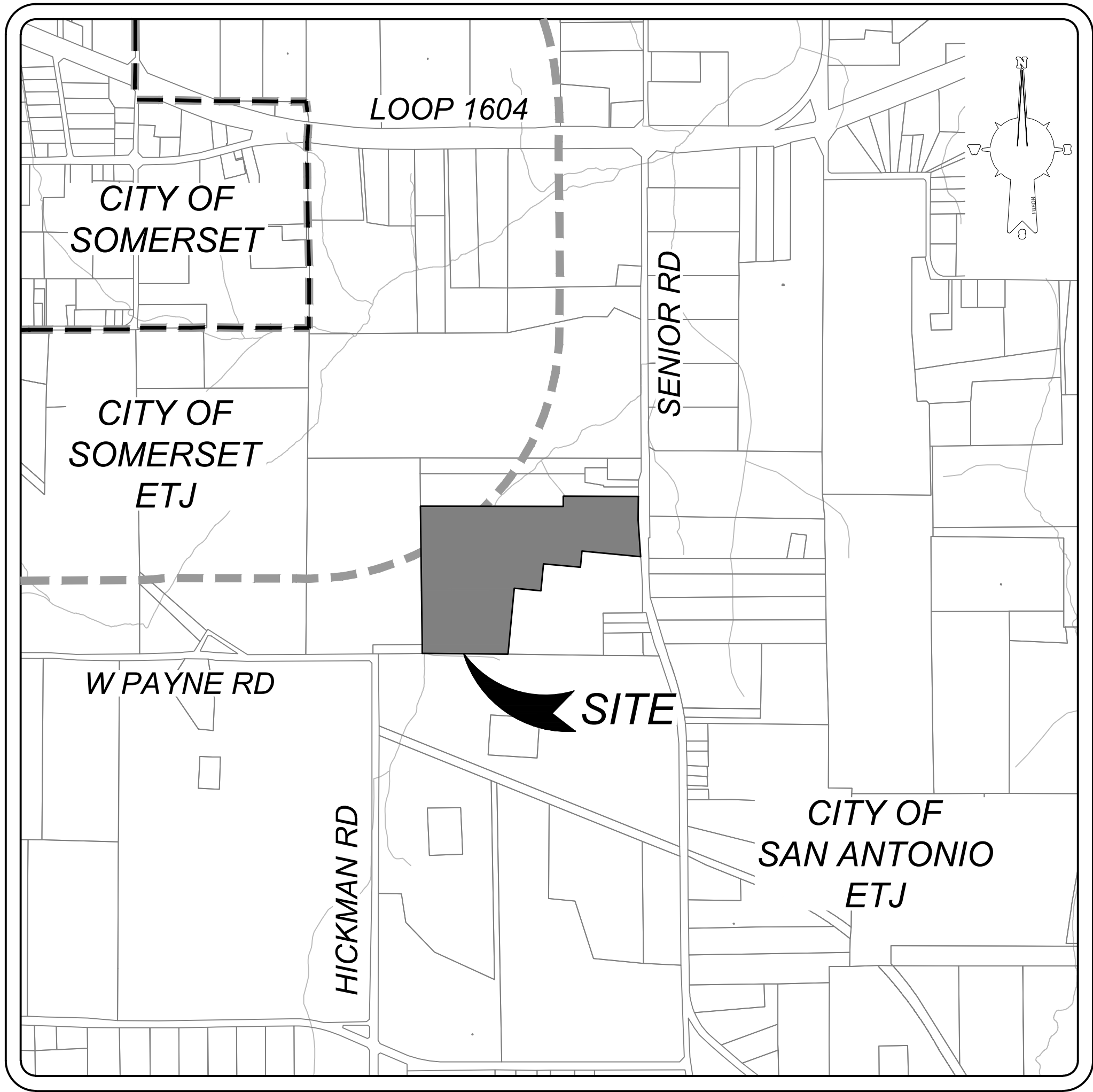


STREET, DRAINAGE, WATER, SANITARY
SEWER, AND UTILITY IMPROVEMENTS
FOR
J&M DEVELOPMENT
VARGA TRACT SUBDIVISION
BEXAR COUNTY, TEXAS



LOCATION MAP

N.T.S.

I HEREBY CERTIFY THAT I AM THE OWNER OF RECORD OF THE SITE HEREIN
DEPICTED AND THAT I CONCUR WITH THE SUBMISSION.

OWNER _____ DATE _____

APPROVED BY THE PLANNING BOARD OF THE TOWNSHIP OF "ENTER NAME" AT THE
REGULAR MEETING OF _____ DATE _____

CHAIRMAN _____ DATE _____

SECRETARY _____ DATE _____

ENGINEER _____ DATE _____

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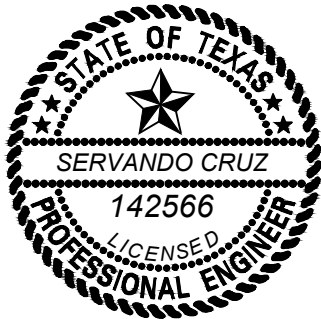


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PROJECT NUMBER: 1116-01-01	DRAWING NAME: CV11160101		

SHEET TITLE:
COVER SHEET

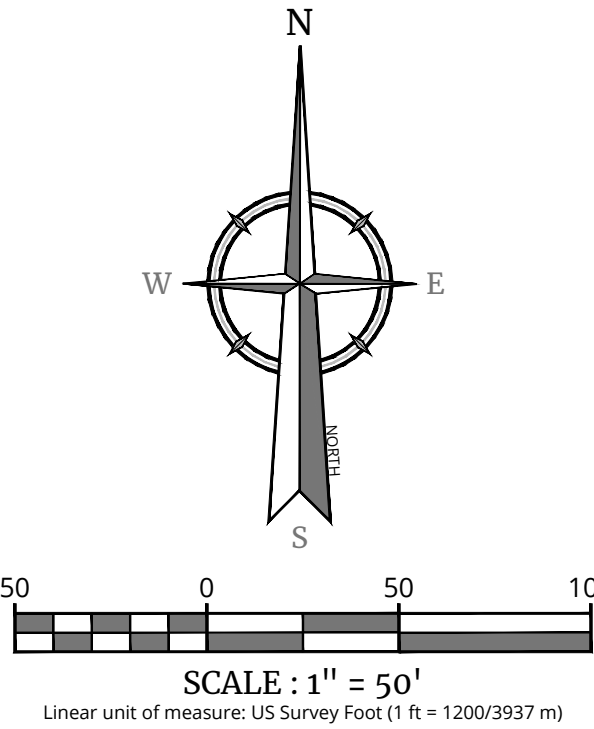
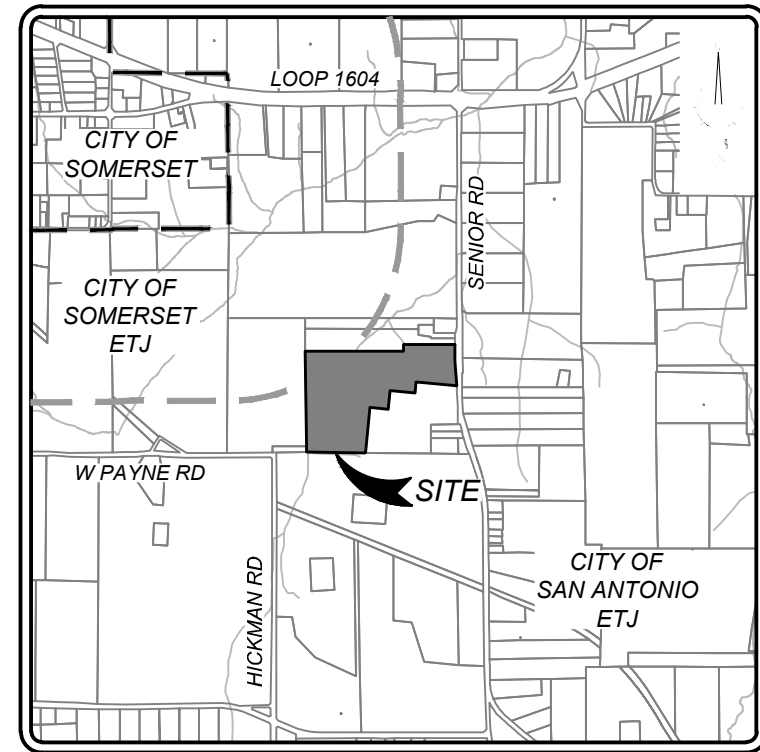
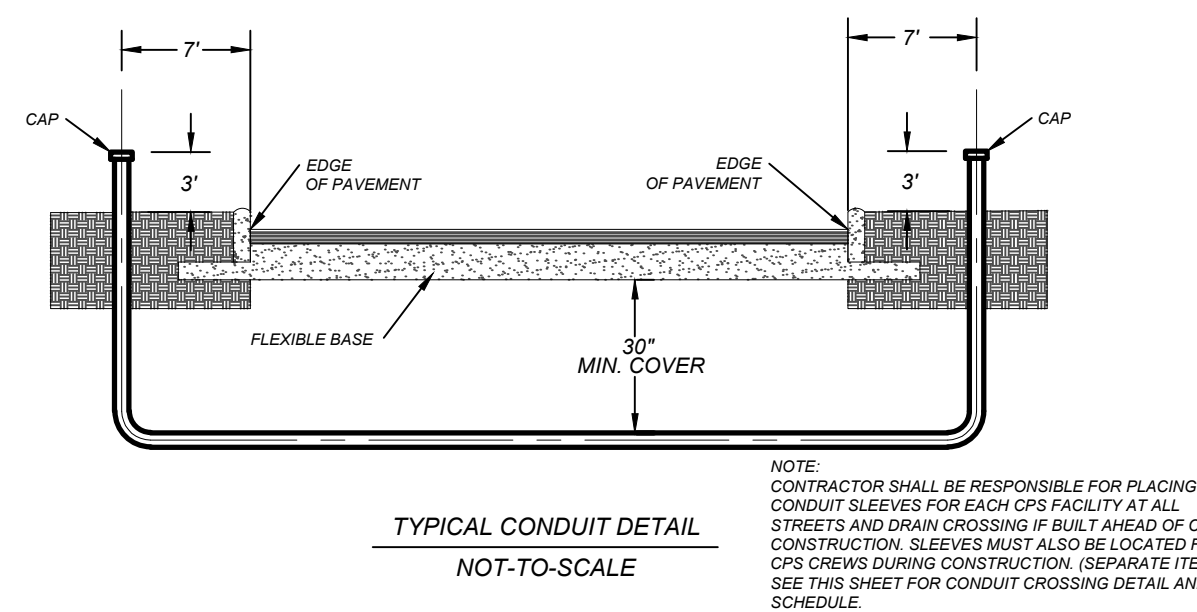
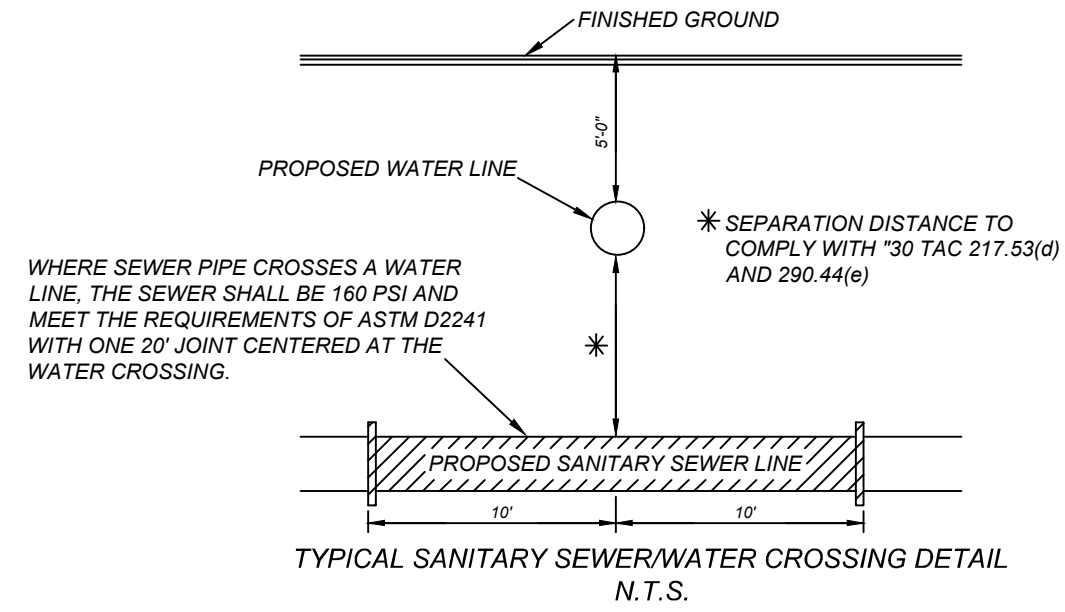
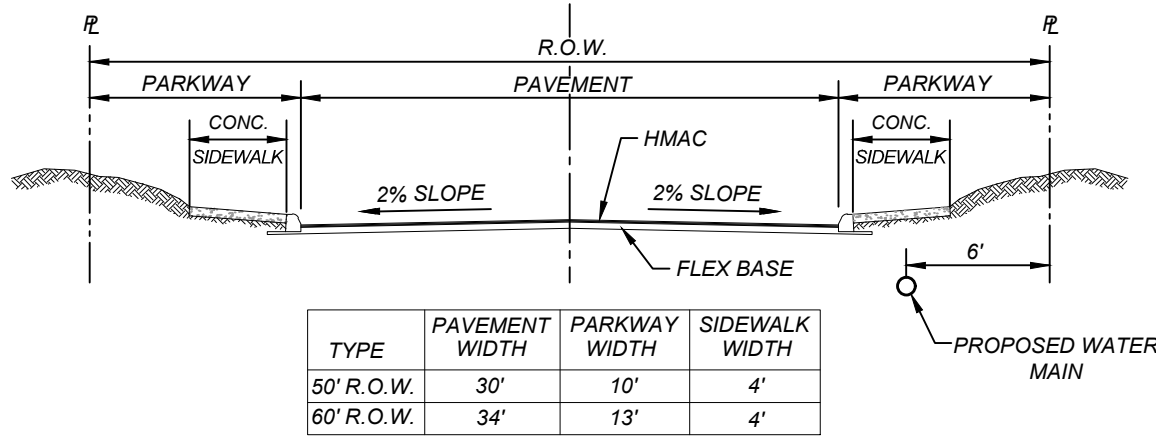
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NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION
CONTRACTOR AND/OR CONTRACTORS INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGNER/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

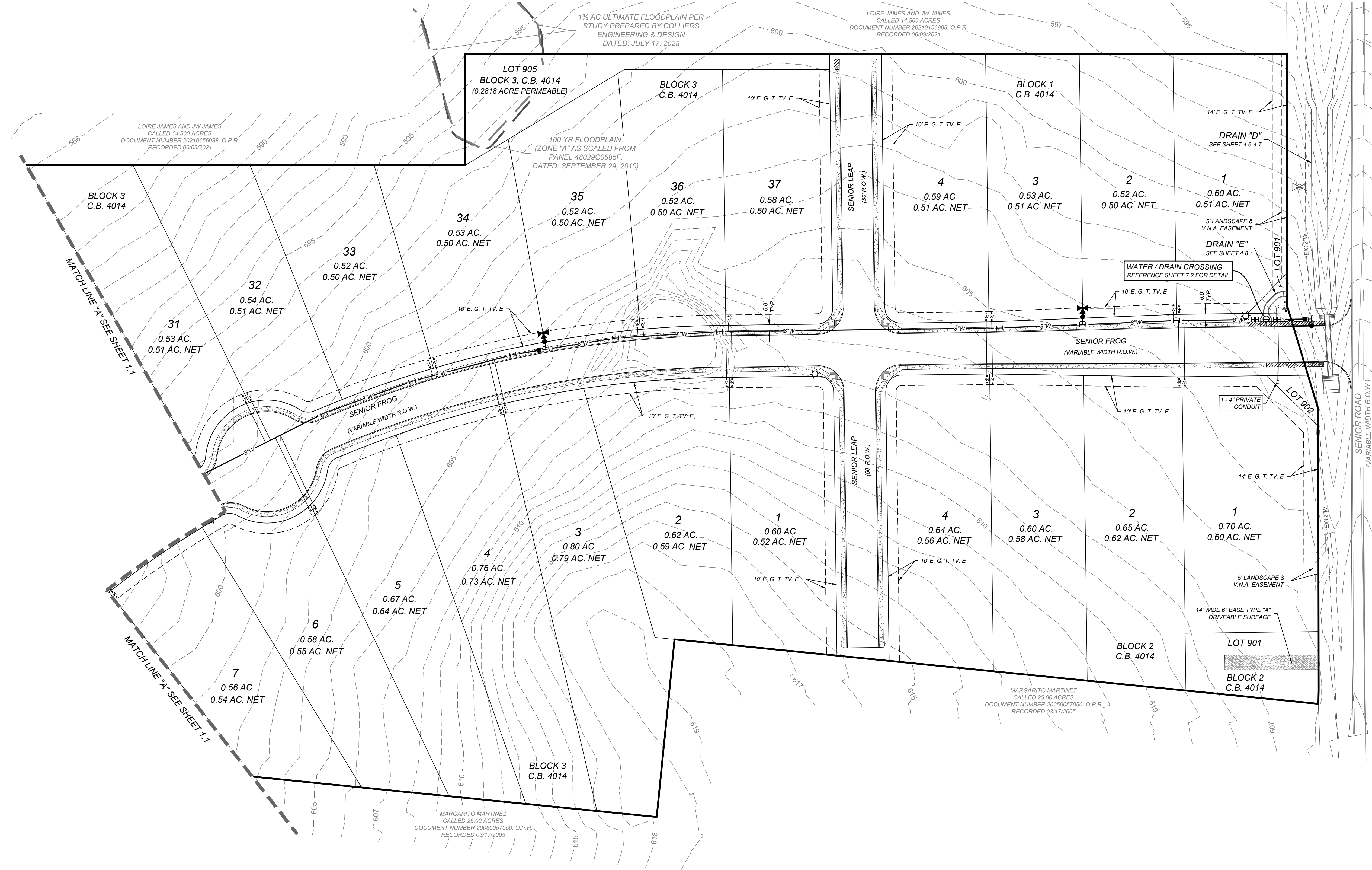
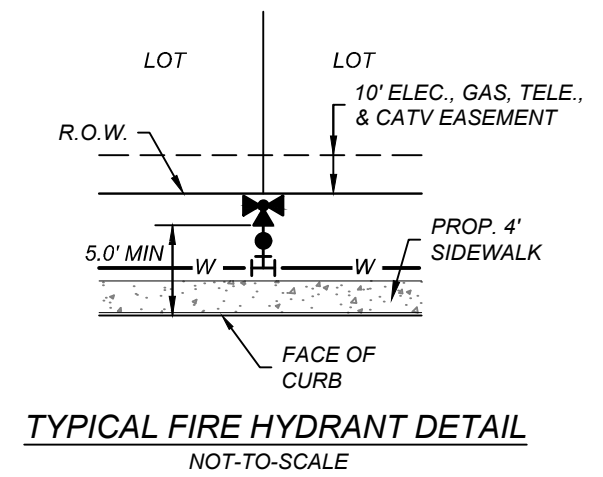
COMPACTION NOTE:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE SAWS INSPECTOR/TEST ADMINISTRATOR, PER EACH 12 INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. PERMITS AND/OR WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

DRY UTILITY CONDUIT NOTE:
CONDUIT LOCATIONS SHOWN ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY SURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS AND SIZES BASED ON THE DRY UTILITY SURVEYOR'S PLAN.



LEGEND

PROPOSED WATER MAIN	=	— W —
PROPOSED WATER SERVICE & METER BOX	=	— W —
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	— W —
PROPOSED FIRE HYDRANT	=	— W —
PROPOSED WATER VALVE	=	— W —
PROPOSED 100W STREETLIGHT	=	— W —
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	— W —
EXISTING WATER MAIN	=	— W —
EXISTING FIRE HYDRANT	=	— W —
EXISTING WATER VALVE	=	— W —
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	— W —
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	— W —



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PROJECT NUMBER:	DRAWING NUMBER:		
1116-01-01	0011160101		

SHEET TITLE:

OVERALL UTILITY PLAN

(1 OF 3)

SHEET NUMBER:

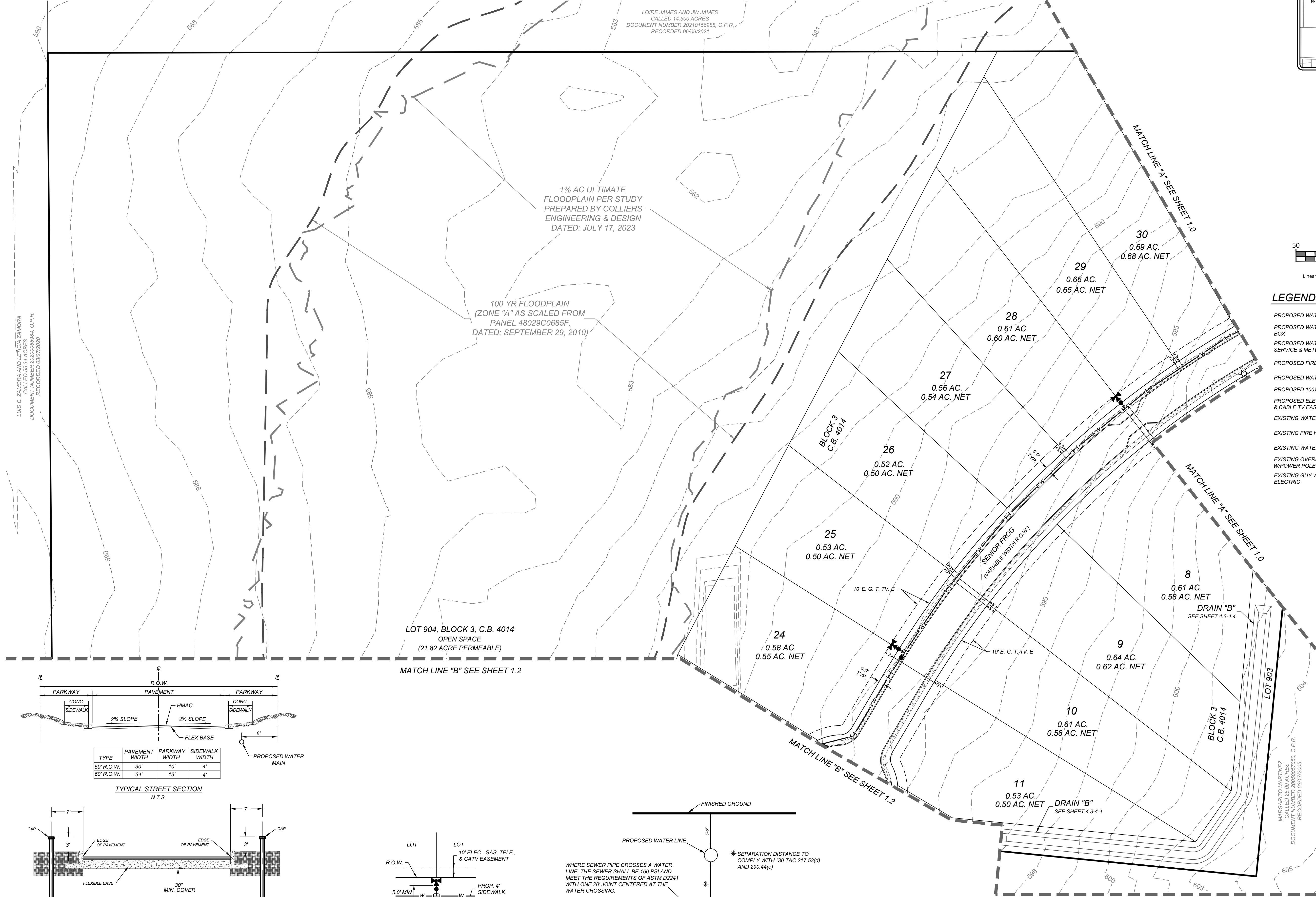
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DRY UTILITY CONDUIT NOTE:
CONDUIT LOCATIONS SHOWN ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY PURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS AND SIZES BASED ON THE DRY UTILITY PURVEYOR'S PLAN.

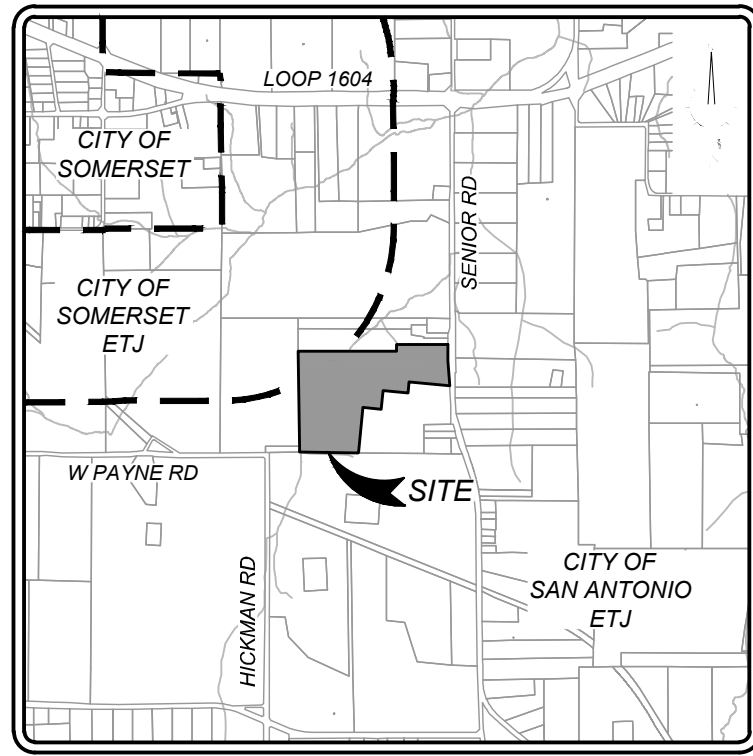


GENERAL NOTES:

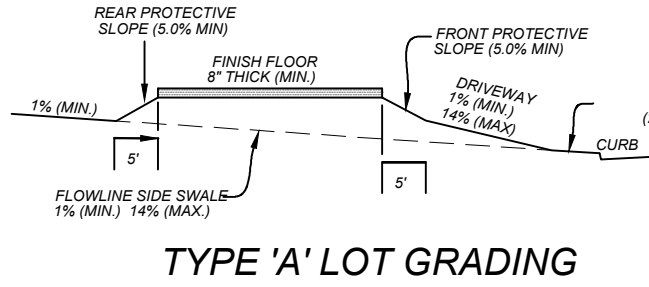
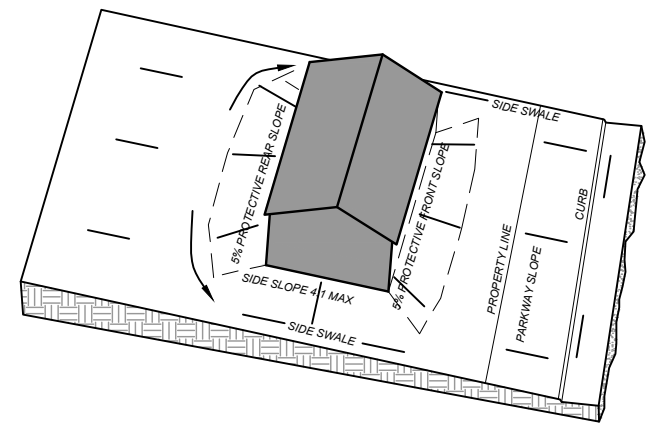
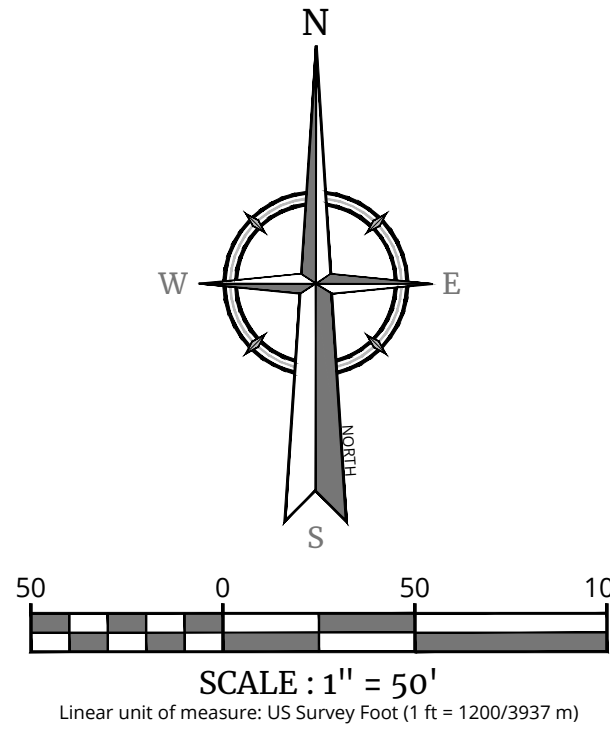
- ELEVATION SHOWN ON FOUNDATION IS FOR FINISHED FLOOR.
- CONTRACTOR SHALL PROVIDE OWNER ALL NECESSARY DENSITY TESTS FOR FILL LOTS AS REQUIRED BY HUD SPECIFICATIONS.
- HOME BUILDER SHALL REFER TO THE APPROVED SUBDIVISION PLAT TO CONFIRM ALL BUILDING SETBACKS PRIOR TO ANY FOUNDATION WORK.
- AS SOON AS PRACTICAL HOME BUILDER SHALL ESTABLISH VEGETATION (HYDROMULCH, SEEDING, SODDING, ETC.) TO PREVENT EROSION FROM OCCURRING.
- CONTRACTOR SHALL CONTACT ENGINEER REGARDING ANY QUESTIONS ON THE INTENT OF THIS PLAN.
- POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS AND TOWARDS THE PROPER DRAINAGE EASEMENT OR STREET RIGHT OF WAY ACCORDING TO THE MASTER DRAINAGE PLAN FOR THE PROJECT. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW PONDING OF WATER.
- ALL ELEVATIONS AND CONTOURS SHOWN ON THIS GRADING PLAN REFLECT FINISHED GRADES, THE THICKNESS OF PAVEMENT, CURBS, AND SIDEWALKS MUST BE SUBTRACTED TO OBTAIN SUBGRADE ELEVATIONS.
- GRADING PLAN IS INTENDED FOR USE IN LOT GRADING ONLY. CONTRACTOR SHOULD REFER TO CONSTRUCTION DRAWINGS FOR ALL OTHER GRADES, INCLUDING, BUT NOT LIMITED TO, CHANNELS, ROADS, AND DETENTION PONDS.
- CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE ALL SWALES.

COUNTY FINISHED FLOOR ELEVATION - RELATIVE TO FLOOD PLAIN:
FINISHED FLOOR ELEVATIONS FOR STRUCTURES ON LOTS CONTAINING FLOOD PLAIN OR ADJACENT TO THE FLOOD PLAIN SHALL BE IN COMPLIANCE WITH THE FLOOD PLAIN REGULATION IN EFFECT AT THE TIME OF CONSTRUCTION. CONTACT BEXAR COUNTY PUBLIC WORKS FOR MORE INFORMATION. (F-142(a) & (b)(1))

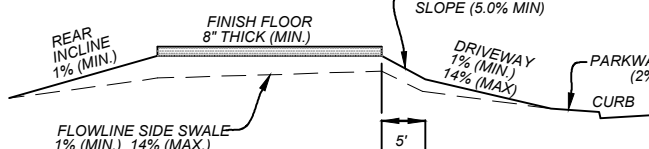
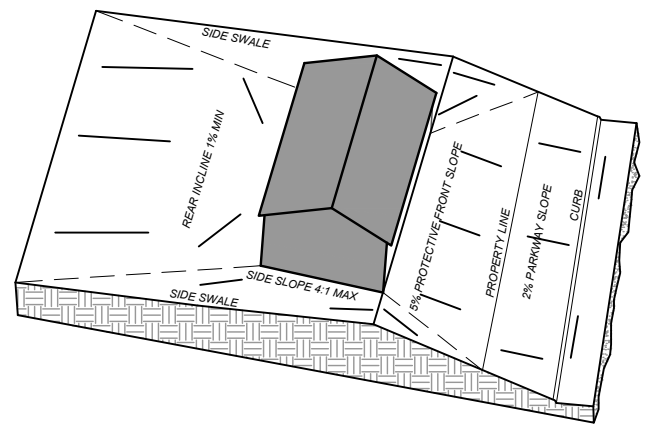
NOTE: THE MINIMUM FINISHED FLOOR ELEVATIONS HAVE BEEN REVISED TO BE A MINIMUM OF 1' ABOVE THE ULTIMATE 100 YEAR WATER SURFACE ELEVATION BASED UPON THE HEC-RAS OUTPUT TABLES FOUND WITHIN THE CLOMR. IN INSTANCES WHERE OUR LOTS ARE CONSIDERABLY HIGHER THAN THE 100 YEAR WATER SURFACE ELEVATION, THE FINISHED FLOOR WAS SET BASED UPON THE LOW CORNER OF THE PAD PER OUR PROPOSED LOT GRADING SURFACE.



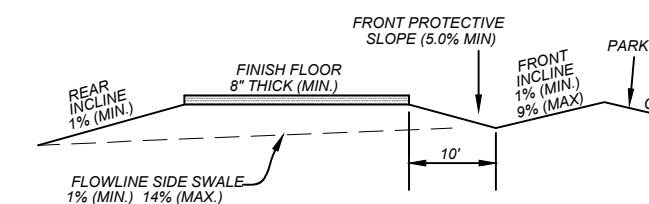
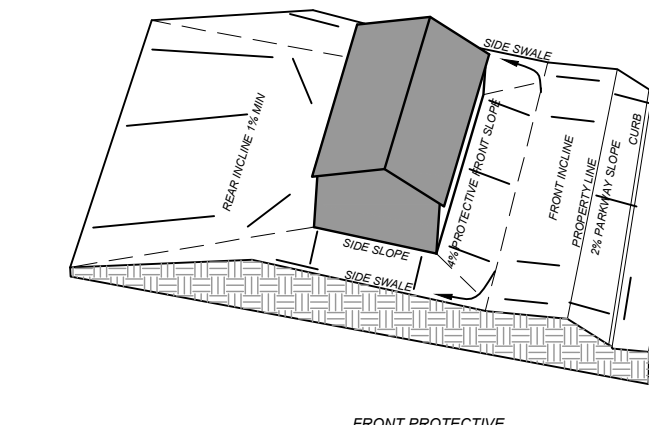
LOCATION MAP
N.T.S.



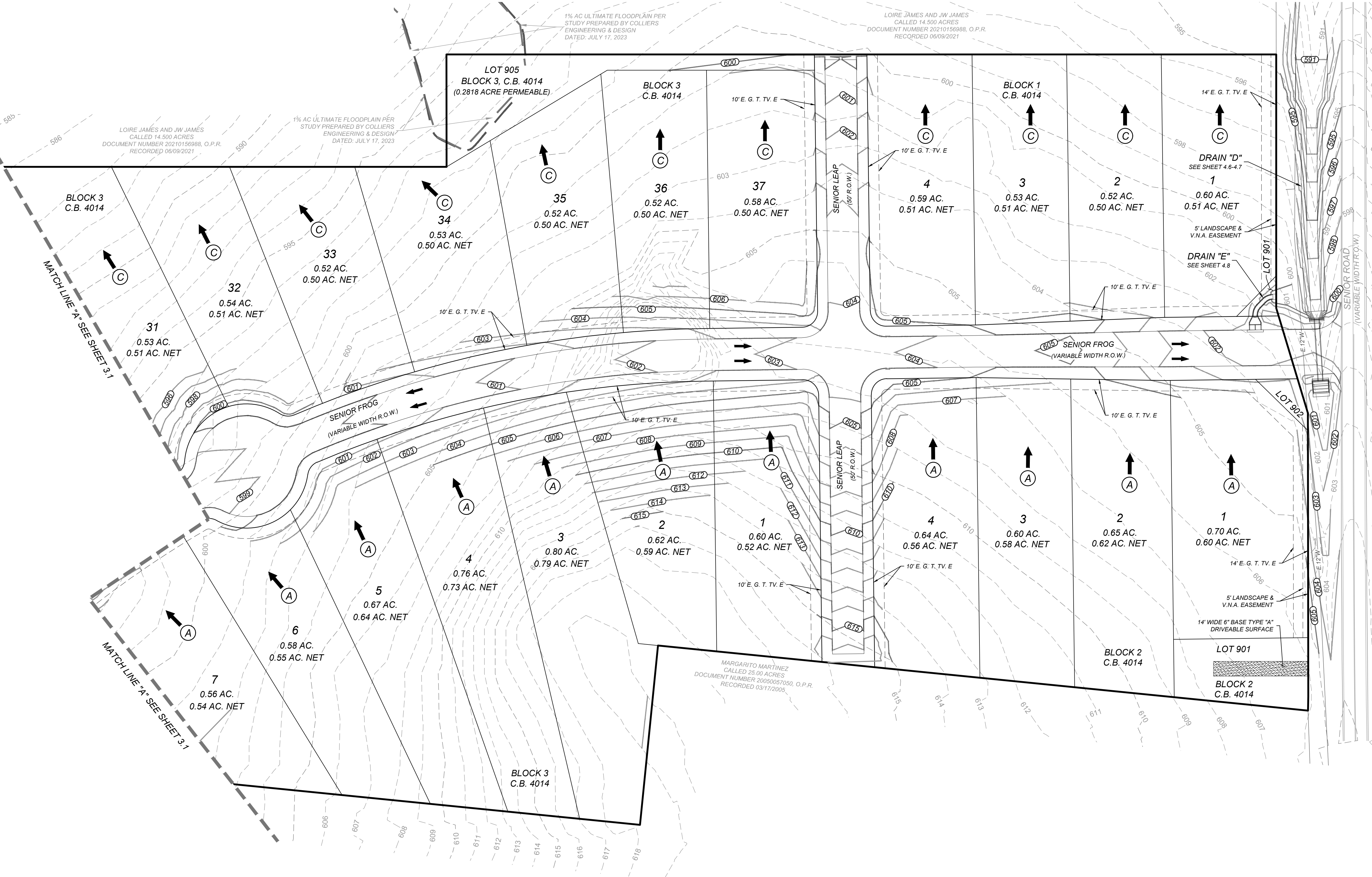
TYPE 'A' LOT GRADING



TYPE 'B' LOT GRADING



TYPE 'C' LOT GRADING



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SD

CHECKED BY:

SC

PROJECT NUMBER:

1116-01-01

DRAWING NAME:

GR11160101

SHEET TITLE:

OVERALL GRADING PLAN

SHEET NUMBER:

3.0

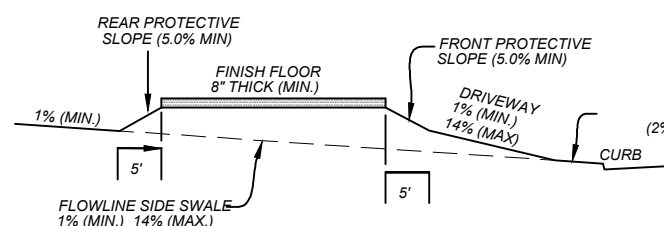
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9. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE ALL SWALES

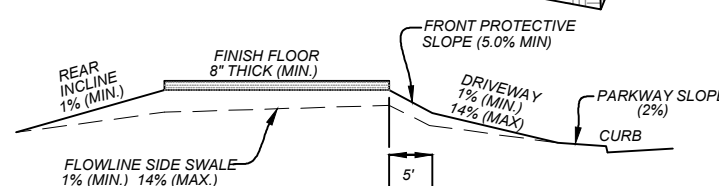
NOTE: THE MINIMUM FINISHED FLOOR ELEVATIONS HAVE BEEN REVISED TO BE A MINIMUM OF 1' ABOVE THE ULTIMATE 100 YEAR WATER SURFACE ELEVATION BASED UPON THE HEC-RAS OUTPUT TABLES FOUND WITHIN THE CLOMR. IN INSTANCES WHERE OUR LOTS ARE CONSIDERABLY HIGHER THAN THE 100 YEAR WATER SURFACE ELEVATION, THE FINISHED FLOOR WAS SET BASED UPON THE LOW CORNER OF THE PAD PER OUR PROPOSED LOT GRADING SURFACE.

1% AC ULTIMATE
FLOODPLAIN PER STUDY
- PREPARED BY COLLIER
ENGINEERING & DESIGN
DATED: JULY 17, 2023

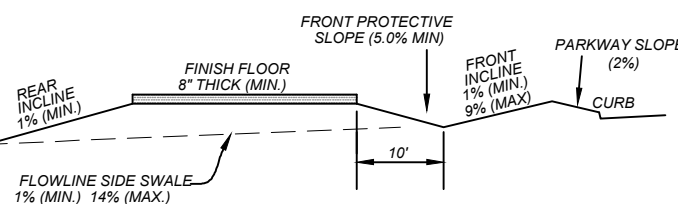
MATCH LINE "B" SEE SHEET 3.2




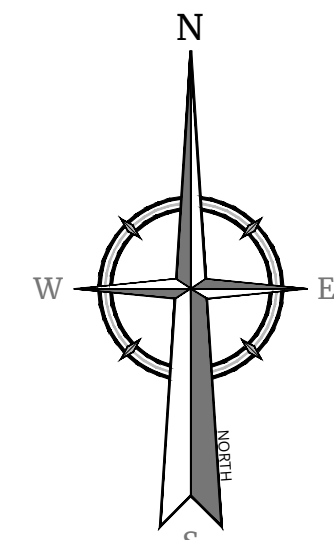
TYPE 'A' LOT GRADING



TYPE 'B' LOT GRADING



TYPE 'C' LOT GRADING



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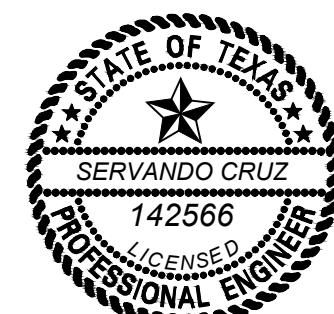
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PROJECT NUMBER: 1116-01-01		DRAWING NAME: GR11160101	

SHEET TITLE:

OVERALL GRADING PLAN

SHEET NUMBER: 3.1

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GENERAL NOTES:

- ELEVATION SHOWN ON FOUNDATION IS FOR FINISHED FLOOR.
- CONTRACTOR SHALL PROVIDE OWNER ALL NECESSARY DENSITY TESTS FOR FILL LOTS AS REQUIRED BY HUD SPECIFICATIONS.
- HOME BUILDER SHALL REFER TO THE APPROVED SUBDIVISION PLAT TO CONFIRM ALL BUILDING SETBACKS PRIOR TO ANY FOUNDATION WORK.
- AS SOON AS PRACTICAL HOME BUILDER SHALL ESTABLISH VEGETATION (HYDROMULCH, SEEDING, SODDING, ETC.) TO PREVENT EROSION FROM OCCURRING.
- CONTRACTOR SHALL CONTACT ENGINEER REGARDING ANY QUESTIONS ON THE INTENT OF THIS PLAN.

- POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS AND TOWARDS THE PROPER DRAINAGE EASEMENT OR STREET RIGHT OF WAY ACCORDING TO THE MASTER DRAINAGE PLAN FOR THE PROJECT. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW PONDING OF WATER.
- ALL ELEVATIONS AND CONTOURS SHOWN ON THIS GRADING PLAN REFLECT FINISHED GRADES, THE THICKNESS OF PAVEMENT, CURBS, AND SIDEWALKS MUST BE SUBTRACTED TO OBTAIN SUBGRADE ELEVATIONS.
- GRADING PLAN IS INTENDED FOR USE IN LOT GRADING ONLY. CONTRACTOR SHOULD REFER TO CONSTRUCTION DRAWINGS FOR ALL OTHER GRADES, INCLUDING, BUT NOT LIMITED TO, CHANNELS, ROADS, AND DETENTION PONDS.
- CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE ALL SWALES.

COUNTY FINISHED FLOOR ELEVATION - RELATIVE TO FLOOD PLAIN:
FINISHED FLOOR ELEVATIONS FOR STRUCTURES ON LOTS CONTAINING FLOOD PLAIN OR ADJACENT TO THE FLOOD PLAIN SHALL BE IN COMPLIANCE WITH THE FLOOD PLAIN REGULATION IN EFFECT AT THE TIME OF CONSTRUCTION. CONTACT BEXAR COUNTY PUBLIC WORKS FOR MORE INFORMATION. (F-142(a) & (b)(1))

NOTE: THE MINIMUM FINISHED FLOOR ELEVATIONS HAVE BEEN REVISED TO BE A MINIMUM OF 1' ABOVE THE ULTIMATE 100 YEAR WATER SURFACE ELEVATION BASED UPON THE HEC-RAS OUTPUT TABLES FOUND WITHIN THE CLOMR. IN INSTANCES WHERE OUR LOTS ARE CONSIDERABLY HIGHER THAN THE 100 YEAR WATER SURFACE ELEVATION, THE FINISHED FLOOR WAS SET BASED UPON THE LOW CORNER OF THE PAD PER OUR PROPOSED LOT GRADING SURFACE.

1% AC ULTIMATE
FLOODPLAIN PER STUDY
PREPARED BY COLLIERS
ENGINEERING & DESIGN
DATED: JULY 17, 2023

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PREPARED BY COLLIERS
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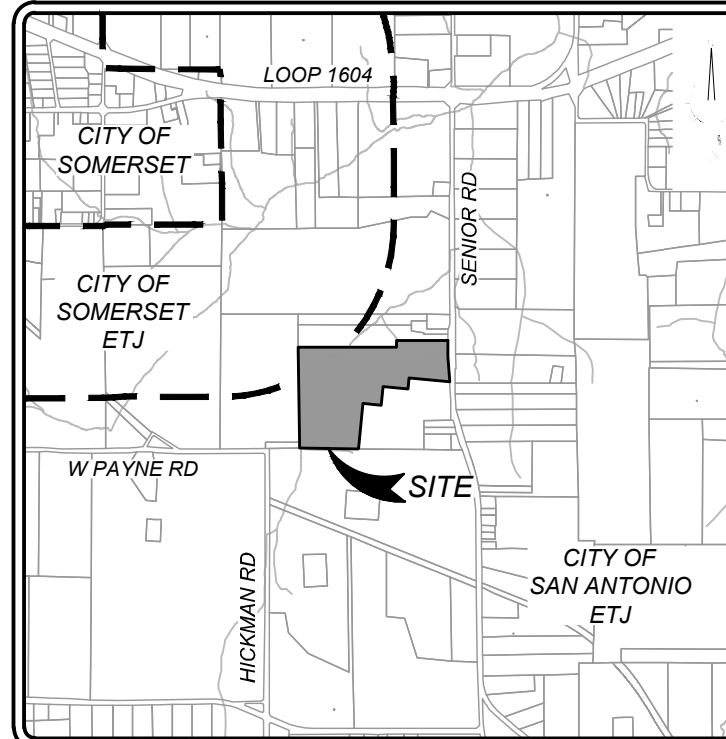
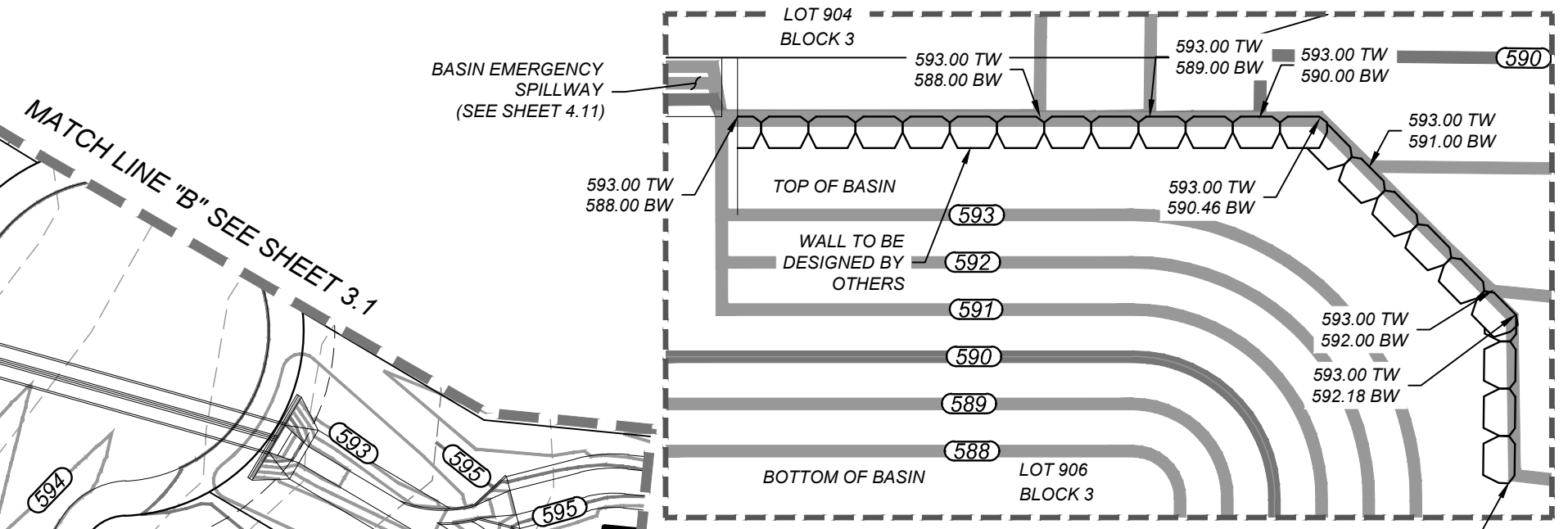
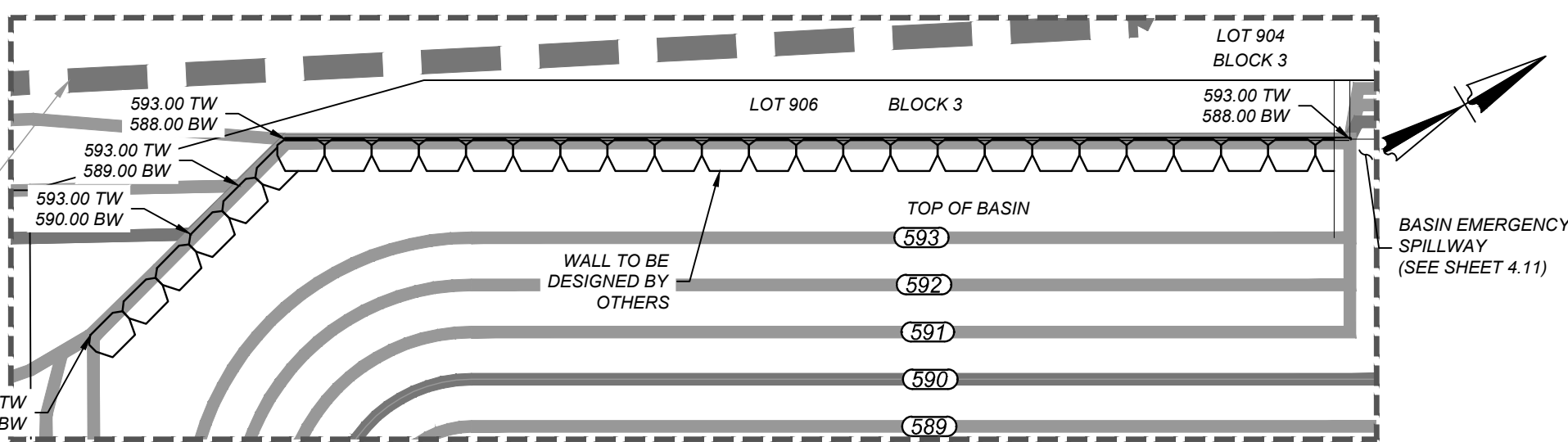
MARGARTO MARTINEZ
CALLED 25.00 ACRES
DOCUMENT NUMBER 20130212544, O.P.R.
RECORDED 10/10/2013

BRIAN KEITH BIELFELD
CALLED 101.26 ACRES
DOCUMENT NUMBER 20130212544, O.P.R.
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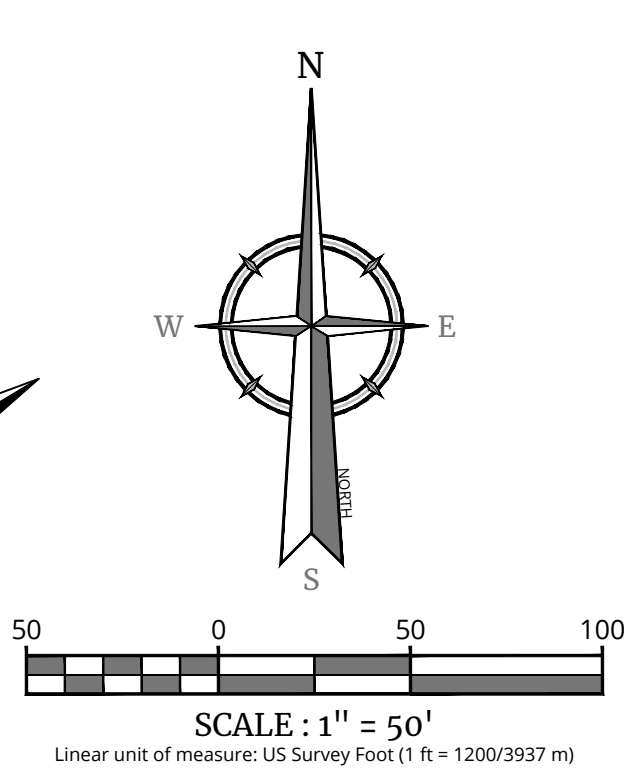
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LOCATION MAP
N.T.S.



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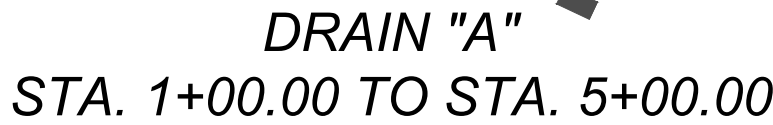
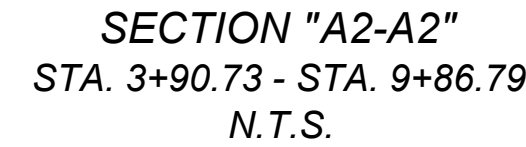
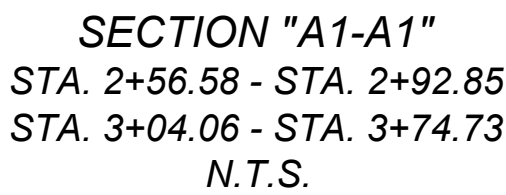
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CONTRACTOR AND/OR CONTRACTORS' INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTORS' TRENCH EXCAVATION AND SHIELDING PROTECTION PROCEDURES. CONTRACTORS SHALL IMPLEMENT THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTORS' INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

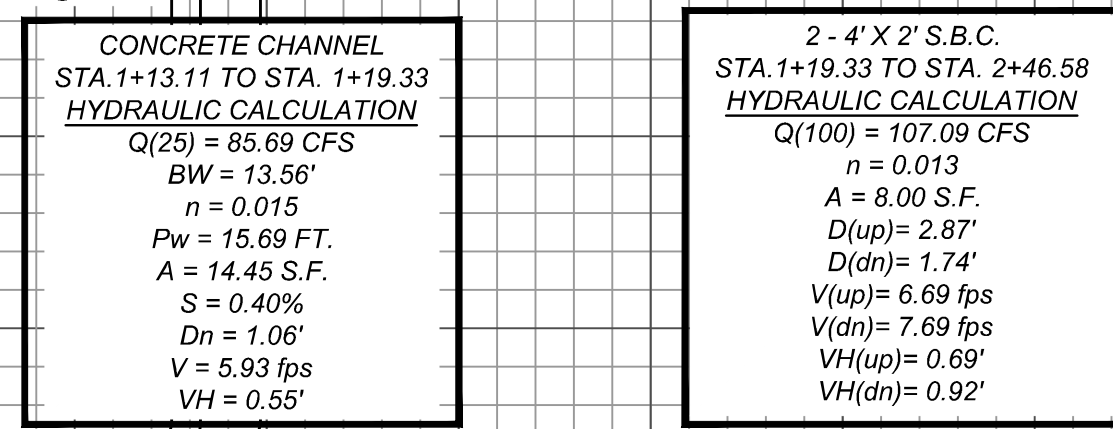
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL, DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE REQUIRED TO STOP WORK FOR A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.



HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'

AREA'S EXCEEDING CITY OF SAN ANTONIO PERMISSIBLE SHEAR STRESS WILL BE REINFORCED WITH PROPOSED TURF REINFORCEMENT MAT (TRM) AS APPROVED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS UNDER CONSTRUCTION ITEM 554.

1. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.
2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
3. AT THE PRE-FINAL INSPECTION: THE ENGINEER WILL ISSUE CERTIFICATION TO THE CITY INSPECTOR THAT THE TURF REINFORCEMENT MAT (TRM) WAS INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE CERTIFICATION MUST ALSO NOTE THAT THE MATERIAL AND INSTALLATION HAS MET CITY AND MANUFACTURER SPECIFICATIONS.



EARTHEN TRAPEZOIDAL
CHANNEL
STA. 2+56.58 TO STA. 2+67.38
HYDRAULIC CALCULATION
 $Q(25) = 68.40 \text{ CFS}$
 $BW = 6.0'$
 $n = 0.035$
 $Pw = 15.54 \text{ FT.}$
 $A = 15.88 \text{ S.F.}$
 $S = 1.00\%$
 $Dn = 1.50'$
 $V = 4.30 \text{ fps}$
 $\tau = 0.63 \text{ lb/ft}^2$

EARTHEN TRAPEZOIDAL
CHANNEL
STA.2+67.38 TO STA. 3+74.73
HYDRAULIC CALCULATION
Q(25) = 68.40 CFS
BW = 6.0'
n = 0.035
Pw = 13.18 FT.
A = 10.69 S.F.
S = 3.00%
Dn = 1.13'
V = 6.39 fps
 $\tau = 1.51 \text{ lb/ft}^2$

EARTHEN TRAPEZOIDAL
CHANNEL
STA. 3+74.73 TO STA. 3+90.73
HYDRAULIC CALCULATION
Q(25) = 45.85 CFS
BW = 14.0'
n = 0.035
Pw = 17.59 FT.
A = 8.93 S.F.
S = 3.61%
Dn = 0.56'
V = 5.13 fps
 $\tau = 1.14 \text{ lb/ft}^2$

EARTHEN TRAPEZOIDAL
CHANNEL
STA. 3+90.73 TO STA. 5+45.2
HYDRAULIC CALCULATION
Q(25) = 45.85 CFS
BW = 14.0'
n = 0.035
Pw = 19.21 FT.
A = 13.59 S.F.
S = 1.00%
Dn = 0.82'
V = 3.37 fps
 $\tau = 0.44 \text{ lb/ft}^2$

Engineering & Design

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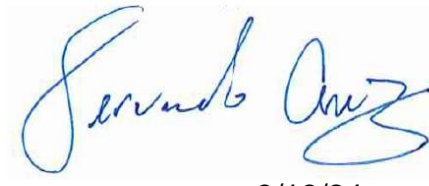


KFW
ENGINEERS • SURVEYING


PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF
CAVATORS, DESIGNERS, OR ANY PERSON
PREPARING TO DISTURB THE EARTH'S
SURFACE ANYWHERE IN ANY STATE

[illegible]

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88	11/11/2011	88	88
89	11/11/2011	89	89
90	11/11/2011	90	90
91	11/11/2011	91	91
92	11/11/2011	92	92
93	11/11/2011	93	93
94	11/11/2011	94	94
95	11/11/2011	95	95
96	11/11/2011	96	96
97	11/11/2011	97	97



FOR
VARGA TRACT
SUBDIVISION
AT# 23-11800270



Colliers
Engineering
& Design

SAN ANTONIO (KFW)
3421 Paesanos
Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN,
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE: AS SHOWN	DATE: 5/23/2023	DRAWN BY: SD	CHECKED BY: SC
PROJECT NUMBER: 1116-01-01		DRAWING NAME: DR11160101 - A	

SHEET TITLE:

DRAIN "A" PLAN & PROFILE
STA. 1+00.00 TO STA. 5+00.00

SHEET NUMBER: 4

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

NOTE:

1. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.
2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
3. AT THE PRE-FINAL INSPECTION, THE ENGINEER MUST ISSUE CERTIFICATION TO THE CITY INSPECTOR THAT THE TURF REINFORCEMENT MAT (TRM) WAS INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE CERTIFICATION MUST ALSO NOTE THAT THE MATERIAL AND INSTALLATION HAS MET CITY AND MANUFACTURER SPECIFICATIONS.

CAUTION!!:

THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

CHANNEL LINING:

AREAS EXCEEDING CITY OF SAN ANTONIO PERMISSIBLE SHEAR STRESS WILL BE REINFORCED WITH PROPOSED TURF REINFORCEMENT MAT (TRM) AS APPROVED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS UNDER CONSTRUCTION ITEM 554.

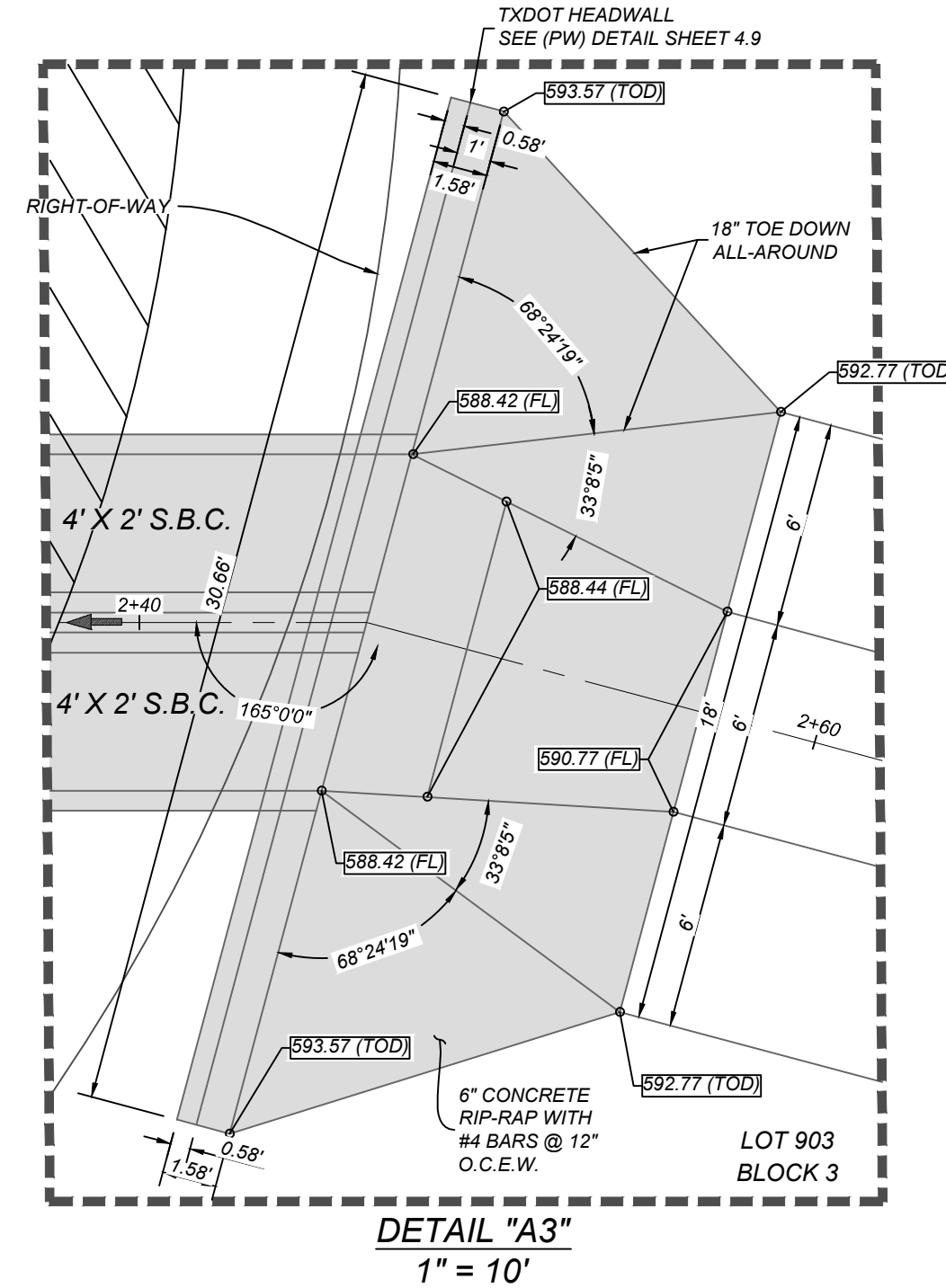
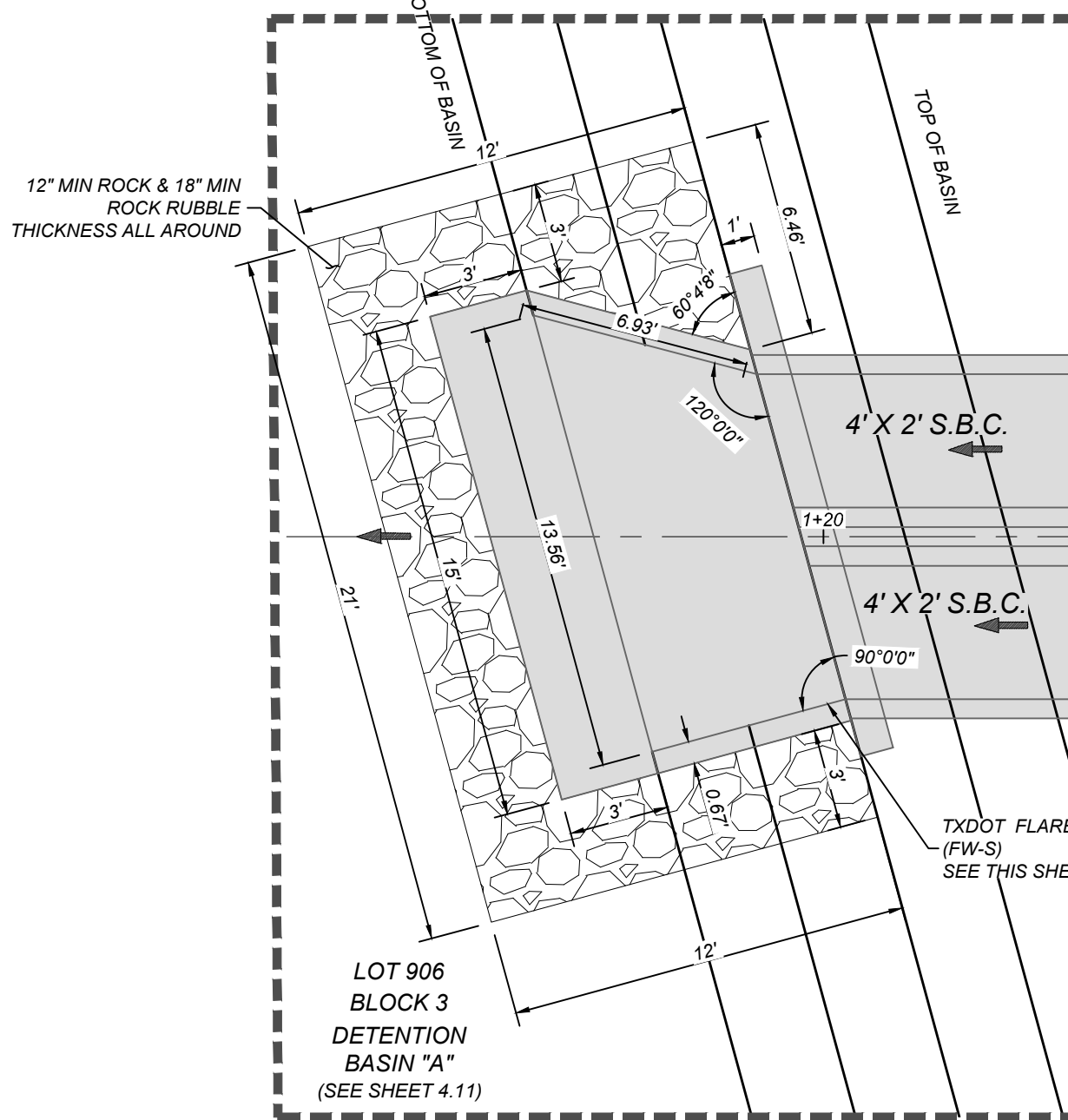
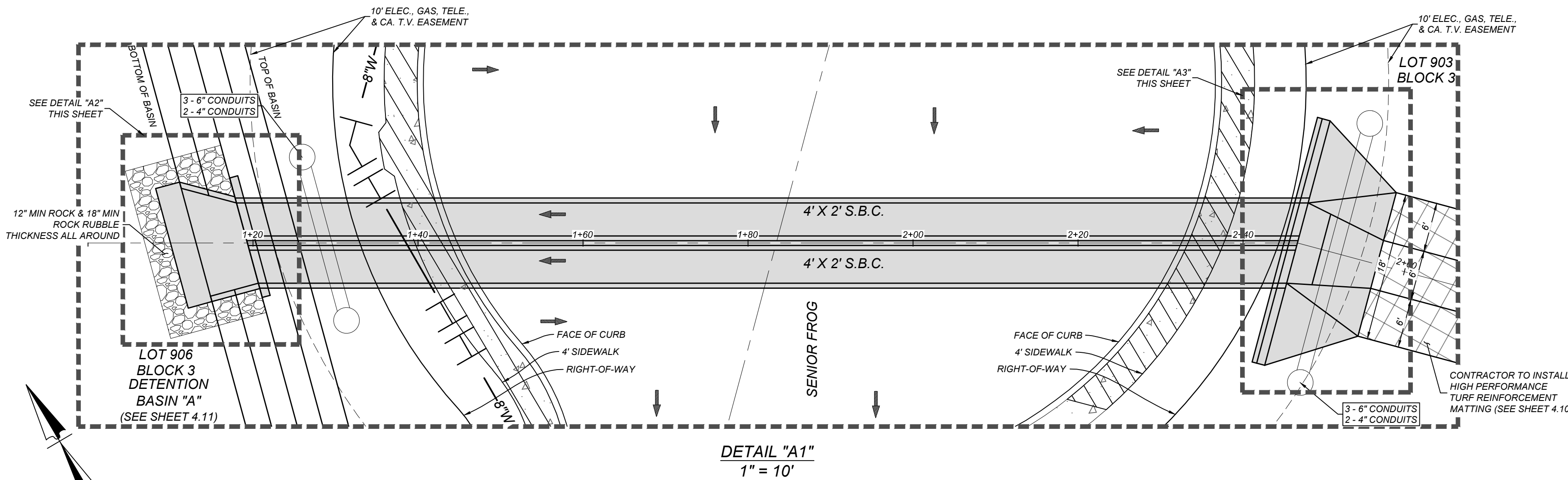


TABLE OF DIMENSIONS AND REINFORCING STEEL (Wings for one structure end)									
Maximum Wingwall Height (ft)	Dimensions			Variable Reinforcing		Estimated Quantities per ft of Wing Length (2-Wings)		Estimated Quantities per ft of Wing Length (2-Wings)	
	W	X	Y	Size	Spa	Bars J2	Reinft (#4/ft)	Conc. (CY/ft)	Spa
2'-0"	2'-5"	1'-0"	9"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'-5"	1'-0"	9"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-0"	2'-5"	1'-0"	9"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'-5"	1'-0"	9"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-0"	3'-2"	1'-0"	1'-0"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'-2"	1'-0"	1'-0"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-0"	3'-2"	1'-0"	1'-0"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'-2"	1'-0"	1'-0"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'-2"	1'-0"	1'-0"	#4	1'-0"	#4	1'-0"	52.72	0.414
8'-0"	4'-2"	2'-0"	1'-0"	#4	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'-2"	2'-0"	1'-0"	#4	1'-0"	#4	1'-0"	61.49	0.532
10'-0"	4'-2"	2'-0"	1'-0"	#4	1'-0"	#4	1'-0"	62.75	0.584
11'-0"	5'-2"	2'-0"	2'-0"	#4	1'-0"	#4	1'-0"	133.65	0.634
12'-0"	6'-2"	3'-0"	2'-0"	#4	1'-0"	#4	1'-0"	162.29	0.721
13'-0"	6'-2"	3'-0"	2'-0"	#4	1'-0"	#4	1'-0"	178.80	0.856
14'-0"	7'-2"	3'-0"	3'-0"	#4	1'-0"	#4	1'-0"	216.78	0.959
15'-0"	7'-2"	4'-0"	3'-0"	#4	1'-0"	#4	1'-0"	283.06	1.064
16'-0"	8'-2"	4'-0"	3'-0"	#4	1'-0"	#4	1'-0"	297.02	1.234

TABLE OF WINGWALL REINFORCING (2-Wings)			
Bar	Size	No.	Spa
DL	#4	-	1'-0"
DS	#3	-	1'-0"
E	#4	-	1'-0"
F	#4	-	1'-0"
G	#6	4	-
M	#4	4	-
P	#4	-	1'-0"
RS	#5	3	-
RL	#5	3	-
Y	#4	-	1'-0"

WING DIMENSION FORMULAS:

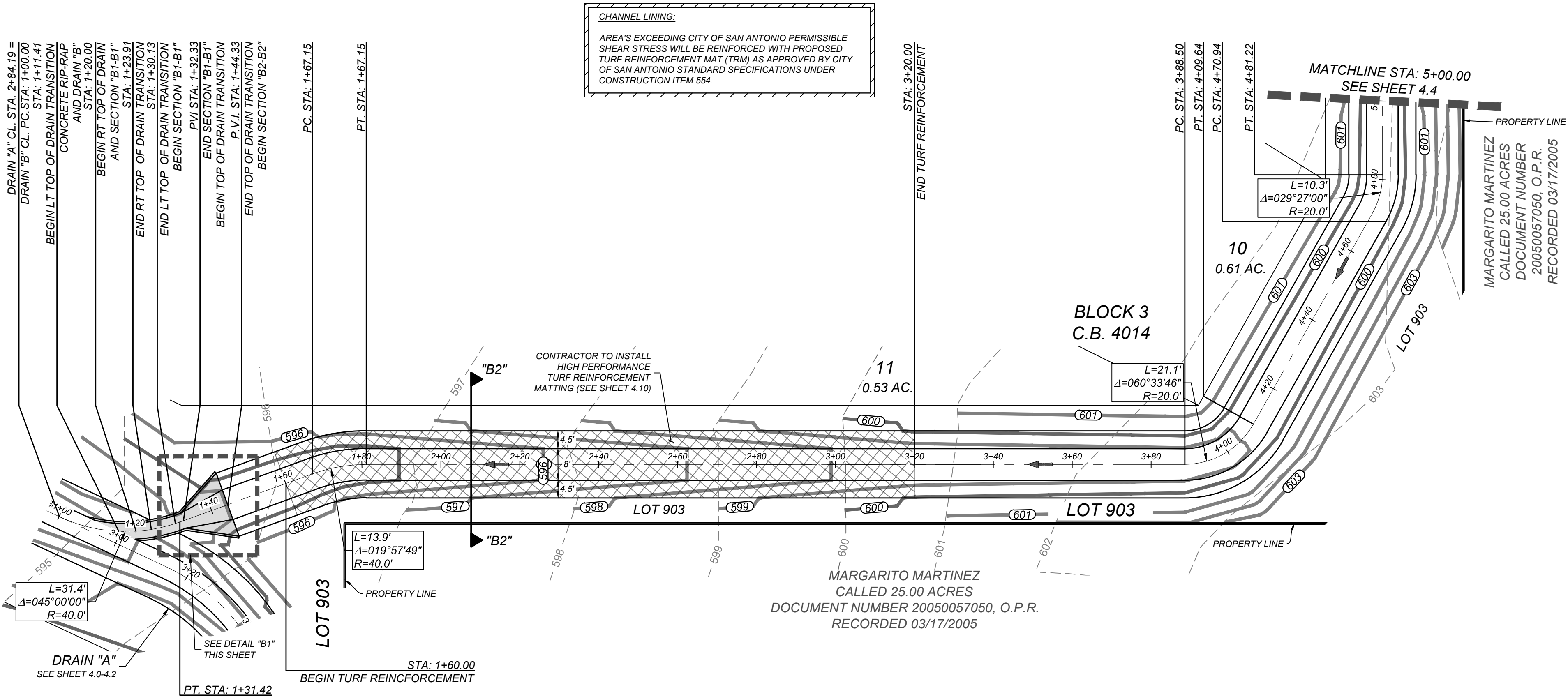
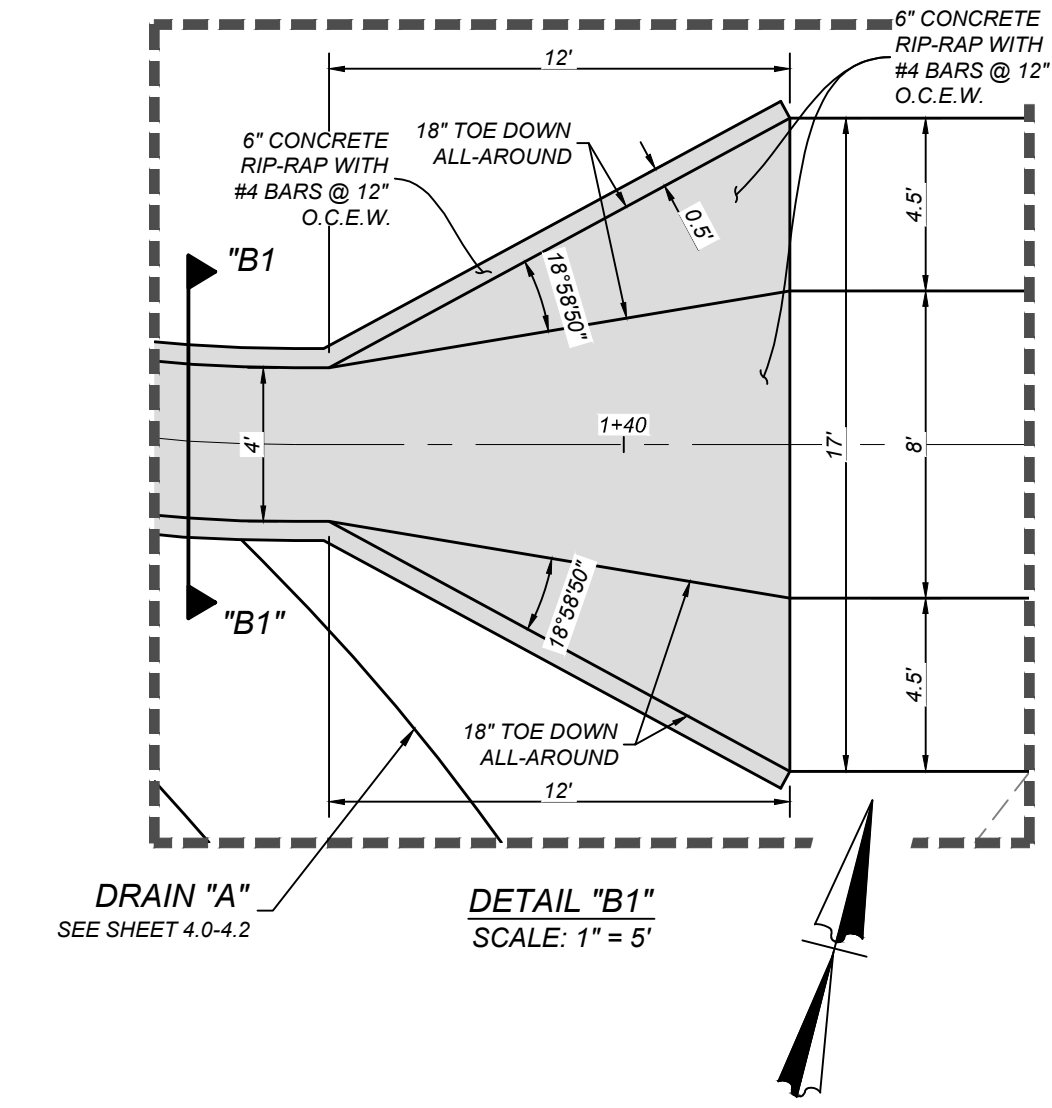
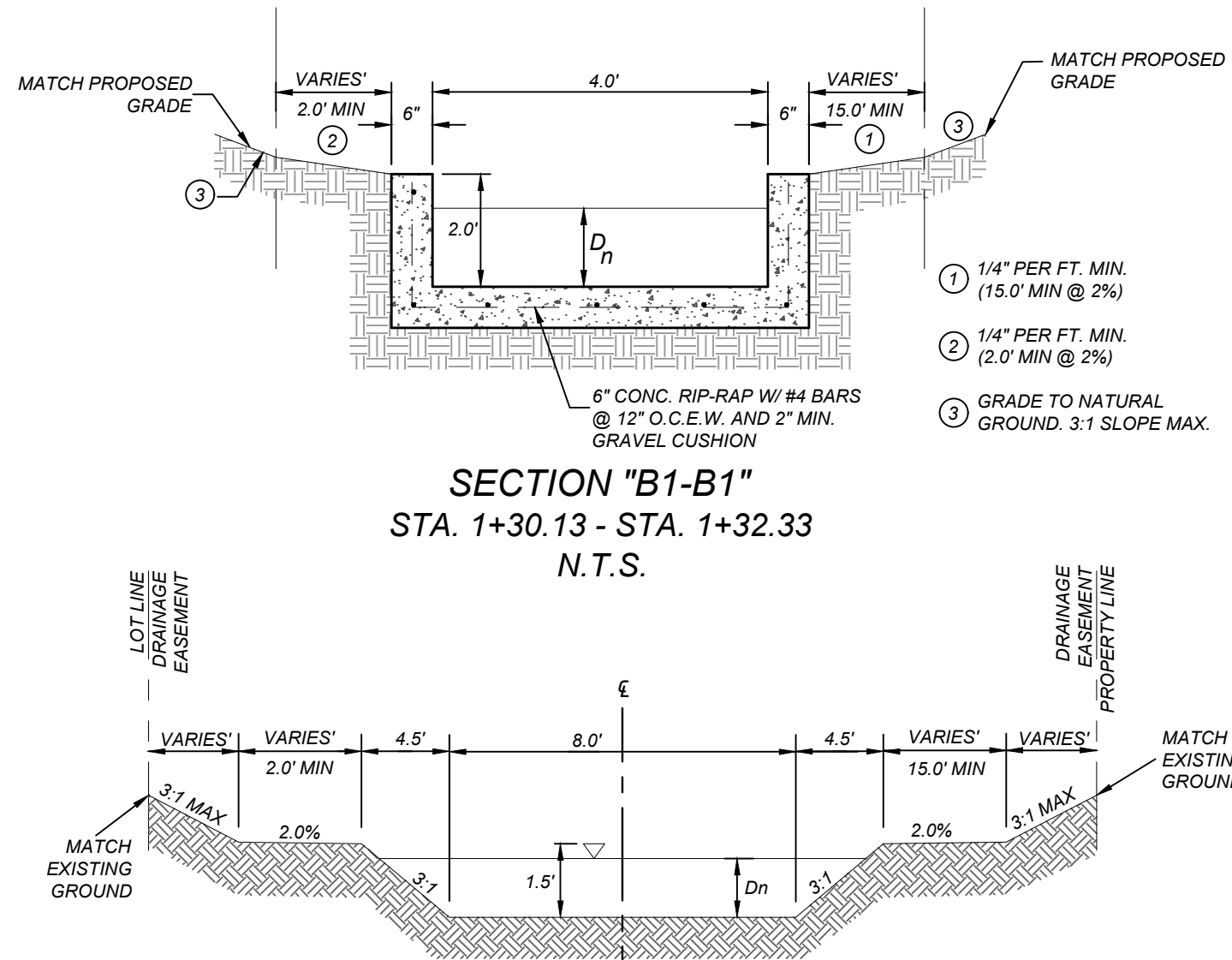
(All values are in feet.)
 $H_w = H + T + C - 0.250$
 $A = (H_w - 0.333333) / 2$
 $B = (H) / (Longest W + 19)$
 $C = (H_w - 0.333333) / 2$
 $L = (H_w - 0.333333) / 2$
 $U = (H_w - 0.333333) / 2$
 $V = (H_w - 0.333333) / 2$
 $W = (H_w - 0.333333) / 2$
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 $MMMMM = (H_w - 0.333333) / 2$
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 $DDDDD = (H_w - 0.333333) / 2$
 $EEEEE = (H_w - 0.333333) / 2$
 $FFFFF = (H_w - 0.33$

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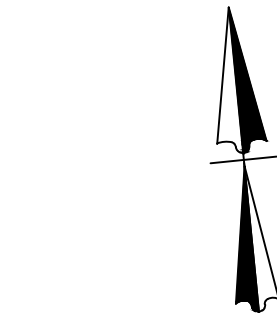
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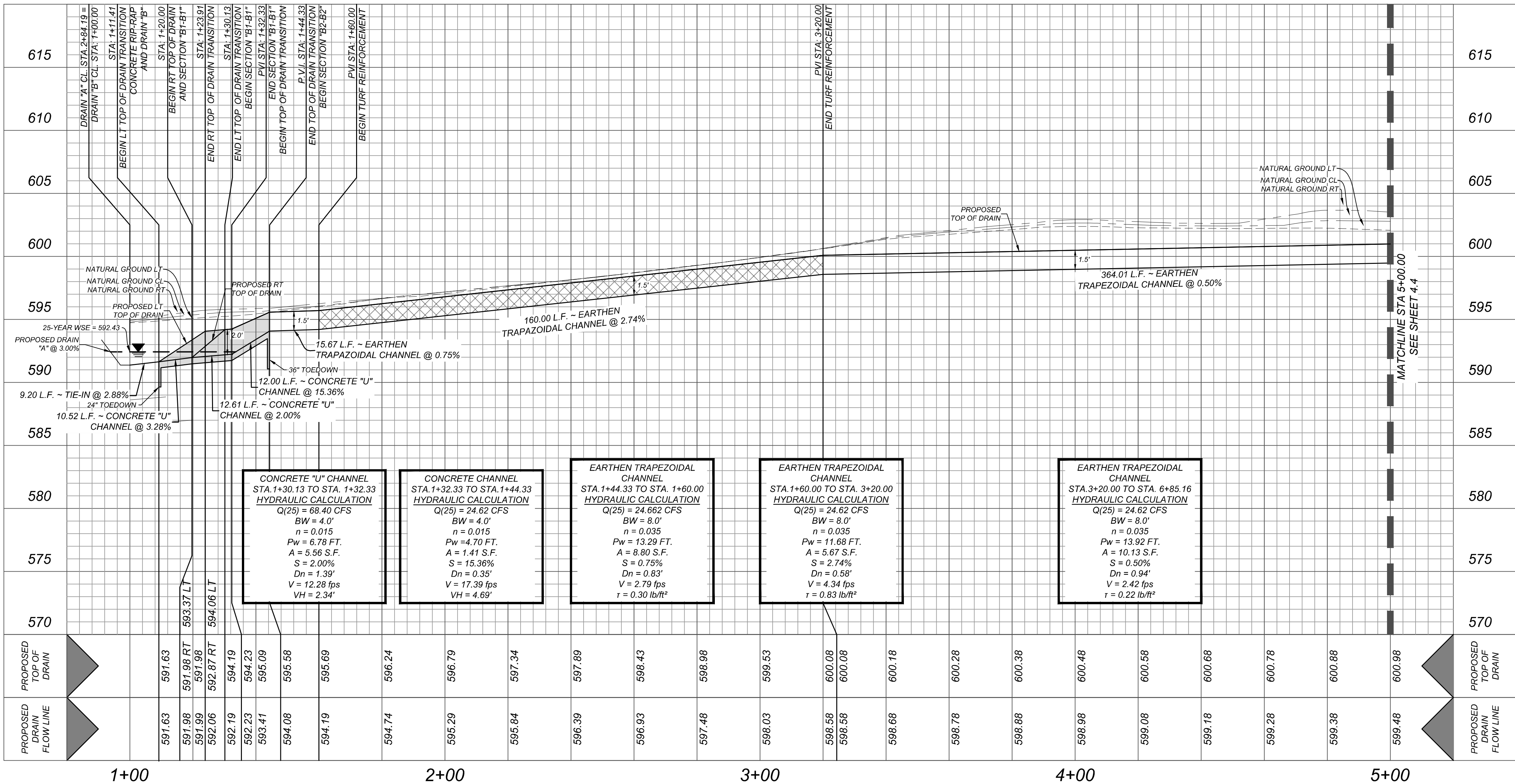


NOTE:

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2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
3. AT THE PRE-FINAL INSPECTION, THE ENGINEER MUST ISSUE CERTIFICATION TO THE CITY INSPECTOR THAT THE TURF REINFORCEMENT MAT (TRM) WAS INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE CERTIFICATION MUST ALSO NOTE THAT THE MATERIAL AND INSTALLATION HAS MET CITY AND MANUFACTURER SPECIFICATIONS.



HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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PREPARING TO DISTURB THE EARTH'S
SURFACE ANYWHERE IN ANY STATE

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
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3/18/24

PRELIMINARY

FOR
VARGA TRACT
SUBDIVISION
PLAT# 23-11800270

SAN ANTONIO
BEXAR COUNTY
TEXAS



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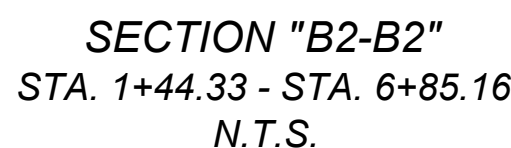
SCALE: AS SHOWN	DATE: 5/23/2023	DRAWN BY: SD	CHECKED BY: SC
PROJECT NUMBER: 1116-01-01	DRAWING NAME: DR1160101 - B		

SHEET TITLE:
DRAIN "B" PLAN & PROFILE
STA. 1+00.00 TO STA. 5+00.00

SHEET NUMBER:
4.3

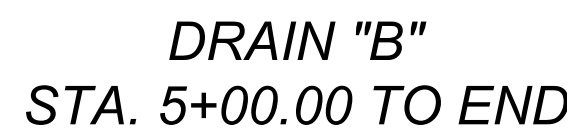
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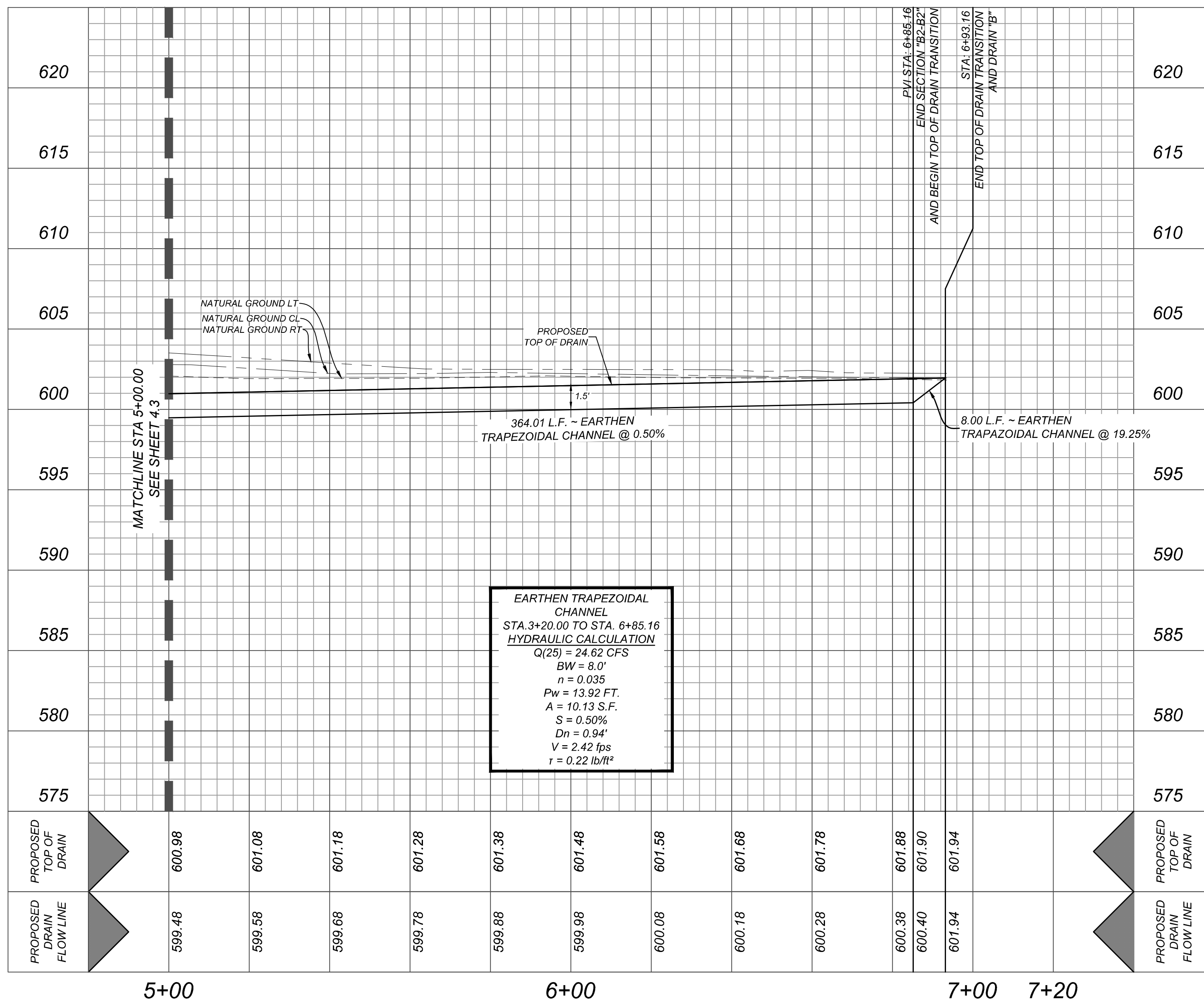


AREA'S EXCEEDING CITY OF SAN ANTONIO PERMISSIBLE
SHEAR STRESS WILL BE REINFORCED WITH PROPOSED
TURF REINFORCEMENT MAT (TRM) AS APPROVED BY CITY
OF SAN ANTONIO STANDARD SPECIFICATIONS UNDER
CONSTRUCTION ITEM 554.

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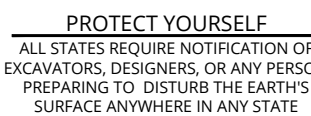


HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



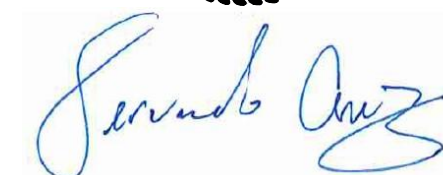
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Kreditanstalt für Wirtſchaftsförderung



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FOR
VARGA TRACT
SUBDIVISION
PLAT# 23-11800270



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TBPLS Firm#: 10194550

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PROJECT NUMBER: 1116-01-01		DRAWING NAME: DR11160101 - B	

SHEET TITLE:
DRAIN "B" PLAN & PROFILE
STA. 5+00.00 TO END

SHEET NUMBER: 4.4

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BAFFLE BLOCK CALCULATIONS (ST. ANTHONY FALLS METHOD)

Q25 = 44.71 CFS
BOTTOM WIDTH UPSTREAM = 7.0 FT
BOTTOM WIDTH DOWNSTREAM = 6.0 FT
Y1 = 1.18' (DEPTH BEFORE JUMP)
Y2 = 1.22' (DEPTH AFTER JUMP)

WIDTH OF BLOCKS = $0.75(Y1) = 0.89$ FT. (USE 1.0 FT.)
SPACE BETWEEN BLOCKS = $0.75(Y1) = 0.89$ FT. (USE 1.0 FT.)
HEIGHT OF BLOCKS = $Y1 = 1.18$ FT. (USE 1.25 FT.)
OF BLOCKS ACROSS BOTTOM = 3

% OF FLOOR COVERED WITH BLOCKS = $[3 (1.0 \text{ FT}) / 7.0] \cdot 100 = 43\%$
(% MUST BE BETWEEN 40% AND 55%)

DEPTH OF TAILWATER (Y2)
FROUDE NUMBER BEFORE JUMP = $F1 = 1.02$ FROUDE NUMBER AFTER JUMP = $F2 = 0.97$

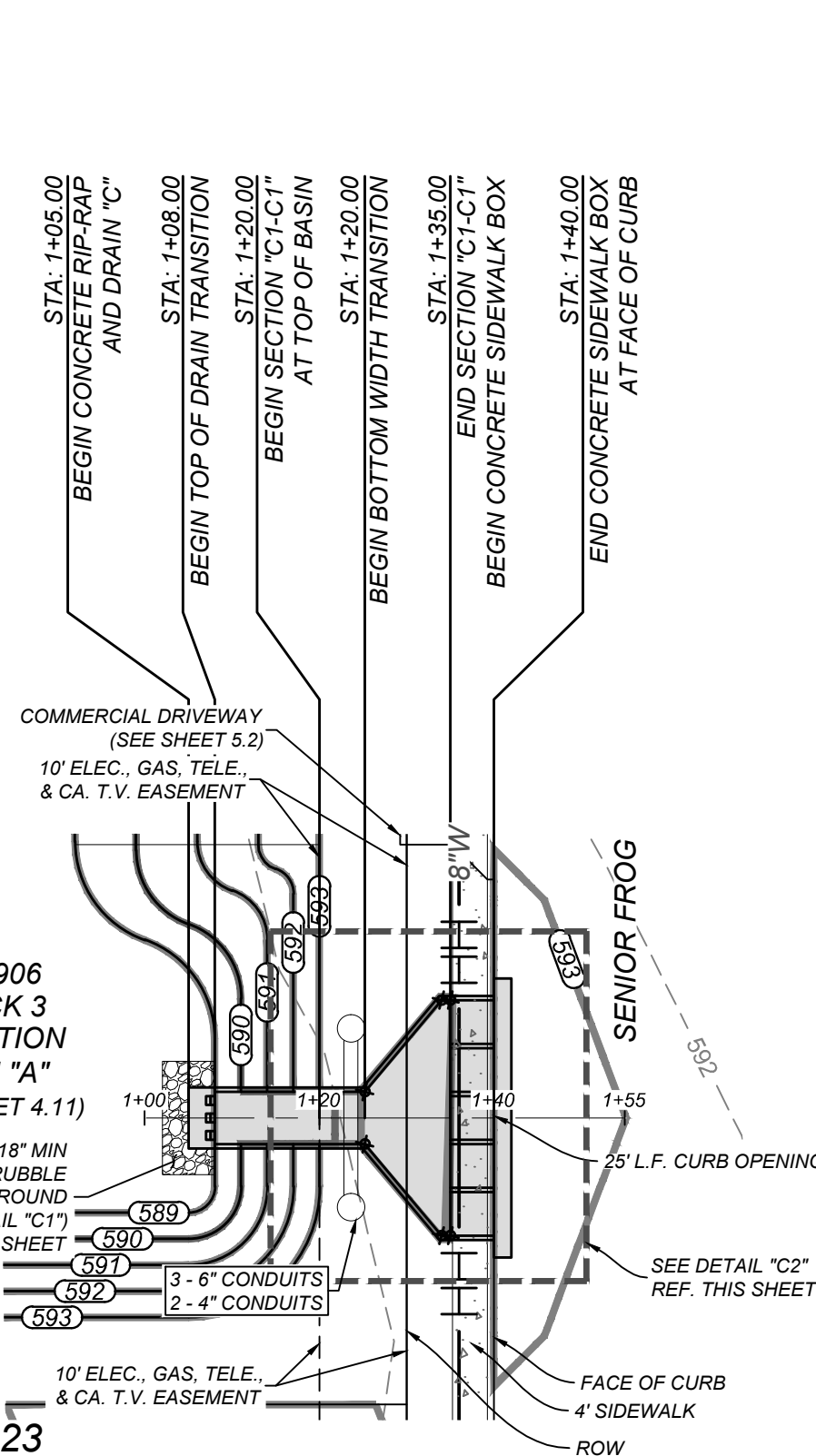
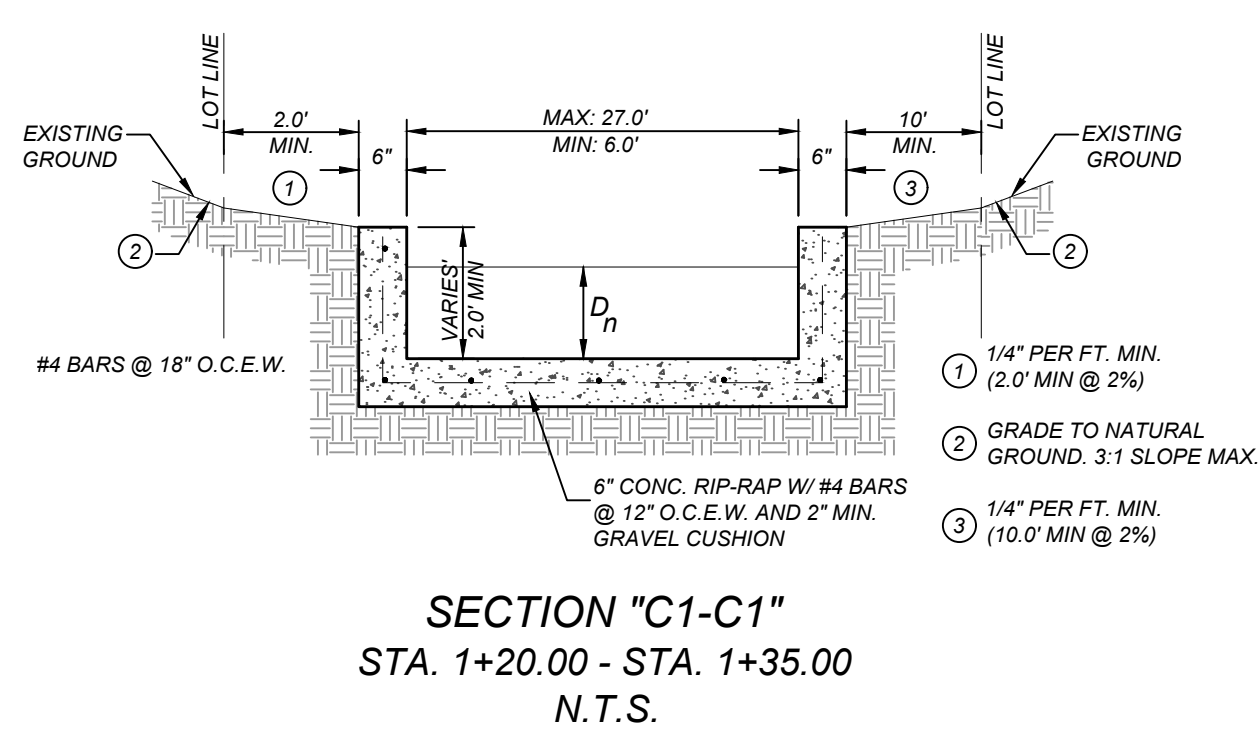
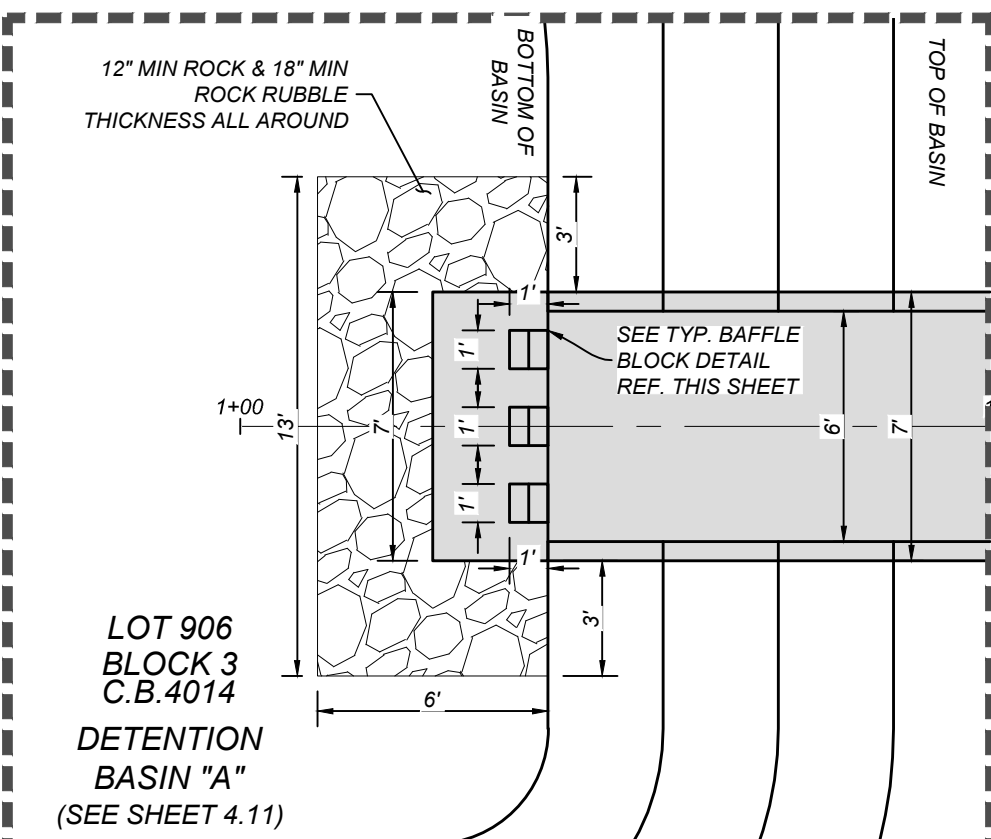
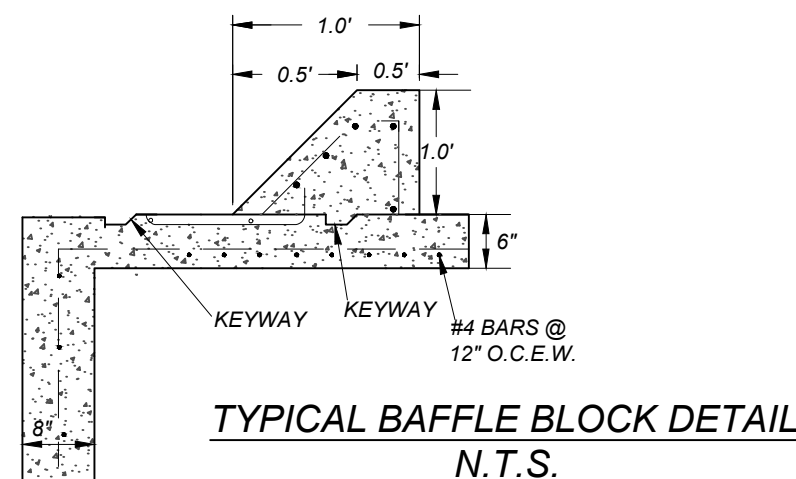
LENGTH OF BASIN = $L_B = 4.5(Y2)/F1^{0.76} = 5.41$ FT. (USE 10.00 FT.)
DISTANCE TO FLOOR BLOCKS = $L_B/3 = 1.80$ FT. (USE 8.0 FT.)

HEIGHT OF MAX TAILWATER DEPTH:
 $Z = Y2/3 = 0.41$ FT.
 $Y2' = 0.85 \cdot Y2 = 0.35'$
 $H = Z + Y2' = 0.76$ FT.

VELOCITY AFTER JUMP:
 $V = Q/A$
 $A = Y2' \cdot \text{BOTTOM WIDTH}$
 $A = 1.22' \cdot 7 = 8.54$ SQ. FT.
 $V = 44.71 / 8.54 = 5.24$ F.P.S.

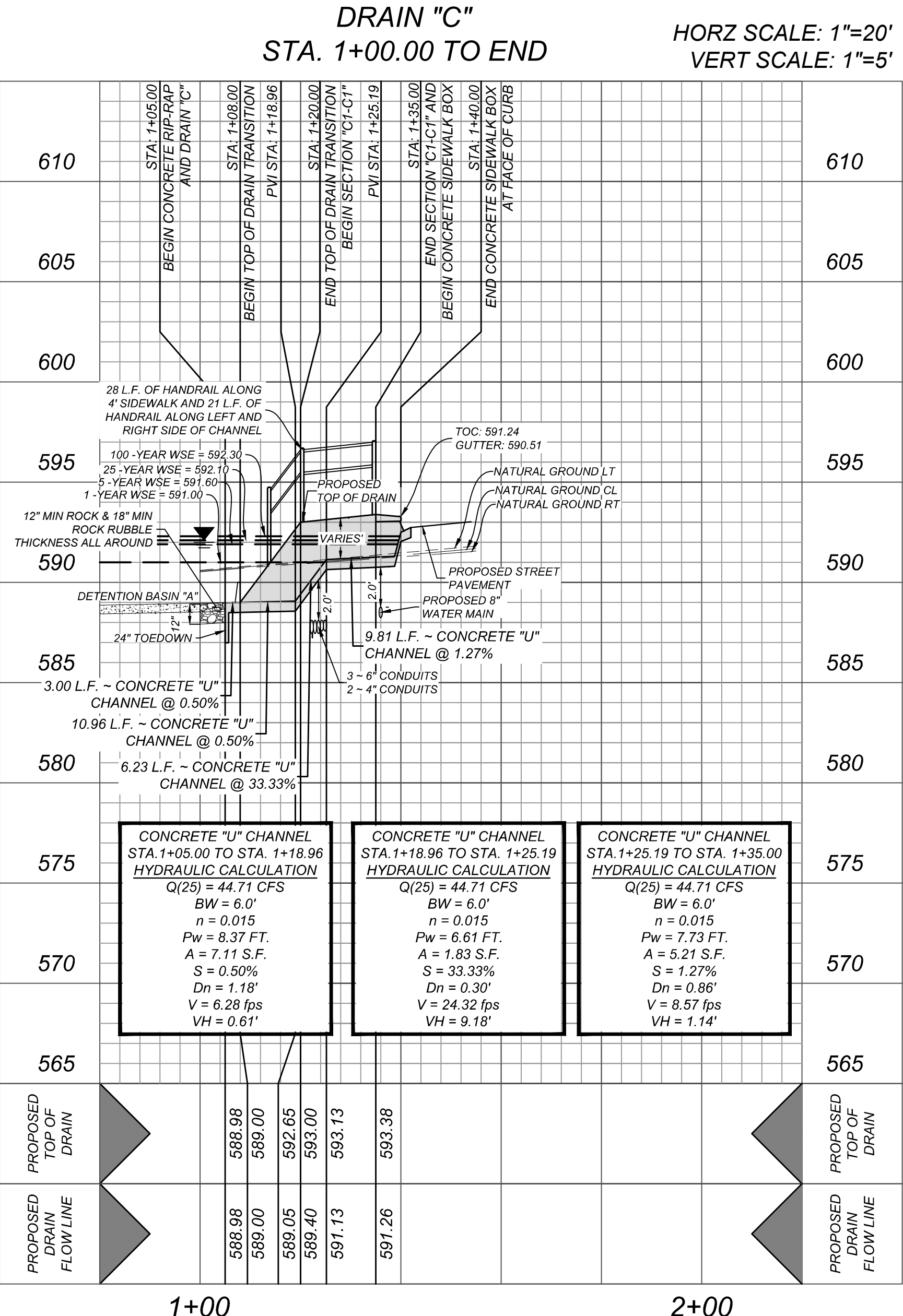
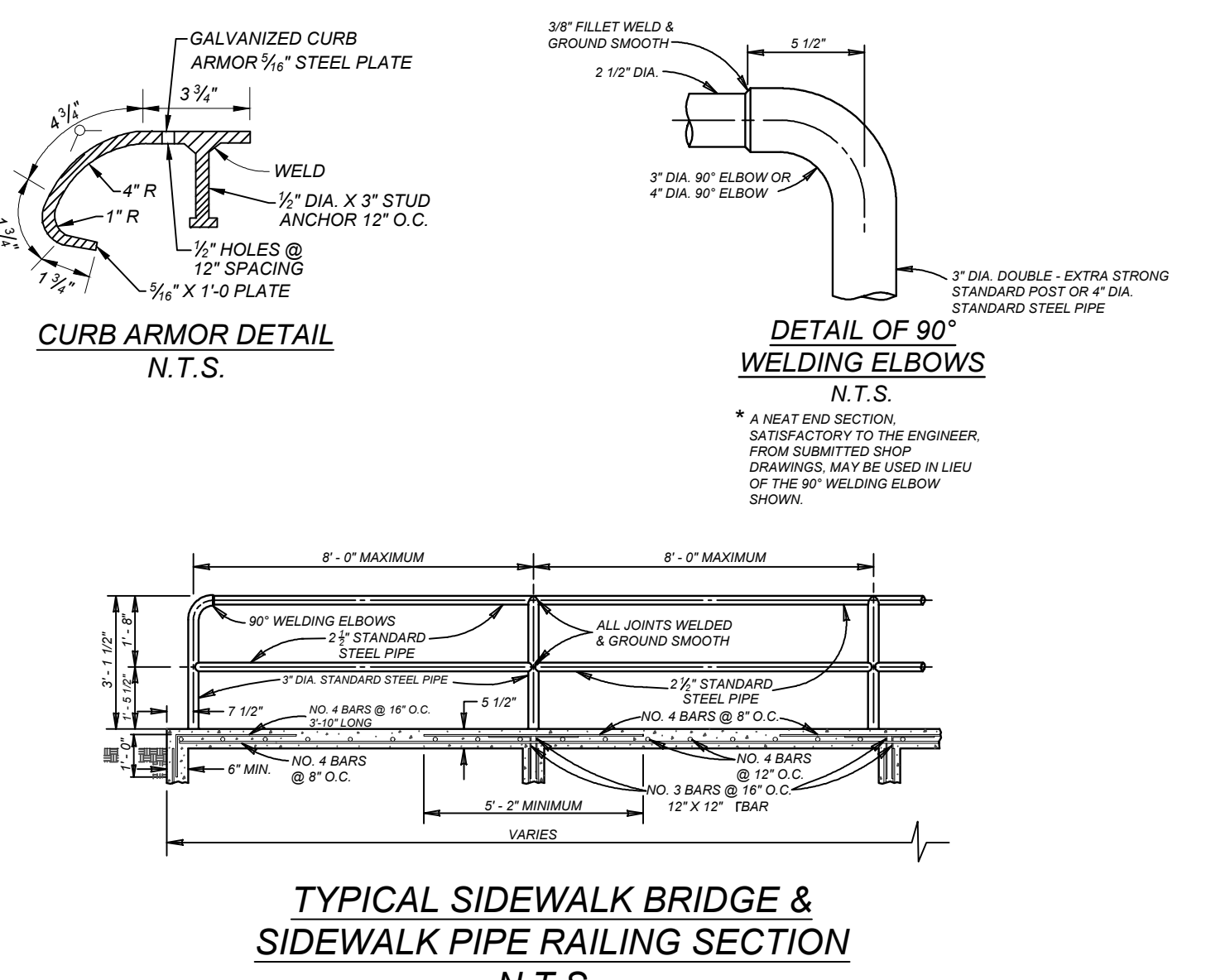
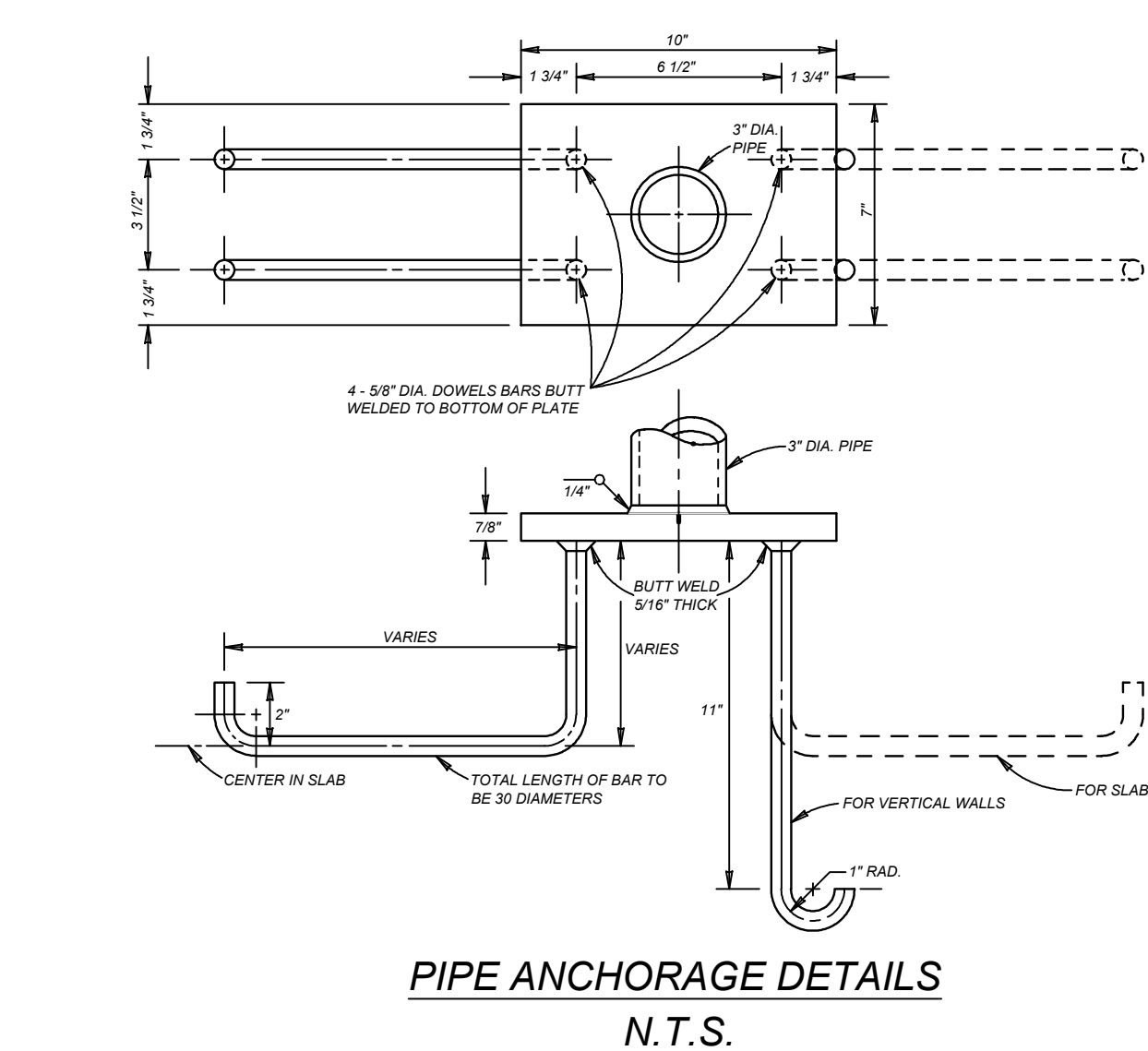
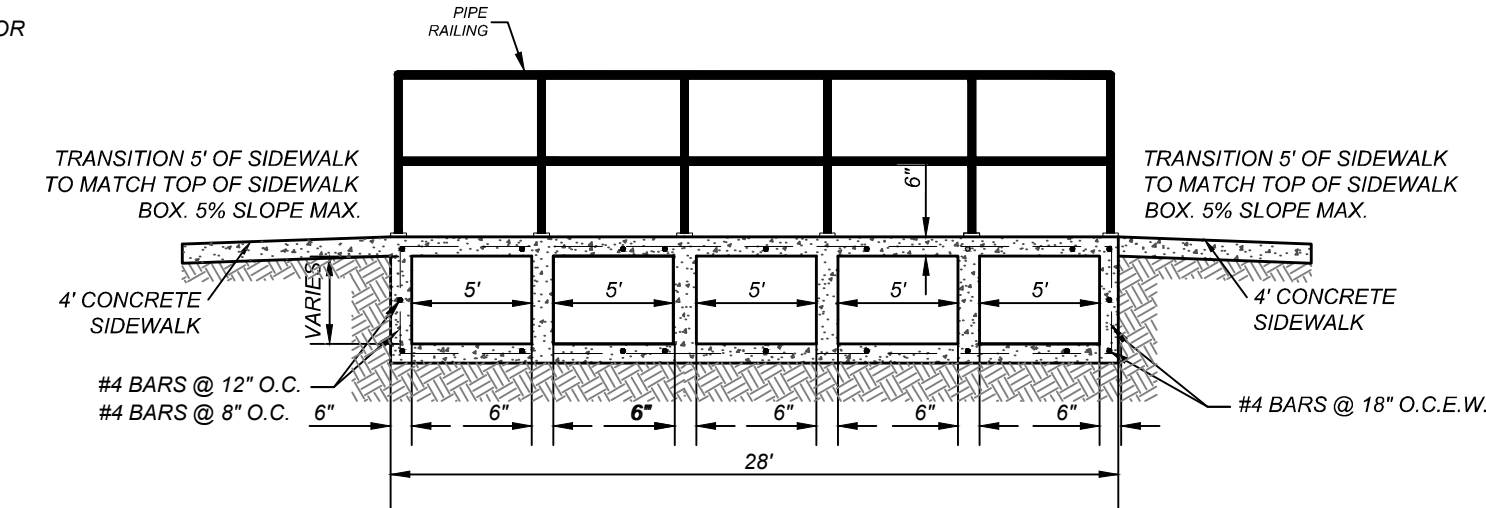
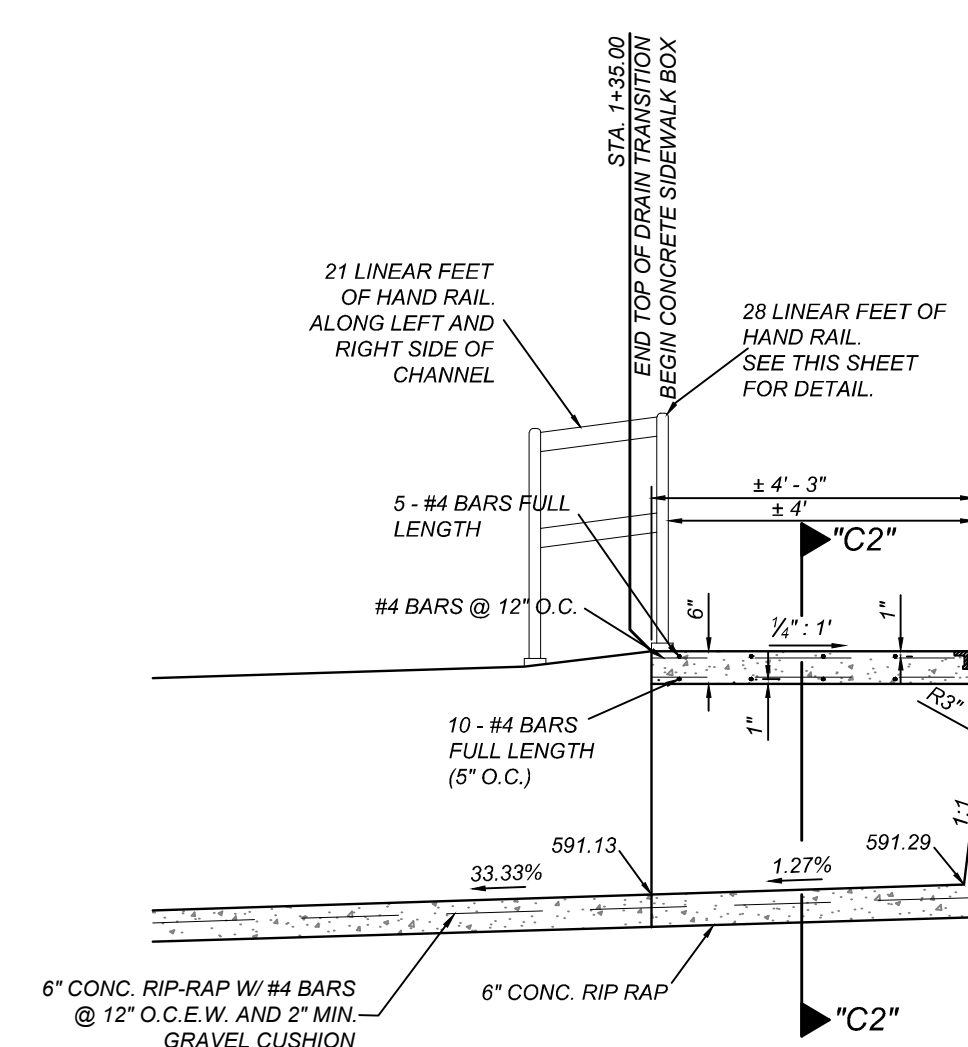
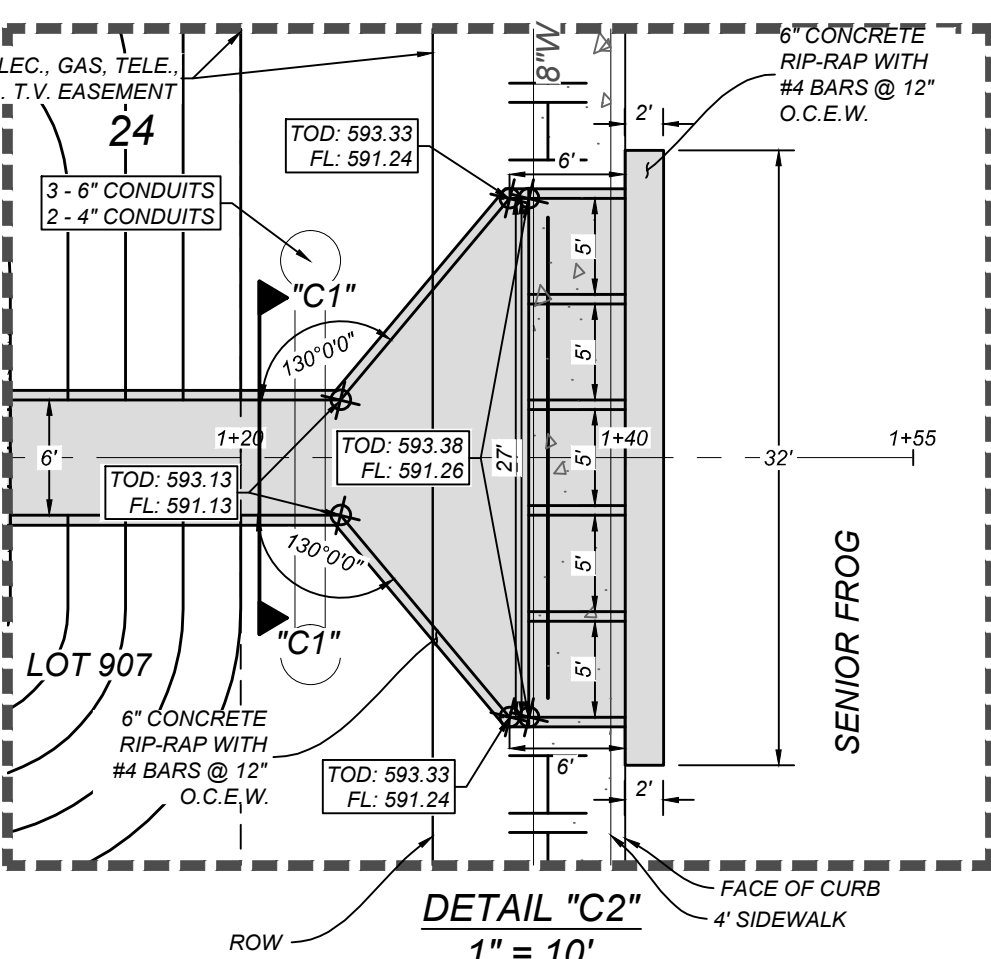
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CURB OPENING
HYDRAULIC CALCULATION
 $L = \frac{Q_{25}}{C_1 \cdot \frac{32}{L}}$
 $L = \frac{44.71}{(3.087) (0.79)^{3/2}}$
 $L = 20.63$ L.F.
∴ USE 25.0 L.F. CURB OPENING



HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'

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TBE Form 11-1609
TBE'S Form: 10194550

SCALE: AS SHOWN DATE: 5/23/2023 DRAWN BY: SD CHECKED BY: SC
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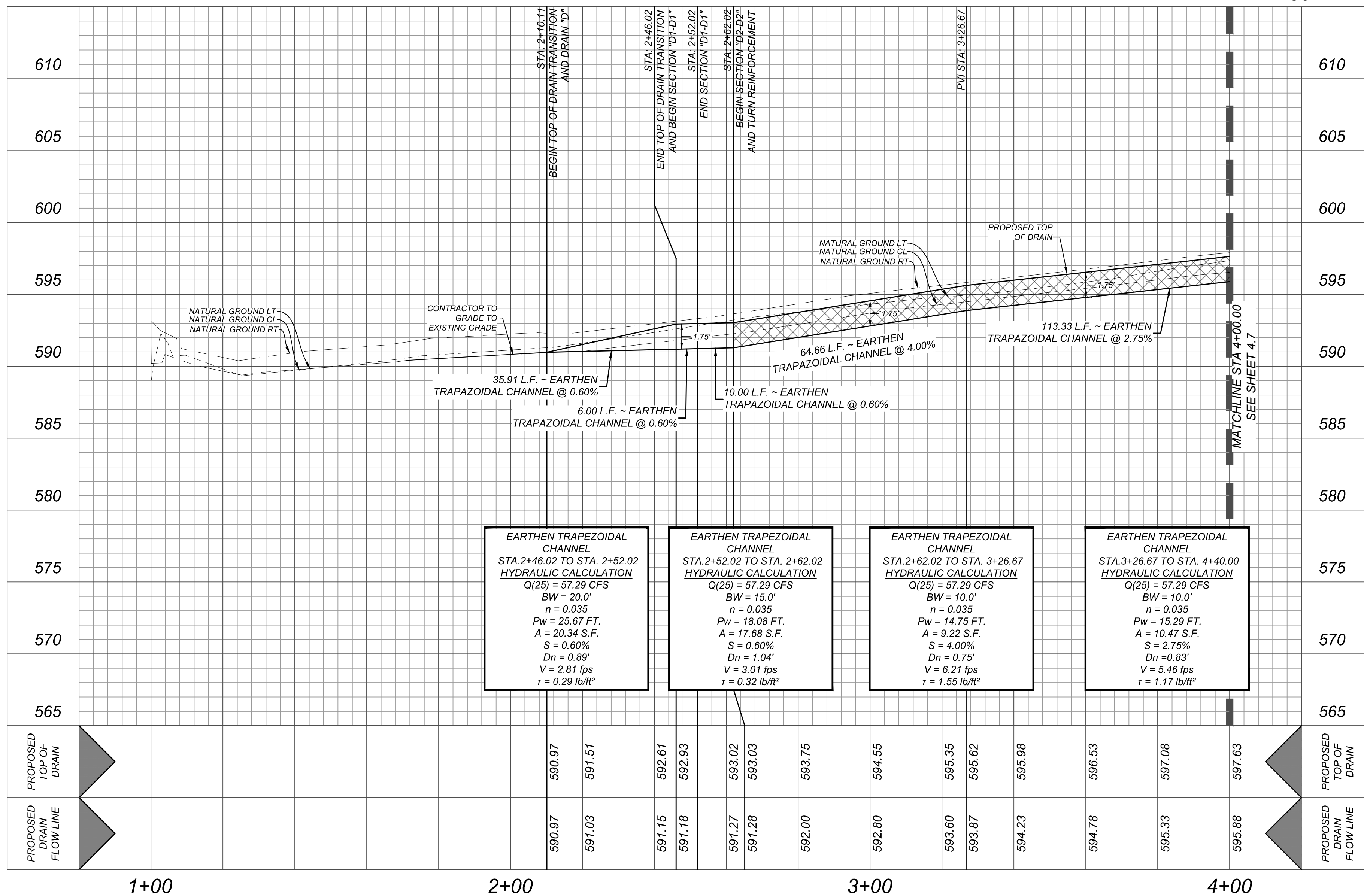
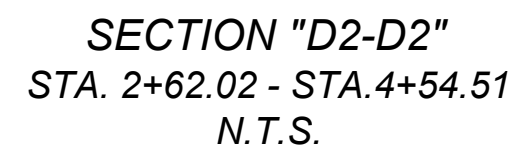
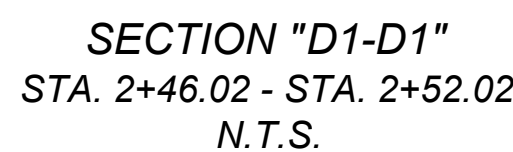
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SHEET NUMBER: 4.5

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORKAREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION AND PROTECTION SYSTEM PROGRAM AND/OR OTHER PROCEDURES. CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL COMPLY WITH TRENCH EXCAVATION SAFETY STANDARDS WITH ALL THE STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TELL A MINIMUM OF 48 HOURS PRIOR TO THE START OF ANY WORK. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.



A BEXAR COUNTY PERMIT
MUST BE OBTAINED BEFORE
WORKING IN BEXAR COUNTY
R.O.W.

1. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.
2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
3. AT THE PRE-FINAL INSPECTION, THE ENGINEER MUST ISSUE CERTIFICATION TO THE CITY INSPECTOR THAT THE TURF REINFORCEMENT MAT (TRM) WAS INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE CERTIFICATION MUST ALSO NOTE THAT THE MATERIAL AND INSTALLATION HAS MET CITY AND MANUFACTURER SPECIFICATIONS.

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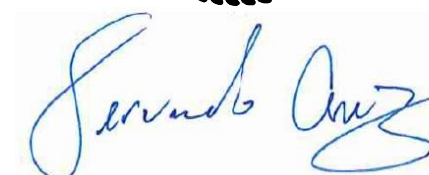
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KFW


PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF
EXCAVATORS, DESIGNERS, OR ANY PERSON
PREPARING TO DISTURB THE EARTH'S
SURFACE ANYWHERE IN ANY STATE

FOR STATE SPECIFIC DIRECT PHONE NUMBER:
VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION
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FOR
VARGA TRACT
SUBDIVISION
PLAT# 23-11800270



Colliers
Engineering
& Design

SAN ANTONIO (KFW)
3421 Paesanos
Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, II
TBPE Firm#: F-14909
TRB S. Firm#: 10104550

SCALE: AS SHOWN	DATE: 5/23/2023	DRAWN BY: SD	CHECKED BY: SC
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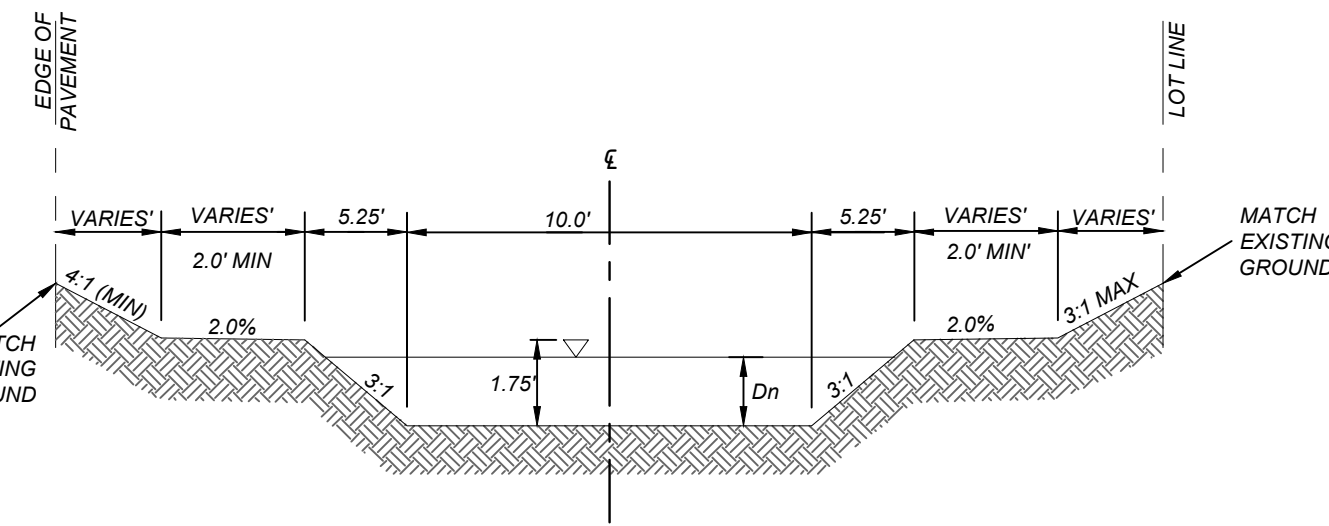
SHEET TITLE:
DRAIN "D" PLAN & PROFILE
STA. 1+00.00 TO STA. 4+00.00

SHEET NUMBER: 4.6

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT AREA IN ORDER TO DETERMINE THE CONTRACTOR'S TRENCH EXCAVATION SAFETY/PROTECTION SYSTEMS PROGRAM AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRICAL, SECONDARY ELECTRIC, PRIMARY ELECTRICAL, DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY UPON PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL MAINTAIN A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

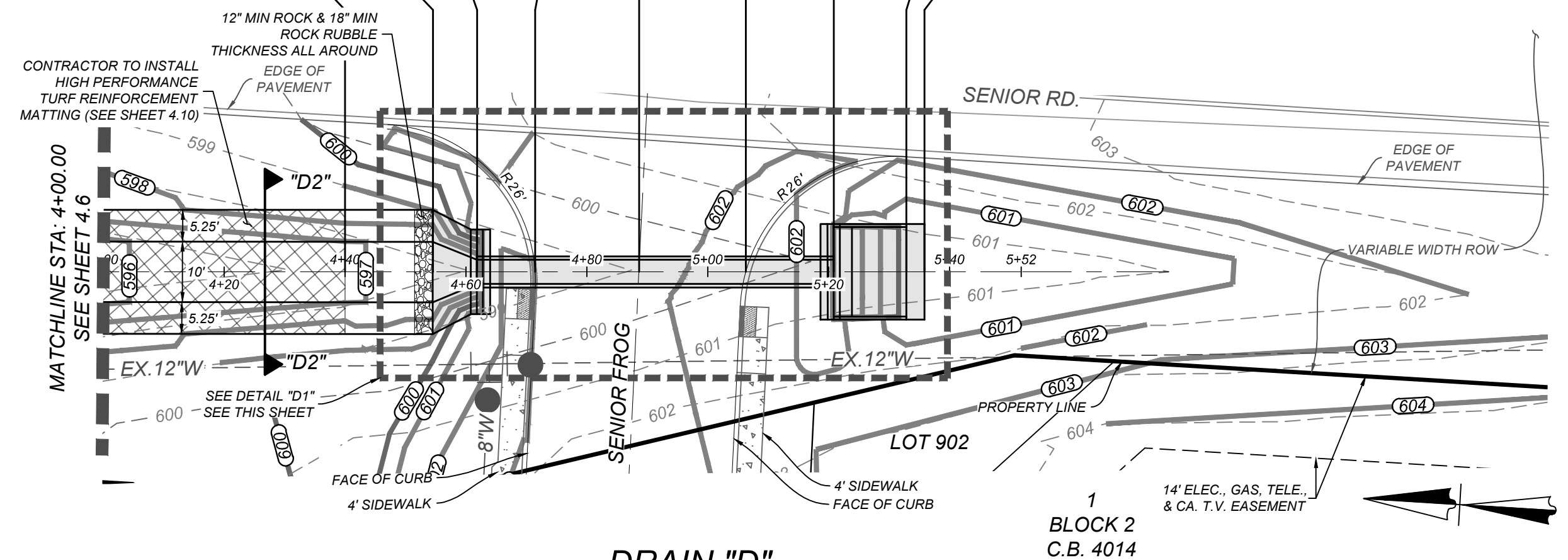
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BEXAR COUNTY R.O.W. NOTE
A BEXAR COUNTY PERMIT
MUST BE OBTAINED BEFORE
WORKING IN BEXAR COUNTY
R.O.W.

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DRAIN "D"
STA.4+00.00 TO END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'

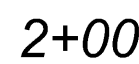
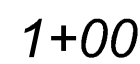
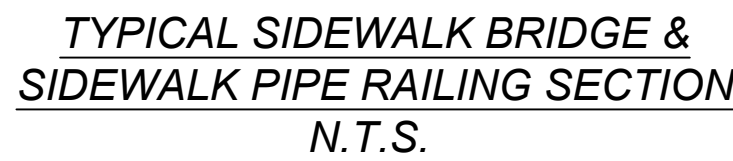
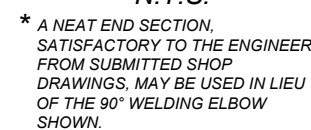
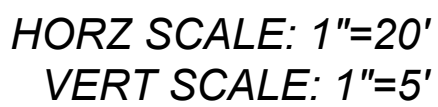
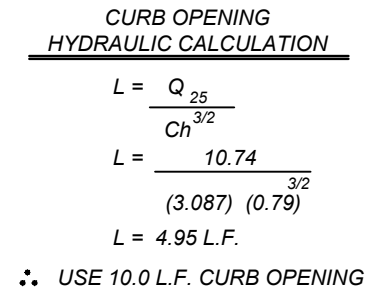
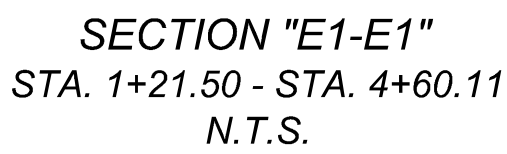
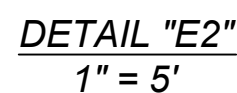
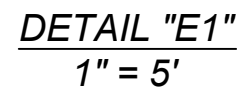
CivilDrains\DR11160101 - D_E.dwg\4.7 By: ABIELMONTALVO

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

CAUTION!!:

THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. AN UTILITY CERTIFICATE THAT PRIOR TO CONSTRUCTION TO THE CONTRACTOR ENGINEER IMMEDIATELY AND ARISE TO CONSTRUCTION THE CONTRACTOR SHALL SHUT DOWN 1-800-DIG-TELEPHONE FOR A MINIMUM OF 48 HOURS TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

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R.O.W.



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& Design

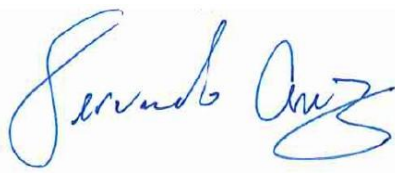
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KEW

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PREPARING TO DISTURB THE EARTH'S
SURFACE ANYWHERE IN ANY STATE

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

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9/21/23

FOR
ARGA TRACT
SUBDIVISION
T# 23-11800270

Parkway
San Antonio, TX 78224

Phone: 210.979.8444

AS SHOWN	2/23/2023	JD	3
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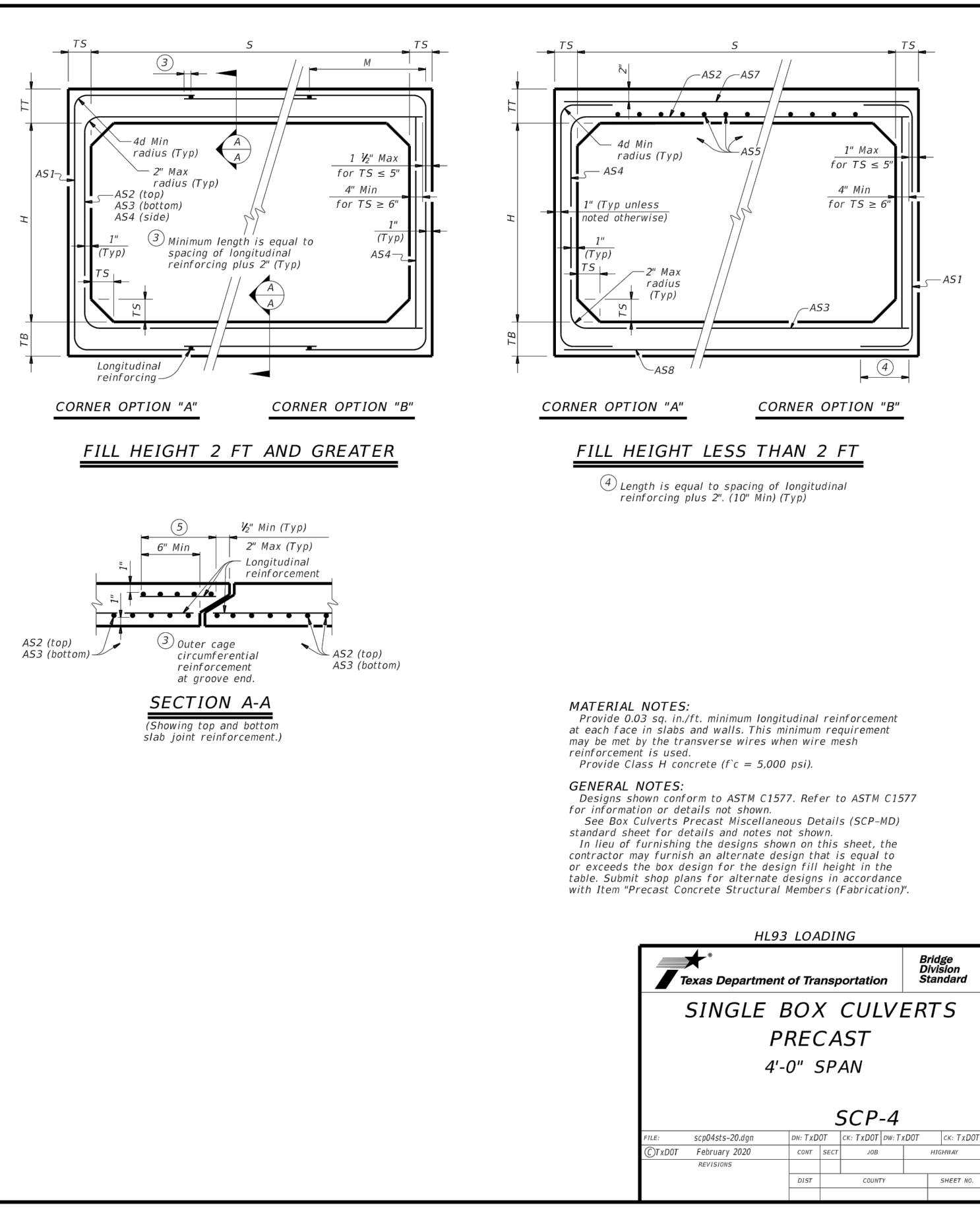
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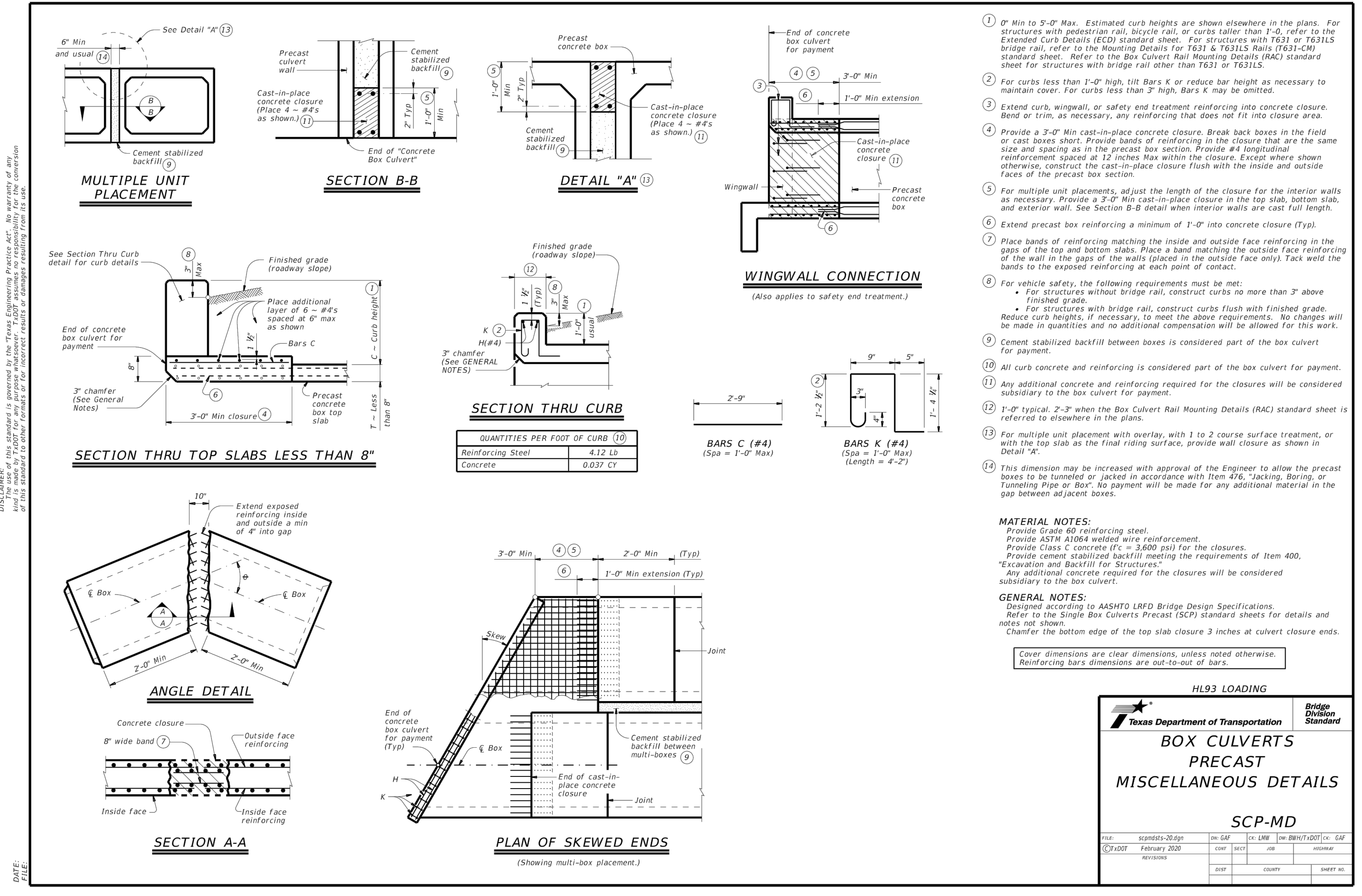
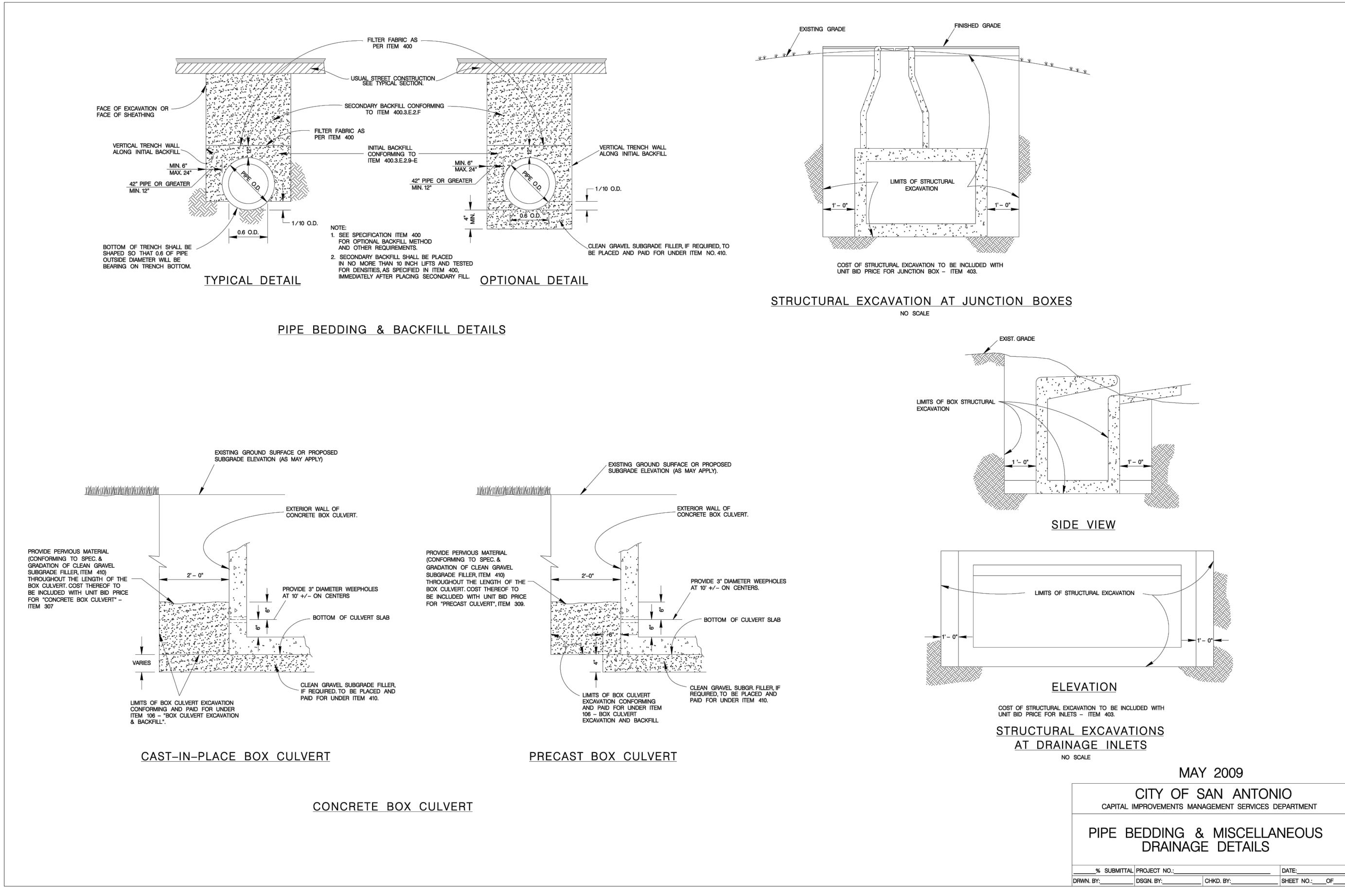
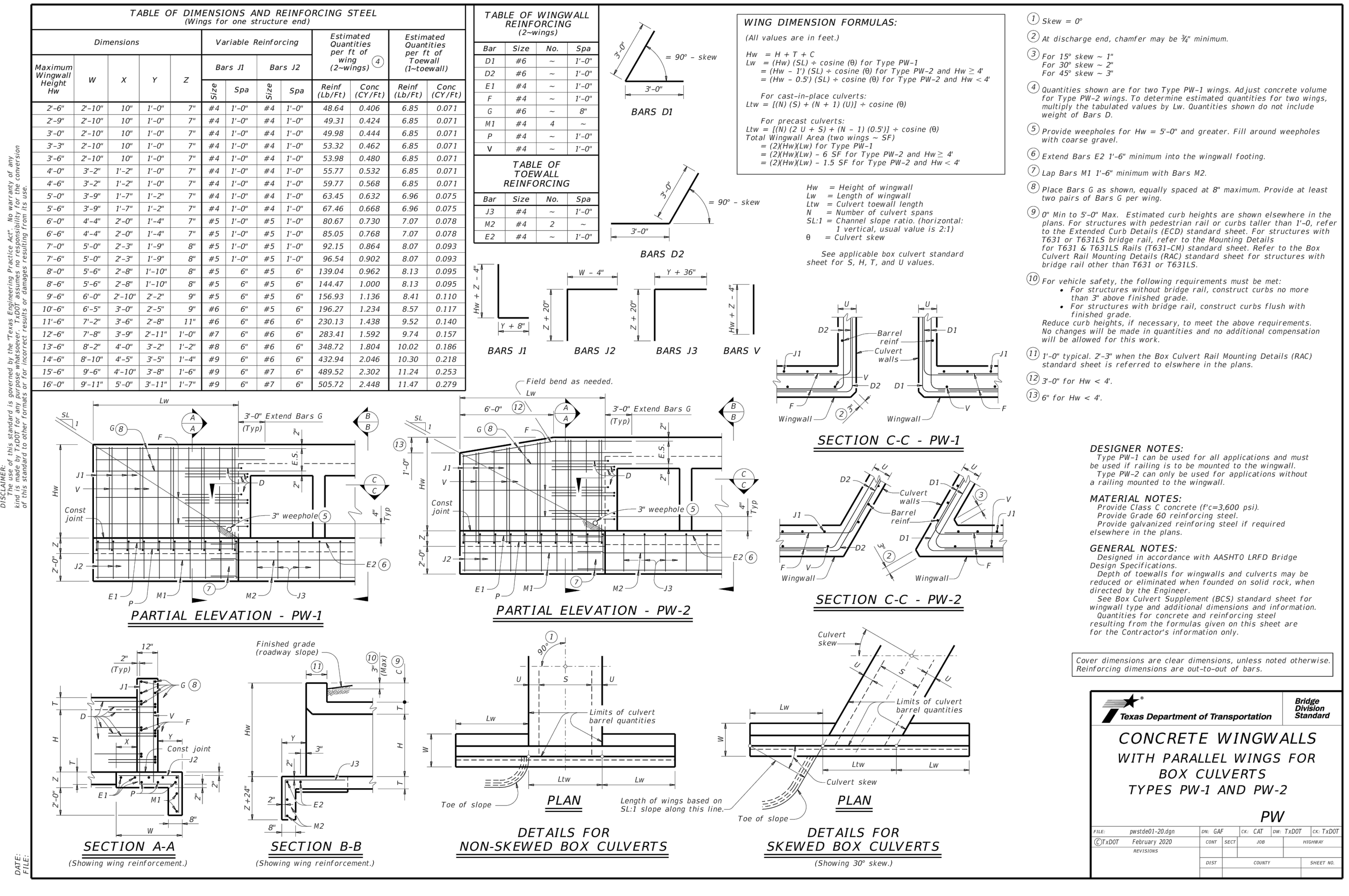
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NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION

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HL93 LOADING									
Texas Department of Transportation									
BRIDGE DIVISION									
SINGLE BOX CULVERTS									
PRECAST									
4'-0" SPAN									
SCP-4									
FILE NO.	WSP-001-2020	DATE	FEBRUARY 2020	REV.	001	DATE		BY	
DESIGNED BY		CHECKED BY		APPROVED BY		DATE		COUNTY	
DRAWN BY		SCALE		SHEET NO.		SHEET TOTAL			



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 ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE

FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

STATE OF TEXAS
 SERVANDO CRUZ
 142566
 LICENSED PROFESSIONAL ENGINEER

9/4/23

PRELIMINARY

FOR VARGA TRACT SUBDIVISION PLAT# 23-11800270

SAN ANTONIO BEXAR COUNTY TEXAS

Colliers Engineering & Design
 SAN ANTONIO (KFW)
 3421 Paines
 Parkway
 San Antonio, TX 78231
 Phone: 210.979.8444
 COLLIERS ENGINEERING & DESIGN, INC.
 TBS Form E-1400
 TBS Form 10194550

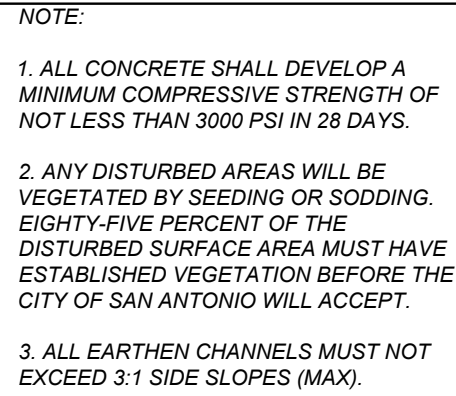
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PROJECT NUMBER: 1116-01-01 DRAWING NAME: DT1160101

SHEET TITLE: DRAINAGE PLAN DETAIL SHEET

SHEET NUMBER: 4.9

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

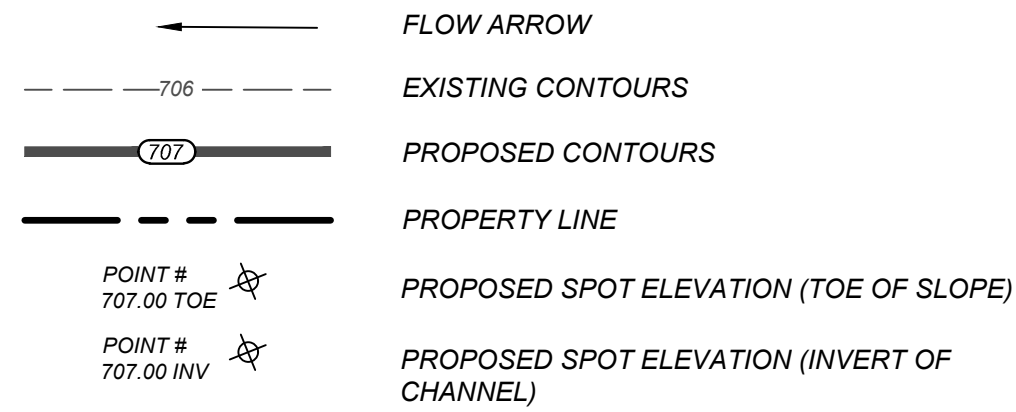


CAUTION!!
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING, ELECTRICAL, SECONDARY ELECTRICAL, PRIMARY ELECTRICAL, DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

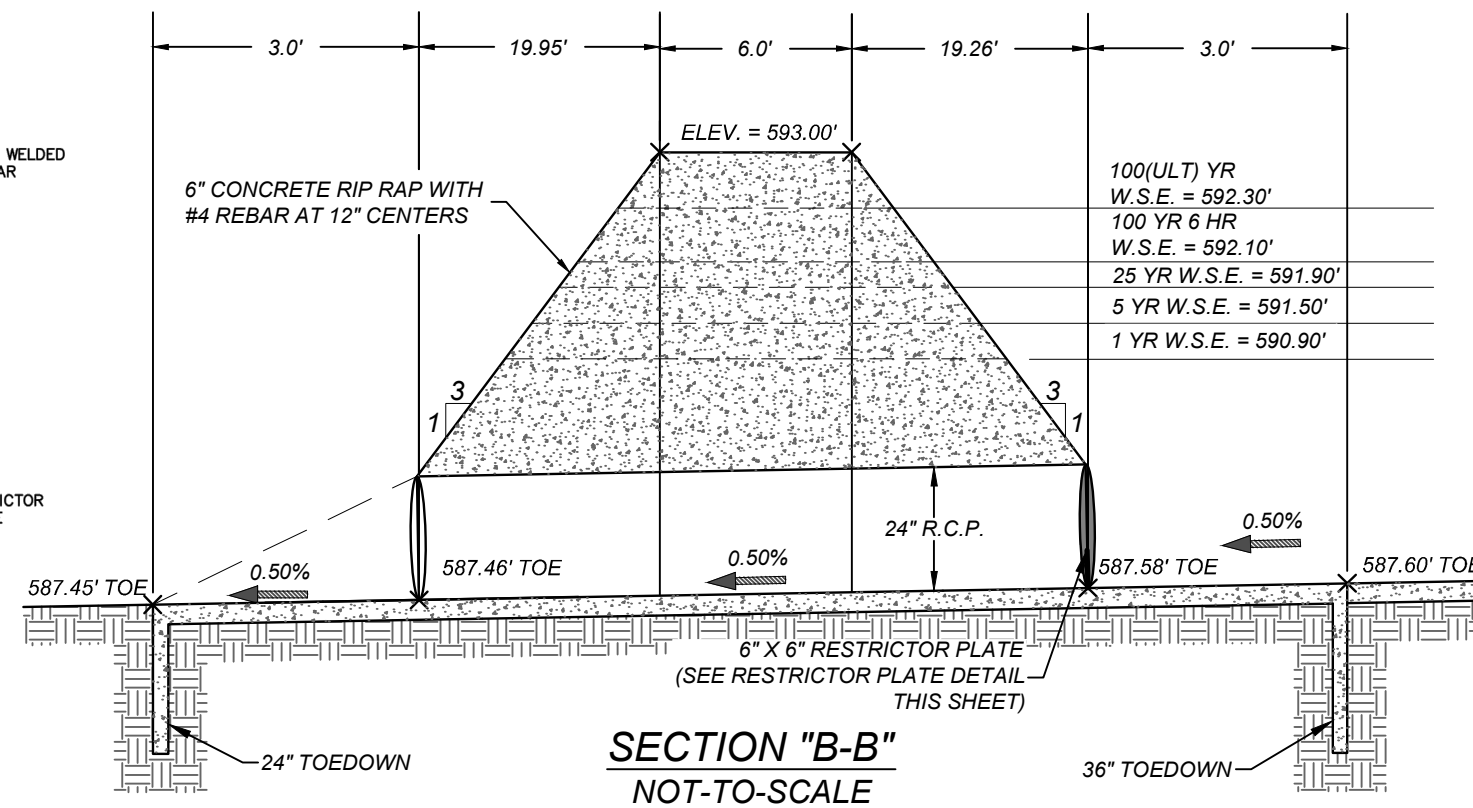
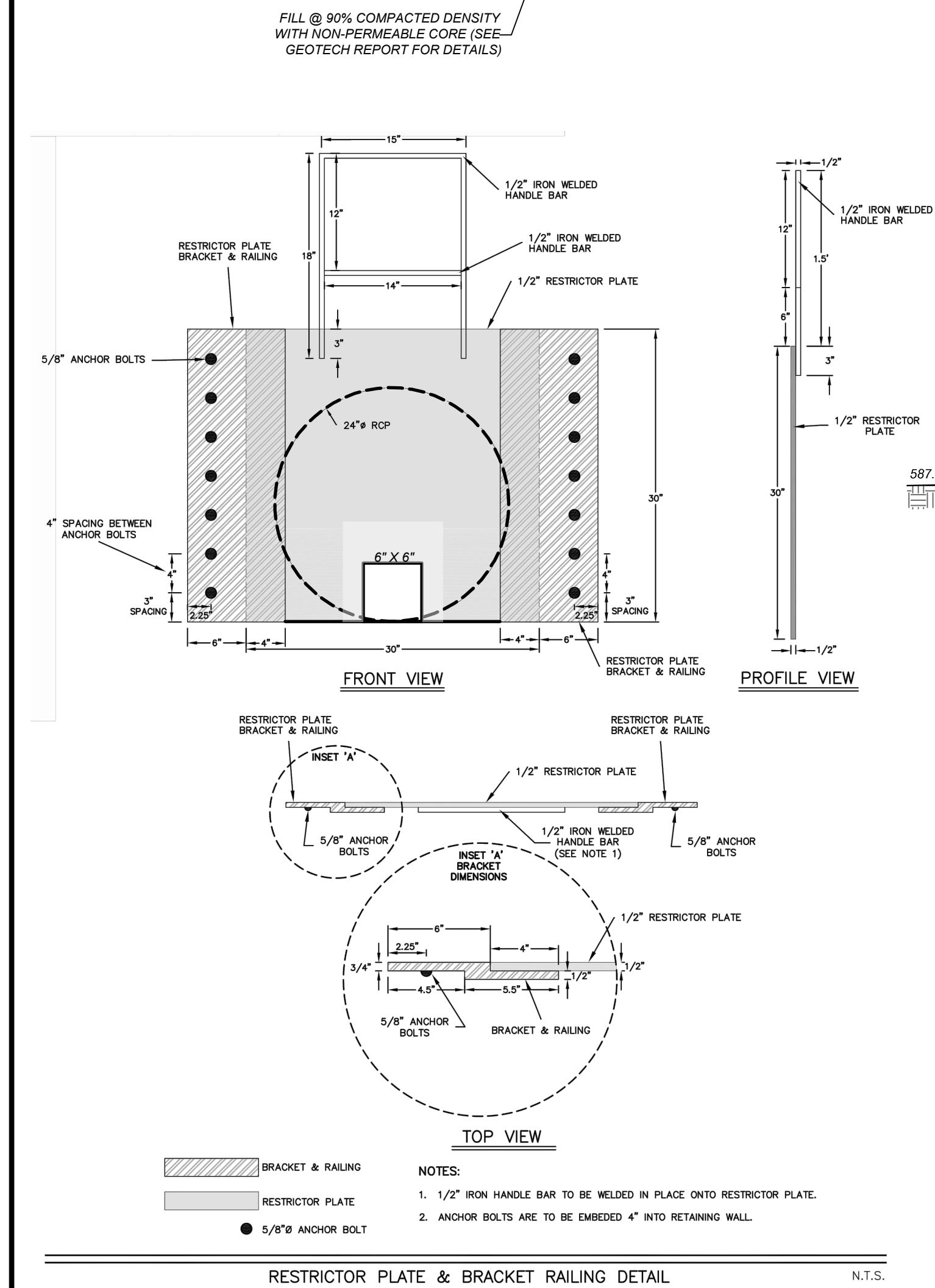
TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONSULTANT SHALL PROVIDE WRITTEN VERIFICATION TO THE CONTRACTOR THAT THE CONTRACTOR PROVIDES FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

LEGEND



PROPOSED DISCHARGE					
Q1	=	2.2		WSEL1	= 590.90
Q5	=	68.3		WSEL5	= 591.50
Q25	=	133.7		WSEL25	= 591.90
Q100 (6HR)	=	183.7		WSEL100	= 592.10
Q100	=	186.80		WSEL100	= 592.10
Q100 (ult)	=	240.2		WSEL100	= 592.30



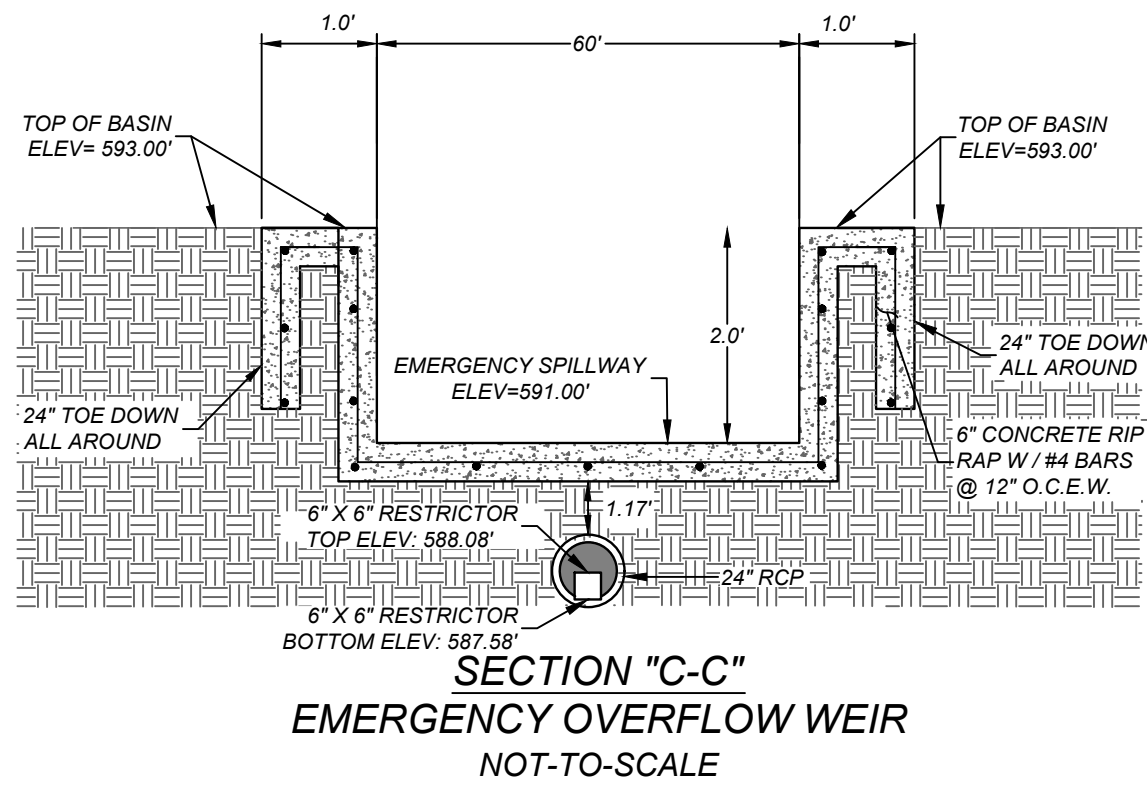
EMERGENCY SPILLWAY CALCULATION

$$L = \frac{Q_{100}(ULT)}{CH^{3/2}}$$

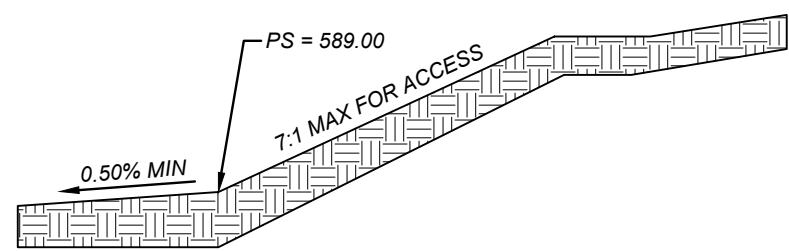
$$L = \frac{240.2 \text{ cfs}}{(3.087)(2.0)^3}$$

$$L_{REQ.} = 27.51 \text{ FEET}$$

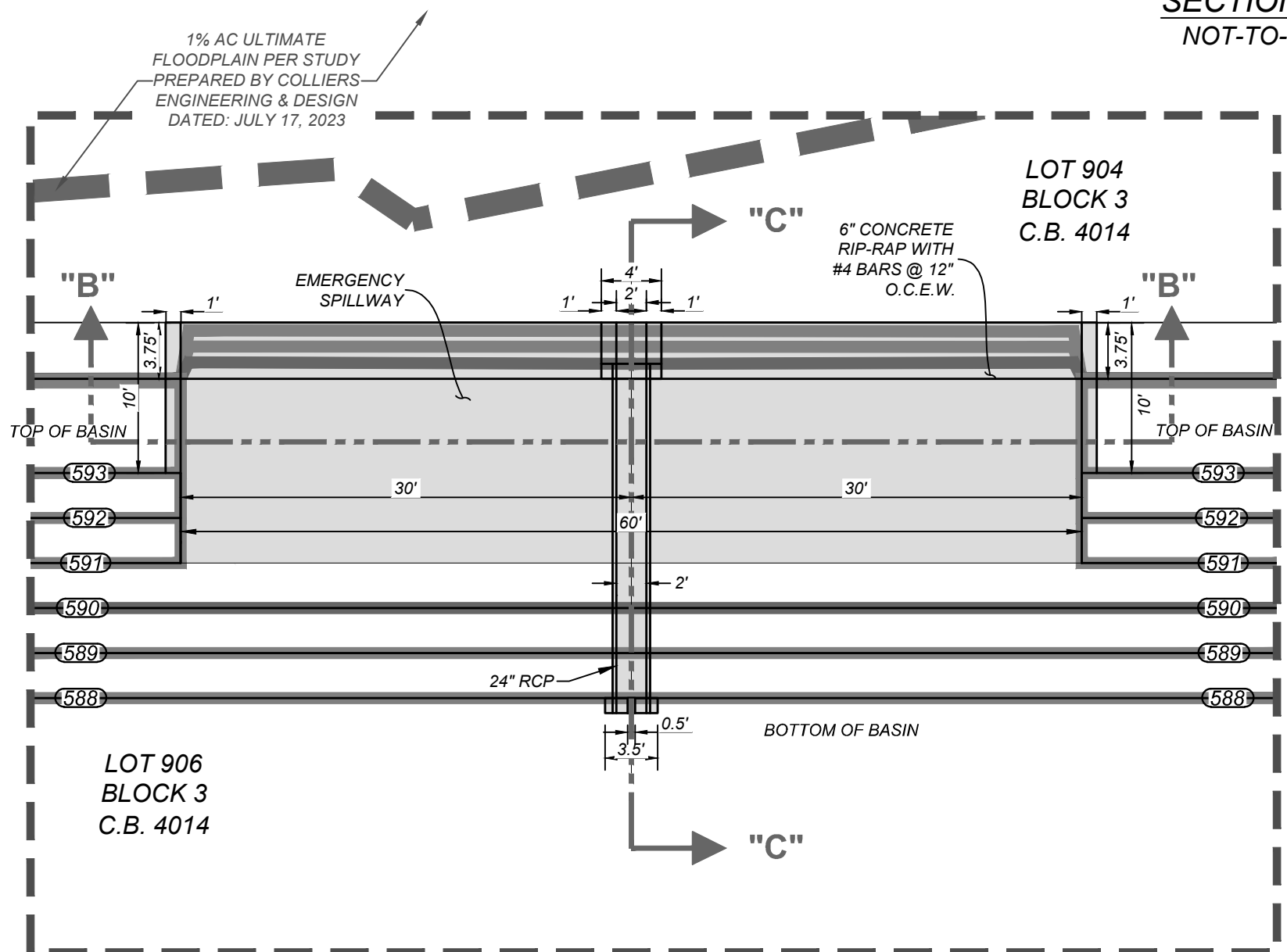
$$L_{USED} = 60 \text{ FEET}$$



EMERGENCY OVERFLOW WEIR
NOT-TO-SCALE



SECTION "D-D"
NOT-TO-SCALE

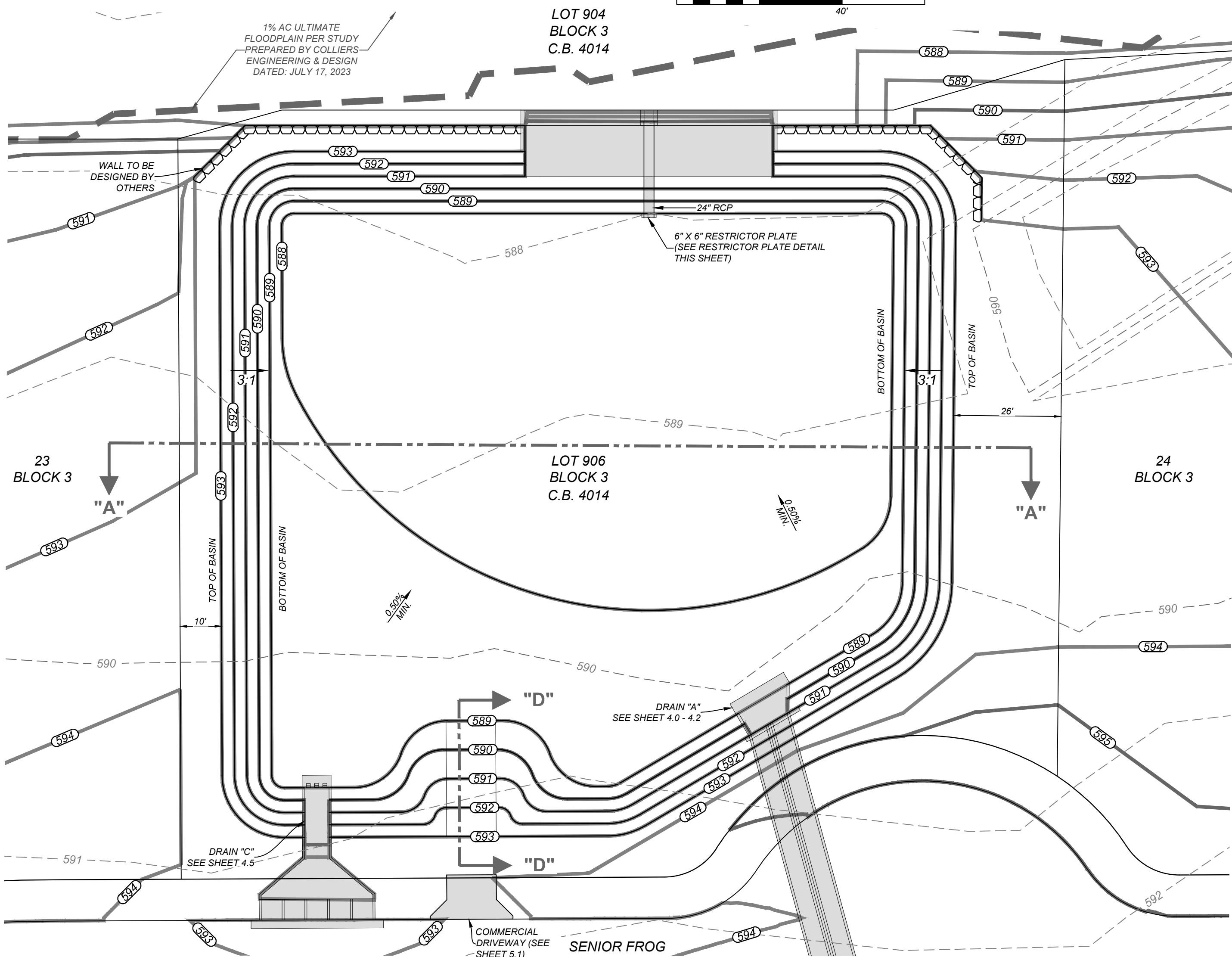


DETAIL "A"
SCALE: 1" = 10'

CONCRETE CHANNEL
OUTFALL

HYDRAULIC CALCULATION


$Q(25) = 133.7 \text{ CFS}$
 $Bw = 60'$
 $n = 0.015$
 $Pw = 61.02 \text{ FT.}$
 $A = 30.60 \text{ S.F.}$
 $S = 0.50\%$
 $Dn = 0.51'$
 $V = 4.38 \text{ fps}$
 $VH = 0.30'$



NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

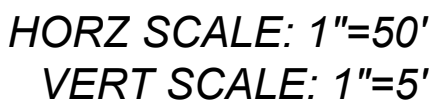
TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGNING ENGINEER SHALL PROVIDE THE FOLLOWING SAFETY PROTECTION: CONTRACTOR SHALL DESIGN, DEVELOP AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION STEPS WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS, SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL PROVIDE THE FOLLOWING SAFETY PROTECTION: CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

GAS, ELECTRIC, TELEPHONE & CABLE EASEMENT	=	G.E.T.V.E.
WHEELCHAIR RAMP TYPE "I" SEE SHEET 5.6	=	Ⓘ
WHEELCHAIR RAMP TYPE "II" SEE SHEET 5.6	=	Ⓣ
SINGLE DIRECTION WHEELCHAIR RAMP SEE SHEET 5.6	=	SDW
DUEL DIRECTION WHEELCHAIR RAMP SEE SHEET 5.6	=	DDW
PROPOSED FLOW ARROW	=	

SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION	=	
PROPOSED DRIVEWAY LOCATIONS	=	
PROPOSED WASHOUT CROWN	=	
HIGH POINT	=	H.P.

**A BEXAR COUNTY PERMIT MUST BE
OBTAINED BEFORE WORKING IN
BEXAR COUNTY R.O.W.**



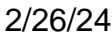
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FOR
VARGA TRACT
SUBDIVISION
AT# 23-11800270

SAN ANTONIO (KFW)
3421 Paesanos
Parkway
San Antonio, TX 78231
Phone: 210.979.8444
LLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	5/23/2023	SD	SC

PROJECT NUMBER:	DRAWING NAME:
1116-01-01	STPP11160101

SHEET TITLE:

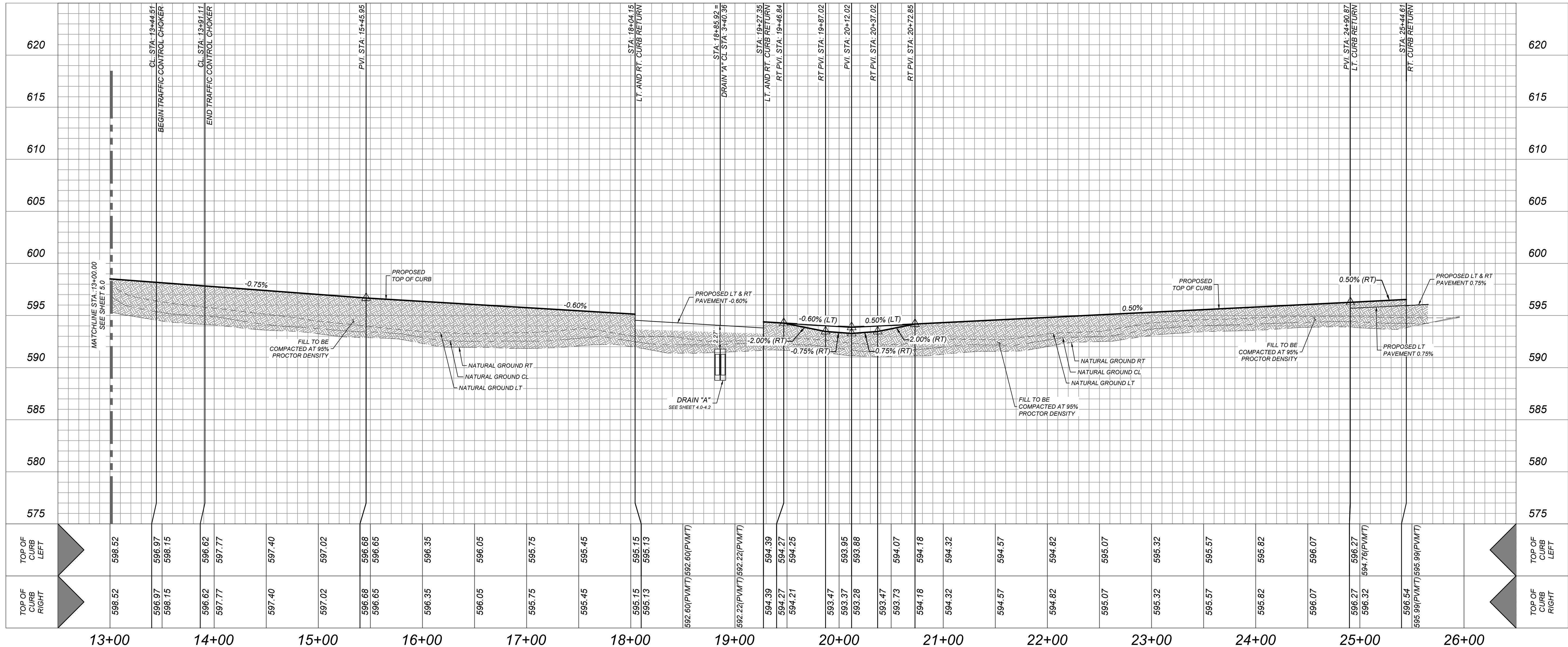
SENIOR FROG PLAN & PROFILE
STA. 1+00.00 TO 13+00.00

SHEET NUMBER: 5.0

TRENCH EXCAVATION SAFETY PROTECTION

DESIGNGEOTECHNICAL/SOILS/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL PROVIDE TRAINING TO ALL PERSONNEL INVOLVED IN THE TRENCH EXCAVATION REGARDING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

**A BEXAR COUNTY PERMIT MUST BE
OBTAINED BEFORE WORKING IN
BEXAR COUNTY R.O.W.**

[illegible]

FOR
VARGA TRACT
SUBDIVISION
PLAT# 23-11800270

STA. 13+00.00 TO END

SHEET NUMBER:

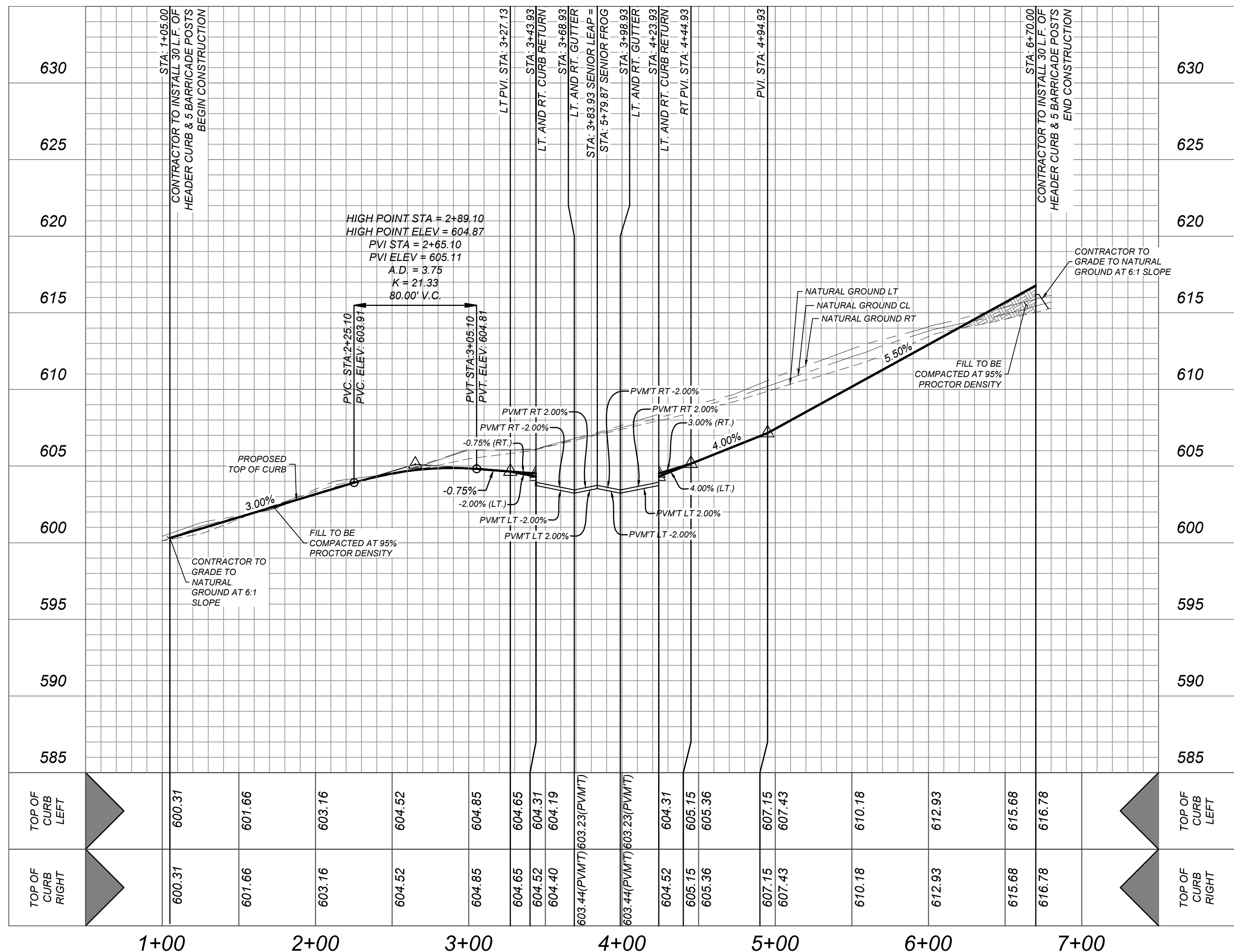
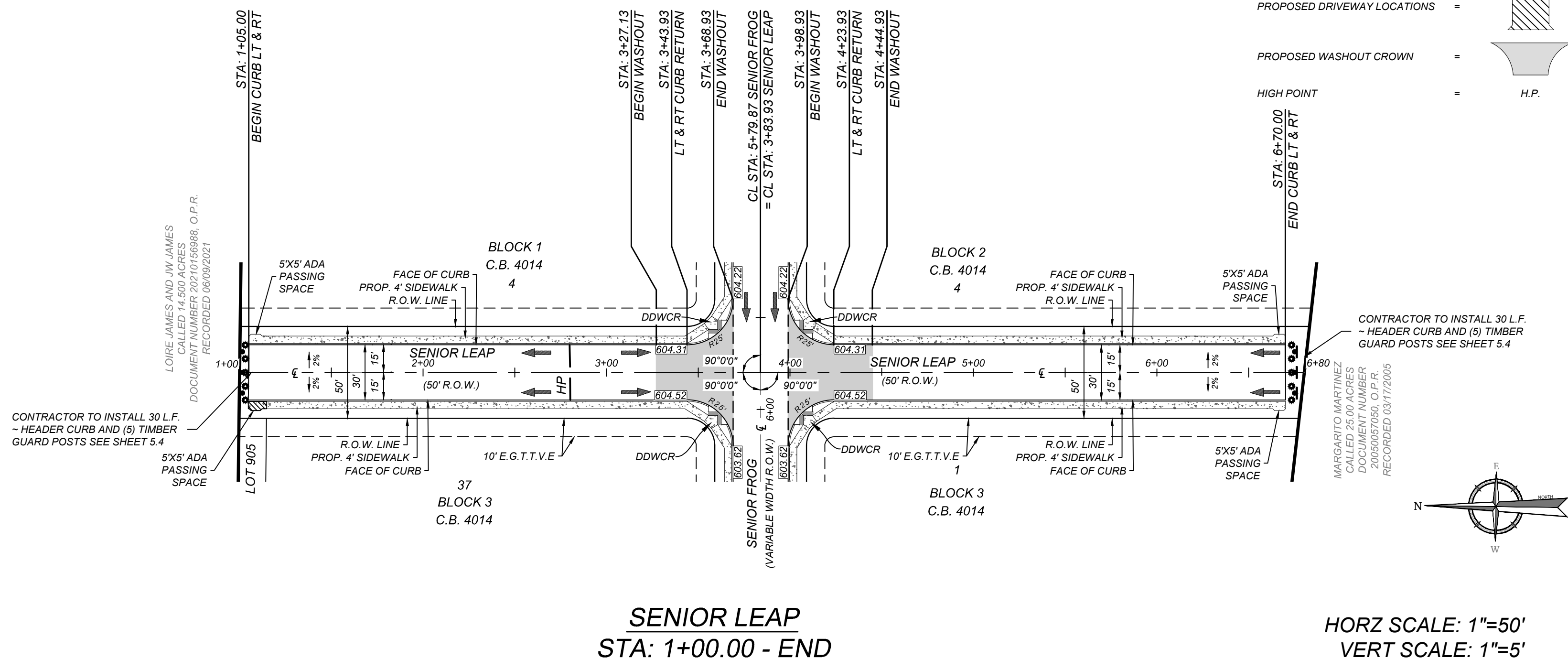
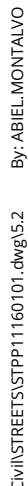
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION

TRENCH EXCAVATION SAFETY PROTECTION








CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL SAFETY EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR SHALL PROVIDE TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL PROVIDE TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES DURING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.




HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



**A BEXAR COUNTY PERMIT MUST BE
OBTAINED BEFORE WORKING IN
BEXAR COUNTY R.O.W.**

GAS, ELECTRIC, TELEPHONE & CABLE EASEMENT	=	G.E.T.V.E.
WHEELCHAIR RAMP TYPE "I"	=	
SEE SHEET 5.6		
WHEELCHAIR RAMP TYPE "II"	=	
SEE SHEET 5.6		
SINGLE DIRECTION		
WHEELCHAIR RAMP SEE SHEET 5.6	=	SDW
DUAL DIRECTION		
WHEELCHAIR RAMP SEE SHEET 5.6	=	DDW
PROPOSED FLOW ARROW	=	
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION	=	
PROPOSED DRIVEWAY LOCATIONS	=	
PROPOSED WASHOUT CROWN	=	
HIGH POINT	=	H.P.



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Formerly Known as

KFW
KIEWIT FOUNDATION WORLDWIDE

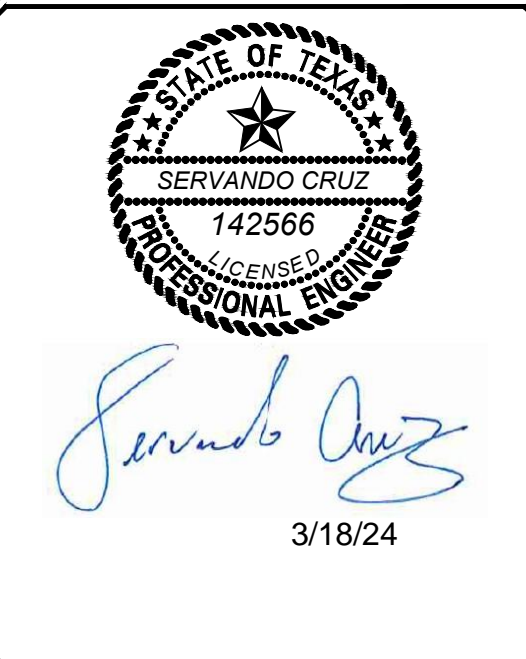
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ALL STATE SPECIFIC NOTIFICATION OF
EXCAVATORS, DESIGNERS, OR ANY PERSON
PREPARING TO DISTURB THE EARTH'S
SURFACE ANYWHERE IN ANY STATE



811
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PRELIMINARY
FOR
VARGA TRACT
SUBDIVISION
PLAT# 23-11800270

SAN ANTONIO
BEXAR COUNTY
TEXAS

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Engineering
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3421 Paesanos
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San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPB Firm#: F-14909
TBPB S Firm#: 10194550

SCALE: AS SHOWN	DATE: 5/23/2023	DRAWN BY: SD	CHECKED BY: SC
PROJECT NUMBER: 1116-01-01		DRAWING NAME: STPP11160101	

SHEET TITLE:

SENIOR LEAP PLAN & PROFILE
STA. 1+00.00 TO END






SHEET NUMBER: 5.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL PROVIDE FOR TRENCH EXCAVATION SAFETY PROTECTION THAT INCLUDES, BUT IS NOT LIMITED TO, THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.



GAS, ELECTRIC, TELEPHONE & CABLE EASEMENT	=	G.E.T.V.Y.E.
WHEELCHAIR RAMP TYPE "I"	=	①
SEE SHEET 5.6		
WHEELCHAIR RAMP TYPE "II"	=	②
SEE SHEET 5.6		
SINGLE DIRECTION		
WHEELCHAIR RAMP SEE SHEET 5.6	=	SDW
DUAL DIRECTION		
WHEELCHAIR RAMP SEE SHEET 5.6	=	DDW
PROPOSED FLOW ARROW	=	
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION	=	
PROPOSED DRIVEWAY LOCATIONS	=	
PROPOSED WASHOUT CROWN	=	
HIGH POINT	=	H.P.

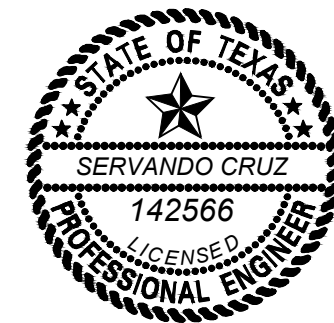
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ALL STATES REQUIRE NOTIFICATION

FOR STATE SPECIFIC DIRECT PHONE NUMBER:
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2/26/24

PRELIMINARY
FOR
VARGA TRACT
SUBDIVISION
PLAT# 23-1180027C

SAN ANTONIO
BEXAR COUNTY
TEXAS



Colliers
Engineering
& Design

SAN ANTONIO (KFW)
3421 Paesanos
Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

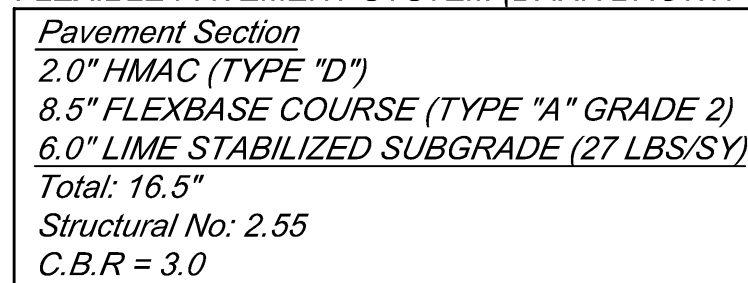
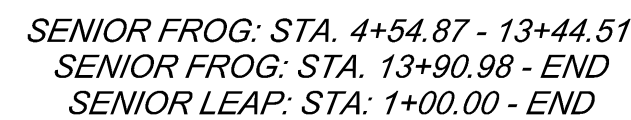
SCALE: AS SHOWN	DATE: 5/23/2023	DRAWN BY: SD	CHECKED BY: SC
PROJECT NUMBER: 1116-01-01		DRAWING NAME: STPP11160101	

SENIOR FROG
ROUNDBOUT DETAIL

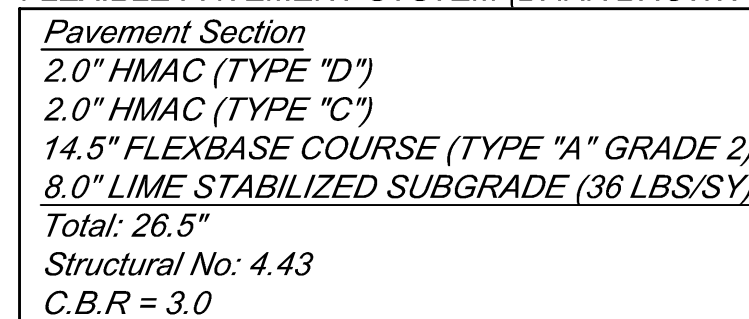
SHEET NUMBER

5.3

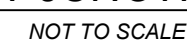
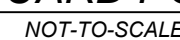
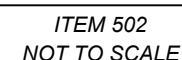
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION



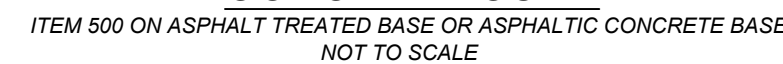
4. THERE SHALL BE NO SUBSTITUTION OF LIME.

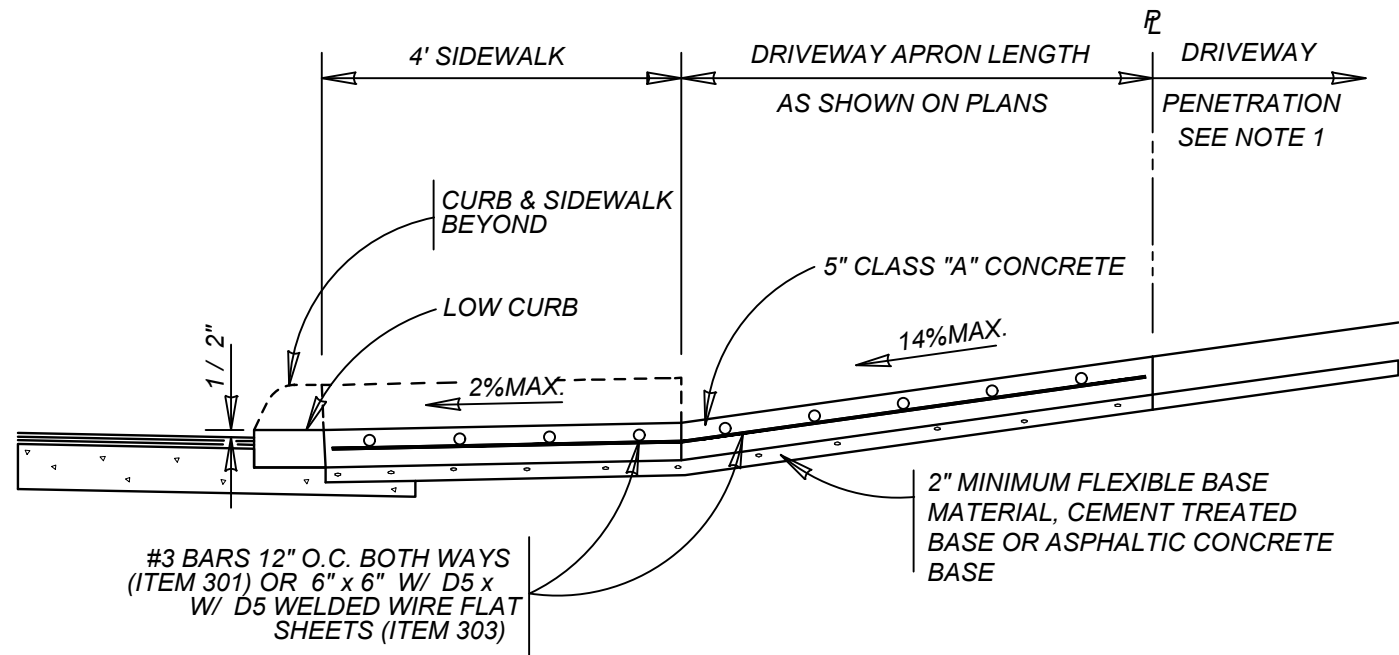


4. THERE SHALL BE NO SUBSTITUTION OF LIME.



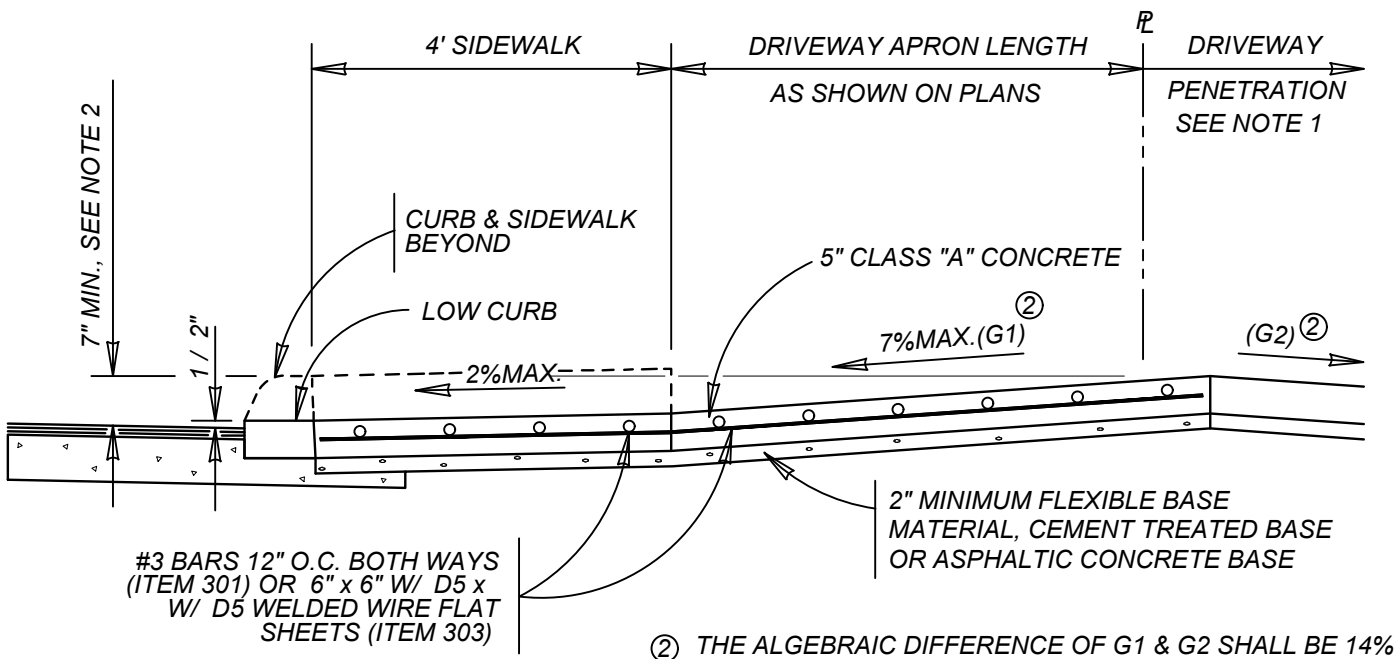
NOTES:
 ANY FILL USED TO RAISE THE SUBGRADE:
 • SHOULD NOT CONTAIN ANY DELETERIOUS MATERIAL.
 • SHOULD HAVE A CBR VALUE OF 3.0 OR GREATER
 • SHOULD NOT HAVE GRAVELS LARGER THAN 3 INCH IN SIZE
 • PSI SHOULD BE LESS THAN 20





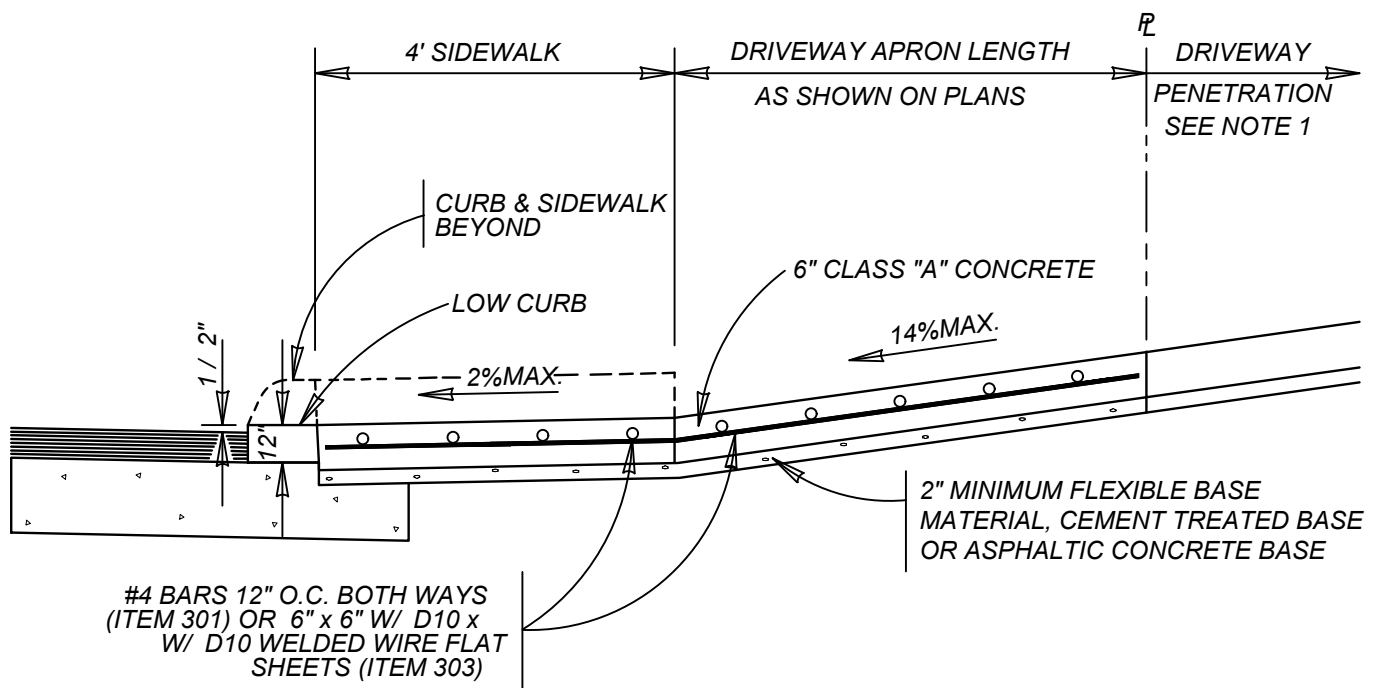
TYPICAL RESIDENTIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB
ITEM 503.1



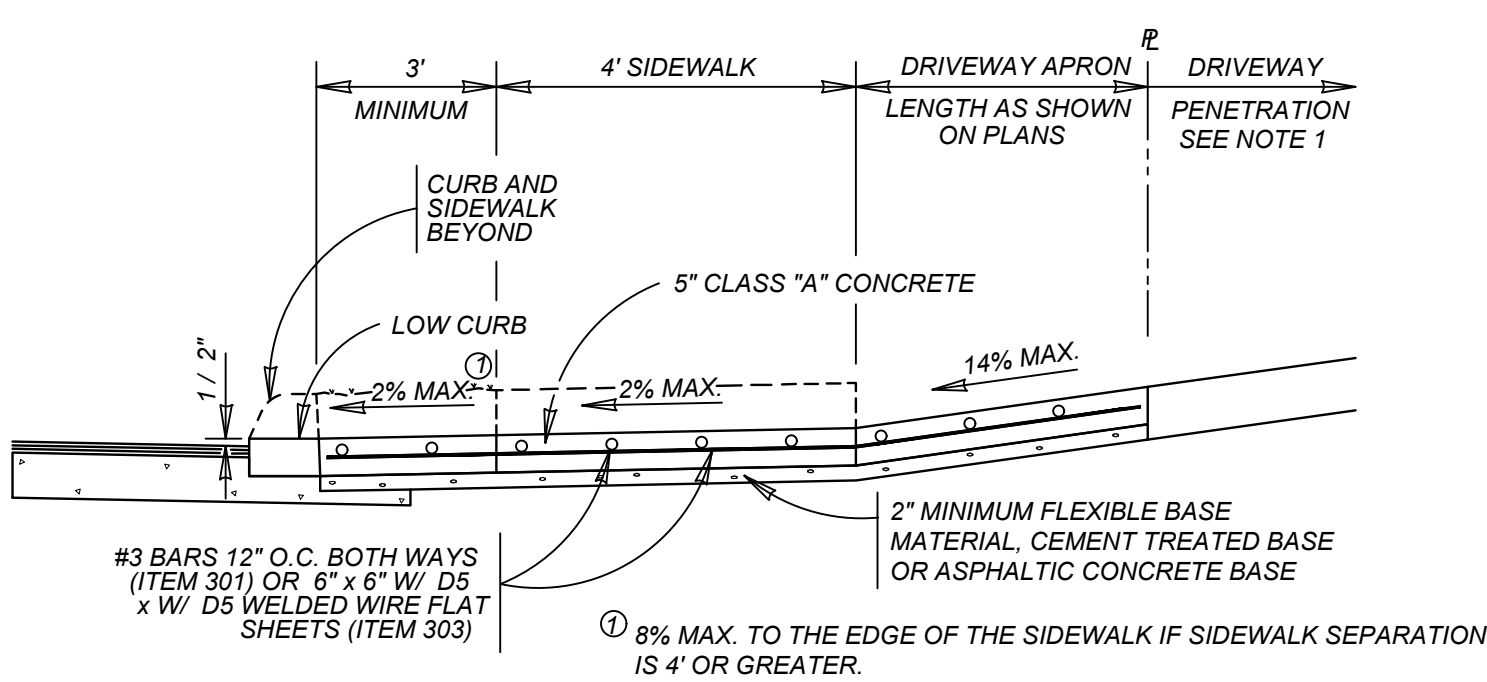
TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS ABUTTING CURB
ITEM 503.1



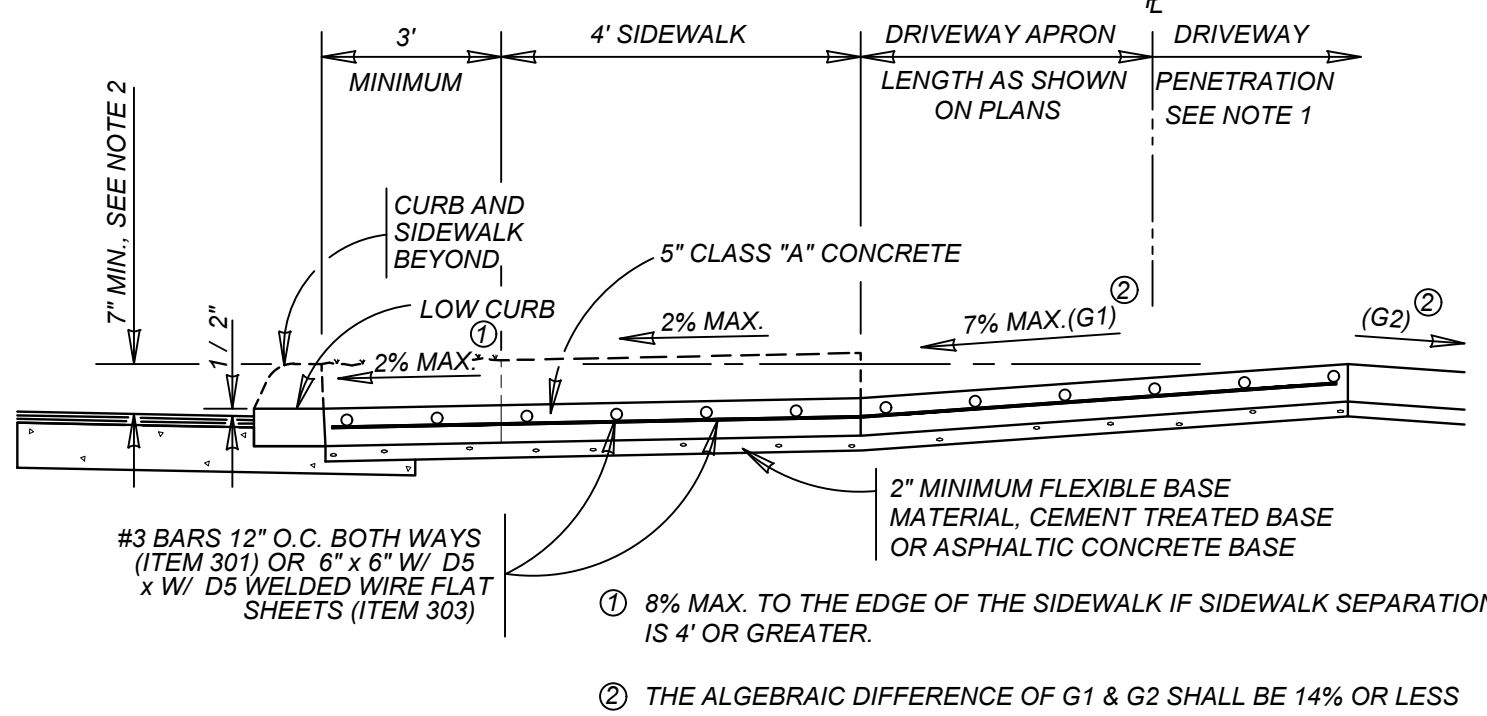
TYPICAL COMMERCIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB
ITEM 503.2



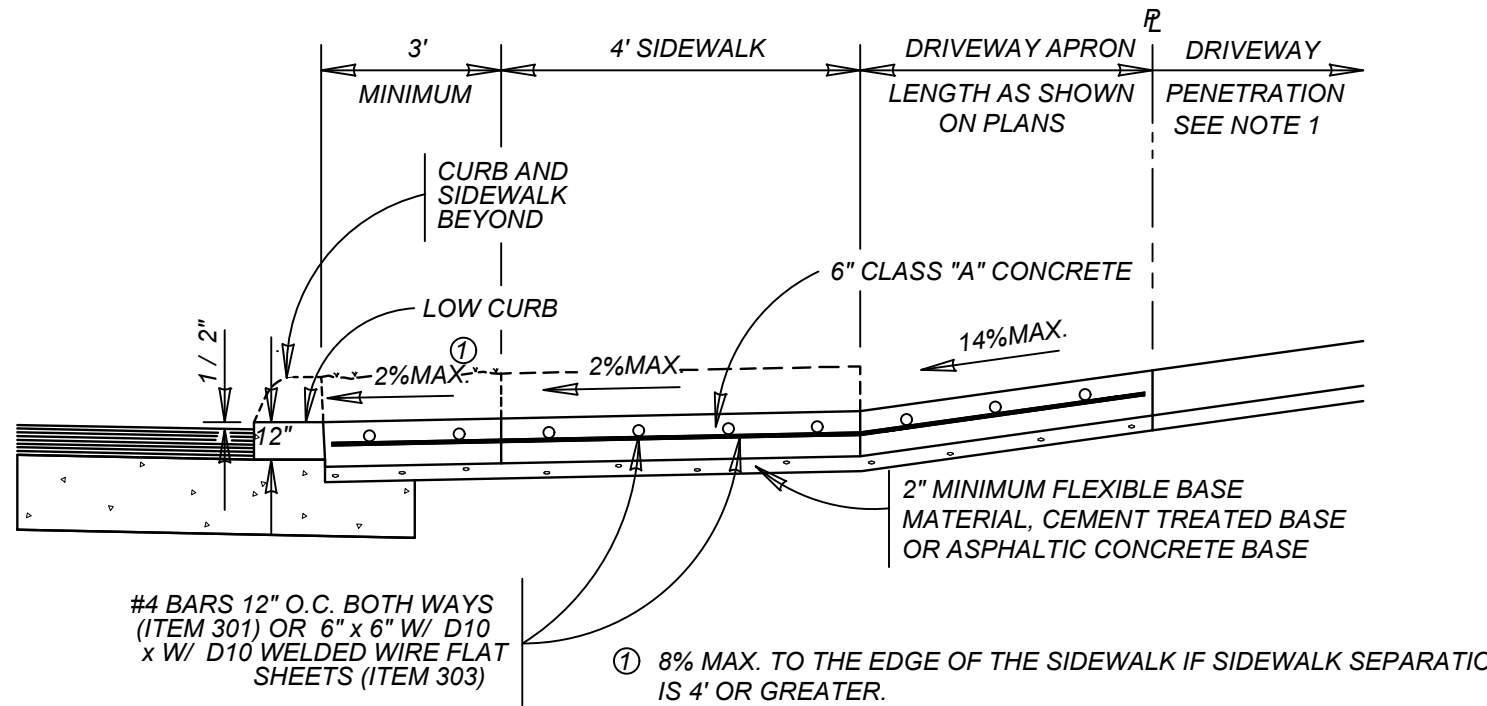
TYPICAL RESIDENTIAL DRIVEWAY SECTION

WITH SIDEWALK SEPARATED FROM CURB
ITEM 503.1



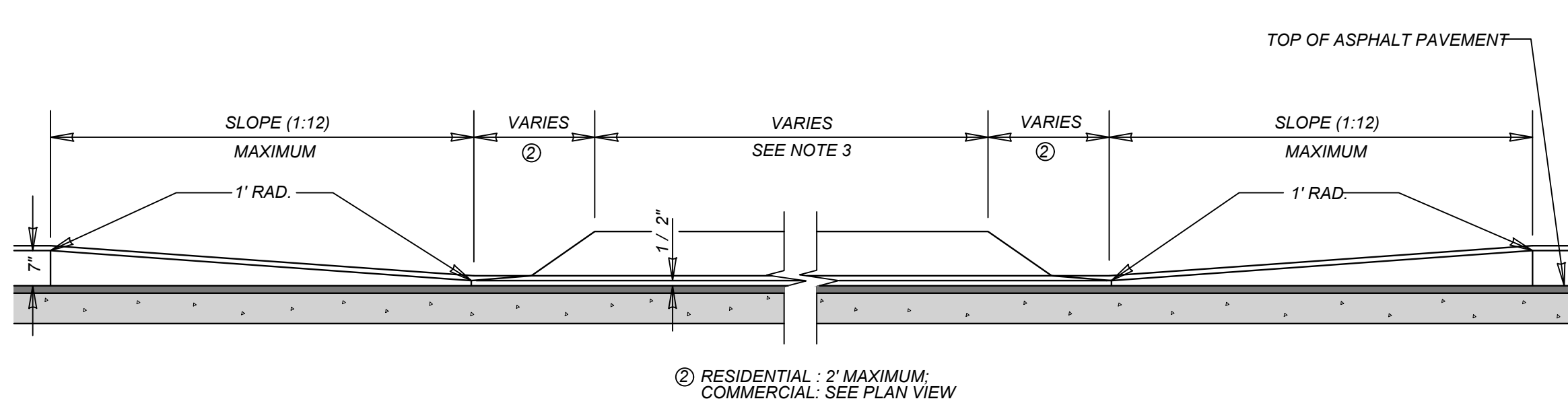
TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS SEPARATED FROM CURB
ITEM 503.1



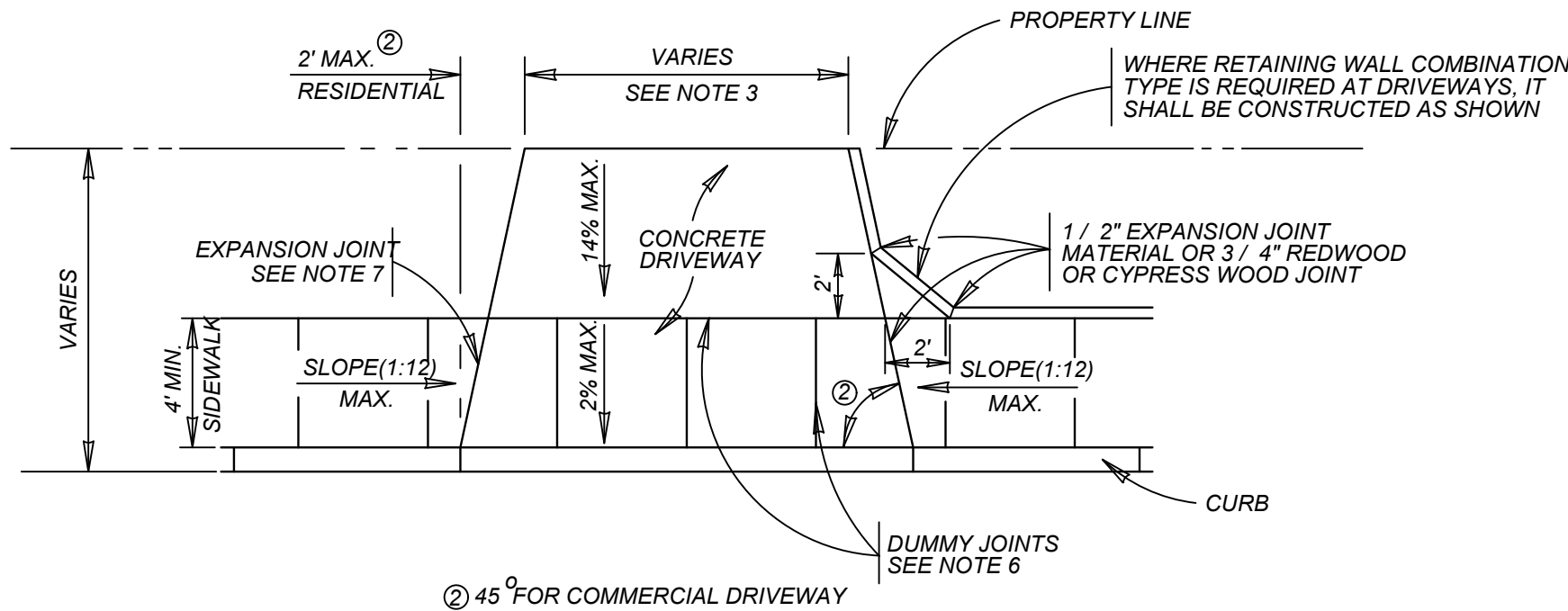
TYPICAL COMMERCIAL DRIVEWAY SECTION

WITH SIDEWALK SEPARATED FROM CURB
ITEM 503.2



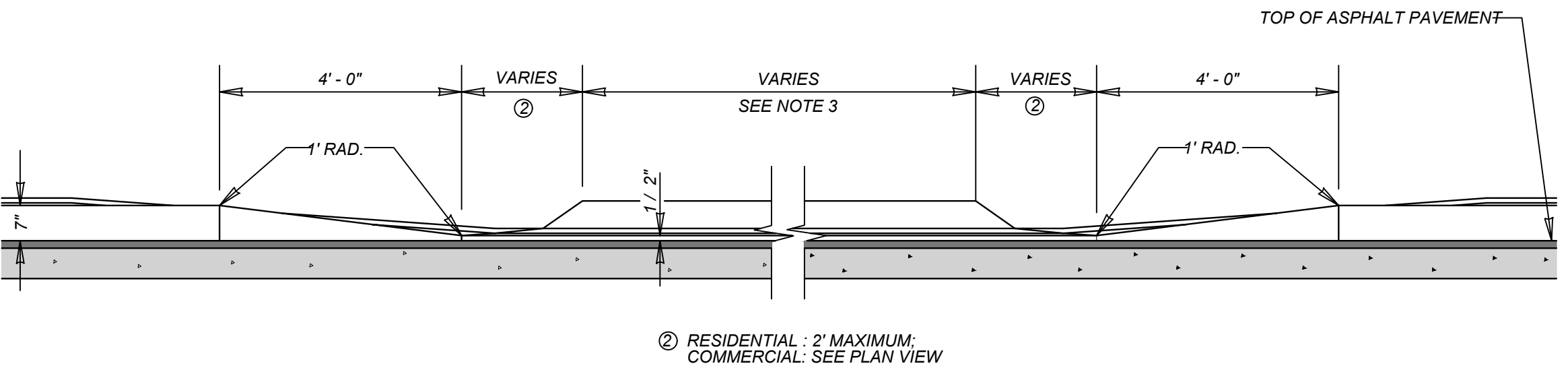
CURB PROFILE AT DRIVEWAY

WITH SIDEWALK ABUTTING CURB



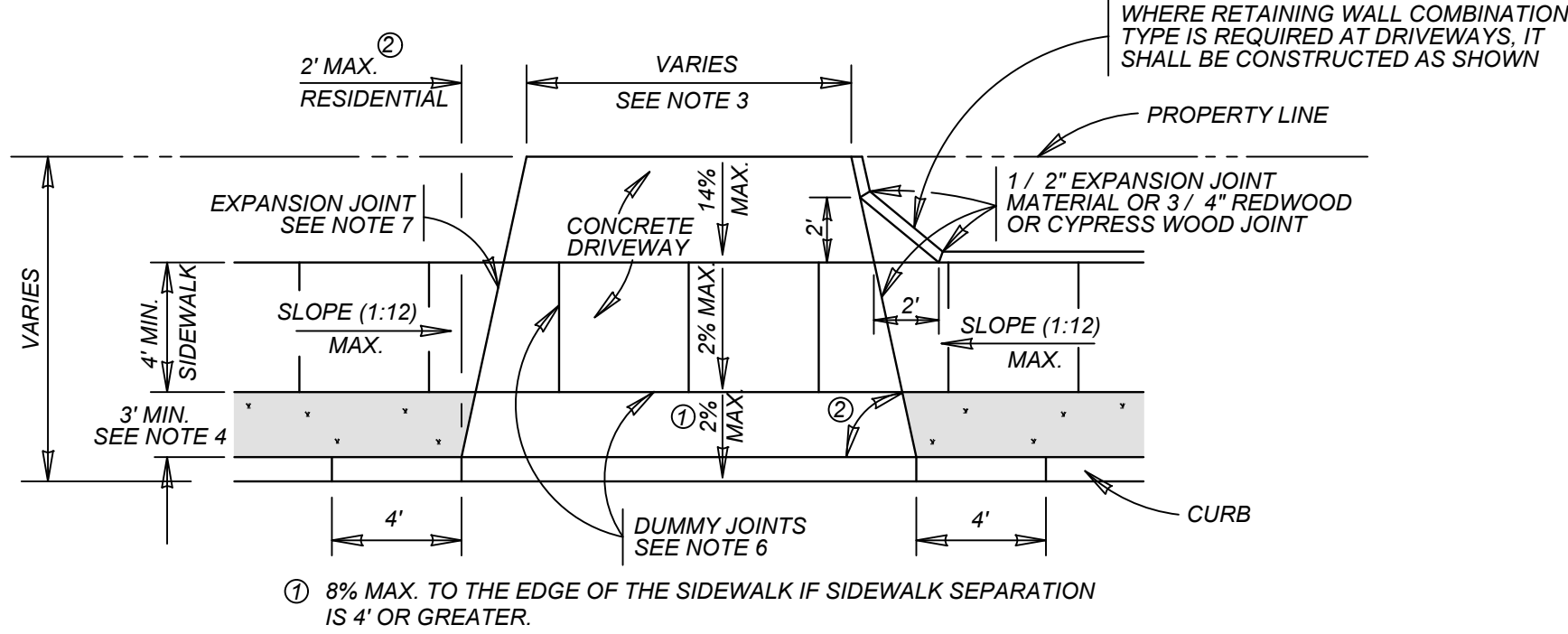
TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK ABUTTING CURB



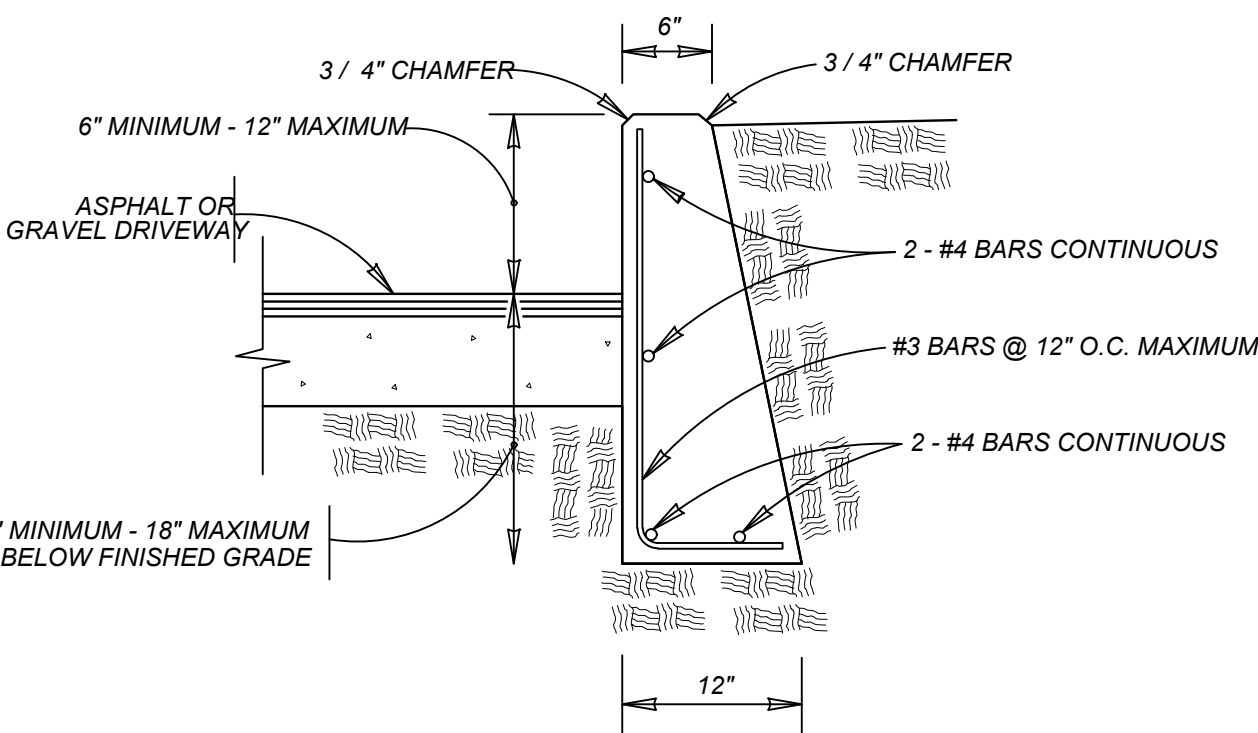
CURB PROFILE AT DRIVEWAY

WITH SIDEWALK SEPARATED FROM CURB



TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK SEPARATED FROM CURB



- NOTE:
- COST OF REINFORCEMENT TO BE INCLUDED IN UNIT COST OF ITEM 307.1.
 - CONCRETE RETAINING WALL COMBINATION TYPE SHALL BE USED FOR CONCRETE DRIVEWAYS.

DRIVEWAY - CONCRETE RETAINING WALL

ON COMPACTED SUBGRADE
ITEM 307.1

1. DRIVEWAY PENETRATION REFERS TO A PORTION OF THE DRIVEWAY THAT MAY BE NECESSARY TO RECONSTRUCT WITHIN PRIVATE PROPERTY TO COMPLY WITH A MAXIMUM DRIVEWAY SLOPE. THIS PORTION OF THE DRIVEWAY SHALL BE PAID FOR UNDER THE FOLLOWING ITEMS AS MAY APPLY:
- CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO. 503.1 OR 503.2.
 - ASPHALTIC CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO. 503.4 AND SHALL INCLUDE A MINIMUM OF 1" ASPHALT TYPE 'D' & 6" FLEXIBLE BASE
 - GRAVEL DRIVEWAY PAID FOR UNDER ITEM NO. 503.5 AND SHALL INCLUDE A MINIMUM OF 6" FLEXIBLE BASE
2. 7" MINIMUM HEIGHT WILL NOT NECESSARILY OCCUR AT THE PROPERTY LINE. IT MAY OCCUR WITHIN THE RIGHT OF WAY OR WITHIN THE DRIVEWAY PENETRATION ON PRIVATE PROPERTY.
3. THE PROPOSED DRIVEWAY SHOULD MATCH THE EXISTING WIDTH AT THE PROPERTY LINE BUT UNLESS AUTHORIZED BY THE CITY TRAFFIC ENGINEER, THE WIDTH SHALL BE WITHIN THE FOLLOWING VALUES:

TYPE	MINIMUM	MAXIMUM
RESIDENTIAL	10'	20'
COMMERCIAL - ONE WAY	12'	20'
COMMERCIAL - TWO WAY	24'	30'

4. FOR LOCAL TYPE "A" STREETS, SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 3' FROM THE BACK OF CURB.
5. FOR OTHER THAN LOCAL TYPE "A" STREETS, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND SEPARATED A MINIMUM OF 3' FROM THE BACK OF CURB OR, AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.
6. DUMMY JOINTS PARALLEL TO THE CURB SHALL BE PLACED WHERE THE SIDEWALK MEETS THE DRIVEWAY. DUMMY JOINTS PERPENDICULAR TO THE CURB, AND WITHIN THE BOUNDARIES OF THE PARALLEL DUMMY JOINTS, SHALL BE PLACED AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK.
7. A MINIMUM OF TWO ROUND AND SMOOTH DOWEL BARS 3/8" IN DIAMETER AND 18" IN LENGTH SHALL BE SPACED 18" APART AT EACH EXPANSION JOINT.
8. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE. WHERE SIDEWALKS CROSS DRIVEWAYS, SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.
9. SIDEWALK RAMP SURFACE SHALL BE BRUSH FINISHED.

Colliers

Engineering
& Design

www.colliersengineering.com

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Formerly Known as

KFW

ENGINEERING & DESIGN

811

PROTECT YOURSELF

ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

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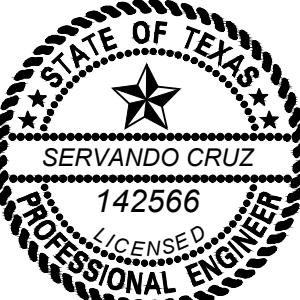
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Servando Cruz
3/18/24

PRELIMINARY

FOR
**VARGA TRACT
SUBDIVISION**
PLAT# 23-11800270

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers
Engineering
& Design

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBD Form 1-14059
TBD Form 10194550

SCALE: AS SHOWN

DATE: 5/23/2023

DRAWN BY: SD

CHECKED BY: SC

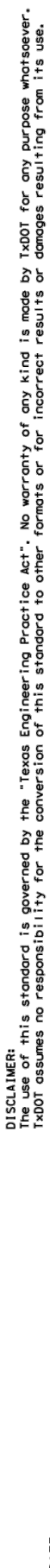
PROJECT NUMBER: 1116-01-01

DRAWING NAME: STD11160101

SHEET TITLE: CONCRETE DRIVEWAY DETAILS

SHEET NUMBER: 5.5

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



DETECTABLE WARNING MATERIAL

31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway, where a continuous grade greater than five percent (5%) must be used. Handrails are not desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian travel paths.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item 1. Intersections, Driveways and Turnouts. Sidewalks shall be constructed and paid for in accordance with Item 1, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.

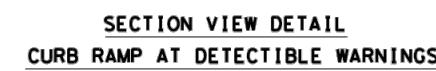
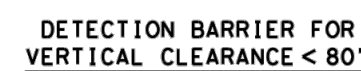
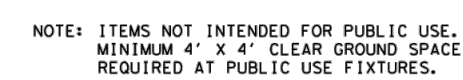
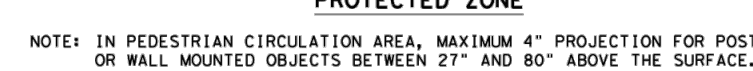
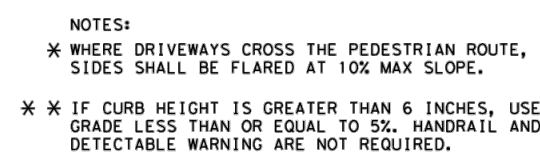


Diagram illustrating the typical placement of a detectable warning surface on a sloping ramp run. The diagram shows a ramp with a detectable warning surface (hatched area) at the top. Key dimensions include a 2' minimum width for the warning surface and a 5' maximum width for the ramp. Labels include 'PEDESTRIAN TRAVEL DIRECTION', 'TURNING SPACE', 'SIDE CURB (TYP)', 'DETECTABLE WARNING SURFACE', and 'BACK OF CURB'. A note specifies 'E1' OF THE WARNING SURFACE OR LESS OF CURB.

PED-18


FILE: pcd18	DN TxDOT	DN VP	DN KM	DN PK B
TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
REVISED 06, 2005				
REVISED 06, 2012				
REVISED 01, 2018	DIST		COUNTY	SHEET NO



PED-18

FILE: DMD18	DM TxDOT	DM VP	CKI RM	CKI PK & JC
Ⓢ TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
REVISED 08, 2005				
REVISED 04, 2012				
REVISED 01, 2018				
	DIST	COUNTY	SHEET NO.	

FOR
VARGA TRACT
SUBDIVISION
PLAT# 23-11800270



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San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE: AS SHOWN	DATE: 5/23/2023	DRAWN BY: SD	CHECKED BY: SC
PROJECT NUMBER: 1116-01-01		DRAWING NAME: STDT11160101	

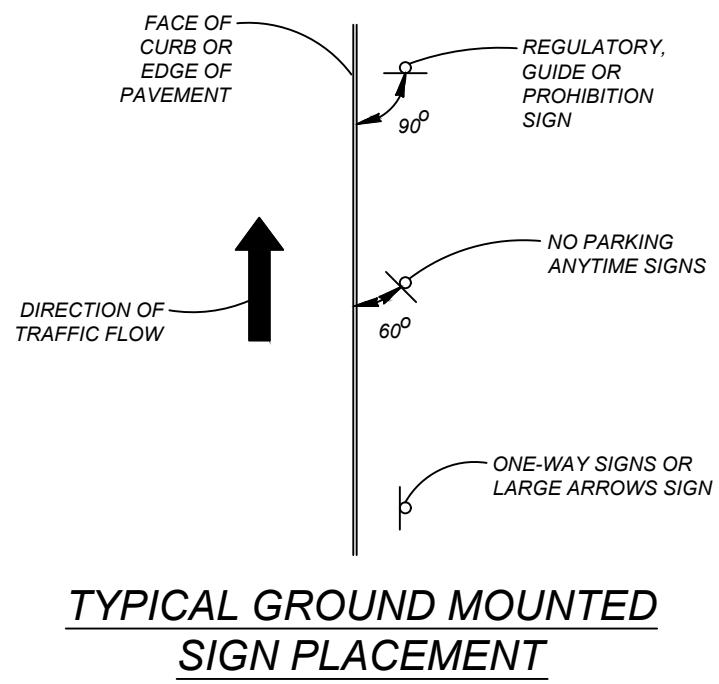
TXDOT PED-18 DETAILS

SHEET NUMBER

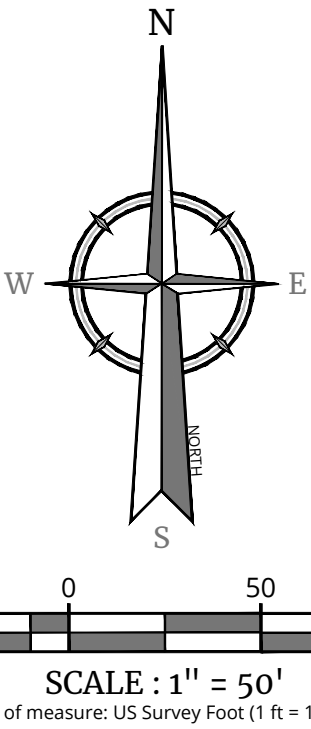
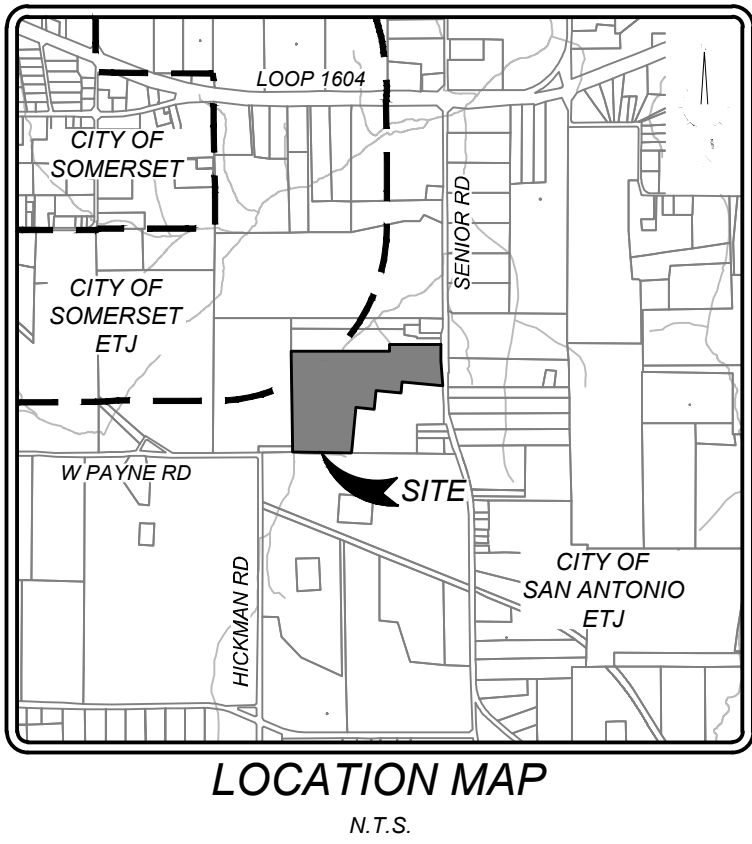
5.7

NOTES:
1) WITHIN THE CITY'S EXTRATERRITORIAL JURISDICTION, STREET NAME SIGNS SHALL BE INSTALLED AT ALL INTERSECTIONS WITHIN AND ABUTTING THE SUBDIVISION. SUCH SIGNS SHALL BE MANUFACTURED AND INSTALLED BY THE SUBDIVIDER IN ACCORDANCE TO SPECIFICATIONS OF, AND SUBJECT TO PLAN REVIEWS AND INSPECTIONS BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.
2) REGULATORY AND WARNING TRAFFIC SIGNS SHALL BE INSTALLED WITHIN AND ABUTTING THE SUBDIVISION IN ACCORDANCE WITH THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)," AS REQUIRED BY THE CITY'S DEVELOPMENT SERVICES DEPARTMENT OR COUNTY'S DEPARTMENT OF PUBLIC WORKS. SUCH SIGNS SHALL BE MANUFACTURED AND INSTALLED BY THE SUBDIVIDER IN ACCORDANCE TO SPECIFICATIONS OF, AND SUBJECT TO PLAN REVIEWS AND INSPECTIONS BY THE CITY'S DEVELOPMENT SERVICES DEPARTMENT OR COUNTY'S DEPARTMENT OF PUBLIC WORKS. WARNING AND REGULATORY SIGNS SHALL NOT BE ACCEPTED BY THE CITY UNTIL THE STREET HAS BEEN ACCEPTED FOR MAINTENANCE BY THE CITY.

TRENCH EXCAVATION SAFETY PROTECTION
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.
BEXAR COUNTY R.O.W. NOTE:
A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.

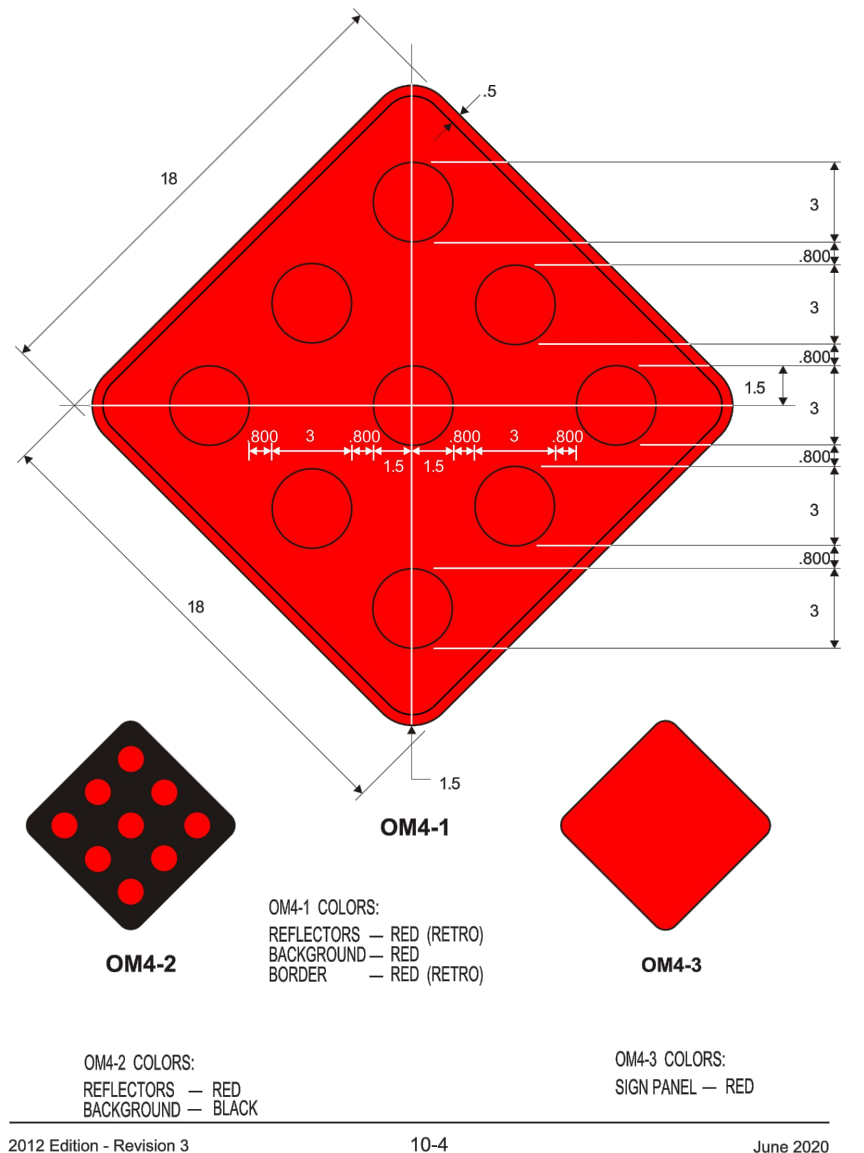
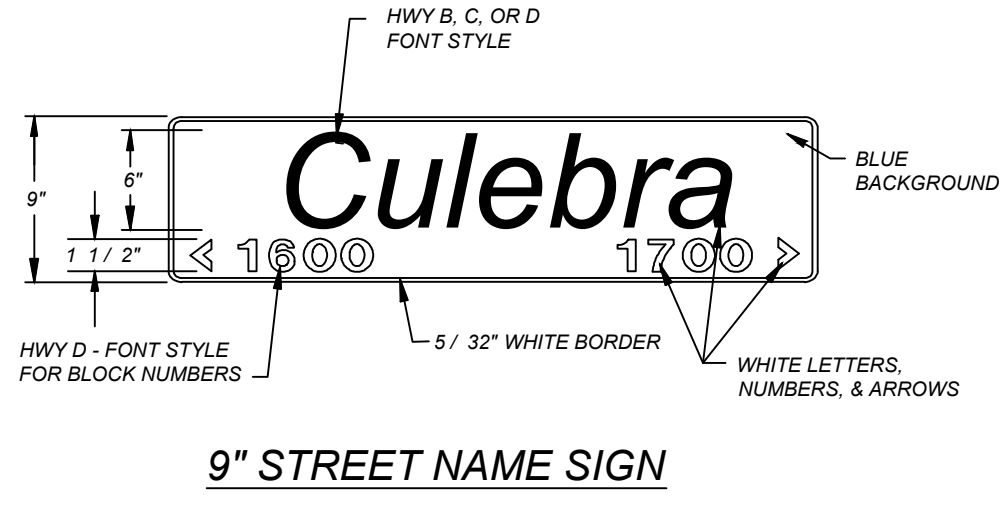
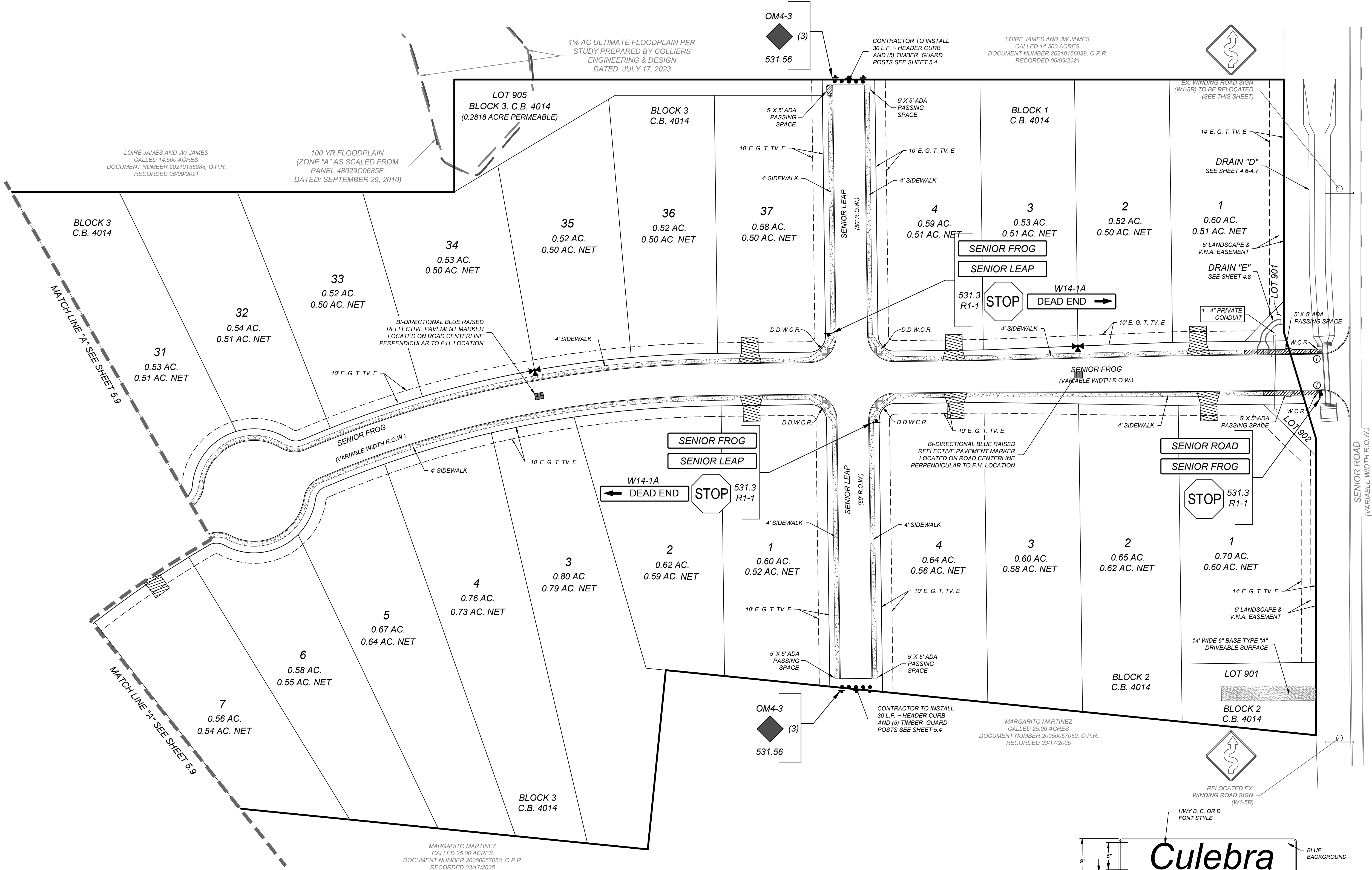


SYMBOL	ITEM NUMBER
	R1-1 30" X 30" 531.3
	STANDARD COSA STREET NAME SIGN STD X 9 531.57
	OM4-3 END-OF-ROADWAY MARKER 531.56
	W11-2 PEDESTRIAN CROSSING 30" X 30" 531.51
	W14-1A 36" X 6" 531.58



LEGEND

- E.G.T.V.E. = ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
- V.N.A.E. = VEHICULAR NON-ACCESS EASEMENT
- W.C.R. = WHEELCHAIR RAMPS SEE SHEET 5.6
- ⊙ = WHEELCHAIR RAMP TYPE I SEE SHEET 5.6
- ⊗ = WHEELCHAIR RAMP TYPE II SEE SHEET 5.6
- S.D.W.C.R. = SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.6
- D.D.W.C.R. = DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.6
- ▨ = SIDEWALK TO BE CONSTRUCTED BY DEVELOPER.
- ▨ = SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION



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FOR

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SUBDIVISION

PLAT# 23-11800270

SAN ANTONIO

BEXAR COUNTY

TEXAS

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San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBD Form 11-14009
TBD Form 10194550

SCALE: AS SHOWN DATE: 5/23/2023 DRAWN BY: SD CHECKED BY: SC
PROJECT NUMBER: 11116-01-01 DRAWING NAME: TS11160101

SHEET TITLE: TRAFFIC SIGNAGE AND SIDEWALK PLAN

SHEET NUMBER: 5.8

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

1) WITHIN THE CITY'S EXTRATERRITORIAL JURISDICTION, STREET NAME SIGNS SHALL BE INSTALLED AT ALL INTERSECTIONS WITHIN AND ABUTTING THE SUBDIVISION. SUCH SIGNS SHALL BE MANUFACTURED AND INSTALLED BY THE SUBDIVIDER IN ACCORDANCE TO SPECIFICATIONS OF, AND SUBJECT TO PLAN REVIEWS AND INSPECTIONS BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL ENGINEER SHALL BE RESPONSIBLE FOR PREPARING AND/OR REVIEWING ALL TRENCH PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION STEPS WITHIN THE TRENCH EXCAVATION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL BE IN ACCORDANCE WITH ALL APPLICABLE OSHA REGULATIONS AND COMPLIANCE WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH EXCAVATION SAFETY PROGRAM THAT SHALL INCLUDE THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

A BEXAR COUNTY PERMIT MUST BE
OBTAINED BEFORE WORKING IN
BEXAR COUNTY R.O.W.

FACE OF CURB OR EDGE OF PAVEMENT

DIRECTION OF TRAFFIC FLOW

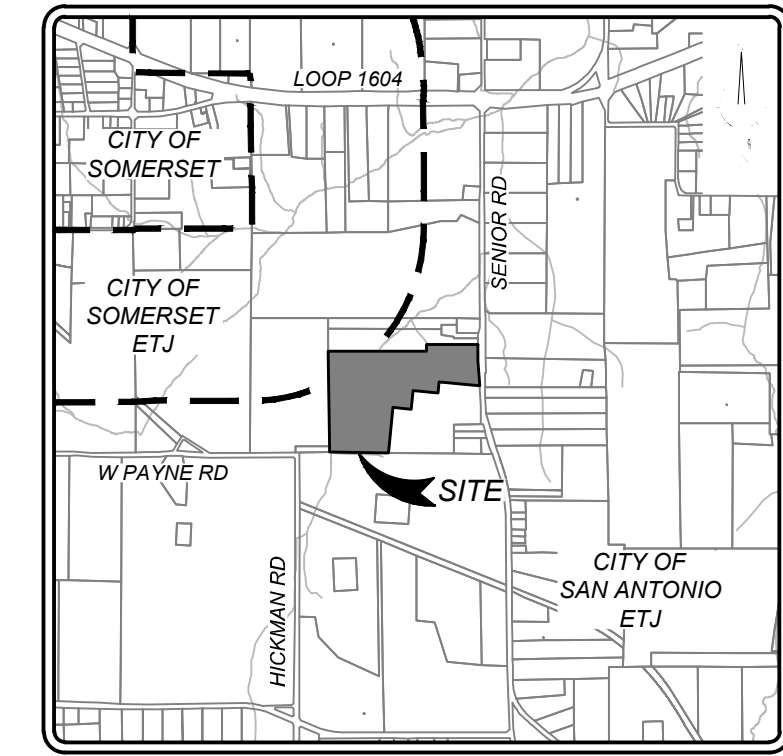
REGULATORY, CURB OR PROHIBITION SIGN

90°

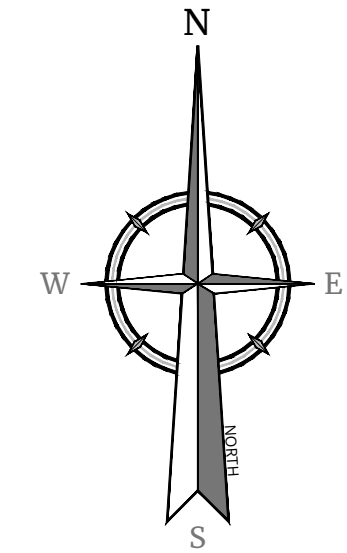
NO PARKING ANYTIME SIGNS

60°

ONE-WAY SIGNS OR LARGE ARROWS SIGN



LOCATION MAP



E.G.T.V.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
V.N.A.E.	=	VEHICULAR NON-ACCESS EASEMENT
W.C.R.	=	WHEELCHAIR RAMPS SEE SHEET 5.6
①	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.6
②	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.6
S.D.W.C.R.	=	SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.6
D.D.W.C.R.	=	DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.6
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION

The image is a white rectangular card with a black border. At the top, the word "Colliers" is written in a large, bold, black serif font, enclosed within a black rectangular frame that has horizontal lines above and below the text. Below this, the words "Engineering & Design" are written in a large, black, sans-serif font. Underneath, the website "www.colliersengineering.com" is displayed in a smaller, bold, black, sans-serif font. A paragraph of fine print follows, stating: "Copyright © 2024, Colliers Engineering & Design All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is entitled. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Colliers Engineering & Design." Below the text, there are two logos side-by-side. On the left is the "Formerly Known as" logo, which consists of the text "Formerly Known as" in a black, sans-serif font above a large, bold, black "KFW" logo. To the right of the "KFW" logo is a smaller logo that says "KIMLEY-HORN & ASSOCIATES" in a black, sans-serif font. Below these logos, there is a black rectangular box containing the text "PROTECT YOURSELF" in a bold, black, sans-serif font, followed by "ALL STATES REQUIRE NOTIFICATION OF EXAMINATORS, DESIGNERS, OR ANY PERSON PREPARED TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE" in a smaller, black, sans-serif font. At the bottom of the card, there is a black rectangular box containing the text "FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.KALL811.COM" in a white, sans-serif font.

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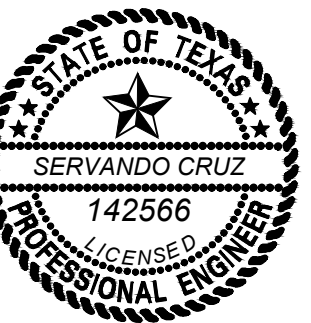
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2/26/24

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FOR

VARGA TRACT
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PLAT# 23-11800270

SAN ANTONIO
BEXAR COUNTY
TEXAS

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SAN ANTONIO (KFW)
3421 Paesanos
Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPB Firm#: F-14099
TBPBS Firm#: 10194550

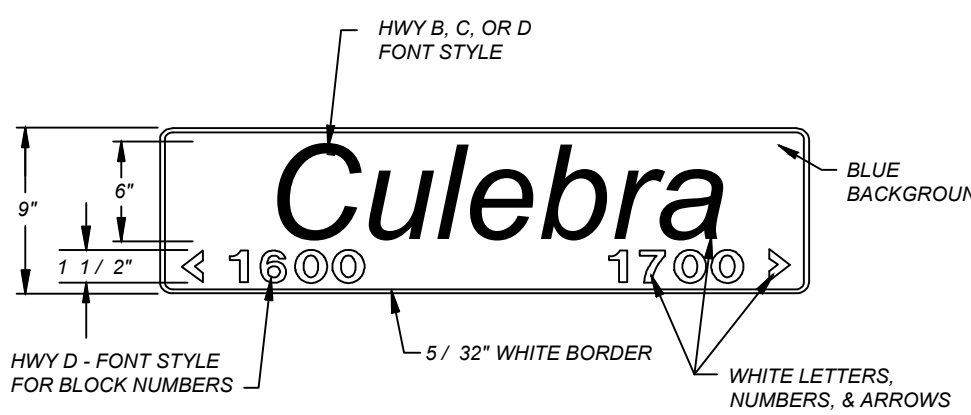
SCALE: AS SHOWN	DATE: 5/23/2023	DRAWN BY: SD	CHECKED BY: SC
PROJECT NUMBER: 1116-01-01		DRAWING NAME: TS11160101	

SHEET TITLE:

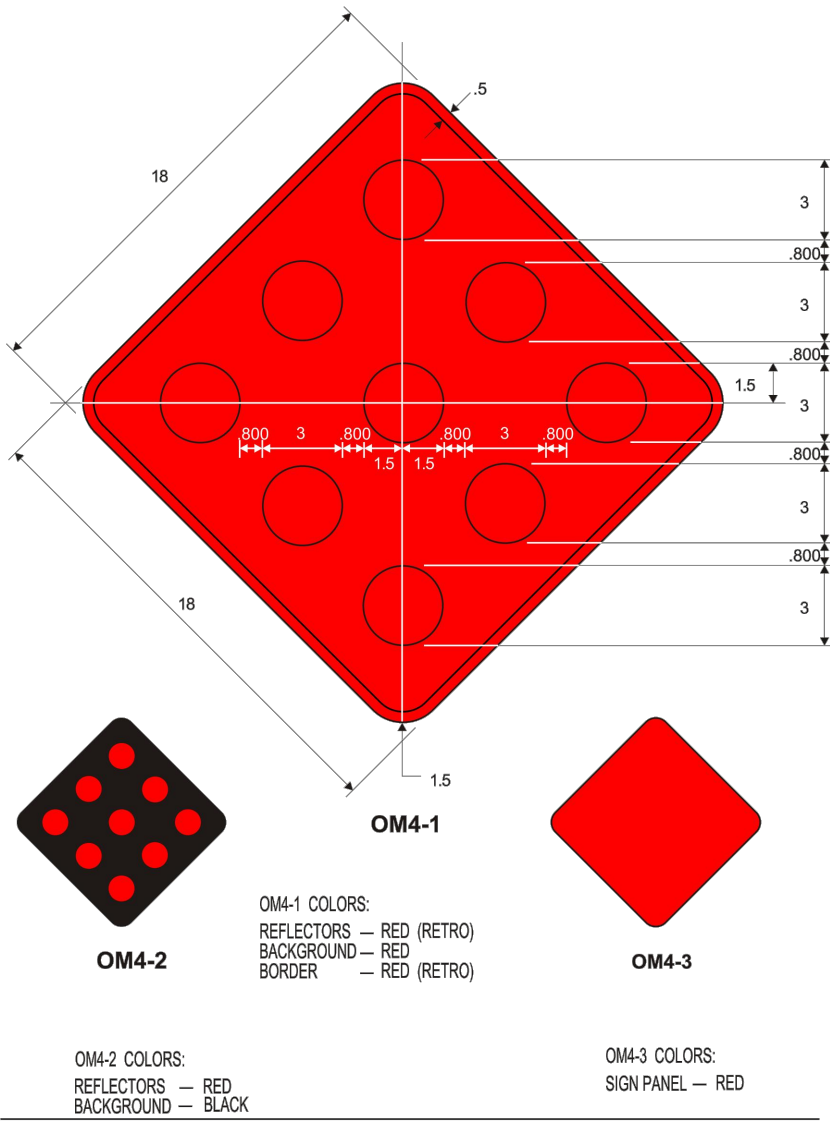
TRAFFIC SIGNAGE AND
SIDEWALK PLAN

SHEET NUMBER: 5.9

SYMBOL		ITEM NUMBER
	R1-1 30" X 30"	531.3
	STANDARD COSA STREET NAME SIGN STD X 9	531.57
	OM4-3 END-OF-ROADWAY MARKER	531.56
	W11-2 PEDESTRIAN CROSSING 30" X 30"	531.51
	W14-1A 36" X 8"	531.58



9" STREET NAME SIGN



NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION

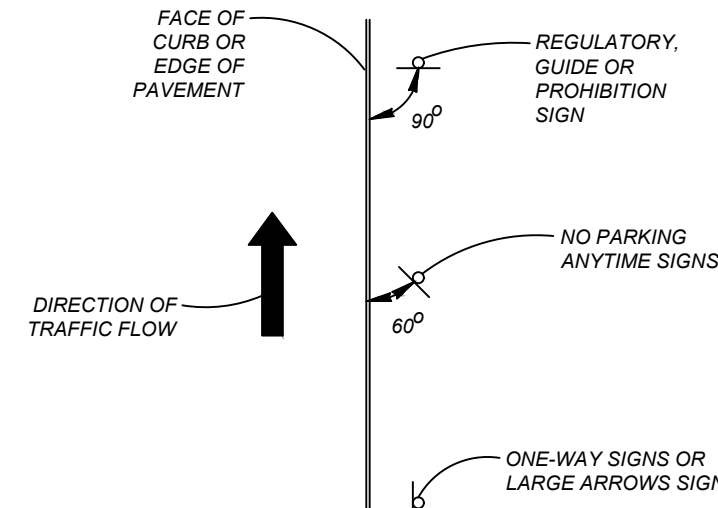
NOTES:
1) WITHIN THE CITY'S EXTRATERRITORIAL JURISDICTION, STREET NAME SIGNS SHALL BE INSTALLED AT ALL INTERSECTIONS WITHIN AND ABUTTING THE SUBDIVISION. SUCH SIGNS SHALL BE MANUFACTURED AND INSTALLED BY THE SUBDIVIDER IN ACCORDANCE TO SPECIFICATIONS OF, AND SUBJECT TO PLAN REVIEWS AND INSPECTIONS BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.

2) REGULATORY AND WARNING TRAFFIC SIGNS SHALL BE INSTALLED WITHIN AND ABUTTING THE SUBDIVISION IN ACCORDANCE WITH THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)," AS REQUIRED BY THE CITY'S DEVELOPMENT SERVICES DEPARTMENT OR COUNTY'S DEPARTMENT OF PUBLIC WORKS. SUCH SIGNS SHALL BE MANUFACTURED AND INSTALLED BY THE SUBDIVIDER IN ACCORDANCE TO SPECIFICATIONS OF, AND SUBJECT TO PLAN REVIEWS AND INSPECTIONS BY THE CITY'S DEVELOPMENT SERVICES DEPARTMENT OR COUNTY'S DEPARTMENT OF PUBLIC WORKS. WARNING AND REGULATORY SIGNS SHALL NOT BE ACCEPTED BY THE CITY UNTIL THE STREET HAS BEEN ACCEPTED FOR MAINTENANCE BY THE CITY.

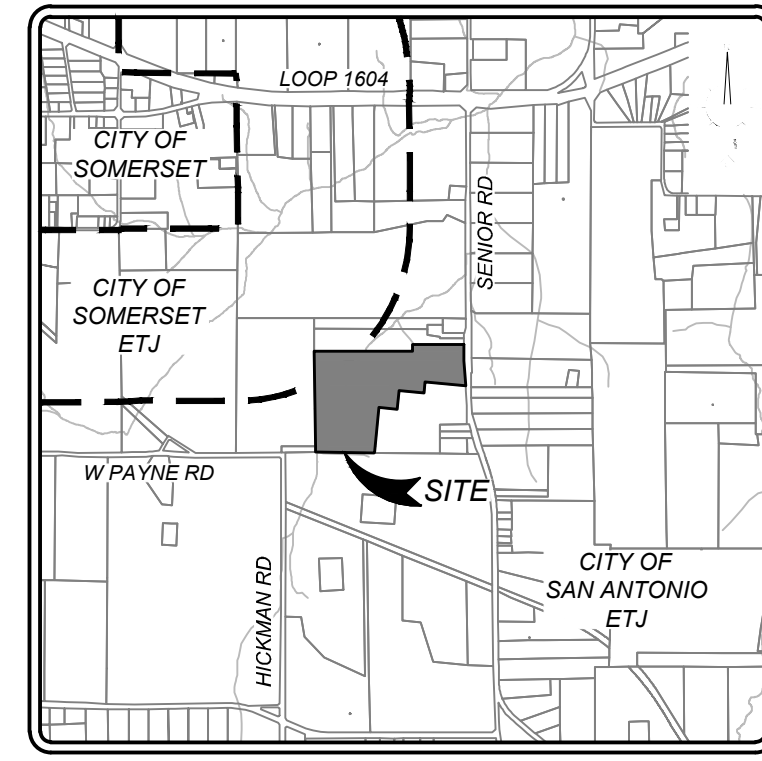
TRENCH EXCAVATION SAFETY PROTECTION
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

BEXAR COUNTY R.O.W. NOTE:

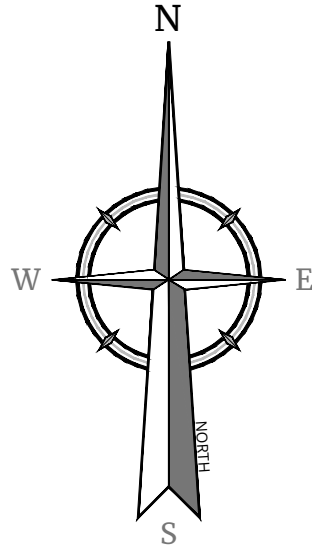
A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.



SYMBOL	ITEM NUMBER
	R1-1 30" X 30"
	STANDARD COSA STREET NAME SIGN STD X 9
	OM4-3 END-OF-ROADWAY MARKER
	W11-2 PEDESTRIAN CROSSING 30" X 30"
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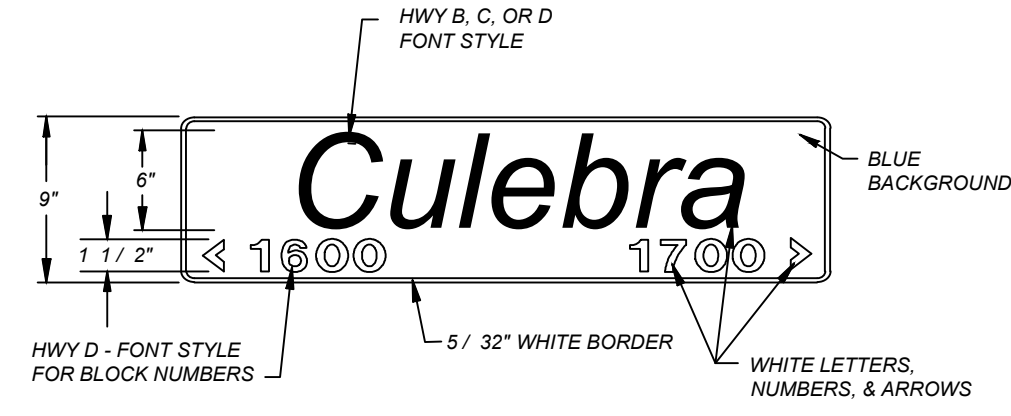
N.T.S.



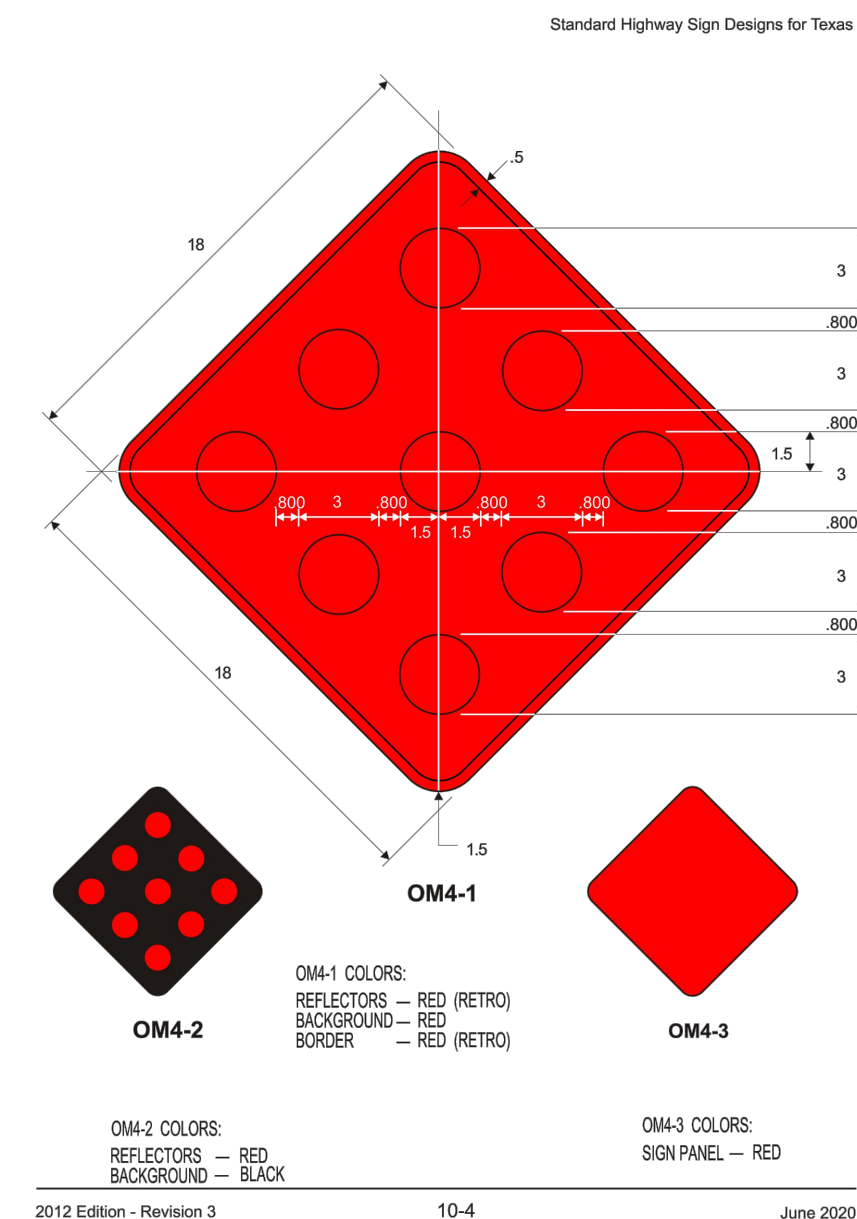
SCALE: 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

- E.G.T.V.E. = ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
V.N.A.E. = VEHICULAR NON-ACCESS EASEMENT
W.C.R. = WHEEL CHAIR RAMPS
SEE SHEET 5.6
① = WHEEL CHAIR RAMP TYPE I
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SEE SHEET 5.6
D.D.W.C.R. = DOUBLE DIRECTIONAL WHEEL CHAIR RAMP
SEE SHEET 5.6
// = SIDEWALK TO BE CONSTRUCTED BY DEVELOPER.
- - - = SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION



9" STREET NAME SIGN



LUIS C. ZAMORA AND LETICIA ZAMORA
CALLED 55.34 ACRES
DOCUMENT NUMBER 20200303984, O.P.R.
RECORDED 03/17/2020

1% AC ULTIMATE
FLOODPLAIN PER STUDY
PREPARED BY COLLIERS
ENGINEERING & DESIGN
DATED: JULY 17, 2023

LOT 904, BLOCK 3, C.B. 4014
OPEN SPACE
(21.82 ACRE PERMEABLE)

BRIAN KEITH BIELFELD
CALLED 101.26 ACRES
DOCUMENT NUMBER 20130212544, O.P.R.
RECORDED 10/10/2013

TRISTAN RYAN CASTILLEJA
CALLED 1.143 ACRES
DOCUMENT NUMBER
20130212544, O.P.R.
RECORDED 10/10/2021

MARGARTO MARTINEZ
CALLED 25.00 ACRES
DOCUMENT NUMBER 2017020906, O.P.R.
RECORDED 03/17/2020

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SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER

Servando Cruz
3/19/24

PRELIMINARY

FOR
VARGA TRACT
SUBDIVISION
PLAT# 23-11800270

SAN ANTONIO
BEXAR COUNTY
TEXAS

Engineering & Design

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBP&S Form# 15-14009
TBP&S Form# 10194550

SCALE: AS SHOWN	DATE: 5/23/2023	DRAWN BY: SD	CHECKED BY: SC
PROJECT NUMBER: 1116-01-01		DRAWING NAME: TS11160101	

SHEET TITLE:
TRAFFIC SIGNAGE AND
SIDEWALK PLAN

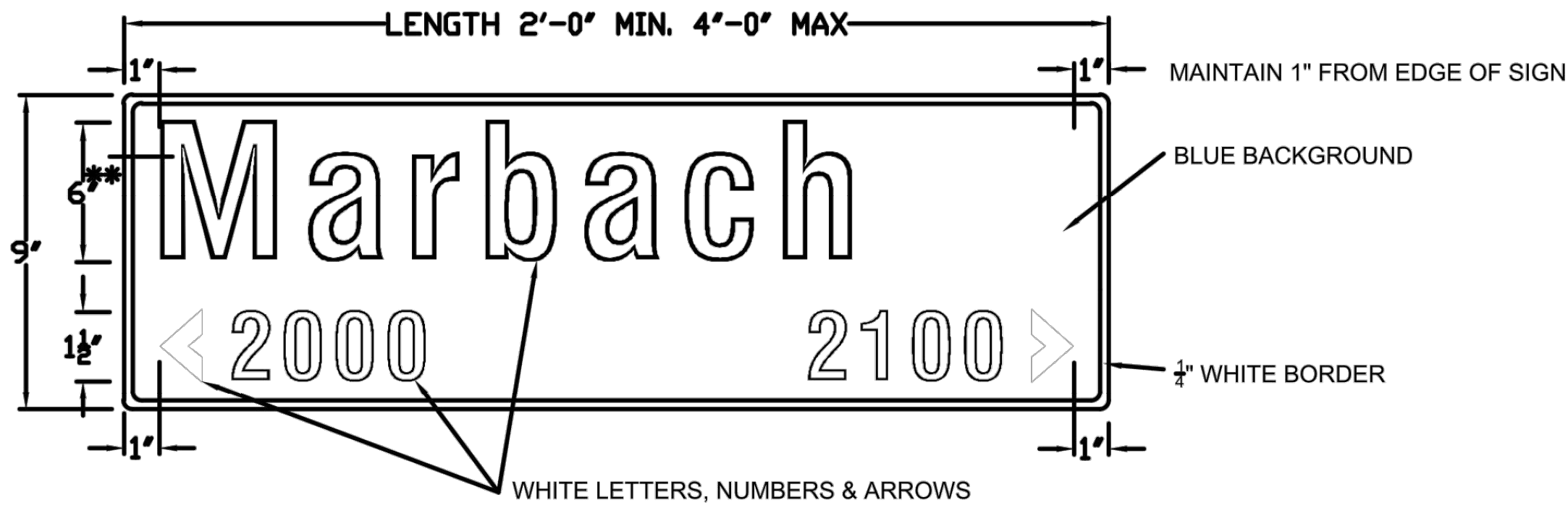
SHEET NUMBER:
5.10

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



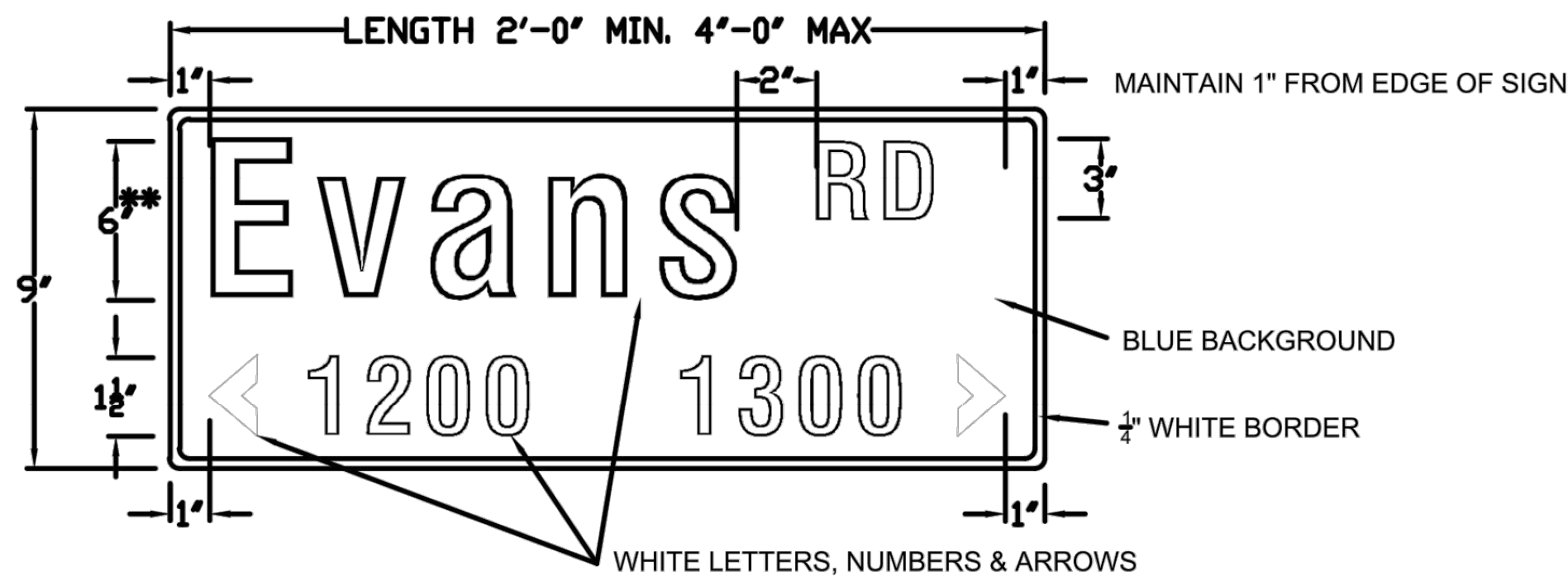
CONSTRICTED TO 11.14.001 JAW'S 12 IN. SQUARE

**Capital = 6"
Lower case = 4 1/2"

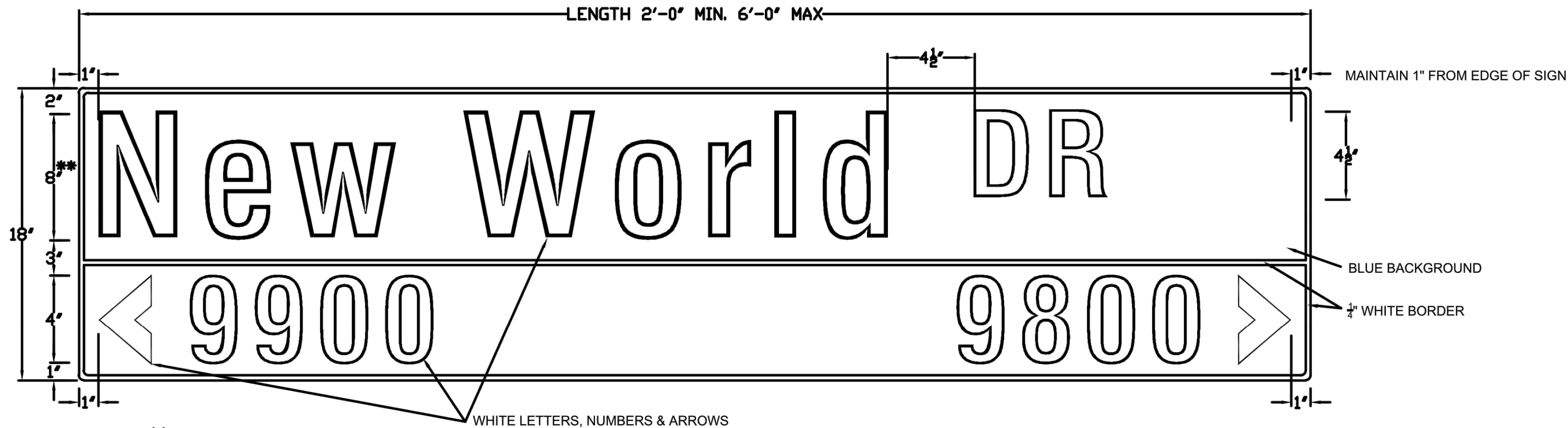


9" GROUND MOUNT STREET NAME SIGNS

**Capital = 6"
Lower case = 4 1/2"



9" GROUND MOUNT STREET NAME SIGNS
WITH STREET DESIGNATION

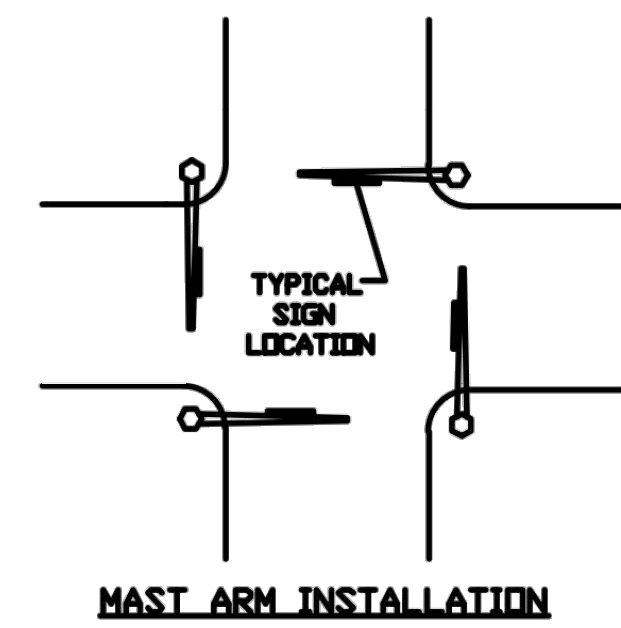
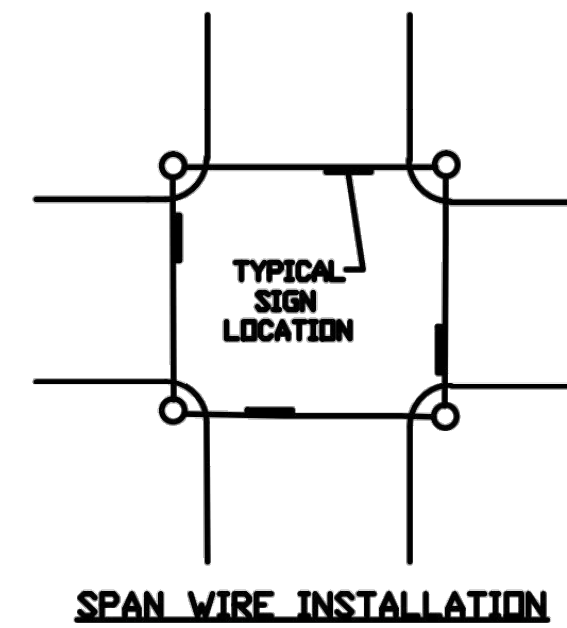


**Capital = 8"
Lower case = 6"

18" OVERHEAD STREET NAME SIGNS

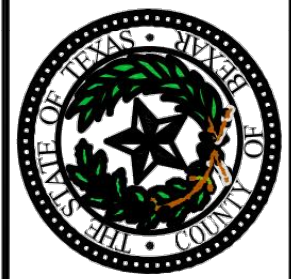
	18" OVERHEAD SIGN	9" GROUND MOUNT SIGNS
HEIGHT	18" (381 mm)	9" (228 mm)
LENGTH	48" (1200 mm) MIN. 72" (1800 mm) MAX. 1" (300mm) INCREMENTS OF LENGTH	24" (600 mm) MIN. 48" (1200 mm) MAX. 6" (150mm) INCREMENTS OF LENGTH
THICKNESS	0.125" (3 mm)	
SUBSTRATE	ALUMINUM ALLOY, 5052-H38 (ASTM B-209 GOLD CHROMATE FINISH	
SIGN FACE MATERIALS	BLUE FILM * OVER DIAMOND GRADE - ASTM Type XI Non-Fluorescent	BLUE FILM * OVER HIGH INTENSITY PRISMATIC- ASTM Type IV
LEGENDS AND SYMBOLS	SERIES D, B OR C IF NAME OTHERWISE EXCEEDS MAXIMUM SIGN LENGTH	
COLOR	WHITE LEGEND ON BLUE BACKGROUND	
LETTER TRACKING	17% (USUAL) 10% (MIN.)	10%

* ACRYLIC ELECTRONIC CUTTABLE FILM



- SIGN FACE MATERIALS
SHALL CONFORM TO:
- STANDARD SPECIFICATIONS FOR
CONSTRUCTION OF ROADS &
BRIDGES ON FEDERAL HIGHWAY
PROJECTS - FP-03 U.S.
CUSTOMARY UNITS SECTION 718
 - GENERAL SERVICES
ADMINISTRATION FEDERAL
SPECIFICATIONS L-S-300C
 - ASTM D 4956 - 09e1

Bexar County Public Works



Street Name Sign Details

DESIGN BY:	DRAWN BY:
CHECKED BY:	DATE:
FILE NO.:	
SHEET 1	

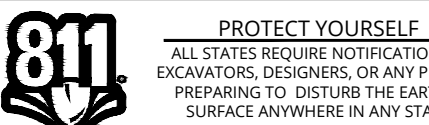
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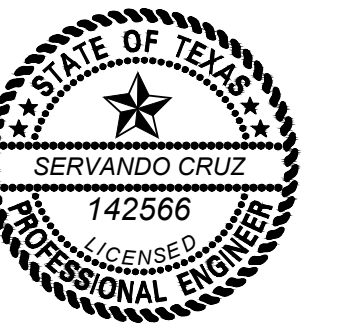
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Servando Cruz
9/4/23

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FOR
VARGA TRACT
SUBDIVISION
PLAT# 23-11800270

SAN ANTONIO
BEXAR COUNTY
TEXAS

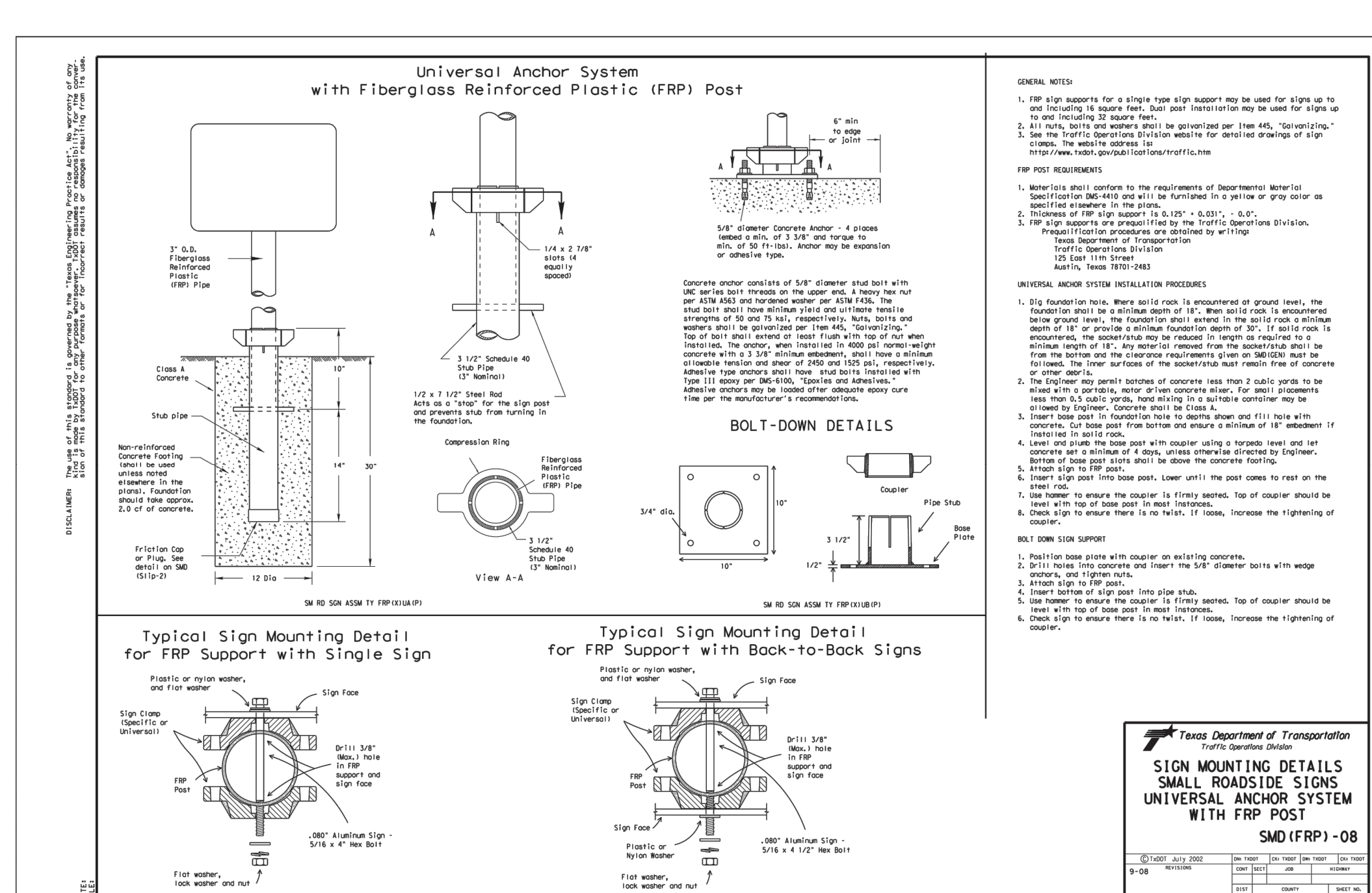
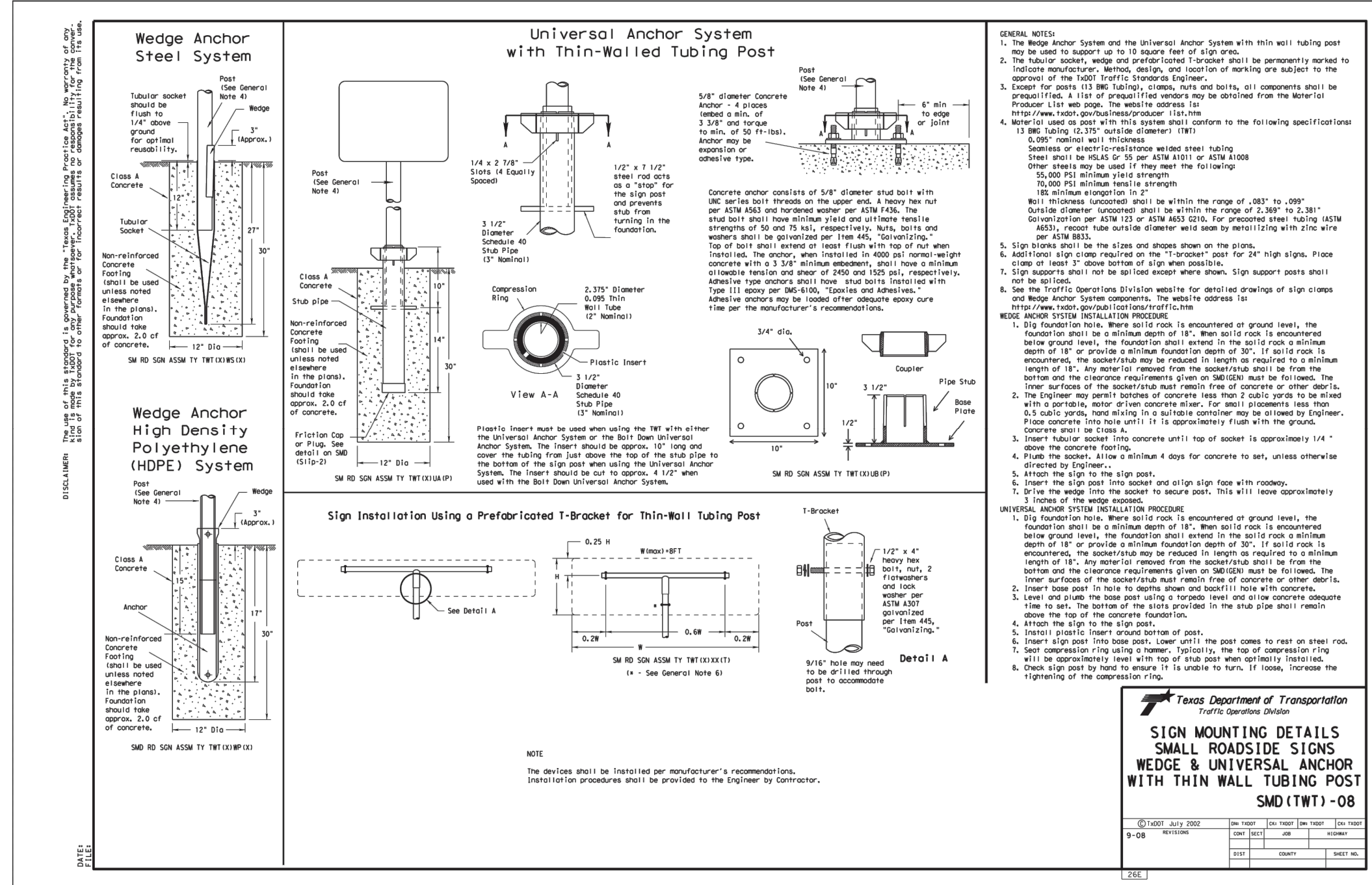
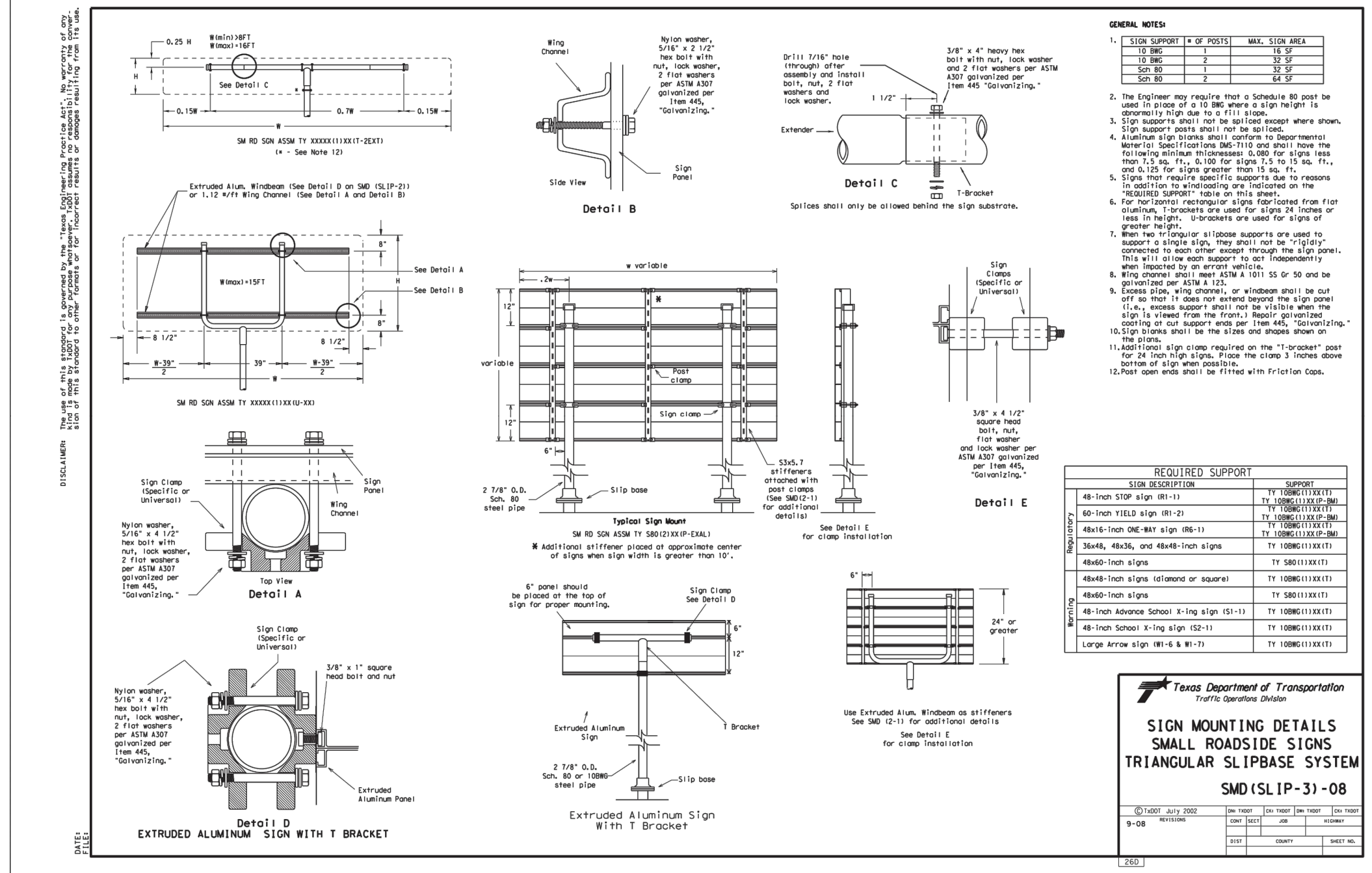
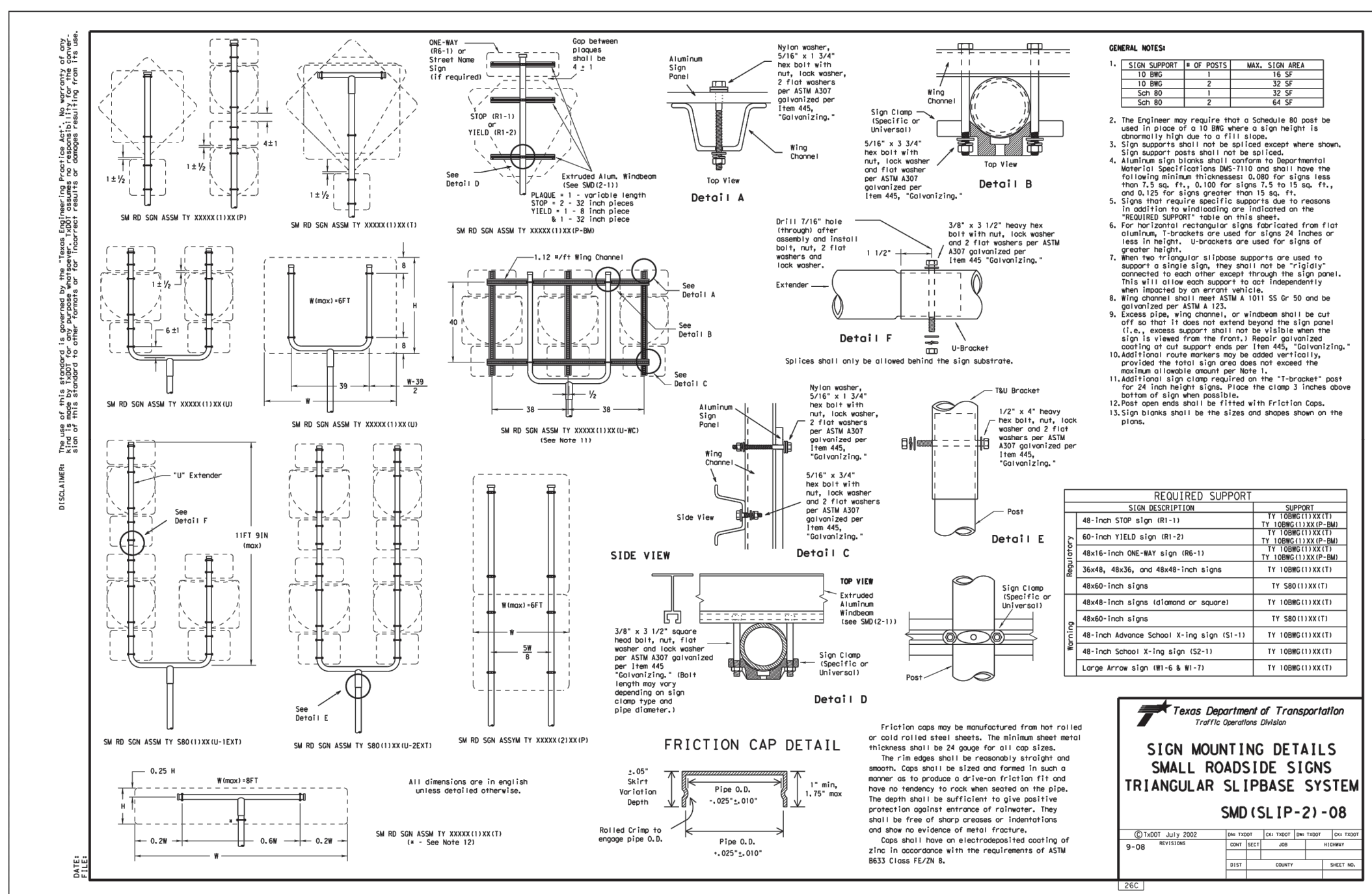
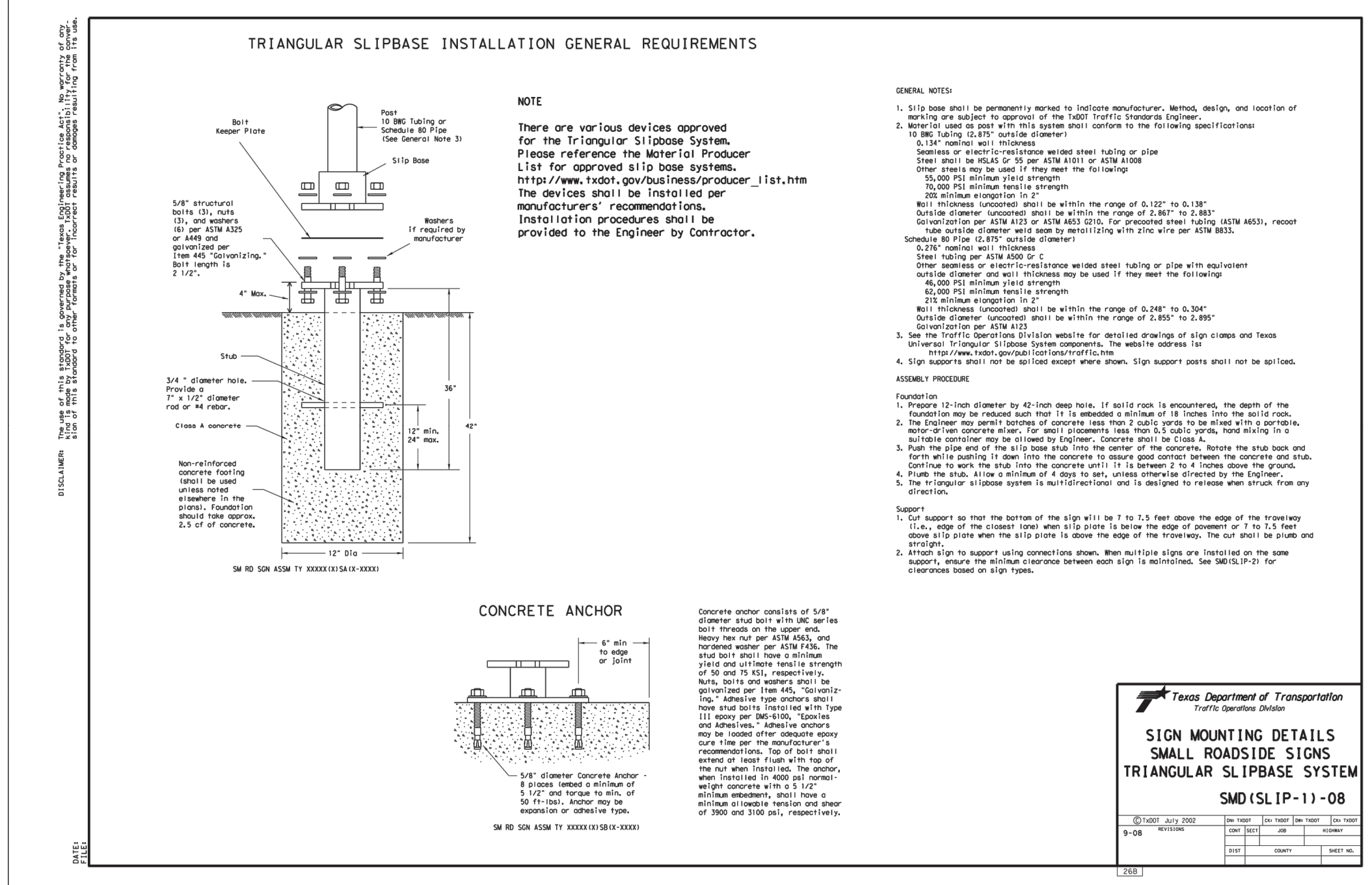
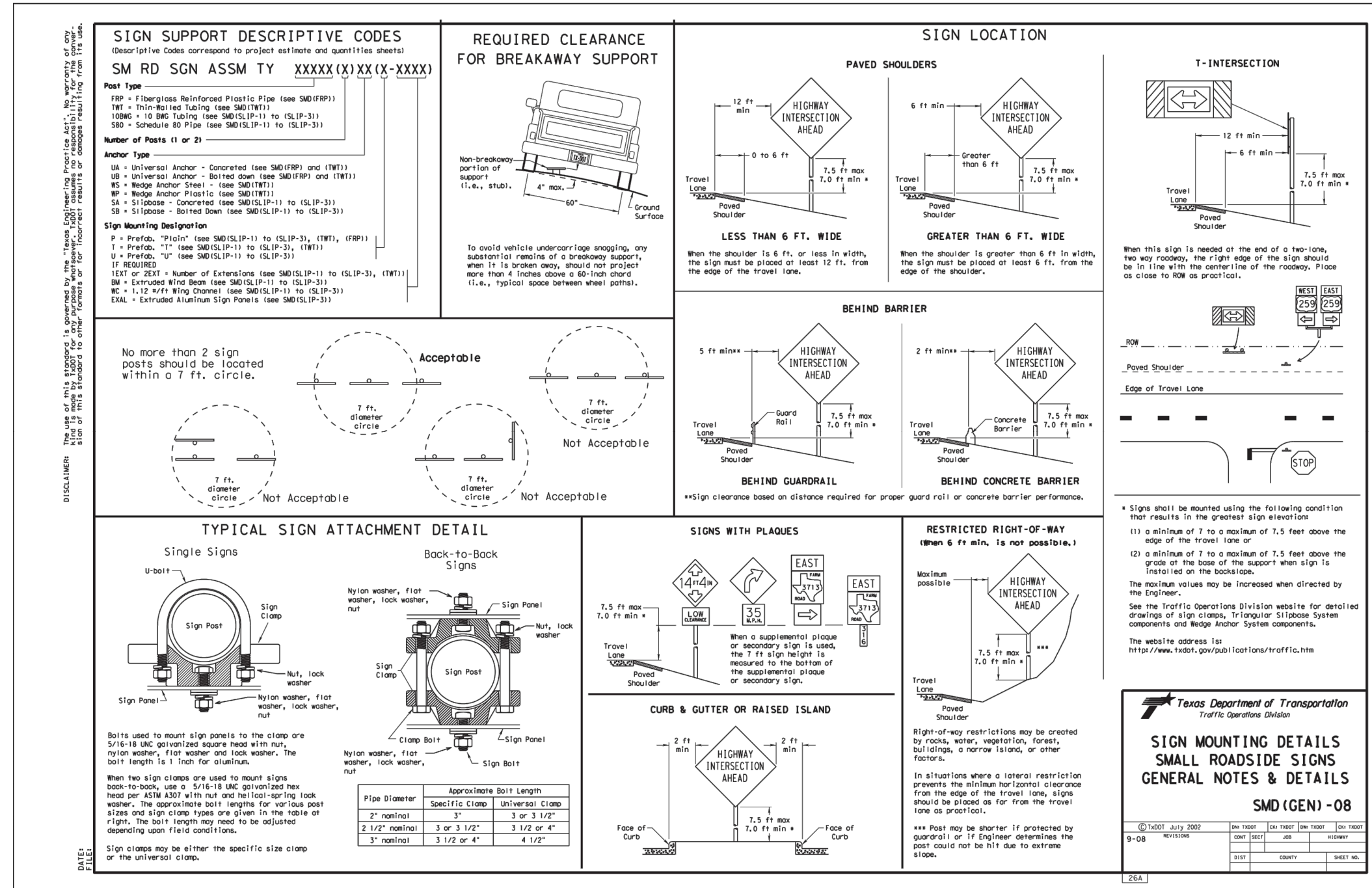
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3421 Paesanos
Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBD'S Form# 1-14009
TBD'S Form# 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	5/23/2023	SD	SC
PROJECT NUMBER:	DRAWING NAME:		
1116-01-01	TS011160101		

SHEET TITLE:
SIGN MOUNTING DETAILS

SHEET NUMBER:
5.12

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STATE OF TEXAS

SERVANDO CRUZ

142566

PROFESSIONAL ENGINEER

Servando Cruz

9/4/23

PRELIMINARY

FOR

VARGA TRACT

SUBDIVISION

PLAT# 23-11800270

SAN ANTONIO BEXAR COUNTY TEXAS

Colliers

Engineering & Design

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3421 Pecosas Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TDBS Form: 10194550

SCALE: AS SHOWN DATE: 5/23/2023 DRAWN BY: SD CHECKED BY: SC

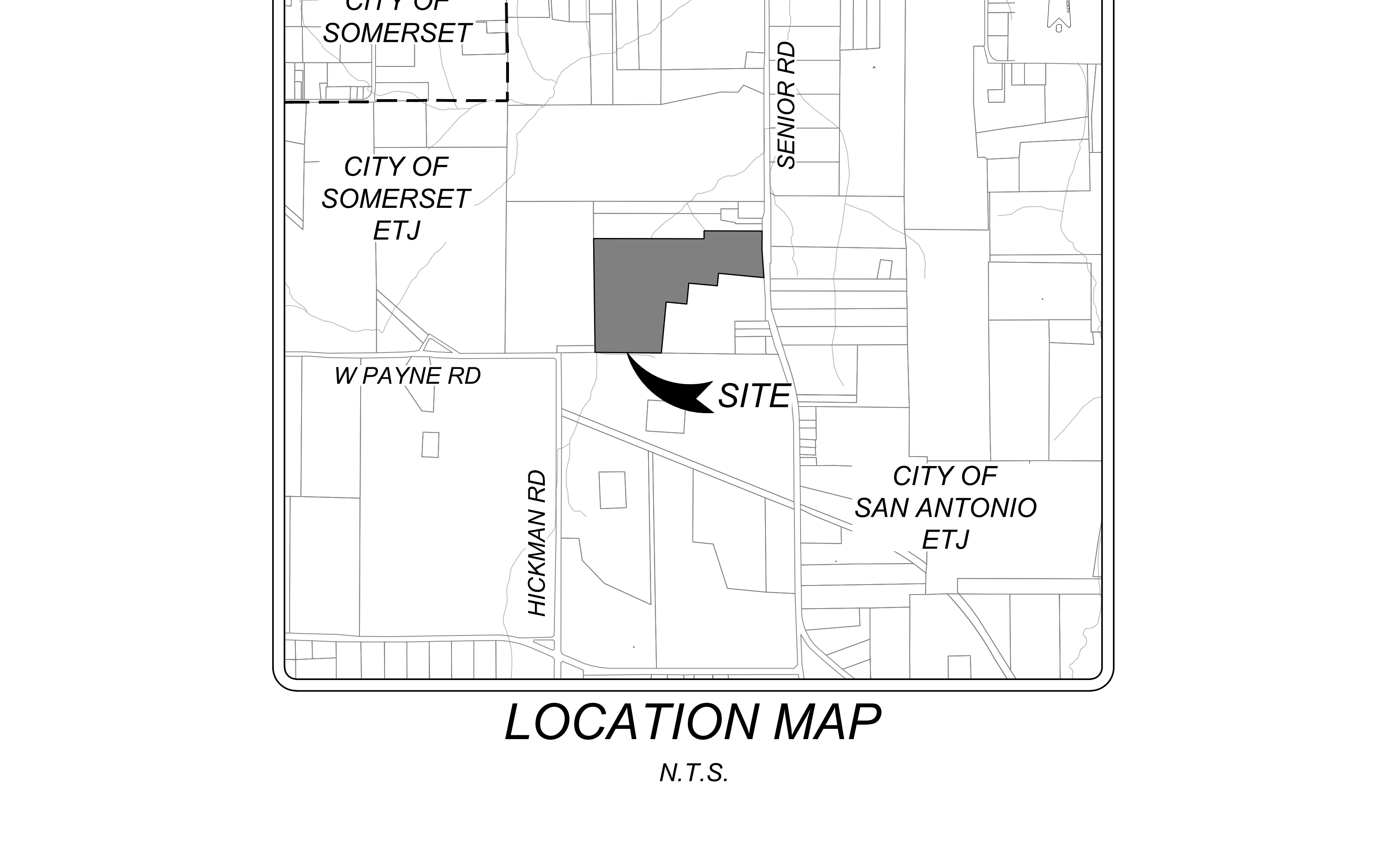
PROJECT NUMBER: 1116-01-01 DRAWING NAME: TSD11160101

SHEET TITLE: SIGN MOUNTING DETAILS

SHEET NUMBER: 5.13

WATER IMPROVEMENTS
FOR
J&M DEVELOPMENT
VARGA TRACT SUBDIVISION
BEXAR COUNTY, TEXAS

A map of the Loop 1604 area in the City of Austin. The map shows a network of streets and highways. A dashed line indicates the proposed project location, which is a section of Loop 1604. The text "CITY OF AUSTIN" is visible in the bottom left corner, and "LOOP 1604" is written in the center of the map. A north arrow is located in the bottom right corner.



I HEREBY CERTIFY THAT I AM THE OWNER OF RECORD OF THE SITE HEREIN
DEPICTED AND THAT I CONCUR WITH THE SUBMISSION.

OWNER	DATE
-------	------

CHAIRMAN _____ DATE _____

SECRETARY

DATE

ENGINEER _____ DATE _____

GENERAL INFORMATION	
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SAWS CONSTRUCTION NOTES
COUNTER PERMIT AND GENERAL CONSTRUCTION PERMIT
January 2022

General Section

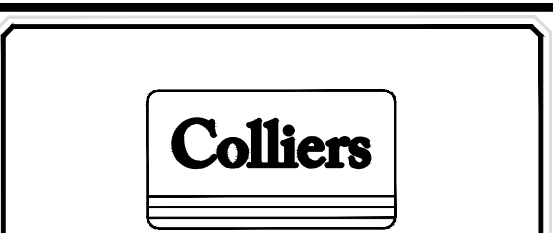
1. All materials and construction procedures within the scope of this contract shall be approved by the San Antonio Water System (SAWS) and comply with the Plans, Specifications, General Conditions and with the following as applicable:
 - A. Current Texas Commission on Environmental Quality (TCEQ) "Design Criteria for Domestic Wastewater Treatment", Texas Administrative Code Part 1 Chapter 217 and "Public Drinking Water", TAC Title 30 Part 1 Chapter 290.
 - B. Current TxDOT "Standard Specifications for Construction of Highways, Streets and Drainage".
 - C. Current "San Antonio Water System Standard Specifications for Water and Sanitary Sewer Construction".
 - D. Current City of San Antonio "Utility Standard Specifications for Public Works Construction".
 - E. Current City of San Antonio "Utility Excavation Criteria Manual" (UECM).
2. The contractor shall not proceed with any pipe installation work until they obtain a copy of the approved Counter Permit or General Construction Permit (GCP) from the consultant and has been authorized by SAWS Construction Inspection Division during coordination with the work and has arranged a meeting with the inspector and consultant for the work requirements. Work completed by the contractor without an approved Counter Permit and/or a GCP will be subject to removal and replacement at the expense of the contractors and/or the developer.
3. The contractor shall obtain the SAWS Standard Utility Design from the SAWS website, http://www.saws.org/business_centers/specs. Unless otherwise noted within the design plans, the Contractor is to make arrangements with the SAWS Construction Inspection Division at (210) 233-2973, on notification procedures that will be used to notify affected home residents and/or property owners 48 hours prior to beginning any work.
4. Location and depth of existing utilities and service laterals shown on the plans are understood to be approximate. Actual locations and depths must be field verified by the Contractor at least 1 week prior to construction. It shall be the Contractor's responsibility to locate utility service lines as required for the project and to protect them during construction.
5. The Contractor shall verify the exact location of underground utilities and drainage structures at least 1-2 weeks prior to construction whether shown on plans or not. Please allow up to 7 business days for locates required for utility location marking on SAWS facilities. The following contract information are supplied for verification purposes:
 - SAWS Utility Locates: <http://www.saws.org/Service/Locates>
 - COSA Drainage (210) 207-0724 or (210) 207-6028
 - COSA Traffic Signal Operations (210) 216-5440
 - COSA Traffic Signal Designs (210) 207-3951
 - Texas State Wide One Call Locals 1-800-545-6005 or 811
7. The Contractor shall be responsible for restoring existing fences, curbs, streets, driveways, sidewalks, landscaping and structures to its original or better condition if damages are made as a result of the project's construction.
8. All work in Texas Department of Transportation (TxDOT) and/or Bexar County right-of-way shall be done in accordance with respective construction specifications and permit requirements.
9. The Contractor shall comply with City of San Antonio or other governing municipality's tree ordinances when excavating near trees.
10. The Contractor shall not place any waste materials in the 100-year Flood Plain without first obtaining an approved Flood Plain Permit.
11. Holiday Work: Contractors will not be allowed to perform SAWS work on SAWS recognized holidays. Request should be sent to contractwork@saaws.org. Weekend Work: Contractors are required to notify the SAWS Inspection Construction Department 48 hours in advance to request weekend work. Request should be sent to contractwork@saaws.org. All work and all SAWS utility work installed without holiday/weekend approval will be subject to be uncovered for proper inspection.
12. Compaction note (Item 804): The contractor shall be responsible for meeting the compaction requirements on all backfill and for paying for the tests performed by a third party. Compaction tests will be done at one location point randomly selected, or as indicated by the SAWS inspector and/or the test administrator, per each 12-inch loose lift per 400 linear feet at a minimum. This project will not be accepted and will be utilized by SAWS without this requirement being met and verified by providing all necessary data to document test results.
13. A copy of all testing reports shall be forwarded to SAWS Construction Inspection Division.

Water Section

1. **Prior to tie-ins, any shutdowns of existing mains of any size must be coordinated with the SAWS Construction Inspector.** The Contractor shall be responsible for the safety of the shutdown. The Contractor must also provide a sequence of work as related to the tie-ins; this is at no additional cost to SAWS or the project and it is the responsibility of the Contractor to sequence the work accordingly.
 - For water mains 12" or higher: SAWS Emergency Operations Center (210) 233-2020
2. **Astros Cement (AC), also known as transite pipe which is known to contain asbestos containing material (ACM), may be located within the project limits. Specific asbestos management procedures and health and safety requirements will be applicable when removal and/or disturbance of the pipe occurs. Such work is to be made in accordance with the Standard Specification Item No. 3000, "Specific Specification for Handling Asbestos Cement Pipe".**
3. **Valve removal:** Where the contractor is to abandon a water main, the control valve located on the abandoning branch will be removed and replaced with a cap/pig, (NSPI).
4. **Suitcase anchorages:** Street blocking or joint repair work shall be done in the following main locations: Dead ends, plugs, caps, tees, crosses, valves, and bends, in accordance with the Standard Drawings DD-439 Series and Item No. 839, in the SAWS Standard Specification for Construction.
5. **All valves shall read "open right".**
6. **PRVs Required:** Contractor to verify that no portion of the tract is below ground elevation of 545 feet where the static pressure will normally exceed 80 PSI. At all such locations, install the ground level below 545 feet, the Contractor shall install a PRV at each lot, on the customer's side of the meter, an approved type pressure regulator in conformance with the Plumbing Code of the City of San Antonio. No dual services allowed for any lot(s) if "PRV issue required for such lot(s), only single service connections shall be allowed."
 - Note: A pressure regulator is also known as a pressure-reducing valve.
7. **Pipe Disinfection with Dry HTH for projects less than 800 linear feet. (Item No. 847.3):** Mains shall be disinfected with dry HTH where shown in the contract documents or as directed by the Inspector, and shall not exceed a total length of 800 feet. This method of disinfection will also be followed for main repairs. The Contractor shall utilize all appropriate safety measure to protect his personnel during disinfection operations.
8. **Backflow Prevention Devices:**
 - All irrigation systems within residential areas are required to have backflow prevention devices.
 - All commercial backflow prevention devices must be approved by SAWS prior to installation.
 - Final connection to the existing water main shall not be made until the water main has been pressure tested, chlorinated, and SAWS has released the main for tie-in and use.
10. **Division Valves:** Division Valves shown on plans or not shown on plans but found in the field shall only be operated by SAWS Distribution and Collection staff and only with prior written approval of the SAWS Director of Production and Operations and proper coordination with all SAWS departments. Contractor shall provide written notification to the inspector a minimum of two weeks in advance to start the coordination process and will be informed by the Inspector when the division valve will be operated by the SAWS Distribution and Collection staff. The Division Valve can only be operated by SAWS Distribution and Collection staff member not the inspector or contractor. Operation of a Division Valve without the express prior written approval of the SAWS Distribution and Collection staff is a material breach of any written SAWS contract or permit in addition to subjecting the Contractor to liability for any and all fines, fees, or other damages, direct or consequential, that may arise from or be caused by the operation of the valve without prior written permission. Please be informed that the approval of the operation or opening or closing of a division valve can take several weeks for approval. Division Valves will also have a valve lid labeled Division Valve and a locking mechanism installed with a key. The lock and key mechanism will be paid for by the contractor, but will be installed by SAWS Distribution and Collection staff.

SAWS PRESSURE ZONE 830 HGL

DEVELOPER'S NAME: J&M DEVELOPMENT		
DEVELOPER'S ADDRESS: 6538 ECKHERT RD		
CITY: SAN ANTONIO	STATE: TEXAS	ZIP: 78240
PHONE#: (210) 979-8444	FAX#:	TOTAL ACREAGE: 54.47 ACRES
SAWS BLOCK MAP#: 118502	2.375 LF - 8" C-900 359 LF - 5" HDPE	TOTAL EDU'S: 46.5
TOTAL LINEAR FOOTAGE OF PIPE: 51 LF - 8" D.I.		PLAT NO.: 23-11800270

Engineering
& Design

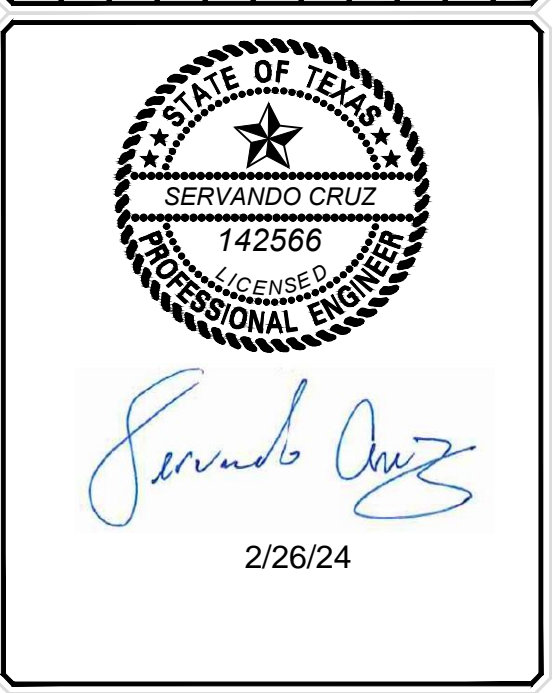
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Formerly Known as **KFW**



FOR STATE SPECIFIC DIRECT PHONE NUMBERS
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PRELIMINARY

PRELIMINARY

FOR
VARGA TRACT

SUBDIVISION

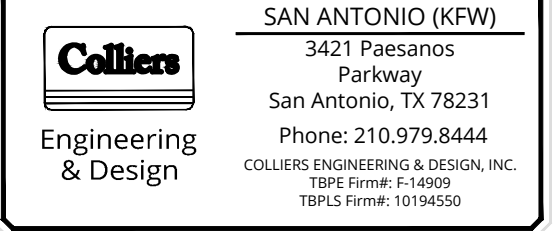
PLAT# 23-11800270

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SAN ANTONIO
BEXAR COUNTY

TEXAS



SCALE: AS SHOWN	DATE: 5/23/2023	DRAWN BY: SD	CHECKED BY: SC
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PROJECT NUMBER: 1116-01-01	DRAWING NAME: CVW11160101
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SHEET TITLE:

WATER COVER SHEET

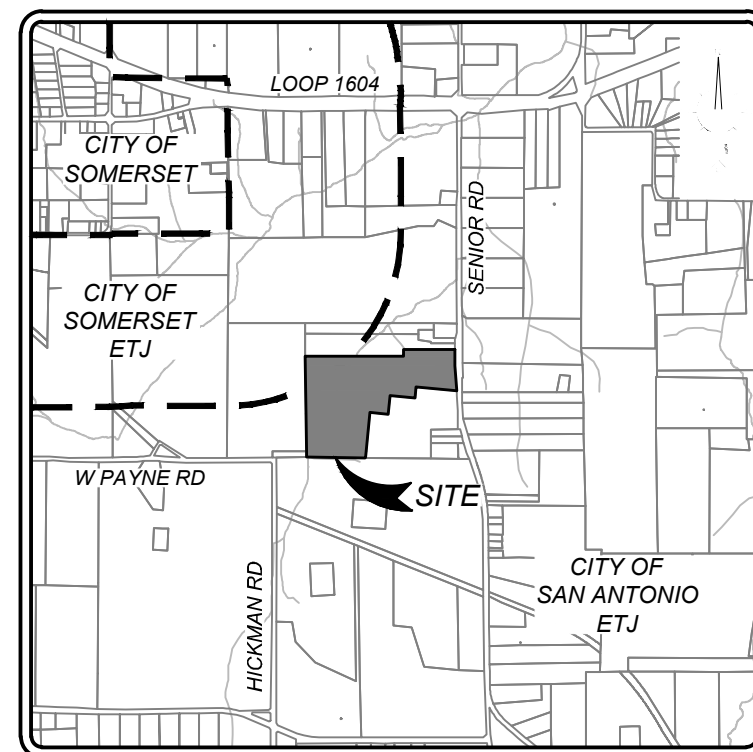
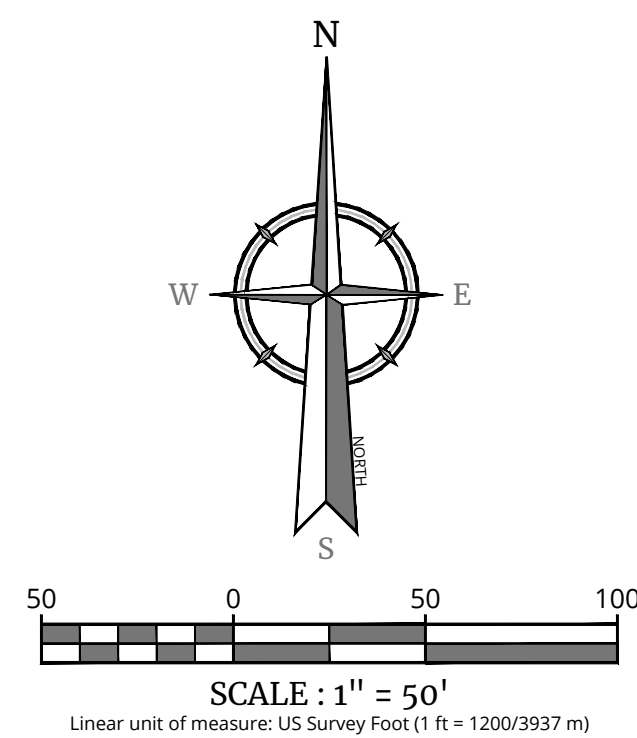
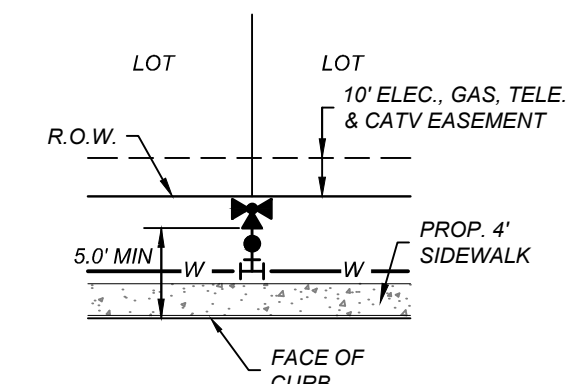
SHEET NUMBER: _____

Sheet Number: 7.0


SCALE DRAWINGS FOR CONSTRUCTION

FIRE FLOW NOTE:
IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1,000 GPM AT 25 PSI RESIDUAL PRESSURE. THE FIRE FLOW REQUIREMENTS FOR INDIVIDUAL STRUCTURES WILL BE REVIEWED DURING THE BUILDING PERMIT PROCESS IN ACCORDANCE WITH THE PROCEDURES SET FORTH BY THE CITY OF SAN ANTONIO DIRECTOR OF DEVELOPMENT SERVICES DEPARTMENT AND THE SAN ANTONIO FIRE DEPARTMENT FIRE MARSHAL.

NOTE:
PRESSURE REDUCING VALVES TO BE
THE RESPONSIBILITY OF THE HOME
BUILDER WHERE REQUIRED



LOCATION MAP
N.T.S.



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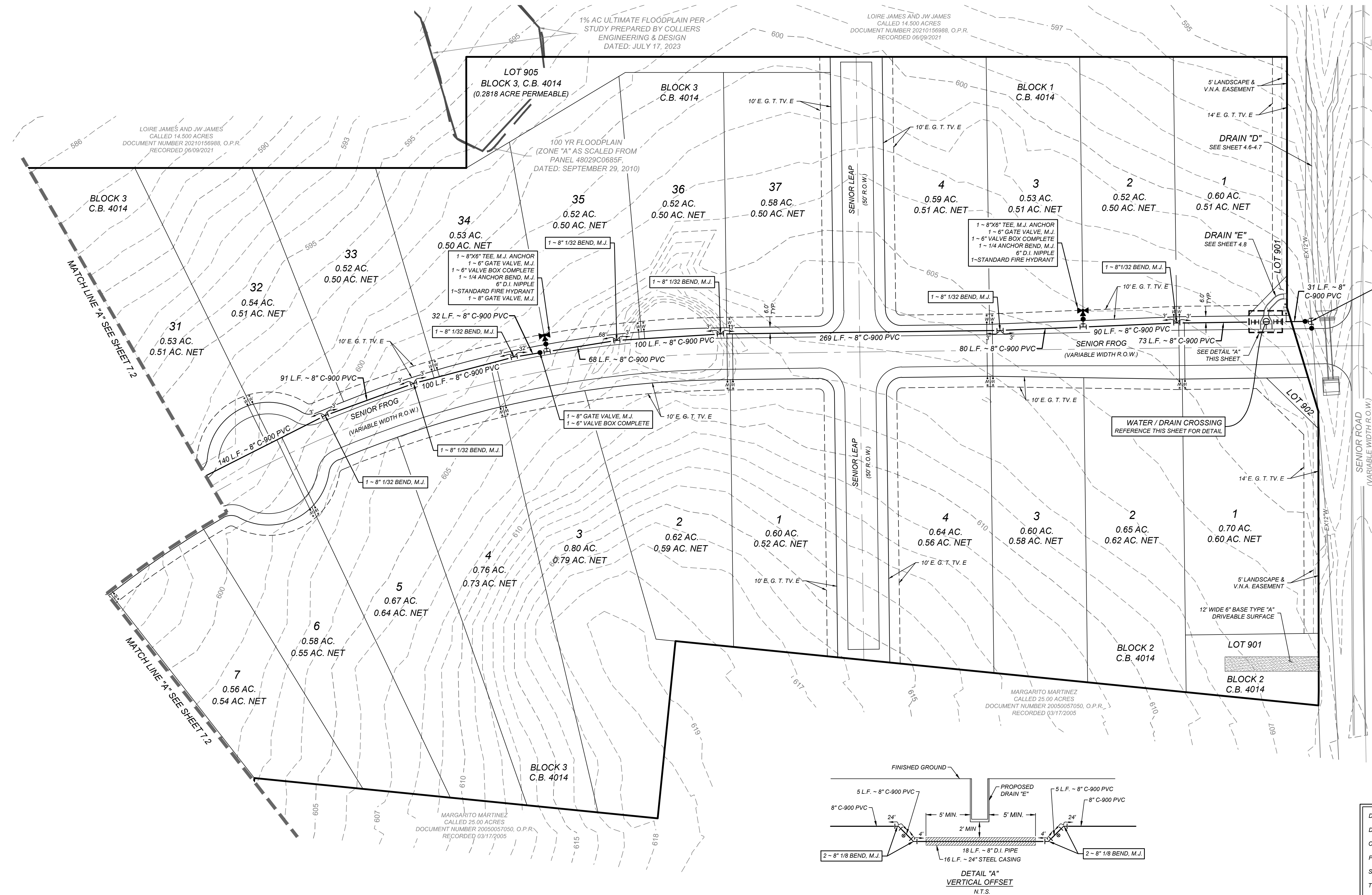
Formerly Known as

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ENGINEERING & SURVEYING









PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF
EXCAVATORS, DESIGNERS, OR ANY PERSON
PURSUING TO DISTURB THE EARTH'S
SURFACE ANYWHERE IN ANY STATE

Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
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LEGEND

PROPOSED WATER MAIN	=	_____ W _____
PROPOSED WATER 3/4" SERVICE & 5/8" METER BOX	=	_____ S _____
PROPOSED WATER 3/4" IRRIGATION SERVICE & 3/4" METER BOX	=	_____ IRR _____
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	 
PROPOSED 100W STREETLIGHT	=	
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. V. E. _____
EXISTING WATER MAIN	=	_____ E.W. _____
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	—OHE—  —OHE—
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	—  —OHE—

CONTRACTOR SHALL TIE IN NEW 8" PVC PIPE TO EXISTING 12" PVC PIPE AFTER DISINFECTION BY CONTRACTOR AND ACCEPTANCE BY SAWS.

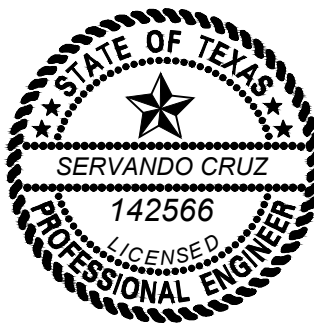
FOR CHLORINATION INJECTION

- 2'-1" CORP STOP C.C. X 1" P.
- 2'-1" COMP X 1/4" CPL. CURB STOP
- 2'-1" COPPER TUBING, CUT AS REQUIRED
- 2'-1/4" THD. SOLID CAPS, THR

CONTRACTOR SHALL PROVIDE A 2" JUMPER CONNECTION TO LEAD NEW MAIN

- 1 ~ 8"X12" CUT IN TEE. M.J.
- 1 ~ 8" GATE VALVE, M.J.
- 1 ~ 12" GATE VALVE, M.J.
- 2 ~ 1" VALVE BOX COMPLETE
- 1 ~ MACHINE CHLORINATION
- 1-BLOWOFF (TEMP.)

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2/26/24

PRELIMINARY
FOR
VARGA TRACT
SUBDIVISION
PLAT# 23-11800270

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers

Engineering
& Design

SAN ANTONIO (KFW)
3421 Paenos
Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE: AS SHOWN	DATE: 5/23/2023	DRAWN BY: SD	CHECKED BY: SC
PROJECT NUMBER: 1116-01-01		DRAWING NAME: OW11160101	

SHEET TITLE:

OVERALL WATER PLAN

SHEET NUMBER:

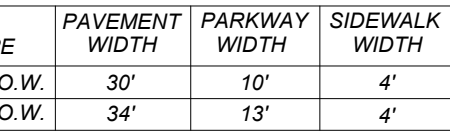
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NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION

TRENCH EXCAVATION SAFETY PROTECTION
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR
STRUCTURAL DESIGNING/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY,
SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION
AND DATA AND SHALL BE RESPONSIBLE TO PROVIDE FOR ADEQUATE
IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION
SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN
THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE
SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL BE IN ACCORDANCE WITH
TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM,
OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR
AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY
CONSULTANT SHALL BE RESPONSIBLE TO PROVIDE FOR THE PRESENCE AND ACCORDANCE
WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF
INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

WATER PLAN NOTES:
1. ALL VALVES SHALL READ "OPEN RIGHT"
2. ALL PVC PIPE SHALL BE C-900 CLASS 235, DR 18.

FIRE FLOW NOTE:
IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1,000 GPM AT 25 PSI RESIDUAL PRESSURE. THE FIRE FLOW REQUIREMENTS FOR INDIVIDUAL STRUCTURES WILL BE REVIEWED DURING THE BUILDING PERMIT PROCESS IN ACCORDANCE WITH THE PROCEDURES SET FORTH BY THE CITY OF SAN ANTONIO DIRECTOR OF DEVELOPMENT SERVICES DEPARTMENT AND THE SAN ANTONIO FIRE DEPARTMENT FIRE MARSHAL.













TYPICAL STREET SECTION
N.T.S.



SCALE : 1" = 50'

LEGEND

PROPOSED WATER MAIN	=	————— W —————
PROPOSED WATER 3/4" SERVICE & 5/8" METER BOX	=	————— S —————
PROPOSED WATER 3/4" IRRIGATION SERVICE & 3/4" METER BOX	=	————— IRR —————
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	 
PROPOSED 100W STREETLIGHT	=	  
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E G T TV E
EXISTING WATER MAIN	=	----- E W -----
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING OVERHEAD ELECTRIC W/PWERO POLE	=	—OHE—  —OHE—
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	—  —OHE—

CAUTION!!: THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES. SITE LIGHTING ELECTRICAL, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL, CONTRACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

NOTE:
PRESSURE REDUCING VALVES TO BE
THE RESPONSIBILITY OF THE HOME
BUILDER WHERE REQUIRED



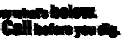
TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE

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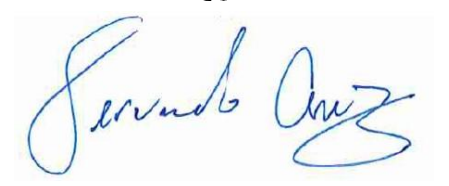
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96	11-11-11	1	
97	11-11-11	1	
98	11-11-11	1	
99	11-11-11	1	
100	11-11-11	1	



FOR
MARGA TRACT
SUBDIVISION
T# 23-11800270

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& Design

SAN ANTONIO (KFW)
3421 Paesanos
Parkway
San Antonio, TX 78231
Phone: 210.979.8444
LIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE: AS SHOWN	DATE: 5/23/2023	DRAWN BY: SD	CHECKED BY: SC
PROJECT NUMBER: 1116-01-01		DRAWING NAME: QW11160101	

OVERALL WATER PLAN

SHEET NUMBER

7.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION

LUIS C. ZAMORA AND LETICIA ZAMORA
CALLED 55.34 ACRES
DOCUMENT NUMBER 20200065984, O.P.R.
RECORDED 01/27/2020

LOIRE JAMES AND JW JAMES
CALLED 14,500 ACRES
DOCUMENT NUMBER 20210156988, O.P.R.,
RECORDED 06/09/2021

1% AC ULTIMATE
FLOODPLAIN PER STUDY
PREPARED BY COLLIERS
ENGINEERING & DESIGN
DATED: JULY 17, 2023

100 YR FLOODPLAIN
(ZONE "A" AS SCALED FROM
PANEL 48029C0685F,
DATED: SEPTEMBER 29, 2010)

LOT 904, BLOCK 3, C.B. 4014
OPEN SPACE
(21.82 ACRE PERMEABLE)

MATCH LINE "B" SEE SHEET 7.3

SAWS PRESSURE ZONE 830 HGL

DEVELOPER'S NAME: J&M DEVELOPMENT

DEVELOPER'S ADDRESS: 6538 ECKHART RD

CITY: SAN ANTONIO STATE: TEXAS ZIP: 78240

PHONE#: (210) 979-8444 FAX#: TOTAL ACREAGE: 54.47 ACRES

SAWS BLOCK MAP#: 118502 2.375 LF - 8" C-900 TOTAL EDU'S: 46.5
329' 2" ID PIPE

TOTAL LINEAR FOOTAGE OF PIPE: PLAT NO: 23-11800270

NUMBER OF LOTS: 45 SAWS JOB#: 23-1123

TRENCH EXCAVATION SAFETY PROTECTION
CONTRACTOR AND/OR CONTRACTORS INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT. IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTORS' TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS, SPECIFICALLY, CONTRACTOR AND/OR CONTRACTORS INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

WATER PLAN NOTES:
1. ALL VALVES SHALL READ "OPEN RIGHT"
2. ALL PVC PIPE SHALL BE C-900 CLASS 235, DR 18.

FIRE FLOW NOTE:
IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1,000 GPM AT 25 PSI RESIDUAL PRESSURE. THE FIRE FLOW REQUIREMENTS FOR INDIVIDUAL STRUCTURES WILL BE REVIEWED DURING THE BUILDING PERMIT PROCESS IN ACCORDANCE WITH THE PROCEDURES SET FORTH BY THE CITY OF SAN ANTONIO DIRECTOR OF DEVELOPMENT SERVICES DEPARTMENT AND THE SAN ANTONIO FIRE DEPARTMENT FIRE MARSHAL.

CAUTION!!!
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

NOTE:
PRESSURE REDUCING VALVES TO BE THE RESPONSIBILITY OF THE HOME BUILDER WHERE REQUIRED

MATCH LINE "B" SEE SHEET 7.2

MATCH LINE "B" SEE SHEET 7.2

MATCH LINE "B" SEE SHEET 7.2

LOT 906
BLOCK 3, C.B. 4014
OPEN SPACE
(0.8578 ACRE PERMEABLE)

100 YR FLOODPLAIN
(ZONE "A" AS SCALED FROM
PANEL 48029C0685F,
DATED: SEPTEMBER 29, 2010)

1% AC ULTIMATE
FLOODPLAIN PER STUDY
PREPARED BY COLLIERS
ENGINEERING & DESIGN
DATED: JULY 17, 2023

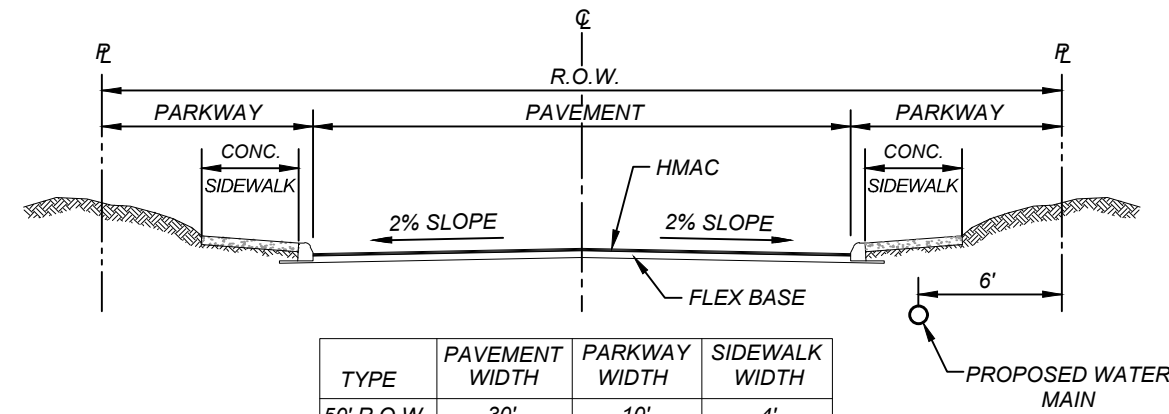
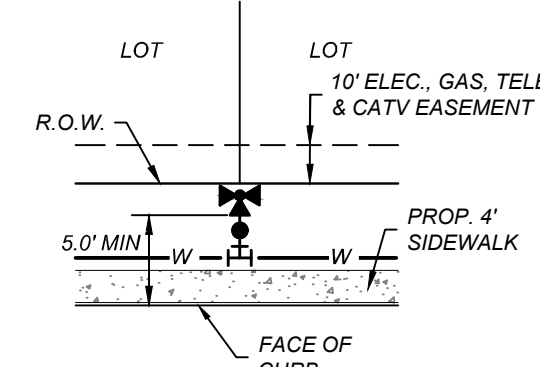
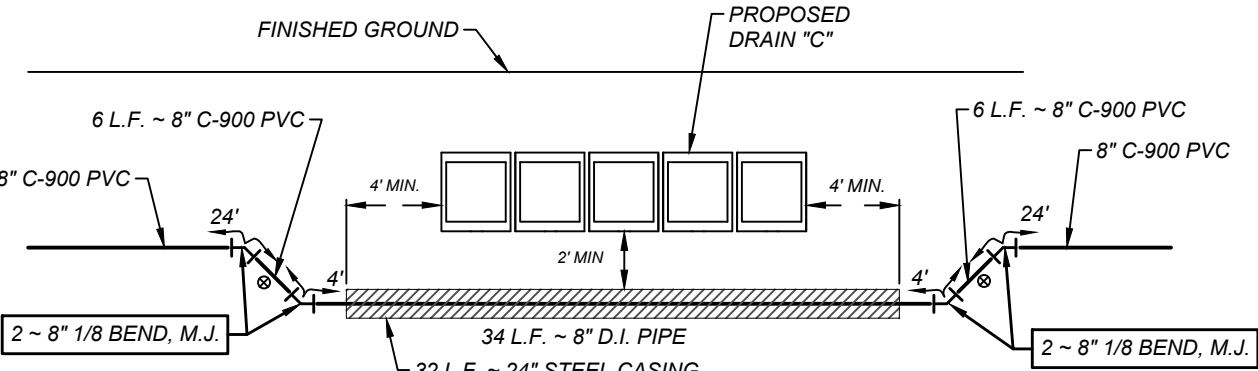
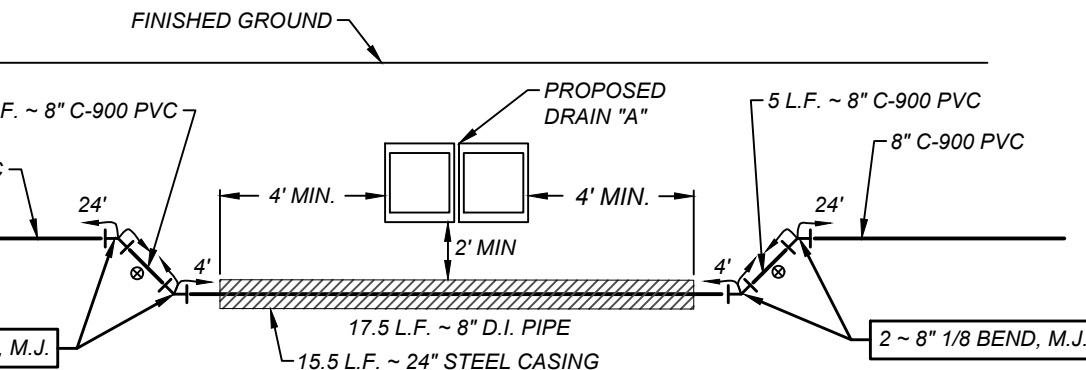
LOT 904, BLOCK 3, C.B. 4014
OPEN SPACE
(21.82 ACRE PERMEABLE)

1-8"X6" TEE, M.J. ANCHOR
1-6" GATE VALVE, M.J.
1-6" VALVE BOX COMPLETE
1-1/4" ANCHOR BEND, M.J.
6" D.I. NIPPLE
1-STANDARD FIRE HYDRANT

1-8"X8" ANCHOR TEE, M.J.
1-8" GATE VALVE, M.J.
1-6" VALVE BOX COMPLETE
2-8"X2" REDUCER, M.J.

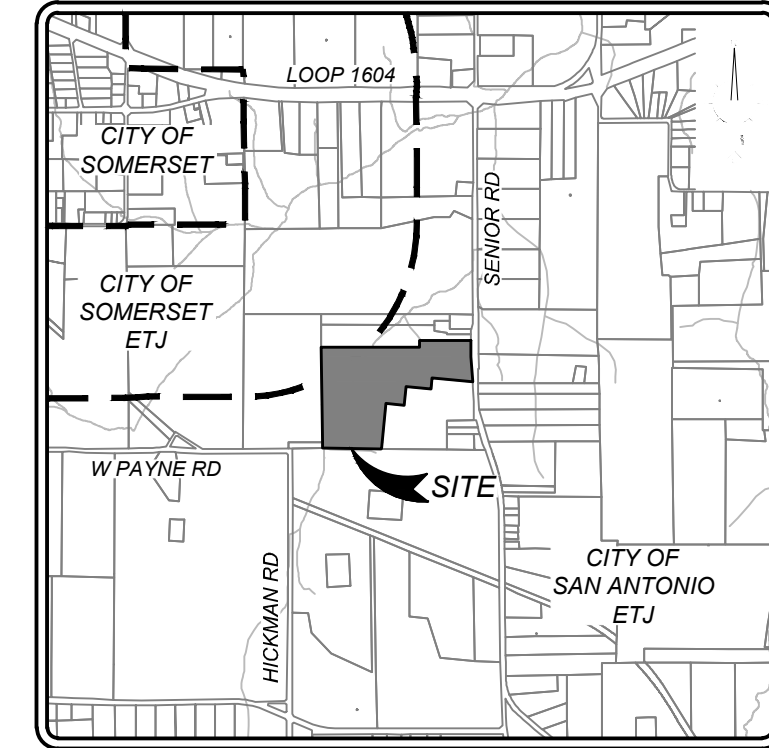
TRISTAN RYAN CASTILLEJA
BRIDGE ENGINEER
CALLED 1.143 ACRES
DOCUMENT NUMBER
RECORDED 10/20/2021

BRIAN KEITH BIELFELD
CALLED 101.26 ACRES
DOCUMENT NUMBER 20130212544, O.P.R.
RECORDED 10/10/2013

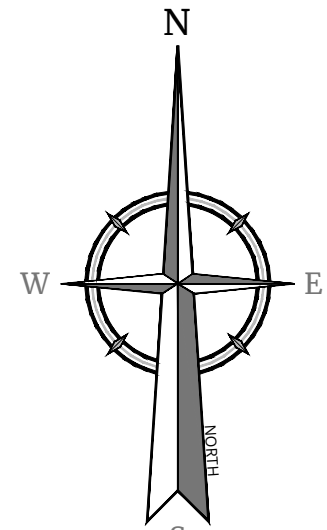


TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	30'	10'	4'
60' R.O.W.	34'	13'	4'

TYPICAL STREET SECTION
N.T.S.



LOCATION MAP
N.T.S.



SCALE: 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

PROPOSED WATER MAIN	=	— W —
PROPOSED WATER 3/4" SERVICE & 5/8" METER BOX	=	— W —
PROPOSED WATER 3/4" IRRIGATION SERVICE & 3/4" METER BOX	=	— W —
PROPOSED FIRE HYDRANT	=	— F —
PROPOSED WATER VALVE	=	— V —
PROPOSED 100W STREETLIGHT	=	— S —
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E, G, T, V, E
EXISTING WATER MAIN	=	— E.W. —
EXISTING FIRE HYDRANT	=	— F —
EXISTING WATER VALVE	=	— V —
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	— O.H.E. —
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	— G.W. —

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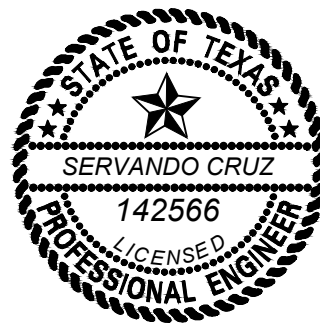
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Servando Cruz
3/19/24

PRELIMINARY

FOR
VARGA TRACT
SUBDIVISION
PLAT# 23-11800270

SAN ANTONIO
BEXAR COUNTY
TEXAS

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Engineering
& Design

SAN ANTONIO (KFW)
3421 Paesanos
Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBSL Form# 10194550

SCALE: AS SHOWN DATE: 5/23/2023 DRAWN BY: SD CHECKED BY: SC

PROJECT NUMBER: 1116-01-01 DRAWING NUMBER: OW11160101

SHEET TITLE:
OVERALL WATER PLAN

SHEET NUMBER:
7.3

DEVELOPER'S NAME: J&M DEVELOPMENT
DEVELOPER'S ADDRESS: 6538 ECKHART RD
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78240
PHONE#: (210) 979-8444 FAX#: TOTAL ACREAGE: 54.47 ACRES
SAWS BLOCK MAP#: 118502 2,375 LF ~ 8" C-900 TOTAL EDU'S: 46.5
TOTAL LINEAR FOOTAGE OF PIPE: 51 LF ~ 8" D.I. 329 LF ~ 2" HDPE PLAT NO.: 23-11800270
NUMBER OF LOTS: 45 SAWS JOB#: 23-1123

SAWS PRESSURE ZONE 830 HGL

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

PROJECT COMPLETION:

- ALL DISTURBED AREAS ARE NOT COVERED BY IMPERVIOUS COVER ARE TO BE STABILIZED PER THE SWPPP AND PROJECT SPECIFICATIONS PRIOR TO REMOVAL OF ANY BMP'S AND/OR PRIOR TO FILING A NOTICE OF TERMINATION (NOT).
- BEST MANAGEMENT PRACTICES MAY BE REMOVED IN PHASES IF ALL UPGRADEMENT AREAS HAVE BEEN STABILIZED PER SWPPP AND PROJECT SPECIFICATIONS. THIS PHASING SHOULD BE NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
- CONTRACTOR TO ENSURE THEY HAVE MET ALL REQUIREMENTS OF THE SWPPP BEFORE FILING A NOTICE OF TERMINATION (NOT).

GENERAL:

- THIS EXHIBIT IS TO BE USED FOR THE PURPOSES OF STORMWATER POLLUTION PREVENTION ONLY. ALL OTHER CIVIL ENGINEERING INFORMATION SHOULD BE OBTAINED FROM THE APPROPRIATE CONSTRUCTION DOCUMENTS.
- THE PURPOSE OF THE SIGNATURE AND SEAL OF THE ENGINEER ON THIS DOCUMENT IS TO DEMONSTRATE COMPLIANCE WITH THE TPDES STORMWATER POLLUTION PREVENTION PLAN REGULATIONS ONLY.
- ALL OWNERS/OPERATORS ARE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH THE STORMWATER POLLUTION PREVENTION PLAN AND COMPLYING WITH THE REGULATIONS CONTAINED WITHIN IT.

INSTALLATION:

- ALL OPERATORS SHALL SUBMIT A NOTICE OF INTENT (NOI) AT LEAST 48 HOURS IN ADVANCE AND ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE IN PLACE PRIOR TO STARTING CONSTRUCTION ACTIVITIES.
- CONTRACTOR TO ENSURE THAT STRUCTURAL BMP'S ARE INSTALLED WITHIN THE LIMITS OF THE SITE BOUNDARY.
- CONTRACTOR MAY INSTALL THE BEST MANAGEMENT PRACTICES IN PHASES THAT COINCIDE WITH THE DISTURBANCE OF UP GRADIENT AREAS. THIS PHASING SHOULD BE NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
- CONTRACTOR TO VERIFY SUFFICIENT VEGETATION IN AREAS DENOTED AS VEGETATED FILTER STRIP. IF INSUFFICIENT VEGETATION EXISTS, CONTRACTOR SHALL IMPLEMENT A DIFFERENT BEST MANAGEMENT PRACTICE AND WILL SHOW IT ON THIS PLAN WITH NOTATION IN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.

MAINTENANCE AND INSPECTION:

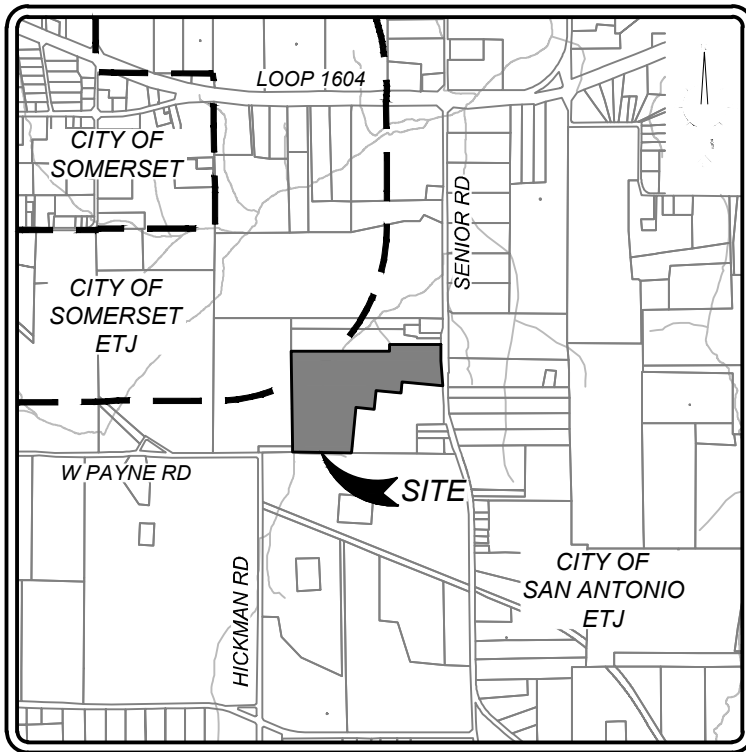
- CONTRACTOR SHOULD LIMIT CONSTRUCTION ACTIVITIES TO ONLY THOSE AREAS SHOWN TO BE DISTURBED ON THIS PLAN. IF ADDITIONAL VEGETATED AREAS ARE DISTURBED, THEY SHOULD BE PROTECTED WITH APPROPRIATE BEST MANAGEMENT PRACTICES UNTIL THE AREAS HAVE BEEN STABILIZED AS PER THE SPECIFICATIONS OF THE SWPPP. THE AREAS OF THIS ADDITIONAL SOIL DISTURBANCE AND THE MEASURES USED SHOULD BE SHOWN ON THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
- CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND INSPECTION OF BMP'S AS PER THE SPECIFICATIONS OF THE SWPPP. THE CONTRACTOR MAY MODIFY THE CONTROLS AS NECESSARY TO PREVENT SEDIMENT RUNOFF. THESE MODIFICATIONS SHOULD BE SHOWN AND THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
- LOCATION OF CONSTRUCTION ENTRANCE/EXIT, CONCRETE WASHOUT PIT, AND EQUIPMENT AND STORAGE ARE TO BE FIELD DETERMINED. LOCATIONS SHALL BE UPDATED ON THIS PLAN.

BEXAR COUNTY R.O.W. NOTE:

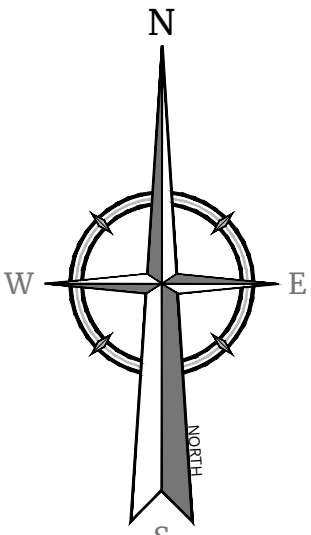
A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.

COORDINATION NOTE:

- CONTACT TIME WARNER TO COORDINATE CABLE TV SERVICE. (210) 244-0500
- CONDUIT FOR ELECTRICAL SERVICE. CONFIRM REQUIREMENTS AND COORDINATE WITH CPS FOR INSPECTION. (210) 353-2246
- CONTACT AT&T TO COORDINATE TELEPHONE SERVICE. 1-800-449-7926
- CONTRACTOR TO COORDINATE WITH CPS PRIOR TO CONSTRUCTION TO PLAN ELECTRIC SERVICE.
- CONTRACTOR TO COORDINATE WITH SAWS TO PLAN WATER AND SANITARY SEWER SERVICES (210) 704-7297
- CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.



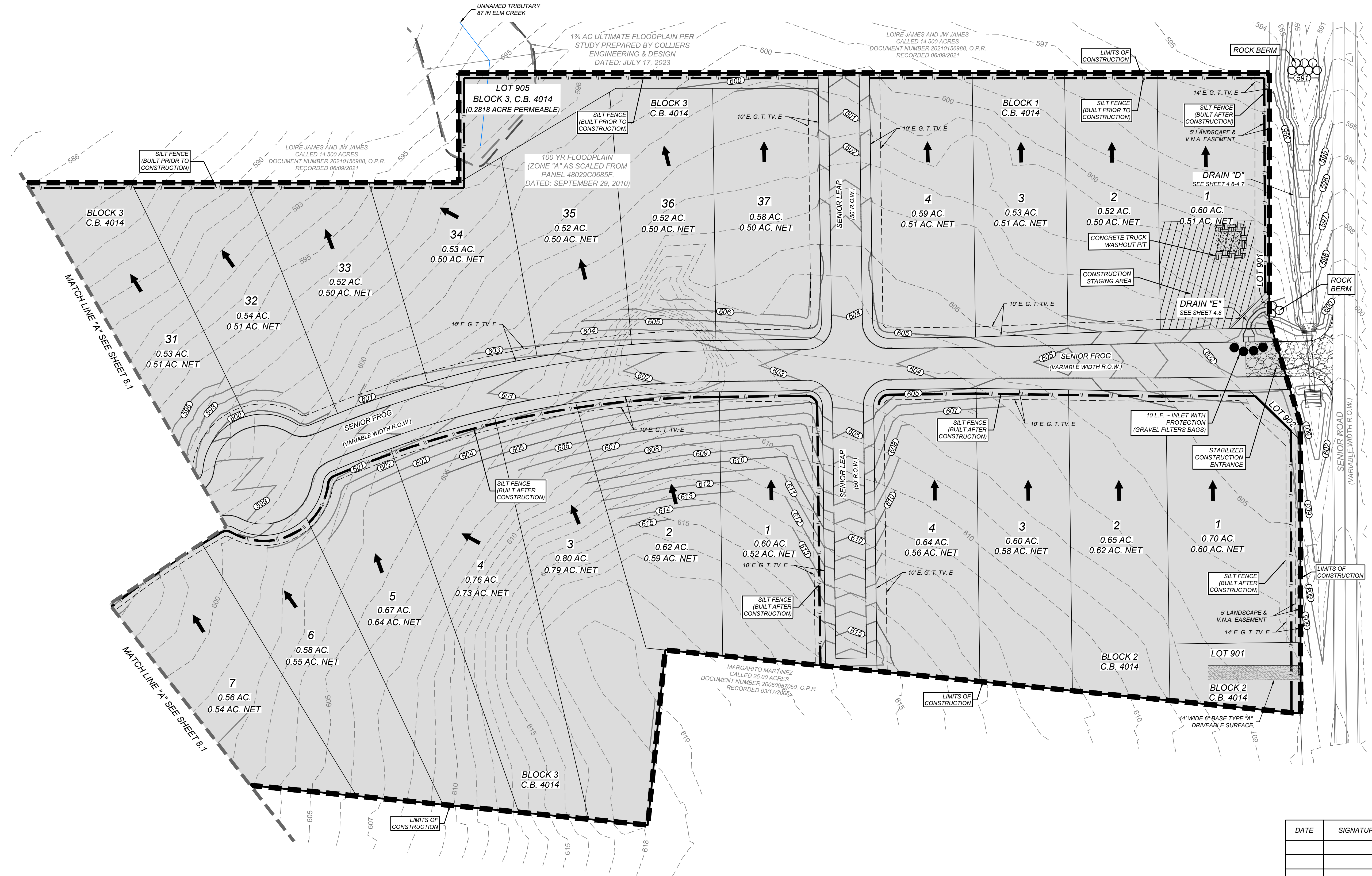
LOCATION MAP
N.T.S.



SCALE: 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- LIMITS OF CONSTRUCTION
- FLOW ARROW
- STABILIZED CONSTRUCTION ENTRANCE/EXIT
- CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA
- CONCRETE TRUCK WASHOUT PIT
- DISTURBED AREA
- ROCK BERM
- SILT FENCE (PHASE 2 TO BE INSTALLED AFTER PAVING)
- NATURAL VEGETATIVE BUFFER
- INLET WITH PROTECTION (GRAVEL FILTERS BAGS)
- EARTHEN CHECK BERM



SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

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STATE OF TEXAS

SERVANDO CRUZ

142566

PROFESSIONAL ENGINEER

Servando Cruz

2/26/24

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FOR

VARGA TRACT

SUBDIVISION

PLAT# 23-11800270

SAN ANTONIO

BEXAR COUNTY

TEXAS

Colliers

Engineering & Design

SAN ANTONIO (KFW)

3421 Paisanos Parkway

San Antonio, TX 78231

Phone: 210.979.8444

COLLIERS ENGINEERING & DESIGN, INC.

TBPS Form# 1-14009

TBPS Form# 10194550

SCALE: AS SHOWN

DATE: 5/23/2023

DRAWN BY: SD

CHECKED BY: SC

PROJECT NUMBER: 1116-01-01

DRAWING NAME: SWPPP11160101

SHEET TITLE: STORMWATER POLLUTION PREVENTION PLAN

SHEET NUMBER: 8.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

PROJECT COMPLETION:

- ALL DISTURBED AREAS ARE NOT COVERED BY IMPERVIOUS COVER ARE TO BE STABILIZED PER THE SWPPP AND PROJECT SPECIFICATIONS PRIOR TO REMOVAL OF ANY BMP'S AND/OR PRIOR TO FILING A NOTICE OF TERMINATION (NOT).
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GENERAL:

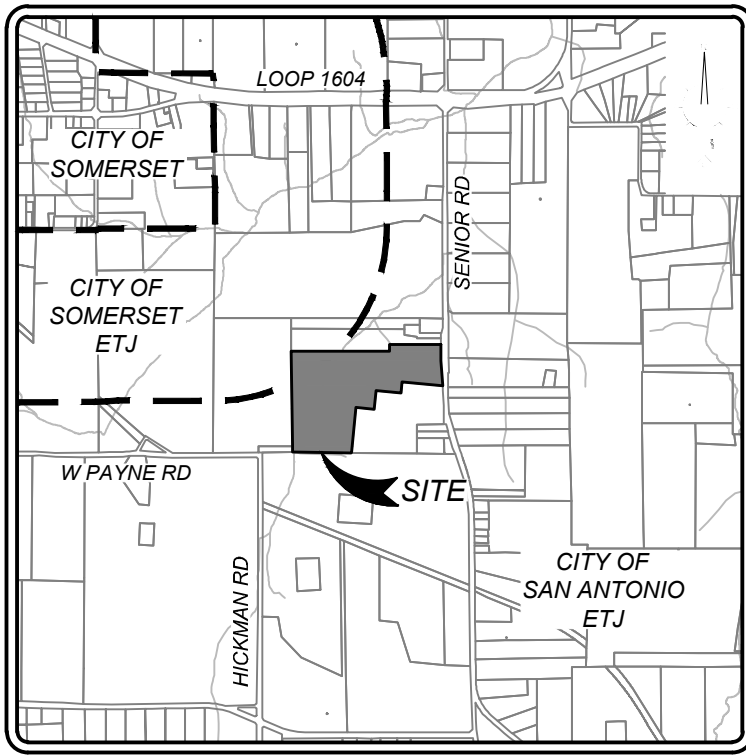
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BEXAR COUNTY R.O.W. NOTE:

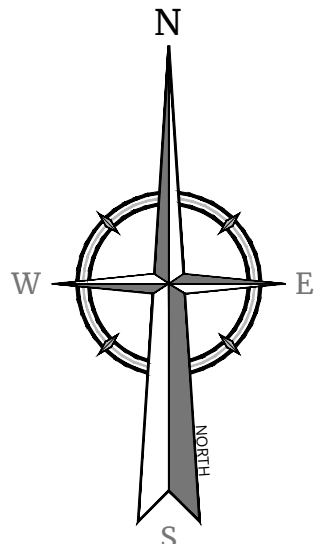
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COORDINATION NOTE:

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- CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.



LOCATION MAP
N.T.S.

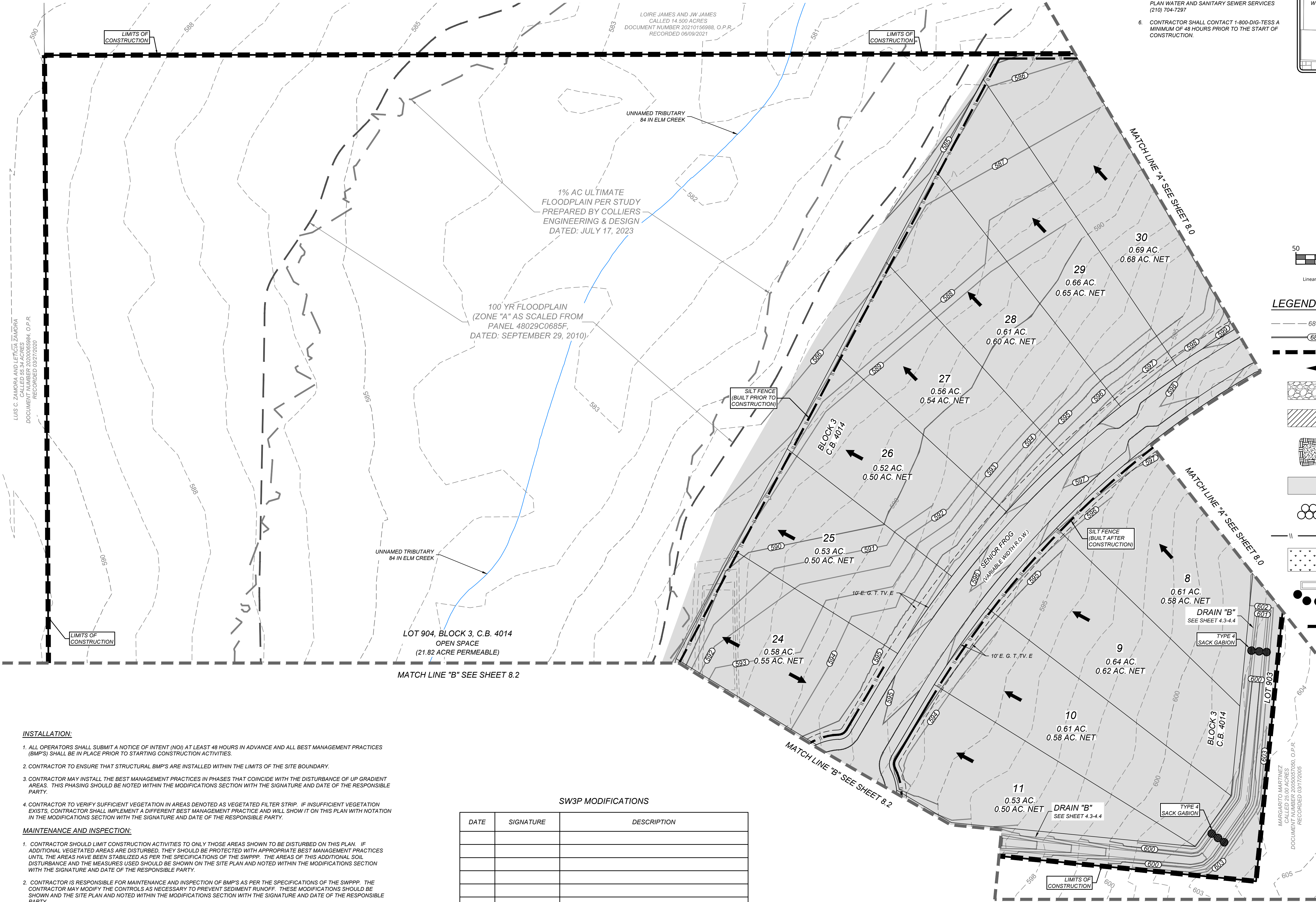


SCALE: 1" = 50'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

- EXISTING CONTOURS (dashed line with elevation)
- PROPOSED CONTOURS (solid line with elevation)
- LIMITS OF CONSTRUCTION (thick dashed line)
- FLOW ARROW (arrow)
- STABILIZED CONSTRUCTION ENTRANCE/EXIT (hatched pattern)
- CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA (diagonal hatched pattern)
- CONCRETE TRUCK WASHOUT PIT (cross-hatched pattern)
- DISTURBED AREA (solid grey fill)
- ROCK BERM (circle pattern)
- SILT FENCE (PHASE 2 TO BE INSTALLED AFTER PAVING) (dashed line with cross-ticks)
- NATURAL VEGETATIVE BUFFER (dotted pattern)
- INLET WITH PROTECTION (GRAVEL FILTERS BAGS) (rectangle with circles)
- EARTHEN CHECK BERM (thick solid line)



INSTALLATION:

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SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

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STATE OF TEXAS

SERVANDO CRUZ

142566

LICENSED PROFESSIONAL ENGINEER

2/26/24

PRELIMINARY

FOR

VARGA TRACT

SUBDIVISION

PLAT# 23-11800270

SAN ANTONIO

BEXAR COUNTY

TEXAS

Colliers

Engineering & Design

SAN ANTONIO (KFW)

3421 Paisanos Parkway

San Antonio, TX 78231

Phone: 210.979.8444

COLLIERS ENGINEERING & DESIGN, INC.

TBPS Form P-14009

TBPS Form 10194500

SCALE: AS SHOWN

DATE: 5/23/2023

DRAWN BY: SD

CHECKED BY: SC

PROJECT NUMBER: 1116-01-01

DRAWING NAME: SWPPP11160101

SHEET TITLE:

STORMWATER POLLUTION PREVENTION PLAN

SHEET NUMBER:

8.1

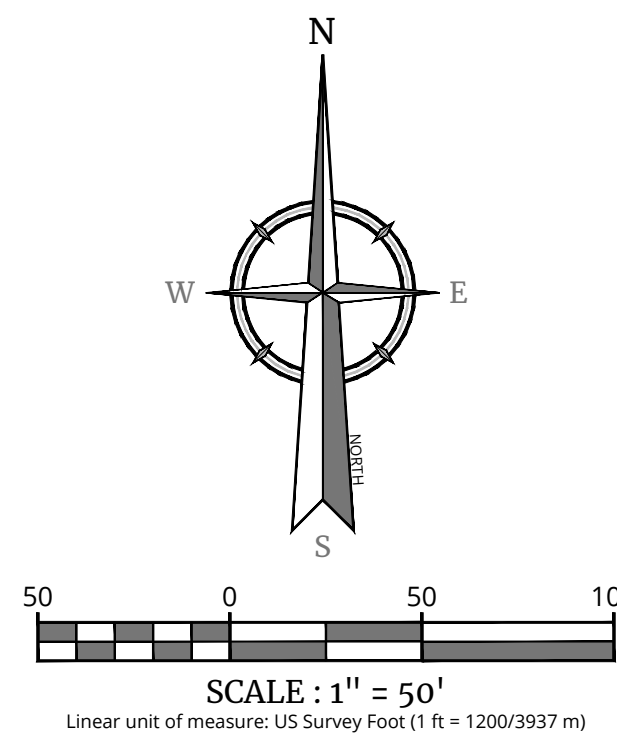
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

1. ALL DISTURBED AREAS ARE NOT COVERED BY IMPERVIOUS COVER ARE TO BE STABILIZED PER THE SWPPP AND PROJECT SPECIFICATIONS PRIOR TO REMOVAL OF ANY BMP'S AND/OR PRIOR TO FILING A NOTICE OF TERMINATION (NOT).
2. BEST MANAGEMENT PRACTICES MAY BE REMOVED IN PHASES IF ALL UPGRADEMENT AREAS HAVE BEEN STABILIZED PER SWPPP AND PROJECT SPECIFICATIONS. THIS PHASING SHOULD BE NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
3. CONTRACTOR TO ENSURE THEY HAVE MET ALL REQUIREMENTS OF THE SWPPP BEFORE FILING A NOTICE OF TERMINATION (NOT).

1. THIS EXHIBIT IS TO BE USED FOR THE PURPOSES OF STORMWATER POLLUTION PREVENTION ONLY. ALL OTHER CIVIL ENGINEERING INFORMATION SHOULD BE OBTAINED FROM THE APPROPRIATE CONSTRUCTION DOCUMENTS.
2. THE PURPOSE OF THE SIGNATURE AND SEAL OF THE ENGINEER ON THIS DOCUMENT IS TO DEMONSTRATE COMPLIANCE WITH THE TPDES STORMWATER POLLUTION PREVENTION PLAN REGULATIONS ONLY.
3. ALL OWNERS/OPERATORS ARE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH THE STORMWATER POLLUTION PREVENTION PLAN AND COMPLYING WITH THE REGULATIONS CONTAINED WITHIN IT.

A BEXAR COUNTY PERMIT MUST BE
OBTAINED BEFORE WORKING IN
BEXAR COUNTY R.O.W.

1. CONTACT TIME WARNER TO COORDINATE CABLE TV SERVICE. (210) 244-0500
2. CONDUIT FOR ELECTRICAL SERVICE. CONFIRM REQUIREMENTS AND COORDINATE WITH CPS FOR INSPECTION. (210) 353-2246
3. CONTACT AT&T TO COORDINATE TELEPHONE SERVICE. 1-800-449-7928.
4. CONTRACTOR TO COORDINATE WITH CPS PRIOR TO CONSTRUCTION TO PLAN ELECTRIC SERVICE.
5. CONTRACTOR TO COORDINATE WITH SAWS TO PLAN WATER AND SANITARY SEWER SERVICES. (210) 704-7297
6. CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.



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EXISTING CONTOURS

PROPOSED CONTOURS

LIMITS OF CONSTRUCTION

FLOW/ARROW

STABILIZED CONSTRUCTION ENTRANCE/EXIT

CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA

CONCRETE TRUCK WASHOUT PIT

DISTURBED AREA

ROCK BERM

SILT FENCE
(PHASE 2 TO BE INSTALLED AFTER PAVING)

NATURAL VEGETATIVE BUFFER

INLET WITH PROTECTION
(GRAVEL FILTERS BAGS)

EARTHEN CHECK BERM

1. ALL OPERATORS SHALL SUBMIT A NOTICE OF INTENT (NOI) AT LEAST 48 HOURS IN ADVANCE AND ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE IN PLACE PRIOR TO STARTING CONSTRUCTION ACTIVITIES.
2. CONTRACTOR TO ENSURE THAT STRUCTURAL BMP'S ARE INSTALLED WITHIN THE LIMITS OF THE SITE BOUNDARY.
3. CONTRACTOR MAY INSTALL THE BEST MANAGEMENT PRACTICES IN PHASES THAT COINCIDE WITH THE DISTURBANCE OF UP GRADIENT AREAS. THIS PHASING SHOULD BE NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
4. CONTRACTOR TO VERIFY SUFFICIENT VEGETATION IN AREAS DENOTED AS VEGETATED FILTER STRIP. IF INSUFFICIENT VEGETATION EXISTS, CONTRACTOR SHALL IMPLEMENT A DIFFERENT BEST MANAGEMENT PRACTICE AND WILL SHOW IT ON THIS PLAN WITH NOTATION IN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.

1. CONTRACTOR SHOULD LIMIT CONSTRUCTION ACTIVITIES TO ONLY THOSE AREAS SHOWN TO BE DISTURBED ON THIS PLAN. IF ANY ADDITIONAL VEGETATED AREAS ARE DISTURBED, THEY SHOULD BE PROTECTED WITH APPROPRIATE BEST MANAGEMENT PRACTICES (BMPs) TO PREVENT EROSION AND SEDIMENTATION. ANY ADDITIONAL SOIL DISTURBANCE AND THE MEASURES USED SHOULD BE SHOWN ON THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND INSPECTION OF BMPs AS PER THE SPECIFICATIONS OF THE SWPPP. THE CONTRACTOR MAY MODIFY THE CONTROLS AS NECESSARY TO PREVENT SEDIMENT RUNOFF. THESE MODIFICATIONS SHOULD BE SHOWN AND THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
3. LOCATION OF CONSTRUCTION ENTRANCE/EXIT, CONCRETE WASHOUT PIT, AND EQUIPMENT AND STORAGE ARE TO BE FIELD DETERMINED. LOCATIONS SHALL BE UPDATED ON THIS PLAN.

DATE	SIGNATURE	DESCRIPTION

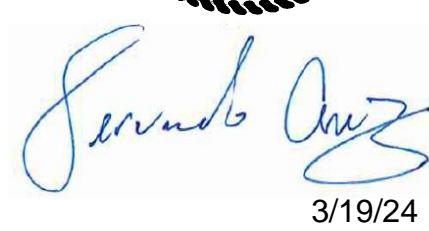
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KFW
Kreditanstalt für Wirtſchaftsförderung



PROTECT YOURSELF
STATES REQUIRE NOTIFICATION OF
EXPLORERS, DESIGNERS, OR ANY PERSON
PREPARING TO DISTURB THE EARTH'S
SURFACE ANYWHERE IN ANY STATE

FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

[illegible]

FOR
VARGA TRACT
SUBDIVISION
PLAT# 23-11800270

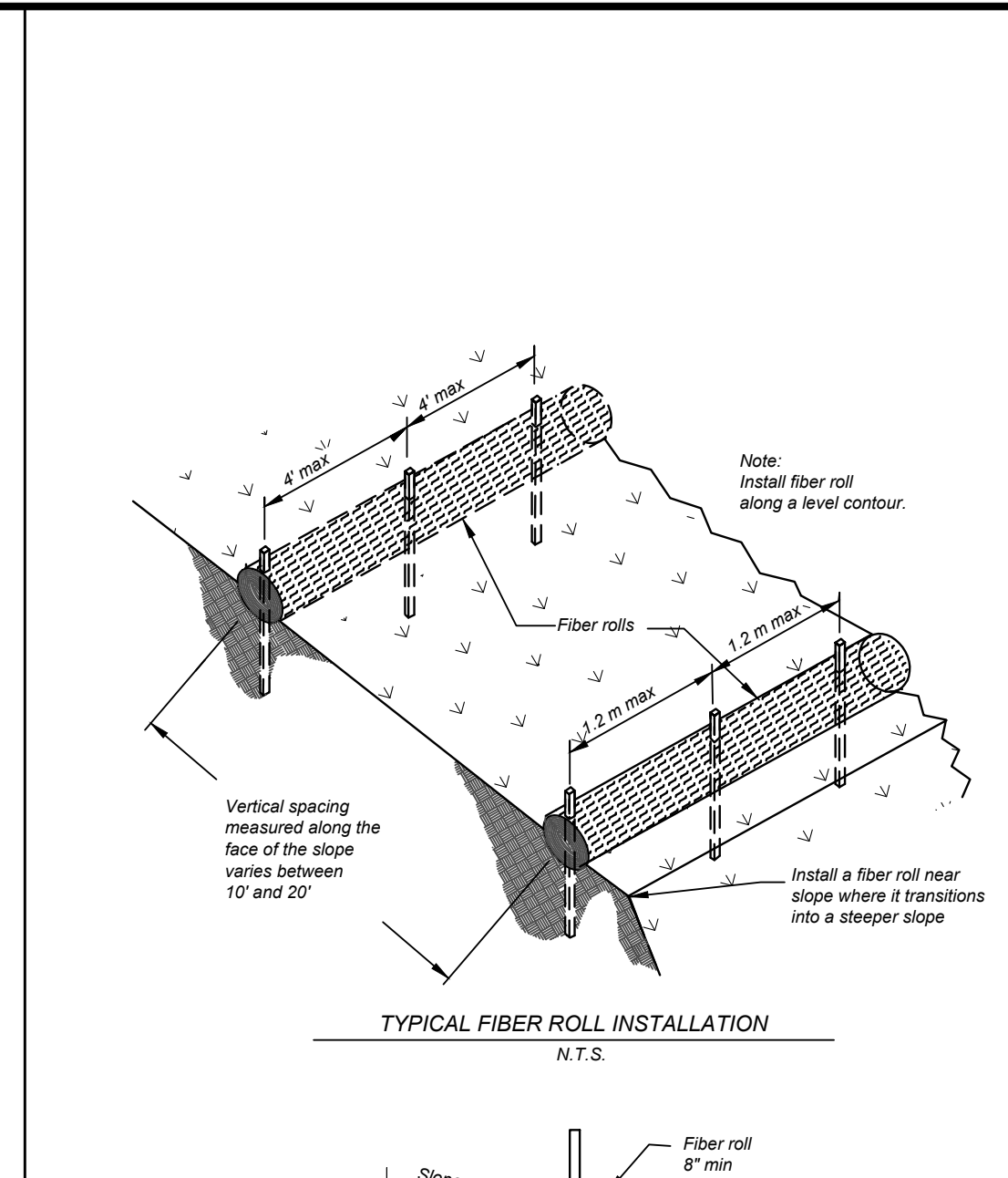


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COLLIERS ENGINEERING & DESIGN, INC.
TBPB Firm#: F-14909
TBPB Firm#: 10194550

SCALE: AS SHOWN	DATE: 5/23/2023	DRAWN BY: SD	CHECKED BY:
PROJECT NUMBER: 1116-G1-01		DRAWING NAME: SWPPP11160101	
SHEET TITLE: STORMWATER POLLUTION PREVENTION PLAN			
SHEET NUMBER: 8.2			

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION



CROSS-SECTION OF A CONSTRUCTION ENTRANCE/EXIT

TEMPORARY CONSTRUCTION ENTRANCE/EXIT

STABILIZED CONSTRUCTION ENTRANCE/EXIT

Installation (North Carolina, 1993)

- (1) Avoid curves on public roads and steep slope areas. Grade crown foundation for positive drainage.
- (2) The minimum width of the entrance/exist should be:
- (3) The construction entrance should be at least 20' wide.
- (4) If the slope toward the road exceeds 2%, construct foundation approximately 15 feet from the entrance.
- (5) Place geotextile fabric and grade foundation to match existing.
- (6) Place stone to dimensions and grade shown on drawing.
- (7) Direct all surface runoff and drainage from the entrance/exist.
- (8) Install pipe under pad as needed to maintain drainage.

Inspection and Maintenance Guidelines:

- (1) The entrance should be maintained in a condition of good repair.
- (2) All sediment spilled, dropped, washed or tracked onto the entrance/exist should be removed.
- (3) When necessary, wheels should be cleaned to remove sediment.
- (4) When washing is required, it should be done on a trap or sediment basin.
- (5) All sediment should be prevented from entering the public road.

Materials:

- (1) The aggregate should consist of 4 to 8 inch washed stone over a stable foundation as specified in the plan.
- (2) The aggregate should be placed with a minimum thickness of 8 inches.
- (3) The geotextile fabric should be designed specifically for use as a soil filtration media with an approximate weight of 6 oz/yd², a mullen burst rating of 140 lb/in², and an equivalent opening size greater than a number 50 sieve.
- (4) If a washing facility is required, a level area with a minimum of 4 inch diameter washed stone or commercial rack should be included in the plans. Divert wastewater to a sediment trap or basin.

Construction:

1. Remove vegetation and other objectionable material from the foundation zone.
2. The ridge will be 12 feet or the full width of exit roadway, whichever is greater. 50 feet long.
3. Construct a ridge, 6 to 8 inches high with 3:1 (H:V) side slopes, across the roadway to divert runoff away from the public road.
4. To improve stability, especially where wet conditions are anticipated, riprap may be placed on the ridge.
5. The plans. Leave surface smooth and slope for drainage.
6. The stone part to a sediment trap or basin.
7. Proper public road drainage.

Notes:

1. Any material which will prevent tracking or flow of sediment into public drainage with additional stone as conditions demand and repair and/or cleanout of the drainage.
2. Any material under rights-of-way should be removed immediately by contractor.
3. Any removed sediment prior to entrance on public right-of-way.
4. An area stabilized with crushed stone that drains into an approved sediment trap or basin.
5. Use any storm drain, ditch or water course by using approved methods.

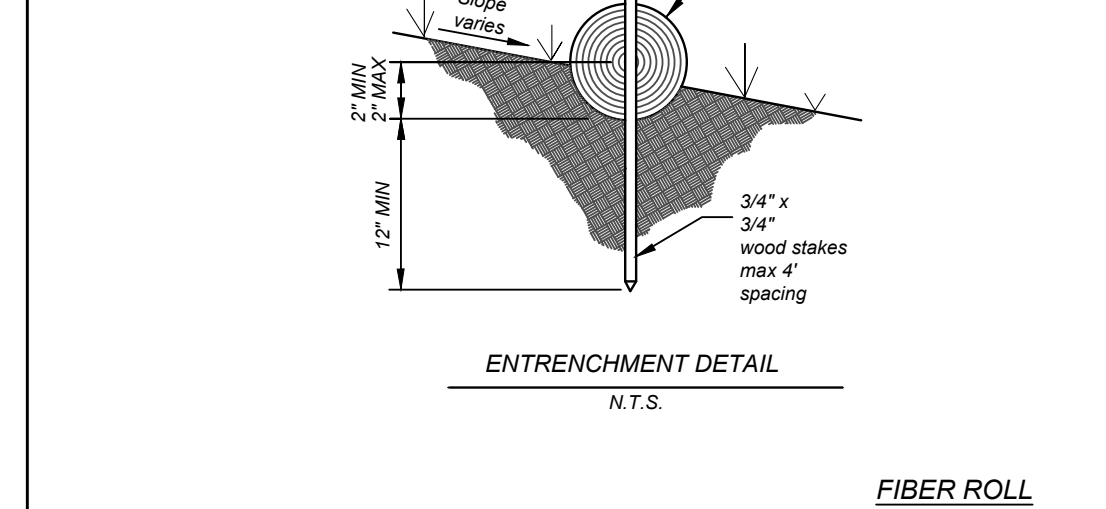
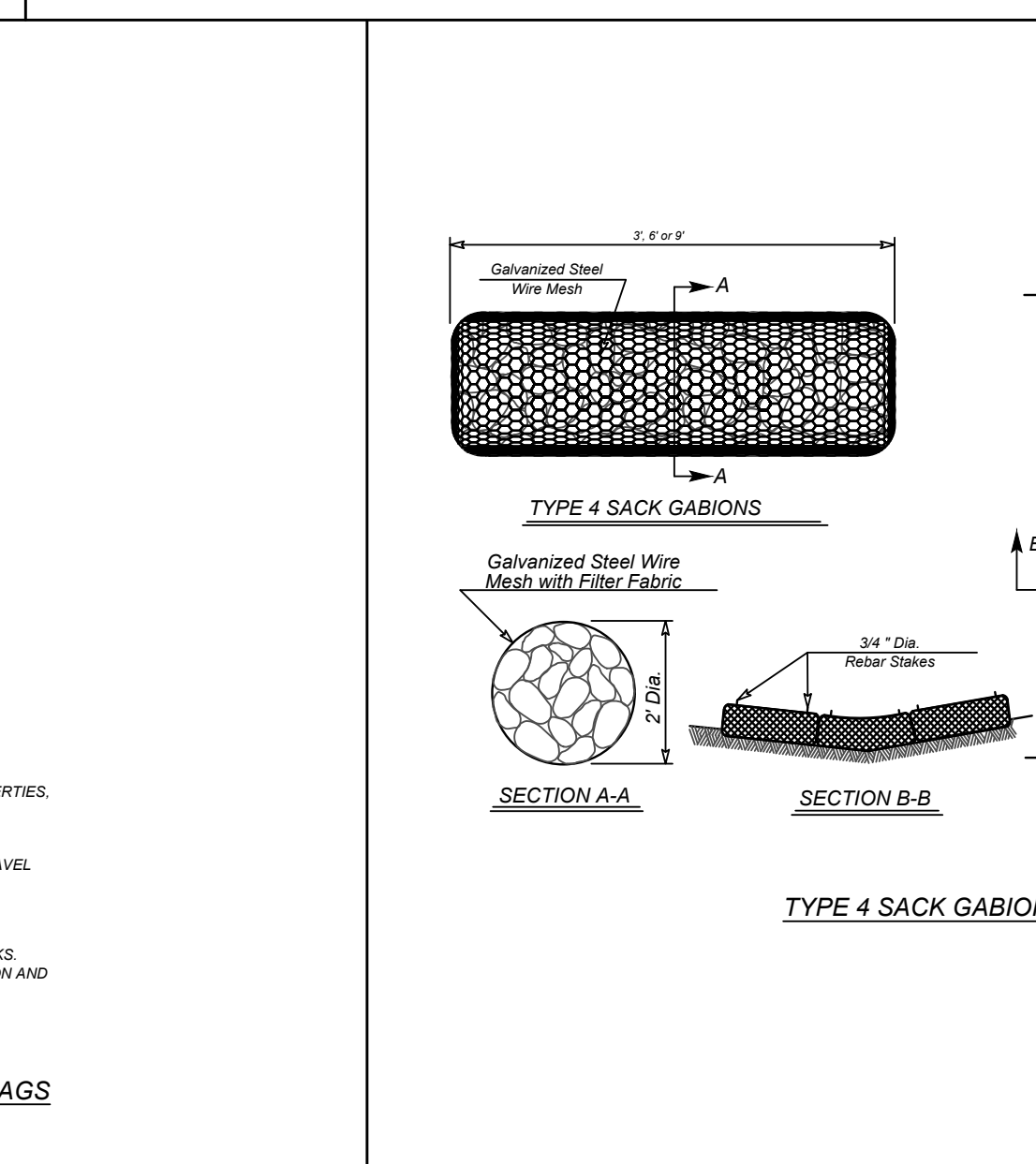


Diagram illustrating a woven wire sheathing system. The main structure is a rectangular block of woven wire mesh. A label "WOVEN WIRE SHEATHING" points to the mesh. An arrow labeled "FLOW" indicates the direction of flow from left to right. To the right of the main structure, a cross-section view shows a gap between the mesh and a vertical wall. The gap is labeled "19\" MIN". An arrow labeled "FLOW" indicates the direction of flow through the gap.

24" MIN.

WOVEN WIRE SHEATHING

3 TO 4 INCHES



ISOMETRIC PLAN VIEW

Materials:

- (1) The berm structure should be secured with a woven wire mesh and a minimum wire diameter of 20 gauge galvanized or
- (2) Clean, open graded 3- to 5-inch diameter rock should be used or large volumes of flow are expected, where 5- to 8-inch diameter

Installation:


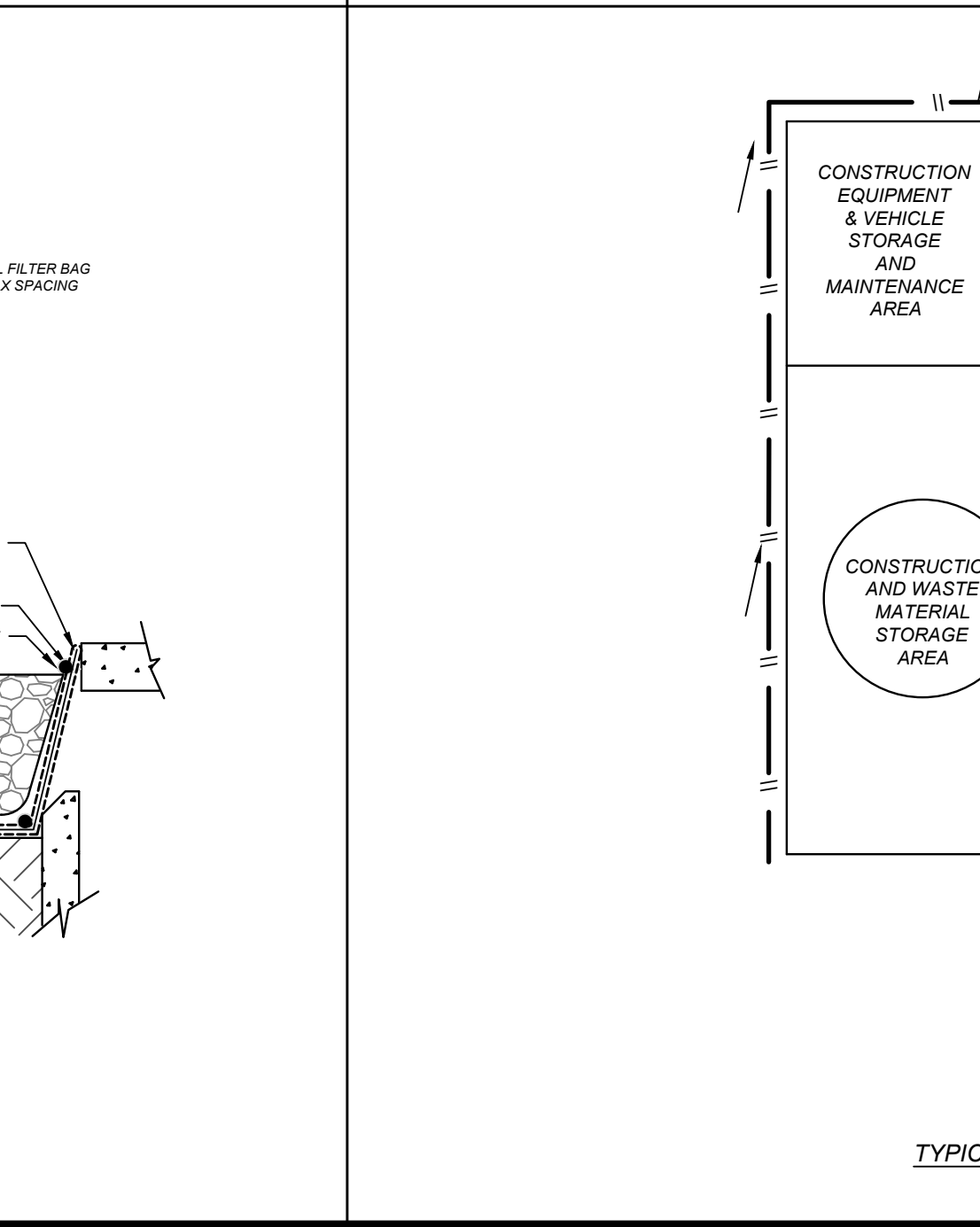
- (1) Lay out the woven wire sheathing perpendicular to the flow of water with a minimum of 1 inch openings.
- (2) Berm should have a top width of 2 feet minimum with side slopes of 1:1.
- (3) Place the rock along the sheathing as shown in the diagram below.
- (4) Wrap the wire sheathing around the rock and secure with overlap at least 2 inches, and the berm retains its shape when water flows over it.
- (5) Berm should be built along the contour at zero percent grade.
- (6) The ends of the berm should be tied into existing updrift berm trench approximately 3 to 4 inches deep to prevent failure of the berm.

Inspection and Maintenance Guidelines:

- (1) Inspection should be made weekly by the responsible party in streambeds, additional daily inspections should be made.
- (2) Remove sediment and other debris when buildup reaches 6 inches or more in an approved manner that will not cause any additional erosion.
- (3) Repair any loose wire sheathing.
- (4) The berm should be reshaped as needed during inspection.
- (5) The berm should be replaced when the structure ceases to function.
- (6) The rock berm should be reshaped as needed during inspection.
- (7) The rock berm should be left in place until all upstream erosion is removed.

ROCK BERM

The diagram illustrates an isometric plan view of a rock berm. It shows a rectangular structure composed of stacked rocks. A woven wire mesh is draped over the rocks and secured with a wire. A silt fence is indicated by a line with an arrow pointing to it. Labels include 'WOVEN WIRE SHEATHING' and 'SILT FENCE'.



ISOMETRIC PLAN VIEW

MATERIALS:

- (1) SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE OR P... SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.5 OZ/YD, MU... STABILITY EXCEEDING 70%, AND MINIMUM APPARENT OPENING SIZE OF 4.5 SIE...
- (2) FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST 4 FEET... OR GALVANIZED, MINIMUM NOMINAL WEIGHT 1.25 LB/LF, 2. AND BRINDELL HARD... USED TO ANCHOR THE BERM.
- (3) WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED? 2...
- (4) THE BERM STRUCTURE SHOULD BE SECURED WITH A WOVEN WIRE SHEA... WIRE DIAMETER OF 20 GAUGE GALVANIZED AND SHOULD BE SECURED WITH SH...
- (5) CLEAN, OPEN GRADED 3, TO 5-INCH DIAMETER ROCK SHOULD BE USED, EX... OF FLOW ARE EXPECTED, WHERE 5- TO 8-INCH DIAMETER ROCKS MAY BE USED.

INSTALLATION:

- (1) LAY OUT THE WOVEN WIRE SHEATHING PERPENDICULAR TO THE FLOW LI... WITH 1-INCH OVERLAPS.
- (2) INSTALL THE SILT FENCE ALONG THE CENTER OF THE PROPOSED BERM... SECTION 2.4.3.
- (3) PLACE THE ROCK ALONG THE SHEATHING ON BOTH SIDES OF THE SILT FEN... LESS THAN 24 INCHES, CLEAN, OPEN GRADED 3- 5" DIAMETER ROCK SHOULD B... VOLUMES OF FLOW ARE EXPECTED, WHERE 5- TO 8-INCH DIAMETER ROCK MAY...
- (4) WRAP THE WIRE SHEATHING AROUND THE ROCK AND SECURE WITH THE WI... INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.
- (5) THE HIGH SERVICE ROCK BERM SHOULD BE REMOVED WHEN THE SITE IS I... PLACE AS A PERMANENT BMP IF DRAINAGE IS ADEQUATE.

INSPECTION AND MAINTENANCE GUIDELINES:

- (1) INSPECTION SHOULD BE MADE WEEKLY BY THE RESPONSIBLE PARTNER. P... INSPECTIONS SHOULD BE MADE ON ROCK BERM.
- (2) REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES... MANNER.
- (3) REPAIR ANY LOOSE WIRE SHEATHING.
- (4) THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
- (5) THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUN... ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
- (6) THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS AR...

HIGH SERVICE ROCK

CROSS SECTION

POLYAMIDE WOVEN OR NONWOVEN FABRIC, THE FABRIC WIDTH LEIN BURST STRENGTH EXCEEDING 190 LB/IN², ULTRAVIOLET VE NO. 30

4' X 4' WELDED WIRE, 12 GAUGE MINIMUM.

THING HAVING MAXIMUM OPENING OF 1 INCH. AND A MINIMUM OAT RINGS.

CEPT IN AREAS WHERE HIGH VELOCITIES OR LARGE VOLUMES

NE. THE SHEATHING SHOULD BE 20 GAUGE WOVEN WIRE MESH

PLACEMENT, AS WITH A NORMAL SILT FENCE DESCRIBED IN

CE AS SHOWN IN THE DIAGRAM (FIGURE 1-29). TO A HEIGHT NOT

USED, EXCEPT IN AREAS WHERE HIGH VELOCITIES OR LARGE

BE USED.

RE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2

REVEGETATED OR OTHERWISE STABILIZED OR IT MAY REMAIN IN

Y. FOR INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY

AND DISPOSE OF THE ACCUMULATED SILT OF IN AN APPROVED

CTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE

BE STABILIZED AND ACCUMULATED SILT REMOVED.

K BERM

[illegible]