



**PERMIT APPLICATION REVIEW FORM FOR
CABLE, CONDUIT, AND POLE LINE ACTIVITY
IN FORT BEND COUNTY**

**Fort Bend County
Engineering Department**
301 Jackson Suite 401
Richmond, Texas 77469
281.633.7500
Permits@fortbendcountytx.gov

- Right of Way Permit**
 Commercial Driveway Permit

Permit No: 2018-18595

The following "Notice of Proposed Cable, Conduit, and/or Pole Line activity in Fort Bend County" and accompanying attachments have been reviewed and the notice conforms to appropriate regulations set by Commissioner's Court of Fort Bend County, Texas.

(1) COMPLETE APPLICATION FORM:

- a. Name of road, street, and/or drainage ditch affected.
 b. Vicinity map showing course of directions
 c. Plans and specifications

(2) BOND:

- County Attorney, approval when applicable.
- Perpetual bond currently posted. Bond No: Amount: \$20,000.00
- Performance bond submitted. Bond No: Amount:
- Cashier's Check Check No: Amount:

(3) DRAINAGE DISTRICT APPROVAL (WHEN APPLICABLE):

Drainage District Approval

Date

We have reviewed this project and agree it meets minimum requirements.

Charles O. Ay

Permit Administrator

2/16/2018

Date



**REVIEW BY FORT BEND COUNTY
COMMISSIONERS COURT**

**Fort Bend County
Engineering Department**
301 Jackson Suite 401
Richmond, Texas 77469
281.633.7500
Permits@fortbendcountytx.gov

Right of Way Permit

Commercial Driveway Permit

Permit No: 2018-18595

Applicant: Jaho, Inc.

Job Location Site: 2350 Williams Way Boulevard, Richmond, TX 77469

Bond No. **Date of Bond:** 2/9/2018 **Amount:** \$20,000.00

The above applicant came to make use of certain Fort Bend County property subject to, "The Order Regulating the Laying, Construction, Maintenance, and Repair of Buried Cables, Conduits, and Pole Lines, In, Under, Across or Along Roads, Streets, Highways, and Drainage Ditches in Fort Bend County, Texas, Under the Jurisdiction of the Commissioners Court of Fort Bend County, Texas," as passed by the Commissioners Court of Fort Bend County, Texas, of the Minutes of the Commissioners Court of Fort Bend County, Texas, to the extent that such order is not inconsistent with Chapter 181, Vernon's Texas Statutes and Codes Annotated.

Notes:

1. Evidence of review by the Commissioners Court must be kept on the job site and failure to do so constitutes grounds for job shutdown.
2. Written notices are required:
 - a. 48 hours in advance of construction start up, and
 - b. When construction is completed and ready for final inspection, submit notification to Permit Administrator thru MyGovernmentOnline.org portal.
3. This permit expires one (1) year from date of permit if construction has not commenced.

On this 27th day of February, 2018, Upon Motion of Commissioner _____, seconded by Commissioner _____, duly put and carried, it is ORDERED, ADJUDGED AND DECREED that said notice of said above purpose is hereby acknowledged by the Commissioners Court of Fort Bend County, Texas, and that said notice be placed on record according to the regulation order thereof.

Signature

Presented to Commissioners Court and approved.

By: 
County Engineer

Date Recorded _____ Comm. Court No. _____

By: N/A
Drainage District Engineer/Manager

Clerk of Commissioners Court

By: _____
Deputy

PERFORMANCE BOND COVERING ALL CABLE, CONDUIT AND/OR POLE LINE
ACTIVITY IN, UNDER, ACROSS OR ALONG FORT BEND COUNTY ROAD,
COMMERCIAL DRIVEWAY AND MEDIAN OPENINGS OR MODIFICATIONS
(AUTHORIZED)

BOND NO [REDACTED]

THE STATE OF TEXAS §

KNOW ALL MEN BY THESE PRESENTS:

COUNTY OF FORT BEND §

THAT WE, Jaho, Inc. whose (address, phone) is 2003 Wilson Road, Humble, Texas 77396, (281) 446-4781, hereinafter called the Principal, and Colonial American Casualty and Surety Company, a Corporation existing under and by virtue of the laws of the state of Illinois and authorized to do an indemnifying business in the state of Texas, and whose principal office is located at (name/address/phone) 1400 American Lane, Tower I, 18th Floor, Schaumburg, IL 60196, (847) 605-6000, whose officer residing in the State of Texas, authorized to accept service in all suits and actions brought whining said state is Phil Bair and whose address is 2727 Allen Parkway, Houston, TX 77019, hereinafter called the Surety, and held and firmly bound unto, Robert E. Hebert, County Judge of Fort Bend County, Texas, or his successors in office, in the full sum of Twenty Thousand and no/100 Dollars (\$ 20,000.00) current, lawful money of the United States of America, to be paid to said Robert E. Hebert, County Judge of Fort Bend County, Texas, or his successors in office, to which payment well and truly to be made and done, we, the undersigned, bind ourselves and each of us, our heirs, executors, administrators, successors, assigns, and legal representatives, jointly and severally, by these presents.

THE CONDITION OF THIS BOND IS SUCH THAT, WHEREAS, the above bounden principal contemplates laying, constructing, maintaining and/or repairing one or more cables, conduits, and/or pole lines in, under, across and/or along roads, streets and highways, commercial driveway and median openings or modifications in the County of Fort Bend, and the State of Texas, under the jurisdiction of the Commissioners' Court of Fort Bend County, Texas, pursuant to the Commissioners' Court order adopted on the 1st day of December, A.D. 1980, recorded in Volume 13, of the Commissioners' Court Minutes of Fort Bend County, Texas, regulating same, which Commissioners' Court order is hereby referred to and made a part hereof for all purposes as though fully set out herein;

AND WHEREAS, the principal desires to provide Fort Bend County with a performance bond covering all such cable, conduit and/or pole line activity, commercial driveway and median openings or modifications;

NOW, THEREFORE, if the above bounden principal shall faithfully perform all its cable, conduit and/or pole line activity (including, but not limited to the laying, construction, maintenance and/or repair of cables, conduits and/or pole lines) in, under, across and/or along roads, streets and highways, commercial driveway and median openings or modifications in the County of Fort Bend and State of Texas, under the jurisdiction of the Commissioners Court of Fort Bend County, Texas, pursuant to and in accordance with minimum requirements and conditions of the above mentioned Commissioners' Court order set forth and specified to be by said principal done and performed, at the time and in the manner therein specified, and shall pay over and make good and reimburse Fort Bend County, all loss and damages which Fort Bend County may sustain by reason of any failure or default on the part of said principal, then this obligation shall be null and void, otherwise to remain in full force and effect.

This bond is payable at the County Courthouse in the County of Fort Bend and State of Texas.

It is understood that at any time Fort Bend County deems itself insecure under this bond, it may require further and/or additional bonds of the principal.

EXECUTED this 9th day of February, 2018.

Jaho, Inc.
PRINCIPAL

BY

Colonial American Casualty and Surety Company

SURETY

BY: Philip N. Bair, Attorney-in-Fact


Greg J. Pollard
Vice President

**ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND
POWER OF ATTORNEY**

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Maryland, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Maryland (herein collectively called the "Companies"), by **MICHAEL BOND, Vice President**, in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint **Philip N. BAIR, Eric S. FEIGHL and Jessica RICHMOND**, all of **Houston, Texas**, **EACH** its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings, EXCEPT bonds on behalf of Independent Executors, Community Survivors and Community Guardians**, and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said **ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND**, this 8th day of June, A.D. 2017.

ATTEST:

**ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND**



By: _____

*Secretary
Michael McKibben*

*Vice President
Michael Bond*

**State of Maryland
County of Baltimore**

On this 8th day of June, A.D. 2017, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, **MICHAEL BOND, Vice President, and MICHAEL MCKIBBEN, Secretary**, of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposed and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.

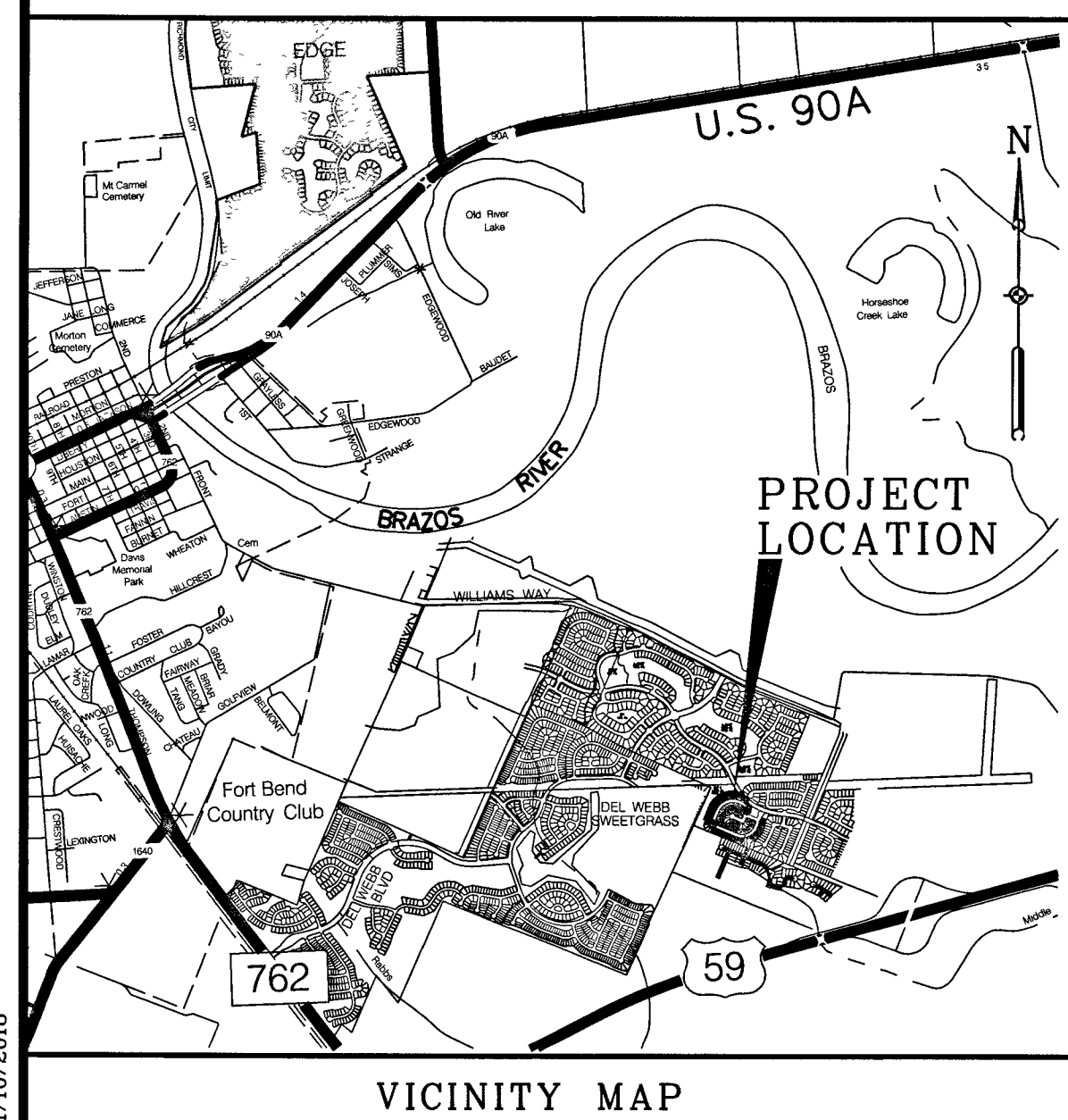
Constance A. Dunn



Constance A. Dunn, Notary Public
My Commission Expires: July 9, 2019

CONSTRUCTION PLANS FOR PAVING IMPROVEMENTS FOR WILLIAMS WAY BOULEVARD DRIVEWAY REMOVAL FORT BEND COUNTY, TEXAS

P:\Projects\4\WILLIAMS WAY DRIVEWAY REMOVAL\2016100-DWY\DCNS\2016100-DWY-01 COVER.dgn
1/10/2018



CITY OF RICHMOND	
<i>Terri Vela</i>	1/18/18
TERRI VELA CITY MANAGER	DATE:
<i>Kelly Kaluz</i>	1/16/18
KELLY R. KALUZA, P.E. CITY ENGINEER	DATE:
VOID IF CONSTRUCTION HAS NOT COMMENCED WITHIN ONE YEAR OF APPROVAL.	

FORT BEND COUNTY	
ENGINEER: <i>Ricky Stagle, PE, PDE</i>	
for RICHARD W. STOLLEIS, P.E.	
DATE: 1/24/18	
THESE SIGNATURES ARE VOID IF CONSTRUCTION HAS NOT COMMENCED IN ONE (1) YEAR FROM DATE OF APPROVAL.	
APPROVED: <i>Maxie</i>	
DEVELOPMENT COORDINATOR	
DATE: 1/24/18	

INDEX OF DRAWINGS

SHEET NO.	DESCRIPTION
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1	COVER SHEET
2	CONSTRUCTION NOTES
3	OVERALL LAYOUT
4	DRIVEWAY REMOVAL LAYOUT
5	TRAFFIC CONTROL LAYOUT
R-1-17	CITY OF RICHMOND - STANDARD CONSTRUCTION NOTES
R-9-17	CITY OF RICHMOND - STANDARD PAVING DETAILS (SHT 1 OF 4)
R-10-17	CITY OF RICHMOND - STANDARD PAVING DETAILS (SHT 2 OF 4)
R-11-17	CITY OF RICHMOND - STANDARD PAVING DETAILS (SHT 3 OF 4)
R-12-17	CITY OF RICHMOND - STANDARD PAVING DETAILS (SHT 4 OF 4)
FBC-010A.B.C. SIDEWALKS & DRIVEWAYS ON CURB TYPE STREETS RESIDENTIAL AREAS	



Engineering and Surveying
9990 Richmond Avenue, Suite 450
North Building
Houston, Texas 77042
(713) 783-7788 (713) 783-3580, Fax
TEXAS PE BOARD FIRM
REGISTRATION No. 280

JOB NO. 2016100-DWY-001/101
DATE: NOVEMBER 2017



Know what's below.
Call before you dig.

F.B.C.M.U.D. No. 187 - NOVEMBER 2017

GENERAL NOTES

- 1. CONTRACTOR SHALL CONTACT THE CITY OF RICHMOND CITY ENGINEER (KELLY KALUZA 281-341-0808)...

Continuation of General Notes

- 24. THESE PLANS, PREPARED BY COSTELLO, INC., DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR ITS EMPLOYEES...

STORM SEWER CONSTRUCTION NOTES

- 1. STORM SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF RICHMOND AND FORT BEND CO. DESIGN STANDARDS AS CURRENTLY AMENDED...

WATER MAIN CONSTRUCTION NOTES

- 1. UNLESS NOTED OTHERWISE, ALL WATER LINES 2-INCH TO 12-INCH SHALL HAVE A MINIMUM OF 3/2 FEET OF COVER FROM TOP OF CURB TO TOP OF PIPE...

Continuation of Water Main Notes

- 3. ALL WATER LINES 4-INCH TO 12-INCH SHALL BE POLYVINYL CHLORIDE (P.V.C.) CONFORMING TO A.W.W.A. STANDARD C-900 AS CURRENTLY REVISED...

Table with 2 columns: PIPE SIZE (IN), RADIUS (FT). Rows include 4, 6, 8, 10, 12 inch sizes.

SANITARY SEWER CONSTRUCTION NOTES

- 1. ALL SANITARY SEWERS SHALL BE CONSTRUCTED AND TESTED IN ACCORDANCE WITH CITY OF RICHMOND DESIGN STANDARDS WITH LATEST REVISIONS, AMENDMENTS, AND SPECIAL PROVISIONS THERE TO...

Fort Bend County Construction - General Notes

- 1. Fort Bend County must be invited to the Pre-Construction Meeting. 2. Contractor shall notify Fort Bend County Engineering Department 48 hours prior to commencing construction...

NOTE: Fort Bend County notes supersede any conflicting notes.

Continuation of Sanitary Sewer Notes

- 2. BEDDING AND BACKFILL SHALL BE CONSIDERED SUBSIDIARY TO PAY ITEM FOR PIPE AND SHALL NOT BE PAID FOR DIRECTLY. FOR BEDDING DETAILS REFER TO SHEET R-4.

PAVING CONSTRUCTION NOTES

- 1. PAVING SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL FORT BEND COUNTY AND CITY OF RICHMOND REGULATIONS. SIDEWALK RAMP CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE AMERICANS WITH DISABILITIES (ADA)...

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY WATER DISTRIBUTION SYSTEM GENERAL CONSTRUCTION NOTES

- 1. The water distribution system must be constructed in accordance with the current Texas Commission on Environmental Quality (TCEQ) Rules and Regulations for Public Water Systems 30 Texas Administrative Code (TAC) Chapter 290 Subchapter D...

WILLIAMS WAY DRIVEWAY REMOVAL - JOB NO.: 2016100-DWY-DV-001

Table with 4 columns: NO., REVISION, DATE, BY.

DESIGNED BY: _____ DESIGN CHECKED BY: _____ DRAWN BY: _____ COGO CHECKED BY: _____ SURVEY CHECKED BY: _____ QA/QC BY: _____ DATE: _____ QA/QC REVISIONS BY: _____

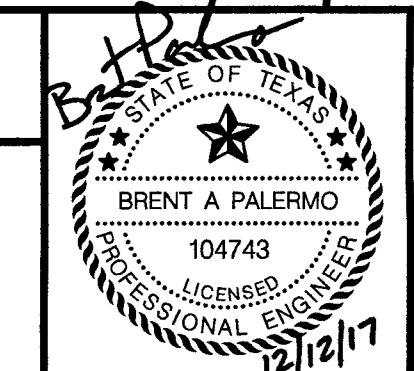


Engineering and Surveying 9990 Richmond Avenue, Suite 450 N Houston, Texas 77042 (713) 783-7788 (713) 783-3580, Fax

TBPE FIRM REG. No. 280 TBPLS FIRM REG. No. 100486

WILLIAMS WAY BOULEVARD DRIVEWAY REMOVAL

CONSTRUCTION NOTES

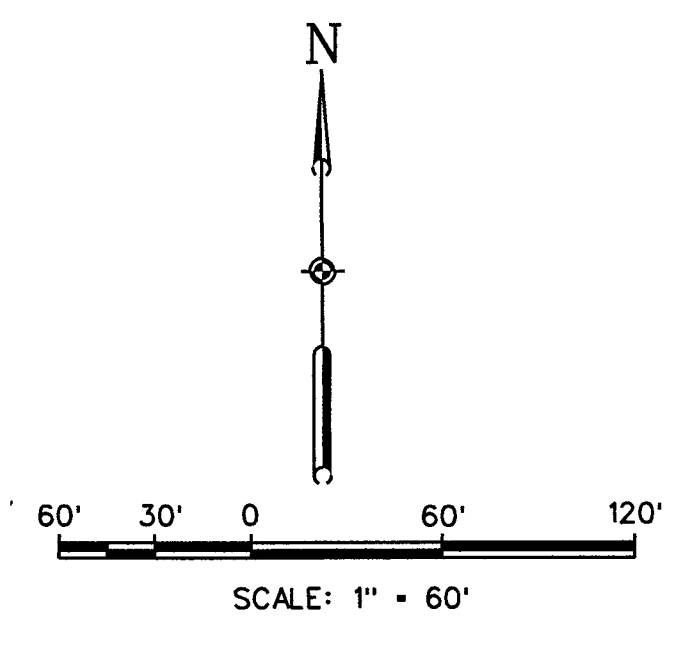


APPROVED: [Signature] DEVELOPMENT COORDINATOR DATE: 1/24/18


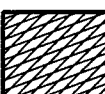
SHEET 2 OF 5 SHEETS JOB NO. 2016100-DWY-DV-001

CONTROL BENCHMARK:
 NGS MONUMENT HIGSD72
 STAINLESS STEEL IRON ROD IN PVC SLEEVE
 LOCATED ON SMITHERS LAKE ROAD
 ELEVATION: 69.6, NAVD-88

SITE TBM: 2584-6-02
 SQUARE CUT ON TOP OF WEST CURB OF
 SWEETGRASS DRIVE, +/- 2' SOUTH FROM
 END PAVING AT PROPERTY LINE
 ELEVATION: 77.28



LEGEND

-  EXISTING POWER POLE
-  CONCRETE DRIVEWAY REMOVAL



E:\WORK\WILLIAMS WAY DRIVEWAY REMOVAL\2016100-DWY-DVY-001-OVERALL LAYOUT.dwg

WILLIAMS WAY DRIVEWAY REMOVAL - JOB NO.: 2016100-DWY-DVY-001

NO.	REVISION	DATE	BY

DESIGNED BY: _____
 DESIGN CHECKED BY: _____
 DRAWN BY: _____
 COGO CHECKED BY: _____
 SURVEY CHECKED BY: _____
 QA/QC BY: _____ DATE: _____
 QA/QC REVISIONS BY: _____

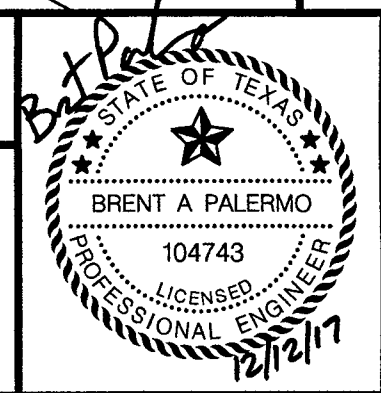



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TBPE FIRM REG. No. 280
 TBPLS FIRM REG. No. 100486

**WILLIAMS WAY BOULEVARD
 DRIVEWAY REMOVAL**

OVERALL LAYOUT



APPROVED: 
 DEVELOPMENT COORDINATOR

DATE: 1/24/18

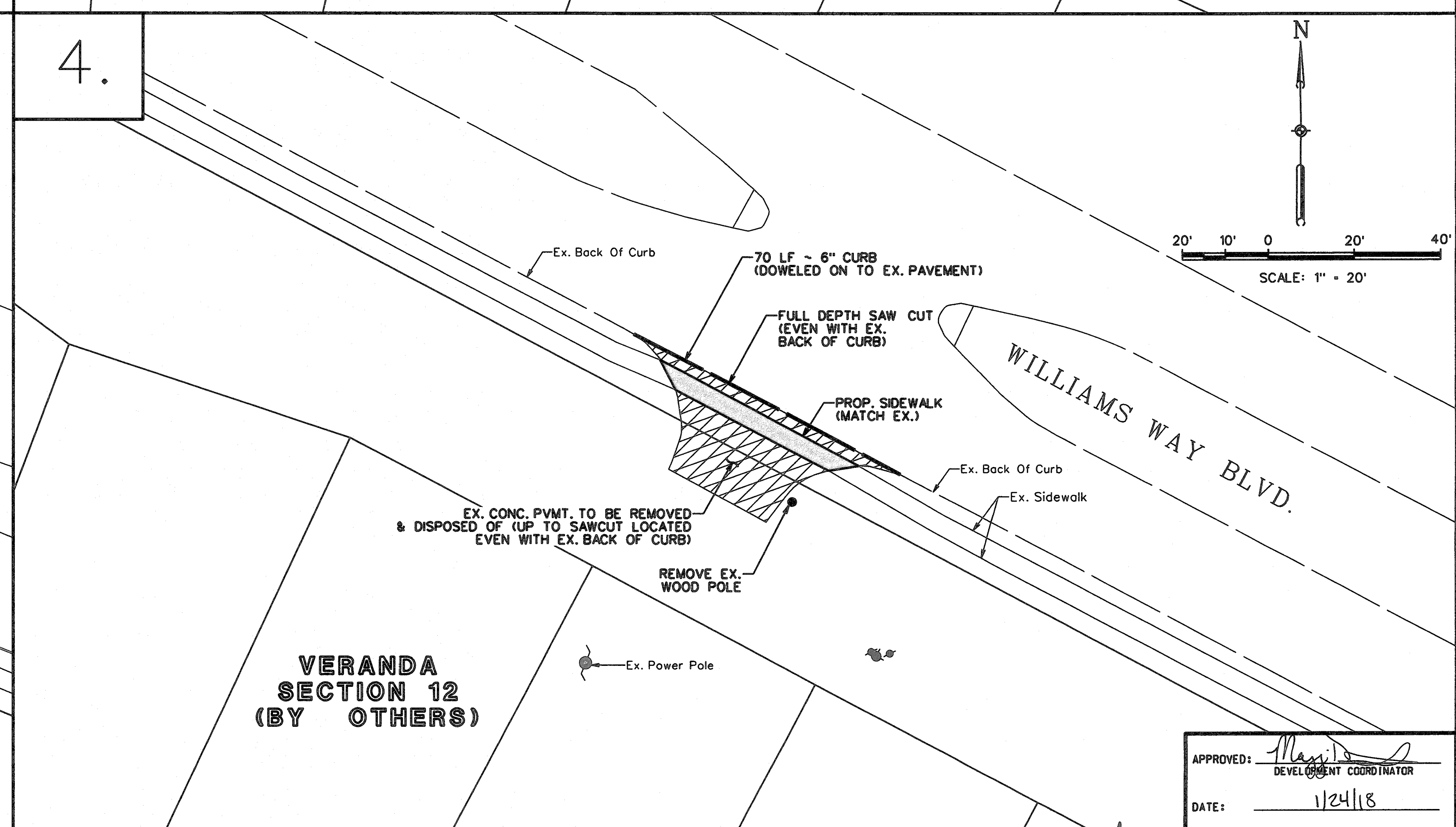
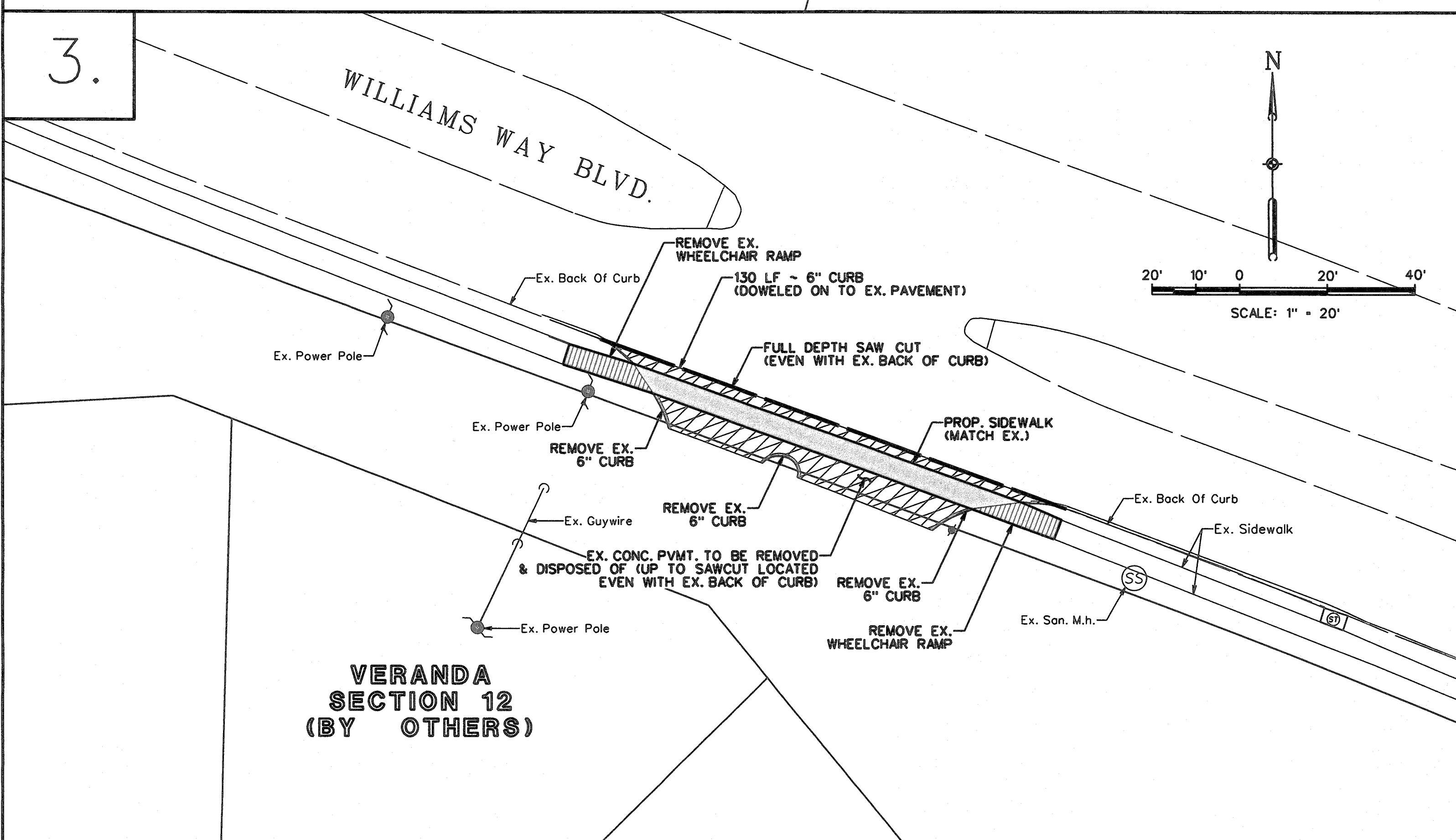
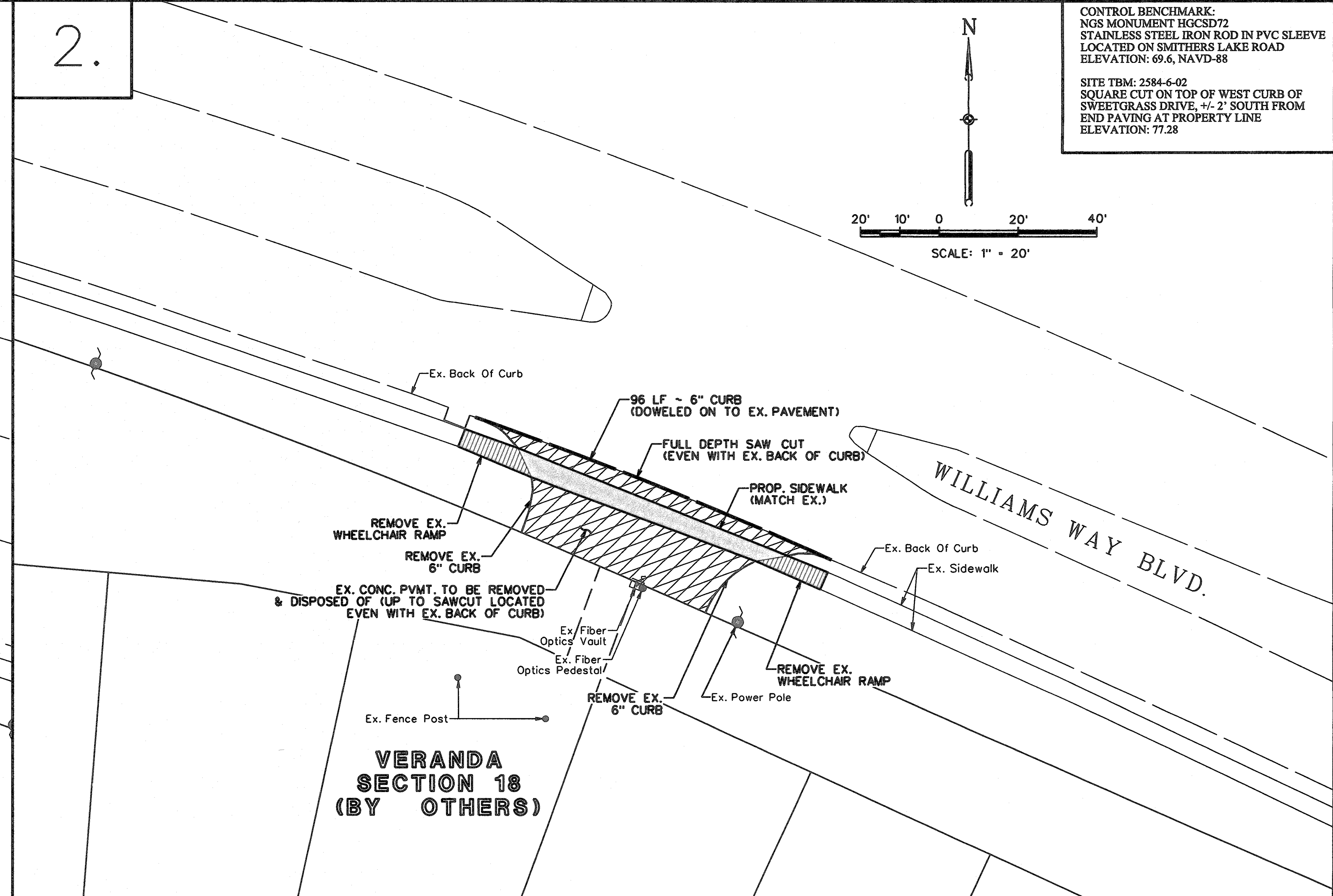
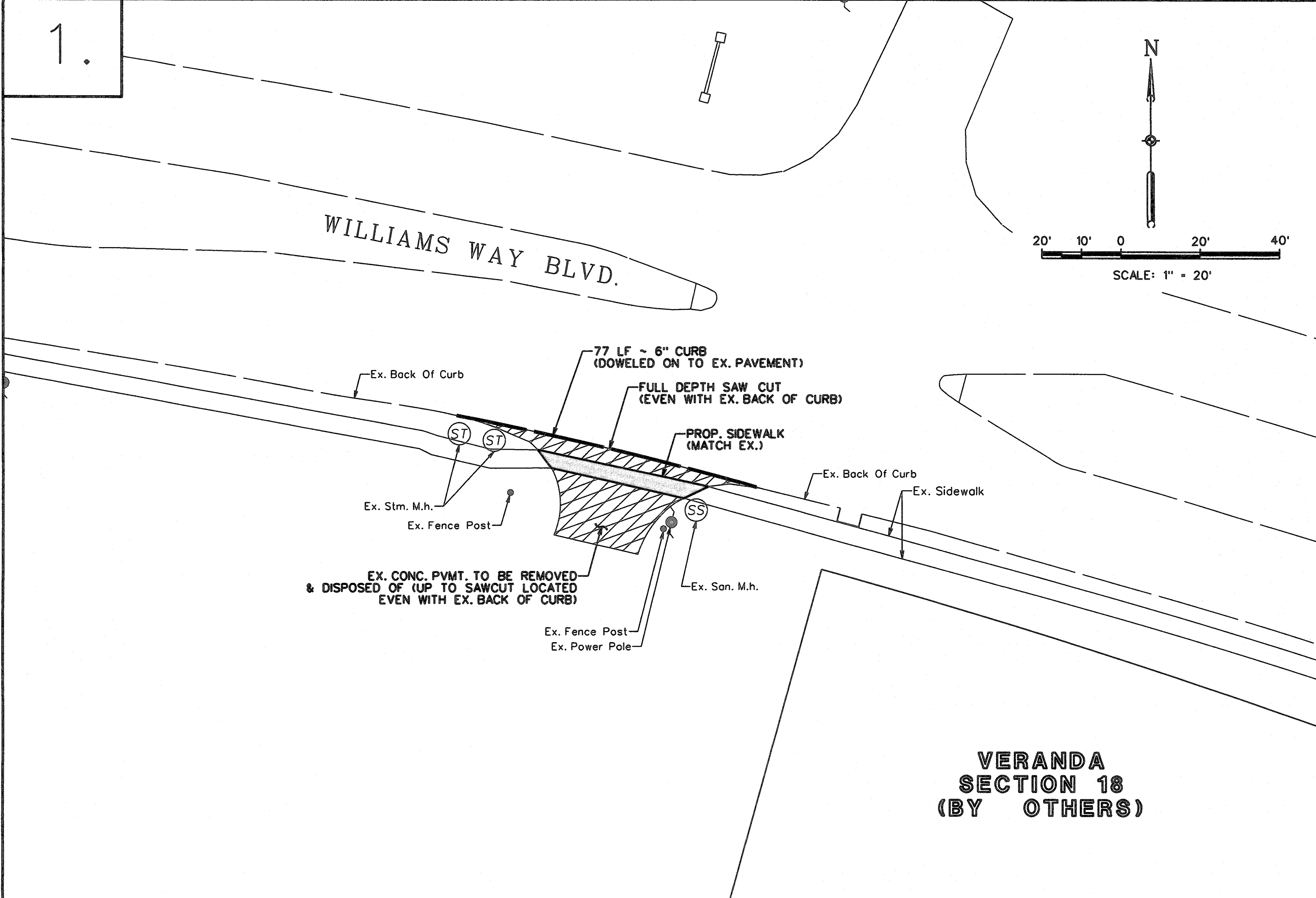
SHEET **3**

OF 5 SHEETS

JOB NO. 2016100-DWY-DVY-001

CONTROL BENCHMARK:
 NGS MONUMENT HGCS072
 STAINLESS STEEL IRON ROD IN PVC SLEEVE
 LOCATED ON SMITHERS LAKE ROAD
 ELEVATION: 69.6, NAVD-88

SITE TBM: 2584-6-02
 SQUARE CUT ON TOP OF WEST CURB OF
 SWEETGRASS DRIVE, +/- 2' SOUTH FROM
 END PAVING AT PROPERTY LINE
 ELEVATION: 77.28




WILLIAMS WAY DRIVEWAY REMOVAL - JOB NO. 2016100-DWY-DV-001

WILLIAMS WAY DRIVEWAY REMOVAL - JOB NO. 2016100-DWY-DV-001

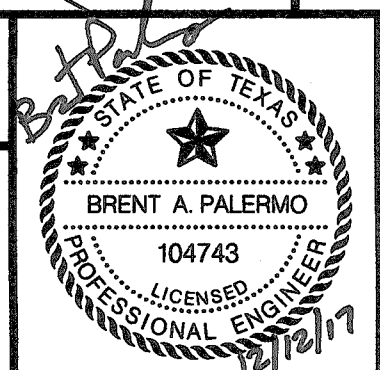
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DESIGNED BY: _____
 DESIGN CHECKED BY: _____
 DRAWN BY: _____
 COGO CHECKED BY: _____
 SURVEY CHECKED BY: _____
 QA/QC BY: _____ DATE: _____
 QA/QC REVISIONS BY: _____



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**WILLIAMS WAY BOULEVARD
 DRIVEWAY REMOVAL**
**DRIVE WAY REMOVAL
 LAYOUT**

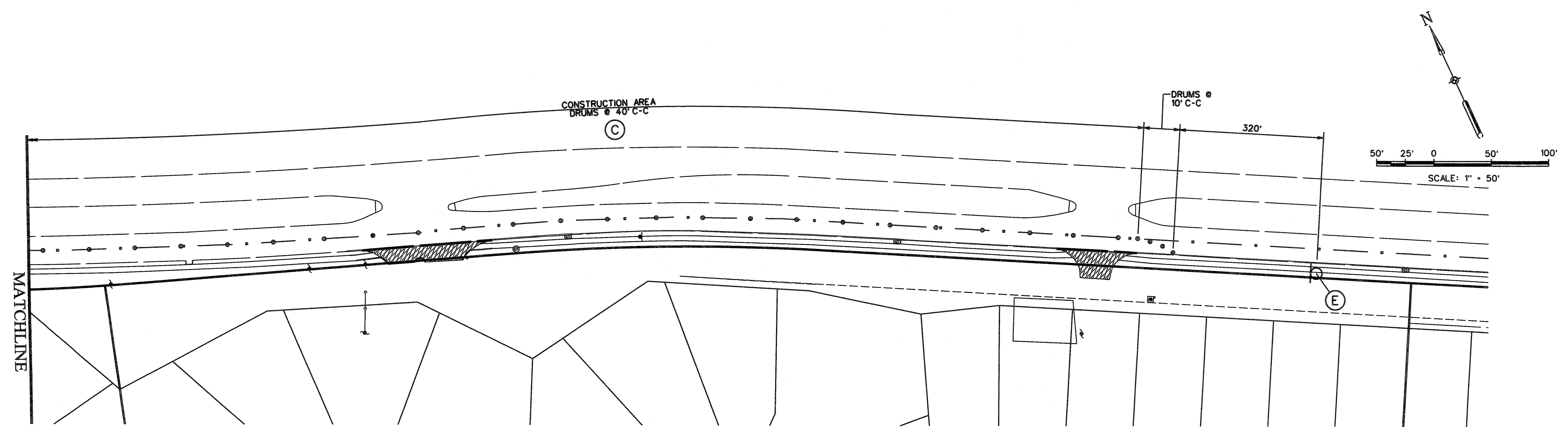
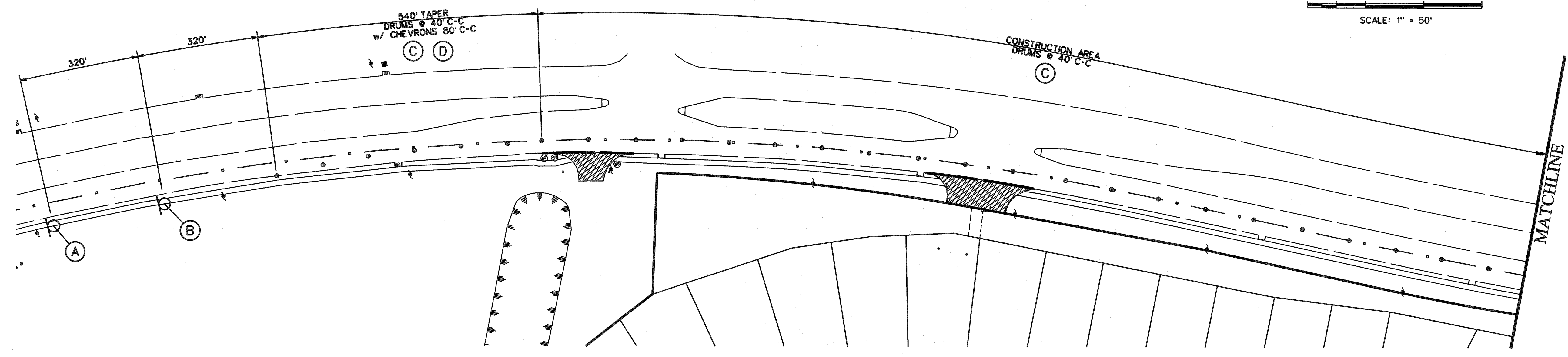
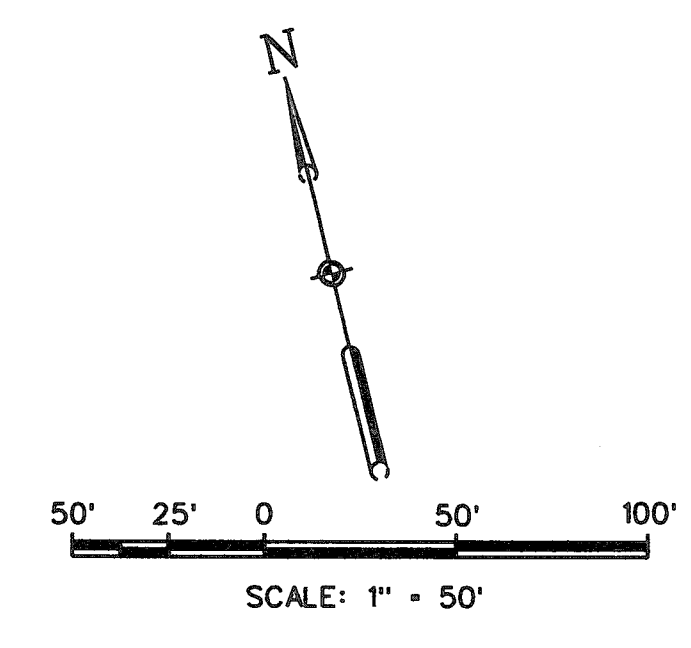


APPROVED: *Masillo*
 DEVELOPMENT COORDINATOR
 DATE: 1/24/18

SHEET **4**
 OF 5 SHEETS
 JOB NO. 2016100-DWY-DV-001

TRAFFIC NOTES

1. THE CONSTRUCTION TRAFFIC CONTROL SIGNS, DEVICES, AND BARRICADES ON THESE DRAWINGS CONSTITUTE MINIMUM REQUIREMENTS AND ARE NOT INTENDED TO COVER SPECIAL CIRCUMSTANCES OR OTHER CONDITIONS THAT MAY ARISE DUE TO UNFORSSEEN FIELD CONDITIONS. THE CONTRACTOR SHALL PLACE AND MAINTAIN SUFFICIENT ADDITIONAL SIGNS, BARRICADES, AND WARNING DEVICES TO WARN THE PUBLIC AND PROVIDE FOR THE SAFE MOVEMENT OF TRAFFIC AND THE CONSTRUCTION ZONE SAFETY WHERE PROJECT REQUIREMENTS ARE NOT FULLY SATISFIED BY THE STANDARDS SHOWN HEREON. THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES SHALL GOVERN.
2. CONTRACTOR SHALL PROVIDE AND INSTALL ALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (T.M.U.T.C.D.), MOST RECENT EDITION WITH REVISIONS, DURING CONSTRUCTION.
3. ALL SIGNS AND MARKINGS SHALL COMPLY WITH THE REQUIREMENTS OF THE TEXAS MANUAL ON UNIFORM DEVICES, UNLESS SPECIFICALLY DIRECTED BY THE TRAFFIC ENGINEER OR SPECIFIED ON THE PLANS.
4. BARRICADES, SIGN, CHANNELIZING DEVICES, AND TRAFFIC HANDLING DEVICES AS SHOWN SHALL BE ADJUSTED TO FIT FIELD CONDITIONS, AS DIRECTED BY THE ENGINEER.
5. NO LANES SHALL BE BLOCKED DURING THE EVENING HOURS OR AFTER 6:00 PM (MONDAY THROUGH FRIDAY) OR ALL DAY ON HOLIDAYS AND WEEKENDS UNLESS NOTED OTHERWISE.
6. CONTRACTOR SHALL PROVIDE ACCESS TO ALL BUSINESSES ALONG THIS PROJECT AT ALL TIMES DURING CONSTRUCTION UNLESS OTHERWISE AUTHORIZED SPECIFICALLY BY THE ENGINEER.
7. ALL EXISTING STOP SIGNS, STREET NAME SIGNS, AND WARNING SIGNS SHALL BE MAINTAINED IN PLACE DURING THE ENTIRE PERIOD OF CONSTRUCTION BY THE CONTRACTOR.
8. NO WORK WILL BE PERFORMED IN THE TRAVELED WAY INCLUDING LOADING AND UNLOADING OF TRUCKS.
9. THE ENGINEER MAY DIRECT THE CONTRACTOR TO FURNISH ADDITIONAL SIGNS, BARRICADES, AND CHANNELIZING DEVICES AS REQUIRED TO MAINTAIN TRAFFIC AND CONSTRUCTION ZONE SAFETY DURING CONSTRUCTION. ANY SUCH ADDITIONAL SIGNS, BARRICADES, ETC. SHALL BE CONSIDERED A PART OF THE LUMP SUM PAY ITEM.
10. WHEN DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL PROVIDE FLAGGERS TO DIRECT TRAFFIC. FLAGGERS SHALL BE OFF-DUTY UNIFORMED POLICE OFFICERS AND SHALL BE PAID FOR BY THE CONTRACTOR. THIS DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY OF TAKING OTHER STEPS AND PROVIDING OTHER PERSONNEL WHICH THE CONTRACTOR MAY DEEM NECESSARY FOR PROTECTION OF WORK AND THE PUBLIC.
11. CONTRACTOR SHALL INSURE THAT ALL BARRICADES, SIGNS, CHANNELIZING DEVICES, WARNING LIGHTS, AND TRAFFIC HANDLING DEVICES ARE MAINTAINED IN A CLEAN FUNCTIONAL CONDITION AT ALL TIMES.
12. ALL SIGNS, WARNING DEVICES, AND BARRICADES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR, INCLUDING ACTS OF VANDALISM OR ACCIDENT.
13. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE TEMPORARY AND EXISTING PAVEMENT MARKINGS IN A GOOD VISIBLE CONDITION THROUGHOUT THE LENGTH OF THE PROJECT.
14. THE CONTRACTOR SHALL MAINTAIN BARRICADES AND SAFETY FENCES AT EACH SITE WHERE PEDESTRIAN TRAFFIC IS EVIDENT.
15. THE CONTRACTOR SHALL REMOVE ALL EXISTING SIGNS AND STRIPING WHICH ARE IN CONFLICT WITH THE CONSTRUCTION SIGNS AND STRIPING. EXISTING PAVEMENT MARKINGS SHALL BE REMOVED IN AREAS WHERE TRAFFIC IS DIRECTED TO CROSS THEM. THE SIGNS SHALL BE PROPERLY STORED IN A SAFE PLACE UNTIL THE CONSTRUCTION HAS BEEN COMPLETED.
16. ALL CONSTRUCTION SIGNS, WARNING DEVICES, AND BARRICADES SHALL REMAIN IN PLACE UNTIL THEIR REMOVAL IS DIRECTED BY THESE PLANS OR BY THE ENGINEER.
17. AT THE CONCLUSION OF CONSTRUCTION, THE CONTRACTOR SHALL RESTORE ALL PAVEMENT MARKINGS TO THEIR ORIGINAL CONDITION WITH TRAFFIC PAINT STRIPES, RAISED PAVEMENT MARKER BUTTONS AND RE-INSTALL THE SIGNS AT THEIR EXISTING LOCATION, AS APPLICABLE.
18. CONSTRUCTION IN ANY AREA THAT IS ADVERSELY AFFECTING TRAFFIC FLOW AND SAFETY, MUST BE PURSUED DILIGENTLY BY THE CONTRACTOR. IF, IN THE OPINION OF THE ENGINEER, THE CONTRACTOR IS NOT DIRECTLY PURSUING THE CONSTRUCTION IN THOSE AREAS, THE ENGINEER MAY REQUIRE THE CONTRACTOR TO CHANGE HIS/HER WORK SCHEDULE TO EXPEDITE COMPLETION IN THOSE AREAS OF CONCERN.
19. THE "TRAFFIC CONTROL PLANS" EXIST AS A PART OF THE CONTRACT DRAWINGS. THE OBJECTIVE IS TO MAINTAIN A SAFE AND EFFICIENT FLOW OF TRAFFIC THROUGH THE CONSTRUCTION AREA. SHOULD THE CONTRACTOR ELECT TO USE A DIFFERENT PLAN OF TRAFFIC CONTROL, HE/SHE SHALL PREPARE AND SUBMIT AN ALTERNATE SET OF PLANS TO THE ENGINEER FOR REVIEW AND APPROVAL TO WORKING DAYS PRIOR TO PROCEEDING WITH THE WORK. THESE PLANS SHALL BE PREPARED BY A REGISTERED PROFESSIONAL ENGINEER AND DRAWN TO AN ACCEPTABLE SCALE, ON REPRODUCIBLE MYLARS, AND SHALL BECOME PART OF THE CONTRACT DRAWING.
20. THE CONTRACTOR SHALL COORDINATE THE SEQUENCE OF CONSTRUCTION AND TRAFFIC CONTROL PLAN WITH ANY ADJACENT CONSTRUCTION PROJECTS TO ENSURE THE UNINTERRUPTED FLOW OF TRAFFIC.
21. THE CONTRACTOR SHALL MAINTAIN DRAINAGE OF STORM RUNOFF DURING ALL PHASES OF CONSTRUCTION.



CW20-ID 36" x 36"	CW20-SR 36" x 36"	DRUMS	CW1-BL 12" x 18"	G20-2a 36" x 18"
(A)	(B)	(C)	(D)	(E)

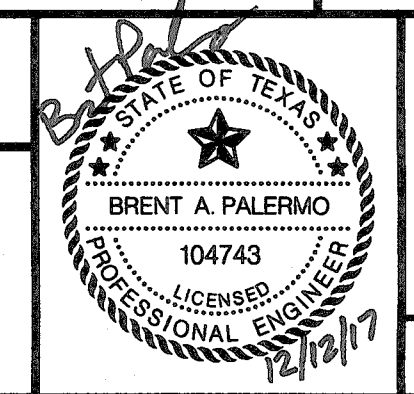
NO.	REVISION	DATE	BY

DESIGNED BY: _____
 DESIGN CHECKED BY: _____
 DRAWN BY: _____
 COGO CHECKED BY: _____
 SURVEY CHECKED BY: _____
 QA/QC BY: _____ DATE: _____
 QA/QC REVISIONS BY: _____



Engineering and Surveying
 9990 Richmond Avenue, Suite 450 N
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 (713) 783-7788 (713) 783-3580, Fax
 TBPE FIRM REG. No. 280
 TBPLS FIRM REG. No. 100486

**WILLIAMS WAY BOULEVARD
 DRIVEWAY REMOVAL**
**TRAFFIC CONTROL
 LAYOUT**



APPROVED:
 DEVELOPMENT COORDINATOR
 DATE: 1/24/18

SHEET **5**
 OF 5 SHEETS
 JOB NO. 2016100-DWY-DV-001

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WILLIAMS WAY DRIVEWAY REMOVAL - JOB NO.: 2016100-DWY-DV-001

GENERAL NOTES

- 0-1. THE CONTRACTOR SHALL NOTIFY CITY OF RICHMOND (REFERRED TO AS THE "CITY") DIRECTOR OF PUBLIC WORKS EDUARD AGUIRRE AT (817) 342-0559. CONTRACTOR SHALL ATTEND A PRECONSTRUCTION MEETING WITH CITY AND THE PROJECT ENGINEER PRIOR TO INITIATING CONSTRUCTION. PRECONSTRUCTION MEETINGS SHALL BE HELD AT 600 WORTON STREET OR AT A LOCATION APPROVED BY THE DIRECTOR OF PUBLIC WORKS.
- 0-2. ALL PUBLIC INFRASTRUCTURE SHALL BE INSPECTED BY PUBLIC WORKS INSPECTOR(S) OR AUTHORIZED AGENTS(S). A FOLLOW-UP INSPECTION OF ALL PUBLIC INFRASTRUCTURE SHALL BE SCHEDULED WITHIN 60 DAYS OF THE INITIAL INSPECTION. A COMPLETE RE-INSPECTION WITH A NEW PUNCH LIST MAY BE REQUIRED AFTER THE 60 DAY PERIOD. CITY CONSTRUCTION DIVISION HAS A MINIMUM OF 24 HOURS ON ALL PAVEMENT POURS, WATER, STORM AND SANITARY TESTING. TESTING WILL NOT BE DONE ON A SATURDAY, UNLESS PRIOR APPROVAL IS PROVIDED. COMPLETED WORK SHALL NOT BE BACKFILLED WITHOUT APPROVAL OF THE CITY.
- 0-3. CONTRACTOR MUST OBTAIN ALL PERMITS AND SUPPLY ALL BONDS REQUIRED BY THE CITY, PRIOR TO BEGINNING CONSTRUCTION. ALL REQUIRED PERMITS MUST BE LISTED ON SITE, PLACED IN A WATERPROOF ENCASUREMENT.
- 0-4. UPON COMPLETION OF A PROJECT, THE CONTRACTOR AND/OR PROJECT ENGINEER SHALL PROVIDE THE DIRECTOR OF PUBLIC WORKS AND CITY ENGINEER DETAILED, RECORD DRAWINGS AND REPRODUCTION AND ELECTRONIC FORMAT.
- 0-5. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, EQUIPMENT AND LABOR FOR EXCAVATION, INSTALLATION AND BACKFILLING OF WATER, SANITARY AND STORM SEWER LINES AND RELATED APPURTENANCES AS SHOWN ON THE PLANS AND/OR DESCRIBED IN THE SPECIFICATIONS.
- 0-6. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS (2004) AND REVISIONS THERETO.
- 0-7. ALL WORK PERFORMED SHALL COMPLY WITH CURRENT NATIONAL SPECIFICATIONS AND STANDARD PRACTICES, APPROVED PROJECT PLANS AND SPECIFICATIONS AND ALL APPLICABLE CITY STANDARDS, CODES AND ORDINANCES.
- 0-8. ALL CONSTRUCTION TRAFFIC CONTROL IN THE PROJECT AREA SHALL MEET THE REQUIREMENTS OF THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND SHALL BE APPROVED BY THE CITY FOR ALL PROJECTS WITHIN THE CITY LIMITS.
- 0-9. CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES IN THE AREA PRIOR TO COMMENCING WORK IN ANY RIGHT-OF-WAY OR EXISTING EASEMENT. A VERIFICATION NUMBER FROM THE ONE-CALL UTILITY COORDINATING COMMITTEE IS REQUIRED.
- 0-10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO EXCAVATION AND UTILITIES AT ALL "POINTS OF CROSSING" TO DETERMINE IF CONFLICTS EXIST PRIOR TO COMMENCING ANY CONSTRUCTION. NOTIFY THE PROJECT ENGINEER, CITY ENGINEER AND DIRECTOR OF PUBLIC WORKS IMMEDIATELY OF ANY CONFLICT.
- 0-11. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE SUCH UNDERGROUND FEATURES SUFFICIENTLY IN ADVANCE OF OPERATIONS TO INCLUDE DAMAGE IN THE EVENT THAT UNDERGROUND FACILITIES NOT SHOWN ON THE DRAWINGS ARE ENCOUNTERED.
- 0-12. IN THE EVENT OF DAMAGE TO UNDERGROUND FACILITIES, WHETHER OR NOT IT IS SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL MAKE THE NECESSARY REPAIRS TO REPLACE THE FACILITY BACK IN SERVICE. ALL SUCH REPAIRS SHALL CONFORM TO THE REQUIREMENTS OF THE OWNER OF THE FACILITY.
- 0-13. THE CONTRACTOR SHALL PROVIDE SHEETING, SHORING AND BRACING NECESSARY TO PROTECT WORKMEN AND EXISTING UTILITIES DURING ALL PHASES OF CONSTRUCTION. SHEETING MAY BE REQUIRED BY O.S.H.A. FEDERAL, STATE AND LOCAL LAWS, CODES AND ORDINANCES.
- 0-14. CONTRACTOR SHALL COVER OPEN EXCAVATIONS WITH ANCHORED STEEL PLATES DURING NON-WORKING HOURS ALONG EXISTING ROADWAYS AND WITHIN TRAFFIC AREAS.
- 0-15. ALL TESTING FOR THIS PROJECT SHALL CONFORM TO THE CITY REQUIREMENTS. SHOULD ANY TEST RESULTS NOT MEET THE TESTING REQUIREMENTS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REMOVE OR REPLACE SUCH MATERIALS AND INSTALLATIONS, SO THAT THE TESTING REQUIREMENTS ARE MET.
- 0-16. THE LOADING, UNLOADING AND HANDLING OF ALL PIPE, VALVES, HYDRANTS, FITTINGS, MANHOLES AND OTHER MATERIALS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PRACTICES AND SHALL BE PERFORMED WITH CARE TO AVOID ANY DAMAGE TO THE MATERIALS. THE CONTRACTOR SHALL LOCATE AND PROVIDE THE NECESSARY STORAGE AREAS FOR MATERIALS AND EQUIPMENT.
- 0-17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFEGUARDING AND PROTECTING ALL MATERIAL AND EQUIPMENT STORED ON THE JOB SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STORAGE OF MATERIALS IN A SAFE AND WORKMANLIKE MANNER TO PREVENT INJURIES, DURING AND AFTER WORKING HOURS, UNTIL PROJECT COMPLETION.
- 0-18. THE CONTRACTOR SHALL NOT UNLOAD ANY TRUCK-TYPE CONSTRUCTION MACHINERY ON ANY EXISTING PAVEMENT OR CROSS OVER ANY EXISTING PAVEMENT OR CURB DURING ANY PROJECT.
- 0-19. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SUPERVISE AND COORDINATE ALL WORK TO INSURE THE PROPER EXCAVATION. ALL WORK IS TO BE ACCOMPLISHED IN A NEAT, WORKMANLIKE MANNER, AND ALL EXCESS MATERIALS, TRASH AND DEBRIS, ETC., SHALL BE REMOVED FROM THE JOB BY THE CONTRACTOR, AT HIS EXPENSE.
- 0-20. CONTRACTOR SHALL REMOVE DIRT AND/OR DEBRIS DEPOSITED ON EXISTING PAVEMENT DUE TO HIS CONSTRUCTION ACTIVITY ON A DAILY BASIS. ALL EQUIPMENT AND CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE AT THE END OF THE PROJECT.
- 0-21. EXISTING ROADS, RIGHT-OF-WAYS, EASEMENTS AND PROPERTY DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO EQUAL OR BETTER THAN THE CONDITION PRIOR TO STARTING THE WORK.
- 0-22. UNLESS OTHERWISE REQUIRED, ALL DISTURBED AREAS SHALL BE SEEDDED WITH HYDROMULCH SEEDING AND PROVIDED WATERING UNTIL VEGETATION IS ESTABLISHED.
- 0-23. ALL EXCESS AND/OR UNSUITABLE SOIL, AND DEBRIS AND/OR WASTE MATERIALS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY.
- 0-24. ADJUST MANHOLES, INLETS, FLUSHING VALVES AND WATER VALVE BOXES TO MATCH FINAL GRADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY.
- 0-25. UTILITY SERVICE LINES
 - 1) ALL UTILITY SERVICE LINES ARE NOT SHOWN ON THE DRAWINGS. CONTRACTORS SHALL ANTICIPATE THAT SUCH SERVICE LINES EXIST AND REPAIR THEM IF DAMAGED DURING CONSTRUCTION. IT IS ALSO THE CONTRACTOR'S RESPONSIBILITY TO MAKE ARRANGEMENTS WITH THE OWNERS OF SUCH UTILITIES PRIOR TO WORKING IN THE AREA TO CONFIRM THEIR EXACT LOCATIONS AND DEPTHS, AND TO DETERMINE WHETHER ANY ADDITIONAL UTILITIES OTHER THAN THOSE SHOWN ON THESE PLANS MAY BE PRESENT. THE CONTRACTOR SHALL DETERMINE IF ANY OF THESE UTILITIES ARE UNDER PRESSURE AND PROTECT ALL THESE UTILITIES SHOWN OR FOUND. IF CONFLICTS ARISE REGARDING PUBLIC UTILITIES, THE CONTRACTOR SHOULD IMMEDIATELY NOTIFY THE PROJECT ENGINEER.
 - 2) UTILITY RELOCATIONS REQUIRED BY CONSTRUCTION SHALL BE PERFORMED BY THE APPROPRIATE UTILITY COMPANY. ANY RELOCATIONS OR TEMPORARY BACKFILL NOT DEEMED NECESSARY BY THE ENGINEER, BUT DESIRED BY THE CONTRACTOR, SHALL BE PERFORMED BY THE APPROPRIATE UTILITY COMPANY AT THE CONTRACTOR'S EXPENSE.
 - 1) TEXAS ONE CALL 1-800-245-4545
 - 2) CENTERPOINT ENERGY-GAS 281-342-8881
 - 3) CENTERPOINT ENERGY-ELECTRIC 281-341-4930
 - 4) AT&T 281-341-4312
 - 5) COMCAST 713-462-1900
 - 6) CITY OF RICHMOND 281-342-0559
- 0-26. AT&T TELEPHONE
 - 1) THE CONTRACTOR SHALL DETERMINE THE ACTUAL LOCATION OF UTILITIES BY CALLING TEXAS ONE-CALL SYSTEM AT LEAST 72 HOURS BEFORE CONTRACTOR WORES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE AND PRESERVE THE UNDERGROUND UTILITIES.
 - 2) CONTRACTOR SHALL HAND DIG WITHIN ONE (1) FOOT OF AT&T UNDERGROUND CONDUIT OR CABLE SYSTEMS.
- 0-27. CENTERPOINT ENERGY (ELECTRIC)
 - 1. OVERHEAD LINES EXIST ON THE PROPERTY AND APPROXIMATE LOCATIONS ARE SHOWN ON THE DRAWINGS. CONTRACTOR SHALL ADVISE THEIR LOCATION PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH AND SAFETY CODE, FORBIDS ALL ACTIVITIES IN WHICH PERSONS OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES. CONTRACTOR IS LEGALLY RESPONSIBLE FOR SAFETY OF PERSONS AND THINGS AND SHALL BE RESPONSIBLE TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED AND LOCATE EXISTING UNDERGROUND UTILITIES, CALL CENTERPOINT ENERGY AT LEAST 72 HOURS BEFORE COMMENCING WORK.
 - 2. CONSTRUCTION THAT WILL REQUIRE EXCAVATION CLOSER THAN THREE (3) FEET TO CENTERPOINT FACILITIES SHALL BE BORED AND JACKED WITH THE WRITTEN APPROVAL FROM CENTERPOINT.
 - 3. CONTRACTOR SHALL HAND DIG WITHIN ONE (1) FOOT OF CENTERPOINT ENERGY UNDERGROUND CONDUIT OR AS OTHERWISE REQUIRED BY CENTERPOINT.
- 0-28. CENTERPOINT ENERGY (GAS)
 - CAUTION: UNDERGROUND GAS FACILITIES LOCATIONS OF CENTERPOINT ENERGY MAIN LINES (TO INCLUDE CENTERPOINT ENERGY, INTRASTATE PIPELINE, LLC, WHERE APPLICABLE) ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. SERVICE LINES ARE USUALLY NOT SHOWN. OUR SIGNATURE ON THESE PLANS ONLY INDICATES THAT OUR FACILITIES ARE SHOWN IN APPROXIMATE LOCATION. IT DOES NOT IMPLY THAT A CONFLICT ANALYSIS HAS BEEN MADE. THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT (713) 223-4567, 1-800-689-8344 OR 811 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.
 - WHEN CENTERPOINT ENERGY PIPE LINE MARKINGS ARE NOT VISIBLE, CALL (713) 945-8036 OR (713) 945-8037 (7:00 A.M. TO 4:30 P.M.) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.
 - WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF CENTERPOINT ENERGY FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON-MACHANIZED EXCAVATION PROCEDURES
 - WHEN CENTERPOINT ENERGY FACILITIES ARE EXPOSED, SUFFICIENT SUPPORT MUST BE PROVIDED TO THE FACILITIES TO PREVENT EXCESSIVE STRESS ON THE PIPING.
 - FOR CROSSINGS REGARDING THESE LINES CALL (713) 659-3552 OR (713) 207-4200
 - THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.
 - ACTIVITIES ON OR ACROSS CENTERPOINT ENERGY FEE OR EASEMENT PROPERTY NO APPROVAL TO USE, CROSS OR OCCUPY CENTERPOINT FEE OR EASEMENT PROPERTY IS GIVEN; IF YOU NEED TO USE CENTERPOINT PROPERTY, PLEASE CONTACT OUR SURVEYING & RIGHT OF WAY DIVISION AT (713) 207-8248 OR (713) 207-5769
- 0-29. COMCAST - THE CONTRACTOR SHALL NOTIFY COMCAST AT LEAST 72 HOURS BEFORE COMMENCING WORK TO LOCATE EXISTING UNDERGROUND CABLE.
- 0-30. ALL PIPE AND REINFORCEMENT STEEL SHALL BE KEPT FREE OF DIRT AND DEBRIS. ANY DAMAGE TO THE COATINGS OF THE VARIOUS MATERIALS MUST BE REPAIRED OR REPLACED BY THE CONTRACTOR WITH APPROVAL BY THE CITY.
- 0-31. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ADEQUATE AND POSITIVE DRAINAGE AT ALL TIMES DURING CONSTRUCTION.
- 0-32. NO CONNECTIONS SHALL BE MADE TO THE EXISTING WATER LINES OR SANITARY SEWERS UNTIL ALL PROPOSED LINES HAVE BEEN THOROUGHLY CLEANED, TESTED AND APPROVED BY THE CITY.
- 0-33. CONTRACTOR SHALL VERIFY PUBLIC INFRASTRUCTURE ALIGNMENT, CENTERLINE CURVE DATA AND STATIONING WITH APPROVED SUBDIVISION PLAT AND APPROVED PLANS.
- 0-34. ALL BACKFILL (INCLUDING CENTER STABILIZED SAND) SHALL BE PLACED IN LIFTS THAT DO NOT EXCEED 8" (LOOSE). SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY AND BE TESTED BY A CERTIFIED TESTING LABORATORY.
- 0-35. ALL TRENCH BACKFILL SHALL BE TESTED AT A MINIMUM RATE OF ONE DENSITY TEST PER ONE LIFTS OF TRENCH BACKFILL PER 100 FEET PERCH. TESTS SHALL BE TAKEN AT RANDOM LOCATION SELECTED BY THE LAB OR AS OTHERWISE REQUESTED BY THE CITY.
- 0-36. A CONSTRUCTION PROJECT THAT REQUIRES THE SHIPP, IT MUST BE INSTALLED BEFORE THE WORK BEGINS. IT MUST BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT.

- 0-37. CONTRACTOR SHALL CONTACT CITY PUBLIC WORKS DEPARTMENT IMMEDIATELY IF WET SAND CONDITIONS ARE ENCOUNTERED, NO BEDDING SHALL BE INSTALLED IN WET CONDITIONS. WHEN WELL POINTING OR IN WET SAND CONDITIONS, MAINTAIN GROUND WATER 1" (FT.) BELOW BOTTOM OF TRENCH FOR A MINIMUM OF 24 HOURS AFTER BEDDING AND BACKFILL IS IN PLACE.
- 0-38. IN THE EVENT OF CONFLICT BETWEEN THE CITY OF RICHMOND DETAIL SPECIFICATIONS, CONSTRUCTION NOTES, OR CITY OF RICHMOND PUBLIC INFRASTRUCTURE DESIGN MANUAL, OR THE MORE STRINGENT REQUIREMENTS WILL GOVERN. OTHERWISE APPROVED BY THE CITY.

WATER DISTRIBUTION NOTES

- W-1. EXCEPT AS OTHERWISE REQUIRED, WATER MAINS FOUR INCHES (4") THROUGH TWELVE INCHES (12") SHALL BE AWWA C-900, AWWA C-308 CLASS 150, DR 18, 4 INCHES (4") DIAMETER SHALL BE PVC, ASTM D-2241, SDR-21 (PR-200), WITH RUBBER GASKET JOINTS OR APPROVED EQUAL. ALL POTABLE WATER PIPE USED IN THE PROJECT MUST MEET THE REQUIREMENTS OF AMERICAN NATIONAL STANDARDS INSTITUTE/NATIONAL SANITATION FOUNDATION STANDARD 61 (ANSI/NSF61). PIPE SHALL BE CERTIFIED TO ANSI/NSF-61 AND SHALL BE MARKED "NSF-PW".
- W-2. ALTERNATIVE WATER MAIN PIPE MATERIAL (WITH APPROVAL OF THE CITY):
 - A) STEEL: AWWA C200, 150 PSI FOR LINES 4-INCHES TO 12-INCHES, 235 PSI FOR LINES GREATER THAN 12-INCHES. ALL PIPE COATINGS SHALL BE IN ACCORDANCE WITH AWWA C210. ALL NUTS AND BOLTS SHALL BE EPOXY COATED.
 - B) DUCTILE IRON: AWWA C151 (ANSI A21.51) FOR LINES 4-INCHES TO 54-INCHES. PIPE SHALL BE LINED WITH POLYWRAP IN ACCORDANCE WITH AWWA C104 (ANSI A21.4).
- W-3. INSTALLATION OF WATER MAINS SHALL BE IN ACCORDANCE WITH CURRENT AWWA APPROVED METHODS, STANDARDS AND MATERIALS, TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (T.C.E.Q.) REGULATIONS AND CITY STANDARDS, CODES AND ORDINANCES.
- W-4. ALL WATER MAINS SHALL HAVE A MINIMUM 3.5 FEET AND A MAXIMUM 5 FEET OF COVER WHEN CONSTRUCTED IN STREET RIGHTS-OF-WAY OR EASEMENTS, UNLESS APPROVED BY THE CITY.
- W-5. FIRE HYDRANTS SHALL BE SET BEHIND BACK OF CURB AT APPROVED LOCATIONS. CENTER LINE OF FIRE HYDRANTS SHALL BE THREE (3) FEET FROM BACK OF CURB OF THE STREET UNLESS OTHERWISE REQUIRED IN THE PLANS. FIRE HYDRANTS SHALL BE INSTALLED A MINIMUM OF TEN (10) FEET FROM ALL SANITARY SEWERS AND APPURTENANCES. FIRE HYDRANTS SHALL BE LOCATED OPPOSITE PROPERTY LINES OR RIGHT-OF-WAY LINE EXTENSIONS, UNLESS OTHERWISE APPROVED BY THE CITY.
- W-6. GATE VALVES, FIRE HYDRANTS AND BLOWOFFS SHALL BE COUNTER-CLOCKWISE OPENING.
- W-7. ALL FITTINGS, VALVES AND FIRE HYDRANTS SHALL BE CAST IRON MECHANICAL JOINT TYPE UNLESS APPROVED IN WRITING BY THE CITY. ALL MECHANICAL JOINTS SHALL BE INSTALLED WITH MECHANICAL RESTRAINED JOINTS (EBA IRON, INC., SERIES 2000PV OR EQUAL). NIPPLES FROM FITTING TO FITTING AT GATE VALVES SHALL BE 18" IN LENGTH.
- W-8. A MINIMUM HORIZONTAL CLEARANCE OF NINE FEET (9") BETWEEN WATER MAINS AND SANITARY SEWER LINES SHALL BE MAINTAINED BY THE CONTRACTOR, EXCEPT AS APPROVED BY THE CITY.
- W-9. THE CONTRACTOR SHALL PROVIDE FOR A MINIMUM OF SIX INCHES (6") CLEARANCE AT STORM SEWER AND WATER LINE CROSSINGS AND TWENTY-FOUR INCHES (24") MINIMUM CLEARANCE AT SANITARY SEWER AND WATER LINE CROSSINGS. WATER LINES SHALL BE LOCATED AT A HIGHER ELEVATION THAN THE SEWER WHEREVER POSSIBLE. WHEN NOT POSSIBLE, T.C.E.Q., RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS, ARTICLE 290.44 WILL TAKE PRECEDENCE. IF A CONFLICT EXISTS, THE CONTRACTOR SHALL ADVISE THE DIRECTOR OF PUBLIC WORKS AND WATER SUPERINTENDENT IMMEDIATELY AND SHALL NOT CONTINUE FURTHER CONSTRUCTION WITHOUT CITY APPROVAL.
- W-10. ABANDONMENT OF EXISTING WATER LINES SHALL BE PERFORMED BY THE CONTRACTOR IN ACCORDANCE WITH APPROVED PLANS OR WHEN APPROVAL FROM THE CITY PUBLIC WORKS DIRECTOR OR WATER SUPERINTENDENT IS OBTAINED IN WRITING.
- W-11. TAPPING SLEEVE & VALVES ON THE EXISTING CITY WATER SYSTEM WILL BE INSTALLED BY A CITY APPROVED TAPPING CONTRACTOR.
- W-12. NO CONNECTION SHALL BE MADE TO ANY EXISTING WATER LINES UNTIL THE NEW WATER LINES HAVE BEEN THOROUGHLY STERILIZED, CLEANED AND TESTED AND FINAL APPROVAL FROM THE CITY'S AUTHORIZED AGENT HAS BEEN OBTAINED IN WRITING.
- W-13. ALL VALVES AND HYDRANTS SHALL BE STORED SO THAT THEY ARE PROTECTED FROM FREEZING.
- W-14. ALL PRESSURE PIPE INSTALLATIONS SHALL BE TESTED FOR LEAKAGE. TEST PRESSURE SHALL BE 1.5 TIMES THE MAXIMUM DESIGN PRESSURE IS GREATER. THE TEST SHALL HAVE A MINIMUM DURATION OF FOUR HOURS AND SHALL BE OBSERVED BY THE AUTHORIZED REPRESENTATIVE OF THE CITY PUBLIC WORKS DEPARTMENT.
- W-15. STERILIZATION OF NEW WATER LINES SHALL BE DONE IN ACCORDANCE WITH AWWA C-681, LATEST EDITION, A MINIMUM OF ONE SAMPLE PER 1000 FEET OF WATER MAIN OR ONE SAMPLE PER SEPARATION SECTION OF WATER MAIN SHALL BE COLLECTED. IF THE SAMPLES FAIL TO MEET THE T.C.E.Q. DRINKING WATER STANDARD REQUIREMENTS, THE FLUSHING AND TESTING PROCESS SHALL BE REPEATED.
- W-16. WATER LINES SHALL HAVE SAND EMBEDMENT TO TWELVE (12) INCHES ABOVE THE TOP OF PIPE.
- W-17. WATER LINE TRENCHES UNDER PAVEMENT OR WITHIN THREE (3) FEET FROM EDGE OF PAVEMENT TO BE BACKFILLED WITH CEMENT STABILIZED SAND (2 SACKS OF CEMENT PER TON OF SAND) FROM THE TOP OF THE EMBEDMENT TO THE BASE OF PROPOSED BASE OF PROPOSED PAVING SUBGRADE LESS 6 INCHES.
- W-18. ALL WATER LINE CONSTRUCTION CROSSING EXISTING ASPHALT AND/OR CONCRETE STREETS SHALL BE BORED AND JACKED, UNLESS OTHERWISE APPROVED BY THE PROJECT ENGINEER AND THE CITY.
- W-19. TRENCH SAFETY SYSTEM IS REQUIRED FOR ALL WATER MAIN CONSTRUCTION.
- W-20. CONCRETE THRUST BLOCKING IS REQUIRED FOR ALL VALVES, FIRE HYDRANTS AND FITTINGS.
- W-21. A TRAC-HOE IS NOT A COMPACTOR. USE PROPER COMPACTING METHODS, SUCH AS SHEEPSFOOT, JUMPING JACK, PLATE, ETC.

SANITARY SEWER CONSTRUCTION NOTES

- S-1. SANITARY SEWERS SHALL BE CONSTRUCTED ACCORDING TO THESE PLANS AND SPECIFICATIONS AND THE CITY AND THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (T.C.E.Q.) RULES AND REGULATIONS.
- S-2. ALL MANHOLES SHALL BE PRECAST IN ACCORDANCE WITH DETAILS INCLUDING THE INTERIOR COATING. BRICK MANHOLES ARE NOT ALLOWED. ALL SANITARY MANHOLES SHALL BE INSTALLED WITH INFLOW PROTECTORS.
- S-3. ALLOWABLE SANITARY SEWER PIPE MATERIAL:
 - A) GRAVITY LINES
 - 1. POLYVINYL CHLORIDE (PVC), PIPE AND FITTINGS MEETING THE REQUIREMENTS OF ASTM D2241 (SDR 26; PR180), ASTM D1784, ASTM D3312 AND ASTM F477. FOR DEPTH LESS THAN 4 FEET AND GREATER THAN 20 FEET, INSTALL ASTM D2241 (SDR21, PR200).
 - B) DUCTILE IRON (D.I.P.), AWWA C-151, AWWA C-111, STANDARD CLASS 150, WITH BELL AND SPIGOT PUSH-ON JOINTS. ALL PIPE SHALL HAVE AN INTERIOR POLYETHYLENE COATING OF 40-MILS AND AN EXTERIOR POLYETHYLENE WRAP OF 3 MILS.
 - C) FORCE MAINS
 - 1. PVC, 4-INCH TO 12-INCH, AWWA C900, DR18, CLASS 150, ASTM D3139, ASTM F477. (GREEN COLOR)
- S-4. ALL D.I.P. SANITARY SEWER PIPES SHALL BE LINED WITH POLYWRAP AND INSTALLED WITH CATHODIC PROTECTION.
- S-5. THE CONTRACTOR SHALL NOTIFY THE CITY PUBLIC WORKS DEPARTMENT AT LEAST 24 HOURS PRIOR TO PRESSURE AND DEFLECTION TESTS ON ALL GRAVITY SANITARY SEWERS. ALL TESTS SHALL BE MONITORED BY AN AUTHORIZED AGENT OF THE CITY.
- S-6. ALL GRAVITY SANITARY SEWER PIPE SHALL BE LOW PRESSURE AIR TESTED AND MANHOLES VACUUM TESTED IN ACCORDANCE WITH T.C.E.Q. REQUIREMENTS. FORCE MAINS SHALL BE HYDROSTATIC TESTED AT A MINIMUM OF 150 PSI.
- S-7. DEFLECTION TESTS SHALL BE PERFORMED ON ALL FLEXIBLE AND SEMI-RIGID PIPE. THE CITY MAY REQUIRE SERVICE CONNECTIONS TO BE MADE FOR LINES TO BE TURNED OFF OR MOVED AND LOCATED. NO PIPE SHALL EXCEED A DEFLECTION OF 5%. THE TEST SHALL BE CONDUCTED USING A MANHOLE HAVING AN OUTSIDE DIAMETER EQUAL TO 95% OF THE AVERAGE INSIDE DIAMETER OF THE PIPE. THE MANHOLE SHALL HAVE A CONTACT LENGTH OF EACH RUNNER EQUAL TO OR GREATER THAN THE PIPE'S NOMINAL DIAMETER. THE TEST SHALL BE PERFORMED WITHOUT MECHANICAL PULLING DEVICES.
- S-8. SANITARY SEWER MANHOLE RIMS, EXCEPT IN PAVED AREAS, SHALL BE SET 4-INCHES ABOVE FINISHED GRADE WITHIN STREET RIGHT-OF-WAY, AND 6-INCHES ABOVE FINISHED LOT GRADES WITHIN EASEMENTS. CLEAN PIP SHALL BE PLACED ADDITIONAL GRADE AWAY FROM THE MANHOLE.
- S-9. SANITARY MANHOLES BELOW THE 100-YEAR FLOOD PLAIN (OR WHERE OTHERWISE REQUIRED) SHALL BE WATERPROOFED USING NEOPRENE GASKET. ONLY STAINLESS STEEL SCREWS OR NUTS & BOLTS CAN BE USED TO HOLD DOWN THE COVER. A VENT PIPE EXTENDING ONE FOOT ABOVE THE FLOODPLAIN ELEVATION SHALL BE PROVIDED, UNLESS OTHERWISE APPROVED.
- S-10. SANITARY LINES AND MANHOLES PARALLEL TO WATER LINES SHALL BE INSTALLED WITH AT LEAST A 9-FOOT HORIZONTAL SEPARATION (OUTSIDE TO OUTSIDE). SANITARY SEWERS INSTALLED CROSSING UNDER WATER MAIN SHALL COMPLY WITH T.C.E.Q. REQUIREMENTS.
- S-11. ALL SANITARY SEWERS SHALL BE CONSTRUCTED ON A STRAIGHT ALIGNMENT AND ON A UNIFORM GRADE. SERVICE LEADS SHALL BE INSTALLED WITHIN THE CONCRETE CURB AND BE PROTECTED BY A 4-INCH SANITARY SEWER LEADS SHALL BE LAID WITH A MINIMUM GRADE OF 0.70%.
- S-12. ALL SEWER LEADS AND STUBOUTS SHALL BE MARKED IN ACCORDANCE WITH THE DETAILS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE MARKERS IN GOOD AND PLUMB CONDITION WITH A VERTICAL ALIGNMENT. IF DAMAGED, THE CONTRACTOR SHALL REPLACE THE MARKER.
- S-13. ALL SEWER LINES (INCLUDING SERVICE LEADS) ENTERING A MANHOLE AT AN ELEVATION GREATER THAN 24-INCHES ABOVE THE MANHOLE INVERT MUST BE CONSTRUCTED WITH AN EXTERIOR DROP PIPE IN ACCORDANCE WITH THE DETAILS.
- S-14. STEPS IN MANHOLES ARE PROHIBITED.
- S-15. CONTRACTOR SHALL PROVIDE ADEQUATE CONCRETE THRUST BLOCKING AT ALL FORCE MAIN BENDS.
- S-16. AT ALL LOTS WHERE TOP OF PIPE IS GREATER THAN 8-FEET BELOW FINISHED GRADE, PROVIDE A 6-INCH SANITARY SEWER SAND BED UNDER THE PIPE AND CONCRETE CURB AND BENDS. THE SAND BED SHALL BE EXTENDED TO WITHIN 6 FEET OF FINISHED GRADE. STACKS SHALL BE MARKED FOR LOCATION AS INDICATED ON THE DETAILS.
- S-17. FORCE MAIN SHALL BE LAID WITH DETECTOR TAPE LAID AT 6" ABOVE THE PIPE. THE DETECTOR TAPE MUST BEAR THE LABEL "PRESSURIZED WASTEWATER" IN 1.5 INCH HIGH LETTERS, REPEATED CONTINUOUSLY, FOR THE ENTIRE LENGTH OF THE FORCE MAIN.

STORM SEWER NOTES

- ST-1. ALL STORM SEWERS SHALL MEET THE REQUIREMENTS OF THE CITY, FORT BEND COUNTY AND FORT BEND COUNTY DRAINAGE DISTRICT (WHEN APPLICABLE).
- ST-2. ALL STORM SEWER MANHOLE AND INLET COVERS SHALL BE LABELED "STORM SEWER" IN ACCORDANCE WITH THE DETAILS.
- ST-3. ALL STORM SEWER PIPE SHALL BE REINFORCED CONCRETE PIPE, A.S.T.M. C-76, CLASS III (MINIMUM) INSTALLED, BEDDED AND BACKFILLED IN ACCORDANCE WITH THE CITY DETAILS AND FORT BEND COUNTY DRAINAGE DISTRICT CRITERIA. ALL REINFORCED CONCRETE PIPE 42-INCH DIAMETER AND GREATER SHALL HAVE 42-INCH DIA. RUBBER GASKET JOINTS. CONTRACTOR MAY USE TAL-COAT OR EQUAL FOR PIPE JOINTS WITH PIPE LESS THAN 42" DIAMETER. ALL STORM SEWER SHALL BE BACKFILLED WITH SELECT FILL MATERIAL COMPACTED TO 95% STANDARD PROCTOR OR MECHANICAL TAMPER IN COMPACTING ALL BACKFILL FOR PROTECT.
- ST-4. ALL STORM SEWER STRUCTURES SUCH AS MANHOLES AND INLETS SHALL BE BACKFILLED WITH CEMENT STABILIZED SAND. CEMENT STABILIZED SAND BACKFILL SHALL EXTEND A MINIMUM OF TWENTY-FOUR INCHES (24") TO THE OUTSIDE WALL OF ALL STRUCTURES. (2 SACKS OF CEMENT PER TON OF SAND.)

- ST-5. AREAS ADJACENT TO THE PAVEMENT SHALL BE GRADED TO POSITIVELY DRAIN TOWARD INLETS, CONCRETE CURB AND/OR ROAD DITCHES IF DISTURBED DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE MATERIALS, LABOR AND EQUIPMENT TO PERFORM ALL GRADING OPERATIONS.
- ST-6. CONTRACTOR SHALL ADJUST EXISTING WATER LINE MAINS AND WATER LINE SERVICES IN CONFLICT WITH A STORM SEWER. CONTRACTOR SHALL COORDINATE THE DISRUPTION OF WATER SERVICE DURING THE WATER LINE LOWERING OPERATION WITH THE CITY PUBLIC WORKS DEPARTMENT.
- ST-7. ADJUST ALL STORM SEWER MANHOLE COVERS TO MATCH FINISHED GRADE ELEVATIONS.
- ST-8. ALL PRECAST CONCRETE STRUCTURES SHALL BE REINFORCED AND SHALL BE DESIGNED TO WITHSTAND AASHTO H-20 LOADINGS.
- ST-9. ALTERNATIVE STORM SEWER PIPE MATERIAL (WITH APPROVAL OF THE CITY):
 - A) STEEL: AWWA C200, 150 PSI FOR LINES 4-INCHES TO 12-INCHES, 235 PSI FOR LINES GREATER THAN 12-INCHES. ALL PIPE COATINGS SHALL BE IN ACCORDANCE WITH AWWA C210. ALL NUTS AND BOLTS SHALL BE EPOXY COATED.
 - B) DUCTILE IRON: AWWA C151 (ANSI A21.51) FOR LINES 4-INCHES TO 54-INCHES. PIPE SHALL BE LINED WITH POLYWRAP IN ACCORDANCE WITH AWWA C104 (ANSI A21.4).

STREET AND PAVING CONSTRUCTION NOTES

- P-1. ALL PAVING SHALL BE CONSTRUCTED WITH THE PLANS AND SPECIFICATIONS AND CITY REQUIREMENTS.
- P-2. THE CONTRACTOR SHALL NOTIFY CITY PUBLIC WORKS DEPARTMENT AT LEAST 24 HOURS PRIOR TO ANY AND ALL SUBGRADE TESTING AND CONCRETE POURS.
- P-3. ALL TEMPORARY AND PERMANENT SIGNAGE MUST COMPLY WITH THE LATEST REVISION OF THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
- P-4. CONTRACTOR SHALL PROTECT ALL UTILITIES, SIDEWALKS, PAVEMENT, ETC. AND SHALL REPAIR OR REPLACE ANY FACILITIES DAMAGED DURING PAVING OR GRADING OPERATIONS.
- P-5. EXISTING PAVEMENTS, CURBS, SIDEWALKS DRIVEWAYS, ETC., DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO THE CITY STANDARDS.
- P-6. ALL DISTURBED AREAS WITHIN STREET RIGHT-OF-WAY AND EASEMENTS NOT COVERED BY PAVEMENT OR STRUCTURE SHALL BE HYDRO-MULCHED AND WATERED UNTIL VEGETATION ESTABLISHMENT.
- P-7. AREAS TO BE FILLED SHALL BE CLEARED AND GRUBBED, SCARIFIED AND COMPACTED TO AT LEAST 95% OF MAXIMUM DENSITY (+/- 2% OF OPTIMUM MOISTURE) PER ASTM D-698, TO A DEPTH OF 6" PRIOR TO FILL PLACEMENT. FILL MATERIAL SHALL BE PLACED IN MAXIMUM 8" THICK LIFTS (MEASURED LOOSE) AND COMPACTED TO AT LEAST 95% OF MAXIMUM DENSITY (+/- 2% OF OPTIMUM MOISTURE) PER ASTM D-698. FILL SHALL BE CLEAN EARTH AND BE FREE FROM TRASH, VEGETATION AND LARGE STONES. TEST REPORTS INDICATING COMPLIANCE WITH DENSITY REQUIREMENTS SHALL BE SUBMITTED TO THE CITY PRIOR TO PLACEMENT OF PAVEMENT.
- P-8. THE SUBGRADE IS TO BE SCARIFIED AND COMPACTED TO 95% STANDARD PROCTOR DENSITY (+/- 2% OF OPTIMUM MOISTURE) PER ASTM D-698. THE SUBGRADE SHALL BE STABILIZED TO 8" DEPTH WITH A MINIMUM EIGHT PERCENT (8%) LIME BY WEIGHT OR AS REQUIRED TO ACHIEVE A STABILIZED SOIL P.I. OF 20 OR LESS. LIME REQUIREMENTS SUBGRADE SHALL EXTEND A MINIMUM OF 2- FEET BEHIND THE BACK OF ALL CURB AND BEYOND THE EDGE OF PAVEMENT.
- P-9. TESTING OF FILL, SUBGRADE AND PAVEMENT TO DOCUMENT COMPLIANCE WITH THE CITY REQUIREMENTS SHALL BE COMPLETED BY A CERTIFIED (REFERENCE: THE ASSOCIATION FOR LABORATORY ACCREDITATION) TESTING LABORATORY APPROVED BY THE CITY. A COPY OF ALL TEST RESULTS SHALL BE SUBMITTED TO THE CITY PUBLIC WORKS DIRECTOR.
- P-10. ALL INTERSECTION EDGE RETURN RADI SHALL BE 25 FEET ON LOCAL RESIDENTIAL AND MINOR COLLECTOR STREETS, ALL CUL-DE-SAC RETURN RADI SHALL BE 35 FEET UNLESS NOTED OTHERWISE. MINIMUM GRADES AT INTERSECTIONS AND IN CUL-DE-SACS SHALL BE 1.0% MINIMUM GRADE ON CURB AND GUTTER STREETS SHALL BE 0.30%.
- P-11. PAVING JOINTS (TRANSVERSE AND LONGITUDINAL) SHALL BE IN ACCORDANCE WITH THE DETAILS.
- P-12. WHEN A THICKER PAVEMENT ROADWAY INTERSECTS WITH A THINNER PAVEMENT ROADWAY, THE THICKER PAVEMENT SHALL BE CONSTRUCTED FOR THE ENTIRE INTERSECTION TO THE CURB RETURNS ON ALL INTERSECTING STREETS.
- P-13. WHERE PROPOSED PAVEMENT IS TO CONNECT TO EXISTING CONCRETE PAVEMENT, THE CONNECTION SHALL BE COMPLETED IN ACCORDANCE WITH THE PAVEMENT UNDERCUT DETAIL.
- P-14. SIDEWALKS SHALL BE LOCATED AS SHOWN ON THE PLANS. SIDEWALK RAMP CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE TEXAS ACCESSIBILITY STANDARDS (T.A.S.) AND CITY REQUIREMENTS.
- P-15. ALL INTERSECTIONS SHALL BE CONSTRUCTED WITH SIDEWALK RAMPS IN ACCORDANCE WITH THE TEXAS ACCESSIBILITY STANDARDS, THE AMERICAN DISABILITIES ACT AND THE CITY REQUIREMENTS.
- P-16. CONCRETE SHALL CONTAIN A MINIMUM 5-1/2 SACKS OF PORTLAND CEMENT PER CUBIC YARD OF CONCRETE WITH A MINIMUM 3500 PSI COMPRESSIVE STRENGTH AT 28 DAYS. CONCRETE SHALL HAVE A MAXIMUM SLUMP OF 4 INCHES AND AN AIR CONTENT OF 4.5 PERCENT. AIR ENTRAINMENT ADJUTURES SHALL CONFORM TO ASTM C280. FLASH IS NOT ALLOWED.
- P-17. CONCRETE PAVEMENT THICKNESSES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. A MINIMUM OF 18" LAPS ON ALTERNATE STEEL BARS SHALL BE PROVIDED. ALL REINFORCING STEEL SHALL BE SECURELY TIED AND SUPPORTED WITH BAR CHAIRS IN ACCORDANCE WITH AC STANDARDS. ALL REINFORCING OVERLAPS WILL BE DOUBLE TIED. SPACING FOR REINFORCING STEEL SHALL BE AS FOLLOWS:
 - 1. 7" CONCRETE PAVEMENT - #4 BAR ON 18" CENTER EACH WAY.
 - 2. 6" CONCRETE PAVEMENT AND DRIVEWAYS - #4 BAR ON 18" CENTER EACH WAY.
 - 3. SIDEWALKS AND CONCRETE SLOPE PAVEMENT - MINIMUM 4-1/2" THICK CONCRETE - #3 BAR ON 24" CENTER EACH WAY. (2% CROSS SLOPE MAXIMUM)
- P-18. CONCRETE SHALL NOT BE PLACED WHEN THE AMBIENT TEMPERATURE IS 40 DEGREES FAHRENHEIT AND FALLING. TEMPERATURE SHOULD FALL BELOW 32 DEGREES FAHRENHEIT WITHIN 72 HOURS OF PLACING CONCRETE. NO SALT OR OTHER CHEMICALS SHALL BE ADDED TO CONCRETE TO PREVENT FREEZING. NO CONCRETE SHALL BE PLACED WHEN THE MIXTURE TEMPERATURE IS ABOVE 95 DEGREES FAHRENHEIT. CONCRETE SHALL BE PLACED WITHIN 90 MINUTES OF THE BATCH TIME.
- P-19. ALL CONCRETE PLACED SHALL BE UNIFORMLY SPRAYED WITH A MEMBRANE CURING COMPOUND (TxDOT DMS-4650, TYPE 2, WHITE). CURING COMPOUND SHALL BE APPLIED IN ACCORDANCE WITH TxDOT STANDARD SPECIFICATIONS.
- P-20. CONCRETE SAMPLES: CYLINDERS (SET OF 4), SLUMP AND AIR ENTRAINMENT TESTS ARE REQUIRED FOR EACH 100 CUBIC YARDS AND EACH FRACTION THEREOF. A MINIMUM OF ONE SET OF SAMPLES IS REQUIRED PER CONCRETE POUR. THE CITY RESERVES THE RIGHT TO REQUEST ADDITIONAL TESTS.
- P-21. FINISHED PAVEMENT SHALL HAVE CORE SAMPLES TAKEN EVERY 750 LINEAR FEET (750'), STAGGERED ACROSS THE ROADWAY CROSS-SECTION, AND IN EVERY CUL-DE-SAC. ADDITIONAL CORE SAMPLES MAY BE REQUIRED AT THE DISCRETION OF THE CITY ENGINEER. THESE CORE SAMPLES SHALL BE TESTED TO INSURE THAT THE PAVEMENT THICKNESS MEETS THE REQUIRED PROJECT THICKNESS.
- P-22. PROPER TESTING AND LABORATORY DOCUMENTATION IS REQUIRED. FAILURE TO MEET THE MINIMUM PAVEMENT REQUIREMENTS WILL RESULT IN THE REJECTION OF PAVEMENT. IMMEDIATE REMOVAL AND REPLACEMENT OF SUBSTANDARD PAVEMENT SECTIONS WILL BE NECESSARY TO SATISFY THESE REQUIREMENTS.
- P-23. CRACKS 1/16 INCH OR LARGER ARE NOT ACCEPTABLE IN NEW PAVEMENT. CRACKS 1/16 INCH OR LESS WILL BE ADDRESSSED AN INDIVIDUAL BASIS, SUBJECT TO APPROVAL OR REJECTION.
- P-24. STREET NAME SIGNS SHALL BE LOCATED AT ALL INTERSECTIONS. CONTRACTOR SHALL VERIFY STREET NAME WITH RECORDS PLAT. STOP SIGNS AND OTHER TRAFFIC SIGNAGE SHALL BE PLACED IN ACCORDANCE WITH THE PLANS AND THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
- P-25. A DOUBLE-REFLECTORIZED BLUE TRAFFIC PAVEMENT MARKER SHALL BE PLACED ONE FOOT OFFSET OF THE PAVEMENT CENTERLINE ON FIRE HYDRANT SIDE, AT ALL FIRE HYDRANT LOCATIONS BY THE PAVING CONTRACTOR. FIRE HYDRANTS LOCATED AT INTERSECTIONS SHALL HAVE A MARKER PLACED ON EACH STREET.
- P-26. ALL PAVEMENT MARKINGS SHALL BE REFLECTORIZED. PERMANENT PREFABRICATED PAVEMENT MARKINGS MEETING THE MINIMUM REQUIREMENTS OF TxDOT, DMS-8240, TYPE A, OR B, INSTALLED IN ACCORDANCE WITH TxDOT STANDARD SPECIFICATION ITEM 668. CENTERLINE PAVEMENT MARKINGS, STOP BARS AND MISCELLANEOUS MARKINGS SHALL HAVE A MINIMUM THICKNESS OF 90 MILS. LAINE DETECTOR AND ROAD EDGE PAVEMENT MARKINGS SHALL HAVE A MINIMUM THICKNESS OF 60 MILS. ALL PAVEMENT MARKINGS SHALL BE INSTALLED WITH DOUBLE ADHESIVE AS REQUIRED BY THE CITY. OUTSIDE THE CITY (IN THE ETJ) COMPLY WITH FORT BEND COUNTY REQUIREMENTS.
- P-27. ALL DRIVEWAYS SHALL BE LOCATED TO AVOID EXISTING CURB INLET STRUCTURES.
- P-28. CONCRETE MIX DESIGN SHALL BE SENT TO THE CITY FOR APPROVAL WITH A MINIMUM OF 72 HOURS BEFORE THE FIRST CONCRETE POUR.
- P-29. VEHICLES OF ALL TYPES ARE PROHIBITED FROM DRIVING ON NEW PAVEMENTS THREE (3) DAYS AFTER THE PLACING OF CONCRETE AND UNTIL THE CONCRETE HAS REACHED A MINIMUM OF 3500 PSI.
- P-30. THE SUBGRADE SURFACE SHALL BE SMOOTH AND IN CONFORMITY WITH LINES & GRADES ON THE PLANS. WHEN THE SUBGRADE FAILS TO MEET DENSITY REQUIREMENTS OR SHOULD IT LOSE, THE REQUIRED STABILITY, DENSITY, OR FINISH, IT SHALL BE REWORKED IN ACCORDANCE WITH TxDOT SUBARTICLE 260.4.
- (7) "REWORKING A SECTION", WHICH MAY REQUIRE AN ADDITIONAL 25% OF THE SPECIFIED LINE AMOUNT.
- P-31. FLOODING OF THE STREETS SHALL OCCUR 24 HOURS PRIOR TO THE INITIAL INSPECTION.
- P-32. SUBGRADE DENSITIES SHALL BE RETAKEN IN THE EVENT OF A 1 INCH (1") OR GREATER RAINFALL OR IN THE EVENT THE AMBIENT AIR TEMPERATURE FALLS BELOW 32 DEGREES FAHRENHEIT FOR GREATER THAN THREE HOURS.

SPECIAL NOTES

- SN-1. BEFORE THE INITIAL WALK-THROUGH IS SCHEDULED.
- SN-2. NEGATIVE BACTERIOLOGICAL RESULTS FOR PUBLIC WATER LINES MUST BE SUBMITTED TO PUBLIC WORKS.
- SN-3. SATISFACTORY MANDREL, HYDROSTATIC, SANITARY, AND THE MANHOLE WATER TEST, MUST BE COMPLETED.
- SN-4. THE STORM SYSTEM MUST BE COMPLETELY CLEANED FOR A LAMP INSPECTION BEFORE OR THE DAY OF THE WALK-THROUGH FOR ACCEPTANCE.
- SN-5. THE MANHOLES, GRATES, VALVES AND HYDRANTS PROPERLY ADJUSTED/PAINTED TO THE CITY OF RICHMOND'S COLOR CODE.

**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER DISTRIBUTION SYSTEM
GENERAL CONSTRUCTION NOTES**

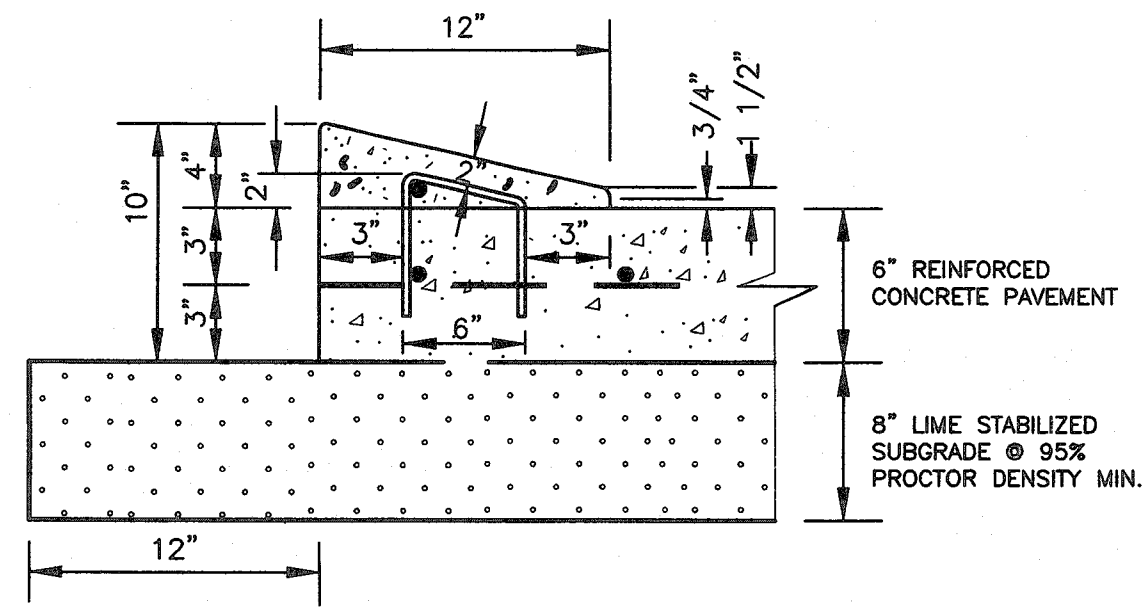
- 1. This water distribution system must be constructed in accordance with the current Texas Commission on Environmental Quality (TCEQ) Rules and Regulations for Public Water Systems 30 Texas Administrative Code (TAC) Chapter 290 Subchapter D. When conflicts are noted with local standards, the more stringent requirement shall be applied. Construction for public water systems must always, at a minimum, meet TCEQ's Rules and Regulations for Public Water Systems.
- 2. An appointed engineer shall notify in writing the local TCEQ's Regional Office when construction will start. Please keep in mind that upon completion of the water works project, the engineer or owner shall notify the commission's Water Supply Division, in writing, as to its completion and attest to the fact that the work has been completed essentially according to the plans and change orders on file with the commission as required in 30 TAC §290.39(h)(3).
- 3. All newly installed pipes and related products must conform to American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 61-G and must be certified by an organization accredited by ANSI, as required by 30 TAC §290.44(a)(1).
- 4. Plastic pipe used in use in public water systems must bear the National Sanitation Foundation Seal of Approval (NSF pw-0) and have an ASTM design pressure rating of at least 150 psi or a standard dimension ratio of 26 or less, as required by 30 TAC §290.44(a)(2).
- 5. No pipe which has been used for any purpose other than the conveyance of drinking water shall be accepted or relocated for use in any public drinking water supply, as required by 30 TAC §290.44(a)(3).
- 6. Water transmission and distribution lines shall be installed in accordance with the manufacturer's instructions. However, the top of the water line must be located below the frost line or the amount of cover shall be the top of the water line be less than 24 inches below ground surface, as required by 30 TAC §290.44(a)(4).
- 7. Pursuant to 30 TAC §290.44(a)(5), the hydrostatic leakage rate shall not exceed the amount allowed or recommended by the most current AWWA formulas for PVC pipe, cast iron and ductile iron pipe. Include the formulas in the notes on the plans. The hydrostatic leakage rate for polyvinyl chloride (PVC) pipe and appurtenances shall not exceed the amount allowed or recommended by formulas in America Water Works Association (AWWA) C-605 as required in 30 TAC §290.44(a)(5). Please ensure that the formula for this calculation is correct and most current formula is in use;

$$Q = \frac{LD\sqrt{P}}{148.00}$$

Where:

- Q = the quantity of makeup water in gallons per hour.
- L = the length of the pipe section being tested in feet.
- D = the nominal diameter of the pipe in inches, and
- P = the average test pressure during the hydrostatic test in pounds per square inch (psi).

o The hydrostatic leakage rate for ductile iron (DI) pipe and appurten

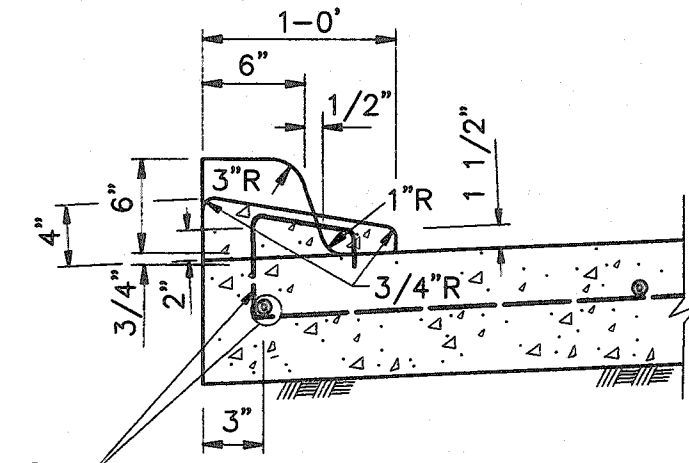


- NOTES:**
- #3 RE-BAR STIRRUPS TO BE PLACED AT INTERVALS OF 2' (FT) C-C.
 - #4 RE-BAR LONGITUDINAL SHALL BE TIED TO EACH STIRRUP
 - MOUNTABLE CURB ONLY ALLOWED ON < 41' (FT), UNDIVIDED, RESIDENTIAL ROADWAYS WITHIN SUBDIVISIONS.

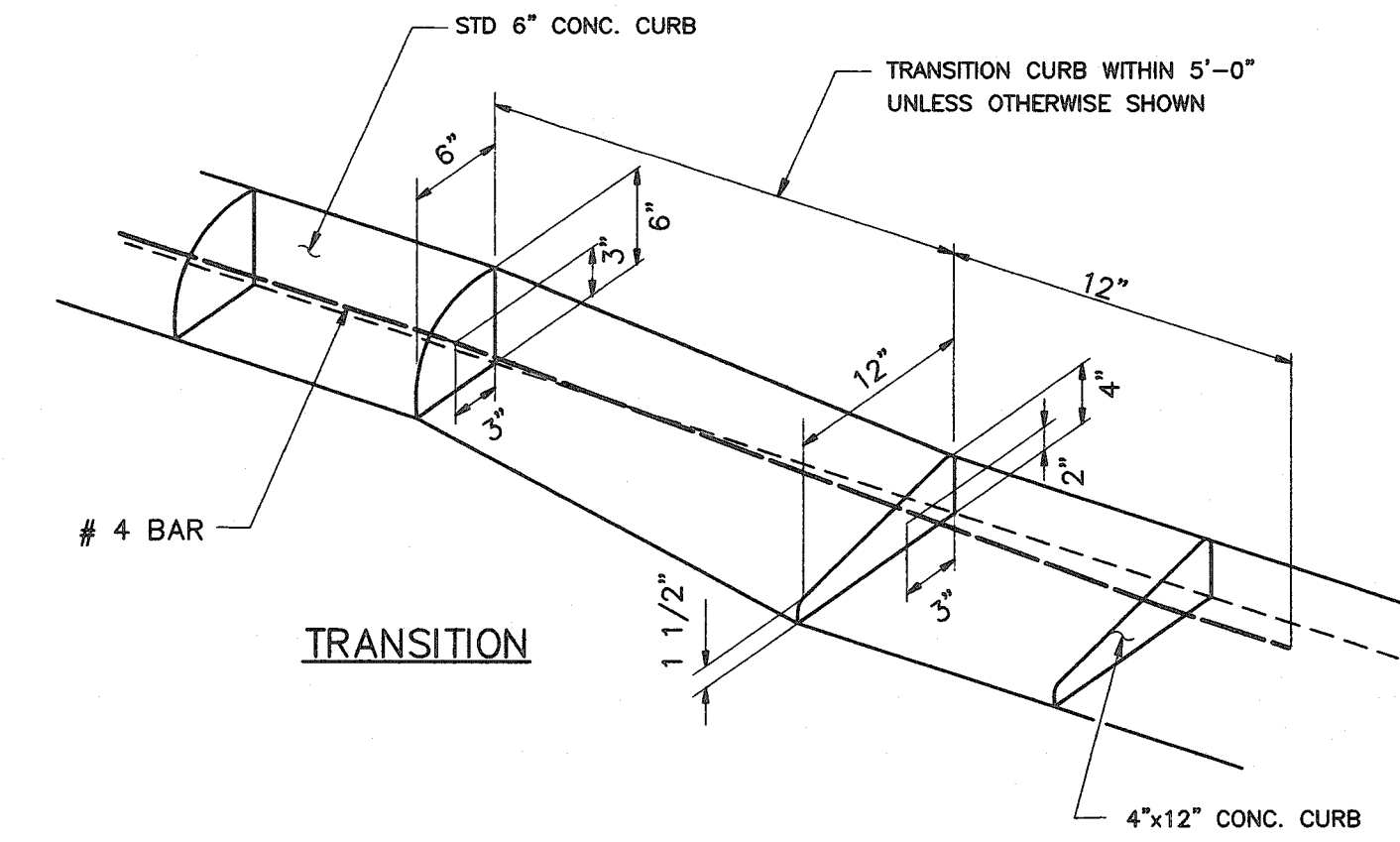
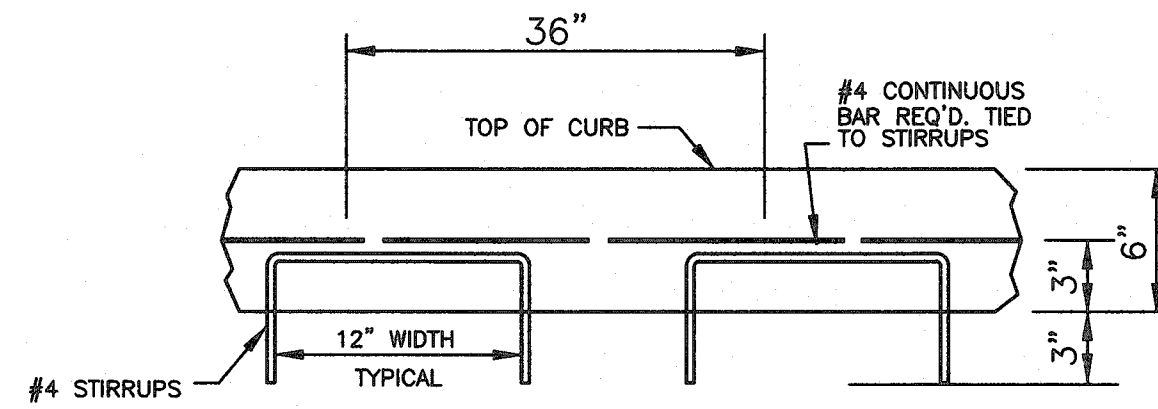
4"x12" MOUNTABLE CONCRETE CURB AND TRANSITION CURB NOTES:

- 6-INCH CONCRETE CURB TO BE CONSTRUCTED ON ALL ESPLANADES, ISLANDS AND NON-RESIDENTIAL STREETS. RESIDENTIAL STREETS MAY BE CONSTRUCTED WITH EITHER 6-INCH CONCRETE CURB OR 4-INCH x 12-INCH CONCRETE CURB AS NOTED ON PLANS.
- ALL 4-INCH x 12-INCH CONCRETE CURBS TO BE POURED SEPARATE FROM PROPOSED CONCRETE PAVEMENT.
- TRANSITIONS FROM 6-INCH CONCRETE CURB TO 4-INCH x 12-INCH CONCRETE CURB TO BE ACCOMPLISHED WITHIN 5 FEET (TYP.), UNLESS OTHERWISE SHOWN. REINFORCING STEEL AS SHOWN IN "4-INCH x 12-INCH TRANSITION CURB" DETAIL IS TO BE INSTALLED.

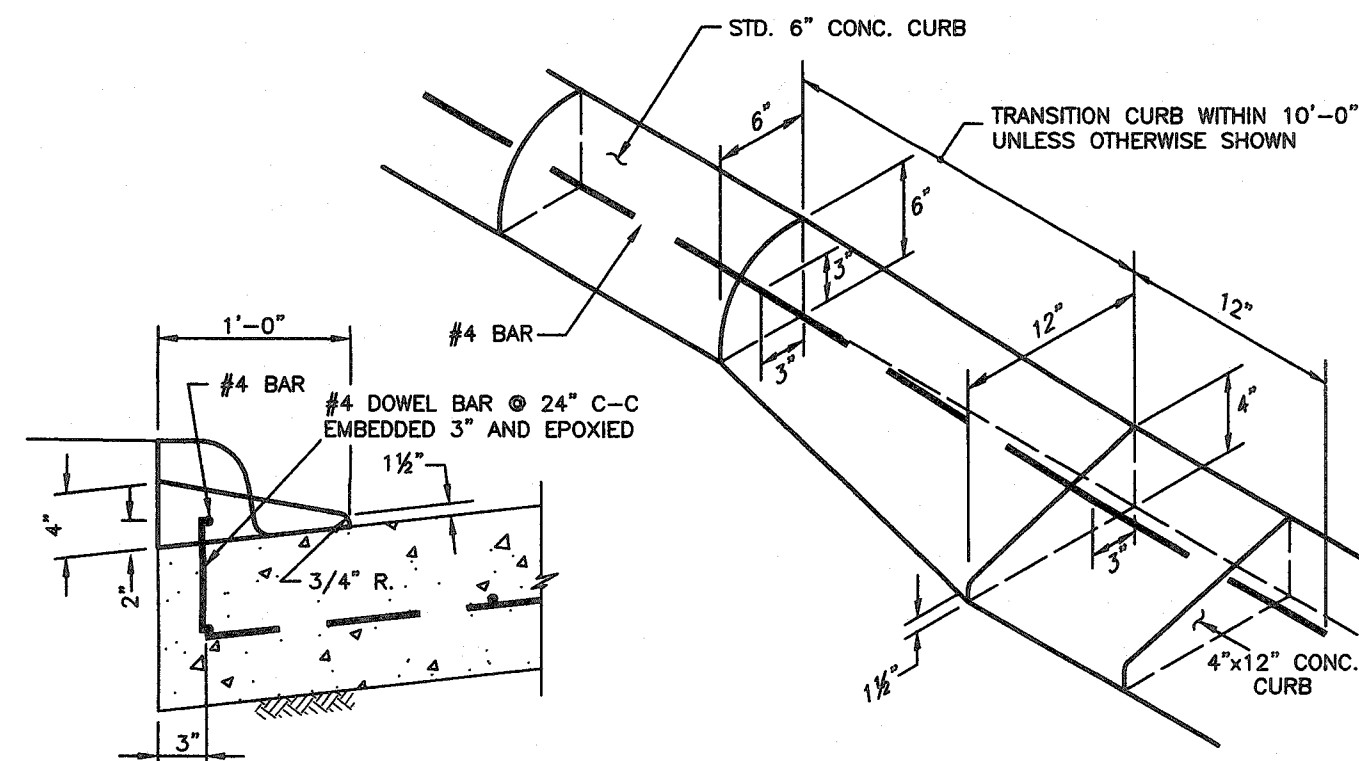
NOTES FOR DETAILS 1 & 2



4 DOWEL BAR @ 24" C-C EMBEDDED 3" AND EPOXIED

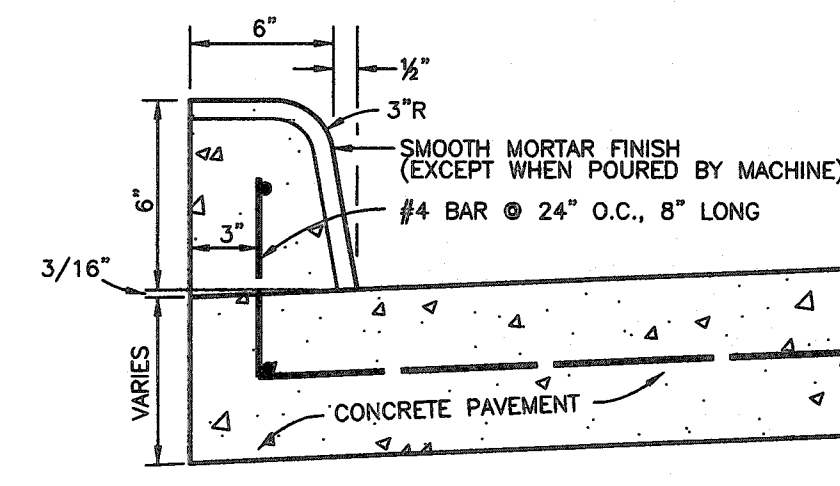


1. 4"x12" MOUNTABLE CONCRETE CURB



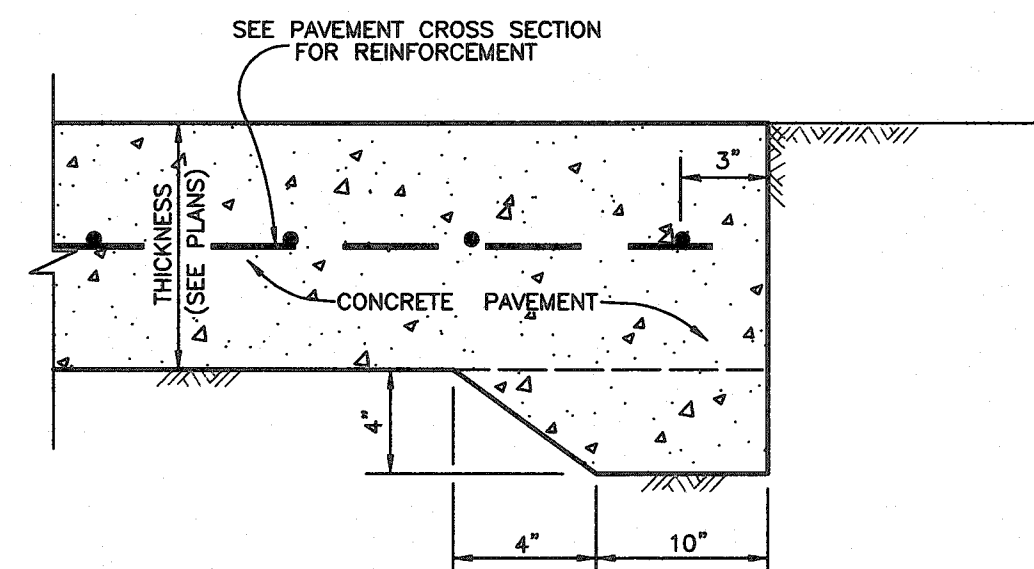
- NOTES:**
- 6" CONCRETE CURB TO BE CONSTRUCTED ON ALL ESPLANADES, ISLANDS AND NON-RESIDENTIAL STREETS. RESIDENTIAL STREETS MAY BE CONSTRUCTED WITH EITHER 6" CONCRETE CURB OR 4"x12" CONCRETE CURB AS NOTED ON DRAWINGS.
 - ALL 4"x12" CONCRETE CURBS TO BE POURED SEPARATE FROM PROPOSED CONCRETE PAVEMENT.
 - TRANSITIONS FROM 6" CONCRETE CURB TO 4"x12" CONCRETE CURB TO BE ACCOMPLISHED WITHIN 10 FEET, UNLESS OTHERWISE SHOWN. IF THIS 10 FOOT TRANSITION CURB IS NOT POURED MONOLITHICALLY WITH THE PAVEMENT, THEN REINFORCING STEEL AS SHOWN ABOVE IN TYPICAL DETAIL 4"x12" TRANSITION CURB IS TO BE INSTALLED.
 - ADJUST PAVEMENT ELEVATION AND SLOPE TO ASSURE PROPER DRAINAGE THROUGH THE TRANSITION.

2. 4"x12" TRANSITION CURB

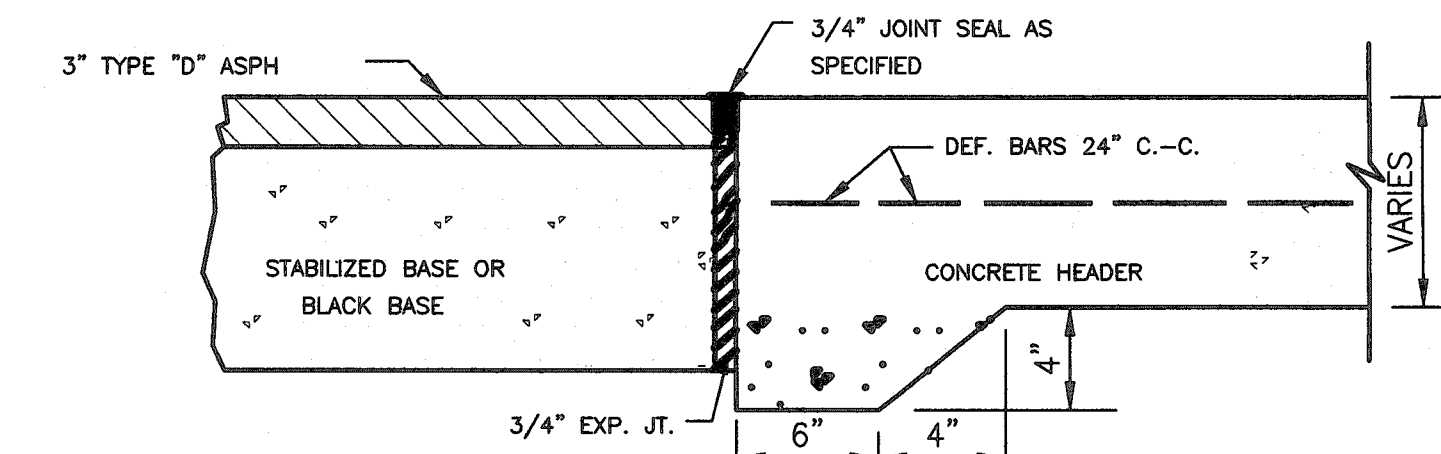


- NOTES:**
- MORTAR FINISH NOT REQUIRED WHEN CURB IS POURED BY A MACHINE, BUT CURB SHALL HAVE THE SAME OUTSIDE DIMENSIONS.
 - WHEN CONCRETE CURB IS TO BE PLACED ON EXISTING CONCRETE BASE, USE #4 DEFORMED BARS, 8" LONG, 24" O.C., DOWELLED, AND SET IN QUICK SETTING CEMENT GROUT.
 - REDWOOD EXPANSION JOINTS SHALL BE INSTALLED AT ALL PAVEMENT EXPANSION JOINTS.

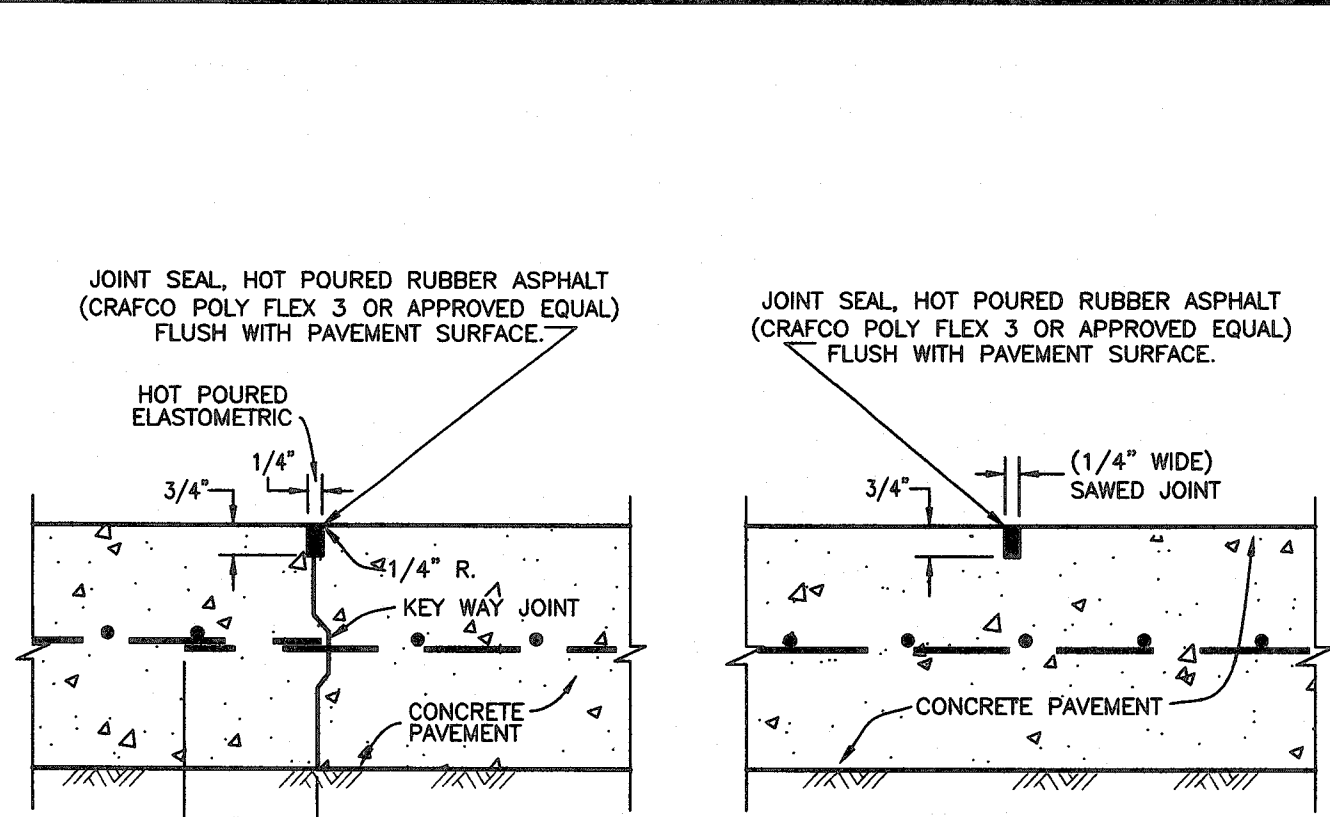
3. TYPICAL CONCRETE CURB REINFORCING



4. TYPICAL CURB TRANSITION

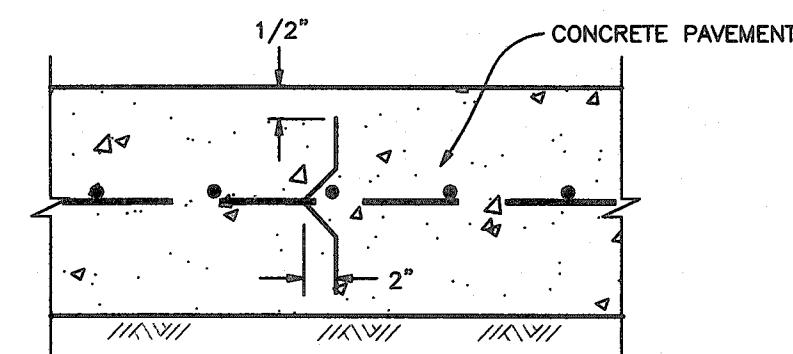


5. 4"x12" TRANSITION CURB



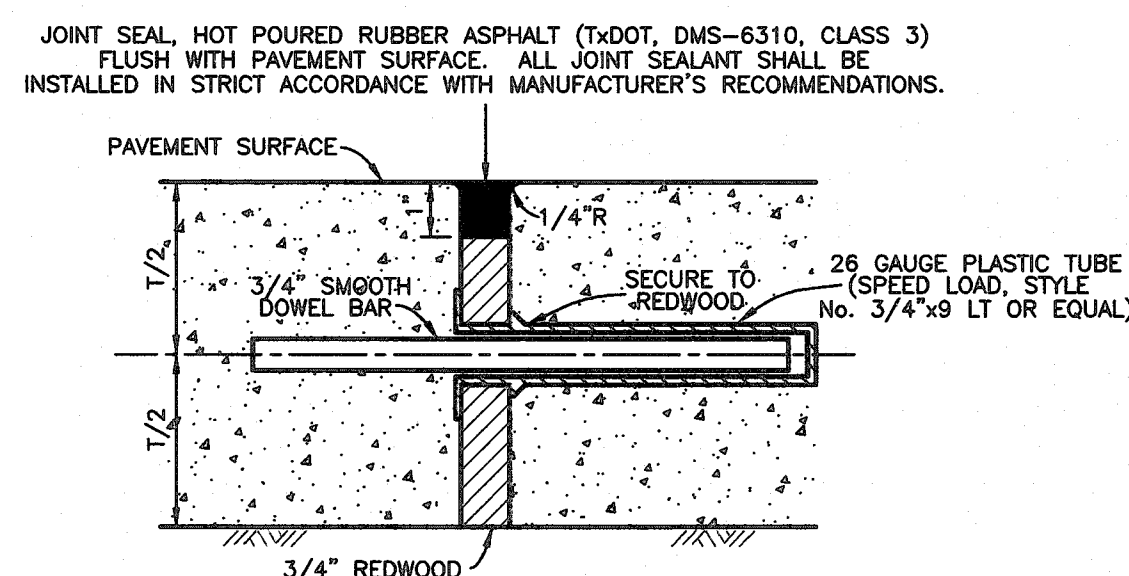
- NOTES:**
- SAWCUT SHALL BE COMPLETED IN 6 TO 12 HOURS AFTER PLACEMENT OF CONCRETE.
 - MAXIMUM SPACING OF LATERAL SAWED JOINTS SHALL BE 20'0".

6. CONCRETE CURB



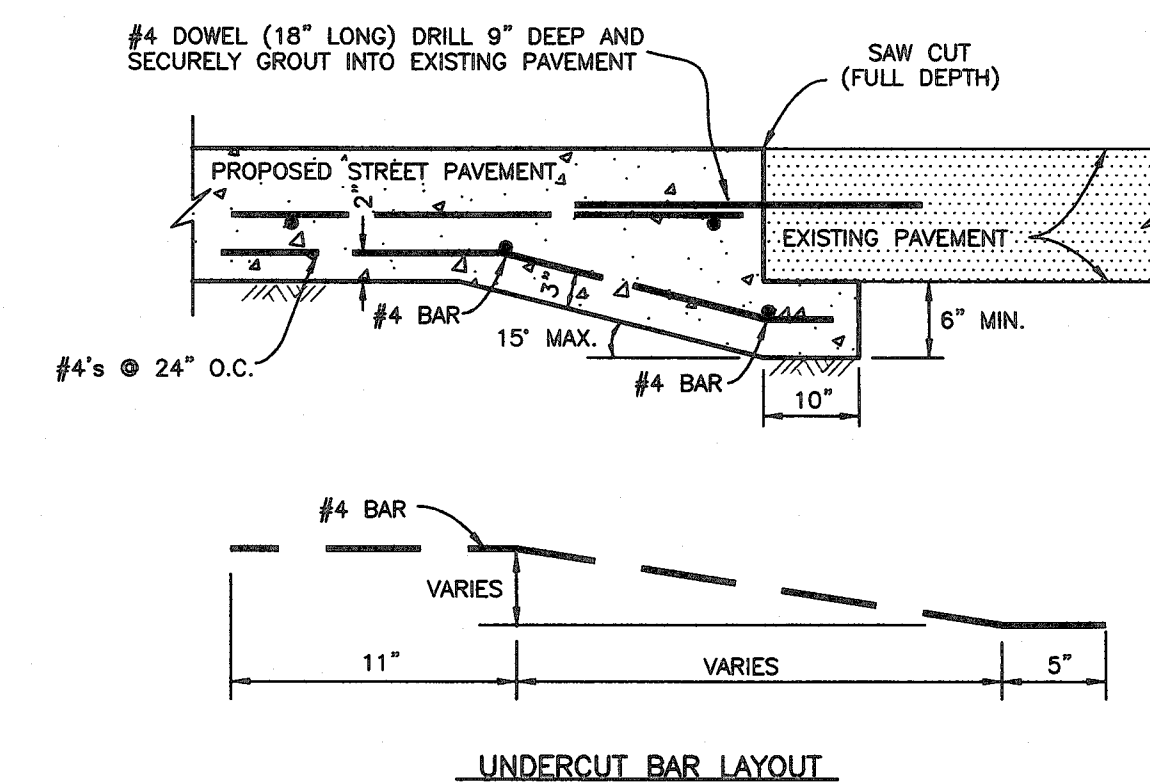
- NOTES:**
- THE LOCATION OF DEFORMED STRIPS MAY BE VARIED, WITH THE APPROVAL OF THE CITY. MAXIMUM LONGITUDINAL SPACING FOR DEFORMED STRIPS SHALL BE 14'-0". DEFORMED METAL STRIPS SHALL BE PLACED VERTICALLY ALONG A STRAIGHT ALIGNMENT.

7. PAVEMENT HEADER



- NOTES:**
- EXPANSION JOINT TO BE PLACED AT THE END OF EACH CURB RADIUS AND SPACED A MAXIMUM OF 60'-0" APART.
 - STAKES FOR TRANSVERSE JOINTS SHALL NOT BE PLACED CLOSER THAN 6" TO A LONGITUDINAL JOINT. THE TOP OF EACH STAKE SHALL NOT BE LESS THAN 2" BELOW THE FINISHED SURFACE.
 - DOWEL SHALL BE SECURED IN A HORIZONTAL ALIGNMENT PRIOR TO POURING CONCRETE.
 - INSTALL BACKER RODS (TxDOT, DMS-6310) IN ACCORDANCE WITH SEALANT MANUFACTURER'S RECOMMENDATIONS.
 - NO EXPANSION JOINT SHALL BE INSTALLED WITHIN TWO FEET (2') FROM AN INLET OPENING.

8. PAVEMENT HEADER FOR CONNECTING CONCRETE TO ASPHALT



- NOTES:**
- PAVEMENT UNDERCUT TO BE USED WHEN NO SUBGRADE STABILIZATION EXIST UNDER EXISTING PAVEMENT.

9. PAVEMENT JOINTS


10. DEFORMED METAL STRIP

11. DOWEL TYPE EXPANSION JOINT

12. PAVEMENT UNDERCUT

NO.	DATE	REVISIONS	APP.

**CITY OF RICHMOND
STANDARD CONSTRUCTION DETAILS
PAVING-1**



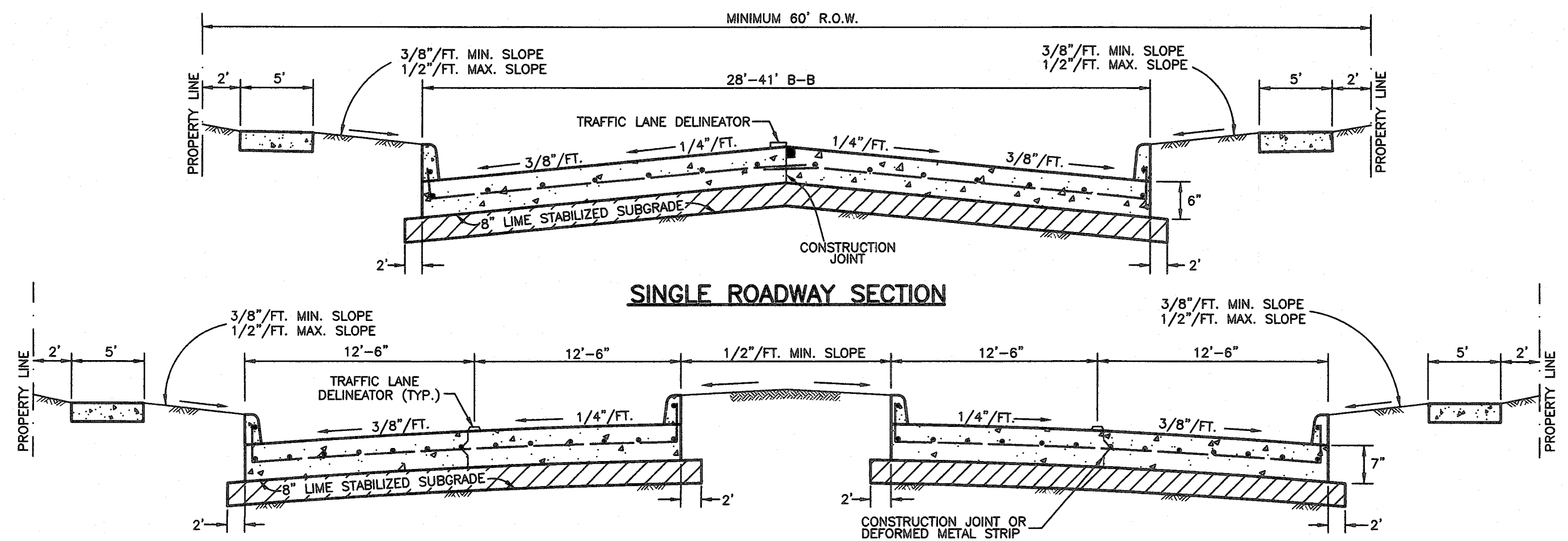
SCALE

HORIZONTAL	1" = NTS	DESIGNED BY:	LLT
VERTICAL	1" = NTS	DRAWN BY:	AJS
		CHECKED BY:	KRK
		DATE:	7/24/17
		JOB NO.:	
		DWG. NO.:	R-9-17

Brent A. Palermo
Professional Engineer
104743
7/24/17

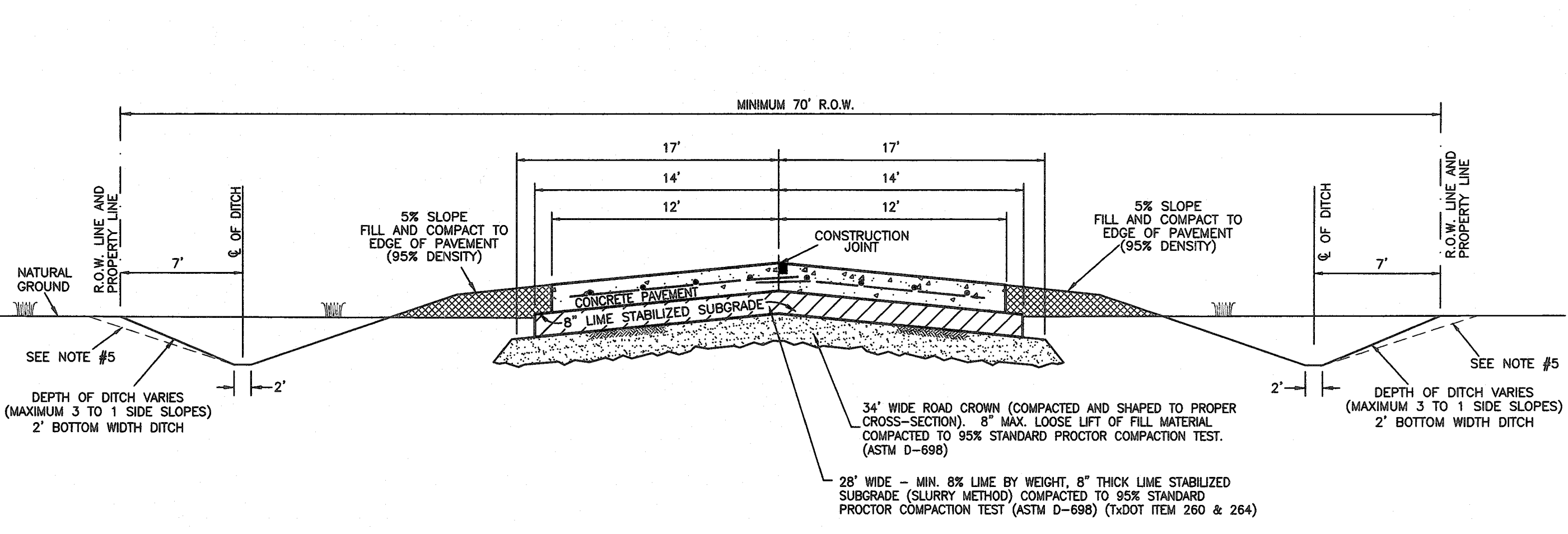
Maggie 1/24/18

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Plot Size: 11" x 17" (A)



NOTE:

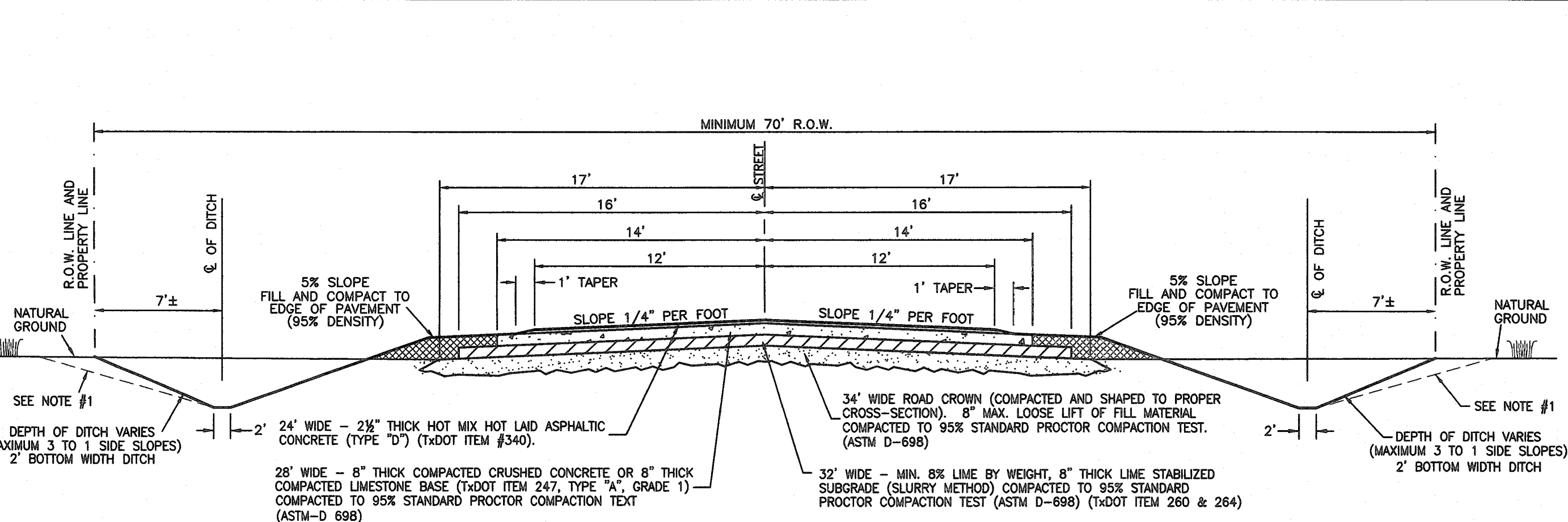
- ALL REINFORCING STEEL SHALL CONFORM TO ASTM-615, CURRENT REVISION, GRADE 60. MINIMUM LAP AT ALL SPLICES SHALL BE FIFTEEN INCHES (15"). No. 4 BARS @ 18" O.C.E.W.
- CONCRETE SHALL HAVE A 3500 P.S.I. COMPRESSIVE STRENGTH AT 28 DAYS AND A MINIMUM 550 P.S.I. FLEXURAL STRENGTH AT 7 DAYS, AND SHALL CONTAIN A MINIMUM OF FIVE AND ONE HALF (5½) SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
- EXPANSION JOINTS SHALL BE SPACED AT 60'-0" O.C. (MAXIMUM) WITH LATERAL, SAWED JOINTS AT 20'-0" O.C. (MAXIMUM). ALL JOINTS SHALL BE SEALED. THE LOCATION OF CONSTRUCTION JOINTS AND DEFORMED METAL STRIPS MAY BE VARIED WITH CITY APPROVAL.
- 8" LIME STABILIZED SUBGRADE SHALL BE A MINIMUM OF 8% LIME, UNLESS SPECIFICALLY APPROVED BY THE CITY.
- THE SLOPE BETWEEN PAVEMENT AND THE SIDEWALK/PROPERTY LINE MAY BE INCREASED, WITH APPROVAL FROM THE CITY.



NOTE:

- ALL REINFORCING STEEL SHALL CONFORM TO ASTM-615, CURRENT REVISION, GRADE 60. MINIMUM LAP AT ALL SPLICES SHALL BE FIFTEEN INCHES (15"). No. 4 BARS @ 18" O.C.E.W.
- CONCRETE SHALL HAVE A 3500 P.S.I. COMPRESSIVE STRENGTH AT 28 DAYS AND A MINIMUM 550 P.S.I. FLEXURAL STRENGTH AT 7 DAYS, AND SHALL CONTAIN A MINIMUM OF FIVE AND ONE HALF (5½) SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
- EXPANSION JOINTS SHALL BE SPACED AT 60'-0" O.C. (MAXIMUM) WITH LATERAL, SAWED JOINTS AT 20'-0" O.C. (MAXIMUM). ALL JOINTS SHALL BE SEALED. THE LOCATION OF CONSTRUCTION JOINTS AND DEFORMED METAL STRIPS MAY BE VARIED WITH CITY APPROVAL.
- 8" LIME STABILIZED SUBGRADE SHALL BE A MINIMUM OF 8% LIME, UNLESS SPECIFICALLY APPROVED BY THE CITY.
- PROVIDE DRAINAGE EASEMENT ADJOINING THE R.O.W. AND EXTEND BACK SLOPE OF DITCH WITHIN THE EASEMENT AS NECESSARY TO MAINTAIN 3 TO 1 SIDE SLOPE (TYP.).

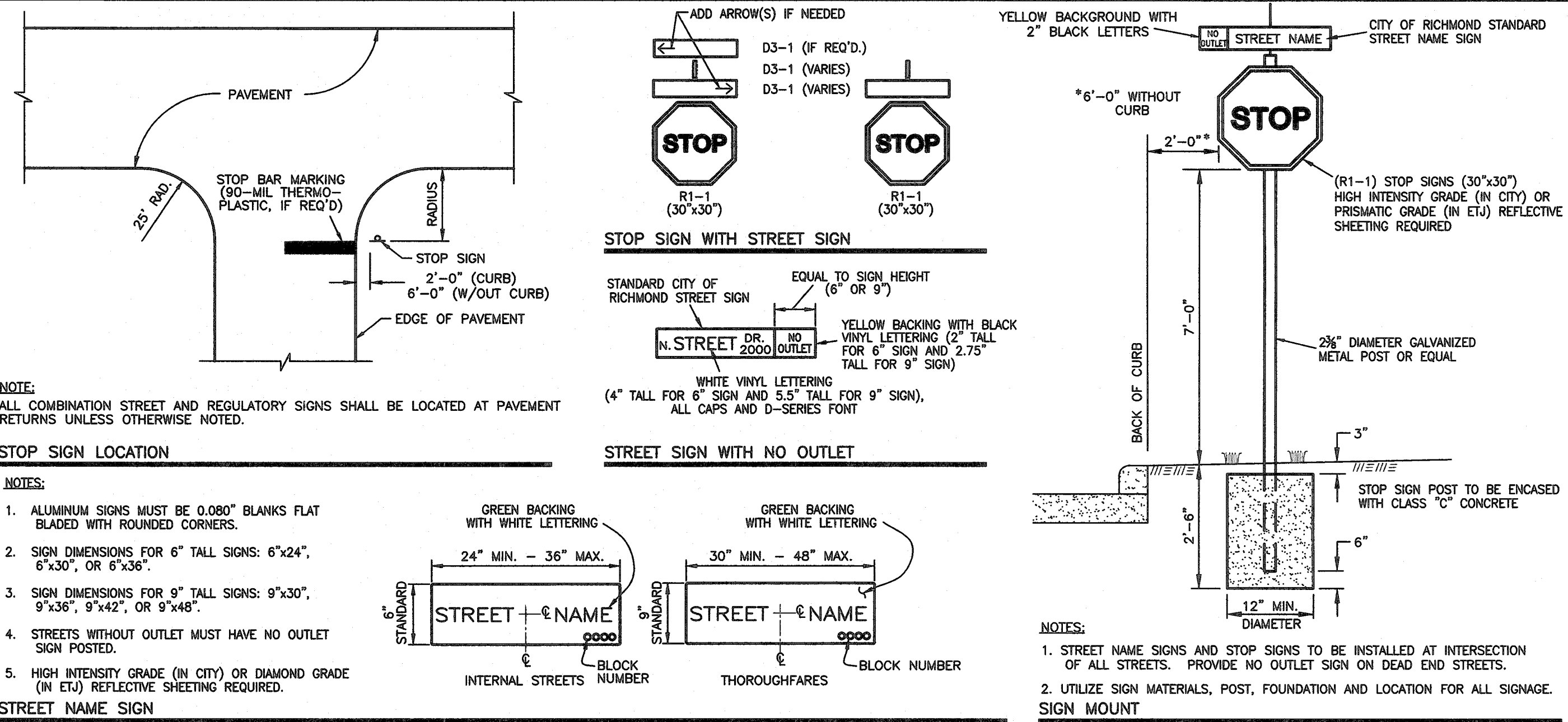
1. STANDARD CONCRETE CURB AND GUTTER STREET CROSS-SECTIONS



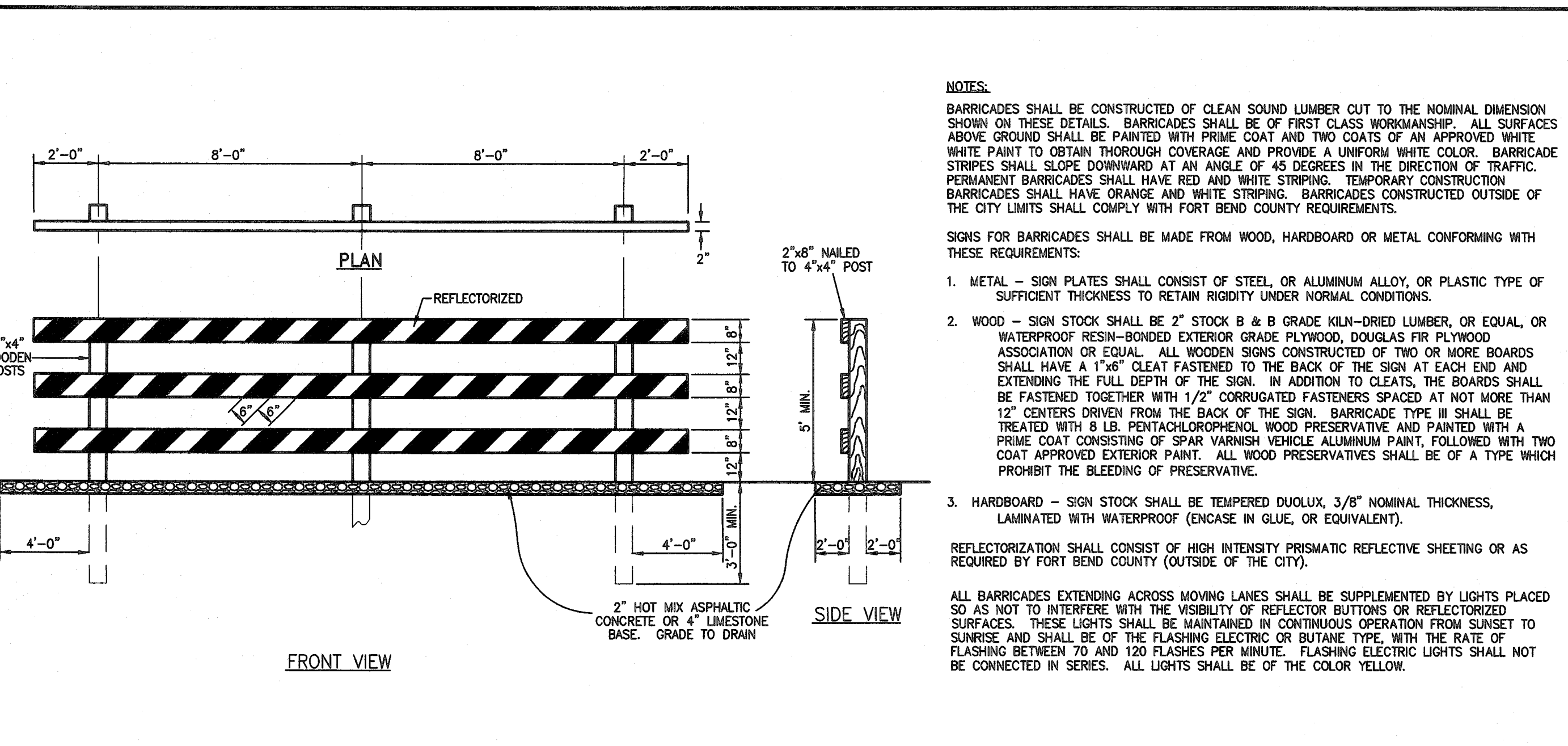
NOTES:

- PROVIDE DRAINAGE EASEMENT ADJOINING THE R.O.W. AND EXTEND BACK SLOPE OF DITCH WITHIN THE EASEMENT AS NECESSARY TO MAINTAIN 3 TO 1 SIDE SLOPE (TYP.).
- PAVING MARKINGS REQUIRED AS PER CITY OF RICHMOND (IN CITY) OR FORT BEND COUNTY SPECIFICATIONS.

2. STANDARD CONCRETE PAVEMENT WITH OPEN DITCH CROSS-SECTION



3. STANDARD ASPHALT PAVEMENT WITH OPEN DITCH CROSS-SECTION



5. TYPE 'III' BARRICADE

4. TRAFFIC SIGNAGE

NOTES:

- BARRICADES SHALL BE CONSTRUCTED OF CLEAN SOUND LUMBER CUT TO THE NOMINAL DIMENSION SHOWN ON THESE DETAILS. BARRICADES SHALL BE OF FIRST CLASS WORKMANSHIP. ALL SURFACES ABOVE GROUND SHALL BE PAINTED WITH PRIME COAT AND TWO COATS OF AN APPROVED WHITE PAINT TO OBTAIN THOROUGH COVERAGE AND PROVIDE A UNIFORM WHITE COLOR. BARRICADE STRIPES SHALL SLOPE DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION OF TRAFFIC. PERMANENT BARRICADES SHALL HAVE RED AND WHITE STRIPING. TEMPORARY CONSTRUCTION BARRICADES SHALL HAVE ORANGE AND WHITE STRIPING. BARRICADES CONSTRUCTED OUTSIDE OF THE CITY LIMITS SHALL COMPLY WITH FORT BEND COUNTY REQUIREMENTS.
- SIGNS FOR BARRICADES SHALL BE MADE FROM WOOD, HARDBOARD OR METAL CONFORMING WITH THESE REQUIREMENTS:
 - METAL - SIGN PLATES SHALL CONSIST OF STEEL, OR ALUMINUM ALLOY, OR PLASTIC TYPE OF SUFFICIENT THICKNESS TO RETAIN RIGIDITY UNDER NORMAL CONDITIONS.
 - WOOD - SIGN STOCK SHALL BE 2" STOCK B & B GRADE KILN-DRIED LUMBER, OR EQUAL, OR WATERPROOF RESIN-BONDED EXTERIOR GRADE PLYWOOD, DOUGLAS FIR PLYWOOD ASSOCIATION OR EQUAL. ALL WOODEN SIGNS CONSTRUCTED OF TWO OR MORE BOARDS SHALL HAVE A 1" CLEAT FASTENED TO THE BACK OF THE SIGN AT EACH END AND EXTENDING THE FULL DEPTH OF THE SIGN. IN ADDITION TO CLEATS, THE BOARDS SHALL BE FASTENED TOGETHER WITH 1/2" CORRUGATED FASTENERS SPACED AT NOT MORE THAN 12" CENTERS DRIVEN FROM THE BACK OF THE SIGN. BARRICADE TYPE III SHALL BE TREATED WITH 8 LB. PENTACHLOROPHENOL WOOD PRESERVATIVE AND PAINTED WITH A PRIME COAT CONSISTING OF SPAR VARNISH VEHICLE ALUMINUM PAINT, FOLLOWED WITH TWO COAT APPROVED EXTERIOR PAINT. ALL WOOD PRESERVATIVES SHALL BE OF A TYPE WHICH PROHIBIT THE BLEEDING OF PRESERVATIVE.
 - HARDBOARD - SIGN STOCK SHALL BE TEMPERED DUOLUX, 3/8" NOMINAL THICKNESS, LAMINATED WITH WATERPROOF (ENCASE IN GLUE, OR EQUIVALENT).
- REFLECTORIZATION SHALL CONSIST OF HIGH INTENSITY PRISMATIC REFLECTIVE SHEETING OR AS REQUIRED BY FORT BEND COUNTY (OUTSIDE OF THE CITY).

ALL BARRICADES EXTENDING ACROSS MOVING LANES SHALL BE SUPPLEMENTED BY LIGHTS PLACED SO AS NOT TO INTERFERE WITH THE VISIBILITY OF REFLECTOR BUTTONS OR REFLECTORIZED SURFACES. THESE LIGHTS SHALL BE MAINTAINED IN CONTINUOUS OPERATION FROM SUNSET TO SUNRISE AND SHALL BE OF THE FLASHING ELECTRIC OR BUTANE TYPE, WITH THE RATE OF FLASHING BETWEEN 70 AND 120 FLASHES PER MINUTE. FLASHING ELECTRIC LIGHTS SHALL NOT BE CONNECTED IN SERIES. ALL LIGHTS SHALL BE OF THE COLOR YELLOW.

NO.	DATE	REVISIONS	APP.

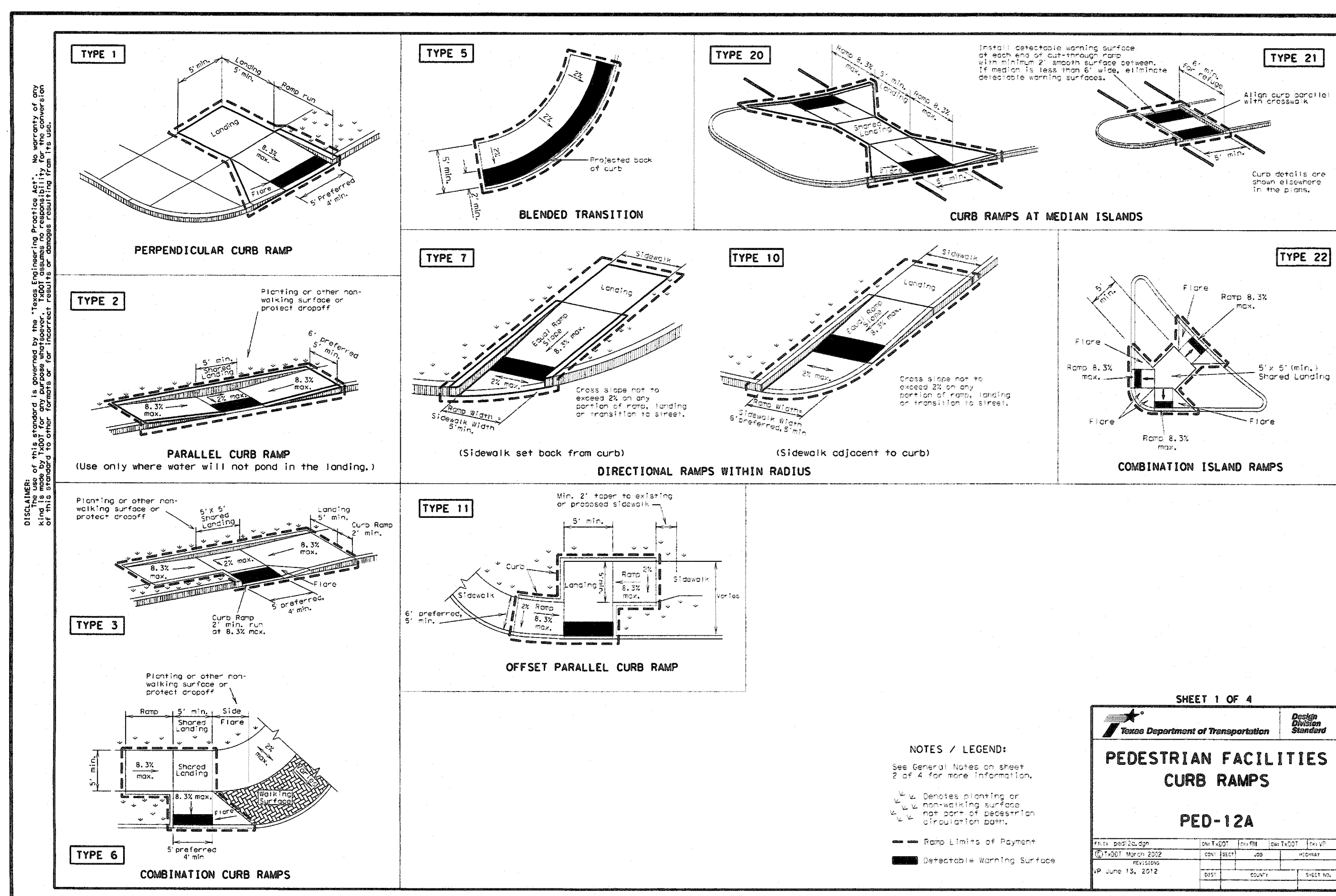
**CITY OF RICHMOND
STANDARD CONSTRUCTION DETAILS
PAVING-3**

SCALE
HORIZONTAL 1" = NTS
VERTICAL 1" = NTS

DESIGNED BY: LLT
DRAWN BY: AJS
CHECKED BY: KRK
DATE: 7/24/17
JOB NO:
DWG. NO:
R-11-17
Sheet:

File Name: \\detroit\Richmond\007 COR STANDARD\0-11-17 - Paving
 Save Date: Monday, July 24, 2017 5:25:51 PM
 Plot Date: Monday, July 24, 2017 5:17:30 PM

Mary D 1/24/18

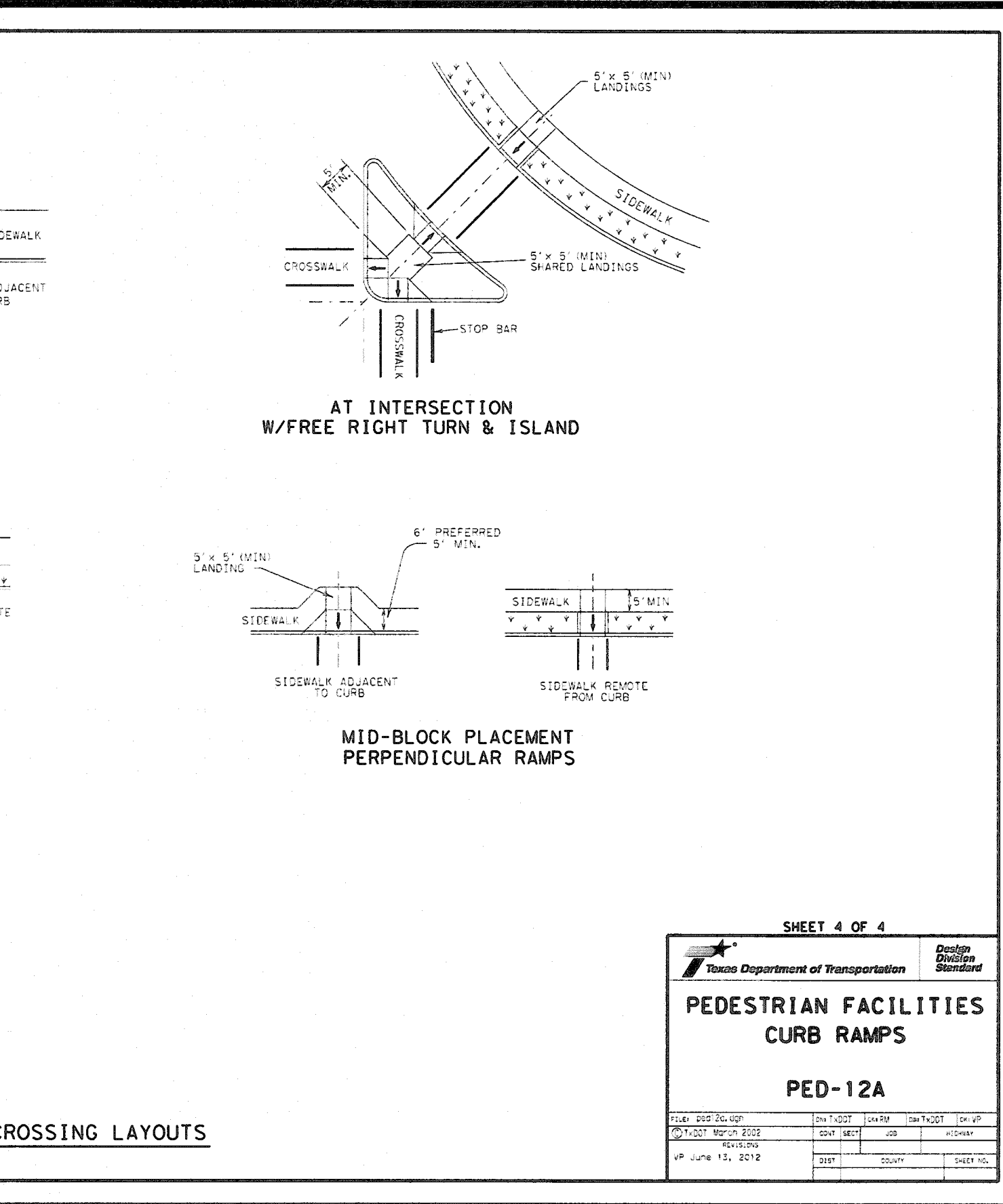
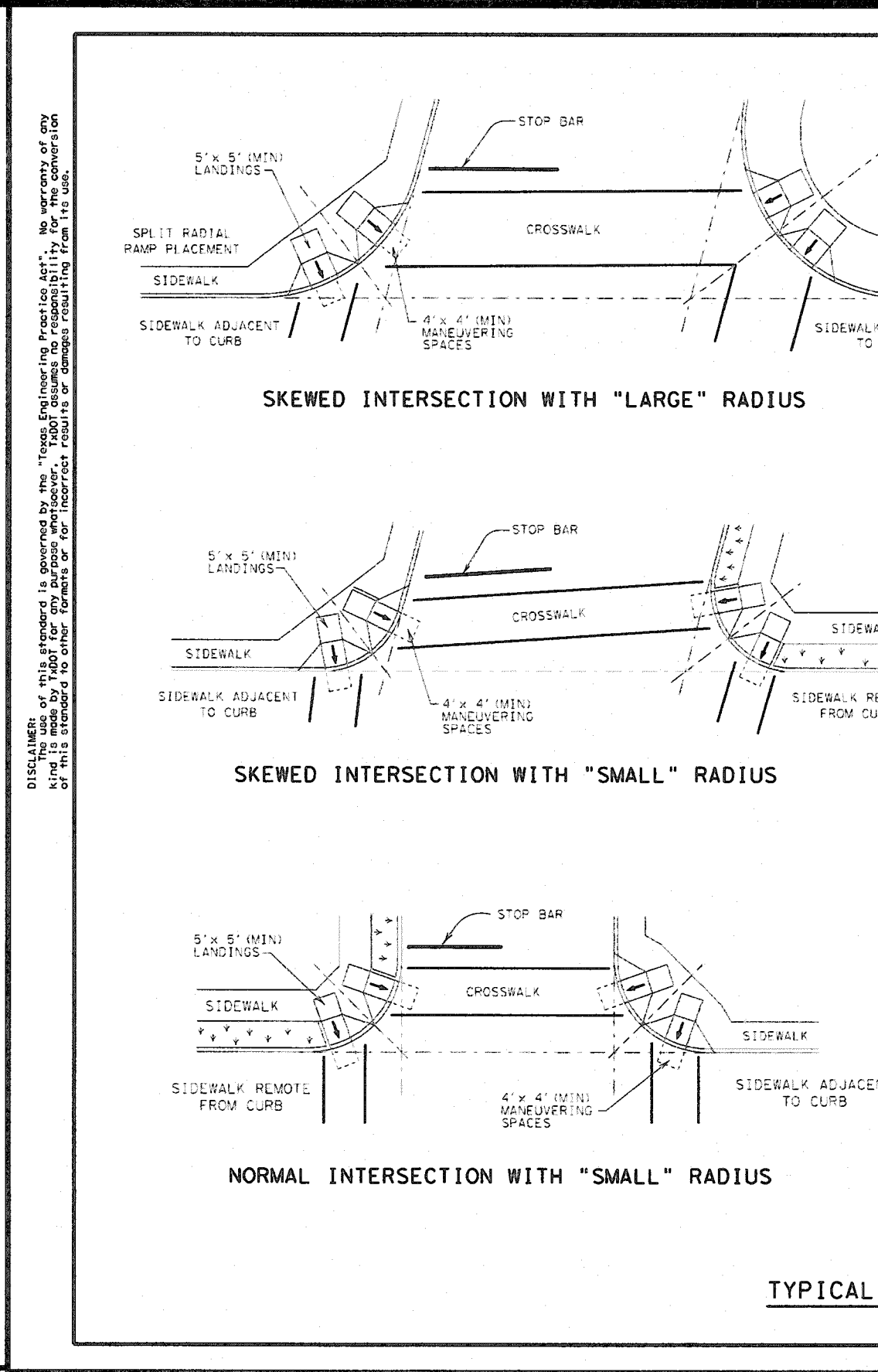
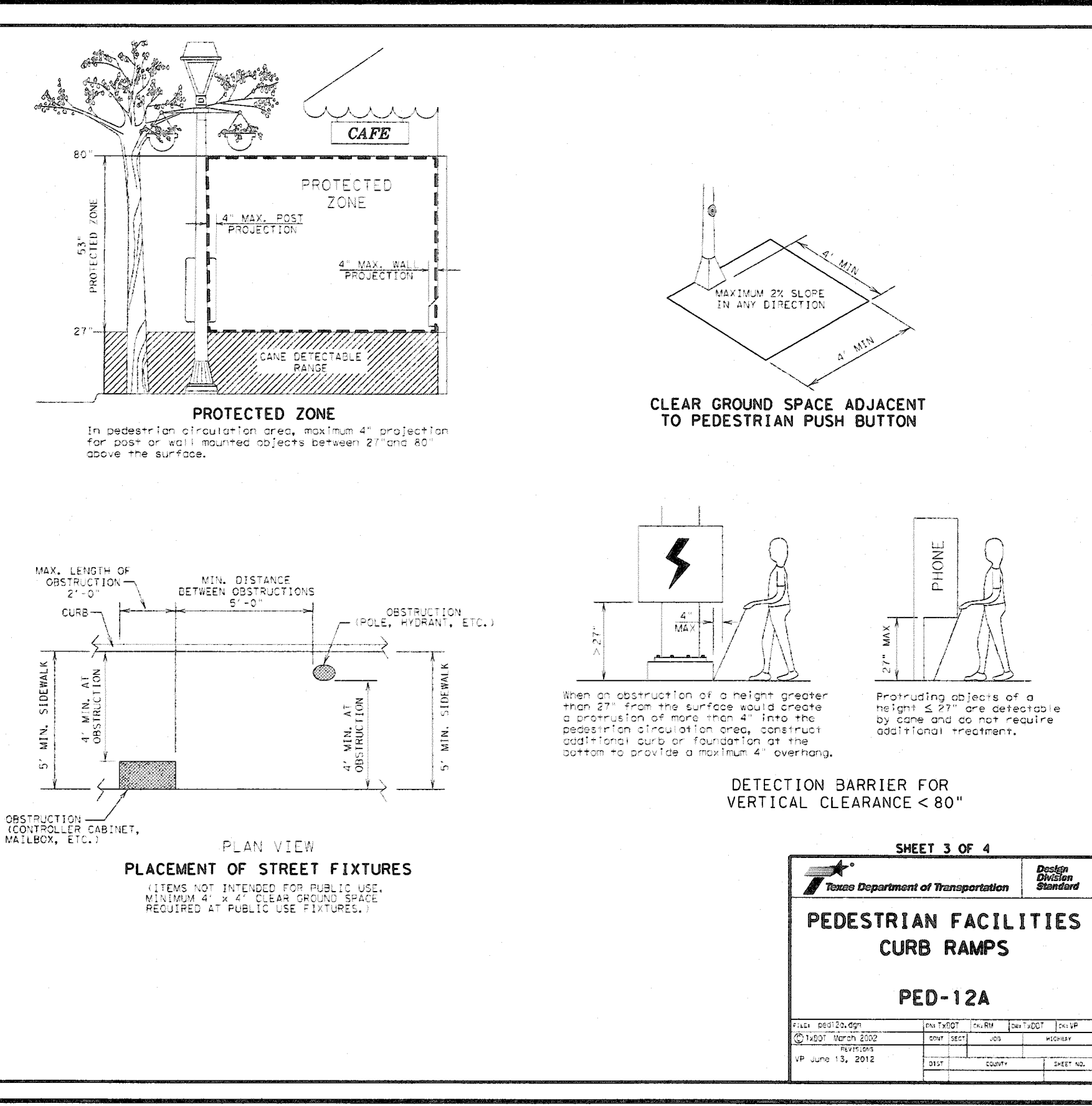
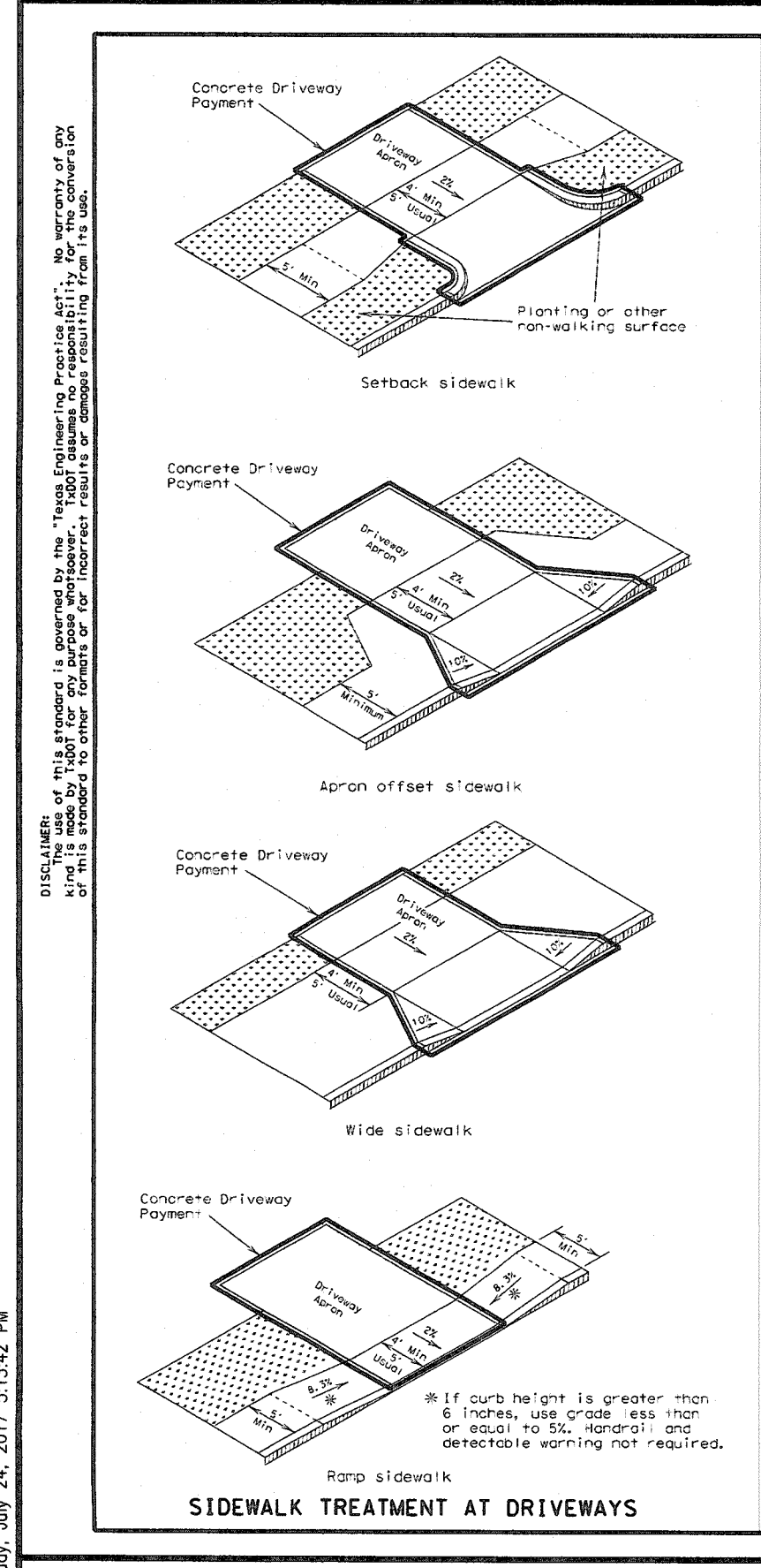
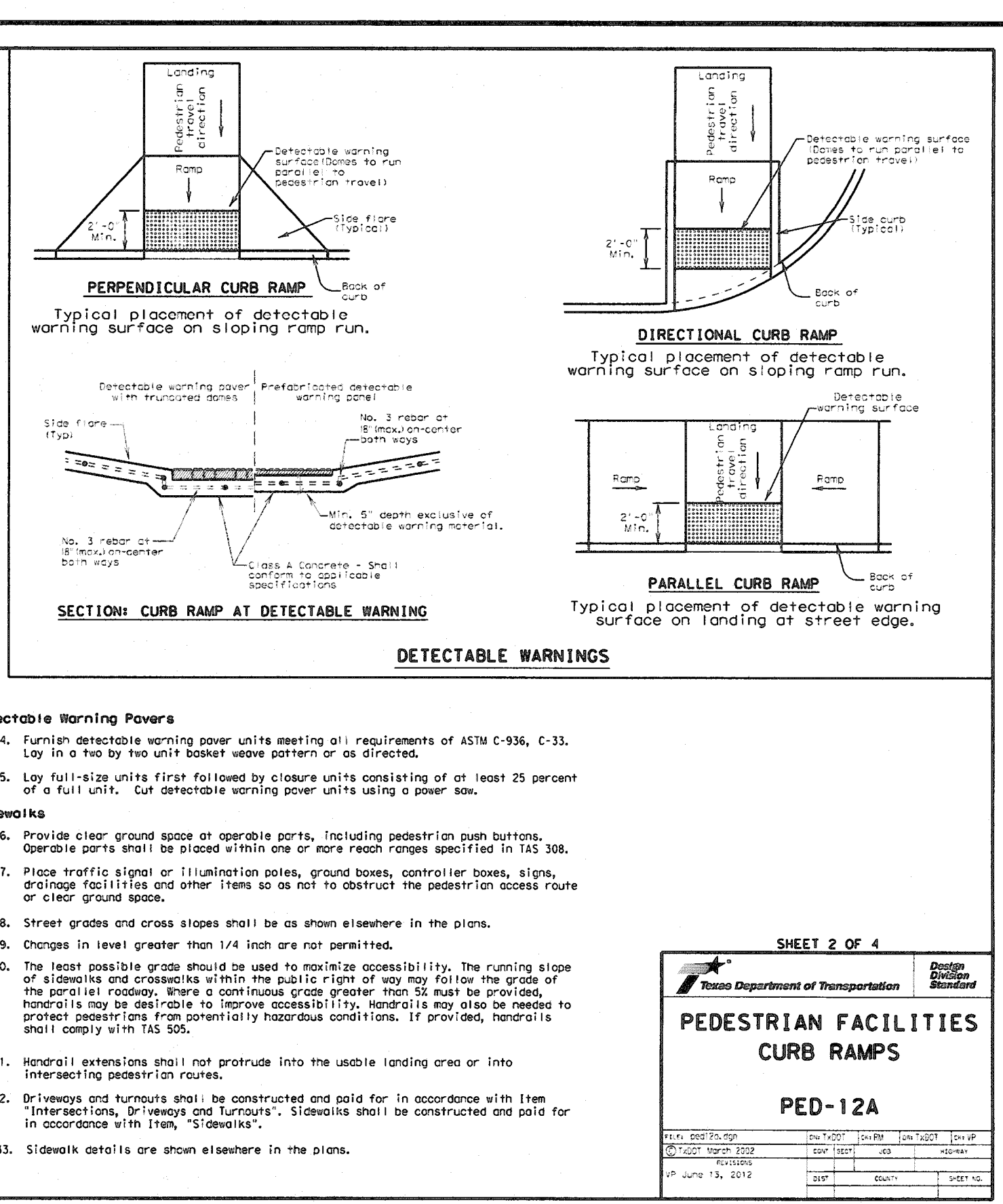


General Notes

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Lesser slopes may be used if drain properly.
3. The minimum sidewalk width is 5' where the sidewalk is adjacent to the back of curb or a 6' sidewalk width is desirable, where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5' x 5' paving areas of intervals not to exceed 200' are required.
4. Landings shall be 5' x 5' minimum with a maximum 2% slope in any direction.
5. Maneuvering space at the bottom of curb ramps shall be a minimum of 4' x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
6. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrian would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the current edition of the Texas Accessibility Standards (TAS) and 16 TAC 68.102.
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curb. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5' x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. All intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Handrails are not required on curb ramps. Provide curb ramps wherever an accessible route crosses a street or curb.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place curbs at a minimum depth of 5' for ramps, flares and landings, unless otherwise directed.
15. Provide a smooth transition where the curb ramps connect to the street.
16. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
17. Existing features that comply with TAS may remain in place unless otherwise shown on the plans.

Detectable Warning Material

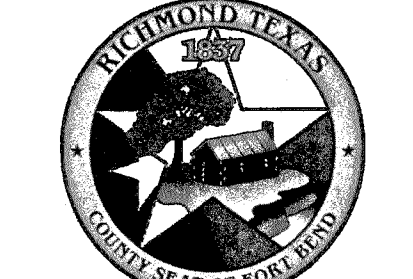
18. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with Section 309 of the TAS. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cost-in-place dark brown or dark red detectable warning surface material adjacent to uncoated concrete, unless specified elsewhere in the plans.
19. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
20. Detectable warning surfaces must be slip resistant and not allow water to accumulate.
21. Detectable warning surfaces shall be a minimum of 24" in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
22. Detectable warning surfaces shall be looped so that the edge nearest the curb line is at the back of curbs. Align the rows of domes to be perpendicular to the grade break between the ramp run and the street. Detectable warning surfaces may be curved along the corner radius.
23. Shaded areas on sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.



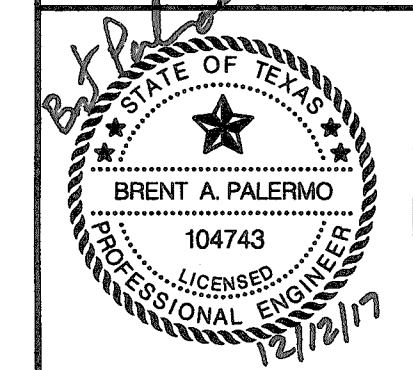
NO.	DATE	REVISIONS	APP.

**CITY OF RICHMOND
STANDARD CONSTRUCTION DETAILS
PAVING-4**

**PEDESTRIAN FACILITIES
CURB RAMPS
PED-12A**


 RICHMOND TEXAS
 SEAT OF TOWN BOARD

SCALE	DESIGNED BY: LLT
HORIZONTAL 1" = NTS	DRAWN BY: AJS
VERTICAL 1" = NTS	CHECKED BY: KRK
DATE: 7/24/17	JOB NO:
DWG. NO:	104743
	12/17/17

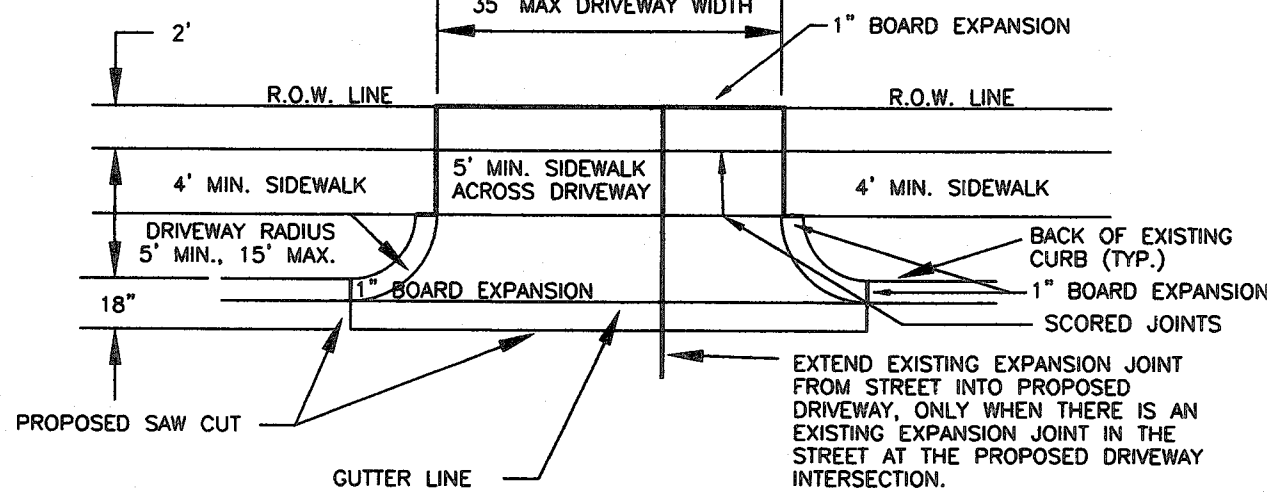

 BRENT A. PALERMO
 LICENSED PROFESSIONAL ENGINEER
 104743
 12/17/17

R-12-17
 Sheet:

May 1/24/18

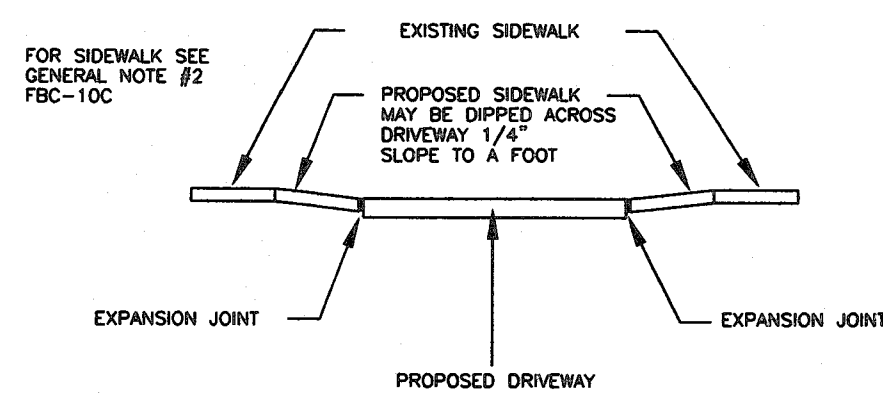
WHEN A RESIDENTIAL SIDEWALK, DRIVEWAY OR CURB OR GUTTER IS CONSTRUCTED, RECONSTRUCTED, REPAIRED OR REGRADED ON COUNTY RIGHT-OF-WAY. FOR USE WITH CONCRETE OR ASPHALT CURBED TYPE STREETS, USE SECTIONS APPLICABLE.

A. USE FOR ALL PROPOSED EXISTING CURB REMOVAL FOR DRIVEWAYS:



NOTE: SIDEWALKS MUST COMPLY WITH A.D.A. STANDARDS.

B. USE WHEN PROPOSED DRIVEWAY IS TO BE BUILT WITH EXISTING SIDEWALKS WITH EXCESSIVE GRADE:

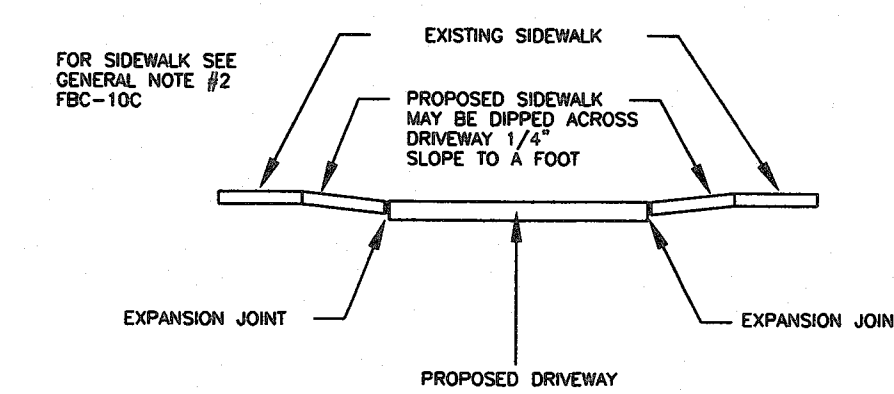


SIDEWALKS & DRIVEWAYS WITH CURB TYPE STREETS RESIDENTIAL AREA	DRAWN BY: L. BRDECKA DATE DRAWN: 2-1-94	REVISED BY: L. BRDECKA DATE REVISED: 3-10-05
	APPROVED BY: L. HOOD DATE: 2-1-94	DRAWING NO. FBC-010A

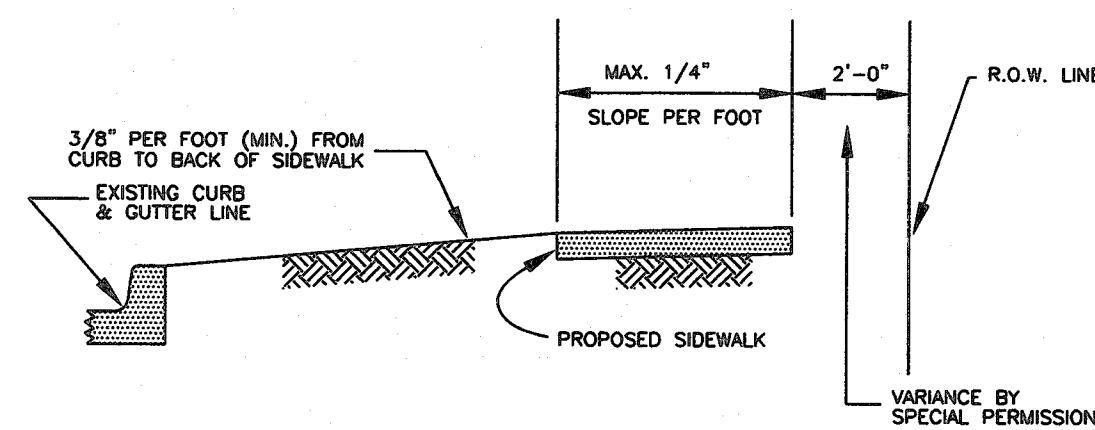
FORT BEND COUNTY ENGINEERING DEPARTMENT

WHEN A RESIDENTIAL SIDEWALK, DRIVEWAY OR CURB OR GUTTER IS CONSTRUCTED, RECONSTRUCTED, REPAIRED OR REGRADED ON COUNTY RIGHT-OF-WAY. FOR USE WITH CONCRETE OR ASPHALT CURBED TYPE STREETS, USE SECTIONS APPLICABLE.

C. USE WHEN PROPOSED DRIVEWAY IS TO BE BUILT WITH EXISTING SIDEWALKS WITH EXCESSIVE GRADE:



D. USE WHEN SIDEWALK TO BE BUILT OTHER THAN DRIVEWAY:



SIDEWALKS & DRIVEWAYS WITH CURB TYPE STREETS RESIDENTIAL AREA	DRAWN BY: L. BRDECKA DATE DRAWN: 2-1-94	REVISED BY: L. BRDECKA DATE REVISED: 3-10-05
	APPROVED BY: L. HOOD DATE: 2-1-94	DRAWING NO. FBC-010B

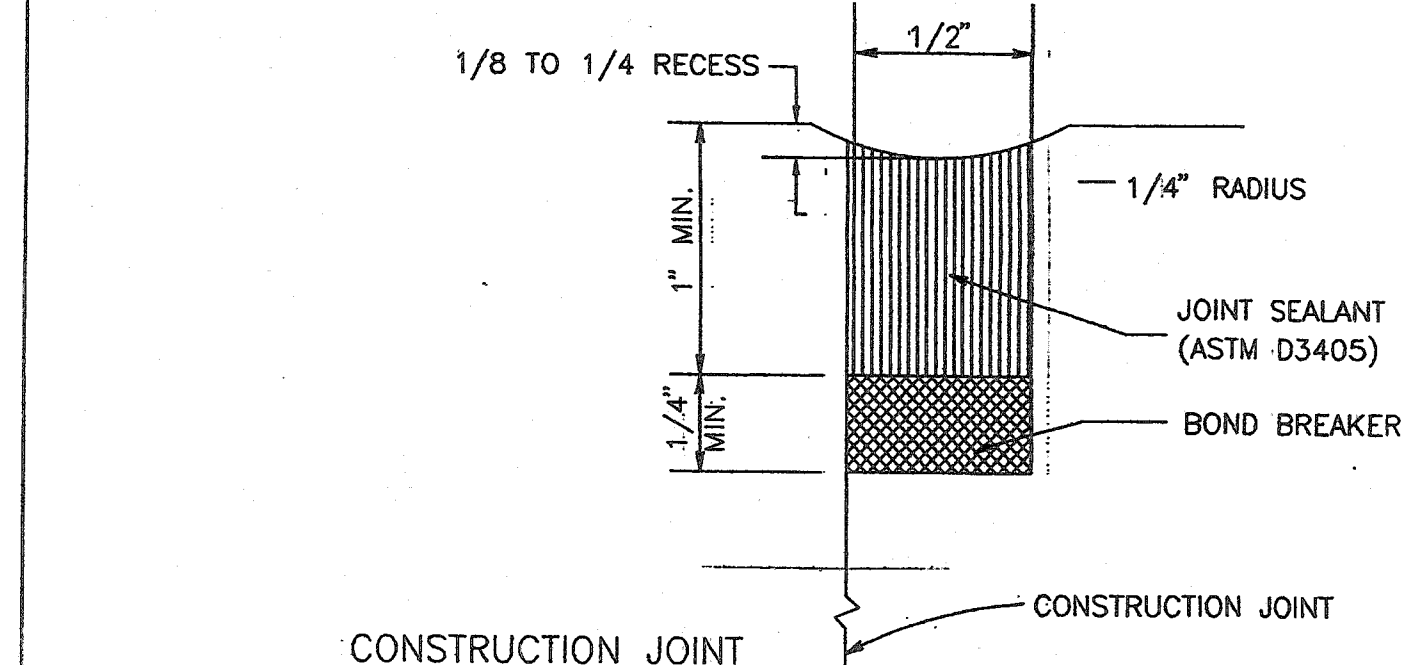
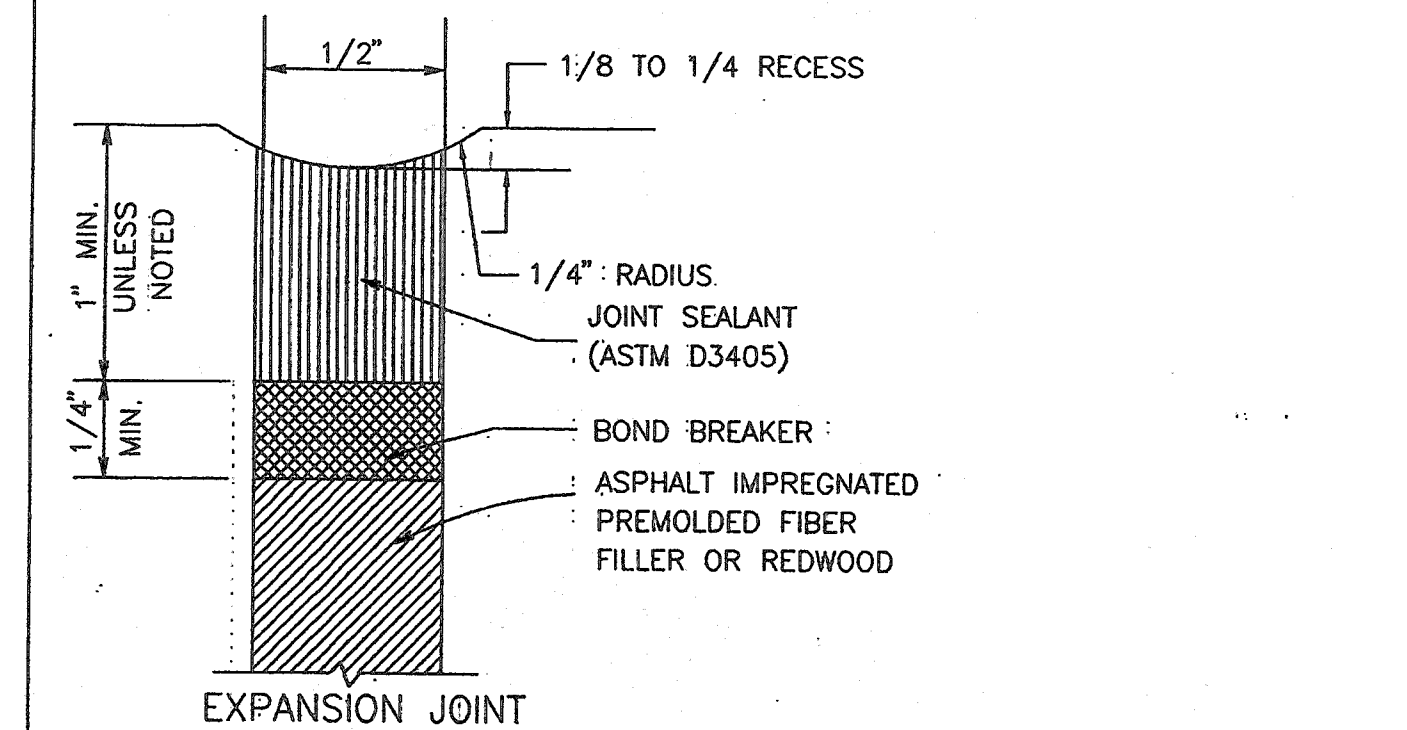
FORT BEND COUNTY ENGINEERING DEPARTMENT

GENERAL NOTES FOR SIDEWALKS AND DRIVEWAYS

- PROPOSED DRIVEWAY, SIDEWALK, CURB, GUTTER LINE AND GRADE SHALL MATCH EXISTING STREET.
- PROPOSED SIDEWALK SHALL BE CONSTRUCTED WITH PORTLAND CEMENT, CLASS A STRUCTURAL (REFER TO SPECIFICATION 03301), 4 INCHES THICK AND 4 FEET MINIMUM WIDTH.
- PROPOSED DRIVEWAY AND CURB SHALL BE BUILT WITH PORTLAND CEMENT, CLASS A STRUCTURAL (REFER TO SPECIFICATION 03301), 6 INCHES THICK, FROM PROPOSED SAW CUT AT EXISTING PAVEMENT TO RIGHT-OF-WAY LINE AND TO BE REINFORCED WITH #4 DEFORMED REINFORCING BARS (MINIMUM, ASTM A615 GRADE 60, UNLESS NOTED) SPACED AT 24 INCHES C.C., EACH WAY, WITH 10 INCHES MINIMUM LAP.
- PROPOSED DRIVEWAY REINFORCING STEEL IS TO BE TIED TO EXISTING ROADWAY REINFORCING STEEL WITH A MINIMUM 12 INCHES C.C., EACH WAY, WITH 10 INCHES MINIMUM LAP.
- PROPOSED GUTTER LINE IS TO BE MAINTAINED AT FACE OF EXISTING CURB.
- SAW CUT EXISTING CURB AT EACH END OF PROPOSED DRIVEWAY AND KNOCK OUT EXISTING CURB.
- SAW CUT EXISTING PAVEMENT MINIMUM 2 INCHES AND BREAK OUT TO EXPOSED EXISTING REINFORCING STEEL WITH A MINIMUM 12 INCHES LAP. FULL DEPTH CUT IS ACCEPTABLE PROVIDING 18" LONG DRILL IN BOWELS ARE INSTALLED AT A SPACING TO MATCH EXISTING WITH A MIN. 6" EMBEDMENT.
- COMPACT SUBGRADE FOR PROPOSED DRIVEWAY CONNECTION FROM PROPOSED SAW CUT AT EXISTING PAVEMENT TO RIGHT-OF-WAY LINE. COMPACT TO 95% OF STANDARD PROCTOR DENSITY (+/- 2% OPT. MOISTURE). THE COUNTY ENGINEER RESERVES THE RIGHT TO REQUIRE LABORATORY TEST IF HE DEEMS THEM NECESSARY.
- PLACE AND COMPACT 4 INCH CLEAN BANK SAND.
- PROPOSED AREA FROM BACK OF CURB TO SIDEWALK AND FROM SIDEWALK TO RIGHT-OF-WAY LINE MAY BE CONCRETE OR DIRT (ROADWAYS WITH CURBS AND SIDEWALKS).
- IF MORE THAN ONE PROPOSED DRIVEWAY IS BUILT ON THE SAME PROPERTY, SAID DRIVEWAYS SHALL SEPERATED BY A MINIMUM DISTANCE OF AT LEAST 20 FEET (ROADWAYS WITH CURBS AND SIDEWALKS).
- SIDEWALKS SHALL HAVE 1/4 INCH REDWOOD BOARD EXPANSION JOINTS EVERY 20 FEET ON CENTER.
- PLACE ONE-INCH BOARD EXPANSION JOINT AT RIGHT-OF-WAY LINE.
- EXPANSION JOINT FILLER SHALL BE FIBER FORMED CONFORMING TO AASHTO M-33 OR M-213 BETWEEN SIDEWALK AND CURB, AROUND FIRE HYDRANTS AND UTILITY POLES.

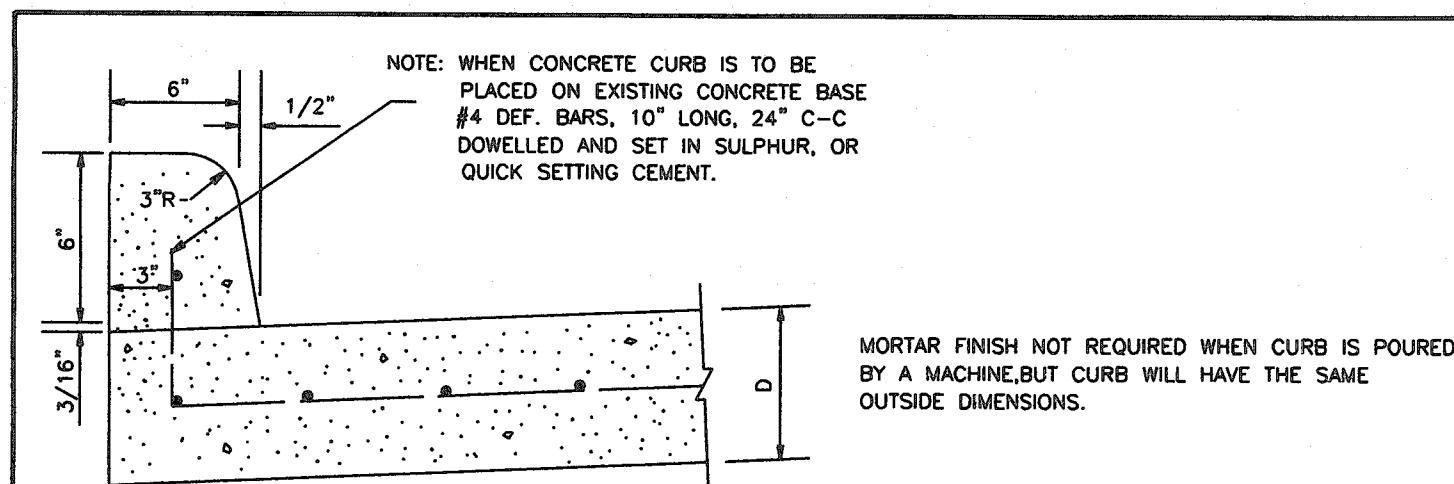
SIDEWALKS & DRIVEWAYS WITH CURB TYPE STREETS RESIDENTIAL AREA	APPROVED BY: LOUIS HOOD	DRAWN BY: L. BRDECKA
	DATE DRAWN: 2-1-94	DRAWING NO.: FBC-101C

FORT BEND COUNTY ENGINEERING DEPARTMENT

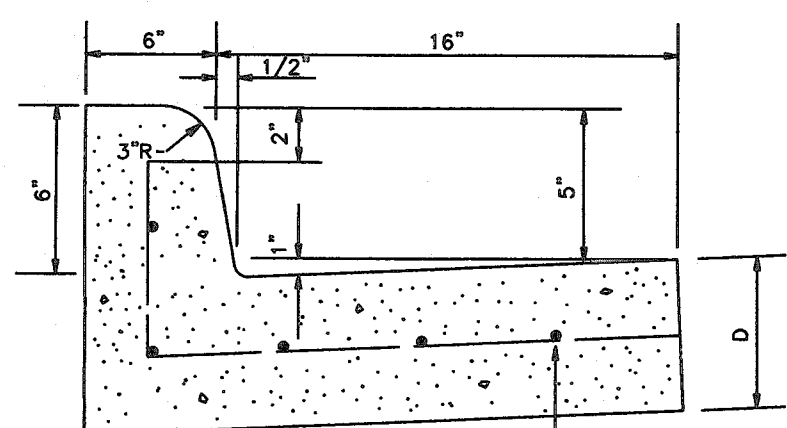


JOINT SEALANT FOR EXPANSION JOINT AND CONSTRUCTION JOINT	APPROVED BY: LOUIS E. HOOD, P.E.	DRAWN BY: L. BRDECKA
	DATE DRAWN: 2-1-94	DRAWING NO.: FBC-006

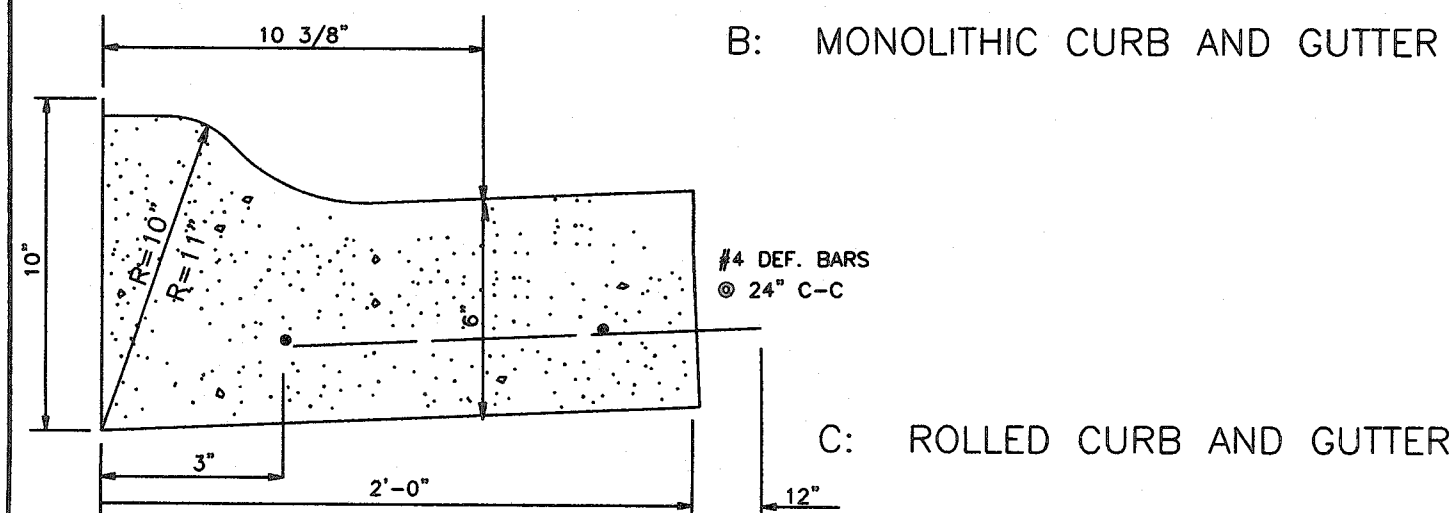
FORT BEND COUNTY ENGINEERING DEPARTMENT



A: CONCRETE CURB



B: MONOLITHIC CURB AND GUTTER

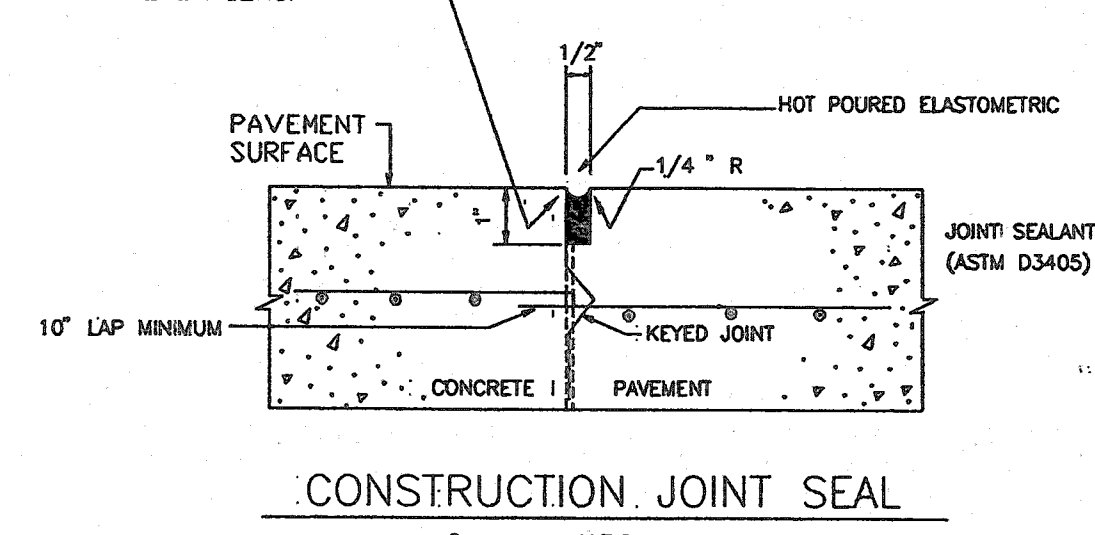


C: ROLLED CURB AND GUTTER

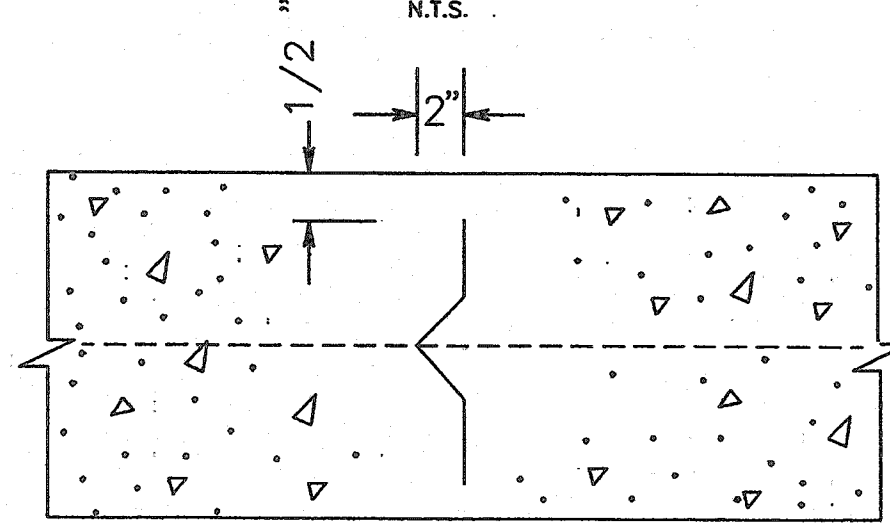
STANDARD CONCRETE CURB AND MONOLITHIC CURB AND GUTTER	APPROVED BY: LOUIS HOOD	DRAWN BY: L. BRDECKA
	DATE DRAWN: 2-1-94	DRAWING NO.: FBC-009

FORT BEND COUNTY ENGINEERING DEPARTMENT

JOINT SEAL: HOT POURED RUBBER ASPHALT (TEXAS DEPARTMENT OF TRANSPORTATION, ITEM 433.2, CLASS 3) FLUSH WITH PAVEMENT SURFACE. ALL JOINT SEALANT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.



CONSTRUCTION JOINT SEAL

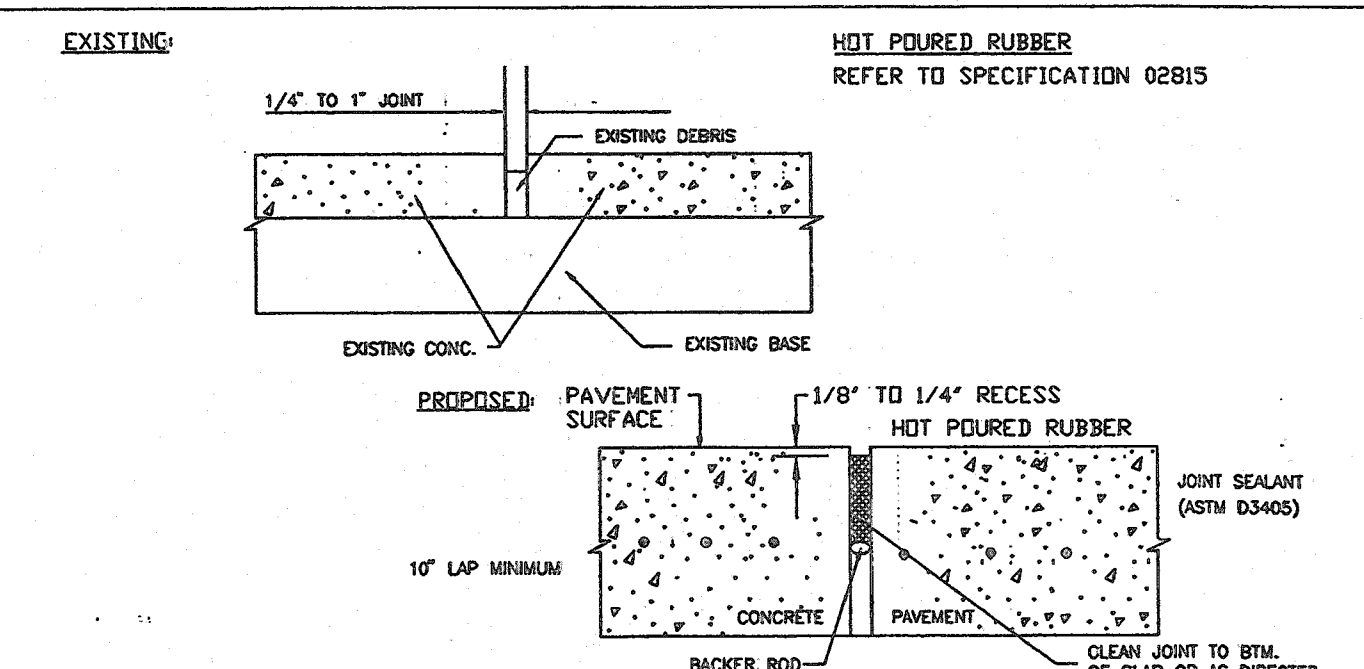
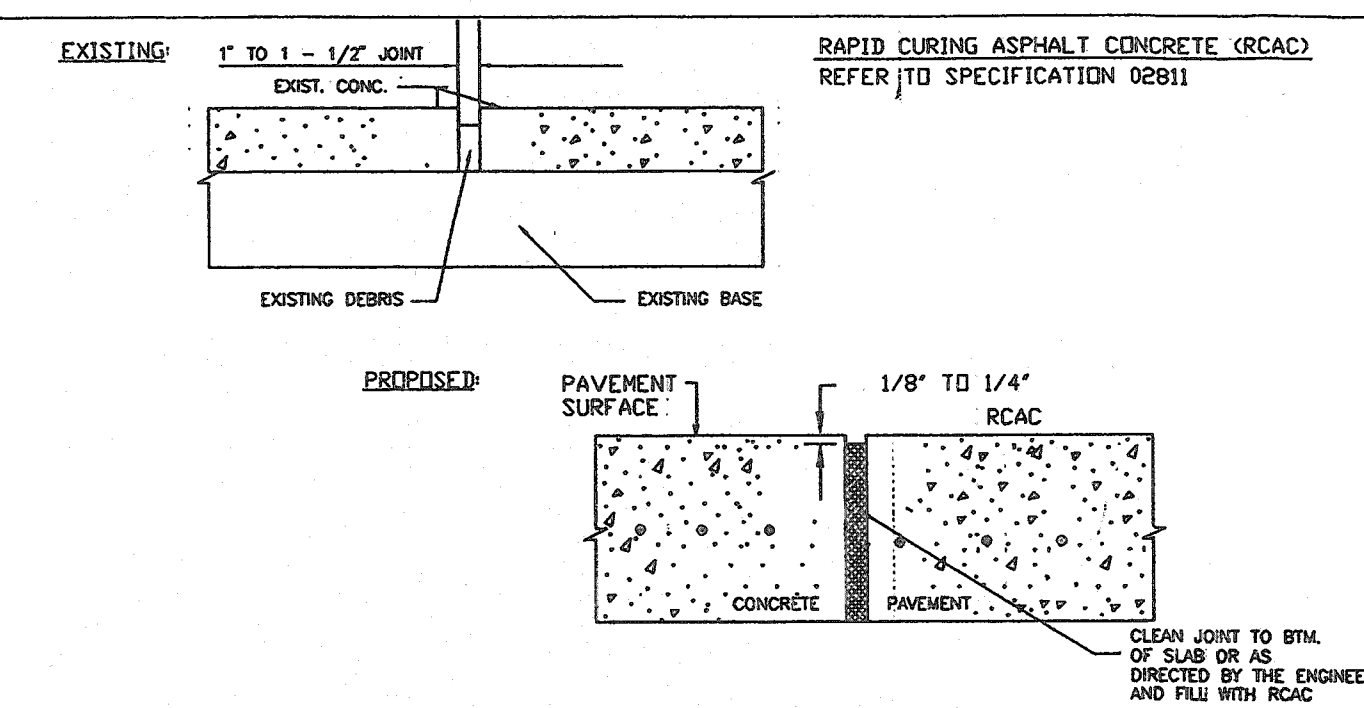


DEFORMED METAL STRIP

N.T.S.
THE LOCATION OF DEFORMED STRIPS MAY BE VARIED, WITH THE APPROVAL OF THE FORT BEND COUNTY ENGINEERING DEPARTMENT, TO SUIT THE PROPOSED CONSTRUCTION METHODS OF THE CONTRACTOR.
MAXIMUM LONGITUDINAL SPACING FOR DEFORMED STRIPS IS 14'-0". DEFORMED METAL STRIPS SHALL BE PLACED VERTICALLY ALONG A STRAIGHT ALIGNMENT.

TYPICAL CONSTRUCTION JOINT	APPROVED BY: LOUIS HOOD	DRAWN BY: L. BRDECKA
	DATE DRAWN: 2-1-94	DRAWING NO.: FBC-005

FORT BEND COUNTY ENGINEERING DEPARTMENT



JOINT SEAL, HOT POURED RUBBER ASPHALT (TEXAS DEPARTMENT OF TRANSPORTATION, ITEM 433.2, CLASS 3) FLUSH WITH PAVEMENT SURFACE. ALL JOINT SEALANT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

CLEANING & SEALING PAVEMENT JOINTS EXISTING CONCRETE	APPROVED BY: LOUIS E. HOOD, P.E.	DRAWN BY: L. BRDECKA
	DATE DRAWN: 2-1-94	DRAWING NO.: FBC-005A

FORT BEND COUNTY ENGINEERING DEPARTMENT

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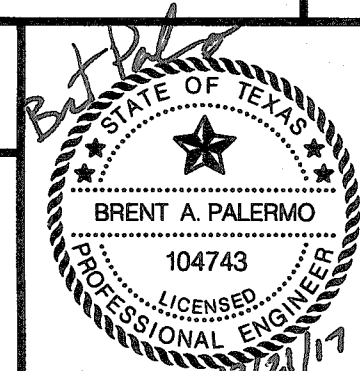
WILLIAMS WAY DRIVEWAY REMOVAL - JOB NO.: 2016100-DWY-DV-001

DESIGNED BY:	
DESIGN CHECKED BY:	
DRAWN BY:	
COGO CHECKED BY:	
SURVEY CHECKED BY:	
QA/QC BY:	DATE:
QA/QC REVISIONS BY:	



Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580, Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486

WILLIAMS WAY BOULEVARD
DRIVEWAY REMOVAL
FORT BEND COUNTY
STANDARD DETAIL AND NOTES



APPROVED: *[Signature]*
DEVELOPMENT COORDINATOR
DATE: 1/24/18

SHEET	FBC-01
OF	SHEETS
JOB NO.	2016100-DWY-DV-001