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

REVIEW BY FORT BEND COUNTY COMMISSIONERS COURT

[X] **Right of Way Permit**

[ ] **Commercial Driveway Permit**

Permit No: 2018-23045

Applicant: Gonzalez Construction Enterprises, Inc.

Job Location Site: 1855 1/2 Benton Road , Rosenberg , TX 77471

Bond No. [redacted] **Date of Bond:** 7/30/2015 **Amount:** $50,000.00

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 inconsistant with Chapter 181, Vernon's Texas Statutes and Codes Annoted.

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 11th day of September, 2018, Upon Motion of Commissioner Meyers, seconded by Commissioner Morales, 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

By: _____
County Engineer

By: N/A
Drainage District Engineer/Manager

Presented to Commissioners Court and approved.

Date Recorded 9-14-2018 Comm. Court No. 8A

Clerk of Commissioners Court

By: _____
Deputy

09/14/2018 Original sent to Sean Eglinton, Engineering dept.

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

[X] **Right of Way Permit**

[ ] **Commercial Driveway Permit**

Permit No: 2018-23045

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:

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

(2) BOND:

- [ ] County Attorney, approval when applicable.
- [X] Perpetual bond currently posted. Bond No: [redacted] Amount: $50,000.00
- [ ] 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.

Permit Administrator _____ 9/4/2018
Date

WATER, SANITARY SEWER, DRAINAGE, AND PAVING FACILITIES

CONSTRUCTION PLANS FOR

SUNSET CROSSING BRYAN ROAD PHASE ONE

FORT BEND COUNTY MUNICIPAL UTILITY DISTRICT NO. 218,
CITY OF ROSENBERG, TEXAS

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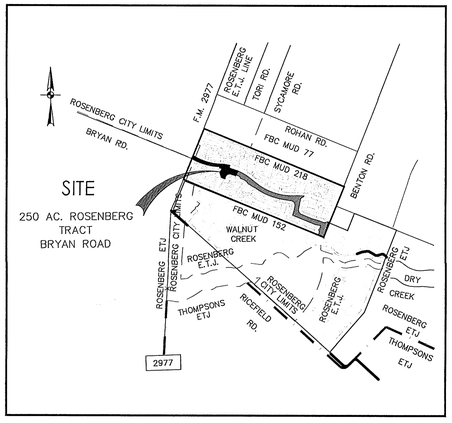
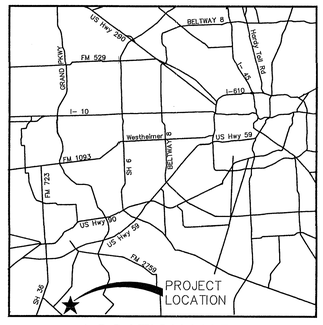


VICINITY MAP
SCALE: NTS



LOCATION MAP
NOT-TO-SCALE

PREPARED FOR:

DR HORTON
14100 SW FREEWAY
SUITE 500
SUGAR LAND, TEXAS 77478

APRIL 2018

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

BENCH MARK REFERENCE

1. THESE PLANS AND THE SURVEYS UPON WHICH THEY ARE BASED ARE TIED INTO THE NATIONAL GEODETIC SURVEY BENCHMARKS. THE BENCHMARKS USED FOR THE TIES ARE NOTED ON THE PLANS.
2. WHERE NEW CONSTRUCTION WILL DAMAGE, DESTROY, OR ALTER AN EXISTING SURVEY MARKER, CONTRACTOR TO INSTALL A SURVEY MARKER RESURVEYED TO CITY SPECIFICATIONS, AT NO ADDITIONAL COST TO THE OWNER.

CONTRACTOR SHALL NOTIFY THE CITY OF ROSENBERG, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING, OFFICE OF THE ENGINEER, 48 HOURS BEFORE STARTING WORK ON THIS PROJECT. TELEPHONE NUMBER (832) 595-3500 AND (713) 462-3242

CALL BEFORE YOU DIG!
TEXAS ONE CALL PARTICIPANTS REQUEST 48 HOURS NOTICE BEFORE YOU DIG, DRILL, OR BLAST - STOP CALL.
Texas One Call System
1-800-245-4545

FIRM
FLOOD INSURANCE RATE MAP
FORT BEND COUNTY FIRM COMMUNITY MAP 41857C0265L PANEL 265 OF 575, DATED APRIL 2 2014.
BASE FLOOD ELEVATION = 78.5

CITY OF ROSENBERG
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

APPROVED: _____ DATE: 4-18-18
RIGO CAZONCIN
EXECUTIVE DIRECTOR OF PUBLIC SERVICES

APPROVED: _____ DATE: 4/16/18
CHARLES M. EASTLAND, P.E.
CITY ENGINEER

APP.		REVISIONS	DATE

DATE	ISSUE DESCRIPTION

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
4/13/18

FORT BEND COUNTY ENGINEER

ENGINEER: _____
For RICHARD W. STOLLEIS, P.E.
DATE: 5/10/18

THESE SIGNATURES ARE VOID IF CONSTRUCTION HAS NOT COMMENCED IN (1) YEAR FROM DATE OF APPROVAL.

APPROVED: _____
DEVELOPMENT COORDINATOR
DATE: 5/7/18

SHEET 1 OF 44

PERMIT SET

PD JOB NO. 40166-21

SUNSET CROSSING BRYAN ROAD PHASE ONE

Date: Apr 13, 2018, 1:34pm User ID: JBrooks
File: K:\projects\40166\GO\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\01-40166GO-BRYN-PH1-CS.dwg

THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.

GENERAL CONSTRUCTION NOTES

1. THERE WILL BE NO SEPARATE PAYMENT FOR WORK SHOWN ON THESE PLANS, UNLESS SPECIFICALLY ESTABLISHED IN THE BID SECTION OF THE CONTRACT DOCUMENTS. INCLUDE COST OF THIS WORK IN THE CONTRACT UNIT PRICE FOR ITEMS OF WHICH THIS WORK IS A COMPONENT OR INCIDENTAL.

2. ALIGNMENT, CENTERLINE CURVE DATA, AND STATIONING SHALL BE VERIFIED FROM APPROVED SUBDIVISION PLAT OR APPROVED PLOT.

3. ALL UTILITIES PRESENTED ON THESE DRAWINGS ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF EXISTING FACILITIES PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR SHALL NOTIFY TEXAS ONE CALL AT 1-800-245-4545 AT LEAST 48 HOURS BEFORE PROCEEDING WITH EXCAVATION.

4. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE TO THE EXISTING PUBLIC OR PRIVATE UTILITY LINES, INCLUDING BUT NOT LIMITED TO WATER LINES, WASTEWATER COLLECTION SYSTEMS AND STORM SEWERS, DURING CONSTRUCTION. ALL DAMAGES SHALL BE REPAIRED IN ACCORDANCE WITH THE CITY OF ROSENBERG'S DEPARTMENT OF ENGINEERING "DESIGN STANDARDS MANUAL" AS WELL AS THE MINIMUM STANDARDS ESTABLISHED IN THE FORT BEND COUNTY DRAINAGE DISTRICT'S "DESIGN CRITERIA MANUAL", DATED FEBRUARY 2011, WITH LATEST ADDENDA AND AMENDMENTS THERETO, WITH NO COST TO THE CITY OF ROSENBERG OR THE OWNER.

5. CONTRACTOR SHALL REMOVE EXISTING PLUGS AND CONNECT PROPOSED UTILITY LINES AS INDICATED ON PLANS.

6. CONTRACTOR SHALL VERIFY LOCATION OF UNDERGROUND UTILITY LINES AND SHALL NOTIFY THE FOLLOWING AGENCIES 48 HOURS PRIOR TO EXCAVATING NEAR EXISTING FACILITIES:
   A.) TEXAS ONE CALL SYSTEM AT 1-800-245-4545
   B.) LONE STAR NOTIFICATION CENTER AT 713-923-4567
   C.) TEXAS EXCAVATION SAFETY SYSTEM INC. AT 1-800-344-8377

7. CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS AND ALL REGULATIONS OF UTILITY COMPANIES CONCERNING SAFETY AND HEALTH PRACTICES.

8. WATER LINES, WASTEWATER COLLECTION SYSTEMS, AND STORM DRAINAGE SYSTEMS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ROSENBERG'S DEPARTMENT OF ENGINEERING "DESIGN STANDARDS MANUAL", AS WELL AS THE CURRENT SUBDIVISION REGULATIONS CONTAINED IN CHAPTER 25 OF THE CITY OF ROSENBERG CODE OF ORDINANCES, UNLESS OTHERWISE NOTED AND APPROVED ON THESE PLANS. THE DESIGN IS CONSISTENT WITH THE MINIMUM STANDARDS ESTABLISHED IN THE FORT BEND COUNTY DRAINAGE DISTRICT'S "DESIGN CRITERIA MANUAL", DATED FEBRUARY 2011.

9. FLOWLINE ELEVATIONS ARE BASED ON LENGTHS BETWEEN MANHOLES' VERTICAL CENTERLINE.

10. INCLUDE PRICE OF ALL BEDDING AND BACKFILL OF TYPE REQUIRED IN PRICE BID PER LINEAR FOOT OF PIPE.

11. ALL TRENCH EXCAVATION, BEDDING AND BACKFILL SHALL BE IN CONFORMANCE WITH CITY OF ROSENBERG'S STANDARD DETAILS.

12. ALL SEWER TRENCHES UNDER OR WITHIN ONE FOOT OF PROPOSED AND/OR FUTURE PAVEMENT OR CURB SHALL BE BACKFILLED WITH 1-1/2 SACKS OF CEMENT PER CUBIC YARD CEMENT-STABILIZED SAND TO A POINT ONE FOOT BELOW PAVEMENT SUBGRADE. DESIGN SAND-CEMENT MIXTURE TO PRODUCE A MINIMUM UNCONFINED COMPRESSIVE STRENGTH OF 100 PSI IN 48 HOURS. THE REMAINING BACKFILL SHALL BE MADE WITH COMPACTED SUITABLE MATERIAL.

13. AN ALTERNATIVE TO CEMENT-STABILIZED SAND BACKFILL FOR PIPES FIFTY FOUR (54) INCH AND LARGER, FROM 1-FOOT ABOVE THE TOP OF THE PIPE TO THE BOTTOM OF THE SUBGRADE. CONTRACTOR MAY BACKFILL WITH SUITABLE MATERIAL, PROVIDED THE BACKFILL MATERIAL IS PLACED IN 8-INCH LOOSE LIFTS AND MECHANICALLY COMPACTED TO NINETY-FIVE (95)% STANDARD PROCTOR DENSITY. TESTS SHALL BE TAKEN AT ONE HUNDRED (100) FOOT INTERVALS ON EACH LIFT. BEDDING AND BACKFILL TO ONE (1) FOOT ABOVE THE TOP OF THE PIPE SHALL BE CEMENT-STABILIZED SAND.

14. BASIC CONSTRUCTION PRODUCTS AS DESIGNATED IN THE TECHNICAL SPECIFICATIONS OR AS SHOWN ON PLANS, SHALL BE FURNISHED BY A MANUFACTURER OR SUPPLIER PRE-APPROVED BY THE GOVERNING REGULATORY ENTITIES FOR THIS PROJECT. THOSE PRODUCTS NOT APPEARING ON A PRE-APPROVED PRODUCTS LIST SHALL BE IN FULL COMPLIANCE WITH APPLICABLE TECHNICAL SPECIFICATION AND/OR STANDARD CONSTRUCTION DETAILS OF THAT REGULATORY ENTITY OR IN THE CASE OF A SPECIAL PROVISION, THAT OF THE ENGINEER.

15. ALL MANHOLES IN UNPAVED AREAS SHALL BE ENCAPSULATED WITH CEMENT-STABILIZED SAND A MINIMUM OF 1-FOOT BELOW BASE AND A MINIMUM OF 1-FOOT AROUND WALL UP TO 1-FOOT ABOVE THE HIGHEST ADJOINING PIPE STRUCTURE. THE REMAINING BACKFILL SHALL BE MADE WITH SELECT FILL MATERIAL PLACED IN UNIFORM 8-INCH MAXIMUM LOOSE LIFTS COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM STANDARD PROCTOR DENSITY.

16. ALL MANHOLES IN PAVED AREAS SHALL BE ENCAPSULATED WITH CEMENT-STABILIZED SAND A MINIMUM OF 1-FOOT BELOW BASE AND A MINIMUM OF 1-FOOT AROUND WALL AND UP TO WITHIN 1-FOOT OF PAVEMENT SUBGRADE. INCLUDE PRICE OF ALL BEDDING AND BACKFILL OF TYPE REQUIRED IN PRICE OF MANHOLE.

17. WHEN TRENCH CONDITION WARRANTS THE USE OF DEWATERING SYSTEMS, THEIR USE SHALL BE REQUESTED BY THE CONTRACTOR AND APPROVED BY THE OWNER.

18. OWNER WILL FURNISH INITIAL LABORATORY TESTS. SUBSEQUENT TESTING DUE TO FAILED DENSITIES SHALL BE AT CONTRACTOR'S EXPENSE. A COPY OF ALL TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER.

19. CONTRACTOR SHALL REMOVE ALL MUD, DIRT AND DEBRIS DEPOSITED OR DROPPED ON EXISTING PAVEMENT DUE TO HIS CONSTRUCTION ACTIVITY DAILY. MATERIAL THAT IS HAZARDOUS TO TRAFFIC SHALL BE REMOVED IMMEDIATELY.

20. THESE PLANS PREPARED BY PAPE-DAWSON ENGINEERS, INC. DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR ITS EMPLOYEES, AGENTS, OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE PAPE-DAWSON ENGINEERS, INC. REGISTERED PROFESSIONAL ENGINEER(S) HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED IN THESE PLANS. THE CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEM(S).

21. CONTRACTOR SHALL PROTECT ALL TREES ADJACENT TO WORK AREA. NO TREES SHALL BE REMOVED WITHOUT PERMISSION OF OWNER.

22. CONTRACTOR SHALL GIVE NOTICE TO ALL AUTHORIZED INSPECTORS, SUPERINTENDENTS, OR PERSONS IN CHARGE OF PRIVATE AND PUBLIC UTILITIES OR RAILROADS AFFECTED BY HIS OPERATIONS PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR SHALL OBTAIN ALL CONSTRUCTION PERMITS PRIOR TO STARTING CONSTRUCTION.

23. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE OWNING AUTHORITY.

24. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT ROOT SYSTEMS OF SHRUBS, PLANTS AND TREES ALONG THE AREA OF EXCAVATION.

25. THE CONTRACTOR SHALL COMPLY WITH THE LATEST EDITION OF OSHA REGULATIONS AND THE STATE OF TEXAS LAWS CONCERNING EXCAVATION.

26. ALL DATA SHOWN ON THE CONSTRUCTION PLANS ARE BASED ON THE DATUM AND BENCHMARKS SHOWN ON THESE PLANS.

27. OWNER OR OWNER'S AGENT TO OBTAIN ALL PERMITS AND NOTIFICATIONS THAT ARE REQUIRED.

NOTIFY CITY PUBLIC WORKS (832-595-3500) AND CITY ENGINEER (713-462-3242) 48 HOURS PRIOR TO STARTING CONSTRUCTION AND 24 HOURS PRIOR TO ANY TESTING.

FORT BEND COUNTY GENERAL CONSTRUCTION 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 AND 48 HOUR NOTICE TO ANY CONSTRUCTION ACTIVITY WITHIN THE LIMITS OF THE PAVING AT CONSTRUCTION@FORTBENDCOUNTYTX.GOV.

3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FROM FORT BEND COUNTY PRIOR TO COMMENCING CONSTRUCTION OF ANY IMPROVEMENTS WITHIN COUNTY ROAD RIGHT OF WAYS.

4. ALL PAVING IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FORT BEND COUNTY "RULES, REGULATIONS AND REQUIREMENTS" RELATING TO THE APPROVAL AND ACCEPTANCE OF IMPROVEMENTS IN SUBDIVISIONS AS CURRENTLY AMENDED.

5. ALL ROAD WIDTHS, CURB RADII AND CURB ALIGNMENT SHOWN INDICATED BACK OF CURB.

6. A CONTINUOUS LONGITUDINAL REINFORCING BAR SHALL BE USED IN THE CURBS.

7. ALL CONCRETE PAVEMENT SHALL BE 5.5 SACK CEMENT WITH A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI AT 28 DAYS. TRANSVERSE EXPANSION JOINTS SHALL BE INSTALLED AT EACH CURB RETURN AND AT A MAXIMUM SPACING OF 60 FEET.

8. ALL WEATHER ACCESS TO ALL EXISTING STREETS AND DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES.

9. 4" X 12" REINFORCED CONCRETE CURB SHALL BE PLACED IN FRONT OF SINGLE FAMILY LOTS ONLY. ALL OTHER AREAS SHALL BE 6" REINFORCED CONCRETE CURB.

10. AT ALL INTERSECTION LOCATIONS, TYPE 7 RAMPS SHALL BE PLACED IN ACCORDANCE WITH TXDOT PED-12A STANDARD DETAIL SHEET. A.D.A. - HANDICAP RAMPS SHALL BE INSTALLED WITH STREET PAVING AT ALL INTERSECTIONS AND COMPLY WITH CURRENT A.D.A REGULATIONS.

11. CURB HEADERS ARE REQUIRED AT CURB CONNECTIONS TO HANDICAP RAMPS, WITH NO CONSTRUCTION JOINT WITHIN 5' OR RAMPS.

12. ALL INTERSECTIONS UTILIZING TRAFFIC CONTROL MEASURES SHALL HAVE A.D.A. WHEEL CHAIR RAMPS INSTALLED.

13. GUIDELINES ARE SET FORTH IN THE TEXAS "MANUALS ON UNIFORM TRAFFIC CONTROL DEVICES", AS CURRENTLY AMENDED, SHALL BE OBSERVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE FLAGMEN, SIGNING, STRIPING AND WARNING DEVICES, ETC., DURING CONSTRUCTION-BOTH DAY AND NIGHT.

14. ALL R1-1 STOP SIGNS SHALL BE 30"X30" WITH DIAMOND GRADE SHEETING PER TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

15. STREET NAME SIGNAGE SHALL BE ON A 9" HIGH SIGN FLAT BLADE W/ REFLECTIVE GREEN BACKGROUND. STREET NAMES SHALL BE UPPER AND LOWERCASE LETTERING WITH UPPERCASE LETTERS OF 6" MINIMUM AND LOWERCASE LETTER OF 4.5" MINIMUM. THE LETTERS SHALL BE REFLECTIVE WHITE. STREET NAME SIGNS SHALL BE MOUNTED ON STOP SIGN POST.

16. A BLUE DOUBLE REFLECTORIZED BUTTON SHALL BE PLACED AT ALL FIRE HYDRANT LOCATIONS. THE BUTTON SHALL BE PLACED 12 INCHES OFF OF THE CENTERLINE OF THE STREET ON THE SAME SIDE AS THE HYDRANT.

17. THE PROJECT AND ALL PARTS THEREOF SHALL BE SUBJECT TO INSPECTION FROM TIME TO TIME BY INSPECTORS DESIGNATED BY FORT BEND COUNTY. NO SUCH INSPECTIONS SHALL RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER. NEITHER FAILURE TO INSPECT NOR FAILURE TO DISCOVER OR REJECT ANY OF THE WORK AS NOT IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS, REQUIREMENTS AND SPECIFICATIONS OF FORT BEND COUNTY OR ANY PROVISION IN THIS PROJECT SHALL BE CONSTRUED TO IMPLY AN ACCEPTANCE OF SUCH WORK OR TO RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER.

NOTE: FORT BEND COUNTY NOTES SUPERSEDE ANY CONFLICTING NOTES

WATER LINE CONSTRUCTION NOTES

1. ALLOWABLE WATER LINE PIPE MATERIAL:
   A.) POLYVINYL CHLORIDE PIPE (PVC) PRESSURE PIPE, FOUR-INCH (4") THROUGH SIXTEEN-INCH (16"), SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AWWA C900, CURRENT REVISION, CLASS 150 (OR HIGHER) DR 18. PIPE SHALL BE DESIGNED AND CONSTRUCTED IN CONFORMANCE WITH THE MINIMUM REQUIREMENTS OF THE "MANUAL OF WATER SUPPLY PRACTICES", AWWA MANUAL NO. M23.
   B.) DUCTILE IRON PIPE (D.I.P.), FOUR-INCH (4") THROUGH FIFTY-FOUR (54"), SHALL CONFORM TO THE REQUIREMENTS OF "DUCTILE-IRON PIPE, CENTRIFUGALLY CAST IN METAL MOLDS FOR SAND-LINED MOLDS, FOR WATER AND OTHER LIQUIDS", AWWA C151, (ANSI A21.51), CURRENT REVISION. PIPE THICKNESS SHALL BE THE MINIMUM SPECIFIED IN C151.
   C.) STEEL WATER PIPE, FOUR-INCH (4") AND LARGER SHALL CONFORM TO THE REQUIREMENTS OF "STANDARD FOR STEEL WATER PIPE SIX INCHES AND LARGER", AWWA C200. STEEL PIPE, MINIMUM WALL THICKNESS SHALL CONFORM TO THE THICKNESS SHOWN ON THE CITY OF ROSENBERG CONSTRUCTION DETAILS.
   D.) OTHER PIPE MATERIALS MAY BE USED FOR CONSTRUCTION OF WATER MAINS, WHEN SPECIFICALLY APPROVED BY THE CITY.
   E.) FITTINGS SHALL BE DUCTILE-IRON COMPACT FITTINGS THREE-INCH (3") - TWELVE INCH (12"), AWWA C153/A21.53.84, CONFORMING TO THE MINIMUM REQUIREMENTS OF "GRAY-IRON AND DUCTILE-IRON. FITTING TWELVE-INCH (12") THROUGH FORTY-EIGHT-INCH (48"), FOR WATER AND OTHER LIQUIDS", AWWA C110 (ANSI 21.10), CURRENT REVISION. FITTINGS SHALL BE FURNISHED WITH BITUMINOUS OR CEMENT MORTAR LINED, AWWA C104 (ANSI A21.4).

2. ALL NEWLY INSTALLED PIPES, COATING, AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE/NATIONAL SANITATION FOUNDATION (ANSI/NSF) STANDARDS AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI.

3. ALL WATER LINES SHALL HAVE BANK-RUN SAND EMBEDMENT IN ACCORDANCE WITH CITY OF ROSENBERG STANDARD DETAIL W-106-WATER MAIN BEDDING AND BACKFILL.

4. WATER LINE TRENCHES UNDER OR WITHIN 1-FOOT OF PROPOSED AND/OR FUTURE PAVEMENT OR CURB SHALL BE BACKFILLED WITH 1- 1/2 SACKS OF CEMENT PER CUBIC YARD OF CEMENT-STABILIZED SAND TO A POINT 1-FOOT BELOW PAVEMENT SUBGRADE AS PER ROSENBERG DETAIL W-106-WATER MAIN BEDDING AND BACKFILL. THE REMAINING BACKFILL SHALL BE MADE WITH COMPACTED SUITABLE MATERIAL.

5. CONTRACTOR SHALL CONTACT THE CITY OF ROSENBERG PRIOR TO MAKING ANY CONNECTION TO THE EXISTING WATER LINES OR ANYTIME A VALVE ON AN EXISTING WATER LINE IS TO BE OPENED OR CLOSED.

6. CONTRACTOR SHALL ALLOW A MINIMUM OF 1-FOOT VERTICAL AND 4-FEET HORIZONTAL CLEARANCE BETWEEN PROPOSED WATER LINES AND OTHER EXISTING OR PROPOSED UTILITIES. FOR SEPARATION BETWEEN WATER LINE AND SANITARY SEWER SEE "SANITARY SEWER CONSTRUCTION NOTES".

7. WHEN A WATER LINE IS PLACED NEAR A SANITARY SEWER MANHOLE, IT SHALL HAVE A MINIMUM OF 9-FEET WALL TO WALL SEPARATION. WHERE A WATER LINE PARALLELS A SANITARY SEWER, 9-FEET OF SEPARATION WILL BE MAINTAINED IN ALL DIRECTIONS. IF THE 9-FEET SEPARATION CANNOT BE ACHIEVED, BOTH THE SEWER PIPE AND JOINTS SHALL HAVE A PRESSURE RATING OF 150 PSI AND MANHOLES SHALL BE WATER TIGHT. THE VERTICAL SEPARATION SHALL BE A MINIMUM OF 2-FEET BETWEEN OUTSIDE DIAMETERS AND THE HORIZONTAL SEPARATION SHALL BE A MINIMUM OF 4-FEET BETWEEN OUTSIDE DIAMETERS. THE SEWER SHALL BE LOCATED BELOW THE WATER LINE.

8. 4-INCH THRU 12-INCH WATER LINES SHALL HAVE A NORMAL COVER OF 4-FEET BELOW FINISHED TOP OF CURB GRADE. 16-INCH THRU 20-INCH WATER LINES SHALL HAVE A NORMAL COVER OF 5-FEET BELOW FINISHED TOP OF CURB GRADE. VARY FLOWLINE UNIFORMLY FROM DEPTH AND LOCATION AS SHOWN ON PLANS.

9. WATER LINE STUBS, WHEN PROVIDED FOR FUTURE EXTENSIONS SHALL HAVE AT LEAST ONE JOINT OF PIPE BEYOND VALVE AND COMPLY WITH CITY OF ROSENBERG'S DEPARTMENT OF ENGINEERING "DESIGN STANDARDS MANUAL" UNLESS SHOWN ON PLANS.

10. CONTRACTOR SHALL INSTALL RESTRAINT JOINT PIPE, FITTING, AND RESTRAINT DEVICES AS REQUIRED FOR CONSTRUCTION OF WATER LINE.

11. ALL WATER LINE FITTINGS SHALL BE SUPPORTED WITH CONCRETE THRUST BLOCKING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY OF THE BLOCKING SO AS TO PREVENT ANY LATERAL MOVEMENT OF SUCH FITTINGS WHEN THE WATER LINE IS PRESSURE TESTED AND OPERATED.

12. VALVES SHALL BE EQUIPPED WITH OPERATING NUT EXTENSIONS TO WITHIN TWO FEET OF NATURAL GROUND.

13. FLUSHING VALVES/FIRE HYDRANTS SHALL BE ANY OF THE FOLLOWING:
   A.) MUELLER - MODEL: CENTURION OR MODERN CENTURION

14. CENTERLINE OF STEAMER NOZZLE TO BE A MINIMUM OF 18-INCHES FROM NATURAL GROUND.

15. ALL FLUSHING VALVES/FIRE HYDRANTS THAT ARE DELIVERED EXHIBITING RUST AND/OR THE COATING IS DAMAGED DURING INSTALLATION SHALL BE SURFACE PREPPED AND RECOATED (NO SEPARATE PAY). (CHAINS TO BE REPLACED IF RUSTED.) (VALVES OPEN COUNTER-CLOCKWISE, LEFT.

16. WATER SERVICE MARKED WITH CUT IN CURB PAINTED BLUE.

17. RECLAIMED WATER PIPING SHALL BE SEPARATED FROM POTABLE WATER PIPING BY A HORIZONTAL DISTANCE OF AT LEAST NINE FEET (IN ACCORDANCE WITH 30 TAC 210.25(C)). WHERE THE NINE FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE RECLAIMED WATER PIPING MUST MEET THE LINE SEPARATION REQUIREMENTS OF 30 TAC 290.44(E)(4)(A).

SANITARY SEWER CONSTRUCTION NOTES

1. SANITARY SEWER MANHOLES SHALL BE STANDARD CITY OF ROSENBERG PRECAST CONCRETE MANHOLES, 4-FOOT DIAMETER, UNLESS OTHERWISE NOTED, CONSTRUCTED IN ACCORDANCE WITH CITY OF ROSENBERG STANDARD CONSTRUCTION DETAILS S-105, AS APPLICABLE. NO BRICK MATERIAL ALLOWED. CONTRACTOR SHALL UTILIZE CONCRETE RING COLLAR FOR MANHOLE ADJUSTMENT. NO GROUTING PERMITTED INSIDE MANHOLE.

2. ALLOWABLE GRAVITY SEWER LINE PIPE MATERIALS.
   A.) POLYVINYL CHLORIDE PIPE, SDR 26 FOR 6-INCH THRU 12-INCH PIPE (ASTM D3034).
   B.) POLYVINYL CHLORIDE PIPE, DR 25 FOR GREATER THAN 12-INCH PIPE, 165 PSI RATED WATER WORKING PRESSURE.
   C.) CENTRIFUGALLY CAST FIBERGLASS PIPE, CLASS PN200/SN72.
   D.) DUCTILE IRON PIPE, CLASS 50, FOUR-INCH (4") SCHEDULE 40 WITH DRAIN, WASTE AND VENT POLYVINYL CHLORIDE PIPE FITTINGS.
   E.) SANITARY SEWERS CROSSING WATER LINES SHALL BE DUCTILE IRON PIPE, 150 PSI RATED WATER WORKING PRESSURE (AWWA 151), DOUBLE WRAPPED IN 8-MIL POLYETHYLENE OR GREEN POLYVINYL CHLORIDE PIPE DR 18 (AWWA C900 OR C905).
   F.) SANITARY SEWER SERVICE LATERALS CROSSING WATER LINES SHALL BE GREENPOLYVINYL CHLORIDE PIPE, CLASS 160, DR 18 (AWWA C900) CENTERED OVER CROSSING POINT, AT LEAST 9-FEET EITHER SIDE OF CENTER, WITH GASKETED PUSH-ON JOINTS (ASTM 3139) AND ELASTOMERIC GASKETS (ASTM F477). SERVICE LATERALS NOT CROSSING WATER LINES MAY CONFORM TO ASTM D3034 OR ASTM D2241.

3. INTERIOR LINING FOR DUCTILE IRON SEWER PIPE SHALL BE IN ACCORDANCE WITH PIPE MANUFACTURER'S RECOMMENDATIONS AND CONFORMING TO THE REQUIREMENTS OF EITHER ASTM D1248, ASTM D1653 OR ASTM D16 TYPE V. MINIMUM LINING THICKNESS TO BE 40-MILS REGARDLESS OF COATING RECOMMENDED BY THE MANUFACTURER. NO CEMENT MORTAR LINING OR BITUMINOUS LINING WILL BE ALLOWED.

4. CONTRACTOR SHALL TEST ALL GRAVITY SANITARY SEWER SYSTEMS IN ACCORDANCE WITH CITY OF HOUSTON STANDARD SPECIFICATION 02533-ACCEPTANCE TESTING FOR SANITARY SEWERS. CONTRACTOR SHALL AIR TEST ALL GRAVITY SANITARY SEWER LINES.

5. AT ALL LOTS WHERE TOP OF PIPE IS GREATER THAN 8-FEET BELOW FINISHED GRADE, PROVIDE A 6-INCH SANITARY SEWER STACK. LOCATION TO BE AT NEAREST PIPE JOINT TO CENTER OF EACH LOT, UNLESS OTHERWISE SHOWN. WHERE POSSIBLE, SEWER STACKS SHALL BE LOCATED TO SERVE TWO (2) LOTS. LATERALS AND STACKS SHALL BE MARKED FOR LOCATION AS INDICATED ON DETAIL SHEET 32 OF 44.

6. WHERE SEWER MANHOLES ARE LOCATED WITHIN THE STREET R-O-W, THE CONTRACTOR SHALL SET RIM ELEVATIONS TO 3" TO 6" ABOVE FINISHED GROUND ELEVATIONS. FINISHED GROUND ELEVATION IS A STRAIGHT LINE BETWEEN NATURAL GROUND AND/OR FINISHED GRADE AT PROPERTY LINE TO TOP OF CURB. MANHOLES WITHIN EASEMENTS, RIM ELEVATION SHALL BE SET 3-INCHES ABOVE NATURAL GROUND AND/OR FINISHED GRADE.

7. SANITARY MANHOLE (MH) RIMS SET LESS THAN 6" (0.5') ABOVE THE NEAREST 100 YEAR FLOOD WATER SURFACE [WHETHER CREEKS, BAYOUS, DRAINAGE CHANNELS, OR DETENTION PONDS] WILL BE SET 2" TO 3" ABOVE THE FINISH GRADE WITH 1:3 (V:H) SLOPED FILL OR FLUSHED WITH ANY ABUTTING/CONTAINING PAVED SURFACE. THE (VULCAN, NEENAH OR EQUAL) HEAVY DUTY BOLTED MH COVER WILL BE PROPERLY (AND SECURELY) ATTACHED AND SEALED TO ITS COMPATIBLE GASKETED FRAME BY USING BOTH: A NEOPRENE GASKET; AND 4 (AT EAST) COUNTER SUNK HEX-HEAD COARSE TREADED 1/2"-13 UNC STAINLESS STELL BOLTS. THE HEAVY DUTY MH COVER WILL BE SOLID (NO AIR HOLES). SAID FRAME SHALL BE BOTH EMBEDDED INTO THE MH'S TOP AND ALSO SECURELY ANCHORED TO THE UNDERLYING MH STRUCTURE WITH: EITHER SECURELY ATTACHED EMBEDDED ANCHOR BOLTS; OR THE MH'S EXPOSED REBARS WELDED TO THE FRAME; OR OTHER EQUALLY SECURED METHODS TO PREVENT MH COVER/FRAME BLOW-OFFS/EJECTIONS.

8. ALLOWABLE SANITARY FORCE MAIN PIPE MATERIAL:
   A.) P.V.C. 12-INCH - SDR 26, ASTM 3034
   B.) P.V.C. > 12-INCH - DR 25, 165 PSI RATING
   C.) CENTRIFUGALLY CAST FIBER CLASS PIPE, CLASS PN200/SN72
   D.) DUCTILE IRON PIPE, CLASS 50, 4" SCH 40 DWV PCV PIPE

9. CONTRACTOR SHALL PROVIDE ADEQUATE CONCRETE THRUST BLOCKING AT ALL FORCE MAIN BENDS TO WITHSTAND PRESSURE TEST.

10. CONTRACTOR SHALL INSTALL OVER THE FORCE MAIN LINES "TERRA TAPE" OR SIMILAR PRODUCT APPROVED BY OWNER. TAPE TO BE CONTINUOUSLY LABELED "NONPOTABLE WATER". INCLUDE COST OF MATERIAL AND INSTALLATION IN UNIT PRICE BID FOR PIPE.

11. ALL SEMI-RIGID SEWER PIPE SHALL BE TESTED FOR DEFLECTION. TESTING SHALL BE PERFORMED 30 DAYS AFTER BACKFILL OPERATIONS ARE COMPLETED, AND PRIOR TO OTHER TESTING OF SEWER SYSTEM. TEST FOR DEFLECTION BY PULLING A HAND LINE WITH AN ATTACHED MANDREL DEVICE THROUGH PIPE (NO MECHANICAL PULLING DEVICE ALLOWED). MANDREL TO HAVE AN OUTSIDE DIAMETER EQUAL TO 95 PERCENT OF THE NOMINAL DIAMETER OF PIPE BEING TESTED. MANDREL TO BE MANUFACTURED WITH A MINIMUM OF NINE (9) RUNNERS, WITH EACH RUNNER'S MINIMUM LENGTH TO BE AT LEAST EQUAL TO OR GREATER THAN THE TESTED PIPE'S INSIDE DIAMETER. CONTRACTOR TO PROVIDE AN APPROVED TRUING RING FOR MANDREL DEVICE. ANY PIPE NOT MEETING TEST REQUIREMENTS SHALL BE REMOVED AND REPLACED AT CONTRACTOR'S EXPENSE. PAYMENT FOR THIS WORK TO BE INCLUDED IN UNIT PRICE BID PER LINEAR FOOT OF SEWER PIPE IN APPROPRIATE SIZE.

12. SANITARY LEADS (CROSSING WATERLINES AT LESS THAN 75° ANGLE) WILL REQUIRE A 20-FOOT LONG SINGLE JOINT SEGMENT OR A MECHANICAL JOINT CONNECTION (JUNCTION) BETWEEN THE TWO HIGH-PRESSURE PIPE JOINTS CROSSING THE WATERLINE.

13. SANITARY SERVICE LEADS SHALL BE AT A MINIMUM SLOPE OF 1.00% AND BE INSTALLED AT A MANHOLE, WHEN POSSIBLE.

14. SANITARY SEWER CONSTRUCTION WHERE UNSATISFACTORY SOIL CONDITIONS EXIST SHALL HAVE BEDDING AS SHOWN ON DETAIL SHEET 32 OF 44.

15. THIS PROJECT IS INTENDED TO BE DONE PRIMARILY BY OPEN CUT INSTALLATION OF STANDARD SANITARY SEWER PIPE. HOWEVER, SHOULD ANY BORING TUNNELING AND/OR JACKING BE REQUIRED OR PREFERRED, IT WILL BE DONE BY USING SANITARY (THICK WALL) "PRESSURE PIPE". ALSO, ALL BORING, TUNNELING AND/OR JACKING PITS WILL BE OF SUFFICIENT LENGTH TO JACK A STANDARD 20'-22' LONG (OR AS LONG AS POSSIBLE OR NEEDED) MADE-UP JOINT (SEGMENT/PIECE) OF PIPE, WHETHER C900/C905 (DR 14) OR POLYETHYLENE ENCASED DUCTILE IRON PIPE (THK CL 50-54(+)). AS NEEDED OR STIPULATED ELSEWHERE ON PLANS). ANY USE OF HDPE PIPE, SDR 17 (OR SDR 19) MAY REQUIRE WRITTEN APPROVAL FOR SUCH USE.

16. USE THE SAME TYPE OF SEWER PIPE (OR PIPE JOINT ENDS) FROM MH TO MH WITH NO PIPE TYPE (OR THEIR JOINT ENDS) CHANGE IN BETWEEN EACH SEPARATE PAIR OF MHS. IDENTICAL DIP-SIZED SEWER PIPE BELL & SPIGOT ENDS ARE REQUIRED FOR ALL SEWER PIPE USED FROM MH TO MH WHEREVER GREEN C-900 (DR18) PVC PIPE OR POLYETHYLENE-ENCASED DIP SECTIONS (18'-20' (+)) ARE USED FOR WL CROSSING(S) AND/OR SEWER AUGERING AND/OR JACKING AND/OR SHALLOW BURIAL.

17. SANITARY SEWER SERVICE MARKED WITH CURB CUT PAINTED GREEN.

STORM SEWER CONSTRUCTION NOTES

1. REINFORCED CONCRETE (C76, CLASS III) STORM SEWERS SHALL BE INSTALLED, BEDDED AND BACKFILLED IN ACCORDANCE WITH THE CITY OF ROSENBERG DETAIL D-100A, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

2. ALL SEWER UNDER PROPOSED OR FUTURE PAVEMENT AND TO A POINT ONE-FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL BE BACKFILLED WITH 1-1/2 SACK CEMENT/CY CEMENT-STABILIZED SAND TO WITHIN ONE-FOOT OF PAVEMENT SUBGRADE. THE REMAINING DEPTH OF TRENCH SHALL BE BACKFILLED WITH COMPACTED SUITABLE EARTH MATERIAL.

3. ALL TRENCH BACKFILLS SHALL BE IN 8-INCH LOOSE LIFTS, WITH TESTS TAKEN AT 100-FOOT INTERVALS ON EACH LIFT, AND MECHANICALLY COMPACTED TO A DENSITY OF NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST (ASTM D-698/AASHTO T99).

4. ALL STORM SEWERS CONSTRUCTED IN SIDE LOT EASEMENTS SHALL BE RCP, MINIMUM 20-FOOT WIDE EASEMENTS SHALL BE PROVIDED.

5. CIRCULAR AND ELLIPTICAL REINFORCED CONCRETE PIPE SHALL BE INSTALLED USING RUBBER GASKET JOINTS CONFORMING TO ASTM C443 AND ASTM C877 RESPECTIVELY, UNLESS OTHERWISE NOTED ON PLANS.

6. ALL STORM SEWER PIPES AND INLET LEADS SHALL BE 24-INCH DIAMETER RCP (C76, CLASS III) MINIMUM, UNLESS OTHERWISE NOTED ON PLANS.

7. ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES OR INLETS ARE TO BE PLUGGED WITH 8-INCH BRICK WALLS, UNLESS OTHERWISE NOTED.

8. CONTRACTOR SHALL PROVIDE 12" MINIMUM CLEARANCE AT STORM SEWER AND WATER LINE CROSSINGS.

9. ADJUST MANHOLE COVERS TO GRADE CONFORMING TO REQUIREMENTS OF CITY OF ROSENBERG STANDARDS WHILE ADJUSTING MANHOLES, INLETS AND VALVE BOXES TO GRADE.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR

STATE OF TEXAS

COUNTY OF FORT BEND

CITY OF ROSENBERG

I, CHRIS LINDHORST, BEING AN OFFICER OF D.R. HORTON–TEXAS, LTD., A TEXAS LIMITED LIABILITY PARTNERSHIP, OWNERS OF THE 6.998 ACRE TRACT DESCRIBED IN THE ABOVE AND FOREGOING MAP OF SUNSET CROSSING BRYAN ROAD PHASE ONE, DO HEREBY MAKE AND ESTABLISH SAID SUBDIVISION AND DEVELOPMENT PLAT OF SAID PROPERTY ACCORDING TO ALL LINES, DEDICATIONS, RESTRICTIONS AND NOTATIONS ON SAID MAPS OR PLAT AND HEREBY DEDICATE TO THE USE OF PUBLIC FOREVER, ALL STREETS (EXCEPT THOSE STREETS DESIGNATED AS PRIVATE STREETS), ALLEYS, PARKS, WATER COURSES, DRAINS, EASEMENTS AND PUBLIC PLACES SHOWN THEREON FOR THE PURPOSES AND CONSIDERATIONS THEREIN EXPRESSED; AND DO HEREBY BIND OURSELVES, OUR HEIRS AND ASSIGNS TO WARRANT AND FOREVER DEFEND THE TITLE TO THE LAND SO DEDICATED.

FURTHER, WE DO HEREBY DEDICATE FOR PUBLIC UTILITY PURPOSES AN UNOBSTRUCTED AERIAL EASEMENT FIVE (5) FEET IN WIDTH FROM A PLANE TWENTY (20) FEET ABOVE THE GROUND LEVEL UPWARD, LOCATED ADJACENT TO ALL PUBLIC UTILITY EASEMENTS SHOWN HEREON.

FURTHER, WE DO HEREBY COVENANT AND AGREE THAT ALL OF THE PROPERTY WITHIN THE BOUNDARIES OF THIS PLAT SHALL BE RESTRICTED TO PREVENT THE DAMAGE OF ANY SEPTIC TANKS INTO ANY PUBLIC OR PRIVATE STREET, ROAD OR ALLEY OR ANY DRAINAGE DITCH, EITHER DIRECTLY, OR INDIRECTLY.

FURTHER, WE DO HEREBY CERTIFY THAT WE ARE THE OWNERS OF ALL PROPERTY IMMEDIATELY ADJACENT TO THE BOUNDARIES OF THE ABOVE AND FOREGOING SUBDIVISION OF SUNSET CROSSING BRYAN ROAD PHASE I WHERE BUILDING SETBACK LINES OR PUBLIC UTILITY EASEMENTS ARE TO BE ESTABLISHED OUTSIDE THE BOUNDARIES OF THE ABOVE AND FOREGOING SUBDIVISION AND TO HEREBY MAKE AND ESTABLISH ALL BUILDING SETBACK LINES AND DEDICATE TO THE USE OF PUBLIC, ALL PUBLIC UTILITY EASEMENTS SHOWN IN SAID ADJACENT ACREAGE.

FURTHER, WE DO HEREBY ACKNOWLEDGE THE RECEIPT OF THE "ORDERS FOR REGULATION OF OUTDOOR LIGHTING IN THE UNINCORPORATED AREAS OF FORT BEND COUNTY, TEXAS", AND DO HEREBY COVENANT AND AGREE AND SHALL COMPLY WITH THIS ORDER AS ADOPTED BY FORT BEND COUNTY COMMISSIONERS COURT ON MARCH 23, 2004, AND ANY SUBSEQUENT AMENDMENTS.

IN TESTIMONY WHEREOF, D.R. HORTON–TEXAS, LTD., A TEXAS LIMITED LIABILITY PARTNERSHIP, HAS CAUSED THESE PRESENTS TO BE SIGNED BY CHRIS LINDHORST, BEING AN OFFICER OF D.R. HORTON–TEXAS, LTD., A TEXAS LIMITED LIABILITY PARTNERSHIP, HEREUNTO AUTHORIZED, ATTESTED BY ITS SECRETARY (OR AUTHORIZED TRUST OFFICER),

_____, _____ AND ITS COMMON SEAL HEREUNTO AFFIXED THIS _____

DAY OF _____, 20___.

D.R. HORTON–TEXAS, LTD., A TEXAS LIMITED LIABILITY PARTNERSHIP

By: D.R. HORTON, INC.,
A DELAWARE CORPORATION
AUTHORIZED AGENT

BY: _____ ATTEST: _____
CHRIS LINDHORST

_____ _____
NAME AND TITLE NAME AND TITLE

STATE OF TEXAS
COUNTY OF FORT BEND

BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED _____,

_____ AND _____ OF D.R. HORTON–TEXAS, LTD., A TEXAS LIMITED LIABILITY PARTNERSHIP, KNOWN TO ME TO BE THE PERSONS WHOSE NAMES ARE SUBSCRIBED TO THE FOREGOING INSTRUMENT AND ACKNOWLEDGED TO ME THAT THEY EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATIONS THEREIN EXPRESSED, AND IN THE CAPACITY THEREIN AND HEREIN STATED, AND AS THE ACT AND DEED OF SAID CORPORATION.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, THIS _____ DAY OF _____, 20___.

_____
NOTARY PUBLIC IN AND FOR
FORT BEND COUNTY, TEXAS

THIS IS TO CERTIFY THAT THE PLANNING COMMISSION OF THE CITY OF ROSENBERG, TEXAS HAS APPROVED THIS PLAT AND THE SUBDIVISION OF SUNSET CROSSING BRYAN ROAD PHASE ONE IN CONFORMANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE ORDINANCES OF THE CITY OF

ROSENBERG AS SHOWN HEREON AND AUTHORIZES THE RECORDING OF THIS PLAT THIS _____

DAY OF _____, 201__.

BY:_____ BY:_____
JAMES URBISH, CHAIRMAN WAYNE POLDRACK, SECRETARY

THIS IS TO CERTIFY THAT THE CITY COUNCIL OF THE CITY OF ROSENBERG, TEXAS HAS APPROVED THIS PLAT AND THE SUBDIVISION OF SUNSET CROSSING BRYAN ROAD PHASE ONE IN CONFORMANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE ORDINANCES OF THE CITY OF

ROSENBERG AS SHOWN HEREON AND AUTHORIZES THE RECORDING OF THIS PLAT THIS _____

DAY OF _____, 201__.

BY:_____ BY:_____
WILLIAM BENTON, MAYOR DANYEL SWINT, CITY SECRETARY

CERTIFICATE FOR SURVEYOR

I, BRIAN NAWARA, AM AUTHORIZED UNDER THE LAWS OF THE STATE OF TEXAS TO PRACTICE THE PROFESSION OF SURVEYING AND HEREBY CERTIFY THAT THE ABOVE SUBDIVISION IS TRUE AND CORRECT, WAS PREPARED FROM AN ACTUAL SURVEY OF THE PROPERTY MADE UNDER MY SUPERVISION ON THE GROUND AND THAT ALL BOUNDARY CORNERS, ANGLE POINTS OF CURVATURE AND OTHER POINTS OF REFERENCE HAVE BEEN MARKED WITH IRON (OR OTHER SUITABLE PERMANENT FERROUS METAL) PIPES AND A LENGTH OF NOT LESS THAN THREE (3) FEET.

_____
BRIAN NAWARA
REGISTERED PROFESSIONAL LAND SURVEYOR
TEXAS REGISTRATION NO. 6060

CERTIFICATE FOR ENGINEER

I, MICHAEL PREISS, A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF TEXAS DO HEREBY CERTIFY THAT THIS PLAT MEETS ALL REQUIREMENTS OF FORT BEND COUNTY TO THE BEST OF MY KNOWLEDGE.

_____
ROBERT M. PREISS
REGISTERED PROFESSIONAL ENGINEER
TEXAS REGISTRATION NO. 92978

CENTERPOINT NOTE:
"ABSENT WRITTEN AUTHORIZATION BY THE AFFECTED UTILITIES, ALL UTILITY AND AERIAL EASEMENTS MUST BE KEPT UNOBSTRUCTED FROM ANY NON–UTILITY IMPROVEMENTS OR OBSTRUCTIONS BY THE PROPERTY OWNER. ANY UNAUTHORIZED IMPROVEMENTS OR OBSTRUCTIONS MAY BE REMOVED BY ANY PUBLIC UTILITY AT THE PROPERTY OWNER'S EXPENSE. WHILE WOODEN POSTS AND PANELED WOODEN FENCES ALONG THE PERIMETER AND BACK TO BACK EASEMENTS AND ALONGSIDE REAR LOTS LINES ARE PERMITTED, THEY TOO MAY BE REMOVED BY PUBLIC UTILITIES AT THE PROPERTY OWNER'S EXPENSE SHOULD THEY BE AN OBSTRUCTION. PUBLIC UTILITIES MAY PUT SAID WOODEN POSTS AND PANELED WOODEN FENCES BACK UP, BUT GENERALLY WILL NOT REPLACE WITH NEW FENCING."

NOTES:

1. ONE–FOOT RESERVE DEDICATED FOR BUFFER PURPOSES TO THE PUBLIC IN FEE AS A BUFFER SEPARATION BETWEEN THE SIDE OR END OF STREET WHERE SUCH STREETS ABUT ADJACENT PROPERTY, THE CONDITION OF SUCH DEDICATION BEING THAT WHEN THE ADJACENT PROPERTY IS SUBDIVIDED OR RE–SUBDIVIDED IN A RECORDED PLAT, THE ONE–FOOT RESERVE SHALL THEREUPON BECOME VESTED IN THE PUBLIC FOR STREET RIGHT–OF–WAY PURPOSES AND THE FEE TITLE THERETO SHALL REVERT TO AND REVEST IN THE DEDICATOR, HIS HEIRS, ASSIGNS OR SUCCESSORS.

2. BENCHMARK: THE ELEVATIONS FOR THIS SURVEY ARE BASED ON THE PUBLISHED ELEVATIONS FOR THE FOLLOWING BENCHMARKS:
AW4789 ELEVATION: 91.69'
AW4792 ELEVATION: 94.48'

3. PROJECT BENCHMARK: CUT "X" IN CONCRETE HEADWALL;
N: 13754207.4200
E: 3001494.1400
ELEV: 88.17'

SET 3/4 IRON ROD WITH RED CAP MARKED (TRAVERSE)
N: 13752540.4400
E: 3002838.3230
ELEV: 84.47'

SET 3/4 IRON ROD WITH RED CAP MARKED (TRAVERSE)
N: 13751522.6400
E: 3005309.8010
ELEV: 81.74'

SET 3/4 IRON ROD WITH RED CAP MARKED (TRAVERSE)
N: 13752319.9700
E: 3006795.7620
ELEV: 84.97'

4. ELEVATIONS USED FOR DELINEATING CONTOUR LINES ARE BASED UPON NGS VERTICAL DATUM, NAVD–88 (1991 ADJUSTMENT).

5. THIS PLAT WAS PREPARED TO MEET CITY OF ROSENBERG AND FORT BEND COUNTY REQUIREMENTS.

6. THIS PLAT WAS PREPARED FROM INFORMATION FURNISHED BY DHI TITLE OF CENTRAL TEXAS, EFFECTIVE DATE FEBRUARY 26, 2018. THE SURVEYOR HAS NOT ABSTRACTED THE ABOVE PROPERTY.

7. THIS PLAT LIES WHOLLY WITHIN MUNICIPAL UTILITY DISTRICT NO. 218, FORT BEND SUBSIDENCE DISTRICT, FORT BEND COUNTY DRAINAGE DISTRICT, LAMAR CONSOLIDATED I.S.D., AND THE CITY OF ROSENBERG EXTRATERRITORIAL JURISDICTION, AND FORT BEND COUNTY.

8. SUNSET CROSSING LIES WITHIN UNSHADED ZONE X AS PER FLOOD INSURANCE RATE MAP, MAP NUMBER 48157C0265L AND 48157C0245L, DATED APRIL 2, 2014.

9. APPROVAL OF THIS PLAT WILL EXPIRE ONE YEAR FROM CITY COUNCIL APPROVAL IF NOT RECORDED IN THE REAL PROPERTY RECORDS OF THE COUNTY OF FORT BEND.

10. FIVE–EIGHTHS INCH (5/8") IRON RODS THREE FEET (3') IN LENGTH ARE SET ON ALL PERIMETER BOUNDARY CORNERS, ALL ANGLE POINTS, ALL POINTS OF CURVATURE AND TANGENCY, AND ALL BLOCK CORNERS, UNLESS OTHERWISE NOTED. PROPERTY CORNERS ARE MONUMENTED WITH CAP OR DISK MARKED "PAPE–DAWSON", UNLESS NOTED OTHERWISE.

11. THE MINIMUM SLAB ELEVATION SHALL BE TWELVE INCHES (12") ABOVE THE 100–YEAR FLOOD PLAIN ELEVATION AND MAXIMUM PONDING ELEVATION, EIGHTEEN INCHES (18") ABOVE NATURAL GROUND, OR TWELVE INCHES (12") ABOVE THE TOP OF CURB AT THE FRONT OF THE LOT, WHICHEVER IS HIGHER.

12. THE DRAINAGE SYSTEM FOR THIS SUBDIVISION SHALL BE DESIGNED TO MEET THE REQUIREMENTS OF THE FORT BEND COUNTY DRAINAGE CRITERIA MANUAL WHICH ALLOWS STREET PONDING DURING INTENSE RAINFALL EVENTS.

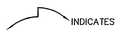
13. THIS PLAT LIES WITHIN FORT BEND COUNTY LIGHTING ORDINANCE ZONE NO. LZ2.

14. ALL EASEMENTS ARE CENTERED ON LOT LINES UNLESS OTHERWISE INDICATED.

15. THE HORIZONTAL COORDINATES SHOWN ARE GRID AND ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (4204), NAD–83 (NA2011); EPOCH 2010.00, AND WERE DERIVED USING GPS RTK METHODS REFERENCED TO THE NATIONAL GEODETIC SURVEY CORS NETWORK, STATION TXWN AND STATION TXHS. THE GRID COORDINATES MAY BE CONVERTED TO SURFACE BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 1.00013.

16. THE RADIUS ON ALL BLOCK CORNERS IS TWENTY FIVE (25) FEET UNLESS OTHERWISE NOTED.

17. UNLESS OTHERWISE INDICATED, THE BUILDING LINES (BL), WHETHER ONE OR MORE, SHOWN ON THIS SUBDIVISION PLAT ARE ESTABLISHED TO EVIDENCE COMPLIANCE WITH THE APPLICABLE PROVISIONS OF CHAPTER 4, UNIFIED DEVELOPMENT CODE, CITY OF ROSENBERG, TEXAS, IN EFFECT AT THE TIME THIS PLAT WAS APPROVED, WHICH MAY BE AMENDED FROM TIME TO TIME.

18.  INDICATES STREET NAME CHANGE SYMBOL.

19. DIMENSIONS SHOWN ARE SURFACE.

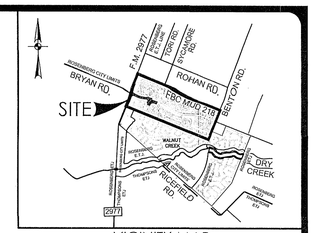
20. ALL DRAINAGE EASEMENTS MUST BE CLEAR OF FENCES, BUILDINGS, VEGETATION, AND OTHER OBSTRUCTIONS FOR THE PURPOSE OF THE OPERATION AND MAINTENANCE OF THE DRAINAGE FACILITY BY THE APPROPRIATE ENTITY.

21. SIDEWALKS SHALL BE BUILT OR CAUSED TO BE BUILT NOT LESS THAN 5 FEET IN WIDTH ON BOTH SIDES OF ALL DEDICATED RIGHTS–OF–WAY WITHIN SAID PLAT AND ON THE CONTIGUOUS RIGHT–OF–WAY OF ALL PERIMETER ROADS SURROUNDING SAID PLAT, IN ACCORDANCE WITH THE A.D.A.

22. ALL PROPERTY TO DRAIN INTO THE DRAINAGE EASEMENTS ONLY THROUGH AN APPROVED DRAINAGE STRUCTURE.

23. THERE ARE NO PIPELINES NOR PIPELINE EASEMENTS WITHIN THE LIMITS OF THE SUBDIVISION.

TOTAL NUMBER OF LOTS: 0 LOTS
PUBLIC PARK REQUIREMENT: [(6.25 ACRES X 0 LOTS X 3 PERSONS/UNIT)]/1000 = 0 AC.
PUBLIC PARK DEDICATION: 0 AC. PRIVATE PARK DEDICATION: 0 AC. PRIVATE PARK CREDIT PROVIDED WITH THE RECREATION CENTER RECREATION SITE IS ±3.64 ACRES NO. OF PLATTTED LOTS THUS FAR (BRYAN RD.)= 0 LOTS TOTAL PARK LAND PROVIDED TO DATE = 3.64 ACRES REMAINING PARK LAND CREDIT = 3.64 ACRES
MONEY IN LIEU OF PUBLIC PARK LAND DEDICATION: N/A



VICINITY MAP
NOT-TO-SCALE
MAP REF: KEY MAP 644H

I, RICHARD W. STOLLEIS, FORT BEND COUNTY ENGINEER, DO HEREBY CERTIFY THAT THE PLAT OF THIS SUBDIVISION COMPLIES WITH ALL OF THE EXISTING RULES AND REGULATIONS OF THE OFFICE AS ADOPTED BY THE FORT BEND COUNTY COMMISSIONERS' COURT. HOWEVER, NO CERTIFICATION IS HEREBY GIVEN AS TO THE EFFECT OF DRAINAGE FROM THIS SUBDIVISION ON THE INTERCEPTING DRAINAGE ARTERY OR PARENT STREAM OR ON ANY OTHER AREA OR SUBDIVISION WITHIN THE WATERSHED.

_____
RICHARD W. STOLLEIS, P.E.
FORT BEND COUNTY ENGINEER

APPROVED BY THE COMMISSIONERS' COURT OF FORT BEND COUNTY, TEXAS, THIS _____ DAY OF _____. _____.

_____ _____
VINCENT M. MORALES, JR. GRADY PRESTAGE
PRECINCT 1, COUNTY COMMISSIONER PRECINCT 2, COUNTY COMMISSIONER

_____
ROBERT E. HEBERT
COUNTY JUDGE

_____ _____
W. A. (ANDY) MEYERS JAMES PATTERSON
PRECINCT 3, COUNTY COMMISSIONER PRECINCT 4, COUNTY COMMISSIONER

I, LAURA RICHARD, COUNTY CLERK IN AND FOR FORT BEND COUNTY, HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT WITH ITS CERTIFICATE OF AUTHENTICATION WAS FILED FOR RECORDATION IN

MY OFFICE ON _____, 201___, AT _____ O'CLOCK ___M. IN

PLAT NUMBER _____ OF THE PLAT RECORDS OF FORT BEND COUNTY.

WITNESS MY HAND AND SEAL OF OFFICE, AT RICHMOND, TEXAS. THE DAY AND DATE LAST ABOVE WRITTEN.

_____
LAURA RICHARD COUNTY CLERK
FORT BEND COUNTY, TEXAS

BY: _____
DEPUTY

SUNSET CROSSING BRYAN ROAD PHASE ONE

A SUBDIVISION OF 6.998 ACRES OUT OF A 250.260 ACRES LOCATED IN THE W. LUSK SURVEY SURVEY, A-276, & E. WHEAT SURVEY, A-396, FORT BEND COUNTY, TEXAS (FORT BEND COUNTY MUNICIPAL UTILITY DISTRICT NO. 218)

1 RESERVE ~ 1 BLOCK

DATE OF PREPARATION:
April 10, 2018

OWNER:
CHRIS LINDHORST
D.R. HORTON-TEXAS, LTD.,
A TEXAS LIMITED LIABILITY PARTNERSHIP
14100 SW FREEWAY, SUITE 500
SUGAR LAND, TEXAS 77478
(281) 566-2100

ENGINEER:
PAPE-DAWSON ENGINEERS
MICHAEL PREISS, P.E.
SR. VICE PRESIDENT-HOUSTON

SURVEYOR:
PAPE-DAWSON ENGINEERS
BRIAN NAWARA, R.P.L.S.
HOUSTON SURVEY DEPARTMENT MANAGER

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

PAPE-DAWSON ENGINEERS

HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SHEET 1 OF 2

PD JOB NO. 40166-20 SUNSET CROSSING BRYAN ROAD PHASE ONE

Date: Apr 10, 2018, 1:33pm User ID: ANEWTON
File: K:\projects\40166\20\2-0 Design\2-3 Plat\2-3-2 Final\PLAT40166600.dwg

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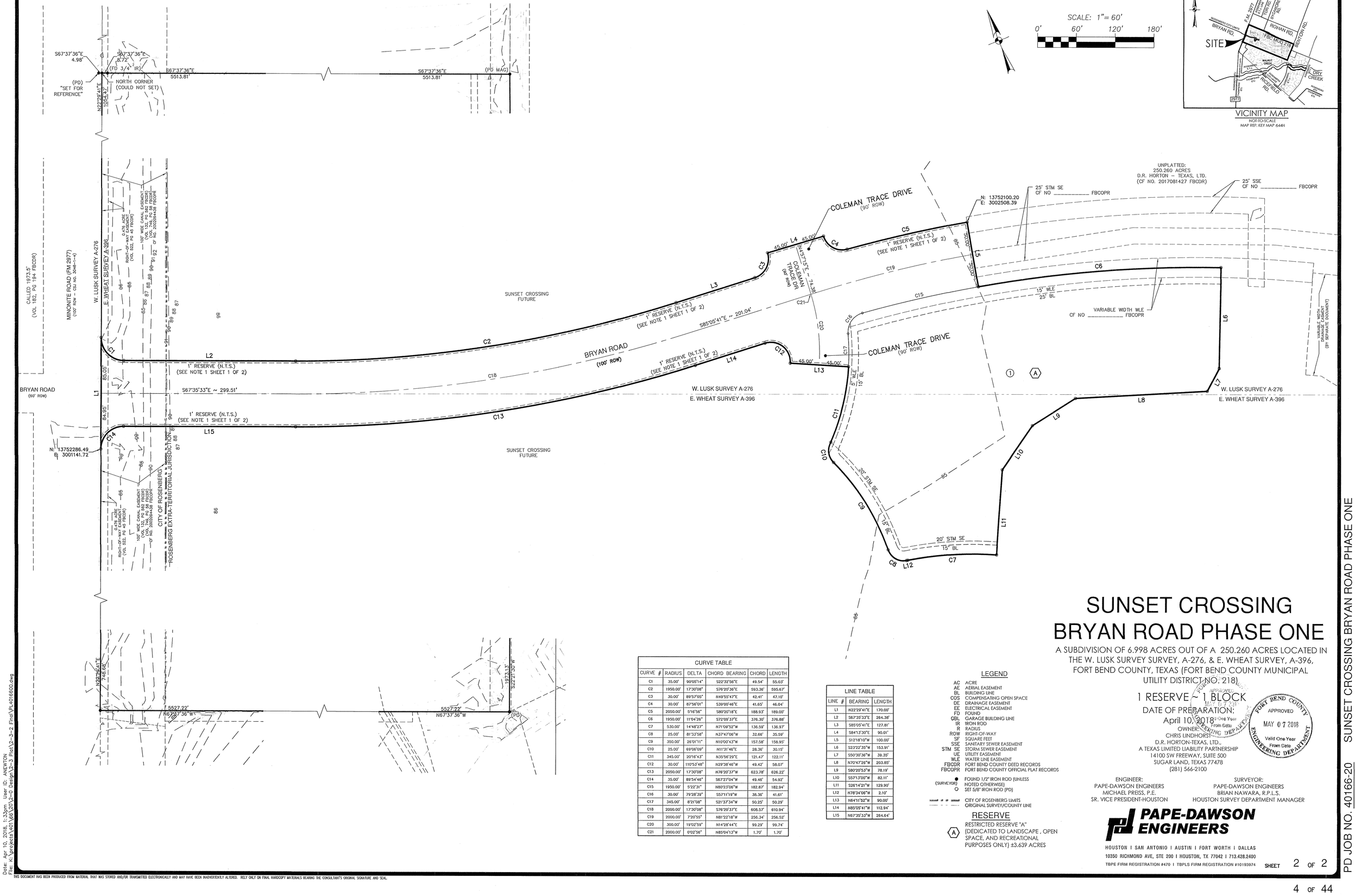

CURVE TABLE					
CURVE #	RADIUS	DELTA	CHORD BEARING	CHORD	LENGTH
C1	35.00'	90°05'14"	S22°32'56"E	49.54'	55.03'
C2	1950.00'	17°30'08"	S76°20'36"E	593.36'	595.67'
C3	30.00'	89°57'05"	N49°55'47"E	42.41'	47.10'
C4	30.00'	87°56'01"	S39°00'46"E	41.65'	46.04'
C5	2050.00'	5°16'56"	S80°20'18"E	188.93'	189.00'
C6	1950.00'	11°04'28"	S72°09'37"E	376.30'	376.88'
C7	530.00'	14°48'27"	N71°09'52"W	136.59'	136.97'
C8	25.00'	81°33'58"	N37°47'06"W	32.66'	35.59'
C9	350.00'	26°01'11"	N10°00'43"W	157.58'	158.95'
C10	25.00'	69°06'09"	N11°31'46"E	28.36'	30.15'
C11	345.00'	20°16'43"	N35°56'29"E	121.47'	122.11'
C12	30.00'	110°53'48"	N29°38'46"W	49.42'	58.07'
C13	2050.00'	17°30'08"	N76°20'37"W	623.78'	626.22'
C14	35.00'	89°54'46"	S67°27'04"W	49.46'	54.92'
C15	1950.00'	5°22'31"	N80°23'06"W	182.87'	182.94'
C16	30.00'	79°28'39"	S57°31'19"W	38.36'	41.61'
C17	345.00'	8°21'08"	S21°37'34"W	50.25'	50.29'
C18	2000.00'	17°30'08"	S76°20'37"E	608.57'	610.94'
C19	2000.00'	7°20'55"	N81°22'18"W	256.34'	256.52'
C20	300.00'	19°02'59"	N14°28'44"E	99.29'	99.74'
C21	2000.00'	0°02'56"	N85°04'13"W	1.70'	1.70'

LINE TABLE		
LINE #	BEARING	LENGTH
L1	N22°29'41"E	170.00'
L2	S67°35'33"E	264.38'
L3	S85°05'41"E	127.81'
L4	S84°13'30"E	90.01'
L5	S12°18'10"W	100.00'
L6	S23°22'35"W	153.91'
L7	S50°30'36"W	39.35'
L8	N70°47'26"W	203.85'
L9	S80°20'53"W	78.19'
L10	S57°13'00"W	82.11'
L11	S26°14'21"W	129.90'
L12	N78°34'06"W	2.10'
L13	N64°11'52"W	90.00'
L14	N85°05'41"W	112.94'
L15	N67°35'33"W	264.64'

LEGEND

AC	ACRE
AE	AERIAL EASEMENT
BL	BUILDING LINE
COS	COMPENSATING OPEN SPACE
DE	DRAINAGE EASEMENT
EE	ELECTRICAL EASEMENT
FD	FOUND
GBL	GARAGE BUILDING LINE
IR	IRON ROD
R	RADIUS
ROW	RIGHT-OF-WAY
SF	SQUARE FEET
SSE	SANITARY SEWER EASEMENT
STM SE	STORM SEWER EASEMENT
UE	UTILITY EASEMENT
WLE	WATER LINE EASEMENT
FBCDR	FORT BEND COUNTY DEED RECORDS
FBCOPR	FORT BEND COUNTY OFFICIAL PLAT RECORDS
● (SURVEYOR)	FOUND 1/2" IRON ROD (UNLESS NOTED OTHERWISE)
O	SET 5/8" IRON ROD (PD)
	CITY OF ROSENBERG LIMITS
	ORIGINAL SURVEY/COUNTY LINE

RESERVE

(A) RESTRICTED RESERVE "A" (DEDICATED TO LANDSCAPE , OPEN SPACE, AND RECREATIONAL PURPOSES ONLY) ±3.639 ACRES

SUNSET CROSSING
BRYAN ROAD PHASE ONE

A SUBDIVISION OF 6.998 ACRES OUT OF A 250.260 ACRES LOCATED IN THE W. LUSK SURVEY SURVEY, A-276, & E. WHEAT SURVEY, A-396, FORT BEND COUNTY, TEXAS (FORT BEND COUNTY MUNICIPAL UTILITY DISTRICT NO. 218)

1 RESERVE ~ 1 BLOCK

DATE OF PREPARATION: April 10, 2018

OWNER:
CHRIS LINDHORST
D.R. HORTON-TEXAS, LTD.,
A TEXAS LIMITED LIABILITY PARTNERSHIP
14100 SW FREEWAY, SUITE 500
SUGAR LAND, TEXAS 77478
(281) 566-2100

FORT BEND COUNTY ENGINEERING DEPARTMENT APPROVED MAY 07 2018 Valid One Year From Date

ENGINEER:
PAPE-DAWSON ENGINEERS
MICHAEL PREISS, P.E.
SR. VICE PRESIDENT-HOUSTON

SURVEYOR:
PAPE-DAWSON ENGINEERS
BRIAN NAWARA, R.P.L.S.
HOUSTON SURVEY DEPARTMENT MANAGER

PAPE-DAWSON ENGINEERS
HOUSTON I SAN ANTONIO I AUSTIN I FORT WORTH I DALLAS
10350 RICHMOND AVE, STE 200 I HOUSTON, TX 77042 I 713.428.2400
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10193974

SHEET 2 OF 2

PD JOB NO. 40166-20 SUNSET CROSSING BRYAN ROAD PHASE ONE

Date: Apr 10, 2018, 1:33pm User ID: ANEWTON
File: K:\projects\40166\20\2-0 Design\2-3 Plat\2-3-2 Final\PLAT40166600.dwg

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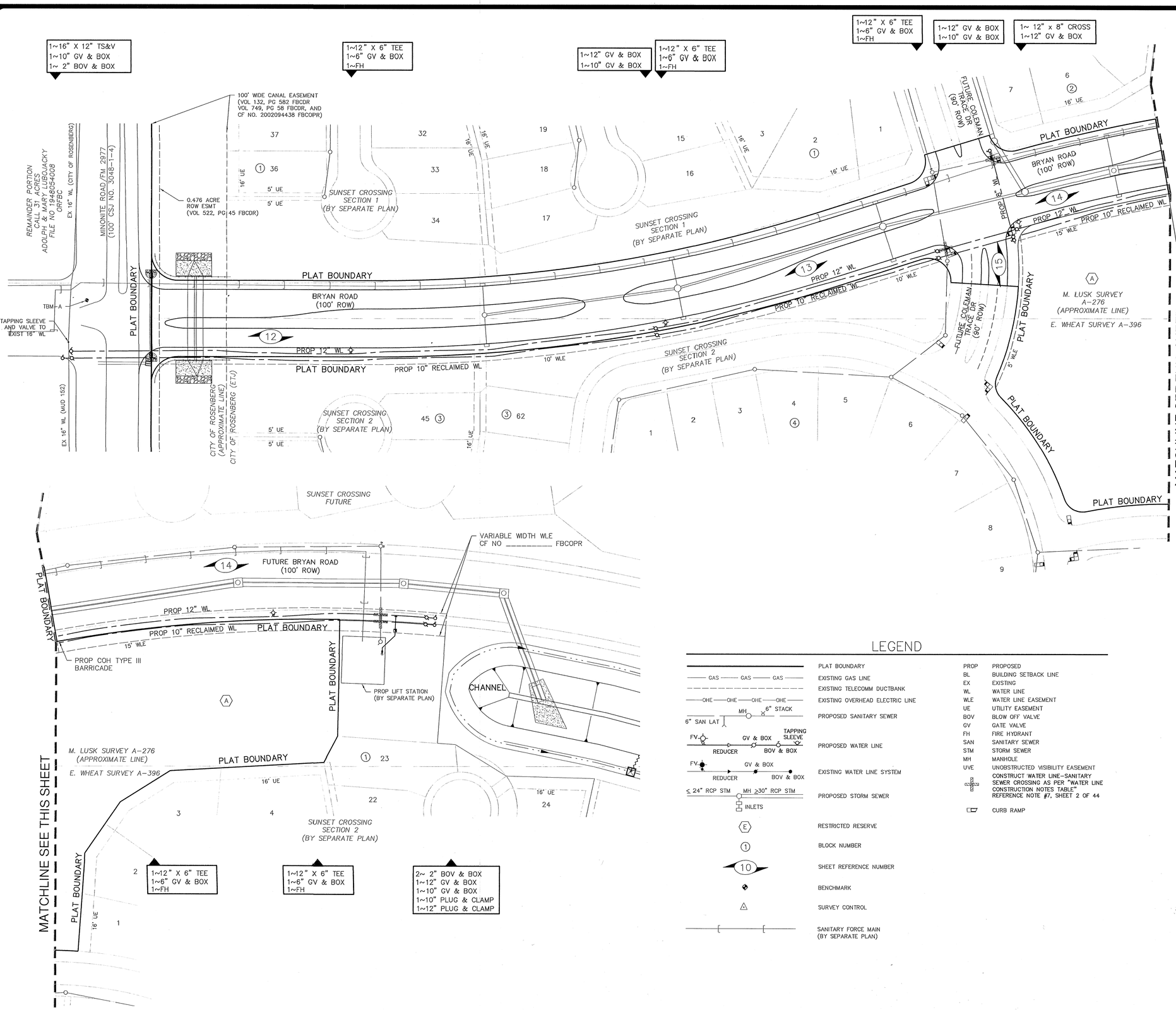

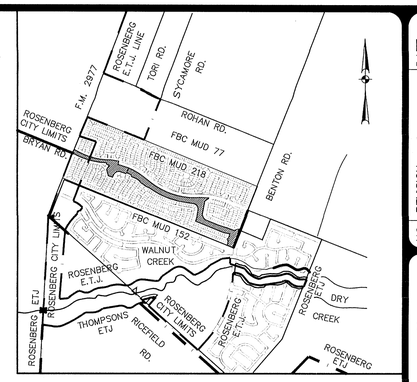

LOCATION MAP

SCALE: NTS
MAP REF: KEY MAP 691H

SCALE: 1"= 60'

0' 60' 120' 180'

BENCHMARK:

TBM-A
CUT "X" IN CONCRETE HEADWALL
N:13754207.4200 E: 3001494.1400 ELEV: 88.17'

FIRM FLOOD INSURANCE RATE MAP
FORT BEND COUNTY COMMUNITY
MAP 48157C0265L PANEL 265 OF 575,
DATED APRIL 2 2014.
BASE FLOOD ELEVATION = 78.5

NOTES:
1. WATER METERS SHALL END 1 FOOT WITHIN WLE OR ROW.
2. WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.
3. JUNCTION BOXES TO HAVE MANHOLE ACCESS

SPECIAL BACKFILL REQUIREMENTS FOR STORM SEWER AND SANITARY SEWER LATERALS:
ALL SANITARY SEWER LEADS CROSSING STORM SEWER, WITH A CLEARANCE OF 1-FOOT OR LESS, MUST BE BACKFILLED WITH CEMENT STABILIZED SAND BETWEEN THE TWO UTILITIES.

LEGEND

	PLAT BOUNDARY
GAS GAS GAS	EXISTING GAS LINE
	EXISTING TELECOMM DUCTBANK
OHE OHE OHE OHE	EXISTING OVERHEAD ELECTRIC LINE
MH 6" STACK, 6" SAN LAT	PROPOSED SANITARY SEWER
FV, GV & BOX, TAPPING SLEEVE, REDUCER, BOV & BOX	PROPOSED WATER LINE
FV, GV & BOX, REDUCER, BOV & BOX	EXISTING WATER LINE SYSTEM
≤ 24" RCP STM, MH ≥30" RCP STM, INLETS	PROPOSED STORM SEWER
(E)	RESTRICTED RESERVE
(1)	BLOCK NUMBER
(10)	SHEET REFERENCE NUMBER
	BENCHMARK
	SURVEY CONTROL
	SANITARY FORCE MAIN (BY SEPARATE PLAN)

PROP	PROPOSED
BL	BUILDING SETBACK LINE
EX	EXISTING
WL	WATER LINE
WLE	WATER LINE EASEMENT
UE	UTILITY EASEMENT
BOV	BLOW OFF VALVE
GV	GATE VALVE
FH	FIRE HYDRANT
SAN	SANITARY SEWER
STM	STORM SEWER
MH	MANHOLE
UVE	UNOBSTRUCTED VISIBILITY EASEMENT
	CONSTRUCT WATER LINE-SANITARY SEWER CROSSING AS PER "WATER LINE CONSTRUCTION NOTES TABLE" REFERENCE NOTE #7, SHEET 2 OF 44
	CURB RAMP

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

NO.	REVISION	DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
4/13/18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS

WATER LINE LAYOUT

PLAT NO.	40166-20
JOB NO.	40166-21
DATE	MARCH 2018
DESIGNER	LS
CHECKED	DRAWN ALL
SHEET	5 OF 44

PERMIT SET

Date: Apr 13, 2018, 1:24pm User ID: JBrooks
File: K:\Projects\401\68\001\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\03-4016600-WTOA-BRYN-PH1.dwg

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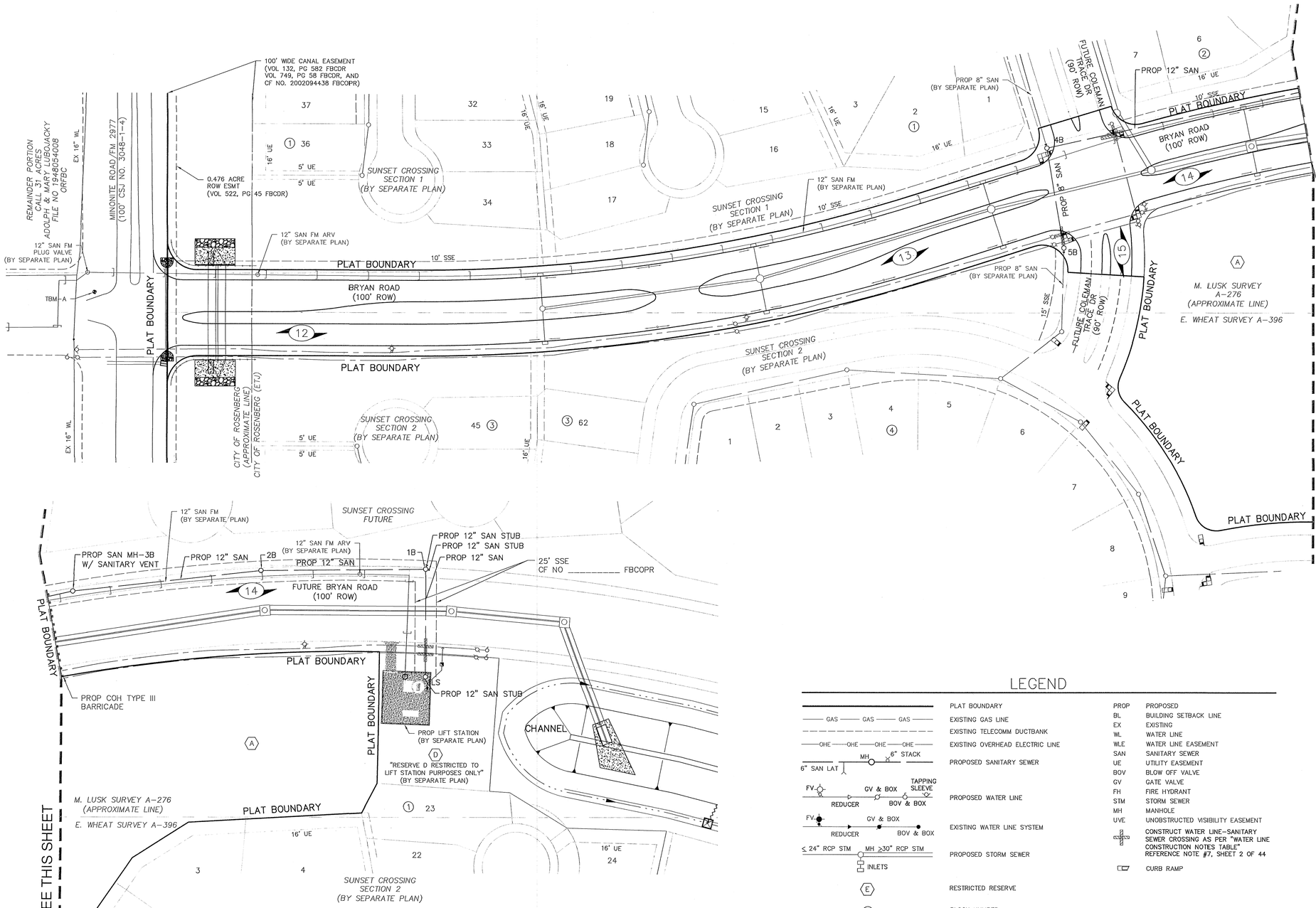
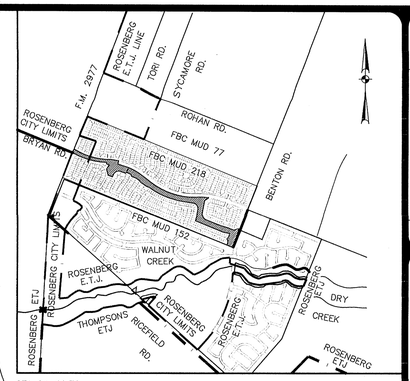


STA 24+69.72
END PROP 7" CONC PVMT W/ 6" CURB, STD PAVING HEADER, AND LOAD TRANSFER DEVICE, TC ± 83.57

MATCHLINE SEE THIS SHEET



LOCATION MAP

SCALE: NTS
MAP REF: KEY MAP 691H

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CUT "X" IN CONCRETE HEADWALL
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FIRM FLOOD INSURANCE RATE MAP
FORT BEND COUNTY COMMUNITY
MAP 48157C0265L PANEL 265 OF 575,
DATED APRIL 2 2014.
BASE FLOOD ELEVATION = 78.5

NOTE:
1. WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.

2. JUNCTION BOXES TO HAVE MANHOLE ACCESS

SPECIAL BACKFILL REQUIREMENTS FOR STORM SEWER AND SANITARY SEWER LATERALS:
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	CURB RAMP

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1885

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

NO.	REVISION	DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED
PROFESSIONAL ENGINEER
4/13/18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
SANITARY SEWER LAYOUT

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED ____ DRAWN ALL
SHEET 6 OF 44

PERMIT SET

Date: Apr 13, 2018, 1:24pm User ID: JBrooks
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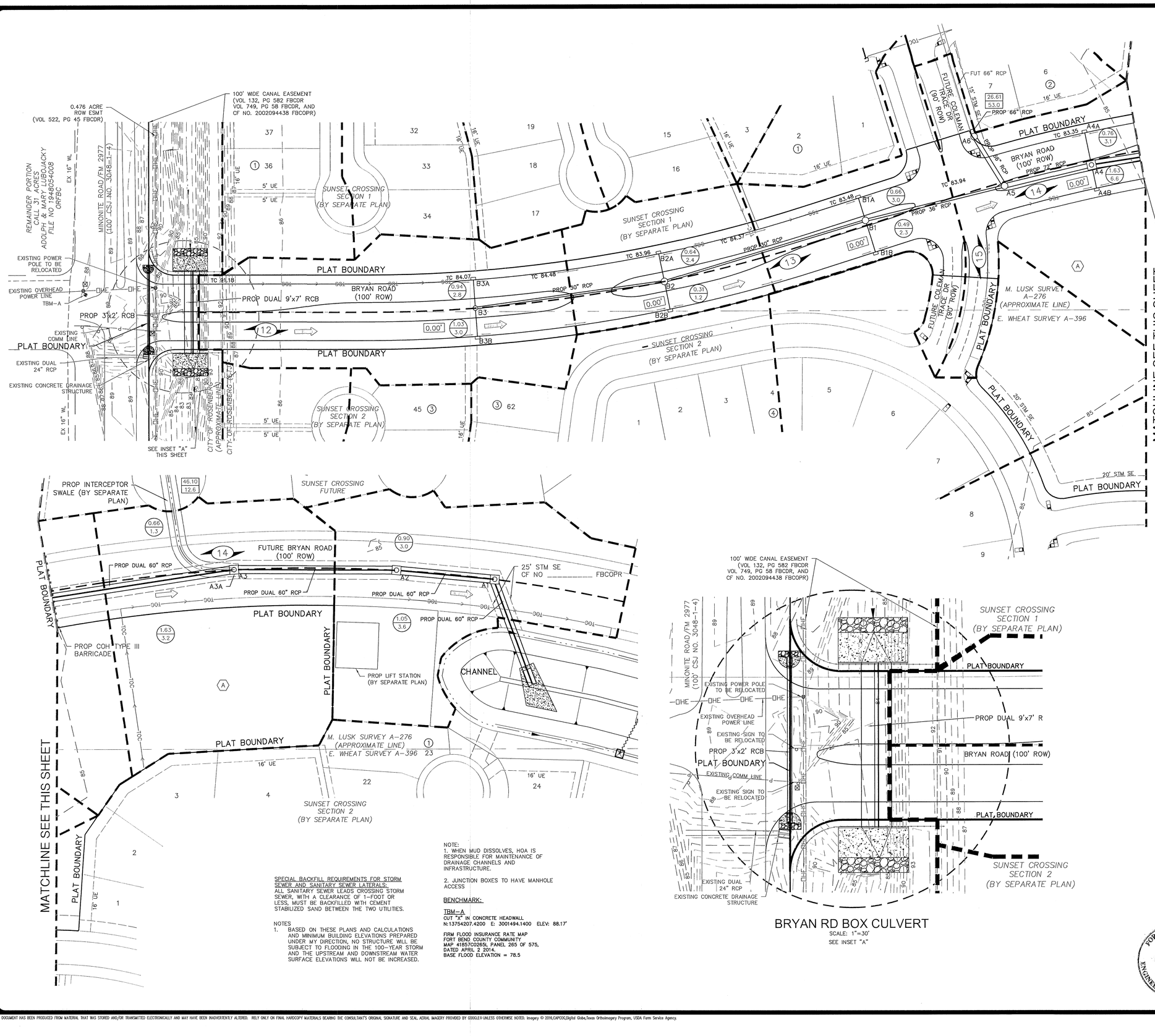

SPECIAL BACKFILL REQUIREMENTS FOR STORM SEWER AND SANITARY SEWER LATERALS:
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NOTES
1. BASED ON THESE PLANS AND CALCULATIONS AND MINIMUM BUILDING ELEVATIONS PREPARED UNDER MY DIRECTION, NO STRUCTURE WILL BE SUBJECT TO FLOODING IN THE 100-YEAR STORM AND THE UPSTREAM AND DOWNSTREAM WATER SURFACE ELEVATIONS WILL NOT BE INCREASED.

NOTE:
1. WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.
2. JUNCTION BOXES TO HAVE MANHOLE ACCESS

BENCHMARK:

TBM-A
CUT "X" IN CONCRETE HEADWALL
N:13754207.4200 E: 3001494.1400 ELEV: 88.17'

FIRM FLOOD INSURANCE RATE MAP
FORT BEND COUNTY COMMUNITY
MAP 48157C0265L PANEL 265 OF 575,
DATED APRIL 2, 2014.
BASE FLOOD ELEVATION = 78.5

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED
PROFESSIONAL ENGINEER
4/20/18

NO.	REVISION	DATE

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
DRAINAGE LAYOUT

FORT BEND COUNTY ENGINEERING DEPARTMENT APPROVED MAY 07 2018 Valid One Year From Date

CITY OF ROSENBERG FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED ____ DRAWN ALL
SHEET 7 OF 44

PERMIT SET

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PAPE-DAWSON ENGINEERS

Project Name: SUNSET CROSSING - BRYAN ROAD PHASE ONE
Project No: 40166-21
Prepared By: KLB Date: 12/12/2017
Checked By: MPL Date: 4/17/2018

Jurisdiction: FORT BEND COUNTY
Design Frequency: 5 year
Design Multiplier: 1.00
Starting W.S. Elev.: 80.90 feet

Rainfall Coeff.
b = 78.9
d = 11.1
e = 0.801

Storm Sewer Design Calculations

Manhole No. From	Manhole No. to	INLET Drainage Area (acres)	MH Total Area (acres)	Runoff Coefficient C	Sum Of C · A	Inlet Time of Conc. (min)	System Time of Conc. (min)	Rainfall Intensity I (in/hr)	Drainage Area Flow (cfs)	Sum Of Flows (cfs)	Reach Length (ft)	Diameter (in) or Rise (ft)	Span (ft)	Number of Barrels	Slope %	Manning's Roughness Coefficient "n"	Design Capacity (cfs)	Design Velocity (ft/sec)	Fall (ft)	Manhole Drop (ft)	Flowline Elevation Upstream (ft)	Flowline Elevation Downstream (ft)	Actual Velocity (ft/sec)	Hydraulic Gradient %	Change in Head (ft)	Elevation of Hyd. Grad. Upstream (ft)	Elevation of Hyd. Grad. Downstream (ft)	Top of Curb Elevation Upstream (ft)	Gutter Elevation Upstream (ft)
A1	OUT	0.00	83.41	0.55	23.39	0.0	43.6	3.20	0.0	74.9	149	60		2	0.060	0.013	127.6	3.2	0.09	N/A	73.64	73.55	1.91	0.021	0.03	80.93	80.90	83.39	82.89
A2	A1	1.95	83.41	0.42	23.39	6.1	42.4	3.26	6.6	76.2	134	60		2	0.060	0.013	127.6	3.2	0.08	0.00	73.72	73.64	1.94	0.021	0.03	80.96	80.93	83.15	82.65
A3	A2	2.29	81.46	0.40	22.57	20.7	40.5	3.35	4.5	75.7	220	60		2	0.060	0.013	127.6	3.2	0.13	0.00	73.85	73.72	1.93	0.021	0.05	81.01	80.96	83.25	82.75
A4	A3	2.39	33.07	0.52	17.92	6.8	37.2	3.54	9.7	63.4	318	60		2	0.060	0.013	127.6	3.2	0.19	0.00	74.04	73.85	1.61	0.015	0.05	81.05	81.01	83.35	82.85
A5	A4	0.00	30.68	0.55	16.68	0.0	36.3	3.59	0.0	59.9	113	72		1	0.050	0.013	94.7	3.3	0.06	0.00	74.10	74.04	2.12	0.020	0.02	81.08	81.05	83.73	83.23
A6	A5	0.00	26.61	0.55	14.64	0.0	35.7	3.62	0.0	53.0	78	66		1	0.050	0.013	75.1	3.2	0.04	0.00	74.14	74.10	2.23	0.025	0.02	81.10	81.08	84.23	83.73
B1	A5	1.15	4.07	0.61	2.04	7.8	17.1	5.44	5.3	11.1	194	36		1	0.110	0.013	22.1	3.1	0.21	1.60	75.91	75.70	1.57	0.028	0.05	81.13	81.08	83.48	82.98
B2	B1	0.95	2.92	0.50	1.34	7.8	14.2	5.94	3.6	8.0	285	30		1	0.130	0.013	14.8	3.0	0.37	0.04	76.32	75.95	1.62	0.038	0.11	81.24	81.13	83.96	83.46
B3	B2	1.97	1.97	0.44	0.87	10.5	10.5	6.73	5.8	5.8	259	30		1	0.130	0.013	14.8	3.0	0.34	0.00	76.66	76.32	1.19	0.020	0.05	81.29	81.24	84.11	83.61
Offsite	A3	46.10	46.10	0.08*	3.73	40.0	40.0	3.38	12.6	12.6																			

* Coefficient (C) adjusted to match Rational Method peak flow in this spreadsheet to the 2D model of the offsite area draining to E inlet at A3 at the time of concentration for the storm sewer system. (5yr: 12.6 cfs @ 40min, 100yr: 54.0 cfs @ 28min)

PAPE-DAWSON ENGINEERS

Project Name: SUNSET CROSSING - BRYAN ROAD PHASE ONE - EXTREME EVENT ANALYSIS
Project No: 40166-21
Prepared By: KLB Date: 12/12/2017
Checked By: MPL Date: 4/17/2018

Jurisdiction: FORT BEND COUNTY
Design Frequency: 100 year
Design Multiplier: 1.25
Starting W.S. Elev.: 80.90 feet

Rainfall Coeff.
b = 146.2
d = 15.1
e = 0.785

Storm Sewer Design Calculations

Manhole No. From	Manhole No. to	INLET Drainage Area (acres)	MH Total Area (acres)	Runoff Coefficient C	Sum Of C · A	Inlet Time of Conc. (min)	System Time of Conc. (min)	Rainfall Intensity I (in/hr)	Drainage Area Flow (cfs)	Sum Of Flows (cfs)	Reach Length (ft)	Diameter (in) or Rise (ft)	Span (ft)	Number of Barrels	Slope %	Manning's Roughness Coefficient "n"	Design Capacity (cfs)	Design Velocity (ft/sec)	Fall (ft)	Manhole Drop (ft)	Flowline Elevation Upstream (ft)	Flowline Elevation Downstream (ft)	Actual Velocity (ft/sec)	Hydraulic Gradient %	Change in Head (ft)	Elevation of Hyd. Grad. Upstream (ft)	Elevation of Hyd. Grad. Downstream (ft)	Top of Curb Elevation Upstream (ft)	Gutter Elevation Upstream (ft)
A1	OUT	0.00	83.41	0.55	25.33	0.0	29.7	7.38	0.0	233.6	149	60		2	0.060	0.013	127.6	3.2	0.09	N/A	73.64	73.55	5.95	0.201	0.30	81.20	80.90	83.39	82.89
A2	A1	1.95	83.41	0.42	25.33	6.1	29.4	7.43	13.6	235.1	134	60		2	0.060	0.013	127.6	3.2	0.08	0.00	73.72	73.64	5.99	0.204	0.27	81.47	81.20	83.15	82.65
A3	A2	2.29	81.46	0.40	24.51	20.7	28.7	7.51	10.1	230.1	220	60		2	0.060	0.013	127.6	3.2	0.13	0.00	73.85	73.72	5.86	0.195	0.43	81.90	81.47	83.25	82.75
A4	A3	2.39	33.07	0.52	17.92	6.8	27.5	7.68	20.1	172.0	318	60		2	0.060	0.013	127.6	3.2	0.19	0.00	74.04	73.85	4.38	0.109	0.35	82.25	81.90	83.35	82.85
A5	A4	0.00	30.68	0.55	16.68	0.0	27.2	7.72	0.0	161.0	113	72		1	0.050	0.013	94.7	3.3	0.06	0.00	74.10	74.04	5.70	0.145	0.16	82.41	82.25	83.73	83.23
A6	A5	0.00	26.61	0.55	14.64	0.0	27.0	7.76	0.0	141.9	78	66		1	0.050	0.013	75.1	3.2	0.04	0.00	74.14	74.10	5.97	0.178	0.14	82.55	82.41	84.23	83.73
B1	A5	1.15	4.07	0.61	2.04	7.8	13.5	10.50	11.0	26.8	194	36		1	0.110	0.013	22.1	3.1	0.21	1.60	75.91	75.70	3.79	0.162	0.31	82.73	82.41	83.48	82.98
B2	B1	0.95	2.92	0.50	1.34	7.8	12.2	10.88	7.4	18.2	285	30		1	0.130	0.013	14.8	3.0	0.37	0.04	76.32	75.95	3.72	0.198	0.56	83.29	82.73	83.96	83.46
B3	B2	1.97	1.97	0.44	0.87	10.5	10.5	11.44	12.4	12.4	259	30		1	0.130	0.013	14.8	3.0	0.34	0.00	76.66	76.32	2.53	0.091	0.24	83.53	83.29	84.11	83.61
Offsite	A3	46.10	46.10	0.12*	5.67	28.0	28.0	7.61	54.0	54.0																			

* Coefficient (C) adjusted to match Rational Method peak flow in this spreadsheet to the 2D model of the offsite area draining to E inlet at A3 at the time of concentration for the storm sewer system. (5yr: 12.6 cfs @ 40min, 100yr: 54.0 cfs @ 28min)

Velocity Based Method

MINIMUM T_C TO USE: 6 min.

	Sheet Flow			Shallow Concentrated Flow			TIME OF CONCENTRATION	
	0.2			1.0				
INLET ID	Sheet Flow Length L	Sheet Flow Velocity V	Sheet Flow Travel Time t	Shallow Flow Length L	Shallow Flow Velocity V	Shallow Flow Travel Time t	CALCULATED TIME OF CONCENTRATION	TIME OF CONCENTRATION USED
	(LF)	(FPS)	(MIN)	(LF)	(FPS)	(MIN)	(MIN)	(MIN)
A4	15.0	0.2	1.3	335.0	1.0	5.6	6.8	6.8
B1	66.0	0.2	5.5	139.0	1.0	2.3	7.8	7.8
B2	68.0	0.2	5.7	125.0	1.0	2.1	7.8	7.8
B3	36.0	0.2	3.0	300.0	1.0	5.0	8.0	8.0
A2	15.0	0.2	1.3	292.0	1.0	4.9	6.1	6.1
A3	218.0	0.2	18.2	152.0	1.0	2.5	20.7	20.7

Flow, Q	*(cfs)*	59.7
Swale Depth, y	*(ft)*	2.5
Swale Bottom Width, b	*(ft)*	5
Swale Side Slope, m	-	3
Manning's n value	-	0.04
Normal Depth, yn	*(ft)*	2.35
E Inlet Opening Height	*(ft)*	1
E Inlet Opening Width (per side)	*(ft)*	4
Applied Head to centroid of opening, h	*(ft)*	1.85

$$Q_{inlet} = C * A * \sqrt{2 * g * h}$$

Inlet Coeff	-	0.8
Opening Area (per side)	*(sf)*	4.00
Flow (per side)		34.9
Number of Openings		4
Total Flow into E Inlet	*(cfs)*	139.8

BOX CULVERT CALCULATIONS FOR OUTLET CONTROL

(FULL FLOW CONDITIONS - 9'X7' DUAL RCB IN NRG IRRIGATION CANAL)

		Calc HW for known Flow & TW
Headwater Elev.	*(ft)*	88.00
Tailwater Elev.	*(ft)*	87.97
HW	*(ft)*	7.03
TW	*(ft)*	7.00
Box Span	*(ft)*	9
Box Rise	*(ft)*	7
Downstream Flowline Elev.	*(ft)*	80.97
Upstream Flowline Elev.	*(ft)*	81.00
Manning's Roughness, n	-	0.015
Culvert Length, L	*(ft)*	110.0
Culvert Slope, S_0	*(%)*	0.03%
Entrance Loss Coefficient, k_{ent}	-	0.5
Exit Loss Coefficient, k_{ex}	-	1.0
Flow Area (single box), A	*(ft^2)*	63.00
Wetted Perimeter (single box), P	*(ft)*	32.00
Box Hydraulic Radius (single pipe), R	*(ft)*	1.97
Head Loss through Barrel, h_{Lf}	*(ft)*	0.06
Number of Barrels, N	-	2
Total Culvert Capacity, $Q_{capacity}$	*(cfs)*	357.3
Total Flow Rate, Q	*(cfs)*	180.0
Flow Per Barrel, $Q_{1\ barrel}$	*(cfs)*	90.0
Flow Velocity, V	*(fps)*	1.4

Runoff Coefficient Calculations

$$C = \sum Runoff\ Coefficient\ \frac{Area}{Total\ Drainage\ Area}$$

Manhole	Total Drainage Area (Acres)	Reserve [0.18]*	Bryan Rd [0.85]*	Offsite Drainage [0.3]*	Rec Center [0.4]**	Calculated Coefficient
B3	2.24	1.360	0.880			0.44
B2	0.95	0.490	0.460			0.50
B1	1.10	0.400	0.700			0.61
A4	2.34	0.353	0.816		1.166	0.52
A3	5.23	0.380	0.547	2.94	1.363	0.40
A2	1.95	1.263	0.687			0.42

*Coefficients are from Table 2-3 Rational Method Runoff Coefficients in the FBCDCM

**Rec center is anticipated to be a playground (C=0.28). Coefficient was increased to 0.4 as parking/pavement is anticipated and ultimate use of space is still to be determined.
The offsite drainage is from an undeveloped, cultivated area (C=0.35)

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

APPROVED: _____ FORT BEND COUNTY DEVELOPMENT COORDINATOR

DATE: _____

CITY OF ROSENBERG FOUNDED 1885

NO. | REVISION | DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
4.26.18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
STORM SEWER DESIGN CALCULATIONS

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED AC DRAWN ALL
SHEET 8 OF 44

PERMIT SET

Date: Apr 26, 2018, 10:56am User ID: ANEWTON
File: K:\Projects\401\65\02\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\06-4016600-SDCALCS-BRYN-Phi.dwg

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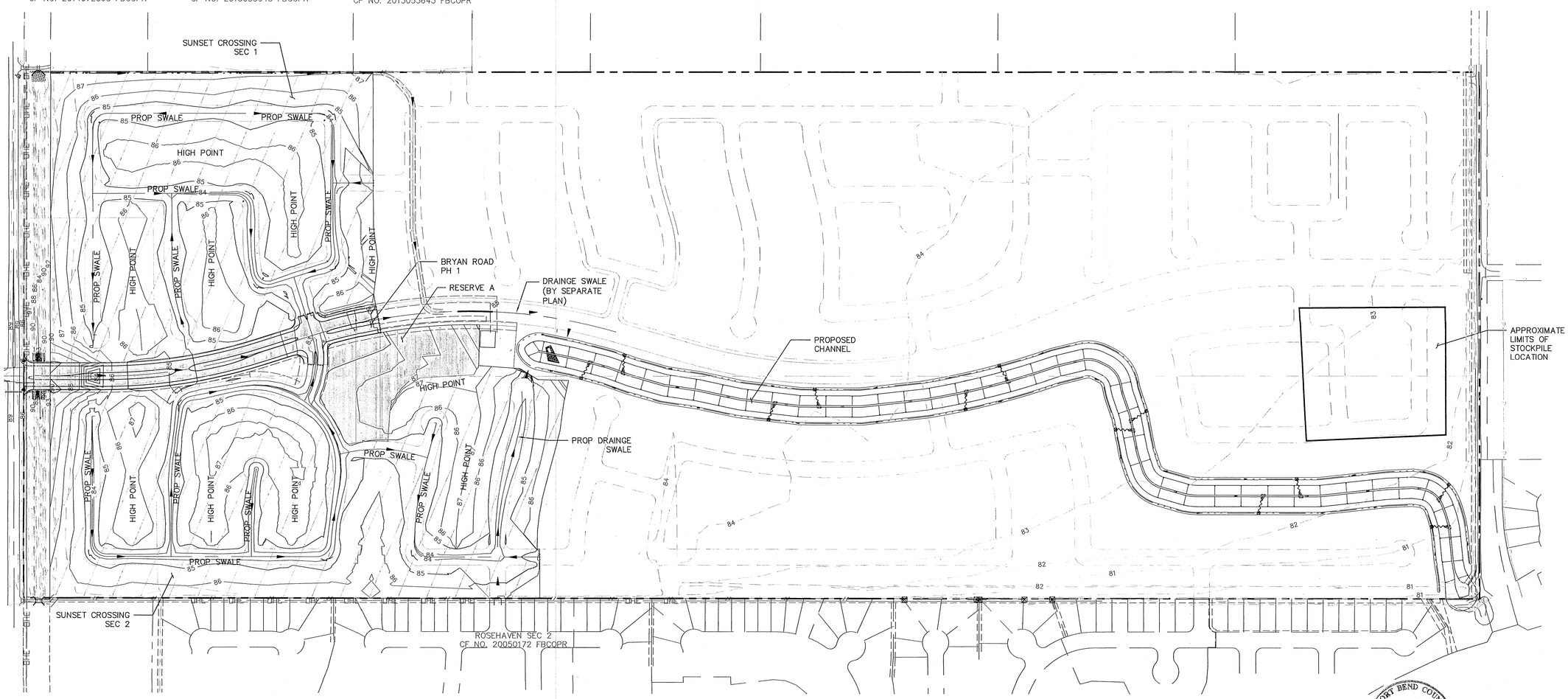
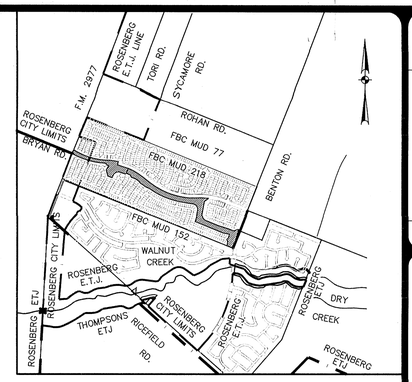


SCALE: 1"= 200'

0' 200' 400' 600'

LEGEND

- PLAT BOUNDARY
- EXISTING CONTOUR
- EXISTING GAS LINE
- EXISTING TELECOMM DUCTBANK
- EXISTING OVERHEAD ELECTRIC LINE
- RESTRICTED RESERVE
- BENCHMARK
- SURVEY CONTROL
- PROPOSED SHEET FLOW ROUTE
- EXISTING DRAINAGE FLOW ROUTE
- DRAINAGE FLOW ARROW
- DRAINAGE AREA
- DRAINAGE AREA FLOW PATH (SEE TIME OF CONCENTRATION CALCULATIONS FOR MORE INFORMATION)
- EXCAVATION & FILL AREA WITHIN SUNSET CROSSING BRYAN RD PH ONE
- FILL AREA WITHIN SUNSET CROSSING MASS GRADE



LOCATION MAP

SCALE: NTS
MAP REF: KEY MAP 691H

NO.	REVISION	DATE

STATE OF TEXAS
ROBERT M. PRESS
92978
LICENSED
PROFESSIONAL ENGINEER
3.26.18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE

CITY OF ROSENBERG, TEXAS

OVERALL MASS GRADING

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

PLAT NO.	40166-20
JOB NO.	40166-21
DATE	MARCH 2018
DESIGNER	LS
CHECKED	JCV DRAWN ALL
SHEET	9 OF 44

PERMIT SET

Date: Mar 23, 2018, 3:53pm User ID: ANEWTON
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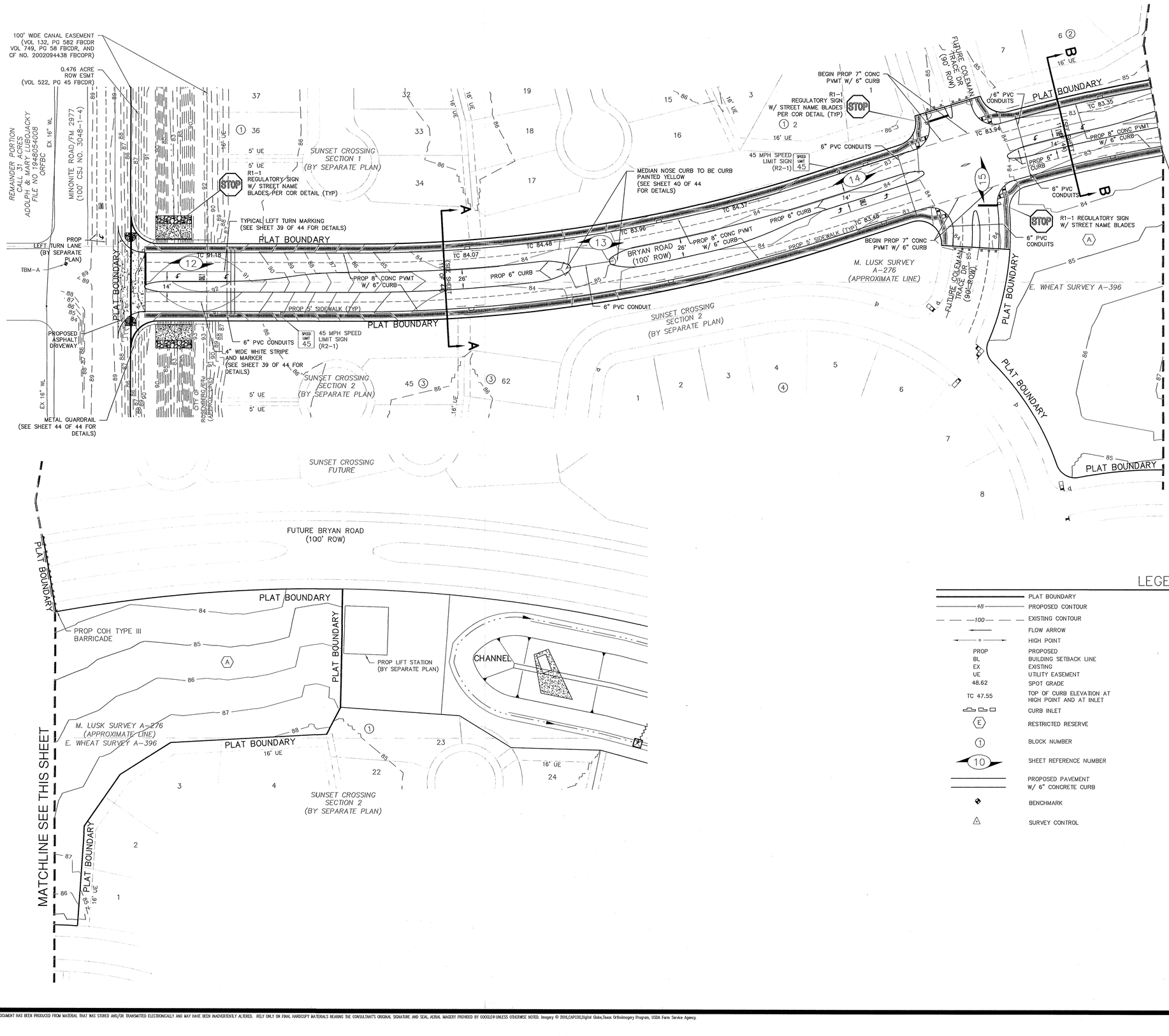

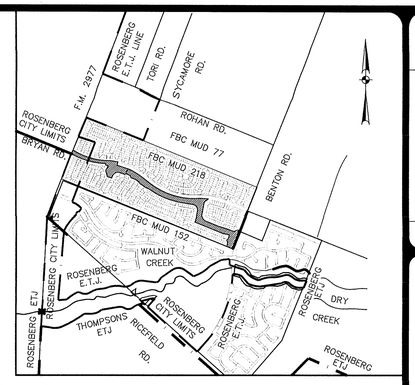

LOCATION MAP

SCALE: NTS
MAP REF: KEY MAP 691H

SCALE: 1"= 60'
0' 60' 120' 180'

BENCHMARK:

TBM-A
CUT 7" IN CONCRETE HEADWALL
N:13754207.4200 E: 3001494.1400 ELEV: 88.17'

FIRM FLOOD INSURANCE RATE MAP
FORT BEND COUNTY COMMUNITY
MAP 41857C0265L PANEL 265 OF 575,
DATED APRIL 2 2014.
BASE FLOOD ELEVATION = 78.5

NOTE:
WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.

LEGEND

PLAT BOUNDARY	TRAFFIC SIGN (PER COR DETAIL)
48 PROPOSED CONTOUR	CURB RAMP
100 EXISTING CONTOUR	EXISTING CURB RAMP
FLOW ARROW	COH TYPE III BARRICADE
HIGH POINT	1-6" PVC CONDUIT (IRRIGATION SVC)
PROP PROPOSED	DRY APPLICATION SEEDING IN ACCORDANCE WITH HCFCD SPECIFICATION 02921 (WITH STRAW MAT AND CURLEX EROSION CONTROL BLANKET)
BL BUILDING SETBACK LINE	
EX EXISTING	
UE UTILITY EASEMENT	
48.62 SPOT GRADE	
TC 47.55 TOP OF CURB ELEVATION AT HIGH POINT AND AT INLET	GRADE BREAK
CURB INLET	XX.XX MINIMUM FINISHED FLOOR ELEVATION
E RESTRICTED RESERVE	STOP SIGN/STREET NAME SIGN (PER COR DETAIL)
1 BLOCK NUMBER	ELEVATION BENCHMARK BRASS DISC IN CONCRETE
10 SHEET REFERENCE NUMBER	PROP 5' WIDE SIDEWALK, BUILT BY PAVING CONTRACTOR
PROPOSED PAVEMENT W/ 6" CONCRETE CURB	PROP 5' WIDE SIDEWALK, BUILT BY HOME BUILDER
BENCHMARK	
SURVEY CONTROL	

APPROVED
FORT BEND COUNTY
MAY 07 2018
Valid One Year From Date
ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1895

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

NO.	REVISION	DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
4/13/18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
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TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS

GRADING & PAVING LAYOUT

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED ____ DRAWN ALL

SHEET 10 OF 44

PERMIT SET

Date: Apr 13, 2018, 1:22pm User ID: dbrooke
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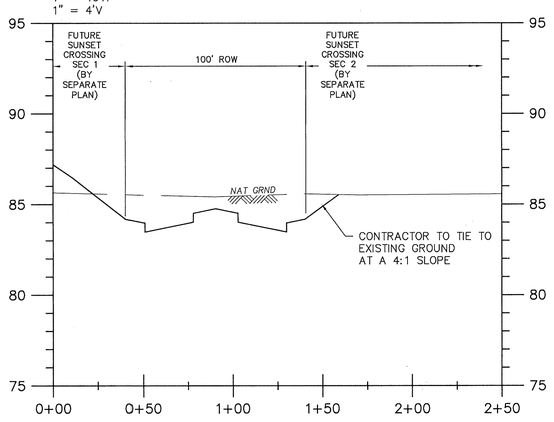
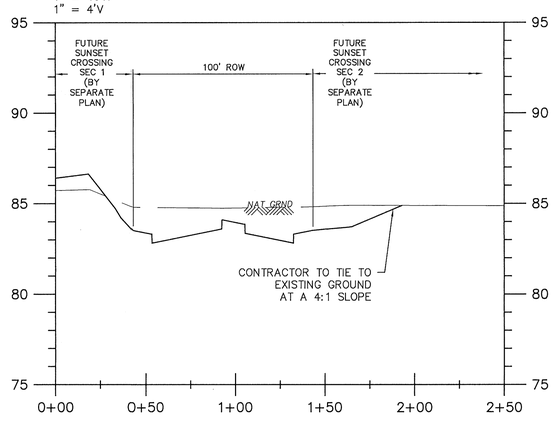
CROSS SECTION A–A

1" = 40'H
1" = 4'V



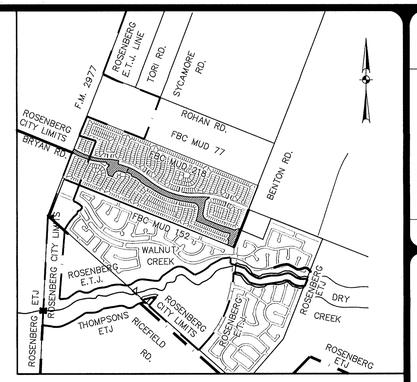
CROSS SECTION B–B

1" = 40'H
1" = 4'V



LEGEND

———	PLAT BOUNDARY
——48———	PROPOSED CONTOUR
PROP	PROPOSED
BL	BUILDING SETBACK LINE
EX	EXISTING
UE	UTILITY EASEMENT
———	PROPOSED PAVEMENT
———	W/ 6" CONCRETE CURB



LOCATION MAP

SCALE: NTS
MAP REF: KEY MAP 691H

SCALE: 1"= 60'

0' 60' 120' 180'

BENCHMARK:

TBM–A
CUT "X" IN CONCRETE HEADWALL
N:13754207.4200 E: 3001494.1400 ELEV: 88.17'

FIRM FLOOD INSURANCE RATE MAP
FORT BEND COUNTY COMMUNITY
MAP 41157C0265L PANEL 265 OF 575,
DATED APRIL 2 2014.
BASE FLOOD ELEVATION = 78.5

NOTE:
WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.

FORT BEND COUNTY
APPROVED
MAY 07 2018
Valid One Year From Date
ENGINEERING DEPARTMENT

FORT BEND COUNTY
APPROVED
MAY 07 2018
Valid One Year From Date
ENGINEERING DEPARTMENT

CITY OF ROSENBERG
FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

NO.	REVISION	DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
4/13/18

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TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE

CITY OF ROSENBERG, TEXAS

GRADING CROSS SECTIONS

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED ____ DRAWN ALL
SHEET 11 OF 44

PERMIT SET

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10+00
1~16" X 12" TS&V
1~10" GV & BOX
1~ 2" BOV & BOX

CURB POINT TABLE			
POINT:	STATION:	OFFSET:	ELEV:
1	11+20.26	8.665 R	91.05
2	11+20.26	3.335 R	91.16
3	11+47.85	13.000 R	91.17
4	11+47.85	−1.000 L	91.41
5	12+31.62	−1.000 L	91.46
6	13+08.95	−7.018 L	89.81
7'	13+88.95	−13.028 L	86.32
8	13+99.51	13.000 R	86.01
9	16+35.50	13.000 R	84.17
10	16+37.30	−13.000 L	84.18

CURB POINT TABLE			
POINT:	STATION:	OFFSET:	ELEV:
11	16+74.09	4.638 R	85.11
12	16+74.16	−4.806 L	85.10
13	17+31.88	−4.806 L	84.89
14	17+31.95	4.638 R	84.90
15	17+68.74	−13.000 L	83.92
16	17+70.54	13.000 R	83.92
17	18+61.42	13.000 R	83.97
18	19+60.28	5.532 R	84.72
19	20+00.00	2.000 R	84.06
20	20+10.45	−13.000 L	83.77

13+64
1~12" X 6" TEE
1~6" GV & BOX
1~FH

17+64
1~12" GV & BOX
1~10" GV & BOX

17+78
1~12" X 6" TEE
1~6" GV & BOX
1~FH

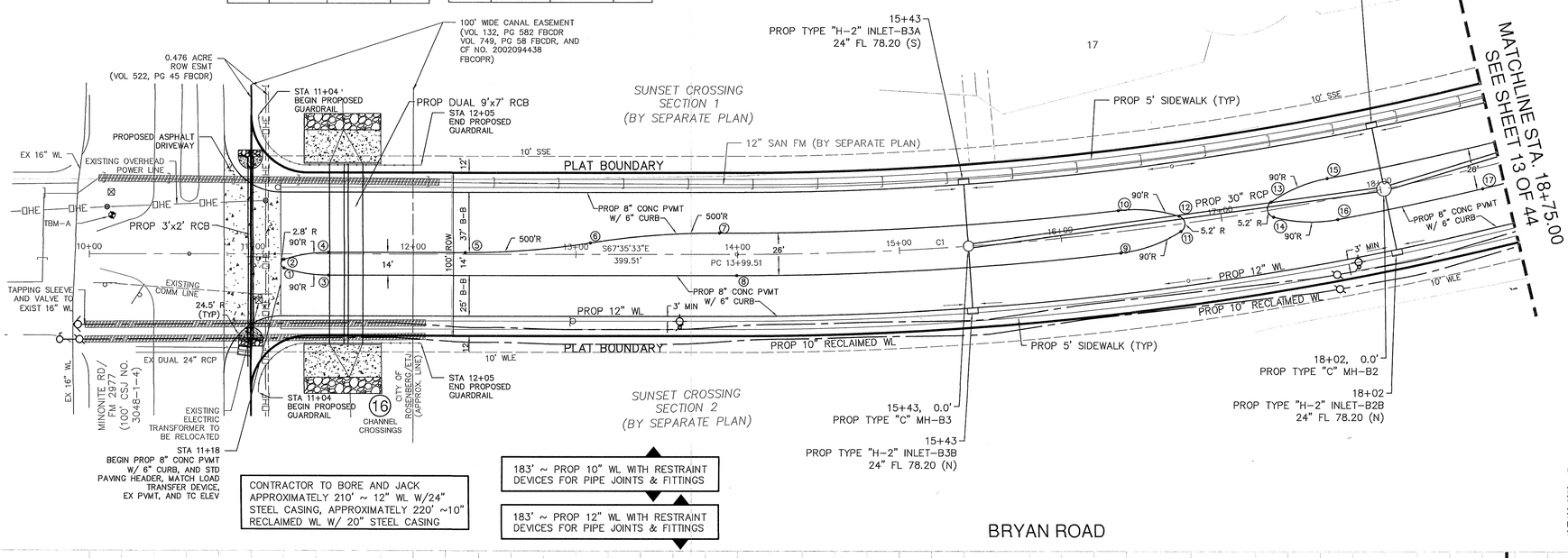
CL CURVE DATA 1
PC = 13.+99.51
△ = 17°30'08"
R = 2000.00'
L = 610.94'
PT = 20+10.45

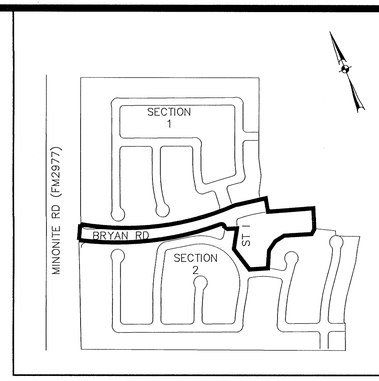
BENCHMARK:

TBM–A
CUT "X" IN CONCRETE HEADWALL
N:13754207.4200 E: 3001494.1400 ELEV: 88.17'

FIRM FLOOD INSURANCE RATE MAP
FORT BEND COUNTY COMMUNITY
MAP 48157C0265L PANEL 265 OF 575,
DATED APRIL 2 2014,
BASE FLOOD ELEVATION = 78.5

WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.





LOCATION MAP

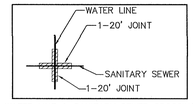
SCALE: NTS
MAP REF: KEY MAP 691H

SCALE: 1"= 40'
0' 40' 80' 120'

ALL WATERLINE FITTINGS (EXCEPT FITTINGS FOR STEEL PIPE) SHALL BE MECHANICAL JOINTS

WATER METER SHALL BE SET ONE (1) FOOT INSIDE ROW OR IN ADJACENT WATER LINE EASEMENT

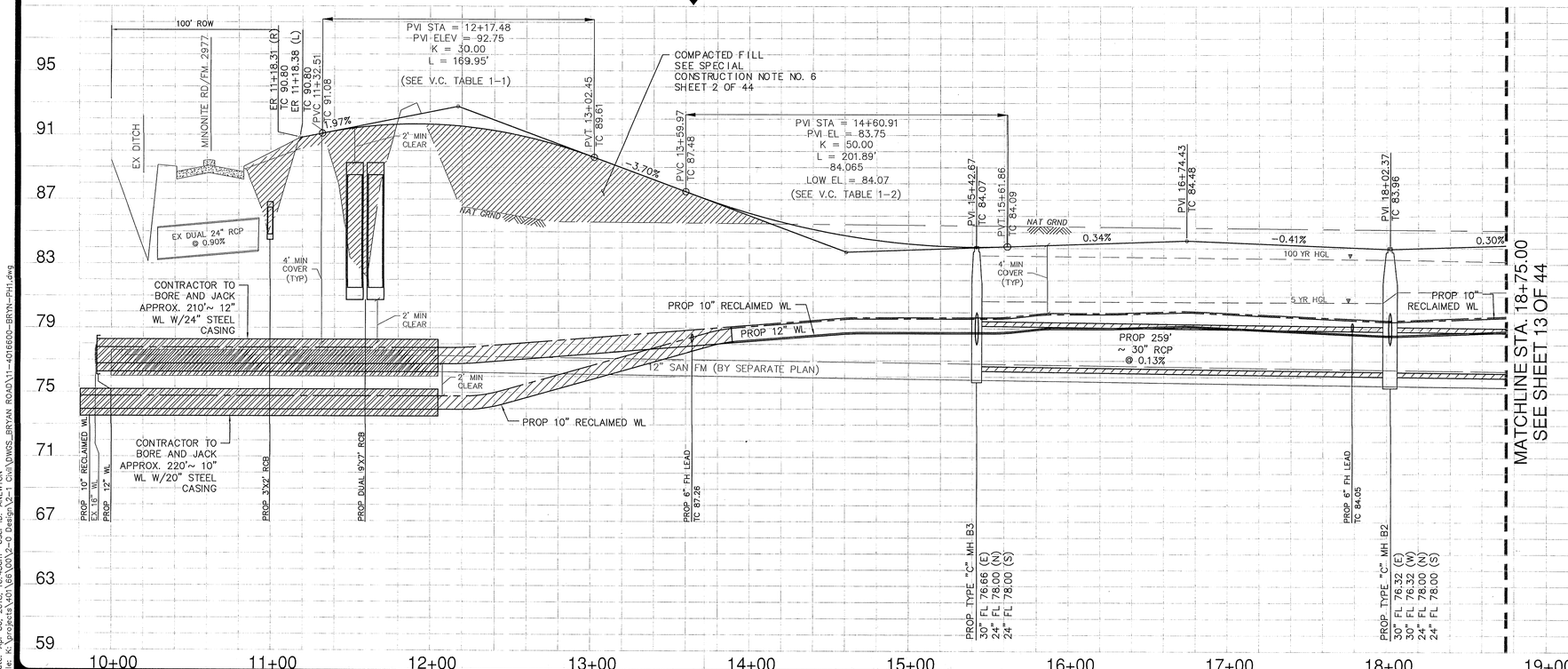
CONTRACTOR TO TRANSITION CURB HEIGHT AT EACH INLET FROM 4" TO 6" BEGINNING 10' EITHER SIDE OF INLET OPENING AS PER "TYPICAL CURB TRANSITION" DETAIL ON SHEET 38 OF 44.



WATER LINE & SANITARY SEWER CROSSING SEE NOTE #7 OF SPECIAL CONSTRUCTION NOTES SHEET 2 OF 44.

SPECIAL BACKFILL REQUIREMENTS FOR STORM SEWER AND SANITARY SEWER LATERALS:
ALL SANITARY SEWER LEADS CROSSING STORM SEWER, WITH A CLEARANCE OF 1–FOOT OR LESS, MUST BE BACKFILLED WITH CEMENT STABILIZED SAND BETWEEN THE TWO UTILITIES.

HORIZONTAL SCALE 1" = 40' H
VERTICAL SCALE: 1" = 4' V



VERTICAL CURVE TABLE 1–1	
Station	Elevation
11+32.51	91.078'
11+42.51	91.258'
11+52.51	91.405'
11+62.51	91.518'
11+72.51	91.598'
11+82.51	91.645'
11+92.51	91.659'
12+02.51	91.639'
12+12.51	91.585'
12+17.48	91.547'
12+22.51	91.499'
12+32.51	91.379'
12+42.51	91.226'
12+52.51	91.039'
12+62.51	90.819'
12+72.51	90.566'
12+82.51	90.279'
12+92.51	89.960'
13+02.45	89.609'

VERTICAL CURVE TABLE 1–2	
Station	Elevation
13+59.97	87.482'
13+69.97	87.122'
13+79.97	86.783'
13+89.97	86.463'
13+99.97	86.163'
14+09.97	85.883'
14+19.97	85.624'
14+29.97	85.384'
14+39.97	85.164'
14+49.97	84.965'
14+59.97	84.785'
14+60.91	84.769'
14+69.97	84.625'
14+79.97	84.485'
14+89.97	84.366'
14+99.97	84.266'
15+09.97	84.186'
15+19.97	84.127'
15+29.97	84.087'
15+39.97	84.067'
15+49.97	84.068'
15+59.97	84.088'
15+61.86	84.094'
15+61.86	84.094'

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

PERMIT SET

NO. REVISION DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
4/30/18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE

CITY OF ROSENBERG, TEXAS

P&P - BRYAN RD (STA BEGIN TO 18+75)

PLAT NO. 40166–20
JOB NO. 40166–21
DATE MARCH 2018
DESIGNER LS
CHECKED ___ DRAWN ALL
SHEET 12 OF 44

Date: Apr 30, 2018, 10:45am User ID: ANEWTON
File: K:\projects\40166\00\2–0 Design\2–1 Civil\DWGS_BRYAN ROAD\11–40166OO–BRYN–PH1.dwg

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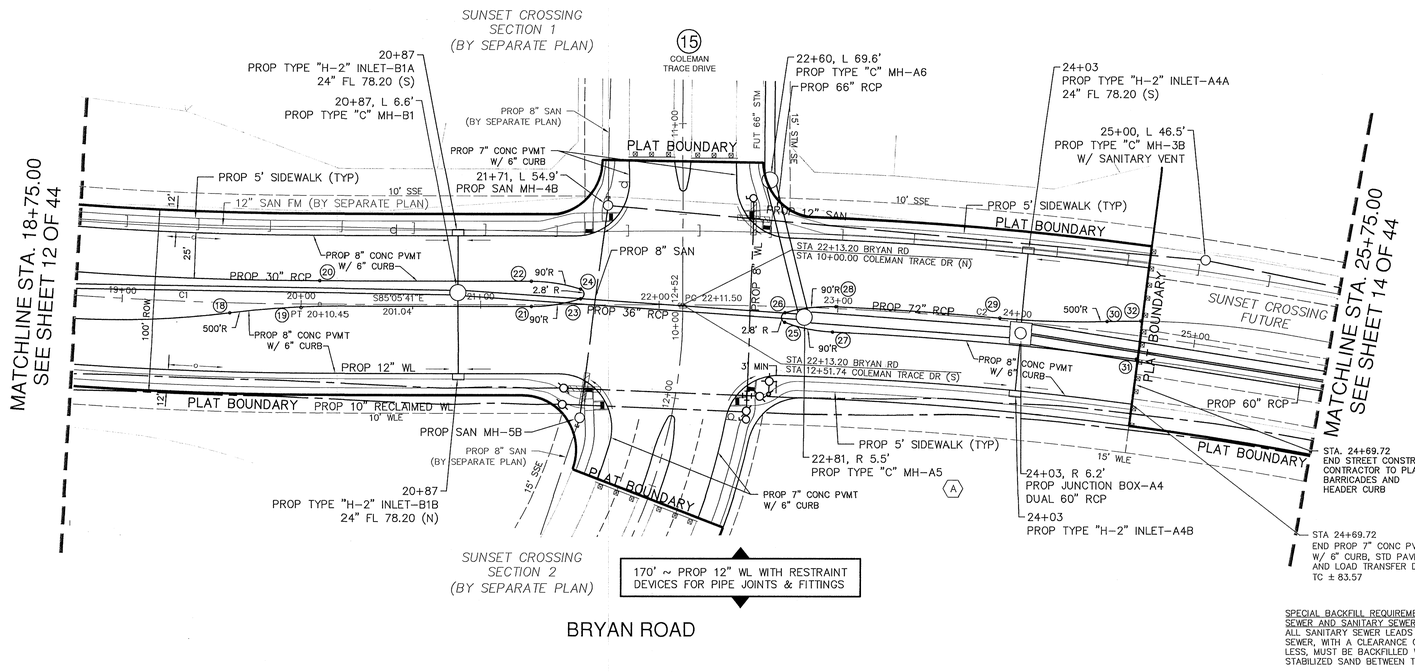
CL CURVE DATA 1
PC = 13.+99.51
Δ = 17°30'08"
R = 2000.00'
L = 610.94'
PT = 20+10.45

CL CURVE DATA 2
PC = 22+11.50
Δ = 33°30'07"
R = 2000.00'
L = 1169.443'
PT = 33+80.94

21+50
1~12" GV & BOX
1~10" GV & BOX

22+45
1~ 12" x 8" CROSS
1~12" GV & BOX

22+62
1~12" X 6" TEE
1~6" GV & BOX
1~FH



BENCHMARK:

TBM-A
CUT "X" IN CONCRETE HEADWALL
N:13754207.4200 E: 3001494.1400 ELEV: 88.17'

FIRM FLOOD INSURANCE RATE MAP
FORT BEND COUNTY COMMUNITY
MAP 48157C0265L PANEL 265 OF 575,
DATED APRIL 2, 2014.
BASE FLOOD ELEVATION = 78.5

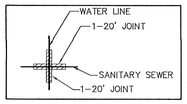
WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.

CURB POINT TABLE			
POINT:	STATION:	OFFSET:	ELEV:
11	16+74.09	4.638 R	85.11
12	16+74.16	-4.806 L	85.10
13	17+31.88	-4.806 L	84.89
14	17+31.95	4.638 R	84.90
15	17+68.74	-13.000 L	83.92
16	17+70.54	13.000 R	83.92
17	18+61.42	13.000 R	83.97
18	19+60.28	5.532 R	84.72
19	20+00.00	2.000 R	84.06
20	20+10.45	-13.000 L	83.77

CURB POINT TABLE			
POINT:	STATION:	OFFSET:	ELEV:
21	21+28.40	1.000 R	83.70
22	21+28.40	-13.000 L	83.46
23	21+56.00	-3.335 L	84.52
24	21+56.00	-8.665 L	84.41
25	22+70.50	8.715 R	84.30
26	22+70.53	3.385 R	84.55
27	22+97.49	13.000 R	83.51
28	22+98.94	-1.000 L	83.74
29	23+90.45	-1.000 L	83.46
30	24+50.32	-5.514 L	83.48

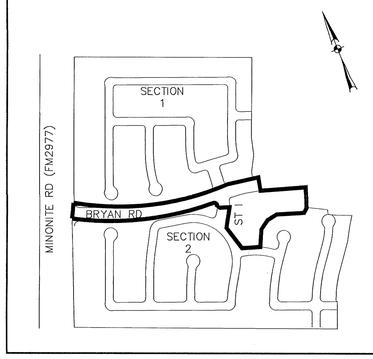
CURB POINT TABLE			
POINT:	STATION:	OFFSET:	ELEV:
31	24+68.96	13.000 R	83.39
32	24+68.97	-8.075 L	83.93

SPECIAL BACKFILL REQUIREMENTS FOR STORM SEWER AND SANITARY SEWER LATERALS:
ALL SANITARY SEWER LEADS CROSSING STORM SEWER, WITH A CLEARANCE OF 1-FOOT OR LESS, MUST BE BACKFILLED WITH CEMENT STABILIZED SAND BETWEEN THE TWO UTILITIES.



WATER LINE & SANITARY SEWER CROSSING SEE NOTE #7 OF SPECIAL CONSTRUCTION NOTES SHEET 2 OF 44.

NOTE:
1. WATER METERS SHALL END 1 FOOT WITHIN WLE OR ROW.
2. CROSS SLOPES THROUGH INTERSECTION SHALL NOT EXCEED 2% IN ACCORDANCE WITH ADA REQUIREMENTS AS LISTED IN CH 4 OF TAS.
3. JUNCTION BOXES TO HAVE MANHOLE ACCESS



LOCATION MAP

SCALE: NTS
MAP REF: KEY MAP 691H

SCALE: 1"= 40'
0' 40' 80' 120'

NOTE:
1. WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.
2. JUNCTION BOXES TO HAVE MANHOLE ACCESS

ALL WATERLINE FITTINGS (EXCEPT FITTINGS FOR STEEL PIPE) SHALL BE MECHANICAL JOINTS

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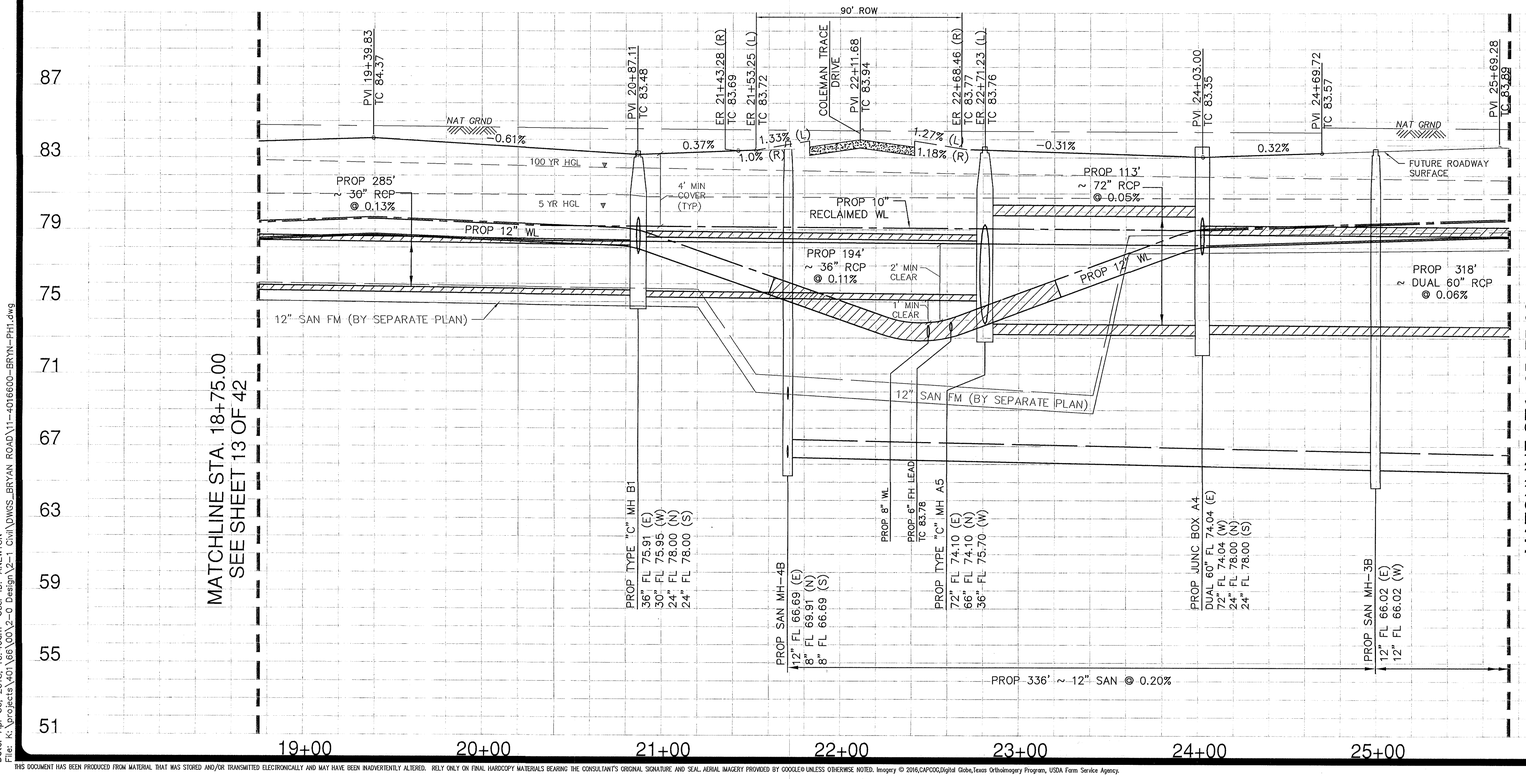
CONTRACTOR TO TRANSITION CURB HEIGHT AT EACH INLET FROM 4" TO 6" BEGINNING 10' EITHER SIDE OF INLET OPENING AS PER "TYPICAL CURB TRANSITION" DETAIL ON SHEET 38 OF 44.

SEE SHEET 32 OF 44 FOR SANITARY SEWER INTERIOR DROP DETAIL AT MANHOLES.

HORIZONTAL SCALE 1" = 40' H
VERTICAL SCALE: 1" = 4' V



FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR
DATE: _____

PERMIT SET

NO. REVISION DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED
PROFESSIONAL ENGINEER
4/30/18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
P&P - BRYAN RD (STA 18+75 TO 25+75)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED ____ DRAWN ALL
SHEET 13 OF 44

Date: Apr 30, 2018, 10:46am User ID: ANEWTON
File: K:\projects\40166\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\11-4016600-BRYN-PHI.dwg

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CL CURVE DATA 2
PC = 20+11.50
Δ = 33°30'07"
R = 2000.00'
L = 1169.443'
PT = 33+80.94

27+66
1~12" X 6" TEE
1~6" GV & BOX
1~FH

29+90
2~ 2" BOV & BOX
1~12" GV & BOX
1~10" GV & BOX

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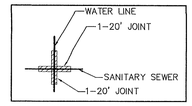
CONTRACTOR TO TRANSITION CURB HEIGHT AT EACH INLET FROM 4" TO 6" BEGINNING 10' EITHER SIDE OF INLET OPENING AS PER "TYPICAL CURB TRANSITION" DETAIL ON SHEET 38 OF 44.

BENCHMARK:

TBM–A
CUT "X" IN CONCRETE HEADWALL
N:13754207.4200 E: 3001494.1400 ELEV: 88.17'

FIRM FLOOD INSURANCE RATE MAP
FORT BEND COUNTY COMMUNITY
MAP 48157C0245L PANEL 245 OF 575
DATED APRIL 2, 2014
BASE FLOOD ELEVATION = 78.5

WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.



WATER LINE & SANITARY SEWER CROSSING
SEE NOTE #7 OF SPECIAL CONSTRUCTION NOTES SHEET 2 OF 44.

NOTE:
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2. JUNCTION BOX TO HAVE MANHOLE ACCESS

SPECIAL BACKFILL REQUIREMENTS FOR STORM SEWER AND SANITARY SEWER LATERALS:
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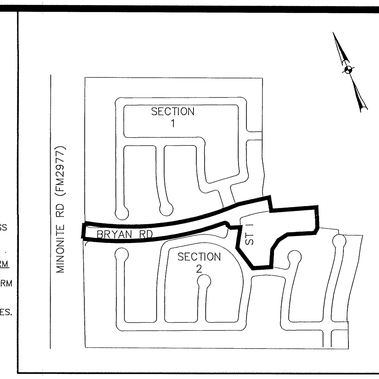
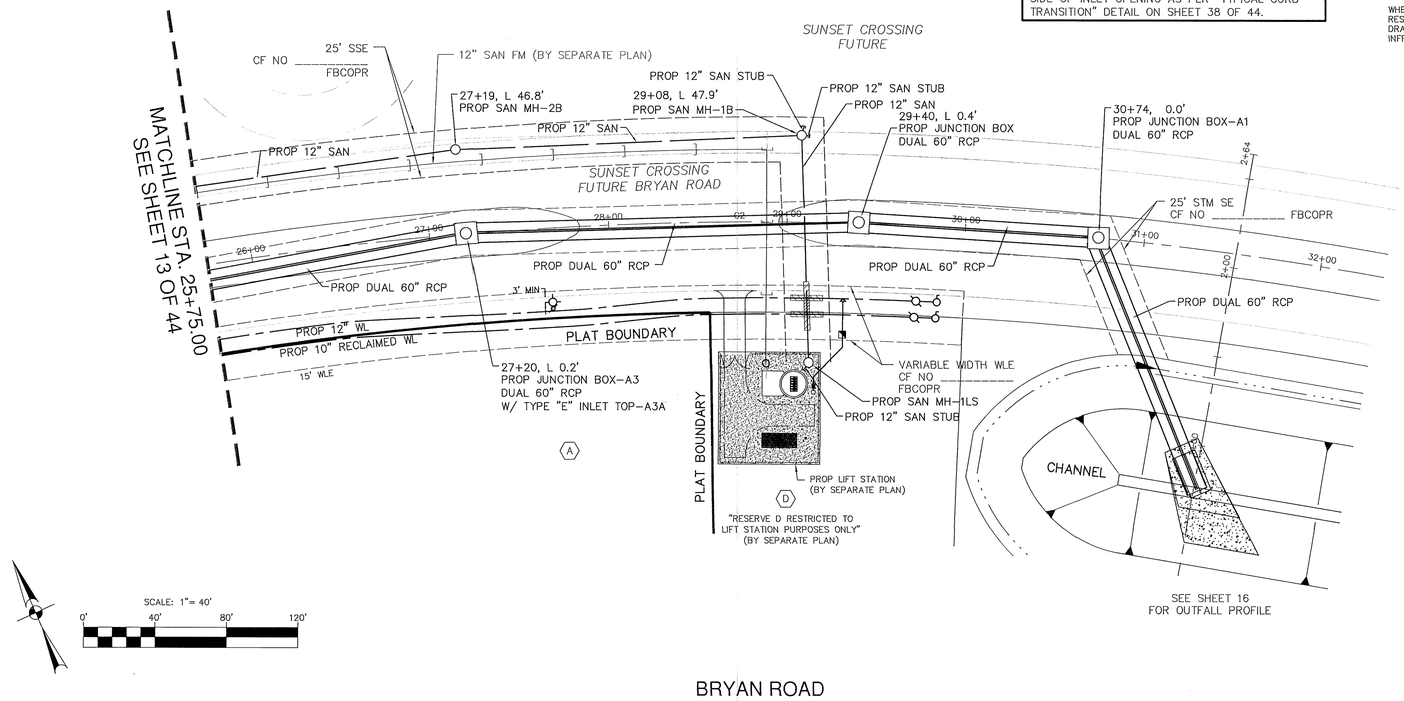
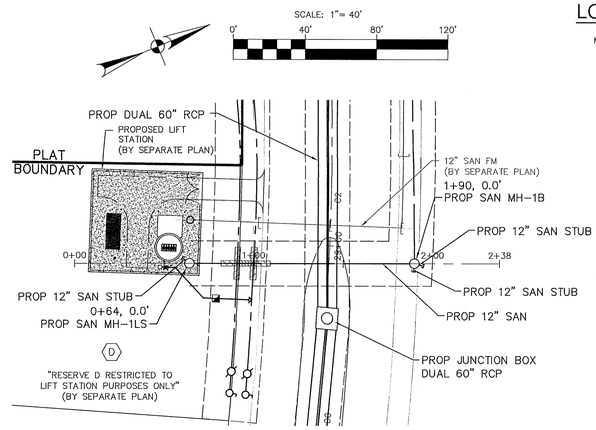


LOCATION MAP
SCALE: NTS
MAP REF: KEY MAP 691H



SCALE: 1"= 40'
0' 40' 80' 120'

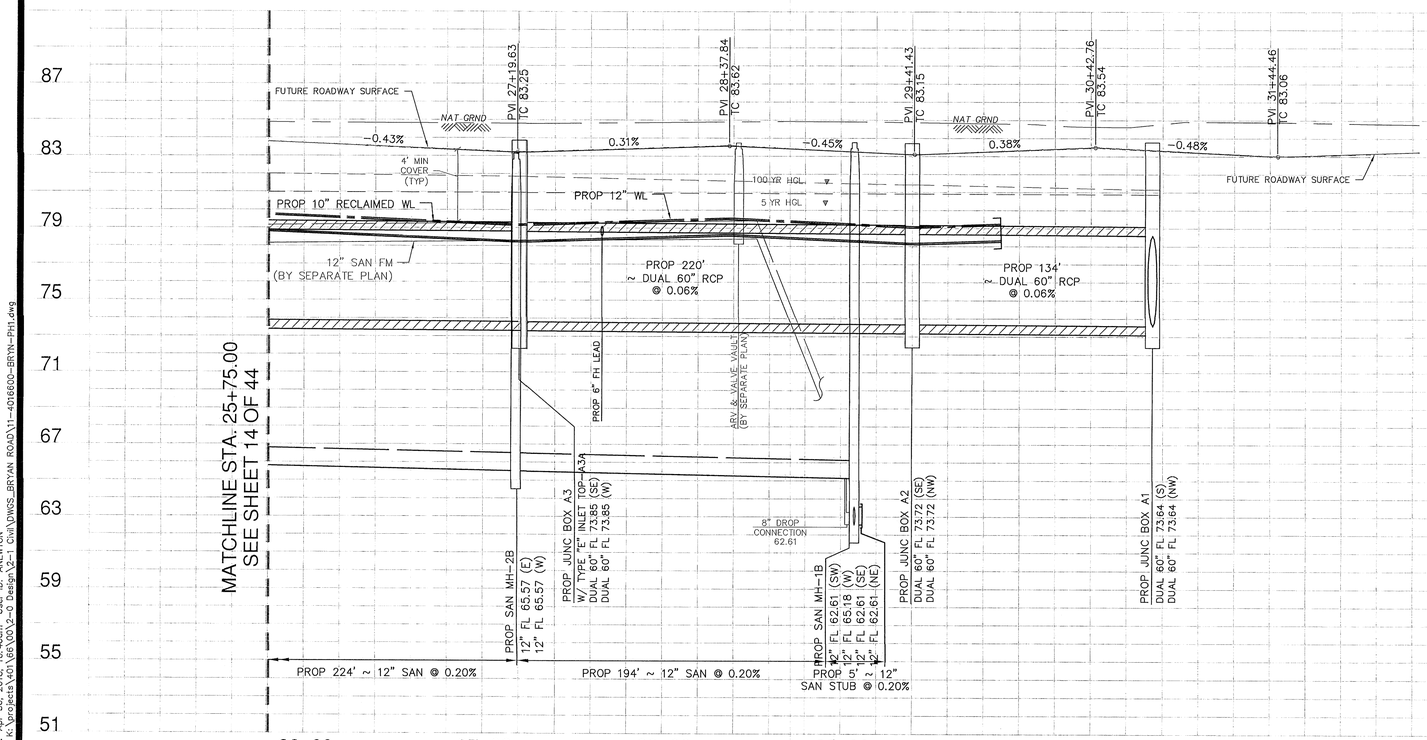


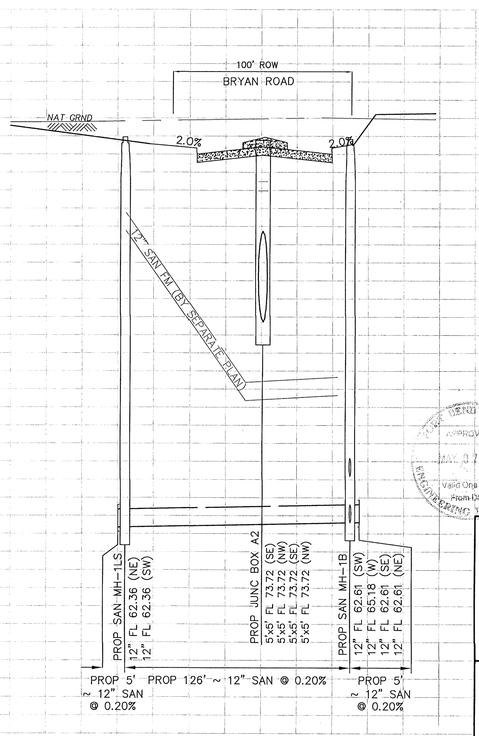
SCALE: 1"= 40'
0' 40' 80' 120'

BRYAN ROAD LIFT STATION

HORIZONTAL SCALE 1" = 40' H
VERTICAL SCALE: 1" = 4' V

BRYAN ROAD





HORIZONTAL SCALE 1" = 40' H
VERTICAL SCALE: 1" = 4' V

FORT BEND COUNTY
APPROVED
MAY 07 2018
Valid One Year
From Date
ENGINEERING DEPARTMENT

FORT BEND COUNTY
APPROVED
MAY 07 2018
Valid One Year
From Date
ENGINEERING DEPARTMENT

CITY OF ROSENBERG
FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

PERMIT SET

NO.	REVISION	DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED
PROFESSIONAL ENGINEER

4/30/18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
P&P - BRYAN RD (STA 25+75 TO END)

PLAT NO. 40166–20
JOB NO. 40166–21
DATE MARCH 2018
DESIGNER LS
CHECKED ____ DRAWN ALL
SHEET 14 OF 44

Date: Apr 30, 2018, 10:46am User ID: ANEWTON
File: K:\Projects\401660\03-0 Design\2-1 Civil\DWGS_BRYAN ROAD\11-4016600-BRYN-Phtl.dwg
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COLEMAN TRACE DR (SOUTH)
12+03
1~ 8" GV & BOX
1~ 2" BOV & BOX

COLEMAN TRACE DR (NORTH)
12+03
1~ 2" BOV & BOX

CL CURVE DATA 1
PC = 9+45.00
Δ = 58°34'57"
R = 300.00'
L = 306.737'
PT = 12+51.74

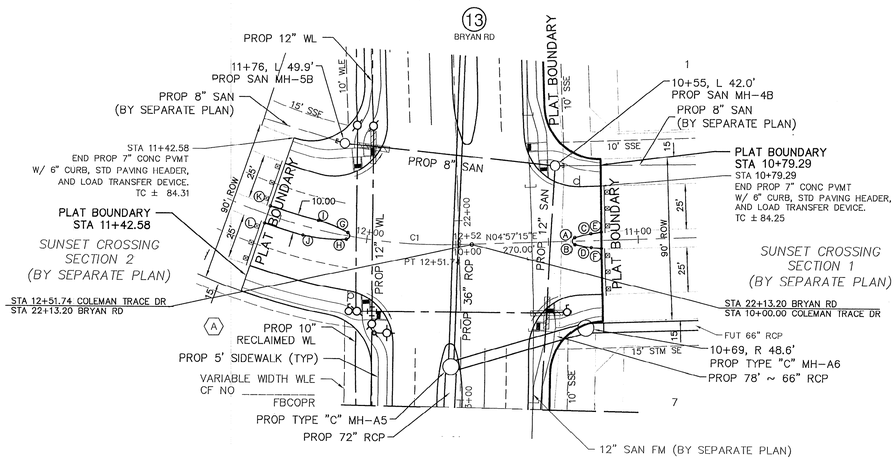
BENCHMARK:

TBM-A
CUT "X" IN CONCRETE HEADWALL
N:13754207.4200 E: 3001494.1400 ELEV: 88.17'

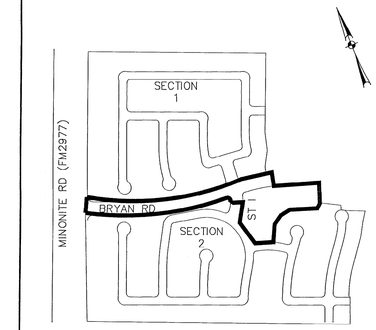
FIRM FLOOD INSURANCE RATE MAP
FORT BEND COUNTY COMMUNITY
MAP 48157C0265L PANEL 265 OF 575,
DATED APRIL 2 2014.
BASE FLOOD ELEVATION = 78.5

WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.

CURB POINT TABLE				
	POINT	STATION:	OFFET:	ELEV:
COLEMAN TRACE DR (NORTH)	A	10+64.45	-1.932	84.94
	B	10+64.45	1.932	84.92
	C	10+73.53	-3.870	84.90
	D	10+73.53	3.870	84.89
	E	10+79.36	-4.608	84.41
	F	10+79.23	4.595	84.41
COLEMAN TRACE DR (SOUTH)	G	11+88.85	-1.909	84.93
	H	11+88.69	1.951	84.91
	I	11+71.12	-5.000	84.89
	J	11+64.69	5.000	84.45
	K	11+42.58	-5.000	84.34
	L	11+42.58	5.000	84.33



124' ~ PROP 12" WL WITH RESTRAINT DEVICES FOR PIPE JOINTS & FITTINGS



LOCATION MAP

SCALE: NTS
MAP REF: KEY MAP 691H

SCALE: 1"= 40'
0' 40' 80' 120'

ALL WATERLINE FITTINGS (EXCEPT FITTINGS FOR STEEL PIPE) SHALL BE MECHANICAL JOINTS

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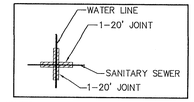
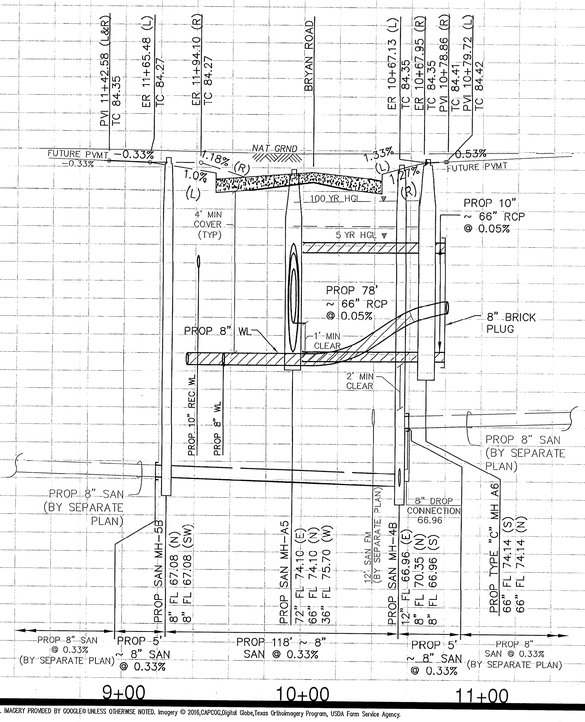


WATER LINE & SANITARY SEWER CROSSING SEE NOTE #7 OF SPECIAL CONSTRUCTION NOTES SHEET 2 OF 44.

SPECIAL BACKFILL REQUIREMENTS FOR STORM SEWER AND SANITARY SEWER LATERALS:
ALL SANITARY SEWER LEADS CROSSING STORM SEWER, WITH A CLEARANCE OF 1-FOOT OR LESS, MUST BE BACKFILLED WITH CEMENT STABILIZED SAND BETWEEN THE TWO UTILITIES.

COLEMAN TRACE DRIVE

HORIZONTAL SCALE 1" = 40' H
VERTICAL SCALE: 1" = 4' V



FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

PERMIT SET

NO. REVISION | DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
4/30/18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10850 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
P&P - COLEMAN TRACE DRIVE

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED ____ DRAWN ALL
SHEET 15 OF 44

Date: Apr 30, 2018, 10:57am User ID: ANEWTON
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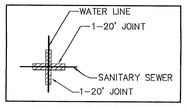
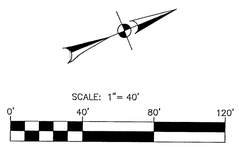
SPECIAL BACKFILL REQUIREMENTS FOR STORM SEWER AND SANITARY SEWER LATERALS:
ALL SANITARY SEWER LEADS CROSSING STORM SEWER, WITH A CLEARANCE OF 1-FOOT OR LESS, MUST BE BACKFILLED WITH CEMENT STABILIZED SAND BETWEEN THE TWO UTILITIES.



WATER LINE & SANITARY SEWER CROSSING
SEE NOTE #7 OF SPECIAL CONSTRUCTION NOTES SHEET 2 OF 44.



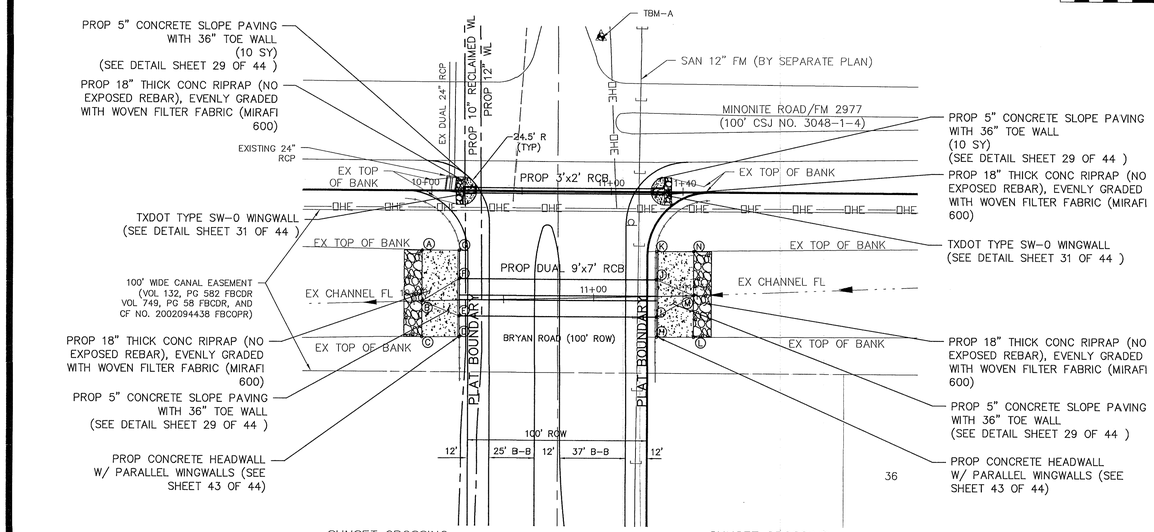
BENCHMARK:

TBM-A
CUT "X" IN CONCRETE HEADWALL
N:13754207.4200 E: 3001494.1400 ELEV: 88.17'

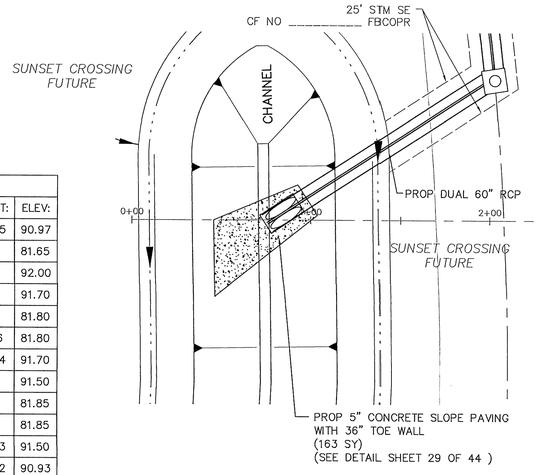
FIRM FLOOD INSURANCE RATE MAP
FORT BEND COUNTY COMMUNITY
MAP 48157C0265L PANEL 265 OF 575,
DATED APRIL 2 2014,
BASE FLOOD ELEVATION = 78.5

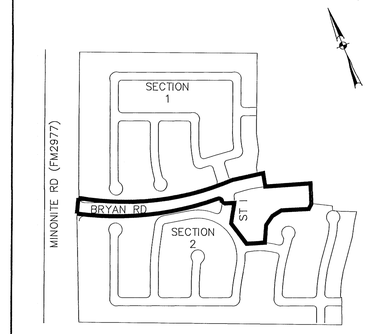
NOTES:
1. WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.

2. JUNCTION BOX TO HAVE MANHOLE ACCESS

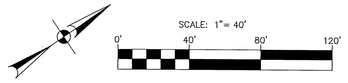


POINT TABLE			
POINT:	STATION:	OFFSET:	ELEV:
A	10+05.09	−27.95	90.97
B	10+04.40	0.08	81.65
C	10+03.91	19.80	92.00
D	10+24.66	20.24	91.70
E	10+24.94	8.74	81.80
F	10+25.44	−11.76	81.80
G	10+25.83	−27.44	91.70
H	11+34.63	22.58	91.50
I	11+34.91	11.45	81.85
J	11+35.41	−9.06	81.85
K	11+35.80	−24.73	91.50
N	11+56.54	−24.22	90.93
M	11+55.94	0.03	82.03
L	11+55.38	23.02	92.00





LOCATION MAP
SCALE: NTS
MAP REF: KEY MAP 691H

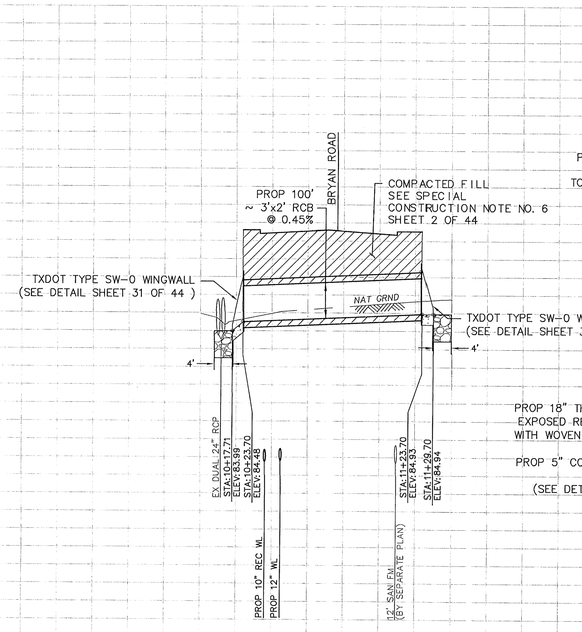


ALL WATERLINE FITTINGS (EXCEPT FITTINGS FOR STEEL PIPE) SHALL BE RESTRAINT MECHANICAL JOINTS

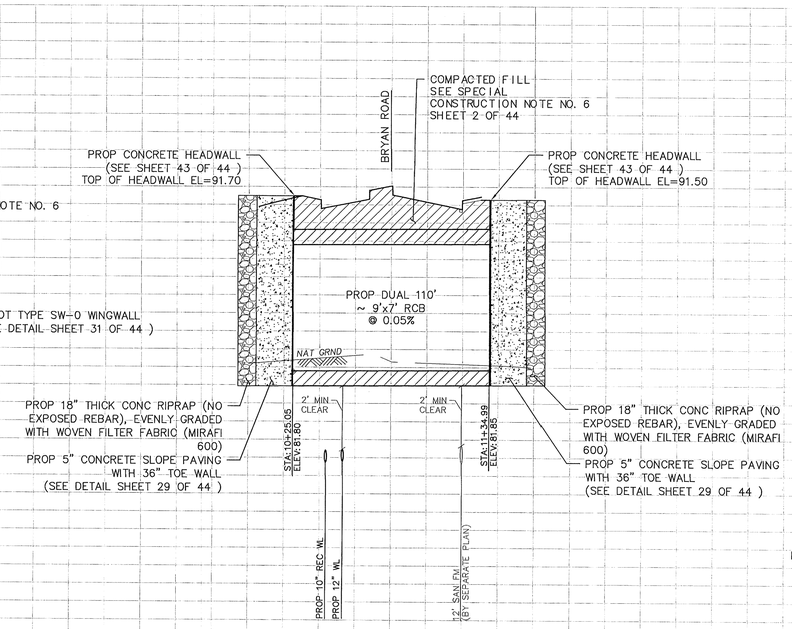
WATER METER SHALL BE SET ONE (1) FOOT INSIDE ROW OR IN ADJACENT WATER LINE EASEMENT

CONTRACTOR TO TRANSITION CURB HEIGHT AT EACH INLET FROM 4" TO 6" BEGINNING 10' EITHER SIDE OF INLET OPENING AS PER "TYPICAL CURB TRANSITION" DETAIL ON SHEET 38 OF 44.

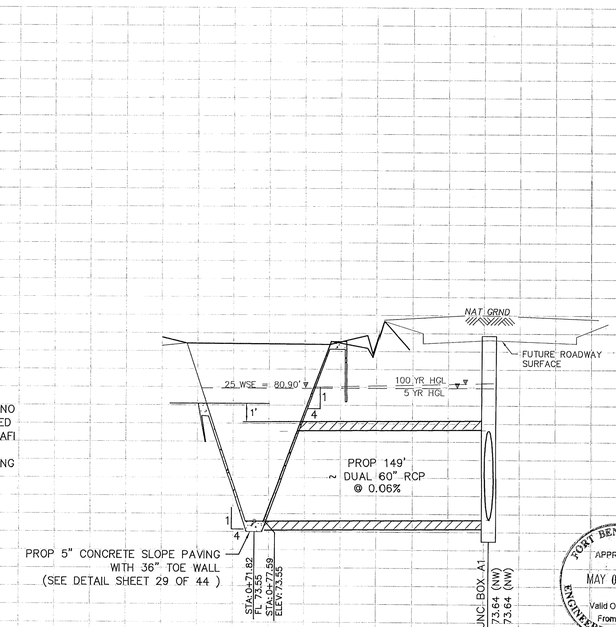
CHANNEL CROSSING



IRRIGATION CANAL CROSSING



BRYAN ROAD OFFSITE DRAIN



HORIZONTAL SCALE 1" = 40' H
VERTICAL SCALE: 1" = 4' V

FORT BEND COUNTY
APPROVED
MAY 07 2018
Valid One Year From Date
ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY DEVELOPMENT COORDINATOR
DATE: _____

NO. REVISION | DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
4/30/18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
P&P - CHANNEL CROSSINGS

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED ___ DRAWN ALL
SHEET 16 OF 44

PERMIT SET

Date: Apr 30, 2018, 11:04am User ID: ANEWTON
File: K:\Projects\401\66\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\12-4016600-STRM-OUTFALL.dwg
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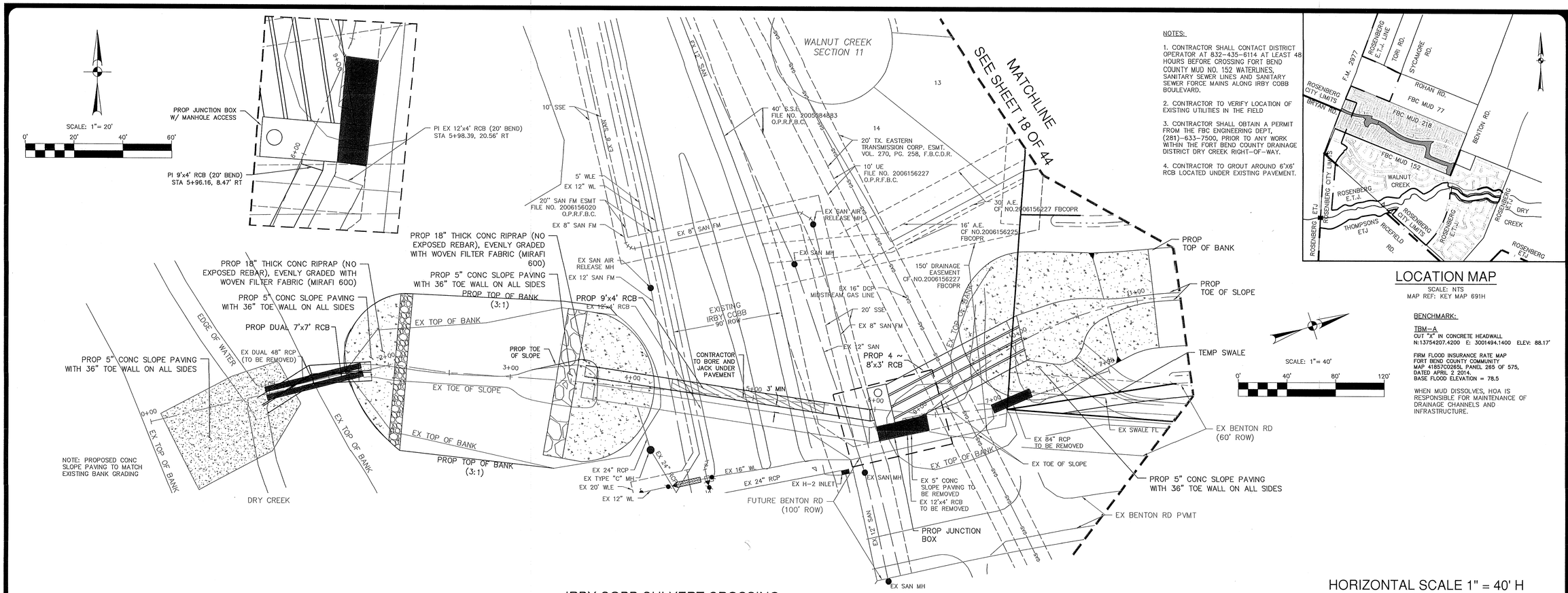


NOTES:

1. CONTRACTOR SHALL CONTACT DISTRICT OPERATOR AT 832-435-6114 AT LEAST 48 HOURS BEFORE CROSSING FORT BEND COUNTY MUD NO. 152 WATERLINES, SANITARY SEWER LINES AND SANITARY SEWER FORCE MAINS ALONG IRBY COBB BOULEVARD.

2. CONTRACTOR TO VERIFY LOCATION OF EXISTING UTILITIES IN THE FIELD

3. CONTRACTOR SHALL OBTAIN A PERMIT FROM THE FBC ENGINEERING DEPT, (281)-633-7500, PRIOR TO ANY WORK WITHIN THE FORT BEND COUNTY DRAINAGE DISTRICT DRY CREEK RIGHT-OF-WAY.

4. CONTRACTOR TO GROUT AROUND 6'X6' RCB LOCATED UNDER EXISTING PAVEMENT.

LOCATION MAP

SCALE: NTS
MAP REF: KEY MAP 691H

BENCHMARK:

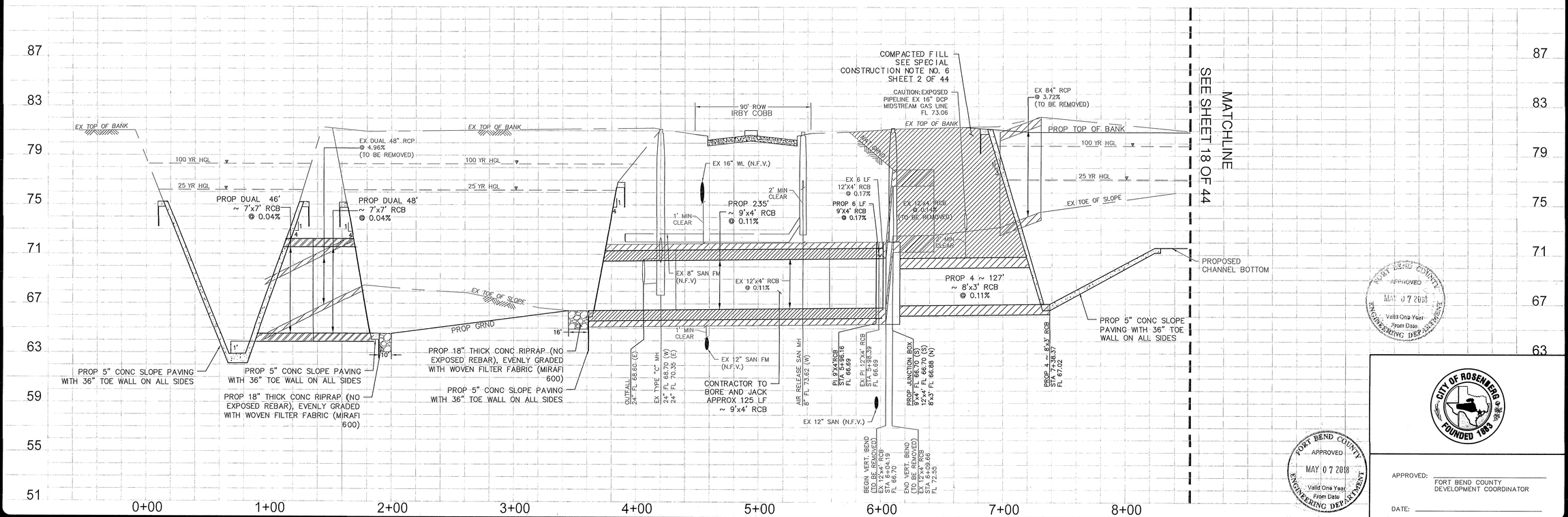
TBM-A
CUT "X" IN CONCRETE HEADWALL
N:13754207.4200 E: 3001494.1400 ELEV: 88.17'

FIRM FLOOD INSURANCE RATE MAP
FORT BEND COUNTY COMMUNITY
MAP 41857C0265L PANEL 265 OF 575,
DATED APRIL 2 2014.
BASE FLOOD ELEVATION = 78.5

WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.

IRBY COBB CULVERT CROSSING

HORIZONTAL SCALE 1" = 40' H
VERTICAL SCALE: 1" = 4' V



FORT BEND COUNTY
APPROVED
MAY 07 2018
Valid One Year From Date
ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

NO. REVISION DATE

ROBERT M. PREISS
92978
LICENSED
PROFESSIONAL ENGINEER
4/13/18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE

CITY OF ROSENBERG, TEXAS

IRBY COBB CULVERT CROSSING

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED ___ DRAWN ALL
SHEET 17 OF 44

PERMIT SET

Date: Apr 13, 2018, 1:17pm User ID: JBrooks
File: K:\projects\40166\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\11A-40166-00-CULVERT CROSSING.dwg
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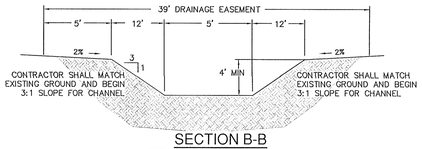
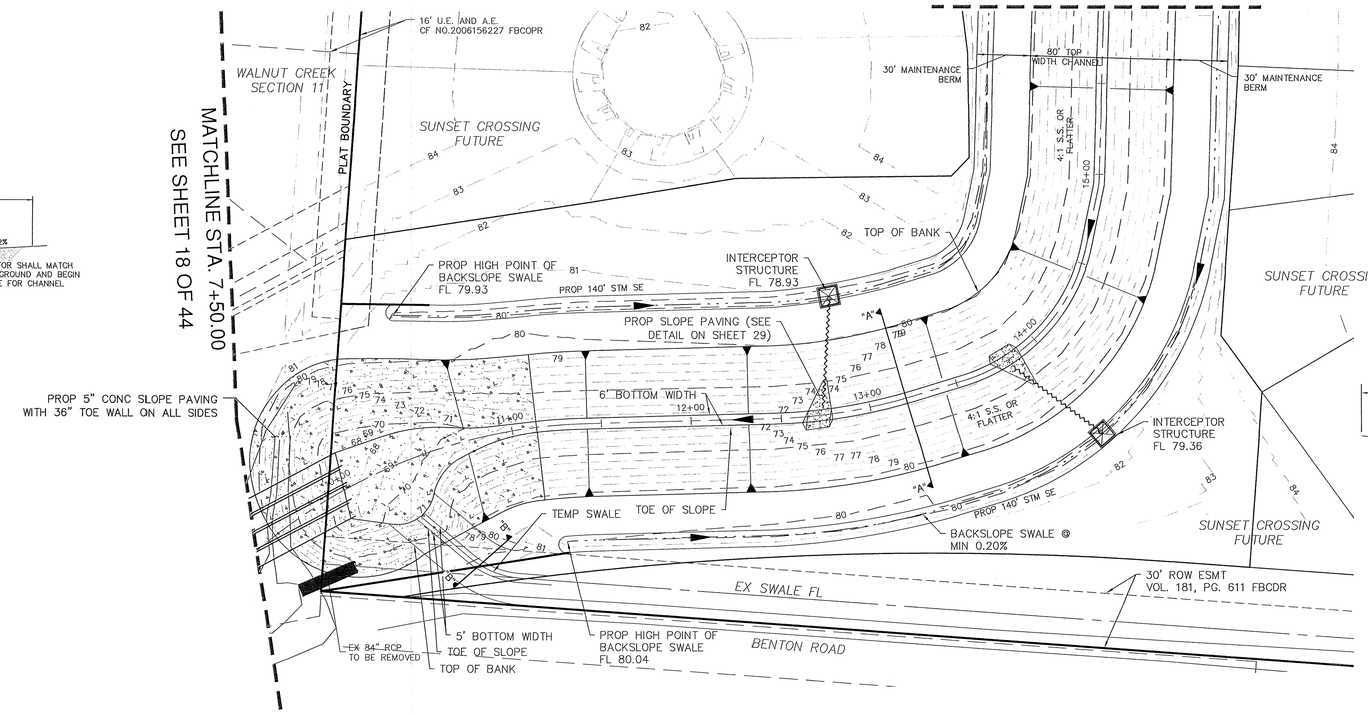


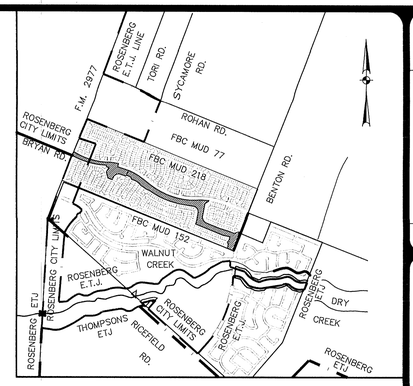
SECTION B-B
TEMPORARY SWALE
NOT-TO-SCALE

MATCHLINE STA. 15+75.00
SEE SHEET 19 OF 44

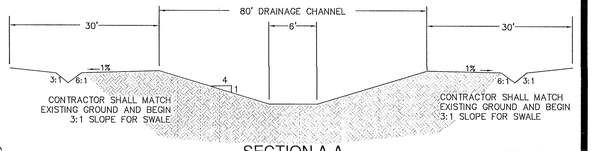
MATCHLINE STA. 7+50.00
SEE SHEET 18 OF 44



BRYAN ROAD CHANNEL



LOCATION MAP
SCALE: NTS
MAP REF: KEY MAP 691H



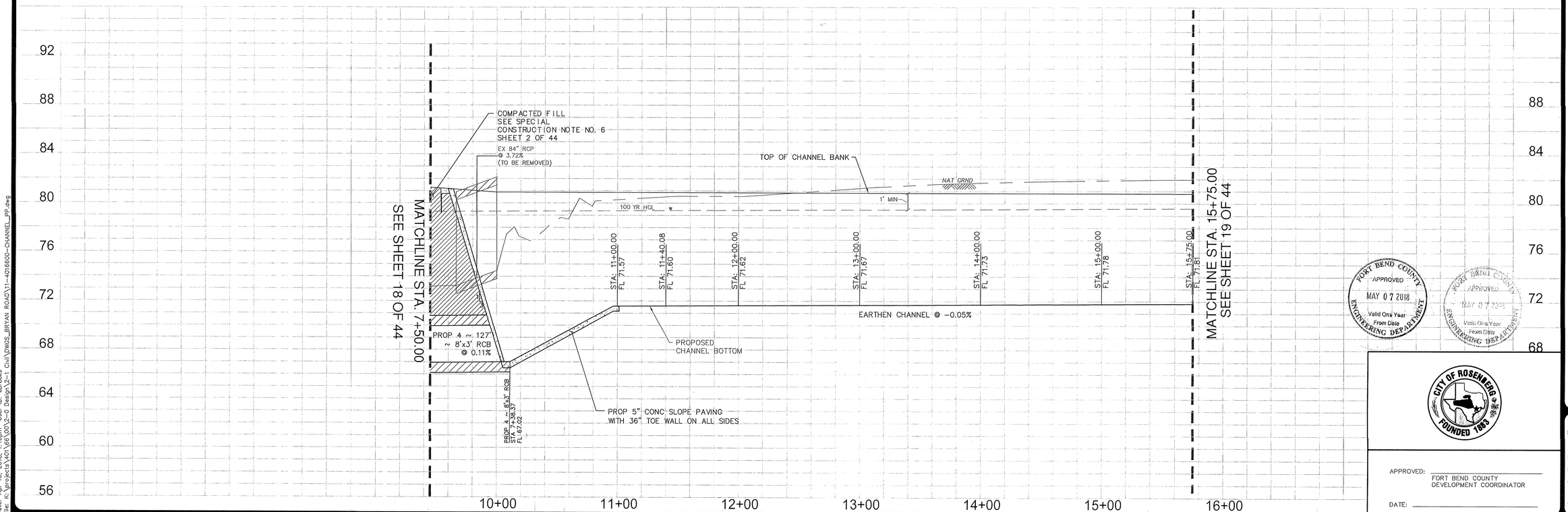
SECTION A-A
EARTHEN CHANNEL
NOT-TO-SCALE

WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.

FIRM
FLOOD INSURANCE RATE MAP
FORT BEND COUNTY FIRM COMMUNITY
MAP 48157C0265L PANEL 265 OF 575,
DATED APRIL 2 2014.
BASE FLOOD ELEVATION = 78.5

SCALE: 1"= 40'
0' 40' 80' 120'

HORIZONTAL SCALE 1" = 40' H
VERTICAL SCALE: 1" = 4' V



FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

PERMIT SET

NO.	REVISION	DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
4/13/18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10018974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS

BRYAN ROAD CHANNEL (SHEET 1 OF 6)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED ____ DRAWN ALL
SHEET 18 OF 44

Date: Apr 13, 2018, 1:16pm User ID: JBrooks
File: K:\projects\401\66\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\11-4016600-CHANNEL_PP.dwg

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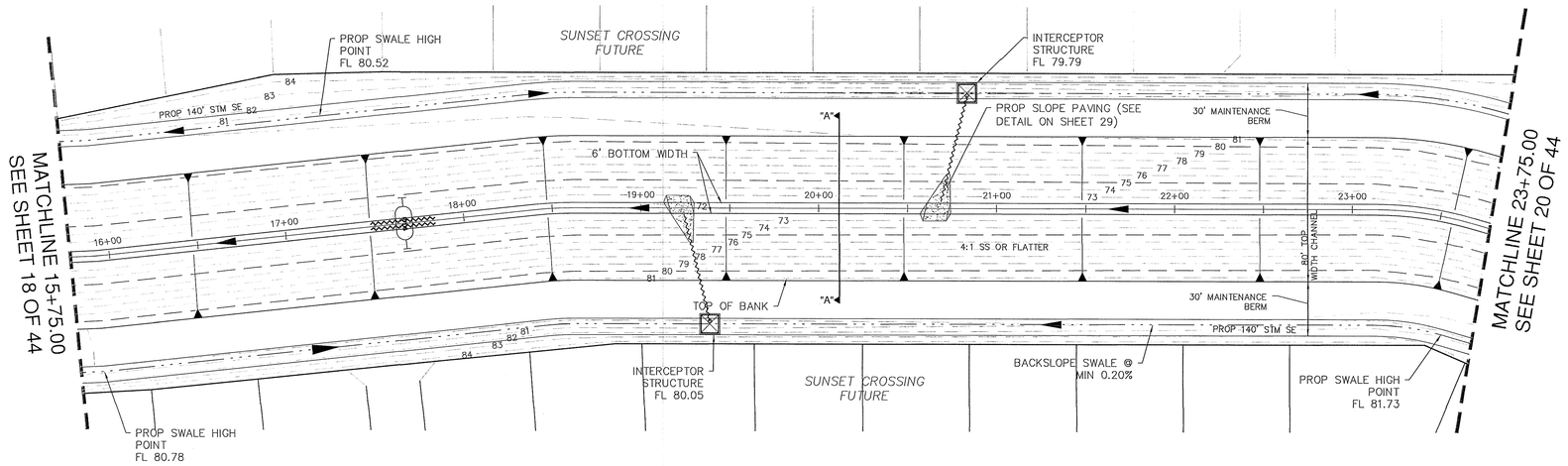
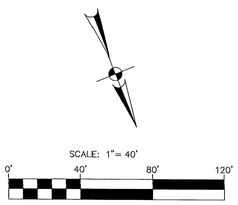
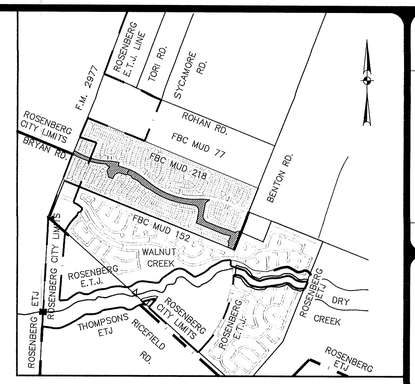
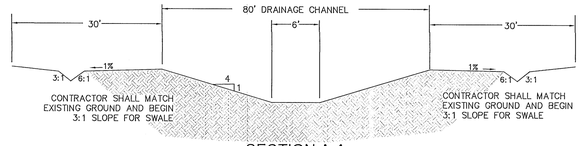
ROCK FILTER DAM 3
TOP ELEV: 80.85'
WEIR ELEV: 78.0'
56' WEIR LENGTH
36" CMP
2:1 SLOPES FROM TOP TO WEIR
(SEE SHEET 43 OF 44 FOR DETAILS)







LOCATION MAP
SCALE: NTS
MAP REF: KEY MAP 691H



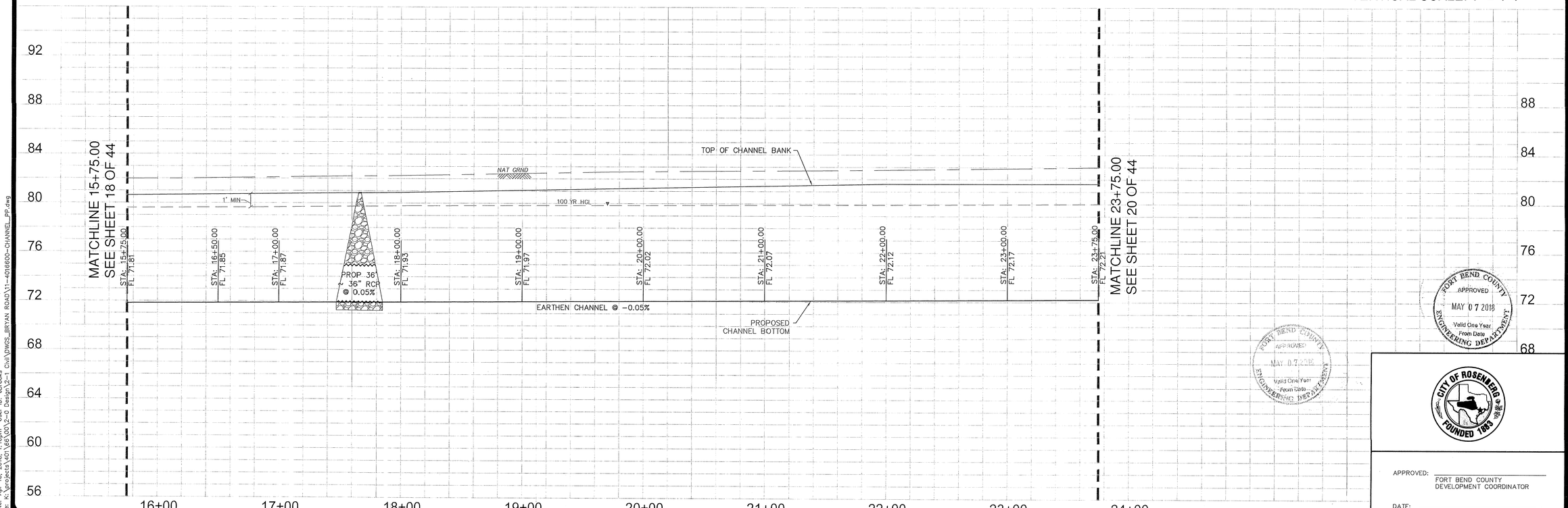
SECTION A-A
EARTHEN CHANNEL
NOT-TO-SCALE

WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.

FIRM
FLOOD INSURANCE RATE MAP
FORT BEND COUNTY FIRM COMMUNITY
MAP 41857C0265L PANEL 265 OF 575,
DATED APRIL 2 2014.
BASE FLOOD ELEVATION = 78.5

BRYAN ROAD CHANNEL

HORIZONTAL SCALE 1" = 40' H
VERTICAL SCALE: 1" = 4' V



FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

PERMIT SET

NO. | REVISION | DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
4/13/18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
BRYAN ROAD CHANNEL (SHEET 2 OF 6)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED ____ DRAWN ALL
SHEET 19 OF 44

Date: Apr 13, 2018, 1:16pm User ID: JBrooks
File: K:\Projects\40166\000\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\11-4016600-CHANNEL_PP.dwg

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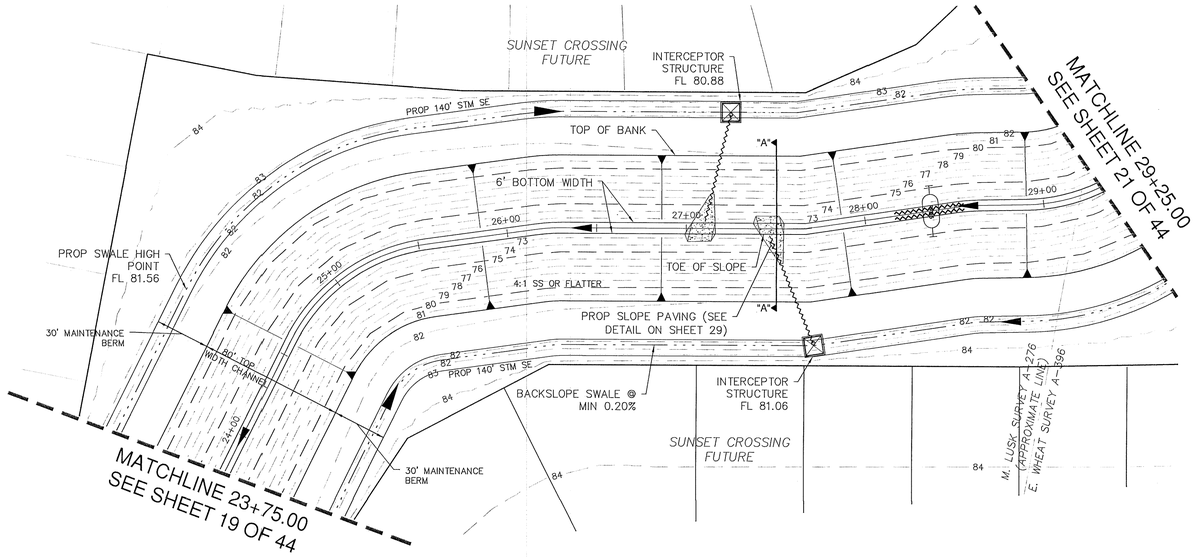
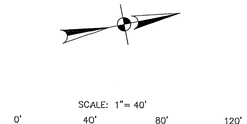
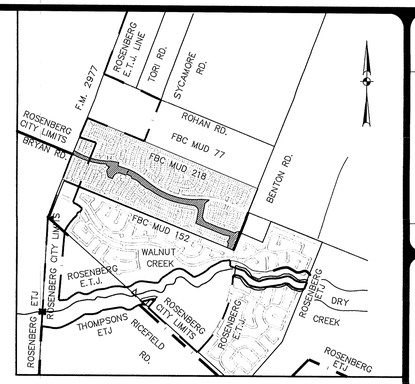


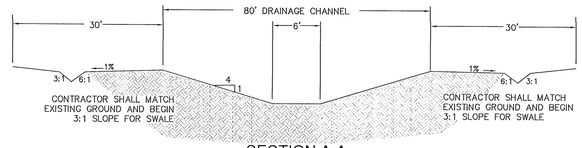
ROCK FILTER DAM 2
TOP ELEV: 82.10'
WEIR ELEV: 79.0'
56' WEIR LENGTH
36" CMP
2:1 SLOPES FROM TOP TO WEIR
(SEE SHEET 43 OF 44 FOR DETAILS)





LOCATION MAP

SCALE: NTS
MAP REF: KEY MAP 691H



SECTION A-A
EARTHEN CHANNEL

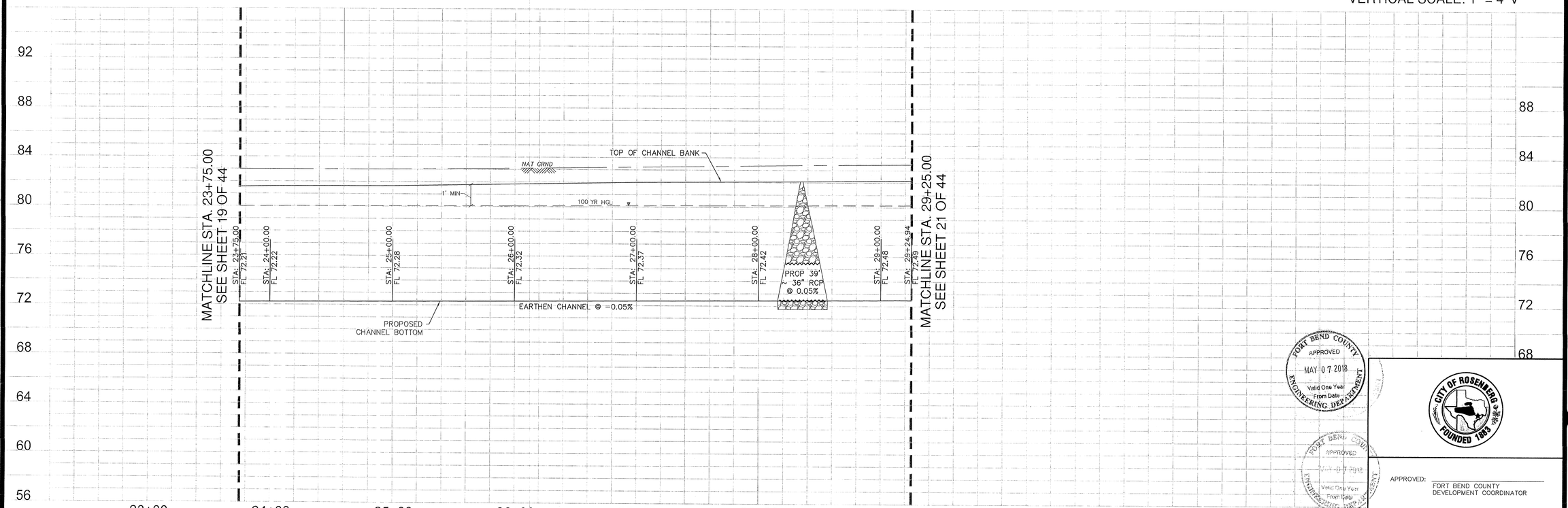
NOT-TO-SCALE

WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.

FIRM
FLOOD INSURANCE RATE MAP
FORT BEND COUNTY FIRM COMMUNITY
MAP 48157C0265L PANEL 265 OF 575,
DATED APRIL 2 2014.
BASE FLOOD ELEVATION = 78.5

BRYAN ROAD CHANNEL

HORIZONTAL SCALE 1" = 40' H
VERTICAL SCALE: 1" = 4' V



FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1865

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

PERMIT SET

NO.	REVISION	DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
4/13/18

PAPE-DAWSON ENGINEERS
HOUSTON I SAN ANTONIO I AUSTIN I FORT WORTH I DALLAS
10950 RICHMOND AVE. STE 200 I HOUSTON, TX. 77042 I 713.428.2400
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
BRYAN ROAD CHANNEL (SHEET 3 OF 6)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED ____ DRAWN ALL
SHEET 20 OF 44

Date: Apr 13, 2018, 1:16pm User ID: JBrooks
File: K:\projects\401\66\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\11-4016600-CHANNEL_PP.dwg

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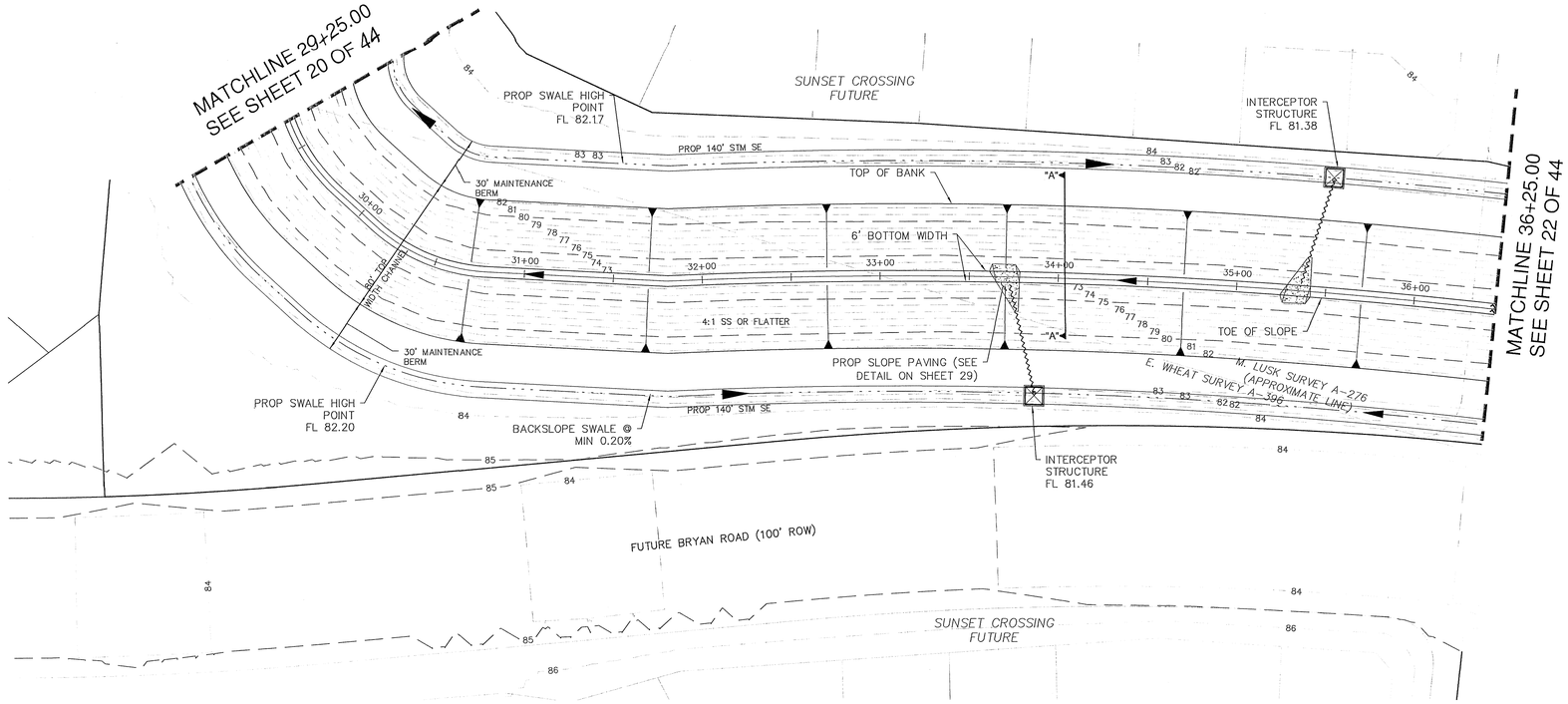
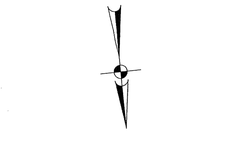
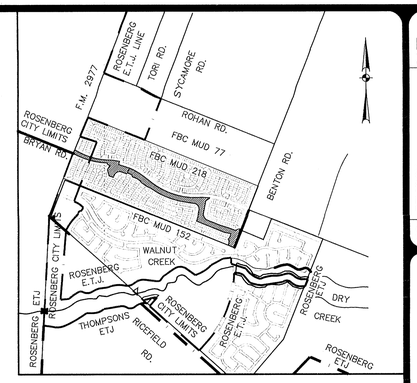
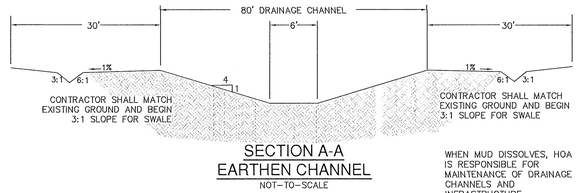






LOCATION MAP

SCALE: NTS
MAP REF: KEY MAP 691H



SECTION A-A
EARTHEN CHANNEL

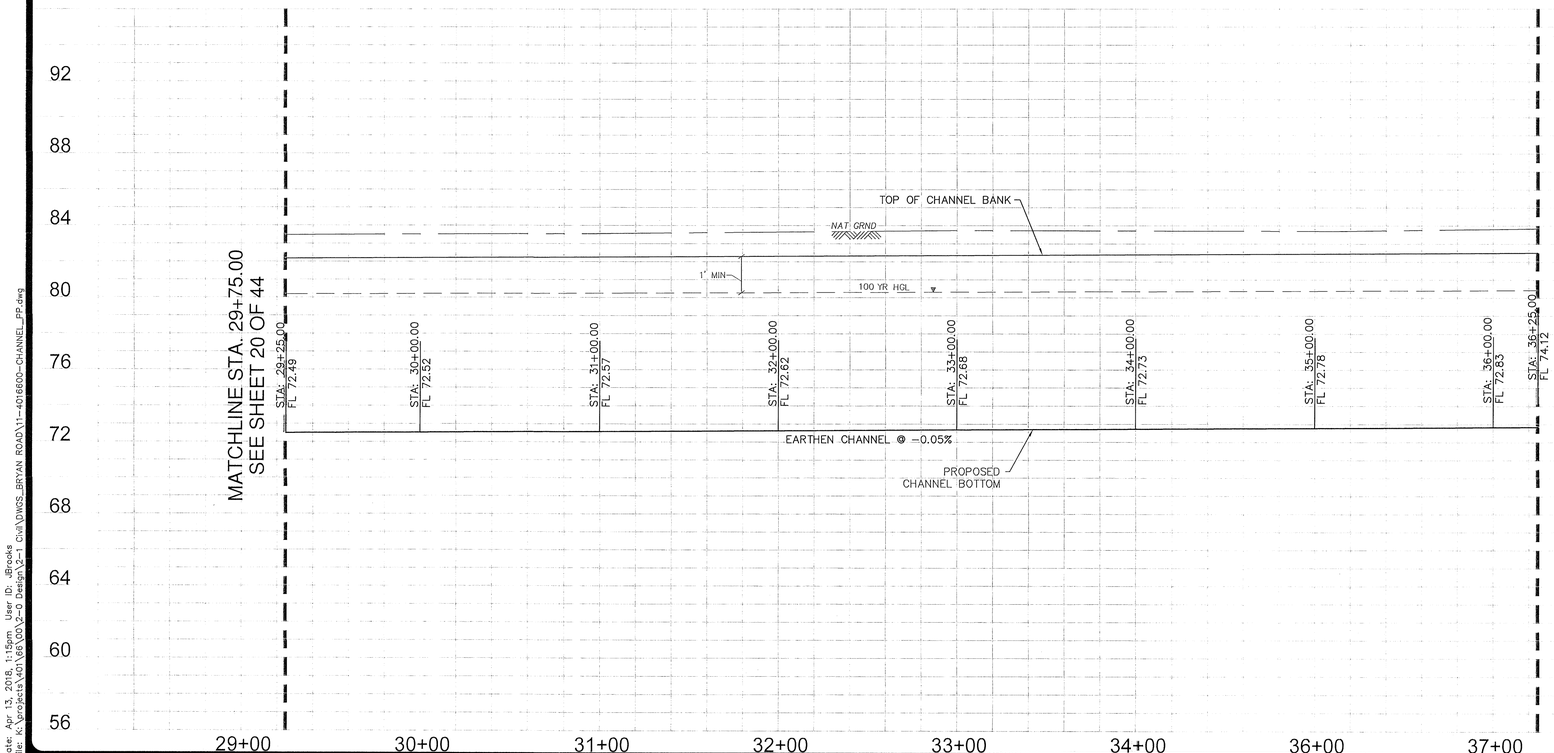
NOT-TO-SCALE

WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.

FIRM
FLOOD INSURANCE RATE MAP
FORT BEND COUNTY FIRM COMMUNITY
MAP 41857C0265L, PANEL 265 OF 575,
DATED APRIL 2, 2014.
BASE FLOOD ELEVATION = 78.5

BRYAN ROAD CHANNEL

HORIZONTAL SCALE 1" = 40' H
VERTICAL SCALE: 1" = 4' V



FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1895

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

NO. REVISION | DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED
PROFESSIONAL ENGINEER
4/13/18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS

BRYAN ROAD CHANNEL (SHEET 4 OF 6)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED ____ DRAWN ALL
SHEET 21 OF 44

PERMIT SET

Date: Apr 13, 2018, 1:15pm User ID: @Brooke
File: K:\Projects\40166-00\Civil\Design\1 - Civil\DWGS_BRYAN ROAD\11--4016600-CHANNEL_PP.dwg
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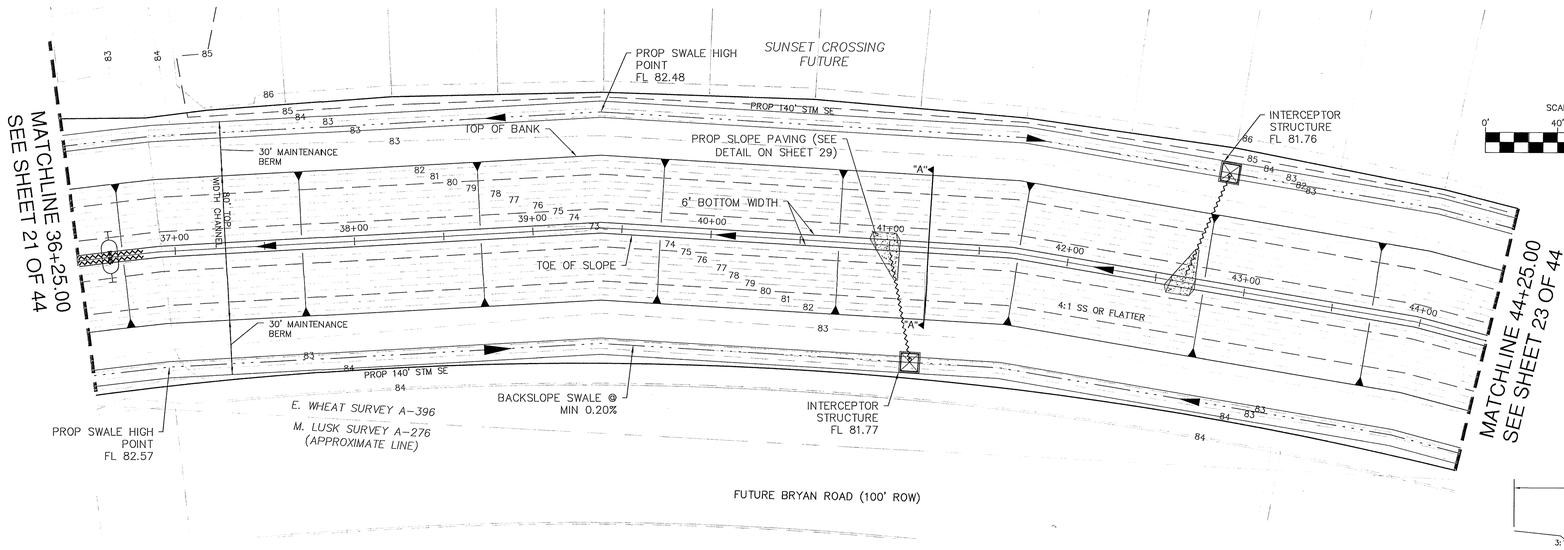
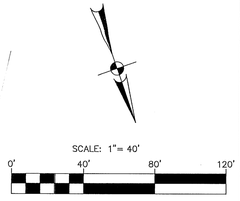
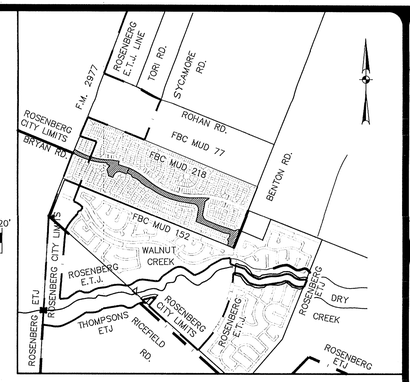
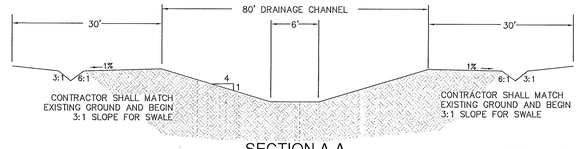
ROCK FILTER DAM 1
TOP ELEV: 82.56'
WEIR ELEV: 80.0'
60' WEIR LENGTH
36" CMP
2:1 SLOPES FROM TOP TO WEIR
(SEE SHEET 43 OF 44 FOR DETAILS)







LOCATION MAP
SCALE: NTS
MAP REF: KEY MAP 691H



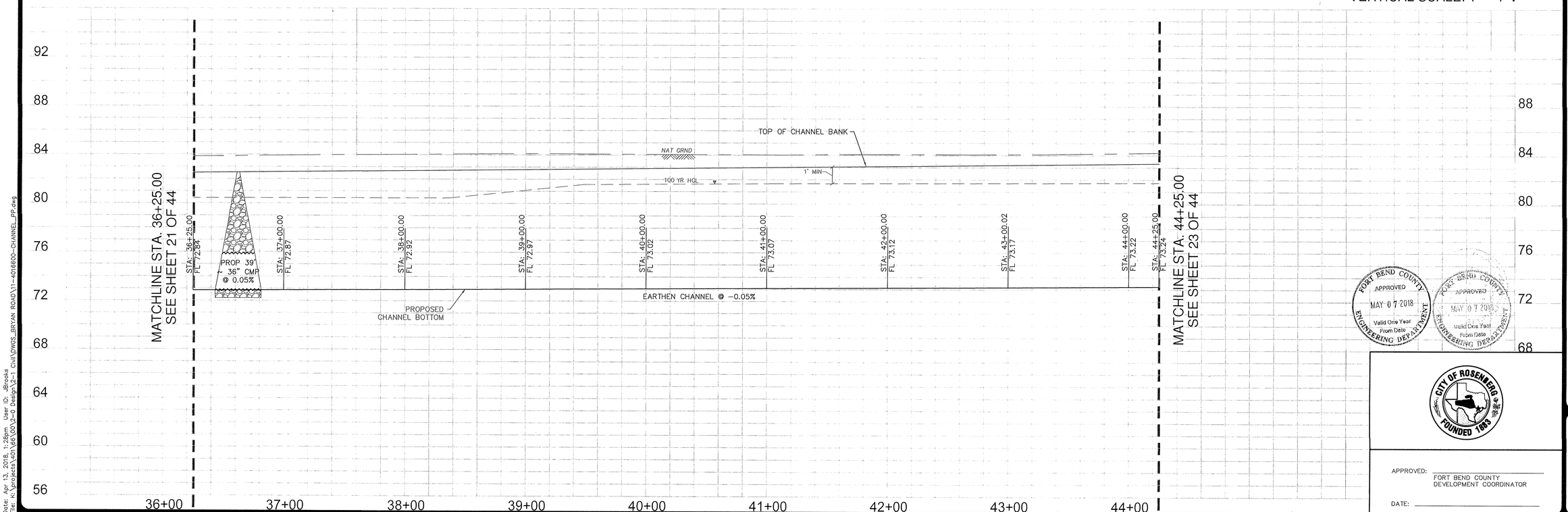
SECTION A-A
EARTHEN CHANNEL
NOT-TO-SCALE

WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.

FIRM
FLOOD INSURANCE RATE MAP
FORT BEND COUNTY FIRM COMMUNITY
MAP 41857C0265L PANEL 265 OF 575,
DATED APRIL 2 2014,
BASE FLOOD ELEVATION = 78.5

BRYAN ROAD CHANNEL

HORIZONTAL SCALE 1" = 40' H
VERTICAL SCALE: 1" = 4' V



FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

PERMIT SET

DATE
NO. REVISION

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED
PROFESSIONAL ENGINEER
4/13/18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS

BRYAN ROAD CHANNEL (SHEET 5 OF 6)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED ____ DRAWN ALL
SHEET 22 OF 44

Date: Apr 13, 2018, 1:28pm User ID: JBrooke
File: K:\projects\401\66\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\11-4016600-CHANNEL_PP.dwg

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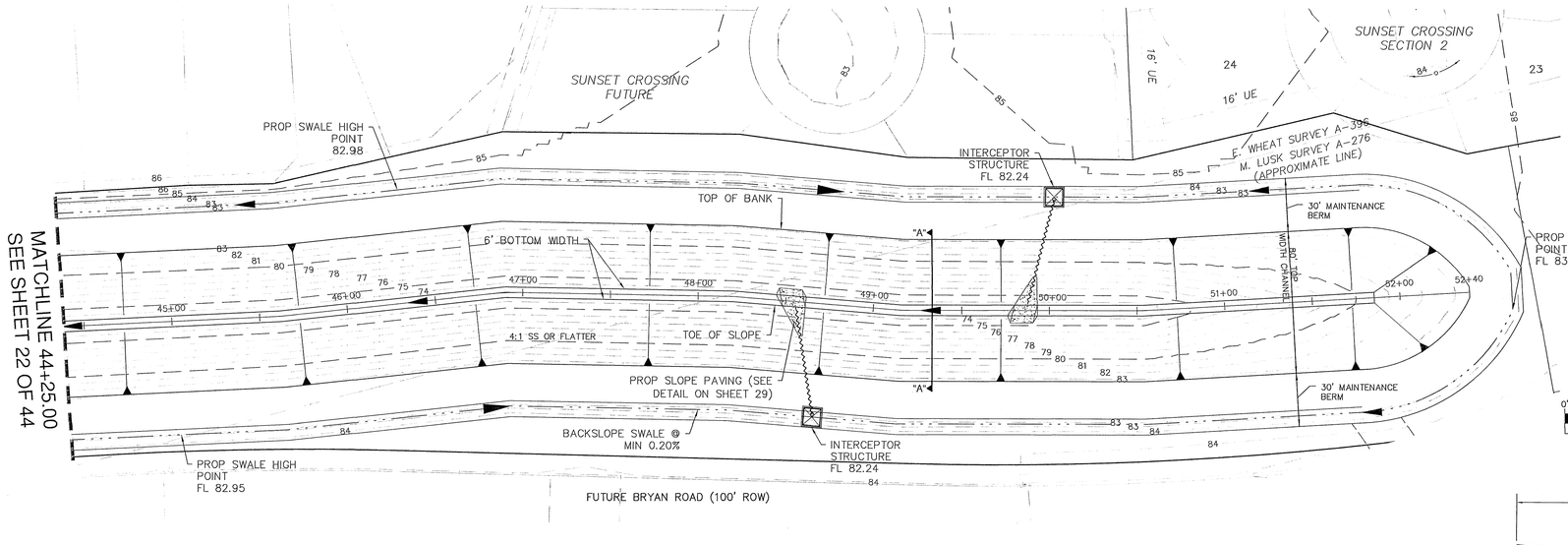
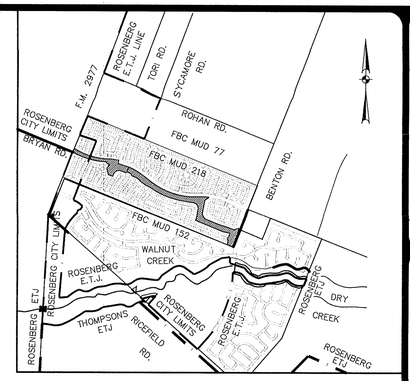
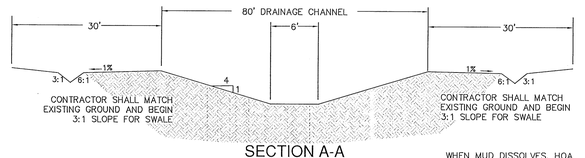




LOCATION MAP

SCALE: NTS
MAP REF: KEY MAP 691H

SCALE: 1" = 40'
0' 40' 80' 120'



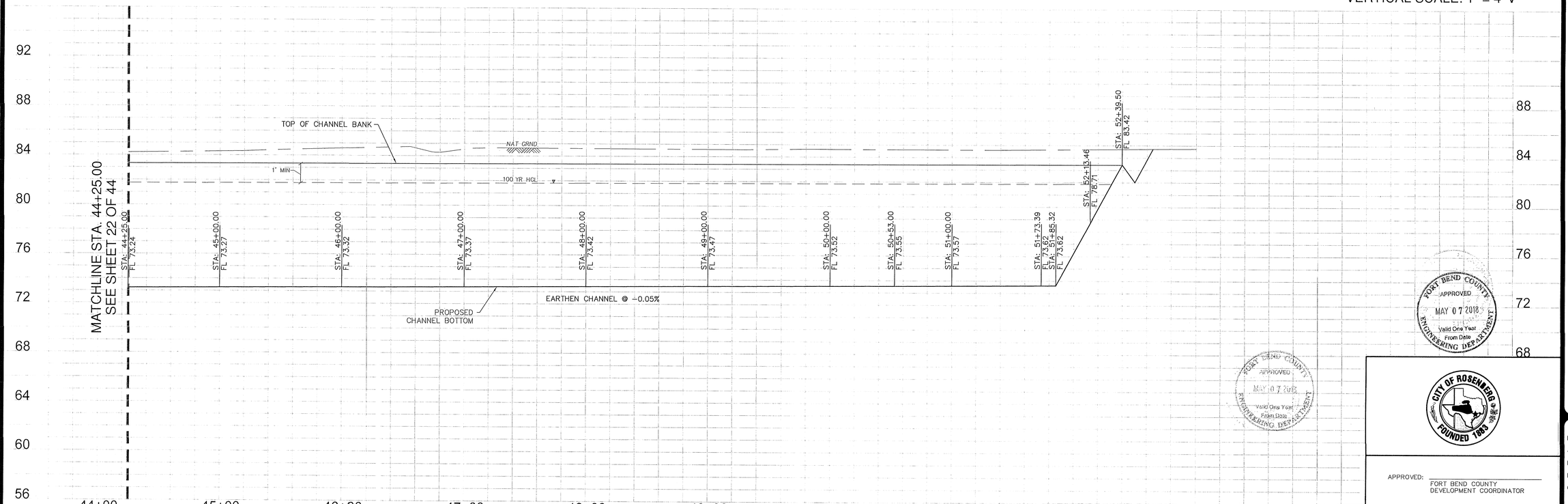
SECTION A-A
EARTHEN CHANNEL
NOT-TO-SCALE

WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.

FIRM
FLOOD INSURANCE RATE MAP
FORT BEND COUNTY FIRM COMMUNITY
MAP 41857C0265L PANEL 265 OF 575,
DATED APRIL 2 2014.
BASE FLOOD ELEVATION = 78.5

BRYAN ROAD CHANNEL

HORIZONTAL SCALE 1" = 40' H
VERTICAL SCALE: 1" = 4' V



FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1895

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

PERMIT SET

NO.	REVISION	DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED
PROFESSIONAL ENGINEER
4/13/18

PAPE-DAWSON ENGINEERS
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TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193874

SUNSET CROSSING BRYAN ROAD PHASE ONE

CITY OF ROSENBERG, TEXAS

BRYAN ROAD CHANNEL (SHEET 6 OF 6)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED ____ DRAWN ALL
SHEET 23 OF 44

Date: Apr 13, 2018, 1:15pm User ID: JBrooks
File: K:\projects\401\66\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\11-4016600-CHANNEL_PP.dwg
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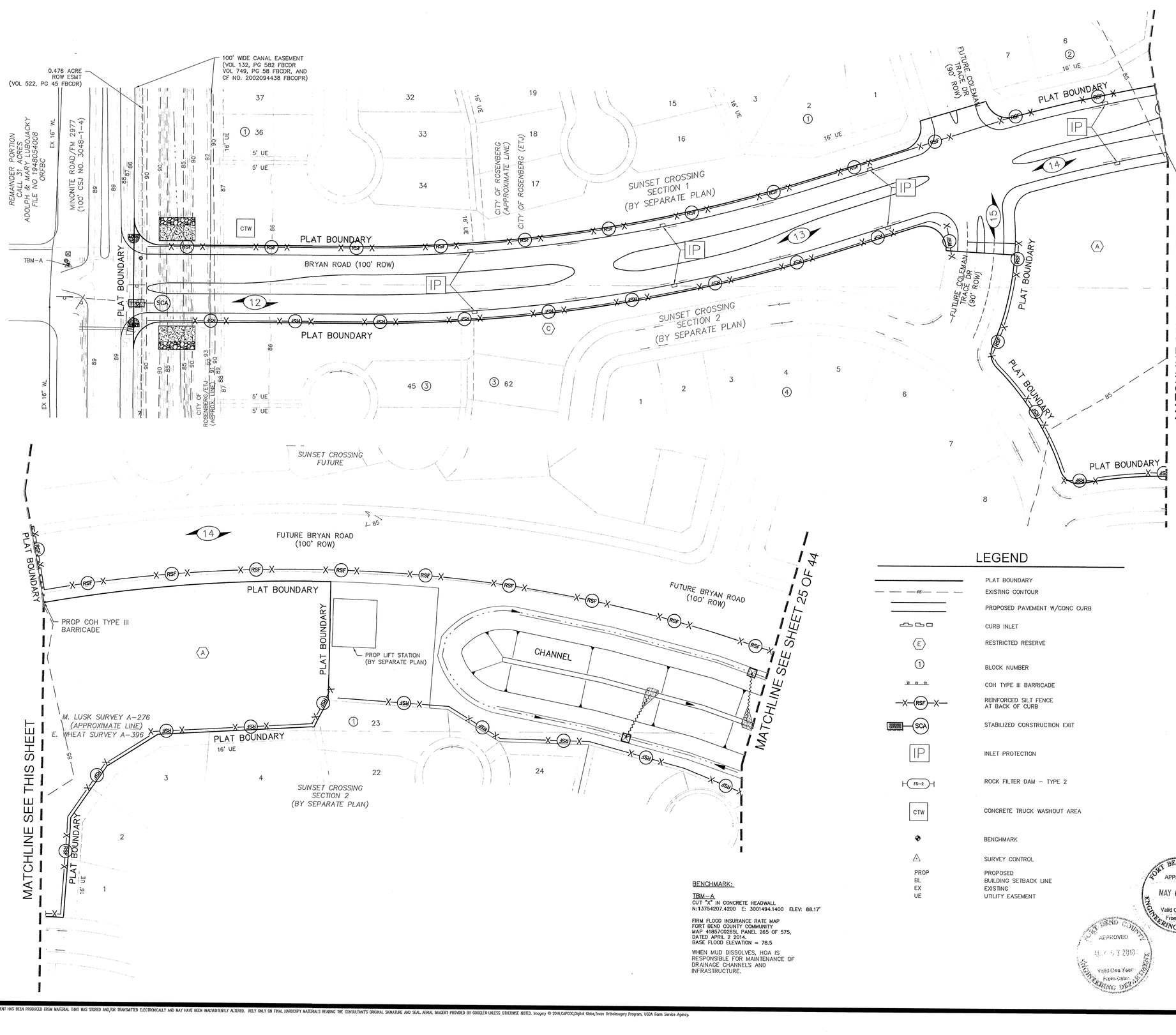
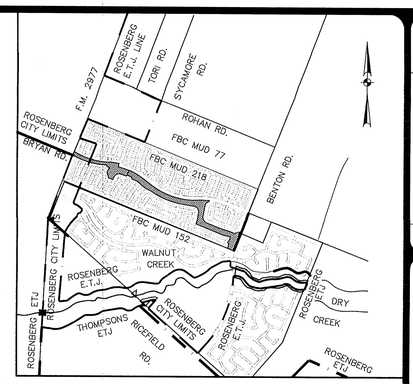


STA 24+69.72
END PROP 7' CONC PVMT W/ 6" CURB, STD PAVING HEADER, AND LOAD TRANSFER DEVICE, TC ± 83.57



LOCATION MAP

SCALE: NTS
MAP REF: KEY MAP 691H

SCALE: 1"= 60'
0' 60' 120' 180'

POLLUTION PREVENTION NOTES

1. PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL INSTALL POLLUTION PREVENTION SYSTEMS AT LOCATION SHOWN ON PLANS.

2. IF POLLUTION PREVENTION SYSTEMS ARE EXISTING FROM PRIOR CONTRACTS, OWNER AND/OR OWNER'S REPRESENTATIVE WITH THE CONTRACTOR SHALL EXAMINE THE EXISTING POLLUTION PREVENTION SYSTEMS FOR DAMAGE PRIOR TO CONTRACTOR STARTING CONSTRUCTION OF THE CONTRACT. ANY DAMAGE NOTED AT THIS TIME SHALL BE REPAIRED AT OWNER'S EXPENSE.

3. CONTRACTOR SHALL INSPECT ALL POLLUTION PREVENTION SYSTEMS SPECIFIED HERIN, AS REQUIRED IN THE PERMIT.

4. CONTRACTOR SHALL MAINTAIN, REPAIR AND/OR REPLACE DAMAGED EROSION AND SEDIMENTATION CONTROL SYSTEMS THROUGHOUT THE DURATION OF THE CONTRACT.

5. CONTRACTOR SHALL PROVIDE PROTECTED STORAGE AREAS FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS AND OTHER POTENTIALLY TOXIC MATERIALS.

6. CONTRACTOR SHALL LOCATE FUEL/MATERIAL STORAGE AREAS AWAY FROM STORM WATER CONVEYANCE SYSTEMS. CONTRACTOR SHALL USE A LINER UNDER ABOVE GROUND STORAGE TANKS. CONTRACTOR SHALL USE FILTER FABRIC FENCING, HAY BALES, OR BERMS AROUND FUEL STORAGE AREAS.

7. CONTRACTOR SHALL ADVISE OWNER IMMEDIATELY, VERBALLY, AND IN WRITING, OF ANY FUEL OR TOXIC MATERIAL SPILLS ONTO THE PROJECT/CONSTRUCTION AREA AND THE ACTIONS TAKEN TO REMEDY THE PROBLEM.

8. CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF HIS FUELS, MATERIALS, AND CONTAMINATED EXCAVATIONS IN A LEGALLY APPROVED MANNER.

9. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE ENVIRONMENTAL LAWS.

10. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATELY MAINTAINED SANITARY FACILITIES.

11. CONTRACTOR SHALL BE RESPONSIBLE FOR STREET CLEANING, ON A DAILY BASIS, ALL MUD AND DIRT DEPOSITED ON THE EXISTING PAVEMENT DUE TO HIS CONSTRUCTION ACTIVITY.

12. CONTRACTOR SHALL PROVIDE A STABILIZED CONSTRUCTION EXIT.

13. SEDIMENT WILL BE REMOVED FROM BEHIND THE FILTER FABRIC FENCE WHEN IT BECOMES ABOUT ONE-THIRD OF THE HEIGHT OF THE FENCE.

14. WHEN ALL CONSTRUCTION ACTIVITY IS COMPLETE AND THE SITE HAS BEEN ESTABLISHED, STRUCTURAL CONTROLS WILL BE REMOVED AND DISTURBED AREAS WILL BE RESTABILIZED.

15. AT COMPLETION OF THE CONTRACT, OWNER AND/OR OWNER'S REPRESENTATIVE AND THE CONTRACTOR SHALL EXAMINE THE POLLUTION PREVENTION SYSTEM BEFORE RELIEVING CONTRACTOR OF HIS MAINTENANCE RESPONSIBILITIES.

16. CONTRACTOR TO BE RESPONSIBLE FOR THE SUBMISSION OF HIS STORM WATER POLLUTION PREVENTION PLAN ITEMS INSPECTION REPORT WITH HIS PAYMENT REQUEST. FAILURE TO COMPLY MAY RESULT IN A DELAY IN PAYMENT.

17. 3" TO 5" ROCK IS TO BE USED WITHIN THE STABILIZED CONSTRUCTION EXIT AREA.

18. REFERENCE SHEET 27 OF 44 FOR ADDITIONAL SWPPP DETAILS

19. CONTRACTOR TO ESTABLISH VEGETATION WITHIN BACK OF LOT AND DRAINAGE RESERVE

LEGEND

	PLAT BOUNDARY
48	EXISTING CONTOUR
	PROPOSED PAVEMENT W/CONC CURB
	CURB INLET
E	RESTRICTED RESERVE
1	BLOCK NUMBER
	COH TYPE III BARRICADE
RSF	REINFORCED SILT FENCE AT BACK OF CURB
SCA	STABILIZED CONSTRUCTION EXIT
IP	INLET PROTECTION
FD-2	ROCK FILTER DAM – TYPE 2
CTW	CONCRETE TRUCK WASHOUT AREA
	BENCHMARK
	SURVEY CONTROL
PROP	PROPOSED
BL	BUILDING SETBACK LINE
EX	EXISTING
UE	UTILITY EASEMENT

BENCHMARK:

TBM-A
CUT "X" IN CONCRETE HEADWALL
N:13754207.4200 E: 3001494.1400 ELEV: 88.17'

FIRM FLOOD INSURANCE RATE MAP
FORT BEND COUNTY COMMUNITY
MAP 48157C0265L PANEL 265 OF 575,
DATED APRIL 2, 2014.
BASE FLOOD ELEVATION = 78.5

WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1865

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

NO.	REVISION	DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
4/13/18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
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TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
STORMWATER POLLUTION PREVENTION (SHEET 1 OF 3)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED ____ DRAWN ALL
SHEET 24 OF 44

Date: Apr 13, 2018, 1:14pm User ID: JBrooks
File: K:\Projects\401\E&V\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\13-4016600-SWPPOA-BRYN-PH1.dwg

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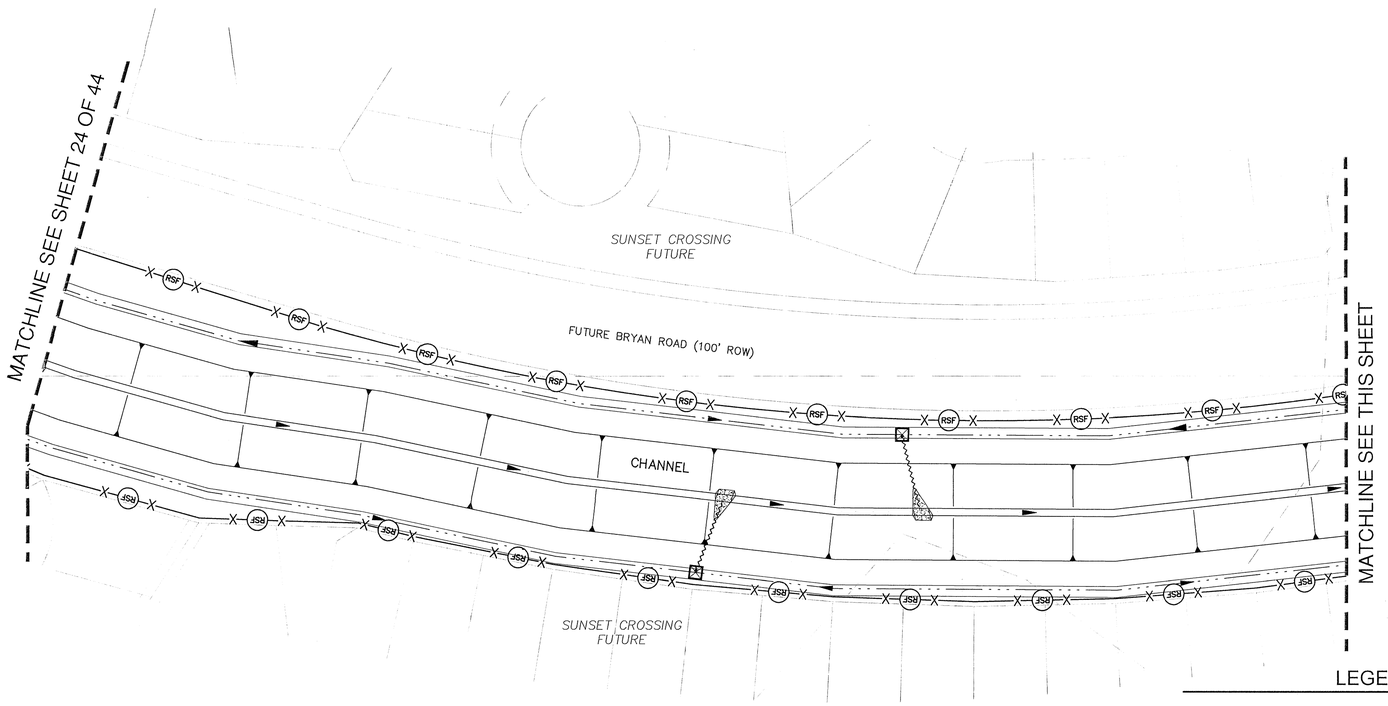

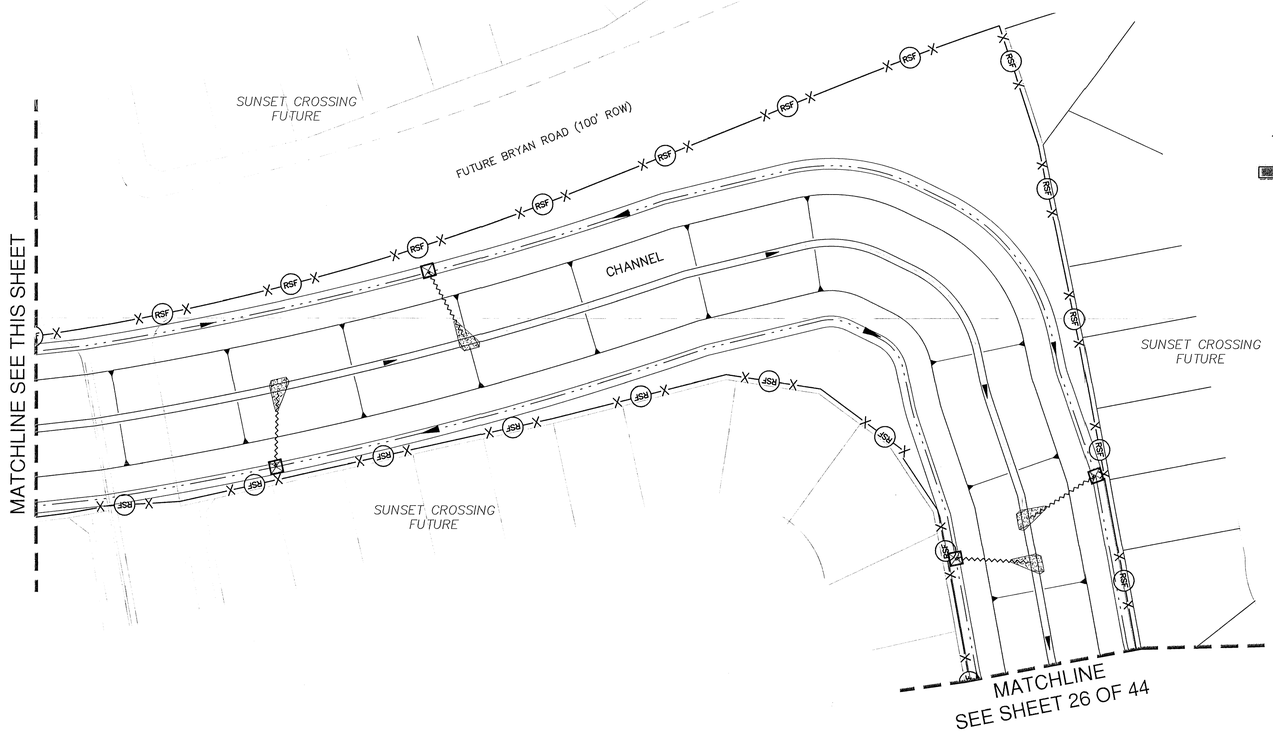

LEGEND

	PLAT BOUNDARY
48	EXISTING CONTOUR
	PROPOSED PAVEMENT W/CONC CURB
	DROP INLET
E	RESTRICTED RESERVE
1	BLOCK NUMBER
	COH TYPE III BARRICADE
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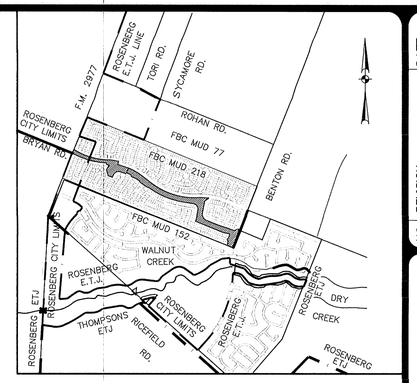
SCA	STABILIZED CONSTRUCTION EXIT
IP	INLET PROTECTION
RD-2	ROCK FILTER DAM – TYPE 2
CTW	CONCRETE TRUCK WASHOUT AREA
	BENCHMARK
	SURVEY CONTROL

BENCHMARK:

TBM–A
CUT "X" IN CONCRETE HEADWALL
N:13754207.4200 E: 3001494.1400 ELEV: 88.17'

FIRM FLOOD INSURANCE RATE MAP
FORT BEND COUNTY COMMUNITY
MAP 48157C0265L PANEL 265 OF 575,
DATED APRIL 2 2014.
BASE FLOOD ELEVATION = 78.5

WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.



LOCATION MAP

SCALE: NTS
MAP REF: KEY MAP 691H

SCALE: 1"= 60'

0' 60' 120' 180'

POLLUTION PREVENTION NOTES

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18. REFERENCE SHEET 27 OF 44 FOR ADDITIONAL SWPPP DETAILS

19. CONTRACTOR TO ESTABLISH VEGETATION WITHIN BACK OF LOT AND DRAINAGE RESERVE

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

NO.	REVISION	DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
4/13/18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE

CITY OF ROSENBERG, TEXAS

STORMWATER POLLUTION PREVENTION (SHEET 2 OF 3)

PLAT NO. 40166–20
JOB NO. 40166–21
DATE MARCH 2018
DESIGNER LS
CHECKED ____ DRAWN ALL
SHEET 25 OF 44

Date: Apr 13, 2018, 1:13pm User ID: JBrooks
File: K:\projects\40166\001\2–0 Design\2–1 Civil\DWGS_BRYAN ROAD\13–4016600–SWPPOA–BRYN–Prn1.dwg

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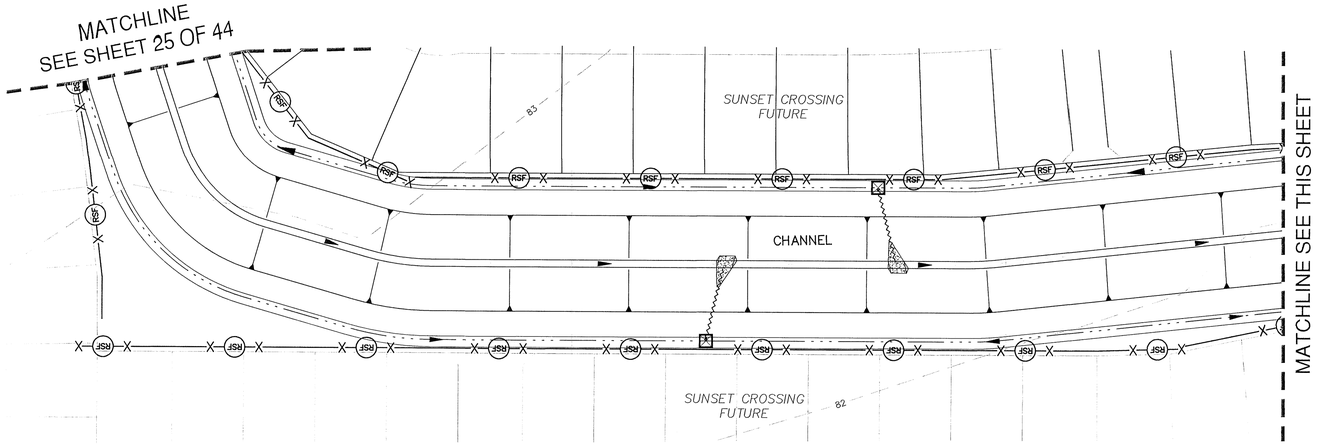
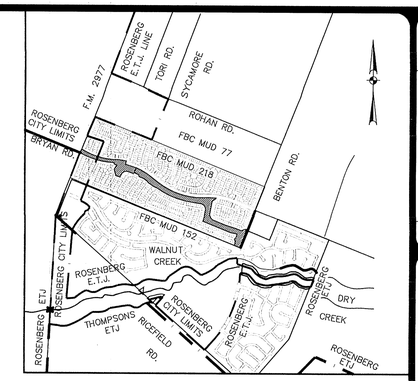
PERMIT SET



LEGEND

- PLAT BOUNDARY
- EXISTING CONTOUR
- PROPOSED PAVEMENT W/CONC CURB
- DROP INLET
- RESTRICTED RESERVE
- BLOCK NUMBER
- COH TYPE III BARRICADE
- REINFORCED SILT FENCE AT BACK OF CURB
- STABILIZED CONSTRUCTION EXIT
- INLET PROTECTION
- ROCK FILTER DAM – TYPE 2
- CONCRETE TRUCK WASHOUT AREA
- BENCHMARK
- SURVEY CONTROL

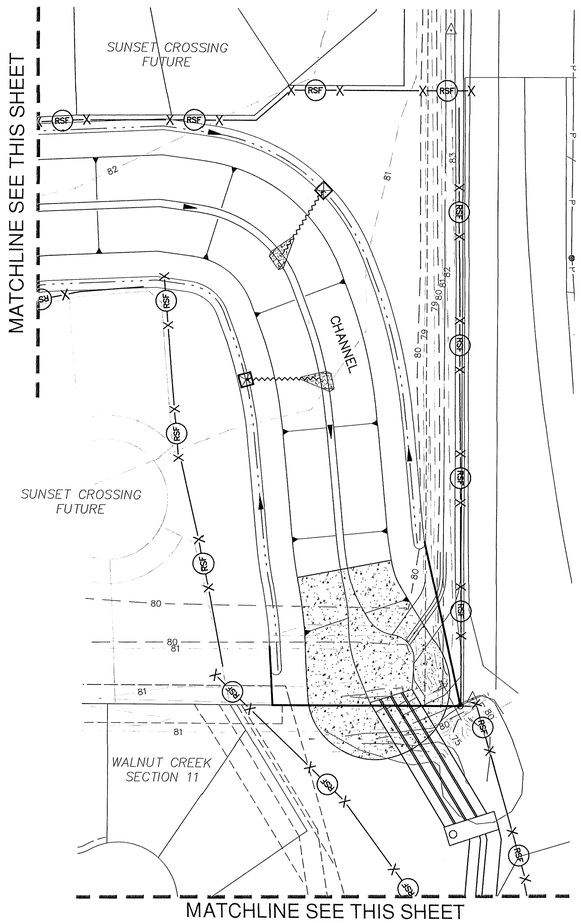


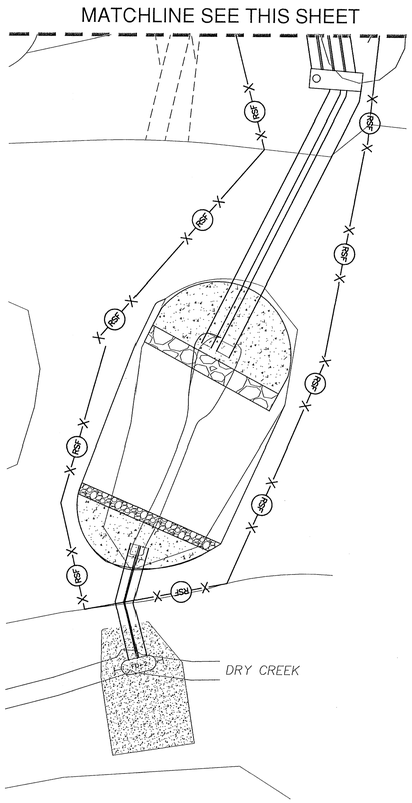
LOCATION MAP

SCALE: NTS
MAP REF: KEY MAP 691H

SCALE: 1"= 60'

0' 60' 120' 180'





BENCHMARK:

TBM–A
CUT "X" IN CONCRETE HEADWALL
N:13754207.4200 E: 3001494.1400 ELEV: 88.17'

FIRM FLOOD INSURANCE RATE MAP
FORT BEND COUNTY COMMUNITY
MAP 41857C0265L PANEL 265 OF 575,
DATED APRIL 2 2014.
BASE FLOOD ELEVATION = 78.5

WHEN MUD DISSOLVES, HOA IS RESPONSIBLE FOR MAINTENANCE OF DRAINAGE CHANNELS AND INFRASTRUCTURE.

POLLUTION PREVENTION NOTES

1. PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL INSTALL POLLUTION PREVENTION SYSTEMS AT LOCATION SHOWN ON PLANS.

2. IF POLLUTION PREVENTION SYSTEMS ARE EXISTING FROM PRIOR CONTRACTS, OWNER AND/OR OWNER'S REPRESENTATIVE WITH THE CONTRACTOR SHALL EXAMINE THE EXISTING POLLUTION PREVENTION SYSTEMS FOR DAMAGE PRIOR TO CONTRACTOR STARTING CONSTRUCTION OF THE CONTRACT. ANY DAMAGE NOTED AT THIS TIME SHALL BE REPAIRED AT OWNER'S EXPENSE.

3. CONTRACTOR SHALL INSPECT ALL POLLUTION PREVENTION SYSTEMS SPECIFIED HERIN, AS REQUIRED IN THE PERMIT.

4. CONTRACTOR SHALL MAINTAIN, REPAIR AND/OR REPLACE DAMAGED EROSION AND SEDIMENTATION CONTROL SYSTEMS THROUGHOUT THE DURATION OF THE CONTRACT.

5. CONTRACTOR SHALL PROVIDE PROTECTED STORAGE AREAS FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS AND OTHER POTENTIALLY TOXIC MATERIALS.

6. CONTRACTOR SHALL LOCATE FUEL/MATERIAL STORAGE AREAS AWAY FROM STORM WATER CONVEYANCE SYSTEMS. CONTRACTOR SHALL USE A LINER UNDER ABOVE GROUND STORAGE TANKS. CONTRACTOR SHALL USE FILTER FABRIC FENCING, HAY BALES, OR BERMS AROUND FUEL STORAGE AREAS.

7. CONTRACTOR SHALL ADVISE OWNER IMMEDIATELY, VERBALLY, AND IN WRITING, OF ANY FUEL OR TOXIC MATERIAL SPILLS ONTO THE PROJECT/CONSTRUCTION AREA AND THE ACTIONS TAKEN TO REMEDY THE PROBLEM.

8. CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF HIS FUELS, MATERIALS, AND CONTAMINATED EXCAVATIONS IN A LEGALLY APPROVED MANNER.

9. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE ENVIRONMENTAL LAWS.

10. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATELY MAINTAINED SANITARY FACILITIES.

11. CONTRACTOR SHALL BE RESPONSIBLE FOR STREET CLEANING, ON A DAILY BASIS, ALL MUD AND DIRT DEPOSITED ON THE EXISTING PAVEMENT DUE TO HIS CONSTRUCTION ACTIVITY.

12. CONTRACTOR SHALL PROVIDE A STABILIZED CONSTRUCTION EXIT.

13. SEDIMENT WILL BE REMOVED FROM BEHIND THE FILTER FABRIC FENCE WHEN IT BECOMES ABOUT ONE–THIRD OF THE HEIGHT OF THE FENCE.

14. WHEN ALL CONSTRUCTION ACTIVITY IS COMPLETE AND THE SITE HAS BEEN ESTABLISHED, STRUCTURAL CONTROLS WILL BE REMOVED AND DISTURBED AREAS WILL BE RESTABILIZED.

15. AT COMPLETION OF THE CONTRACT, OWNER AND/OR OWNER'S REPRESENTATIVE AND THE CONTRACTOR SHALL EXAMINE THE POLLUTION PREVENTION SYSTEM BEFORE RELIEVING CONTRACTOR OF HIS MAINTENANCE RESPONSIBILITIES.

16. CONTRACTOR TO BE RESPONSIBLE FOR THE SUBMISSION OF HIS STORM WATER POLLUTION PREVENTION PLAN ITEMS INSPECTION REPORT WITH HIS PAYMENT REQUEST. FAILURE TO COMPLY MAY RESULT IN A DELAY IN PAYMENT.

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SUNSET CROSSING BRYAN ROAD PHASE ONE
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STORMWATER POLLUTION PREVENTION (SHEET 3 OF 3)

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SHEET 26 OF 44

Date: Apr 13, 2018, 1:11pm User ID: JBrooks
File: K:\Projects\401\08\00\02-0 Design\2-1 Civil\DWGS_BRYAN ROAD\13-4016600-SWPPOA-BRYN-PH1.dwg

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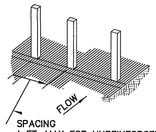
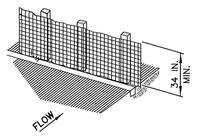
PERMIT SET

1. SET SUPPORTS AND EXCAVATE 4 IN. X 6 IN. TRENCH UPSLOPE ALONG LINE OF SUPPORTS.

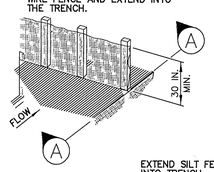


SPACING
4 FT. MAX FOR UNREINFORCED FENCE.
6 FT. MAX FOR REINFORCED FENCE.

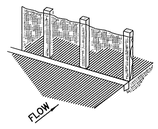
2. SECURE WIRE FENCING TO SUPPORTS.

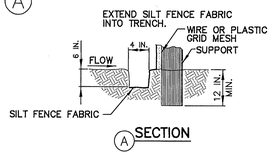


3. ATTACH SILT FENCE FABRIC TO WIRE FENCE AND EXTEND INTO THE TRENCH.



4. BACKFILL AND COMPACT THE EXCAVATED SOIL.





A SECTION

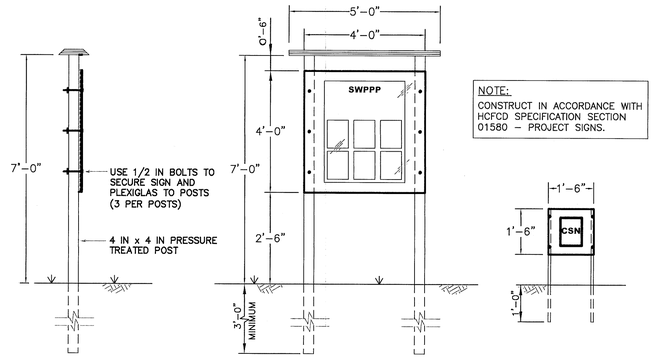
CONSTRUCTION NOTES:

1. SEE SPECIFICATION SECTION NO. 02361–SILT FENCES.

× — (RSF) — × — — REINFORCED SILT FENCE
SYMBOL

× — (SF) — × — — SILT FENCE
SYMBOL

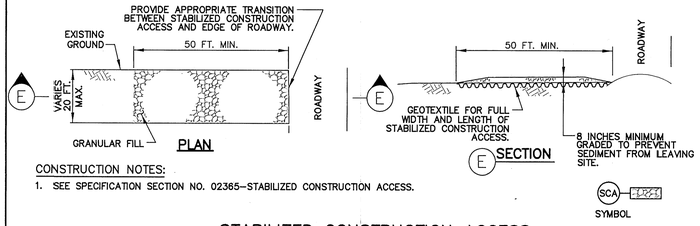
SILT FENCE



NOTE:
CONSTRUCT IN ACCORDANCE WITH HCFCD SPECIFICATION SECTION 01580 – PROJECT SIGNS.

LEFT SIDE FRONT CSN HOLDER

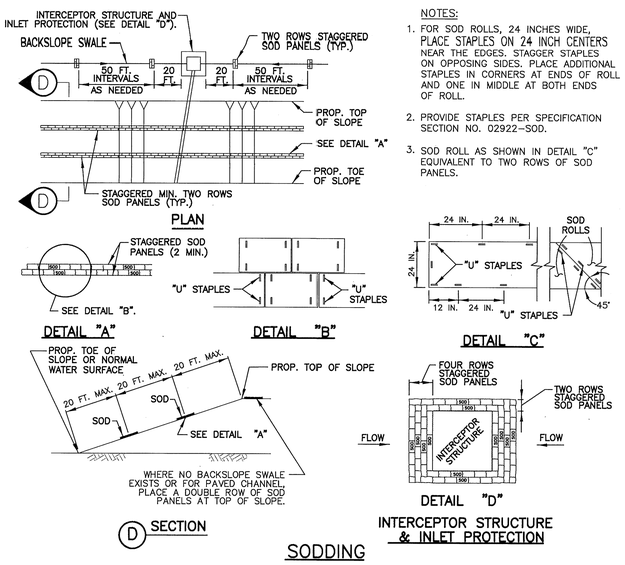
SWPPP / BMP SIGN AND CONSTRUCTION SITE NOTICE HOLDER DETAILS



CONSTRUCTION NOTES:

1. SEE SPECIFICATION SECTION NO. 02365–STABILIZED CONSTRUCTION ACCESS.

STABILIZED CONSTRUCTION ACCESS



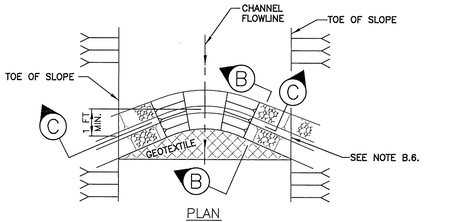
NOTES:

1. FOR SOD ROLLS, 24 INCHES WIDE, PLACE STAPLES ON 24 INCH CENTERS NEAR THE EDGES. STAGGER STAPLES ON OPPOSING SIDES. PLACE ADDITIONAL STAPLES IN CORNERS AT ENDS OF ROLL AND ONE IN MIDDLE AT BOTH ENDS OF ROLL.
2. PROVIDE STAPLES PER SPECIFICATION SECTION NO. 02922–SOD.
3. SOD ROLL AS SHOWN IN DETAIL "C" EQUIVALENT TO TWO ROWS OF SOD PANELS.

SODDING

INTERCEPTOR STRUCTURE & INLET PROTECTION

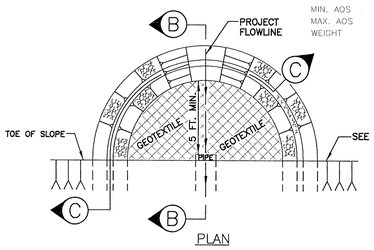
SOD — SYMBOL
IP — SYMBOL



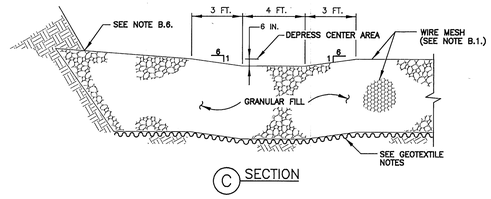
IN–CHANNEL FILTER DAM

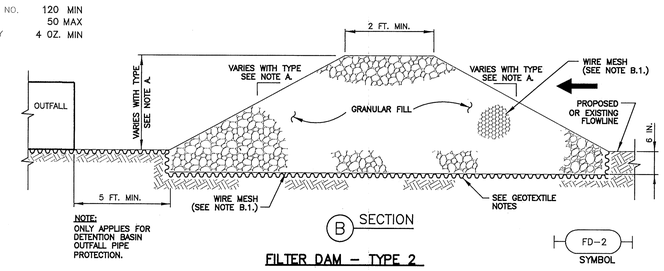
GEOTEXTILE NOTES:

MIN. AOS	SIEVE NO.	120 MIN
MAX. AOS		50 MAX
WEIGHT	OZ/SY	4 OZ. MIN



FILTER DAM AT DETENTION BASIN OUTFALL PIPE





FILTER DAM – TYPE 2

FD–2 — SYMBOL

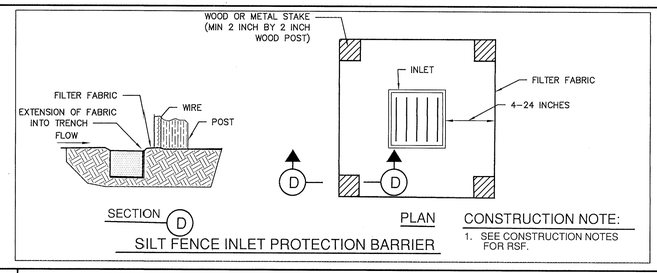
FILTER DAM NOTES:

A. TYPES OF FILTER DAMS
   1. TYPE 1 (NON–REINFORCED)
      a. HEIGHT – 18–24 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
      b. TOP WIDTH – 2 FEET (MINIMUM)
      c. SLOPES – 2:1 (MAXIMUM).
   2. TYPE 2 (REINFORCED).
      a. HEIGHT – 18–36 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
      b. TOP WIDTH – 2 FEET (MINIMUM).
      c. SLOPES – 2:1 (MAXIMUM).
   3. TYPE 3 (REINFORCED)
      a. HEIGHT – 36–48 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
      b. TOP WIDTH – 2 FEET (MINIMUM).
      c. SLOPES – 3:1 (MAXIMUM).
   4. TYPE 4 (GABION)
      a. HEIGHT – 30 INCHES (MINIMUM). MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
      b. TOP WIDTH – 2 FEET (MINIMUM).
   5. TYPE 5. AS SHOWN ON THE PLANS.

B. CONSTRUCT FILTER DAMS ACCORDING TO THE FOLLOWING CRITERIA UNLESS SHOWN OTHERWISE ON THE PLANS.
   1. TYPE 2 AND 3 FILTER DAMS: SECURE WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1 INCH DIAMETER HEXAGONAL OPENINGS.
   2. GRANULAR FILL:
      a. PLACE ON MESH TO HEIGHT AND SLOPES SHOWN ON PLANS OR AS SPECIFIED BY THE ENGINEER.
      b. 3–5 INCHES FOR ROCK FILTER DAM TYPES 1,2, AND 4 AND 4–8 INCHES FOR ROCK FILTER DAM TYPE REFER TO GRANULAR FILL IN SPECIFICATION SECTION NO. 02378–RIPRAP AND GRANULAR FILL.
   3. WIRE MESH: FOLD AT UPSTREAM SIDE OVER GRANULAR FILL AND TIGHTLY SECURE TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS.
   4. IN STREAMS: SECURE OR STAKE MESH TO STREAM BED PRIOR TO AGGREGATE PLACEMENT.
   5. SEE SPECIFICATION SECTION NO. 02364–FILTER DAMS.
   6. EMBED ONE FOOT MINIMUM INTO SLOPE AND AT SLOPE RAISE ONE FOOT HIGHER THAN CENTER OF DEPRESSED AREA.

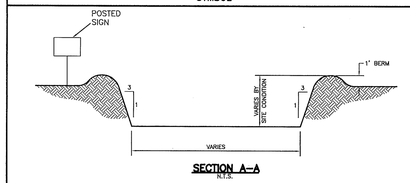
* FOR STAGE I INLET CONSTRUCTION

IP — SYMBOL



CONSTRUCTION NOTE:
1. SEE CONSTRUCTION NOTES FOR RSF.

SILT FENCE INLET PROTECTION BARRIER



GENERAL NOTES:

1. POST A SIGN READING "CONCRETE WASH OUT PIT" NEXT TO THE PIT.
2. VERBALLY INSTRUCT THE CONCRETE TRUCK DRIVERS WHERE THE PIT IS AND TO WASH OUT THEIR TRUCKS IN THE PIT AND NO WHERE ELSE.
3. UPON THE CONCRETE SETTING UP (CURING, DRYING OUT), THE CONCRETE WASTE SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF PROPERLY BY THE CONTRACTOR. AFTER REMOVAL OF THE CONCRETE WASTE, THE WASH OUT PIT SHALL BE FILLED WITH CLEAN FILL MATERIAL AND COMPACTED TO IN–SITU CONDITIONS, OR AS DIRECTED BY THE PROJECT SPECIFICATIONS.
4. CONCRETE WASH OUT PITS SHALL NOT BE LOCATED DIRECTLY ADJACENT TO, NOR AT ANY TIME DRAIN INTO THE STORM SEWER SYSTEM OR ANY OTHER SWALE, DITCH, OR WATERWAY.
5. CONSTRUCT ENTRY ROAD AND BOTTOM OF WASHOUT AREA TO SUPPORT EXPECTED LOADINGS FROM TRUCKS EQUIPMENT.

CONCRETE TRUCK WASHOUT AREA

CTW

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1869

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

NO.	REVISION	DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED
PROFESSIONAL ENGINEER
3-26-18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193874

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
STORM WATER POLLUTION PREVENTION DETAILS

PLAT NO. 40166–20
JOB NO. 40166–21
DATE MARCH 2018
DESIGNER LS
CHECKED KK DRAWN ALL
SHEET 27 OF 44

PERMIT SET

Date: Mar 21, 2018, 12:07pm User ID: ANEWTON
File: K:\projects\401\66\001\2–0 Design\2–1 Civil\DWGS_BRYAN ROAD\16–401600–DT–BRYN–PH1.dwg
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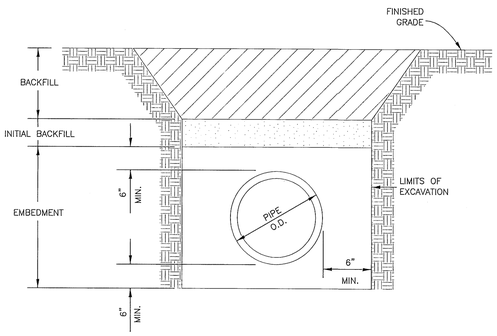


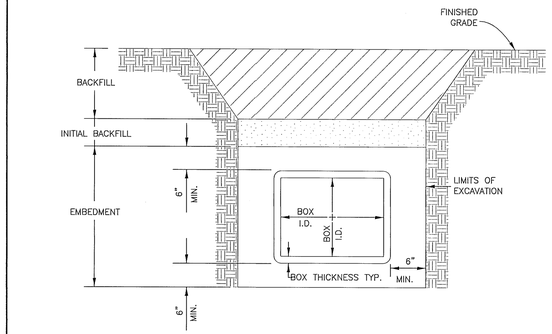
NOTES:

1. BACKFILL SHALL BE NATIVE SOIL, FREE OF DEBRIS, COMPACTED TO 95% STANDARD PROCTOR DENSITY, EXCEPT AS REQUIRED UNDER PAVEMENT.
2. INITIAL BACKFILL SHALL BE UNIFORMLY GRADED MATERIAL (MAXIMUM SIZE, 3" DIAMETER), PLACE IN 8" LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY, EXCEPT AS REQUIRED UNDER PAVEMENT.
3. EMBEDMENT SHALL BE CEMENT STABILIZED SAND (1.5 SACKS PER CUBIC YARD) COMPACTED TO 95% STANDARD PROCTOR DENSITY.
4. UNDER PAVING OR WITHIN 3' OF PAVEMENT, THE INITIAL BACKFILL AND ALL BACKFILL UP TO THE PAVEMENT SUBGRADE SHALL BE CEMENT STABILIZED SAND (1.5 SACKS PER CUBIC YARD) COMPACTED TO 95% STANDARD PROCTOR DENSITY.
5. TRENCH SHORING IN ACCORDANCE WITH OSHA, SHALL BE INSTALLED WHERE REQUIRED.
6. SOIL IN THE PIPE ZONE SHALL CONSIST OF NON-WATERBEARING, COHESIVE SOILS WITH A SHEAR STRENGTH OF 1000 PSF OR GREATER. WHEN WET SAND EXISTS IN THE PIPE ZONE, MODIFIED BEDDING SHALL BE INSTALLED.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

STORM SEWER BEDDING & BACKFILL

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	11/10	D-100a



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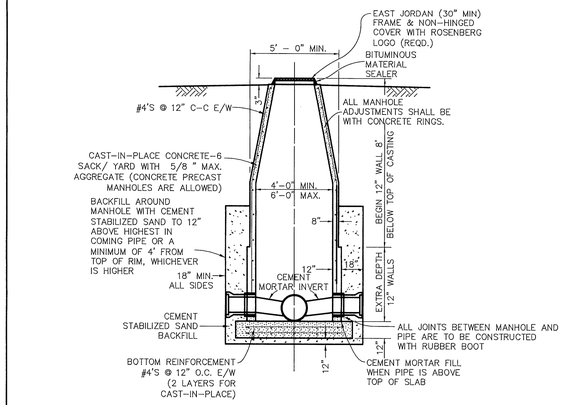
4. UNDER PAVING OR WITHIN 3' OF PAVEMENT, THE INITIAL BACKFILL AND ALL BACKFILL UP TO THE PAVEMENT SUBGRADE SHALL BE CEMENT STABILIZED SAND (1.5 SACKS PER CUBIC YARD) COMPACTED TO 95% STANDARD PROCTOR DENSITY.
5. TRENCH SHORING IN ACCORDANCE WITH OSHA, SHALL BE INSTALLED WHERE REQUIRED.
6. SOIL IN THE PIPE ZONE SHALL CONSIST OF NON-WATERBEARING, COHESIVE SOILS WITH A SHEAR STRENGTH OF 1000 PSF OR GREATER. WHEN WET SAND EXISTS IN THE PIPE ZONE, MODIFIED BEDDING SHALL BE INSTALLED.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

STORM SEWER BEDDING & BACKFILL

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	11/10	D-100b



ELEVATION VIEW

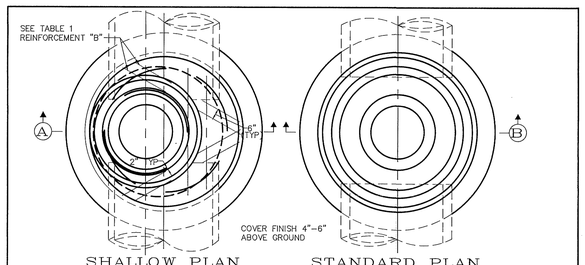
NOTES:

1. ALL STORM SEWER MANHOLE COVERS SHALL BE CITY OF ROSENBERG LABELED AS "STORM".
2. MANHOLE MAY BE CONSTRUCTED USING PRECAST CONE AND BOTTOM. BRICK WILL NOT BE ALLOWED.
3. PRECAST CONCRETE MANHOLE CONFORMING TO ASTM C478. STRUCTURAL REINFORCEMENT CONFORMING TO ASTM 615A.
4. RUBBER GASKET JOINTS ARE TO BE USED ON ALL PRECAST MANHOLE APPLICATIONS.
5. FOR CAST-IN-PLACE MANHOLES, CONCRETE SHALL BE A MONOLITHIC POUR.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

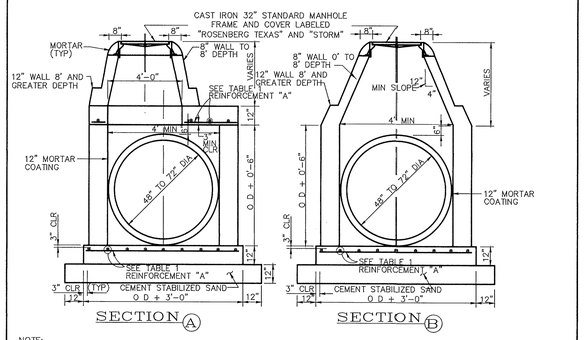
TYPE "C" MANHOLE 18"-42"

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CFA	STAFF	NTS	3/18	D-101



SHALLOW PLAN
COVER NOT SHOWN

STANDARD PLAN
COVER NOT SHOWN



SECTION (A)

SECTION (B)

NOTE:

1. WHEN MANHOLE HAS LESS DEPTH THAN MIN SHOWN ON TABLE 1, BUILD "SECTION A" OTHERWISE BUILD "SECTION B".
2. MANHOLE SHALL BE CONSTRUCTED UTILIZING AN APPROVED PRECAST PRODUCT OR BY THE CAST-IN-PLACE METHOD.

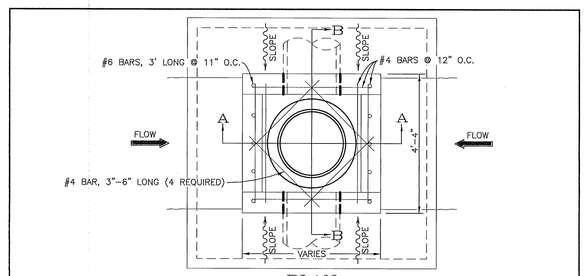
TABLE 1
DATA FOR VARIOUS PIPE DIAMETERS

PIPE DIA (INCHES)	MIN DEPTH	REINFORCEMENT ("A")	REINFORCEMENT ("B")
48"	8'-0"	# 5 @ 12 E W	2 - # 6
54"	9'-4"	# 5 @ 10 E W	2 - # 6
60"	10'-7"	# 5 @ 8 E W	2 - # 7
66"	11'-10"	# 5 @ 7 E W	2 - # 7
72"	13'-2"	# 5 @ 6 E W	2 - # 7

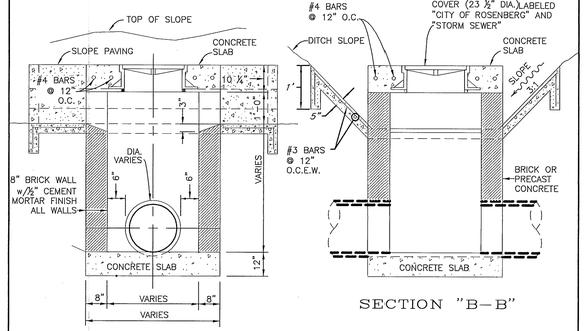
THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

STORM SEWER MANHOLE TYPE "C" FOR 48" TO 72" DIAMETER RCP

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CFA	STAFF	NTS	2/18	D-102



PLAN



SECTION "A-A"

SECTION "B-B"

NO DUMPING DRAINS TO RIVER

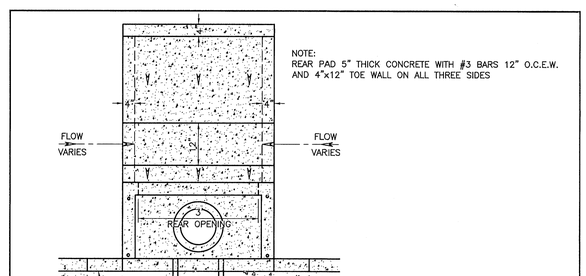
NOTE:

1. ALL STORM SEWER INLETS MUST HAVE A NO DUMPING STORM DRAIN MARKER (SEE DETAIL D-109) PLACED ON IT WHEN INSTALLED.

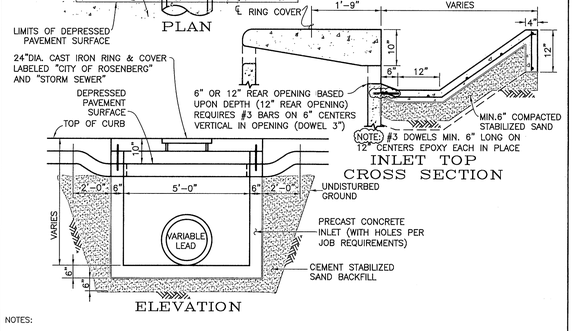
THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

STANDARD TYPE "E" INLET WITH SLOPE PAVING

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	11/10	D-105



PLAN



INLET TOP CROSS SECTION

ELEVATION

NOTES:

1. INLET WALLS MAY BE EXTENDED USING PRECAST RISER SECTION.
2. INLET TOPS MUST BE SECURED TO THE INLET WALL USING # 6 DOWELS DRILLED AND GROUTED A MINIMUM DEPTH OF 5" INTO THE INLET WALL.
3. INLET BACKFILL SHALL BE CEMENT STABILIZED SAND TO THE TOP OF FIRST STAGE.
4. ALL STORM SEWER INLETS MUST HAVE A NO DUMPING STORM DRAIN MARKER [SEE DETAIL (D-109)] PLACED ON IT WHEN INSTALLED.

NO DUMPING DRAINS TO RIVER

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

MODIFIED TYPE H-2 INLET

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	03/17	D-106b

NO.	REVISION	DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
5.11.18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE. STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE

CITY OF ROSENBERG, TEXAS

STORM SEWER DETAILS (SHEET 1 OF 4)

CITY OF ROSENBERG FOUNDED 1895

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED ____ DRAWN ALL
SHEET 28 OF 44

Date: May 11, 2018, 8:16am User ID: ANEWTON
File: K:\Projects\401\66\03\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\16-4016600-DT-BRYN-PH1.dwg

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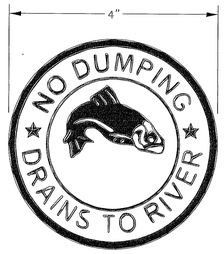
PERMIT SET



STORM DRAIN MARKER

ITEM NO. SD-4

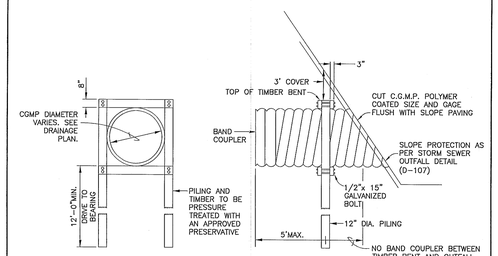
1 COLOR: BLUE, 4" DISC
MATERIAL: STAINLESS STEEL
SYMBOL: FISH
MANUFACTURED BY:
ALMETEK INDUSTRIES, INC.
2 JOY DRIVE
HACKETTSTOWN, NJ 07840
1 (800) 248-2080
www.almetek.com

NOTES:
1. Surface installation requires the surface be brushed with a wire brush and all dust blown off that surface.
2. Install marker with [SKS-ADH] Sikabound Adhesive using a dripless caulking tube gun. Place the adhesive on the back side of the marker in a circular motion from the outside of the marker into the middle of the marker. Place marker in place and apply pressure to the face of the marker.
3. Markers may be applied to concrete, asphalt or steel. The City of Rosenberg requires the marker to be placed on the middle of every catch basin on all storm drains.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

NO DUMPING
METAL STORM DRAIN MARKER

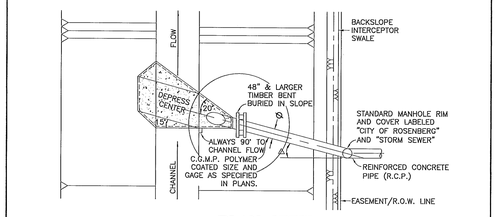
DESIGN: CAK	CAD: STAFF	SCALE: NTS	DATE: 11/10	DRAWING: D-109



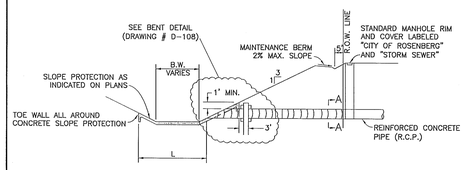
THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

TIMBER BENT FOR
C.G.M.P. OUTFALL

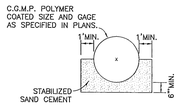
DESIGN: CAK	CAD: STAFF	SCALE: NTS	DATE: 11/10	DRAWING: D-108



PLAN VIEW



PROFILE



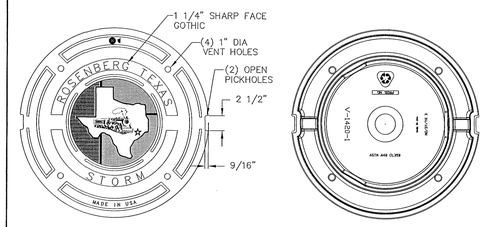
SECTION A-A

NOTES:
1. THE MINIMUM THICKNESS OF CONCRETE SLOPE PAVING SHALL BE (5") FIVE INCHES.

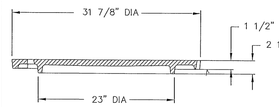
THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

STORM SEWER OUTFALL

DESIGN: CAK	CAD: STAFF	SCALE: NTS	DATE: 11/10	DRAWING: D-107



BOTTOM VIEW



COVER SECTION

NOTES:
1. ALL STORM SEWER MANHOLE COVERS SHALL BE LABELED "ROSENBERG TEXAS" AND "STORM" AND INCLUDE THE SPECIFIED LOGO.
2. 32" MANHOLE COVERS SHALL BE USED ON ALL STORM SEWER MANHOLES.
3. COVER AND 32" FRAME MANUFACTURED BY EAST JORDAN IRON WORKS OR APPROVED EQUAL.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

STORM SEWER 32" MANHOLE COVER

DESIGN: CFA	CAD: STAFF	SCALE: NTS	DATE: 2/18	DRAWING: D-111

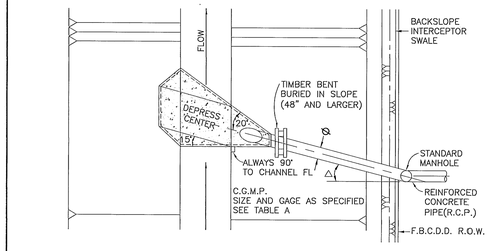


TABLE A

SIZE 2 2/3" X 1/2" CORRUGATION	PIPE GAUGE	BAND COUPLER GAUGE	SIZE 3"X1" OR 5"X1" CORRUGATION	PIPE GAUGE	BAND COUPLER GAUGE
24"	16	16			
30"	16	16			
36"	16	16			
42"	14	16			
48"	14	16	48"	16	18
54"	12	14	54"	16	18
60"	12	14	60"	16	18
66"	10	12	66"	16	18
72"	10	12	72"	16	18
78"	8	10	78"	14	16
84"	8	10	84"	14	16

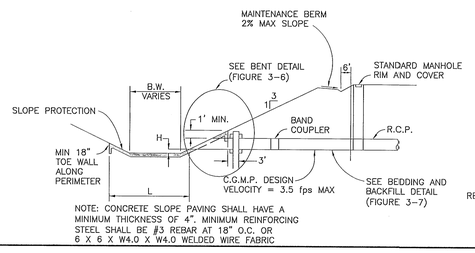
H: FOR PIPE SIZES 24" TO 42"
H=3' MAX AND 1' MIN

H: FOR PIPE SIZES 48" AND LARGER
H=1' MAX AND MIN

L: B.W. / PIPEØ ≤ 7'-6" → L WILL EXTEND ONE PIPE Ø ABOVE FL ON OPPOSITE BANK (MIN)

L: B.W. / PIPEØ > 7'-6" → L =6 Ø OR MIN 1'-6" INTO B.W. WHICHEVER IS GREATER

Δ : PROP 24" TO 42" Δ = 15"
PROP 48" AND LARGER Δ = 30"

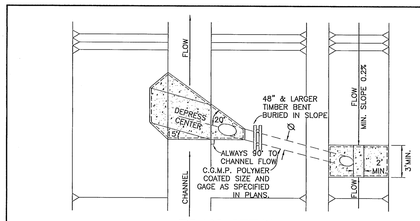


NOTE: CONCRETE SLOPE PAVING SHALL HAVE A MINIMUM THICKNESS OF 4", MINIMUM REINFORCING STEEL SHALL BE #3 REBAR AT 18" O.C. OR 6 X 6 X W4.0 X W4.0 WELDED WIRE FABRIC

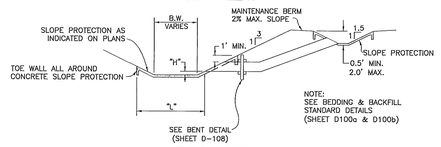
REVISION 1-7-13-88
2-5-20-97
3-12-01-10

TYPICAL STORM SEWER OUTFALL DETAIL FOR FORT BEND COUNTY, TEXAS

AUGUST 1986 | FIGURE 3-5



PLAN VIEW



PROFILE

PIPE DIA.	SLOPE	VELOCITY
24"	0.6%	3.25 f.p.s.
36"	0.3%	3.00 f.p.s.
42"	0.2%	2.75 f.p.s.
48"	0.2%	3.00 f.p.s.
54"	0.2%	3.25 f.p.s.

"H" : FOR PIPE SIZES UP TO 42" H = 3 FT. MAX. AND 1 FT. MIN.
FOR PIPE SIZES OVER 48" H = 1 FT. MAX. AND MIN.

"L" : B.W. / PIPE SIZE ≤ 7' -6" ⟶ "L" WILL EXTEND ONE PIPE Ø ABOVE FL ON OPPOSITE BANK (MIN.)

B.W. / PIPE SIZE > 7' -6" ⟶ "L" = 6 Ø OR MIN. 1' -6" INTO B.W. WHICHEVER IS GREATER

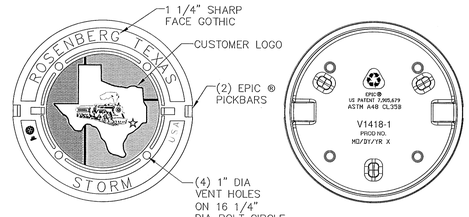
NOTE: MAX. BACKSLOPE DRAIN SPACING SHALL BE 800 FT. OR 400 FT. TO THE SWALE HIGH POINT.

NOTES:
1. THE MINIMUM THICKNESS OF CONCRETE SLOPE PAVING USED SHALL BE (5") FIVE INCHES.

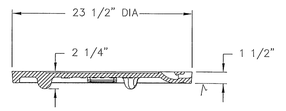
THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

TYPICAL BACKSLOPE DRAIN

DESIGN: CAK	CAD: STAFF	SCALE: NTS	DATE: 11/10	DRAWING: D-110



BOTTOM VIEW



SECTION

NOTES:
1. ALL STORM SEWER MANHOLE COVERS SHALL BE LABELED "ROSENBERG TEXAS" AND "STORM" AND INCLUDE THE SPECIFIED LOGO.
2. 24" MANHOLE COVERS SHALL BE USED ON INLETS ONLY.
3. COVER AND 24" FRAME MANUFACTURED BY EAST JORDAN IRON WORKS OR APPROVED EQUAL.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

STORM SEWER 24" MANHOLE COVER

DESIGN: CFA	CAD: STAFF	SCALE: NTS	DATE: 2/18	DRAWING: D-112

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

NO. REVISION | DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
5.11.18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
STORM SEWER DETAILS (SHEET 2 OF 4)

CITY OF ROSENBERG FOUNDED 1865

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED ____ DRAWN ALL
SHEET 29 OF 44

PERMIT SET

Date: May 11, 2018, 8:16am User ID: ANEWTON
File: K:\projects\401\66\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\16-4016600-DT-BRYN-PH1.dwg

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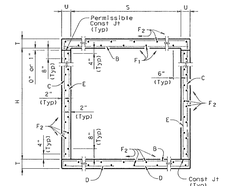
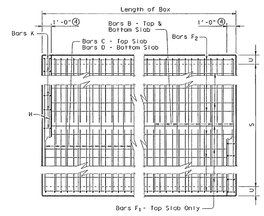
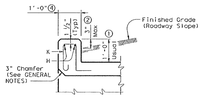


TYPICAL SECTION



PLAN OF REINF STEEL



SECTION THRU CURB

① 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail or curbs taller than 1'-0", refer to ECD standard. For structures with T6 bridge rail, refer to T6-DM standard. For structures with traffic rail, other than T6, refer to RAC standard.

② For vehicle safety, the following requirements must be met:
- For structures without bridge rail, curbs shall project no more than 3" above finished grade.
- For structures with bridge rail, curbs shall be flush with finished grade.
Curb heights shall be reduced, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

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

④ 1'-0" typical. 2'-0" when RAC standard is referred to elsewhere in the plans.

Deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064 may be used to replace conventional reinforcement shown at the Contractor's option. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes.

Example Conversion: Replacement of No. 6 Gr 60 at 6" Spacing with WWR.
WWR required = (0.44 sq in/ 0.5') x (60 ksi/70 ksi) = 0.754 sq in/ft.
If D30.6 wire is used to meet the 0.754 sq in/ft requirement in this example, the required spacing = (0.306 sq in/ 0.754 sq in/ft) x 12 in/ft = 4.87". Max spacing.
Required lap length for the provided D30.6 wire is 2'-2" (Lap required for uncoated No. 5 bars, as shown in Item 440).

GENERAL NOTES:
Designed according to AASHTO LRFD Specifications.
Designed for the maximum fill height shown.
All reinforcing steel shall be Grade 60.
Concrete shall be Class "C" for top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface.
Class "C" concrete shall have a minimum compressive strength of 3,600 psi. Class "S" concrete shall have a minimum compressive strength of 4,000 psi.
The use of permanent forms is not allowed.
The bottom edge of the top slab shall be chamfered 3" on the entrance.
Reinforcing bars shall be adjusted to provide a minimum of 1 ¾" clear cover.
Construction joints shown at the flow line may be raised a maximum of 6" at the Contractor's option. If this option is used, Bars E may be cut off or raised, and Bars C and D may be reversed.
See standard SCC-MD for skewed ends, angle sections and lengthening details.

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS
CAST-IN-PLACE
0' TO 30' FILL

SCC-5 & 6

FILE:	scc30ze.dgn	DN: GAF	CK: LMM	DW: BWM/TxDOT	CK: GAF
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10-12 Added BWR		DIST	COUNTY		SHEET NO.

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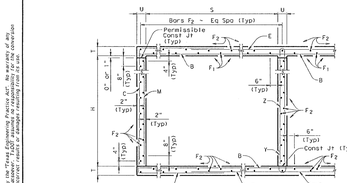
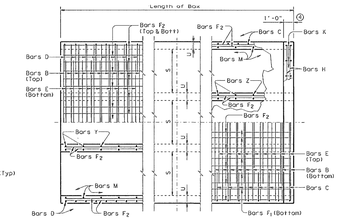
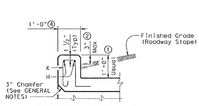


TYPICAL SECTION



BOTTOM SLAB TOP SLAB

PART PLANS



SECTION THRU CURB

H	Bar Dimensions "X"	Bar Dimensions "Y"
3'-0"	3'-5"	2'-2"
4'-0"	4'-5"	2'-2"
5'-0"	5'-5"	2'-2"
6'-0"	6'-5"	2'-2"
7'-0"	7'-5"	2'-2"

① 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail or curbs taller than 1'-0", refer to ECD standard. For structures with T6 bridge rail, refer to T6-DM standard. For structures with traffic rail, other than T6, refer to RAC standard.

② For vehicle safety, the following requirements must be met:
- For structures without bridge rail, curbs shall project no more than 3" above finished grade.
- For structures with bridge rail, curbs shall be flush with finished grade.
Curb heights shall be reduced, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

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

④ 1'-0" typical. 2'-0" when RAC standard is referred to elsewhere in the plans.

Deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064 may be used to replace conventional reinforcement shown at the Contractor's option. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes.

Example Conversion: Replacement of No. 6 Gr 60 at 6" Spacing with WWR.
WWR required = (0.44 sq in/ 0.5') x (60 ksi/70 ksi) = 0.754 sq in/ft.
If D30.6 wire is used to meet the 0.754 sq in/ft requirement in this example, the required spacing = (0.306 sq in/ 0.754 sq in/ft) x 12 in/ft = 4.87". Max spacing.
Required lap length for the provided D30.6 wire is 2'-2" (Lap required for uncoated No. 5 bars, as shown in Item 440).

GENERAL NOTES:
Designed according to AASHTO LRFD Specifications.
Designed for the maximum fill height shown.
All reinforcing steel shall be Grade 60.
Concrete shall be Class "C" for top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface.
Class "C" concrete shall have a minimum compressive strength of 3,600 psi. Class "S" concrete shall have a minimum compressive strength of 4,000 psi.
The use of permanent forms is not allowed.
The bottom edge of the top slab shall be chamfered 3" on the entrance.
Reinforcing bars shall be adjusted to provide a minimum of 1 ¾" clear cover.
Construction joints shown at the flow line may be raised a maximum of 6" at the Contractor's option. If this option is used, Bars E may be cut off or raised, and Bars C and D may be reversed, and Bars T or Bars F2 may be added.
See standard MC-MD for skewed ends, angle sections and lengthening details.

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

MULTIPLE BOX CULVERTS
CAST-IN-PLACE
7'-0" SPAN
0' TO 10' FILL

MC-7-10

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SECTION DIMENSIONS				FILL HEIGHT ⑤	BILLS OF REINFORCING STEEL (For Box Length = 40 feet)																												QUANTITIES			
					Bars B				Bars C				Bars D						Bars E~#4 at 18" Max		Bars F_1~#4		Bars F_2~#4 at 18" Max		Bars H 4~#4		Bars X		Per foot of Barrel		Curb		Total	
S	H	T	U		No.	Size	Spa	Length	Weight	No.	Size	Spa	Length	Weight	"X"	"Y"	No.	Size	Spa	Length	Weight	"Y"	"Z"	No.	Length	Wt	No.	Length	Wt	Length	Wt	No.	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lbs)
5'-0"	2'-0"	7"	7"	2'	26	#5	5"	5'-11"	1,197	162	#5	6"	5'- 2"	873	2'- 5"	2'- 9"	162	#5	6"	5'- 4"	901	2'- 9"	2'- 7"	56	2'-0"	75	8	7'-39"-9	212	22	39'-9"	584	5'-11"	16	14.40	0.353	96.1	0.5	56	14.6	3,898
5'-0"	2'-0"	8"	7"	2'	30	#5	5"	5'-11"	1,197	194	#4	5"	5'- 0"	648	2'- 6"	2'- 6"	194	#4	5"	4'- 9"	616	2'- 6"	2'- 3"	56	2'-0"	75	4	18'-39"-9	106	22	39'-9"	584	5'-11"	16	14.40	0.391	80.7	0.5	56	16.1	3,282
5'-0"	3'-0"	8"	7"	2'	30	#5	5"	5'-11"	1,197	194	#4	5"	5'-11"	761	3'- 5"	2'- 6"	194	#4	5"	4'- 8"	605	2'- 6"	2'- 2"	56	3'-0"	112	8	7'-39"-9	212	26	39'-9"	690	5'-11"	16	14.40	0.434	89.6	0.5	56	16.3	3,639
5'-0"	3'-0"	8"	7"	2'	30	#5	5"	5'-11"	1,197	194	#4	5"	6'- 0"	778	3'- 6"	2'- 6"	194	#4	5"	4'- 9"	616	2'- 6"	2'- 3"	56	3'-0"	112	4	18'-39"-9	106	26	39'-9"	690	5'-11"	16	14.40	0.434	87.5	0.5	56	17.9	3,555
5'-0"	4'-0"	8"	7"	2'	26	#5	5"	5'-11"	1,197	194	#4	5"	6'-11"	896	4'- 5"	2'- 6"	194	#4	5"	4'- 8"	605	2'- 6"	2'- 2"	56	4'-0"	150	8	7'-39"-9	212	26	39'-9"	690	5'-11"	16	14.40	0.439	93.6	0.5	56	18.1	3,806
5'-0"	4'-0"	8"	7"	2'	30	#5	5"	5'-11"	1,197	194	#4	5"	7'- 0"	907	4'- 6"	2'- 6"	194	#4	5"	4'- 9"	616	2'- 6"	2'- 3"	56	4'-0"	150	4	18'-39"-9	106	26	39'-9"	690	5'-11"	16	14.40	0.477	91.7	0.5	56	19.6	3,722
5'-0"	5'-0"	8"	7"	2'	30	#5	5"	5'-11"	1,197	194	#4	5"	7'-11"	1,026	5'- 5"	2'- 6"	194	#4	5"	4'- 8"	605	2'- 6"	2'- 2"	56	5'-0"	187	8	7'-39"-9	212	30	39'-9"	797	5'-11"	16	14.40	0.483	100.6	0.5	56	19.8	4,080
5'-0"	5'-0"	8"	7"	2'	30	#5	5"	5'-11"	1,197	194	#4	5"	8'- 0"	1,037	5'- 6"	2'- 6"	194	#4	5"	4'- 9"	616	2'- 6"	2'- 3"	56	5'-0"	187	4	18'-39"-9	106	30	39'-9"	797	5'-11"	16	14.40	0.521	98.5	0.5	56	21.3	3,996
6'-0"	3'-0"	8"	7"	2'	26	#5	6"	6'- 6"	1,098	3'- 5"	3'- 1"	162	#5	6"	5'- 8"	957	3'- 1"	2'- 7"	56	3'-0"	112	10	7'-39"-9	266	29	39'-9"	770	6'-11"	18	16	45	0.439	115.1	0.5	63	18.1	4,666
6'-0"	3'-0"	8"	7"	2'	26	#5	6"	6'-11"	1,683	162	#5	6"	6'- 7"	1,112	3'- 6"	3'- 1"	162	#5	6"	5'- 9"	972	3'- 1"	2'- 8"	56	3'-0"	112	5	18'-39"-9	133	29	39'-9"	770	6'-11"	18	16	45	0.484	119.6	0.5	63	19.9	4,845
6'-0"	4'-0"	8"	7"	2'	26	#5	6"	6'-11"	1,724	162	#5	6"	7'- 1"	1,126	3'- 5"	3'- 1"	162	#5	6"	5'-10"	986	3'- 1"	2'- 9"	56	4'-0"	150	5	18'-39"-9	133	29	39'-9"	770	7'- 1"	19	18.51	0.605	121.3	0.5	70	24.7	4,921
6'-0"	4'-0"	8"	7"	2'	30	#5	6"	6'-11"	1,400	194	#4	5"	7'- 3"	940	4'- 5"	2'-10"	194	#4	5"	5'- 0"	648	2'-10"	2'- 2"	56	4'-0"	150	10	7'-39"-9	266	29	39'-9"	770	6'-11"	18	16	45	0.483	104.4	0.5	63	19.8	4,237
6'-0"	4'-0"	8"	7"	2'	26	#5	6"	6'-11"	2,015	162	#5	6"	7'- 7"	1,281	4'- 6"	3'- 1"	162	#5	6"	5'- 9"	972	3'- 1"	2'- 8"	56	4'-0"	150	5	18'-39"-9	133	29	39'-9"	770	6'-11"	18	16	45	0.527	133.0	0.5	63	21.6	5,384
6'-0"	4'-0"	8"	7"	2'	30	#5	6"	6'-11"	1,724	162	#5	6"	7'- 8"	1,295	4'- 7"	3'- 1"	162	#5	6"	5'-10"	986	3'- 1"	2'- 9"	56	4'-0"	150	5	18'-39"-9	133	29	39'-9"	770	7'- 1"	19	18.51	0.605	126.5	0.5	70	24.7	5,128
6'-0"	5'-0"	8"	7"	2'	26	#5	6"	6'-11"	1,400	194	#4	5"	8'- 3"	1,069	5'- 5"	2'-10"	194	#4	5"	5'- 0"	648	2'-10"	2'- 2"	56	5'-0"	187	10	7'-39"-9	266	33	39'-9"	876	6'-11"	18	16	45	0.526	111.2	0.5	63	21.5	4,509
6'-0"	5'-0"	8"	7"	2'	26	#5	6"	6'-11"	2,015	162	#5	6"	8'- 7"	1,450	5'- 6"	3'- 1"	162	#5	6"	5'- 9"	972	3'- 1"	2'- 8"	56	5'-0"	187	5	18'-39"-9	133	33	39'-9"	876	6'-11"	18	16	45	0.570	140.8	0.5	63	23.3	5,696
6'-0"	5'-0"	8"	7"	2'	30	#5	6"	7'- 1"	2,064	162	#5	6"	8'- 8"	1,464	5'- 7"	3'- 1"	162	#5	6"	5'-10"	986	3'- 1"	2'- 9"	56	5'-0"	187	5	18'-39"-9	133	33	39'-9"	876	7'- 1"	19	18.51	0.654	142.8	0.5	70	26.7	5,780
6'-0"	6'-0"	7"	7"	2'	26	#5	6"	6'-11"	1,400	194	#4	5"	9'- 3"	1,199	6'- 5"	2'-10"	194	#4	5"	5'- 0"	648	2'-10"	2'- 2"	56	6'-0"	224	10	7'-39"-9	266	37	39'-9"	982	6'-11"	18	16	45	0.569	118.0	0.5	63	23.3	4,782
6'-0"	6'-0"	8"	7"	2'	26	#5	6"	6'-11"	2,015	162	#5	6"	9'- 7"	1,619	6'- 6"	3'- 1"	162	#5	6"	5'- 9"	972	3'- 1"	2'- 8"	56	6'-0"	224	5	18'-39"-9	133	37	39'-9"	982	6'-11"	18	16	45	0.613	148.6	0.5	63	25.0	6,008
6'-0"	6'-0"	8"	7"	2'	30	#5	6"	7'- 1"	2,064	162	#5	6"	9'- 8"	1,633	6'- 7"	3'- 1"	162	#5	6"	5'-10"	986	3'- 1"	2'- 9"	56	6'-0"	224	5	18'-39"-9	133	37	39'-9"	982	7'- 1"	19	18.51	0.704	150.6	0.5	70	28.7	6,092

⑤ For each box size, minimum fill height shown shall be used for all culverts with less than 2'-0" of fill.

Deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064 may be used to replace conventional reinforcement shown at the Contractor's option. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes.

Example Conversion: Replacement of No. 6 Gr 60 at 6" Spacing with WWR.
WWR required = (0.44 sq in/ 0.5') x (60 ksi/70 ksi) = 0.754 sq in/ft.
If D30.6 wire is used to meet the 0.754 sq in/ft requirement in this example, the required spacing = (0.306 sq in/ 0.754 sq in/ft) x 12 in/ft = 4.87". Max spacing.
Required lap length for the provided D30.6 wire is 2'-2" (Lap required for uncoated No. 5 bars, as shown in Item 440).

HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS
CAST-IN-PLACE
0' TO 30' FILL

SCC-5 & 6

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| NUMBER OF SPANS | SECTION DIMENSIONS | | | | BILLS OF REINFORCING STEEL (For Box Length = 40 feet) | | | | | | | | | | | | | | | | | | |

TABLE OF DIMENSIONS & REINFORCING STEEL (Wings for One Structure End)

Dimensions					Variable Reinforcing				Estimated Quantities per Ft of Wing Length (2-Wings) ③	
					Bars J1		Bars J2			
Maximum Wingwall Height Hw	W	X	Y	Z	Size ⑤	Spa	Size ⑤	Spa	Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'- 5"	1'- 6"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'- 8"	1'- 9"	1'- 3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'- 2"	2'- 0"	1'- 6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'- 8"	2'- 3"	1'- 9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'- 2"	2'- 6"	2'- 0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'- 8"	2'- 9"	2'- 3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'- 2"	3'- 0"	2'- 6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'- 8"	3'- 3"	2'- 9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'- 2"	3'- 6"	3'- 0"	1'- 0"	#8	6"	#5	6"	216.78	0.955
15'-0"	7'- 8"	4'- 0"	3'- 0"	1'- 1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'- 2"	4'- 6"	3'- 0"	1'- 3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING (2-Wings)

Bar	Size	No.	Spa
D	#5	~	1'-0"
C	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
R	#5	6	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

WING DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)

Hw = H + T + C - 0.250'

Lw = (Hw - 0.333') (SL)

For Cast-in-place culverts:

Ltw = (N) (S) + (N+1) (U)

For Precast culverts:

Ltw = (N) (2U + S) + (N-1) (0.5')

Total Wingwall Area (Two Wings ~ S.F.) = (Hw + 0.333') (Lw)

Hw = Height of Wingwall

SL:1 = Side Slope Ratio (Horizontal:1 Vertical)

Lw = Length of Wingwall

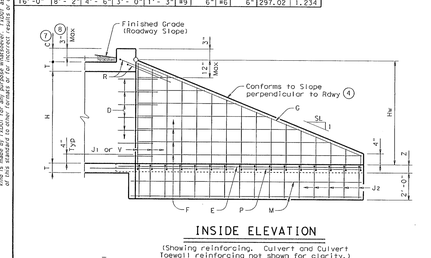
Ltw = Culvert Toewall Length

N = Number of Culvert Spans

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

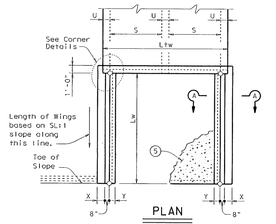
GENERAL NOTES:

1. Extend Bars P 3'-0" minimum into bottom slab of Box Culvert.
2. Adjust to fit as necessary to maintain 1 1/2" clear cover and 4" minimum between bars.
3. Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings multiply the tabulated values by Lw.
4. Recommended values of Slope are: 2:1, 3:1, 4:1, & 6:1.
5. When shown elsewhere on the plans, a 5" deep concrete riprap shall be constructed. Payment for riprap shall be as required by Item 432, "Riprap". Unless otherwise shown on the plans or directed by the Engineer, the riprap shall have a 5" wide by 1'-6" deep reinforced concrete toewall along all edges adjacent to natural ground; the toewall shall be reinforced by extending typical riprap reinforcing into the toewall; construction joints or grooved joints, oriented in the direction of flow, shall extend across the full distance of the riprap, at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required.
6. At Contractor's option, Culvert Toewall may be ended flush with Wingwall toewall. Adjust reinforcing from that shown as necessary.
7. 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail or curbs taller than 1'-0", refer to ECD standards. For structures with T6 bridge rail, refer to T6-GM standard. For structures with traffic rail, other than T6, refer to RAC standards.
8. For vehicle safety, curb heights and wall heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.



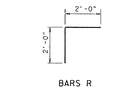
INSIDE ELEVATION

(Showing reinforcing. Culvert and Culvert Toewall reinforcing not shown for clarity.)



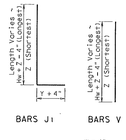
PLAN

(Showing Dimensions)

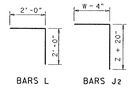


BARS R

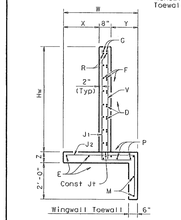
BARS D



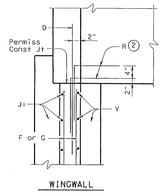
BARS J1 BARS V



BARS L BARS J2

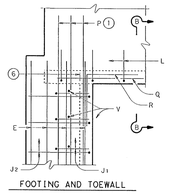


SECTION A-A

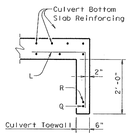


WINGWALL

CORNER DETAILS



FOOTING AND TOEWALL



SECTION B-B ⑤

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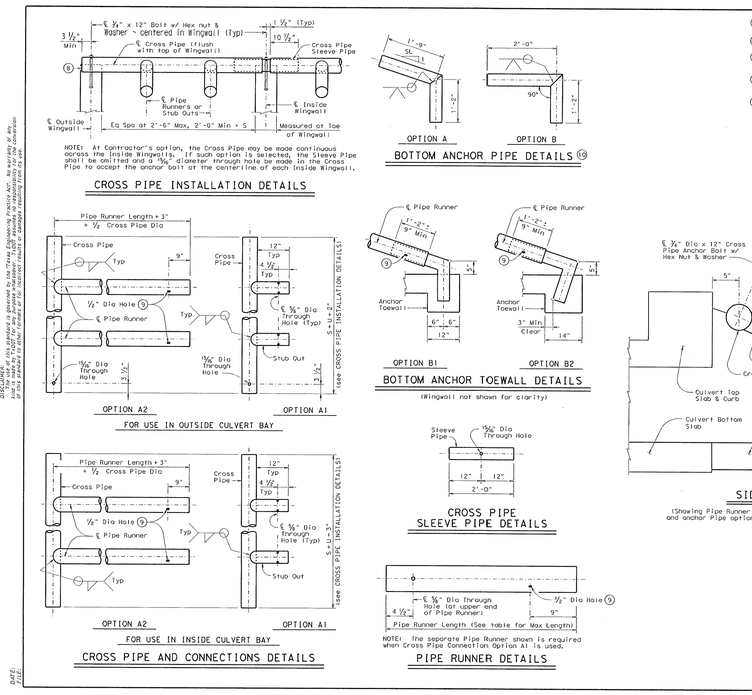
DATE:
FILE:

Texas Department of Transportation | Bridge Division Standard

CONCRETE WINGWALLS WITH STRAIGHT WINGS FOR 0° SKEW BOX CULVERTS

SW-O

FILE:	sw-0(0)d.dgn	ck: GAF	ck: CAT	dw: TxDOT	ck: GAF
©TxDOT	February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS					
11-98 Add note for synthetic fibers.		DIST	COUNTY		SHEET NO.



NOTES: At Contractor's option, the Cross Pipe may be made continuous across the Inside Wingwalls. If such option is selected, the Sleeve Pipe shall be omitted and a 15/16" diameter through hole be made in the Cross Pipe to accept the anchor bolt at the centerline of each Inside Wingwall.

MAXIMUM PIPE RUNNER LENGTHS & REQUIRED PIPE RUNNER AND ANCHOR PIPE SIZES ⑥

Maximum Pipe Runner Length	Required Pipe Runner Size			Required Anchor Pipe Size		
	Pipe Size	Pipe O.D.	Pipe I.D.	Pipe Size	Pipe O.D.	Pipe I.D.
10'- 0"	3" STD	3.500"	3.068"	2" STD	2.375"	2.067"
19'- 8"	4" STD	4.500"	4.026"	3" STD	3.500"	3.068"
34'- 2"	5" STD	5.563"	5.047"	4" STD	4.500"	4.026"

⑥ Cross Pipe shall be the same size as the Pipe Runner. Cross Pipe Stub Out shall be the same size as the Anchor Pipe.

⑦ Note that actual slope of Safety Pipe Runner may vary slightly from Side Slope.

⑧ Core shall be taken to ensure that Riprap concrete does not flow into the Cross Pipe so as to permit disassembly of the bolted connection to allow cleanout access.

⑨ After installation, the 1/2" hole shall be inspected to ensure that the top of the Safety Pipe Runner with the Bottom Anchor Pipe is adequate.

⑩ At fabricator's option, a heat bend to a smooth 5" radius or a manufactured elbow (of the same material as the Runner) may be substituted for the mitered and welded joint in the Bottom Anchor Pipe.

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DATE:
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SHEET 2 OF 2

Texas Department of Transportation | Bridge Division Standard

SAFETY END TREATMENT FOR 0° SKEW BOX CULVERTS (MAXIMUM Hw = 7'-0") TYPE I – CROSS DRAINAGE

SETB-CD

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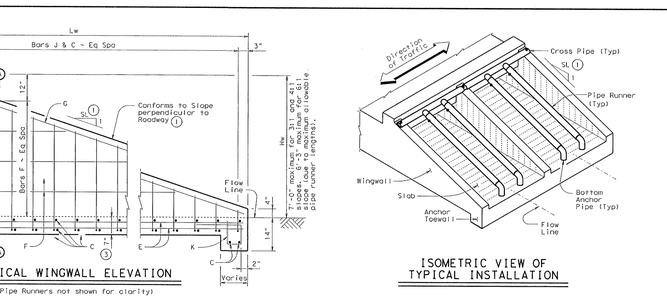


TYPICAL WINGWALL ELEVATION

(Pipe Runners not shown for clarity)

ISOMETRIC VIEW OF TYPICAL INSTALLATION

Formulas: (All values are in Feet)

Hw = H + T + C - 0.250'

Lw = (Hw - 0.333') (SL)

For Cast-in-place culverts:

Atw = (N) (S) + (N+1) (U)

For Precast culverts:

Atw = (N) (2U + S) + (N-1) (0.500')

Total Wingwall Area (S.F.) = (0.5) (Hw + 0.333') (Lw) (N+1)

Total Concrete Volume (C.Y.) = + [(Wingwall Area) (0.583') + (Lw) (Atw) (0.583') + (Atw) (1.167') (1.167' - 0.583')] ÷ (27)

Pipe Runner Length = (Lw) (R) - (1.917')

Total Reinforcing (Lbs) = + (1.55) (Lw) (Atw) + (4.43) (Atw) + (K2) (Hw) (N+1) (Lw)

C = Height of Curb above top of Top Slab
Hw = Height of Wingwall
K = Constant Value for use in formulas

Slope SL:1	K1	K2
3:1	~ 1.054	~ 7.45
4:1	~ 1.031	~ 8.49
6:1	~ 1.014	~ 10.30

Atw = Anchor Toewall Length
Lw = Length of Wingwall
N = Number of Culvert Barrels
SL:1 = Side Slope Ratio (Horizontal : 1 Vertical)

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

GENERAL NOTES:

Designed according to AASHTO LRFD Specifications.

The Safety End treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the Pipe Runners.

Pipe Runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

All reinforcing steel shall be Grade 60. All reinforcing shall be adjusted as necessary to provide a minimum clear cover of 1 1/2".

All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.

The quantities for Pipe Runners, reinforcing steel, and concrete, resulting from the formulas given herein are for Contractor's information only.

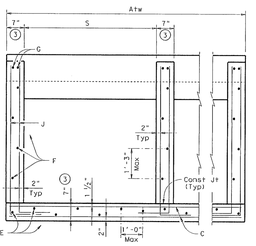
Pipe Runners, Cross Pipes, and Anchor Pipes shall conform to the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Bolts and nuts shall conform to ASTM A307.

All steel components, except the concrete reinforcing, shall be galvanized after fabrication. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications.

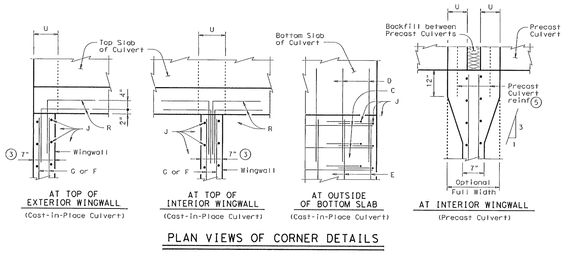
See BCS standard sheet for additional dimensions and information.

Alternate design drawings bearing the seal of a professional engineer will be acceptable for precast construction of the Safety End treatments.



SECTION A-A

(Showing typical Wingwall and Wing Slab reinforcing) (Pipe Runners not shown for clarity)



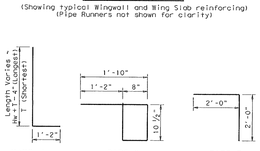
AT TOP OF EXTERIOR WINGWALL (Cast-in-Place Culvert)

AT TOP OF INTERIOR WINGWALL (Cast-in-Place Culvert)

AT OUTSIDE OF BOTTOM SLAB (Cast-in-Place Culvert)

AT INTERIOR WINGWALL (Precast Culvert)

PLAN VIEWS OF CORNER DETAILS



BARS J BARS K (Length = 4'-3") BARS R

TABLE OF REINFORCING BAR SIZES & SPACING

Bar	Size	Spacing
C	#4	10" Max
D	#4	match F & E
E	#4	1'- 0" Max
F	#4	1'- 3" Max
G	#6	Shown
J	#4	10" Max
K	#4	1'- 0" Max
R	#4	Shown

① Recommended values of slope are: 3:1, 4:1, & 6:1. Slope shall be 3:1 or flatter.

② 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures without railing and curbs taller than 1'-0", refer to ECD standard.

③ Wingwall and slab thicknesses may be the same as the adjacent culvert wall and slab thicknesses (7" Minimum). If thicknesses greater than the minimum (7") are used, no changes will be made in quantities and no additional compensation will be allowed.

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

⑤ For Culverts with C = 0", the precast culvert reinforcing may extend 1'-0" minimum into Wingwall. Wingwall Bars D and R may be omitted. Otherwise, refer to the "Wingwall Connection Detail" on the SCP-MD standard.

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DATE:
FILE:

SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

SAFETY END TREATMENT FOR 0° SKEW BOX CULVERTS (MAXIMUM Hw = 7'-0") TYPE I – CROSS DRAINAGE

SETB-CD

FILE:	setbcde.dgn	ck: GAF	ck: CAT	dw: JRP	ck: GAF
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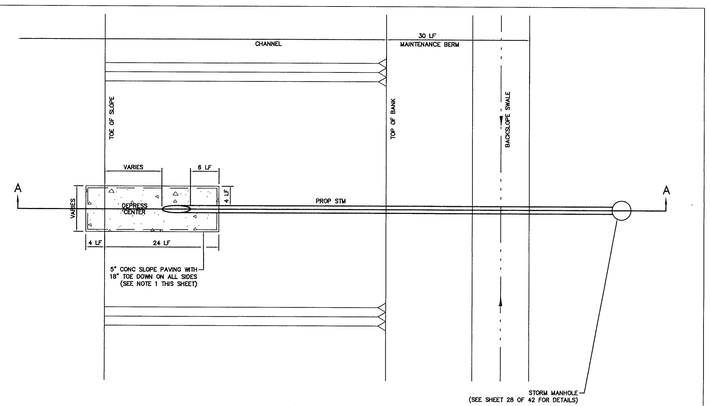
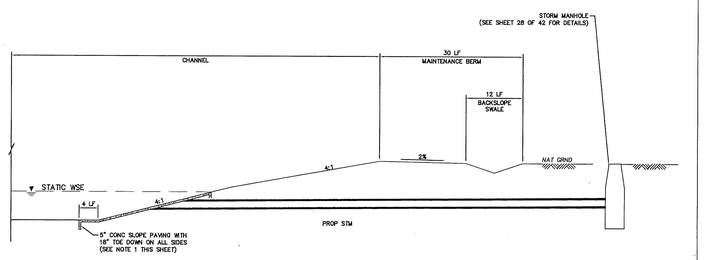
REVISIONS					
		DIST	COUNTY		SHEET NO.



PLAN



SECTION A

TYPICAL EROSION PROTECTION DETAIL FOR OUTFALLS

N.T.S.

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1885

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

NO. REVISION DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
3.26.18

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
STORM SEWER DETAILS (SHEET 4 OF 4)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED JV DRAWN ALL
SHEET 31 OF 44

PERMIT SET

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Date: Mar 21, 2018, 12:08pm User ID: ANEWTON
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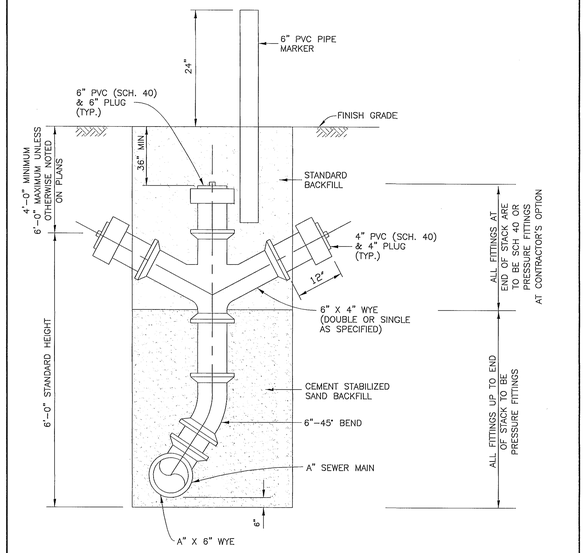

A" = SIZE OF SEWER MAIN

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

SANITARY SEWER STACK

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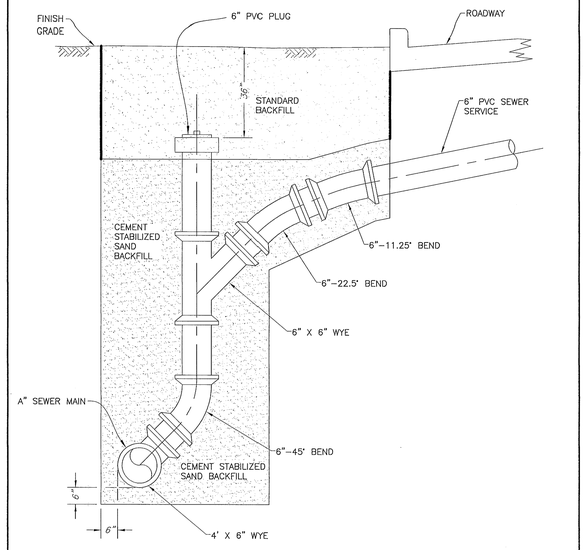
CAK	STAFF	NTS	12/10	S-100a



A" = SIZE OF SEWER MAIN

NOTES:
1. ALL FITTINGS UP TO END OF STACK TO BE PRESSURE FITTINGS.
2. ALL FITTINGS AT END OF STACK TO BE TO BE SCH 40 OR PRESSURE FITTINGS AT CONTRACTOR'S OPTION.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
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SANITARY SEWER FAR SIDE STACK CROSSOVER

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
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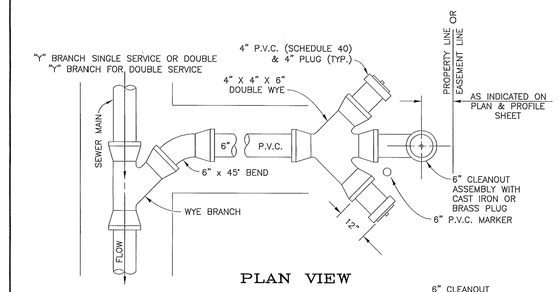
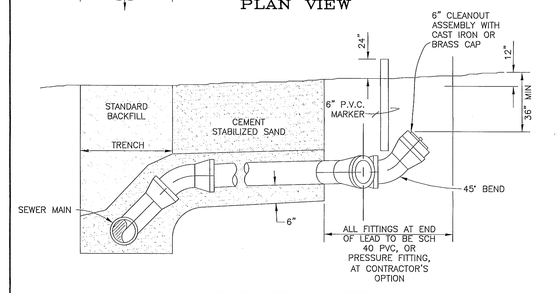


PLAN VIEW



ELEVATION VIEW

NOTE: ALL FITTINGS ON MAIN LINE AND UP TO THE END OF LEAD ARE TO BE PRESSURE FITTINGS.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

SANITARY SEWER SERVICE CONNECTION

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
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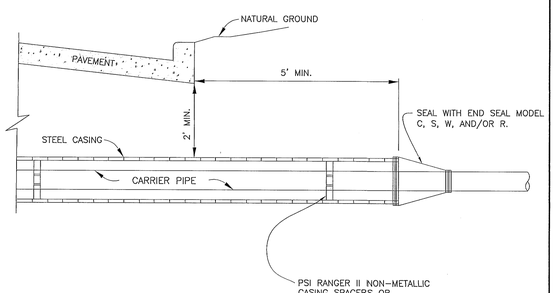
NOTES:
1. Casing size and thickness shall conform to the minimum requirements of the Dept. Of Public Works and other permits, as required.
2. Maintain 2 inches minimum clearance between the maximum outside diameter of carrier pipe and casing at all locations.
3. Dimensions are approximate only. Contractor shall install adequately sized casing to accommodate the carrier pipe.
4. Casing size may differ based on pipe manufacturer used and joints required. Engineer shall submit sealed drawings for any changes.
5. Casing size may increase on long bores at contractor's discretion.

SCHEDULE OF CASING		
CARRIER PIPE	NOMINAL CASING	MIN. WALL THICKNESS (IN.)
6"	12"	0.250
8"	16"	0.375
10"	18"	0.500
12"	20"	0.500
15"	22"	0.500
18"	26"	0.500
21"	30"	0.500
24"	32"	0.500
27"	36"	0.500
30"	40"	0.500



ELEVATION VIEW

SPACING REQUIREMENTS:
1. Max. 8' between spacers
2. Max. 2' from casing pipe end.
3. Max. 2' on each side of bell or mechanical joint.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

SANITARY SEWER LINE ENCASEMENT

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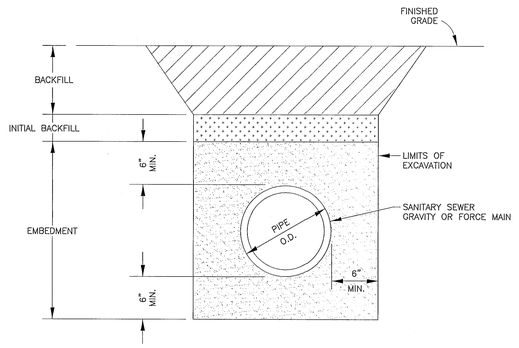
CAK	STAFF	NTS	03/17	S-103



NOTES:
1. BACKFILL SHALL BE NATIVE SOIL, FREE OF DEBRIS, COMPACTED TO 95% STANDARD PROCTOR DENSITY, EXCEPT AS REQUIRED UNDER PAVEMENT.
2. INITIAL BACKFILL SHALL BE UNIFORMLY GRADED MATERIAL (MAXIMUM SIZE, 3" DIAMETER), PLACE IN 8" LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY, EXCEPT AS REQUIRED UNDER PAVEMENT.
3. EMBEDMENT SHALL BE CEMENT STABILIZED SAND (1.5 SACKS PER CUBIC YARD) COMPACTED TO 95% STANDARD PROCTOR DENSITY.
4. UNDER PAVING OR WITHIN 3' OF PAVEMENT, THE INITIAL BACKFILL AND ALL BACKFILL UP TO THE PAVEMENT SUBGRADE SHALL BE CEMENT STABILIZED SAND (1.5 SACKS PER CUBIC YARD) COMPACTED TO 95% STANDARD PROCTOR DENSITY.
5. TRENCH SHORING IN ACCORDANCE WITH OSHA, SHALL BE INSTALLED WHERE REQUIRED.
6. SOIL IN THE PIPE ZONE SHALL CONSIST OF NON-WATERBEARING, COHESIVE SOILS WITH A SHEAR STRENGTH OF 1000 PSI OR GREATER. WHEN WET SAND EXISTS IN THE PIPE ZONE, MODIFIED BEDDING SHALL BE INSTALLED.
7. THIS APPLICATION IS FOR BOTH GRAVITY SEWER AND/OR FORCE MAIN CONSTRUCTION.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

SANITARY SEWER BEDDING & BACKFILL

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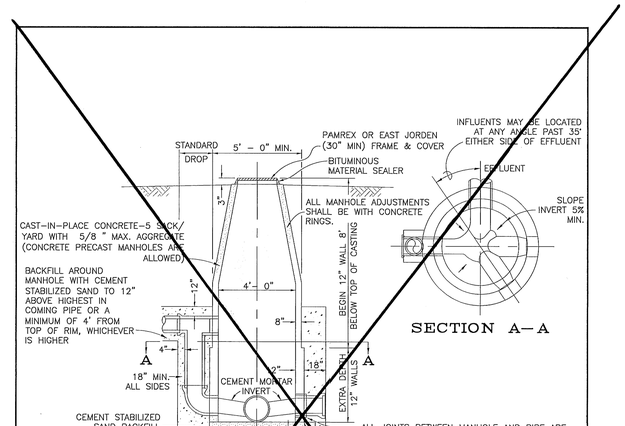

SECTION A–A

ELEVATION VIEW

NOTES:
1. ALL SANITARY MANHOLE COVERS SHALL BE CITY OF ROSENBERG LABELED AS "SANITARY SEWER".
2. MINIMUM ELEVATION OF TOP OF ALL INFLUENT LINES SHALL BE EQUAL TO TOP OF THE EFFLUENT LINE. SHAPE INVERT TO MATCH ALL LINES.
3. MANHOLE MAY BE CONSTRUCTED USING PRECAST CONE AND BOTTOM. BRICK WILL NOT BE ALLOWED.
4. INSIDE OF ALL MANHOLES SHALL BE COATED WITH EPOXY LINER APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION (40 MIL MINIMUM THICKNESS). APPROVED EPOXY LINER IS IPAGARD CHEMICAL RESISTANT COATING, THANECOAT FE-100, OR FOSROC W.B.S.
5. GROUT JOINTS AND SEAL WITH COATING.
6. RUBBER GASKET JOINTS ARE TO BE USED ON ALL PRECAST MANHOLE APPLICATIONS.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

SANITARY SEWER MANHOLE

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
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FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

NO. REVISION DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
3.26.18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS

SANITARY SEWER DETAILS (SHEET 1 OF 2)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED YW DRAWN ALL
SHEET 32 OF 44

Date: Mar 21, 2018, 12:08pm User ID: ANEWTON
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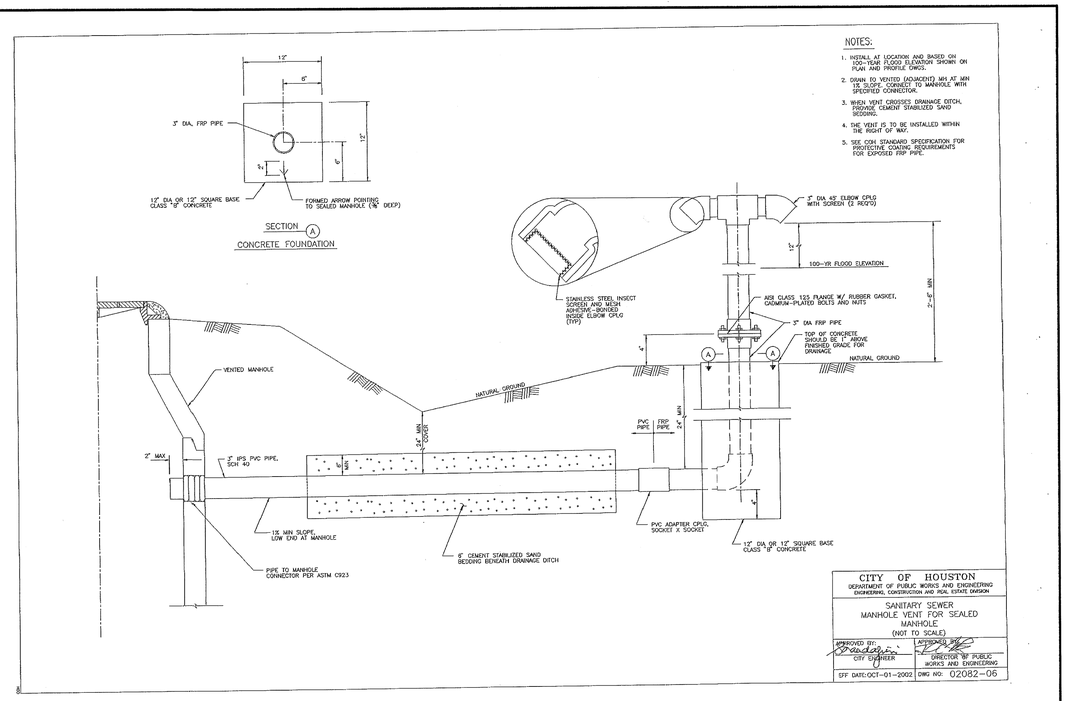
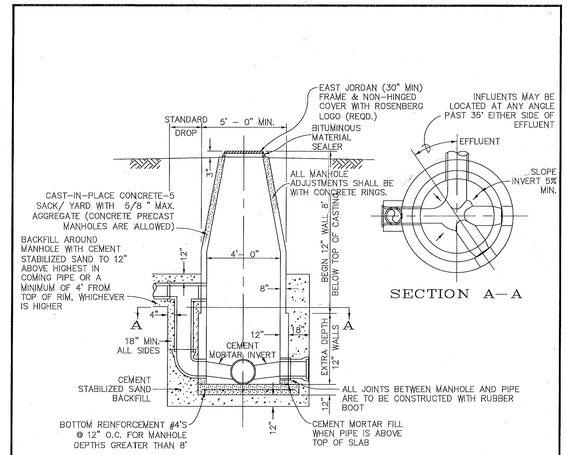
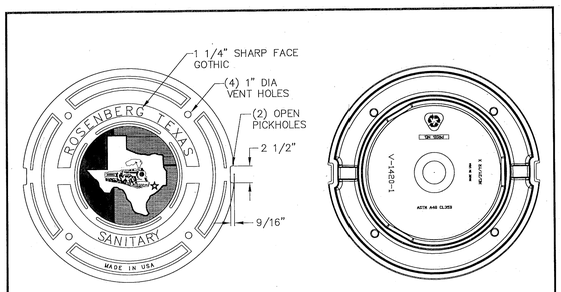




NOTES:
1. ALL SANITARY SEWER MANHOLE COVERS SHALL BE LABELED "ROSENBERG TEXAS" AND "SANITARY" AND INCLUDE THE SPECIFIED LOGO.
2. MINIMUM ELEVATION OF TOP OF ALL INFLUENT LINES SHALL BE EQUAL TO TOP OF THE EFFLUENT LINE. SHAPE INVERT TO MATCH ALL LINES.
3. MANHOLE MAY BE CONSTRUCTED USING PRECAST CONE AND BOTTOM. BRICK WILL NOT BE ALLOWED.
4. INSIDE OF ALL MANHOLES SHALL BE COATED WITH EPOXY LINER APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION (40 MIL MINIMUM THICKNESS). REFERENCE THE CITY OF ROSENBERG DESIGN STANDARDS FOR APPROVED EPOXY LINERS.
5. GROUT JOINTS AND SEAL WITH COATING.
6. RUBBER GASKET JOINTS ARE TO BE USED ON ALL PRECAST MANHOLE APPLICATIONS.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS
SANITARY SEWER MANHOLE

DESIGN:	DAR:	SCALE:	DATE:	DRAWING:
CFA	STAFF	NTS	2/18	S-105



NOTES:
1. ALL SANITARY SEWER MANHOLE COVERS SHALL BE LABELED "ROSENBERG TEXAS" AND "SANITARY" AND INCLUDE THE SPECIFIED LOGO.
2. 32" MANHOLE COVERS SHALL BE USED ON ALL SANITARY SEWER MANHOLES.
3. COVER AND 32" FRAME MANUFACTURED BY EAST JORDAN IRON WORKS OR APPROVED EQUAL.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS
SANITARY SEWER MANHOLE COVER

DESIGN:	DAR:	SCALE:	DATE:	DRAWING:
CFA	STAFF	NTS	2/18	S-110

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR
DATE: _____

NO. REVISION DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED
PROFESSIONAL ENGINEER
3.26.18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
SANITARY SEWER DETAILS (SHEET 2 OF 2)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED SCW DRAWN ALL
SHEET 33 OF 44

Date: Mar 21, 2018, 12:08pm User ID: ANEWTON
File: K:\projects\40166\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\16-40166D0-DT-BRYN-PH1.dwg

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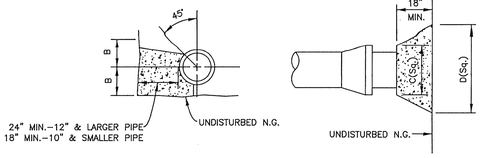
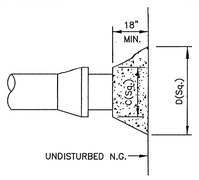
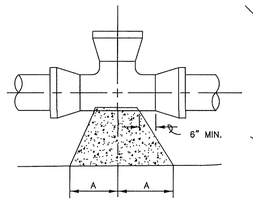
PERMIT SET



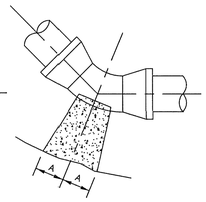
BEND & TEE



PLUG



TEE



BEND

SIZE	90° BEND		45° BEND		22 1/2°BEND		TEES		PLUGS	
	A	B	A	B	A	B	A	B	C	D
2 1/2 "	12"	7"	6"	7"	6"	6"	7"	8"	8"	14"
4"	14"	8"	7"	9"	6"	6"	8"	11"	8"	18"
6"	16"	10"	9"	10"	6"	8"	10"	12"	10"	21"
8"	22"	13"	12"	13"	8"	10"	13"	16"	12"	29"
12"	29"	21"	16"	21"	11"	16"	18"	24"	16"	41"
16"	38"	27"	21"	27"	12"	24"	24"	30"	20"	54"

NOTE:

THRUST BLOCKS AT TRENCH FACE MUST HAVE A MINIMUM BEARING SURFACE OF 1.0 SQ. FOOT AND THE LEAST DIMENSION SHALL BE NO SMALLER THAN 1.5 TIMES PIPE DIAMETER, BUT NOT LESS THAN 1.0 FT.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

THRUST BLOCKING DETAILS

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
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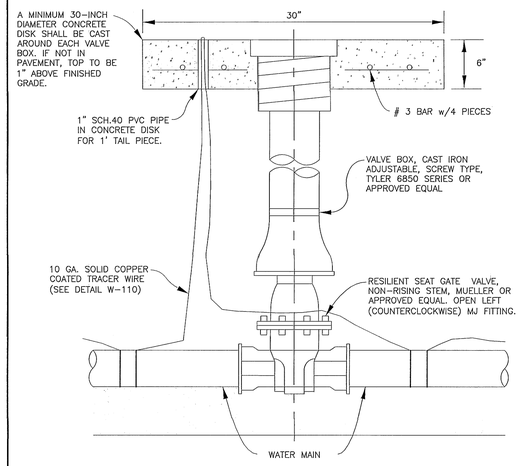

ELEVATION VIEW

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

GATE VALVE & BOX

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
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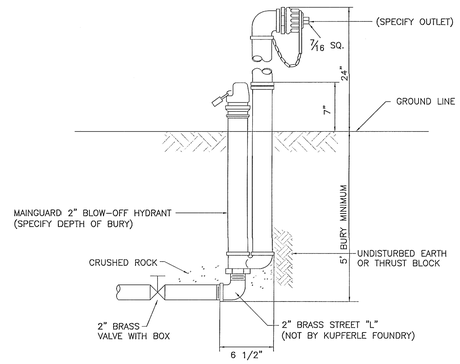


Post Hydrants shall be non-freezing, self draining type with a 5' bury. These hydrants will be furnished with a 2" FIP inlet, a non-turning operating rod, and shall open to the left. All of the working parts shall be of bronze-to-bronze design, and be serviceable from above grade with no digging. The outlet shall also be bronze and be 2-1/2" NST. Hydrants shall be lockable to prevent unauthorized use as manufactured by Kupferle Foundry Co., St. Louis, MO, or approved equal.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

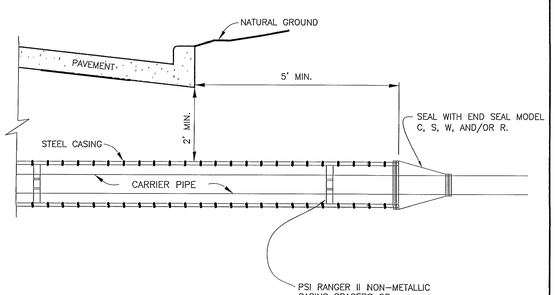
MAINGUARD NO. 77 BLOW-OFF HYDRANT

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	02/11	W-102

NOTES:

1. Casing size and thickness shall conform to the minimum requirements of the Dept. Of Public Works and other permits, as required.
2. Maintain 2 inches minimum clearance between the maximum outside diameter of carrier pipe and casing at all locations.
3. Dimensions are approximate only. Contractor shall install adequately sized casing to accommodate the carrier pipe.
4. Casing size may differ based on pipe manufacturer used and joints required. Engineer shall submit sealed drawings for any changes.
5. Casing size may increase on long bores at contractor's discretion.

SCHEDULE OF CASING		
CARRIER PIPE	NOMINAL CASING	MIN. WALL THICKNESS (IN.)
6"	12"	0.250
8"	16"	0.375
10"	18"	0.500
12"	20"	0.500
16"	26"	0.500
18"	26"	0.500
20"	32"	0.500
24"	38"	0.500
30"	48"	0.500



ELEVATION VIEW

SPACING REQUIREMENTS:
1. Max. 8' between spacers
2. Max. 2' from casing pipe end.
3. Max. 2' on each side of bell or mechanical joint.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

WATER LINE ENCASEMENT

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
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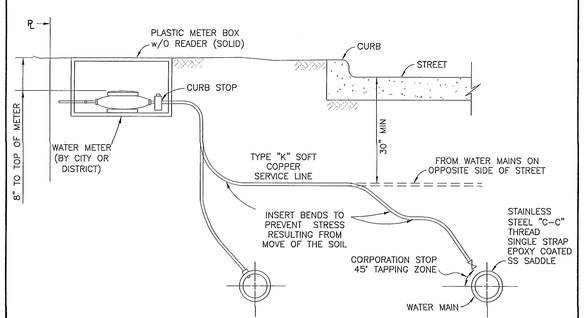

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

TYPICAL SECTION SERVICE LINE

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
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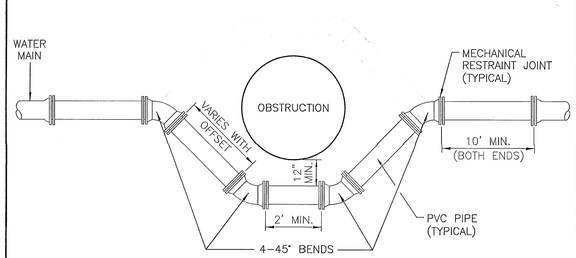
FOR A LINE TO PASS OVER AN OBSTRUCTION RATHER THAN UNDER, IT MUST HAVE ADEQUATE COVER AND BE APPROVED BY DEPARTMENT OF PUBLIC WORKS.



NOTES:

1. PIPE-AWWA C900 DR-18, 150 PSI WITH INTEGRAL PVC JOINT.
2. FITTINGS-DUCTILE IRON EPOXY LINED AND COATED, MECHANICAL JOINT, MEGALUG JOINT RESTRAINT, OR APPROVED EQUAL.
3. PROVIDE 2-5/8" ALL-THREAD STAINLESS STEEL RODS BETWEEN ALL FITTINGS.
4. HIGH DENSITY POLYETHYLENE PIPE & FITTINGS, HEAT FUSION MAY BE USED AS AN ALTERNATE AS APPROVED BY DEPARTMENT OF PUBLIC WORKS.
5. WELDED STEEL PIPE SECTIONS MAY BE USED AS AN ALTERNATE AS APPROVED BY DEPARTMENT OF PUBLIC WORKS.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

WATER PIPE OFFSET ASSEMBLY

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
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FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

NO. | REVISION | DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
3.16.18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10195974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS

WATER LINE DETAILS (SHEET 1 OF 2)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED JCK DRAWN ALL
SHEET 34 OF 44

PERMIT SET

Date: Mar 21, 2018, 12:08pm User ID: ANEWTON
File: K:\projects\40166\001\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\16-401600-DT-BRYN-PH1.dwg

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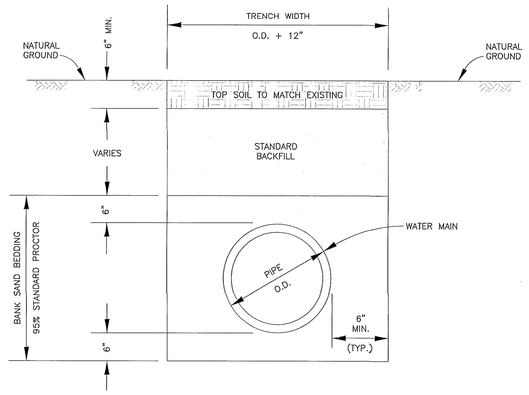


NOTES:

1. BACKFILL SHALL BE NATIVE SOIL, FREE OF DEBRIS, PLACED IN LIFTS, 8" THICK OR LESS, COMPACTED TO 95% STANDARD PROCTOR DENSITY, EXCEPT AS REQUIRED BELOW.

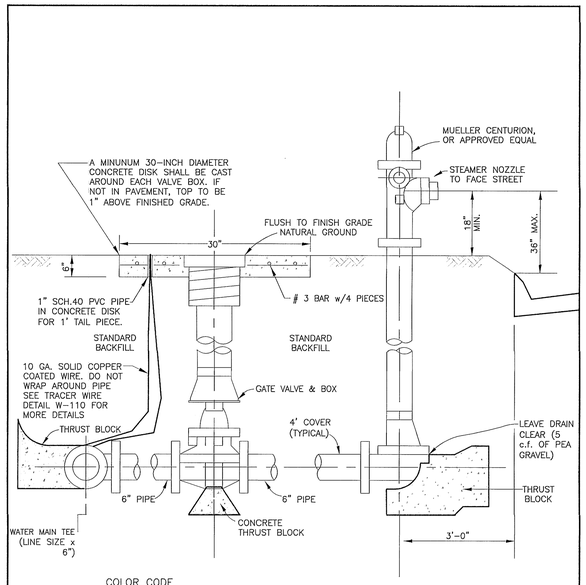
2. BACKFILL UNDER PAVEMENT AND PUBLIC STREETS SHALL BE CEMENT STABILIZED SAND (1.5 SACKS OF CEMENT PER CUBIC YARD OF SAND), COMPACTED TO 95% STANDARD PROCTOR DENSITY.

3. TRENCH SHORING, IN ACCORDANCE WITH OSHA, SHALL BE INSTALLED AS REQUIRED.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

WATER MAIN BEDDING & BACKFILL

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	02/11	W-106



COLOR CODE

BARREL	SILVER
BONNET & CAPS 6"	RED
BONNET & CAPS 8"	ORANGE
BONNET & CAPS 10"	BLUE
BONNET & CAPS 12"	GREEN
BONNET & CAPS 16"	WHITE
BONNET & CAPS 20"	YELLOW

NOTE:

1. ALL FITTINGS SHALL BE (MJ) MECHANICAL JOINT.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

FIRE HYDRANT ASSEMBLY

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
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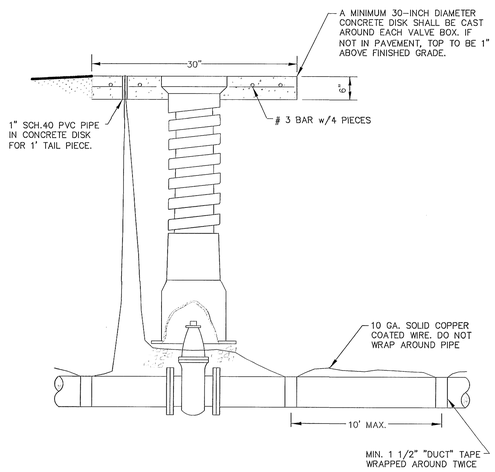

NOTES:

1. TRACER WIRE FOR PVC PIPE SHALL BE NO. 10 AWG GAUGE COATED COPPER WIRE AND ALL SPLICES SHALL BE MADE WITH A MECHANICAL WATER PROOF CONNECTION.
2. TRACER WIRE SHALL COME UP ON VALVE EXTENSIONS AND FIRE HYDRANT VALVES.
3. TRACER WIRE MUST BE "DUCT" TAPED TO THE WATER MAIN PIPE AT INTERVALS NOT TO EXCEED TEN (10)-FEET AND TAPE WRAPPED AROUND MAIN TWICE.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

TRACER WIRE FOR PLASTIC WATER PIPING

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
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NOTES:

1. PRESSURE TEST OF ALL WATER LINES SHALL BE AT 125 PSI FOR DURATION OF 8 HOURS.
2. FIRE HYDRANT THREAD SIZE: PUMPER CONNECTION4-492 SIZE=4.492".
3. PROVIDE "UNI-FLANGE", "CERTA-LOK", OR APPROVED EQUAL PIPE RESTRAINTS AND CASING SYSTEM ON UNDERGROUND PRESSURE PIPE SYSTEMS, WHERE RESTRAINED JOINTS ARE SPECIFIED ON PLANS.
4. FIRE HYDRANT ASSEMBLIES SHALL NORMALLY BE LOCATED THREE FEET BEHIND BACK OF CURB, DEFLECT WATERLINES AS NECESSARY TO MAINTAIN THREE FOOT CLEARANCE. REQUIRED ASSEMBLY SHALL INCLUDE ONE LINE SIZE BY SIX INCH TEE, ONE SIX INCH GATE VALVE AND BOX, ONE FIRE HYDRANT AND SISX INCH LEAD PIPING AND TIE BACKS.
5. ALL CONCRETE THRUST BLOCKING SHALL BE PLACED TO FORM A SOLID CONNECTION BETWEEN FITTINGS, VALVES, AND FIRE HYDRANTS AND UNDISTURBED EARTH. CONCRETE FOR THRUST BLOCKING SHALL HAVE A MINIMUM OF 2500 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
6. INSTALL CONCRETE BLOCK BENEATH FIRE HYDRANTS BEFORE PLACING CONCRETE THRUST BLOCKING TO INSURE THAT FIRE HYDRANTS ARE INSTALLED LEVEL.
7. ALL FIRE HYDRANTS AND VALVE BOXES ARE TO BE ADJUSTED TO FINISH GRADE AFTER PAVING IS COMPLETE.
8. ALL FIRE HYDRANTS ARE TO BE EQUIPPED WITH HYDR-ATORZ QUICK CONNECT HYDRANT SYSTEMS (1/4 X 5" BASE) WITH DEBRIS CAP. MANUFACTURED BY HYDRA-SHIELD, INC. OR APPROVED EQUAL. DEBRIS CAP IS TO BE TETHERED WITH A 12" STAINLESS STEEL CABLE, UTILIZING THE EYELET ON THE FIRE HYDRANT AND THE DEBRIS CAP.
9. CONTRACTOR SHALL NOTIFY CITY ENGINEER 72 HOURS BEFORE START OF CONSTRUCTION.

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FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1885

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

NO. REVISION DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
3-26-18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
WATER LINE DETAILS (SHEET 2 OF 2)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED JCK DRAWN ALL
SHEET 35 OF 44

PERMIT SET

Date: Mar 21, 2018, 12:08pm User ID: ANEWTON
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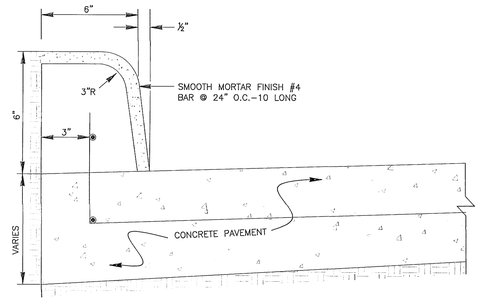

NOTES:

1. MORTAR FINISH NOT REQUIRED WHEN CURB IS POURED BY A MACHINE, BUT CURB WILL HAVE THE SAME OUTSIDE DIMENSIONS.
2. WHEN CONCRETE CURB IS TO BE PLACED ON EXISTING CONCRETE BASE, USE #4 DEFORMED BARS, 10" LONG, 24" O.C., DOWELLED, AND SET IN QUICK SETTING CEMENT MORTAR
3. REDWOOD EXPANSION JOINTS SHALL BE INSTALLED IN CURB AT ALL PAVEMENT EXPANSION JOINTS.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

CONCRETE CURB

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
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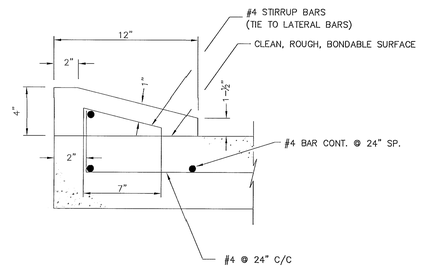
NOTE:

1. CONCRETE FOR CURB SHALL BE 6-SACK MIX. SLUMP 1-1/2" – 3"



THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

CONCRETE CURB
4"x12" APPLIED MOUNTABLE

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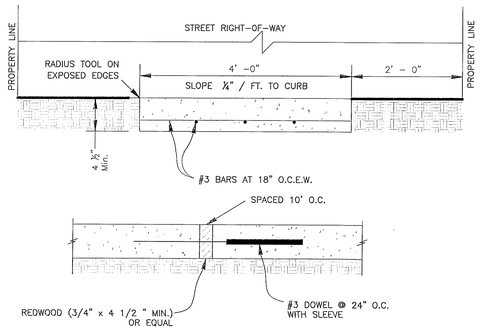

EXPANSION JOINT

Contraction joints shall be spaced 5' O.C.
Concrete shall have five (5) sacks of cement per cubic yard of concrete.

NOTE:

1. The Sidewalk Cross Slope Applies To The Driveway Inline With The Sidewalk Crossing It.
2. No water Meters Allowed In Sidewalks Or Driveways.
3. When A Manhole Or Water Valve Is Located In A Driveway Or Sidewalk, Public Works Must Inspect And Approve Before Code Enforcement Is Called [Phone (832) 595-3500] For Inspections.
4. No Welded Wire Mesh In Public Right Of Way.
5. Expansion Joints Shall Be Redwood Or Tar Felt Board.
6. Match Any Existing Flatwork.
7. Private Walkways*, Patios* And Stoops* May Use Wire Mesh 6x6 #10 On Chairs.
8. Two (2) Dowels Minimum Shall Be Used In The Expansion Joints.
9. Sleeve Same Side Of Expansion Joint Through Out Project.

* Non Structural Support – Flatwork Only

10. All Form Boards And Expansion Joints Shall Be A Minimum Of Four (4 ½") & Half Inches In Depth And Shall Rest On Subgrade.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

CONCRETE SIDEWALK
SINGLE FAMILY RESIDENCE

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
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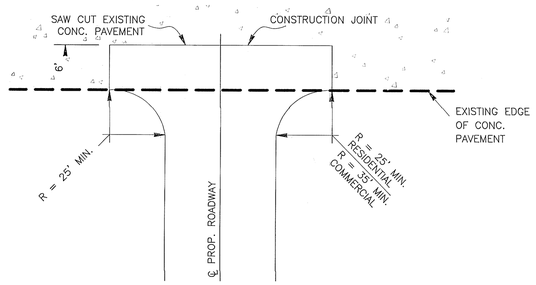
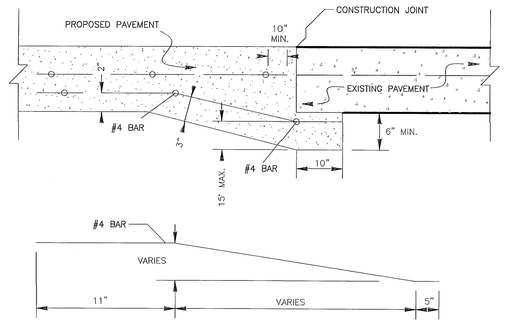


PROVIDE A MINIMUM OF 10" OF REINFORCING STEEL OVERLAP.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

METROPOLITAN INTERSECTION

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	12/10	P-102



UNDERCUT BAR LAYOUT

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

PAVEMENT UNDERCUT

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	12/10	P-103

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

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CITY OF ROSENBERG FOUNDED 1883

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LICENSED
PROFESSIONAL ENGINEER
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SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS

PAVING DETAILS (SHEET 1 OF 3)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED VC DRAWN ALL
SHEET 36 OF 44

Date: Mar 21, 2018, 12:08pm User ID: ANEWTON
File: K:\projects\40166\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\16-4016600-DT-BRYN-PH1.dwg

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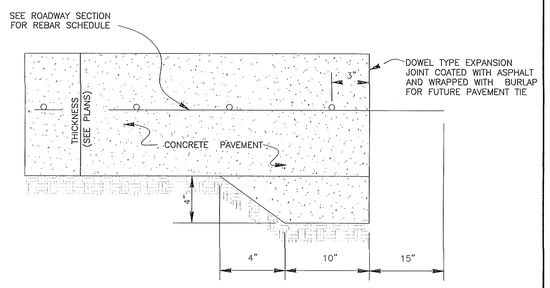
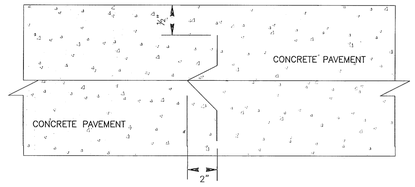
PERMIT SET



THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

PAVEMENT HEADER

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	12/10	P-104



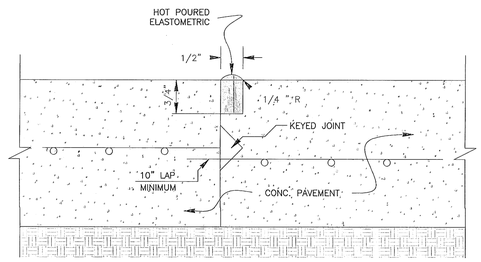
THE LOCATION OF DEFORMED STRIPS MAY BE VARIED, WITH THE APPROVAL OF THE DEPARTMENT OF PUBLIC WORKS, TO SUIT THE PROPOSED CONSTRUCTION METHODS OF THE CONTRACTOR. MAXIMUM LONGITUDINAL SPACING FOR DEFORMED STRIPS IS 14'-0". DEFORMED METAL STRIPS SHALL BE PLACED VERTICALLY ALONG A STRAIGHT ALIGNNMENT.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

DEFORMED METAL STRIP

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	12/10	P-105

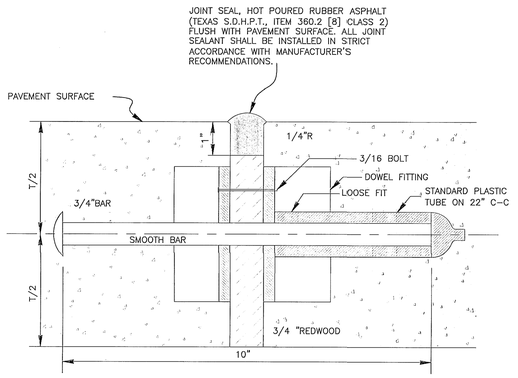
JOINT SEAL, HOT POURED RUBBER ASPHALT (TEXAS S.D.H.P.T., ITEM 360.2 [8] CLASS 2) FLUSH WITH PAVEMENT SURFACE. ALL JOINT SEALANT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.



THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION JOINT

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	12/10	P-106



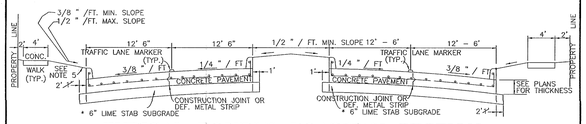
NOTES:

1. EXPANSION JOINT TO BE PLACED AT THE END OF EACH CURB RADIUS AND SPACED A MAXIMUM OF 60'-0" APART.
2. 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 1" BELOW THE FINISHED SURFACE.
3. ALTERNATIVE DOWEL IS A CANTILEVER TYPE, CAST MALLEABLE IRON LOAD TRANSMISSION UNIT, STAR-LUG, MODEL D-27, OR EQUAL, ON 22" C-C.

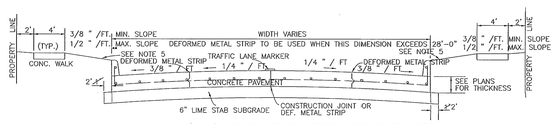
THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

DOWEL TYPE EXPANSION JOINT

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	12/10	P-107



TYPICAL DOUBLE ROADWAY SECTION



TYPICAL SINGLE ROADWAY SECTION

MINIMUM REINFORCEMENT SCHEDULE

Six (6) inch pavement ~ # 4 - 24" O.C.E.W.
Seven (7) inch pavement # 4 - 18" O.C.E.W.
Eight (8) inch pavement ~ #4 - 18" O.C.E.W.

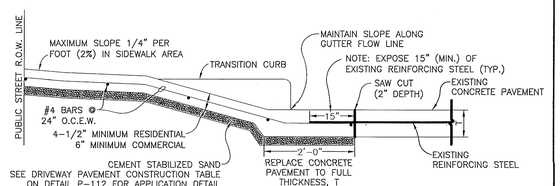
NOTES:

1. All reinforcing steel shall conform to ASTM A-615, current grade 40. Minimum lap at all splices shall be 10".
2. Concrete shall be a minimum of five (5 1/2) sacks of cement per cubic yard of concrete, compreshive strength 3500 psi at 28 days.
3. The location of construction joints and deformed metal strips may be varied, with the approval of the Department of Community Services, to suit the proposed construction methods of the Contractor. The minimum width between longitudinal joints shall not exceed 14'-0".
4. 6" lime stabilized subgrade shall be a minimum of 6% lime, unless specifically approved by the Department of Community Services.
5. The slope behind pavement may be increased, with approval of the Public Works.

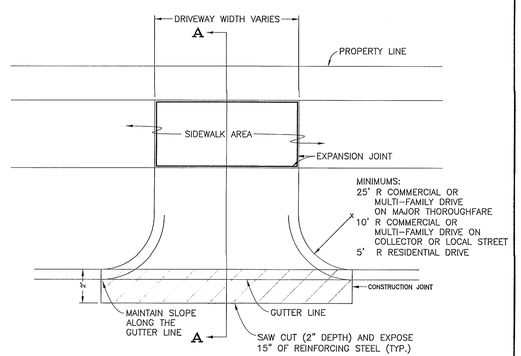
THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

ROADWAY CROSS-SECTION

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	12/10	P-108



SECTION "A-A"



THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

DRIVEWAY

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	03/12	P-109

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

NO.	REVISION	DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
3.26.18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
PAVING DETAILS (SHEET 2 OF 3)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED JCK DRAWN ALL
SHEET 37 OF 44

Date: Mar 21, 2018, 12:08pm User ID: ANEWTON
File: K:\projects\401\66\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\16-4016600-DT-BRYN-PH1.dwg

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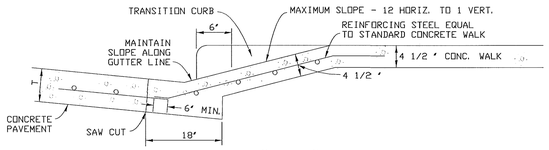
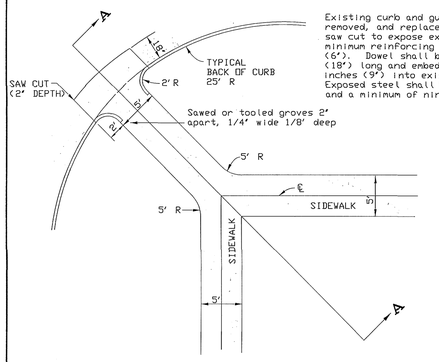
PERMIT SET



SECTION "A–A"

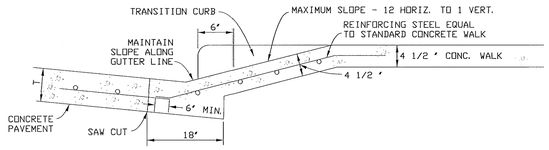


Existing curb and gutter to be saw cut, removed, and replaced. Dowel steel or saw cut to expose existing steel for minimum reinforcing overlap of six inches (6'). Dowel shall be eighteen inches (18') long and embedded a minimum of nine inches (9') into existing pavement. Exposed steel shall be in good condition and a minimum of nine (9') long.

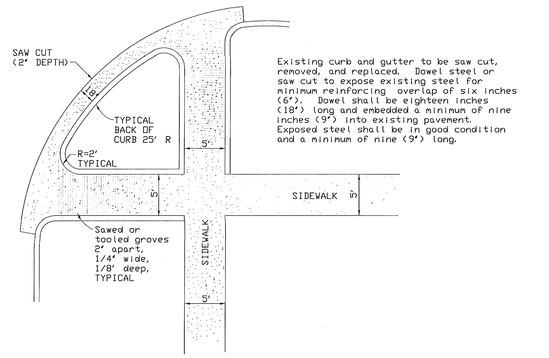
THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

SIDEWALK RAMP

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	12/10	P–110a



TYPICAL SECTION



Existing curb and gutter to be saw cut, removed, and replaced. Dowel steel or saw cut to expose existing steel for minimum reinforcing overlap of six inches (6'). Dowel shall be eighteen inches (18') long and embedded a minimum of nine inches (9') into existing pavement. Exposed steel shall be in good condition and a minimum of nine (9') long.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

SIDEWALK RAMP

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	12/10	P–110b

CEMENT STABILIZED SAND 2–SK/C.Y.	
RESIDENTIAL	4" MINIMUM
COMMERCIAL	6" MINIMUM
INDUSTRIAL	8" MINIMUM
REINFORCED CONCRETE PAVEMENT 3,500 PSI MIN.	
RESIDENTIAL	4" MINIMUM
COMMERCIAL	6" MINIMUM
INDUSTRIAL	8" MINIMUM

DRIVEWAY PAVEMENT CONSTRUCTION TABLE

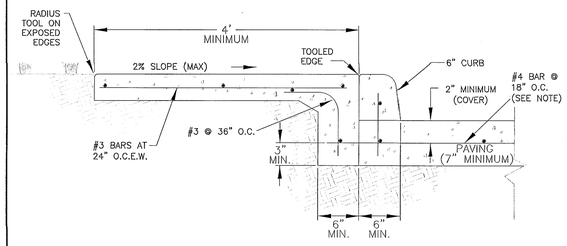
NOTES:

1. SAW CUT & BREAKOUT NO MORE THAN 72 HOURS PRIOR TO PROPOSED CONCRETE PLACEMENT. NOTIFY CITY OF ROSENBERG PRIOR TO CUT.
2. UNSTABLE SUBGRADE SHALL BE EXCAVATED & REPLACED WITH CONCRETE.
3. IT IS CONTRACTOR'S RESPONSIBILITY TO NOTIFY CITY OF ROSENBERG OF ANY BIRD BATH PROBLEMS PRIOR TO CONSTRUCTION OF DRIVEWAY.
4. USE 1"X2" TREATED STAKES FOR HEADER.
5. EDGE ALL SIDES WITH EDGING TOOL AND BROOM FINISH.
6. FOR INDUSTRIAL DRIVES, PAVEMENT SHALL HAVE A DEPTH OF 8" (IN.).
7. EXPANSION JOINT AT PROPERTY LINE REQUIRED. 3/4" REDWOOD BOARD WITH NO. 4 DOWELS MINIMUM.
8. MAXIMUM ALLOWABLE DRIVEWAY GRADE IN PUBLIC RIGHT–OF–WAY IS 5%.
9. DRIVEWAY GRADE MUST MEET A.D.A. AND T.A.S. SIDEWALK SLOPE, SIDEWALKS MUST BE SCORED TO MATCH ADJACENT SIDEWALK. IF SLOPE IS CONTINUED THROUGH THE RIGHT–OF–WAY LINE, PROVIDE A 3/4" REDWOOD EXPANSION JOINT WITH DOWELS AT RIGHT–OF–WAY LINE.
10. REFER TO GENERAL, C.S.S., ASPHALT, AND CONCRETE PAVEMENT NOTES.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

STANDARD DRIVEWAY CONSTRUCTION TABLE & NOTES

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	04/15	P–112



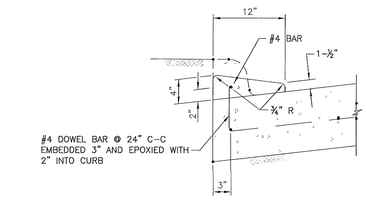
NOTES:

1. EXTEND PAVEMENT EXPANSION JOINTS THROUGH SIDEWALK.
2. ALLOW KEYWAY WITH L–BAR OR DRILL & GROUT #4 IN PAVEMENT. MINIMUM EMBEDMENT 6" INTO PAVEMENT.
3. SEE ROSENBERG STANDARD PAVING SHEET P–100a FOR FURTHER CONCRETE CURB DETAILS
4. SEE ROSENBERG STANDARD PAVING SHEET P–101 FOR FURTHER SIDEWALK DETAILS
5. SEE ROSENBERG STANDARD PAVING SHEET P–108 FOR FURTHER ROADWAY DETAILS

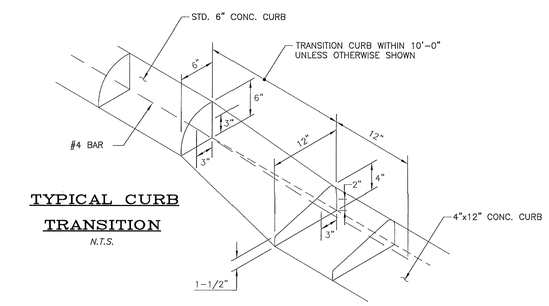
THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

SIDEWALK CONNECTION TO CURB

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	12/10	P–113



TYPICAL DETAIL
4"x12" TRANSITION CURB
N.T.S.

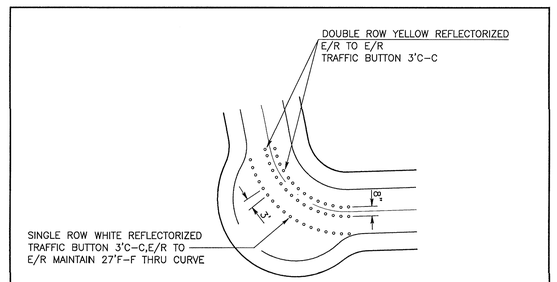


TYPICAL CURB TRANSITION
N.T.S.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

CONCRETE CURB TRANSITION DETAIL

DESIGN:	CAD:	SCALE:	DATE:	DRAWING:
CAK	STAFF	NTS	12/10	P–114



TRAFFIC BUTTON DETAIL
NTS

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1883

APPROVED: _____
FORT BEND COUNTY DEVELOPMENT COORDINATOR

DATE: _____

NO. REVISION DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED PROFESSIONAL ENGINEER
3.26.18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS

PAVING DETAILS (SHEET 3 OF 3)

PLAT NO. 40166–20
JOB NO. 40166–21
DATE MARCH 2018
DESIGNER LS
CHECKED JCM DRAWN ALL
SHEET 38 OF 44

PERMIT SET

Date: Mar 21, 2018, 12:08pm User ID: ANEWTON
File: K:\projects\401\66\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\16-4016600-00-BRYN-Plt.dwg
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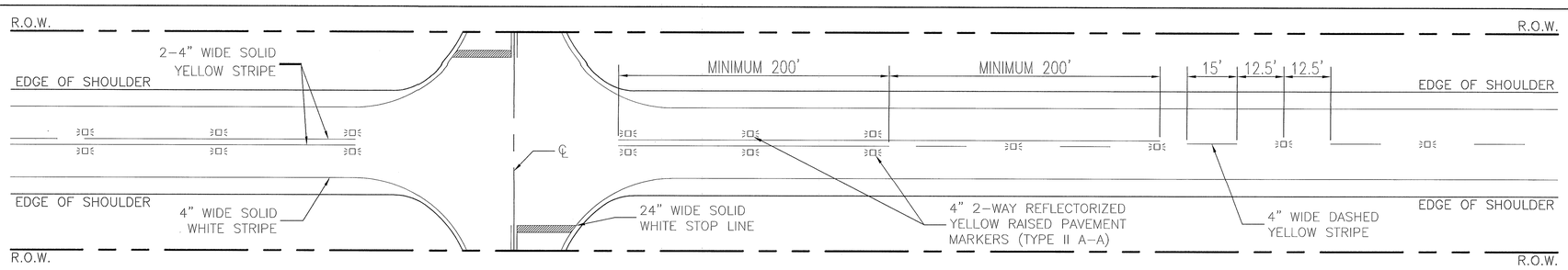
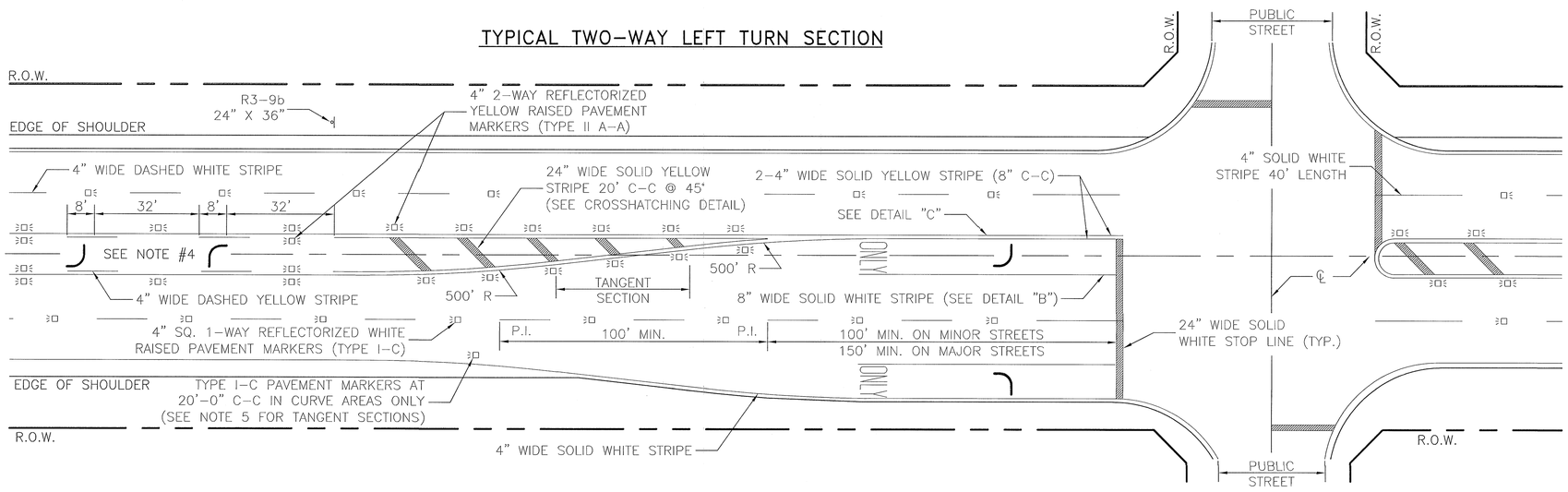
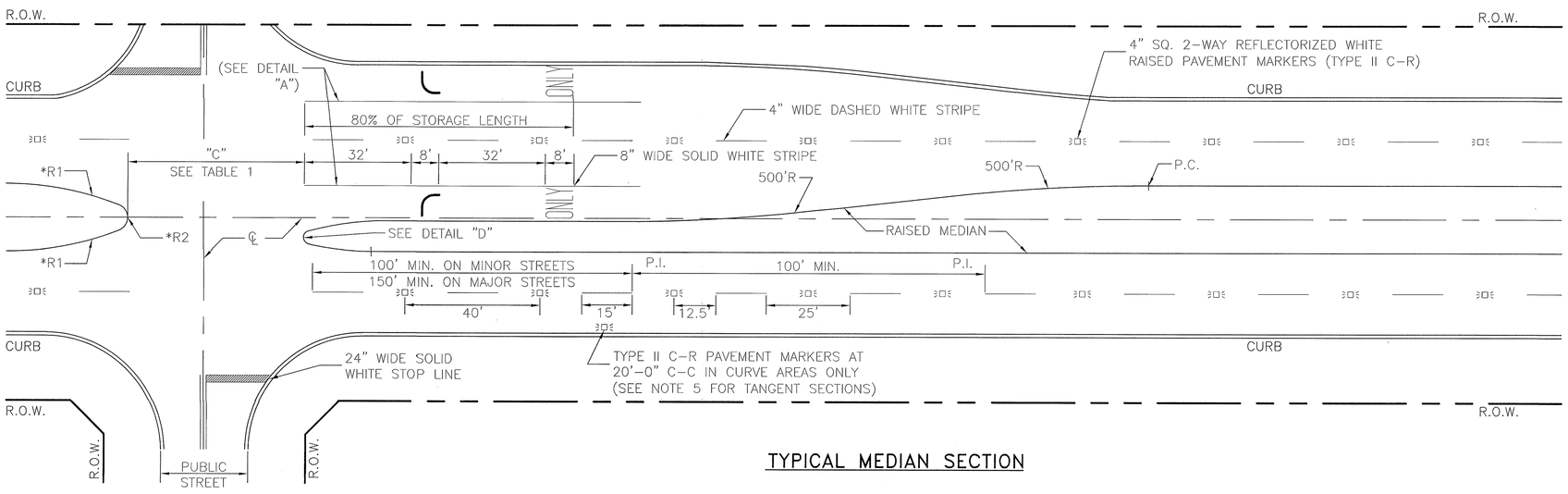


TYPICAL TWO LANE TWO–WAY ROAD

TYPICAL TWO–WAY LEFT TURN SECTION



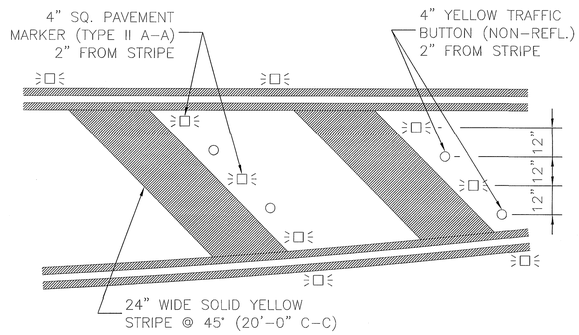


TYPICAL MEDIAN SECTION

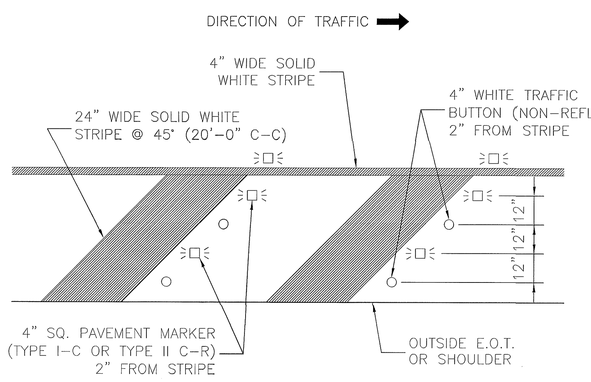
NOTES:

1. ALL PAVEMENT MARKINGS SHALL CONFORM TO THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (TMUTCD).
2. ALL TRAFFIC BUTTONS AND MARKERS SHALL BE INSTALLED ADJACENT TO STRIPES (APPROXIMATELY 2").
3. LEFT TURN STORAGE BAYS SHALL BE A MIN. OF 100' ON MINOR STREETS AND A MIN. 150' ON MAJOR STREETS.
4. REPEAT ARROWS AT APPROXIMATELY 1000' INTERVALS WITHIN TWO–WAY LEFT TURN SECTION.
5. WITHIN A TANGENT SECTION THE TYPE I–C PAVEMENT MARKERS SHALL BE PLACED AT 40' C–C ON ROADWAYS WITHOUT CURB AND GUTTERS.
6. WHEN PAVEMENT MARKINGS EXTEND INTO OR CONTINUE THROUGH AN INTERSECTION AREA, THEY SHALL BE THE SAME COLOR AND AT LEAST THE SAME WIDTH AS THE LINE MARKINGS THEY EXTEND.
7. WHEN CROSSWALK MARKINGS ARE USED WITHIN AN ESTABLISHED SCHOOL ZONE AREA, CONTINENTAL TYPE MARKINGS SHALL BE USED.
8. ADDITIONAL SET OF "WORD" AND "ARROW" PAVEMENT MARKINGS SHALL BE USED WHEN TURN LANE STORAGE LENGTH IS 160 FEET OR GREATER.

CROSSHATCHING DETAIL



OUTSIDE EDGE CROSSHATCHING DETAIL



NO.	REVISIONS	DATE	NAME

HARRIS COUNTY ENGINEERING DEPARTMENT

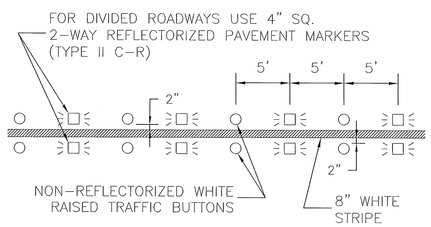
FORT BEND COUNTY ENGINEERING DEPARTMENT APPROVED MAY 07 2018 Valid One Year from Date

STATE OF TEXAS ROBERT M. PREISS 92978 LICENSED PROFESSIONAL ENGINEER 3.14.18

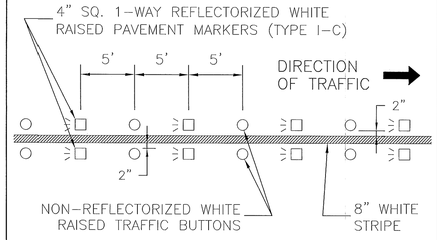
PROJECT TITLE:	SUNSET CROSSING BRYAN ROAD PHASE ONE
SHEET DESCRIPTION:	PAVEMENT MARKING DETAILS (SHEET 1 OF 2)
TRAFFIC STANDARD	PM
DRAWN BY:	JDZ
DATE:	8/18/17
CK'D BY:	BSH
SCALE:	NONE
SHEET NO:	39 / 44

K:\projects\401\66\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\16-4016600-DT-BRYN-PH1.dwg

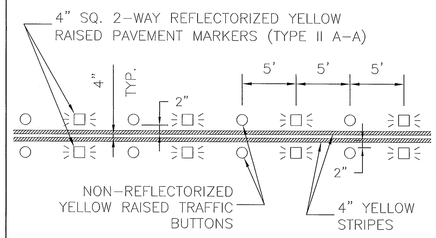
DETAIL "A"
(FOR DIVIDED ROADWAYS)



DETAIL "B"
(FOR UNDIVIDED ROADWAYS)

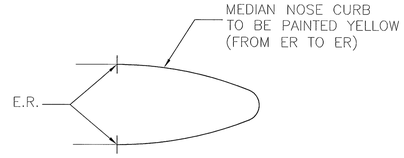


DETAIL "C"

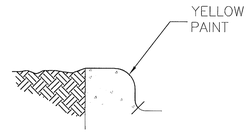


DETAIL "D"

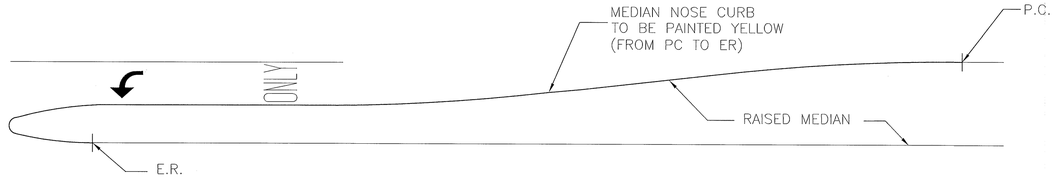
* PAINT FROM THE BACK OF CURB TO THE GUTTER LINE



TYPICAL MEDIAN NOSE



TYPICAL CURB SECTION



RAISED MEDIAN WITH TURN BAY

PAVEMENT MARKER LEGEND

SYMBOL	DESCRIPTION
⩾□⩽	4" x 4" REFLECTORIZED RAISED PAVEMENT MARKER
□⩽	INDICATED DIRECTION OF TRAFFIC FLOW
○	NON-REFLECTIVE 4" DIA. RAISED TRAFFIC BUTTON

RADIUS DIMENSIONS

MEDIAN	*R1	*R2
≤10'	N/A	W/2
>10' ≤40'	90'	W/5
>40'	N/A	N/A

TABLE 1

TYPICAL MEDIAN OPENING "C"

MEDIAN INTERRUPTION	(1) NO LTB	(1) 1 LTB	(1) 2 LTB
PRIVATE DRIVE	45'	52.5'	60'
UNDIVIDED STREET <40' 44'	 45' 50'	 52.5' (2) 55' (2)	 60' 60'
DIVIDED STREET	D+22'	D+22'	D+22'

NOTES:

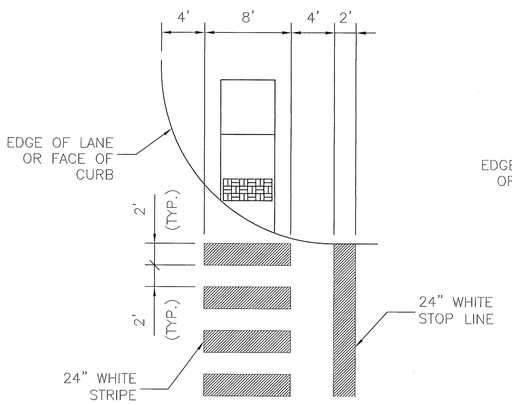
(1) LTB = LEFT TURN BAY

(2) DISTANCE FROM CENTERLINE OF OPENING TO MEDIAN NOSE WITH LEFT TURN LANE IS 30' FOR RIGHT ANGLE INTERSECTIONS, FOR INTERSECTIONS OTHER THAN 90°, APPLY DESIGN VEHICLE TURNING TEMPLATE TO DETERMINE DIMENSION TO MEDIAN NOSE CUT OFF.

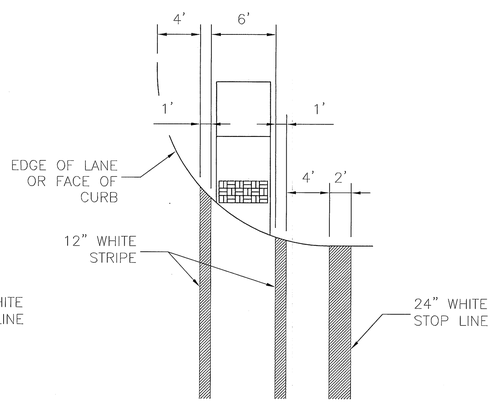
(3) D = WIDTH OF DIVIDED STREET

TYPICAL CROSSWALK PLACEMENT

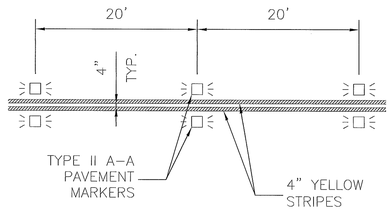
CONTINENTAL TYPE



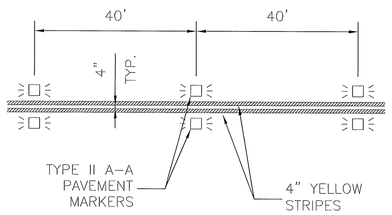
STANDARD TYPE



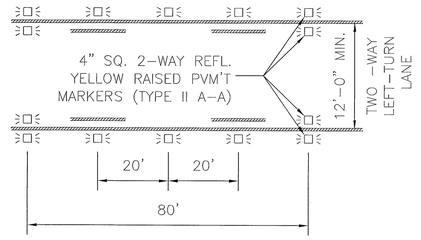
CENTER LINE DETAIL
CURVE SECTION



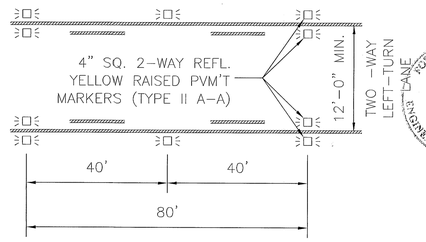
CENTER LINE DETAIL
TANGENT SECTION



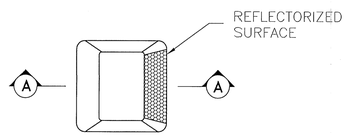
TWO-WAY LEFT TURN
CURVE SECTION



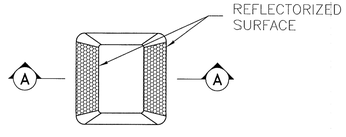
TWO-WAY LEFT TURN
TANGENT SECTION



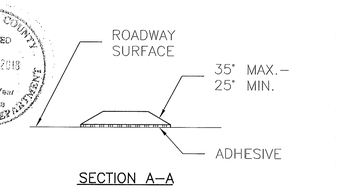
RAISED PAVEMENT MARKERS



TYPE I (TOP VIEW)



TYPE II (TOP VIEW)



SECTION A-A

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

NO.	REVISIONS	DATE	NAME

HARRIS COUNTY
ENGINEERING DEPARTMENT

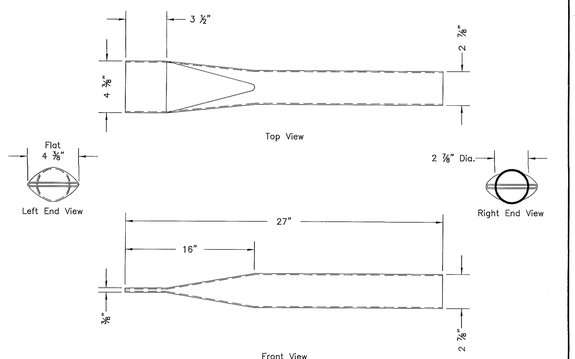
HARRIS COUNTY TEXAS 1836

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

STATE OF TEXAS ROBERT M. PREISS 92978 LICENSED PROFESSIONAL ENGINEER 7.27.18

PROJECT TITLE:	SUNSET CROSSING BRYAN ROAD PHASE ONE
SHEET DESCRIPTION:	PAVEMENT MARKING DETAILS (SHEET 2 OF 2)
TRAFFIC STANDARD	PM
DRAWN BY:	JDZ
DATE:	8/18/17
CK'D BY:	BSH
SCALE:	NONE
SHEET NO:	40 / 44

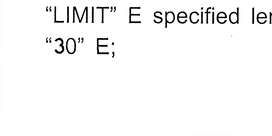
K:\projects\401\66\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\16-4016600-DT-BRYN-PH1.dwg



TUBULAR SOCKET

NOTE:

1. POZ-LOC Sign Post Anchor System consists of a Galvanized Traffic Post (2 ⅜" O.D.) that may be ordered with Sign Brackets or with Pre-Punched 15 Hole Pattern, Tubular Socket (2 ⅞" O.D. x 27" Long 12 Ga. Wall Thickness), Wedge (Locks Traffic Post Into Tubular Socket)
2. POZ-LOC Anchor System Tools needed to install or remove are Socket Driver, Drive Cap, and Wedge Puller.
3. To install POZ-LOC Anchor System, with Drive Cap in place on end of Drive Socket drive the Tubular Socket into ground (orient flat end of socket parallel to sign face) using the Socket Driver (or mechanical hammer). Insert Sign Post into Tubular Socket and orient sign to roadway. Insert POZ-LOC Wedge with hole up, between Traffic Post and the Tubular Socket interior and drive the Wedge until the bottom of the hole is within 4" (four inches) of the Tubular Socket Rim. The Wedge Puller can be used if the Wedge needs to be removed by inserting it between Sign Post and Tubular Socket and driving it out.

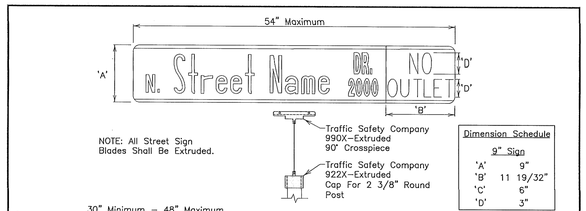


WEDGE

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

POZ-LOC SIGN POST ANCHOR SYSTEM

DESIGN:	CAD:	SCALE	DATE:	DRAWING:
CAK	STAFF	NTS	11/10	M-3



NOTE: All Street Sign Blades Shall Be Extruded.

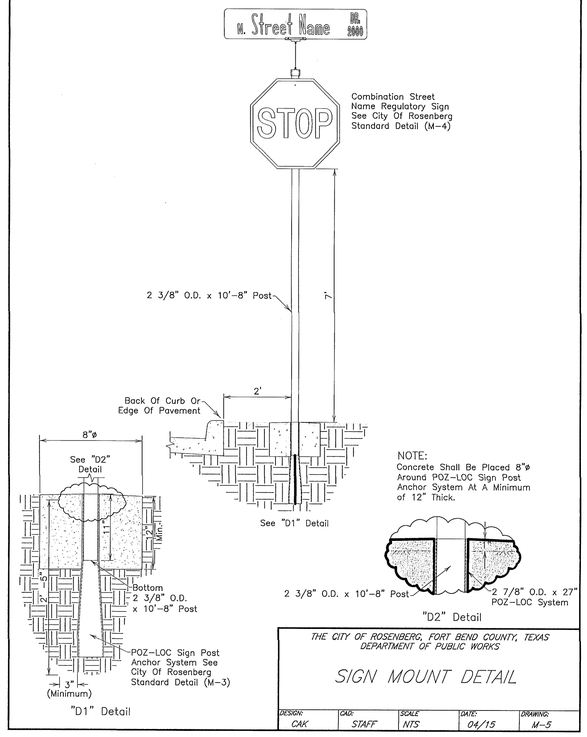
Dimension Schedule	
9" Sign	
'A'	9"
'B'	11 19/32"
'C'	6"
'D'	3"

NOTE:
1. All Signs Shall Be Aluminum In Accordance With Design Standards.
2. Street Name Sign Sheeting Shall Be Scotchlite Or Approved Equal, Color Being Green, Electrocut Film #1177.
3. All Street Signs Shall Be Nine (9") Inches In Height. Minimum Sign Length Shall Be Thirty (30") Inches.
4. Maximum Sign Length Shall Be Forty Eight (48") Inches.
5. When "NO OUTLET" is Included, The Maximum Sign Length Shall Be Fifty Four (54") Inches.
6. Abbreviated Road Classification & Hundred Block Letters And Numbers Shall Be Three (3") Inch With 7/16" Stroke.
7. "NO "OUTLET Shall Be Three (3") Inch Black On Yellow Background.
8. Street Names Shall Be Upper & Lower Case Letters Of White Six (6") Inches Helvetica Medium Font Style With 1 1/4" Stroke Width. To Accommodate Longer Street Names, Alternative Stroke Widths May Be Used.

THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

COMBINATION STREET NAME REGULATORY SIGN DETAIL

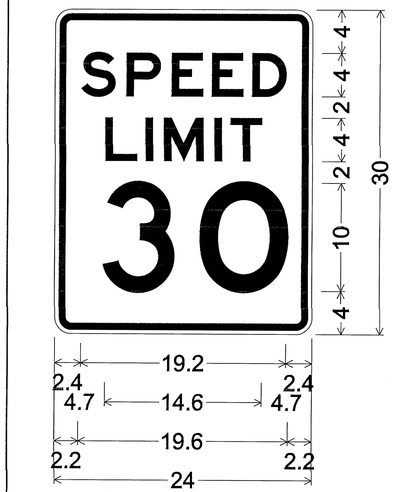
DESIGN:	CAD:	SCALE	DATE:	DRAWING:
CAK	STAFF	NTS	07/15	M-4



THE CITY OF ROSENBERG, FORT BEND COUNTY, TEXAS
DEPARTMENT OF PUBLIC WORKS

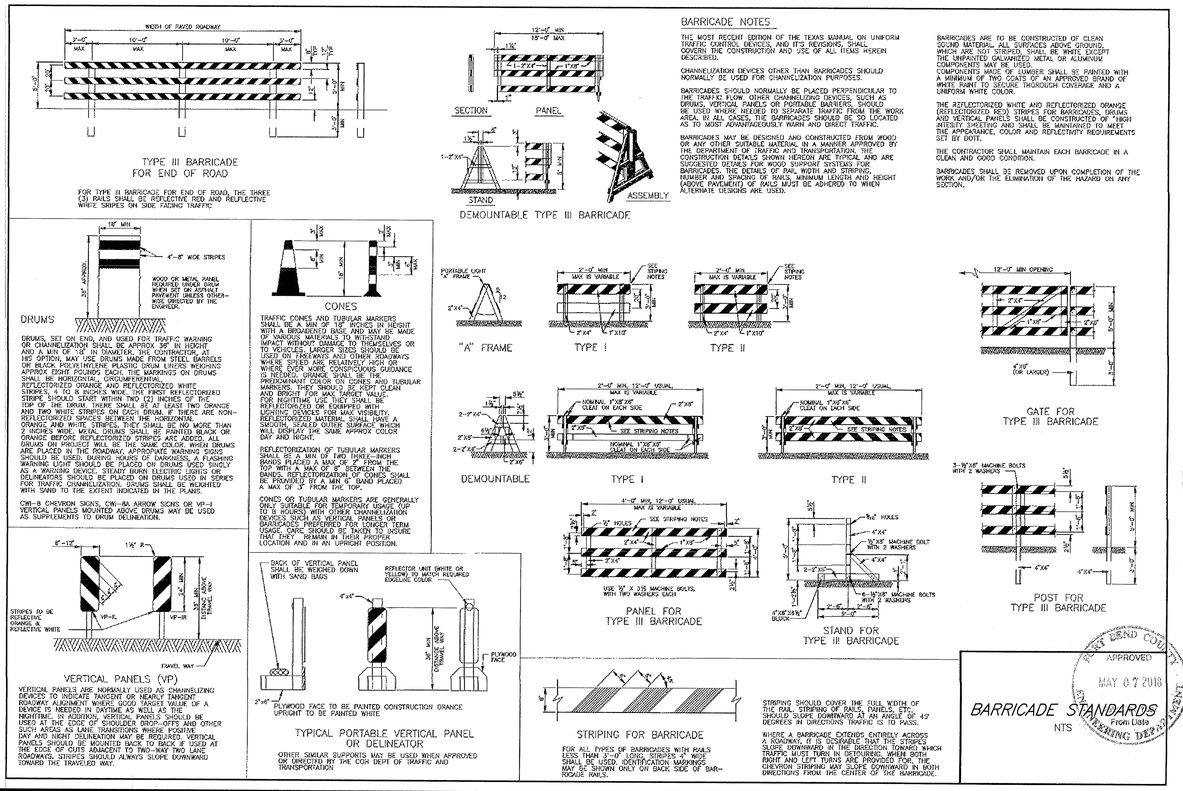
SIGN MOUNT DETAIL

DESIGN:	CAD:	SCALE	DATE:	DRAWING:
CAK	STAFF	NTS	04/15	M-5



R2-1_24x30;
1.5" Radius, 0.6" Border, 0.4" Indent, Black on White;
"SPEED" E specified length;
"LIMIT" E specified length;
"30" E;

SPEED LIMIT SIGN
R2-1
NTS



BARRICADE NOTES

THE MOST RECENT EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AND IT'S REVISIONS, SHALL GOVERN THE CONSTRUCTION AND USE OF ALL ITEMS HEREIN DESCRIBED.

CHANNELIZATION DEVICES OTHER THAN BARRICADES SHOULD NORMALLY BE USED FOR CHANNELIZATION PURPOSES.

BARRICADES SHOULD NORMALLY BE PLACED PERPENDICULAR TO THE TRAFFIC FLOW. OTHER CHANNELIZING DEVICES, SUCH AS DRUMS, VERTICAL PANELS OR PORTABLE BARRIERS, SHOULD BE USED WHERE NEEDED TO SEPARATE TRAFFIC FROM THE WORK AREA. IN ALL CASES, THE BARRICADES SHOULD BE SO LOCATED AS TO MOST ADVANTAGEOUSLY WARN AND DIRECT TRAFFIC.

BARRICADES MAY BE DESIGNED AND CONSTRUCTED FROM WOOD OR ANY OTHER SUITABLE MATERIAL IN A MANNER APPROVED BY THE DEPARTMENT OF TRAFFIC AND TRANSPORTATION. THE FOLLOWING DIAGRAMS SHOWN HEREIN ARE TYPICAL CONSTRUCTION DETAILS FOR TWO VERSIONS OF PORTABLE BARRICADES. THE DETAILS SHOW RAIL WIDTH AND STRIPING, NUMBER AND SPACING OF RAILS, MINIMUM LENGTH AND HEIGHT (ABOVE PAVEMENT) OF RAILS MUST BE ADHERED TO WHEN ALTERNATE DESIGNS ARE USED.

BARRICADES ARE TO BE CONSTRUCTED OF CLEAN SOUND MATERIAL. ALL SURFACES ABOVE GROUND, WHICH ARE NOT STRIPED, SHALL BE WHITE EXCEPT THE UNPAINTED GALVANIZED METAL OR ALUMINUM COMPONENTS MAY BE USED. COMPONENTS MADE OF LUMBER SHALL BE PAINTED WITH A MINIMUM OF TWO COATS OF AN APPROVED BRAND OF WHITE PAINT TO SECURE THOROUGH COVERAGE AND A UNIFORM WHITE COLOR.

THE REFLECTORIZED WHITE AND REFLECTORIZED ORANGE (REFLECTORIZED RED) STRIPES FOR BARRICADES, DRUMS AND VERTICAL PANELS SHALL BE CONSTRUCTED OF HIGH INTENSITY SHEETING AND SHALL BE MAINTAINED TO MEET THE APPEARANCE, COLOR AND REFLECTIVITY REQUIREMENTS SET BY DOT.

THE CONTRACTORS SHALL MAINTAIN EACH BARRICADE IN A CLEAN AND GOOD CONDITION.

BARRICADES SHALL BE REMOVED UPON COMPLETION OF THE WORK AND/OR THE ELIMINATION OF THE HAZARD ON ANY SECTION.

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1885

FORT BEND COUNTY APPROVED MAY 07 2018 ENGINEERING DEPARTMENT

BARRICADE STANDARDS

NTS

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

NO. REVISION DATE

STATE OF TEXAS
ROBERT M. PREISS
92978
LICENSED
PROFESSIONAL ENGINEER
3.26.18

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE. STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

SUNSET CROSSING BRYAN ROAD PHASE ONE

CITY OF ROSENBERG, TEXAS

MISCELLANEOUS DETAILS (SHEET 1 OF 4)

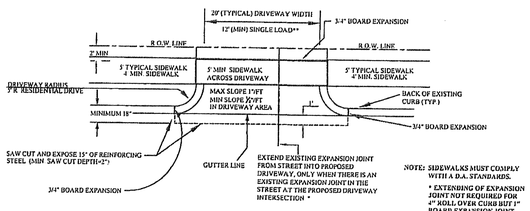
PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED JCK DRAWN ALL
SHEET 41 OF 44

PERMIT SET

Date: Mar 21, 2018, 12:08pm User ID: ANEWTON
File: K:\Projects\401\66\05\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\16-4016600-D1-BRYN-Phl.dwg
THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL. AERIAL IMAGERY PROVIDED BY GOOGLE© UNLESS OTHERWISE NOTED. Imagery © 2016,CAPCOG,Digital Globe,Texas Orthoimagery Program, USDA Farm Service Agency.

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

A. USE FOR ALL PROPOSED EXISTING CURB REMOVAL FOR DRIVEWAYS (PLAN VIEW NOT TO SCALE)

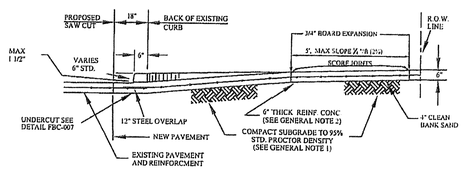


NOTE: SIDEWALKS MUST COMPLY WITH A.D.A. STANDARDS.

* EXTENDING OF EXPANSION JOINT NOT REQUIRED FOR 4" ROLL OVER CURB BUT 1" BOARD EXPANSION JOINT MUST BE PROVIDED BACK OF CURB.

** ANY OTHER SIZE MUST BE APPROVED BY COUNTY ENGINEER

B. USE FOR ALL PROPOSED DRIVES ON CURBED TYPE STREETS



GENERAL NOTES:

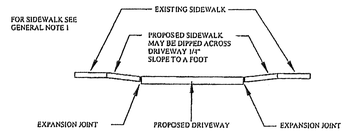
1. COMPACT SUBGRADE FOR PROPOSED DRIVEWAY CONNECTION FROM PROPOSED SAW CUT AT EXISTING PAVEMENT TO R.O.W. LINE. COMPACT TO 95% OF STANDARD PROCTOR DENSITY(+/- 2% OPT. MOISTURE). THE COUNTY ENGINEER RESERVES THE RIGHT TO REQUIRE LABORATORY TESTS TO BE CONDUCTED.
2. PROPOSED DRIVEWAY REINFORCING STEEL IS TO BE #4 DEFORMED REINFORCING BARS (ASTM A615, GRADE 60, UNLESS NOTED) SPACED AT 24" C.C. EACH WAY, WITH 12" MINIMUM LAP FROM PROPOSED SAW CUT TO R.O.W. LINE.
3. PROPOSED DRIVEWAY SHALL BE CONSTRUCTED WITH PORTLAND CEMENT (5 SACKS (3000 PSI) OF CEMENT PER CUBIC YARD OF CONCRETE), CLASS "A" STRUCTURAL (REFER TO SPECIFICTION 03301), 6" THICK, FROM PROPOSED SAW CUT TO R.O.W. LINE.
4. PROPOSED SIDEWALK SHALL BE CONSTRUCTED WITH PORTLAND CEMENT (5 SACKS (3000 PSI) OF CEMENT PER CUBIC YARD OF CONCRETE), CLASS "A" STRUCTURAL (REFER TO SPECIFICTION 03301), 4" THICK.
5. FOR TYPICAL SIDEWALK DETAIL SEE FBC-811.

SIDEWALKS & DRIVEWAYS ON CURB TYPE STREETS RESIDENTIAL AREA	DRAWN BY: L. BRDECKA DATE DRAWN: 2-1-94	REVISED BY: J. NETARDUS DATE REVISED: 4-7-09
	APPROVED BY: L. HOOD DATE: 2-1-94	DRAWING NO. FBC-010A

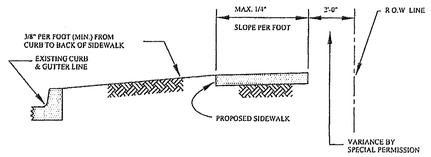
FORT BEND COUNTY ENGINEERING DEPARTMENT

WHEN A RESIDENTIAL SIDEWALK, DRIVEWAY, 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:



GENERAL NOTES:

1. PROPOSED SIDEWALK SHALL BE CONSTRUCTED WITH PORTLAND CEMENT (5 SACKS (3000 PSI) OF CEMENT PER CUBIC YARD OF CONCRETE), CLASS "A" STRUCTUAL (REFER TO SPECIFICATION 03301), 4" THICK AND MINIMUM 4' WIDTH.

SIDEWALKS & DRIVEWAYS ON CURB TYPE STREETS RESIDENTIAL AREA	DRAWN BY: L. BRDECKA DATE DRAWN: 2-1-94	REVISED BY: R. GOMEZ DATE REVISED: 11-1-05
	APPROVED BY: L. HOOD DATE: 2-1-94	DRAWING NO. FBC-010B

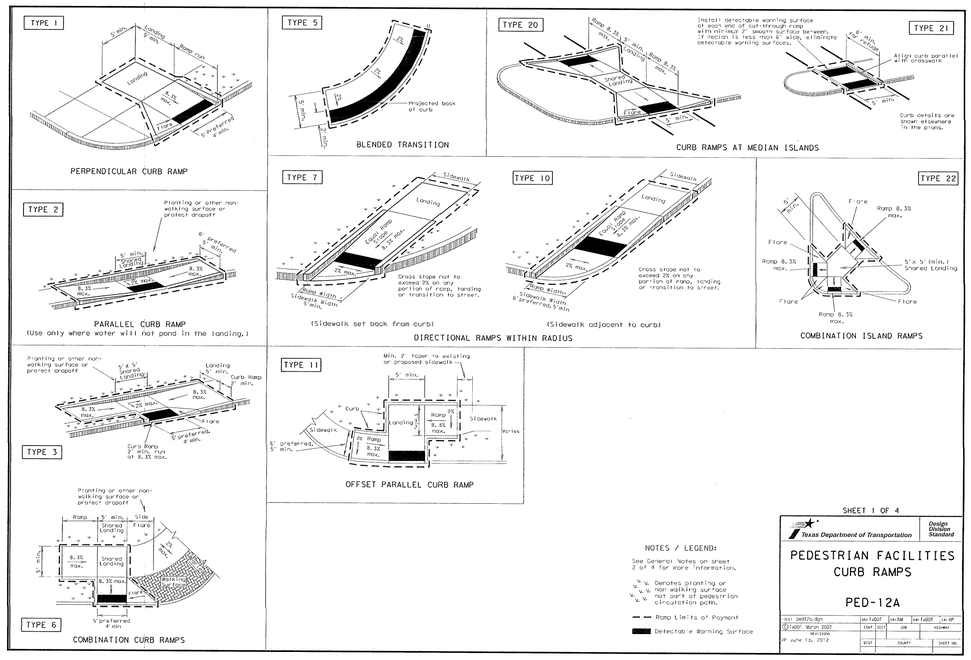
FORT BEND COUNTY ENGINEERING DEPARTMENT

GENERAL NOTES FOR SIDEWALKS AND DRIVEWAYS

1. PROPOSED DRIVEWAY, SIDEWALK, CURB, GUTTER LINE AND GRADE SHALL MATCH EXISTING STREET.
2. PROPOSED SIDEWALK SHALL BE CONSTRUCTED WITH PORTLAND CEMENT, CLASS A STRUCTURAL (REFER TO SPECIFICATION 03301), 4 INCHES THICK AND 4 FEET MINIMUM WIDTH.
3. PROPOSED DRIVEWAY AND CURB SHALL BE BUILT WITH PORTLAND CEMENT CONCRETE, 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.
4. PROPOSED DRIVEWAY REINFORCING STEEL IS TO BE TIED TO EXISTING ROADWAY REINFORCING STEEL WITH A MINIMUM 12 INCHES LAP.
5. PROPOSED GUTTER LINE IS TO BE MAINTAINED AT FACE OF EXISTING CURB.
6. SAW CUT EXISTING CURB AT EACH END OF PROPOSED DRIVEWAY AND KNOCK OUT EXISTING CURB.
7. SAW CUT EXISTING PAVEMENT MINIMUM 2 INCHES AND BREAK OUT TO EXPOSE EXISTING REINFORCEMENT STEEL AT LEAST 12 INCHES AT PROPOSED DRIVEWAY INTERSECTION. FULL DEPTH CUT IS ACCEPTABLE PROVIDING 18" LONG DRILL IN DOWELS ARE INSTALLED AT A SPACING TO MATCH EXISTING WITH A MIN. 6" EMBEDMENT.
8. COMPACT SUBGRADE FOR PROPOSED DRIVEWAY CONNECTION FROM PROPOSED SAW CUT AT EXISTING PAVEMENT TO RIGHT-OF-WAY LINE, COMPACT TO 95% OF STANDARD PROCTER DENSITY (+/- 2% OPT. MOISTURE). THE COUNTY ENGINEER RESERVES THE RIGHT TO REQUIRE LABORATORY TESTS IF HE DEEMS THEM NECESSARY.
9. PLACE AND COMPACT 4 INCH CLEAN BANK SAND.
10. 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).
11. IF MORE THAN ONE PROPOSED DRIVEWAY IS BUILT ON THE SAME PROPERTY, SAID DRIVE WAYS SHALL SEPERATED BY A MINIMUM DISTANCE OF AT LEAST 20 FEET (ROADWAYS WITH CURBS AND SIDEWALKS).
12. SIDEWALKS SHALL HAVE 3/4 INCH REDWOOD BOARD EXPANSION JOINTS EVERY 20 FEET ON CENTER
13. PLACE ONE-INCH BOARD EXPANSION JOINT AT RIGHT-OF-WAY LINE.
14. EXPANSION JOINT FILLER SHALL BE PRE FORMED CONFORMING TO AASHTO M-33 OR M-213 BETWEEN SIDEWALK AND CURB, AROUND FIRE HYDRANTS AND UTILITY POLES.

CONSTRUCTION NOTES FOR SIDEWALKS & DRIVEWAYS ON CURB TYPE STREETS RESIDENTIAL AREA	APPROVED BY: LOUIS E. HOOD, P.E.	DRAWN BY: L. BRDECKA
	DATE DRAWN: 10-4-95 REVISED:4-7-09	DRAWING NO.: FBC-010C

FORT BEND COUNTY ENGINEERING DEPARTMENT



NOTES / LEGEND:

See General Notes on sheet 2 of 4 for more information.

Denotes planting or non-walking surface not part of pedestrian circulation path.

Ramp Limits of Payment

Detectable Warning Surface

SHEET 1 OF 4

Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-12A

ped-sw01c.dgn	dw-TxDOT	CH-TRF	bw-TxDOT	CH-TRF
TxDOT March 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
07 June 13, 2012	DIST	COUNTY		SHEET NO.

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1865

APPROVED: _____
FORT BEND COUNTY DEVELOPMENT COORDINATOR

DATE: _____

PERMIT SET

NO. REVISION DATE

STATE OF TEXAS — ROBERT M. PREISS — 92978 — LICENSED PROFESSIONAL ENGINEER — 3-26-18

PAPE-DAWSON ENGINEERS

HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10850 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #101939-74

SUNSET CROSSING BRYAN ROAD PHASE ONE

CITY OF ROSENBERG, TEXAS

MISCELLANEOUS DETAILS (SHEET 2 OF 4)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED JCK DRAWN ALL
SHEET 42 OF 44

Date: Mar 21, 2018, 12:08pm User ID: ANEWTON
File: K:\projects\401\66\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\16-4016600-DT-BRYN-PH1.dwg

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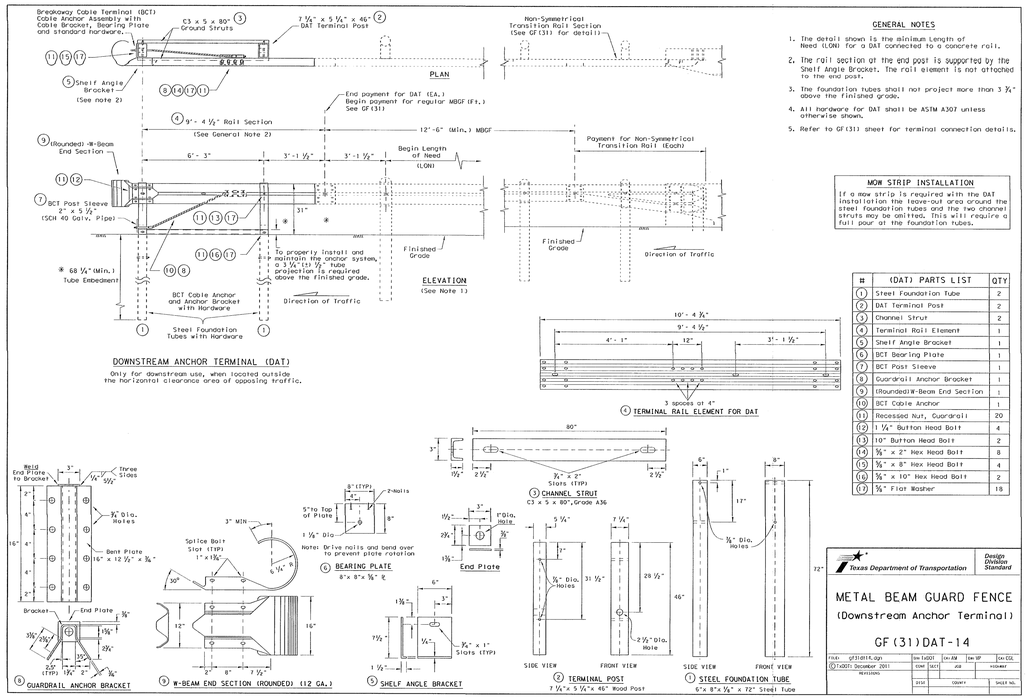


GENERAL NOTES

1. The detail shown is the minimum Length of Need (LON) for a DAT connected to a concrete rail.
2. The rail section at the end post is supported by the Shelf Angle Bracket. The rail element is not attached to the end post.
3. The foundation tubes shall not project more than 3 3/4" above the finished grade.
4. All hardware for DAT shall be ASTM A307 unless otherwise shown.
5. Refer to GF(31) sheet for terminal connection details.

MOW STRIP INSTALLATION

If a mow strip is required with the DAT installation the leave-out area around the steel foundation tubes and the two channel struts may be omitted. This will require a full pour at the foundation tubes.

#	(DAT) PARTS LIST	QTY
1	Steel Foundation Tube	2
2	DAT Terminal Post	2
3	Channel Strut	2
4	Terminal Rail Element	1
5	Shelf Angle Bracket	1
6	BCT Bearing Plate	1
7	BCT Post Sleeve	1
8	Guardrail Anchor Bracket	1
9	(Rounded) W-Beam End Section	1
10	BCT Cable Anchor	1
11	Recessed Nut, Guardrail	20
12	1 1/4" Button Head Bolt	4
13	10" Button Head Bolt	2
14	3/4" x 2" Hex Head Bolt	8
15	3/4" x 8" Hex Head Bolt	4
16	3/4" x 10" Hex Head Bolt	2
17	3/4" Flat Washer	18

Texas Department of Transportation — Design Division Standard

METAL BEAM GUARD FENCE
(Downstream Anchor Terminal)

GF(31)DAT-14

FILE: gf31d014.dgn	DN: TxDOT	CK: AM	DW: MP	CK: CGL
©TxDOT: December 2011	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings for One Structure End)

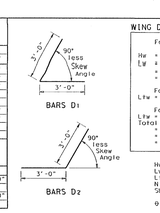
Maximum Wingwall Height Hw	W	X	Y	Z	Variable Reinforcing Bars J1 Spa	Bars J2 Spa	Bars J3 Spa	Estimated(4) Quantities per Wingwall (2-Wings) Reinf (LB/FT)	Conc (CY/FT)	Estimated Quantities per Wingwall (1-Toewall) Reinf (LB/FT)	Conc (CF/FT)
2'-6"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	48.64	0.406	6.85	0.071
2'-9"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	49.31	0.424	6.85	0.071
3'-0"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	49.98	0.444	6.85	0.071
3'-3"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	53.32	0.462	6.85	0.071
3'-6"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	53.98	0.480	6.85	0.071
4'-0"	3'- 2"	1'- 2"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	59.77	0.532	6.85	0.071
4'-6"	3'- 2"	1'- 2"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	59.77	0.568	6.85	0.071
5'-0"	3'- 9"	1'- 7"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	63.45	0.632	6.96	0.075
5'-6"	3'- 9"	1'- 7"	1'- 2"	7"	#4	1'-0"	#4	1'-0"	67.46	0.668	6.96	0.075
6'-0"	4'- 4"	2'- 0"	1'- 4"	7"	#5	1'-0"	#5	1'-0"	80.67	0.750	7.07	0.078
6'-6"	4'- 4"	2'- 0"	1'- 4"	7"	#5	1'-0"	#5	1'-0"	85.05	0.788	7.07	0.078
7'-0"	5'- 0"	2'- 3"	1'- 9"	8"	#5	1'-0"	#5	1'-0"	92.15	0.864	8.07	0.093
7'-6"	5'- 0"	2'- 3"	1'- 9"	8"	#6	1'-0"	#5	1'-0"	96.54	0.902	8.07	0.093
8'-0"	5'- 6"	2'- 8"	1'-10"	8"	#5	6"	#5	6"	139.04	0.962	8.13	0.095
8'-6"	5'- 6"	2'- 8"	1'-10"	8"	#5	6"	#5	6"	144.47	1.000	8.13	0.095
9'-6"	6'- 0"	2'-10"	2'- 2"	9"	#5	6"	#5	6"	156.93	1.136	8.41	0.110
10'-6"	6'- 5"	3'- 0"	2'- 5"	9"	#6	6"	#5	6"	196.27	1.234	8.57	0.117
11'-6"	7'- 2"	3'- 5"	2'- 8"	11"	#6	6"	#5	6"	230.13	1.438	9.52	0.140
12'-6"	7'- 8"	3'- 9"	2'-11"	1'- 0"	#7	6"	#6	6"	283.41	1.592	9.74	0.157
13'-6"	8'- 2"	4'- 0"	3'- 2"	1'- 2"	#8	6"	#6	6"	348.72	1.804	10.02	0.186
14'-6"	8'-10"	4'- 5"	3'- 5"	1'- 4"	#9	6"	#6	6"	432.94	2.046	10.30	0.218
15'-6"	9'- 6"	4'-10"	3'- 8"	1'- 6"	#9	6"	#7	6"	489.52	2.302	11.24	0.253
16'-0"	9'-11"	5'- 0"	3'-11"	1'- 7"	#9	6"	#7	6"	505.72	2.448	11.47	0.279

TABLE OF WINGWALL REINFORCING (2-Wings)

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

TABLE OF TOEWALL REINFORCING

Bar	Size	No	Spa
J3	#4	~	1'-0"
M2	#4	2	~
E2	#4	~	1'-0"



WING DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)

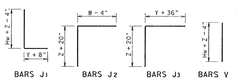
Hw = H + T + C
Lw = (Hw) (SL) ÷ Cosine θ for Ty PW-1
  = (Hw - 1') (SL) ÷ Cosine θ for Ty PW-2 and Hw ≥ 4'
  = (Hw - 0.5') (SL) ÷ Cosine θ for Ty PW-2 and Hw < 4'

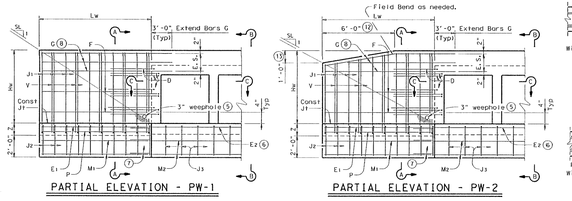
For Cast-in-place culverts:
LTw = (LN) (SI + (N - 1) (U)) ÷ Cosine θ

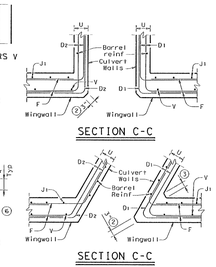
For Precast culverts:
LTw = (LN) (2 U + SI) + (N - 1) (0.5') ÷ Cosine θ
Total Wingwall Area (two Wings = SF)
  = (2) (Hw) (Lw) for Ty PW-1
  = (2) (Hw) (Lw) - 6 SF for Ty PW-2 and Hw ≥ 4'
  = (2) (Hw) (Lw) - 1.5 SF for Ty PW-2 and Hw < 4'

Hw = Height of Wingwall
Lw = Length of Wingwall
LTw = Culvert Toewall Length
N = Number of Culvert Spans
SL(1 > Channel Slope ratio. (Horizontal: 1 Vertical, Usual value is 2:1)
θ = Culvert Skew

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







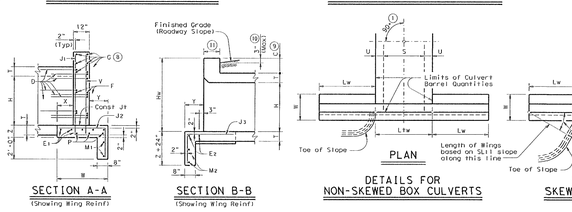
1. Skew Angle = 0°
2. At discharge end, chamfer may be 3/4".
3. For 15° Skew ~ 1"
   For 30° Skew ~ 2"
   For 45° Skew ~ 3"
4. Quantities shown are for two Type PW-1 wings. Adjust concrete volume for Type PW-2 wings. To determine estimated quantities for two wings, multiply the tabulated values by 4. Quantities shown do not include weight of Bars D.
5. Provide weepholes for Hw < 5'-0" and greater. Fill around weepholes with coarse gravel.
6. Extend Bars E≥ 1'-6" minimum into the wingwall footing.
7. Lap Bars M≥ 1'-6" minimum with Bars M2.
8. Bars G equally spaced at 8" maximum, place as shown. Provide at least two pair Bars G per wing.
9. 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail or curbs taller than 1'-0", refer to ECD standard. For structures with TG bridge rail, refer to TG-CM standard. For structures with traffic rail, other than TG, refer to RAC standard.
10. For vehicle safety, the following requirements must be met:
    - For structures without bridge rails, curbs cannot project more than 3" above finished grade.
    - For structures with bridge rail, build curbs flush with finished grade.
    Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
11. 1'-0" typical. 2'-0" typical when RAC standard is referenced elsewhere in the plans.
12. 3'-0" for Hw < 4'.
13. 6" for Hw < 4'.

GENERAL NOTES:

Designed in accordance with AASHTO LRFD Bridge Design Specifications.
Provide Class "C" Concrete (f'c = 3,600 psi Min) and Grade 60 reinforcing steel.
Provide 1 1/4" Min clear cover to reinforcing steel. Depth of toewalls for wingwalls and culverts may be reduced or eliminated when founded on solid rock, when directed by the Engineer.
See BCS sheet for wingwall type and additional dimensions and information.
The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for the Contractor's information only.

DESIGNER NOTES:

Type PW-1 can be used for all applications and must be used if railing is to be mounted to the wingwall.
Type PW-2 can only be used for applications without a railing mounted to the wingwall.

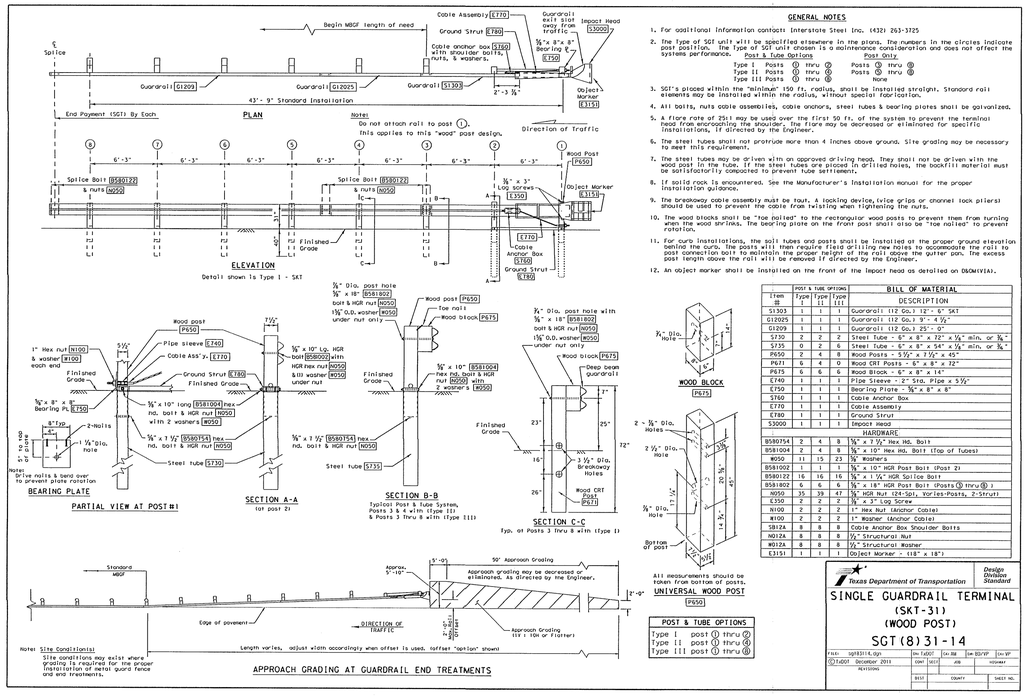


Texas Department of Transportation — Bridge Division Standard

CONCRETE WINGWALLS WITH PARALLEL WINGS FOR BOX CULVERTS TYPES PW-1 AND PW-2

PW

FILE: pw(d)01.dgn	DN: GAF	CK: HB	DW: TxDOT	CK: GAF
©TxDOT: February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.
10-98 Refloating Guidelines. 02-02 PW-1 & PW-2.				



GENERAL NOTES

1. For additional information contact: Interstate Steel Inc. (432) 263-3725
2. The type of SGT unit will be specified elsewhere in the plans. The numbers in the circles indicate post position. The type of SGT unit chosen is a maintenance consideration and does not affect the systems performance.
   Post & Tube Options
   Post Only
   Type I Posts ① thru ② Posts ⑧ thru ⑪
   Type II Posts ③ thru ⑥ None
   Type III Posts ⑦ thru ⑪ None
3. SGT's placed within the "minimum" 150 ft. radius, shall be installed straight. Standard rail elements may be installed within the radius, without special fabrication.
4. All bolts, nuts cable assemblies, cable anchors, steel tubes & bearing plates shall be galvanized.
5. A flare rate of 25:1 may be used over the first 50 Ft. of the system to prevent the terminal head from encroaching the shoulder. The flare may be decreased or eliminated for specific installations, if directed by the Engineer.
6. The steel tubes shall not protrude more than 4 inches above ground. Site grading may be necessary to meet this requirement.
7. The steel tubes may be driven with an approved driving head. They shall not be driven with the wood post in the tube. If the steel tubes are placed in drilled holes, the backfill material must be satisfactorily compacted to prevent tube settlement.
8. If solid rock is encountered. See the Manufacturer's Installation manual for the proper installation guidance.
9. The breakaway cable assembly must be taut. A locking device, (vise grips or channel lock pliers) should be used to prevent the cable from twisting when tightening the nuts.
10. The wood blocks shall be "toe nailed" to the rectangular wood posts to prevent them from turning when the wood shrinks. The bearing plate on the front post shall also be "toe nailed" to prevent rotation.
11. For curb installations, the slot tubes and posts shall be installed at the proper ground elevation behind the curb. The posts will then require field drilling new holes to accomodate the rail to post connection bolt to maintain the proper height of the rail above the gutter pan, the excess post length above the rail will be removed if directed by the Engineer.
12. An object marker shall be installed on the front of the impact head as detailed on D&OM(IV)-A.

Item #	Post & Tube Options Type I	Type II	Type III	BILL OF MATERIAL DESCRIPTION
S1303	1	1	1	Guardrail (12 Ga.) 12'- 6" SAT
G12025	1	1	1	Guardrail (12 Ga.) 9'- 4 1/2"
G1209	1	1	1	Guardrail (12 Ga.) 25'- 0"
S730	2	2	2	Steel Tube - 6" x 8" x 72" x 1/4" min. or 3/8"
S735	0	2	6	Steel Tube - 6" x 8" x 54" x 1/4" min. or 3/8"
P650	2	4	8	Wood Posts - 5 1/2" x 7 1/2" x 45"
P671	6	4	0	Wood CRT Posts - 7" x 8" x 72"
P675	6	6	6	Wood Block - 6" x 8" x 14"
E740	1	1	1	Pipe Sleeve - 2" Sch. Pipe x 5 1/2"
E750	1	1	1	Bearing Plate - 3/4" x 8" x 8"
S760	1	1	1	Cable Anchor Box
E770	1	1	1	Cable Assembly
E780	1	1	1	Ground Strut
S3000	1	1	1	Impact Head
				HARDWARE
B580754	2	4	8	3/4" x 7 1/2" Hex Hd. Bolt
B581004	2	4	8	3/4" x 10" Hex Hd. Bolt (Top of Tubes)
W050	11	15	23	3/4" Washers
B581002	1	1	1	3/4" x 10" HGR Post Bolt (Post 2)
B580122	16	16	16	3/4" x 1 1/4" HGR Splice Bolt
B581802	6	6	6	3/4" x 18" HGR Post Bolt (Posts ① thru ⑥)
N050	35	39	47	3/4" HGR Nut (24-Spl, Yorles-Posts, Z-Strut)
E350	2	2	2	3/4" x 3" Lag Screw
N100	2	2	2	1" Hex Nut (Anchor Cable)
W100	2	2	2	1" Washer (Anchor Cable)
S812A	8	8	8	Cable Anchor Box Rod-Under Bolts
N012A	8	8	8	1/2" Structural Nut
W012A	8	8	8	1/2" Structural Washer
E3151	1	1	1	Object Marker - (18" x 18")

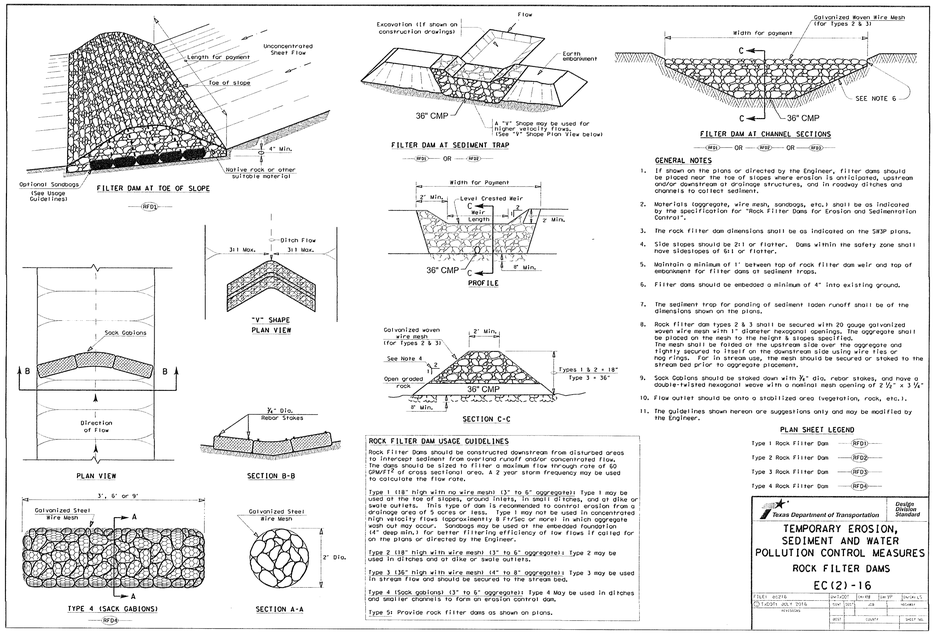
POST & TUBE OPTIONS
Type I post ① thru ②
Type II post ① thru ④
Type III post ① thru ⑪

Texas Department of Transportation — Design Division Standard

SINGLE GUARDRAIL TERMINAL (SKT-31) (WOOD POST)

SGT(8)31-14

FILE: sgt8)31-14.dgn	DN: TxDOT	CK: RM	DW: BSY/IP	CK: WP
©TxDOT: December 2011	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.



GENERAL NOTES

1. If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.
2. Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
3. The rock filter dam dimensions shall be as indicated on the SW3P plans.
4. Side slopes should be 2:1 or flatter. Dams within the safety zone shall have sideslopes of 6:1 or flatter.
5. Maintain a minimum of 1' between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
6. Filter dams should be embedded a minimum of 4" into existing ground.
7. The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
8. Rock filter dam types 2 & 3 shall be secured with 20 gauge galvanized woven wire mesh with 1" diameter hexagonal openings. The aggregate shall be placed on the mesh to the height & slopes specified. The mesh shall be folded at the upstream side over the aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. For in stream use, the mesh should be secured or staked to the stream bed prior to aggregate placement.
9. Sack Gabions should be staked down with 3/8" dia. rebar stakes, and have a double-twisted hexagonal weave with a nominal mesh opening of 2 1/2" x 3 1/4".
10. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
11. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

PLAN SHEET LEGEND

Type 1 Rock Filter Dam — (RF01)
Type 2 Rock Filter Dam — (RF02)
Type 3 Rock Filter Dam — (RF03)
Type 4 Rock Filter Dam — (RF04)

ROCK FILTER DAM USAGE GUIDELINES

Rock Filter Dams should be constructed downstream from disturbed areas to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter a maximum flow through rate of 60 GPM/FT² of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

Type 1 118" high with no wire mesh (3" to 6" aggregate): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approximately 8 FT/sec or more) in which aggregate wash out may occur. Sandbags may be used at the embedded foundation (4" deep min.) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.

Type 2 118" high with wire mesh (3" to 6" aggregate): Type 2 may be used in ditches and at dike or swale outlets.

Type 3 136" high with wire mesh (4" to 8" aggregate): Type 3 may be used in stream flow and should be secured to the stream bed.

Type 4 (Sack gabions) (3" to 6" aggregate): Type 4 May be used in ditches and smaller channels to form an erosion control dam.

Type 5: Provide rock filter dams as shown on plans.

Texas Department of Transportation — Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES
ROCK FILTER DAMS
EC(2)-16

FILE: ec2)16	DN: TxDOT	CK: TW	DW: VP	CK: LS
©TxDOT: JULY 2016	TxDOT	DIST	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

FORT BEND COUNTY — APPROVED — MAY 07 2018 — Valid One Year From Date — ENGINEERING DEPARTMENT

CITY OF ROSENBERG — FOUNDED 1883

APPROVED: _____ FORT BEND COUNTY DEVELOPMENT COORDINATOR

DATE: _____

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10193974

STATE OF TEXAS — ROBERT M. PREISS — 92978 — LICENSED PROFESSIONAL ENGINEER — 3-26-18

NO.	REVISION	DATE

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
MISCELLANEOUS DETAILS (SHEET 3A OF 3)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED JCK DRAWN ALL
SHEET 43 OF 44

PERMIT SET

Date: Mar 21, 2018, 12:09pm User ID: ANEWTON
File: K:\projects\401\66\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\16-4016600-DT-BRYN-PH1.dwg

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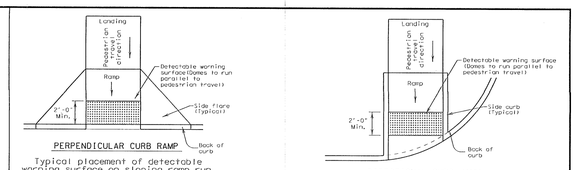
General Notes

Curb Ramps

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Lesser slopes that will still drain properly should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, 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' passing areas at 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 pedestrians 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 curbs. 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. At 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 (penetrates) a curb.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete 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.

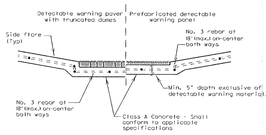
Detectable Warning Material

18. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with Section 705 of the TAS. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored 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 located so that the edge nearest the curb line is at the back of curb. 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.

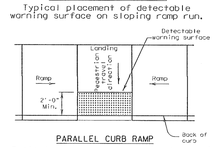


PERPENDICULAR CURB RAMP
Typical placement of detectable warning surface on sloping ramp run.

DIRECTIONAL CURB RAMP
Typical placement of detectable warning surface on sloping ramp run.



SECTION: CURB RAMP AT DETECTABLE WARNING



PARALLEL CURB RAMP
Typical placement of detectable warning surface on landing at street edge.

DETECTABLE WARNINGS

Detectable Warning Pavers

24. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
25. Lay full-size units first followed by closure units consisting of at least 25 percent of a full unit. Cut detectable warning paver units using a paver saw.

Sidewalks

26. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within one or more reach ranges specified in TAS 308.
27. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
28. Street grades and cross slopes shall be as shown elsewhere in the plans.
29. Changes in level greater than 1/4 inch are not permitted.
30. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than 5% must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with TAS 505.
31. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
32. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
33. Sidewalk details are shown elsewhere in the plans.

SHEET 2 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-12A

FILE: ped12a.dgn	DW: TxDOT	CK: RM	DW: TxDOT	CK: VP
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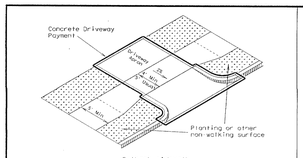
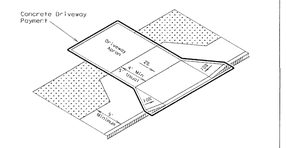
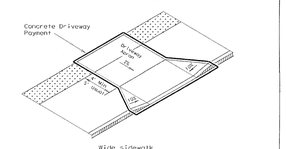
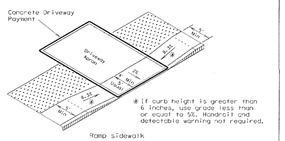
REVISIONS				
9P June 13, 2012	DIST	COUNTY		SHEET NO.



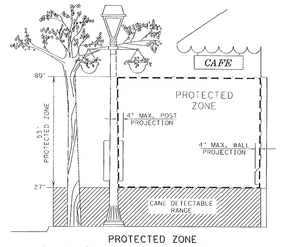




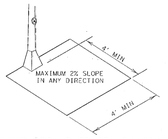


* If curb height is greater than 6 inches, use grade less than or equal to 5%. Handrail and detectable warning not required.

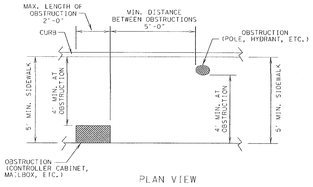
SIDEWALK TREATMENT AT DRIVEWAYS



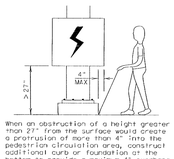
PROTECTED ZONE
In pedestrian circulation area, maximum 4" projection for post or wall mounted objects between 27" and 80" above the surface.



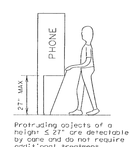
CLEAR GROUND SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



PLAN VIEW
PLACEMENT OF STREET FIXTURES
(ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' x 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.)



When an obstruction of a height greater than 27" from the surface would create a protrusion of more than 4" into the pedestrian circulation area, construct additional curb or foundation at the bottom to provide a maximum 4" overhang.



Protruding objects of a height ≤ 27" are detectable by cane and do not require additional treatment.

DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

SHEET 3 OF 4

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PEDESTRIAN FACILITIES CURB RAMPS

PED-12A

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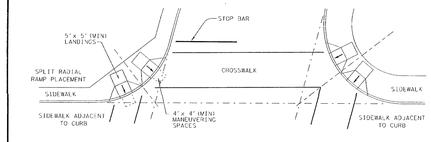
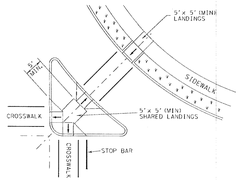
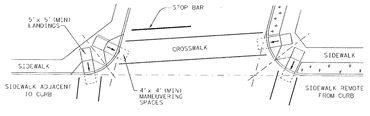
9P June 13, 2012	DIST	COUNTY		SHEET NO.



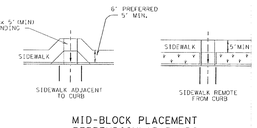
SKEWED INTERSECTION WITH "LARGE" RADIUS



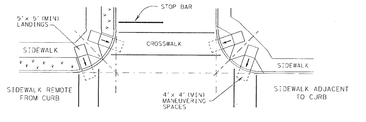
AT INTERSECTION W/FREE RIGHT TURN & ISLAND



SKEWED INTERSECTION WITH "SMALL" RADIUS



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS



NORMAL INTERSECTION WITH "SMALL" RADIUS

TYPICAL CROSSING LAYOUTS

SHEET 4 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-12A

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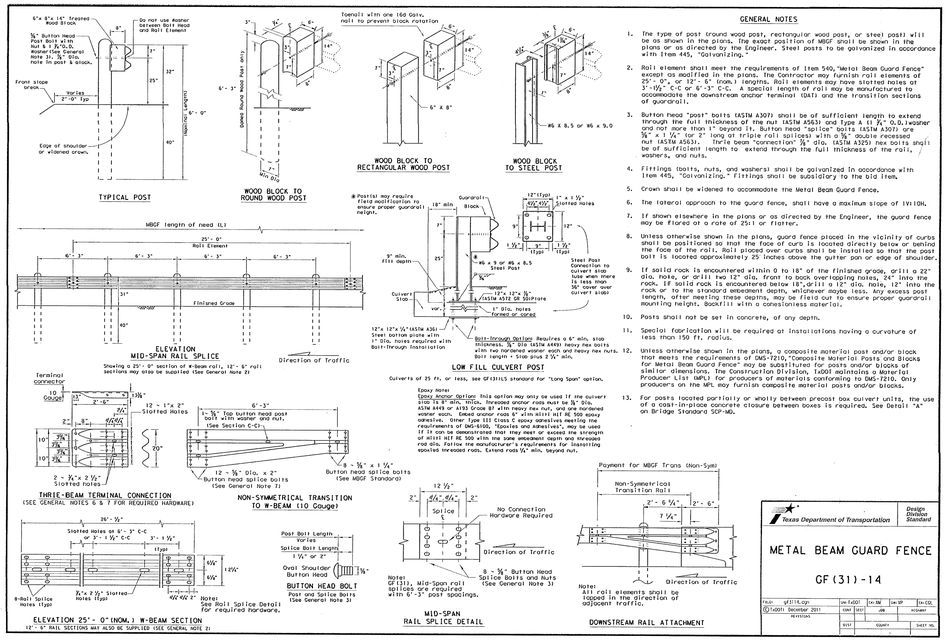
9P June 13, 2012	DIST	COUNTY		SHEET NO.



GENERAL NOTES

1. The type of post (round wood post, rectangular wood post, or steel post) will be as shown in the plans. The exact position of MBGF shall be shown in the plans or as modified by the Engineer. Steel posts to be galvanized in accordance with Item 445, "Galvanizing."
2. Rail element shall meet the requirements of Item 540, "Metal Beam Guard Fence" except as modified in the plans. The Contractor may furnish rail elements of 25'- 0", or 12'- 6" (nom.) lengths. Rail elements may have slotted holes at 3'-1½"- C-C or 6'-3" C-C. A special length of rail may be manufactured to accommodate the downstream anchor terminal (DAT) and the transition sections of guardrail.
3. Button head "post" bolts (ASTM A307) shall be of sufficient length to extend through the full thickness of the nut (ASTM A563) and Type A (1 ¾" O.D.) washer and not more than 1" beyond it. Button head "splice" bolts (ASTM A307) are ⅝" x 1 ¼" (or 2" long at triple rail splices) with a ⅝"- double recessed nut (ASTM A563). Thrie beam "connection" ¾" dia. (ASTM A325) hex bolts shall be of sufficient length to extend through the full thickness of the rail, washers, and nuts.
4. Fittings (bolts, nuts, and washers) shall be galvanized in accordance with Item 445, "Galvanizing." Fittings shall be subsidiary to the bid item.
5. Crown shall be widened to accommodate the Metal Beam Guard Fence.
6. The lateral approach to the guard fence, shall have a maximum slope of 1V:10H.
7. If shown elsewhere in the plans or as directed by the Engineer, the guard fence may be flared at a rate of 2½:1 or flatter.
8. Unless otherwise shown in the plans, guard fence placed in the vicinity of curbs shall be positioned so that the face of curb is located directly below or behind the face of the rail. Rail placed over curbs shall be installed so that the post bolt is located approximately 25" inches above the gutter pan or edge of shoulder.
9. If solid rock is encountered within 9 to 18" of the finished grade, drill a 22" dia. hole, or drill two 12" dia. front to back overlapping holes, 24" into the rock. If solid rock is encountered below 18", drill a 12" dia. hole, 12" into the rock or to the standard embedment depth, whichever maybe less. Any excess post length, after meeting these depths, may be field cut to ensure proper guardrail mounting height. Backfill with a cohesionless material.
10. Posts shall not be set in concrete, of any depth.
11. Special fabrication will be required at installations having a curvature of less than 150 ft. radius.
12. Unless otherwise shown in the plans, a composite material post and/or block that meets the requirements of DMS-7210, "Composite Material Posts and Blocks for Metal Beam Guard Fence" may be substituted for posts and/or blocks of similar dimensions. The Construction Division, TxDOT maintains a Material Producer List (MPL) for producers of materials conforming to DMS-7210. Only producers on the MPL may furnish composite material posts and/or blocks.
13. For posts located partially or wholly between precast box culvert units, the use of a cast-in-place concrete closure between boxes is required. See Detail "A" on Bridge Standard SGP-MD.

DOWNSTREAM RAIL ATTACHMENT

SHEET 4 OF 4

Texas Department of Transportation | Design Division Standard

METAL BEAM GUARD FENCE

GF(31)-14

FILE: gf(31)-14.dgn	DW: TxDOT	CK: RM	DW: VP	CK: CSC
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FORT BEND COUNTY APPROVED MAY 07 2018 Valid One Year From Date ENGINEERING DEPARTMENT

CITY OF ROSENBERG FOUNDED 1885

APPROVED: _____
FORT BEND COUNTY
DEVELOPMENT COORDINATOR

DATE: _____

PERMIT SET

PAPE-DAWSON ENGINEERS
HOUSTON | SAN ANTONIO | AUSTIN | FORT WORTH | DALLAS
10350 RICHMOND AVE. STE 200 | HOUSTON, TX 77042 | 713.428.2400
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10018974

NO.	REVISION	DATE

STATE OF TEXAS ROBERT M. PREISS 92978 LICENSED PROFESSIONAL ENGINEER
3.26.18

SUNSET CROSSING BRYAN ROAD PHASE ONE
CITY OF ROSENBERG, TEXAS
MISCELLANEOUS DETAILS (SHEET 4 OF 4)

PLAT NO. 40166-20
JOB NO. 40166-21
DATE MARCH 2018
DESIGNER LS
CHECKED JCK DRAWN ALL
SHEET 44 OF 44

Date: Mar 21, 2018, 12:09pm User ID: ANEWTON
File: K:\projects\401\66\00\2-0 Design\2-1 Civil\DWGS_BRYAN ROAD\18-4016600-01-BRYN-PH1.dwg

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