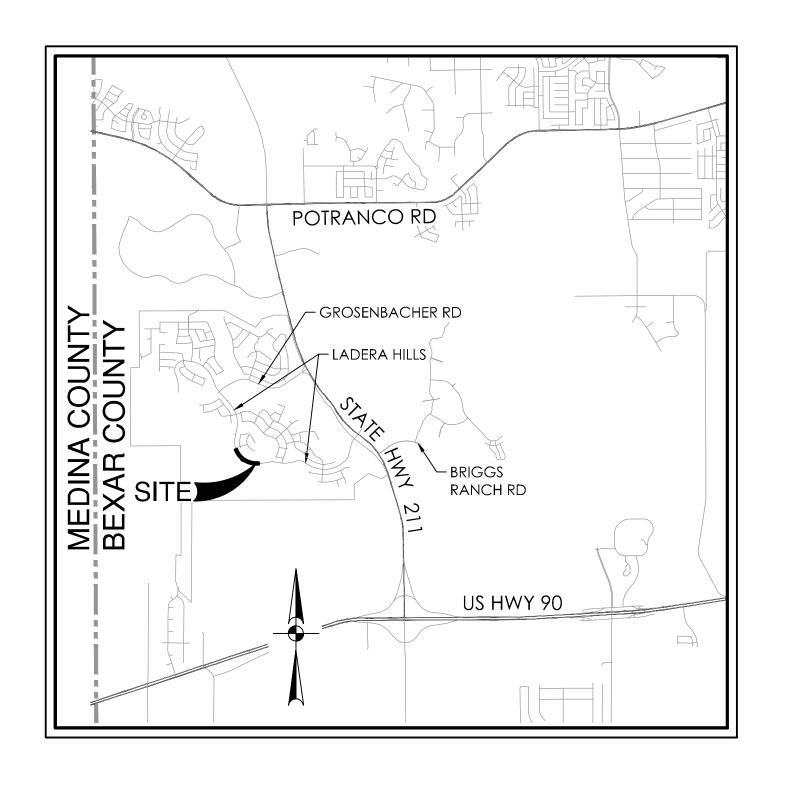
# LADERA HILLS-PHASE IV

# BEXAR COUNTY, TEXAS

# CIVIL CONSTRUCTION PLANS



SHEET INDEX							
Sheet Title	Sheet Description	Sheet No.					
COVER SHEET		C0.00					
MASTER DRAINAGE PLAN		C1.00					
DRAIN A	PLAN AND PROFILE	C1.01					
DRAINAGE DETAILS	(SHEET 1 OF 2)	C1.10					
DRAINAGE DETAILS	(SHEET 2 OF 2)	C1.20					
LADERA HILLS	PLAN AND PROFILE (STA. 61+70.71 TO 67+50.00)	C2.00					
LADERA HILLS	PLAN AND PROFILE (STA. 67+50.00 TO END)	C2.01					
STREET DETAILS		C2.10					
OVERALL SIGNAGE PLAN		C3.00					
SIGNAGE DETAILS	(SHEET 1 OF 4)	C3.10					
SIGNAGE DETAILS	(SHEET 2 OF 4)	C3.20					
SIGNAGE DETAILS	(SHEET 3 OF 4)	C3.30					
SIGNAGE DETAILS	(SHEET 4 OF 4)	C3.40					
OVERALL WATER DISTRIBUTION PLAN		C5.00					
OVERALL WATER NOTES AND DETAILS		C5.10					
OVERALL UTILITY PLAN		C6.00					
STORMWATER POLLUTION PREVENTION PLAN		C8.00					
SWPPP DETAILS		C8.10					

PREPARED FOR:

LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD

100 NE LOOP 410 SUITE 1155

SAN ANTONIO, TEXAS 78216

REBECCA ANN CARROLL

FEBRUARY 2024



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

WATER: SAWS DSP PRESSURE ZONE 1080

DEVELOPER'S NAME:LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD ADDRESS: 100 NE LOOP 410, SUITE 1155

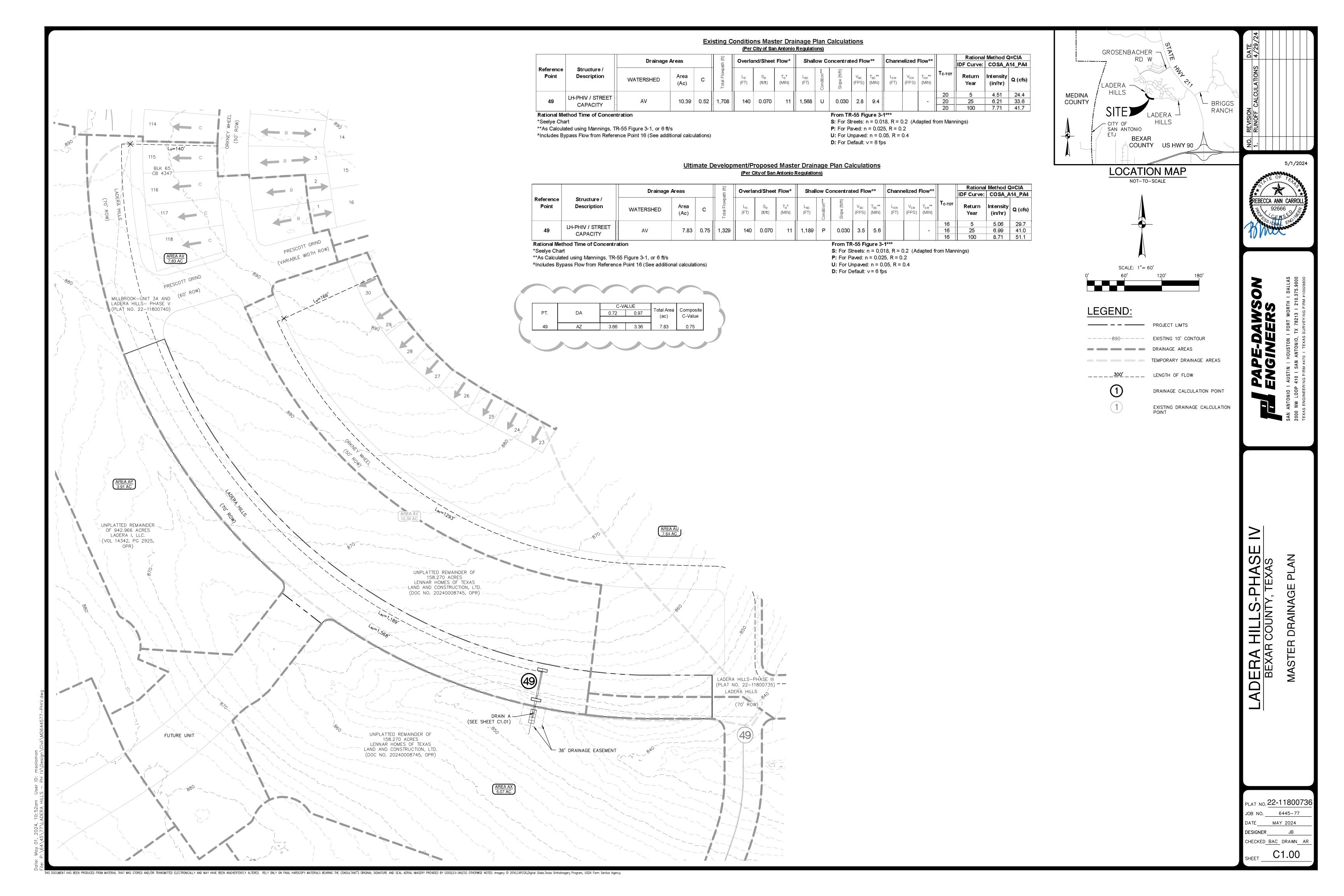
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78216

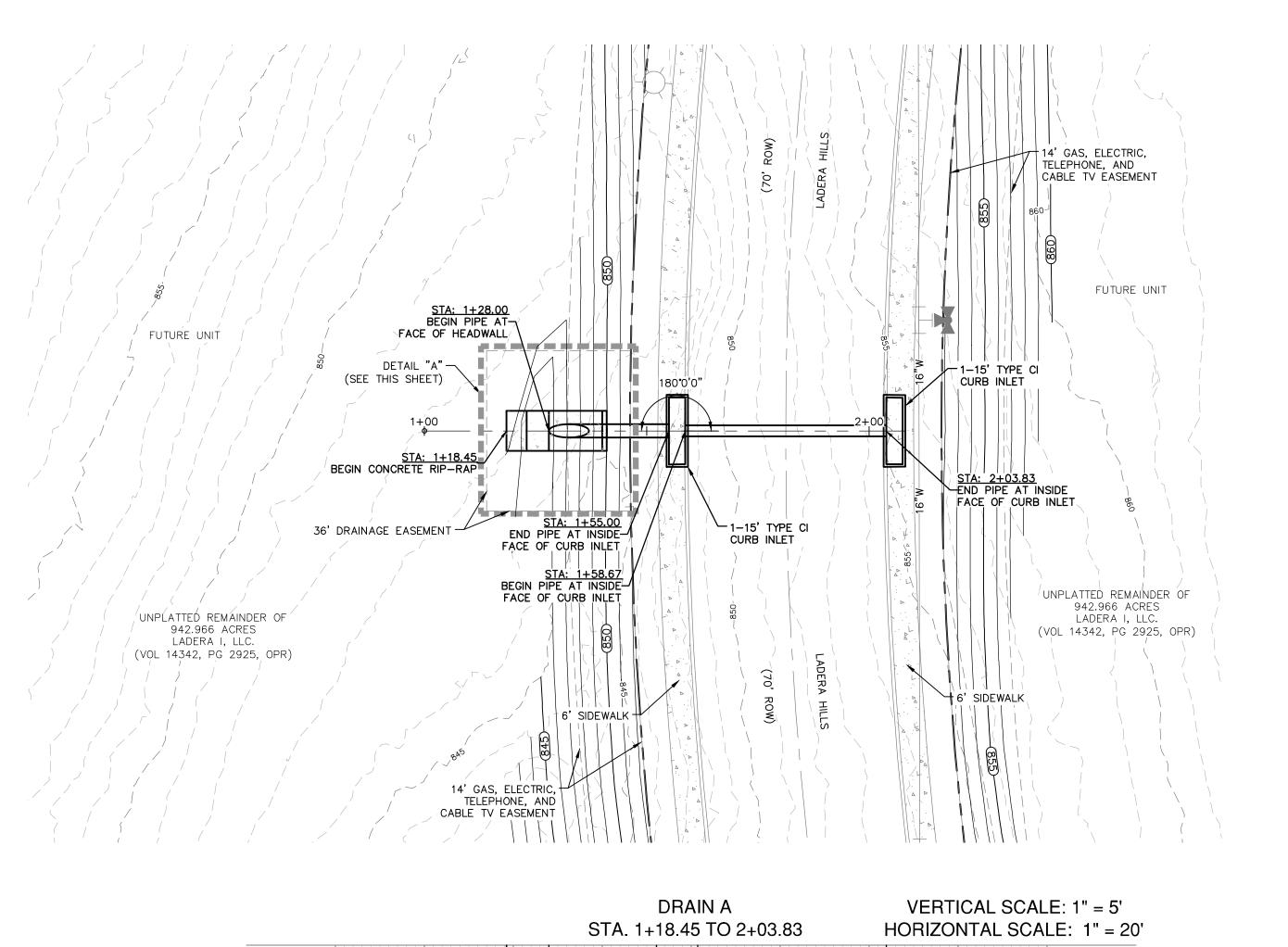
PHONE# (210) 403-6200 E-MAIL: RICHARD.MOTT@LENNAR.COM

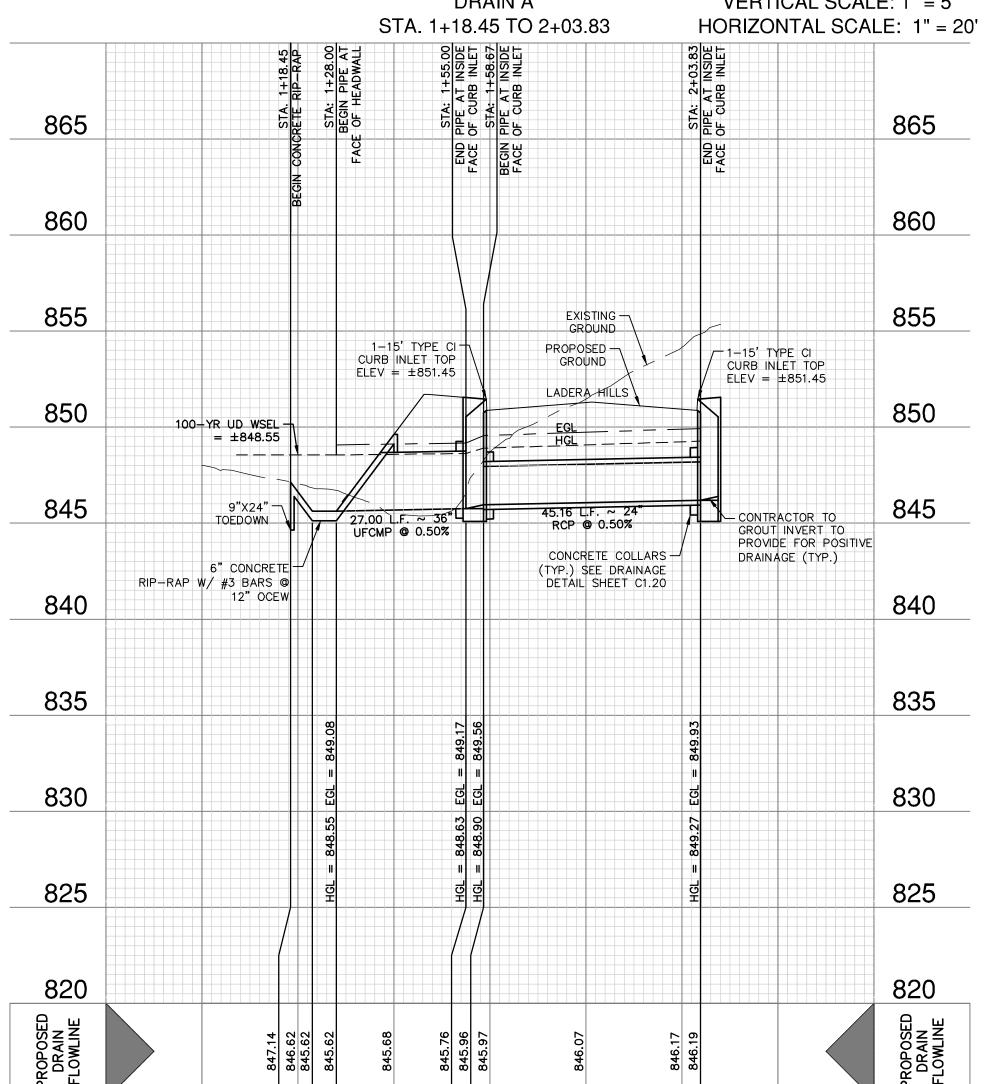
SAWS BLOCK MAP#068566 TOTAL EDU'S TOTAL ACREAGE TOTAL LINEAR FOOTAGE OF PIPE:1,190'-16", 29'-8" PLAT NO.22-11800736

NUMBER OF LOTS 0 SAWS JOB NO. 23-1160

SHEET CO.O







#### 1 - 36" UFCMP HYDRAULIC CALCULATION STA 1+28.00 TO 1+55.00

 $Q^{25} = 40.90 \text{ CFS}$ n = 0.013S = 0.50%Sf = 0.33%dn = 2.93'

Vn = 6.51 FPS

DETAIL "A"

SCALE 1" = 5"

RH-15 HEADWALL

(SEE DETAIL SHEET C1.20)

— 14'GAS, ELECTRIC,

TELEPHONE, AND CABLE

TV EASEMENT

TOEDOWN

TØEDOWN

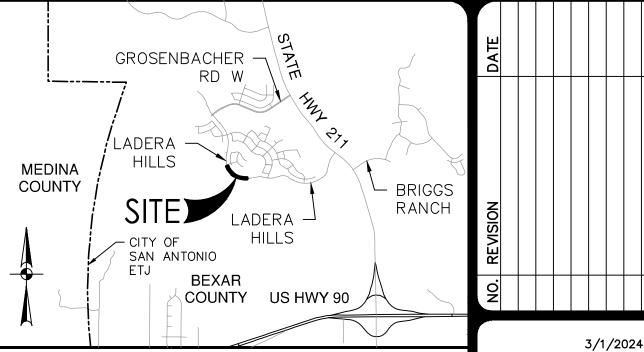
TOEDOWN

-36' DRAINAGE EASEMENT

9"X24" -TOEDOWN

#### Vn = 5.82 FPS1 - 24" RCP HYDRAULIC CALCULATION STA 1+58.67 TO 2+03.83

 $Q^{25} = 40.90 \text{ CFS}/2 = 20.45 \text{ CFS}$ n = 0.013S = 0.50%Sf = 0.82%dn = 2.00'



**LOCATION MAP** NOT-TO-SCALE

SCALE: 1"= 20'

**8**0

## DRAINAGE LEGEND

PROJECT LIMITS EXISTING CONTOUR PROPOSED WATER PROPOSED SEWER EXISTING WATER

HYDRAULIC CALCULATIONS-DRAIN A TOTAL  $Q_{25} = 41.0$  CFS (20.50 CFS EACH INLET)

 $Q_{25} = 41.0 \text{ CFS}$  $Q_{25} = CA\sqrt{2gh}$  (ORIFICE FLOW EQN.) A = L(0.44), h = 0.56, g = 32.2, c = 0.67

41.0 CFS  $L = \frac{1.00}{(0.67) (0.50)\sqrt{2 (32.2) (0.50)}}$ L = 21.57 FT USE 2 ~ 15 FT CURB INLETS

CHECK WITH WEIR FORMULA h =  $\left(\frac{Q}{(CL)}\right)^{2/3} = \left(\frac{41.0}{(3.087)(30)}\right)^{2/3} = 0.58 \text{ FT.}$ 

h = 0.58 < 0.79 OK

EXISTING SEWER

#### **DRAINAGE & GRADING NOTES:**

- 1. A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING I BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
- S 2. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXAC 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.
- 3. ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PS CYLINDER STRENGTH IN 28 DAYS.
- CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS. 5. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES T

4. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BC

- PROVIDE FOR POSITIVE DRAINAGE. 6. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION
- 7. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN TH

#### TRENCH EXCAVATION SAFETY PROTECTION:

BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYE 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 /C 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 SAFÉTY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OF CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM II ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

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

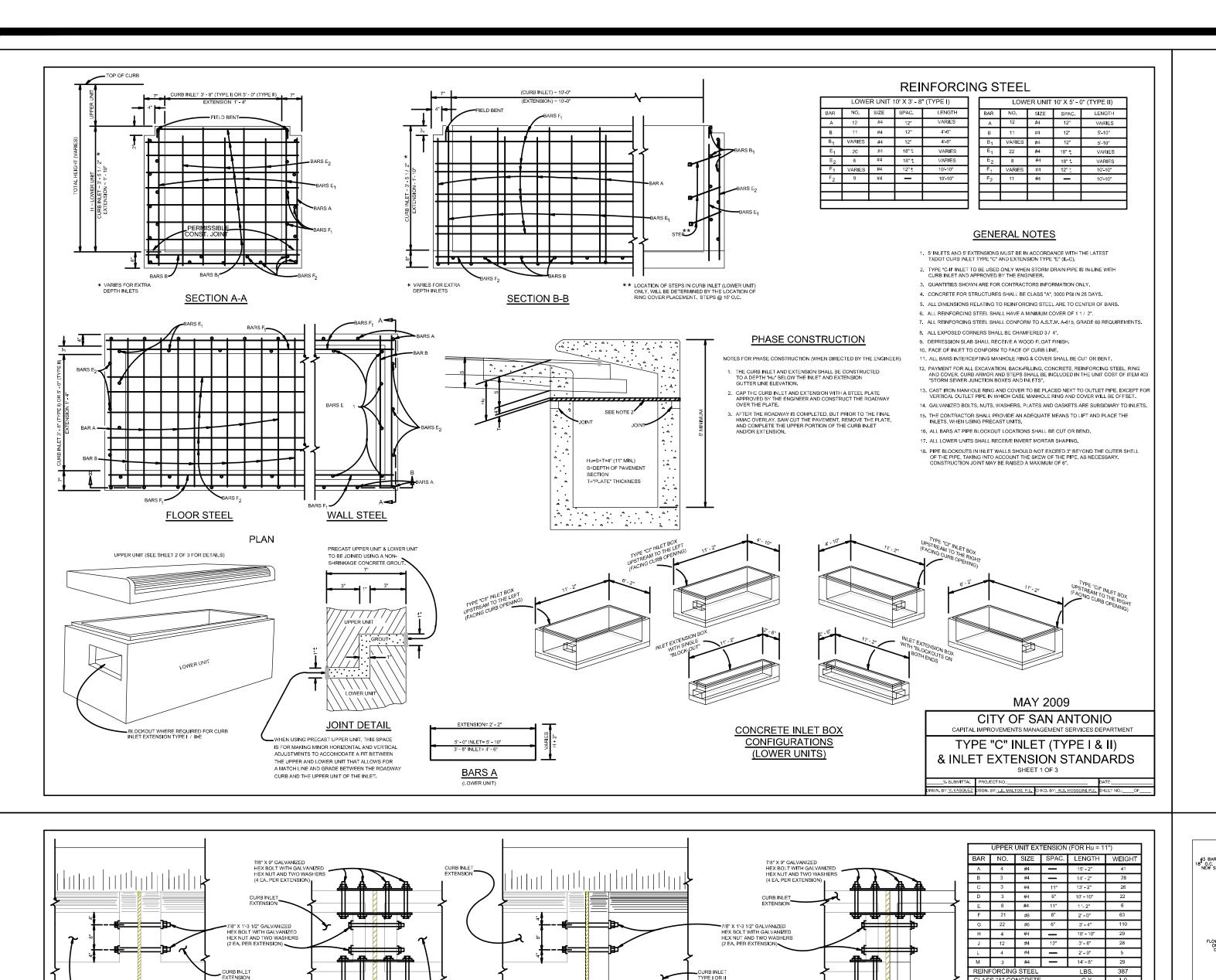
THESE PLANS OR NOT.

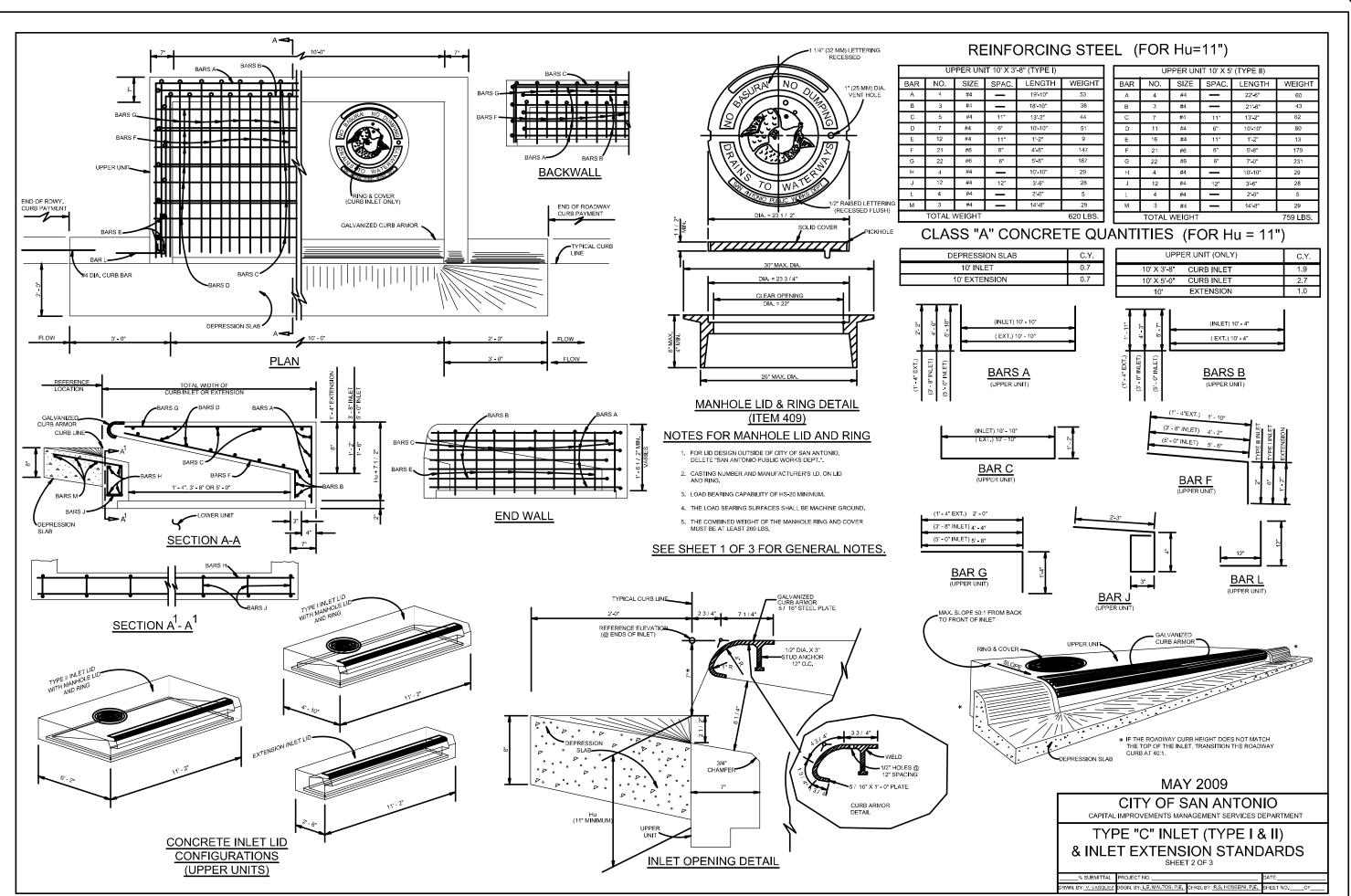
CAUTION!!

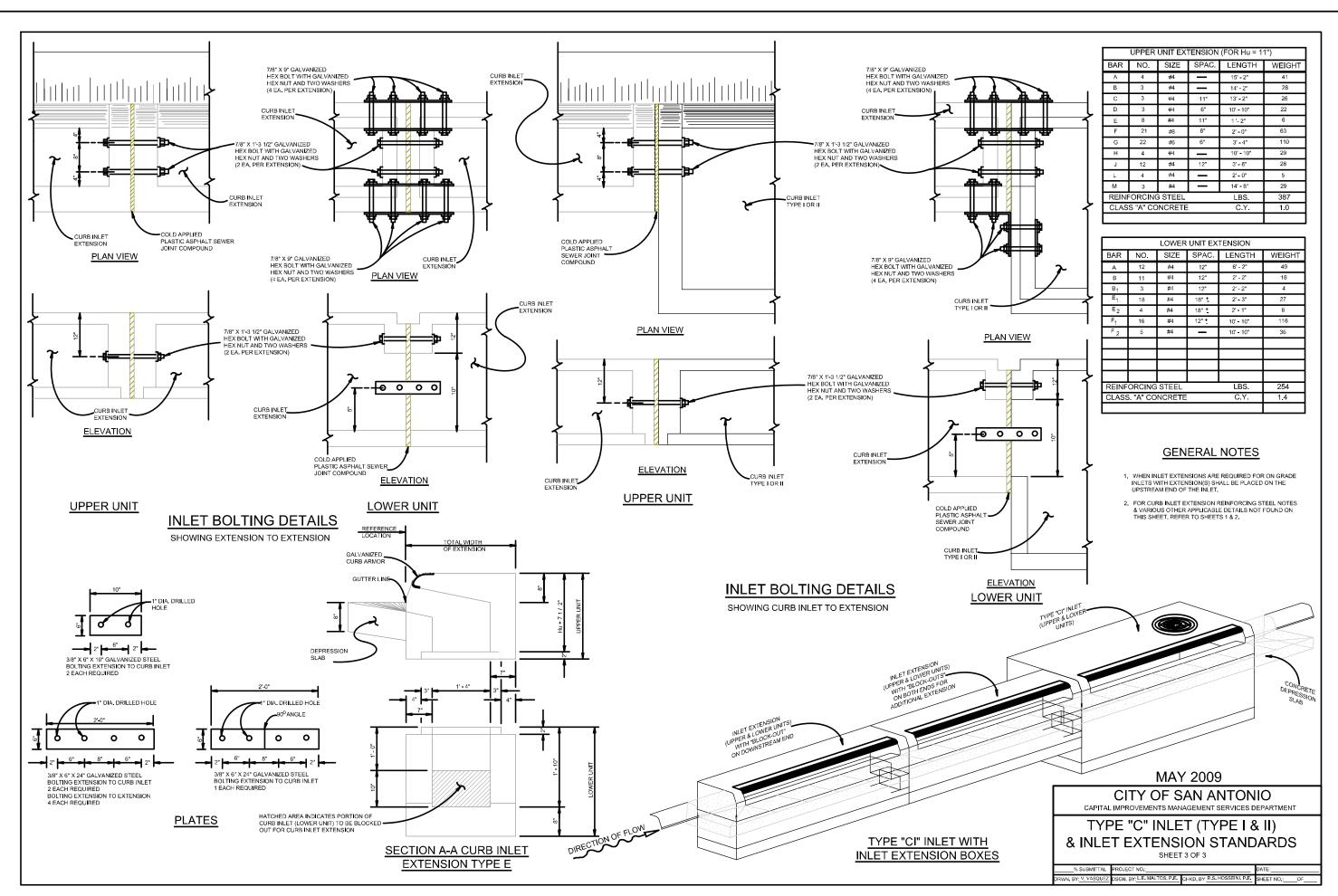
LAT NO. 22-11800736 6445-77 DESIGNER

HECKED BAC DRAWN AR

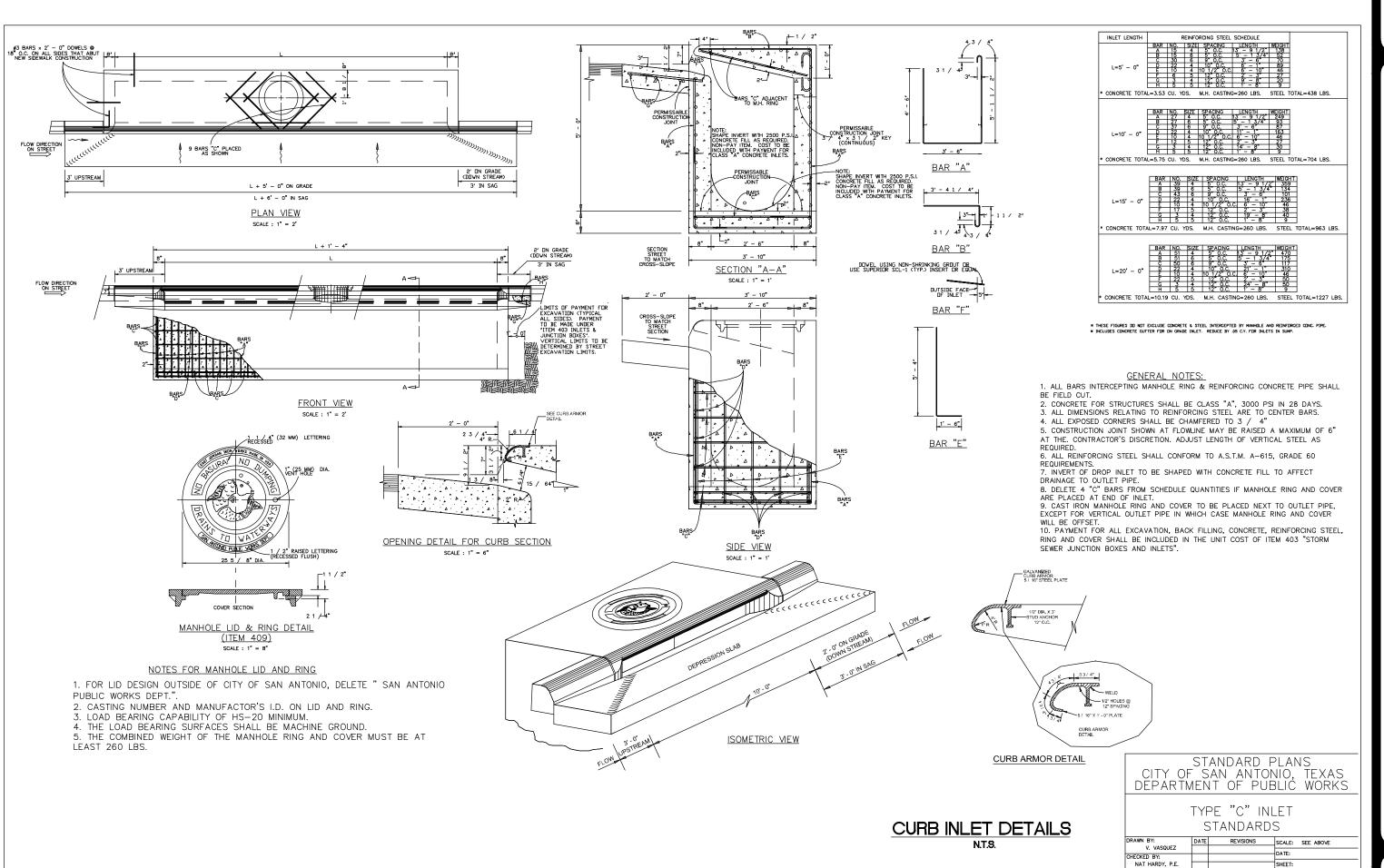
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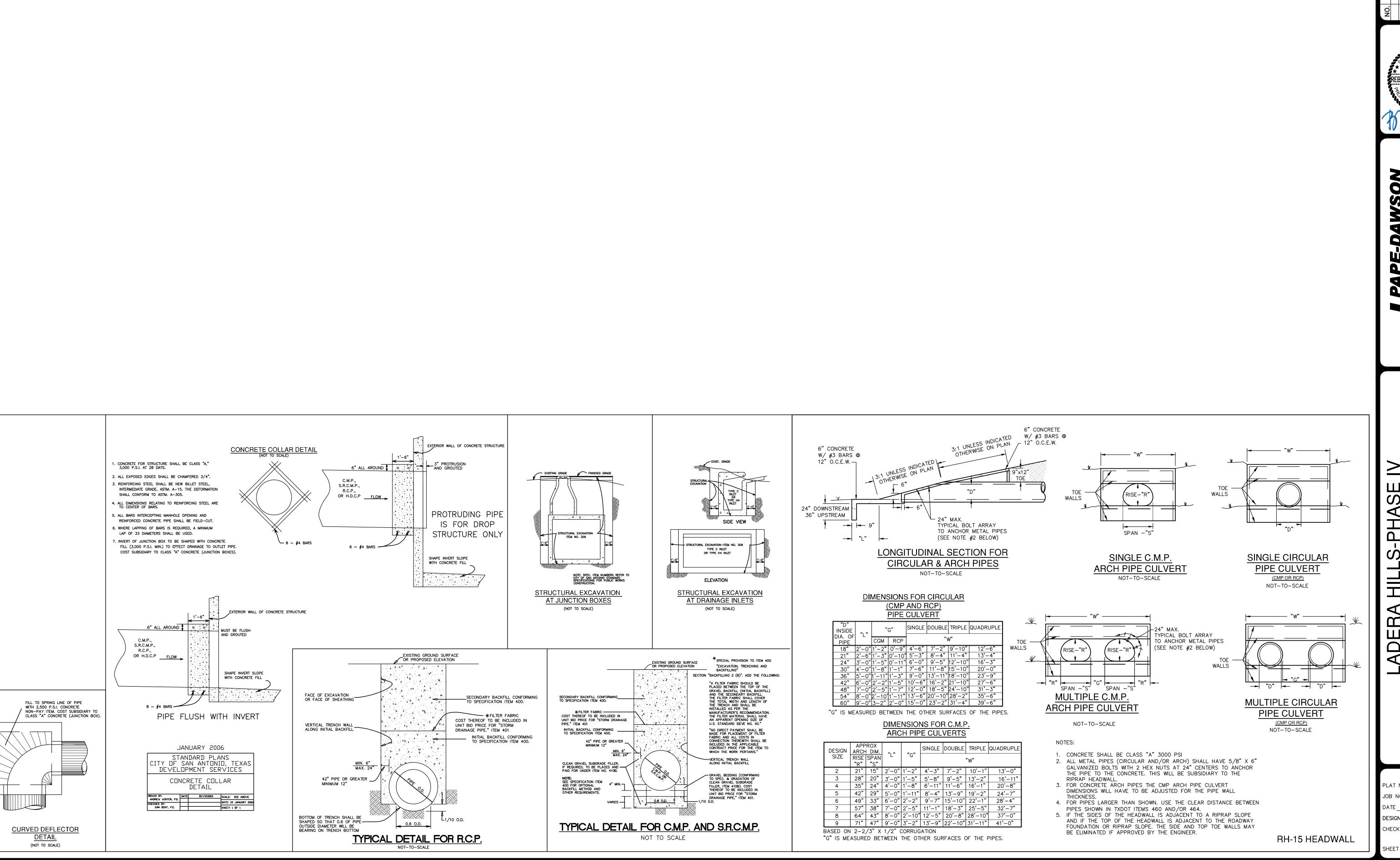


3/1/2024

REBECCA ANN CARRO

DRAINAGE (SHEET 1

PLAT NO. 22-11800736 6445-77 DATE MARCH 2024 DESIGNER CHECKED BAC DRAWN AR



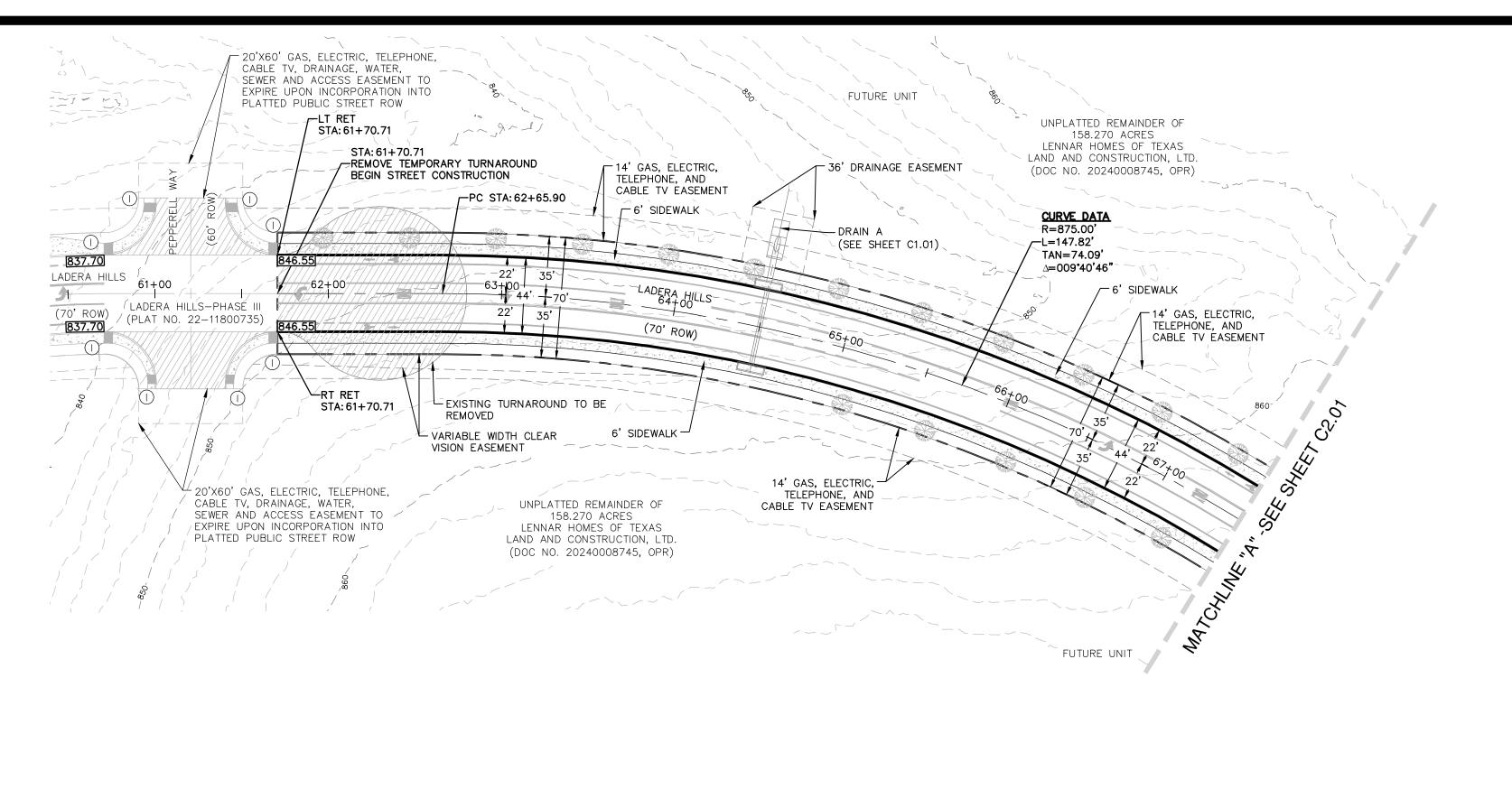
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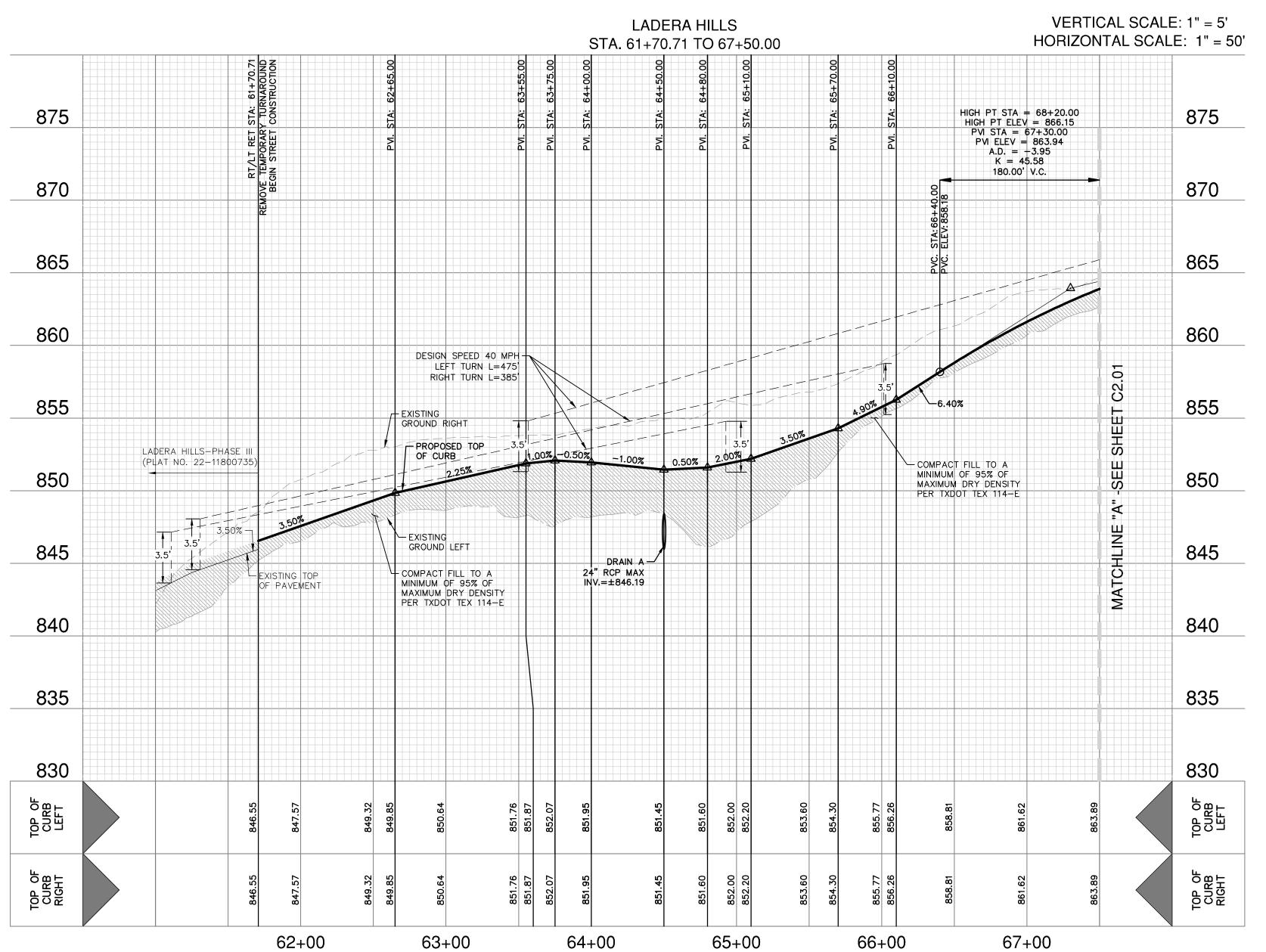
PAPE-DAWSON ENGINEERS

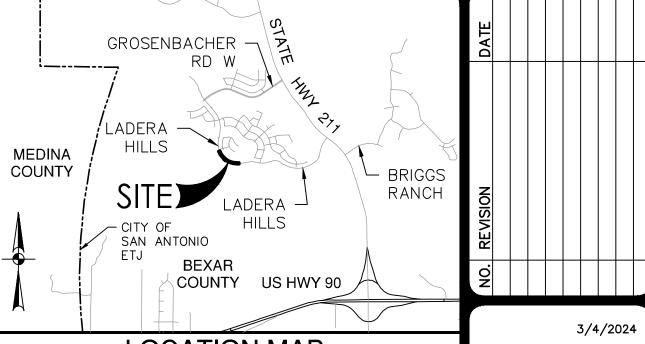
HILLS-PHASE R COUNTY, TEXAS

AIL (2) DRAINAGE DETA (SHEET 2 OF 2

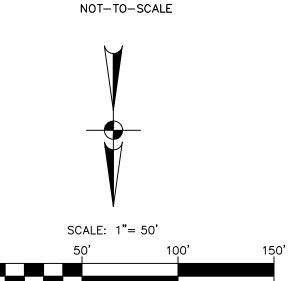
PLAT NO. 22-11800736 6445-77 DATE MARCH 2024 DESIGNER CHECKED BAC DRAWN AR



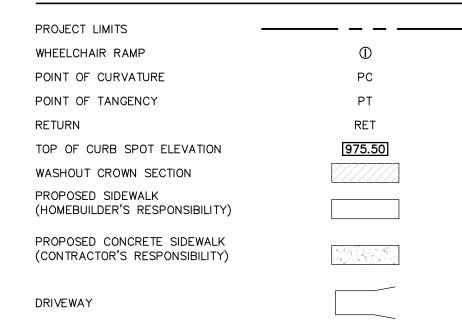


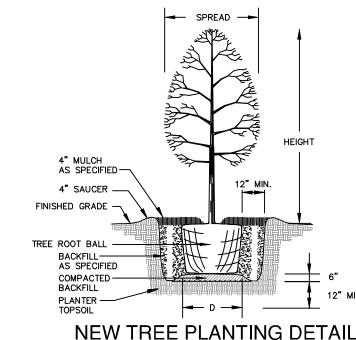


LOCATION MAP



## STREET LEGEND





#### STREETSCAPE TREE PLANTING NOTES:

LARGE TREES (PER UDC) TO BE PLANTED EVERY 50 FEET PER DETAIL.

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

#### STREET NOTES:

- A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
- 2. CONTRACTOR SHALL MATCH EXISTING PAVEMENT AT TIE—IN. IF EXISTING PAVEMENT ELEVATION DIFFERS SIGNIFICANTLY, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONTINUING WORK.
- 3. 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.
- 4. 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.
- 5. 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.
- 6. CHANGES IN THE SIDEWALK LOCATION FOR A MAXIMUM LINEAR DISTANCE OF TWO HUNDRED (200) FEET ARE PERMITTED TO BE APPROVED BY THE FIELD INSPECTOR WITHOUT AMENDING THE STREET PLAN OR UTILITY LAYOUT PER UDC SECTION 35-506 (Q)(6).
- 7. THE CONSTRUCTION OF SIDEWALKS ADJACENT TO ALL 900 SERIES LOTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER AS SHOWN ON THE OVERALL SIGNAGE

PE-DAWSON
GINEERS
HOUSTON I FORT WORTH I DALLAS

SAN ANTONIO I AUSTIN I HOUS

**6**7

7

LS +70.

H €1-

LAC PROFILE

AND

LADERA HILLS-PHASE IV BEXAR COUNTY, TEXAS

PLAT NO. 22-11800736

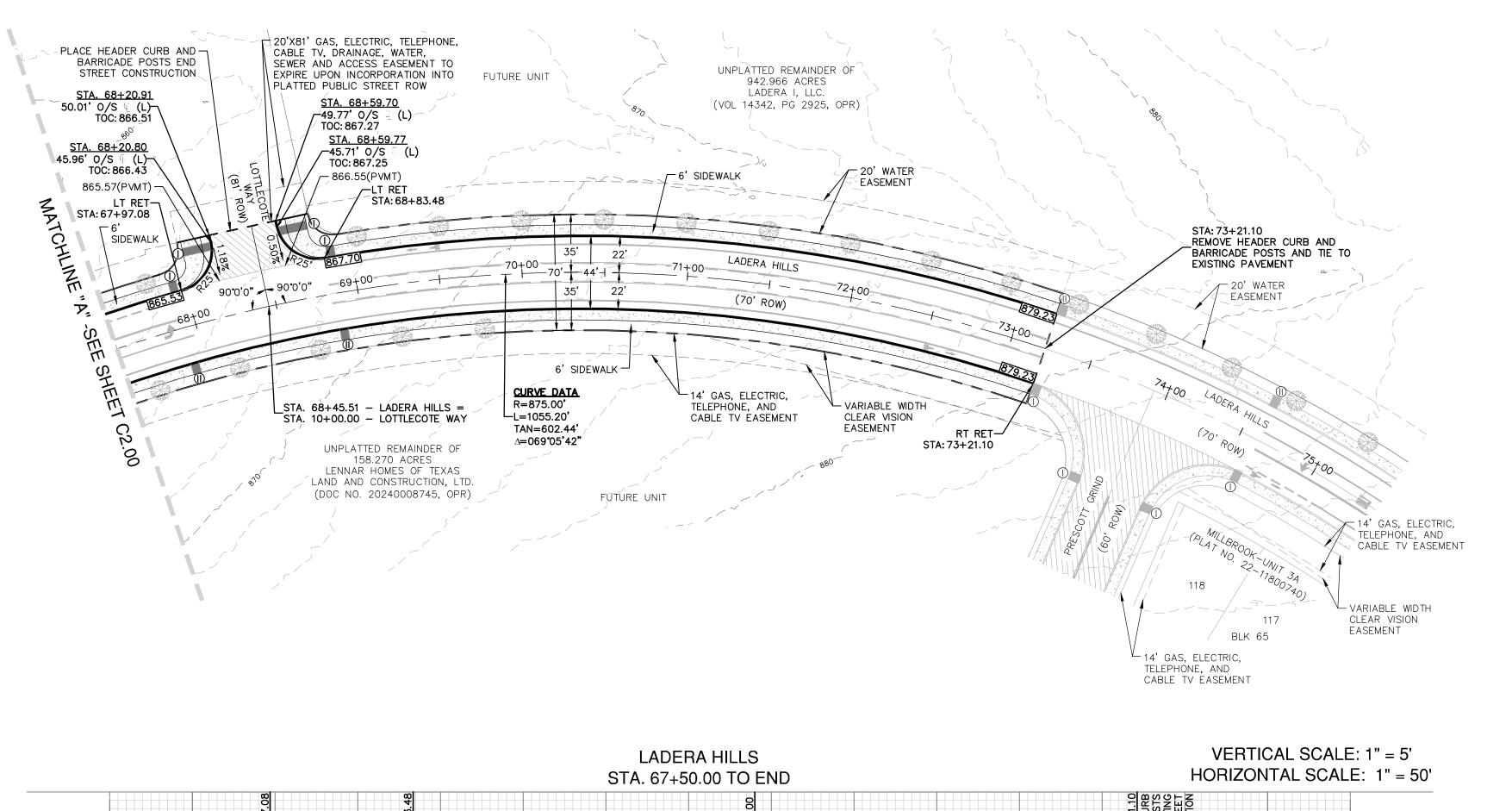
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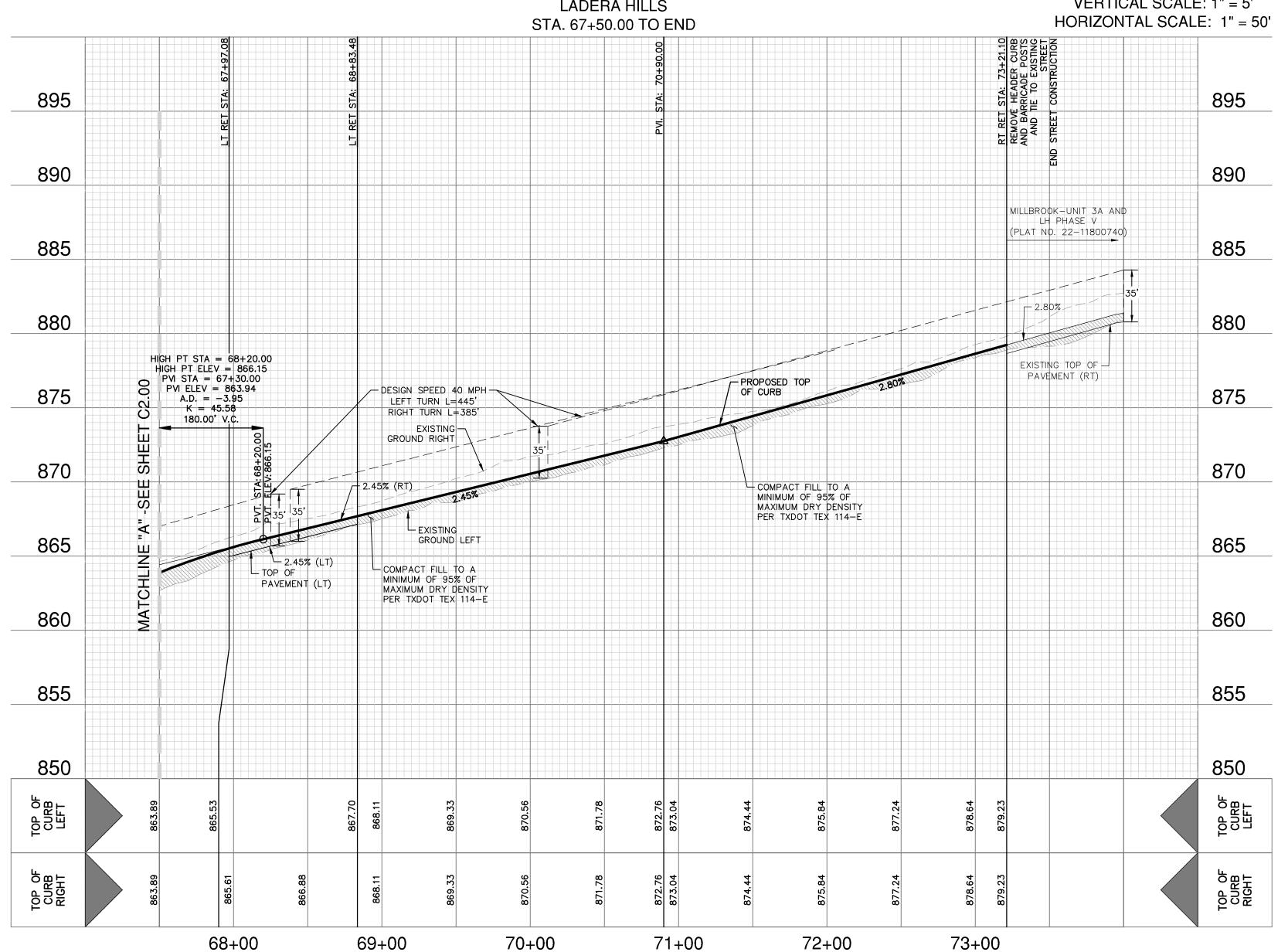
DATE MARCH 2024

DESIGNER JB

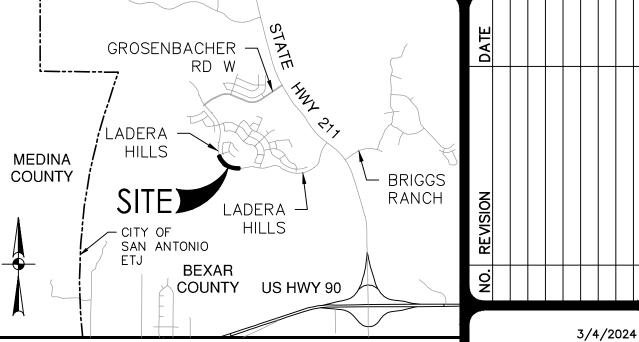
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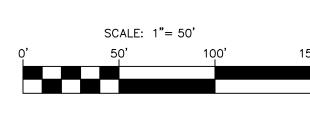


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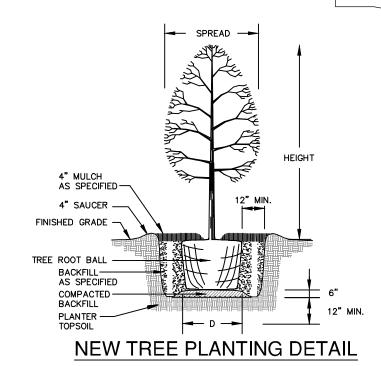
**LOCATION MAP** NOT-TO-SCALE





## STREET LEGEND

PROJECT LIMITS WHEELCHAIR RAMP POINT OF CURVATURE PC PΤ POINT OF TANGENCY RET RETURN 975.50 TOP OF CURB SPOT ELEVATION WASHOUT CROWN SECTION PROPOSED SIDEWALK (HOMEBUILDER'S RESPONSIBILITY) PROPOSED CONCRETE SIDEWALK (CONTRACTOR'S RESPONSIBILITY) DRIVEWAY



## STREETSCAPE TREE PLANTING NOTES:

LARGE TREES (PER UDC) TO BE PLANTED EVERY 50 FEET PER DETAIL.

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

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- 7. THE CONSTRUCTION OF SIDEWALKS ADJACENT TO ALL 900 SERIES LOTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER AS SHOWN ON THE OVERALL SIGNAGE

LADERA F PROFILE (STA

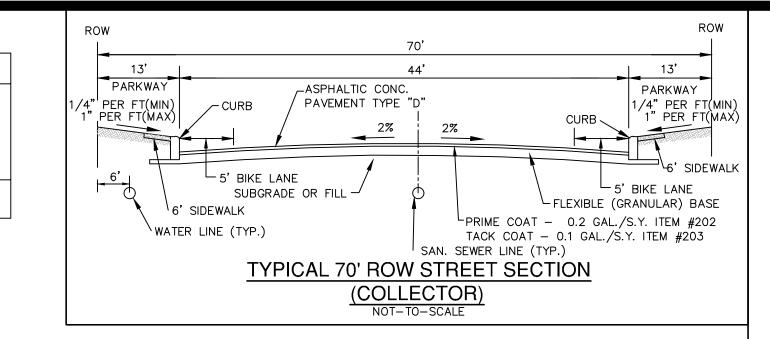
**T** 

AND

T NO. 22-11800736 6445-77 TE MARCH 2024 DESIGNER

HECKED BAC DRAWN AR C2.01

PAVEMENT SECTION DETAIL							
STREET NAME	STATION	TYPE "D" HMAC SURFACE TXDOT ITEM 340, in.	TYPE "C" HMAC SURFACE TXDOT ITEM 340, in.	AGGREGATE BASE, in. (TXDOT ITEM 247 TYPE A GRADE 1 OR 2)	LIME TREATED SUBGRADE	STRUCTURAL NUMBER	
LADERA HILLS	61+70.71 TO END	2"	2"	18"	6"	4.28	



#### GENERAL NOTES:

- 1. CONTRACTOR SHALL REFERENCE THE PROJECT PAVEMENT DESIGN REPORT NO. 00220904369.00 PREPARED BY **TTL, INC.** DATED **MARCH 14, 2023.**
- 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 4.0 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 BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN THE BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.

#### STREET SUBGRADE NOTES:

- 1. IF THE STREET SUBGRADE PLASTICITY INDEX VALUE IS GREATER THAN 20, SUBGRADE TREATMENT IS NEEDED AS PER CITY OF SAN ANTONIO REQUIREMENTS.
- 2. IF THE SUBGRADE PLASTICITY INDEX VALUE IS 20 OR LESS. SUBGRADE TREATMENT 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 TREATED USING 4 PERCENT LIME TO A DEPTH OF 6 INCHES AS NOTED
- 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.

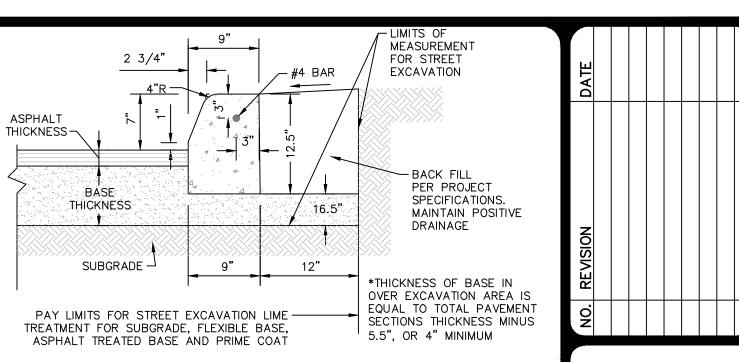
  5. LIME APPLICATION RATE OF 22.0 LBS PER SQ YARD FOR 6 INCH DEPTH OF TREATMENT IS RECOMMENDED.
- 6. APPROVED FILL MATERIAL SHOULD BE USED TO RAISE THE GRADE. THE FILL SHOULD BE FREE OF DELETERIOUS MATERIAL WITH A MINIMUM CBR VALUE OF 4.0. LIME APPLICATION RATES SHOULD BE RE—EVALUATED AND TESTED FOR SULFATE 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 TREATMENT.

#### LIME NOTES:

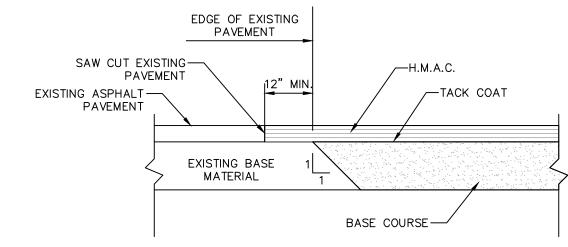
- FOR LIME STABILIZATION CONSTRUCTION VERIFICATION THE FOLLOWING SHALL BE CONDUCTED ON THE FIELD:

  1. AFTER INITIAL MIXING THE SOIL—LIME MIXTURE SHALL MELLOW FOR A PERIOD OF TWO TO THREE (2-3) DAYS. MAINTAIN MOISTURE DURING MELLOWING.
- 2. AFTER MELLOWING AND FINAL MIXING, THE PULVERIZATION SHALL BE CHECKED USING THE FOLLOWING CRITERIA (REMOVE NON-SLAKING AGGREGATES RETAINED ON THE ¾ INCH SIEVE FROM THE SAMPLE):

   MINIMUM PASSING 1¾" SIEVE 100
  - MINIMUM PASSING ¾ SIEVE 85 • MINIMUM PASSING NO. 4 SIEVE 60
- 3. SAMPLE SOIL—LIME MIXTURE FOR DETERMINATION OF MAXIMUM DRY DENSITY (MDD). IN THE LABORATORY, MOLD SPECIMENS TO 95% OF MDD AT OPTIMUM MOISTURE CONTENT AND VERIFY UCS TO BE AT LEAST 160 PSI IN ACCORDANCE WITH PROCEDURE OUTLINED IN THE BEXAR COUNTY FLEXIBLE PAVEMENT DESIGN CRITERIA GUIDE FOR MIXTURE DESIGN.
- 4. COMPACT AND CHECK FIELD DENSITY (MINIMUM OF 95% OF MDD REQUIRED).
- 5. CURE FOR AN ADDITIONAL 2 TO 5 DAYS (TOTAL MELLOWING AND CURING TIME SHOULD TOTAL AT LEAST 5 DAYS).
- 6. VERIFY DEPTH OF LIME TREATED LAYER TO DEPTH AS NOTED ON PLAN TO WITHIN  $\pm 1.0$  INCH.



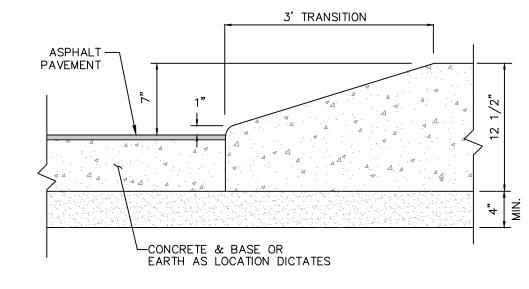
## CONCRETE CURB DETAIL NOT-TO-SCALE



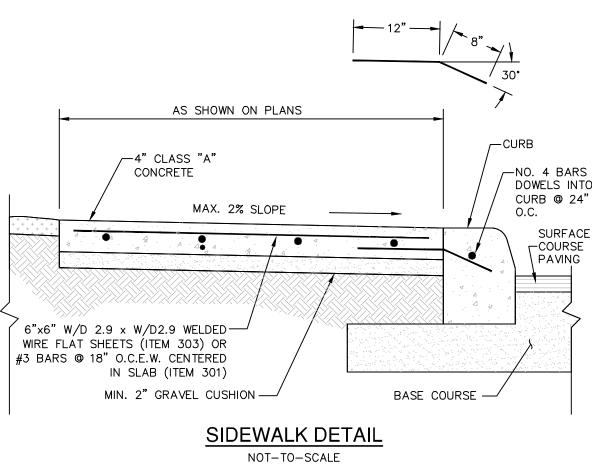
ASPHALT/ASPHALT JUNCTURE DETAIL

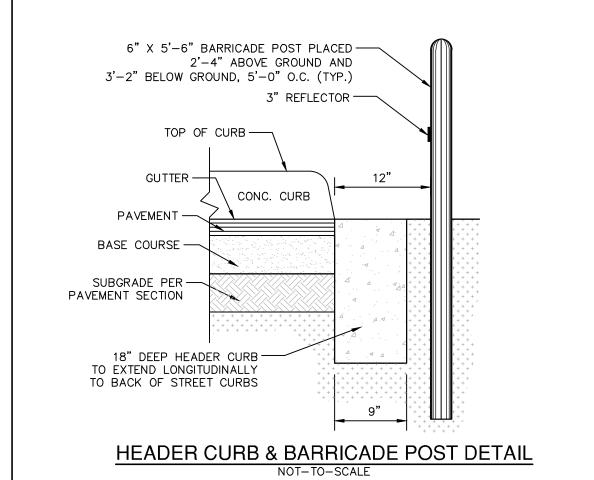
NOT-TO-SCALE

NOT-TO-SCALE



# CURB TRANSITION DETAIL (FROM PAVEMENT TO STANDARD CURB) NOT-TO-SCALE





LADERA HILLS-PHA

2/28/2024

rebecca ann carroi

**8**0

PLAT NO. 22-11800736

JOB NO. 6445-77

DATE FEBRUARY 2024

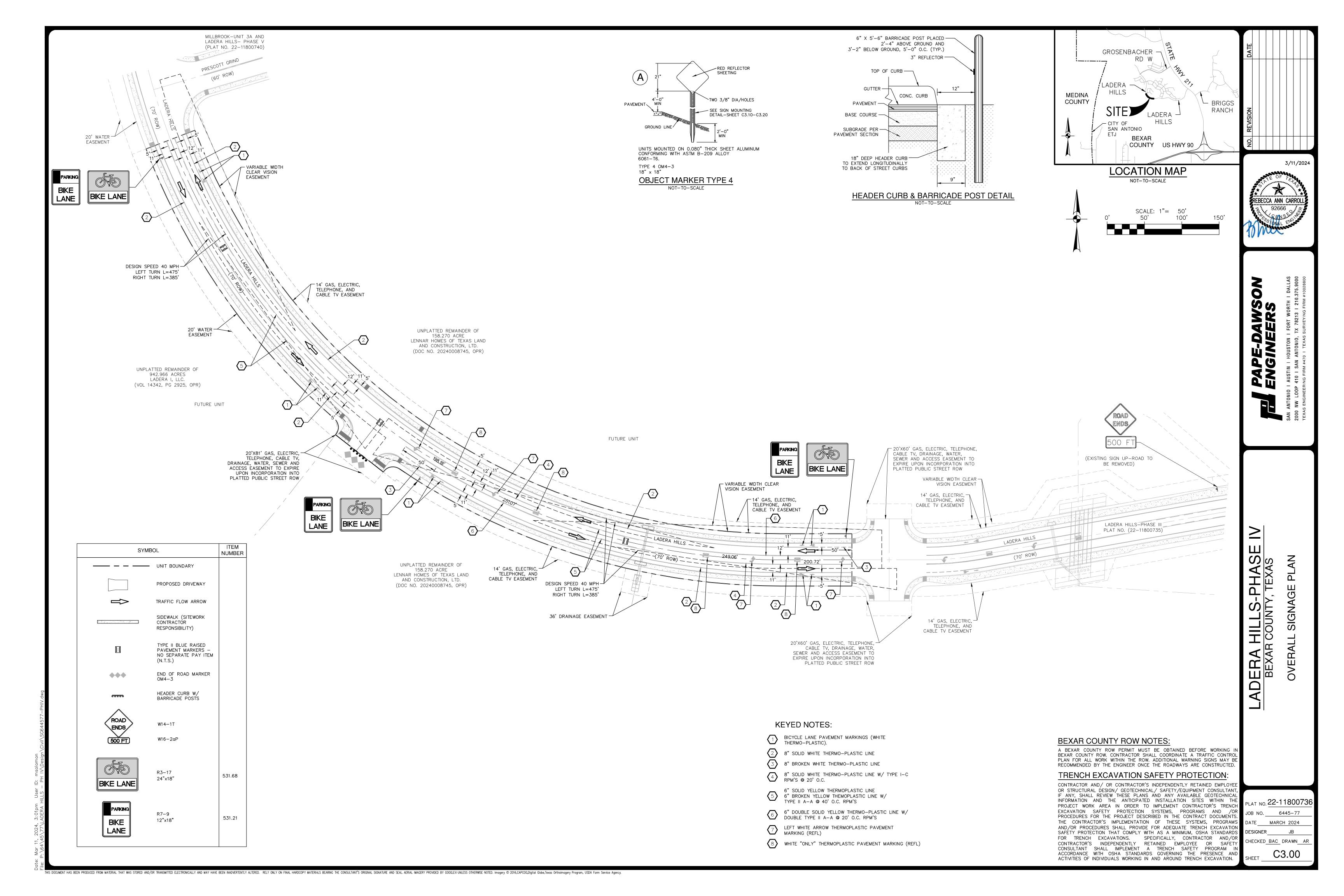
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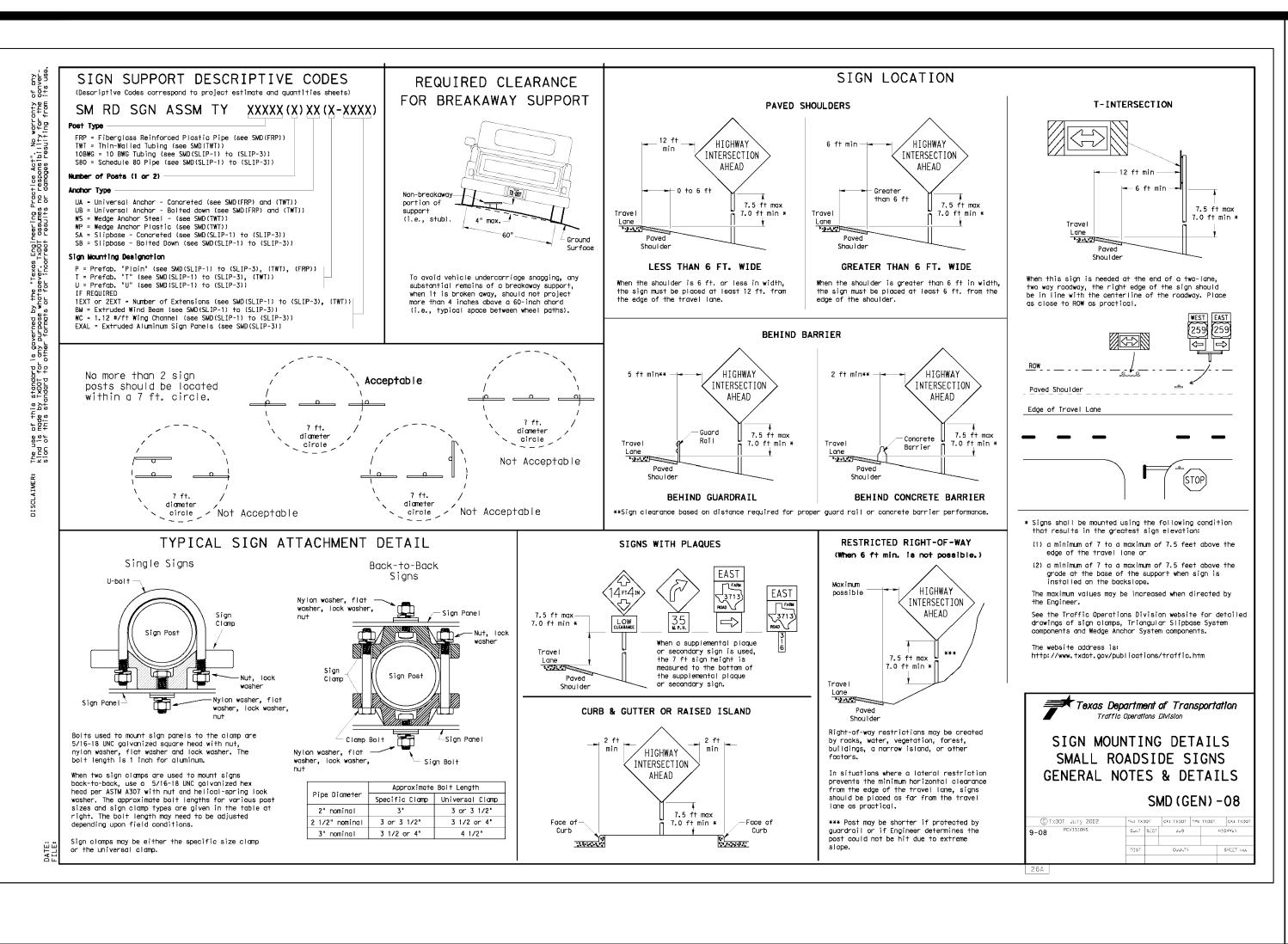
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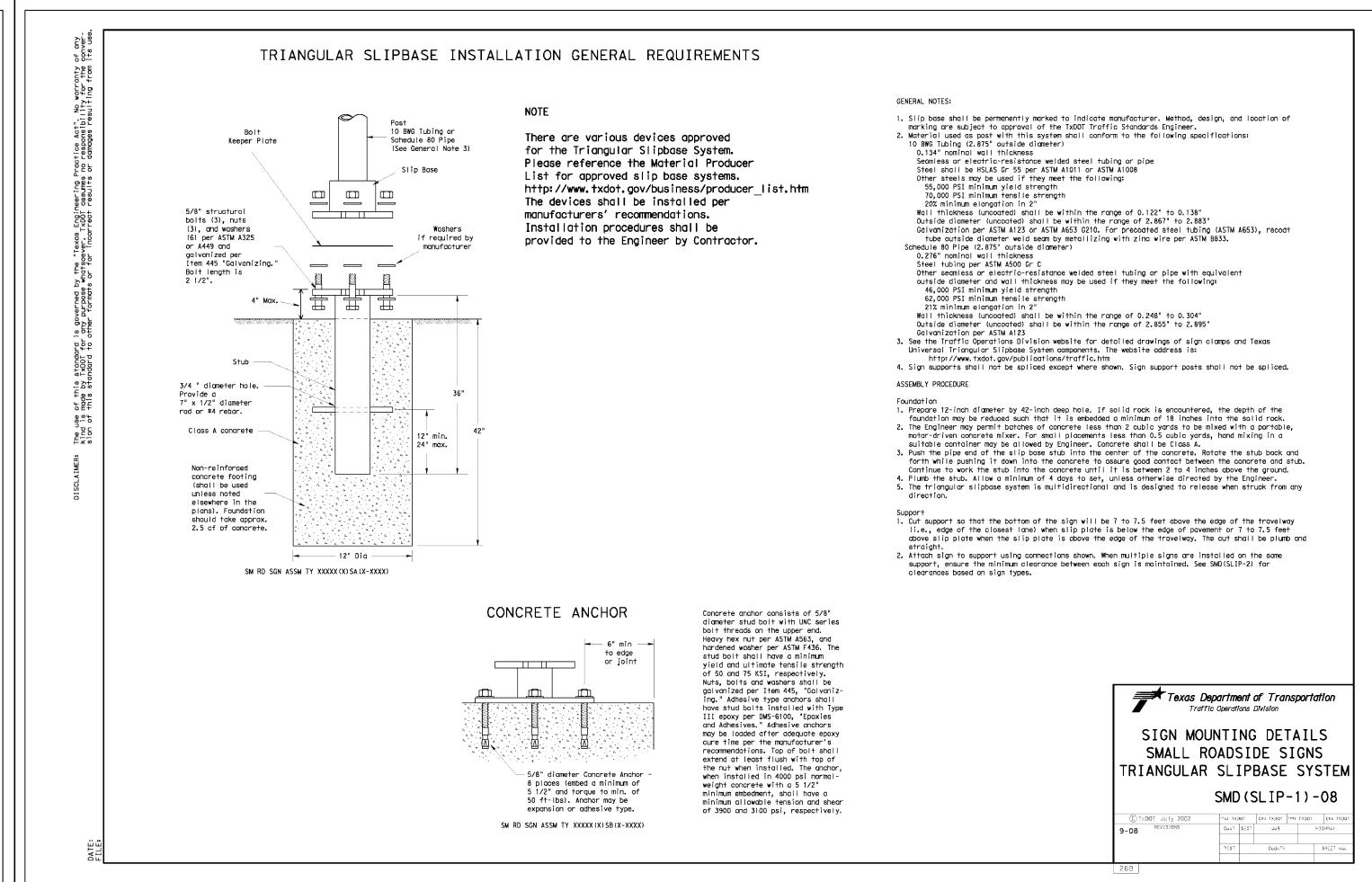
SHEET C2.10

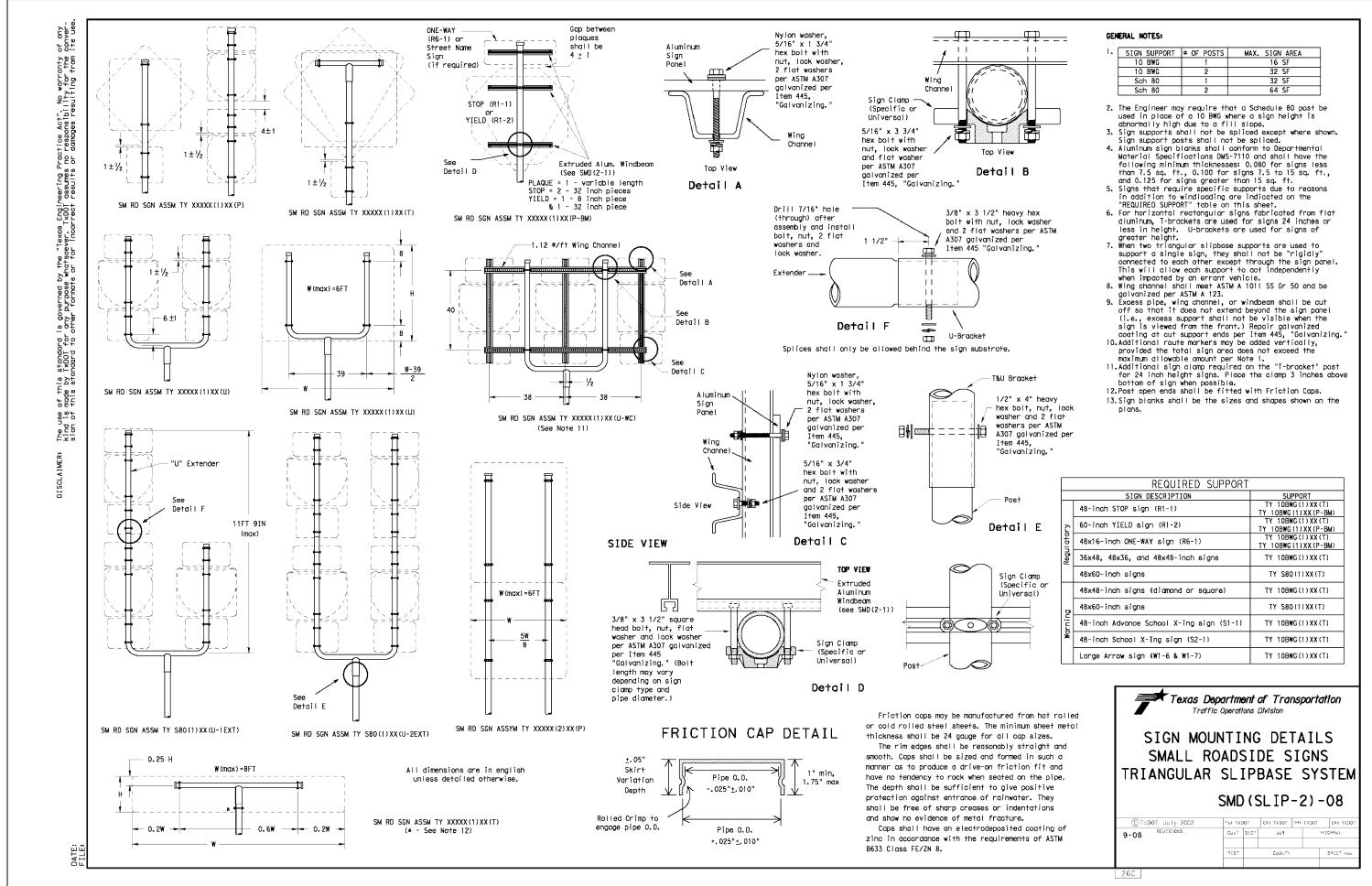
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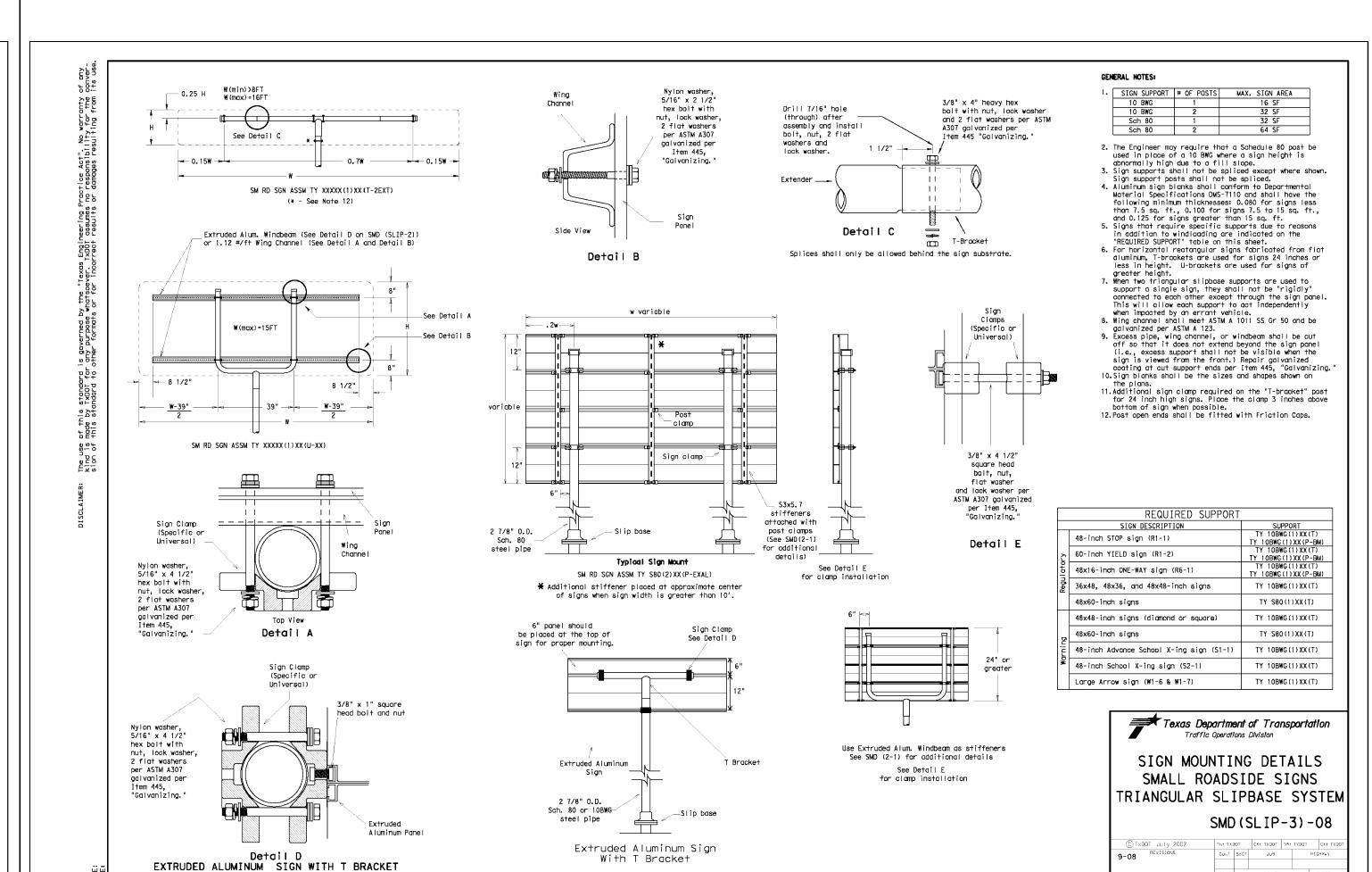
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3/4/2024

EBECCA ANN CARRO

ADERA HILLS-PHASE I
BEXAR COUNTY, TEXAS

SIGNAGE (SHEE

22-11800736

DB NO. 6445-77

ATE MARCH 2024

CSIGNER JB

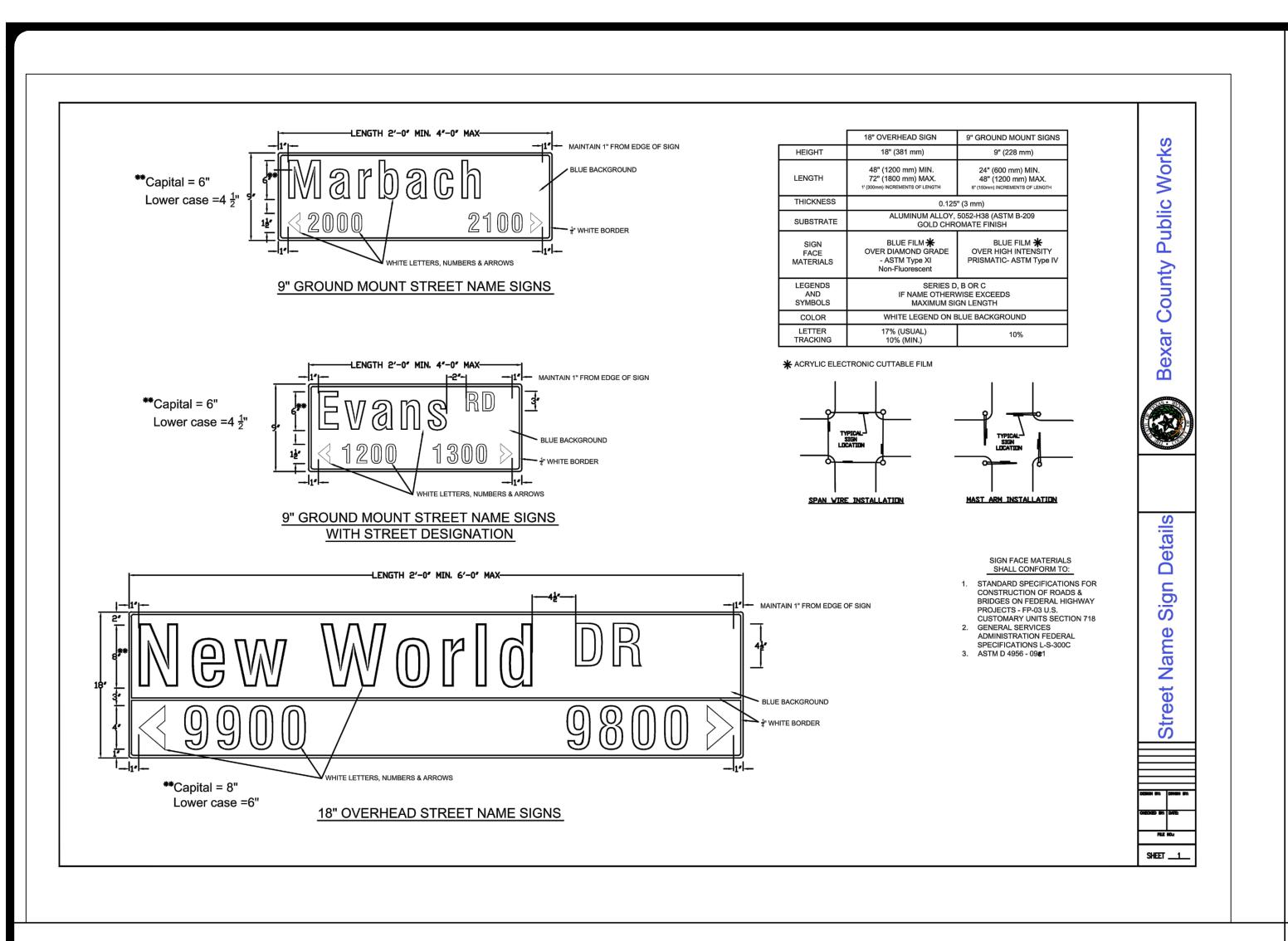
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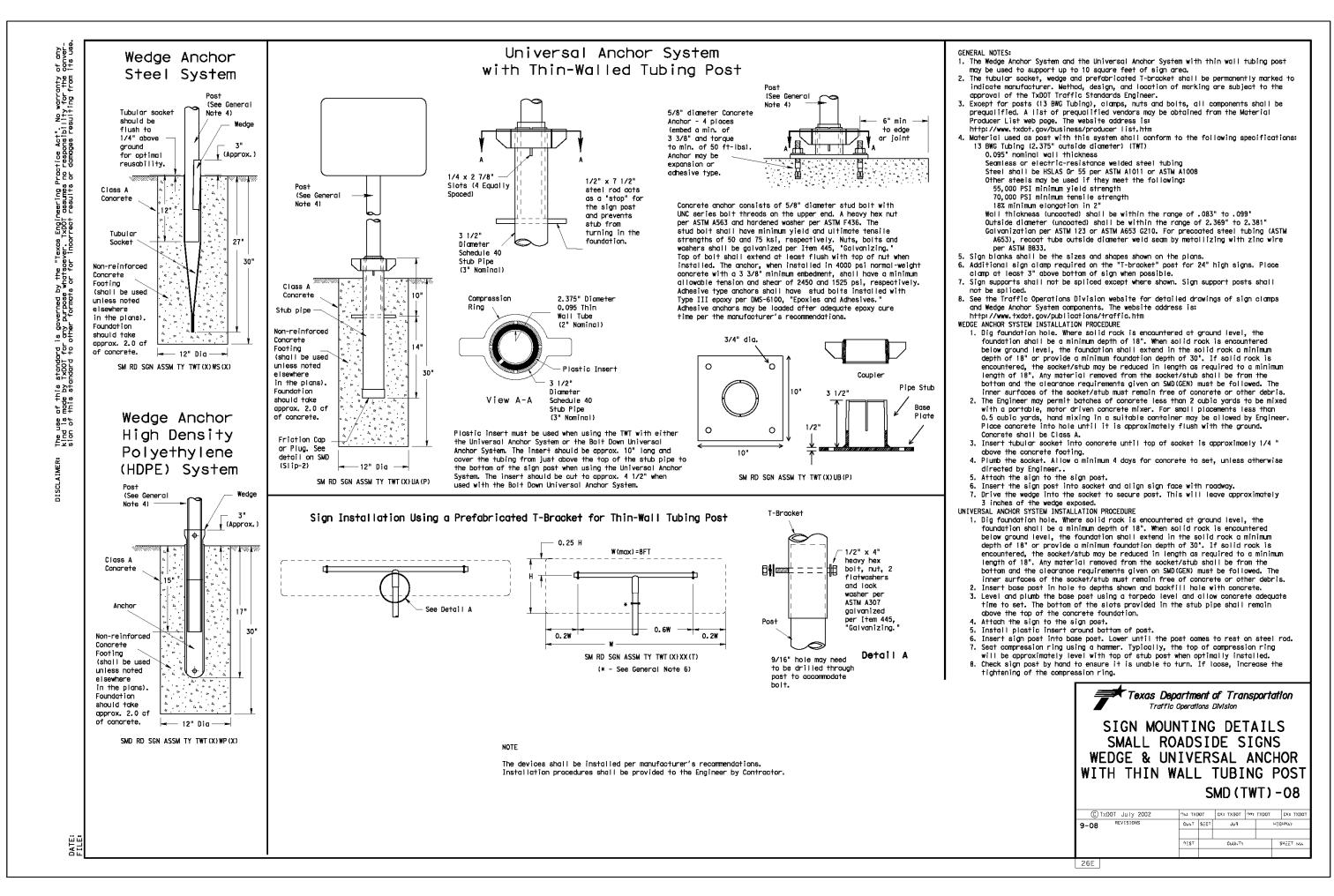
DATE MARCH 2024

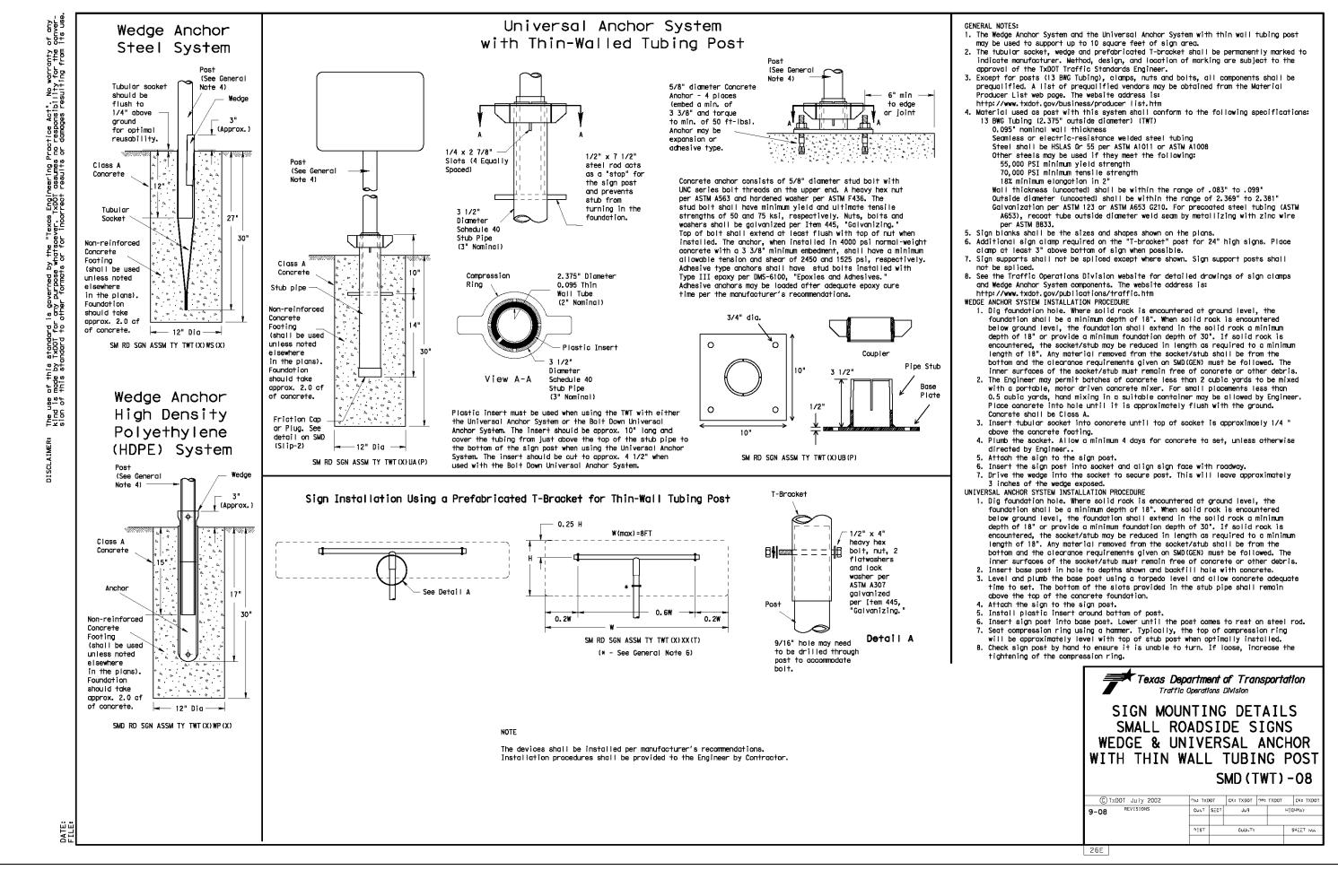
DESIGNER JB

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A Surface Marian Marian







Universal Anchor System

\_ 1/4 x 2 7/8"

(FRP) Pipe

with Fiberglass Reinforced Plastic (FRP) Post

- 3 1/2" Schedule 40

Acts as a "stop" for the sign post and prevents stub from turning in

Compression Ring

View A-A

the foundation.

3" O.D.

Non-reinforced

Concrete Footing (shall be used

elsewhere in the

should take approx.

2.0 cf of concrete.

Friction Cap

or Plug. See

Sign Clamp Universal)

Plastic or nylon washer, and flat washer

Flat washer.

-**--** 12 Dia → <del>--</del>

Typical Sign Mounting Detail

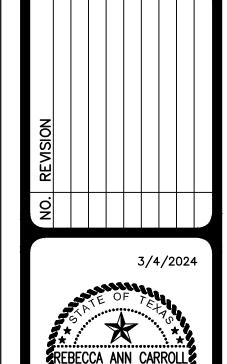
for FRP Support with Single Sign

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

5/16 x 4" Hex Bolt

Fiberglass Reinforced

Plastic (FRP) Pipe



GENERAL NOTES:

to edge

5/8" digmeter Concrete Anchor - 4 places

(embed a min. of 3 3/8" and torque to

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut

strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when

installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum

allowable tension and shear of 2450 and 1525 psi, respectively.

BOLT-DOWN DETAILS

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

.080" Aluminum Sign -

Typical Sign Mounting Detail

for FRP Support with Back-to-Back Signs

Plastic or nylon washer, and flat washer

Nylon Washer

Flat washer,

Sign Clamp

per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile

Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.

min. of 50 ft-1bs). Anchor may be expansion

 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/publications/traffic.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

 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(GEN) 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 hale to depths shown and fill hale with concrete. Cut base post from bottom and ensure a minimum of 18" embedment if installed in solid rook.

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 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

BOLT DOWN SIGN SUPPORT

 Position base plate with coupler on existing concrete.
 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

**Texas** Department of Transportation SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WITH FRP POST

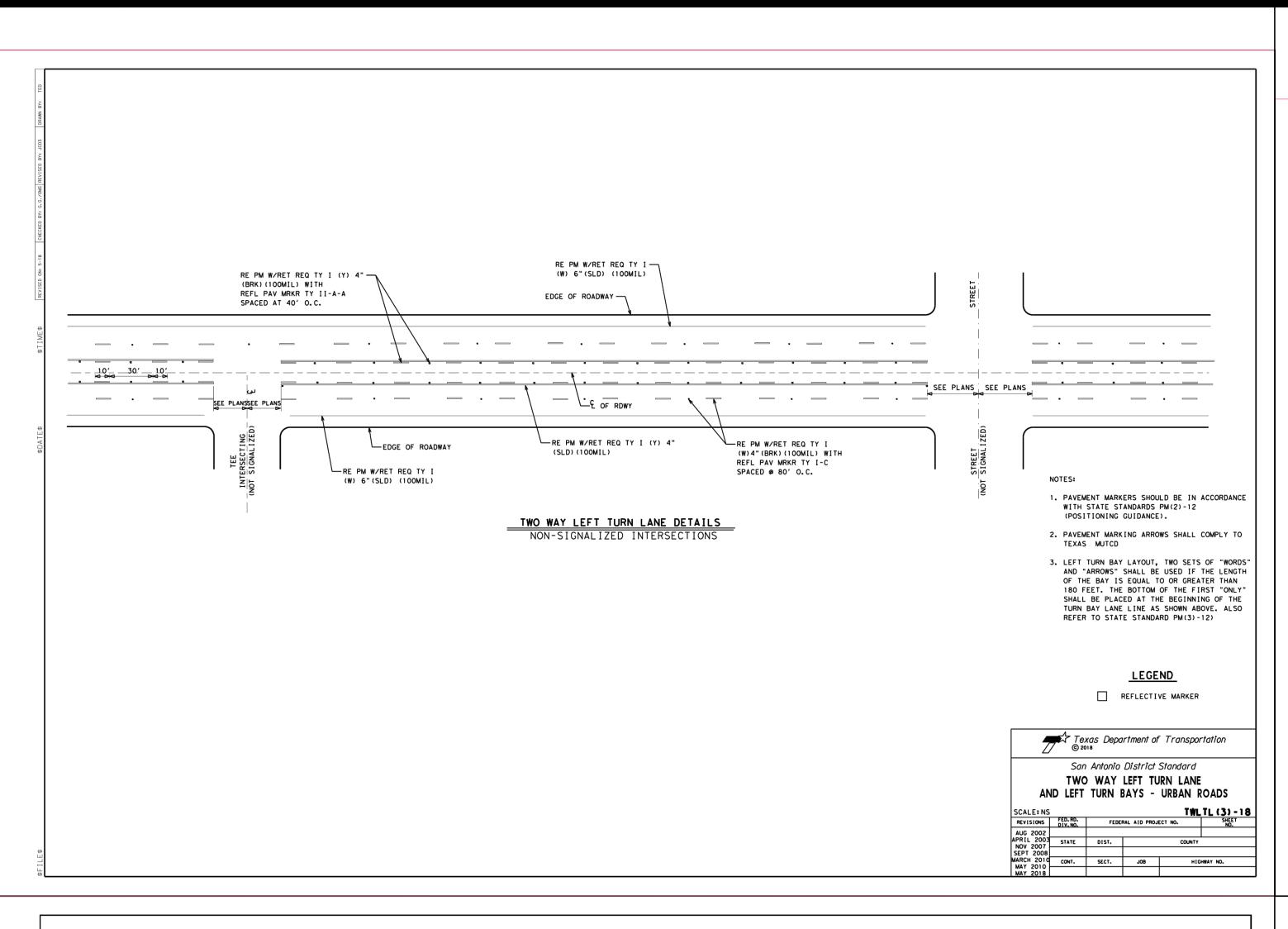
UNIVERSAL ANCHOR SYSTEM SMD (FRP) -08

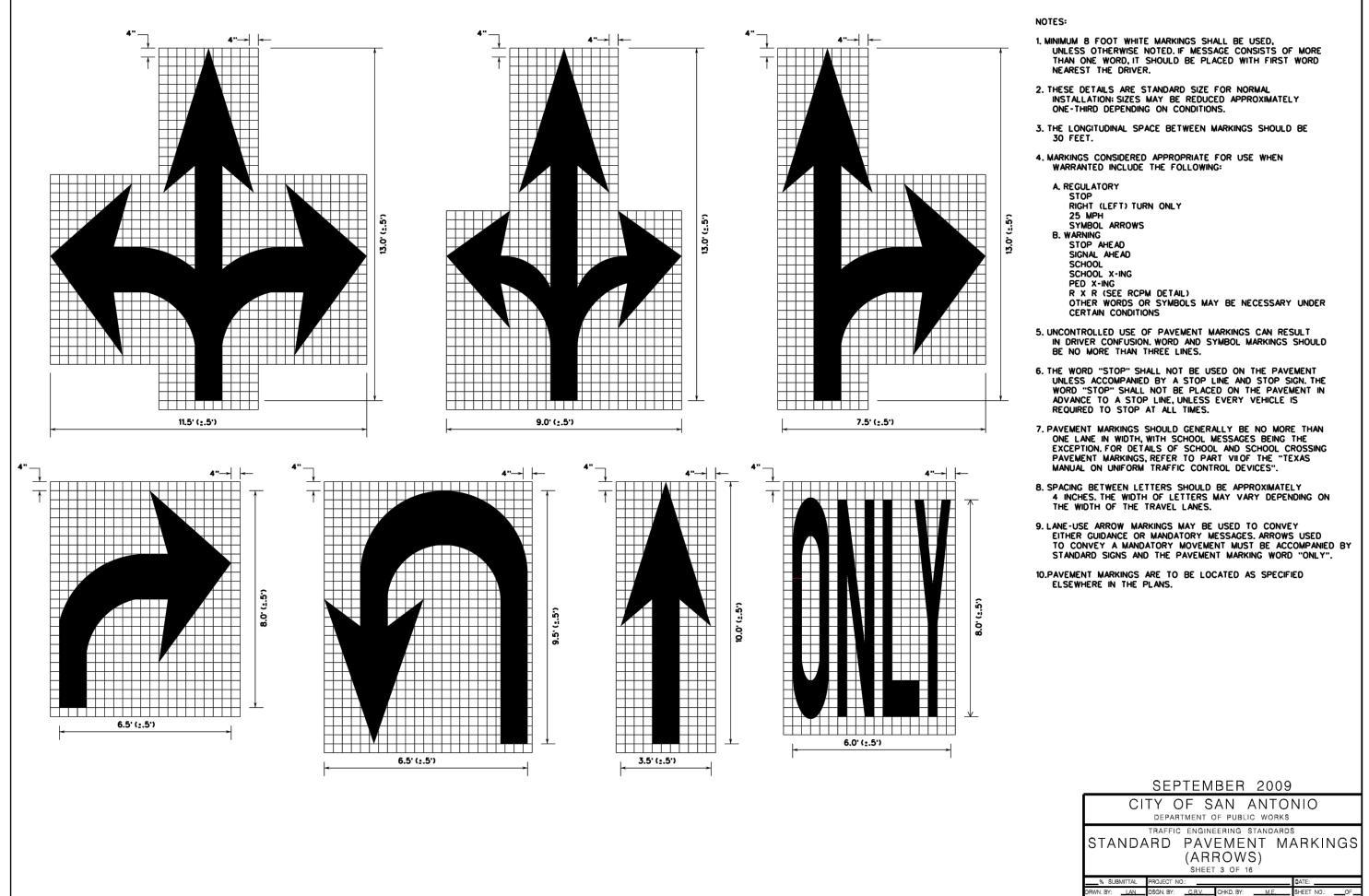
NO. 22-1180073 OB NO. 6445-77 TE MARCH 2024

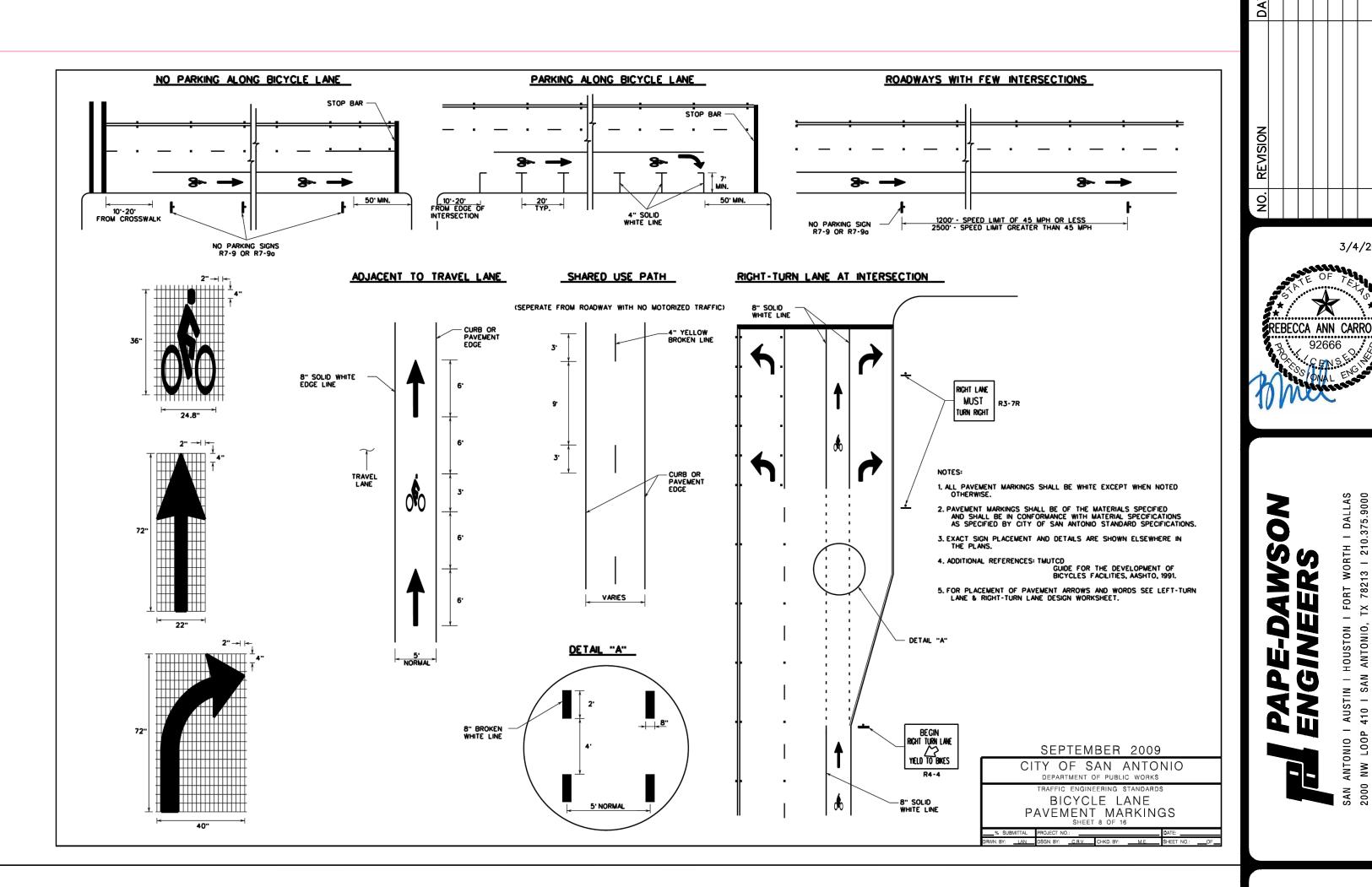
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DETAIL 2 OF 4)

SIGNAGE (SHEET







ADERA HILLS-PHASE BEXAR COUNTY, TEXAS

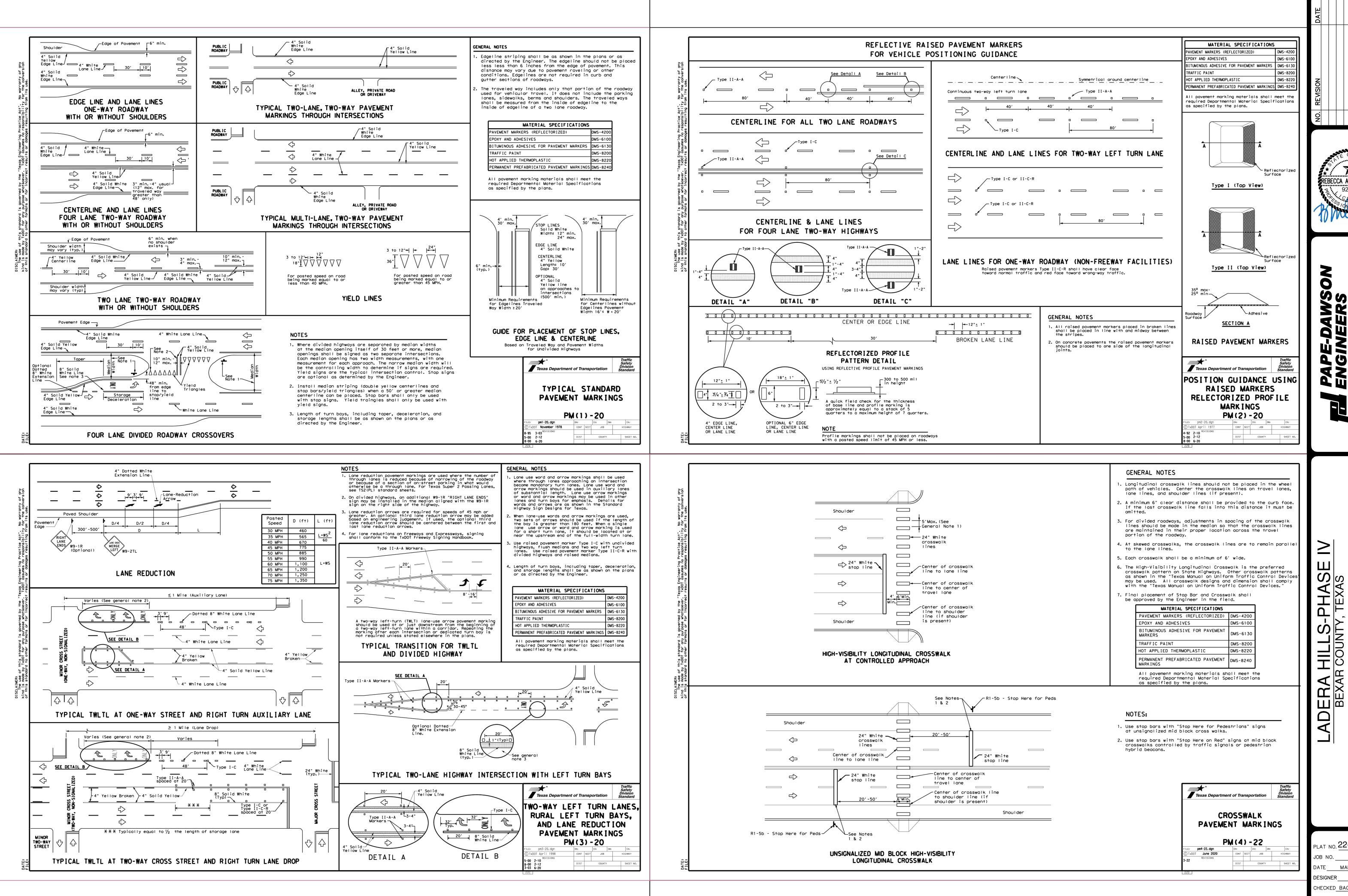
DETAIL 3 OF 4)

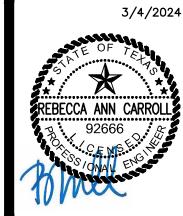
3/4/2024

SIGNAGE (SHEET

PLAT NO. 22-11800736 JOB NO. 6445-77 ATE MARCH 2024 DESIGNER

CHECKED<u>BAC</u> DRAWN<u>AR</u> C3.30

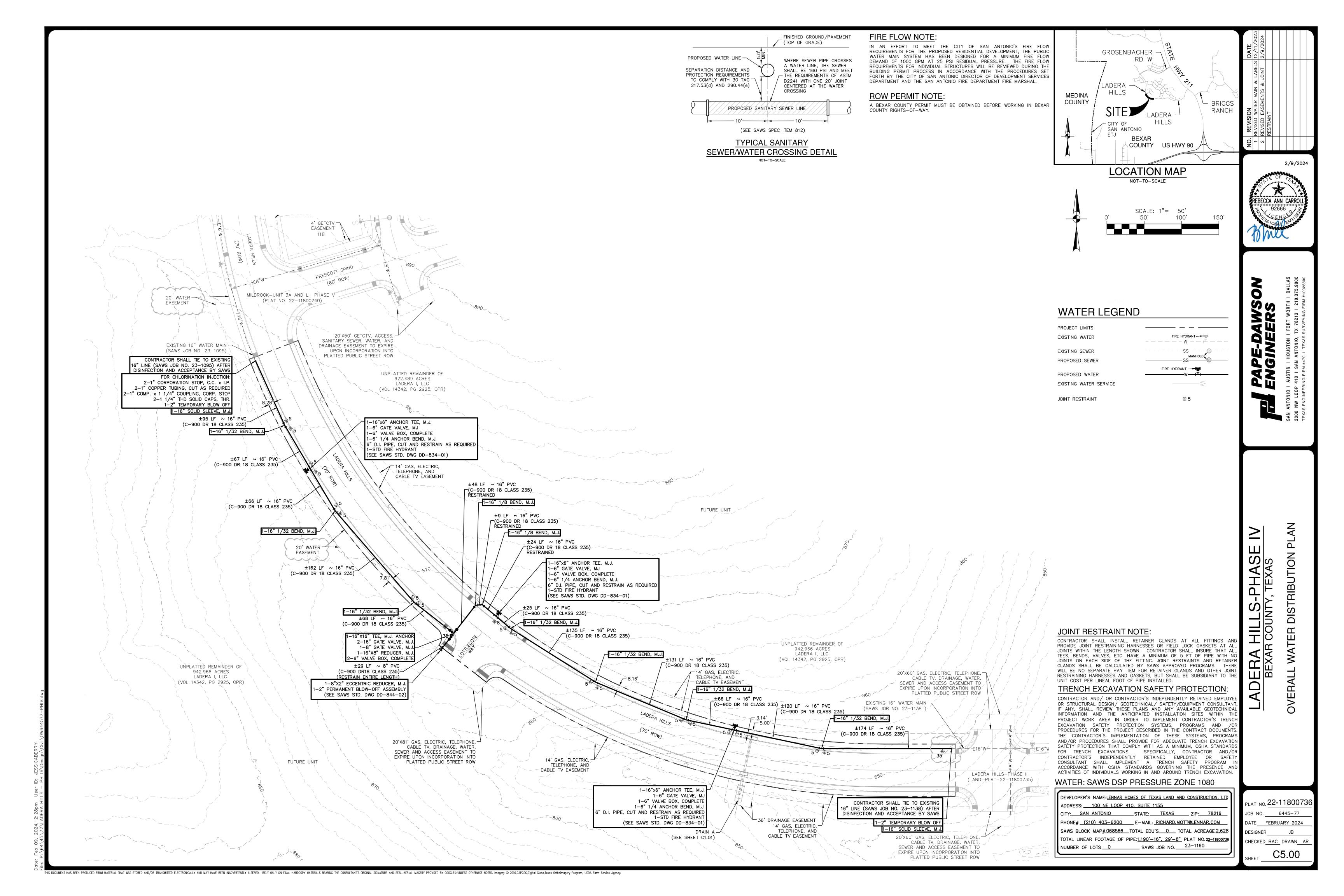




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<sub>NO.</sub> 22-1180073 6445-77 MARCH 2024

HECKED BAC DRAWN AF C3.40



### SAWS CONSTRUCTION NOTES

#### SAWS GENERAL SECTION

- ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING AS APPLICABLE:
- A.CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) "DESIGN CRITERIA FOR DOMESTIC WASTEWATER 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 SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL"
- 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 SAWS 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.
- 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 SAWS CONSTRUCTION INSPECTION DIVISION AT (210) 233-2973, ON NOTIFICATION PROCEDURES THAT WILL BE USED TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS 48 HOURS PRIOR TO BEGINNING ANY WORK.
- 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 SAWS.
- 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

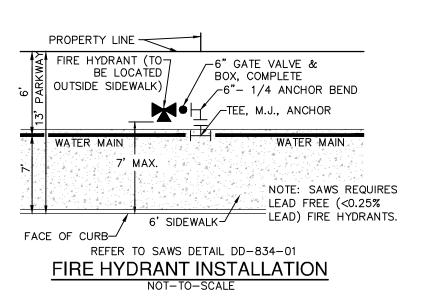
PROJECT'S CONSTRUCTION.

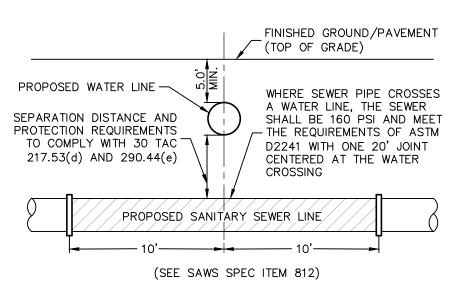
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES TO ITS ORIGINAL OR BETTER CONDITION IF DAMAGES ARE MADE AS A RESULT OF THE
- 8. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) AND/OR BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT REQUIREMENTS.
- 9. THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.
- 10. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN PERMIT.
- 11. HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM SAWS WORK ON SAWS RECOGNIZED HOLIDAYS. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.
- WEEKEND WORK: CONTRACTORS ARE REQUIRED TO NOTIFY THE SAWS INSPECTION CONSTRUCTION DEPARTMENT 48 HOURS IN ADVANCE TO REQUEST WEEKEND WORK. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.
- 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 COMPÀCTION RÉQUIREMENTS 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 SAWS CONSTRUCTION

#### SAWS WATER NOTES

- PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION 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 SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.
- FOR WATER MAINS 12" OR HIGHER: SAWS EMERGENCY OPERATIONS CENTER (210) 233-2014
- 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".
- 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)
- 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.
- ALL VALVES SHALL READ "OPEN RIGHT".
- PRVS REQUIRED: CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF 895 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 895 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ALLOWED FOR ANY LOT(S) IF \*PRV IS/ARE REQUIRED FOR SUCH LOT(S), ONLY SINGLE SERVICE CONNECTIONS SHALL BE ALLOWED. \*NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE
- 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.
- B. 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 SAWS PRIOR TO INSTALLATION.
- FINAL CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL THE WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED, AND SAWS HAS RELEASED THE MAIN FOR TIE-IN AND USE.
- D. DIVISION VALVES: DIVISION VALVES SHOWN ON PLANS OR NOT SHOWN ON PLANS BUT FOUND IN THE FIELD SHALL ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF AND ONLY WITH PRIOR WRITTEN APPROVAL OF THE SAWS DIRECTOR OF PRODUCTION AND OPERATIONS AND PROPER COORDINATION WITH ALL SAWS DEPARTMENTS. CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO THE INSPECTOR A MINIMUM OF TWO WEEKS IN ADVANCE TO START THE COORDINATION PROCESS AND WILL B INFORMED BY THE INSPECTOR WHEN THE DIVISION VALVE WILL BE OPERATED BY THE SAWS DISTRIBUTION AND COLLECTION STAFF. THE DIVISION VALVE CAN ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF THE INSPECTOR OR THE CONTRACTOR 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 1 SUBJECTING THE CONTRACTOR TO LIABILITY FOR ANY AND ALL FINES. FEES OR OTHER DAMAGES, DIRECT OR CONSEQUENTIAL, THAT MAY ARISE FROM OR BE CAUSED BY THE OPERATION OF THE VALVE WITHOUT PRIOR WRITTEN PERMISSION. PLEASE BE INFORMED THAT THE APPROVAL OF THE OPERATION OR OPENING OR CLOSING OF A DIVISION VALVE CAN TAKE SEVERAL WEEKS FOR APPROVAL. DIVISION VALVES WILL ALSO HAVE A VALVE LID LABELED DIVISION VALVE AND A LOCKING MECHANISM INSTALLED WITH A KEY. THE LOCK AND KEY MECHANISM WILL BE PAID FOR BY THE CONTRACTOR BUT WILL BE INSTALLED BY SAWS DISTRIBUTION AND COLLECTION STAFF.

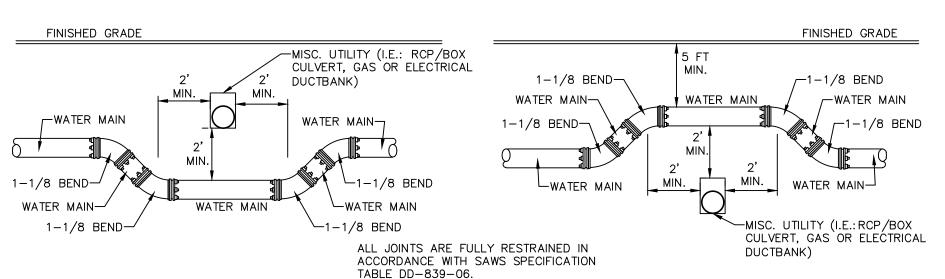
- MACHINE CHLORINATION BY THE S.A.W.S.
- ALL 8", 12" AND 16" PIPE SHALL BE P.V.C. C-900 CLASS 235 DR 18.
- ALL MAINS SHALL BE HYDROSTATICALLY TESTED BY THE CONTRACTOR, AS PROVIDED FOR IN THE SPECIAL CONDITIONS.
- MEASUREMENTS, TAPS AND LENGTH OF SERVICE CONNECTIONS.
- WATER SERVICES. THESE LOT CORNERS 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.
- 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.
- WATER METER BOXES IF APPLICABLE SHALL BE INSTALLED NINE FEET FROM
- . ALL GARBAGE OR SPOIL MATERIAL FROM THIS WORK SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR, AT HIS EXPENSE.
- D. FINAL CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTILfloorWATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED AND THE S.A.W.S.
- 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).
- . WHEN SEWER LINES ARE INSTALLED IN THE VICINITY OF WATER MAINS, SUCH INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE TEXAS NATURAL
- 3. A CLEAR SPACE SHALL BE PROVIDED AROUND ALL FIRE HYDRANTS. THIS AREA SHOULD HAVE A MINIMUM DIAMETER OF 3.0' AND BE CLEAN OF
- 14. SAWS REQUIRES LEAD FREE (< 0.25%) FIRE HYDRANTS.
- 15. UNLESS OTHERWISE NOTED ALL SERVICES SHALL BE 3/4" WITH 5/8" METER.





TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

NOT-TO-SCALE

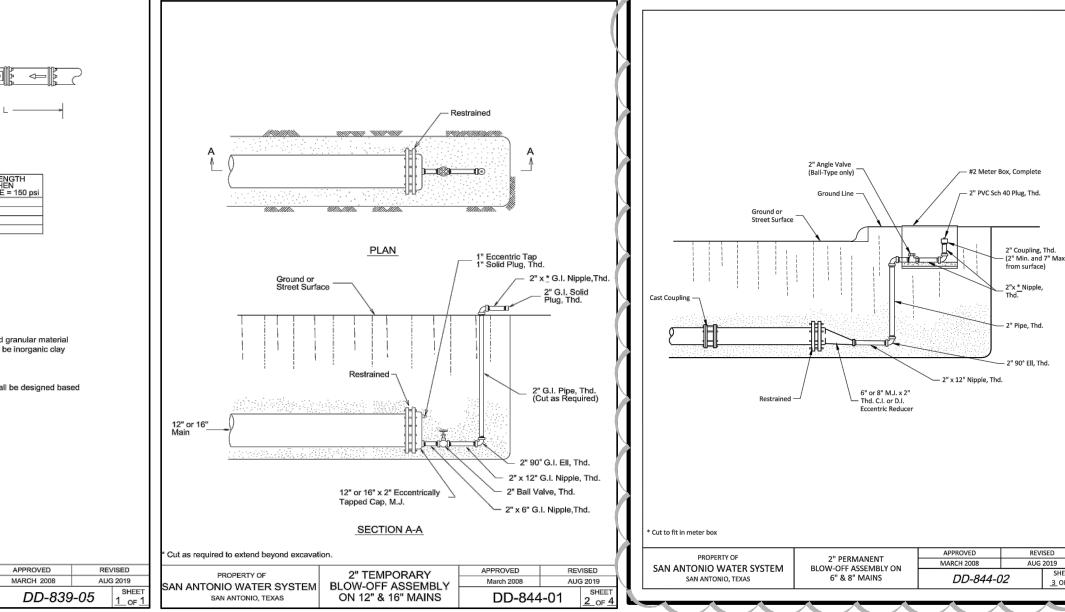


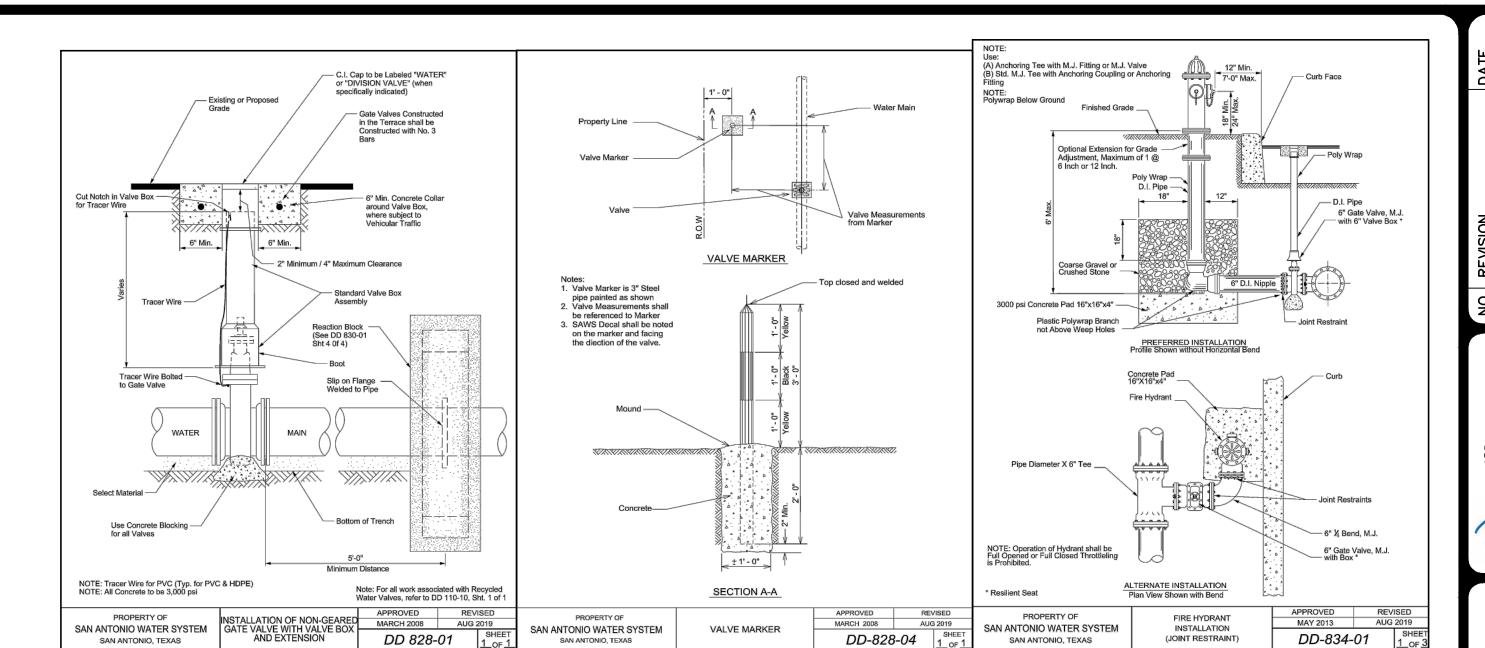
TYPICAL UTILITY/WATER CROSSING DETAIL

NOT-TO-SCALE

PROJECT WATER NOTES

- 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 I 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.
- THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH ALL THE FINAL
- THE LOT CORNERS WILL BE SET BY THE ENGINEER FOR INSTALLATION OF ALL
- FACE OF CURB TO CENTER OF THE METER BOX.
- RELEASES THE MAIN FOR TIE-IN AND USE.
- RESOURCE CONSERVATION COMMISSION "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS" (1988 OR ANY REVISIONS THERETO).
- VERTICAL OBSTRUCTIONS, VALVES, AND METER BOXES.





← 2 L -----

**←** ∟ →

RESTRAINED LENGTH DESIGN

SAN ANTONIO WATER SYSTEM

SAN ANTONIO, TEXAS

of high plasticity. Depth of bury is assumed to be 4 feet.

upon the conditions encountered during the installation.

L=LENGTH TO BE RESTRAINED

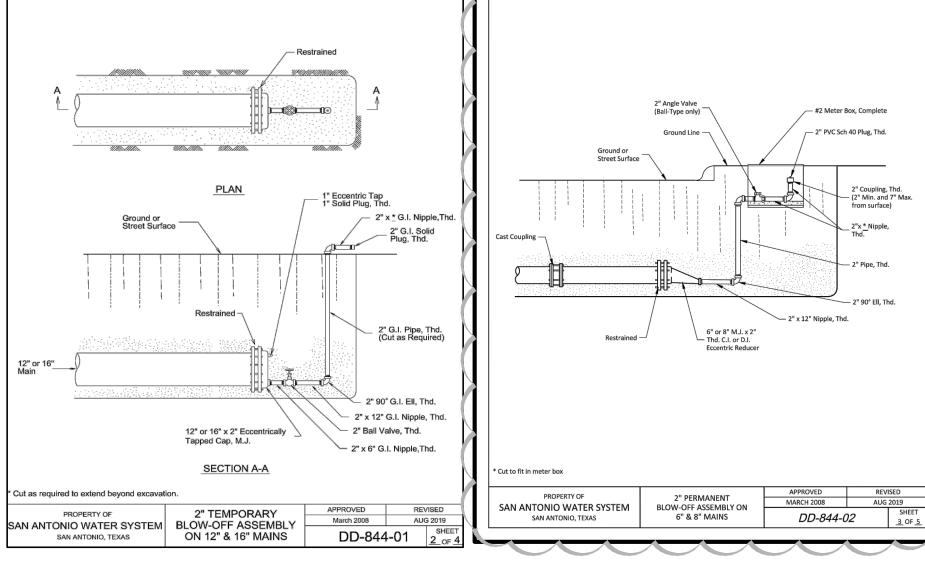
Restrained length calculations are for P.V.C. pipe bedded in compacted granular material extending to the top of the pipe. The native soil material is assumed to be inorganic clay

These calculations are provide for reference. The restrained length shall be designed based

RESTRAINED LENGTHS FOR

DD-839-05

DEAD ENDS / INLINE VALVES



### WATER: SAWS DSP PRESSURE ZONE 1080

DEVELOPER'S NAME:LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LT ADDRESS: 100 NE LOOP 410, SUITE 1155 CITY: SAN ANTONIO STATE: TEXAS ZIP: 78216 PHONE# <u>(210) 403-6200</u> E-MAIL: <u>RICHARD.MOTT@LENNAR.COM</u> SAWS BLOCK MAP#068566 TOTAL EDU'S TOTAL ACREAGE TOTAL LINEAR FOOTAGE OF PIPE: 1.190'-16". 29'-8" PLAT NO. 22-11800736 NUMBER OF LOTS 0 SAWS JOB NO. 23-1160

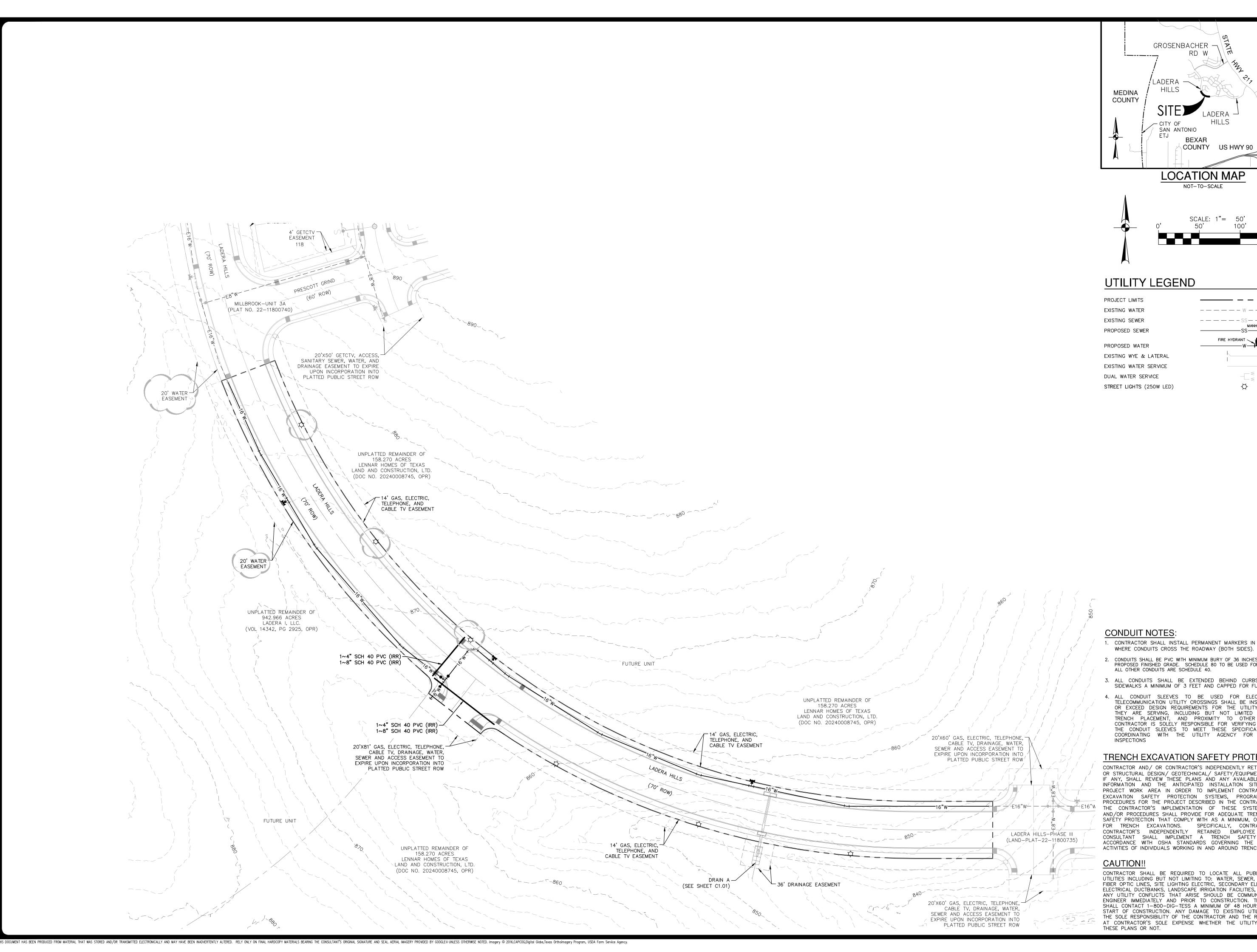
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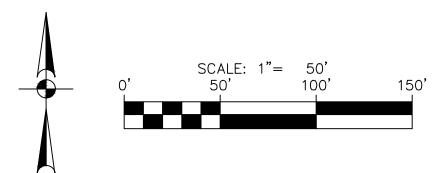
ATE DECEMBER 2023 DESIGNER CHECKED BAC DRAWN AR

C5.10



RANCH - CITY OF SAN ANTONIO COUNTY US HWY 90

> **LOCATION MAP** NOT-TO-SCALE



 $\Diamond$ 

1. CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURI

- 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, 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

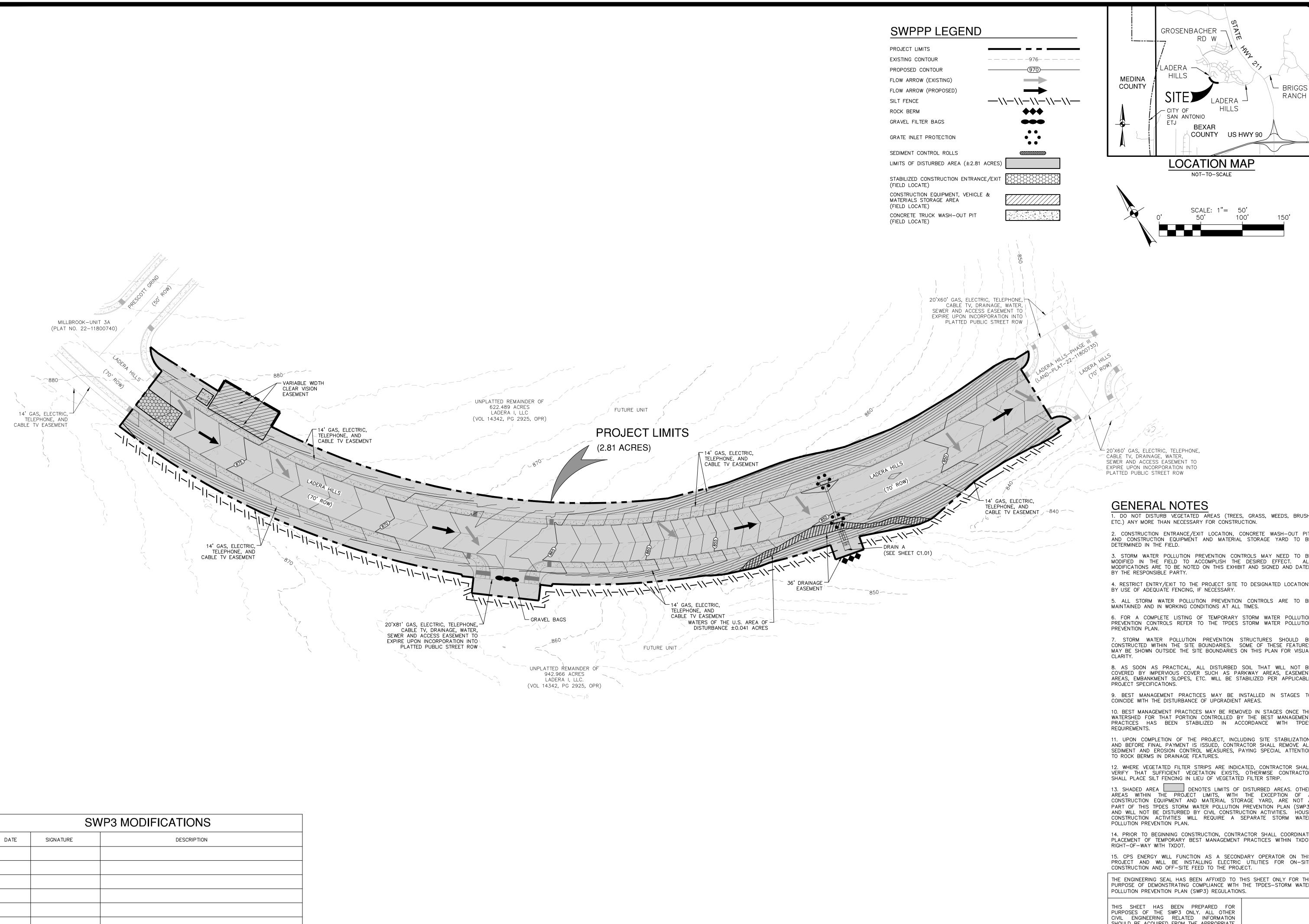
#### TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYER 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 SAFÉTY 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.

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 TH START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL E THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN OF

\_AT NO. 22-11800736 6445-77

CHECKED BAC DRAWN AR C6.00



HIS 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 GOOGL® UNLESS OTHERWISE NOTED. Imagery © 2016,CAPCOG,Digital Globe,Texas Orthoimagery Program, USDA Farm Service Agency.

RANCH

## **GENERAL NOTES**

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

COUNTY

NOT-TO-SCALE

US HWY 90

2. CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASH-OUT PIT AND CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD TO BE 3. STORM WATER POLLUTION PREVENTION CONTROLS MAY NEED TO

MODIFIED IN THE FIELD TO ACCOMPLISH THE DESIRED EFFECT. MODIFICATIONS ARE TO BE NOTED ON THIS EXHIBIT AND SIGNED AND DATED 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

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

7. STORM WATER POLLUTION PREVENTION STRUCTURES SHOULD CONSTRUCTED WITHIN THE SITE BOUNDARIES. SOME OF THESE FEATURES MAY BE SHOWN OUTSIDE THE SITE BOUNDARIES ON THIS PLAN FOR VISUAL

8. AS SOON AS PRACTICAL, ALL DISTURBED SOIL THAT WILL NOT COVERED BY IMPERVIOUS COVER SUCH AS PARKWAY AREAS, EASEMENT AREAS, EMBANKMENT SLOPES, ETC. WILL BE STABILIZED PER APPLICABLE

COINCIDE WITH THE DISTURBANCE OF UPGRADIENT AREAS.

10. BEST MANAGEMENT PRACTICES MAY BE REMOVED IN STAGES ONCE WATERSHED FOR THAT PORTION CONTROLLED BY THE BEST MANAGEMENT PRACTICES HAS BEEN STABILIZED IN ACCORDANCE WITH TPDES

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 SHAL VERIFY THAT SUFFICIENT VEGETATION EXISTS, OTHERWISE CONTRACTOR

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 PART OF THIS TPDES STORM WATER POLLUTION PREVENTION PLAN (SWP3) AND WILL NOT BE DISTURBED BY CIVIL CONSTRUCTION ACTIVITIES. HOUSÉ CONSTRUCTION ACTIVITIES WILL REQUIRE A SEPARATE STORM WATER

14. PRIOR TO BEGINNING CONSTRUCTION, CONTRACTOR SHALL COORDINATE PLACEMENT OF TEMPORARY BEST MANAGEMENT PRACTICES WITHIN TXDOT

15. CPS ENERGY WILL FUNCTION AS A SECONDARY OPERATOR ON TH PROJECT AND WILL BE INSTALLING ELECTRIC UTILITIES FOR ON-SITE CONSTRUCTION AND OFF-SITE FEED TO THE PROJECT.

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR TH 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.

- <sub>NO.</sub> 22-11800736 6445-77 ATE OCTOBER 2023

DESIGNER CHECKED BAC DRAWN AR C8.00

#### SCHEMATIC OF TEMPORARY 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.

3. THE GEOTEXTILE FABRIC SHOULD BE DESIGNED SPECIFICALLY FOR USE AS 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 OF

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.

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

5. PLACE GEOTEXTILE FABRIC AND GRADE FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET CONDITIONS ARE ANTICIPATED.

SURFACE SMOOTH AND SLOPE FOR DRAINAGE.

7. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN.

# GEOTEXTILE FABRIC TO STABILIZE FOUNDATION

SECTION "A-A" OF A

CONSTRUCTION ENTRANCE/EXIT

. STONE TOO SMALL OR GEOTEXTILE FABRIC ABSENT, RESULTS IN MUDDY

. PAD TOO SHORT FOR HEAVY CONSTRUCTION TRAFFIC—EXTEND PAD BEYOND

4. PAD NOT FLARED SUFFICIENTLY AT ROAD SURFACE, RESULTS IN MUD BEING

5. UNSTABLE FOUNDATION - USE GEOTEXTILE FABRIC UNDER PAD AND/OR

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

2. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC

3. WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT

4. WHEN WASHING IS REQUIRED. IT SHOULD BE DONE ON AN AREA STABILIZED

WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR

5. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN,

RIGHTS-OF-WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.

INSPECTION AND MAINTENANCE GUIDELINES

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

COMMON TROUBLE POINTS

CONDITION AS STONE IS PRESSED INTO SOIL.

IMPROVE FOUNDATION DRAINAGE.

LISED TO TRAP SEDIMENT

SEDIMENT BASIN

STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAIL

NOT-TO-SCALE

APPEARANCE OF GOOD SOD

ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE

2. WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS

THE MINIMUM 50-FOOT LENGTH AS NECESSARY.

TRACKED ON TO ROAD AND POSSIBLE DAMAGE TO ROAD.

PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.

DITCH OR WATER COURSE BY USING APPROVED METHODS.

## **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 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. (DITCHES, GULLIES, ETC.). ROCK BERMS ARE MOST EFFECTIVE AT REDUCING

INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE

WILL NOT CAUSE ANY ADDITIONAL SILTATION.

3. REPAIR ANY LOOSE WIRE SHEATHING.

6. THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

#### **MATERIALS**

DIAMETER OF 20 GAUGE GALVANIZED AND SHOULD BE SECURED WITH SHOAT 2. CLEAN, OPEN GRADED 3-INCH TO 5-INCH DIAMETER ROCK SHOULD BE

#### INSTALLATION

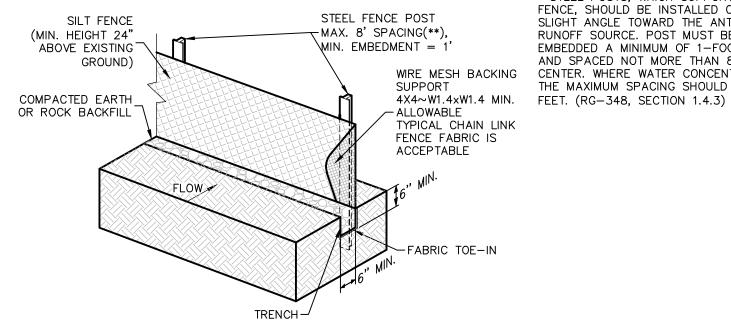
WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES. AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.

#### INCHES DEEP TO PREVENT FAILURE OF THE CONTROL. COMMON TROUBLE POINTS

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

#### **ROCK BERM DETAIL**

NOT-TO-SCALE



ISOMETRIC PLAN VIEW

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

THE PURPOSE OF A SILT FENCE IS TO INTERCEPT AND DETAIN WATER-BORN 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 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

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

I. SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC SHOULD BE 36 AND MINIMUM APPARENT OPENING SIZE OF U.S. SIEVE NUMBER 30.

. 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

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

#### INSTALLATION

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

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

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 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

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

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

## INSPECTION AND MAINTENANCE GUIDELINES

REMOVE SEDIMENT WHEN BUILDUP APPROACHES 6 INCHES, BUT NOT TO EXCEED 50% OF HEIGHT. 3. REPLACE TORN FABRIC OR INSTALL A SECOND LINE OF FENCING PARALLEL

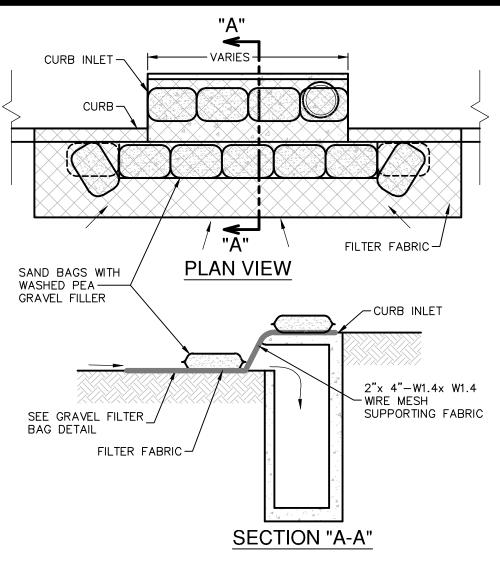
4. REPLACE OR REPAIR SECTIONS CRUSHED OR COLLAPSED IN THE COURSE OF CONSTRUCTION ACTIVITY. IF A SECTION OF FENCE IS OBSTRUCTING VEHICULAR ACCESS, CONSIDER RELOCATING IT TO A SPOT WHERE IT WILL PROVIDE EQUAL PROTECTION, BUT WILL NOT OBSTRUCT VEHICLES. A

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

FENCE).

NOT-TO-SCALE



#### **GENERAL NOTES**

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 . INSPECTION SHOULD BE MADE WEEKLY. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.

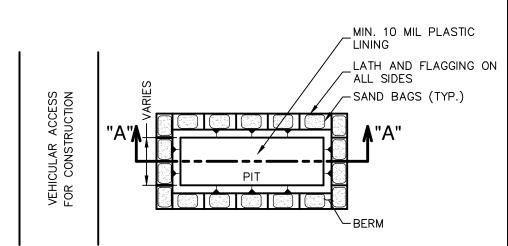
REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.

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

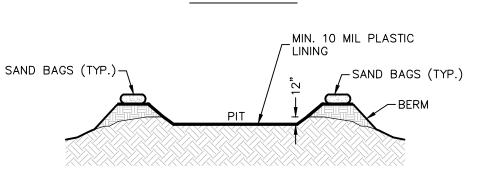
4. INSPECT FILTER FABRIC AND PATCH OR REPLACE IF TORN OR MISSING STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

## **BAGGED GRAVEL CURB INLET** PROTECTION DETAIL

NOT-TO-SCALE



#### **PLAN VIEW**



#### SECTION "A-A'

#### **GENERAL NOTES**

. 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. 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. 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

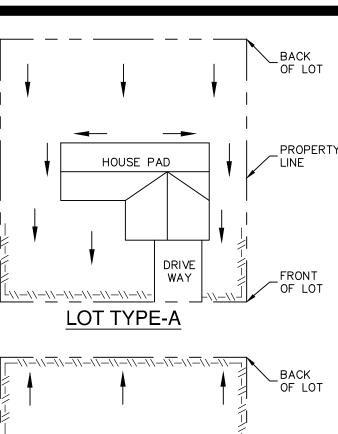
## MAINTENANCE

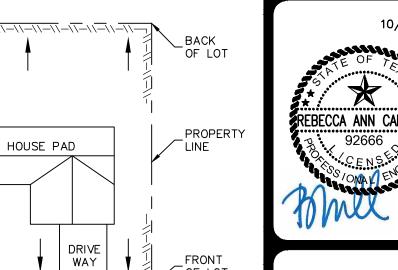
WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT

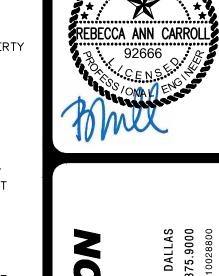
HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCES CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED AND REPAIRED.

FACILITIES SHOULD BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED

#### CONCRETE TRUCK WASHOUT







PROPERT'

LOT TYPE-C LEGENI -\\-\\- SILT FENCE → DRAINAGE FLOW

#### SHOWN ON THE OVERALL SITE PLAN. TYPICAL HOUSE LOT LAYOUTS

NOTE: SILT FENCE TO BE INSTALLED PER

DOWNGRADIENT SIDE OF EACH LOT LINE

THESE DETAILS AND LOCATED ON THE

OR LIMITS OF CLEARING AS GENERALL'S

LOT TYPE-B

HOUSE PAD

DRIVE WAY

NOT-TO-SCALE <del><--</del>18"−24" <del>---</del>

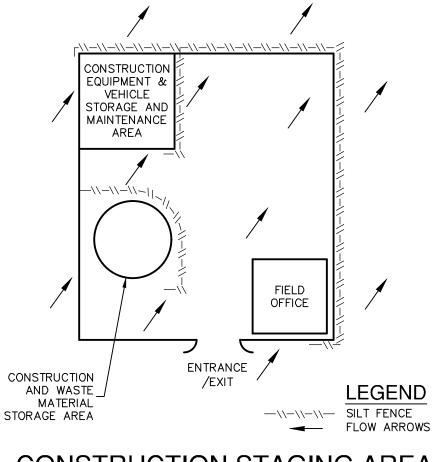
PLAN VIEW **SECTION "A-A"** 

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%.

GRAVEL TO COARSE GRAVEL (0.31 TO 0.75 INCH DIAMETER). 3. SAND SHALL <u>NOT</u> BE USED TO FILL THE FILTER BAGS.

## GRAVEL FILTER BAG DETAIL

NOT-TO-SCALE



### **CONSTRUCTION STAGING AREA**

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.

CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

NO. 22-1180073 6445-77 ATE OCTOBER 2023 ESIGNER

## SOD INSTALLATION DETAIL

2. THE AGGREGATE SHOULD BE PLACED WITH A MINIMUM THICKNESS OF 8-INCHES.

A SOIL FILTRATION MEDIA WITH AN APPROXIMATE WEIGHT OF 6 OZ/YD2, A MULLEN BURST RATING OF 140 LB/IN2, AND AN EQUIVALENT OPENING SIZE

## INSTALLATION

1. AVOID CURVES ON PUBLIC ROADS AND STEEP SLOPES. REMOVE

3. THE CONSTRUCTION ENTRANCE SHOULD BE AT LEAST 50 FEET LONG.

FOUNDATION APPROXIMATELY 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE PUBLIC ROAD.

6. PLACE STONE TO DIMENSIONS AND GRADE SHOWN ON PLANS. LEAVE

## 8. INSTALL PIPE UNDER PAD AS NEEDED TO MAINTAIN PROPER PUBLIC ROAD

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.

ANGLED ENDS CAUSED BY THE

AUTOMATIC SOD CUTTER MUST BE MATCHED

3. MOW WHEN THE SOD IS ESTABLISHED - IN 2-3 WEEKS. SET LAY SOD ACROSS THE DIRECTION OF FLOW

#### **MATERIALS** 1. SOD SHOULD BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4" INCH

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%. IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD, TO COOL THE SOIL AND TORN OR UNEVEN PADS SHOULD NOT BE ACCEPTABLE.

(± 1/4" INCH) AT THE TIME OF CUTTING. THIS THICKNESS SHOULD EXCLUDE

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.

SHOOT GROWTH AND THATCH.

SITE PREPARATION PRIOR TO SOIL PREPARATION, AREAS TO BE SODDED SHOULD BE BROUGHT

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,

INSTALLATION IN CHANNELS SOD STRIPS IN WATERWAYS SHOULD BE LAID PERPENDICULAR TO THE

FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE CONTOUR.

TO FINAL GRADE IN ACCORDANCE WITH THE APPROVED PLAN. THE SURFACE SHOULD BE CLEARED OF ALL TRASH, DEBRIS AND OF ALL ROOTS, BRUSH, WIRE, GRADE STAKES AND OTHER OBJECTS THAT WOULD

SPRINGTOOTH HARROW OR OTHER SUITABLE EQUIPMENT. ON SLOPING LAND, THE

INTERFERE WITH PLANTING, FERTILIZING OR MAINTENANCE OPERATIONS.

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

# THE MOWER HIGH (2"-3").

SOON AS THE SOD IS LAID.

#### IN CRITICAL AREAS, SECURE SOD WITH THE GROUND. WITH NETTING. USE STAPLES.

CONSERVATION, 1992 SOD ALSO SHOULD NOT BE LAID ON SOIL SURFACES THAT ARE FROZEN.

FIRST ROW OF SOD SHOULD BE LAID IN A STRAIGHT LINE WITH GROWTH AND STRENGTH. CARE SHOULD BE EXERCISED TO ENSURE THAT SOD

(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 OF PERPENDICULAR TO THE SLOPE (ON CONTOUR).

IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT

IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE DRYING OF THE ROOTS

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

OFTEN AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF AT LEAST 4 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

## INSPECTION AND MAINTENANCE GUIDELINES

2. DAMAGE FROM STORMS OR NORMAL CONSTRUCTION ACTIVITIES SUCH AS TIRE RUTS OR DISTURBANCE OF SWALE STABILIZATION SHOULD BE REPAIRED AS SOON AS PRACTICAL.

# ISOMETRIC PLAN VIEW

WOVEN WIRE

SHEATHING

THE SEDIMENT AND RELEASE THE WATER IN SHEET FLOW. THE ROCK BERM AS SUCH, ROCK BERMS ARE OFTEN USED IN AREAS OF CHANNEL FLOWS BED LOAD IN CHANNELS AND SHOULD NOT BE SUBSTITUTED FOR OTHER EROSION AND SEDIMENT CONTROL MEASURES FARTHER UP THE WATERSHED.

#### INSPECTION AND MAINTENANCE GUIDELINES . INSPECTION SHOULD BE MADE WEEKLY BY THE RESPONSIBLE PARTY. FOR

2. REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER THAT

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.

# **SECTION "A-A"** THE BERM STRUCTURE SHOULD BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE USED, EXCEPT IN AREAS WHERE HIGH VELOCITIES OR LARGE VOLUMES OF FLOW ARE EXPECTED, WHERE 5-INCH TO 8-INCH DIAMETER ROCKS MAY BE

WOVEN WIRE SHEATHING

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

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

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

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

SILT FENCE

INSTALLED, SILT FENCES ARE NOT LIKELY TO BE EFFECTIVE. SEDIMENT FROM UNPROTECTED AREAS OF A LIMITED EXTENT. SILT FENCE IS DISTURBED AREA IS PERMANENTLY STABILIZED. SILT FENCE SHOULD NOT BE

AREAS OF CONCENTRATED FLOW.

## AT ANY TIME.

INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.5 OZ/YD, MULLEN BURST STRENGTH EXCEEDING 190 LB/IN2, ULTRAVIOLET STABILITY EXCEEDING 70%,

# 1. INSPECT ALL FENCING WEEKLY.

TO THE TORN SECTION. TRIANGULAR FILTER DIKE MAY BE PREFERABLE TO A SILT FENCE AT COMMON VEHICLE ACCESS POINTS.

## PIT DETAIL

NOT-TO-SCALE

S THE FILTER BAG SHALL BE FILLED WITH CLEAN, MEDIUM WASHED PEA

 $\triangleleft$ 

# LEGEND

# NOT-TO-SCALE

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF THE SWP3 ONLY. ALL OTHER

- THATCH- GRASS CLIPPINGS AND DEAD LEAVES, UP TO 1/2" THICK. -ROOT ZONE - SOIL AND ROOTS. SHOULD BE 1/2"-3/4" THICK, WITH DENSE ROOT MAT FOR STRENGTH.

SHOOTS OR GRASS BLADES.

GRASS SHOULD BE GREEN AND

HEALTHY; MOWED AT A 2"-3"

INCORRECT SOD INSTALLATION

## THE STRIPS ARE LONG. WHEN READY TO MOW, DRIVE PEGS OR STAPLES FLUSH

GENERAL INSTALLATION (VA. DEPT. OF SOD SHOULD NOT BE CUT OR LAID IN EXCESSIVELY WET OR DRY WEATHER.

2. DURING PERIODS OF HIGH TEMPERATURE, THE SOIL SHOULD BE LIGHTLY REDUCE ROOT BURNING AND DIEBACK. SUBSEQUENT ROWS PLACED PARALLEL TO AND BUTTING TIGHTLY AGAINST EACH OTHER. LATERAL JOINTS SHOULD BE STAGGERED TO PROMOTE MORE UNIFORM

OTHER APPROVED METHODS. SOD SHOULD BE INSTALLED WITH THE LENGTH

UNTIL SUCH TIME A GOOD ROOT SYSTEM BECOMES DEVELOPED, IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHOULD BE PERFORMED AS

# LEAF SHOULD BE REMOVED AT ANY ONE CUTTING.

NOT-TO-SCALE

STAPLE USE PEGS OR STAPLES TO FASTEN SOD FIRMLY - AT THE ENDS OF STRIPS AND IN THE CENTER, OR EVERY 3-4 FEET IF

# SOD SHOULD BE INSPECTED WEEKLY TO LOCATE AND REPAIR ANY DAMAGE.

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