILITY LIMIT OF DISTURBANCE. TRANSMISSION LINE TO BE RAISED AS NECESSARY TO SUIT THE GRADE SEPARATION OF THE ROADWAY. REFER TO UTILITY TYPICAL DETAILS.
 - LOD IS OFFSET FROM THE EDGE OF PROPOSED ROADWAY TO ACCOMMODATE SIDE SLOPES ASSOCIATED WITH THE GRADE SEPARATION OF THE ROADWAY AND ACCESS ROAD.
 - DETAILS ON THE TYPE AND WIDTH OF THE ACCESS ROAD ARE SHOWN IN TYPICAL SECTIONS IN VOLUME 1.
 - SWALE EXTENTS SHOWN ON RAIL PLAN SHEETS ARE ONLY GENERATED BY COMPUTER MODEL FOR EMBANKMENT CONSTRUCTION TYPE AND WOULD EXTEND BEYOND THE LIMITS SHOWN. FINAL EXTENTS AND ARRANGEMENTS OF SWALES WOULD BE DEVELOPED DURING FINAL DESIGN AND BE BASED ON SITE SPECIFIC CONDITIONS AND REQUIREMENTS. LOCATION AND CONFIGURATION OF SWALES FOR OTHER CONSTRUCTION TYPES ARE SHOWN ON THE TYPICAL SECTIONS.
 - PROFILE OF THE HSR ALIGNMENT AT TOP OF RAIL.
 - START, END, AND APPROXIMATE UNDERSIDE OF VIADUCT STRUCTURES. TYPICAL STRUCTURE DEPTH SHOWN.
 - CLEARANCE BOX SHOWING 16'-6" FROM EXISTING ROADWAY ALIGNMENT. CLEARANCE BOX SHOWS APPROXIMATE SPACE OCCUPIED BY EXISTING OR PROPOSED ROADWAYS OR FREIGHT RAIL LINES. ACTUAL CLEARANCE REQUIRED VARIES BASED ON ROAD OR RAIL TYPE. FOR DETAILS ON REQUIRED CLEARANCE SEE FCE REPORT.
 - CUT AND FILL VALUES SHOW HEIGHT OF HSR PROFILE AT THE TOP OF RAIL ELEVATION RELATIVE TO GROUND. CUT AND FILL IS CUSTOMARY NOMENCLATURE. HOWEVER VALUES ARE NOT INTENDED TO PROVIDE DEPTHS OF EXCAVATIONS OR HEIGHTS OF EARTHWORKS. WHERE TOP OF RAIL IS WITHIN 6 FEET OF EXISTING GROUND A CUT SECTION MAY BE REQUIRED TO ACCOMMODATE DEPTH OF TRACK STRUCTURE AND DRAINAGE. LIMITS WILL VARY BY LOCATION AND SITE SPECIFIC TOPOGRAPHY. TYPICAL SECTIONS IN VOLUME 1 ILLUSTRATE RELATIONSHIP BETWEEN TOP OF RAIL LEVEL AND TRACK STRUCTURE.
 - REALIGNED OR REPROFILED ROADWAY. FULL EXTENTS OF ROAD REALIGNMENT SHOWN ON ROADWAY SHEETS IN VOLUME 2.
 - EXTENTS OF RAIL EMBANKMENT SLOPES REFER TO SECTIONS.
 - EXTENTS OF CUT SLOPES REFER TO SECTIONS.
 - TRANSITION ZONE BETWEEN CONSTRUCTION TYPES. DETAILS OF TRANSITIONS ARE NOT SHOWN AND WILL BE DEVELOPED DURING MORE DETAILED DESIGN.
 - EXAMPLE LOCATION INDICATING RETAINING WALL SHOWN ON ONE SIDE ONLY. OTHER SIDE USES EMBANKMENT SLOPES. PLAN VIEW INDICATES LENGTH OF RETAINING WALL. PROFILE VIEW SHOWS TYPICAL SECTION CONSTRUCTION TYPE FOR ONE SIDE ONLY.
 - EXISTING OVERHEAD TRANSMISSION LINE.
 - THE FIRST THREE LETTERS DEFINE THE SEGMENT NAME AND NUMBER FOLLOWED BY THE HSR STATIONING.
 - LENGTH AND GRADE OF VERTICAL TANGENT.
 - VERTICAL CURVE RADIUS.
 - LENGTH OF HORIZONTAL TANGENT. NO HORIZONTAL CURVES SHOWN ON THIS SHEET BUT DWG-00-04001 AND DWG-00-04002 SHOWS HSR CURVE RADIUS, SPIRAL, LENGTHS, SPEED RESTRICTIONS, AND SUPERELEVATIONS.
 - CENTERLINE OF CROSSING INDICATES EXTENT OF CULVERT AND STREAM REALIGNMENT.



PROFILE

DESIGNED BY J. ENRIQUEZ
DRAWN BY P. TONKIN
CHECKED BY R. BURNS
IN CHARGE C. TAYLOR
DATE 02/25/2019

REV	DATE	BY	CHK	APP	DESCRIPTION

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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title

GENERAL

RAIL ANNOTATION TO CLARIFY DESIGN INTENT

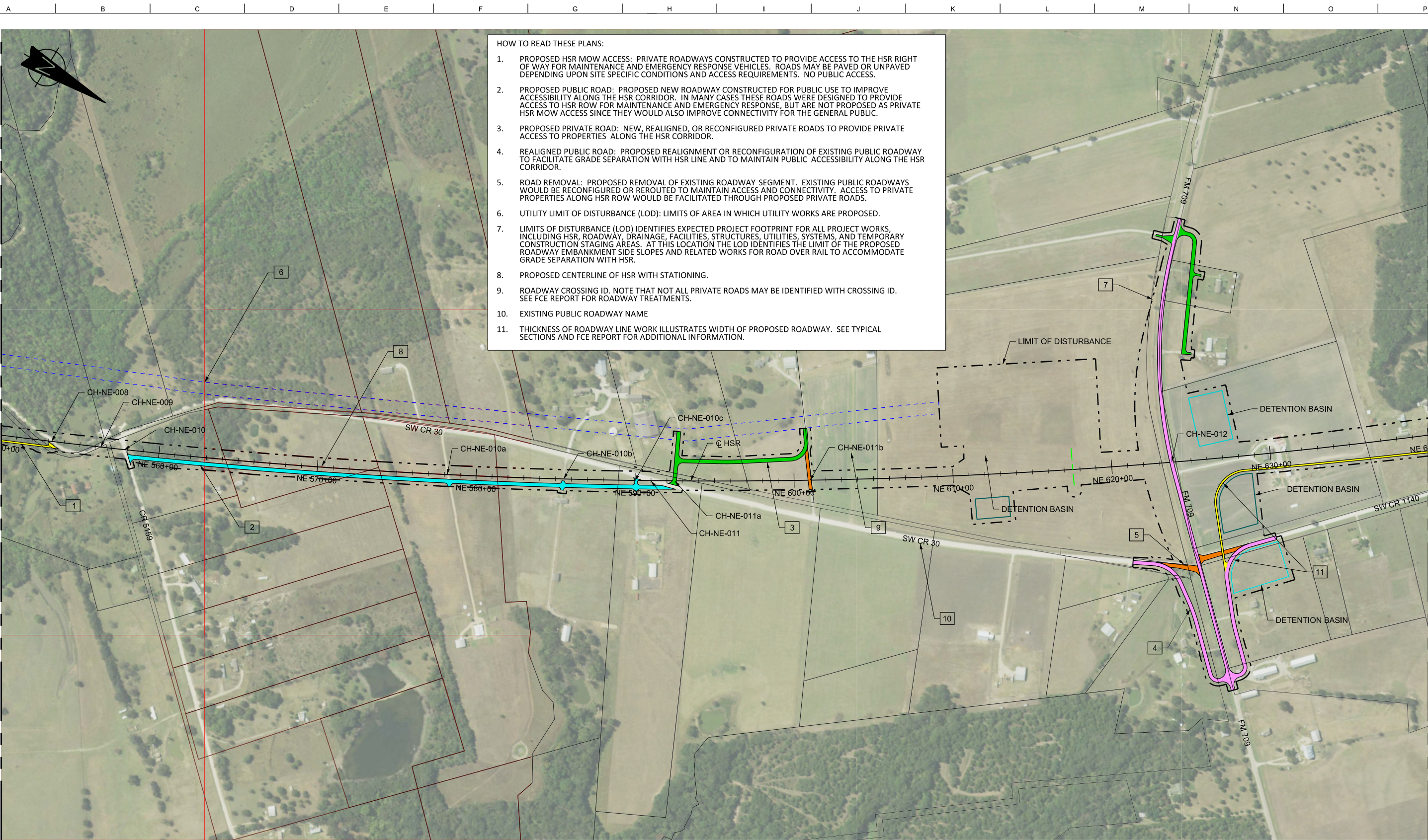
Scale

AS SHOWN

Drawing Status

FINAL

Job No	Drawing No	Rev
234180	GEN-00-00010	01



HOW TO READ THESE PLANS:

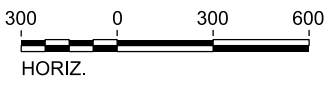
1. PROPOSED HSR MOW ACCESS: PRIVATE ROADWAYS CONSTRUCTED TO PROVIDE ACCESS TO THE HSR RIGHT OF WAY FOR MAINTENANCE AND EMERGENCY RESPONSE VEHICLES. ROADS MAY BE PAVED OR UNPAVED DEPENDING UPON SITE SPECIFIC CONDITIONS AND ACCESS REQUIREMENTS. NO PUBLIC ACCESS.
2. PROPOSED PUBLIC ROAD: PROPOSED NEW ROADWAY CONSTRUCTED FOR PUBLIC USE TO IMPROVE ACCESSIBILITY ALONG THE HSR CORRIDOR. IN MANY CASES THESE ROADS WERE DESIGNED TO PROVIDE ACCESS TO HSR ROW FOR MAINTENANCE AND EMERGENCY RESPONSE, BUT ARE NOT PROPOSED AS PRIVATE HSR MOW ACCESS SINCE THEY WOULD ALSO IMPROVE CONNECTIVITY FOR THE GENERAL PUBLIC.
3. PROPOSED PRIVATE ROAD: NEW, REALIGNED, OR RECONFIGURED PRIVATE ROADS TO PROVIDE PRIVATE ACCESS TO PROPERTIES ALONG THE HSR CORRIDOR.
4. REALIGNED PUBLIC ROAD: PROPOSED REALIGNMENT OR RECONFIGURATION OF EXISTING PUBLIC ROADWAY TO FACILITATE GRADE SEPARATION WITH HSR LINE AND TO MAINTAIN PUBLIC ACCESSIBILITY ALONG THE HSR CORRIDOR.
5. ROAD REMOVAL: PROPOSED REMOVAL OF EXISTING ROADWAY SEGMENT. EXISTING PUBLIC ROADWAYS WOULD BE RECONFIGURED OR REROUTED TO MAINTAIN ACCESS AND CONNECTIVITY. ACCESS TO PRIVATE PROPERTIES ALONG HSR ROW WOULD BE FACILITATED THROUGH PROPOSED PRIVATE ROADS.
6. UTILITY LIMIT OF DISTURBANCE (LOD): LIMITS OF AREA IN WHICH UTILITY WORKS ARE PROPOSED.
7. LIMITS OF DISTURBANCE (LOD) IDENTIFIES EXPECTED PROJECT FOOTPRINT FOR ALL PROJECT WORKS, INCLUDING HSR, ROADWAY, DRAINAGE, FACILITIES, STRUCTURES, UTILITIES, SYSTEMS, AND TEMPORARY CONSTRUCTION STAGING AREAS. AT THIS LOCATION THE LOD IDENTIFIES THE LIMIT OF THE PROPOSED ROADWAY EMBANKMENT SIDE SLOPES AND RELATED WORKS FOR ROAD OVER RAIL TO ACCOMMODATE GRADE SEPARATION WITH HSR.
8. PROPOSED CENTERLINE OF HSR WITH STATIONING.
9. ROADWAY CROSSING ID. NOTE THAT NOT ALL PRIVATE ROADS MAY BE IDENTIFIED WITH CROSSING ID. SEE FCE REPORT FOR ROADWAY TREATMENTS.
10. EXISTING PUBLIC ROADWAY NAME
11. THICKNESS OF ROADWAY LINE WORK ILLUSTRATES WIDTH OF PROPOSED ROADWAY. SEE TYPICAL SECTIONS AND FCE REPORT FOR ADDITIONAL INFORMATION.

MATCHLINE SEE SHEET RDY-NE-04006

MATCHLINE SEE SHEET RDY-NE-04008

LEGEND	
	PROPOSED HSR MOW ACCESS
	PROPOSED PUBLIC ROAD
	PROPOSED PRIVATE ACCESS
	REALIGNED PUBLIC ROAD
	ROAD REMOVAL
	UTILITY LIMIT OF DISTURBANCE
	ELECTRICAL TRANS. LINE
	EXIST. STREAM / POND / WETLAND
	DETENTION BASIN (RAIL)
	DETENTION BASIN (ROAD)
	PROPOSED CULVERTS / DITCH REALIGNMENT

PLAN



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
J. ALMAGUER

DRAWN BY
P. TONKIN

CHECKED BY
G. VOWELS

IN CHARGE
C. TAYLOR

DATE
02/25/2019

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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
GENERAL

ROADWAY ANNOTATION TO CLARIFY DESIGN INTENT

Scale AS SHOWN		
Drawing Status FINAL		
Job No 234180	Drawing No GEN-00-00011	Rev 01

1 - RAILWAY TYPICAL SECTIONS

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY	
DRAWN BY	
CHECKED BY	
IN CHARGE	
DATE	2/25/2019

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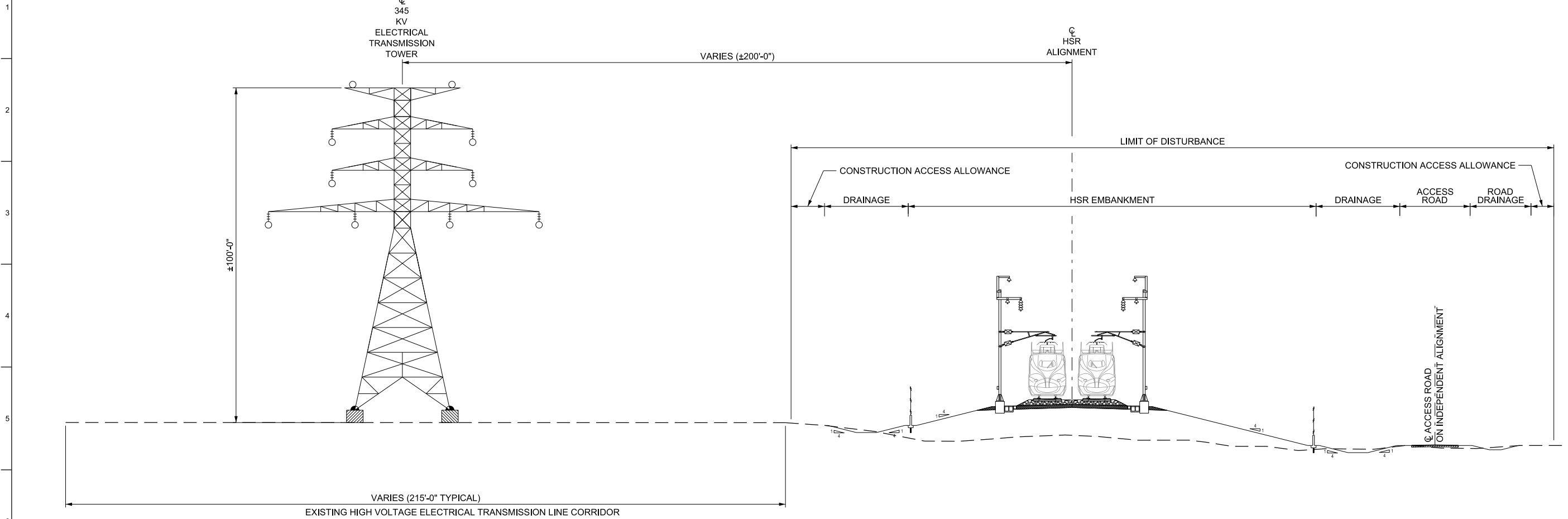
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DALLAS TO HOUSTON HIGHWAY
 FINAL CONCEPTUAL ENGINEERING

TEXAS CENTRAL
 1409 South Lamar Street, Suite 1022, Dallas, TX

Drawn by	
Checked by	
Approved by	
Scale	NO SCALE
Drawing Status	FINAL
Job No	234180
Drawn by	GE
Revised by	
Revision	01

GENERAL



F TYPICAL EMBANKMENT SECTION ADJACENT TO UTILITY CORRIDOR

NOTES:

1. THIS SECTION ILLUSTRATES TYPICAL OFFSET BETWEEN THE PROPOSED HSR ALIGNMENT AND EXISTING ELECTRICAL TRANSMISSION LINE. HSR MAY BE ORIENTED ON EITHER SIDE OF UTILITY CORRIDOR AND OFFSETS TO ELECTRICAL TRANSMISSION TOWERS VARIES BASED ON SITE SPECIFIC GEOMETRY, TOPOGRAPHY, AND CONSTRAINTS. WIDTH OF EXISTING TRANSMISSION LINE ROW WILL VARY. WHERE KNOWN, OFFSETS WERE NECESSARY TO ACCOMMODATE PLANNED IMPROVEMENTS TO UTILITIES.
2. DURING DETAILED DESIGN DEVELOPMENT AND COORDINATION WITH UTILITY PROVIDER, EXISTING TRANSMISSION LINE ROW AND EASEMENTS WILL BE CONFIRMED. RETAINING WALLS MAY BE REQUIRED TO PREVENT ENCROACHMENT INTO THE UTILITY CORRIDOR. LOCATION AND HEIGHT WILL BE BASED ON SITE SPECIFIC TOPOGRAPHY, SWALE WIDTH, AND EMBANKMENT WIDTH.
3. WHERE PRACTICAL ROADS MAY BE CONSTRUCTED TO ALLOW FOR JOINT USE BY UTILITY PROVIDER AND TCRR FOR MAINTENANCE PURPOSES TO LIMIT IMPACTS.
4. DETAILS OF THE INFRASTRUCTURE ELEMENTS, SIZE, AND POSITION WITHIN THE LIMIT OF DISTURBANCE ARE SHOWN IN THE EMBANKMENT TYPICAL SECTION. REFER TO DRAWING NO. CVL-00-03001 FOR ADDITIONAL NOTES FOR TYPICAL EMBANKMENT SECTION.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
J. SERRANO

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
02/25/2019

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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING

TEXAS CENTRAL

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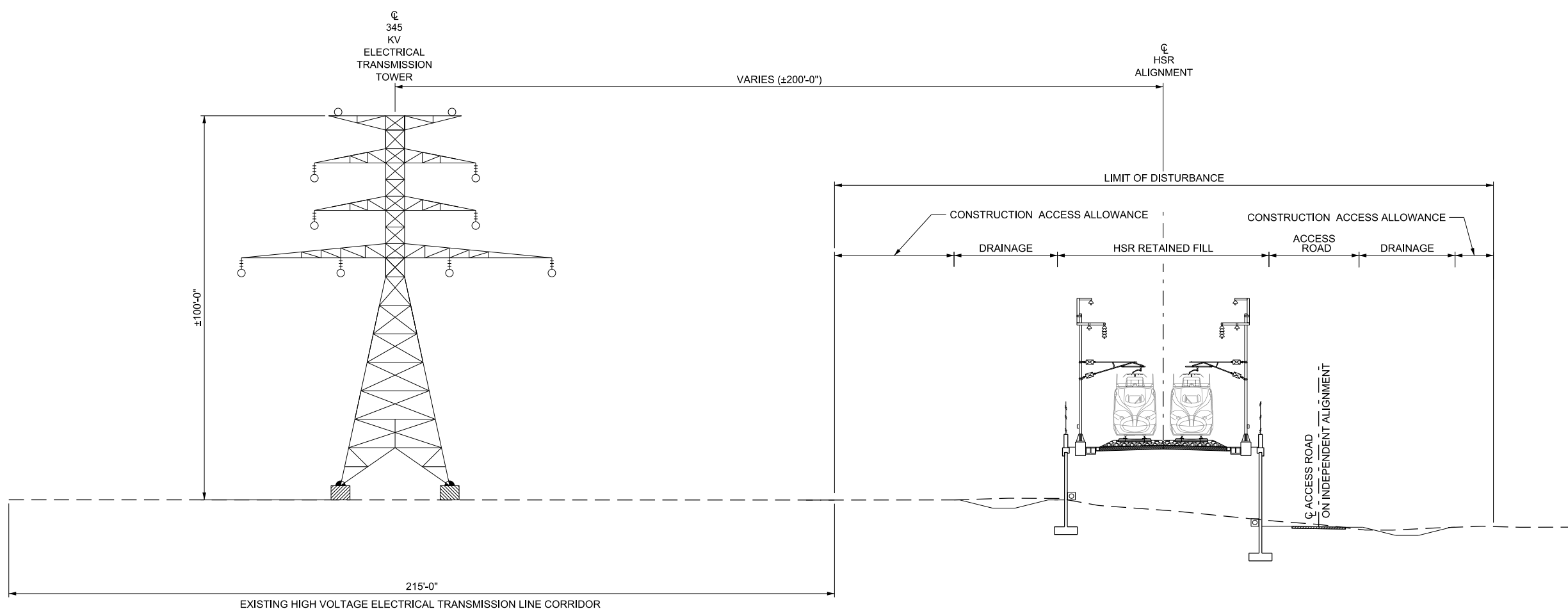
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GENERAL CIVIL RAIL TYPICAL SECTIONS SHEET 1 OF 11

Scale
5/8" = 10'

Drawing Status
FINAL

Job No 234180	Drawing No CVL-00-03001B	Rev 01
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G TYPICAL RETAINED FILL SECTION ADJACENT TO UTILITY CORRIDOR

NOTES:

1. THIS SECTION ILLUSTRATES TYPICAL OFFSET BETWEEN THE PROPOSED HSR ALIGNMENT AND EXISTING ELECTRICAL TRANSMISSION LINE. HSR MAY BE ORIENTED ON EITHER SIDE OF UTILITY CORRIDOR AND OFFSETS TO ELECTRICAL TRANSMISSION TOWERS VARIES BASED ON SITE SPECIFIC GEOMETRY, TOPOGRAPHY, AND CONSTRAINTS. WIDTH OF EXISTING TRANSMISSION LINE ROW WILL VARY. WHERE KNOWN, OFFSETS WERE NECESSARY TO ACCOMMODATE PLANNED IMPROVEMENTS TO UTILITIES.
2. DURING DETAILED DESIGN DEVELOPMENT AND COORDINATION WITH UTILITY PROVIDER, EXISTING TRANSMISSION LINE ROW AND EASEMENTS WILL BE CONFIRMED.
3. WHERE PRACTICAL ROADS MAY BE CONSTRUCTED TO ALLOW FOR JOINT USE BY UTILITY PROVIDER AND TCRR FOR MAINTENANCE PURPOSES TO LIMIT IMPACTS.
4. DETAILS OF THE INFRASTRUCTURE ELEMENTS, SIZE, AND POSITION WITHIN THE LIMIT OF DISTURBANCE ARE SHOWN IN THE RETAINED FILL TYPICAL SECTION. REFER TO DRAWING NO. CVL-00-03002 FOR ADDITIONAL NOTES FOR TYPICAL RETAINED FILL SECTION.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
J. SERRANO

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
02/25/2019

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FINAL CONCEPTUAL ENGINEERING

TEXAS CENTRAL

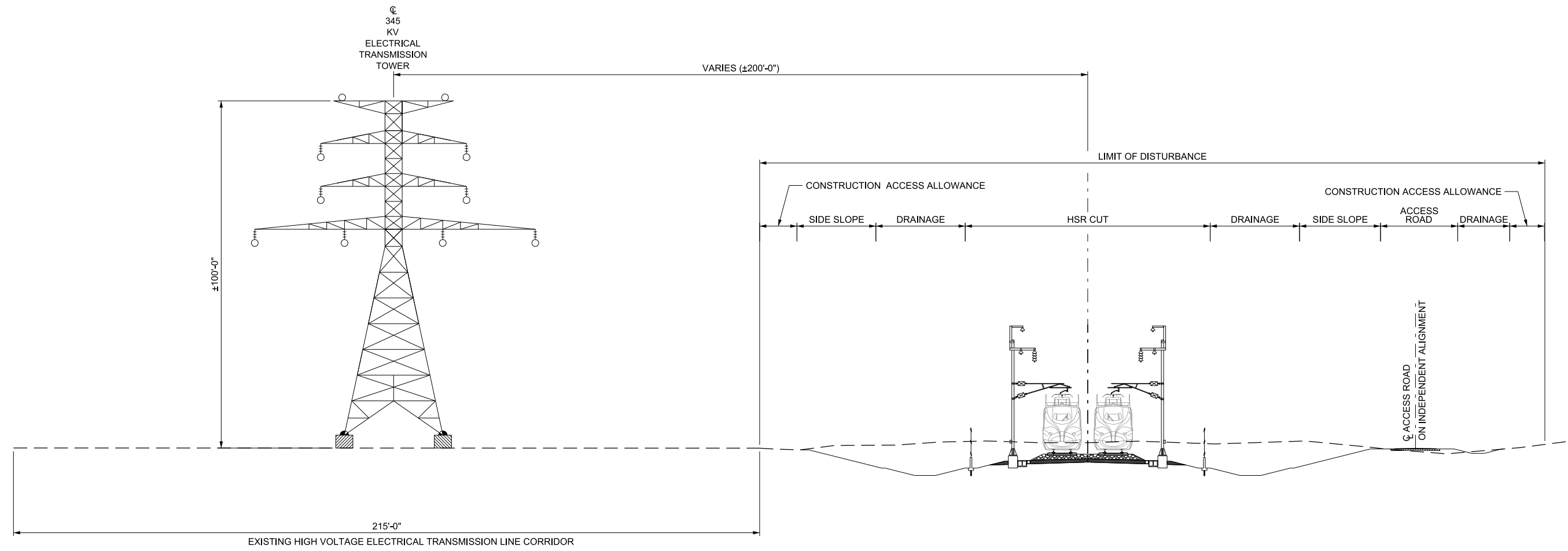
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
GENERAL CIVIL RAIL TYPICAL SECTIONS SHEET 2 OF 11

Scale
5/8" = 10'

Drawing Status
FINAL

Job No 234180	Drawing No CVL-00-03002B	Rev 01
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H TYPICAL CUT SECTION ADJACENT TO UTILITY CORRIDOR

NOTES:

1. THIS SECTION ILLUSTRATES TYPICAL OFFSET BETWEEN THE PROPOSED HSR ALIGNMENT AND EXISTING ELECTRICAL TRANSMISSION LINE. HSR MAY BE ORIENTED ON EITHER SIDE OF UTILITY CORRIDOR AND OFFSETS TO ELECTRICAL TRANSMISSION TOWERS VARIES BASED ON SITE SPECIFIC GEOMETRY, TOPOGRAPHY, AND CONSTRAINTS. WIDTH OF EXISTING TRANSMISSION LINE ROW WILL VARY. WHERE KNOWN, OFFSETS WERE NECESSARY TO ACCOMMODATE PLANNED IMPROVEMENTS TO UTILITIES.
2. DURING DETAILED DESIGN DEVELOPMENT AND COORDINATION WITH UTILITY PROVIDER, EXISTING TRANSMISSION LINE ROW AND EASEMENTS WILL BE CONFIRMED. RETAINING WALLS MAY BE REQUIRED TO PREVENT ENCROACHMENT INTO THE UTILITY CORRIDOR. LOCATION AND HEIGHT WILL BE BASED ON SITE SPECIFIC TOPOGRAPHY, SWALE WIDTH, AND EMBANKMENT WIDTH.
3. WHERE PRACTICAL ROADS MAY BE CONSTRUCTED TO ALLOW FOR JOINT USE BY UTILITY PROVIDER AND TCRR FOR MAINTENANCE PURPOSES TO LIMIT IMPACTS.
4. DETAILS OF THE INFRASTRUCTURE ELEMENTS, SIZE, AND POSITION WITHIN THE LIMIT OF DISTURBANCE ARE SHOWN IN THE TYPICAL CUT SECTION. REFER TO DRAWING NO. CVL-00-03003 FOR ADDITIONAL NOTES FOR TYPICAL CUT SECTION.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY J. SERRANO
DRAWN BY J. BORGHESI
CHECKED BY K. SEYMOUR
IN CHARGE C. TAYLOR
DATE 02/25/2019

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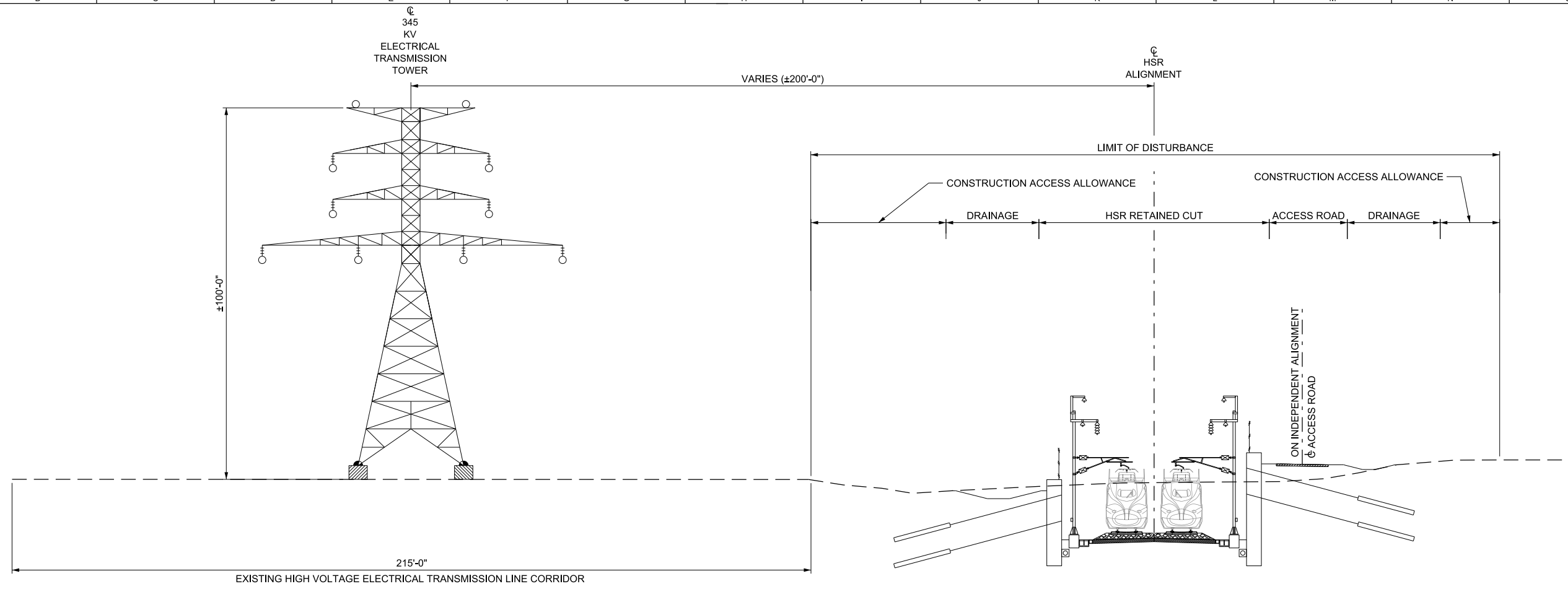
DALLAS TO HOUSTON HIGH-SPEED RAIL
 FINAL CONCEPTUAL ENGINEERING

 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
GENERAL CIVIL RAIL TYPICAL SECTIONS SHEET 3 OF 11

Scale 5/8" = 10'	Drawing Status FINAL
Job No 234180	Drawing No CVL-00-03003B
	Rev 01

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J TYPICAL RETAINED CUT SECTION ADJACENT TO UTILITY CORRIDOR

NOTES:

1. THIS SECTION ILLUSTRATES TYPICAL OFFSET BETWEEN THE PROPOSED HSR ALIGNMENT AND EXISTING ELECTRICAL TRANSMISSION LINE. HSR MAY BE ORIENTED ON EITHER SIDE OF UTILITY CORRIDOR AND OFFSETS TO ELECTRICAL TRANSMISSION TOWERS VARIES BASED ON SITE SPECIFIC GEOMETRY, TOPOGRAPHY, AND CONSTRAINTS. WIDTH OF EXISTING TRANSMISSION LINE ROW WILL VARY. WHERE KNOWN, OFFSETS WERE NECESSARY TO ACCOMMODATE PLANNED IMPROVEMENTS TO UTILITIES.
2. DURING DETAILED DESIGN DEVELOPMENT AND COORDINATION WITH UTILITY PROVIDER, EXISTING TRANSMISSION LINE ROW AND EASEMENTS WILL BE CONFIRMED.
3. WHERE PRACTICAL ROADS MAY BE CONSTRUCTED TO ALLOW FOR JOINT USE BY UTILITY PROVIDER AND TCRR FOR MAINTENANCE PURPOSES TO LIMIT IMPACTS.
4. DETAILS OF THE INFRASTRUCTURE ELEMENTS, SIZE, AND POSITION WITHIN THE LIMIT OF DISTURBANCE ARE SHOWN IN THE RETAINED CUT TYPICAL SECTION. REFER TO DRAWING NO. CVL-00-03004 FOR ADDITIONAL NOTES FOR TYPICAL RETAINED CUT SECTION.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
J. SERRANO
DRAWN BY
J. BORGHESI
CHECKED BY
K. SEYMOUR
IN CHARGE
C. TAYLOR
DATE
02/25/2019

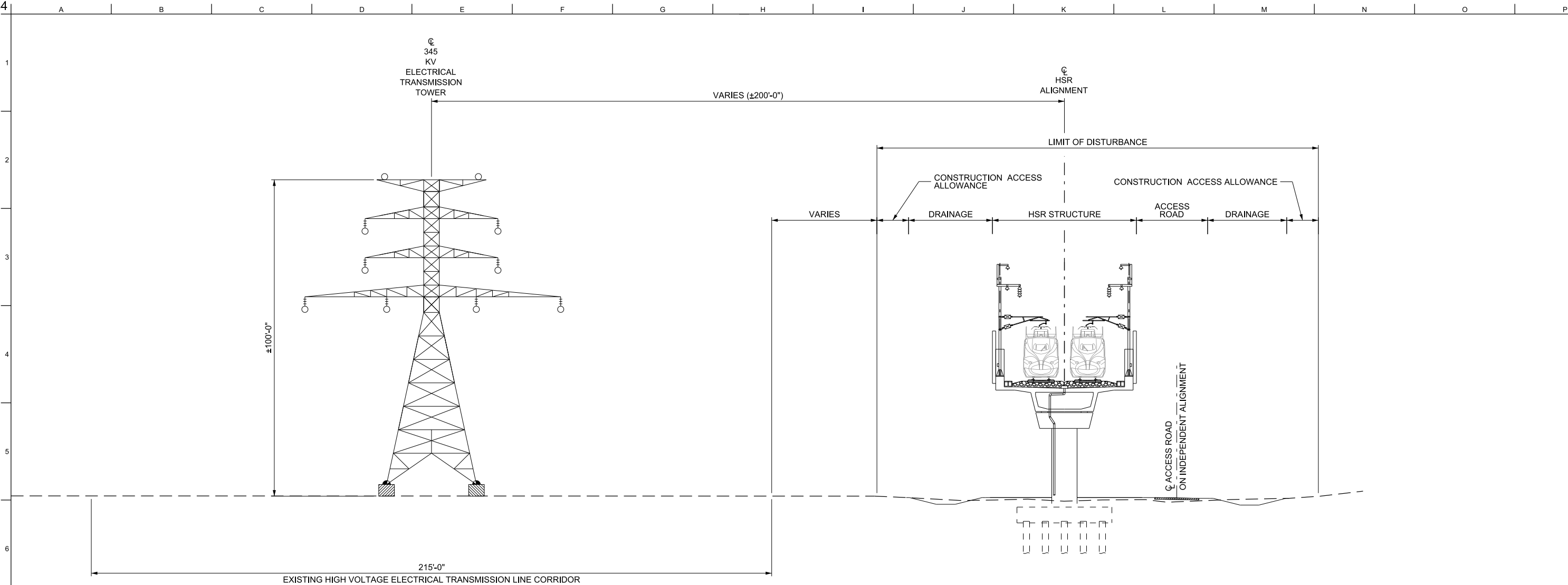
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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING
TEXAS CENTRAL
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Drawing Title
GENERAL CIVIL RAIL TYPICAL SECTIONS SHEET 4 OF 11

Scale
5/8" = 10'
Drawing Status
FINAL
Job No
234180
Drawing No
CVL-00-03004B
Rev
01



K TYPICAL VIADUCT SECTION ADJACENT TO UTILITY CORRIDOR

NOTES:

1. THIS SECTION ILLUSTRATES TYPICAL OFFSET BETWEEN THE PROPOSED HSR ALIGNMENT AND EXISTING ELECTRICAL TRANSMISSION LINE. HSR MAY BE ORIENTED ON EITHER SIDE OF UTILITY CORRIDOR AND OFFSETS TO ELECTRICAL TRANSMISSION TOWERS VARIES BASED ON SITE SPECIFIC GEOMETRY, TOPOGRAPHY, AND CONSTRAINTS. WIDTH OF EXISTING TRANSMISSION LINE ROW WILL VARY. WHERE KNOWN, OFFSETS WERE NECESSARY TO ACCOMMODATE PLANNED IMPROVEMENTS TO UTILITIES.
2. DURING DETAILED DESIGN DEVELOPMENT AND COORDINATION WITH UTILITY PROVIDER, EXISTING TRANSMISSION LINE ROW AND EASEMENTS WILL BE CONFIRMED.
3. WHERE PRACTICAL ROADS MAY BE CONSTRUCTED TO ALLOW FOR JOINT USE BY UTILITY PROVIDER AND TCRR FOR MAINTENANCE PURPOSES TO LIMIT IMPACTS.
4. DETAILS OF THE INFRASTRUCTURE ELEMENTS, SIZE, AND POSITION WITHIN THE LIMIT OF DISTURBANCE ARE SHOWN IN THE VIADUCT TYPICAL SECTION. REFER TO DRAWING NO. CVL-00-03005 FOR ADDITIONAL NOTES FOR TYPICAL VIADUCT SECTION.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
J. SERRANO

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
02/25/2019

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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING

TEXAS CENTRAL

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

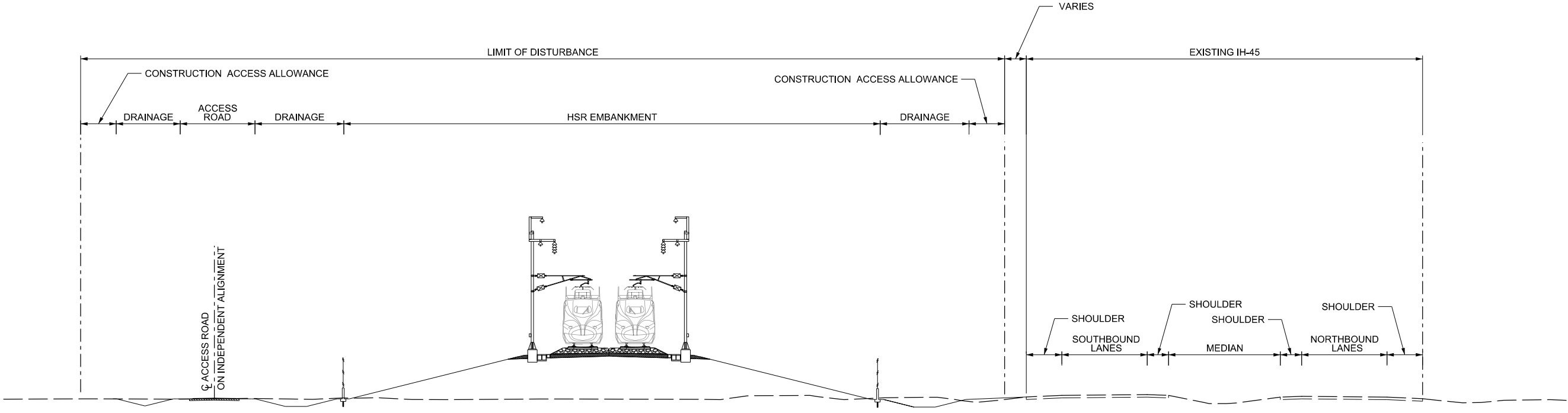
Drawing Title

GENERAL CIVIL RAIL TYPICAL SECTIONS SHEET 5 OF 11

Scale
5/8" = 10'

Drawing Status
FINAL

Job No 234180	Drawing No CVL-00-03005B	Rev 01
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P TYPICAL EMBANKMENT SECTION ADJACENT TO IH-45

- NOTES:
1. DETAILS OF THE INFRASTRUCTURE ELEMENTS, SIZE, AND POSITION WITHIN THE LIMIT OF DISTURBANCE ARE SHOWN IN THE EMBANKMENT SECTIONS.
 2. DURING DETAILED DESIGN DEVELOPMENT AND COORDINATION WITH TXDOT, HSR MAY BE ORIENTED ON EITHER SIDE OF IH-45 CORRIDOR AND OFFSETS TO IH-45 CORRIDOR VARIES BASED ON SITE SPECIFIC GEOMETRY, TOPOGRAPHY, AND CONSTRAINTS.
 3. REFER TO DRAWING NO. CVL-00-03001 FOR ADDITIONAL NOTES FOR EMBANKMENT SECTIONS.
 4. WIDTH OF EXISTING IH-45 CORRIDOR ROW WILL VARY. OFFSET TO IH45 VARIES, SEE PLAN AND PROFILE IN VOLUME 2 FOR LOCATION.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
S. DI BRATTO

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
02/25/2019

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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING

TEXAS CENTRAL

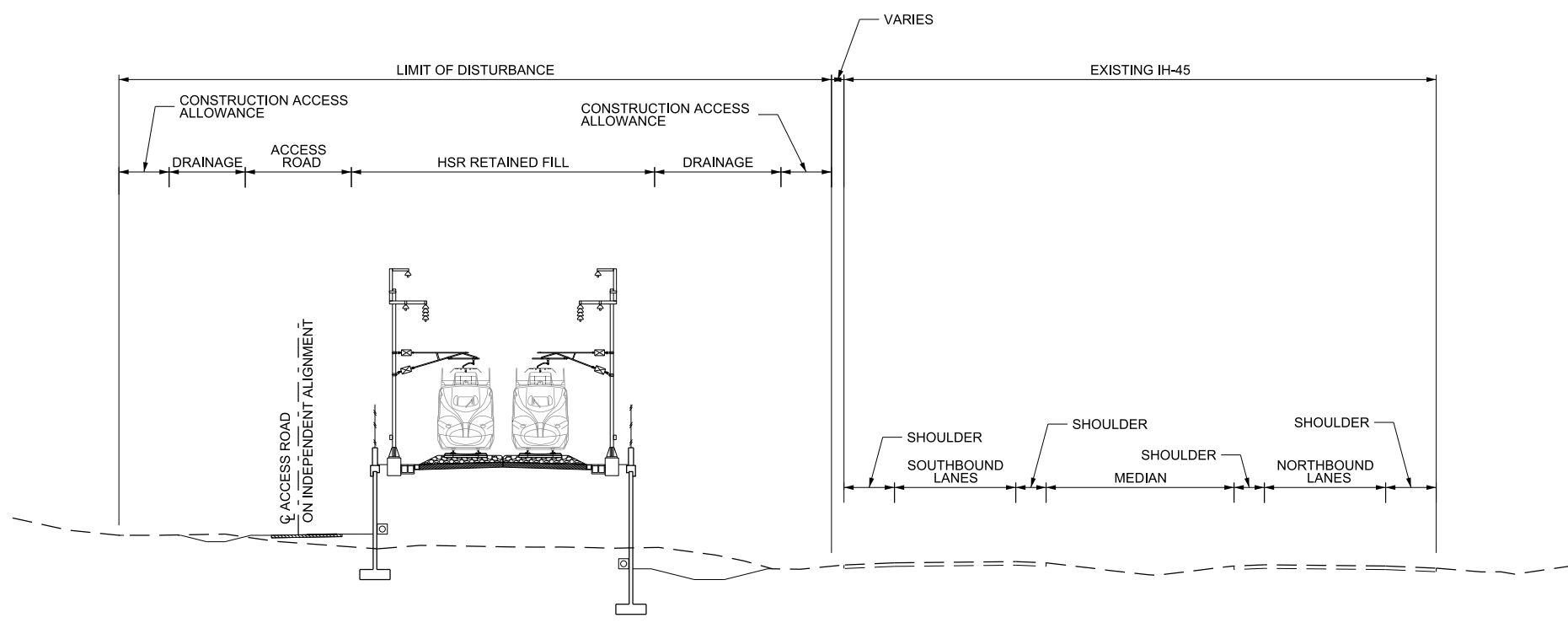
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
**GENERAL CIVIL RAIL
TYPICAL SECTIONS
SHEET 6 OF 11**

Scale
5/8" = 10'

Drawing Status
FINAL

Job No 234180	Drawing No CVL-00-03006B	Rev 01
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Q TYPICAL RETAINED FILL SECTION ADJACENT TO IH-45

- NOTES:
1. DETAILS OF INFRASTRUCTURE ELEMENTS, SIZE, AND POSITION WITHIN THE LIMIT OF DISTURBANCE ARE SHOWN IN THE RETAINED FILL SECTION.
 2. OFFSET TO IH45 VARIES. SEE PLAN AND PROFILE IN VOLUME 2 FOR LOCATION.
 3. REFER TO DRAWING NO. CVL-00-03002 FOR ADDITIONAL NOTES FOR RETAINED FILL SECTION.

REV	DATE	BY	CHK	APP	DESCRIPTION

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K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
02/25/2019

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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING

TEXAS CENTRAL

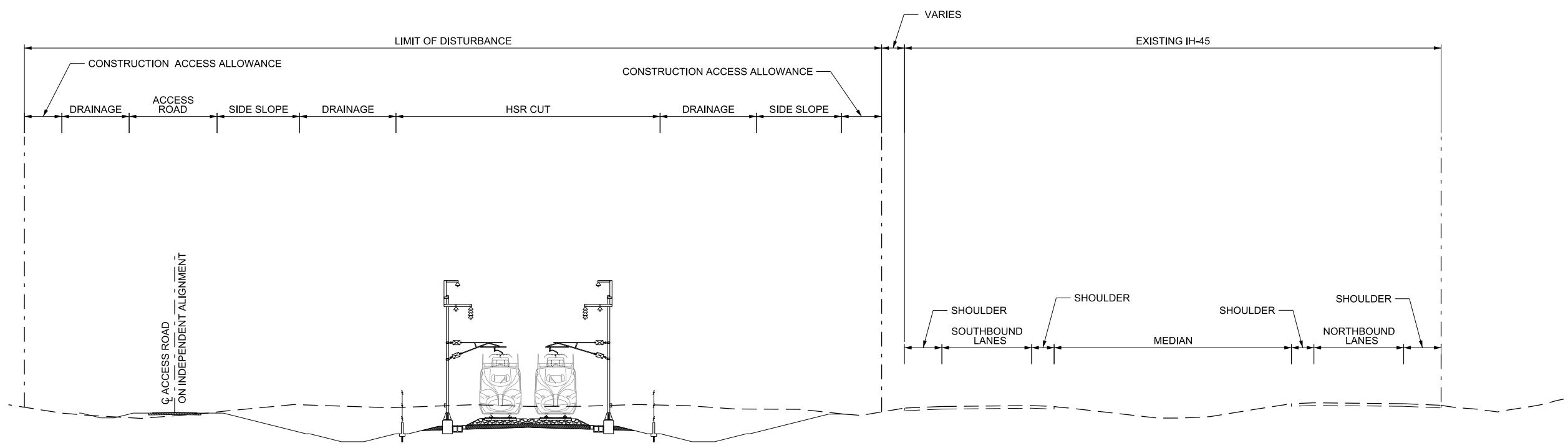
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
GENERAL CIVIL RAIL TYPICAL SECTIONS SHEET 7 OF 11

Scale
5/8" = 10'

Drawing Status
FINAL

Job No 234180	Drawing No CVL-00-03007B	Rev 01
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(R) TYPICAL CUT SECTION ADJACENT TO IH-45

- NOTES:
1. DETAILS OF THE INFRASTRUCTURE ELEMENTS, SIZE, AND POSITION WITHIN THE LIMIT OF DISTURBANCE ARE SHOWN IN THE TYPICAL CUT SECTION.
 2. OFFSET TO IH45 VARIES, SEE PLAN AND PROFILE IN VOLUME 2 FOR LOCATION.
 3. REFER TO DRAWING NO. CVL-00-03003 FOR ADDITIONAL NOTES FOR TYPICAL CUT SECTION.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
S. DI BRATTO

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
02/25/2019

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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING

TEXAS CENTRAL

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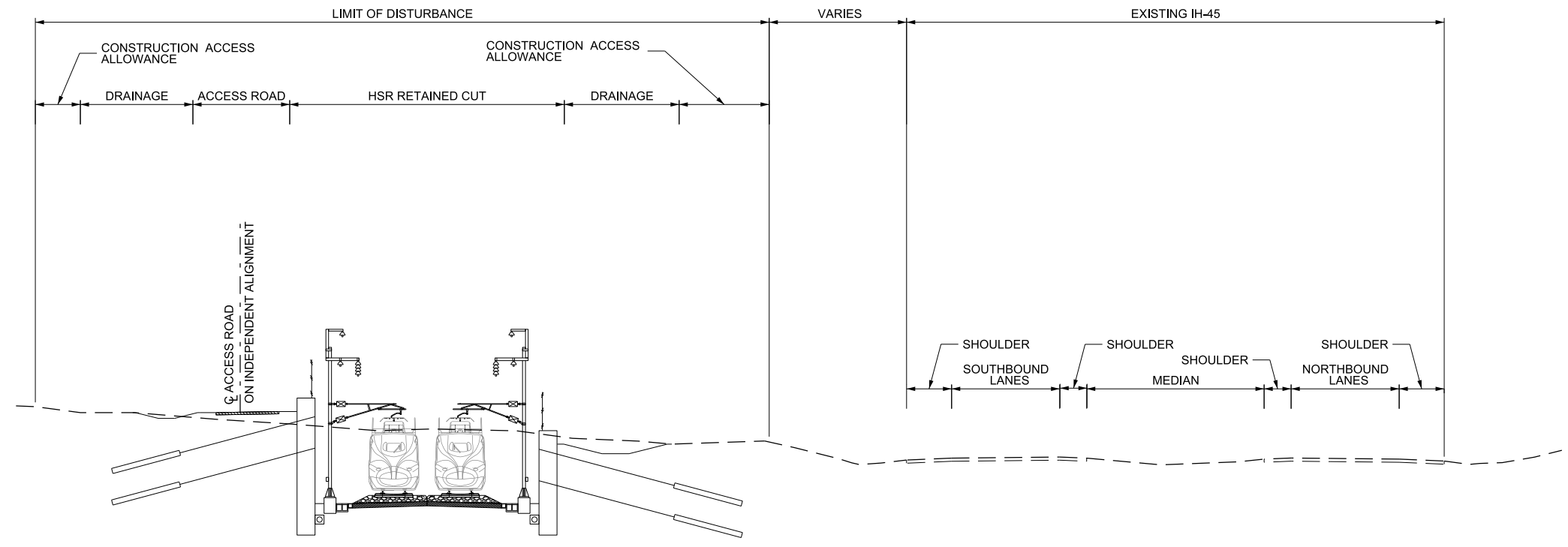
Drawing Title

**GENERAL CIVIL RAIL
TYPICAL SECTIONS
SHEET 8 OF 11**

Scale
5/8" = 10'

Drawing Status
FINAL

Job No 234180	Drawing No CVL-00-03008B	Rev 01
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S TYPICAL RETAINED CUT SECTION ADJACENT TO IH-45

- NOTES:
1. DETAILS OF THE INFRASTRUCTURE ELEMENTS, SIZE, AND POSITION WITHIN THE LIMIT OF DISTURBANCE ARE SHOWN IN THE RETAINED CUT SECTION.
 2. OFFSET TO IH45 VARIES, SEE PLAN AND PROFILE IN VOLUME 2 FOR LOCATION.
 3. REFER TO DRAWING NO. CVL-00-03004 FOR ADDITIONAL NOTES FOR RETAINED CUT SECTION.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
S. DI BRATTO

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K. SEYMOUR

IN CHARGE
C. TAYLOR

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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING

TEXAS CENTRAL

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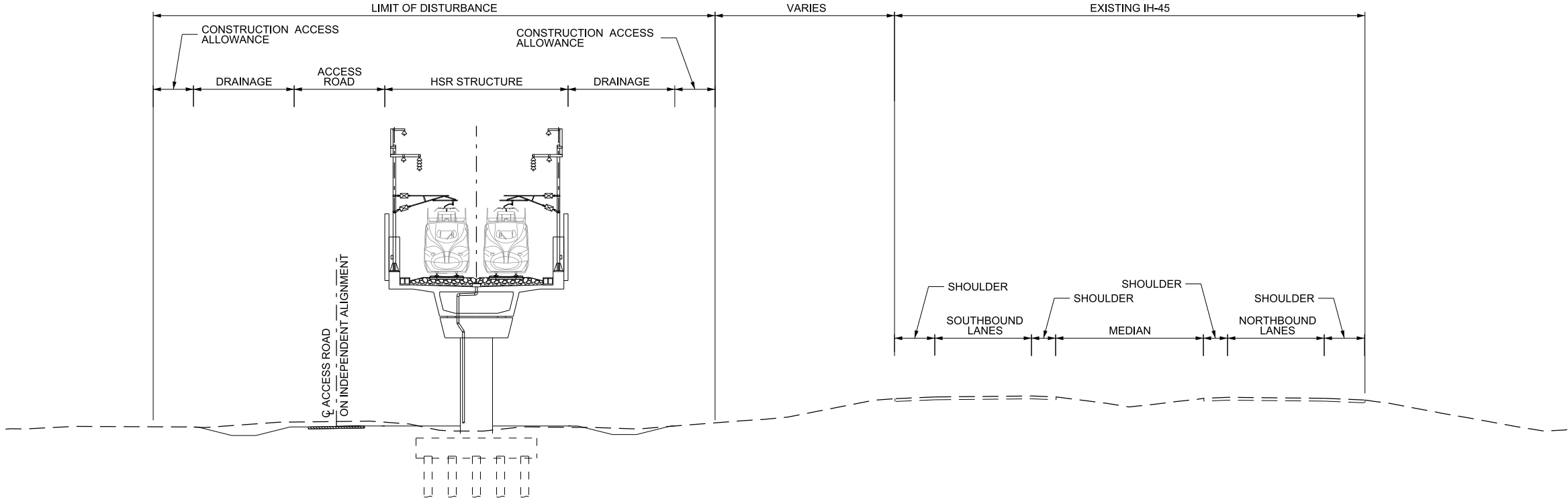
Drawing Title

**GENERAL CIVIL RAIL
TYPICAL SECTIONS
SHEET 9 OF 11**

Scale
5/8" = 10'

Drawing Status
FINAL

Job No 234180	Drawing No CVL-00-03009B	Rev 01
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T TYPICAL VIADUCT SECTION ADJACENT TO IH-45

- NOTES:
1. DETAILS OF THE INFRASTRUCTURE ELEMENTS, SIZE, AND POSITION WITHIN THE LIMIT OF DISTURBANCE ARE SHOWN IN THE VIADUCT SECTION.
 2. OFFSET TO IH45 VARIES, SEE PLAN AND PROFILE IN VOLUME 2 FOR LOCATION.
 3. REFER TO DRAWING NO. CVL-00-03005 FOR ADDITIONAL NOTES FOR VIADUCT SECTION.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
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C. TAYLOR

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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING

TEXAS CENTRAL

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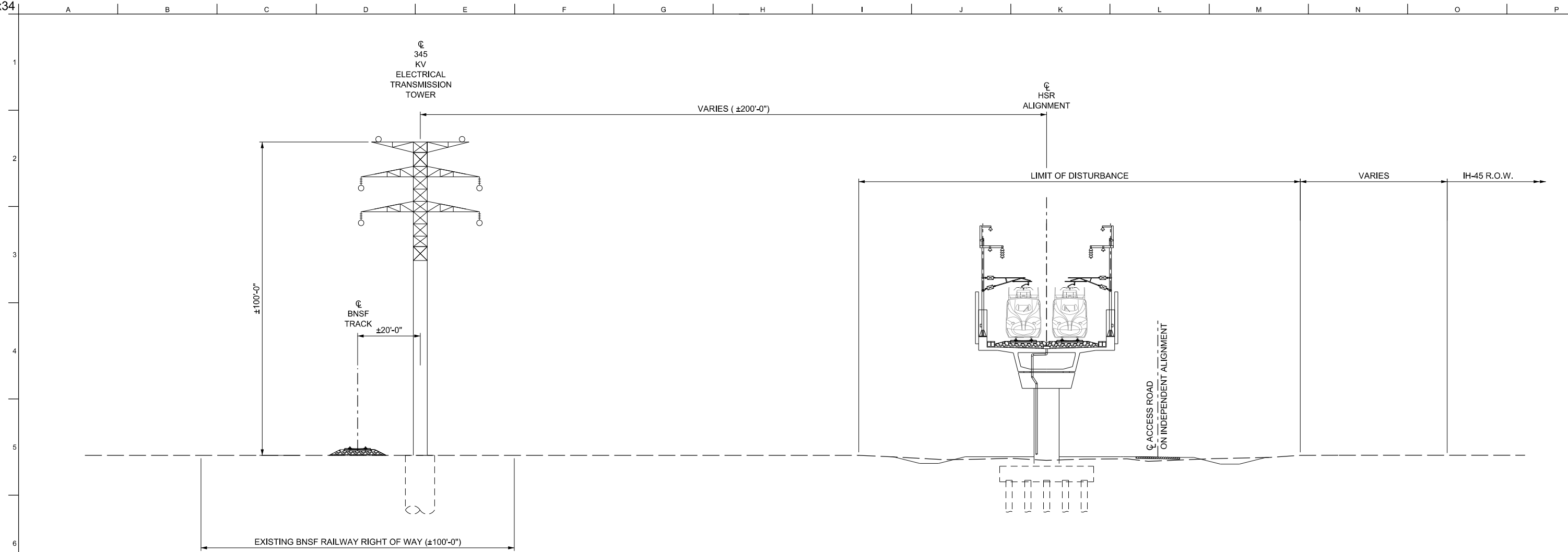
Drawing Title

**GENERAL CIVIL RAIL
TYPICAL SECTIONS
SHEET 10 OF 11**

Scale
5/8" = 10'

Drawing Status
FINAL

Job No 234180	Drawing No CVL-00-03010B	Rev 01
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U TYPICAL VIADUCT ADJACENT TO IH-45, UTILITY CORRIDOR, AND BNSF RAILROAD

- NOTES:
1. DETAILS OF THE INFRASTRUCTURE ELEMENTS, SIZE, AND POSITION WITHIN THE LIMIT OF DISTURBANCE ARE SHOWN IN THE VIADUCT SECTION.
 2. DURING DETAILED DESIGN DEVELOPMENT AND COORDINATION WITH UTILITY PROVIDER, EXISTING TRANSMISSION LINE ROW AND EASEMENTS WILL BE CONFIRMED.
 2. OFFSET TO IH45, ELECTRICAL TRANSMISSION TOWER, AND BNSF VARIES, SEE PLAN AND PROFILE IN VOLUME 2 FOR LOCATION.
 3. REFER TO DRAWING NO. CVL-00-03005 FOR ADDITIONAL NOTES FOR VIADUCT SECTION.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
N. SMITH

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C. TAYLOR

DATE
02/25/2019

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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING

TEXAS CENTRAL

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title

**GENERAL CIVIL RAIL
TYPICAL SECTIONS
SHEET 11 OF 11**

Scale
5/8" = 10'

Drawing Status
FINAL

Job No 234180	Drawing No CVL-00-03011B	Rev 01
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1 -

ROADWAY AND GRADE SEPARATION TYPICAL SECTIONS

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY	
DRAWN BY	
CHECKED BY	
IN CHARGE	
DATE	2/25/2019

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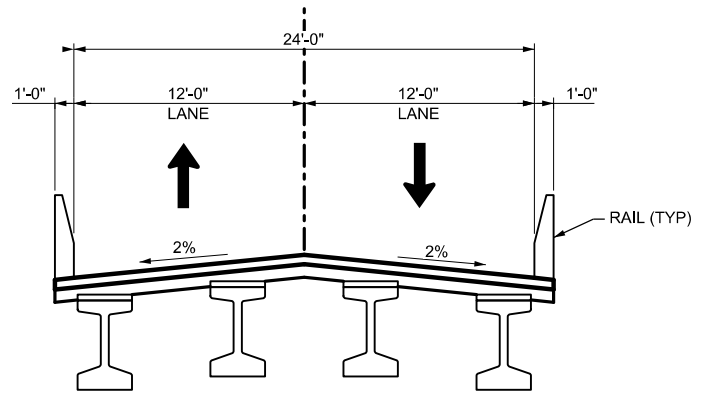
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DALLAS TO HOUSTON HIGHWAY
 FINAL CONCEPTUAL ENGINEERING

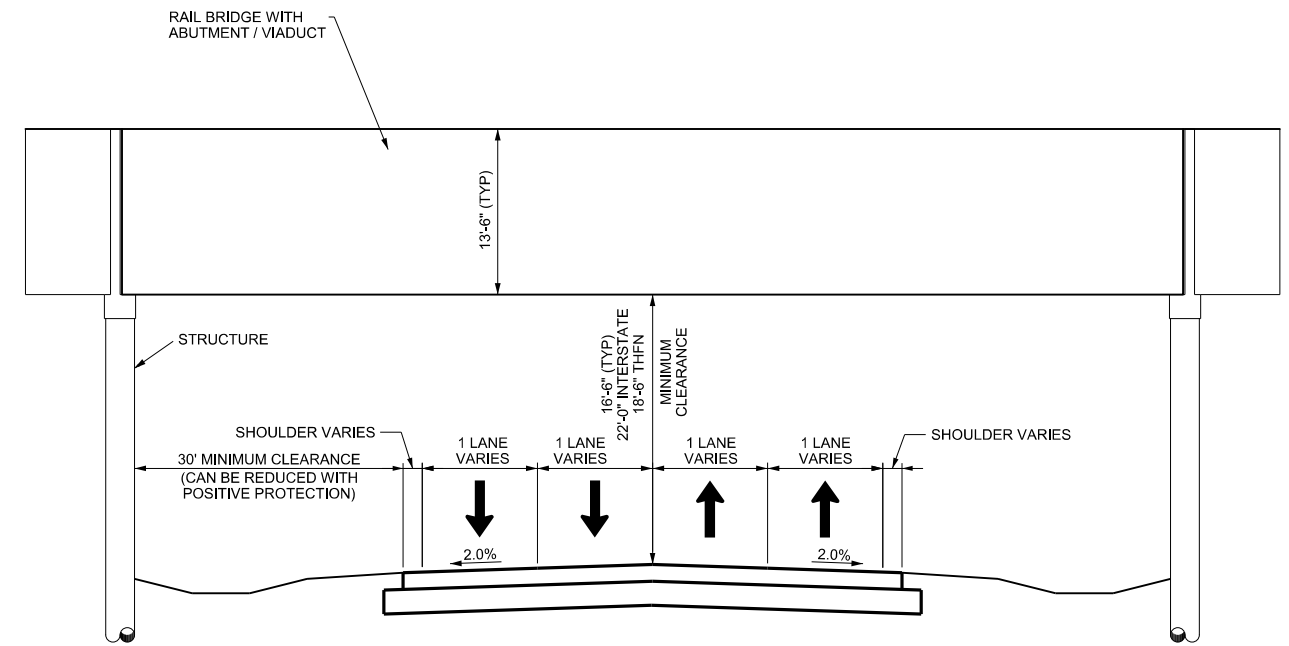
TEXAS CENTRAL
 1409 South Lamar Street, Suite 1022, Dallas, TX 75201

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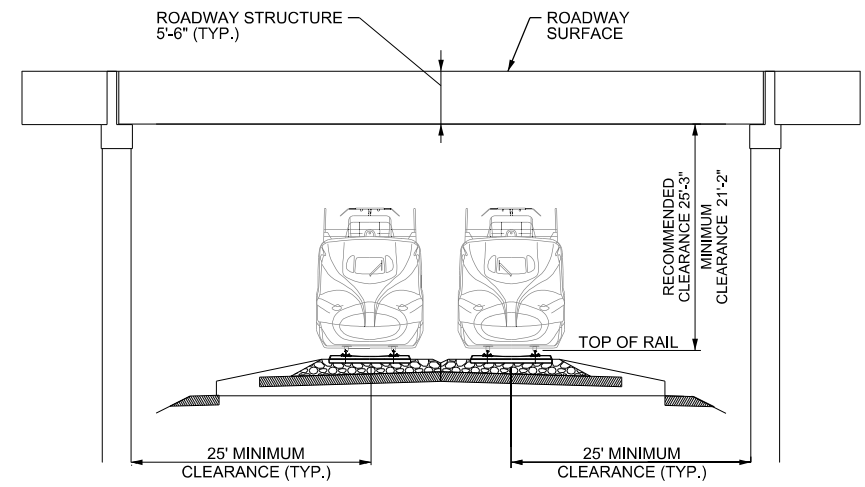
Scale	NO SCALE		
Drawing Status	FINAL		
Job No	Drawn by	Revised by	Rev
234180	GE	-	01



11 TYPICAL COUNTY ROAD AND ACCESS ROAD BRIDGE SECTION
NOT TO SCALE



12 TYPICAL RAIL OVER ROAD
NOT TO SCALE



14 TYPICAL ROAD OVER RAIL
NOT TO SCALE

- NOTES:
- SECTION INTENDED TO ILLUSTRATE TYPICAL CLEARANCES USED IN DEVELOPMENT OF HSR PROFILE AT ROADWAY GRADE SEPARATIONS. DETAILED COORDINATION WOULD OCCUR DURING ADVANCED DESIGN WITH APPLICABLE ROADWAY AUTHORITY TO ENSURE DESIGN SATISFIES BOTH EXISTING CLEARANCE REQUIREMENTS AND LONG TERM ROADWAY IMPROVEMENT PLANS CORRECTLY.
 - INTERSTATE / CONNECTOR UNDERPASS WOULD MAINTAIN A MINIMUM OF 22' VERTICAL CLEAR DISTANCE FROM PROFILE GRADE TO RAILWAY BRIDGE SOFFIT.
 - VIADUCT CONFIGURATION SHOWN FOR HSR STRUCTURAL CONFIGURATION WILL VARY BASED ON SITE SPECIFIC CONDITIONS AND COULD INCLUDE VIADUCT OR RAIL BRIDGE WITH ABUTMENTS.
 - OCS WILL BE MOUNTED UNDER BRIDGE STRUCTURE. STRUCTURE DEPTH SHOWN USED FOR PLANNING PURPOSES TO ESTABLISH PROPOSED ROADWAY SURFACE ELEVATIONS. ROADWAY STRUCTURE DEPTH WILL VARY BY LOCATION BASED ON SITE SPECIFIC CONDITIONS, ROADWAY WIDTH AND SPAN LENGTH.
 - ROADWAY CROSS-SLOPE IS ASSUMED TO BE NORMAL (2%) CROWN, EXCEPT WHERE SUPERELEVATION IS REQUIRED.
 - RETAINING WALL DESIGN WOULD VARY BY LOCATION GIVEN SITE SPECIFIC CONDITIONS.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
T. SANSONE

DRAWN BY
M. MARROQUIN

CHECKED BY
S. BURGESS

IN CHARGE
C. TAYLOR

DATE
02/25/2019

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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING

TEXAS CENTRAL

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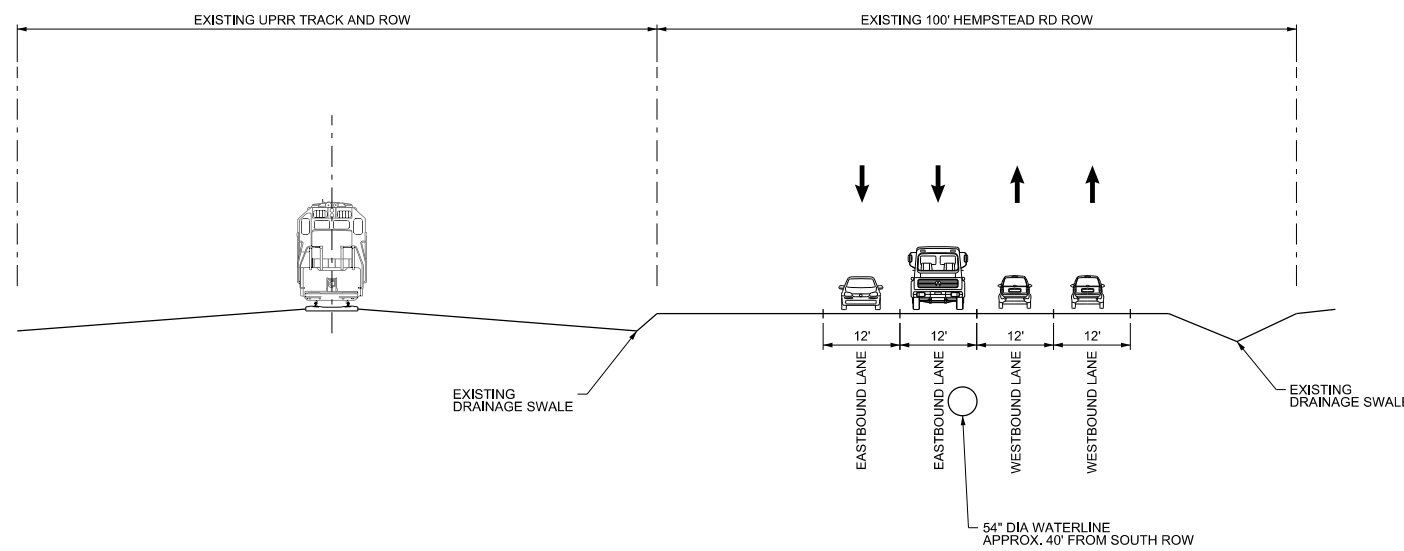
Drawing Title

GENERAL CIVIL HIGHWAY TYPICAL SECTIONS SHEET 1 OF 2

Scale
NOT TO SCALE

Drawing Status
FINAL

Job No 234180	Drawing No CVL-00-03033B	Rev 01
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15 HEMPSTEAD RD
EXISTING CONDITIONS
NOT TO SCALE

- NOTES:
- FOR PROPOSED TYPICAL SECTION ALONG HEMPSTEAD ROAD WITH PROPOSED LANE CONFIGURATIONS, SEE TYPICAL SECTION F ON SHEET CVL-00-03006 IN VOLUME 1A.
 - SECTION LOOKING NORTHWEST, SOUTHEAST OF BELTWAY 8 NEAR GESSNER ROAD.
 - CENTER TURN LANE LOCATED AT INTERSECTIONS.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
T. SANSONE

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M. MARROQUIN

CHECKED BY
S. BURGESS

IN CHARGE
C. TAYLOR

DATE
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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING

TEXAS CENTRAL

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title

GENERAL CIVIL HIGHWAY TYPICAL SECTIONS SHEET 2 OF 2

Scale NOT TO SCALE		
Drawing Status FINAL		
Job No 234180	Drawing No CVL-00-03034B	Rev 01