

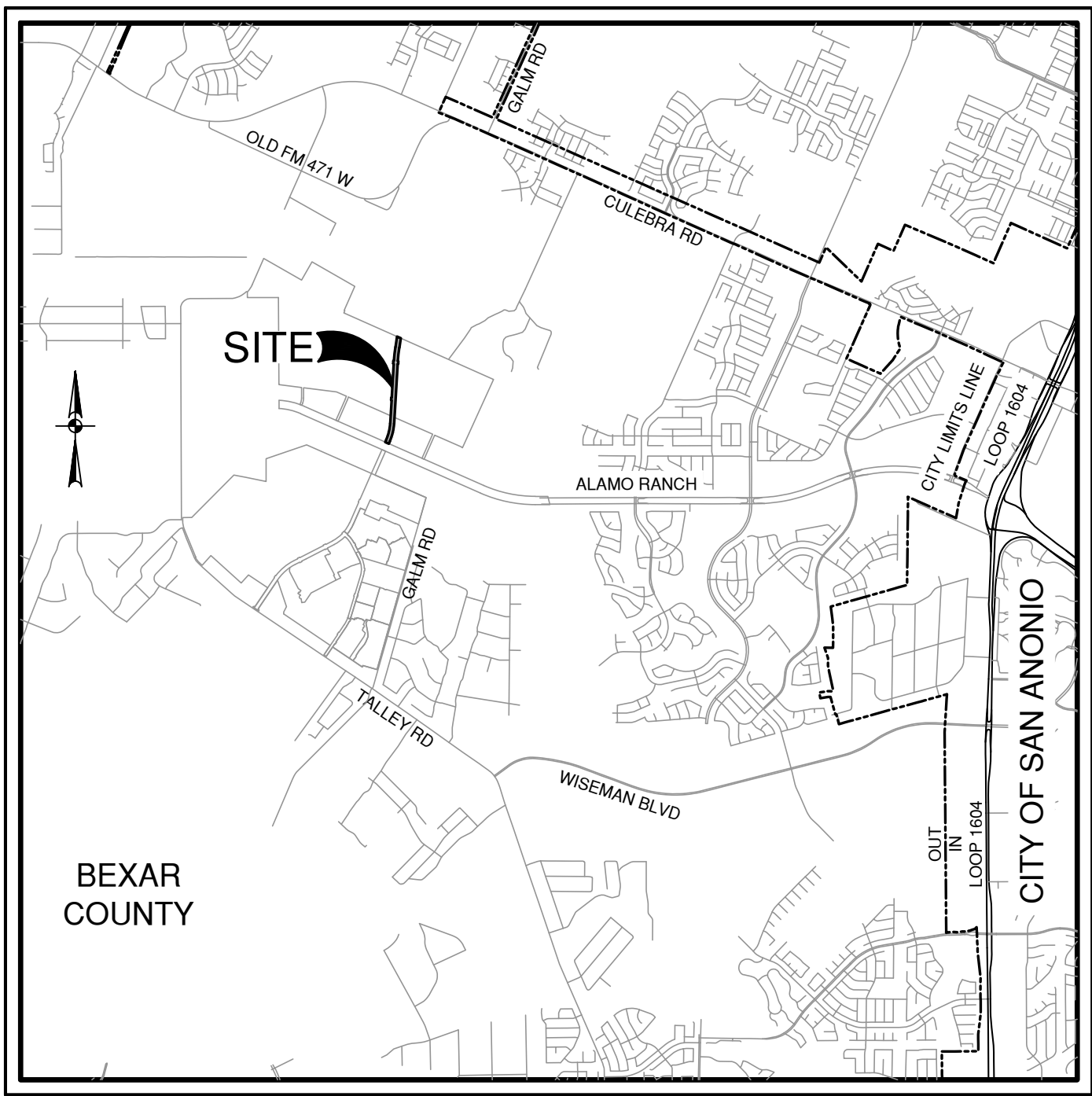
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# GALM ROAD PH IV

## SAN ANTONIO, TEXAS

### CIVIL CONSTRUCTION PLANS



LOCATION MAP

NOT-TO-SCALE

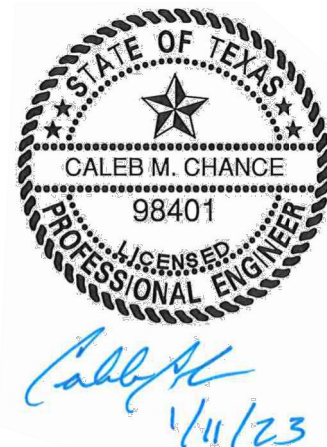
PREPARED FOR:

CONTINENTAL HOMES OF TEXAS, L.P.  
5419 N LOOP 1604 E  
SAN ANTONIO, TEXAS 78247

JANUARY 2023



SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



WATER (SAWS PRESSURE ZONE 8)

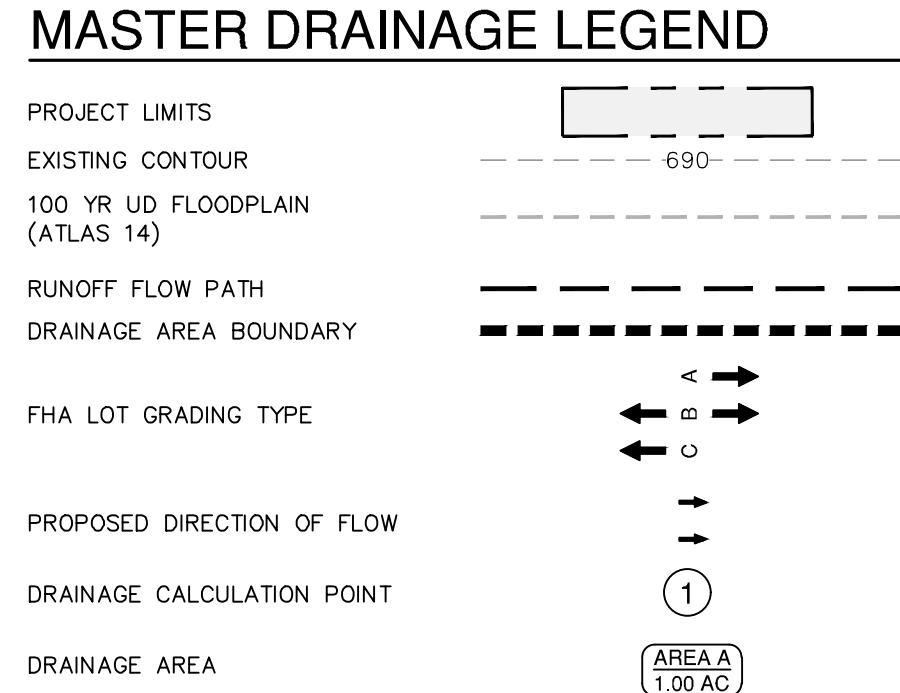
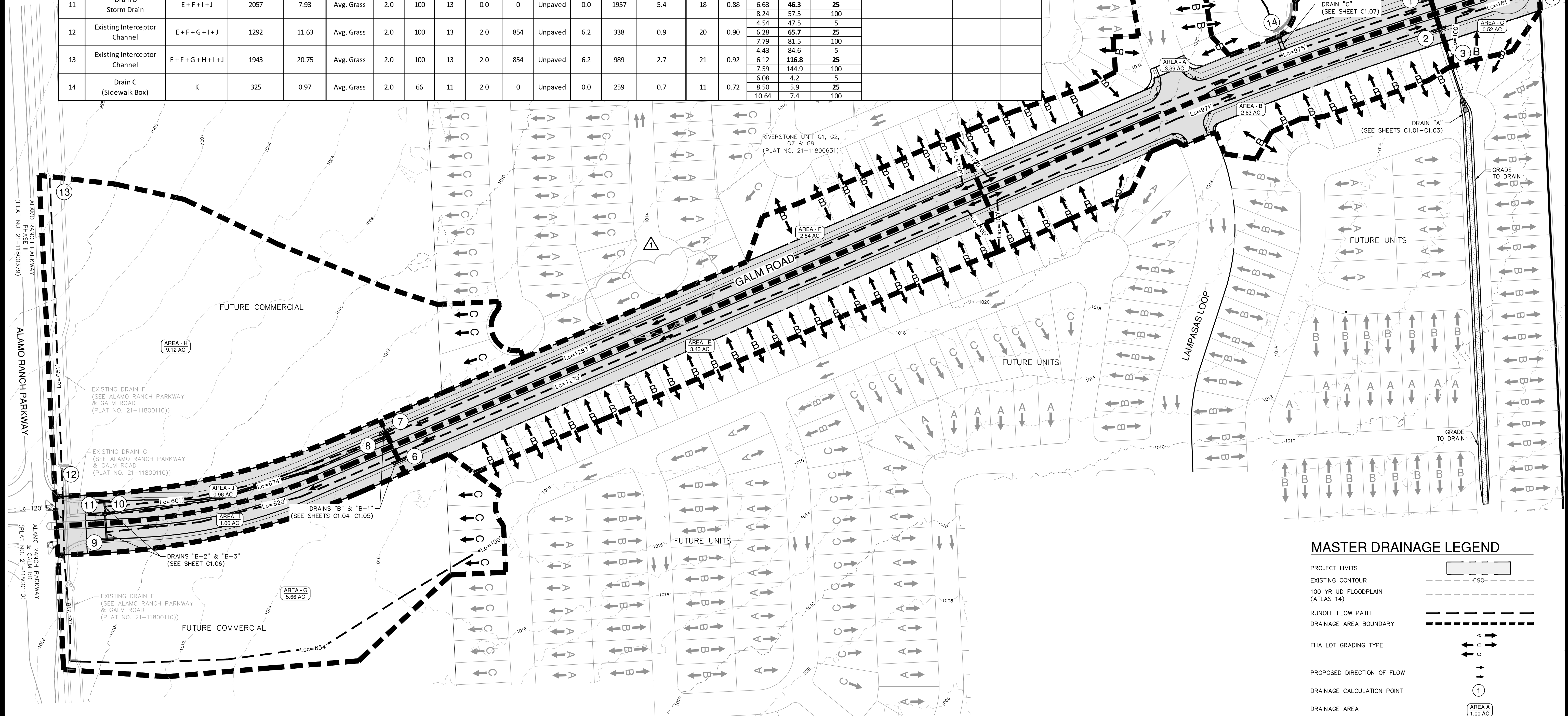
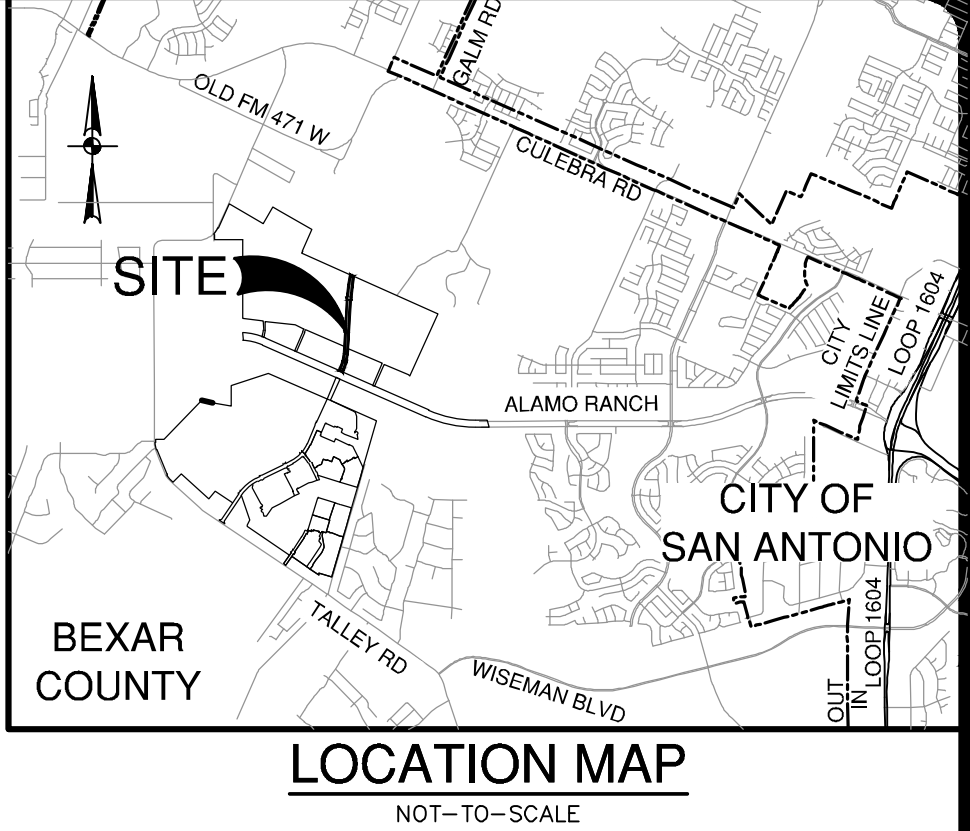
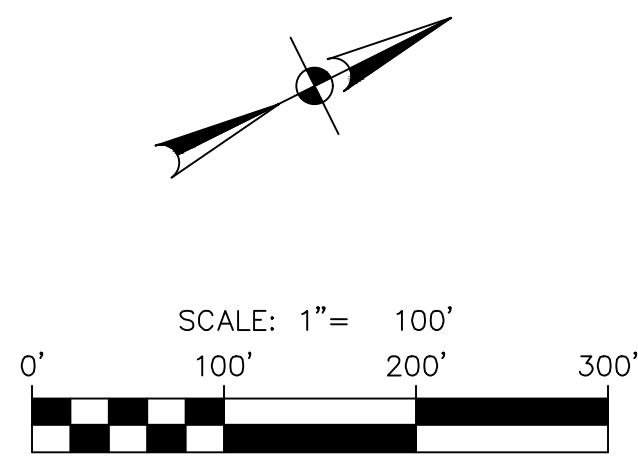
DEVELOPER'S NAME: CONTINENTAL HOMES OF TEXAS, L.P.	
ADDRESS: 5419 N LOOP 1604 E	
CITY: SAN ANTONIO	STATE: TEXAS ZIP: 78247
PHONE# (210) 496-2668	FAX#
SAWS BLOCK MAP# 082616 TOTAL EDU'S 12 TOTAL ACREAGE 10.086	
TOTAL LINEAR FOOTAGE OF PIPE 16" 506 LF 8" 34 LF	
TOTAL LINEAR FOOTAGE OF PIPE 16" 506 LF 8" 34 LF PLAT NO. 21-11800630	
NUMBER OF LOTS N/A SAWS JOB NO. 21-1262	

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Sheet Description	Sheet No.
COVER SHEET	C0.00
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DRAIN A PLAN & PROFILE (STA. 5+60.00 TO STA. 10+00.00)	C1.02
DRAIN A PLAN & PROFILE (STA. 10+00.00 TO END)	C1.03
DRAIN B PLAN & PROFILE (STA. 1+36.42 TO STA. 5+60.00)	C1.04
DRAIN B & B-1 PLAN & PROFILE ( STA. 5+60.00 TO END)	C1.05
DRAIN B-2 & B-3 PLAN & PROFILE	C1.06
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DRAINAGE DETAILS	C1.10
DRAINAGE DETAILS	C1.11
DRAINAGE DETAILS	C1.12
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GALM ROAD - PLAN & PROFILE (STA. 24+00.00 TO END)	C2.02
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OVERALL SIGNAGE PLAN	C3.00
OVERALL SIGNAGE PLAN	C3.01
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SIGNAGE DETAILS	C3.10
SIGNAGE DETAILS	C3.11
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OVERALL WATER DISTRIBUTION PLAN	C4.00
OVERALL WATER DISTRIBUTION PLAN	C4.01
WATER DISTRIBUTION PLAN DETAILS	C4.10
WATER DISTRIBUTION PLAN NOTES	C4.11
OVERALL UTILITY PLAN	C5.00
OVERALL UTILITY PLAN	C5.01
OVERALL GRADING PLAN	C6.00
STORM WATER POLLUTION PREVENTION PLAN	C7.00
STORM WATER POLLUTION PREVENTION PLAN DETAILS	C7.10



GALM ROAD PHASE IV DRAINAGE SUMMARY TABLE																						
Point	Structure	Area	Total Flow Length (ft)	Total Area (ac)	Character of Ground	Overland Flow			Shallow Concentrated				Channel Flow (6 fps)		Total					Total Q <sub>25</sub> (Q-Intercept/Bypass)	Curb Inlet	
						Slope %	L (ft)	Tc (min)	Slope %	L (ft)	Surface	Tc (min)	L (ft)	Tc (min)		Tc (min)	C	I	Q (cfs)		Frequency (yrs)	Intercept
1	Drain A 30' Curb Inlet on Grade	A	1075	3.39	Avg. Grass	2.0	100	13	0.0	0	Unpaved	0.0	975	2.7	15	0.84	5.28	15.0	5	Q = 37.0 - 2.30 - 2.28 = 32.42 cfs	18.50	2.30
																	7.32	20.8	25			
																	9.12	26.0	100			
2	Drain A 25' Curb Inlet on Grade	B	1071	2.63	Avg. Grass	2.0	100	13	0.0	0	Unpaved	0.0	971	2.7	15	0.84	5.28	11.7	5	Q = 37.0 - 2.30 - 2.28 = 32.42 cfs	13.92	2.28
																	7.32	16.2	25			
																	9.12	20.1	100			
3	Drain A Storm Drain	A + B	1155	6.02	Avg. Grass	2.0	100	13	0.0	0	Unpaved	0.0	1055	2.9	15	0.84	5.28	26.7	5	Q = 37.0 - 2.30 - 2.28 = 32.42 cfs		
																	7.32	37.0	25			
																	9.12	46.1	100			
4	Street Capacity Check	B + C	1252	3.15	Avg. Grass	2.0	100	13	0.0	0	Unpaved	0.0	1152	3.2	16	0.85	5.10	13.7	5	Q = 18.9 - 13.92 = 4.98 cfs		
																	7.07	18.9	25			
																	8.79	23.5	100			
5	Street Capcity Check	A + D	1279	4.05	Avg. Grass	2.0	100	13	0.0	0	Unpaved	0.0	1179	3.3	16	0.84	5.10	17.4	5	Q = 24.10 - 18.50 = 5.6 cfs		
																	7.07	24.1	25			
																	8.79	29.9	100			
6	Drain B 25' Curb Inlet on Grade	E	1370	3.43	Avg. Grass	2.0	100	13	0.0	0	Unpaved	0.0	1270	3.5	16	0.84	5.10	14.7	5	Q = 24.10 - 18.50 = 5.6 cfs	15.29	5.11
																	7.07	20.4	25			
																	8.79	25.3	100			
7	Drain B-1 25' Curb Inlet on Grade	F	1383	2.54	Avg. Grass	2.0	100	13	0.0	0	Unpaved	0.0	1283	3.6	16	0.89	5.10	11.5	5	Q = 36.3 - 5.11 - 2.14 = 29.05 cfs	13.86	2.14
																	7.07	16.0	25			
																	8.79	19.9	100			
8	Drain B Storm Drain	E + F	1383	5.97	Avg. Grass	2.0	100	13	0.0	0	Unpaved	0.0	1283	3.6	16	0.86	5.10	26.2	5	Q = 36.3 - 5.11 - 2.14 = 29.05 cfs		
																	7.07	36.3	25			
																	8.79	45.1	100			
9	Drain B-2 25' Curb Inlet on Grade	E + I	1990	4.43	Avg. Grass	2.0	100	13	0.0	0	Unpaved	0.0	1890	5.3	18	0.87	4.80	18.5	5	Q = 25.6 - 15.29 = 10.31 cfs	10.31	0.00
																	6.63	25.6	25			
																	8.24	31.8	100			
10	Drain B-3 20' Curb Inlet on Grade	F + J	1984	3.50	Avg. Grass	2.0	100	13	0.0	0	Unpaved	0.0	1884	5.2	18	0.91	4.80	15.3	5	Q = 21.1 - 13.86 = 7.24 cfs	7.24	0.00
																	6.63	21.1	25			
																	8.24	26.2	100			
11	Drain B Storm Drain	E + F + I + J	2057	7.93	Avg. Grass	2.0	100	13	0.0	0	Unpaved	0.0	1957	5.4	18	0.88	4.80	33.5	5			
																	6.63	46.3	25			
																	8.24	57.5	100			
12	Existing Interceptor Channel	E + F + G + I + J	1292	11.63	Avg. Grass	2.0	100	13	2.0	854	Unpaved	6.2	338	0.9	20	0.90	4.54	47.5	5			
																	6.28	65.7	25			
																	7.79	81.5	100			
13	Existing Interceptor Channel	E + F + G + H + I + J	1943	20.75	Avg. Grass	2.0	100	13	2.0	854	Unpaved	6.2	989	2.7	21	0.92	4.43	84.6	5			
																	6.12	116.8	25			
																	7.59	144.9	100			
14	Drain C (Sidewalk Box)	K	325	0.97	Avg. Grass	2.0	66	11	2.0	0	Unpaved	0.0	259	0.7	11	0.72	6.08	4.2	5			
																	8.50	5.9	25			
																	10.64	7.4	100			



DATE  
6/20/2023

NO. REVISION  
REVISED STREET TIE-IN

STATE OF TEXAS  
CALEB M. CHANCE  
PROFESSIONAL ENGINEER  
98401  
6/20/23

**PAPE-DAWSON**  
**ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TYPE FIRM REGISTRATION #470 | TBPUS FIRM REGISTRATION #10028800

**GALM ROAD PH IV**  
**SAN ANTONIO, TEXAS**

**MASTER DRAINAGE PLAN**

PLAT NO. 21-11800630

JOB NO. 11680-48

DATE NOVEMBER 2022

DESIGNER KQ

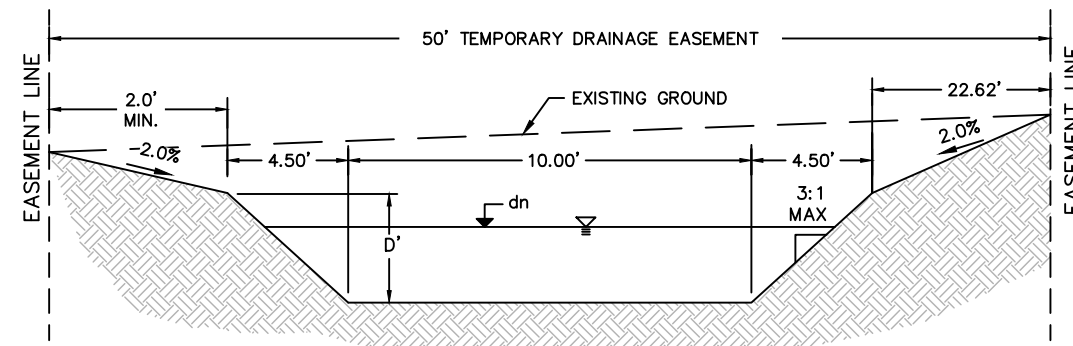
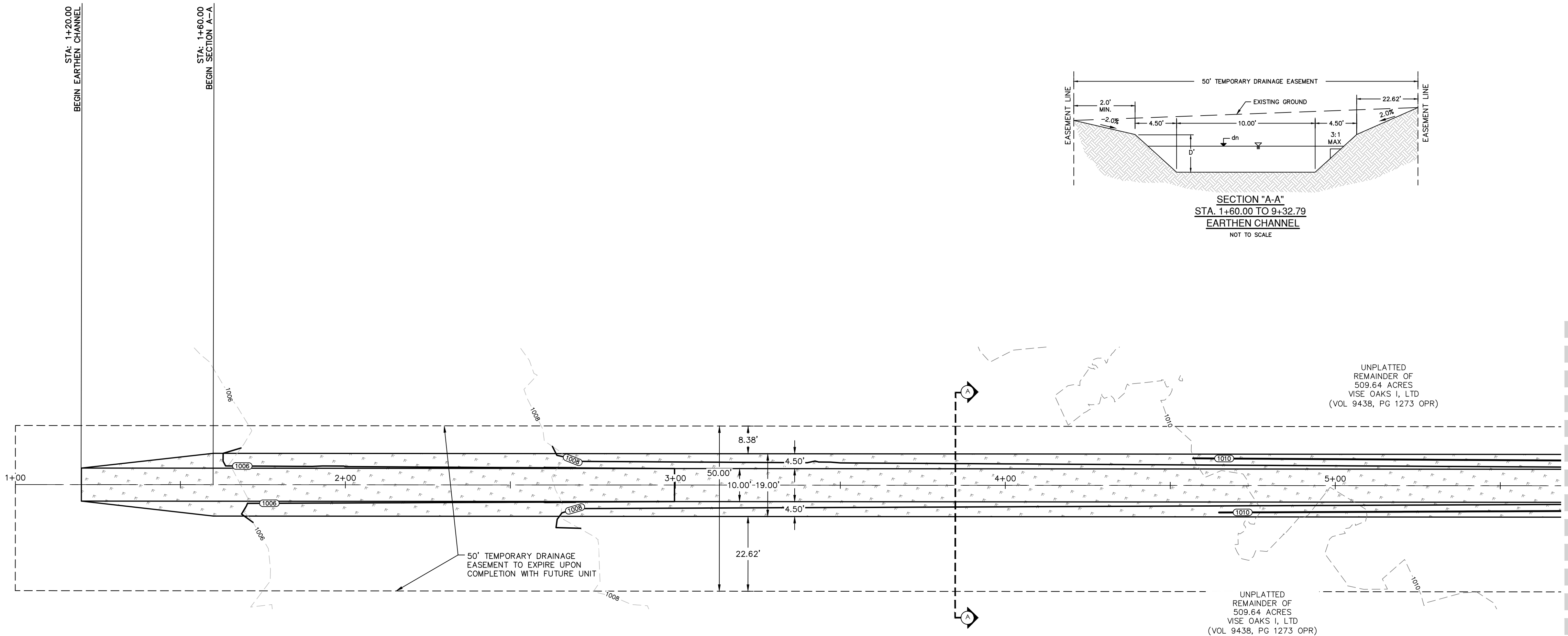
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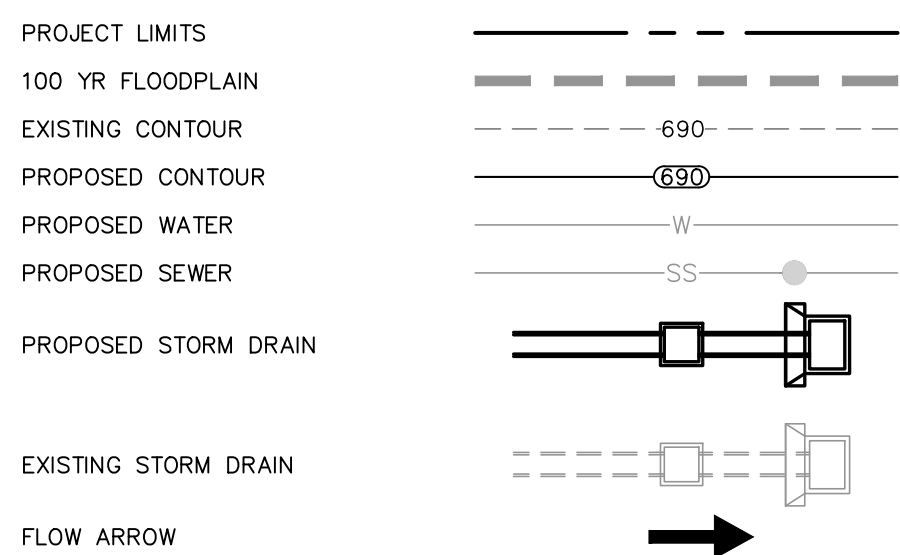


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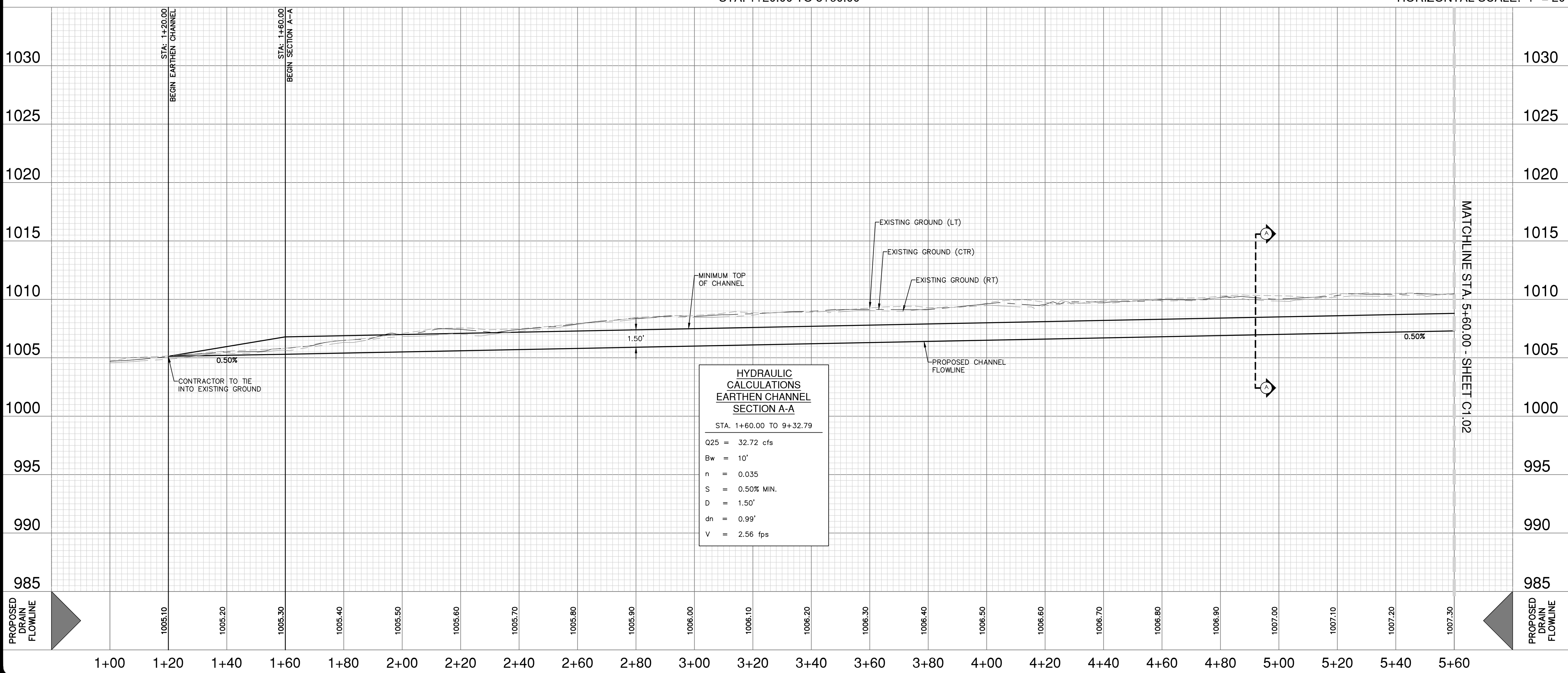


### DRAINAGE LEGEND



DRAIN "A"  
STA. 1+20.00 TO 5+60.00

VERTICAL SCALE: 1" = 5'  
HORIZONTAL SCALE: 1" = 20'



HYDRAULIC  
CALCULATIONS  
EARTHEN CHANNEL  
SECTION A-A  
STA. 1+60.00 TO 9+32.79

Q25 = 32.72 cfs  
Bw = 10'  
n = 0.035  
S = 0.50% MIN.  
D = 1.50'  
dn = 0.99'  
V = 2.56 fps

### DRAINAGE & GRADING NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
2. ALL CONCRETE FOR TxDOT DRAINAGE STRUCTURES SHALL MEET TxDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
3. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
4. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
5. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
6. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.

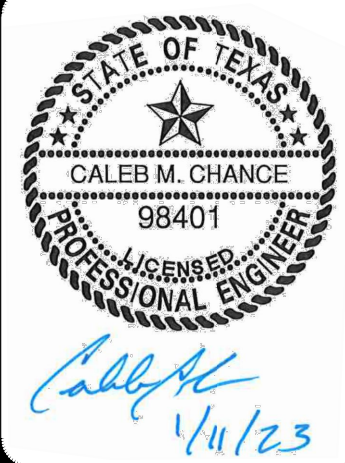
### TRENCH EXCAVATION SAFETY PROTECTION:

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.

### CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING 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.

NO.	REVISION	DATE



**PAPE-DAWSON  
ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TPE FIRM REGISTRATION #470 | TPE FIRM REGISTRATION #10028800

**GALM ROAD PH IV**  
SAN ANTONIO, TEXAS

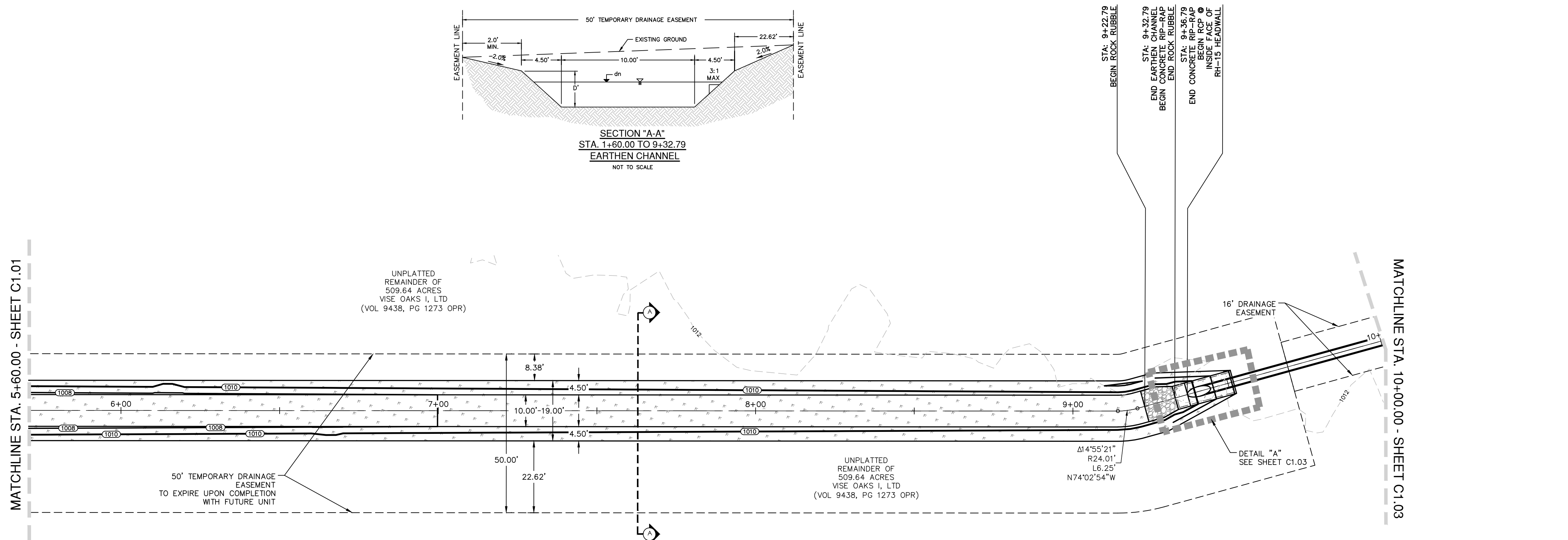
DRAIN A PLAN & PROFILE (STA. 1+20.00 TO STA. 5+60.00)

PLAT NO.	21-11800630
JOB NO.	11680-48
DATE	NOVEMBER 2022
DESIGNER	KQ
CHECKED	BL
DRAWN	KQ
SHEET	C1.01

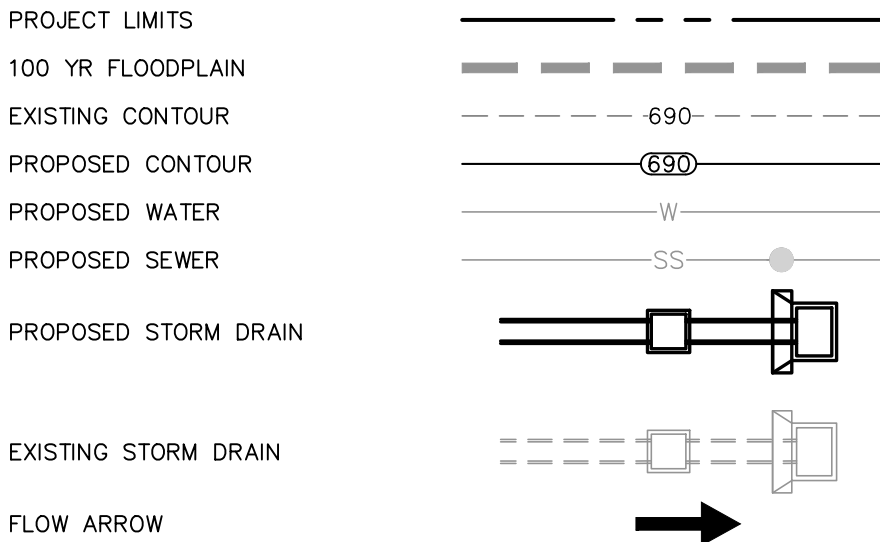


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### DRAINAGE LEGEND



**PAPE-DAWSON ENGINEERS**

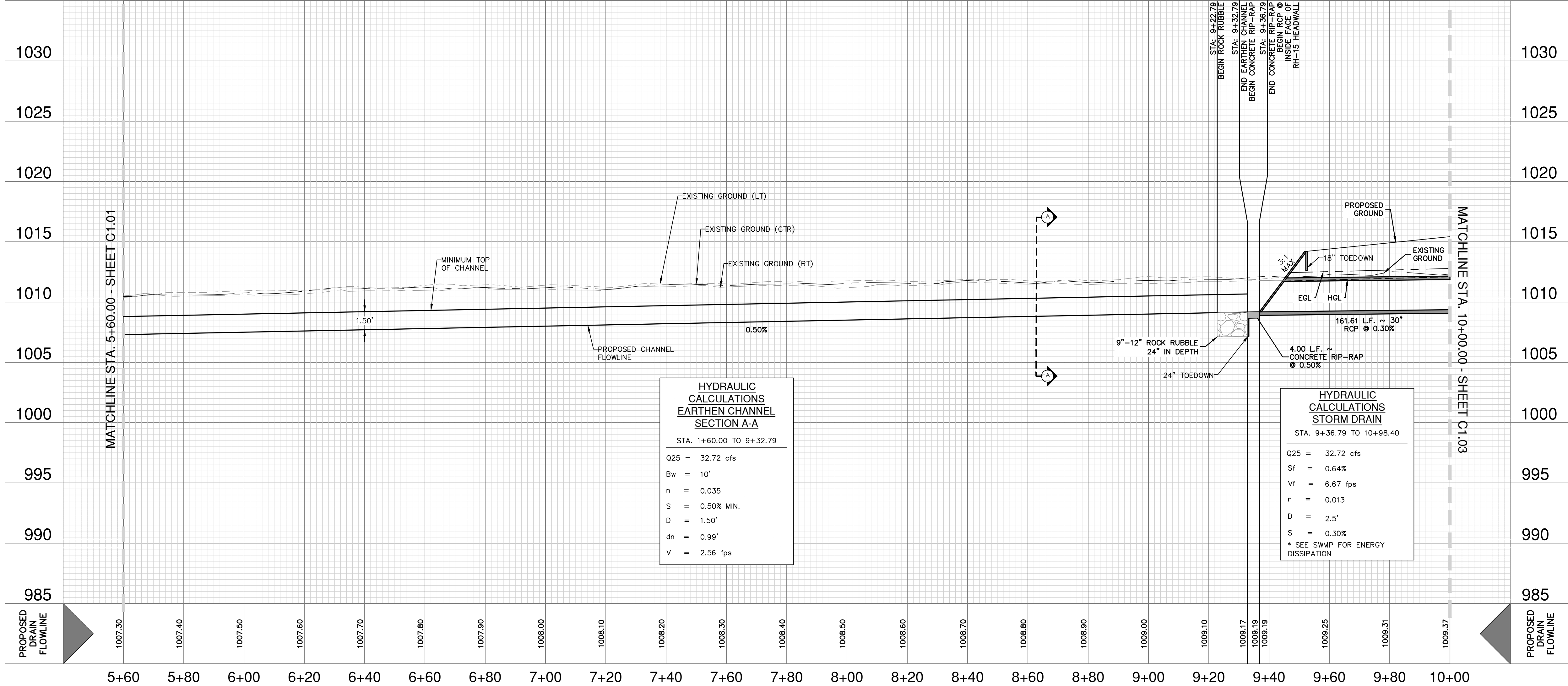
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TXPE FIRM REGISTRATION #470 | TBPUS FIRM REGISTRATION #10028800

**GALM ROAD PH IV**  
SAN ANTONIO, TEXAS

DRAIN A PLAN & PROFILE (STA. 5+60.00 TO STA. 10+00.00)

DRAIN "A"  
STA. 5+60.00 TO 10+00.00

VERTICAL SCALE: 1" = 5'  
HORIZONTAL SCALE: 1" = 20'



### DRAINAGE & GRADING NOTES:

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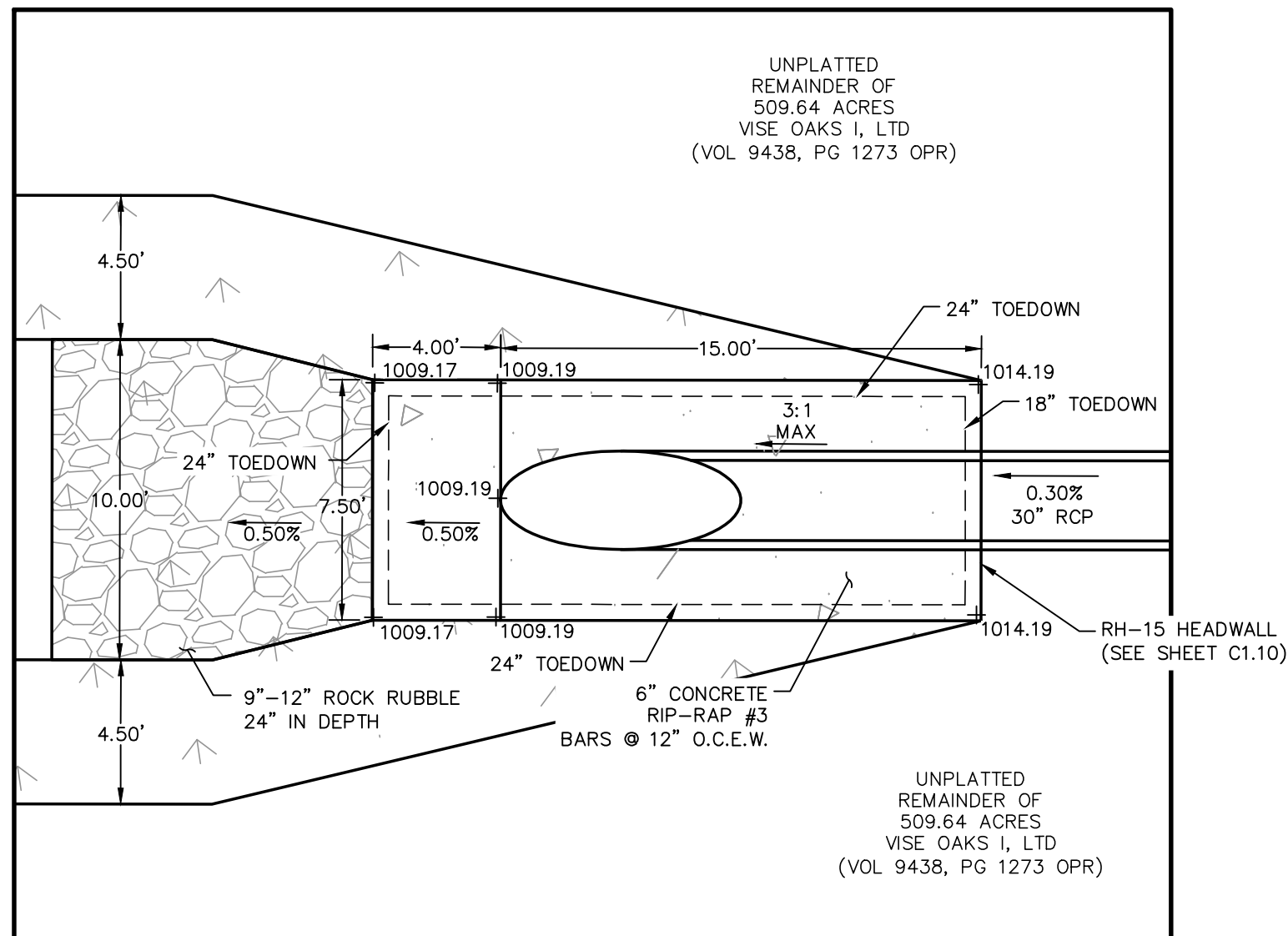
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PLAT NO. 21-11800630  
JOB NO. 11680-48  
DATE NOVEMBER 2022  
DESIGNER KQ  
CHECKED BL DRAWN KQ  
SHEET C1.02

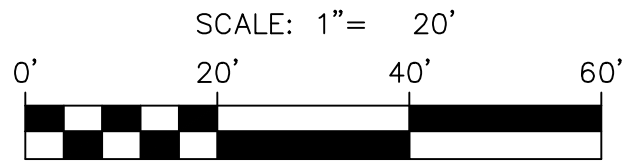
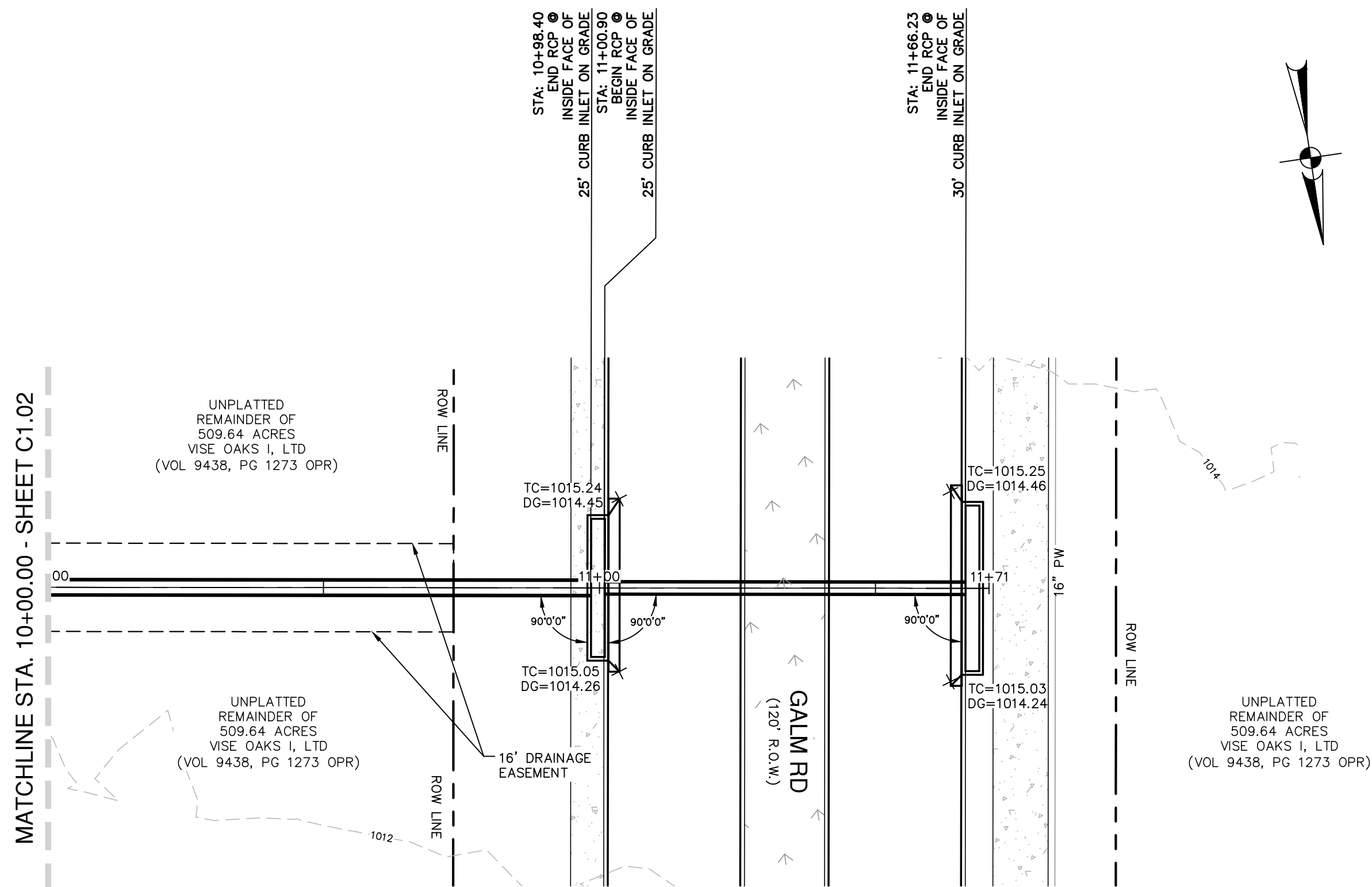


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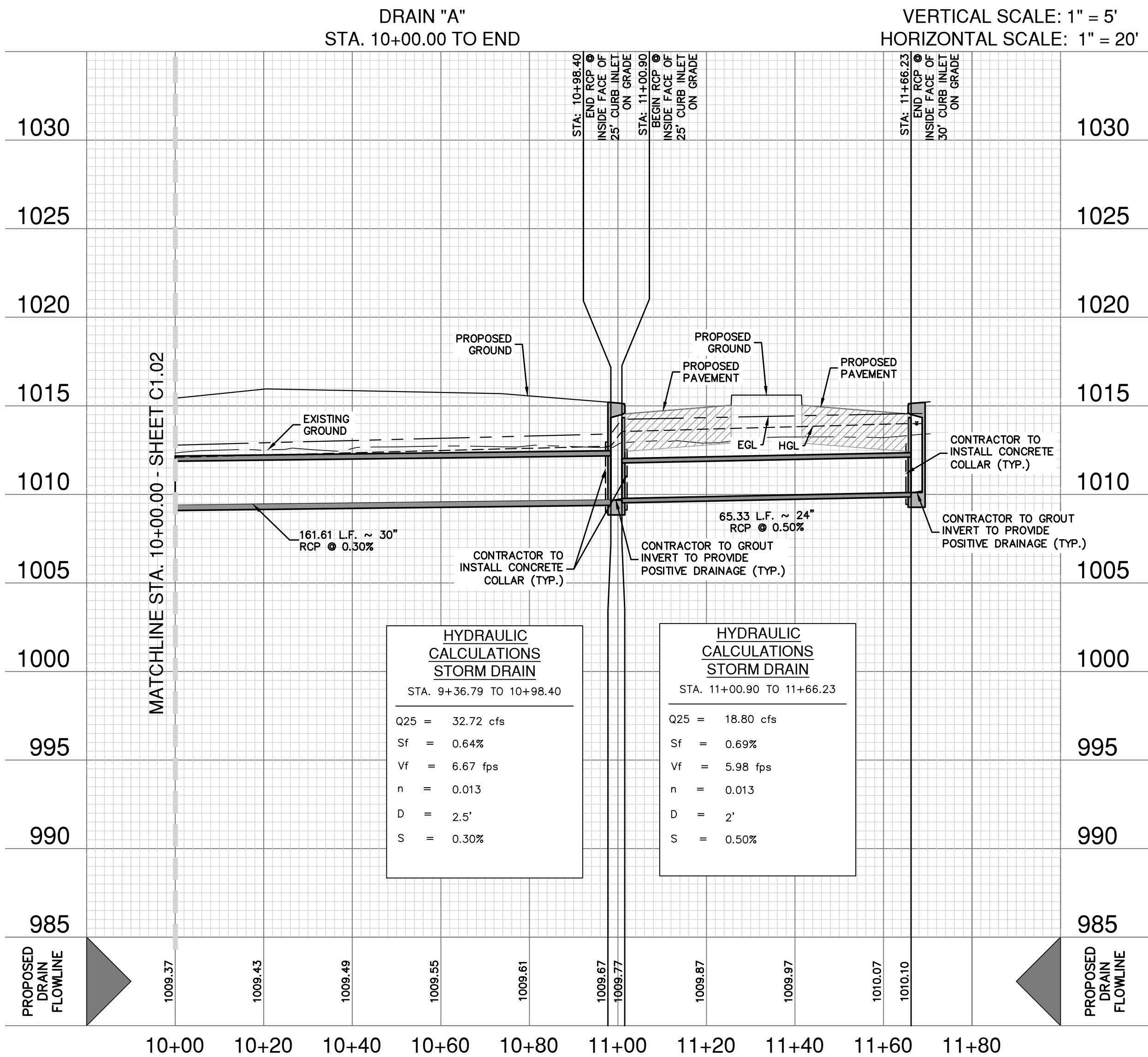
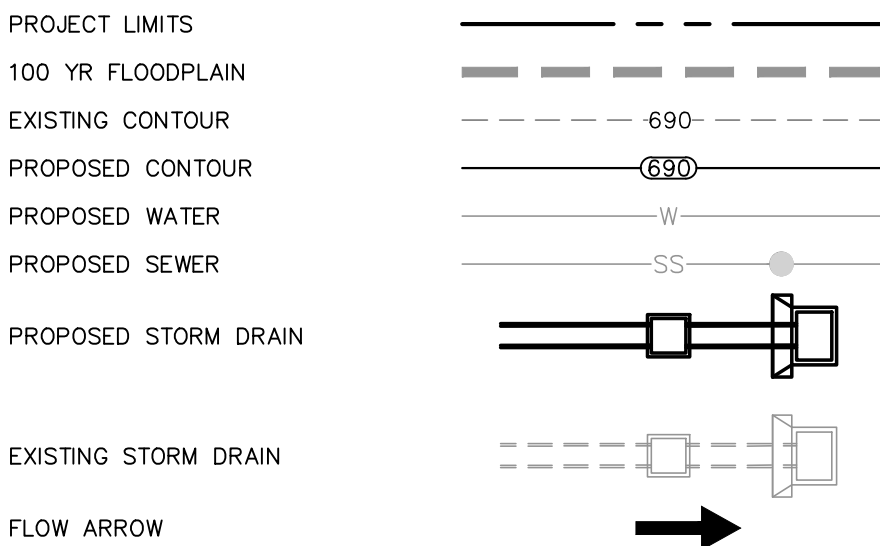
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DETAIL "A"  
SCALE: 1" = 5'



### DRAINAGE LEGEND



### DRAINAGE & GRADING NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
2. ALL CONCRETE FOR TxDOT DRAINAGE STRUCTURES SHALL MEET TxDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
3. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
4. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
5. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
6. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.

### 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.

### CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING 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.

**PAPE-DAWSON  
ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TYPE FIRM REGISTRATION #470 | TBPUS FIRM REGISTRATION #10028890

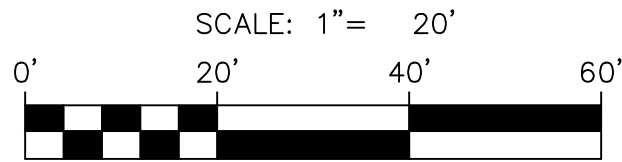
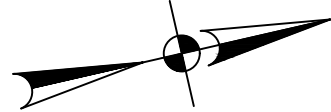
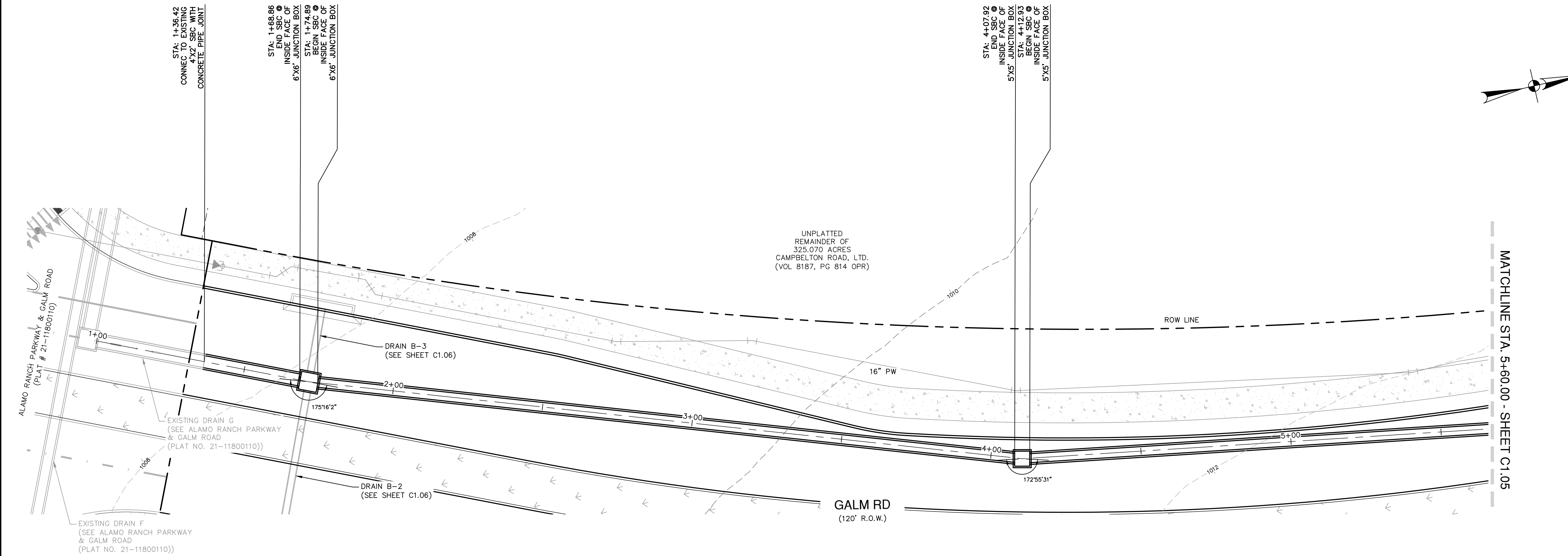
**GALM ROAD PH IV**  
SAN ANTONIO, TEXAS  
DRAIN A PLAN & PROFILE (STA. 10+00.00 TO END)

PLAT NO. 21-11800630  
JOB NO. 11680-48  
DATE NOVEMBER 2022  
DESIGNER KQ  
CHECKED BL DRAWN KQ  
SHEET C1.03

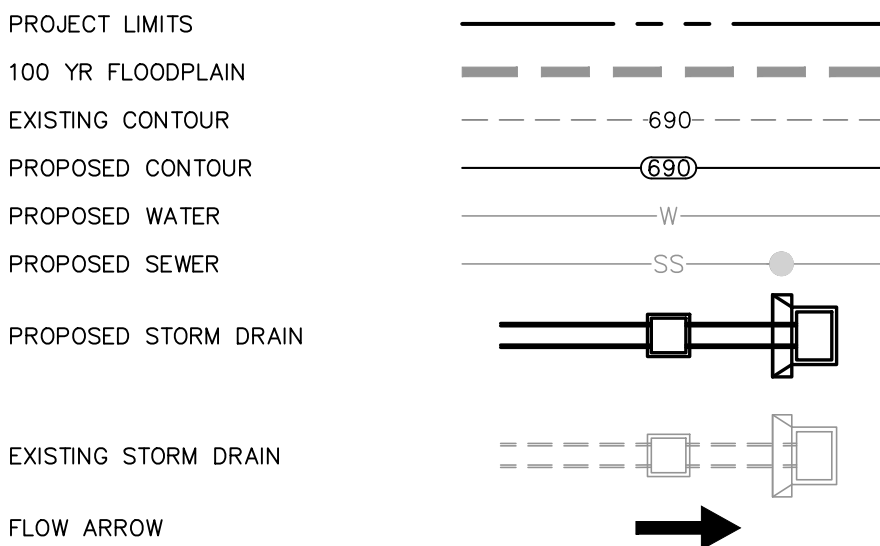


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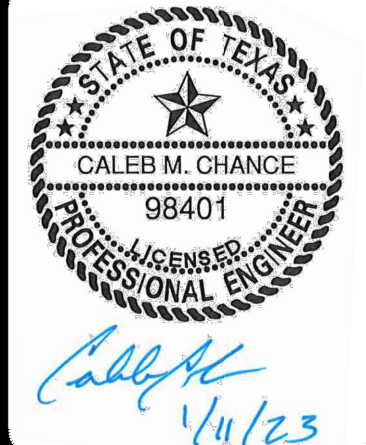
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### DRAINAGE LEGEND



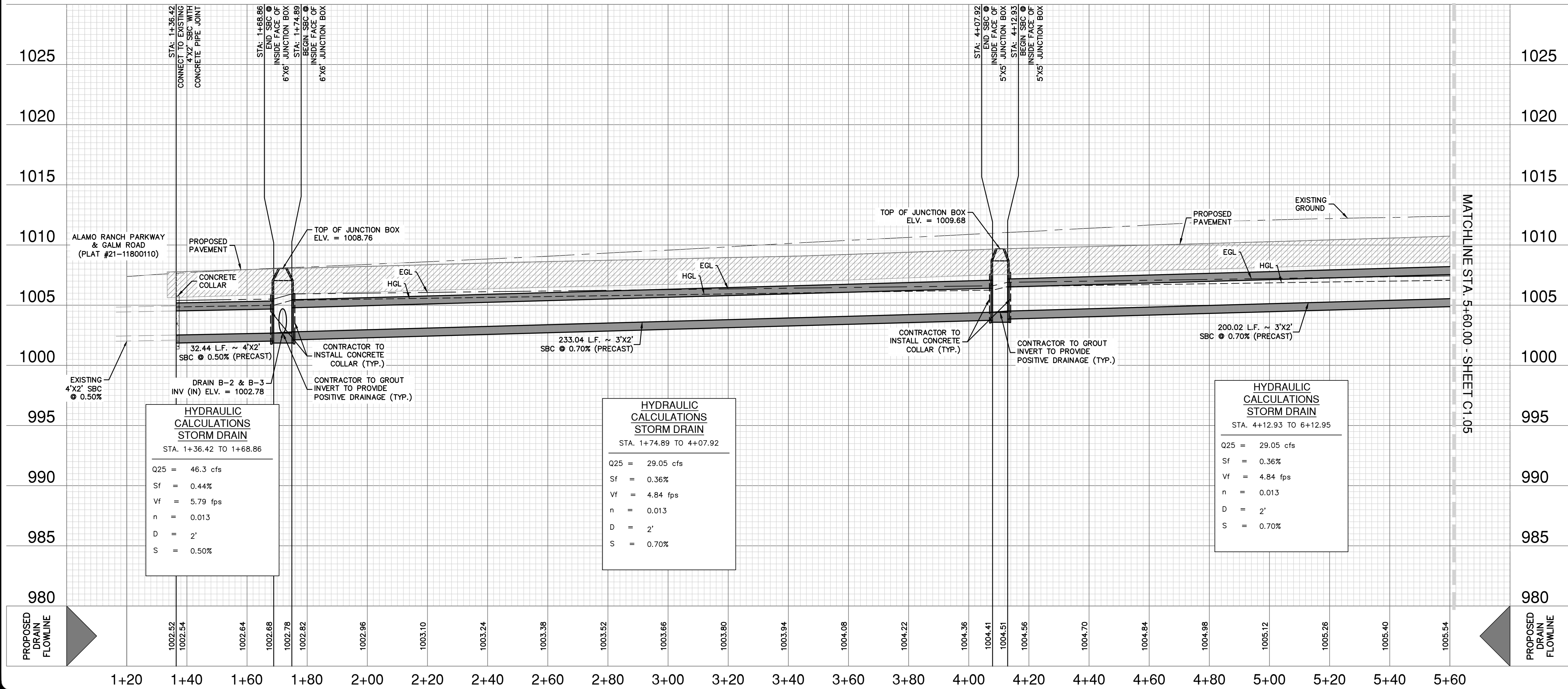
NO.	REVISION	DATE



**PAPE-DAWSON ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TXPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

DRAIN "B"  
STA. 1+36.42 TO 5+60.00

VERTICAL SCALE: 1" = 5'  
HORIZONTAL SCALE: 1" = 20'



### DRAINAGE & GRADING NOTES:

- THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
- ALL CONCRETE FOR TxDOT DRAINAGE STRUCTURES SHALL MEET TxDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
- REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
- CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
- EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
- CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.

### TRENCH EXCAVATION SAFETY PROTECTION:

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### CAUTION!!

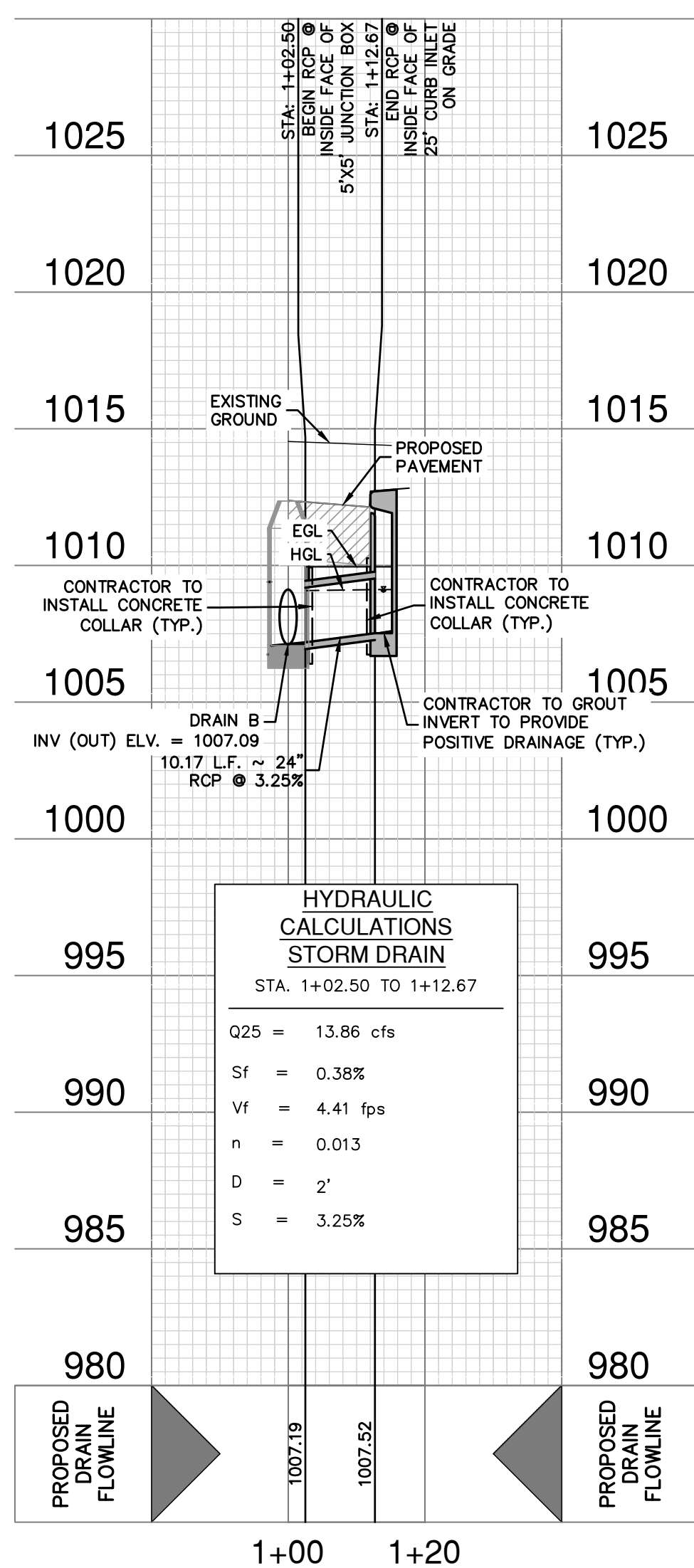
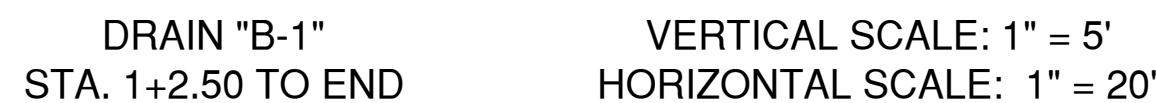
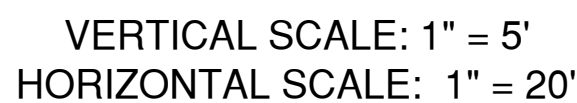
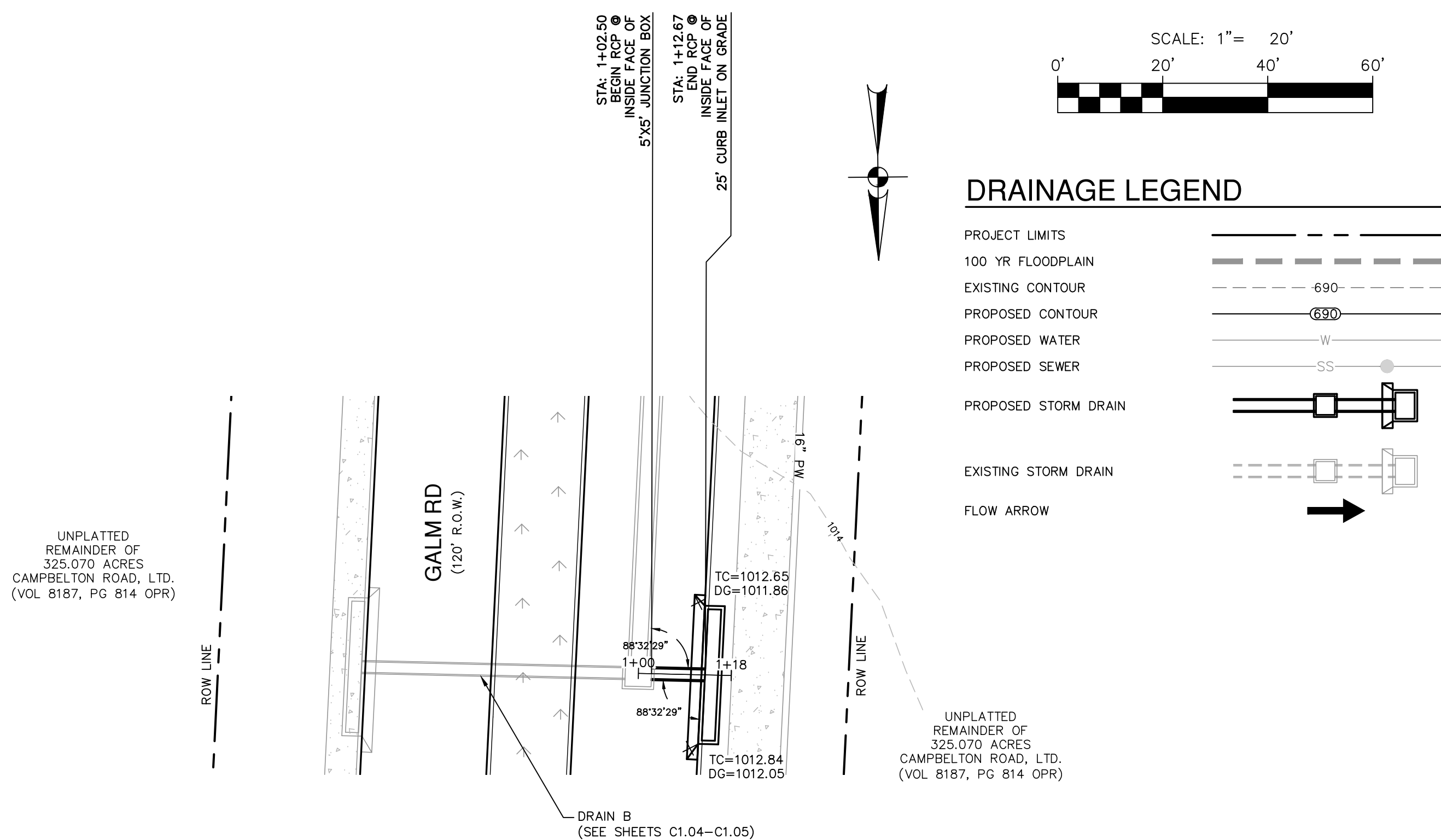
CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE 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.

**GALM ROAD PH IV**  
SAN ANTONIO, TEXAS

DRAIN B PLAN & PROFILE (STA. 1+36.42 TO STA. 5+60.00)

PLAT NO.	21-11800630
JOB NO.	11680-48
DATE	NOVEMBER 2022
DRAWN	KQ
CHECKED	BL
SHEET	C1.04

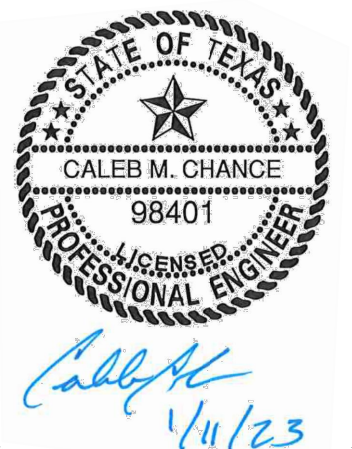




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2. ALL CONCRETE FOR TxDOT DRAINAGE STRUCTURES SHALL MEET TxDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
3. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
4. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
5. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
6. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.

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 ADVISE THE INSTALLATION OF THE TRENCH AND  
PROJECT WORK AREA IN ORDER TO ACHIEVE THE 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 PROCEDURES SHALL BE IN ACCORDANCE WITH THE OSHA AND  
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 THE TRENCH SAFETY PROGRAM IN  
CONJUNCTION WITH OSHA STANDARDS REGARDING PRELIMINARY  
ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRIC, 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 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ALL EXISTING UTILITIES SHALL BE RELOCATED OR SOLELY REPAIRED BY THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

[illegible]

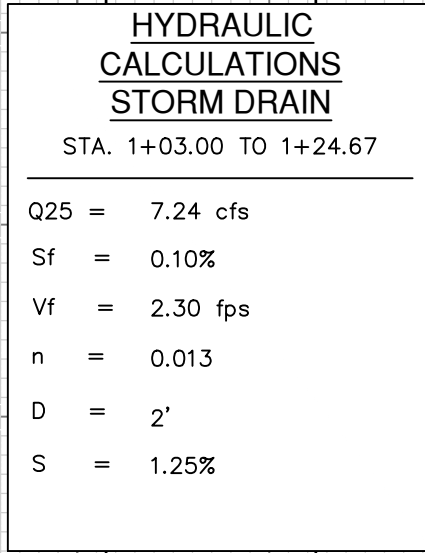
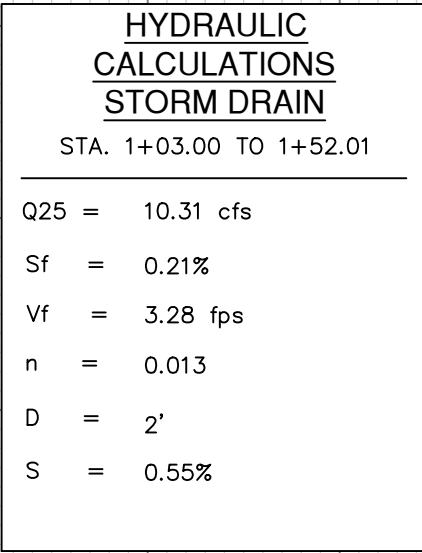
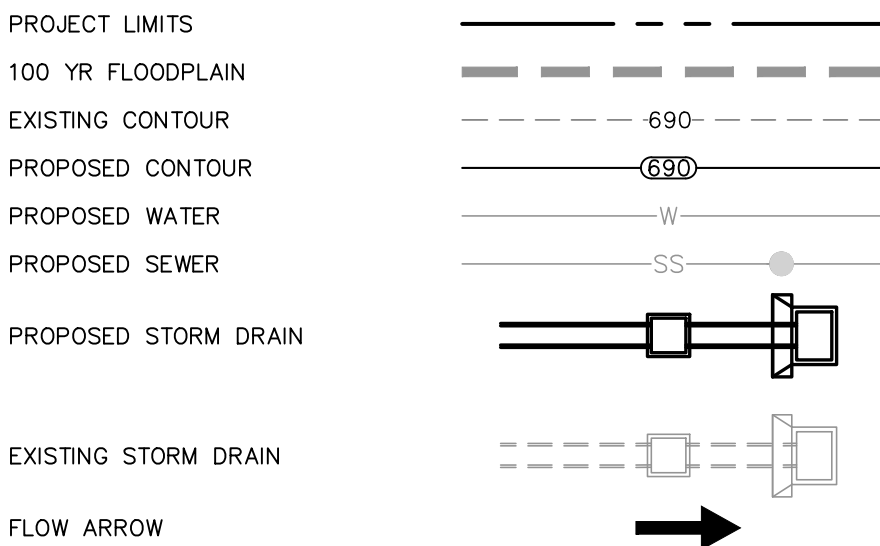
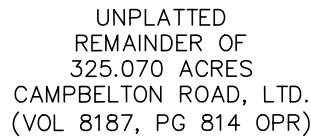
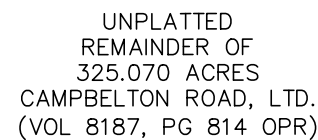
**PAPE-DAWSON**  
**PE ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TPE FIRM REGISTRATION #470 | TPPLS FIRM REGISTRATION #10028800

**GALM ROAD PH IV**  
**SAN ANTONIO, TEXAS**

DRAIN B &amp; B-1 PLAN &amp; PROFILE ( STA. 5+60.00 TO END)

PLAT NO. 21-11800630  
 JOB NO. 11680-48  
 DATE NOVEMBER 2022  
 DESIGNER KQ  
 CHECKED BL DRAWN KQ  
 SHEET C1.05





**DRAINAGE & GRADING NOTES:**

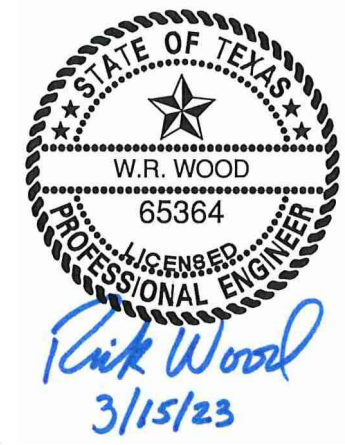
1. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHE ON THE PROJECT OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION OF ANY UTILITY. EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
2. ALL CONCRETE FOR TxDOT DRAINAGE STRUCTURES SHALL MEET TxDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
3. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
4. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
5. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 80% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
6. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.

### 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 RETAINED INSPECTION AUTHORITY SHALL REVIEW  
PROJECT WORK ARE 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 PROCEDURES SHALL BE IN ACCORDANCE WITH THE TRENCH SAFETY  
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 TRENCH SAFETY PROGRAM IN  
CONFORMANCE WITH OSHA STANDARDS AND TRENCH SAFETY PRECAUTION  
ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

**CAUTION!!**

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRIC 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 A 800-DIG-ESSA MINIMUM OF 48 HOURS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE 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.



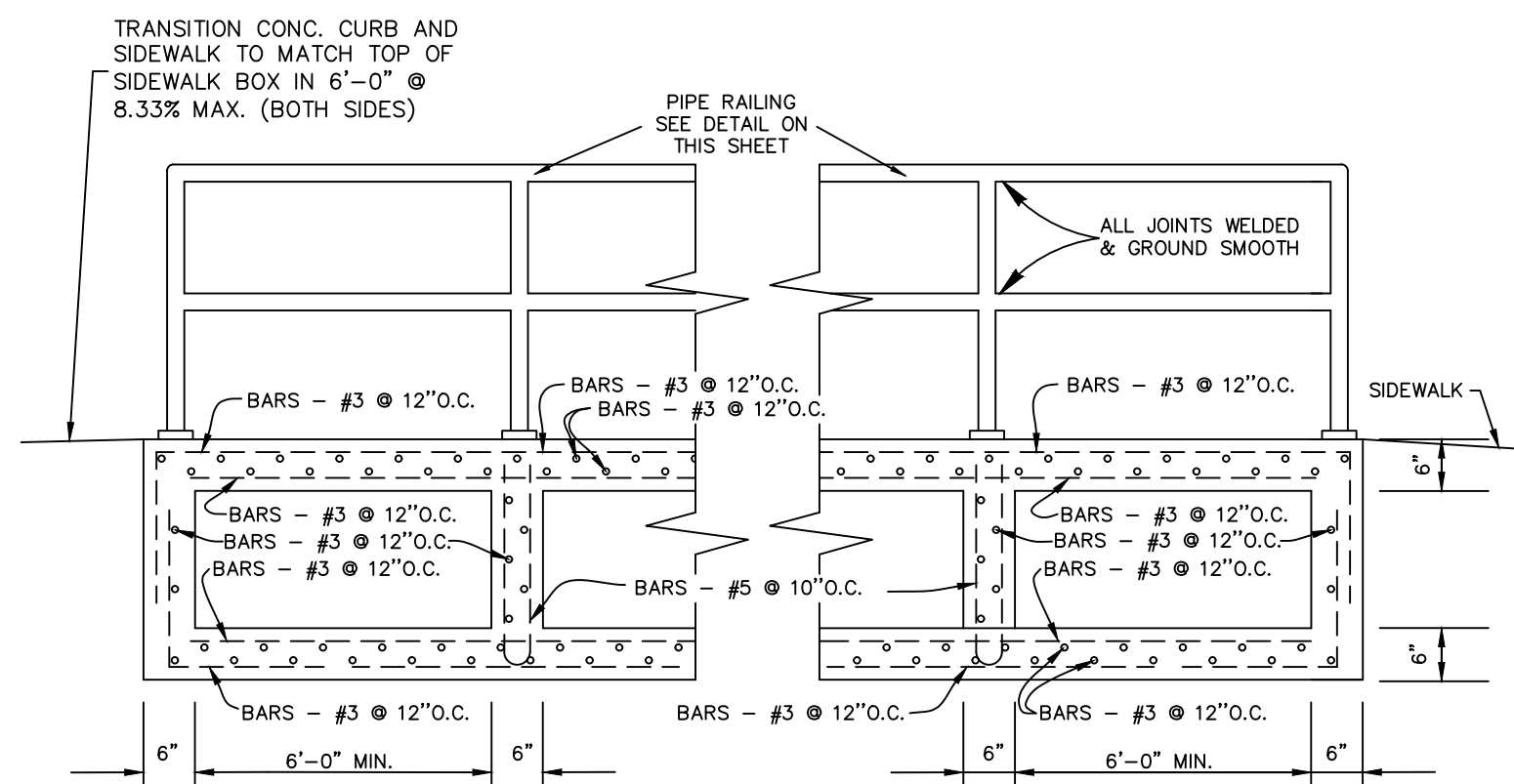
**PAPE-DAWSON  
ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TBE FIRM REGISTRATION #470 | TEPBS FIRM REGISTRATION #10028600

# GALM ROAD PH IV SAN ANTONIO, TEXAS

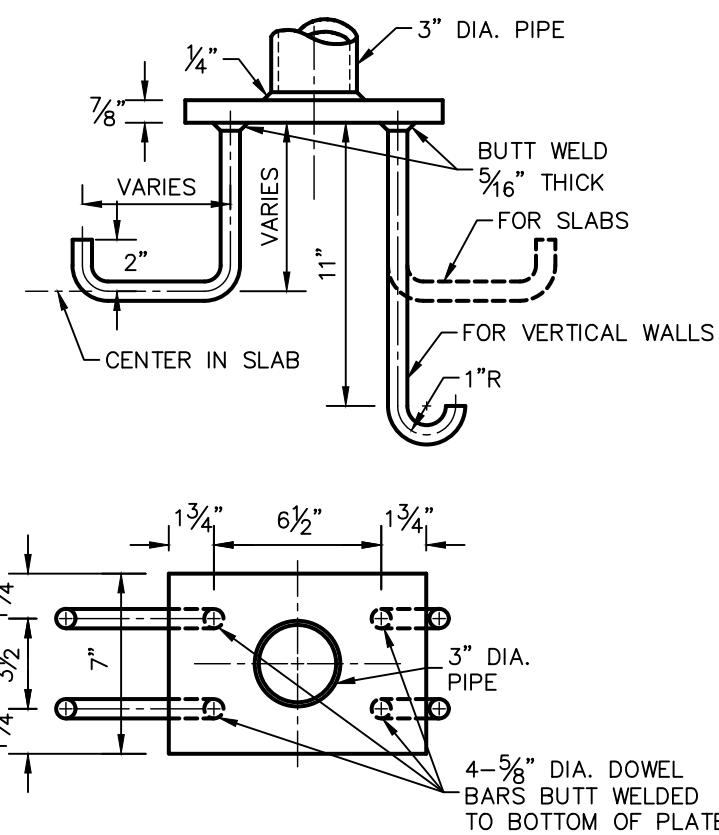
PLAT NO. 21-11800630  
JOB NO. 11680-48  
DATE NOVEMBER 2022  
DESIGNER KQ  
CHECKED BL DRAWN KQ  
SHEET C1.06



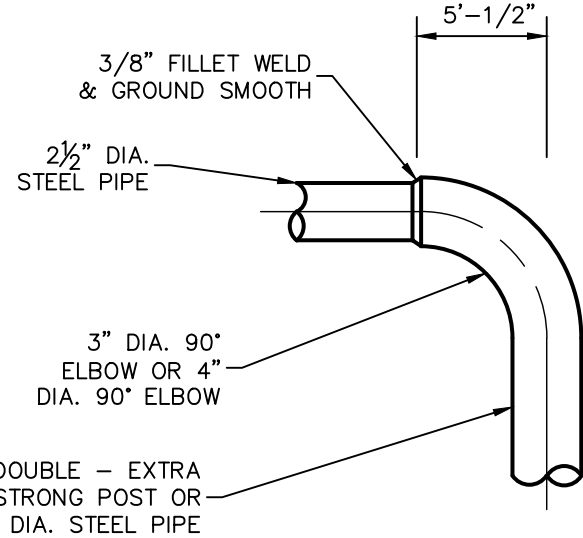


NOTE: ALL CONSTRUCTION OF HANDRAIL SHALL FOLLOW  
BEXAR COUNTY STANDARD SPECIFICATIONS FOR PUBLIC  
WORKS CONSTRUCTION.

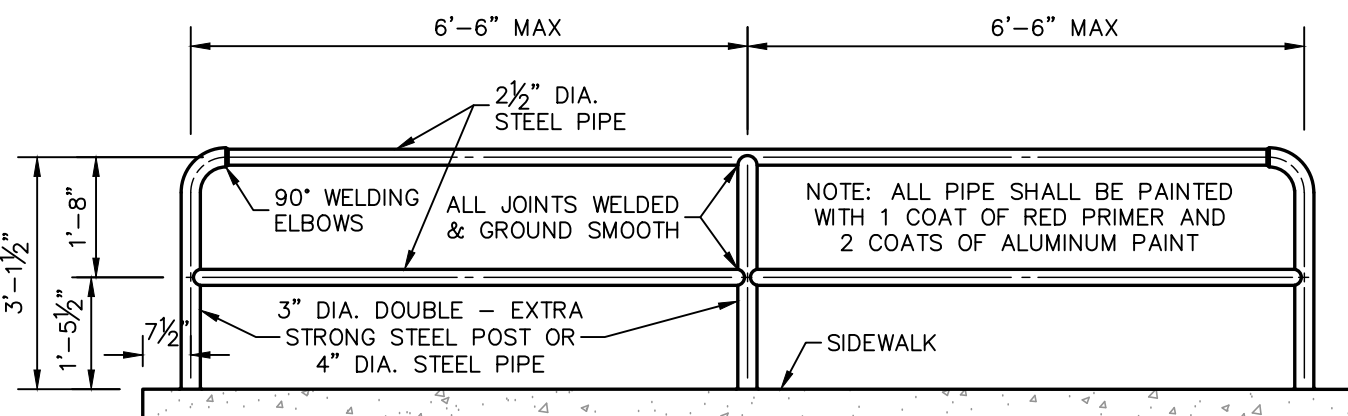
**SIDEWALK BOX**  
NOT-TO-SCALE



**PIPE ANCHORAGE  
DETAIL**  
NOT-TO-SCALE

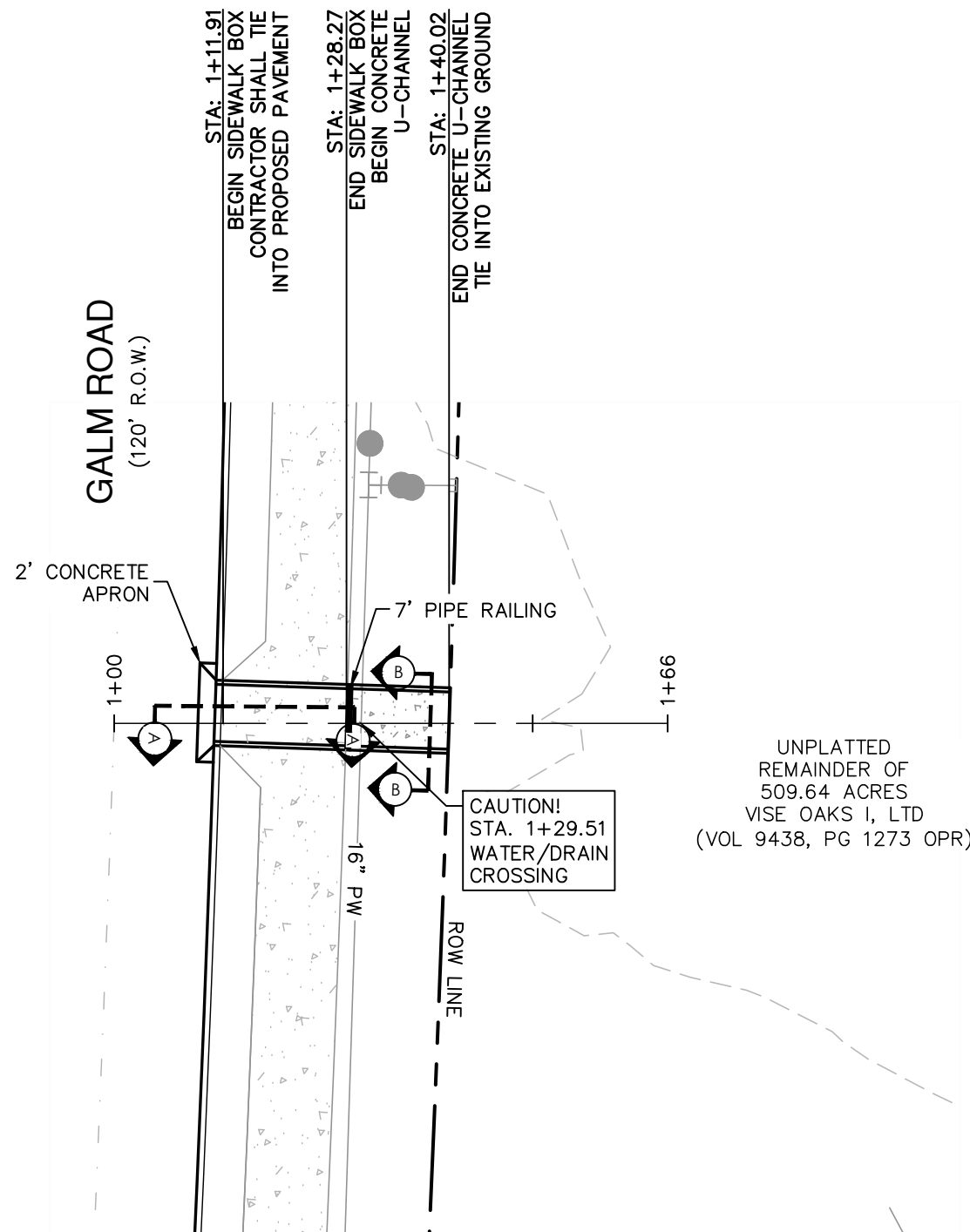


**DETAIL OF 90°  
WELDING ELBOW**  
NOT-TO-SCALE



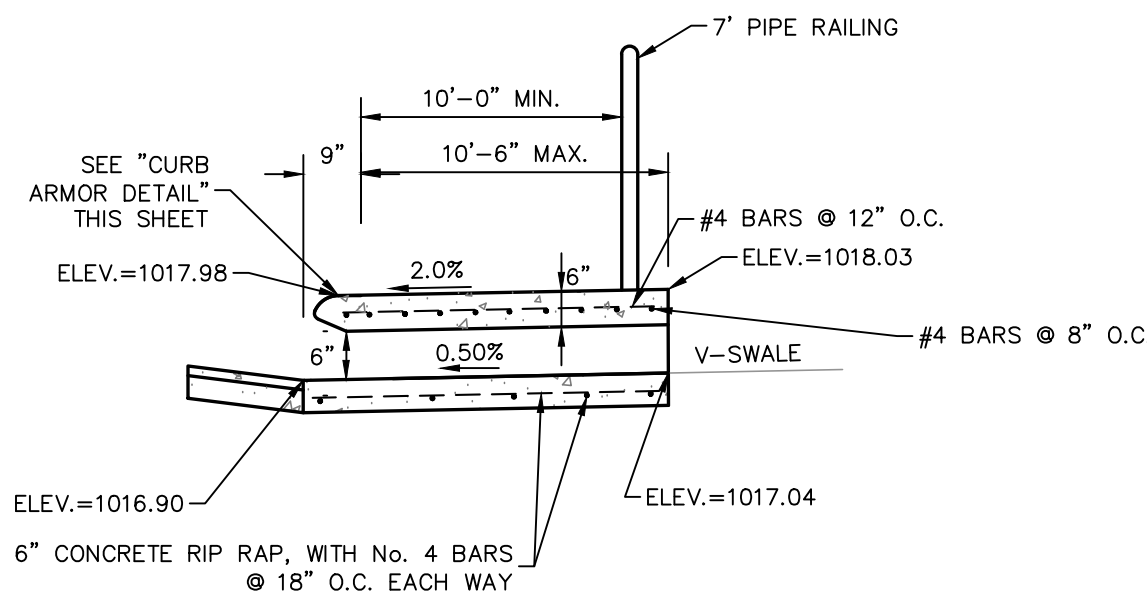
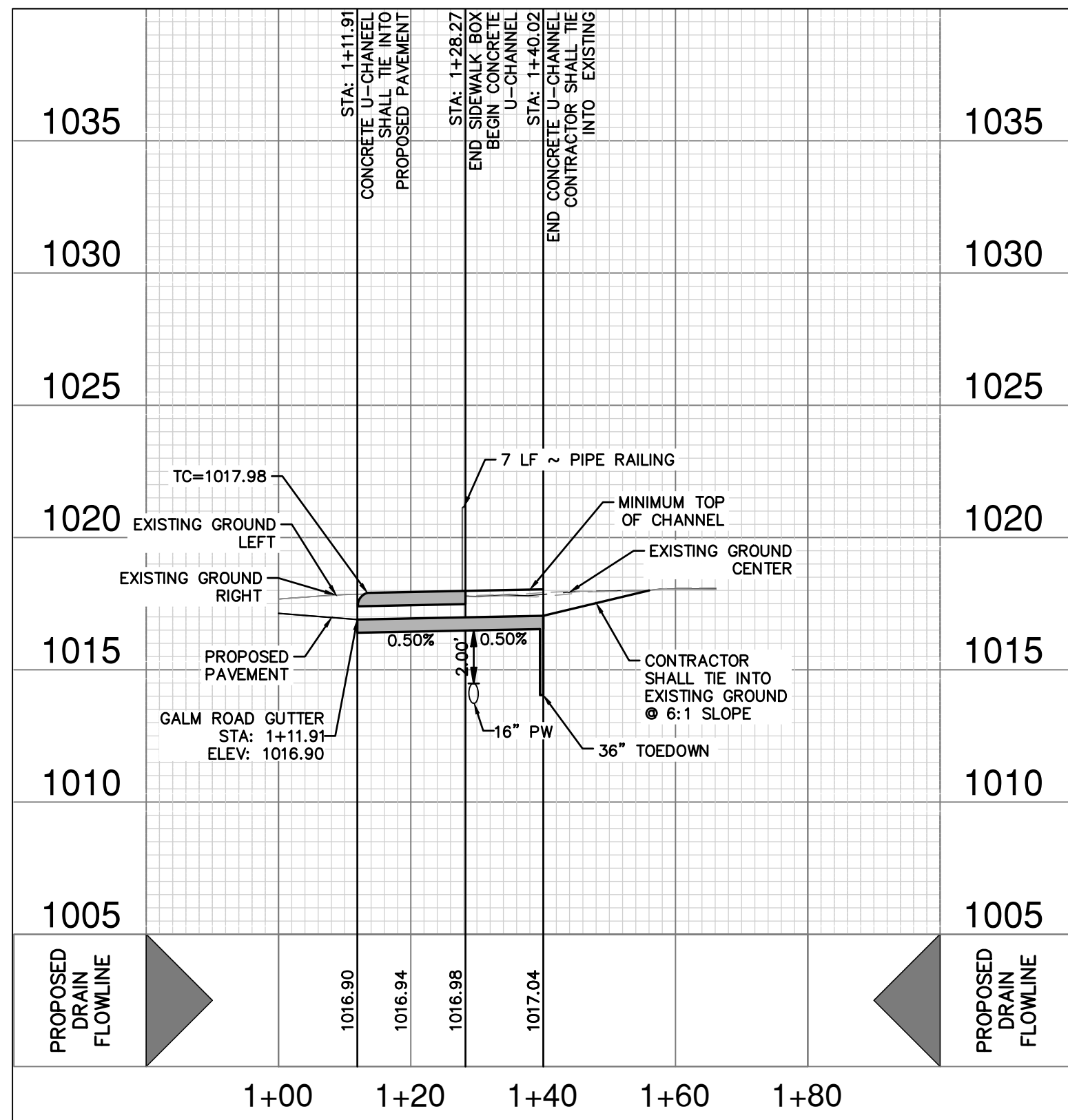
NOTE: ALL CONSTRUCTION OF HANDRAIL SHALL FOLLOW  
THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS FOR PUBLIC  
WORKS CONSTRUCTION.

**PIPE RAILING DETAIL**  
NOT-TO-SCALE

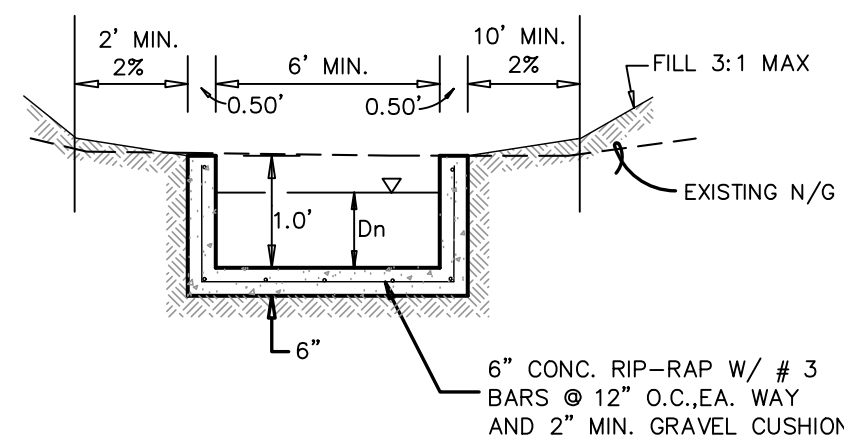


**DRAIN "C"**  
STA. 1+11.91 TO END

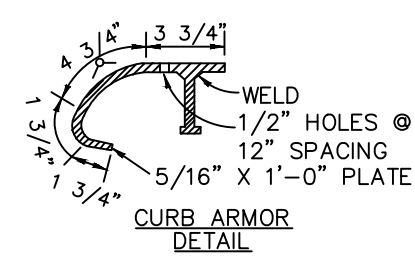
**VERTICAL SCALE: 1" = 5'**  
**HORIZONTAL SCALE: 1" = 20'**



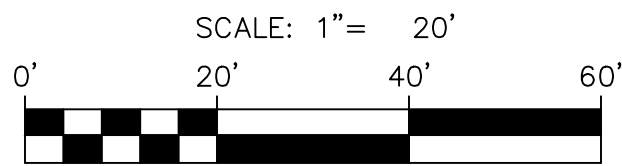
**SIDEWALK BOX DETAIL SECTION "A-A"**  
NOT-TO-SCALE



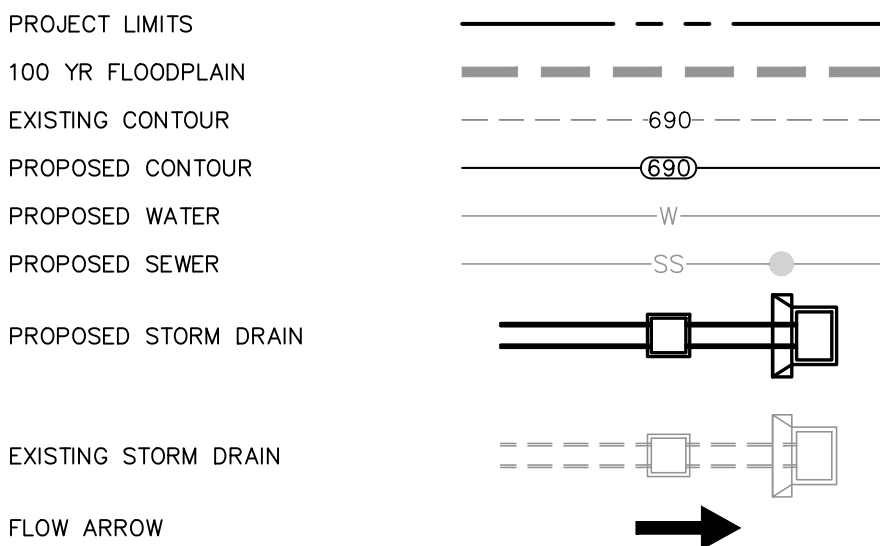
**SECTION "B-B"**  
STA 1+11.91 TO 1+40.02  
**PROPOSED CONCRETE U-CHANNEL**  
NOT TO SCALE



**CURB ARMOR  
DETAIL**



## DRAINAGE LEGEND



## HYDRAULIC CALCULATIONS CONCRETE U-CHANNEL

STA. 1+11.91 TO 1+40.02

Q25 = 5.9 cfs  
Bw = 6'  
n = 0.015  
S = 0.50%  
D = 1.00'  
Dn = 0.32'  
V = 3.07 fps

## DRAINAGE & GRADING NOTES:

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5. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
6. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.

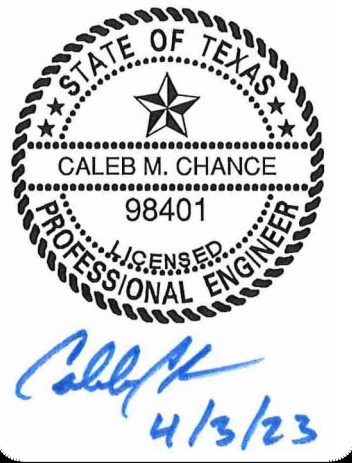
## TRENCH EXCAVATION SAFETY PROTECTION:

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.

## CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING 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.

DATE	
NO.	
REVISION	



**PAPE-DAWSON  
ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TYPE FIRM REGISTRATION #470 | TBPUS FIRM REGISTRATION #10028800

**GALM ROAD PH IV**  
SAN ANTONIO, TEXAS

**DRAIN C PLAN & PROFILE (STA. 1+11.91 TO END)**

PLAT NO.	21-11800630
JOB NO.	11680-48
DATE	NOVEMBER 2022
DESIGNER	CV
CHECKED	BL DRAWN CV
SHEET	C1.07



# TOP SECTION

PERSONNEL OPENING SIZE OR CAST IN RING AND COVER AS REQUIRED BY CUSTOMER SEE NECK EXTENSION AND COVER DETAILS FOR FEATURES AVAILABLE.

# CENTER SECTION

# BOTTOM SECTION

APPROXIMATE TOP SECTION WEIGHT 1200 LBS.

THINWALL KNOCKOUTS TYPICAL ALL WALLS

# GRouted INVERT DETAIL

NOT-TO-SCALE

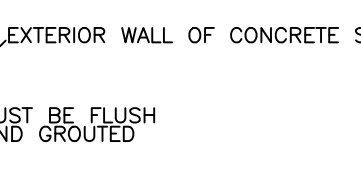
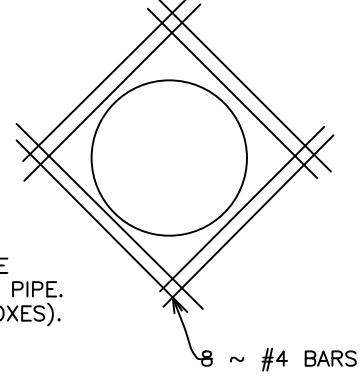
# TYPICAL PRECAST JUNCTION BOX

NOT-TO-SCALE

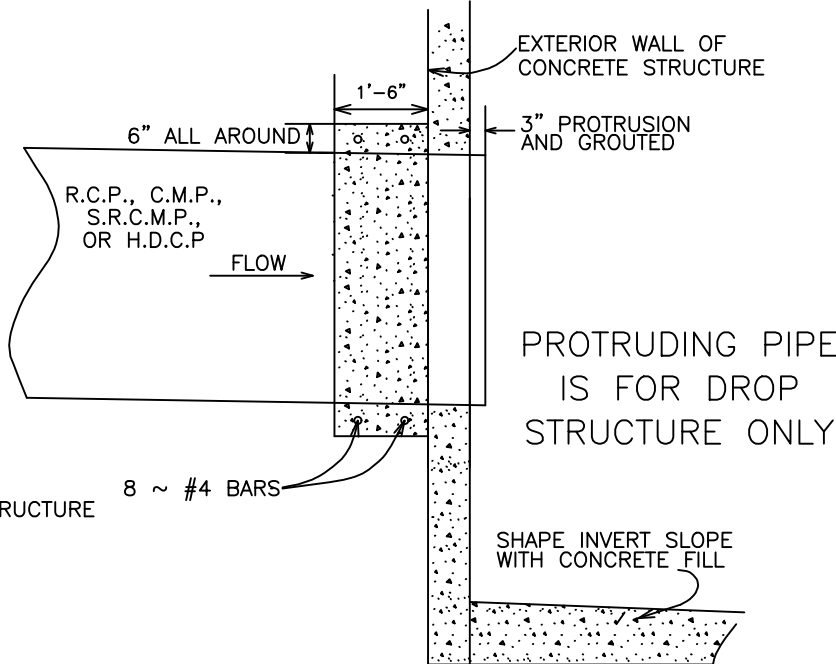
1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A," 3,000 P.S.I. AT 28 DAYS.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE, ASTM, A-15, THE DEFORMATION SHALL CONFORM TO ASTM, A-305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD-CUT.
6. WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM LAP OF 33 DIAMETERS SHALL BE USED.
7. INVERT OF JUNCTION BOX TO BE SHAPED WITH CONCRETE FILL (3,000 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE. COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).

# CONCRETE COLLAR DETAIL

(NOT TO SCALE)



PIPE FLUSH WITH INVERT



PROTRUDING PIPE IS FOR DROP STRUCTURE ONLY

JANUARY 2006

STANDARD PLANS  
CITY OF SAN ANTONIO, TEXAS  
DEVELOPMENT SERVICES

# CONCRETE COLLAR DETAIL

DRAWN BY:	DATE:	REVISIONS:	SCALE: SEE ABOVE
DESIGNED BY:	DATE: 19 JANUARY 2006		
CHECKED BY:			

# LONGITUDINAL SECTION FOR CIRCULAR & ARCH PIPES

# DIMENSIONS FOR CIRCULAR (CMP and RCP) PIPE CULVERTS

1/2" INSIDE DIA. OF PIPE	1"	1/2"	W"				
			SINGLE	DOUBLE	TRIPLE	QUADRUPLE	
18"	2'-0"	1'-2"	0'-5"	4'-6"	7'-2"	9'-10"	12'-6"
24"	2'-6"	1'-3"	0'-10"	5'-3"	8'-4"	11'-4"	13'-4"
30"	3'-0"	1'-5"	0'-11"	6'-0"	9'-5"	12'-10"	16'-3"
36"	4'-0"	1'-8"	1'-1"	7'-6"	11'-8"	15'-10"	20'-0"
42"	5'-0"	1'-11"	1'-3"	9'-0"	13'-11"	18'-10"	23'-9"
48"	6'-0"	2'-2"	1'-5"	10'-6"	16'-2"	21'-10"	27'-6"
54"	7'-0"	2'-5"	1'-7"	12'-0"	18'-5"	24'-10"	31'-3"
60"	8'-0"	2'-10"	1'-11"	13'-6"	20'-10"	28'-2"	35'-6"
66"	9'-0"	3'-2"	2'-0"	15'-0"	23'-2"	31'-4"	39'-6"

1/2" IS MEASURED BETWEEN THE OUTER SURFACES OF THE PIPES.

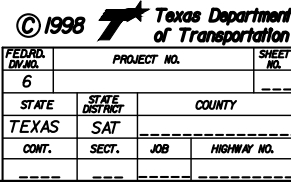
# DIMENSIONS FOR C.M.P.ARCH PIPE CULVERTS

DESIGN SIZE	APPROX. ARCH. DIM. SPAN	RISE 1"	1'	1"	W"			
					SINGLE	DOUBLE	TRIPLE	QUADRUPLE
2	2'	15"	2'-0"	1'-2"	4'-3"	7'-2"	10'-1"	13'-0"
3	28"	20"	3'-0"	1'-5"	5'-8"	9'-5"	13'-2"	16'-11"
4	35"	24"	4'-0"	1'-8"	6'-11"	11'-6"	16'-7"	20'-8"
5	42"	29"	5'-0"	1'-11"	8'-4"	13'-9"	19'-2"	24'-7"
6	49"	33"	6'-0"	2'-2"	9'-7"	15'-10"	22'-4"	28'-4"
7	57"	38"	7'-0"	2'-5"	11'-1"	18'-3"	25'-5"	32'-7"
8	64"	43"	8'-0"	2'-10"	12'-5"	20'-8"	28'-10"	37'-0"
9	71"	49"	9'-0"	3'-2"	13'-9"	22'-10"	31'-11"	41'-0"

BASED ON 2-2/3" X 1/2" CORRUGATION  
1/2" IS MEASURED BETWEEN THE OUTER SURFACES OF THE PIPES.

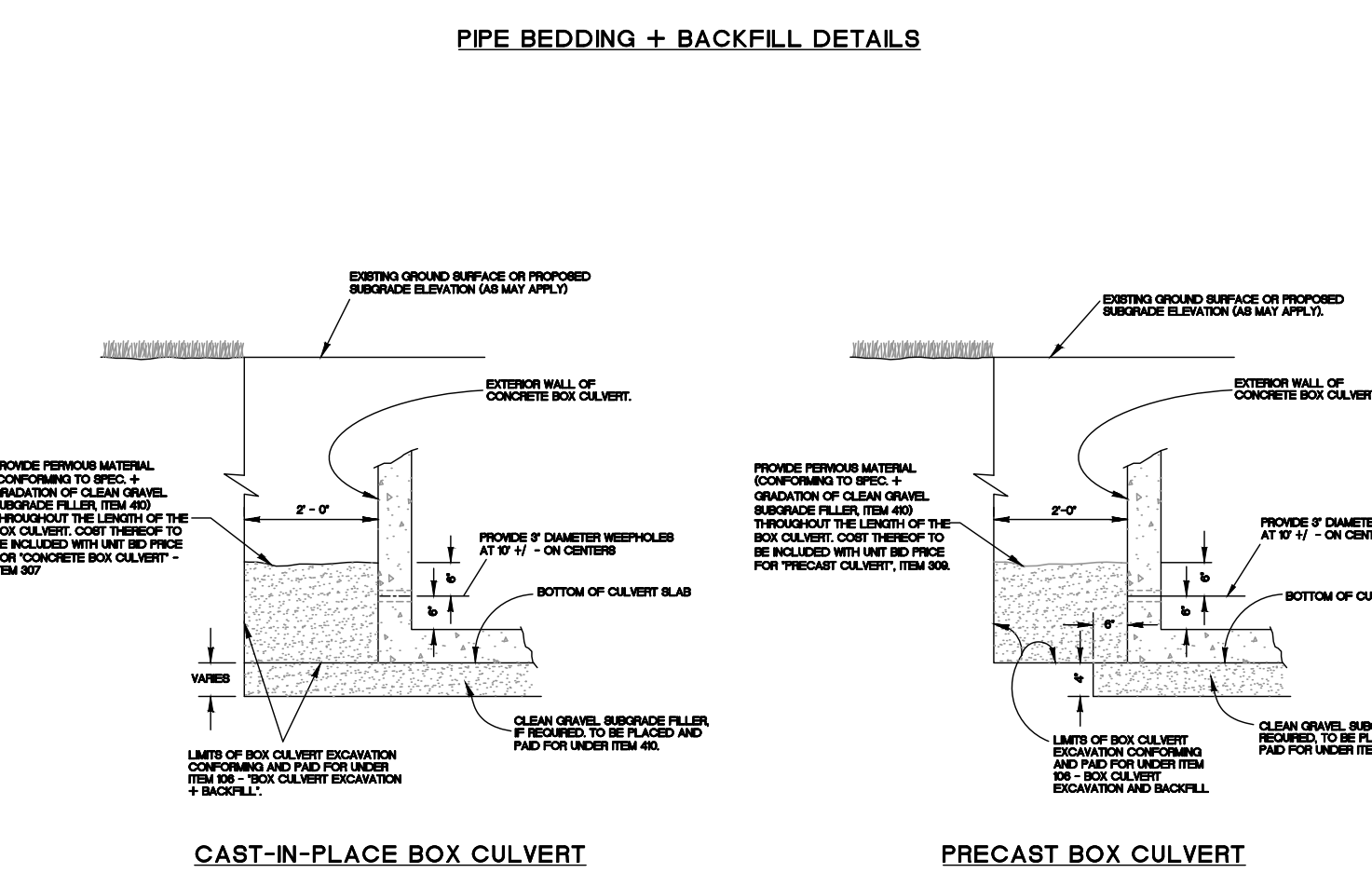
# NOTES:

- 1) FOR RIPRAP QUANTITIES AND SLOPES, SEE CULVERT LAYOUT SHEET. CONCRETE SHALL BE CLASS B UNLESS OTHERWISE SHOWN IN THE PLANS.
- 2) ALL METAL PIPES (CIRCULAR AND/OR ARCH) SHALL HAVE 5/8" X 8" GALVANIZED BOLTS WITH 2 HEX NUTS AT 24" CENTERS TO ANCHOR THE PIPE TO THE CONCRETE. THIS WORK WILL BE SUBSIDIARY TO THE RIPRAP HEADWALL.
- 3) FOR CONCRETE ARCH PIPES, THE C.M.P. ARCH PIPE CULVERT DIMENSIONS WILL HAVE TO BE ADJUSTED FOR THE PIPE WALL THICKNESS.
- 4) FOR PIPES LARGER THAN SHOWN, USE THE CLEAR DISTANCE BETWEEN PIPES SHOWN IN ITEMS 460 AND/OR 464.
- 5) IF THE SIDES OF THE HEADWALL IS ADJACENT TO A RIPRAP SLOPE AND IF THE TOP OF THE HEADWALL IS ADJACENT TO THE ROADWAY FOUNDATION OR RIPRAP SLOPE, THE SIDE AND TOP TOE WALLS MAY BE ELIMINATED IF APPROVED BY THE ENGINEER.



10/95

# PIPE BEDDING + BACKFILL DETAILS

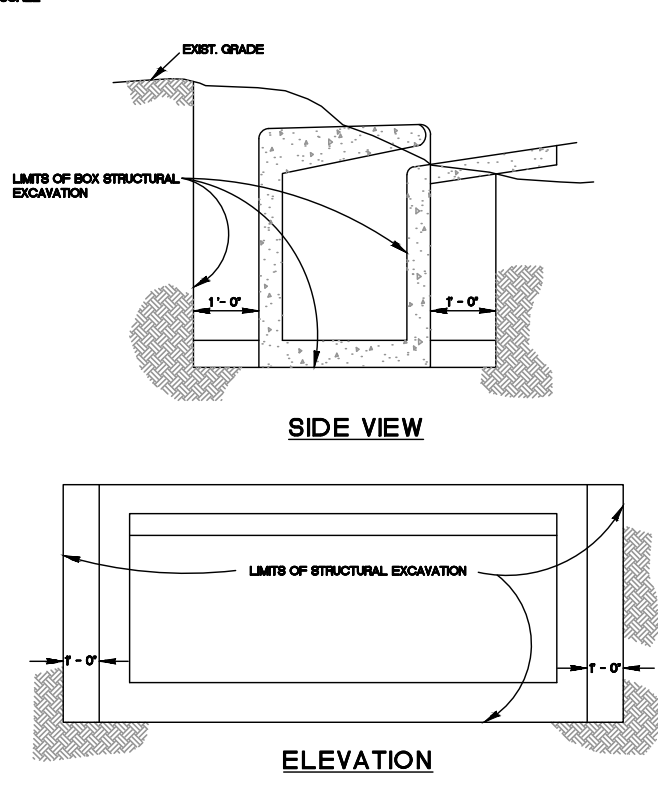


# CAST-IN-PLACE BOX CULVERT

# PRECAST BOX CULVERT

# CONCRETE BOX CULVERT

# STRUCTURAL EXCAVATION AT JUNCTION BOXES



# SIDE VIEW

# ELEVATION

# STRUCTURAL EXCAVATIONS AT DRAINAGE INLETS

NO SCALE

MAY 2009

CITY OF SAN ANTONIO  
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

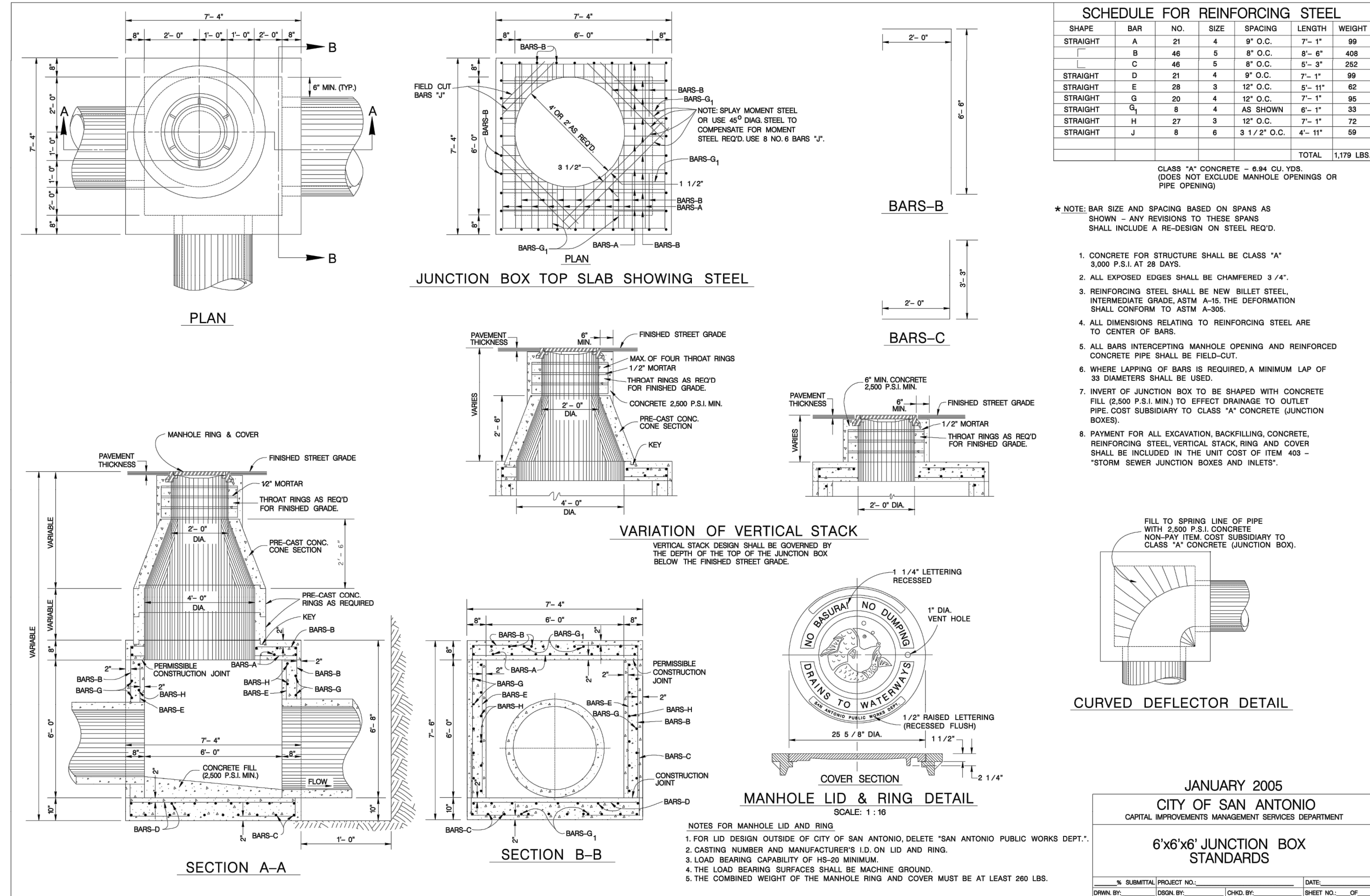
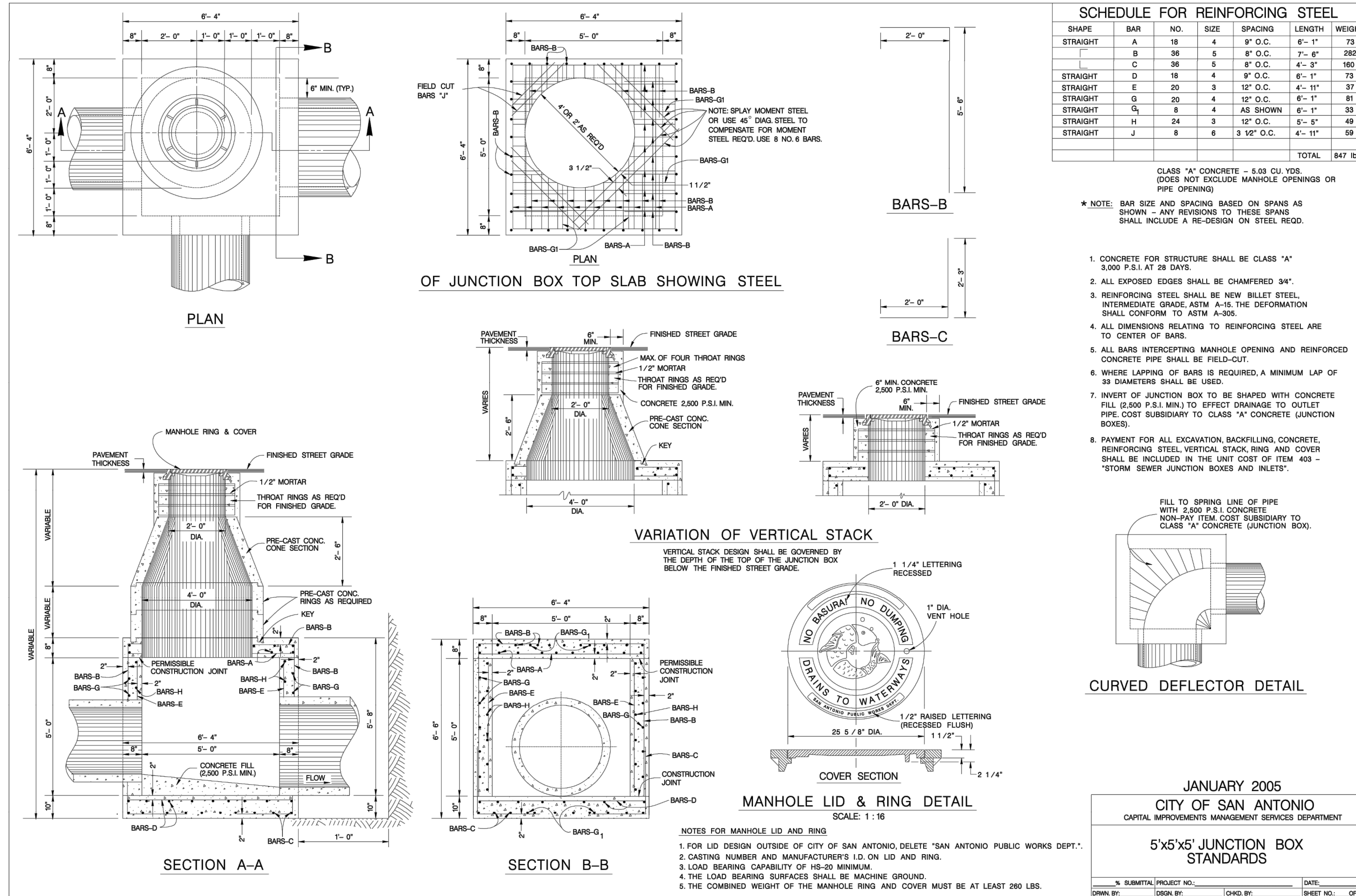
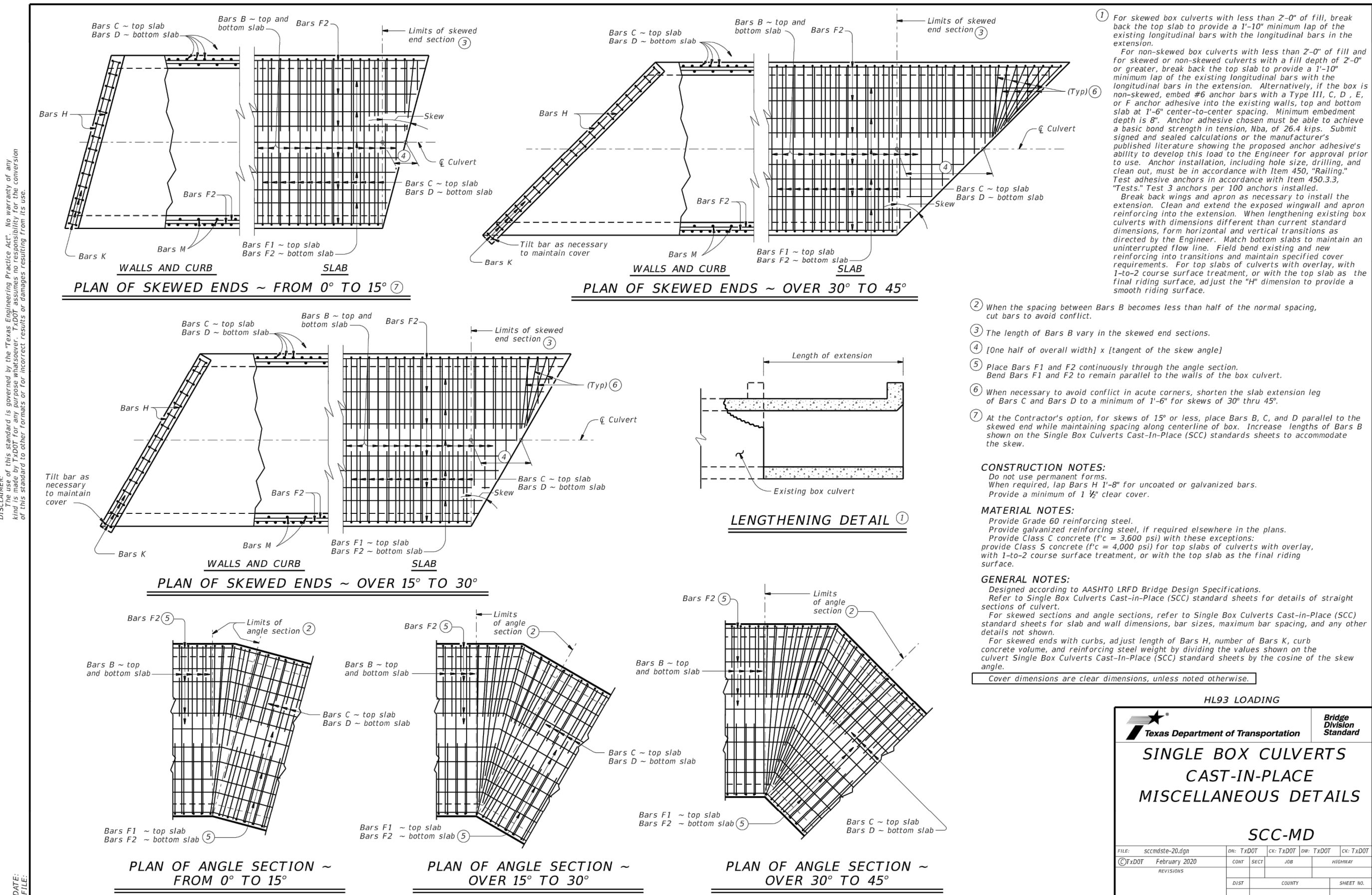
# PIPE BEDDING + MISCELLANEOUS DRAINAGE DETAILS

3. MATERIAL PROJECT NO.	DRAWN BY:	CHECKED BY:	DATE:

GALM ROAD PH IV  
SAN ANTONIO, TEXAS  
DRAINAGE DETAILS

PLAT NO. 21-11800630  
JOB NO. 11680-48  
DATE NOVEMBER 2022  
DESIGNER KQ  
CHECKED BL DRAWN KQ  
SHEET C1.10

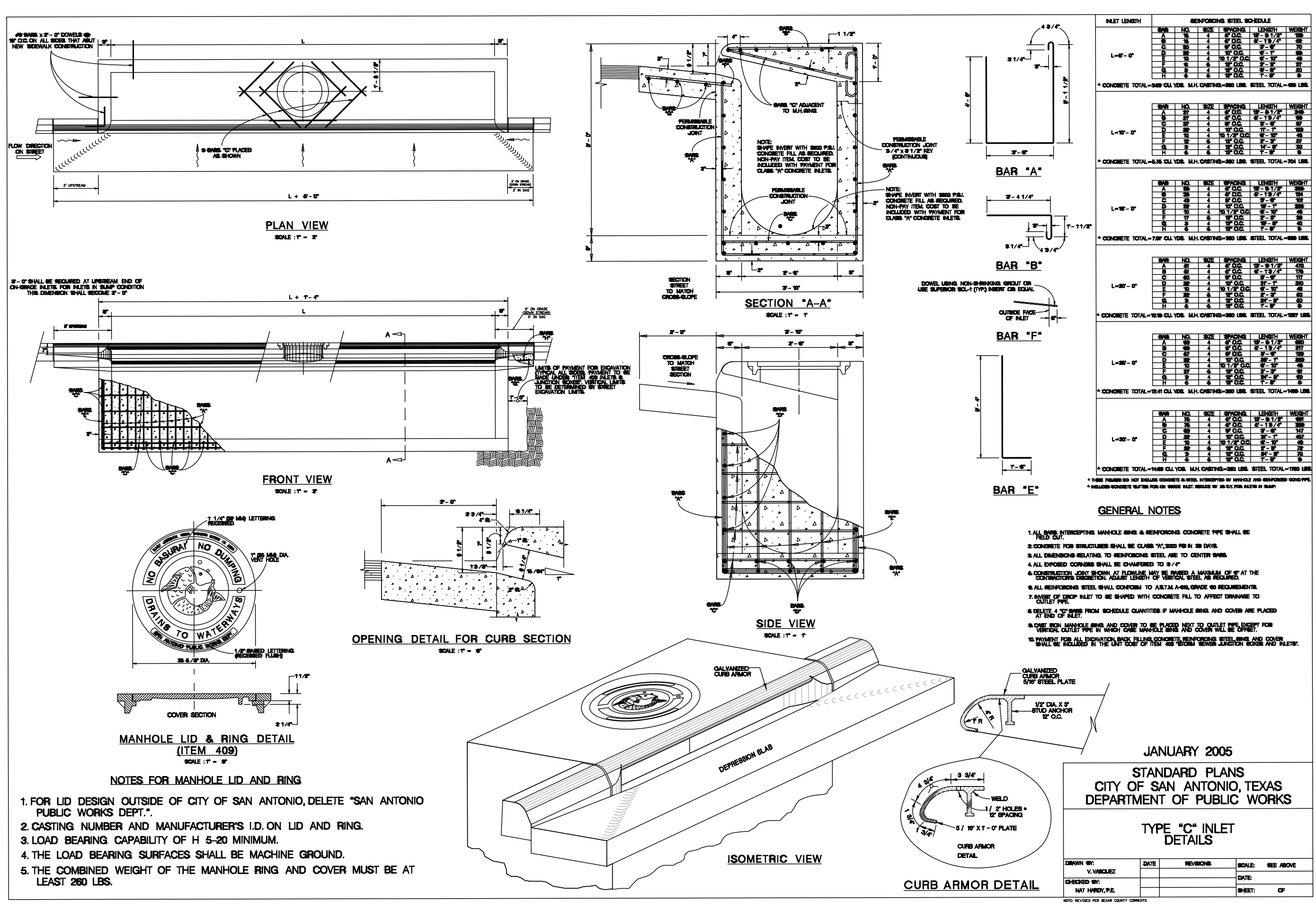
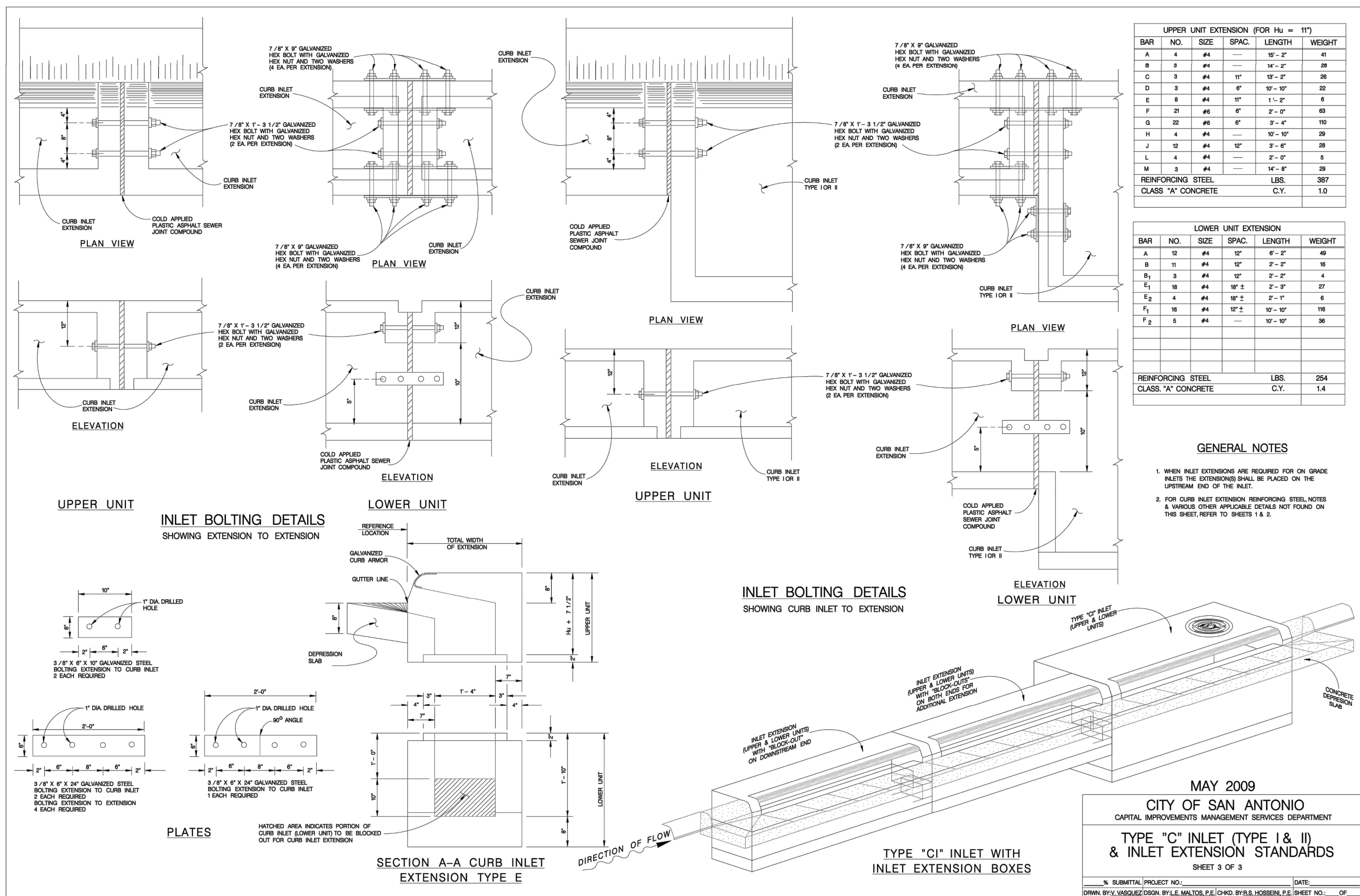
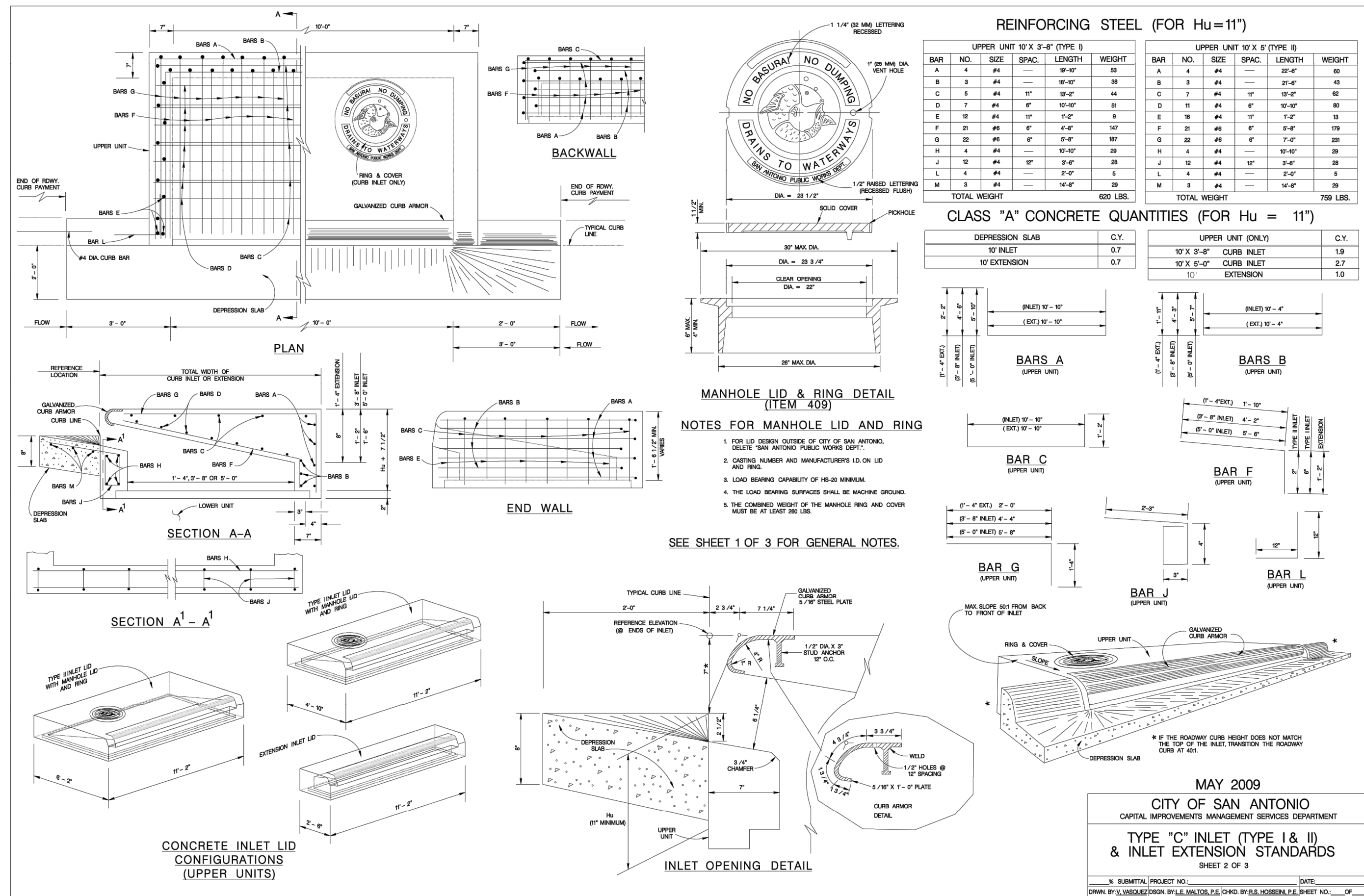
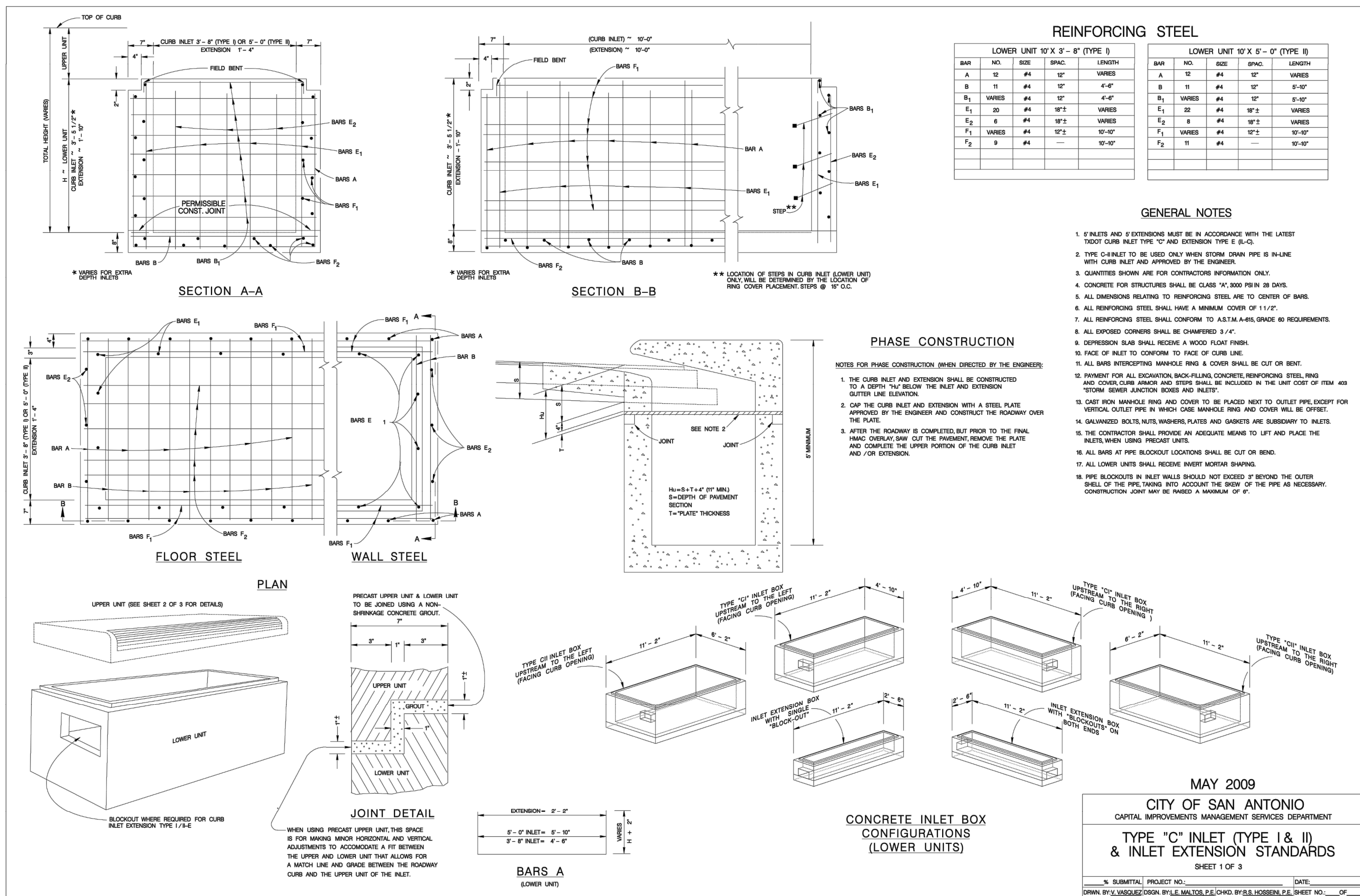




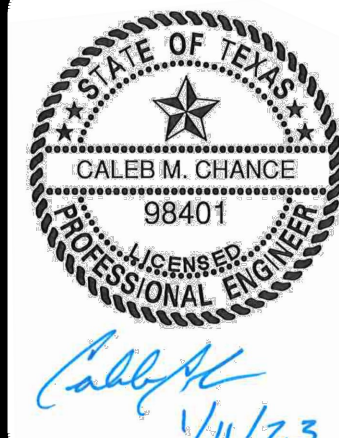








NO.	REVISION	DATE



**PAPE-DAWSON**  
**ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TYPE FIRM REGISTRATION #170 | TBPUS FIRM REGISTRATION #10028800

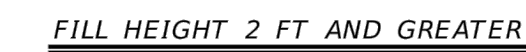
**GALM ROAD PH IV**  
**SAN ANTONIO, TEXAS**

**DRAINAGE DETAILS**

PLAT NO. 21-11800630  
JOB NO. 11680-48  
DATE NOVEMBER 2022  
DESIGNER KQ  
CHECKED BL DRAWN KQ  
SHEET C1.13



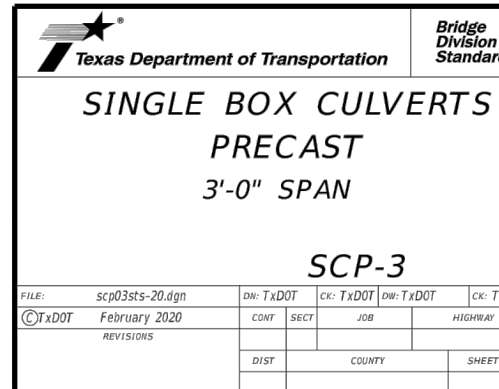
- ① For box length = 8'-0"
- ② AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.



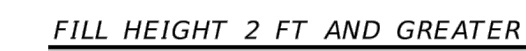
**MATERIAL NOTES:**  
Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.  
Provide Class H concrete ( $f'c = 5,000$  psi).

**GENERAL NOTES:**  
 Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.  
 See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.  
 In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)".

### HL93 LOADING



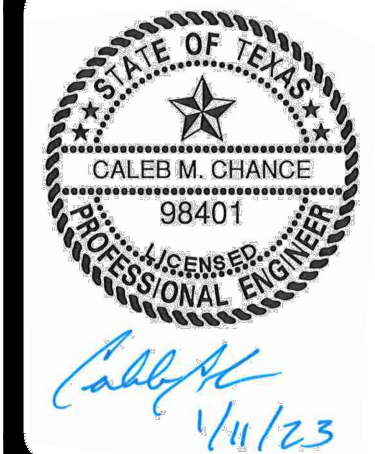
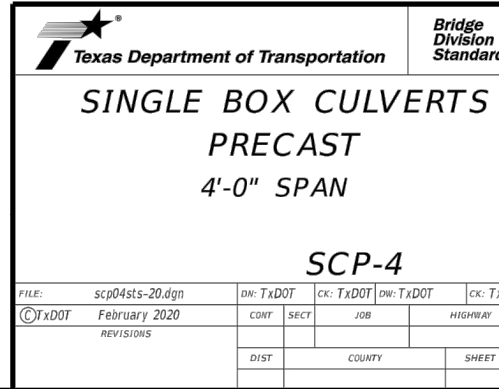
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**MATERIAL NOTES:**  
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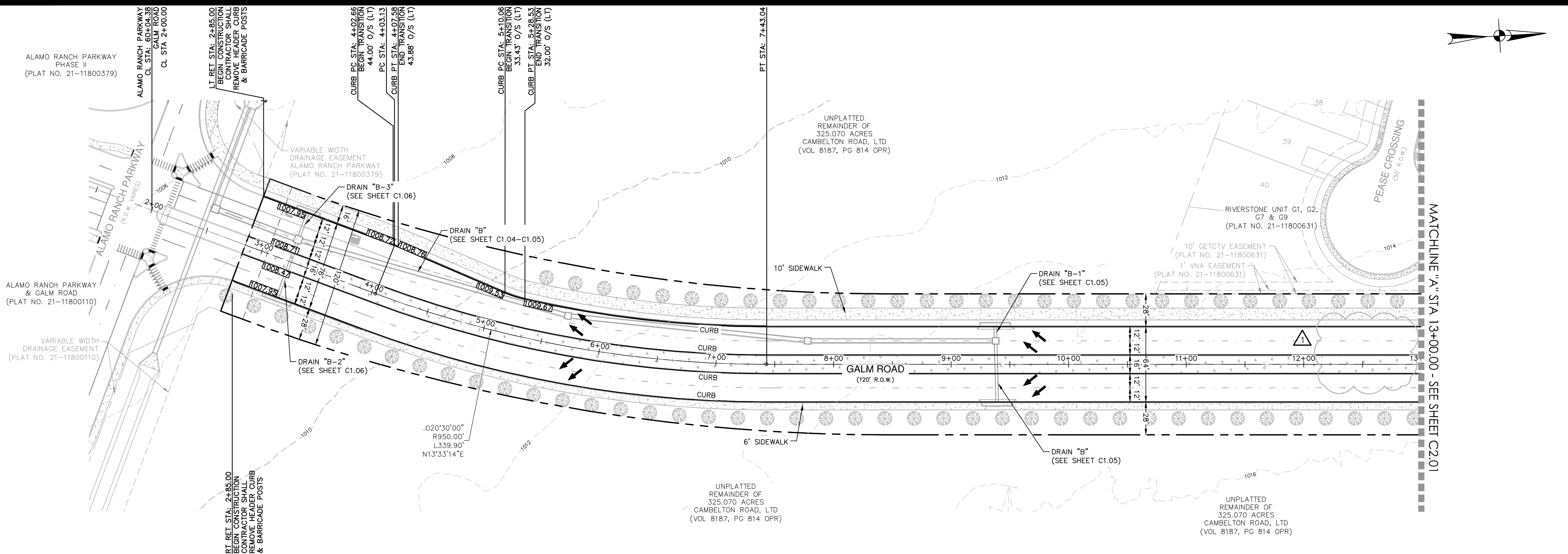


**GALM ROAD PH IV**  
SAN ANTONIO, TEXAS  
DRAINAGE DETAILS



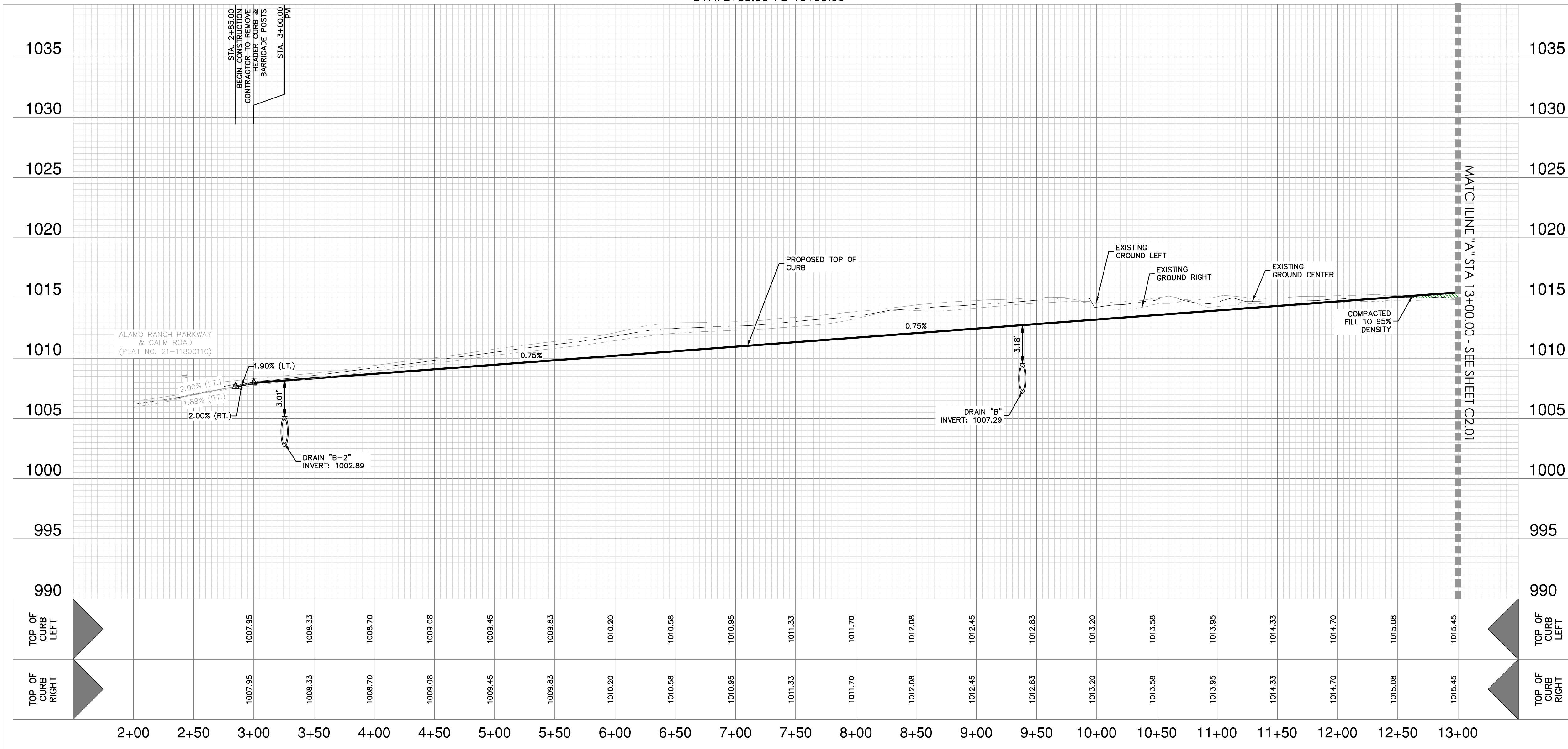
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File: P:\16580\43\Design\CH\ST11658048 - GALM ROAD.dwg

THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL. IMAGERY PROVIDED BY GOOGLE/US UNLESS OTHERWISE NOTED. Imagery © 2016/CAPDO/Digital Globe/Texas Orthoregistry Program, USDA Farm Service Agency.



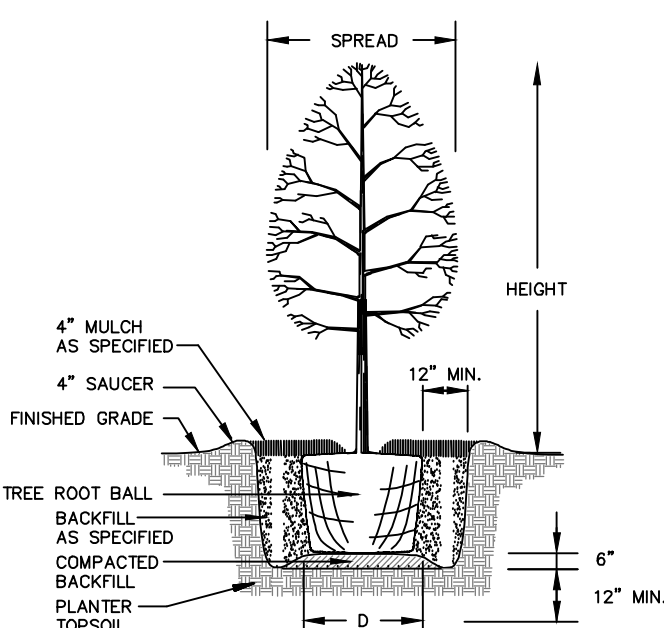
GALM ROAD  
STA. 2+85.00 TO 13+00.00

VERTICAL SCALE: 1" = 5'  
HORIZONTAL SCALE: 1" = 50'



## STREET LEGEND

PROJECT LIMITS	---
MAINTAIN GUTTER	→
EXISTING CONTOUR	---
WHEELCHAIR RAMP	⊕WCR
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	→
TOP OF CURB SPOT ELEVATION	857.00(P) x
PAVEMENT ELEVATION	857.00(P) x
WASHOUT CROWN SECTION	---
SIDEWALK	---
DRIVEWAY	---
EARTHEN MEDIAN	---



NEW TREE PLANTING DETAIL

## STREETSCAPE TREE PLANTING NOTES:



LARGE TREES (PER APPROVED TREE PLAN) TO BE PLANTED EVERY 25 FEET PER DETAIL.

- SPECIES OF TREES TO BE DETERMINED BY DEVELOPER'S PROJECT LANDSCAPE ARCHITECT TO CONFORM WITH THE STREETSCAPE PLANTING STANDARDS.
- DEVELOPER TO PROVIDE IRRIGATION ON PLANTED STREET TREES FOR A MINIMUM OF 3 YEARS.
- ALL LANDSCAPING SHALL COMPLY WITH THE CLEAR VISION AREAS DEFINED BY THE LATEST VERSION OF AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."
- TYPES OF TREES AND SPACING ARE BASED ON UNDERGROUND ELECTRIC, IF OVERHEAD ELECTRIC IS REQUIRED BY CPS, PLANS WILL BE REVISED TO REFLECT CHANGES IN SIZE, TYPE, AND SPACING OF TREES, PER THE UDC.

## SIDEWALK NOTE:

THE CONSTRUCTION OF SIDEWALKS ADJACENT TO ALL 900 SERIES LOTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER AS SHOWN ON THE OVERALL SIGNAGE PLAN (SHEET C3.00-C3.01)

## STREET SELECT FILL NOTE:

IF FILL MATERIAL IS USED TO RAISE THE GRADE, FILL MATERIAL UNDERNEATH THE PAVEMENT SHOULD BE APPROVED FILL MATERIAL, FREE OF DEBRIS MATERIAL AND WITH A MINIMUM CBR VALUE OF 4.0 AND A PI MAXIMUM OF 20. THE GRAVEL SIZE SHOULD NOT EXCEED 3 INCHES IN DIAMETER. THE MATERIAL SHOULD BE PLACED AS PER APPLICABLE CITY OR COUNTY GUIDELINES.

## WHEEL CHAIR NOTE:

WHEEL CHAIR RAMPS (WCR) TO BE CENTERED ON STATION NOTED BELOW. ELEVATION SHOWN ARE TOP OF CURB AND NOT GUTTER

## STREET NOTES:

- A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
- CONTRACTOR SHALL MATCH EXISTING PAVEMENT AT TIE-IN. IF EXISTING PAVEMENT ELEVATION DIFFERS SIGNIFICANTLY, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONTINUING WORK.
- SIDEWALKS SHALL BE CONSTRUCTED 3'-FT FROM THE BACK OF CURB FOR ALL LOCATIONS WHERE THE SIDEWALK IS SHOWN OFFSET. REFER TO STREET DETAIL SHEET FOR SIDEWALK AND RAMP DETAILS.
- NO PERMANENT STRUCTURES HIGHER THAN 3 FEET, AND LOWER THAN 8 FEET ABOVE THE PAVEMENT, INCLUDING STRUCTURES, WALLS, FENCES, AND VEGETATION, SHALL BE CONSTRUCTED OR ALLOWED WITHIN THE CLEAR VISION EASEMENT. CONTRACTOR SHALL GRADE AREAS WITHIN CLEAR VISION EASEMENTS SUCH THAT THE ELEVATION WITHIN THE CLEAR VISION EASEMENT IS NOT HIGHER THAN 3 FEET ABOVE THE ADJACENT TOP OF PAVEMENT.
- DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH CURB RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT. DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME SELECTION AND FINAL LOT DESIGN.
- CHANGES IN THE SIDEWALK LOCATION FOR A MAXIMUM LINEAR DISTANCE OF TWO HUNDRED (200) FEET ARE PERMITTED. TO BE APPROVED BY THE FIELD INSPECTOR WITHOUT AMENDING THE STREET PLAN OR UTILITY LAYOUT PER UDC SECTION 35-506 (0)(6).

DATE	6/20/2023
NO.	
REVISION	
REVISED STREET	RE-IN



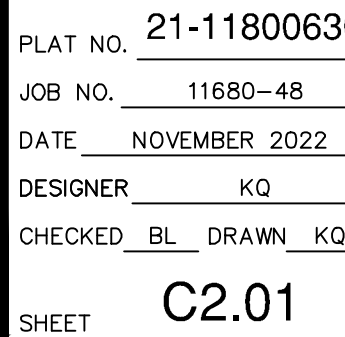
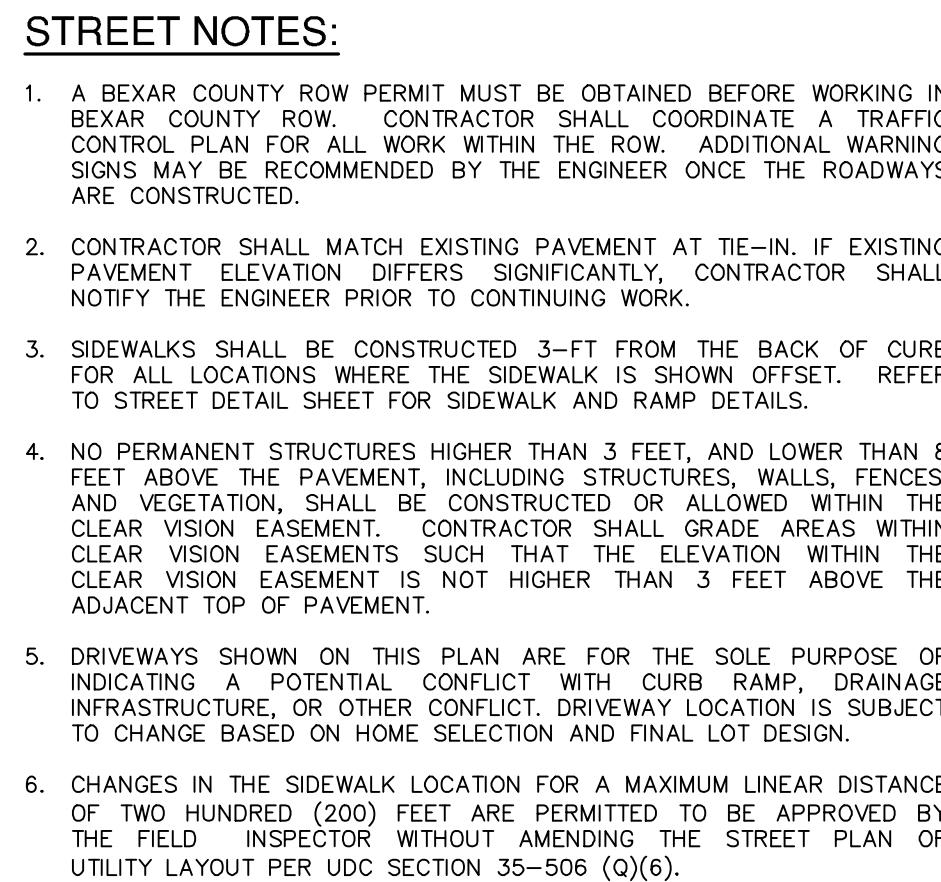
**PAPE-DAWSON**  
**ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TYPE FIRM REGISTRATION #470 | TBPUS FIRM REGISTRATION #10028800

**GALM ROAD PH IV**  
**SAN ANTONIO, TEXAS**

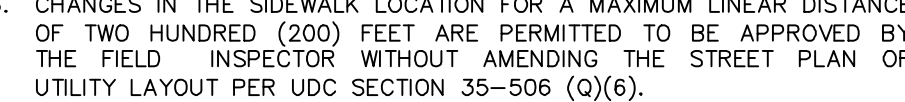
GALM ROAD - PLAN & PROFILE (STA. 2+85.00 TO 13+00.00)

PLAT NO.	21-11800630
JOB NO.	11680-48
DATE	NOVEMBER 2022
DRAWN	KQ
CHECKED	BL
DRAWN	KQ
SHEET	C2.00



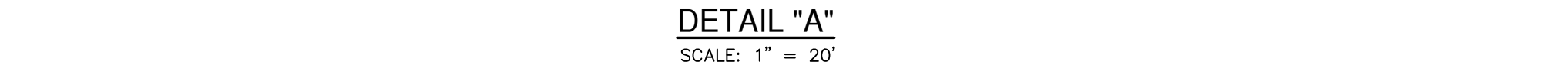
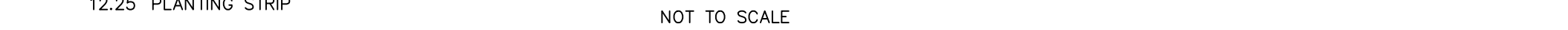








\*SEE RIVERSTONE UNITS G1, G2, G7 & G9 (PLAT NO. 21-11800631) FOR CONNECTING LAMPASAS LOOP PAVEMENT SECTION



1. CONTRACTOR SHALL REFERENCE THE PROJECT PAVEMENT DESIGN REPORT PREPARED BY INTC DATED NOVEMBER 7, 2019 (INTEC PROJECT# S19159-P) AND AUGUST 12, 2020 (INTEC PROJECT# S161159-P-A3) AND MAY 20, 2021 (INTEC PROJECT# S19159-P-R1).
2. CONTRACTOR SHALL RETAIN A GEOTECHNICAL ENGINEER TO VERIFY THE SUB GRADE CONDITION PRIOR TO PLACING ANY BASE MATERIAL. GEOTECHNICAL ENGINEER SHALL DETERMINE THE SUB GRADE CONDITION AND IF LIME TREATMENT IS REQUIRED.
3. GEOTECHNICAL ENGINEER SHOULD VERIFY THE STREET SUBGRADE AT THE TIME OF CONSTRUCTION PRIOR TO PLACEMENT OF AGGREGATE BASE.
4. THE FLEXIBLE BASE COURSE SHOULD BE CRUSHED LESTONE CONFORMING TO TxDOT STANDARD SPECIFICATIONS, ITEM 247, TYPE A, GRADES 1 OR 2.
5. THE MOISTURE CONTENT OF THE FILL SHOULD BE MAINTAINED WITHIN THE RANGE OF OPTIMUM WATER CONTENT TO 3 PERCENTAGE POINTS ABOVE THE OPTIMUM WATER CONTENT UNTIL PERMANENTLY COVERED.
6. IN THE EVENT THAT THE CLAY FILL USED IS DIFFERENT THAN THE EXISTING SUBGRADE, THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT COULD BE INVALIDATED AND THE DESIGN ENGINEER MUST BE CONSULTED TO DETERMINE IF ADDITIONAL CBR TESTING AND THICKER PAVEMENT SECTIONS ARE REQUIRED.
7. WHERE PAVEMENT SUBGRADE IS LOCATED WITHIN 2-FEET OF THE EXISTING GROUND SURFACE (STRATUM 1) THE MOISTURE CONDITIONED SUBGRADE WILL BE REQUIRED. GEOTECHNICAL ENGINEER SHOULD VERIFY THE STREET SUBGRADE AT THE TIME OF CONSTRUCTION PRIOR TO PLACEMENT OF AGGREGATE BASE TO DETERMINE WHERE THE MOISTURE CONDITIONED SUBGRADE IS NEEDED. REFERENCE GEOTECHNICAL ENGINEERING REPORT FOR MORE INFORMATION.
8. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL MATERIAL TESTING WITH THE PROJECT GEOTECHNICAL ENGINEER. TESTING SHALL BE PAID FOR BY THE OWNER.
9. FILL MATERIAL SHOULD BE NATIVE ON-SITE MATERIAL, FREE OF DELETERIOUS MATERIAL WITH A MINIMUM CBR VALUE OF 4 AND A PI LESS THAN OR EQUAL TO 20. THE GRAVEL SIZE SHOULD NOT EXCEED 3 INCHES IN DIAMETER. LINE OR CEMENT APPLICATION RATES SHOULD BE RE-EVALUATED FOR THE FILL MATERIAL. THE MATERIAL SHOULD BE PLACED AS PER APPLICABLE CITY OR COUNTY GUIDELINES. CONTRACTOR TO VERIFY EXACT SPECIFICATIONS WITH PROJECT GEOTECHNICAL ENGINEERING REPORT.
10. A BEAXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN THE BEAXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.

1. CUT AND FILL DATA ARE NOT AVAILABLE AT THIS TIME
2. BASED ON THE REVIEW OF GEOLOGIC AND SOILS MAP, WE ANTICIPATE THE FINAL PAVEMENT SUBGRADE PLASTICITY INDEX VALUE TO BE LESS THAN OR EQUAL TO 20.
3. IF THE SUBGRADE PLASTICITY INDEX VALUES ARE LESS THAN OR EQUAL TO 20, AS PER CITY OF SAN ANTONIO OR BEXAR COUNTY REQUIREMENTS, SUBGRADE STABILIZATION / TREATMENT IS NOT NEEDED.
4. IF FILL IS USED TO RAISE THE GRADE, FILL MATERIAL UNDERNEATH THE PAVEMENT SHOULD BE APPROVED FILL MATERIAL, FREE OF DELETERIOUS MATERIAL AND WITH A MINIMUM CBR VALUE OF 4.0 AND A MAXIMUM PLASTICITY INDEX VALUE OF 20. THE MATERIAL SHOULD BE PLACED AS PER APPLICABLE CITY OR COUNTY GUIDELINES
5. HOWEVER, IF THE FINAL STREET SUBGRADE PLASTICITY INDEX VALUES ARE GREATER THAN 20, THEN ONE OF THE FOLLOWING OPTIONS MAY BE FOLLOWED:
  - REMOVE THE CLAYS SOILS (WITH PLASTICITY INDEX VALUES GREATER THAN 20) AND REPLACE WITH FILL MATERIAL WITH PLASTICITY INDEX VALUES LESS THAN OR EQUAL TO 20. IF SUBGRADE STABILIZATION / TREATMENT IS REQUIRED, THE FOLLOWING SPECIFICATIONS MUST BE MET. THE CONTRACTOR SHALL COORDINATE WITH THE GEOTECHNICAL ENGINEER IN THE FIELD FOR SUBGRADE STABILIZATION / TREATMENT.
  - TREAT THE SUBGRADE:
    - THE SUBGRADE SHOULD BE TREATED TO A DEPTH OF 6 INCHES USING 6 ½ PERCENT LIME CONTENT
    - THE SUBGRADE SOILS SHOULD BE TESTED FOR SOIL SULFATE CONTENT PRIOR TO STABILIZATION / TREATMENT. IF THE SOIL SULFATE CONTENT IS OVER 3000 PPM, AN ALTERNATE PROCEDURE WILL BE REQUIRED.
    - THE SUBGRADE MAY ALSO BE TREATED USING CEMENT.
  - APPLICATION RATES SHOULD BE DETERMINED AT THE TIME OF CONSTRUCTION.
  - LIME APPLICATION RATE OF 27 LBS PER SQ YARD FOR 6- INCH DEPTH OF TREATMENT MAY BE USED FOR PLANNING AND BUDGETING PURPOSES. THE LIME/CEMENT APPLICATION RATES SHOULD BE DETERMINED AT THE TIME OF CONSTRUCTION.

STATE OF TEXAS  
CALEB M. CHANCE  
98401  
LICENSED  
PROFESSIONAL ENGINEER

*Caleb M. Chance*  
4/13/23

**PAPE-DAWSON**  
**PE ENGINEERS**

SAW ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TPE FIRM REGISTRATION #470 | TPE FIRM REGISTRATION #10028800

**GALM ROAD PH IV**  
**SAN ANTONIO, TEXAS**  
**STREET DETAILS**

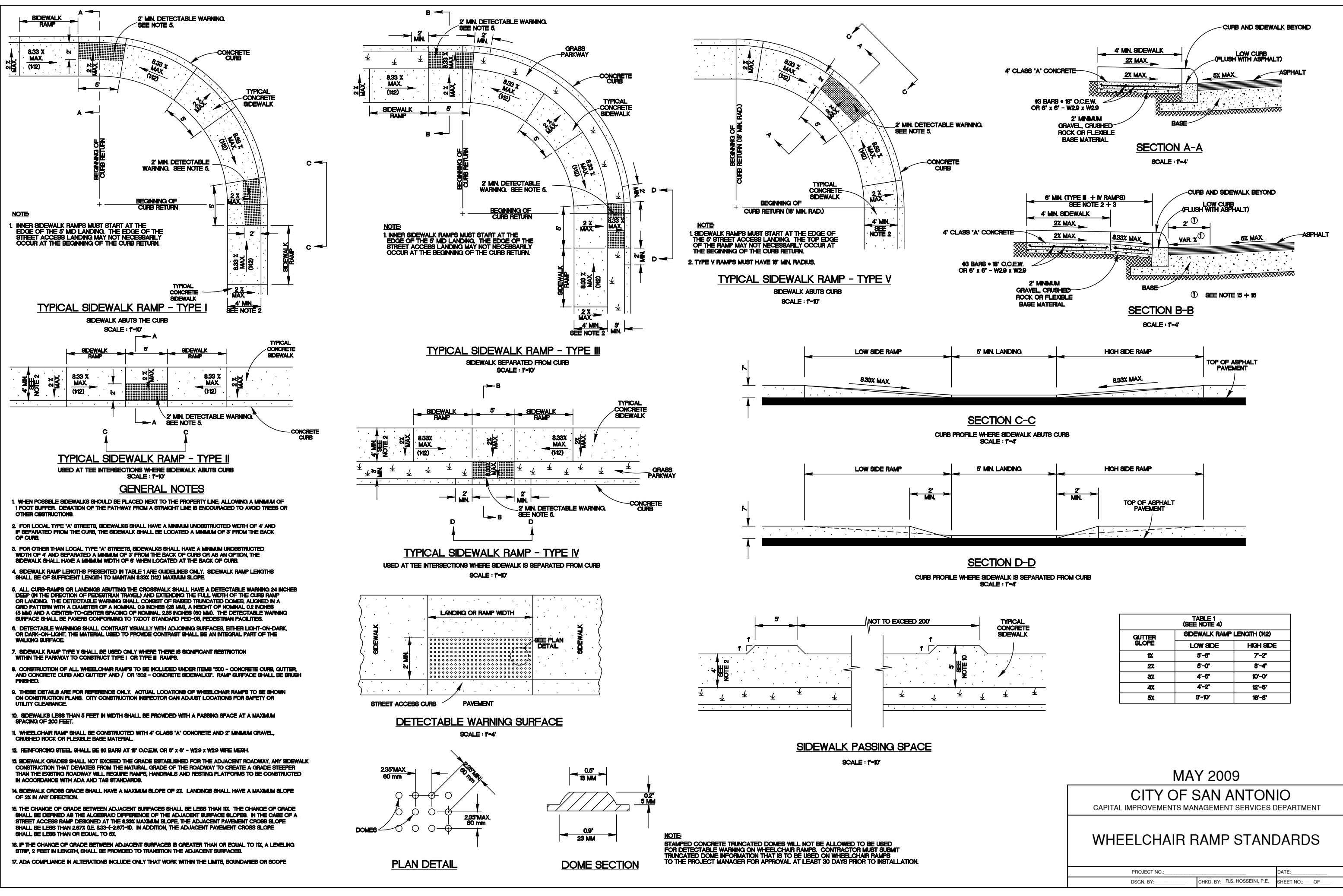
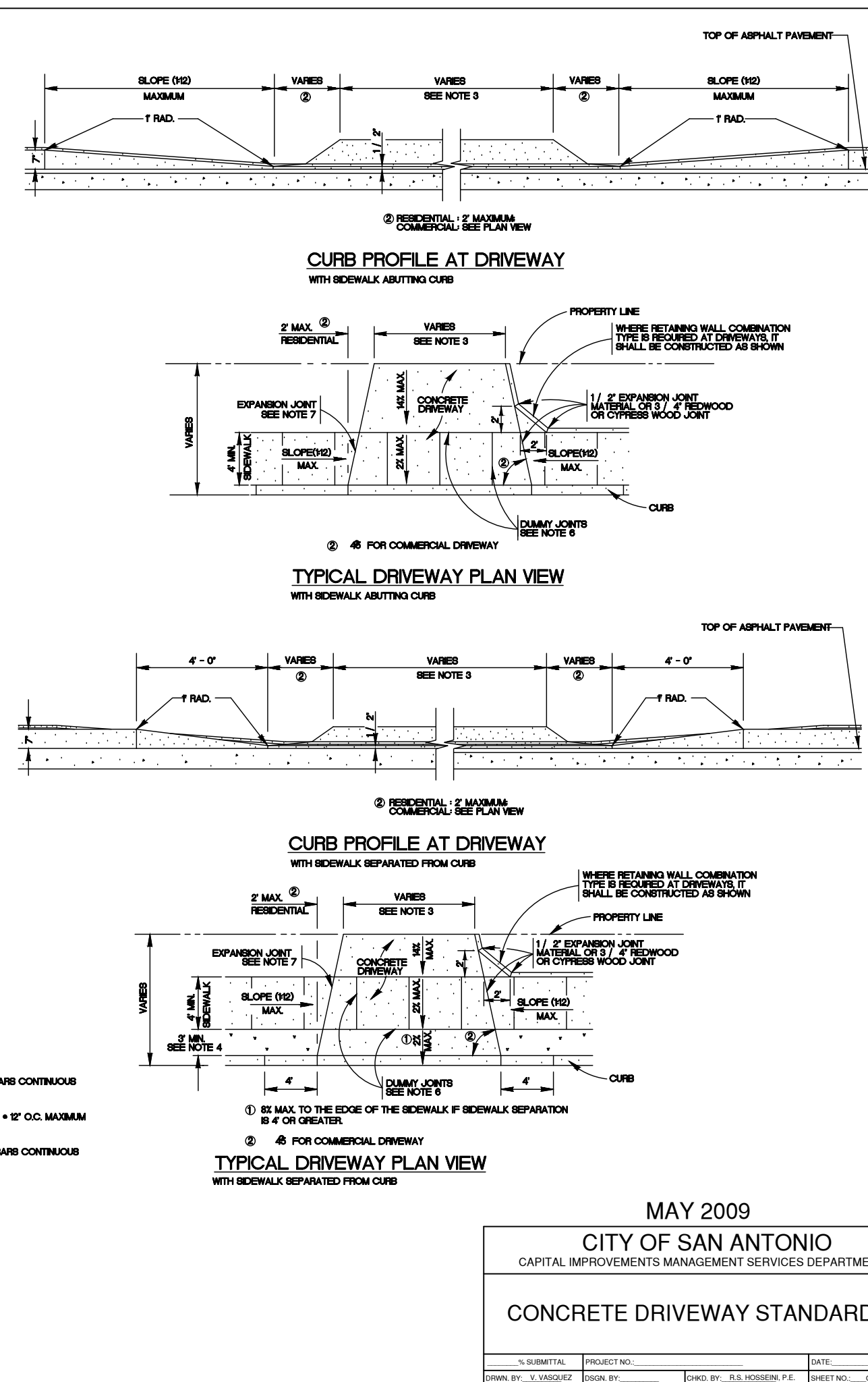
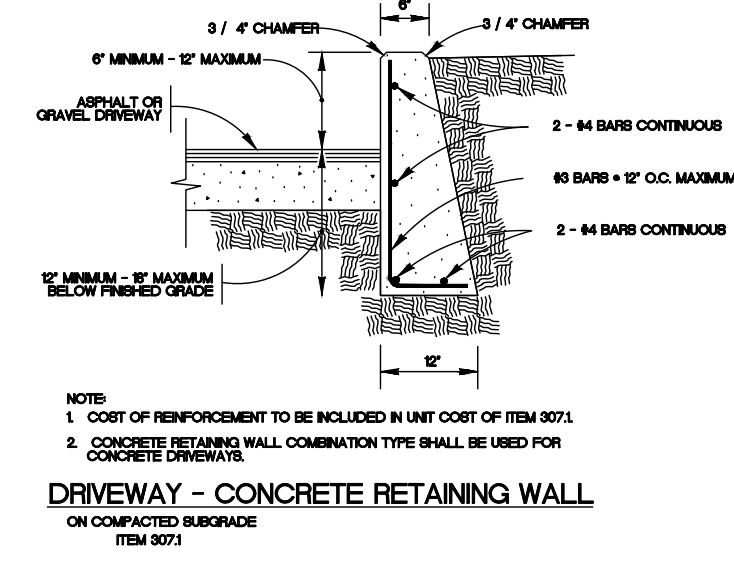
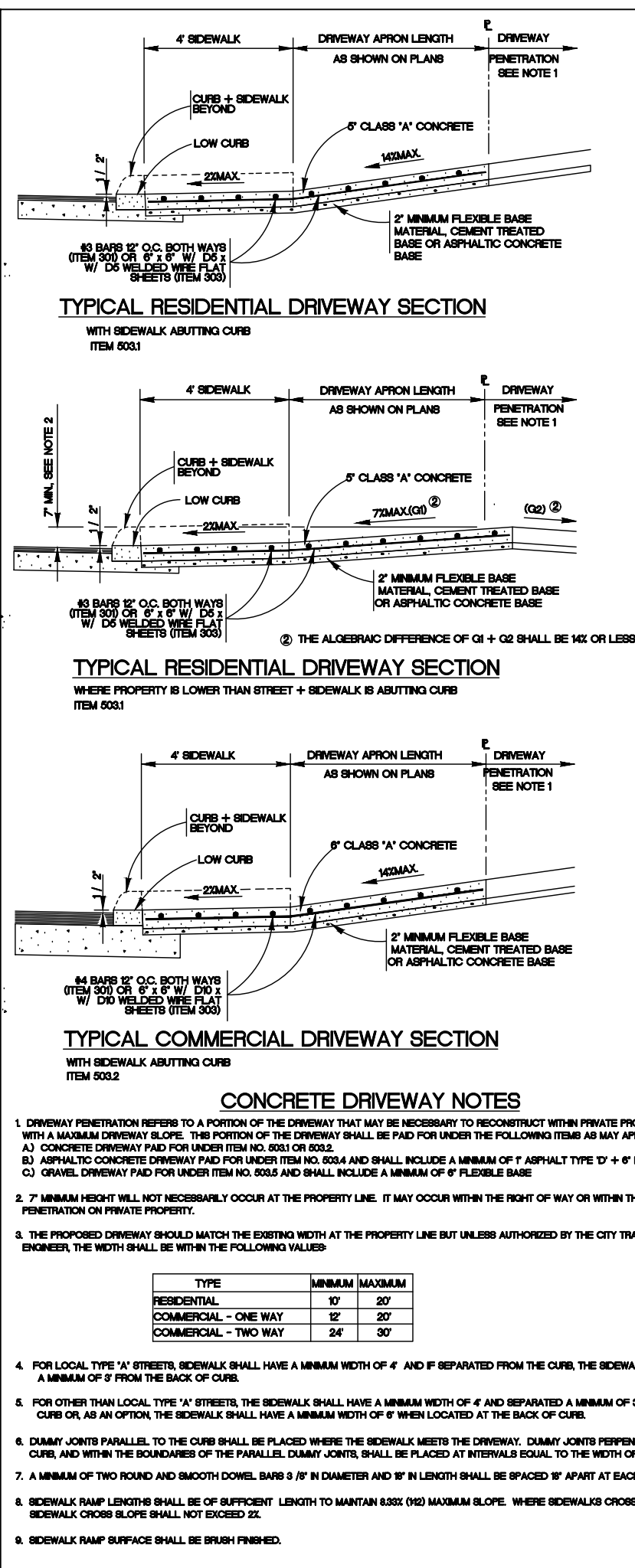
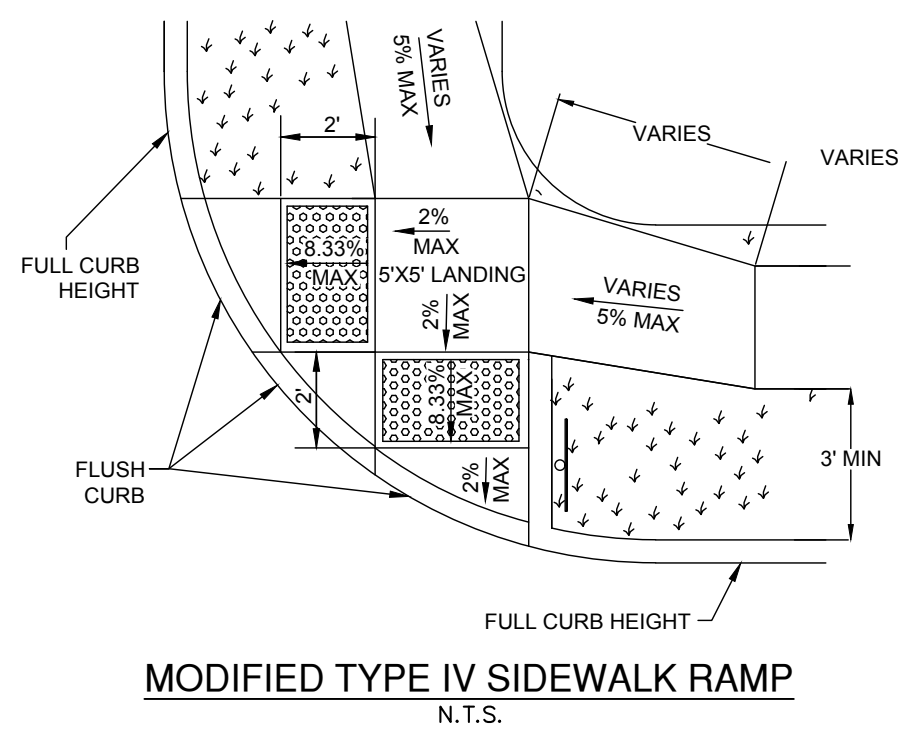
PLAT NO. 21-11800630  
JOB NO. 11680-48  
DATE NOVEMBER 2022  
DESIGNER KQ  
CHECKED BL DRAWN KQ  
SHEET C2.10







Date: Jan 11, 2023, 4:51pm User ID: cvela  
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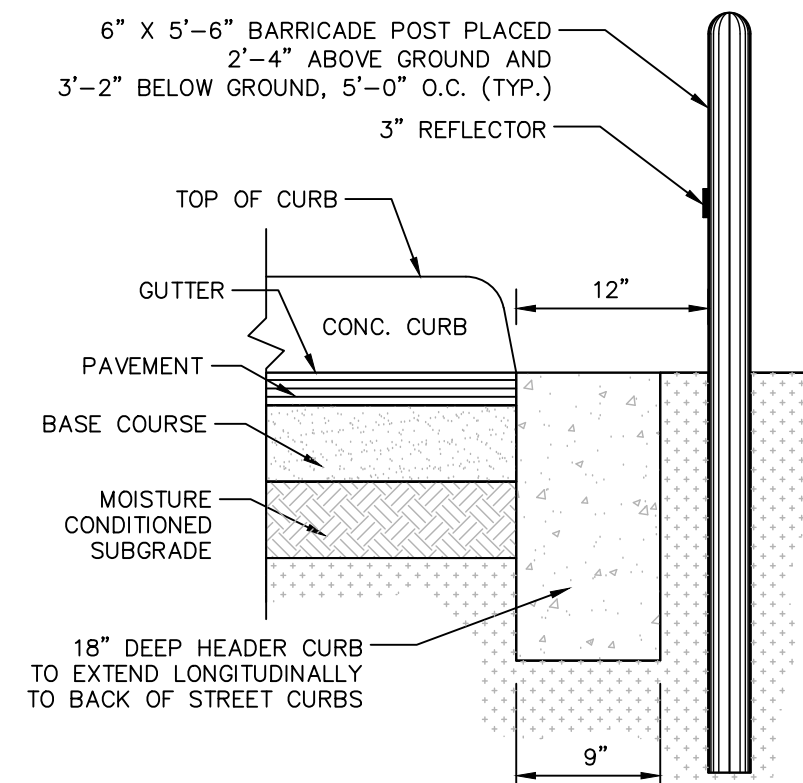




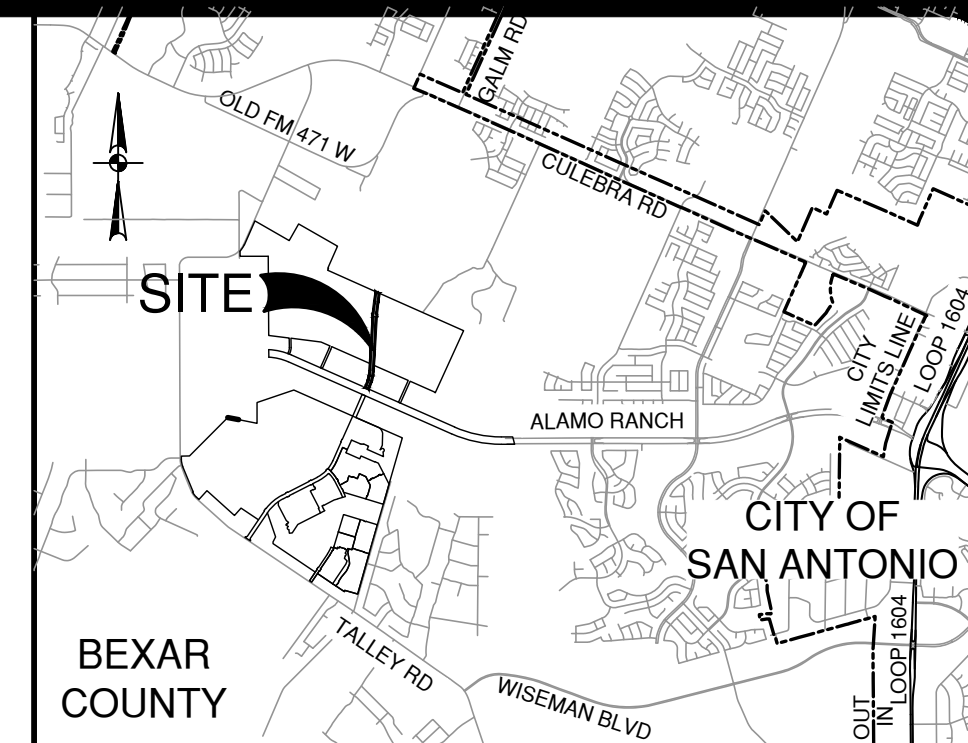
The diagram illustrates the specifications for Object Marker Type 4. It features a circular marker with a diameter of 21 inches, labeled with a circled 'A'. The marker is mounted on a vertical post. The mounting hardware includes a red reflector sheeting, two 3/8 inch diameter holes, and a sign mounting detail sheet conforming to C3.10-C3.12. The marker is positioned on a pavement surface, with a ground line indicated. The distance from the pavement to the base of the marker is 4 inches to 6 inches, with a minimum of 4 inches. The distance from the ground line to the base of the marker is 2 inches to 6 inches, with a minimum of 2 inches. The marker is made of 0.080 inch thick sheet aluminum conforming to ASTM B-209 alloy 6061-T6. The marker type is 4 OM4-3, with a size of 18 inches by 18 inches.

**OBJECT MARKER TYPE 4**

NOT-TO-SCALE



### HEADER CURB & BARRICADE POST DETAIL




LOCATION MAP

SCALE: 1"= 60



Calley/K  
4/3/23



**PAPE-DAWSON  
ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TYPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028600

**GALM ROAD PH IV**  
**SAN ANTONIO, TEXAS**

## OVERALL SIGNAGE PLAN

BEXAR COUNTY ROW NOTES:

A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.

DRIVEWAY NOTE:

DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH CURB RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT. DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME SELECTION AND FINAL LOT DESIGN.

**TRENCH EXCAVATION SAFETY PROTECTION:**

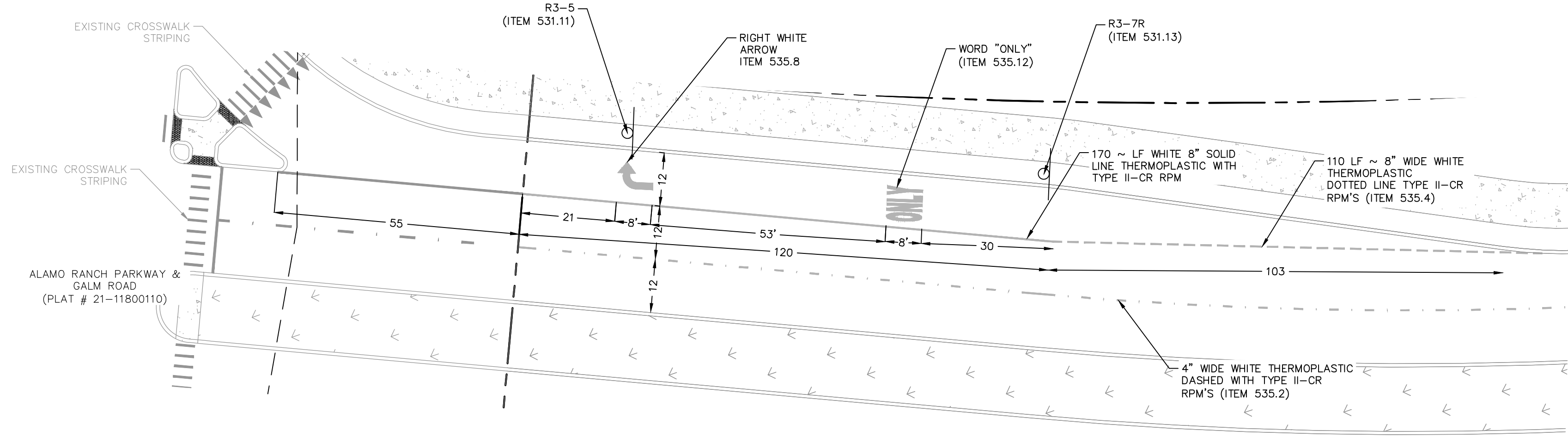
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGNER/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL/GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE CONTRACT WORK AREA IN ORDER TO IDENTIFY CONTRACTOR'S SAFETY CONCERNS, 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. CONTRACTOR SHALL EMPLOY AN INDEPENDENTLY RETAINED EMPLOYEE FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY/EQUIPMENT CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING TRENCHING AND PROTECTING INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

PLAT NO. 21-11800630  
JOB NO. 11680-48  
DATE NOVEMBER 2022  
DESIGNER KQ  
CHECKED BL DRAWN KQ  
SHEET C3.01



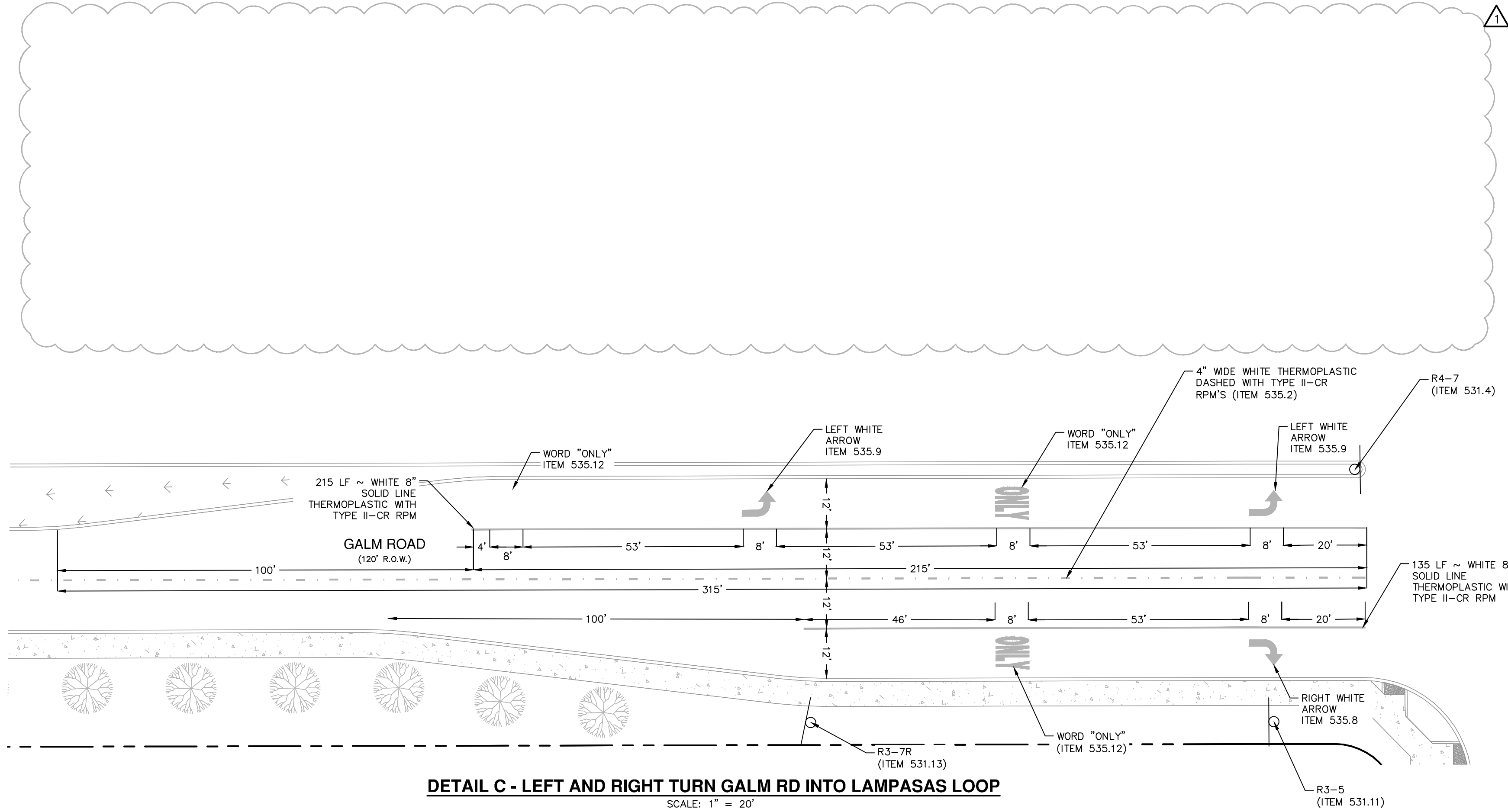
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THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL. AERIAL IMAGERY PROVIDED BY GOOGLE'S UNLESS OTHERWISE NOTED. Imagery © 2016, CAPCOG, Digital Globe, Texas Orthology Program, USDA Farm Service Agency.



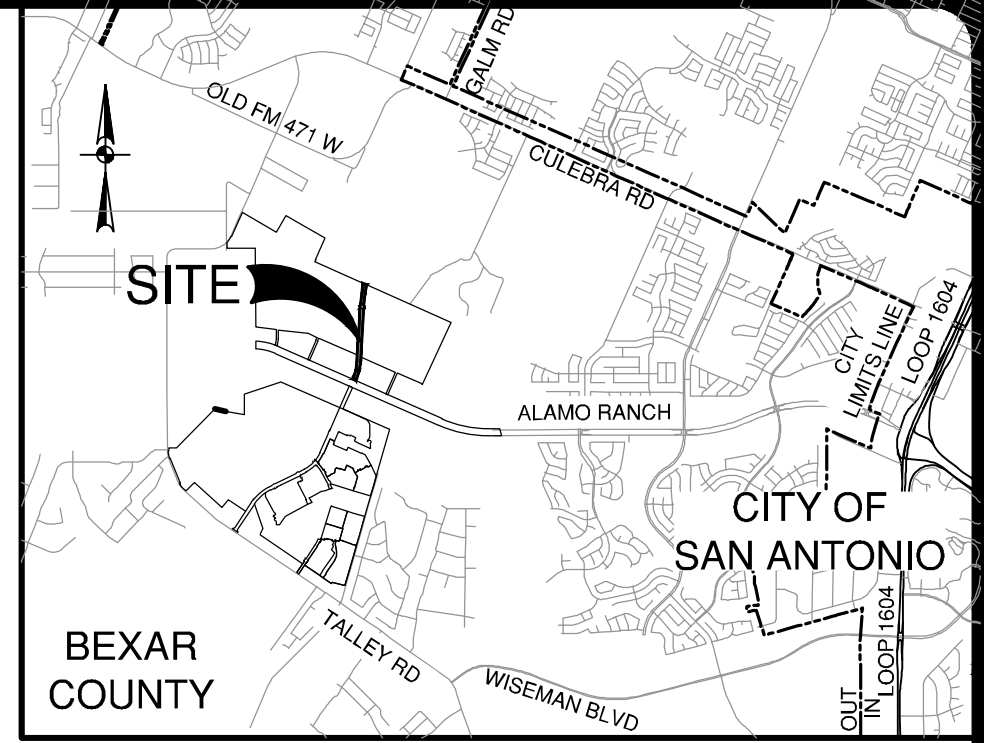
**DETAIL A - RIGHT TURN LANE GALM RD INTO ALAMO RANCH PARKWAY WESTBOUND**

SCALE: 1" = 20'



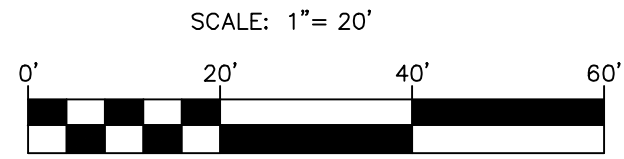
**DETAIL C - LEFT AND RIGHT TURN GALM RD INTO LAMPASAS LOOP**

SCALE: 1" = 20'



**LOCATION MAP**

NOT-TO-SCALE



DATE  
6/20/2023

NO. REVISION  
REMOVED DETAIL B



*2023*  
6/20/23

**PAPE-DAWSON  
ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TYPE FIRM REGISTRATION #470 | TBPUS FIRM REGISTRATION #10028890

**GALM ROAD PH IV**  
SAN ANTONIO, TEXAS  
TURN LANE PLAN

**BEXAR COUNTY ROW NOTES:**

A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.

**DRIVEWAY NOTE:**

DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH CURB RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT. DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME SELECTION AND FINAL LOT DESIGN.

**TRENCH EXCAVATION SAFETY PROTECTION:**

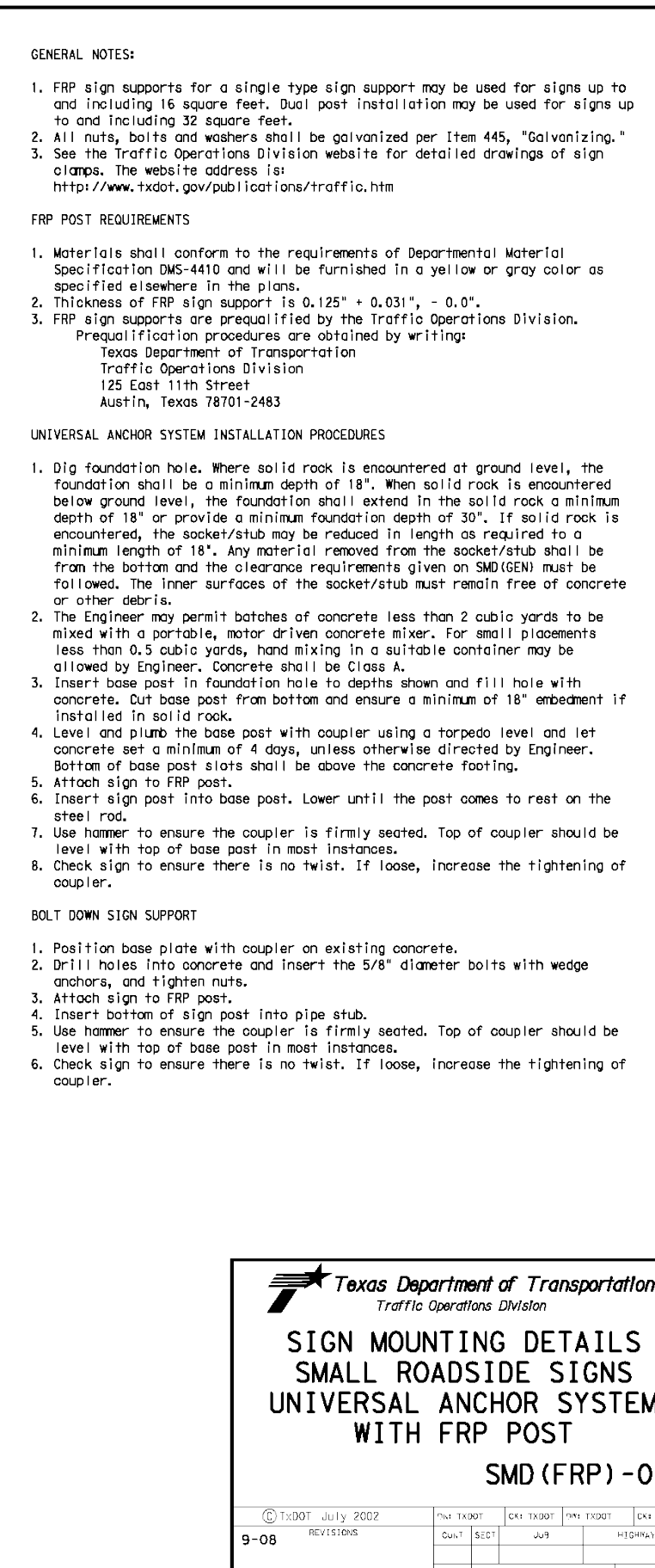
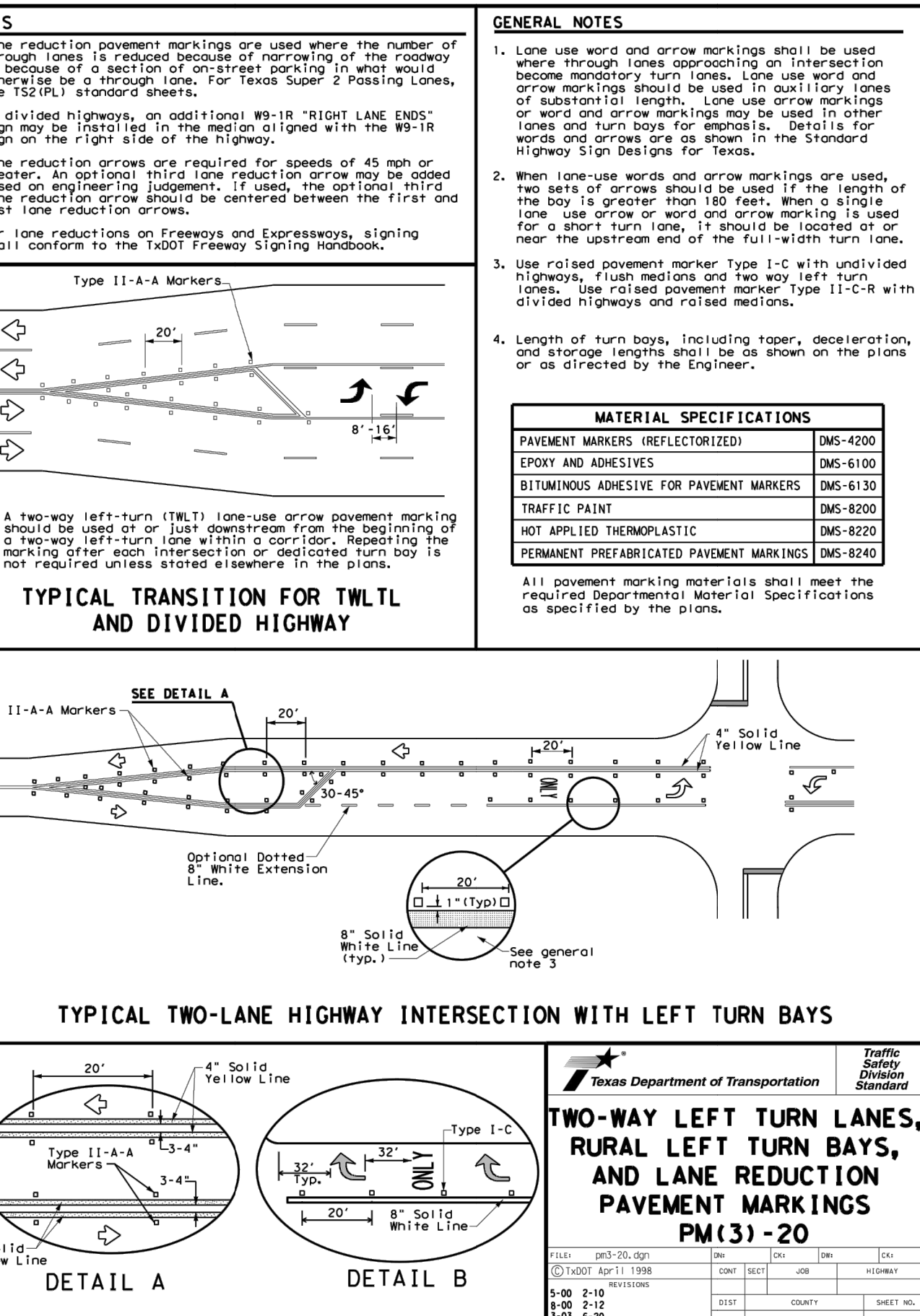
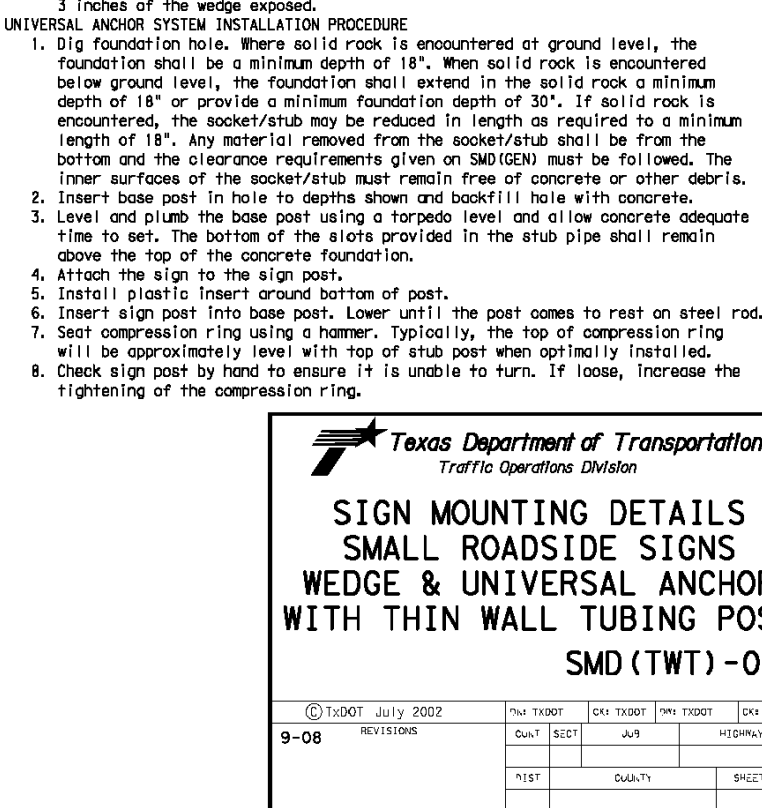
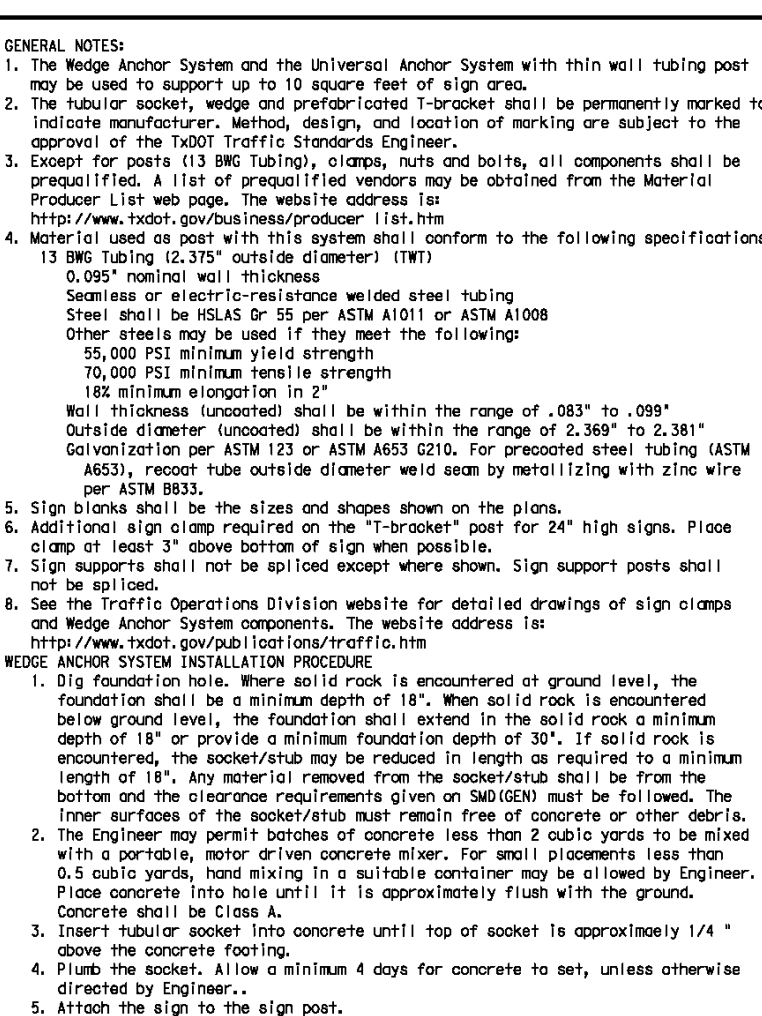
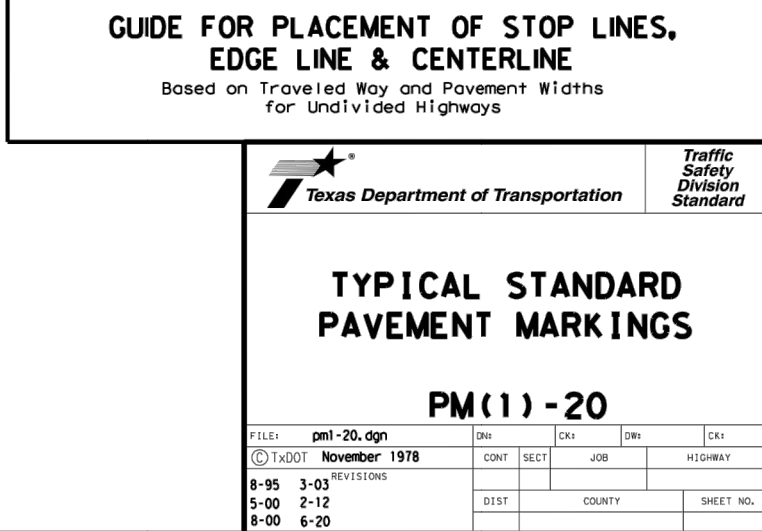
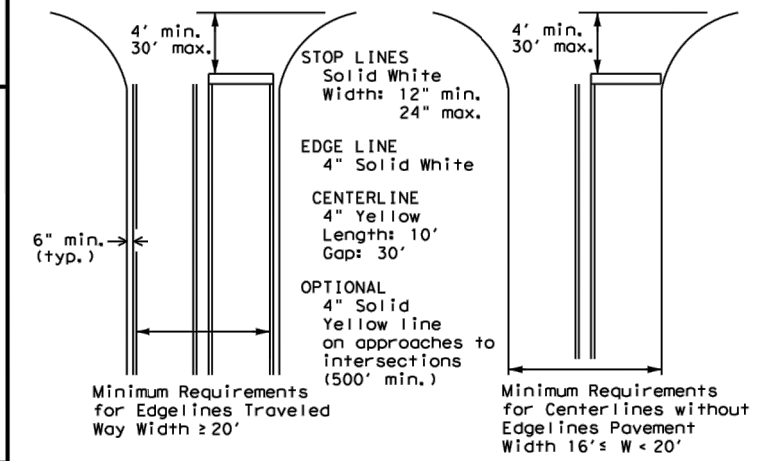
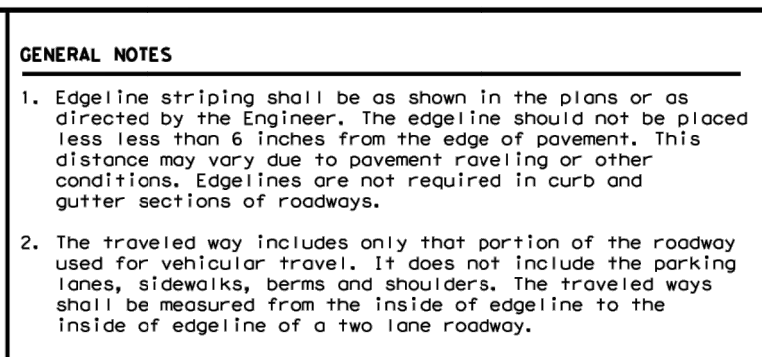
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S 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.

PLAT NO. 21-11800630  
JOB NO. 11680-48  
DATE NOVEMBER 2022  
DESIGNER KQ  
CHECKED BL DRAWN KQ  
SHEET C3.02

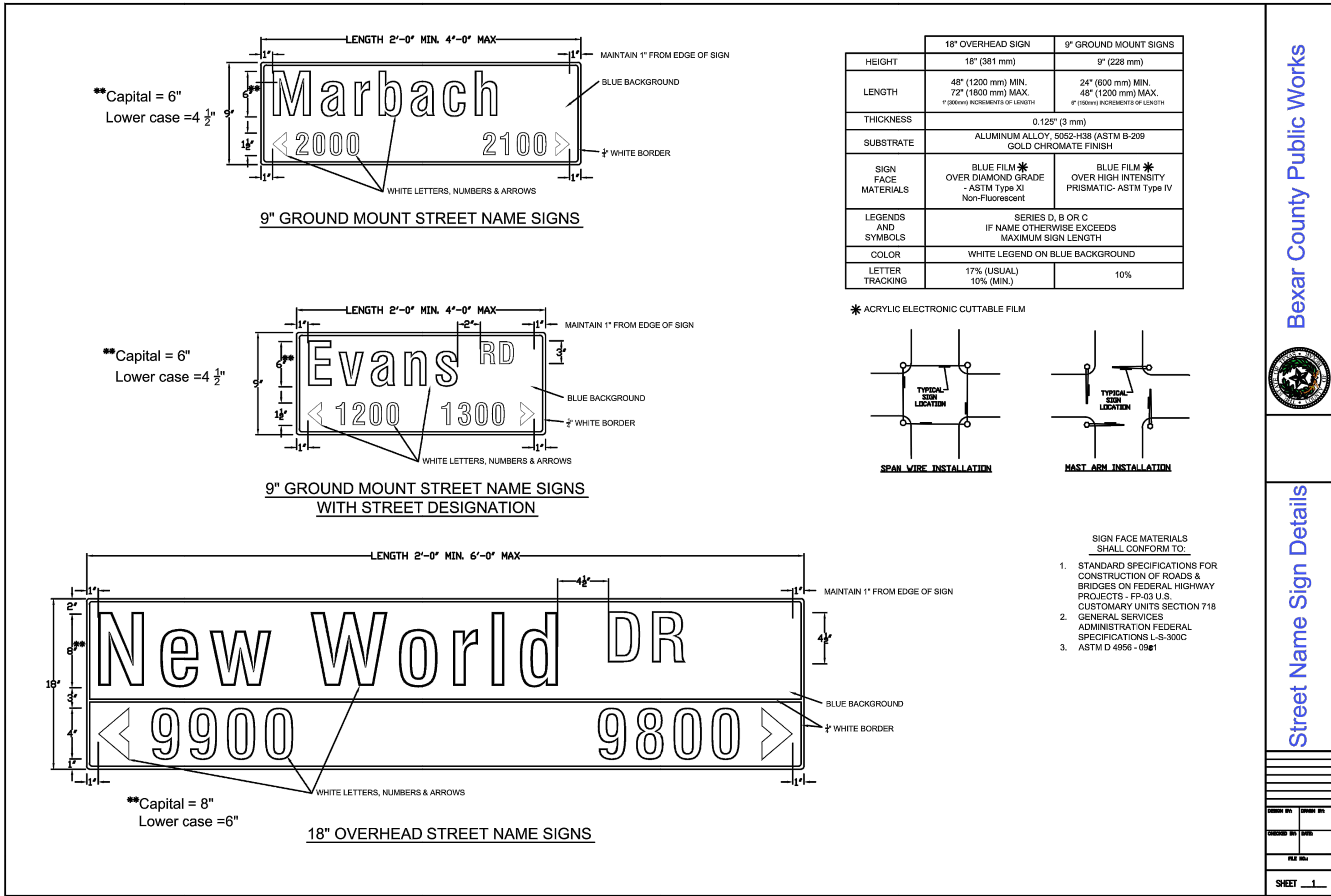
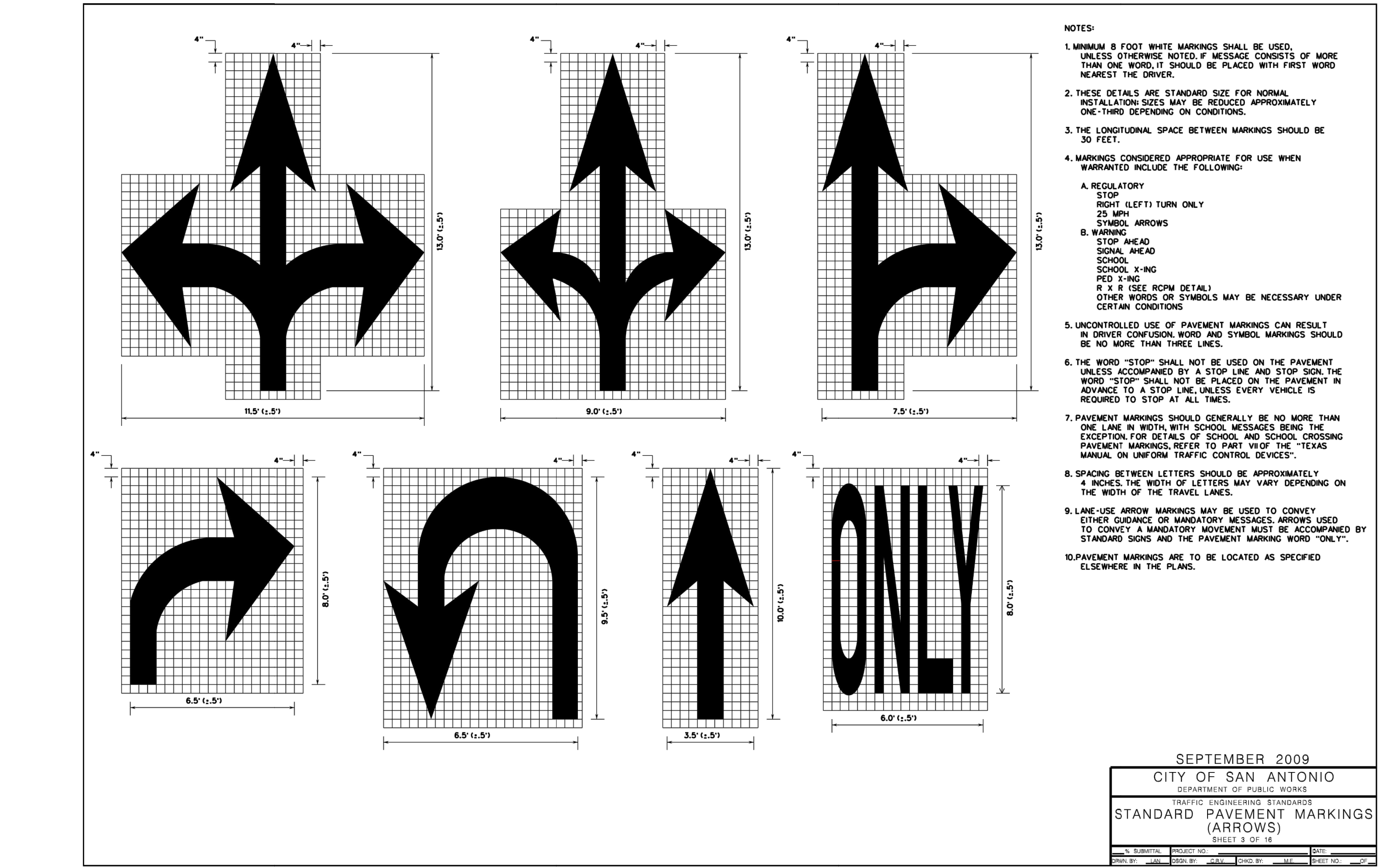
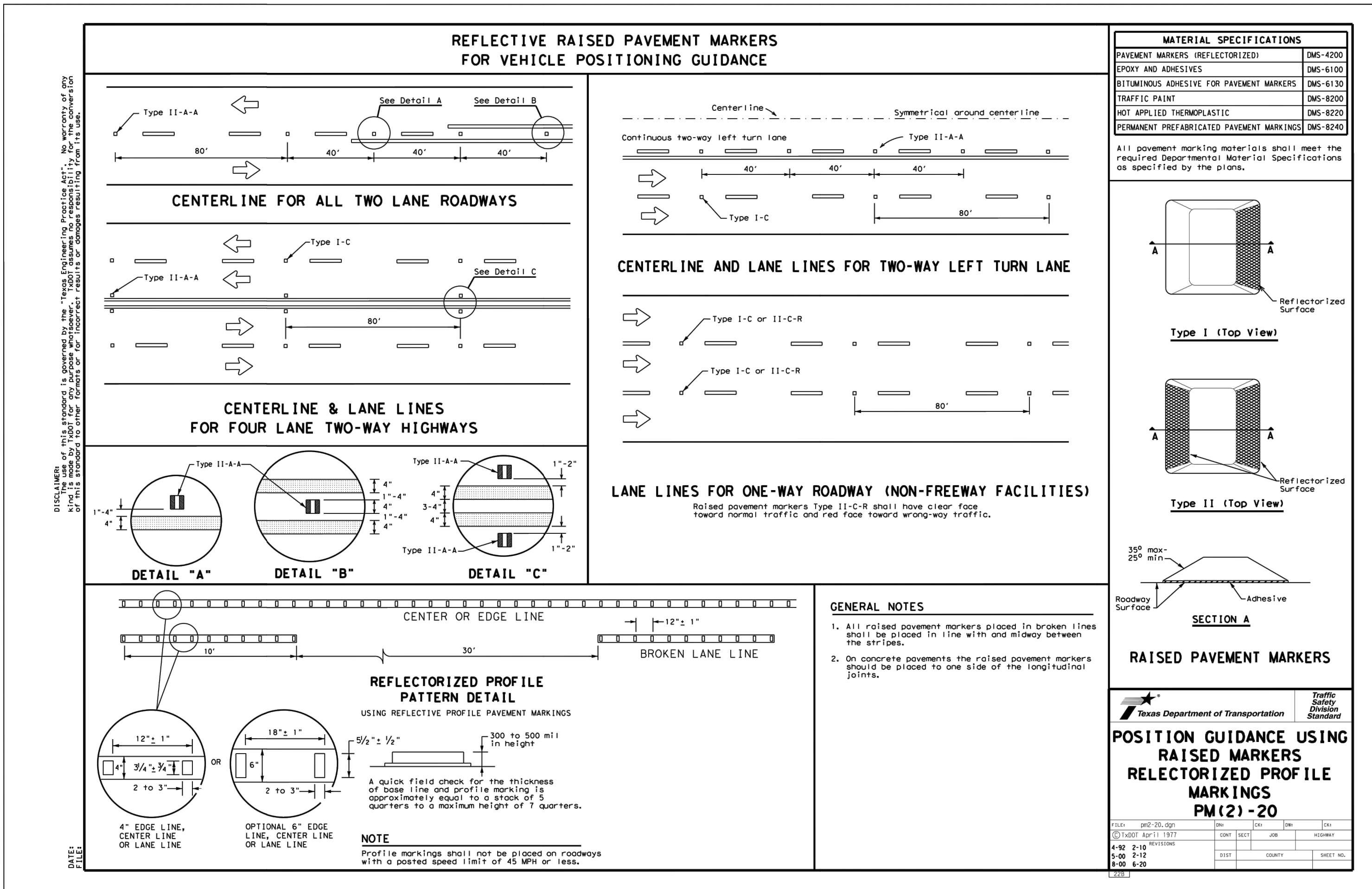




















- 2

- 

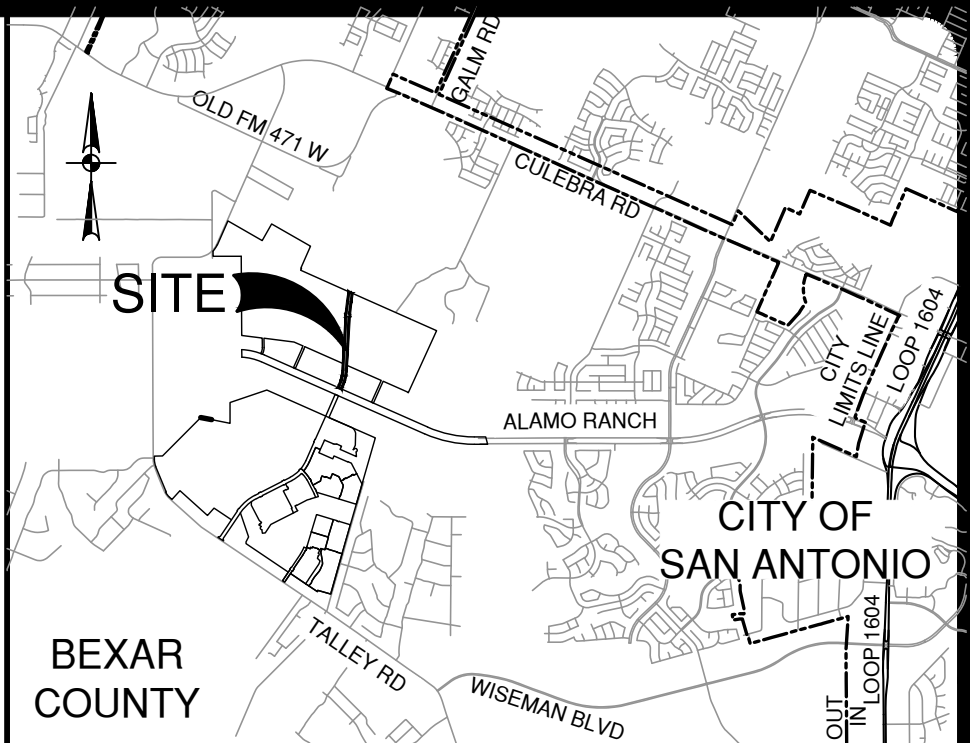
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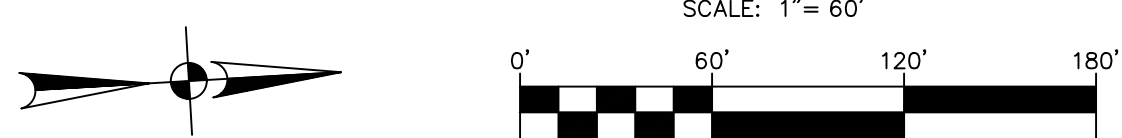
- ## WATER LEGEND

JOINT RESTRAINT



## LOCATION MAP

NOT-TO-SCALE



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 1750 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.

## ROW PERMIT NOTE:

A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY RIGHTS-OF-WAY.

PRESSURE REDUCING VALVE NOTE:

PRESSURE REDUCING VALVE TO BE INSTALLED ON CUSTOMER'S SIDE OF METER BY HOMEBUILDER.

PRESSURE NOTE:

CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW  
GROUND ELEVATION OF 985 FEET WHERE THE STATIC PRESSURE WILL  
NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND  
LEVEL IS BELOW 985 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL  
AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED  
PRESSURE REDUCING VALVE IN CONFORMANCE WITH THE LUMBURGE CODE  
OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ALLOWED FOR ANY  
LOT(S) IF \*PRV IS/ARE REQUIRED FOR SUCH LOT(S), ONLY SINGLE  
SERVICE CONNECTIONS SHALL BE ALLOWED.

\*NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE (PRV).

JOINT RESTRAINT NOTE:

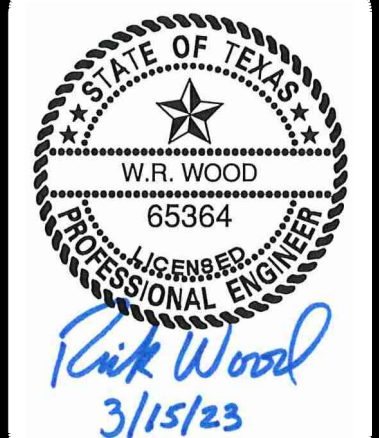
CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESSES OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOWN. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT OF PIPE WITH NO JOINTS ON EACH SIDE OF THE FITTING. JOINT RESTRAINTS AND RETAINER GLANDS SHALL BE CALCULATED BY SAWS APPROVED PROGRAM. THERE WILL BE NO SEPARATE PAY ITEM FOR JOINT RESTRAINTS AND OTHER JOINT RESTRAINING HARNESSES AND GASKETS, BUT SHALL BE SUBSIDIARY TO THE UNIT COST PER LINEAL FOOT OF PIPE INSTALLED.

**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 AREA AND SHALL ADVISE THE CONTRACTOR OF ANY 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 FRENCH EXCAVATION SAFETY PROMPT WITH ALL MINIMUM REQUIREMENTS AND STANDARDS FOR FRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROJECT AND THE ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

## WATER (SAWS PRESSURE ZONE 8)

DEVELOPER'S NAME: CONTINENTAL HOMES OF TEXAS, L.P.  
ADDRESS: 5419 N LOOP 1604 E  
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78247  
PHONE# (210) 496-2658 FAX# \_\_\_\_\_  
SAWS BLOCK MAP# 082616 TOTAL EDU'S 12 TOTAL ACREAGE 10.086  
TOTAL LINEAR FOOTAGE OF PIPE 12'-206 LF 8" 34 LF  
NUMBER OF LOTS N/A SAWS JOB NO. 21-11800630

[illegible]

**PAPE-DAWSON  
ENGINEERS**

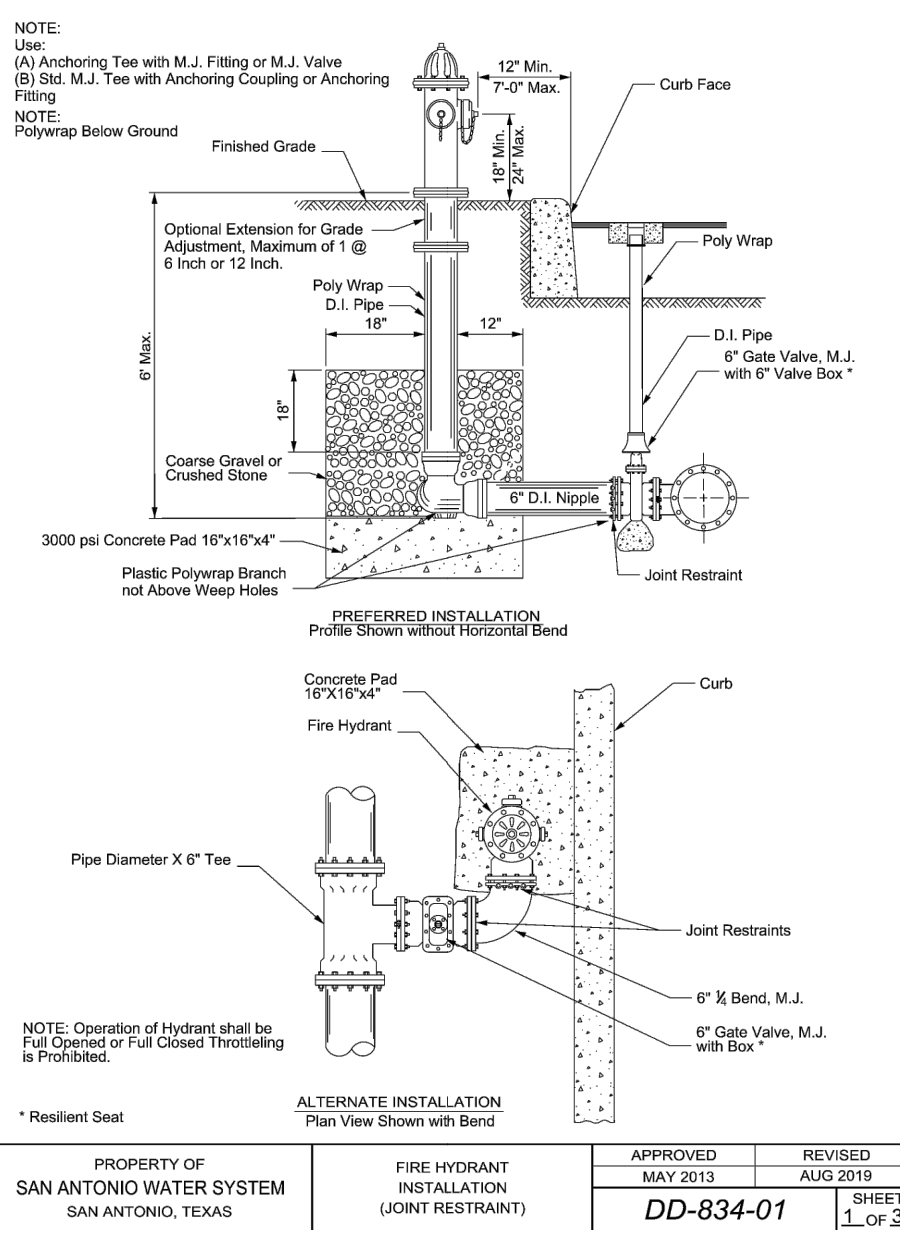
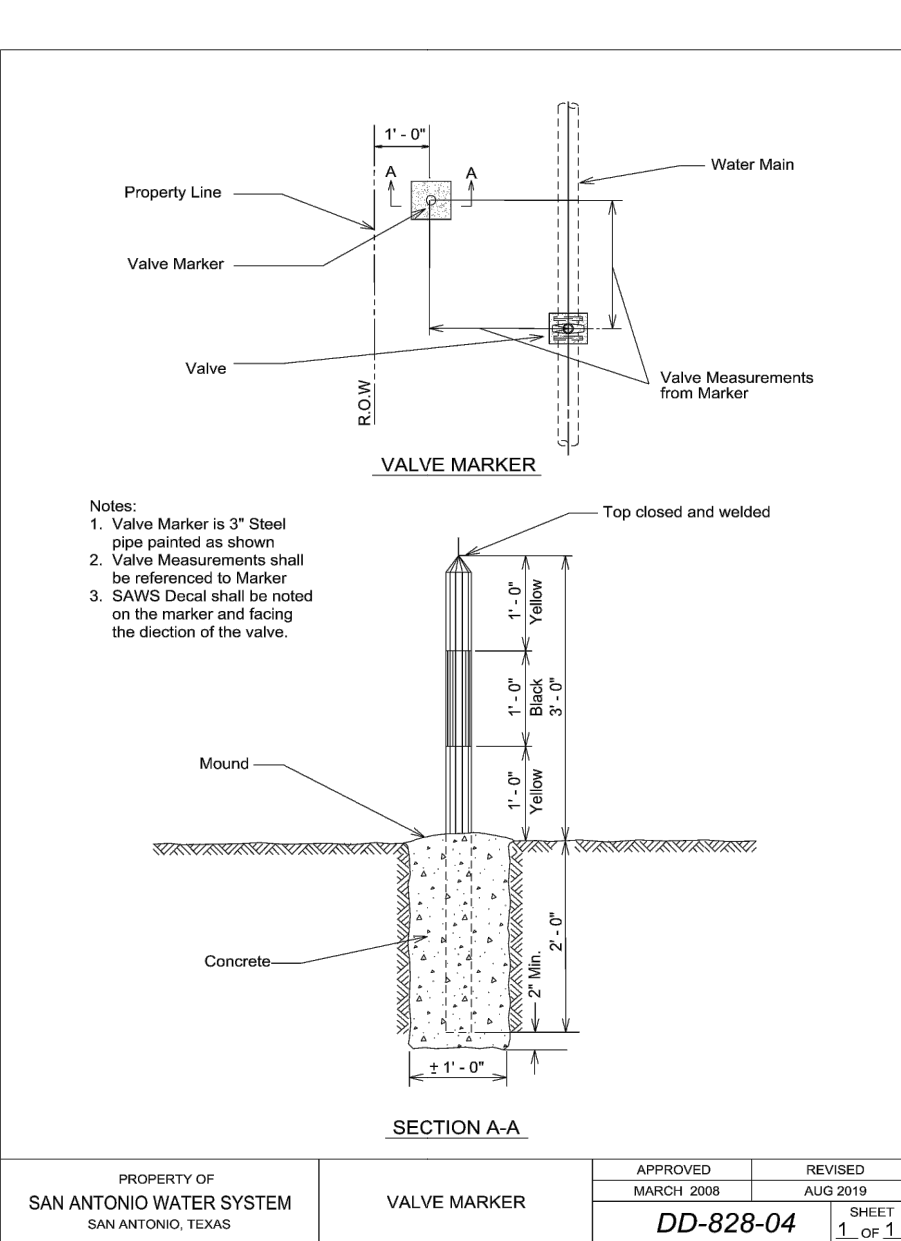
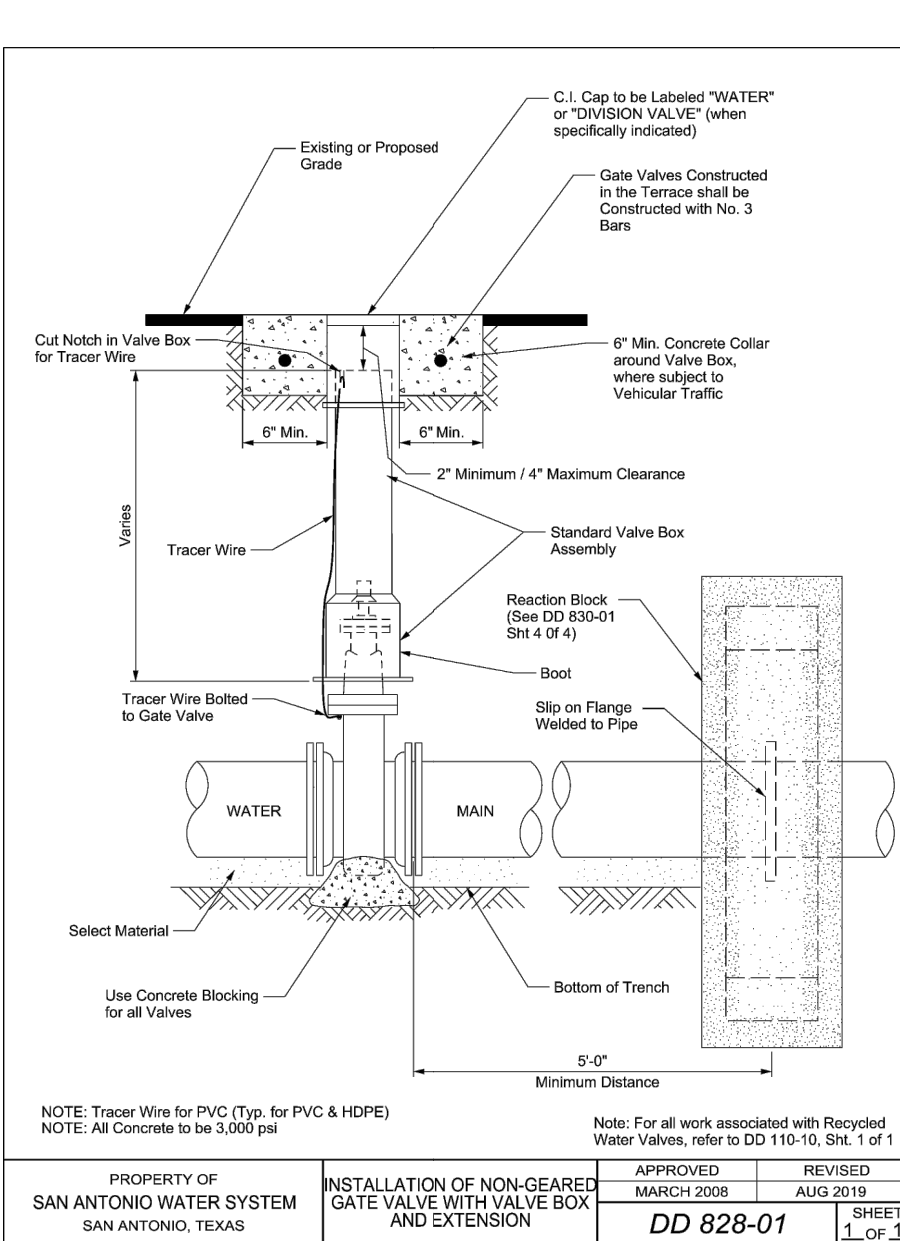
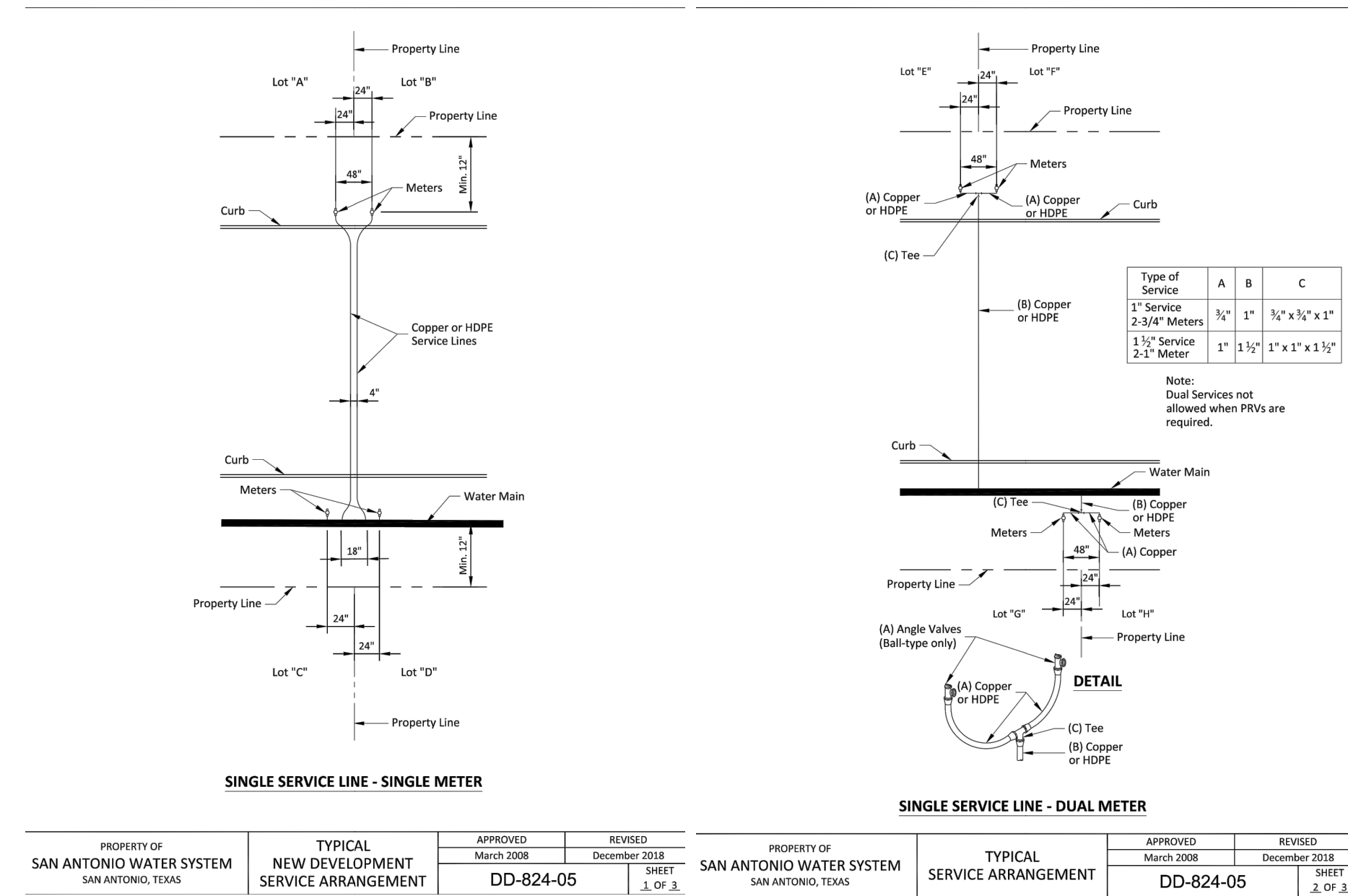
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

**GALM ROAD PH IV**  
**SAN ANTONIO, TEXAS**

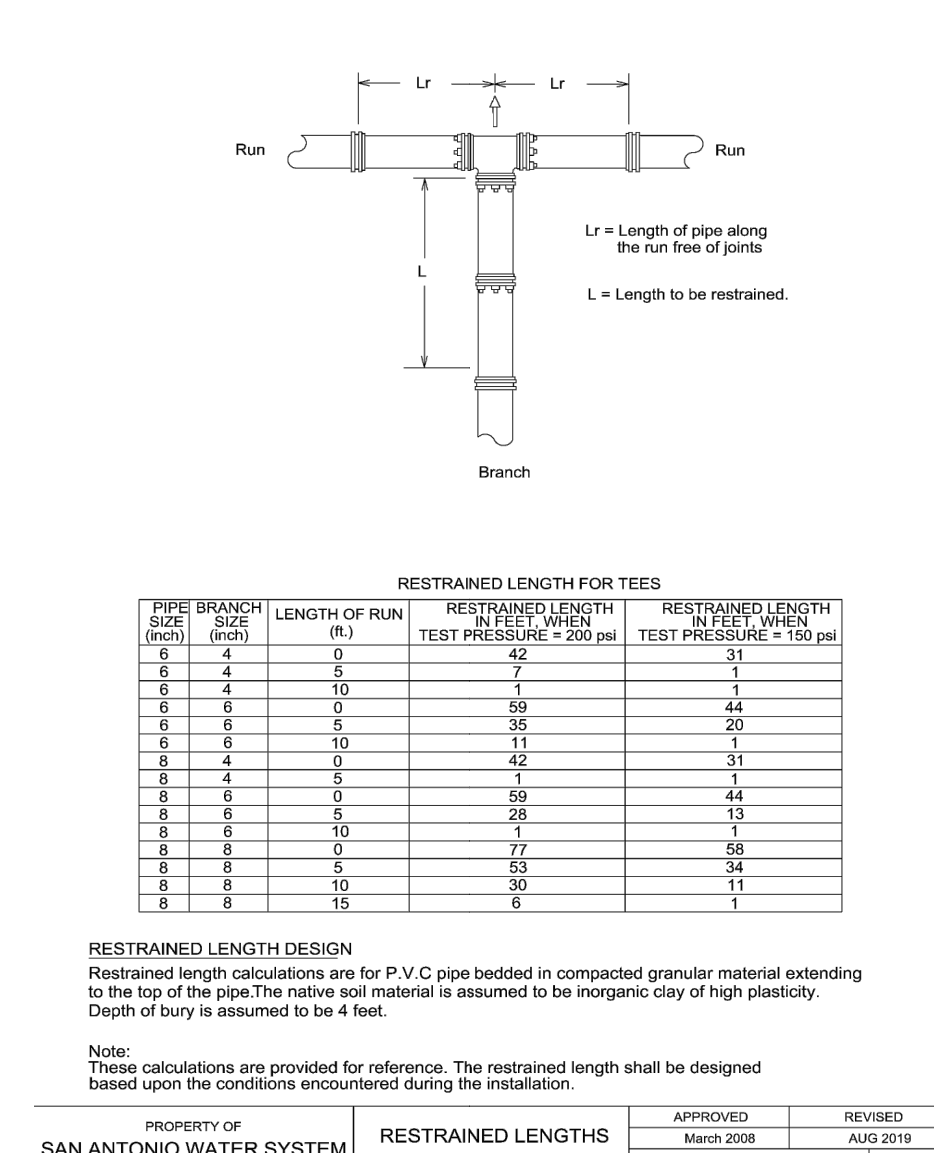
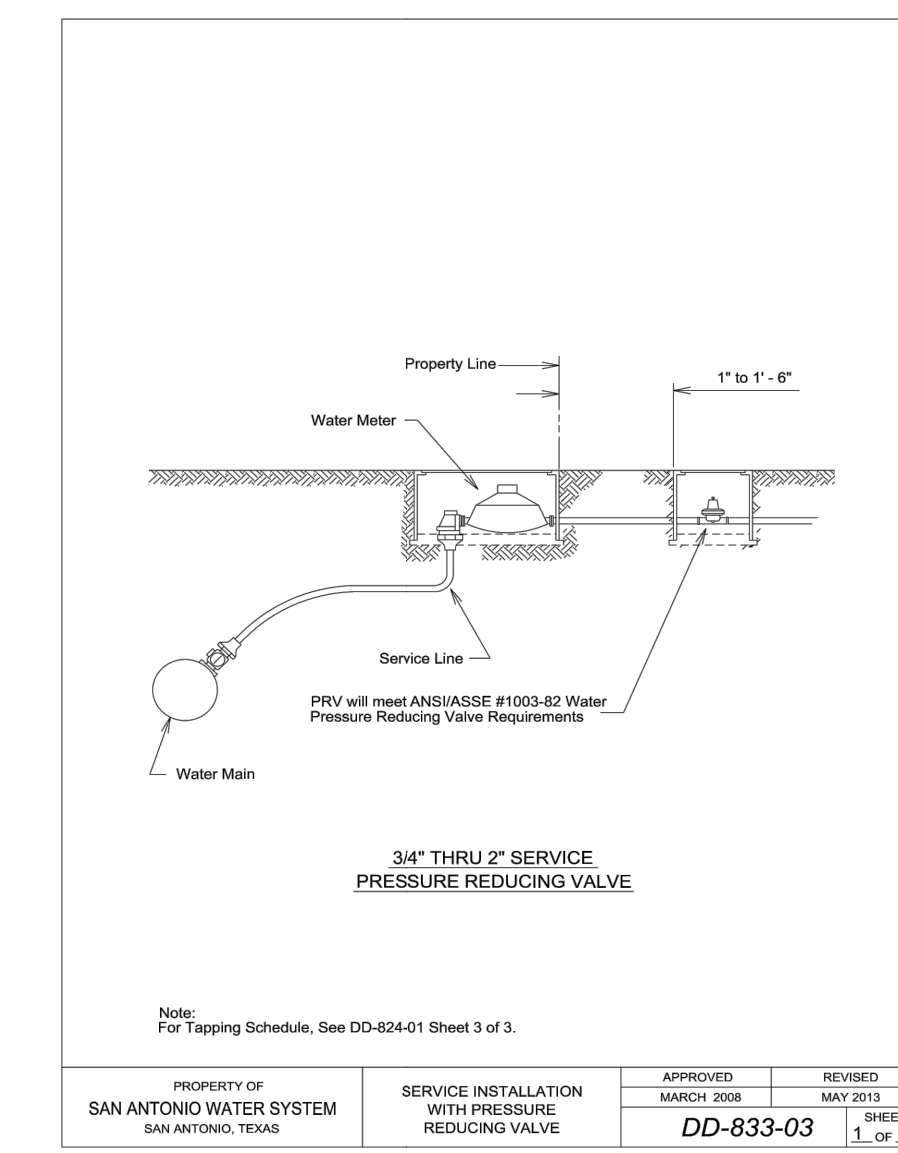
## OVERALL WATER DISTRIBUTION PLAN

PLAT NO. 21-11800630  
 JOB NO. 11680-48  
 DATE NOVEMBER 2022  
 DESIGNER KQ  
 CHECKED BL DRAWN KQ  
 SHEET C4.01





16" PVC	
DEAD ENDS/GATE VALVES	142'
11.25 VERT BENDS	14'/3"
1/32 BENDS	5'
1/16 BENDS	11'
1/8 BENDS	21'
TEE (16X12)	110'
TEE (16X8)	78'
TEE (16X6)	59'

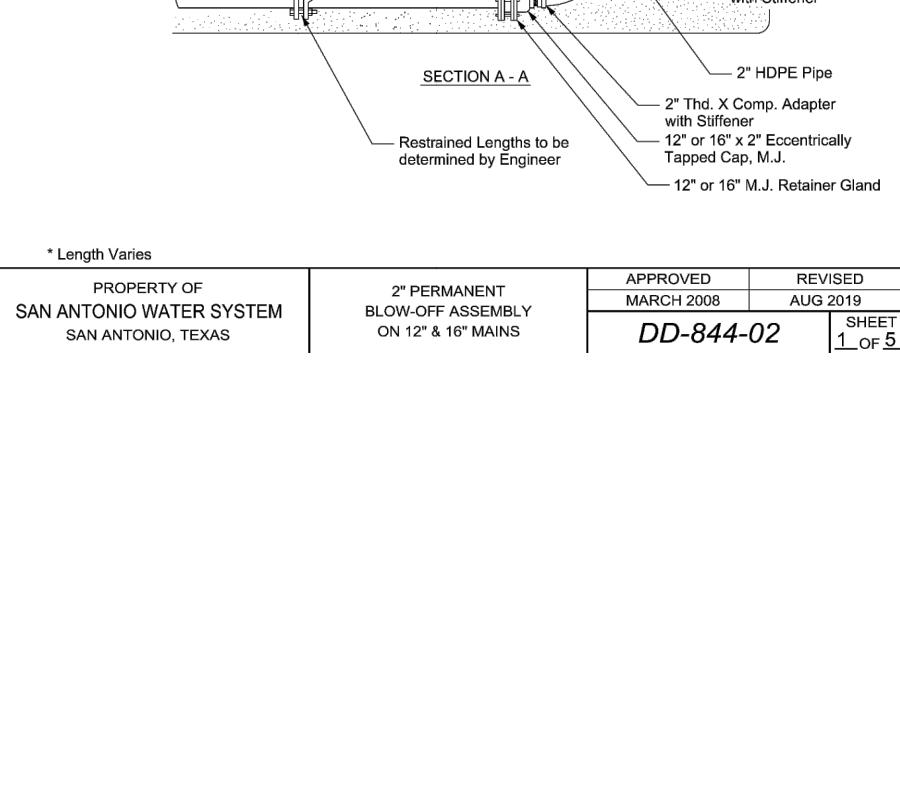
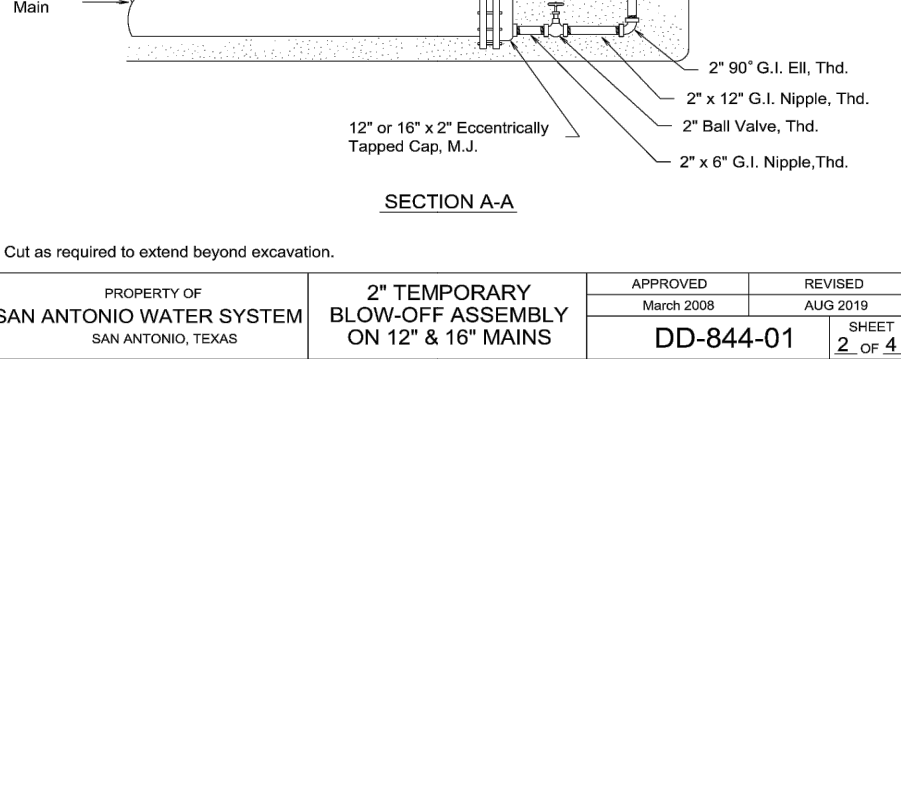
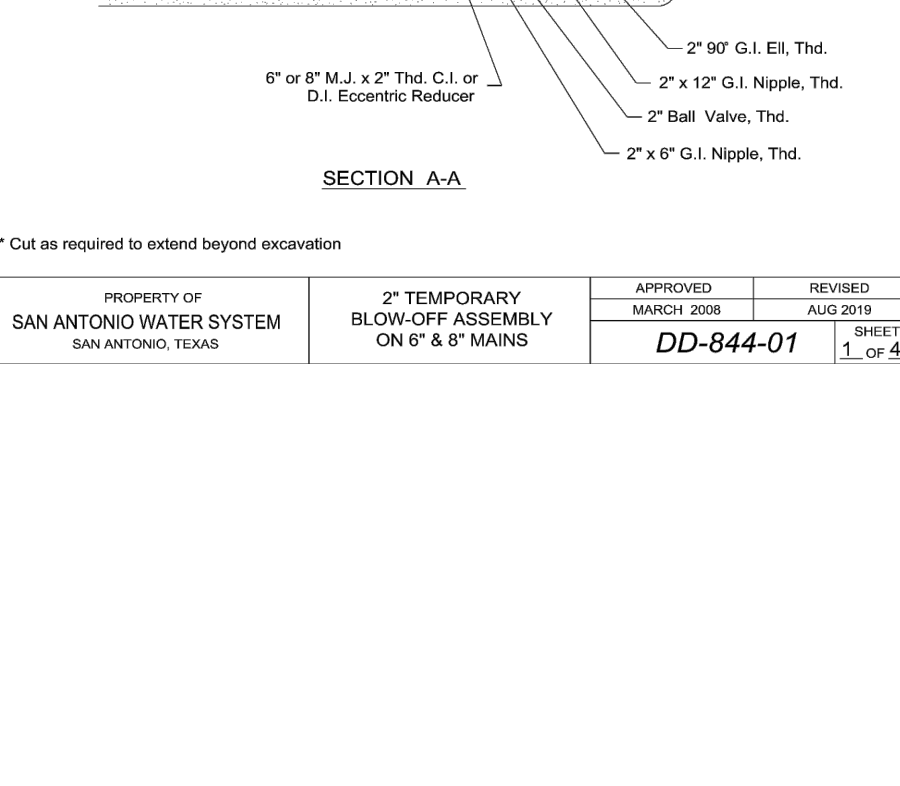
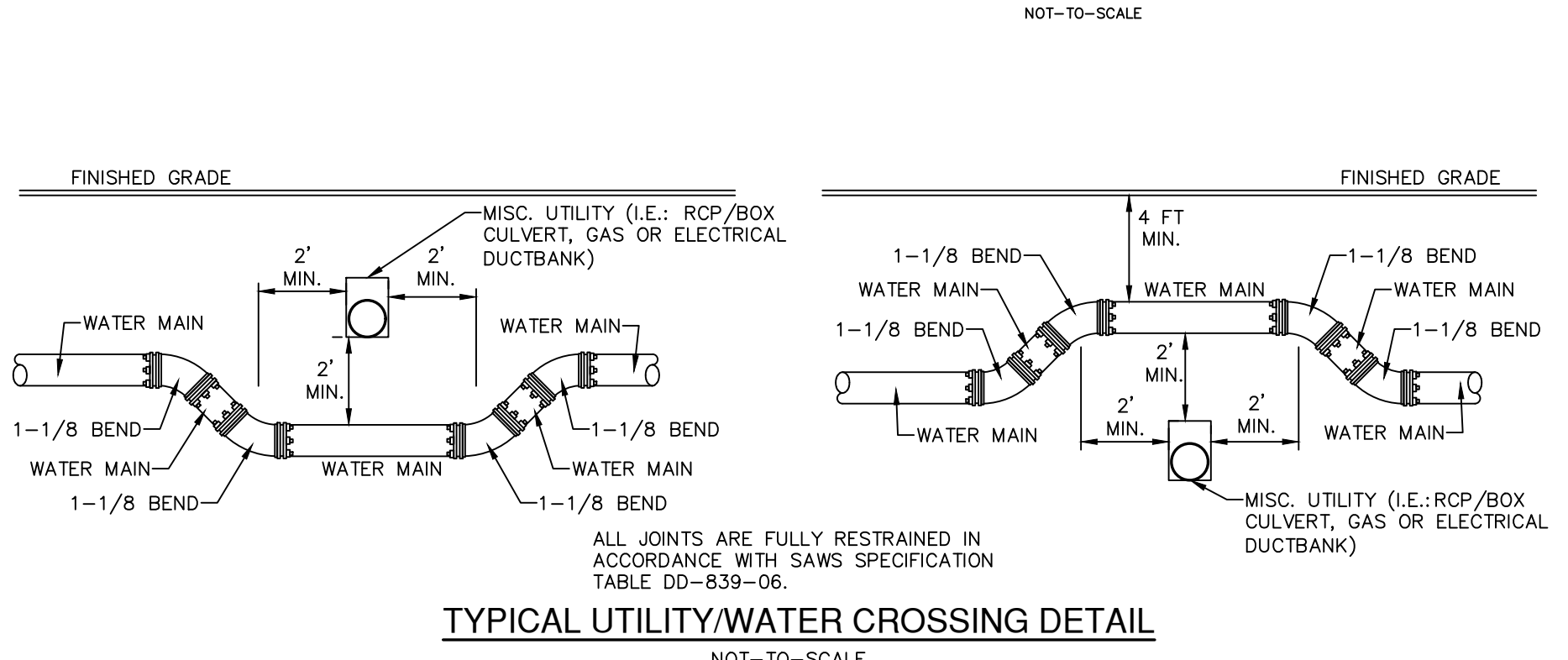
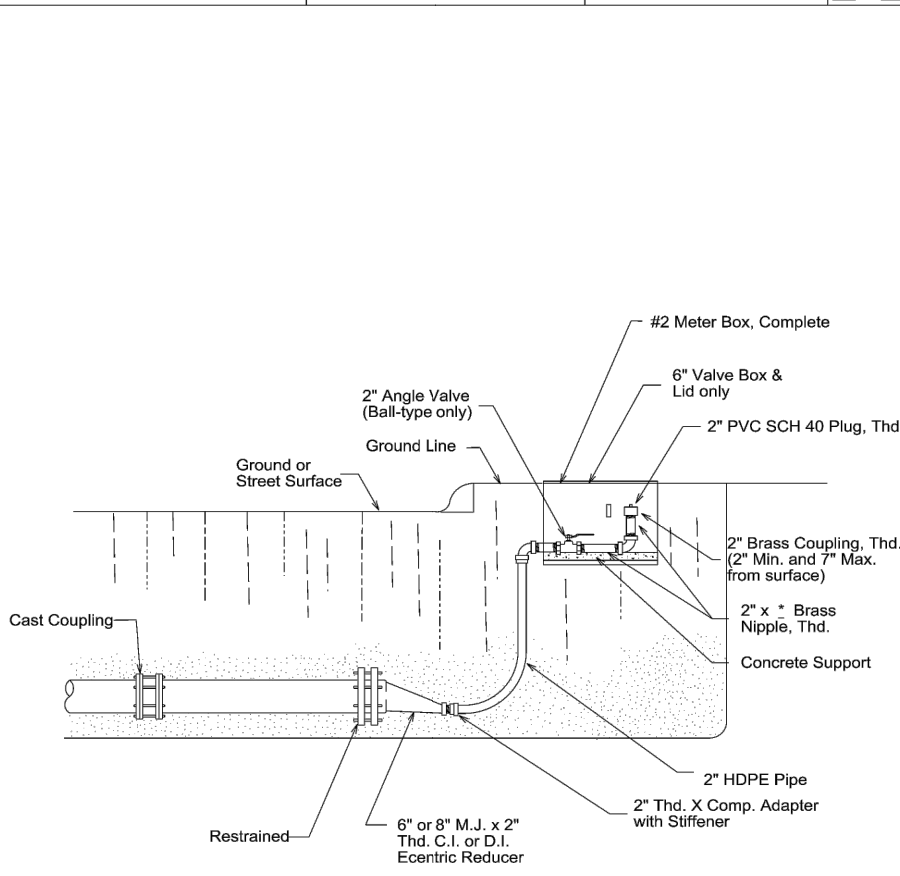
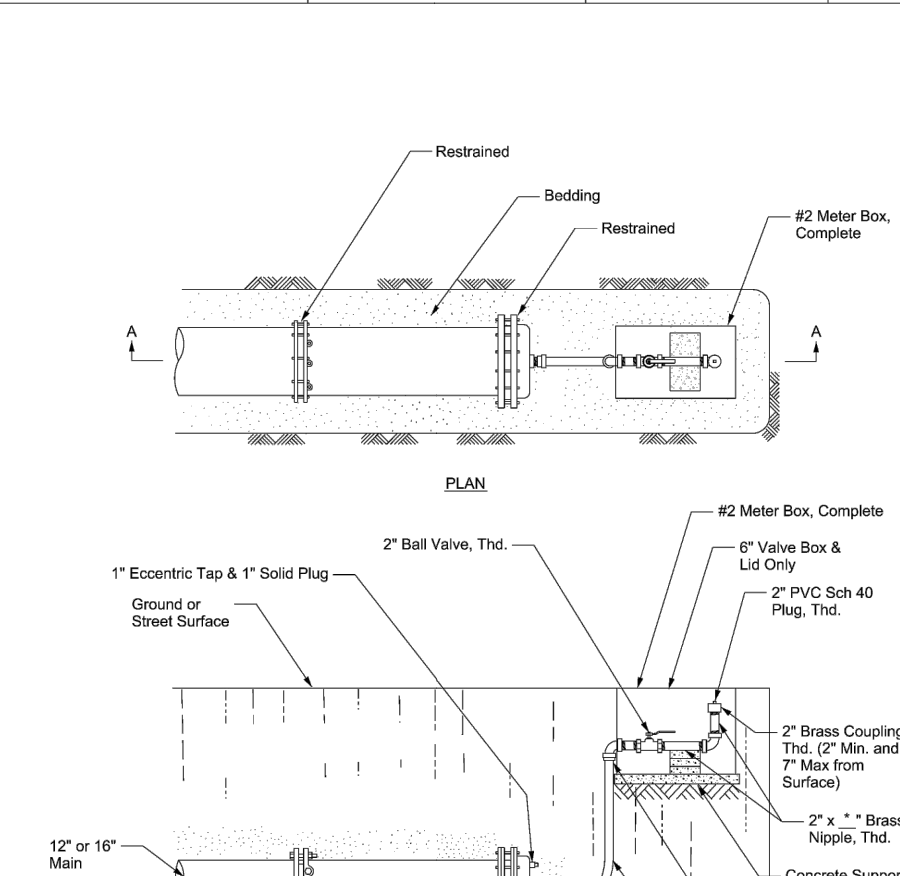
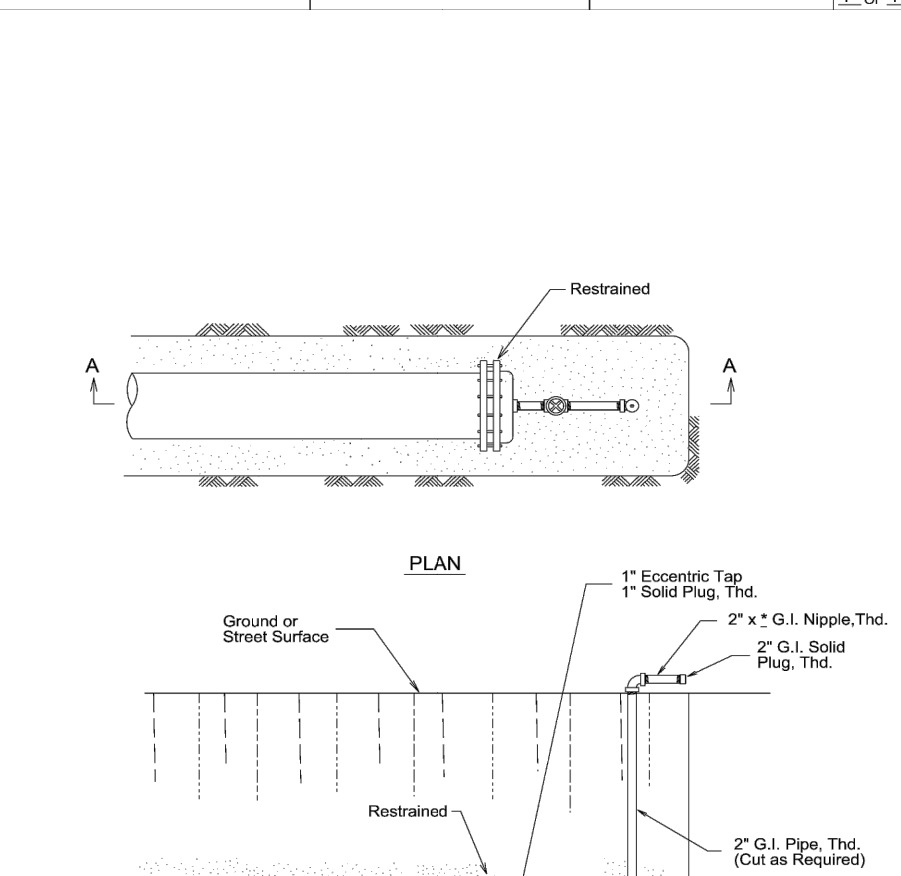
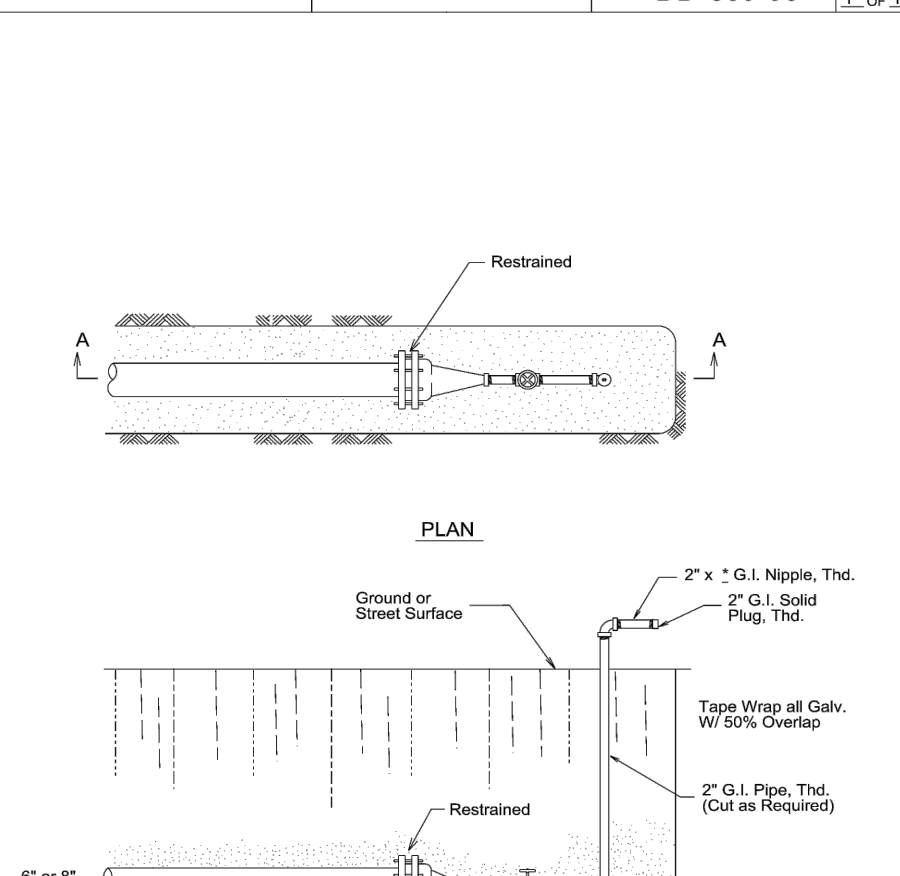
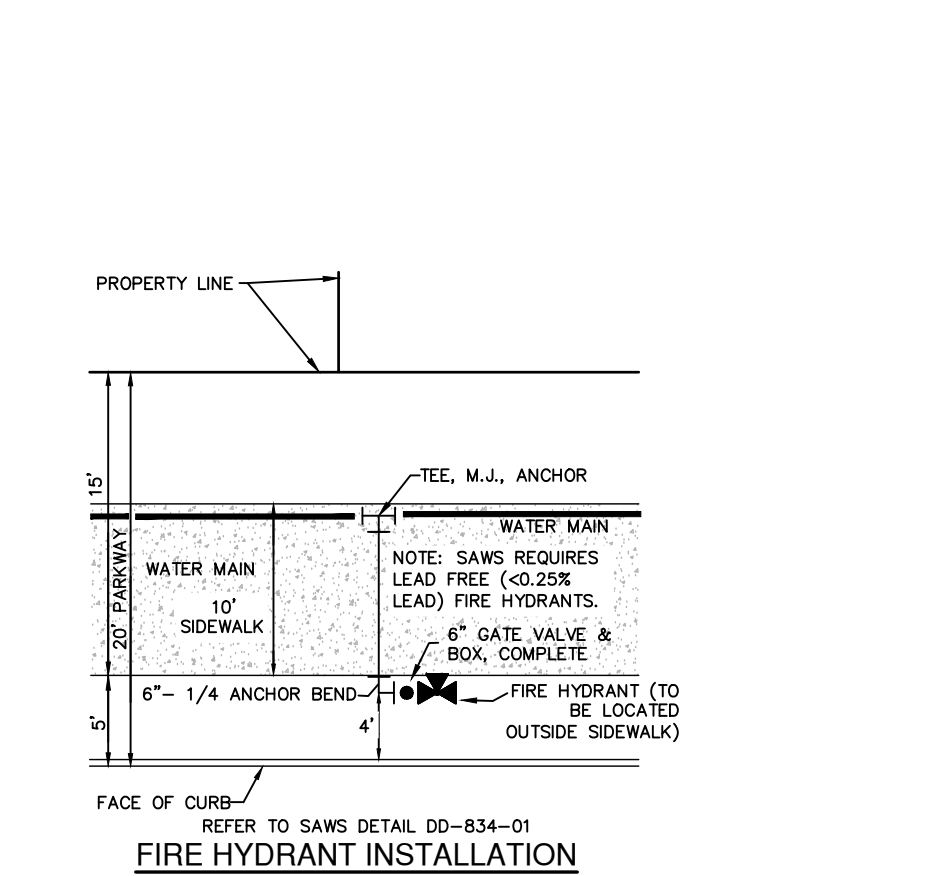
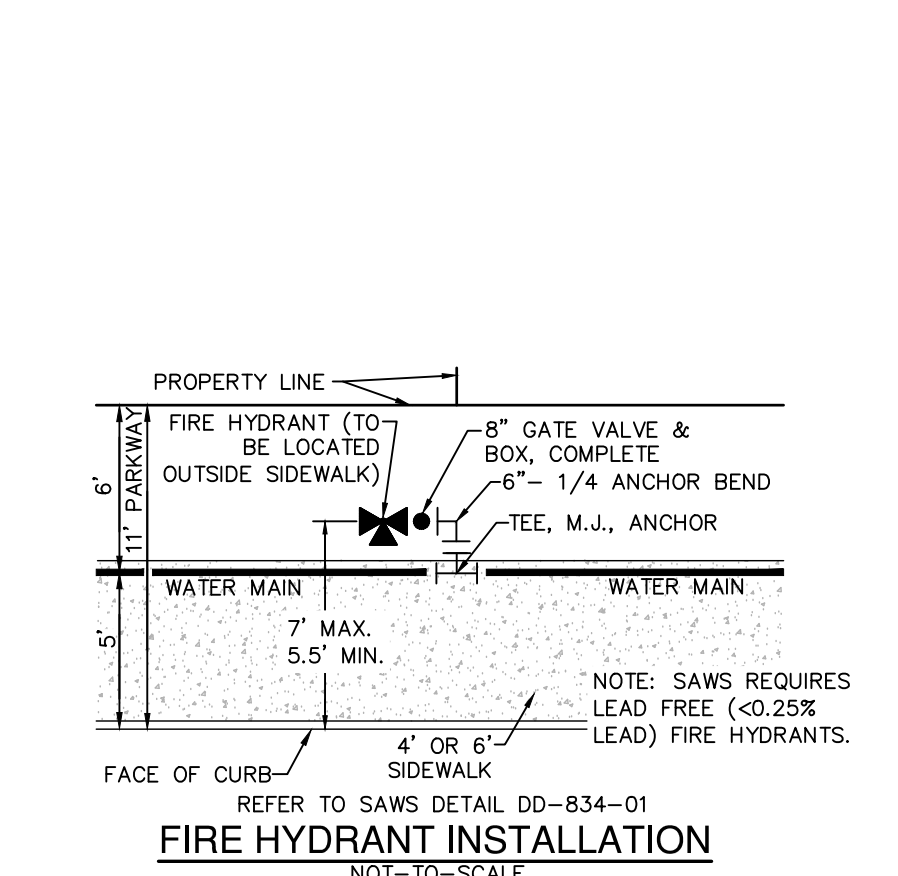


PIPE SIZE (in)	RESTRAINED LENGTH (ft) TEST PRESSURE = 200 psi	RESTRAINED LENGTH (ft) TEST PRESSURE = 150 psi
6	50	44
8	53	47
10	59	52
12	109	92

PIPE SIZE (in)	BEND ANGLE (deg)	LOW SIDE DEPTH (ft)	UPPER BEND RESTRAINED LENGTH IN FEET TEST PRESSURE = 200 psi	UPPER BEND RESTRAINED LENGTH IN FEET TEST PRESSURE = 150 psi	LOWER BEND RESTRAINED LENGTH IN FEET TEST PRESSURE = 200 psi	LOWER BEND RESTRAINED LENGTH IN FEET TEST PRESSURE = 150 psi
6	45	5	24	8	18	6
8	22.5	5	12	4	9	3
8	11.25	5	6	2	4	1
8	45	10	12	2	18	4
8	22.5	10	6	1	9	2
8	11.25	10	3	0.5	4	1
8	45	5	32	11	24	8
8	22.5	5	16	5	12	4
8	11.25	5	8	3	6	2
8	45	10	32	7	24	8
8	22.5	10	16	3	12	4
8	11.25	10	8	1.5	6	2
12	45	5	45	16	34	12
12	22.5	5	22	8	16	6
12	11.25	5	11	4	8	3
12	45	10	45	10	34	12
12	22.5	10	22	5	16	6
12	11.25	10	11	2	8	3

PIPE SIZE (in)	SMALL SIZE (in)	RESTRAINED LENGTH (ft) TEST PRESSURE = 200 psi	RESTRAINED LENGTH (ft) TEST PRESSURE = 150 psi
6	4	30	23
8	4	35	27
8	6	32	24
12	8	80	71
12	6	60	53
12	8	58	43

PIPE SIZE (in)	RESTRAINED LENGTH (ft) TEST PRESSURE = 200 psi	RESTRAINED LENGTH (ft) TEST PRESSURE = 150 psi
6	50	44
8	53	47
8	45	39
8	22.5	19
8	11.25	9
8	45	32
8	22.5	16
8	11.25	8
12	109	92
12	45	39
12	22.5	19
12	11.25	9



**WATER (SAWS PRESSURE ZONE 8)**

DEVELOPER'S NAME: CONTINENTAL HOMES OF TEXAS, L.P.

ADDRESS: 5419 N LOOP 1604 E

CITY: SAN ANTONIO STATE: TEXAS ZIP: 78247

PHONE# (210) 496-2668 FAX#

SAWS BLOCK MAP# 082616 TOTAL EDU'S 12 TOTAL ACREAGE 10.086

12-206 LF 8-34 LF

TOTAL LINEAR FOOTAGE OF PIPE: 16-3066 LF PLAT NO. 21-11800630

NUMBER OF LOTS N/A SAWS JOB NO. 21-1262

DATE

NO.

REVISION

STATE OF TEXAS

CALEB M. CHANCE

PROFESSIONAL ENGINEER

98401

1/1/23

PAPE-DAWSON

ENGINEERS

SAN ANTONIO • AUSTIN • HOUSTON • FORT WORTH • DALLAS

2000 HW LOOP 410 | SAN ANTONIO, TX 78213 • 210.375.9000

TEPE FIRM REGISTRATION #4270 | TBPUS FIRM REGISTRATION #10028800

GALM ROAD PH IV

SAN ANTONIO, TEXAS

WATER DISTRIBUTION PLAN DETAILS

PLAT NO.

21-11800630

JOB NO.

11680-48

DATE

NOVEMBER 2022

DESIGNER

KQ

CHECKED

BL

DRAWN

KQ

SHEET

C4.10





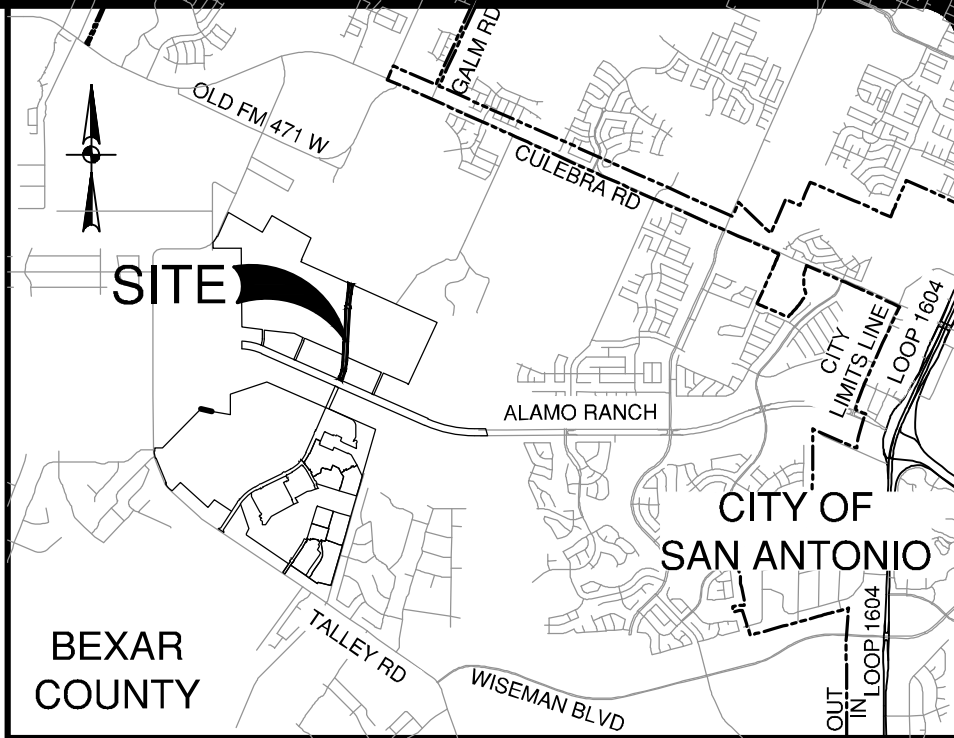
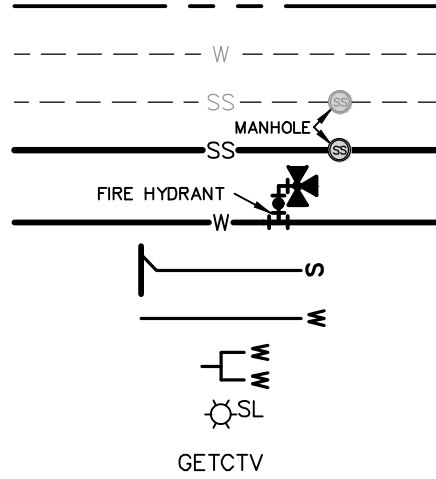


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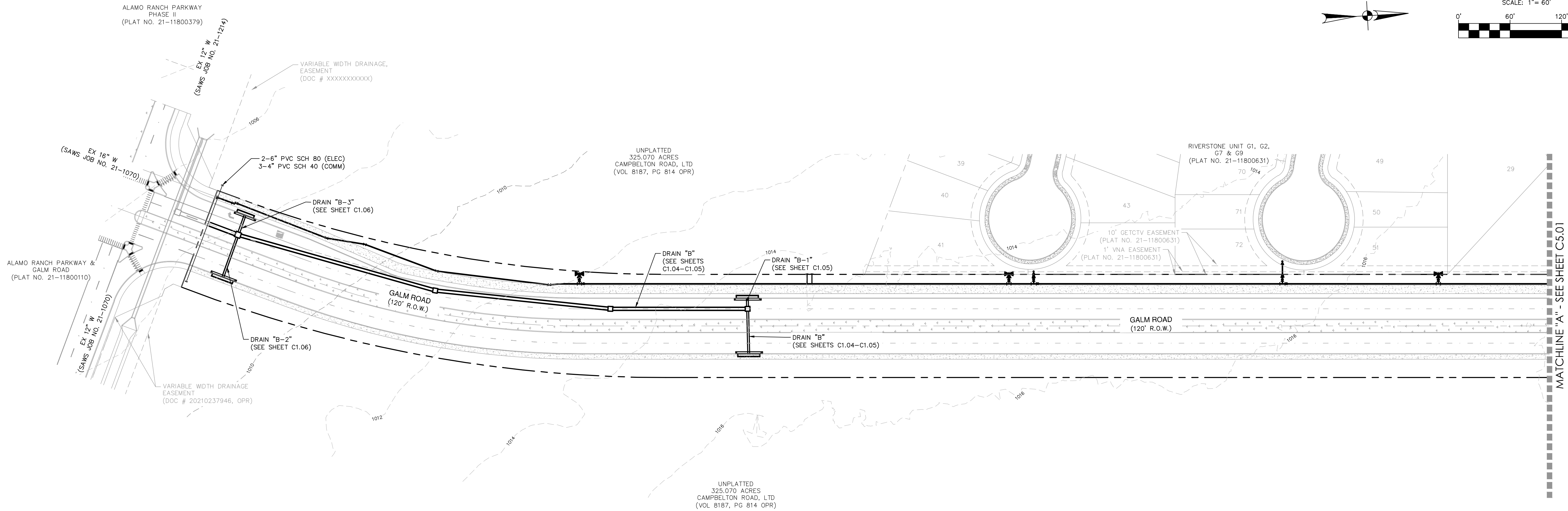
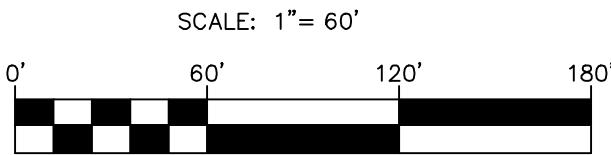
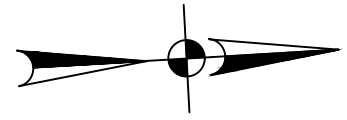
## UTILITY LEGEND

PROJECT LIMITS  
EXISTING WATER  
EXISTING SEWER  
PROPOSED SEWER  
  
PROPOSED WATER  
PROPOSED WYE & LATERAL  
SINGLE WATER SERVICE  
DUAL WATER SERVICE  
STREET LIGHTS  
GAS, ELECTRIC, TELEPHONE &  
CABLE TELEVISION EASEMENT



## LOCATION MAP

NOT-TO-SCALE



## CONDUIT NOTES:

- CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
- CONDUITS SHALL BE PVC WITH MINIMUM BURY OF 36 INCHES. SCHEDULE 80 TO BE USED FOR CPS CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.
- ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
- CONTRACTOR SHALL FOLLOW CPS SPECIFICATIONS FOR CONDUIT INSTALLATION AND SHALL COORDINATE WITH CPS FOR CONDUIT INSPECTIONS.

## 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.

## CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING 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.

**PAPE-DAWSON**  
**ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TYPE FIRM REGISTRATION #470 | TBPUS FIRM REGISTRATION #10028890

**GALM ROAD PH IV**  
**SAN ANTONIO, TEXAS**

**OVERALL UTILITY PLAN**

PLAT NO. 21-11800630  
JOB NO. 11680-48  
DATE NOVEMBER 2022  
DESIGNER KO  
CHECKED BL DRAWN KO  
SHEET C5.00

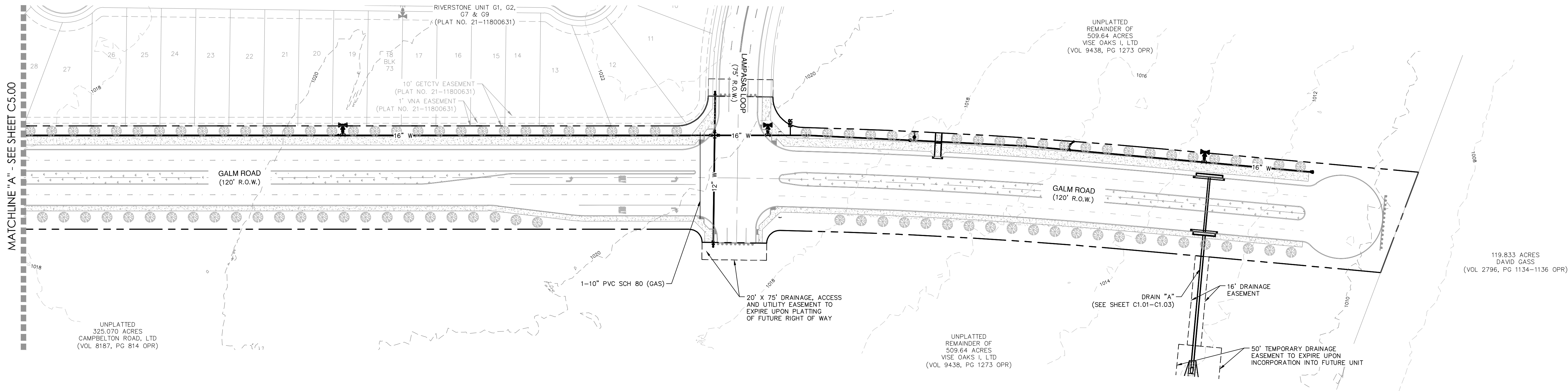
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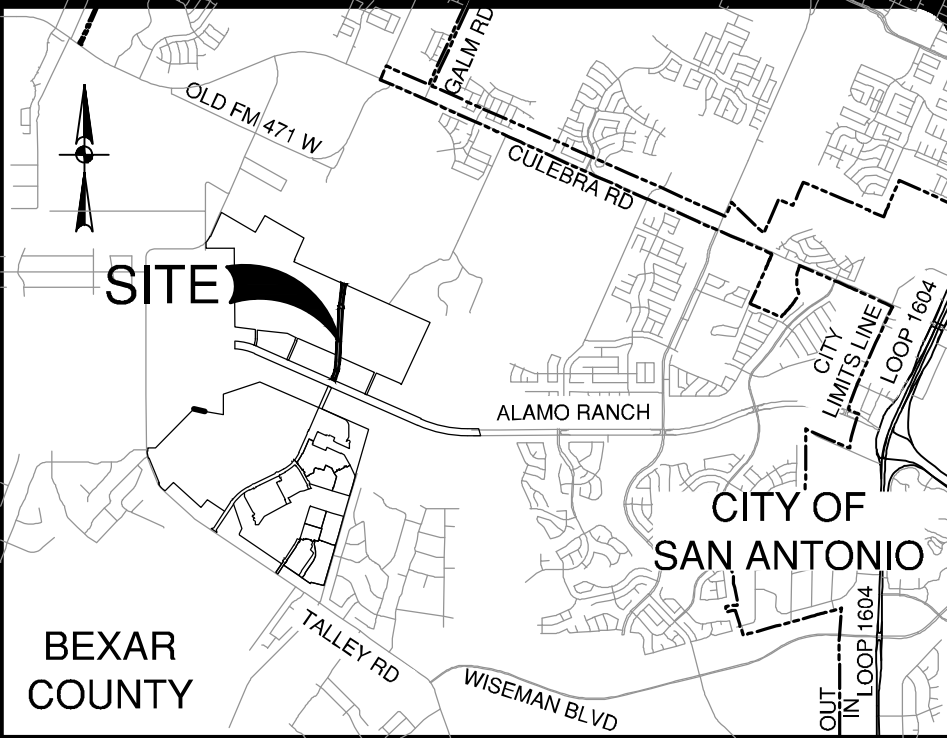
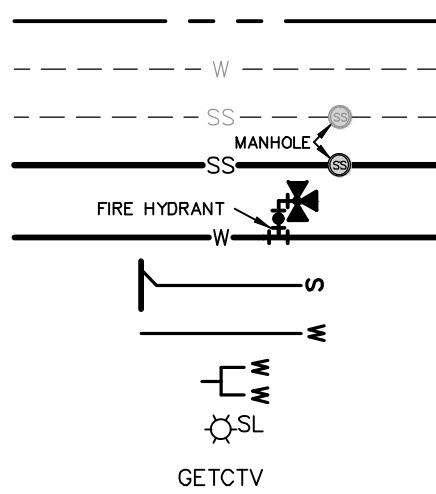
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#### UTILITY LEGEND

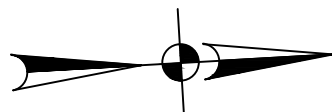
PROJECT LIMITS  
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EXISTING SEWER  
PROPOSED SEWER  
  
PROPOSED WATER  
PROPOSED WYE & LATERAL  
SINGLE WATER SERVICE  
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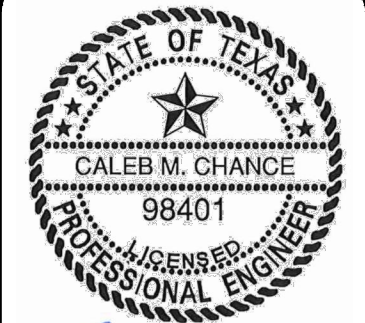
#### LOCATION MAP

NOT-TO-SCALE

SCALE: 1"= 60'



NO.	REVISION	DATE



*Caleb M. Chance*  
7/10/23

**PAPE-DAWSON  
ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TYPE FIRM REGISTRATION #470 | TBPUS FIRM REGISTRATION #10028890

**GALM ROAD PH IV**  
**SAN ANTONIO, TEXAS**  
**OVERALL UTILITY PLAN**

#### CONDUIT NOTES:

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#### CAUTION!!

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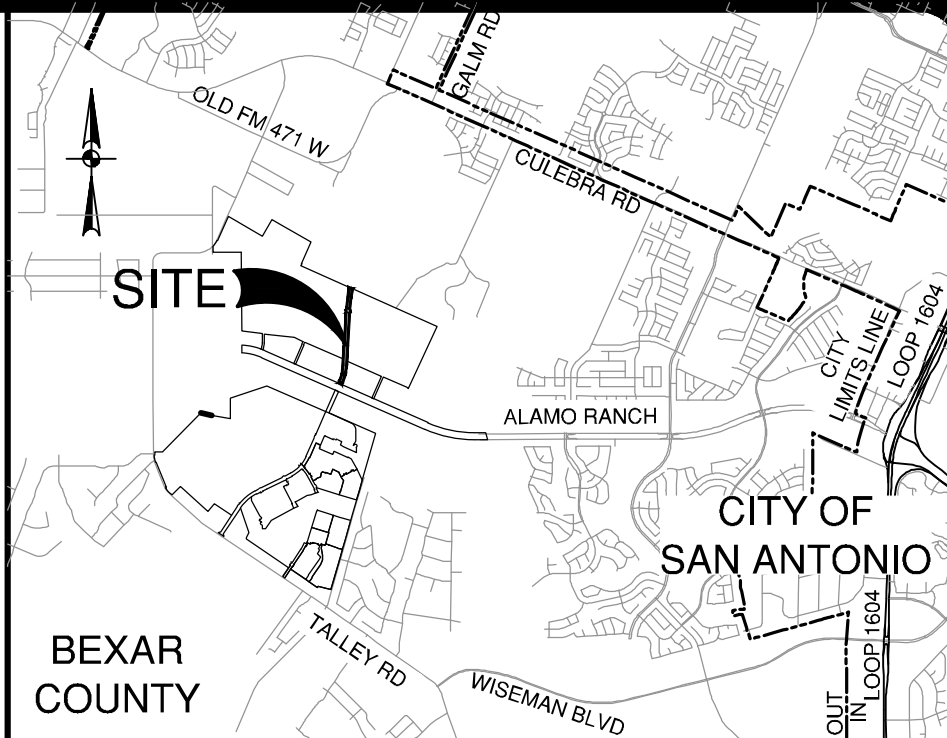
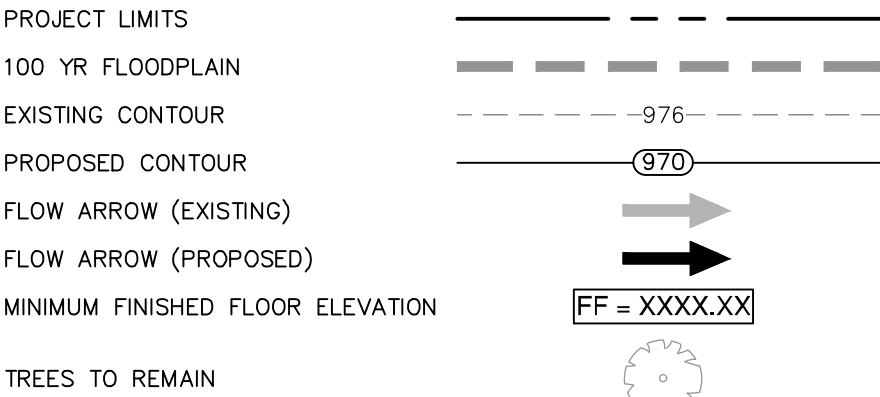
PLAT NO.	21-11800630
JOB NO.	11680-48
DATE	NOVEMBER 2022
DESIGNER	KQ
CHECKED	BL
DRAWN	KQ
SHEET	C5.01



GRADING NOTES:

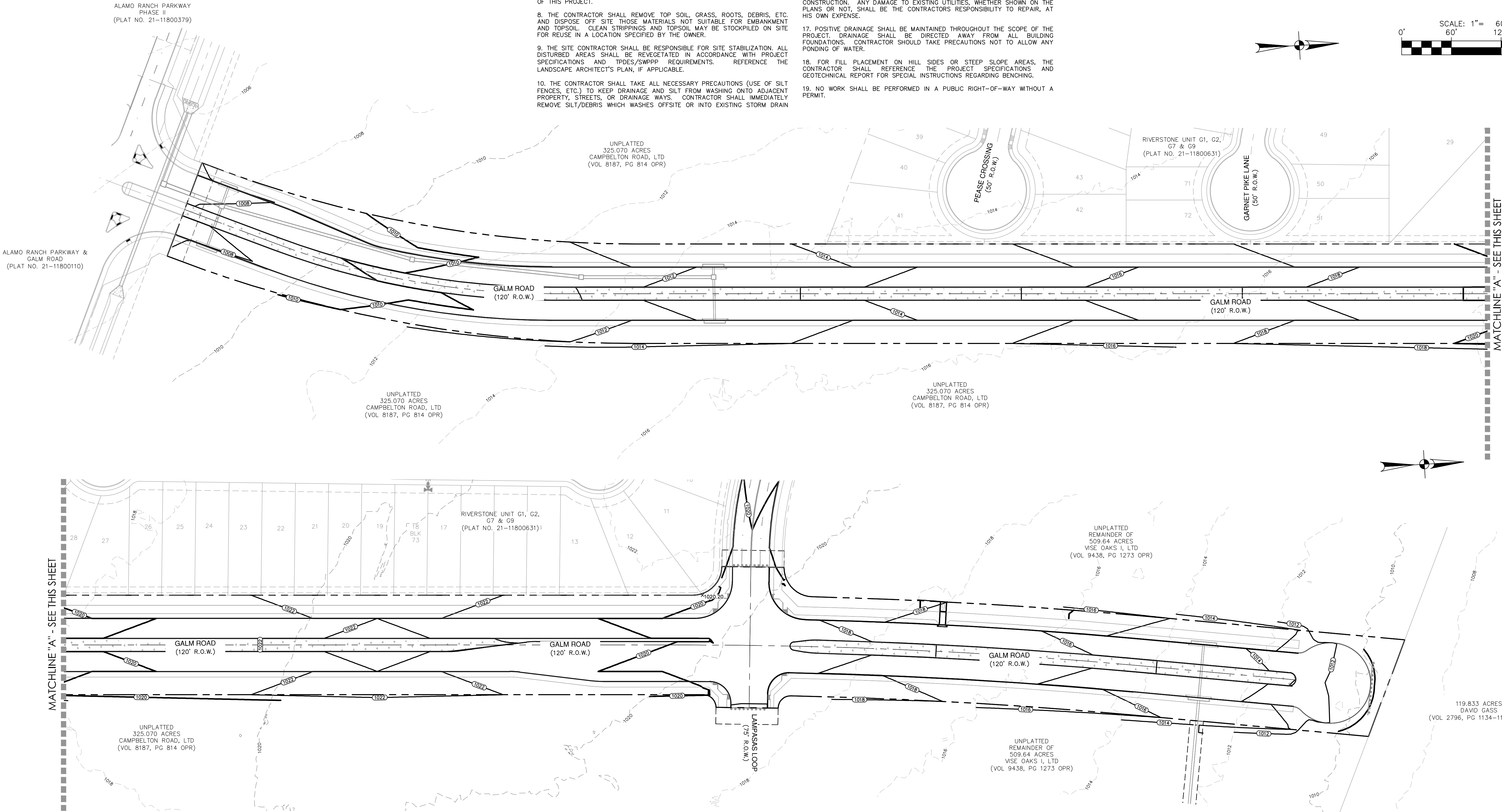
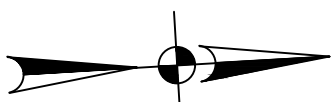
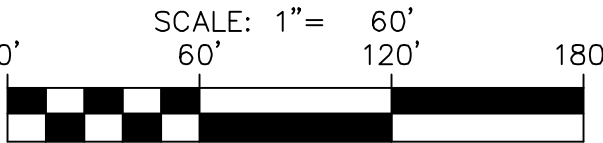
1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THIS SCOPE OF WORK WHERE NOT SPECIFICALLY COVERED IN THE SPECIFICATIONS OR GEOTECHNICAL REPORT SHALL CONFORM TO ALL APPLICABLE CITY, COUNTY AND TXDOT STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION).
2. SITE PREPARATION, GRADING, EXCAVATION AND FILL SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT AND SPECIFICATIONS.
3. ALL SELECT FILL MATERIAL PROVIDED SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING AND COMPACTING.
4. ALL ELEVATIONS AND PROPOSED CONTOURS SHOWN ON THIS GRADING PLAN REFLECT FINISHED GRADES. THE THICKNESS OF PAVING, BASE, GRASS, TOPSOIL, AND MULCH MUST BE SUBTRACTED TO OBTAIN SUBGRADE ELEVATIONS.
5. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS OF DIMENSIONS OR GRADES NECESSARY FOR CONSTRUCTION OF THIS PROJECT.
6. THE CONTRACTOR SHALL VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS, INCLUDING GRADES AND DIMENSIONS BEFORE COMMENCEMENT OF CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.
8. THE CONTRACTOR SHALL REMOVE TOP SOIL, GRASS, ROOTS, DEBRIS, ETC. AND DISPOSE OFF SITE THOSE MATERIALS NOT SUITABLE FOR EMBANKMENT AND TOPSOIL. CLEAN STRIPPINGS AND TOPSOIL MAY BE STOCKPILED ON SITE FOR REUSE IN A LOCATION SPECIFIED BY THE OWNER.
9. THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE STABILIZATION, ALL DISTURBED AREAS SHALL BE REVEGETATED IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND TPDES/SWPPP REQUIREMENTS. REFERENCE THE LANDSCAPE ARCHITECT'S PLAN, IF APPLICABLE.
10. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS (USE OF SILT FENCES, ETC.) TO KEEP DRAINAGE AND SILT FROM WASHING ONTO ADJACENT PROPERTY, STREETS, OR DRAINAGE WAYS. CONTRACTOR SHALL IMMEDIATELY REMOVE SILT/DEBRIS WHICH WASHES OFFSITE OR INTO EXISTING STORM DRAIN SYSTEMS. (SEE SWPPP PLANS & TPDES BOOK).
11. THE CONTRACTOR SHALL OBTAIN GRADES SHOWN HEREON WITHIN +/- ONE-TENTH (0.10) FOOT.
12. IN PROPOSED PAVING AREAS, STREET DESIGN PLANS SHALL CONTROL. ALL EARTHEN SLOPES SHALL BE A MAXIMUM OF 3:1 AND A MINIMUM OF 1.0% UNLESS OTHERWISE SHOWN.
13. THE CONTRACTOR SHALL PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING SITE AND PROPOSED IMPROVEMENTS.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL, OR BETTER, CONDITION ANY DAMAGE DONE TO EXISTING TREES, BUILDINGS, UTILITIES, FENCES, PAVEMENT, CURBS, OR DRIVEWAYS (NO SEPARATE PAY ITEMS).
15. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN WORKING NEAR UTILITIES, GAS LINES, SEWER, OR EXISTING APPURTENANCES. PRIOR TO PERFORMING ANY EXCAVATION, CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES AND ASSURE HIMSELF THAT ALL UTILITIES HAVE BEEN ADEQUATELY LOCATED AND IDENTIFIED. THE ENGINEER SHALL BE NOTIFIED IF ANY UTILITY CONFLICTS ARE DISCOVERED.
16. UTILITIES SHOWN ON THE PLANS ARE FROM INFORMATION SOURCES AVAILABLE AT THE TIME OF DESIGN BUT MAY NOT REPRESENT ALL EXISTING UTILITIES ON SITE. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION AND VERIFY SIZE, GRADE AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR, AT HIS OWN EXPENSE.
17. POSITIVE DRAINAGE SHALL BE MAINTAINED THROUGHOUT THE SCOPE OF THE PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER.
18. FOR FILL PLACEMENT ON HILL SIDES OR STEEP SLOPE AREAS, THE CONTRACTOR SHALL REFERENCE THE PROJECT SPECIFICATIONS AND GEOTECHNICAL REPORT FOR SPECIAL INSTRUCTIONS REGARDING BENCHING.
19. NO WORK SHALL BE PERFORMED IN A PUBLIC RIGHT-OF-WAY WITHOUT A PERMIT.

GRADING LEGEND



LOCATION MAP

NOT-TO-SCALE



**PAPE-DAWSON**  
**ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TXPE FIRM REGISTRATION #470 | TBPUS FIRM REGISTRATION #10028890

**GALM ROAD PH IV**  
**SAN ANTONIO, TEXAS**

**OVERALL GRADING PLAN**

PLAT NO. 21-11800630  
JOB NO. 11680-48  
DATE NOVEMBER 2022  
DESIGNER XX  
CHECKED XX DRAWN XX  
SHEET C6.00



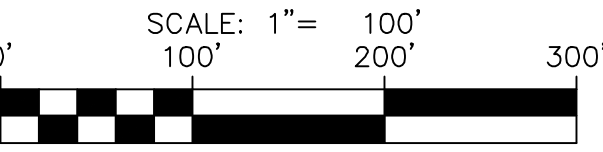
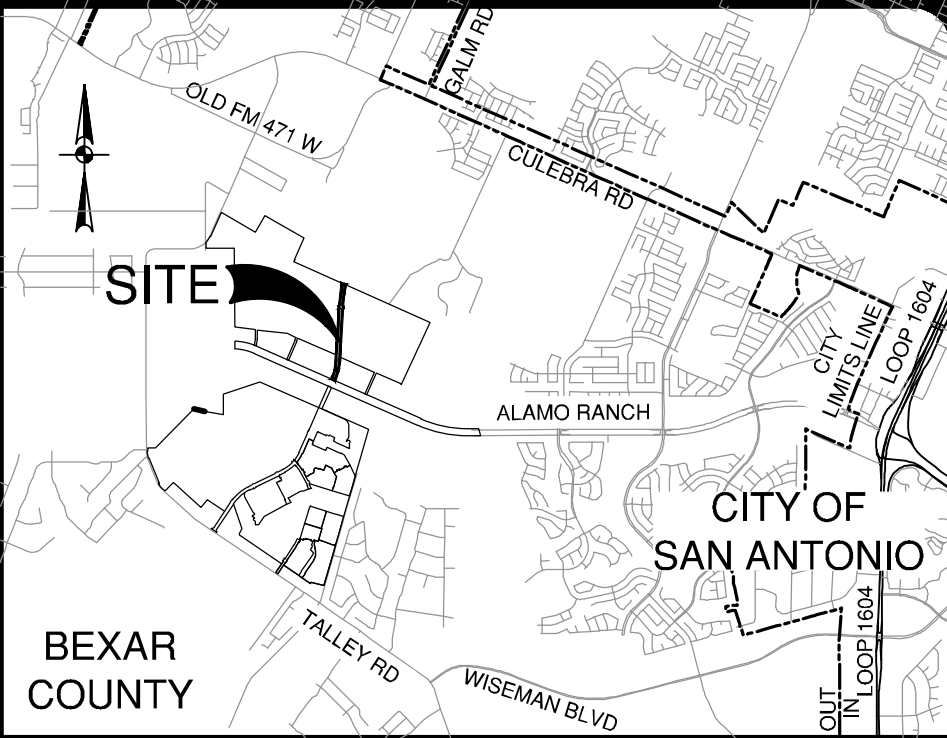
SWP3 MODIFICATIONS		
DATE	SIGNATURE	DESCRIPTION

GENERAL NOTES

- DO NOT DISTURB VEGETATED AREAS (TREES, GRASS, WEEDS, BRUSH, ETC.) ANY MORE THAN NECESSARY FOR CONSTRUCTION.
- CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASH-OUT PIT, AND CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD TO BE DETERMINED IN THE FIELD.
- STORM WATER POLLUTION PREVENTION CONTROLS MAY NEED TO BE MODIFIED IN THE FIELD TO ACCOMPLISH THE DESIRED EFFECT. ALL MODIFICATIONS ARE TO BE NOTED ON THIS EXHIBIT AND SIGNED AND DATED BY THE RESPONSIBLE PARTY.
- RESTRICT ENTRY/EXIT TO THE PROJECT SITE TO DESIGNATED LOCATIONS BY USE OF ADEQUATE FENCING, IF NECESSARY.
- ALL STORM WATER POLLUTION PREVENTION CONTROLS ARE TO BE MAINTAINED AND IN WORKING CONDITIONS AT ALL TIMES.
- FOR A COMPLETE LISTING OF TEMPORARY STORM WATER POLLUTION PREVENTION CONTROLS REFER TO THE TPDES STORM WATER POLLUTION PREVENTION PLAN.
- STORM WATER POLLUTION PREVENTION STRUCTURES SHOULD BE CONSTRUCTED WITHIN THE SITE BOUNDARIES. SOME OF THESE FEATURES MAY BE SHOWN OUTSIDE THE SITE BOUNDARIES ON THIS PLAN FOR VISUAL CLARITY.
- AS SOON AS PRACTICAL, ALL DISTURBED SOIL THAT WILL NOT BE COVERED BY IMPERVIOUS COVER SUCH AS PARKWAY AREAS, EASEMENT AREAS, EMBANKMENT SLOPES, ETC. WILL BE STABILIZED PER APPLICABLE PROJECT SPECIFICATIONS.
- BEST MANAGEMENT PRACTICES MAY BE INSTALLED IN STAGES TO COINCIDE WITH THE DISTURBANCE OF UPGRADIENT AREAS.
- BEST MANAGEMENT PRACTICES MAY BE REMOVED IN STAGES ONCE THE WATERSHED FOR THAT PORTION CONTROLLED BY THE BEST MANAGEMENT PRACTICES HAS BEEN STABILIZED IN ACCORDANCE WITH TPDES REQUIREMENTS.
- UPON COMPLETION OF THE PROJECT, INCLUDING SITE STABILIZATION, AND BEFORE FINAL PAYMENT IS ISSUED, CONTRACTOR SHALL REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES, PAYING SPECIAL ATTENTION TO ROCK BERMS IN DRAINAGE FEATURES.
- WHERE VEGETATED FILTER STRIPS ARE INDICATED, CONTRACTOR SHALL VERIFY THAT SUFFICIENT VEGETATION EXISTS. OTHERWISE CONTRACTOR SHALL PLACE SILT FENCING IN LIEU OF VEGETATED FILTER STRIP.
- SHADED AREA DENOTES LIMITS OF DISTURBED AREAS. OTHER AREAS WITHIN THE PROJECT LIMITS, WITH THE EXCEPTION OF A CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD, ARE NOT A PART OF THIS TPDES STORM WATER POLLUTION PREVENTION PLAN (SWP3) AND WILL NOT BE DISTURBED BY CIVIL CONSTRUCTION ACTIVITIES. HOUSE CONSTRUCTION ACTIVITIES WILL REQUIRE A SEPARATE STORM WATER POLLUTION PREVENTION PLAN.
- PRIOR TO BEGINNING CONSTRUCTION, CONTRACTOR SHALL COORDINATE PLACEMENT OF TEMPORARY BEST MANAGEMENT PRACTICES WITHIN TXDOT RIGHT-OF-WAY WITH TXDOT.
- CPS ENERGY WILL FUNCTION AS A SECONDARY OPERATOR ON THIS PROJECT AND WILL BE INSTALLING ELECTRIC UTILITIES FOR ON-SITE CONSTRUCTION AND OFF-SITE FEED TO THE PROJECT.

SWPPP LEGEND

- PROJECT LIMITS  
EXISTING CONTOUR  
PROPOSED CONTOUR  
FLOW ARROW (EXISTING)  
FLOW ARROW (PROPOSED)  
SILT FENCE  
ROCK BERM  
GRAVEL FILTER BAGS  
GRATE INLET PROTECTION  
SEDIMENT CONTROL ROLLS  
LIMITS OF DISTURBED AREA (10.413 AC)  
STABILIZED CONSTRUCTION ENTRANCE/EXIT (FIELD LOCATE)  
CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA (FIELD LOCATE)  
CONCRETE TRUCK WASH-OUT PIT (FIELD LOCATE)



**PAPE-DAWSON ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TYPE FIRM REGISTRATION #470 | TBPUS FIRM REGISTRATION #10028890

**GALM ROAD PH IV**  
SAN ANTONIO, TEXAS  
STORM WATER POLLUTION PREVENTION PLAN

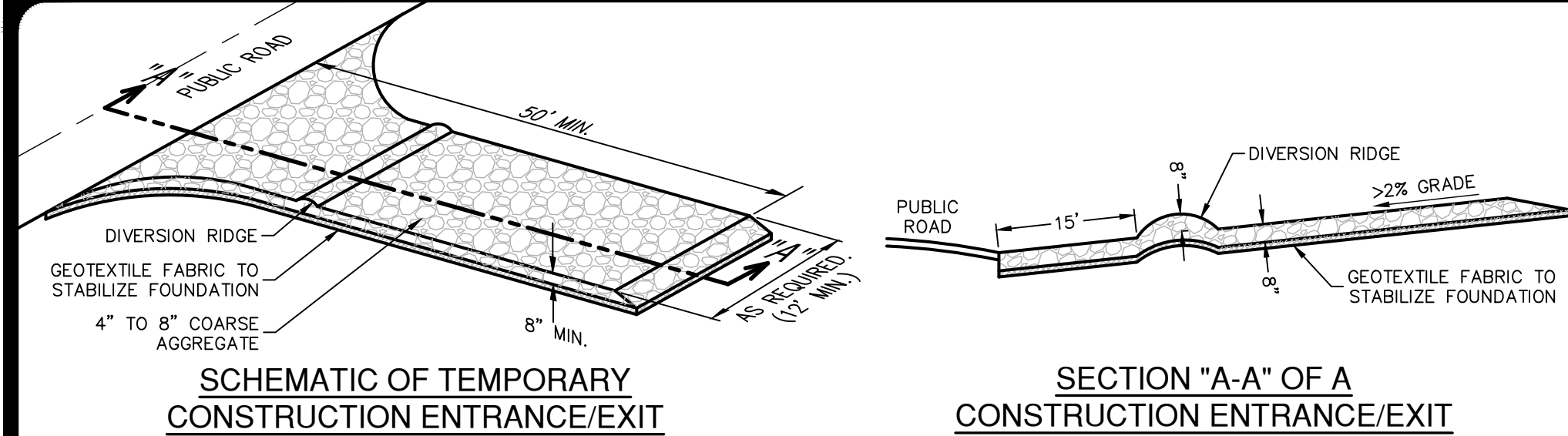
PLAT NO.	21-11800630
JOB NO.	11680-48
DATE	NOVEMBER 2022
DESIGNER	KQ
CHECKED	BL
DRAWN	KQ
SHEET	C7.00

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE TPDES-STORM WATER POLLUTION PREVENTION PLAN (SWP3) REGULATIONS.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF THE SWP3 ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 2



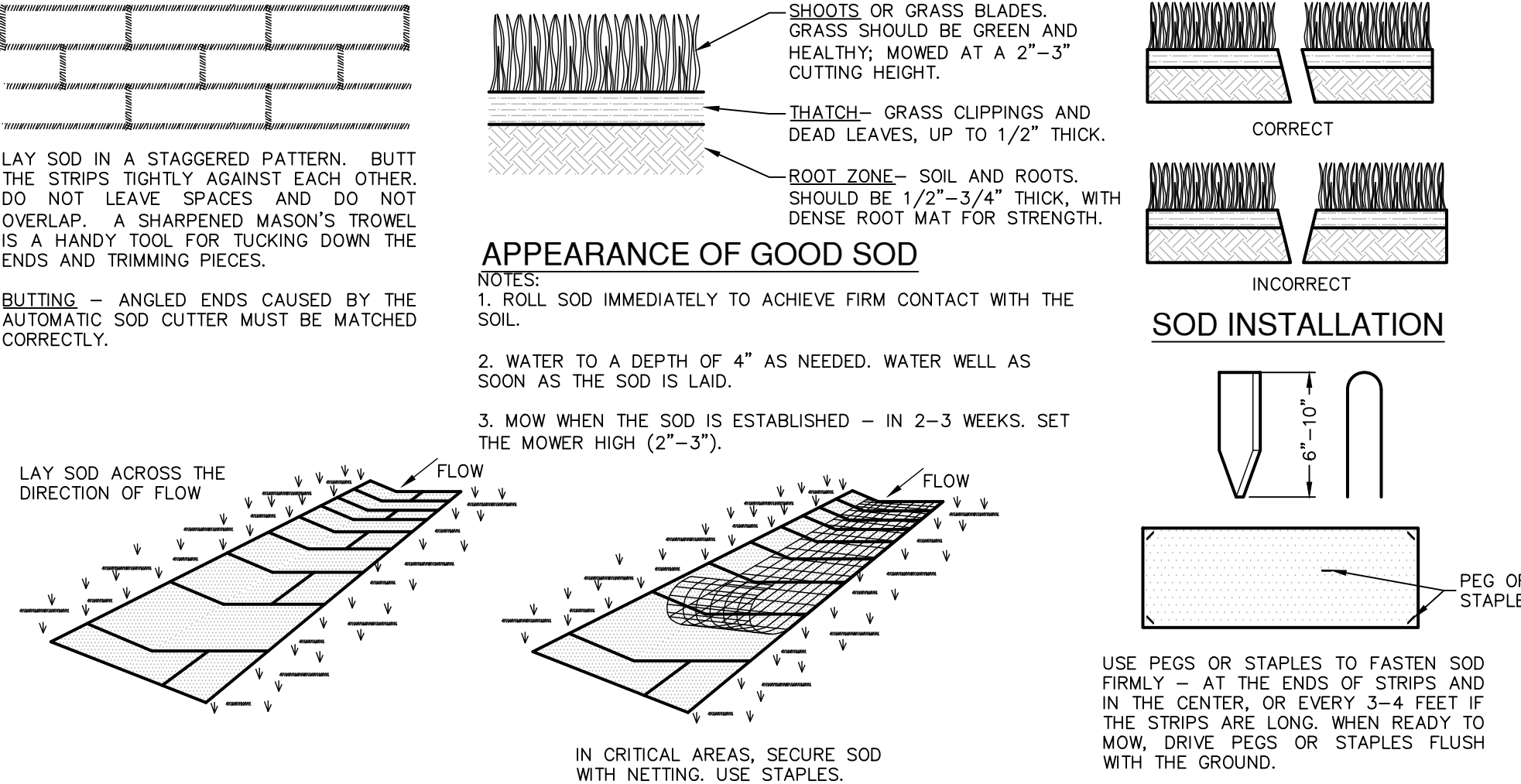


- MATERIALS**
1. THE AGGREGATE SHOULD CONSIST OF 4-INCH TO 8-INCH WASHED STONE OVER A STABLE FOUNDATION AS SPECIFIED IN THE PLAN.
  2. THE AGGREGATE SHOULD BE PLACED WITH A MINIMUM THICKNESS OF 8-INCHES.
  3. THE GEOTEXTILE FABRIC SHOULD BE DESIGNED SPECIFICALLY FOR USE AS A SOIL FILTRATION MEDIA WITH AN APPROXIMATE WEIGHT OF 6 OZ/YD<sup>2</sup>, A MULLEN BURST RATING OF 140 LB/IN<sup>2</sup>, 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 ROCK SHOULD BE INCLUDED IN THE PLANS. DIVERT WASTEWATER TO A SEDIMENT TRAP OR BASIN.

- INSTALLATION**
1. AVOID CURVES ON PUBLIC ROADS AND STEEP SLOPES. REMOVE VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA. GRADE CROWN FOUNDATION FOR POSITIVE DRAINAGE.
  2. THE MINIMUM WIDTH OF THE ENTRANCE/EXIT SHOULD BE 12 FEET OR THE FULL WIDTH OF EXIT ROADWAY, WHICHEVER IS GREATER.
  3. THE CONSTRUCTION ENTRANCE SHOULD BE AT LEAST 50 FEET LONG.
  4. IF THE SLOPE TOWARD THE ROAD EXCEEDS 2%, CONSTRUCT A RIDGE, 6-INCHES TO 8-INCHES HIGH WITH 3:1 (H:V) SIDE SLOPES, ACROSS THE FOUNDATION APPROXIMATELY 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE PUBLIC ROAD.
  5. PLACE GEOTEXTILE FABRIC AND GRADE FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET CONDITIONS ARE ANTICIPATED.
  6. PLACE STONE TO DIMENSIONS AND GRADE SHOWN ON PLANS. LEAVE SURFACE SMOOTH AND SLOPE FOR DRAINAGE.
  7. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN.
  8. INSTALL PIPE UNDER PAD AS NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.

## STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAIL

NOT-TO-SCALE



- MATERIALS**
1. SOD SHOULD BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4" INCH (± 1/4" INCH) AT THE TIME OF CUTTING. THIS THICKNESS SHOULD EXCLUDE SHOOT GROWTH AND THATCH.
  2. PIECES OF SOD SHOULD BE CUT TO THE SUPPLIER'S STANDARD WIDTH AND LENGTH, WITH A MAXIMUM ALLOWABLE DEVIATION IN ANY DIMENSION OF 5%. TORN OR UNEVEN PADS SHOULD NOT BE ACCEPTABLE.
  3. STANDARD SIZE SECTIONS OF SOD SHOULD BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT, MAINTAIN THEIR SIZE AND SHAPE WHEN SUBSEQUENT ROWS ARE LAYED, AND BE EASY TO GRASP ON ONE END OF THE SECTION.
  4. SOD SHOULD BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS.

## SITE PREPARATION

1. PRIOR TO SOD PREPARATION, AREAS TO BE SODDED SHOULD BE BROUGHT TO FINAL GRADE IN ACCORDANCE WITH THE APPROVED PLAN.
2. THE SURFACE SHOULD BE CLEARED OF ALL TRASH, DEBRIS AND OF ALL ROOTS, BRUSH, WIRE, GRADE STAKES AND OTHER OBJECTS THAT WOULD INTERFERE WITH PLANTING, FERTILIZING OR MAINTENANCE OPERATIONS.
3. FERTILIZE ACCORDING TO SOIL TESTS. FERTILIZER NEEDS CAN BE DETERMINED BY A SOIL TESTING LABORATORY OR REGIONAL RECOMMENDATIONS CAN BE MADE BY COUNTY AGRICULTURAL EXTENSION AGENTS. FERTILIZER SHOULD BE WORKED INTO THE SOIL TO A DEPTH OF 3 INCHES WITH A DISC, SPRINGTOOTH HARROW OR OTHER SUITABLE EQUIPMENT. ON SLOPING LAND, THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE CONTOUR.

## INSTALLATION IN CHANNELS

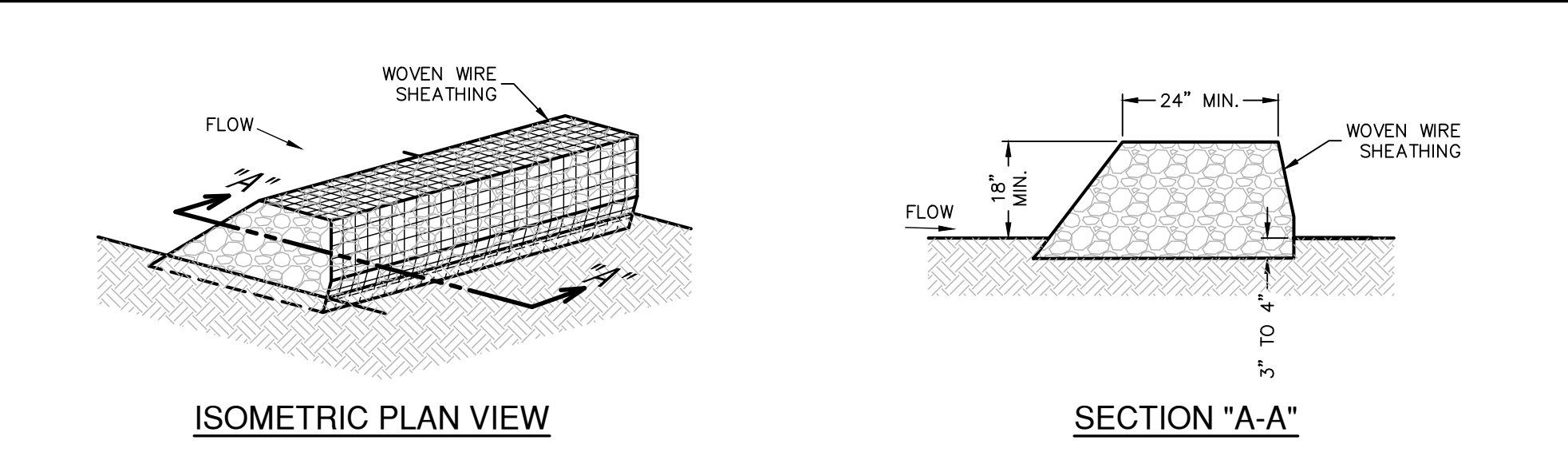
1. SOD STRIPS IN WATERWAYS SHOULD BE LAID PERPENDICULAR TO THE DIRECTION OF FLOW. CARE SHOULD BE TAKEN TO BUTT ENDS OF STRIPS TIGHTLY (SEE FIGURE ABOVE).
2. AFTER ROLLING OR TAMPING, SOD SHOULD BE PEGGED OR STAPLED TO REMAIN TIGHTLY TOGETHER. WIRE, MESH OR OTHER NETTING MAY BE PEGGED OVER THE SOD FOR EXTRA PROTECTION IN CRITICAL AREAS.

## INSPECTION AND MAINTENANCE GUIDELINES

1. SOD SHOULD BE INSPECTED WEEKLY AND AFTER EACH RAIN EVENT TO LOCATE AND REPAIR ANY DAMAGE.
2. DAMAGE FROM STORMS OR NORMAL CONSTRUCTION ACTIVITIES SUCH AS TIRE RUTS OR DISTURBANCE OF SWALE STABILIZATION SHOULD BE REPAIRED AS SOON AS PRACTICAL.

## SOD INSTALLATION DETAIL

NOT-TO-SCALE



## ISOMETRIC PLAN VIEW

## ROCK BERMS

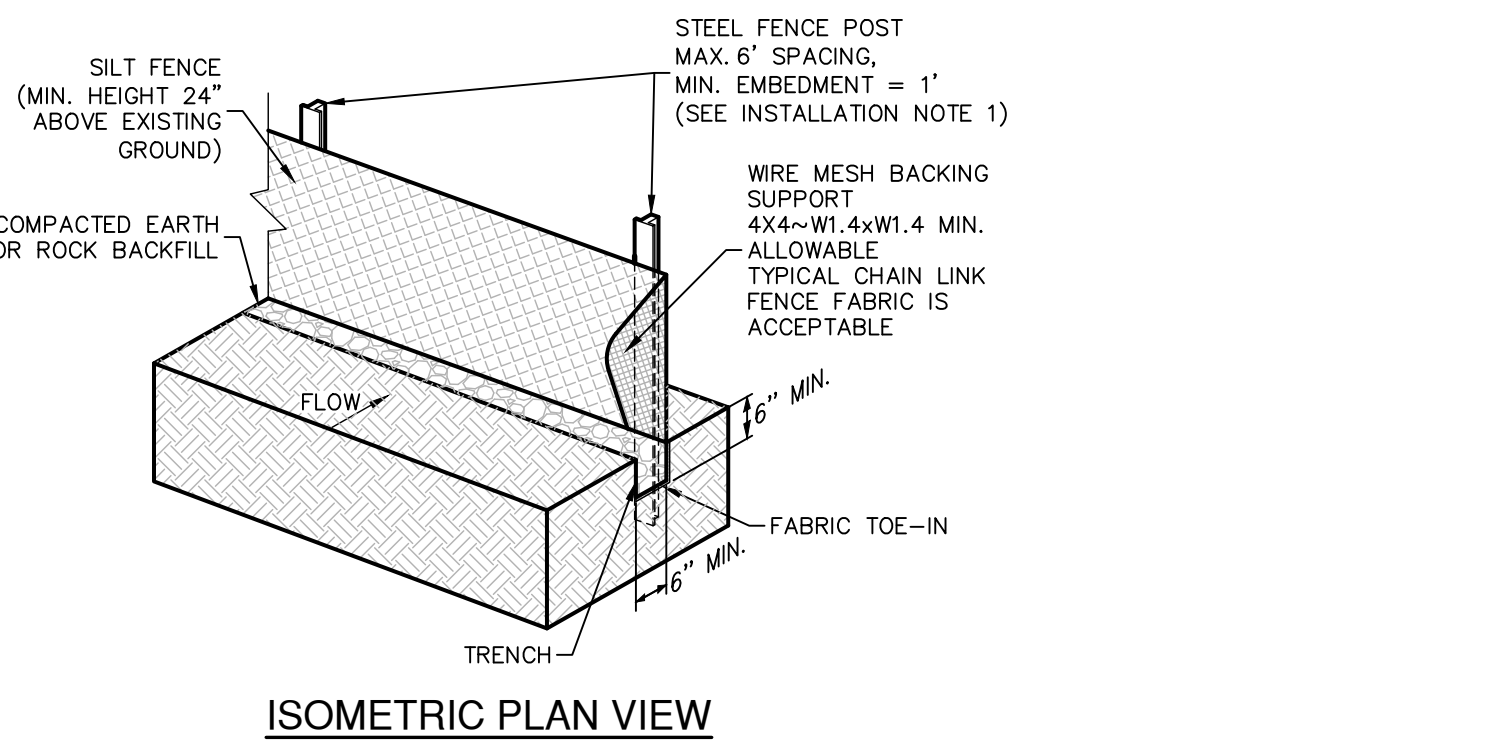
THE PURPOSE OF A ROCK BERM IS TO SERVE AS A CHECK DAM IN AREAS OF CONCENTRATED FLOW, TO INTERCEPT SEDIMENT-LADEN RUNOFF, DETAIN THE SEDIMENT AND RELEASE THE WATER IN SHEET FLOW. THE ROCK BERM SHOULD BE USED WHEN THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 5 ACRES. ROCK BERMS ARE USED IN AREAS WHERE THE VOLUME OF RUNOFF IS TOO GREAT FOR A SILT FENCE TO CONTAIN. THEY ARE LESS EFFECTIVE FOR SEDIMENT REMOVAL THAN SILT FENCES, PARTICULARLY FOR FINE PARTICLES, BUT ARE ABLE TO WITHSTAND HIGHER FLOWS THAN A SILT FENCE. AS SUCH, ROCK BERMS ARE OFTEN USED IN AREAS OF CHANNEL FLOWS (DITCHES, GULLIES, ETC.). ROCK BERMS ARE MOST EFFECTIVE AT REDUCING BED LOAD IN CHANNELS AND SHOULD NOT BE SUBSTITUTED FOR OTHER EROSION AND SEDIMENT CONTROL MEASURES FARTHER UP THE WATERSHED.

## INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL BY THE RESPONSIBLE PARTY. FOR INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE.
2. REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER THAT WILL NOT CAUSE ANY ADDITIONAL SILTATION.
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 AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
6. THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

## ROCK BERM DETAIL

NOT-TO-SCALE



## ISOMETRIC PLAN VIEW

## SILT FENCE

A SILT FENCE IS A BARRIER CONSISTING OF GEOTEXTILE FABRIC SUPPORTED BY METAL POSTS TO PREVENT SOIL AND SEDIMENT LOSS FROM A SITE. WHEN PROPERLY USED, SILT FENCES CAN BE HIGHLY EFFECTIVE AT CONTROLLING SEDIMENT FROM DISTURBED AREAS. THEY CAUSE RUNOFF TO POND, ALLOWING HEAVIER SOLIDS TO SETTLE OUT. IF NOT PROPERLY INSTALLED, SILT FENCES ARE NOT LIKELY TO BE EFFECTIVE.

THE PURPOSE OF A SILT FENCE IS TO INTERCEPT AND DETAIN WATER-BORN SEDIMENT FROM UNPROTECTED AREAS OF A LIMITED EXTENT. SILT FENCE IS USED DURING THE PERIOD OF CONSTRUCTION NEAR THE PERIMETER OF A DISTURBED AREA TO INTERCEPT SEDIMENT WHILE ALLOWING WATER TO PERCOLATE THROUGH. THIS FENCE SHOULD REMAIN IN PLACE UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED. SILT FENCE SHOULD NOT BE USED WHERE THERE IS A CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY. IF CONCENTRATED FLOW OCCURS AFTER INSTALLATION, CORRECTIVE ACTION MUST BE TAKEN SUCH AS PLACING A ROCK BERM IN THE AREAS OF CONCENTRATED FLOW.

SILT FENCING WITHIN THE SITE MAY BE TEMPORARILY MOVED DURING THE DAY TO ALLOW CONSTRUCTION ACTIVITY PROVIDED IT IS REPLACED AND PROPERLY ANCHORED TO THE GROUND AT THE END OF THE DAY. SILT FENCES ON THE PERIMETER OF THE SITE OR AROUND DRAINAGE WAYS SHOULD NOT BE MOVED AT ANY TIME.

## MATERIALS

1. SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.5 OZ/YD, MULLEN BURST STRENGTH EXCEEDING 190 LB/IN<sup>2</sup>, ULTRAVIOLET STABILITY EXCEEDING 70%, AND MINIMUM APPARENT OPENING SIZE OF U.S. SIEVE NUMBER 30.

2. FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST 4 FEET LONG WITH TEE OR Y-BAR CROSS SECTION, SURFACE PAINTED OR GALVANIZED, MINIMUM WEIGHT 1.25 LB/FT, AND BRINDELL HARDNESS EXCEEDING 140.

3. WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2" X 4" WELDED WIRE, 12 GAUGE MINIMUM.

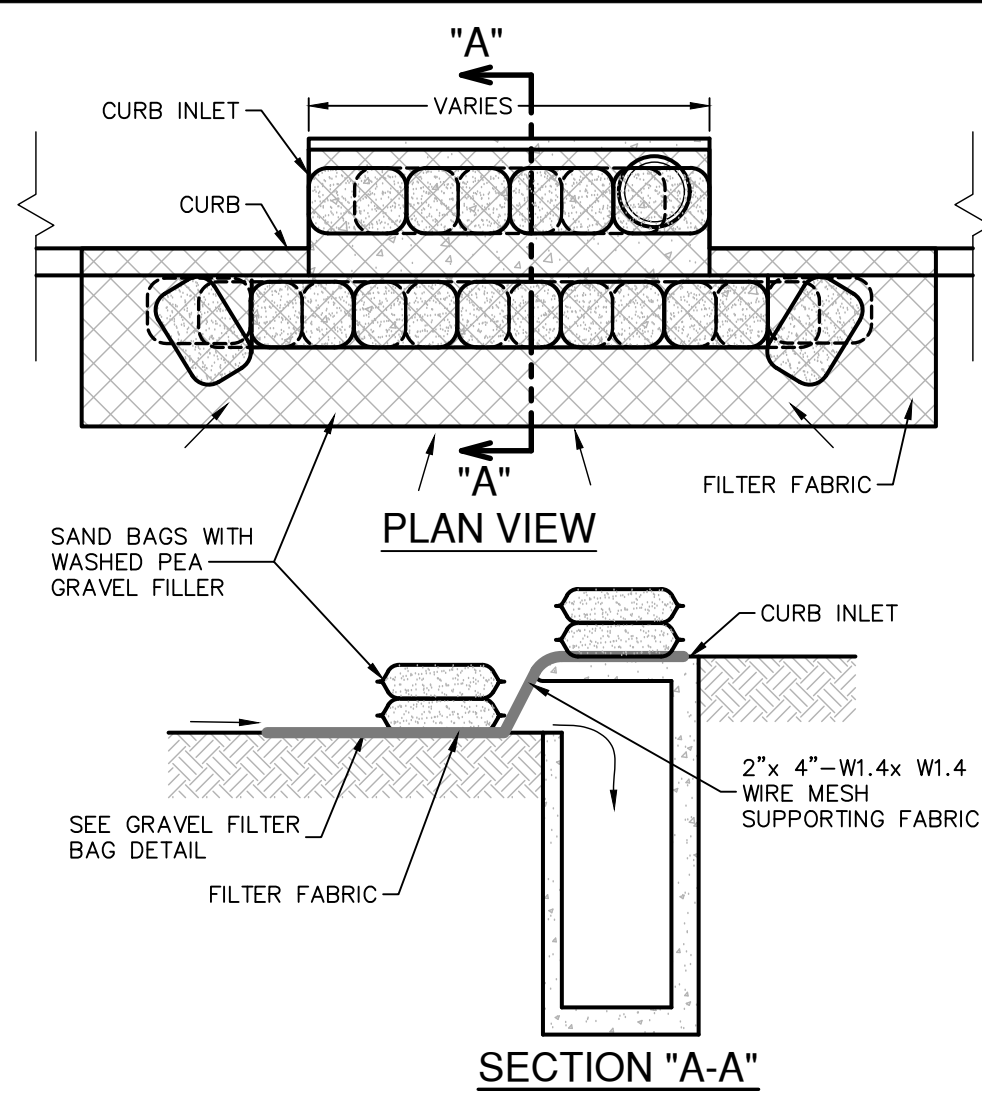
## INSTALLATION

1. STEEL POSTS, WHICH SUPPORT THE SILT FENCE, SHOULD BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POSTS MUST BE EMBEDDED A MINIMUM OF 1-FOOT DEEP AND SPACED NOT MORE THAN 8 FEET ON CENTER. WHERE WATER CONCENTRATES, THE MAXIMUM SPACING SHOULD BE 6 FEET.

2. LAY OUT FENCING DOWN-SLOPE OF DISTURBED AREA, FOLLOWING THE CONTOUR AS CLOSELY AS POSSIBLE. THE FENCE SHOULD BE SITED SO THAT THE MAXIMUM DRAINAGE AREA IS 1/4 ACRE/100 FEET OF FENCE.

## SILT FENCE DETAIL

NOT-TO-SCALE



## GENERAL NOTES

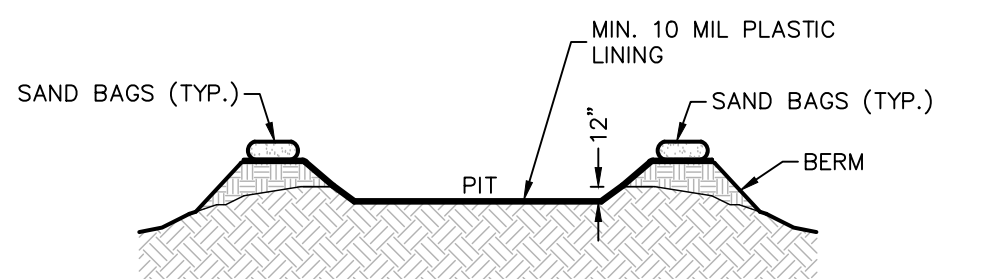
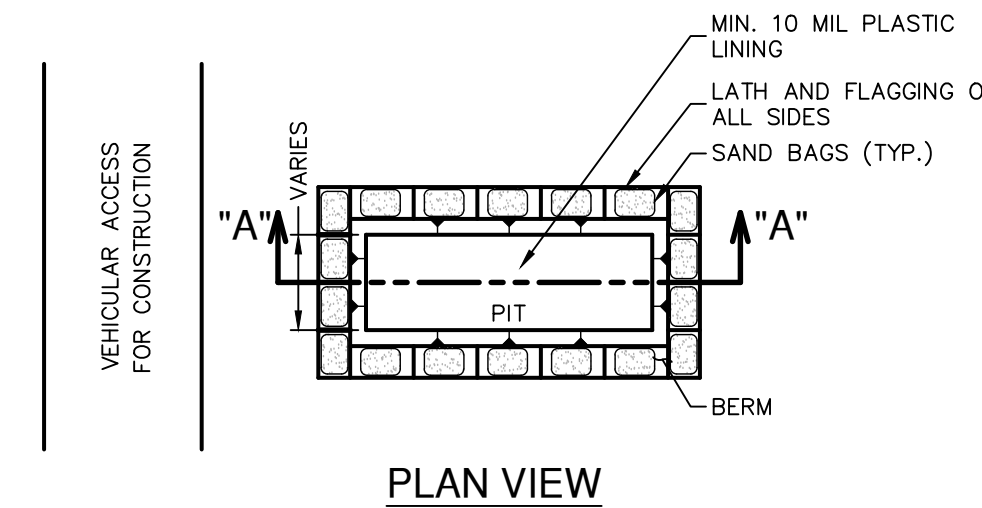
1. CONTRACTOR TO INSTALL 2"x4"-W1.4xW1.4 WIRE MESH SUPPORTING FILTER FABRIC OVER THE INLET OPENING. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR WIRE TIES AT THIS LOCATION. SAND BAGS FILLED WITH WASHED PEA GRAVEL SHOULD BE PLACED ON TOP OF WIRE MESH ON TOP OF THE INLET AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SANDBAGS FILLED WITH WASHED PEA GRAVEL SHOULD ALSO BE PLACED ALONG THE CUTTER AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SAND BAGS TO BE STACKED TO FORM A CONTINUOUS BARRIER AROUND INLETS.
2. THE BAGS SHOULD BE TIGHTLY ABUTTED AROUND EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.

## INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
2. REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
3. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.
4. INSPECT FILTER FABRIC AND PATCH OR REPLACE IF TORN OR MISSING.
5. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

## BAGGED GRAVEL CURB INLET PROTECTION DETAIL

NOT-TO-SCALE



## SECTION "A-A"

## GENERAL NOTES

1. DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.
2. WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.
3. WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF.
4. LOCATE WASHOUT AREA AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES OR WATER BODIES.
5. TEMPORARY CONCRETE WASHOUT FACILITY SHOULD BE CONSTRUCTED WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.

## MATERIALS

PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MIL IN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

## MAINTENANCE

1. WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF.

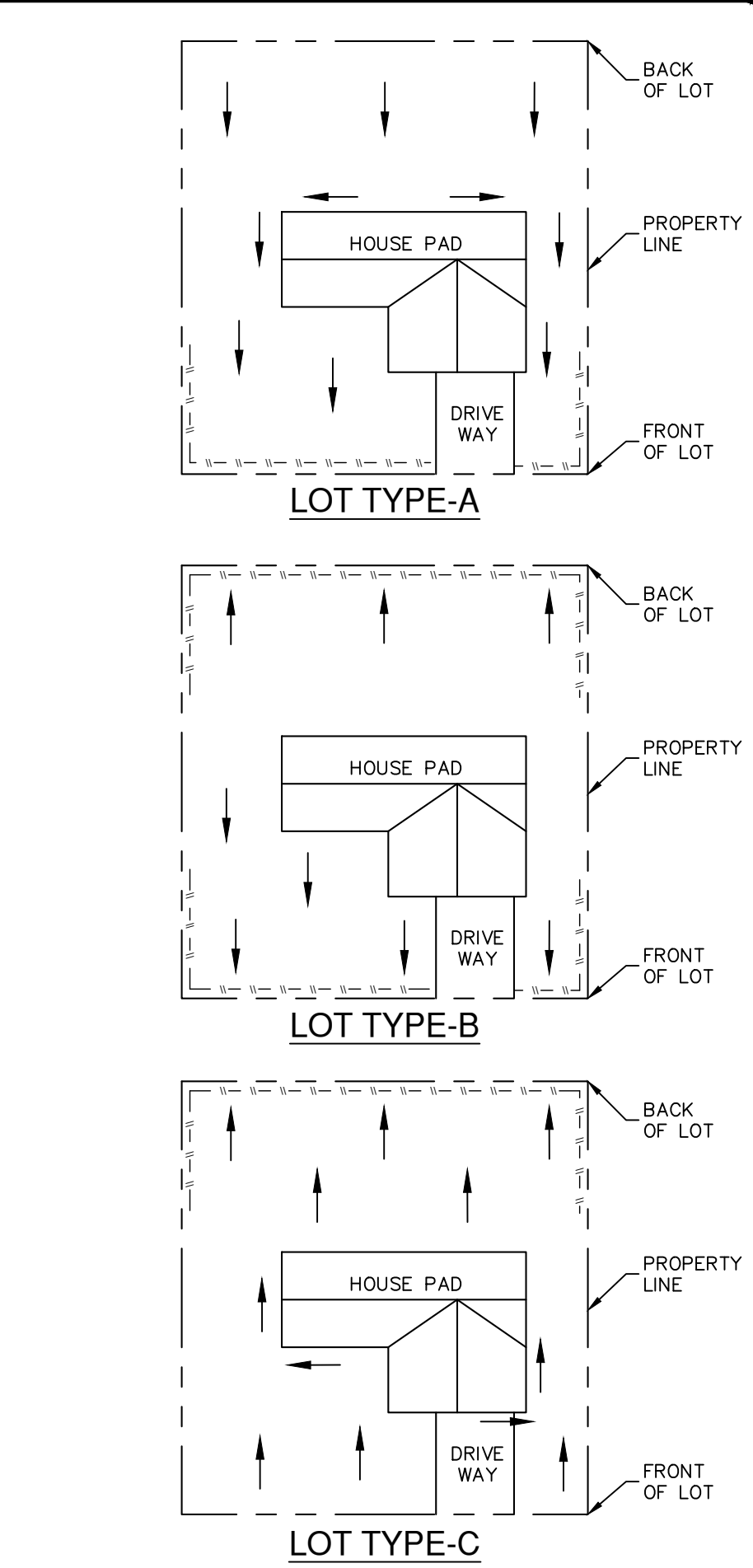
2. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF.

3. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCES CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED AND REPAIRED.

## CONCRETE TRUCK WASHOUT

## PIT DETAIL

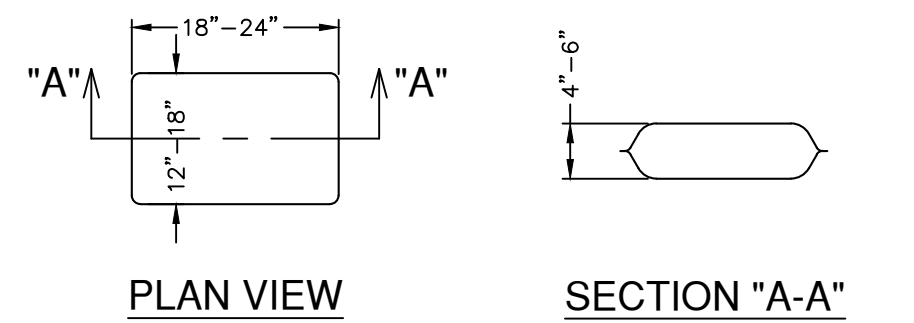
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NOTE: SILT FENCE TO BE INSTALLED PER THESE DETAILS AND LOCATED ON THE DOWNGRADED SIDE OF EACH LOT LINE OR LIMITS OF CLEARING AS GENERALLY SHOWN ON THE OVERALL SITE PLAN.

## TYPICAL HOUSE LOT LAYOUTS

NOT-TO-SCALE

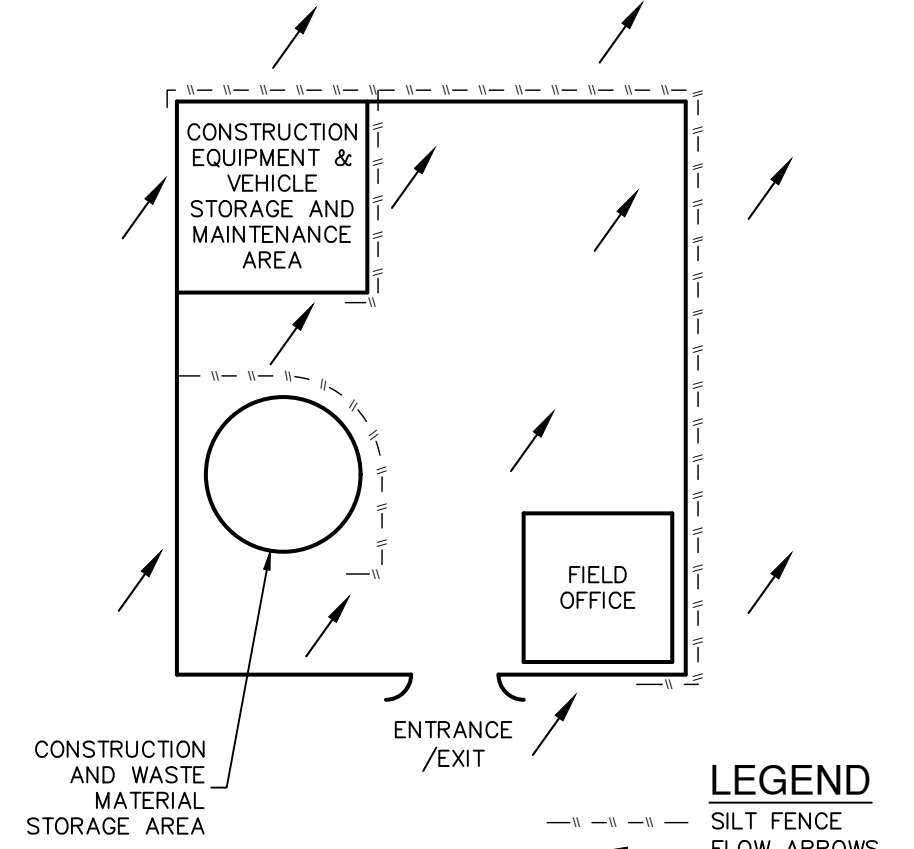


NOTES:

1. THE FILTER BAG MATERIAL SHALL BE MADE OF POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MIN. UNIT WEIGHT OF 4 OUNCES/SY, HAVE A MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70%.
2. THE FILTER BAG SHALL BE FILLED WITH CLEAN, MEDIUM WASHED PEA GRAVEL TO COARSE GRAVEL (0.31 TO 0.75 INCH DIAMETER).
3. SAND SHALL NOT BE USED TO FILL THE FILTER BAGS.

## GRAVEL FILTER BAG DETAIL

NOT-TO-SCALE



## CONSTRUCTION STAGING AREA

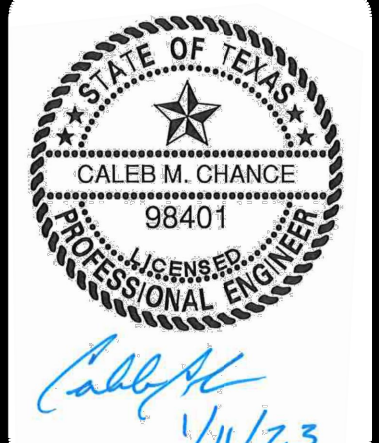
NOT-TO-SCALE

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE TPDES-STORM WATER POLLUTION PREVENTION PLAN (SWP3) REGULATIONS.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF THE SWP3 ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

## EXHIBIT 3

NO.	REVISION	DATE



**PAPE-DAWSON ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TXPE FIRM REGISTRATION #470 | TBPUS FIRM REGISTRATION #10028800

**GALM ROAD PH IV**  
SAN ANTONIO, TEXAS

STORM WATER POLLUTION PREVENTION PLAN DETAILS

PLAT NO.	21-11800630
JOB NO.	11680-48
DATE	NOVEMBER 2022
DESIGNER	KQ
CHECKED	BL
DRAWN	KQ
SHEET	C7.10