

**Dallas to Houston High-Speed Rail
Draft Environmental Impact Statement**

**Appendix G:
Dallas to Houston High-Speed Rail
Passenger Service from Houston to Dallas
Final Draft Conceptual Engineering
Plans and Details
Set 2 of 21**



**TEXAS
CENTRAL**

Transmittal

| | | | |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------|
| To | Megan Inman, AECOM | Date | November 17, 2017 |
| Copies | FRA: K. Wright AECOM: J. Smiley TCRR: A. Greer File: HOU TCR | TRA Number | 00211 |
| From | Christopher Taylor, Arup | | |
| Subject | FINAL DRAFT CONCEPTUAL ENGINEERING DESIGN DOCUMENTATION – FDCE v7 Transmittal Final Version for Publication with Draft Environmental Impact Statement (DEIS) FDCE for Public Release | | |

We Are Sending You: ENTER DOCUMENT TYPE CODE(S) ONLY

| Date of Document | DEIS Appendix | Set # of # | Title of Document or Drawing Title |
|---------------------------------------------------------------------------------------------------------|---------------|------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 11/17/17 | - | - | 234180-AFN-TRA-00211 FDCEv7.PDF (this transmittal) |
| REPORTS | | | |
| 9/15/17 | F | 1 of 2 | TCRR FDCE v7 REPORT.PDF (<i>Final Draft Conceptual Engineering Report v7 – Project Definition for publication with Draft EIS</i>) |
| 9/15/17 | F | 2 of 2 | TCRR CONSTRUCTABILITY v4 REPORT.PDF |
| TCRR FDCE v7 DWGS VOLUME 1 (<i>General Sheets and Typical Sections</i>) | | | |
| 9/15/17 | G | 1 of 21 | TCRR FDCE v7 DWGS VOLUME 1.PDF (<i>General Sheets and Typical Sections</i>) |
| TCRR FDCE v7 DWGS VOLUME 2 (<i>Railway Alignment Plan and Profile Sheets</i>) | | | |
| 9/15/17 | G | 2 of 21 | TCRR FDCE v7 DWGS VOLUME 2-1.PDF (<i>Houston Segment</i>) |
| 9/15/17 | G | 3 of 21 | TCRR FDCE v7 DWGS VOLUME 2-2.PDF (<i>West of Teague Segment</i>) |
| 9/15/17 | G | 4 of 21 | TCRR FDCE v7 DWGS VOLUME 2-3.PDF (<i>IH-45 Segment</i>) |
| 9/15/17 | G | 5 of 21 | TCRR FDCE v7 DWGS VOLUME 2-4.PDF (<i>Navarro West Segment</i>) |
| 9/15/17 | G | 6 of 21 | TCRR FDCE v7 DWGS VOLUME 2-5.PDF (<i>Navarro East Segment</i>) |
| 9/15/17 | G | 7 of 21 | TCRR FDCE v7 DWGS VOLUME 2-6.PDF (<i>Ellis West Segment</i>) |
| 9/15/17 | G | 8 of 21 | TCRR FDCE v7 DWGS VOLUME 2-7.PDF (<i>Ellis East Segment</i>) |
| 9/15/17 | G | 9 of 21 | TCRR FDCE v7 DWGS VOLUME 2-8.PDF (<i>Dallas Segment</i>) |
| TCRR FDCE v7 DWGS VOLUME 3 (<i>Stations, Maintenance Facilities, and Railway Systems Sheets</i>) | | | |
| 9/15/17 | G | 10 of 21 | TCRR FDCE v7 DWGS VOLUME 3-1.PDF (<i>Stations</i>) |
| 9/15/17 | G | 11 of 21 | TCRR FDCE v7 DWGS VOLUME 3-2.PDF (<i>Maintenance Facilities, Yards and Shops</i>) |
| 9/15/17 | G | 12 of 21 | TCRR FDCE v7 DWGS VOLUME 3-3.PDF (<i>Rail Systems</i>) |
| TCRR FDCE v7 DWGS VOLUME 4 (<i>Roadway Plan Sheets</i>) | | | |
| 9/15/17 | G | 13 of 21 | TCRR FDCE v7 DWGS VOLUME 4-1.PDF (<i>Houston Segment</i>) |
| 9/15/17 | G | 14 of 21 | TCRR FDCE v7 DWGS VOLUME 4-2.PDF (<i>West of Teague Segment</i>) |
| 9/15/17 | G | 15 of 21 | TCRR FDCE v7 DWGS VOLUME 4-3.PDF (<i>IH-45 Segment</i>) |
| 9/15/17 | G | 16 of 21 | TCRR FDCE v7 DWGS VOLUME 4-4.PDF (<i>Navarro West Segment</i>) |
| 9/15/17 | G | 17 of 21 | TCRR FDCE v7 DWGS VOLUME 4-5.PDF (<i>Navarro East Segment</i>) |

| Document Format | Date of Document | Number of Copies | Title of Document or Drawing Title |
|----------------------------------------------------------------|------------------|------------------|--------------------------------------------------------------------|
| 9/15/17 | G | 18 of 21 | TCRR FDCE v7 DWGS VOLUME 4-6.PDF (<i>Ellis West Segment</i>) |
| 9/15/17 | G | 19 of 21 | TCRR FDCE v7 DWGS VOLUME 4-7.PDF (<i>Ellis East Segment</i>) |
| 9/15/17 | G | 20 of 21 | TCRR FDCE v7 DWGS VOLUME 4-8.PDF (<i>Dallas Segment</i>) |
| TCRR FDCE v7 DWGS VOLUME 5 (<i>Wildlife Crossing Sheets</i>) | | | |
| 9/15/17 | G | 21 of 21 | TCRR FDCE v7 DWGS VOLUME 5.PDF (<i>Wildlife Crossing Sheets</i>) |

These are transmitted as checked below:

- Deliverable For Information As requested For your use
 For approval For Review and Comment Return Other: Publication with DEIS

REMARKS:

The files transmitted herewith represent a final submittal of the Final Draft Conceptual Engineering (FDCE) design report and drawings for the Dallas to Houston High-Speed Rail Project. This v7 submittal of the FDCE report is intended for distribution on the FRA website with the Draft EIS (DEIS) for public review.



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PREPARED BY: Christopher Taylor **Date:** November 17, 2017

IF ENCLOSURES ARE NOT AS NOTED, KINDLY NOTIFY US AT ONCE.



**TEXAS
CENTRAL**



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

**FINAL DRAFT
CONCEPTUAL ENGINEERING PLANS AND DETAILS**
VOLUME 2 - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

SEPTEMBER 15, 2017



U.S. Department of Transportation
Federal Railroad Administration

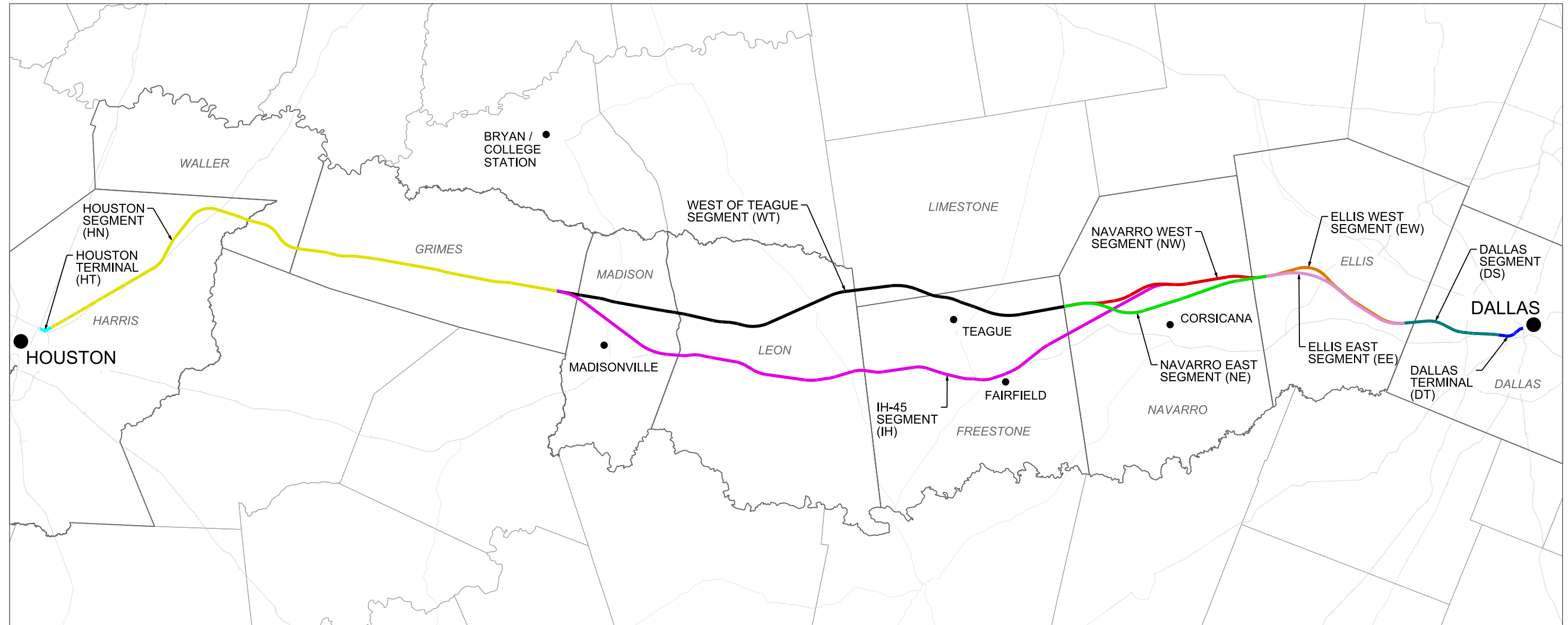
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COVER SHEET



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

NOTES:
 1. REFER TO FDCE v5 FOR SEGMENT NAMES AND ALIGNMENT ALTERNATIVES.



| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
| | | | | | |

DESIGNED BY
D. THOMPSON
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 CHECKED BY
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09/15/2017

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

Drawing Title
GENERAL LOCATION PLAN

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

VOLUME 1 - GENERAL SHEETS & TYPICAL SECTIONS

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

VOLUME 2 - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Section 2-1 HOUSTON SEGMENT, listing drawings CVL-HN-01101 through CVL-HN-01108-2.

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Section 2-2 WEST OF TEAGUE SEGMENT, listing drawings CVL-HN-01107-3 through CVL-HN-01180.

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Section 2-2 WEST OF TEAGUE SEGMENT, listing drawings CVL-WT-01250 through CVL-WT-01296.

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. Design and drawing information.



Table with columns: Drawing Title, Scale, Drawing Status, Job No, Drawing No, Rev. Project and drawing identification information.

VOLUME 2 - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Includes sections for 2-2 WEST OF TEAGUE SEGMENT and 2-3 IH-45 SEGMENT.

Table with columns: Drawing No., Description. Lists drawings from CVL-IH-01389 to CVL-IH-01449 and CVL-NW-01500 to CVL-NW-01511.

Table with columns: Drawing No., Description. Lists drawings from CVL-NW-01512 to CVL-NW-01531 and CVL-NE-01600 to CVL-NE-01631.

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

Table with columns: DESIGNED BY, DRAWN BY, CHECKED BY, IN CHARGE, DATE. Project personnel information.

Project information block including logos for ARUP, FREESE & NICHOLS, TEXAS CENTRAL, drawing title 'GENERAL INDEX SHEET 2 OF 5', scale 'NO SCALE', and drawing status 'FINAL DRAFT'.

PLOT TIME: 9/27/2017 10:20:31 AM

HOUSTON SEGMENT - CIVIL - KEY MAP - Sheet 2 of 4 - HN1 1024+00 TO HN1 2082+00

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawing numbers and descriptions for segments 2-6, 2-7, and 2-8.

VOLUME 3 - STATIONS, MAINTENANCE FACILITIES AND RAILWAY SYSTEMS SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawing numbers and descriptions for stations, maintenance facilities, and railway systems sheets.

Table with columns: Drawing No., Drawing Description. Lists drawing numbers and descriptions for various station options, industrial stations, and maintenance facilities.

Table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Includes a revision table and a design information table with fields for Designer, Drawn, Checked, In Charge, and Date.

Project information block containing logos for ARUP, FREESE & NICHOLS, and TEXAS CENTRAL. Includes drawing title 'GENERAL INDEX SHEET 3 OF 5', scale 'NO SCALE', and drawing status 'FINAL DRAFT'.

PLOT TIME: 9/25/2017 5:41:24 PM

VOLUME 3 - STATIONS, MAINTENANCE FACILITIES AND RAILWAY SYSTEMS SHEETS

| DRAWING NO. | DRAWING DESCRIPTIONS |
|----------------------------------------------------|---------------------------------------------------------------------------|
| 3-2 MAINTENANCE FACILITIES, YARDS AND SHOPS | |
| MNT-DS-04040 | DALLAS SEGMENT - MAINTENANCE FACILITIES - DALLAS SOUTH TMF - SHEET 2 OF 3 |
| MNT-DS-04041 | DALLAS SEGMENT - MAINTENANCE FACILITIES - DALLAS SOUTH TMF - SHEET 3 OF 3 |
| MNT-DS-04042 | DALLAS SEGMENT - MAINTENANCE FACILITIES - DALLAS NORTH TMF - SHEET 1 OF 2 |
| MNT-DS-04043 | DALLAS SEGMENT - MAINTENANCE FACILITIES - DALLAS NORTH TMF - SHEET 2 OF 2 |
| MNT-DS-04044 | DALLAS SEGMENT - MAINTENANCE FACILITIES - MOW FACILITY DS-3 - LAYOUT |
| 3-3 RAILWAY SYSTEMS | |
| SYS-00-01000 | GENERAL - RAILWAY SYSTEMS - TYPICAL LAYOUT PLAN SHEET 1 OF 3 |
| SYS-00-01001 | GENERAL - RAILWAY SYSTEMS - TYPICAL LAYOUT PLAN SHEET 2 OF 3 |
| SYS-00-01002 | GENERAL - RAILWAY SYSTEMS - TYPICAL LAYOUT PLAN SHEET 3 OF 3 |
| SYS-00-02000 | GENERAL - RAILWAY SYSTEMS - FACILITY SPACING - ALIGNMENT ALTERNATIVE A |
| SYS-00-02001 | GENERAL - RAILWAY SYSTEMS - FACILITY SPACING - ALIGNMENT ALTERNATIVE B |
| SYS-00-02002 | GENERAL - RAILWAY SYSTEMS - FACILITY SPACING - ALIGNMENT ALTERNATIVE C |
| SYS-00-02003 | GENERAL - RAILWAY SYSTEMS - FACILITY SPACING - ALIGNMENT ALTERNATIVE D |
| SYS-00-02004 | GENERAL - RAILWAY SYSTEMS - FACILITY SPACING - ALIGNMENT ALTERNATIVE E |
| SYS-00-02005 | GENERAL - RAILWAY SYSTEMS - FACILITY SPACING - ALIGNMENT ALTERNATIVE F |
| SYS-00-03000 | GENERAL - RAILWAY SYSTEMS - FACILITY LOCATION |

VOLUME 4 - ROADWAY PLAN SHEETS

| DRAWING NO. | DRAWING DESCRIPTIONS |
|----------------------------|--------------------------------------------------------------------------------------------|
| 4-1 HOUSTON SEGMENT | |
| RDY-HN-01101 | HOUSTON SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 1 OF 4 - STA. HN1 10+00 TO HN1 1030+00 |
| RDY-HN-01102 | HOUSTON SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 2 OF 4 - STA. HN1 1030+00 TO HN1 2070+00 |
| RDY-HN-01103 | HOUSTON SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 3 OF 4 - STA. HN1 2070+00 TO HN2 790+00 |
| RDY-HN-01104 | HOUSTON SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 4 OF 4 - STA. HN2 790+00 TO HN2 2073+80 |
| RDY-HN-04001 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HT1 20+00 TO HT1 110+00 |
| RDY-HN-04002 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 10+00 TO HN1 90+00 |
| RDY-HN-04003 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 90+00 TO HN1 180+00 |
| RDY-HN-04004 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 180+00 TO HN1 270+00 |
| RDY-HN-04005 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 270+00 TO HN1 360+00 |
| RDY-HN-04006 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 360+00 TO HN1 450+00 |
| RDY-HN-04007 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 450+00 TO HN1 540+00 |
| RDY-HN-04008 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 540+00 TO HN1 630+00 |
| RDY-HN-04009 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 630+00 TO HN1 720+00 |
| RDY-HN-04010 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 720+00 TO HN1 810+00 |
| RDY-HN-04011 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 810+00 TO HN1 900+00 |
| RDY-HN-04012 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 900+00 TO HN1 990+00 |
| RDY-HN-04013 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 990+00 TO HN1 1080+00 |
| RDY-HN-04014 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 1080+00 TO HN1 1170+00 |
| RDY-HN-04015 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 1170+00 TO HN1 1260+00 |
| RDY-HN-04016 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 1260+00 TO HN1 1350+00 |
| RDY-HN-04017 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 1350+00 TO HN1 1440+00 |
| RDY-HN-04018 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 1440+00 TO HN1 1530+00 |
| RDY-HN-04019 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 1530+00 TO HN1 1620+00 |
| RDY-HN-04020 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 1620+00 TO HN1 1710+00 |
| RDY-HN-04021 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 1710+00 TO HN1 1800+00 |
| RDY-HN-04022 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 1800+00 TO HN1 1890+00 |
| RDY-HN-04023 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 1890+00 TO HN1 1980+00 |
| RDY-HN-04024 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 1980+00 TO HN1 2070+00 |
| RDY-HN-04025 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 2070+00 TO HN1 2160+00 |
| RDY-HN-04026 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 2160+00 TO HN1 2250+00 |
| RDY-HN-04027 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 2250+00 TO HN1 2340+00 |
| RDY-HN-04028 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN1 2340+00 TO HN1 2387+62 |
| RDY-HN-04029 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 10+00 TO HN2 100+00 |
| RDY-HN-04030 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 100+00 TO HN2 190+00 |
| RDY-HN-04031 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 190+00 TO HN2 280+00 |
| RDY-HN-04032 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 280+00 TO HN2 370+00 |
| RDY-HN-04033 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 370+00 TO HN2 460+00 |
| RDY-HN-04034 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 460+00 TO HN2 550+00 |
| RDY-HN-04035 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 550+00 TO HN2 640+00 |
| RDY-HN-04036 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 640+00 TO HN2 730+00 |
| RDY-HN-04037 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 730+00 TO HN2 820+00 |
| RDY-HN-04038 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 820+00 TO HN2 910+00 |
| RDY-HN-04039 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 910+00 TO HN2 1000+00 |
| RDY-HN-04040 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 1000+00 TO HN2 1090+00 |
| RDY-HN-04041 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 1090+00 TO HN2 1180+00 |
| RDY-HN-04042 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 1180+00 TO HN2 1270+00 |
| RDY-HN-04043 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 1270+00 TO HN2 1360+00 |
| RDY-HN-04044 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 1360+00 TO HN2 1450+00 |
| RDY-HN-04045 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 1450+00 TO HN2 1540+00 |
| RDY-HN-04046 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 1540+00 TO HN2 1630+00 |

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|-----------------------------------|------------------------------------------------------------------------------------------|
| RDY-HN-04047 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 1630+00 TO HN2 1720+00 |
| RDY-HN-04048 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 1720+00 TO HN2 1810+00 |
| RDY-HN-04049 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 1810+00 TO HN2 1900+00 |
| RDY-HN-04050 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 1900+00 TO HN2 1990+00 |
| RDY-HN-04051 | HOUSTON SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. HN2 1990+00 TO 2073+80 |
| 4-2 WEST OF TEAGUE SEGMENT | |
| RDY-WT-01101 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 1 OF 4 WT 10+00 TO WT 1120+00 |
| RDY-WT-01102 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 2 OF 4 WT 1120+00 TO WT 2240+00 |
| RDY-WT-01103 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 3 OF 4 WT 2240+00 TO WT 3360+00 |
| RDY-WT-01104 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 4 OF 4 WT 3360+00 TO WT 4118+87 |
| RDY-WT-04001 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 10+00 TO WT 100+00 |
| RDY-WT-04002 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 100+00 TO WT 190+00 |
| RDY-WT-04003 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 190+00 TO WT 280+00 |
| RDY-WT-04004 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 280+00 TO WT 370+00 |
| RDY-WT-04005 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 370+00 TO WT 460+00 |
| RDY-WT-04006 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 460+00 TO WT 550+00 |
| RDY-WT-04007 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 550+00 TO WT 640+00 |
| RDY-WT-04008 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 640+00 TO WT 730+00 |
| RDY-WT-04009 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 730+00 TO WT 820+00 |
| RDY-WT-04010 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 820+00 TO WT 910+00 |
| RDY-WT-04011 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 910+00 TO WT 1000+00 |
| RDY-WT-04012 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 1000+00 TO WT 1090+00 |
| RDY-WT-04013 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 1090+00 TO WT 1180+00 |
| RDY-WT-04014 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 1180+00 TO WT 1270+00 |
| RDY-WT-04015 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 1270+00 TO WT 1360+00 |
| RDY-WT-04016 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 1360+00 TO WT 1450+00 |
| RDY-WT-04017 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 1450+00 TO WT 1540+00 |
| RDY-WT-04018 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 1540+00 TO WT 1630+00 |
| RDY-WT-04019 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 1630+00 TO WT 1720+00 |
| RDY-WT-04020 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 1720+00 TO WT 1810+00 |
| RDY-WT-04021 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 1810+00 TO WT 1900+00 |
| RDY-WT-04022 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 1900+00 TO WT 1990+00 |
| RDY-WT-04023 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 1990+00 TO WT 2080+00 |
| RDY-WT-04024 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 2080+00 TO WT 2170+00 |
| RDY-WT-04025 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 2170+00 TO WT 2260+00 |
| RDY-WT-04026 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 2260+00 TO WT 2350+00 |
| RDY-WT-04027 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 2350+00 TO WT 2440+00 |
| RDY-WT-04028 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 2440+00 TO WT 2530+00 |
| RDY-WT-04029 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 2530+00 TO WT 2620+00 |
| RDY-WT-04030 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 2620+00 TO WT 2710+00 |
| RDY-WT-04031 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 2710+00 TO WT 2800+00 |
| RDY-WT-04032 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 2800+00 TO WT 2890+00 |
| RDY-WT-04033 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 2890+00 TO WT 2980+00 |
| RDY-WT-04034 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 2980+00 TO WT 3070+00 |
| RDY-WT-04035 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 3070+00 TO WT 3160+00 |
| RDY-WT-04036 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 3160+00 TO WT 3250+00 |
| RDY-WT-04037 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 3250+00 TO WT 3340+00 |
| RDY-WT-04038 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 3340+00 TO WT 3430+00 |
| RDY-WT-04039 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 3430+00 TO WT 3520+00 |
| RDY-WT-04040 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 3520+00 TO WT 3610+00 |
| RDY-WT-04041 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 3610+00 TO WT 3700+00 |
| RDY-WT-04042 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 3700+00 TO WT 3790+00 |
| RDY-WT-04043 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 3790+00 TO WT 3880+00 |
| RDY-WT-04044 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 3880+00 TO WT 3970+00 |
| RDY-WT-04045 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 3970+00 TO WT 4060+00 |
| RDY-WT-04046 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. WT 4060+00 TO WT 4118+87 |
| RDY-WT-04047 | WEST OF TEAGUE SEGMENT - CIVIL HIGHWAY - MATCHLINE RDY-WT-04011 |
| 4-3 IH-45 SEGMENT | |
| RDY-IH-01101 | IH-45 SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 1 OF 5 IH1 10+00 TO IH1 1120+00 |
| RDY-IH-01102 | IH-45 SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 2 OF 5 IH1 1120+00 TO IH1 2240+00 |
| RDY-IH-01103 | IH-45 SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 3 OF 5 IH1 2240+00 TO IH1 3360+00 |
| RDY-IH-01104 | IH-45 SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 4 OF 5 IH1 3360+00 TO IH2 224+00 |
| RDY-IH-01105 | IH-45 SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 5 OF 5 IH2 224+00 TO IH2 913+96 |
| RDY-IH1-04001 | IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 10+00 TO IH1 100+00 |
| RDY-IH1-04002 | IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 100+00 TO IH1 190+00 |
| RDY-IH1-04003 | IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 190+00 TO IH1 280+00 |
| RDY-IH1-04004 | IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 280+00 TO IH1 370+00 |
| RDY-IH1-04005 | IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 370+00 TO IH1 460+00 |
| RDY-IH1-04006 | IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 460+00 TO IH1 550+00 |
| RDY-IH1-04007 | IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 550+00 TO IH1 640+00 |
| RDY-IH1-04008 | IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 640+00 TO IH1 730+00 |
| RDY-IH1-04009 | IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 730+00 TO IH1 820+00 |
| RDY-IH1-04010 | IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 820+00 TO IH1 910+00 |
| RDY-IH1-04011 | IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 910+00 TO IH1 1000+00 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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| DESIGNED BY D. THOMPSON |
| DRAWN BY D. THOMPSON |
| CHECKED BY R. BURNS |
| IN CHARGE C. TAYLOR |
| DATE 09/15/2017 |



Drawing Title
GENERAL INDEX SHEET 4 OF 5

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| Scale NO SCALE | | |
| Drawing Status FINAL DRAFT | | |
| Job No 234180 | Drawing No GEN-00-00006 | Rev 01 |

VOLUME 4 - ROADWAY PLAN SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawings 1H-45 SEGMENT and 4-4 NAVARRO WEST SEGMENT.

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawings 4-5 NAVARRO EAST SEGMENT, 4-6 ELLIS WEST SEGMENT, 4-7 ELLIS EAST SEGMENT, and 4-8 DALLAS SEGMENT.

VOLUME 5 - WILDLIFE CROSSING SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawings 5-1 WILDLIFE CROSSING TYPICAL SECTIONS.

Table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Revision table for drawing 09/15/2017.

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DATE 09/15/2017



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Client: Texas Central
Drawing Title: GENERAL INDEX SHEET 5 OF 5
Scale: NO SCALE
Drawing Status: FINAL DRAFT
Job No: 234180
Drawing No: GEN-00-00007
Rev: 01

GENERAL NOTES:

1. THESE DRAWINGS ACCOMPANY FINAL DRAFT CONCEPTUAL ENGINEERING REPORT (FDCE) V7 REPORT DATED SEPTEMBER 15, 2017.
2. DRAWING SET INCLUDES FIVE (5) VOLUMES.
3. CONCEPTUAL ENGINEERING WAS DEVELOPED TO IDENTIFY PROJECT LIMIT OF DISTURBANCE (LOD), OR "PROJECT FOOTPRINT". CONCEPTUAL ENGINEERING DRAWINGS AND FDCE 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 DRAWINGS 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 (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.
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, AEROGRIID, 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, 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), 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.
2. LOD USED FOR EIS ANALYSIS FOOTPRINT.

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, 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 (TMFS).

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 MAPS.
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-00-03036 FOR TYPICAL ROADWAY CROSS SECTIONS.
7. ROADWAY REMOVALS ARE NOT SHOWN ON RAIL PLAN AND PROFILE SHEETS, REFER TO ROADWAY PLAN SHEETS IN VOLUME 3 FOR ALL 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 CROSSING DO NOT REPRESENT THE PROPOSED ROADWAY ELEVATION, BUT RATHER THE MINIMUM HEIGHT REQUIRED FOR CLEARANCES, INCLUDING ALLOWANCES FOR ROADWAY STRUCTURAL ELEMENTS. SEE FDCE 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 REQUIRED THE APPROPRIATE APPROVAL FROM TXDOT.

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 FDCE 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 ONLY AND ARE BASED ON INFORMATION RECEIVED, AS DOCUMENTED IN THE FINAL DRAFT 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 FDCE 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 LANDOWNER NEGOTIATIONS WILL BE REQUIRED TO DETERMINE LAND OWNER 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-00-02005, 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 FDCE 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-00-01002.
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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| DESIGNED BY D. THOMPSON |
| DRAWN BY D. THOMPSON |
| CHECKED BY R. BURNS |
| IN CHARGE C. TAYLOR |
| DATE 09/15/2017 |



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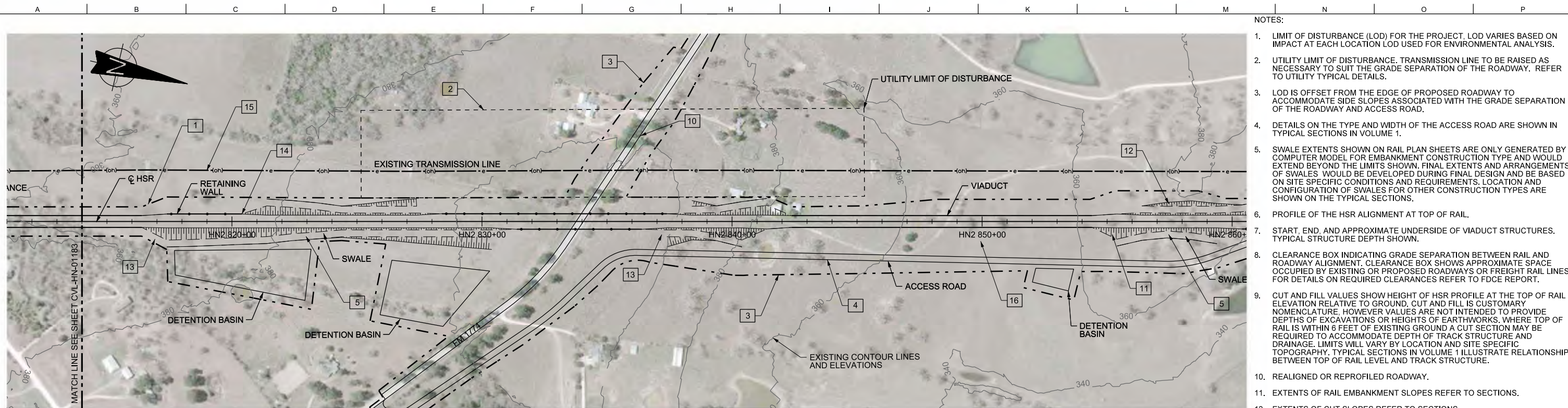


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Dallas, Texas 75204
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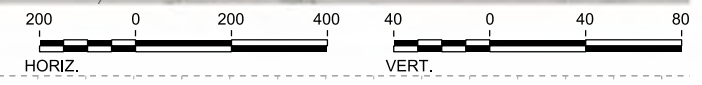


Client
Drawing Title
GENERAL NOTES

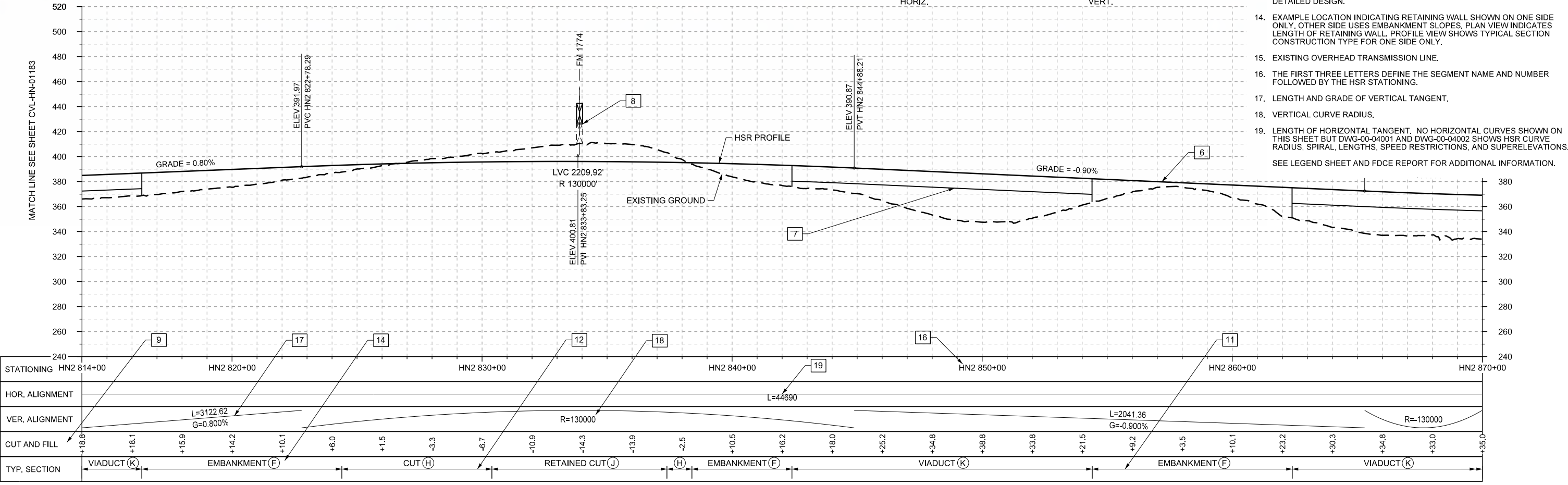
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| Drawing Status FINAL DRAFT | | |
| Job No 234180 | Drawing No GEN-00-00008 | Rev 01 |



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 INDICATING GRADE SEPARATION BETWEEN RAIL AND ROADWAY ALIGNMENT. CLEARANCE BOX SHOWS APPROXIMATE SPACE OCCUPIED BY EXISTING OR PROPOSED ROADWAYS OR FREIGHT RAIL LINES. FOR DETAILS ON REQUIRED CLEARANCES REFER TO FDCE 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.
 - 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. SEE LEGEND SHEET AND FDCE REPORT FOR ADDITIONAL INFORMATION.



PROFILE

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|-----------------------------------|
| DESIGNED BY J. ENRIQUEZ |
| DRAWN BY P. TONKIN |
| CHECKED BY R. BURNS |
| IN CHARGE C. TAYLOR |
| DATE 09/15/2017 |

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www.freese.com
Texas Registered Engineering Firm: F-2144

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

Drawing Title
GENERAL

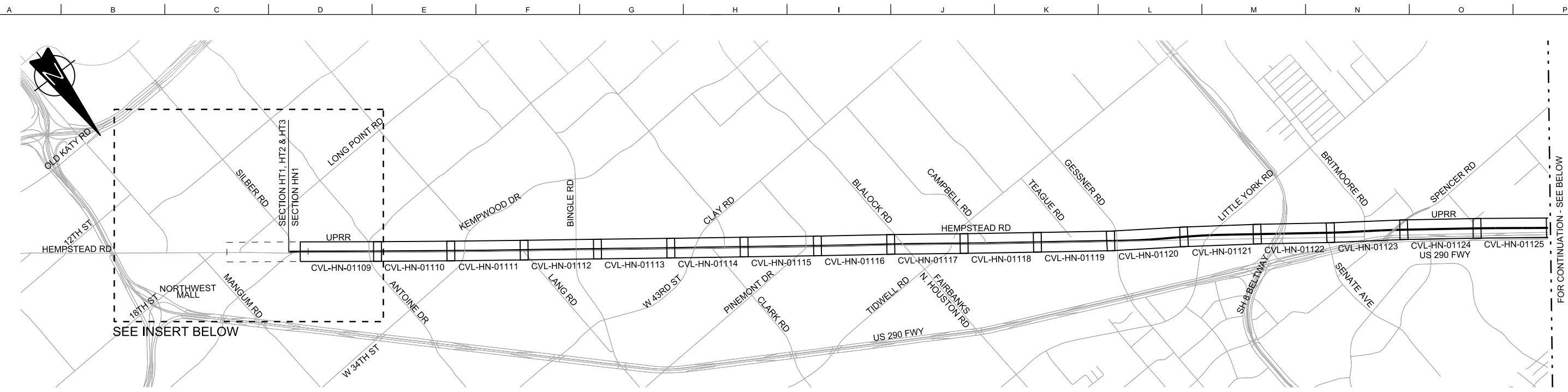
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Scale
AS SHOWN

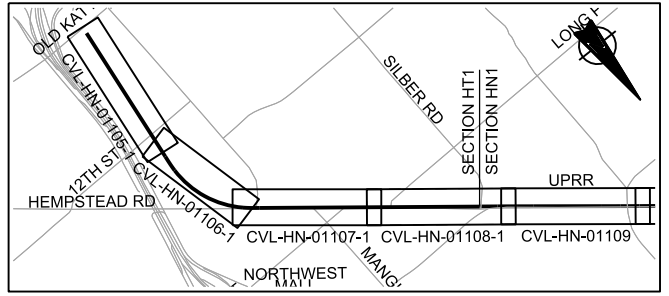
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FINAL DRAFT

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| Job No 234180 | Drawing No GEN-00-00010 | Rev 01 |
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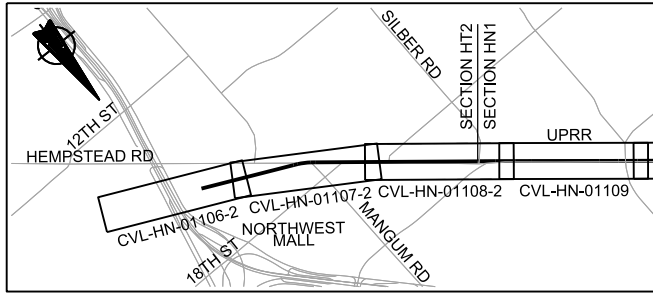
2-1
HOUSTON SEGMENT



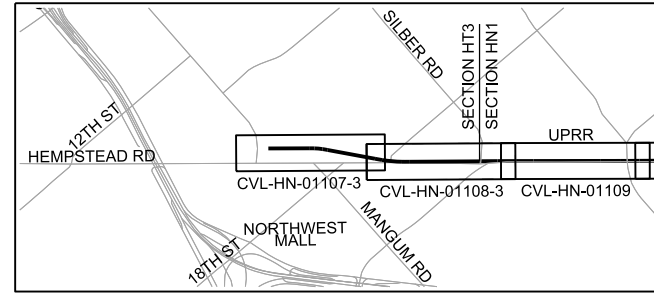
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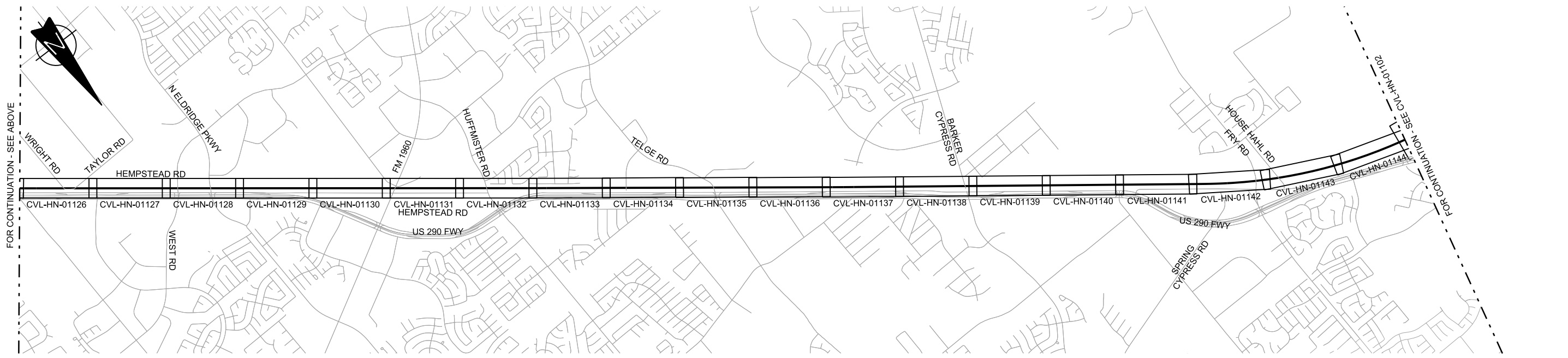
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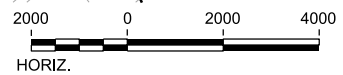
SECTION HT2/HN1



SECTION HT3/HN1



SECTION HN1



| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017



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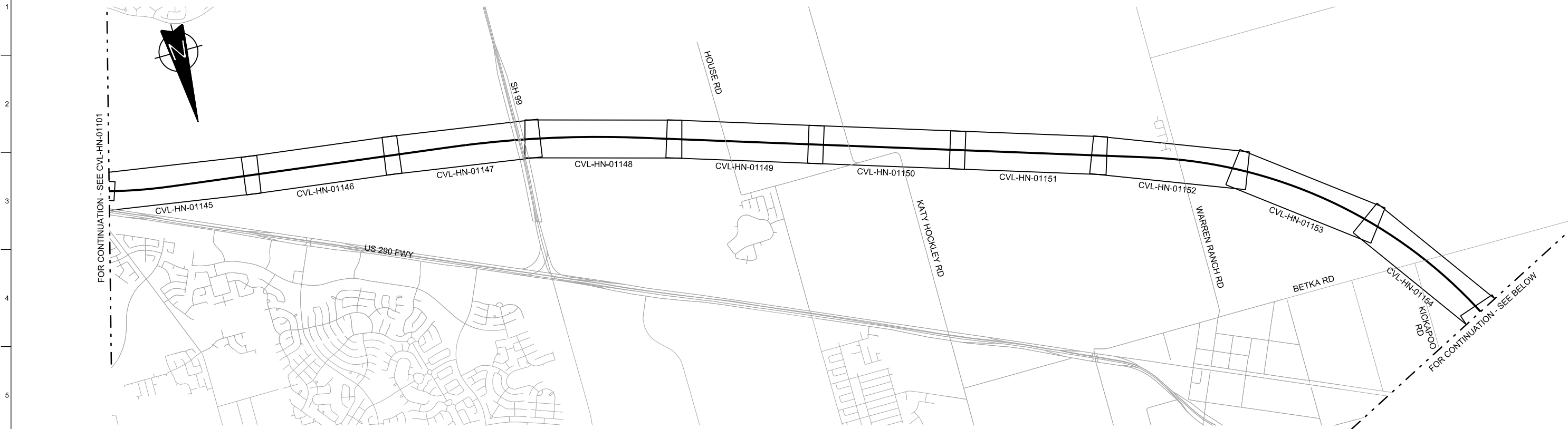
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Drawing Title
**HOUSTON SEGMENT
CIVIL
KEY MAP - SHEET 1 OF 4
HT1 10+00 TO HN1 1024+00**

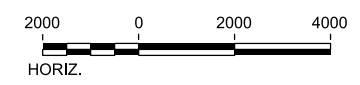
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| Scale AS SHOWN | Drawing Status FINAL DRAFT | |
| Job No 234180 | Drawing No CVL-HN-01101 | Rev 01 |



SECTION HN1



SECTION HN1



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DESIGNED BY
T. SMELCER

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IN CHARGE
C. TAYLOR

DATE
09/15/2017



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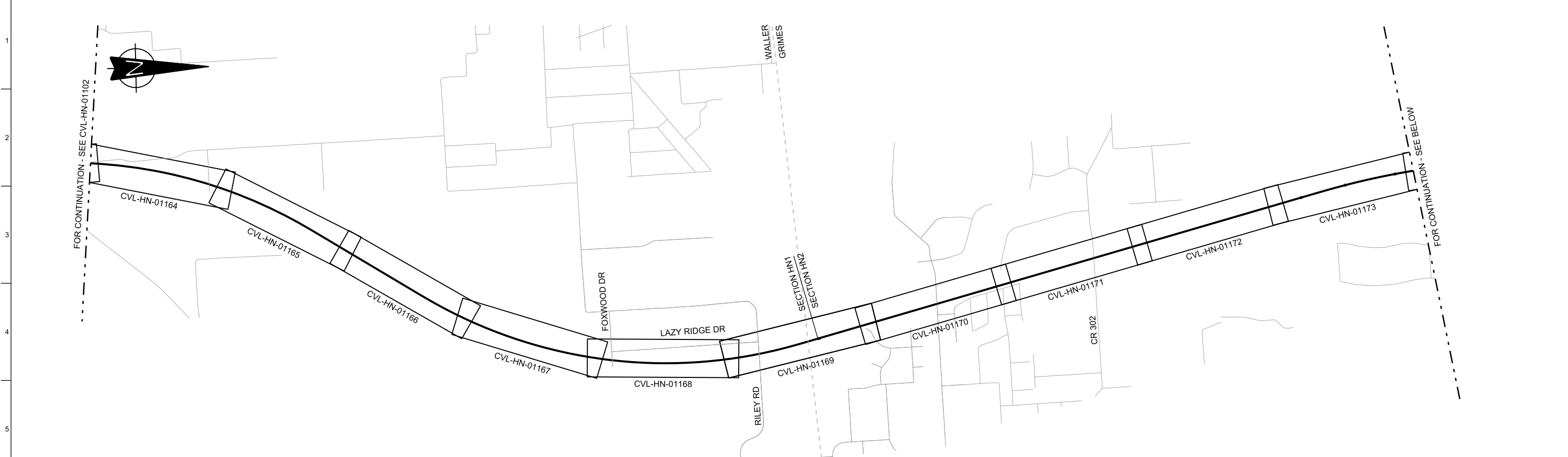
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Client
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
**HOUSTON SEGMENT
CIVIL
KEY MAP - SHEET 2 OF 4
HN1 1024+00 TO HN1 2082+00**

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|-------------------------------|----------------------------|-----------|
| Scale AS SHOWN | | |
| Drawing Status FINAL DRAFT | | |
| Job No 234180 | Drawing No CVL-HN-01102 | Rev 01 |



SECTION HN1/HN2



SECTION HN2



| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
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IN CHARGE
C. TAYLOR

DATE
09/15/2017



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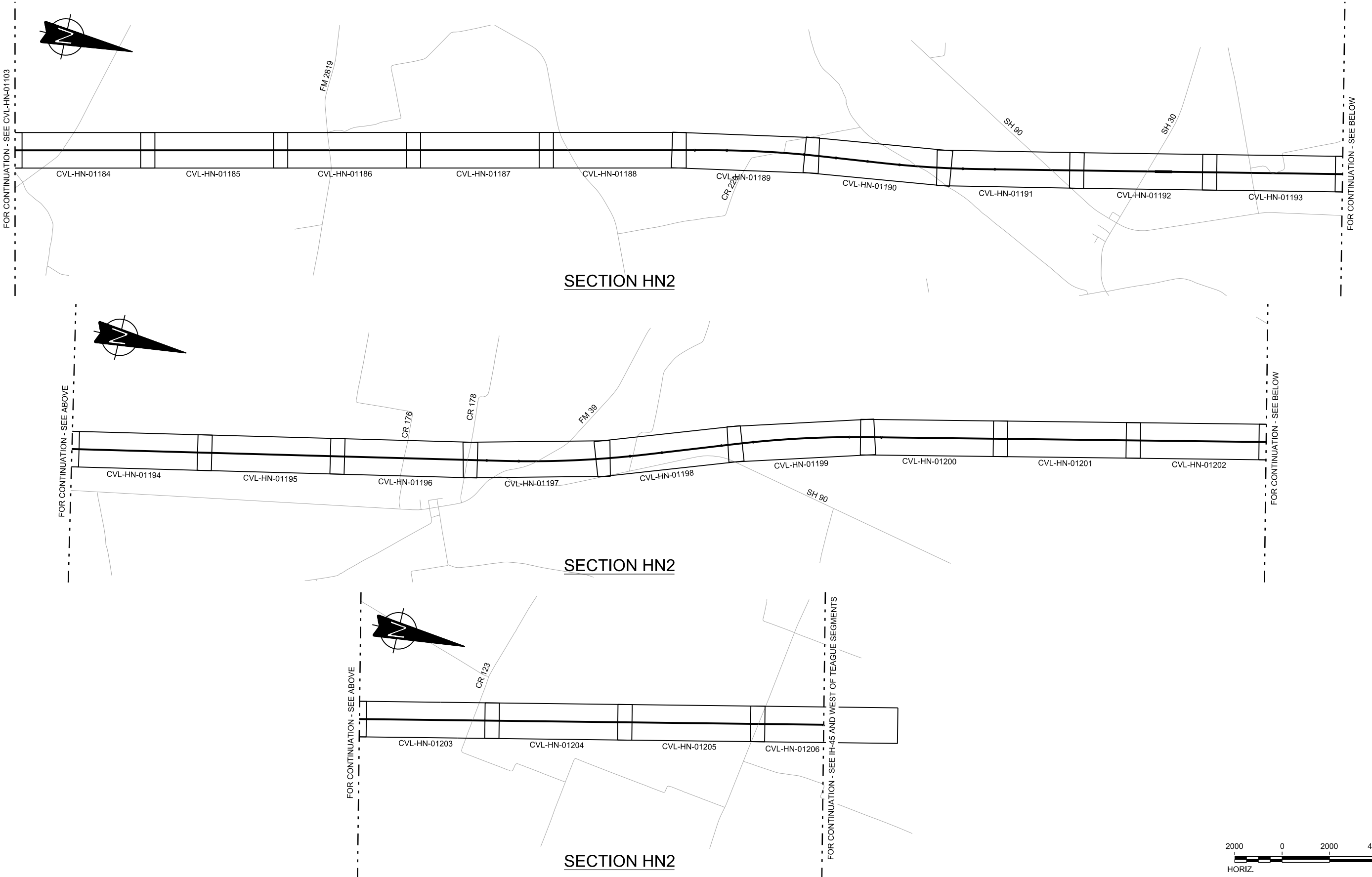
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Client

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Drawing Title
**HOUSTON SEGMENT
CIVIL
KEY MAP - SHEET 3 OF 4
HN1 2082+00 TO HN2 814+00**

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| Scale AS SHOWN | | |
| Drawing Status FINAL DRAFT | | |
| Job No 234180 | Drawing No CVL-HN-01103 | Rev 01 |



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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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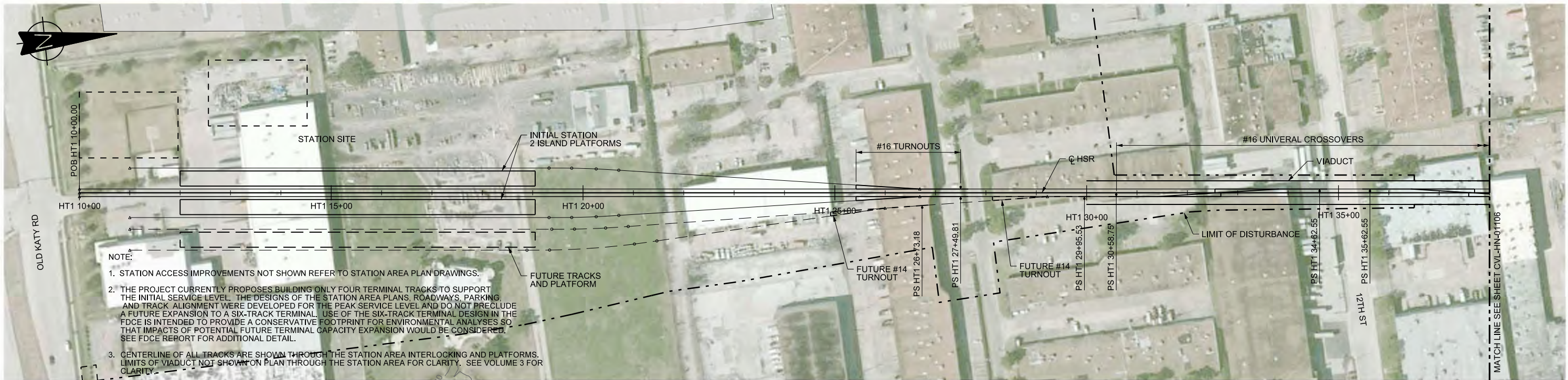
Drawing Title

**HOUSTON SEGMENT
CIVIL
KEY MAP - SHEET 4 OF 4
HN2 814+00 TO HN2 2073+80**

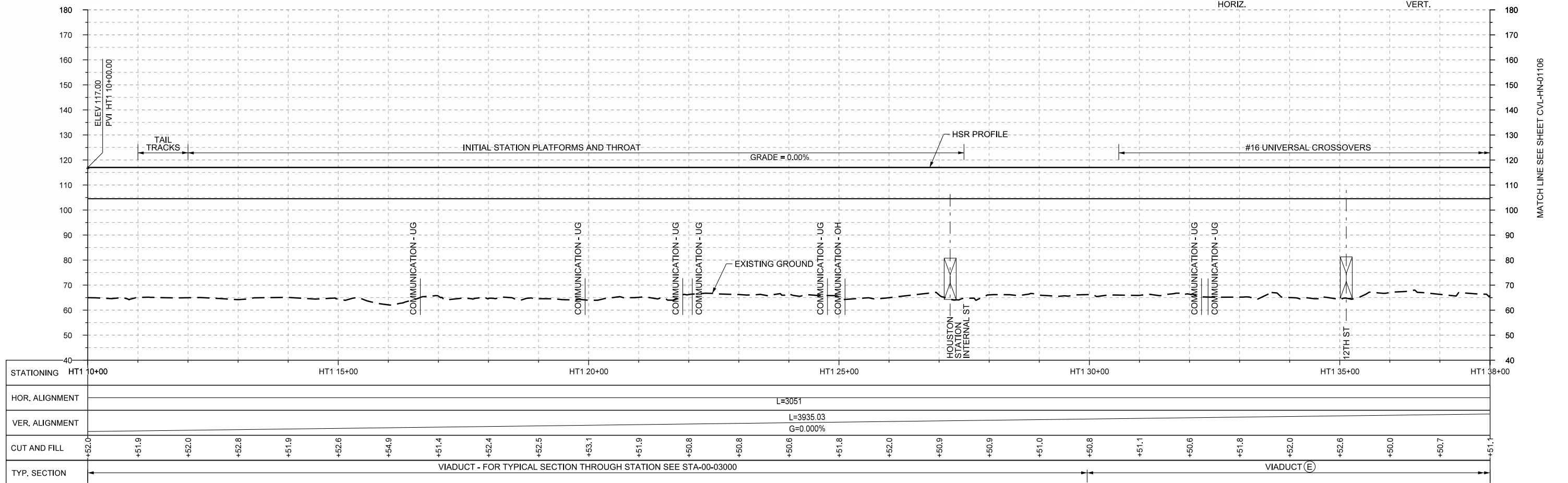
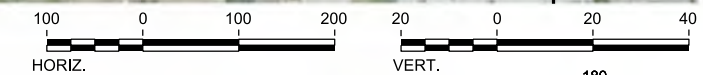
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Drawing Status
FINAL DRAFT

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| Job No 234180 | Drawing No CVL-HN-01104 | Rev 01 |
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PROFILE

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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017



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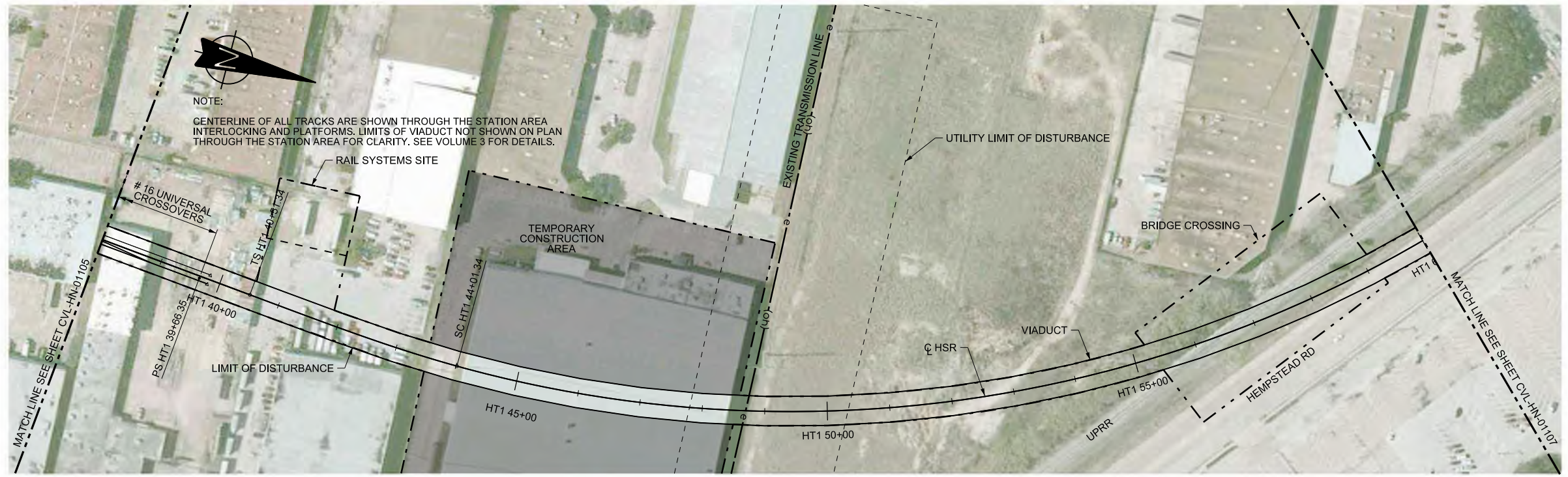


Drawing Title
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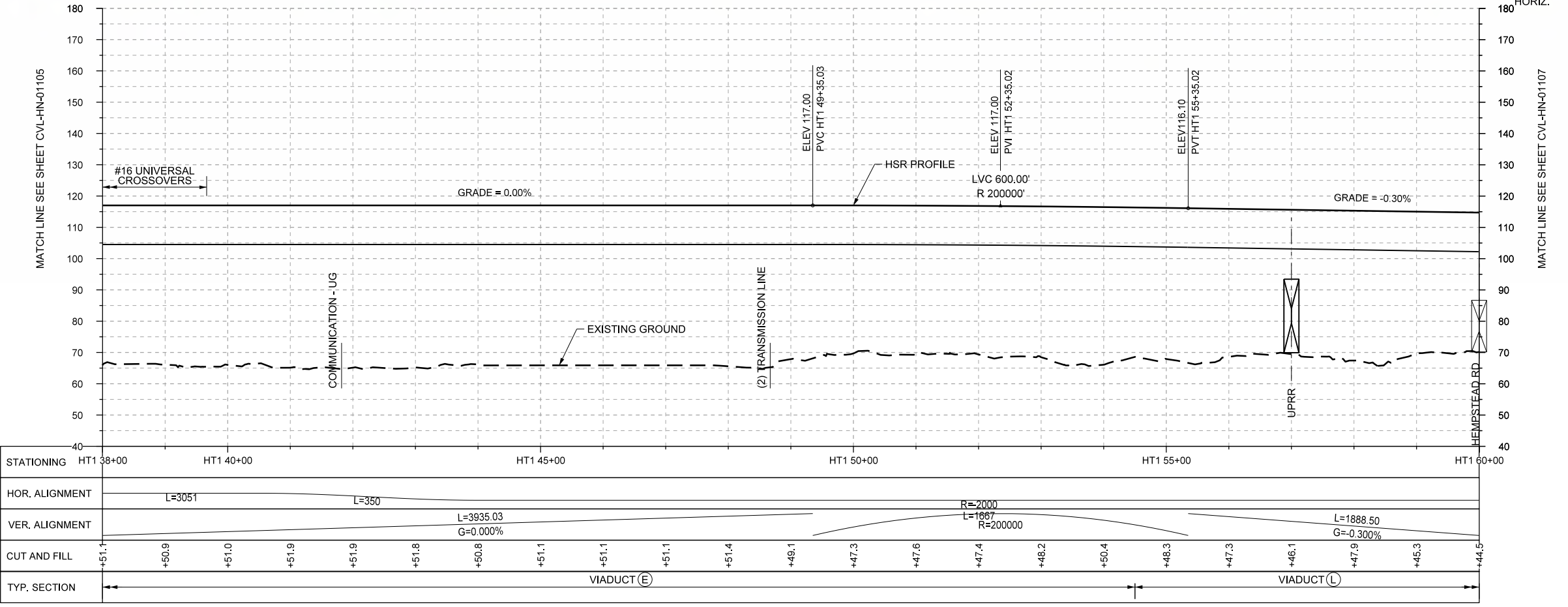
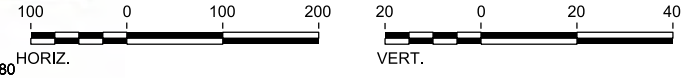
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Drawing Status
FINAL DRAFT

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| Job No 234180 | Drawing No CVL-HN-01105 | Rev 01 |
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PLAN



PROFILE

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| DESIGNED BY T. SMELCER |
| DRAWN BY J. BORGHEI |
| CHECKED BY K. SEYMOUR |
| IN CHARGE C. TAYLOR |
| DATE 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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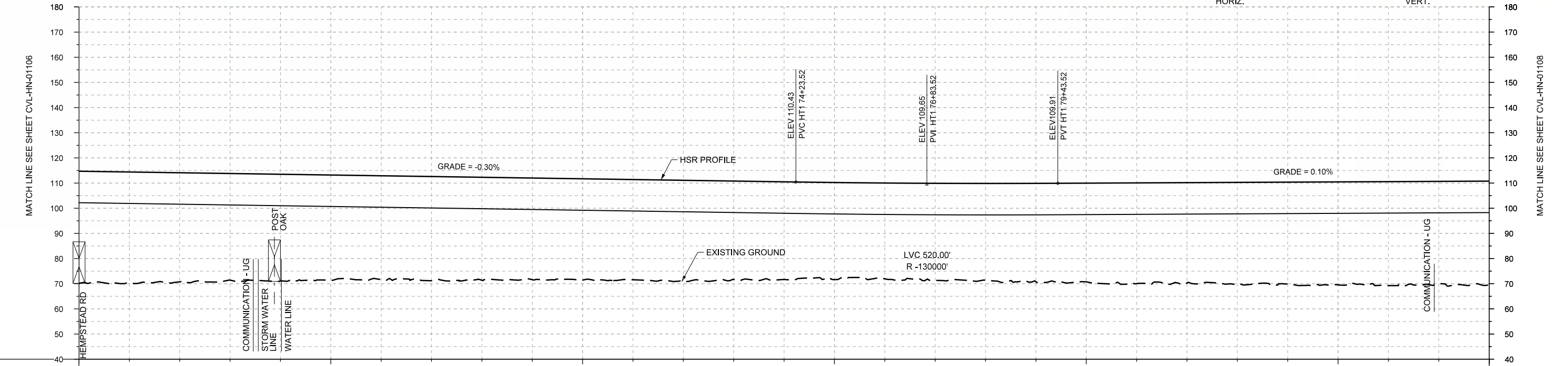
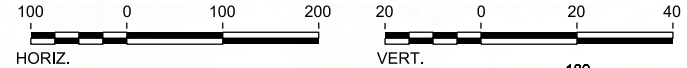
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1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

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| Drawing Title HOUSTON SEGMENT CIVIL PLAN AND PROFILE HT1 38+00 TO HT1 60+00 | | |
| Scale AS SHOWN | | |
| Drawing Status FINAL DRAFT | | |
| Job No 234180 | Drawing No CVL-HN-01106 | Rev 01 |



PLAN



PROFILE

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| STATIONING | HT1 60+00 | HT1 65+00 | HT1 70+00 | HT1 75+00 | HT1 80+00 | HT1 85+00 | HT1 88+00 |
| HOR. ALIGNMENT | R=2000 | | L=4581 | | | | |
| VER. ALIGNMENT | L=1667 | L=1888.50 | R=-130000 | | | L=3056.48 | |
| | G=-0.300% | | | | | G=0.100% | |
| CUT AND FILL | +44.5 | +44.2 | +43.4 | +42.4 | +42.5 | +41.8 | +41.3 |
| | +41.4 | +40.9 | +40.4 | +40.3 | +39.8 | +40.1 | +39.1 |
| | +38.8 | +38.6 | +38.1 | +36.6 | +36.5 | +38.1 | +39.3 |
| | +40.0 | +39.9 | +40.7 | +40.4 | +41.0 | +41.4 | +40.7 |
| TYP. SECTION | | | VIADUCT (L) | | | | |

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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Client

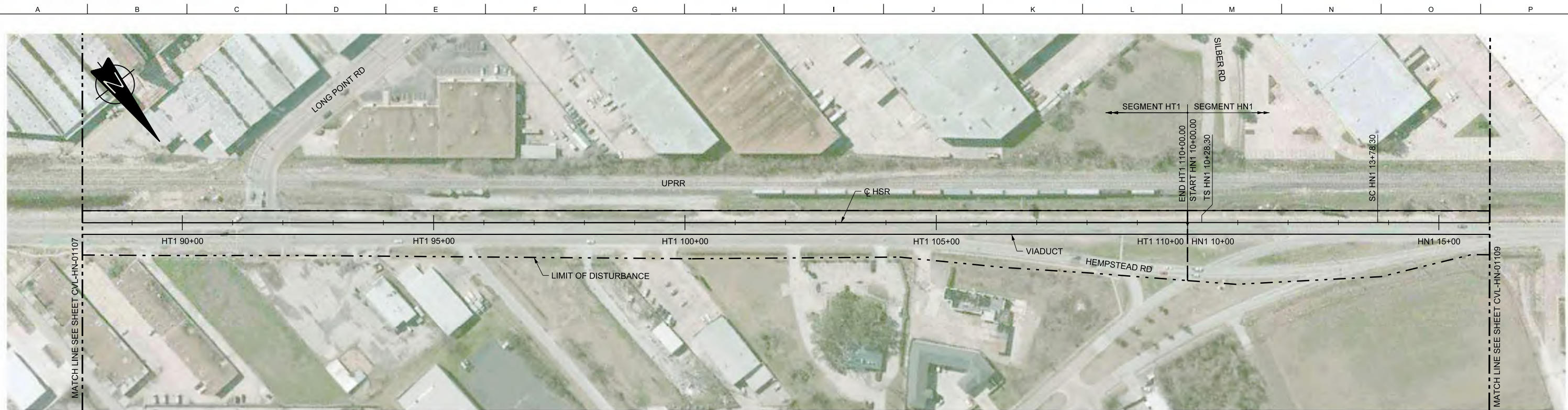
TEXAS CENTRAL
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
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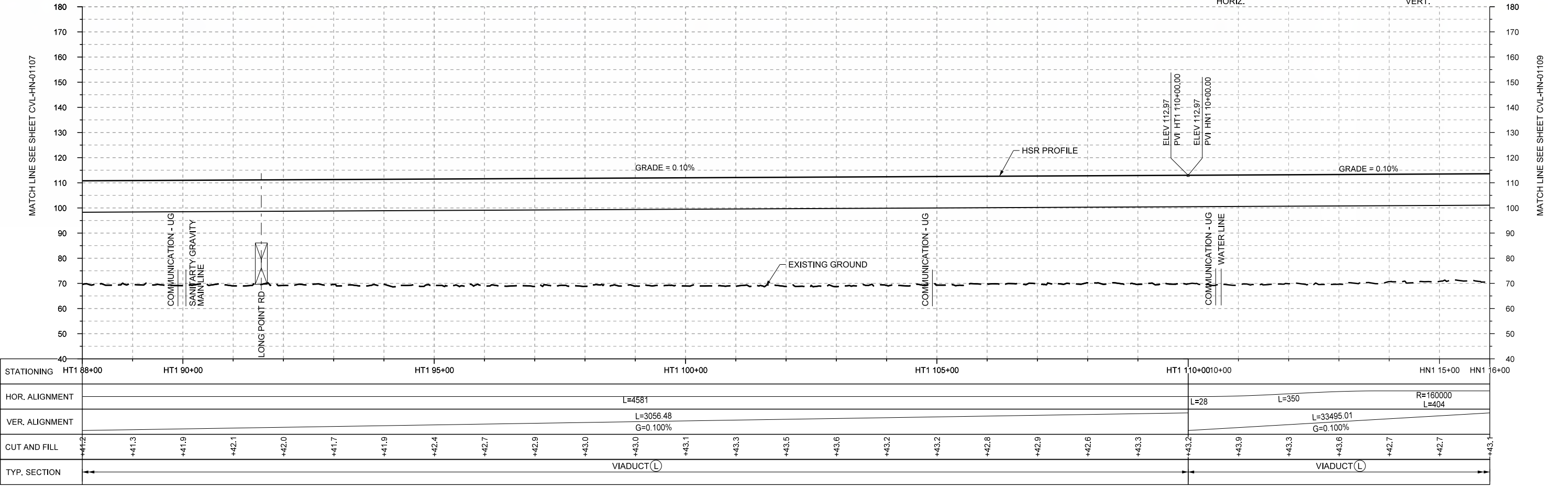
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Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01107 | 01 |



PLAN



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| STATIONING | HT1 88+00 | HT1 90+00 | HT1 95+00 | HT1 100+00 | HT1 105+00 | HT1 110+00 | HN1 15+00 | HN1 16+00 | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=4581 | | | | | | L=28 | L=350 | R=160000 L=404 | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=3056.48 G=0.100% | | | | | | L=33495.01 G=0.100% | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +41.2 | +41.3 | +41.9 | +42.1 | +42.0 | +41.7 | +41.9 | +42.4 | +42.7 | +42.9 | +43.0 | +43.1 | +43.3 | +43.5 | +43.6 | +43.2 | +42.8 | +42.9 | +42.6 | +43.3 | +43.2 | +43.9 | +43.3 | +43.6 | +42.7 | +42.7 | +43.1 |
| TYP. SECTION | VIADUCT (L) | | | | | | | | | | | | | | | | VIADUCT (L) | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Client

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

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HT1 88+00 TO HN1 16+00

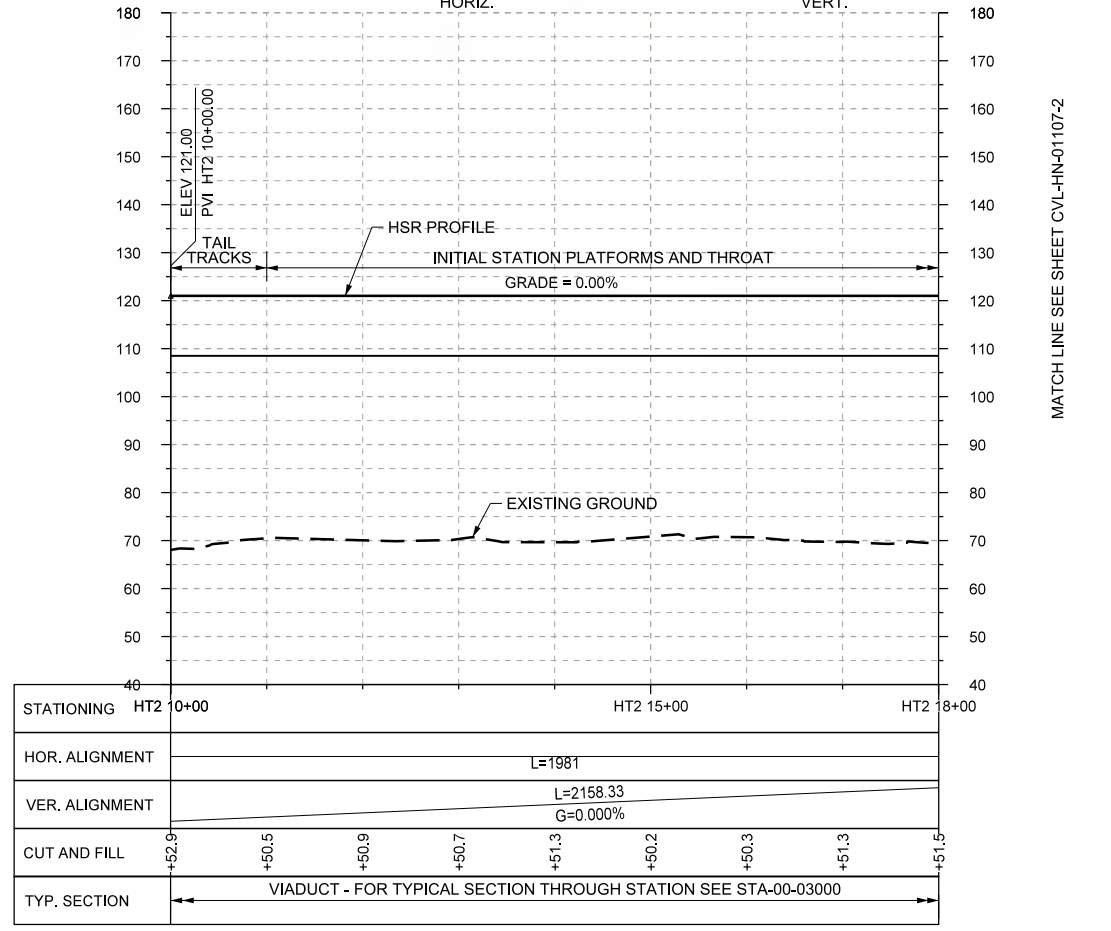
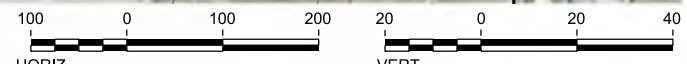
Scale
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Drawing Status
FINAL DRAFT

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| Job No 234180 | Drawing No CVL-HN-01108 | Rev 01 |
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PLAN



PROFILE

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DESIGNED BY
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IN CHARGE
C. TAYLOR

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Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

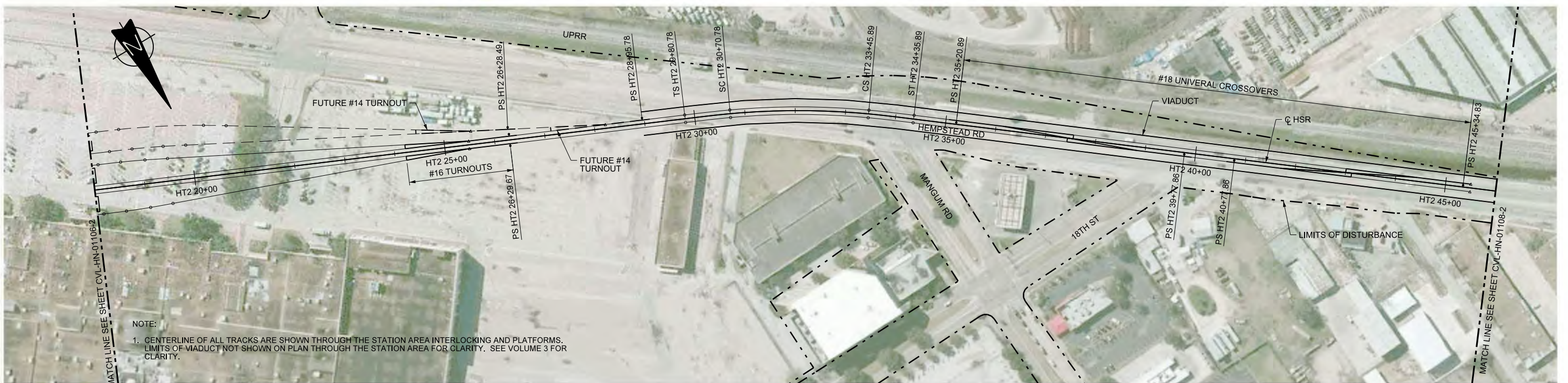
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE HT2 10+00 TO HT2 18+00

Scale
AS SHOWN

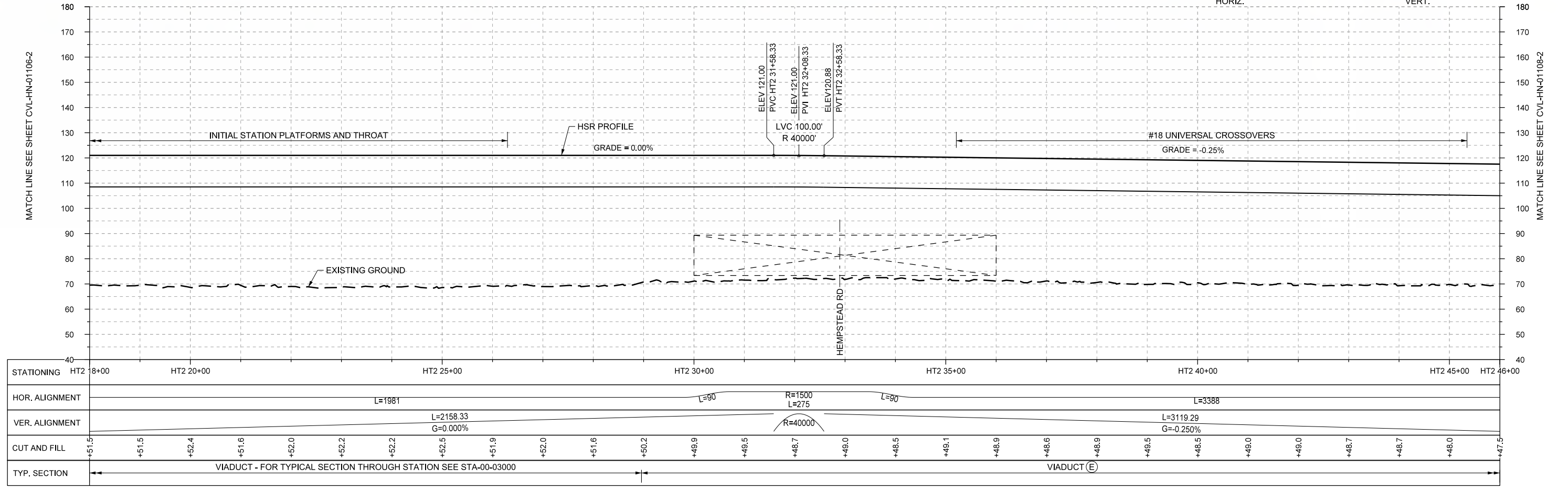
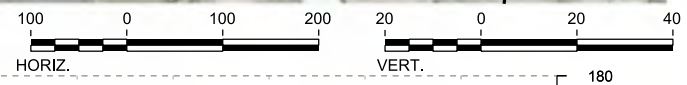
Drawing Status
FINAL DRAFT

| | | |
|--------|----------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01106-2 | 01 |



NOTE:
1. CENTERLINE OF ALL TRACKS ARE SHOWN THROUGH THE STATION AREA INTERLOCKING AND PLATFORMS. LIMITS OF VIADUCT NOT SHOWN ON PLAN THROUGH THE STATION AREA FOR CLARITY. SEE VOLUME 3 FOR CLARITY.

PLAN



PROFILE

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|----------------|----------------------------------------------------------------|-----------|-----------|-----------|-----------------|------------------------|-----------|-----------|-------|-------|-------|-------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HT2 18+00 | HT2 20+00 | HT2 25+00 | HT2 30+00 | HT2 35+00 | HT2 40+00 | HT2 45+00 | HT2 46+00 | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=1981 | | | L=90 | R=1500 L=275 | L=90 | L=3388 | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=2158.33 G=0.000% | | | R=40000 | | L=3119.29 G=-0.250% | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +51.5 | +51.5 | +52.4 | +51.6 | +52.0 | +52.2 | +52.2 | +51.9 | +52.0 | +51.6 | +50.2 | +49.9 | +49.5 | +48.7 | +49.0 | +49.5 | +48.9 | +48.6 | +48.9 | +49.5 | +48.5 | +49.0 | +49.0 | +48.7 | +48.0 | +47.5 |
| TYP. SECTION | VIADUCT - FOR TYPICAL SECTION THROUGH STATION SEE STA-00-03000 | | | | | | | | | | | | VIADUCT (E) | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER
DRAWN BY
J. BORGHESI
CHECKED BY
K. SEYMOUR
IN CHARGE
C. TAYLOR
DATE
09/15/2017



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



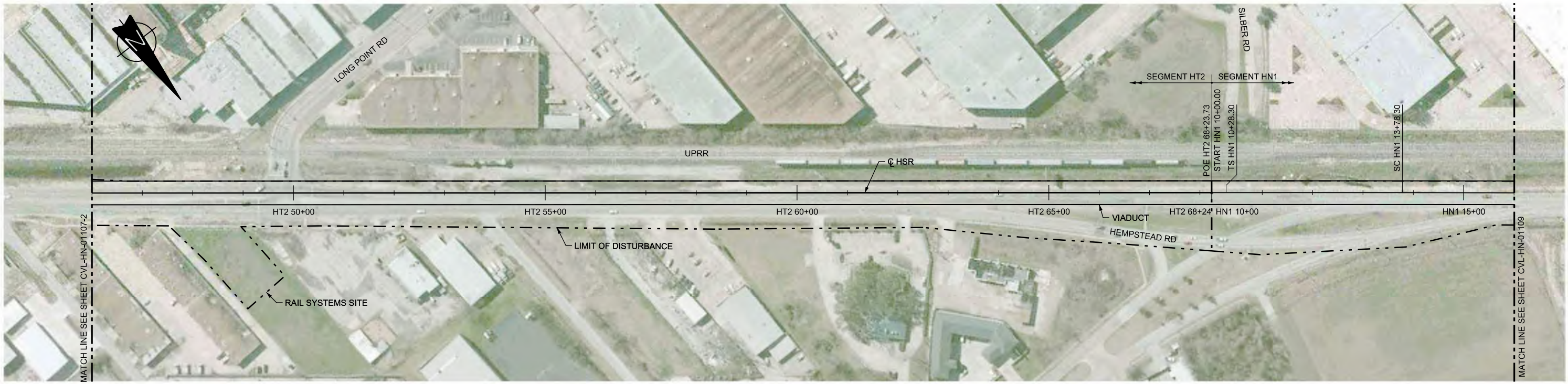
2711 North Haskell Ave., Suite 3300
Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144



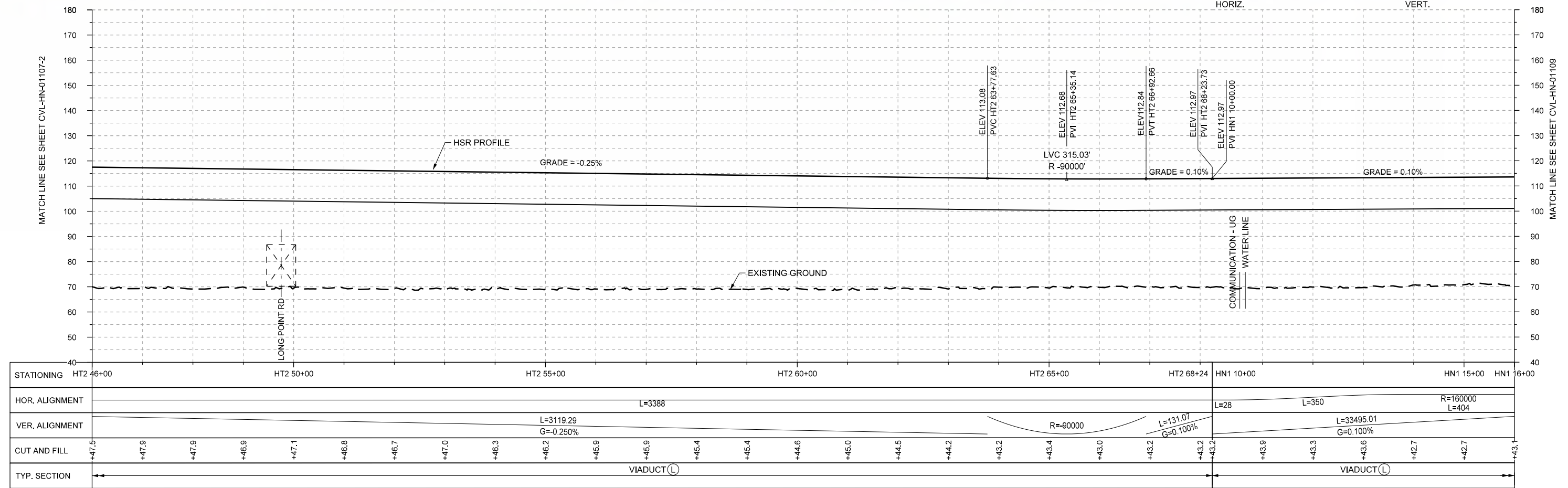
Client
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HT2 18+00 TO HT2 46+00

| | | | |
|----------------|-------------|------------|----------------|
| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | 234180 | Drawing No | CVL-HN-01107-2 |
| Rev | | | 01 |



PLAN



PROFILE

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|----------------|------------------------|-----------|-----------|-----------|-----------|-----------|-------------|------------------------|-----------|--|
| STATIONING | HT2 46+00 | HT2 50+00 | HT2 55+00 | HT2 60+00 | HT2 65+00 | HT2 68+24 | HN1 10+00 | HN1 15+00 | HN1 16+00 | |
| HOR. ALIGNMENT | L=3388 | | | | | | L=28 | L=350 | R=160000 | |
| VER. ALIGNMENT | L=3119.29 G=-0.250% | | | | | | R=90000 | L=33495.01 G=0.100% | L=404 | |
| CUT AND FILL | +47.5 | +47.9 | +47.9 | +46.9 | +47.1 | +46.8 | +46.7 | +47.0 | +46.3 | |
| TYP. SECTION | VIADUCT (L) | | | | | | VIADUCT (L) | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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 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

Client

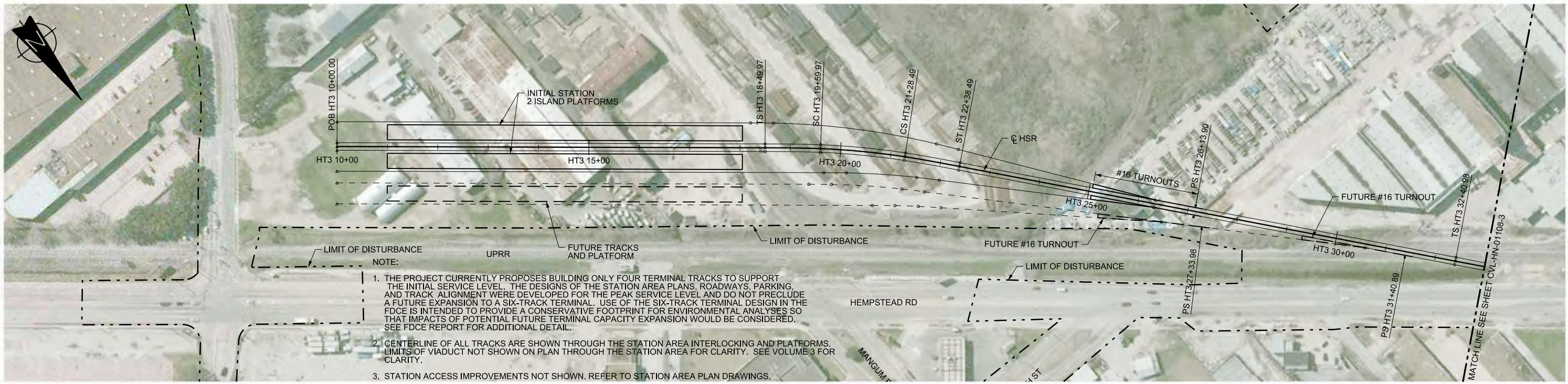
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HT2 46+00 TO HN1 16+00

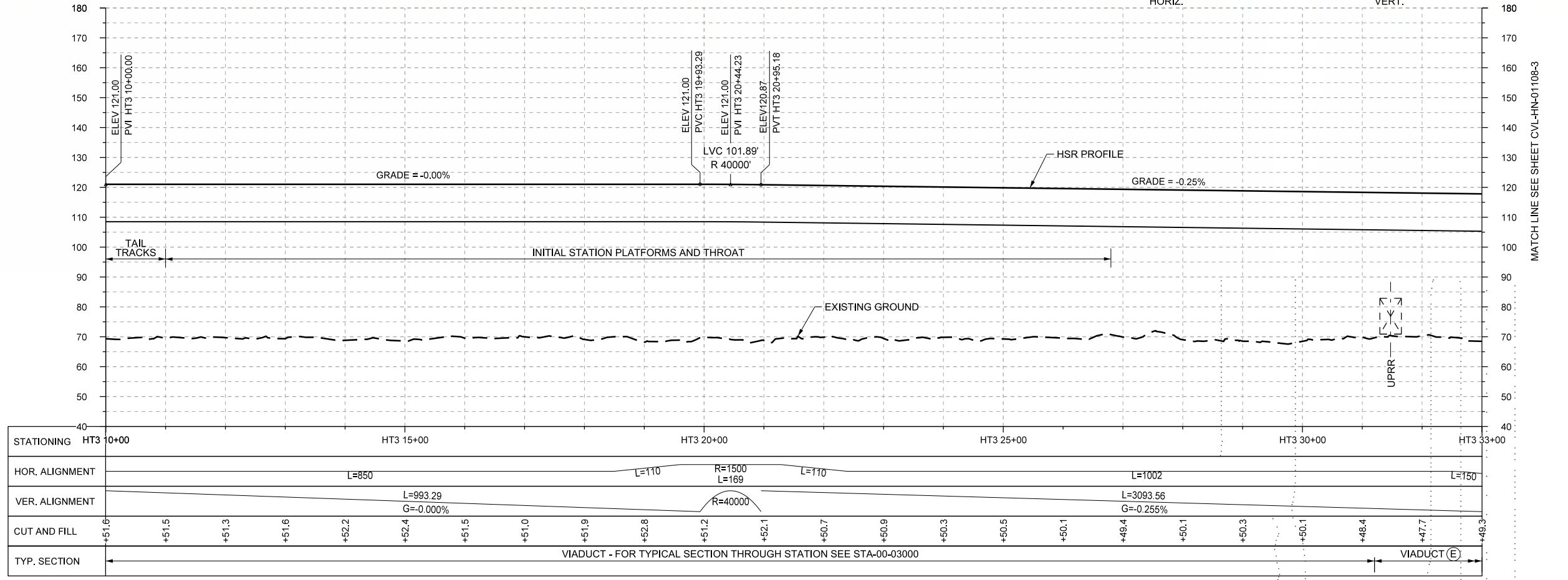
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

| | | |
|--------|----------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01108-2 | 01 |



- NOTE:
1. THE PROJECT CURRENTLY PROPOSES BUILDING ONLY FOUR TERMINAL TRACKS TO SUPPORT THE INITIAL SERVICE LEVEL. THE DESIGNS OF THE STATION AREA PLANS, ROADWAYS, PARKING, AND TRACK ALIGNMENT WERE DEVELOPED FOR THE PEAK SERVICE LEVEL AND DO NOT PRECLUDE A FUTURE EXPANSION TO A SIX-TRACK TERMINAL. USE OF THE SIX-TRACK TERMINAL DESIGN IN THE FDCE IS INTENDED TO PROVIDE A CONSERVATIVE FOOTPRINT FOR ENVIRONMENTAL ANALYSES SO THAT IMPACTS OF POTENTIAL FUTURE TERMINAL CAPACITY EXPANSION WOULD BE CONSIDERED. SEE FDCE REPORT FOR ADDITIONAL DETAIL.
 2. CENTERLINE OF ALL TRACKS ARE SHOWN THROUGH THE STATION AREA INTERLOCKING AND PLATFORMS. LIMITS OF VIADUCT NOT SHOWN ON PLAN THROUGH THE STATION AREA FOR CLARITY. SEE VOLUME 3 FOR CLARITY.
 3. STATION ACCESS IMPROVEMENTS NOT SHOWN. REFER TO STATION AREA PLAN DRAWINGS.



| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

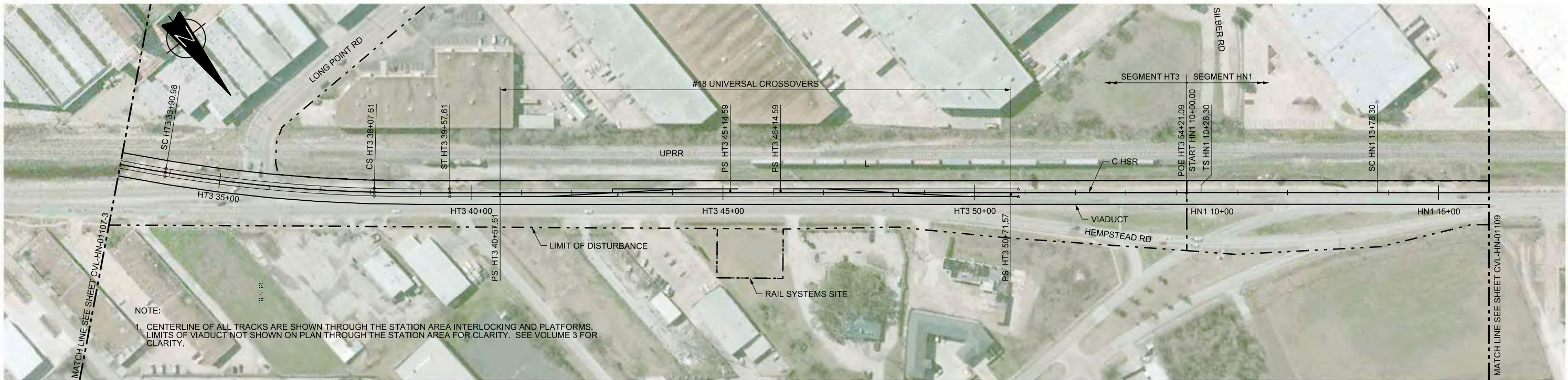
ARUP
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Texas Registered Engineering Firm: F-2144

Client
TEXAS CENTRAL
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

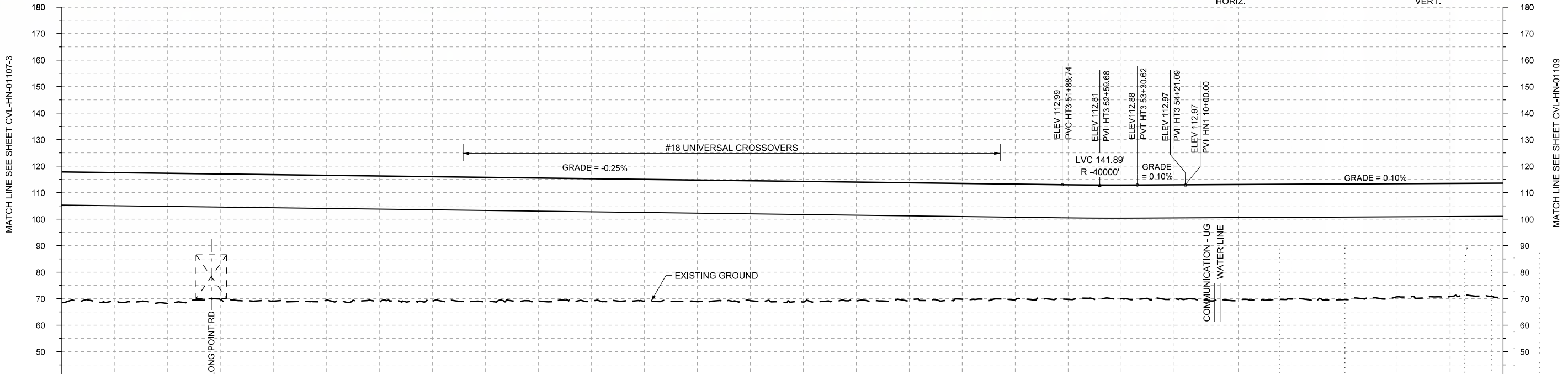
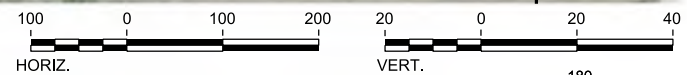
Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HT3 10+00 TO HT3 38+00

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|-------------------|-------------------------------|
| Scale AS SHOWN | Drawing Status FINAL DRAFT |
| Job No 234180 | Drawing No CVL-HN-01107-3 |
| | Rev 01 |



NOTE:
 1. CENTERLINE OF ALL TRACKS ARE SHOWN THROUGH THE STATION AREA INTERLOCKING AND PLATFORMS. LIMITS OF VIADUCT NOT SHOWN ON PLAN THROUGH THE STATION AREA FOR CLARITY. SEE VOLUME 3 FOR CLARITY.

PLAN



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|----------------|-------------|-----------------|-----------|------------------------|-----------|---------------------|-----------|------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HT3 33+00 | HT3 35+00 | HT3 40+00 | HT3 45+00 | HT3 50+00 | HT3 54+21 | HN1 10+00 | HN1 15+00 | HN1 16+00 | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=150 | R=3000 L=417 | L=150 | L=3093.56 G=-0.255% | L=1463 | R=40000 | L=28 | L=350 | R=160000 L=404 | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | | | | | | L=90.47 G=0.100% | | L=33495.01 G=0.100% | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +49.3 | +48.3 | +49.1 | +47.4 | +47.8 | +47.0 | +47.5 | +47.1 | +46.7 | +46.4 | +46.3 | +45.9 | +45.8 | +45.2 | +45.5 | +44.9 | +44.4 | +43.7 | +43.6 | +43.3 | +42.9 | +43.0 | +43.2 | +43.9 | +43.3 | +43.6 | +42.7 | +42.7 | +43.1 |
| TYP. SECTION | VIADUCT (L) | | | | | | | | | | | | | | | VIADUCT (L) | | | | | | | | | | | | | |

PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER
 DRAWN BY
J. BORGHESI
 CHECKED BY
K. SEYMOUR
 IN CHARGE
C. TAYLOR
 DATE
09/15/2017

ARUP
 Arup Texas, Inc.
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 Tel (713) 783 2787 Fax (713) 343 1467
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 Dallas, Texas 75204
 Tel (214) 217 2200 Fax (214) 217 2201
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 Texas Registered Engineering Firm: F-2144

Client

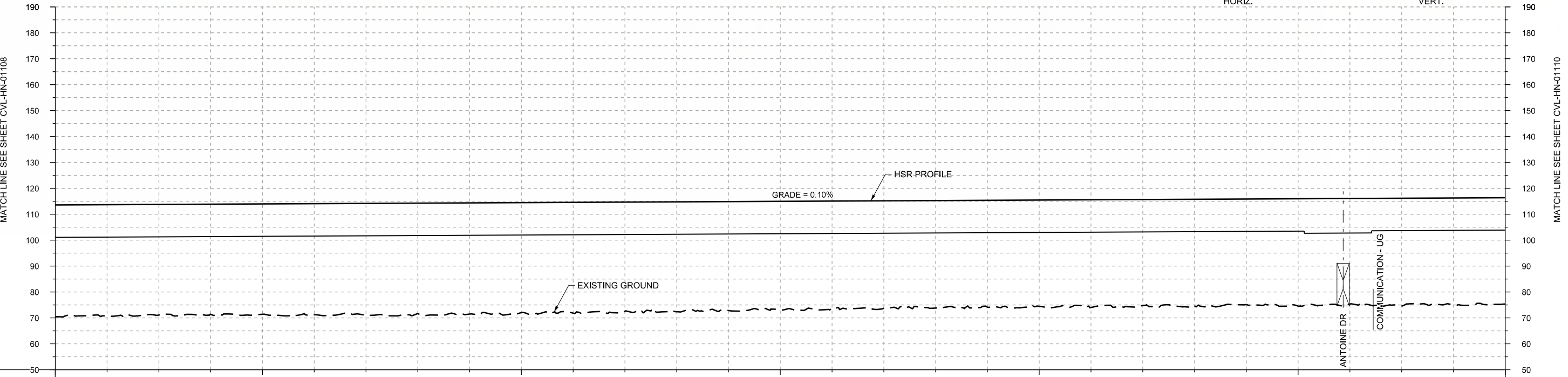
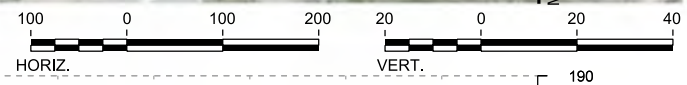
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HT3 33+00 TO HN1 16+00

Scale
AS SHOWN
 Drawing Status
FINAL DRAFT
 Job No: 234180 Drawing No: CVL-HN-01108-3 Rev: 01



PLAN



PROFILE

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|----------------|-------------------|-----------|-----------|-----------|------------------------|-----------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 16+00 | HN1 20+00 | HN1 25+00 | HN1 30+00 | HN1 35+00 | HN1 40+00 | HN1 44+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=160000 L=404 | | L=350 | | L=1400 | | R=145000 L=402 | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | | | | | L=33495.01 G=0.100% | L=400 | L=400 | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +43.1 | +42.9 | +42.7 | +42.5 | +42.6 | +42.9 | +43.2 | +42.7 | +42.9 | +42.4 | +42.8 | +42.1 | +42.4 | +42.0 | +41.9 | +41.9 | +41.5 | +41.5 | +41.3 | +41.0 | +41.6 | +41.0 | +41.1 | +40.7 | +41.4 | +40.8 | +41.5 | +41.3 | +41.0 |
| TYP. SECTION | VIADUCT (L) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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Texas Registered Engineering Firm: F-2144

Client

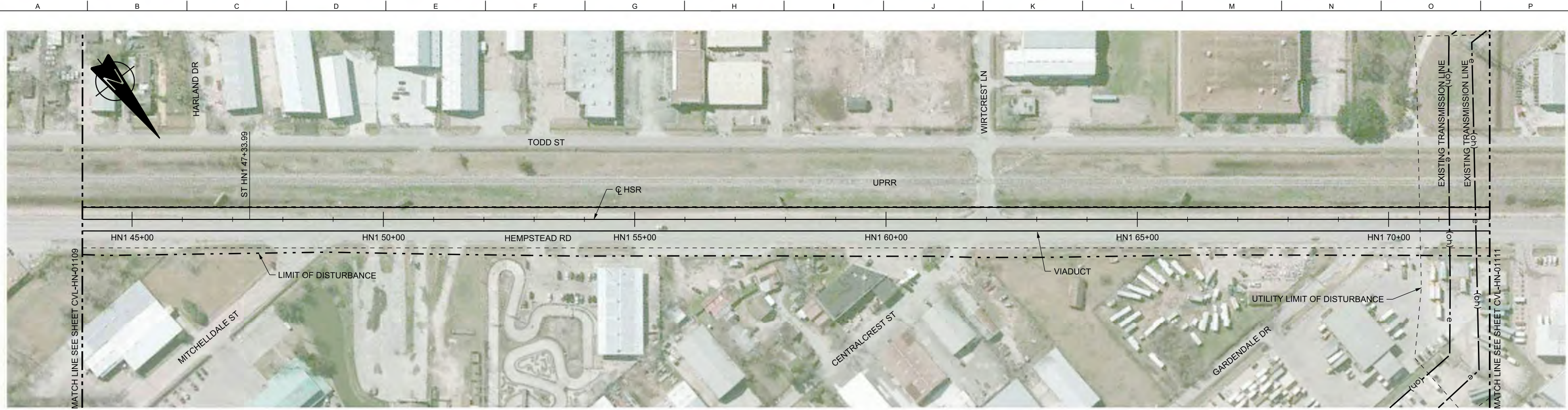
TEXAS CENTRAL

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

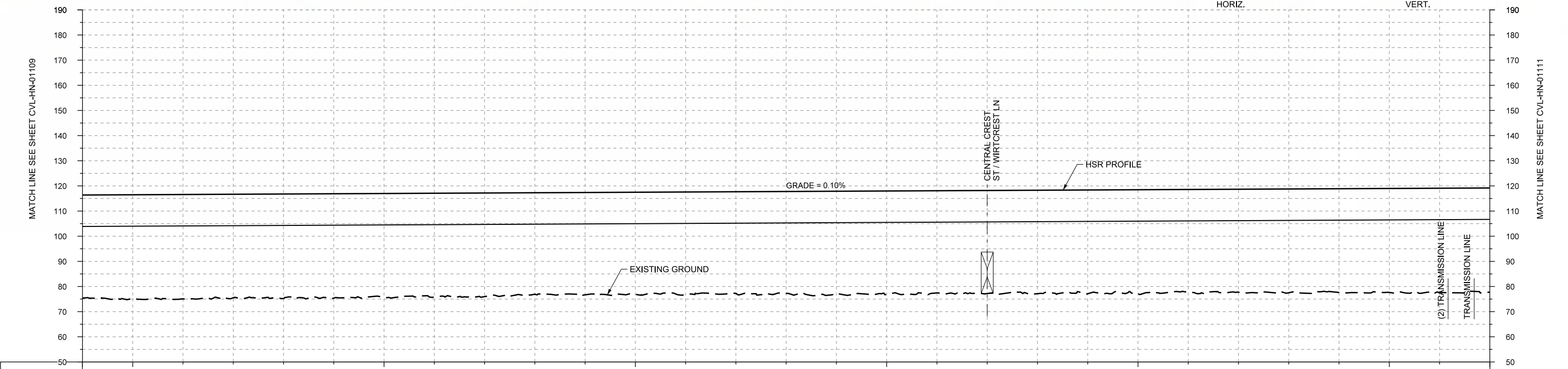
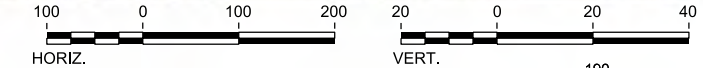
Drawing Title

**HOUSTON SEGMENT
CIVIL
PLAN AND PROFILE
HN1 16+00 TO HN1 44+00**

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|----------------|--------------|-----|--|
| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | Drawing No | Rev | |
| 234180 | CVL-HN-01109 | 01 | |



PLAN



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|----------------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| STATIONING | HN1 44+00 | HN1 45+00 | HN1 50+00 | HN1 55+00 | HN1 60+00 | HN1 65+00 | HN1 70+00 | HN1 72+00 |
| HOR. ALIGNMENT | L=400 | | L=2870 | | | | | |
| VER. ALIGNMENT | L=33495.01 | | | | | | G=0.100% | |
| CUT AND FILL | +41.0 | +41.3 | +41.6 | +41.2 | +41.6 | +41.5 | +41.3 | +41.3 |
| TYP. SECTION | VIADUCT (L) | | | | | | | |

PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

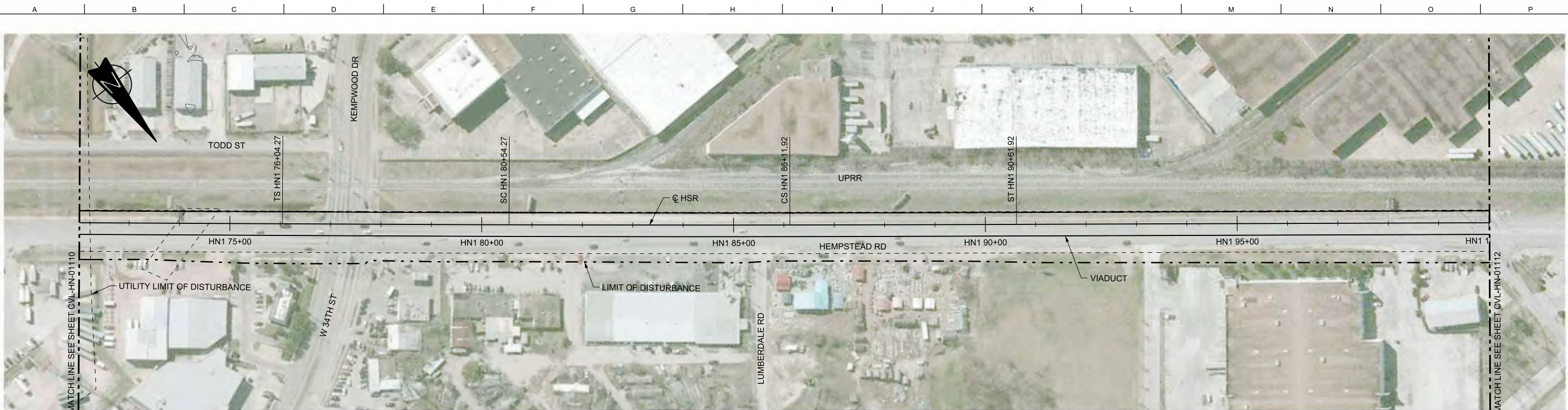
Client

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

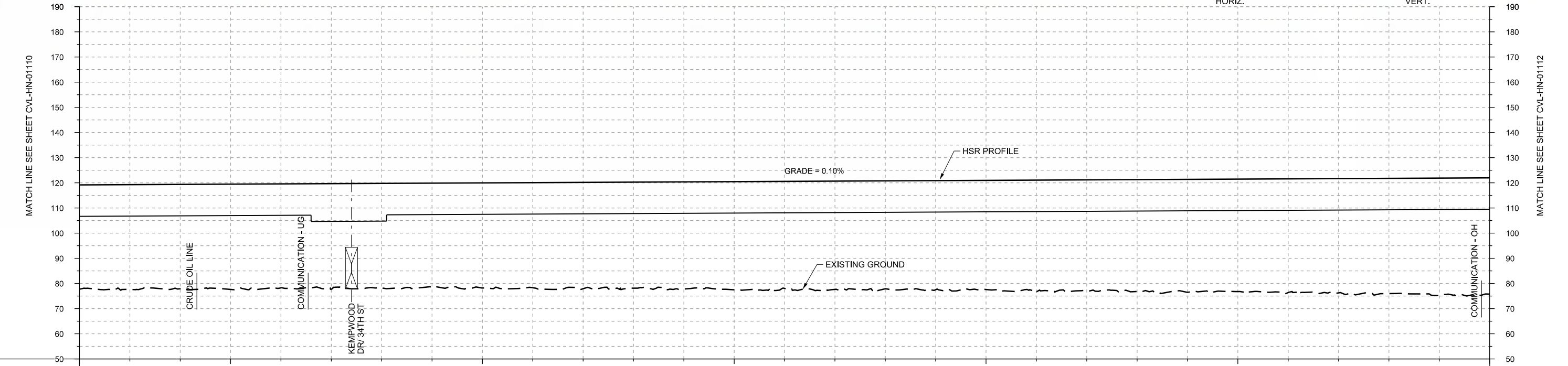
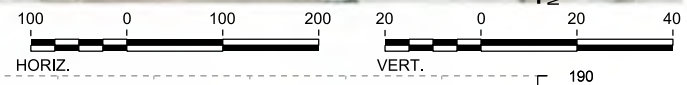
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 44+00 TO HN1 72+00

| | | | |
|----------------|--------------|-----|--|
| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | Drawing No | Rev | |
| 234180 | CVL-HN-01110 | 01 | |



PLAN



PROFILE

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|----------------|-------------|-----------|--------------------|-----------|------------------------|-----------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 72+00 | HN1 75+00 | HN1 80+00 | HN1 85+00 | HN1 90+00 | HN1 95+00 | HN1 100+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=2870 | | R=-120000 L=558 | | L=33495.01 G=0.100% | | L=2334 | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +41.4 | +41.7 | +41.5 | +41.9 | +41.3 | +42.0 | +41.4 | +41.5 | +41.8 | +41.8 | +42.3 | +42.2 | +42.6 | +43.0 | +42.6 | +43.1 | +42.9 | +43.4 | +43.4 | +43.9 | +44.1 | +44.5 | +44.9 | +44.7 | +45.2 | +45.5 | +45.8 | +46.8 |
| TYP. SECTION | VIADUCT (L) | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

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DATE
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Texas Registered Engineering Firm: F-1990



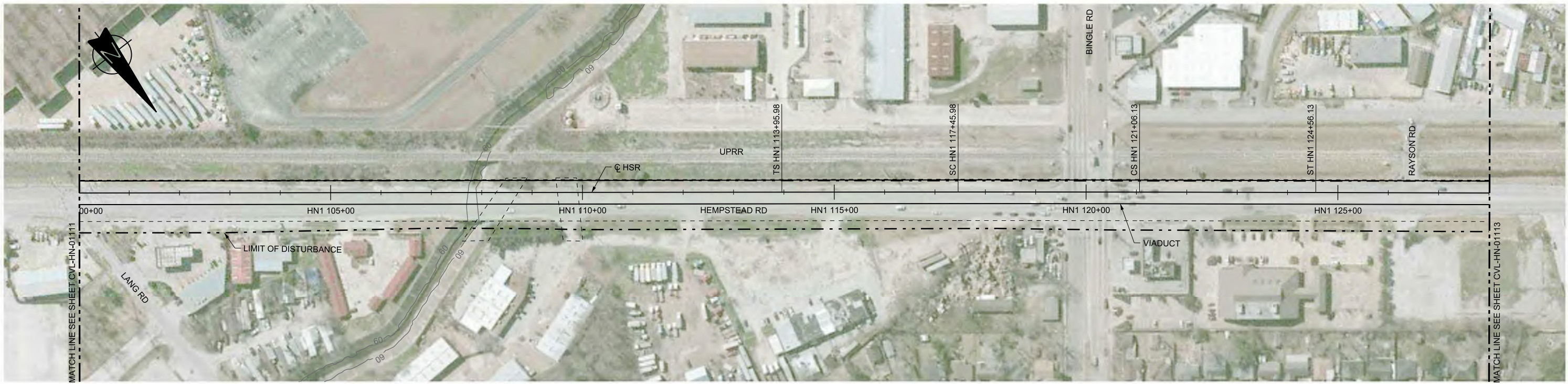
2711 North Haskell Ave., Suite 3300
Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144



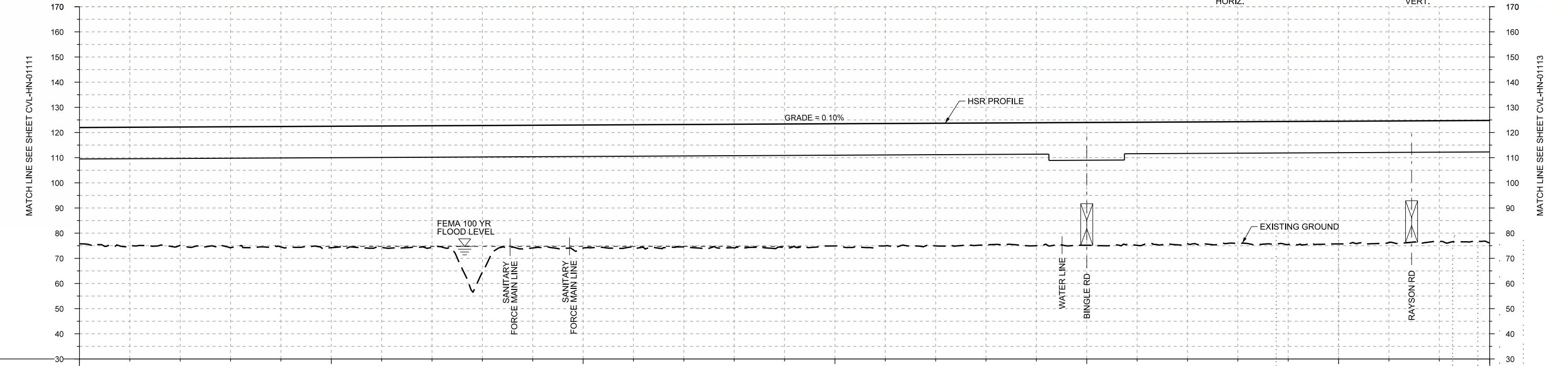
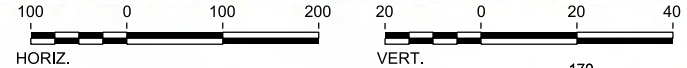
Client
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN1 72+00 TO HN1 100+00

| | | | |
|----------------|--------------|-----|--|
| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | Drawing No | Rev | |
| 234180 | CVL-HN-01111 | 01 | |



PLAN



PROFILE

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|----------------|------------------------|------------|------------|------------|-------------------|------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 100+00 | HN1 105+00 | HN1 110+00 | HN1 115+00 | HN1 120+00 | HN1 125+00 | HN1 128+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=2334 | | L=350 | | R=190000 L=360 | L=350 | L=1741 | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=33495.01 G=0.100% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +46.2 | +47.3 | +47.1 | +48.1 | +47.9 | +48.3 | +48.5 | +48.4 | +56.2 | +48.8 | +49.0 | +48.7 | +48.7 | +49.1 | +49.1 | +48.6 | +48.7 | +48.8 | +48.5 | +48.9 | +48.8 | +48.4 | +48.4 | +48.9 | +48.8 | +48.3 | +48.0 | +48.6 |
| TYP. SECTION | VIADUCT (L) | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
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DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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www.arup.com
Texas Registered Engineering Firm: F-1990

FREESSE AND NICHOLS

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

Client

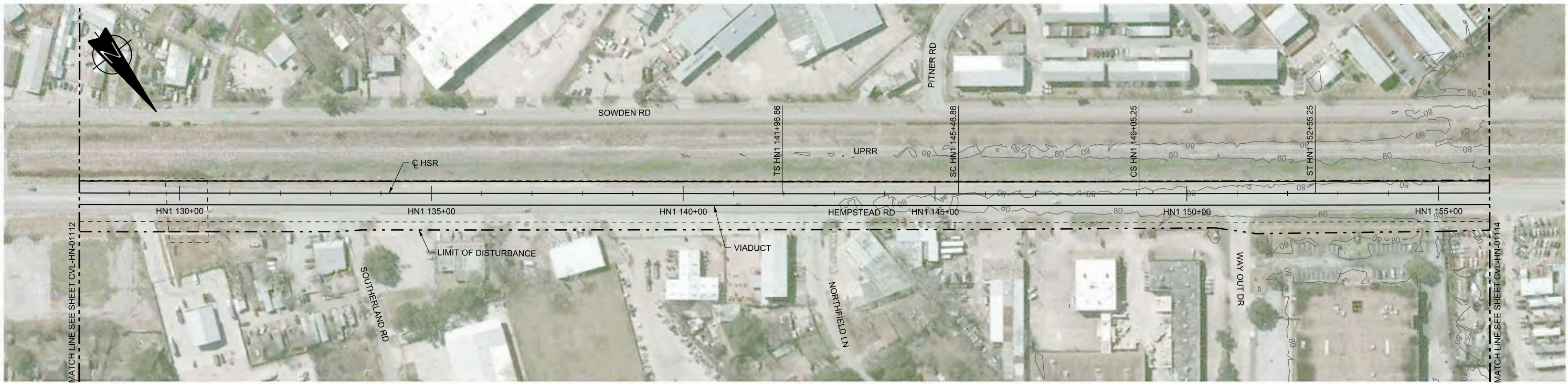
TEXAS CENTRAL

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

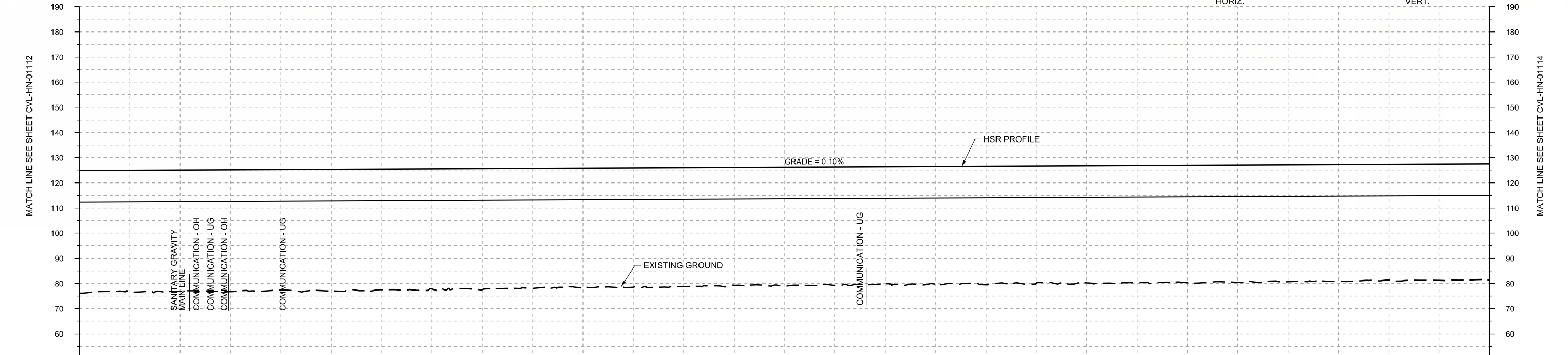
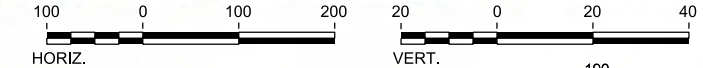
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 100+00 TO HN1 128+00

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|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01112 |
| Rev | 01 |



PLAN



PROFILE

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|----------------|-------------|------------|------------------------|------------|------------|-------------------|------------|------------|
| STATIONING | HN1 128+00 | HN1 130+00 | HN1 135+00 | HN1 140+00 | HN1 145+00 | HN1 150+00 | HN1 155+00 | HN1 156+00 |
| HOR. ALIGNMENT | | | L=1741 | | | L=350 | | L=5943 |
| VER. ALIGNMENT | | | L=33495.01 G=0.100% | | | R=205000 L=358 | | |
| CUT AND FILL | +48.6 | +48.0 | +48.1 | +48.3 | +47.8 | +48.2 | +47.9 | +47.7 |
| TYP. SECTION | VIADUCT (L) | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

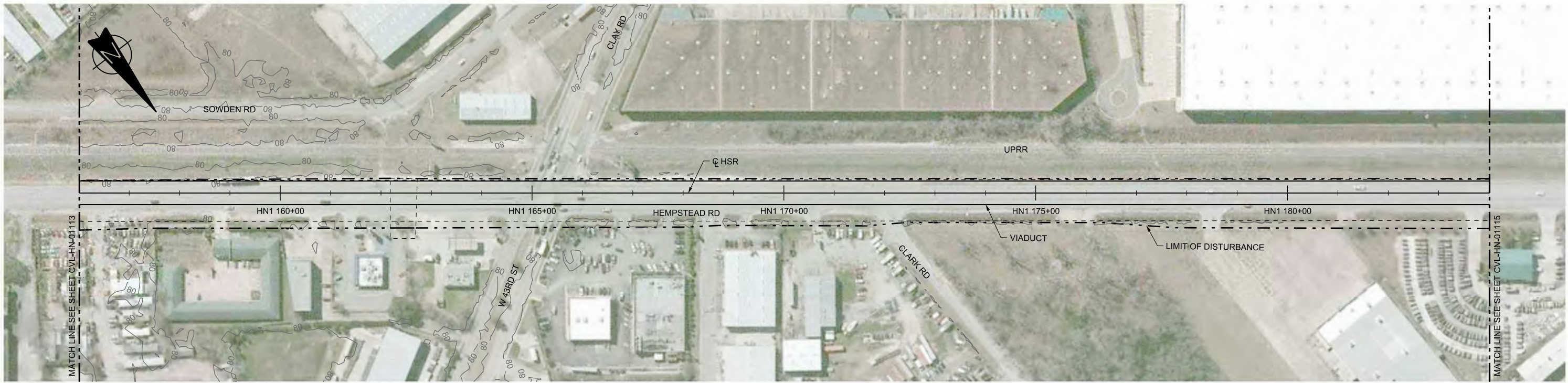
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 128+00 TO HN1 156+00

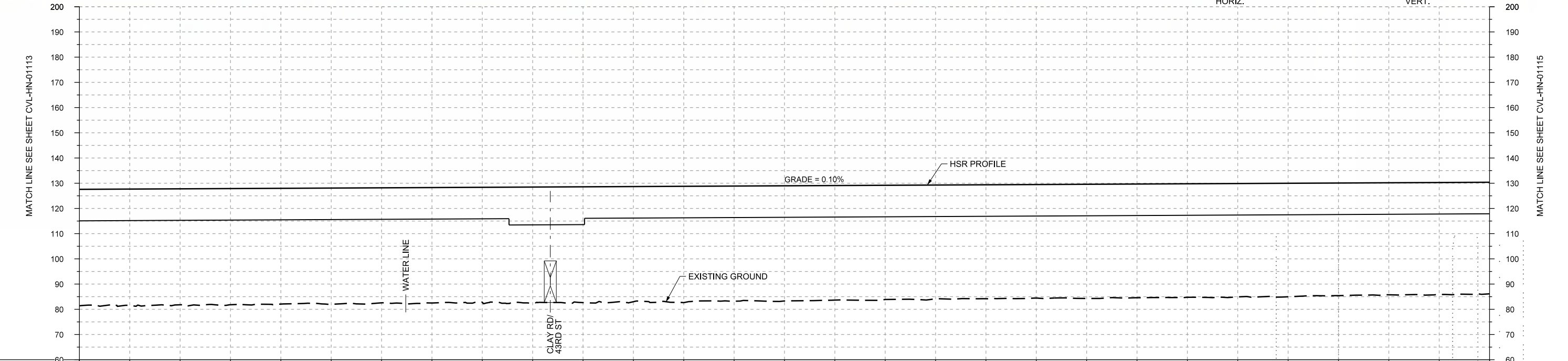
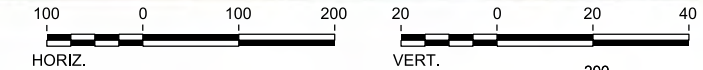
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01113 | 01 |



PLAN



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| STATIONING | HN1 156+00 | HN1 160+00 | HN1 165+00 | HN1 170+00 | HN1 175+00 | HN1 180+00 | HN1 184+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=5943 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=33495.01 G=0.100% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +46.2 | +46.2 | +46.0 | +46.1 | +45.9 | +46.1 | +45.6 | +45.8 | +45.6 | +46.0 | +45.7 | +46.2 | +45.7 | +45.7 | +45.5 | +45.3 | +45.2 | +45.2 | +45.0 | +45.3 | +45.1 | +45.0 | +45.0 | +45.0 | +44.7 | +44.5 | +44.3 | +44.3 |
| TYP. SECTION | VIADUCT (L) | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Client

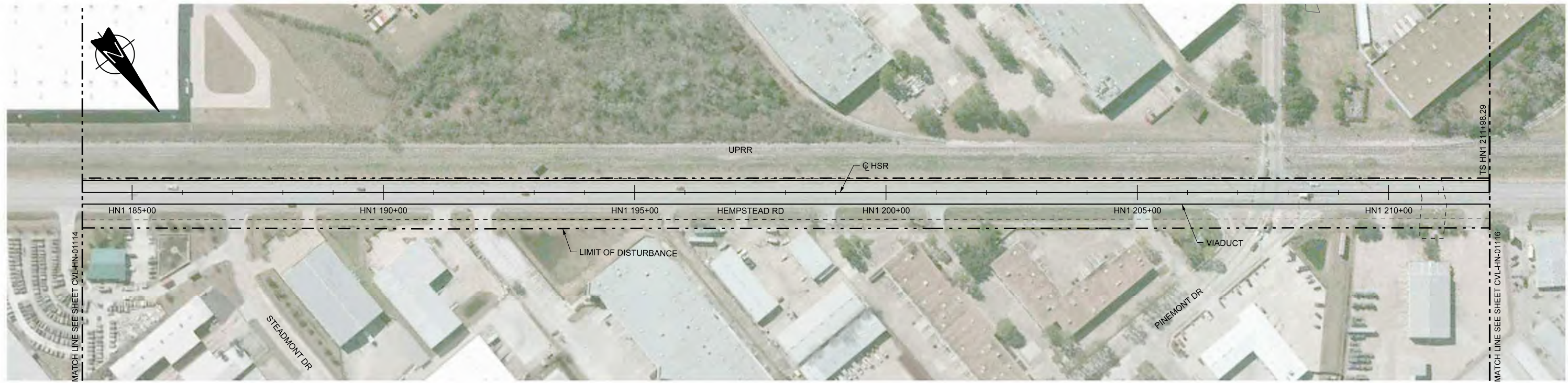
TEXAS CENTRAL
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
 HN1 156+00 TO HN1 184+00

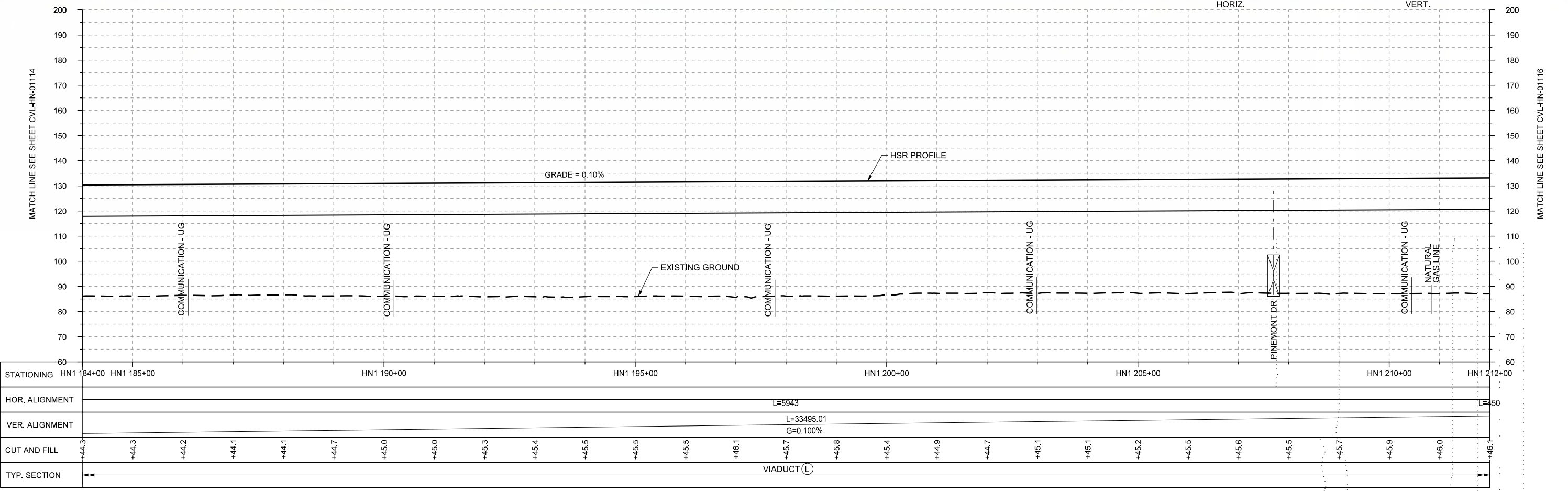
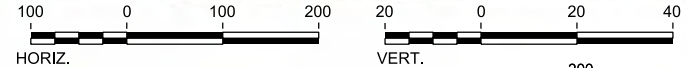
Scale
 AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01114 | 01 |



PLAN



PROFILE

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|----------------|------------------------|------------|-------|------------|-------|------------|-------|------------|-------|------------|-------|------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 184+00 | HN1 185+00 | | HN1 190+00 | | HN1 195+00 | | HN1 200+00 | | HN1 205+00 | | HN1 210+00 | HN1 212+00 | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=5943 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=33495.01 G=0.100% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +44.3 | +44.3 | +44.2 | +44.1 | +44.1 | +44.7 | +45.0 | +45.0 | +45.3 | +45.4 | +45.5 | +45.5 | +46.1 | +45.7 | +45.8 | +45.4 | +44.9 | +44.7 | +45.1 | +45.1 | +45.2 | +45.5 | +45.6 | +45.5 | +45.7 | +45.9 | +46.0 | +46.1 |
| TYP. SECTION | VIADUCT (L) | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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 Texas Registered Engineering Firm: F-2144

Client

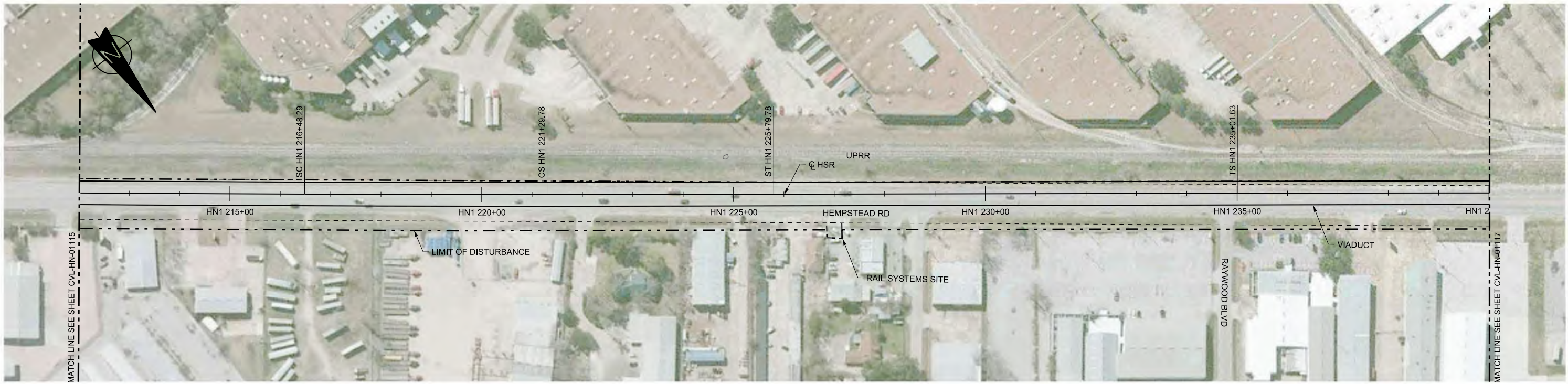
TEXAS CENTRAL
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
 HN1 184+00 TO HN1 212+00

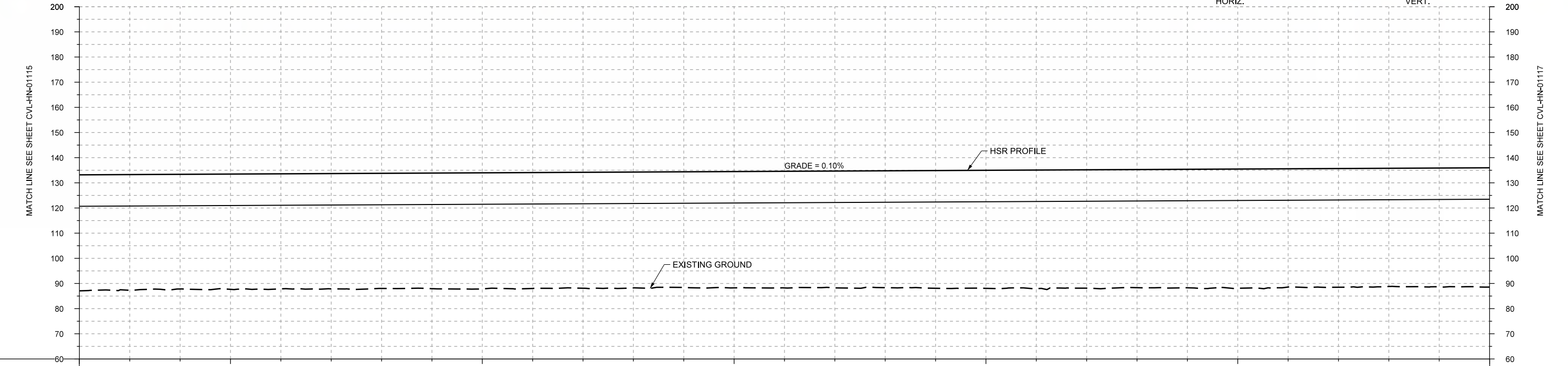
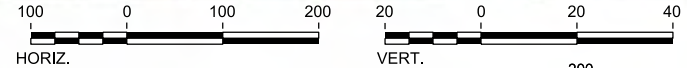
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01115 | 01 |



PLAN



PROFILE

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| STATIONING | HN1 212+00 | HN1 215+00 | HN1 220+00 | HN1 225+00 | HN1 230+00 | HN1 235+00 | HN1 240+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=450 | | R=125000 L=481 | L=450 | L=33495.01 G=0.100% | L=922 | L=550 | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +46.1 | +46.0 | +45.6 | +45.8 | +45.8 | +45.8 | +46.0 | +46.2 | +46.1 | +46.1 | +46.1 | +46.0 | +46.3 | +46.4 | +46.5 | +46.5 | +46.8 | +46.9 | +47.2 | +47.1 | +47.0 | +47.1 | +47.4 | +47.0 | +47.2 | +47.0 | +47.2 | +47.4 |
| TYP. SECTION | ← VIADUCT (L) → | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017



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Texas Registered Engineering Firm: F-1990



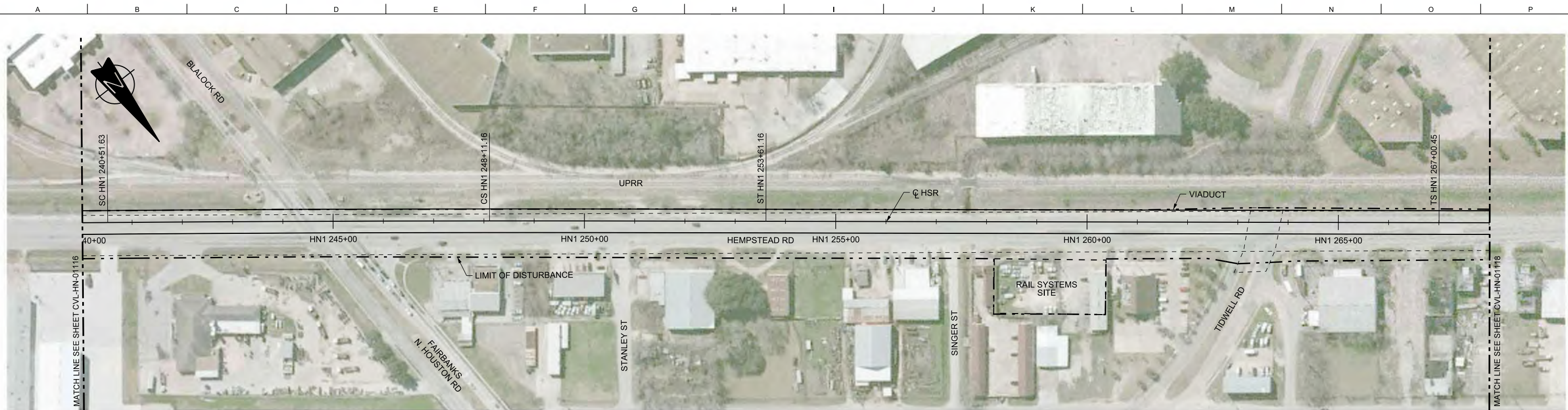
2711 North Haskell Ave., Suite 3300
Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
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Texas Registered Engineering Firm: F-2144



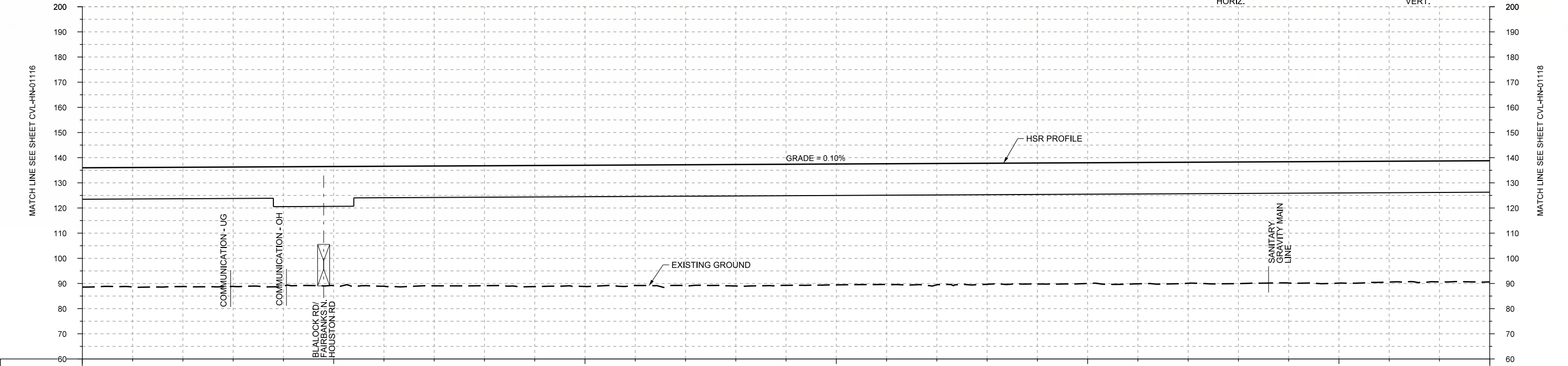
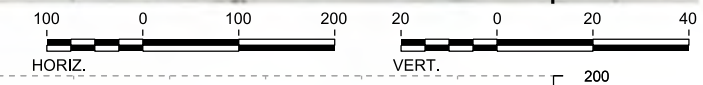
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN1 212+00 TO HN1 240+00

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| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | Drawing No | Rev | |
| 234180 | CVL-HN-01116 | 01 | |



PLAN



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| STATIONING | HN1 240+00 | HN1 245+00 | HN1 250+00 | HN1 255+00 | HN1 260+00 | HN1 265+00 | HN1 268+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=550 | R=105000 L=760 | L=550 | L=33495.01 G=0.100% | L=1339 | | L=450 | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +47.4 | +47.5 | +47.4 | +47.4 | +47.4 | +47.7 | +47.6 | +47.7 | +47.7 | +48.2 | +48.2 | +47.9 | +48.2 | +48.3 | +48.1 | +48.1 | +48.0 | +48.2 | +48.1 | +48.1 | +48.4 | +48.2 | +48.4 | +48.1 | +48.1 | +48.2 | | |
| TYP. SECTION | VIADUCT (L) | | | | | | | | | | | | | | | | | | | | | | | | | | | |

PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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 www.freese.com
 Texas Registered Engineering Firm: F-2144

Client

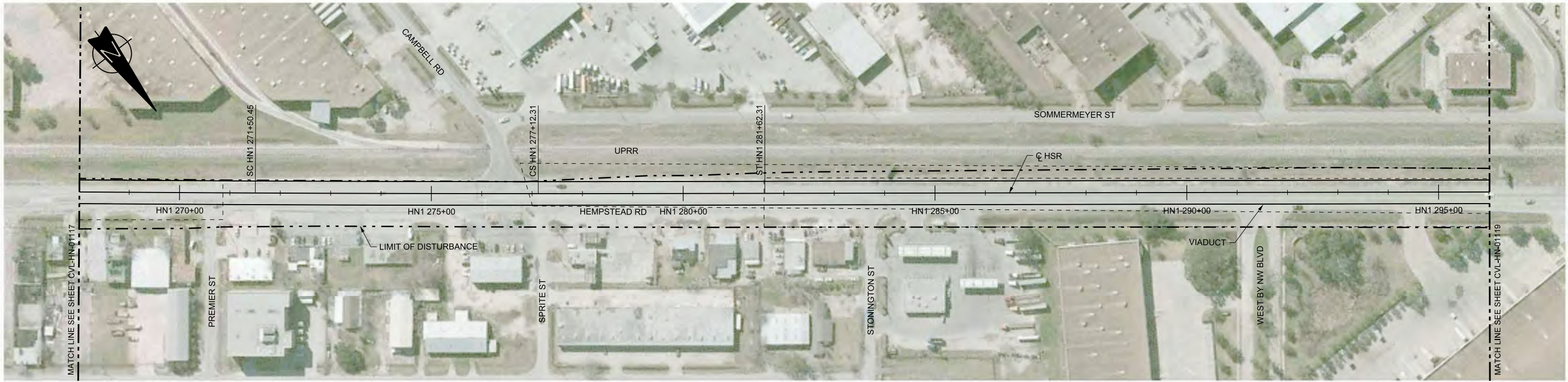
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
 HN1 240+00 TO HN1 268+00

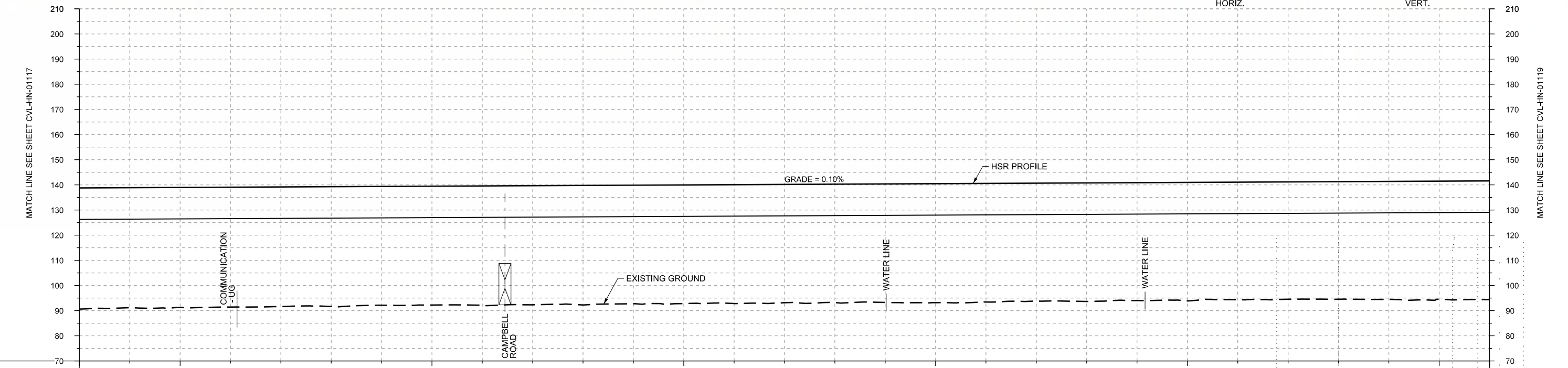
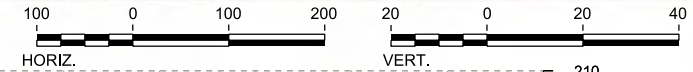
Scale
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Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01117 | 01 |



PLAN



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| STATIONING | HN1 268+00 | HN1 270+00 | HN1 275+00 | HN1 280+00 | HN1 285+00 | HN1 290+00 | HN1 295+00 | HN1 296+00 | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=450 | | R=-120000 L=562 | L=450 | | L=33495.01 G=0.100% | L=4307 | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +46.2 | +47.7 | +47.8 | +47.7 | +47.6 | +47.7 | +47.3 | +47.3 | +47.5 | +47.4 | +47.5 | +47.2 | +47.2 | +47.3 | +47.1 | +47.1 | +47.1 | +47.2 | +46.9 | +47.2 | +46.9 | +47.1 | +46.8 | +46.7 | +46.8 | +46.9 | +47.0 | +47.2 |
| TYP. SECTION | VIADUCT (L) | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER
DRAWN BY
J. BORGHESI
CHECKED BY
K. SEYMOUR
IN CHARGE
C. TAYLOR
DATE
09/15/2017

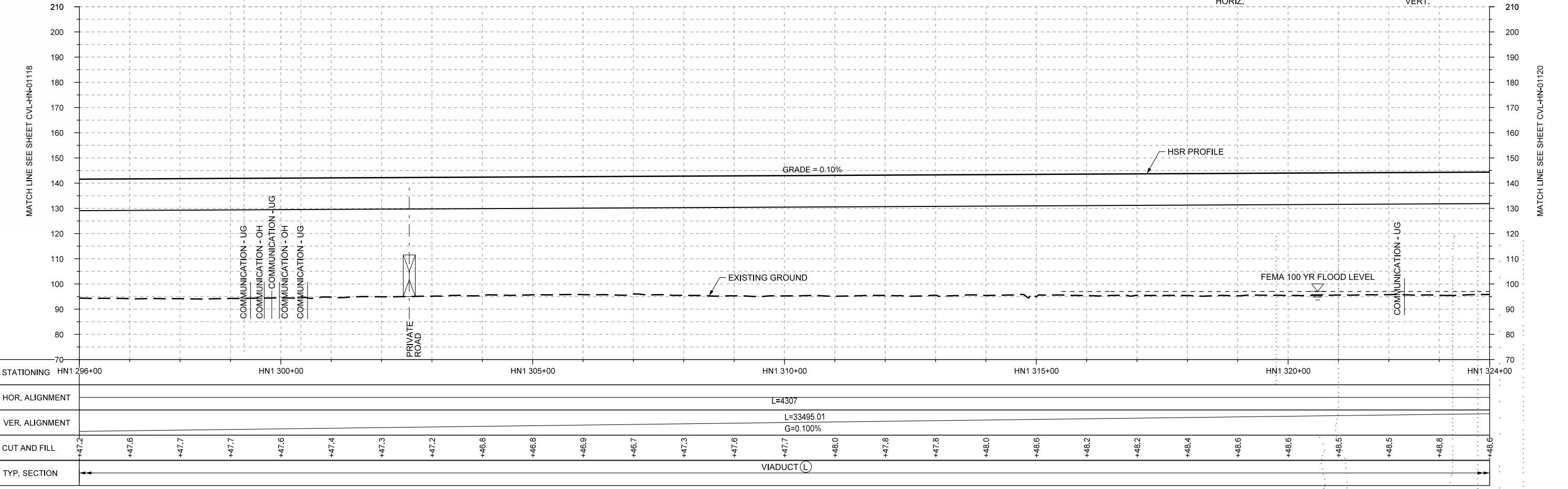
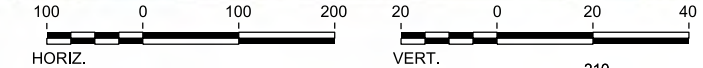
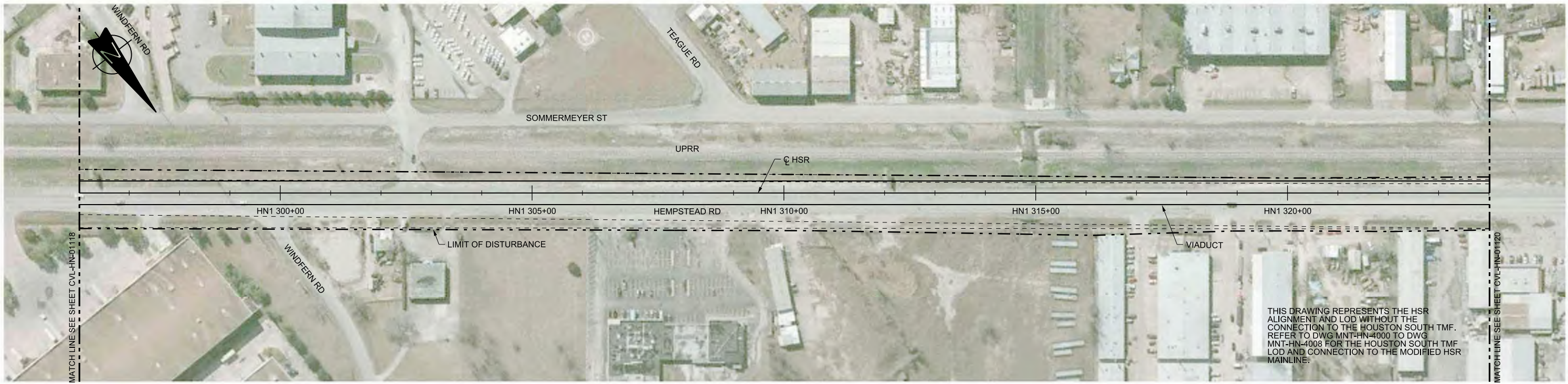
ARUP
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www.freese.com
Texas Registered Engineering Firm: F-2144

Client
TEXAS CENTRAL
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN1 268+00 TO HN1 296+00

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| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01118 |
| Rev | 01 |



| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Client

TEXAS CENTRAL

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

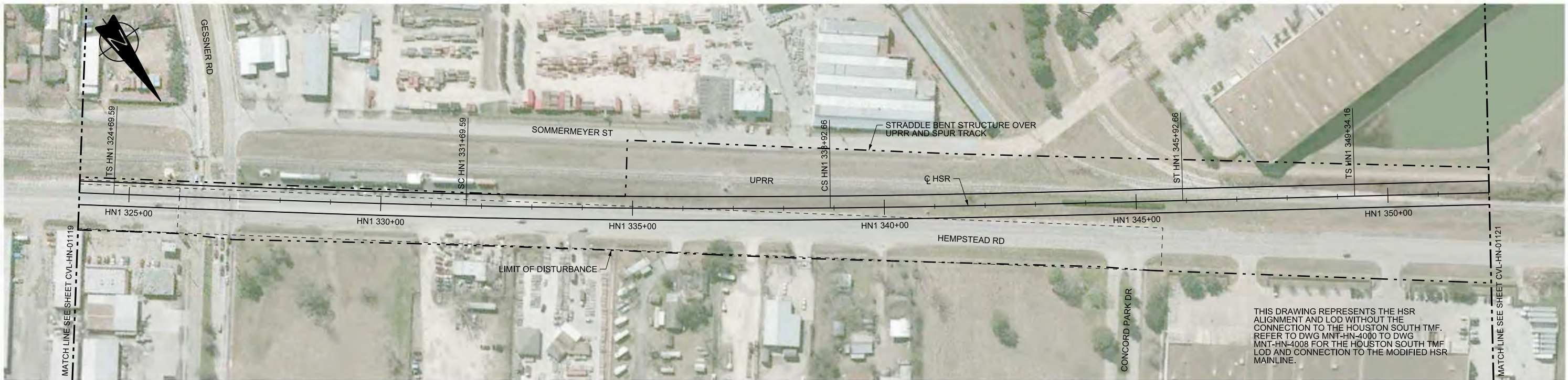
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 296+00 TO HN1 324+00

Scale
AS SHOWN

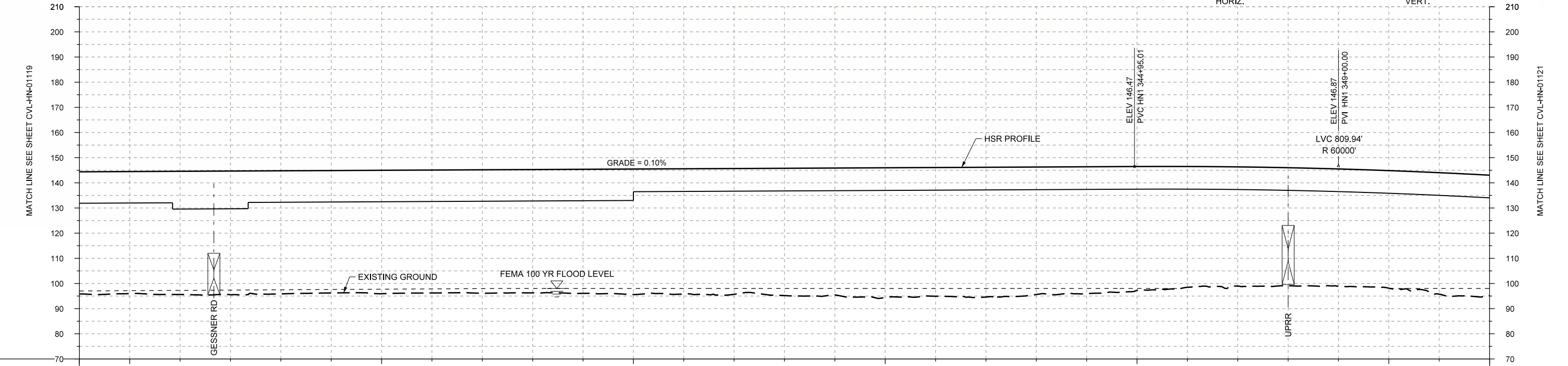
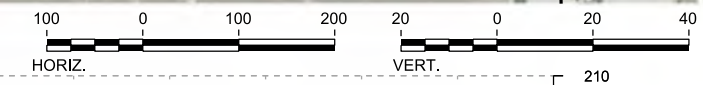
Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01119 | 01 |



THIS DRAWING REPRESENTS THE HSR ALIGNMENT AND LOD WITHOUT THE CONNECTION TO THE HOUSTON SOUTH TMF. REFER TO DWG MNT-HN-4000 TO DWG MNT-HN-4008 FOR THE HOUSTON SOUTH TMF LOD AND CONNECTION TO THE MODIFIED HSR MAINLINE.

PLAN



PROFILE

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|----------------|-------------|------------|------------|------------|------------------|------------|------------|------------|
| STATIONING | HN1 324+00 | HN1 325+00 | HN1 330+00 | HN1 335+00 | HN1 340+00 | HN1 345+00 | HN1 350+00 | HN1 352+00 |
| HOR. ALIGNMENT | L=4307 | | L=700 | | R=22500 L=723 | | L=700 | |
| VER. ALIGNMENT | L=33495.01 | | G=0.100% | | L=700 | | L=342 | |
| CUT AND FILL | +48.6 | +48.5 | +49.0 | +49.2 | +48.9 | +48.7 | +48.1 | +48.9 |
| TYP. SECTION | VIADUCT (L) | | | | VIADUCT (N) | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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| | | | | | |
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DESIGNED BY
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DRAWN BY
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IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Client

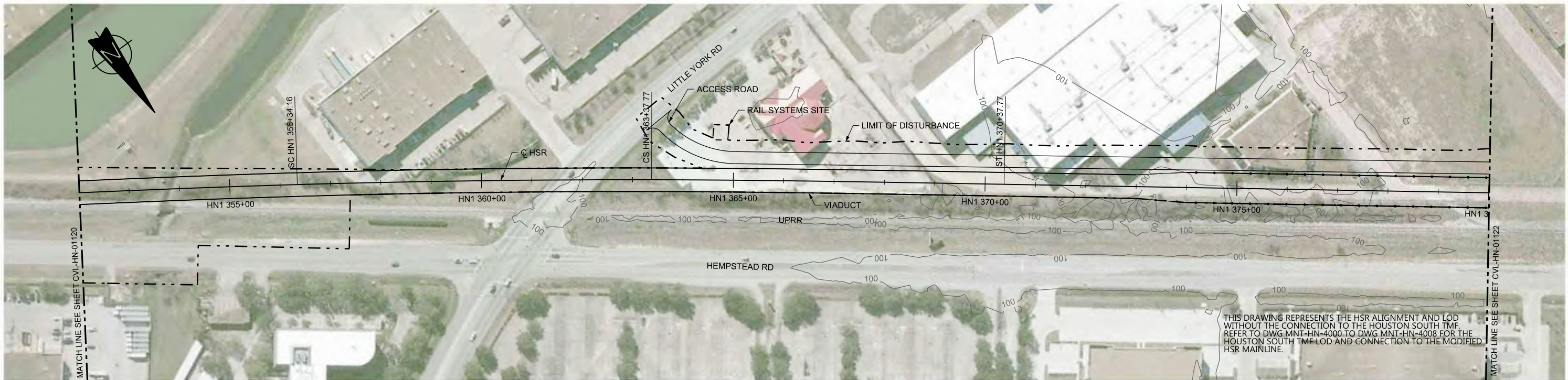
TEXAS CENTRAL

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

Drawing Title

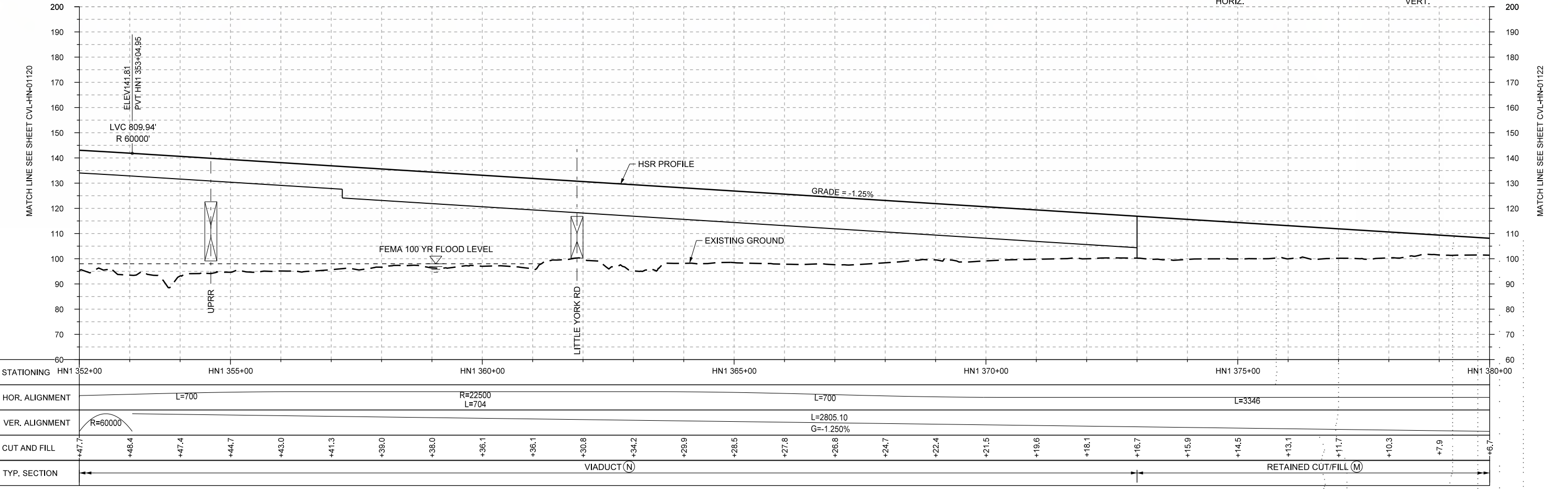
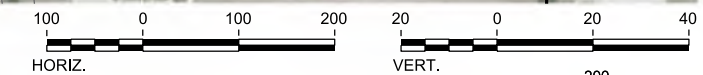
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 324+00 TO HN1 352+00

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| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01120 |
| Rev | 01 |



THIS DRAWING REPRESENTS THE HSR ALIGNMENT AND LOD WITHOUT THE CONNECTION TO THE HOUSTON SOUTH TMF. REFER TO DWG MNT-HN-4000 TO DWG MNT-HN-4008 FOR THE HOUSTON SOUTH TMF LOD AND CONNECTION TO THE MODIFIED HSR MAINLINE.

PLAN



PROFILE

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|----------------|-------------|------------|------------------|------------|------------------------|------------|------------|-------|-------|-------|-------|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|
| STATIONING | HN1 352+00 | HN1 355+00 | HN1 360+00 | HN1 365+00 | HN1 370+00 | HN1 375+00 | HN1 380+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=700 | | R=22500 L=704 | | L=700 | L=3346 | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | R=60000 | | | | L=2805.10 G=-1.250% | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +47.7 | +48.4 | +47.4 | +44.7 | +43.0 | +41.3 | +39.0 | +38.0 | +36.1 | +36.1 | +30.8 | +34.2 | +29.9 | +28.5 | +27.8 | +26.8 | +24.7 | +22.4 | +21.5 | +19.6 | +18.1 | +16.7 | +15.9 | +14.5 | +13.1 | +11.7 | +10.3 | +7.9 | +6.7 |
| TYP. SECTION | VIADUCT (N) | | | | | | | | | | | RETAINED CUT/FILL (M) | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

Arup Texas, Inc.
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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

Client

TEXAS CENTRAL

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

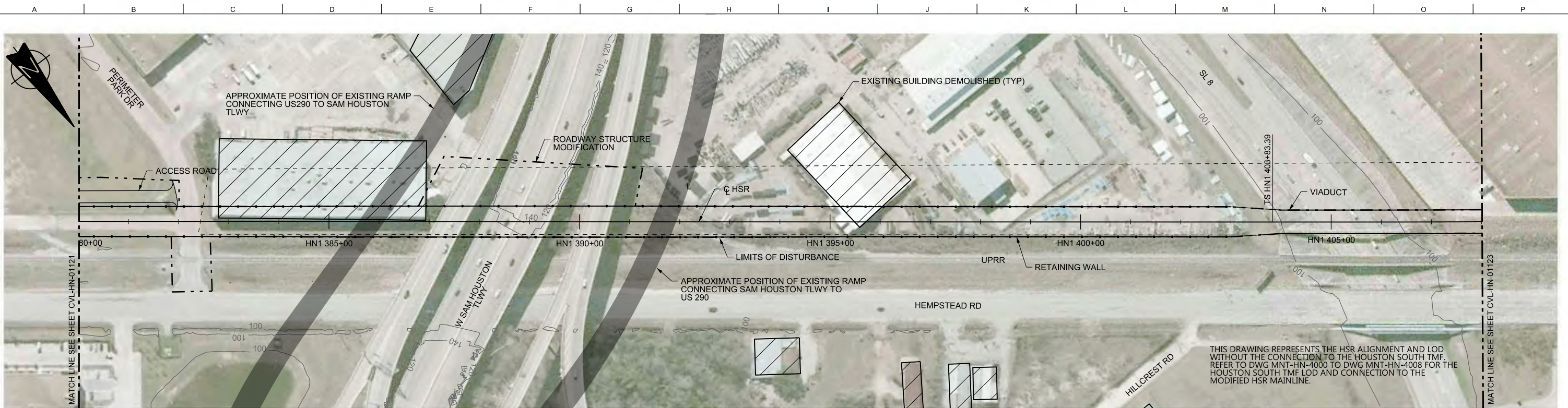
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN1 352+00 TO HN1 380+00

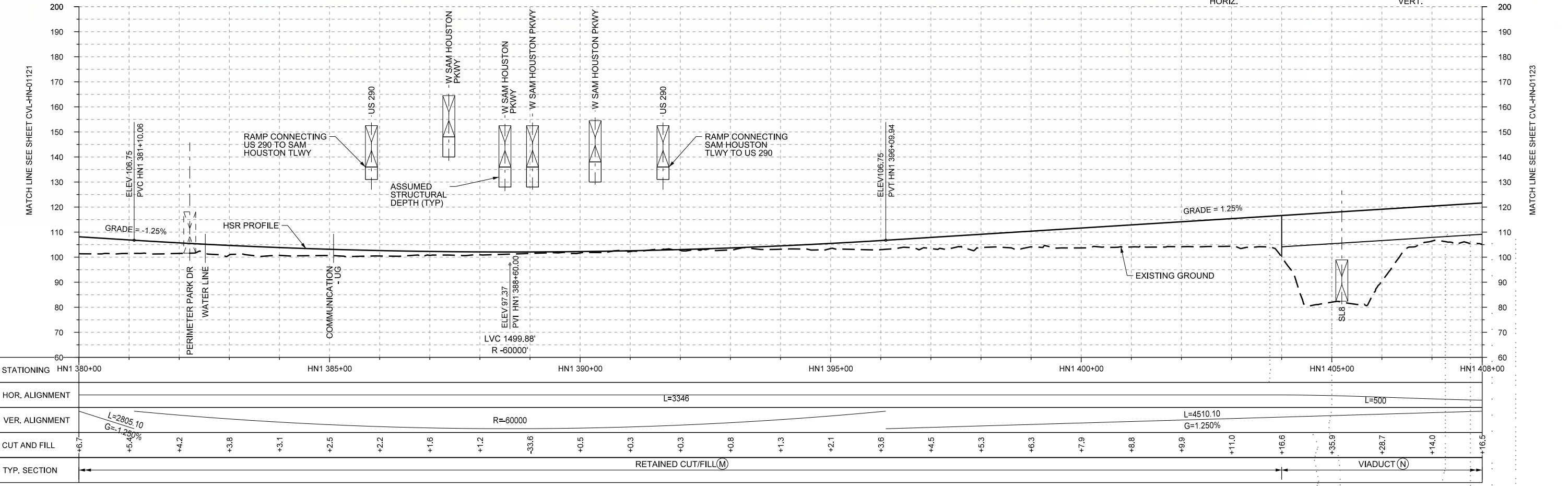
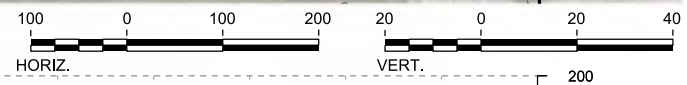
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01121 | 01 |



PLAN



PROFILE

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|----------------|-----------------------|------------|------------|------------|------------|------------|-----------------------|
| STATIONING | HN1 380+00 | HN1 385+00 | HN1 390+00 | HN1 395+00 | HN1 400+00 | HN1 405+00 | HN1 408+00 |
| HOR. ALIGNMENT | L=3346 | | | | | | L=500 |
| VER. ALIGNMENT | R=60000 | | | | | | L=4510.10 G=1.250% |
| CUT AND FILL | -6.7 | +4.2 | +3.8 | +3.1 | +2.5 | +2.2 | +1.6 |
| TYP. SECTION | RETAINED CUT/FILL (M) | | | | | | VIADUCT (N) |

| | |
|-------------|-------------|
| DESIGNED BY | T. SMELCER |
| DRAWN BY | J. BORGHESI |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
| | | | | | |

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Texas Registered Engineering Firm: F-1990

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Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

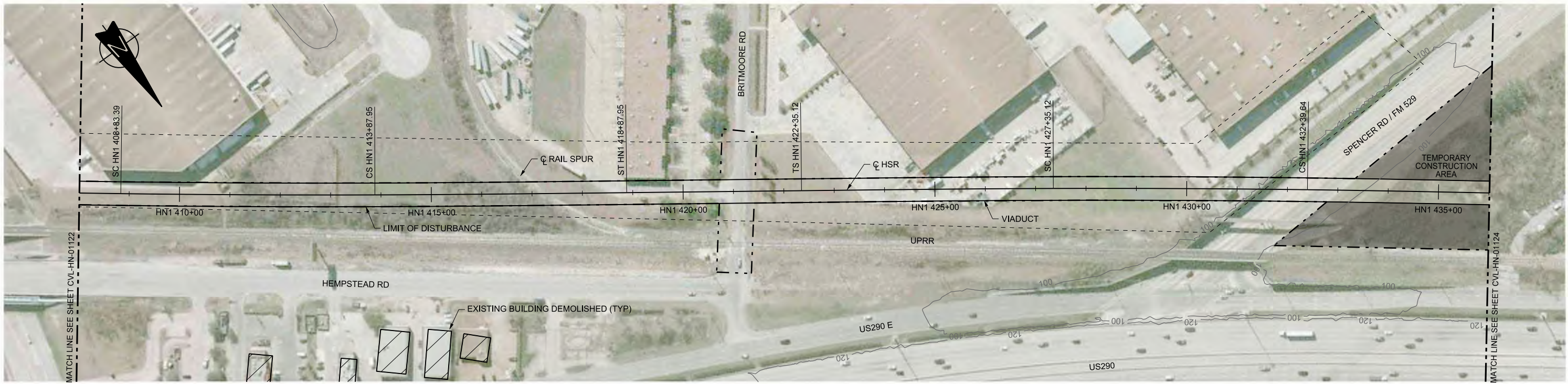
Client
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 380+00 TO HN1 408+00

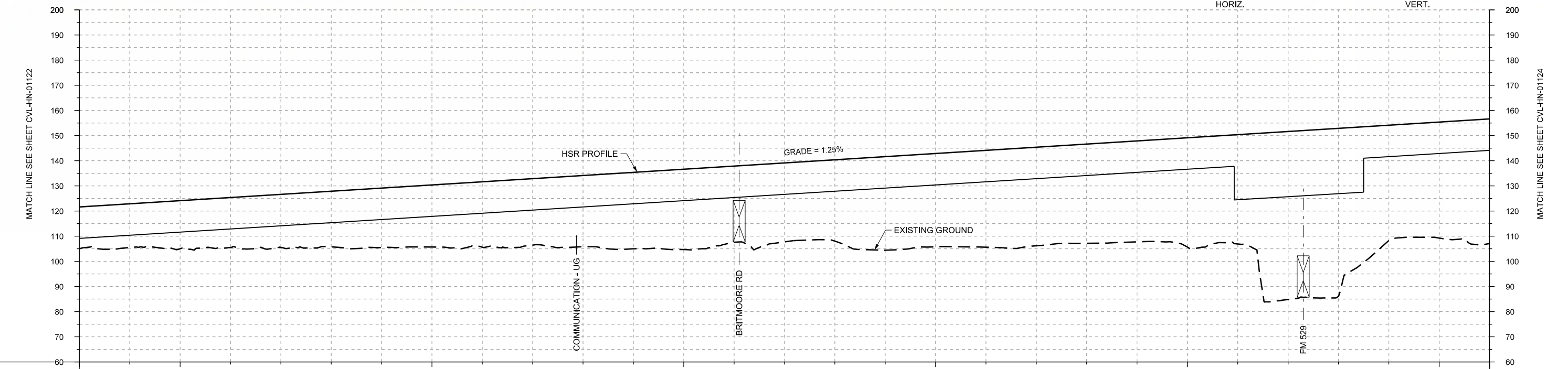
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01122 | 01 |



PLAN



PROFILE

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|----------------|-----------------------|------------|------------------|------------|------------|------------|------------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 408+00 | HN1 410+00 | HN1 415+00 | HN1 420+00 | HN1 425+00 | HN1 430+00 | HN1 435+00 | HN1 436+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=500 | | R=31000 L=505 | | L=500 | L=500 | R=31000 L=505 | L=500 | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=4510.10 G=1.250% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +16.5 | +17.4 | +18.1 | +19.9 | +21.0 | +22.1 | +23.6 | +24.7 | +26.0 | +26.5 | +28.3 | +30.4 | +31.9 | +30.3 | +31.4 | +32.4 | +37.2 | +37.1 | +38.5 | +39.2 | +39.4 | +40.2 | +43.4 | +43.5 | +66.8 | +66.9 | +43.8 | +46.1 | +48.5 |
| TYP. SECTION | ← | | | | | | | | | | | | | | | | → | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP
 Arup Texas, Inc.
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 2711 North Haskell Ave., Suite 3300
 Dallas, Texas 75204
 Tel (214) 217 2200 Fax (214) 217 2201
 www.freesse.com
 Texas Registered Engineering Firm: F-2144

Client

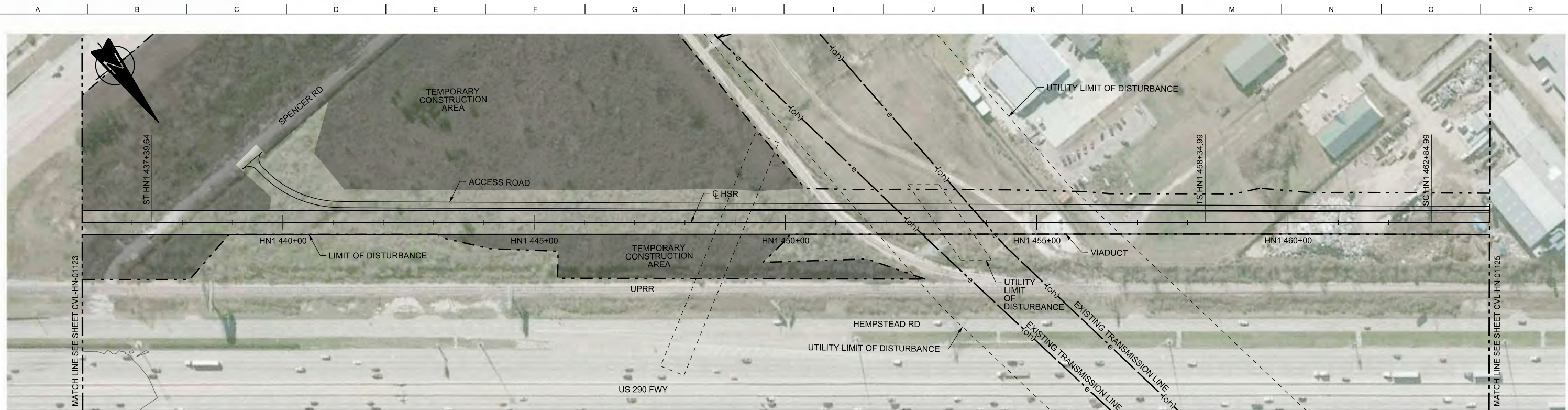
TEXAS CENTRAL
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
 HN1 408+00 TO HN1 436+00

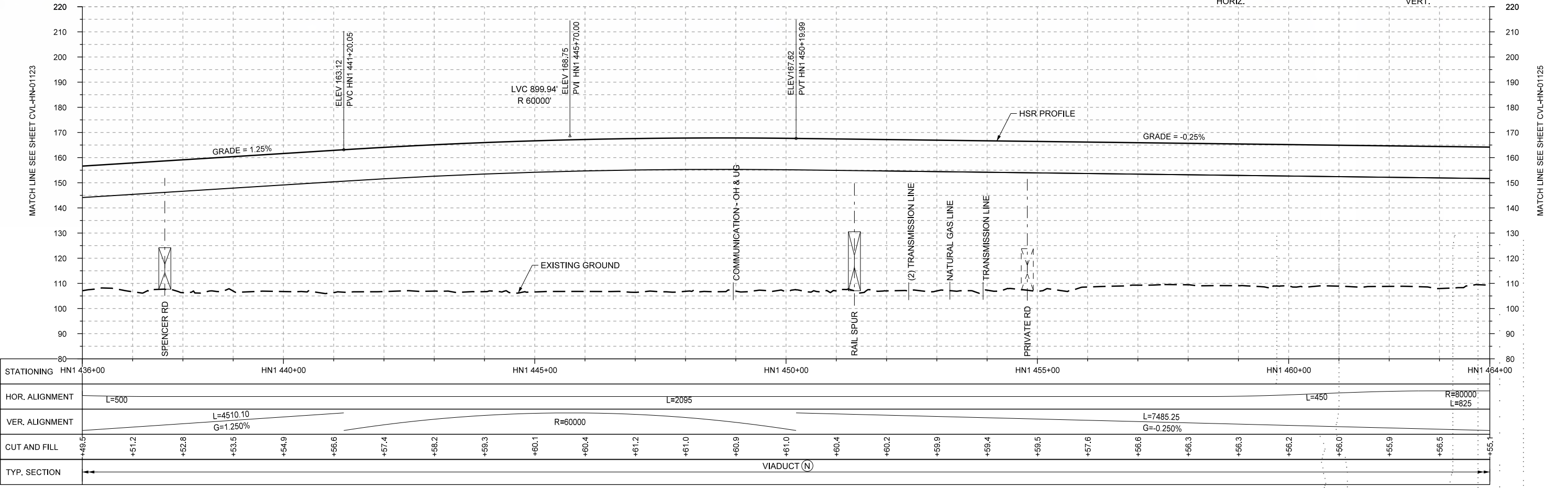
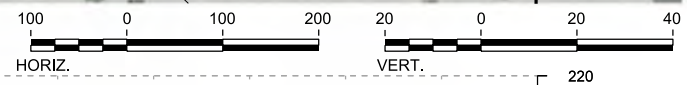
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01123 | 01 |



PLAN



PROFILE

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|----------------|-----------------------|------------|------------|------------|------------|------------------------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 436+00 | HN1 440+00 | HN1 445+00 | HN1 450+00 | HN1 455+00 | HN1 460+00 | HN1 464+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=500 | | L=2095 | | | L=450 | R=80000 L=825 | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=4510.10 G=1.250% | | R=80000 | | | L=7485.25 G=-0.250% | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +49.5 | +51.2 | +52.8 | +53.5 | +54.9 | +56.6 | +57.4 | +58.2 | +59.3 | +60.1 | +60.4 | +61.2 | +61.0 | +60.9 | +61.0 | +60.4 | +60.2 | +59.9 | +59.4 | +59.5 | +57.6 | +56.6 | +56.3 | +56.2 | +56.0 | +55.9 | +56.5 | +55.1 |
| TYP. SECTION | VIADUCT (N) | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017



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Houston, Texas 77042 USA
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www.arup.com
Texas Registered Engineering Firm: F-1990



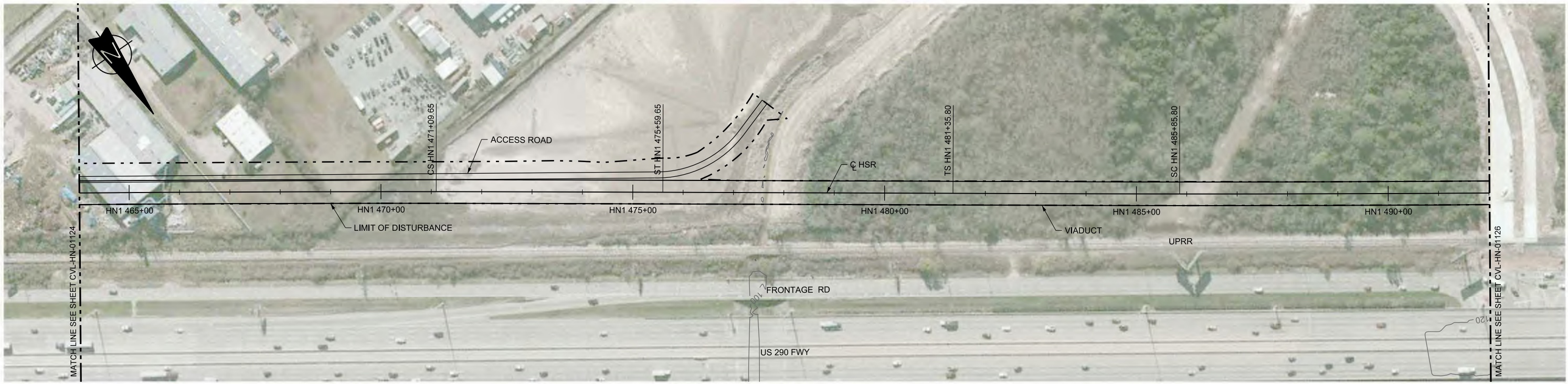
2711 North Haskell Ave., Suite 3300
Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144



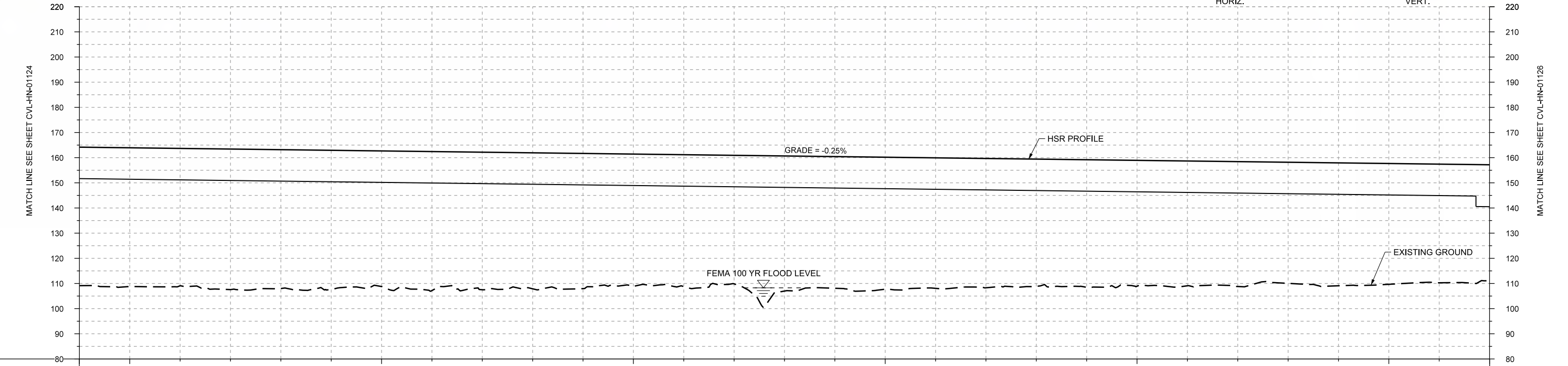
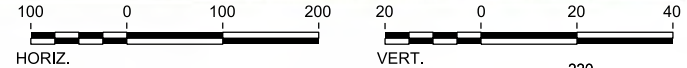
Client
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN1 436+00 TO HN1 464+00

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|-------------------|-------------------------------|
| Scale AS SHOWN | Drawing Status FINAL DRAFT |
| Job No 234180 | Drawing No CVL-HN-01124 |
| | Rev 01 |



PLAN



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| STATIONING | HN1 464+00 | HN1 465+00 | HN1 470+00 | HN1 475+00 | HN1 480+00 | HN1 485+00 | HN1 490+00 | HN1 492+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=80000 L=825 | | L=450 | | L=576 | | R=80000 L=799 | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=7485.25 G=-0.250% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +55.1 | +55.1 | +54.6 | +55.8 | +55.2 | +55.3 | +53.9 | +55.2 | +54.7 | +54.0 | +53.7 | +52.6 | +52.4 | +51.1 | +53.7 | +52.3 | +52.5 | +51.8 | +51.4 | +50.6 | +50.7 | +50.0 | +49.6 | +49.6 | +48.2 | +48.8 | +48.0 | +47.1 | +46.1 |
| TYP. SECTION | VIADUCT (N) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP
 Arup Texas, Inc.
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 Houston, Texas 77042 USA
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 www.arup.com
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 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

Client

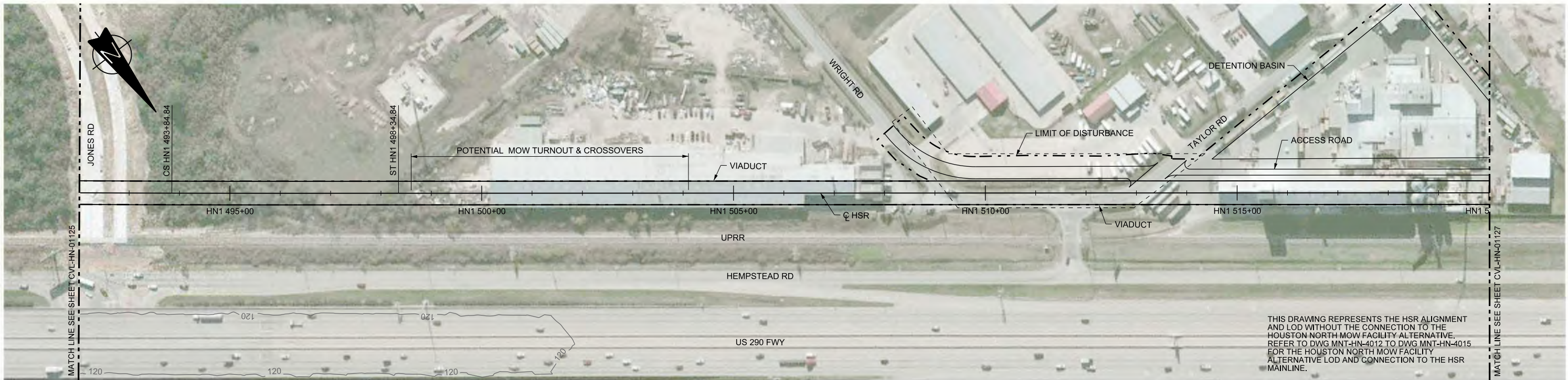
TEXAS CENTRAL
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
 HN1 464+00 TO HN1 492+00

Scale
 AS SHOWN

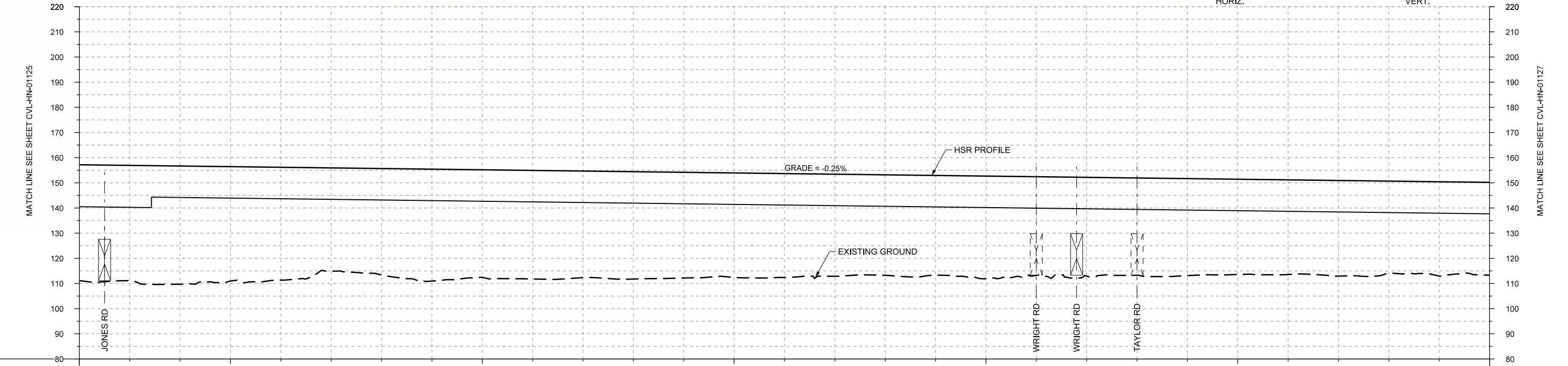
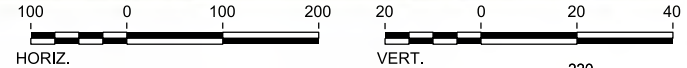
Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01125 | 01 |



THIS DRAWING REPRESENTS THE HSR ALIGNMENT AND LOD WITHOUT THE CONNECTION TO THE HOUSTON NORTH MOW FACILITY ALTERNATIVE. REFER TO DWG MNT-HN-4012 TO DWG MNT-HN-4015 FOR THE HOUSTON NORTH MOW FACILITY ALTERNATIVE LOD AND CONNECTION TO THE HSR MAINLINE.

PLAN



PROFILE

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| STATIONING | HN1 492+00 | HN1 495+00 | HN1 500+00 | HN1 505+00 | HN1 510+00 | HN1 515+00 | HN1 520+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=80000 L=799 | | L=450 | | L=7485.25 G=-0.250% | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | | | | | L=18416 | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +46.1 | +45.8 | +47.0 | +45.4 | +44.9 | +41.0 | +42.4 | +44.4 | +42.8 | +43.1 | +42.4 | +42.6 | +42.0 | +41.5 | +41.3 | +40.5 | +40.0 | +39.5 | +40.7 | +39.2 | +39.3 | +38.6 | +38.6 | +37.8 | +37.6 | +38.0 | +38.5 | +37.5 | +36.9 |
| TYP. SECTION | VIADUCT (N) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER
DRAWN BY
J. BORGHESI
CHECKED BY
K. SEYMOUR
IN CHARGE
C. TAYLOR
DATE
09/15/2017



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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



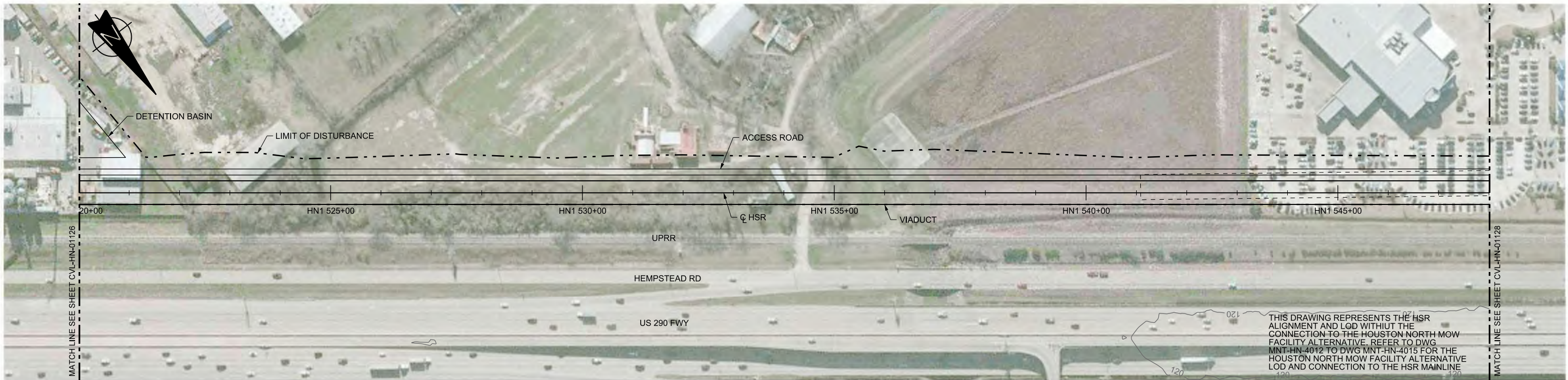
2711 North Haskell Ave., Suite 3300
Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144



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

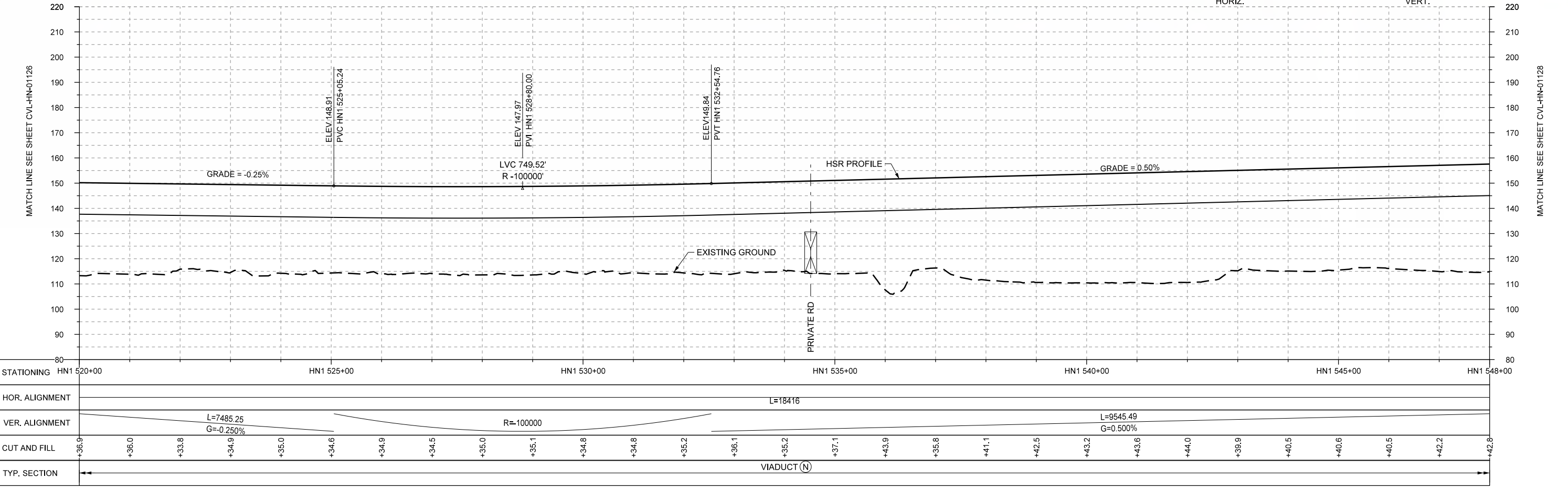
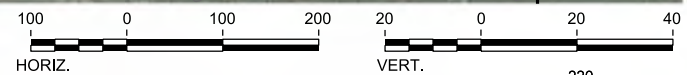
Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN1 492+00 TO HN1 520+00

| | | | |
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| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | 234180 | Drawing No | CVL-HN-01126 |
| Rev | 01 | | |



THIS DRAWING REPRESENTS THE HSR ALIGNMENT AND LOD WITHOUT THE CONNECTION TO THE HOUSTON NORTH MOW FACILITY ALTERNATIVE. REFER TO DWG MNT-HN-4012 TO DWG MNT-HN-4015 FOR THE HOUSTON NORTH MOW FACILITY ALTERNATIVE LOD AND CONNECTION TO THE HSR MAINLINE

PLAN



PROFILE

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|----------------|------------------------|------------|------------|------------|------------|-----------------------|------------|
| STATIONING | HN1 520+00 | HN1 525+00 | HN1 530+00 | HN1 535+00 | HN1 540+00 | HN1 545+00 | HN1 548+00 |
| HOR. ALIGNMENT | L=18416 | | | | | | |
| VER. ALIGNMENT | L=7485.25 G=-0.250% | | R=100000 | | | L=9545.49 G=0.500% | |
| CUT AND FILL | +36.9 | +36.0 | +33.8 | +34.9 | +35.0 | +34.6 | +34.9 |
| TYP. SECTION | VIADUCT (N) | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
| | | | | | |

DESIGNED BY
T. SMELCER
DRAWN BY
J. BORGHESI
CHECKED BY
K. SEYMOUR
IN CHARGE
C. TAYLOR
DATE
09/15/2017



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

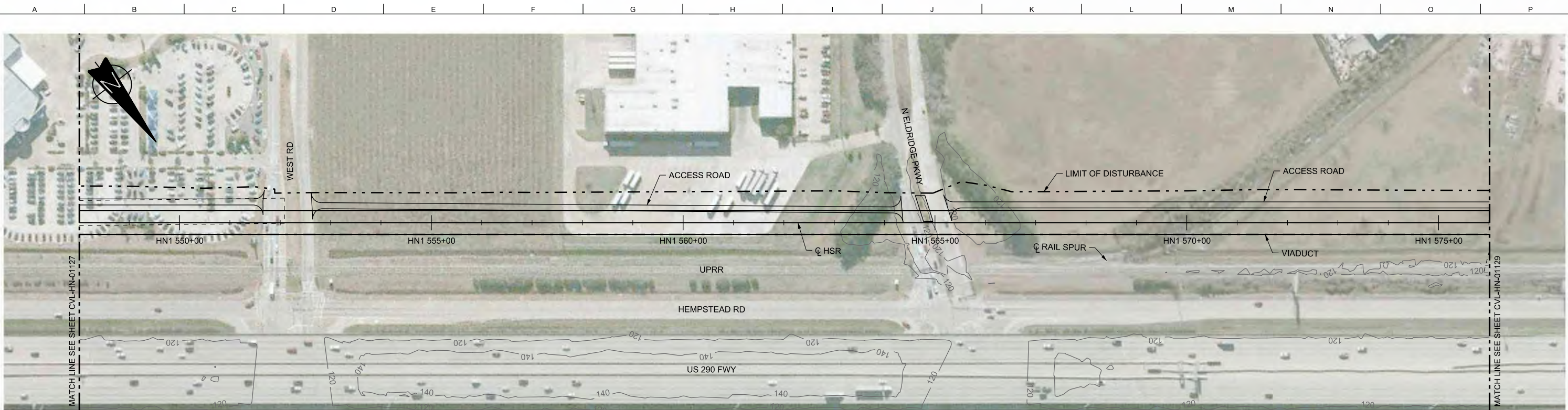


2711 North Haskell Ave., Suite 3300
Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

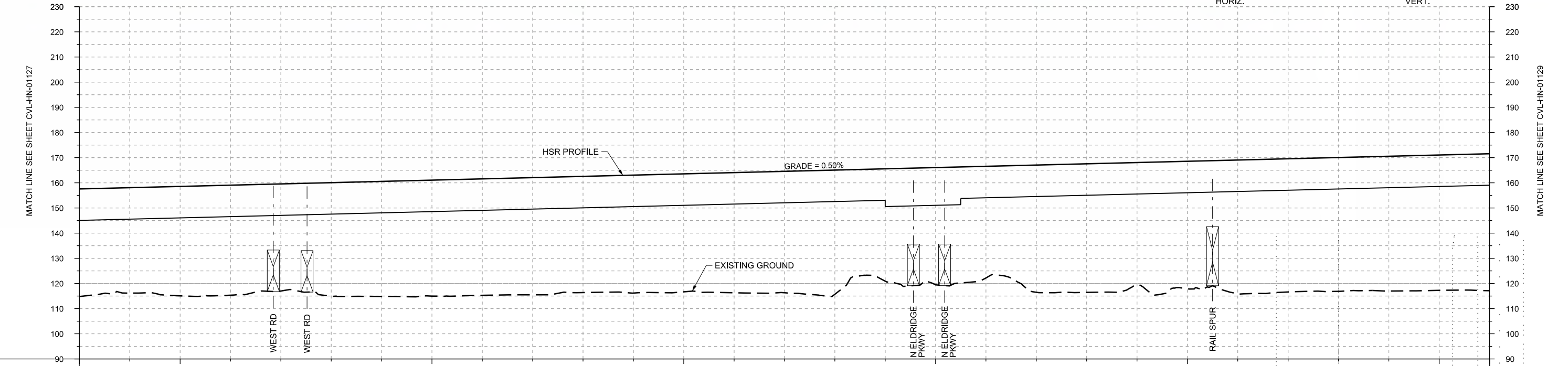
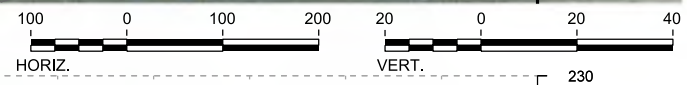


Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 520+00 TO HN1 548+00

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|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01127 |
| Rev | 01 |



PLAN



PROFILE

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|----------------|-----------------------|------------|------------|------------|------------|------------|------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 548+00 | HN1 550+00 | HN1 555+00 | HN1 560+00 | HN1 565+00 | HN1 570+00 | HN1 575+00 | HN1 576+00 | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=18416 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=9545.49 G=0.500% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +42.8 | +41.9 | +43.5 | +43.8 | +42.6 | +45.1 | +45.8 | +46.1 | +46.3 | +46.3 | +46.9 | +46.9 | +47.8 | +46.3 | +49.4 | +44.7 | +46.6 | +44.4 | +50.6 | +51.1 | +48.6 | +50.7 | +53.2 | +53.0 | +53.2 | +53.5 | +53.7 | +54.4 |
| TYP. SECTION | VIADUCT (N) | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|-------------|-------------|
| DESIGNED BY | T. SMELCER |
| DRAWN BY | J. BORGHESI |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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Arup Texas, Inc.
10370 Richmond Ave., Suite 475
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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

Client

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

Drawing Title

**HOUSTON SEGMENT
CIVIL
PLAN AND PROFILE
HN1 548+00 TO HN1 576+00**

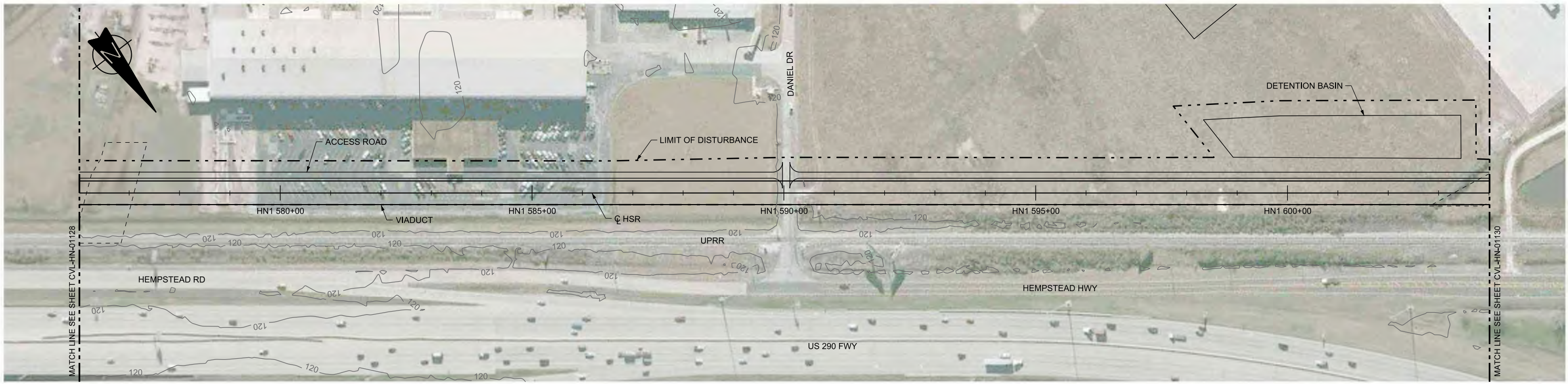
Scale

AS SHOWN

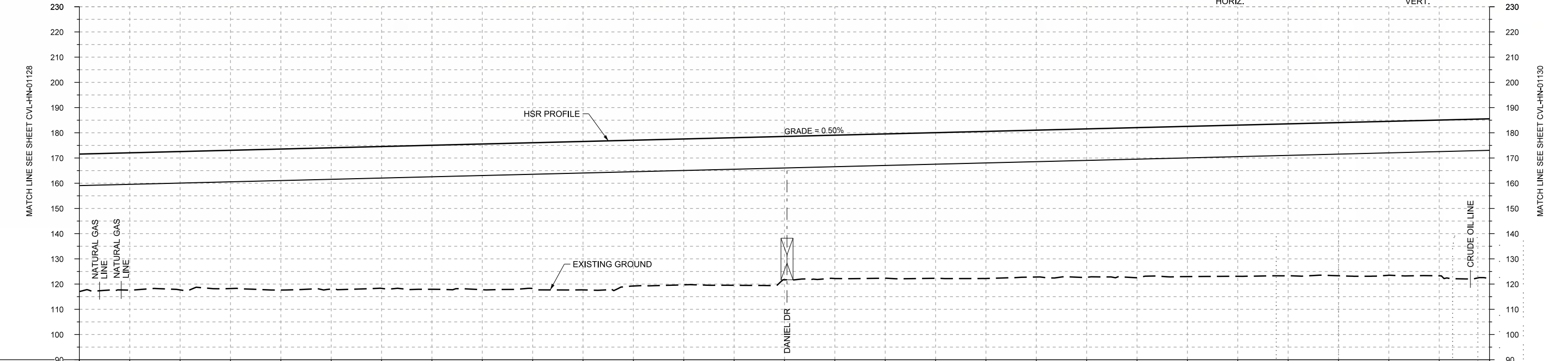
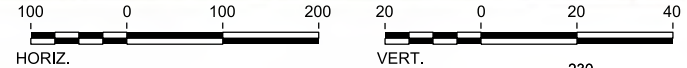
Drawing Status

FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01128 | 01 |



PLAN



PROFILE

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|----------------|-----------------------|------------|------------|------------|------------|------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|
| STATIONING | HN1 576+00 | HN1 580+00 | HN1 585+00 | HN1 590+00 | HN1 595+00 | HN1 600+00 | HN1 604+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=18416 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=9545.49 G=0.500% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +54.4 | +54.8 | +55.9 | +56.0 | +56.2 | +57.1 | +57.7 | +57.8 | +58.8 | +57.8 | +57.8 | +58.5 | +58.8 | +57.2 | +57.7 | +58.3 | +58.2 | +58.8 | +59.4 | +59.5 | +59.9 | +60.2 | +60.7 | +61.0 | +61.7 | +63.1 | | |
| TYP. SECTION | VIADUCT (N) | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP
 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

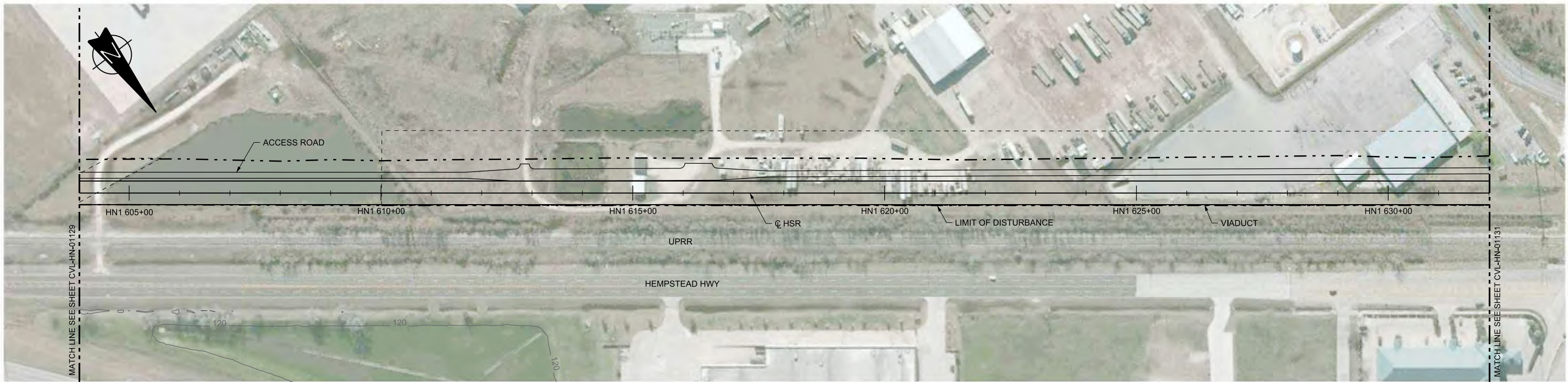
FREESSE AND NICHOLS
 2711 North Haskell Ave., Suite 3300
 Dallas, Texas 75204
 Tel (214) 217 2200 Fax (214) 217 2201
 www.freese.com
 Texas Registered Engineering Firm: F-2144

Client

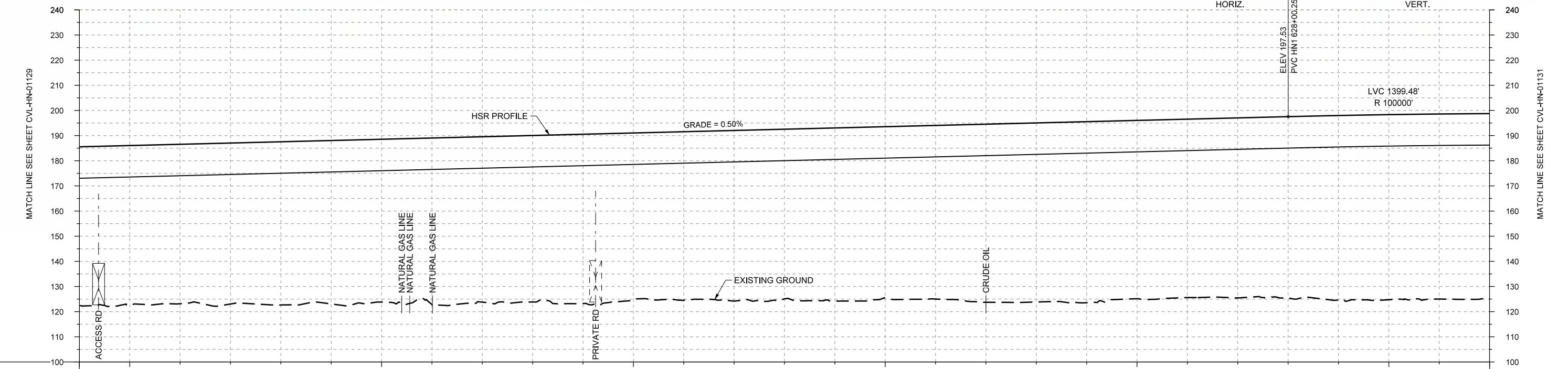
TEXAS CENTRAL
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
 HN1 576+00 TO HN1 604+00

| | |
|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01129 |
| Rev | 01 |



PLAN



PROFILE

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|----------------|-----------------------|------------|------------|------------|------------|------------|------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 604+00 | HN1 605+00 | HN1 610+00 | HN1 615+00 | HN1 620+00 | HN1 625+00 | HN1 630+00 | HN1 632+00 | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=18416 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=9545.49 G=0.500% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +63.1 | +63.3 | +63.3 | +64.0 | +64.8 | +64.9 | +64.7 | +66.2 | +65.7 | +66.2 | +67.3 | +66.0 | +67.0 | +67.8 | +67.4 | +68.8 | +68.1 | +69.0 | +70.8 | +71.2 | +71.9 | +70.9 | +70.9 | +71.6 | +72.1 | +73.4 | +73.6 | +73.6 |
| TYP. SECTION | VIADUCT (N) | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP
 Arup Texas, Inc.
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 www.freesse.com
 Texas Registered Engineering Firm: F-2144

Client

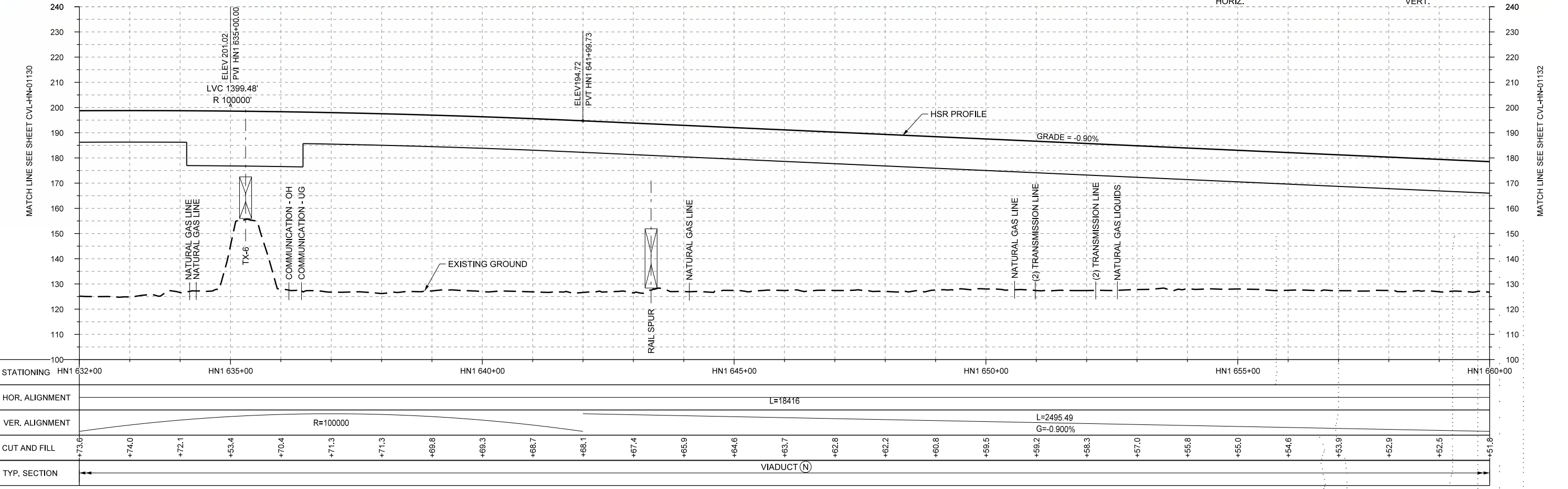
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN1 604+00 TO HN1 632+00

| | | | |
|----------------|--------------|-----|--|
| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | Drawing No | Rev | |
| 234180 | CVL-HN-01130 | 01 | |



PLAN



PROFILE

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|----------------|-------------|------------|------------|------------|------------|------------|------------|
| STATIONING | HN1 632+00 | HN1 635+00 | HN1 640+00 | HN1 645+00 | HN1 650+00 | HN1 655+00 | HN1 660+00 |
| HOR. ALIGNMENT | L=18416 | | | | | | |
| VER. ALIGNMENT | R=100000 | | | | | | |
| CUT AND FILL | +73.6 | +74.0 | +72.1 | +53.4 | +70.4 | +71.3 | +71.3 |
| TYP. SECTION | VIADUCT (N) | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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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

Client

TEXAS CENTRAL

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

Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 632+00 TO HN1 660+00

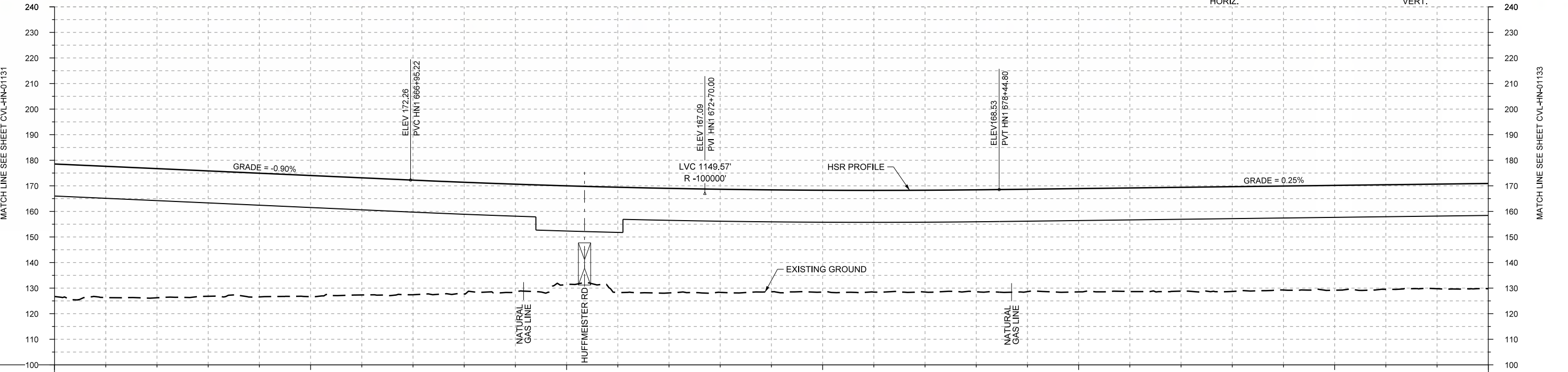
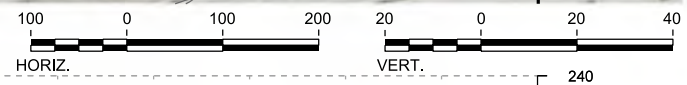
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01131 | 01 |



PLAN



PROFILE

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|----------------|------------------------|------------|------------|------------|------------|------------------------|-------------------|
| STATIONING | HN1 660+00 | HN1 665+00 | HN1 670+00 | HN1 675+00 | HN1 680+00 | HN1 685+00 | HN1 688+00 |
| HOR. ALIGNMENT | | | | | | | R=270000 L=369 |
| VER. ALIGNMENT | L=2495.49 G=-0.900% | | R=100000 | | | L=16930.40 G=0.250% | |
| CUT AND FILL | +51.8 | +51.3 | +50.5 | +49.0 | +48.4 | +47.4 | +45.8 |
| TYP. SECTION | VIADUCT (N) | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017



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



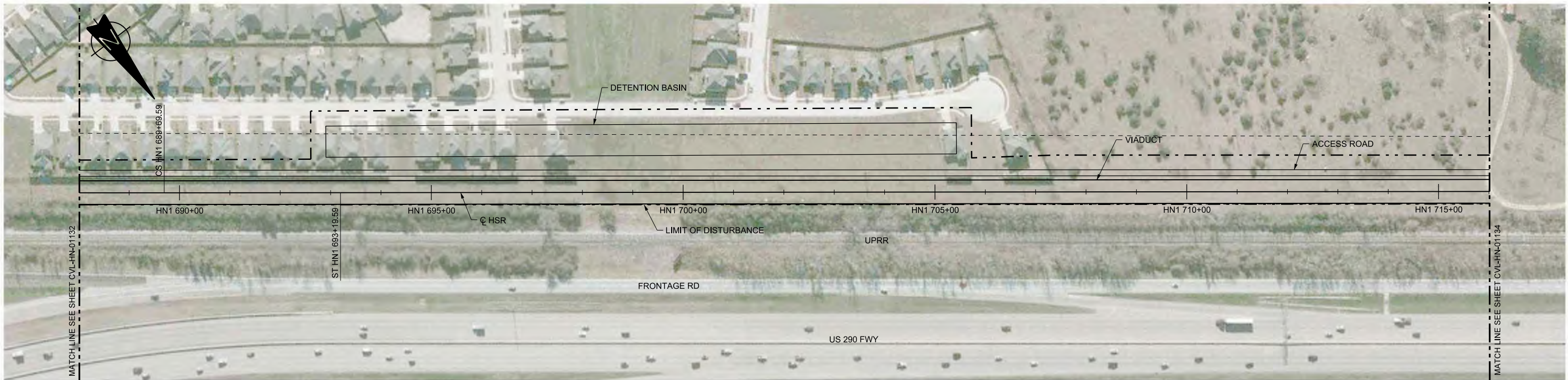
2711 North Haskell Ave., Suite 3300
Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144



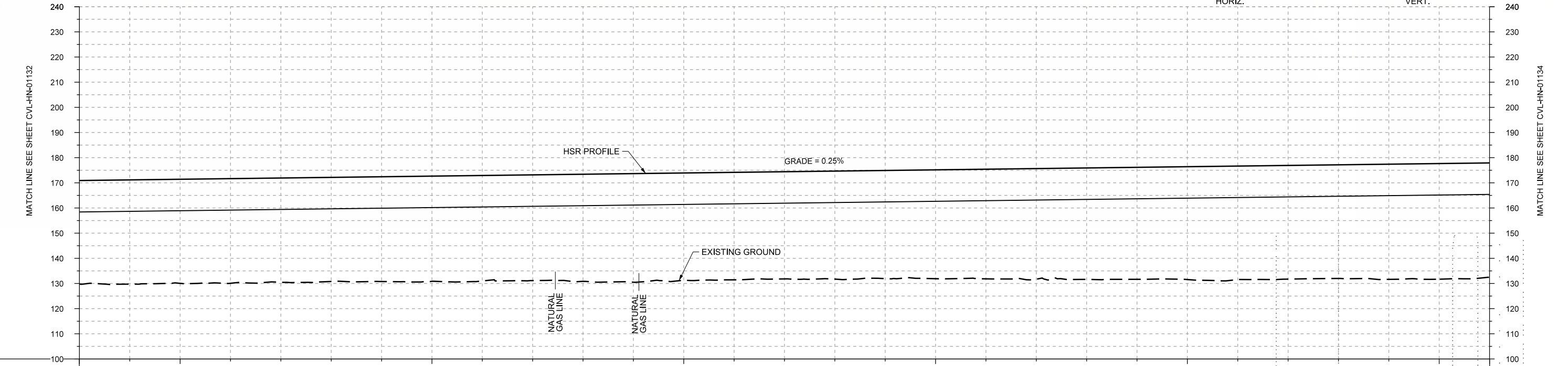
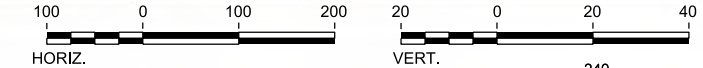
Client
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
**HOUSTON SEGMENT CIVIL
PLAN AND PROFILE
HN1 660+00 TO HN1 688+00**

| | |
|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01132 |
| Rev | 01 |



PLAN



PROFILE

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|----------------|-------------------|------------|------------|------------|------------------------|------------|------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 688+00 | HN1 690+00 | HN1 695+00 | HN1 700+00 | HN1 705+00 | HN1 710+00 | HN1 715+00 | HN1 716+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=270000 L=369 | | | | L=10522 | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | | | | | L=16930.40 G=0.250% | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +41.2 | +41.5 | +41.4 | +41.6 | +41.4 | +41.4 | +41.6 | +41.9 | +41.9 | +42.1 | +42.6 | +43.2 | +42.7 | +42.8 | +42.6 | +43.0 | +43.0 | +43.3 | +43.6 | +44.0 | +44.3 | +44.6 | +44.8 | +45.1 | +45.2 | +45.1 | +45.8 | +45.9 | +45.5 |
| TYP. SECTION | VIADUCT (N) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017



Arup Texas, Inc.
10370 Richmond Ave., Suite 475
Houston, Texas 77042 USA
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Texas Registered Engineering Firm: F-1990



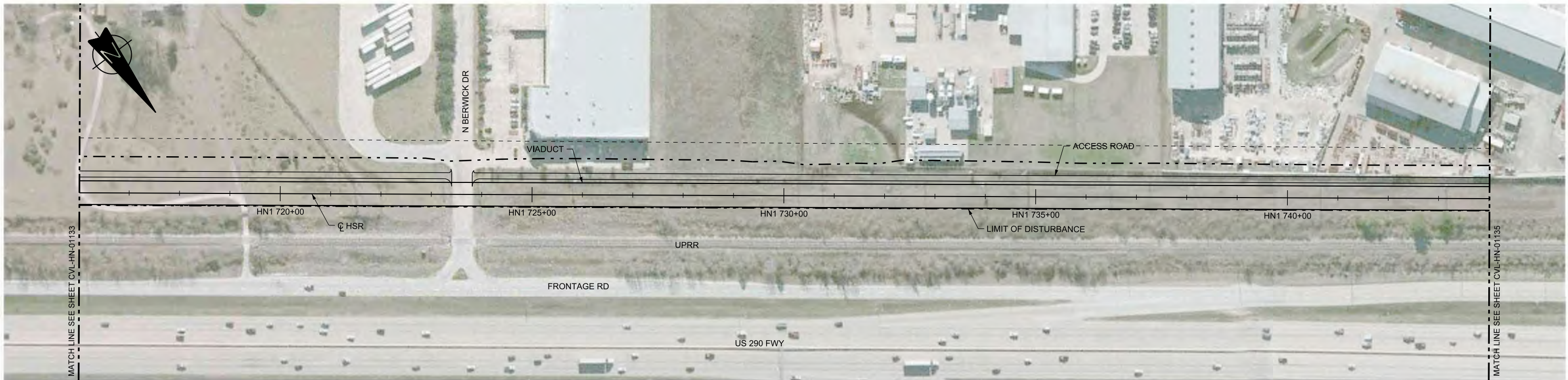
2711 North Haskell Ave., Suite 3300
Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144



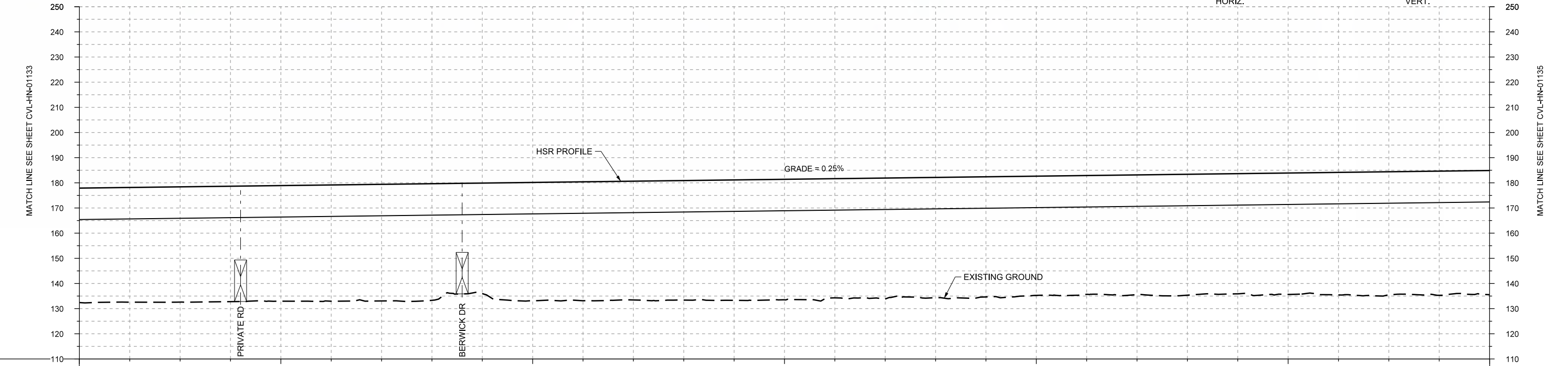
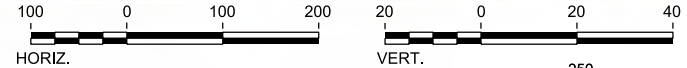
Client
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN1 688+00 TO HN1 716+00

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| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01133 |
| Rev | 01 |



PLAN



PROFILE

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| STATIONING | HN1 716+00 | HN1 720+00 | HN1 725+00 | HN1 730+00 | HN1 735+00 | HN1 740+00 | HN1 744+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=10522 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=16930.40 G=0.250% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +45.5 | +45.5 | +45.8 | +45.8 | +45.9 | +46.2 | +46.3 | +46.3 | +43.9 | +47.0 | +47.3 | +47.2 | +47.5 | +47.8 | +47.9 | +47.3 | +48.1 | +47.8 | +47.8 | +47.3 | +47.2 | +47.5 | +48.1 | +47.7 | +48.2 | +48.7 | +49.0 | +49.3 | +49.4 |
| TYP. SECTION | VIADUCT (N) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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Texas Registered Engineering Firm: F-1990

FRESE AND NICHOLS

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Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

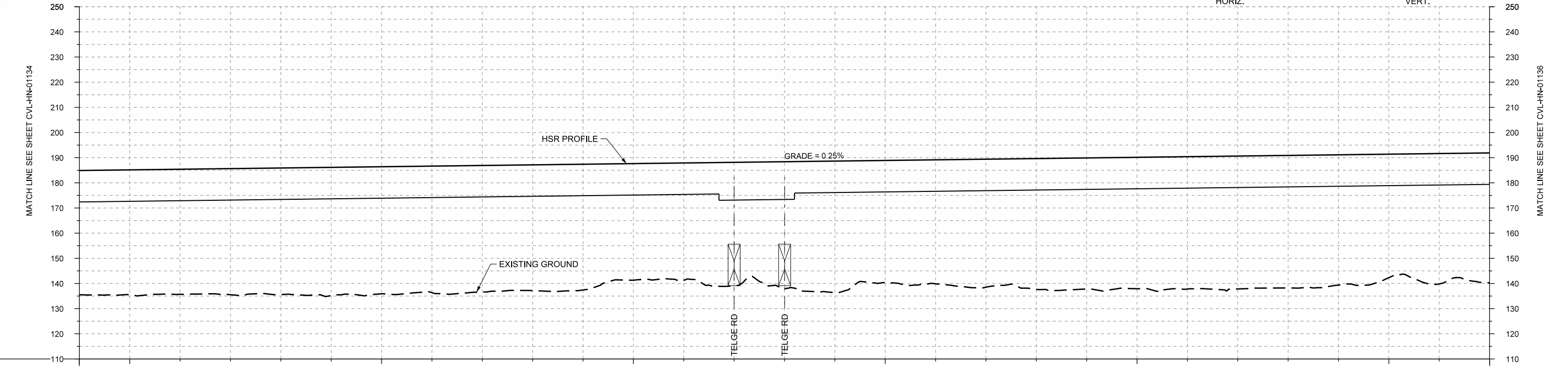
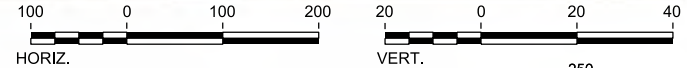
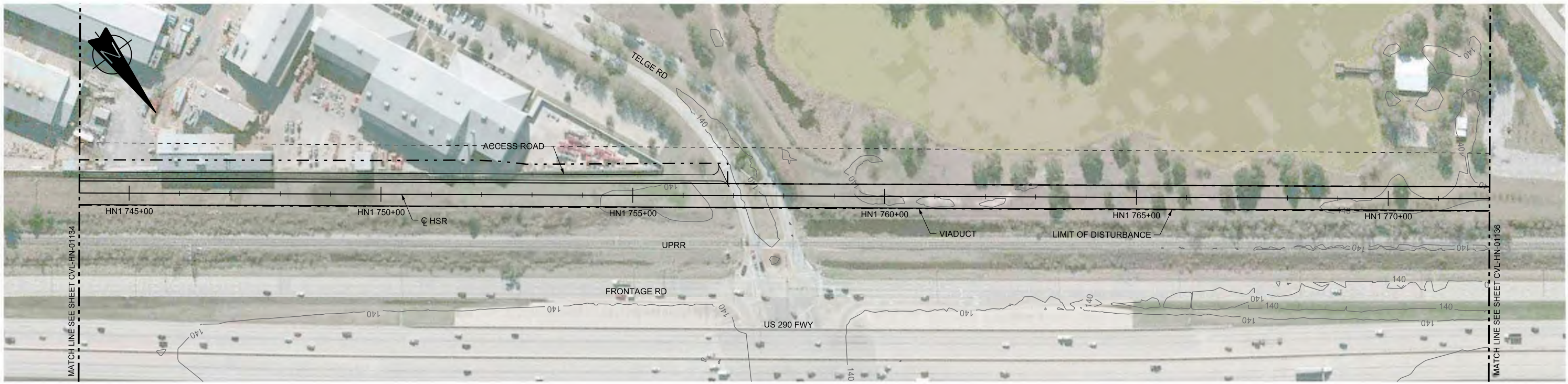
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 716+00 TO HN1 744+00

Scale
AS SHOWN

Drawing Status
FINAL DRAFT

| | | |
|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01134 | 01 |



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|----------------|------------------------|------------|------------|------------|------------|------------|------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 744+00 | HN1 745+00 | HN1 750+00 | HN1 755+00 | HN1 760+00 | HN1 765+00 | HN1 770+00 | HN1 772+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=10522 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=16930.40 G=0.250% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +49.4 | +49.5 | +49.7 | +50.1 | +50.3 | +50.9 | +50.5 | +50.2 | +50.3 | +49.9 | +50.0 | +46.3 | +46.7 | +49.0 | +50.4 | +52.2 | +48.4 | +49.2 | +50.9 | +52.0 | +52.1 | +52.2 | +52.6 | +52.8 | +52.7 | +51.8 | +48.1 | +51.8 | +51.6 |
| TYP. SECTION | VIADUCT (N) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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www.freese.com
Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

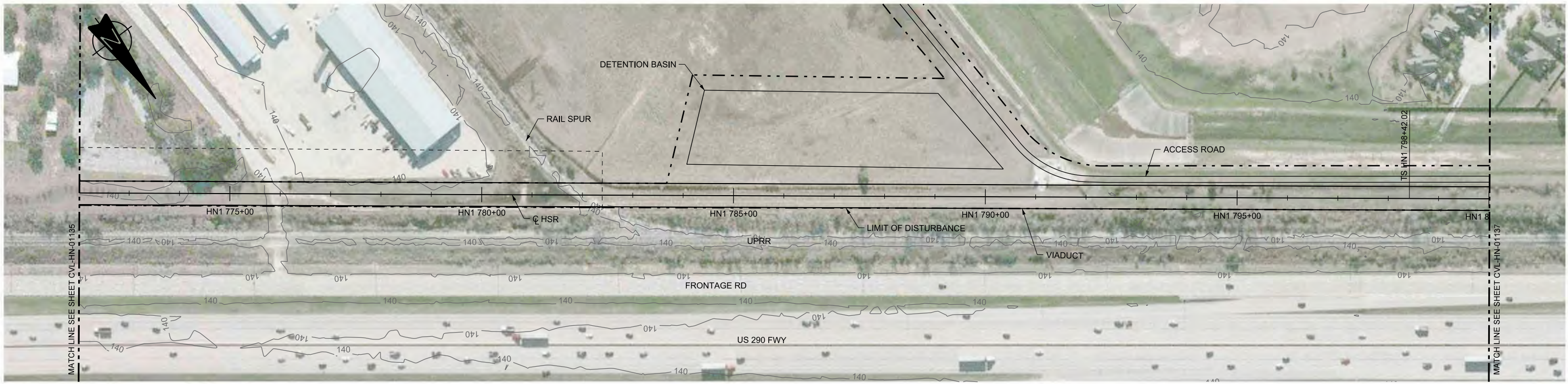
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 744+00 TO HN1 772+00

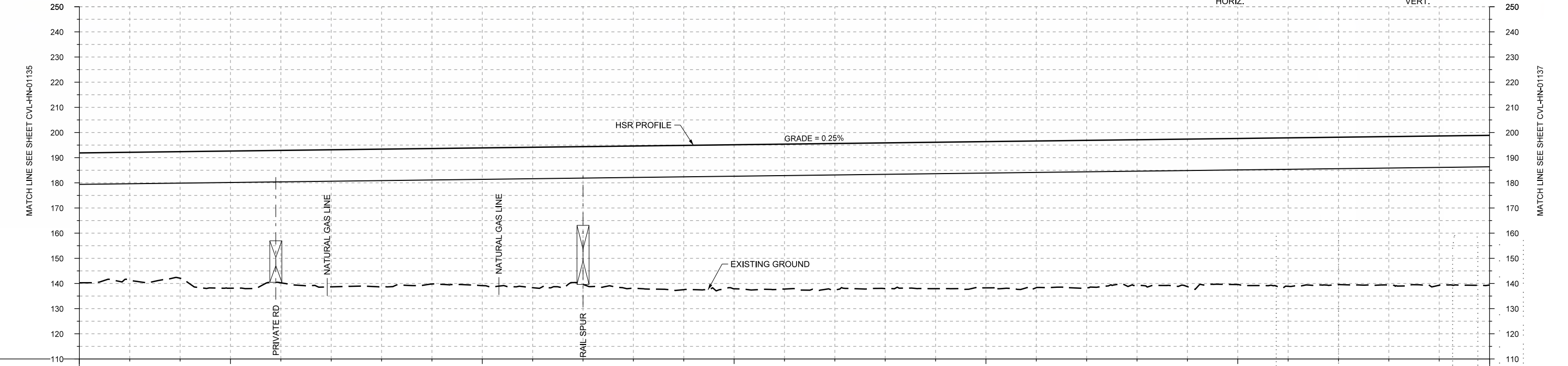
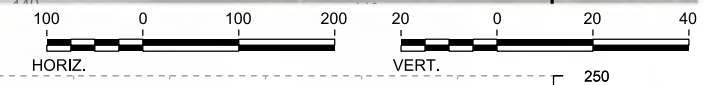
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

| | | |
|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01135 | 01 |



PLAN



PROFILE

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|----------------|-------------|------------|------------|------------|------------|------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 772+00 | HN1 775+00 | HN1 780+00 | HN1 785+00 | HN1 790+00 | HN1 795+00 | HN1 800+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=10522 | | | | | | L=400 | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=16930.40 | | | | | | G=0.250% | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +51.6 | +50.6 | +50.3 | +54.5 | +52.6 | +54.5 | +54.7 | +53.8 | +54.8 | +55.8 | +54.8 | +56.5 | +57.4 | +57.2 | +57.6 | +58.2 | +57.9 | +58.2 | +56.2 | +56.3 | +58.6 | +57.9 | +58.7 | +58.0 | +59.0 | +58.5 | +58.0 | +59.3 | +58.5 |
| TYP. SECTION | VIADUCT (N) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

Client

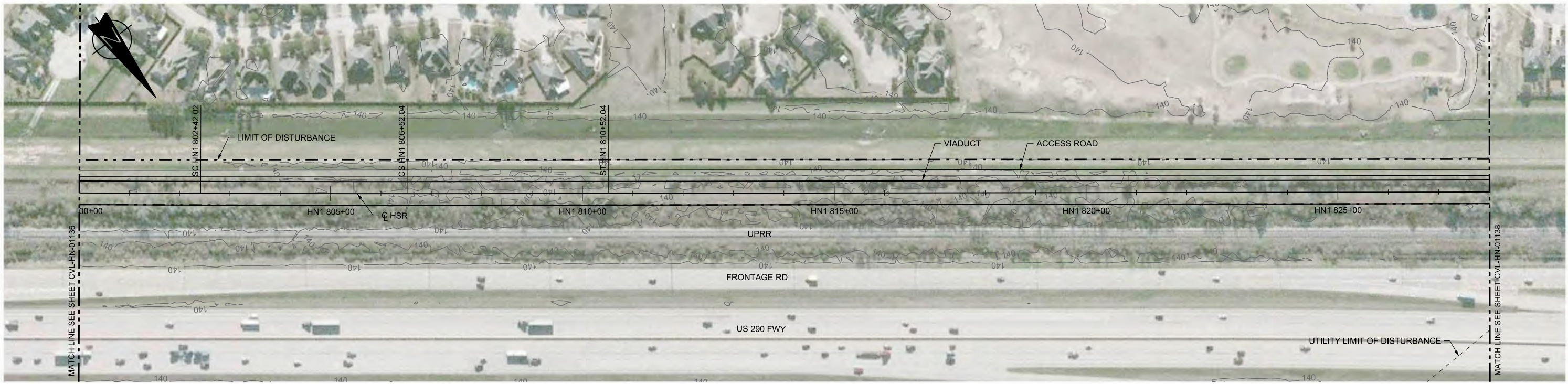
TEXAS CENTRAL

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

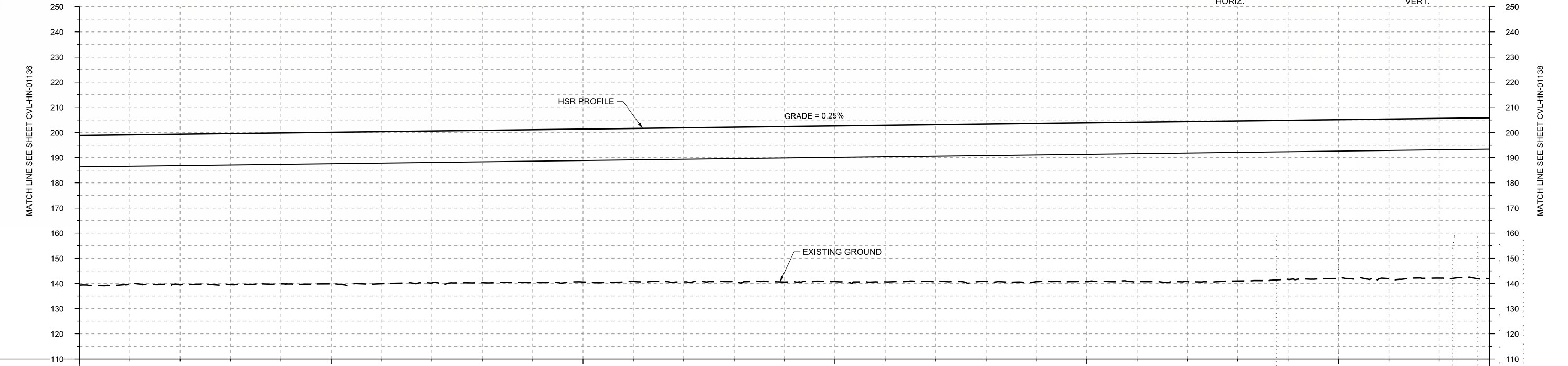
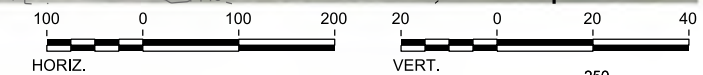
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 772+00 TO HN1 800+00

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|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01136 |
| Rev | 01 |



PLAN



PROFILE

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|----------------|-------------|------------|------------|------------|------------|------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 800+00 | HN1 805+00 | HN1 810+00 | HN1 815+00 | HN1 820+00 | HN1 825+00 | HN1 828+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=400 | | R=140000 | L=400 | L=12644 | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=410 | | L=16930.40 | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +59.5 | +59.3 | +59.9 | +60.0 | +60.2 | +60.5 | +60.4 | +60.6 | +60.8 | +60.8 | +60.8 | +61.3 | +61.2 | +61.8 | +61.8 | +62.3 | +62.4 | +62.6 | +62.9 | +63.2 | +63.4 | +63.7 | +63.6 | +63.3 | +63.1 | +63.6 | +63.5 | +64.0 |
| TYP. SECTION | VIADUCT (N) | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP
 Arup Texas, Inc.
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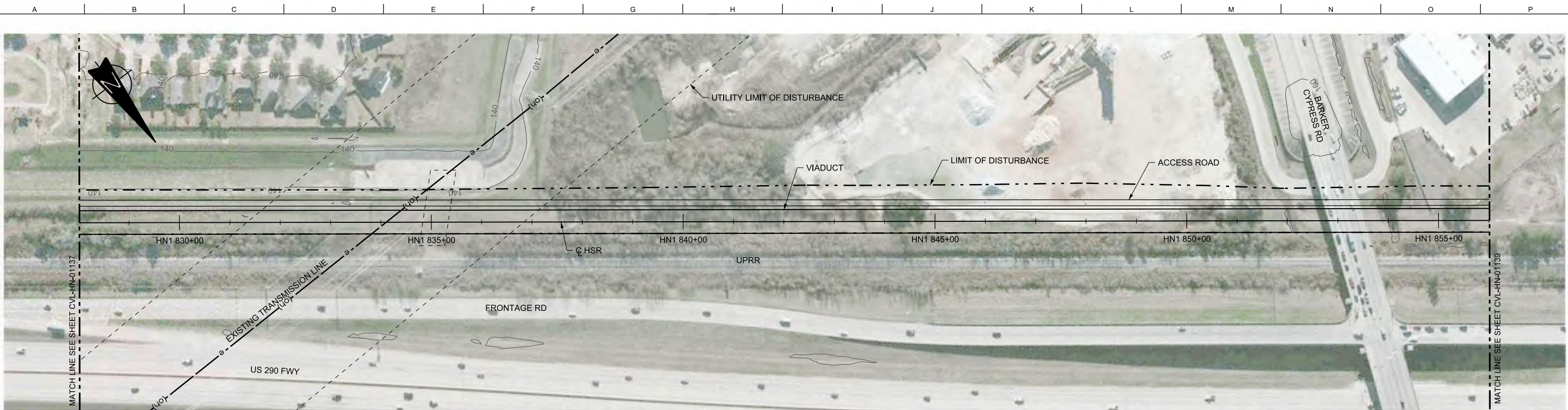
FRESE AND NICHOLS
 2711 North Haskell Ave., Suite 3300
 Dallas, Texas 75204
 Tel (214) 217 2200 Fax (214) 217 2201
 www.freese.com
 Texas Registered Engineering Firm: F-2144

Client

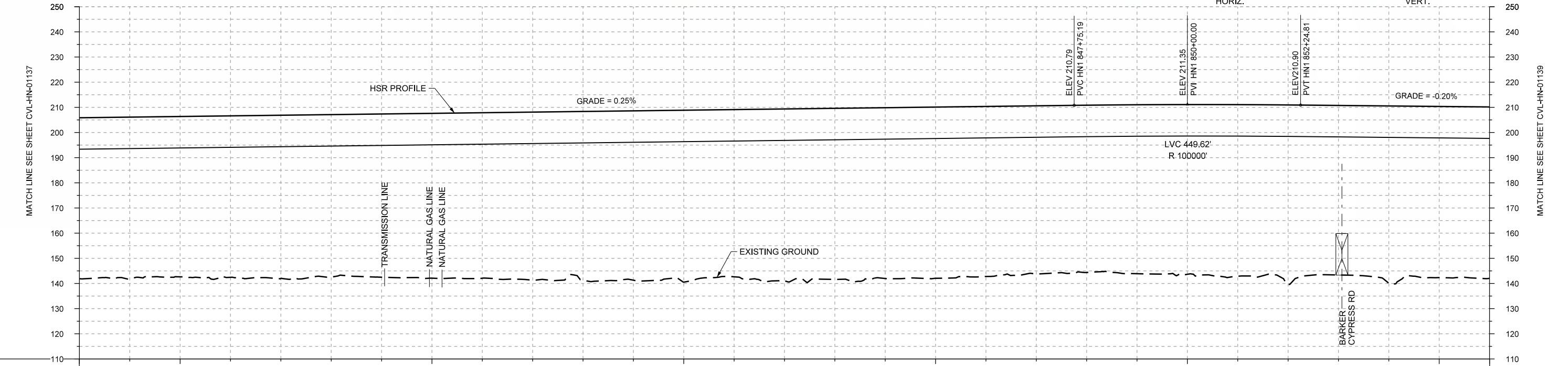
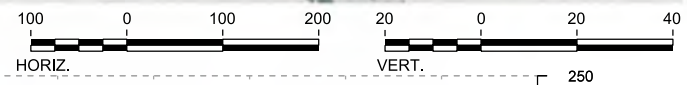
TEXAS CENTRAL
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
 HN1 800+00 TO HN1 828+00

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|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01137 |
| Rev | 01 |



PLAN



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| STATIONING | HN1 828+00 | HN1 830+00 | HN1 835+00 | HN1 840+00 | HN1 845+00 | HN1 850+00 | HN1 855+00 | HN1 856+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=12644 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=16930.40 G=0.250% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +64.0 | +64.3 | +63.8 | +64.2 | +64.9 | +64.6 | +64.9 | +65.5 | +65.8 | +66.8 | +67.2 | +67.3 | +68.4 | +66.5 | +66.2 | +66.0 | +67.8 | +68.1 | +67.5 | +66.8 | +66.4 | +67.1 | +67.5 | +68.2 | +71.5 | +67.3 | +70.5 | +68.0 | +68.1 |
| TYP. SECTION | VIADUCT (N) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Texas Registered Engineering Firm: F-2144

Client

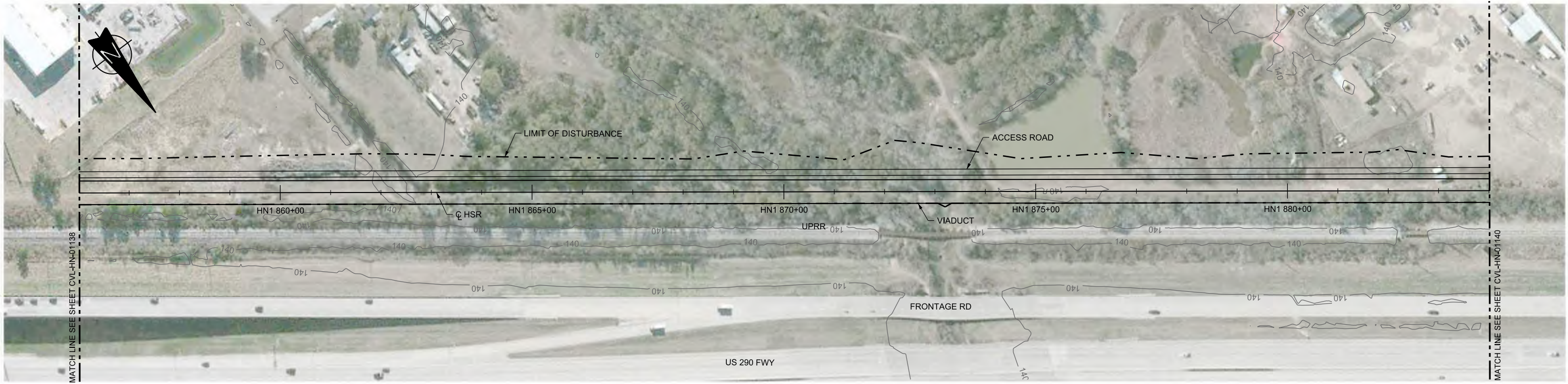
TEXAS CENTRAL

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

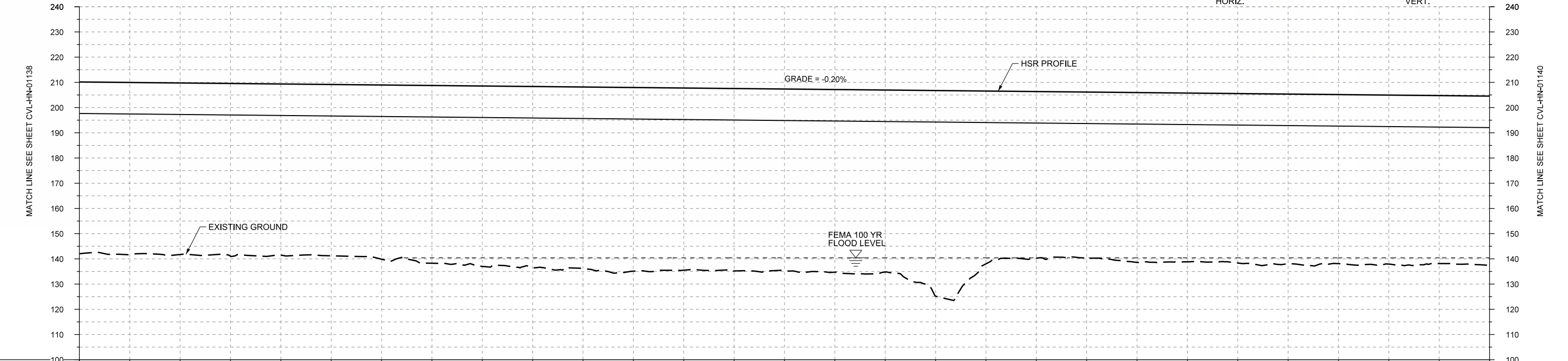
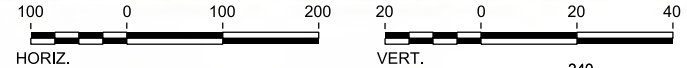
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 828+00 TO HN1 856+00

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| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01138 |
| Rev | 01 |



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|----------------|-------------------------|------------|------------|------------|------------|------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 856+00 | HN1 860+00 | HN1 865+00 | HN1 870+00 | HN1 875+00 | HN1 880+00 | HN1 884+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=12644 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=11600.34 G=-0.200% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +68.1 | +68.1 | +68.0 | +68.5 | +67.8 | +67.9 | +68.0 | +70.5 | +71.5 | +71.9 | +72.0 | +72.8 | +72.2 | +72.3 | +71.9 | +72.4 | +72.1 | +81.5 | +68.5 | +68.0 | +68.8 | +67.3 | +68.9 | +67.2 | +67.3 | +67.0 | +67.0 | +66.6 | +67.1 |
| TYP. SECTION | VIADUCT (N) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Client

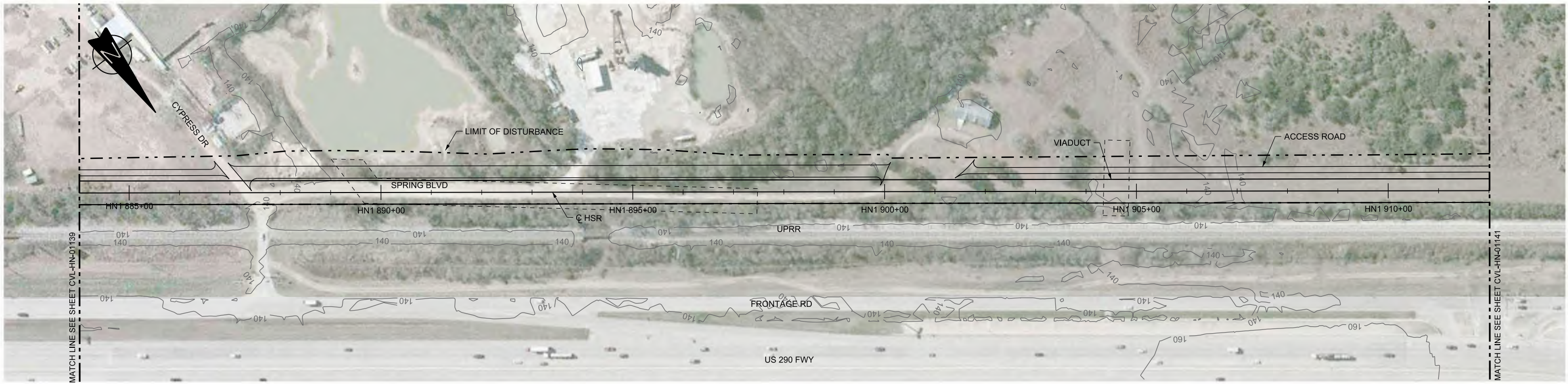
TEXAS CENTRAL
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
 HN1 856+00 TO HN1 884+00

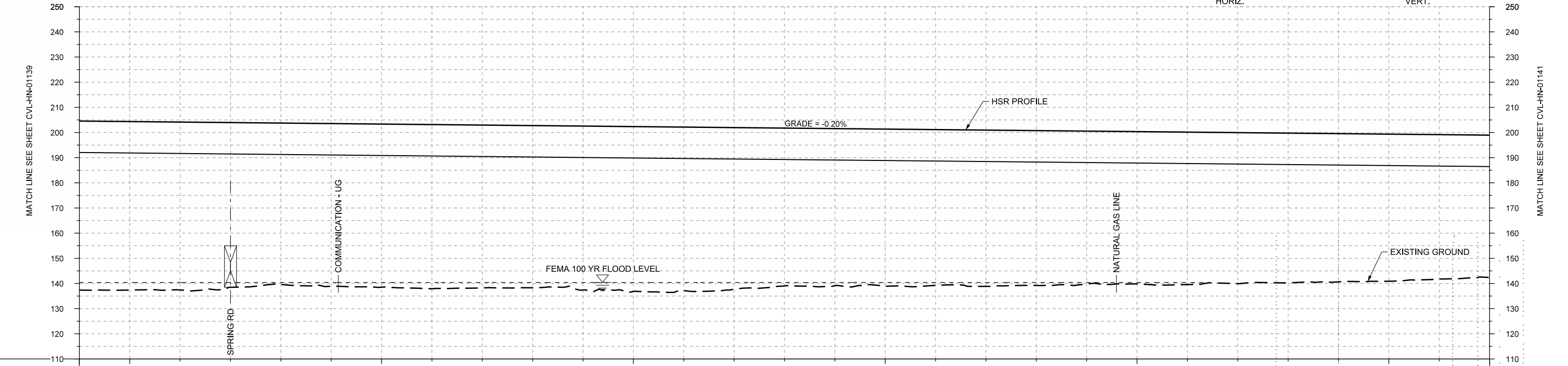
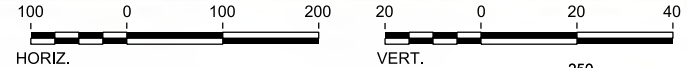
Scale
 AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01139 | 01 |



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| STATIONING | HN1 884+00 | HN1 885+00 | | HN1 890+00 | | HN1 895+00 | | HN1 900+00 | | HN1 905+00 | | HN1 910+00 | HN1 912+00 | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=12644 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=11600.34 G=-0.200% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +67.1 | +66.9 | +66.7 | +65.4 | +64.1 | +64.6 | +64.8 | +65.2 | +64.7 | +64.4 | +65.1 | +65.5 | +64.9 | +64.2 | +62.7 | +62.4 | +61.9 | +62.1 | +61.5 | +60.7 | +60.5 | +60.6 | +60.0 | +59.5 | +58.9 | +58.4 | +57.3 | +56.5 |
| TYP. SECTION | VIADUCT (N) | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Client

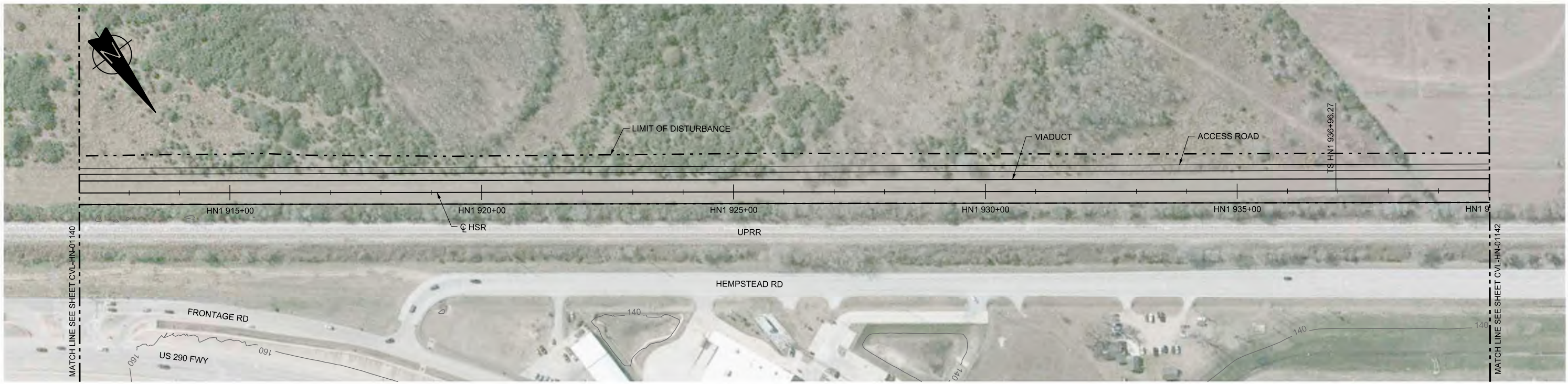
TEXAS CENTRAL
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
 HN1 884+00 TO HN1 912+00

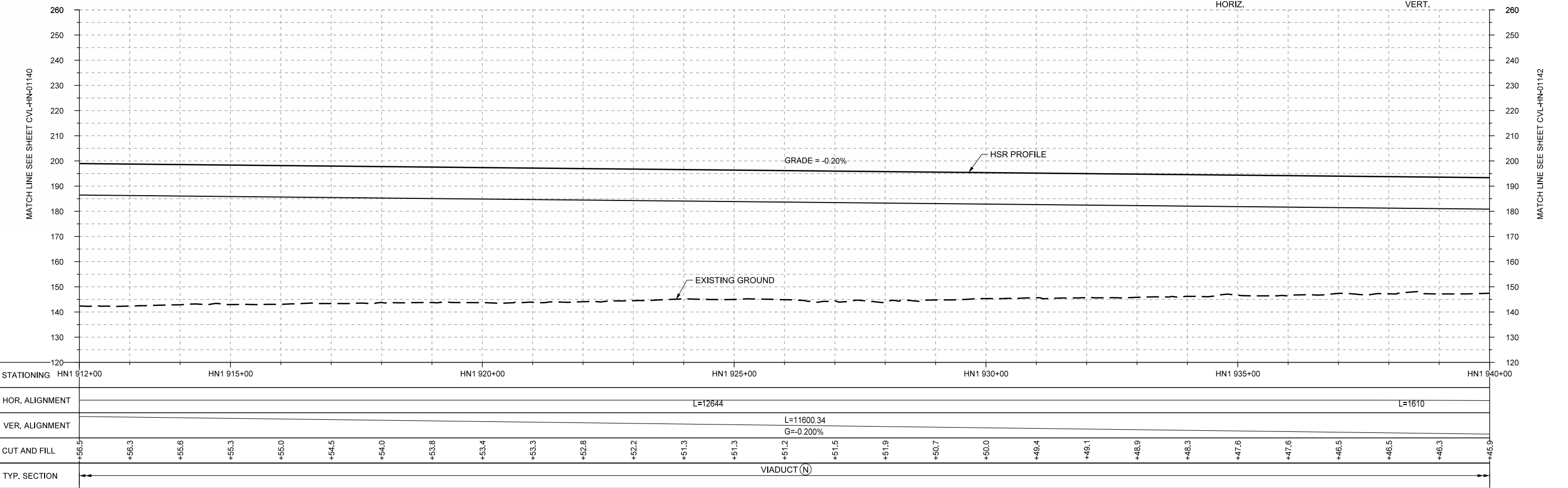
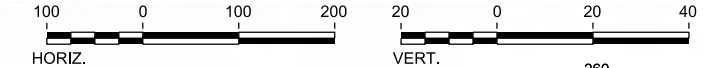
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01140 | 03 |



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| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

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J. BORGHESI

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IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

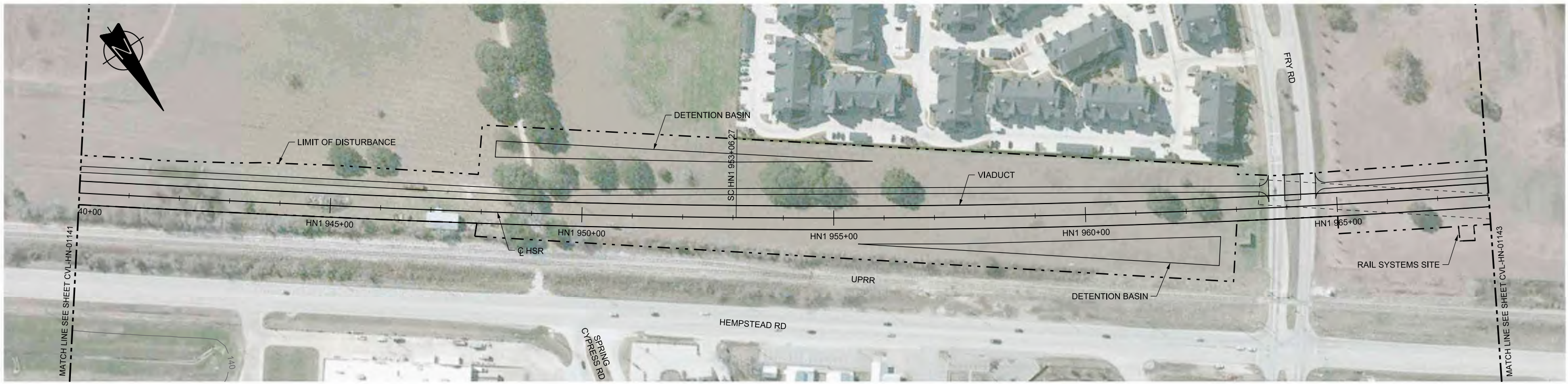
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 912+00 TO HN1 940+00

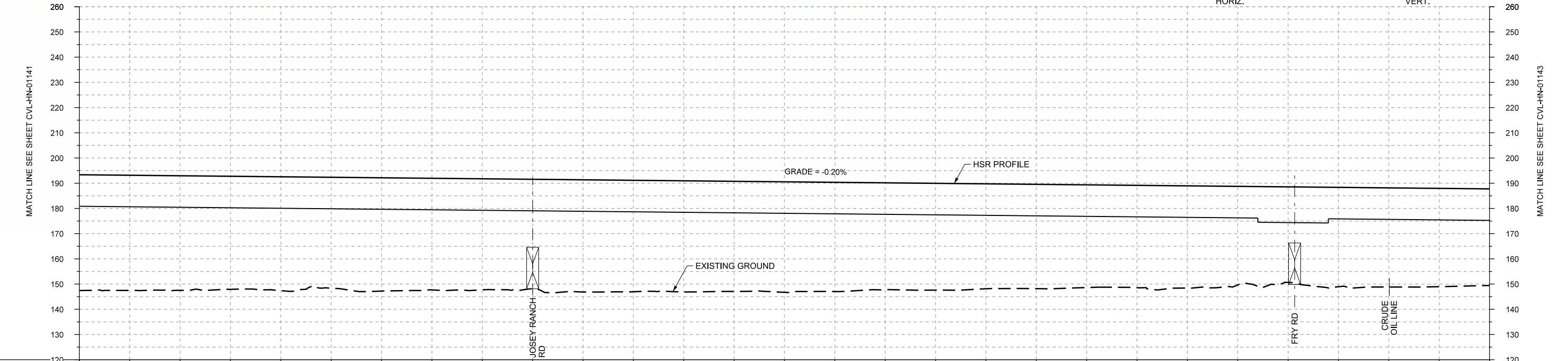
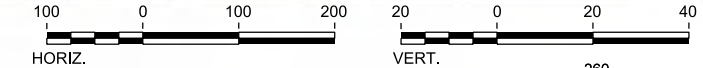
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01141 | 01 |



PLAN



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|----------------|-------------|------------|------------|------------|------------|------------|-------------------|-------|-------|-------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 940+00 | HN1 945+00 | HN1 950+00 | HN1 955+00 | HN1 960+00 | HN1 965+00 | HN1 968+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=1610 | | L=11600.34 | | | | R=18700 L=8617 | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | | | G=-0.200% | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +45.9 | +45.6 | +45.4 | +44.8 | +45.1 | +43.9 | +44.9 | +44.2 | +44.0 | +43.4 | +44.4 | +44.2 | +44.0 | +43.6 | +43.8 | +43.3 | +42.3 | +42.3 | +41.6 | +41.3 | +40.7 | +40.6 | +40.5 | +39.0 | +37.8 | +39.4 | +39.3 | +38.9 | +38.3 |
| TYP. SECTION | VIADUCT (N) | | | | | | | | | | VIADUCT (E) | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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J. BORGHESI

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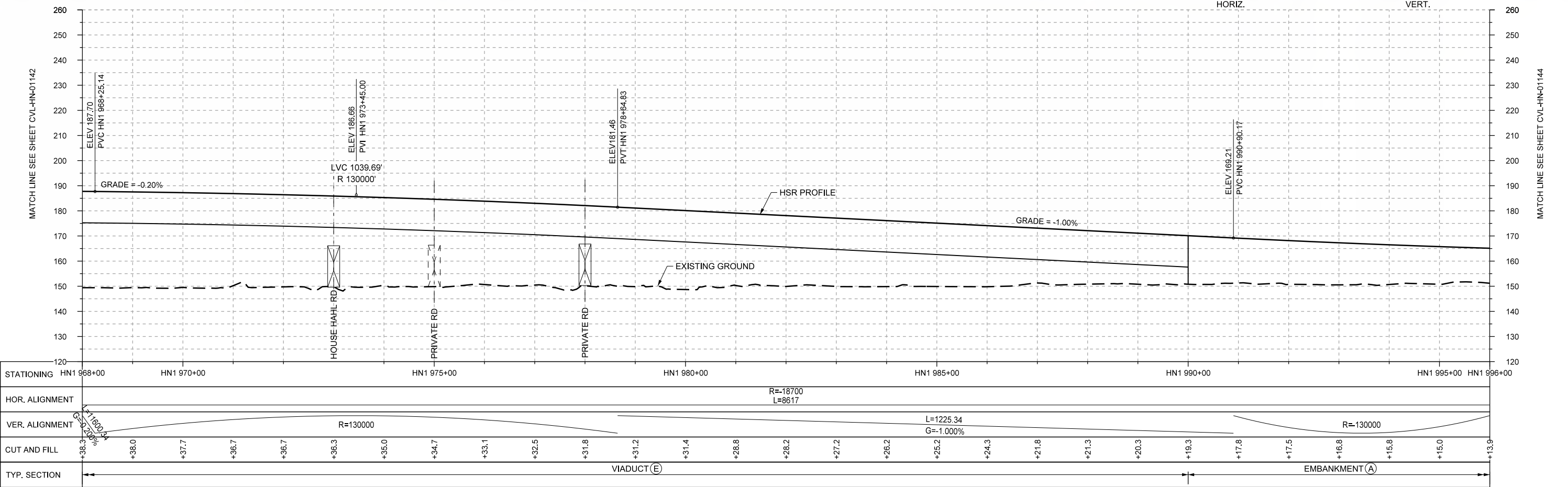
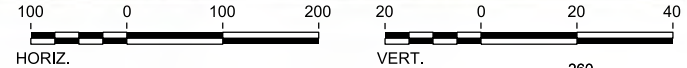
Client
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN1 940+00 TO HN1 968+00

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| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | Drawing No | Rev | |
| 234180 | CVL-HN-01142 | 01 | |



PLAN



PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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T. SMELCER

DRAWN BY
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CHECKED BY
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IN CHARGE
C. TAYLOR

DATE
09/15/2017



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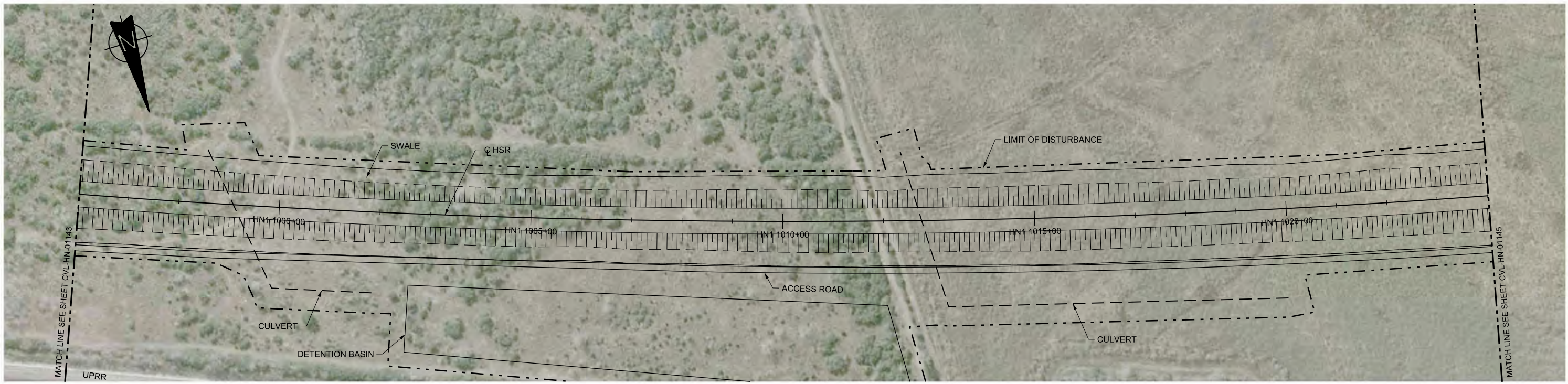


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www.freese.com
Texas Registered Engineering Firm: F-2144

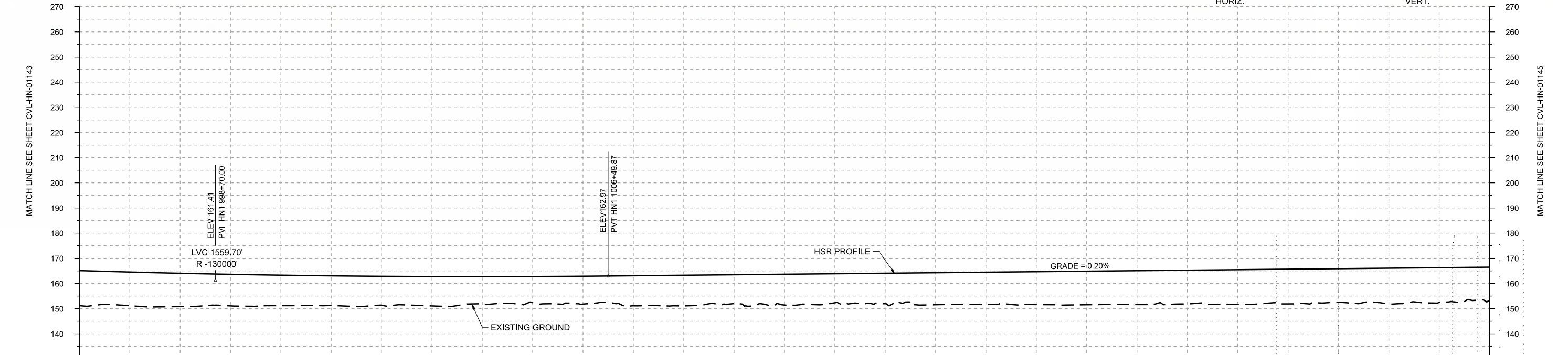
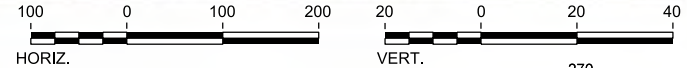


Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN1 968+00 TO HN1 996+00

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| Scale AS SHOWN | | |
| Drawing Status FINAL DRAFT | | |
| Job No 234180 | Drawing No CVL-HN-01143 | Rev 01 |



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|----------------|----------------|-------------|-------------|-----------------------|-------------|-------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 996+00 | HN1 1000+00 | HN1 1005+00 | HN1 1010+00 | HN1 1015+00 | HN1 1020+00 | HN1 1024+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | | | | R=18700 L=8617 | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | R=130000 | | | L=2175.13 G=0.200% | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +13.9 | +13.3 | +13.2 | +12.5 | +12.1 | +11.8 | +11.5 | +11.6 | +10.9 | +10.4 | +11.1 | +12.0 | +12.2 | +11.5 | +12.3 | +11.6 | +12.1 | +12.8 | +12.8 | +13.1 | +13.4 | +13.5 | +13.4 | +13.8 | +13.8 | +13.4 | +13.3 | +13.8 |
| TYP. SECTION | EMBANKMENT (A) | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

Arup Texas, Inc.
10370 Richmond Ave., Suite 475
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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

Client

TEXAS CENTRAL

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

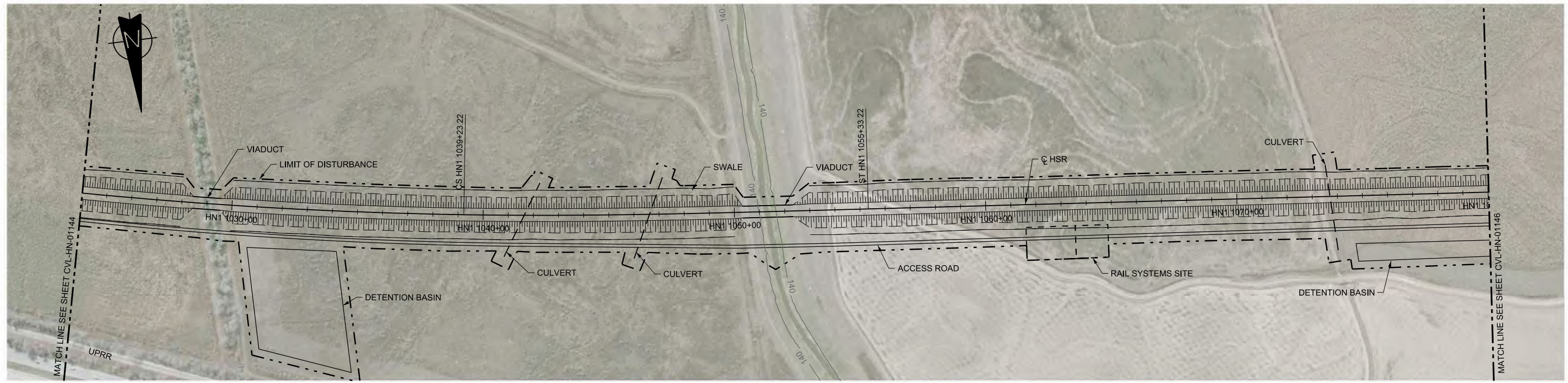
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 996+00 TO HN1 1024+00

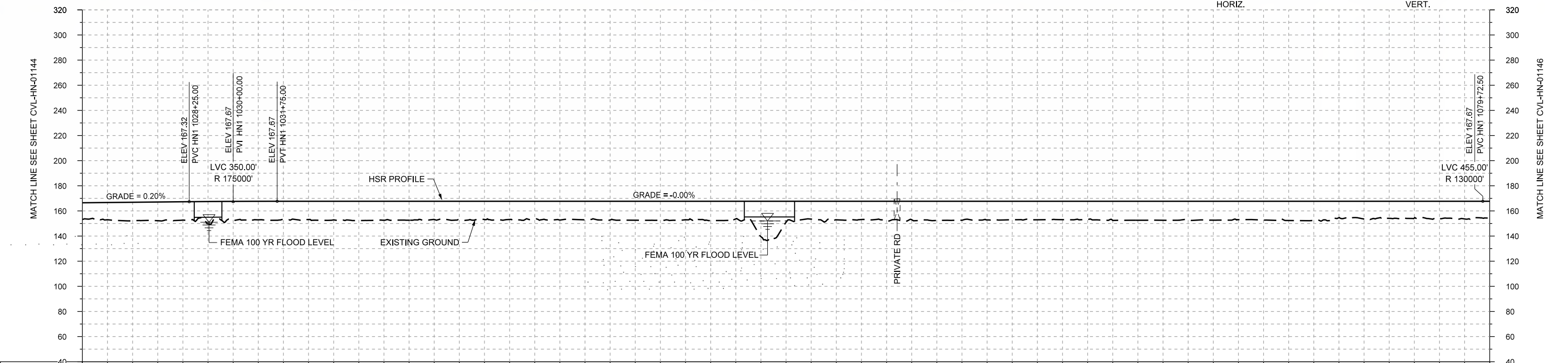
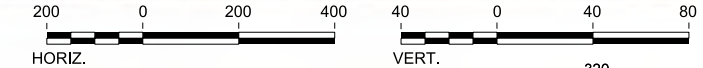
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01144 | 01 |



PLAN



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|----------------|-----------------------|-------------|----------------|-------------|------------------------|--------------------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 1024+00 | HN1 1030+00 | HN1 1040+00 | HN1 1050+00 | HN1 1060+00 | HN1 1070+00 | HN1 1080+00 | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=18700 L=8617 | | L=1610 | | | L=9698 R=130000 | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=2175.13 G=0.200% | | R=175000 | | L=4797.50 G=-0.000% | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +13.4 | +14.9 | +14.6 | +14.6 | +14.2 | +14.7 | +15.1 | +14.6 | +14.6 | +14.2 | +14.7 | +15.1 | +14.7 | +14.8 | +16.7 | +14.8 | +14.6 | +15.1 | +14.9 | +14.7 | +15.4 | +13.1 | +13.6 | +14.0 | +13.9 |
| TYP. SECTION | EMBANKMENT (A) | | EMBANKMENT (A) | | VIADUCT (E) | | EMBANKMENT (A) | | | | | | | | | | | | | | | | | | |

PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
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CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Client

TEXAS CENTRAL

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

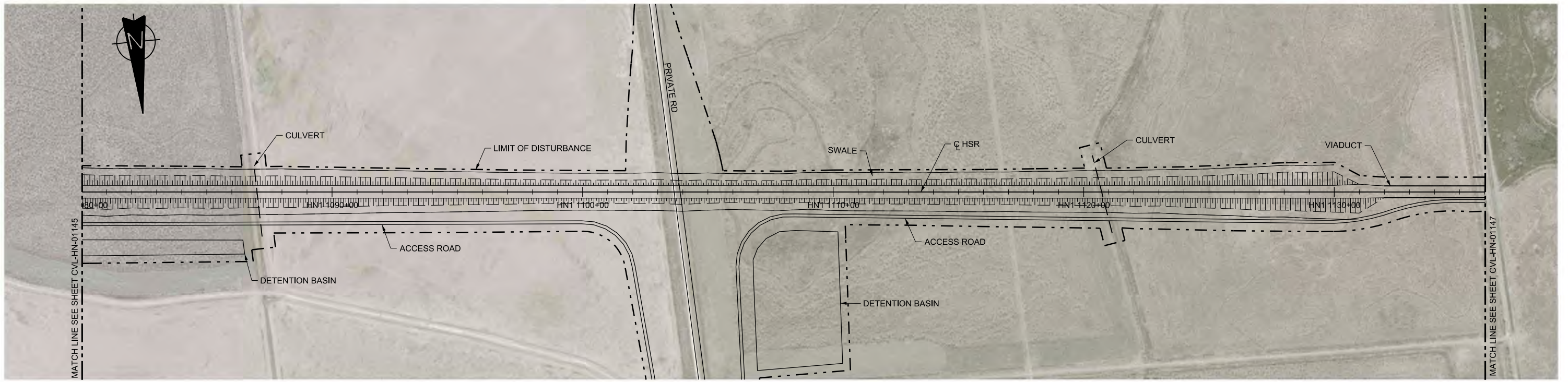
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 1024+00 TO HN1 1080+00

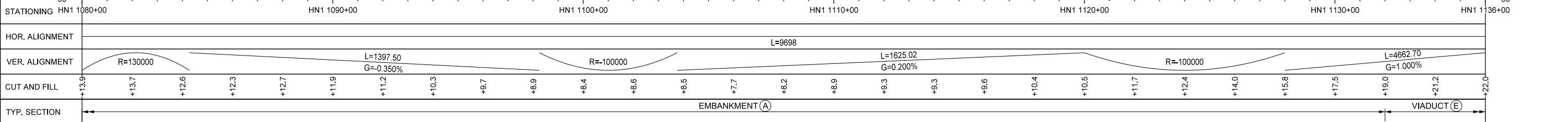
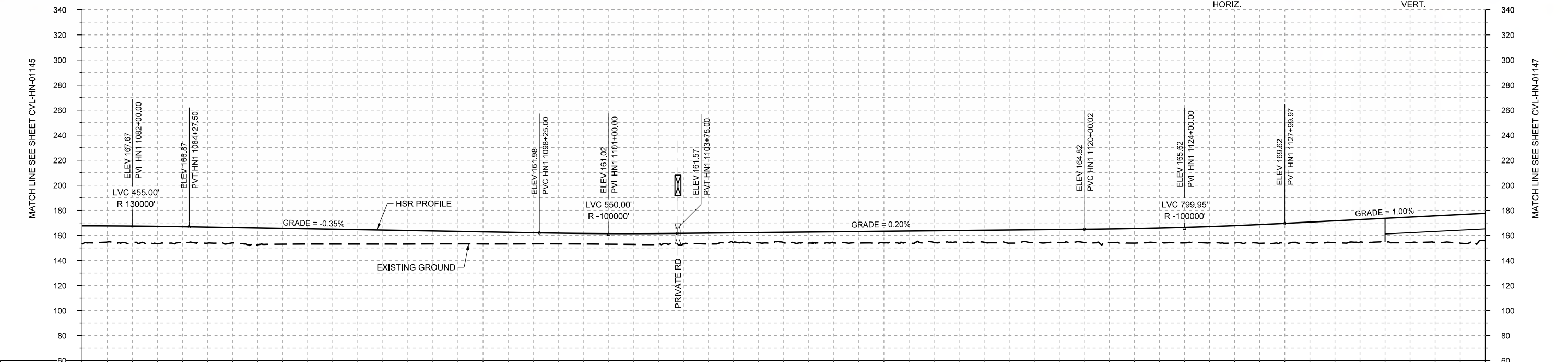
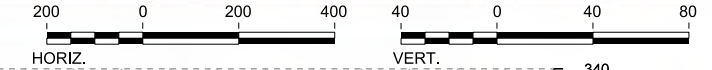
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01145 | 01 |



PLAN



PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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Client

TEXAS CENTRAL

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

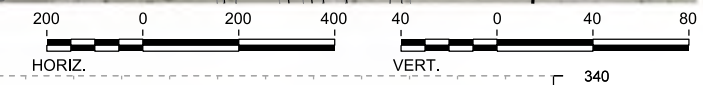
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 1080+00 TO HN1 1136+00

| | |
|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01146 |
| Rev | 01 |



PLAN



PROFILE

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|----------------|-----------------------|-------------|-------------|-------------|-----------------------------------|-------------------|-------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 1136+00 | HN1 1140+00 | HN1 1150+00 | HN1 1160+00 | HN1 1170+00 | HN1 1180+00 | HN1 1190+00 | HN1 1192+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=9698 | | | L=1310 | | R=42000 L=6199 | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=4662.70 G=1.000% | | | | R=130000 L=7743.42 G=0.000% | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +22.0 | +24.1 | +26.4 | +27.6 | +29.4 | +29.9 | +31.2 | +32.7 | +33.6 | +35.2 | +37.2 | +38.6 | +40.0 | +42.1 | +44.6 | +45.9 | +47.2 | +47.1 | +47.9 | +48.9 | +43.9 | +41.6 | +38.9 | +39.4 | +41.8 | +43.3 | +42.2 | +40.3 | +39.1 |
| TYP. SECTION | VIADUCT (E) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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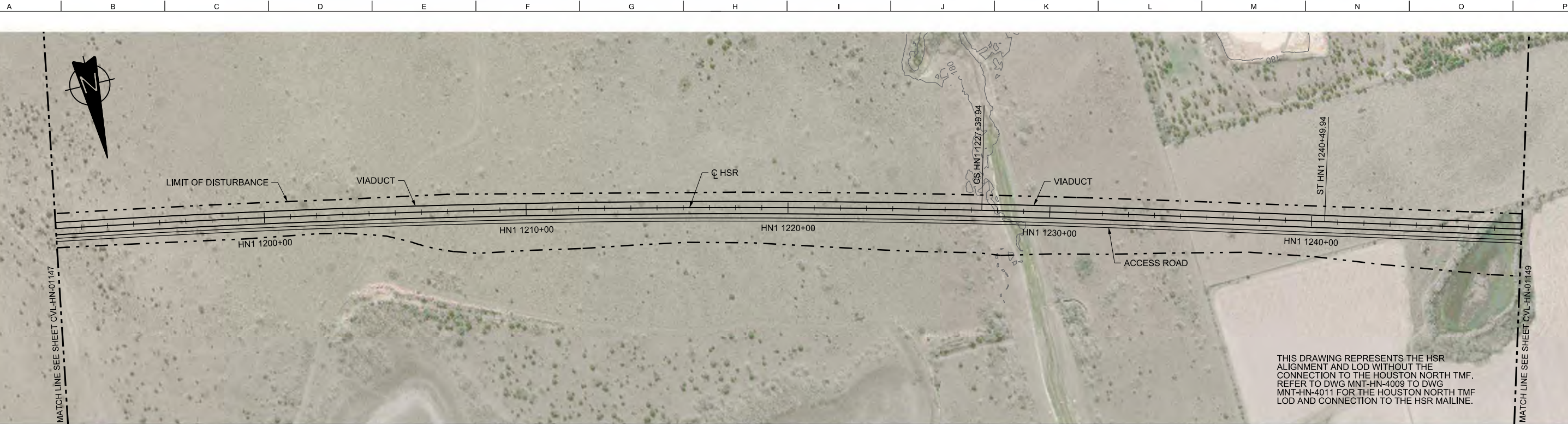
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 Tel (214) 217 2200 Fax (214) 217 2201
 www.freese.com
 Texas Registered Engineering Firm: F-2144

Client

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

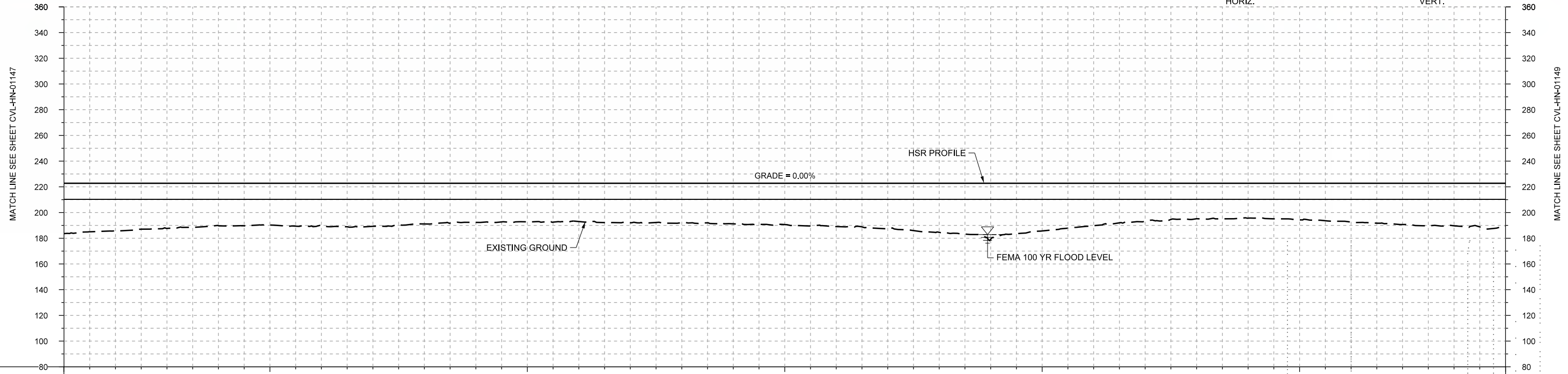
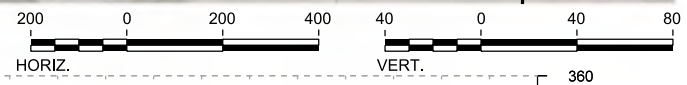
Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
 HN1 1136+00 TO HN1 1192+00

| | |
|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01147 |
| Rev | 01 |



THIS DRAWING REPRESENTS THE HSR ALIGNMENT AND LOD WITHOUT THE CONNECTION TO THE HOUSTON NORTH TMF. REFER TO DWG MNT-HN-4009 TO DWG MNT-HN-4011 FOR THE HOUSTON NORTH TMF LOD AND CONNECTION TO THE HSR MAILINE.

PLAN



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|----------------|-------------------|-------------|-------------|-----------------------|-------------|-------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 1192+00 | HN1 1200+00 | HN1 1210+00 | HN1 1220+00 | HN1 1230+00 | HN1 1240+00 | HN1 1248+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=42000 L=6199 | | | L=7743.42 G=0.000% | | L=1310 | L=18709 | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +36.1 | +37.1 | +35.1 | +33.0 | +32.4 | +33.0 | +33.4 | +31.6 | +30.4 | +30.2 | +29.7 | +30.7 | +30.6 | +31.5 | +32.1 | +33.6 | +35.4 | +38.1 | +43.5 | +37.0 | +32.9 | +29.5 | +27.5 | +27.1 | +28.4 | +30.1 | +32.0 | +33.0 | +33.2 |
| TYP. SECTION | VIADUCT (E) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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www.freese.com
Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

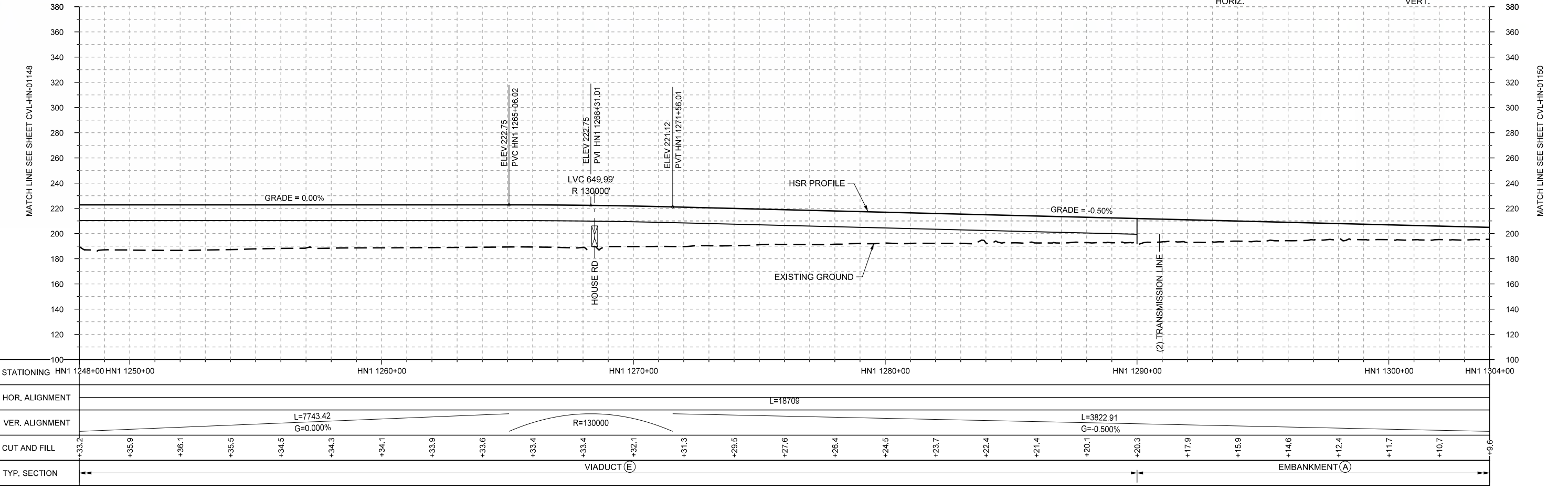
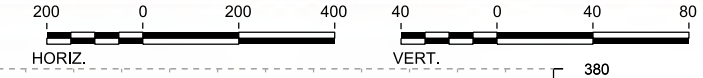
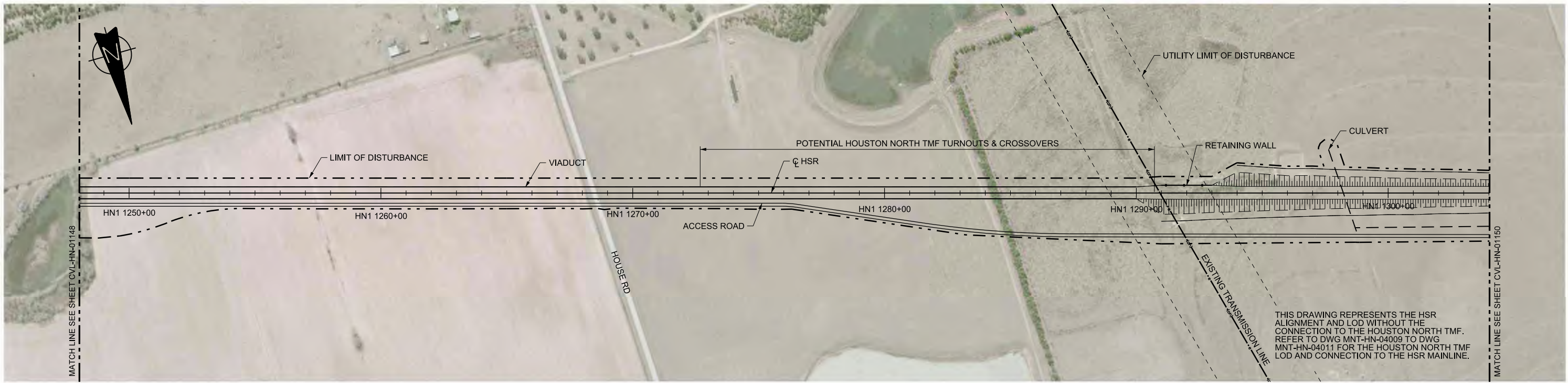
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 1192+00 TO HN1 1248+00

Scale
AS SHOWN

Drawing Status
FINAL DRAFT

| | | |
|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01148 | 01 |



| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
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K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

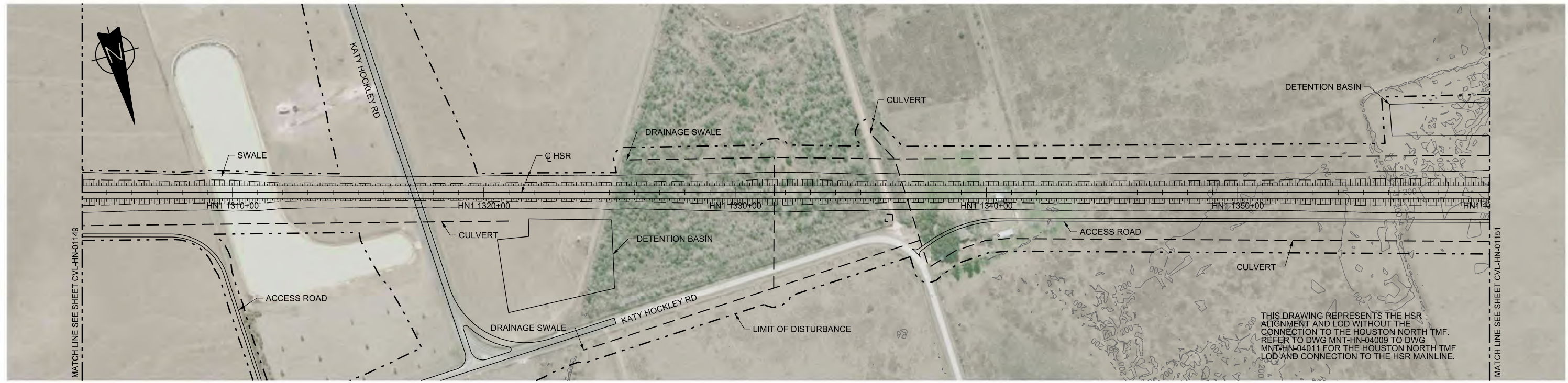
Drawing Title

**HOUSTON SEGMENT
CIVIL
PLAN AND PROFILE
HN1 1248+00 TO HN1 1304+00**

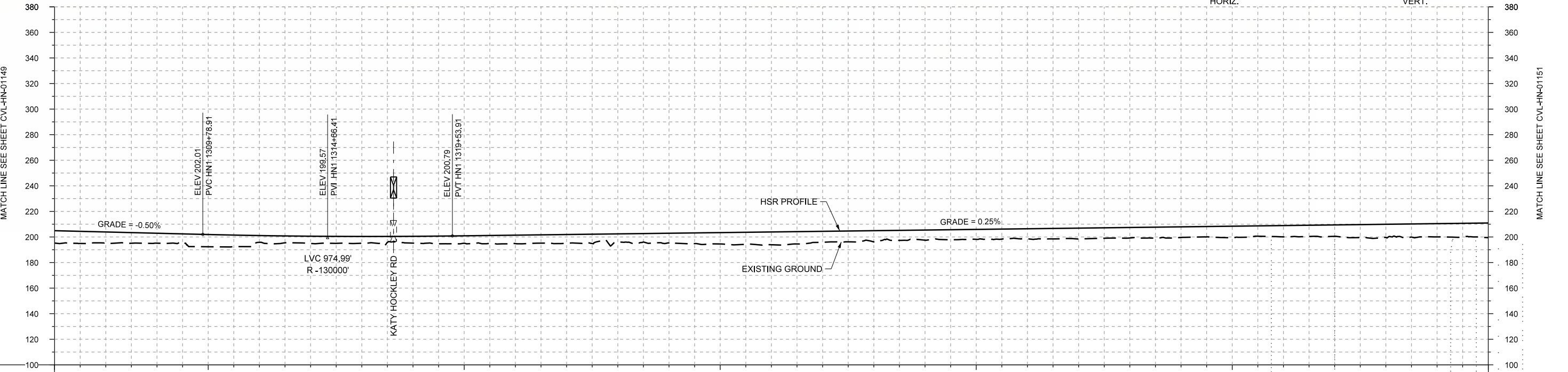
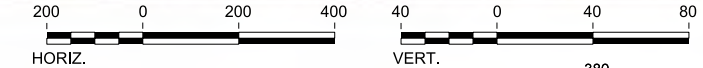
Scale
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Drawing Status
FINAL DRAFT

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|------------------|----------------------------|-----------|
| Job No 234180 | Drawing No CVL-HN-01149 | Rev 01 |
|------------------|----------------------------|-----------|



PLAN



PROFILE

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| STATIONING | HN1 1304+00 | HN1 1310+00 | HN1 1320+00 | HN1 1330+00 | HN1 1340+00 | HN1 1350+00 | HN1 1360+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=18709 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=3822.91 G=-0.500% | | R=130000 | | | L=9746.10 G=0.250% | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +9.6 | +8.6 | +7.8 | +9.6 | +5.3 | +5.7 | +5.4 | +5.3 | +5.8 | +6.6 | +6.8 | +6.3 | +7.6 | +8.9 | +10.0 | +8.6 | +8.8 | +7.9 | +7.7 | +7.9 | +8.5 | +8.2 | +8.4 | +8.9 | +8.8 | +8.9 | +10.3 | +10.3 | +11.5 |
| TYP. SECTION | EMBANKMENT (A) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | |
|-------------|-------------|
| DESIGNED BY | T. SMELCER |
| DRAWN BY | J. BORGHESI |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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Texas Registered Engineering Firm: F-2144

Client

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

Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 1304+00 TO HN1 1360+00

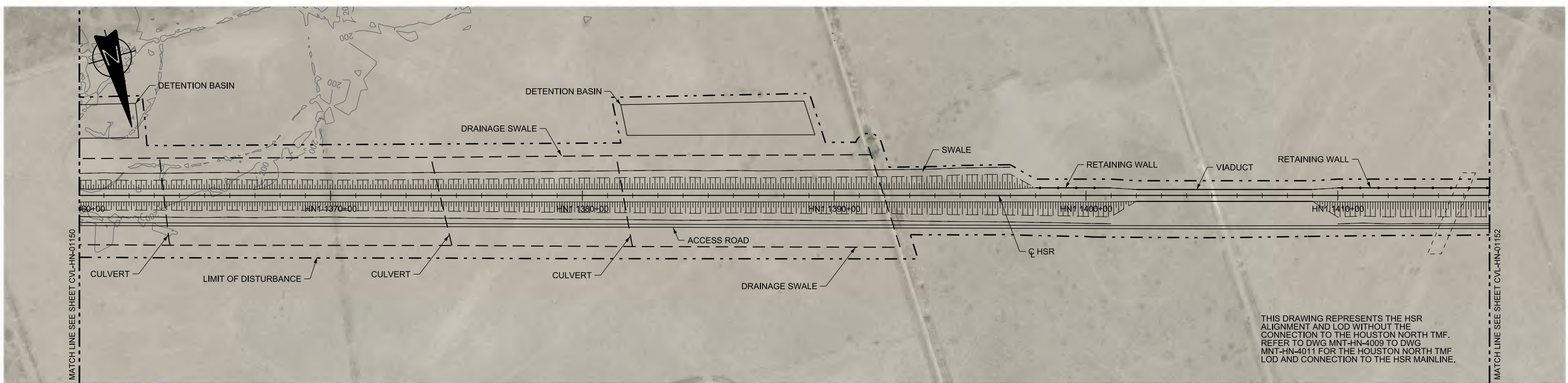
Scale

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Drawing Status

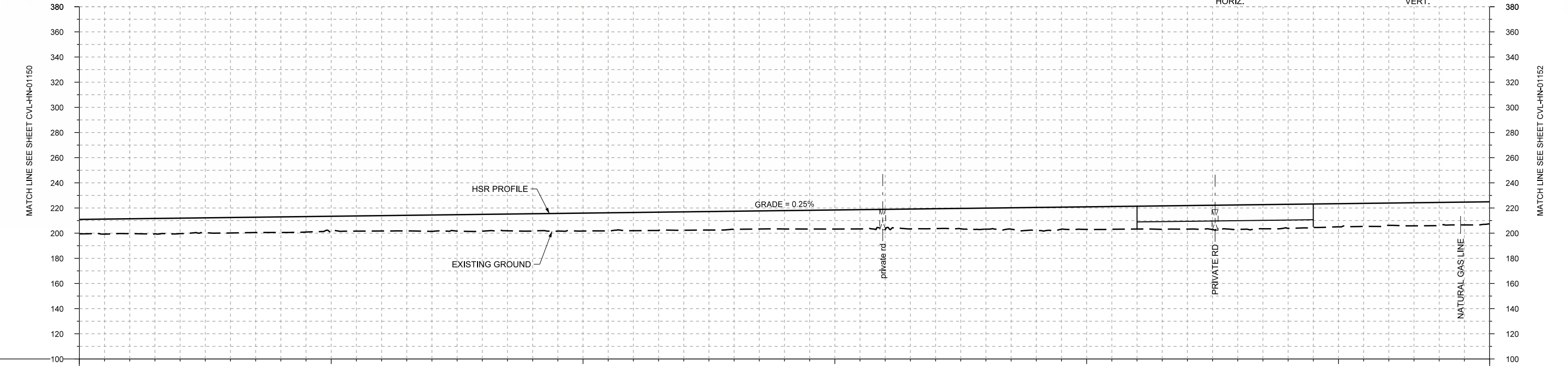
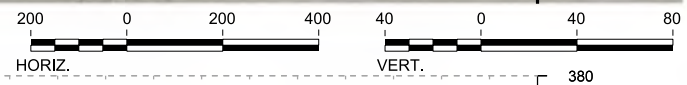
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01150 | 01 |



THIS DRAWING REPRESENTS THE HSR ALIGNMENT AND LOD WITHOUT THE CONNECTION TO THE HOUSTON NORTH TMF. REFER TO DWG MNT-HN-4009 TO DWG MNT-HN-4011 FOR THE HOUSTON NORTH TMF LOD AND CONNECTION TO THE HSR MAINLINE.

PLAN



PROFILE

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|----------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------|-------|-------|-------|-------|-------------|-------|-------|-------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 1360+00 | HN1 1370+00 | HN1 1380+00 | HN1 1390+00 | HN1 1400+00 | HN1 1410+00 | HN1 1416+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=18709 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=9746.10 G=0.250% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +11.5 | +11.8 | +12.3 | +12.3 | +12.4 | +11.9 | +12.2 | +13.0 | +13.4 | +14.1 | +14.2 | +14.5 | +14.6 | +14.3 | +14.6 | +15.1 | +16.0 | +15.8 | +16.7 | +16.3 | +17.9 | +16.2 | +16.7 | +19.4 | +19.0 | +18.4 | +17.7 | +18.1 | +17.7 |
| TYP. SECTION | EMBANKMENT (A) | | | | | | | | | | | | VIADUCT (E) | | | | EMBANKMENT (A) | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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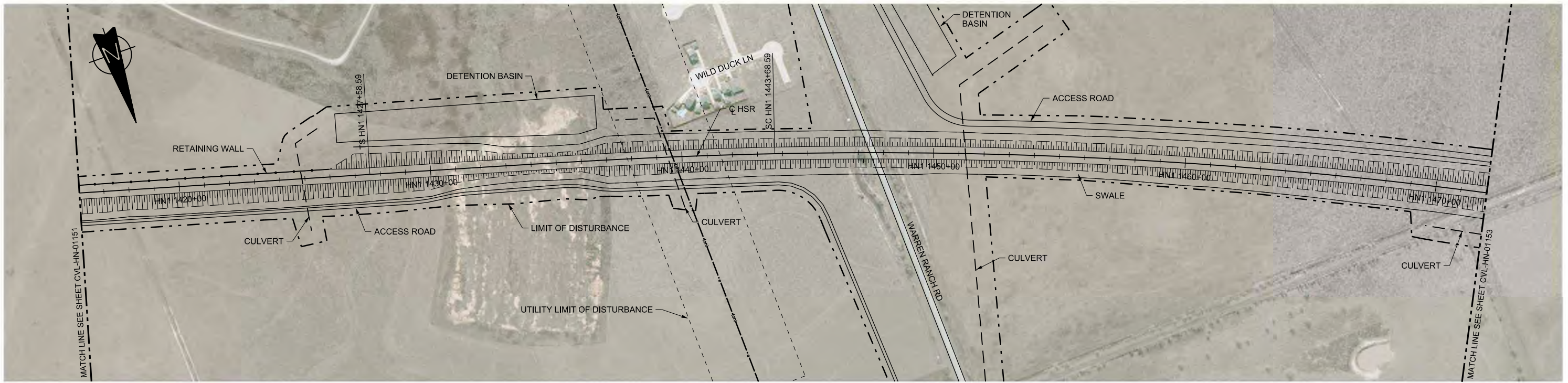
2711 North Haskell Ave., Suite 3300
Dallas, Texas 75204
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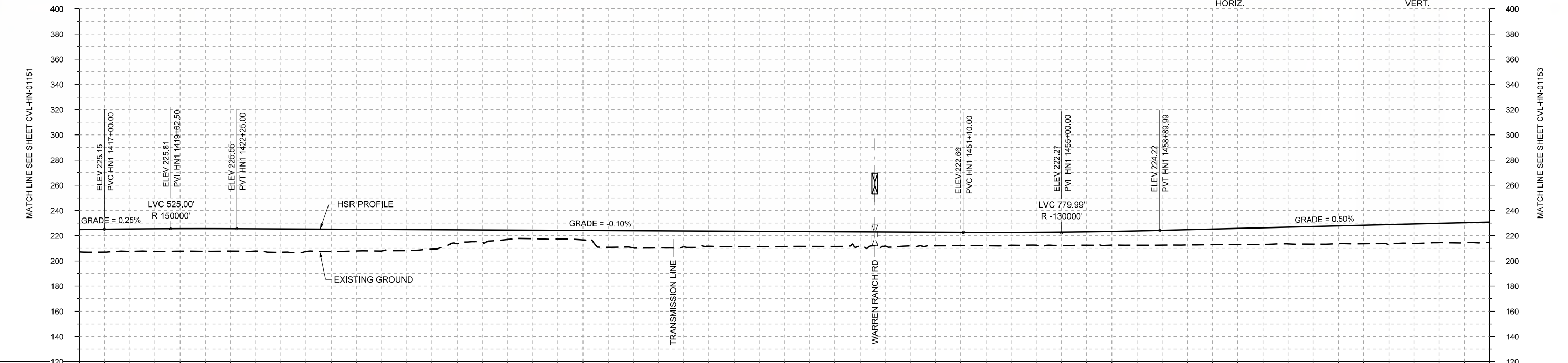
Client
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 1360+00 TO HN1 1416+00

| | | | |
|----------------|-------------|------------|--------------|
| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | 234180 | Drawing No | CVL-HN-01151 |
| Rev | | | 01 |



PLAN



PROFILE

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|----------------|------------------------|-------------|-------------|-------------|------------------------|--------------------|-------------|-------------|
| STATIONING | HN1 1416+00 | HN1 1420+00 | HN1 1430+00 | HN1 1440+00 | HN1 1450+00 | HN1 1460+00 | HN1 1470+00 | HN1 1472+00 |
| HOR. ALIGNMENT | L=18709 | | | L=1610 | | R=18700 L=20882 | | |
| VER. ALIGNMENT | L=19746.10 G=0.250% | | R=150000 | | L=2885.00 G=-0.100% | | R=130000 | |
| CUT AND FILL | +17.7 | +17.8 | +17.8 | +17.8 | +18.4 | +17.7 | +17.1 | +15.5 |
| TYP. SECTION | EMBANKMENT (A) | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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IN CHARGE
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DATE
09/15/2017

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Client

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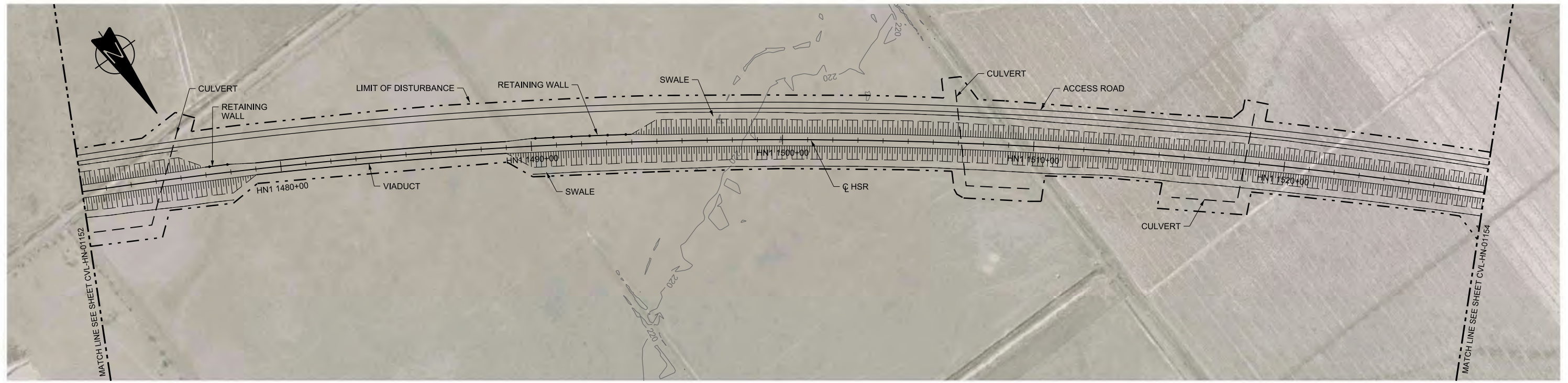
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 1416+00 TO HN1 1472+00

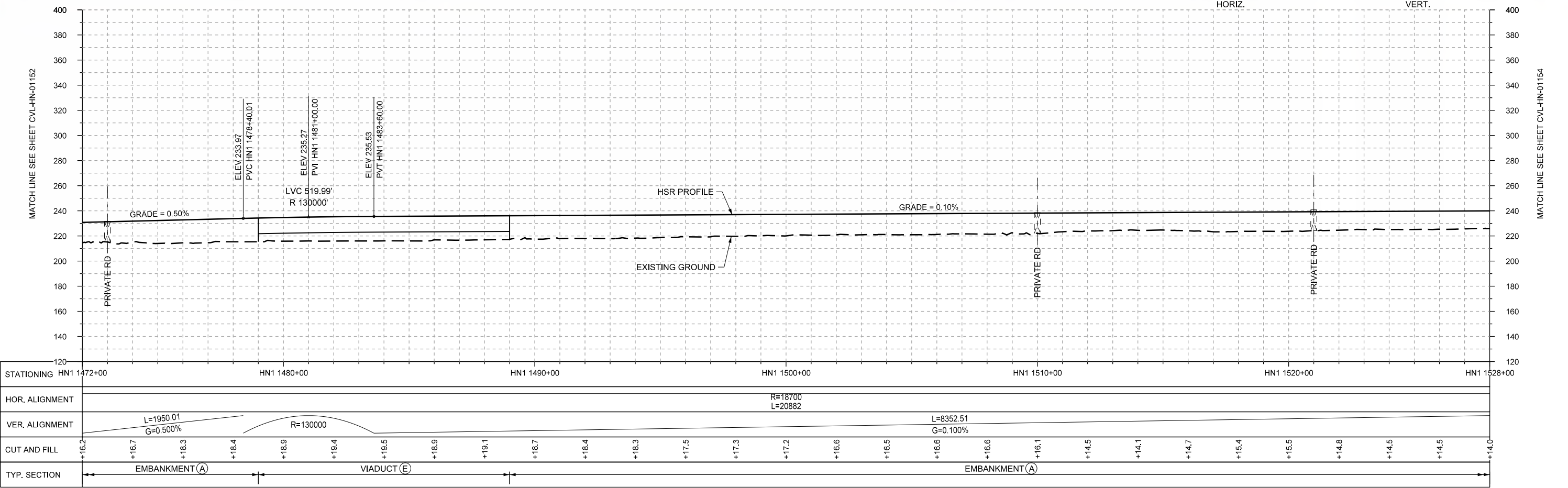
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01152 | 01 |



PLAN



PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

Arup Texas, Inc.
10370 Richmond Ave., Suite 475
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FRESE AND NICHOLS

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Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

Client

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

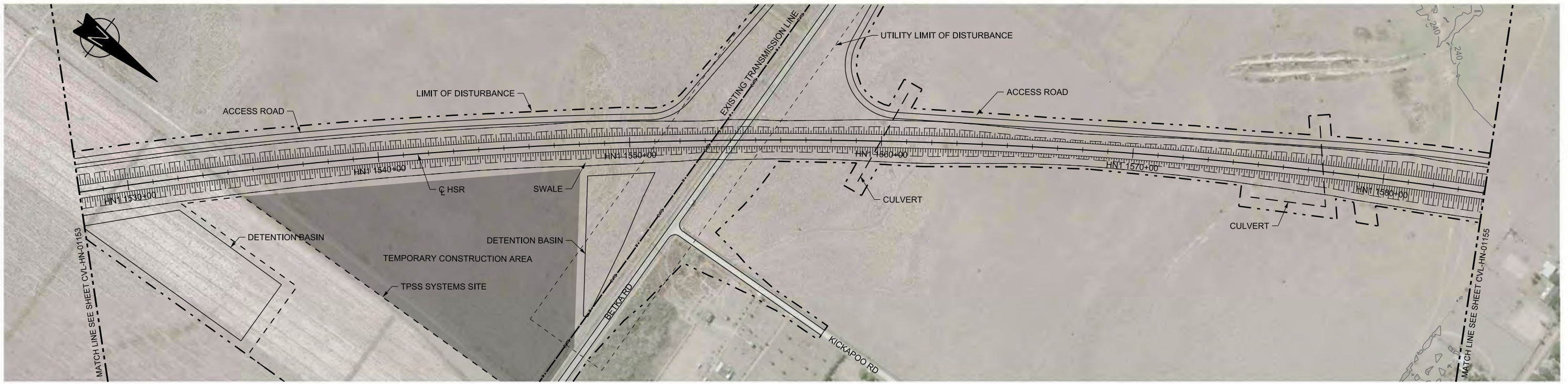
Drawing Title

**HOUSTON SEGMENT
CIVIL
PLAN AND PROFILE
HN1 1472+00 TO HN1 1528+00**

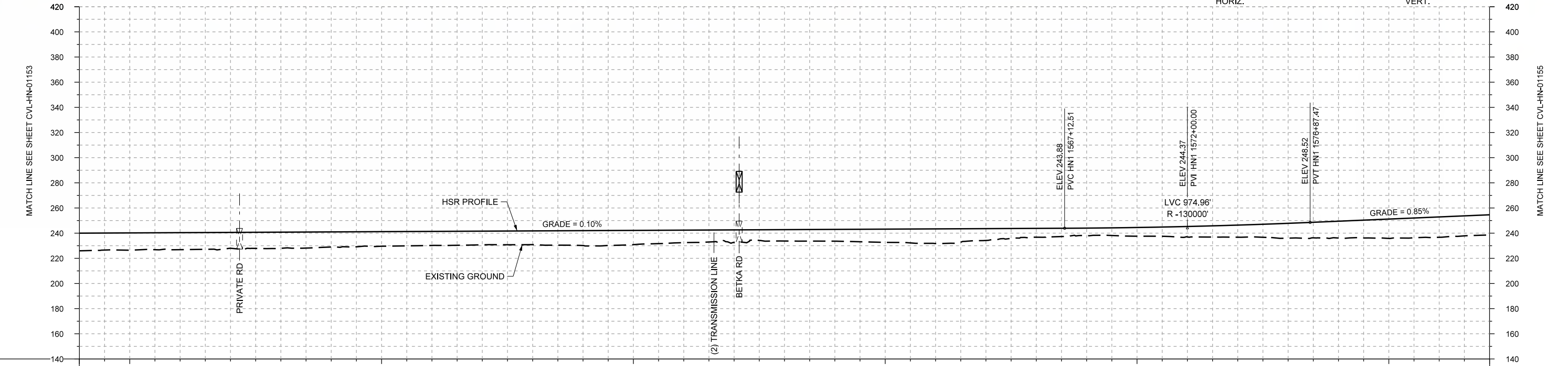
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01153 | 01 |



PLAN



PROFILE

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|----------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|------|------|------|------|------|------|-------|-------|-------|-------|-------|
| STATIONING | HN1 1528+00 | HN1 1530+00 | HN1 1540+00 | HN1 1550+00 | HN1 1560+00 | HN1 1570+00 | HN1 1580+00 | HN1 1584+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=18700 L=20882 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=8352.51 G=0.100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +14.0 | +13.8 | +13.5 | +12.6 | +12.9 | +12.0 | +11.6 | +11.2 | +10.9 | +10.9 | +11.8 | +11.4 | +10.0 | +10.0 | +9.1 | +9.4 | +10.6 | +11.7 | +9.4 | +7.0 | +6.0 | +6.9 | +8.3 | +9.6 | +11.8 | +13.4 | +15.4 | +16.2 | +16.0 |
| TYP. SECTION | EMBANKMENT (A) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

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

Drawing Title

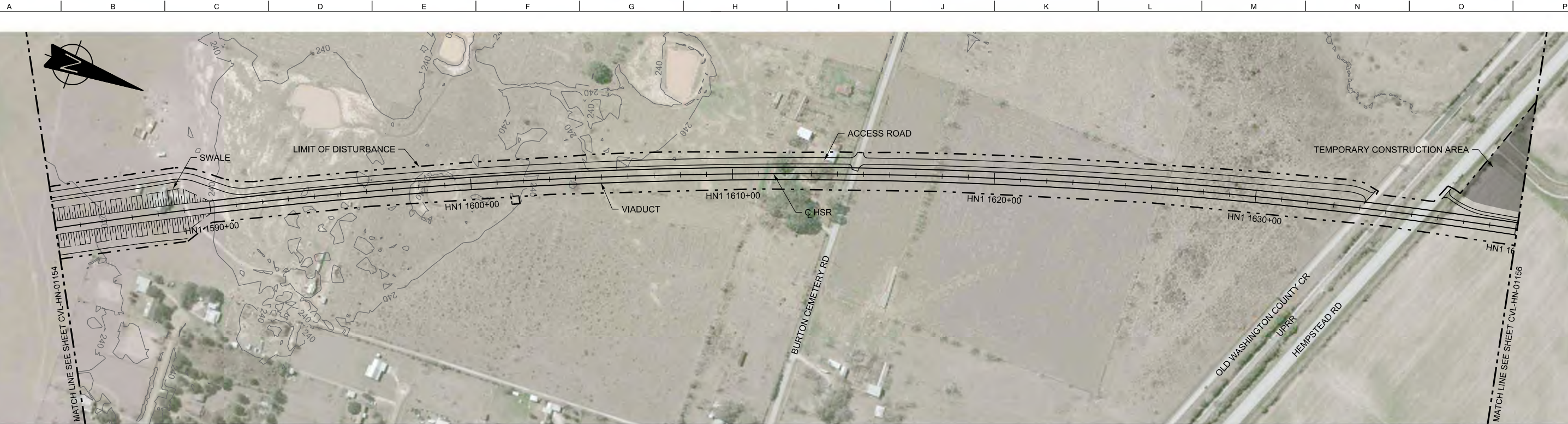
HOUSTON SEGMENT CIVIL PLAN AND PROFILE

HN1 1528+00 TO HN1 1584+00

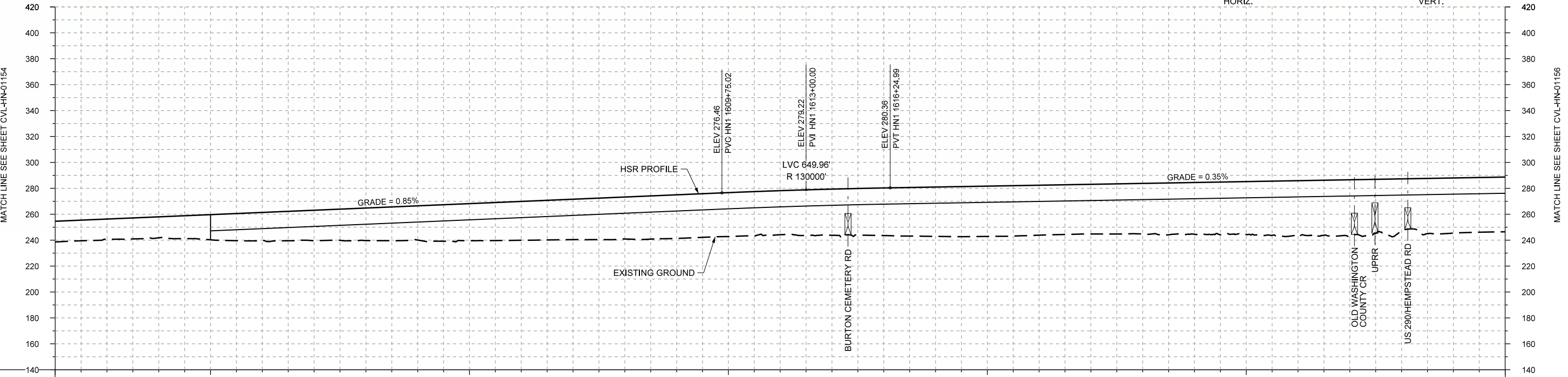
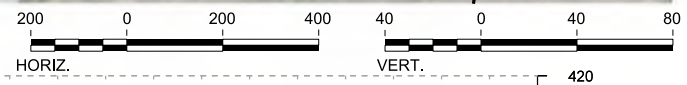
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

| | | |
|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01154 | 01 |



PLAN



PROFILE

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|----------------|-----------------------|-------------|-------------|-------------|-------------|-----------------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 1584+00 | HN1 1590+00 | HN1 1600+00 | HN1 1610+00 | HN1 1620+00 | HN1 1630+00 | HN1 1640+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=18700 L=20882 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=3287.55 G=0.850% | | | R=130000 | | L=6615.02 G=0.350% | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +16.0 | +15.7 | +16.2 | +19.4 | +21.7 | +23.5 | +25.1 | +26.4 | +28.6 | +30.0 | +31.2 | +32.4 | +33.7 | +33.9 | +34.0 | +35.6 | +36.7 | +38.1 | +38.8 | +38.6 | +38.3 | +39.0 | +40.0 | +40.8 | +42.0 | +43.8 | +38.7 | +42.6 | +42.3 |
| TYP. SECTION | EMBANKMENT (A) | | | | VIADUCT (E) | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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 Texas Registered Engineering Firm: F-2144

Client

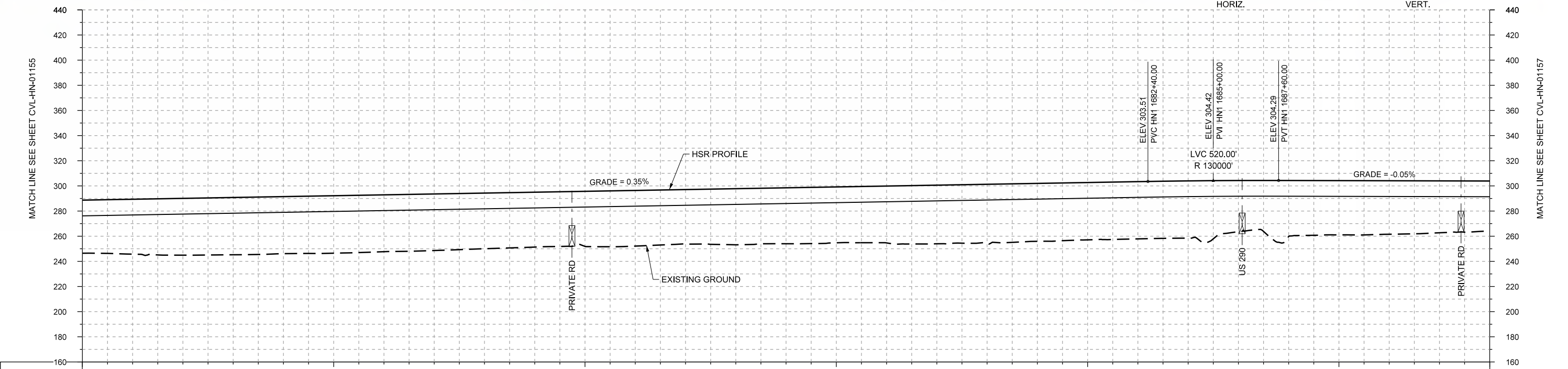
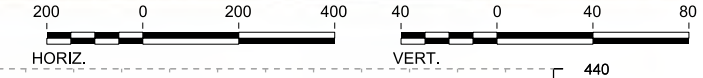
TEXAS CENTRAL
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
 HN1 1584+00 TO HN1 1640+00

| | |
|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01155 |
| Rev | 01 |



PLAN



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|----------------|--------------------|-------------|-----------------------|-------------|-------------|-------------|------------------------|
| STATIONING | HN1 1640+00 | HN1 1650+00 | HN1 1660+00 | HN1 1670+00 | HN1 1680+00 | HN1 1690+00 | HN1 1696+00 |
| HOR. ALIGNMENT | R=18700 L=20882 | | L=1610 | | L=13945 | | |
| VER. ALIGNMENT | | | L=6615.02 G=0.350% | | R=130000 | | L=8322.52 G=-0.050% |
| CUT AND FILL | +42.3 | +43.7 | +45.2 | +45.6 | +45.4 | +45.7 | +45.2 |
| TYP. SECTION | VIADUCT (E) | | | | | | |

PROFILE

| | |
|-------------|-------------|
| DESIGNED BY | T. SMELCER |
| DRAWN BY | J. BORGHESI |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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 Texas Registered Engineering Firm: F-2144

Client

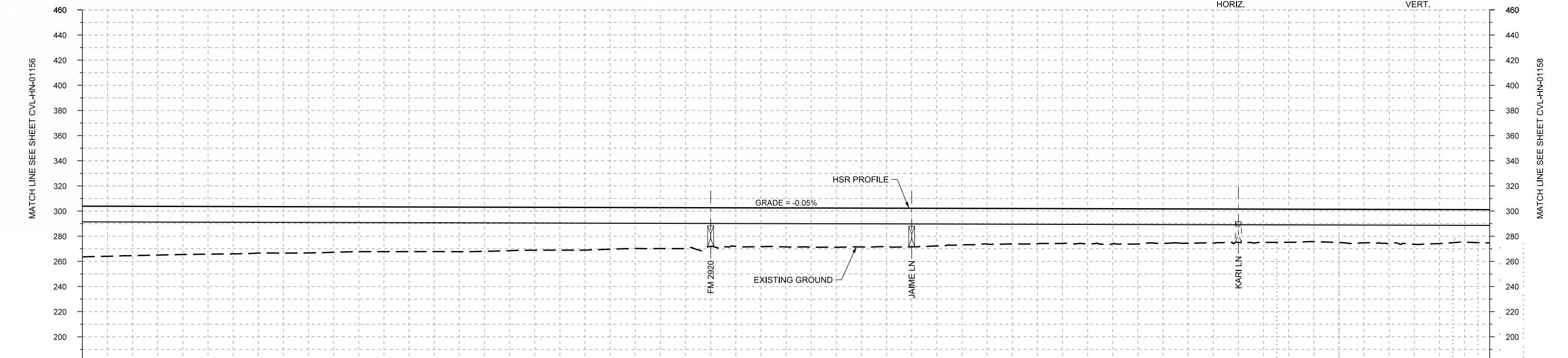
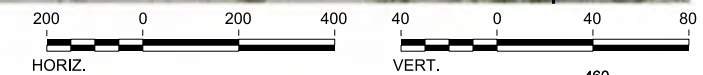
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
 HN1 1640+00 TO HN1 1696+00

Scale
 AS SHOWN
 Drawing Status
FINAL DRAFT
 Job No: 234180 Drawing No: CVL-HN-01156 Rev: 01



PLAN



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| STATIONING | HN1 1696+00 | HN1 1700+00 | HN1 1710+00 | HN1 1720+00 | HN1 1730+00 | HN1 1740+00 | HN1 1750+00 | HN1 1752+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=13945 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=8322.52 G=-0.050% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +40.3 | +38.3 | +38.3 | +37.6 | +36.9 | +36.2 | +35.6 | +35.4 | +35.2 | +34.1 | +34.0 | +32.5 | +32.4 | +30.7 | +31.1 | +31.3 | +31.0 | +29.9 | +28.3 | +28.0 | +28.1 | +28.0 | +27.2 | +26.6 | +26.3 | +26.5 | +27.1 | +27.1 | +26.4 |
| TYP. SECTION | VIADUCT (E) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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 www.freese.com
 Texas Registered Engineering Firm: F-2144

Client

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

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
 HN1 1696+00 TO HN1 1752+00

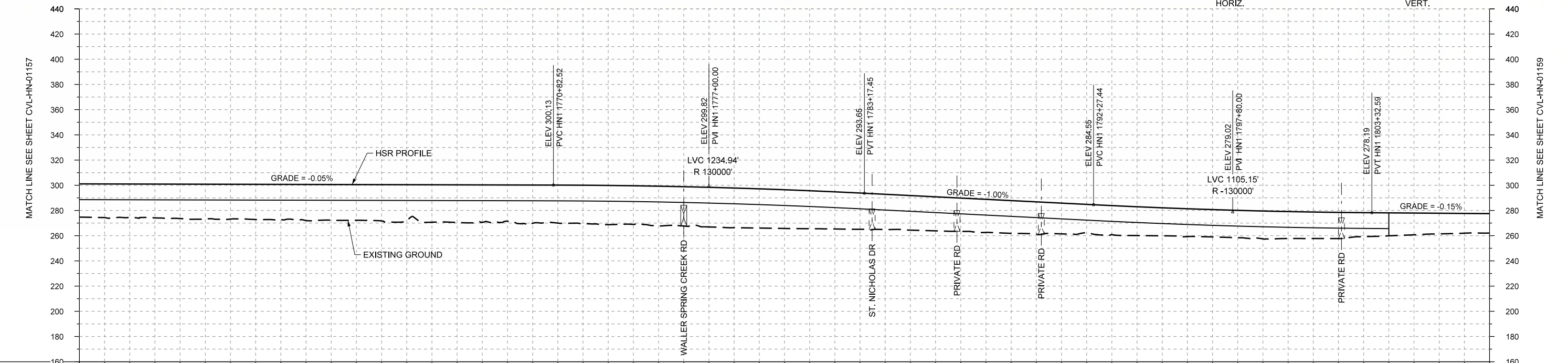
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01157 | 01 |



PLAN



PROFILE

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|----------------|------------------------|-------------|-------------|-------------|-------------|-----------------------|----------------|--|
| STATIONING | HN1 1752+00 | HN1 1760+00 | HN1 1770+00 | HN1 1780+00 | HN1 1790+00 | HN1 1800+00 | HN1 1808+00 | |
| HOR. ALIGNMENT | L=13945 | | | | | | | |
| VER. ALIGNMENT | L=8322.52 G=-0.050% | | R=130000 | | | L=909.98 G=-1.000% | | |
| CUT AND FILL | +26.4 | +26.5 | +27.3 | +27.7 | +28.1 | +28.3 | +28.8 | |
| TYP. SECTION | VIADUCT (E) | | | | | | EMBANKMENT (A) | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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| | | | | | |

DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Texas Registered Engineering Firm: F-2144

Client

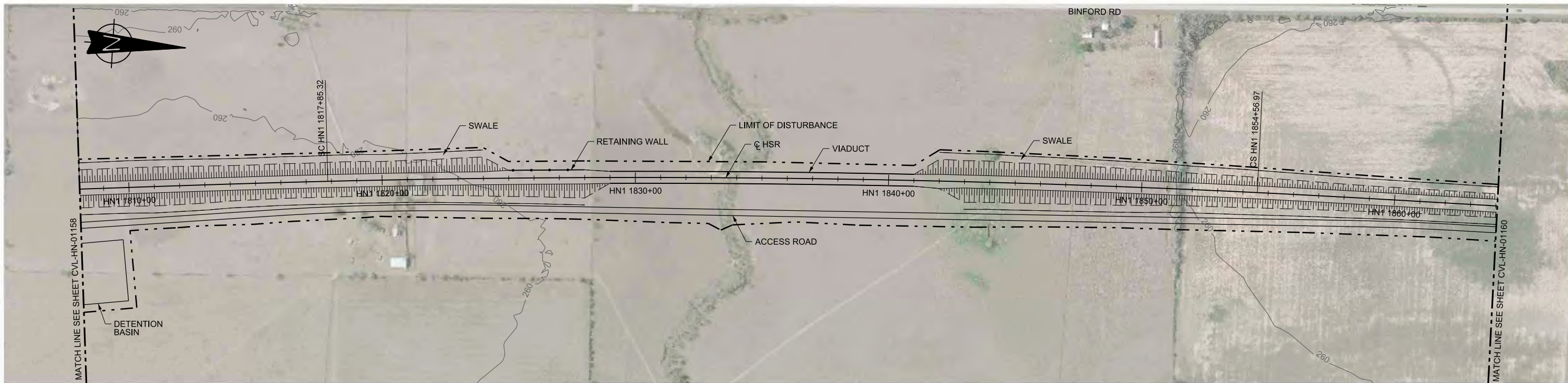
TEXAS CENTRAL

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

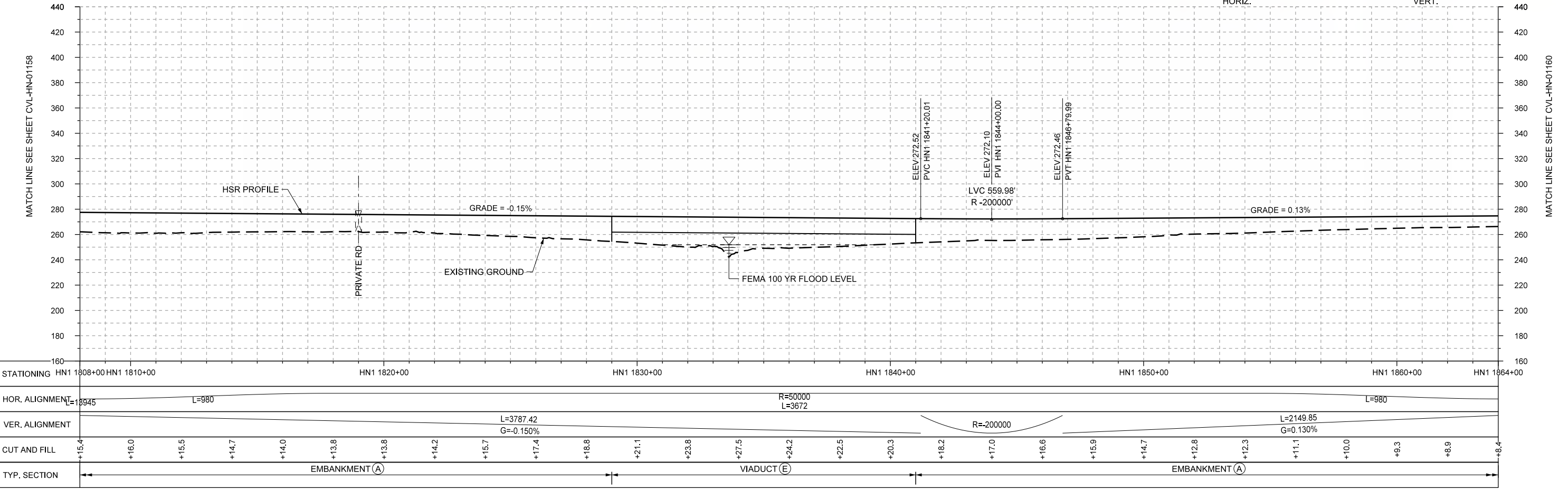
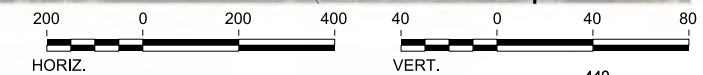
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN1 1752+00 TO HN1 1808+00

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| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01158 |
| Rev | 01 |



PLAN



PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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www.freese.com
Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

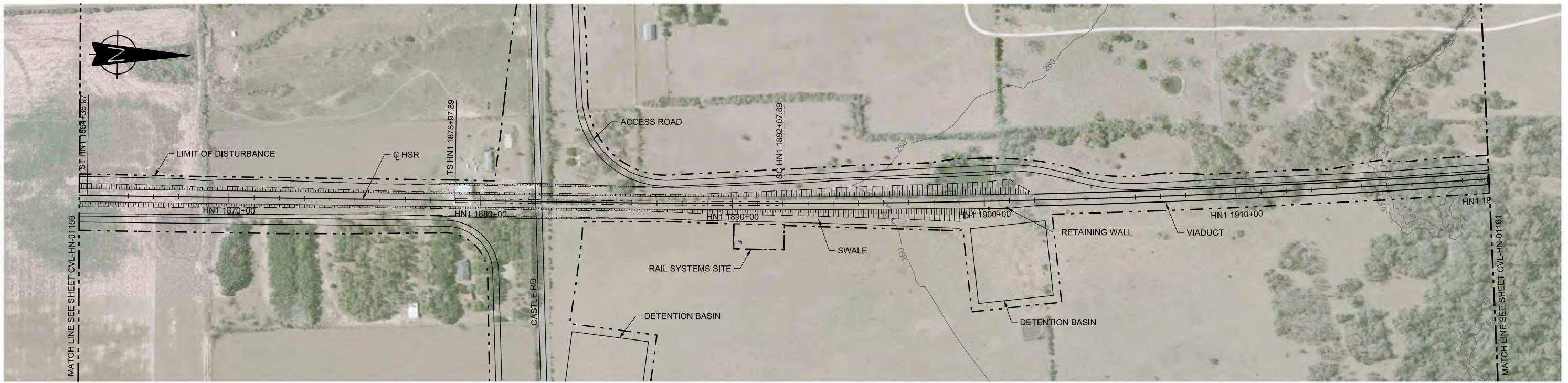
Drawing Title

**HOUSTON SEGMENT CIVIL
PLAN AND PROFILE
HN1 1808+00 TO HN1 1864+00**

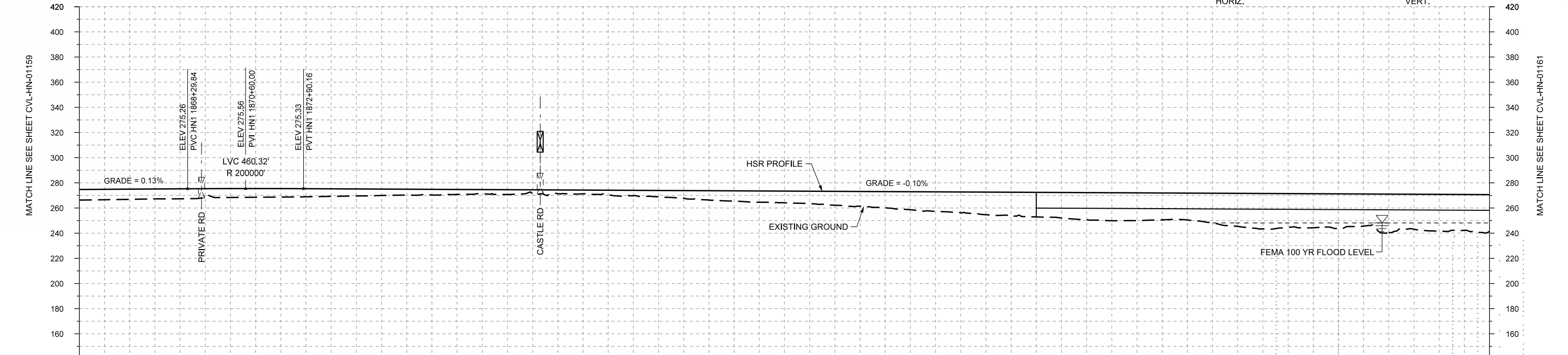
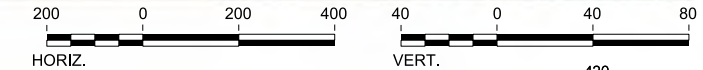
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No 234180 | Drawing No CVL-HN-01159 | Rev 01 |
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PLAN



PROFILE

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| STATIONING | HN1 1864+00 | HN1 1870+00 | HN1 1880+00 | HN1 1890+00 | HN1 1900+00 | HN1 1910+00 | HN1 1920+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=580 | L=1461 | | L=1310 | | R=42000 L=4698 | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=2149.85 G=0.130% | R=200000 | | | L=5317.46 G=-0.100% | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +8.4 | +8.1 | +7.9 | +7.0 | +6.7 | +6.0 | +5.1 | +4.5 | +3.2 | +2.6 | +2.9 | +4.2 | +6.0 | +8.2 | +9.3 | +11.0 | +12.8 | +15.5 | +16.0 | +19.5 | +21.6 | +22.1 | +21.4 | +26.3 | +26.7 | +27.8 | +30.6 | +29.2 | +29.1 |
| TYP. SECTION | EMBANKMENT (A) | | | | | CUT (C) | | EMBANKMENT (A) | | | | | VIADUCT (E) | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

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IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Client

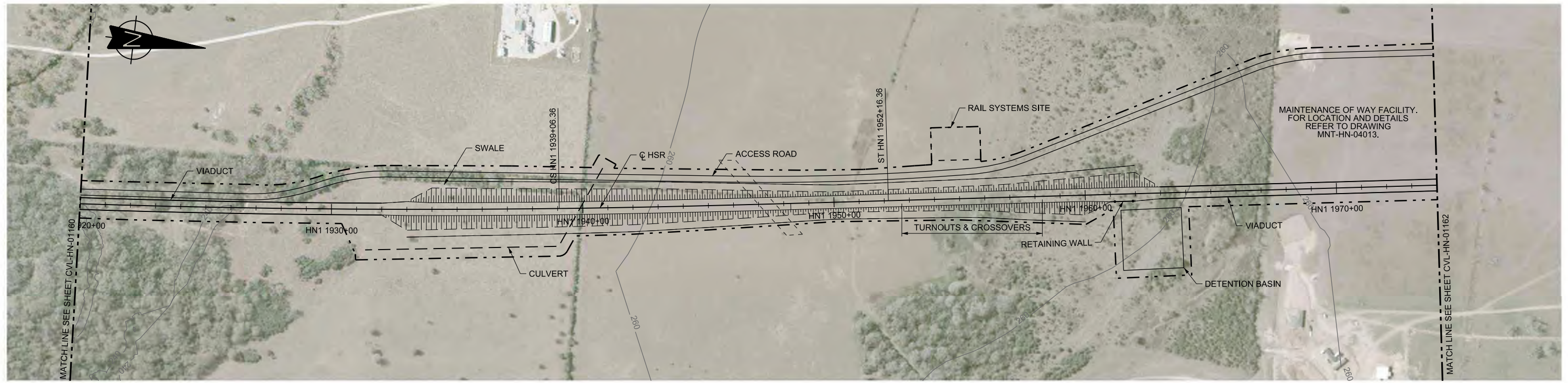
TEXAS CENTRAL

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

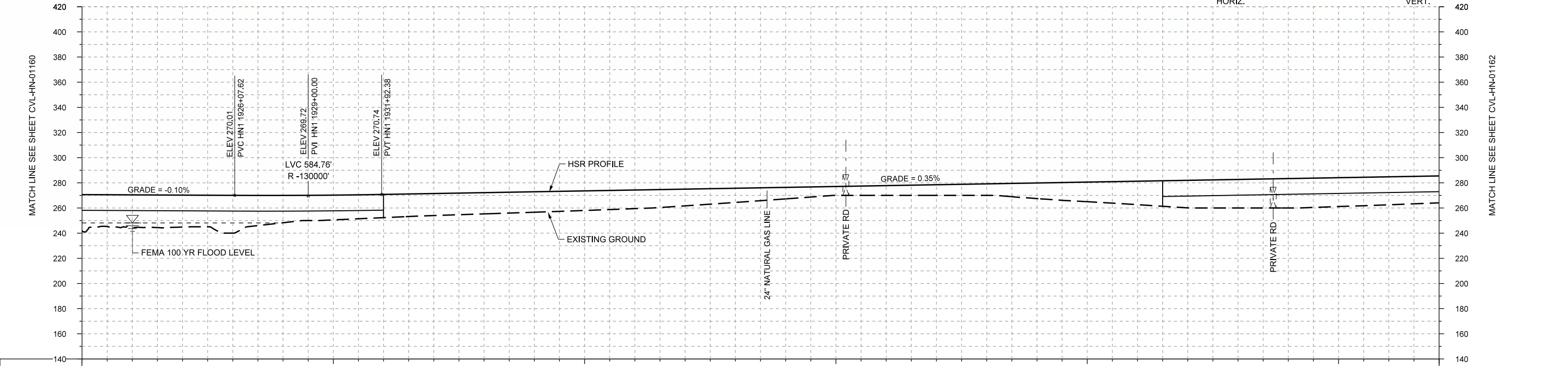
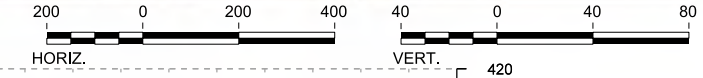
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 1864+00 TO HN1 1920+00

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| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01160 |
| Rev | 01 |



PLAN



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|----------------|------------------------|-------------|-------------|-------------|-------------|------------------------|-------------|-------|-------|-------|----------------|-------|-------|-------|------|------|------|------|------|-------|-------------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 1920+00 | HN1 1930+00 | HN1 1940+00 | HN1 1950+00 | HN1 1960+00 | HN1 1970+00 | HN1 1974+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=42000 L=4698 | | L=1310 | | | L=8216 | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=5317.46 G=-0.100% | | R=130000 | | | L=12752.70 G=0.350% | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +26.1 | +26.2 | +25.4 | +30.0 | +21.7 | +19.7 | +18.5 | +17.5 | +16.9 | +16.3 | +15.6 | +14.8 | +13.3 | +11.3 | +9.2 | +7.1 | +7.8 | +8.5 | +9.2 | +12.4 | +15.6 | +18.7 | +21.9 | +22.7 | +23.4 | +23.0 | +22.3 | +21.4 |
| TYP. SECTION | VIADUCT (E) | | | | | | | | | | EMBANKMENT (A) | | | | | | | | | | VIADUCT (E) | | | | | | | |

PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER

DRAWN BY
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CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
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Client

TEXAS CENTRAL

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

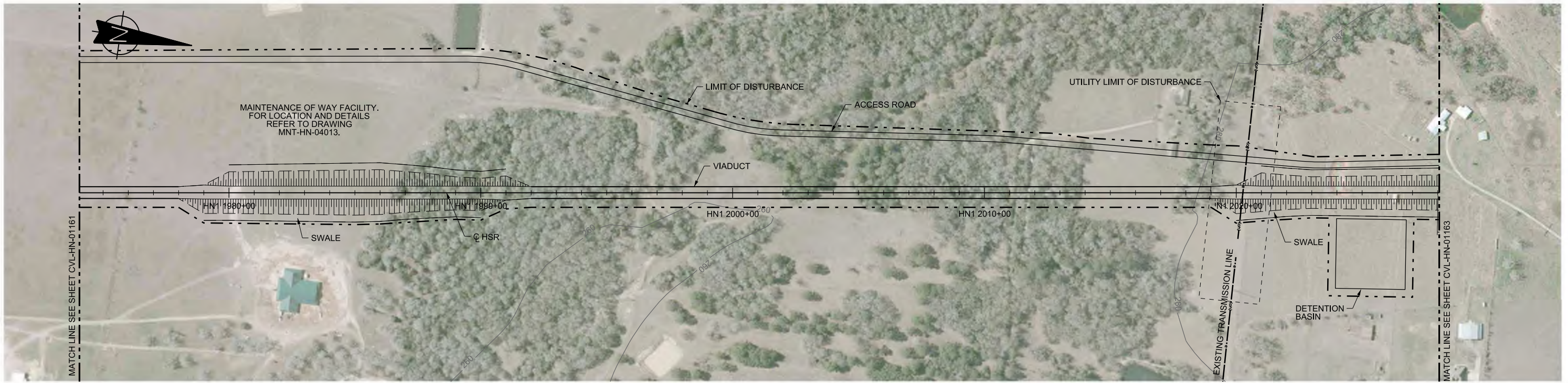
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 1920+00 TO HN1 1974+00

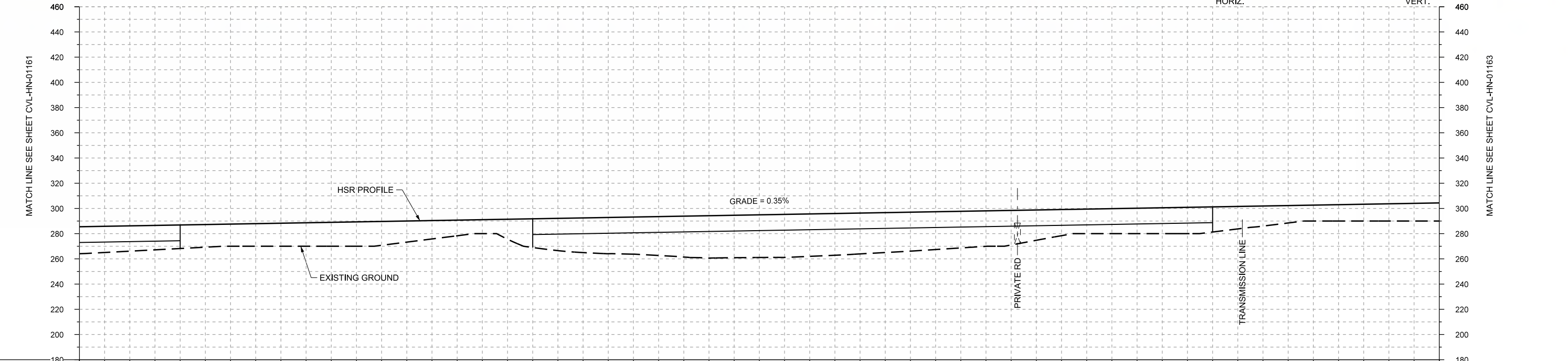
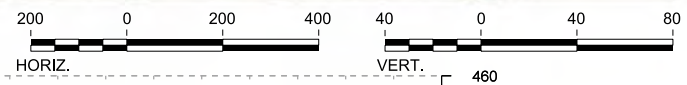
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

| | | |
|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01161 | 01 |



PLAN



PROFILE

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|----------------|------------------------|-------------|----------------|-------------|-------------|-------------|-------------|-------|-------|-------|-------------|-------|-------|-------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 1974+00 | HN1 1980+00 | HN1 1990+00 | HN1 2000+00 | HN1 2010+00 | HN1 2020+00 | HN1 2028+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=8216 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=12752.70 G=0.350% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +21.4 | +20.1 | +18.7 | +17.6 | +16.3 | +19.0 | +18.9 | +14.6 | +11.1 | +22.8 | +27.5 | +29.5 | +32.5 | +33.7 | +34.2 | +33.1 | +31.7 | +30.0 | +26.2 | +24.1 | +19.5 | +20.2 | +20.9 | +17.9 | +13.8 | +13.0 | +13.7 | +14.4 |
| TYP. SECTION | VIADUCT (E) | | EMBANKMENT (A) | | | | | | | | VIADUCT (E) | | | | EMBANKMENT (A) | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

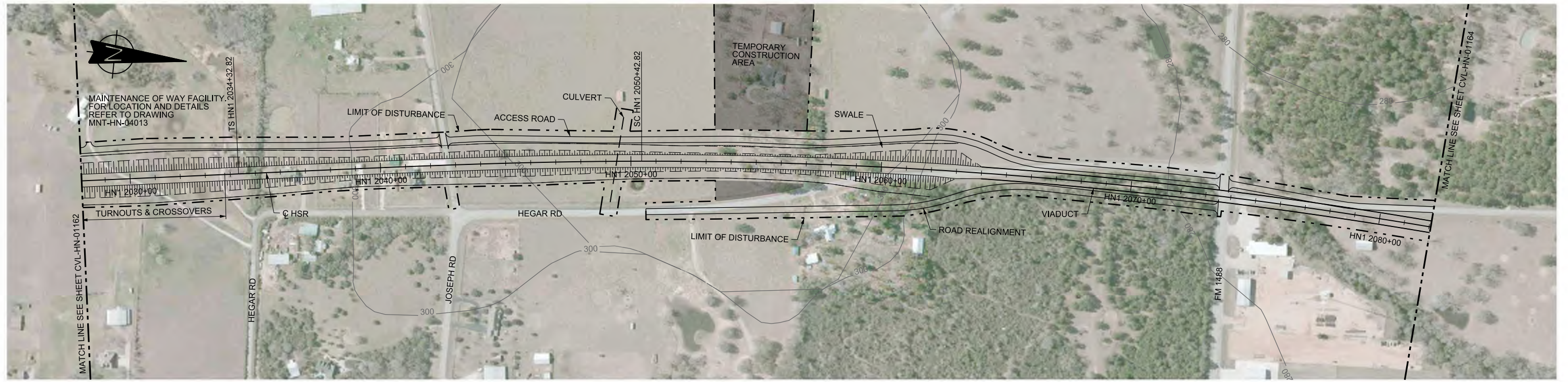
IN CHARGE
C. TAYLOR

DATE
09/15/2017

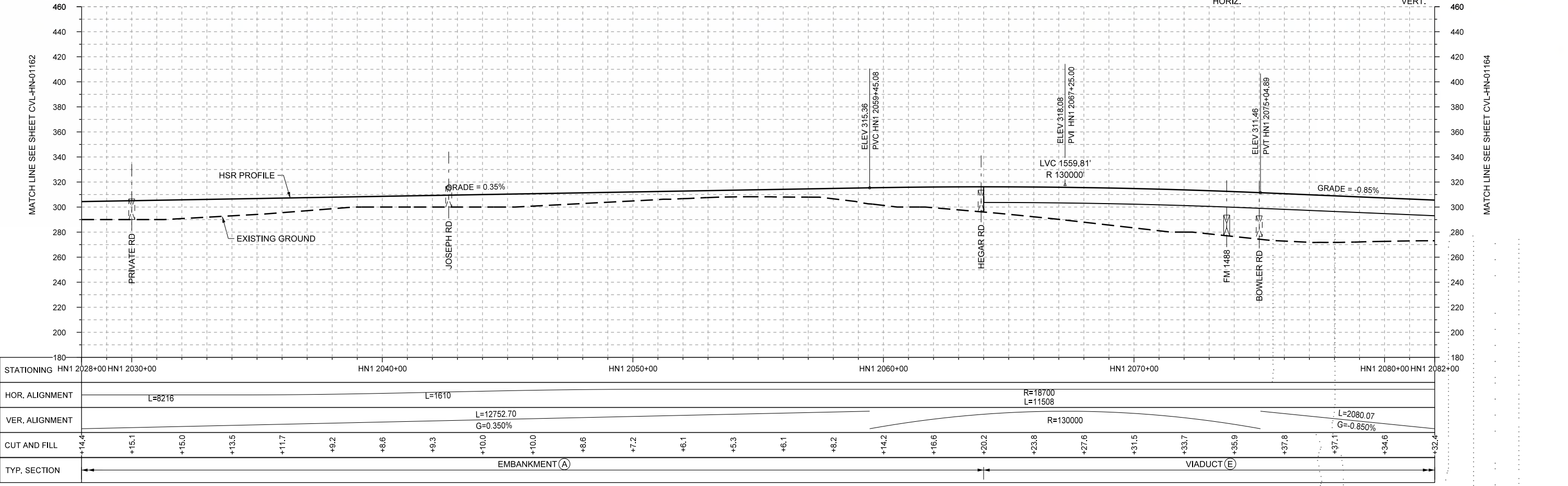
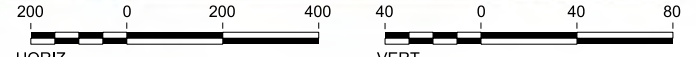


Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN1 1974+00 TO HN1 2028+00

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|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01162 |
| Rev | 01 |



PLAN



PROFILE

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|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------|-------------|--------------------|-------------------------|--|
| STATIONING | HN1 2028+00 HN1 2030+00 | HN1 2040+00 | HN1 2050+00 | HN1 2060+00 | HN1 2070+00 | HN1 2080+00 HN1 2082+00 | |
| HOR. ALIGNMENT | L=8216 | L=1610 | | | R=18700 L=11508 | | |
| VER. ALIGNMENT | | L=12752.70 G=0.350% | | | R=130000 | L=2080.07 G=-0.850% | |
| CUT AND FILL | +14.4 +15.1 +15.0 +13.5 +11.7 +9.2 +8.6 +9.3 +10.0 +10.0 +8.6 +7.2 +6.1 +5.3 +6.1 +8.2 +14.2 +16.6 +20.2 +23.8 +27.6 +31.5 +33.7 +35.9 +37.8 +37.1 +34.6 +32.4 | | | | | | |
| TYP. SECTION | EMBANKMENT (A) | | | VIADUCT (E) | | | |

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|-------------|-------------|
| DESIGNED BY | T. SMELCER |
| DRAWN BY | J. BORGHESI |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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10370 Richmond Ave., Suite 475
Houston, Texas 77042 USA
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Texas Registered Engineering Firm: F-1990

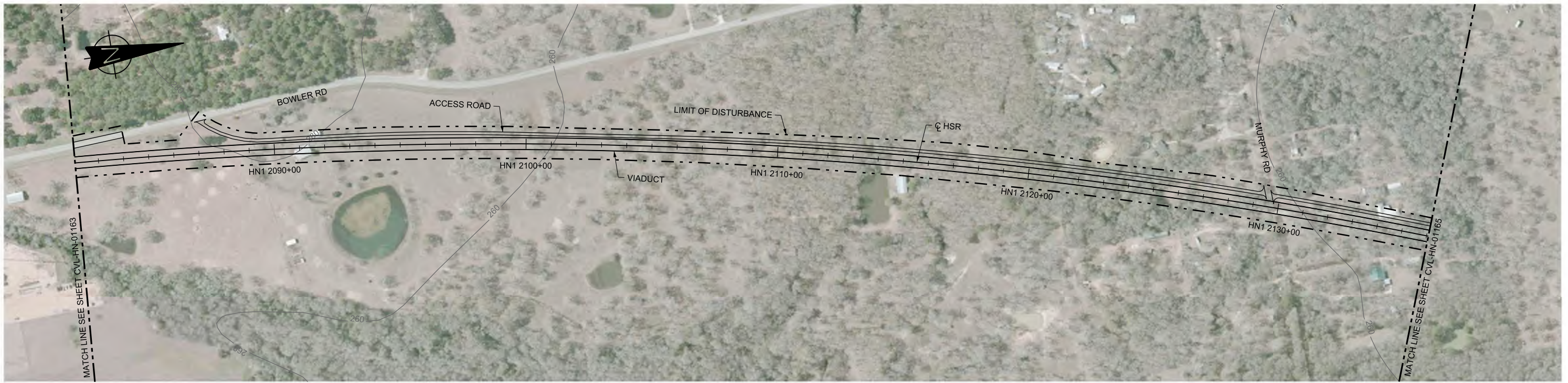


2711 North Haskell Ave., Suite 3300
Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

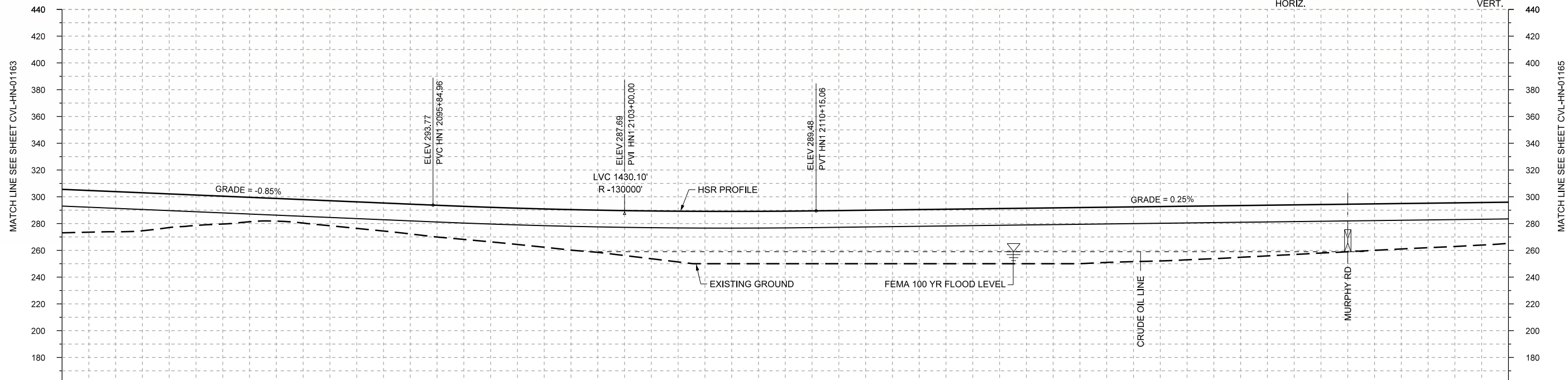


Drawing Title
HOUSTON SEGMENT CIVIL
PLAN AND PROFILE
HN1 2028+00 TO HN1 2082+00

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| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01163 |
| Rev | 01 |



PLAN



PROFILE

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|----------------|------------------------|-------------|-------------|--------------------|-----------------------|-------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN1 2082+00 | HN1 2090+00 | HN1 2100+00 | HN1 2110+00 | HN1 2120+00 | HN1 2130+00 | HN1 2136+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | | | | R=18700 L=11508 | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=2080.07 G=-0.850% | | R=130000 | | L=4192.41 G=0.250% | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +32.4 | +29.9 | +25.1 | +20.7 | +18.9 | +18.6 | +20.9 | +23.7 | +25.8 | +26.6 | +31.5 | +35.7 | +39.1 | +39.1 | +39.4 | +39.9 | +40.4 | +40.9 | +41.4 | +41.9 | +40.9 | +40.0 | +38.6 | +37.0 | +35.5 | +33.9 | +32.5 | +30.7 |
| TYP. SECTION | VIADUCT (E) | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP
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 Dallas, Texas 75204
 Tel (214) 217 2200 Fax (214) 217 2201
 www.freese.com
 Texas Registered Engineering Firm: F-2144

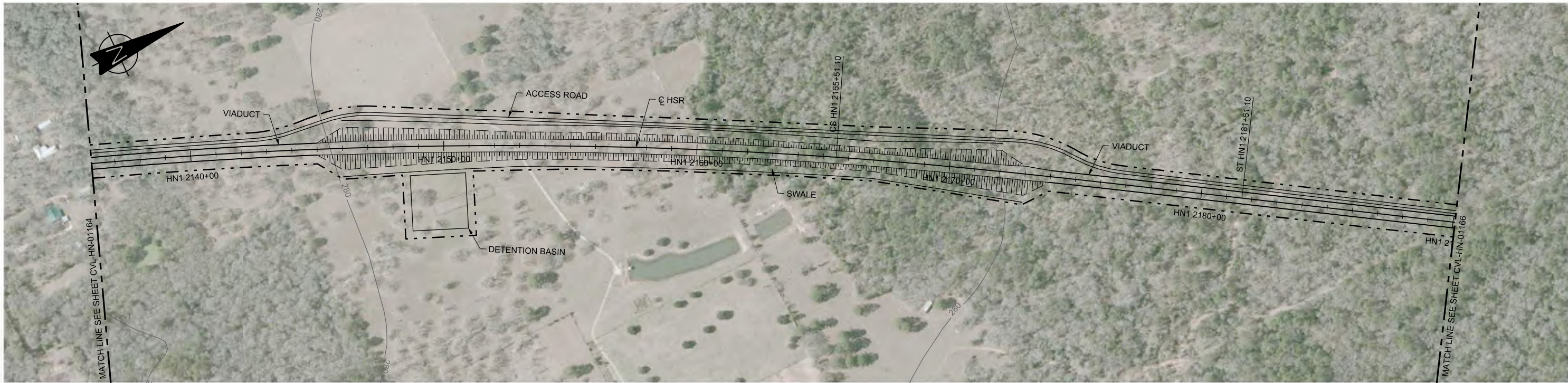
Client

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

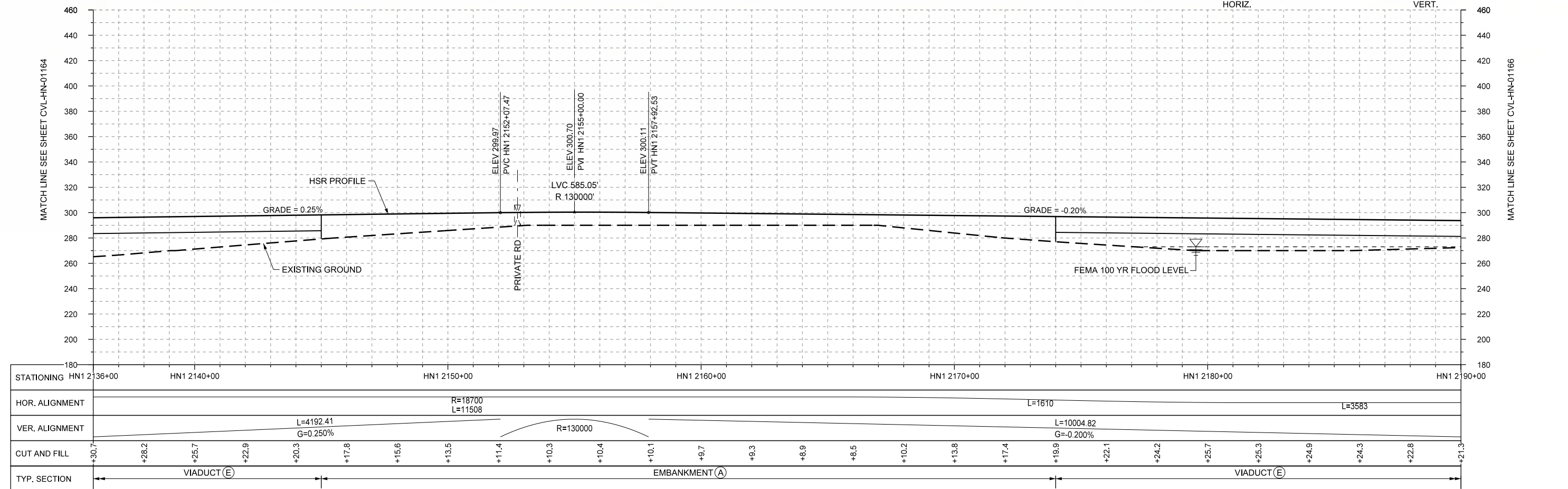
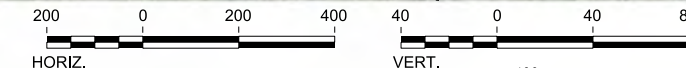
Drawing Title

**HOUSTON SEGMENT
 CIVIL
 PLAN AND PROFILE
 HN1 2082+00 TO HN1 2136+00**

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| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01164 |
| Rev | 01 |



PLAN



PROFILE

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| STATIONING | HN1 2136+00 | HN1 2140+00 | HN1 2150+00 | HN1 2160+00 | HN1 2170+00 | HN1 2180+00 | HN1 2190+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | | | R=18700 L=11508 | | L=1610 | | L=3583 | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | | L=4192.41 G=0.250% | | R=130000 | | L=10004.82 G=-0.200% | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +30.7 | +28.2 | +25.7 | +22.9 | +20.3 | +17.8 | +15.6 | +13.5 | +11.4 | +10.3 | +10.4 | +10.1 | +9.7 | +9.3 | +8.9 | +8.5 | +10.2 | +13.8 | +17.4 | +19.9 | +22.1 | +24.2 | +25.7 | +25.3 | +24.9 | +24.3 | +22.8 | +21.3 |
| TYP. SECTION | VIADUCT (E) | | | | | | | | | | EMBANKMENT (A) | | | | | | | | | | VIADUCT (E) | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

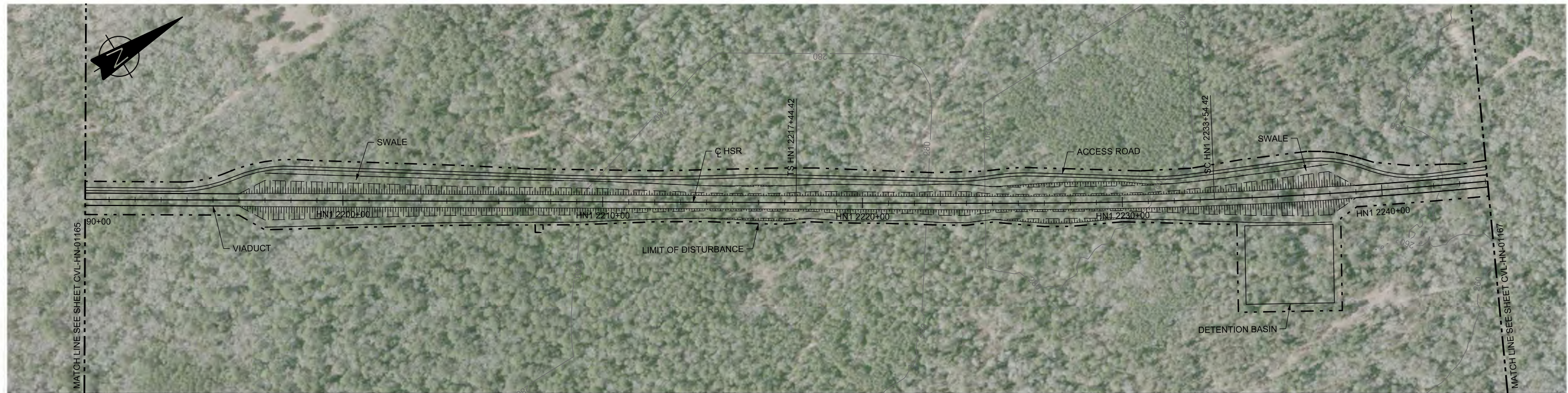
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN1 2136+00 TO HN1 2190+00

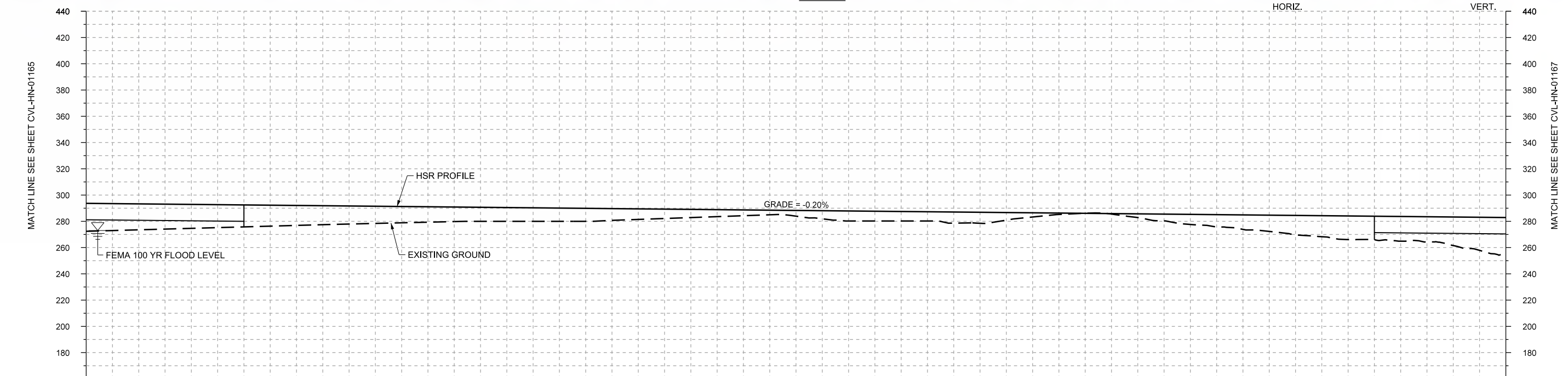
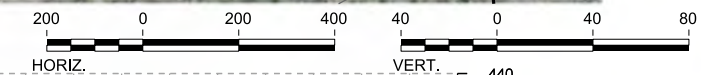
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01165 | 01 |



PLAN



PROFILE

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| STATIONING | HN1 2190+00 | HN1 2200+00 | HN1 2210+00 | HN1 2220+00 | HN1 2230+00 | HN1 2240+00 | HN1 2244+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=3583 | | | L=1610 | | R=18700 L=13754 | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=10004.82 G=-0.200% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +21.3 | +19.8 | +18.2 | +16.7 | +15.2 | +13.8 | +12.4 | +11.1 | +10.5 | +10.1 | +9.0 | +7.1 | +5.3 | +3.5 | +2 | +7.4 | +7.0 | +6.4 | +3.2 | -0.1 | +2.8 | +7.7 | +11.0 | +14.7 | +18.0 | +18.8 | +21.7 | +27.9 |
| TYP. SECTION | VIADUCT (E) | | EMBANKMENT (A) | | | | | | | | | | CUT (C) | | EMBANKMENT (A) | | CUT (C) | | EMBANKMENT (A) | | | | VIADUCT (E) | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP
 Arup Texas, Inc.
 10370 Richmond Ave., Suite 475
 Houston, Texas 77042 USA
 Tel (713) 783 2787 Fax (713) 343 1467
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 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

Client

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

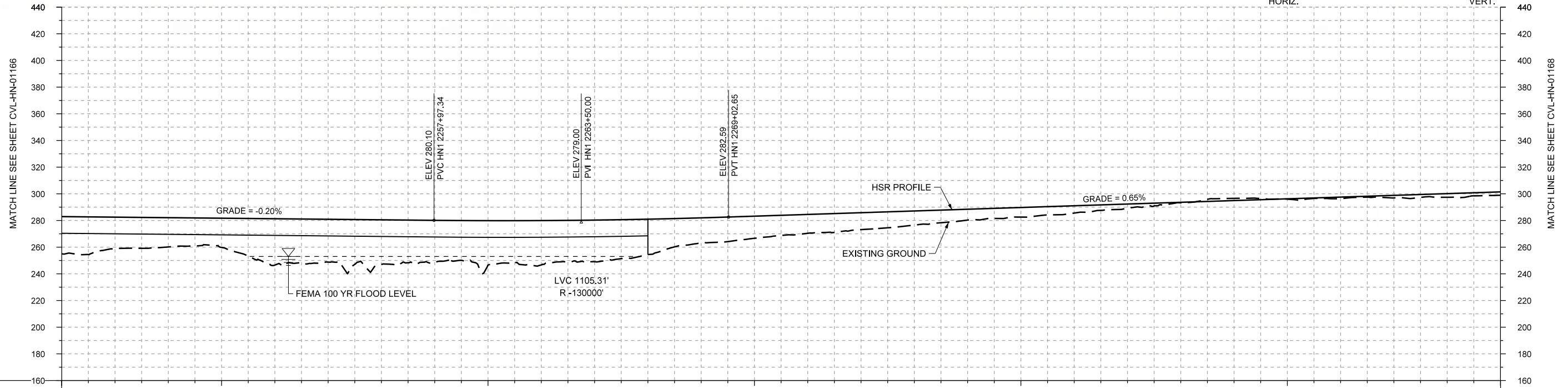
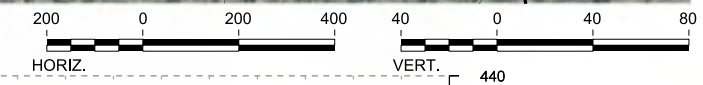
Drawing Title

**HOUSTON SEGMENT CIVIL
 PLAN AND PROFILE
 HN1 2190+00 TO HN1 2244+00**

| | | | |
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| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | Drawing No | Rev | |
| 234180 | CVL-HN-01166 | 01 | |



PLAN



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|----------------|-------------------------|-------------|-------------|-------------|--------------------|-----------------------|-------------|
| STATIONING | HN1 2244+00 | HN1 2250+00 | HN1 2260+00 | HN1 2270+00 | HN1 2280+00 | HN1 2290+00 | HN1 2298+00 |
| HOR. ALIGNMENT | | | | | R=18700 L=13754 | | |
| VER. ALIGNMENT | L=10004.82 G=-0.200% | | R=130000 | | | L=3264.68 G=0.650% | |
| CUT AND FILL | +27.9 | +23.5 | +22.0 | +21.9 | +34.7 | +32.1 | +33.4 |
| TYP. SECTION | VIADUCT (E) | | | | EMBANKMENT (A) | | CUT (C) |

PROFILE

| | |
|-------------|-------------|
| DESIGNED BY | T. SMELCER |
| DRAWN BY | J. BORGHESI |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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Texas Registered Engineering Firm: F-1990

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Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
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Texas Registered Engineering Firm: F-2144

Client

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

Drawing Title

**HOUSTON SEGMENT
CIVIL
PLAN AND PROFILE
HN1 2244+00 TO HN1 2298+00**

Scale

AS SHOWN

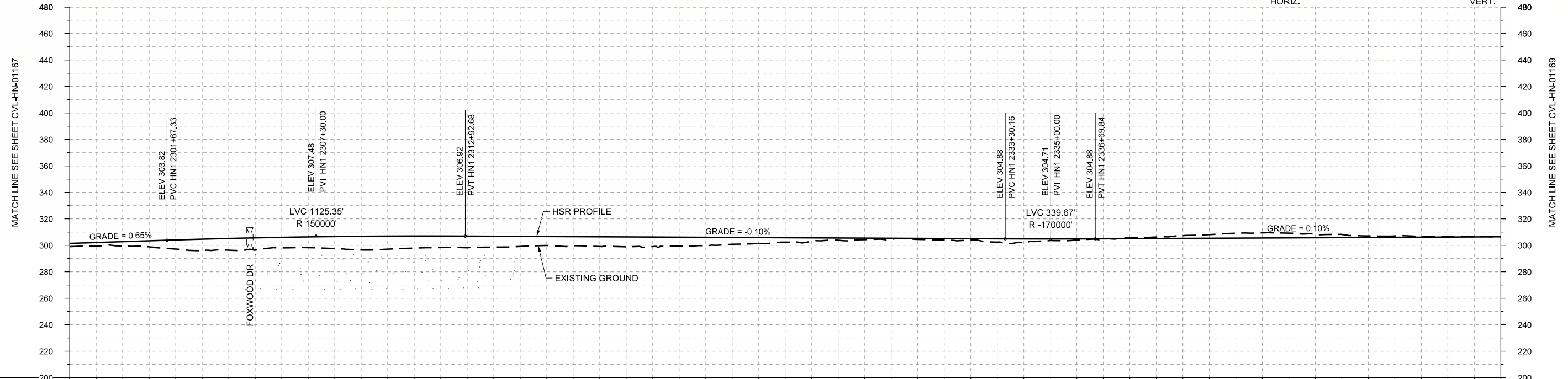
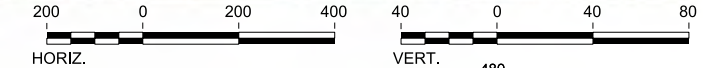
Drawing Status

FINAL DRAFT

| | | |
|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01167 | 01 |



PLAN



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|----------------|-------------------------|-------------|----------------|-------------|------------------------|-------------------------|------|------|------|------|------|------|------|------|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| STATIONING | HN1 2298+00 HN1 2300+00 | HN1 2310+00 | HN1 2320+00 | HN1 2330+00 | HN1 2340+00 | HN1 2350+00 HN1 2352+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=18700 L=13754 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=3264.68 G=0.650% | | R=150000 | | L=2037.48 G=-0.100% | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +2.4 | +3.2 | +6.9 | +8.9 | +8.0 | +9.1 | +9.8 | +8.8 | +8.2 | +6.7 | +7.3 | +7.2 | +6.4 | +4.5 | +2.6 | +1.1 | +0.8 | +1.1 | +2.7 | +0.7 | -0.9 | -2.0 | -3.7 | -3.6 | -2.4 | -1.0 | -0.4 | +0.1 |
| TYP. SECTION | CUT (C) | | EMBANKMENT (A) | | | | | | | | | | | | CUT (C) | | | | | | | | | | | | | |

PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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www.freese.com
Texas Registered Engineering Firm: F-2144

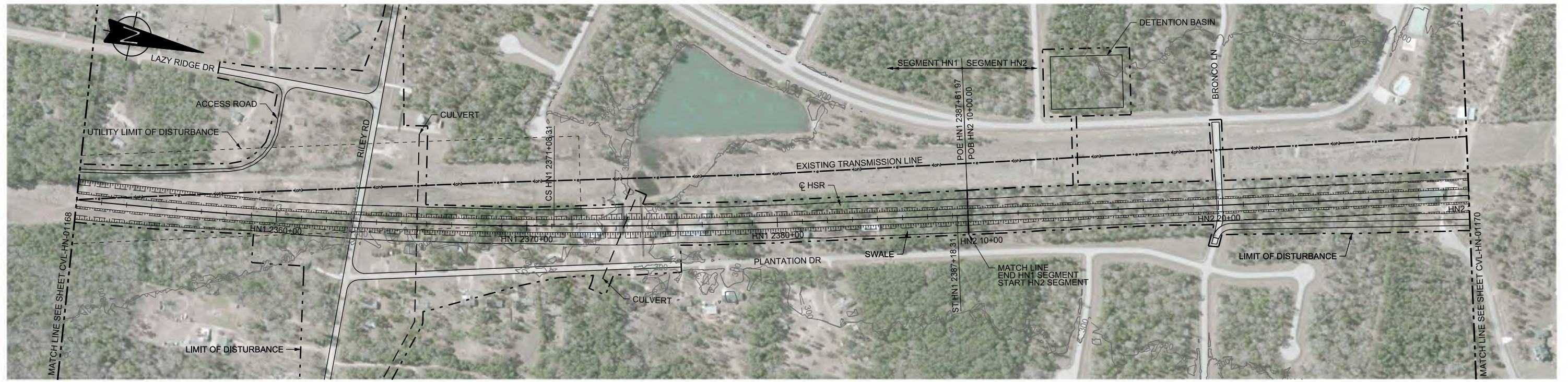
Client

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

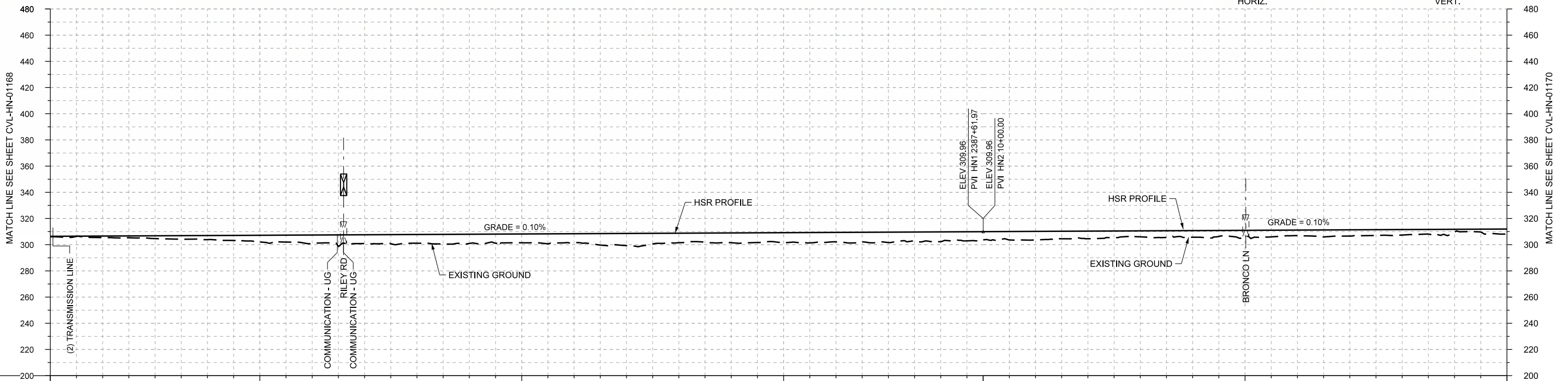
Drawing Title

**HOUSTON SEGMENT
CIVIL
PLAN AND PROFILE
HN1 2298+00 TO HN1 2352+00**

| | | | |
|----------------|--------------|-----|--|
| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | Drawing No | Rev | |
| 234180 | CVL-HN-01168 | 01 | |



PLAN



PROFILE

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|----------------|-----------------------|-------------|-------------|----------------|-------------|-----------------------|-----------|-----------|------|------|------|------|------|----------------|------|---------|------|---------|------|---------|------|---------|------|---------|------|---------|------|------|------|
| STATIONING | HN1 2352+00 | HN1 2360+00 | HN1 2370+00 | HN1 2380+00 | HN1 2387+62 | HN2 10+00 | HN2 20+00 | HN2 30+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=-18700 L=13754 | | L=1610 | | | L=19849 | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=5092.14 G=0.100% | | L=1610 | | | L=2075.87 G=0.100% | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +0.1 | +1.2 | +2.1 | +3.1 | +4.9 | +6.4 | +6.7 | +6.7 | +7.1 | +6.7 | +6.8 | +9.3 | +7.3 | +7.5 | +7.8 | +7.2 | +7.9 | +7.5 | +6.3 | +6.6 | +5.8 | +4.6 | +5.1 | +4.6 | +4.3 | +4.8 | +4.2 | +2.2 | +3.5 |
| TYP. SECTION | CUT (C) | | | EMBANKMENT (F) | | | | | | | | | | EMBANKMENT (F) | | CUT (H) | | CUT (H) | | CUT (H) | | CUT (H) | | CUT (H) | | CUT (H) | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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Texas Registered Engineering Firm: F-2144

Client

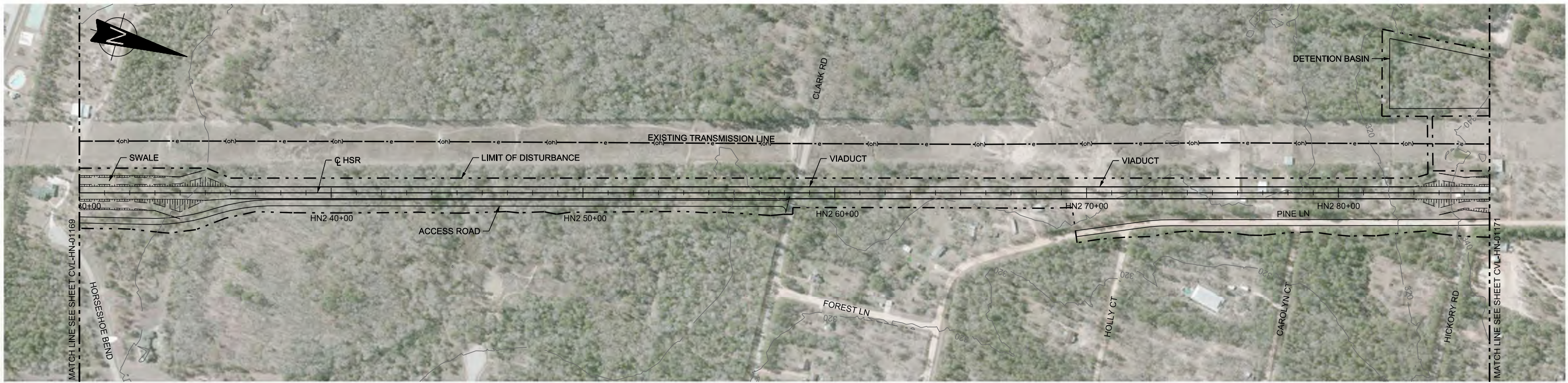
TEXAS CENTRAL

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

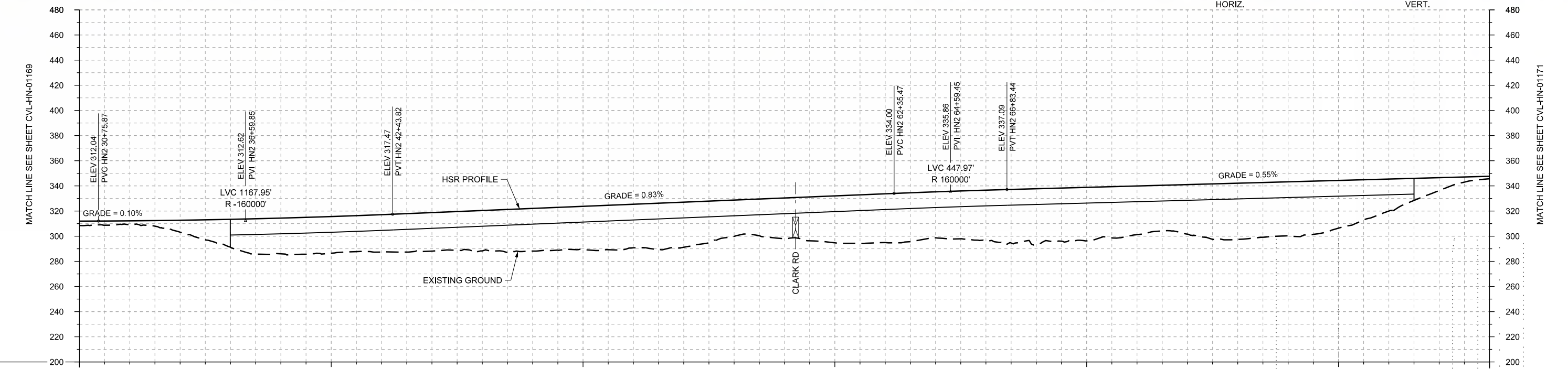
Drawing Title

**HOUSTON SEGMENT CIVIL
PLAN AND PROFILE
HN1 2352+00 TO HN2 30+00**

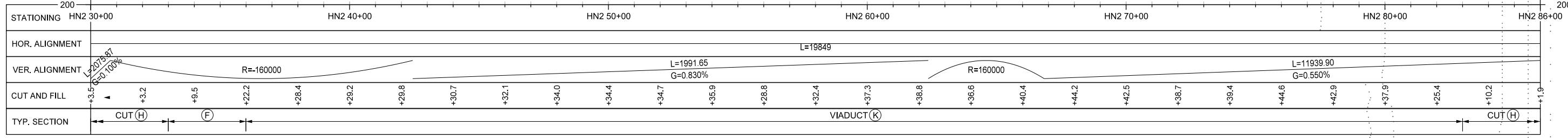
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| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01169 |
| Rev | 01 |



PLAN



PROFILE



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| DESIGNED BY T. SMELCER |
| DRAWN BY J. BORGHESI |
| CHECKED BY K. SEYMOUR |
| IN CHARGE C. TAYLOR |
| DATE 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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Arup Texas, Inc.
10370 Richmond Ave., Suite 475
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www.arup.com
Texas Registered Engineering Firm: F-1990

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Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

Client

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

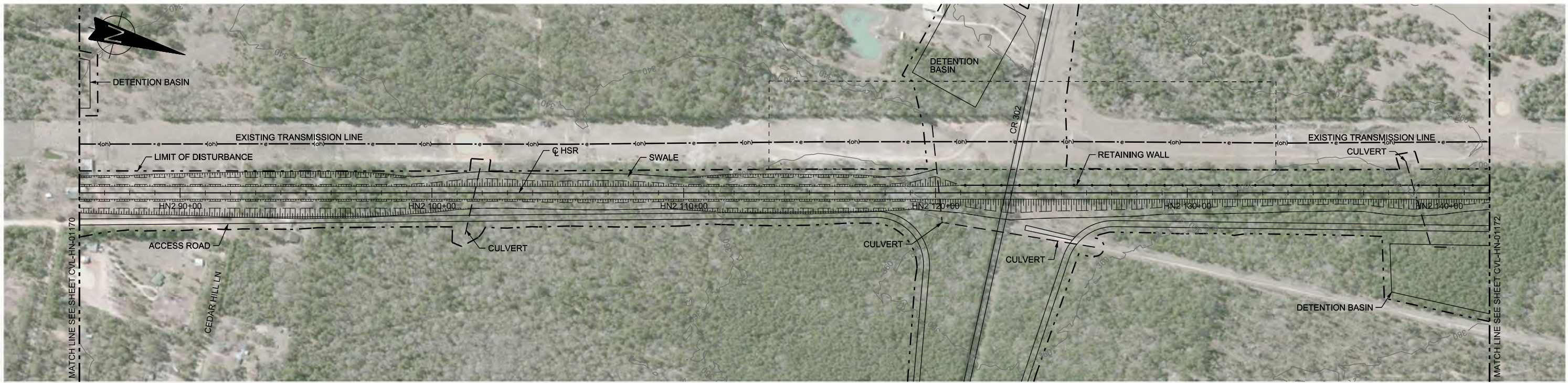
Drawing Title

**HOUSTON SEGMENT
CIVIL
PLAN AND PROFILE
HN2 30+00 TO HN2 86+00**

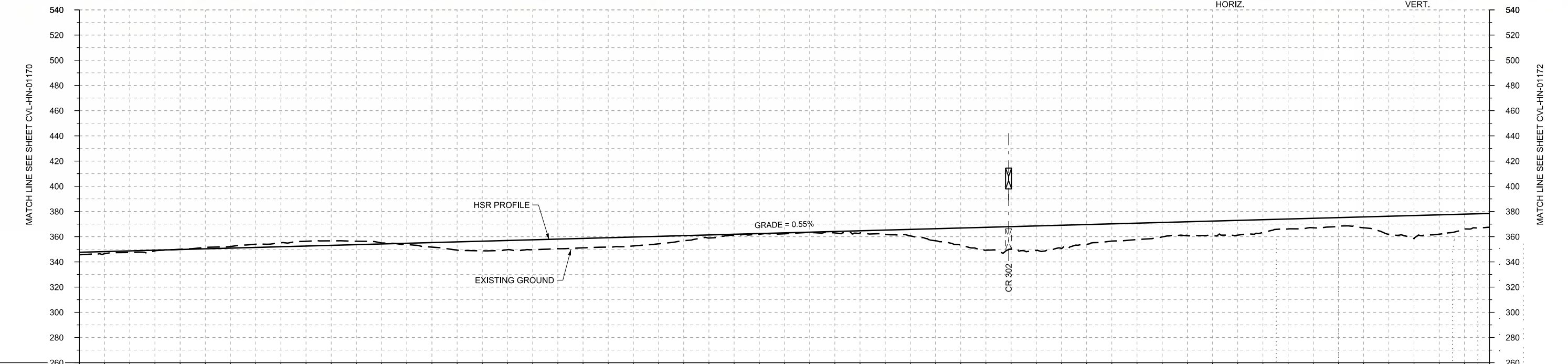
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No 234180 | Drawing No CVL-HN-01170 | Rev 01 |
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PLAN



PROFILE

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|----------------|------------------------|-----------|------------|------------|------------------|------------|------------|------------|-----------|------|------|------|------------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|
| STATIONING | HN2 86+00 | HN2 90+00 | HN2 100+00 | HN2 110+00 | HN2 120+00 | HN2 130+00 | HN2 140+00 | HN2 142+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=19849 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=11939.90 G=0.550% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +1.9 | +1.2 | -0.2 | -1.3 | -3.2 | -3.6 | -0.8 | +3.6 | +7.6 | +7.8 | +7.5 | +7.0 | +4.0 | +0.8 | +0.7 | +1.1 | +3.4 | +9.5 | +16.2 | +19.5 | +15.7 | +13.0 | +10.8 | +11.7 | +7.9 | +6.9 | +14.3 | +15.3 | +11.0 |
| TYP. SECTION | ← CUT (H) | | | | → EMBANKMENT (F) | | | | ← CUT (H) | | | | → EMBANKMENT (F) | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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FRESE AND NICHOLS

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Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

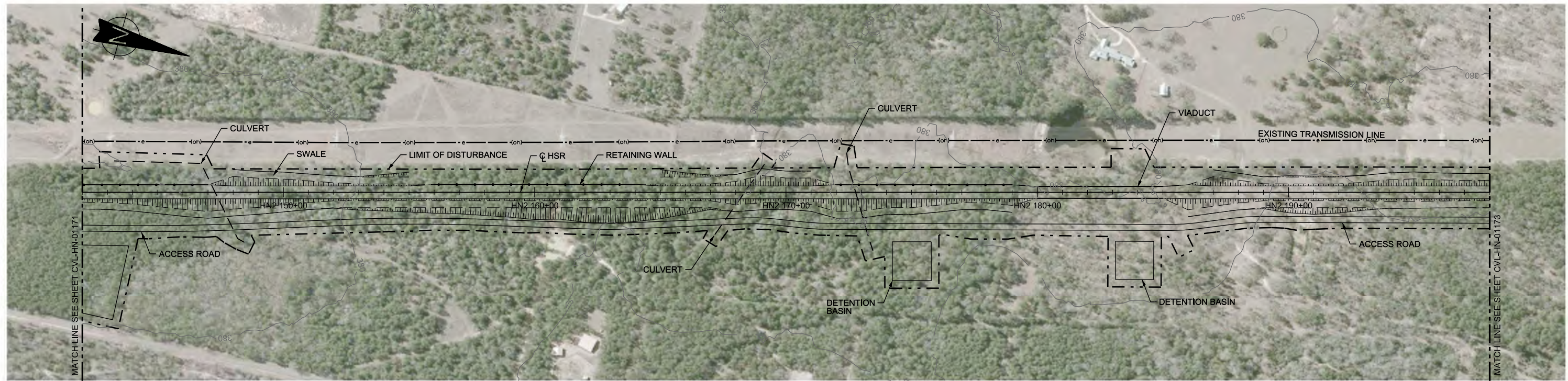
Drawing Title

**HOUSTON SEGMENT CIVIL
PLAN AND PROFILE
HN2 86+00 TO HN2 142+00**

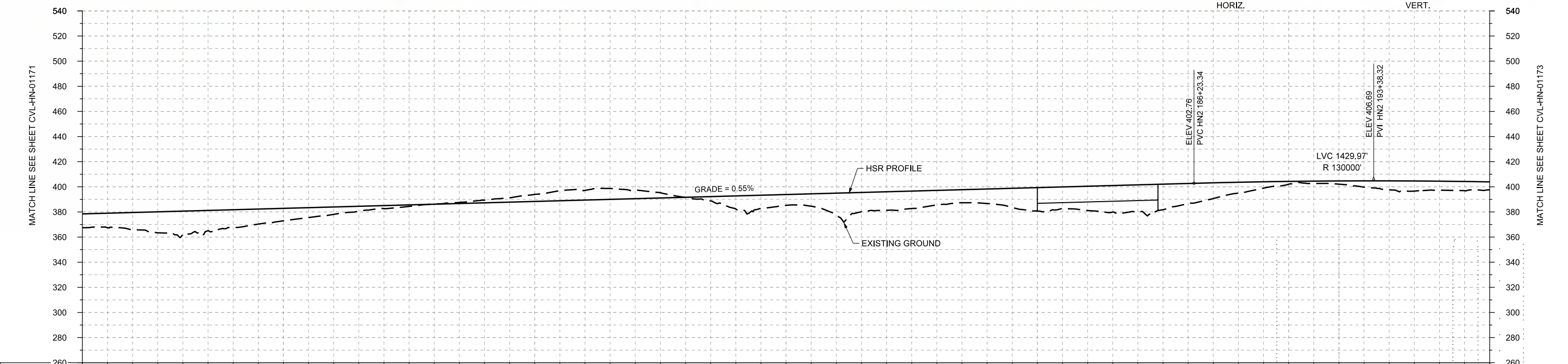
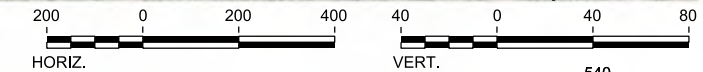
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01171 | 01 |



PLAN



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|----------------|------------------------|------------|------------|------------|------------|------------|------------|------|------|------|------|------|----------------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|
| STATIONING | HN2 142+00 | HN2 150+00 | HN2 160+00 | HN2 170+00 | HN2 180+00 | HN2 190+00 | HN2 198+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=19849 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=11939.90 G=0.550% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +11.0 | +13.8 | +18.6 | +13.9 | +9.8 | +5.9 | +2.3 | -0.1 | -2.2 | -5.6 | -7.7 | -6.6 | +0.2 | +10.3 | +8.6 | +18.0 | +14.7 | +11.5 | +11.5 | +18.6 | +19.3 | +21.6 | +18.0 | +8.7 | +2.2 | +2.6 | +7.1 | +7.2 | +6.3 |
| TYP. SECTION | EMBANKMENT (F) | | | | CUT (H) | | | | | | | | EMBANKMENT (F) | | | | | | | | | | | | | | | | |

PROFILE

| | |
|-------------|-------------|
| DESIGNED BY | T. SMELCER |
| DRAWN BY | J. BORGHESI |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

Client

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

Drawing Title

**HOUSTON SEGMENT
CIVIL
PLAN AND PROFILE
HN2 142+00 TO HN2 198+00**

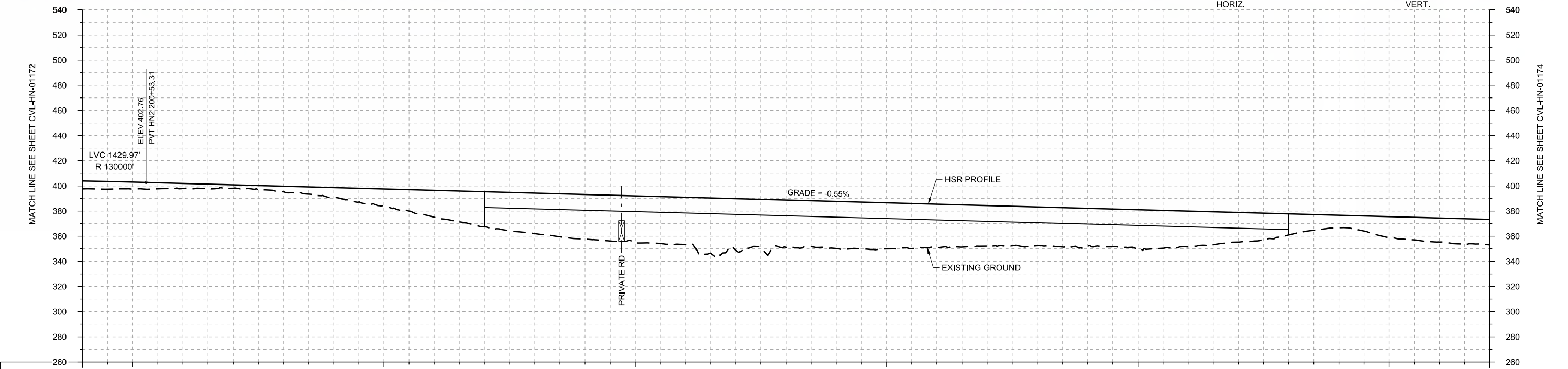
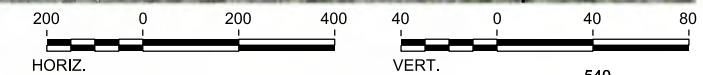
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01172 | 01 |



PLAN



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| STATIONING | HN2 198+00 | HN2 200+00 | HN2 210+00 | HN2 220+00 | HN2 230+00 | HN2 240+00 | HN2 250+00 | HN2 254+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=19849 | | | L=1800 | | R=30000 L=2024 | | L=1800 | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | R=130000 | | L=7186.45 G=-0.550% | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +6.3 | +5.4 | +4.1 | +2.7 | +4.3 | +7.6 | +13.8 | +21.4 | +27.8 | +32.3 | +35.5 | +37.2 | +37.5 | +41.1 | +37.8 | +37.5 | +36.7 | +34.1 | +32.3 | +30.9 | +30.3 | +31.0 | +28.6 | +23.6 | +16.9 | +10.0 | +18.9 | +19.1 | +20.3 |
| TYP. SECTION | EMBANKMENT (F) | | CUT (H) | | EMBANKMENT (F) | | VIADUCT (K) | | | | | | | | | | EMBANKMENT (F) | | VIADUCT (K) | | | | | | | | | | |

PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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www.freese.com
Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

Drawing Title

**HOUSTON SEGMENT CIVIL
PLAN AND PROFILE
HN2 198+00 TO HN2 254+00**

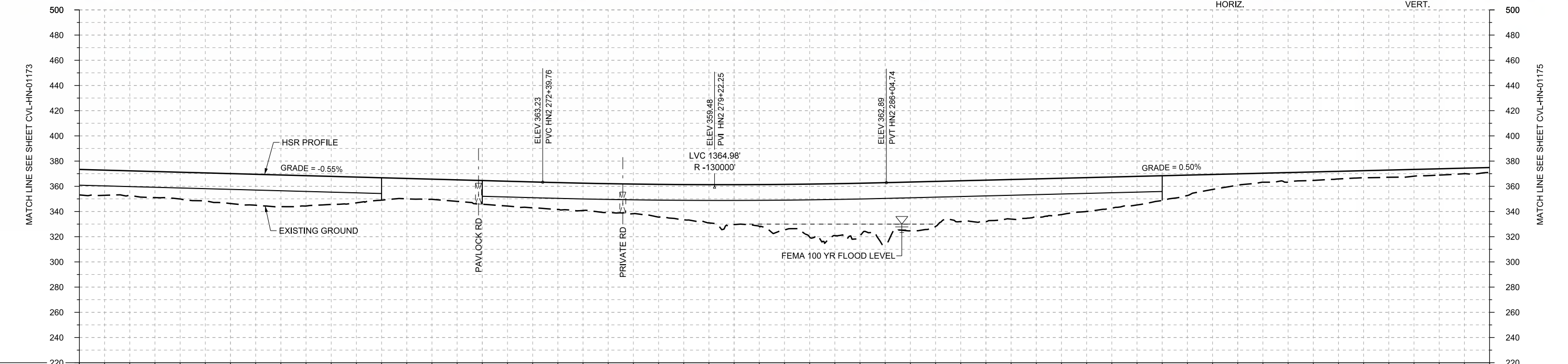
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01173 | 01 |



PLAN



PROFILE

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| STATIONING | HN2 254+00 | HN2 260+00 | HN2 270+00 | HN2 280+00 | HN2 290+00 | HN2 300+00 | HN2 310+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=1800 | | L=4009 | | | L=1800 | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=7186.45 G=-0.550% | | R=-130000 | | | L=6539.37 G=0.500% | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +20.3 | +19.6 | +21.3 | +23.8 | +25.2 | +22.3 | +17.8 | +16.1 | +19.9 | +20.6 | +21.6 | +23.5 | +28.0 | +31.7 | +36.2 | +41.2 | +47.8 | +35.8 | +32.9 | +30.1 | +26.9 | +22.7 | +16.2 | +9.1 | +7.6 | +6.1 | +5.7 | +5.0 | +3.9 |
| TYP. SECTION | VIADUCT (K) | | | EMBANKMENT (F) | | VIADUCT (K) | | | EMBANKMENT (F) | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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www.freese.com
Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN2 254+00 TO HN2 310+00

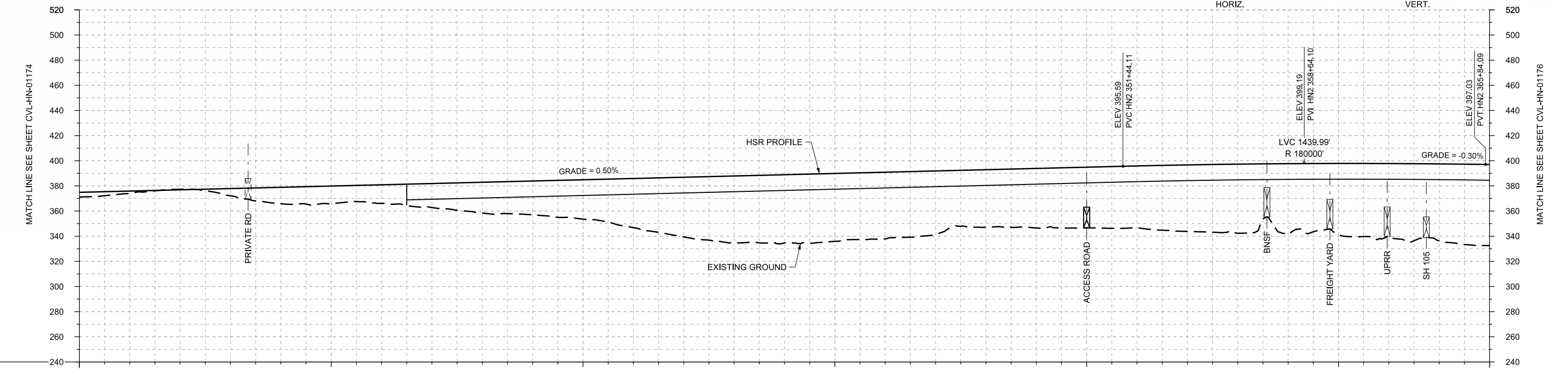
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01174 | 01 |



PLAN



PROFILE

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|----------------|----------------|------------|-----------------------|------------|--------------------|------------|------------|--|
| STATIONING | HN2 310+00 | HN2 320+00 | HN2 330+00 | HN2 340+00 | HN2 350+00 | HN2 360+00 | HN2 366+00 | |
| HOR. ALIGNMENT | | | | | R=-30000 L=6282 | | | |
| VER. ALIGNMENT | L=1800 | | L=6539.37 G=0.500% | | | R=180000 | | |
| CUT AND FILL | +3.9 | +1.9 | -0.4 | +5.7 | +13.0 | +14.1 | +14.8 | |
| TYP. SECTION | EMBANKMENT (F) | | | | VIADUCT (K) | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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Texas Registered Engineering Firm: F-2144

Client

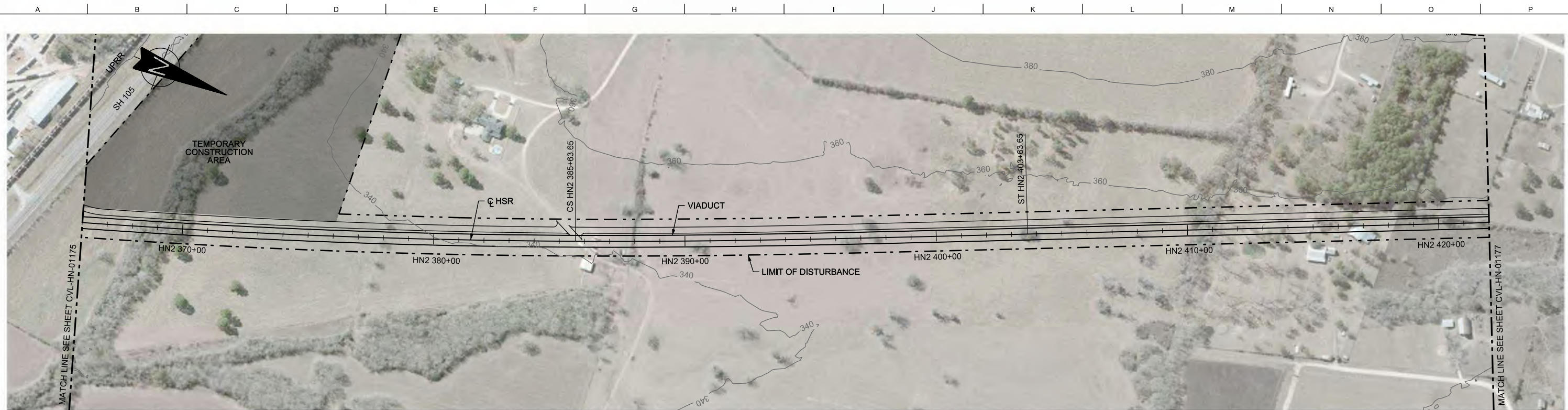
TEXAS CENTRAL

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

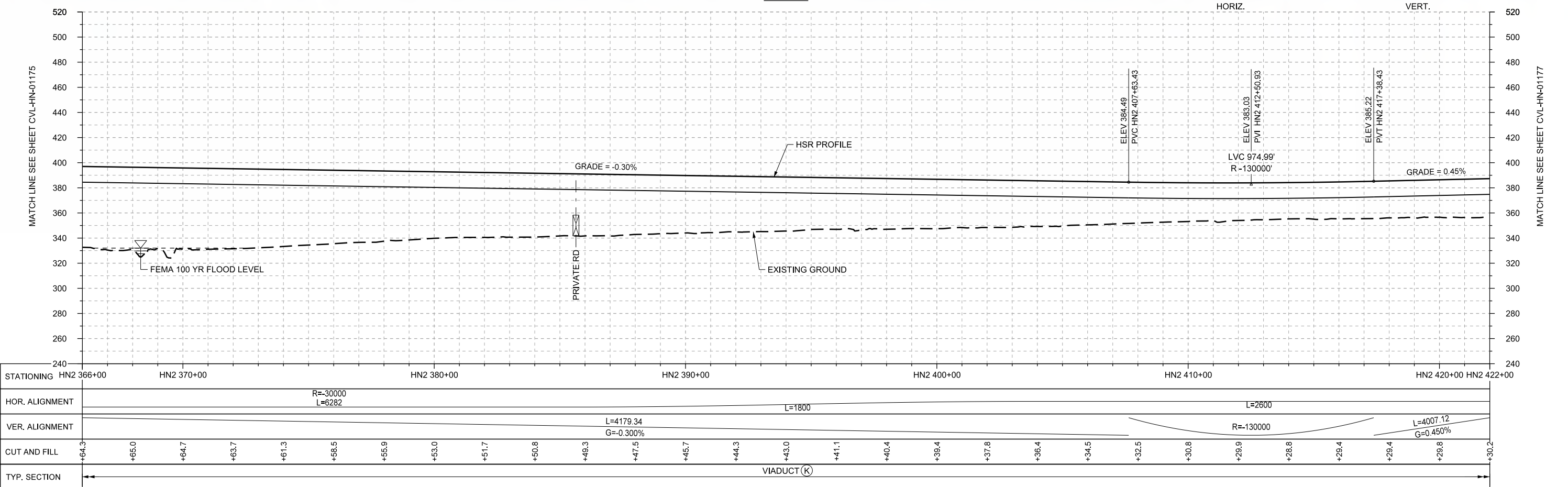
Drawing Title

**HOUSTON SEGMENT CIVIL
PLAN AND PROFILE
HN2 310+00 TO HN2 366+00**

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| Scale AS SHOWN | | |
| Drawing Status FINAL DRAFT | | |
| Job No 234180 | Drawing No CVL-HN-01175 | Rev 01 |



PLAN



PROFILE

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| STATIONING | HN2 366+00 | HN2 370+00 | HN2 380+00 | HN2 390+00 | HN2 400+00 | HN2 410+00 | HN2 420+00 | HN2 422+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=30000 L=6282 | | L=1800 | | | L=2600 | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=4179.34 G=-0.300% | | | | R=-130000 | | L=4007.12 G=0.450% | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +64.3 | +65.0 | +64.7 | +63.7 | +61.3 | +58.5 | +55.9 | +53.0 | +51.7 | +50.8 | +49.3 | +47.5 | +45.7 | +44.3 | +43.0 | +41.1 | +40.4 | +39.4 | +37.8 | +36.4 | +34.5 | +32.5 | +30.8 | +29.9 | +28.8 | +29.4 | +29.4 | +29.8 | +30.2 |
| TYP. SECTION | ← | | | | | | | | | | | | | | | | → | | | | | | | | | | | | |

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|-------------|-------------|
| DESIGNED BY | T. SMELCER |
| DRAWN BY | J. BORGHESI |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

Client

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

Drawing Title

HOUSTON SEGMENT CIVIL
PLAN AND PROFILE
HN2 366+00 TO HN2 422+00

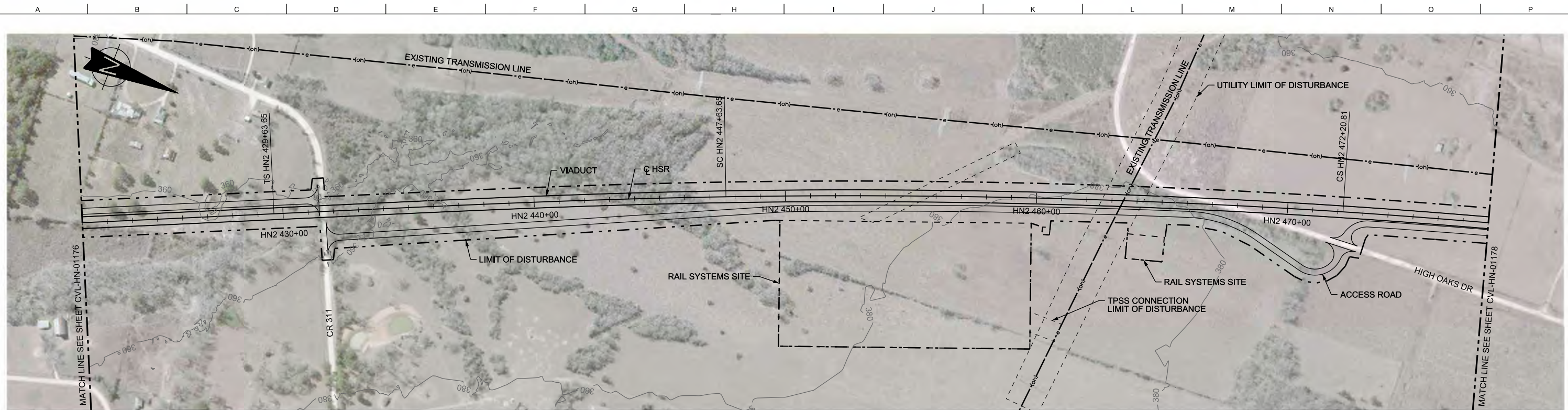
Scale

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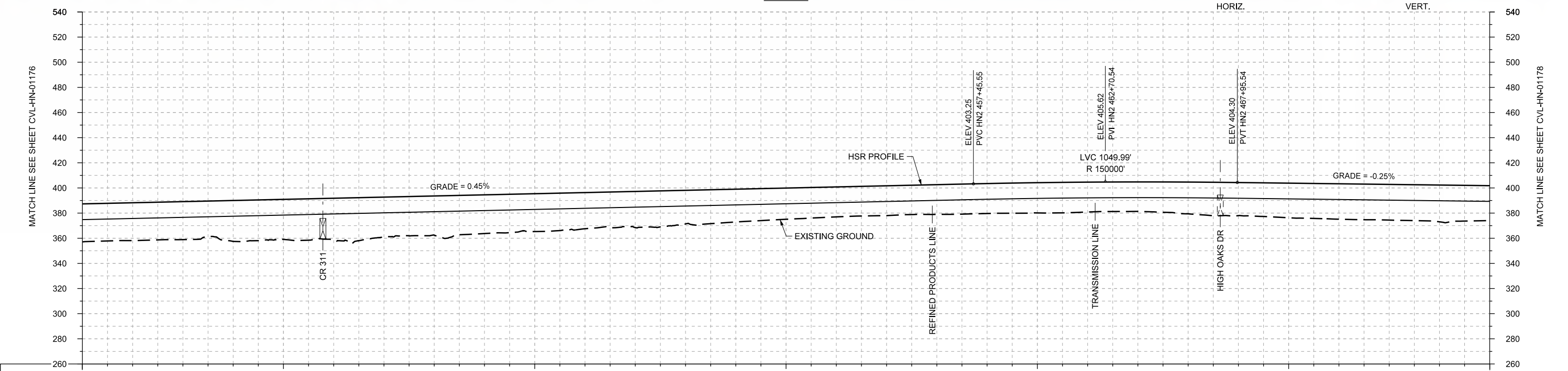
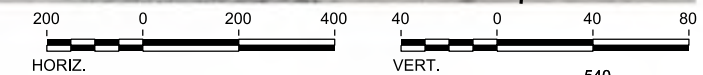
Drawing Status

FINAL DRAFT

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| Job No | 234180 | Drawing No | CVL-HN-01176 | Rev | 01 |
|--------|--------|------------|--------------|-----|----|



PLAN



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| STATIONING | HN2 422+00 | HN2 430+00 | HN2 440+00 | HN2 450+00 | HN2 460+00 | HN2 470+00 | HN2 478+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=2600 | | L=1800 | | R=30000 L=2457 | | L=1800 | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | | | L=4007.12 G=0.450% | | R=150000 | | L=5752.68 G=-0.250% | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +30.2 | +30.1 | +30.2 | +32.5 | +31.8 | +33.1 | +31.8 | +31.2 | +30.8 | +30.1 | +28.8 | +26.7 | +26.7 | +26.1 | +24.8 | +23.8 | +23.7 | +23.8 | +24.1 | +23.8 | +23.5 | +25.3 | +26.3 | +27.5 | +28.2 | +28.4 | +29.2 | +27.8 |
| TYP. SECTION | VIADUCT (K) | | | | | | | | | | | | | | | | | | | | | | | | | | | |

PROFILE

| | |
|-------------|-------------|
| DESIGNED BY | T. SMELCER |
| DRAWN BY | J. BORGHESI |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
| | | | | | |



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Houston, Texas 77042 USA
Tel (713) 783 2787 Fax (713) 343 1467
www.arup.com
Texas Registered Engineering Firm: F-1990



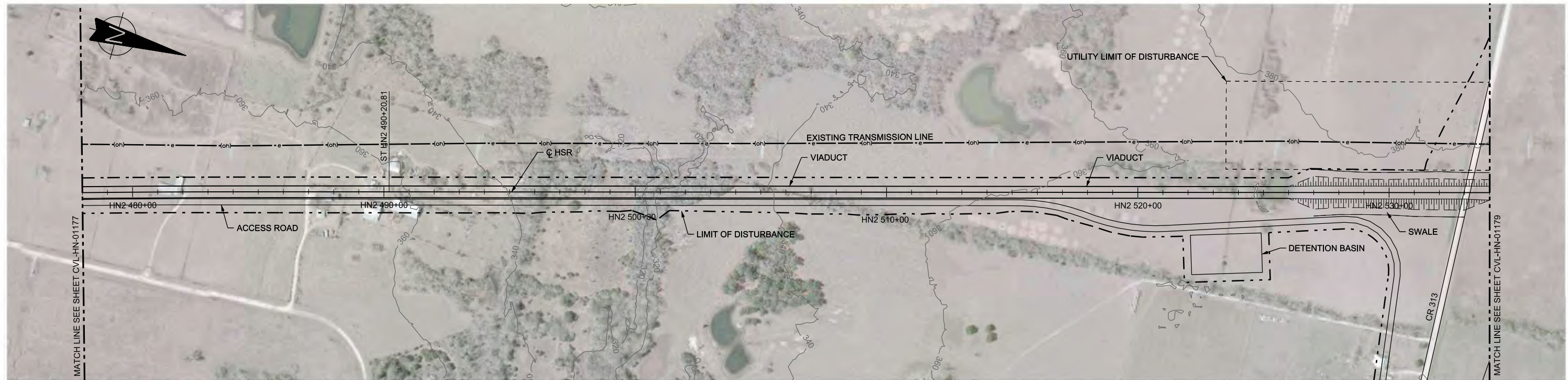
2711 North Haskell Ave., Suite 3300
Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144



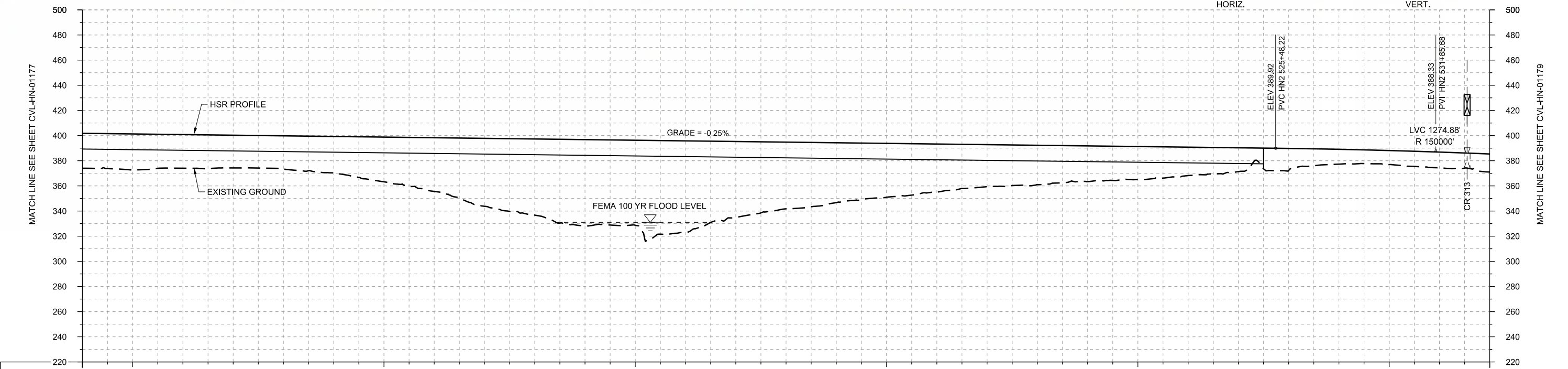
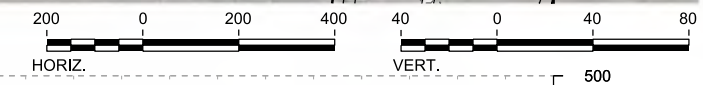
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN2 422+00 TO HN2 478+00

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| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01177 |
| Rev | 01 |



PLAN



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|----------------|------------------------|------------|------------|------------|------------|------------|------------|------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN2 478+00 | HN2 480+00 | HN2 490+00 | HN2 500+00 | HN2 510+00 | HN2 520+00 | HN2 530+00 | HN2 534+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=1800 | | | L=12640 | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=5752.68 G=-0.250% | | | | R=150000 | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +27.8 | +28.7 | +28.7 | +26.0 | +26.5 | +29.0 | +35.6 | +42.7 | +54.0 | +60.6 | +66.5 | +67.6 | +72.9 | +60.4 | +53.0 | +47.6 | +42.8 | +38.4 | +33.4 | +31.3 | +28.5 | +26.3 | +22.6 | +18.9 | +17.6 | +11.8 | +11.2 | +12.5 | +14.4 |
| TYP. SECTION | VIADUCT (K) | | | | | | | | | | | | EMBANKMENT (F) | | | | | | | | | | | | | | | | |

PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

Arup Texas, Inc.
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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

Client

TEXAS CENTRAL

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

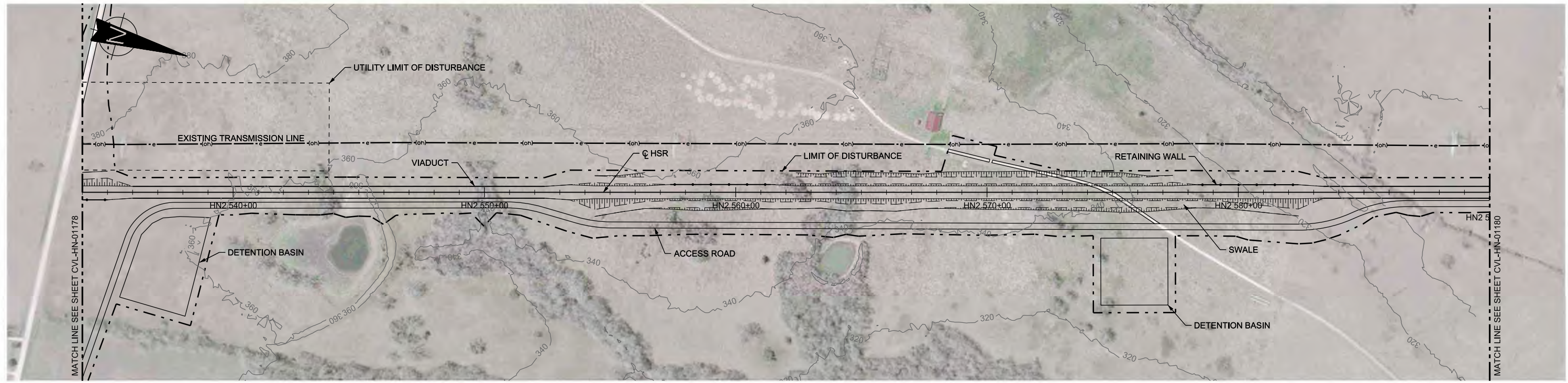
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN2 478+00 TO HN2 534+00

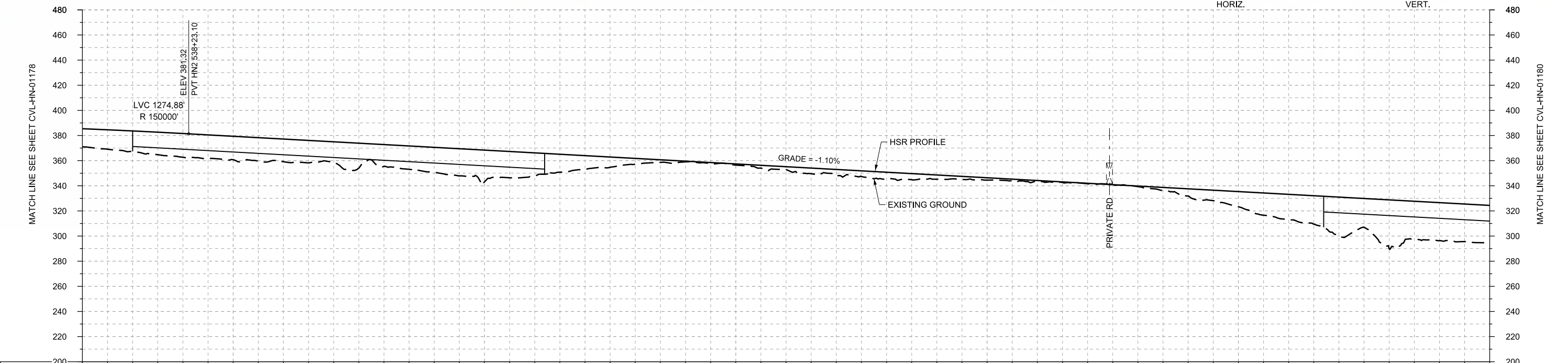
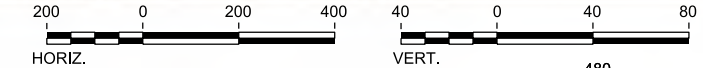
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01178 | 01 |



PLAN



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|----------------|------------------------|------------|------------|------------|------------|------------|------------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN2 534+00 | HN2 540+00 | HN2 550+00 | HN2 560+00 | HN2 570+00 | HN2 580+00 | HN2 590+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=12640 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=5466.43 G=-1.100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +14.4 | +16.3 | +18.9 | +18.7 | +18.1 | +16.5 | +17.4 | +20.0 | +25.3 | +18.7 | +11.1 | +4.7 | +0.6 | +1.0 | +2.5 | +4.5 | +5.2 | +3.4 | +2.0 | +0.7 | +0.4 | +0.5 | +5.8 | +12.1 | +20.3 | +31.3 | +38.9 | +30.3 | +28.8 |
| TYP. SECTION | Ⓣ | | Ⓚ | | | | | | | | | | Ⓣ | | | | | Ⓚ | | | | | | | | | | | |

PROFILE

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|-------------|-------------|
| DESIGNED BY | T. SMELCER |
| DRAWN BY | J. BORGHESI |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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ARUP

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www.freese.com
Texas Registered Engineering Firm: F-2144

Client

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

Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN2 534+00 TO HN2 590+00

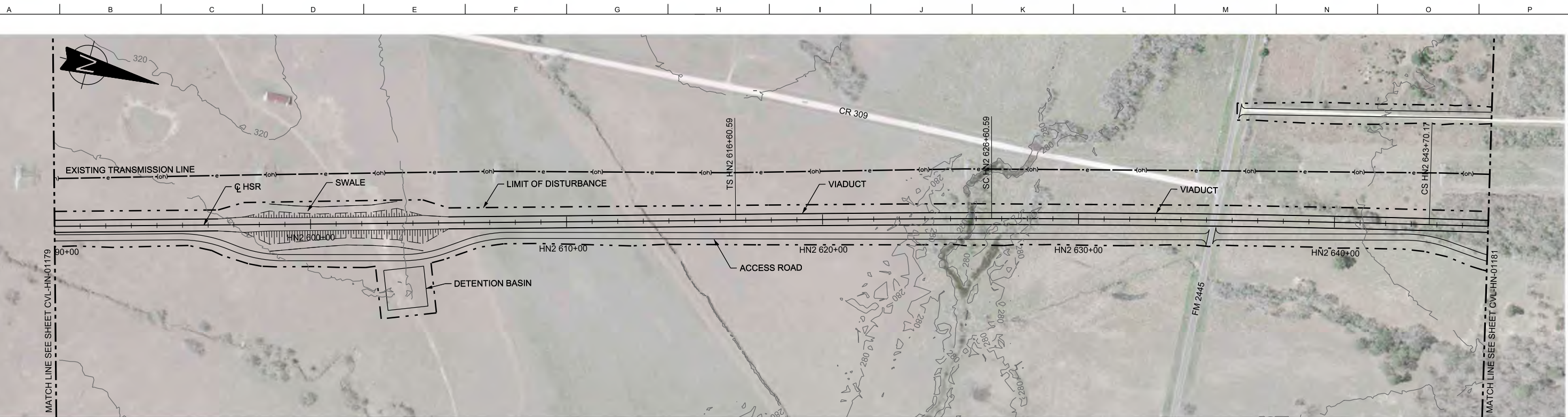
Scale

AS SHOWN

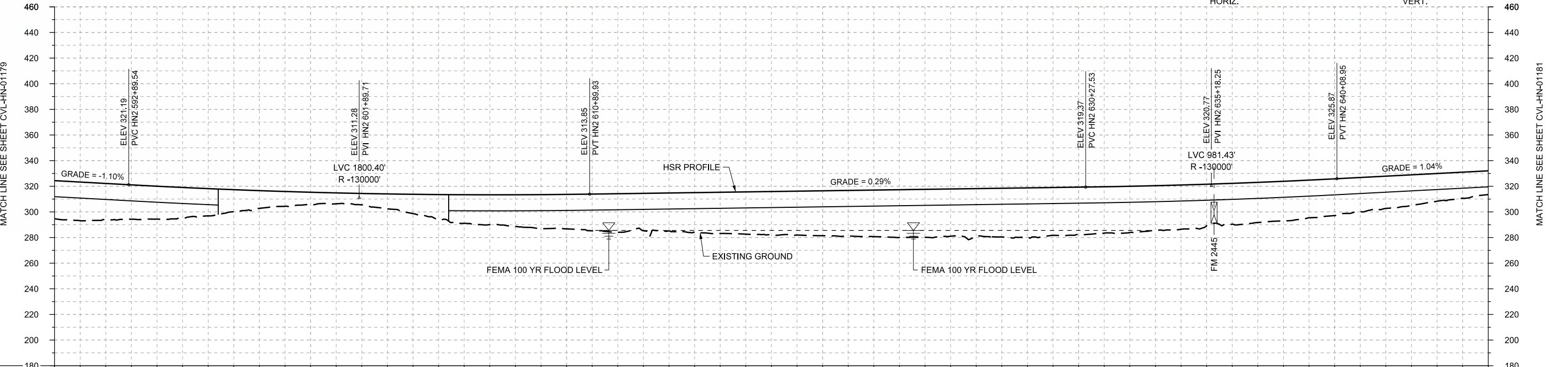
Drawing Status

FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01179 | 01 |



PLAN



PROFILE

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|----------------|------------------------|------------|----------------|------------|-----------------------|------------|------------|
| STATIONING | HN2 590+00 | HN2 600+00 | HN2 610+00 | HN2 620+00 | HN2 630+00 | HN2 640+00 | HN2 646+00 |
| HOR. ALIGNMENT | L=12640 | | L=1000 | | R=60000 L=1710 | | L=1000 |
| VER. ALIGNMENT | L=5466.43 G=-1.100% | | R=-130000 | | L=1937.59 G=0.285% | | R=-130000 |
| CUT AND FILL | +29.8 | +28.6 | +25.6 | +21.2 | +13.8 | +10.1 | +8.9 |
| | +15.0 | +22.3 | +24.6 | +26.9 | +30.2 | +29.6 | +32.1 |
| | +33.8 | +35.0 | +36.3 | +37.5 | +37.0 | +36.1 | +34.6 |
| | +32.0 | +30.9 | +28.7 | +25.2 | +21.6 | +18.5 | |
| TYP. SECTION | VIADUCT (K) | | EMBANKMENT (F) | | VIADUCT (K) | | |

| | |
|-------------|-------------|
| DESIGNED BY | T. SMELCER |
| DRAWN BY | J. BORGHESI |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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www.freese.com
Texas Registered Engineering Firm: F-2144

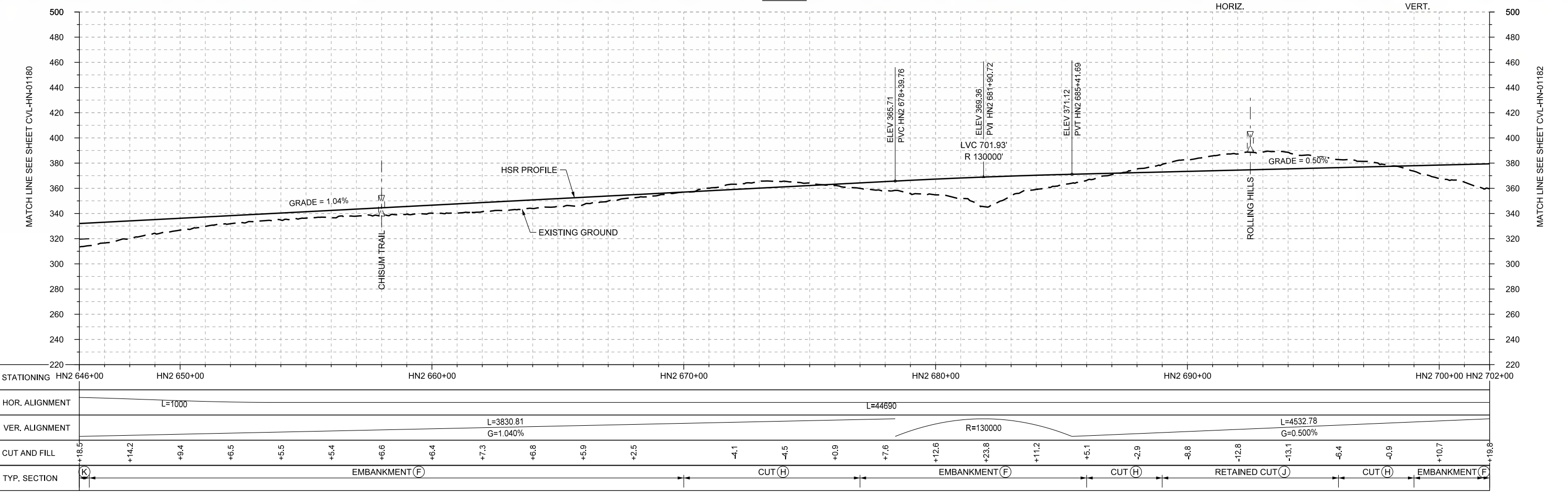
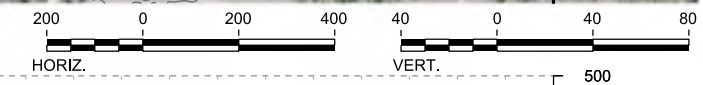
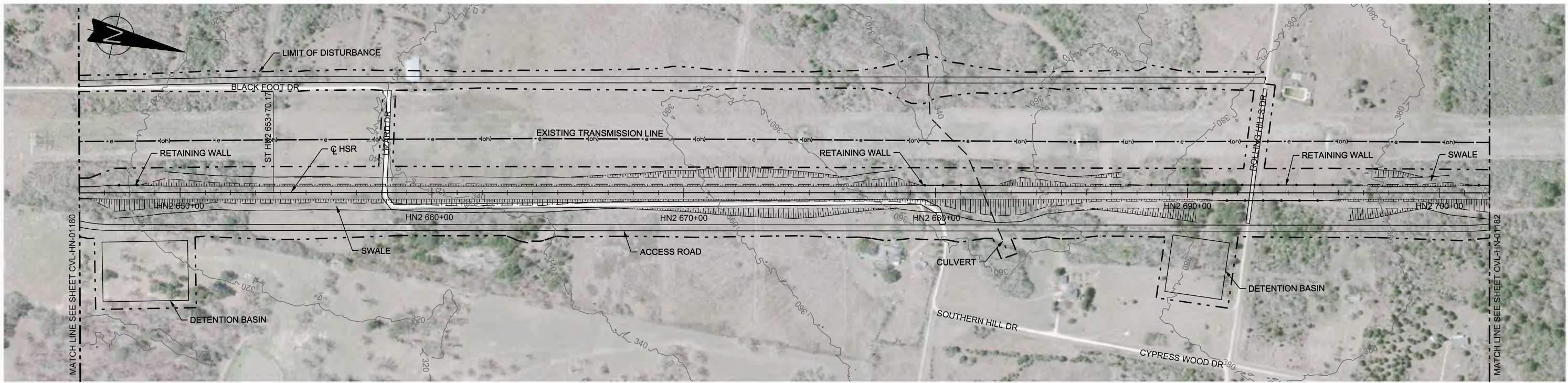
Client
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
**HOUSTON SEGMENT CIVIL
PLAN AND PROFILE
HN2 590+00 TO HN2 646+00**

Scale
AS SHOWN

Drawing Status
FINAL DRAFT

| | | |
|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01180 | 01 |



PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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| | | | | | |

DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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www.freese.com
Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

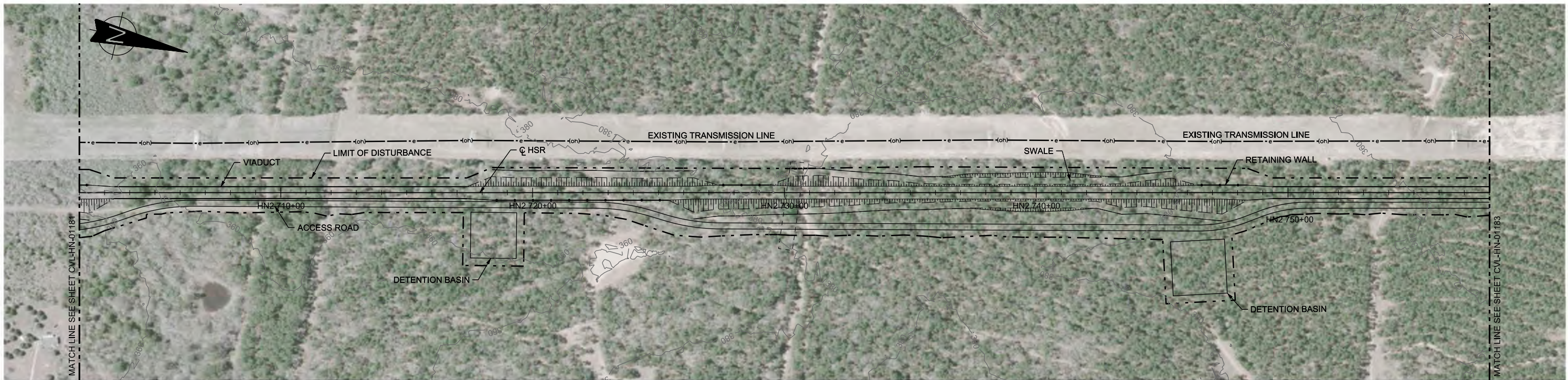
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN2 646+00 TO HN2 702+00

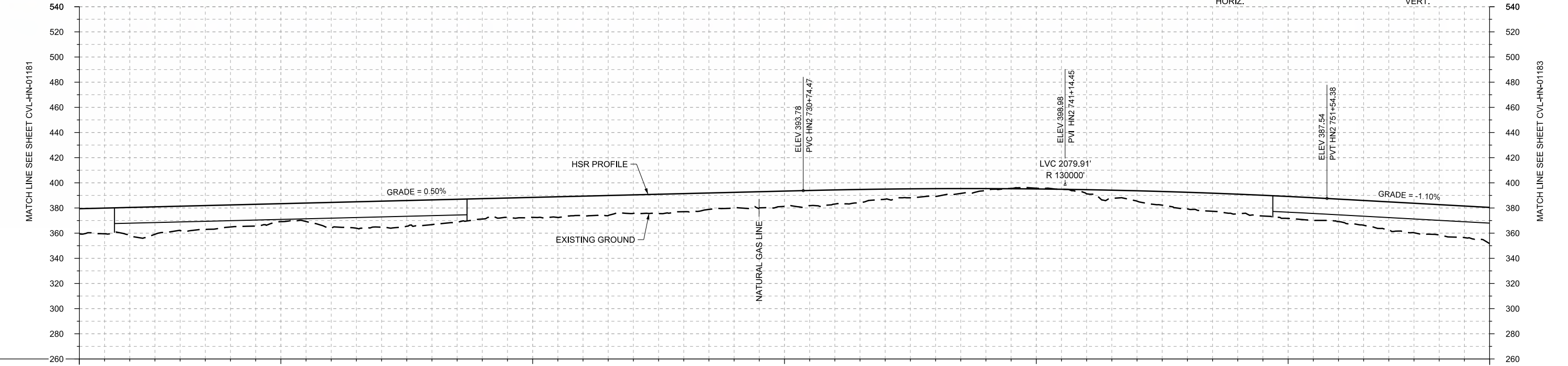
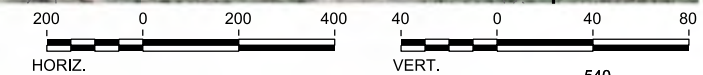
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No 234180 | Drawing No CVL-HN-01181 | Rev 01 |
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PLAN



PROFILE

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|----------------|-----------------------|-------------|------------|------------|----------------|------------|------------------------|
| STATIONING | HN2 702+00 | HN2 710+00 | HN2 720+00 | HN2 730+00 | HN2 740+00 | HN2 750+00 | HN2 758+00 |
| HOR. ALIGNMENT | L=44690 | | | | | | |
| VER. ALIGNMENT | L=4532.78 G=0.500% | | | R=130000 | | | L=1531.41 G=-1.100% |
| CUT AND FILL | +19.8 | +21.9 | +19.3 | +17.5 | +14.3 | +20.5 | +20.5 |
| TYP. SECTION | (F) | VIADUCT (K) | | | EMBANKMENT (F) | | CUT (H) |
| | | | | | | | EMBANKMENT (F) |
| | | | | | | | VIADUCT (K) |
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|----------------------------------|
| DESIGNED BY T. SMELCER |
| DRAWN BY J. BORGHESI |
| CHECKED BY K. SEYMOUR |
| IN CHARGE C. TAYLOR |
| DATE 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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www.freese.com
Texas Registered Engineering Firm: F-2144

Client

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

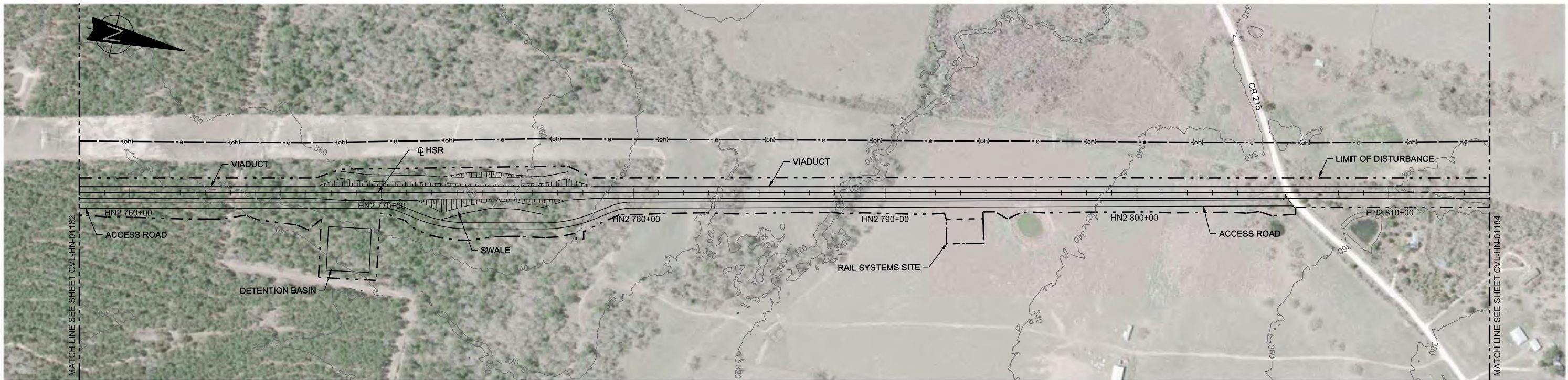
Drawing Title

**HOUSTON SEGMENT
CIVIL
PLAN AND PROFILE
HN2 702+00 TO HN2 758+00**

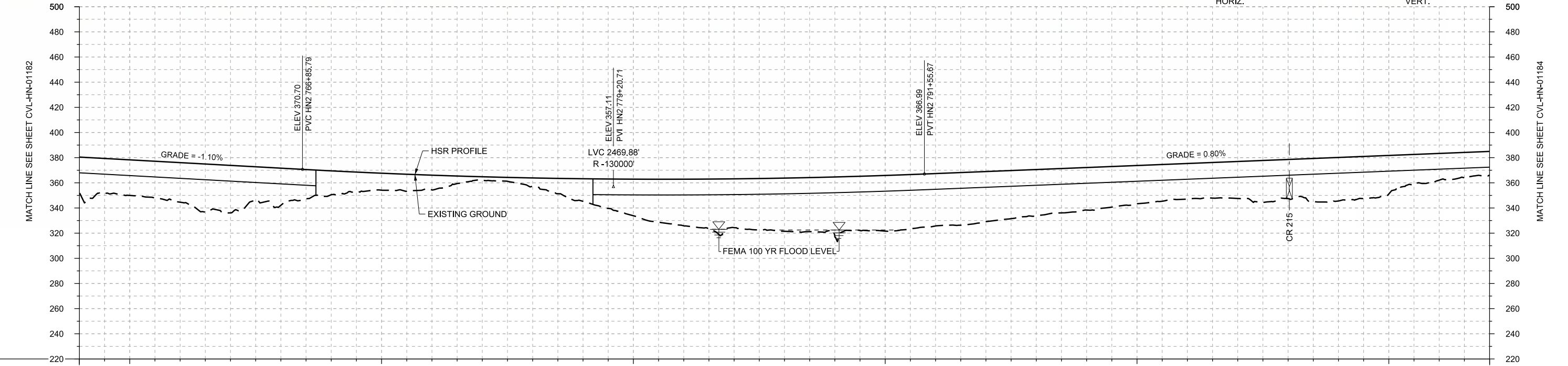
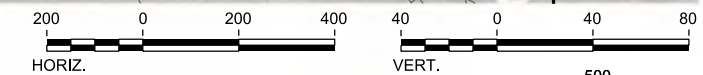
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No 234180 | Drawing No CVL-HN-01182 | Rev 01 |
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PLAN



PROFILE

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| STATIONING | HN2 758+00 | HN2 760+00 | | HN2 770+00 | | HN2 780+00 | | HN2 790+00 | | HN2 800+00 | | HN2 810+00 | HN2 814+00 | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=44690 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=1531.41 G=-1.100% | | | | R=130000 | | | | | L=3122.62 G=0.800% | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +26.7 | +26.2 | +31.4 | +37.7 | +29.5 | +19.0 | +13.5 | +11.8 | +2.7 | +6.6 | +17.9 | +29.1 | +37.1 | +38.7 | +42.2 | +47.3 | +44.2 | +41.6 | +39.8 | +38.7 | +33.8 | +30.3 | +28.2 | +29.3 | +31.0 | +34.5 | +30.6 | +21.2 | +18.8 |
| TYP. SECTION | VIADUCT (K) | | | | EMBANKMENT (F) | | | | CUT (H) | | F | | VIADUCT (K) | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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 www.freese.com
 Texas Registered Engineering Firm: F-2144

Client

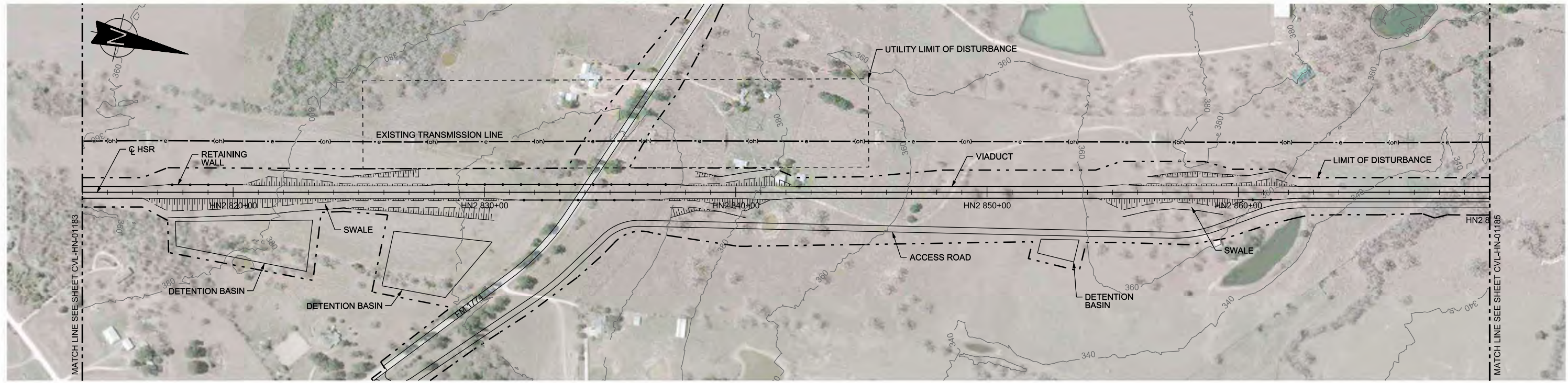
TEXAS CENTRAL
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN2 758+00 TO HN2 814+00

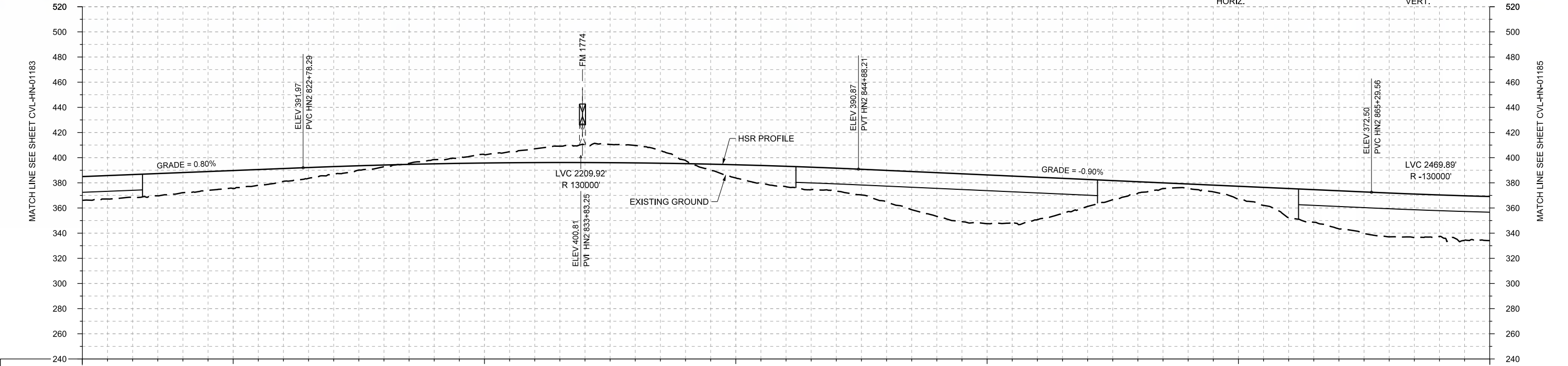
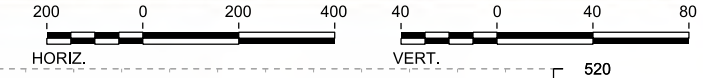
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01183 | 01 |



PLAN



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|----------------|-----------------------|----------------|------------|------------------|----------------|------------------------|----------------|-------------|
| STATIONING | HN2 814+00 | HN2 820+00 | HN2 830+00 | HN2 840+00 | HN2 850+00 | HN2 860+00 | HN2 870+00 | |
| HOR. ALIGNMENT | L=44690 | | | | | | | |
| VER. ALIGNMENT | L=3122.62 G=0.800% | | R=130000 | | | L=2041.36 G=-0.900% | | |
| CUT AND FILL | +18.8 | +18.1 | +15.9 | +14.2 | +10.1 | +6.0 | +1.5 | |
| | -3.3 | -6.7 | -10.9 | -14.3 | -13.9 | -2.5 | +10.5 | |
| | +16.2 | +18.0 | +25.2 | +34.8 | +38.8 | +33.8 | +21.5 | |
| | +9.2 | +3.5 | +10.1 | +23.2 | +30.3 | +34.8 | +33.0 | |
| TYP. SECTION | VIADUCT (K) | EMBANKMENT (F) | CUT (H) | RETAINED CUT (J) | EMBANKMENT (F) | VIADUCT (K) | EMBANKMENT (F) | VIADUCT (K) |

PROFILE

| | |
|-------------|-------------|
| DESIGNED BY | T. SMELCER |
| DRAWN BY | J. BORGHESI |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
| | | | | | |

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Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

Client

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

Drawing Title

HOUSTON SEGMENT CIVIL
PLAN AND PROFILE
HN2 814+00 TO HN2 870+00

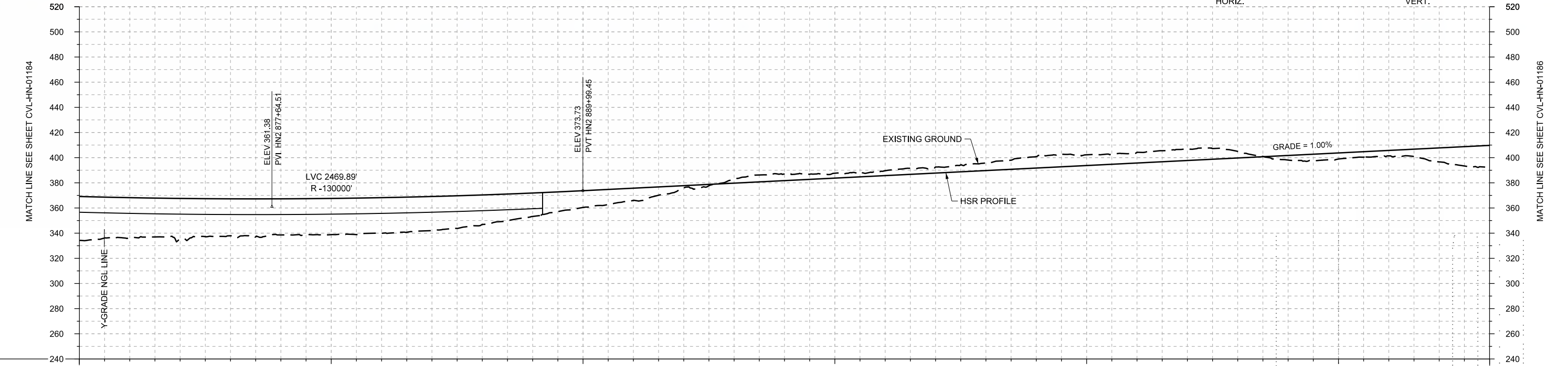
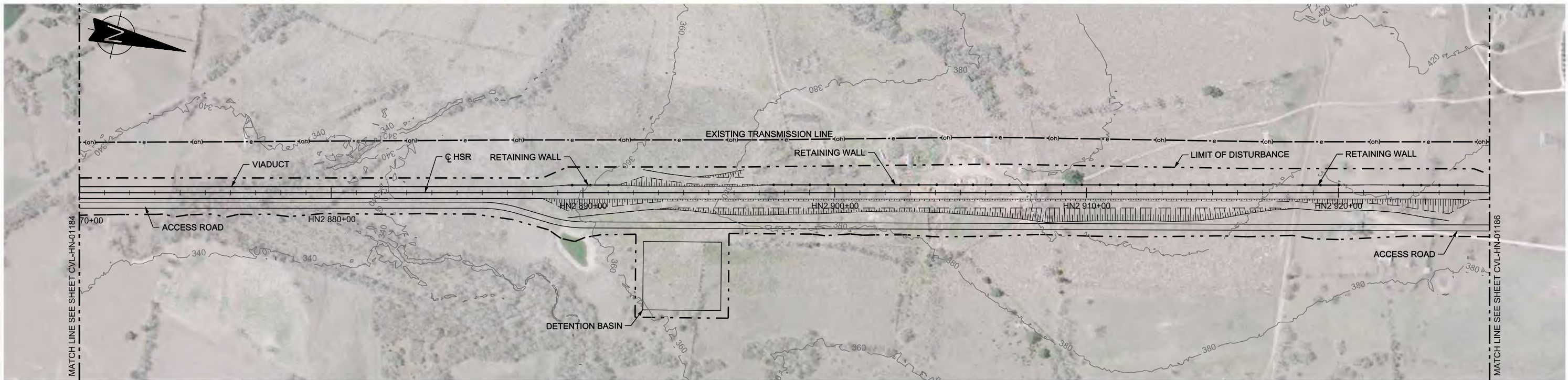
Scale

AS SHOWN

Drawing Status

FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01184 | 01 |



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| STATIONING | HN2 870+00 | HN2 880+00 | HN2 890+00 | HN2 900+00 | HN2 910+00 | HN2 920+00 | HN2 926+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=44690 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | R=130000 | | | L=4015.12 G=1.000% | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +35.0 | +31.9 | +33.0 | +29.4 | +26.7 | +28.8 | +28.3 | +27.1 | +23.5 | +18.6 | +13.3 | +9.7 | +1.8 | -2.8 | -5.3 | -3.9 | -3.9 | -4.9 | -6.0 | -9.1 | -8.6 | -8.5 | -8.5 | -5.3 | +3.6 | +4.8 | +4.3 | +11.1 | +16.0 |
| TYP. SECTION | VIADUCT (K) | | | EMBANKMENT (F) | | | CUT (H) | | | | | | EMBANKMENT (F) | | | (G) | | | | | | | | | | | | | |

PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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www.freese.com
Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

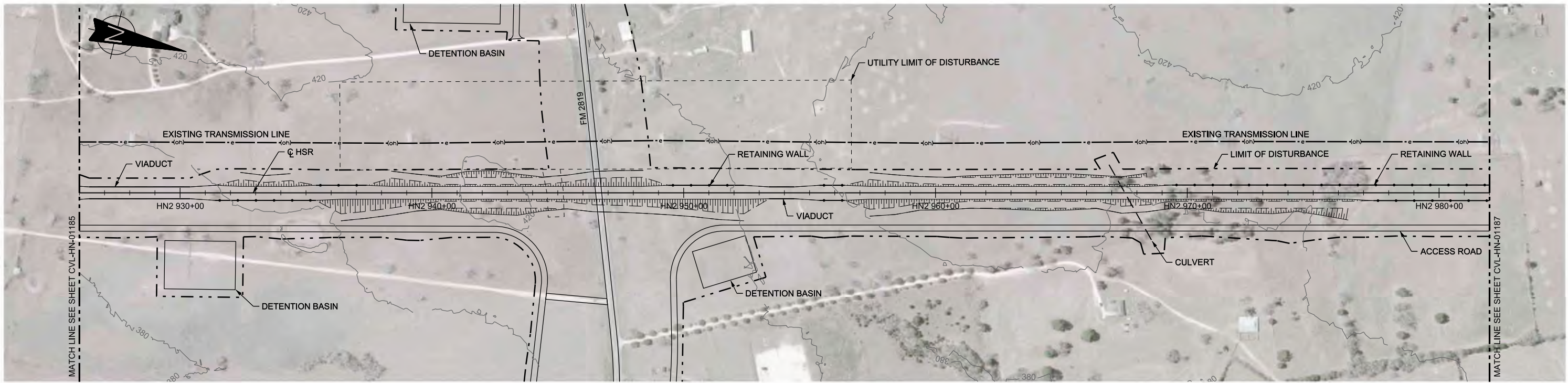
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN2 870+00 TO HN2 926+00

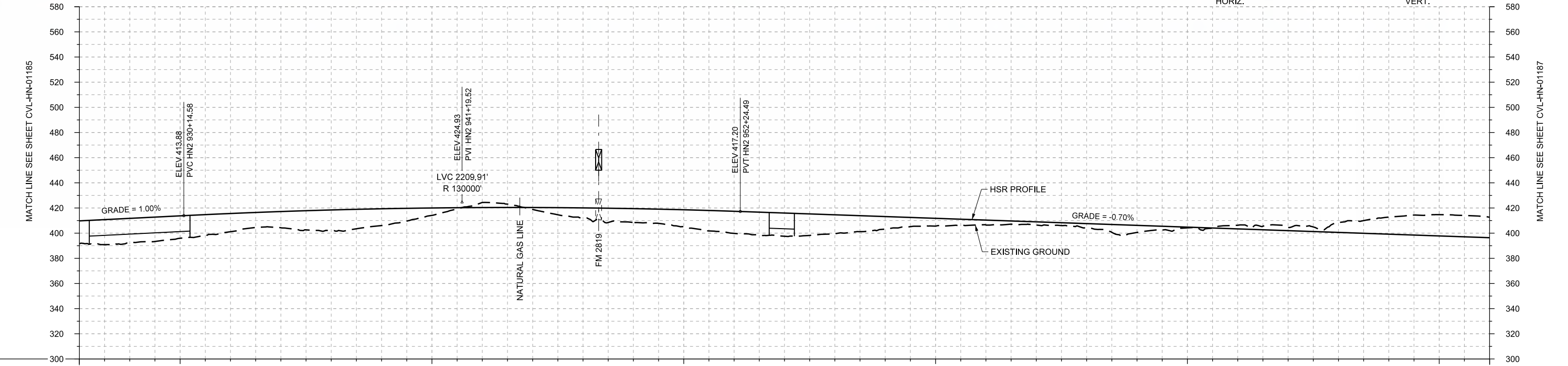
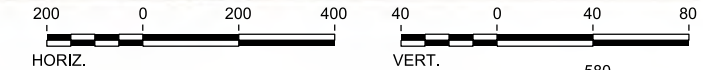
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

| | | |
|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01185 | 01 |



PLAN



PROFILE

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|----------------|-----------------------|-------------|------------|------------|------------|------------|------------------------|------------|----------------|------|------|-------|-------|----------------|---------|---------|-------|------|---------|------------------|------|------|------|------|------|------|-------|-------|-------|
| STATIONING | HN2 926+00 | HN2 930+00 | HN2 940+00 | HN2 950+00 | HN2 960+00 | HN2 970+00 | HN2 980+00 | HN2 982+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=44690 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=4015.12 G=1.000% | | R=130000 | | | | L=3895.31 G=-0.700% | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +18.0 | +19.6 | +17.8 | +14.5 | +12.9 | +16.3 | +13.4 | +5.9 | -4.1 | +1.6 | +8.0 | +11.0 | +13.6 | +17.6 | +18.5 | +15.1 | +10.2 | +6.2 | +3.9 | +2.6 | +3.3 | +5.7 | +0.6 | -2.8 | -2.4 | -7.8 | -13.6 | -16.9 | -16.2 |
| TYP. SECTION | G | VIADUCT (K) | | G | F | G | F | CUT (H) | EMBANKMENT (F) | | | K | G | EMBANKMENT (F) | CUT (H) | CUT (H) | F | J | CUT (H) | RETAINED CUT (J) | | | | | | | | | |

| | |
|-------------|-------------|
| DESIGNED BY | T. SMELCER |
| DRAWN BY | J. BORGHESI |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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FRESE AND NICHOLS

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Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

Client

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

Drawing Title

HOUSTON SEGMENT CIVIL
PLAN AND PROFILE
HN2 926+00 TO HN2 982+00

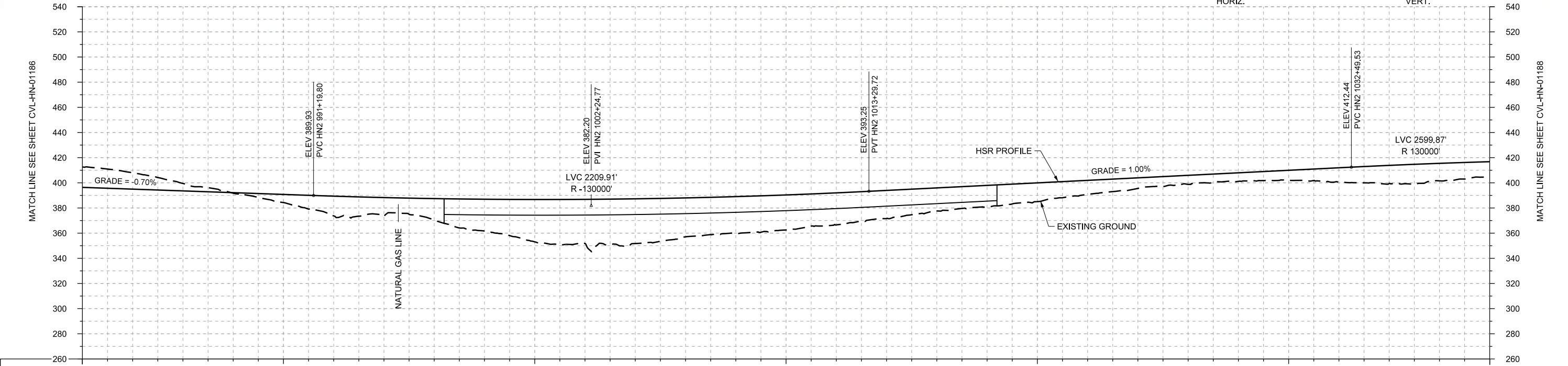
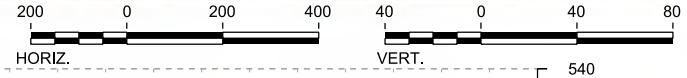
Scale

AS SHOWN

Drawing Status

FINAL DRAFT

| | | |
|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01186 | 01 |



| | | | | | | | |
|----------------|------------------------|------------|-------------|-------------|----------------|-----------------------|-------------|
| STATIONING | HN2 982+00 | HN2 990+00 | HN2 1000+00 | HN2 1010+00 | HN2 1020+00 | HN2 1030+00 | HN2 1038+00 |
| HOR. ALIGNMENT | L=44690 | | | | | | |
| VER. ALIGNMENT | L=3895.31 G=-0.700% | | R=130000 | | | L=1919.82 G=1.000% | |
| CUT AND FILL | -16.2 | -13.0 | -5.9 | +0.5 | +6.5 | +15.7 | +15.0 |
| TYP. SECTION | RETAINED CUT (J) | | CUT (H) | | EMBANKMENT (F) | | VIADUCT (K) |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
| | | | | | |

DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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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

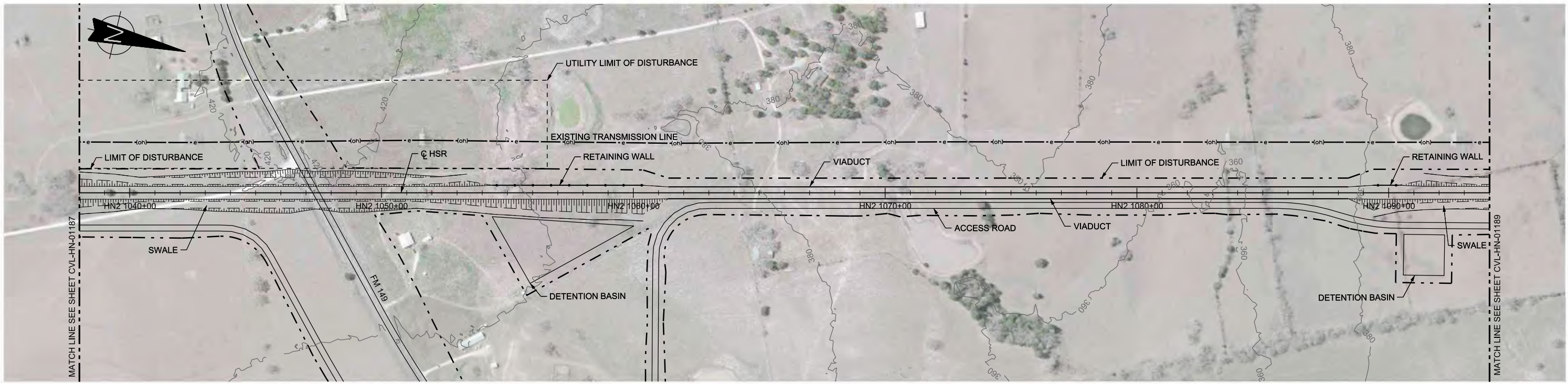
Client

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

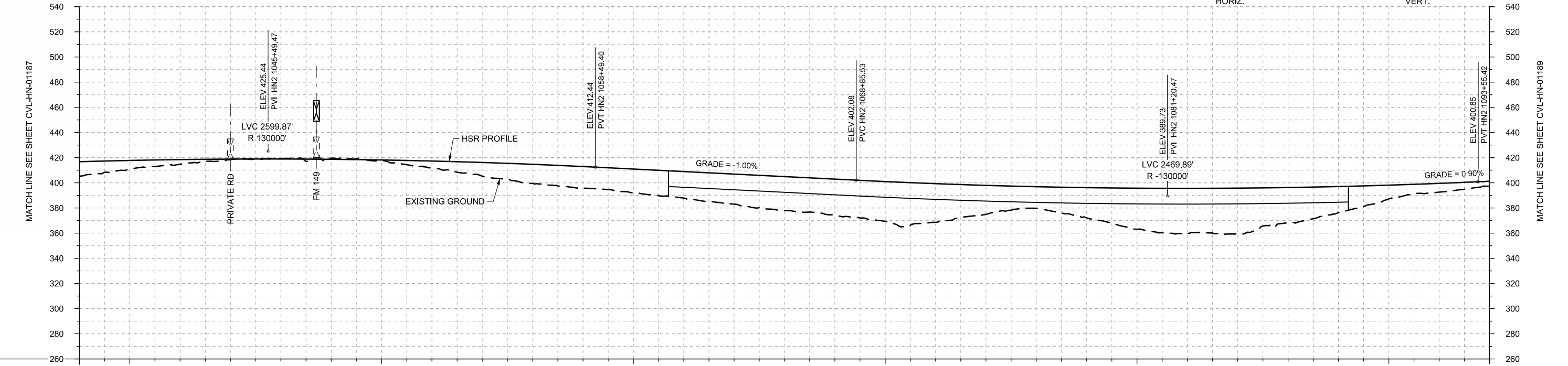
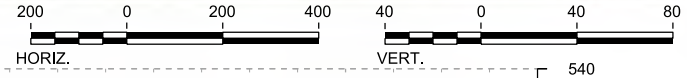
Drawing Title

**HOUSTON SEGMENT
CIVIL
PLAN AND PROFILE
HN2 982+00 TO HN2 1038+00**

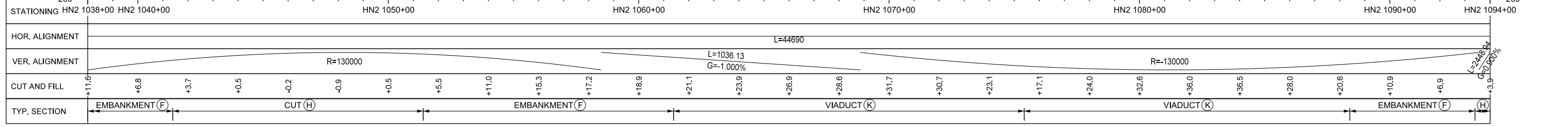
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|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01187 |
| Rev | 01 |



PLAN



PROFILE



| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER
DRAWN BY
J. BORGHESI
CHECKED BY
K. SEYMOUR
IN CHARGE
C. TAYLOR
DATE
09/15/2017

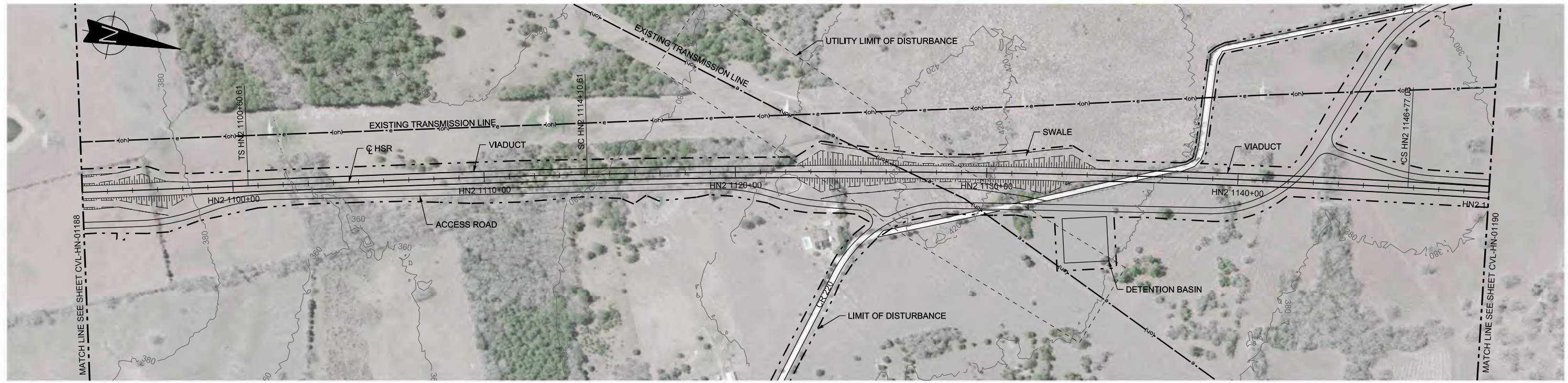
ARUP
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Texas Registered Engineering Firm: F-1990

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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

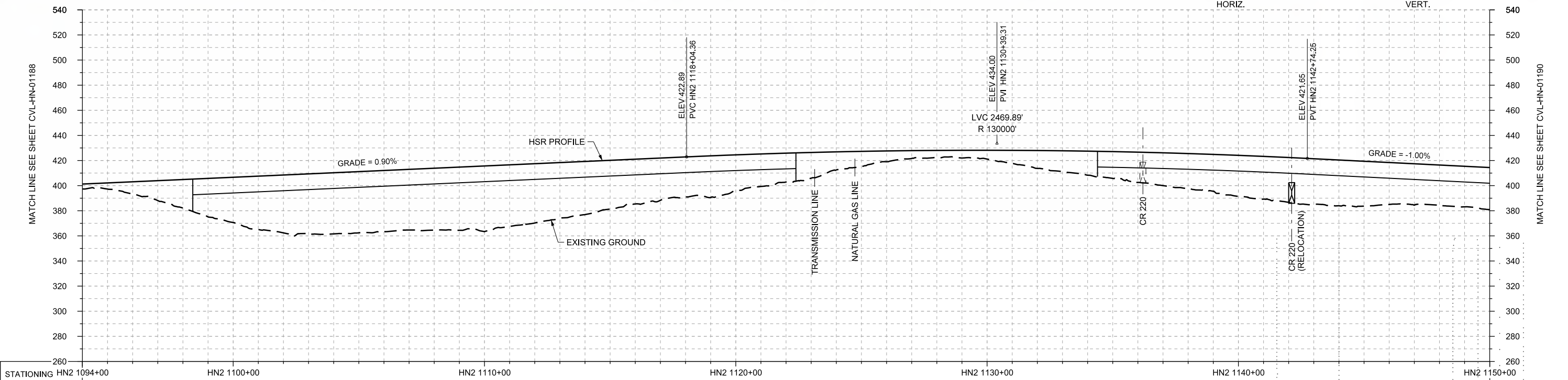
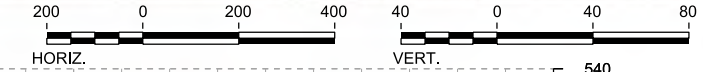
Client
TEXAS CENTRAL
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN2 1038+00 TO HN2 1094+00

Scale
AS SHOWN
Drawing Status
FINAL DRAFT
Job No: 234180
Drawing No: CVL-HN-01188
Rev: 01



PLAN



PROFILE

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| STATIONING | HN2 1094+00 | HN2 1100+00 | HN2 1110+00 | HN2 1120+00 | HN2 1130+00 | HN2 1140+00 | HN2 1150+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=44690 | | L=1350 | | R=42000 L=3266 | | L=1350 | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=2448.94 G=0.900% | | R=130000 | | L=2131.13 G=-1.000% | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +3.9 | +9.3 | +22.6 | +36.0 | +46.0 | +48.6 | +48.4 | +49.2 | +52.2 | +47.2 | +42.3 | +35.6 | +31.8 | +28.6 | +22.9 | +14.4 | +8.6 | +5.8 | +7.0 | +14.3 | +19.2 | +24.0 | +27.8 | +32.7 | +35.7 | +36.4 | +33.4 | +32.4 | +33.5 |
| TYP. SECTION | EMBANKMENT (F) | | VIADUCT (K) | | | | | | | | | | EMBANKMENT (F) | | | | | VIADUCT (K) | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER
DRAWN BY
J. BORGHESI
CHECKED BY
K. SEYMOUR
IN CHARGE
C. TAYLOR
DATE
09/15/2017

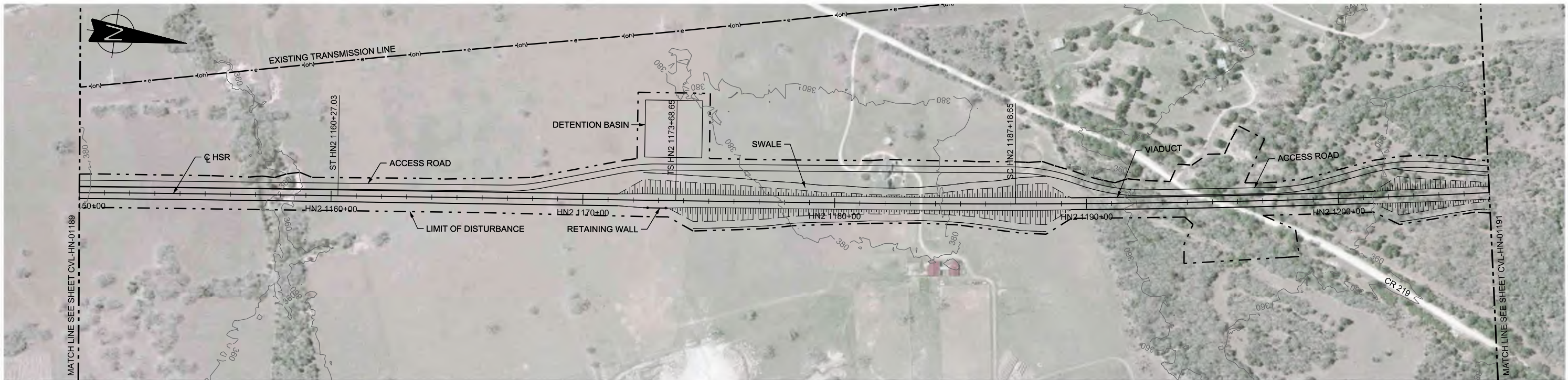
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2711 North Haskell Ave., Suite 3300
Dallas, Texas 75204
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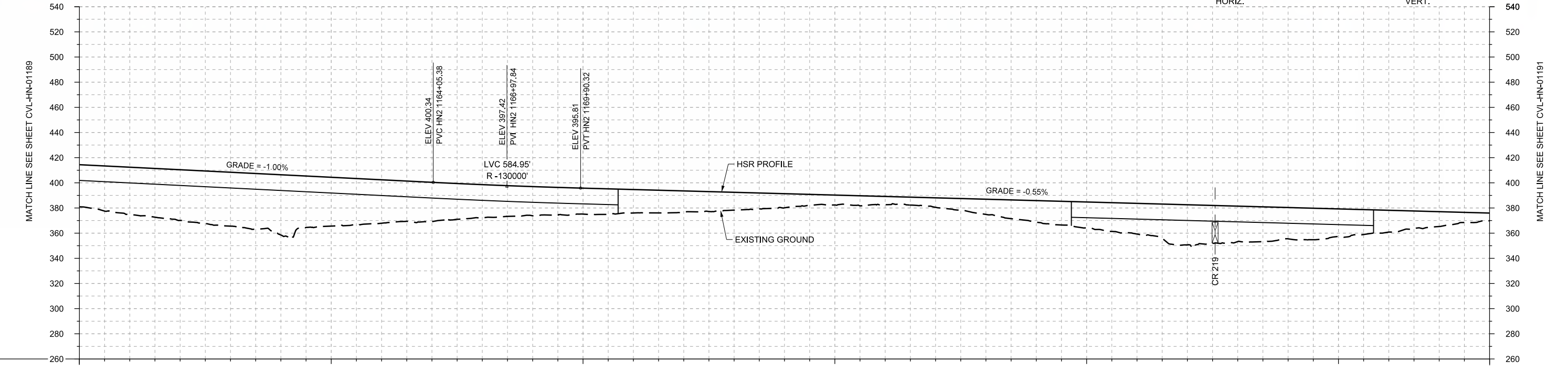
Client
TEXAS CENTRAL
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN2 1094+00 TO HN2 1150+00

| | |
|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01189 |
| Rev | 01 |



PLAN



PROFILE

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|----------------|------------------------|-------------|-------------|----------------|------------------------|-------------|-------------------|
| STATIONING | HN2 1150+00 | HN2 1160+00 | HN2 1170+00 | HN2 1180+00 | HN2 1190+00 | HN2 1200+00 | HN2 1206+00 |
| HOR. ALIGNMENT | L=1350 | | L=1342 | | L=1350 | | R=42000 L=2676 |
| VER. ALIGNMENT | L=2131.13 G=-1.000% | | R=-130000 | | L=6773.09 G=-0.550% | | |
| CUT AND FILL | +33.5 | +37.6 | +40.3 | +42.8 | +47.9 | +38.8 | +34.5 |
| TYP. SECTION | VIADUCT (K) | | | EMBANKMENT (A) | | | VIADUCT (K) |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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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

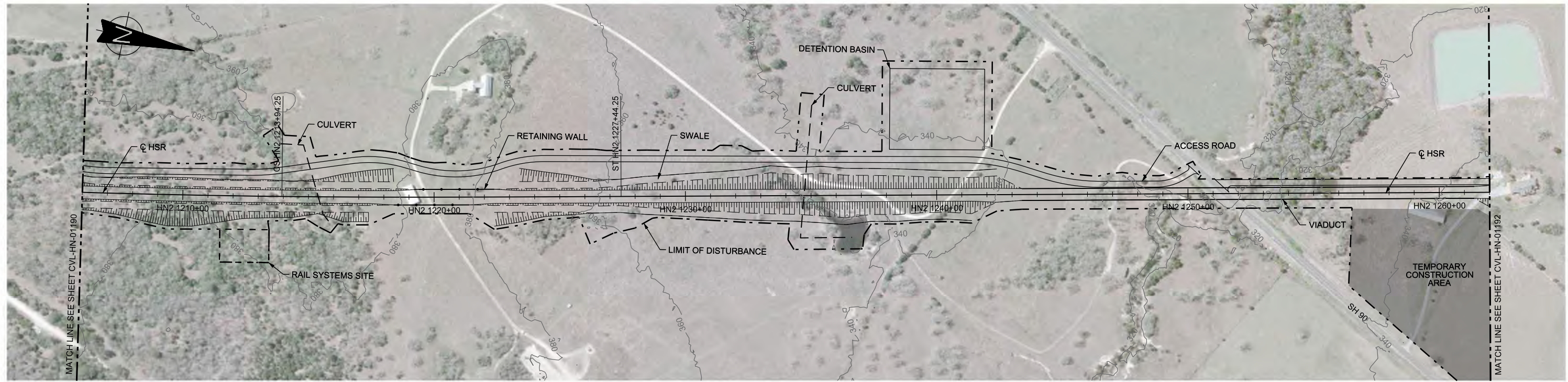
Client

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

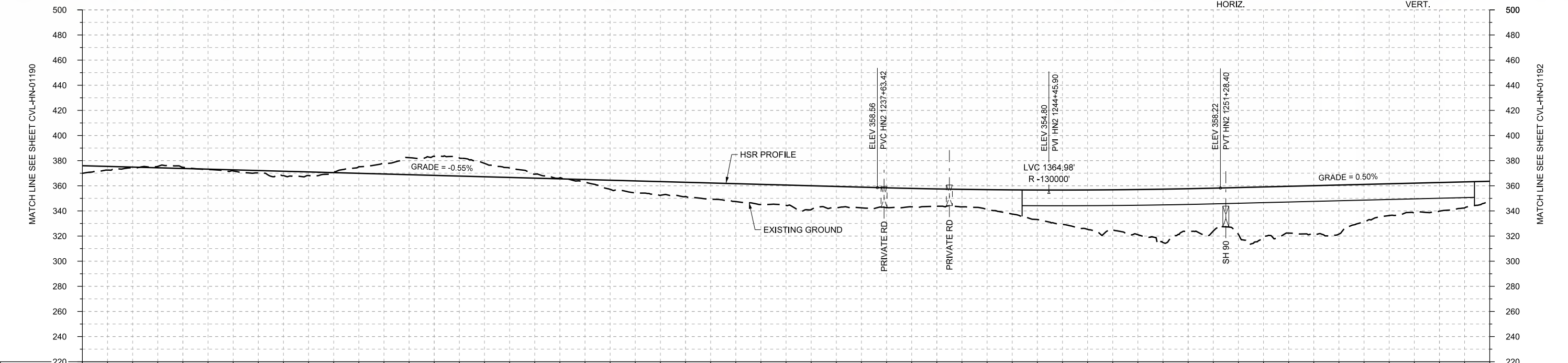
Drawing Title

**HOUSTON SEGMENT
CIVIL
PLAN AND PROFILE
HN2 1150+00 TO HN2 1206+00**

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| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | Drawing No | Rev | |
| 234180 | CVL-HN-01190 | 01 | |



PLAN



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|----------------|-------------------|-------------|------------------------|-------------|-------------|------------------|-------------|-------------|---------|------|------|----------------|-------|-------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN2 1206+00 | HN2 1210+00 | HN2 1220+00 | HN2 1230+00 | HN2 1240+00 | HN2 1250+00 | HN2 1260+00 | HN2 1262+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=42000 L=2676 | | L=1350 | | | L=32150 | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | | | L=6773.09 G=-0.550% | | | R=130000 | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +6.1 | +0.9 | -0.8 | +0.9 | +3.5 | -0.5 | -8.6 | -15.2 | -10.6 | -3.1 | +2.2 | +9.6 | +11.3 | +14.3 | +16.2 | +17.0 | +15.8 | +13.8 | +15.7 | +23.5 | +31.3 | +35.9 | +33.9 | +37.2 | +37.3 | +39.1 | +23.3 | +22.8 | +15.9 |
| TYP. SECTION | A | | CUT (C) | | | RETAINED CUT (D) | | | CUT (C) | | | EMBANKMENT (A) | | | VIADUCT (E) | | | A | | | | | | | | | | | |

PROFILE

| | |
|-------------|-------------|
| DESIGNED BY | T. SMELCER |
| DRAWN BY | J. BORGHESI |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN2 1206+00 TO HN2 1262+00

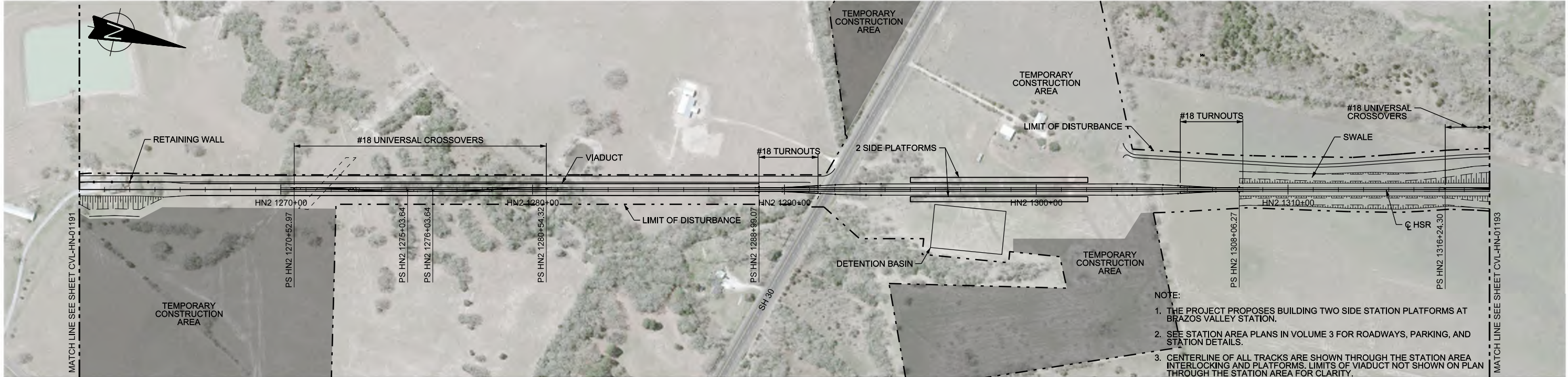
Scale

AS SHOWN

Drawing Status

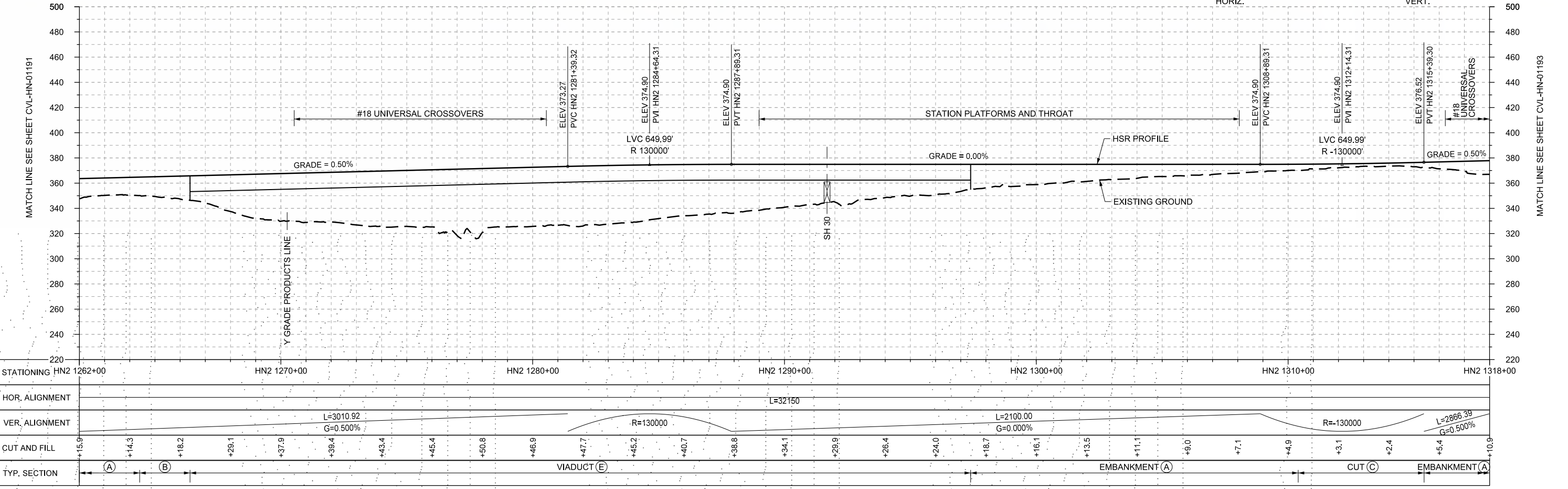
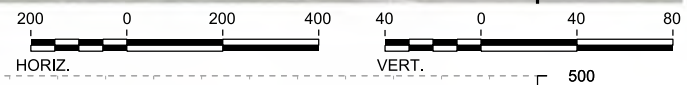
FINAL DRAFT

| | | |
|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01191 | 01 |



- NOTE:
1. THE PROJECT PROPOSES BUILDING TWO SIDE STATION PLATFORMS AT BRAZOS VALLEY STATION.
 2. SEE STATION AREA PLANS IN VOLUME 3 FOR ROADWAYS, PARKING, AND STATION DETAILS.
 3. CENTERLINE OF ALL TRACKS ARE SHOWN THROUGH THE STATION AREA INTERLOCKING AND PLATFORMS. LIMITS OF VIADUCT NOT SHOWN ON PLAN THROUGH THE STATION AREA FOR CLARITY.

PLAN



PROFILE

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|----------------------------------|
| DESIGNED BY T. SMELCER |
| DRAWN BY J. BORGHESI |
| CHECKED BY K. SEYMOUR |
| IN CHARGE C. TAYLOR |
| DATE 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144

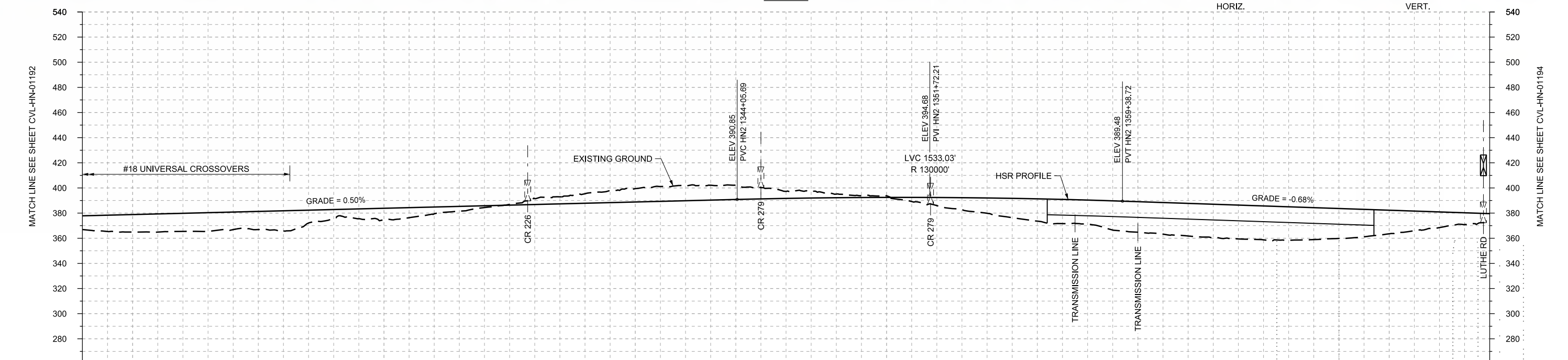
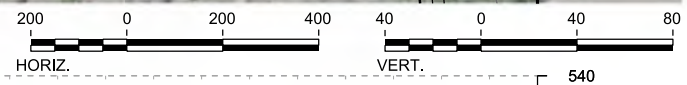
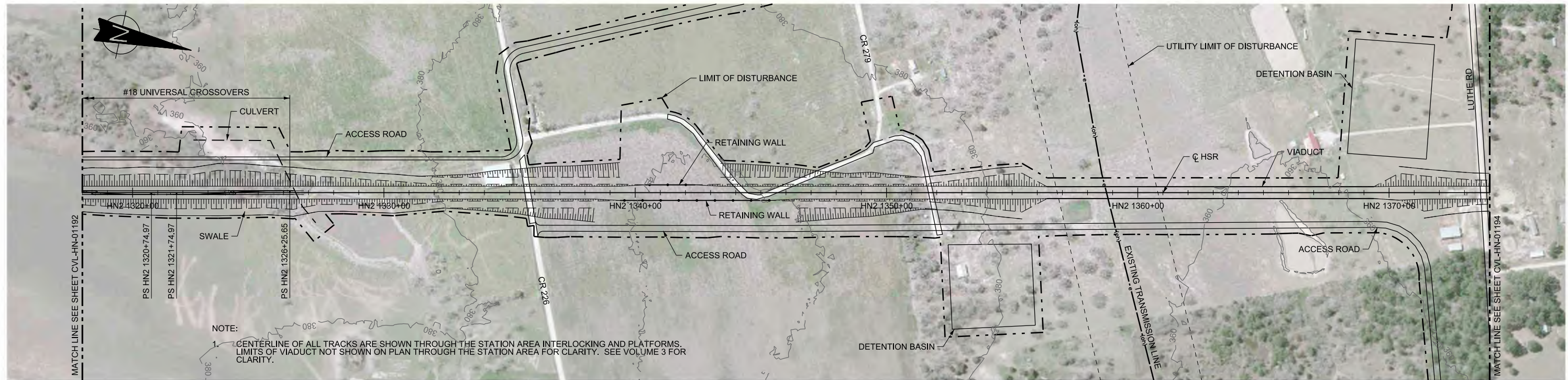
Client
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
**HOUSTON SEGMENT CIVIL
PLAN AND PROFILE
HN2 1262+00 TO HN2 1318+00**

Scale
AS SHOWN

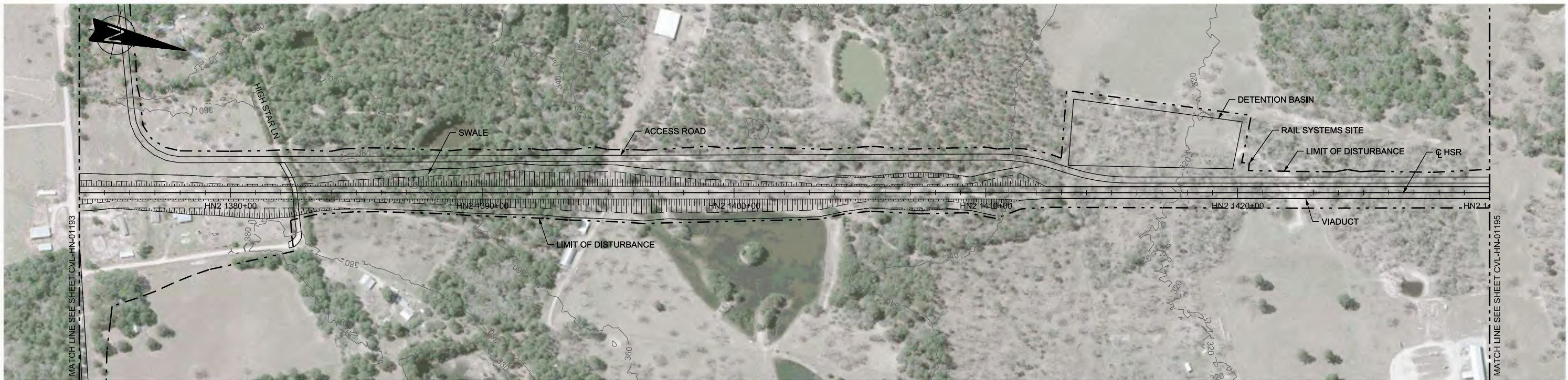
Drawing Status
FINAL DRAFT

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|-------------------------|-----------------------------------|------------------|
| Job No 234180 | Drawing No CVL-HN-01192 | Rev 01 |
|-------------------------|-----------------------------------|------------------|

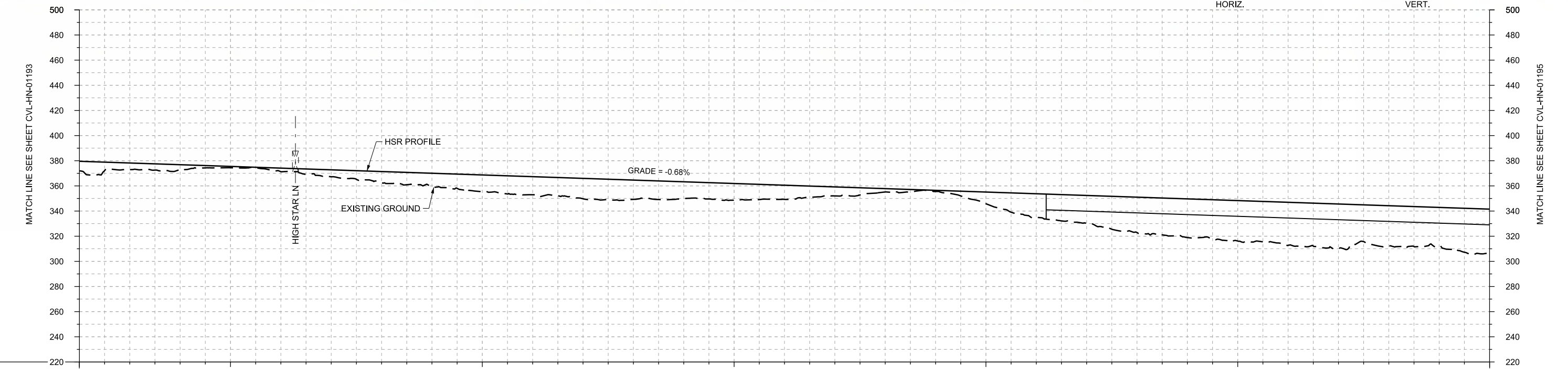
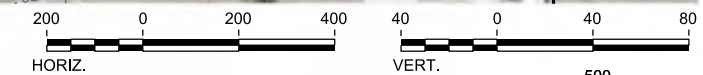


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|----------------|-----------------------|-------------|-------------|-------------|-------------|-------------|------------------------|-------------|---------|------|----------------|-------|-------------|-------|----------------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| STATIONING | HN2 1318+00 | HN2 1320+00 | HN2 1330+00 | HN2 1340+00 | HN2 1350+00 | HN2 1360+00 | HN2 1370+00 | HN2 1374+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=32150 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=2866.39 G=0.500% | | | | R=130000 | | L=9999.73 G=-0.679% | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +10.9 | +13.9 | +14.4 | +14.0 | +16.0 | +7.0 | +9.0 | +5.4 | +1.4 | -4.8 | -7.6 | -10.6 | -11.7 | -11.4 | -5.6 | -2.9 | -1.3 | +6.5 | +12.2 | +17.7 | +19.0 | +24.3 | +25.9 | +26.9 | +26.5 | +23.8 | +18.8 | +12.5 | +7.7 |
| TYP. SECTION | EMBANKMENT (A) | | | | CUT (C) | | RETAINED CUT (D) | | CUT (C) | | EMBANKMENT (A) | | VIADUCT (E) | | EMBANKMENT (A) | | | | | | | | | | | | | | |

| <table border="1"> <tr><th>REV</th><th>DATE</th><th>BY</th><th>CHK</th><th>APP</th><th>DESCRIPTION</th></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> | | | | | REV | DATE | BY | CHK | APP | DESCRIPTION | | | | | | | | | | | | | | | | | | | | | | | | | DESIGNED BY T. SMELCER DRAWN BY J. BORGHESI CHECKED BY K. SEYMOUR IN CHARGE C. TAYLOR DATE 09/15/2017 | | 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 | | Client 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215 | | Drawing Title HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN2 1318+00 TO HN2 1374+00 | | | Scale AS SHOWN Drawing Status FINAL DRAFT Job No 234180 Drawing No CVL-HN-01193 Rev 01 | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----|-----|-----|-------------|------|----|-----|-----|-------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------|--|--|----------------------------------------------------------------------------------------------------|--|--|
| REV | DATE | BY | CHK | APP | DESCRIPTION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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PLAN



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|----------------|------------------------|-------------|-------------|----------------|-------------|-------------|-------------|-------|---------|-------|----------------|-------|-------------|-------|-------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN2 1374+00 | HN2 1380+00 | HN2 1390+00 | HN2 1400+00 | HN2 1410+00 | HN2 1420+00 | HN2 1430+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=32150 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=9999.73 G=-0.679% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +7.7 | +5.3 | +4.5 | +1.1 | +2.8 | +5.5 | +9.1 | +11.0 | +13.4 | +14.4 | +16.3 | +15.4 | +13.3 | +13.0 | +11.2 | +7.2 | +2.6 | +1.0 | +9.3 | +18.7 | +22.1 | +28.1 | +30.8 | +32.2 | +34.2 | +35.0 | +31.7 | +30.9 | +34.7 |
| TYP. SECTION | CUT (C) | | | EMBANKMENT (A) | | | | | CUT (C) | | EMBANKMENT (A) | | VIADUCT (E) | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017



Arup Texas, Inc.
10370 Richmond Ave., Suite 475
Houston, Texas 77042 USA
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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



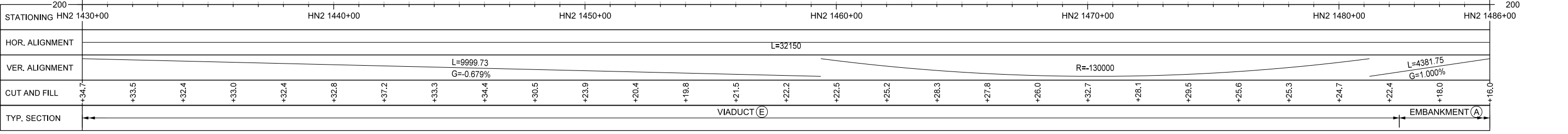
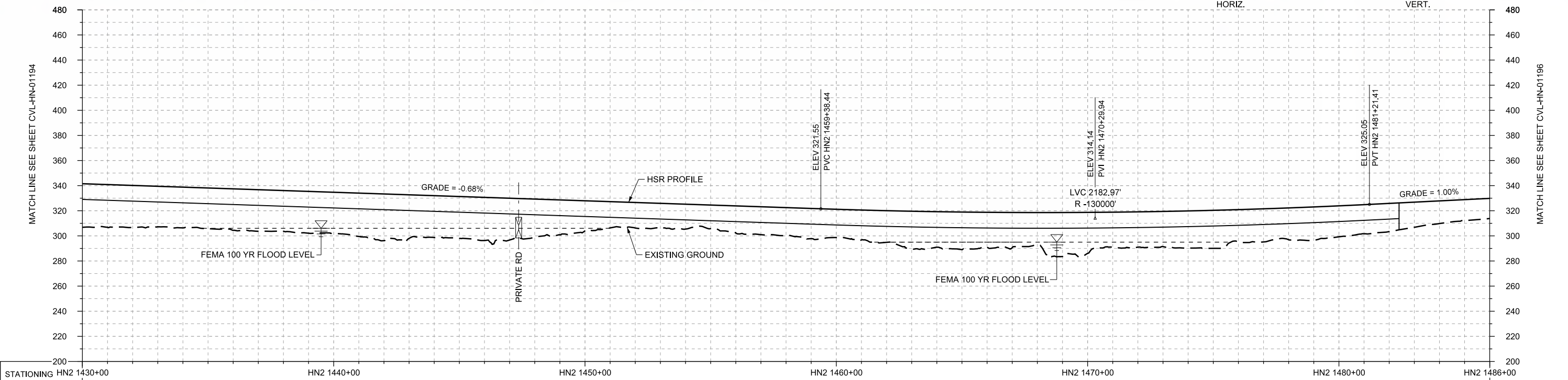
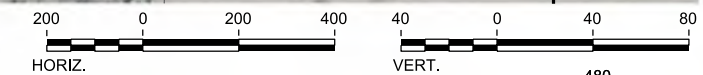
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
**HOUSTON SEGMENT
CIVIL
PLAN AND PROFILE
HN2 1374+00 TO HN2 1430+00**

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|----------------|--------------|-----|--|
| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | Drawing No | Rev | |
| 234180 | CVL-HN-01194 | 01 | |



PLAN



PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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| DESIGNED BY T. SMELCER |
| DRAWN BY J. BORGHESI |
| CHECKED BY K. SEYMOUR |
| IN CHARGE C. TAYLOR |
| DATE 09/15/2017 |

ARUP
 Arup Texas, Inc.
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 Texas Registered Engineering Firm: F-2144

Client

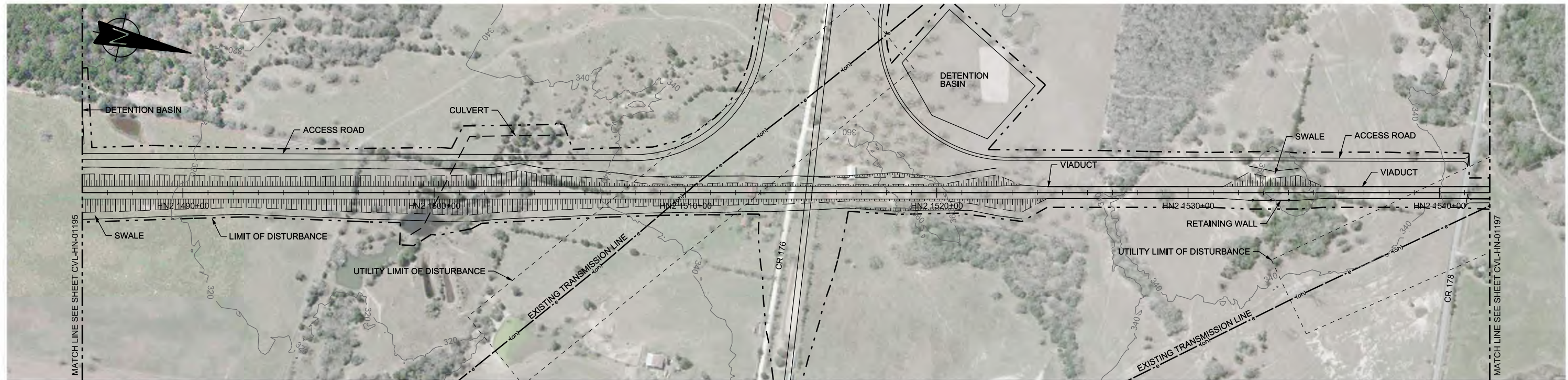
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE
 HN2 1430+00 TO HN2 1486+00

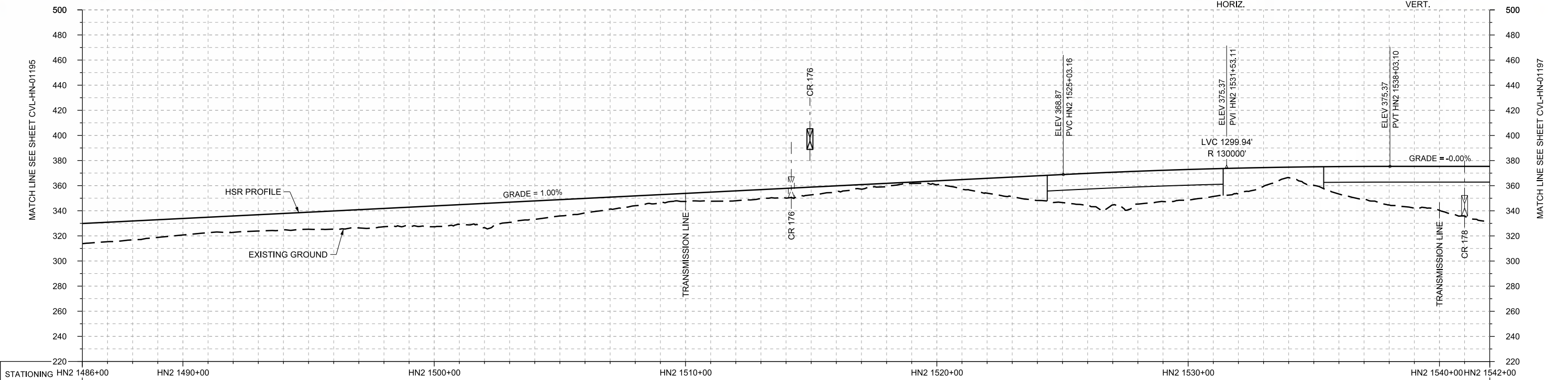
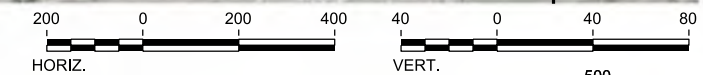
Scale
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Drawing Status
FINAL DRAFT

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| Job No 234180 | Drawing No CVL-HN-01195 | Rev 01 |
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PLAN



PROFILE

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| STATIONING | HN2 1486+00 | HN2 1490+00 | HN2 1500+00 | HN2 1510+00 | HN2 1520+00 | HN2 1530+00 | HN2 1540+00 | HN2 1542+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=32150 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=4381.75 G=1.000% | | | | R=130000 | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +16.0 | +15.0 | +13.1 | +13.0 | +13.1 | +14.5 | +14.5 | +16.5 | +19.3 | +14.7 | +11.6 | +7.8 | +6.4 | +7.8 | +7.7 | +4.8 | +2.7 | +3.1 | +11.8 | +19.6 | +25.1 | +26.2 | +24.5 | +20.5 | +8.3 | +21.8 | +30.8 | +35.1 | +44.2 |
| TYP. SECTION | EMBANKMENT (A) | | | | | | | | | | CUT (C) | | EMBANKMENT (A) | | VIADUCT (E) | | EMBANKMENT (A) | | VIADUCT (E) | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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www.freese.com
Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

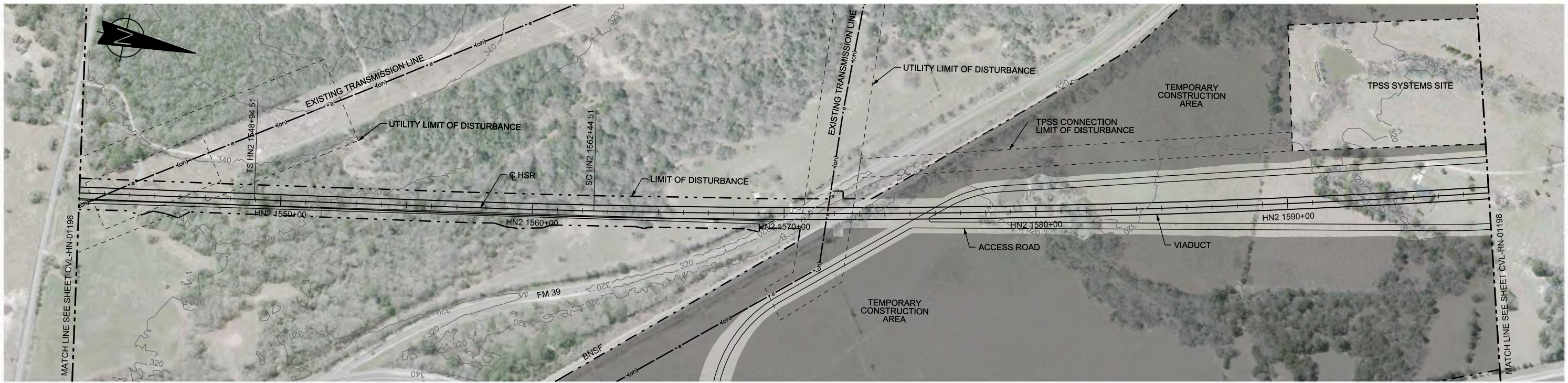
Drawing Title

**HOUSTON SEGMENT
CIVIL
PLAN AND PROFILE
HN2 1486+00 TO HN2 1542+00**

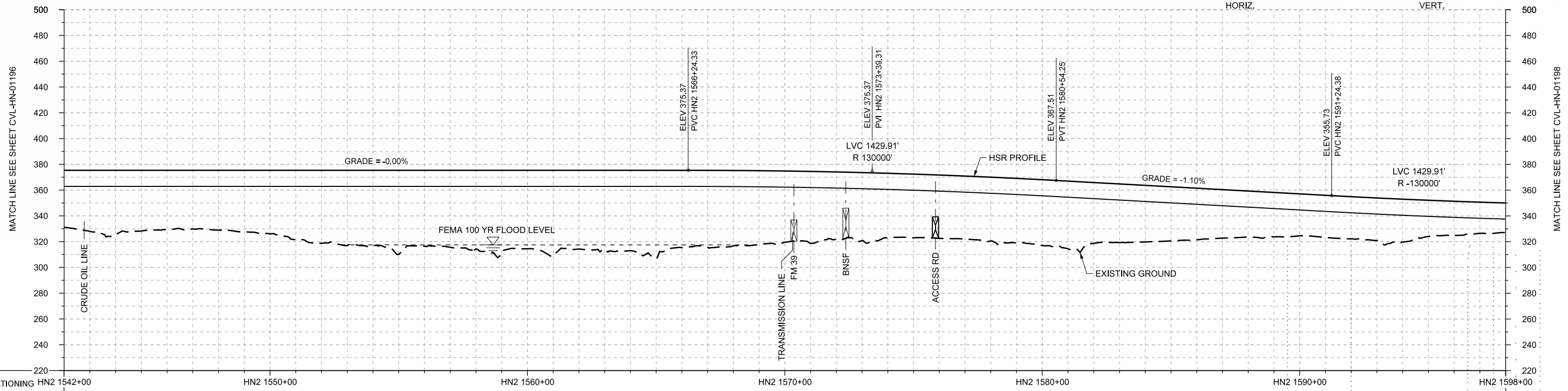
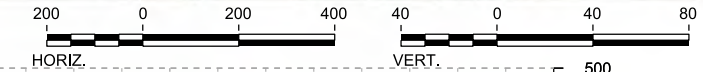
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01196 | 01 |



PLAN



PROFILE

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|----------------|------------------------|-------------|-------------|-------------|-----------------------|-------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN2 1542+00 | HN2 1550+00 | HN2 1560+00 | HN2 1570+00 | HN2 1580+00 | HN2 1590+00 | HN2 1598+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=32150 | | L=1350 | | R=42000 L=4700 | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=2821.24 G=-0.000% | | R=130000 | | L=1070.13 G=1.100% | | R=-130000 | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +44.2 | +49.6 | +46.1 | +46.4 | +49.4 | +56.6 | +59.0 | +59.0 | +61.1 | +60.9 | +61.1 | +62.4 | +60.0 | +58.6 | +55.3 | +52.4 | +50.2 | +49.1 | +49.6 | +51.1 | +47.2 | +43.9 | +40.1 | +35.7 | +32.6 | +32.7 | +33.3 | +26.7 | +22.9 |
| TYP. SECTION | VIADUCT (E) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Client

TEXAS CENTRAL

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

Drawing Title

**HOUSTON SEGMENT CIVIL
PLAN AND PROFILE
HN2 1542+00 TO HN2 1598+00**

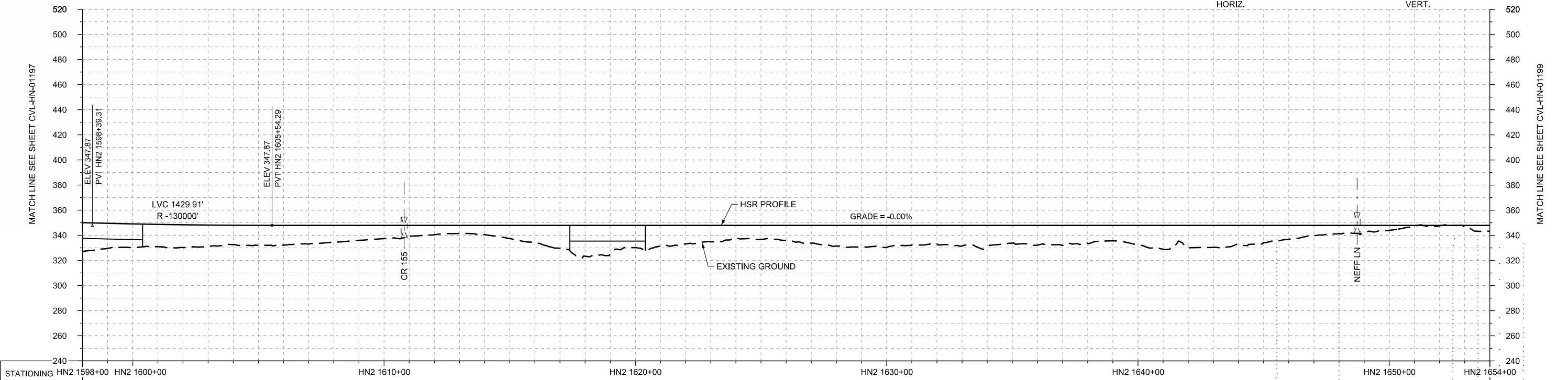
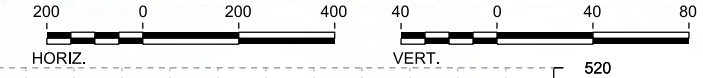
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01197 | 01 |



PLAN



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| STATIONING | HN2 1598+00 | HN2 1600+00 | HN2 1610+00 | HN2 1620+00 | HN2 1630+00 | HN2 1640+00 | HN2 1650+00 | HN2 1654+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=42000 L=4700 | | L=1350 | | | L=2526 | | L=1350 | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | R=-130000 L=6063.65 G=-0.000% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +22.9 | +18.9 | +18.2 | +15.4 | +15.7 | +13.4 | +10.5 | +7.5 | +7.4 | +14.0 | +24.5 | +17.8 | +14.8 | +9.8 | +12.0 | +16.5 | +17.6 | +14.9 | +16.8 | +15.7 | +14.2 | +15.7 | +18.1 | +14.8 | +11.0 | +6.5 | +3.9 | +0.3 | +4.6 |
| TYP. SECTION | VIADUCT (E) | | EMBANKMENT (A) | | | | | VIADUCT (E) | | | | | EMBANKMENT (A) | | | | | CUT (C) | | | | | | | | | | | |

PROFILE

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|-------------|-------------|
| DESIGNED BY | T. SMELCER |
| DRAWN BY | J. BORGHESI |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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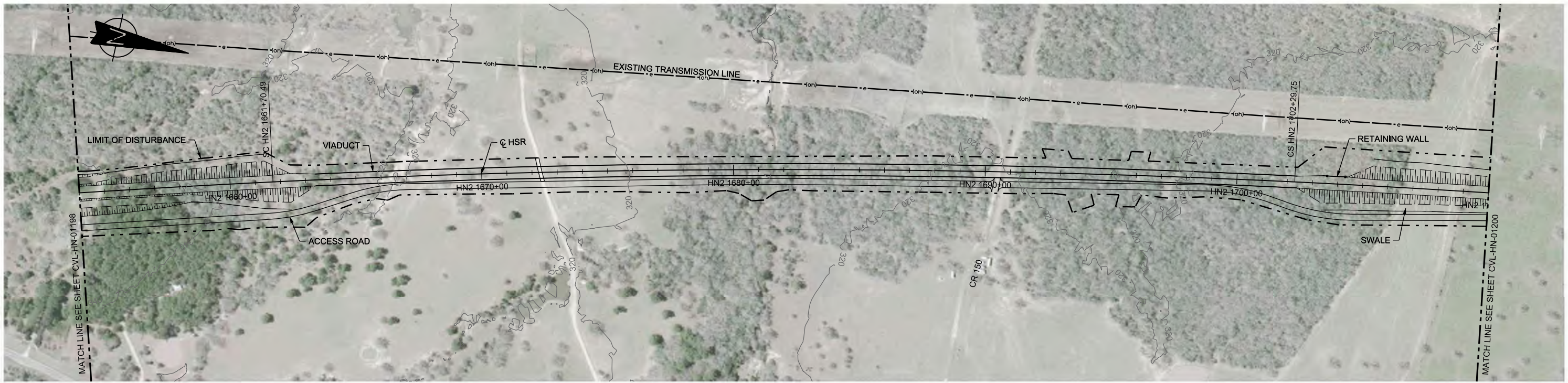
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 Dallas, Texas 75204
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Client

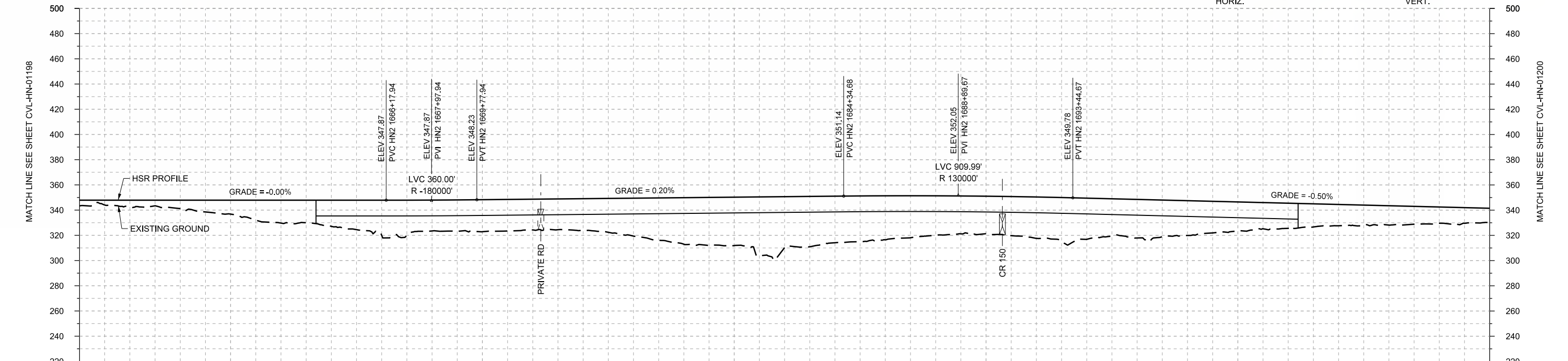
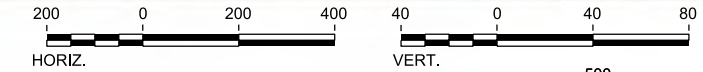
TEXAS CENTRAL
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL
PLAN AND PROFILE
 HN2 1598+00 TO HN2 1654+00

Scale
 AS SHOWN
 Drawing Status
FINAL DRAFT
 Job No 234180 Drawing No CVL-HN-01198 Rev 01



PLAN



PROFILE

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| STATIONING | HN2 1654+00 | HN2 1660+00 | HN2 1670+00 | HN2 1680+00 | HN2 1690+00 | HN2 1700+00 | HN2 1710+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=1350 | | R=42000 L=4059 | | | L=1350 | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=6063.65 G=-0.000% | | L=1456.74 G=0.200% | | R=130000 L=3472.71 G=-0.500% | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +4.6 | +5.5 | +6.9 | +11.1 | +18.2 | +20.8 | +28.0 | +24.5 | +25.4 | +24.4 | +25.2 | +30.1 | +36.9 | +36.5 | +40.5 | +37.0 | +34.9 | +31.3 | +28.7 | +32.8 | +32.7 | +30.6 | +27.6 | +23.0 | +19.9 | +16.9 | +15.3 | +12.9 | +11.3 |
| TYP. SECTION | EMBANKMENT (A) | | VIADUCT (E) | | | | | VIADUCT (K) | | | | | EMBANKMENT (F) | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER
DRAWN BY
J. BORGHESI
CHECKED BY
K. SEYMOUR
IN CHARGE
C. TAYLOR
DATE
09/15/2017

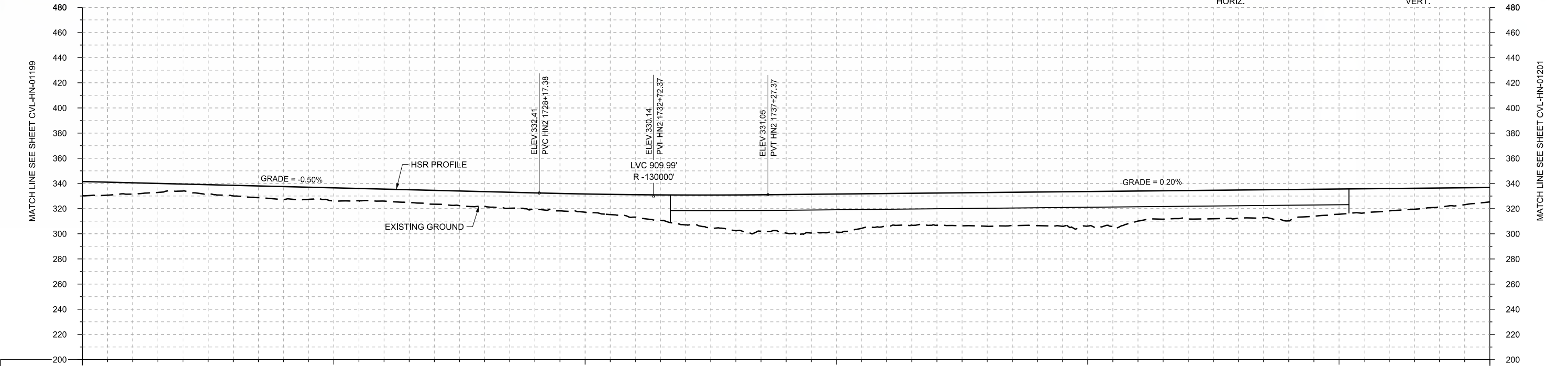
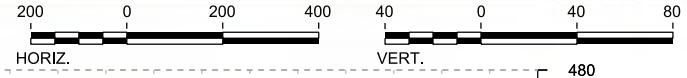
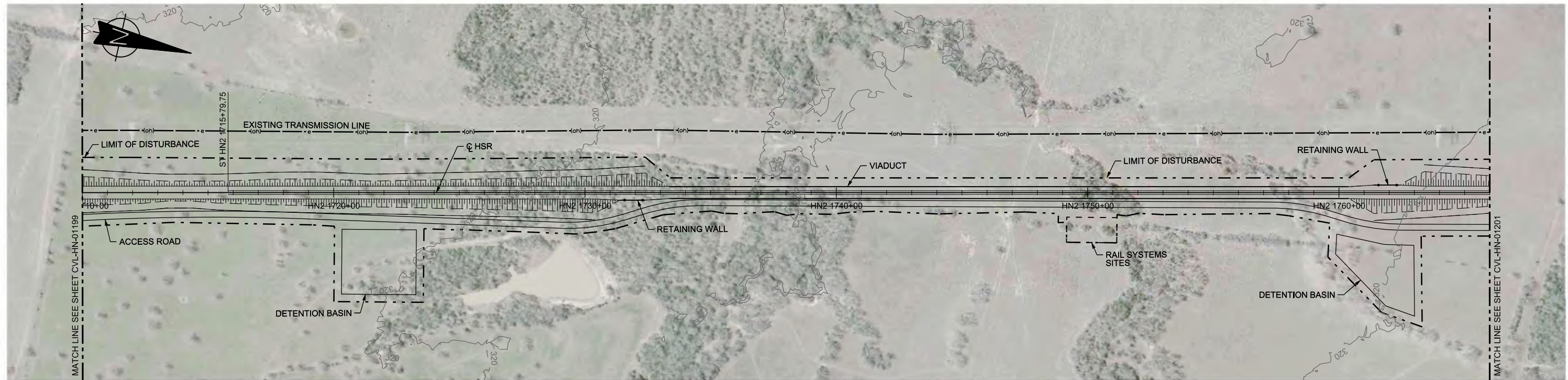
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www.freese.com
Texas Registered Engineering Firm: F-2144

Client
TEXAS CENTRAL
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN2 1654+00 TO HN2 1710+00

Scale
AS SHOWN
Drawing Status
FINAL DRAFT
Job No
234180
Drawing No
CVL-HN-01199
Rev
01



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|----------------|------------------------|-------------|-------------|-------------|-------------|-----------------------|-------------|-------|-------|-------|-------------|-------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | HN2 1710+00 | HN2 1720+00 | HN2 1730+00 | HN2 1740+00 | HN2 1750+00 | HN2 1760+00 | HN2 1766+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=1350 | | | L=35800 | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=3472.71 G=-0.500% | | | R=-130000 | | L=8421.85 G=0.200% | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +11.3 | +9.0 | +5.5 | +8.4 | +10.1 | +10.5 | +9.5 | +11.0 | +11.7 | +13.4 | +14.4 | +17.9 | +23.8 | +28.5 | +30.6 | +30.2 | +25.9 | +25.6 | +26.8 | +26.7 | +27.5 | +23.9 | +22.6 | +22.4 | +24.9 | +20.1 | +17.8 | +15.2 | +11.4 |
| TYP. SECTION | EMBANKMENT (F) | | | | | | | | | | VIADUCT (K) | | | | | | EMBANKMENT (F) | | | | | | | | | | | | |

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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Client

TEXAS CENTRAL

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

Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN2 1710+00 TO HN2 1766+00

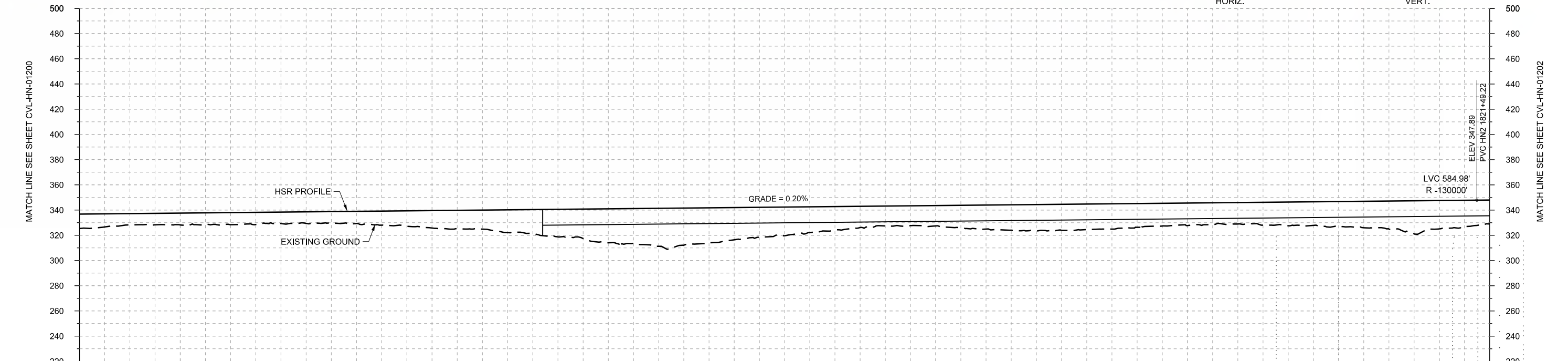
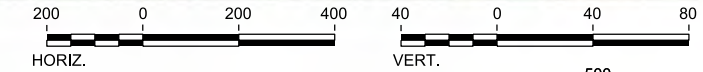
Scale
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Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01200 | 01 |



PLAN



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| STATIONING | HN2 1766+00 | HN2 1770+00 | HN2 1780+00 | HN2 1790+00 | HN2 1800+00 | HN2 1810+00 | HN2 1820+00 | HN2 1822+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=35800 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=8421.85 G=0.200% R=130000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +11.4 | +9.0 | +9.4 | +9.6 | +9.1 | +9.1 | +11.2 | +13.8 | +15.1 | +19.2 | +23.4 | +27.6 | +29.4 | +25.6 | +22.7 | +18.5 | +15.8 | +16.2 | +19.0 | +20.8 | +20.2 | +18.8 | +17.9 | +17.0 | +18.8 | +19.4 | +22.2 | +22.5 | +19.0 |
| TYP. SECTION | EMBANKMENT (E) | | | | | | | | | | VIADUCT (K) | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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TEXAS CENTRAL

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

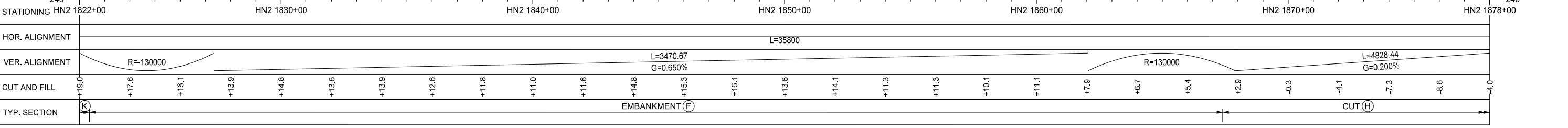
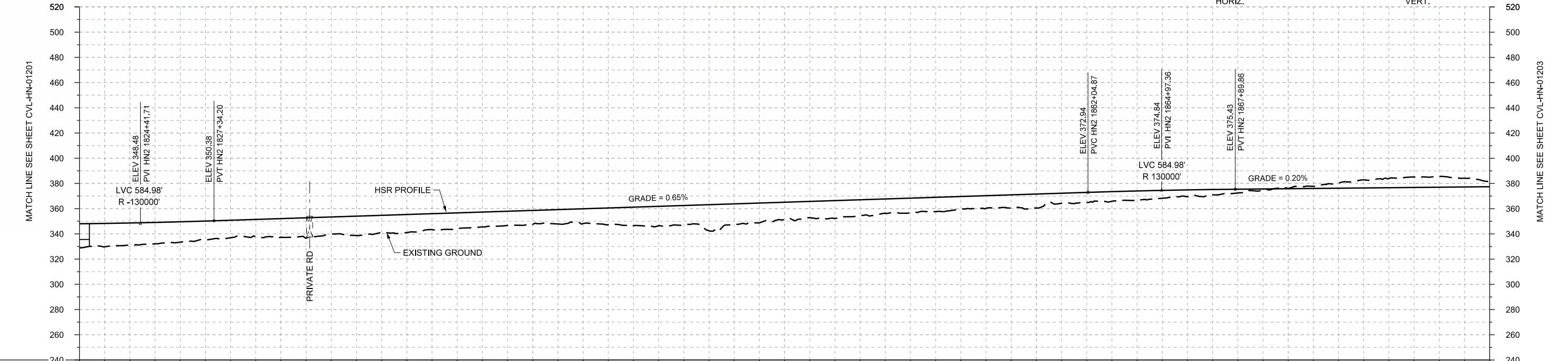
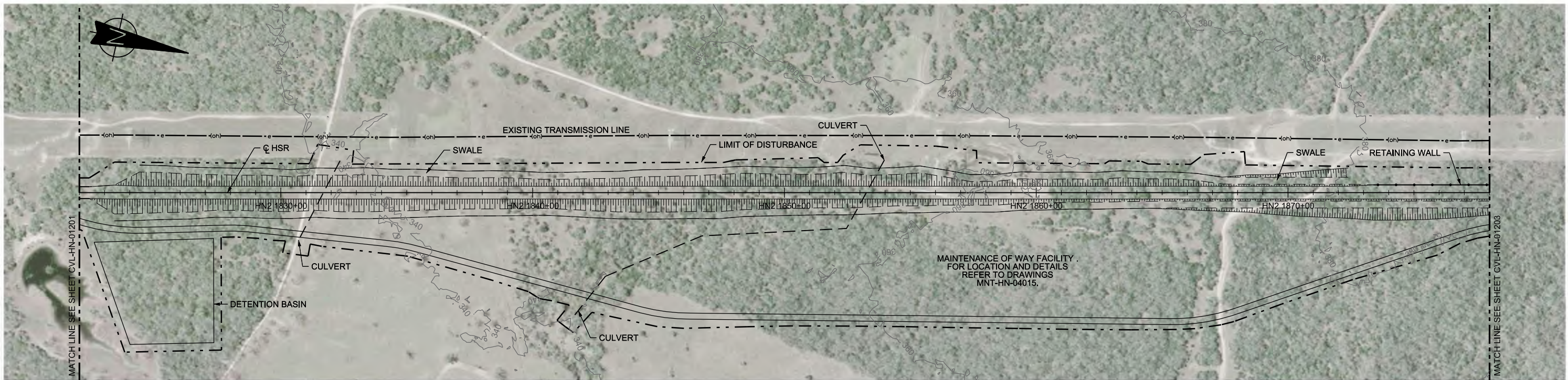
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN2 1766+00 TO HN2 1822+00

Scale
AS SHOWN

Drawing Status
FINAL DRAFT

| | | |
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| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01201 | 01 |



| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
T. SMELCER

DRAWN BY
J. BORGHESI

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Client

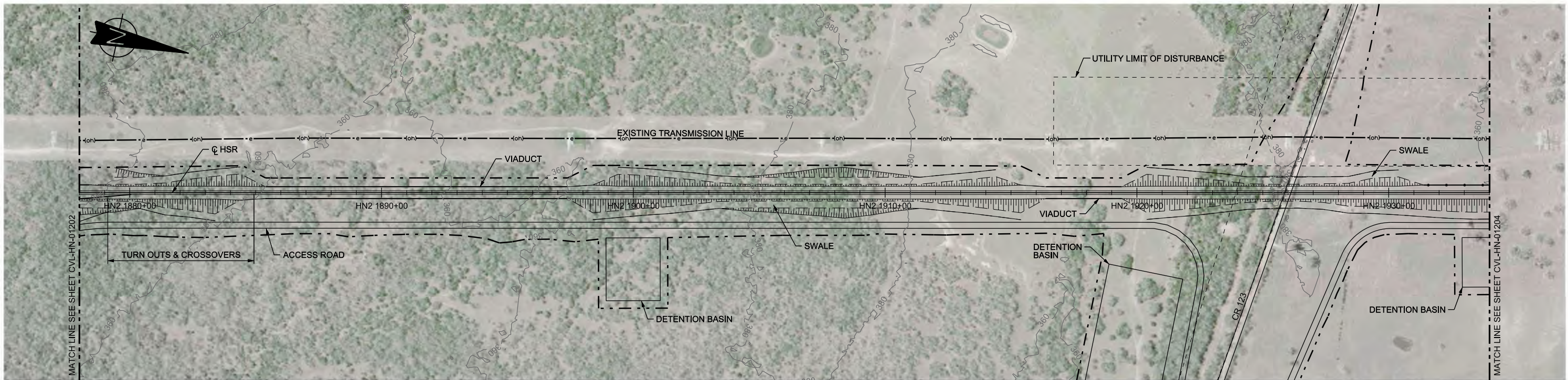
TEXAS CENTRAL

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

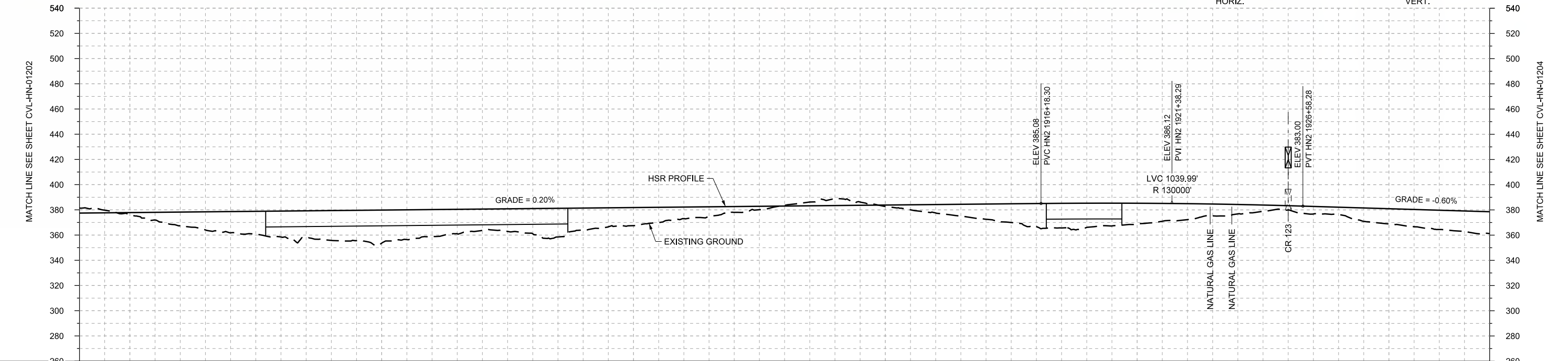
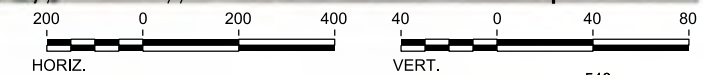
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
 HN2 1822+00 TO HN2 1878+00

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| Scale AS SHOWN | | |
| Drawing Status FINAL DRAFT | | |
| Job No 234180 | Drawing No CVL-HN-01202 | Rev 01 |



PLAN



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| STATIONING | HN2 1878+00 | HN2 1880+00 | HN2 1890+00 | HN2 1900+00 | HN2 1910+00 | HN2 1920+00 | HN2 1930+00 | HN2 1934+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=35800 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=4828.44 G=0.200% | | | | R=130000 | | | L=3031.95 G=-0.600% | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | -1.0 | +1.7 | +10.8 | +16.8 | +20.5 | +23.6 | +26.2 | +21.3 | +16.8 | +20.0 | +17.3 | +14.3 | +9.1 | +4.5 | -0.6 | -5.6 | +1.0 | +6.6 | +12.0 | +18.1 | +19.2 | +16.3 | +12.6 | +7.5 | +3.4 | +5.8 | +12.1 | +15.3 | +17.3 | |
| TYP. SECTION | CUT (H) | | EMBANKMENT (F) | | VIADUCT (K) | | | | EMBANKMENT (F) | | CUT (H) | | EMBANKMENT (F) | | VIADUCT (K) | | EMBANKMENT (F) | | CUT (H) | | EMBANKMENT (F) | | EMBANKMENT (F) | | EMBANKMENT (F) | | EMBANKMENT (F) | | EMBANKMENT (F) | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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J. BORGHESI

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IN CHARGE
C. TAYLOR

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Client

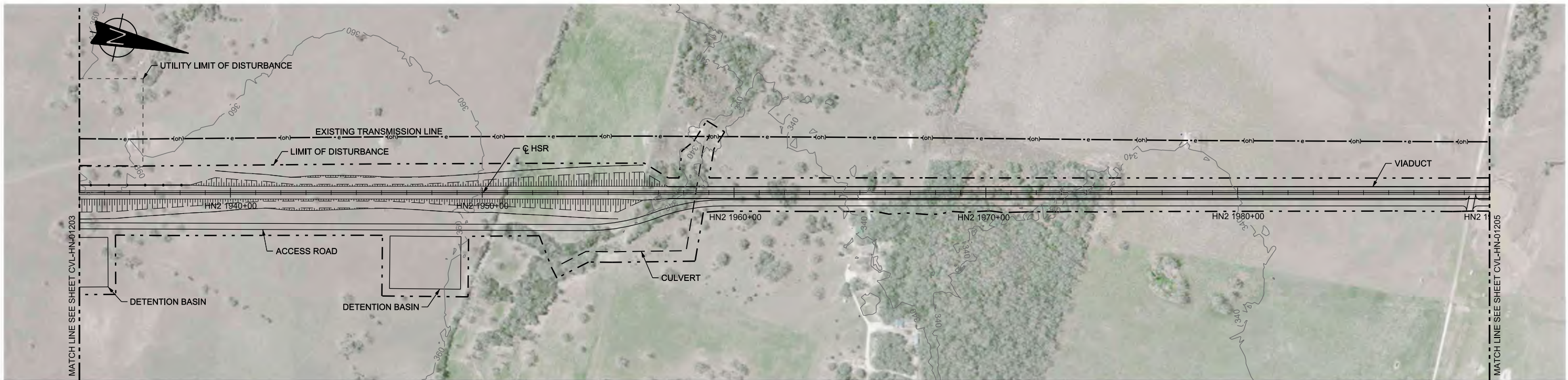
TEXAS CENTRAL

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

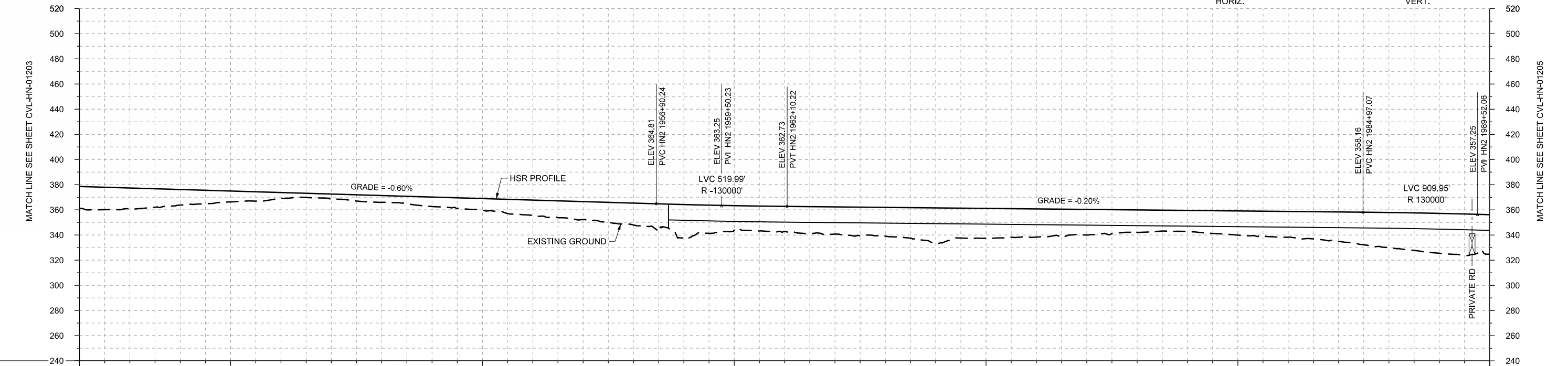
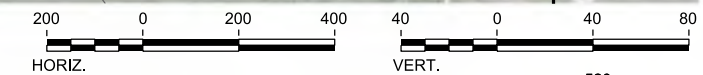
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN2 1878+00 TO HN2 1934+00

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| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01203 |
| Rev | 01 |



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| STATIONING | HN2 1934+00 | HN2 1940+00 | HN2 1950+00 | HN2 1960+00 | HN2 1970+00 | HN2 1980+00 | HN2 1990+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=35800 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=3031.95 G=-0.600% | | | R=-130000 | | L=2286.85 G=-0.200% | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +17.3 | +16.6 | +12.4 | +8.7 | +4.8 | +4.0 | +5.4 | +7.6 | +9.3 | +12.4 | +14.3 | +17.4 | +26.7 | +19.5 | +19.9 | +21.7 | +23.0 | +28.8 | +23.7 | +22.4 | +20.4 | +17.9 | +16.8 | +19.3 | +20.5 | +23.4 | +28.0 | +31.7 | +31.4 |
| TYP. SECTION | EMBANKMENT (F) | | | | CUT (H) | | EMBANKMENT (F) | | | | VIADUCT (K) | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
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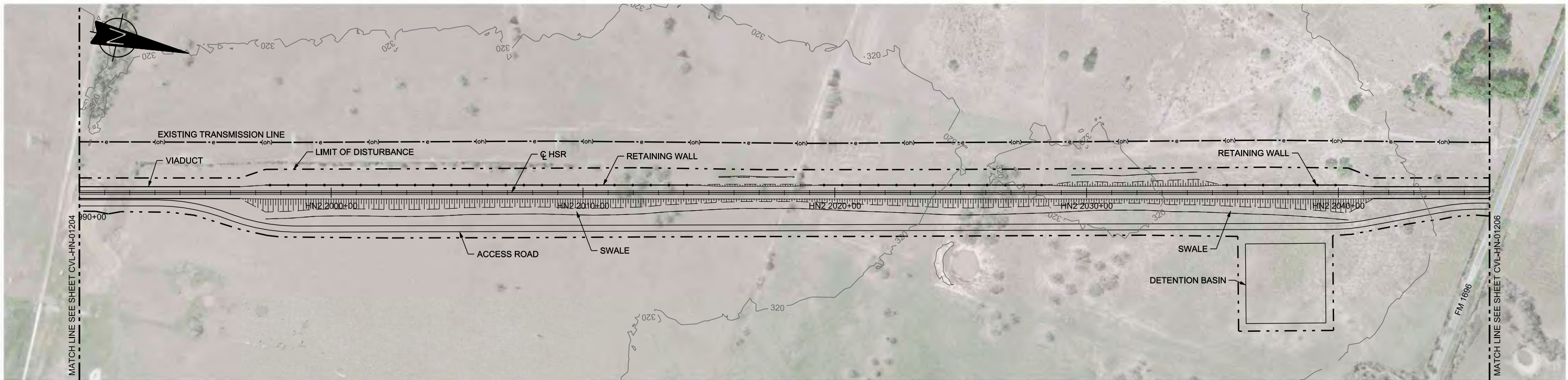
Client

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

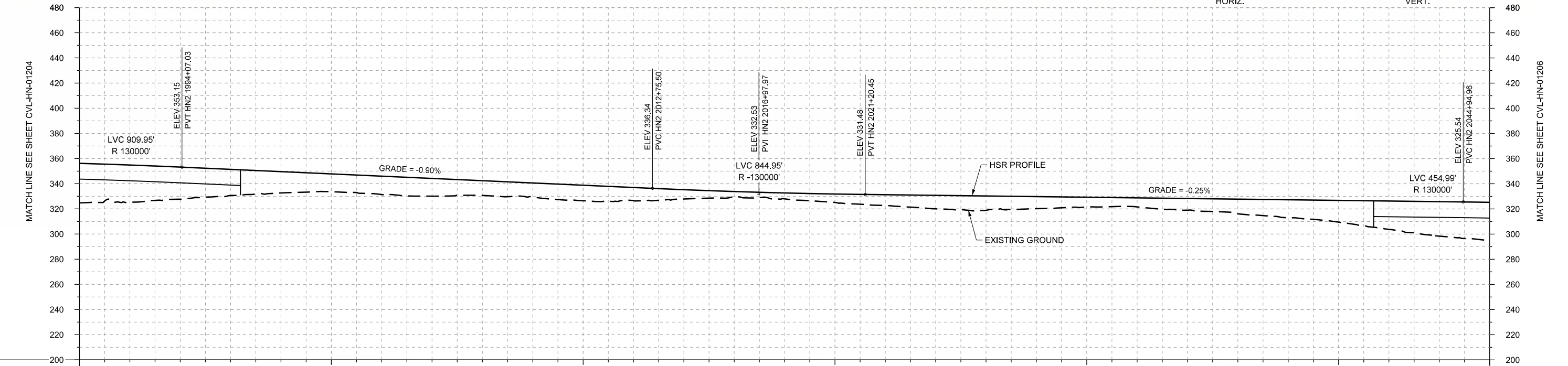
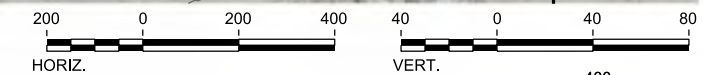
Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN2 1934+00 TO HN2 1990+00

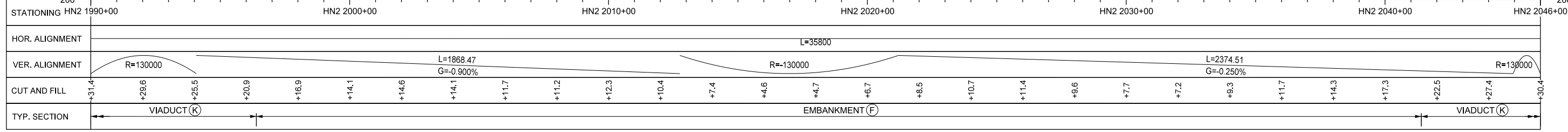
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|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-HN-01204 |
| Rev | 01 |



PLAN



PROFILE



| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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T. SMELCER
DRAWN BY
J. BORGHESI
CHECKED BY
K. SEYMOUR
IN CHARGE
C. TAYLOR
DATE
09/15/2017

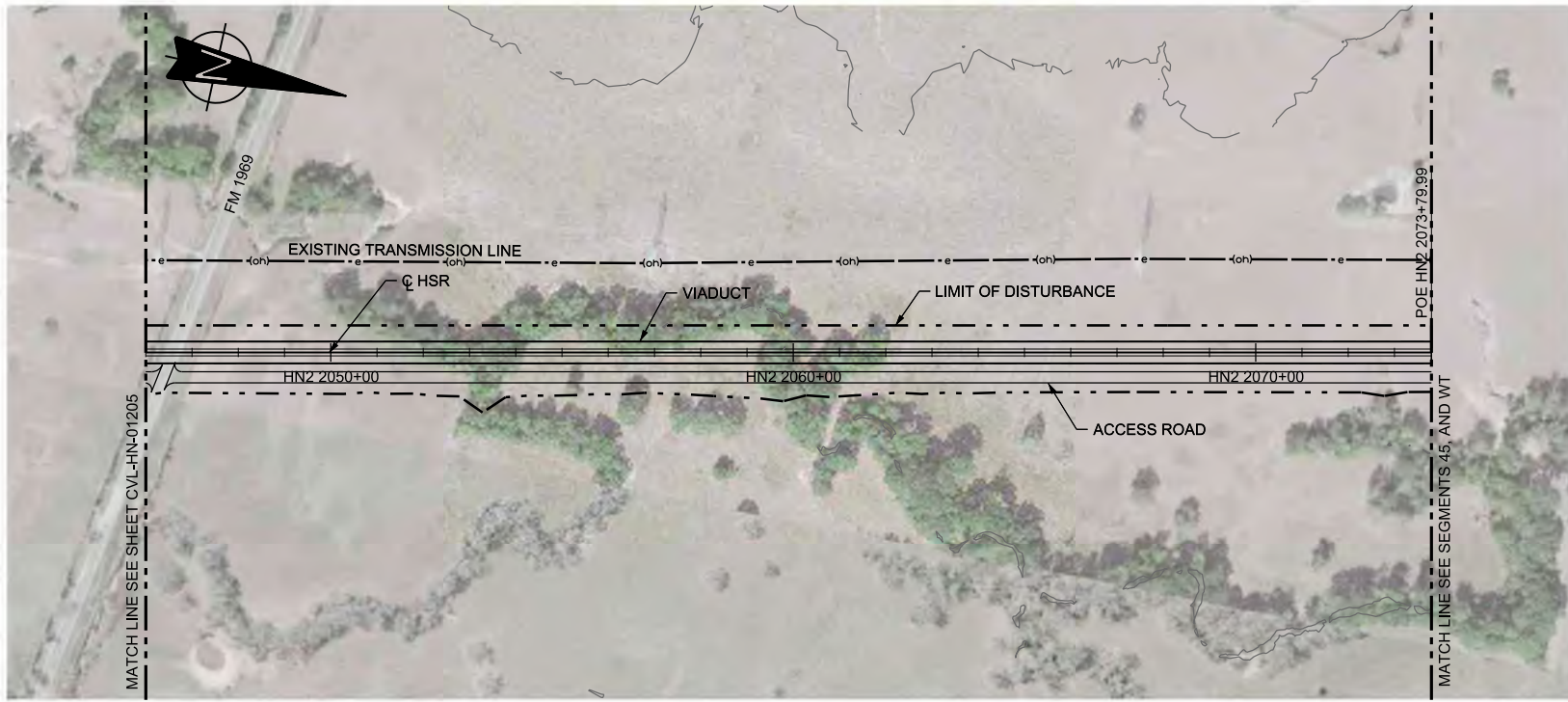
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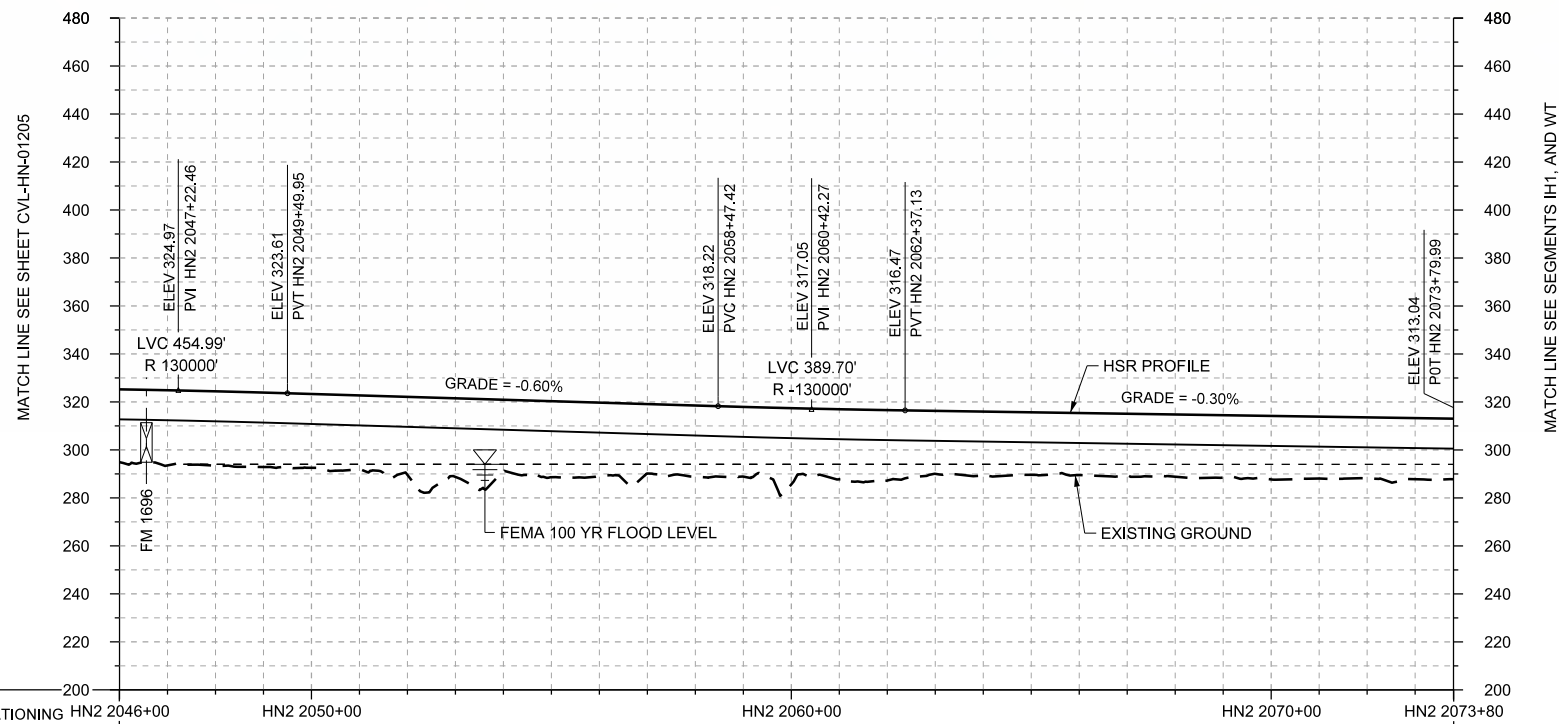
Client
TEXAS CENTRAL
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
HOUSTON SEGMENT CIVIL PLAN AND PROFILE HN2 1990+00 TO HN2 2046+00

Scale
AS SHOWN
Drawing Status
FINAL DRAFT
Job No. 234180 Drawing No. CVL-HN-01205 Rev. 01

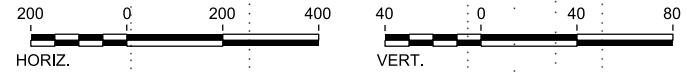


PLAN



PROFILE

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|----------------|-------------|-----------------------|-------------|------------------------|-------------|
| STATIONING | HN2 2046+00 | HN2 2050+00 | HN2 2060+00 | HN2 2070+00 | HN2 2073+80 |
| HOR. ALIGNMENT | L=35800 | | | | |
| VER. ALIGNMENT | R=130000 | L=897.47 G=-0.600% | R=130000 | L=1142.86 G=-0.300% | |
| CUT AND FILL | +30.4 | +31.0 | +30.8 | +32.5 | +29.9 |
| TYP. SECTION | VIADUCT (K) | | | | |



| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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| | | | | | |

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Client

TEXAS CENTRAL

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

Drawing Title

HOUSTON SEGMENT CIVIL PLAN AND PROFILE
HN2 2046+00 TO HN2 2073+80

Scale
AS SHOWN

Drawing Status
FINAL DRAFT

| | | |
|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-HN-01206 | 01 |