



November 27, 2024
AVO 37449.004

Ms. Ramie Hammonds
Development Services Director/Building Official
City of Sanger
201 Bolivar Street
P.O. Box 1729
Sanger, Texas 76266

Re: **Sanger Town Center South Preliminary Plat - Review #1**

Dear Ms. Hammonds,

Halff Associates, Inc. was requested by the City of Sanger to review the Preliminary Plat for Sanger Town Center South. This submittal was prepared by KJE Inc. and was received on November 13th, 2024.

General Comments

1. Please address comments on attached markups and provide annotated responses on markups. Please note, not all comments are written on letter since some comments are easier to show and explain on the markups. Please annotate markup with responses.
2. Please note additional comments may be provided in subsequent reviews once additional data/responses is received.

Preliminary Plat

1. Please reconcile discrepancies in acreage for Tract 2.
2. Please ensure that easements called out in the Civil set match those called out in the preliminary plat

Paving Plan

1. Commercial/Industrial streets shall be constructed with an eight-inch thickness of 4,000 psi reinforced concrete pavement on a compacted sub-base per Ordinance § 10.106(b)(2)(B)(ii)
2. Driveway returns onto commercial and industrial property shall be a minimum of fifteen feet (15') and a maximum of twenty-five feet (25') except in special cases per ordinance § 10.106(b)(3)(C)

Drainage Calculation Comments

1. Please revise time of concentration for existing drainage areas to 15 minutes per Ordinance § 10.106(d)(2)(D)(iii)b
2. Please update rainfall intensities based on Appendix A. Intensity-Duration-Frequency Curve per Ordinance § 10.106(d)(2)(D)(i)
3. Please use runoff coefficients from the City of Sanger Ordinance § 10.106(d)(2)(D)(i) for proposed drainage area calculations

4. Please provide more information on how the drainage crossing into Sable Creek Boulevard is being handled.

Storm Drain Profile Comments

1. Please verify that pipe sizes called out in the hydraulic calculations match those in the profiles.
2. Please provide more information to back up the basis of the starting HGL for the outflow pipe from the detention pond.

Grading

1. Please show proposed storm drain and sanitary layout in the grading plan
2. Verify there is no lot to lot drainage along fence line. Where lot to lot drainage occurs, the lot lines shall be aligned, and a dedicated private drainage easement shall be provided per Ordinance § 10.106(d)(12)
3. Please show more contour labels on grading plan sheets
4. Detention pond slopes look very steep and would impede maintenance to control weeds and discourage woody growth to observe ordinance § 10.106(d)(10)(H)

Water Line

1. Please revise and ensure fire hydrant spacing follows City of Sanger Ordinance § 5.701 requiring 300 ft spacing for all commercial structures and a maximum of 500 ft along fire apparatus access roadways
2. Please specify water line size and material

Sanitary Sewer

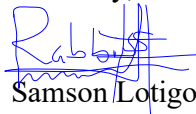
1. Please revise sanitary sewer line stations and flow lines in the plan and profiles

Standard Details

1. Please reference latest NCTCOG standard specifications for public works construction for all improvements under the jurisdictions of the City of Sanger ordinance § 10.106(a)

If you have any questions or need additional information, please do not hesitate to call me at (817) 764-7498.

Sincerely,

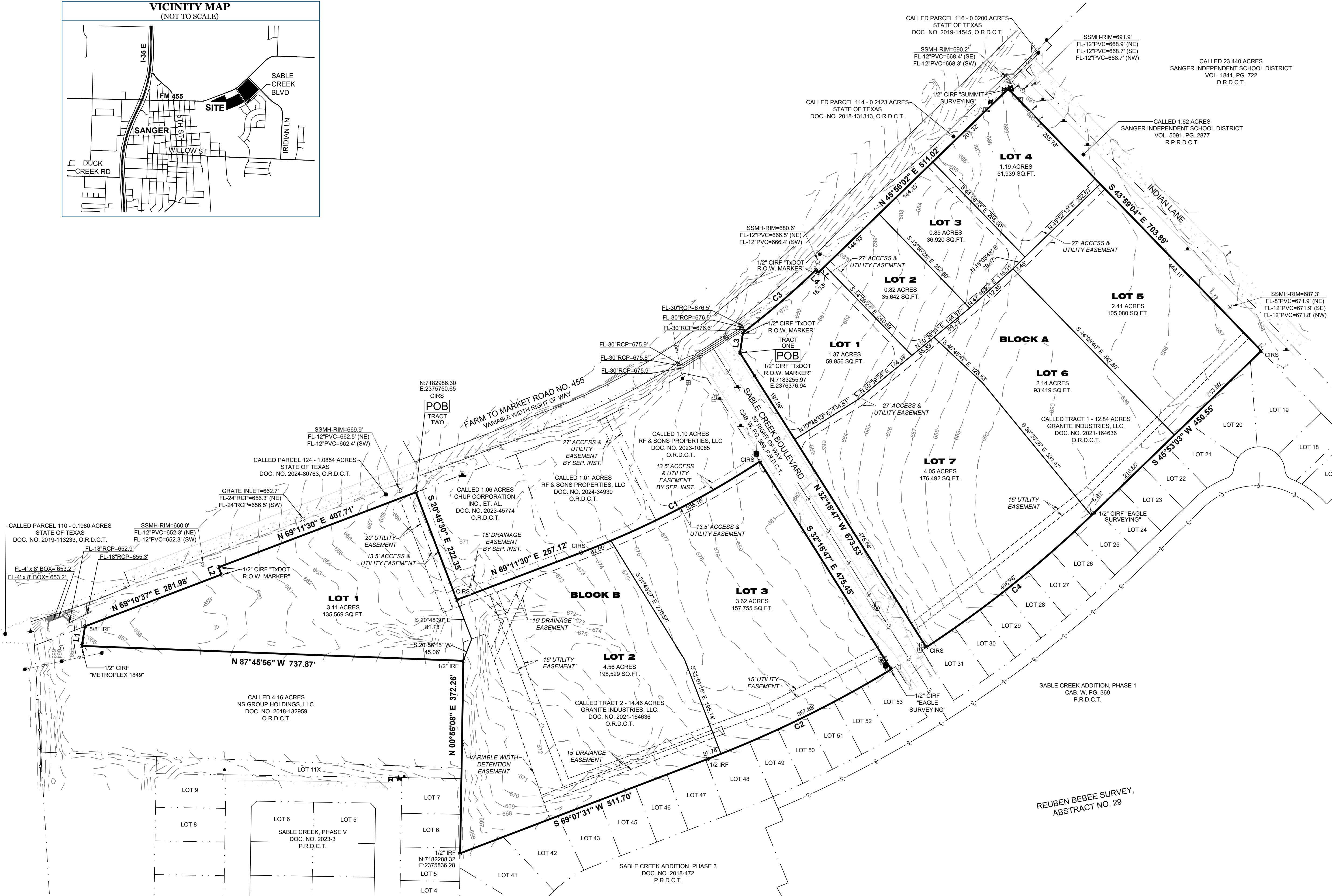
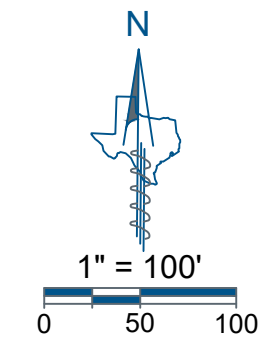
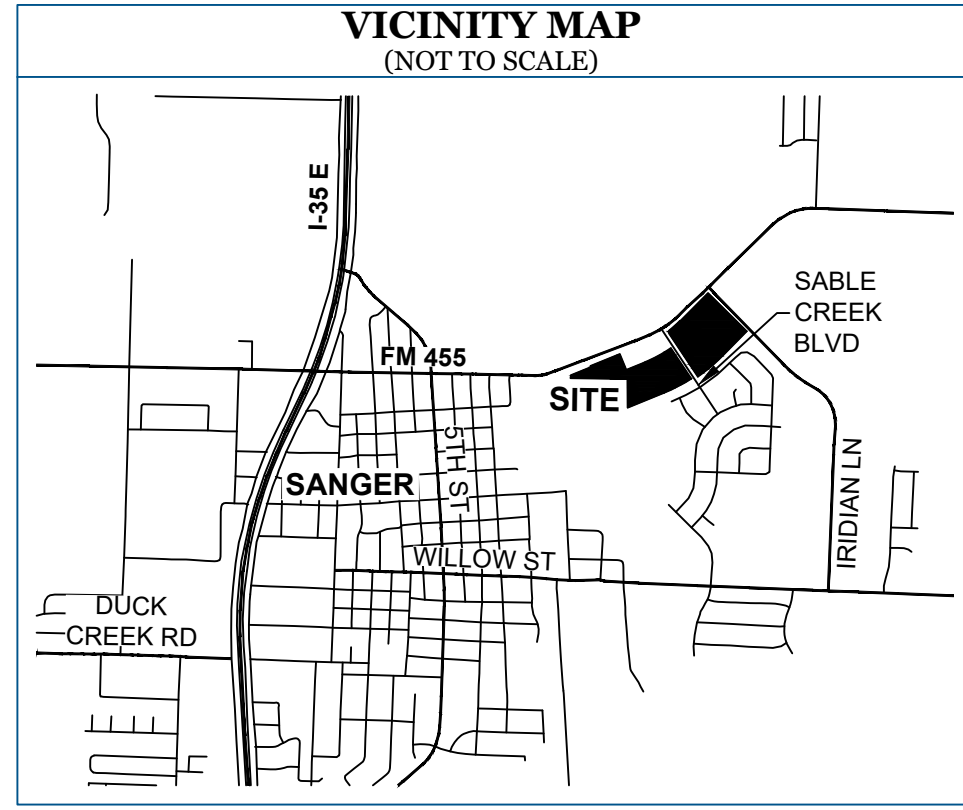


Samson Lotigo, PE

HALFF

Firm No. 0312

Attachments: Preliminary Civil Construction Plans markups



LINE TABLE		
LINE	BEARING	DISTANCE
L1	N 09°25'57" E	38.34'
L2	N 20°46'45" W	15.08'
L3	N 08°36'41" E	39.69'
L4	S 43°51'44" E	6.98'

CURVE TABLE					
CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	388.16'	1787.35'	12°26'35"	N 62°58'21" E	387.40'
C2	395.46'	2196.52'	10°18'55"	S 63°57'43" W	394.92'
C3	185.39'	1565.00'	6°47'15"	N 49°20'03" E	185.29'
C4	415.59'	2196.52'	10°50'26"	S 51°17'41" W	414.97'

GENERAL NOTES

- The purpose of this plat is to create ten lots of record from unplatted land.
- This property is located in **Non-Shaded Zone "X"** as scaled from the F.E.M.A. Flood Insurance Rate Map dated April 18, 2011 and is located in Community Number 480786 as shown on Map Number 4812C0210G. The location of the Flood Zone is approximate, no vertical datum was collected at the time of the survey. For the exact Flood Zone designation, please contact 1-(877) FEMA MAP.
- The grid coordinates shown on this plat are based on GPS observations utilizing the AllTerra RTK Network. North American Datum of 1983 (Adjustment Realization 2011).
- Selling a portion of this addition by metes and bounds is a violation of City Ordinance and State Law, and is subject to fines and/or withholding of utilities and building permits.
- All interior property corners are marked with a 1/2-inch iron rod with a green plastic cap stamped "EAGLE SURVEYING" unless noted otherwise.
- The bearings shown on this plat are based on GPS observations utilizing the AllTerra RTK Network. North American Datum of 1983 (Adjustment Realization 2011).
- The elevations shown on this plat are based on GPS observations utilizing the AllTerra RTK Network. North American Vertical Datum of 1988, (Geoid 12A).
- Lot to lot drainage shall not be allowed.
- All lots comply with the minimum size requirements of the zoning district.
- This property may be subject to charges related to impact fees and the applicant should contact the city regarding any applicable fees due.
- All common areas, drainage easements, and detention facilities will be owned and maintained by the HOA/property owner. Any common area within the city's right-of-way will require a facilities agreement, to be reviewed and approved by the city.
- This plat does not alter or remove existing deed restriction, if any, on this property.

**PRELIMINARY PLAT
SANGER TOWN
CENTER SOUTH
LOTS 1-7, BLOCK A
LOTS 1-3, BLOCK B
24.13 ACRES**

REUBEN BEBEE SURVEY, ABSTRACT NUMBER 29
CITY OF SANGER, DENTON COUNTY, TEXAS

JOB NUMBER 1802.021-17
DATE 11/12/2024
REVISION
DRAWN BY TAR

EAGLE SURVEYING

Eagle Surveying, LLC
222 South Elm Street
Suite: 200
Denton, TX 76201
940.222.3009
www.eaglesurveying.com
TX Firm # 10194177

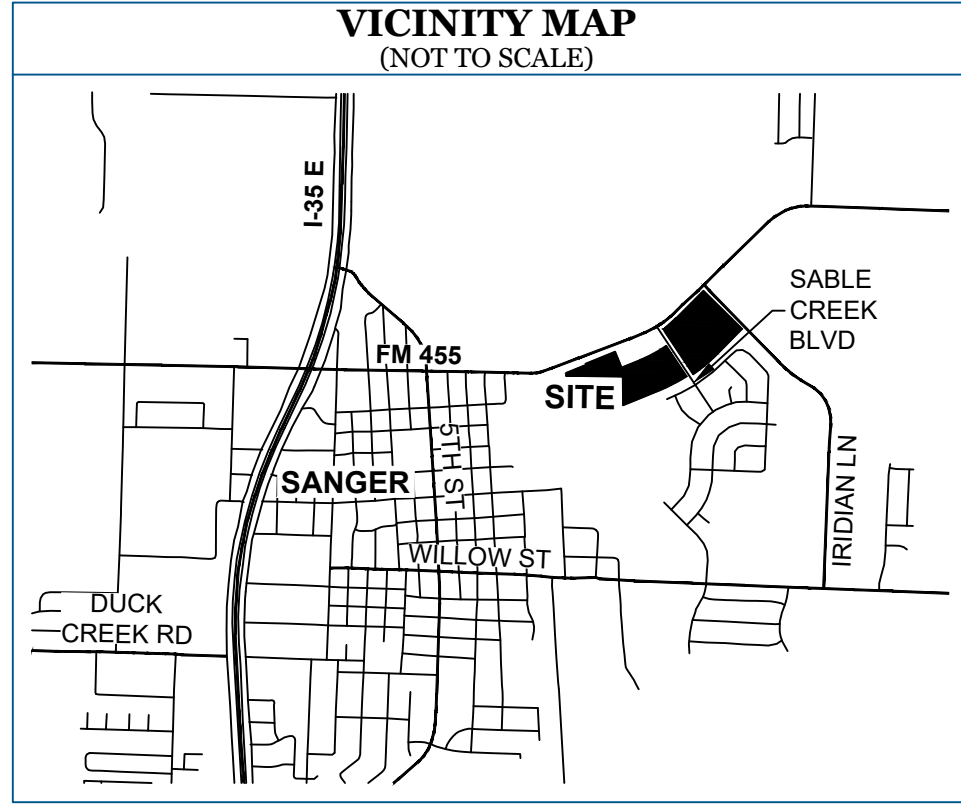
LEGEND

Electric Box	Cable Riser	Telecommunications Riser	Overhead Utilities	Concrete	VOL	Volume
Electric Meter	Buried Cable Sign	Telecommunications Vault	Storm Drain Line	Stone	PG.	Page
Electric Vault	Gas Meter	Fiber Optic Utility Sign	Edge of Gravel	()	DOC NO.	Document Number
Electric Transformer	Buried Gas Utility Sign	Telecommunications Utility Mark	Edge of Asphalt	()	O.R.D.C.T.	Deed Records
Guy Wire	Gas Utility Mark	Water Meter	Water Meter	CRS	O.R.D.C.T.	Denton County, Texas
Power Pole	Sanitary Manhole	Water Valve	Iron-Rod Found	CRF	O.R.D.C.T.	Denton County, Texas
Light Pole	Gate Inlet	Fire Hydrant	Right-of-way	IRF	P.R.D.C.T.	Denton County, Texas
Sign				R.O.W.	R.P.R.D.C.T.	Denton County, Texas
				CAB.		

SURVEYOR
Eagle Surveying, LLC
222 S. Elm Street, Suite: 200
Denton, TX 76201
(940) 222-3009

ENGINEER
KJE
Contact: Ian Norfolk
500 Moseley Road
Cross Roads, TX 76227
(940) 387-0805

OWNER
Granite Industries, LLC
161 W 3rd Street, Suite 110
Prosper, TX 75078



OWNER'S CERTIFICATE & DEDICATION

WHEREAS, **GRANITE INDUSTRIES, LLC** is the owner of two (2) tracts of land out of the Reuben Bebee Survey, Abstract Number 29, situated in Denton County, Texas, Tract One being all of a called Tract 1 - 12.84 acre tract of land conveyed by General Warranty Deed of record in Document Number 2021-164636 of the Official Records of Denton County, Texas, Tract Two being a portion of a called Tract 2 - 14.46 acre tract of land conveyed by said General Warranty Deed and being more particularly described by metes and bounds as follows:

TRACT ONE - 12.84 ACRE TRACT

BEGINNING, at a 1/2 inch iron rod with pink plastic cap stamped "TXDOT RIGHT OF WAY MARKER" found at the South end of a cutback line at the intersection of the Southeast right-of-way line of Farm to Market Road Number 455 (variable width right-of-way) and the East right-of-way line of Sable Creek Boulevard (80' Right-of-way, Cab. W, Pg 369 of the Plat Records of Denton County, Texas), being the Southwest corner of a called Parcel 114 - 0.2123 acre tract of land conveyed to the State of Texas by deed of record in Document Number 2018-131313 of said Official Records, being the Northwest corner of said 12.84 acre tract;

THENCE, along the Southeast right-of-way line of Farm to Market Road Number 455, being the South line of said Parcel 114, also being the common North line of said 12.84 acre tract, the following four (4) courses and distances:

- N08°36'41"E, a distance of 39.69 feet to a 1/2 inch iron rod with green plastic cap stamped "EAGLE SURVEYING" set at the North end of said cutback line;
- Along a non-tangent curve to the left, having a radius of 1565.00 feet, a chord bearing of N49°20'03"E, a chord length of 185.29 feet, a delta angle of 06°47'15", an arc length of 185.39 feet to a 1/2 inch iron rod with green plastic cap stamped "EAGLE SURVEYING" set at the end of said curve;
- S43°51'44"E, a distance of 6.98 feet to a 1/2 inch iron rod with pink plastic cap stamped "TXDOT RIGHT OF WAY MARKER" found;
- N45°56'02"E, a distance of 511.02 feet to a 1/2 inch iron rod with yellow plastic cap stamped "SUMMIT SURVEYING" found in the West right-of-way line of Indian Lane, being the West line of a called 1.62 acre tract of land conveyed to Sanger Independent School District by deed of record in Volume 5091, Page 2877 of the Real Property Records of Denton County, Texas, being the Southeast corner of said Parcel 114, also being the Northeast corner of said 12.84 acre tract;

THENCE, S43°59'04"E, along the West right-of-way line of Indian Lane, being the common East line of said 12.84 acre tract, a distance of 703.89 feet to a 1/2 inch iron rod with green plastic cap stamped "EAGLE SURVEYING" set at the North corner of Lot 19, Block N of Sabel Creek Addition, Phase I, a subdivision of record in Cabinet W, Page 369 of said Plat Records, being the Southeast corner of said 12.84 acre tract ;

THENCE, leaving the West right-of-way line of Indian Lane, along the North lines of Lots 19-31 of said Block N of Sabel Creek Addition, Phase I, the following two (2) courses and distances:

- S45°53'03"W, a distance of 450.55 feet to a 1/2 inch iron rod with green plastic cap stamped "EAGLE SURVEYING" set at the point of curvature of a non-tangent curve to the right;
- Along said non-tangent curve to the right, having a radius of 2196.52 feet, a chord bearing of S51°17'41"W, a chord length of 414.97 feet, a delta angle of 10°50'26", an arc length of 415.59 feet to a 1/2 inch iron rod with green plastic cap stamped "EAGLE SURVEYING" set at the end of said curve, being in the East right-of-way line of Sable Creek Boulevard, also being the Southwest corner of said 12.84 acre tract;

THENCE, N32°18'47"W, leaving the North line of said Lot 31, along the East right-of-way line of Sable Creek Boulevard, being the common West line of said 12.84 acre tract, a distance of 673.53 feet to the **POINT OF BEGINNING** and containing an area of 12.84 Acres, or (559347 Square Feet) of land, more or less.

TRACT TWO - 11.29 ACRE TRACT

BEGINNING, at a 1/2 inch iron rod with green plastic cap stamped "EAGLE SURVEYING" set in the Southeast right-of-way line of Farm to Market Road Number 455 (variable width right-of-way), being in the South line of a called Parcel 124 - 1.0854 acre tract of land conveyed to the State of Texas by Agreed Final Judgement of record in Document Number 2024-80763 of said Official Records, being the Northwest corner of a called 1.06 acre tract of land conveyed to Chup Corporation, Inc. et. al. by deed of record in Document Number 2023-457774 of said Official Records;

THENCE, S20°48'30"E, leaving the Southeast right-of-way line of Farm to Market Road Number 455, along the West line of said 1.06 acre tract, a distance of 222.35 feet to a 1/2 inch iron rod with green plastic cap stamped "EAGLE SURVEYING" set at the Southwest corner of said 1.06 acre tract;

THENCE, in part, along the South line of said 1.06 acre tract, in part, along the South line of a called 1.01 acre tract of land conveyed to RF & Sons Properties, LLC by deed of record in Document Number 2023-10085 of said Official Records, the following two (2) courses and distances:

- N69°11'30"E, a distance of 257.12 feet to a 1/2 inch iron rod with green plastic cap stamped "EAGLE SURVEYING" set at the point of curvature of a tangent curve to the left;
- Along said tangent curve to the left, having a radius of 1787.35 feet, a chord bearing of N62°58'21"E, a chord length of 387.40 feet, a delta angle of 12°26'35", an arc length of 388.16 feet to a 1/2 inch iron rod with green plastic cap stamped "EAGLE SURVEYING" set at the end of said curve, being in the West right-of-way line of Sable Creek Boulevard (80' Right-of-way, Cab. W, Pg 369 of the Plat Records of Denton County, Texas), being the Southeast corner of said 1.10 acre tract, for the Northeast corner hereof;

THENCE, S32°18'47"E, along the West right-of-way line of Sable Creek Boulevard, a distance of 475.45 feet to a 1/2 inch iron rod with green plastic cap stamped "EAGLE SURVEYING" set in the curving North line of Lot 53, Block E of Sable Creek Addition, Phase 3, a subdivision of record in Document Number 2018-472 of said Plat Records, being the common South line of said 14.46 acre tract, for the Southeast corner hereof;

THENCE, leaving the West right-of-way line of Sable Creek Boulevard, along the North lines of Lots 53-41 of said Sable Creek Addition, Phase 3, being the common South line of said 14.46 acre tract, the following two (2) courses and distances:

- Along a non-tangent curve to the right, having a radius of 2196.52 feet, a chord bearing of S63°57'43"W, a chord length of 394.92 feet, a delta angle of 10°18'55", an arc length of 395.46 feet to a 1/2 inch iron rod found at the point of tangency of said curve;
- S69°07'31"W, a distance of 511.70 feet to a 1/2 inch iron rod found the East line of Lot 5, Block L of Sable Creek Addition, Phase V, a subdivision of record in Document Number 2023-3 of said Plat Records, being the most Southerly Southwest corner of said 14.46 acre tract;

THENCE, N00°56'08"E, along the irregular West line of said 14.46 acre tract, being in part, the common East lines of Lots 5-7 of said Block L, in part, the common East line of Lot 11X, Block K of said Sable Creek Addition, Phase V and in part, the common East line of a called 4.16 acre tract of land conveyed to NS Group Holdings, LLC by deed of record in Document Number 2018-132959 of said Official Records, a distance of 372.26 feet to a 1/2 inch iron rod found at the Northeast corner of said 4.16 acre tract;

THENCE, along the irregular North line of said 4.16 acre tract, being the common Irregular West line of said 14.46 acre tract, the following two (2) courses and distances:

- N87°45'56"W, a distance of 737.87 feet to a 1/2 inch iron rod with yellow plastic cap stamped "METROPLEX 1849" found at the most Westerly Southwest corner of said 14.46 acre tract;
- N09°25'57"E, a distance of 38.34 feet to a 5/8" iron rod found in the Southeast right-of-way line of Farm to Market Road Number 455, being the Southeast corner of a called Parcel 110 - 0.1980 acre tract of land conveyed to the State of Texas by Deed of record in Document Number 2019-113233 of said Official Records, being the Southwest corner of said Parcel 124;

THENCE, along the Southeast right-of-way line of Farm to Market Road Number 455, being the South line of said Parcel 124, the following three (3) courses and distances:

- N69°10'37"E, a distance of 281.98 feet to a 1/2 inch iron rod with pink plastic cap stamped "TXDOT RIGHT OF WAY MARKER" found;
- N20°46'45"W, a distance of 15.08 feet to a 1/2 inch iron rod with pink plastic cap stamped "TXDOT RIGHT OF WAY MARKER" found;
- N69°11'30"E, a distance of 407.71 feet to the **POINT OF BEGINNING** and containing an area of 11.29 Acres, or (491,853 Square Feet) of land, more or less.

STATE OF TEXAS §
 COUNTY OF DENTON §

I, **MATTHEW RAABE**, Registered Professional Land Surveyor, do hereby certify that this plat is true and correct and was prepared from an actual survey made on the ground and that the monuments shown hereon were found or placed with 1/2-inch iron rods with green plastic caps stamped "EAGLE SURVEYING" under my direction and supervision in accordance with the current provisions of the Texas Administrative Code and the Ordinances of the City of Sanger, Denton County, Texas.

PRELIMINARY
 this document shall not be recorded for any purpose and shall not be used or viewed or relied upon as a final survey document
 Matthew Raabe, R.P.L.S. # 6402 Date

STATE OF TEXAS §
 COUNTY OF DENTON §

BEFORE ME, the undersigned authority, on this day personally appeared **MATTHEW RAABE**, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and considerations therein expressed and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF THE OFFICE this _____ day of _____, 2024.

Notary Public in and for the State of Texas

STATE OF TEXAS §
 COUNTY OF DENTON §

NOW THEREFORE KNOW ALL MEN BY THESE PRESENTS:

THAT, **GRANITE INDUSTRIES, LLC**, acting herein by and through its duly authorized office, does hereby adopt this plat designating the hereinabove described property as **SANGER TOWN CENTER SOUTH**, an addition to the City of Sanger, Texas, and does hereby dedicate to the public use foreverby fee simple title, free and clear of all liens and encumbrances, all streets, thoroughfares, alleys, fire lanes, drive aisles, parks, and watercourses, and to the public use forever easements for sidewalks, storm drainage facilities, utilities, and any other property necessary to serve the plat and to implement the requirements of the subdivision regulations and other City codes and do hereby bind ourselves, our heirs, successors and assigns to warrant and to forever defend the title on the land so dedicated. Further, the undersigned covenants and agrees that he/she shall maintain all easements and facilities in a state of good repair and functional condition at all times in accordance with City codes and regulations. No buildings, fences, trees, shrubs, or other improvements or growths shall be constructed or placed upon, over, or across the easements as shown, except that landscape improvements may be installed, if approved by the City of Sanger. The City of Sanger and public entities shall have the right to access and maintain all respective easements without the necessity at any time of procuring permission from anyone.

OWNER: **GRANITE INDUSTRIES, LLC**

BY: _____ Date

STATE OF TEXAS §
 COUNTY OF _____ §

BEFORE ME, the undersigned authority, on this day personally appeared _____, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and considerations therein expressed and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF THE OFFICE this _____ day of _____, 2024.

Notary Public in and for the State of Texas

APPROVED AND ACCEPTED	
Approved for preparation of Final Plat	
City of Sanger, TX Planning and Zoning Commission	Date

**PRELIMINARY PLAT
 SANGER TOWN
 CENTER SOUTH**
 LOTS 1-7, BLOCK A
 LOTS 1-3, BLOCK B
 24.13 ACRES

REUBEN BEBEE SURVEY, ABSTRACT NUMBER 29
 CITY OF SANGER, DENTON COUNTY, TEXAS

**PRELIMINARY PLAT
 FOR REVIEW
 PURPOSES ONLY**

JOB NUMBER 1802.021-17		Eagle Surveying, LLC 222 South Elm Street Suite: 200 Denton, TX 76201 940.222.3009 www.eaglesurveying.com TX Firm # 10194177
DATE 11/12/2024		
REVISION -		
DRAWN BY TAR		

SURVEYOR Eagle Surveying, LLC 222 S. Elm Street, Suite: 200 Denton, TX 76201 (940) 222-3009	ENGINEER KJE Contact: Ian Norfolk 500 Moseley Road Cross Roads, TX 76227 (940) 387-0805	OWNER Granite Industries, LLC 161 W 3rd Street, Suite 110 Prosper, TX 75078
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GENERAL NOTES

- 1. SITE TOPOGRAPHIC INFORMATION WAS TAKEN FROM A SURVEY PREPARED BY EAGLE SURVEYING, DATED 10/11/2024.
2. THE PLANS SHOW SUBSURFACE STRUCTURES, ABOVE GROUND STRUCTURES AND/OR UTILITIES FROM FIELD LOCATION AND RECORD MAPPING...
3. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY CONDITIONS THAT VARY FROM THOSE SHOWN ON THE PLANS...
4. THE CONTRACTOR IS INSTRUCTED TO COOPERATE WITH ANY AND ALL OTHER CONTRACTORS PERFORMING WORK ON THIS JOB SITE DURING THE PERFORMANCE OF THIS CONTRACT.
5. THE CONTRACTOR SHALL RESTORE LAWNS, DRIVEWAYS, CULVERTS, SIGNS AND OTHER PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD A CONDITION AS BEFORE BEING DISTURBED AS DETERMINED BY THE ENGINEER...
6. PRIOR TO COMMENCEMENT OF STORM AND/OR SANITARY SEWER CONSTRUCTION, CONTRACTOR IS TO VERIFY BOTH HORIZONTAL AND VERTICAL POSITION OF EXISTING SEWER AT CONNECTION POINT...
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND INCURRING THE COST OF ALL REQUIRED PERMITS, INSPECTIONS, CERTIFICATES, ETC. AND SHALL COMPLY WITH ALL REQUIRED PERMITS.
8. ALL WORK SHALL BE DONE IN STRICT COMPLIANCE WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES, STANDARDS, ORDINANCES, RULES, AND REGULATIONS.
9. ALL PROPOSED UTILITIES AND APPURTENANCES TO BE CONSTRUCTED IN COMPLIANCE WITH THE LOCAL MUNICIPALITIES' CODES AND REGULATIONS GOVERNING THE INSTALLATION OF SUCH UTILITIES.
10. ALL PLANS SHALL COMPLY WITH LOCAL AND/OR NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION), OR BEST PRACTICES.
11. FIELD VERIFICATION AND ADJUSTMENTS ARE PERMISSIBLE WITH THE ENGINEER'S WRITTEN APPROVAL.
12. THE ENGINEER RESERVES THE RIGHT TO EXAMINE ANY WORK DONE ON THIS PROJECT AT ANY TIME TO DETERMINE THE CONFORMANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS OF THIS PROJECT, AS INTENDED AND INTERPRETED BY THE ENGINEER.
13. MISCELLANEOUS WORK NOT SPECIFICALLY SHOWN ON THE CONTRACT DRAWINGS SUCH AS PATCHING, BLOCKING, TRIMMING, ETC., SHALL BE PERFORMED AS REQUIRED TO MAKE THE WORK COMPLETE.
14. THE CONTRACTOR SHALL PROTECT EXISTING PROPERTY LINE MONUMENTATION. ANY MONUMENTATION DISTURBED OR DESTROYED, AS JUDGED BY THE ENGINEER OR OWNER, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE UNDER THE SUPERVISION OF A TEXAS LICENSED LAND SURVEYOR.
15. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE ALL PLAN SHEETS AND COORDINATE WORK WITH ALL OTHER CONTRACTS FOR THE SITE.
16. THE CONTRACTOR SHALL:
A. VERIFY ALL CONDITIONS IN THE FIELD PRIOR TO COMMENCEMENT OF WORK AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
B. EXAMINE THE SITE AND INCLUDE IN HIS WORK THE EFFECT OF ALL EXISTING CONDITIONS ON THE WORK.
C. PROVIDE AND INSTALL ALL MATERIALS AND PERFORM ALL WORK IN ACCORDANCE WITH RECOGNIZED GOOD STANDARD PRACTICE.
D. HOLD THE OWNER HARMLESS AGAINST ANY AND ALL CLAIMS ARISING FROM WORK DONE BY THE CONTRACTOR ON THE SITE.
17. ALL TRENCH EXCAVATION AND ANY REQUIRED SHEETING AND SHORING SHALL BE DONE IN ACCORDANCE WITH THE LATEST REVISIONS OF OSHA REGULATIONS FOR CONSTRUCTION. SHEET PILING SHALL BE DESIGNED AND SEALED BY A LICENSED TEXAS PROFESSIONAL ENGINEER.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING AND THE MAINTENANCE OF SURFACE DRAINAGE DURING THE COURSE OF WORK AND SHALL SUBMIT A DEWATERING PLAN DESIGNED AND SEALED BY A LICENSED TEXAS PROFESSIONAL ENGINEER. CONTRACTOR SHALL MAINTAIN EXISTING SITE DRAINAGE PATTERNS THROUGHOUT CONSTRUCTION UNLESS OTHERWISE SHOWN ON THE PLANS.
19. ALL UTILITY WORK INVOLVING CONNECTIONS TO EXISTING SYSTEMS SHALL BE COORDINATED WITH THE UTILITY OWNER. NOTIFY THE UTILITY OWNER 72 HOURS BEFORE EACH AND EVERY CONNECTION TO EXISTING SYSTEMS IS MADE.

- 20. CONSTRUCTION OF ALL PROPOSED UTILITIES MUST BEGIN AT ITS POINT OF CONNECTION TO THE EXISTING UTILITY OR AT THE LOWEST POINT IN THE SYSTEM, RIMS, GRATES, INVERTS, CLEARANCES, AND LOCATION AT CROSSINGS MUST BE VERIFIED PRIOR TO THE BEGINNING OF CONSTRUCTION.
21. MAINTAIN FLOW FOR ALL EXISTING UTILITIES.
22. ALL FRAMES/COVERS WITHIN PAVED AREAS SHALL HAVE THE TOPS SET FLUSH WITH THE EXISTING PAVEMENT GRADE. IN LANDSCAPED AREAS, ALL FRAMES SHALL BE 0.1' ABOVE GRADE.
23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL FIELD LAYOUT. THE CONTRACTOR SHALL TAKE TIES TO ALL UTILITY CONNECTIONS AND PROVIDE MARKED-UP AS-BUILT PLANS FOR ALL UTILITIES SHOWING TIES TO CONNECTIONS, BENDS, VALVES, LENGTHS OF LINES, AND INVERTS. AS-BUILT PLANS SHOWING ALL UNDERGROUND UTILITIES INSTALLED OR ENCOUNTERED SHALL BE REVIEWED BY THE OWNER AND HIS REPRESENTATIVES. THE CONTRACTOR SHALL PROVIDE ANY CORRECTION OR ADMISSIONS TO THE SATISFACTION OF THE OWNER AND HIS REPRESENTATIVES BEFORE UTILITIES WILL BE ACCEPTED.
24. TEMPORARY PAVEMENT SHALL BE PLACED WITHIN 48 HOURS OF COMPLETION OF EXCAVATION AND BACKFILL OPERATIONS WITHIN THE EXISTING PAVEMENT LIMITS.
25. CONTRACTOR SHALL MAINTAIN ALL TRAFFIC IN ALL AREAS IN ACCORDANCE WITH THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
26. ALL EXCAVATIONS SHALL BE BACKFILLED TO EXISTING GRADE AT THE END OF EACH WORK DAY.
27. CONTRACTOR SHALL TAKE CARE TO PREVENT DAMAGE TO EXISTING UTILITIES. DAMAGED UTILITIES SHALL BE IMMEDIATELY REPAIRED BY CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

CONSTRUCTION NOTES

- 1. BUILDING SILL ELEVATIONS AND SEWER INVERTS ARE APPROXIMATE AND SHOULD BE CONFIRMED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORK.
2. THE MINIMUM SLOPE FOR SANITARY SEWER LATERALS SHALL BE 0.010 FT/FT.
3. PROGRESSION OF WORK: IN GENERAL WORK SHALL PROCEED FROM THE DOWNSTREAM END OF A SEWER LINE SEGMENT TO THE UPSTREAM END OF THE SEGMENT.
4. THE MAXIMUM LENGTH OF OPEN TRENCH SHALL BE LIMITED TO NO MORE THAN THREE PIPE LENGTHS IN A SEWER SEGMENT.
5. THE MINIMUM TRENCH WIDTH SHOULD BE NO LESS THAN 24 INCHES OR ONE FOOT GREATER THAN OUTSIDE DIAMETER OF THE PIPE, WHICHEVER IS GREATER.
6. THE MINIMUM DEPTH OF COVER ABOVE THE TOP OF PIPE FOR WATER LINE INSTALLATIONS SHALL BE 4 FEET.
7. WATER MAINS AND SERVICES: LOCATIONS SHOWN ARE APPROXIMATE AND ARE INDICATED FOR GENERAL REFERENCE ONLY UNLESS OTHERWISE NOTED.
8. ALL EXISTING UNDERGROUND FEATURES SUCH AS SEPTIC TANKS, LEACH FIELDS, SANITARY SEWERS, ETC. ARE APPROXIMATE ONLY AND ARE INDICATED FOR GENERAL REFERENCE AND DESIGN UNLESS OTHERWISE NOTED.
9. WORK IN PRIVATE PROPERTY: THE CONTRACTOR SHALL OBTAIN WRITTEN AUTHORIZATION FROM THE OWNER PRIOR TO BEGINNING WORK IN ANY PRIVATELY OWNED AREAS WHICH WILL REQUIRE EASEMENTS FOR CONSTRUCTION.

SOIL PREPARATION AND GRADING NOTES

- 1. THE SOIL BENEATH THE PAVEMENT SHALL BE TREATED AS FOLLOWS:
A. REMOVE ALL VEGETATION, ORGANIC MATERIAL OR OTHER DELETERIOUS MATERIALS.
B. PERFORM ANY CUT OPERATIONS AS NEEDED AND PROOF ROLL THE PAVEMENT AREAS WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK. ANY AREAS WHICH RUT EXCESSIVELY OR PUMP SHALL BE UNDERCUT AND REPLACED WITH COMPACTED FILL.
C. PERFORM ALL FILL OPERATIONS. ALL FILL SHALL BE INSTALLED IN MAXIMUM 8 INCH LIFTS AND COMPACTED TO AT LEAST 93% OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D 698 (STANDARD PROCTOR), AND TO AT LEAST +3 PERCENTAGE POINTS OF ITS OPTIMUM MOISTURE CONTENT. DO NOT USE ANY SAND AS FILL UNDER THE PAVEMENT. ANY IMPORTED FILL SHALL BE SIMILAR TO THE ON SITE SOILS AND APPROVED BY EIKON CONSULTING GROUP.
2. SITE SHALL BE GRADED TO ASSURE DRAINAGE OF SURFACE WATER FROM BUILDINGS.
3. REMOVE EXCESS SOILS FROM THE SITE AND LEGALLY DISPOSE OF THE SOILS.
4. GRADES NOT OTHERWISE INDICATED ON THE PLANS SHALL BE UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE ELEVATIONS ARE GIVEN. ABRUPT CHANGES IN SLOPES SHALL BE WELL ROUNDED. THE CONTRACTOR IS RESPONSIBLE FOR POSITIVE SITE DRAINAGE.
5. ALL SITE EXCAVATION SHALL BE CONSIDERED UNCLASSIFIED EXCAVATION.
6. THE EXISTING GRADES AND CONTOURS SHOWN IN THESE PLANS REPRESENT THE ELEVATIONS AS INDICATED ON THE TOPOGRAPHIC SURVEY BY EAGLE SURVEYING ON 10/11/2024. DUE TO MANY FACTORS INCLUDING POSSIBLE DISTURBANCE OF THE SOIL OR BENCH MARKS BY OTHER PARTIES AND THE EXPANSIVE/SHRINKAGE NATURE OF THE SOIL, THE ELEVATIONS MAY BE SIGNIFICANTLY DIFFERENT IN THE FUTURE (INCLUDING THE BENCH MARKS). NORMAL EQUIPMENT AND MEASUREMENT ACCURACIES SHOULD BE TAKEN INTO ACCOUNT WHEN USING THESE ELEVATIONS. REFER TO THE GEOTECHNICAL INVESTIGATION FOR THE GEOTECHNICAL RAMIFICATIONS.

- 7. ALL SLOPES IN UNPAVED AREAS SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.

- 8. REFER TO THE GEOTECHNICAL REPORT FOR COMPLETE INFORMATION ON SOIL CHARACTERISTICS AND ANY OTHER RECOMMENDATIONS NOT CONTAINED HEREIN.

PAVING NOTES

- 1. REFER TO GRADING PLAN FOR SOIL PREPARATION SPECIFICATIONS UNDER PAVEMENT.
2. CONCRETE FOR THE CONCRETE PAVEMENT SHALL HAVE A 28 DAY DESIGN COMPRESSIVE STRENGTH OF 3,500 PSI, A MINIMUM OF 5.5 SACKS OF PORTLAND CEMENT PER CUBIC YARD, 20% CLASS C FLYASH, 4% TO 6% AIR CONTENT USING AIR ENTRAINING AGENT AS REQUIRED, MID RANGE WATER REDUCING AGENT AND A 5-6" SLUMP.
3. CONCRETE FOR PRIVATE SIDEWALKS, CURBS, GUTTERS AND DRAINAGE STRUCTURES SHALL HAVE A 28 DAY DESIGN COMPRESSIVE STRENGTH OF 3,000 PSI, A MINIMUM OF 5 SACKS OF CEMENT PER CUBIC YARD, 4% TO 6% AIR CONTENT USING AIR ENTRAINING AGENT AS REQUIRED, 20% CLASS C FLYASH A 5-6 INCH SLUMP. REFER TO CITY OF LINDSAY AND/OR NCTCOG CONSTRUCTION SPECIFICATIONS FOR ALL PUBLIC IMPROVEMENTS.
4. THE MID RANGE WATER REDUCING AGENT ADMIXTURE CONFORMING TO ASTM C-494, TYPE A OR D SHALL BE CHOSEN FROM ONE OF THE FOLLOWING (OR APPROVED EQUAL):
EUCON X-20 OR EUCON MR BY EUCLID
SIKAMENT NL BY SIKA
PLASTIMIX MR BY PROMIX TECHNOLOGIES
MIRA 85 BY W.R.GRACE AND CO.
POLYHEED 1020 BY DEGUSSA ADMIXTURES

THE AMOUNT OF MID RANGE WATER REDUCER SHALL BE AS RECOMMENDED BY THE ADMIXTURE SUPPLIER TO INCREASE THE SLUMP OF THE CONCRETE BY 50 PERCENT OVER THE SLUMP WITHOUT THE ADMIXTURE. THE SLUMP GIVEN IN THE CONCRETE NOTES ARE AT THE POINT OF DISCHARGE.

- 5. IF THE AIR TEMPERATURE IS GREATER THAN 90 DEGREES WITHIN 24 HOURS AFTER PLACEMENT, HOT WEATHER CONCRETE PROCEDURES SHALL BE USED. THE CONTRACTOR SHALL SUBMIT A PROCEDURE TO THE ENGINEER FOR APPROVAL. THESE PROCEDURES MAY INCLUDE THE FOLLOWING:
A. PLACING THE CONCRETE IN THE EARLY MORNING HOURS
B. THE USE OF EVAPORATION REDUCER (SEE BELOW)
C. THE USE OF MISTING AS A CURING METHOD
D. THE USE OF WET BLANKETS AS A CURING METHOD
E. THE USE OF A RETARDING ADMIXTURE (NOT PREFERABLE)
6. ANY CONCRETE TO BE PLACED FURTHER THAN 16 FEET FROM THE END OF A CONCRETE TRUCK SHALL BE PUMPED WITH A COMMERCIAL CONCRETE PUMPING TRUCK OR OTHER PLACEMENT METHOD APPROVED BY THE ENGINEER. THE CONCRETE TRUCK SHALL NOT BE ALLOWED TO DRIVE OVER THE SUBGRADE OR THE PAVEMENT REINFORCEMENT UNLESS APPROVED BY THE ENGINEER.
7. REINFORCING STEEL SHALL BE NEW DOMESTIC DEFORMED BILLET STEEL CONFORMING TO A.S.T.M. A-615 GRADE 60.
8. REINFORCING BARS, BAR SUPPORTS, AND SPACERS SHALL BE DETAILED AND PROVIDED IN ACCORDANCE WITH THE A.C.I. DETAILING MANUAL. CHAIRS SHALL NOT BE PLACED FURTHER THAN 4 FEET APART. BAR SUPPORTS SHALL BE THE FOLLOWING DAYTON/RICHMOND PRODUCTS (800-745-3703) OR EQUAL:
A. AT CONCRETE PAVEMENT: (CONCRETE THICKNESS MINUS 1 1/2 INCHES) HIGH, TYPE R21, OR TYPE BBP
9. MASTER BUILDERS CONFIRM OR EUCOBAR EVAPORATION REDUCERS SHALL BE USED AFTER EACH FINISHING OPERATION ON THE CAST-IN-PLACE CONCRETE PAVEMENT UNLESS PRIOR APPROVAL FROM THE ENGINEER HAS BEEN OBTAINED TO NOT USE THIS PRODUCT.
10. SAWCUTS IN CONCRETE PAVEMENT SHALL BE MADE AS SOON AS THE CONCRETE IS OF SUFFICIENT STRENGTH TO SAW WITHOUT RAVELING THE AGGREGATE. ANY TIME LAPSE GREATER THAN 8 HOURS AFTER PLACING THE CONCRETE SHALL BE PERMITTED ONLY IF APPROVED BY THE ENGINEER.
11. NO PIPING OR CONDUITS SHALL BE INSTALLED IN ANY CONCRETE WITHOUT THE APPROVAL OF THE ENGINEER.
12. PAVING CONTRACTOR IS RESPONSIBLE FOR ALL LAY DOWN CURBS AT INTERSECTIONS WHERE BARRIER FREE RAMPS ARE TO BE CONSTRUCTED.
13. THE CONTRACTOR SHALL PROVIDE, CONSTRUCT AND MAINTAIN BARRICADES AND SIGNS IN ACCORDANCE WITH THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
14. SAWCUTS SHALL HAVE A MAXIMUM SPACING OF 15' EACH WAY.
15. EXPANSION JOINTS SHALL BE SMOOTH DOWEL JOINTS WITH THE PAVEMENT THICKNESS INCREASED BY 25%. ONE END OF DOWELS TO BE GREASED AND CAPPED AND USE 1" EXPANSION JOINT MATERIAL IN THE JOINT. REDWOOD OR OTHER RIGID MATERIAL SHOULD BE AVOIDED. SPACE EXPANSION JOINTS BETWEEN 80' AND 100' APART AND AT ALL LOCATIONS IN WHICH LARGE PAVEMENT SECTIONS INTERSECT SMALLER SECTIONS.
16. ALL JOINTS & SAWCUTS MUST BE SEALED WITH A BITUMINOUS JOINT SEALANT OR APPROVED EQUAL.
17. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO ACQUIRE ALL NECESSARY PERMITS FROM THE CITY OF SANGER AND TXDOT BEFORE CONSTRUCTION WITHIN CITY RIGHT-OF-WAY.
18. ALL DIMENSIONS ARE TO BACK OF CURB, UNLESS OTHERWISE NOTED.
19. GREASE TRAPS, MANHOLES, AND VALVE COVERS IN PAVED AREAS SHALL BE TRAFFIC BEARING AND RIM ELEVATIONS SHALL MATCH FINAL PAVING ELEVATION.

SITE UTILITY NOTES

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES, WHETHER PRIVATE OR PUBLIC, PRIOR TO EXCAVATING. THE INFORMATION AND DATA SHOWN WITH RESPECT TO EXISTING UNDERGROUND FACILITIES AT OR CONTIGUOUS TO THE SITE IS APPROXIMATE AND BASED ON THE INFORMATION AND DATA FURNISHED BY THE OWNERS OF SUCH UNDERGROUND FACILITIES OR ON PHYSICAL APPEARANCES OBSERVED IN THE FIELD. THE OWNER AND ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ANY SUCH INFORMATION OR DATA, AND THE CONTRACTOR SHALL HAVE FULL RESPONSIBILITY FOR REVIEWING AND CHECKING ALL SUCH INFORMATION AND DATA, FOR LOCATING ALL UNDERGROUND FACILITIES, FOR COORDINATION OF THE WORK WITH THE OWNERS OF SUCH UNDERGROUND FACILITIES DURING CONSTRUCTION, FOR THE SAFETY AND PROTECTION THEREOF, AND REPAIRING ANY DAMAGE THERETO RESULTING FROM THE WORK, THE COST OF ALL OF WHICH WILL BE CONSIDERED AS HAVING BEEN INCLUDED IN THE CONTRACT PRICE. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATIONS OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY ANY AFFECTED UTILITY COMPANIES OR AGENCIES AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
2. EROSION CONTROL MEASURES MAY ONLY BE PLACED IN FRONT OF INLETS, OR IN CHANNELS, DRAINAGEWAYS OR BORROW DITCHES AT RISK OF CONTRACTOR. CONTRACTOR SHALL REMAIN LIABLE FOR ANY DAMAGE CAUSED BY THE MEASURES, INCLUDING FLOODING DAMAGE, WHICH MAY OCCUR DUE TO BLOCKED DRAINAGE. AT THE CONCLUSION OF ANY PROJECT, ALL CHANNELS, DRAINAGEWAYS AND BORROW DITCHES IN THE WORK ZONE SHALL BE DREGGED OF ANY SEDIMENT GENERATED BY THE PROJECT OR DEPOSITED AS A RESULT OF EROSION CONTROL MEASURES.
3. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY GOVERNING AUTHORITIES (INCLUDING STORM WATER POLLUTION PREVENTION PLAN.) THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE APPROVED TPDES SWPPP DRAWINGS DURING CONSTRUCTION OPERATIONS.
4. PRIOR TO COMMENCING ANY CONSTRUCTION, A CONSTRUCTION ENTRANCE AND PERIMETER SILT FENCE SHALL BE INSTALLED AT THE LOCATIONS SHOWN, OR AS DESCRIBED IN THE SWPPP.
5. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL EROSION CONTROL MEASURES SHOWN ON THE PLANS. THE EROSION CONTROL SYSTEM DESCRIBED WITHIN THE CONSTRUCTION DOCUMENTS SHOULD BE CONSIDERED TO REPRESENT THE MINIMUM ACCEPTABLE STANDARDS FOR THIS PROJECT. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED DEPENDENT UPON THE STAGE OF CONSTRUCTION, THE SEVERITY OF THE RAINFALL EVENT AND/OR AS DEEMED NECESSARY AS A RESULT OF ON-SITE INSPECTIONS BY THE OWNER, THEIR REPRESENTATIVES OR THE JURISDICTIONAL AUTHORITIES. THESE ADDITIONAL MEASURES SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER. IT IS THE CONTRACTOR'S ULTIMATE RESPONSIBILITY TO ASSURE THAT THE STORM WATER DISCHARGE FROM THE SITE DOES NOT EXCEED THE TOLERANCES ESTABLISHED BY ANY OF THE JURISDICTIONAL AUTHORITIES.
6. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
7. AS INLETS ARE COMPLETED, TEMPORARY SEDIMENT BARRIERS SHALL BE INSTALLED.
8. AT THE COMPLETION OF THE PAVING AND FINAL GRADING, THE DISTURBED AREA(S) SHALL BE RE-VEGETATED IN ACCORDANCE WITH THE SWPPP.
9. THE SPECIFIC PLANT MATERIALS PROPOSED TO PROTECT FILL AND EXCAVATED SLOPES SHALL BE AS INDICATED WITHIN THE SWPPP. PLANT MATERIALS MUST BE SUITABLE FOR USE UNDER LOCAL CLIMATE AND SOIL CONDITIONS. IN GENERAL, HYDROSEEDING OR SODDING BERMUDA GRASS IS ACCEPTABLE DURING THE SUMMER MONTHS (MAY 1 TO AUGUST 30). WINTER RYE OR FESCUE GRASS MAY BE PLANTED DURING TIMES OTHER THAN THE SUMMER MONTHS AS A TEMPORARY MEASURE UNTIL SUCHTIME AS THE PERMANENT PLANTING CAN BE MADE.
10. SILT FENCE AND INLET SEDIMENT BARRIERS SHALL REMAIN IN PLACE UNTIL RE-VEGETATION HAS BEEN COMPLETED.
11. DISTURBED AREAS THAT ARE SEEDDED OR SODDED SHALL BE CHECKED PERIODICALLY TO SEE THAT GRASS COVERAGE IS PROPERLY MAINTAINED. DISTURBED AREAS SHALL BE WATERED, FERTILIZED, AND RESEEDDED OR RESODDED, IF NECESSARY. GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
12. SEDIMENT SHALL BE REMOVED FROM THE SEDIMENT BASIN BEFORE IT IS 50% FULL, IF IMPLEMENTED BY THE SWPPP.
13. FREQUENT INSPECTIONS OF THE SILT FENCE SHALL BE MADE. ALL REPAIRS OR REPLACEMENTS SHALL BE MADE IMMEDIATELY.
14. THE CONTRACTOR SHALL INSPECT HIS STABILIZATION AND EROSION CONTROL MEASURES AT MINIMUM OF ONCE EVERY 14 DAYS, AND WITHIN 24 HOURS OF ANY STORM EVENT GREATER THAN 0.5 INCHES. THE CONTRACTOR SHALL REPAIR INSUFICIENCIES REVEALED BY THE INSPECTION BEFORE THE NEXT STORM EVENT AND SHALL MODIFY HIS SWPPS WITHIN 7 DAYS OF THE INSPECTION. ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF WHEN IT REACHES A DEPTH OF SIX (6) INCHES.
15. CONTRACTOR SHOULD ATTAIN A 75% BERMUDA COVERING BY SEEDING OR SODDING OVER ALL AFFECTED CONSTRUCTION AREAS BEFORE EROSION CONTROL CAN BE REMOVED.
16. CONTRACTOR IS RESPONSIBLE FOR PREPARING, FILING, & MAINTAINING THE SWPPP & THE NOI.
17. WHERE SILT FENCE CAN NOT BE USED, THE CONTRACTOR MAY SUBSTITUTE WITH THE FOLLOWING:
-TRIANGULAR SEDIMENT FILTER DIKE PER NCTCOG SPEC 1050A
-"TEXAS POWER MULCH" MULCH FILLED FILTER SOCK
18. THE CONTRACTOR SHALL REFER TO EROSION CONTROL NARRATIVE AND SWPPP COORDINATION/INVESTIGATION DOCUMENTATION PROVIDED BY OTHERS FOR APPROPRIATE EROSION CONTROL MEASURES AND PROCEDURES FOR THIS PROJECT.

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- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES, WHETHER PRIVATE OR PUBLIC, PRIOR TO EXCAVATING. THE INFORMATION AND DATA SHOWN WITH RESPECT TO EXISTING UNDERGROUND FACILITIES AT OR CONTIGUOUS TO THE SITE IS APPROXIMATE AND BASED ON THE INFORMATION AND DATA

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Table with 3 columns: TBM X-CUT, TBM X-CUT, TBM X-CUT. Rows include elevations: N7162983.6, E2376464.4, ELEV:682.2; N7162732.0, E2376692.0, ELEV:683.2; N7162983.6, E2376464.4, ELEV:682.2.



www.kje-us.com
Texas Firm F-12214
ENGINEERS & ENVIRONMENTAL
KJE
500 Moseley Rd
Cross Roads, TX 76277
Phone 940-387-0805
Fax 940-387-0830

PRELIMINARY
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF IAN NORFOLK, P.E. 93550 ON 11/13/2024. IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.*



SANGER TOWN CENTER SOUTH
NOT FOR CONSTRUCTION IN PROGRESS
FM 455 AND INDIAN LN
SANGER, TEXAS

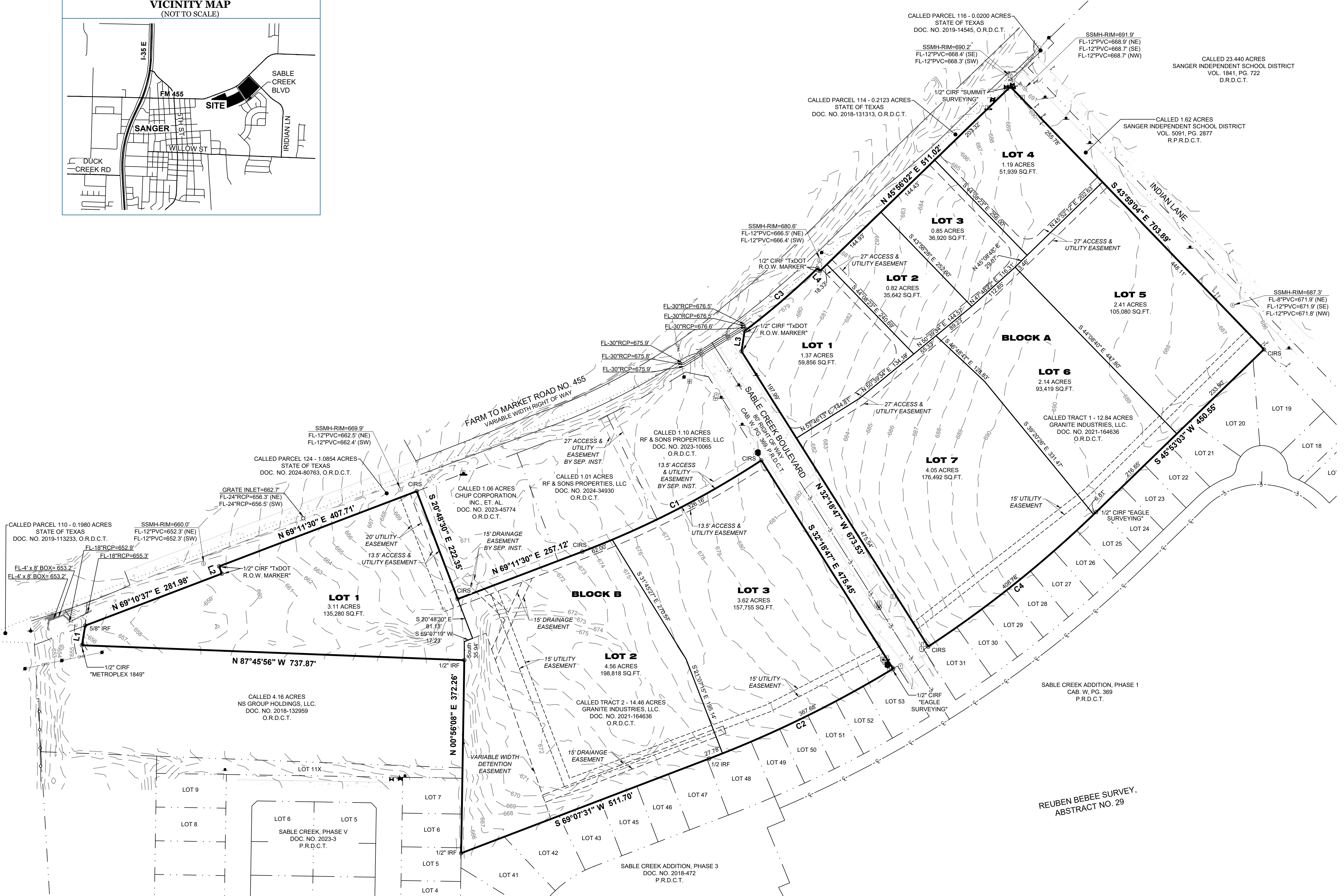
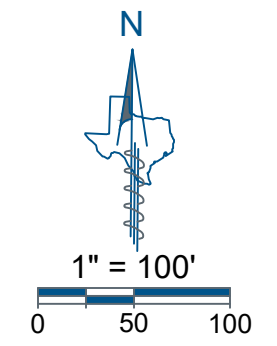
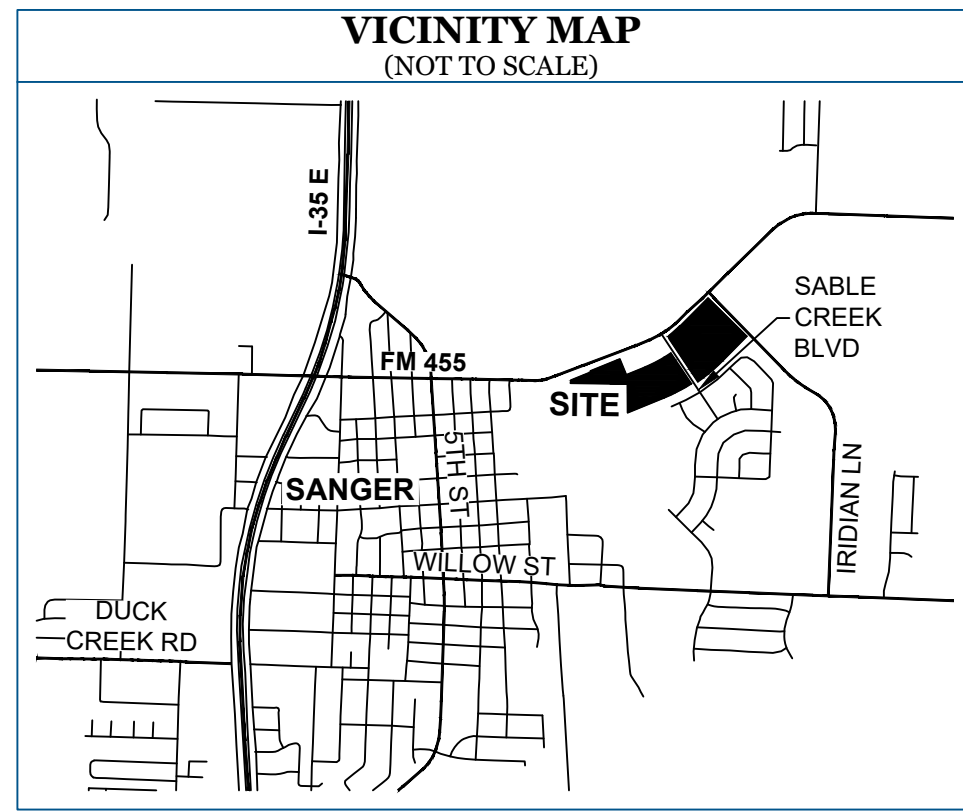
Issued Date: 11/12/2024
Project No: 240117

Drawn By: RP
Checked By: IN
Designed By: IN

Issue Record

Table with 3 columns: #, Description, Date. Contains one row with empty cells.

GENERAL NOTES



LINE TABLE			
LINE	BEARING	DISTANCE	
L1	N 05°25'57" E	38.34'	
L2	N 20°46'45" W	15.08'	
L3	N 08°36'41" E	39.69'	
L4	S 43°51'44" E	6.98'	

CURVE TABLE					
CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	388.16'	1787.35'	12°26'35"	N 62°58'21" E	387.40'
C2	395.46'	2196.52'	10°18'55"	S 63°57'43" W	394.92'
C3	185.39'	1565.00'	6°47'15"	N 49°20'03" E	185.29'
C4	415.59'	2196.52'	10°50'26"	S 51°17'41" W	414.97'

GENERAL NOTES

- The purpose of this plat is to create ten lots of record from unplatted land.
- This property is located in **Non-Shaded Zone "X"** as scaled from the F.E.M.A. Flood Insurance Rate Map dated April 18, 2011 and is located in Community Number 480786 as shown on Map Number 48121C0210G. The location of the Flood Zone is approximate, no vertical datum was collected at the time of the survey. For the exact Flood Zone designation, please contact 1-(877) FEMA MAP.
- The grid coordinates shown on this plat are based on GPS observations utilizing the AllTerra RTK Network. North American Datum of 1983 (Adjustment Realization 2011).
- Selling a portion of this addition by metes and bounds is a violation of City Ordinance and State Law, and is subject to fines and/or withholding of utilities and building permits.
- All interior property corners are marked with a 1/2-inch iron rod with a green plastic cap stamped "EAGLE SURVEYING" unless noted otherwise.
- The bearings shown on this plat are based on GPS observations utilizing the AllTerra RTK Network. North American Datum of 1983 (Adjustment Realization 2011).
- The elevations shown on this plat are based on GPS observations utilizing the AllTerra RTK Network. North American Vertical Datum of 1988, (Geoid 12A).
- Lot to lot drainage shall not be allowed.
- All lots comply with the minimum size requirements of the zoning district.
- This property may be subject to charges related to impact fees and the applicant should contact the city regarding any applicable fees due.
- All common areas, drainage easements, and detention facilities will be owned and maintained by the HOA/property owner. Any common area within the city's right-of-way will require a facilities agreement, to be reviewed and approved by the city.
- This plat does not alter or remove existing deed restriction, if any, on this property.

**PRELIMINARY PLAT
SANGER TOWN
CENTER SOUTH
LOTS 1-3, BLOCK A
LOTS 1-7, BLOCK B
24.13 ACRES**

REUBEN BEBEE SURVEY, ABSTRACT NUMBER 29
CITY OF SANGER, DENTON COUNTY, TEXAS

JOB NUMBER 1802.021-xx
DATE 11/12/2024
REVISION
DRAWN BY TAR

Eagle Surveying, LLC
222 South Elm Street
Suite: 200
Denton, TX 76201
940.222.3009
www.eaglesurveying.com
TX Firm # 10194177

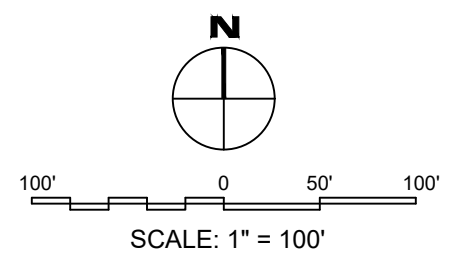
LEGEND

	Electric Box		Cable Riser		Telecommunications Riser
	Buried Cable Sign		Gas Meter		Telecommunications Vault
	Electric Vault		Buried Gas Utility Sign		Fiber Optic Utility Sign
	Electric Transformer		Gas Utility Mark		Telecommunications Utility Mark
	Guy Wire		Water Meter		Water Meter
	Power Pole		Sanitary Manhole		Fire Hydrant
	Light Pole		Gate Inlet		Boundary Monumentation
	Sign				

SURVEYOR
Eagle Surveying, LLC
222 S. Elm Street, Suite: 200
Denton, TX 76201
(940) 222-3009

ENGINEER
KJE
Contact: Ian Norfolk
500 Mosley Road
Cross Roads, TX 76227
(940) 387-0805

OWNER
Granite Industries, LLC
161 W 3rd Street, Suite 110
Prosper, TX 75078



GENERAL DEVELOPMENT NOTE:
ALL DEVELOPMENT SHOWN ON THE PLAN OUTSIDE OF THE FIRE LANE/ ACCESS PAVING AND UTILITIES TO EACH LOT IS SHOWN AS POSSIBLE COMMERCIAL DEVELOPMENT AND MAY NOT REPRESENT THE FINAL SITE LAYOUT FOR ANY GIVEN LOT. ALL DEVELOPMENT WILL COMPLY WITH CITY OF SANGER RULES AND REGULATIONS AND WILL BE SUBMITTED AS INDIVIDUAL DEVELOPMENT PLANS.

LEGEND - GRADING PLAN

- LOT BOUNDARY
- BUILDING
- DETENTION POND
- 580 PROPOSED MAJOR CONTOUR
- 583 PROPOSED MINOR CONTOUR
- TC TOP OF CURB
- TP TOP OF PAVING
- G GUTTER
- TS SIDEWALK
- TW TOP OF WALL
- BW BOTTOM OF WALL
- TG TOP OF GRATE
- ➔ FLOW ARROW

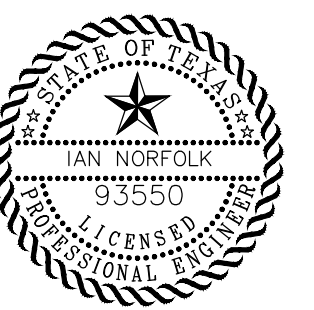
GRADING NOTES

- SITE SHALL BE GRADED TO ASSURE DRAINAGE OF SURFACE WATER AWAY FROM BUILDING.
- GRADES NOT OTHERWISE INDICATED ON THE PLANS SHALL BE UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE ELEVATIONS ARE GIVEN. ABRUPT CHANGES IN SLOPES SHALL BE WELL ROUNDED. THE CONTRACTOR IS RESPONSIBLE FOR POSITIVE SITE DRAINAGE.
- ACCESSIBLE ROUTES NOT TO EXCEED 5% RUNNING SLOPE AND 2% CROSS SLOPE. HANDICAP PARKING AND ACCESS AISLES NOT TO EXCEED 2% SLOPE IN ANY DIRECTION.
- GREASE TRAPS, MANHOLES, AND VALVE COVERS IN PAVED AREAS SHALL BE TRAFFIC BEARING AND RIM ELEVATIONS SHALL MATCH FINAL PAVING ELEVATION.
- ALL SITE EXCAVATION SHALL BE CONSIDERED UNCLASSIFIED EXCAVATION.
- THE GRADES AND CONTOURS SHOWN ON THIS PLAN REPRESENT THE ELEVATIONS AS INDICATED ON THE TOPOGRAPHIC SURVEY BY CROWLEY SURVEYING DATED 09/2022. DUE TO MANY FACTORS INCLUDING POSSIBLE DISTURBANCE OF THE SOIL OR BENCH MARKS BY OTHER PARTIES AND THE EXPANSION/SHRINKAGE NATURE OF THE SOIL, THE ELEVATIONS MAY BE SIGNIFICANTLY DIFFERENT IN THE FUTURE (INCLUDING THE BENCH MARKS). NORMAL EQUIPMENT AND MEASUREMENT ACCURACIES SHOULD BE TAKEN INTO ACCOUNT WHEN USING THESE ELEVATIONS.
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SOIL PREPARATION NOTES

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 - PERFORM ANY CUT OPERATIONS AS NEEDED AND PROOF ROLL THE PAVEMENT AREAS WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK. ANY AREAS WHICH RUT EXCESSIVELY OR PUMP SHALL BE UNDERCUT AND REPLACED WITH COMPACTED FILL.
 - PERFORM ALL FILL OPERATIONS. ALL FILL SHALL BE INSTALLED IN MAXIMUM 8-INCH LOOSE LIFTS AND COMPACTED TO BETWEEN 95% AND 100% OF STANDARD PROCTOR DENSITY AT A MOISTURE CONTENT AT OR ABOVE OPTIMUM.
 - DO NOT USE ANY SAND AS FILL UNDER THE PAVEMENT.
 - ANY IMPORTED FILL SHALL BE SIMILAR TO THE ON SITE SOILS AND APPROVED BY THE GEOTECHNICAL ENGINEER.
 - DENSITY AND MOISTURE CONTROL TESTS SHALL BE RUN PER EACH 5,000 SQUARE FEET.

PRELIMINARY
THIS DOCUMENT IS REFERRED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF IAN NORFOLK, P.E. 93550 ON 11/13/2024. IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



SANGER TOWN CENTER SOUTH
NOT FOR CONSTRUCTION
IN PROGRESS
FM 455 AND INDIAN LN
SANGER, TEXAS

Issued Date: 11/12/2024
Project No: 240117

Drawn By: RP
Checked By: IN
Designed By: IN

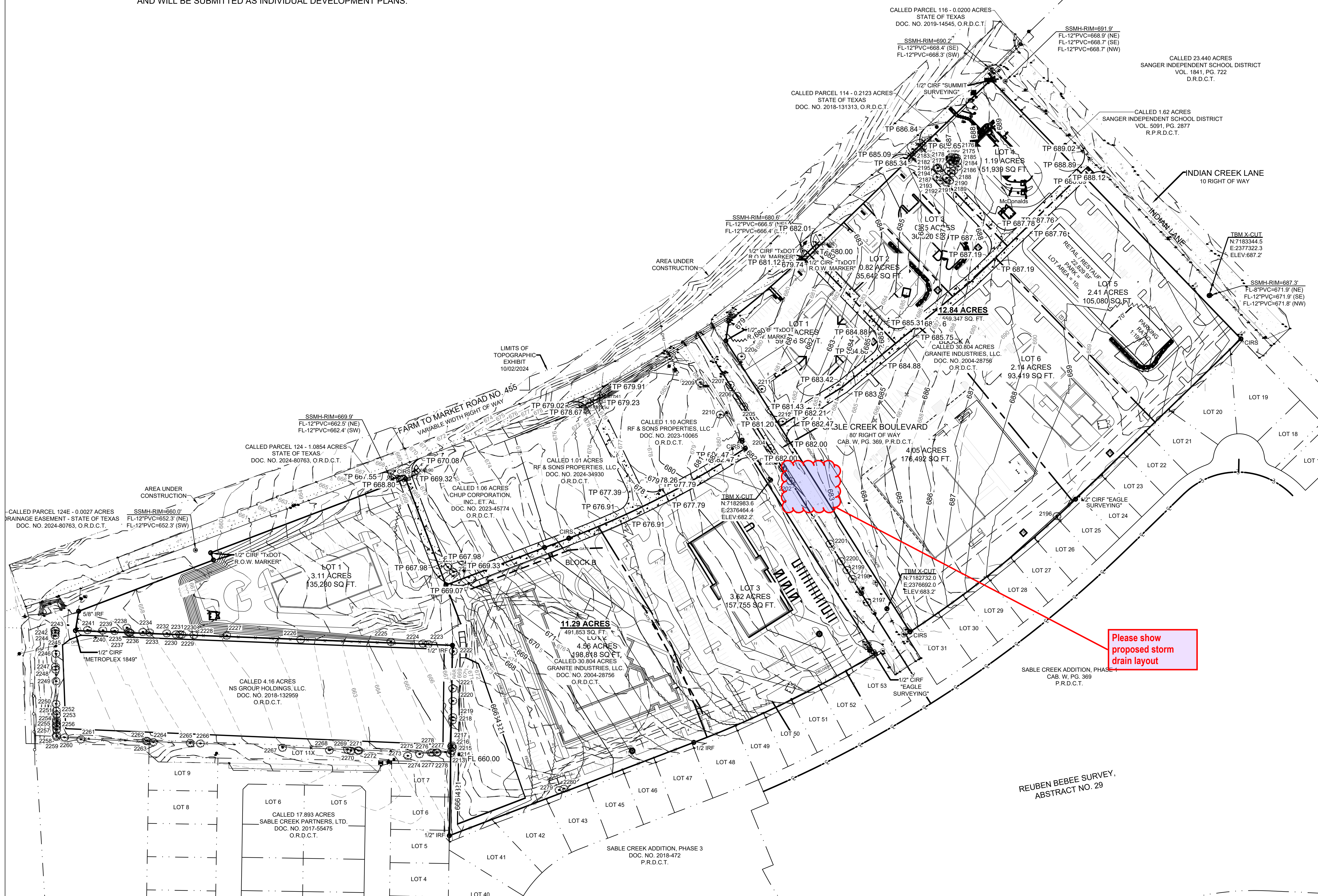
Issue Record

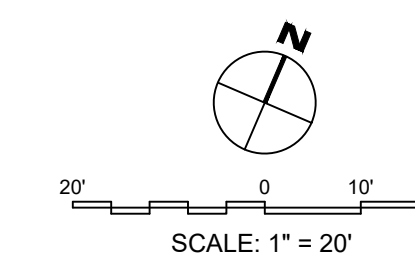
#	Description	Date

OVERALL GRADING PLAN

BENCHMARKS:

Benchmark	Elevation	Benchmark	Elevation	Benchmark	Elevation
TBM X-CUT N7182983.6	E:2376692.0	TBM X-CUT N7182732.0	E:2376692.0	TBM X-CUT N7182983.6	E:2376692.0
TBM X-CUT E2376692.0	ELEV:682.2	TBM X-CUT E2376692.0	ELEV:683.2	TBM X-CUT E2376692.0	ELEV:682.2





LEGEND - GRADING PLAN

- LOT BOUNDARY
- BUILDING
- DETENTION POND
- 580 PROPOSED MAJOR CONTOUR
- 583 PROPOSED MINOR CONTOUR
- TC TOP OF CURB
- TP TOP OF PAVING
- G GUTTER
- TS SIDEWALK
- TW TOP OF WALL
- BW BOTTOM OF WALL
- TG TOP OF GRATE
- FLOW ARROW

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BENCHMARKS:

Benchmark	N/E/ELEV	Benchmark	N/E/ELEV	Benchmark	N/E/ELEV
TBM X-CUT	N:7182393.6 E:2376464.4 ELEV:682.2'	TBM X-CUT	N:7182732.0 E:2376692.0 ELEV:683.2'	TBM X-CUT	N:7182983.6 E:2376464.4 ELEV:682.2'

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SANGER TOWN CENTER SOUTH
NOT FOR CONSTRUCTION IN PROGRESS
FM 455 AND INDIAN LN
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Issue Date: 11/12/2024
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Drawn By: RP
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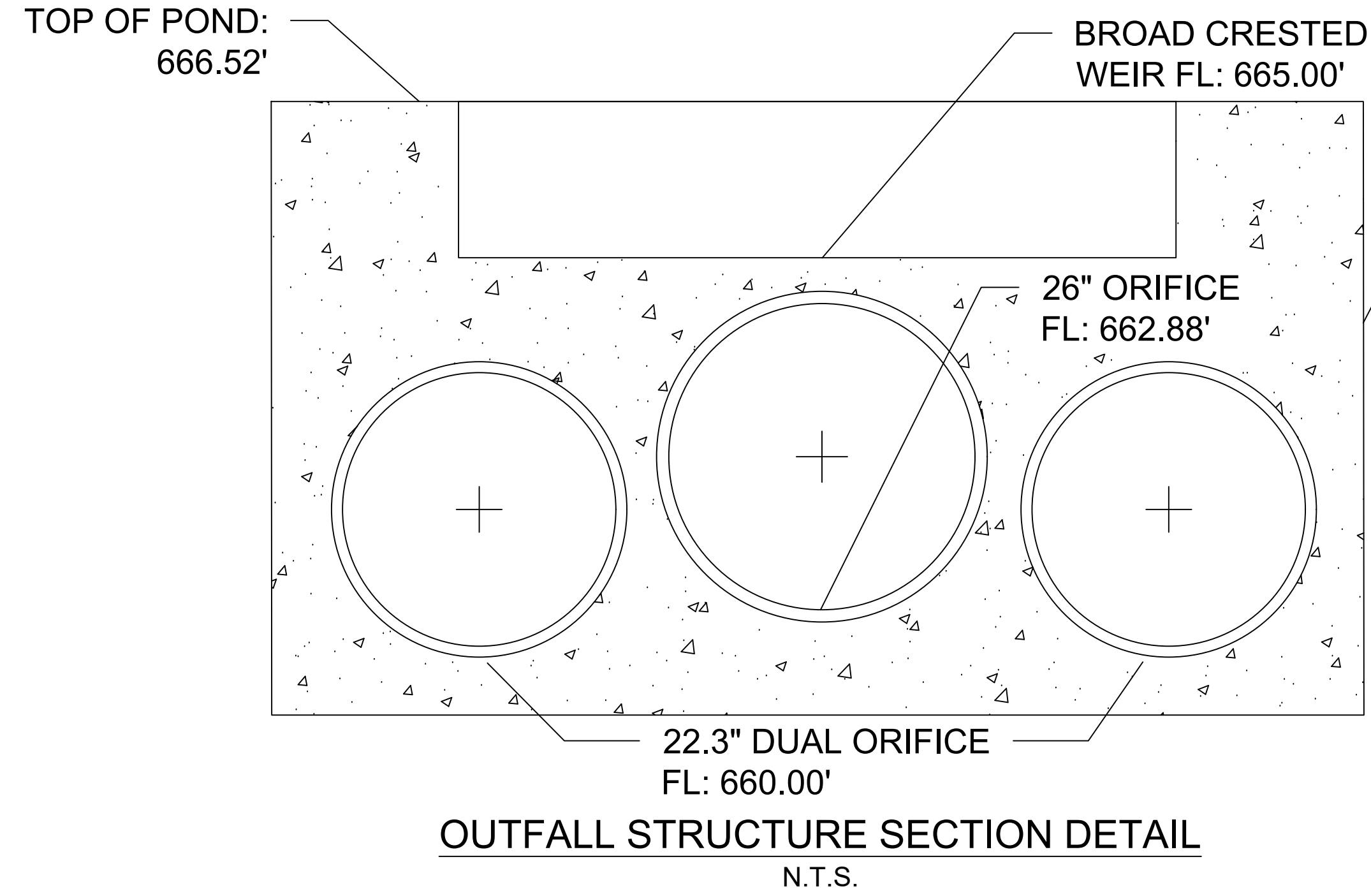
Issue Record		
#	Description	Date

DETENTION POND
GRADING

GENERAL DEVELOPMENT NOTE:
ALL DEVELOPMENT SHOWN ON THE PLAN OUTSIDE OF THE FIRE LANE/ ACCESS PAVING AND UTILITIES TO EACH LOT IS SHOWN AS POSSIBLE COMMERCIAL DEVELOPMENT AND MAY NOT REPRESENT THE FINAL SITE LAYOUT FOR ANY GIVEN LOT. ALL DEVELOPMENT WILL COMPLY WITH CITY OF SANGER RULES AND REGULATIONS AND WILL BE SUBMITTED AS INDIVIDUAL DEVELOPMENT PLANS.

Detention pond slopes look very steep and would impede maintenance to control weeds and discourage woody growth to observe ordinance § 10.106(d)(10)(H)

Sanger Town Center South Outfall Structure Calculations																			
Elevation (ft)	Depth (ft)	Pond Volume (ft³)	Dual Orifice - Q=0.6(A)(2gh) ^{1.5} D(in)= 22.3			Orifice - Q=0.6(A)(2gh) ^{1.5} D(in)= 26			Broad Crest Weir - Q=2.68LH ^{1.5} L(ft)= 2.6			Water Quality Discharge 24hr (cfs)	Proposed Flow with deterioration (cfs)	Allowable Flow (cfs)	Compare Flow (cfs)	Storm Event (yr)			
			FL=	660.00	ft	Orifice Dia. (in)	Head (ft)	Outflow Q (cfs)	FL=	662.88	ft						Orifice Dia. (in)	Head (ft)	Outflow Q (cfs)
660.00	0.00	0.00	22.28	0.00	0.00	25.50	0.00	0.00	2.61	0.00	0.00	0.00	0.00						
661.00	1.00	12.639	22.28	1.00	6.98	25.50	0.00	0.00	2.61	0.00	0.00	0.00	6.98						
662.00	2.00	31.723	22.28	2.00	26.99	25.50	0.00	0.00	2.61	0.00	0.00	0.00	26.99						
663.00	3.00	54.160	22.28	3.00	37.53	25.50	0.13	0.00	2.61	0.00	0.00	0.00	37.53						
663.13	3.13	57.359	22.28	3.13	38.70	25.50	0.26	0.00	2.61	0.00	0.00	0.00	38.70		38.72	-0.01		2	
664.00	4.00	78.389	22.28	4.00	45.70	25.50	1.13	4.27	2.61	0.00	0.00	0.00	45.70		49.86				
664.07	4.07	80.145	22.28	4.07	46.21	25.50	1.19	6.20	2.61	0.00	0.00	0.00	46.21		52.41	54.57	-2.16		10
664.63	4.63	94.212	22.28	4.63	50.13	25.50	1.75	14.17	2.61	0.00	0.00	0.00	50.13		64.30	64.31	-0.01		25
665.00	5.00	103.680	22.28	5.00	52.61	25.50	2.13	17.60	2.61	0.00	0.00	0.00	52.61		70.21				
665.04	5.04	104.713	22.28	5.04	52.87	25.50	2.16	17.93	2.61	0.04	0.06	0.06	52.87		70.45	71.91	-1.06		50
665.51	5.51	116.998	22.28	5.51	55.82	25.50	2.64	21.43	2.61	0.51	2.57	2.57	55.82		79.32	79.83	-0.01		100
666.00	6.00	129.657	22.28	6.00	58.72	25.50	3.13	24.52	2.61	1.00	6.99	6.99	58.72		90.24				

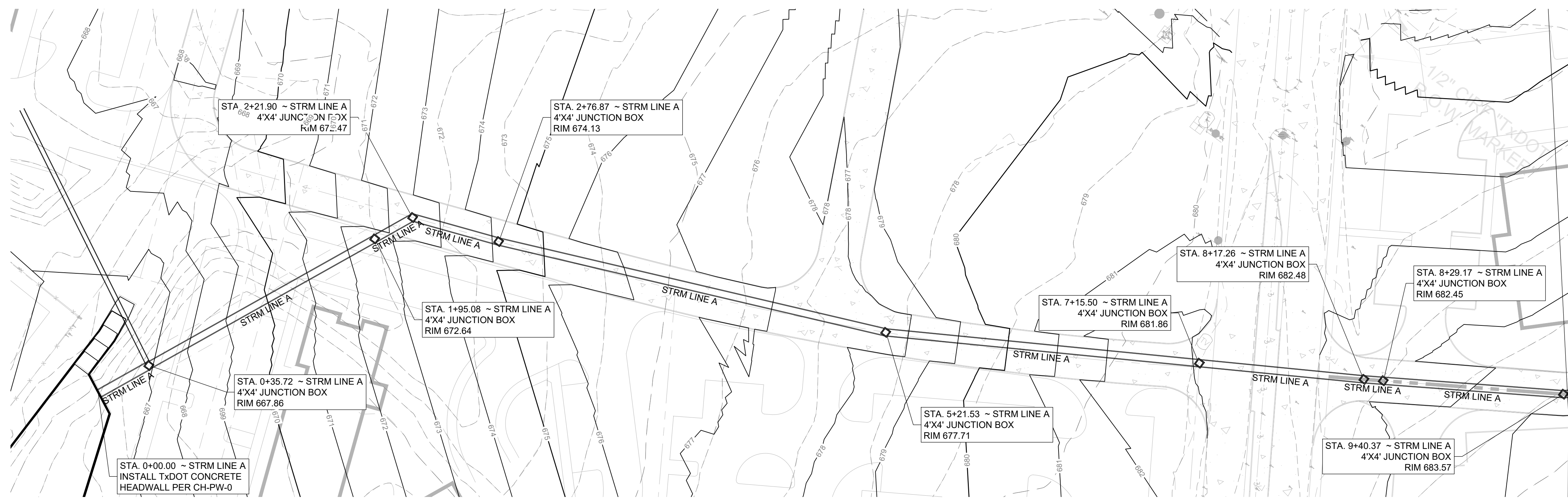
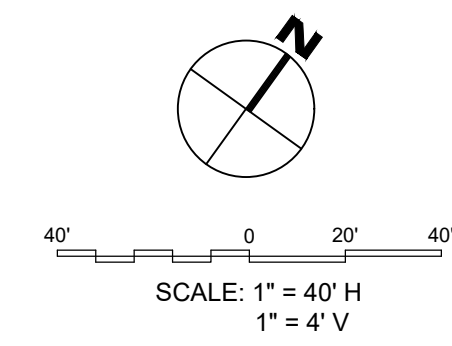


Ultimate Run-Off Volume - Frequency: 100 years						
Area:		27.3 acres	C _{factor} :		0.9	
D (min)	i (in/hr)	Q _{PR} (cfs)	V _r (cu-f)	Q _{allowable} (cfs)	V _s (cu-f)	
5	12.10	299.68	89902.61	79.83	65954	
10	9.67	239.49	143695.58	79.83	95798	
15	7.98	197.64	177873.43	79.83	106026	
20	7.16	177.33	212794.28	79.83	116998	
30	5.51	136.46	245634.74	79.83	101941	
Ultimate Run-Off Volume - Frequency: 50 years						
Area:		27.3 acres	C _{factor} :		0.9	
D (min)	i (in/hr)	Q _{PR} (cfs)	V _r (cu-f)	Q _{allowable} (cfs)	V _s (cu-f)	
5	10.80	267.48	80243.65	71.91	58672	
10	8.71	215.72	129430.04	71.91	86287	
15	7.17	177.58	159818.61	71.91	95104	
20	6.43	159.17	190999.71	71.91	104713	
30	4.94	122.35	220224.25	71.91	90794	
Ultimate Run-Off Volume - Frequency: 25 years						
Area:		27.3 acres	C _{factor} :		0.9	
D (min)	i (in/hr)	Q _{PR} (cfs)	V _r (cu-f)	Q _{allowable} (cfs)	V _s (cu-f)	
5	9.71	240.48	72144.99	64.31	52852	
10	7.79	192.93	115758.90	64.31	77173	
15	6.43	159.25	143324.08	64.31	85445	
20	5.77	142.82	171384.60	64.31	94212	
30	4.44	109.96	197934.35	64.31	82175	
Ultimate Run-Off Volume - Frequency: 10 years						
Area:		27.3 acres	C _{factor} :		0.9	
D (min)	i (in/hr)	Q _{PR} (cfs)	V _r (cu-f)	Q _{allowable} (cfs)	V _s (cu-f)	
5	8.24	204.08	61222.94	54.57	44852	
10	6.61	163.71	98224.18	54.57	65483	
15	5.46	135.23	121702.88	54.57	72591	
20	4.90	121.36	145627.37	54.57	80145	
30	3.78	93.62	168511.67	54.57	70287	
Ultimate Run-Off Volume - Frequency: 5 years						
Area:		27.3 acres	C _{factor} :		0.9	
D (min)	i (in/hr)	Q _{PR} (cfs)	V _r (cu-f)	Q _{allowable} (cfs)	V _s (cu-f)	
5	5.86	145.13	43539.61	38.72	31924	
10	4.69	116.16	69693.10	38.72	46462	
15	3.89	96.34	86707.73	38.72	51861	
20	3.49	86.52	103821.42	38.72	57359	
30	2.70	66.87	120365.48	38.72	50672	

DA Name	C		A	Tc	i ₁₀₀	Q (cfs)	
	EX.	PR.				EX. 100-yr	PR. 100-yr
TOTAL	0.3	0.9	27.3	10	9.67	79.83	239.49
DA Name	C		A	Tc	i ₅₀	Q (cfs)	
	EX.	PR.				EX. 50-yr	PR. 50-yr
TOTAL	0.3	0.9	27.3	10	8.71	71.91	215.72
DA Name	C		A	Tc	i ₂₅	Q (cfs)	
	EX.	PR.				EX. 25-yr	PR. 25-yr
TOTAL	0.3	0.9	27.3	10	7.79	64.31	192.93
DA Name	C		A	Tc	i ₁₀	Q (cfs)	
	EX.	PR.				EX. 10-yr	PR. 10-yr
TOTAL	0.3	0.9	27.3	10	6.61	54.57	163.71
DA Name	C		A	Tc	i ₂	Q (cfs)	
	EX.	PR.				EX. 10-yr	PR. 10-yr
TOTAL	0.3	0.9	27.3	10	4.69	38.72	116.16

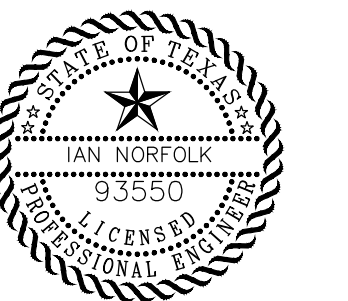
Update intensities and runoff coefficients to make City of Sanger Drainage and Storm sewer improvements ordinances (§ 10.106(d) Drainage and Storm Sewer Improvements)

SANGER TOWN CENTER SOUTH																																	
RUNOFF COLLECTION POINT (Inlet or Manhole)						INCREMENTAL DRAINAGE			INCOMING CA FROM WYE OR MH (LINK TO LATERALS)	ACCUMULATED "CA"	TIME AT UPSTREAM STATION (minutes)	DESIGN STORM FREQUENCY (yrs.)	INTENSITY "I" (in/hr)	STORM WATER RUNOFF "Q" (c.f.s.)	SLOPE OF HYDRAULIC GRADIENT "S"	# BARRELS	SELECTED STORM SEWER SIZE SPAN FOR RCB	RISE ONLY FOR RCB (feet)	VELOCITY IN SEWER BETWEEN COLLECTION POINTS "V" (ft/s)	STANDARD LOSS "K"	MINOR LOSS COEFF. "K"	VELOCITY HEAD (V²/2g) (feet)	FLOW TIME IN SEWER DISTANCE V x 60 (minutes)	HYDRAULIC GRADE					INLET TOP ELEVATION				
LINE/LAT	AREA	JUNCTIONS	AREA	UPSTREAM STATION	DOWNSTREAM STATION	BETWEEN COLLECTION POINTS	DRAINAGE AREA "A" (acres)	RUNOFF COEFF. "C"																INCREMENTAL "CA"	DS HYD. GRADE	FRICTION LOSSES	HYD. GRADE AFTER FRICTION LOSS	JUNCTION LOSSES		MINOR LOSSES	HYD. GRADE AFTER HYD. JUMP		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
													10.00	100.00	TABLE		0.01							12.00									
LINE	A	INLET	A-13	1515.13	1455.01	60.12	2.40	0.90	2.16	2.16	10.00	100.00	9.67	20.89	0.00	1.00	30.00				4.26	1.50	0.28	0.24	676.32	0.13	676.46	0.00	0.42	676.88	688.32		
		BEND 45°		1455.01	1389.35	65.66			2.16	2.16	10.24	100.00	9.59	20.71	0.00	1.00	30.00				4.22	0.35	0.28	0.26	676.08	0.14	676.23	0.00	0.10	676.32	688.32		
		MH 0°	A-8	1389.35	1219.23	170.12	1.19	0.90	1.07	3.23	10.49	100.00	9.49	30.67	0.00	1.00	36.00				4.34	0.50	0.29	0.65	675.63	0.31	675.94	0.00	0.15	676.08	688.00		
		MH 0°	A-7	1219.23	1146.95	72.28	0.85	0.90	0.77	4.00	11.15	100.00	9.26	37.01	0.00	1.00	36.00				5.24	0.50	0.43	0.23	675.23	0.19	675.42	0.00	0.21	675.63	687.03		
		MH 0°	A-12	1146.95	1091.24	55.71	2.06	0.90	1.85	5.85	11.38	100.00	9.18	53.70	0.00	1.00	48.00				4.27	0.50	0.28	0.22	675.02	0.07	675.09	0.00	0.14	675.23	686.49		
		MH 0°	A-6	1091.24	940.48	150.76	0.82	0.90	0.74	6.59	11.60	100.00	9.10	59.96	0.00	1.00	48.00				4.77	0.50	0.35	0.53	674.62	0.22	674.84	0.00	0.18	675.02	686.04		
		BEND 30°		940.48	829.27	111.21			6.59	6.59	12.12	100.00	8.91	58.73	0.00	1.00	48.00				4.67	0.25	0.34	0.40	674.38	0.16	674.54	0.00	0.08	674.62	684.88		
		WYE 45°	A-11	829.27	817.36	11.91	4.16	0.90	3.74	10.33	12.52	100.00	8.77	90.65	0.00	1.00	48.00				7.21		0.81	0.03	674.34	0.04	674.38	0.00	0.00	674.38	682.75		
		MH 0°	A-5	817.36	715.62	101.74	1.37	0.90	1.23	11.57	12.55	100.00	8.76	101.35	0.00	1.00	48.00				8.07	0.50	1.01	0.21	673.40	0.43	673.83	0.00	0.51	674.34	682.52		
		MH 0°		715.62	521.53	194.09			11.57	11.57	12.76	100.00	8.69	100.48	0.00	1.00	48.00				8.00	0.50	0.99	0.40	672.09	0.81	672.90	0.00	0.50	673.40	680.41		
		MH 0°	A-4+A-10.1	521.53	276.87	244.66	3.75	0.90	3.38	14.94	13.16	100.00	8.54	127.66	0.01	1.00	48.00				10.16	0.50	1.60	0.40	669.64	1.65	671.29	0.00	0.80	672.09	677.61		
		MH 0°	A-3	276.87	221.90	54.97	1.01	0.90	0.91	15.85	13.56	100.00	8.40	133.16	0.01	1.00	48.00				10.60	0.50	1.74	0.09	668.37	0.40	668.77	0.00	0.87	669.64	674.13		
		MH 45°		221.90	195.08	26.82			15.85	15.85	13.65	100.00	8.37	132.67	0.01	1.00	48.00				10.56	0.50	1.73	0.04	667.31	0.19	667.50	0.00	0.87	668.37	672.48		
		WYE 60°	A-2	195.08	35.72	159.36	1.06	0.90	0.95	16.80	13.69	100.00	8.36	140.40	0.01	1.00	48.00				11.17		1.94	0.24	666.01	1.30	667.31	0.00	0.00	667.31	669.46		
		MH 0°	A-1	35.72		35.72	3.08	0.90	2.77	19.58	13.93	100.00	8.27	161.91	0.01	1.00	54.00				10.18	0.50	1.61	0.06	665.00	0.21	665.21	0.00	0.81	666.01	666.75		
LINE	B	INLET	A-10.2	382.10		382.10	0.98	0.90	0.88	0.88	10.00	100.00	9.67	8.53	0.01	1.00	18.00				4.83	1.50	0.36	1.32	665.00	2.15	667.1						

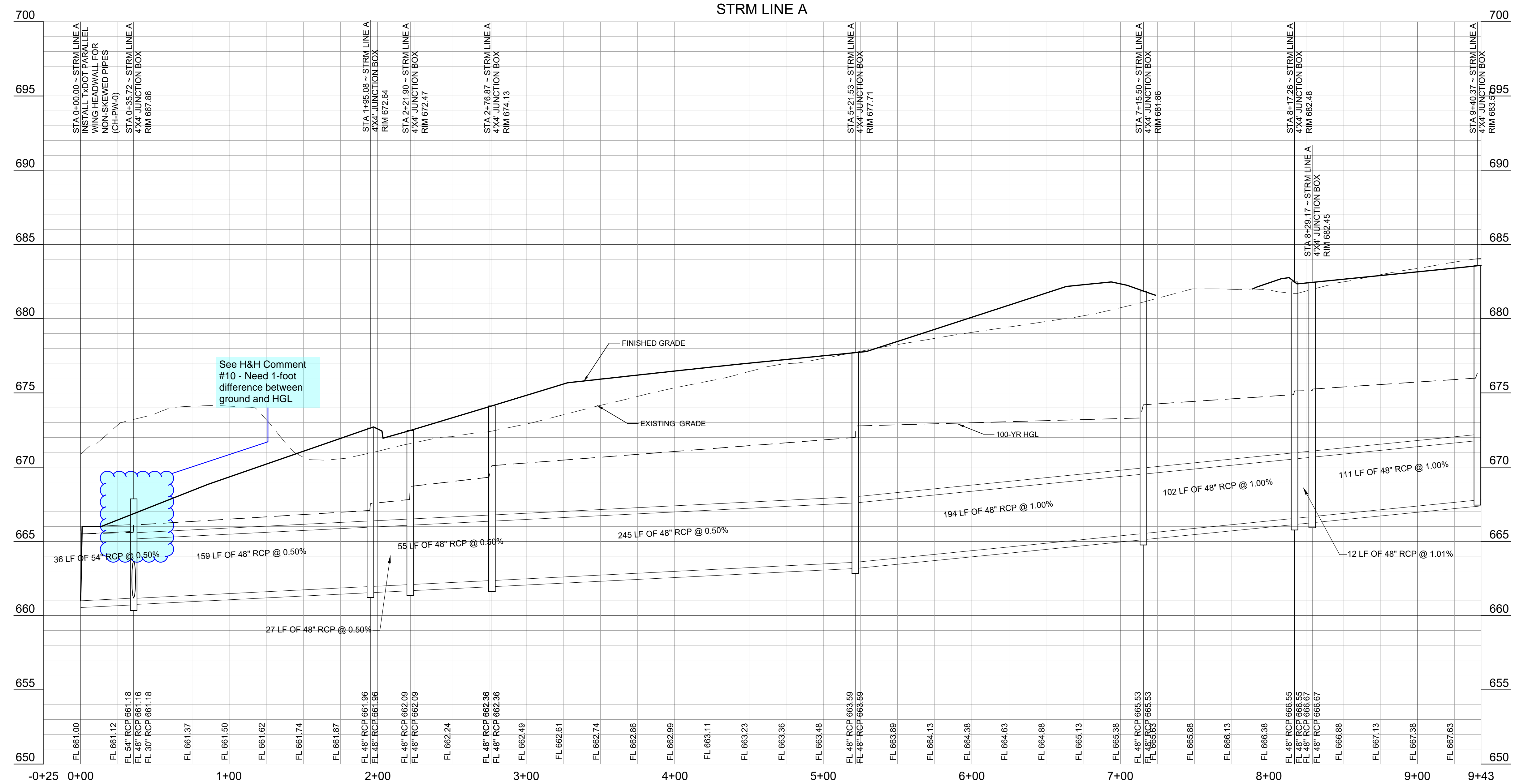


MATCHLINE ~ STA 9+43 SEE SHEET C4.04

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STRM LINE A



See H&H Comment #10 - Need 1-foot difference between ground and HGL

BENCHMARKS:

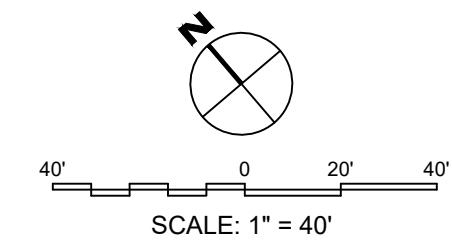
TBM X-CUT N:7162293.6 E:2376464.4 ELEV:682.2'	TBM X-CUT N:7162732.0 E:2376692.0 ELEV:683.2'	TBM X-CUT N:7162983.6 E:2376464.4 ELEV:682.2'
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SANGER TOWN CENTER SOUTH
NOT FOR CONSTRUCTION
IN PROGRESS
 FM 455 AND INDIAN LN
 SANGER, TEXAS

Issue Date:	11/12/2024
Project No:	240117
Drawn By:	RP
Checked By:	IN
Designed By:	IN

Issue Record		
#	Description	Date

STORM LINE A PLAN & PROFILE STA. 0+00 TO STA. 9+43



LEGEND - UTILITY PLAN

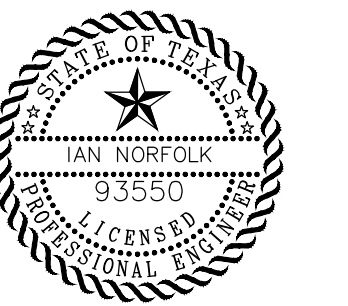
- SITE BOUNDARY
- - - - PROPOSED EASEMENT
- - - - BUILDING SETBACK
- PROPOSED WATER LINE
- PROPOSED FIRE HYDRANT
- T PROPOSED VALVE
- WM PROPOSED WATER METER
- PROPOSED SANITARY SEWER LINE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED CLEANOUT

SITE UTILITY NOTES

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES, WHETHER PRIVATE OR PUBLIC, PRIOR TO EXCAVATING. THE INFORMATION AND DATA SHOWN WITH RESPECT TO EXISTING UNDERGROUND FACILITIES AT OR CONTIGUOUS TO THE SITE IS APPROXIMATE AND BASED ON THE INFORMATION AND DATA FURNISHED BY THE OWNERS OF SUCH UNDERGROUND FACILITIES OR ON PHYSICAL APPEARANCES OBSERVED IN THE FIELD. THE OWNER AND ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ANY SUCH INFORMATION OR DATA, AND THE CONTRACTOR SHALL HAVE FULL RESPONSIBILITY FOR REVIEWING AND CHECKING ALL SUCH INFORMATION AND DATA, FOR LOCATING ALL UNDERGROUND FACILITIES, FOR COORDINATION OF THE WORK WITH THE OWNERS OF SUCH UNDERGROUND FACILITIES DURING CONSTRUCTION, FOR THE SAFETY AND PROTECTION THEREOF, AND REPAIRING ANY DAMAGE THERETO RESULTING FROM THE WORK, THE COST OF ALL OF WHICH WILL BE CONSIDERED AS HAVING BEEN INCLUDED IN THE CONTRACT PRICE. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATIONS OF EXISTING UTILITIES PRIOR TO CONSTRUCTION AND IS RESPONSIBLE FOR COSTS INCURRED BY PROCEEDING WITH ELEVATIONS OF EXISTING UTILITIES THAT DIFFER FROM THOSE PRESENTED ON THESE PLANS. DISCREPANCIES SHALL BE PRESENTED TO THE ENGINEER FOR REVIEW PRIOR TO PROCEEDING WITH WORK. CONTRACTOR SHALL NOTIFY ANY AFFECTED UTILITY COMPANIES, AGENCIES AND ENGINEER AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
- ALL UTILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF _____ PUBLIC WORKS SPECIFICATIONS.
- THE SITE UTILITY CONTRACTOR SHALL PROVIDE ALL THE MATERIALS AND APPURTENANCES NECESSARY FOR THE COMPLETE INSTALLATION OF THE UTILITIES. ALL PIPE AND FITTINGS SHALL BE INSPECTED BY THE CITY INSPECTOR PRIOR TO BEING COVERED.
- ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES, REGULATIONS, AND/OR LOCAL STANDARDS AND REQUIREMENTS.
- THE SITE UTILITY CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE CITY OF GAINESVILLE FOR THE CONNECTIONS TO THE EXISTING WATER AND WASTEWATER MAINS.
- THE CONTRACTOR SHALL ADJUST THE LOCATION OF THE PROPOSED WATER LINES AS REQUIRED TO AVOID CONFLICTS WITH THE OTHER UTILITIES.
- THRUST BLOCKS SHALL BE PROVIDED AT ALL TEES, ELBOWS AND BENDS, AND WILL BE OF SUFFICIENT SIZE TO COMPLY WITH CITY STANDARDS FOR EXISTING SOIL CONDITIONS.
- ALL FIRE PROTECTION MATERIALS SHALL BE U.L. LISTED, FACTORY MUTUAL APPROVED, AND TO NFPA STANDARDS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- MATCH TOPS OF ALL MANHOLES AND VAULTS WITH PROPOSED GROUND ELEVATIONS.
- ALL FILL MATERIAL IS TO BE IN PLACE AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.
- WATER & SANITARY SEWER UTILITIES SHALL BE KEPT TEN FEET (10') APART (PARALLEL) OR, WHEN CROSSING PROVIDE 24" VERTICAL CLEARANCE (OUTSIDE EDGE OF PIPE TO OUTSIDE EDGE OF PIPE, UNLESS OTHERWISE NOTED.)
- UNDERGROUND LINES SHALL BE INSTALLED, INSPECTED AND APPROVED BEFORE BACKFILLING.
- TOPS OF EXISTING MANHOLES SHALL BE RAISED AS NECESSARY TO BE FLUSH WITH PROPOSED PAVEMENT ELEVATIONS, AND ARE TO BE ONE FOOT ABOVE FINISHED GROUND ELEVATIONS WITH WATER TIGHT LIDS.
- ALL CONCRETE FOR ENCASEMENT SHALL HAVE A MINIMUM 28-DAY COMPRESSION STRENGTH OF 3000 P.S.I.
- CONTRACTOR SHALL MAINTAIN A MINIMUM OF 48" COVER BELOW FINISHED GRADE TO TOP OF ALL WATERLINES.
- ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE IN POSSESSION BEFORE THE FINAL CONNECTION OF SERVICE.
- CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS.
- ACTUAL ROUTING OF ELECTRICAL SERVICE FROM THE EXISTING TRANSFORMER IS TO BE COORDINATED WITH THE ELECTRICAL UTILITY.
- ACTUAL ROUTING OF GAS SERVICE FROM THE EXISTING GAS LINE TO THE TERMINUS POINT TO THE BUILDING IS TO BE COORDINATED WITH THE GAS UTILITY.
- ACTUAL ROUTING OF TELEPHONE SERVICE FROM THE EXISTING TELEPHONE LINE TO THE BUILDING IS TO BE COORDINATED WITH THE TELEPHONE UTILITY.
- IN THE EVENT OF VERTICAL CONFLICT BETWEEN WATERLINES, SANITARY LINES, STORM LINES AND GAS LINES (EXISTING AND PROPOSED), THE SANITARY LINE SHALL BE DUCTILE IRON PIPE WITH MECHANICAL JOINTS AT LEAST 10 FEET ON BOTH SIDES OF CROSSING, THE WATERLINE SHALL HAVE MECHANICAL JOINTS WITH APPROPRIATE THRUST BLOCKING AS REQUIRED TO PROVIDE A MINIMUM OF 24" CLEARANCE. MEETING REQUIREMENTS OF ANSI A21.10 OR A21.11 (AWWA C-151) (CLASS 50).
- CONTRACTOR SHALL COORDINATE ALL UTILITY POLE RELOCATIONS WITH THE APPROPRIATE UTILITY COMPANY.
- CONTRACTOR SHALL COORDINATE WITH THE CITY FIRE MARSHAL TO PROVIDE ANY ADDITIONAL FIRE SAFETY FEATURES, INCLUDING FIRE HYDRANTS, NOT SHOWN AND NOTIFY ENGINEER OF CHANGES.

PRELIMINARY

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**SANGER TOWN CENTER SOUTH
NOT FOR CONSTRUCTION
IN PROGRESS**
FM 455 AND INDIAN LN
SANGER, TEXAS

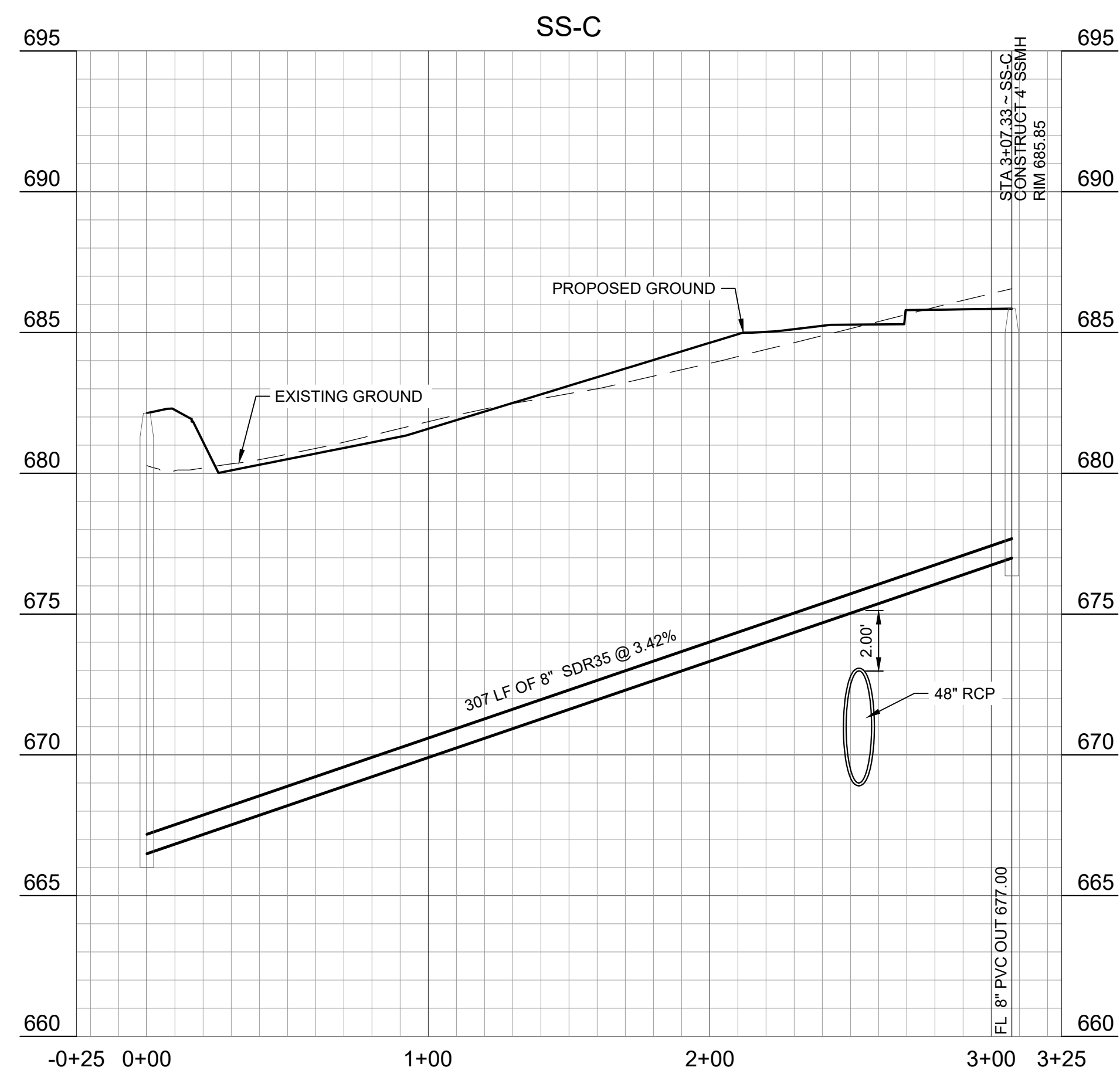
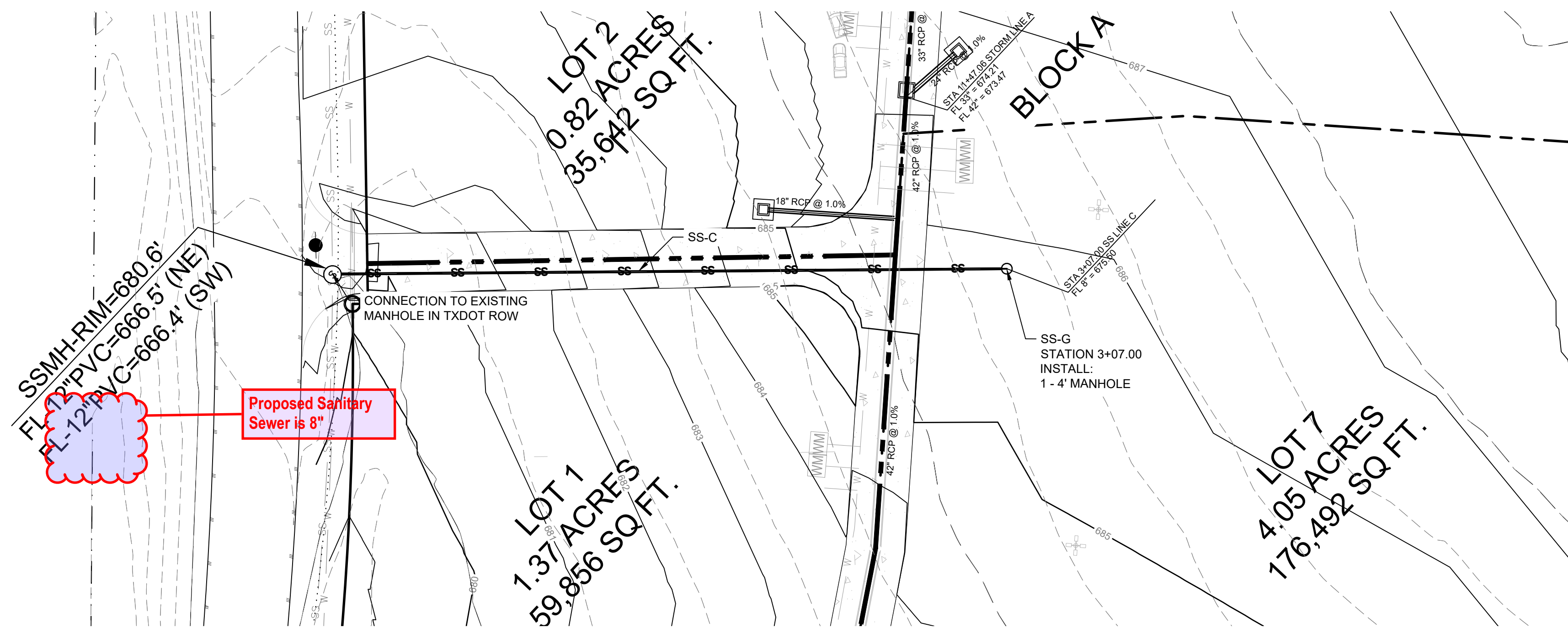
Issued Date: 11/12/2024
Project No: 240117

Drawn By: RP
Checked By: IN
Designed By: IN

Issue Record

#	Description	Date

**SANITARY SEWER
LINE SS-D**



BENCHMARKS:

Benchmark	N	E	ELEV
TBM X-CUT	N 7182983.6	N 7182732.0	N 7182983.6
TBM X-CUT	E 2376692.0	E 2376692.0	E 2376692.0
TBM X-CUT	E 2376684.4	E 2376684.4	E 2376684.4

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FM 455 AND INDIAN LN
SANGER, TEXAS

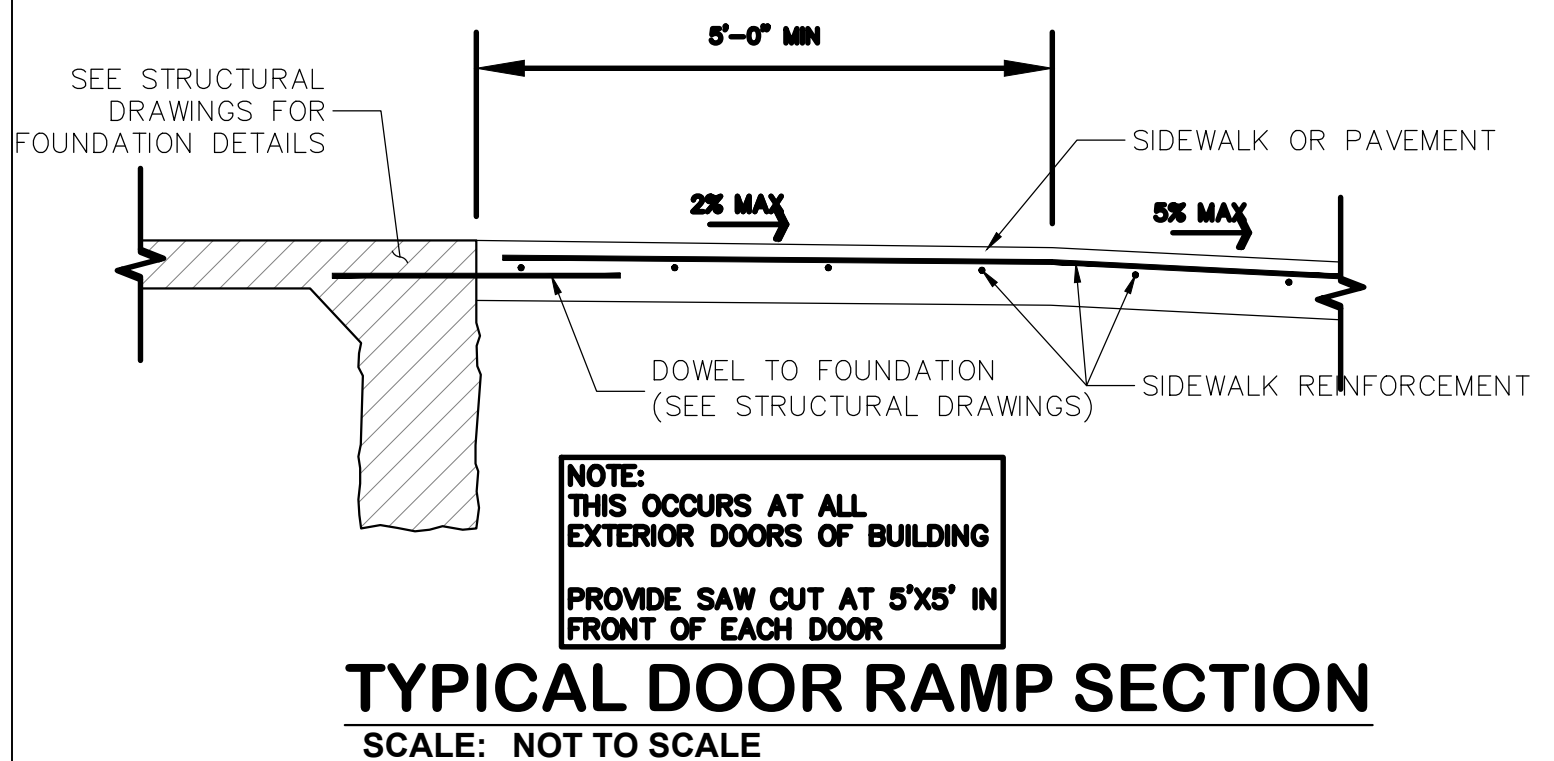
Issued Date: 11/12/2024
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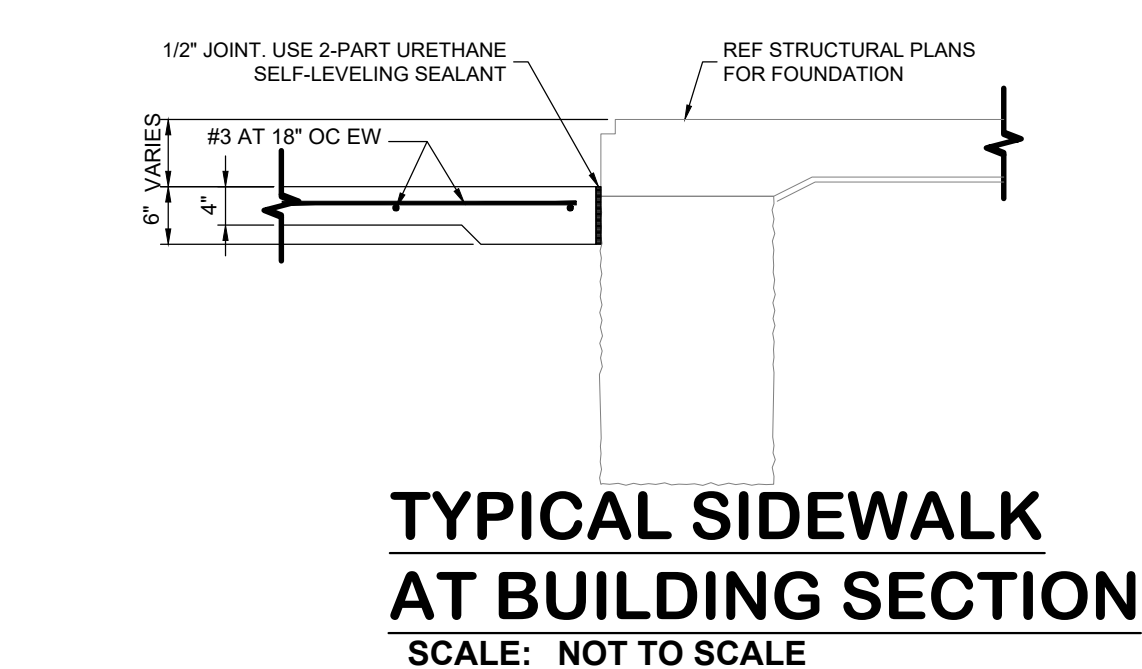
Issue Record

#	Description	Date

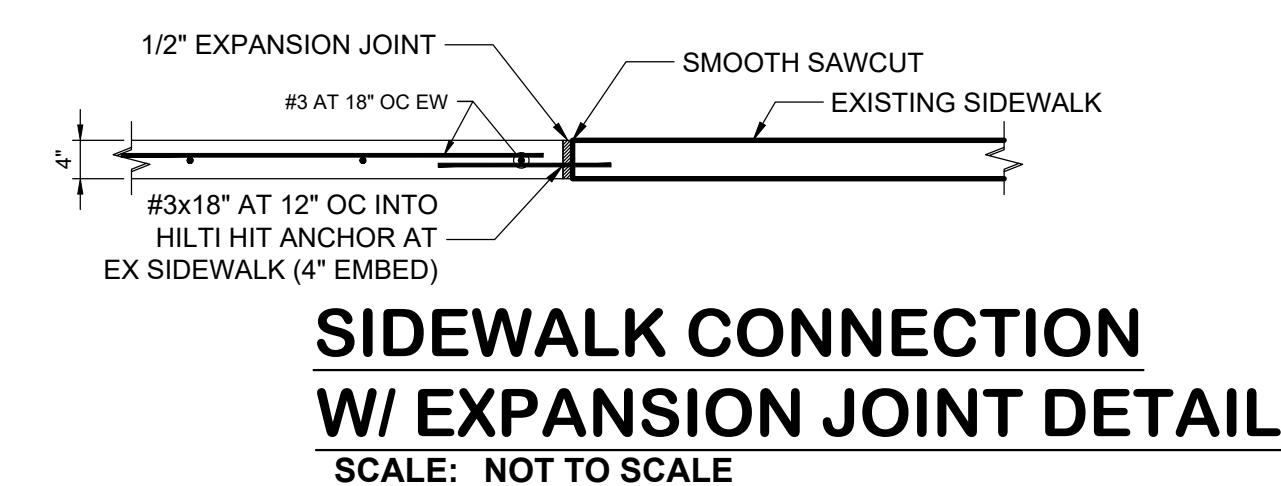
GENERAL DETAILS I



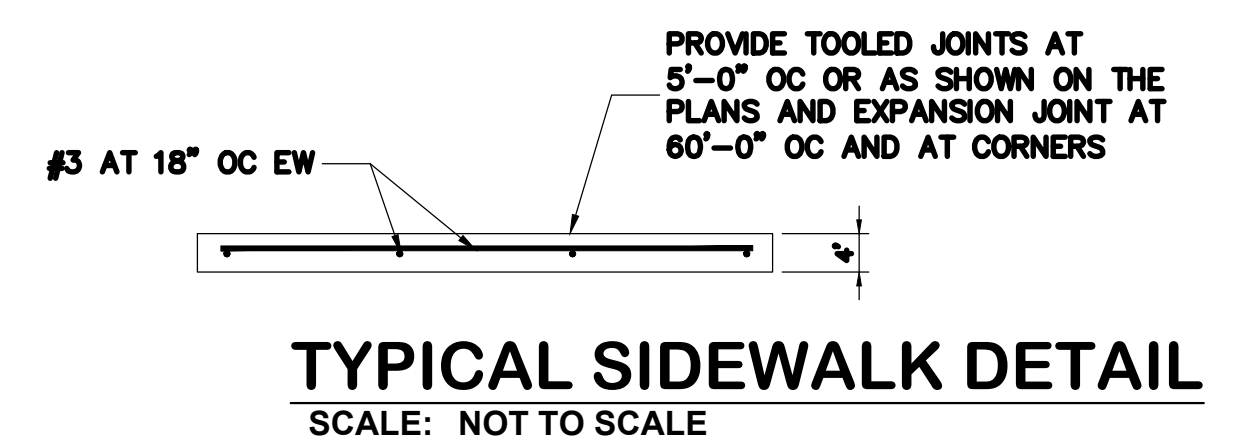
TYPICAL DOOR RAMP SECTION
SCALE: NOT TO SCALE



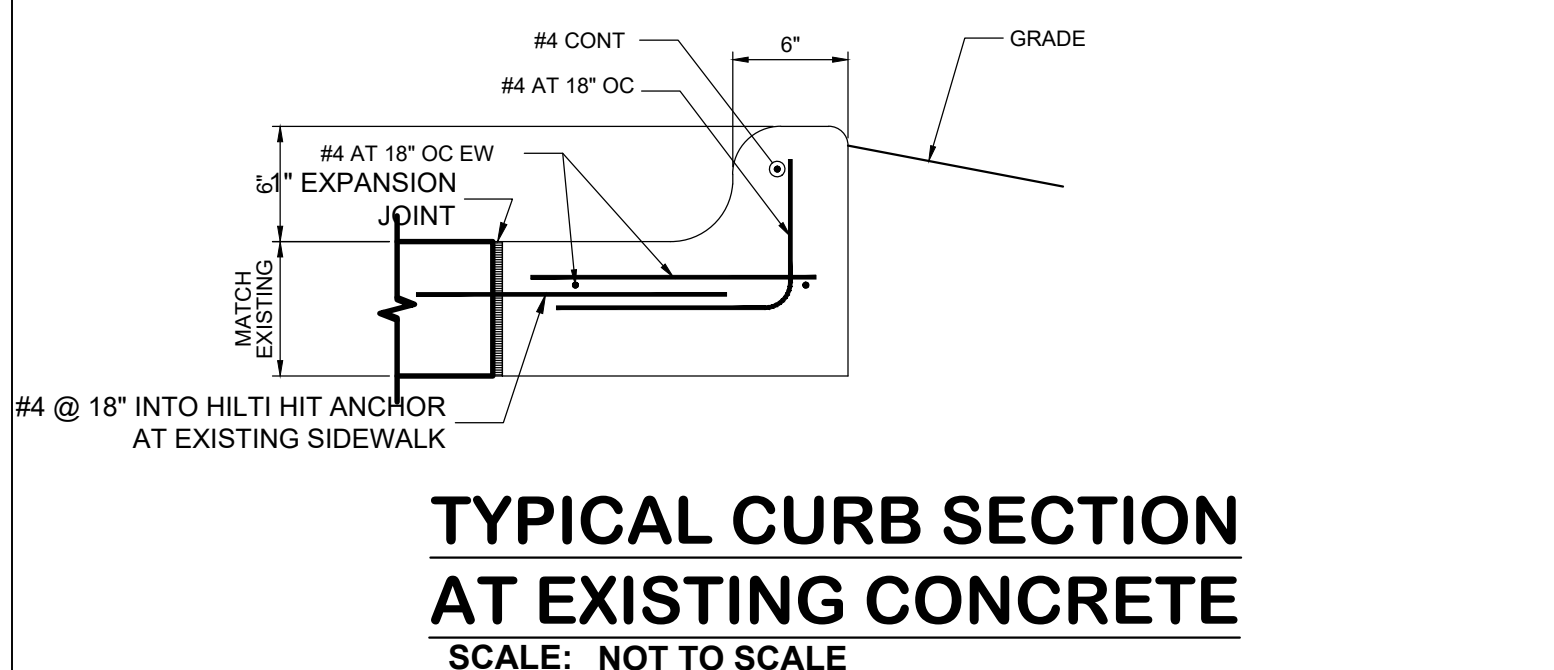
TYPICAL SIDEWALK
AT BUILDING SECTION
SCALE: NOT TO SCALE



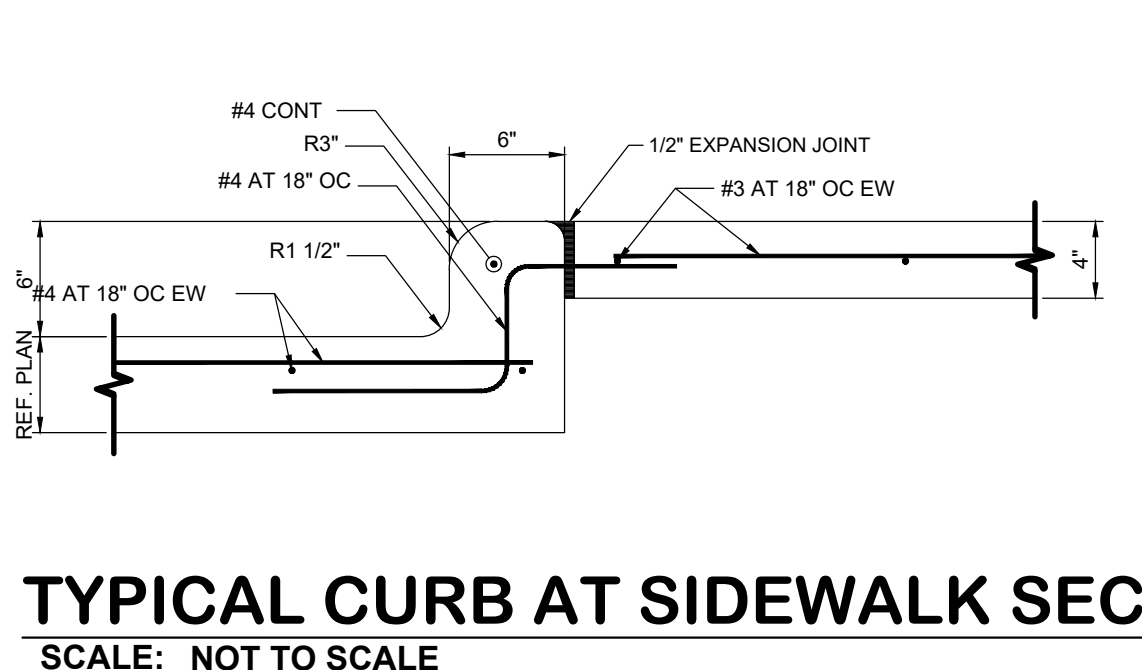
SIDEWALK CONNECTION
W/ EXPANSION JOINT DETAIL
SCALE: NOT TO SCALE



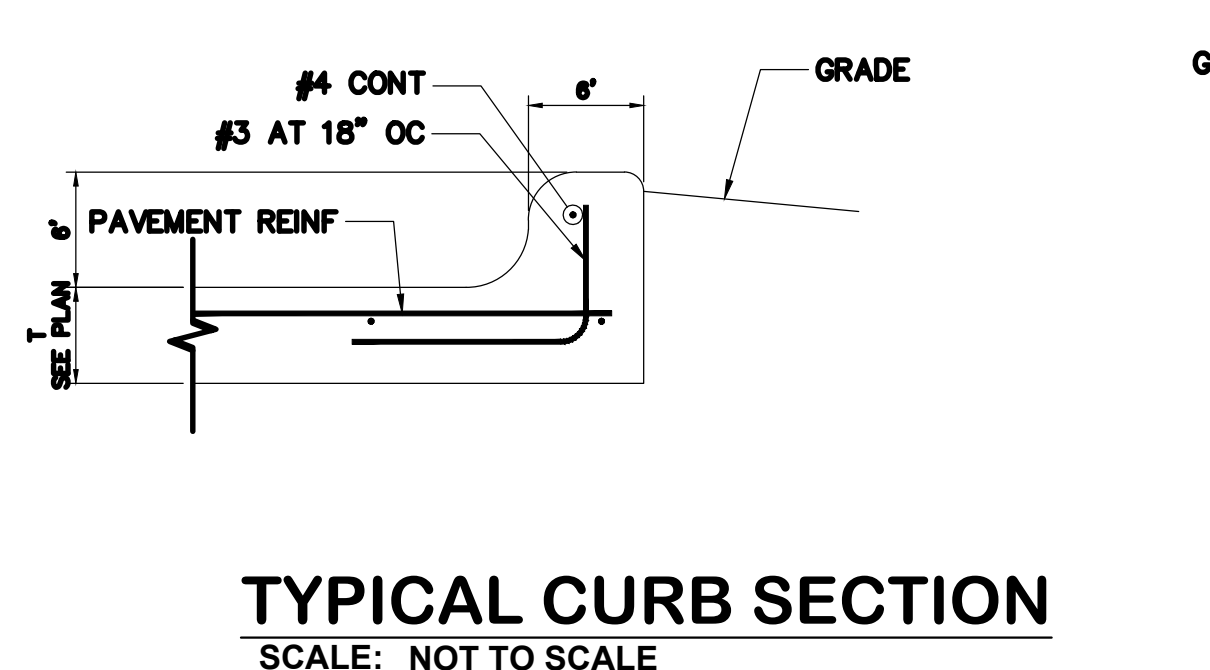
TYPICAL SIDEWALK DETAIL
SCALE: NOT TO SCALE



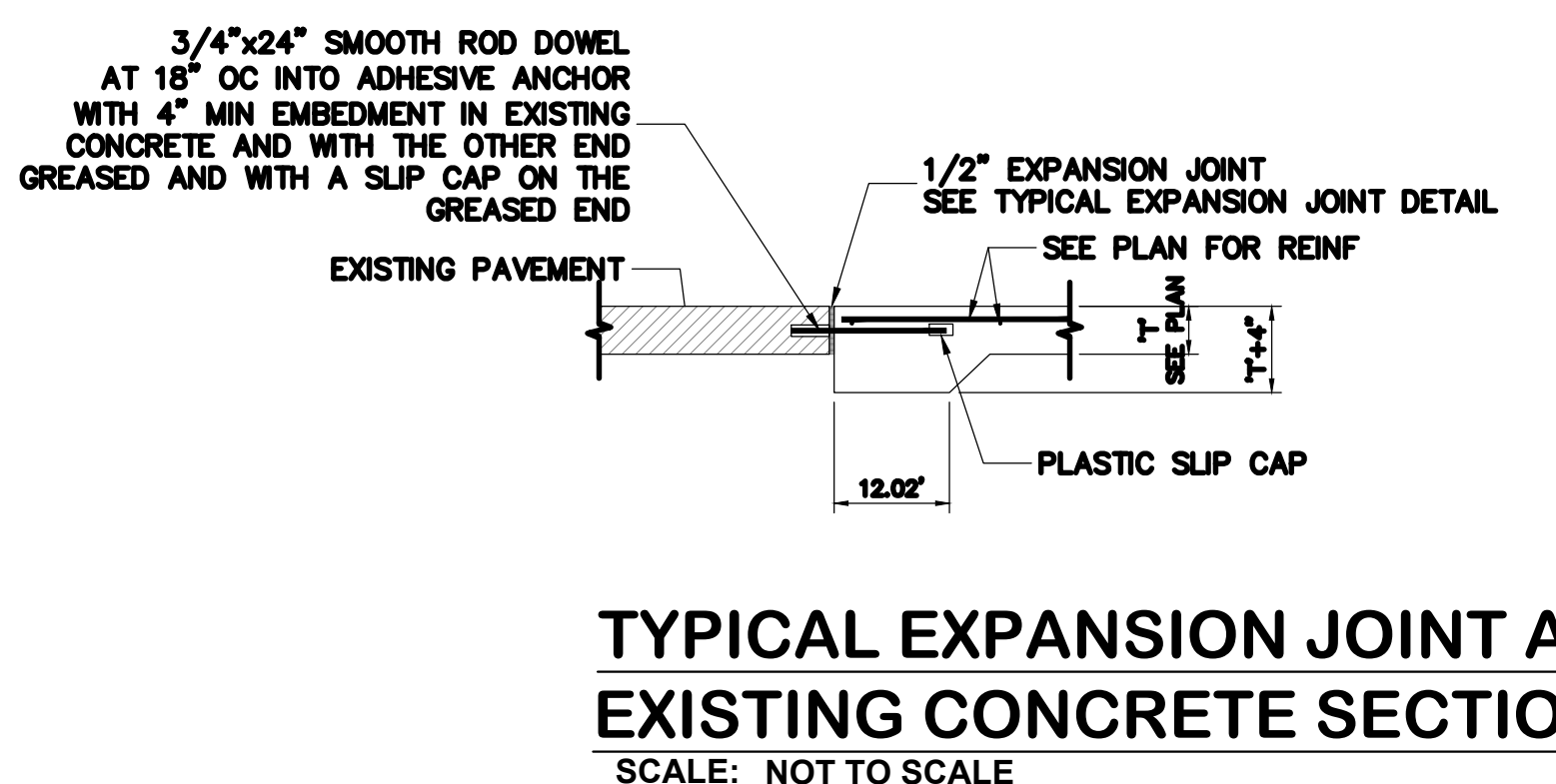
TYPICAL CURB SECTION
AT EXISTING CONCRETE
SCALE: NOT TO SCALE



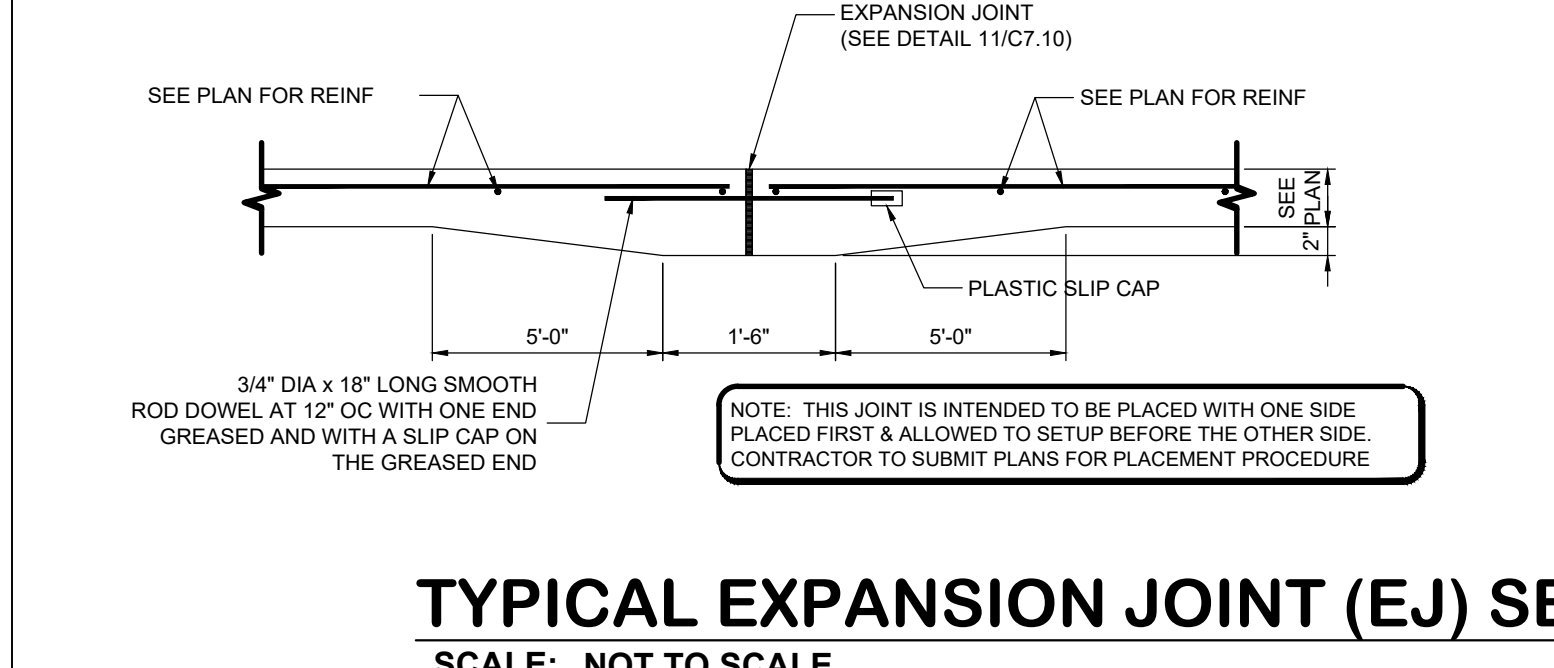
TYPICAL CURB AT SIDEWALK SECTION
SCALE: NOT TO SCALE



TYPICAL CURB SECTION
SCALE: NOT TO SCALE



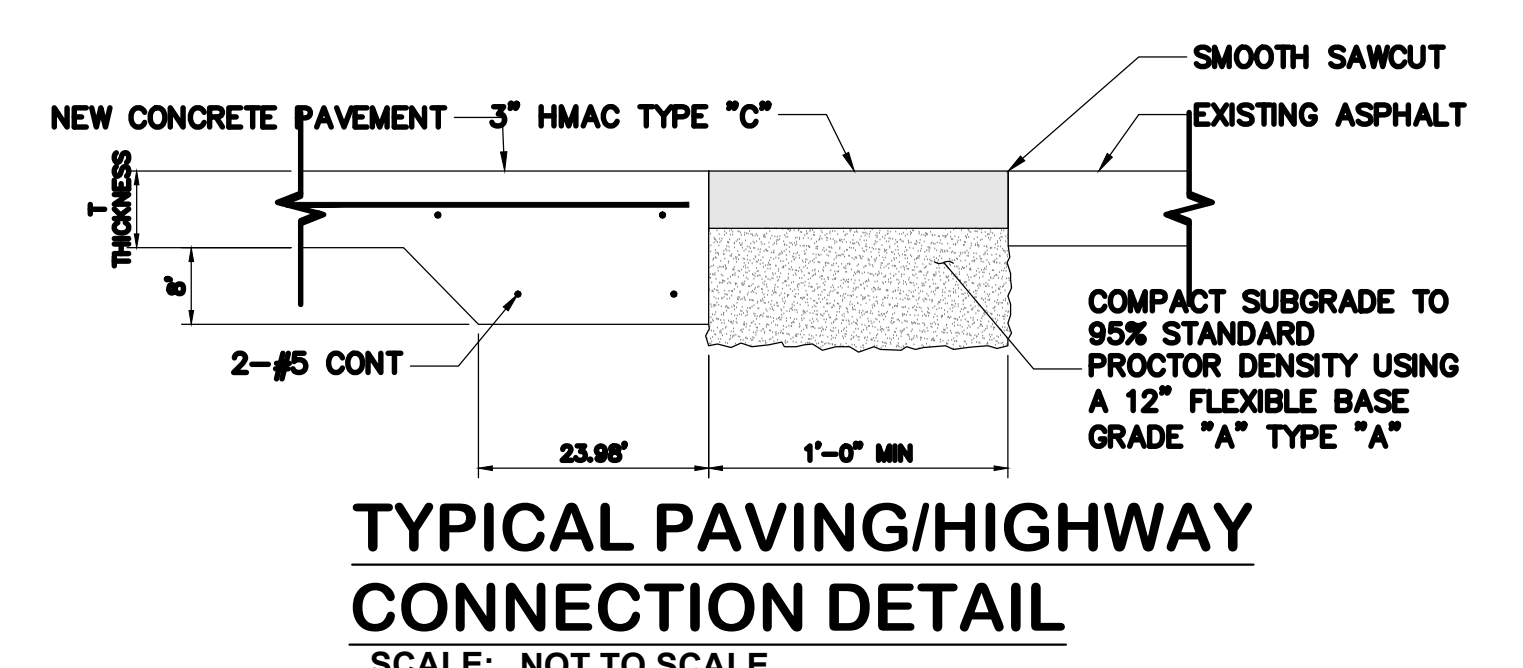
TYPICAL EXPANSION JOINT AT
EXISTING CONCRETE SECTION
SCALE: NOT TO SCALE



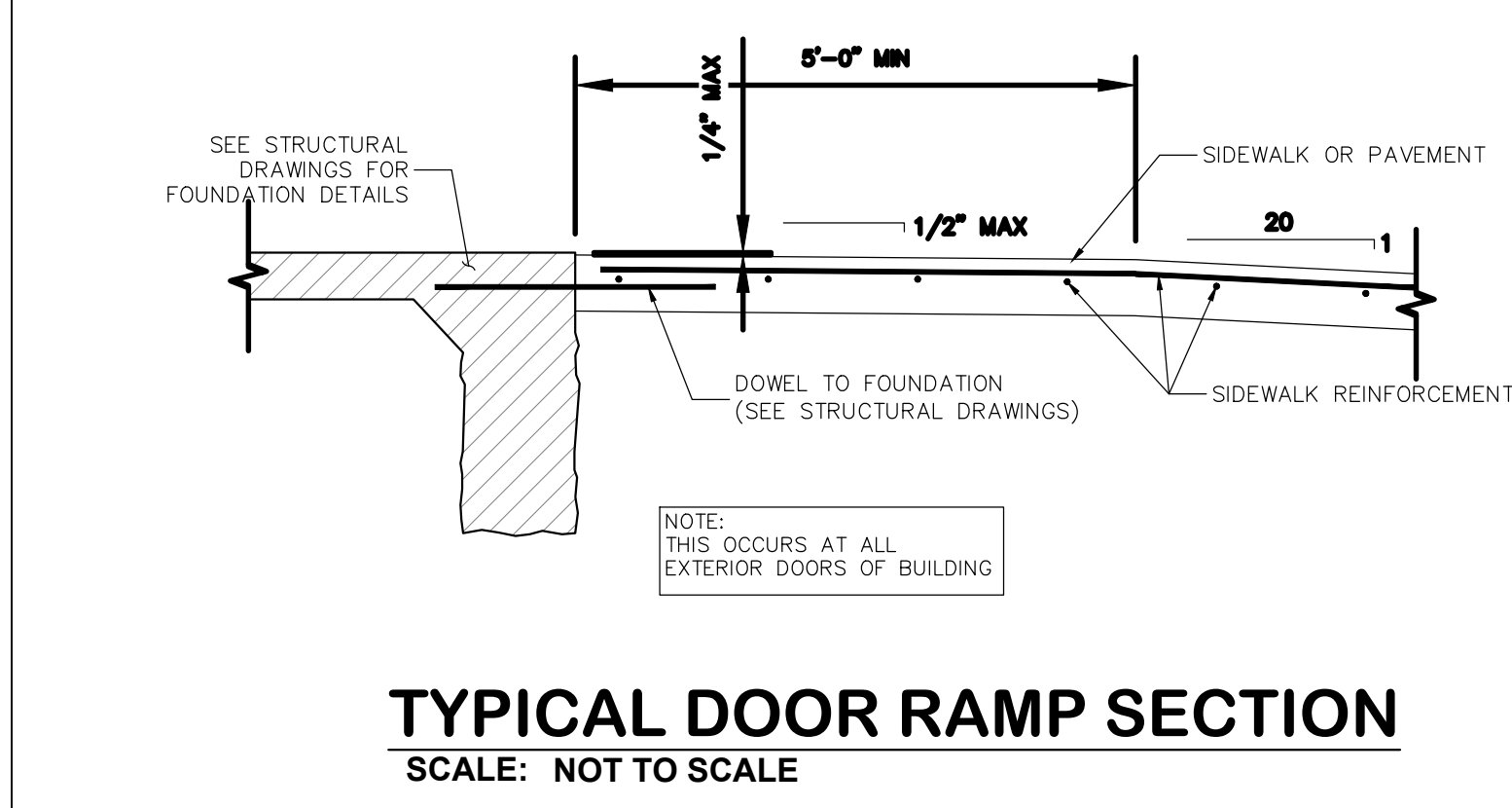
TYPICAL EXPANSION JOINT (EJ) SECTION
SCALE: NOT TO SCALE



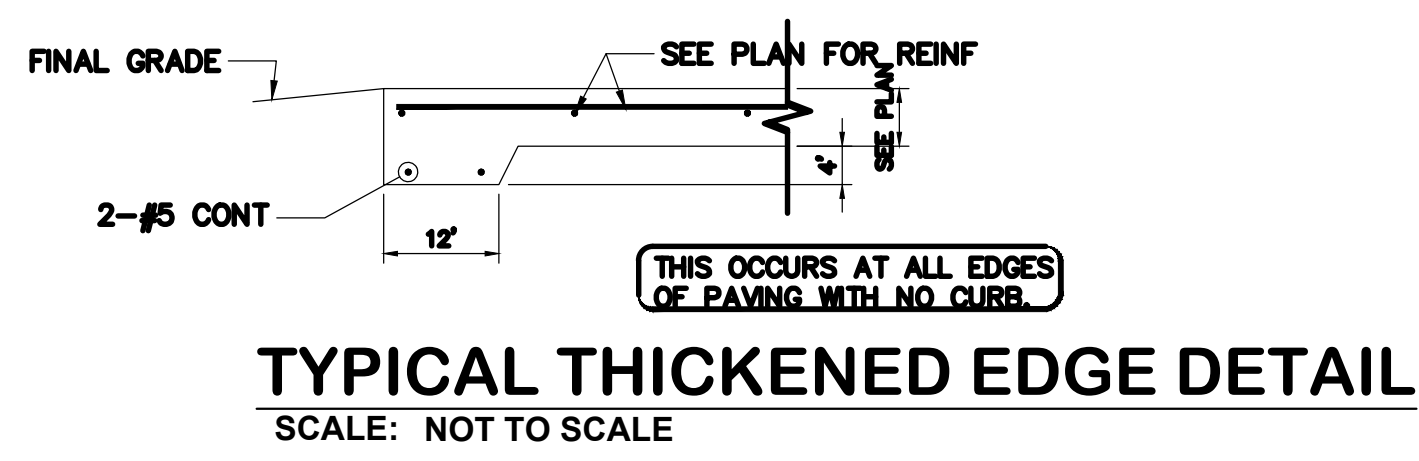
TYPICAL FIRE LANE STRIPING DETAIL
SCALE: NOT TO SCALE



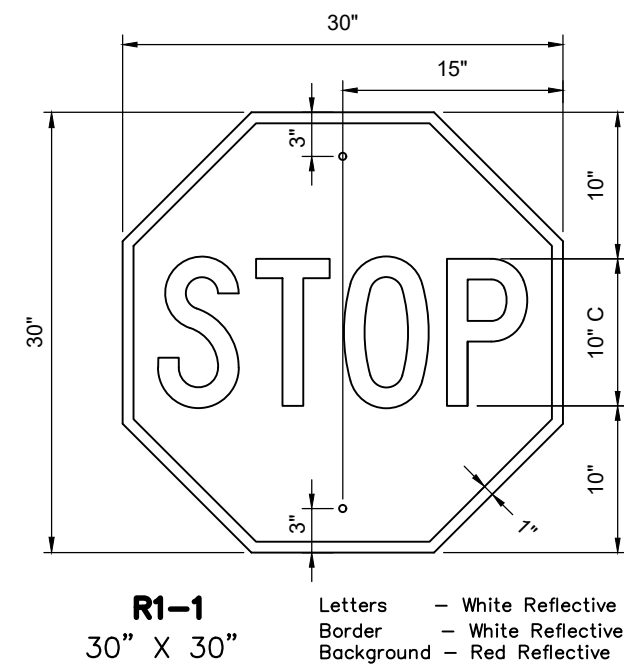
TYPICAL PAVING/HIGHWAY
CONNECTION DETAIL
SCALE: NOT TO SCALE



TYPICAL DOOR RAMP SECTION
SCALE: NOT TO SCALE



TYPICAL THICKENED EDGE DETAIL
SCALE: NOT TO SCALE



R1-1 "STOP" SIGN
SCALE: NOT TO SCALE

BENCHMARKS:

TBM X-CUT N:7182983.6 E:2376464.4 ELEV:682.2	TBM X-CUT N:7182732.0 E:2376692.0 ELEV:683.2	TBM X-CUT N:7182983.6 E:2376464.4 ELEV:682.2
---	---	---

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FM 455 AND INDIAN LN
SANGER, TEXAS

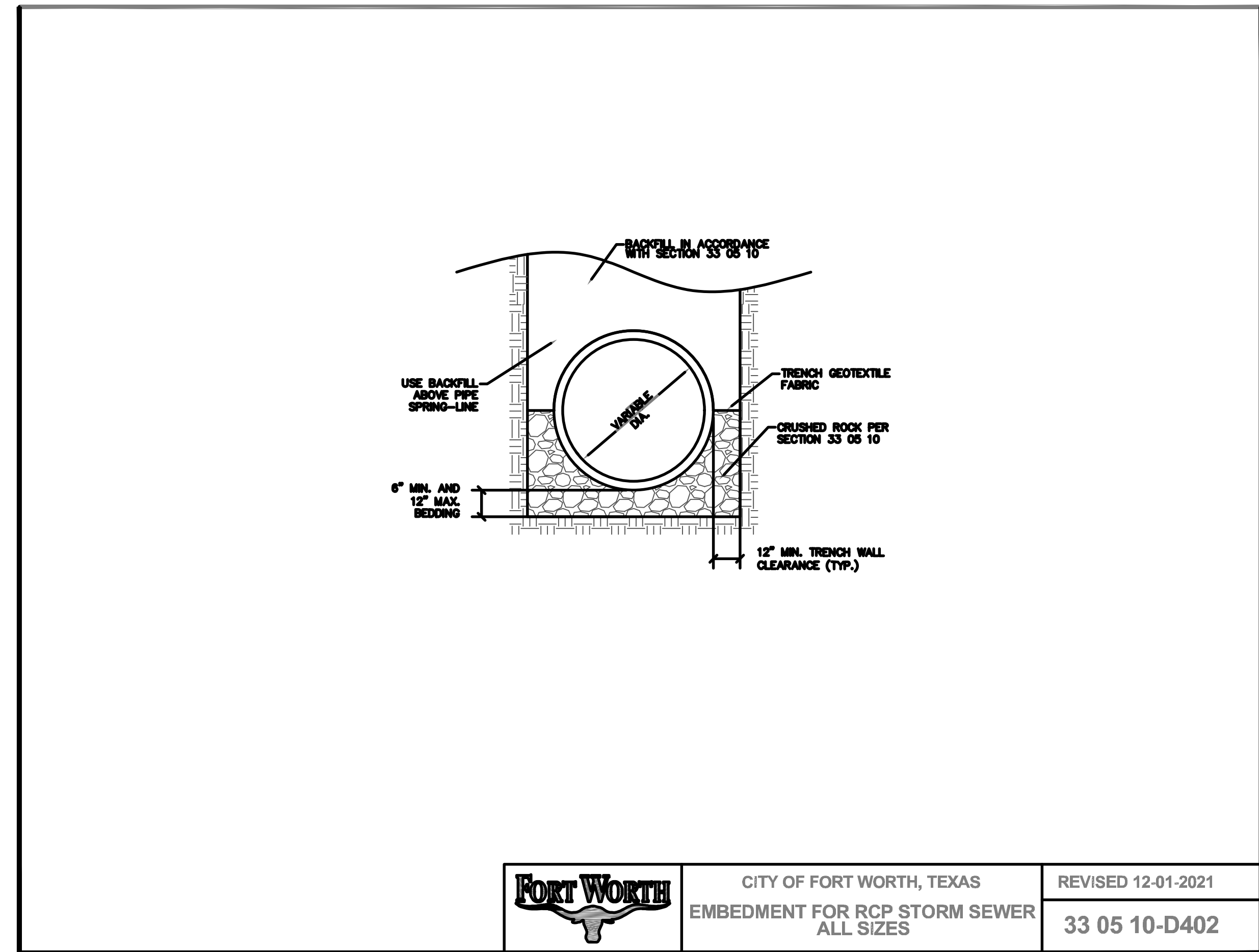
Issue Date: 11/12/2024
Project No: 240117

Drawn By: RP
Checked By: IN
Designed By: IN

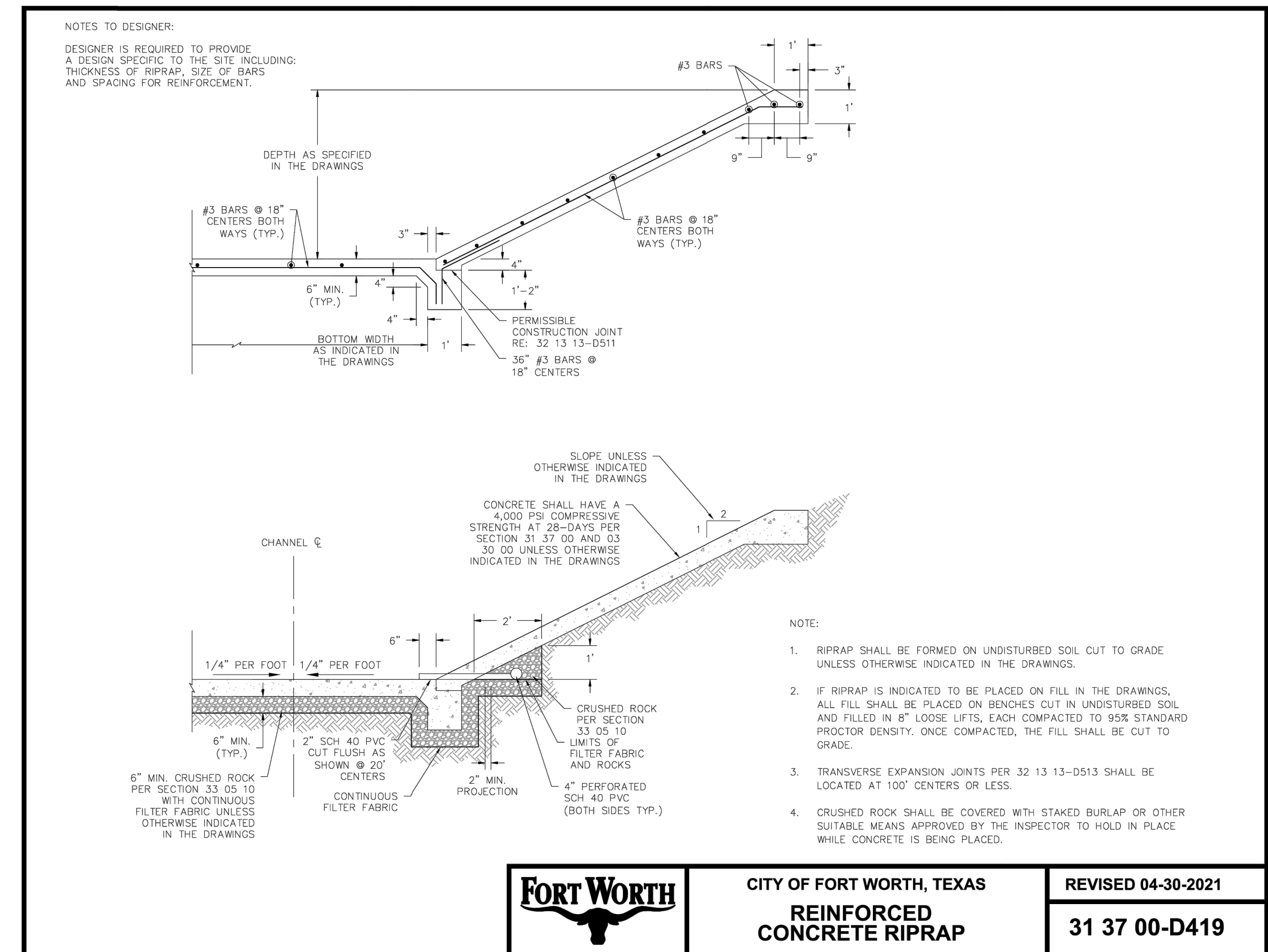
Issue Record

#	Description	Date

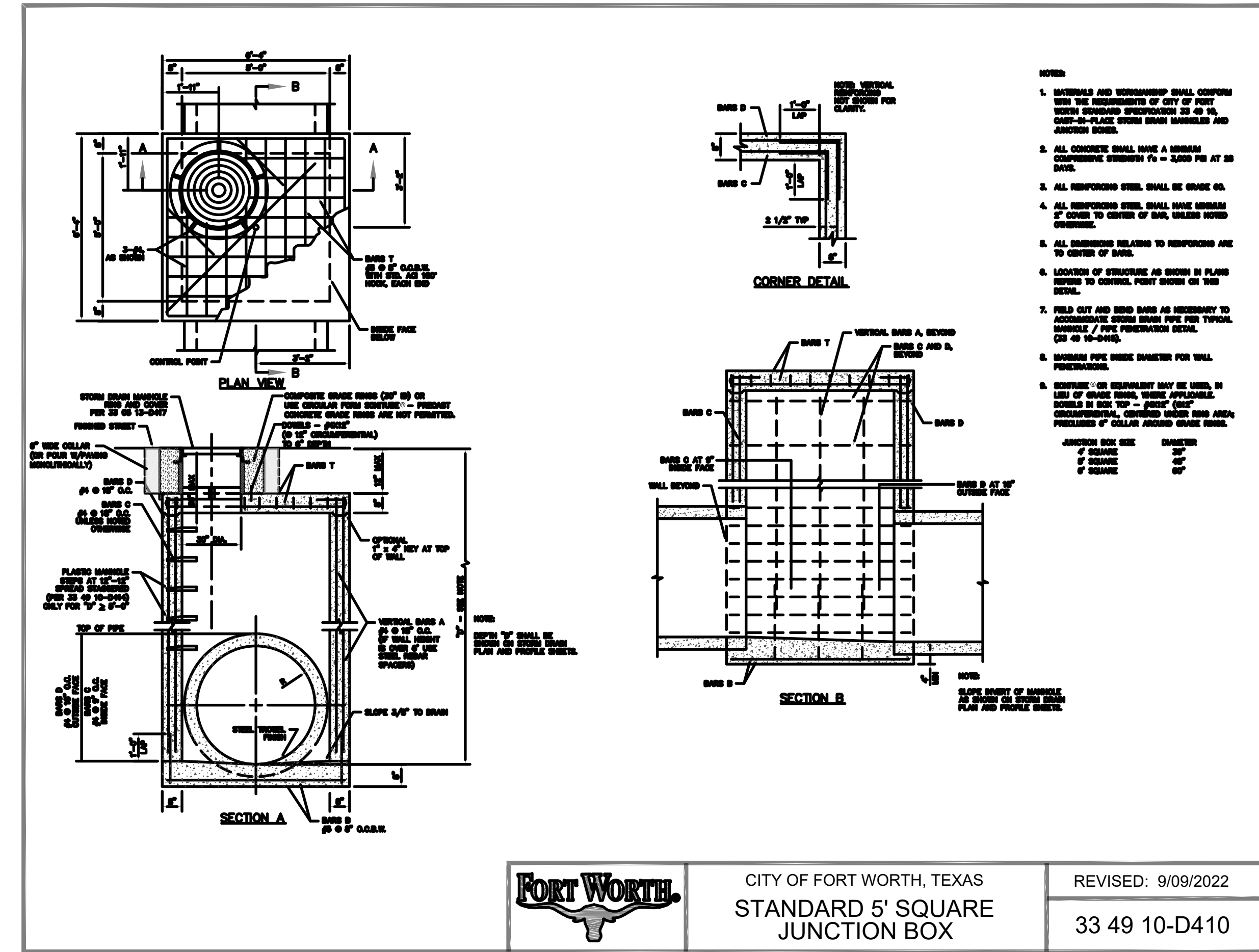
GENERAL DETAILS V



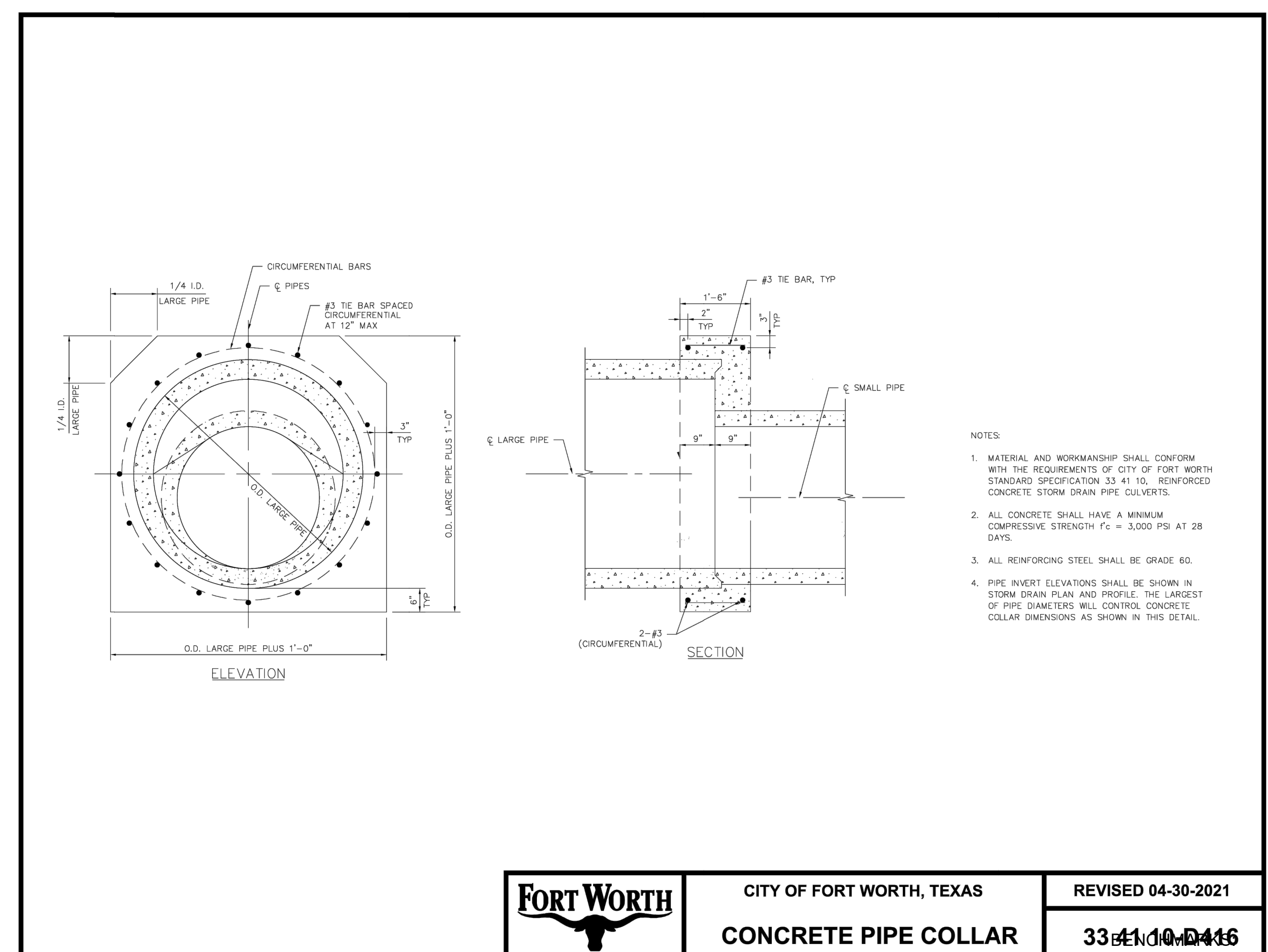
	CITY OF FORT WORTH, TEXAS EMBEDMENT FOR RCP STORM SEWER ALL SIZES	REVISED 12-01-2021 33 05 10-D402
--	---	-------------------------------------



	CITY OF FORT WORTH, TEXAS REINFORCED CONCRETE RIPRAP	REVISED 04-30-2021 31 37 00-D419
--	--	-------------------------------------

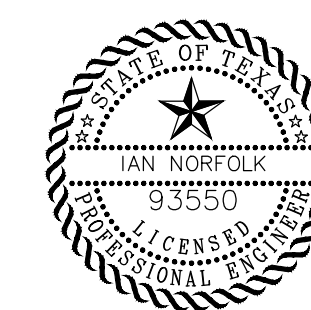


	CITY OF FORT WORTH, TEXAS STANDARD 5' SQUARE JUNCTION BOX	REVISED: 9/09/2022 33 49 10-D410
--	---	-------------------------------------



	CITY OF FORT WORTH, TEXAS CONCRETE PIPE COLLAR	REVISED 04-30-2021 33 41 10-D416
--	---	-------------------------------------

TBM X-CUT N:7182983.6 E:2376464.4 ELEV:682.2'	TBM X-CUT N:7182732.0 E:2376892.0 ELEV:683.2'	TBM X-CUT N:7182983.6 E:2376464.4 ELEV:682.2'
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FM 455 AND INDIAN LN
SANGER, TEXAS

Issued Date: 11/12/2024
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Designed By: IN

Issue Record

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GENERAL DETAILS VI

NOTE TO DESIGNER: THIS IS NOT A STAND-ALONE DETAIL. TRENCH DETAILS SHOULD BE ASSEMBLED AS DIRECTED IN "BACKFILL, EMBEDMENT AND SURFACE REPAIR DETAIL ASSEMBLY".

https://apps.fortworthtexas.gov/ProjectResources/Resource/P02420.%20Construction%20Documents/Construction%20Plan%20Construction%20Details%20Backfill,%20Embedment%20and%20Surface%20Repair%20Detail%20Assembly.pdf

CITY OF FORT WORTH, TEXAS
EMBEDMENT FOR WATER SERVICES
DATE: 12-01-2021
33 05 10-D104

NOTE TO DESIGNER:
PIPE LAYOUT SHALL BE AS SHOWN ON THE DRAWINGS.
ALL LAYOUTS SHALL BE DESIGNED BY ENGINEER.

ITEM	DESCRIPTION	QUANTITY	UNIT
1	STEEL CASING
2
3
4
5

CITY OF FORT WORTH, TEXAS
WATER CARRIER PIPE INSTALLATION IN STEEL CASING
REVISED: 05-15-2015
33 05 24-D106

ITEM	DESCRIPTION	QUANTITY	UNIT
1	STEEL CASING
2
3
4
5

CITY OF FORT WORTH, TEXAS
DUCTILE IRON PIPE AND STEEL PIPE CASING & TUNNEL LINER PLATE PROFILE
REVISED: 08-31-2012
33 05 24-D108

CITY OF FORT WORTH, TEXAS
STANDARD FIRE HYDRANT (ELL)
REVISED: 08-31-2012
33 12 40-D121

CITY OF FORT WORTH, TEXAS
PVC, DUCTILE IRON, CONCRETE PRESSURE AND BURIED STEEL PIPE PRESSURE PLUGS
REVISED: 08-31-2012
02 41 14-D123

CITY OF FORT WORTH, TEXAS
BRANCH GATE VALVE CONNECTION TO LARGE WATER MAIN
REVISED: 05-08-2013
33 12 20-D125

SIZE	MIN. AREA	MAX. AREA	MIN. AREA	MIN. AREA	MIN. AREA
12"	1.00	4.00	1.00	1.00	1.00
15"	1.50	6.00	1.50	1.50	1.50
18"	2.00	8.00	2.00	2.00	2.00
21"	2.50	10.00	2.50	2.50	2.50
24"	3.00	12.00	3.00	3.00	3.00
27"	3.50	14.00	3.50	3.50	3.50
30"	4.00	16.00	4.00	4.00	4.00
33"	4.50	18.00	4.50	4.50	4.50
36"	5.00	20.00	5.00	5.00	5.00

CITY OF FORT WORTH, TEXAS
CONCRETE CRADLE
REVISED: 12-30-2018
33 11 00-D131

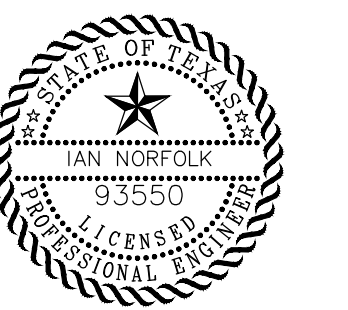
SIZE	MIN. VOLUME	MIN. VOLUME	MIN. VOLUME	MIN. VOLUME	MIN. VOLUME
40" BENDS	1.00	1.00	1.00	1.00	1.00
22" BENDS	1.00	1.00	1.00	1.00	1.00
11" BENDS	1.00	1.00	1.00	1.00	1.00

CITY OF FORT WORTH, TEXAS
VERTICAL TIE-DOWN BLOCKING
REVISED: 12-30-2018
33 11 00-D132

CITY OF FORT WORTH, TEXAS
STANDARD CLEANING WYE FOR WATER DISTRIBUTION PIPE (12\"/>

BENCHMARKS:
TBM X-CUT N:7182983.6 E:2376464.4 ELEV:682.2'
TBM X-CUT N:7182732.0 E:2376464.4 ELEV:683.2'
TBM X-CUT N:7182983.6 E:2376464.4 ELEV:682.2'

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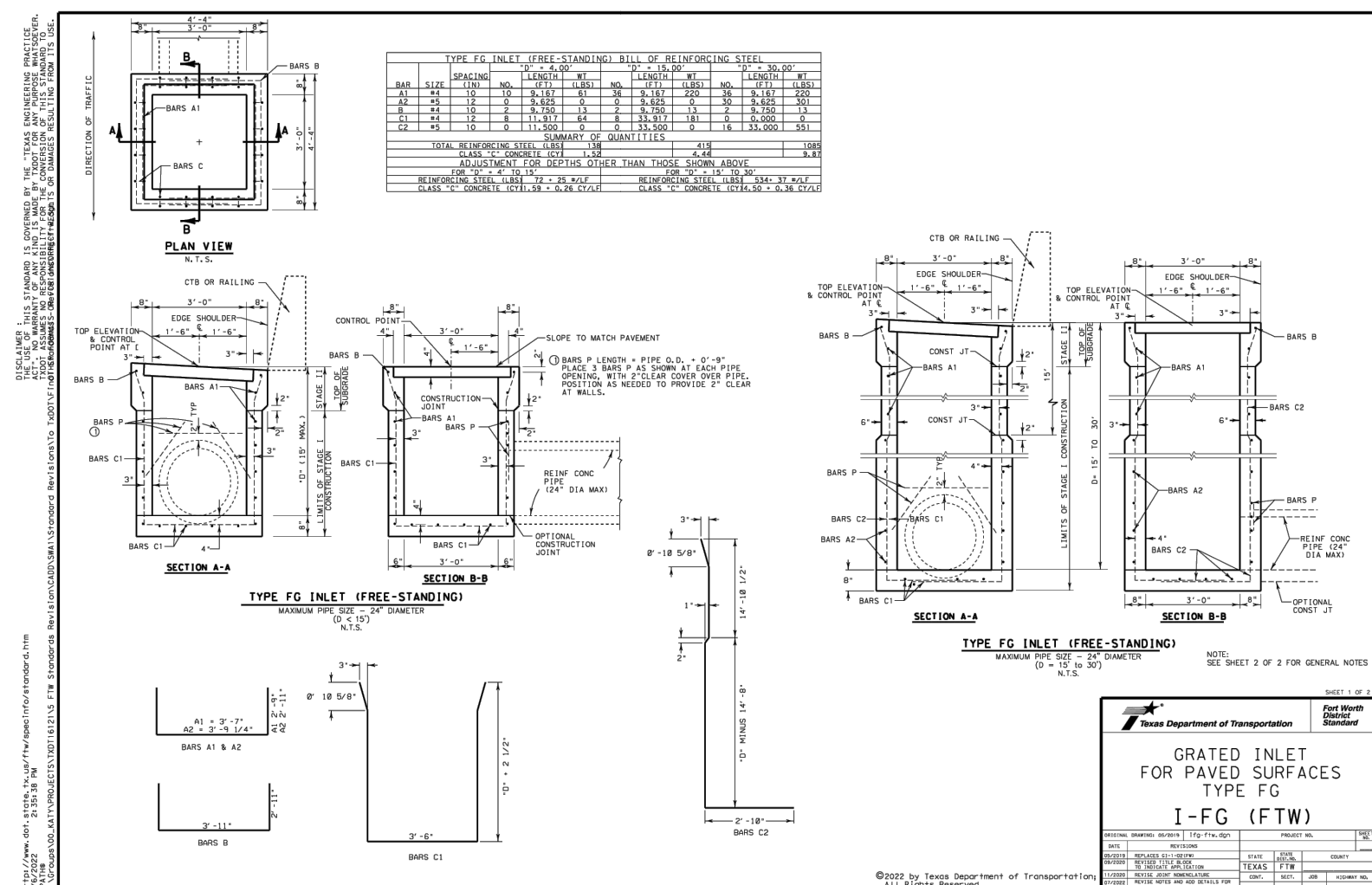
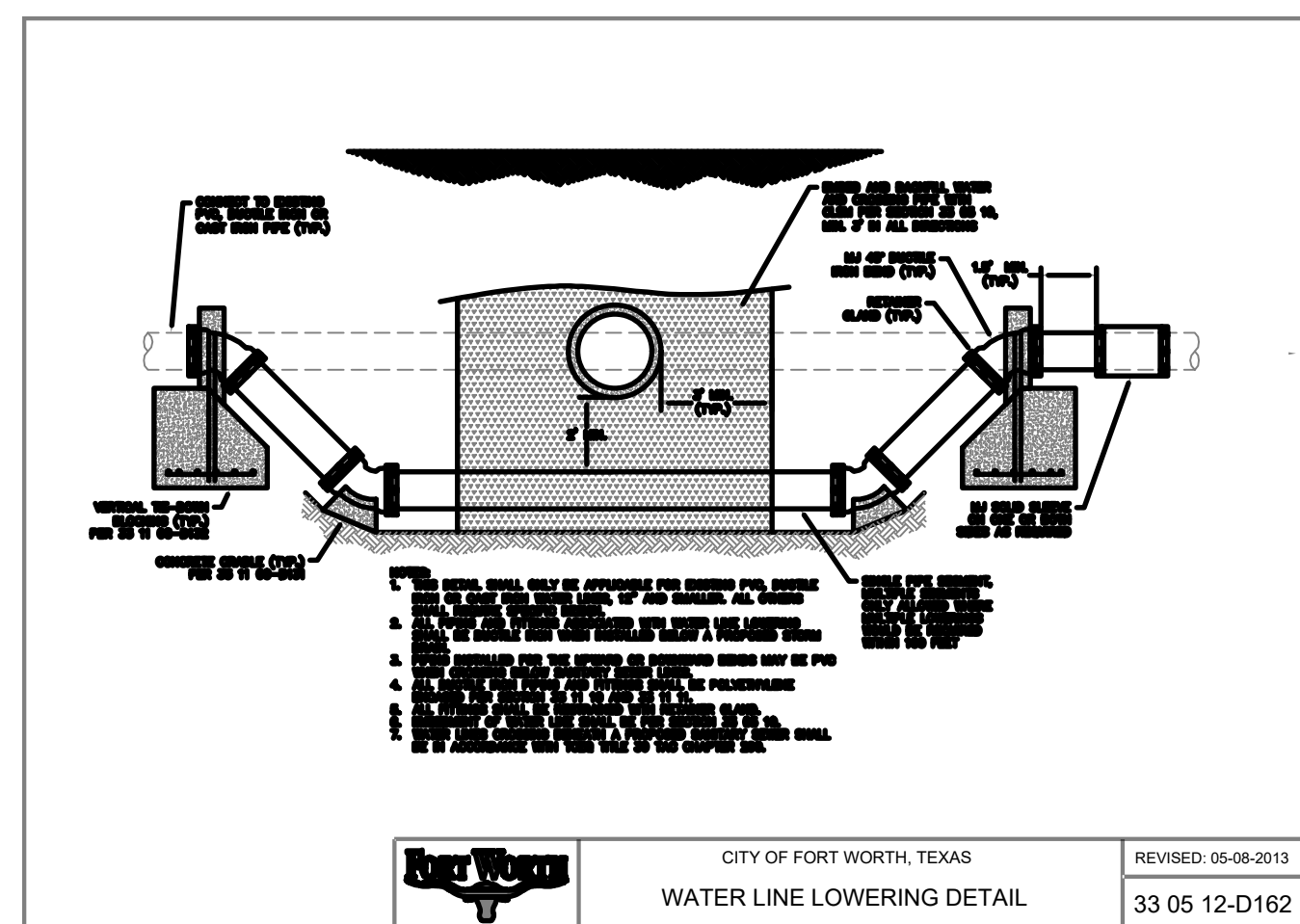
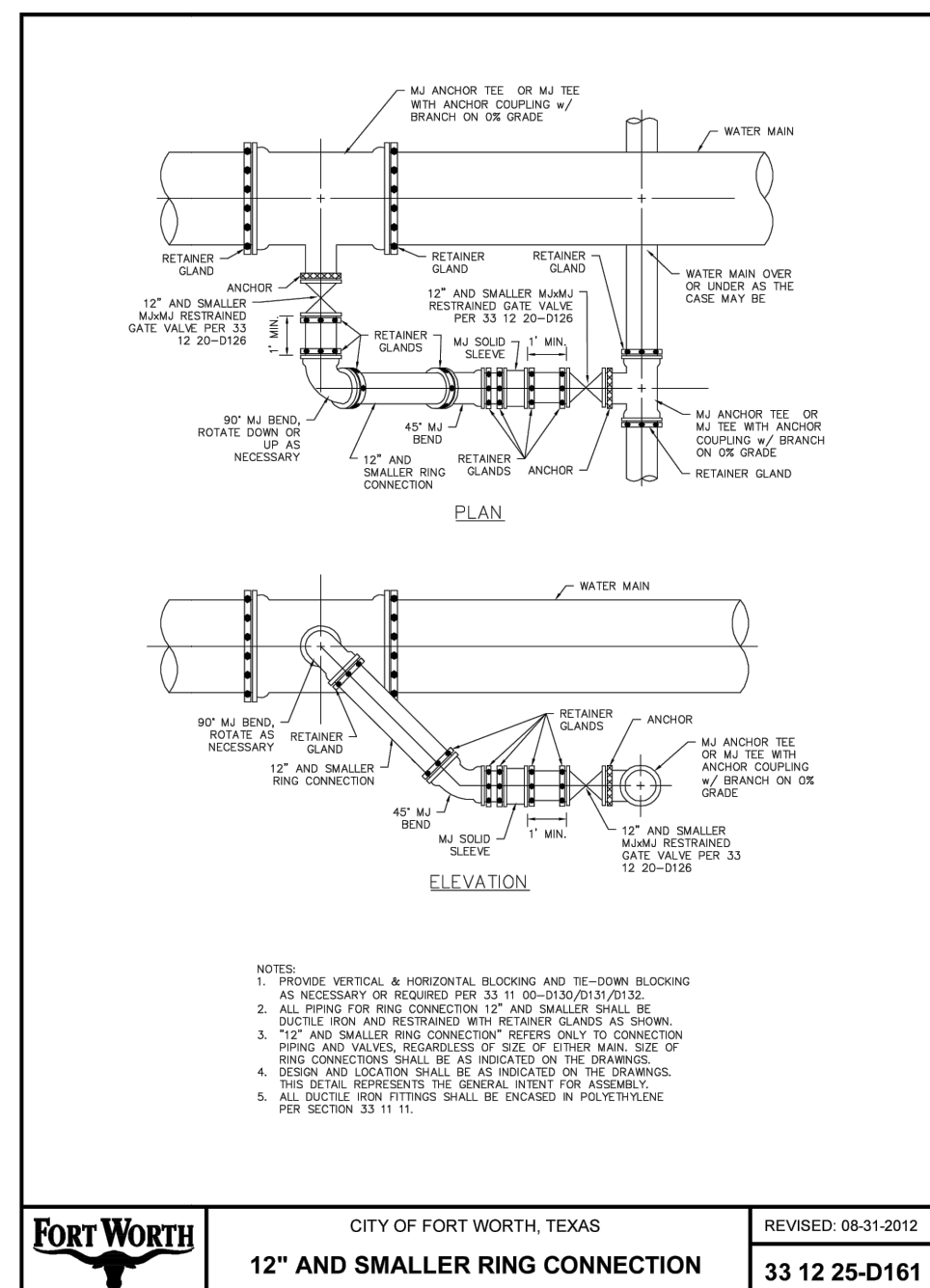
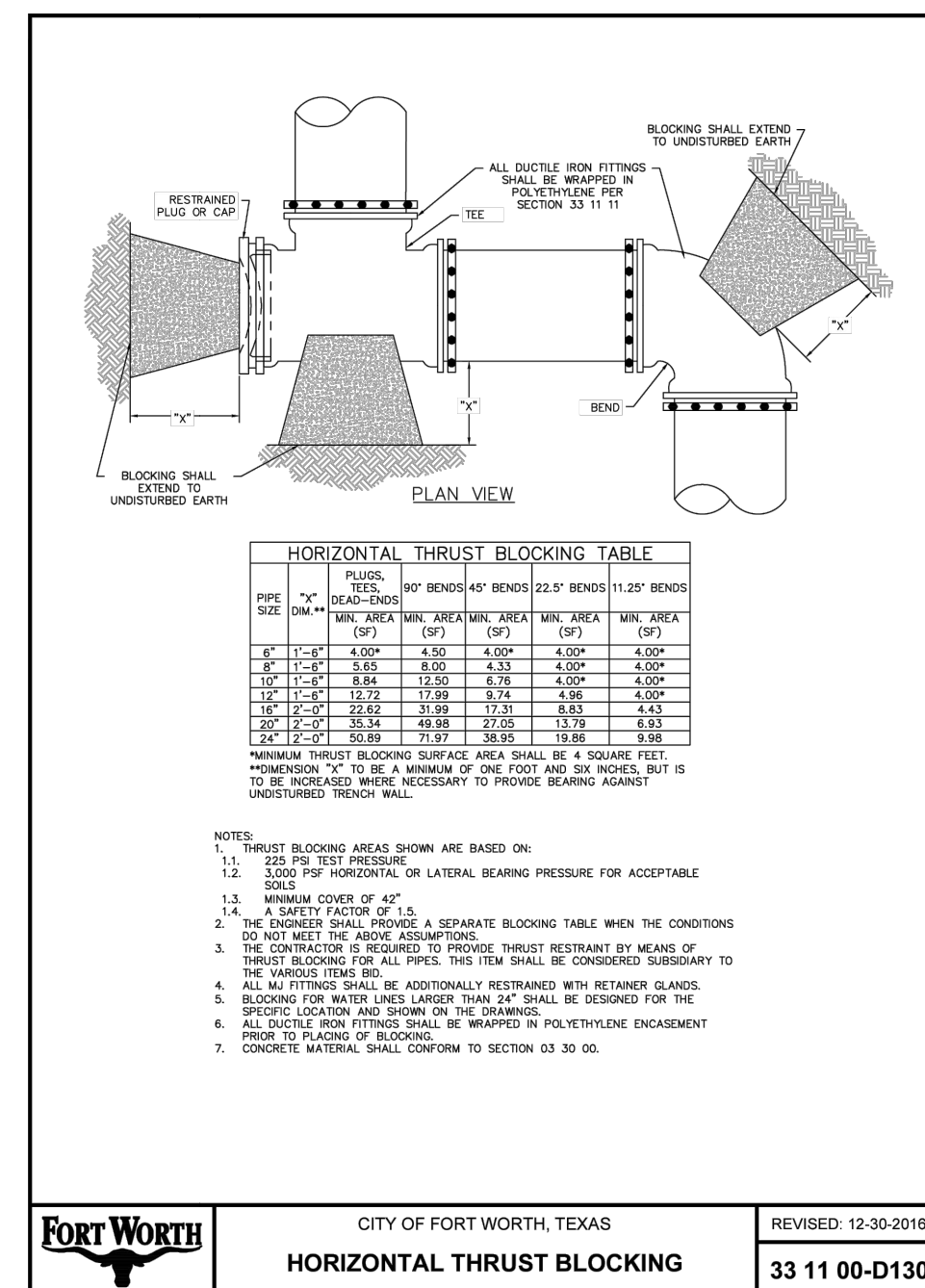
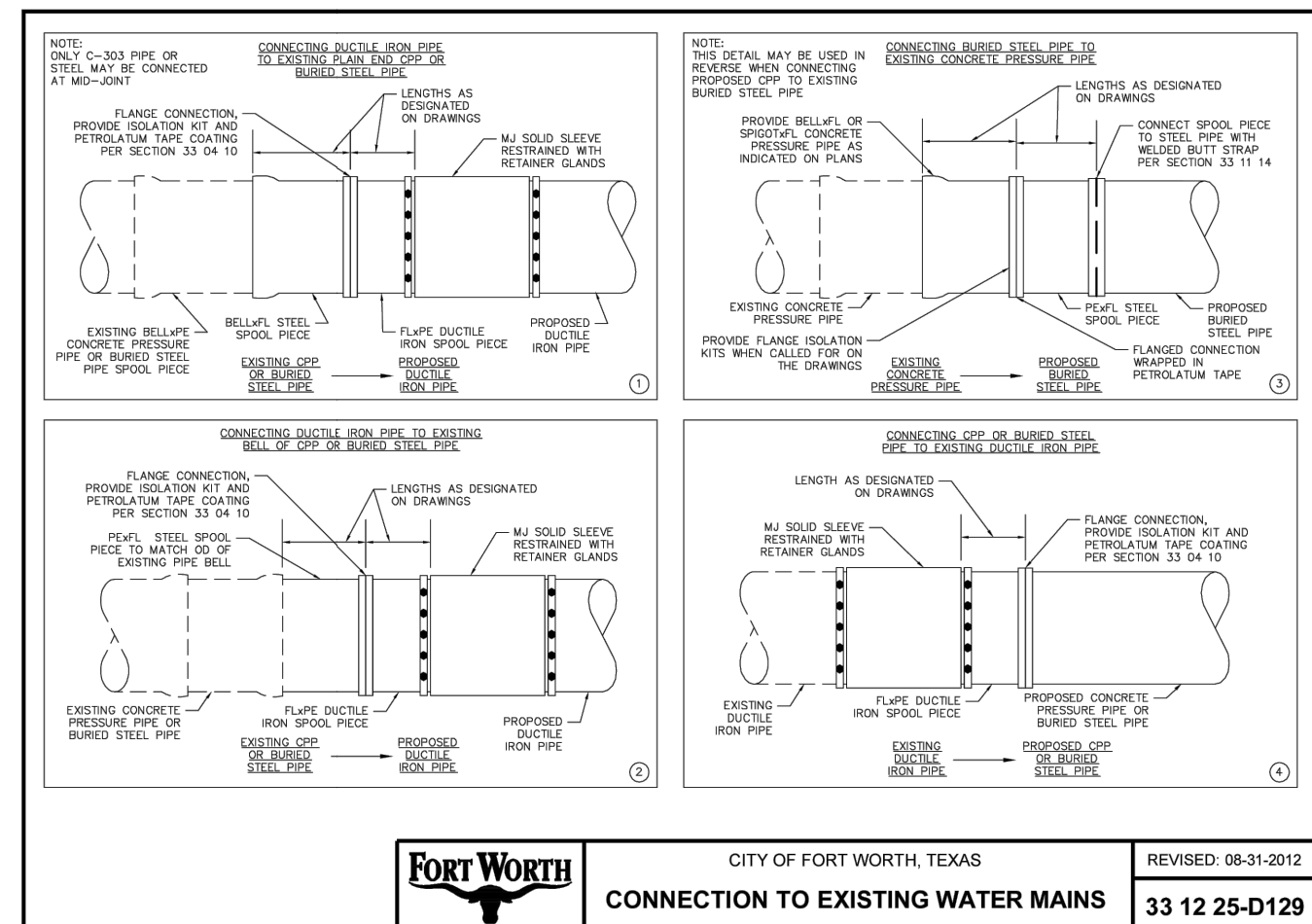
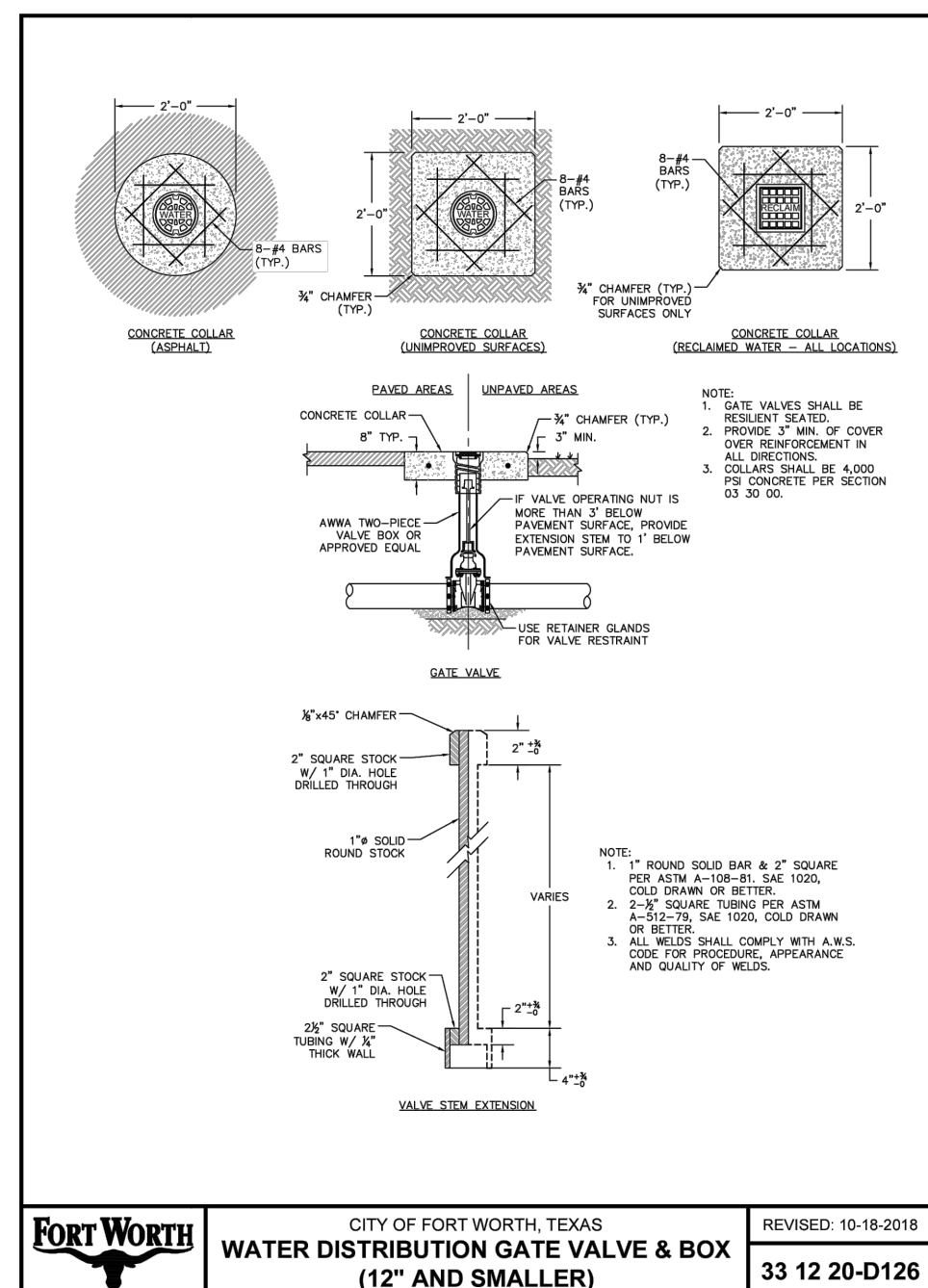
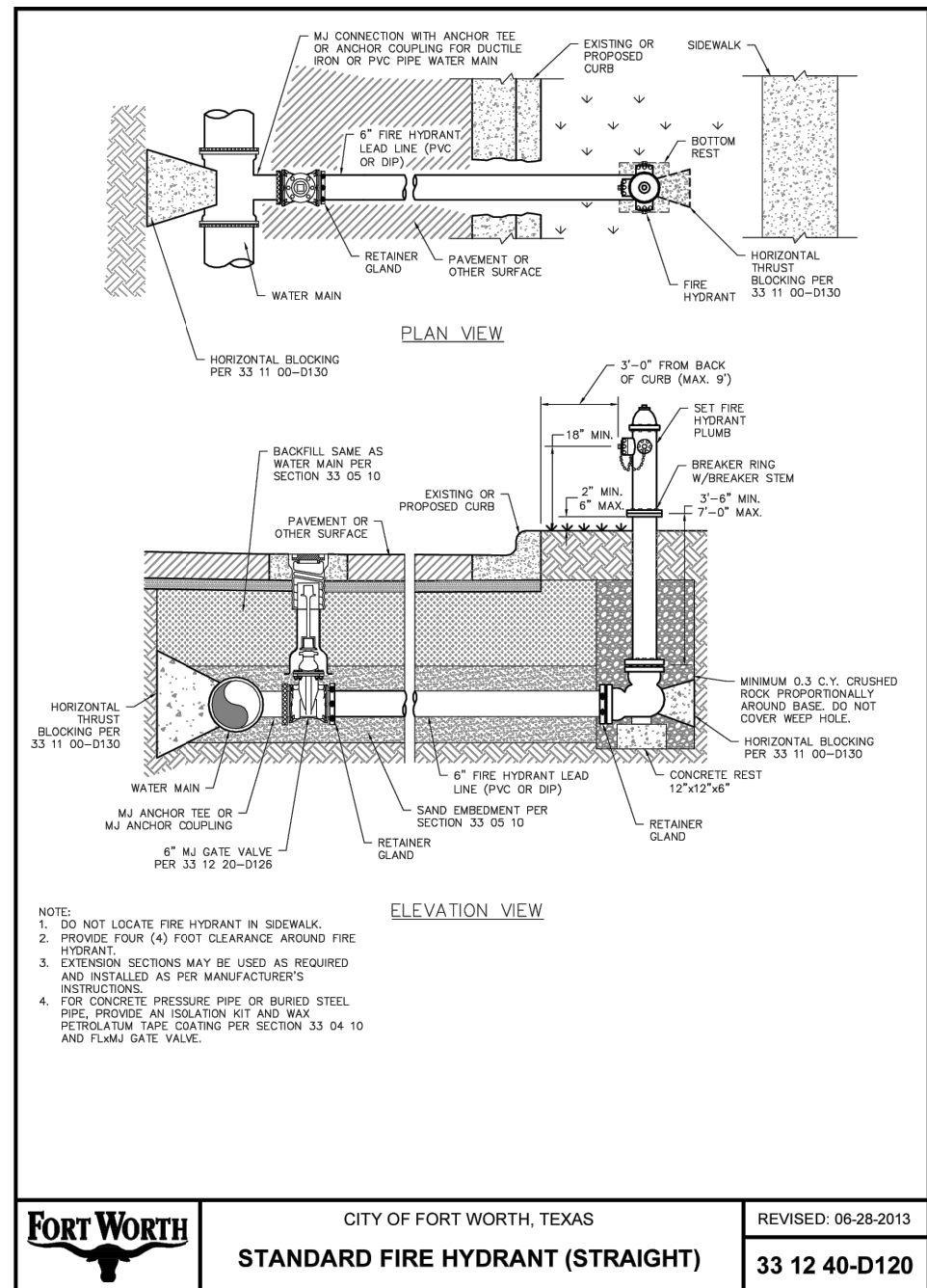
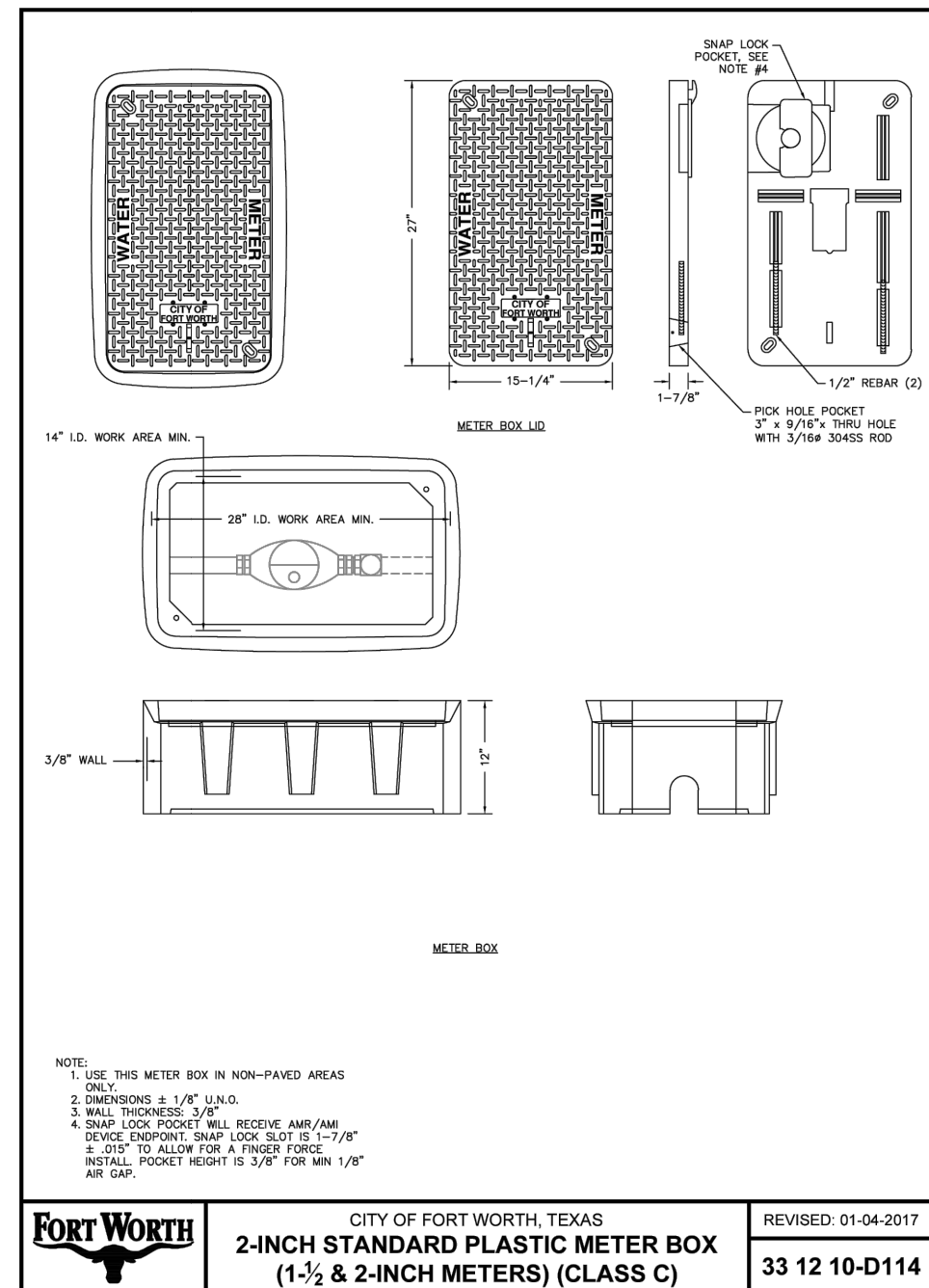
Issue Record

#	Description	Date

GENERAL DETAILS VII

BENCHMARKS:

TBM X-CUT N7182983.6 E:2376464.4 ELEV:682.2'	TBM X-CUT N7182732.0 E:2376692.0 ELEV:683.2'	TBM X-CUT N7192983.6 E:2376464.4 ELEV:682.2'
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November 27, 2024
AVO 37449.004

Ms. Ramie Hammonds
Development Services Director/Building Official
City of Sanger
201 Bolivar Street
P.O. Box 1729
Sanger, Texas 76266

Re: **Sanger Town Center South Preliminary Platt Review**

Dear Ms. Hammonds,

Half Associates, Inc. was requested by the City of Sanger to review the Preliminary Platt for Sanger Town Center South. The submittal was prepared by KJE Inc. and was received on November 13th, 2024.

General Comments

1. Please address comments on attached markups and provide annotated responses on markups. Please note, not all comments are written on letter since some comments are easier to show and explain on the markups. Please annotate markup with responses.
2. Please note additional comments may be provided in subsequent reviews once additional data/responses is received.

Hydrology and Hydraulics

1. Culvert at corner of Indian Lane and East Chapman Drive appears to convey flow from Sanger High School to site of future detention pond. This culvert is not shown on plans. Please account for offsite flows in detention pond size calculations and other applicable drainage calculations. See pg. 14 of submittal.



a.

2. Please revise Tc of existing drainage area to 15 minutes per Sanger Drainage criteria for parks. § 10.106(d)(2)(D)(iii). Alternatively, provide calculations demonstrating Tc to be 10 minutes as is currently shown.
3. Please provide proposed inlets and storm sewer on same plan sheet as proposed grading.
4. Proposed grading appears to fill in roadside channel along East Chapman Drive. Also, proposed model appears to increase discharge to this channel. Please note that TxDOT approval will be required to make these changes within their Right-of-Way. See pg. 14 of submittal.
 - a. Please provide hydraulic calculations demonstrating existing conditions and proposed conditions capacity of channel
5. Culvert at Sable Creek Boulevard no longer appears to discharge to proposed detention pond in proposed conditions. Please revise. See pg. 20 of submittal.
6. Please note that TxDOT approval will be required to discharge additional flow into existing culvert. See pg. 20 of submittal.
7. Please provide inlet capacity calculations, and street capacity calculations if street is used for overflow. See § 10.106(d)(4) Street and Alley Capacity and 10.106(d)(5) Inlet Placement and Capacity.
8. Please provide finished-floor elevations of all structures §10.106(d)(4)(C)
9. Please specify material used for new stormwater pipes and include n value used in calculations. § 10.106(d)(6)(C)
10. Please lower HGL or raise proposed ground elevations at Junction Box at STA 0+35.72 to allow for 1 foot of difference between HGL and ground surface. § 10.106(d)(6)(D)(ii). See page 16 of submittal
11. Please overlay FEMA Zone A floodplain on proposed and existing grading exhibit, and please clarify that no grading is proposed in Ranger Branch Tributary 4 floodplain.
12. Please provide bottom slope of detention pond § 10.106(d)(10)(C)
13. Please provide 1 foot of freeboard in detention pond for the 100-year storm and 2 feet of sediment storage. See § 10.106(d)(10)(A)
14. Please provide more information on 24 hour water quality discharge than what is currently in table on "Drainage Calculations 1" sheet (page 15 of submittal). Please provide more explanation as to how pond was calculated to drain in 24 hours. § 10.106(d)(10)(F)
15. Please provide downstream assessment. Sanger criteria § 10.106(d)(10)(B) states "All detention facilities designed shall consider the timing of the flood peak in the main channel into which the detention facility drains. Delaying the peak from a site in lower portions of a watershed may result in a higher peak on the main channel."

Ms. Ramie Hammonds
November 27, 2024
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If you have any questions or need additional information, please do not hesitate to call me at (214) 937-3954.

Sincerely,
HALFF
TBPELS Firm No. 312

A handwritten signature in black ink, appearing to read "Randy Peterman". The signature is written in a cursive style with a large initial "R" and "P".

Randy Peterman, PE, CFM, ENV SP