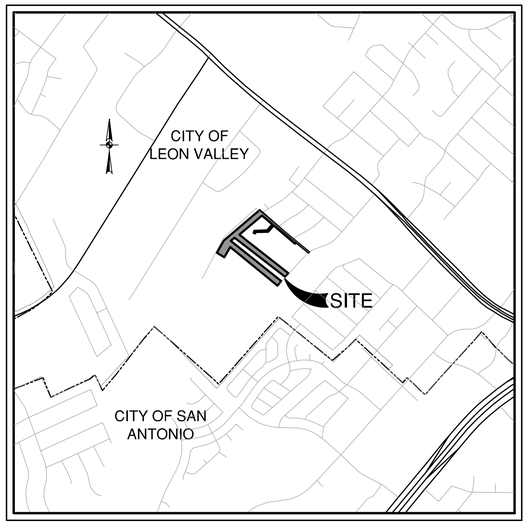
# SENECA TRAILS OFFSITE IMPROVEMENTS

## LEON VALLEY, TEXAS

## CIVIL CONSTRUCTION PLANS

Sheet List Table

| Sheet Description | Sheet No |
|---|---|
| COVER SHEET | C0.00 |
| DEMOLITION PLAN | C0.10 |
| MASTER DRAINAGE PLAN | C1.00 |
| DRAIN A PLAN & PROFILE (STA. 1+00.00 TO END) | C1.01 |
| DRAIN B PLAN & PROFILE (STA. 1+39.71 TO END) | C1.02 |
| DRAIN C PLAN & PROFILE (STA. 1+00.00 TO END) | C1.03 |
| DRAIN C1 PLAN & PROFILE (STA. 1+04.08 TO END) | C1.04 |
| DRAINAGE DETAILS | C1.10 |
| DRAINAGE DETAILS | C1.11 |
| DRAINAGE DETAILS | C1.12 |
| DRAINAGE DETAILS | C1.13 |
| FIRE PROTECTION PLAN | C1.20 |
| SAMARITAN DRIVE PLAN & PROFILE (STA. 1+42.07 TO END) | C2.00 |
| SENECA DRIVE PLAN & PROFILE (STA. 1+00.00 TO END) | C2.01 |
| WILLIAM RANCHER ROAD REPAVE AND WIDEN PLAN | C2.02 |
| STREET DETAILS | C2.10 |
| STREET DETAILS | C2.11 |
| OVERALL SIGNAGE PLAN | C3.00 |
| SIGNAGE DETAILS | C3.10 |
| SIGNAGE DETAILS | C3.11 |




LOCATION MAP
NOT-TO-SCALE

Sheet List Table

| Sheet Title | Sheet Number |
|---|---|
| OVERALL WATER DISTRIBUTION PLAN | C4.00 |
| WATER DISTRIBUTION PLAN DETAILS | C4.10 |
| WATER DISTRIBUTION PLAN NOTES | C4.11 |
| OVERALL SANITARY SEWER PLAN | C5.00 |
| SANITARY SEWER LINE A & C PLAN & PROFILE | C5.01 |
| SANITARY SEWER LINE B PLAN & PROFILE | C5.02 |
| SANITARY SEWER LINE D PLAN AND PROFILE | C5.03 |
| SANITARY SEWER DETAILS | C5.10 |
| SANITARY SEWER NOTES | C5.11 |
| OVERALL UTILITY PLAN | C6.00 |
| OVERALL GRADING PLAN | C7.00 |
| STORM WATER POLLUTION PREVENTION PLAN | C8.00 |
| STORM WATER POLLUTION PREVENTION PLAN DETAILS | C8.10 |

PREPARED FOR:

63 SENECA WEST INVESTMENTS LTD
10003 NW MILITARY HWY STE 2201
SAN ANTONIO, TX 78231

AUGUST 2025

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED
PROFESSIONAL ENGINEER
8/8/25

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

PD JOB NO. 13569-02 SENECA TRAILS OFFSITE IMPROVEMENTS

SHEET C0.00

Date: Aug 08, 2025, 4:49pm User ID: Richardgarcia
File: P:\13569\02\Design\Civil\CV-1356902.dwg
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SCALE: 1"= 50'
0' 50' 100' 150'

## DEMO LEGEND

- EXISTING WATER LINES TO REMAIN
- EXISTING SEWER LINES TO REMAIN
- EXISTING OVERHEAD UTILITIES TO REMAIN
- SAWCUT EXISTING PAVEMENT
- FEMA 100 YR FLOODPLAIN(LOMR)
- EXISTING PAVEMENT TO BE MILLED
- EXISTING PAVEMENT TO BE DEMOLISHED

NOTE:
SEE DRAINAGE PLANS FOR DEMOLITION OF EXISTING CONCRETE TRAPEZOIDAL CHANNEL.

| NO. | REVISION | DATE |
|---|---|---|

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
4/11/25

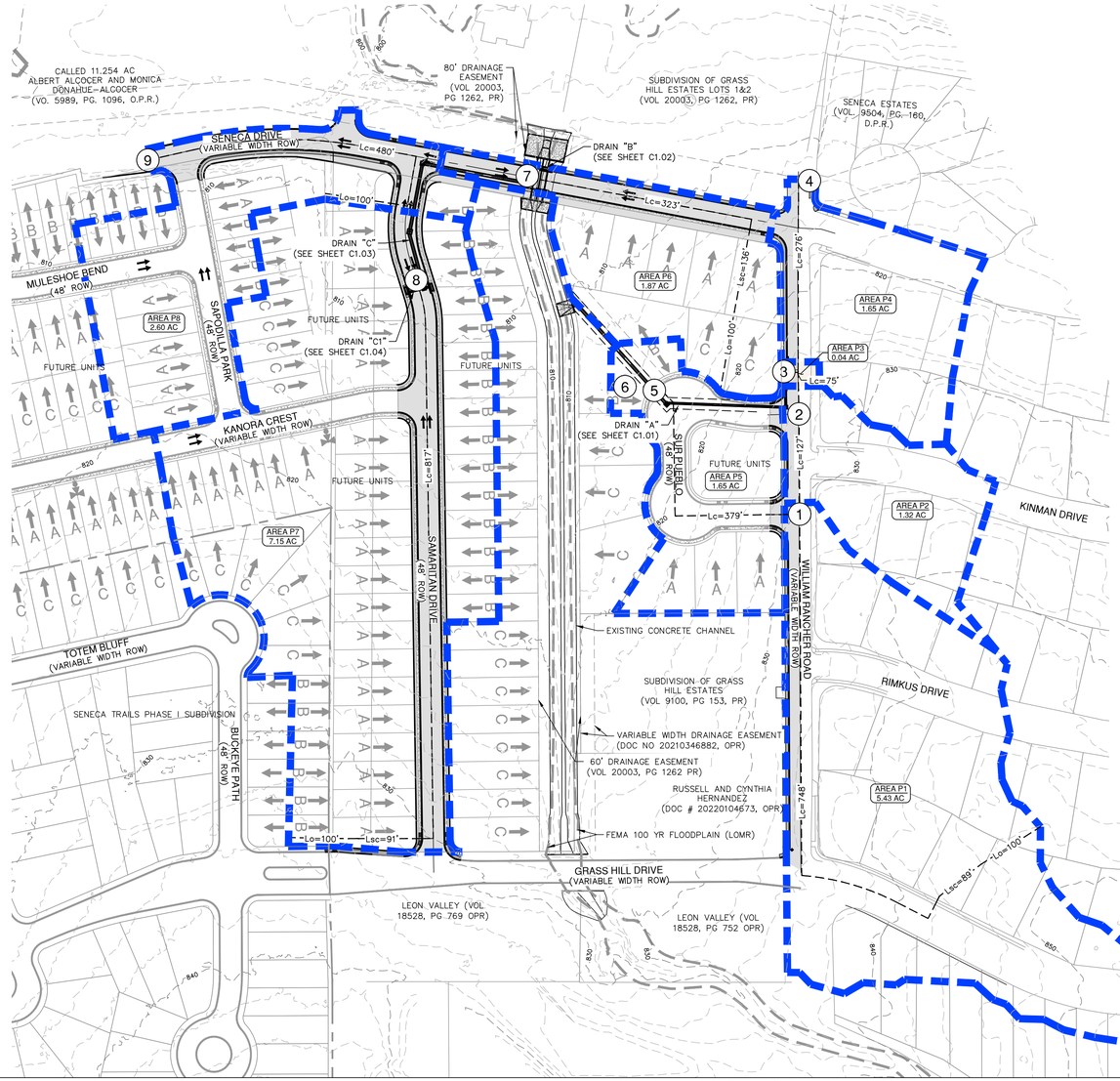
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2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM I-470 | TEXAS SURVEYING FIRM #10028800

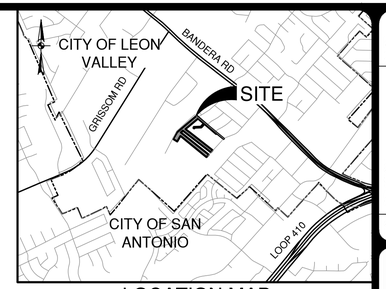
# SENECA TRAILS OFFSITE IMPROVEMENTS
LEON VALLEY, TEXAS
DEMOLITION PLAN

PLAT NO. ----
JOB NO. 13569-02
DATE MARCH 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C0.10

Date: Apr 29, 2025, 7:04pm User ID: Richardgarcia
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LOCATION MAP

NOT-TO-SCALE

0' 60' 120' 180'

SCALE: 1"= 60'

## MASTER DRAINAGE LEGEND

- PROJECT LIMITS
- EXISTING CONTOUR — 690
- 100 YR FLOODPLAIN
- RUNOFF FLOW PATH
- DRAINAGE AREA BOUNDARY
- FHA LOT GRADING TYPE — A,B,C
- PROPOSED DIRECTION OF FLOW
- DRAINAGE CALCULATION POINT — (11)
- DRAINAGE AREA — [A]

**Seneca Trails Offsite Improvements - Proposed Conditions Drainage Summary Table**

| | | | | | Overland Flow | | | | Shallow Concentrated | | | | Channel Flow | | Total | | | | | | Curb Inlet | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Point | Structure | Area | Total Flow Length (ft) | Total Area (ac) | Character of Ground | Slope % | L (ft) | Tc (min) | Slope % | L (ft) | Surface | Tc (min) | L (ft) | Tc (min) | Tc (min) | C | I | Q (cfs) | Frequency (yrs) | Total $Q_{25}$ (Q+Intercept/Bypass) | Intercept | Bypass |
| 1 | Street Intercept | P1 | 937 | 5.43 | Avg. Grass | 2.01% | 100 | 12 | 4.04% | 89 | Short Grass Pasture | 1.06 | 748 | 2.11 | 15 | 0.67 | 5.28<br>7.32 | 19.2<br>**26.6** | 5<br>**25** | | 6.53 | 20.07 |
| 2 | Street Intercept | P1 + P2 | 1064 | 6.75 | Avg. Grass | 2.01% | 100 | 12 | 4.04% | 89 | Short Grass Pasture | 1.06 | 875 | 2.33 | 15 | 0.67 | 5.28<br>7.32 | 23.9<br>**33.1** | 5<br>**25** | 33.1 - 6.53 = 26.57 CFS | 6.75 | 19.82 |
| 3 | Drain A (30' Curb Inlet on grade) | P1 + P2 + P3 | 1139 | 6.79 | Avg. Grass | 2.01% | 100 | 12 | 4.04% | 89 | Short Grass Pasture | 1.06 | 950 | 2.55 | 15 | 0.67 | 5.28<br>7.32 | 24.0<br>**33.3** | 5<br>**25** | 33.3 - 6.53 - 6.75 = 20.02 CFS | 14.19 | 5.83 |
| 4 | Existing Drain | P1 + P2 + P3 + P4 | 1400 | 8.44 | Avg. Grass | 2.01% | 100 | 12 | 4.04% | 89 | Short Grass Pasture | 1.06 | 1211 | 2.83 | 15 | 0.67 | 5.28<br>7.32 | 29.9<br>**41.4** | 5<br>**25** | 41.4- 6.53 - 6.75 - 14.19 = 13.93 CFS | | |
| 5 | Future Inlet (In-Sump) | P1 + P2 + P5 | 1316 | 8.40 | Avg. Grass | 2.01% | 100 | 12 | 4.04% | 89 | Short Grass Pasture | 1.06 | 1127 | 3.18 | 16 | 0.67 | 5.10<br>7.07 | 28.7<br>**39.8** | 5<br>**25** | 39.8 - 19.82 = 19.98 CFS | | |
| 6 | Drain A | P1 + P2 + P3 + P5 | 1316 | 8.44 | Avg. Grass | 2.01% | 100 | 12 | 4.04% | 89 | Short Grass Pasture | 1.06 | 1127 | 3.18 | 16 | 0.67 | 5.10<br>7.07 | 28.8<br>**40.0** | 5<br>**25** | 40.0 - 5.83 = 34.17 cfs | | |
| 7 | Drain B (10' Curb Inlets In Sump) | P6 | 559 | 1.87 | Avg. Grass | 2.05% | 100 | 12 | 1.38% | 136 | Short Grass Pasture | 2.78 | 323 | 0.77 | 15 | 0.67 | 5.28<br>7.32 | 6.6<br>**9.2** | 5<br>**25** | | | |
| 8 | Drain C (10' Curb Inlets In Sump) | P7 | 1008 | 7.15 | Avg. Grass | 2.54% | 100 | 12 | 3.11% | 91 | Short Grass Pasture | 1.2 | 817 | 1.8 | 15 | 0.76 | 5.28<br>7.32 | 28.7<br>**39.8** | 5<br>**25** | | | |
| 9 | Calculation Point | P8 | 580 | 2.60 | Avg. Grass | 2.53% | 100 | 12 | | | | | 480 | 1.7 | 13 | 0.76 | 5.66<br>7.89 | 11.2<br>**15.6** | 5<br>**25** | | | |

NO. | REVISION | DATE

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
4/19/25

PAPE-DAWSON ENGINEERS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

# SENECA TRAILS OFFSITE IMPROVEMENTS

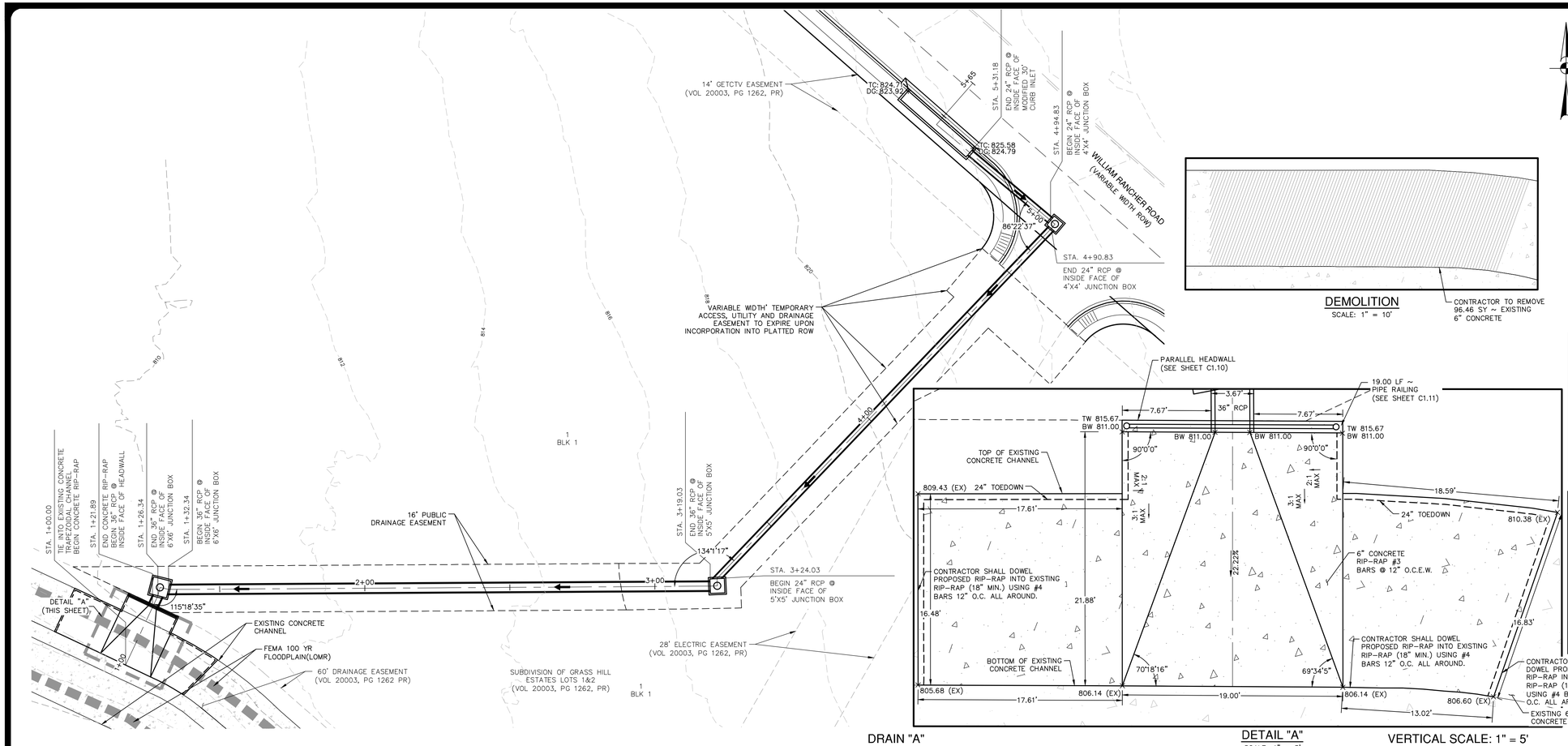
LEON VALLEY, TEXAS

MASTER DRAINAGE PLAN

PLAT NO. ----
JOB NO. 13569-02
DATE MARCH 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C1.00

Date: Apr 30, 2025, 1:49pm User ID: Richardgarcia
File: P:\13569\02\Design\Civil\SDOA-1356902.dwg

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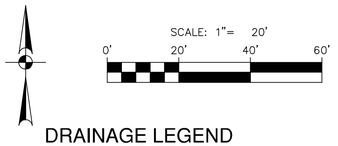


DETAIL "A"
SCALE: 1" = 5'



DEMOLITION
SCALE: 1" = 10'

CONTRACTOR TO REMOVE
96.46 SY ~ EXISTING
6" CONCRETE




## DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 690
- PROPOSED WATER — W
- PROPOSED SEWER — SS
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FLOW ARROW

### HYDRAULIC CALCULATIONS STORM DRAIN
STA. 1+21.89 TO 1+26.34

Q25 = 34.17 cfs
Sf = 0.26%
$V_f$ = 4.83 fps
n = 0.013
D = 3.00'
S = 0.50%

### HYDRAULIC CALCULATIONS STORM DRAIN
STA. 1+32.34 TO 3+19.03

Q25 = 34.17 cfs
Sf = 0.26%
$V_f$ = 4.83 fps
n = 0.013
D = 3.00'
S = 0.50%

### HYDRAULIC CALCULATIONS STORM DRAIN
STA. 3+24.03 TO 4+90.83

Q25 = 14.19 cfs
Dn = 1.47'
Sf = 0.50%
$V_n$ = 5.78 fps
n = 0.013
D = 2.0'
S = 0.50%

### HYDRAULIC CALCULATIONS STORM DRAIN
STA. 4+94.83 TO 5+31.18

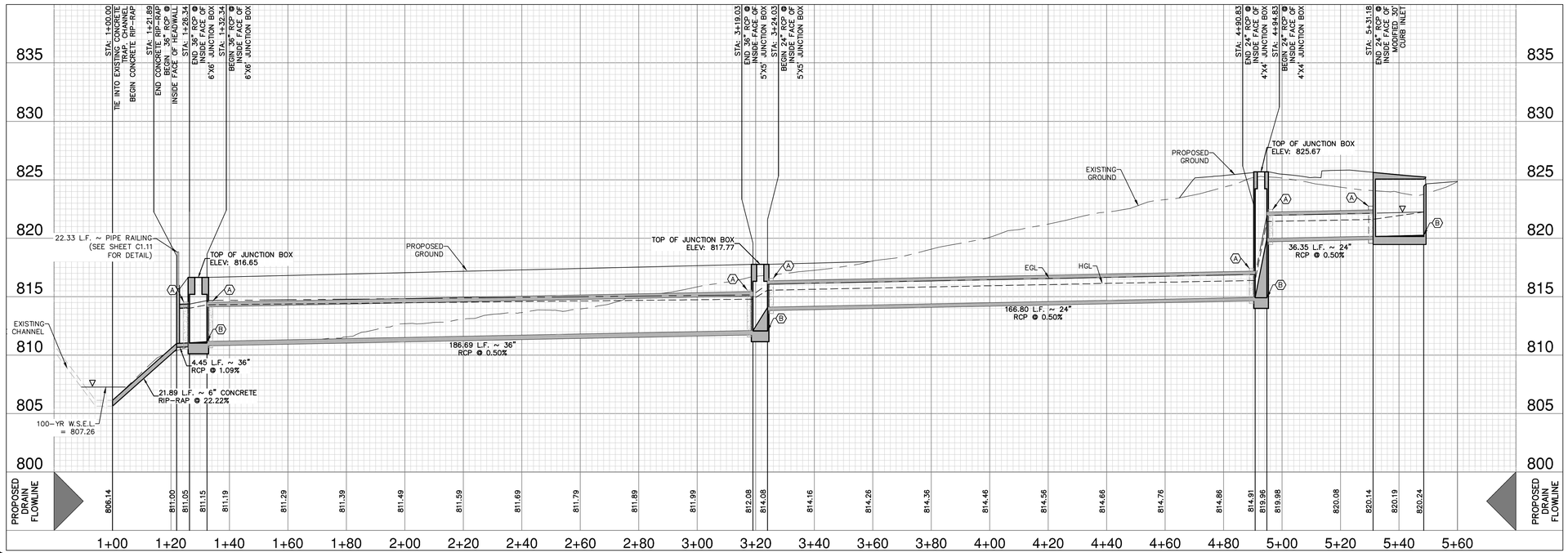
Q25 = 14.19 cfs
Dn = 1.47'
Sf = 0.50%
$V_n$ = 5.78 fps
n = 0.013
D = 2.0'
S = 0.50%

## KEY LEGEND

- (A) CONCRETE COLLAR (SEE DETAIL SHEET C1.10)
- (B) CONTRACTOR TO GROUT BOTTOM OF BOX TO ALLOW FOR POSITIVE DRAINAGE

DRAIN "A"
STA. 1+00.00 TO END

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




## 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 LEON VALLEY 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.

## FLOOD PLAIN GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR IS TO MAINTAIN UNRESTRICTED DRAINAGE OF THE PROJECT SITE AND ADJACENT AREAS DURING CONSTRUCTION.
2. NO CONSTRUCTION MATERIAL AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF THE EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF THE EXISTING FLOOD PLAIN.

## 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 |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
8/8/25


PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

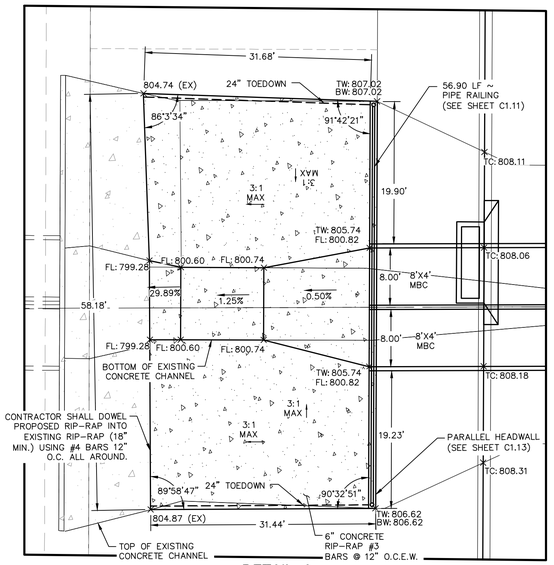

# SENECA TRAILS OFFSITE IMPROVEMENTS
LEON VALLEY, TEXAS

DRAIN A PLAN & PROFILE
(STA. 1+00.00 TO END)

PLAT NO. ----
JOB NO. 13569-02
DATE AUGUST 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C1.01

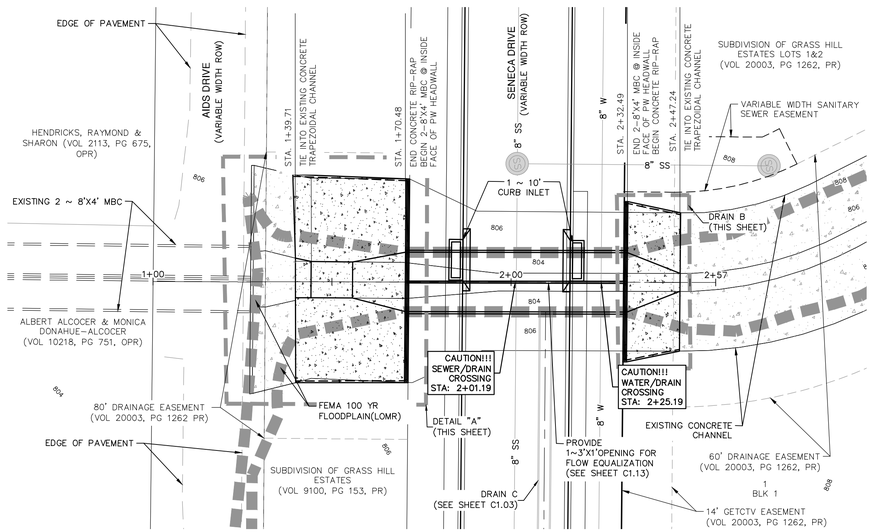
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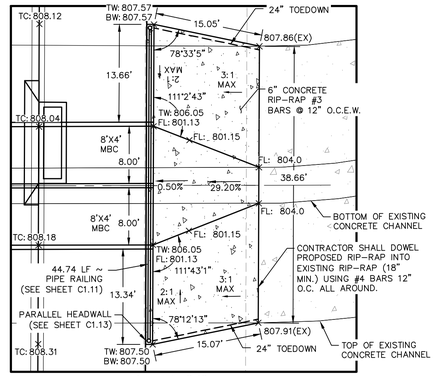

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DETAIL "A"

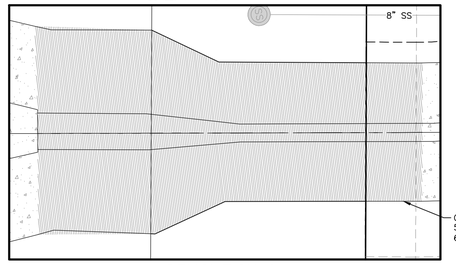
SCALE: 1" = 10'



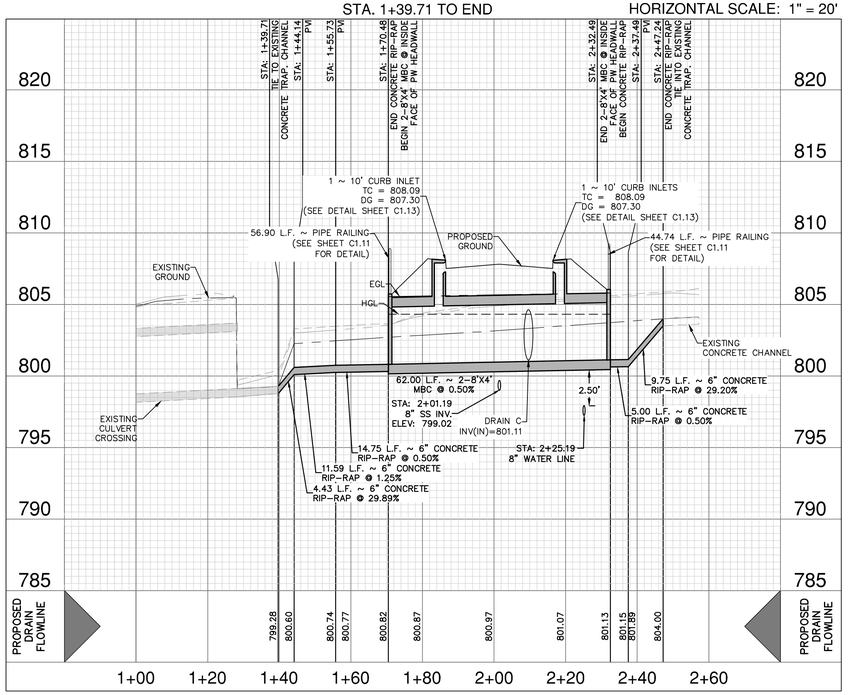

DETAIL "B"

SCALE: 1" = 10'




DEMOLITION "A"

SCALE: 1" = 20'




## DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 690
- PROPOSED WATER — W
- PROPOSED SEWER — SS
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FLOW ARROW

### HYDRAULIC CALCULATIONS–DRAIN "B"

TOTAL $Q_{25}$ = 9.2 CFS

$Q_{25} = CA\sqrt{2gh}$ (ORIFICE FLOW EQN.)

A = L(0.50), h = 0.54, g = 32.2, c = 0.70

$$L = \frac{4.6\ CFS}{(0.70)\ (0.50)\sqrt{2}\ (32.2)\ (0.54)}$$

L = 2.42 FT USE 2 ~ 10 FT CURB INLETS

CHECK WITH WEIR FORMULA

$$h = \left(\frac{Q}{(CL)}\right)^{2/3} = \left(\frac{4.6}{(3.087)\ (10)}\right)^{2/3} = 0.30\ FT.$$

h = 0.30 < 0.79 OK

## 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.
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## FLOOD PLAIN GENERAL CONSTRUCTION NOTES:

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2. NO CONSTRUCTION MATERIAL AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF THE EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF THE EXISTING FLOOD PLAIN.

## TRENCH EXCAVATION SAFETY PROTECTION:

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## CAUTION!!

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SCALE: 1"= 20'

0' 20' 40' 60'

| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
8/8/25


PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800


# SENECA TRAILS OFFSITE IMPROVEMENTS

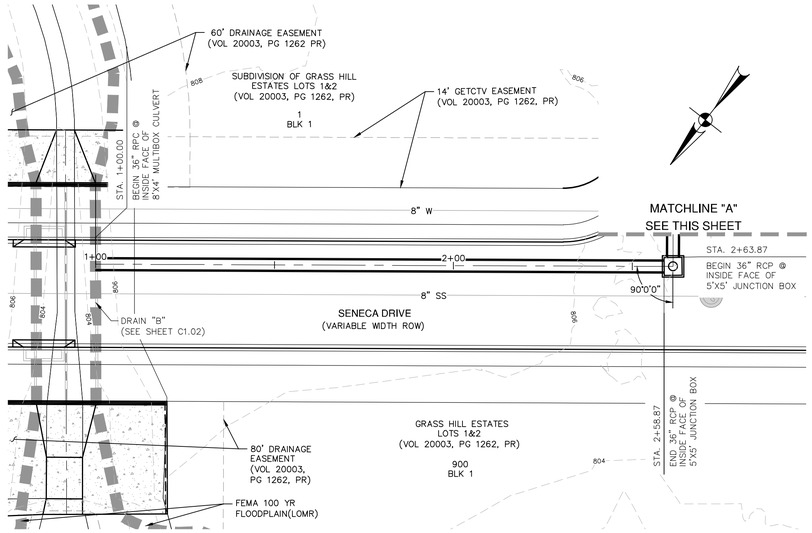
LEON VALLEY, TEXAS

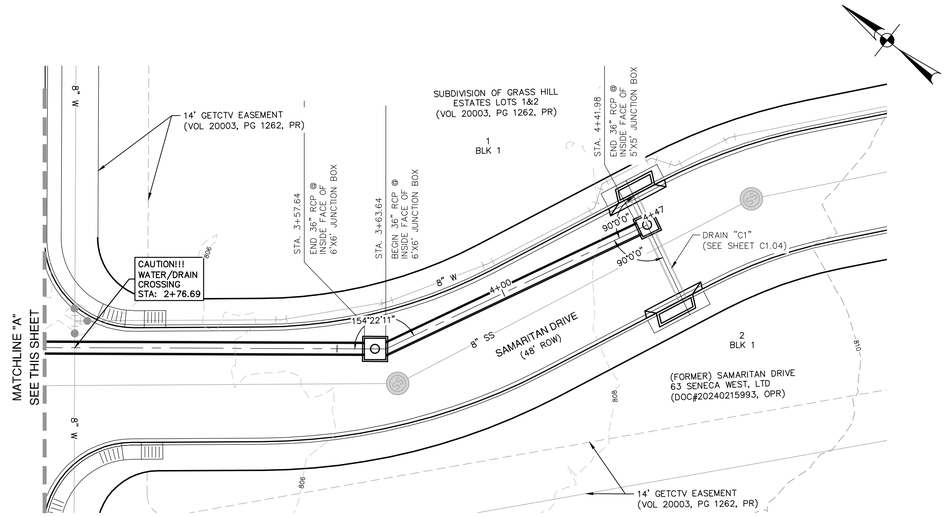
DRAIN B PLAN & PROFILE (STA. 1+39.71 TO END)

PLAT NO. ----
JOB NO. 13569-02
DATE AUGUST 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C1.02


Date: Aug 08, 2025, 4:41pm User ID: Richardgarcia
File: P:\1351\69\02\Design\Civil\SSIB-1356902.dwg

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SCALE: 1"= 20'

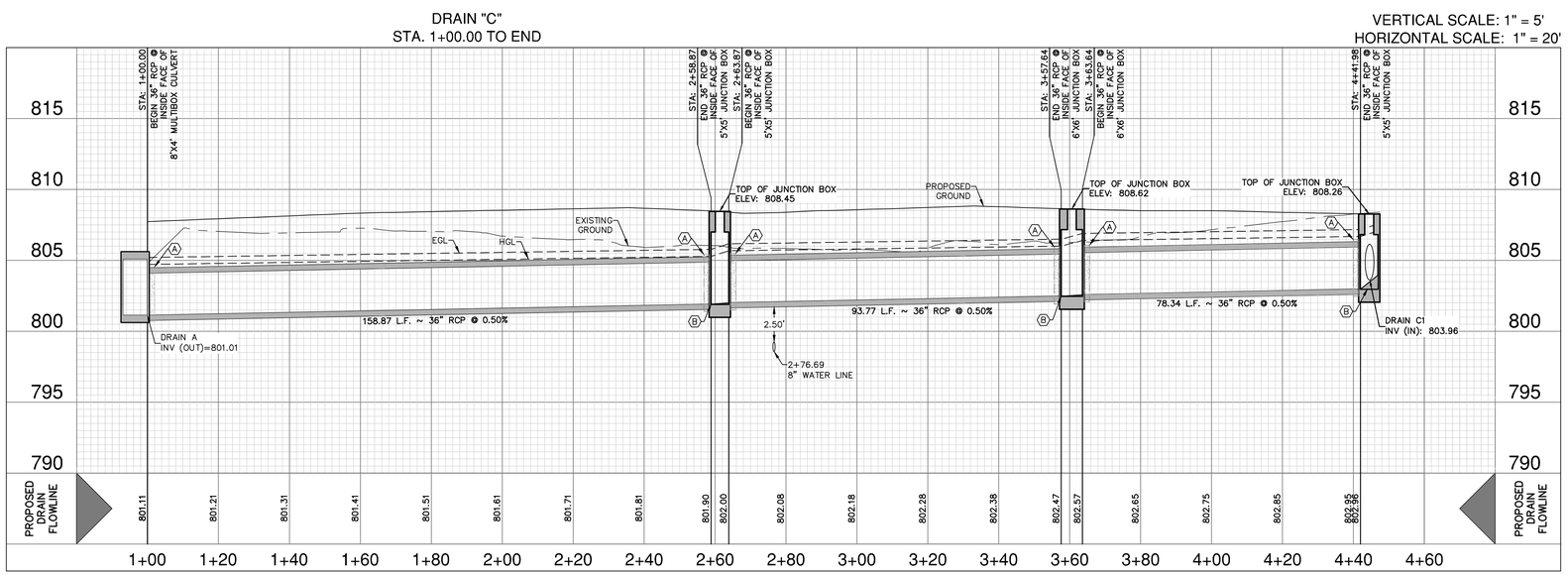
0' 20' 40' 60'

## DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690 —
- PROPOSED CONTOUR — 690 —
- PROPOSED WATER — W —
- PROPOSED SEWER — SS —
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FLOW ARROW

| HYDRAULIC CALCULATIONS STORM DRAIN STA. 1+00.00 TO 2+58.87 | | HYDRAULIC CALCULATIONS STORM DRAIN STA. 2+63.87 TO 3+57.64 | |
|---|---|---|---|
| Q25 = | 39.8 cfs | Q25 = | 39.8 cfs |
| S = | 0.50% | S = | 0.50% |
| Sf = | 0.36% | Sf = | 0.36% |
| Vf = | 5.63 fps | Vf = | 5.63 fps |
| n = | 0.013 | n = | 0.013 |
| D = | 3' | D = | 3' |

| HYDRAULIC CALCULATIONS STORM DRAIN STA. 3+63.64 TO 4+41.98 | |
|---|---|
| Q25 = | 39.8 cfs |
| S = | 0.50% |
| Sf = | 0.36% |
| Vf = | 5.63 fps |
| n = | 0.013 |
| D = | 3' |




## 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 LEON VALLEY 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.

## FLOOD PLAIN GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR IS TO MAINTAIN UNRESTRICTED DRAINAGE OF THE PROJECT SITE AND ADJACENT AREAS DURING CONSTRUCTION.
2. NO CONSTRUCTION MATERIAL AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF THE EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF THE EXISTING FLOOD PLAIN.

## TRENCH EXCAVATION SAFETY PROTECTION:

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## CAUTION!!

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| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
4/11/25

PAPE-DAWSON ENGINEERS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM I-470 | TEXAS SURVEYING FIRM #10028800

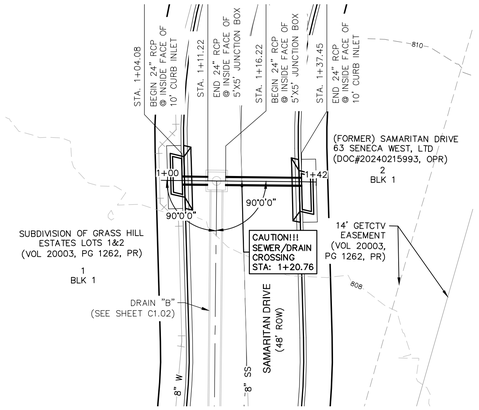
# SENECA TRAILS OFFSITE IMPROVEMENTS

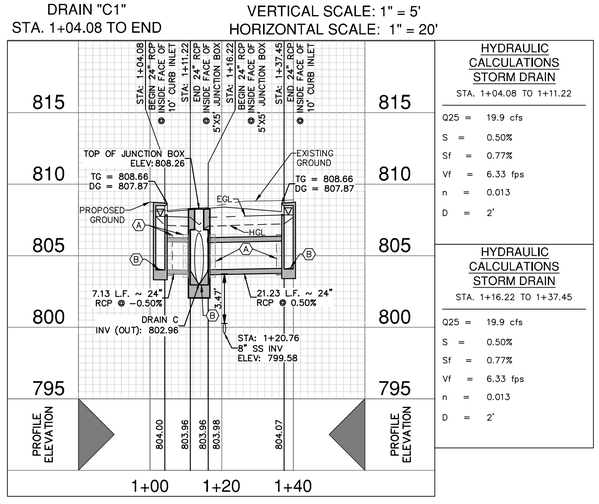
LEON VALLEY, TEXAS

DRAIN C PLAN & PROFILE
(STA. 1+00.00 TO END)

| | |
|---|---|
| PLAT NO. | ---- |
| JOB NO. | 13569-02 |
| DATE | MARCH 2025 |
| DESIGNER | RG |
| CHECKED | BL |
| DRAWN | KC |
| SHEET | C1.03 |

Date: Apr 29, 2025, 7:06pm User ID: Richardgarcia
File: P:\13569\02\Design\Civil\SDC-1356902.dwg
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HYDRAULIC CALCULATIONS
STORM DRAIN
STA. 1+04.08 TO 1+11.22

| | | |
|---|---|---|
| Q25 | = | 19.9 cfs |
| S | = | 0.50% |
| Sf | = | 0.77% |
| Vf | = | 6.33 fps |
| n | = | 0.013 |
| D | = | 2' |

HYDRAULIC CALCULATIONS
STORM DRAIN
STA. 1+16.22 TO 1+37.45

| | | |
|---|---|---|
| Q25 | = | 19.9 cfs |
| S | = | 0.50% |
| Sf | = | 0.77% |
| Vf | = | 6.33 fps |
| n | = | 0.013 |
| D | = | 2' |

SCALE: 1"= 20'
0' 20' 40' 60'

## DRAINAGE LEGEND

PROJECT LIMITS
100 YR FLOODPLAIN
EXISTING CONTOUR 690
PROPOSED CONTOUR 690
PROPOSED WATER W
PROPOSED SEWER SS
PROPOSED STORM DRAIN
EXISTING STORM DRAIN
FLOW ARROW

HYDRAULIC CALCULATIONS–DRAIN "C"
TOTAL $Q_{25}$ =19.9 CFS

$Q_{25} = CA\sqrt{2gh}$ (ORIFICE FLOW EQN.)
A = L(0.50), h = 0.54, g = 32.2, c = 0.70

$$L = \frac{19.9 \text{ CFS}}{(0.70)\ (0.50)\sqrt{2\ (32.2)\ (0.54)}}$$

L = 9.64 FT USE 2 ~ 10 FT CURB INLETS

CHECK WITH WEIR FORMULA

$$h = \left(\frac{Q}{(CL)}\right)^{2/3} = \left(\frac{19.9}{(3.087)\ (10)}\right)^{2/3} = 0.75 \text{ FT.}$$

h = 0.75 < 0.79 OK

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| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED
PROFESSIONAL ENGINEER
4/11/25

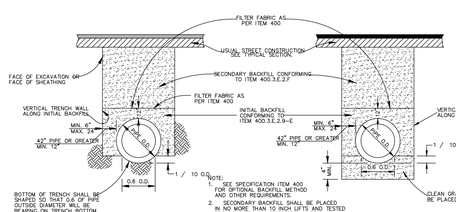
PAPE-DAWSON ENGINEERS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM I-470 | TEXAS SURVEYING FIRM #10028800

# SENECA TRAILS OFFSITE IMPROVEMENTS
LEON VALLEY, TEXAS

DRAIN C1 PLAN & PROFILE
(STA. 1+04.08 TO END)

PLAT NO. ----
JOB NO. 13569-02
DATE MARCH 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C1.04

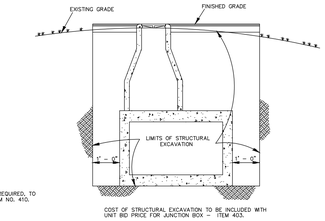
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File: P:\13569\02\Design\Civil\SID-13569(2.dwg
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TYPICAL DETAIL

OPTIONAL DETAIL

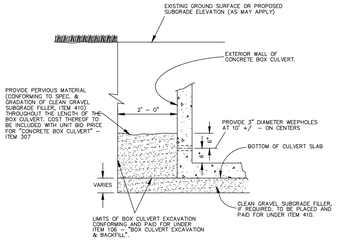
PIPE BEDDING & BACKFILL DETAILS



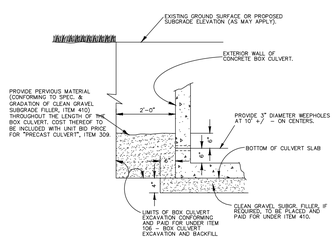

COST OF STRUCTURAL EXCAVATION TO BE INCLUDED WITH UNIT BID PRICE FOR JUNCTION BOX – ITEM 403.

STRUCTURAL EXCAVATION AT JUNCTION BOXES

NO SCALE

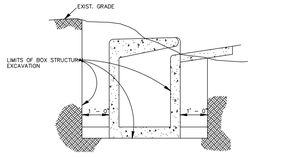



CAST–IN–PLACE BOX CULVERT




PRECAST BOX CULVERT

CONCRETE BOX CULVERT




COST OF STRUCTURAL EXCAVATION TO BE INCLUDED WITH UNIT BID PRICE FOR INLETS – ITEM 403.

STRUCTURAL EXCAVATIONS AT DRAINAGE INLETS

NO SCALE

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

PIPE BEDDING & MISCELLANEOUS DRAINAGE DETAILS

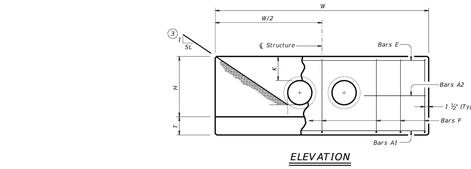
| SUBMITTED | PROJECT NO.: | DATE: |
|---|---|---|
| DRAWN BY: | DSGN. BY: | CHKD. BY: | SHEET NO.: | OF |

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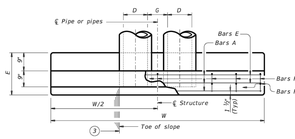
DATE: 4/1/15

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (3)

| Slope | Dia of Pipe (D) | Values for One Pipe: W | Reinf (Lbs) (1) | Conc (CY) (2) | Values To Be Added for Each Addtl Pipe: W | Reinf (Lbs) (1) | Conc (CY) (2) |
|---|---|---|---|---|---|---|---|
| Z:1 | 12" | 9'-0" | 122 | 1.1 | 1'-9" | 15 | 0.2 |
| | 15" | 10'-3" | 136 | 1.3 | 2'-2" | 16 | 0.2 |
| | 18" | 11'-6" | 163 | 1.5 | 2'-8" | 19 | 0.3 |
| | 21" | 12'-9" | 200 | 1.8 | 3'-1" | 31 | 0.4 |
| | 24" | 14'-0" | 217 | 2.1 | 3'-7" | 34 | 0.4 |
| | 27" | 15'-3" | 254 | 2.4 | 3'-11" | 37 | 0.5 |
| | 30" | 16'-6" | 272 | 2.7 | 4'-4" | 40 | 0.6 |
| | 33" | 17'-9" | 314 | 3.1 | 4'-8" | 43 | 0.6 |
| | 36" | 19'-0" | 371 | 3.9 | 5'-1" | 46 | 0.8 |
| | 42" | 21'-6" | 442 | 4.9 | 5'-10" | 52 | 1.0 |
| | 48" | 25'-0" | 569 | 6.4 | 6'-7" | 59 | 1.3 |
| | 54" | 27'-6" | 701 | 7.5 | 7'-6" | 82 | 1.6 |
| | 60" | 30'-0" | 784 | 8.8 | 8'-3" | 90 | 1.8 |
| | 66" | 32'-6" | 894 | 10.2 | 8'-9" | 96 | 2.0 |
| | 72" | 35'-0" | 1,055 | 11.7 | 9'-4" | 103 | 2.3 |
| 3:1 | 12" | 13'-0" | 173 | 1.6 | 1'-9" | 14 | 0.2 |
| | 15" | 14'-9" | 193 | 1.9 | 2'-2" | 17 | 0.2 |
| | 18" | 16'-6" | 228 | 2.2 | 2'-8" | 19 | 0.3 |
| | 21" | 18'-3" | 299 | 2.6 | 3'-1" | 31 | 0.4 |
| | 24" | 20'-0" | 323 | 3.0 | 3'-7" | 33 | 0.4 |
| | 27" | 21'-9" | 371 | 3.5 | 3'-11" | 37 | 0.5 |
| | 30" | 23'-6" | 415 | 4.0 | 4'-4" | 40 | 0.5 |
| | 33" | 25'-3" | 469 | 4.6 | 4'-8" | 43 | 0.6 |
| | 36" | 27'-0" | 556 | 5.7 | 5'-1" | 46 | 0.8 |
| | 42" | 30'-6" | 675 | 7.1 | 5'-10" | 52 | 1.0 |
| | 48" | 35'-6" | 837 | 9.2 | 6'-7" | 59 | 1.3 |
| | 54" | 39'-0" | 1,015 | 11.0 | 7'-6" | 84 | 1.6 |
| | 60" | 42'-6" | 1,171 | 12.9 | 8'-3" | 91 | 1.8 |
| | 66" | 46'-0" | 1,298 | 14.9 | 8'-9" | 98 | 2.0 |
| | 72" | 49'-6" | 1,561 | 17.1 | 9'-4" | 103 | 2.3 |
| 4:1 | 12" | 17'-0" | 229 | 2.0 | 1'-9" | 15 | 0.2 |
| | 15" | 19'-3" | 266 | 2.4 | 2'-2" | 17 | 0.2 |
| | 18" | 21'-6" | 308 | 2.9 | 2'-8" | 19 | 0.3 |
| | 21" | 23'-9" | 382 | 3.5 | 3'-1" | 31 | 0.3 |
| | 24" | 26'-0" | 430 | 3.9 | 3'-7" | 34 | 0.4 |
| | 27" | 28'-3" | 486 | 4.7 | 3'-11" | 37 | 0.5 |
| | 30" | 30'-6" | 539 | 5.2 | 4'-4" | 40 | 0.6 |
| | 33" | 32'-9" | 603 | 6.0 | 4'-8" | 42 | 0.6 |
| | 36" | 35'-0" | 738 | 7.5 | 5'-1" | 47 | 0.8 |
| | 42" | 39'-6" | 881 | 9.3 | 5'-10" | 52 | 1.0 |
| | 48" | 46'-0" | 1,102 | 12.1 | 6'-7" | 61 | 1.3 |
| | 54" | 50'-6" | 1,364 | 14.4 | 7'-6" | 84 | 1.6 |
| | 60" | 55'-0" | 1,547 | 16.9 | 8'-3" | 91 | 1.8 |
| | 66" | 59'-6" | 1,741 | 19.5 | 8'-9" | 98 | 2.0 |
| | 72" | 64'-0" | 2,077 | 22.4 | 9'-4" | 102 | 2.3 |
| 6:1 | 12" | 25'-0" | 336 | 3.0 | 1'-9" | 14 | 0.2 |
| | 15" | 28'-3" | 384 | 3.6 | 2'-2" | 17 | 0.2 |
| | 18" | 31'-6" | 452 | 4.2 | 2'-8" | 19 | 0.3 |
| | 21" | 34'-9" | 581 | 5.1 | 3'-1" | 31 | 0.4 |
| | 24" | 38'-0" | 644 | 5.8 | 3'-7" | 34 | 0.4 |
| | 27" | 41'-3" | 737 | 6.9 | 3'-11" | 37 | 0.5 |
| | 30" | 44'-6" | 807 | 7.7 | 4'-4" | 39 | 0.6 |
| | 33" | 47'-9" | 912 | 8.9 | 4'-8" | 44 | 0.6 |
| | 36" | 51'-0" | 1,108 | 11.0 | 5'-1" | 48 | 0.8 |
| | 42" | 57'-6" | 1,318 | 13.1 | 5'-10" | 54 | 1.0 |
| | 48" | 67'-0" | 1,682 | 17.9 | 6'-7" | 59 | 1.3 |
| | 54" | 73'-6" | 2,072 | 21.3 | 7'-6" | 83 | 1.6 |
| | 60" | 80'-0" | 2,351 | 24.9 | 8'-3" | 89 | 1.8 |
| | 66" | 86'-6" | 2,643 | 28.9 | 8'-9" | 96 | 2.0 |
| | 72" | 93'-0" | 3,121 | 33.1 | 9'-4" | 101 | 2.3 |




ELEVATION




PLAN OF NON-SKEWED PIPES

TABLE OF CONSTANT DIMENSIONS

| Dia of Pipe (D) | G | K (5) | H | T | E |
|---|---|---|---|---|---|
| 12" | 0'-9" | 1'-0" | 2'-8" | 0'-9" | 1'-9" |
| 15" | 0'-11" | 1'-0" | 2'-11" | 0'-9" | 1'-9" |
| 18" | 1'-2" | 1'-0" | 3'-2" | 0'-9" | 1'-9" |
| 21" | 1'-4" | 1'-0" | 3'-5" | 0'-9" | 2'-0" |
| 24" | 1'-7" | 1'-0" | 3'-8" | 0'-9" | 2'-0" |
| 27" | 1'-8" | 1'-0" | 3'-11" | 0'-9" | 2'-3" |
| 30" | 1'-10" | 1'-0" | 4'-2" | 0'-9" | 2'-3" |
| 33" | 1'-11" | 1'-0" | 4'-5" | 0'-9" | 2'-6" |
| 36" | 2'-1" | 1'-0" | 4'-8" | 1'-0" | 2'-6" |
| 42" | 2'-4" | 1'-0" | 5'-2" | 1'-0" | 2'-9" |
| 48" | 2'-7" | 1'-3" | 5'-11" | 1'-0" | 3'-0" |
| 54" | 3'-0" | 1'-3" | 6'-5" | 1'-0" | 3'-3" |
| 60" | 3'-3" | 1'-3" | 6'-11" | 1'-0" | 3'-6" |
| 66" | 3'-3" | 1'-3" | 7'-5" | 1'-0" | 3'-9" |
| 72" | 3'-4" | 1'-3" | 7'-11" | 1'-0" | 4'-0" |

TABLE OF (6) REINFORCING STEEL

| Bar | Size | Spa | No. |
|---|---|---|---|
| A1 | #5 | – | 2 |
| A2 | #5 | 1'-6" | – |
| E | #5 | – | 2 |
| F | #5 | 1'-0" | – |

(1) Total quantities include one 3'-1" lap for bars over 60' in length.

(2) Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.

(3) Indicated slope is perpendicular to centerline pipe or pipes.

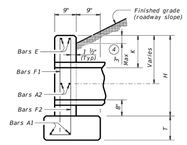
(4) For vehicle safety, construct curbs no more than 3" above finished grade. Reduce curb heights, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(5) Dimensions shown are usual and maximum.

(6) Quantities shown are for one structure end only (one headwall).




BARS F2




SECTION AT CENTER OF PIPE

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide Class C concrete (f'c = 3,600 psi).

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Do not mount bridge rails of any type directly to these culvert headwalls.
This standard may not be used for wall heights, H, exceeding the values shown.

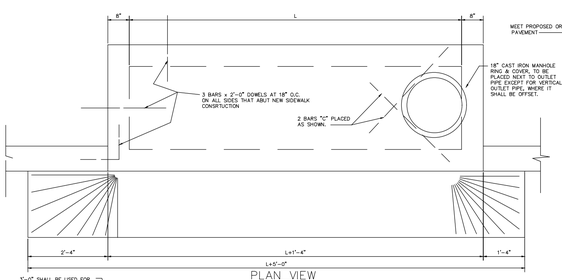
Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.

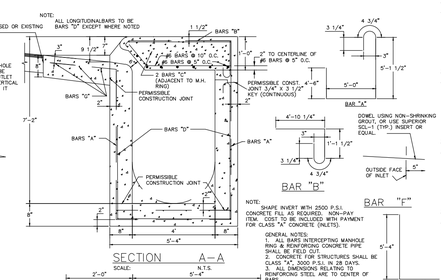
Texas Department of Transportation — Bridge Division Standard

CONCRETE HEADWALLS WITH PARALLEL WINGS FOR NON-SKEWED PIPE CULVERTS

CH-PW-0

| File: CD-CH-PW0-20.dgn | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
|---|---|---|---|---|
| ©TxDOT February 2020 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | DIST | COUNTY | | SHEET NO. |




NOTE:
SHAPE INVERT WITH 2500 P.S.I. CONCRETE FILL AS REQUIRED. NON–PAY ITEM. COST TO BE INCLUDED WITH PAYMENT FOR CLASS "A" CONCRETE (INLETS).

GENERAL NOTES:
1. ALL BARS INTERCEPTING MANHOLE RING & REINFORCING CONCRETE PIPE SHALL BE FIELD–CUT.
2. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 P.S.I. IN 28 DAYS.
3. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
4. ALL EXPOSED CORNERS SHALL BE CHAMFERED TO 3/4".
5. CONSTRUCTION JOINT SHOWN AT FLOWLINE MAY BE RAISED A MAXIMUM OF 6" AT THE CONTRACTOR'S DISCRESION, WITH A LENGTH OF VERTICAL STEEL AS REQUIRED.
6. ALL REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF A.S.T.M. A–615, GRADE 60.

NOTE: CONTRACTOR SHALL ADJUST CONCRETE AND STEEL QUANTITIES AS REQUIRED FOR EXTRA–DEPTH CURB INLETS.

Reinforcing Steel Schedule

| L = 5' | BAR | NO. | SIZE | SPA | LENGTH | WEIGHT |
|---|---|---|---|---|---|---|
| | A | 15 | 4 | 5" | 3'OG1/2–3 1/2" | 154 |
| | B | 13 | 4 | 5" | 4'–1 1/2" | 67 |
| | C | 24 | 4 | 10" | 4'–1 1/2" | 98 |
| | D | 24 | 4 | 10" | 4'–1 1/2" | 98 |
| | E | 14 | 4 | 36 1/2" | 4'–1 1/2" | 64 |
| | F | 4 | 5 | 12" | 2'–1 1/2" | 17 |
| | G | 3 | 4 | 12" | 5'–8" | 20 |
| | H | 5 | 5 | 12" | 1'–0" | 9 |

CONCRETE 703LBS;CEMENT 464BAGS;CASTING1050LBS STEEL 703LBS;448LBS

| L = 10' | BAR | NO. | SIZE | SPA | LENGTH | WEIGHT |
|---|---|---|---|---|---|---|
| | A | 27 | 4 | 5" | 3'OG1/2–3 1/2" | 278 |
| | B | 27 | 4 | 5" | 4'–1 1/2" | 135 |
| | C | 24 | 4 | 10" | 4'–1 1/2" | 98 |
| | D | 24 | 4 | 10" | 4'–1 1/2" | 98 |
| | E | 14 | 4 | 36 1/2" | 4'–1 1/2" | 64 |
| | F | 12 | 5 | 12" | 2'–0" | 29 |
| | G | 3 | 4 | 12" | 14'–8" | 30 |
| | H | 5 | 5 | 12" | 1'–0" | 9 |

CONCRETE 703LBS;CEMENT 464BAGS;CASTING1050LBS STEEL 703LBS;1074LBS

| L = 15' | BAR | NO. | SIZE | SPA | LENGTH | WEIGHT |
|---|---|---|---|---|---|---|
| | A | 39 | 4 | 5" | 3'OG1/2–3 1/2" | 398 |
| | B | 38 | 4 | 5" | 4'–1 1/2" | 192 |
| | C | 24 | 4 | 10" | 4'–1 1/2" | 98 |
| | D | 24 | 4 | 10" | 4'–1 1/2" | 98 |
| | E | 14 | 4 | 36 1/2" | 4'–1 1/2" | 64 |
| | F | 11 | 5 | 12" | 2'–0" | 40 |
| | G | 3 | 4 | 12" | 19'–8" | 40 |
| | H | 5 | 5 | 12" | 1'–0" | 9 |

CONCRETE 703LBS;CEMENT 464BAGS;CASTING1050LBS STEEL 703LBS;1446LBS

| L = 20' | BAR | NO. | SIZE | SPA | LENGTH | WEIGHT |
|---|---|---|---|---|---|---|
| | A | 51 | 4 | 5" | 3'OG1/2–3 1/2" | 521 |
| | B | 51 | 4 | 5" | 4'–1 1/2" | 257 |
| | C | 24 | 4 | 10" | 4'–1 1/2" | 98 |
| | D | 24 | 4 | 10" | 4'–1 1/2" | 98 |
| | E | 14 | 4 | 36 1/2" | 4'–1 1/2" | 64 |
| | F | 22 | 5 | 12" | 2'–0" | 53 |
| | G | 3 | 4 | 12" | 24'–8" | 50 |
| | H | 5 | 5 | 12" | 1'–0" | 9 |

CONCRETE 703LBS;CEMENT 464BAGS;CASTING1050LBS STEEL 703LBS;1774LBS

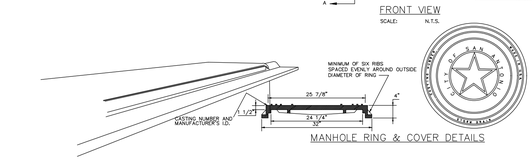
| L = 25' | BAR | NO. | SIZE | SPA | LENGTH | WEIGHT |
|---|---|---|---|---|---|---|
| | A | 63 | 4 | 5" | 3'OG1/2–3 1/2" | 644 |
| | B | 63 | 4 | 5" | 4'–1 1/2" | 280 |
| | C | 24 | 4 | 10" | 4'–1 1/2" | 98 |
| | D | 24 | 4 | 10" | 4'–1 1/2" | 98 |
| | E | 14 | 4 | 36 1/2" | 4'–1 1/2" | 64 |
| | F | 27 | 5 | 12" | 2'–0" | 64 |
| | G | 3 | 4 | 12" | 29'–8" | 60 |
| | H | 5 | 5 | 12" | 1'–0" | 9 |

CONCRETE 703LBS;CEMENT 464BAGS;CASTING1050LBS STEEL 703LBS;1948LBS

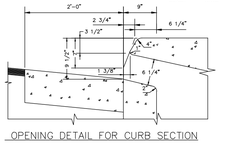
| L = 30' | BAR | NO. | SIZE | SPA | LENGTH | WEIGHT |
|---|---|---|---|---|---|---|
| | A | 75 | 4 | 5" | 3'OG1/2–3 1/2" | 767 |
| | B | 75 | 4 | 5" | 4'–1 1/2" | 333 |
| | C | 24 | 4 | 10" | 4'–1 1/2" | 98 |
| | D | 24 | 4 | 10" | 4'–1 1/2" | 98 |
| | E | 14 | 4 | 36 1/2" | 4'–1 1/2" | 64 |
| | F | 32 | 5 | 12" | 2'–0" | 76 |
| | G | 3 | 4 | 12" | 34'–8" | 70 |
| | H | 5 | 5 | 12" | 1'–0" | 9 |

CONCRETE 703LBS;CEMENT 464BAGS;CASTING1050LBS STEEL 703LBS;2486LBS

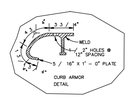
MODIFIED CURB INLET DETAIL
N.T.S.




MANHOLE RING & COVER DETAILS

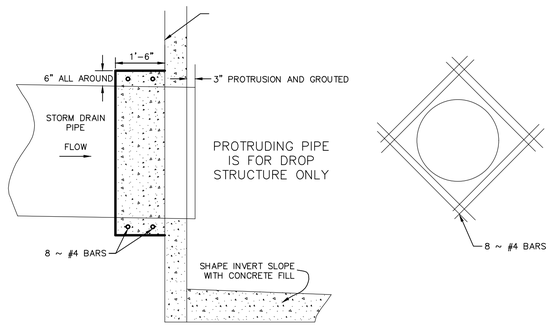


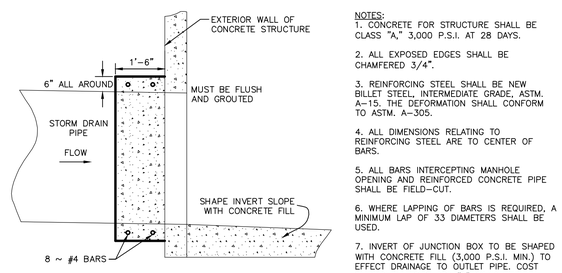

OPENING DETAIL FOR CURB SECTION




CURB ARMOR DETAIL

| CITY OF SAN ANTONIO STANDARD | |
|---|---|
| DROP INLET DETAILS TYPE "C" | |
| DN. R.B.H. DR. V.P.C. CK. R.B.H. DW. R.B.H. CK. R.B.H. | CITY OF SAN ANTONIO DEPARTMENT OF PUBLIC WORKS ENGINEERING DIVISION |
| | DATE |
| | SHEET |




PIPE FLUSH WITH INVERT

CONCRETE COLLAR DETAIL
NOT–TO–SCALE
PROVIDE AT CONNECTION TO ALL STRUCTURES

NOTES:
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".

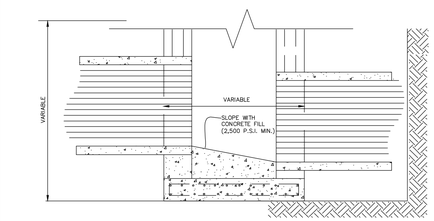
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE, ASTM. A–15. THE DEFORMATION SHALL CONFORM TO ASTM. A–305.

4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.

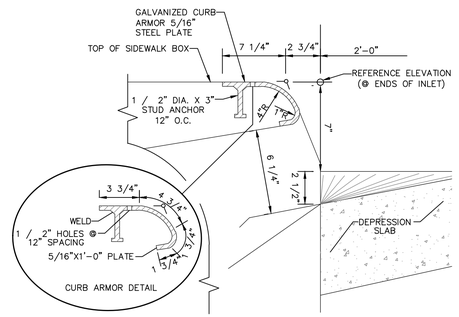
5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD–CUT.

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).




GROUTED INVERT DETAIL
NOT–TO–SCALE




CURB ARMOR DETAIL
NOT–TO–SCALE

SENECA TRAILS OFFSITE IMPROVEMENTS
LEON VALLEY, TEXAS
DRAINAGE DETAILS

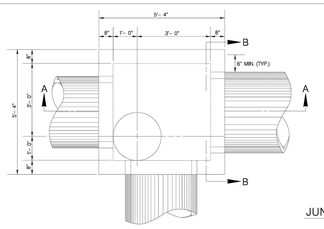
PLAT NO. ----
JOB NO. 13569–02
DATE MARCH 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C1.10

| NO. | REVISION | DATE |
|---|---|---|

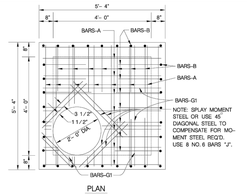
STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
4/1/15

PAPE-DAWSON ENGINEERS
2000 NW LOOP 410 | SAN ANTONIO, TX. 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Date: Apr 29, 2025, 7:06pm User ID: Richardgarcia
File: P:\135\69\02\Design\Civil\SSD1-1356902.dwg




PLAN




PLAN

JUNCTION BOX TOP SLAB SHOWING STEEL




BARS–B

BARS–C

SCHEDULE FOR REINFORCING STEEL

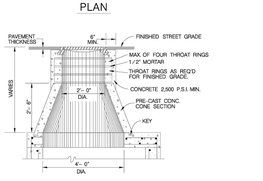
| SHAPE | BAR | NO. | SIZE | SPACING | LENGTH | WEIGHT |
|---|---|---|---|---|---|---|
| STRAIGHT | A | 16 | 4 | 9" O.C. | 5'– 1" | 54 |
| | B | 32 | 5 | 8" O.C. | 6'– 10" | 228 |
| | C | 32 | 5 | 8" O.C. | 4'– 3" | 142 |
| STRAIGHT | D | 16 | 4 | 9" O.C. | 5'– 1" | 54 |
| STRAIGHT | E | 16 | 3 | 12" O.C. | 3'–11" | 24 |
| STRAIGHT | G | 16 | 4 | 12" O.C. | 5'–1" | 54 |
| STRAIGHT | $G_1$ | 8 | 4 | AS SHOWN | 5'–1" | 27 |
| STRAIGHT | H | 20 | 3 | 12" O.C. | 4'–5" | 33 |
| STRAIGHT | J | 8 | 6 | 3 1/2" O.C. | 2'– 10" | 34 |
| | | | | | TOTAL | 650 LBS. |

A = 4'X 4'; B NO. 1 & 4

CLASS "A" CONCRETE– 3.43 CU. YDS.
(DOES NOT EXCLUDE MANHOLE OPENINGS OR PIPE OPENING)

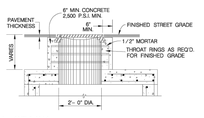
★ NOTE: BAR SIZE AND SPACING BASED ON SPANS AS SHOWN – ANY REVISIONS TO THESE SPANS SHALL INCLUDE A RE-DESIGN ON STEEL REQ'D.

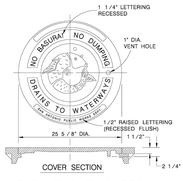
1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A," 3,000 P.S.I. AT 28 DAYS.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3 /4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE, ASTM. A–15. THE DEFORMATION SHALL CONFORM TO ASTM. A–305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER 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 (2,500 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE. COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).
8. PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, VERTICAL STACK, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 – "STORM SEWER JUNCTION BOXES AND INLETS".




VARIATION OF VERTICAL STACK

VERTICAL STACK DESIGN SHALL BE GOVERNED BY THE DEPTH OF THE TOP OF THE JUNCTION BOX BELOW THE FINISHED STREET GRADE.



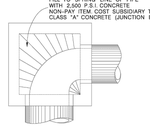

COVER SECTION

MANHOLE LID & RING DETAIL

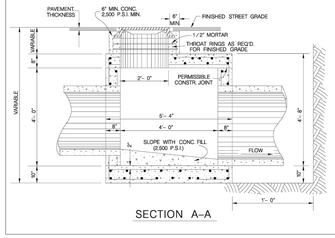
SCALE: 1 : 16

NOTES FOR MANHOLE LID AND RING

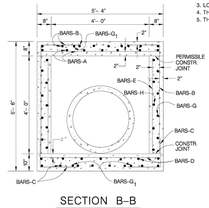
1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT.".
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS–20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.




CURVED DEFLECTOR DETAIL




SECTION A–A




SECTION B–B

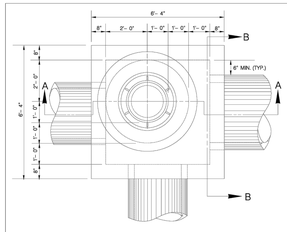
JANUARY 2005

CITY OF SAN ANTONIO

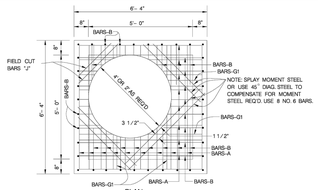
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

4'x4'x4' JUNCTION BOX STANDARDS

| % SUBMITTAL | PROJECT NO.: | | DATE: |
|---|---|---|---|
| DRAWN BY: | DSGN. BY: | CHKD. BY: | SHEET NO.: OF |




PLAN




PLAN

OF JUNCTION BOX TOP SLAB SHOWING STEEL




BARS–B

BARS–C

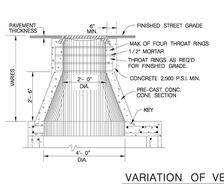
SCHEDULE FOR REINFORCING STEEL

| SHAPE | BAR | NO. | SIZE | SPACING | LENGTH | WEIGHT |
|---|---|---|---|---|---|---|
| STRAIGHT | A | 18 | 4 | 9" O.C. | 6'– 1" | 73 |
| | B | 36 | 5 | 8" O.C. | 7'– 6" | 282 |
| | C | 36 | 5 | 8" O.C. | 4'– 3" | 160 |
| STRAIGHT | D | 18 | 4 | 9" O.C. | 6'– 1" | 73 |
| STRAIGHT | E | 20 | 3 | 12" O.C. | 4'– 11" | 37 |
| STRAIGHT | G | 20 | 4 | 12" O.C. | 6'– 1" | 81 |
| STRAIGHT | $G_1$ | 8 | 4 | AS SHOWN | 6'– 1" | 33 |
| STRAIGHT | H | 24 | 3 | 12" O.C. | 5'– 5" | 49 |
| STRAIGHT | J | 8 | 6 | 3 1/2" O.C. | 4'– 11" | 59 |
| | | | | | TOTAL | 847 lbs. |

CLASS "A" CONCRETE – 5.03 CU. YDS.
(DOES NOT EXCLUDE MANHOLE OPENINGS OR PIPE OPENING)

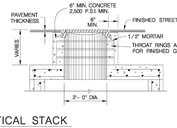
★ NOTE: BAR SIZE AND SPACING BASED ON SPANS AS SHOWN – ANY REVISIONS TO THESE SPANS SHALL INCLUDE A RE-DESIGN ON STEEL REQD.

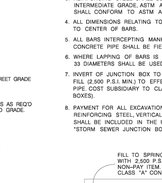
1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A" 3,000 P.S.I. AT 28 DAYS.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE, ASTM. A–15. THE DEFORMATION SHALL CONFORM TO ASTM A–305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER 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 (2,500 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).
8. PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, VERTICAL STACK, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 – "STORM SEWER JUNCTION BOXES AND INLETS".




VARIATION OF VERTICAL STACK

VERTICAL STACK DESIGN SHALL BE GOVERNED BY THE DEPTH OF THE TOP OF THE JUNCTION BOX BELOW THE FINISHED STREET GRADE.



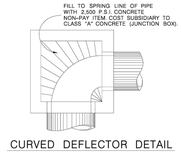

COVER SECTION

MANHOLE LID & RING DETAIL

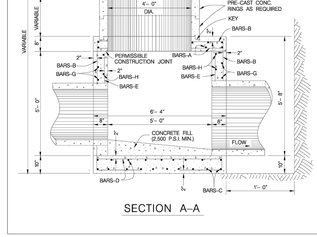
SCALE: 1 : 16

NOTES FOR MANHOLE LID AND RING

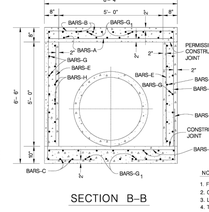
1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT.".
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS–20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.




CURVED DEFLECTOR DETAIL




SECTION A–A




SECTION B–B

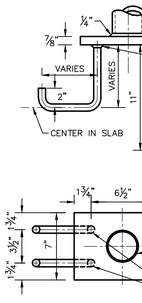
JANUARY 2005

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

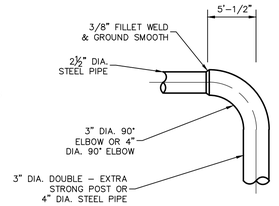
5'x5'x5' JUNCTION BOX STANDARDS

| % SUBMITTAL | PROJECT NO.: | | DATE: |
|---|---|---|---|
| DRAWN BY: | DSGN. BY: | CHKD. BY: | SHEET NO.: OF |




PIPE ANCHORAGE DETAIL

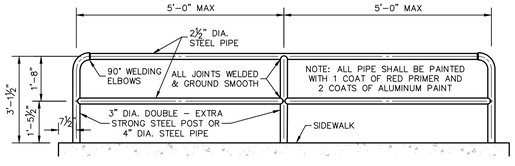
NOT–TO–SCALE




NOTE: A NEAT END SECTION, SATISFACTORY TO THE ENGINEER, FROM SUBMITTED SHOP DRAWINGS, MAY BE USED IN LIEU OF THE 90° WELDING ELBOW SHOWN.

DETAIL OF 90° WELDING ELBOW

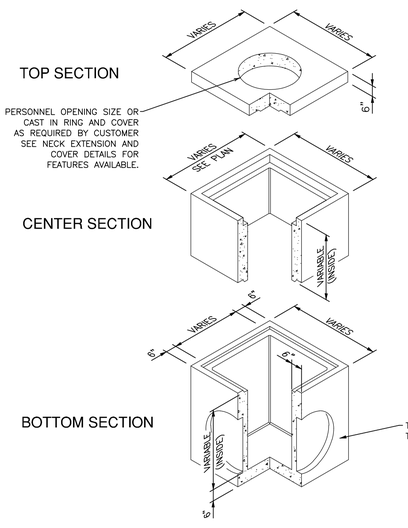
NOT–TO–SCALE




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

PIPE RAILING DETAIL

NOT–TO–SCALE




ALL CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 4500 psi.

REINFORCING STEEL SHALL COMPLY WITH ASTM A615 GRADE 60, A706 GRADE 60 OR A497 GRADE 70. BAR BENDING AND PLACEMENT SHALL COMPLY WITH THE LATEST ACI STANDARDS

WATER TABLE IS AT 3'–0" BELOW GRADE FOR STANDARD STRUCTURAL DESIGN

THE STANDARD DESIGN IS BASED ON THE TOP AT GRADE AND THE BASE AT 1'3"–0" MAX. BELOW GRADE.

THE STRUCTURE SHALL BE PLACED ON A COMPACTED GRANULAR BASE TO INSURE UNIFORM DISTRIBUTION OF SOIL PRESSURES.

SPECIAL DESIGNS BASED ON OTHER LOADINGS OR DEEPER INSTALLATION DEPTHS ARE AVAILABLE ON REQUEST.

KNOCKOUTS OR PIPE OPENINGS CAN BE PROVIDED IN THE SIZE AND LOCATIONS REQUIRED.

TYPICAL PRECAST JUNCTION BOX

NOT–TO–SCALE

| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED
PROFESSIONAL ENGINEER
4/11/25

PAPE-DAWSON ENGINEERS

2000 NW LOOP 410 | SAN ANTONIO, TX. 78213 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SENECA TRAILS OFFSITE IMPROVEMENTS

LEON VALLEY, TEXAS

DRAINAGE DETAILS

PLAT NO. ----

JOB NO. 13569–02

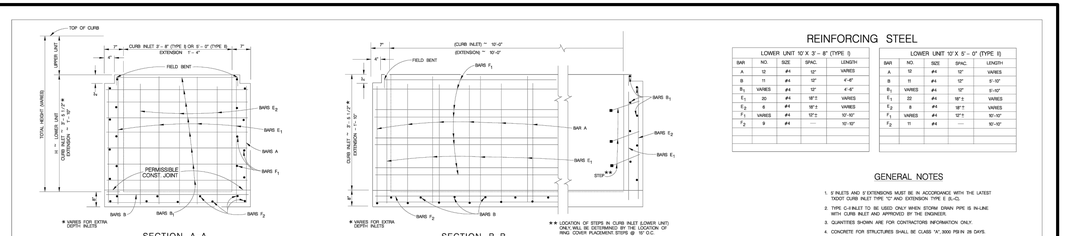
DATE MARCH 2025

DESIGNER RG

CHECKED BL DRAWN KC

SHEET C1.11

Date: Apr 29, 2025, 7:06pm User ID: Richardgarcia
File: P:\135\69\02\Design\Civil\SDT–1356902.dwg




SECTION A–A




SECTION B–B

## REINFORCING STEEL

LOWER UNIT 10' X 3'– 8" (TYPE II)

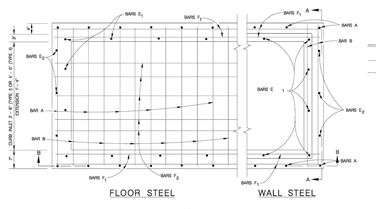
| BAR | NO. | SIZE | SPAC. | LENGTH |
|---|---|---|---|---|
| A | 12 | #4 | 12" | VARIES |
| B | 11 | #4 | 12" | 4'-6" |
| $B_1$ | VARIES | #4 | 12" | 4'-6" |
| $E_1$ | 20 | #4 | 18"± | VARIES |
| $E_2$ | 8 | #4 | 18"± | VARIES |
| $F_1$ | VARIES | #4 | 12"± | 10'-10" |
| $F_2$ | 9 | #4 | —— | 10'-10" |

LOWER UNIT 10' X 5'– 0" (TYPE I)

| BAR | NO. | SIZE | SPAC. | LENGTH |
|---|---|---|---|---|
| A | 12 | #4 | 12" | VARIES |
| B | 11 | #4 | 12" | 5'-10" |
| $B_1$ | VARIES | #4 | 12" | 5'-10" |
| $E_1$ | 22 | #4 | 18"± | VARIES |
| $E_2$ | 8 | #4 | 18"± | VARIES |
| $F_1$ | VARIES | #4 | 12"± | 10'-10" |
| $F_2$ | 11 | #4 | —— | 10'-10" |

## GENERAL NOTES

1. 5' INLETS AND 3' EXTENSIONS MUST BE IN ACCORDANCE WITH THE LATEST TxDOT CURB INLET TYPE "C" AND EXTENSION TYPE II (L-C).
2. TYPE C-II INLET TO BE USED ONLY WHEN STORM DRAIN PIPE IS IN-LINE WITH CURB INLET AND APPROVED BY THE ENGINEER.
3. QUANTITIES SHOWN ARE FOR CONTRACTORS INFORMATION ONLY.
4. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 PSI IN 28 DAYS.
5. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
6. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 1 1/2".
7. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A-615, GRADE 60 REQUIREMENTS.
8. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
9. DEPRESSION SLAB SHALL RECEIVE A WOOD FLOAT FINISH.
10. FACE OF INLET TO CONFORM TO FACE OF CURB LINE.
11. ALL BARS INTERCEPTING MANHOLE RING & COVER SHALL BE CUT OR BENT.
12. PAYMENT FOR ALL EXCAVATION, BACK-FILLING, CONCRETE, REINFORCING STEEL, RING AND COVER, CURB ARMOR AND STEPS SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".
13. GRIT IRON MANHOLE RING AND COVER TO BE PLACED NEXT TO OUTLET PIPE, EXCEPT FOR VERTICAL OUTLET PIPE IN WHICH CASE MANHOLE RING AND COVER WILL BE OFFSET.
14. GALVANIZED BOLTS, NUTS, WASHERS, PLATES AND GASKETS ARE SUBSIDIARY TO INLETS.
15. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE MEANS TO LIFT AND PLACE THE INLETS WHEN USING PRECAST UNITS.
16. ALL BARS AT PIPE BLOCKOUT LOCATIONS SHALL BE CUT OR BENT.
17. ALL LOWER UNITS SHALL RECEIVE RAKE MORTAR SHAPING.
18. PIPE BLOCKOUTS IN INLET WALLS SHOULD NOT EXCEED 3' BEYOND THE OUTER SHELL OF THE PIPE, TAKING INTO ACCOUNT THE SKEW OF THE PIPE AS NECESSARY. CONSTRUCTION JOINT MAY BE RAISED A MAXIMUM OF 6".

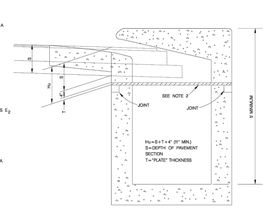



FLOOR STEEL




WALL STEEL

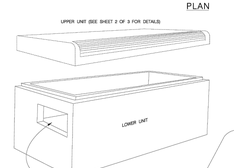
PLAN



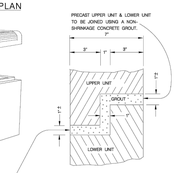

## PHASE CONSTRUCTION

NOTES FOR PHASE CONSTRUCTION (WHEN DIRECTED BY THE ENGINEER):

1. THE CURB INLET AND EXTENSION SHALL BE CONSTRUCTED TO A DEPTH "H2" BELOW THE INLET AND EXTENSION GUTTER LINE ELEVATION.
2. CAP THE CURB INLET AND EXTENSION WITH A STEEL PLATE APPROVED BY THE ENGINEER AND CONSTRUCT THE ROADWAY OVER THE PLATE.
3. AFTER THE ROADWAY IS COMPLETED BUT PRIOR TO THE FINAL WEARING COURSE, SAW CUT THE PAVEMENT, REMOVE THE PLATE AND COMPLETE THE UPPER PORTION OF THE CURB INLET AND / OR EXTENSION.

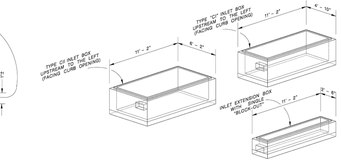



PLAN




JOINT DETAIL

WHEN USING PRECAST UPPER UNIT, THIS SPACE IS FOR MAKING MINOR HORIZONTAL AND VERTICAL ADJUSTMENTS TO ACCOMODATE A FIT BETWEEN THE UPPER AND LOWER UNIT THAT ALLOWS FOR A MATCH LINE AND GRADE BETWEEN THE ROADWAY CURB AND THE UPPER UNIT OF THE INLET.




CONCRETE INLET BOX CONFIGURATIONS (LOWER UNITS)




BARS A
(LOWER UNIT)

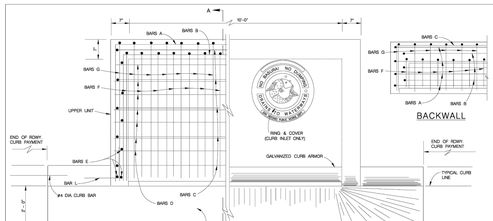
MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

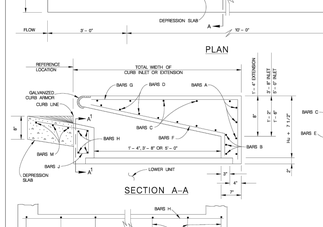
TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS
SHEET 1 OF 3

___% SUBMITTAL | PROJECT NO.:_____ | DATE:_____
DRAWN BY: V. VASQUEZ | DESIGN BY: L.E. MALTOS, P.E. | CHKD. BY: R.S. HOSSEINI, P.E. | SHEET NO.:____OF____

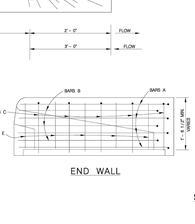
NOT USED
(CONTRACTOR SHALL NOTIFY ENGINEER IF USED)



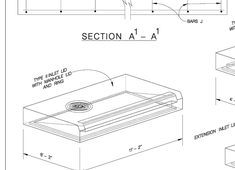

PLAN




SECTION A–A



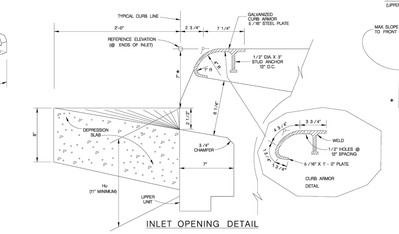

END WALL




SECTION A1 – A1




CONCRETE INLET LID CONFIGURATIONS (UPPER UNITS)




INLET OPENING DETAIL

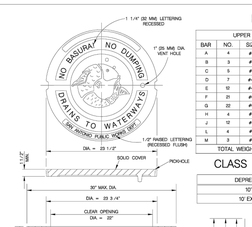
## REINFORCING STEEL (FOR Hu = 11")

UPPER UNIT 10' X 3'–8" (TYPE II)

| BAR | NO. | SIZE | SPAC. | LENGTH | WEIGHT |
|---|---|---|---|---|---|
| A | 4 | #4 | —— | 19'-10" | 53 |
| B | 3 | #4 | —— | 19'-10" | 39 |
| C | 3 | #4 | —— | 10'-2" | 14 |
| D | 7 | #4 | 6" | 10'-10" | 51 |
| E | 10 | #4 | 12" | 1'-0" | 7 |
| F | 21 | #6 | 6" | 4'-8" | 147 |
| G | 22 | #6 | 6" | 5'-8" | 187 |
| H | 4 | #4 | —— | 10'-10" | 29 |
| J | 12 | #4 | 12" | 3'-6" | 28 |
| L | 4 | #4 | —— | 2'-0" | 5 |
| M | 3 | #4 | —— | 14'-4" | 29 |
| TOTAL WEIGHT | | | | | 620 LBS. |

UPPER UNIT 10' X 5'– 0" (TYPE I)

| BAR | NO. | SIZE | SPAC. | LENGTH | WEIGHT |
|---|---|---|---|---|---|
| A | 4 | #4 | —— | 20'-6" | 60 |
| B | 3 | #4 | —— | 20'-6" | 43 |
| C | 3 | #4 | —— | 10'-2" | 14 |
| D | 11 | #4 | 6" | 10'-10" | 80 |
| E | 16 | #4 | 12" | 1'-0" | 10 |
| F | 25 | #6 | 6" | 5'-8" | 179 |
| G | 22 | #6 | 6" | 7'-0" | 231 |
| H | 4 | #4 | —— | 10'-10" | 29 |
| J | 12 | #4 | 12" | 3'-6" | 28 |
| L | 4 | #4 | —— | 2'-0" | 5 |
| M | 3 | #4 | —— | 14'-4" | 29 |
| TOTAL WEIGHT | | | | | 759 LBS. |




MANHOLE LID & RING DETAIL (ITEM 409)

## NOTES FOR MANHOLE LID AND RING

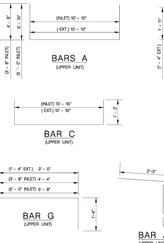
1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT."
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF H5-20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.

SEE SHEET 1 OF 3 FOR GENERAL NOTES.

## CLASS "A" CONCRETE QUANTITIES (FOR Hu = 11")

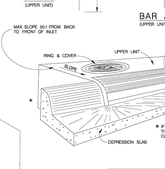
| DEPRESSION SLAB | C.Y. |
|---|---|
| 10' INLET | 0.7 |
| 10' EXTENSION | 0.7 |

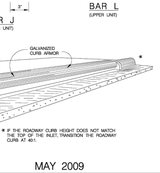
| UPPER UNIT (ONLY) | C.Y. |
|---|---|
| 10' X 3'–8" CURB INLET | 1.9 |
| 10' X 5'–0" CURB INLET EXTENSION | 2.7 1.0 |



















MAX SLOPE 30:1 FROM BACK TO FRONT OF INLET




★ IF THE ROADWAY CURB HEIGHT DOES NOT MATCH THE SUM OF THE INLET, TRANSITION THE ROADWAY CURB AT 45°.

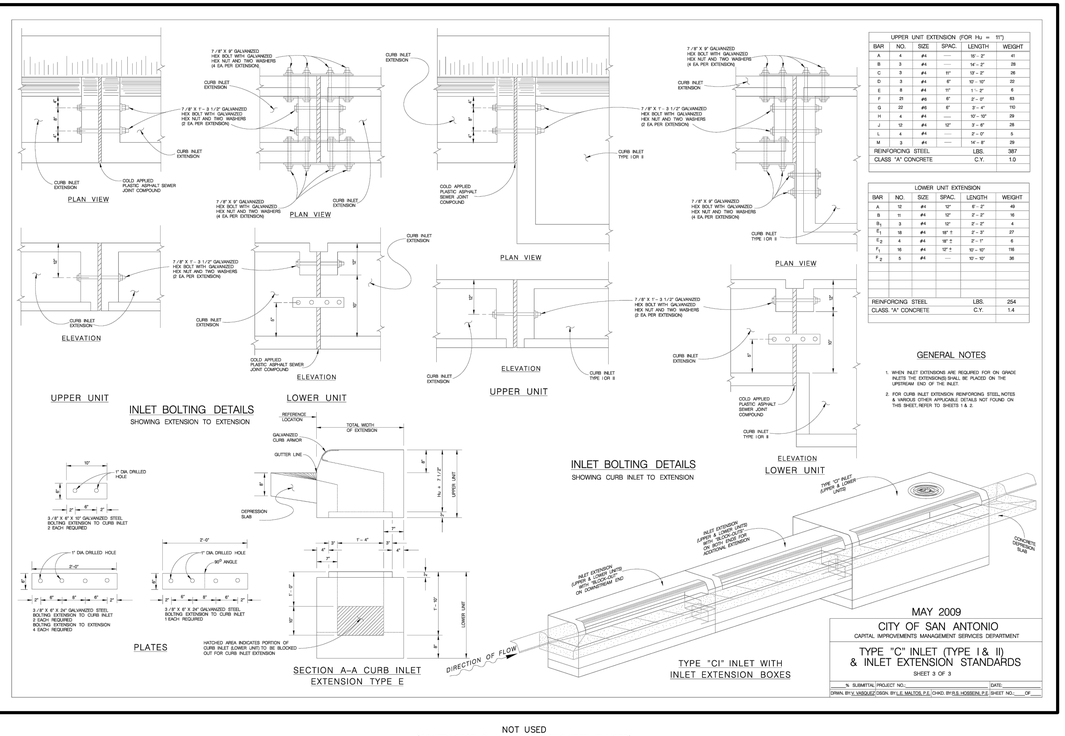
MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS
SHEET 2 OF 3

___% SUBMITTAL | PROJECT NO.:_____ | DATE:_____
DRAWN BY: V. VASQUEZ | DESIGN BY: L.E. MALTOS, P.E. | CHKD. BY: R.S. HOSSEINI, P.E. | SHEET NO.:____OF____

NOT USED
(CONTRACTOR SHALL NOTIFY ENGINEER IF USED)




INLET BOLTING DETAILS
SHOWING EXTENSION TO EXTENSION




PLATES

SECTION A–A CURB INLET EXTENSION TYPE E

INLET BOLTING DETAILS
SHOWING CURB INLET TO EXTENSION




TYPE "CI" INLET WITH INLET EXTENSION BOXES

| UPPER UNIT EXTENSION (FOR Hu = 11") | | | | | |
|---|---|---|---|---|---|
| BAR | NO. | SIZE | SPAC. | LENGTH | WEIGHT |
| A | 4 | #4 | —— | 19'– 2" | 41 |
| B | 3 | #4 | —— | 14'– 2" | 29 |
| C | 3 | #4 | —— | 10'– 2" | 28 |
| D | 3 | #4 | 6" | 10'– 10" | 22 |
| E | 8 | #4 | 11" | 1'– 2" | 6 |
| F | 21 | #6 | 6" | 2'– 0" | 63 |
| G | 22 | #6 | 6" | 3'– 4" | 110 |
| H | 4 | #4 | —— | 10'– 10" | 29 |
| J | 12 | #4 | 12" | 3'– 6" | 28 |
| L | 4 | #4 | —— | 2'– 0" | 5 |
| M | 3 | #4 | —— | 14'– 4" | 29 |
| REINFORCING STEEL | | | | LBS. | 387 |
| CLASS "A" CONCRETE | | | | C.Y. | 1.0 |

| LOWER UNIT EXTENSION | | | | | |
|---|---|---|---|---|---|
| BAR | NO. | SIZE | SPAC. | LENGTH | WEIGHT |
| A | 12 | #4 | 12" | 6'– 2" | 49 |
| B | 11 | #4 | 12" | 2'– 2" | 16 |
| $B_1$ | 3 | #4 | 12" | 2'– 2" | 4 |
| $E_1$ | 18 | #4 | 18"± | 2'– 3" | 27 |
| $E_2$ | 4 | #4 | 18"± | 2'– 1" | 6 |
| $F_1$ | 16 | #4 | 12"± | 10'– 10" | 116 |
| $F_2$ | 5 | #4 | —— | 10'– 10" | 36 |
| REINFORCING STEEL | | | | LBS. | 254 |
| CLASS "A" CONCRETE | | | | C.Y. | 1.4 |

## GENERAL NOTES

1. WHEN INLET EXTENSIONS ARE REQUIRED FOR ON GRADE INLETS THE EXTENSIONS SHALL BE PLACED ON THE UPSTREAM END OF THE INLET.
2. FOR CURB INLET EXTENSION REINFORCING STEEL, NOTES & VARIOUS OTHER APPLICABLE DETAILS NOT FOUND ON THIS SHEET, REFER TO SHEETS 1 & 2.

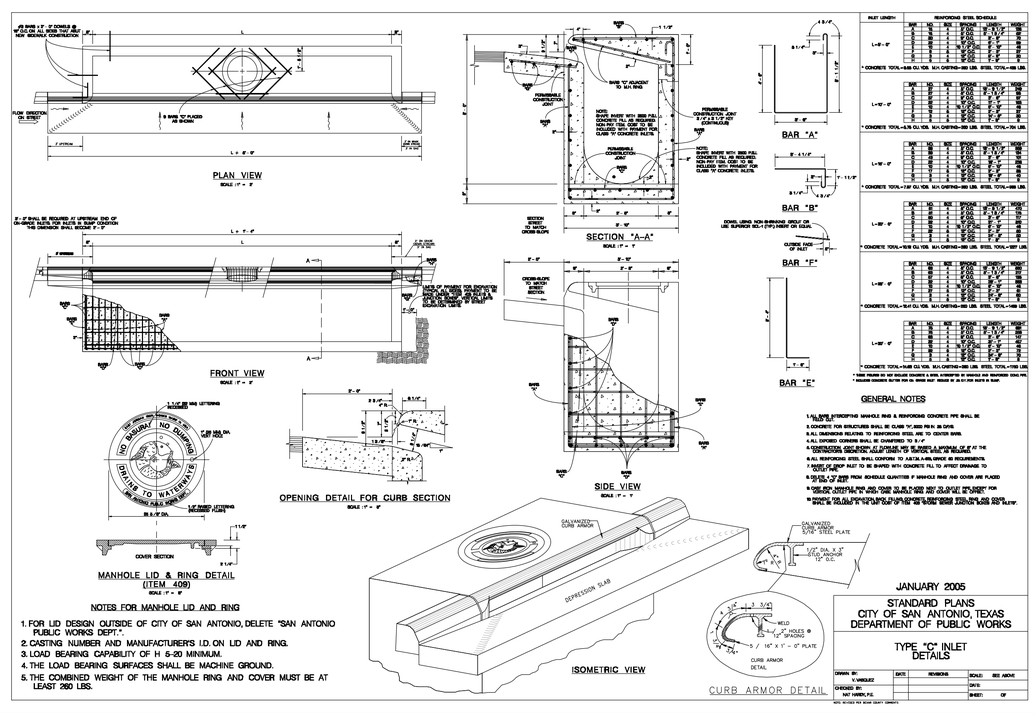
MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS
SHEET 3 OF 3

___% SUBMITTAL | PROJECT NO.:_____ | DATE:_____
DRAWN BY: V. VASQUEZ | DESIGN BY: L.E. MALTOS, P.E. | CHKD. BY: R.S. HOSSEINI, P.E. | SHEET NO.:____OF____

NOT USED
(CONTRACTOR SHALL NOTIFY ENGINEER IF USED)




| INLET LENGTH | REINFORCING STEEL SCHEDULE | | | | | |
|---|---|---|---|---|---|---|
| | BAR | NO. | SIZE | SPACING | LENGTH | WEIGHT |
| L=5'– 0" | A | 5 | #4 | 6" O.C. | 6'– 4" | 21 |
| | B | 5 | #4 | 6" O.C. | 6'– 4" | 21 |
| | C | 5 | #4 | 6" O.C. | 6'– 4" | 21 |
| | D | 5 | #4 | 6" O.C. | 6'– 4" | 21 |
| | E | 5 | #4 | 6" O.C. | 6'– 4" | 21 |
| | F | 5 | #4 | 6" O.C. | 6'– 4" | 21 |
| * CONCRETE TOTAL= 0.65 CU. YDS. N/A CHEYRING= 360 LBS. STEEL TOTAL= 105 LBS. | | | | | | |
| L=10'– 0" | A | 10 | #4 | 6" O.C. | 6'– 4" | 43 |
| | B | 10 | #4 | 6" O.C. | 6'– 4" | 43 |
| | C | 10 | #4 | 6" O.C. | 6'– 4" | 43 |
| | D | 10 | #4 | 6" O.C. | 6'– 4" | 43 |
| | E | 10 | #4 | 6" O.C. | 6'– 4" | 43 |
| | F | 10 | #4 | 6" O.C. | 6'– 4" | 43 |
| * CONCRETE TOTAL= 1.30 CU. YDS. N/A CHEYRING= 660 LBS. STEEL TOTAL= 215 LBS. | | | | | | |
| L=15'– 0" | A | 15 | #4 | 6" O.C. | 6'– 4" | 64 |
| | B | 15 | #4 | 6" O.C. | 6'– 4" | 64 |
| | C | 15 | #4 | 6" O.C. | 6'– 4" | 64 |
| | D | 15 | #4 | 6" O.C. | 6'– 4" | 64 |
| | E | 15 | #4 | 6" O.C. | 6'– 4" | 64 |
| | F | 15 | #4 | 6" O.C. | 6'– 4" | 64 |
| * CONCRETE TOTAL= 1.97 CU. YDS. N/A CHEYRING= 990 LBS. STEEL TOTAL= 325 LBS. | | | | | | |
| L=20'– 0" | A | 20 | #4 | 6" O.C. | 6'– 4" | 85 |
| | B | 20 | #4 | 6" O.C. | 6'– 4" | 85 |
| | C | 20 | #4 | 6" O.C. | 6'– 4" | 85 |
| | D | 20 | #4 | 6" O.C. | 6'– 4" | 85 |
| | E | 20 | #4 | 6" O.C. | 6'– 4" | 85 |
| | F | 20 | #4 | 6" O.C. | 6'– 4" | 85 |
| * CONCRETE TOTAL= 2.63 CU. YDS. N/A CHEYRING= 1320 LBS. STEEL TOTAL= 435 LBS. | | | | | | |
| L=25'– 0" | A | 25 | #4 | 6" O.C. | 6'– 4" | 106 |
| | B | 25 | #4 | 6" O.C. | 6'– 4" | 106 |
| | C | 25 | #4 | 6" O.C. | 6'– 4" | 106 |
| | D | 25 | #4 | 6" O.C. | 6'– 4" | 106 |
| | E | 25 | #4 | 6" O.C. | 6'– 4" | 106 |
| | F | 25 | #4 | 6" O.C. | 6'– 4" | 106 |
| * CONCRETE TOTAL= 3.29 CU. YDS. N/A CHEYRING= 1650 LBS. STEEL TOTAL= 545 LBS. | | | | | | |

* NOTE: PRIMED OR NOT INCLUDE CONCRETE & STEEL INTERCEPTED BY SIDEWALK AND ROADWAY CURBS. PAY FOR CONCRETE & STEEL IN "STEP-TYPE" CURB INLET EXTENSIONS ONLY AT 50% OF THE ABOVE UNIT PRICES IN PLACE.

## GENERAL NOTES

1. ALL BARS INTERCEPTING MANHOLE RING & REINFORCING CONCRETE PIPE SHALL BE CUT OR BENT.
2. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 PSI IN 28 DAYS.
3. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER BARS.
4. ALL EXPOSED CORNERS SHALL BE CHAMFERED TO 3/4".
5. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVERAGE OF 2" AT THE CONSTRUCTION JOINT AND 1 1/2" FOR ALL OTHER AREAS, OR AS REQUIRED.
6. ALL REINFORCING STEEL SHALL CONFORM TO A615M-04b, GRADE 60 REQUIREMENTS.
7. PAVING OR GRADE MUST TO BE SLOPED WITH CONCRETE FILL TO AFFECT DRAINAGE TO OUTLET.
8. TOP OF CURB MUST BE SAME FROM SCHEDULE QUANTITIES IF MANHOLE RING AND COVER ARE PLACED ON TOP OF CURB.
9. SAW CUT EXISTING PAVEMENT AND REMOVE TO BE PLACED NEXT TO OUTLET PIPE, EXCEPT FOR VERTICAL OUTLET PIPE IN WHICH CASE MANHOLE RING AND COVER WILL BE OFFSET.
10. PAYMENT FOR ALL EXCAVATION, BACK-FILLING, CONCRETE, REINFORCING STEEL, RING AND COVER, CURB ARMOR AND STEPS SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".

JANUARY 2005

STANDARD PLANS
CITY OF SAN ANTONIO, TEXAS
DEPARTMENT OF PUBLIC WORKS

TYPE "C" INLET DETAILS

DRAWN BY: V.VASQUEZ | DATE: | REVISIONS: | SCALE: SEE ABOVE
CHECKED BY: NAT HAREN, P.E. | DATE:
SHEET: OF

NOTE: NO CHECK FOR SCALE QUALITY CONTROL

Date: Apr 29, 2025, 7:06pm User ID: Richardgarcia
Files: P:\135\69\02\Design\Civil\SDT-1356902.dwg

| NO. | REVISION | DATE |
|---|---|---|
| | | |

PAPE-DAWSON ENGINEERS
2000 NW LOOP 410 | SAN ANTONIO, TX. 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288-00

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
4/11/25

SENECA TRAILS OFFSITE IMPROVEMENTS
LEON VALLEY, TEXAS
DRAINAGE DETAILS

PLAT NO. ----
JOB NO. 13569-02
DATE MARCH 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C1.12

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

## BILLS OF REINFORCING STEEL (For Box Length = 40 feet)

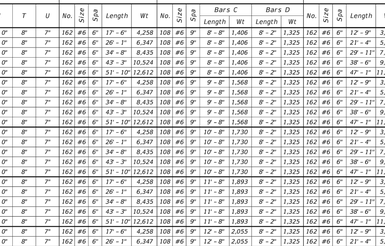
| NUMBER OF SPANS | SECTION DIMENSIONS | | | | Bars B | | | | Bars C & D | | | | | | | | Bars E | | | | Bars F1 ~ #4 | | | Bars F2 ~ #4 | | | Bars M ~ #4 | | | Bars Y & Z ~ #4 | | | | | | Bars H 4 ~ #4 | | Bars K | | QUANTITIES | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Bars C | | | Bars D | | | | | | | | | | | | | | | | | | Bars Y | | | Bars Z | | | | | | | | Per Foot of Barrel | | Curb | | Total | |
| | S | H | T | U | No. | Size | Spa | Length | Wt | No. | Size | Spa | Length | Wt | No. | Size | Spa | Length | Wt | No. | Size | Spa | Length | Wt | No. | Size | Spa | Length | Wt | No. | Size | Spa | Length | Wt | No. | Size | Spa | Length | Wt | Length | Wt | No. | Wt | Conc (CY) | Reinf (Lb) | Conc (CY) | Reinf (Lb) | Conc (CY) | Reinf (Lb) |
| 2 | 8'-0" | 3'-0" | 8" | 7" | 162 | #6 | 6" | 17'-6" | 4,258 | 108 | #6 | 9" | 8'-8" | 1,406 | 8'-2" | 1,325 | 162 | #6 | 6" | 12'-9" | 3,102 | 12 | 18" | 39'-9" | 319 | 56 | 18" | 39'-9" | 1,487 | 108 | 9" | 3'-0" | 216 | 54 | 9" | 4'-7" | 165 | 7'-3" | 262 | 17'-6" | 47 | 38 | 106 | 1.071 | 313.5 | 1.3 | 153 | 44.2 | 12,693 |
| 3 | 8'-0" | 3'-0" | 8" | 7" | 162 | #6 | 6" | 26'-1" | 6,347 | 108 | #6 | 9" | 8'-8" | 1,406 | 8'-2" | 1,325 | 162 | #6 | 6" | 21'-4" | 5,191 | 18 | 18" | 39'-9" | 478 | 80 | 18" | 39'-9" | 2,124 | 108 | 9" | 3'-0" | 216 | 108 | 9" | 4'-7" | 331 | 7'-3" | 523 | 26'-1" | 70 | 56 | 156 | 1.560 | 448.5 | 1.9 | 226 | 64.3 | 18,167 |
| 4 | 8'-0" | 3'-0" | 8" | 7" | 162 | #6 | 6" | 34'-8" | 8,435 | 108 | #6 | 9" | 8'-8" | 1,406 | 8'-2" | 1,325 | 162 | #6 | 6" | 29'-11" | 7,279 | 24 | 18" | 39'-9" | 637 | 104 | 18" | 39'-9" | 2,762 | 108 | 9" | 3'-0" | 216 | 162 | 9" | 4'-7" | 496 | 7'-3" | 785 | 34'-8" | 93 | 72 | 200 | 2.048 | 583.5 | 2.6 | 293 | 84.5 | 23,634 |
| 5 | 8'-0" | 3'-0" | 8" | 7" | 162 | #6 | 6" | 43'-3" | 10,524 | 108 | #6 | 9" | 8'-8" | 1,406 | 8'-2" | 1,325 | 162 | #6 | 6" | 38'-6" | 9,368 | 30 | 18" | 39'-9" | 797 | 128 | 18" | 39'-9" | 3,399 | 108 | 9" | 3'-0" | 216 | 216 | 9" | 4'-7" | 661 | 7'-3" | 1,046 | 43'-3" | 116 | 90 | 251 | 2.537 | 718.6 | 3.2 | 367 | 104.7 | 29,109 |
| 6 | 8'-0" | 3'-0" | 8" | 7" | 162 | #6 | 6" | 51'-10" | 12,612 | 108 | #6 | 9" | 8'-8" | 1,406 | 8'-2" | 1,325 | 162 | #6 | 6" | 47'-1" | 11,457 | 36 | 18" | 39'-9" | 956 | 152 | 18" | 39'-9" | 4,036 | 108 | 9" | 3'-0" | 216 | 270 | 9" | 4'-7" | 827 | 7'-3" | 1,308 | 51'-10" | 138 | 106 | 295 | 3.026 | 853.6 | 3.8 | 433 | 124.9 | 34,576 |
| 2 | 8'-0" | 4'-0" | 8" | 7" | 162 | #6 | 6" | 17'-6" | 4,258 | 108 | #6 | 9" | 9'-8" | 1,568 | 8'-2" | 1,325 | 162 | #6 | 6" | 12'-9" | 3,102 | 12 | 18" | 39'-9" | 319 | 56 | 18" | 39'-9" | 1,487 | 108 | 9" | 4'-0" | 289 | 54 | 9" | 4'-7" | 165 | 9'-3" | 334 | 17'-6" | 47 | 38 | 106 | 1.136 | 321.2 | 1.3 | 153 | 46.8 | 13,000 |
| 3 | 8'-0" | 4'-0" | 8" | 7" | 162 | #6 | 6" | 26'-1" | 6,347 | 108 | #6 | 9" | 9'-8" | 1,568 | 8'-2" | 1,325 | 162 | #6 | 6" | 21'-4" | 5,191 | 18 | 18" | 39'-9" | 478 | 80 | 18" | 39'-9" | 2,124 | 108 | 9" | 4'-0" | 289 | 108 | 9" | 4'-7" | 331 | 9'-3" | 667 | 26'-1" | 70 | 56 | 156 | 1.646 | 458.0 | 1.9 | 226 | 67.8 | 18,546 |
| 4 | 8'-0" | 4'-0" | 8" | 7" | 162 | #6 | 6" | 34'-8" | 8,435 | 108 | #6 | 9" | 9'-8" | 1,568 | 8'-2" | 1,325 | 162 | #6 | 6" | 29'-11" | 7,279 | 24 | 18" | 39'-9" | 637 | 104 | 18" | 39'-9" | 2,762 | 108 | 9" | 4'-0" | 289 | 162 | 9" | 4'-7" | 496 | 9'-3" | 1,001 | 34'-8" | 93 | 72 | 200 | 2.156 | 594.8 | 2.6 | 293 | 88.8 | 24,085 |
| 5 | 8'-0" | 4'-0" | 8" | 7" | 162 | #6 | 6" | 43'-3" | 10,524 | 108 | #6 | 9" | 9'-8" | 1,568 | 8'-2" | 1,325 | 162 | #6 | 6" | 38'-6" | 9,368 | 30 | 18" | 39'-9" | 797 | 128 | 18" | 39'-9" | 3,399 | 108 | 9" | 4'-0" | 289 | 216 | 9" | 4'-7" | 661 | 9'-3" | 1,335 | 43'-3" | 116 | 90 | 251 | 2.667 | 731.7 | 3.2 | 367 | 109.9 | 29,633 |
| 6 | 8'-0" | 4'-0" | 8" | 7" | 162 | #6 | 6" | 51'-10" | 12,612 | 108 | #6 | 9" | 9'-8" | 1,568 | 8'-2" | 1,325 | 162 | #6 | 6" | 47'-1" | 11,457 | 36 | 18" | 39'-9" | 956 | 152 | 18" | 39'-9" | 4,036 | 108 | 9" | 4'-0" | 289 | 270 | 9" | 4'-7" | 827 | 9'-3" | 1,668 | 51'-10" | 138 | 106 | 295 | 3.177 | 868.5 | 3.8 | 433 | 130.9 | 35,171 |
| 2 | 8'-0" | 5'-0" | 8" | 7" | 162 | #6 | 6" | 17'-6" | 4,258 | 108 | #6 | 9" | 10'-8" | 1,730 | 8'-2" | 1,325 | 162 | #6 | 6" | 12'-9" | 3,102 | 12 | 18" | 39'-9" | 319 | 62 | 18" | 39'-9" | 1,646 | 108 | 9" | 5'-0" | 361 | 54 | 9" | 4'-7" | 165 | 11'-3" | 406 | 17'-6" | 47 | 38 | 106 | 1.201 | 332.8 | 1.3 | 153 | 49.4 | 13,465 |
| 3 | 8'-0" | 5'-0" | 8" | 7" | 162 | #6 | 6" | 26'-1" | 6,347 | 108 | #6 | 9" | 10'-8" | 1,730 | 8'-2" | 1,325 | 162 | #6 | 6" | 21'-4" | 5,191 | 18 | 18" | 39'-9" | 478 | 88 | 18" | 39'-9" | 2,337 | 108 | 9" | 5'-0" | 361 | 108 | 9" | 4'-7" | 331 | 11'-3" | 812 | 26'-1" | 70 | 56 | 156 | 1.733 | 472.8 | 1.9 | 226 | 71.3 | 19,138 |
| 4 | 8'-0" | 5'-0" | 8" | 7" | 162 | #6 | 6" | 34'-8" | 8,435 | 108 | #6 | 9" | 10'-8" | 1,730 | 8'-2" | 1,325 | 162 | #6 | 6" | 29'-11" | 7,279 | 24 | 18" | 39'-9" | 637 | 114 | 18" | 39'-9" | 3,027 | 108 | 9" | 5'-0" | 361 | 162 | 9" | 4'-7" | 496 | 11'-3" | 1,217 | 34'-8" | 93 | 72 | 200 | 2.264 | 612.7 | 2.6 | 293 | 93.1 | 24,800 |
| 5 | 8'-0" | 5'-0" | 8" | 7" | 162 | #6 | 6" | 43'-3" | 10,524 | 108 | #6 | 9" | 10'-8" | 1,730 | 8'-2" | 1,325 | 162 | #6 | 6" | 38'-6" | 9,368 | 30 | 18" | 39'-9" | 797 | 140 | 18" | 39'-9" | 3,717 | 108 | 9" | 5'-0" | 361 | 216 | 9" | 4'-7" | 661 | 11'-3" | 1,623 | 43'-3" | 116 | 90 | 251 | 2.796 | 752.7 | 3.2 | 367 | 115.1 | 30,473 |
| 6 | 8'-0" | 5'-0" | 8" | 7" | 162 | #6 | 6" | 51'-10" | 12,612 | 108 | #6 | 9" | 10'-8" | 1,730 | 8'-2" | 1,325 | 162 | #6 | 6" | 47'-1" | 11,457 | 36 | 18" | 39'-9" | 956 | 166 | 18" | 39'-9" | 4,408 | 108 | 9" | 5'-0" | 361 | 270 | 9" | 4'-7" | 827 | 11'-3" | 2,029 | 51'-10" | 138 | 106 | 295 | 3.328 | 892.6 | 3.8 | 433 | 137.0 | 36,138 |
| 2 | 8'-0" | 6'-0" | 8" | 7" | 162 | #6 | 6" | 17'-6" | 4,258 | 108 | #6 | 9" | 11'-8" | 1,893 | 8'-2" | 1,325 | 162 | #6 | 6" | 12'-9" | 3,102 | 12 | 18" | 39'-9" | 319 | 68 | 18" | 39'-9" | 1,806 | 108 | 9" | 6'-0" | 433 | 54 | 9" | 4'-7" | 165 | 13'-3" | 478 | 17'-6" | 47 | 38 | 106 | 1.265 | 344.5 | 1.3 | 153 | 51.9 | 13,932 |
| 3 | 8'-0" | 6'-0" | 8" | 7" | 162 | #6 | 6" | 26'-1" | 6,347 | 108 | #6 | 9" | 11'-8" | 1,893 | 8'-2" | 1,325 | 162 | #6 | 6" | 21'-4" | 5,191 | 18 | 18" | 39'-9" | 478 | 96 | 18" | 39'-9" | 2,549 | 108 | 9" | 6'-0" | 433 | 108 | 9" | 4'-7" | 331 | 13'-3" | 956 | 26'-1" | 70 | 56 | 156 | 1.819 | 487.6 | 1.9 | 226 | 74.7 | 19,729 |
| 4 | 8'-0" | 6'-0" | 8" | 7" | 162 | #6 | 6" | 34'-8" | 8,435 | 108 | #6 | 9" | 11'-8" | 1,893 | 8'-2" | 1,325 | 162 | #6 | 6" | 29'-11" | 7,279 | 24 | 18" | 39'-9" | 637 | 124 | 18" | 39'-9" | 3,293 | 108 | 9" | 6'-0" | 433 | 162 | 9" | 4'-7" | 496 | 13'-3" | 1,434 | 34'-8" | 93 | 72 | 200 | 2.372 | 630.6 | 2.6 | 293 | 97.5 | 25,518 |
| 5 | 8'-0" | 6'-0" | 8" | 7" | 162 | #6 | 6" | 43'-3" | 10,524 | 108 | #6 | 9" | 11'-8" | 1,893 | 8'-2" | 1,325 | 162 | #6 | 6" | 38'-6" | 9,368 | 30 | 18" | 39'-9" | 797 | 152 | 18" | 39'-9" | 4,036 | 108 | 9" | 6'-0" | 433 | 216 | 9" | 4'-7" | 661 | 13'-3" | 1,912 | 43'-3" | 116 | 90 | 251 | 2.926 | 773.7 | 3.2 | 367 | 120.3 | 31,316 |
| 6 | 8'-0" | 6'-0" | 8" | 7" | 162 | #6 | 6" | 51'-10" | 12,612 | 108 | #6 | 9" | 11'-8" | 1,893 | 8'-2" | 1,325 | 162 | #6 | 6" | 47'-1" | 11,457 | 36 | 18" | 39'-9" | 956 | 180 | 18" | 39'-9" | 4,780 | 108 | 9" | 6'-0" | 433 | 270 | 9" | 4'-7" | 827 | 13'-3" | 2,390 | 51'-10" | 138 | 106 | 295 | 3.479 | 916.8 | 3.8 | 433 | 143.0 | 37,106 |
| 2 | 8'-0" | 7'-0" | 8" | 7" | 162 | #6 | 6" | 17'-6" | 4,258 | 108 | #6 | 9" | 12'-8" | 2,055 | 8'-2" | 1,325 | 162 | #6 | 6" | 12'-9" | 3,102 | 12 | 18" | 39'-9" | 319 | 68 | 18" | 39'-9" | 1,806 | 108 | 9" | 7'-0" | 505 | 54 | 9" | 4'-7" | 165 | 15'-3" | 550 | 17'-6" | 47 | 38 | 106 | 1.330 | 352.1 | 1.3 | 153 | 54.5 | 14,238 |
| 3 | 8'-0" | 7'-0" | 8" | 7" | 162 | #6 | 6" | 26'-1" | 6,347 | 108 | #6 | 9" | 12'-8" | 2,055 | 8'-2" | 1,325 | 162 | #6 | 6" | 21'-4" | 5,191 | 18 | 18" | 39'-9" | 478 | 96 | 18" | 39'-9" | 2,549 | 108 | 9" | 7'-0" | 505 | 108 | 9" | 4'-7" | 331 | 15'-3" | 1,100 | 26'-1" | 70 | 56 | 156 | 1.905 | 497.0 | 1.9 | 226 | 78.1 | 20,107 |
| 4 | 8'-0" | 7'-0" | 8" | 7" | 162 | #6 | 6" | 34'-8" | 8,435 | 108 | #6 | 9" | 12'-8" | 2,055 | 8'-2" | 1,325 | 162 | #6 | 6" | 29'-11" | 7,279 | 24 | 18" | 39'-9" | 637 | 124 | 18" | 39'-9" | 3,293 | 108 | 9" | 7'-0" | 505 | 162 | 9" | 4'-7" | 496 | 15'-3" | 1,650 | 34'-8" | 93 | 72 | 200 | 2.480 | 641.9 | 2.6 | 293 | 101.8 | 25,968 |
| 5 | 8'-0" | 7'-0" | 8" | 7" | 162 | #6 | 6" | 43'-3" | 10,524 | 108 | #6 | 9" | 12'-8" | 2,055 | 8'-2" | 1,325 | 162 | #6 | 6" | 38'-6" | 9,368 | 30 | 18" | 39'-9" | 797 | 152 | 18" | 39'-9" | 4,036 | 108 | 9" | 7'-0" | 505 | 216 | 9" | 4'-7" | 661 | 15'-3" | 2,200 | 43'-3" | 116 | 90 | 251 | 3.056 | 786.8 | 3.2 | 367 | 125.5 | 31,838 |
| 6 | 8'-0" | 7'-0" | 8" | 7" | 162 | #6 | 6" | 51'-10" | 12,612 | 108 | #6 | 9" | 12'-8" | 2,055 | 8'-2" | 1,325 | 162 | #6 | 6" | 47'-1" | 11,457 | 36 | 18" | 39'-9" | 956 | 180 | 18" | 39'-9" | 4,780 | 108 | 9" | 7'-0" | 505 | 270 | 9" | 4'-7" | 827 | 15'-3" | 2,750 | 51'-10" | 138 | 106 | 295 | 3.631 | 931.7 | 3.8 | 433 | 149.1 | 37,700 |
| 2 | 8'-0" | 8'-0" | 8" | 7" | 162 | #6 | 6" | 17'-6" | 4,258 | 108 | #6 | 9" | 13'-8" | 2,217 | 8'-2" | 1,325 | 162 | #6 | 6" | 12'-9" | 3,102 | 12 | 18" | 39'-9" | 319 | 74 | 18" | 39'-9" | 1,965 | 108 | 9" | 8'-0" | 577 | 54 | 9" | 4'-7" | 165 | 17'-3" | 622 | 17'-6" | 47 | 38 | 106 | 1.395 | 363.8 | 1.3 | 153 | 57.3 | 14,703 |
| 3 | 8'-0" | 8'-0" | 8" | 7" | 162 | #6 | 6" | 26'-1" | 6,347 | 108 | #6 | 9" | 13'-8" | 2,217 | 8'-2" | 1,325 | 162 | #6 | 6" | 21'-4" | 5,191 | 18 | 18" | 39'-9" | 478 | 104 | 18" | 39'-9" | 2,762 | 108 | 9" | 8'-0" | 577 | 108 | 9" | 4'-7" | 331 | 17'-3" | 1,244 | 26'-1" | 70 | 56 | 156 | 1.992 | 511.8 | 1.9 | 226 | 81.6 | 20,698 |
| 4 | 8'-0" | 8'-0" | 8" | 7" | 162 | #6 | 6" | 34'-8" | 8,435 | 108 | #6 | 9" | 13'-8" | 2,217 | 8'-2" | 1,325 | 162 | #6 | 6" | 29'-11" | 7,279 | 24 | 18" | 39'-9" | 637 | 134 | 18" | 39'-9" | 3,558 | 108 | 9" | 8'-0" | 577 | 162 | 9" | 4'-7" | 496 | 17'-3" | 1,867 | 34'-8" | 93 | 72 | 200 | 2.588 | 659.8 | 2.6 | 293 | 106.1 | 26,684 |
| 5 | 8'-0" | 8'-0" | 8" | 7" | 162 | #6 | 6" | 43'-3" | 10,524 | 108 | #6 | 9" | 13'-8" | 2,217 | 8'-2" | 1,325 | 162 | #6 | 6" | 38'-6" | 9,368 | 30 | 18" | 39'-9" | 797 | 164 | 18" | 39'-9" | 4,355 | 108 | 9" | 8'-0" | 577 | 216 | 9" | 4'-7" | 661 | 17'-3" | 2,489 | 43'-3" | 116 | 90 | 251 | 3.185 | 807.8 | 3.2 | 367 | 130.6 | 32,680 |
| 6 | 8'-0" | 8'-0" | 8" | 7" | 162 | #6 | 6" | 51'-10" | 12,612 | 108 | #6 | 9" | 13'-8" | 2,217 | 8'-2" | 1,325 | 162 | #6 | 6" | 47'-1" | 11,457 | 36 | 18" | 39'-9" | 956 | 194 | 18" | 39'-9" | 5,151 | 108 | 9" | 8'-0" | 577 | 270 | 9" | 4'-7" | 827 | 17'-3" | 3,111 | 51'-10" | 138 | 106 | 295 | 3.782 | 955.8 | 3.8 | 433 | 155.1 | 38,666 |

HL93 LOADING SHEET 1 OF 2

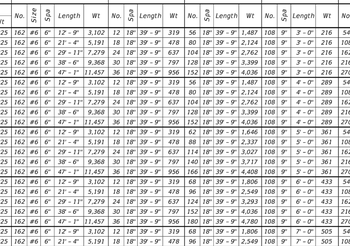
Texas Department of Transportation — Bridge Division Standard

MULTIPLE BOX CULVERTS
CAST-IN-PLACE
8'-0" SPAN
0' TO 13' FILL
MC-8-13

| | | | | | |
|---|---|---|---|---|---|
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| ©TxDOT February 2020 | CONT | SECT | JOB | HIGHWAY | |
| REVISIONS | DIST | COUNTY | | SHEET NO. | |




TYPICAL SECTION




BOTTOM SLAB — PART PLANS — TOP SLAB




SECTION THRU CURB

TABLE OF BAR DIMENSIONS

| H | "A" | "Y" |
|---|---|---|
| 3'-0" | 3'-6 ½" | 5'-1" |
| 4'-0" | 4'-6 ½" | 5'-1" |
| 5'-0" | 5'-6 ½" | 5'-1" |
| 6'-0" | 6'-6 ½" | 5'-1" |
| 7'-0" | 7'-6 ½" | 5'-1" |
| 8'-0" | 8'-6 ½" | 5'-1" |




BARS C — BARS D — BARS Z — BARS Y — BARS K (#4) (Size = 1'-0" Max) (Length = 4'-2")

① 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

② For vehicle safety, the following requirements must be met:
- For structures without bridge rail, construct curbs no more than 3" above finished grade.
- For structures with bridge rail, construct curbs flush with finished grade.

Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

③ Curb heights less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.

④ 1'-0" typical. 2'-3" when the Rail Anchorage Curb (RAC) standard sheet is referred to elsewhere in the plans.

The Contractor may replace Bars B, C, D, E, F1, F2, M, Y, and/or Z with deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes. The lap length required for WWR is never less than the lap length required for uncoated #4 bars.

Example conversion: Replacing No. 6 Gr 60 at 6" Spacing with WWR
Required WWR = (0.44 sq. in. per 0.5 ft.) x (60 ksi / 70 ksi) = 0.755 sq. in. per ft.
If D30.6 wire is used to meet the 0.755 sq. in. per ft. requirement in this example, the required spacing = (0.306 sq. in.) / (0.755 sq. in. per ft.) x (12 in. per ft.) = 4.86" Max spacing. Required lap length for the provided D30.6 wire is 2'-1" (the same minimum lap length required for uncoated #5 bars, as listed under MATERIAL NOTES).

CONSTRUCTION NOTES:
Do not use permanent forms.
Chamfer the bottom edge of the top slab 3" at the entrance.
Optionally, raise construction joints shown at the flow line by a maximum of 6". If this option is taken, Bars M may be cut off or raised, Bars C and D may be reversed, and Bars Y and Z may be reversed.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
Provide Class C concrete (f'c = 3,600 psi) for culvert barrel and curb, with the following exceptions: provide Class S concrete (f'c = 4,000 psi) for top slabs of:
- culverts with bridge rail.
- culverts with 1'-0-2' course surface treatment, or
- culverts with the top slab as the final riding surface.

Provide bar laps, where required, as follows:
- Uncoated or galvanized – #4 = 1'-8" Min
- Uncoated or galvanized – #5 = 2'-1" Min
- Uncoated or galvanized – #6 = 2'-6" Min

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.
See the Multiple Box Culverts Cast-In-Place Miscellaneous Detail (MC-MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.

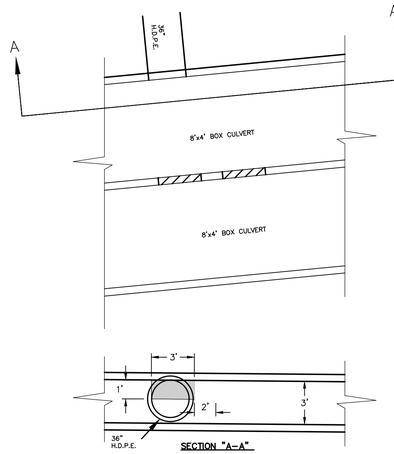
Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation — Bridge Division Standard

MULTIPLE BOX CULVERTS
CAST-IN-PLACE
8'-0" SPAN
0' TO 13' FILL
MC-8-13

| | | | | | |
|---|---|---|---|---|---|
| File: CD-MC813-20.dgn | ck: TXDOT | dw: TXDOT | ck: TXDOT | | |
| ©TxDOT February 2020 | CONT | SECT | JOB | HIGHWAY | |
| REVISIONS | DIST | COUNTY | | SHEET NO. | |



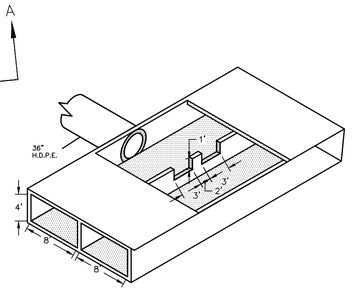

SECTION "A–A"

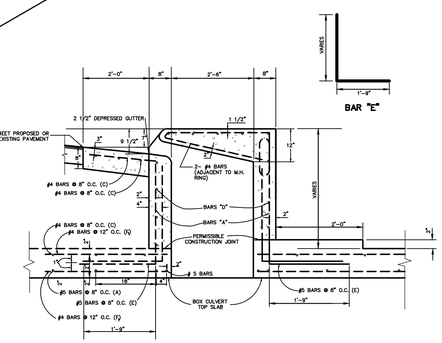
## SEPARATION WALL OPENING DETAIL

SEPARATION WALL OPENING SECTION PROVIDED FOR INITIAL STORM WATER ENGINEERING REVIEW. STRUCTURAL DETAILS WILL BE PROVIDED WITH FINAL SUBMITTAL.

## FLOW EQUALIZATION DETAIL

NOT TO SCALE




ARRANGEMENT OF DROP INLET
REINF. STEEL @ CULVERT TOP
NOT TO SCALE

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

## TABLE OF DIMENSIONS AND REINFORCING STEEL (Wings for one structure end)

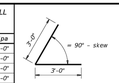
| Dimensions | | | | | Variable Reinforcing | | | | Estimated Quantities per Pair of Wing (2–wings) ④ | | Estimated Quantities per Foot of Toewall (1–toewall) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Maximum Wingwall Height Hw | W | X | Y | Z | Bars J1 | | Bars J2 | | | | | |
| | | | | | Size | Spa | Size | Spa | Reinf Lb/Ft) | Conc (CY/Ft) | Reinf (Lb/Ft) | Conc (CY/Ft) |
| 2'-6" | 2'-10" | 10" | 1'-0" | 7" | #4 | 1'-0" | #4 | 1'-0" | 48.64 | 0.406 | 6.85 | 0.071 |
| 2'-9" | 2'-10" | 10" | 1'-0" | 7" | #4 | 1'-0" | #4 | 1'-0" | 49.31 | 0.424 | 6.85 | 0.071 |
| 3'-0" | 2'-10" | 10" | 1'-0" | 7" | #4 | 1'-0" | #4 | 1'-0" | 49.98 | 0.444 | 6.85 | 0.071 |
| 3'-3" | 2'-10" | 10" | 1'-0" | 7" | #4 | 1'-0" | #4 | 1'-0" | 53.32 | 0.462 | 6.85 | 0.071 |
| 3'-6" | 2'-10" | 10" | 1'-0" | 7" | #4 | 1'-0" | #4 | 1'-0" | 53.98 | 0.480 | 6.85 | 0.071 |
| 4'-0" | 3'-2" | 1'-2" | 1'-2" | 7" | #4 | 1'-0" | #4 | 1'-0" | 55.77 | 0.532 | 6.85 | 0.071 |
| 4'-6" | 3'-2" | 1'-2" | 1'-2" | 7" | #4 | 1'-0" | #4 | 1'-0" | 59.77 | 0.568 | 6.85 | 0.071 |
| 5'-0" | 3'-9" | 1'-7" | 1'-2" | 7" | #4 | 1'-0" | #4 | 1'-0" | 63.45 | 0.632 | 6.96 | 0.075 |
| 5'-6" | 3'-9" | 1'-7" | 1'-2" | 7" | #4 | 1'-0" | #4 | 1'-0" | 67.46 | 0.668 | 6.96 | 0.075 |
| 6'-0" | 4'-4" | 2'-0" | 1'-4" | 7" | #5 | 1'-0" | #5 | 1'-0" | 80.67 | 0.730 | 7.07 | 0.078 |
| 6'-6" | 4'-4" | 2'-0" | 1'-4" | 7" | #5 | 1'-0" | #5 | 1'-0" | 85.05 | 0.768 | 7.07 | 0.078 |
| 7'-0" | 5'-0" | 2'-3" | 1'-9" | 8" | #5 | 1'-0" | #5 | 1'-0" | 92.15 | 0.864 | 8.07 | 0.093 |
| 7'-6" | 5'-0" | 2'-3" | 1'-9" | 8" | #5 | 1'-0" | #5 | 1'-0" | 96.54 | 0.902 | 8.07 | 0.093 |
| 8'-0" | 5'-6" | 2'-8" | 1'-10" | 8" | #5 | 1'-0" | #5 | 1'-0" | 139.04 | 0.962 | 8.13 | 0.095 |
| 8'-6" | 5'-6" | 2'-8" | 1'-10" | 8" | #5 | 1'-0" | #5 | 6" | 144.47 | 1.000 | 8.13 | 0.095 |
| 9'-6" | 6'-0" | 2'-10" | 2'-2" | 9" | #5 | 6" | #5 | 6" | 156.93 | 1.136 | 8.41 | 0.110 |
| 10'-6" | 6'-5" | 3'-0" | 2'-5" | 9" | #6 | 6" | #5 | 6" | 196.27 | 1.234 | 8.57 | 0.117 |
| 11'-6" | 7'-2" | 3'-6" | 2'-8" | 11" | #6 | 6" | #6 | 6" | 230.13 | 1.438 | 9.52 | 0.140 |
| 12'-6" | 7'-8" | 3'-9" | 2'-11" | 1'-0" | #7 | 6" | #6 | 6" | 283.41 | 1.592 | 9.74 | 0.157 |
| 13'-6" | 8'-2" | 4'-0" | 3'-2" | 1'-2" | #8 | 6" | #6 | 6" | 348.72 | 1.804 | 10.02 | 0.186 |
| 14'-6" | 8'-10" | 4'-5" | 3'-5" | 1'-4" | #9 | 6" | #6 | 6" | 432.94 | 2.046 | 10.30 | 0.218 |
| 15'-6" | 9'-6" | 4'-10" | 3'-8" | 1'-6" | #9 | 6" | #7 | 6" | 489.52 | 2.302 | 11.24 | 0.253 |
| 16'-0" | 9'-11" | 5'-0" | 3'-11" | 1'-7" | #9 | 6" | #7 | 6" | 505.72 | 2.448 | 11.47 | 0.279 |

## TABLE OF WINGWALL REINFORCING (2–wings)

| Bar | Size | No. | Spa |
|---|---|---|---|
| D1 | #6 | – | 1'-0" |
| D2 | #6 | – | 1'-0" |
| E1 | #4 | – | 1'-0" |
| F | #4 | – | 1'-0" |
| G | #6 | – | 8" |
| M1 | #4 | 4 | – |
| P | #4 | – | 1'-0" |
| V | #4 | – | 1'-0" |

## TABLE OF TOEWALL REINFORCING

| Bar | Size | No. | Spa |
|---|---|---|---|
| J3 | #4 | – | 1'-0" |
| M2 | #4 | 2 | – |
| E2 | #4 | – | 1'-0" |







WING DIMENSION FORMULAS:
(All values are in feet.)

Hw = H + T + C
Lw = (Hw) (SL) + cosine (θ) for Type PW–1
= (Hw – T) (SL) + cosine (θ) for Type PW–2 and Hw ≥ 4'
= (Hw – 0.5') (SL) + cosine (θ) for Type PW–2 and Hw < 4'

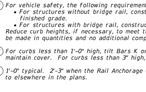
For cast–in–place culverts:
Ltw = (IN) (S) + (N + 1) (U)] + cosine (θ)

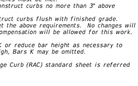
For precast culverts:
Ltw = (IN) (2 U + S) + (N – 1) (0.5)] + cosine (θ)

Total Wingwall Area (two wings – SF)
= (2)(Hw)(Lw) for Type PW–1
= (2)(Hw)(Lw) – 6 SF for Type PW–2 and Hw ≥ 4'
= (2)(Hw)(Lw) – 1.5 SF for Type PW–2 and Hw < 4'

Hw = Height of wingwall
Lw = Length of wingwall
Ltw = Culvert toewall length
N = Number of culvert spans
SL:1 = Chamfer slope ratio, (horizontal: 1 vertical, usual value is 2:1)
θ = Culvert skew

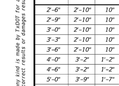
See applicable box culvert standard sheet for S, H, T, and U values.

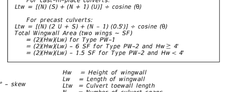


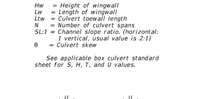




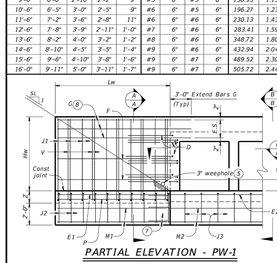


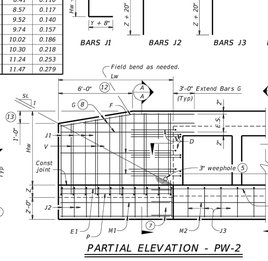

SECTION C–C – PW–1

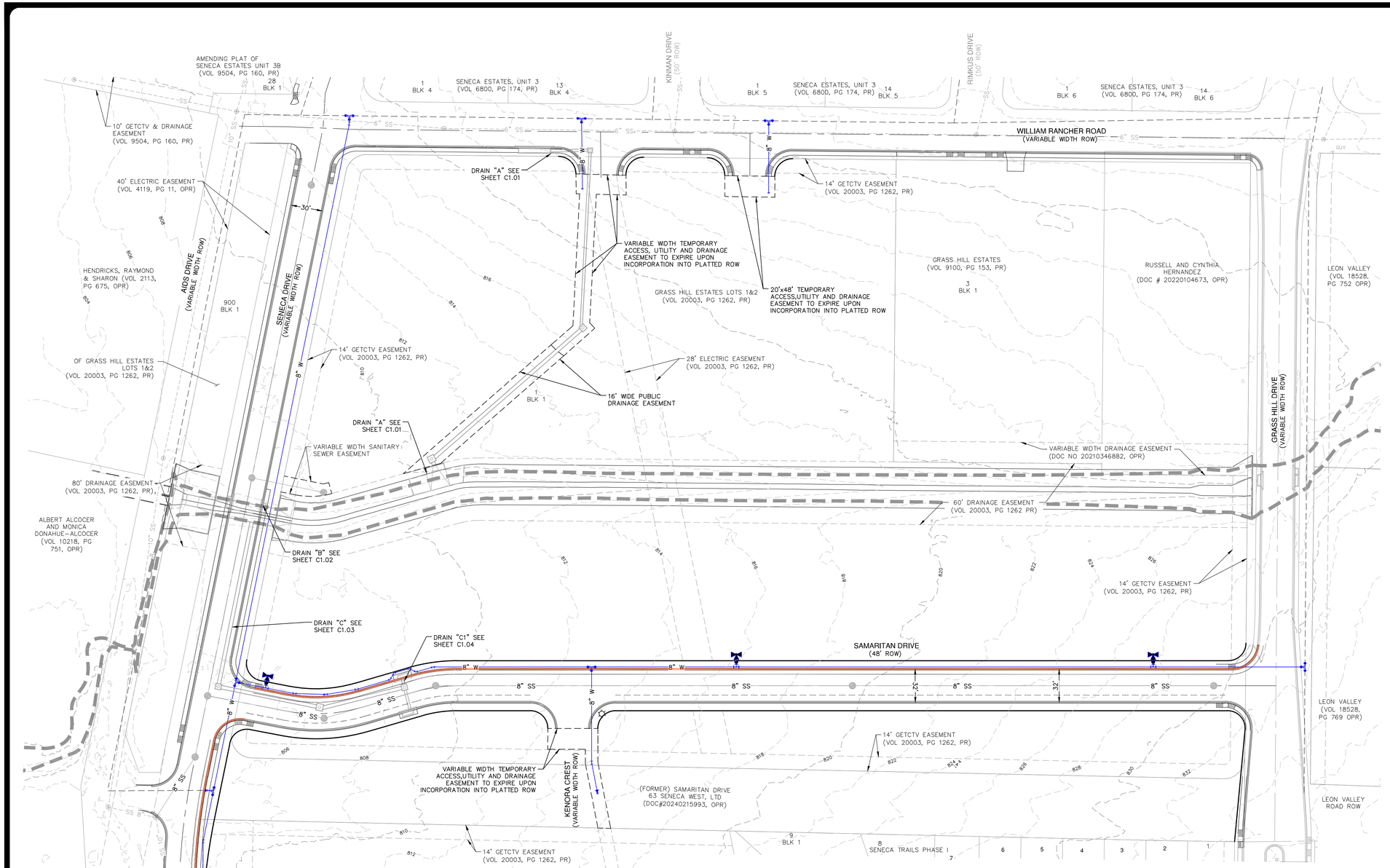


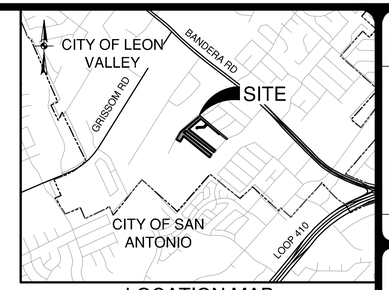

SECTION C–C – PW–2




PARTIAL ELEVATION – PW–1


Field bend as needed.
Lw
A
A
6'-0"
12
3'-0" Extend Bars G (Typ)
B
B
G 8
F
SL:1
13
1'-0"
V
Hw
J1
V
J2
D
Const joint
3" weephole 5
Z'-0"
E1
P
M1
7
M2
J3
E2 6




## LOCATION MAP

NOT-TO-SCALE

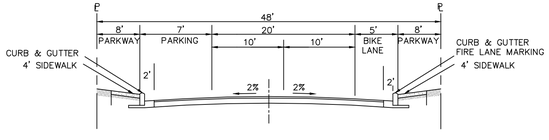
SCALE: 1"= 50'

0' 50' 100' 150'

## LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING FIRE HYDRANT
- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- FUTURE FIRE LANE MARKING *
- FUTURE BIKE LANE *
- FUTURE STREET PARKING *
- PROPOSED FIRE HYDRANT

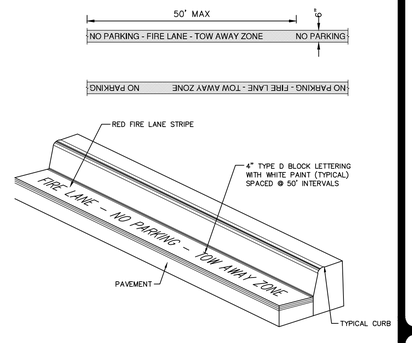
* ALL STRIPING TO BE COMPLETED IN PHASE 2




## TYPICAL STRIPING SECTION

## FIRE PROTECTION NOTES

1. CURB MARKINGS NEXT TO FIRE HYDRANTS SHALL EXTEND 15' EITHER DIRECTION.
2. FIRE LANES SHALL BE DESIGNATED IN ACCORDANCE TO THE LATEST INTERNATIONAL FIRE CODE AND PER APPLICABLE LOCAL AMENDMENTS.
3. CONTRACTOR SHALL COORDINATE WITH THE FIRE MARSHAL TO CONFIRM EXISTING FIRE LANE SIGNAGE AND MARKING MEETS CODE REQUIREMENTS AND/OR TO CONFIRM LOCATION OF ANY NEW SIGNAGE OR MARKING REQUIRED.
4. FIRE HYDRANT SPACING SHALL BE 500' MAXIMUM.




## TYPICAL FIRE LANE MARKING DETAIL

NOT-TO-SCALE

APPLICATION:

1. SEE STREETS PLAN & PROFILES FOR CURB TYPES & LOCATIONS.
2. 50 FOOT SPACING BETWEEN THE BEGINNING OF THE WHITE LETTERING OF THE FIRE LANE MARKING.
3. PAINT A 6" WIDE RED STRIPE LOCATED AT THE EDGE OF PAVEMENT WITH 4" WHITE LETTERING ON RED STRIPE.

| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
8/8/25


**PAPE-DAWSON**
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800


# SENECA TRAILS OFFSITE IMPROVEMENTS

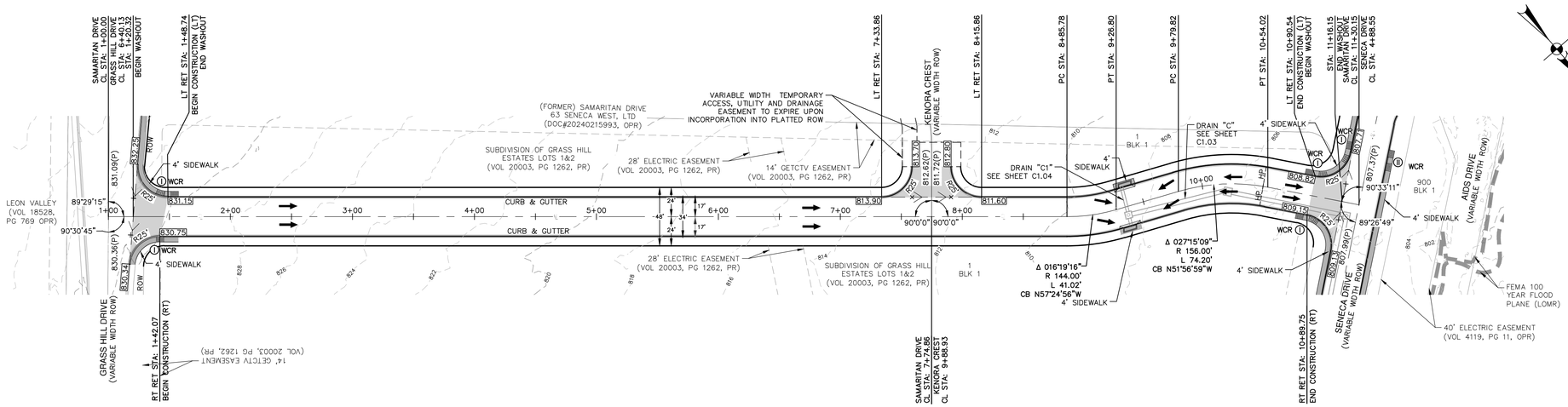
LEON VALLEY, TEXAS

FIRE PROTECTION PLAN

PLAT NO. ----
JOB NO. 13569-02
DATE AUGUST 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C1.20


Date: Aug 08, 2025, 4:42pm User ID: Richardgarcia
File: P:\135\69\02\Design\Civil\FP-13692.dwg

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SCALE: 1"= 50'

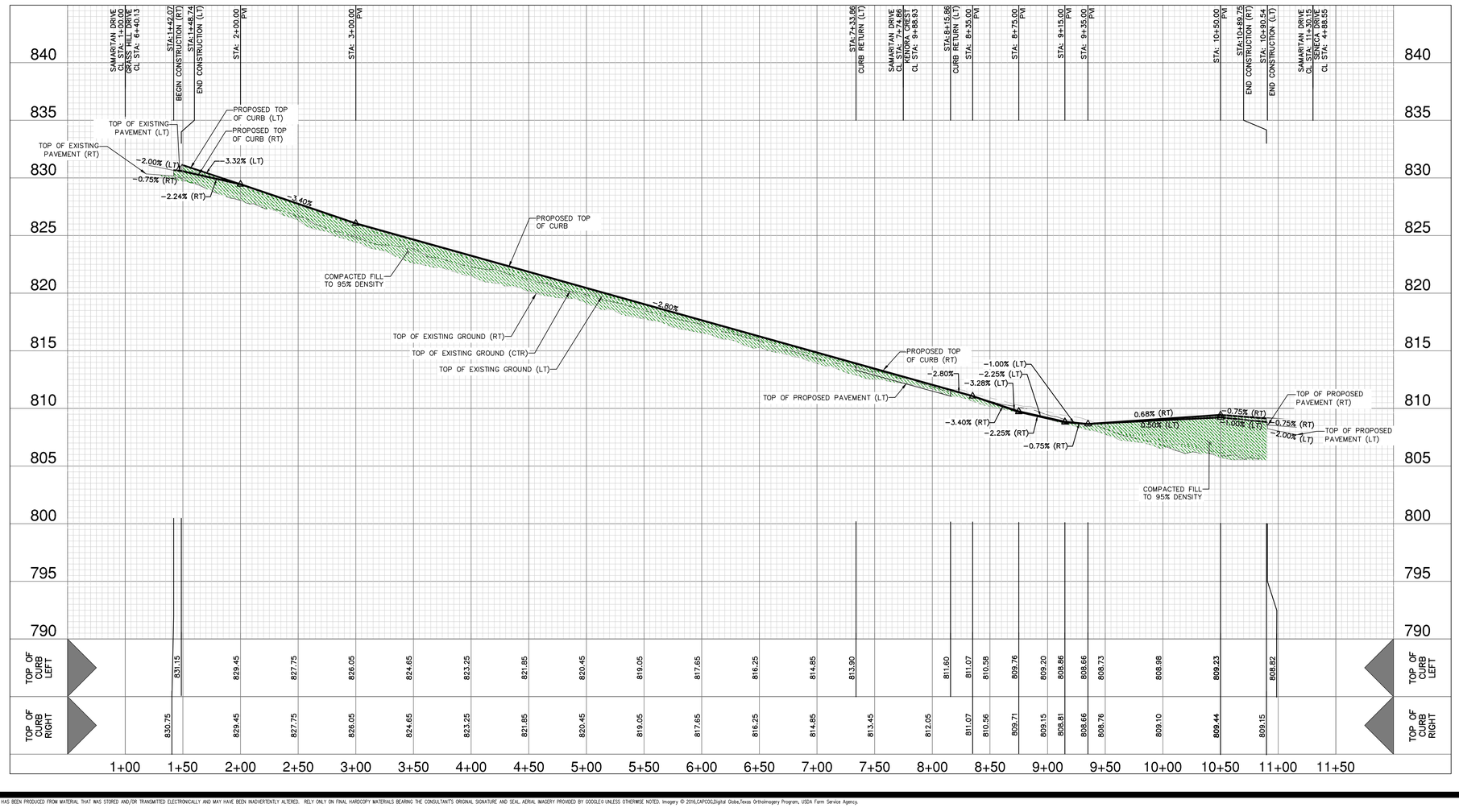
0' 50' 100' 150'

## STREET LEGEND

| | |
|---|---|
| PROJECT LIMITS | |
| MAINTAIN GUTTER | |
| EXISTING CONTOUR | 970 |
| WHEELCHAIR RAMP | Ⓘ |
| CENTERLINE | CL |
| RADIUS POINT | RP |
| POINT OF CURVATURE | PC |
| POINT OF TANGENCY | PT |
| RETURN | RET |
| DRAINAGE FLOW ARROW | |
| TOP OF CURB SPOT ELEVATION | 857.30 |
| PAVEMENT ELEVATION | 857.00(P) × |
| WASHOUT CROWN SECTION | |
| SIDEWALK (DEVELOPER'S RESPONSIBILITY) | |
| SIDEWALK (HOMEOWNER'S RESPONSIBILITY) | |
| DRIVEWAY | |

SAMARITAN DRIVE
STA. 1+42.07 TO END

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




## STREET NOTES:

1. CONTRACTOR SHALL MATCH EXISTING PAVEMENT AT TIE–IN. IF EXISTING PAVEMENT ELEVATION DIFFERS SIGNIFICANTLY, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONTINUING WORK.
2. 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.
3. 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.
4. 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.
5. THE CONSTRUCTION OF SIDEWALKS ADJACENT TO ALL 900 SERIES LOTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER AS SHOWN ON THE OVERALL SIGNAGE PLAN.
6. SIDEWALKS ADJACENT TO FUTURE RESIDENTIAL LOTS WILL BE BUILT WITH HOME CONSTRUCTION.

| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
8/8/25

PAPE–DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

# SENECA TRAILS OFFSITE IMPROVEMENTS

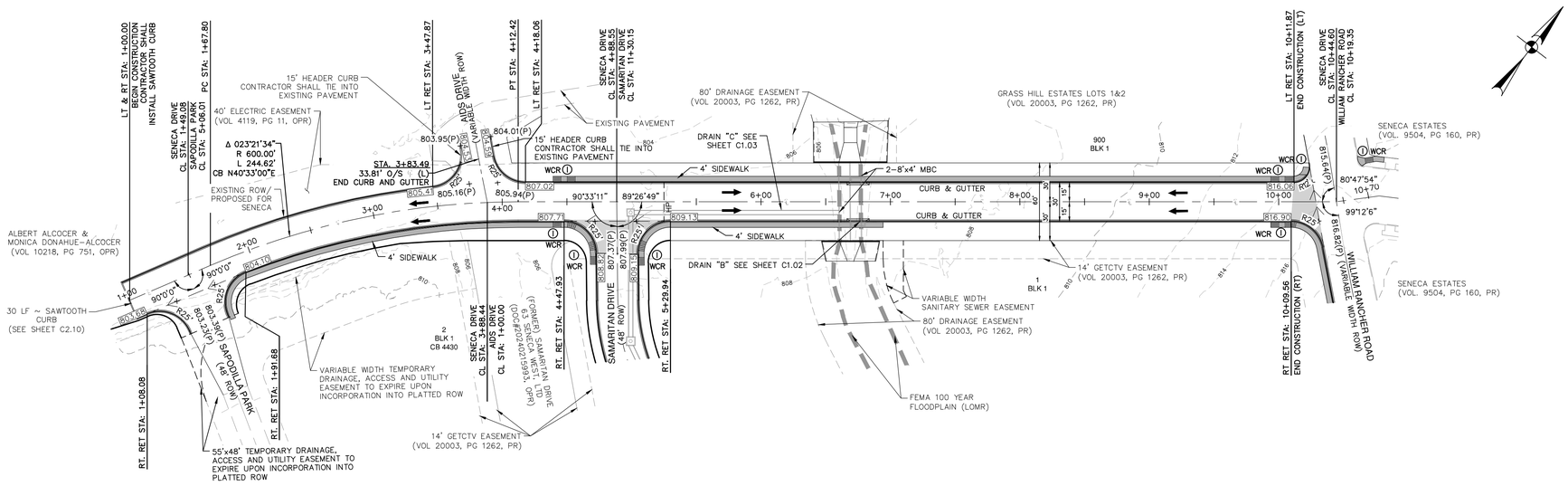
LEON VALLEY, TEXAS

SAMARITAN DRIVE PLAN & PROFILE
(STA. 1+42.07 TO END)

PLAT NO. ----
JOB NO. 13569–02
DATE AUGUST 2025
DESIGNER RC
CHECKED BL DRAWN KC
SHEET C2.00

Date: Aug 08, 2025, 4:42pm User ID: Richardgarcia
File: P:\135\68\02\Design\Civil\STA1-3569002 - Samaritan Drive.dwg

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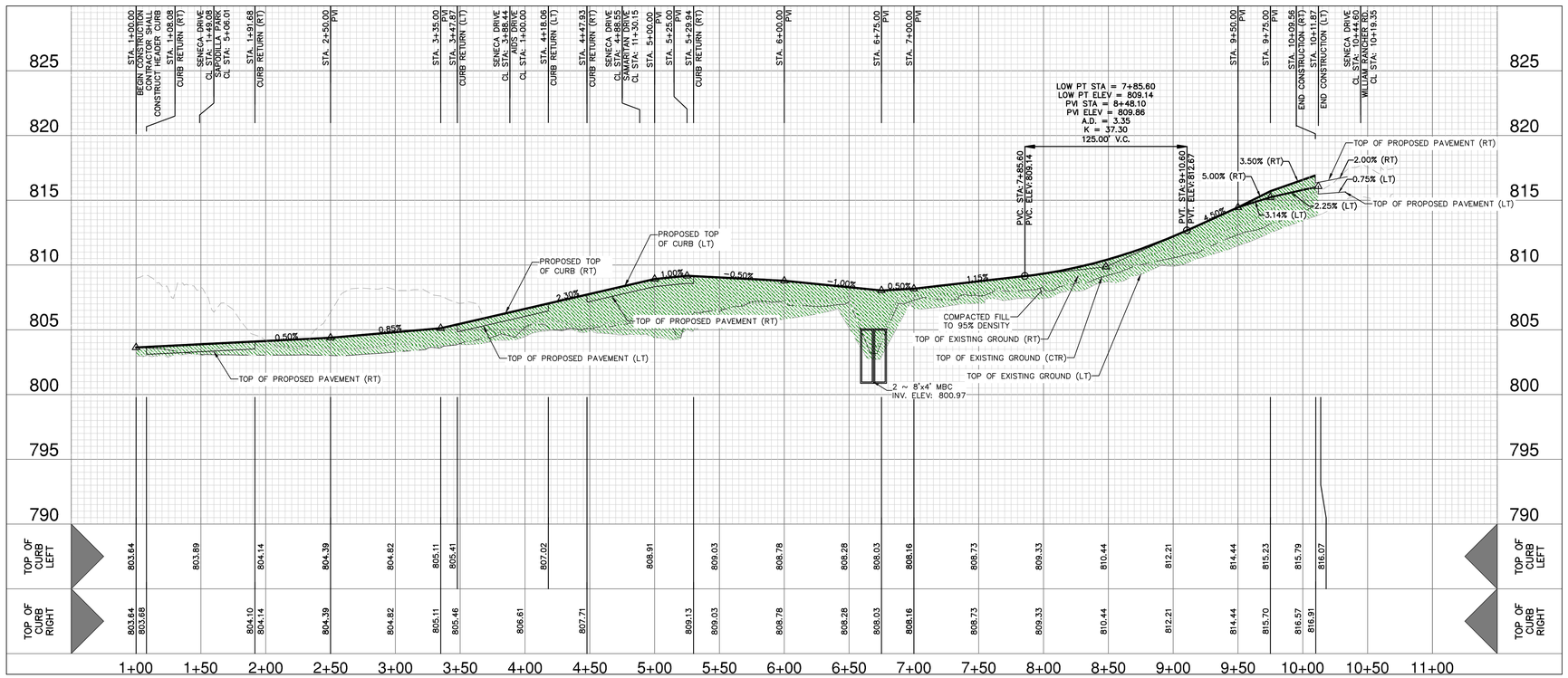



## STREET LEGEND

| | |
|---|---|
| PROJECT LIMITS | |
| MAINTAIN GUTTER | |
| EXISTING CONTOUR | 970 |
| WHEELCHAIR RAMP | Ⓘ |
| CENTERLINE | CL |
| RADIUS POINT | RP |
| POINT OF CURVATURE | PC |
| POINT OF TANGENCY | PT |
| RETURN | RET |
| DRAINAGE FLOW ARROW | |
| TOP OF CURB SPOT ELEVATION | 857.30 |
| PAVEMENT ELEVATION | 857.00(P) × |
| WASHOUT CROWN SECTION | |
| SIDEWALK (DEVELOPER'S RESPONSIBILITY) | |
| SIDEWALK (HOMEOWNER'S RESPONSIBILITY) | |
| DRIVEWAY | |

SENECA DRIVE
STA. 1+00.00 TO END

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




## STREET NOTES:

1. CONTRACTOR SHALL MATCH EXISTING PAVEMENT AT TIE-IN. IF EXISTING PAVEMENT ELEVATION DIFFERS SIGNIFICANTLY, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONTINUING WORK.
2. 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.
3. 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.
4. 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.
5. THE CONSTRUCTION OF SIDEWALKS ADJACENT TO ALL 900 SERIES LOTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER AS SHOWN ON THE OVERALL SIGNAGE PLAN.
6. SIDEWALKS ADJACENT TO FUTURE RESIDENTIAL LOTS WILL BE BUILT WITH HOME CONSTRUCTION.

| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
8/8/25


PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800


# SENECA TRAILS OFFSITE IMPROVEMENTS

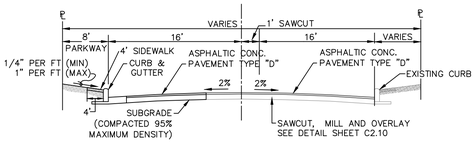
LEON VALLEY, TEXAS

SENECA DRIVE PLAN & PROFILE
(STA. 1+00.00 TO END)

PLAT NO. ----
JOB NO. 13569-02
DATE AUGUST 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C2.01

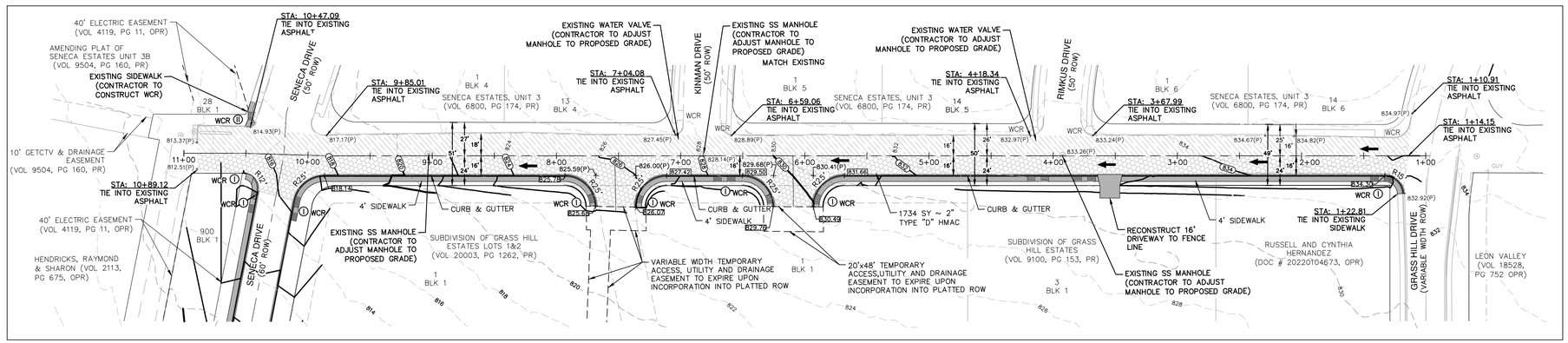
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## LOCAL STREET SECTION (WILLIAM RANCHER DR )

NOT-TO-SCALE




## PAVEMENT & WIDENING PLAN

SCALE: 1"= 50'

0' 50' 100' 150'

## STREET LEGEND

| | |
|---|---|
| PROJECT LIMITS | |
| MAINTAIN GUTTER | |
| EXISTING CONTOUR | 970 |
| WHEELCHAIR RAMP | Ⓘ |
| CENTERLINE | CL |
| RADIUS POINT | RP |
| POINT OF CURVATURE | PC |
| POINT OF TANGENCY | PT |
| RETURN | RET |
| DRAINAGE FLOW ARROW | |
| TOP OF CURB SPOT ELEVATION | 857.30 |
| PAVEMENT ELEVATION | 857.00(P) × |
| WASHOUT CROWN SECTION | |
| SIDEWALK (HOMEOWNER'S RESPONSIBILITY) | |
| SIDEWALK (DEVELOPER'S RESPONSIBILITY) | |
| DRIVEWAY | |
| MILL AND OVERLAY SECTION | |
| PROPOSED 2" TYPE "D" HMAC | |

| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
12/8/25


PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800


# SENECA TRAILS OFFSITE IMPROVEMENTS

LEON VALLEY, TEXAS

WILLIAM RANCHER ROAD REPAVE AND WIDEN PLAN

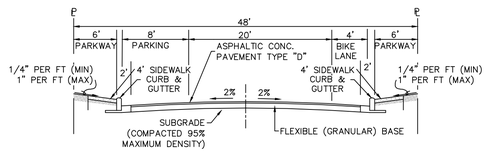
| | |
|---|---|
| PLAT NO. | ---- |
| JOB NO. | 13569-02 |
| DATE | AUGUST 2025 |
| DESIGNER | RG |
| CHECKED | BL |
| DRAWN | KC |
| SHEET | C2.02 |

Date: Dec 03, 2025, 1:14pm User ID: Richardgarcia
File: P:\135\68\02\Design\Civil\ST41-1356902 - William Rancher Rd.dwg


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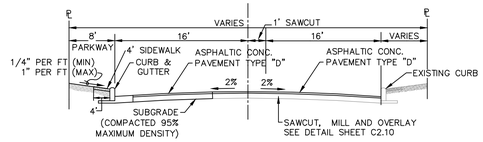
## PAVEMENT SECTION DETAIL

| STREET NAME | STATION | TYPE "D" HMAC | TYPE "B" HMAC | AGGREGATE BASE | STABILIZED SUBGRADE | GEOGRID (TENSAR TRIAX TX5) | CBR | STRUCTURAL NUMBER |
|---|---|---|---|---|---|---|---|---|
| SAMARITAN DRIVE | 1+42.07 TO END | 2" | – | 10" | 8" | NO | 2.0 | 2.92 |
| SENECA DRIVE | 1+00.00 TO END | 2" | – | 10" | 8" | NO | 2.0 | 2.92 |
| WILLIAM RANCHER ROAD (LT) | 1+14.15 TO 10+89.12 | 2" | – | 10" | 8" | NO | 2.0 | 2.92 |



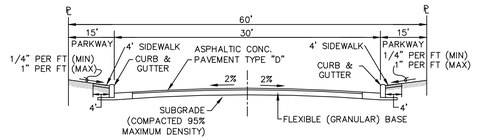

### LOCAL STREET SECTION ( SAMARITAN DRIVE)

NOT-TO-SCALE




### LOCAL STREET SECTION (WILLIAM RANCHER DR )

NOT-TO-SCALE




### LOCAL STREET SECTION ( SENECA DRIVE)

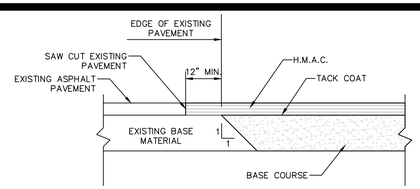
NOT-TO-SCALE

## GENERAL NOTES:

1. CONTRACTOR SHALL REFERENCE THE PROJECT PAVEMENT DESIGN REPORT PREPARED BY INTEC NO. S241257 DATED SEPTEMBER 27, 2024.
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 STABILIZATION 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 LIMESTONE 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 CLAYS), 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 2 AND A PI WITHIN RANGE OF 5 AND 20. THE GRAVEL SIZE SHOULD NOT EXCEED 3 INCHES IN DIAMETER. LIME 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 CITY OF LEON VALLEY PERMIT MUST BE OBTAINED BEFORE WORKING IN THE CITY OF LEON VALLEY 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.

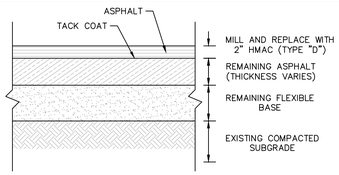
## STREET SUBGRADE NOTES:

1. IF THE STREET SUBGRADE PLASTICITY INDEX VALUE IS GREATER THAN 20, SUBGRADE STABILIZATION IS NEEDED AS PER CITY OF SAN ANTONIO REQUIREMENTS.
2. IF THE SUBGRADE PLASTICITY INDEX VALUE IS 20 OR LESS, SUBGRADE STABILIZATION IS NOT NEEDED. THE SUBGRADE SHOULD BE MOISTURE CONDITIONED (COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY AT A MINIMUM MOISTURE CONTENT OF OPTIMUM PLUS 2 PERCENT (TEX114E)).
3. THE SUBGRADE SHOULD BE STABILIZED USING 8 PERCENT LIME TO A DEPTH OF 8 INCHES AS NOTED ABOVE.
4. THE SUBGRADE SOILS SHOULD BE TESTED FOR SOIL SULFATE CONTENT PRIOR TO STABILIZATION. IF THE SOIL SULFATE CONTENT IS HIGH, AN ALTERNATE PROCEDURE / RECOMMENDATION WILL BE NEEDED.
5. LIME APPLICATION RATE OF 46.0 LBS PER SQ YARD FOR 8 INCH DEPTH OF STABILIZATION IS RECOMMENDED.
6. APPROVED FILL MATERIAL SHOULD BE USED TO RAISE THE GRADE. THE FILL SHOULD BE FREE OF DELETERIOUS MATERIAL WITH A MINIMUM CBR VALUE OF 2.0. LIME APPLICATION RATES SHOULD BE RE-EVALUATED AND TESTED FOR SULFATE CONTENT PRIOR TO USE OF THE FILL MATERIAL. THE MATERIAL SHOULD BE PLACED AS PER APPLICABLE CITY OR COUNTY GUIDELINES.
7. THE SUBGRADE SHOULD BE PROOF ROLLED TO IDENTIFY SOFT AREAS BEFORE STABILIZATION.



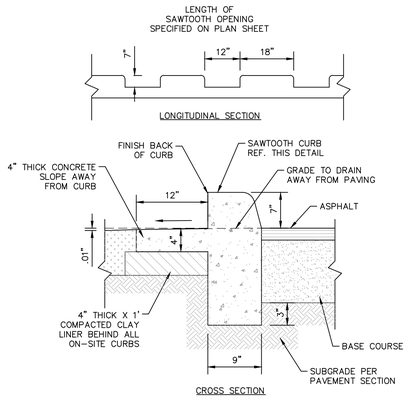

### ASPHALT/ASPHALT JUNCTURE DETAIL

NOT-TO-SCALE



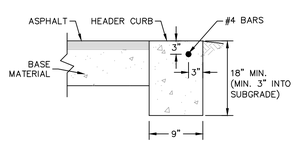

### 2" MILL & OVERLAY DETAIL

NOT-TO-SCALE



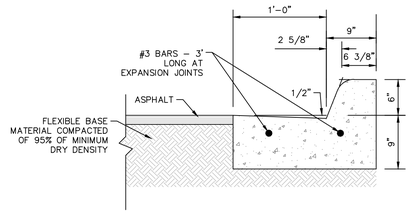

### 7" SAWTOOTH CURB DETAIL

NOT-TO-SCALE



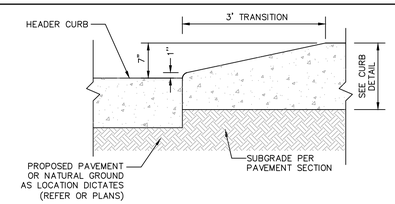

### HEADER CURB DETAIL

NOT-TO-SCALE



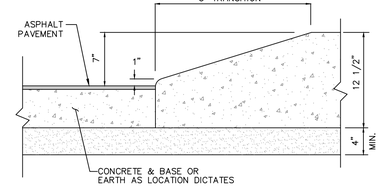

### STANDARD CURB AND GUTTER DETAIL

NOT-TO-SCALE




### CURB TRANSITION DETAIL (FROM HEADER CURB TO STANDARD CURB)

NOT-TO-SCALE




### CURB TRANSITION DETAIL (FROM PAVEMENT TO STANDARD CURB)

NOT-TO-SCALE

| NO. | REVISION | DATE |
|---|---|---|
| | | |


TX STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
12/8/25

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800


# SENECA TRAILS OFFSITE IMPROVEMENTS

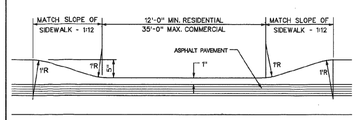
LEON VALLEY, TEXAS

STREET DETAILS

PLAT NO. ----
JOB NO. 13569-02
DATE AUGUST 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C2.10

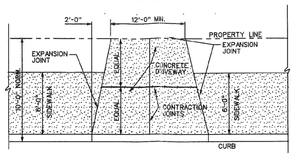

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File: P:\13569\02\Design\Civil\STDT-13569D2.dwg

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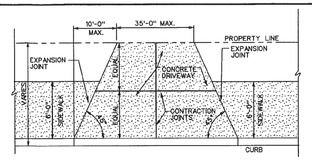

ELEVATION VIEW OF TYPE 1 COMMERCIAL AND RESIDENTIAL DRIVEWAYS AT CURB

NOT TO SCALE



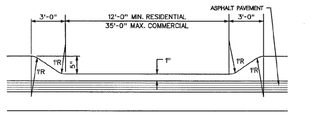

TYPICAL PLAN VIEW – RESIDENTIAL TYPE 1 DRIVEWAY APRON

NOT TO SCALE



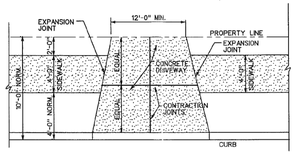

TYPICAL PLAN VIEW – COMMERCIAL TYPE 1 DRIVEWAY APRON

NOT TO SCALE



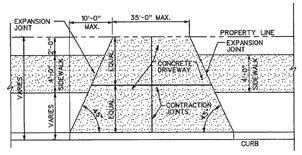

ELEVATION VIEW OF COMMERCIAL AND RESIDENTIAL DRIVEWAYS AT CURB

NOT TO SCALE



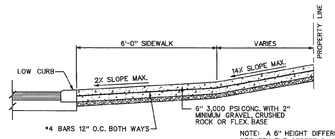

TYPICAL PLAN VIEW – RESIDENTIAL TYPE 2 DRIVEWAY APRON

NOT TO SCALE




TYPICAL PLAN VIEW – COMMERCIAL TYPE 2 DRIVEWAY APRON

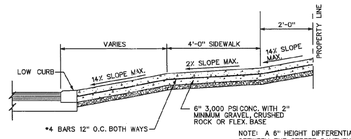
NOT TO SCALE




NOTE: A 6" HEIGHT DIFFERENTIAL BETWEEN THE STREET PAVEMENT ELEVATION AND THE DRIVEWAY MUST BE ATTAINED. IT MAY BE ATTAINED EITHER IN THE RIGHT-OF-WAY OR WITHIN PRIVATE PROPERTY

TYPICAL COMMERCIAL AND RESIDENTIAL TYPE 1 DRIVEWAY APRON SECTION

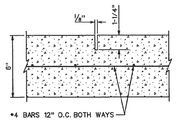
NOT TO SCALE




NOTE: A 6" HEIGHT DIFFERENTIAL BETWEEN THE STREET PAVEMENT ELEVATION AND THE DRIVEWAY MUST BE ATTAINED. IT MAY BE ATTAINED EITHER IN THE RIGHT-OF-WAY OR WITHIN PRIVATE PROPERTY

TYPICAL COMMERCIAL AND RESIDENTIAL TYPE 2 DRIVEWAY APRON SECTION

NOT TO SCALE




APRON CONTRACTION JOINT

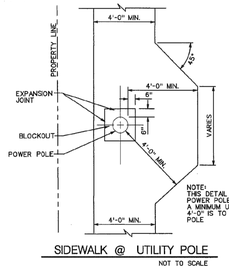
NOT TO SCALE

02/22/01

CITY OF LEON VALLEY

SIDEWALK & DRIVEWAY STANDARDS

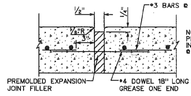
PAGE 3 OF 3




NOTE: THIS DETAIL TO BE USED WHENEVER A POWER POLE ENCROACHES A SIDEWALK. A MINIMUM UNOBSTRUCTED CLEARANCE OF 4'-0" IS TO BE MAINTAINED AROUND THE POLE

SIDEWALK @ UTILITY POLE

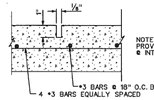
NOT TO SCALE




NOTE: PROVIDE EXPANSION JOINTS @ INTERVALS NOT TO EXCEED 50'. @ DRIVEWAYS AND STRUCTURES

SIDEWALK EXPANSION JOINT DETAIL

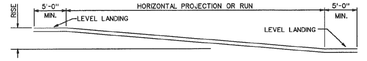
NOT TO SCALE




NOTE: PROVIDE CONTROL POINTS @ INTERVALS OF 4'.

SIDEWALK CONTRACTION JOINT DETAIL

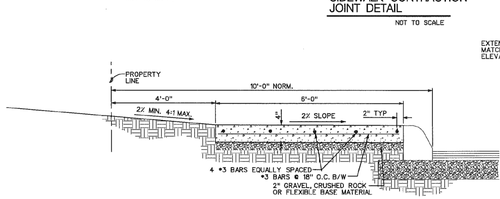
NOT TO SCALE




| SLOPE | MAXIMUM RISE | MAXIMUM HORIZONTAL PROJECTION |
|---|---|---|
| 1:12 TO < 1:16 | 30 IN. | 30 FT. |
| 1:16 TO < 1:20 | 40 IN. | 40 FT. |

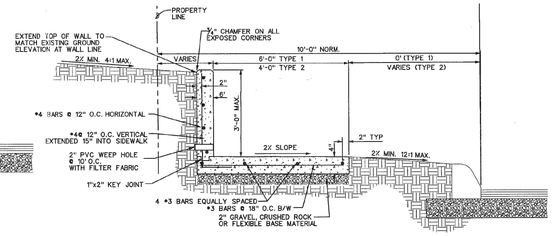
SIDEWALK SLOPE REQUIREMENTS WHEN SLOPE IS GREATER THAN 1:20

NOT TO SCALE



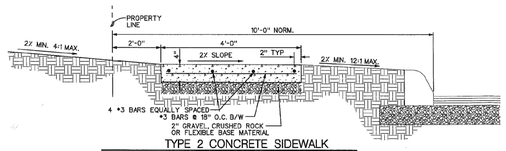

TYPE 1 CONCRETE SIDEWALK

NOT TO SCALE




CONCRETE RETAINING WALL – COMBINATION TYPE

NOT TO SCALE




TYPE 2 CONCRETE SIDEWALK

NOT TO SCALE

02/21/01

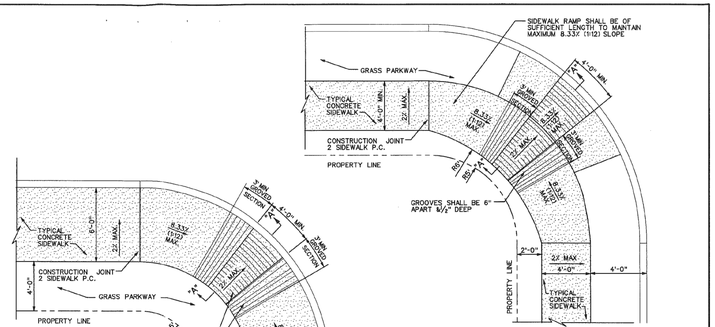
CITY OF LEON VALLEY

SIDEWALK & DRIVEWAY STANDARDS

PAGE 1 OF 3

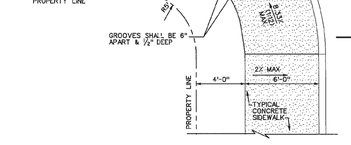
## NOTES

1. THE CONTRACTOR SHALL WARRANT ALL WORK FOR ONE (1) YEAR.
2. THE CONTRACTOR SHALL PROVIDE INSURANCE LISTING THE CITY OF LEON VALLEY AS AN ADDITIONAL INSURED BEFORE WORKING IN THE PUBLIC RIGHT-OF-WAY.
3. THE CONTRACTOR SHALL REMOVE AND RESTORE TRAFFIC SIGNS AS NEEDED (NO SEPARATE PAY ITEM). MAINTAIN ALL STOP SIGNS IN PLACE DURING CONSTRUCTION.
4. THE CONTRACTOR SHALL NOTIFY THE CITY OF LEON VALLEY DEVELOPMENT OFFICE AT 684-1391 EXT 226 PRIOR TO PLACING BACKFILL OR CONCRETE AND PRIOR TO ANY TESTING. THE CONTRACTOR SHALL REQUEST INSPECTION 24 HOURS IN ADVANCE. (NO INSPECTIONS ARE AVAILABLE BETWEEN 12:00 PM AND 1:00 PM OR AFTER 4:00 PM DAILY, WEEKENDS OR CITY HOLIDAYS
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ALL SIGNS AND BARRICADES ARE PROPERLY INSTALLED AND MAINTAINED. ALL LOCATIONS AND DISTANCES WILL BE DECIDED UPON IN THE FIELD BY THE CONTRACTOR, USING THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. THE CITY'S CONSTRUCTION INSPECTOR AND THE TRAFFIC ENGINEERING REPRESENTATIVE WILL ONLY BE RESPONSIBLE TO INSPECT BARRICADES AND SIGNS. IF IN THE OPINION OF THE TRAFFIC ENGINEERING REPRESENTATIVE AND THE CONSTRUCTION INSPECTOR, THE BARRICADES AND SIGNS DO NOT CONFORM TO ESTABLISHED STANDARDS OR ARE INCORRECTLY PLACED OR ARE INSUFFICIENT IN QUANTITY TO PROTECT THE GENERAL PUBLIC, THE CONSTRUCTION INSPECTOR SHALL HAVE THE OPTION TO STOP OPERATIONS UNTIL SUCH TIME AS THE CONDITIONS ARE CORRECTED.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION ANY DAMAGE DONE TO EXISTING GRASS AREAS, CURBS, SIDEWALKS OR CONCRETE DRIVEWAYS. DAMAGED GRASS AREAS SHALL BE SODDED.
7. ALL CONCRETE SHALL BE CLASS A (3,000 PSI AT 28 DAYS) AND MEET THE MATERIAL REQUIREMENTS OF "CONCRETE" (NATURAL AGGREGATE) OF THE SPECIFICATIONS.
8. ALL REINFORCING STEEL SHALL BE GRADE 40 AND MEET THE MATERIAL AND CONSTRUCTION REQUIREMENTS OF "REINFORCING STEEL" OF THE SPECIFICATIONS. THE USE OF WIRE MESH IN SIDEWALKS, CONCRETE PAVEMENTS, RIP-RAP OR DRIVEWAYS IS PROHIBITED.
9. CURING SHALL BE MADE BY CURING COMPOUND OR OTHER APPROVED METHOD.
10. ALL CONCRETE CONSTRUCTION SHALL MEET THE REQUIREMENTS OF "CONCRETE WORK" OF THE SPECIFICATIONS.
11. MANHOLE AND VALVE BOXES SHALL BE ADJUSTED TO MATCH NEW GRADES.
12. LABORATORY TESTING SHALL BE PERFORMED BY AN APPROVED INDEPENDENT TESTING LABORATORY. ALL COSTS OF TESTING AND RETESTING SHALL BE PAID BY THE CONTRACTOR. TESTING OF SIDEWALKS SHALL BE AT THE RATE OF ONE (1) SET OF CYLINDERS PER EACH 500 FEET OF SIDEWALKS.
13. SURFACE STRUCTURES SUCH AS MAILBOXES, STREET SIGNS, FENCES, DRIVEWAYS, SIDEWALKS, LANDSCAPING, AND SO FORTH, ARE SHOWN ON THE PLANS AS VISIBLE AT THE TIME OF SURVEY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SAFEGUARD AND MAINTAIN ANY AND ALL SURFACE STRUCTURES DURING THE COURSE OF WORK AND TO REPLACE OR REPAIR THOSE ITEMS WHICH WERE DAMAGED BY THE CONTRACTOR WITH LIKE OR BETTER QUALITY.
14. CONCRETE SIDEWALKS SHALL HAVE TOOLED WEAKENED PLAN JOINTS (CONTRACTION JOINTS) EVERY FOUR (4) FEET AND DOWELED EXPANSION JOINTS WITH ½" BITUMASTIC MATERIAL AT INTERVALS NOT TO EXCEED 50 FEET AND WHEN ABUTTING NEW AND EXISTING STRUCTURES. (ONLY BAR-TYPE STEEL REINFORCING MAY BE USED.)
15. WHEN THE ALIGNMENT OF NEW SIDEWALKS DOES NOT MATCH THE ALIGNMENT OF EXISTING SIDEWALKS, THE NEW SIDEWALK SHALL BE TRANSITIONED TO MATCH THE EXISTING SIDEWALK AT THE RATE OF FOUR (4) FEET LONGITUDINALLY TO ONE (1) FOOT LATERALLY.
16. SIDEWALKS SHALL HAVE A NON-SKID FINISH. THIS MAY BE EITHER A SOFT BROOM FINISH OR BY APPLYING SILICON CARBIDE (SPARKLING) OR ALUMINUM OXIDE AT THE RATE OF ¼ TO 1/2 POUND PER SF AND TROWELING LIGHTLY.
17. SIDEWALKS SHALL NOT HAVE A SLOPE GREATER THAN 1:20 UNLESS RAMP PROVISIONS ARE INCORPORATED INTO THE DESIGN OF THE SIDEWALK. (SEE PAGE 1 ALSO).
18. THE MAXIMUM SLOPE FOR A RAMP SHALL BE 1:12. LANDINGS ARE REQUIRED WHENEVER THE RISE OF A RAMP EXCEEDS 30". EACH LANDING IS REQUIRED TO BE A MINIMUM OF 5'-0" IN LENGTH AND AS WIDE AS THE SIDEWALK. WHERE THERE IS A CHANGE OF DIRECTION IN THE RAMP, THE MINIMUM WIDTH OF THE LANDING SHALL BE 5'-0".
19. THE REQUIREMENTS OF THE AMERICAN DISABILITIES ACT SHALL BE INCORPORATED INTO THE DESIGNS FOR SIDEWALKS.



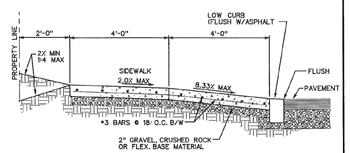

TYPE 2 CONCRETE SIDEWALK RAMP

NOT TO SCALE




TYPE 1 CONCRETE SIDEWALK RAMP

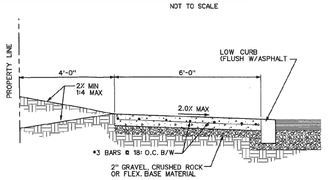
NOT TO SCALE




TYPE 2 SIDEWALK RAMP – SECTION A – A

NOT TO SCALE

02/22/01




TYPE 1 SIDEWALK RAMP – SECTION A – A

NOT TO SCALE

CITY OF LEON VALLEY

SIDEWALK & DRIVEWAY STANDARDS

PAGE 2 OF 3

| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
4/11/25


PAPE-DAWSON ENGINEERS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288-00


# SENECA TRAILS OFFSITE IMPROVEMENTS

LEON VALLEY, TEXAS

STREET DETAILS

PLAT NO. ----
JOB NO. 13569-02
DATE MARCH 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C2.11


Date: Apr 29, 2025, 7:08am User ID: Richardgarcia
File: P:\13569\02\Design\Civil\STD - 13569(2.dwg

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RELOCATED
WILLIAM RANCHER ROAD
SENECA DRIVE
STOP

EXISTING
WILLIAM RANCHER ROAD
KINMAN DRIVE
STOP

EXISTING
WILLIAM RANCHER ROAD
RIMKUS DRIVE
STOP

WILLIAM RANCHER ROAD
(ROW VARIES)

RELOCATED
WILLIAM RANCHER ROAD
SUR PUEBLO
STOP

RELOCATED
WILLIAM RANCHER ROAD
GRASS HILL DRIVE
STOP

EXISTING
AIDS DRIVE
NO OUTLET
NO TRUCKS

WILLIAM RANCHER ROAD
SUR PUEBLO
STOP

SENECA DRIVE
SAMARITAN DRIVE
STOP

SAMARITAN DRIVE
KENORA CREST
STOP

RELOCATED
GRASS HILL DRIVE
SAMARITAN DRIVE
STOP

SENECA DRIVE
AIDS DRIVE
STOP

SENECA DRIVE
SAPODILLA PARK
STOP

NO OUTLET

PAVEMENT ENDS

SENECA ESTATES (VOL 9504, PG 160, PR)

SENECA ESTATES, UNIT 3 (VOL 6800, PG 174, PR)

40' ELECTRIC EASEMENT (VOL 4119, PG 11, OPR)

10' GETCTV & DRAINAGE EASEMENT (VOL 9504, PG 160, PR)

HENDRICKS, RAYMOND & SHARON (VOL 2113, PG 675, OPR)

AIDS DRIVE (VARIABLE WIDTH ROW)

SENECA DRIVE (VARIABLE WIDTH ROW)

GRASS HILL ESTATES LOTS 1&2 (VOL 20003, PG 1262, PR)

80' DRAINAGE EASEMENT (VOL 20003, PG 1262, PR)

ALBERT ALCOCER & MONICA DONAHUE-ALCOCER (VOL 10218, PG 751, OPR)

4' SIDEWALK

DRAIN "A" SEE SHEET C1.01

DRAIN "B" SEE SHEET C1.02

DRAIN "C1" SEE SHEET C1.04

VARIABLE WIDTH TEMPORARY ACCESS,UTILITY AND DRAINAGE EASEMENT TO EXPIRE UPON INCORPORATION INTO PLATTED ROW

20'x48' TEMPORARY ACCESS,UTILITY AND DRAINAGE EASEMENT TO EXPIRE UPON INCORPORATION INTO PLATTED ROW

14' GETCTV EASEMENT (VOL 20003, PG 1262, PR)

16' PUBLIC DRAINAGE EASEMENT

VARIABLE WIDTH SANITARY SEWER EASEMENT

28' ELECTRIC EASEMENT (VOL 20003, PG 1262, PR)

GRASS HILL ESTATES LOTS 1&2 (VOL 20003, PG 1262, PR)

LOT 1 BLK 1

GRASS HILL ESTATES (VOL 9100, PG 153, PR)

LOT 3 BLK 1

RUSSELL AND CYNTHIA HERNANDEZ (DOC # 20220104673, OPR)

VARIABLE WIDTH DRAINAGE EASEMENT (DOC NO 20210346882, OPR)

60' DRAINAGE EASEMENT (VOL 20003, PG 1262 PR)

GRASS HILL DRIVE (VARIABLE WIDTH ROW)

SAMARITAN DRIVE (48' ROW)

(FORMER) SAMARITAN DRIVE 63 SENECA WEST, LTD (DOC#20240215993, OPR)

VARIABLE WIDTH TEMPORARY DRAINAGE, ACCESS AND UTILITY EASEMENT TO EXPIRE UPON INCORPORATION INTO PLATTED ROW

8 SENECA TRAILS PHASE I

40' ELECTRIC EASEMENT (VOL 4281, PG 223, OPR)

TEMPORARY VARIABLE WIDTH DRAINAGE, ACCESS AND UTILITY EASEMENT (SENECA TRAILS PHASE I)

REMAINDER OF 14' GETCTV EASEMENT (VOL 20003, PG 1262, PR)

VARIABLE WIDTH TEMPORARY DRAINAGE, ACCESS AND UTILITY EASEMENT TO EXPIRE UPON INCORPORATION INTO PLATTED ROW

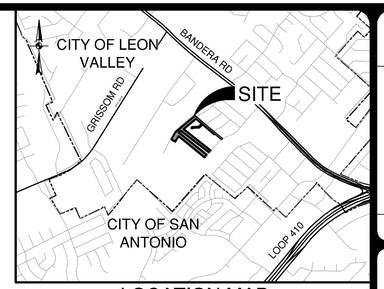
BLK 1 LOTS 28, 1, 13, 14

900 BLK 1

900 BLK 1 CB 4430

WCR

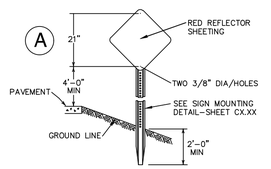
OHU




## LOCATION MAP
NOT-TO-SCALE

SCALE: 1"= 50'
0' 50' 100' 150'

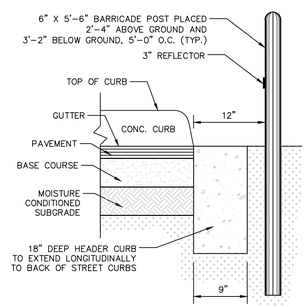
| SYMBOL | |
|---|---|
| | UNIT BOUNDARY |
| | CURB INLET |
| | PROPOSED DRIVEWAY |
| | TRAFFIC FLOW ARROW |
| | SIDEWALK (DEVELOPER'S RESPONSIBILITY) |
| | TYPE II BLUE RAISED PAVEMENT MARKERS – NO SEPARATE PAY ITEM (N.T.S.) |
| WCR | WHEELCHAIR RAMP TYPE |
| Street Name | STREET SIGN |
| STOP | R1-1 30"X30" |
| | END OF ROAD MARKER OM4-3 |
| | HEADER CURB W/ BARRICADE POSTS (SEE DETAIL THIS SHEET) |
| PAVEMENT ENDS | |
| NO OUTLET | |




UNITS MOUNTED ON 0.080" THICK SHEET ALUMINUM CONFORMING WITH ASTM B-209 ALLOY 6061-T6.

TYPE 4 OM4-3
18" x 18"

## OBJECT MARKER TYPE 4
NOT-TO-SCALE




## HEADER CURB & BARRICADE POST DETAIL
NOT-TO-SCALE

## 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.

| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
8/8/25


PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800


# SENECA TRAILS OFFSITE IMPROVEMENTS
LEON VALLEY, TEXAS

OVERALL SIGNAGE PLAN

PLAT NO. ----
JOB NO. 13569-02
DATE AUGUST 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C3.00


Date: Aug 08, 2025, 4:44pm User ID: Richardgarcia
File: P:\13569\02\Design\Civil\SIGNAGE-13569102.dwg

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# SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

**Post Type**

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
TWT = Thin-Walled Tubing (see SMD(TWT))
10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
SRO = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

**Number of Posts (1 or 2)**

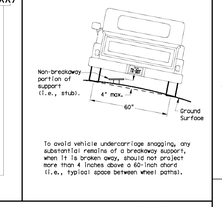
**Anchor Type**

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))
WS = Wedge Anchor Steel - (see SMD(TWT))
WP = Wedge Anchor Plastic (see SMD(TWT))
SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

**Sign Mounting Designation**

P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED:
TEXT or (EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BW = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

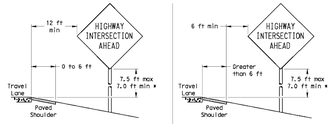
# REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT




To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

# SIGN LOCATION

**PAVED SHOULDERS**



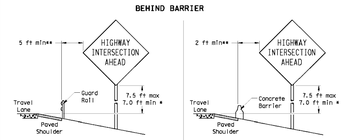

**LESS THAN 6 FT. WIDE**

When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.

**GREATER THAN 6 FT. WIDE**

When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

**BEHIND BARRIER**

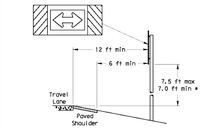



**BEHIND GUARDRAIL**

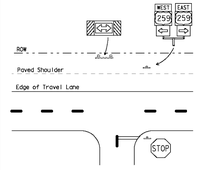
**BEHIND CONCRETE BARRIER**

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

**T-INTERSECTION**




When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.




* Signs shall be mounted using the following condition that results in the greatest sign elevation:

(1) a minimum of 7 ft to a maximum of 7.5 feet above the edge of the travel lane or

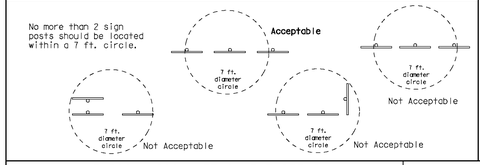
(2) a minimum of 7 ft to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

The maximum values may be increased when directed by the Engineer.

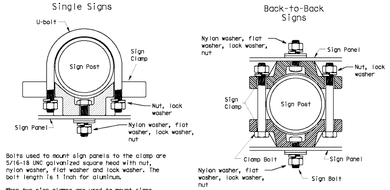
See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

The website address is:
http://www.txdot.gov/publications/traffic.htm

No more than 2 sign posts should be located within a 7 ft. circle.




# TYPICAL SIGN ATTACHMENT DETAIL



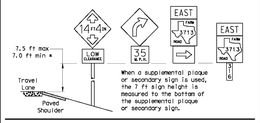

Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

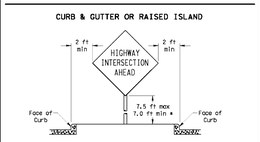
Sign clamps may be either the specific size clamp or the universal clamp.

| Pipe Diameter | Approximate Bolt Length | |
|---|---|---|
| | Specific Clamp | Universal Clamp |
| 2" nominal | 3" | 3 or 3 1/2" |
| 2 1/2" nominal | 3 or 3 1/2" | 3 1/2 or 4" |
| 3" nominal | 3 1/2 or 4" | 4 1/2" |

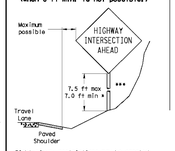
**SIGNS WITH PLAQUES**




**CURB & GUTTER OR RAISED ISLAND**




**RESTRICTED RIGHT-OF-WAY**
**(When 6 ft min. is not possible.)**




Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

**Texas Department of Transportation**
*Traffic Operations Division*

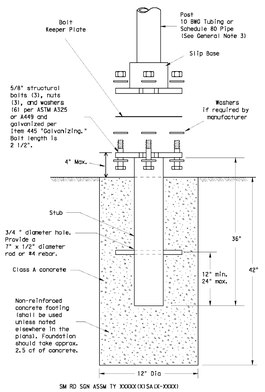
## SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

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| | DIST | COUNTY | | SHEET No. |

264

# TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS




SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

**NOTE**

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

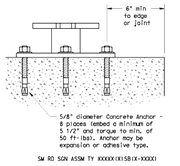
1. Slip base shall be permanently marked to indicate manufacturer, Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   0.134" nominal wall thickness
   Seamless or electric-resistance welded steel tubing or pipe
   Steel shall be HSLAS GF 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the followings
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   20% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   Galvanization per ASTM A123 or ASTM A653 G210, For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
   Schedule 80 Pipe (2.875" outside diameter)
   0.276" nominal wall thickness
   Steel tubing per ASTM A500 Gr C
   Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the followings
   46,000 PSI minimum yield strength
   62,000 PSI minimum tensile strength
   21% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is:
   http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, mortar-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by the Engineer. Concrete shall be Class A.
3. Push the pipe and of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the traveiway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the traveiway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

# CONCRETE ANCHOR




SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

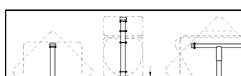
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*Traffic Operations Division*

## SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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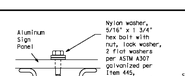
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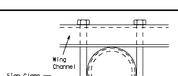


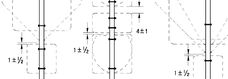


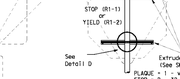




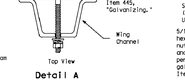



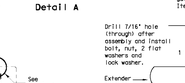







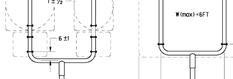


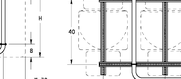

Splices shall only be allowed behind the sign substrate.









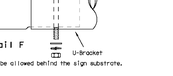




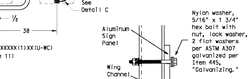
SIDE VIEW

TOP VIEW




**FRICTION CAP DETAIL**




Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.




SM RD SGN ASSM TY XXXXX(1)XX(T)
(+ - See Note 12)

All dimensions are in english unless detailed otherwise.

# REQUIRED SUPPORT

| | SIGN DESCRIPTION | SUPPORT |
|---|---|---|
| Regulatory | 48-inch STOP sign (R1-1) | TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM) |
| | 60-inch YIELD sign (R1-2) | TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM) |
| | 48x16-inch ONE-WAY sign (R6-1) | TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM) |
| | 36x48, 48x36, and 48x48-inch signs | TY 10BWG(1)XX(T) |
| | 48x60-inch signs | TY SB01(1)XX(T) |
| | 48x48-inch signs (diamond or square) | TY 10BWG(1)XX(T) |
| | 48x60-inch signs | TY SB01(1)XX(T) |
| Warning | 48-inch Advance School X-ing sign (S1-1) | TY 10BWG(1)XX(T) |
| | 48-inch School X-ing sign (S2-1) | TY 10BWG(1)XX(T) |
| | Large Arrow sign (W1-6 & W1-7) | TY 10BWG(1)XX(T) |

**GENERAL NOTES:**

1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   0.134" nominal wall thickness
   Seamless or electric-resistance welded steel tubing or pipe
   Steel shall be HSLAS GF 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the followings
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   20% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   Galvanization per ASTM A123 or ASTM A653 G210, For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
   Schedule 80 Pipe (2.875" outside diameter)
   0.276" nominal wall thickness
   Steel tubing per ASTM A500 Gr C
   Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the followings
   46,000 PSI minimum yield strength
   62,000 PSI minimum tensile strength
   21% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is:
   http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
5. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
6. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
7. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
8. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. Each of the supports shall function independently when impacted by an errant vehicle.
9. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
10. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
11. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
12. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
13. Post open ends shall be fitted with friction Caps.
14. Sign blanks shall be the sizes and shapes shown on the plans.

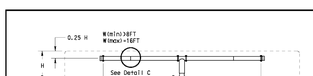
**Texas Department of Transportation**
*Traffic Operations Division*

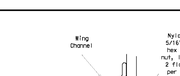
## SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

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| | DIST | COUNTY | | SHEET No. |

262

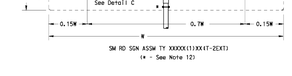


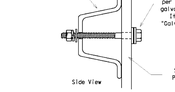







Splices shall only be allowed behind the sign substrate.



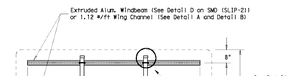







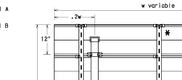
GENERAL NOTES:

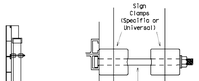
1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   0.134" nominal wall thickness
   Seamless or electric-resistance welded steel tubing or pipe
   Steel shall be HSLAS GF 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the followings
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   20% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   Galvanization per ASTM A123 or ASTM A653 G210, For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
   Schedule 80 Pipe (2.875" outside diameter)
   0.276" nominal wall thickness
   Steel tubing per ASTM A500 Gr C
   Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the followings
   46,000 PSI minimum yield strength
   62,000 PSI minimum tensile strength
   21% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is:
   http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
5. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
6. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
7. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
8. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. Each of the supports shall function independently when impacted by an errant vehicle.
9. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
10. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
11. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
12. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
13. Post open ends shall be fitted with friction Caps.










# REQUIRED SUPPORT

| | SIGN DESCRIPTION | SUPPORT |
|---|---|---|
| Regulatory | 48-inch STOP sign (R1-1) | TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM) |
| | 60-inch YIELD sign (R1-2) | TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM) |
| | 48x16-inch ONE-WAY sign (R6-1) | TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM) |
| | 36x48, 48x36, and 48x48-inch signs | TY 10BWG(1)XX(T) |
| | 48x60-inch signs | TY SB01(1)XX(T) |
| | 48x48-inch signs (diamond or square) | TY 10BWG(1)XX(T) |
| | 48x60-inch signs | TY SB01(1)XX(T) |
| Warning | 48-inch Advance School X-ing sign (S1-1) | TY 10BWG(1)XX(T) |
| | 48-inch School X-ing sign (S2-1) | TY 10BWG(1)XX(T) |
| | Large Arrow sign (W1-6 & W1-7) | TY 10BWG(1)XX(T) |

**Texas Department of Transportation**
*Traffic Operations Division*

## SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

| © TxDOT July 2002 | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
|---|---|---|---|---|
| 9-08 REVISIONS | CONT | SECT | JOB | HIGHWAY |
| | DIST | COUNTY | | SHEET No. |

260

DATE: FILE:

DISCLAIMER:

PAPE-DAWSON ENGINEERS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM 1470 | TEXAS SURVEYING FIRM #10028800

DATE
NO. REVISION

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED
PROFESSIONAL ENGINEER
4/11/25

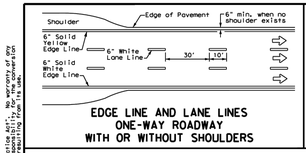
# SENECA TRAILS OFFSITE IMPROVEMENTS

LEON VALLEY, TEXAS

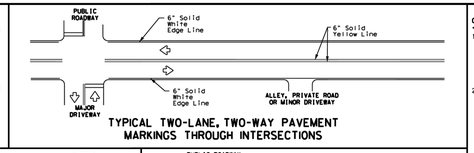
SIGNAGE DETAILS

PLAT NO. ----
JOB NO. 13569-02
DATE MARCH 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C3.10

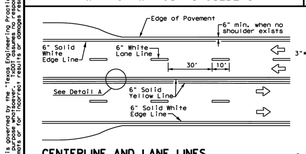
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THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL. AERIAL IMAGERY PROVIDED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



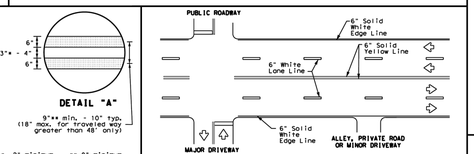

EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS




TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS




CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS

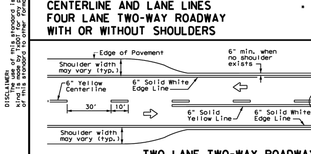



TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS

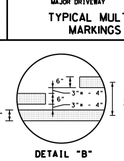



DETAIL "A"
9"** min. - 10' typ.
(18' max. for traveled way greater than 48' only)

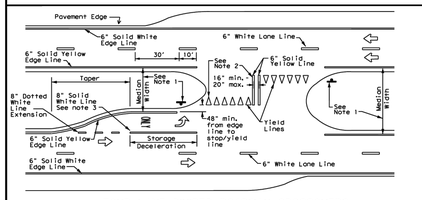
* 2" minimum for restripe projects when approved by the Engineer.
** 8" minimum for restripe projects when approved by the Engineer.



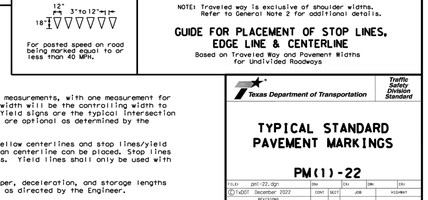

TWO LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS




DETAIL "B"
* 2" minimum for restripe projects when approved by the Engineer.

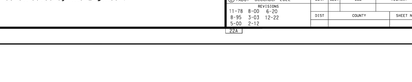



FOUR LANE DIVIDED ROADWAY CROSSOVERS




For posted speed on road being marked equal to or greater than 45 MPH.

YIELD LINES




For posted speed on road being marked equal to or less than 40 MPH.

## NOTES

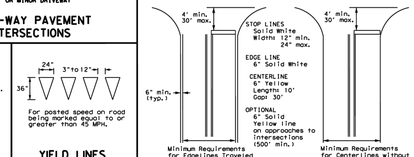
1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
2. Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

## GENERAL NOTES

1. Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.
2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

| MATERIAL SPECIFICATIONS | |
|---|---|
| PAVEMENT MARKERS (REFLECTORIZED) | DMS-4200 |
| EPOXY AND ADHESIVES | DMS-6100 |
| BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS | DMS-6130 |
| TRAFFIC PAINT | DMS-8200 |
| HOT APPLIED THERMOPLASTIC | DMS-8220 |
| PERMANENT PREFABRICATED PAVEMENT MARKINGS | DMS-8240 |

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.




NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

GUIDE FOR PLACEMENT OF STOP LINES,
EDGE LINE & CENTERLINE
Based on Traveled Way and Pavement Widths
for Undivided Roadways

Texas Department of Transportation — Traffic Safety Division Standard

TYPICAL STANDARD
PAVEMENT MARKINGS

PM(1)-22

| FILE: | pm1-22.dgn | DN: | CK: | JW: | CK: |
|---|---|---|---|---|---|
| ©TxDOT | December 2022 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | | | | | |
| 11-78 8-00 6-20 | | DIST | COUNTY | | SHEET NO. |
| 8-85 3-03 12-22 | | | | | |
| 5-00 7-12 | | | | | |

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LANE REDUCTION

| ADVANCED WARNING SIGN DISTANCE (D) | | |
|---|---|---|
| Posted Speed | D (ft) | L (ft) |
| 30 MPH | 460 | L= W*S²/60 |
| 35 MPH | 565 | |
| 40 MPH | 670 | |
| 45 MPH | 775 | |
| 50 MPH | 885 | L=WS |
| 55 MPH | 990 | |
| 60 MPH | 1,100 | |
| 65 MPH | 1,200 | |
| 70 MPH | 1,250 | |
| 75 MPH | 1,350 | |

## NOTES

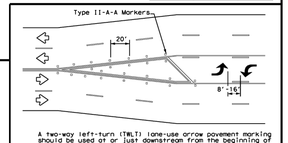
1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be placed two to the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

## GENERAL NOTES

1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-length turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

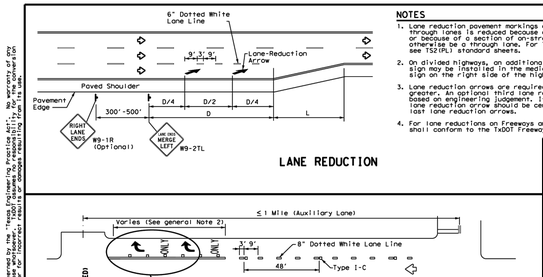
| MATERIAL SPECIFICATIONS | |
|---|---|
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| EPOXY AND ADHESIVES | DMS-6100 |
| BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS | DMS-6130 |
| TRAFFIC PAINT | DMS-8200 |
| HOT APPLIED THERMOPLASTIC | DMS-8220 |
| PERMANENT PREFABRICATED PAVEMENT MARKINGS | DMS-8240 |

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.

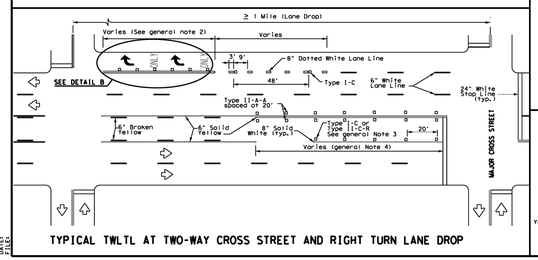



A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

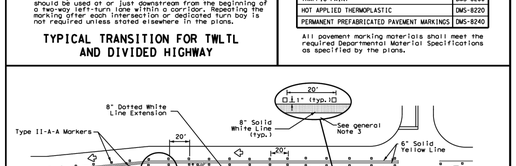
TYPICAL TRANSITION FOR TWLTL
AND DIVIDED HIGHWAY



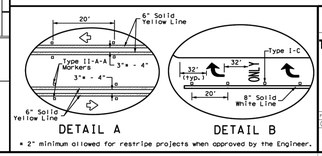

TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE




TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP




TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS




DETAIL A




DETAIL B

* 2" minimum allowed for restripe projects when approved by the Engineer.

Texas Department of Transportation — Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES,
RURAL LEFT TURN BAYS,
AND LANE REDUCTION
PAVEMENT MARKINGS

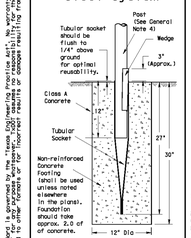
PM(3)-22

| FILE: | pm3-22.dgn | DN: | CK: | JW: | CK: |
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| ©TxDOT | December 2022 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | | | | | |
| 4-98 3-03 6-20 | | DIST | COUNTY | | SHEET NO. |
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| 8-00 7-12 | | | | | |

DATE: FILE:

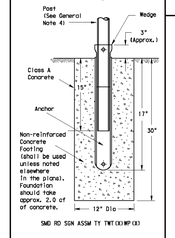
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## Wedge Anchor Steel System



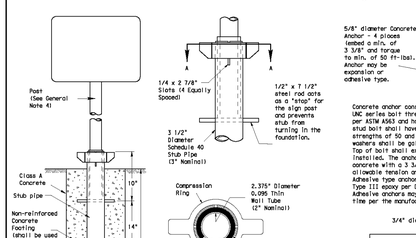

SM RD SGN ASSM TY TWT(X)WS(X)

## Wedge Anchor High Density Polyethylene (HDPE) System

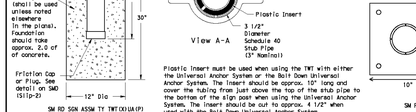



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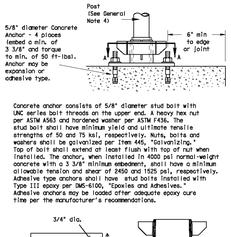
## Universal Anchor System with Thin-Walled Tubing Post

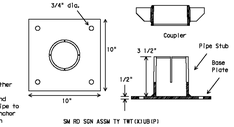



SM RD SGN ASSM TY TWT(X)UA(P)



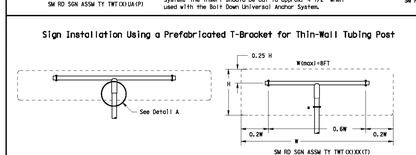

Plastic Insert must be used when using the TWT with either the Universal Anchor System or the Bolt Down Universal Anchor System. The insert should be approx. 10" long and cover the tubing from just above the top of the stub pipe to the bottom of the sign post when using the Universal Anchor System. The insert should be cut to approx. 4 1/2" when used with the Bolt Down Universal Anchor System.



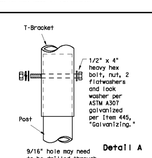




SM RD SGN ASSM TY TWT(X)UB(P)

## Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post




SM RD SGN ASSM TY TWT(X)(X)CT)
(* - See General Note 6)




Detail A

NOTE
The devices shall be installed per manufacturer's recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:
1. The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 15 square feet of sign area.
2. The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer, method, design, and location of marking are subject to the approval of the TxDOT Traffic Standards Engineer.
3. Except for posts (13 BWG tubing), clamps, nuts and bolts, all components shall be prequalified. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is: https://www.txdot.gov/business/producer-list.html
4. Material used as post with this system shall conform to the following specifications:
   13 BWG Tubing (2.375" outside diameter) (TWT)
   0.095" nominal wall thickness
   Seamless or electric-resistance welded steel tubing
   Steel shall be ASTM A 53 or 595 per ASTM A1011 or A1008
   Other steels may be used if they meet the following:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   18% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of .083" to .099"
   Galvanization per ASTM 123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
5. Sign blanks shall be the sizes and shapes shown on the plans.
6. Additional sign clamp required on the "T-bracket" post for 24" high signs. Place clamp at least 3" above bottom of sign when possible.
7. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
8. See the Traffic Operations Division website for detailed drawings of sign clamps and Wedge Anchor System components. The website address is: http://www.txdot.gov/applications/trafficfa.htm

WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE
1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(SGN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Place concrete into hole until it is approximately flush with the ground. Concrete shall be Class A.
3. Insert tubular socket into concrete until top of socket is approximately 1/4 " above the concrete footing.
4. Plumb the socket. Allow a minimum 4 days for concrete to set, unless otherwise directed by Engineer.
5. Attach the sign to the sign post.
6. Insert the sign post into socket and align sign face with roadway.
7. Drive the wedge into the socket to secure post. This will leave approximately 1 inches of the wedge exposed.

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE
1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(SGN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. Insert base post in hole to depths shown and backfill hole with concrete.
3. Level and plumb the base post using a torpedo level and allow concrete adequate time to set. The bottom of the slots provided in the stub plate shall remain above the top of the concrete foundation.
4. Attach the sign to the sign post.
5. Install plastic insert around bottom of post.
6. Insert sign post into base post. Lower until the post comes to rest on steel rod.
7. Seat compression ring using a hammer. Typically, the top of compression ring will be approximately level with top of stub post when optimally installed.
8. Check sign post by hand to ensure it is unable to turn. If loose, increase the tightening of the compression ring.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
WEDGE & UNIVERSAL ANCHOR
WITH THIN WALL TUBING POST

SMD (TWT)-08

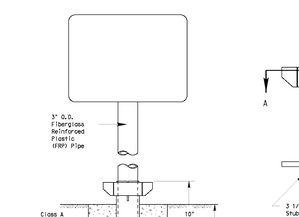
| ©TxDOT July 2022 | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
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| REVISIONS | CONT | SECT | JOB | HIGHWAY |
| 9-08 | DIST | COUNTY | | SHEET NO. |

2EE

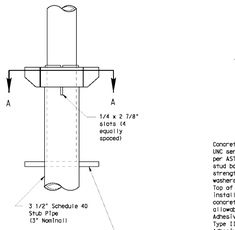
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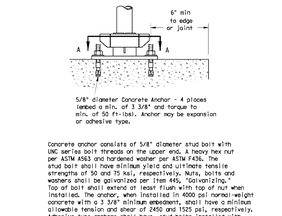
## Universal Anchor System with Fiberglass Reinforced Plastic (FRP) Post




SM RD SGN ASSM TY FRP(X)UA(P)

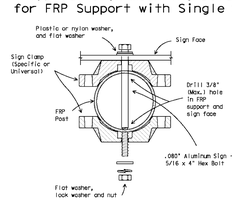



## BOLT-DOWN DETAILS

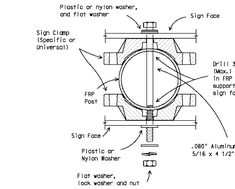



SM RD SGN ASSM TY FRP(X)UB(P)

## Typical Sign Mounting Detail for FRP Support with Single Sign




## Typical Sign Mounting Detail for FRP Support with Back-to-Back Signs




## GENERAL NOTES:

1. FRP sign supports for a single type sign support may be used for signs up to and including 16 square feet. Dual post installation may be used for signs up to and including 32 square feet.
2. All nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing."
3. See the Traffic Operations Division website for detailed drawings of sign clamps. The website address is: http://www.txdot.gov/applications/trafficfa.htm

FRP POST REQUIREMENTS

1. Materials shall conform to the requirements of Departmental Material Specification DMS-4410 and will be furnished in a yellow or gray color as specified elsewhere in the plans.
2. Thickness of FRP sign support is 0.125" + 0.031", - 0.0".
3. FRP sign supports are prequalified by the Traffic Operations Division. Prequalification procedures are obtained by writing:
   Texas Department of Transportation
   Traffic Operations Division
   125 East 11th Street
   Austin, Texas 78701-2483

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(SGN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Insert base post in foundation hole to depths shown and fill hole with concrete. Cut base post from bottom and ensure a minimum of 18" embedment if installed in solid rock.
4. Level and plumb the base post with coupler using a torpedo level and let concrete set a minimum of 4 days, unless otherwise directed by Engineer. Bottom of base post slots shall be above the concrete footing.
5. Attach sign to FRP post.
6. Insert sign post into base post. Lower until the post comes to rest on the steel rod.
7. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
8. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

BOLT DOWN SIGN SUPPORT

1. Position base plate with coupler on existing concrete.
2. Drill holes into concrete and insert the 5/8" diameter bolts with wedge anchors, and tighten nuts.
3. Attach sign to FRP post.
4. Insert bottom of sign post into pipe stub.
5. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
6. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
UNIVERSAL ANCHOR SYSTEM
WITH FRP POST

SMD (FRP)-08

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DATE: FILE:

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| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED
PROFESSIONAL ENGINEER
4/11/25

PAPE-DAWSON ENGINEERS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SENECA TRAILS OFFSITE IMPROVEMENTS
LEON VALLEY, TEXAS
SIGNAGE DETAILS

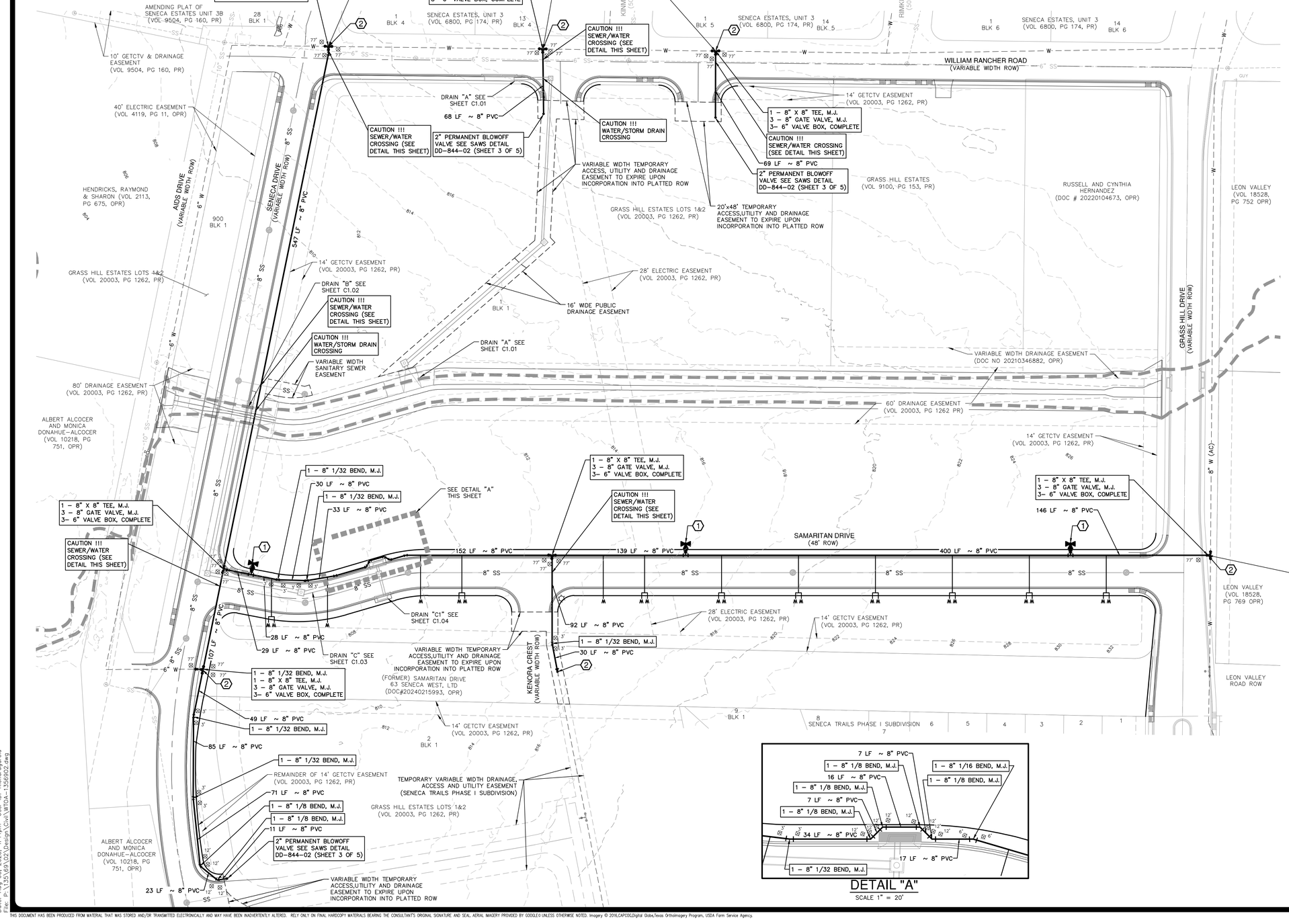
PLAT NO. ----
JOB NO. 13569-02
DATE MARCH 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C3.11

Date: Apr 29, 2025, 7:09pm User ID: Richardgarcia
File: P:\13569\02\Design\Civil\SIGDT-136902.dwg

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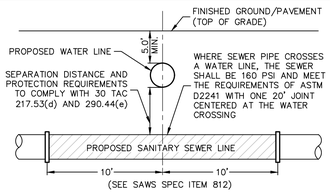
## FIRE FLOW NOTE:

IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1000 GPM AT 25 PSI RESIDUAL PRESSURE. THE FIRE FLOW REQUIREMENTS FOR INDIVIDUAL STRUCTURES WILL BE REVIEWED DURING THE BUILDING PERMIT PROCESS IN ACCORDANCE WITH THE PROCEDURES SET FORTH BY THE CITY OF SAN ANTONIO DIRECTOR OF DEVELOPMENT SERVICES DEPARTMENT AND THE SAN ANTONIO FIRE DEPARTMENT FIRE MARSHAL.




## TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

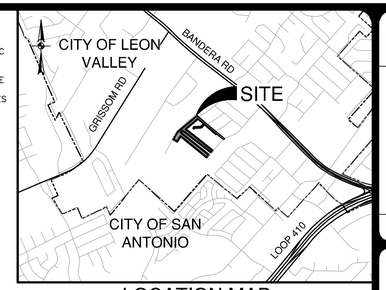
NOT-TO-SCALE




## DETAIL "A"

SCALE 1" = 20'






## LOCATION MAP

NOT-TO-SCALE

SCALE: 1"= 50'

0' 50' 100' 150'

## WATER LEGEND

- PROJECT LIMITS
- EXISTING WATER — W — FIRE HYDRANT
- EXISTING SEWER — SS — MANHOLE
- PROPOSED SEWER — SS — FIRE HYDRANT
- PROPOSED WATER
- PROPOSED 3/4" SINGLE SERVICE WITH 5/8" METER
- PROPOSED 1" DUAL SERVICE WITH 5/8" METER
- SINGLE IRRIGATION SERVICE (REF. PLAN VIEW FOR SIZE) — IRR
- JOINT RESTRAINT
- FEMA 100 YR FLOODPLAIN(LOMR)

## KEYED NOTES

(1) 1 ~ STANDARD FIRE HYDRANT
1 – 8" X 6" ANCHOR TEE, M.J.
6" D.I. PIPE, CUT AS REQ'D
1 – 6" 1/4 ANCHOR BEND, M.J.
1 – 6" GATE VALVE, M.J.
1 – 6" VALVE BOX, COMPLETE
(SEE SAWS DETAIL DD-834-01 SHEET 2 OF 2)

FOR CHLORINATION INJECTION
2 – 1" CORPORATION STOP, C.C.XI.P
1 – 1" COPPER TUBING, CUT AS REQUIRED
2 – 1" COMP. 1 1/4 COUPLING, CORP. STOP
2 – 1 1/4" THD. SOLID CAPS, THR.

(2) 8" VALVE CONSTRUCTED SHALL REMAIN CLOSED UNTIL NEW MAINS HAVE BEEN DISINFECTED BY CONTRACTOR AND ACCEPTED BY CITY OF LEON VALLEY

CONTRACTOR SHALL TIE TO EXISTING 8" PIPE AFTER DISINFECTION BY CONTRACTOR AND ACCEPTANCE BY CITY OF LEON VALLEY

2" TEMPORARY BLOWOFF ASSEMBLY SEE SAWS DWG DD-844-01 SHEET 1 OF 4

CONTRACTOR SHALL FOLLOW SAWS AND LEON VALLEY SPECIFICATION FOR HANDLING ASBESTOS CEMENT PIPE (SAWS ITEM NO. 3000). THE CONTRACTOR SHALL CONTACT MELINDA MORITZ AT 210-681-1232 FOR ASBESTOS REMOVAL PLAN.

CONTRACTOR SHALL REMOVE 20 LF OF 8" AC PIPE AND REPLACE WITH PVC AS PER ITEM 3000.

## WATER VALVE NOTE:

ALL GATE VALVES OPEN LEFT AND CLOSE RIGHT.

## 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 PROGRAMS. THERE WILL BE NO SEPARATE PAY ITEM FOR RETAINER GLANDS 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 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.

| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
8/8/25

**PAPE-DAWSON**
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

# SENECA TRAILS OFFSITE IMPROVEMENTS

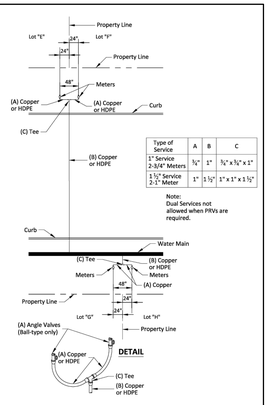
LEON VALLEY, TEXAS

OVERALL WATER DISTRIBUTION PLAN

PLAT NO. ----
JOB NO. 13569-02
DATE AUGUST 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C4.00

Date: Aug 08, 2025, 4:44pm User ID: Richardgarcia
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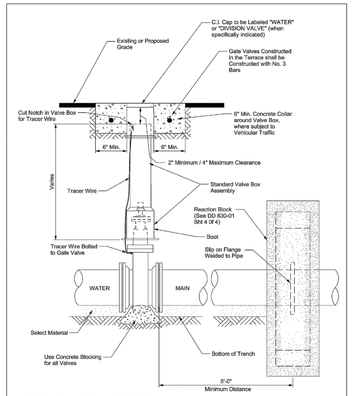



| Type of Service | A | B | C |
|---|---|---|---|
| 1" Service 2-3/4" Meters | ¾" | 1" | ¾" x ¾" x 1" |
| 1 ½" Service 2-1" Meter | 1" | 1 ½" | 1" x 1" x 1 ½" |

Note:
Dual Services not allowed when PRVs are required.

**SINGLE SERVICE LINE - DUAL METER**

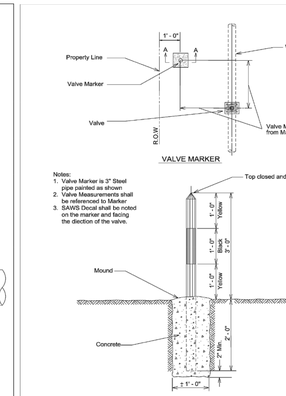
| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | TYPICAL SERVICE ARRANGEMENT | APPROVED: March 2008 | REVISED: December 2018 | DD-824-05 | SHEET: 1 OF 3 |
|---|---|---|---|---|---|




NOTE: Tracer Wire for PVC (Typ. for PVC & HDPE)
NOTE: All Concrete to be 3,000 psi

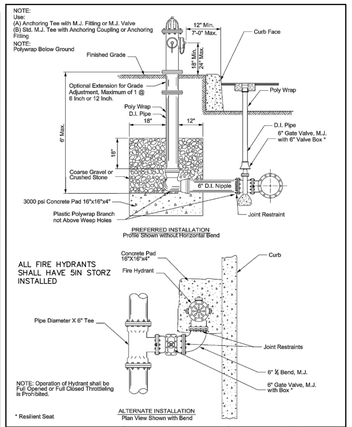
Note: For all work associated with Recycled Water Valves, refer to DD 110-10, Sht. 1 of 1

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | INSTALLATION OF NON-GEARED GATE VALVE WITH VALVE BOX AND EXTENSION | APPROVED: MARCH 2008 | REVISED: AUG 2019 | DD 828-01 | SHEET: 1 OF 1 |
|---|---|---|---|---|---|



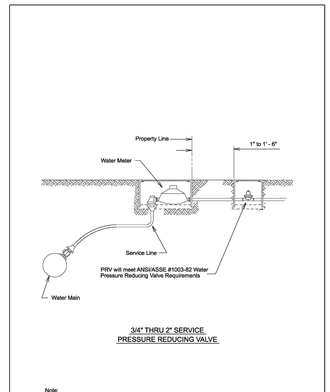

Notes:
1. Valve Marker is 3" Steel pipe painted as shown
2. Valve Measurements shall be referenced to Marker
3. SAWS Decal shall be noted on the marker and facing the direction of the valve.

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | VALVE MARKER | APPROVED: MARCH 2008 | REVISED: AUG 2019 | DD-828-04 | SHEET: 1 OF 1 |
|---|---|---|---|---|---|




* Resilient Seat

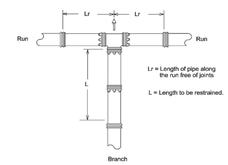
| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | FIRE HYDRANT INSTALLATION (JOINT RESTRAINT) | APPROVED: MAY 2013 | REVISED: AUG 2019 | DD-834-01 | SHEET: 1 OF 3 |
|---|---|---|---|---|---|




3/4" THRU 2" SERVICE
PRESSURE REDUCING VALVE

Note:
For Tapping Schedule, See DD-824-01 Sheet 3 of 3.

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | SERVICE INSTALLATION WITH PRESSURE REDUCING VALVE | APPROVED: MARCH 2008 | REVISED: APRIL 2014 | DD-833-03 | SHEET: 1 OF 1 |
|---|---|---|---|---|---|




RESTRAINED LENGTH FOR TEES

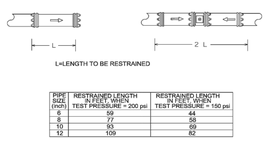
| PIPE SIZE (inch) | BRANCH SIZE (inch) | LENGTH OF RUN ( ft.) | RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 psi | RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 150 psi |
|---|---|---|---|---|
| 6 | 4 | 0 | 42 | 31 |
| 6 | 4 | 5 | 7 | 1 |
| 6 | 4 | 10 | 7 | 1 |
| 6 | 6 | 0 | 59 | 44 |
| 6 | 6 | 5 | 36 | 20 |
| 6 | 6 | 10 | 11 | 1 |
| 8 | 4 | 0 | 42 | 31 |
| 8 | 4 | 5 | 1 | 1 |
| 8 | 6 | 0 | 59 | 44 |
| 8 | 6 | 5 | 28 | 13 |
| 8 | 6 | 10 | 1 | 1 |
| 8 | 8 | 0 | 77 | 58 |
| 8 | 8 | 5 | 53 | 34 |
| 8 | 8 | 10 | 30 | 11 |
| 8 | 8 | 15 | 6 | 1 |

RESTRAINED LENGTH DESIGN

Restrained length calculations are for P.V.C pipe bedded in compacted granular material extending to the top of the pipe.The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet.

Note:
These calculations are provided for reference. The restrained length shall be designed based upon the conditions encountered during the installation.

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | RESTRAINED LENGTHS FOR TEES | APPROVED: March 2008 | REVISED: AUG 2019 | DD-839-04 | SHEET: 1 OF 2 |
|---|---|---|---|---|---|




L=LENGTH TO BE RESTRAINED

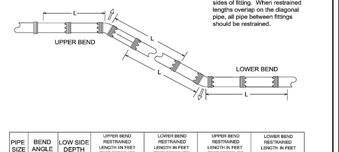
| PIPE SIZE (inch) | RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 psi | RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 150 psi |
|---|---|---|
| 6 | 59 | 44 |
| 8 | 77 | 58 |
| 10 | 93 | 69 |
| 12 | 109 | 82 |

RESTRAINED LENGTH DESIGN

Restrained length calculations are for P.V.C. pipe bedded in compacted granular material extending to the top of the pipe. The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet.

Note:
These calculations are provide for reference. The restrained length shall be designed based upon the conditions encountered during the installation.

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | RESTRAINED LENGTHS FOR DEAD ENDS / INLINE VALVES | APPROVED: MARCH 2008 | REVISED: AUG 2019 | DD-839-05 | SHEET: 1 OF 1 |
|---|---|---|---|---|---|



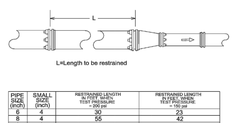

| PIPE SIZE (inch) | BEND ANGLE (deg.) | LOW SIDE DEPTH | UPPER BEND RESTRAINED LENGTH IN FEET TEST PRESSURE = 200 psi | LOWER BEND RESTRAINED LENGTH IN FEET TEST PRESSURE = 200psi | UPPER BEND RESTRAINED LENGTH IN FEET TEST PRESSURE = 150 psi | LOWER BEND RESTRAINED LENGTH IN FEET TEST PRESSURE = 150 psi |
|---|---|---|---|---|---|---|
| 6 | 45 | 5 | 24 | 8 | 18 | 6 |
| 6 | 22.5 | 5 | 12 | 4 | 9 | 3 |
| 6 | 11.25 | 5 | 6 | 2 | 4 | 1 |
| 6 | 45 | 10 | 24 | 5 | 18 | 4 |
| 6 | 22.5 | 10 | 12 | 2 | 9 | 2 |
| 6 | 11.25 | 10 | 6 | 1 | 4 | 1 |
| 8 | 45 | 5 | 32 | 11 | 24 | 8 |
| 8 | 22.5 | 5 | 15 | 5 | 11 | 4 |
| 8 | 11.25 | 5 | 8 | 3 | 6 | 2 |
| 8 | 45 | 10 | 32 | 7 | 24 | 5 |
| 8 | 22.5 | 10 | 15 | 3 | 11 | 2 |
| 8 | 11.25 | 10 | 8 | 2 | 6 | 1 |
| 12 | 45 | 5 | 45 | 16 | 34 | 12 |
| 12 | 22.5 | 5 | 22 | 7 | 16 | 8 |
| 12 | 11.25 | 5 | 11 | 4 | 8 | 3 |
| 12 | 45 | 10 | 45 | 10 | 34 | 7 |
| 12 | 22.5 | 10 | 22 | 5 | 16 | 3 |
| 12 | 11.25 | 10 | 11 | 2 | 8 | 2 |

RESTRAINED LENGTH DESIGN

Restrained length calculations are for P.V.C. pipe bedded in compacted granular material extending to the top of the pipe. The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet.

Note:
These calculations are provided for reference. The restrained length shall be designed based upon the conditions encountered during the installation.

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | RESTRAINED LENGTHS VERTICAL OFFSETS | APPROVED: MARCH 2008 | REVISED: AUG 2019 | DD-839-06 | SHEET: 1 OF 1 |
|---|---|---|---|---|---|



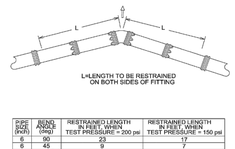

| PIPE SIZE (inch) | SMALL SIZE (inch) | RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 psi | RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 150 psi |
|---|---|---|---|
| 6 | 4 | 30 | 23 |
| 8 | 4 | 55 | 42 |
| 8 | 6 | 32 | 24 |
| 12 | 4 | 80 | 60 |
| 12 | 6 | 80 | 60 |
| 12 | 8 | 58 | 43 |

RESTRAINED LENGTH DESIGN

Restrained length calculations are for P.V.C. pipe bedded in compacted granular material extending to the top of the pipe. The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet.

Note:
These calculations are provided for reference. Th restrained length shall be designed based upon the conditions encountered during the installation.

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | RESTRAINED LENGTHS FOR REDUCERS | APPROVED: MARCH 2008 | REVISED: AUG 2019 | DD-839-07 | SHEET: 1 OF 1 |
|---|---|---|---|---|---|



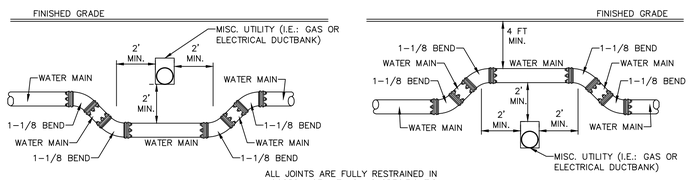

| PIPE SIZE (inch) | BEND ANGLE (deg) | RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 psi | RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 150 psi |
|---|---|---|---|
| 6 | 90 | 23 | 17 |
| 6 | 45 | 9 | 7 |
| 6 | 22.5 | 5 | 3 |
| 6 | 11.25 | 2 | 2 |
| 8 | 90 | 30 | 22 |
| 8 | 45 | 12 | 9 |
| 8 | 22.5 | 6 | 4 |
| 8 | 11.25 | 3 | 2 |
| 12 | 90 | 43 | 32 |
| 12 | 45 | 18 | 13 |
| 12 | 22.5 | 8 | 6 |
| 12 | 11.25 | 4 | 3 |

RESTRAINED LENGTH DESIGN

Restrained length calculations are for P.V.C pipe bedded in compacted granular material extending to the top of the pipe. The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet.

Note:
These calculations are provided for reference. The restrained length shall be designed based upon the conditions encountered during the installation.

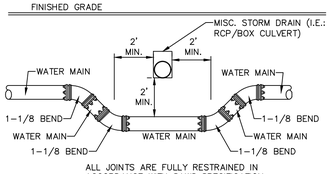
| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | RESTRAINED LENGTHS FOR HORIZONTAL BENDS | APPROVED: MARCH 2008 | REVISED: AUG 2019 | DD-839-08 | SHEET: 1 OF 1 |
|---|---|---|---|---|---|




ALL JOINTS ARE FULLY RESTRAINED IN ACCORDANCE WITH SAWS SPECIFICATION TABLE DD-839-06.

## TYPICAL UTILITY/WATER CROSSING DETAIL

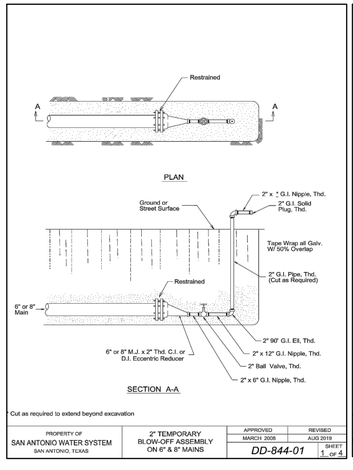
NOT-TO-SCALE



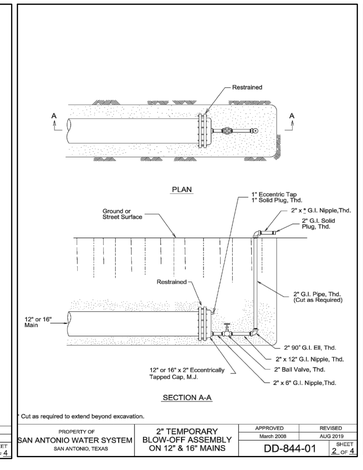

ALL JOINTS ARE FULLY RESTRAINED IN ACCORDANCE WITH SAWS SPECIFICATION TABLE DD-839-06.

## TYPICAL DRAIN/WATER CROSSING DETAIL

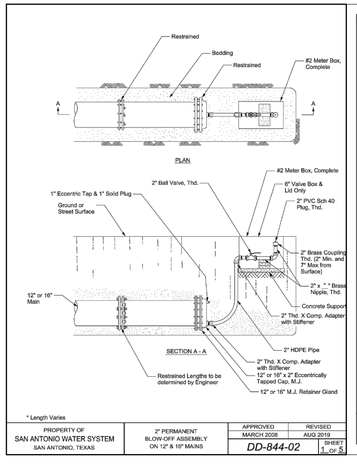
NOT-TO-SCALE



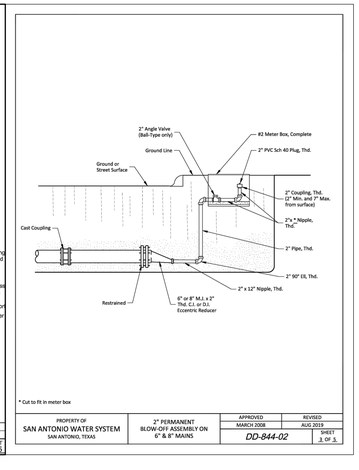

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | 2" TEMPORARY BLOW-OFF ASSEMBLY ON 6" & 8" MAINS | APPROVED: March 2008 | REVISED: AUG 2019 | DD-844-01 | SHEET: 1 OF 4 |
|---|---|---|---|---|---|




| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | 2" TEMPORARY BLOW-OFF ASSEMBLY ON 12" & 16" MAINS | APPROVED: March 2008 | REVISED: AUG 2019 | DD-844-01 | SHEET: 2 OF 4 |
|---|---|---|---|---|---|




| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | 2" PERMANENT BLOW-OFF ASSEMBLY ON 12" & 16" MAINS | APPROVED: MARCH 2008 | REVISED: AUG 2019 | DD-844-02 | SHEET: 3 OF 5 |
|---|---|---|---|---|---|




* Cut to fit in meter box

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | 2" PERMANENT BLOW-OFF ASSEMBLY ON 6" & 8" MAINS | APPROVED: MARCH 2008 | REVISED: AUG 2019 | DD-844-02 | SHEET: 3 OF 5 |
|---|---|---|---|---|---|

NO. REVISION DATE

PAPE-DAWSON ENGINEERS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
4/14/25

# SENECA TRAILS OFFSITE IMPROVEMENTS

LEON VALLEY, TEXAS

WATER DISTRIBUTION PLAN DETAILS

PLAT NO. ----
JOB NO. 13569-02
DATE MARCH 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C4.10

Date: Apr 29, 2025, 7:09pm User ID: Richardgarcia
File: P:\135\69\02\Design\Civil\WTDT-1356902.dwg

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# CONSTRUCTION NOTES

## GENERAL SECTION

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE CITY OF LEON VALLEY WATER SYSTEM AND COMPLY CITY OF SAN ANTONIO WATER SYSTEM(SAWS) SPECIFICATIONS AS ADOPTED BY THE CITY OF LEON VALLEY AND WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING AS APPLICABLE:

   A. CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEM", TEXAS ADMINISTRATIVE CODE (TAC) TITLE 30 PART 1 CHAPTER 217 AND "PUBLIC DRINKING WATER", TAC TITLE 30 PART 1 CHAPTER 290.
   B. CURRENT TXDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE".
   C. CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION".
   D. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION".
   E. CURRENT CITY OF LEON VALLEY "UTILITY EXCAVATION CRITERIA MANUAL" (UECM).

2. THE CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE APPROVED COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP) FROM THE CONSULTANT AND HAS BEEN NOTIFIED BY CITY OF LEON VALLEY CONSTRUCTION INSPECTION DIVISION TO PROCEED WITH THE WORK AND HAS ARRANGED A MEETING WITH THE INSPECTOR AND CONSULTANT FOR THE WORK REQUIREMENTS. WORK COMPLETED BY THE CONTRACTOR WITHOUT AN APPROVED COUNTER PERMIT AND/OR A GCP WILL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE EXPENSE OF THE CONTRACTORS AND/OR THE DEVELOPER.

3. THE CONTRACTOR SHALL OBTAIN THE SAWS STANDARD DETAILS FROM THE SAWS WEBSITE, HTTP://WWW.SAWS.ORG/BUSINESS_CENTER/SPECS. UNLESS OTHERWISE NOTED WITHIN THE DESIGN PLANS.

4. THE CONTRACTOR IS TO MAKE ARRANGEMENTS WITH THE CITY OF LEON VALLEY PUBLIC WORKS DIVISION (210) 681-1232, ON NOTIFICATION PROCEDURES THAT WILL BE USED TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS 48 HOURS PRIOR TO BEGINNING ANY WORK.

5. LOCATION AND DEPTH OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR AT LEAST 1 WEEK PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION AT NO COST TO LEON VALLEY.

6. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES AT LEAST 1-2 WEEKS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT. PLEASE ALLOW UP TO 7 BUSINESS DAYS FOR LOCATES REQUESTING PIPE LOCATION MARKERS ON LEON VALLEY FACILITIES. THE FOLLOWING CONTACT INFORMATION ARE SUPPLIED FOR VERIFICATION PURPOSES:

   - LEON VALLEY PUBLIC WORKS DEPARTMENT (210) 681-1232
   - TEXAS STATE WIDE ONE CALL LOCATOR 1-800-545-6005 OR 811

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES TO ITS ORIGINAL OR BETTER CONDITION IF DAMAGES ARE MADE AS A RESULT OF THE PROJECT'S CONSTRUCTION.

8. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) AND/OR BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT REQUIREMENTS.

9. THE CONTRACTOR SHALL COMPLY WITH CITY OF LEON VALLEY OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.

10. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN PERMIT.

    HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM LEON VALLEY WORK ON LEON VALLEY RECOGNIZED HOLIDAYS. REQUEST SHOULD BE MADE TO THE CITY OF LEON VALLEY PUBLIC WORKS DEPARTMENT.

    WEEKEND WORK: CONTRACTORS ARE REQUIRED TO NOTIFY THE LEON VALLEY PUBLIC WORKS DEPARTMENT 48 HOURS IN ADVANCE TO REQUEST WEEKEND WORK. REQUEST SHOULD BE MADE TO THE CITY OF LEON VALLEY PUBLIC WORKS DEPARTMENT.

11. ANY AND ALL LEON VALLEY UTILITY WORK INSTALLED WITHOUT HOLIDAY/WEEKEND APPROVAL WILL BE SUBJECT TO BE UNCOVERED FOR PROPER INSPECTION.

12. COMPACTION NOTE (ITEM 804): THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING THE COMPACTION REQUIREMENTS ON ALL TRENCH BACKFILL AND FOR PAYING FOR THE TESTS PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED, OR AS INDICATED BY THE LEON VALLEY INSPECTOR AND/OR THE TEST ADMINISTRATOR, PER EACH 12-INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY LEON VALLEY WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

13. A COPY OF ALL TESTING REPORTS SHALL BE FORWARDED TO LEON VALLEY PUBLIC WORKS DEPARTMENT.

## WATER NOTES

1. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING MAINS OF ANY SIZE MUST BE COORDINATED WITH THE LEON VALLEY PUBLIC WORKS DEPARTMENT AT LEAST ONE WEEK IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO LEON VALLEY OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.

2. ASBESTOS CEMENT (AC) PIPE, ALSO KNOWN AS TRANSITE PIPE WHICH IS KNOWN TO CONTAIN ASBESTOS- CONTAINING MATERIAL (ACM), MAY BE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH AND SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND/OR DISTURBANCE OF THIS PIPE OCCURS. SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM NO. 3000, "SPECIAL SPECIFICATION FOR HANDLING ASBESTOS CEMENT PIPE".

3. VALVE REMOVAL: WHERE THE CONTRACTOR IS TO ABANDON A WATER MAIN, THE CONTROL VALVE LOCATED ON THE ABANDONING BRANCH WILL BE REMOVED AND REPLACED WITH A CAP/PLUG. (NSPI)

4. SUITABLE ANCHORAGE/THRUST BLOCKING OR JOINT RESTRAINT SHALL BE PROVIDED AT ALL OF THE FOLLOWING MAIN LOCATIONS: DEAD ENDS, PLUGS, CAPS, TEES, CROSSES, VALVES, AND BENDS, IN ACCORDANCE WITH THE STANDARD DRAWINGS DD-839 SERIES AND ITEM NO. 839, IN THE SAWS STANDARD SPECIFICATIONS FOR CONSTRUCTION.

5. ALL VALVES SHALL READ "OPEN LEFT".

6. PIPE DISINFECTION WITH DRY HTH FOR PROJECTS LESS THAN 800 LINEAR FEET. (ITEM NO. 847.3): MAINS SHALL BE DISINFECTED WITH DRY HTH WHERE SHOWN IN THE CONTRACT DOCUMENTS OR AS DIRECTED BY THE INSPECTOR, AND SHALL NOT EXCEED A TOTAL LENGTH OF 800 FEET. THIS METHOD OF DISINFECTION WILL ALSO BE FOLLOWED FOR MAIN REPAIRS. THE CONTRACTOR SHALL UTILIZE ALL APPROPRIATE SAFETY MEASURE TO PROTECT HIS PERSONNEL DURING DISINFECTION OPERATIONS.

7. BACKFLOW PREVENTION DEVICES:

   - ALL IRRIGATION SERVICES WITHIN RESIDENTIAL AREAS ARE REQUIRED TO HAVE BACKFLOW PREVENTION DEVICES.
   - ALL COMMERCIAL BACKFLOW PREVENTION DEVICES MUST BE APPROVED BY LEON VALLEY PUBLIC WORKS DEPARTMENT PRIOR TO INSTALLATION.

9. FINAL CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL THE WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED, AND LEON VALLEY PUBLIC WORKS DEPARTMENT HAS RELEASED THE MAIN FOR TIE-IN AND USE.

10. DIVISION VALVES: DIVISION VALVES SHOWN ON PLANS OR NOT SHOWN ON PLANS BUT FOUND IN THE FIELD SHALL ONLY BE OPERATED BY LEON VALLEY PUBLIC WORKS DEPARTMENT STAFF AND ONLY WITH PRIOR WRITTEN APPROVAL OF THE LEON VALLEY PUBLIC WORKS DEPARTMENT DIRECTOR. CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO THE INSPECTOR A MINIMUM OF TWO WEEKS IN ADVANCE TO START THE COORDINATION PROCESS AND WILL BE INFORMED BY THE INSPECTOR WHEN THE DIVISION VALVE WILL BE OPERATED BY THE LEON VALLEY PUBLIC WORKS DEPARTMENT. THE DIVISION VALVE CAN ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF MEMBER NOT THE INSPECTOR OR THE CONTRACTOR. OPERATION OF A DIVISION VALVE WITHOUT THE EXPRESS PRIOR WRITTEN APPROVAL OF THE SAWS DISTRIBUTION AND COLLECTION STAFF WILL CONSTITUTE A MATERIAL BREACH OF ANY WRITTEN SAWS CONTRACT OR PERMIT IN ADDITION TO SUBJECTING THE CONTRACTOR TO LIABILITY FOR ANY AND ALL FINES, FEES, OR OTHER DAMAGES, DIRECT OR CONSEQUENTIAL, THAT MAY ARISE FROM OR BE CAUSED BY THE OPERATION OF THE VALVE WITHOUT PRIOR WRITTEN PERMISSION. PLEASE BE INFORMED THAT THE APPROVAL OF THE OPERATION OR OPENING OR CLOSING OF A DIVISION VALVE CAN TAKE SEVERAL WEEKS FOR APPROVAL.DIVISION VALVES WILL ALSO HAVE A VALVE LID LABELED DIVISION VALVE AND A LOCKING MECHANISM INSTALLED WITH A KEY. THE LOCK AND KEY MECHANISM WILL BE PAID FOR BY THE CONTRACTOR BUT WILL BE INSTALLED BY CITY OF LEON VALLEY PUBLIC WORKS DEPARTMENT PERSONELL.

## PROJECT WATER NOTES

1. MACHINE CHLORINATION BY CITY OF LEON VALLEY PUBLIC WORKS DEPARTMENT.

2. ALL 8", 12" AND 16" PIPE SHALL BE P.V.C. C-900 CLASS 150/200.

3. ALL MAINS SHALL BE HYDROSTATICALLY TESTED BY THE CONTRACTOR, AS PROVIDED FOR IN THE SPECIAL CONDITIONS.

4. THE WATER LINES WILL BE SET FROM THE STREET HUBS BEFORE THIS CONTRACT BEGINS. STREET CUT SHEETS WILL BE SUPPLIED TO THE CONTRACTOR. THERE SHOULD BE NO ADDITIONAL STAKES REQUIRED, AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE SITE AND VERIFY THAT ALL STAKES REQUIRED FOR HIS WORK ARE IN PLACE AT THE TIME THE CONSTRUCTION BEGINS. IF ANY STAKES ARE MISSING THE ENGINEER SHOULD BE NOTIFIED IMMEDIATELY. AFTER CONSTRUCTION BEGINS, ALL CONSTRUCTION STAKES, MARKS, ETC., SHALL BE CAREFULLY PRESERVED BY THE CONTRACTOR, AND IN CASE OF DESTRUCTION OR REMOVAL BY THE CONTRACTOR, HIS EMPLOYEE OR ANY OTHER MEANS, SUCH STAKES, MARKS, ETC., SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

5. THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH ALL THE FINAL MEASUREMENTS, TAPS AND LENGTH OF SERVICE CONNECTIONS.

6. THE LOT CORNERS WILL BE SET BY THE ENGINEER FOR INSTALLATION OF ALL WATER SERVICES. THESE LOT CORNERS SHALL BE CAREFULLY PRESERVED BY THE CONTRACTOR SO THE METER BOXES CAN BE SET IN PHASE II. ANY LOT CORNER DESTROYED OR REMOVED BY THE CONTRACTOR, HIS EMPLOYEES, OR BY ANY OTHER MEANS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

7. STREETS WILL HAVE BEEN EXCAVATED DOWN TO SUBGRADE AND THE PARKWAY WILL BE CUT DOWN TO TOP OF CURB BY THE STREET CONTRACTOR, PRIOR TO CONSTRUCTION OF THE WATER MAINS. IT WILL BE THE UTILITY CONTRACTOR'S RESPONSIBILITY TO PROVIDE A PAD FOR HIS EQUIPMENT.

8. WATER METER BOXES IF APPLICABLE SHALL BE INSTALLED NINE FEET FROM FACE OF CURB TO CENTER OF THE METER BOX.

9. ALL GARBAGE OR SPOIL MATERIAL FROM THIS WORK SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR, AT HIS EXPENSE.

10. FINAL CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED AND THE CITY OF LEON VALLEY PUBLIC WORKS DEPARTMENT RELEASES THE MAIN FOR TIE-IN AND USE.

11. UNIT PRICE BID FOR "STANDARD FIRE HYDRANT ASSEMBLY" SHALL INCLUDE FIRE HYDRANT, 6-INCH GATE VALVE AND 6-INCH VALVE BOX COMPLETE, ANCHOR BEND, AND ALL 6-INCH DI PIPE REQUIRED (DI PIPE REQUIRED SHALL INCLUDE ALL PIPE FROM THE TEE ON THE MAIN LINE TO THE FIRE HYDRANT).

12. WHEN SEWER LINES ARE INSTALLED IN THE VICINITY OF WATER MAINS, SUCH INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS" (1988 OR ANY REVISIONS THERETO).

13. A CLEAR SPACE SHALL BE PROVIDED AROUND ALL FIRE HYDRANTS. THIS AREA SHOULD HAVE A MINIMUM DIAMETER OF 3.0' AND BE CLEAN OF VERTICAL OBSTRUCTIONS, VALVES, AND METER BOXES.

14. LEON VALLEY REQUIRES LEAD FREE (< 0.25%) FIRE HYDRANTS.

15. UNLESS OTHERWISE NOTED ALL SERVICES SHALL BE 3/4" WITH 5/8" METER.

| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED
PROFESSIONAL ENGINEER
4/11/25

PAPE-DAWSON ENGINEERS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM 1470 | TEXAS SURVEYING FIRM #10028800

# SENECA TRAILS OFFSITE IMPROVEMENTS

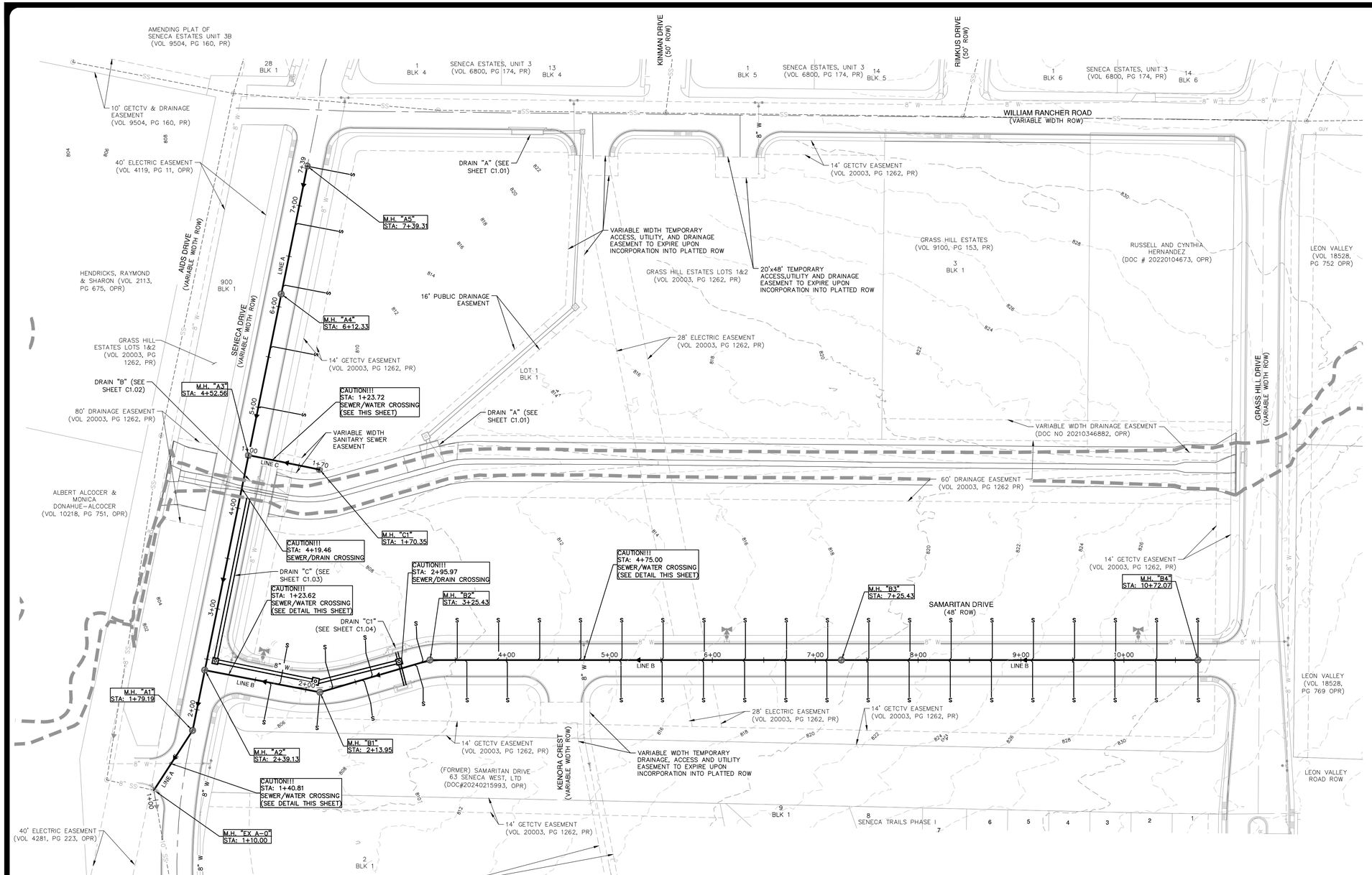
LEON VALLEY, TEXAS

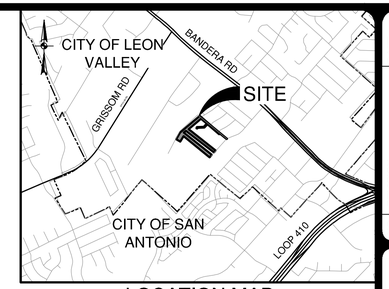
WATER DISTRIBUTION PLAN NOTES

PLAT NO. ----
JOB NO. 13569-02
DATE MARCH 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C4.11

Date: Apr 29, 2025, 7:09pm User ID: Richardgarcia
File: P:\13569\02\Design\Civil\WTDT-136902.dwg

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## LOCATION MAP

NOT-TO-SCALE

SCALE: 1"= 50'

0' 50' 100' 150'

## SEWER LEGEND

- PROJECT LIMITS
- EXISTING WATER
- EXISTING SEWER
- PROPOSED SEWER
- MANHOLE
- PROPOSED WATER
- FIRE HYDRANT
- PROPOSED SEWER LATERAL
- FINISHED FLOOR ELEVATION FOR SEWER (FF = XXXX.XX)
- FEMA 100 YR FLOODPLAIN(LOMR)

## CAUTION!!

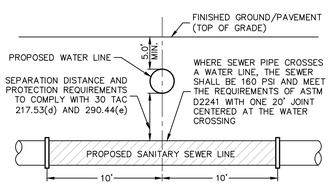
CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE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

## FINISHED FLOOR NOTES:

1. THE FINISHED FLOOR ELEVATIONS (FF) REPRESENT THE MINIMUM POSSIBLE FLOOR ELEVATION TO PROVIDE SANITARY SEWER SERVICE TO EACH LOT. ACTUAL FINISHED FLOOR ELEVATIONS FOR EACH LOT ARE TO BE DETERMINED BY THE BUILDER AND SHALL TAKE INTO CONSIDERATION AS-BUILT CONDITIONS FOR FOUND SEWER SERVICES AND ACTUAL LATERAL PLACEMENT. IT IS THE BUILDER'S SOLE RESPONSIBILITY TO DETERMINE ACTUAL FINISHED FLOOR ELEVATIONS FOR EACH LOT PRIOR TO THE START OF HOME FOUNDATION CONSTRUCTION TAKING INTO CONSIDERATION SITE DRAINAGE, STREET ACCESS AND SANITARY SEWER SERVICE ELEVATIONS.
2. THE MINIMUM SANITARY SEWER LATERAL GRADES WERE BASED UPON THE MINIMUM FINISHED FLOOR ELEVATIONS FOR THE LOTS LOCATED ON THE DOWNHILL SIDES OF THE PROPOSED ROADWAYS.

## 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.




(SEE SAWS SPEC ITEM 812)

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

NOT-TO-SCALE

| NO. | REVISION | DATE |
|---|---|---|

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
8/8/25


PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800


# SENECA TRAILS OFFSITE IMPROVEMENTS

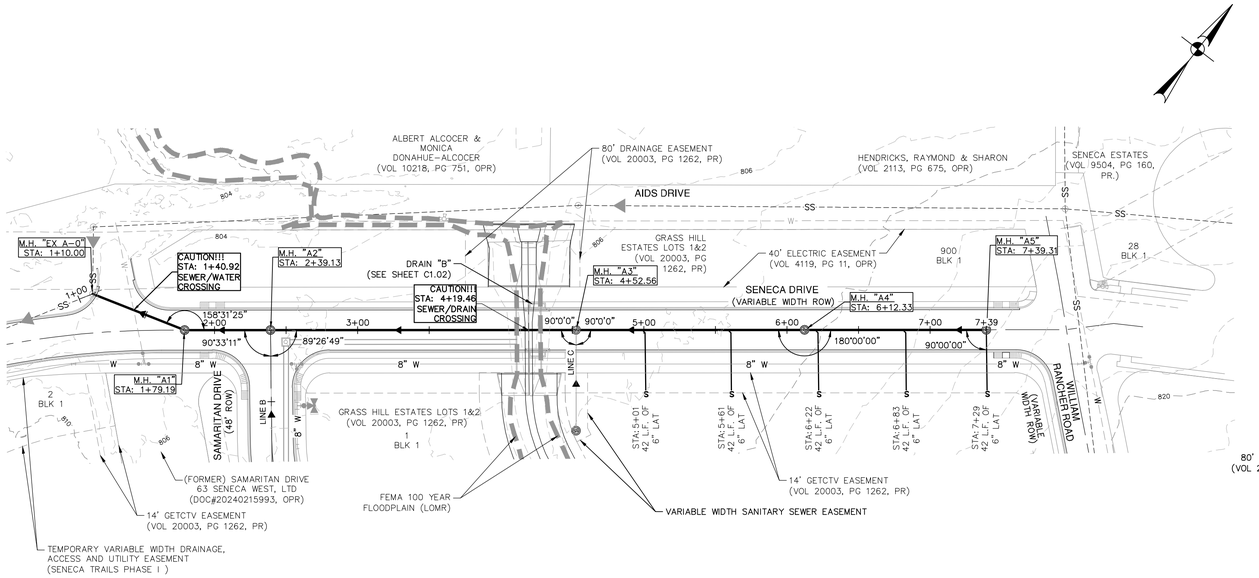
LEON VALLEY, TEXAS

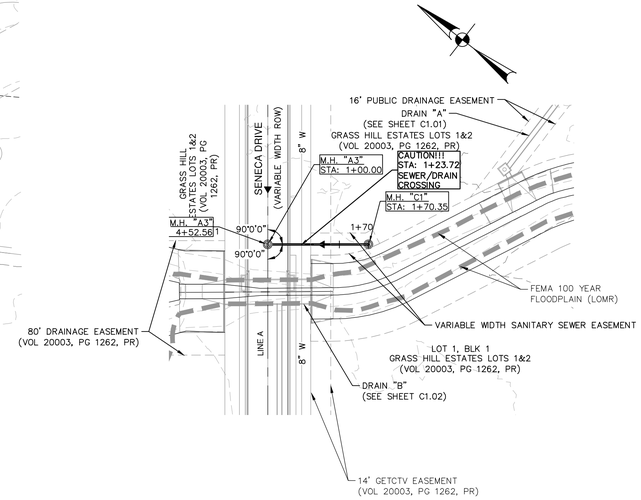
OVERALL SANITARY SEWER PLAN

PLAT NO. ----
JOB NO. 13569-02
DATE AUGUST 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C5.00

Date: Aug 08, 2025, 4:44pm User ID: Richardgarcia
File: P:\13569\03\02\Design\Civil\SSOA-13569102.dwg


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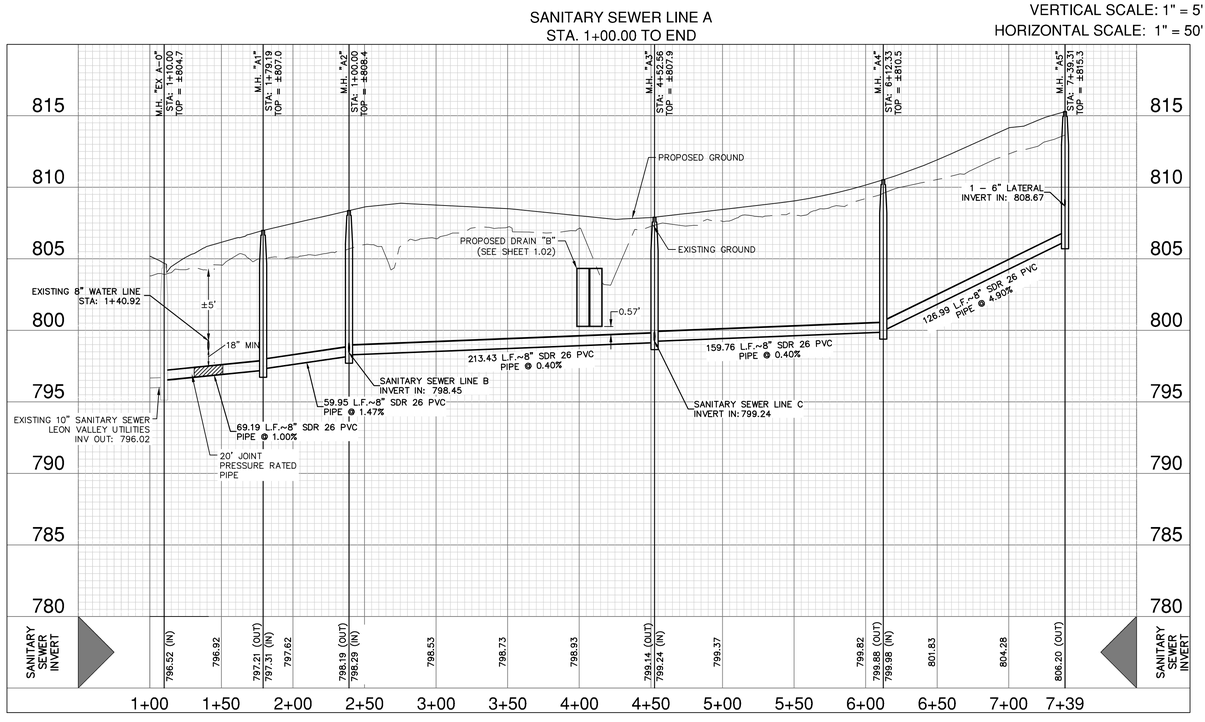

SCALE: 1"= 50'

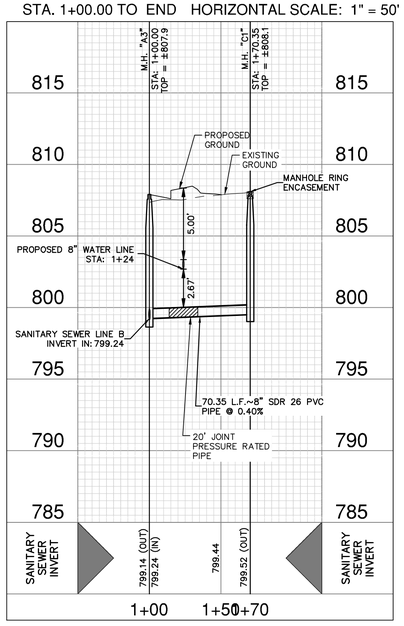
0' 50' 100' 150'

## SEWER LEGEND

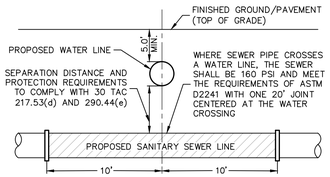
PROJECT LIMITS
EXISTING WATER
EXISTING SEWER
PROPOSED SEWER
PROPOSED WATER
PROPOSED SEWER LATERAL
FINISHED FLOOR ELEVATION FOR SEWER

MANHOLE
FIRE HYDRANT
FF = XXXX.XX




NOTE:
CONTRACTOR SHALL RECONSTRUCT EXISTING MANHOLES TO PROPOSED GROUND




TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

## 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.

## 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.

| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
8/8/25


PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800


# SENECA TRAILS OFFSITE IMPROVEMENTS

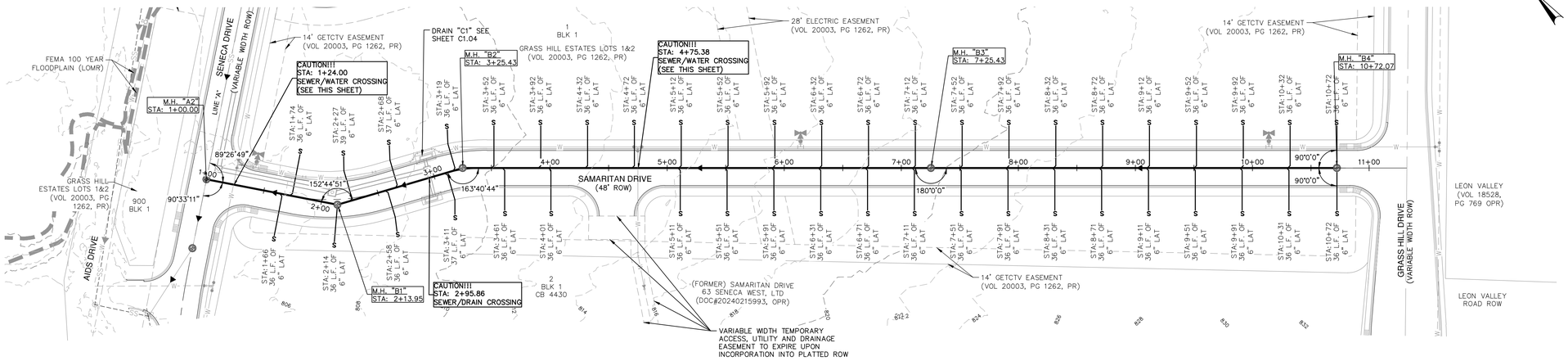
LEON VALLEY, TEXAS

SANITARY SEWER LINE A & C PLAN & PROFILE (STA. 1+10.00 TO END)

PLAT NO. ----
JOB NO. 13569-02
DATE AUGUST 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C5.01

Date: Aug 08, 2025, 4:45pm User ID: Richardgarcia
File: P:\13569\02\Design\Civil\SSA-13569(2.dwg


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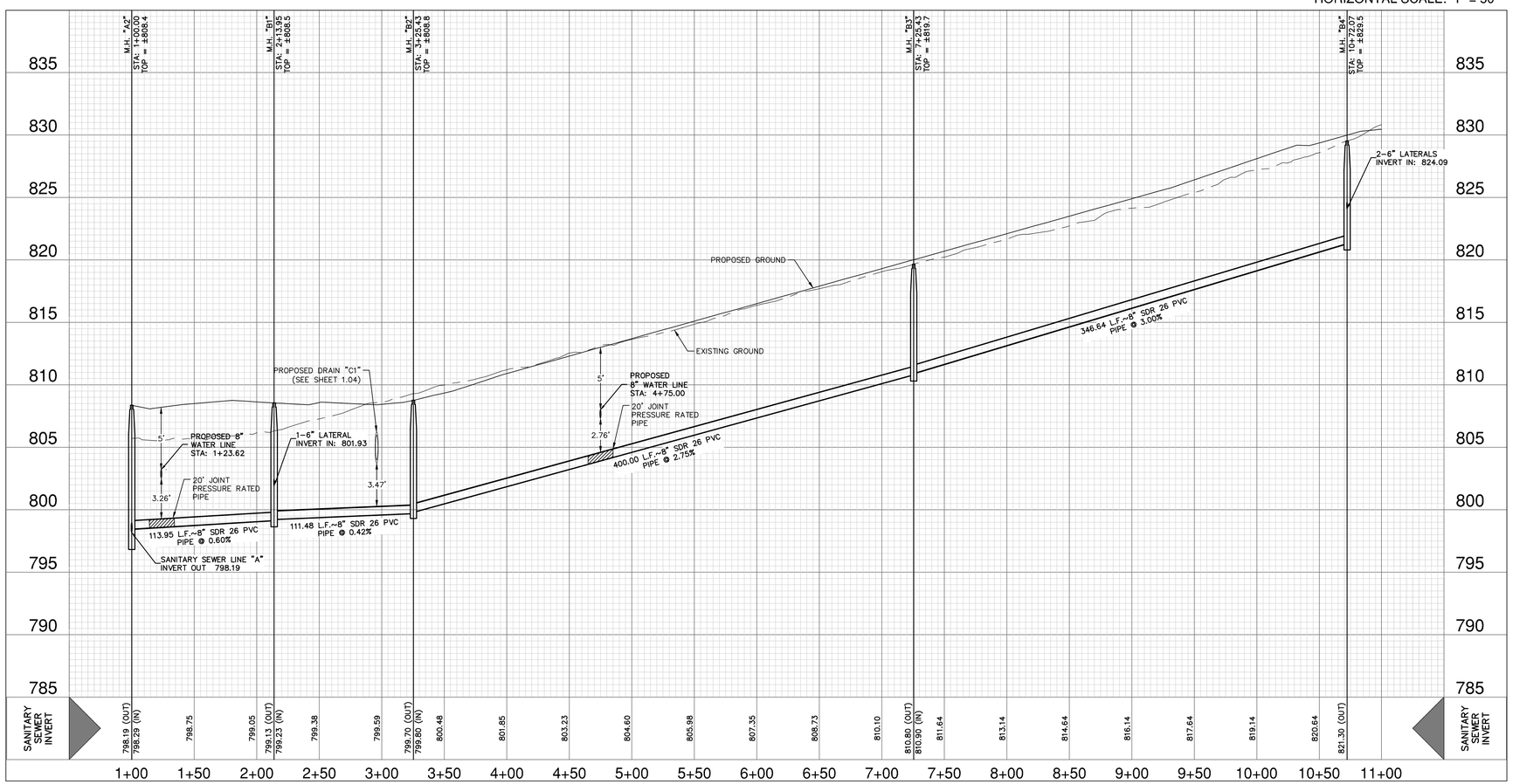

## SEWER LEGEND

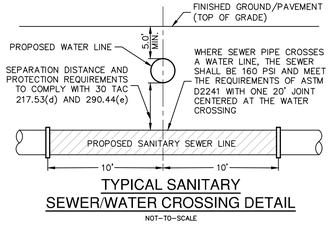
PROJECT LIMITS
EXISTING WATER
EXISTING SEWER
PROPOSED SEWER
PROPOSED WATER
PROPOSED SEWER LATERAL
FINISHED FLOOR ELEVATION FOR SEWER

MANHOLE
FIRE HYDRANT
FF = XXXX.XX

SANITARY SEWER LINE B
STA. 1+00.00 TO END

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




TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

## CAUTION!!

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| NO. | REVISION | DATE |
|---|---|---|

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
4/19/25

PAPE-DAWSON ENGINEERS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM I 470 | TEXAS SURVEYING FIRM #10028800

# SENECA TRAILS OFFSITE IMPROVEMENTS

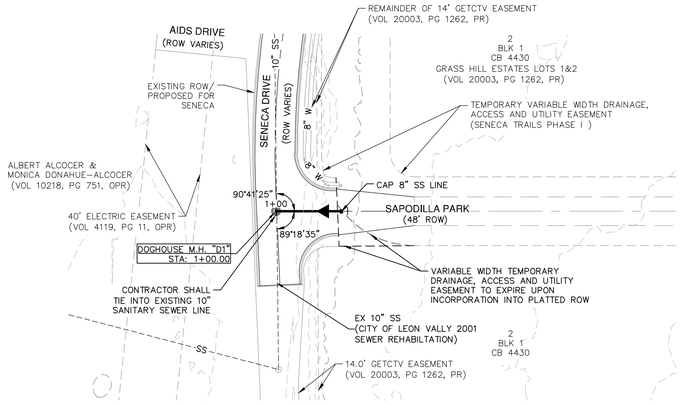
LEON VALLEY, TEXAS

SANITARY SEWER LINE B PLAN & PROFILE
(STA. 1+00.00 TO END)

PLAT NO. ----
JOB NO. 13569-02
DATE MARCH 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C5.02

Date: Apr 29, 2025, 7:11pm User ID: Richardgarcia
File: P:\135\69\02\Design\Civil\SSB1-1356902.dwg

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SCALE: 1"= 50'

0' 50' 100' 150'

## SEWER LEGEND

PROJECT LIMITS

EXISTING WATER — W —

EXISTING SEWER — SS — MANHOLE

PROPOSED SEWER — SS — MANHOLE

PROPOSED WATER — FIRE HYDRANT — W

PROPOSED SEWER LATERAL — S

FINISHED FLOOR ELEVATION FOR SEWER — FF = XXXX.XX

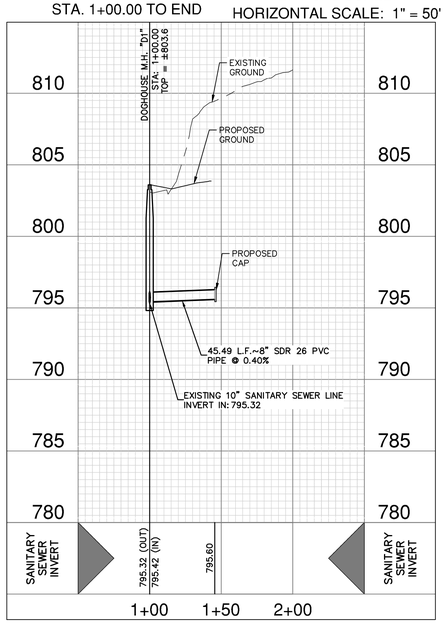
| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
8/8/25

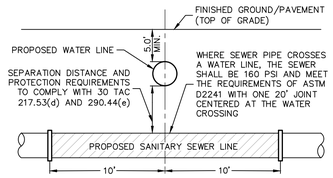

**PAPE-DAWSON**
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800


SANITARY SEWER LINE D
STA. 1+00.00 TO END

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




NOTE:
CONTRACTOR SHALL RECONSTRUCT EXISTING MANHOLES TO PROPOSED GROUND




TYPICAL SANITARY
SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE

## CAUTION!!

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# SENECA TRAILS OFFSITE IMPROVEMENTS

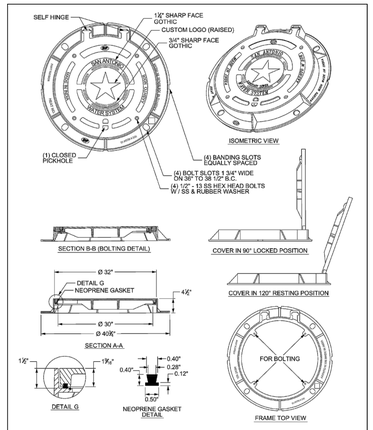
LEON VALLEY, TEXAS

SANITARY SEWER LINE D PLAN AND PROFILE
(STA 1+00.00 TO END)

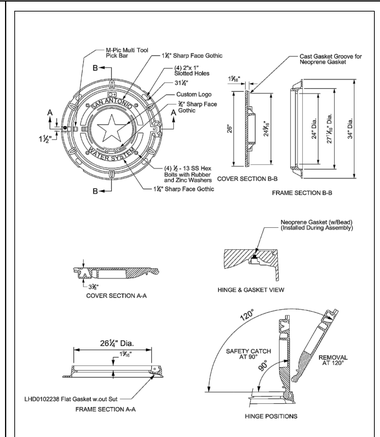
PLAT NO. ----
JOB NO. 13569-02
DATE AUGUST 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C5.03


Date: Aug 08, 2025, 4:46pm User ID: Richardgarcia
File: P:\13569\02\Design\Civil\SSD-1356902.dwg

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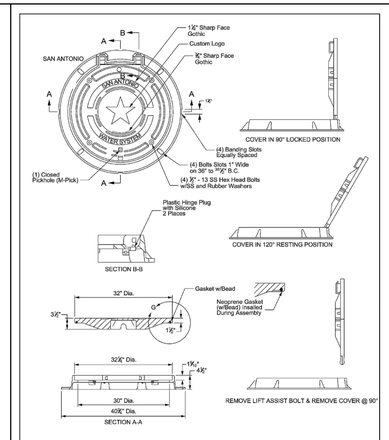



| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | 30" MANHOLE RING AND COVER DETAIL | APPROVED | REVISED |
|---|---|---|---|
| | | | AUG 2019 |
| | | DD 852-07 | SHEET 1 OF 5 |



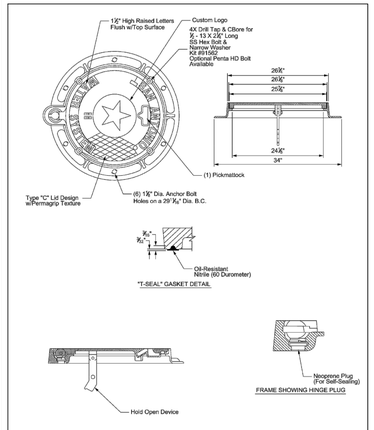

ERGO Assembly

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | MANHOLE RING AND COVER DETAIL | APPROVED | REVISED |
|---|---|---|---|
| | | MARCH 2008 | AUG 2019 |
| | | DD 852-07 | SHEET 2 OF 5 |



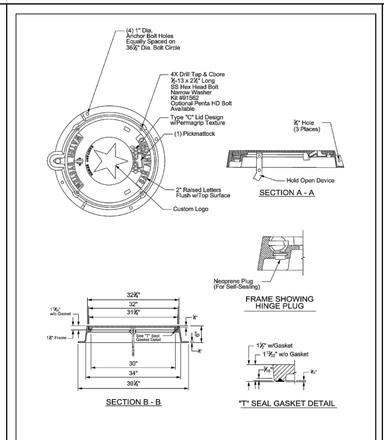

ERGO XL Assembly

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | MANHOLE RING AND COVER DETAIL | APPROVED | REVISED |
|---|---|---|---|
| | | MARCH 2008 | AUG 2019 |
| | | DD 852-07 | SHEET 3 OF 5 |



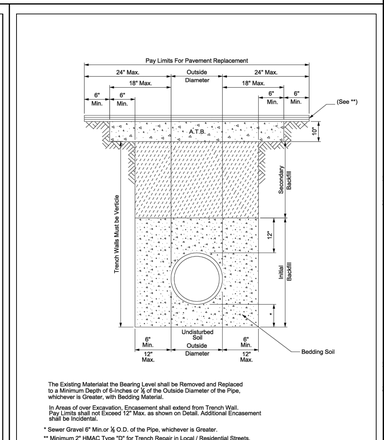

NEENAH FOUNDRY

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | MANHOLE RING AND COVER DETAIL | APPROVED | REVISED |
|---|---|---|---|
| | | MARCH 2008 | AUG 2019 |
| | | DD 852-07 | SHEET 4 OF 5 |




NEENAH FOUNDRY

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | MANHOLE RING AND COVER DETAIL | APPROVED | REVISED |
|---|---|---|---|
| | | MARCH 2008 | AUG 2019 |
| | | DD 852-07 | SHEET 5 OF 5 |

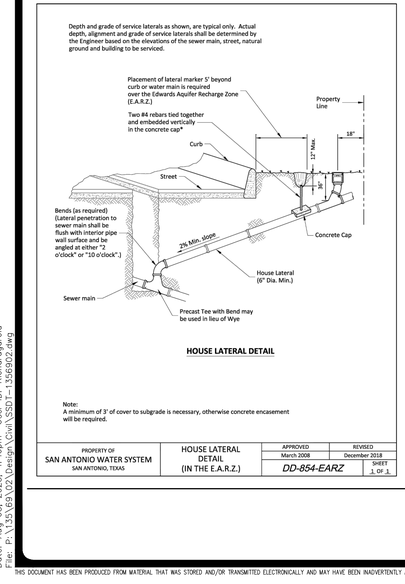



The Existing Materialat the Bearing Level shall be Removed and Replaced to a Minimum Depth of 6-inches or ¼ of the Outside Diameter of the Pipe, whichever is Greater, with Bedding Material.

In Areas of over Excavation, Encasement shall extend from Trench Wall. Pay Limits shall not Exceed 12" Max. as shown on Detail. Additional Encasement shall be Incidental.

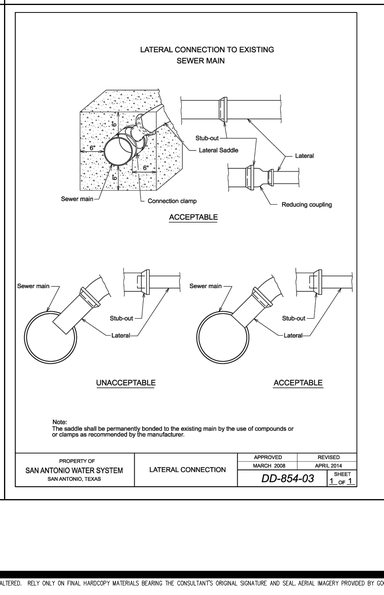
* Sewer Gravel 6" Min.or ¼ O.D. of the Pipe, whichever is Greater.
** Minimum 2" HMAC Type "D" for Trench Repair in Local / Residential Streets.
** Minimum 3" HMAC Type "C" for Trench Repair in Collector / Arterial Streets.

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | SANITARY SEWER PIPE LAID IN TRENCH | APPROVED | REVISED |
|---|---|---|---|
| | | MARCH 2008 | DEC 2018 |
| | | DD-804-01 | SHEET 1 OF 1 |




NOTES:
1. The Compaction Report will Indicate the Station and the Depth of each Test Point.
2. Backfill around Manhole or Structure Below Cone Section Shall Have the Same Trench Compaction Properties to same Depth as LIN.

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | TRENCH COMPACTION DETAIL | APPROVED | REVISED |
|---|---|---|---|
| | | MARCH 2018 | DEC 2018 |
| | | DD 804-02 | SHEET 1 OF 1 |




Note:
All mandrels must be approved by SAWS Construction Inspections and stamped before use.

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | GO, NO GO DEFLECTION TESTING MANDREL | APPROVED | REVISED |
|---|---|---|---|
| | | March 2008 | APRIL 2014 |
| | | DD-848-01 | SHEET 1 OF 2 |

| SIZE | A | B" | MANDREL O.D. PVC (SDR-26) | RING O.D. PVC (SDR-26) |
|---|---|---|---|---|
| 6" | 4.0" | 4.5" | 5.50 | 4.79 |
| 8" | 5.5" | 6" | 7.37 | 6.66 |
| 10" | 7.0" | 7.5" | 9.21 | 8.50 |
| 12" | 8.0" | 9" | 10.96 | 10.25 |
| 15" | 10.0" | 11" | 13.42 | 12.71 |
| 18" | 12.0" | 13.5" | —— | —— |
| 21" | 14.0" | 16" | —— | —— |
| 24" | 16.0" | 18" | —— | —— |
| 27" | 18.0" | 20" | —— | —— |

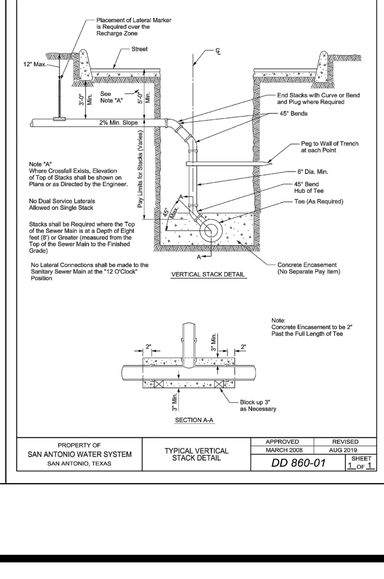
* Minimum Length

CHART

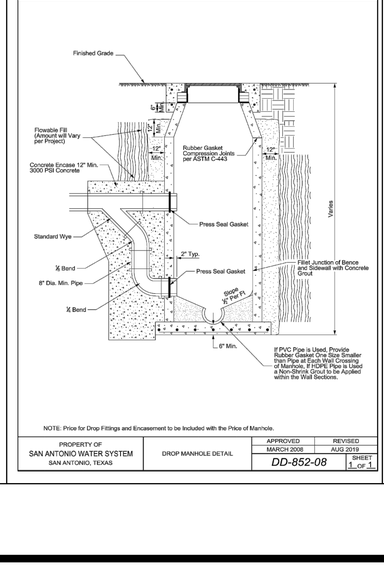
Notes:
PVC pipes and fittings 6" to 15" in diameter shall conform to ASTM D-3034-08.
PVC pipes and fittings 18" to 27" in diameter shall conform to ASTM F-679-08.

This information is provided as a reference. All deflection testing shall be done in accordance with TCEQ Chapter 217.

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | GO, NO GO DEFLECTION TESTING MANDREL CHART | APPROVED | REVISED |
|---|---|---|---|
| | | MARCH 2008 | APRIL 2014 |
| | | DD-848-01 | SHEET 2 OF 2 |

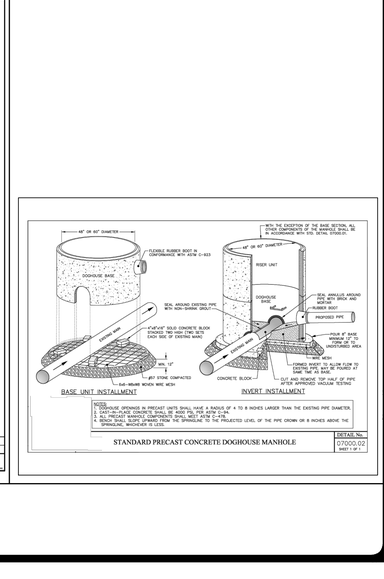



| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | STANDARD PRECAST MANHOLE | APPROVED | REVISED |
|---|---|---|---|
| | | MAY 2013 | AUG 2019 |
| | | DD-852-01 | SHEET 1 OF 2 |




General Notes:
1. Material for Sanitary Sewer Pipe Must be the Same from Manhole to Manhole. Changes in Type of Pipe May be Made only at Manholes, or Special Structures, Except as Approved by the Project Engineer.
2. Adaptors and Concrete Collars shall be used as approved by the SAWS Project Engineer.
3. Watertight Manhole Rings and Covers shall be Trans-Tex A77 "O" Ring or Approved Equal.

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | STANDARD MONOLITHIC MANHOLE | APPROVED | REVISED |
|---|---|---|---|
| | | March 2008 | AUG 2019 |
| | | DD 852-01 | SHEET 2 OF 2 |




NOTE:
1. The Concrete Shall be 4000 PSI Minimum and Reinforced with No. 4 Bars as Shown.
2. The Concrete Shall Extend to Edge of Saw Cut Pavement.
3. Manhole Ring Encasement is Required on all Manholes.
4. Manhole Lid shall Open in the Direction of Traffic or Downstream in Parkway

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | MANHOLE RING ENCASEMENT DETAIL | APPROVED | REVISED |
|---|---|---|---|
| | | AUGUST 2009 | AUG 2019 |
| | | DD 852-03 | SHEET 1 OF 2 |




HOUSE LATERAL DETAIL

Note:
A minimum of 3' of cover to subgrade is necessary, otherwise concrete encasement will be required.

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | HOUSE LATERAL DETAIL (IN THE E.A.R.Z.) | APPROVED | REVISED |
|---|---|---|---|
| | | March 2008 | December 2018 |
| | | DD-854-EARZ | SHEET 1 OF 1 |




Note:
The saddle shall be permanently bonded to the existing main by the use of compounds or or clamps as recommended by the manufacturer.

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | LATERAL CONNECTION | APPROVED | REVISED |
|---|---|---|---|
| | | MARCH 2008 | APRIL 2014 |
| | | DD-854-03 | SHEET 1 OF 1 |




To Be Used Whenever Trench Width is Greater Than Two Feet (2') Plus O.D.

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | TYPICAL CONCRETE DETAILS | APPROVED | REVISED |
|---|---|---|---|
| | | MARCH 2008 | DEC 2018 |
| | | DD 858-02 | SHEET 1 OF 1 |




| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | TYPICAL VERTICAL STACK DETAIL | APPROVED | REVISED |
|---|---|---|---|
| | | MARCH 2008 | AUG 2019 |
| | | DD 860-01 | SHEET 1 OF 1 |




NOTE: Price for Drop Fittings and Encasement to be Included with the Price of Manhole.

| PROPERTY OF SAN ANTONIO WATER SYSTEM, SAN ANTONIO, TEXAS | DROP MANHOLE DETAIL | APPROVED | REVISED |
|---|---|---|---|
| | | MARCH 2008 | AUG 2019 |
| | | DD-852-08 | SHEET 1 OF 1 |




NOTES:
1. DOGHOUSE DEPENDS IN PRECAST UNITS SHALL HAVE A PADLOC OF 4 TO 8 INCHES LARGER THAN THE EXISTING PIPE DIAMETER. THE PADLOC SHALL BE CENTERED ON THE PIPE AXIS.
2. ALL PRECAST MANHOLE COMPONENTS SHALL MEET ASTM C-478.
3. BENCH SHALL SLOPE UPWARD FROM THE SPRINGLINE TO THE PROJECTED LEVEL OF THE PIPE CROWN OR 6 INCHES ABOVE THE SPRINGLINE, WHICHEVER IS LESS.

STANDARD PRECAST CONCRETE DOGHOUSE MANHOLE

DETAIL No. 070000-02
SHEET 1 OF 1

Date: Aug 08, 2025, 4:46pm User ID: Richardgarcia
File: P:\13569\02\Design\Civil\SSDT-13569(2.dwg

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| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
8/8/25

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

# SENECA TRAILS OFFSITE IMPROVEMENTS
## LEON VALLEY, TEXAS
## SANITARY SEWER DETAILS

PLAT NO. ----
JOB NO. 13569-02
DATE AUGUST 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C5.10

# CONSTRUCTION NOTES

## GENERAL SECTION

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE CITY OF LEON VALLEY PUBLIC WORKS DEPARTMENT (LVPW) AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING AS APPLICABLE:

   A. CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEM", TEXAS ADMINISTRATIVE CODE (TAC) TITLE 30 PART 1 CHAPTER 217 AND "PUBLIC DRINKING WATER", TAC TITLE 30 PART 1 CHAPTER 290.
   B. CURRENT TXDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE".
   C. CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION".
   D. CURRENT CITY OF LEON VALLEY "UTILITY EXCAVATION CRITERIA MANUAL" (UECM).

2. THE CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE APPROVED COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP) FROM THE CONSULTANT AND HAS BEEN NOTIFIED BY LVPW TO PROCEED WITH THE WORK AND HAS ARRANGED A MEETING WITH THE INSPECTOR AND CONSULTANT FOR THE WORK REQUIREMENTS. WORK COMPLETED BY THE CONTRACTOR WITHOUT AN APPROVED COUNTER PERMIT AND/OR A GCP WILL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE EXPENSE OF THE CONTRACTORS AND/OR THE DEVELOPER.

3. THE CONTRACTOR SHALL OBTAIN THE SAWS STANDARD DETAILS FROM THE SAWS WEBSITE, HTTP://WWW.SAWS.ORG/BUSINESS_CENTER/SPECS. UNLESS OTHERWISE NOTED WITHIN THE DESIGN PLANS.

4. THE CONTRACTOR IS TO MAKE ARRANGEMENTS WITH LVPW AT (210) 681-1232, ON NOTIFICATION PROCEDURES THAT WILL BE USED TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS 48 HOURS PRIOR TO BEGINNING ANY WORK.

5. LOCATION AND DEPTH OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR AT LEAST 1 WEEK PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION AT NO COST TO LVPW.

6. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES AT LEAST 1-2 WEEKS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT. PLEASE ALLOW UP TO 7 BUSINESS DAYS FOR LOCATES REQUESTING PIPE LOCATION MARKERS ON SAWS FACILITIES. THE FOLLOWING CONTACT INFORMATION ARE SUPPLIED FOR VERIFICATION PURPOSES:

   - SAWS UTILITY LOCATES: HTTP://WWW.SAWS.ORG/SERVICE/LOCATES
   - COSA DRAINAGE (210) 207-0724 OR (210) 207-6026
   - COSA TRAFFIC SIGNAL OPERATIONS (210) 206-8480
   - COSA TRAFFIC SIGNAL DAMAGES (210) 207-3951
   - TEXAS STATE WIDE ONE CALL LOCATOR 1-800-545-6005 OR 811
   - CITY OF LEON VALLEY (210) 681-1232

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES TO ITS ORIGINAL OR BETTER CONDITION IF DAMAGES ARE MADE AS A RESULT OF THE PROJECT'S CONSTRUCTION.

8. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) AND/OR BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT REQUIREMENTS.

9. THE CONTRACTOR SHALL COMPLY WITH CITY OF LEON VALLEY OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.

10. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN PERMIT.

11. HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM SAWS WORK ON SAWS RECOGNIZED HOLIDAYS. REQUEST SHOULD BE SENT TO LVPW.

    WEEKEND WORK: CONTRACTORS ARE REQUIRED TO NOTIFY THE SAWS INSPECTION CONSTRUCTION DEPARTMENT 48 HOURS IN ADVANCE TO REQUEST WEEKEND WORK. REQUEST SHOULD BE MADE TO LVPW.

    ANY AND ALL SAWS UTILITY WORK INSTALLED WITHOUT HOLIDAY/WEEKEND APPROVAL WILL BE SUBJECT TO BE UNCOVERED FOR PROPER INSPECTION.

12. COMPACTION NOTE (ITEM 804): THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING THE COMPACTION REQUIREMENTS ON ALL TRENCH BACKFILL AND FOR PAYING FOR THE TESTS PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED, OR AS INDICATED BY THE SAWS INSPECTOR AND/OR THE TEST ADMINISTRATOR, PER EACH 12-INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

13. A COPY OF ALL TESTING REPORTS SHALL BE FORWARDED TO LVPW.

## SEWER NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOW (SSO) OCCURS AS A RESULT OF THEIR WORK. ALL CONTRACTOR PERSONNEL RESPONSIBLE FOR SSO PREVENTION AND CONTROL SHALL BE TRAINED ON PROPER RESPONSE. SHOULD AN SSO OCCUR, THE CONTRACTOR SHALL:

   A. IDENTIFY THE SOURCE OF THE SSO AND NOTIFY THE CITY OF LEON VALLEY POLICE DISPATCH CENTER AT (210) 684-3215. PROVIDE THE ADDRESS OF THE SPILL AND AN ESTIMATED VOLUME OR FLOW.
   B. ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
   C. CONTAIN SEWAGE FROM THE SSO TO THE EXTENT OF PREVENTING A POSSIBLE CONTAMINATION OF WATERWAYS.
   D. CLEAN UP SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE) AND PROPERLY DISPOSE OF CONTAMINATED SOIL/MATERIALS.
   E. CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.
   F. MEET ALL POST-SSO REQUIREMENTS AS PER THE EPA CONSENT DECREE, INCLUDING LINE CLEANING AND TELEVISING THE AFFECTED SEWER MAINS (AT LVPW DIRECTION) WITHIN 24 HOURS.

   SHOULD THE CONTRACTOR FAIL TO ADDRESS AN SSO IMMEDIATELY AND TO LVPW SATISFACTION, THEY WILL BE RESPONSIBLE FOR ALL COSTS INCURRED BY LVPW, INCLUDING ANY FINES FROM EPA, TCEQ AND/OR ANY OTHER FEDERAL, STATE OR LOCAL AGENCIES.

   NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE FOR THIS WORK. ALL WORK SHALL BE DONE ACCORDING TO GUIDELINES SET BY THE TCEQ AND LVPW.

2. IF BYPASS PUMPING IS REQUIRED, THE CONTRACTOR SHALL PERFORM SUCH WORK IN ACCORDANCE WITH SAWS STANDARD SPECIFICATION FOR WATER AND SANITARY SEWER CONSTRUCTION, ITEM NO. 864, "BYPASS PUMPING".

3. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING FORCE MAINS OF ANY SIZE MUST BE COORDINATED WITH LVPW AT (210) 681-1232 AT LEAST ONE WEEK IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO LVPW OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.

4. SEWER PIPE WHERE WATER LINE CROSSES SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241, TAC 217.53 AND TCEQ 290.44(E)(4)(B). CONTRACTOR SHALL CENTER A 20' JOINT OF 160 PSI PRESSURE RATED PVC AT THE PROPOSED WATER CROSSING.

5. ELEVATIONS POSTED FOR TOP OF MANHOLES ARE FOR REFERENCE ONLY: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ALLOWANCES AND ADJUSTMENTS FOR TOP OF MANHOLES TO MATCH THE FINISHED GRADE OF THE PROJECT'S IMPROVEMENTS. (NSPI)

6. SPILLS, OVERFLOWS, OR DISCHARGES OF WASTEWATER: ALL SPILLS, OVERFLOWS, OR DISCHARGES OF WASTEWATER, RECYCLED WATER, PETROLEUM PRODUCTS, OR CHEMICALS MUST BE REPORTED IMMEDIATELY TO THE LVPW INSPECTOR ASSIGNED TO THE COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP). THIS REQUIREMENT APPLIES TO EVERY SPILL, OVERFLOW, OR DISCHARGE REGARDLESS OF SIZE.

7. MANHOLE AND ALL PIPE TESTING (INCLUDING THE TV INSPECTION) MUST BE PERFORMED AND PASSED PRIOR TO FINAL FIELD ACCEPTANCE BY SAWS CONSTRUCTION INSPECTION DIVISION, AS PER THE SAWS SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION.

8. ALL PVC PIPE OVER 14 FEET OF COVER SHALL BE EXTRA STRENGTH WITH MINIMUM PIPE STIFFNESS OF 115 PSI.

## PROJECT SEWER NOTES

1. ALL RESIDENTIAL SEWER SERVICE LATERALS ARE 6" DIA. AND SHALL BE EXTENDED TO 10' PAST THE PROPERTY LINE AND CAPPED AND SEALED. CONTRACTOR SHALL INSTALL A 2" X 4" STAKE, FOUR (4) FEET LONG, TWO (2) FEET DEEP INTO THE GROUND AT THE END OF EACH SERVICE. NO SEPARATE PAY ITEM.

CONTRACTOR TO INSTALL CLEANOUTS AT THE END OF ALL SEWER LATERALS, PER LATERAL DETAIL SHEET C5.10

2. NO VERTICAL STACKS ALLOWED FOR ANY LOTS UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
3. ALL 6" SEWER LATERALS WILL BE SET AT 2% GRADE FROM THE MAIN TO THE PROPERTY LINE.
4. WHEN HORIZONTAL DISTANCE BETWEEN SEWER PIPES AND WATER MAIN IS LESS THAN 9 FOOT OF SEPARATION, SEWER MAIN SHALL BE INSTALLED WITH 150 PSI (MIN) PRESSURE PIPE AND FITTINGS IN ACCORDANCE WITH SAWS CONSTRUCTION CRITERIA FOR CONSTRUCTION OF SEWER MAINS IN THE VICINITY OF WATER MAINS.
5. CONTRACTOR SHALL ENSURE THAT MANHOLES OUTSIDE OF PAVED AREAS ARE SET WITH TOP ELEVATIONS 6" ABOVE FINISHED GRADE WITH CONCRETE RING ENCASEMENT.
6. ALL SEWER PIPES SHALL BE 8" PVC (SDR 26), UNLESS OTHERWISE NOTED.
7. CONTRACTOR IS TO VERIFY EXISTING INVERT OF EXISTING SANITARY SEWER MAINS AND ALERT ENGINEER IMMEDIATELY OF ANY DIFFERENCE FROM INVERT SHOWN ON PLANS.
8. CONTRACTOR SHALL PROTECT ALL EXISTING FENCES. ANY FENCE DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR EXPENSE.
9. 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.
10. CONCRETE RING ENCASEMENT TO BE INSTALLED ON ALL MANHOLES AND, WITHIN LIMITS OF PAVEMENT, BE INSTALLED TO THE TOP OF THE BASE LAYER WITH A MINIMUM OF 2" OF ASPHALT ON TOP OF THE RING ENCASEMENT.
11. MANHOLE OPENING INCREASED TO 30" AS PER TAC CHAPTER 217.55.
12. ALL SEWER PIPE LATERALS SHALL BE SDR 26 (CLASS 160) PVC PIPE.
13. IF THE GIVEN TOP OF MANHOLE ELEVATION DOES NOT AGREE ON ACTUAL GROUND SURFACE OR FINISH PAVEMENT, THE CONTRACTOR SHALL ADJUST ELEVATIONS SUCH THAT THE TOP OF MANHOLE SHALL BE 0.5' ABOVE EXISTING GROUND, OR FLUSH TO FINISH ASPHALT PAVEMENT.
14. ALL MANHOLES CONSTRUCTED OVER THE EDWARDS AQUIFER RECHARGE ZONE SHOULD BE WATERTIGHT.

| NO. | REVISION | DATE |
|---|---|---|

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED
PROFESSIONAL ENGINEER
4/11/25

PAPE-DAWSON ENGINEERS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM 470 | TEXAS SURVEYING FIRM #10028800

# SENECA TRAILS OFFSITE IMPROVEMENTS

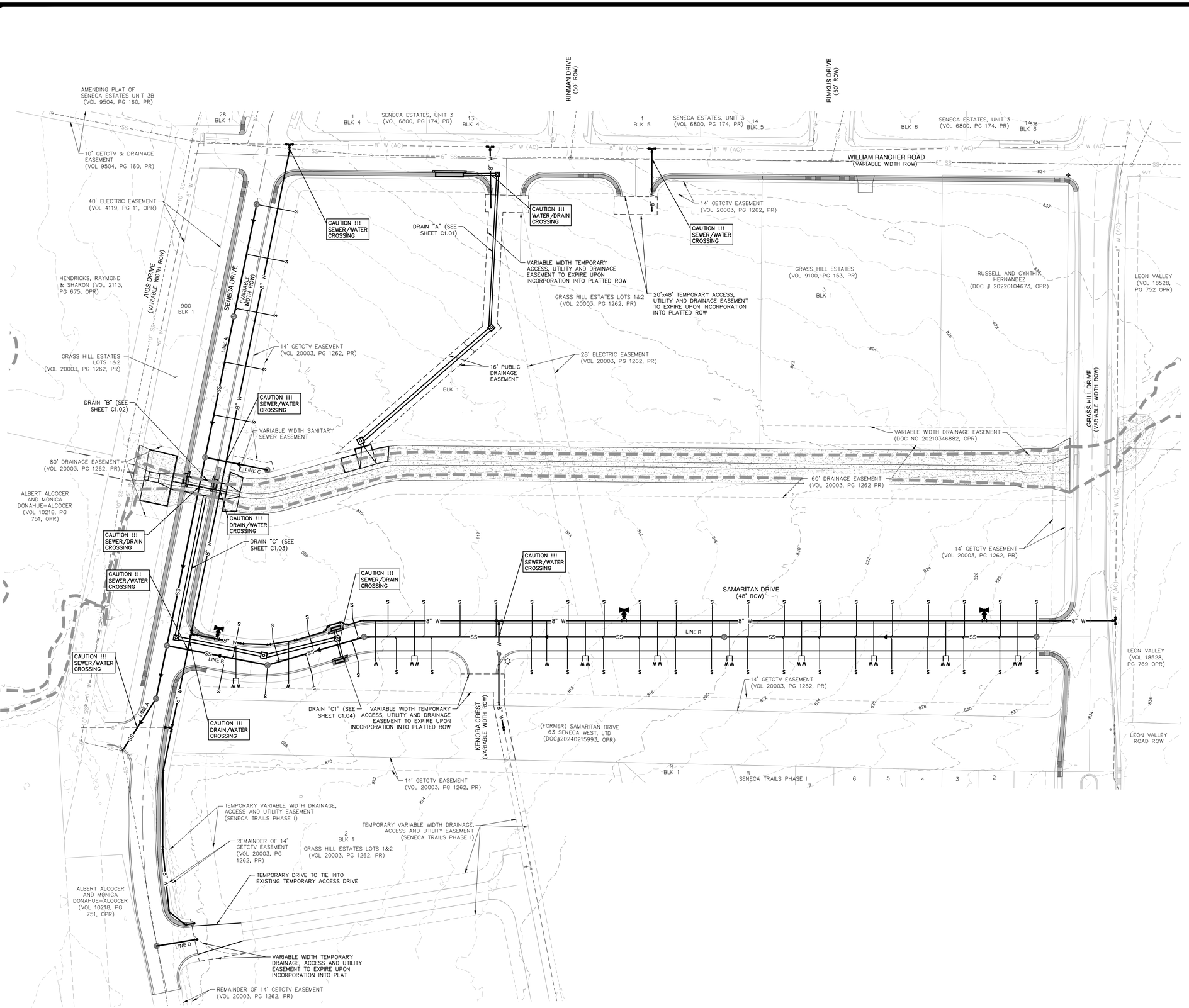
LEON VALLEY, TEXAS

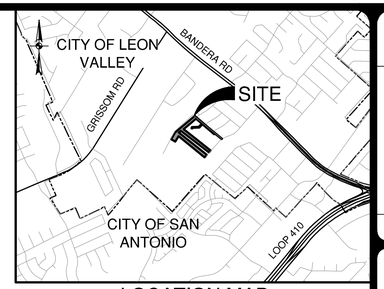
SANITARY SEWER NOTES

PLAT NO. ----
JOB NO. 13569-02
DATE MARCH 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C5.11

Date: Apr 29, 2025, 7:11pm User ID: Richardgarcia
File: P:\135\69\02\Design\Civil\SSDT-1356902.dwg

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## LOCATION MAP

NOT-TO-SCALE

SCALE: 1"= 50'

0' 50' 100' 150'

## UTILITY LEGEND

| | |
|---|---|
| PROJECT LIMITS | |
| EXISTING WATER | W |
| EXISTING SEWER | SS MANHOLE |
| PROPOSED SEWER | SS |
| PROPOSED WATER | W FIRE HYDRANT |
| PROPOSED WYE & LATERAL | |
| SINGLE WATER SERVICE | |
| DUAL WATER SERVICE | |
| STREET LIGHTS | SL |
| GAS, ELECTRIC, TELEPHONE & CABLE TELEVISION EASEMENT | GETCTV |
| FEMA 100 YR FLOODPLAIN(LOMR) | |

## CONDUIT NOTES:

1. CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
2. CONDUITS SHALL BE PVC WITH MINIMUM BURY OF 36 INCHES BELOW PROPOSED FINISHED GRADE. SCHEDULE 80 TO BE USED FOR CPS CONDUITS. ALL OTHER CONDUITS ARE SCHEDULE 40.
3. ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
4. ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATIONS INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED 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.

| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
8/8/25

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

# SENECA TRAILS OFFSITE IMPROVEMENTS

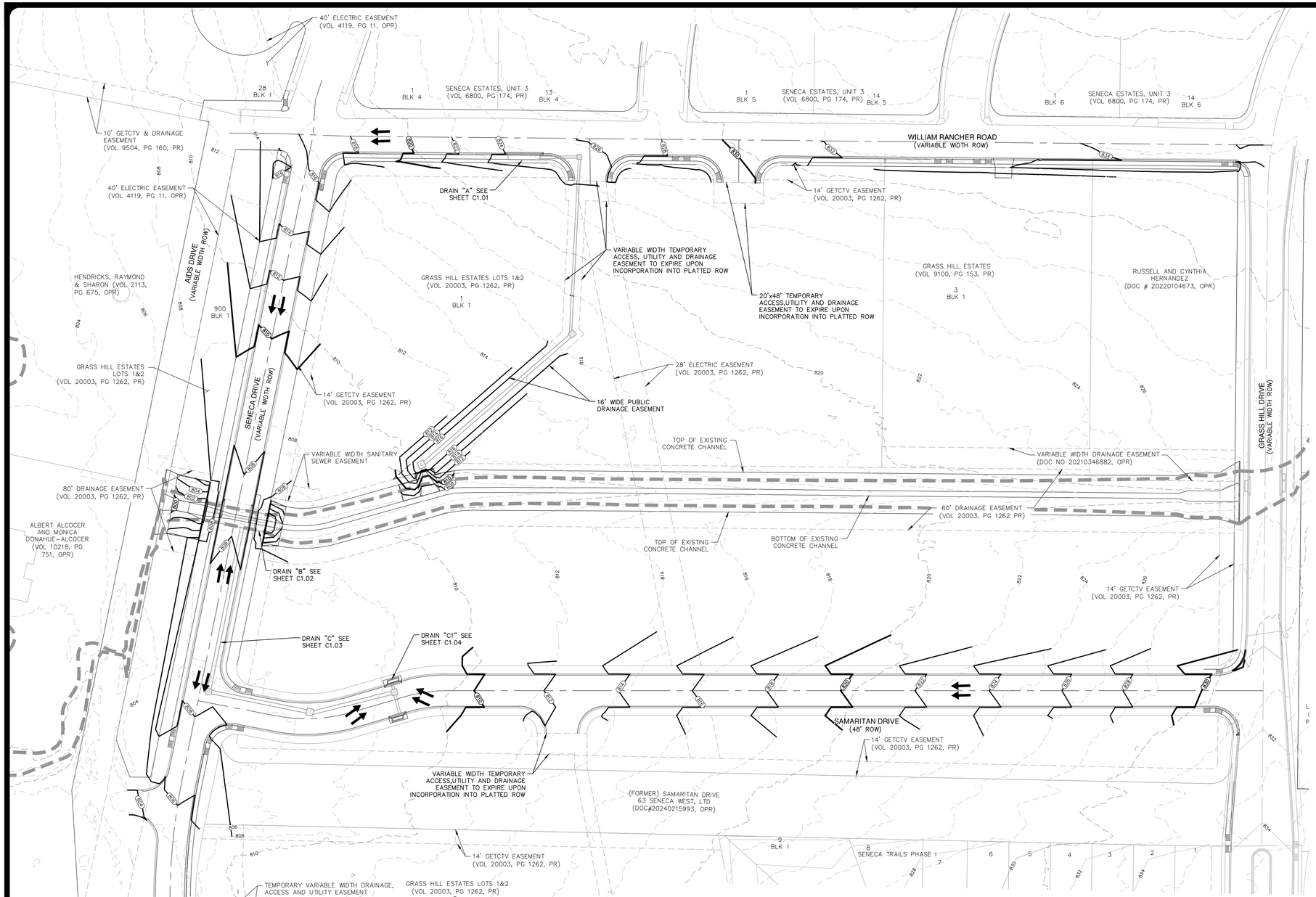
LEON VALLEY, TEXAS

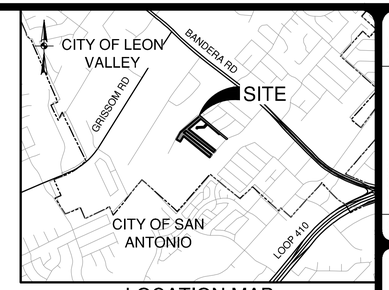
OVERALL UTILITY PLAN

| | |
|---|---|
| PLAT NO. | ---- |
| JOB NO. | 13569-02 |
| DATE | AUGUST 2025 |
| DESIGNER | RG |
| CHECKED | BL |
| DRAWN | KC |
| SHEET | C6.00 |

Date: Aug 08, 2025, 4:46pm User ID: Richardgarcia
File: P:\135\69\02\Design\Civil\UTOA-1356902.dwg

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## LOCATION MAP

NOT-TO-SCALE

SCALE: 1"= 50'

0' 50' 100' 150'

## GRADING LEGEND

| | |
|---|---|
| PROJECT LIMITS | |
| 100 YR FLOODPLAIN | |
| EXISTING CONTOUR | 976 |
| PROPOSED CONTOUR | 970 |
| FLOW ARROW (EXISTING) | |
| FLOW ARROW (PROPOSED) | |
| MINIMUM FINISHED FLOOR ELEVATION | FF = XXXX.XX |
| TREES TO REMAIN | |

## 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.

| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
8/8/25

**PAPE-DAWSON**
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

# SENECA TRAILS OFFSITE IMPROVEMENTS

LEON VALLEY, TEXAS

## OVERALL GRADING PLAN

| | |
|---|---|
| PLAT NO. | ---- |
| JOB NO. | 13569-02 |
| DATE | AUGUST 2025 |
| DESIGNER | RG |
| CHECKED | BL |
| DRAWN | KC |
| SHEET | C7.00 |

Date: Aug 08, 2025, 4:47pm User ID: Richardgarcia
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NOTE: CONTRACTOR SHALL CLEAN ALL SEDIMENTATION FROM THE CROSS CULVERT AT SENECA DRIVE UPON COMPLETION OF CONSTRUCTION.

SENECA ESTATES (VOL. 9504, PG. 160, D.P.R.)

28 BLK 1

1 BLK 4 — SENECA ESTATES, UNIT 3 (VOL 6800, PG 174, PR) — 13 BLK 4

KINIMAN DRIVE (50' ROW)

1 BLK 5 — SENECA ESTATES, UNIT 3 (VOL 6800, PG 174, PR) — 14 BLK 5

RIMKUS DRIVE (50' ROW)

1 BLK 6 — SENECA ESTATES, UNIT 3 (VOL 6800, PG 174, PR) — 14 BLK 6

10' GETCTV & DRAINAGE EASEMENT (VOL 9504, PG 160, PR)

WILLIAM RANCHER ROAD (VARIABLE WIDTH ROW)

DRAIN "A" SEE SHEET C1.01

14' GETCTV EASEMENT (VOL 20003, PG 1262, PR)

40' ELECTRIC EASEMENT (VOL 4119, PG 11, PR)

HENDRICKS, RAYMOND & SHARON (VOL 2113, PG 675, OPR)

VARIABLE WIDTH TEMPORARY ACCESS, UTILITY AND DRAINAGE EASEMENT TO EXPIRE UPON INCORPORATION INTO PLATTED ROW

AIDS DRIVE (VARIABLE WIDTH ROW)

900 BLK 1

SENECA DRIVE (VARIABLE WIDTH ROW)

GRASS HILL ESTATES LOTS 1&2 (VOL 20003, PG 1262, PR)

20'x48' TEMPORARY ACCESS,UTILITY AND DRAINAGE EASEMENT TO EXPIRE UPON INCORPORATION INTO PLATTED ROW

GRASS HILL ESTATES (VOL 9100, PG 153, PR)

3 BLK 1

RUSSELL AND CYNTHIA HERNANDEZ (DOC # 20220104673, OPR)

LEON VALLEY (VOL 18528, PG 752 OPR)

16' PUBLIC DRAINAGE EASEMENT

14' GETCTV EASEMENT (VOL 20003, PG 1262, PR)

DRAIN "A" SEE SHEET C1.01

28' ELECTRIC EASEMENT (VOL 20003, PG 1262, PR)

1 BLK 1

DRAIN "A" SEE SHEET C1.01

VARIABLE WIDTH SANITARY SEWER EASEMENT

VARIABLE WIDTH DRAINAGE EASEMENT (DOC NO 20210346882, OPR)

GRASS HILL DRIVE (VARIABLE WIDTH ROW)

80' DRAINAGE EASEMENT (VOL 20003, PG 1262, PR),

60' DRAINAGE EASEMENT (VOL 20003, PG 1262 PR)

ALBERT ALCOCER & MONICA DONAHUE–ALCOCER (VOL 10218, PG 751, OPR)

DRAIN "B" SEE SHEET C1.02

14' GETCTV EASEMENT (VOL 20003, PG 1262, PR)

DRAIN "C" SEE SHEET C1.03

DRAIN "C1" SEE SHEET C1.04

SAMARITAN DRIVE (48' ROW)

DRAIN "C" SEE SHEET C1.03

14' GETCTV EASEMENT (VOL 20003, PG 1262, PR)

KENORA CREST (VARIABLE WIDTH ROW)

(FORMER) SAMARITAN DRIVE 63 SENECA WEST, LTD (DOC#20240215993, OPR)

LEON VALLEY (VOL 18528, PG 769 OPR)

LEON VALLEY ROAD ROW

14' GETCTV EASEMENT (VOL 20003, PG 1262, PR)

9 BLK 1

8 SENECA TRAILS PHASE I

1

1 BLK 2

TEMPORARY VARIABLE WIDTH DRAINAGE, ACCESS AND UTILITY EASEMENT (SENECA TRAILS PHASE I)

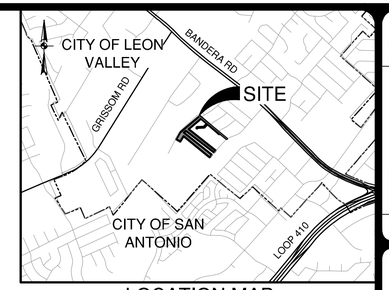
2 BLK 1

TEMPORARY VARIABLE WIDTH DRAINAGE, ACCESS AND UTILITY EASEMENT (SENECA TRAILS PHASE I )

REMAINDER OF 14' GETCTV EASEMENT (VOL 20003, PG 1262, PR)

VARIABLE WIDTH TEMPORARY DRAINAGE, ACCESS AND UTILITY EASEMENT TO EXPIRE UPON INCORPORATION INTO PLAT

REMAINDER OF 14' GETCTV EASEMENT (VOL 20003, PG 1262, PR)




## LOCATION MAP

NOT-TO-SCALE

SCALE: 1"= 50'

0' 50' 100' 150'

## SWPPP LEGEND

- PROJECT LIMITS
- EXISTING CONTOUR — 976
- PROPOSED CONTOUR — 976
- FLOW ARROW (EXISTING)
- FLOW ARROW (PROPOSED)
- SILT FENCE
- ROCK BERM
- GRAVEL FILTER BAGS
- GRATE INLET PROTECTION
- SEDIMENT CONTROL ROLLS
- LIMITS OF DISTURBED AREA (6.92 ACRES)
- STABILIZED CONSTRUCTION ENTRANCE/EXIT (FIELD LOCATE)
- CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA (FIELD LOCATE)
- CONCRETE TRUCK WASH–OUT PIT (FIELD LOCATE)

## GENERAL NOTES

1. DO NOT DISTURB VEGETATED AREAS (TREES, GRASS, WEEDS, BRUSH, ETC.) ANY MORE THAN NECESSARY FOR CONSTRUCTION.

2. CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASH–OUT PIT, AND CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD TO BE DETERMINED IN THE FIELD.

3. 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.

4. RESTRICT ENTRY/EXIT TO THE PROJECT SITE TO DESIGNATED LOCATIONS BY USE OF ADEQUATE FENCING, IF NECESSARY.

5. ALL STORM WATER POLLUTION PREVENTION CONTROLS ARE TO BE MAINTAINED AND IN WORKING CONDITIONS AT ALL TIMES.

6. FOR A COMPLETE LISTING OF TEMPORARY STORM WATER POLLUTION PREVENTION CONTROLS REFER TO THE TPDES STORM WATER POLLUTION PREVENTION PLAN.

7. 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.

8. 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.

9. BEST MANAGEMENT PRACTICES MAY BE INSTALLED IN STAGES TO COINCIDE WITH THE DISTURBANCE OF UPGRADIENT AREAS.

10. 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.

11. 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.

12. 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.

13. 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.

## SWP3 MODIFICATIONS

| DATE | SIGNATURE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

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

| NO. | REVISION | DATE |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED PROFESSIONAL ENGINEER
8/8/25


PAPE–DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800


# SENECA TRAILS OFFSITE IMPROVEMENTS

LEON VALLEY, TEXAS

STORM WATER POLLUTION PREVENTION PLAN

PLAT NO. ----

JOB NO. 13569–02

DATE AUGUST 2025

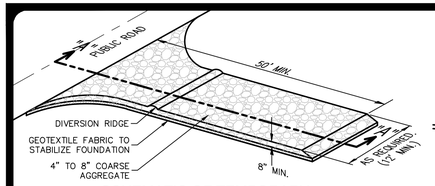
DESIGNER RG

CHECKED BL DRAWN KC

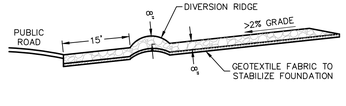
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SCHEMATIC OF TEMPORARY CONSTRUCTION ENTRANCE/EXIT




SECTION "A-A" OF A CONSTRUCTION ENTRANCE/EXIT

## 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 $OZ/YD^2$, A MULLEN BURST RATING OF 140 $LB/IN^2$, 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.

## COMMON TROUBLE POINTS

1. INADEQUATE RUNOFF CONTROL–SEDIMENT WASHES ONTO PUBLIC ROAD.

2. STONE TOO SMALL OR GEOTEXTILE FABRIC ABSENT, RESULTS IN MUDDY CONDITION AS STONE IS PRESSED INTO SOIL.

3. PAD TOO SHORT FOR HEAVY CONSTRUCTION TRAFFIC–EXTEND PAD BEYOND THE MINIMUM 50–FOOT LENGTH AS NECESSARY.

4. PAD NOT FLARED SUFFICIENTLY AT ROAD SURFACE, RESULTS IN MUD BEING TRACKED ON TO ROAD AND POSSIBLE DAMAGE TO ROAD.

5. UNSTABLE FOUNDATION – USE GEOTEXTILE FABRIC UNDER PAD AND/OR IMPROVE FOUNDATION DRAINAGE.

## INSPECTION AND MAINTENANCE GUIDELINES

1. THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

2. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.

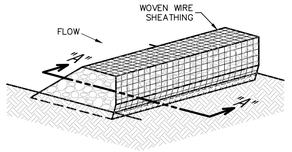
3. WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY.

4. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

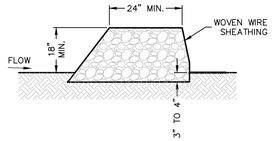
5. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.

# STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAIL

NOT–TO–SCALE




ISOMETRIC PLAN VIEW




SECTION "A-A"

## 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.

## MATERIALS

1. THE BERM STRUCTURE SHOULD BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE DIAMETER OF 20 GAUGE GALVANIZED AND SHOULD BE SECURED WITH SHOAT RINGS.

2. CLEAN, OPEN GRADED 3–INCH TO 5–INCH DIAMETER ROCK SHOULD BE USED, EXCEPT IN AREAS WHERE HIGH VELOCITIES OR LARGE VOLUMES OF FLOW ARE EXPECTED, WHERE 5–INCH TO 8–INCH DIAMETER ROCKS MAY BE USED.

## INSTALLATION

1. LAY OUT THE WOVEN WIRE SHEATHING PERPENDICULAR TO THE FLOW LINE. THE SHEATHING SHOULD BE 20 GAUGE WOVEN WIRE MESH WITH 1 INCH OPENINGS.

2. BERM SHOULD HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.

3. PLACE THE ROCK ALONG THE SHEATHING AS SHOWN IN THE DIAGRAM TO A HEIGHT NOT LESS THAN 18".

4. WRAP THE WIRE SHEATHING AROUND THE ROCK AND SECURE WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.

5. BERM SHOULD BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE.

6. THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.

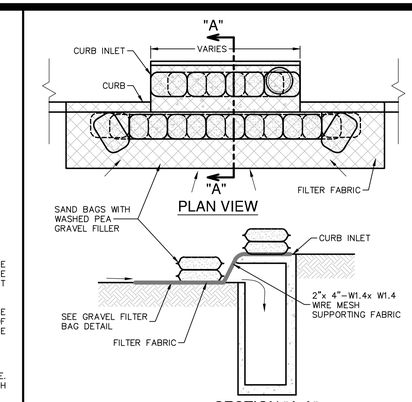
## COMMON TROUBLE POINTS

1. INSUFFICIENT BERM HEIGHT OR LENGTH (RUNOFF QUICKLY ESCAPES OVER THE TOP OR AROUND THE SIDES OF BERM).

2. BERM NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND ONE SIDE).

# ROCK BERM DETAIL

NOT–TO–SCALE




PLAN VIEW

SECTION "A-A"

## 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 GUTTER 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 AGAINST 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.

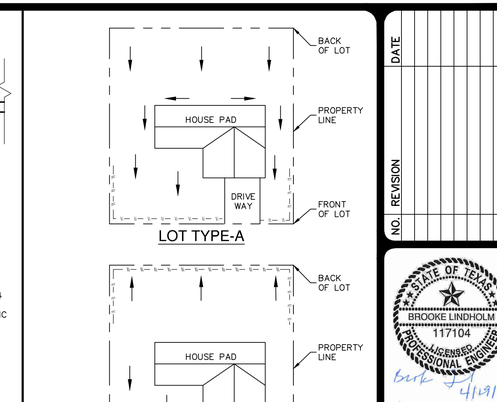
3. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.

4. INSPECT FILTER FABRIC AND PATCH OR REPLACE IF TORN OR MISSING.

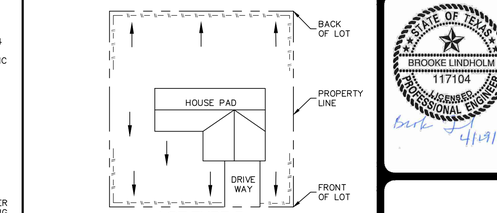
5. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

# BAGGED GRAVEL CURB INLET PROTECTION DETAIL

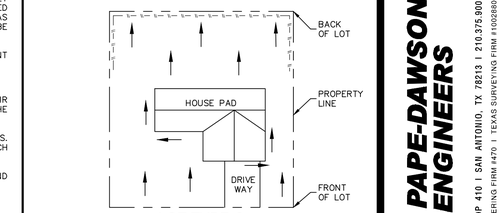
NOT–TO–SCALE




LOT TYPE-A




LOT TYPE-B



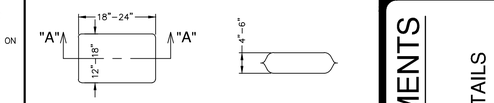

LOT TYPE-C

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

LEGEND
SILT FENCE
DRAINAGE FLOW

# TYPICAL HOUSE LOT LAYOUTS

NOT–TO–SCALE




PLAN VIEW

SECTION "A-A"

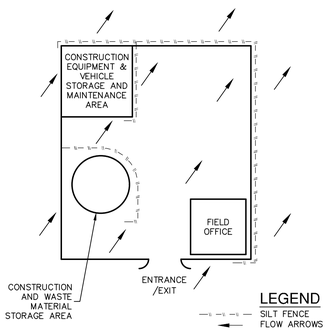
NOTES:
1. THE FILTER BAG MATERIAL SHALL BE MADE OF POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MIN. UNIT WEIGHT OF 4 OUNCES/SY, HAVE A MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70%.

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



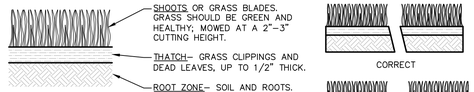

# CONSTRUCTION STAGING AREA

NOT–TO–SCALE



LAY SOD IN A STAGGERED PATTERN. BUTT THE STRIPS TIGHTLY AGAINST EACH OTHER. DO NOT LEAVE SPACES AND DO NOT OVERLAP. A SHARPENED MASON'S TROWEL IS A HANDY TOOL FOR TUCKING DOWN THE ENDS AND TRIMMING PIECES.

BUTTING – ANGLED ENDS CAUSED BY THE AUTOMATIC SOD CUTTER MUST BE MATCHED CORRECTLY.




## APPEARANCE OF GOOD SOD

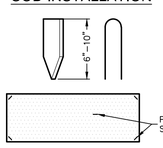
NOTES:
1. ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL.

2. WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS SOON AS THE SOD IS LAID.

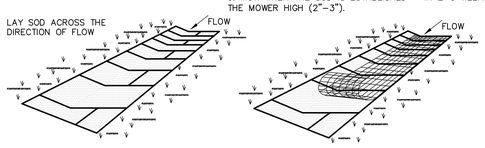
3. MOW WHEN THE SOD IS ESTABLISHED – IN 2–3 WEEKS. SET THE MOWER HIGH (2"–3").




## SOD INSTALLATION




USE PEGS OR STAPLES TO FASTEN SOD FIRMLY – AT THE ENDS OF STRIPS AND IN THE CENTER, OR EVERY 3–4 FEET IF THE STRIPS ARE LONG. WHEN READY TO MOW, DRIVE PEGS OR STAPLES FLUSH WITH THE GROUND.




IN CRITICAL AREAS, SECURE SOD WITH NETTING. USE STAPLES.

## 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 AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED FROM A FIRM 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 SOIL 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 RESIST WASHOUT DURING THE ESTABLISHMENT PERIOD. MESH OR OTHER NETTING MAY BE PEGGED OVER THE SOD FOR EXTRA PROTECTION IN CRITICAL AREAS.

## GENERAL INSTALLATION (SA. DEPT. OF CONSERVATION, 1992)

1. SOD SHOULD NOT BE CUT OR LAID IN EXCESSIVELY WET OR DRY WEATHER. SOD ALSO SHOULD NOT BE LAID ON SOIL SURFACES THAT ARE FROZEN.

2. DURING PERIODS OF HIGH TEMPERATURE, THE SOIL SHOULD BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD, TO COOL THE SOIL AND REDUCE ROOT BURNING AND DIEBACK.

3. THE FIRST ROW OF SOD SHOULD BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND BUTTING TIGHTLY AGAINST EACH OTHER. LATERAL JOINTS SHOULD BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. CARE SHOULD BE EXERCISED TO ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE DRYING OF THE ROOTS (SEE FIGURE ABOVE).

4. ON SLOPES 3:1 OR GREATER, OR WHEREVER EROSION MAY BE A PROBLEM, SOD SHOULD BE LAID WITH STAGGERED JOINTS AND SECURED BY STAPLING OR OTHER APPROVED METHODS. SOD SHOULD BE INSTALLED WITH THE LENGTH PERPENDICULAR TO THE SLOPE (ON CONTOUR).

5. AS SODDING OF CLEARLY DEFINED AREAS IS COMPLETED, SOD SHOULD BE ROLLED OR TAMPED TO PROVIDE FIRM CONTACT BETWEEN ROOTS AND SOIL.

6. AFTER ROLLING, SOD SHOULD BE IRRIGATED TO A DEPTH SUFFICIENT THAT THE UNDERSIDE OF THE SOD PAD AND THE SOIL 4 INCHES BELOW THE SOD IS THOROUGHLY WET.

7. UNTIL SUCH TIME A GOOD ROOT SYSTEM BECOMES DEVELOPED, IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHOULD BE PERFORMED AS OFTEN AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF AT LEAST 4 INCHES.

8. THE FIRST MOWING SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED, USUALLY 2–3 WEEKS. NOT MORE THAN ONE THIRD OF THE GRASS LEAF SHOULD BE REMOVED AT ANY ONE CUTTING.

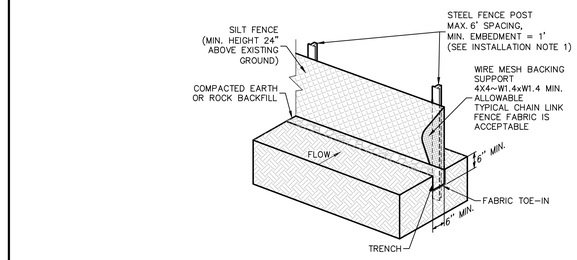
## INSPECTION AND MAINTENANCE GUIDELINES

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

## 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 $LB/IN2$, 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 ¼ ACRE/100 FEET OF FENCE.

3. THE TOE OF THE SILT FENCE SHOULD BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWN–SLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G., PAVEMENT OR ROCK OUTCROP), WEIGHT FABRIC FLAP WITH 3 INCHES OF PEA GRAVEL ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.

4. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

5. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST. THERE SHOULD BE A 3–FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

6. SILT FENCE SHOULD BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

## COMMON TROUBLE POINTS

1. FENCE NOT INSTALLED ALONG THE CONTOUR CAUSING WATER TO CONCENTRATE AND FLOW OVER THE FENCE.

2. FABRIC NOT SEATED SECURELY TO GROUND (RUNOFF PASSING UNDER FENCE).

3. FENCE NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND SIDES).

4. FENCE TREATING TOO LARGE AN AREA, OR EXCESSIVE CHANNEL FLOW (RUNOFF OVERTOPS OR COLLAPSES FENCE).

## INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECT ALL FENCING WEEKLY, AND AFTER RAINFALL.

2. REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.

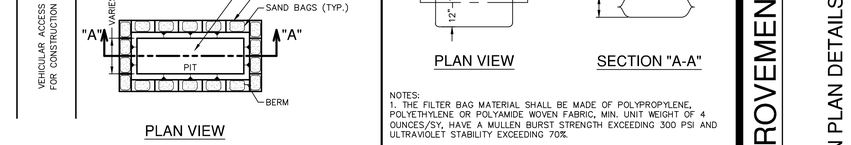
3. REPLACE TORN FABRIC OR INSTALL A SECOND LINE OF FENCING PARALLEL TO THE TORN SECTION.

4. REPLACE OR REPAIR SECTIONS CRUSHED OR COLLAPSED IN THE COURSE OF CONSTRUCTION ACTIVITY. IF A SECTION OF FENCE IS OBSTRUCTING VEHICULAR ACCESS, CONSIDER RELOCATING IT TO A SPOT WHERE IT WILL PROVIDE EQUAL PROTECTION, BUT WILL NOT OBSTRUCT VEHICLES. A TRIANGULAR FILTER DIKE MAY BE PREFERABLE TO A SILT FENCE AT COMMON VEHICLE ACCESS POINTS.

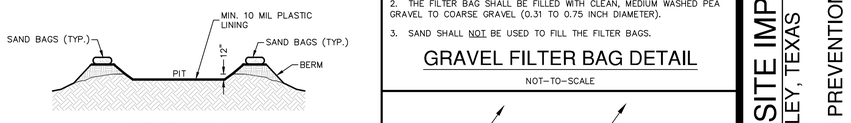
5. WHEN CONSTRUCTION IS COMPLETE, THE SEDIMENT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CAUSE ADDITIONAL SILTATION AND THE PRIOR LOCATION OF THE SILT FENCE SHOULD BE REVEGETATED. THE FENCE ITSELF SHOULD BE DISPOSED OF IN AN APPROVED LANDFILL.

# SILT FENCE DETAIL

NOT–TO–SCALE




PLAN VIEW




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

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 |
|---|---|---|
| | | |

STATE OF TEXAS
BROOKE LINDHOLM
117104
LICENSED
PROFESSIONAL ENGINEER
4/11/25

PAPE-DAWSON ENGINEERS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM I-470 | TEXAS SURVEYING FIRM #10028800

# SENECA TRAILS OFFSITE IMPROVEMENTS

LEON VALLEY, TEXAS

STORM WATER POLLUTION PREVENTION PLAN DETAILS

PLAT NO. ----
JOB NO. 13569–02
DATE MARCH 2025
DESIGNER RG
CHECKED BL DRAWN KC
SHEET C8.10

Date: Apr 29, 2025, 7:12pm User ID: Richardgarcia
File: P:\1353\69\02\Design\Civil\SWPPP-1356902.dwg

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