

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 13 of 14



**TEXAS
CENTRAL**



DALLAS TO HOUSTON HIGH-SPEED RAIL
PASSENGER SERVICE FROM HOUSTON TO DALLAS

**FINAL CONCEPTUAL ENGINEERING
PLANS AND DETAILS**
PROJECT DEFINITION FOR FINAL ENVIRONMENTAL IMPACT STATEMENT
VOLUME 5 - WILDLIFE CROSSING SHEETS

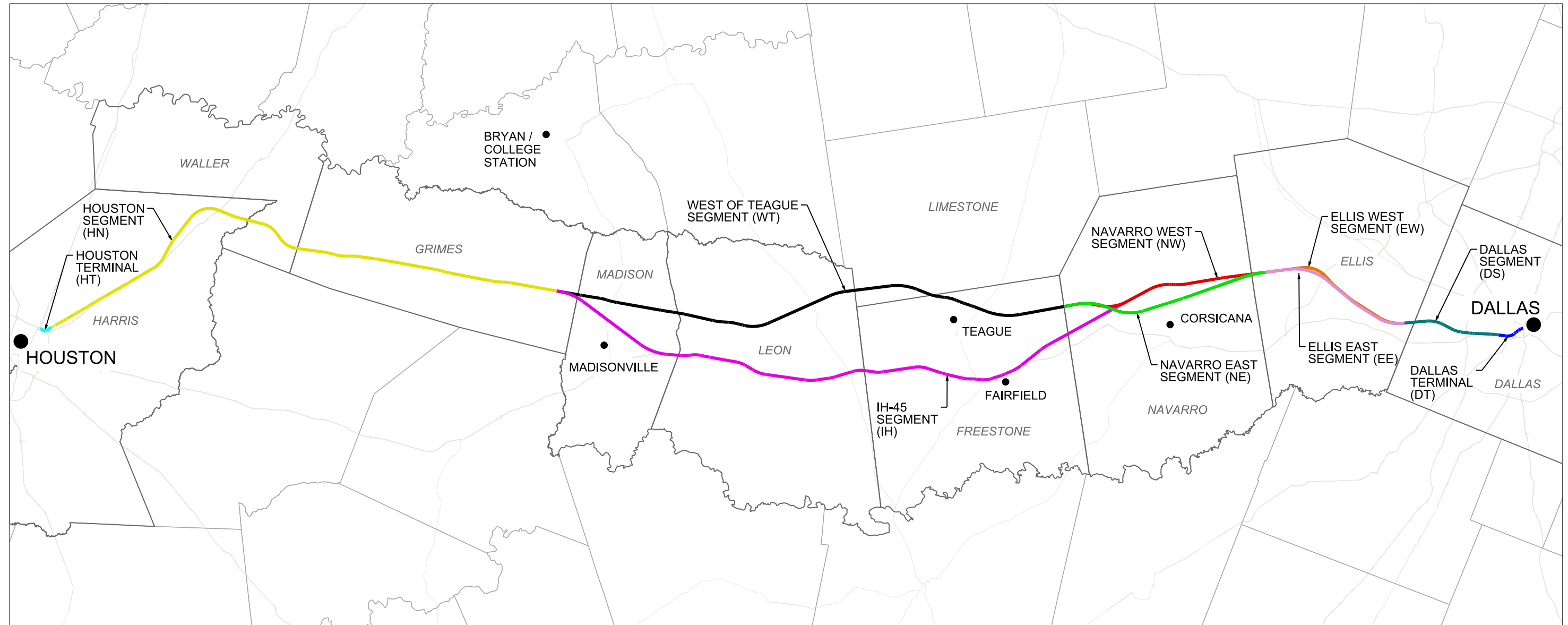
JULY 1, 2019



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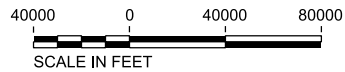
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COVER SHEET



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 1A - GENERAL SHEETS & TYPICAL SECTIONS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Includes sections 1A-1 GENERAL, 1A-2 RAILWAY TYPICAL SECTIONS, 1A-3 ROADWAY AND GRADE SEPARATION TYPICAL SECTIONS, 1A-4 CIVIL STRUCTURES TYPICAL DETAILS, 1A-5 CIVIL UTILITIES TYPICAL DETAILS, 1A-6 GENERAL - ALIGNMENT CURVE DATA TABLES.

VOLUME 1B - GENERAL SHEETS & TYPICAL SECTIONS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Includes section 1B-1 RAILWAY TYPICAL SECTIONS and 1B-2 ROADWAY AND GRADE SEPARATION TYPICAL SECTIONS.

VOLUME 2A - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawings for HOUSTON SEGMENT - CIVIL - KEY MAP, HOUSTON SEGMENT - CIVIL - PLAN AND PROFILE, HOUSTON SEGMENT - CIVIL - PLAN, HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN, HOUSTON SEGMENT - CIVIL - PLAN AND PROFILE - HN1, HOUSTON SEGMENT - CIVIL - PLAN AND PROFILE - HN2.

VOLUME 2A - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawings for HOUSTON SEGMENT - CIVIL - PLAN AND PROFILE, HOUSTON SEGMENT - CIVIL - PLAN, HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN, HOUSTON SEGMENT - CIVIL - PLAN AND PROFILE - HN1, HOUSTON SEGMENT - CIVIL - PLAN AND PROFILE - HN2, WEST OF TEAGUE SEGMENT.

Table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Includes a revision table and a table for drawing metadata.

Table with columns: DESIGNED BY, DRAWN BY, CHECKED BY, IN CHARGE, DATE. Lists project personnel and dates.



Project information including Drawing Title (GENERAL INDEX SHEET 1 OF 5), Scale (NO SCALE), Drawing Status (FINAL), Job No (234180), Drawing No (GEN-00-00003), and Rev (01).

PLOT TIME: 5/31/2019 9:49:34 AM

VOLUME 2A - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Contains drawing details for 2A-2 WEST OF TEAGUE SEGMENT.

VOLUME 2A - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Contains drawing details for 2A-2 WEST OF TEAGUE SEGMENT, 2A-3 NAVARRO WEST SEGMENT, and 2A-4 ELLIS WEST SEGMENT.

VOLUME 2A - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Contains drawing details for 2A-4 ELLIS WEST SEGMENT and 2A-5 DALLAS SEGMENT.

Table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Revision table for the drawing.

Table with columns: DESIGNED BY, DRAWN BY, CHECKED BY, IN CHARGE, DATE. Designer information table.



Table with columns: Drawing Title, Scale, Drawing Status, Job No, Drawing No, Rev. Project information table.

VOLUME 2B - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Contains drawing numbers from 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 from CVL-IH-01421 to CVL-NE-01631 and CVL-EE-01800-1 to CVL-EE-01813, 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 from CVL-EE-01814 to CVL-EE-01823 and their 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.

Table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Includes design and in-charge information.



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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



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:

- THESE DRAWINGS ACCOMPANY FINAL CONCEPTUAL ENGINEERING (FCE) REPORT.
- 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.
- 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.
- FOR STANDARD GENERAL ABBREVIATIONS, SEE DRAWING GEN-00-0009.
- FOR STANDARD GENERAL SYMBOLS, SEE DRAWING GEN-00-0009.
- "ORIGINAL GROUND" SHOWN ON PROFILES REFERS TO THE APPROXIMATE EXISTING GROUND LINE AT HSR CENTERLINE AS SHOWN ON PLAN AND PROFILE DRAWINGS.
- ALL HORIZONTAL AND VERTICAL DISTANCES ARE IN US CUSTOMARY UNITS EXCEPT AS NOTED OTHERWISE.
- GENERAL NOTES FOR PROJECT ELEMENTS INCLUDED ON GENERAL NOTES PAGES. REFER TO INDIVIDUAL DISCIPLINE DRAWINGS FOR ADDITIONAL NOTES.

BASEMAPPING NOTES:

- DTM DATA SHOWN ON THE DRAWINGS WAS OBTAINED FROM THE TEXAS NATURAL RESOURCES INFORMATION SYSTEM (TNRIS) AND HOUSTON-GALVESTON AREA COUNCIL (HGAC).
 - DALLAS COUNTY LIDAR, 2009, SOURCED FROM TNRIS.
 - HGAC LIDAR, 2008.
 - TNRIS LIDAR, 2009-2013.
 - TNRIS STRATMAP CONTOURS, 1997.
- LIDAR SOURCES WERE FILTERED TO SHOW ONLY BARE EARTH, AND SUPPLEMENTED BY CONTOUR DATA WHERE LIDAR SOURCES WERE NOT AVAILABLE.
- NAD 83 HORIZONTAL CONTROL DATUM WAS USED FOR HORIZONTAL COORDINATE VALUES.
- NAVD 88 VERTICAL DATUM WAS USED FOR ELEVATION VALUES.
- ALL DATA HAS BEEN REPROJECTED TO TEXAS STATE PLANE, SOUTH CENTRAL, CENTRAL, AND NORTH CENTRAL ZONES, US SURVEY FEET.
- 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.
- 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:

- 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).
- 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:

- THE ALIGNMENT SHOWN ON THE PLAN AND PROFILE DRAWINGS REPRESENTS THE CENTERLINE OF THE TWO-TRACK HSR MAINLINE TRACKS.
- 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.
- THE PROPOSED HSR SYSTEM INCLUDES TWO TRACKS WITH ADDITIONAL TRACKS AT STATIONS, MAINTENANCE OF WAY FACILITIES, AND TRAINSET MAINTENANCE FACILITIES, AS SHOWN ON DRAWINGS.
- 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:

- 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.
- 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.
- SEE SHEET GEN-00-00010 FOR A KEY TO INFORMATION SHOWN ON PLAN AND PROFILE DRAWINGS.
- 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:

- EXISTING ROADWAY LOCATIONS ARE APPROXIMATE BASED ON AERIAL IMAGERY BACKGROUNDS.
- 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.
- SEE SHEET GEN-00-00011 FOR A KEY TO INFORMATION SHOWN ON ROADWAY PLAN DRAWINGS.
- 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.
- SUPERELEVATION TRANSITION LENGTHS WERE NOT DETAILED IN ROADWAY APPROACH DESIGN.
- SEE DRAWINGS CVL-00-03030 TO CVL-00-03034B FOR TYPICAL ROADWAY CROSS SECTIONS.
- FOR SEGMENTS HH, 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.
- NOT ALL PRIVATE ROADS AND DRIVEWAYS ARE REPRESENTED ON THE RAIL PLAN AND PROFILE SHEETS.
- 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.
- 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.
- 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.
- USE OF TXDOT RIGHT-OF-WAY FOR PERMANENT IMPROVEMENTS WILL REQUIRE THE APPROPRIATE APPROVAL FROM TXDOT.
- 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:

- 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.
- 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.
- TYPICAL ROADWAY DRAINAGE SYSTEM PROVIDED AS SHOWN IN TYPICAL SECTIONS. LOCATION SPECIFIC CONFIGURATION AND SIZE WOULD BE ADVANCED DURING MORE DETAILED DESIGN.
- LOCATION SPECIFIC CONDITIONS WOULD DICTATE FENCING REQUIREMENTS.
- EMBANKMENT HEIGHTS AND CUT DEPTHS VARY WITH SURROUNDING GRADE AND RAIL PROFILE ELEVATION.
- CRASH BARRIERS NOT SHOWN. LOCATION SPECIFIC CONDITIONS WILL DICTATE CRASH BARRIER REQUIREMENTS TO ENSURE SAFETY AND TO SATISFY APPLICABLE REGULATORY REQUIREMENTS.
- SUBSURFACE GROUND IMPROVEMENTS ARE NOT SHOWN AND WILL BE BASED ON SITE SPECIFIC REQUIREMENTS.
- 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:

- REFER TO THE FCE REPORT FOR A LIST OF MAJOR UTILITY CROSSINGS, THEIR ASSUMED SIZE, AND ASSOCIATED LOCATIONS ALONG THE ALIGNMENT.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED ON INFORMATION RECEIVED, AS DOCUMENTED IN THE FINAL CONCEPTUAL ENGINEERING REPORT.
- NO FIELD SURVEYS HAVE BEEN CONDUCTED TO LOCATE AND VERIFY UTILITY LOCATIONS.
- NOT ALL EXISTING UNDERGROUND UTILITIES HAVE BEEN SHOWN. REFER TO THE FCE REPORT FOR MAJOR UTILITIES INCLUDED IN PROJECT MAPPING.
- 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.
- 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.
- 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.
- 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:

- 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.
- EXISTING CULVERTS ARE NOT SHOWN.
- 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.
- EXISTING STORMWATER FACILITIES ARE NOT SHOWN.
- TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) WATER QUALITY CRITERIA WOULD BE MET FOR STORMWATER RUNOFF AND PROTECTION OF EXISTING WATER RESOURCES.
- 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:

- 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.
- 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.
- 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.
- 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.
- 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:

- 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.
- 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.
- TYPICAL LAYOUT PLANS FOR EACH OF THE SYSTEMS FACILITIES ARE INCLUDED IN SHEETS SYS-00-01000 THROUGH SYS-00-01006.
- LOD DEVELOPED FOR ENVIRONMENTAL IMPACT ANALYSIS OF SYSTEMS SITES INCLUDED SPACE FOR A DRIVEWAY AND SPACE TO PARK A LIMITED NUMBER OF MAINTENANCE VEHICLES.
- 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.
- TPSS WOULD BE CONNECTED TO THE NEAREST 138KV TRANSMISSION LINES DESIGNED BY UTILITY PROVIDER AND SUBJECT TO ENVIRONMENTAL REVIEW.

FACILITY NOTES:

- 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.
- ALL FACILITIES WOULD BE POWERED FROM THE LOCAL UTILITY GRID.
- ACCESS, SECURITY, AND UTILITY PROVISION REQUIREMENTS FOR ALL FACILITIES WOULD BE DETAILED DURING FINAL DESIGN.

CONSTRUCTION CONSIDERATION NOTES:

- CONSTRUCTION REQUIREMENTS WERE CONSIDERED DURING DEVELOPMENT OF THE CONCEPTUAL ENGINEERING AND ARE DOCUMENTED IN THE PROJECT CONSTRUCTABILITY REPORT.
- 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.
- 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.
- 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

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

 Arup Texas, Inc. 10370 Richmond Ave., Suite 475 Houston, Texas 77042 USA Tel (713) 783 2787 Fax (713) 343 1467 www.arup.com Texas Registered Engineering Firm: F-1990	 2711 North Haskell Ave., Suite 3300 Dallas, Texas 75204 Tel (214) 217 2200 Fax (214) 217 2201 www.freese.com Texas Registered Engineering Firm: F-2144	 DALLAS TO HOUSTON HIGH-SPEED RAIL FINAL CONCEPTUAL ENGINEERING 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215	Drawing Title GENERAL NOTES	Scale NO SCALE	Drawing Status FINAL
Job No: 234180			Drawing No: GEN-00-00008	Rev: 01	

VOLUME 5A

WILDLIFE CROSSING SHEETS

(SEGMENTS HN, WT, NW, EW, DS)

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
K. SEYMOUR

DRAWN BY
D. THOMPSON

CHECKED BY
R. BURNS

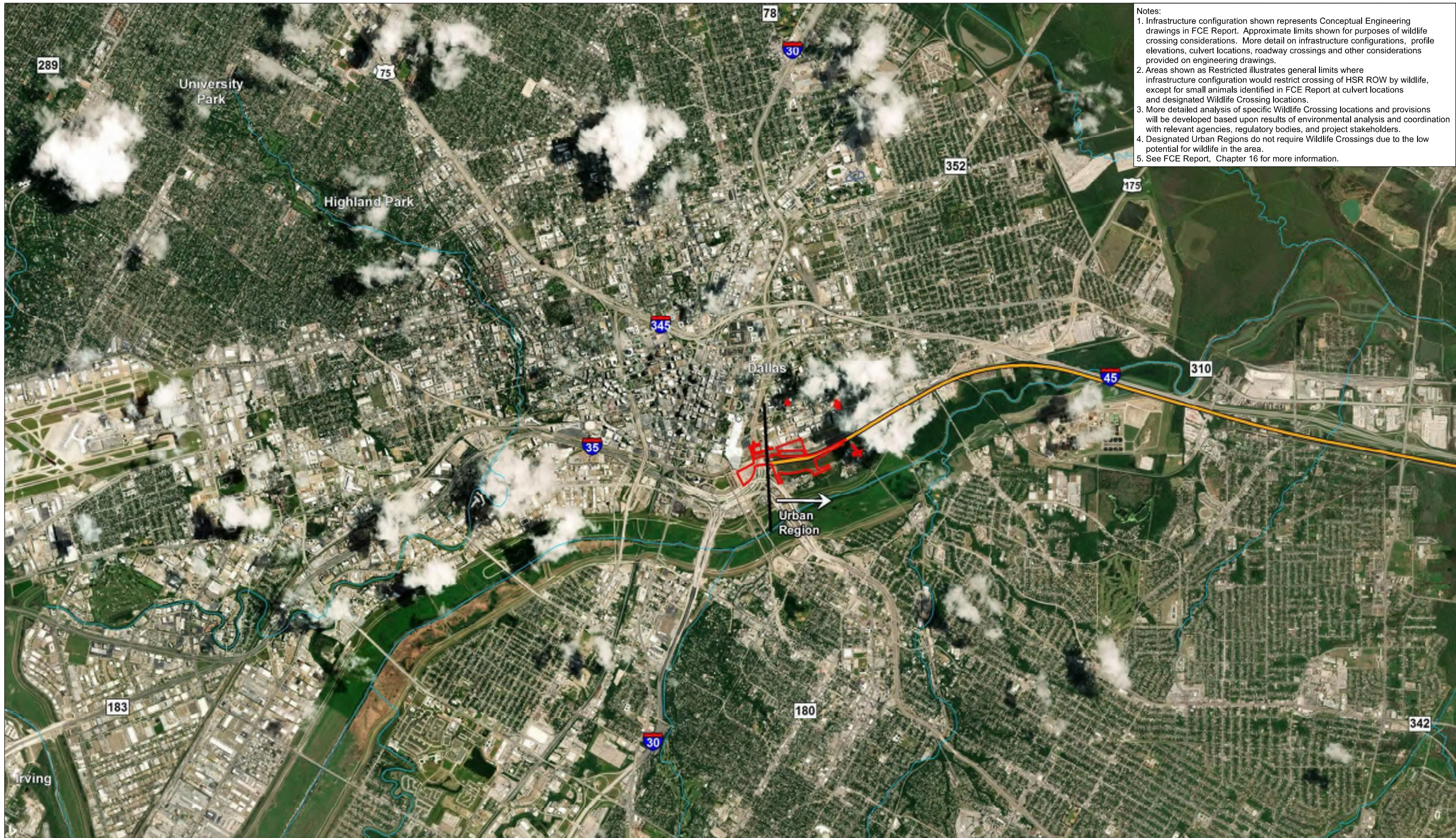
IN CHARGE
C. TAYLOR

DATE
2/25/2019



Drawing Title
GENERAL

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



- Notes:
1. Infrastructure configuration shown represents Conceptual Engineering drawings in FCE Report. Approximate limits shown for purposes of wildlife crossing considerations. More detail on infrastructure configurations, profile elevations, culvert locations, roadway crossings and other considerations provided on engineering drawings.
 2. Areas shown as Restricted illustrates general limits where infrastructure configuration would restrict crossing of HSR ROW by wildlife, except for small animals identified in FCE Report at culvert locations and designated Wildlife Crossing locations.
 3. More detailed analysis of specific Wildlife Crossing locations and provisions will be developed based upon results of environmental analysis and coordination with relevant agencies, regulatory bodies, and project stakeholders.
 4. Designated Urban Regions do not require Wildlife Crossings due to the low potential for wildlife in the area.
 5. See FCE Report, Chapter 16 for more information.

Legend

- NHD Streams
- Segment Breaklines
- County Boundaries
- Stations and Maintenance Facilities

Wildlife Movement

- Potential Wildlife Crossing
- Unrestricted
- Restricted

Collin, Rockwall, Kaufman, Denton, Tarrant, Dallas, Tarrant, Denton

0 0.25 0.5 1 Miles
NAD 1983 StatePlane Texas Central FIPS 4203 Feet

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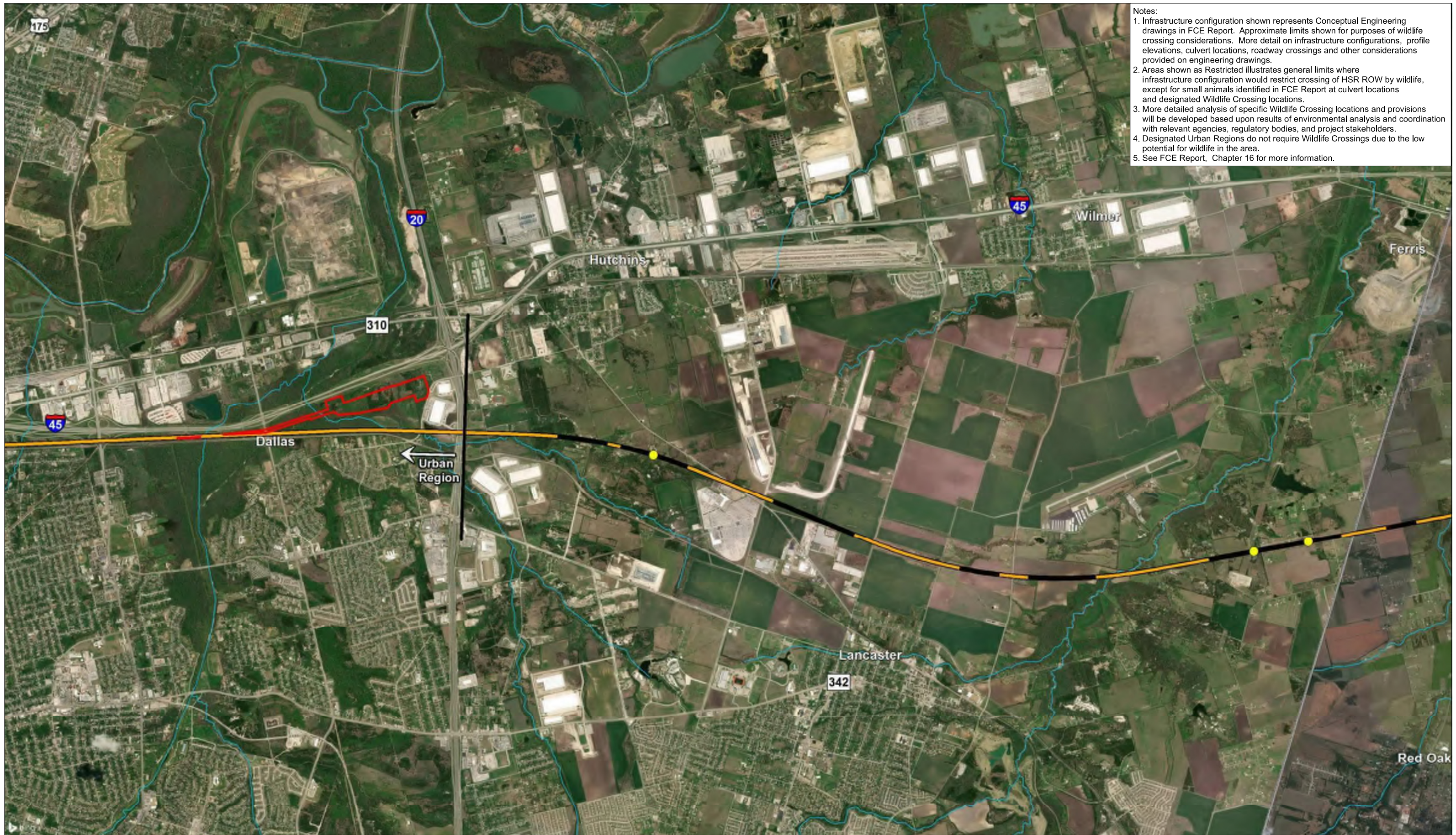
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DALLAS TO HOUSTON HIGH-SPEED RAIL
 FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022 Dallas, TX 75215

DS Segment
 THSR
 Potential Wildlife
 Crossings
 Sheet 1 of 23

File Name Dallas_WildlifeCrossings.mxd	Date 02/25/2019
Status FINAL	Drawn By MK
Job No 234180-00	Rev P1
Drawing WLC-DS-04001	

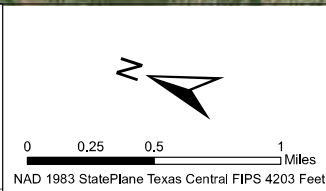
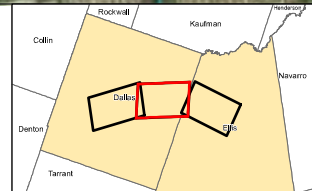


Notes:

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- NHD Streams
- Segment Breaklines
- County Boundaries
- Stations and Maintenance Facilities

- Wildlife Movement**
- Potential Wildlife Crossing
 - Unrestricted
 - Restricted



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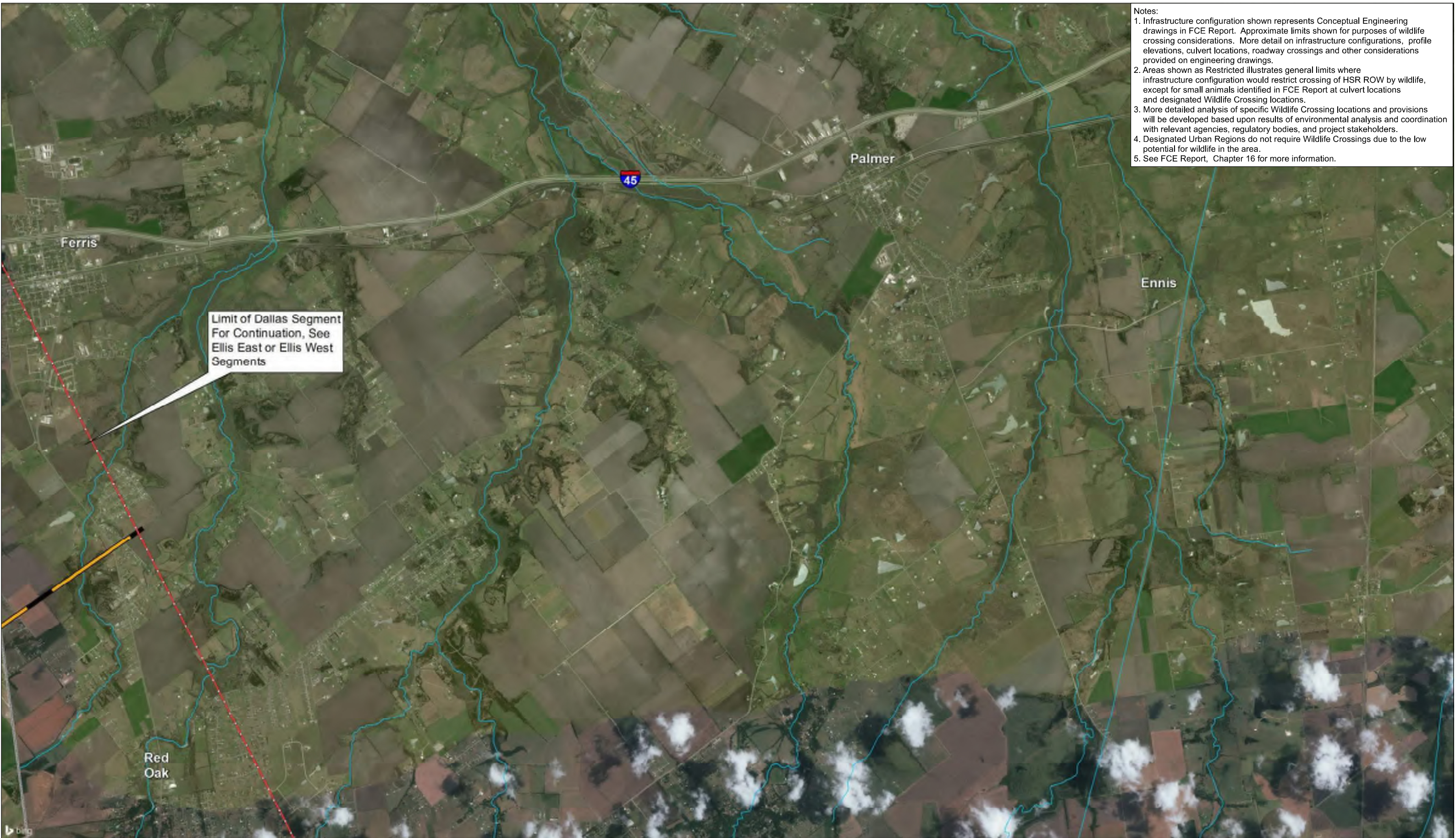
DALLAS TO HOUSTON HIGH-SPEED RAIL
 FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022 Dallas, TX 75215

**DS Segment THSR
 Potential Wildlife Crossings
 Sheet 2 of 23**

File Name Dallas_WildlifeCrossings.mxd	Date 02/25/2019
Status FINAL	Drawn By MK
Job No 234180-00	Rev P1
Drawing WLC-DS-04002	

- Notes:
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NHD Streams	Wildlife Movement
Segment Breaklines	Potential Wildlife Crossing
County Boundaries	Unrestricted
Stations and Maintenance Facilities	Restricted

NAD 1983 StatePlane Texas Central FIPS 4203 Feet

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DALLAS TO HOUSTON HIGH-SPEED RAIL
 FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022 Dallas, TX 75215

**DS Segment
 THSR
 Potential Wildlife
 Crossings
 Sheet 3 of 23**

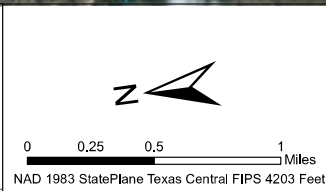
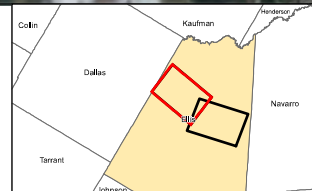
File Name Dallas_WildlifeCrossings.mxd	Date 02/25/2019
Status FINAL	Drawn By MK
Job No 234180-00	Rev P1
Drawing WLC-DS-04003	

- Notes:
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Limit of Ellis West Segment
For Continuation, See
Dallas Segment

NHD Streams	Wildlife Movement
Segment Breaklines	Potential Wildlife Crossing
County Boundaries	Unrestricted
Stations and Maintenance Facilities	Restricted



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DALLAS TO HOUSTON HIGH-SPEED RAIL
 FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022 Dallas, TX 75215

**EW Segment
 THSR
 Potential Wildlife
 Crossings
 Sheet 4 of 23**

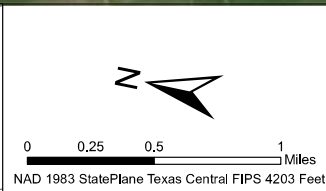
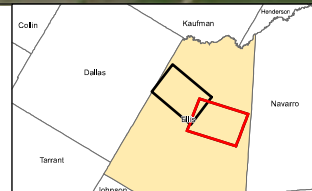
File Name EllisWest_WildlifeCrossings.mxd	Date 02/25/2019
Status FINAL	Drawn By MK
Job No 234180-00	Rev P1
Drawing WLC-EW-04001	

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 4. Designated Urban Regions do not require Wildlife Crossings due to the low potential for wildlife in the area.
 5. See FCE Report, Chapter 16 for more information.



Limit of Ellis West Segment
For Continuation, See
Navarro East, Navarro
West or 145 Segments

NHD Streams	Wildlife Movement
Segment Breaklines	Potential Wildlife Crossing
County Boundaries	Unrestricted
Stations and Maintenance Facilities	Restricted



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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022 Dallas, TX 75215

**EW Segment
THSR
Potential Wildlife
Crossings
Sheet 5 of 23**

File Name EllisWest_WildlifeCrossings.mxd		Date 02/25/2019
Status FINAL	Drawn By MK	
Job No 234180-00	Drawing WLC-EW-04002	Rev P1

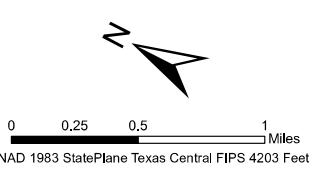
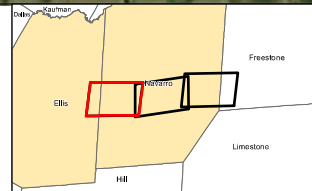
- Notes:
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 5. See FCE Report, Chapter 16 for more information.



Limit of Navarro West Segment
For Continuation, See
Ellis East or Ellis West
Segments

- NHD Streams
- Segment Breaklines
- County Boundaries
- Stations and Maintenance Facilities

- Wildlife Movement**
- Potential Wildlife Crossing
 - Unrestricted
 - Restricted



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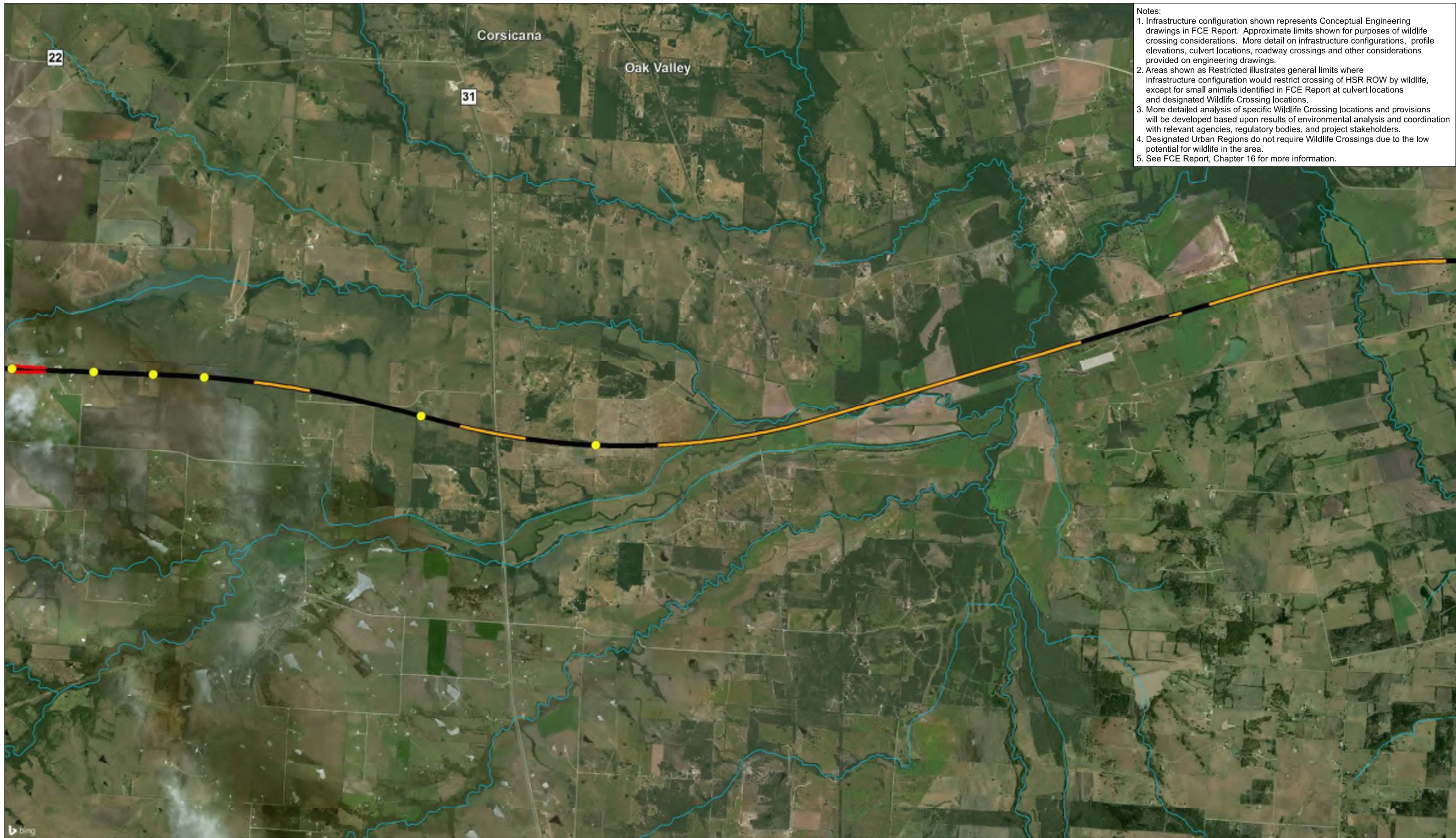


**NW Segment
THSR
Potential Wildlife
Crossings
Sheet 6 of 23**

File Name NavarroWest_WildlifeCrossings.mxd	Date 02/25/2019
Status FINAL	Drawn By MK
Job No 234180-00	Rev P1
Drawing WLC-NW-04001	

Imagery Source: Bing Aerial Imagery

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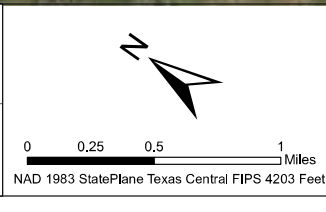
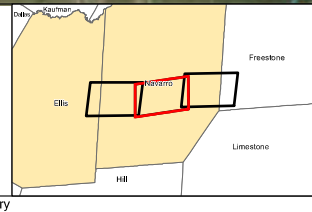


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NHD Streams
 Segment Breaklines
 County Boundaries
 Stations and Maintenance Facilities

Wildlife Movement
 Potential Wildlife Crossing
 Unrestricted
 Restricted



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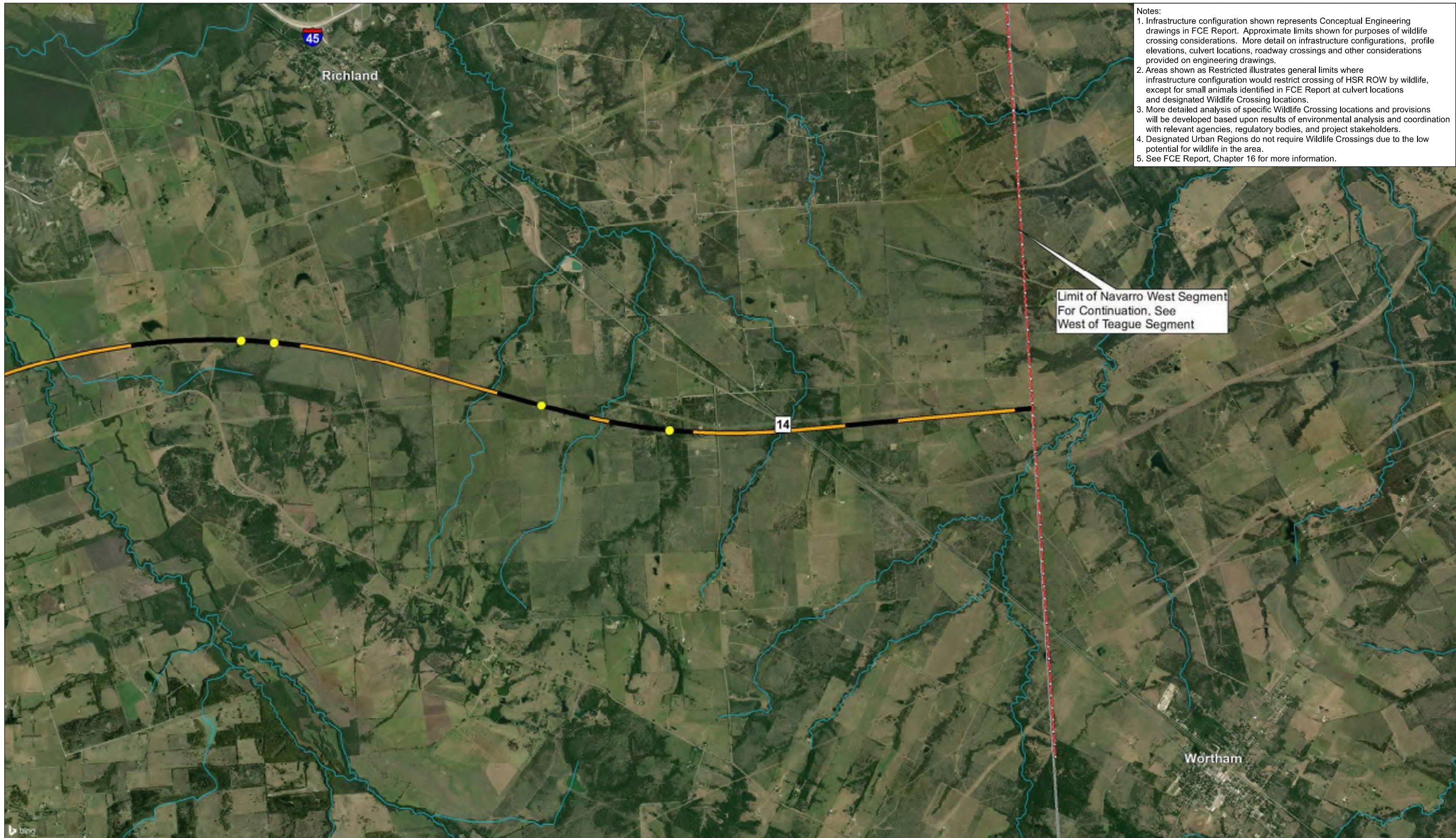
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DALLAS TO HOUSTON HIGH-SPEED RAIL
 FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022 Dallas, TX 75215

**NW Segment THSR
 Potential Wildlife Crossings**
 Sheet 7 of 23

File Name NavarroWest_WildlifeCrossings.mxd	Date 02/25/2019
Status FINAL	Drawn By MK
Job No 234180-00	Rev P1
Drawing WLC-NW-04002	

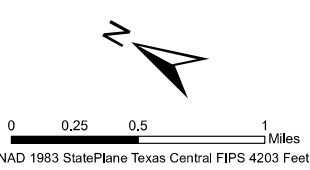
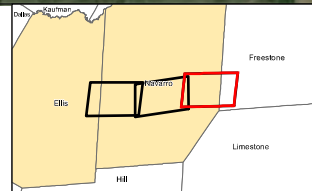


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 5. See FCE Report, Chapter 16 for more information.

Limit of Navarro West Segment
For Continuation, See
West of Teague Segment

- NHD Streams
- Segment Breaklines
- County Boundaries
- Stations and Maintenance Facilities

- Wildlife Movement**
- Potential Wildlife Crossing
 - Unrestricted
 - Restricted



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DALLAS TO HOUSTON HIGH-SPEED RAIL
 FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022 Dallas, TX 75215

NW Segment
 THSR
 Potential Wildlife
 Crossings
 Sheet 8 of 23

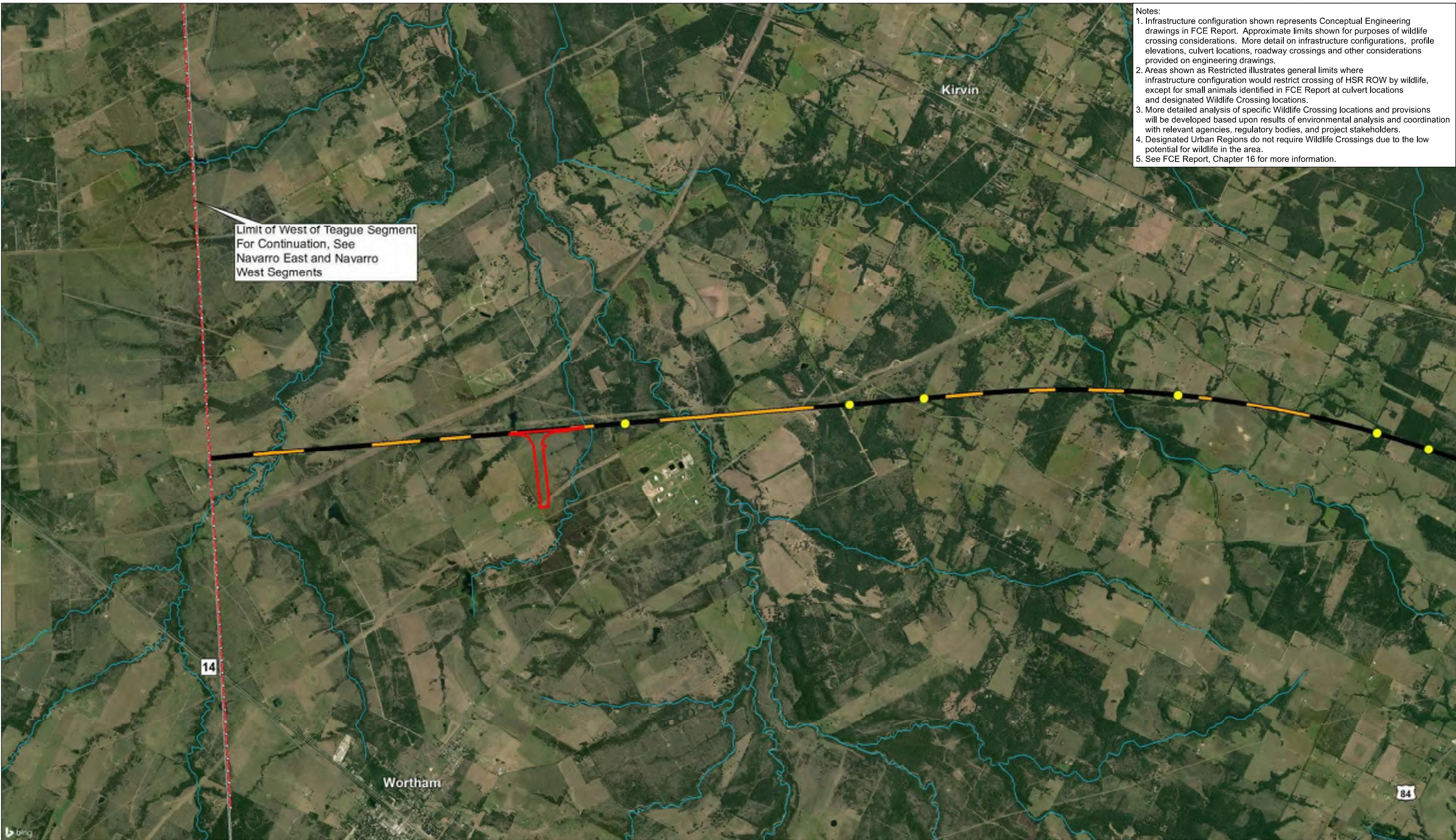
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Status FINAL	Drawn By MK
Job No 234180-00	Drawing WLC-NW-04003
	Rev P1

Imagery Source: Bing Aerial Imagery

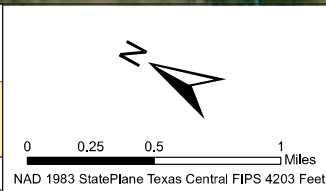
Arup Texas Inc.

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Limit of West of Teague Segment
For Continuation, See
Navarro East and Navarro
West Segments



NHD Streams	Wildlife Movement
Segment Breaklines	Potential Wildlife Crossing
County Boundaries	Unrestricted
Stations and Maintenance Facilities	Restricted



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DALLAS TO HOUSTON HIGH-SPEED RAIL
 FINAL CONCEPTUAL ENGINEERING

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**WT Segment
 THSR
 Potential Wildlife
 Crossings
 Sheet 9 of 23**

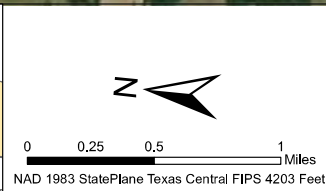
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Status FINAL	Drawn By MK
Job No 234180-00	Rev P1
Drawing WLC-WT-04001	

- Notes:
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NHD Streams
 Segment Breaklines
 County Boundaries
 Stations and Maintenance Facilities

Wildlife Movement
 Potential Wildlife Crossing
 Unrestricted
 Restricted



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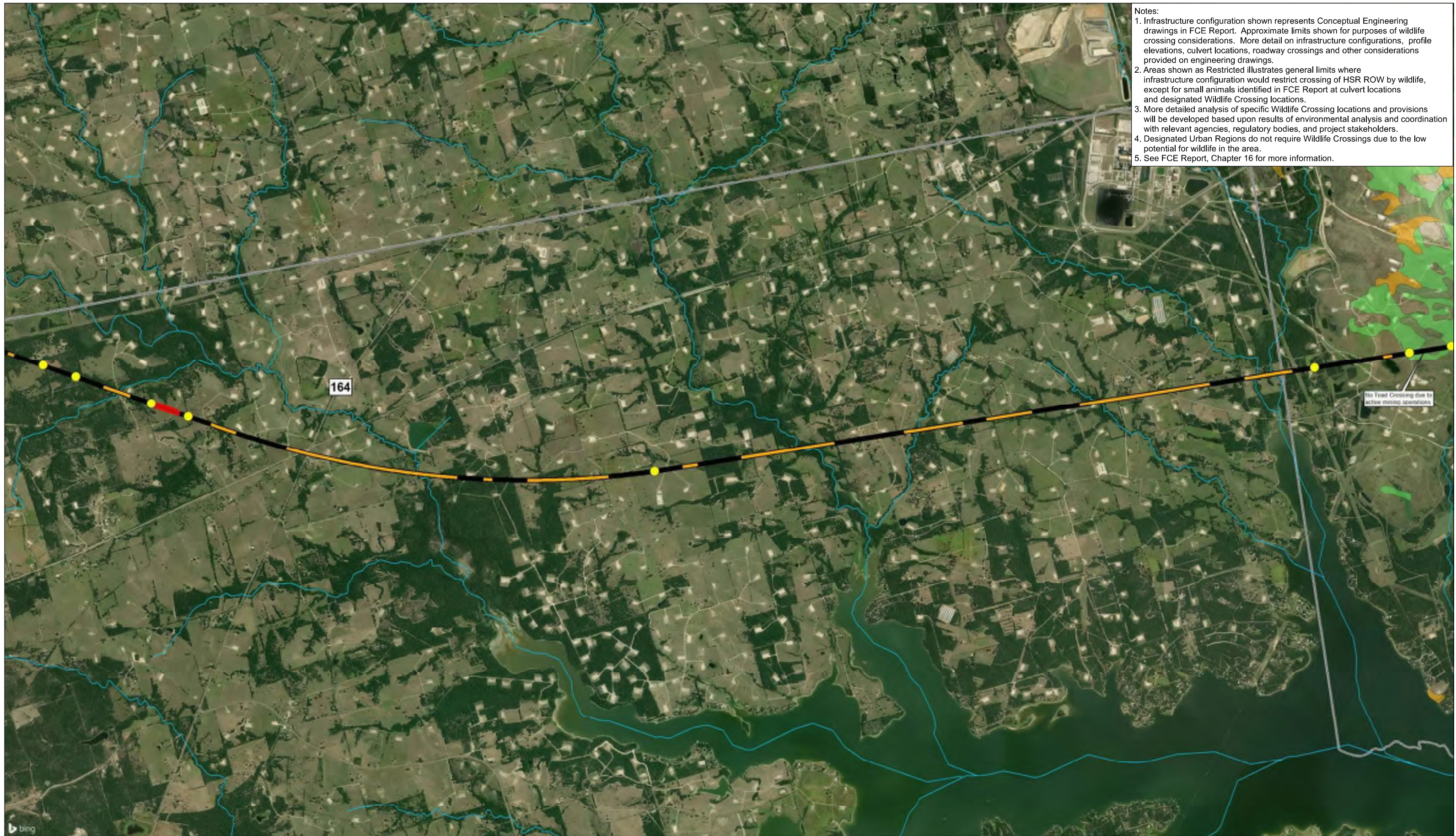
DALLAS TO HOUSTON HIGH-SPEED RAIL
 FINAL CONCEPTUAL ENGINEERING

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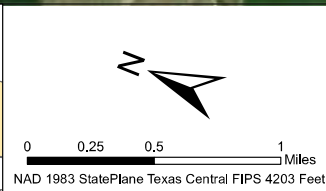
**WT Segment THSR
 Potential Wildlife
 Crossings
 Sheet 10 of 23**

File Name WestTeague_WildlifeCrossings.mxd	Date 02/25/2019
Status FINAL	Drawn By MK
Job No 234180-00	Rev P1
Drawing WLC-WT-04002	

- Notes:
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NHD Streams	Wildlife Movement	Sandy Soils/Houston Toad Potential
Segment Breaklines	Potential Wildlife Crossing	Arenosa, 1-8% slope
County Boundaries	Unrestricted	Padina, 1-8% slope
Stations and Maintenance Facilities	Restricted	Padina, 8-18% slope



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DALLAS TO HOUSTON HIGH-SPEED RAIL
 FINAL CONCEPTUAL ENGINEERING

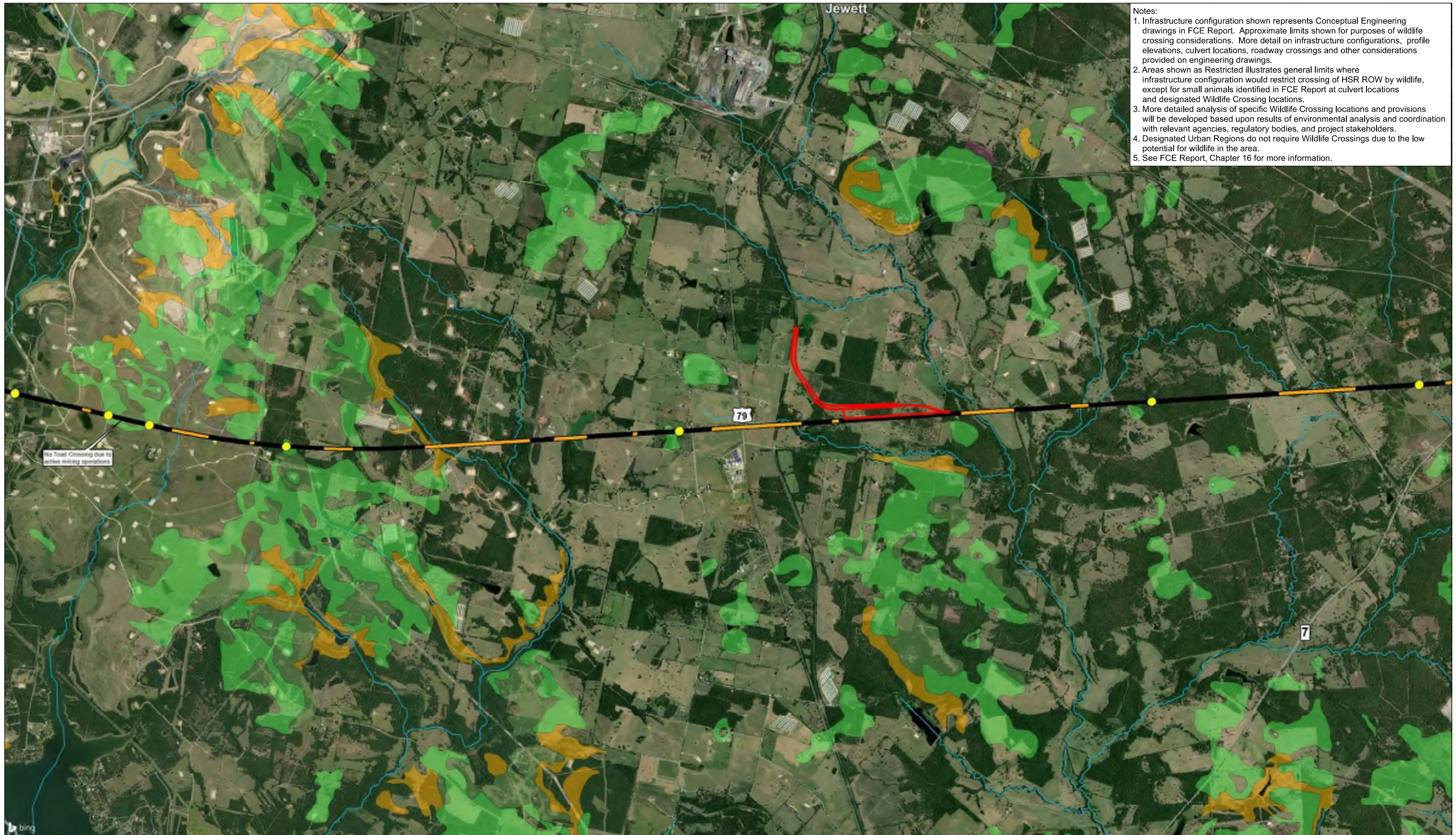
1409 South Lamar Street, Suite 1022 Dallas, TX 75215

WT Segment THSR Potential Wildlife Crossings
 Sheet 11 of 23

File Name WestToague_WildlifeCrossings.mxd	Date 02/25/2019
Status FINAL	Drawn By MK
Job No 234180-00	Rev P1
Drawing WLC-WT-04003	

Imagery Source: Bing Aerial Imagery

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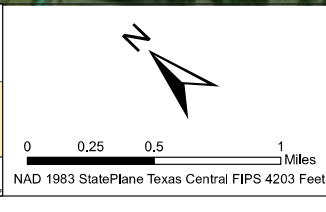
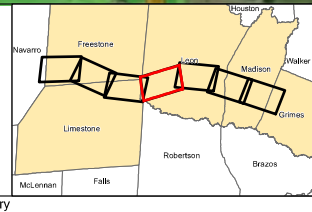


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NHD Streams
 Segment Breaklines
 County Boundaries
 Stations and Maintenance Facilities
Wildlife Movement
 Potential Wildlife Crossing

Unrestricted
 Restricted
Sandy Soils/Houston Toad Potential
 Arenosa, 1-8% slope
 Flo, 1-8% slope
 Padina, 1-8% slope

Padina, 8-18% slope
 Picton, 8-15% slope



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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING

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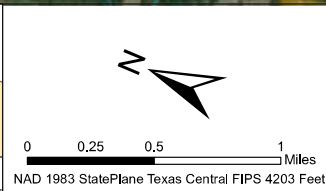
**WT Segment THSR
Potential Wildlife Crossings
Sheet 12 of 23**

File Name WestToague_WildlifeCrossings.mxd	Date 02/25/2019
Status FINAL	Drawn By MK
Job No 234180-00	Drawing WLC-WT-04004
	Rev P1

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NHD Streams	Unrestricted	Padina, 1-8% slope
Segment Breaklines	Restricted	Padina, 8-18% slope
County Boundaries	Sandy Soils/Houston Toad Potential	
Stations and Maintenance Facilities	Arenosa, 1-8% slope	Eufaula, 1-5% slope
Wildlife Movement	Flo, 1-8% slope	
Potential Wildlife Crossing		



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DALLAS TO HOUSTON HIGH-SPEED RAIL
 FINAL CONCEPTUAL ENGINEERING

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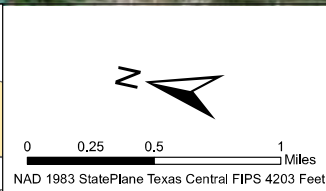
WT Segment THSR Potential Wildlife Crossings
 Sheet 13 of 23

File Name WestToague_WildlifeCrossings.mxd	Date 02/25/2019
Status FINAL	Drawn By MK
Job No 234180-00	Rev P1
Drawing WLC-WT-04005	

- Notes:
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NHD Streams	Wildlife Movement	Sandy Soils/Houston Toad Potential
Segment Breaklines	Potential Wildlife Crossing	Arenosa, 1-8% slope
County Boundaries	Unrestricted	Bienville, 0-3% slope
Stations and Maintenance Facilities	Restricted	Padina, 1-8% slope
		Padina, 8-18% slope



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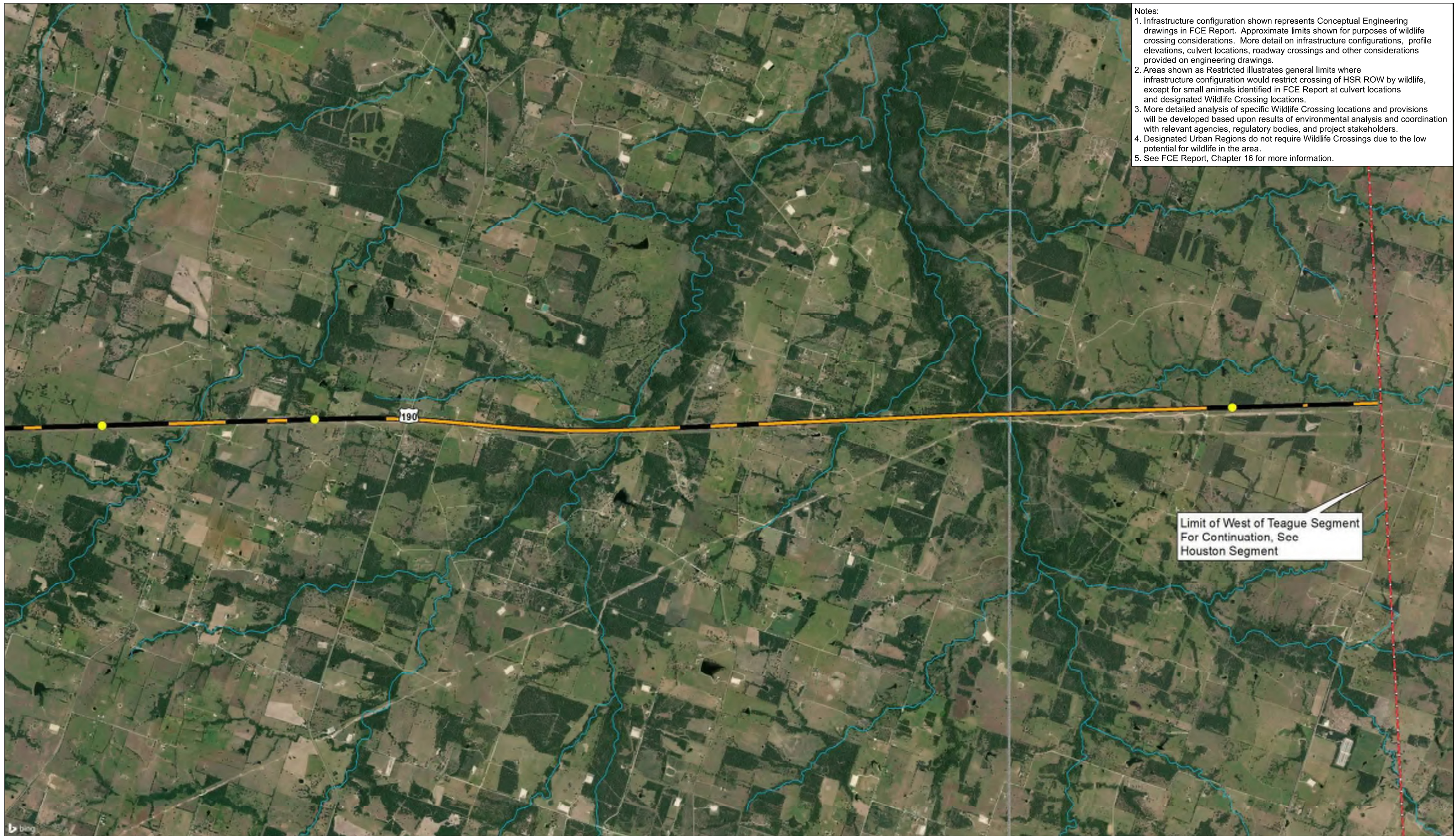
DALLAS TO HOUSTON HIGH-SPEED RAIL
 FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022 Dallas, TX 75215

WT Segment THSR Potential Wildlife Crossings
 Sheet 14 of 23

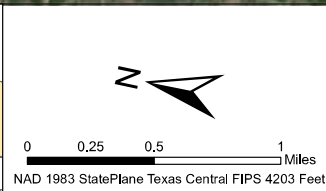
File Name WestToague_WildlifeCrossings.mxd	Date 02/25/2019
Status FINAL	Drawn By MK
Job No 234180-00	Drawing WLC-WT-04006
	Rev P1

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Limit of West of Teague Segment
For Continuation, See
Houston Segment

NHD Streams	Wildlife Movement
Segment Breaklines	Potential Wildlife Crossing
County Boundaries	Unrestricted
Stations and Maintenance Facilities	Restricted



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DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING

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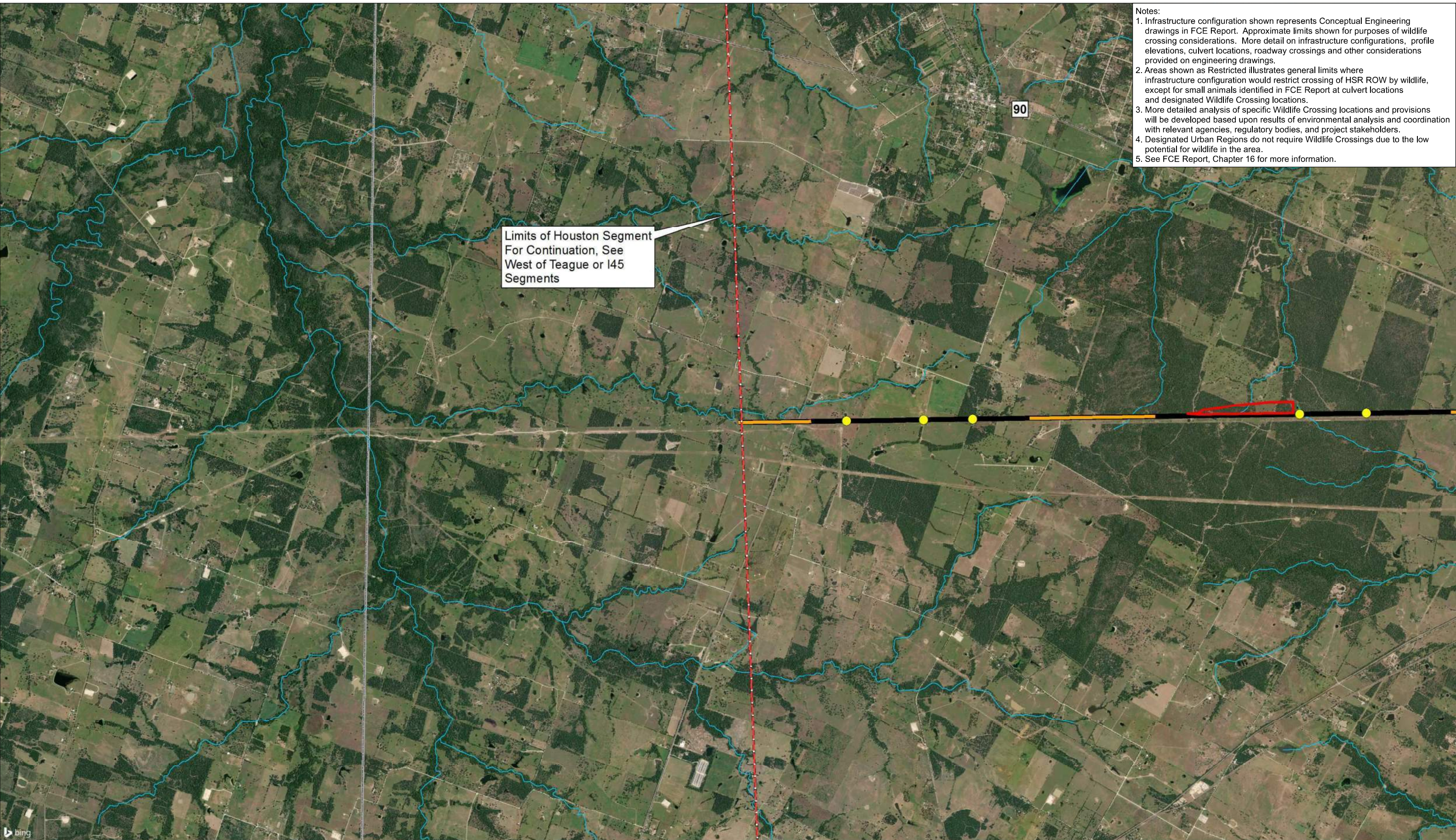
**WT Segment
THSR
Potential Wildlife
Crossings**
Sheet 15 of 23

File Name WestTeague_WildlifeCrossings.mxd	Date 02/25/2019
Status FINAL	Drawn By MK
Job No 234180-00	Rev P1
Drawing WLC-WT-04007	

- Notes:
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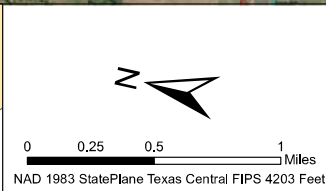
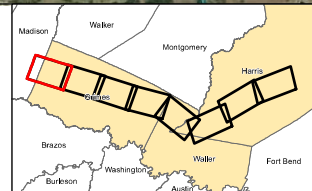
Limits of Houston Segment
For Continuation, See
West of Teague or I45
Segments

90



bing

NHD Streams	Wildlife Movement
Segment Breaklines	Potential Wildlife Crossing
County Boundaries	Unrestricted
Stations and Maintenance Facilities	Restricted



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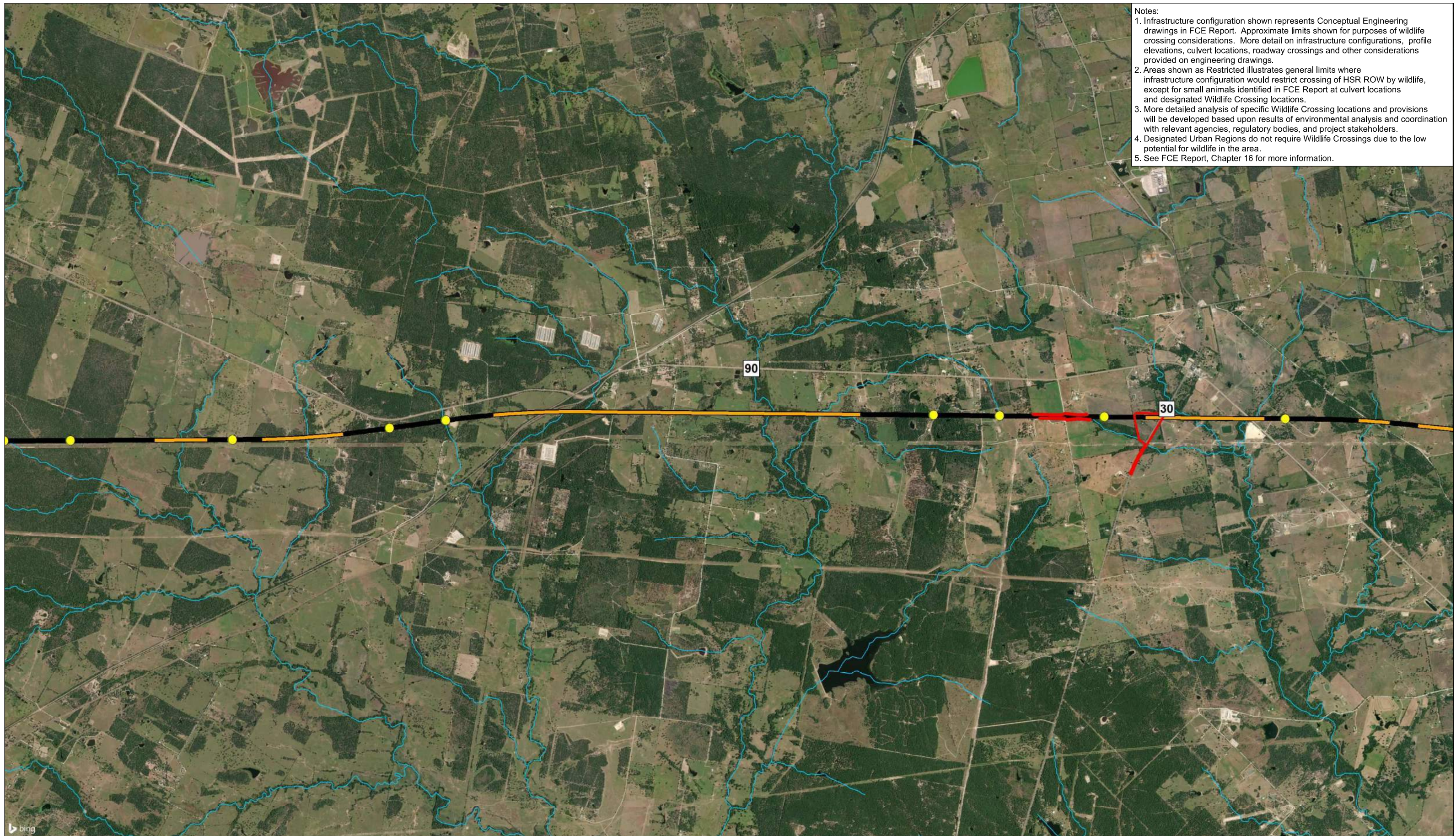
DALLAS TO HOUSTON HIGH-SPEED RAIL
 FINAL CONCEPTUAL ENGINEERING

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**HN Segment
 THSR
 Potential Wildlife
 Crossings
 Sheet 16 of 23**

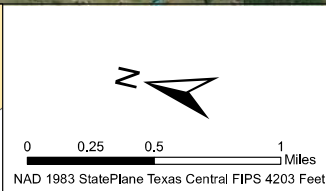
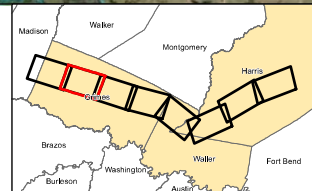
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Status FINAL	Drawn By MK
Job No 234180-00	Rev P1
Drawing WLC-HN-04001	

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bing

NHD Streams	Wildlife Movement
Segment Breaklines	Potential Wildlife Crossing
County Boundaries	Unrestricted
Stations and Maintenance Facilities	Restricted



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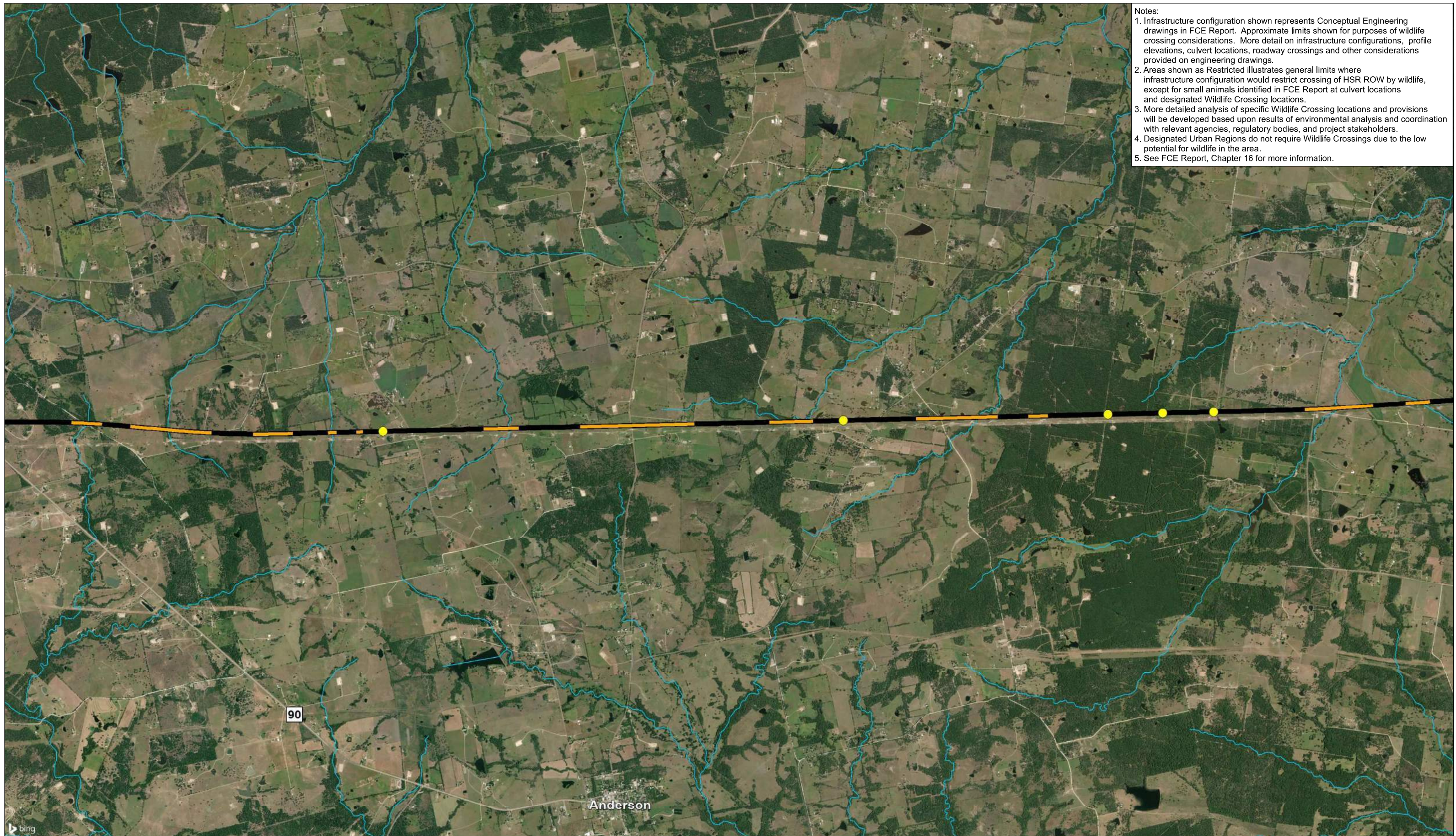
DALLAS TO HOUSTON HIGH-SPEED RAIL
 FINAL CONCEPTUAL ENGINEERING

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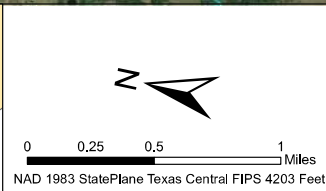
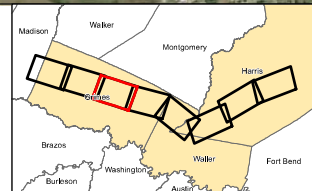
**HN Segment
 THSR
 Potential Wildlife
 Crossings
 Sheet 17 of 23**

File Name Houston_WildlifeCrossings.mxd	Date 02/25/2019
Status FINAL	Drawn By MK
Job No 234180-00	Rev P1
Drawing WLC-HN-04002	

- Notes:
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NHD Streams	Wildlife Movement
Segment Breaklines	Potential Wildlife Crossing
County Boundaries	Unrestricted
Stations and Maintenance Facilities	Restricted



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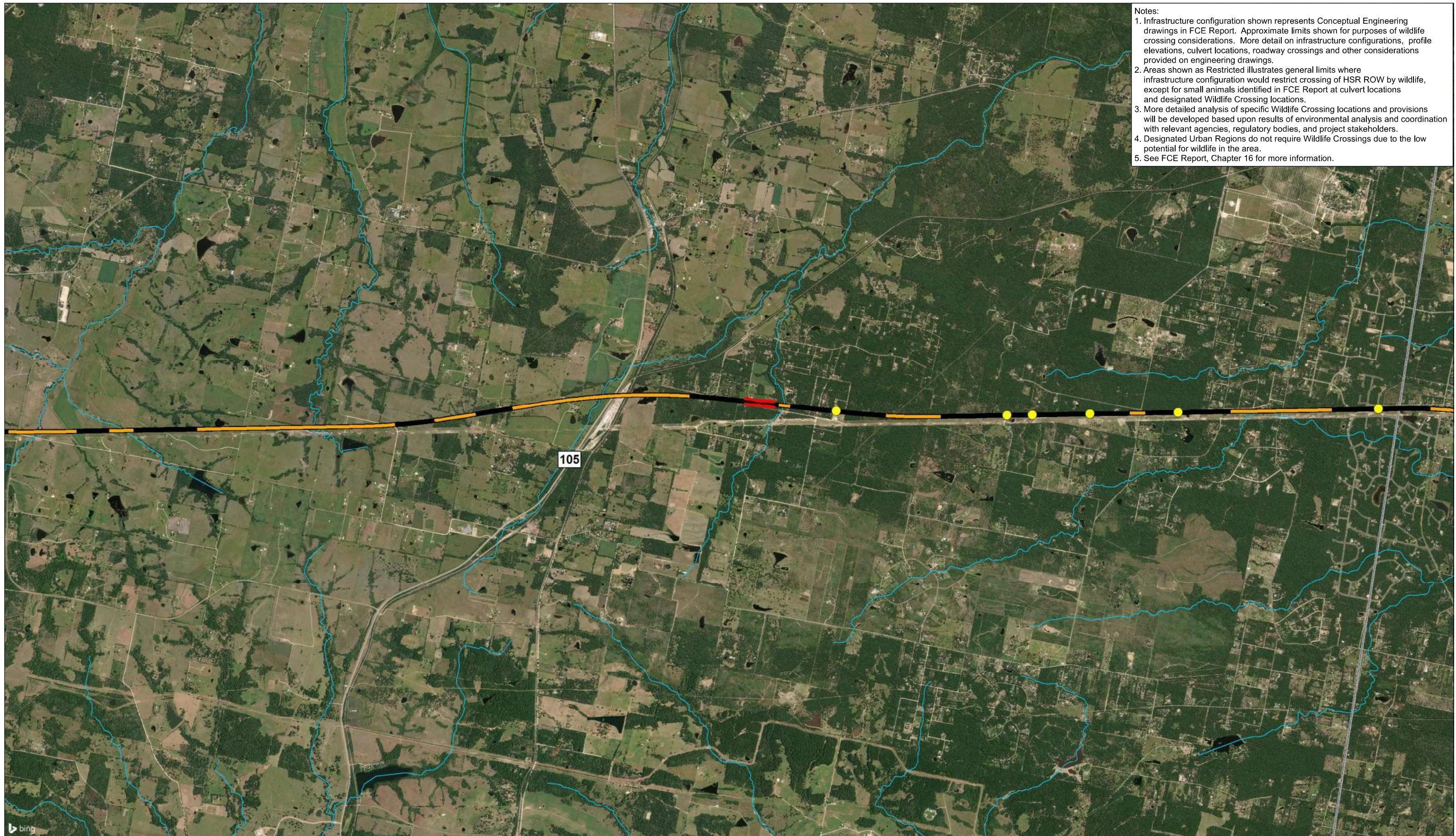
DALLAS TO HOUSTON HIGH-SPEED RAIL
FINAL CONCEPTUAL ENGINEERING

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**HN Segment
THSR
Potential Wildlife
Crossings**
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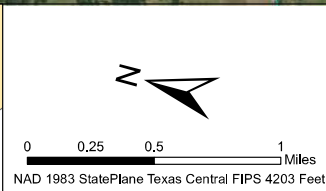
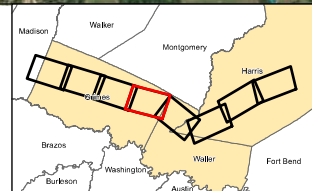
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Status FINAL	Drawn By MK	
Job No 234180-00	Drawing WLC-HN-04003	Rev P1

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NHD Streams	Wildlife Movement
Segment Breaklines	Potential Wildlife Crossing
County Boundaries	Unrestricted
Stations and Maintenance Facilities	Restricted



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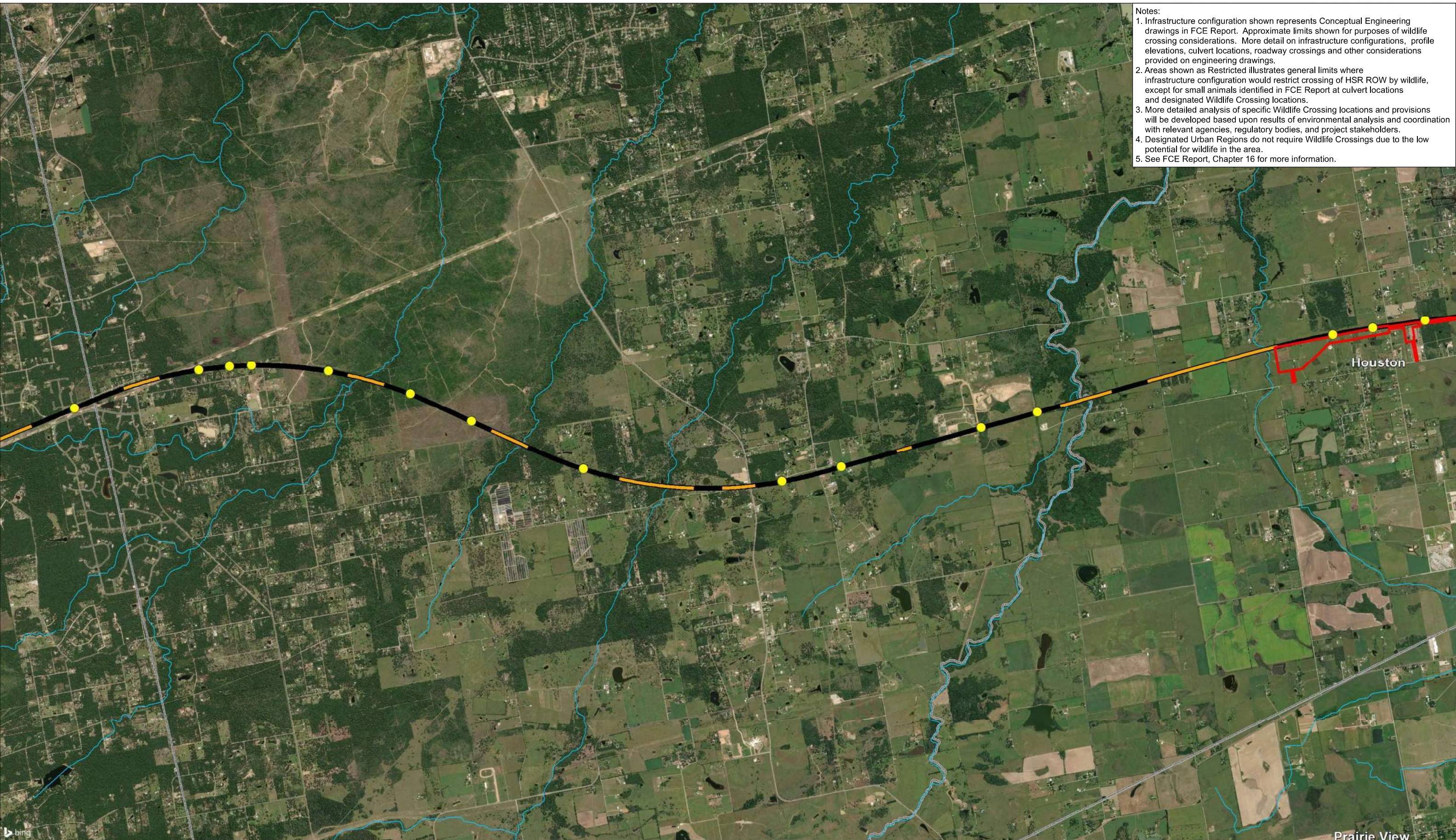
DALLAS TO HOUSTON HIGH-SPEED RAIL
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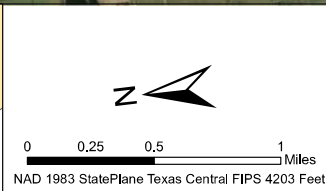
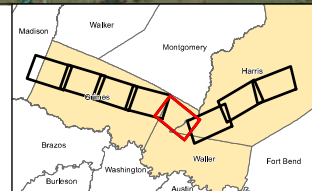
**HN Segment
 THSR
 Potential Wildlife
 Crossings
 Sheet 19 of 23**

File Name Houston_WildlifeCrossings.mxd	Date 02/25/2019
Status FINAL	Drawn By MK
Job No 234180-00	Rev P1
Drawing WLC-HN-04004	

- Notes:
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NHD Streams	Wildlife Movement
Segment Breaklines	Potential Wildlife Crossing
County Boundaries	Unrestricted
Stations and Maintenance Facilities	Restricted



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 FINAL CONCEPTUAL ENGINEERING

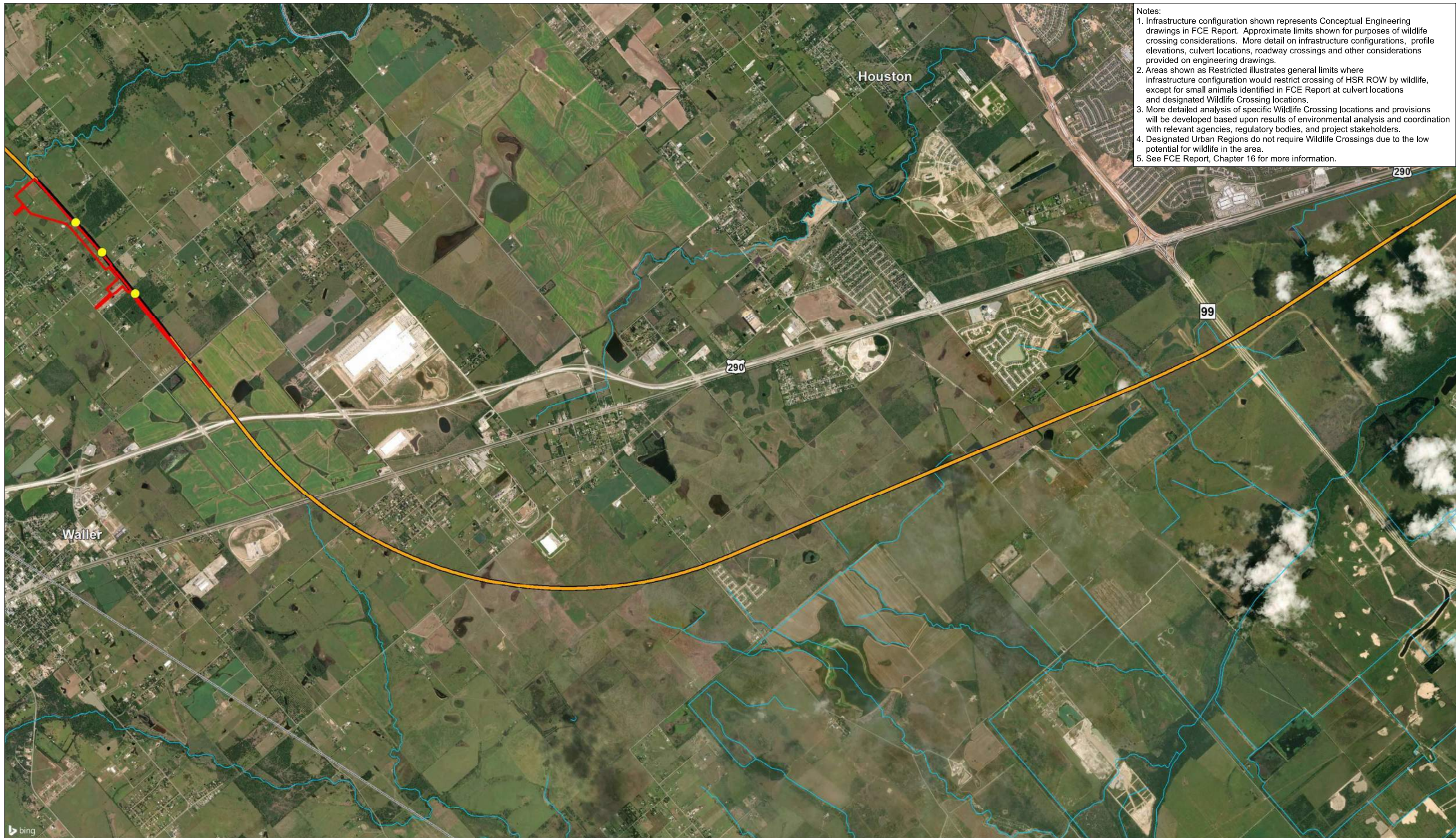
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File Name Houston_WildlifeCrossings.mxd	Date 02/25/2019
Status FINAL	Drawn By MK
Job No 234180-00	Rev P1
Drawing WLC-HN-04005	

Imagery Source: Bing Aerial Imagery

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— NHD Streams

— Segment Breaklines

□ County Boundaries

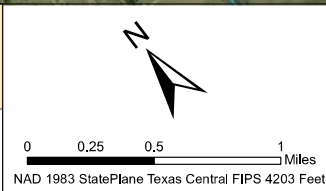
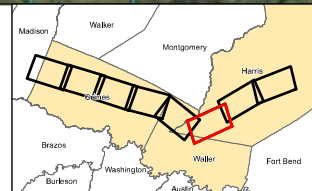
□ Stations and Maintenance Facilities

Wildlife Movement

● Potential Wildlife Crossing

— Unrestricted

— Restricted



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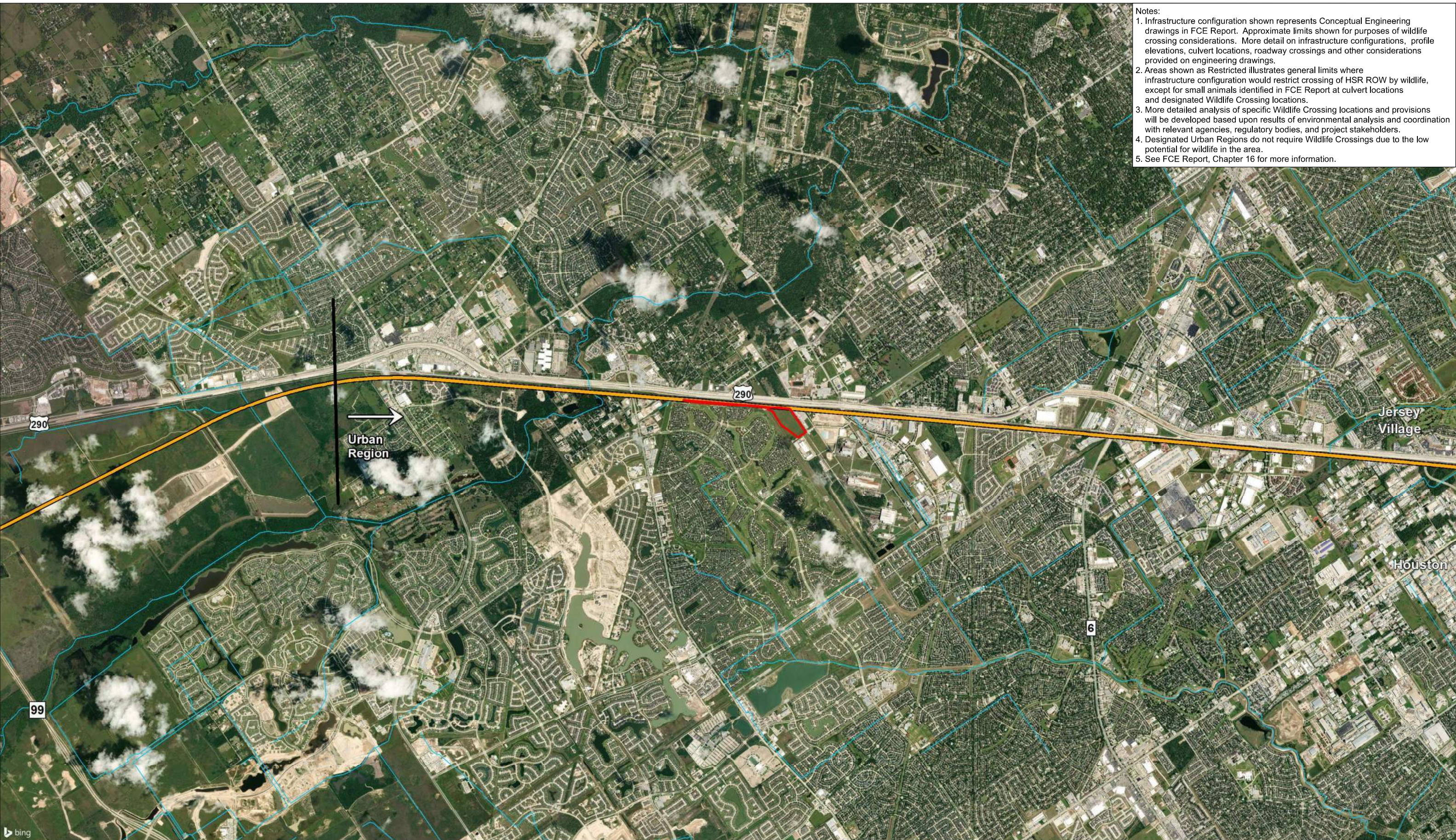
DALLAS TO HOUSTON HIGH-SPEED RAIL
 FINAL CONCEPTUAL ENGINEERING

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**HN Segment THSR
 Potential Wildlife Crossings
 Sheet 21 of 23**

File Name Houston_WildlifeCrossings.mxd	Date 02/25/2019
Status FINAL	Drawn By MK
Job No 234180-00	Rev P1
Drawing WLC-HN-04006	

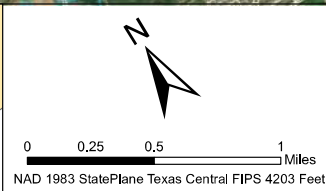
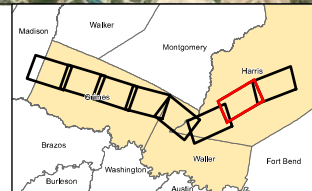
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Wildlife Movement

- Potential Wildlife Crossing
- Unrestricted
- Restricted

— NHD Streams
 — Segment Breaklines
 — County Boundaries
 — Stations and Maintenance Facilities



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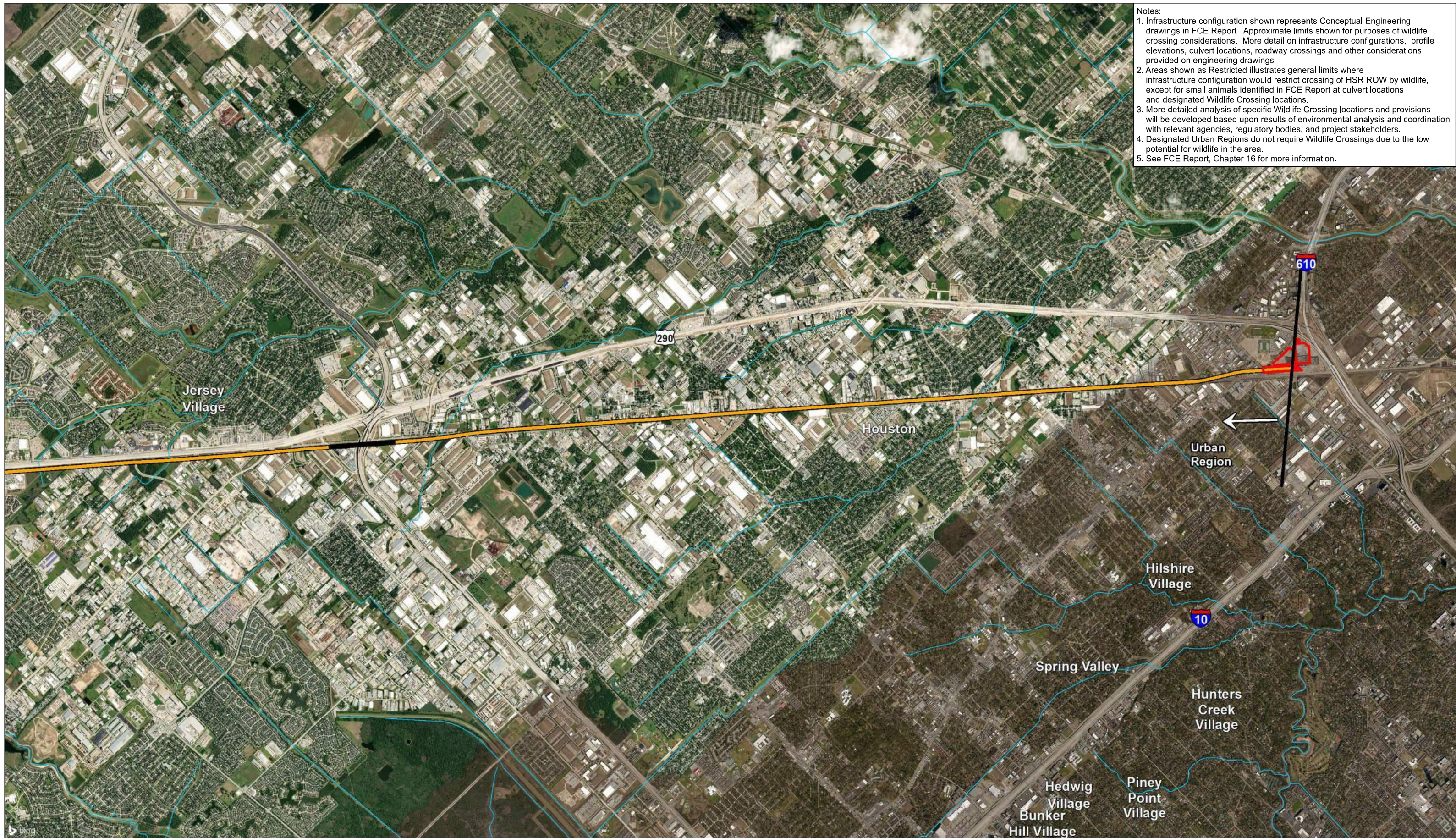
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**HN Segment THSR
 Potential Wildlife Crossings
 Sheet 22 of 23**

File Name Houston_WildlifeCrossings.mxd	Date 02/25/2019
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Job No 234180-00	Rev P1
Drawing WLC-HN-04007	

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Wildlife Movement

- NHD Streams
- Segment Breaklines
- County Boundaries
- Stations and Maintenance Facilities
- Potential Wildlife Crossing
- Unrestricted
- Restricted

0 0.25 0.5 1 Miles
NAD 1983 StatePlane Texas Central FIPS 4203 Feet

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**HN Segment THSR
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Job No 234180-00	Rev P1
Drawing WLC-HN-04008	