

## **ADDENDUM NO. 2**

To the Plans, Specifications & General Contract Documents

Public Paving, Drainage, Water, Sanitary Sewer, Street  
Light & Traffic Signal  
Improvements

To Serve

Intermodal Parkway BNSF to Old FM 156

**CITY PROJECT NO.:** 103332

**Bid Date:** January 18<sup>th</sup>, 2024 @ 1:30 PM  
Addendum No. 2 Issued January 12<sup>th</sup>, 2024

The Contract Documents, Specifications, and Plans for the subject project are hereby amended as follows:

### **SPECIFICATIONS & CONTRACT DOCUMENTS:**

1. General: 00 45 40 Business Equity Goal

Description of Change: Business Equity Goal (10%) is included in 00 45 40 Business Equity Goal and the Request for Business Equity Goal form has been added in with the contract documents.

2. General: Given the holidays and the upcoming MLK holiday can the submission date be extended one to two weeks.

Description of Change: The submission and bid date will not be extended.

- 3.. Document Modified: 00 42 43 Proposal Form Unit Price

Description of Change: The 8" Lime Treatment and Hydrated Lime bid items for both the TxDOT and CoFW sections have been updated to include whether they are quantified for under Concrete Pavement Sections or Asphalt Paving Sections.

4. General: The 1" bond breaker is shown as D-GR TY B mix. The largest aggregate in a TY Mix is over 1" so wanted to know if the City would consider using a TY D mix instead.

Description of Change: The asphalt for the project should follow the details provided on Sheet C509. This sheet has been updated and included with this addendum for the addition of the temporary asphalt pavement section to be used for temp driveways and lane transitions during construction.

5. General: Is FM 156 at the project site going to be completely shut down for the duration of the job( 12 months) and diverted through local street detour or just a portion?

Description of Change: Intersection at FM156 is not to be fully shut down at any point in time. During construction, we expect traffic control phasing during that intersection to always allow for traffic flow in every direction that exists today. Temporary signals may be needed and they are listed as an item under the traffic signal improvements.

Old FM156 intersection with Intermodal (East side of the project) would very likely be completely shutdown. Old FM156 is no longer in use so this is not an active thoroughfare north-south. The traffic phasing contemplated in the plans currently has this portion of Intermodal as the last phase of the project in order to allow for traffic to function over the BNSF rail as it does today then closing the road just for this small section, ideally for a minimal amount of time, and have a detour that would send through traffic down through the Westport Pkwy and FM 156 intersection.

6. Document Modified: 00 45 12 Prequalification Statement

Description of Change: Major Work Types have been added to the table.

7. General: Does the attached Pre-Qual Letter suffice/meet Pre-Qualification submittal documents requested? Please confirm no response is required to be submitted for either of the following Bidder/Proposer documents other than this current Pre-Qualification Letter.

Description of Change: Yes, the letter attached and provided by Flatiron, included with this addendum, confirms prequalification's for the listed work categories until expiration. No additional applications are required for those firms prequalified with appropriate documentation in the appropriate work category.

8. Document Modified: Contract Book

Description of Change: Geotech has been added to the Contract Book and included with the addendum items.

9. General: What is the depth of the existing concrete?

Description of Change: Existing concrete is 8 inches in depth.

10. Document Modified: 00 42 43 Proposal Form Unit Price

Description of Change: Added a line item for mobilization.

11. Question: Is the concrete traffic barrier subsidiary to the traffic control item?

Description of Change: Yes.

12. Document Modified: Plan Sheet C510 and C511.

Description of Change: The expansion joint dowel callouts have been revised to match on both sheets. The expansion joint dowels are #14 rebar @ 12" O.C.E.W and 18" in length.

13. Document Modified: 00 42 43 Proposal Form Unit Price

Description of Change: Cut through ramp bid item has been added.

14. Question: Can you clarify the location for the excess dirt to be placed at adjacent site per bid items?

Description of Change: Exhibit showing the location included with addendum.

15. Question: Define restrictions on the MBE location.

Description of Change: Certified firms which qualify for the Business Equity Program, and count as having a Significant Business Presence, must reside within the City's Marketplace defined as the City of Fort Worth (including portions of Parker, Wise, and Denton counties) and Tarrant, Dallas, and Johnson counties.

16. Question: Please include exhibit at intersection delineating TxDOT/CoFW for pay items.

Description of Change: Exhibit included with addendum.

17. Question: Will a concrete batch plant be provided.

Description of Change: A concrete batch plant won't be provided and a location for one has not been contemplated.

18. Question: Are pre-cast or cast in place storm structures required?

Description of Change: Contractors can determine whether to use pre-cast or cast in place structures but they will be required to submit construction documents prior to installation for City and Engineer review in order to confirm they adhere to City requirements.

19. Question: Can a copy of the powerpoint from the bid meeting be provided.

Description of Change: Powerpoint presentation has been included with the addendum.

20. Document Modified: Sheet C509

Description of Change: Added detail for temporary asphalt pavement.

21. Document Modified: Sheet C710

Description of Change: Structural details have been updated to reflect a 12'x5' box culvert.

22. Document Modified: Sheet C717

Description of Change: Structural details have been updated to reflect a 15'x8' box culvert.

23. Document Modified: Sheet C721

Description of Change: Structural details have been updated to reflect a 24'x7' box culvert.

24. Document Modified: Sheet C704

Description of Change: Structural details have been updated to reflect a 9'4" x 12'10" drop inlet.

25. Question: Should the paver removal items be in SF instead of SY.

Description of Change: No change this item was maintained as SY.

26. Question: How many calendar days will be allowed?

Description of Change: This project has been anticipated to take anywhere from 14 to 18 months. Within the best value scoring system established for this project, schedule will be weighed within the score.

27. Question: Is there an engineer's estimate?

Description of Change: There was an engineer's estimate done for the whole project to help establish a base for the City and County to get funds in order.

28. Document Modified: 00 42 43 Proposal Form Unit Price

Description of Change: New fence line item and salvage and re-use gate line item have been added to the bid list.

29. Question: Is rock anticipated to be in subgrade? If so, how thick is the rock.

Description of Change: Geotech Report has been included with this addendum. The report includes bore logs for reference of material anticipated to be encountered under the ground surface.

30. Document Modified: 00 42 43 Proposal Form Unit Price

Description of Change: Updated to include 2 additional fire hydrant relocations. Four in the county Paving section and one in the City Water section for a total of 5 relocated fire hydrants.

This Addendum, forms part of the Contract Documents referenced above and modifies the original Contract Documents and Plans. Bidder shall acknowledge receipt of this addendum in the space provided below, on the last page of the Bid Form and acknowledge receipt on the outer envelope of your bid.

A signed copy of this Addendum should be included in the sealed bid envelope at the time of bid submittal. Failure to acknowledge the receipt of this Addendum could cause the subject bidder to be considered "NONRESPONSIVE," resulting in disqualification.

RECIPT ACKNOWLEDGEMENT:

ISSUED BY:

Peloton Land Solutions a Westwood Company

By: \_\_\_\_\_

By:  \_\_\_\_\_

Kole Weber  
Director, Commercial

Company: \_\_\_\_\_

Address: \_\_\_\_\_

ACCEPTED BY CITY:

City: \_\_\_\_\_ State: \_\_\_\_\_

 \_\_\_\_\_

Bradley Radovich  
Project Manager

SECTION 00 42 43  
PROPOSAL FORM

**UNIT PRICE BID - CONTRACTOR PRICING**

Note: These bid numbers for the signal related items are estimates and any final bid numbers should be priced by a contractor.

Intermodal Parkway - BNSF Facility to Old FM156 CoFW

Project Item Information					Bidder's Proposal	
Bidlist Item No.	Description	Specification Section No.	Unit of Measure	Bid Quantity	Unit Price	Bid Value
<b>IMPROVEMENTS FUNDED BY CFW FUNDING SOURCES - PAVING IMPROVEMENTS</b>						
1	0170.0100 Mobilization	01 70 00	LS	1		
2	0241.1000 Remove Conc Pvmt	02 41 15	SY	2,893		
3	0241.1100 Remove Asphalt Pvmt	02 41 15	SY	3,460		
4	0241.0900 Remove Misc Conc Structure	02 41 13	EA	1		
5	0241.3013 Remove 18" Storm Line	02 41 14	LF	52		
6	0241.3017 Remove 30" Storm Line	02 41 14	LF	49		
7	0241.4203 Remove 6' Drop Inlet	02 41 14	EA	3		
8	0241.4401 Remove Headwall/SET	02 41 14	EA	10		
9	3110.0101 Site Clearing	31 10 00	LS	1		
10	3123.0103 Borrow by Plan	31 23 16	CY	4,871		
11	3123.0101 Unclassified Excavation by Plan	31 23 16	CY	47,230		
12	3125.0101 SWPPP 1 Acre	31 25 00	LS	1		
13	3213.0301 4" Conc Sidewalk	32 13 20	SF	47,029		
14	3211.0400 Hydrated Lime (Concrete Pavement)	32 11 29	TN	522		
15	3211.0502 8" Lime Treatment (Concrete Pavement)	32 11 29	SY	23,063		
16	3213.0503 Barrier Free Ramp, Type M-1	32 13 20	EA	4		
17	3213.0506 Barrier Free Ramp, Type P-1	33 13 20	EA	10		
18	3213.0510 Barrier Free Ramp, Type C-3	34 13 20	EA	2		
19	3291.0100 Topsoil	32 91 19	SY	7,268		
20	3292.0100 Black Sod Placement	32 92 13	SY	7,268		
21	3292.0400 Seeding Hydromulch	32 92 13	SY	27,756		
22	3217.0001 4" SLD Pvmt Marking HAS (W)	32 17 23	LF	253		
23	3217.0101 6" SLD Pvmt Marking HAS (W)	32 17 23	LF	2850		
24	3217.0104 6" DOT Pvmt Marking HAS (W)	32 17 23	LF	29		
25	3217.0103 6" BRK Pvmt Marking HAS (W)	32 17 23	LF	1,158		
26	3217.0201 8" SLD Pvmt Marking HAS (W)	32 17 23	LF	706		
27	3217.0501 24" SLD Pvmt Marking HAE (W)	32 17 23	LF	102		
28	3217.1002 Lane Legend Arrow STRAIGHT	32 17 23	EA	2		
29	3217.1002 Lane Legend Arrow LEFT	32 17 23	EA	15		
30	3217.1002 Lane Legend Arrow RIGHT	32 17 23	EA	3		
31	3217.1004 Lane Legend ONLY	33 17 23	EA	16		
32	3217.0402 18" SLD Pvmt Marking Tape (W)	32 17 23	LF	1,034		
33	3217.2104 REFL Raised Marker TY II-C-R	32 17 23	EA	151		
34	3471.0001 Traffic Control	34 71 13	MO	9		
35	9999.0001 Remove and Replace Existing Barbed Wire fence (5 Strand)	00 00 00	LF	2,671		
36	9999.0002 Remove and Replace Existing Steel Gate	00 00 00	EA	2		
37	9999.0003 24" SLD Preformed Pvmt Marking HAS (White)	00 00 00	LF	250		
38	9999.0004 6" SLD Preformed Pvmt Marking HAS (Black)	00 00 00	LF	500		
39	9999.0005 Place Dirt at Adjacent Site	31 23 16	CY	42,359		
40	9999.0006 16.5" Conc Pvmt	00 00 00	SY	21,540		
41	9999.0007 Install aluminum Ground Mount	00 00 00	EA	46		
42	9999.0008 Install aluminum Sign to Ground Mount	00 00 00	EA	46		
43	9999.0009 Remove Concrete Pavers	00 00 00	SY	785		
44	9999.0010 Remove (2) 24" Storm Line	00 00 00	LF	119		
45	9999.0011 Remove Sign	00 00 00	EA	6		
46	9999.0012 Relocate Sign	00 00 00	EA	8		
47	9999.0013 Relocate Signal Box	00 00 00	EA	4		
48	9999.0014 Remove (2) 36" Storm Line	00 00 00	LF	81		
49	9999.0015 Remove Concrete Apron (Drainage Inlets)	00 00 00	SY	207		
50	9999.0016 Remove 21" CMP	00 00 00	LF	95		
51	9999.0017 Remove (3) 8" ADS Culvert Pipe	00 00 00	LF	33		
52	9999.0018 Temporary Asphalt for Traffic Control	00 00 00	SY	1,450		
53	9999.0019 Temporary Lime Treatment for Asphalt Pavement	00 00 00	SY	1,450		
<b>IMPROVEMENTS FUNDED BY CFW FUNDING SOURCES - PAVING IMPROVEMENTS TOTAL</b>						

<b>IMPROVEMENTS FUNDED BY CFW FUNDING SOURCES - STORM DRAIN IMPROVEMENTS</b>					
1	3137.0102 Large Stone RipRap, Dry	31 37 00	SY	199	
2	3305.1010 Trench Safety	33 05 10	LF	5,015	
3	3341.0103 18" RCP, Class III	33 41 10	LF	46	
4	3341.0201 21" RCP, Class III	33 41 10	LF	656	
5	3341.0205 24" RCP, Class III	34 41 10	LF	2,874	
6	3341.0302 30" RCP, Class III	33 41 10	LF	606	
7	3341.0309 36" RCP, Class III	33 41 10	LF	45	
8	3341.1102 4x3 Box Culvert	34 41 10	LF	415	
9	3341.1103 4x4 Box Culvert	35 41 10	LF	29	
10	3341.1501 8x4 Box Culvert	34 41 10	LF	344	
11	3349.0001 4' Storm Junction Box	33 49 10	EA	12	
12	3349.0002 5' Storm Junction Box	34 49 10	EA	1	
13	3349.0104 4' Stacked Manhole	33 49 10	EA	6	
14	3349.5001 10' Curb Inlet	33 49 20	EA	17	
15	3349.5002 15' Curb Inlet	34 49 20	EA	1	
16	3349.5003 20' Curb Inlet	35 49 20	EA	1	
17	3349.7001 4' Drop Inlet	33 49 20	EA	2	
18	3349.7002 5' Drop Inlet	33 49 20	EA	1	
19	3349.8001 10' Type 2 Inlet	33 49 20	EA	1	
20	3349.8003 20' Type 2 Inlet	35 49 20	EA	1	
21	9999.0018 30" RCP Sloped Headwall	00 00 00	EA	3	
22	9999.0019 8'x8' SQ MH	00 00 00	EA	1	
23	9999.0020 9'-4" x 12' -10" Drop Inlet	00 00 00	EA	1	
24	9999.0021 TxDOT FW-0 Headwall	00 00 00	EA	1	
25	9999.0022 12'x5' Junction Box	00 00 00	EA	1	
26	9999.0023 15'x8' Junction Box	00 00 00	EA	1	
27	9999.0024 24'x7' Junction Box	00 00 00	EA	1	
<b>IMPROVEMENTS FUNDED BY CFW FUNDING SOURCES - STORM DRAIN IMPROVEMENTS TOTAL</b>					

<b>IMPROVEMENTS FUNDED BY CFW FUNDING SOURCES - WATER IMPROVEMENTS</b>					
1	3305.0109 WL Trench Safety	33 05 10	LF	50	
2	3311.0001 Ductile Iron Water Fittings w/ Restraint	33 11 11	TON	1	
3	3311.0441 12" Water Pipe	33 11 10, 33 11 12	LF	50	
4	3312.3005 12" Gate Valve	33 12 20	EA	1	
5	9999.0022 Relocate Fire Hydrant	00 00 00	EA	1	
<b>IMPROVEMENTS FUNDED BY CFW FUNDING SOURCES - WATER IMPROVEMENTS TOTAL</b>					

<b>IMPROVEMENTS FUNDED BY CFW FUNDING SOURCES - SANITARY SEWER IMPROVEMENTS</b>					
1	0241.2105 12" Sewer Abandonment Plug	02 41 14	EA	7	
2	3305.0109 Trench Safety	33 05 14	LF	900	
<b>IMPROVEMENTS FUNDED BY CFW FUNDING SOURCES - SANITARY SEWER IMPROVEMENTS TOTAL</b>					

<b>IMPROVEMENTS FUNDED BY CFW FUNDING SOURCES -TXDOT INTERSECTION IMPROVEMENTS</b>					
1	0241.1100 Remove Asphalt Pvmnt	02 41 15	SY	310	
2	3211.0502 8" Lime Treatment (Concrete Pavement)	33 13 20	SY	991	
3	3211.0400 Hydrated Lime (Concrete Pavement)	32 11 29	TN	24	
4	3211.0502 8" Lime Treatment (Asphalt Pavement)	33 13 20	SY	600	
5	3211.0400 Hydrated Lime (Asphalt Pavement)	32 11 29	TN	14	
6	3217.0007 4" SLD Pvmnt Marking Tape (W)	32 17 23	LF	748	
7	3217.0008 4" SLD Pvmnt Marking Tape (Y)	32 17 23	LF	102	
8	3217.0101 6" SLD Pvmnt Marking HAS (W)	32 17 23	LF	771	
9	3217.0103 6" BRK Pvmnt Marking HAS (W)	32 17 23	LF	46	
10	3217.1002 Lane Legend Arrow STRAIGHT	32 17 23	EA	1	
11	3217.1002 Lane Legend Arrow LEFT	32 17 23	EA	2	
12	3217.1002 Lane Legend Arrow RIGHT	32 17 23	EA	1	
13	3217.1004 Lane Legend Only	33 17 23	EA	3	
14	3217.2104 REFL Raised Marker TY II-C-R	32 17 23	EA	5	
15	3217.0501 24" SLD Pvmnt Marking HAE (W)	32 17 23	LF	69	
16	9999.0001 24" SLD Preformed Pvmnt Marking HAS (White)	00 00 00	LF	40	
17	9999.0001 6" SLD Preformed Pvmnt Marking HAS (Black)	00 00 00	LF	80	
18	9999.0024 18" SLD Pvmnt Marking HAS (Y)	00 00 00	LF	62	
19	9999.0025 6" SLD Pvmnt Marking HAS (Y)	00 00 00	LF	624	
20	9999.0026 Pavement Surface Preparation for Markings TxDOT Spec Item 678	00 00 00	LF	650	
21	9999.0027 18" SLD Pvmnt Marking HAS (W)	00 00 00	LF	169	
22	9999.0028 2" HMAc Type D Surface Course TxDOT Spec Item 340	00 00 00	SY	555	
23	9999.0029 10" HMAc Type B Base Course TxDOT Spec Item 340	00 00 00	SY	555	
24	9999.0030 16.5 Conc Pvmnt	00 00 00	SY	922	
<b>IMPROVEMENTS FUNDED BY CFW FUNDING SOURCES - TXDOT INTERSECTION IMPROVEMENTS TOTAL</b>					

**IMPROVEMENTS FUNDED BY TARRANT COUNTY FUNDING**

<b>IMPROVEMENTS FUNDED BY TARRANT COUNTY FUNDING SOURCES - PAVING IMPROVEMENTS</b>					
1	0241.0100 Remove Sidewalk	02 41 13	SF	8,080	
2	0241.1000 Remove Conc Pvmt	3 41 13	SY	19,500	
3	0241.3014 Remove 21" Storm Line	02 41 14	LF	11	
4	0241.3015 Remove 24" Storm Line	02 41 14	LF	605	
5	0241.3021 Remove 42" Storm Line	02 41 14	LF	73	
6	0241.4001 Remove 10' Curb Inlet	02 41 14	EA	4	
7	0241.4302 Remove 3' Grate Inlet	01 41 14	EA	1	
8	3305.0107 Manhole Adjustment, Minor	33 05 14	EA	15	
9	3305.0111 Valve Box Adjustment	33 05 14	EA	12	
10	3305.0102 Cathodic Protection Test Station Adjustment	33 05 14	EA	1	
11	3110.0101 Site Clearing	31 10 00	LS	1	
12	3123.0103 Borrow by Plan	31 23 16	CY	3,262	
13	3123.0101 Unclassified Excavation by Plan	31 23 16	CY	13,364	
14	3125.0101 SWPPP 1 Acre	31 25 00	LS	1	
15	3211.0400 Hydrated Lime	32 11 29	TN	476	
16	3211.0502 8" Lime Treatment	33 13 20	SY	23,055	
17	3213.0301 4" Conc Sidewalk	32 13 20	SF	45,016	
18	3213.0506 Barrier Free Ramp, Type P-1	34 13 20	EA	2	
19	3213.0503 Barrier Free Ramp, Type M-1	35 13 20	EA	18	
20	3213.0510 Barrier Free Ramp, Type C-3	34 13 20	EA	2	
21	3217.0001 4" SLD Pvmt Marking HAS (W)	32 17 23	LF	261	
22	3217.0101 6" SLD Pvmt Marking HAS (W)	32 17 23	LF	1,945	
23	3217.0102 6" SLD Pvmt Marking HAS (Y)	32 17 23	LF	269	
24	3217.0103 6" BRK Pvmt Marking HAS (W)	33 17 23	LF	1,100	
25	3217.0104 6" DOT Pvmt Marking HAS (W)	32 17 23	LF	31	
26	3217.0201 8" SLD Pvmt Marking HAS (W)	32 17 23	LF	1,079	
27	3217.0501 24" SLD Pvmt Marking HAE (W)	32 17 23	LF	125	
28	3217.0401 18" SLD Pvmt Marking HAE (W)	33 17 23	LF	763	
29	3217.1001 Lane Legend RR	32 17 23	EA	2	
30	3217.1002 Lane Legend Arrow STRAIGHT	32 17 23	EA	2	
31	3217.1002 Lane Legend Arrow LEFT	32 17 23	EA	14	
32	3217.1002 Lane Legend Arrow RIGHT	32 17 23	EA	3	
33	3217.1004 Lane Legend Only	33 17 23	EA	16	
34	3217.2103 REFL Raised Marker TY II-A-A	32 17 23	EA	4	
35	3217.2104 REFL Raised Marker TY II-C-R	32 17 23	EA	166	
36	3291.0100 Topsoil	32 91 19	SY	7,268	
37	3292.0100 Black Sod Placement	32 92 13	SY	7,268	
38	3292.0400 Seeding Hydromulch	32 92 13	SY	7,268	
39	3471.0001 Traffic Control	34 71 13	MO	9	
40	9999.0001 Remove and Replace Existing Barbed Wire fence (5 Strand)	00 00 00	LF	103	
41	9999.0002 Place Dirt at Adjacent Site	00 00 00	CY	10,102	
42	9999.0003 Remove Concrete Pavers	00 00 00	SY	785	
43	9999.0004 Remove Sign	00 00 00	EA	16	
44	9999.0005 Relocate Monument Sign	00 00 00	EA	1	
45	9999.0006 Relocate Sign	00 00 00	EA	7	
46	9999.0007 Relocate Fire Hydrant	00 00 00	EA	4	
47	9999.0008 Relocate Siren	00 00 00	EA	1	
48	9999.0009 Adjust Gate Valve	00 00 00	EA	4	
49	9999.0010 16.5 Conc Pvmt	00 00 00	SY	21,480	
50	9999.0011 Brick Pavers	00 00 00	SY	1,165	
51	9999.0012 24" SLD Preformed Pvmt Marking HAS (W)	00 00 00	LF	200	
52	9999.0013 6" SLD Preformed Pvmt Marking HAS (B)	00 00 00	LF	400	
<b>IMPROVEMENTS FUNDED BY TARRANT COUNTY FUNDING SOURCES - PAVING IMPROVEMENTS TOTAL</b>					



<b>IMPROVEMENTS FUNDED BY TARRANT COUNTY FUNDING SOURCES- STORM DRAIN IMPROVEMENTS</b>					
1	3137.0102 Large Stone RipRap, Dry	31 37 00	SY	33	
2	3305.1010 Trench Safety	33 05 10	LF	3,002	
3	3341.0201 21" RCP, Class III	33 41 10	LF	311	
4	3341.0205 24" RCP, Class III	34 41 10	LF	2,691	
5	3349.0001 4' Storm Junction Box	33 49 10	EA	9	
6	3349.0104 4' Stacked Manhole	33 49 10	EA	3	
7	3349.5001 10' Curb Inlet	33 49 20	EA	17	
8	3349.5003 20' Curb Inlet	34 49 20	EA	2	
9	3349.8001 10' Type 2 Inlet	33 49 20	EA	2	
<b>IMPROVEMENTS FUNDED BY TARRANT COUNTY FUNDING SOURCES - STORM DRAIN IMPROVEMENTS TOTAL</b>					
<b>IMPROVEMENTS FUNDED BY TARRANT COUNTY FUNDING SOURCES - TEMPORARY TRAFFIC SIGNAL IMPROVEMENTS</b>					
1	2605.3026 3" CONDT PVC SCH 80 (B)	26 05 33	LF	70	
2	3441.1001 Furnish/Install 3-Sect Signal Head Assembly	34 41 10	EA	11	
3	3441.1215 Furnish/Install Hybrid Detection Device	34 41 10	APR	4	
4	3441.1220 Furnish/Install Modal 711 Preemption Detector	34 41 10	EA	4	
5	3441.1224 Furnish/Install Preemption Cable	34 41 10	LF	1040	
6	3441.1315 20/C 14 AWG Multi-Conductor Cable	34 41 10	LF	750	
7	3441.1414 NO 8 Bare Elec Condr	34 41 10	LF	505	
8	3441.3014 Span Wire 3/8"	34 41 11	LF	500	
9	3441.3333 40' Timber Pole CL 2	34 41 11	EA	4	
<b>IMPROVEMENTS FUNDED BY TARRANT COUNTY FUNDING SOURCES - TEMPORARY TRAFFIC SIGNAL IMPROVEMENTS</b>					
<b>IMPROVEMENTS FUNDED BY TARRANT COUNTY FUNDING SOURCES - TRAFFIC SIGNAL IMPROVEMENTS</b>					
1	2605.011 Furnish/Install Elec Serv Pedestal	26 05 00	EA	1	
2	2605.3015 2" CONDT PVC SCH 80 (T)	26 05 33	LF	175	
3	2605.3016 2" CONDT PVC SCH 80 (B)	26 05 33	LF	340	
4	2605.3025 3" CONDT PVC SCH 80 (T)	26 05 33	LF	90	
5	2605.3026 3" CONDT PVC SCH 80 (B)	26 05 33	LF	70	
6	2605.3032 4" CONDT PVC SCH 40 (B)	26 05 33	LF	340	
7	3441.1001 Furnish/Install 3-Sect Signal Head Assembly	34 41 10	EA	11	
8	3441.1002 Furnish/Install 4-Sect Signal Head Assembly	35 41 10	EA	2	
9	3441.1012 Furnish/Install Ped Signal Head Assmblly	34 41 10	EA	8	
10	3441.1031 Furnish/Install Audible Pedestrian Pushbutton Station	34 41 10	EA	8	
11	3441.1215 Furnish/Install Hybrid Detection Device	34 41 10	APR	4	
12	3441.1209 Furnish/Install BBU System EXT Mounted	34 41 10	EA	1	
13	3441.1220 Furnish/Install Modal 711 Preemption Detector	34 41 10	EA	4	
14	3441.1224 Furnish/Install Preemption Cable	34 41 10	LF	1040	
15	3441.1250 Furnish/Install PTZ Camera	34 41 10	EA	1	
16	3441.1255 Furnish/Install Communication Modem	34 41 10	EA	1	
17	3441.1260 Furnish/Install CAT5 Ethernet Cable	34 41 10	LF	185	
18	3441.1311 5/C 14 AWG Multi-Conductor Cable	34 41 10	LF	1580	
19	3441.1312 7/C 14 AWG Multi-Conductor Cable	34 41 10	LF	670	
20	3441.1315 20/C 14 AWG Multi-Conductor Cable	34 41 10	LF	750	
21	3441.1322 3/C 14 AWG Multi-Conductor Cable	34 41 10	LF	1580	
22	3441.1408 NO 6 Insulated Elec Condr	34 41 10	LF	45	
23	3441.1410 NO 10 Insulated Elec Condr	34 41 10	LF	1200	
24	3441.1414 NO 8 Bare Elec Condr	34 41 10	LF	505	
25	3441.1501 Furnish/Install Ground Box Type B	34 41 10	EA	3	
26	3441.1506 Furnish/Install Ground Box Type D	34 41 10	EA	3	
27	3441.1603 Furnish/Install 10' - 20' Ped Pole Assmblly	34 41 10	EA	4	
28	3441.1613 Furnish/Install Type 43 Signal Pole	34 41 10	EA	3	
29	3441.1615 Furnish/Install Type 45 Signal Pole	34 41 10	EA	1	
30	3441.1624 Furnish/Install Mast Arm 40' - 48'	34 41 10	EA	4	
31	3441.1701 TY 1 Signal Foundation	34 41 10	EA	4	
32	3441.1704 TY 4 Signal Foundation	34 41 10	EA	4	
33	3441.1715 Signal Cabinet Foundation - 352i & BBU	34 41 10	EA	1	
34	3441.1725 Furnish/Install ATC Signal Controller	34 41 10	EA	1	
35	3441.1741 Furnish/Install 352i Controller Cabinet Assembly	34 41 10	EA	1	
36	3441.2001 Dispose/Salvage Traffic Signal	34 41 13	EA	1	
37	3441.3051 Furnish/Install LED Lighting Fixture (137 watt ATB2 Cobra Head)	34 41 20	EA	4	
38	3441.4001 Furnish/Install Alum Sign Mast Arm Mount	34 41 30	EA	9	
<b>IMPROVEMENTS FUNDED BY TARRANT COUNTY FUNDING SOURCES - TRAFFIC SIGNAL IMPROVEMENTS TOTAL</b>					

IMPROVEMENTS FUNDED BY TARRANT COUNTY FUNDING SOURCES - STREET LIGHT IMPROVEMENTS					
1	2605.3015 2" CONDT PVC SCH 80 (T)		LF	5,915	
2	2605.3016 2" CONDT PVC SCH 80 (B)		LF	310	
3	3441.1405 NO 2 Insulated Elec Condr		LF	33,735	
4	3441.1502 Ground Box Type B, w/Apron		EA	24	
5	3441.3302 Rdwy Illum Foundation TY 3,5,6, and 8		EA	30	
6	3441.3357 Furnish/Install Rdway Illum TY D-40-9 Pole		EA	21	
7	3441.3411 Reconnect Conductor		EA	8	
8	3441.3502 Relocate Street Light Pole		EA	9	
9	3441.3501 Salvage Street Light Pole		EA	8	
10	3441.3051 Furnish/Install LED Lighting Fixture (137 watt ATB2 Cobra Head)		EA	51	
11	9999.0018 DEMOLISH EXISTING 2" CONDUIT AND CONDUCTORS		LF	3,590	
<b>IMPROVEMENTS FUNDED BY TARRANT COUNTY FUNDING SOURCES - STREET LIGHT IMPROVEMENTS TOTAL</b>					

IMPROVEMENTS FUNDED BY TARRANT COUNTY FUNDING SOURCES - TXDOT INTERSECTION IMPROVEMENTS					
1	0241.1100 Remove Asphalt Pvmt	02 41 15	SY	955	
2	9999.0007 16.5 Conc Pvmt	00 00 00	SY	1,126	
3	3211.0502 8" Lime Treatment (Concrete Pavement)	33 13 20	SY	1,087	
4	3211.0400 Hydrated Lime (Concrete Pavement)	32 11 29	TN	30	
5	2" HMAc Type D Surface Course TXDOT Spec Item 340	00 00 00	SY	525	
6	10" HMAc Type B Base Course TXDOT Spec Item 340	00 00 00	SY	525	
7	3211.0502 8" Lime Treatment (Asphalt Pavement)	33 13 20	SY	600	
8	3211.0400 Hydrated Lime (Asphalt Pavement)	32 11 29	TN	13	
9	3137.0102 Large Stone RipRap, Dry	31 37 00	SY	33	
10	3217.0007 4" SLD Pvmt Marking Tape (W)	32 17 23	LF	748	
11	3217.0008 4" SLD Pvmt Marking Tape (Y)	32 17 23	LF	102	
12	3217.0101 6" SLD Pvmt Marking HAS (W)	32 17 23	LF	771	
13	3217.0103 6" BRK Pvmt Marking HAS (W)	32 17 23	LF	46	
14	3217.1002 Lane Legend Arrow STRAIGHT	32 17 23	EA	1	
15	3217.1002 Lane Legend Arrow LEFT	32 17 23	EA	2	
16	3217.1002 Lane Legend Arrow RIGHT	32 17 23	EA	1	
17	3217.1004 Lane Legend Only	33 17 23	EA	3	
18	3217.2104 REFL Raised Marker TY II-C-R	32 17 23	EA	5	
19	3217.0501 24" SLD Pvmt Marking HAE (W)	32 17 23	LF	69	
20	9999.0001 24" SLD Preformed Pvmt Marking HAS (White)	00 00 00	LF	40	
21	9999.0001 6" SLD Preformed Pvmt Marking HAS (Black)	00 00 00	LF	80	
22	9999.0024 18" SLD Pvmt Marking HAS (Y)	00 00 00	LF	62	
23	9999.0025 6" SLD Pvmt Marking HAS (Y)	00 00 00	LF	624	
24	9999.0027 18" SLD Pvmt Marking HAS (W)	00 00 00	LF	169	
<b>IMPROVEMENTS FUNDED BY TARRANT COUNTY FUNDING SOURCES - TXDOT INTERSECTION IMPROVEMENTS TOTAL</b>					

BID SUMMARY	
<b>CITY OF FORT WORTH IMPROVEMENTS</b>	
PAVING IMPROVEMENTS	
STORM DRAIN IMPROVEMENTS	
WATER IMPROVEMENTS	
SANITARY SEWER IMPROVEMENTS	
TXDOT INTERSECTION IMPROVEMENTS	
<b>IMPROVEMENTS FUNDED BY CITY OF FORT WORTH - TOTAL BID</b>	
<b>TARRANT COUNTY IMPROVEMENTS</b>	
PAVING IMPROVEMENTS	
STORM DRAIN IMPROVEMENTS	
TEMPORARY TRAFFIC SIGNAL IMPROVEMENTS	
TRAFFIC SIGNAL IMPROVEMENTS	
STREETLIGHT IMPROVEMENTS	
TXDOT INTERSECTION IMPROVEMENTS	
<b>IMPROVEMENTS FUNDED BY TARRANT COUNTY - TOTAL BID</b>	
<b>TOTAL BID</b>	



# REQUEST FOR BUSINESS EQUITY GOAL

DEPARTMENT OF DIVERSITY AND INCLUSION-BUSINESS EQUITY DIVISION (DVIN-BE)

Check type of contract: Construction  CMAR  Design/Build  ITB   
 C/S/P  Professional (A&E)  Professional (RFQ/RFP)  CFA

Dept./Div. Name: TPW - Capital Delivery First Advertise Date: Dec 14, 2023 Bid Date : Jan 18, 2024

IS THIS CONTRACT ASSOCIATED WITH TRV? Yes  No  Date Sent to DVIN-BE: 12/5/2023  
 Dollar value of TRV contract portion \$ \_\_\_\_\_

IS THIS A FEDERALLY FUNDED CONTRACT? Yes  No  IS THIS A CIP CONTRACT? Yes  No   
 Grant No. \_\_\_\_\_ Grant Fiscal Year \_\_\_\_\_ If yes, what year 2022

THIS A BOND FUNDED CONTRACT? Yes  No

Construction: IS THIS A LUMP SUM CONTRACT? Yes  No   
 Professional: IS THIS A FIXED FEE NOT-TO-EXCEED CONTRACT? Yes  No   
 IS THIS A HOURLY NOT-TO-EXCEED CONTRACT? Yes  No

IS THIS A COMBINED PROJECT? Yes  No  Is this a Job/Task Order Contract? Yes  No

IS THIS A REVISION? Yes  No  If yes, enter the revision number

IS THIS A CHANGE ORDER? Yes  No  Enter #  Contractor: \_\_\_\_\_

IS THIS AN AMENDMENT? Yes  No  Enter #  Design Firm: \_\_\_\_\_

*If this is not the initial change order/amendment, submit copies of all previous change order/amendments regardless of whether a M&C was required for funding.*

BID/PROJECT NAME (Description Including Street Names): Reconstruction of Intermodal Parkway between Old Blue Mound Road and The BNSF yard in N Fort Worth, including addition of two lanes and reconstruction of existing two lanes including lighting, sidewalks and drainage. approx (0.7 miles)

Check applicable boxes:  Concrete Paving  Asphalt Paving  Drainage  Water  Sewer  
 Other Alternates Capital/Bid Project# 103332 Other Project# \_\_\_\_\_

**TOTAL CONTRACT ESTIMATE: \$ 13,958,346**

*(Please ATTACH individual sub-totals for contracts with multiple units/sections including contingency. If the documentation is not clear and concise, it will be returned to the department.)*

<u>Bradley Radovich</u> Buyer/Project Manager (PRINTED) EXT. <u>7817</u>	<u>Bradley M Radovich</u> Buyer/Project Manager (SIGNATURE) DATE: <u>12/5/2023</u>
Point of Contact of Other than Buyer/PM: <u>Raul Lopez</u>	EXT. <u>2457</u>

Check here to acknowledge that if pay item quantities are added to the proposal section after an Business Equity goal has been provided by DVIN - Business Equity Division, revised proposal must be submitted to DVIN - Business Equity Division for review. A compliance review will not be performed if additional pay items or quantities, which will potentially impact the Business Equity goal, are added to the proposal section after the issuance of the goal.

### THIS PORTION TO BE COMPLETED BY BUSINESS EQUITY DIVISION

<b>BUSINESS EQUITY GOAL:</b>	M/WBE Goal <u>10 %</u>	DBE Goal %	MBE or SBE Goal (Project under previous BDE Ordinance) %
------------------------------	---------------------------	---------------	---

Comments: Business Equity Goal is set at 10% MWBE

DVIN-BE Staff: [Signature] Digitally signed by Gian Vindel Date: 2023.12.05 18:22:06 -06'00' EXT: 2643 DATE: 12/5/23



September 5, 2023

Flatiron Constructors, Inc  
2350 Airport Frwy #455  
Bedford, Texas 76022N

Attn: Kurt Knebel:

RE: PREQUALIFICATION RENEWAL FOR PAVING PROJECTS

City of Fort Worth

Dear Mr. Knebel:

The City of Fort Worth Department of Transportation and Public Works has reviewed the material that you submitted for prequalification renewal to perform street paving in the City of Fort Worth. This letter is to advise you that Flatiron Constructors., Inc has been deemed qualified to bid upon and perform the following type(s) of street paving improvements:

**ASPHALT PAVEMENT HEAVY MAINTENANCE- NO LIMIT**

**ASPHALT PAVEMENT CONSTRUCTION/RECONSTRUCTION - NO LIMIT**

**CONCRETE PAVING CONSTRUCTION/RECONSTRUCTION – NO LIMIT**

This prequalification is effective August 1, 2023 and your project bid limit is \$3,786,010,000.00 based upon the submitted financial statement. It shall remain in place for two (2) years as long as you remain in good standing with the City of Fort Worth. Prior to the end of the two years, you will be required to submit an updated financial statement for prequalification renewal consideration in accordance with the City specifications.

In the interim, if you have any questions or comments, please do not hesitate to contact me.

Sincerely,

Michael A. Myers  
Construction Manager  
Transportation & Public Works Dept.

Cc: file

# Geotechnical Engineering Report

Proposed Intermodal Parkway Expansion and New Street "B"

Fort Worth, Texas

January 16, 2017

Terracon Project No. 95165202

**Prepared for:**

Hillwood Alliance Services, LLC

Fort Worth, Texas

**Prepared by:**

Terracon Consultants, Inc.

Fort Worth, Texas

[terracon.com](http://terracon.com)

**Terracon**

Environmental



Facilities



Geotechnical



Materials

January 16, 2017



Hillwood Alliance Services, LLC  
9800 Hillwood Parkway, Suite 300  
Fort Worth, Texas 76177

Attn: Mr. Joe Schneider, P.E.  
E: joe.schneider@hillwood.com

Re: Geotechnical Engineering Report  
Proposed Intermodal Parkway Expansion and New Street "B"  
Fort Worth, Texas  
Terracon Project Number: 95165202

Dear Mr. Schneider:

Terracon Consultants, Inc. (Terracon) has completed the geotechnical engineering services for the referenced project. This study was performed in general accordance with our proposal number P95165202, dated October 24, 2016. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of pavements for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,

**Terracon Consultants, Inc.**

Texas Registration #3272

Cheryl C. Pedraza, P.E.  
Project Manager



Christopher W. Eddy, P.E.  
Geotechnical Department Manager

Enclosures

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**APPENDIX A – FIELD EXPLORATION**

Exhibit A-1	Site Location
Exhibit A-2	Boring Location Plan
Exhibit A-3	Field Exploration Description
Exhibit A-4 through A-18	Boring Logs

**APPENDIX B – LABORATORY TESTING**

Exhibit B-1	Laboratory Testing
Exhibits B-2 and B-3	Lime Series Tests
Exhibits B-4 and B-5	Standard Proctor Results
Exhibits B-6 and B-7	CBR Test Results

**APPENDIX C – SUPPORTING DOCUMENTS**

Exhibit C-1	General Notes
Exhibit C-2	Unified Soil Classification System

# GEOTECHNICAL ENGINEERING REPORT

## PROPOSED INTERMODAL PARKWAY EXPANSION AND NEW STREET "B"

**FORT WORTH, TEXAS**  
Terracon Project No. 95165202  
January 16, 2017

### 1.0 INTRODUCTION

It is planned to widen Intermodal Parkway and construct a new street "B" in Fort Worth, Texas. A detention pond is also planned. Our scope of services included drilling and sampling fifteen borings to depths of 10 to 20 feet, laboratory testing, and engineering analyses. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- subsurface soil conditions
- groundwater conditions
- earthwork
- pavement and associated drives

### 2.0 PROJECT INFORMATION

#### 2.1 Project Description

Item	Description
<b>Site layout</b>	See Appendix A, Exhibit A-3, Boring Location Plan.
<b>Proposed construction</b>	Intermodal Parkway will be widened starting approximately 1,000 feet west of Haslet County Line Road (FM 156) and extending approximately 4,300 feet east. In addition, a new Street "B" will be extended north of Intermodal Parkway approximately 2,200 feet. A new detention pond is also planned. Intermodal Parkway will be classified as arterial by the City of Fort Worth. Street "B" will be classified as Industrial. We understand that these roads will be considered heavy weight roads.
<b>Traffic</b>	Street "B": 846 total trucks per day with 423 heavy load (100k weight) trucks and 423 normal load (80k weight) trucks Intermodal Parkway: 3,700 total trucks per day with 1,850 heavy load (100k weight) trucks and 1,850 normal load (80k weight) trucks
<b>Grading</b>	Unknown; however, we assume several feet of cut and fills may be required.
<b>Final cut and fill slopes</b>	Assumed to be no steeper than 4H:1V (horizontal to vertical)



## 2.2 Site Location and Description

ITEM	DESCRIPTION
Location	North side of Intermodal Parkway, west of Old Blue Mound Road (Old FM 156) in Fort Worth, Texas.
Existing structures	Roadway
Current ground cover	Grass/exposed earth

## 3.0 SUBSURFACE CONDITIONS

### 3.1 Typical Profile

Based on the results of the borings, subsurface conditions on the project site can be generalized as follows:

Stratum	Approximate Depth to Bottom of Stratum	Materials Encountered (USCS Classifications)	Consistency
1 <sup>1</sup>	2 to 8 feet	Fill - brown, tan and gray fat clays (CH) with limestone fragments	Stiff to hard
2 <sup>2,3</sup>	3 to 10 feet	Dark brown, brown, tan and gray fat clay (CH) and shaley fat clay (CH)	Very stiff to had
3 <sup>4,5</sup>	4 to 14 feet	Tan lean clay (CL) with calcareous deposits	Hard
4 <sup>6</sup>	9 to 20 feet	Tan limestone with clay layers	Hard
5	Termination depth of about 14 feet in boring B-14	Tan limestone with clay layers	-

1 – Present in borings B-1, B-2 and B-6

2 – Not present in boring B-6

3 – Borings B-8 through B-13 were terminated in this stratum at a depth of about 10 feet.

4 – Present in borings B-3, B-6, B-7 and B-15.

5 – Boring B-6 was terminated in this stratum at a depth of about 10 feet.

6. – Present at the termination of borings B-1 through B-5, B-7 and B-15

Conditions encountered at each boring location are indicated on the individual boring logs. Ground surface elevations shown on the logs were provided by Peloton Land Solutions. Stratification boundaries on the boring logs represent the approximate location of changes in soil types; in-situ, the transition between materials may be gradual. Details for each of the boring locations can be found on the boring logs in Appendix A of this report.

## **3.2 Groundwater**

The borings were advanced using dry auger drilling techniques that allow short-term groundwater observations to be made while drilling. Groundwater was not observed while advancing or following the completion of drilling the borings.

These groundwater level observations provide an indication of groundwater conditions present at the time the borings were drilled. Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

## **4.0 ENGINEERING RECOMMENDATIONS**

### **4.1 General Site Grading**

A grading plan was not provided for the roadway alignment. We expect fill of several feet of cut and fills to be necessary to achieve final grades.

Based on the conditions encountered in the borings, excavations will encounter fat and lean clays and possibly tan limestone in areas of deeper cuts. The limestone is hard and the difficulty of excavation will increase with depth. The limestone can generally be ripped during mass grading using large equipment. Where limestone is harder, rock sawing, breaker hoes or line drilling could be required to excavate the limestone.

During excavations, applicable OSHA standards should be followed based on soil types and noted consistencies. The soils will need to be sloped or braced during construction. All fill against excavated slopes should be placed in relatively horizontal lifts. When placing fill on existing slopes that are steeper than about 6H:1V, the fill should be benched into the slope. This breaks up potential slide planes and permits relatively horizontal lift placement. Any lift that becomes desiccated, rutted, or disturbed should be reworked prior to placing a subsequent lift.

The on-site soils free of rock greater than 4 inches in maximum dimension are suitable for use in general site grading. Imported material should be a clean clay soil (free of deleterious materials and debris) with a liquid limit less than 60 percent and no rock greater than 4 inches in maximum dimension. Excavated limestone may be used as fill provided it is pulverized to a maximum size of 4 inches with sufficient fines to permit compaction without visible voids.

Prior to placing any fill, the areas to receive fill will need to be stripped and grubbed. The subgrade should then be proofrolled. Any soft or pumping areas should be excavated to firm ground and

properly backfilled. The subgrade should be scarified to a minimum depth of 8 inches and uniformly compacted as discussed in section **4.2 Compaction Requirements**. The fill materials should then be spread in loose, relatively horizontal lifts, less than 9 inches in thickness, and uniformly compacted to the same criteria. If filling is suspended and the subgrade becomes desiccated or rutted, it should be reworked prior to placement of a subsequent lift.

## **4.2 Compaction Requirements**

Recommendations for compaction are presented in the following table. We recommend that engineered fill be tested for moisture content and compaction during placement. Should the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved.

<b>ITEM</b>	<b>DESCRIPTION</b>
Subgrade preparation to receive fill	Surface scarified to a minimum depth of 8 inches
Maximum lift thickness	9-inches or less loose lift thickness
General site fills and lime-treated subgrades	A minimum of 95% maximum standard Proctor dry density (ASTM D 698) in the range of -1 to +4 percentage points of optimum moisture content
Flexible Base	A minimum of 95% maximum standard Proctor dry density (ASTM D 698) in the range of -2 to +2 percentage points of optimum moisture content

## **4.3 Lime/Sulfate Induced Heave**

The laboratory tests indicate that soluble sulfate content in the soils was between about 8 and 357 ppm. When the sulfate concentrations are less than 3,000 ppm, the subgrade soils are considered to be suitable for lime treatment in the conventional manner using a single lime application. Imported fill material should be tested for soluble sulfates to evaluate the suitability of soils for lime stabilization.

## **4.4 Pavement Subgrade Preparation**

Subgrade materials encountered consisted of mostly of clay soils. These soils are subject to loss of support with the moisture increases that can occur beneath paving. The clay soils react with hydrated lime, which serves to improve and maintain their support value. Lime treatment is recommended beneath pavement sections. We recommend that a minimum of 9 percent lime, by dry weight, be used to treat the subgrade soils at this site. The lime should be thoroughly mixed and blended with the top 8 inches of the subgrade (TxDOT Item 260).

The lime modified subgrade should be uniformly compacted as discussed in section **4.2 Compaction Requirements**. Pavement subgrades should be protected from traffic or ponding water. They should be moist cured until the pavement is placed.

If tan limestone is present at the surface after final grading, the limestone should be undercut to allow the placement of at least 4 inches of flexible base (TxDOT Item 247, Type A, Grade 1-2) to act as a bond breaker between the pavement and limestone. The flexible base should meet the requirements of section **4.2 Compaction Requirement**.

Site grading is generally accomplished early in the construction phase. However as construction proceeds, the subgrade may be disturbed due to utility excavations, construction traffic, desiccation, or rainfall. As a result, the pavement subgrade may not be suitable for pavement construction and corrective action will be required. The subgrade should be carefully evaluated at the time of pavement construction for signs of disturbance or excessive rutting. If disturbance has occurred, pavement subgrade areas should be reworked, moisture conditioned, and properly compacted to the recommendations in this report immediately prior to paving.

#### **4.5 Pavement Design Parameters**

Pavement design for this project is based on procedures outlined by AASHTO for concrete paved roads, and pavement design parameters prescribed by the city of Fort Worth’s Pavement Design Manual (dated January 29, 2015) utilizing the provided daily truck traffic and loads, which include projected growth.

The following input parameters were used in the pavement section analysis.

<b>INPUT PARAMETERS</b>	<b>VALUE</b>
Total vehicles per day	1,378 automobiles, 846 trucks (Street “B”) 7,860 automobiles, 3700 trucks (Intermodal Parkway)
Total ESALS	76,160,000 (Street “B”) 332,649,000 (Intermodal Parkway)
Lane distribution factor	0.7
Design life	30 years
Initial serviceability, $P_0$	4.5
Terminal serviceability, $P_t$	2.5
Reliability, R	85%
Overall standard deviation, $S_0$	0.39
Load transfer (“J” factor)	3.0
Drainage coefficient	1.0

<b>INPUT PARAMETERS</b>	<b>VALUE</b>
Modulus of elasticity of concrete (3,600 psi concrete)	4,000 ksi
Modulus of rupture of concrete	620 psi

The following table presents the site-specific input parameters, which are based on the laboratory testing presented in Appendix B.

<b>DESIGN PARAMETER</b>	<b>VALUE</b>
Design CBR of lime-treated subgrade	20

If the pavements are subject to heavier loading and higher traffic counts than the assumed values, this office should be notified and provided with the information so that we may review these pavement sections and make revisions if necessary.

#### **4.6 Pavement Sections**

Pavement sections were calculated using the AASHTO 1993 design method for the assumptions and design parameters discussed above. A pavement section is presented for a collector road that consists of portland cement concrete placed above a lime modified subgrade.

<b>STREET "B"</b>	
<b>Pavement section</b>	<b>Thickness (inch)</b>
Portland cement concrete	11.5
Lime modified subgrade, TxDOT Item 260	8
<b>Total pavement thickness</b>	<b>19.5</b>

<b>INTERMODAL PARKWAY</b>	
<b>Pavement section</b>	<b>Thickness (inch)</b>
Portland cement concrete	14.5
Lime modified subgrade, TxDOT Item 260	8
<b>Total pavement thickness</b>	<b>22.5</b>

The concrete should have a minimum 28-day compressive strength of 4,000 psi. It should contain a minimum of 4.5 ± 1.5 percent entrained air. All construction and contraction joints should have smooth dowels spaced 12 inches on center at mid-height of the slab. The dowels should be 18 inches in length and have a minimum diameter of 1½ inches.

## **5.0 GENERAL COMMENTS**

Terracon should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

**APPENDIX A**  
**FIELD EXPLORATION**

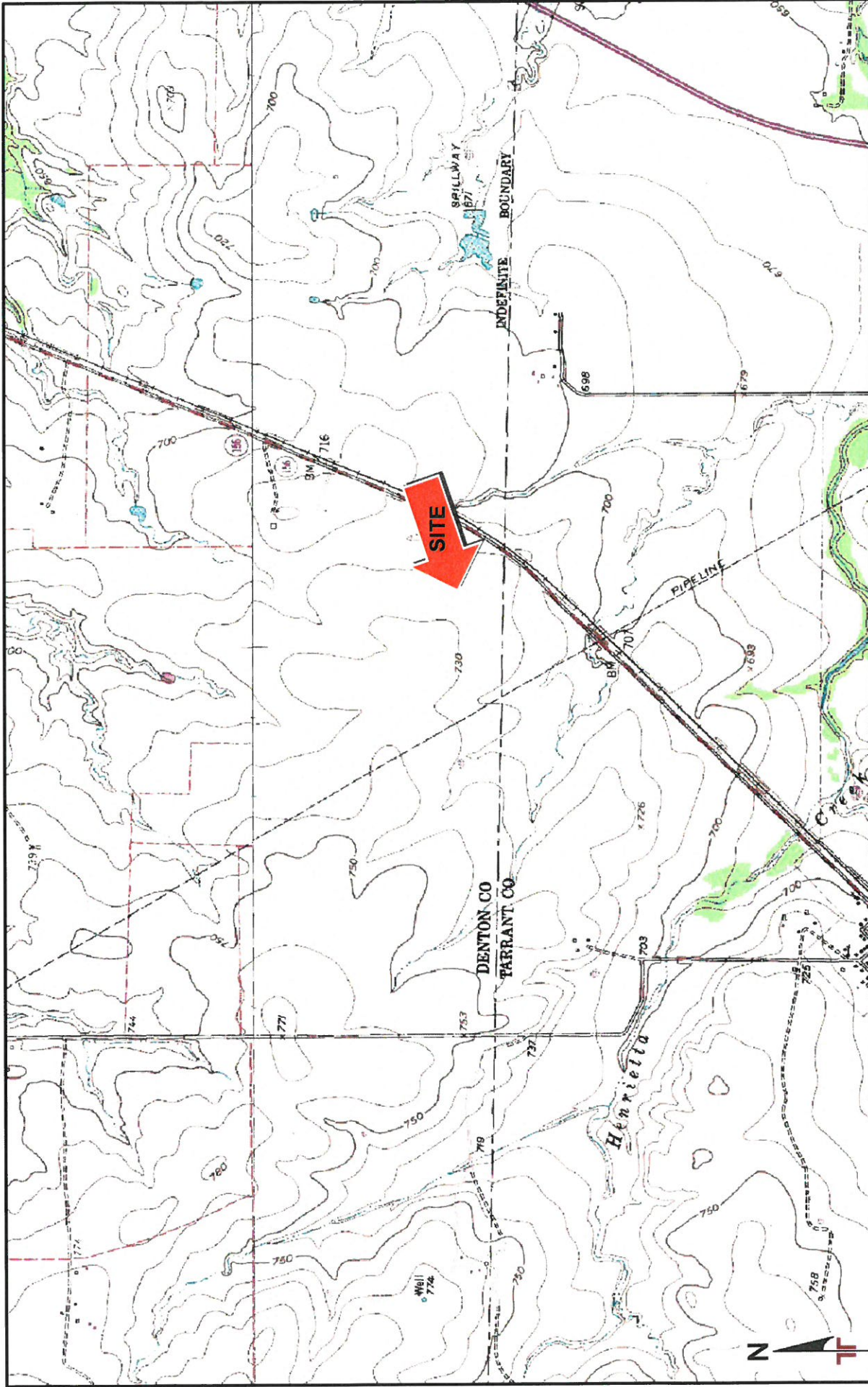


Exhibit  
**A-1**

**SITE LOCATION**  
Proposed Intermodal Parkway Expansion and New  
Street B  
Intermodal Parkway  
Fort Worth, TX

**Terracon**  
2501 E Loop 820 N  
Fort Worth, TX 76118-6978

Project No. 95165202  
Scale: 1"=2,000'  
File Name:  
Date: 1-16-2017

Project Manager: CCP  
Drawn by: CCP  
Checked by: CWE  
Approved by: CWE

TOPOGRAPHIC MAP IMAGE COURTESY OF  
THE U.S. GEOLOGICAL SURVEY  
QUADRANGLES INCLUDE: JUSTIN, TX  
(1/1/1978) and KELLER, TX (1/1/1981).

DIAGRAM IS FOR GENERAL LOCATION ONLY  
AND IS NOT INTENDED FOR CONSTRUCTION  
PURPOSES





SOURCE: GOOGLE EARTH, 2016. IMAGERY DATE: 7/29/2016

EXHIBIT  
A-2

**BORING LOCATION PLAN**

PROPOSED INTERMODAL PARKWAY EXPANSION AND NEW STREET "B"  
FORT WORTH, TEXAS

**Terracon**  
Consulting Engineers and Scientists  
(Registration No. F-3272)  
2801 EAST LOOP 820 N. FORT WORTH, TX. 76118  
PH: (817) 298-6600 FAX: (817) 298-6602

Project No.	95165202
Scale:	AS SHOWN
Date:	01/16/17

Project Mgr:	CCP
Drawn By:	CDD
Checked By:	CCP
Approved By:	CWE

**THIS DRAWING SHOULD NOT BE USED SEPARATELY FROM ORIGINAL REPORT.**  
NOTE: ALL BORING LOCATIONS ARE APPROXIMATE.

Date: 01/16/17  
 Path: \\North\2016\95165202.dwg  
 Layer: BLP - Current  
 Layer: Existing (Outline)

## **Field Exploration Description**

Subsurface conditions were explored by drilling fifteen borings to depths of about 10 to 20 feet at the approximate locations indicated on the Boring Location Plan (Exhibit A-2) in Appendix A. The field exploration was performed on October 28 and November 10, 2016. The test locations were surveyed in the field by Peloton Land Solutions.

The borings were performed using a truck-mounted drill rig. Upon the completion of drilling, the boreholes were backfilled with soil cuttings. Samples of the soil encountered in the borings were obtained using thin-walled tube (ASTM D1587) and split-spoon (ASTM D1586) sampling procedures. The samples were tagged for identification, sealed to reduce moisture loss, and taken to the laboratory for further examination, testing, and classification. The load carrying capacity of the bedrock was evaluated utilizing the Texas Department of Transportation cone penetration test.

Field logs of the borings were prepared by the drill crew. The logs included visual classifications of the materials encountered as well as interpretation of the subsurface conditions between samples. The boring logs included with this report represent the engineer's interpretation of the field logs and include modifications based on laboratory evaluation of the samples. Logs of the borings are presented on Exhibits A-4 through A-18 in Appendix A. General notes to log terms and symbols are presented on Exhibit C-1 in Appendix C.

# BORING LOG NO. B-1

**PROJECT: Proposed Intermodal Parkway Expansion and New Street "B"**

**CLIENT: Hillwood Alliance Services, LLC  
Fort Worth**

**SITE:  
Fort Worth, Texas**

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.99002° Longitude: -97.34461°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
									LL-PL-PI	
DEPTH										
2.0	<b>FILL - FAT CLAY (CH)</b> , with limestone fragments, brown, tan and gray, stiff to very stiff				2.0 (HP)					
6.0	<b>FAT CLAY (CH)</b> , dark brown, hard				4.5+ (HP)		21		67-24-43	
6.0	<b>LIMESTONE</b> , with clay layers, tan				100/4.5"					
10.0	<b>Boring Terminated at 10 Feet</b>				95/12"					

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:  
Dry auger

See Exhibit A-3 for description of field procedures  
See Appendix B for description of laboratory procedures and additional data (if any).

Notes:

Abandonment Method:  
Borings backfilled with soil cuttings upon completion.

See Appendix C for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

No water encountered during drilling  
Dry upon completion of drilling



2501 E Loop 820 N  
Fort Worth, TX

Boring Started: 11/10/2016

Boring Completed: 11/10/2016

Drill Rig:

Driller: StrataBore

Project No.: 95165202

Exhibit: A-4

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL\_95165202.INTERMODAL.PKWAY.GPJ

# BORING LOG NO. B-2

**PROJECT: Proposed Intermodal Parkway Expansion and New Street "B"**

**CLIENT: Hillwood Alliance Services, LLC  
Fort Worth**

**SITE:  
Fort Worth, Texas**

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.99002° Longitude: -97.34298°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	
									LL-PL-PI	PERCENT FINES
DEPTH										
	<b>FILL - FAT CLAY (CH)</b> , dark brown, tan and gray, very stiff	2.0			3.0 (HP)					
	<b>FAT CLAY (CH)</b> , with calcareous nodules, brown, hard	4.0			4.25 (HP)		22		73-24-49	
	<b>LIMESTONE</b> , with clay layers, tan	5.0			100/10"					
		10.0			100/.5"					
	<b>Boring Terminated at 10 Feet</b>									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:  
Dry auger

See Exhibit A-3 for description of field procedures  
See Appendix B for description of laboratory procedures and additional data (if any).

Notes:

Abandonment Method:  
Borings backfilled with soil cuttings upon completion.

See Appendix C for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS
No water encountered during drilling
Dry upon completion of drilling



Boring Started: 11/10/2016	Boring Completed: 11/10/2016
Drill Rig:	Driller: StrataBore
Project No.: 95165202	Exhibit: A-5

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL - 95165202.INTERMODAL PKWAY.GPJ

# BORING LOG NO. B-3

**PROJECT: Proposed Intermodal Parkway Expansion and New Street "B"**

**CLIENT: Hillwood Alliance Services, LLC  
Fort Worth**

**SITE:  
Fort Worth, Texas**

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.99001° Longitude: -97.34135°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
									LL-PL-PI	
	<b>FAT CLAY (CH)</b> , with calcareous nodules, brown, hard	3.0			4.5+ (HP)		25		64-25-39	
	<b>LEAN CLAY (CL)</b> , with calcareous deposits, tan, hard	4.0			4.5+ (HP)					
	<b>LIMESTONE</b> , with clay layers, tan	5.0			100/10"					
		10.0			100/.75"					
<b>Boring Terminated at 10 Feet</b>										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:  
Dry auger

See Exhibit A-3 for description of field procedures  
See Appendix B for description of laboratory procedures and additional data (if any).  
See Appendix C for explanation of symbols and abbreviations.

Notes:

Abandonment Method:  
Borings backfilled with soil cuttings upon completion.

**WATER LEVEL OBSERVATIONS**

No water encountered during drilling  
Dry upon completion of drilling



Boring Started: 11/10/2016

Boring Completed: 11/10/2016

Drill Rig:

Driller: StrataBore

Project No.: 95165202

Exhibit: A-6

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 95165202.INTERMODAL PKWAY.GPJ

# BORING LOG NO. B-4

**PROJECT: Proposed Intermodal Parkway Expansion and New Street "B"**

**CLIENT: Hillwood Alliance Services, LLC  
Fort Worth**

**SITE:  
Fort Worth, Texas**

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.99001° Longitude: -97.33972°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
									LL-PL-PI	
	<b>FAT CLAY (CH)</b> , dark brown, very stiff to hard	4.0			2.5 (HP)		28		73-28-45	
	<b>LIMESTONE</b> , with clay layers, tan	5.0			100/2.0"					
	<b>Boring Terminated at 10 Feet</b>	10.0			100/.75"					

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:  
Dry auger

See Exhibit A-3 for description of field procedures  
See Appendix B for description of laboratory procedures and additional data (if any).  
See Appendix C for explanation of symbols and abbreviations.

Notes:

Abandonment Method:  
Borings backfilled with soil cuttings upon completion.

<b>WATER LEVEL OBSERVATIONS</b>
<i>No water encountered during drilling</i>
<i>Dry upon completion of drilling</i>



Boring Started: 11/10/2016	Boring Completed: 11/10/2016
Drill Rig:	Driller: StrataBore
Project No.: 95165202	Exhibit: A-7

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 95165202.INTERMODAL.PKWAY.GPJ

# BORING LOG NO. B-5

**PROJECT: Proposed Intermodal Parkway Expansion and New Street "B"**

**CLIENT: Hillwood Alliance Services, LLC  
Fort Worth**

**SITE:  
Fort Worth, Texas**

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.99001° Longitude: -97.33809°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
									LL-PL-PI	
DEPTH										
	<b>FAT CLAY (CH)</b> , dark brown, very stiff to hard	4.0			2.0 (HP)					
	<b>FAT CLAY (CH)</b> , with gravel, brown and tan, hard	6.0			4.5+ (HP)		23		66-23-43	
	<b>FAT CLAY</b> , tan, hard	8.0			4.0 (HP)					
	<b>LIMESTONE</b> , with clay layers, tan	9.5		X	22-9-30 N=39					
	<b>Boring Terminated at 9.5 Feet</b>									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:  
Dry auger

See Exhibit A-3 for description of field procedures  
See Appendix B for description of laboratory procedures and additional data (if any).  
See Appendix C for explanation of symbols and abbreviations.

Notes:

Abandonment Method:  
Borings backfilled with soil cuttings upon completion.

**WATER LEVEL OBSERVATIONS**

No water encountered during drilling  
Dry upon completion of drilling



Boring Started: 11/10/2016

Boring Completed: 11/10/2016

Drill Rig:

Driller: StrataBore

Project No.: 95165202

Exhibit: A-8

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL. 95165202.INTERMODAL.PKWAY.GPJ

# BORING LOG NO. B-6

**PROJECT: Proposed Intermodal Parkway Expansion and New Street "B"**

**CLIENT: Hillwood Alliance Services, LLC  
Fort Worth**

**SITE:  
Fort Worth, Texas**

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.99001° Longitude: -97.33646°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
									LL-PL-PI	
DEPTH										
8.0	<b>FILL - FAT CLAY (CH)</b> , with limestone fragments, brown, tan and gray, very stiff to hard	4.0			4.0 (HP)					
		3.75			3.75 (HP)					
		5					17		57-18-39	
		2.5			2.5 (HP)					
10.0	<b>LEAN CLAY (CL)</b> , with calcareous deposits, tan, hard	4.5			4.5 (HP)					
	<b>Boring Terminated at 10 Feet</b>	10								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:  
Dry auger

See Exhibit A-3 for description of field procedures  
See Appendix B for description of laboratory procedures and additional data (if any).  
See Appendix C for explanation of symbols and abbreviations.

Notes:

Abandonment Method:  
Borings backfilled with soil cuttings upon completion.

**WATER LEVEL OBSERVATIONS**

*No water encountered during drilling*

*Dry upon completion of drilling*



2501 E Loop 820 N  
Fort Worth, TX

Boring Started: 11/10/2016

Boring Completed: 11/10/2016

Drill Rig:

Driller: StrataBore

Project No.: 95165202

Exhibit: A-9

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL. 95165202.INTERMODAL.PKWAY.GPJ



# BORING LOG NO. B-7

**PROJECT: Proposed Intermodal Parkway Expansion and New Street "B"**

**CLIENT: Hillwood Alliance Services, LLC  
Fort Worth**

**SITE:  
Fort Worth, Texas**

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.99001° Longitude: -97.33483°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS		PERCENT FINES
									LL-PL-PI		
	DEPTH										
	<b>FAT CLAY (CH)</b> , with gravel, brown and gray, hard	1.0			4.5+ (HP)						
	<b>FAT CLAY (CH)</b> , with calcareous nodules, brown, hard				4.5+ (HP)						
	<b>LEAN CLAY (CL)</b> , with calcareous deposits, tan, hard	4.0			4.5+ (HP)		7		35-14-21		
					4.5+ (HP)						
		8.5		X	9-50/5"						
	<b>LIMESTONE</b> , with clay layers, tan	9.0									
	<b>Boring Terminated at 9 Feet</b>										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:  
Dry auger

See Exhibit A-3 for description of field procedures  
See Appendix B for description of laboratory procedures and additional data (if any).  
See Appendix C for explanation of symbols and abbreviations.

Notes:

Abandonment Method:  
Borings backfilled with soil cuttings upon completion.

**WATER LEVEL OBSERVATIONS**

*No water encountered during drilling*  
*Dry upon completion of drilling*



2501 E Loop 820 N  
Fort Worth, TX

Boring Started: 11/10/2016

Boring Completed: 11/10/2016

Drill Rig:

Driller: StrataBore

Project No.: 95165202

Exhibit: A-10

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL\_95165202.INTERMODAL PKWAY.GPJ

# BORING LOG NO. B-8

**PROJECT:** Proposed Intermodal Parkway Expansion  
and New Street "B"

**CLIENT:** Hillwood Alliance Services, LLC  
Fort Worth

**SITE:**  
Fort Worth, Texas

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.98993° Longitude: -97.33321°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
									LL-PL-PI	
		DEPTH								
	<b>FAT CLAY (CH)</b> , dark brown, very stiff	2.0			3.25 (HP)		24		65-26-39	
	<b>FAT CLAY (CH)</b> , brown, hard	5.0			4.5+ (HP)					
	<b>FAT CLAY (CH)</b> , with calcareous nodules, tan, hard	10.0			4.5+ (HP)					
	<b>Boring Terminated at 10 Feet</b>				4.5+ (HP)					

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:  
Dry auger

See Exhibit A-3 for description of field procedures  
See Appendix B for description of laboratory procedures and additional data (if any).  
See Appendix C for explanation of symbols and abbreviations.

Notes:

Abandonment Method:  
Borings backfilled with soil cuttings upon completion.

**WATER LEVEL OBSERVATIONS**

No water encountered during drilling  
Dry upon completion of drilling



Boring Started: 11/10/2016

Boring Completed: 11/10/2016

Drill Rig:

Driller: StrataBore

Project No.: 95165202

Exhibit: A-11

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL\_95165202.INTERMODAL PKWAY.GPJ

# BORING LOG NO. B-9

<b>PROJECT:</b> Proposed Intermodal Parkway Expansion and New Street "B"	<b>CLIENT:</b> Hillwood Alliance Services, LLC Fort Worth
<b>SITE:</b> Fort Worth, Texas	

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.9902° Longitude: -97.33151°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
									LL-PL-PI	
DEPTH										
2.0	<b>FAT CLAY (CH)</b> , dark brown, hard				4.0 (HP)					
8.0	<b>FAT CLAY (CH)</b> , with calcareous nodules and deposits, tan and gray, very stiff to hard				3.0 (HP)					
10.0	<b>FAT CLAY (CH)</b> , shaley, with calcareous deposits, tan and gray, hard	5			4.5+ (HP)		22		64-18-46	
10.0	<b>FAT CLAY (CH)</b> , shaley, with calcareous deposits, tan and gray, hard				2.75 (HP)					
10.0	<b>FAT CLAY (CH)</b> , shaley, with calcareous deposits, tan and gray, hard				4.5+ (HP)					
10.0	<b>Boring Terminated at 10 Feet</b>	10								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method: Dry auger	See Exhibit A-3 for description of field procedures See Appendix B for description of laboratory procedures and additional data (if any). See Appendix C for explanation of symbols and abbreviations.	Notes:
Abandonment Method: Borings backfilled with soil cuttings upon completion.		
<b>WATER LEVEL OBSERVATIONS</b> No water encountered during drilling Dry upon completion of drilling	2501 E Loop 820 N Fort Worth, TX	Boring Started: 10/28/2016 Drill Rig: Project No.: 95165202
		Boring Completed: 10/28/2016 Driller: StrataBore Exhibit: A-12

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 95165202.INTERMODAL PKWAY.GPJ

# BORING LOG NO. B-10

**PROJECT:** Proposed Intermodal Parkway Expansion and New Street "B"

**CLIENT:** Hillwood Alliance Services, LLC  
Fort Worth

**SITE:**  
Fort Worth, Texas

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.99157° Longitude: -97.3314°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
									LL-PL-PI	
DEPTH										
2.0	<b>FAT CLAY (CH)</b> , dark brown, very stiff				3.75 (HP)		16		48-14-34	
10.0	<b>FAT CLAY (CH)</b> , shaley, with calcareous nodules and deposits, very stiff to hard				2.25 (HP)					
5					3.5 (HP)					
4.5+					4.5+ (HP)		24		65-24-41	
4.5+					4.5+ (HP)					
10.0	<b>Boring Terminated at 10 Feet</b>									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:  
Dry auger

See Exhibit A-3 for description of field procedures  
See Appendix B for description of laboratory procedures and additional data (if any).  
See Appendix C for explanation of symbols and abbreviations.

Notes:

Abandonment Method:  
Borings backfilled with soil cuttings upon completion.

**WATER LEVEL OBSERVATIONS**

*No water encountered during drilling*  
*Dry upon completion of drilling*



Boring Started: 10/28/2016

Boring Completed: 10/28/2016

Drill Rig:

Driller: StrataBore

Project No.: 95165202

Exhibit: A-13

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO.WELL\_95165202.INTERMODAL.PKWAY.GPJ

# BORING LOG NO. B-11

**PROJECT: Proposed Intermodal Parkway Expansion and New Street "B"**

**CLIENT: Hillwood Alliance Services, LLC  
Fort Worth**

**SITE:  
Fort Worth, Texas**

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.99294° Longitude: -97.33141°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
									LL-PL-PI	
DEPTH										
2.0	<b>FAT CLAY (CH)</b> , dark brown, hard				4.5+ (HP)					
6.0	<b>FAT CLAY (CH)</b> , gray, medium stiff to stiff	5			1.0 (HP)		25		69-24-45	
8.0	<b>FAT CLAY (CH)</b> , tan and gray, stiff				1.5 (HP)					
10.0	<b>FAT CLAY (CH)</b> , shaley, with calcareous nodules and deposits, reddish brown, tan and gray, very stiff				1.5 (HP)					
	<b>Boring Terminated at 10 Feet</b>	10			2.75 (HP)					

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:  
Dry auger

See Exhibit A-3 for description of field procedures  
See Appendix B for description of laboratory procedures and additional data (if any).

Notes:

Abandonment Method:  
Borings backfilled with soil cuttings upon completion.

See Appendix C for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS
<i>No water encountered during drilling</i>
<i>Dry upon completion of drilling</i>

2501 E Loop 820 N  
Fort Worth, TX

Boring Started: 10/28/2016	Boring Completed: 10/28/2016
Drill Rig:	Driller: StrataBore
Project No.: 95165202	Exhibit: A-14

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 95165202.INTERMODAL\_PKWAY.GPJ

# BORING LOG NO. B-12

**PROJECT:** Proposed Intermodal Parkway Expansion  
and New Street "B"

**CLIENT:** Hillwood Alliance Services, LLC  
Fort Worth

**SITE:**  
Fort Worth, Texas

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.99432° Longitude: -97.33141°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
									LL-PL-PI	
DEPTH										
	<b>FAT CLAY (CH)</b> , dark brown, stiff to very stiff	5			2.25 (HP)					
		5			1.25 (HP)					
		5			1.25 (HP)		24		72-25-47	
	<b>FAT CLAY (CH)</b> , tan and gray, stiff to very stiff	6.0			2.0 (HP)					
		8.0			2.25 (HP)					
	<b>FAT CLAY (CH)</b> , shaley, with calcareous nodules and deposits, tan and gray, stiff to very stiff	8.0			2.25 (HP)					
		10.0								
	<b>Boring Terminated at 10 Feet</b>	10								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:  
Dry auger

See Exhibit A-3 for description of field procedures  
See Appendix B for description of laboratory procedures and additional data (if any).

Notes:

Abandonment Method:  
Borings backfilled with soil cuttings upon completion.

See Appendix C for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS
No water encountered during drilling
Dry upon completion of drilling



Boring Started: 10/28/2016	Boring Completed: 10/28/2016
Drill Rig:	Driller: StrataBore
Project No.: 95165202	Exhibit: A-15

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL: 95165202.INTERMODAL PKWAY.GPJ

# BORING LOG NO. B-13

**PROJECT: Proposed Intermodal Parkway Expansion and New Street "B"**

**CLIENT: Hillwood Alliance Services, LLC  
Fort Worth**

**SITE:  
Fort Worth, Texas**

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.99569° Longitude: -97.33142°	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS		PERCENT FINES
										LL-PL-PI		
4.0	<b>FAT CLAY (CH)</b> , very stiff to hard		4.5+			4.5+ (HP)						
8.0	<b>FAT CLAY (CH)</b> , very stiff		3.5			3.5 (HP)		25		59-24-35		
8.0	<b>FAT CLAY (CH)</b> , with calcareous nodules and deposits, stiff to very stiff		2.5			2.5 (HP)						
10.0	<b>FAT CLAY (CH)</b> , with calcareous nodules and deposits, stiff to very stiff		2.25			2.25 (HP)						
10.0	<b>FAT CLAY (CH)</b> , with calcareous nodules and deposits, stiff to very stiff		1.5			1.5 (HP)						
	<b>Boring Terminated at 10 Feet</b>		10									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:  
Dry auger

See Exhibit A-3 for description of field procedures  
See Appendix B for description of laboratory procedures and additional data (if any).  
See Appendix C for explanation of symbols and abbreviations.

Notes:

Abandonment Method:  
Borings backfilled with soil cuttings upon completion.

**WATER LEVEL OBSERVATIONS**

*No water encountered during drilling*

*Dry upon completion of drilling*



Boring Started: 10/28/2016

Boring Completed: 10/28/2016

Drill Rig:

Driller: StrataBore

Project No.: 95165202

Exhibit: A-16

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL\_95165202.INTERMODAL.PKWAY.GPJ

# BORING LOG NO. B-14

**PROJECT: Proposed Intermodal Parkway Expansion and New Street "B"**

**CLIENT: Hillwood Alliance Services, LLC  
Fort Worth**

**SITE:  
Fort Worth, Texas**

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.99389° Longitude: -97.32749°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	
									LL-PL-PI	PERCENT FINES
	<b>FAT CLAY (CH)</b> , dark brown, stiff to very stiff				2.25 (HP)					
		5			1.5 (HP)		26		73-28-45	
		6.0			3.5 (HP)					
		<b>FAT CLAY (CH)</b> , gray, hard				4.5+ (HP)				
		8.0				4.5+ (HP)				
		<b>FAT CLAY (CH)</b> , with calcareous nodules, tan and gray, hard								
	14.0									
		15			62/12"					
		17.0								
	<b>LIMESTONE</b> , with clay layers, tan									
	20.0				100/.75"					
	<b>LIMESTONE</b> , with shale layers, gray									
	<b>Boring Terminated at 20 Feet</b>									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:  
Dry auger

See Exhibit A-3 for description of field procedures  
See Appendix B for description of laboratory procedures and additional data (if any).

Notes:

Abandonment Method:  
Borings backfilled with soil cuttings upon completion.

See Appendix C for explanation of symbols and abbreviations.

<b>WATER LEVEL OBSERVATIONS</b>
<i>No water encountered during drilling</i>
<i>Dry upon completion of drilling</i>



Boring Started: 10/28/2016	Boring Completed: 10/28/2016
Drill Rig:	Driller: StrataBore
Project No.: 95165202	Exhibit: A-17

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL: 95165202.INTERMODAL PKWAY.GPJ



# BORING LOG NO. B-15

**PROJECT: Proposed Intermodal Parkway Expansion and New Street "B"**

**CLIENT: Hillwood Alliance Services, LLC  
Fort Worth**

**SITE:  
Fort Worth, Texas**

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.9926° Longitude: -97.3279°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	
									LL-PL-PI	PERCENT FINES
DEPTH										
	<b>FAT CLAY (CH)</b> , dark brown, hard	5			4.5 (HP)					
					4.5 (HP)					
		6.0			4.5 (HP)					
	<b>FAT CLAY (CH)</b> , with gravel, tan and gray, hard	8.0		X	18-23-15 N=38					
	<b>LEAN CLAY (CL)</b> , shaley, with calcareous nodules and deposits, tan and gray, hard	10			4.5+ (HP)		14		40-16-24	
		14.0								
	<b>LIMESTONE</b> , with clay layers, tan	15			100/1.0"					
		20.0			100/3.0"					
	<b>Boring Terminated at 20 Feet</b>	20								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:  
Dry auger

See Exhibit A-3 for description of field procedures  
See Appendix B for description of laboratory procedures and additional data (if any).

Notes:

Abandonment Method:  
Borings backfilled with soil cuttings upon completion.

See Appendix C for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS
<i>No water encountered during drilling</i>
<i>Dry upon completion of drilling</i>



Boring Started: 10/28/2016	Boring Completed: 10/28/2016
Drill Rig:	Driller: StrataBore
Project No.: 95165202	Exhibit: A-18

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 95165202.INTERMODAL PKWAY.GPJ

**APPENDIX B**  
**LABORATORY TESTING**

**Laboratory Testing**

The boring logs and samples were reviewed by a geotechnical engineer who selected soil samples for testing. Tests were performed by technicians working under the direction of the engineer. A brief description of the tests performed follows.

Liquid and plastic limit tests (ASTM D4318) and moisture content measurements (ASTM D2216) were made to aid in classifying the soils in accordance with the Unified Soil Classification System (USCS). The USCS is summarized on Exhibit C-2 in Appendix C. Consistency of cohesive soils was measured by hand penetrometer tests. Soluble sulfate tests (EPA 9056A) were performed on selected soil samples. The results of the soluble sulfate tests are presented in Table 1. The results of the other laboratory tests are presented on the boring logs in Appendix A.

The following laboratory tests were performed for the purpose of pavement design. Lime series tests were performed to determine optimum lime content for subgrade modification (Exhibits B-2 and B-3). Standard Proctor tests (ASTM D698) were performed to determine the moisture/density relationship of subgrade soils and probable fills in their lime-modified state (Exhibits B-4 and B-5). California Bearing Ratio tests (ASTM D1883) were performed on lime-modified samples of the subgrade soils (Exhibits B-6 and B-7).

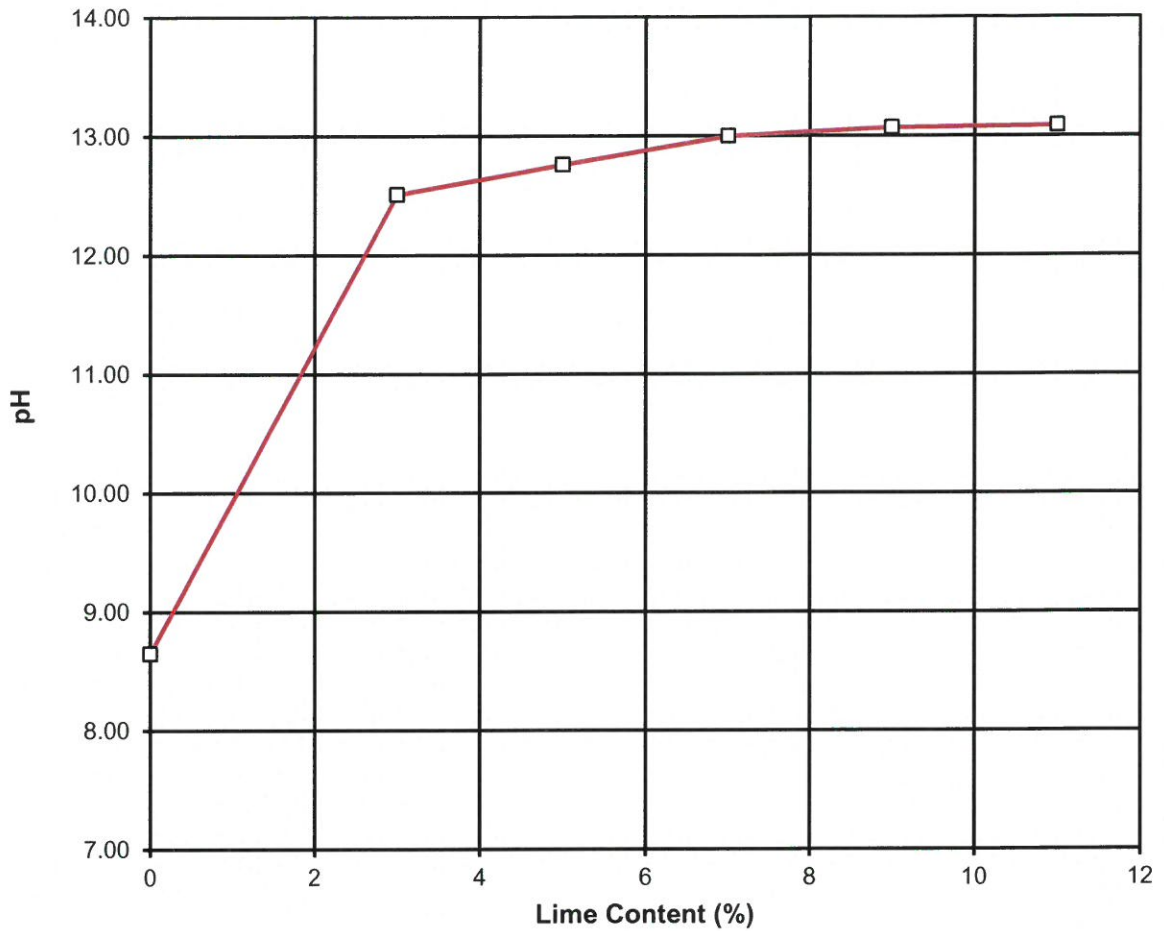
**TABLE 1 – SUMMARY OF SWELL TESTS**

Boring No.	Depth (feet)	Liquid Limit (%)	Plasticity Index (%)	Initial Moisture (%)	Final Moisture (%)	Surcharge (psf)	Swell (%)
B-2	2-4	67	43	22.3	29.0	370	5.9
B-5	4-6	66	43	23.0	25.1	620	0.5
B-9	4-6	64	46	21.9	24.6	620	0.1
B-10	6-8	65	41	23.7	26.3	870	0.0
B-13	2-4	59	35	24.9	26.6	370	0.8

**TABLE 2 - SUMMARY OF SOLUBLE SULFATE TESTS**

Boring No.	Depth (feet)	Soluble Sulfate (ppm)
B-2	2-4	357
B-4	0-2	13.9 (J)
B-6	2-4	62.7
B-8	0-2	7.67 (J)*
B-9	2-4	22.3 (J)*
B-11	4-6	255
B-13	0-2	2.27 (J)

Constituent concentrations qualified with J-flag (J) indicate the constituent was detected at a concentration above the laboratory sample detection limit (SDL), but below the laboratory report detection limit (RDL). Constituent concentrations qualified with a J-flag are considered estimated values.



Sample: Boring B-1  
 Soil Description: Brown, tan and gray clay  
 Liquid Limit: 62  
 Plastic Limit: 24  
 Plasticity Index: 38

**Optimum Lime Application Rate: 9%**

Lime Content (%)	pH
0.0	8.65
3.0	12.51
5.0	12.76
7.0	13.00
9.0	13.07
11.0	13.09

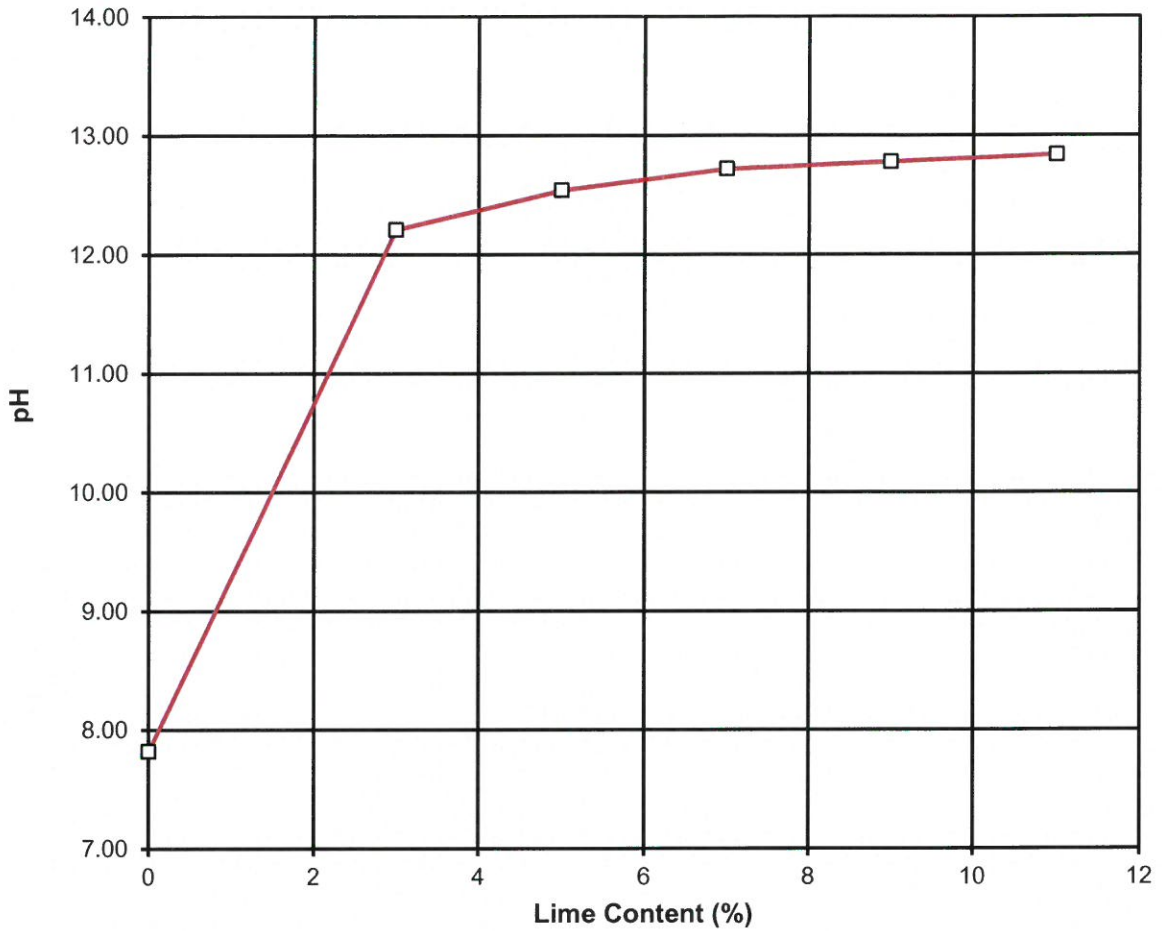
Project Mgr:	CCP
Prepared by:	FKT
Checked by:	CCP
Approved by:	CWE

Project No.	95165202
Scale:	N/A
Date:	1/3/2017

  
 Consulting Engineers and Scientists  
 Texas Registration 3272  
 2501 E LOOP 820 NORTH FORT WORTH, TX 75247  
 PH: (817) 268-8600 Fax: (817) 268-8602

**LIME SERIES TEST**  
 Intermodal Parkway Expansion and New Street "B"  
 Fort Worth, Texas

**EXHIBIT**  
**B-2**




Sample: Boring B-12  
 Soil Description: Brown, tan and gray clay  
 Liquid Limit: 64  
 Plastic Limit: 21  
 Plasticity Index: 43

**Optimum Lime Application Rate: 9%**

Lime Content (%)	pH
0.0	7.82
3.0	12.21
5.0	12.54
7.0	12.72
9.0	12.78
11.0	12.84

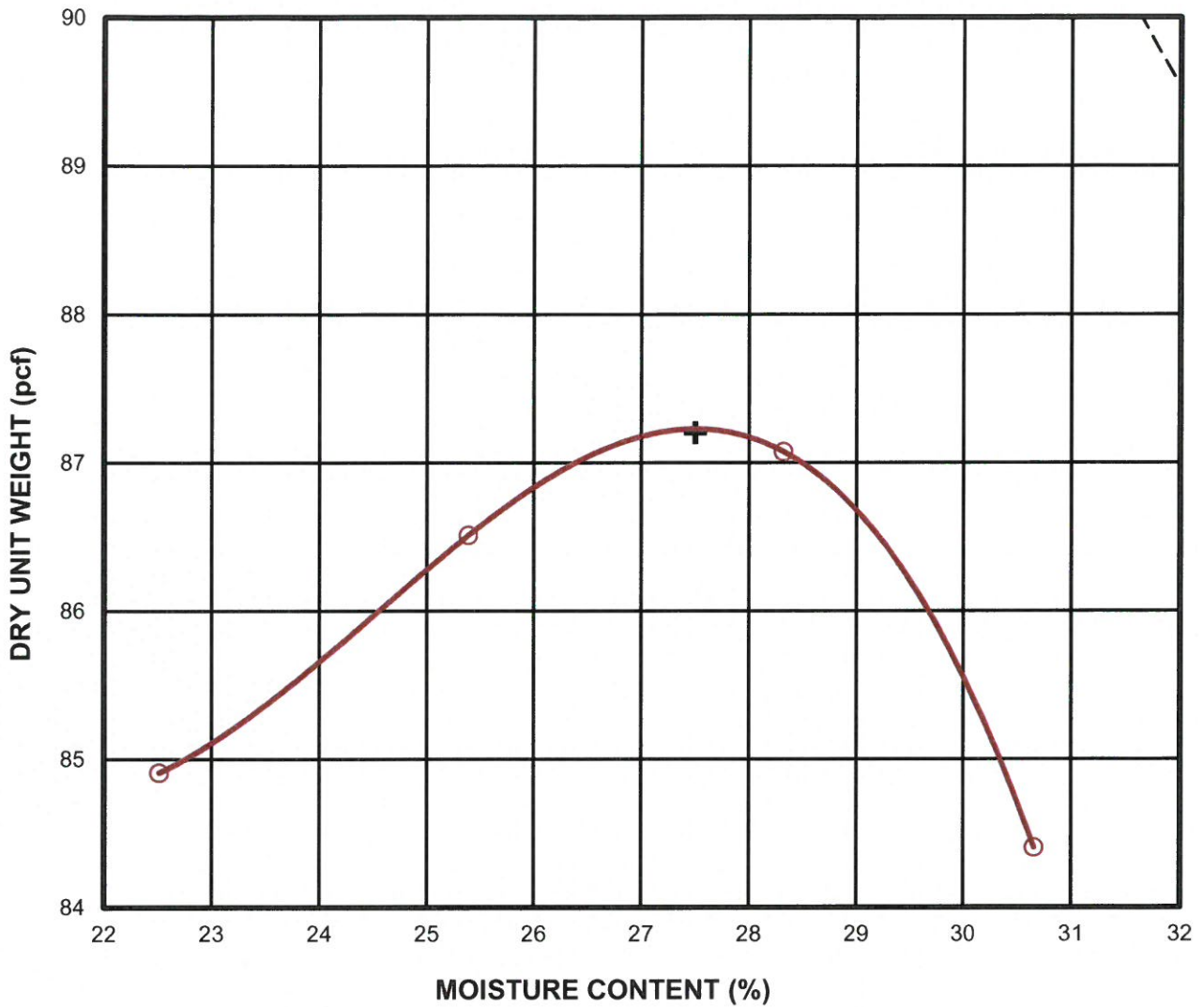
Project Mgr:	CCP
Prepared by:	FKT
Checked by:	CCP
Approved by:	CWE

Project No.	95165202
Scale:	N/A
Date:	1/3/2017

  
 Consulting Engineers and Scientists  
 Texas Registration 3272  
 2501 E LOOP 820 NORTH FORT WORTH, TX 75247  
 PH: (817) 268-8600 Fax: (817) 268-8902

**LIME SERIES TEST**  
 Intermodal Parkway Expansion and New Street "B"  
 Fort Worth, Texas

**EXHIBIT**  
**B-3**



● MAX. DRY UNIT WEIGHT/OPTIMUM MOISTURE CONTENT    ○ DATA POINTS    - - - ZERO AIR VOIDS

**BORING:** B-1  
**DEPTH:** 0-2 feet

**SAMPLE DESCRIPTION:** Brown and tan clay with 9% lime

**LABORATORY PROPERTIES**

Liquid Limit: 55 %  
 Plastic Limit: 38 %  
 Plasticity Index: 17

**STANDARD PROCTOR RESULTS**

Optimum Moisture Content:	27.5 %
Maximum Dry Density:	87.2 pcf

Test Method: ASTM D-698, Method C  
 Zero air voids for specific gravity of 2.65

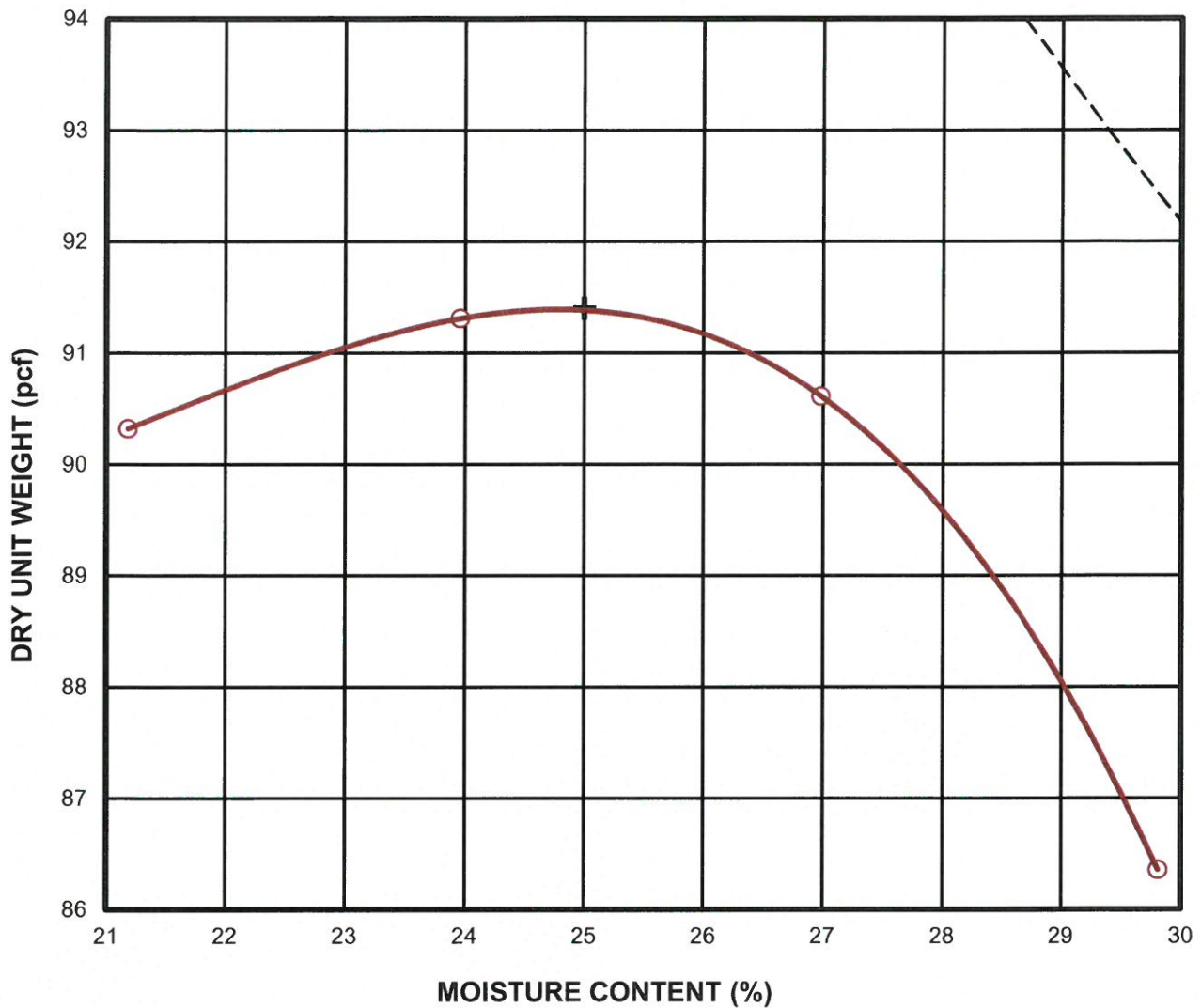
Project Mgr:	CCP
Tested by:	FKT
Checked by:	CCP
Approved by:	CWE

Project No.	95165202
Scale:	N/A
Date:	1/11/2017

  
 Consulting Engineers and Scientists  
 Texas Registration 3272  
2501 East Loop 820 North Fort Worth, Tx 76118  
 PH: (817) 268-8600 Fax: (817) 268-8602

<b>STANDARD PROCTOR RESULTS</b>  Proposed Intermodal Pkwy. and New Street "B" Fort Worth, Texas
--

<b>EXHIBIT</b>  <b>B-4</b>
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● MAX. DRY UNIT WEIGHT/OPTIMUM MOISTURE CONTENT    ○ DATA POINTS    - - - ZERO AIR VOIDS

**BORING:** B-12  
**DEPTH:** 0-2 feet  
**SAMPLE DESCRIPTION:** Dark brown clay with 9% lime

**LABORATORY PROPERTIES**

Liquid Limit: 52 %  
 Plastic Limit: 37 %  
 Plasticity Index: 15

**STANDARD PROCTOR RESULTS**

Optimum Moisture Content:	25.0 %
Maximum Dry Density:	91.4 pcf

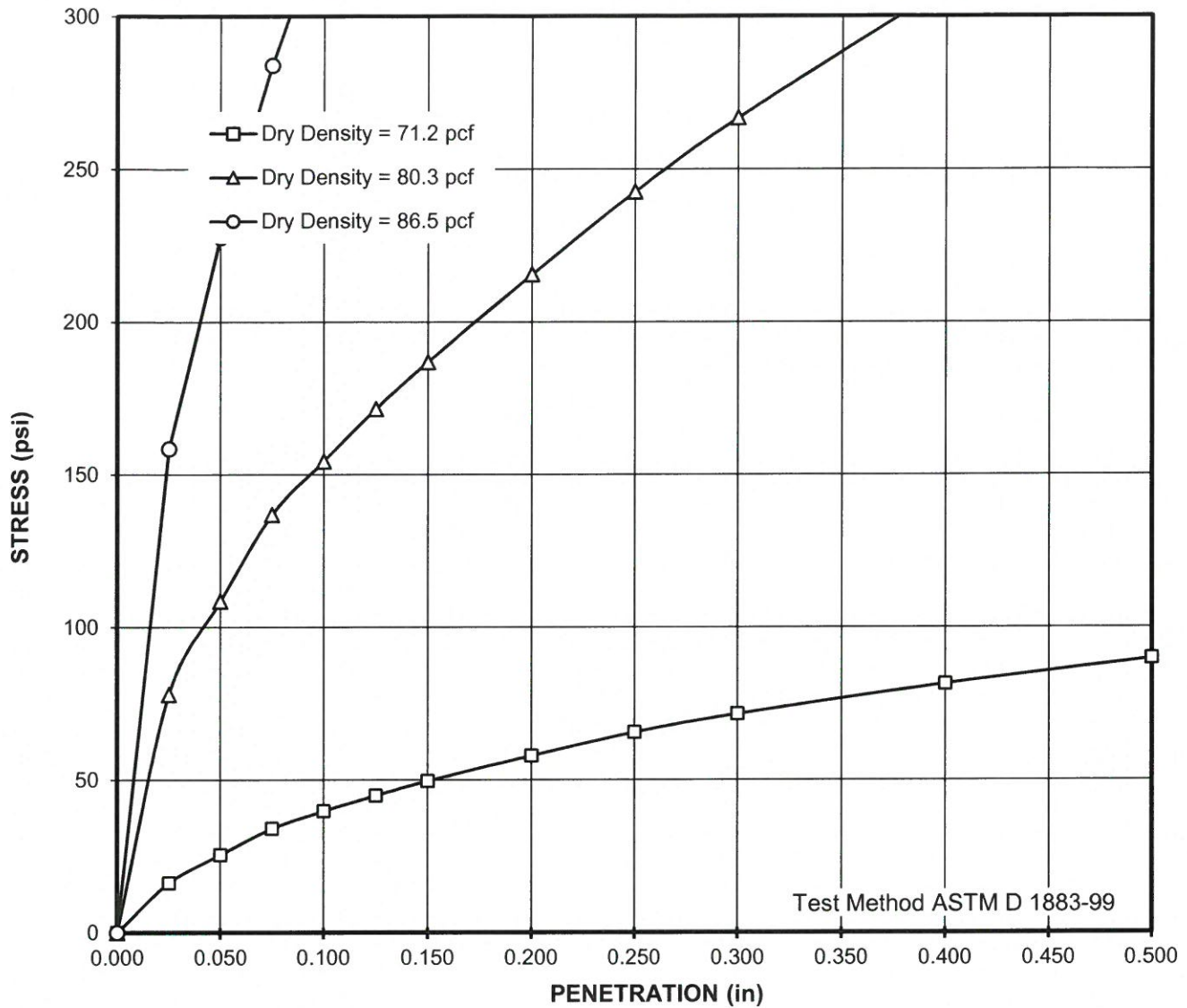
Test Method: ASTM D-698, Method C  
 Zero air voids for specific gravity of 2.65

Project Mgr: CCP	Project No. 9516522
Tested by: FKT	Scale: N/A
Checked by: CCP	Date: 1/11/2017
Approved by: CWE	

**Terracon**  
 Consulting Engineers and Scientists  
 Texas Registration 3272  
 2501 East Loop 820 North Fort Worth, Tx 76118  
 PH: (817) 298-8600 Fax: (817) 298-8602

<b>STANDARD PROCTOR RESULTS</b>
Proposed Intermodal Pkwy. and New Street "B" Fort Worth, Texas

**EXHIBIT**  
**B-5**



Test Method ASTM D 1883-99

**TEST INFORMATION**

**BORING:** B-1

**DEPTH:** 0-2 feet

**SAMPLE DESCRIPTION:** Brown and tan clay with 9% lime

**TRIAL:** Composite Curve

**Surcharge Load:** 10 lbs

**LABORATORY PROPERTIES**

Liquid Limit: 55

Plastic Limit: 38

Plasticity Index: 17

**CBR RESULTS**

Sample molded at 71.2 pcf (dry density)	4.0
Sample molded at 80.3 pcf (dry density)	15.4
Sample molded at 86.5 pcf (dry density)	33.2
Estimated CBR for 95% of standard proctor dry density	22

Project Mgr:	CCP
Tested by:	FKT
Checked by:	CCP
Approved by:	CWE

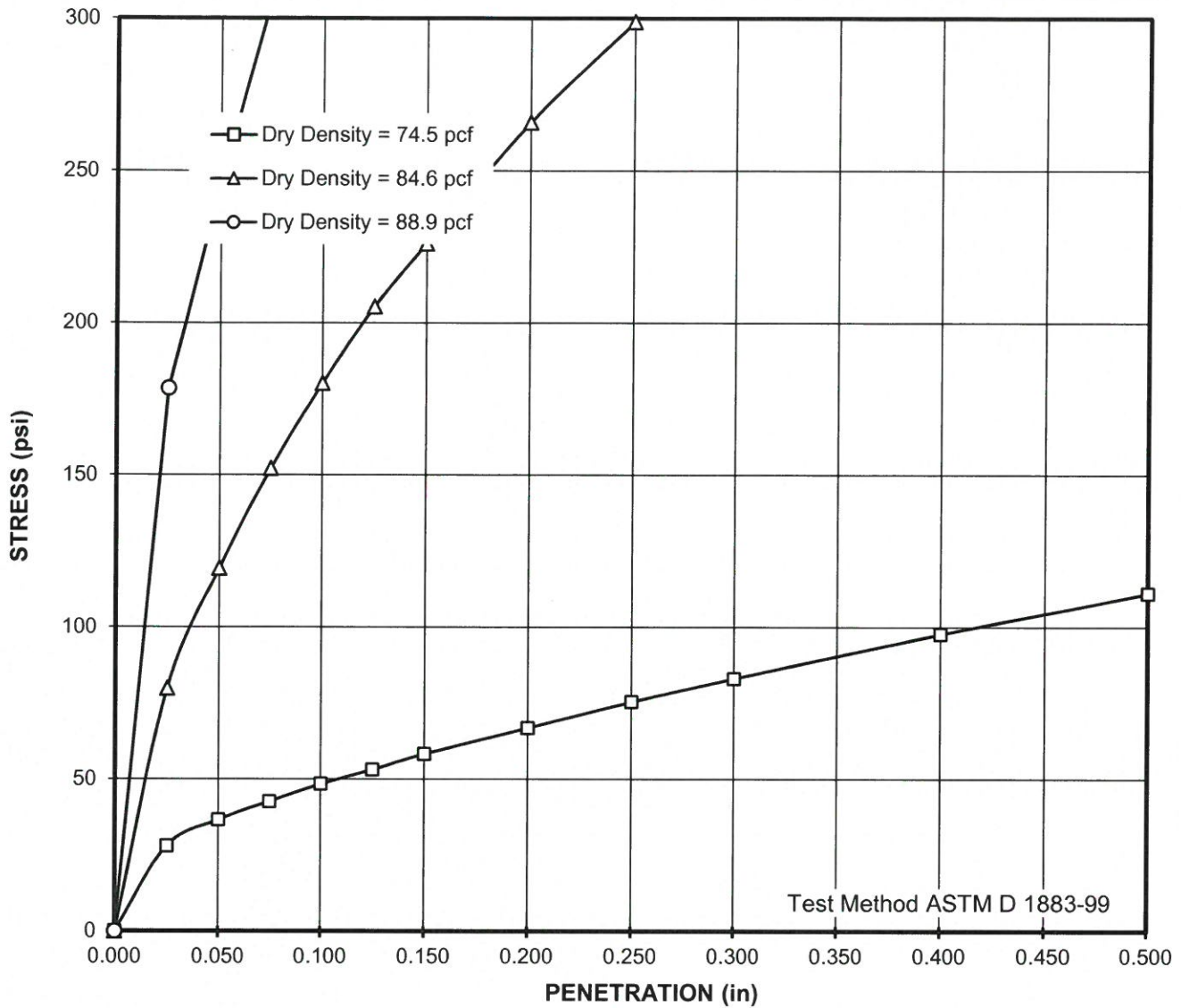
Project No.	95165202
Scale:	N/A
Date:	1/11/2017

**Terracon**  
 Consulting Engineers and Scientists  
 Texas Registration 3272  
 2501 EAST LOOP 820 NORTH FORT WORTH, TEXAS 76116  
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<b>CBR TEST RESULTS</b>
<b>COMPOSITE RESULTS</b>
Proposed Intermodal Pkwy. and New Street "B"
Fort Worth, Texas

<b>EXHIBIT</b>
<b>B-6</b>





**TEST INFORMATION**  
**BORING:** B-12  
**DEPTH:** 0-2 feet  
**SAMPLE DESCRIPTION:** Dark brown clay with 9% lime  
**TRIAL:** Composite Curve  
**Surcharge Load:** 10 lbs

**LABORATORY PROPERTIES**  
 Liquid Limit: 52  
 Plastic Limit: 37  
 Plasticity Index: 15

CBR RESULTS	
Sample molded at 74.5 pcf (dry density)	4.8
Sample molded at 84.6 pcf (dry density)	18.0
Sample molded at 88.9 pcf (dry density)	36.4
Estimated CBR for 95% of standard proctor dry density	27

Project Mgr: CCP  
 Tested by: FKT  
 Checked by: CCP  
 Approved by: CWE

Project No. 95165202  
 Scale: N/A  
 Date: 1/11/2017














**CBR TEST RESULTS**  
**COMPOSITE RESULTS**  
 Proposed Intermodal Pkwy. and New Street "B"  
 Fort Worth, Texas

**EXHIBIT**  
**B-7**

**APPENDIX C**  
**SUPPORTING DOCUMENTS**

# GENERAL NOTES

## DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

<b>SAMPLING</b>			<b>WATER LEVEL</b>		Water Initially Encountered	<b>FIELD TESTS</b>	(HP) Hand Penetrometer	
	<b>Auger</b>	<b>Split Spoon</b>			Water Level After a Specified Period of Time		(T) Torvane	
					Water Level After a Specified Period of Time		(b/f) Standard Penetration Test (blows per foot)	
	<b>Shelby Tube</b>	<b>Macro Core</b>		Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.			(PID) Photo-Ionization Detector	
							(OVA) Organic Vapor Analyzer	
					(TCP) Texas Cone Penetrometer			
<b>Grab Sample</b>	<b>No Recovery</b>							

## DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

## LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS	RELATIVE DENSITY OF COARSE-GRAINED SOILS <small>(More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance Includes gravels, sands and silts.</small>			CONSISTENCY OF FINE-GRAINED SOILS <small>(50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance</small>		
	Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength, Qu, tsf	Standard Penetration or N-Value Blows/Ft.
Very Loose	0 - 3	0 - 6	Very Soft	less than 0.25	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	0.25 to 0.50	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium-Stiff	0.50 to 1.00	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	1.00 to 2.00	8 - 15	10 - 18
Very Dense	> 50	≥ 99	Very Stiff	2.00 to 4.00	15 - 30	19 - 42
			Hard	> 4.00	> 30	> 42

## RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

## GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm)
Silt or Clay	Passing #200 sieve (0.075mm)

## RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

## PLASTICITY DESCRIPTION

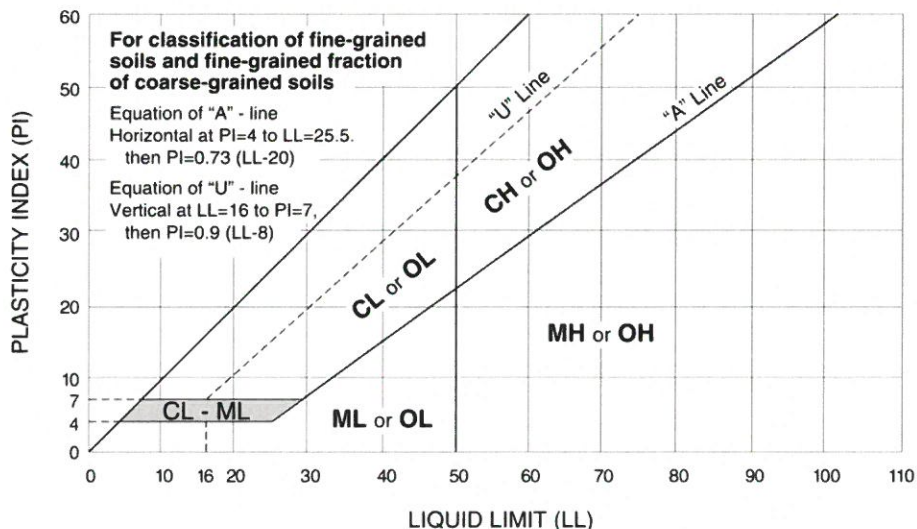
Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30

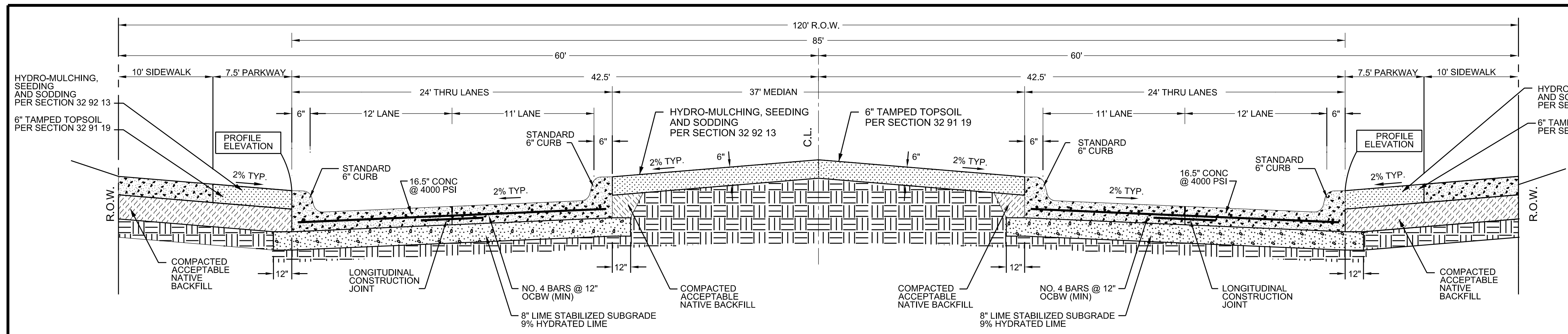
# UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests <sup>A</sup>				Soil Classification		
				Group Symbol	Group Name <sup>B</sup>	
<b>Coarse Grained Soils:</b> More than 50% retained on No. 200 sieve	<b>Gravels:</b> More than 50% of coarse fraction retained on No. 4 sieve	<b>Clean Gravels:</b> Less than 5% fines <sup>C</sup>	$Cu \geq 4$ and $1 \leq Cc \leq 3$ <sup>E</sup>	GW	Well-graded gravel <sup>F</sup>	
			$Cu < 4$ and/or $1 > Cc > 3$ <sup>E</sup>	GP	Poorly graded gravel <sup>F</sup>	
		<b>Gravels with Fines:</b> More than 12% fines <sup>C</sup>	Fines classify as ML or MH	GM	Silty gravel <sup>F,G,H</sup>	
			Fines classify as CL or CH	GC	Clayey gravel <sup>F,G,H</sup>	
	<b>Sands:</b> 50% or more of coarse fraction passes No. 4 sieve	<b>Clean Sands:</b> Less than 5% fines <sup>D</sup>	$Cu \geq 6$ and $1 \leq Cc \leq 3$ <sup>E</sup>	SW	Well-graded sand <sup>I</sup>	
			$Cu < 6$ and/or $1 > Cc > 3$ <sup>E</sup>	SP	Poorly graded sand <sup>I</sup>	
		<b>Sands with Fines:</b> More than 12% fines <sup>D</sup>	Fines classify as ML or MH	SM	Silty sand <sup>G,H,I</sup>	
			Fines Classify as CL or CH	SC	Clayey sand <sup>G,H,I</sup>	
<b>Fine-Grained Soils:</b> 50% or more passes the No. 200 sieve	<b>Silts and Clays:</b> Liquid limit less than 50	<b>Inorganic:</b>	$PI > 7$ and plots on or above "A" line <sup>J</sup>	CL	Lean clay <sup>K,L,M</sup>	
			$PI < 4$ or plots below "A" line <sup>J</sup>	ML	Silt <sup>K,L,M</sup>	
		<b>Organic:</b>	Liquid limit - oven dried	< 0.75	OL	Organic clay <sup>K,L,M,N</sup>
			Liquid limit - not dried			Organic silt <sup>K,L,M,O</sup>
	<b>Silts and Clays:</b> Liquid limit 50 or more	<b>Inorganic:</b>	$PI$ plots on or above "A" line	CH	Fat clay <sup>K,L,M</sup>	
			$PI$ plots below "A" line	MH	Elastic Silt <sup>K,L,M</sup>	
		<b>Organic:</b>	Liquid limit - oven dried	< 0.75	OH	Organic clay <sup>K,L,M,P</sup>
			Liquid limit - not dried			Organic silt <sup>K,L,M,Q</sup>
<b>Highly organic soils:</b>	Primarily organic matter, dark in color, and organic odor			PT	Peat	

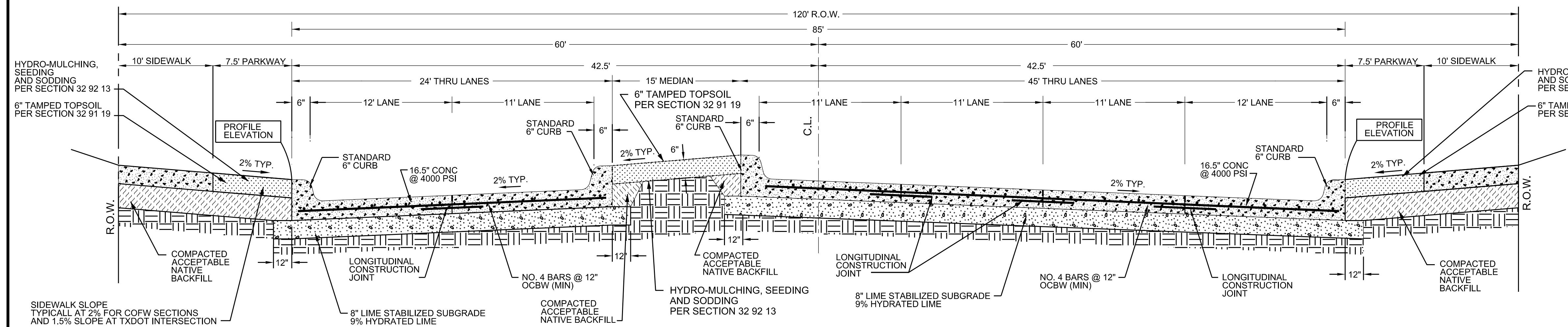
- <sup>A</sup> Based on the material passing the 3-in. (75-mm) sieve
- <sup>B</sup> If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
- <sup>C</sup> Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
- <sup>D</sup> Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay
- <sup>E</sup>  $Cu = D_{60}/D_{10}$      $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
- <sup>F</sup> If soil contains  $\geq 15\%$  sand, add "with sand" to group name.
- <sup>G</sup> If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

- <sup>H</sup> If fines are organic, add "with organic fines" to group name.
- <sup>I</sup> If soil contains  $\geq 15\%$  gravel, add "with gravel" to group name.
- <sup>J</sup> If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.
- <sup>K</sup> If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
- <sup>L</sup> If soil contains  $\geq 30\%$  plus No. 200 predominantly sand, add "sandy" to group name.
- <sup>M</sup> If soil contains  $\geq 30\%$  plus No. 200, predominantly gravel, add "gravelly" to group name.
- <sup>N</sup>  $PI \geq 4$  and plots on or above "A" line.
- <sup>O</sup>  $PI < 4$  or plots below "A" line.
- <sup>P</sup>  $PI$  plots on or above "A" line.
- <sup>Q</sup>  $PI$  plots below "A" line.

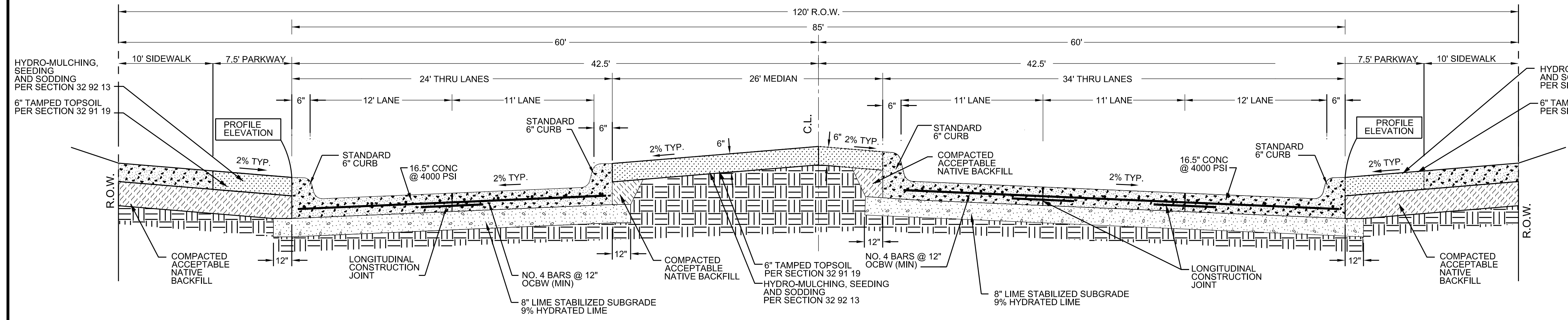




**A** INTERMODAL PARKWAY  
TYPICAL SECTION  
NTS

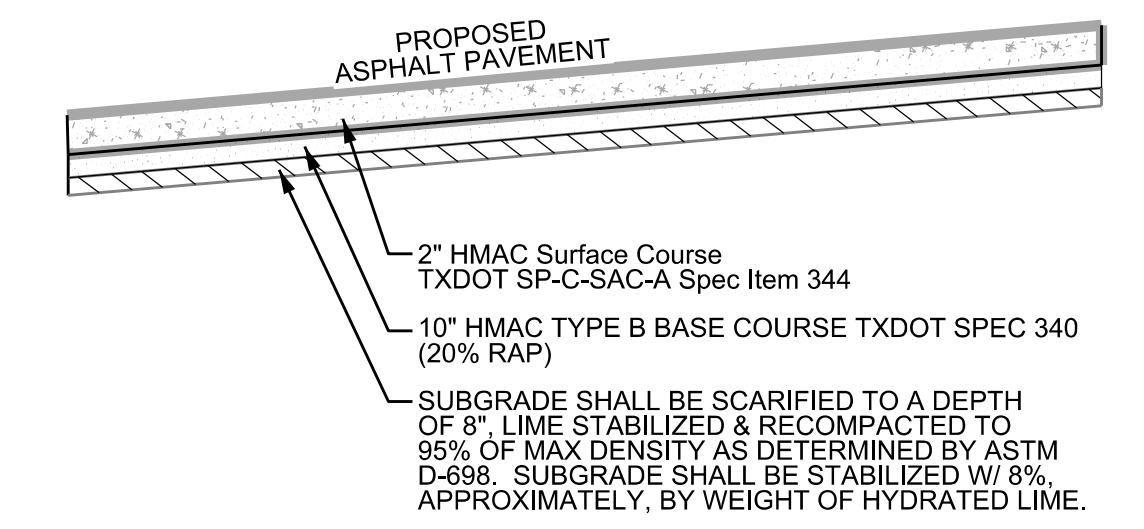


**B** INTERMODAL PARKWAY  
LEFT TURN LANE FM 156  
NTS

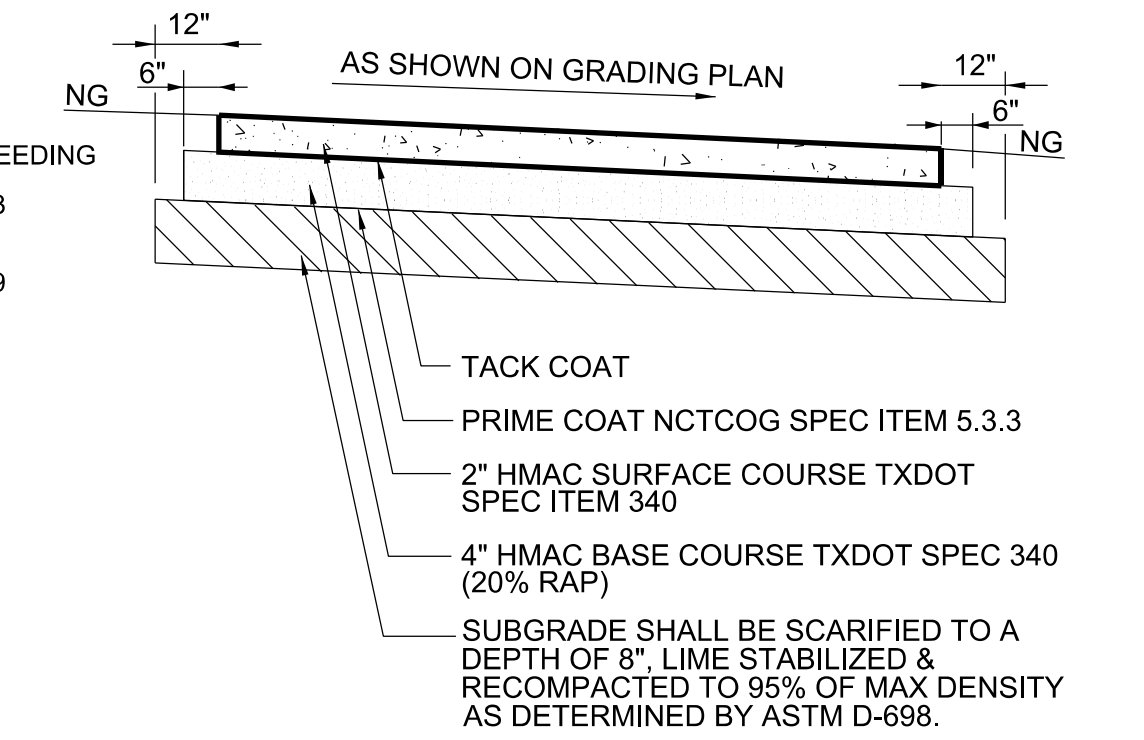


**C** INTERMODAL PARKWAY  
LEFT TURN LANE - WESTBOUND  
NTS

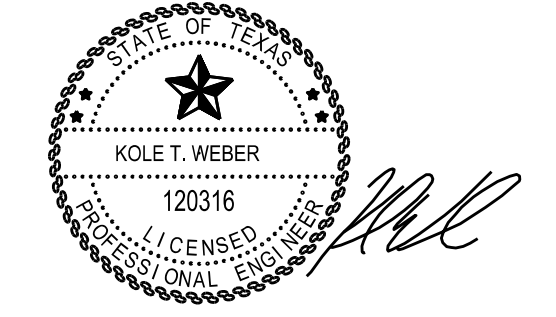
- NOTES:
- PAVING RECOMMENDATIONS ARE MADE BY TERRACON CONSULTANTS, INC. IN REPORT NO. 95165202, DATED JANUARY 16, 2017.
  - CONTRACTOR SHALL OBTAIN A COPY OF SAID GEOTECHNICAL ENGINEERING REPORT AND FAMILIARIZE HIMSELF PRIOR TO BIDDING AND CONSTRUCTING THE IMPROVEMENTS OF THE PROJECT.
  - CROSS SECTION LOCATIONS ON GRADING PLANS.



ASPHALT SECTION -TXDOT INTERSECTION  
NOT TO SCALE



TEMPORARY ASPHALT  
PAVEMENT SECTION  
NOT TO SCALE



10/10/2022  
PELTON LAND SOLUTIONS  
TEXAS FIRM NO. 12207  
The seal appearing on this document was authorized by Kole T. Weber, P.E. No. 120316. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act

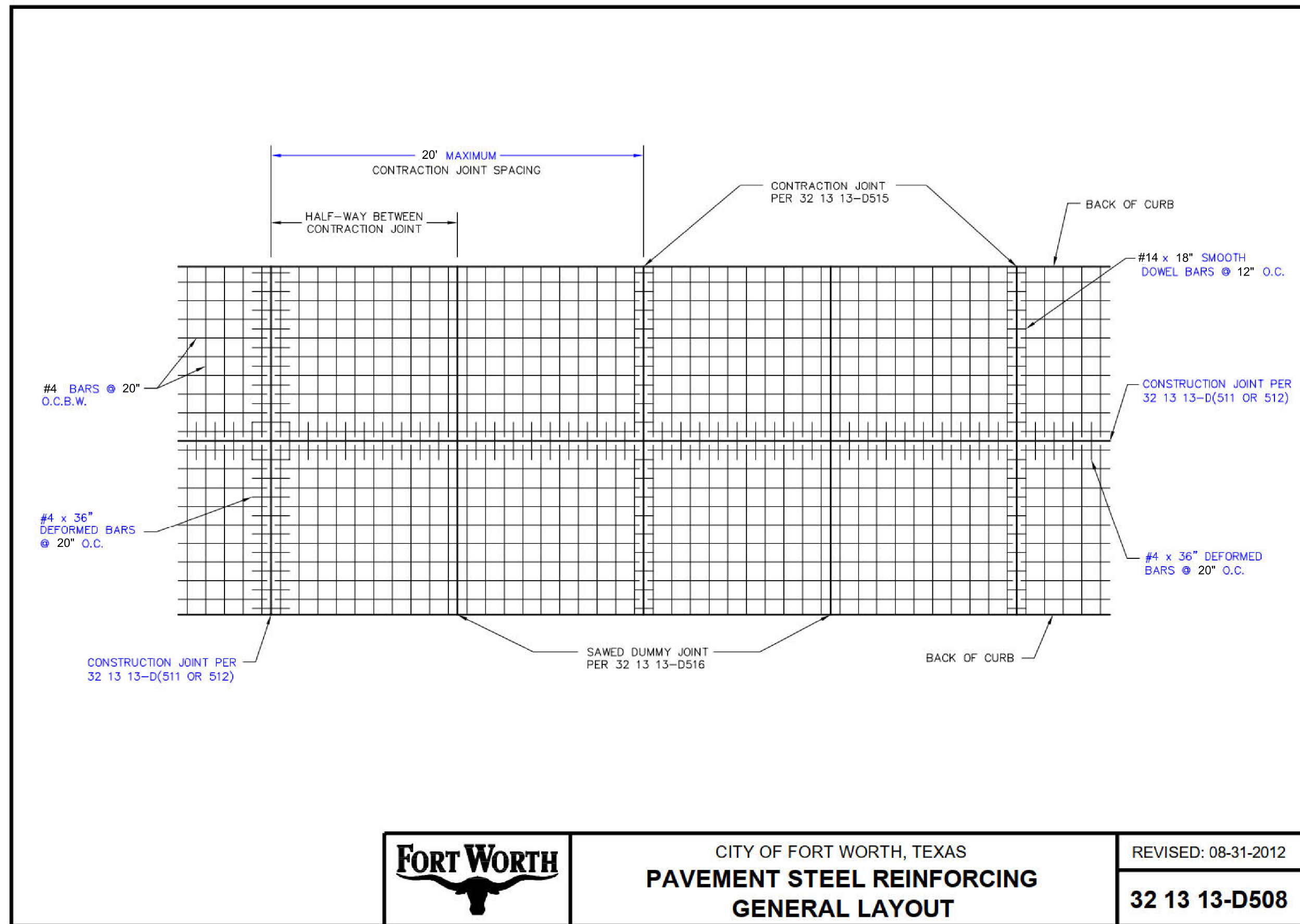
REV.	DATE	REMARKS

**INTERMODAL PARKWAY**  
PAVING SECTIONS  
CITY OF FORT WORTH, TEXAS  
TRANSPORTATION AND PUBLIC WORKS DEPT.  
ENGINEERING DIVISION

**PELTON**  
LAND SOLUTIONS  
9800 HILLWOOD PARKWAY  
SUITE 250  
FORT WORTH, TX 76177  
PHONE: 817-562-3350  
TX FIRM NO. 12207

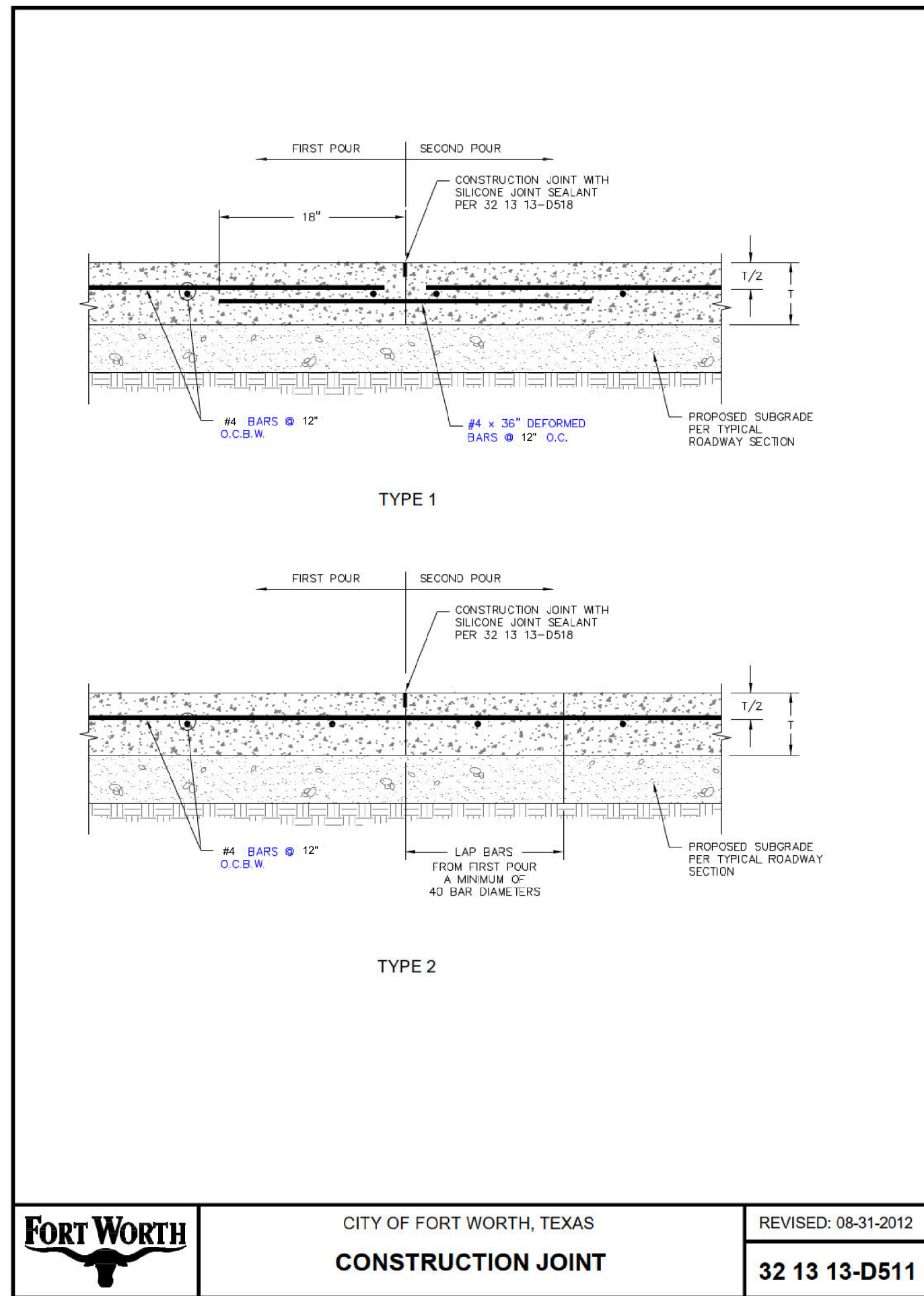
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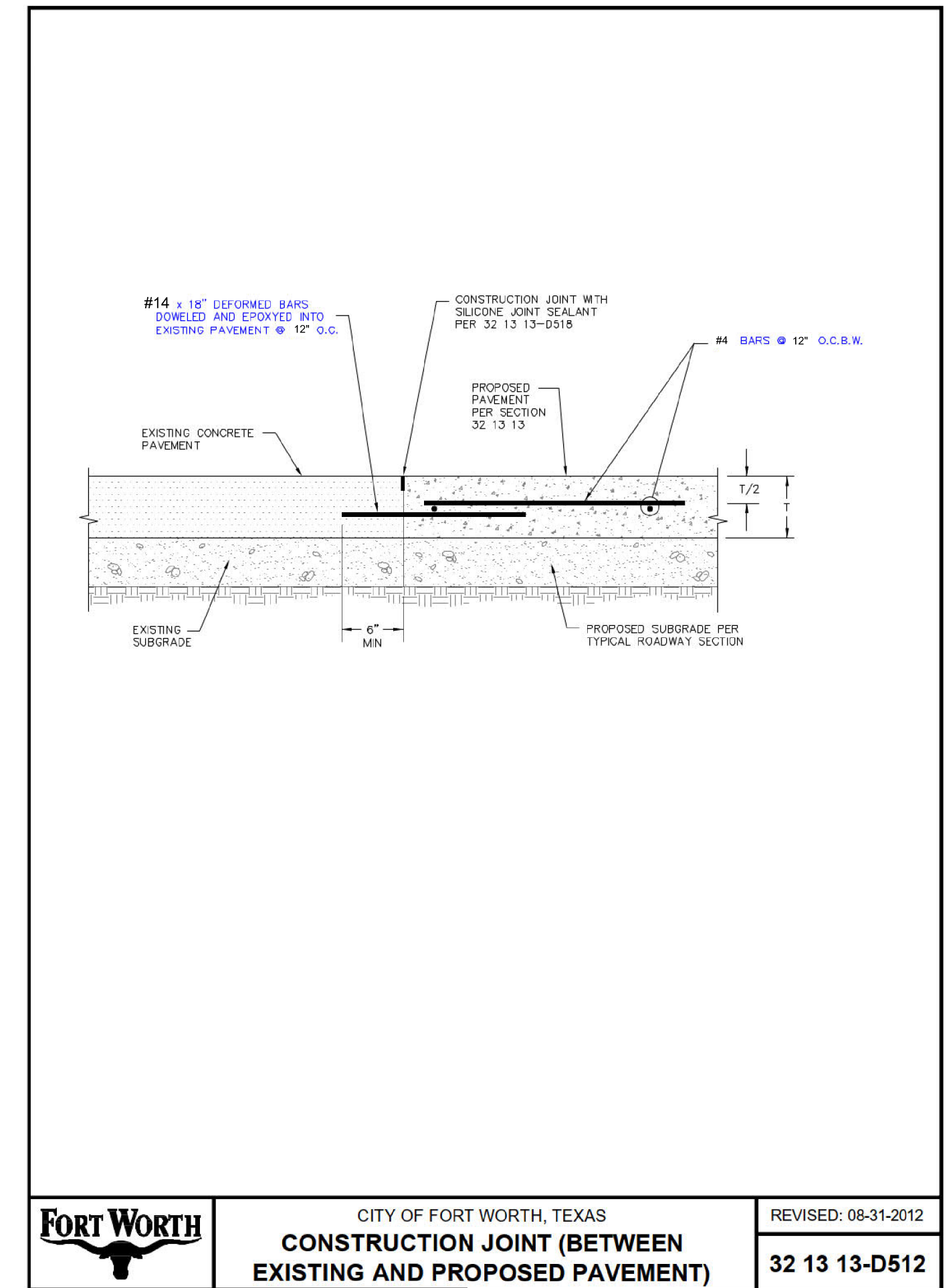
CITY OF FORT WORTH, TEXAS  
**PAVEMENT STEEL REINFORCING  
 GENERAL LAYOUT**

REVISED: 08-31-2012  
**32 13 13-D508**



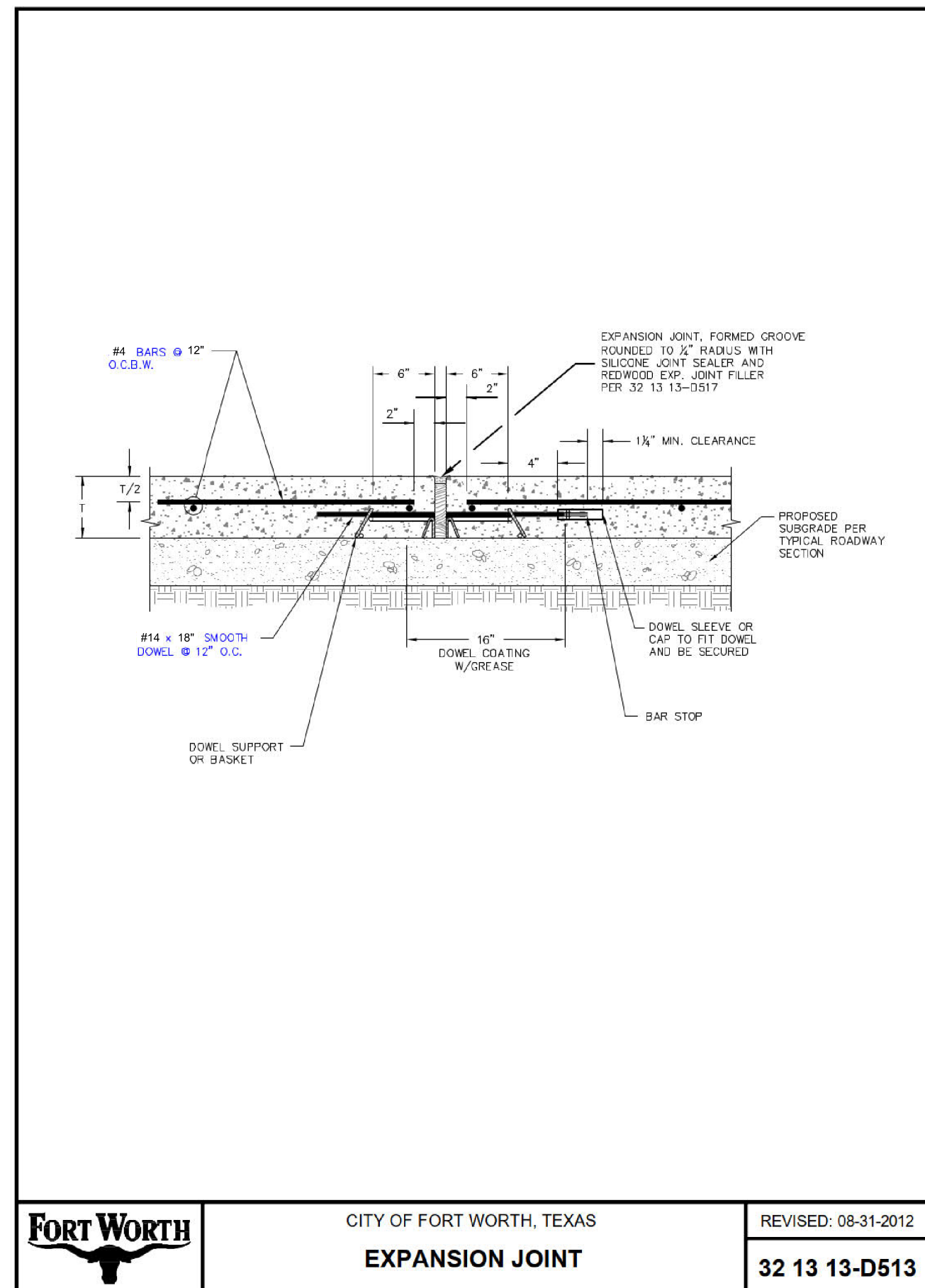
CITY OF FORT WORTH, TEXAS  
**CONSTRUCTION JOINT**

REVISED: 08-31-2012  
**32 13 13-D511**



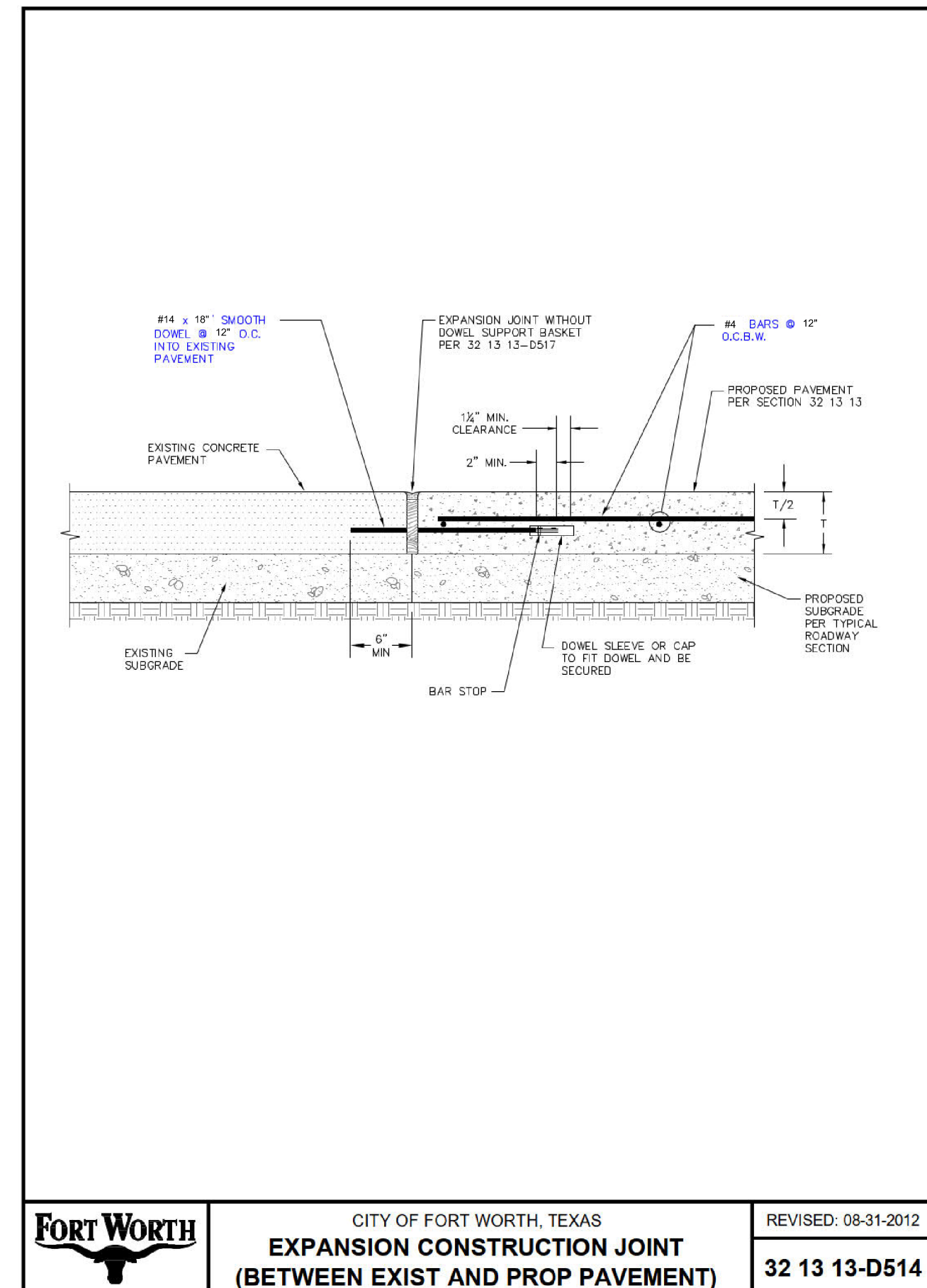
CITY OF FORT WORTH, TEXAS  
**CONSTRUCTION JOINT (BETWEEN  
 EXISTING AND PROPOSED PAVEMENT)**

REVISED: 08-31-2012  
**32 13 13-D512**



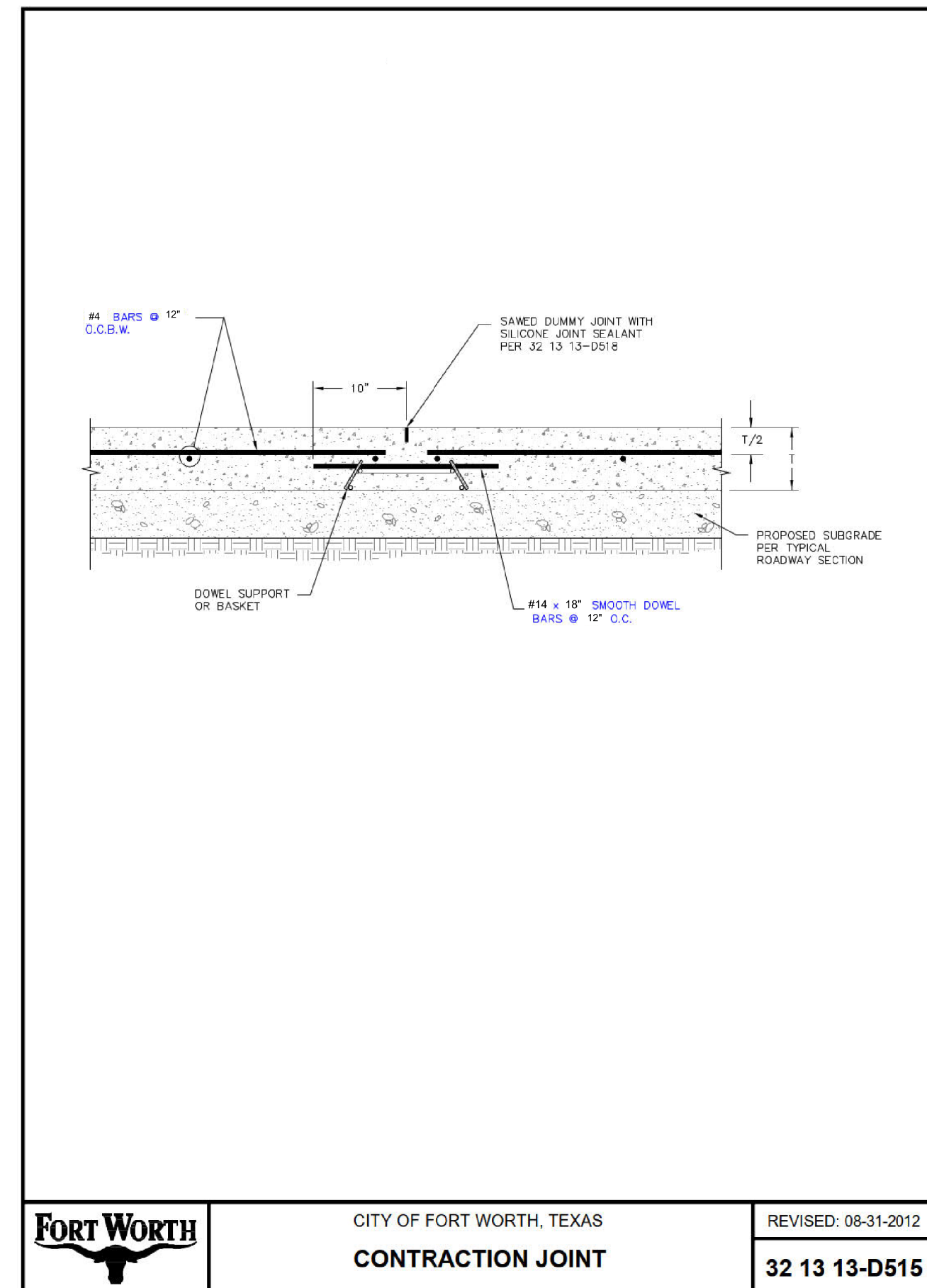
CITY OF FORT WORTH, TEXAS  
**EXPANSION JOINT**

REVISED: 08-31-2012  
**32 13 13-D513**



CITY OF FORT WORTH, TEXAS  
**EXPANSION CONSTRUCTION JOINT  
 (BETWEEN EXIST AND PROP PAVEMENT)**

REVISED: 08-31-2012  
**32 13 13-D514**



CITY OF FORT WORTH, TEXAS  
**CONTRACTION JOINT**

REVISED: 08-31-2012  
**32 13 13-D515**

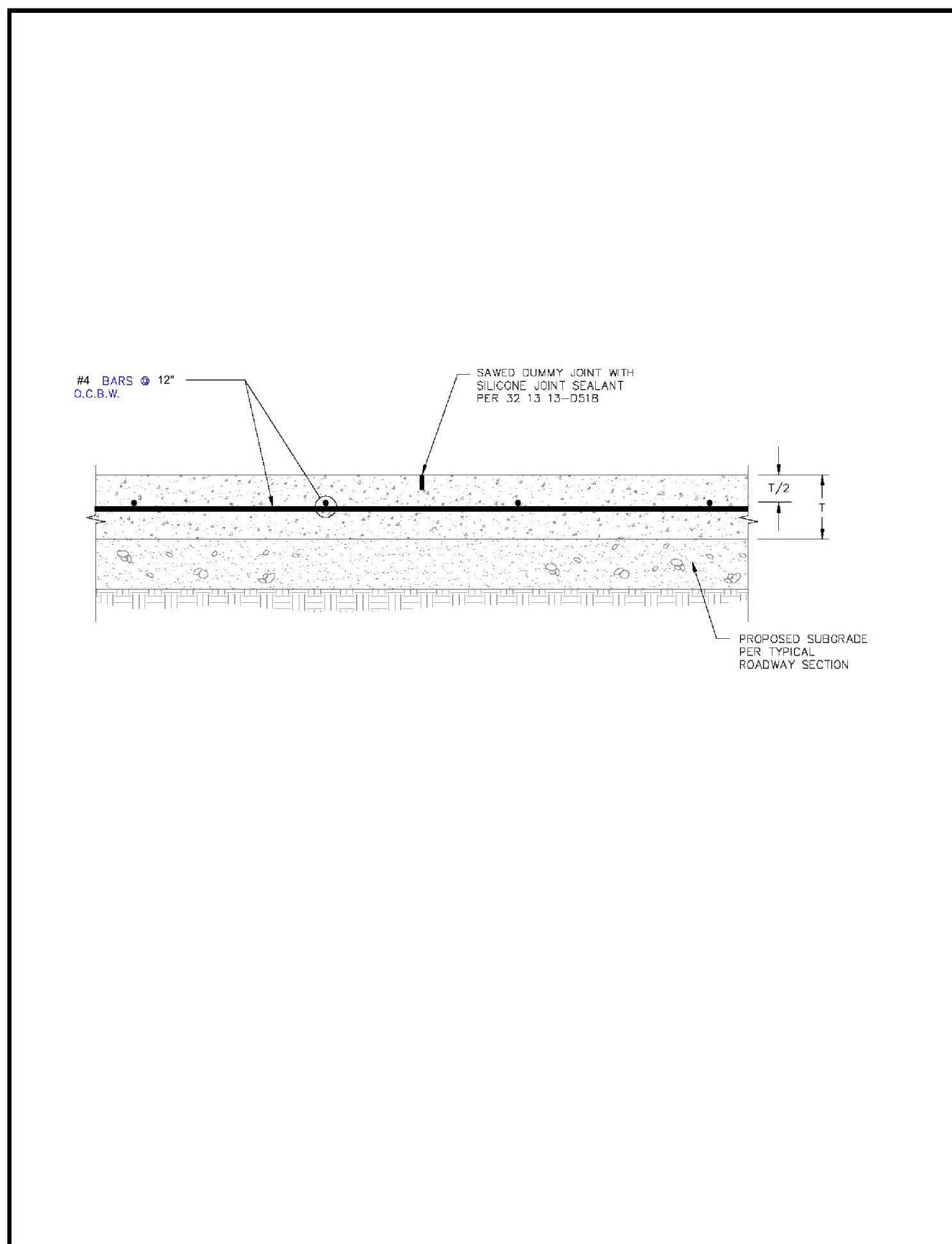
**NOTES:**  
 THE CONCRETE SHOULD HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI. IT SHOULD CONTAIN A MINIMUM OF 4.5 ± 1.5 PERCENT ENTRAINED AIR.  
 ALL CONTRACTION JOINTS SHOULD HAVE SMOOTH DOWELS SPACE 12 INCHES ON CENTER AT MID-HEIGHT OF SLAB. PER GEOTECHNICAL REPORT # 95165202

REV.	DATE	REMARKS

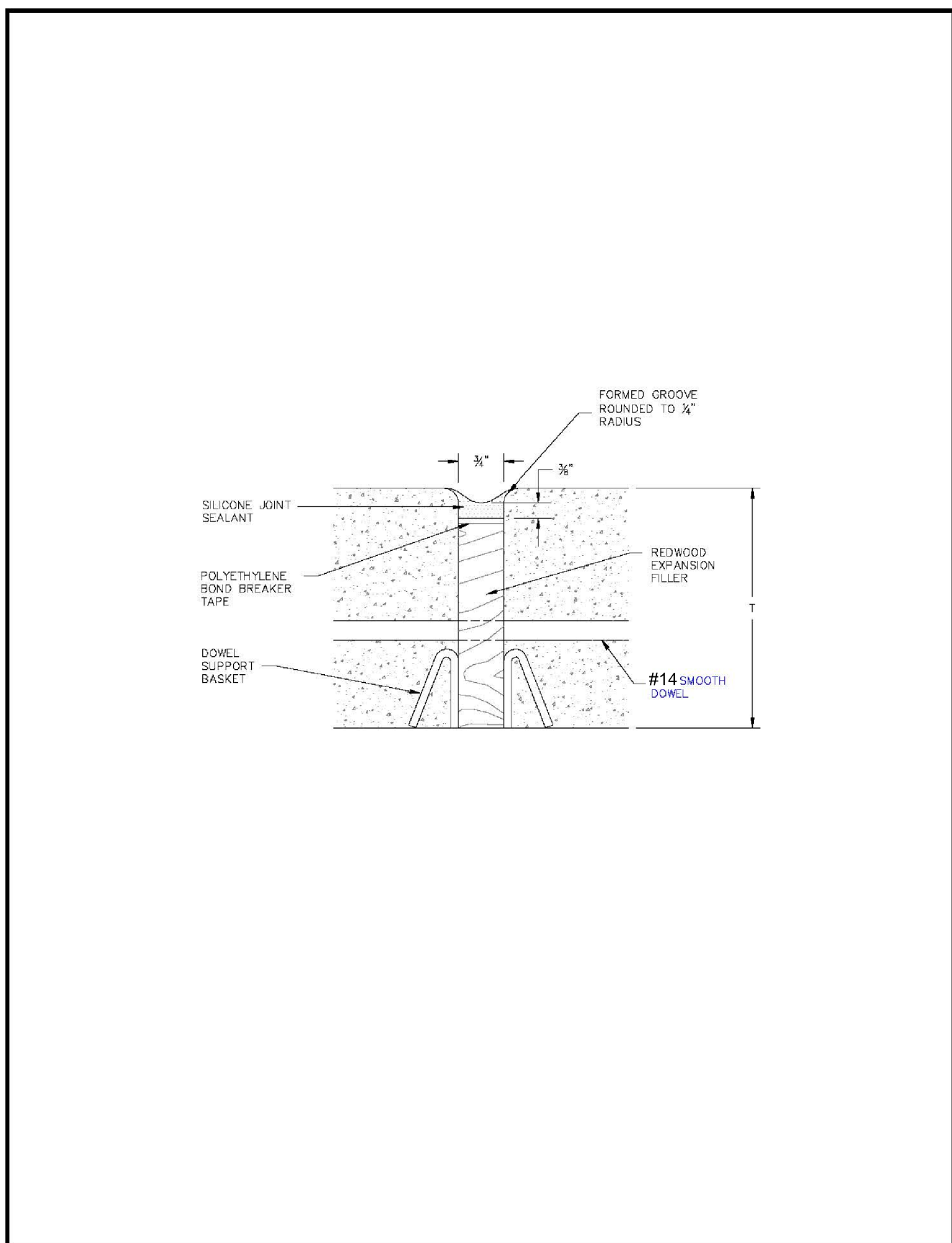
  

<b>INTERMODAL PARKWAY</b>			
<b>PAVING DETAIL</b>			
CITY OF FORT WORTH, TEXAS TRANSPORTATION AND PUBLIC WORKS DEPT. ENGINEERING DIVISION			
		9800 HILLWOOD PARKWAY SUITE 250 FORT WORTH, TX 76177 PHONE: 817-562-3350 TX FIRM NO 12207	
DESIGNED: RZ	DATE: OCT 2022	FILE	SHEET
DRAWN: TCG			C510
CHECKED: KTW			

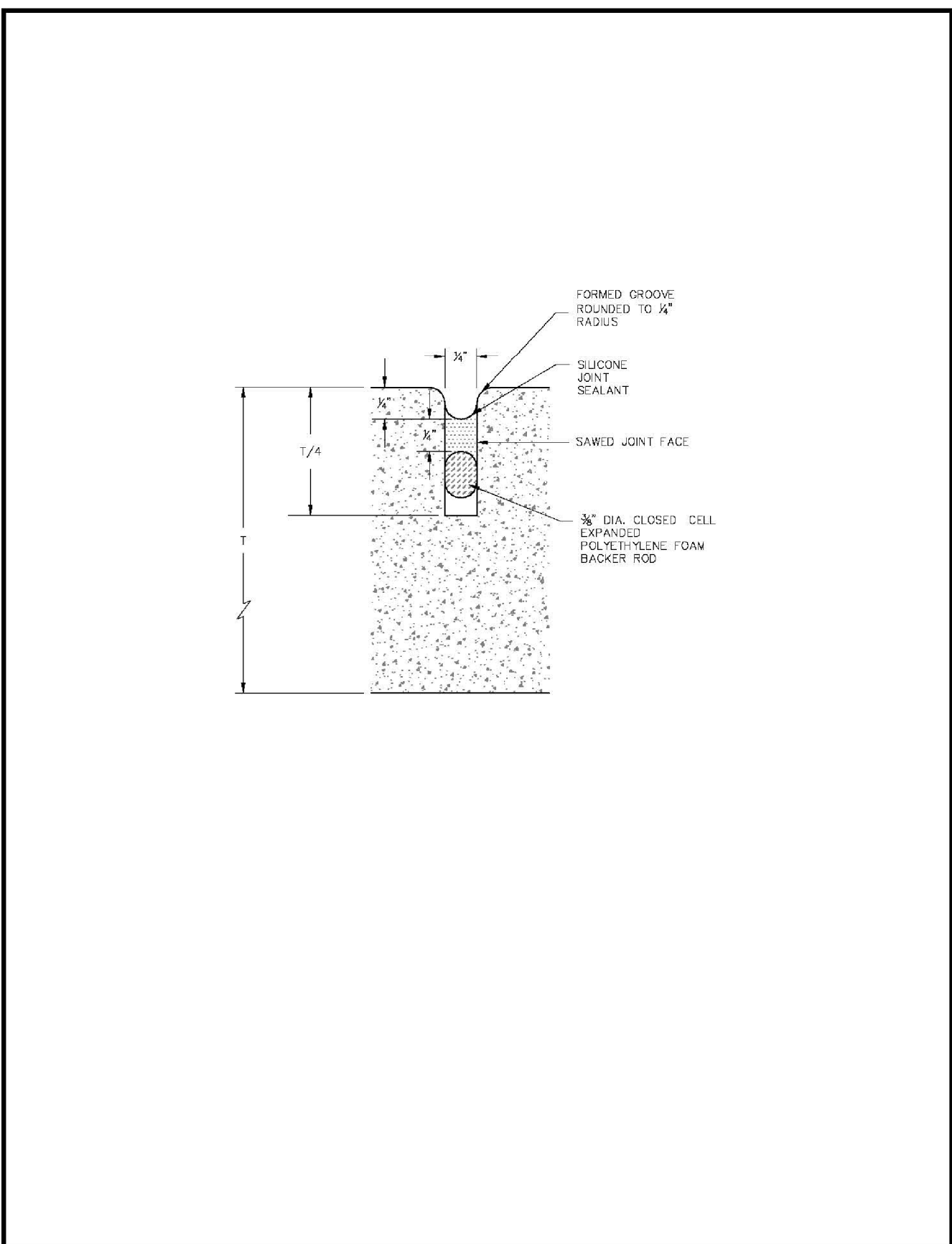
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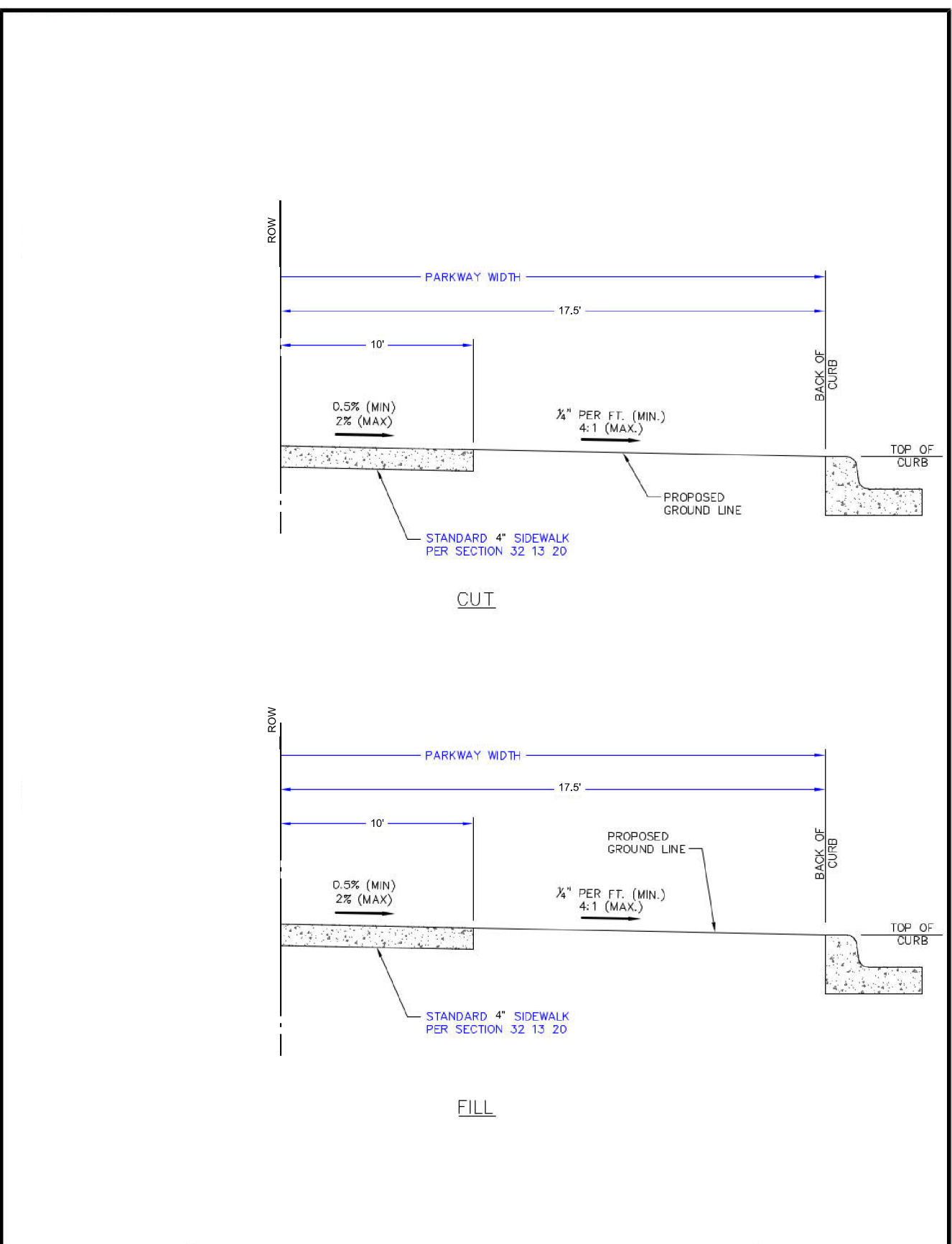
**FORT WORTH** CITY OF FORT WORTH, TEXAS  
**SAWED DUMMY JOINT** REVISED: 08-31-2012  
 32 13 13-D516



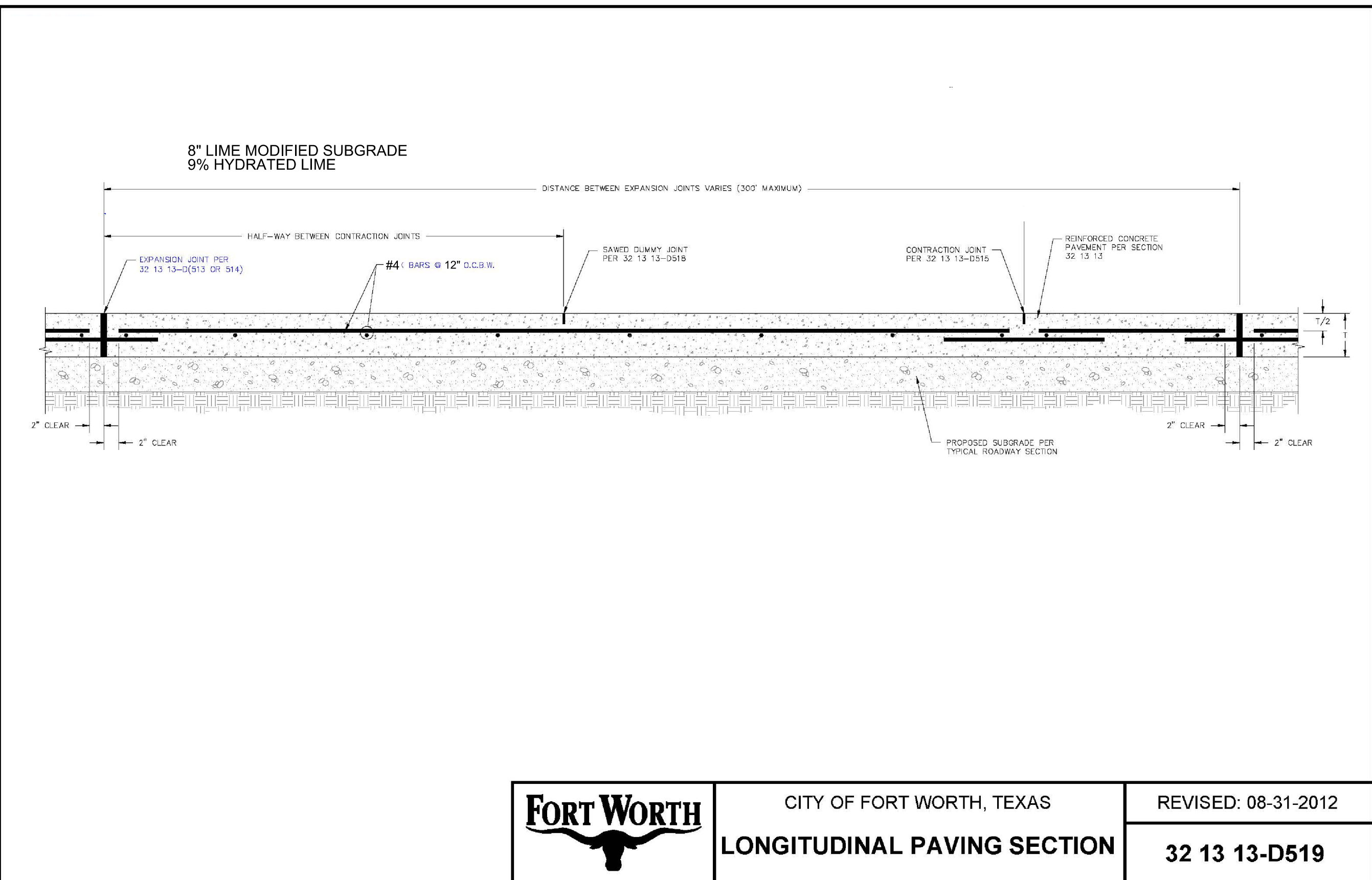
**FORT WORTH** CITY OF FORT WORTH, TEXAS  
**REDWOOD EXPANSION JOINT DETAIL** REVISED: 08-31-2012  
 32 13 13-D517



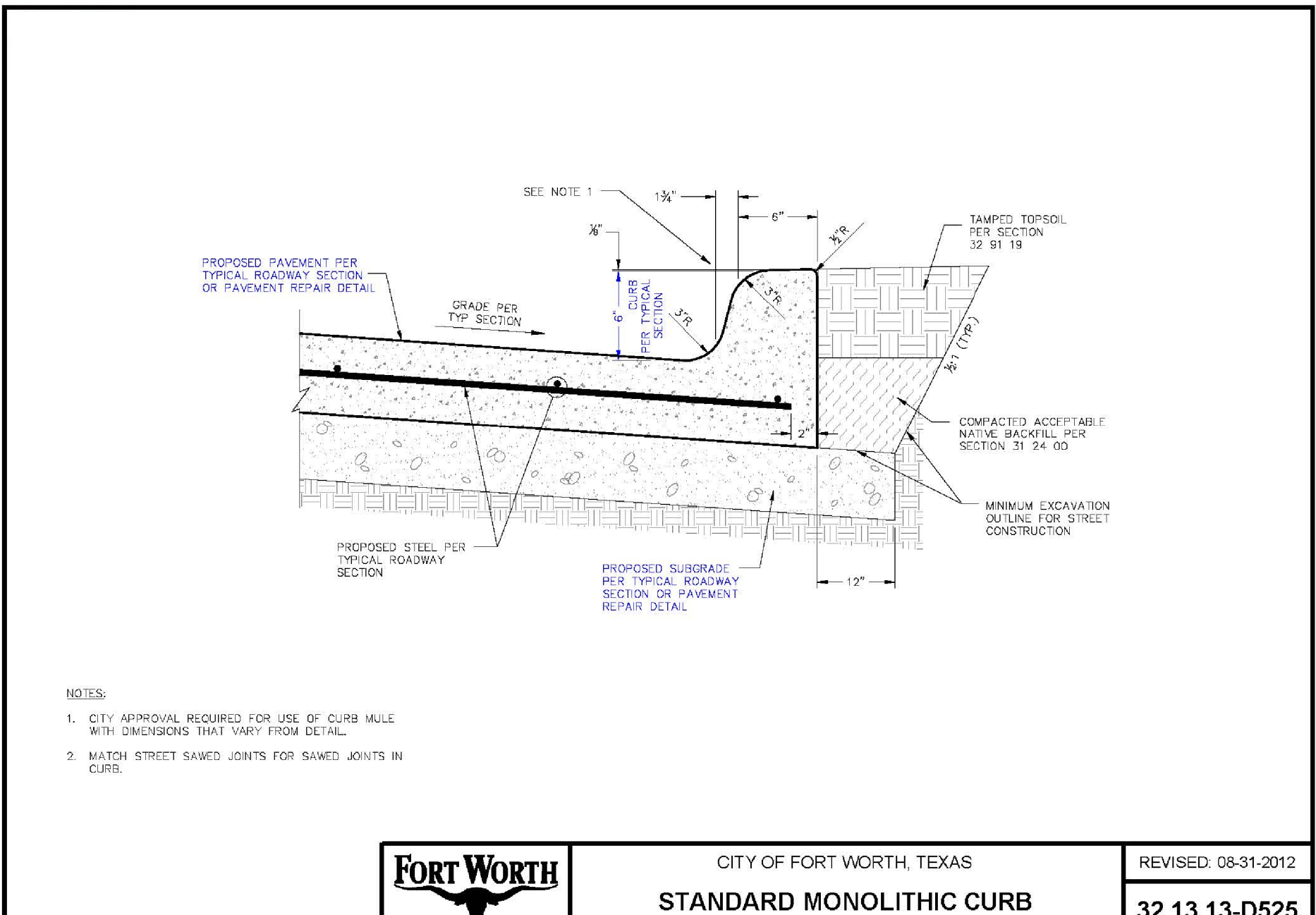
**FORT WORTH** CITY OF FORT WORTH, TEXAS  
**SAWED JOINT DETAIL** REVISED: 08-31-2012  
 32 13 13-D518



**FORT WORTH** CITY OF FORT WORTH, TEXAS  
**PAVED PARKWAY SECTIONS** REVISED: 07-28-2016  
**TYPICAL PARKWAY SECTIONS** 32 13 20-D526



**FORT WORTH** CITY OF FORT WORTH, TEXAS  
**LONGITUDINAL PAVING SECTION** REVISED: 08-31-2012  
 32 13 13-D519



- NOTES:
- CITY APPROVAL REQUIRED FOR USE OF CURB MULE WITH DIMENSIONS THAT VARY FROM DETAIL.
  - MATCH STREET SAWED JOINTS FOR SAWED JOINTS IN CURB.

**FORT WORTH** CITY OF FORT WORTH, TEXAS  
**STANDARD MONOLITHIC CURB** REVISED: 08-31-2012  
 32 13 13-D525

NOTES:

THE CONCRETE SHOULD HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI. IT SHOULD CONTAIN A MINIMUM OF 4.5 ± 1.5 PERCENT ENTRAINED AIR.

ALL CONTRACTION JOINTS SHOULD HAVE SMOOTH DOWELS SPACE 12 INCHES ON CENTER AT MID-HEIGHT OF SLAB. PER GEOTECHNICAL REPORT # 95165202

REV.	DATE	REMARKS

**INTERMODAL PARKWAY**

**PAVING DETAIL**

CITY OF FORT WORTH, TEXAS  
 TRANSPORTATION AND PUBLIC WORKS DEPT.  
 ENGINEERING DIVISION

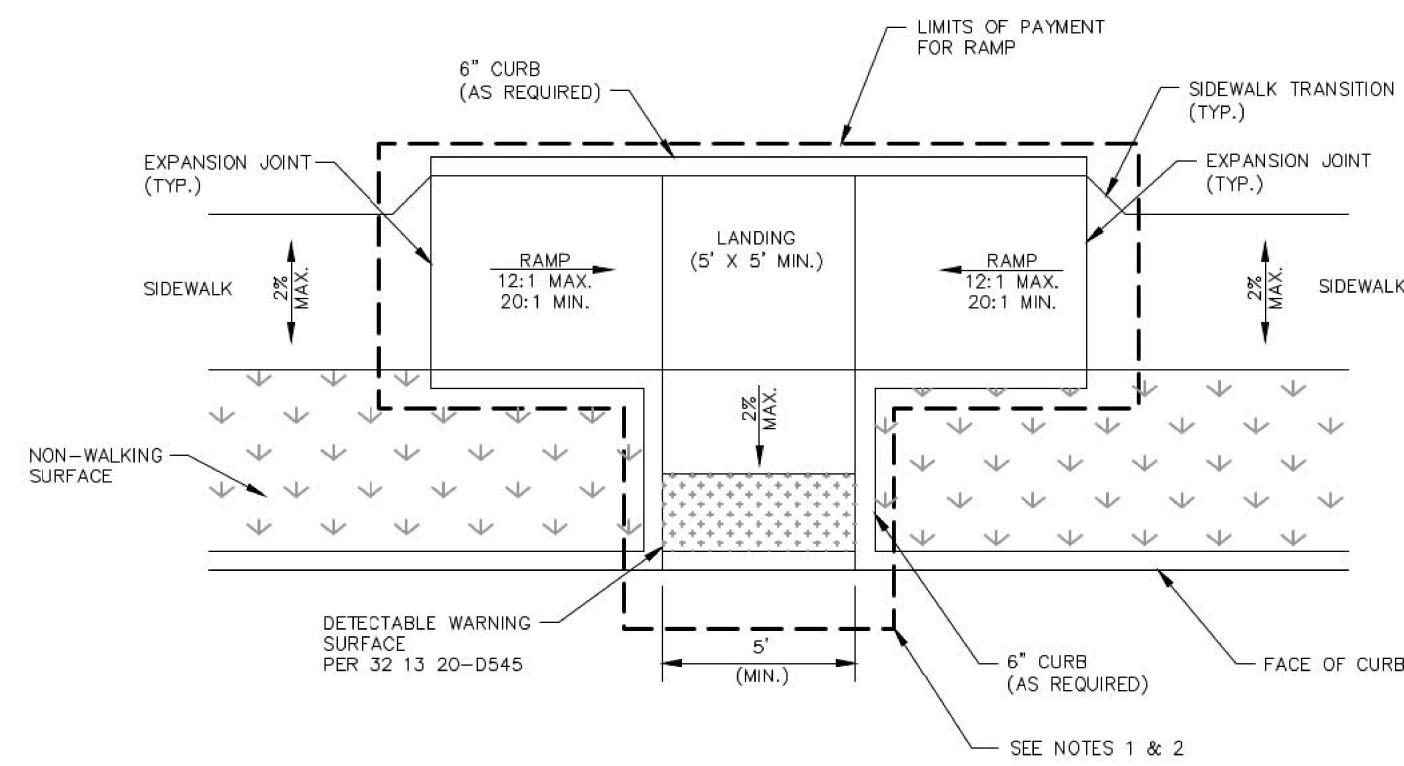
**PELOTON** LAND SOLUTIONS

9800 HILLWOOD PARKWAY  
 SUITE 250  
 FORT WORTH, TX 76177  
 PHONE: 817-562-3350  
 TX FIRM NO 12207

DESIGNED: RZ	DATE: OCT 2022	FILE	SHEET
DRAWN: TCG			C511
CHECKED: KTW			

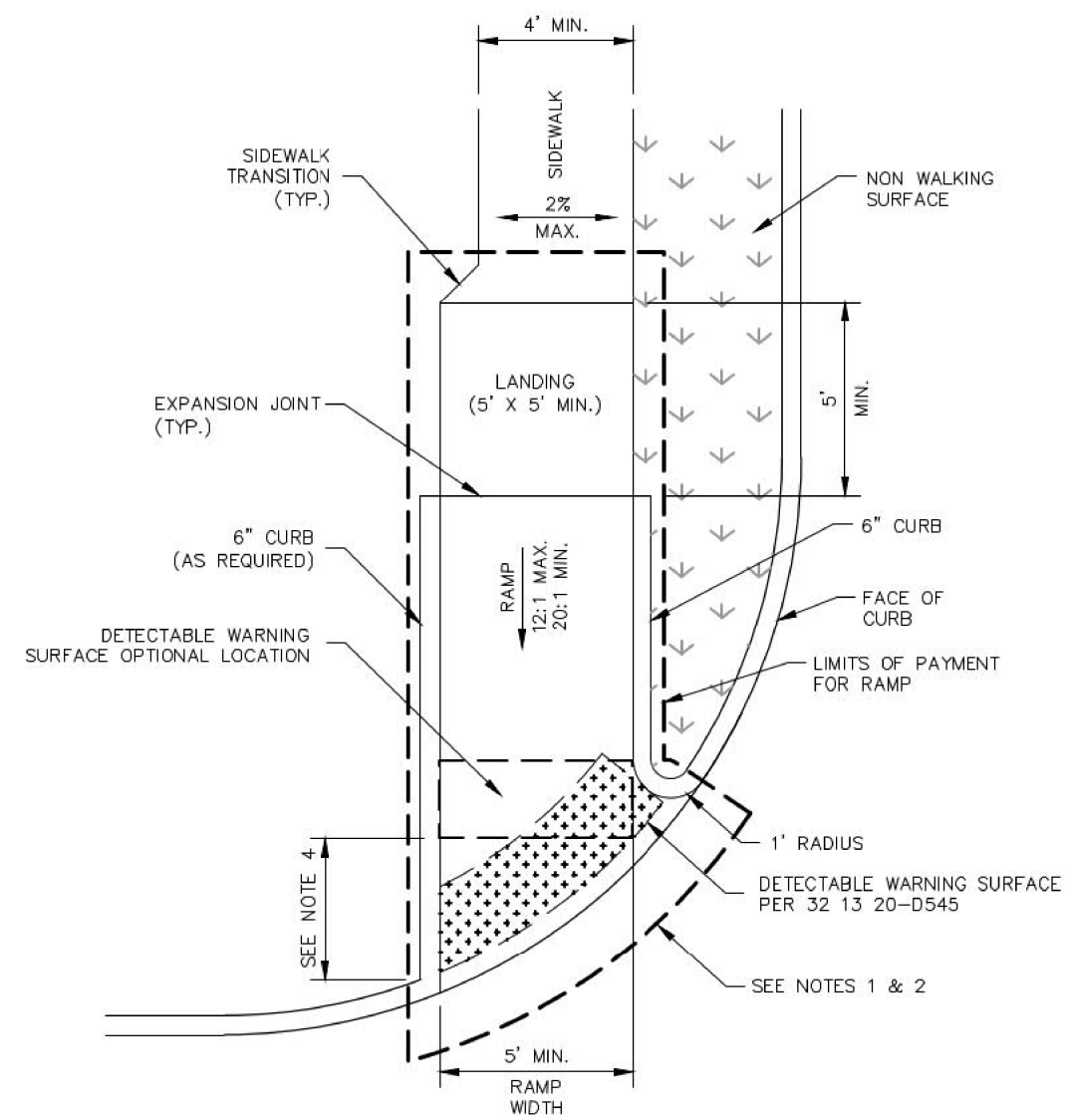
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- NOTES:  
 1. LIMITS OF PAYMENT FOR RAMP INCLUDES THE CONCRETE GUTTER WIDTH ALONG THE RAMP OPENING.  
 2. WHEN ADJACENT TO CONCRETE PAVEMENT, THE RAMP WIDTH, CURB TRANSITION, AND LANDING LIMITS SHALL BE DOWELED INTO THE CURB AND PAVEMENT WITH #3 BARS (12" LONG ON 18" CENTERS). THE COST OF THE DOWELING SHALL BE SUBSIDIARY TO THE COST OF THE CURB RAMP.  
 3. VALVE BOXES/CLEANOUTS ARE NOT TO BE PLACED IN RAMP AREA.



**FORT WORTH** CITY OF FORT WORTH, TEXAS  
**TYPE M-2 MID-BLOCK RAMP (SIDEWALK ADJACENT TO NON-WALKING SURFACE)** REVISED: 04-13-2021  
**32 13 20-D538**

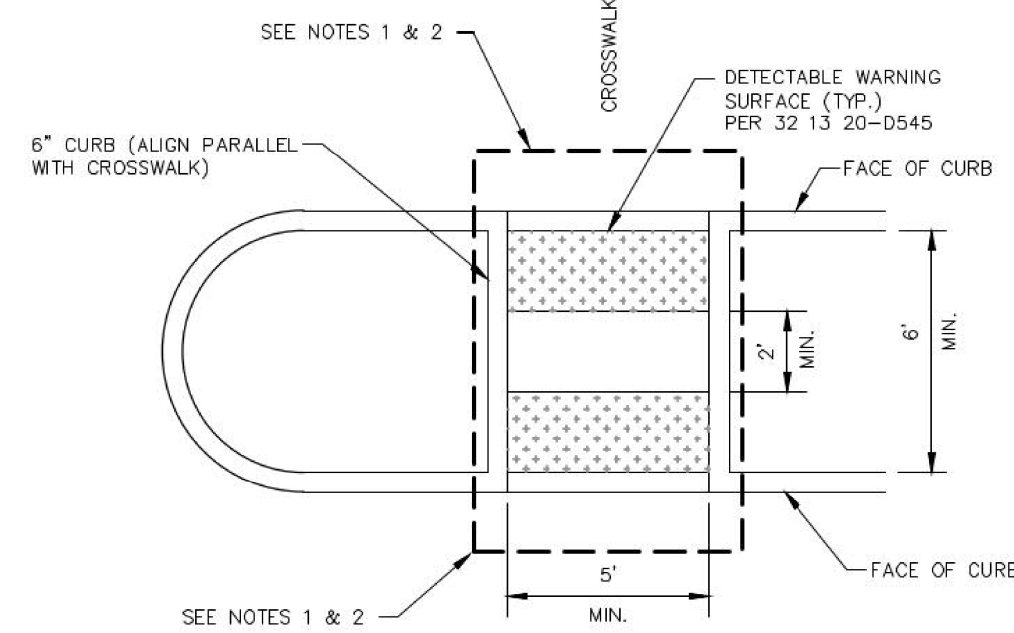
- NOTES:  
 1. LIMITS OF PAYMENT FOR RAMP INCLUDES THE CONCRETE GUTTER WIDTH ALONG THE RAMP OPENING.  
 2. WHEN ADJACENT TO CONCRETE PAVEMENT, THE RAMP WIDTH, CURB TRANSITION, AND LANDING LIMITS SHALL BE DOWELED INTO THE CURB AND PAVEMENT WITH #3 BARS (12" LONG ON 18" CENTERS). THE COST OF THE DOWELING SHALL BE SUBSIDIARY TO THE COST OF THE CURB RAMP.  
 3. VALVE BOXES/CLEANOUTS ARE NOT TO BE PLACED IN RAMP AREA.  
 4. IF THE DISTANCE FROM THE END OF THE RAMP TO THE BACK OF CURB IS GREATER THAN 5 FEET, DETECTABLE WARNING SURFACE SHALL BE PLACED ON THE LOWER LANDING AT THE BACK OF CURB AND RUN THE ENTIRE LENGTH OF THE OPENING. SLOPE TO BE 2% MAX. IN ALL DIRECTIONS.



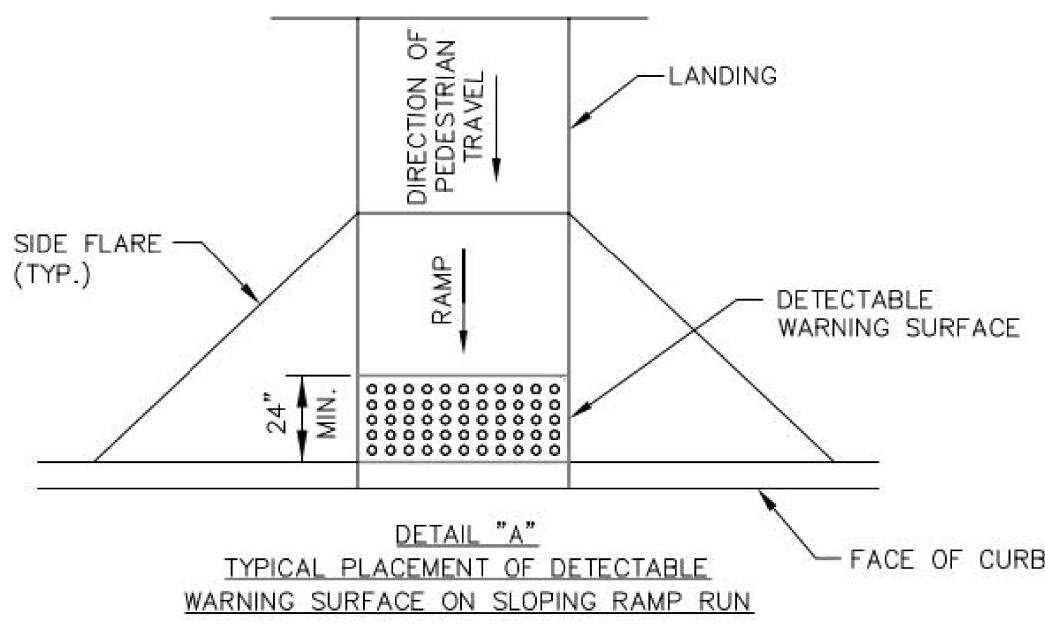
**FORT WORTH** CITY OF FORT WORTH, TEXAS  
**TYPE P-1 PERPENDICULAR CURB RAMP** REVISED: 04-13-2021  
**32 13 20-D540**

NOTES:  
 THE CONCRETE SHOULD HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI. IT SHOULD CONTAIN A MINIMUM OF 4.5 ± 1.5 PERCENT ENTRAINED AIR.  
 ALL CONTRACTION JOINTS SHOULD HAVE SMOOTH DOWELS SPACE 12 INCHES ON CENTER AT MID-HEIGHT OF SLAB.  
 PER GEOTECHNICAL REPORT # 95165202

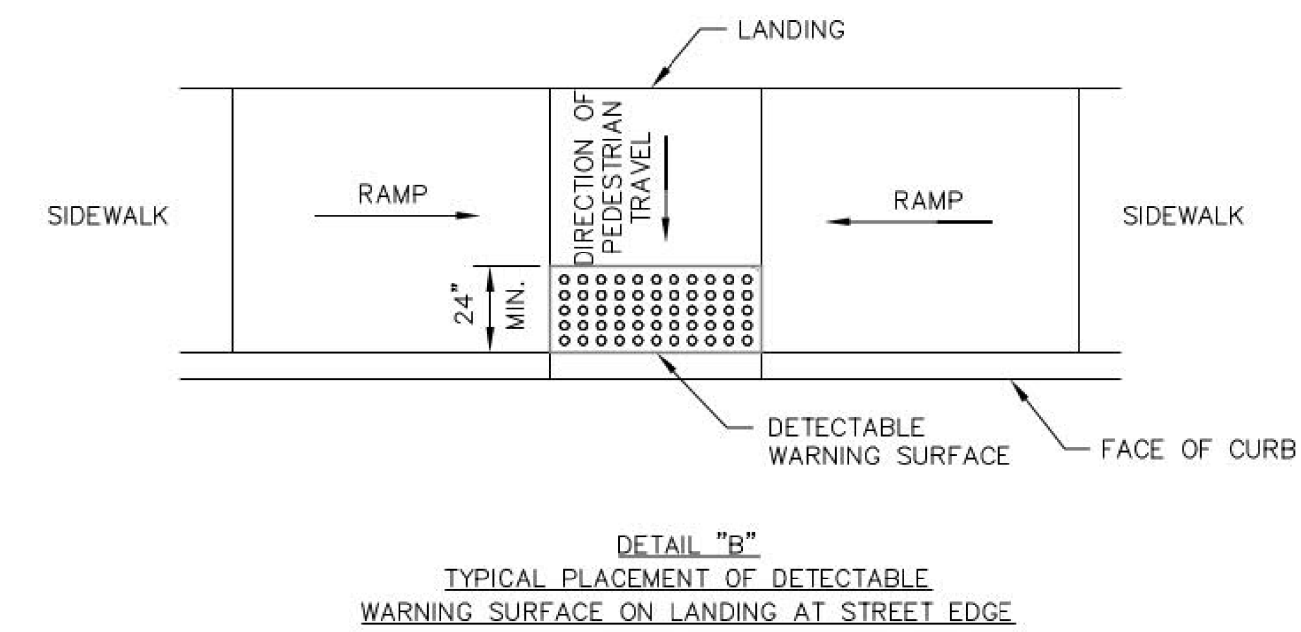
- NOTES:  
 1. LIMITS OF PAYMENT FOR RAMP INCLUDES THE CONCRETE GUTTER WIDTH ALONG THE RAMP OPENING.  
 2. WHEN ADJACENT TO CONCRETE PAVEMENT, THE RAMP WIDTH, CURB TRANSITION, AND LANDING LIMITS SHALL BE DOWELED INTO THE CURB AND PAVEMENT WITH #3 BARS (12" LONG ON 18" CENTERS). THE COST OF THE DOWELING SHALL BE SUBSIDIARY TO THE COST OF THE CURB RAMP.  
 3. VALVE BOXES/CLEANOUTS ARE NOT TO BE PLACED IN RAMP AREA.



**FORT WORTH** CITY OF FORT WORTH, TEXAS  
**TYPE C-3 MEDIAN CUT-THROUGH RAMP** REVISED: 04-13-2021  
**32 13 20-D544**

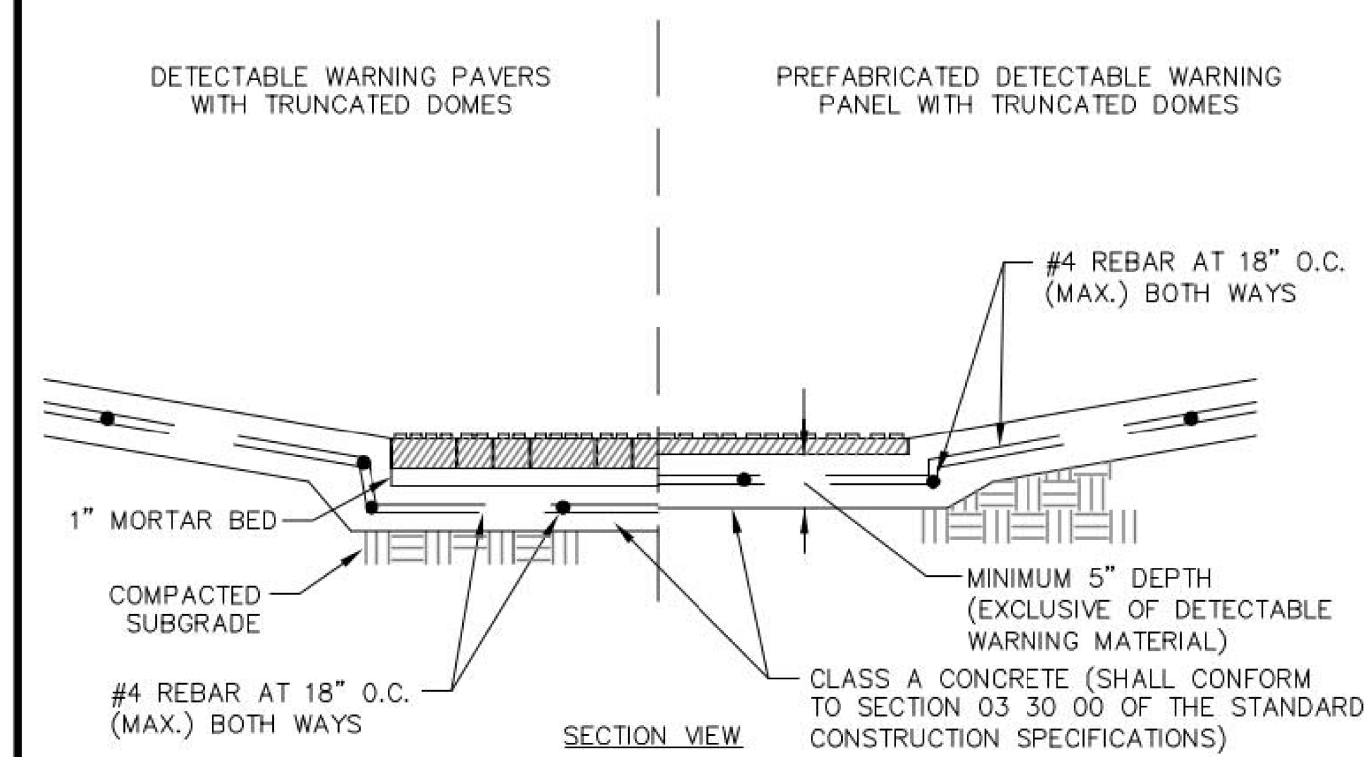


DETAIL "A"  
 TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN



DETAIL "B"  
 TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE

- NOTES:  
 1. CURB RAMPS MUST CONTAIN A DETECTABLE WARNING SURFACE THAT CONSISTS OF RAISED TRUNCATED DOMES COMPLYING WITH SECTION 705 OF THE 2012 TEXAS ACCESSIBILITY STANDARDS (TAS). THE SURFACE MUST CONTRAST VISUALLY WITH ADJACENT WALKING SURFACES, INCLUDING SIDE FLARES. FURNISH AND INSTALL AN APPROVED DARK BROWN OR DARK RED DETECTABLE WARNING SURFACE ADJACENT TO UNCOLORED CONCRETE, UNLESS SPECIFIED ELSEWHERE IN THE PLANS.  
 2. DETECTABLE WARNING SURFACES MUST BE SLIP RESISTANT AND NOT ALLOW WATER TO ACCUMULATE.  
 3. ALIGN THE ROWS OF TRUNCATED DOMES TO BE PERPENDICULAR TO THE GRADE BREAK BETWEEN THE RAMP RUN AND THE STREET.  
 4. DETECTABLE WARNING SURFACES SHALL BE A MINIMUM OF 24" IN DEPTH IN THE DIRECTION OF PEDESTRIAN TRAVEL, AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR LANDING WHERE THE PEDESTRIAN ACCESS ROUTE ENTERS THE STREET.  
 5. DETECTABLE WARNING SURFACES SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS AT THE EXTENSION OF THE BACK OF CURB. DETECTABLE WARNING SURFACES MAY BE CURVED ALONG A CORNER RADIUS.  
 6. FURNISH DETECTABLE WARNING PAVER UNITS MEETING ALL REQUIREMENTS OF ASTM C-936. LAY IN A TWO BY TWO UNIT BASKET WAVE PATTERN OR AS DIRECTED BY ENGINEER.  
 7. LAY FULL-SIZE UNIT FIRST FOLLOWED BY CLOSURE UNITS CONSISTING OF AT LEAST 25 PERCENT OF A FULL UNIT. CUT DETECTABLE WARNING PAVER UNITS USING A POWER SAW. DETAILS ARE PROVIDED HEREIN FOR THE PLACEMENT OF PAVERS. FOR OTHER MATERIALS, REFER TO THE MANUFACTURER'S PRODUCT MANUAL FOR PROPER INSTALLATION.  
 8. THE FOLLOWING IS AN APPROVED LIST OF CAST-IN-PLACE DETECTABLE WARNING MATERIALS AND THEIR MANUFACTURERS:  
 8.1. ARMOR TILE (VITRIFIED POLYMER COMPOSITE) BY ENGINEERED PLASTICS, INC., WILLIAMSVILLE, NY.  
 8.2. TACTILE PAVERS (FIRED CLAY PAVERS) BY PINE HALL BRICK; WINSTON-SALEM, NC.  
 8.3. DETECTABLE WARNING PAVER (FIRED CLAY PAVERS) BY WESTERN BRICK CO., HOUSTON, TX.  
 9. THE ABOVE LIST OF DETECTABLE WARNING MATERIALS OR THEIR APPROVED EQUAL SHALL BE USED AS THE DETECTABLE WARNING SURFACE ON CURB RAMPS AS SHOWN IN THE STANDARD DETAILS.



SECTION VIEW

**FORT WORTH** CITY OF FORT WORTH, TEXAS  
**DETECTABLE WARNING SURFACE** REVISED: 08-31-2012  
**32 13 20-D545**

REV.	DATE	REMARKS
<b>INTERMODAL PARKWAY</b>		
<b>PAVING DETAIL</b>		
CITY OF FORT WORTH, TEXAS TRANSPORTATION AND PUBLIC WORKS DEPT. ENGINEERING DIVISION		
<b>PELTON</b> LAND SOLUTIONS		9800 HILLWOOD PARKWAY SUITE 250 FORT WORTH, TX 76177 PHONE: 817-562-3350 TX FIRM NO 12207
DESIGNED: RZ	DATE: OCT 2022	SHEET: C512
DRAWN: TCG	FILE:	
CHECKED: KTW		

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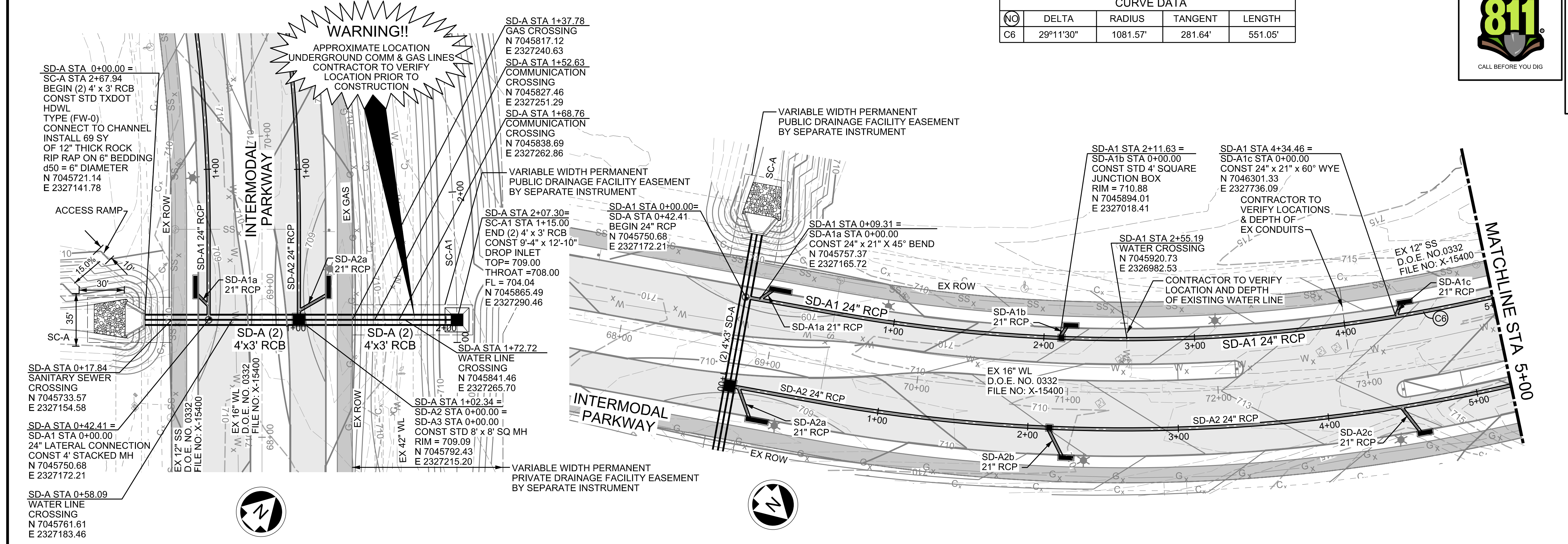


NOTE: THE CONTRACTOR SHALL CONTACT THE FOLLOWING AT LEAST 48 HOURS PRIOR TO EXCAVATING IN THIS AREA:

TEXAS 811	1-800-344-8377
FORT WORTH WATER DEPARTMENT	817-392-8296
ATMOS GAS	1-800-344-8377
TXU ELECTRIC DELIVERY	1-800-344-8377
CHARTER COMMUNICATIONS	1-800-344-8377
FORT WORTH TRANSPORTATION/PUBLIC WORKS	817-392-8100
FOR OTHER FACILITIES	1-800-344-8377
SUNOCO PIPELINE	972-922-2225

CURVE DATA				
NO	DELTA	RADIUS	TANGENT	LENGTH
C6	29°11'30"	1081.57'	281.64'	551.05'

**WARNING!!**  
APPROXIMATE LOCATION UNDERGROUND COMM & GAS LINES. CONTRACTOR TO VERIFY LOCATION PRIOR TO CONSTRUCTION



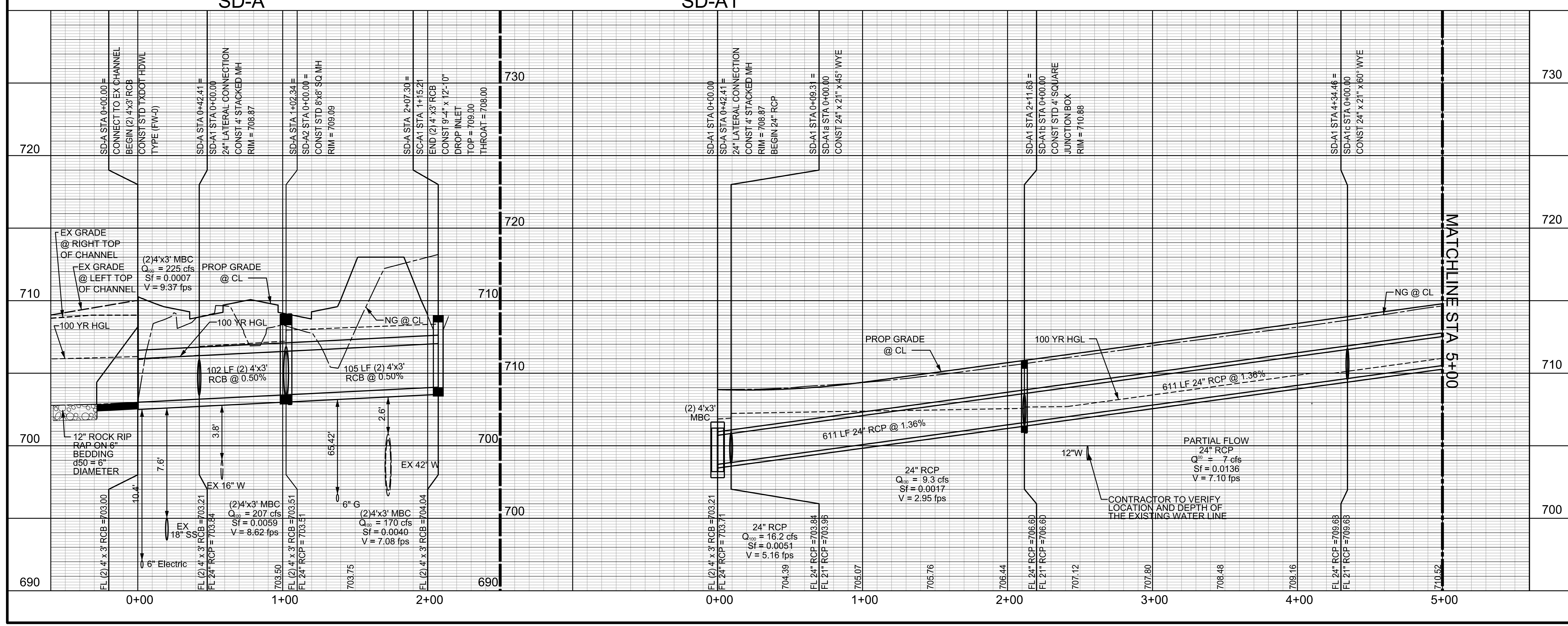
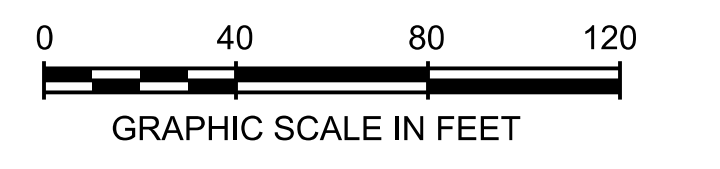
**PROJECT BENCHMARKS**

BM NO. 1 BOX CUT IN NORTHWEST CORNER OF CONCRETE DRAINAGE STRUCTURE LOCATED +/- 50' NORTH OF INTERMODAL PARKWAY, +/- 1050' WEST OF NEW FM 156, & 35' WEST FROM THE WEST SIDE OF A CONCRETE DRIVEWAY.  
ELEV 730.77

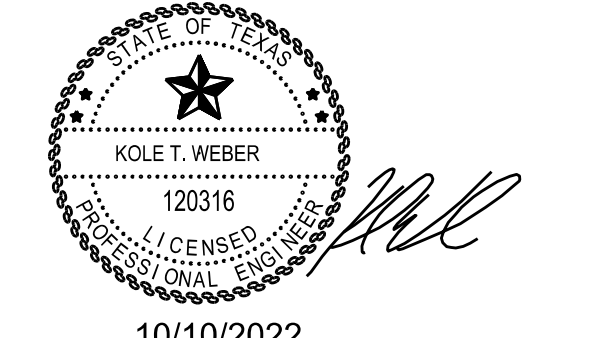
BM NO. 2 BOX CUT IN SOUTHEAST CORNER OF CONCRETE DRAINAGE STRUCTURE SOUTH OF A TRUCKTRAILER PARKING LOT +/- 115' NORTH OF INTERMODAL PARKWAY +/- 1450' WEST OF NEW FM 156, & 62' WEST OF A CONCRETE DRIVEWAY.  
ELEV 741.22

SC-A Channel Protection		
$D_{50} = (v / (1.8(2g(Y_s - Y_w) / Y_w)^{0.5}))^{0.5}$		
v =	4.20	fps
Y <sub>s</sub> =	160	lb/ft <sup>3</sup>
Y <sub>w</sub> =	62.4	lb/ft <sup>3</sup>
g =	32.2	ft/s <sup>2</sup>
D <sub>50</sub> =	5.79	in
<b>12" Thick, 6" Bedding</b>		

\* WHEN FIELD CONNECTIONS OR FIELD RADII MUST BE USED, ALL JOINTS AND FAPS MUST BE FULLY GROUTED TO PREVENT VOIDS AND CAVE IN.



PROFILE SCALES:  
1" = 40' HORZ.  
1" = 4' VERT.



10/10/2022  
PELTON LAND SOLUTIONS  
TEXAS FIRM NO. 12307

The seal appearing on this document was authorized by Kole T. Weber, P.E. No. 120316. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act

REV.	DATE	REMARKS

**INTERMODAL PARKWAY**

**STORM PLAN & PROFILE**  
(2) 4'x3' SD-A, SD-A1 0+00 TO 5+00

CITY OF FORT WORTH, TEXAS  
TRANSPORTATION AND PUBLIC WORKS DEPT.  
ENGINEERING DIVISION

**PELTON LAND SOLUTIONS**  
9800 HILLWOOD PARKWAY  
SUITE 250  
FORT WORTH, TX 76177  
PHONE: 817-562-3350  
TX FIRM NO. 12307

DESIGNED: RZ	DATE: OCT 2022	FILE: SHEET
DRAWN: TCG		C704
CHECKED: KTW		

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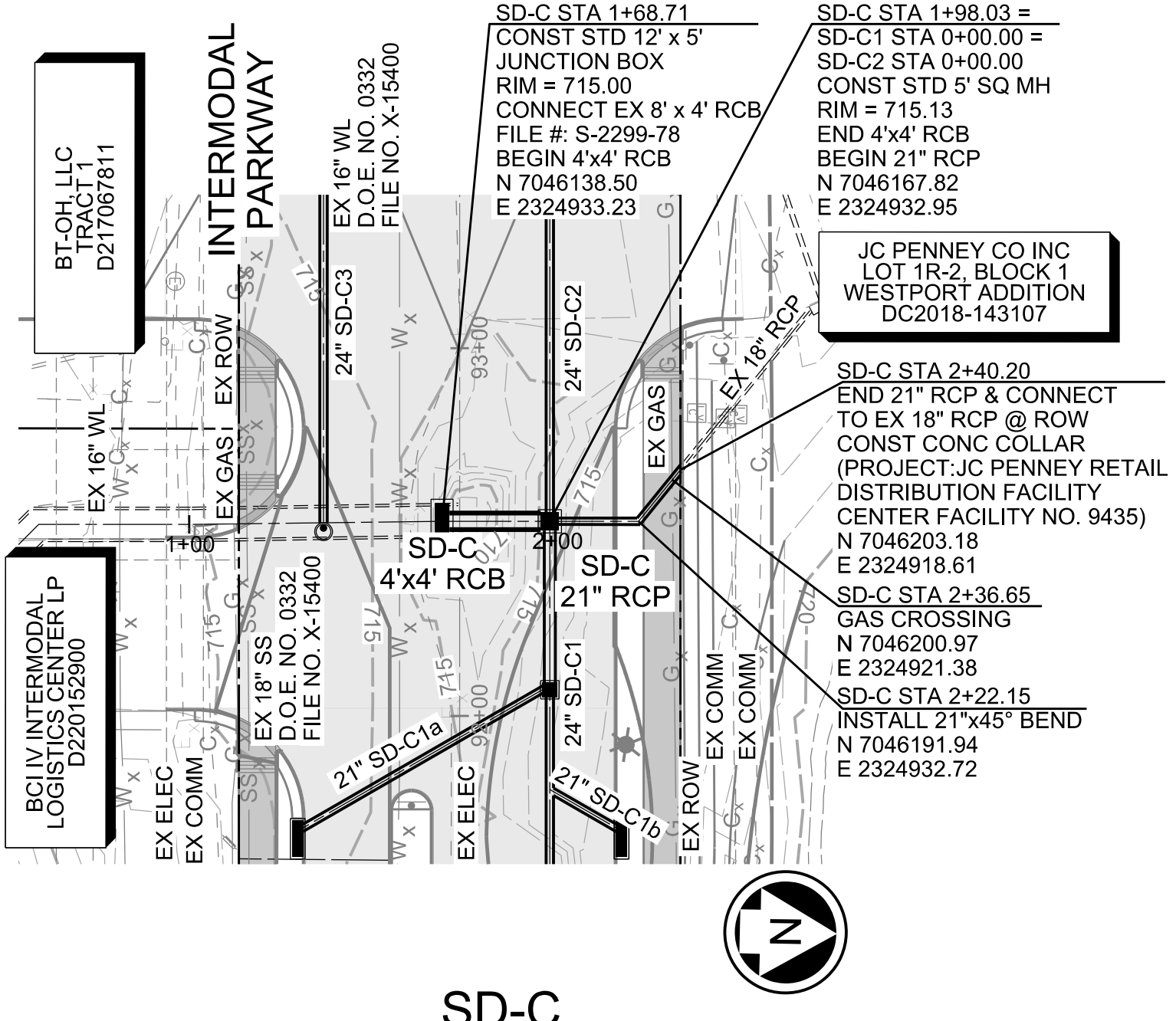
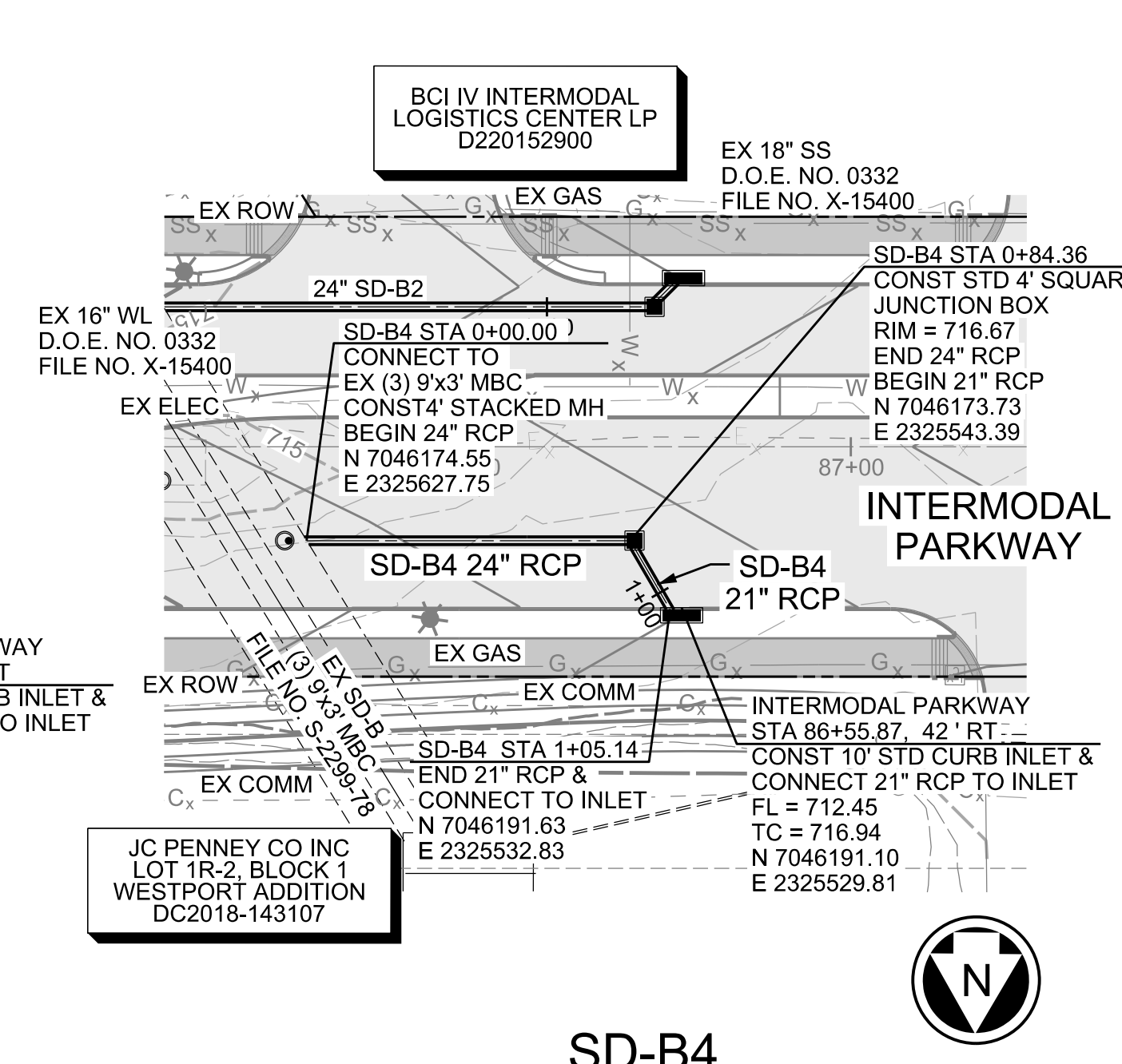
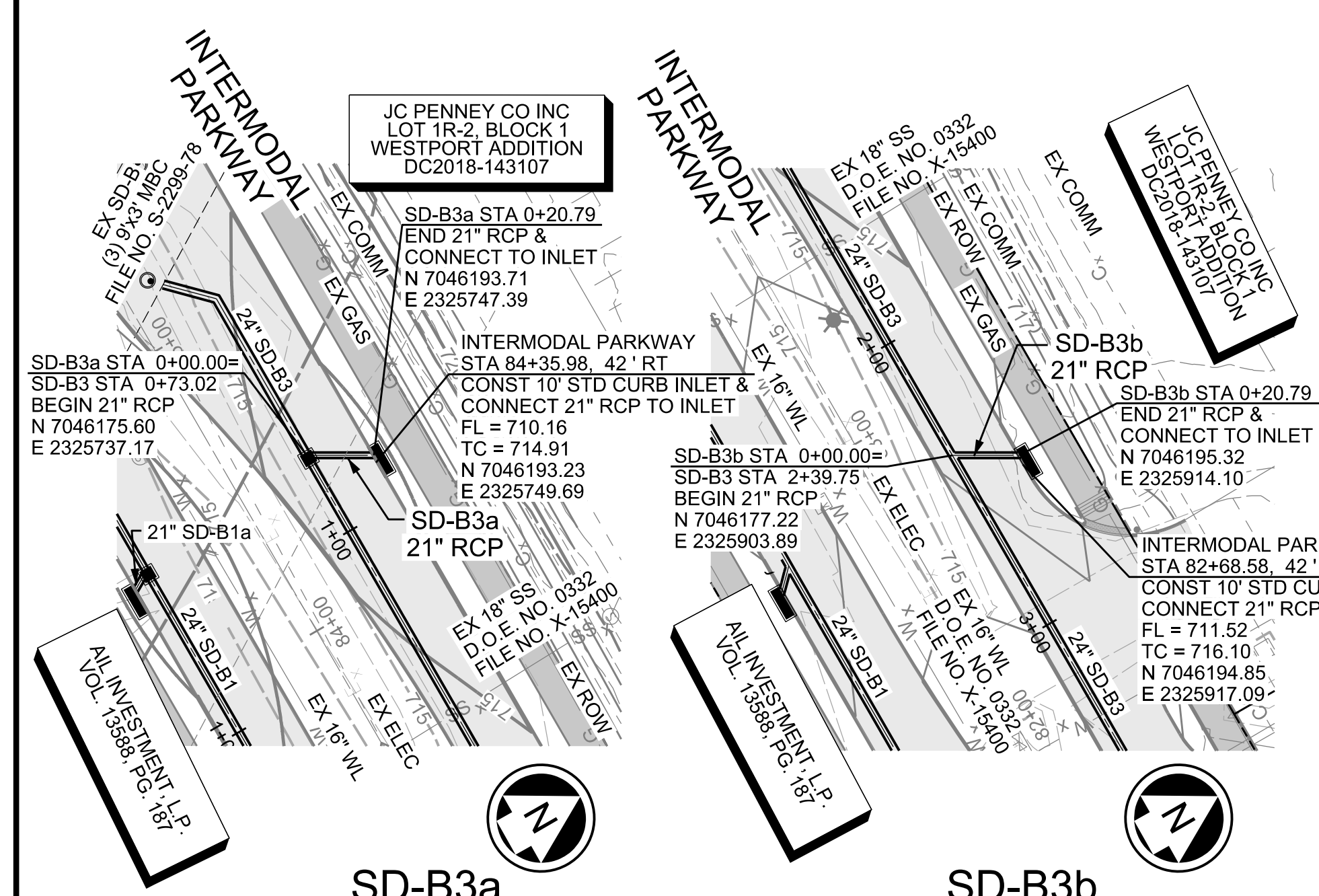


NOTE: THE CONTRACTOR SHALL CONTACT THE FOLLOWING AT LEAST 48 HOURS PRIOR TO EXCAVATING IN THIS AREA:

TEXAS 811	1-800-344-8377
FORT WORTH WATER DEPARTMENT	817-392-8296
ATMOS GAS	1-800-344-8377
TXU ELECTRIC DELIVERY	1-800-344-8377
CHARTER COMMUNICATIONS	1-800-344-8377
FORT WORTH TRANSPORTATION/PUBLIC WORKS	817-392-8100
FOR OTHER FACILITIES	1-800-344-8377
SUNOCO PIPELINE	972-922-2225

**PROJECT BENCHMARKS**

- BM NO. 1 BOX CUT IN NORTHWEST CORNER OF CONCRETE DRAINAGE STRUCTURE LOCATED +/- 50' NORTH OF INTERMODAL PARKWAY, +/- 1050' WEST OF NEW FM 156, & 35' WEST FROM THE WEST SIDE OF A CONCRETE DRIVEWAY.  
ELEV 730.77
- BM NO. 2 BOX CUT IN SOUTHEAST CORNER OF CONCRETE DRAINAGE STRUCTURE SOUTH OF A TRUCKTRAILER PARKING LOT +/- 115' NORTH OF INTERMODAL PARKWAY +/- 1450' WEST OF NEW FM 156, & 62' WEST OF A CONCRETE DRIVEWAY.  
ELEV 741.22

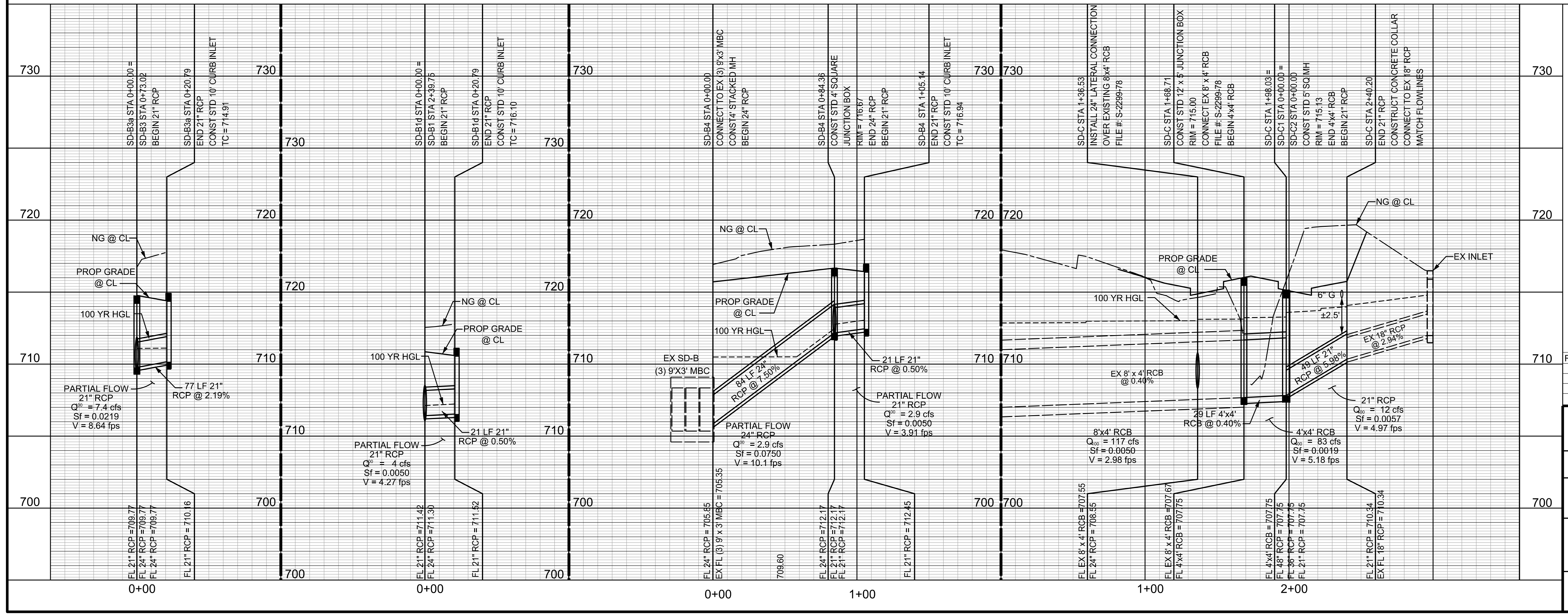
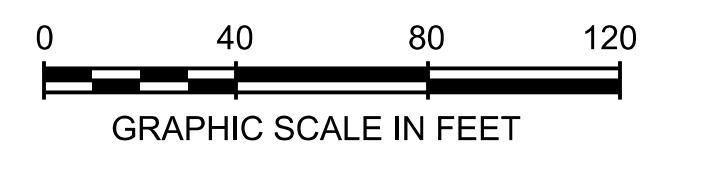


SD-B3a

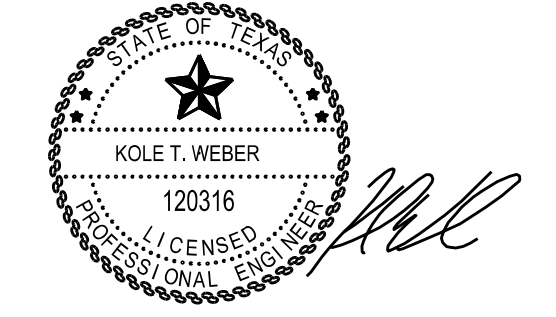
SD-B3b

SD-B4

SD-C



PROFILE SCALES:  
1" = 40' HORZ.  
1" = 4' VERT.



10/10/2022  
PELOTON LAND SOLUTIONS  
TEXAS FIRM NO. 12207  
The seal appearing on this document was authorized by Kole T. Weber, P.E. No. 120316. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act

REV.	DATE	REMARKS

**INTERMODAL PARKWAY**

**STORM DRAIN PLAN & PROFILE**  
SD-B3a, SD-B3b, SD-B4 & SD-C

CITY OF FORT WORTH, TEXAS  
TRANSPORTATION AND PUBLIC WORKS DEPT.  
ENGINEERING DIVISION

**PELOTON**  
LAND SOLUTIONS

9800 HILLWOOD PARKWAY  
SUITE 250  
FORT WORTH, TX 76177  
PHONE: 817-562-3350  
TX FIRM NO. 12207

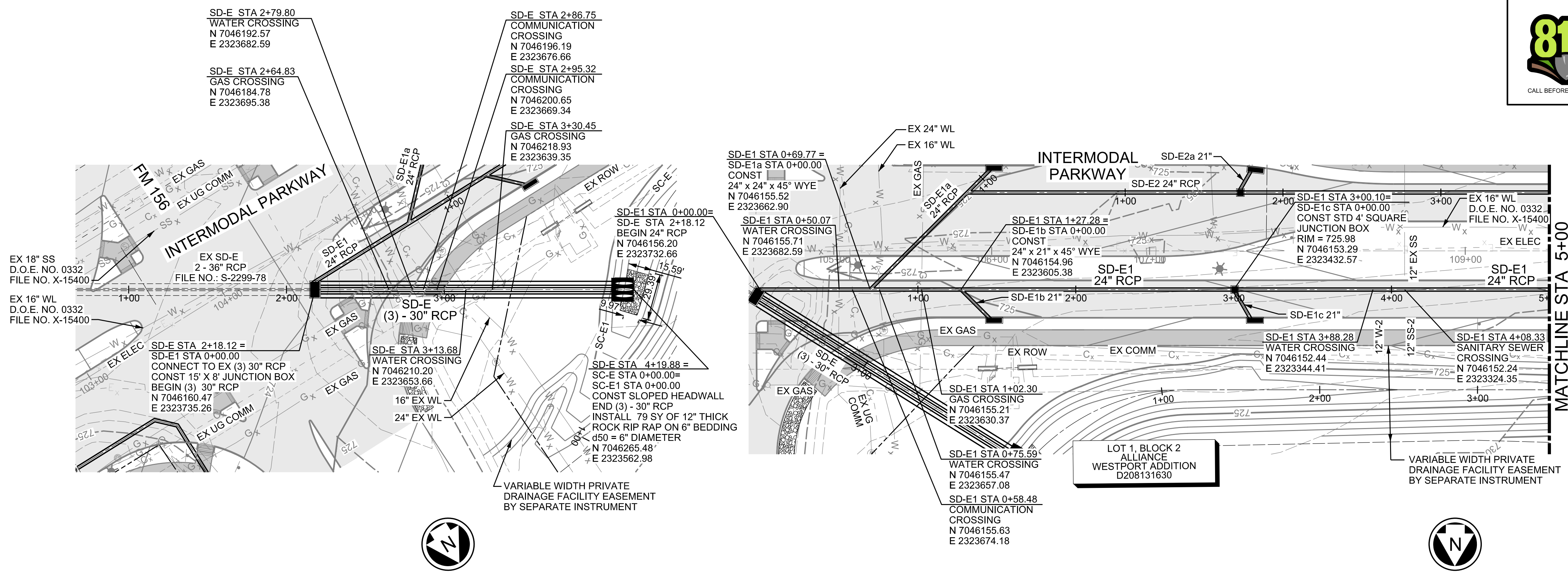
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NOTE: THE CONTRACTOR SHALL CONTACT THE FOLLOWING AT LEAST 48 HOURS PRIOR TO EXCAVATING IN THIS AREA:

TEXAS 811	1-800-344-8377
FORT WORTH WATER DEPARTMENT	817-392-8296
ATMOS GAS	1-800-344-8377
TXU ELECTRIC DELIVERY	1-800-344-8377
CHARTER COMMUNICATIONS	1-800-344-8377
FORT WORTH TRANSPORTATION/PUBLIC WORKS	817-392-8100
FOR OTHER FACILITIES	1-800-344-8377
SUNOCO PIPELINE	972-922-2225



**PROJECT BENCHMARKS**

BM NO. 1 BOX CUT IN NORTHWEST CORNER OF CONCRETE DRAINAGE STRUCTURE LOCATED +/- 50' NORTH OF INTERMODAL PARKWAY, +/- 1050' WEST OF NEW FM 156, & 35' WEST FROM THE WEST SIDE OF A CONCRETE DRIVEWAY.  
ELEV 730.77

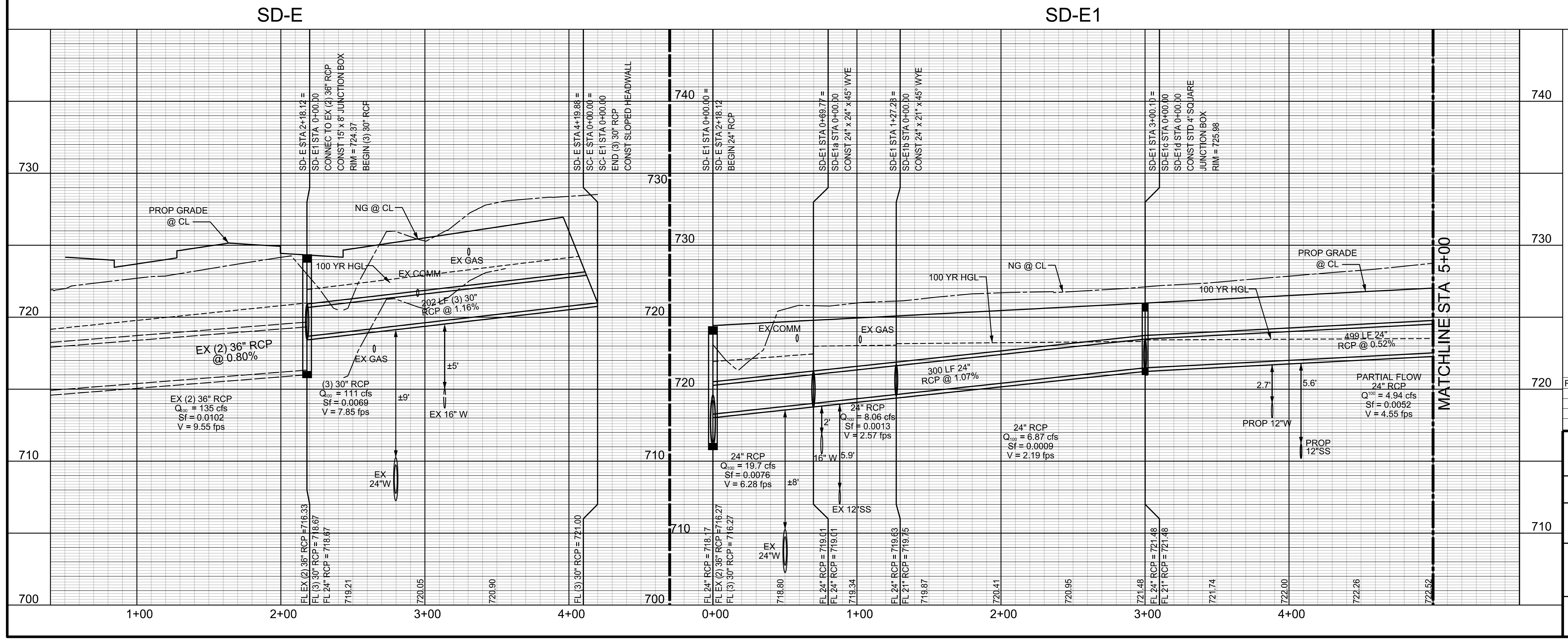
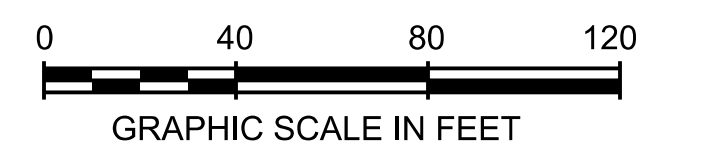
BM NO. 2 BOX CUT IN SOUTHEAST CORNER OF CONCRETE DRAINAGE STRUCTURE SOUTH OF A TRUCK/TRAILER PARKING LOT +/- 115' NORTH OF INTERMODAL PARKWAY +/- 1450' WEST OF NEW FM 156, & 62' WEST OF A CONCRETE DRIVEWAY.  
ELEV 741.22

**SC-E & E1 Channel Protection**

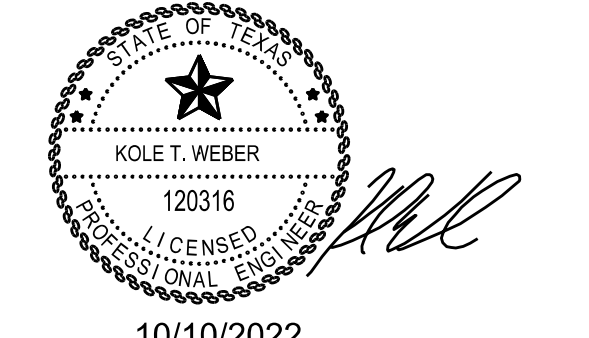
$$D_{50} = (v / (1.8(2g(Y_s - Y_w) / Y_w))^{0.5})^{0.5}$$

v =	4.25	fps
Y <sub>s</sub> =	160	lb/ft <sup>3</sup>
Y <sub>w</sub> =	62.4	lb/ft <sup>3</sup>
g =	32.2	ft/s <sup>2</sup>
D <sub>50</sub> =	5.82	in

**12" Thick, 6" Bedding**



**PROFILE SCALES:**  
1" = 40' HORZ.  
1" = 4' VERT.



10/10/2022  
PELOTON LAND SOLUTIONS  
TEXAS PRM NO. 12037  
The seal appearing on this document was authorized by Kole T. Weber, P.E. No. 120316. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act

REV.	DATE	REMARKS

**INTERMODAL PARKWAY**

**STORM DRAIN PLAN & PROFILE**  
SD-E & SD-E1 STA 0+00 TO 5+00

CITY OF FORT WORTH, TEXAS  
TRANSPORTATION AND PUBLIC WORKS DEPT.  
ENGINEERING DIVISION

**PELOTON LAND SOLUTIONS**  
9800 HILLWOOD PARKWAY SUITE 250  
FORT WORTH, TX 76177  
PHONE: 817-562-3350  
TX FIRM NO. 12027

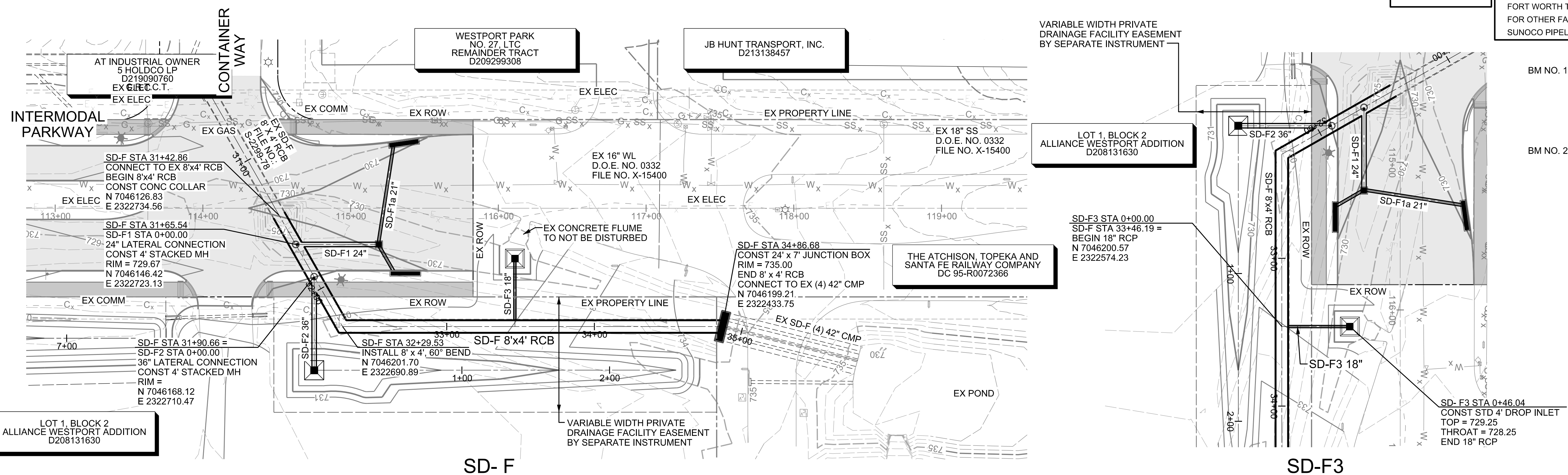
DESIGNED: RZ	DATE: OCT 2022	FILE	SHEET
DRAWN: TCG			C717
CHECKED: KTW			

G:\JOB\HWA17030\_01\_Intermodal\MasterDev\Civil\CAD\_Public\_Construction\_Plan\C717-HWA17030\_01-C-STRM-PP17.dwg



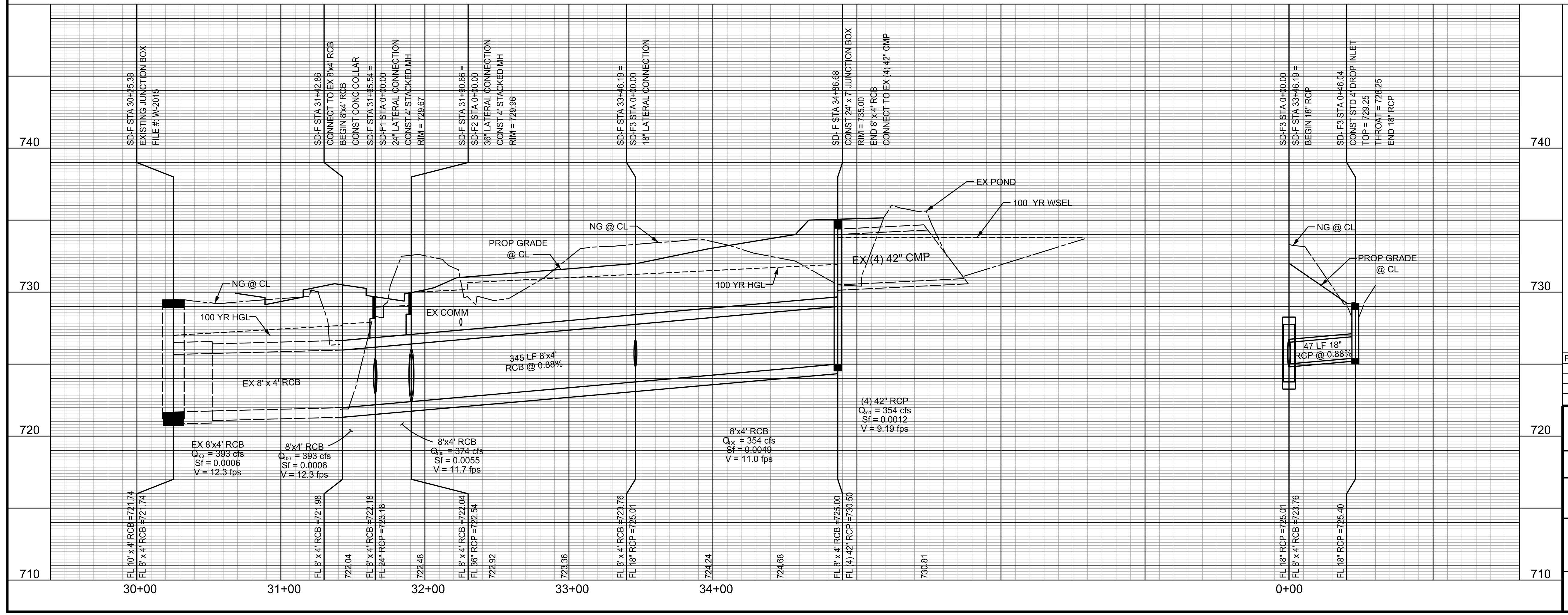
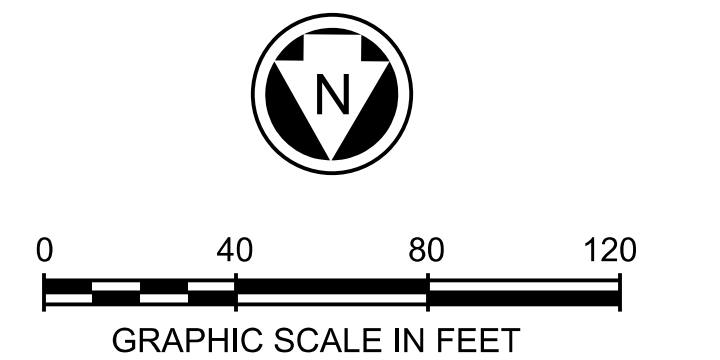
NOTE: THE CONTRACTOR SHALL CONTACT THE FOLLOWING AT LEAST 48 HOURS PRIOR TO EXCAVATING IN THIS AREA:

TEXAS 811	1-800-344-8377
FORT WORTH WATER DEPARTMENT	817-392-8296
ATMOS GAS	1-800-344-8377
TXU ELECTRIC DELIVERY	1-800-344-8377
CHARTER COMMUNICATIONS	1-800-344-8377
FORT WORTH TRANSPORTATION/PUBLIC WORKS	817-392-8100
FOR OTHER FACILITIES	1-800-344-8377
SUNOCO PIPELINE	972-922-2225

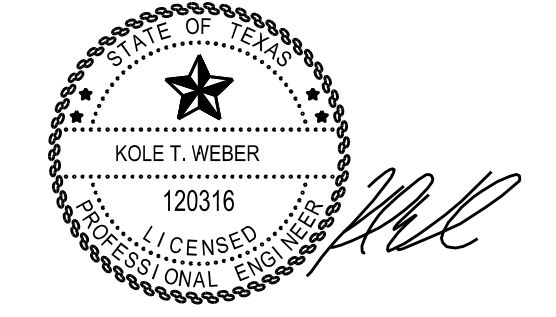


PROJECT BENCHMARKS

BM NO. 1	BOX CUT IN NORTHWEST CORNER OF CONCRETE DRAINAGE STRUCTURE LOCATED +/- 50' NORTH OF INTERMODAL PARKWAY +/- 1050' WEST OF NEW FM 156, & 35' WEST FROM THE WEST SIDE OF A CONCRETE DRIVEWAY. ELEV 730.77
BM NO. 2	BOX CUT IN SOUTHEAST CORNER OF CONCRETE DRAINAGE STRUCTURE SOUTH OF A TRUCK/TRAILER PARKING LOT +/- 115' NORTH OF INTERMODAL PARKWAY +/- 1450' WEST OF NEW FM 156, & 62' WEST OF A CONCRETE DRIVEWAY. ELEV 741.22



PROFILE SCALES:  
1" = 40' HORZ.  
1" = 4' VERT.



10/10/2022  
PELTON LAND SOLUTIONS  
TEXAS FIRM NO. 12207  
The seal appearing on this document was authorized by Kole T. Weber, P.E. No. 120316. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

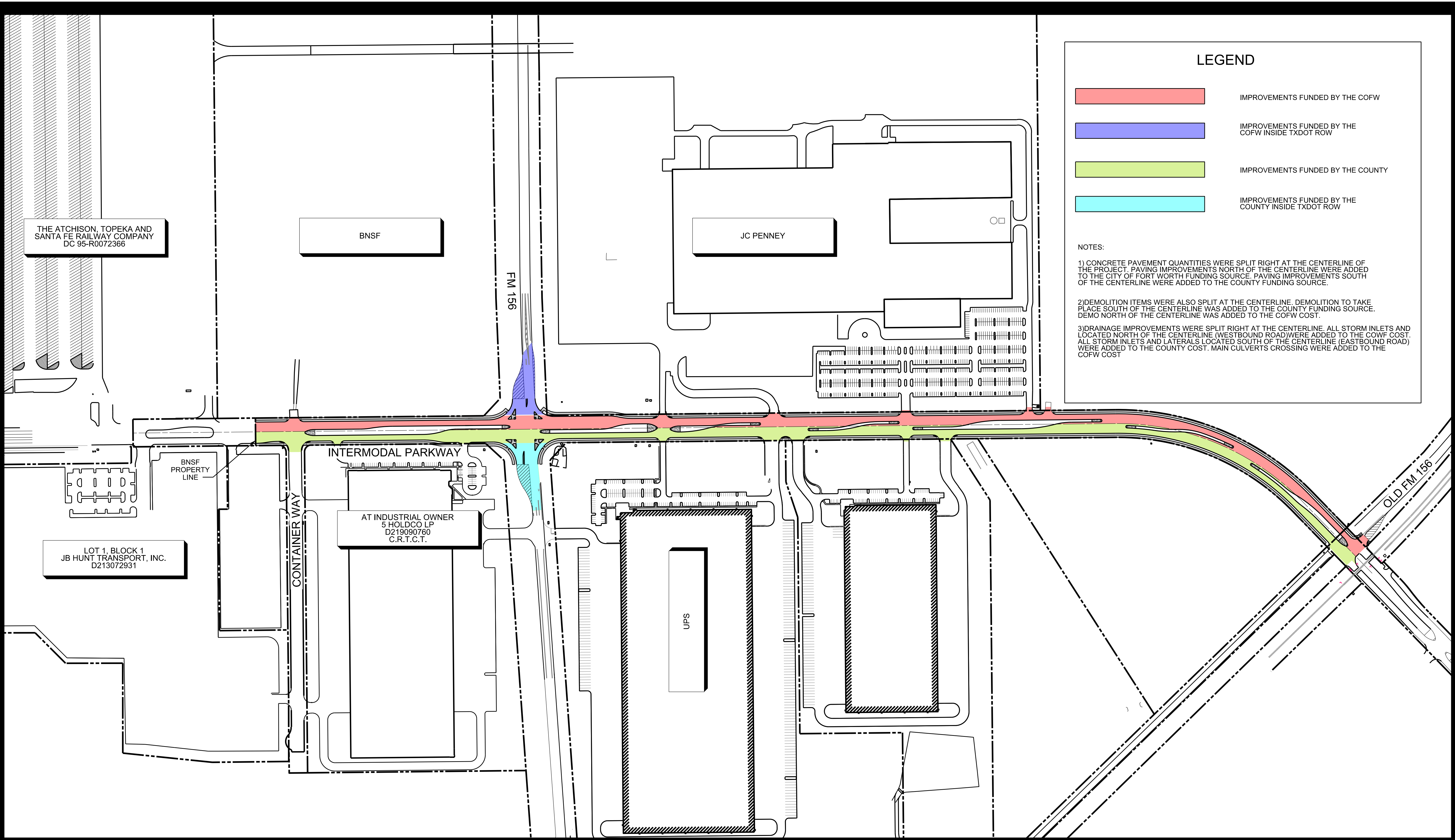
REV.	DATE	REMARKS

**INTERMODAL PARKWAY**  
**STORM DRAIN PLAN & PROFILE**  
SD-F & SD-F3  
CITY OF FORT WORTH, TEXAS  
TRANSPORTATION AND PUBLIC WORKS DEPT.  
ENGINEERING DIVISION

**PELTON LAND SOLUTIONS**  
9800 HILLWOOD PARKWAY SUITE 250  
FORT WORTH, TX 76177  
PHONE: 817-562-3350  
TX FIRM NO. 12207

DESIGNED: RZ	DATE: OCT 2022	FILE	SHEET
DRAWN: TCG			C721
CHECKED: KTW			

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**LEGEND**

- IMPROVEMENTS FUNDED BY THE COFW
- IMPROVEMENTS FUNDED BY THE COFW INSIDE TXDOT ROW
- IMPROVEMENTS FUNDED BY THE COUNTY
- IMPROVEMENTS FUNDED BY THE COUNTY INSIDE TXDOT ROW

**NOTES:**

1) CONCRETE PAVEMENT QUANTITIES WERE SPLIT RIGHT AT THE CENTERLINE OF THE PROJECT. PAVING IMPROVEMENTS NORTH OF THE CENTERLINE WERE ADDED TO THE CITY OF FORT WORTH FUNDING SOURCE. PAVING IMPROVEMENTS SOUTH OF THE CENTERLINE WERE ADDED TO THE COUNTY FUNDING SOURCE.

2) DEMOLITION ITEMS WERE ALSO SPLIT AT THE CENTERLINE. DEMOLITION TO TAKE PLACE SOUTH OF THE CENTERLINE WAS ADDED TO THE COUNTY FUNDING SOURCE. DEMO NORTH OF THE CENTERLINE WAS ADDED TO THE COFW COST.

3) DRAINAGE IMPROVEMENTS WERE SPLIT RIGHT AT THE CENTERLINE. ALL STORM INLETS AND LOCATED NORTH OF THE CENTERLINE (WESTBOUND ROAD) WERE ADDED TO THE COFW COST. ALL STORM INLETS AND LATERALS LOCATED SOUTH OF THE CENTERLINE (EASTBOUND ROAD) WERE ADDED TO THE COUNTY COST. MAIN CULVERTS CROSSING WERE ADDED TO THE COFW COST.

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY  
DC 95-R0072366

BNSF

JC PENNEY

FM 156

BNSF PROPERTY LINE

INTERMODAL PARKWAY

AT INDUSTRIAL OWNER  
5 HOLDCO LP  
D219090760  
C.R.T.C.T.

LOT 1, BLOCK 1  
JB HUNT TRANSPORT, INC.  
D213072931

CONTAINER WAY

UPS

OLD FM 156



Good afternoon all! The meeting will start at 10:05 AM to give everyone enough time to log in. Please mute yourselves to avoid echo/ disturbance during the meeting. Please ask your questions using the chat box as shown in picture below.

Note: To mute please press the speaker symbol on the screen





# Pre-Bid Meeting for Intermodal Parkway Improvements

*Presented by:*

**Bradley Radovich, PE**

City Project Manager

Transportation & Public Works



January 9, 2024



## **Project Team**

Project Manager – Bradley Radovich, P.E., PMP

[Bradley.Radovich@fortworthtexas.gov](mailto:Bradley.Radovich@fortworthtexas.gov) Phone: (817) 392-7817

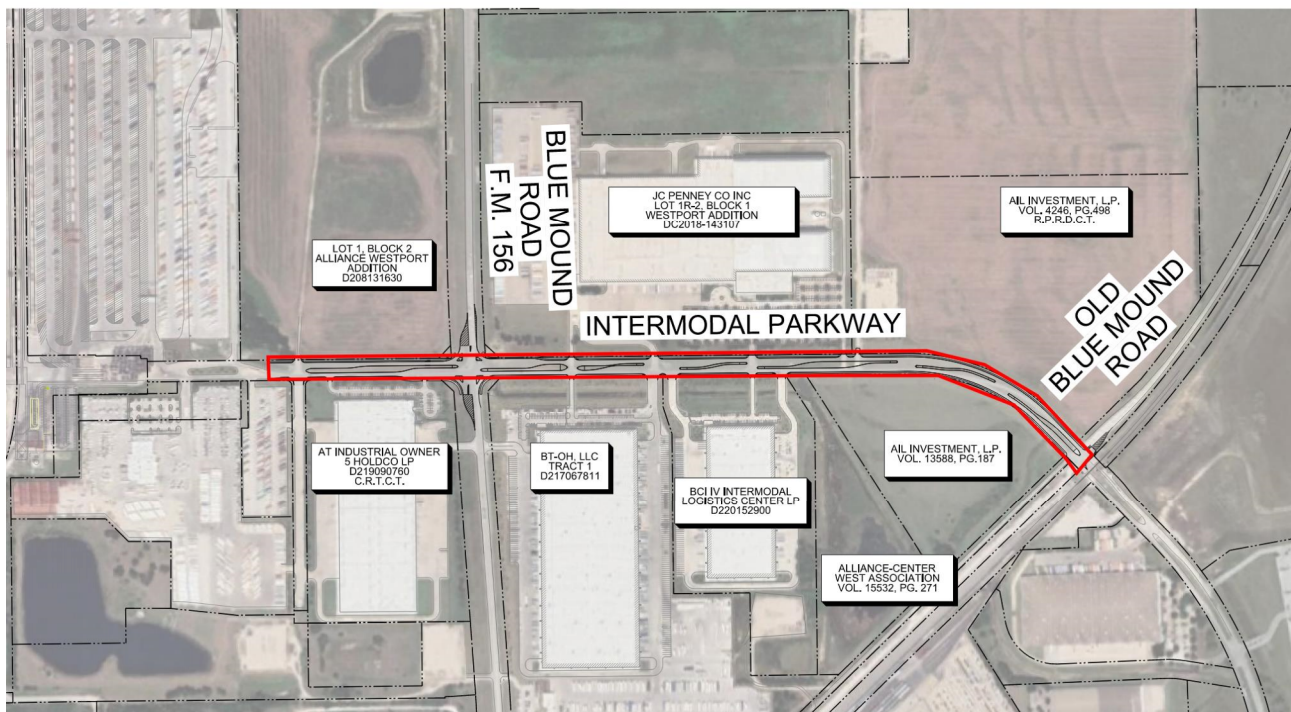
Design Consultant – Kole Weber, P.E., Westwood Professional Services

[Kole.Weber@westwoodps.com](mailto:Kole.Weber@westwoodps.com)

Phone (817) 562-3350



# Project Limits



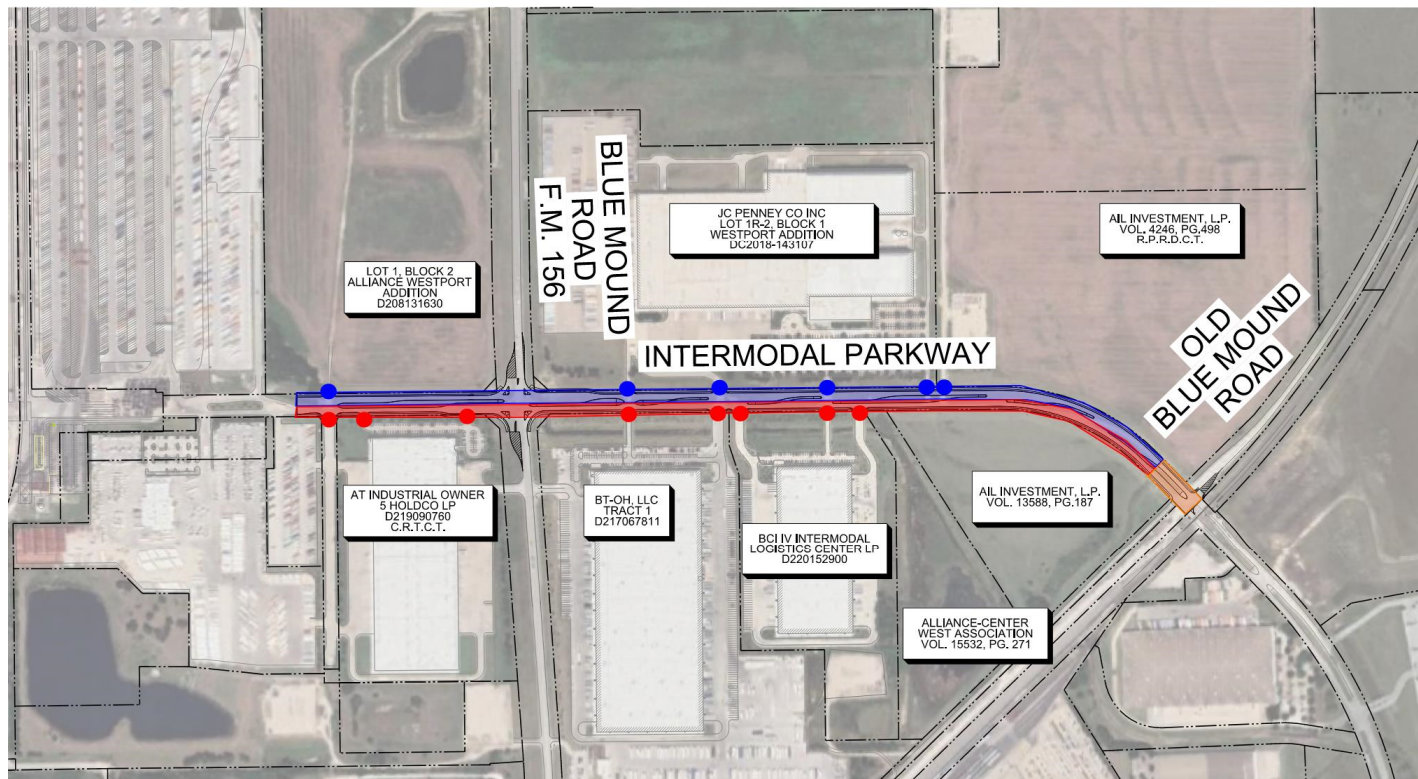
- All Right-of Way is Acquired
- Drainage Easements Acquired
- Temporary Construction Easements to be executed with property owners after contractor awarded
- Franchise Utilities Clear
  - Contractor needs to call in locates and coordinate with City and Engineer if any unknown franchise utility information is discovered
- TxDOT work within FM156 Right-of-Way permitted and TxDOT awaiting to schedule Pre-Con once contractor awarded

# Bid Award

- Best Value

Proposal Evaluation Criteria		Points
A	Project Cost	40
B	Qualifications and Experience with similar projects	25
C	Project Schedule	15
D	Project Approach	10
E	Safety Plan and Record	10
<b>Maximum Score:</b>		<b>100</b>

# TCP Phasing



## Legend

- Phase 1 
- Phase 2 
- Phase 3 
- Phase 4 
- Phase 5 

Contract Time  
540 Days

# Prequalification

- Google “City of Fort Worth Contractors”
- Click “Standards and Detail Drawings”
- Click “visit the project resources page:”
- Click “02 – Construction Documents”
- Click “Contractor Prequalification”

Major Work Type	Contractor/Subcontractor Company Name	Prequalification Expiration Date
CONCRETE PAVING/RECONSTRUCTION/RECONSTRUCTION (GREATER THAN 15,000 SQUARE YDS)		
DRAINAGE IMPROVEMENTS (21" RCP AND GREATER)		
TRAFFIC SIGNAL IMPROVEMENTS		
ROADWAY AND PEDESTRIAN LIGHTING		
TRAFFIC CONTROL PHASING (INTERSECTION CLOSURE)		
SEWER COLLECTION SYSTEM, DEVELOPMENT (12" AND SMALLER)		
WATER TRANSMISSION, URBAN/RENEWAL, 24" AND SMALLER		

## Additional Bid Information

- Prime Contractor have Certifications prior to Bid Submittal
  - MBE Subs
    - Business Equity Goal is 10%
  - All City of Fort Worth Prequalifications
- City PM to Limit communication the week of Bid Opening
  - Most answers will be “Bid as Shown” the final week

## Upcoming Dates

- Addendum 1 (issued) - 12/29/2023
- FINAL Addendum (if necessary) - 1/11/2024
- Open Bids - 1/18/2024
  
- Construction Start – March 2024

## Questions Received to Date

- Can project be bid with dual walled corrugated polypropylene in lieu of RCP?
- Why are there two bid items for Hydrated Lime and 8” Lime Treatment within the City of Fort Worth – TxDOT and Tarrant County - TxDOT Bid Pricing Breakdown?

Thank You!

Questions?

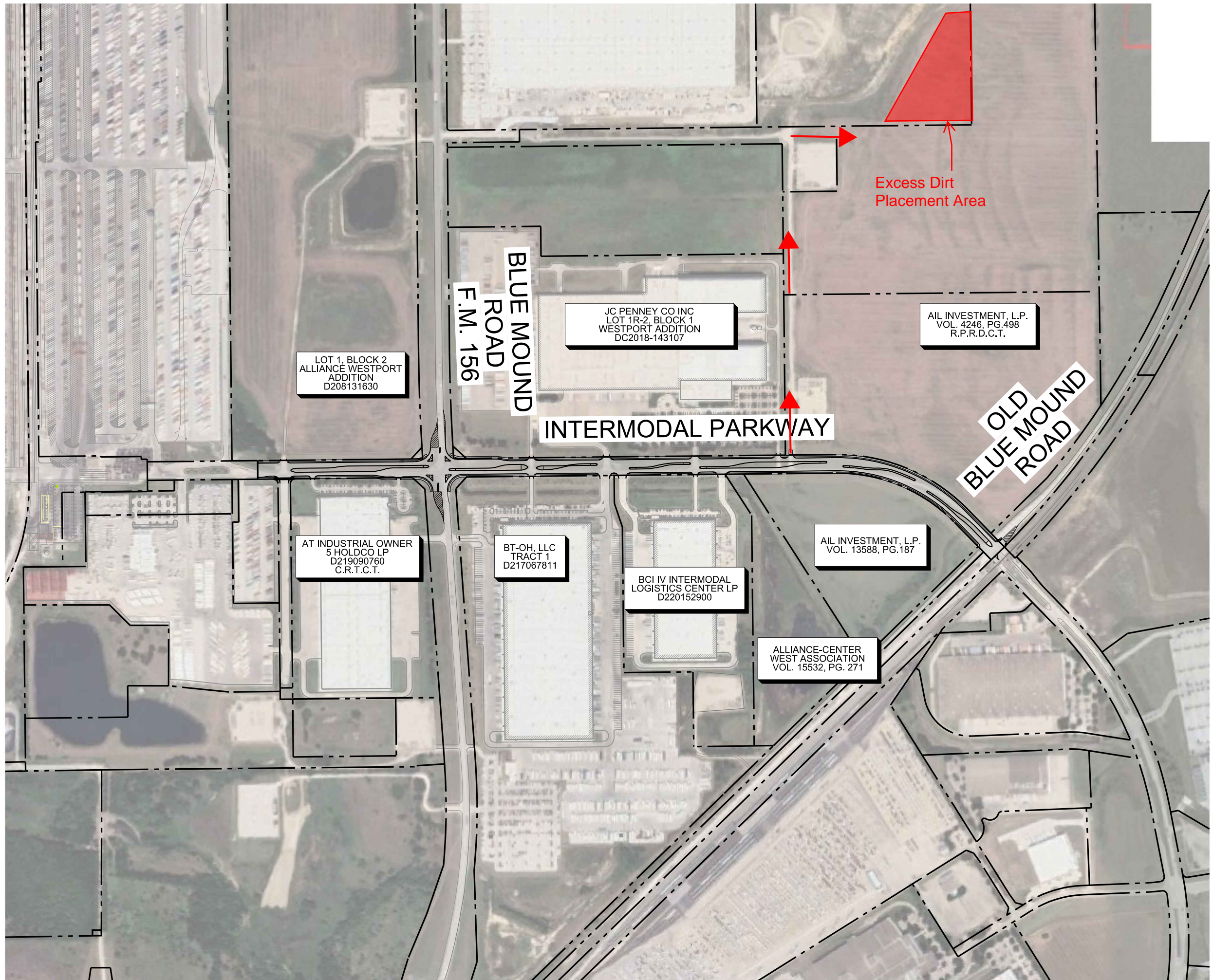
City Project Manager  
Bradley Radovich, PE

[Bradley.Radovich@fortworthtexas.gov](mailto:Bradley.Radovich@fortworthtexas.gov)

(817) 392-7817







LOT 1, BLOCK 2  
ALLIANCE WESTPORT  
ADDITION  
D208131630

BLUE MOUND  
F.M. 156

JC PENNEY CO INC  
LOT 1R-2, BLOCK 1  
WESTPORT ADDITION  
DC2018-143107

AIL INVESTMENT, L.P.  
VOL. 4246, PG.498  
R.P.R.D.C.T.

Excess Dirt  
Placement Area

INTERMODAL PARKWAY

OLD  
BLUE MOUND  
ROAD

AT INDUSTRIAL OWNER  
5 HOLDCO LP  
D219090760  
C.R.T.C.T.

BT-OH, LLC  
TRACT 1  
D217067811

BCI IV INTERMODAL  
LOGISTICS CENTER LP  
D220152900

AIL INVESTMENT, L.P.  
VOL. 13588, PG.187

ALLIANCE-CENTER  
WEST ASSOCIATION  
VOL. 15532, PG. 271