

City of Friendswood

910 S Friendswood Drive
Friendswood, TX 77546



Approved Plan Set
Application No. RES2025-3894 Date Stamped 09-24-2025 14:51:24
Address: 1506 VICTORIA WAY

*****Permit holder must print a copy of this approved set to keep on the job site and available to all inspectors for verification during inspections.*****

General Comments (Informational and do not require corrections):

Reviewer : Department	Page Reference	Review Comments
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"Note: Even though the city of Friendswood's review of the plans and specifications is designed to discover potential code violations, design errors or non-compliance with other city ordinances and regulations, failure on the city's part to discover all such violations or errors does not relieve the developer, engineer, architect, builder or contractor from the responsibility of producing an end product that is in total compliance with all requirements of the city's design criteria manual, the Galveston County consolidated drainage district's design criteria manual or the current international code series as adopted by the City of Friendswood, any that is in total compliance with any other applicable requirements in the city's code of ordinances or regulations, or with an industry designs standards relevant to the project covered by these plans and specifications.

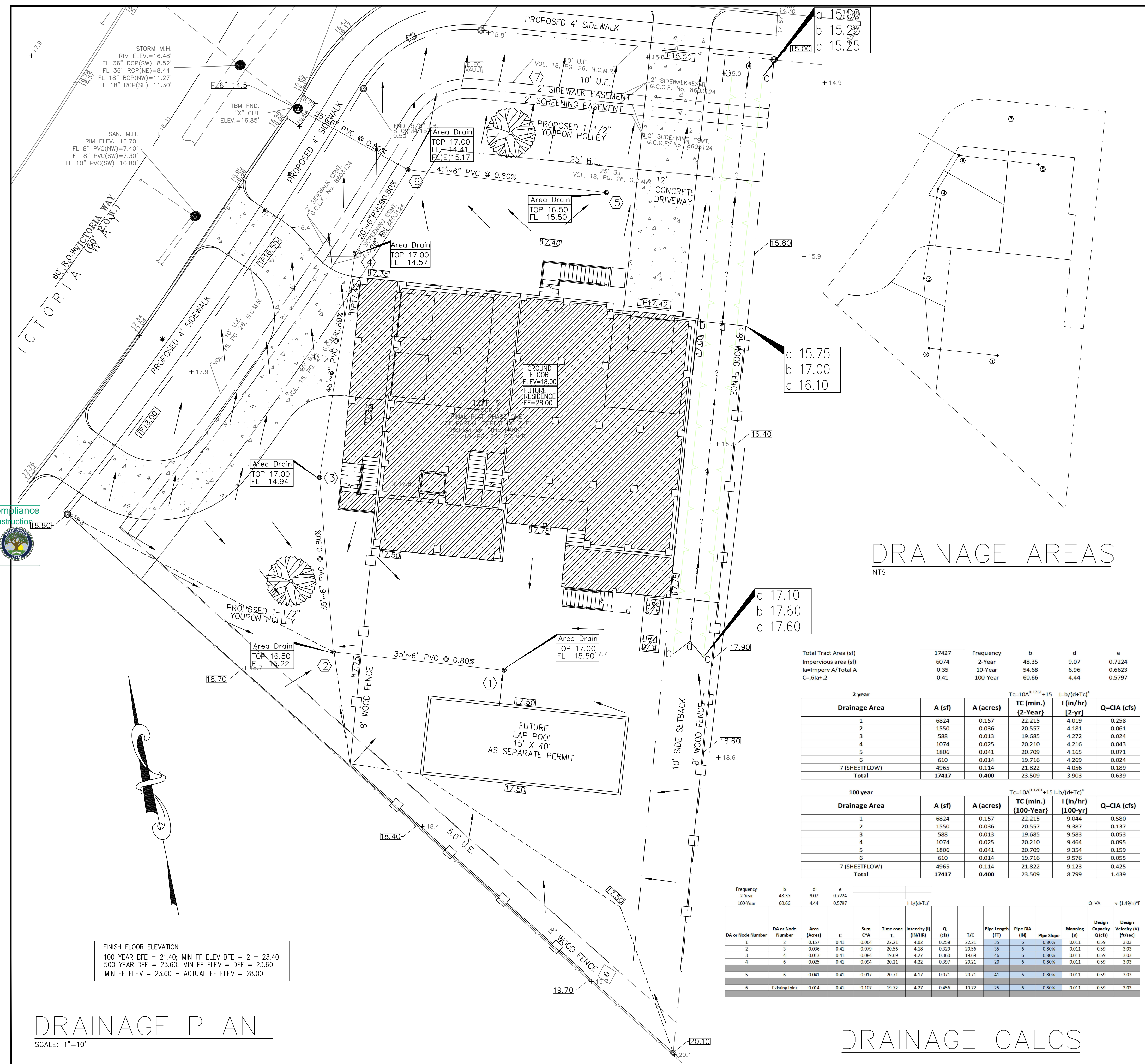
The developer, engineer, architect, builder and contractor are each solely responsible for the adherence to all requirements of other entities or agencies that are relevant to the project."

Reviewer Contact Information:

Reviewer Name	Reviewer Email	Reviewer Phone No.:
Brian Rouane	brouane@friendswood.com	281-996-3285
Kristin Cornett	kcornett@friendswood.com	281-996-3207

Submission Documents:

Document Name	Document ID
Civil Plan Set - REV.002.pdf	81162
24-0183_0 VICTORIA WAY (TOPO).pdf	81161



FINISH FLOOR ELEVATION
 100 YEAR BFE = 21.40; MIN FF ELEV BFE + 2 = 23.40
 500 YEAR DFE = 23.60; MIN FF ELEV = DFE = 23.60
 MIN FF ELEV = 23.60 - ACTUAL FF ELEV = 28.00

DRAINAGE PLAN
 SCALE: 1"=10'

DRAINAGE AREAS
 NTS

2 year		$Tc=10A^{0.3783+15}$ $I=mb/(d+Tc)^{0.78}$			
Drainage Area	A (sf)	A (acres)	TC (min.) [2-Year]	I (in/hr) [2-yr]	Q=CIA (cfs)
1	6824	0.157	22.215	4.019	0.258
2	1550	0.036	20.557	4.181	0.061
3	588	0.013	19.685	4.272	0.024
4	1074	0.025	20.210	4.216	0.043
5	1806	0.041	20.709	4.165	0.071
6	610	0.014	19.716	4.269	0.024
7 (SHEETFLOW)	4965	0.114	21.822	4.056	0.189
Total	17417	0.400	23.509	3.903	0.639

100 year		$Tc=10A^{0.3783+15}$ $I=mb/(d+Tc)^{0.78}$			
Drainage Area	A (sf)	A (acres)	TC (min.) [100-Year]	I (in/hr) [100-yr]	Q=CIA (cfs)
1	6824	0.157	22.215	9.044	0.580
2	1550	0.036	20.557	9.387	0.137
3	588	0.013	19.685	9.583	0.053
4	1074	0.025	20.210	9.464	0.095
5	1806	0.041	20.709	9.354	0.159
6	610	0.014	19.716	9.576	0.055
7 (SHEETFLOW)	4965	0.114	21.822	9.123	0.425
Total	17417	0.400	23.509	8.799	1.439

DA or Node Number	DA or Node Number	Area (Acres)	Sum C/A	Time conc. T _c	Intensity I (IN/HR)	Q (cfs)	T/C	Pipe Length (FT)	Pipe DIA (IN)	Pipe Slope	Manning (n)	Design Capacity Q _d (cfs)	Design Velocity V _d (ft/sec)	
1	2	0.157	0.41	0.064	22.21	4.02	0.258	22.21	35	6	0.80%	0.011	0.59	3.03
2	3	0.036	0.41	0.039	20.56	4.18	0.139	20.56	35	6	0.80%	0.011	0.59	3.03
3	4	0.013	0.41	0.034	19.69	4.27	0.360	19.69	46	6	0.80%	0.011	0.59	3.03
4	6	0.025	0.41	0.034	20.21	4.22	0.397	20.21	20	6	0.80%	0.011	0.59	3.03
5	6	0.041	0.41	0.037	20.71	4.17	0.071	20.71	41	6	0.80%	0.011	0.59	3.03
6	Existing Inlet	0.014	0.41	0.107	19.72	4.27	0.456	19.72	25	6	0.80%	0.011	0.59	3.03

DRAINAGE CALCS

PROPERTY LEGAL DESCRIPTION

LOT 7, BLOCK 2 FINAL PART PHASE ONE OF FINAL REPEAT OF THE REPEAT OF "THE PARK" VOL. 18, PG. 26, G.C.M.R. LOCATED IN GALVESTON COUNTY TEXAS.

SURVEYOR



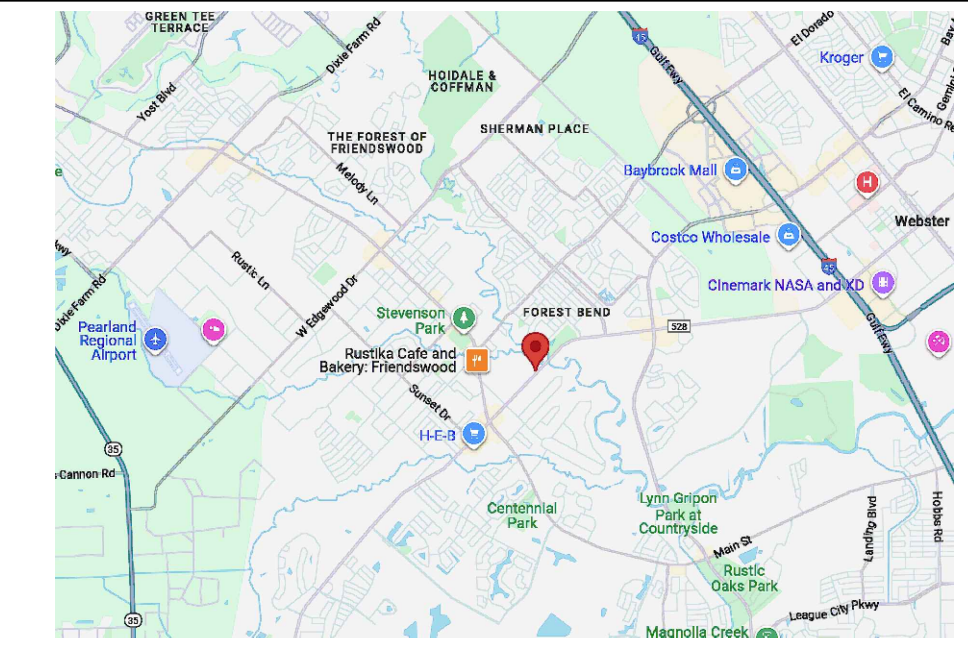
BENCHMARK DATA

HCFC010090 ELEV = 23.89 NAVD 1988, 2001 ADJ.

FLOOD PLAIN DATA

THIS TRACT LIES IN ZONE "AE" AREAS DETERMINED TO BE WITHIN THE 1% ANNUAL CHANCE FLOODPLAIN, AS PER THE NATIONAL FLOOD INSURANCE PROGRAM FIRM PANEL NUMBER 48167C0018G, EFFECTIVE DATE: AUGUST 15, 2019.
 100 YEAR BFE = 21.40; 500 YEAR DFE = 23.60

VICINITY MAP



LEGEND

- PROPOSED STORM SEWER
- EXISTING STORM SEWER
- PROPERTY LINE
- GRADE BREAK (G.B.)
- SLOPE OF PAVEMENT OR FINISH GRADE
- STORM SEWER MANHOLE
- CLEAN-OUT (MATCH PIPE SIZE UP TO 6")
- IN-LINE CLEANOUT (MATCH PIPE SIZE UP TO 6")
- DRAINAGE AREA DESIGNATION
- CATCH BASIN (RE: DETAIL)
- EXISTING NATURAL GRADE ELEVATIONS
- PROPOSED FINISH FLOOR ELEVATION
- PROPOSED BACK OF CURB ELEVATION
- PROPOSED TOP OF PAVEMENT ELEVATION
- PROPOSED TOP OF INLET GRATE ELEVATION
- PROPOSED FLOW LINE ELEVATION
- PROPOSED FINISHED GRADE ELEVATION
- PROPOSED TOP OF CONCRETE ELEVATION
- SWALE
- DOWNSPOUT W/ CONNECTOR TO DRAINAGE SYSTEM
- EXISTING TREE

GENERAL NOTES: SITEWORK

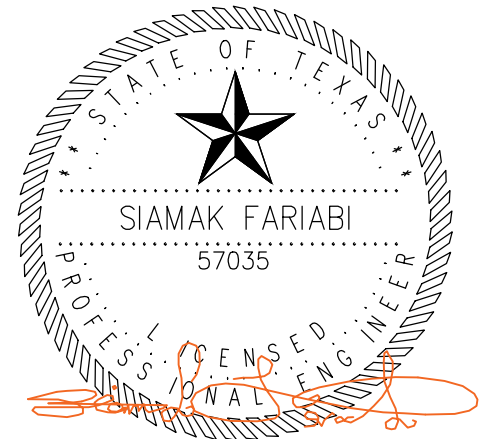
1. CONTRACTOR/BUILDER SHALL FIELD-VERIFY EXISTING ELEVATIONS AND SET FINISH FLOOR (FF) ELEVATION AT LEAST 18 INCHES ABOVE THE BASE FLOOD ELEVATION, ACCORDING TO FEMA MAPS & TOPOGRAPHIC SURVEY DATA; 12 INCHES ABOVE THE NEAREST SANITARY SEWER MANHOLE RIM, OR, WHERE, NO SEWER IS AVAILABLE, THE FINISHED FLOOR SHALL NOT BE LESS THAN 4 INCHES ABOVE THE CROWN OF THE STREET.
2. PROPOSED FF ELEVATION IS MINIMUM. BUILDER MAY SET SLAB @ A HIGHER ELEVATION, BUT NOTIFY ENGINEER PRIOR TO SETTING FORM.
3. FINISH GRADE ELEVATIONS @ SIDE & REAR PROPERTY LINES SHALL MATCH EXISTING GRADE ELEVATIONS U.O.N.
4. CONTRACTOR/BUILDER SHALL FIELD-VERIFY ALL EXISTING CONDITIONS & INFORM ENGINEER OF ALL DISCREPANCIES THAT MAY IMPACT THIS WORK.
5. ALL EXCAVATED SOIL FROM FOUNDATIONS SHALL BE REMOVED FROM CONSTRUCTION SITE AND MAY NOT BE USED AS FILL DIRT, UNLESS SPECIFICALLY CALLED FOR IN FOUNDATION DRAWINGS.
6. CONSTRUCTION SITE IS TO BE MAINTAINED FREE OF ANY OPEN TRENCHES, PITS, HOLES, OR OTHER EXCAVATIONS THAT MAY HOLD WATER.
7. RUNOFF FROM CONSTRUCTION SITE SHALL BE FILTERED SO AS TO PREVENT SAND, MUD AND DIRT OF ANY KIND FROM ENTERING CITY STORM DRAINAGE SYSTEM.
8. ADJOINING PROPERTIES
 - A. THIS PROPOSED DRAINAGE SCHEME WILL NOT RESULT IN ANY STORMWATER RUNOFF ONTO ADJOINING PROPERTIES DURING A 2-YEAR STORM.
 - B. CONTRACTOR SHALL MAINTAIN DRAINAGE DURING CONSTRUCTION SO AS TO ENSURE THAT NO RUNOFF FROM CONSTRUCTION SITE TRAVERSES ADJOINING PROPERTIES AT ANYTIME.
9. CITY RIGHT-OF-WAY
 - A. ANY DAMAGE TO EXISTING ROADS, DRIVEWAYS, SIDEWALKS, OR OTHER APPURTENANCES WITHIN THE CITY'S RIGHT-OF-WAY SHALL BE SAW-CUT, REMOVED AND REPLACED WITH MATERIAL EQUAL TO OR SUPERIOR TO EXISTING MATERIAL, AND SHALL BE INSTALLED TO CITY STANDARDS.
 - B. ANY AREAS OF GRASS WITHIN THE CITY'S RIGHT-OF-WAY WHICH ARE DISTURBED OR DUG UP DURING CONSTRUCTION SHALL BE REPLACED WITH ST. AUGUSTINE, OR GRASS WHICH MATCHES THE GRASS REMOVED.
10. ROOF DRAINAGE NOTE
 - A. ALL ROOF DRAINAGE SHALL BE COLLECTED BY A GUTTER AND DOWNSPOUT COLLECTION SYSTEM. ALL DOWNSPOUTS SHALL BE CONNECTED TO THE SUB-SURFACE COLLECTION SYSTEM.
11. SWALE NOTE
 - A. SWALES SHALL NOT BE COMPACTED AFTER EXCAVATION AND DURING RE-GRADING AND SHALL BE SODDED.
12. DETENTION MAINTAINANCE NOTES
 - A. OWNER IS RESPONSIBLE FOR MAINTAINING DETENTION FACILITY
 - B. SUBSURFACE DRAINAGE SYSTEMS ARE REQUIRED TO BE DRAINED IN 48 HOURS

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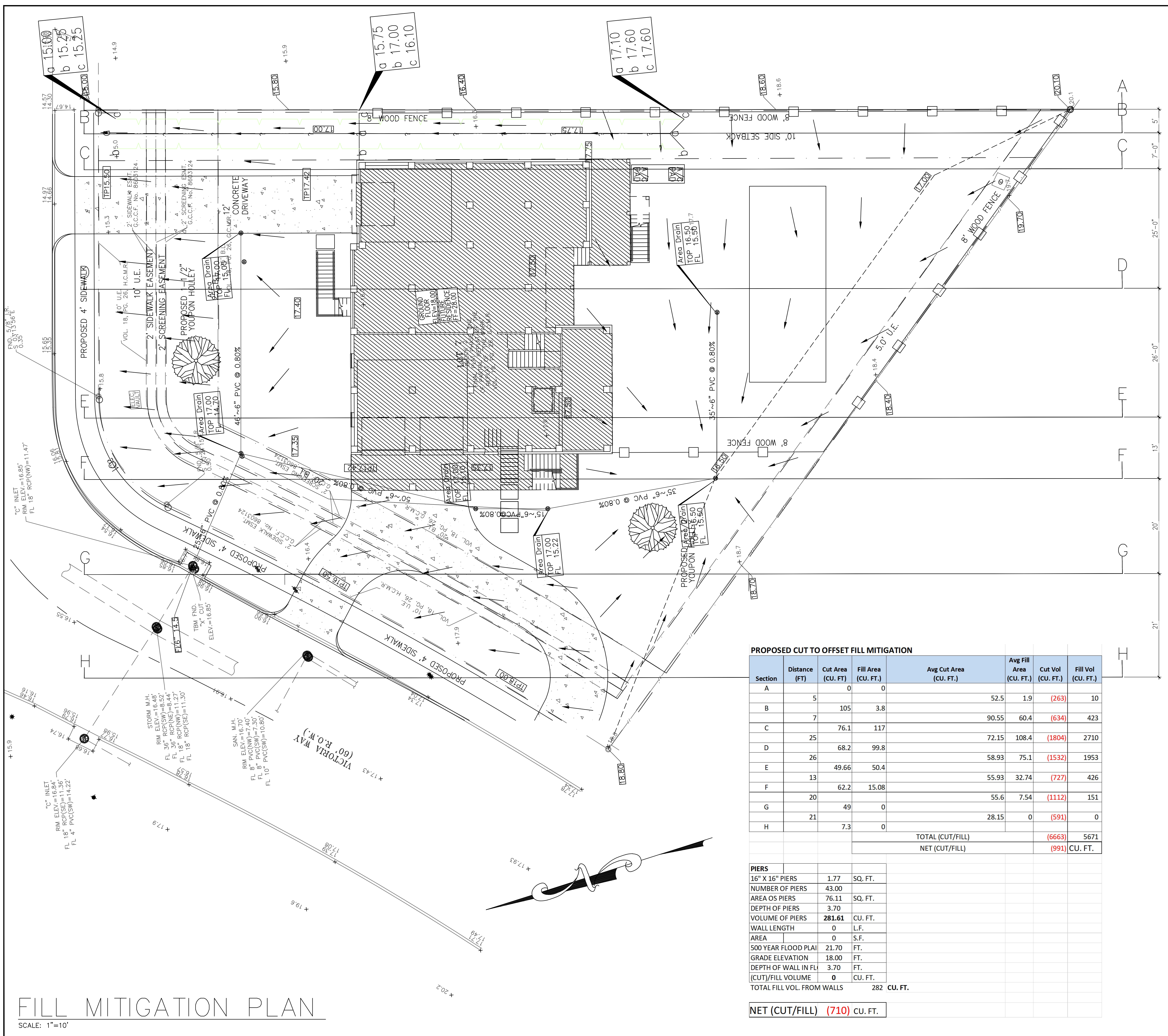
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09/08/2025

PROJECT: 1508 VICTORIA WAY
 PROJECT NO.: MFE24-121
 25-508
 DATE: 03/13/2025
 REVISION: 09/08/2025
 Added swale and adjusted x-sections
 REVISION:
 DRAWN: BSS

SHEET NO.:
C001.01



PROPOSED CUT TO OFFSET FILL MITIGATION

Section	Distance (FT)	Cut Area (CU. FT.)	Fill Area (CU. FT.)	Avg Cut Area (CU. FT.)	Avg Fill Area (CU. FT.)	Cut Vol (CU. FT.)	Fill Vol (CU. FT.)
A	5	0	0		52.5	1.9	(263)
B	7	105	3.8		90.55	60.4	(634)
C	25	76.1	117		72.15	108.4	(1804)
D	26	68.2	99.8		58.93	75.1	(1532)
E	13	49.66	50.4		55.93	32.74	(727)
F	20	62.2	15.08		55.6	7.54	(1112)
G	21	49	0		28.15	0	(591)
H	7.3	0	0				
TOTAL (CUT/FILL)						(6663)	5671
NET (CUT/FILL)						(991)	CU. FT.

PIERS

16" X 16" PIERS	1.77	SQ. FT.
NUMBER OF PIERS	43.00	
AREA OS PIERS	76.11	SQ. FT.
DEPTH OF PIERS	3.70	
VOLUME OF PIERS	281.61	CU. FT.
WALL LENGTH	0	L.F.
AREA	0	S.F.
500 YEAR FLOOD PLAI	21.70	FT.
GRADE ELEVATION	18.00	FT.
DEPTH OF WALL IN FLI	3.70	FT.
(CUT)/FILL VOLUME	0	CU. FT.
TOTAL FILL VOL. FROM WALLS	282	CU. FT.

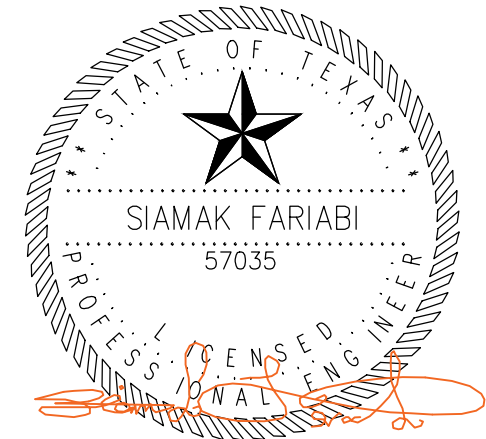
NET (CUT/FILL) (710) CU. FT.

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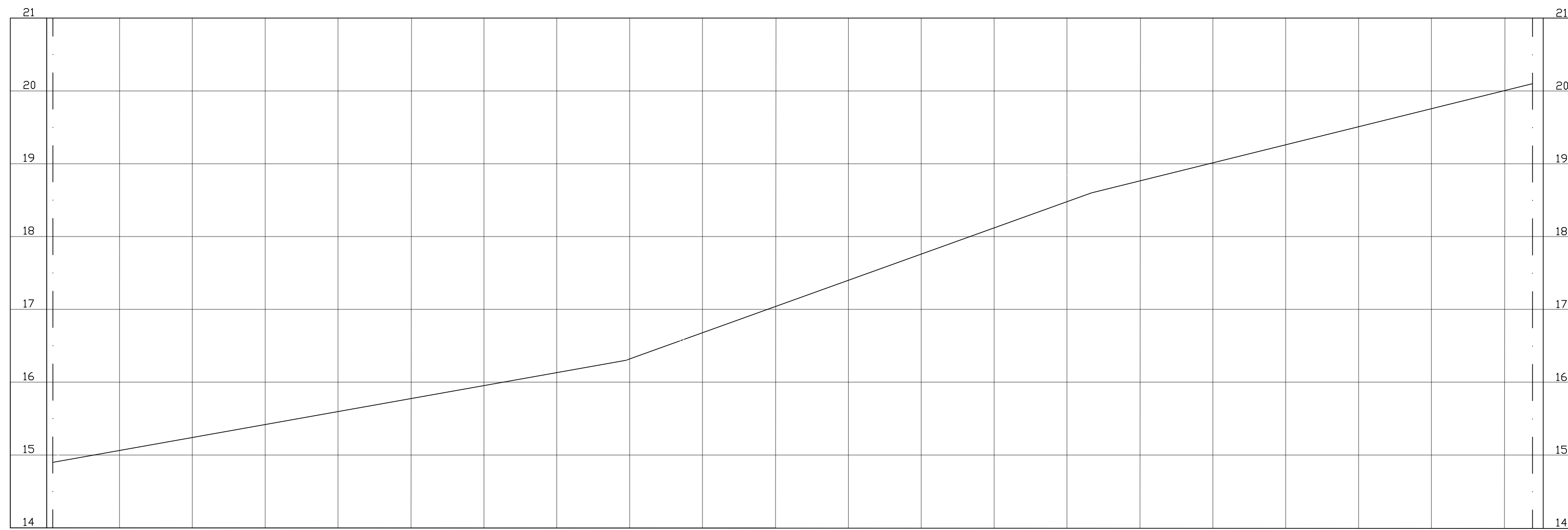
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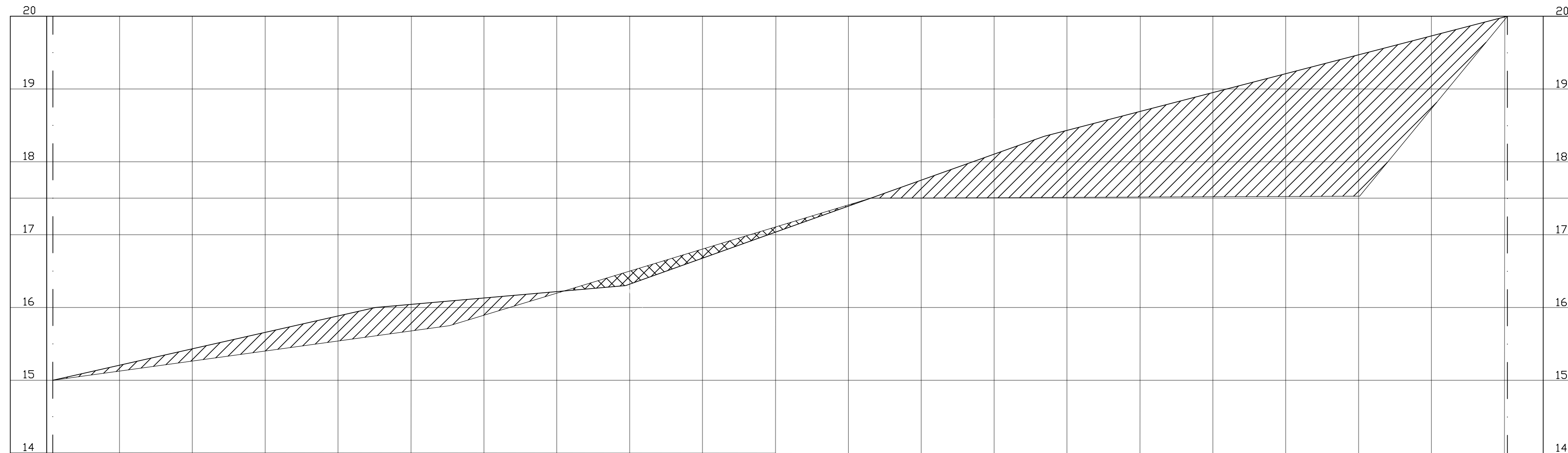
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FILL MITIGATION PLAN

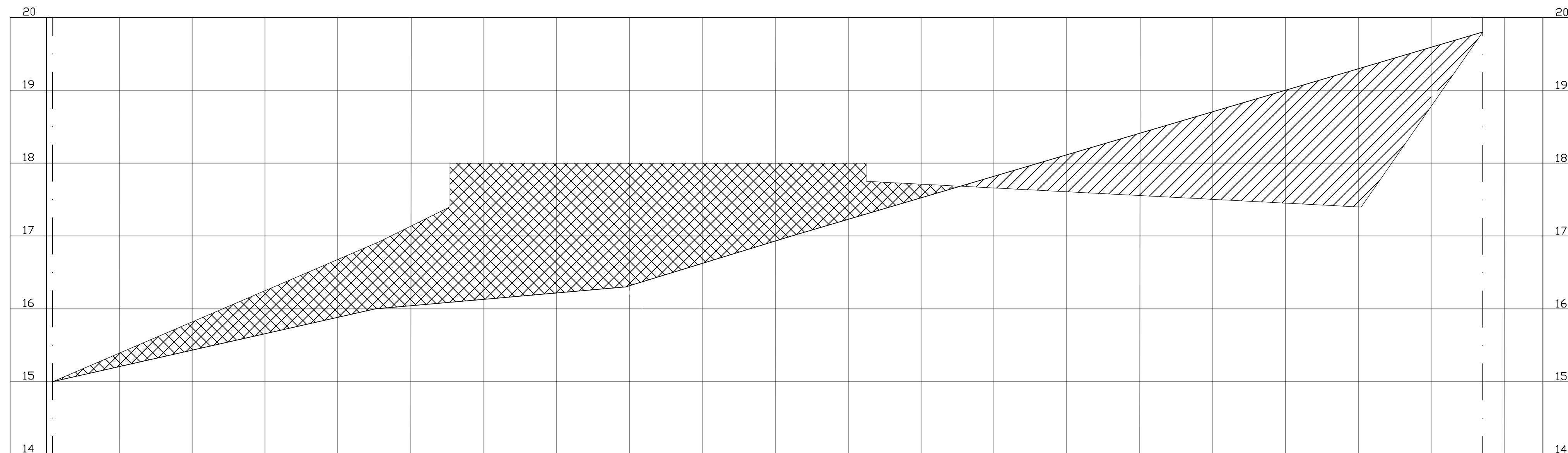
SCALE: 1"=10'



PL 0+00 SECTION A-A



PL 0+00 SECTION B-B



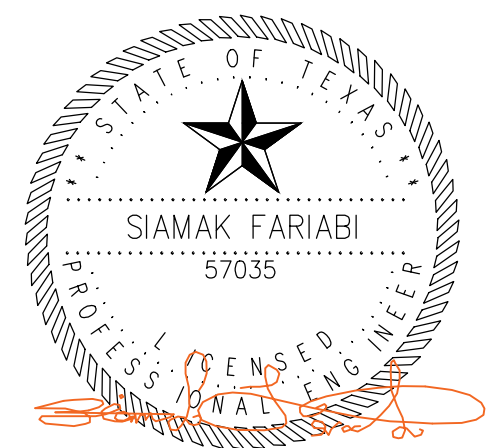
PL 0+00 SECTION C-C

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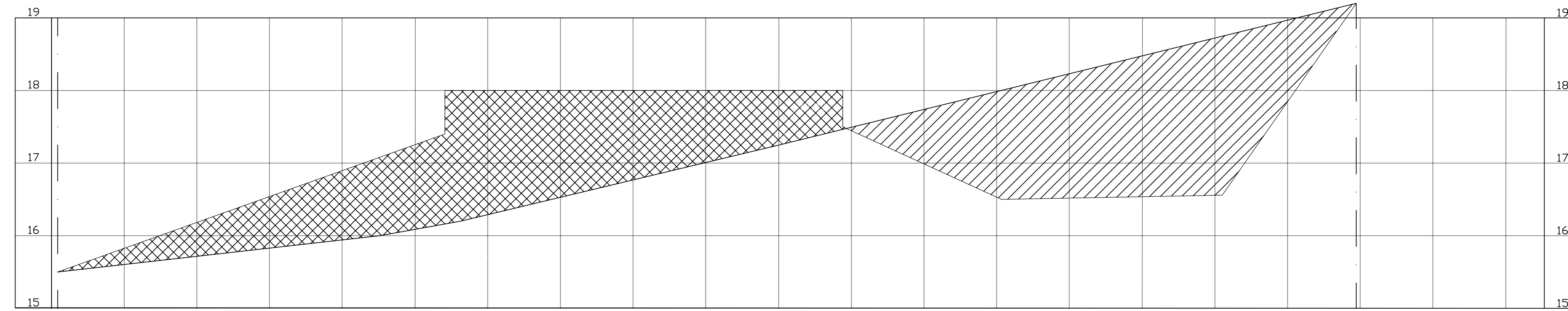
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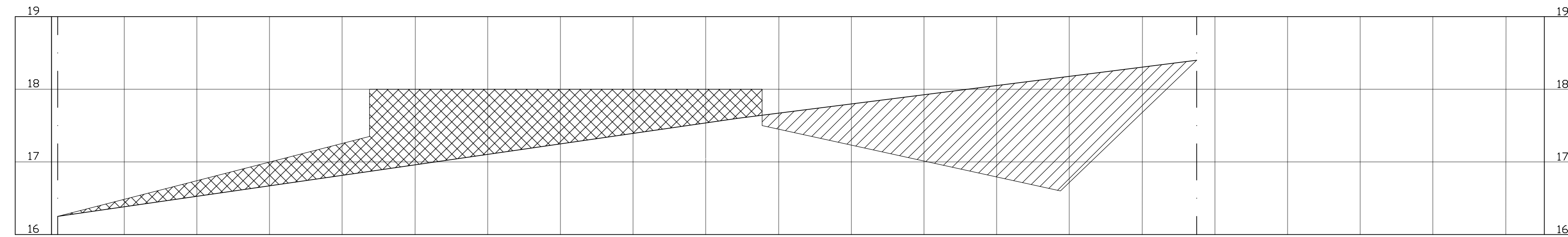
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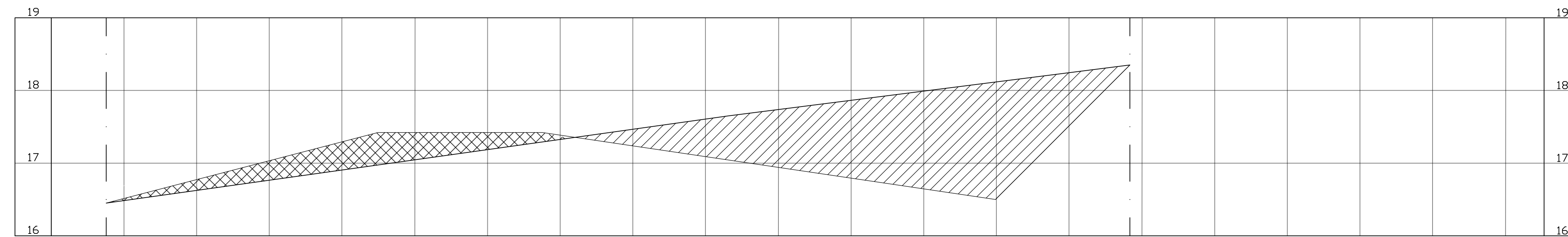
FILL MITIGATION



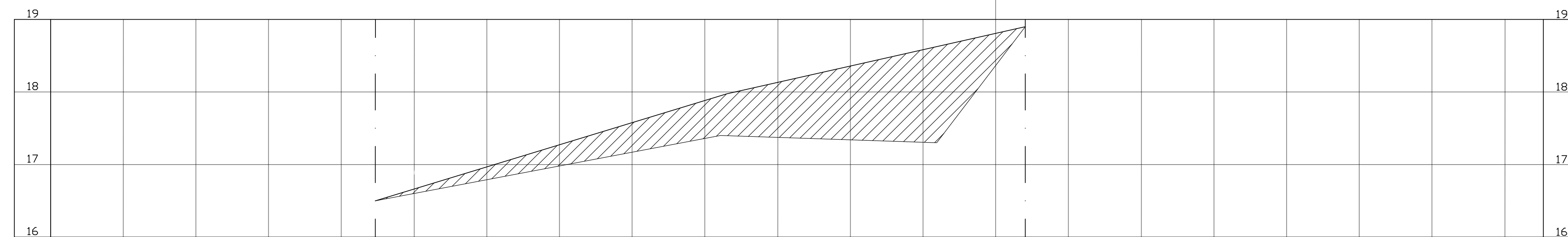
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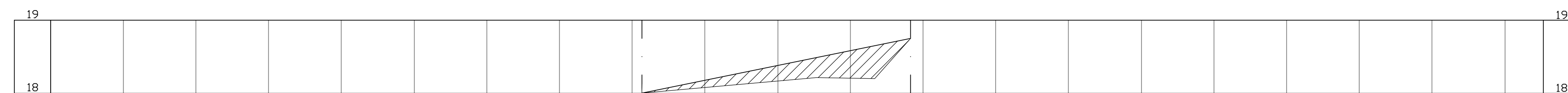
SECTION E-E



SECTION F-F



SECTION G-G



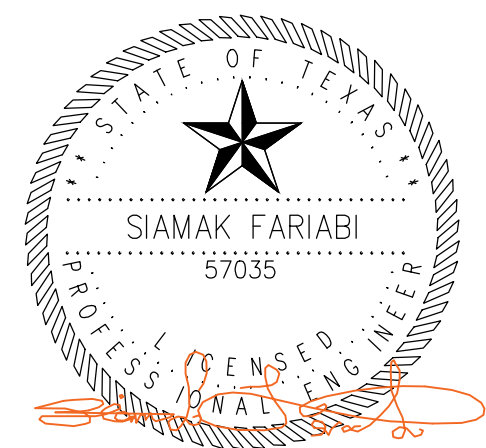
SECTION H-H

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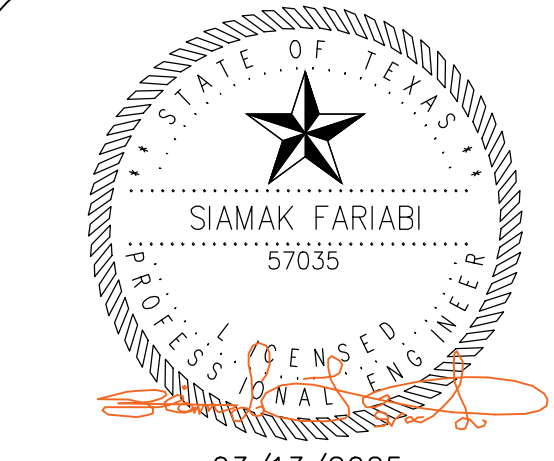
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FILL MITIGATION

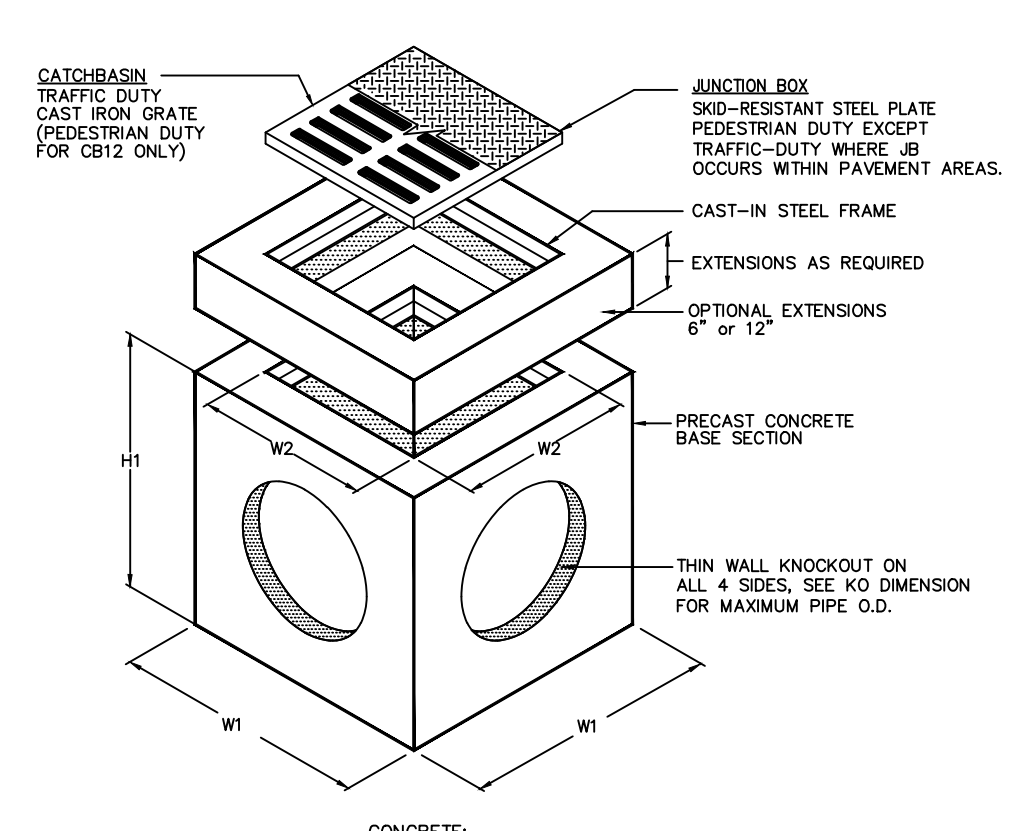
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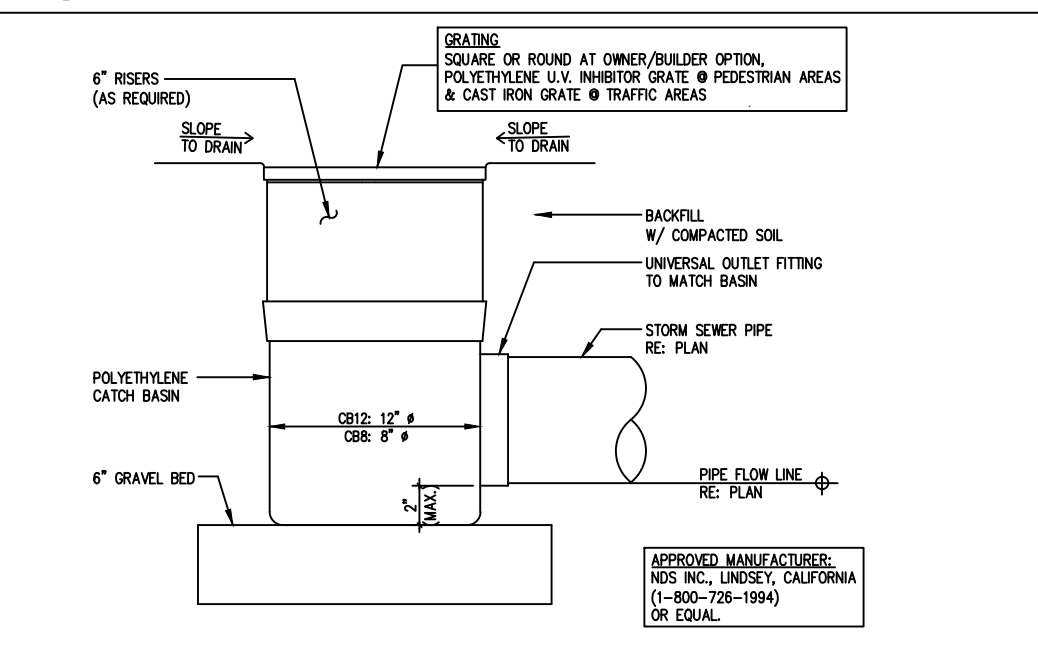


SPECIFICATIONS:
GENERAL:
1. BASE SECTION SHALL BE OF MONOLITHIC CONSTRUCTION AT FLOOR AND WALLS, WITH SECTIONAL RISERS (EXTENSIONS) TO REQUIRED DEPTH.
2. MANUFACTURER: PARK EQUIPMENT CO., HOUSTON (1-800-256-8041) OR ENGINEER-APPROVED EQUAL.
CONCRETE: 28-DAY COMPRESSIVE STRENGTH (F_c)=4,000 PSI.
REINFORCEMENT: CONFORM TO ASTM 615, GRADE 60 (F_y=60,000 PSI) SIZE & SPACING SHALL BE DETERMINED BY MANUFACTURER.
CASTINGS: FRAMES & GRATES SHALL BE MANUFACTURED OF GREY CAST IRON (C.I.) CONFORMING TO ASTM A48, CLASS 30.

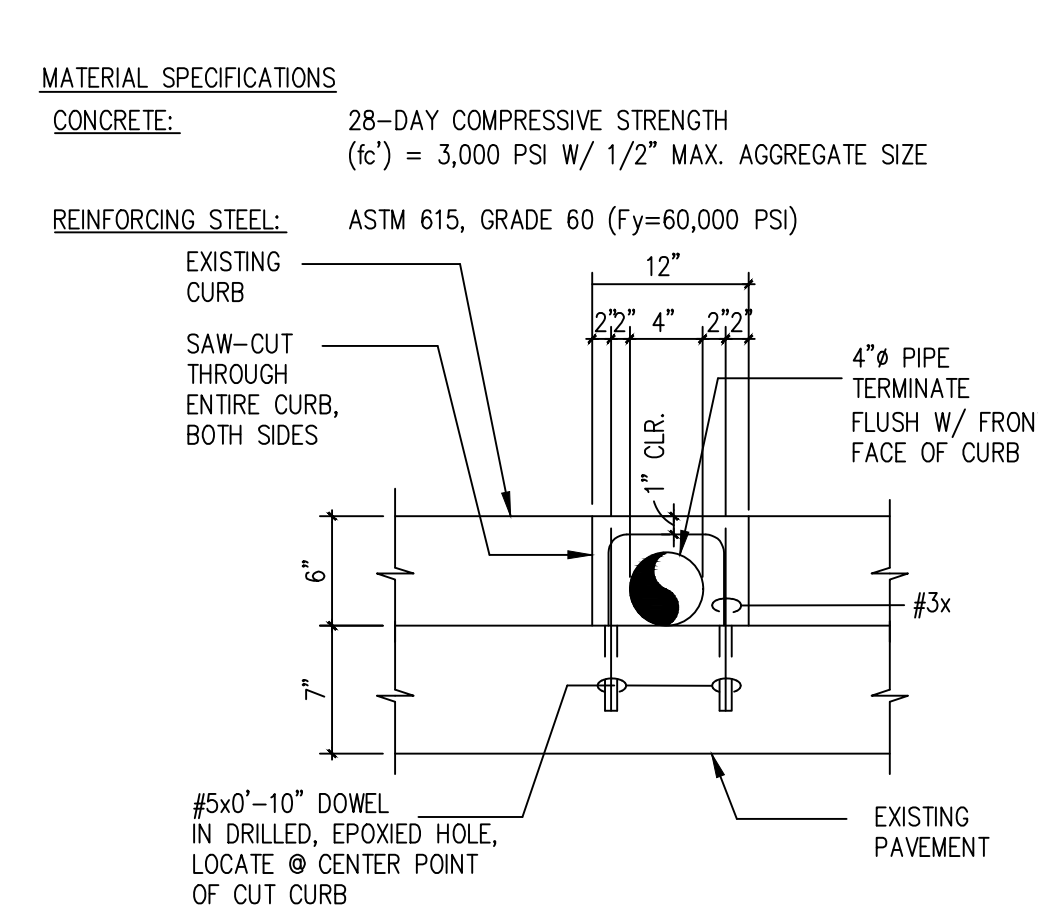
MARK	JUNCTION BOX	DIMENSIONS				GRATE USE	WEIGHT
CATCH BASIN		W1	W2	H1	KO		LB
CB12	.812	15"	10"	21"	10"	12"x12"x1"	180
CB18	.818	24"	18"	34"	15"	18"x18"x1"	1,000
CB20	.820	28"	18"	34"	17"	20"x20"x1"	1,335
CB24	.824	32"	22"	41"	22"	24"x24"x2"	2,245
CB27	.827	37"	22"	42"	24"	27"x27"x2"	2,875
CB30	.830	42"	30"	42"	30"	32"x32"x2"	3,675
CB36	.836	48"	36"	42"	32"	38"x38"x2"	4,585
CB48	.848	60"	48"	54"	48"	38"x38"x2"	6,500

1. CB12 CATCHBASIN IS RATED FOR PEDESTRIAN LOADING. ALL OTHERS ARE TRAFFIC DUTY.
2. ALL JUNCTION BOXES ARE STANDARD PEDESTRIAN DUTY OR OPTIONAL TRAFFIC DUTY.

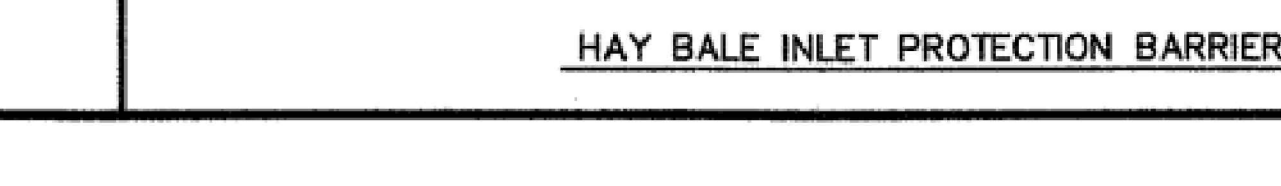
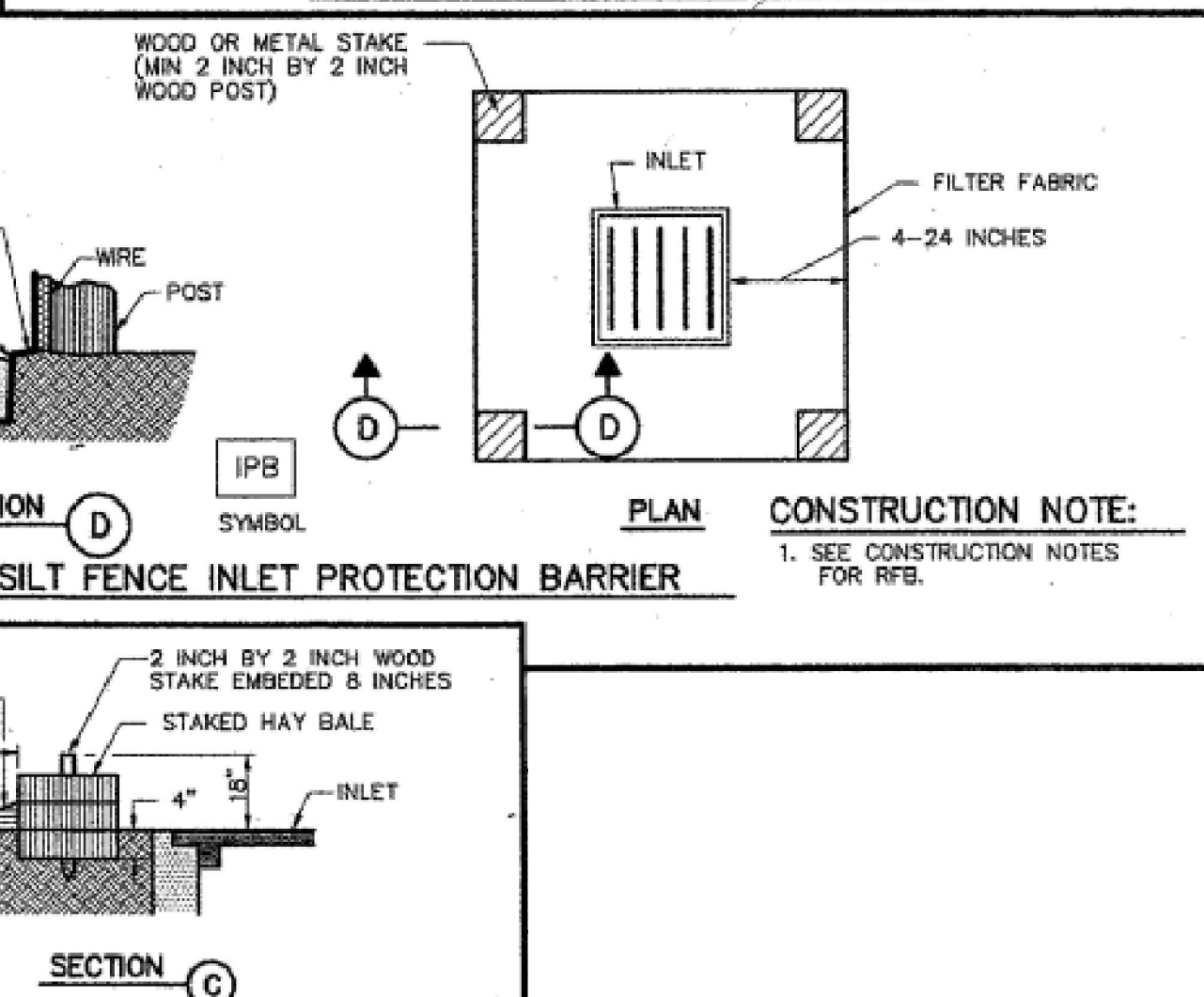
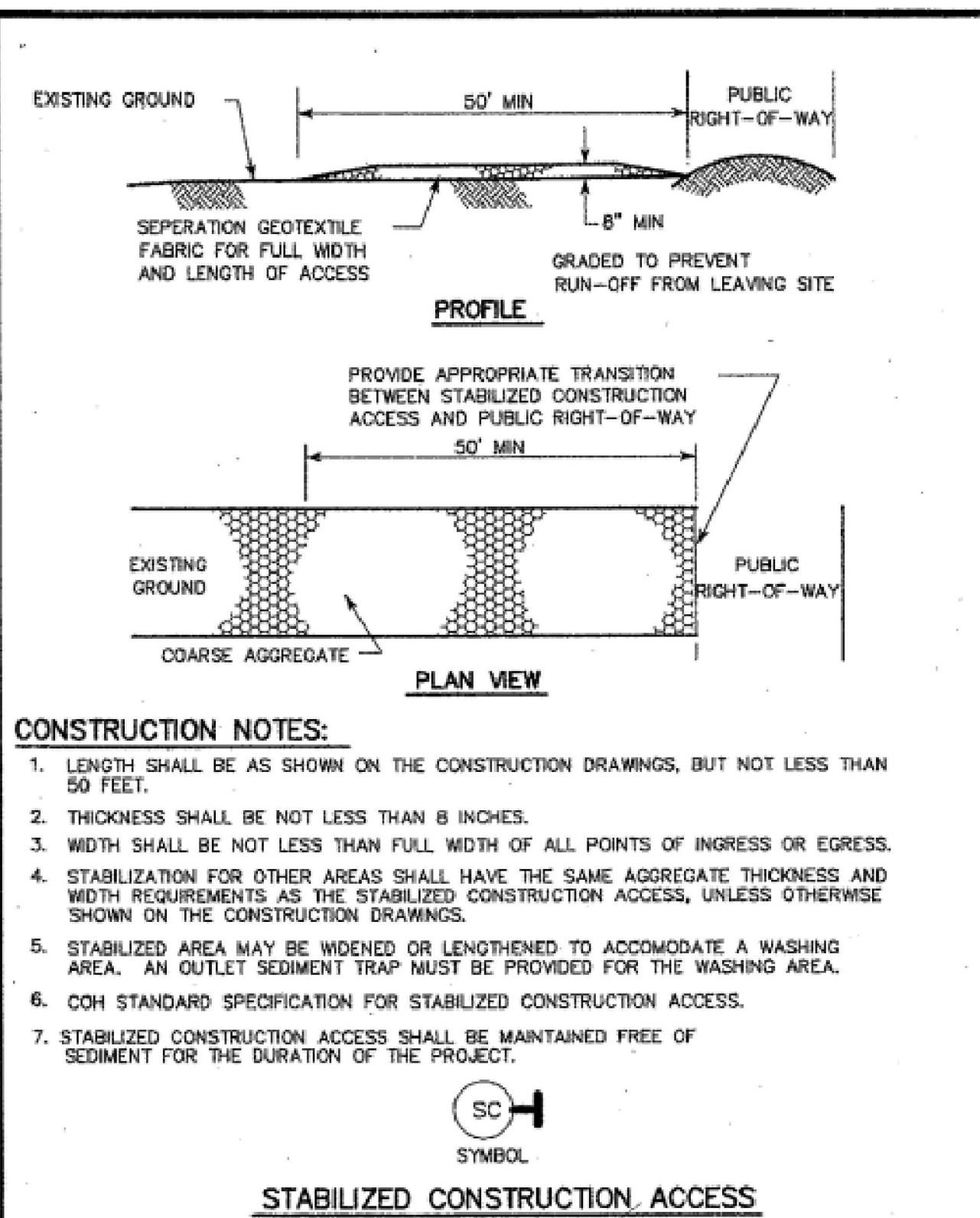
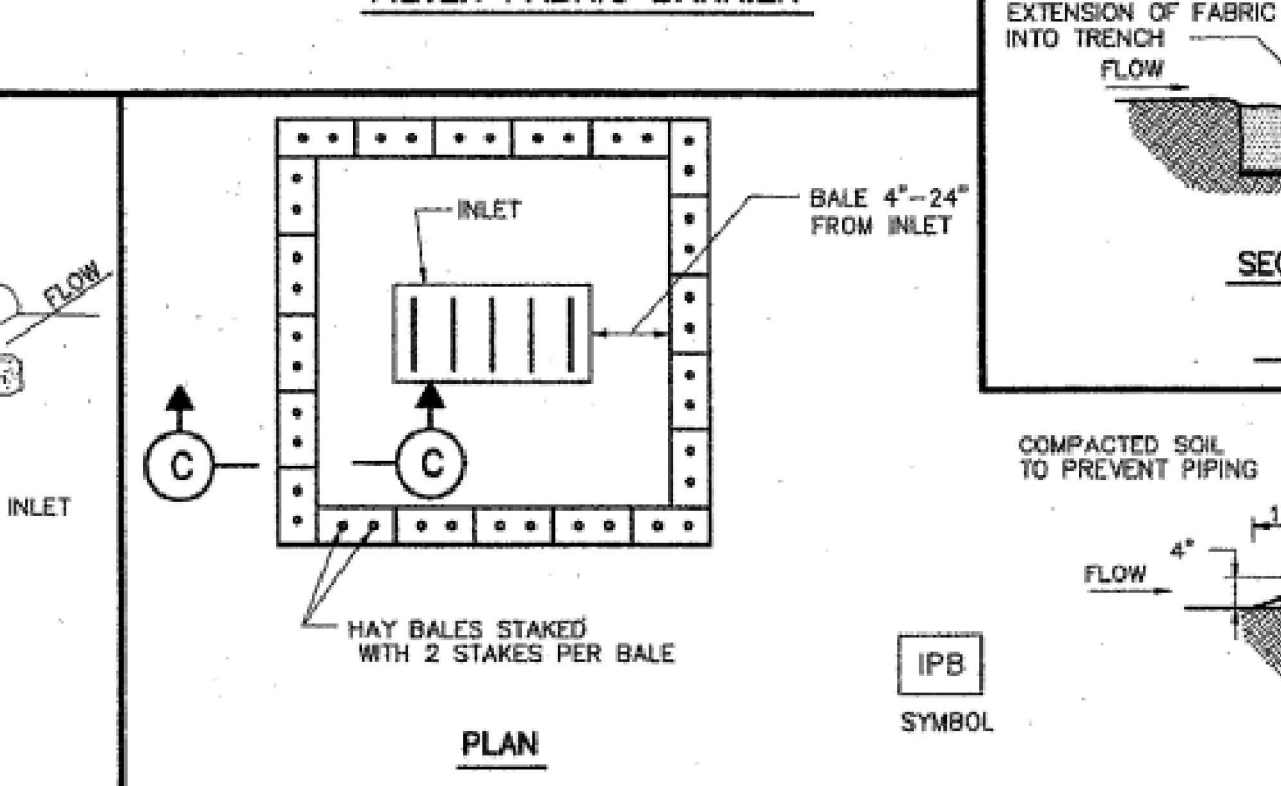
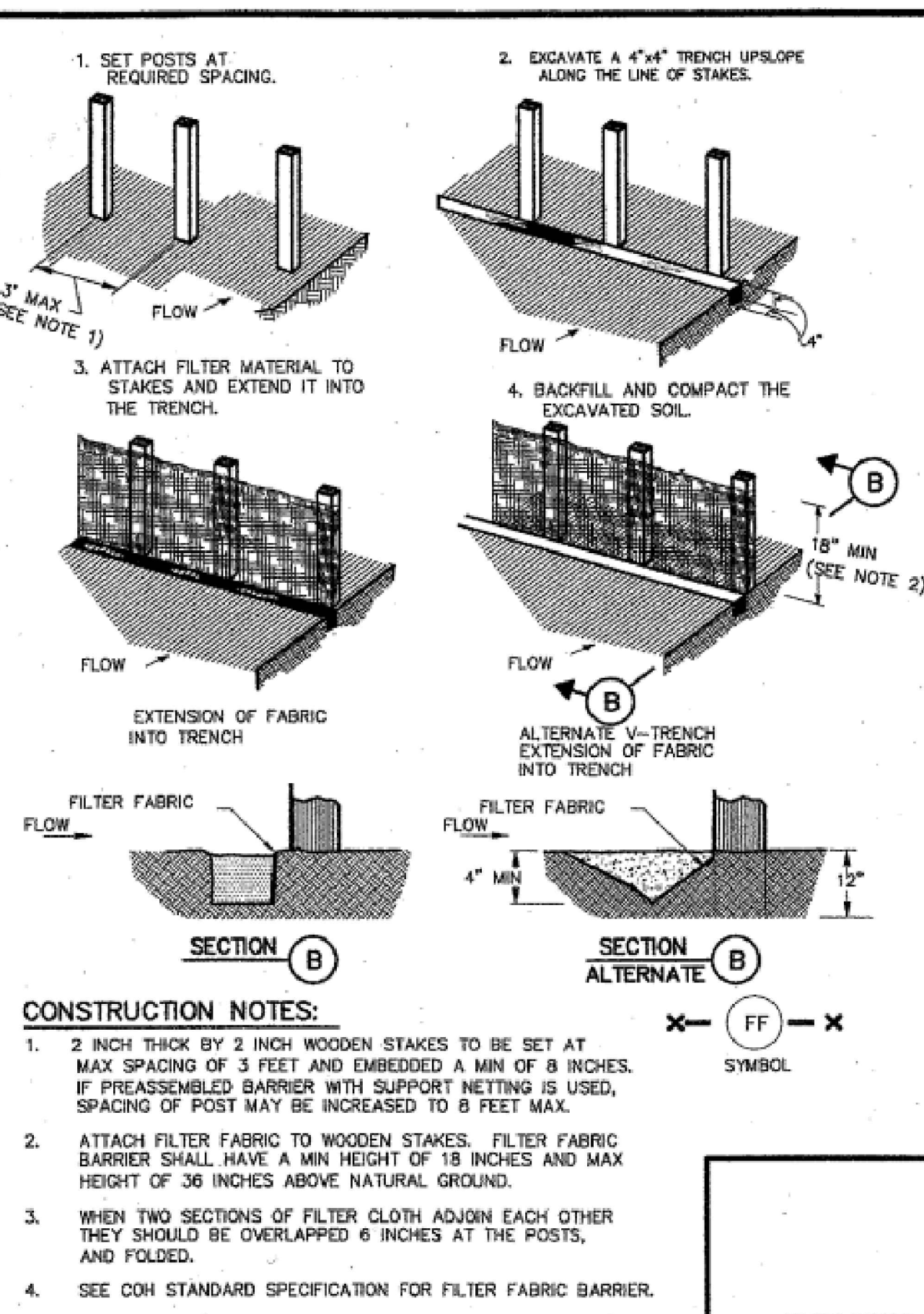
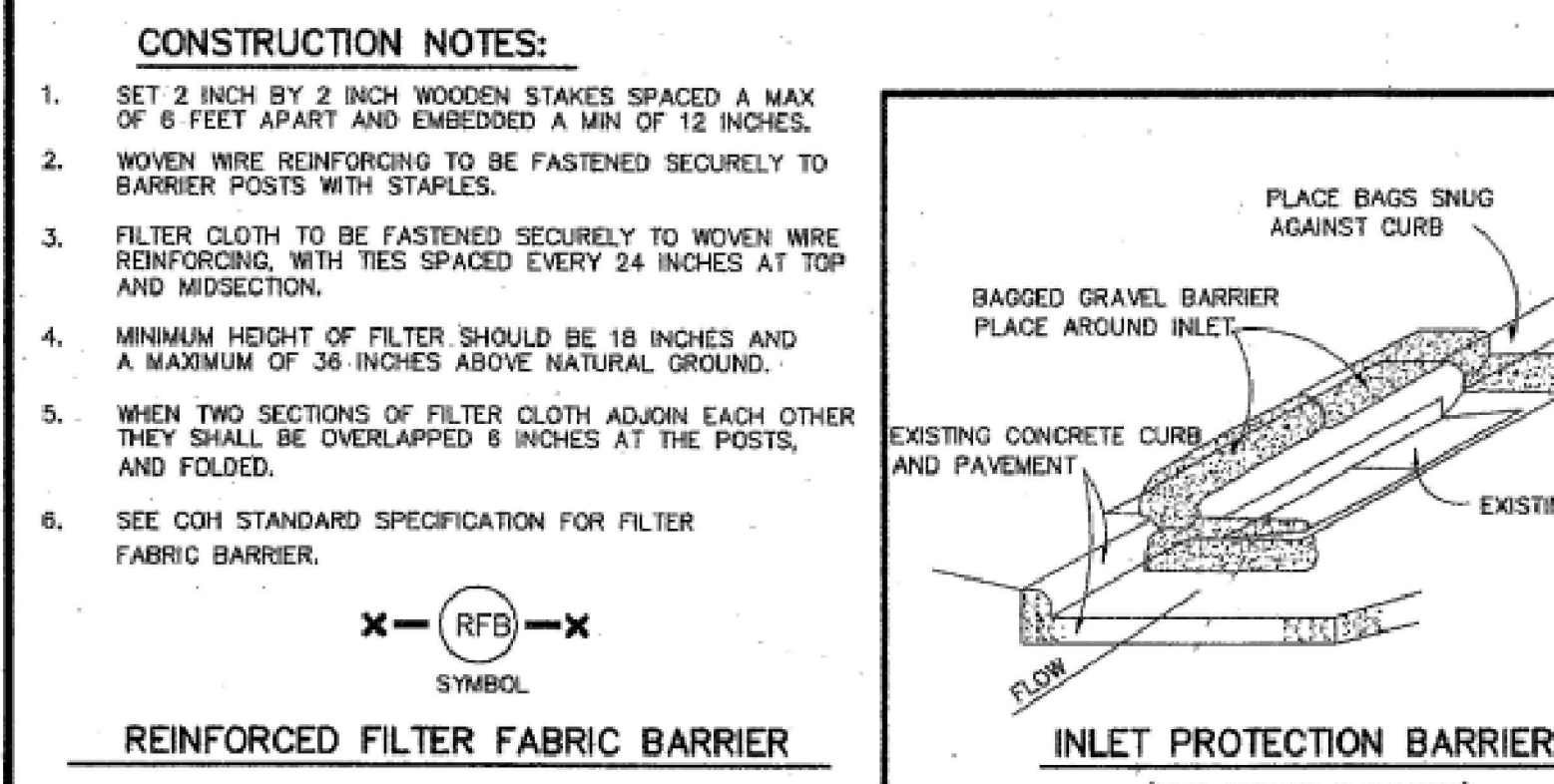
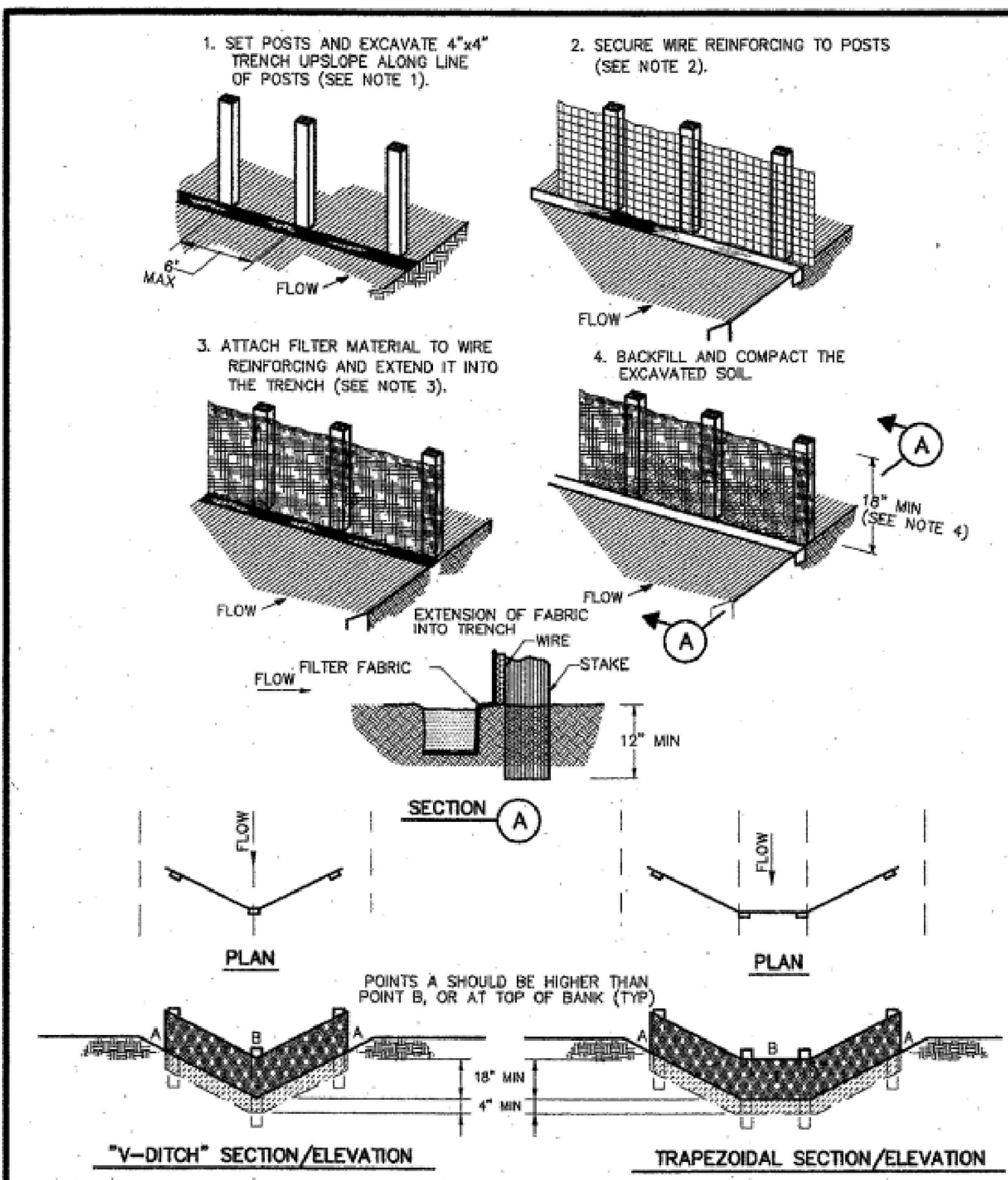
1 DETAIL: PIPE PENETRATION THROUGH EXISTING CURB



2 DETAIL: TYPICAL PLASTIC DRAIN (N.T.S.)



3 CURB PENETRATION DETAIL



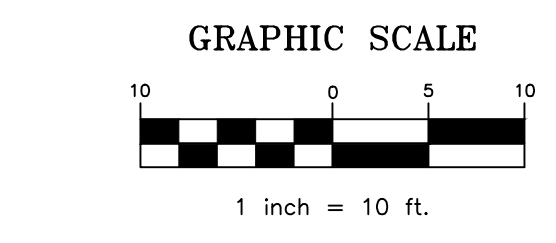
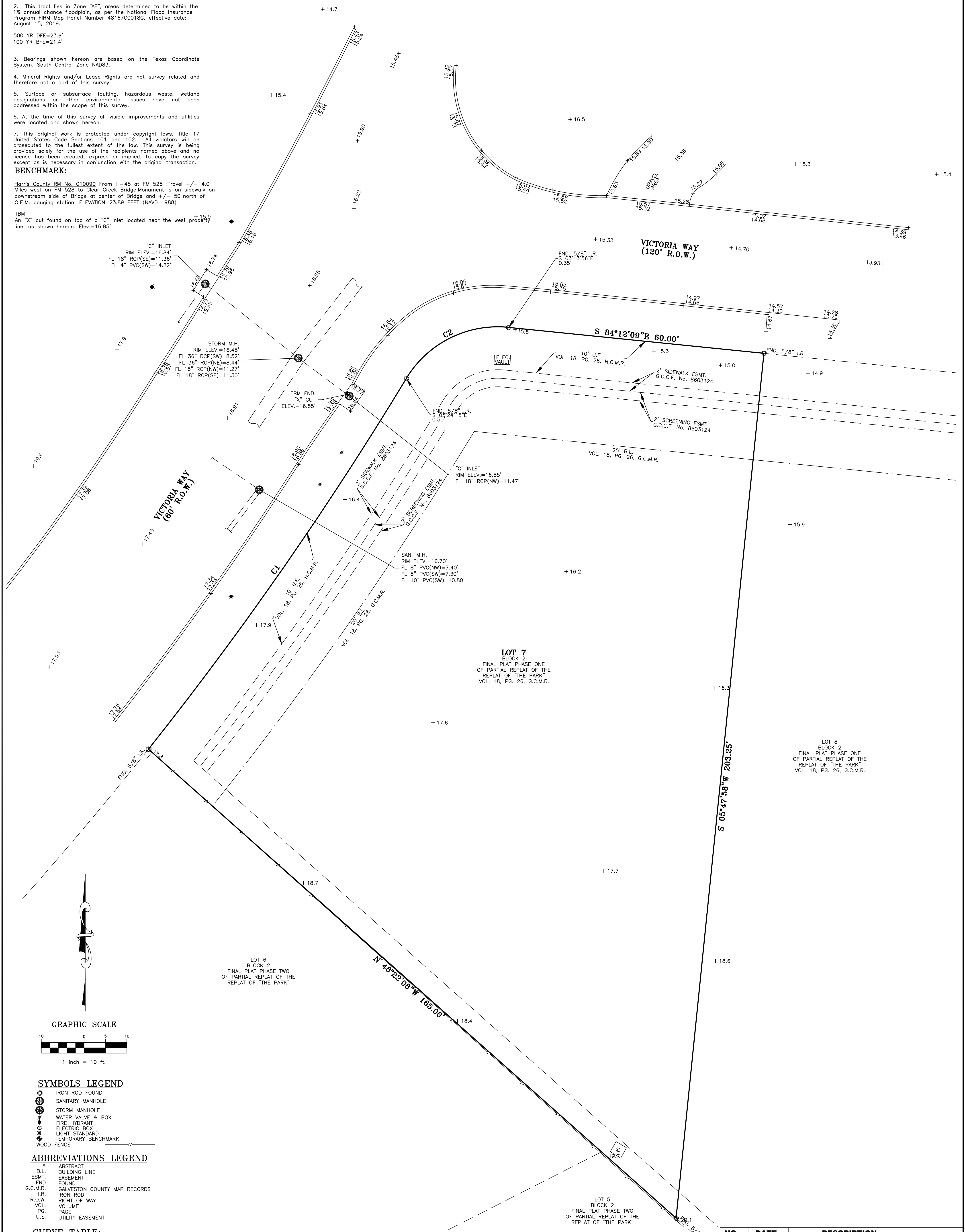
NOTES:

- This survey was prepared without the benefit of a title commitment; no additional research regarding the existence of easements or restrictions of record has been performed by DVJ Land Surveying.
- This tract lies in Zone "AE", areas determined to be within the 1% annual chance floodplain, as per the National Flood Insurance Program FIRM Map Panel Number 48167C0018G, effective date: August 15, 2019.
- 500 YR DFE=23.6'
100 YR BFE=21.4'
- Bearings shown hereon are based on the Texas Coordinate System, South Central Zone NAD83.
- Mineral Rights and/or Lease Rights are not survey related and therefore not a part of this survey.
- Surface or subsurface faulting, hazardous waste, wetland designations or other environmental issues have not been addressed within the scope of this survey.
- At the time of this survey all visible improvements and utilities were located and shown hereon.
- This original work is protected under copyright laws, Title 17 United States Code Sections 101 and 102. All violators will be prosecuted to the fullest extent of the law. This survey is being provided solely for the use of the recipients named above and no license has been created, express or implied, to copy the survey except as is necessary in conjunction with the original transaction.

BENCHMARK:

Harris County BM No. 010090 From I = 45 at FM 528 Travel +/- 4.0 Miles west on FM 528 to Clear Creek Bridge Monument is on sidewalk on downstream side of Bridge at center of Bridge and +/- 50 north of O.E.M. gauging station. ELEVATION=23.89 FEET (NAVD 1988)

IBM
An "X" cut found on top of a "C" inlet located near the west property line, as shown hereon. Elev.=16.85'



SYMBOLS LEGEND

- IRON ROD FOUND
- ⊙ SANITARY MANHOLE
- ⊕ STORM MANHOLE
- ⊕ WATER VALVE & BOX
- ⊕ FIRE HYDRANT
- ⊕ ELECTRIC BOX
- ⊕ LIGHT STANDARD
- ⊕ TEMPORARY BENCHMARK
- WOOD FENCE

ABBREVIATIONS LEGEND

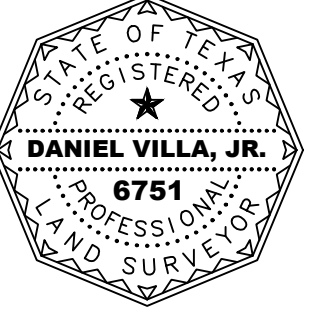
- A ABSTRACT
- B.L. BUILDING LINE
- ESMT. EASEMENT
- FND FOUND
- G.C.M.R. GALVESTON COUNTY MAP RECORDS
- I.R. IRON ROD
- R.O.W. RIGHT OF WAY
- VOL. VOLUME
- PG. PAGE
- U.E. UTILITY EASEMENT

CURVE TABLE:

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	830.00'	105.66'	105.59'	N 34°49'26" E	7°17'38"
C2	25.00'	26.20'	26.73'	N 63°29'14" E	64°38'01"

NO.	DATE	DESCRIPTION

TOPOGRAPHY SURVEY
OF LOT 7, BLOCK 2
FINAL PLAT PHASE ONE OF
PARTIAL REPLAT OF THE REPLAT
OF "THE PARK"
VOL. 18, PG. 26, G.C.M.R.
LOCATED IN
GALVESTON COUNTY, TEXAS



This survey substantially complies with the current Texas Society of Professional Surveyors Manual of Practice requirements for a Category 6, Condition II Land Title Survey.

Daniel Villa, Jr., PE, RPLS
Registered Professional Land Surveyor
Texas Registration No. 6751



TX ENGINEERING FIRM NO. F-22322
TX SURVEYING FIRM NO. 10194609
8118 FRY ROAD, SUITE 402
CYPRESS, TEXAS 77433
281.213.2517

SCALE: 1"=10'	PROJECT No. 24-0183	DRAWN BY: CEG
DATE: 2-22-24	KEY MAP: N/A	CHECKED BY: DVJ