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

[ ] Right of Way Permit
[X] Commercial Driveway Permit

Permit No: 2017-13938

Applicant: Urban Area

Job Location Site: 9303 Highway 6, Missouri City, TX 77459

Bond No. 0208483 **Date of Bond:** 5/19/2017 **Amount:** $5,000.00

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 July, 2017, Upon Motion of Commissioner _____, seconded by Commissioner _____, duly put and carried, it is ORDERED, ADJUDGED AND DECREED that said notice of said above purpose is hereby acknowledged by the Commissioners Court of Fort Bend County, Texas, and that said notice be placed on record according to the regulation order thereof.

Signature

By: Charles O. Ay
for County Engineer

N/A
By: _____
Drainage District Engineer/Manager

Presented to Commissioners Court and approved.

Date Recorded _____ Comm. Court No. _____

Clerk of Commissioners Court

By: _____
Deputy

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

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

[ ] Right of Way Permit

[X] Commercial Driveway Permit

Permit No: 2017-13938

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.		
[ ]	Perpetual bond currently posted.	Bond No:	Amount:
[X]	Performance bond submitted.	Bond No: 0208483	Amount: $5,000.00
[ ]	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.

Charly O. Al

Permit Administrator

6/29/17

Date

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

BOND NO 0208483

THE STATE OF TEXAS §

COUNTY OF FORT BEND §

KNOW ALL MEN BY THESE PRESENTS:

THAT WE, Sovereign Builders, Inc. dba Construction LTD whose (*address, phone*) is 1825 Upland Drive, Houston, TX 77043, (832) 203-6819 Texas, hereinafter called the Principal, and Berkley Insurance Company, a Corporation existing under and by virtue of the laws of the state of Delaware and authorized to do an indemnifying business in the state of Texas, and whose principal office is located at (*name/address/phone*) 475 Steamboat Road, Greenwich, CT, 06830, (203) 629-3000 whose officer residing in the State of Texas, authorized to accept service in all suits and actions brought whining said state is Timothy Miller and whose address is 12400 Coit Road, Suite 625, Dallas, TX 75251, hereinafter called the Surety, and held and firmly bound unto , Robert E. Hebert, County Judge of Fort Bend County, Texas, or his successors in office, in the full sum of Five Thousand and No/100 Dollars ($5,000.00) current, lawful money of the United States of America, to be paid to said Robert E. Hebert, County Judge of Fort Bend County, Texas, or his successors in office, to which payment well and truly to be made and done, we, the undersigned, bind ourselves and each of us, our heirs, executors, administrators, successors, assigns, and legal representatives, jointly and severally, by these presents.

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

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

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

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

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

EXECUTED this 19th day of May, 2017.

SOVEREIGN BUILDERS, INC. CORPORATE SEAL 2006 TEXAS

Sovereign Builders, Inc. dba Construction LTD
PRINCIPAL

BY

Berkley Insurance Company
SURETY

Gloria M. Villa

BY Gloria M. Villa, Attorney-in-Fact

No. BI-304g

POWER OF ATTORNEY
BERKLEY INSURANCE COMPANY
WILMINGTON, DELAWARE

NOTICE: The warning found elsewhere in this Power of Attorney affects the validity thereof. Please review carefully.

KNOW ALL MEN BY THESE PRESENTS, that BERKLEY INSURANCE COMPANY (the "Company"), a corporation duly organized and existing under the laws of the State of Delaware, having its principal office in Greenwich, CT, has made, constituted and appointed, and does by these presents make, constitute and appoint: ***Roxanne G. Brune; David R. Groppell; Beverly A. Ireland; Sharen R. Groppell; Francine M. Hay; Kurt A. Risk; Sharon J. Cavanaugh; Stephanie Sue Kohler; or Gloria M. Villa of Marsh & McLennan Agency LLC – Southwest of Houston, TX*** its true and lawful Attorney-in-Fact, to sign its name as surety only as delineated below and to execute, seal, acknowledge and deliver any and all bonds and undertakings, with the exception of Financial Guaranty Insurance, providing that no single obligation shall exceed **Fifty Million and 00/100 U.S. Dollars (U.S.$50,000,000.00),** to the same extent as if such bonds had been duly executed and acknowledged by the regularly elected officers of the Company at its principal office in their own proper persons.

This Power of Attorney shall be construed and enforced in accordance with, and governed by, the laws of the State of Delaware, without giving effect to the principles of conflicts of laws thereof. This Power of Attorney is granted pursuant to the following resolutions which were duly and validly adopted at a meeting of the Board of Directors of the Company held on January 25, 2010:

RESOLVED, that, with respect to the Surety business written by Berkley Surety Group, the Chairman of the Board, Chief Executive Officer, President or any Vice President of the Company, in conjunction with the Secretary or any Assistant Secretary are hereby authorized to execute powers of attorney authorizing and qualifying the attorney-in-fact named therein to execute bonds, undertakings, recognizances, or other suretyship obligations on behalf of the Company, and to affix the corporate seal of the Company to powers of attorney executed pursuant hereto; and said officers may remove any such attorney-in-fact and revoke any power of attorney previously granted; and further

RESOLVED, that such power of attorney limits the acts of those named therein to the bonds, undertakings, recognizances, or other suretyship obligations specifically named therein, and they have no authority to bind the Company except in the manner and to the extent therein stated; and further

RESOLVED, that such power of attorney revokes all previous powers issued on behalf of the attorney-in-fact named; and further

RESOLVED, that the signature of any authorized officer and the seal of the Company may be affixed by facsimile to any power of attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligation of the Company; and such signature and seal when so used shall have the same force and effect as though manually affixed. The Company may continue to use for the purposes herein stated the facsimile signature of any person or persons who shall have been such officer or officers of the Company, notwithstanding the fact that they may have ceased to be such at the time when such instruments shall be issued.

IN WITNESS WHEREOF, the Company has caused these presents to be signed and attested by its appropriate officers and its corporate seal hereunto affixed this 13th day of May, 2016.

Attest: Berkley Insurance Company

(Seal) By _____ By _____

Ira S. Lederman
Senior Vice President & Secretary

Jeffrey M. Hafter
Senior Vice President

WARNING: THIS POWER INVALID IF NOT PRINTED ON BLUE "BERKLEY" SECURITY PAPER.

STATE OF CONNECTICUT)
) ss:
COUNTY OF FAIRFIELD)

Sworn to before me, a Notary Public in the State of Connecticut, this 13th day of May, 2016, by Ira S. Lederman and Jeffrey M. Hafter who are sworn to me to be the Senior Vice President and Secretary, and the Senior Vice President, respectively, of Berkley Insurance Company.

MARIA C. RUNDBAKEN
NOTARY PUBLIC
MY COMMISSION EXPIRES
APRIL 30, 2019

Notary Public, State of Connecticut

CERTIFICATE

I, the undersigned, Assistant Secretary of BERKLEY INSURANCE COMPANY, DO HEREBY CERTIFY that the foregoing is a true, correct and complete copy of the original Power of Attorney; that said Power of Attorney has not been revoked or rescinded and that the authority of the Attorney-in-Fact set forth therein, who executed the bond or undertaking to which this Power of Attorney is attached, is in full force and effect as of this date.

Given under my hand and seal of the Company, this 19th day of May, 2017.

(Seal)

Vincent P. Forte

WARNING – Any unauthorized reproduction or alteration of this document is prohibited. This power of attorney is void unless seals are readable and the certification seal at the bottom is embossed. The background imprint, warning and **verification instructions** (on reverse) must be in blue ink.

IMPORTANT NOTICE

To obtain information or make a complaint:

You may call Berkley Surety Group's toll-free telephone number for information or to make a complaint at:

1-866-245-1973

You may also write to Berkley Surety Group at:

Berkley Surety Group, Inc.
412 Mt. Kemble Avenue
Suite 310N
Morristown, NJ 07960
Attention: Surety Claims Department

OR

E-mail: BSGClaim@wrbcsurety.com

You may contact the Texas Department of Insurance to obtain information on companies, coverages, rights or complaints at:

1-800-252-3439

You may write the Texas Department of Insurance:

P.O. Box 149104
Austin, TX 78714-9104
Fax: (512) 475-1771
Web: http://www.tdi.state.tx.us
E-mail: ConsumerProtection@tdi.state.tx.us

PREMIUM OR CLAIM DISPUTES:
Should you have a dispute concerning your premium or about a claim you should contact the company. If the dispute is not resolved, you may contact the Texas Department of Insurance.

ATTACH THIS NOTICE TO YOUR POLICY:
This notice is for information only and does not become a part or condition of the attached document.

AVISO IMPORTANTE

Para obtener informacion o para someter una queja:

Usted puede llamar al numero de telefono gratis de Berkley Surety Group's para informacion o para someter una queja al:

1-866-245-1973

Usted tambien puede escribir a Berkley Surety Group:

Berkley Surety Group, Inc.
412 Mt. Kemble Avenue
Suite 310N
Morristown, NJ 07960
Attention: Surety Claims Department

OR

E-mail: BSGClaim@wrbcsurety.com

Puede comunicarse con el Departamento de Seguros de Texas para obtener informacion acerca de companias, coberturas, derechos o quejas al:

1-800-252-3439

Puede escribir al Departamento de Seguros de Texas:

P.O. Box 149104
Austin, TX 78714-9104
Fax: (512) 475-1771
Web: http://www.tdi.state.tx.us
E-mail: ConsumerProtection@tdi.state.tx.us

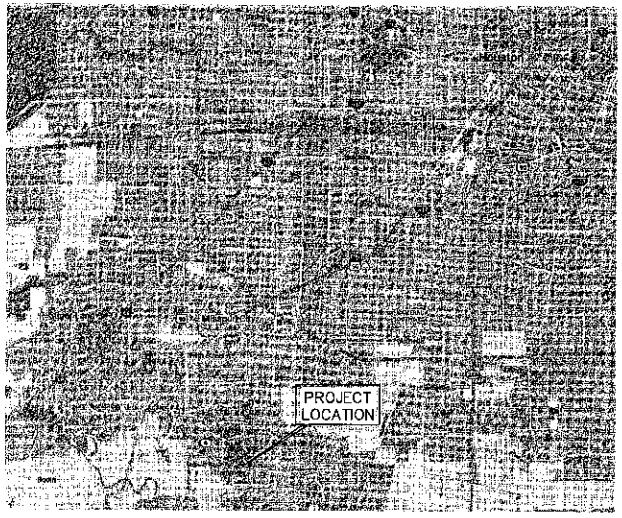
DISPUTAS SOBRE PRIMAS O RECLAMOS:
Si tiene una disputa concerniente a su prima o a un reclamo, debe comunicarse con el la compania primero. Si no se resuelve la disputa, puede entonces comunicarse con el departamento (TDI).

UNA ESTE AVISO A SU POLIZA: Este aviso es solo para proposito de informacion y no se convierte en parte o condicion del documento adjunto.

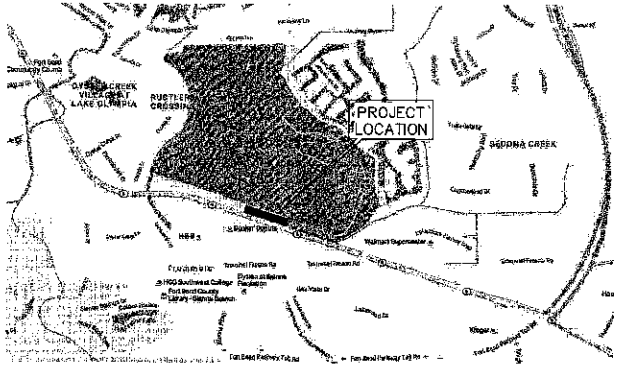
SHOPPES AT SIENNA PLANTATION

9129 & 9303 STATE HIGHWAY 6 AT KITTY HOLLOW PARK DRIVE
MISSOURI CITY, FORT BEND COUNTY TEXAS

PRIVATE CONSTRUCTION OF WATER DISTRIBUTION SYSTEM, SANITARY COLLECTION SYSTEM, STORM SEWER DRAINAGE SYSTEM, AND PAVING



LOCATION MAP



VICINITY MAP
N.T.S.

SHEET INDEX

NO.	DESCRIPTION
C1	COVER SHEET
C2	GENERAL CONSTRUCTION NOTES 1 OF 2 (MC-1-15)
C3	GENERAL CONSTRUCTION NOTES 2 OF 2 (MC-2-15)
C4	DIMENSION CONTROL & PAVING PLAN 1 OF 2
C5	DIMENSION CONTROL & PAVING PLAN 2 OF 2
C5.1	TRAFFIC CONTROL PLAN – PHASE 1 (AT KITTY HOLLOW PARK DR.)
C5.2	TRAFFIC CONTROL PLAN – PHASE 2 (AT KITTY HOLLOW PARK DR.)
C6	FIRE APPARATUS ACCESS PLAN
C7	GRADING PLAN 1 OF 2
C8	GRADING PLAN 2 OF 2
C9	UTILITY PLAN 1 OF 2
C10	UTILITY PLAN 2 OF 2
C11	DRAINAGE AREA MAP AND CALCULATIONS
C12	STORMWATER POLLUTION PREVENTION PLAN
C13	STORMWATER POLLUTION PREVENTION PLAN DETAILS
C14	CONSTRUCTION DETAILS
C15	SANITARY SEWER CONSTRUCTION DETAILS (MC-10-15)
C16	WATER LINE CONSTRUCTION DETAILS 1 OF 2 (MC-11-15)
C17	WATER LINE CONSTRUCTION DETAILS 2 OF 2 (MC-12-15)
C18	WATER LINE, SANITARY SEWER FORCE MAIN BEDDING DETAILS (MC-15-15)
C19	STORM SEWER PIPE BEDDING AND BACKFILL DETAILS (MC-16-15)
C20	STORM SEWER INLET CONSTRUCTION DETAILS – I (MC-5-15)
C21	STORM SEWER INLET CONSTRUCTION DETAILS – II (MC-6-10)
C22	SLOPE END TREATMENTS (MC-9-15)
C23	DRIVEWAY CONSTRUCTION DETAILS (MC-22-15)
C24	CONCRETE PAVEMENT CONSTRUCTION DETAILS (MC-17-15)

FEMA NOTE:
ACCORDING TO FEMA FLOOD INSURANCE RATE MAP (FIRM) NO. 48157C0295L, MAP REVISED APRIL 2, 2014, THE SURVEYED TRACT LIES IN ZONE "X" UNSHADED, DEFINED BY FEMA AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

ONE-CALL NOTIFICATION SYSTEM
CALL BEFORE YOU DIG!!!
(713) 223-4567 (In Houston)
(New Statewide Number Outside Houston)
1-800-545-6005

FORT BEND COUNTY ENGINEER
ENGINEER: for Richard W. Stolleis, P.E.
DATE: 5/8/17
THESE SIGNATURES ARE VOID IF CONSTRUCTION HAS NOT COMMENCED IN (1) YEAR FROM DATE OF APPROVAL
APPROVED: Development Coordinator
DATE: 5/8/17

Quail Valley Business Park
1306 FM 1092, Suite 303
Missouri City, Texas 77459-1564
Tel : (713) 562-6100
TX FIRM REGISTRATION NO. F-15913

16935 Beckett's Oaks Ct.
Houston, Texas 77083
Tel : (281) 201-5624
Mobile: (832) 671-3409

REV/DATE	DESCRIPTION
12-08-16	ISSUE FOR PERMIT
05-04-17	REVISED PER COUNTY COMMENTS

PROJECT NAME:
SHOPPES AT SIENNA PLANTATION
9129 & 9303 STATE HIGHWAY 6 AT KITTY HOLLOW PARK DRIVE
MISSOURI CITY, TX 77459

STATE OF TEXAS
JOSEPH L. NISSOC
68634
LICENSED
05-04-17

THE USE OF FINAL SIGNED AND SEAL DRAWINGS IS AUTHORIZED AND GRANTED SOLELY FOR THE PURPOSE OF THIS SPECIFIC PROJECT AND LOCATION, AND NOT FOR CONSTRUCTION OR USE FOR ANY OTHER PROJECT.

SHEET NUMBER: C1

SHEET TITLE: COVER SHEET

DRAWN BY: V.M. CHECK BY: JSA

G+A PROJECT NUMBER: 016-06-003

PLOT TIME: TIME STAMP

GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR HAVING ALL BURIED UTILITIES IDENTIFIED, PROTECTED, REPLACED AND/OR PROPERLY REPAIRED IF DAMAGED. REPAIRS/REPLACEMENT SHALL BE AT CONTRACTOR'S EXPENSE.
2. CONTRACTOR SHALL OBTAIN AND MAINTAIN ON SITE ALL APPLICABLE PERMITS AND AN APPROVED COPY OF THE PLANS AND SPECIFICATIONS. NOTIFY THE CITY PUBLIC WORKS DEPARTMENT 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
3. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE CITY OF MISSOURI CITY PUBLIC WORKS 24 HOURS PRIOR TO WEEKDAY WORK REQUIRING INSPECTION INCLUDING, BUT NOT LIMITED TO, LIMING, PAVING OPERATIONS, CONCRETE PLACEMENT, FORMING AND SET-UP, DENSITIES, PIPE INSTALLATION, AND ANY TESTING BY LABORATORIES. DEPARTMENT OF PUBLIC WORKS MAY BE REACHED AT 281 403-8570 OR BY CONTACTING THE ASSIGNED INSPECTOR.
4. ALL SATURDAY WORK SHALL BE REQUESTED, IN WRITING, WITH THE DEPARTMENT OF PUBLIC WORKS AT LEAST 48-HOURS IN ADVANCE. SUNDAY AND HOLIDAY WORK REQUIRES 72 HR. WRITTEN REQUESTS AND MUST BE APPROVED BY THE PUBLIC WORKS DIRECTOR. FAXES MAY BE SENT TO 281-403-0675. REQUIRED INSPECTIONS MAY BE SUBJECT TO INSPECTION FEES. NON-NOTIFICATIONS MAY RESULT IN NON-COMPLIANCE, WORK ORDERED STOPPAGE AND DOUBLE INSPECTION FEES.
5. FULL-TIME RESIDENT INSPECTION BY THE PROJECT ENGINEER'S REPRESENTATIVE SHALL BE PROVIDED AT ALL CRITICAL POINTS OF CONSTRUCTION AND AS DEEMED NECESSARY BY THE CITY OF MISSOURI CITY.
6. DESIGN AND CONSTRUCTION SHALL CONFORM TO THE TEXAS COMMISSION OF ENVIRONMENTAL QUALITY RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS, THE CITY OF MISSOURI CITY DESIGN MANUAL (ISSUED 2015), AND THE CITY OF MISSOURI CITY STANDARD DETAIL SHEETS. THE CITY OF MISSOURI CITY DESIGN MANUAL SHALL BE ACQUIRED (AND USED) FROM THE DEPARTMENT OF PUBLIC WORKS, 1522 TEXAS PARKWAY, PHONE 281-403-8570. THE LATEST REVISIONS AND/OR AMENDMENTS SHALL BE OBSERVED. WHERE CONFLICT MAY ARISE BETWEEN INFORMATION ON APPROVED CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS, AND CITY OF MISSOURI CITY STANDARDS, THEN THE CITY OF MISSOURI CITY STANDARDS SHALL GOVERN.
7. ALL STATIONS ARE CENTERLINE OF STREET RIGHT-OF-WAY UNLESS OTHERWISE NOTED ON THE PLANS EXCEPT IN SIDE OR BACK LOT EASEMENTS WHERE CENTERLINE IS CENTER OF PIPE. IN EASEMENTS WHERE SANITARY AND STORM SEWER ARE PRESENT PARALLEL, STATIONS SHALL BE BASED ON CENTERLINE OF STORM SEWER PIPING.
8. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. ANY DRAINAGE AREA OR STRUCTURE DISTURBED, DURING CONSTRUCTION, SHALL BE RESTORED TO THE SATISFACTION OF THE CITY OF MISSOURI CITY.
   ALL CONSTRUCTION STORM RUNOFF SHALL COMPLY WITH THE REQUIREMENTS OF C.O.M.C. STORM WATER QUALITY MANUAL. IF NON-COMPLIANCE OCCURS, CONTRACTOR SHALL REMEDY IMMEDIATELY AT HIS OWN EXPENSE.
9. ANY POLLUTION CONTROL DEVICE, SOD, OR SEEDED AREA DAMAGED, DISTURBED, OR REMOVED SHALL BE REPLACED OR REPAIRED AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR IS RESPONSIBLE FOR WATERING ANY SEED OR SOD WHICH HE HAS INSTALLED UNTIL ADEQUATE GROWTH IS ACHIEVED TO PREVENT EROSION.
10. STORM WATER POLLUTION PROTECTION SHALL BE DESIGNED, CONSTRUCTED, MAINTAINED AND SHALL BE IN TOTAL COMPLIANCE WITH THE STORM WATER QUALITY MANUAL OF THE CITY OF MISSOURI CITY.
11. ANY MATERIALS OR WORKMANSHIP NOT MEETING OR EXCEEDING CITY OF MISSOURI CITY STANDARDS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND WILL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
12. THE CONTRACTOR SHALL KEEP THE STREETS, RIGHT-OF-WAY, AND WORK AREA CLEAN OF DIRT, MUD, AND DEBRIS.
13. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL REQUIRED TRAFFIC SAFETY CONTROL DEVICES UP TO AND INCLUDING FLAGMEN OR POLICE OFFICERS, IF DEEMED NECESSARY BY THE CITY OF MISSOURI CITY.
14. THE CONTRACTOR SHALL CONTACT THE CITY OR LOCAL MUNICIPAL UTILITY DISTRICT AS APPROPRIATE TO OPERATE EXISTING UTILITIES AND PRIOR TO MAKING TIE-INS.
15. ALL BACKFILL WITHIN PUBLIC RIGHTS-OF-WAY OR EASEMENTS SHALL BE ENGINEERED TO 95% STANDARD PROCTOR DENSITY (IN 6 INCH LIFTS) AND TESTED FOR ±2% OPTIMUM BY AN APPROVED LAB.
16. IF IS PERMISSIBLE TO USE A BACKHOE FOR TRENCH EXCAVATION IN LIEU OF A TRENCHING MACHINE.
17. THE CONTRACTOR SHALL NEVER UNLOAD ANY TRACK-TYPE VEHICLE OR EQUIPMENT ON ANY EXISTING PAVEMENT OR CROSS OVER ANY EXISTING PAVEMENT OR CURB.
18. ALL FINISH GRADES ARE TO CONFORM TO A MINIMUM SLOPE OF 5" PER 100 FT. POSITIVE DRAINAGE IS DENOTED BY ARROWS.
19. CONTRACTOR SHALL UNCOVER EXISTING UTILITIES AT ALL "POINTS OF CROSSING" TO DETERMINE IF CONFLICTS EXIST BEFORE COMMENCING ANY CONSTRUCTION. NOTIFY THE ENGINEER AT ONCE OF ANY CONFLICT.
20. ALL FINISHED GRADES SHALL VARY UNIFORMLY BETWEEN FINISHED ELEVATIONS.
21. ALL TESTING PROCEDURES SHALL CONFORM TO THE CITY OF MISSOURI CITY STANDARDS. THE INITIAL TESTING EXPENSE SHALL BE BORNE BY THE OWNER. IF ANY OF THE TESTS DO NOT MEET THE TESTING STANDARDS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REMOVE OR REPLACE SUCH MATERIAL SO THE TESTING STANDARDS CAN BE MET. ADDITIONAL TESTING TO MEET COMPLIANCE SHALL BE AT THE CONTRACTOR'S EXPENSE.
22. CONTRACTOR SHALL PROVIDE SHORING, SHORING, AND BRACING AS NECESSARY TO PROTECT WORKMEN AND EXISTING UTILITIES DURING ALL PHASES OF CONSTRUCTION AS PER O.S.H.A. REQUIREMENTS.
23. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE TXDOT STANDARD SPECIFICATIONS, 2003, AND THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (2006), AND ANY REVISIONS THEREIO.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFEGUARDING AND PROTECTING ALL MATERIALS AND EQUIPMENT STORED ON THE JOBSITE IN A SAFE AND WORKMAN-LIKE MANNER (DURING AND AFTER WORKING HOURS), UNTIL JOB COMPLETION.
25. THE LOADING AND UNLOADING OF ALL PIPE, VALVES, HYDRANTS, MANHOLES, AND OTHER ACCESSORIES SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PRACTICES AND SHALL BE PERFORMED WITH CARE TO AVOID ANY DAMAGE TO THE MATERIAL. THE CONTRACTOR SHALL LOCATE AND PROVIDE THE NECESSARY STORAGE AREAS FOR MATERIAL AND EQUIPMENT.
26. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, EQUIPMENT, AND LABOR FOR EXCAVATION, INSTALLATION, AND COMPLETION OF THE PROJECT AS SHOWN ON THE PLANS AND SPECIAL PROVISIONS TO COMPLY WITH CITY OF MISSOURI CITY STANDARDS.
27. NO PRIVATE UTILITIES (I.E., PHONE, CABLE T.V., ELECTRICITY, ETC.) SHALL BE INSTALLED WITHIN 4 FEET BACK OF CURB.
28. PLANS 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 REGISTERED PROFESSIONAL ENGINEER(S) HEREON DOES NOT EXTEND TO ANY SUCH SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED IN THE PLANS. THE CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS, INCLUDING CURRENT OSHA STANDARDS FOR TRENCH SAFETY SYSTEMS, SEALED BY A LICENSED PROFESSIONAL ENGINEER. APPROPRIATE TRENCH SAFETY PLANS SHALL BE SUBMITTED BY THE CONTRACTOR PRIOR TO EXECUTION OF A CONTRACT FOR HIS WORK. THE TRENCH SAFETY SYSTEM SHALL CONFORM TO THE CITY OF MISSOURI CITY TRENCH ORDINANCE.
29. ALL CHANGES IN DIRECTION FOR SIDEWALK SHALL BE DONE IN A CURVILINEAR FASHION, NOT ANGULAR.
30. PROVIDE ONE LANE OPEN TO TRAFFIC AT ALL TIMES.
31. THE CONTRACTOR SHALL NOTIFY ALL PROPERTY OWNERS A MINIMUM OF 24 HOURS PRIOR TO STARTING CONSTRUCTION ON ALL DRIVEWAYS. INGRESS AND EGRESS SHALL BE PROVIDED AT ALL DRIVEWAYS AT NO SEPARATE PAY.
32. OPEN TRENCHES SHALL BE ALLOWED ONLY DURING ACTIVE CONSTRUCTION AND SHALL NOT BE LEFT OPEN OVER NIGHT AND SHALL BE FENCED OFF/BARRICATED AT END OF SHIFT. NO MORE THAN 100 FEET OF TRENCH WILL BE OPEN AT ONE TIME.
33. PROTECT ALL TREES NOT CALLED OUT TO BE REMOVED.
34. IRON RODS DISTURBED DURING CONSTRUCTION ARE TO BE REPLACED BY A REGISTERED PUBLIC LAND SURVEYOR FOR THE PROPERTY OWNER AT NO SEPARATE PAY.
35. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS BEFORE BEGINNING CONSTRUCTION.

CONCRETE/PAVING NOTES

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND AUTHORIZATION REQUIRED BY CITY OF MISSOURI CITY.
2. CONTRACTOR SHALL HAVE ALL UTILITIES LOCATED PRIOR TO CONSTRUCTION AND WILL REPAIR OR REPLACE ANY DAMAGE AT CONTRACTOR'S EXPENSE.
3. PAVING CONTRACTOR SHALL PROTECT WATER, SEWER, AND DRAINAGE FACILITIES AND WILL REPLACE ANY DAMAGED FACILITIES AT HIS OWN EXPENSE. ALL MANHOLES AND VALVES WITHIN THE PAVEMENT AREA SHALL BE ADJUSTED TO FINISH GRADE BY THE PAVING CONTRACTOR WITH THE USE OF APPROVED BLOCKOUTS.
4. WHEN THE TOP OF CURB OR BOTTOM OF SIDEWALK SLAB ELEVATION VARIES FROM THE NATURAL GROUND, THE PAVING CONTRACTOR SHALL BACKFILL IN LAYERS NOT EXCEEDING 8-INCHES IN DEPTH. EACH LAYER WILL BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY. THE DISTURBED AREA SHALL BE SEEDED, SODDED, FERTILIZED, AND/OR SILT BARRIER FENCED WITHIN 10 WORKING DAYS. THE TYPE OF POLLUTION CONTROL WILL BE DETERMINED BY THE APPROVED PLANS, PROJECT ENGINEER AND/OR THE CITY OF MISSOURI CITY ENGINEER.
5. ALL PAVING SHALL BE IN ACCORDANCE WITH THE CITY OF MISSOURI CITY INFRASTRUCTURE ORDINANCES, APPROVED PLANS AND SPECIFICATIONS WITH THE LATEST REVISIONS OR AMENDMENTS. IN THE EVENT OF A CONFLICT, THE CITY OF MISSOURI CITY INFRASTRUCTURE ORDINANCE GOVERNS.
6. PAVING CONTRACTOR SHALL PROVIDE AND MAINTAIN SILT PROTECTION FENCES ON ALL STAGE I CURB INLETS. THE PAVING CONTRACTOR SHALL MAINTAIN ANY OTHER POLLUTION CONTROLS ESTABLISHED, I.E., ADDITIONAL SILT BARRIERS, SAND BAGS, ETC., FOR THE DURATION OF THE PROJECT. ANY DAMAGED OR MISSING DEVICES SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
7. EXISTING PAVEMENTS, CURBS, SIDEWALKS, DRIVEWAYS, ETC., DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO THE CITY OF MISSOURI CITY STANDARDS AT THE CONTRACTOR'S EXPENSE.
8. CONDITION OF THE WORK AREA (INCLUDING ROADS, RIGHT-OF-WAYS, ETC.) UPON COMPLETION OF THE JOB SHALL BE AS GOOD OR BETTER THAN THE CONDITION PRIOR TO STARTING THE WORK.
9. ALL DRIVEWAYS WILL BE LOCATED TO AVOID EXISTING CURB INLET STRUCTURES.
10. REDWOOD AND KEYWAYS SHALL NOT INTERSECT WITHIN 2 FEET OF AN INLET. CURB INLETS ARE NOT ALLOWED AT "TEE" INTERSECTIONS.
11. FLY-ASH PAVEMENT IS ALLOWED AS DISCRIBED IN THE INFRASTRUCTURE DESIGN MANUAL.
12. ALL CONCRETE PLACED SHALL BE UNIFORMLY SPRAYED WITH A MEMBRANE CURING COMPOUND AS DESCRIBED IN ITEM 526 IN THE TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. IMPROPER APPLICATION WILL RESULT IN THE REJECTION OF THE CONCRETE.
13. SIX (6) INCH, 5.5 SK, 3500 PSI @ 28 DAYS, REINFORCED WITH #4 REBAR, 24" O.C. EACH WAY IS THE MINIMUM ACCEPTABLE CONSTRUCTION FOR RESIDENTIAL STREETS
14. SEVEN (7) INCH, 5.5 SK, 3500 PSI @ 28 DAYS, REINFORCED WITH #4 REBAR, 24" O.C. IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR MAJOR COLLECTOR STREETS.
15. EIGHT (8) INCH, 5.5 SK, 3500 PSI @ 28 DAYS, WITH #4 O.C. EACH WAY IS THE MINIMUM ACCEPTABLE FOR MAJOR THOROUGHFARE STREETS.
16. WHEN 6" CONCRETE PAVEMENT INTERSECTS 7" PAVEMENT, 7" PAVEMENT SHALL BE CONSTRUCTED TO THE ENDS OF ALL CURB RETURNS.
17. ALL RETURNS SHALL HAVE A MIN. 25 FT. RADIUS AT THE BACK OF CURB UNLESS OTHERWISE NOTED.
18. ALL INTERSECTIONS SHALL BE CONSTRUCTED WITH WHEELCHAIR RAMPS IN ACCORDANCE WITH THE TEXAS ACCESSIBILITY STANDARD, THE AMERICAN DISABILITIES ACT, AND THE CITY OF MISSOURI CITY STANDARDS (LATEST REVISIONS).
19. CONCRETE SIDEWALKS SHALL BE CONSTRUCTED WITHIN EACH STREET RIGHT-OF-WAY IN ACCORDANCE WITH CITY OF MISSOURI CITY, THE A.D.A., AND THE T.A.S. STANDARDS (LATEST REVISIONS).
20. CRACKS 1/16-INCH OR LARGER ARE NOT ACCEPTABLE IN NEW PAVEMENT. CRACKS 1/16-INCH OR LESS SHALL BE ADDRESSED ON AN INDIVIDUAL BASIS, SUBJECT TO APPROVAL OR REJECTION.
21. PROPER TESTING AND LAB DOCUMENTATION IS REQUIRED. FAILURE TO MEET THE MINIMUM PAVEMENT REQUIREMENTS WILL RESULT IN THE REJECTION OF SAID PAVEMENT. IMMEDIATE REMOVAL AND REPLACEMENT OF SUBSTANDARD PAVEMENT SECTIONS WILL BE NECESSARY TO SATISFY THESE REQUIREMENTS.
22. LIME DEPTH DETERMINATIONS WILL BE CONDUCTED AT EACH LOCATION OF DENSITY TESTING. LIME-STABILIZED SUBGRADE SHALL BE A MINIMUM OF 6X AT 6" UNLESS OTHERWISE DIRECTED BY CITY ENGINEER. DENSITY TESTING SHALL BE DONE IMMEDIATELY PRIOR TO PLACEMENT OF REINFORCING STEEL, AND SHALL BE COMPACTED TO A MINIMUM OF 95%.
    SUBGRADE DENSITY TESTS SHALL BE REPEATED IN THE EVENT OF A > 1/2-INCH RAINFALL EVENT AT THE CONTRACTOR'S EXPENSE. NO CONCRETE SHALL BE PLACED IN STANDING WATER OR IF MOISTURE CONTENT OF SUBGRADE IS IN NON-COMPLIANCE WITH SPECIFICATIONS FOR ± 2% OF OPTIMUM
23. 4-CONCRETE CYLINDERS, SLUMP, AND AIR ENTRAINMENT TESTS ARE REQUIRED FOR EACH 150 CUBIC YARDS OF CONCRETE PAVING WITH A MINIMUM OF ONE SET OF 4 PER PLACEMENT. THE CITY OF MISSOURI CITY RESERVES THE RIGHT TO REQUEST ANY ADDITIONAL TESTS AT THE CONTRACTOR'S EXPENSE, IF ANY MATERIAL APPEARS BELOW STANDARDS.
24. NO. 3 REBAR, 18-INCH C.C. E.W. IS THE MINIMUM ACCEPTABLE FOR SIDEWALKS. NUMBER 4-REBAR, 24-INCH C-C. EACH WAY IS THE MINIMUM ACCEPTABLE FOR COMMERCIAL APPROACHES, HANDICAP RAMPS, RESIDENTIAL APPROACHES AND DRIVEWAYS.
25. COLD WEATHER PRECAUTIONS. CONCRETE PAVEMENT SHALL NOT BE PLACED WHEN THE AMBIENT TEMPERATURE IS 40°F AND FALLING. CONCRETE MAY BE PLACED IF THE AMBIENT TEMPERATURE IS 35° AND RISING. CONTRACTOR SHALL PROVIDE AN APPROVED COVERING MATERIAL (COTTON MATS, POLYETHYLENE SHEETING, ETC.) IN THE EVENT TEMPERATURE SHOULD FALL BELOW 32°F. NO SALT OR OTHER CHEMICALS SHALL BE ADDED TO CONCRETE TO PREVENT FREEZING.
26. HOT WEATHER. NO CONCRETE PAVEMENT MIXTURE SHALL BE PLACED IF THE MIXTURE TEMPERATURE IS ABOVE 95°F. AIR AND WATER REDUCER ARE REQUIRED IF MIXTURE TEMPERATURE REACHES 85°F OR ABOVE.
27. IF NO AIR AND WATER REDUCER HAS BEEN ADDED, NO CONCRETE SHALL BE PLACED IF MORE THAN 60 MINUTES PAST BATCH TIME. IF AIR AND WATER REDUCER HAS BEEN ADDED, NO CONCRETE SHALL BE PLACED IF MORE THAN 90 MINUTES PAST BATCH TIME.
28. STRUCTURE TEMPERATURES AND TIMING FOR CONCRETE PLACEMENT MAY VARY. REFER TO TXDOT STANDARDS ITEM 420 FOR DETAILS.
29. TRANSVERSE EXPANSION JOINTS ARE REQUIRED AT A MAXIMUM SPACING OF SIXTY (60) FT. C-C WITH VERTICAL REDWOOD JOINTS EXTENDING THROUGH THE CURB @ EVERY EXPANSION JOINT. ALL JOINTS AND VERTICAL CURB JOINTS TO BE SEALED WITH LIQUID RUBBER CONFORMING TO TXDOT ITEM 380.2(B)C, CLASS-2 (HOT POURED RUBBER).
30. EXPANSION JOINT LAYOUT FOR INTERSECTIONS SHALL BE PROVIDED BY ENGINEER FOR CITY APPROVAL.
31. NO WIRE MESH IS ALLOWED IN ANY CONCRETE WITHIN THE CITY LIMITS OR ETJ.
32. ALL REBAR SHALL BE 100% TIED. OVERLAPS SHALL BE DOUBLE TIED MINIMUM.
33. ALL NEW CURB REQUIRES 3,500 P.S.I. @ 28-DAYS, AND A MINIMUM OF 1-LB/CY OF APPROVED POLYPROPYLENE FIBER MESH.

ASPHALT - OILS AND EMULSIONS

1. CONTRACTOR SHALL VERIFY LINES AND GRADES AND THAT COMPACTED BASE IS READY TO SUPPORT LOADS.
2. BASE MATERIAL SHALL BE DRY AND THOROUGHLY CLEAN OF LOOSE MATERIAL PRIOR TO APPLICATION.
3. OILS & EMULSION SHALL BE DISTRIBUTED EVENLY AND SMOOTHLY UNDER PRESSURE NECESSARY FOR PROPER DISTRIBUTION.
4. MAINTAIN REQUIRED SURFACE CONDITIONS UNTIL ACCEPTED BY THE CITY OF MISSOURI CITY.
5. PRIME COAT SHALL BE M.C.-30, M.C.-70 OR E.P.R.1 PRIME AND SHALL COMPLY WITH TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS, AND BRIDGES (1993) AND ITS LATEST REVISIONS.
6. TACK COAT SHALL BE SS-1 AND SHALL COMPLY TO TXDOT, S.S.C.H.S. & B. (1993) AND ITS LATEST REVISIONS.
7. M.C.-30 AND M.C.-70 AND EPR-1 PRIME SHALL BE DISTRIBUTED AT A RATE OF .25 TO .35 GALLONS PER SQUARE YARD. AND MAY NOT BE APPLIED WHEN AMBIENT TEMPERATURE IS 50°F AND FALLING. (NOTICE: CUTBACK ASPHALTS MAY NOT BE USED DURING THE PERIOD OF APRIL 16 THROUGH SEPT. 15 AS PER ASTM D-244).
8. EPR-1 MAXIMUM WATER DILUTION IS 3 PARTS WATER TO ONE PART EPR-1.
9. SS-1 TACK COAT SHALL BE APPLIED AT A RATE NOT TO EXCEED 0.08 GAL. PER SQUARE YARD OF SURFACE AREA. CONTACT JOINTS, CURBS, ETC. SHALL BE PAINTED WITH AN EVEN THIN COAT APPLIED BY BRUSH OR BROOM. COATING MATERIAL SHALL BE HEATED TO 125°F TO 180°F WHEN APPLIED. TACK COAT MAY BE APPLIED WHEN AMBIENT TEMPERATURES ARE 40°F AND RISING. TACK COAT MAY NOT BE APPLIED IF AMBIENT AIR IS 50°F AND FALLING.

CEMENT STABILIZED SAND

1. ALL STABILIZED SAND SHALL BE A MINIMUM OF 1 1/2 SK PER TN.
2. CEMENT STABILIZED SAND (C.S.S.) SHALL ACHIEVE A MINIMUM OF 100 PSI WITHIN 48 HOURS.
3. A MINIMUM OF 2 RANDOM SAMPLES SHALL BE TAKEN EACH WEEK. (FOR SMALLER PROJECTS, ONE SAMPLE MAY SUFFICE WITH CITY OF MISSOURI CITY APPROVAL.) THE CITY OF MISSOURI CITY RESERVES THE RIGHT TO REQUIRE ADDITIONAL TESTS, AT THE CONTRACTORS EXPENSE IF IT IS DEEMED NECESSARY.
4. ANY C.S.S. NOT MEETING CITY OF MISSOURI CITY STANDARDS SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
5. BOTH CEMENT CONTENT AND COMPRESSIVE TESTS SHALL BE CONDUCTED ON C.S.S. SAMPLES.
6. ALL C.S.S. SHALL BE COMPACTED IN MAXIMUM OF 8-INCH LIFTS AND REQUIRED TO REACH A MINIMUM DENSITY OF 95%.
7. CEMENT STAB. SAND MAY NOT BE STORED FOR LONG PERIODS. MAXIMUM ALLOWED TIME - 3 HRS FROM BATCH TIME TO HAVING BEEN INSTALLED.

BANK SAND

1. BANK SAND IS DEFINED AS A WELL-GRADED SAND, FREE OF SILT, CLAY, FRIABLE OR SOLUBLE MATERIALS AND ORGANIC MATER, MEETING THE UNIFIED SOILS CLASSIFICATIONS SYSTEM GROUP SYMBOL SW CRITERIA WITH A PLASTICITY INDEX OF LESS THAN 10. NO MORE THAN 12% OF MATERIAL CAN PASS THE No. 200 SIEVE.

HOT MIX ASPHALTIC BASE COURSE

1. NO HOT MIX ASPHALTIC BASE MAY BE INSTALLED UNTIL THE SUBGRADE HAS BEEN PROPERLY PREPARED AND TESTED AS PER THE PLANS AND SPECIFICATIONS. THE SUBGRADE SHALL BE INSPECTED AND APPROVED BY THE CITY OF MISSOURI CITY BEFORE ANY BASE MATERIALS ARE INSTALLED.
2. HOT MIX ASPHALTIC BASE MATERIALS, HANDLING, AND INSTALLATION SHALL COMPLY WITH TXDOT STANDARDS FOR CONSTRUCTION OF HIGHWAYS, STREETS, AND BRIDGES 1995 (SECTION 02711) AND ITS LATEST REVISIONS.
3. HOT MIX ASPHALTIC MATERIALS SHALL BE AT TEMPERATURES BETWEEN 250°F AND 325°F, WHEN PLACED.
4. MATERIALS MAY NOT BE PLACED IN WET CONDITIONS OR IF THE AMBIENT TEMPERATURE IS BELOW 50°F AND FALLING. MATERIALS MAY BE INSTALLED IF THE AMBIENT TEMPERATURE IS TAKEN IN THE SHADE AND IS 40°F AND RISING.
5. PLACE BASE COURSES 4 INCHES OR GREATER IN THICKNESS IN TWO OR MORE LAYERS, EACH HAVING A COMPACTED THICKNESS OF NOT GREATER THAN 4 INCHES.
6. BASE MATERIAL MAY ONLY BE PLACED AGAINST CLEAN, STRAIGHT EDGES. SAW CUTTING, FULL DEPTH, IS REQUIRED IF EXISTING EDGES ARE ROUGH ON UNEVEN.
7. COMPACTION SHALL BEGIN WHILE MATERIAL IS STILL HOT AND AS SOON AS IT WILL BEAR THE ROLLER OR COMPACTOR WEIGHT WITHOUT UNDUE DISPLACEMENT OR HAIR CRACKING.
8. COMPACT SURFACE UNIFORMLY WITH ROLLERS OR TAMPERS IN LOCATIONS NOT READILY ACCESSIBLE (I.E., ALONG CURBS, WALLS, ETC.).
9. UNLESS OTHERWISE SPECIFIED, COMPACT DENSITY TO NOT LESS THAN 95% OF MAXIMUM POSSIBLE DENSITY.
10. A CERTIFIED LAB SHALL BE ON SITE AT ALL TIMES TO TEST AND PROPERLY DOCUMENT THE CONSTRUCTION METHODS AND QUALITY OF MATERIALS.
11. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY TO A.S.T.M. ASPHALT INSTITUTE AND CITY OF MISSOURI CITY REQUIREMENTS. FAILURE TO COMPLY WILL RESULT IN REJECTION OF SAID MATERIALS AND SUCH SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
12. DO NOT OPEN BASE TO TRAFFIC UNTIL IT CAN BE MAINTAINED IN GOOD CONDITION AND IS CAPABLE OF SUPPORTING VEHICLE WEIGHT WITHOUT DAMAGE OR DEGRADATION.
13. DENSITIES SHALL BE TAKEN AT A MINIMUM OF AT LEAST ONCE PER 300 LF OF DRIVE LANE OR ONCE PER 250 SQ. YD., WHICHEVER MAY APPLY AND SHALL BE STAGGERED RELATIVE TO TESTING SITES IN ADJUTING TRAFFIC LANES. FAILURE TO MEET MINIMUM REQUIREMENTS SHALL RESULT IN THE REPLACEMENT OF SAID MATERIAL AT CONTRACTOR'S EXPENSE.

EROSION AND SEDIMENTATION CONTROL NOTES:

1. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL INSTALL EROSION AND SEDIMENTATION CONTROLS AT LOCATIONS SHOWN ON THE PLANS.
2. CONTRACTOR SHALL INSPECT ALL EROSION AND SEDIMENTATION CONTROL SYSTEMS SPECIFIED HEREIN, AT A MINIMUM OF ONCE EVERY CALENDAR DAY.
3. CONTRACTOR SHALL MAINTAIN, REPAIR AND/OR REPLACE DAMAGED EROSION AND SEDIMENTATION CONTROL SYSTEM THROUGHOUT THE DURATION OF THE CONTRACT. (NO SEPARATE PAY).
4. CONTRACTOR SHALL PROVIDE PROTECTED STORAGE AREAS FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS, AND OTHER POTENTIALLY TOXIC MATERIALS.
5. CONTRACTOR SHALL LOCATE FUEL/MATERIAL STORAGE AREAS AWAY FROM STORM WATER CONVEYANCE SYSTEM. CONTRACTOR SHALL USE SILT FENCING, HAY BALLS, OR BERMS AROUND FUEL STORAGE AREAS. (NO SEPARATE PAY).
6. CONTRACTOR SHALL ADVISE OWNER IMMEDIATELY, VERBALLY, AND IN WRITING OF ANY FUEL OR TOXIC MATERIAL SPILLS ONTO THE PROJECT/CONSTRUCTION AREA AND THE ACTION TAKEN TO REMEDY THE PROBLEM.
7. CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF HIS FUELS, MATERIALS, AND CONTAMINATED EXCAVATIONS IN A LEGALLY APPROVED MANNER. (NO SEPARATE PAY).
8. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE ENVIRONMENTAL LAWS.
9. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATELY MAINTAINED SANITARY FACILITIES.
10. AT COMPLETION OF THE CONTRACT, OWNER AND/OR OWNER/'S REPRESENTATIVE WITH THE CONTRACTOR SHALL EXAMINE EROSION AND SEDIMENTATION CONTROL SYSTEM BEFORE RELIEVING CONTRACTOR OF HIS MAINTENANCE RESPONSIBILITIES.
11. IF EROSION AND SEDIMENTATION CONTROL SYSTEM IS EXISTING FROM PRIOR CONTRACTS, OWNER AND/OR OWNER'S REPRESENTATIVES WITH THE CONTRACTOR SHALL EXAMINE THE EXISTING EROSION AND SEDIMENTATION CONTROL SYSTEM FOR DAMAGE PRIOR TO CONTRACTOR STARING CONSTRUCTION OF THE CONTRACT. ANY DAMAGE NOTED AT THIS TIME SHALL BE REPAIRED AT OWNER'S EXPENSE.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR STREET CLEANING, ON A DAILY BASIS, THE CONTRACTOR SHALL REMOVE ALL MUD AND DIRT DEPOSITED ON THE EXISTING PAVEMENT DUE TO HIS CONSTRUCTION ACTIVITY.

LIMING SUBGRADE

1. LIME SHALL BE A "SLURRY" AS PER TXDOT 260 UNLESS SPECIFICALLY RECOMMENDED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE PUBLIC WORKS ENGINEER.
2. ALL LIME SLURRIES SHALL BE FURNISHED AT OR ABOVE THE MINIMUM "DRY SOLIDS" CONTENTS AS APPROVED BY THE ENGINEER.
3. SUBGRADES SHALL BE STABILIZED WITH A MINIMUM SIX PERCENT (6%) LIME BY WEIGHT, SIX INCHES (6") THICK TO REDUCE PLASTICITY INDEX (PI) TO FIFTEEN (15) AS DETERMINED LIME SERIES. ADD ONE PERCENT (1%) FOR FIELD VARIATION. IF PI OF 15 OR LESS CANNOT BE OBTAINED, THEN THE LIME TREATED SOILS MUST OBTAIN A pH OF 12.4. MUST BE INCREASED TO EIGHT INCHES (8") THICK AND COMPACTED TO NINETY-FIVE PERCENT (95%) STANDARD PROCTOR DENSITY.
4. LIME DRY SOLID CONTENT TESTS SHALL BE CONDUCTED ON SITE, ONCE PER ONE-HUNDRED (100) TONS OF MATERIAL DISTRIBUTED, UNLESS OTHERWISE NOTED.
5. THE SUBGRADE SHALL BE SHAPED AND GRADED TO CONFORM TO THE TYPICAL SECTIONS, AS SHOWN ON THE PLANS, PRIOR TO TREATING THE EXISTING MATERIAL.
6. UNLESS APPROVED BY THE CITY ENGINEER, LIME OPERATIONS SHALL NOT BE STARTED WHEN THE AMBIENT AIR TEMPERATURE IS BELOW 40°F, AND FALLING. LIMING MAY, WITH APPROVAL, BE STARTED WHEN THE AMBIENT AIR TEMPERATURE IS 35°F AND RISING. LIME SHALL NOT BE PLACED WHEN WEATHER CONDITIONS, IN THE ENGINEER'S OPINION, ARE UNSUITABLE.
7. THE SUBGRADE MATERIAL AND LIME SLURRY SHALL BE THOROUGHLY MIXED, BROUGHT TO THE PROPER MOISTURE CONTENT (+ OR - 2) AND LEFT TO CURE USUALLY 3 DAYS (72 HRS.)
8. AFTER CURING, THE SUBGRADE SHALL BE REMIXED UNTIL PULVERIZATION REQUIREMENTS ARE MET, AS PER TXDOT.
   TEX-101-E, PART III.
   MINIMUM PASSING 1-3/4" SIEVE.....100
   MINIMUM PASSING 3/4" SIEVE.....85
   MINIMUM PASSING NO.4 SIEVE.....60
9. SIEVE TESTS SHALL BE CONDUCTED EVERY 150 LF ON ALTERNATING LANES OF TRAFFIC OR EVERY 300 LF ON SINGLE LANES AS REQUIRED. AT REASONABLE TIME TEST SHALL BE CONDUCTED ON EACH ROADWAY OR CUL-DE-SAC.
10. THE MATERIAL SHALL BE AERATED OR MOISTENED TO + OR -2% OPTIMUM PRIOR TO COMPACTION. COMPACTION TO A MINIMUM 95% DENSITY SHALL BEGIN IMMEDIATELY AFTER ALL PULVERIZATION AND MOISTURE REQUIREMENTS ARE MET. THROUGHOUT THIS ENTIRE OPERATION, TH

ASPHALTIC CONCRETE PAVEMENT

1. ASPHALTIC MATERIAL AND WORKMANSHIP SHALL COMPLY WITH ASTM C 33, ASTM C 131, ASTM C 136, AND TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES (1993) AND ITS LATEST REVISIONS. ASPHALT SHALL BE TYPE D-100 UNLESS SPECIFICALLY NOTED AND APPROVED BY CITY OF MISSOURI CITY ENGINEER.
2. CONTRACTOR SHALL VERIFY ELEVATIONS AND GRADES AND THAT BASE COURSE IS READY TO SUPPORT IMPOSED LOADS.
3. APPLY A PRIME COAT AS PER CITY OF MISSOURI CITY AND TXDOT STANDARDS. DO NOT APPLY TACK COAT UNTIL PRIMED BASE COURSE HAS CURED AND IS APPROVED BY THE CONSTRUCTION INSPECTOR.
4. TACK COAT SHALL COMPLY TO CITY OF MISSOURI CITY AND TXDOT STANDARDS.
5. DO NOT USE CUTBACK ASPHALT APRIL 16 THROUGH SEPTEMBER 15.
6. DO NOT PLACE ASPHALT WHEN AMBIENT TEMPERATURE IS BELOW 50°F AND FALLING. MIXTURE MAY BE PLACED WHEN AMBIENT TEMPERATURE IS 40°F AND RISING.
7. ON PUBLIC ROADS, STREETS, AND RIGHT-OF-WAY, ASPHALT SHALL BE PLACED IN MAXIMUM 2-INCH LIFTS. IN THE EVENT MORE THAN ONE LIFT IS REQUIRED, EACH LIFT SHALL BE COMPACTED, TESTED, AND GIVEN ADEQUATE TIME FOR THE PREVIOUS LIFT TO CURE AND DRY BEFORE THE NEXT LIFT IS PLACED. IF COMPLETELY CURED AND DRIED, A TACK COAT WILL BE REQUIRED BETWEEN LIFTS.
8. A CERTIFIED LAB SHALL BE ON SITE AT ALL TIMES TO TEST AND PROPERLY DOCUMENT THE CONSTRUCTION METHODS AND QUALITY OF MATERIALS.
9. ROLLING PATTERNS SHALL BE ESTABLISHED BY THE CONTRACTOR, AS RECOMMENDED BY THE LAB, TO ACHIEVE THE MAXIMUM COMPACTION. THE SELECTED ROLL PATTERN SHALL BE FOLLOWED UNLESS CHANGES IN THE PLACEMENT OR MIXTURE OCCUR, WHICH AFFECT COMPACTION. COMPACTION OF 95% SHALL BE ACHIEVED.
10. ASPHALT SHALL NOT BE PLACED ON WET BASE.
11. NO "BIRDBATHS" ARE ALLOWED.
12. IF THE SURFACE WAVES (SEPARATES), FLUSHES, RUTS, OR DETERIORATES IN ANY MANNER PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR WILL CORRECT THIS CONDITION AT HIS EXPENSE TO THE SATISFACTION OF THE CITY OF MISSOURI CITY ENGINEER.
13. THE CONTRACTOR SHALL PROTECT THE PAVEMENT UNTIL DIRECTED BY THE CITY ENGINEER TO OPEN SAID PAVEMENT TO TRAFFIC.
14. RIDE QUALITY SHALL COMPLY WITH TXDOT ITEM 585, "RIDE QUALITY FOR PAVEMENT SURFACES".
15. SPECIAL NOTE: CONTRACTOR, WHILE MAXIMIZING COMPACTION, SHALL USE CAUTION NOT TO "OVER-ROLL" ASPHALT. PAVEMENT STRETCHED OR OVER-ROLLED, WHERE COMPACTION IS BROKEN, SHALL NOT BE ACCEPTED AND SHALL BE REPAIRED OR REPLACED TO THE CITY ENGINEER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE.
16. CORE SAMPLES SHALL BE TAKEN RANDOMLY AT A MINIMUM OF EVERY 300 LF PER LANE OF ROADWAY OR ONE PER EVERY 250 SQ. YD., WHICHEVER IS APPLICABLE AND SHALL BE STAGGERED RELATIVE TO TESTING SITES IN ABUTTING TRAFFIC LANES.
17. ALL ASPHALTIC CONCRETE PAVEMENT REPAIRS SHALL BE SAW CUT TO FULL ASPHALT DEPTH. REFER TO ASPHALT, STABILIZED BASE, FLEXIBLE BASE, ASPHALT BASE, AND OIL AND EMULSION NOTES. ALL DAMAGED BASE AND SUBGRADES SHALL BE REMOVED AND REPLACED TO THE CITY'S ENGINEER SATISFACTION, AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AREA DAMAGED DURING CONSTRUCTION, INCLUDING AREAS OUTSIDE THE DESIGNATED REPAIR.

STABILIZED CRUSHED CONCRETE

1. TEST AND ANALYSIS OF AGGREGATE AND BINDER MATERIALS WILL BE PERFORMED IN ACCORDANCE WITH ASTMD 1557 AND ASTMD 4318. CEMENT SHALL BE ASTMC 150 TYPE I.
2. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES (1993) AND ITS LATEST REVISIONS AND CITY OF MISSOURI CITY STANDARDS.
3. PRIME COAT SHALL BE M.C. 30 OR EPR-1 PRIME.
4. DESIGN MIX FOR MINIMUM AVERAGE COMPRESSIVE STRENGTH OF 200 PSI IN 48 HRS. PROVIDE MINIMUM CEMENT CONTENT OF 2 SK PER TON OF MIX. CEMENT CONTENT MAY BE RAISED AT THE CONTRACTOR'S EXPENSE IF TESTS ON FIELD SAMPLES FALL BELOW 200 PSI.
5. THREE SAMPLES SHALL BE MOLDED EACH DAY FOR EACH 300 TONS OF PRODUCTION. COMPRESSIVE STRENGTH SHALL BE THE AVERAGE OF THREE TESTS FOR EACH PRODUCTION LOT. CONTRACTOR SHALL REPLACE, AT HIS OWN EXPENSE, ANY MATERIAL BELOW MINIMUM REQUIREMENTS.
6. CONTRACTOR SHALL VERIFY LINES, GRADES, AND COMPACTED SUBGRADING AS READY TO RECEIVE MATERIALS PRIOR TO ITS PLACEMENT.
7. CEMENT STABILIZED BASE MAY NOT BE PLACED IF AMBIENT TEMPERATURE IS 40°F AND FALLING. BASE MATERIAL MAY BE PLACED IF AMBIENT TEMPERATURE IS 35°F AND RISING.
8. MATERIAL MAY NOT BE PLACED IN LIFTS EXCEEDING 6 INCHES IN DEPTH. EACH LIFT SHALL HAVE DENSITIES TAKEN.
9. CEMENT STABILIZED BASE MAY NOT BE STORED FOR LONG PERIODS. DELIVERY OF MATERIAL AND UTILIZATION SHOULD BE TIMED ACCORDINGLY. MAXIMUM TIME ALLOWED 3 HRS. FROM BATCH TIME TO HAVING BEEN INSTALLED.
10. CEMENT STABILIZED BASE SHALL NOT BE INSTALLED IN WET OR SOFT AREAS.
11. COMPACT TO MINIMUM DENSITY OF 95% OF MAXIMUM DRY DENSITY. UNLESS OTHERWISE INDICATED ON DRAWINGS, MOISTURE SHALL BE BETWEEN + OR -2% OPTIMUM AS DETERMINED BY ASTMD 698.
12. AFTER COMPACTING FINAL COURSE, BLADE SURFACE TO FINAL GRADE. ANY IRREGULARITIES, WEAK SPOTS, AREAS OF EXCESSIVE WETNESS, OR SURFACE HAIR LINE CRACKING SHALL BE REPAIRED AND/OR REPLACED AT CONTRACTOR'S EXPENSE.
13. A CERTIFIED LAB SHALL BE ON SITE AT ALL TIMES TO TEST AND PROPERLY DOCUMENT THE CONSTRUCTION METHODS AND QUALITY OF MATERIALS.
14. COMPACTION TESTING WILL BE PERFORMED IN ACCORDANCE WITH ASTM D 1556 OR ASTM D 2922 AND ASTM D 3017 AT RANDOMLY SELECTED LOCATIONS AS DIRECTED BY CITY OF MISSOURI CITY CONSTRUCTION INSPECTOR.
15. A MINIMUM OF ONE CORE SHALL BE TAKEN AT RANDOM LOCATIONS PER 300 LF PER LANE OF ROADWAY OR ONE PER 250 SQ. YD., WHICHEVER MAY APPLY AND SHALL BE STAGGERED RELATIVE TO TESTING SITES IN ABUTTING TRAFFIC LANES.
16. CURE FOR A MINIMUM OF 7 DAYS BEFORE ADDING ASPHALT PAVEMENT COURSES.
17. COVER SURFACE WITH CURING MEMBRANES AT THE FOLLOWING RATES: MC-30:.01 GAL. PER SQ. YD., OR EPR-1 PRIME:0.15 GAL. PER SQ. YD. DO NOT USE CUTBACK ASPHALT APRIL 16 TO SEPTEMBER 15. PROTECT THE MEMBRANE BY ALLOWING MEMBRANE TO FULLY CURE PRIOR TO PERMITTING TRAFFIC TO DRIVE ON IT.
18. UNSTABILIZED CRUSHED CONCRETE MAY NOT BE USED ON PUBLIC STREETS, ROADS, OR RIGHTS-OF-WAY.
19. STABILIZED LIMESTONE BASE MAY BE SUBSTITUTED FOR STABILIZED CRUSHED CONCRETE IF SUBMITTED AND APPROVED BY CITY ENGINEER.

STORM SEWER NOTES

1. STORM SEWERS SHALL BE DESIGNED AND CONSTRUCTED WITH CITY OF MISSOURI CITY INFRASTRUCTURE DESIGN MANUAL AND IN ACCORDANCE WITH CITY OF MISSOURI CITY STANDARD CONSTRUCTION DETAILS.
2. ALL PIPE STORM SEWERS SHALL BE INSTALLED, BEDDED, AND BACKFILLED IN ACCORDANCE WITH CITY OF MISSOURI CITY STANDARD DETAIL DRAWINGS.
3. ALL CEMENT STABILIZED SAND (C.S.S.) SHALL BE 2 SK PER CUBIC YD. AND MEET MINIMUM C.S.S. STANDARDS COMPACTED TO 95%.
4. ALL STORM SEWERS UNDER AND WITHIN TWO (2) FOOT OF PROPOSED OR FUTURE PAVEMENTS SHALL BE BACKFILLED AND COMPACTED WITH 2 SK C.S.S. TO BOTTOM OF SUBGRADE.
5. ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES ON INLETS ARE TO BE PLUGGED WITH 8" BRICK WALLS WITH FULL MORTAR HEAD AND BED JOINTS AND GROUTED WITH A MINIMUM OF 1/2-INCH MORTAR INSIDE AND OUTSIDE, UNLESS OTHERWISE NOTED.
6. MANHOLES IN HANDICAP RAMPS ARE NOT ALLOWED.
7. ALL STORM SEWER MANHOLES SHALL BE OF MISSOURI CITY TYPE "C" UNLESS OTHERWISE NOTED AND SHALL BE LOCATED A MINIMUM OF THREE (3) FEET BACK OF CURB. IF CONFLICT EXISTS, RACK OVER MANHOLE TO MISS PROPOSED CURB. (MAXIMUM RACK OF 1-INCH PER COURSE OF BRICK.)
8. RIM ELEVATIONS SHOWN ON THE PLANS ARE APPROXIMATE ONLY. UTILITY CONTRACTOR SHALL ADJUST RIM ELEVATIONS TO 0.4 FEET ABOVE THE FINISH GRADE AT EACH LOCATION AFTER CONTRACTOR HAS COMPLETED FINAL GRADING. SLOPED FILL SHALL BE ADDED FOR STORM WATER DRAINAGE AWAY FROM RIM.
9. RIM ELEVATIONS SHALL BE PROPERLY ADJUSTED TO GRADE IN PAVEMENT AND SIDEWALKS. APPROVED BLOCKOUTS SHALL BE USED IN PAVEMENT.
10. ALL STORM SEWER MANHOLE COVERS MUST INCLUDE "STORM SEWER" AND "DUMP NO WASTE", "DRAINS TO WATERWAYS" WITH CITY OF MISSOURI CITY EMBLEM.
11. MINIMUM STORM SEWER SIZE SHALL BE 24-INCH DIAMETER. ALL STORM SEWER PIPES 24" AND LARGER ARE TO BE REINFORCED CONCRETE PIPE ASTM C-76 CLASS III, INCLUDING INLET LEADS CROSSING UNDER EXISTING OR PROPOSED PAVEMENTS. ALL INLET LEADS SHALL BE 24" R.C.P. OR LARGER. ALL STORM SEWER PIPE SHALL BE RUBBER GASKETED. ALL CMP PIPE SHALL BE IN ACCORDANCE WITH C.O.M.C. APPROVED PRODUCT LIST AND STANDARD DETAILS.
12. CONTRACTOR SHALL VERIFY NATURAL GROUND SHOTS PRIOR TO MANHOLE CONSTRUCTION.
13. CONTRACTOR TO PROVIDE A MINIMUM OF 6-INCHES CLEARANCE AT STORM AND WATER LINE CROSSINGS AND A MINIMUM OF TWELVE (12) INCHES AT SANITARY SEWER CROSSING.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING, MAINTAINING, AND RESTORING ANY BACKSLOPE DRAINAGE SYSTEM DISTURBED AS A RESULT OF HIS WORK.
15. ALL DITCHES SHALL BE RESTORED TO PROPOSED ELEVATIONS TO INSURE PROPER DRAINAGE. ALL OUTFALLS SHALL BE COMPACTED AND ALL DISTURBED AREAS SHALL BE RESEEDED OR RESODDED WITHIN 10 WORKING DAYS OF EACH OCCURRENCE (NO SEPARATE PAY).
16. THE UTILITY CONTRACTOR SHALL ROUGH CUT ALL ROADSIDE SWALES IN PROPER ALIGNMENT AND SLOPE TO WITHIN 0.2 FT. OF FINISH GRADE. THE PAVING CONTRACTOR, UPON COMPLETION OF PAVING, SHALL COMPLETE FINAL GRADING ALIGNMENT OF SWALES AND RESTORE ALL AREAS WITHIN RIGHT-OF-WAY FOR SEEDING OR SODDING AND FERTILIZATION.
17. REFER TO GENERAL NOTES AND C.S.S. NOTES.

SANITARY SEWER NOTES

1. SANITARY SEWERS, FORCE MAINS, MANHOLES, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS SHALL BE DESIGNED AND CONSTRUCTED AS PER THE REQUIREMENTS OF THE CITY OF MISSOURI CITY INFRASTRUCTURE STANDARDS AND CORRESPONDING STANDARD CONSTRUCTION DETAILS SHEETS AND AS PER THE REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY "DESIGN CRITERIA FOR SEWERAGE SYSTEMS". SHOULD A CONFLICT ARISE BETWEEN INFORMATION DEPICTED ON APPROVED CONSTRUCTION DRAWINGS AND/OR INFORMATION INCLUDED IN PROJECT SPECIFICATIONS, CITY OF MISSOURI CITY INFRASTRUCTURE STANDARDS SHALL GOVERN.
2. ALL MATERIALS AND PRODUCTS USED IN THE CONSTRUCTION OF SANITARY SEWERS, FORCE MAINS, MANHOLES, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS SHALL COMPLY WITH THE CITY OF MISSOURI CITY INFRASTRUCTURE DESIGN MANUAL AND THE CURRENT APPROVED PRODUCTS LIST AS MAINTAINED BY THE DEPARTMENT OF PUBLIC WORKS.
3. STACKS SHALL BE BUILT IN ACCORDANCE WITH THE CITY OF MISSOURI CITY STANDARD DETAIL DRAWING REQUIREMENTS. EXACT LOCATION OF THE STACK SHALL BE SUPPLIED TO THE CITY ENGINEER OF MISSOURI CITY BY THE PROJECT ENGINEER ON SEALED AS-BUILT DRAWINGS AT COMPLETION OF CONSTRUCTION. ALL STACKS SHALL BE INSTALLED WITHIN 3% OF PLUMB RELATIVE TO VERTICAL PLANE AND WILL BE CAPPED AND TERMINATED AT A DEPTH OF 4 FEET BELOW FINISHED GRADE, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
4. EACH SANITARY SEWER SERVICE LEAD STUB, PLUGGED WYE BRANCH OUTLET AND STACK SHALL 4" PVC PIPE AT THE TIME OF CONSTRUCTION, BEGINNING AT THE INVERT ELEVATION OF THE STUB OR WYE AND AT AN ELEVATION TWO FEET BELOW THE CAPPED TERMINATION POINT OF THE STACK AND EXTENDING TWO FEET ABOVE FINISHED GRADE. EACH MARKER SHALL BE PAINTED RED AND LABELED "SANITARY SEWER STUB", "SANITARY SEWER WYE" OR "SANITARY SEWER STACK" AS APPROPRIATE WITH STUB, WYE BRANCH OUTLET OR STACK SIZE NOTED.
5. SANITARY SEWER MANHOLES SHALL BE CONSTRUCTED AS PER DRAWINGS INCORPORATED IN CITY OF MISSOURI CITY STANDARD CONSTRUCTION DETAILS SHEETS. SUCH MANHOLES SHALL BE CONSTRUCTED A MINIMUM OF ONE FOOT FROM BACK OF CURB ON CURB AND GUTTER ROADWAYS AND THREE FEET FROM EDGE OF TRAVELLED ROADWAY ON THOSE THOROUGHFARES HAVING NO CURBING, MEASURED FROM OUTSIDE DIAMETER OF MANHOLE. ALL SANITARY SEWER MANHOLES SHALL INCORPORATE INFLOW PROTECTORS. SANITARY SEWER MANHOLES SHALL NOT BE INSTALLED BENEATH STREET PAVING EXCEPT WHERE SPECIFICALLY AUTHORIZED BY CITY ENGINEER AND SO DESIGNATED ON APPROVED CONSTRUCTION DRAWINGS. CAST IN PLACE MANHOLES AND FIBERGLASS MANHOLES ARE PROHIBITED. ALL MANHOLES SHALL HAVE ECCENTRIC CONES.
6. SANITARY SEWER MANHOLE COVERS SHALL BE MINIMUM OF 32 INCHES IN DIAMETER. ALL SUCH MANHOLE COVERS SHALL HAVE THE CITY OF MISSOURI CITY EMBLEM AND THE WORDS "MISSOURI CITY" AND "SANITARY SEWER" CAST IN RAISED RELIEF AS DEPICTED IN CITY OF MISSOURI CITY STANDARD CONSTRUCTION DETAILS SHEETS.
7. MANHOLE RIM ELEVATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY. UTILITY CONTRACTORS SHALL ADJUST RIM ELEVATIONS TO 0.4 FEET ABOVE FINISHED GRADE, AND 0.5 FEET ABOVE NATURAL GROUND WITHIN RIGHTS-OF-WAY AND EASEMENTS AT EACH MANHOLE LOCATION AFTER PAVEMENT CONTRACTOR HAS COMPLETED FINAL GRADING. THE AREA ADJACENT TO SANITARY SEWER MANHOLE LOCATIONS SHALL BE GRADED AWAY FROM SUCH MANHOLES SO AS PREVENT ENTRY OF STORM WATER RUNOFF TO THE SANITARY SEWER SYSTEM.
8. MINIMUM SEPARATION DISTANCES AS REQUIRED BY TCEQ SECTION 317.1.5, APPENDIX E MUST BE MAINTAINED BETWEEN POTABLE WATER LINES AND SANITARY SEWERS, FORCE MAINS, MANHOLES, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS. INSTALLATION OF FIRE HYDRANTS WITHIN NINE FEET OF A SANITARY SEWER SYSTEM IS PROHIBITED. REFER TO THE CITY OF MISSOURI CITY INFRASTRUCTURE STANDARDS AND CORRESPONDING STANDARD CONSTRUCTION DETAILS SHEETS FOR CONSTRUCTION REQUIREMENTS OF OTHER INSTALLATIONS WHERE SEPARATION DISTANCES OF GREATER THAN NINE FEET CANNOT BE MAINTAINED.
9. TESTING OF SANITARY SEWERS, FORCE MAINS, MANHOLES, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS SHALL BE CONDUCTED AS NOTED IN SANITARY SEWER CHAPTER OF THE CITY OF MISSOURI CITY INFRASTRUCTURE STANDARDS AND AS PER THE REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY "DESIGN CRITERIA FOR SEWERAGE SYSTEMS".
10. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LOCATION OF ALL EXISTING UTILITIES PRIOR TO EXCAVATION. DURING THE COURSE OF ANY AND ALL CLEARING, GRUBBING, FILL, GRADING, EXCAVATION OR OTHER CONSTRUCTION, CONTRACTOR SHALL ENSURE THAT STORM DRAINAGE PATHWAYS ARE MAINTAINED AND REMAIN OPEN TO ENSURE POSITIVE DRAINAGE AND THAT SUCH CONVEYANCES ARE NOT IMPEDED OR BLOCKED IN ANY WAY. STORM SEWER INLETS SHALL BE PROTECTED FROM ENTRY OF SILT, TRASH, DEBRIS AND ANY SUBSTANCES DELETERIOUS TO THE STORM SEWER SYSTEM AND/OR WATERWAYS RECEIVING STORM WATER RUNOFF. CONTRACTOR SHALL AT COMPLETION OF WORK, FILL LOW SPOTS AND GRADE ALL RIGHTS-OF-WAY AND UTILITY EASEMENTS AND REGRADE/RESTORE DITCHES AS NECESSARY TO MAINTAIN AND/OR ESTABLISH POSITIVE DRAINAGE.
11. ALL SANITARY SEWER PIPING AND BEDDING SHALL BE INSPECTED BY CITY CONSTRUCTION INSPECTOR FOR CONFORMANCE WITH CITY INFRASTRUCTURE STANDARDS PRIOR TO BACKFILLING OF PIPING IN TRENCH. CONTRACTOR SHALL NOT COVER PIPING UNTIL SUCH TIME AS INSPECTOR HAS NOTIFIED CONTRACTOR THAT RESULTS OF PIPING INSPECTION ARE SATISFACTORY AND THAT BACKFILLING MAY BE ACCOMPLISHED. ANY PIPING INSTALLED AND/OR BACKFILLED WITHOUT INSPECTOR'S SPECIFIC APPROVAL SHALL BE UNCOVERED AT INSPECTOR'S DIRECTION AND INSPECTED ACCORDINGLY. CONTRACTOR SHALL NOTIFY INSPECTOR 24-HOURS PRIOR TO INSPECTION.

WATER DISTRIBUTION NOTES

1. WATER MAINS, WATER SERVICE LINES AND ASSOCIATED APPURTENANCES SHALL BE DESIGNED AND CONSTRUCTED AS PER REQUIREMENTS OF THE CITY OF MISSOURI CITY INFRASTRUCTURE DESIGN MANUAL AND CORRESPONDING STANDARD CONSTRUCTION DETAILS SHEETS AND AS PER THE REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY. SHOULD A CONFLICT ARISE BETWEEN INFORMATION DEPICTED ON APPROVED CONSTRUCTION DRAWINGS AND/OR INFORMATION INCLUDED IN PROJECT SPECIFICATIONS, CITY OF MISSOURI CITY INFRASTRUCTURE STANDARDS SHALL GOVERN.
2. ALL MATERIALS AND PRODUCTS USED IN THE CONSTRUCTION OF WATER MAINS, WATER SERVICE LINES AND ASSOCIATED APPURTENANCES SHALL COMPLY WITH THE CITY OF MISSOURI CITY INFRASTRUCTURE STANDARDS AND THE CURRENT APPROVED PRODUCTS LIST AS MAINTAINED BY THE DEPARTMENT OF PUBLIC WORKS.
3. ALL GATE VALVES INSTALLED BELOW GRADE SHALL BE OF NON-RISING STEM DESIGN.
4. ALL FIRE HYDRANTS SHALL BE FACTORY PAINTED WITH POLYURETHANE GRAY WITH WHITE CAPS AND BONNET. SHOULD THE HYDRANT BONNET AND CAPS REQUIRE A DIFFERENT COLOR, THE CAPS AND BONNET SHALL COME FROM THE FACTORY PRIME COATED OR ORDERED WITH THE CORRECT COLOR. PAINT SHALL BE APPLIED PRIOR TO INSTALLATION. FIELD PAINTING OF THE HYDRANTS IS NOT ALLOWED OTHER THAN TOUCH-UP. CAP AND BONNET COLOR CHART IS LISTED IN THE INFRASTRUCTURE ORDINCE.
5. MINIMUM SEPARATION DISTANCES AS REQUIRED BY TCEQ SECTION 317.13, 290. APPENDIX E MUST BE MAINTAINED BETWEEN POTABLE WATER LINES AND SANITARY SEWERS, FORCE MAINS, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS. INSTALLATION OF FIRE HYDRANTS WITHIN 9' (FT) OF A SANITARY SEWER SYSTEM IS PROHIBITED. REFER TO MOCITY STANDARDS FOR CONSTRUCTION REQUIREMENTS OF OTHER INSTALLATIONS WHERE DISTANCES ARE GREATHER THAN 9' (NINE) FT. CANNOT BE MAINTAINED.
6. EACH WATER SERVICE LEAD STUB SHALL BE MARKED WITH A PRESSURE TREATED 4 X 4 TIMBER AT THE TIME OF CONSTRUCTION, BEGINNING AT THE INVERT ELEVATION OF THE STUB AND EXTENDING TWO FEET ABOVE FINISHED GRADE. EACH MARKER SHALL BE PAINTED BLUE AND LABELED "POTABLE WATER" WITH PIPE SIZE NOTED.
7. TESTING OF WATER MAINS, WATER SERVICE LINES AND ASSOCIATED APPURTENANCES SHALL BE CONDUCTED AS PER REQUIREMENTS OF AWWA C605, CURRENT REVISION.
8. DISINFECTION OF WATER MAINS, WATER SERVICE LINES AND ASSOCIATED APPURTENANCES SHALL BE CONDUCTED AS PER REQUIREMENTS OF AWWA C651 AND TCEQ. NO CONNECTIONS SHALL BE MADE TO EXISTING WATER LINES UNTIL NEWLY CONSTRUCTED WATER LINES HAVE BEEN THOROUGHLY DISINFECTED, TESTED, FLUSHED, AND SAMPLED AND CONNECTION HAS BEEN AUTHORIZED BY THE CITY ENGINEER.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LOCATION OF ALL EXISTING UTILITIES PRIOR TO EXCAVATION. DURING THE COURSE OF ANY AND ALL CLEARING, GRUBBING, FILL, GRADING, EXCAVATION OR OTHER CONSTRUCTION, CONTRACTOR SHALL ENSURE THAT STORM DRAINAGE PATHWAYS ARE MAINTAINED AND REMAIN OPEN TO ENSURE POSITIVE DRAINAGE AND THAT SUCH CONVEYANCES ARE NOT IMPEDED OR BLOCKED IN ANY WAY. STORM SEWER INLETS SHALL BE PROTECTED FROM ENTRY OF SILT, TRASH, DEBRIS AND ANY SUBSTANCES DELETERIOUS TO THE STORM SEWER SYSTEM AND/OR WATERWAYS RECEIVING STORM WATER RUNOFF. CONTRACTOR SHALL AT COMPLETION OF WORK, FILL LOW SPOTS AND GRADE ALL RIGHTS-OF-WAY AND UTILITY EASEMENTS AND REGRADE/RESTORE DITCHES AS NECESSARY TO MAINTAIN AND/OR ESTABLISH POSITIVE DRAINAGE.
11. ALL WATER PIPING AND BEDDING SHALL BE INSPECTED BY CITY CONSTRUCTION INSPECTOR FOR CONFORMANCE TO INFRASTRUCTURE STANDARDS PRIOR TO BACKFILLING OF PIPING IN TRENCH. CONTRACTOR SHALL NOT COVER PIPING UNTIL SUCH TIME AS INSPECTOR HAS NOTIFIED CONTRACTOR THAT RESULTS OF PIPING INSPECTION ARE SATISFACTORY AND THAT BACKFILLING MAY BE ACCOMPLISHED. ANY PIPING INSTALLED AND/OR BACKFILLED WITHOUT INSPECTOR'S SPECIFIC APPROVAL SHALL BE UNCOVERED AT INSPECTOR'S DIRECTION AND INSPECTED ACCORDINGLY. 24-HOUR NOTICE REQUIRED.

Fort Bend County Engineering
FORT BEND COUNTY, TEXAS

Richard W. Stolle, P.E.
County Engineer

Fort Bend County
Construction - General Notes

1. Fort Bend County must be invited to the Pre-Construction Meeting.
2. Contractor shall notify Fort Bend County Engineering Department 48 hours prior to commencing construction and 48 hours prior to any construction activity within the limits of the project as "Construction Inspection Notice".
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 used existing curb and curb-and-gutter shall be saw cut back of curb.
6. A continuous longitudinal reinforcing bar shall be used in the curve.
7. All concrete pavement shall be 3 ½ sack concrete with a minimum compressive strength of 2500 psi at 28 days. Transverse contraction joints shall be installed each 10 feet apart and at a maximum spacing of 30 feet.
8. All weather access to all existing streets and driveways shall be maintained at all times.
9. 4" x 12" reinforced concrete curb stops to be placed in front of single family lots only. All other areas shall be 6" reinforced concrete curb.
10. At all intersection locations, Type F ramps shall be placed in accordance with TXDOT Ped-12b standard detail sheet. A.D.A. - Handicap Ramps shall be installed with street pavement at intersections and comply with current A.D.A. regulations.
11. Curb inlets are required at curb connections to building pads, with inlet centerline joints within 5' of curve.
12. All intersections utilizing traffic control measures shall have A.D.A. approved curb ramps installed.
13. Guidelines are set forth in the Texas Manual on Uniform Traffic Control Devices", as currently amended, shall be observed. The Contractor shall be responsible for providing adequate flagmen, signing, striping and warning windows, etc. during construction, both day and night.
14. All 24 x 24 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 that blends reflective green background. Street names shall be upper and lowercase lettering with uppercase letters of 6" minimum and lowercase letters 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 the centerline, on the street side opposite side of the hydrant.

NOTE: Fort Bend County works inspection any certified notice.

Instruction: The Owner and all parties thereof shall be allowed to inspection from time to time by representatives of the Fort Bend County to such inspection shall relieve the Contractor of any of his obligations hereunder. Neither failure to inspect nor failure of discovery of defect any of the work or not in accordance with the drawings and specifications, requirements and specifications of Fort Bend County or any provision of this Permit shall be considered to imply or constitute a waiver of such work or to relieve the Contractor of any of his obligations hereunder.

301 Jackson St, Suite 622, Richmond, TX 77469
Phone 281-633-7500

http://www.fortbendcountytx.gov/Portal/Portal.aspx?pg=Home/Departments/Engineering

Contractor Construction General Notes_1005201015-1.docx

No.	DATE	REVISION

GENERAL CONSTRUCTION NOTES

missouri CITY TEXAS

SEAL: STATE OF TEXAS JOSEPH E. ALBERO 68894 LICENSED PROFESSIONAL ENGINEER

DATE 05-05-17

DESIGN ENGINEER:

CONSTRUCTION PLANS FOR:

SHOPPES AT SIENNA PLANTATION

C3

APPROVED: Development Coordinator

DATE: 5/8/17

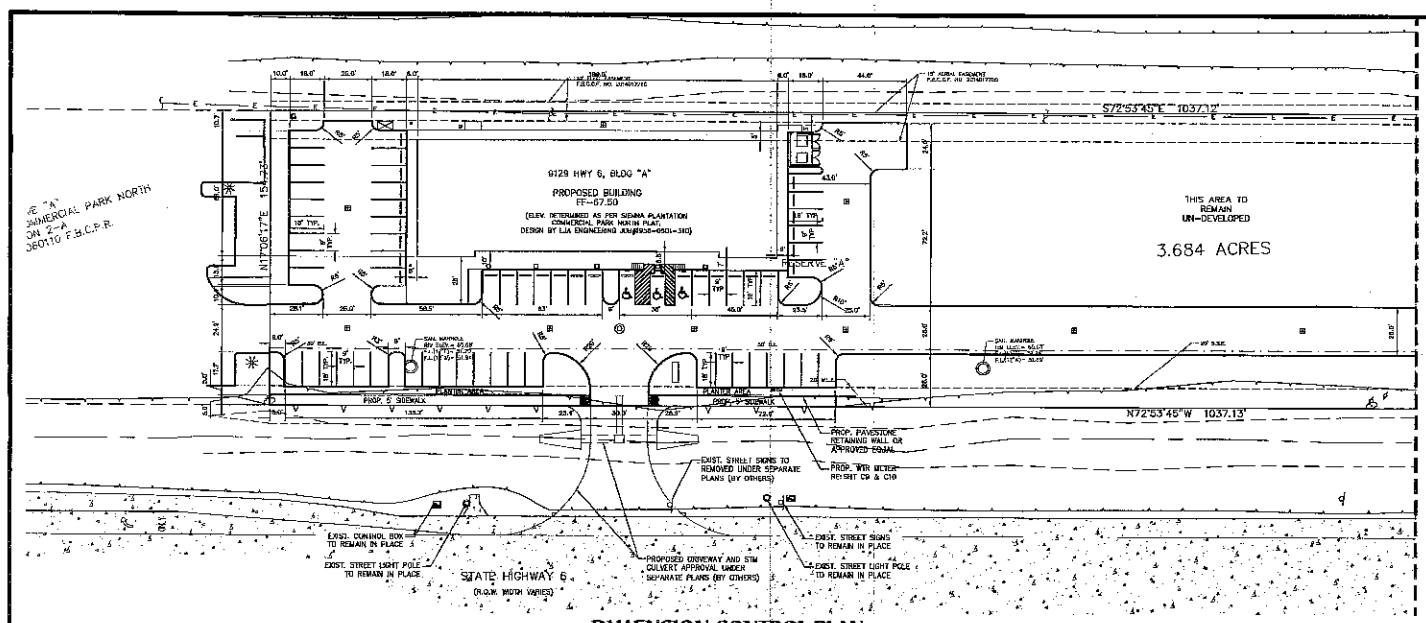
JOB No.:
SCALE: AS NOTED
SUBMITTED:
DATE: FEBRUARY 2015

MC-2-15

SHEET 3 OF 29

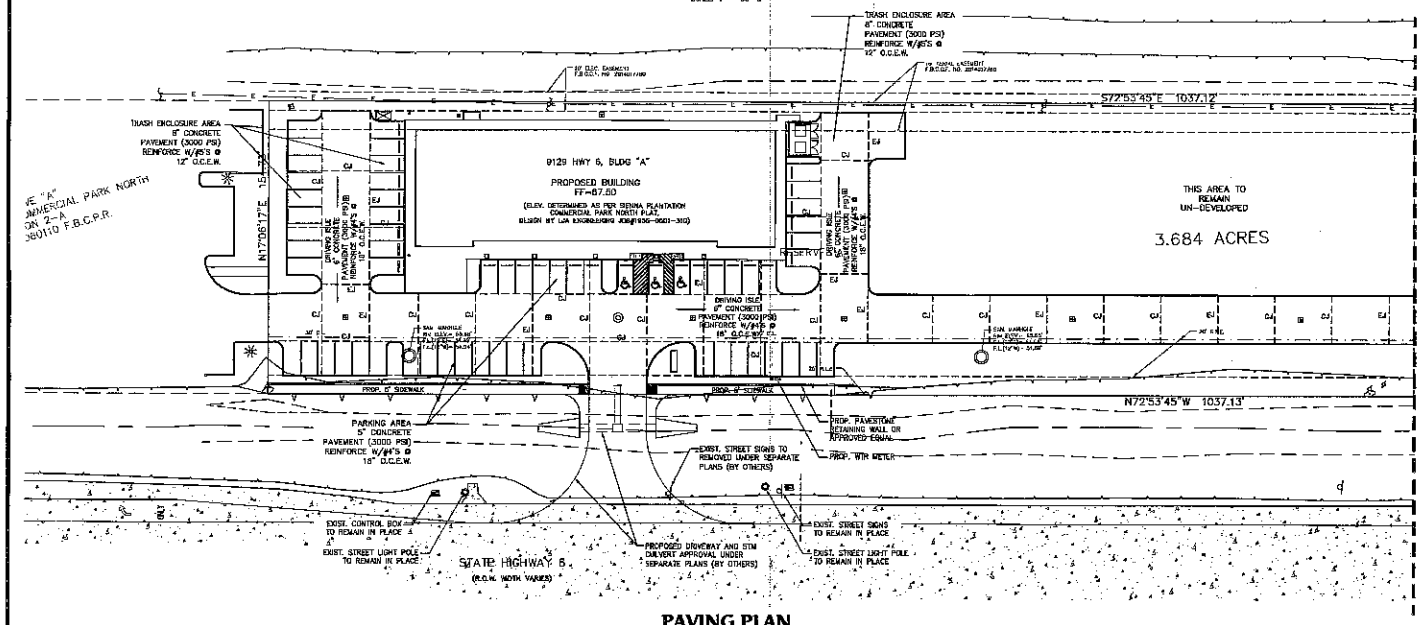
P.OT TIME: TIME STAMP

CAD FILE PATH: CADD_FILE_PATH
PLOT DATE: DATE



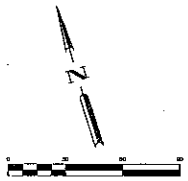
DIMENSION CONTROL PLAN

SCALE: 1" = 30'-0"



PAVING PLAN

SCALE: 1" = 30'-0"



PROPERTY DESCRIPTION:
BEING A CALL 3.684 ACRE TRACT OF LAND RECORDED AS SIENNA PLANTATION COMMERCIAL PARK NORTH SECTION 2-A, PHASE TWO, UNDER PLAT NO. 20080168 F.B.C.P.R. LOCATED IN THE ELIJAH ROANE SURVEY, A-77 FORT BEND COUNTY, TEXAS

FEMA NOTE:
ACCORDING TO FEMA FLOOD INSURANCE RATE MAP (FIRM) NO. 48157C0295L, MAP REVISED APRIL 2, 2014, THE SURVEYED TRACT LIES IN ZONE "X" UNSHADED, DEFINED BY FEMA AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

BENCHMARK NOTE:
BENCHMARK 1: CITY OF MISSOURI CITY PCM-003
-BRASS DISK SET IN CONCRETE AT THE SOUTHWESTERN CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRANSEL-FRESNO ROAD APPROXIMATELY 28 FEET WEST OF A STORM INLET ON THE WEST SIDE OF SIENNA PARKWAY.
ELEVATION= 93.07' (NAVD 88, 2001 ADJ.)

BENCHMARK 2: SIENNA PARKWAY AT HIGHWAY 6 MONUMENT
-BRASS DISK SET ON THE FIRST INLET SOUTH OF STATE HIGHWAY 6 ON THE WEST SIDE OF SIENNA PARKWAY
ELEVATION= 65.01' (NAVD 88, 2001 ADJ.)

TEMPORARY BENCHMARK (TBM):
-BOX CUT IN THE SOUTHEAST CORNER OF A CONCRETE SIDEWALK WHICH LIES ON THE WEST LINE OF THE SUBJECT TRACT.
ELEVATION= 66.92'

SURVEY SYMBOLS:

- = ELECTRIC BOX
- = FLUSH VALVE
- = GRATE INLET
- = GUY ANCHOR
- = LIGHT STANDARD
- = MANHOLE
- = OVERHEAD ELECTRIC LINE
- = PIPELINE MARKER
- = POWER POLE
- = TEMPORARY BENCHMARK
- = TRAFFIC SIGN
- = TRAFFIC SIGNAL POLE
- = TRAFFIC SIGNAL BOX
- = WATER METER
- = WATER VALVE

SURVEY LEGEND:

- B.L. = BUILDING LINE
- C.I.R. = CAPPED IRON ROD
- ESMT. = EASEMENT
- ELEC. = ELECTRICAL
- ELEV. = ELEVATION
- F.B.C.C.F. = FORT BEND COUNTY CLERK'S FILE
- F.B.C.P.R. = FORT BEND COUNTY PLAT RECORDS
- F.L. = FLOWLINE
- FND. = FOUND
- M.H. = MANHOLE
- RCP. = REINFORCED CONCRETE PIPE
- SAN. = SANITARY
- S.S.E. = SANITARY SEWER EASEMENT
- TYP. = TYPICAL
- W.L.E. = WATER LINE EASEMENT

LEGEND:

- EJ — EXPANSION JOINT
- CJ — CONTROL JOINT

ABEGO LLC
Quail Valley Business Park
1306 FM 1092, Suite 303
Missouri City, Texas 77459-1564
Tel : (713) 562-6100

TX FIRM REGISTRATION NO. F-15913

16935 Beckett Oaks Ct.
Houston, Texas 77083
Tel : (281) 201-8624
Mobile: (832) 671-3409

REV/DATE	DESCRIPTION
1 12-08-16	ISSUE FOR PERMIT
1 05-04-17	REVISED PER COUNTY COMMENTS
2	
3	

PROJECT NAME:

SHOPPES AT SIENNA PLANTATION

9129 & 9303 STATE HIGHWAY 6 AT KITTY HOLLOW PARK DRIVE
MISSOURI CITY, TX 77459

STATE OF TEXAS
JOSEPH S. ABEGO
69684
LICENSED
PROFESSIONAL ENGINEER
05-04-17

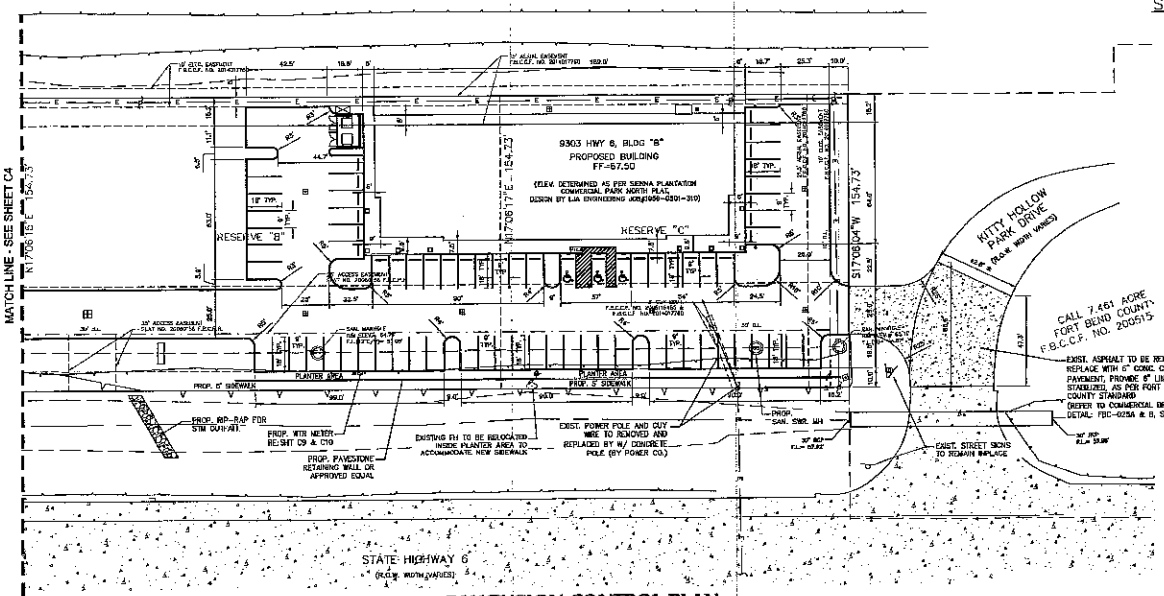
THE USE OF FINAL SIGNED AND SEAL DRAWINGS IS AUTHORIZED AND GRANTED SOLELY FOR THE PURPOSE OF THIS SPECIFIC PROJECT AND LOCATION, AND NOT FOR CONSTRUCTION OR USE FOR ANY OTHER PROJECT.

SHEET NUMBER: C4

SHEET TITLE: DIMENSION CONTROL & PAVING PLAN 1 OF 2

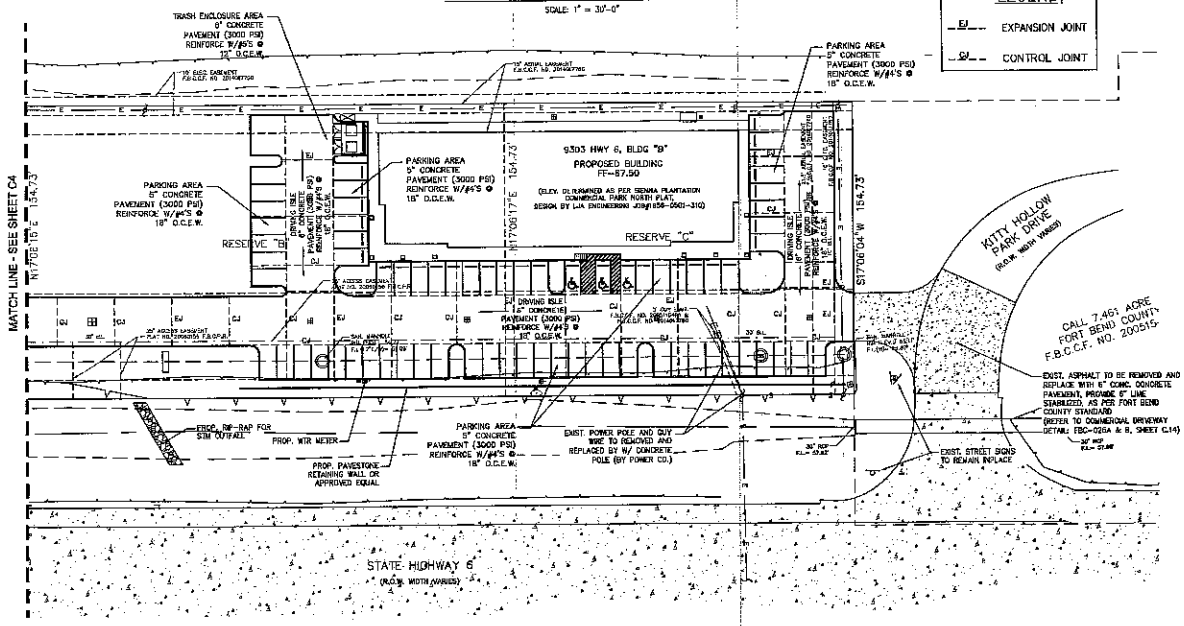
DRAWN BY: V.M. | CHECK BY: JSA

ABEGO PROJECT NUMBER: 016-06-003



DIMENSION CONTROL PLAN

SCALE: 1" = 30'-0"



PAVING PLAN

SCALE: 1" = 30'-0"

LEGEND:

- EJ — EXPANSION JOINT
- CJ — CONTROL JOINT

SURVEY SYMBOLS:

- ELECTRIC BOX
- FLUSH VALVE
- GRATE INLET
- GUY ANCHOR
- LIGHT STANDARD
- MANHOLE
- OVERHEAD ELECTRIC LINE
- PIPELINE MARKER
- POWER POLE
- TEMPORARY BENCHMARK
- TRAFFIC SIGN
- TRAFFIC SIGNAL POLE
- TRAFFIC SIGNAL BOX
- WATER METER
- WATER VALVE

SURVEY LEGEND:

B.L.	=	BUILDING LINE
C.I.R.	=	CAPPED IRON ROD
EASMT.	=	EASEMENT
ELEC.	=	ELECTRICAL
ELEV.	=	ELEVATION
F.B.C.C.F.	=	FORT BEND COUNTY CLERKS FILE
F.B.C.P.R.	=	FORT BEND COUNTY PLAT RECORDS
F.L.	=	FLOWLINE
FND.	=	FOUND
M.H.	=	MANHOLE
RCP.	=	REINFORCED CONCRETE PIPE
SAN.	=	SANITARY
S.S.E.	=	SANITARY SEWER EASEMENT
TYP.	=	TYPICAL
W.L.E.	=	WATER LINE EASEMENT

N

0 30 60 90

PROPERTY DESCRIPTION:
BEING A CALL 3.934 ACRE TRACT OF LAND RECORDED AS SIENNA PLANTATION COMMERCIAL PARK NORTH SECTION 2-A, PHASE TWO, UNDER PLAT NO. 20060195 F.B.C.P.R. LOCATED IN THE ELIJAH ROARK SURVEY, A-47 FORT BEND COUNTY, TEXAS

FEMA NOTE:
ACCORDING TO FEMA FLOOD INSURANCE RATE MAP (FIRM) NO. 48157C0295L, MAP REVISED APRIL 2, 2014, THE SURVEYED TRACT LIES IN ZONE "X" UNSHADED, DEFINED BY FEMA AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

BENCHMARK NOTE:
(BENCHMARK 1) CITY OF MISSOURI CITY PCM-903
-BRASS DISK SET IN CONCRETE AT THE SOUTHWESTERN CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNO ROAD APPROXIMATELY 28 FEET WEST OF A STORM INLET ON THE WEST SIDE OF SIENNA PARKWAY.
ELEVATION= 66.97' (NAVD 88, 2001 ADJ.)

BENCHMARK 2: SIENNA PARKWAY AT HIGHWAY 6 MONUMENT
-BRASS DISK SET ON THE FIRST INLET SOUTH OF STATE HIGHWAY 6 ON THE WEST SIDE OF SIENNA PARKWAY
ELEVATION= 65.81' (NAVD 88, 2001 ADJ.)

TEMPORARY BENCHMARK (TBM):
-SAW CUT IN THE SOUTHEAST CORNER OF A CONCRETE SIDEWALK WHICH LIES ON THE WEST LINE OF THE SUBJECT TRACT.
ELEVATION= 66.52'

APPROVED: _____ Development Coordinator
DATE: 5/8/17

Quail Valley Business Park
1306 FM 1092, Suite 303
Missouri City, Texas 77459-1564
Tel : (713) 562-6100

TX FIRM REGISTRATION NO. F-15913

16935 Beckett's Oaks Ct.
Houston, Texas 77083
Tel : (281) 201-8624
Mobile: (832) 671-3409

REV/DATE	DESCRIPTION
1 12-05-16	ISSUE FOR PERMIT
1 05-04-17	REVISED PER COUNTY COMMENTS
2	
3	

PROJECT NAME:

SHOPPES AT SIENNA PLANTATION

9129 & 9303 STATE HIGHWAY 6 AT KITTY HOLLOW PARK DRIVE
MISSOURI CITY, TX 77459

STATE OF TEXAS — JOSHUA A. ASKOOD — 93864 — LICENSED PROFESSIONAL ENGINEER
05-04-17

THE USE OF FINAL SIGNED AND SEAL DRAWINGS IS AUTHORIZED AND GRANTED SOLELY FOR THE PURPOSE OF THIS SPECIFIC PROJECT AND LOCATION, AND NOT FOR CONSTRUCTION OR USE FOR ANY OTHER PROJECT.

SHEET NUMBER: C5

SHEET TITLE: DIMENSION CONTROL & PAVING PLAN 2 OF 2

DRAWN BY: Y.M. | CHECK BY: JSA

G+A PROJECT NUMBER: 016-06-003

TYPICAL TRANSITION LENGTHS
AND
SUGGESTED MAXIMUM SPACING OF DEVICES

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent
< 30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'–75'
35		205'	225'	245'	35'	70'–90'
40		265'	295'	320'	40'	80'–100'
45	L=WS	450'	495'	540'	45'	90'–110'
50		500'	550'	600'	50'	100'–125'
55		550'	605'	660'	55'	110'–140'
60		600'	660'	720'	60'	120'–150'
65		650'	715'	780'	65'	130'–175'

* 85th Percentile Speed may be used on roads where traffic speeds normally exceed the posted speed limit.
** Taper lengths have been rounded off.

CONSTRUCTION WARNING SIGN SPACING

Posted Speed or 85% Speed (MPH)	X Min. Distance (feet)
30 or less	120
35	160
40	240
45	320
50	400
55	500
65	750

X=SIGN SPACING
L=TAPER
2XL=TANGENT

NOTE TO CONTRACTOR:
ALL CONSTRUCTION MUST COMPLY WITH TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)

LEGEND (TYPICAL)

- PLASTIC DRUM (See spacing for channelizing devices)
- OFF-DUTY UNIFORMED POLICE OFFICER
- TYPE III BARRICADE
- FLASHING ARROW PANEL
- TUBULAR MARKER
- CONSTRUCTION AREA

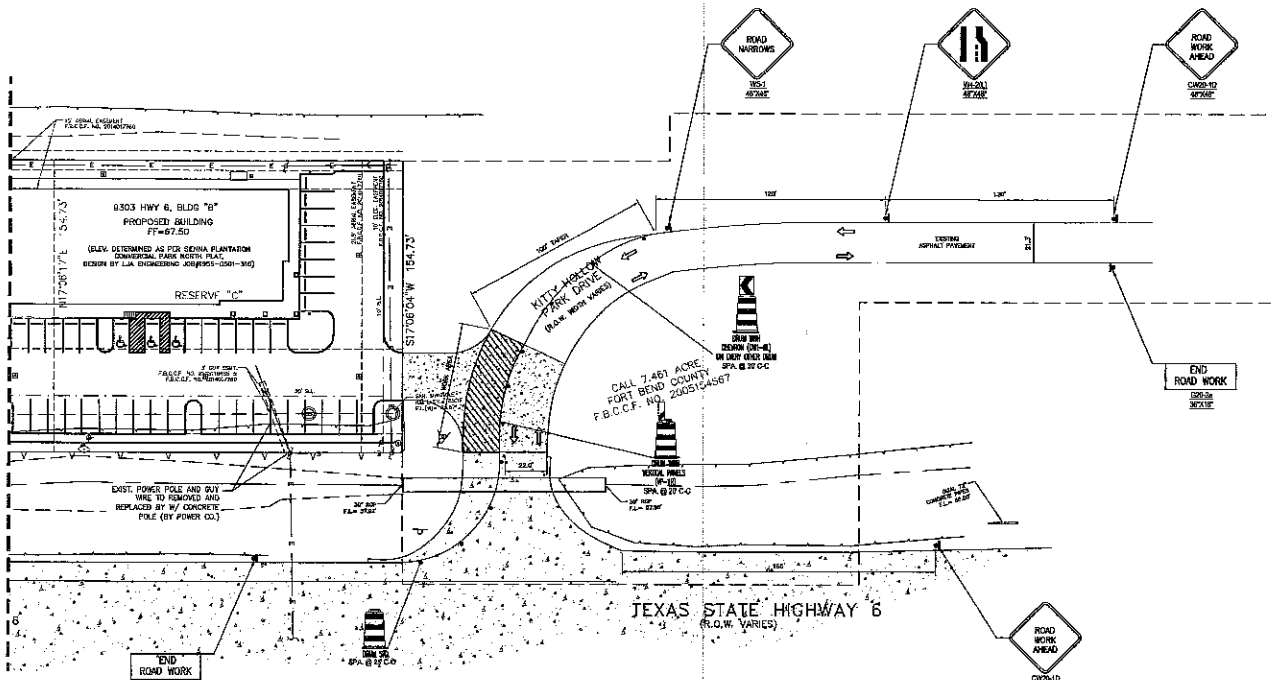
TRAFFIC NOTES

1. CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD - LATEST EDITION WITH REVISIONS) DURING CONSTRUCTION.
2. NO LANES SHALL BE BLOCKED FROM 7 A.M. TO 9 A.M. AND 4 P.M. TO 6:30 P.M. MONDAY THRU FRIDAY.
3. OFF DUTY POLICE OFFICERS/FLAGGERS ARE REQUIRED TO DIRECT TRAFFIC WHEN LANES ARE BLOCKED.
4. CONTRACTOR SHALL COVER THE EXCAVATION WITH STEEL PLATES ANCHORED PROPERLY DURING NON-WORKING HOURS AND ALLOW NORMAL TRAFFIC FLOW. IF COVERING IS NOT FEASIBLE, USE TRANTEX FR 336 EFX 36" DELINEATOR OR APPROVED EQUAL WITH SHEETING AND BASE EXPOXIED TO PAVEMENT NEXT TO EXCAVATION DURING NON-WORKING HOURS.
5. APPROVED COPIES OF "TRAFFIC CONTROL PLANS" SHALL BE AVAILABLE FOR INSPECTION AT ALL TIMES.
6. IF THE CONTRACTOR CHOOSES TO USE A DIFFERENT METHOD OF TRAFFIC CONTROL PLAN DURING THE CONSTRUCTION THAN WHAT IS OUTLINED IN THE CONTRACT DRAWINGS, (S)HE SHALL BE RESPONSIBLE TO PREPARE AND SUBMIT ALTERNATE PLANS* TO TRAFFIC SECTION OF HCED FOR APPROVAL TEN WORKING DAYS PRIOR TO IMPLEMENTATION.

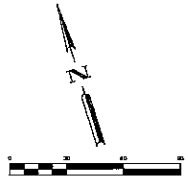
*THESE PLANS SHALL BE DRAWN TO SCALE ON REPRODUCIBLE MYLARS AND SEALED BY A LICENSED ENGINEER IN THE STATE OF TEXAS. PLANS WILL BECOME A PART OF THE CONTRACT DRAWINGS.

7. IF THE PROJECT IS WITHIN 460 FEET FROM A SIGNALIZED INTERSECTION, THE CONTRACTOR SHALL CONTACT FORT BEND COUNTY ENGINEERING DEPARTMENT, AT 281-633-7590, FIVE (5) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.

KITTY HOLLOW PARK RD. — STREET NAME
20 MPH — SPEED LIMIT



TRAFFIC CONTROL PLAN - PHASE 1
SCALE: 1" = 30'-0"



PROPERTY DESCRIPTION:
BEING A CALL 3.664 ACRE TRACT OF LAND RECORDED AS SIENNA PLANTATION COMMERCIAL PARK NORTH SECTION 2A, PHASE TWO, UNDER PLAT NO. 2006019B F.B.C.P.R. LOCATED IN THE ELIJAH ROAR SURVEY, A-77 FORT BEND COUNTY, TEXAS

FEMA NOTE:
ACCORDING TO FEMA FLOOD INSURANCE RATE MAP (FIRM) NO. 48157C0295L, MAP REVISED APRIL 2, 2014, THIS SURVEYED TRACT LIES IN ZONE "X" UNSHADED, DEFINED BY FEMA AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

BENCHMARK NOTE:
BENCHMARK 1: CITY OF MISSOURI CITY ROM 663
-4H-BRS DISK SET IN CONCRETE AT THE SOUTHWESTERN CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNO ROAD APPROXIMATELY 30 FEET WEST OF A STORM INLET ON THE WEST SIDE OF SIENNA PARKWAY.
ELEVATION= 63.07' (NAVD 88, 2001 ADJ.)

BENCHMARK 2: SIENNA PARKWAY AT HIGHWAY 6 MONUMENT
-BRASS DISK SET ON THE FIRST INLET SOUTH OF STATE HIGHWAY 6 ON THE WEST SIDE OF SIENNA PARKWAY
ELEVATION= 65.81' (NAVD 88, 2001 ADJ.)

TEMPORARY BENCHMARK (TBM):
-BOX CUT IN THE SOUTHEAST CORNER OF A CONCRETE SIDEWALK WHICH LIES ON THE WEST LINE OF THE SUBJECT TRACT.
ELEVATION= 68.82

SURVEY SYMBOLS:

- ELECTRIC BOX
- FLUSH VALVE
- GRATE INLET
- GUY ANCHOR
- LIGHT STANDARD
- MANHOLE
- OVERHEAD ELECTRIC LINE
- PIPELINE MARKER
- POWER POLE
- TEMPORARY BENCHMARK
- TRAFFIC SIGN
- TRAFFIC SIGNAL POLE
- TRAFFIC SIGNAL BOX
- WATER METER
- WATER VALVE

SURVEY LEGEND:

B.L.	=	BUILDING LINE
C.I.R.	=	CAPPED IRON ROD
ESMT.	=	EASEMENT
ELEC.	=	ELECTRICAL
ELEV.	=	ELEVATION
F.B.C.C.F.	=	FORT BEND COUNTY CLERK'S FILE
F.B.C.P.R.	=	FORT BEND COUNTY PLAT RECORDS
F.L.	=	FLOWLINE
FND.	=	FOUND
M.H.	=	MANHOLE
RCP.	=	REINFORCED CONCRETE PIPE
SAN.	=	SANITARY
S.S.E.	=	SANITARY SEWER EASEMENT
TYP.	=	TYPICAL
W.L.E.	=	WATER LINE EASEMENT

LEGEND:
⇨ DIRECTION OF TRAFFIC

APPROVED: Development Coordinator
DATE: 5/8/17

ARCOD
Quail Valley Business Park
1306 FM 1092, Suite 303
Missouri City, Texas 77459-1564
Tel : (713) 562-6109

TX FIRM REGISTRATION NO. F-15913

16935 Berkeiza Oaks CL
Houston, Texas 77083
Tel : (281) 201-8624
Mobile: (832) 671-3409

REV/DATE	DESCRIPTION
1 12-06-16	ISSUE FOR PERMIT
1 05-04-17	REVISED PER COUNTY COMMENTS
2	
3	

PROJECT NAME:
SHOPPES AT SIENNA PLANTATION
9129 & 9303 STATE HIGHWAY 6 AT KITTY HOLLOW PARK DRIVE
MISSOURI CITY, TX 77459

STATE OF TEXAS
JOSEPH E. ABBOUD
65604
LICENSED
PROFESSIONAL ENGINEER
05-04-17

THE USE OF FINAL SIGNED AND SEAL DRAWINGS IS AUTHORIZED AND GRANTED SOLELY FOR THE PURPOSE OF THIS SPECIFIC PROJECT AND LOCATION, AND NOT FOR CONSTRUCTION OR USE FOR ANY OTHER PROJECT.

SHEET NUMBER:
C5.1

SHEET TITLE:
TCP– PHASE 1
AT KITTY HOLLOW PARK DR.

DRAWN BY: V.M.
CHECK BY: JSA

ARA PROJECT NUMBER
016-06-003

TYPICAL TRANSITION LENGTHS
AND
SUGGESTED MAXIMUM SPACING OF DEVICES

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent
< 30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'–75'
35		205'	225'	245'	35'	70'–90'
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45	L=WS	450'	495'	540'	45'	90'–110'
50		500'	550'	600'	50'	100'–125'
55		550'	605'	660'	55'	110'–140'
60		600'	660'	720'	60'	120'–150'
65		650'	715'	780'	65'	130'–175'

* 85th Percentile Speed may be used on roads where traffic speeds normally exceed the posted speed limit.
** Taper lengths have been rounded off.

CONSTRUCTION WARNING SIGN SPACING

Posted Speed or 85% Speed (MPH)	X Min. Distance (feet)
30 or less	120
35	160
40	240
45	320
50	400
55	500
65	750

X=SIGN SPACING
L=TAPER
2XL=TANGENT

NOTE TO CONTRACTOR:
ALL CONSTRUCTION MUST COMPLY WITH TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)

LEGEND
(TYPICAL)

- PLASTIC DRUM (see spacing for channelizing devices)
- OFF-DUTY UNIFORMED POLICE OFFICER
- TYPE III BARRICADE
- FLASHING ARROW PANEL
- TUBULAR MARKER
- CONSTRUCTION AREA

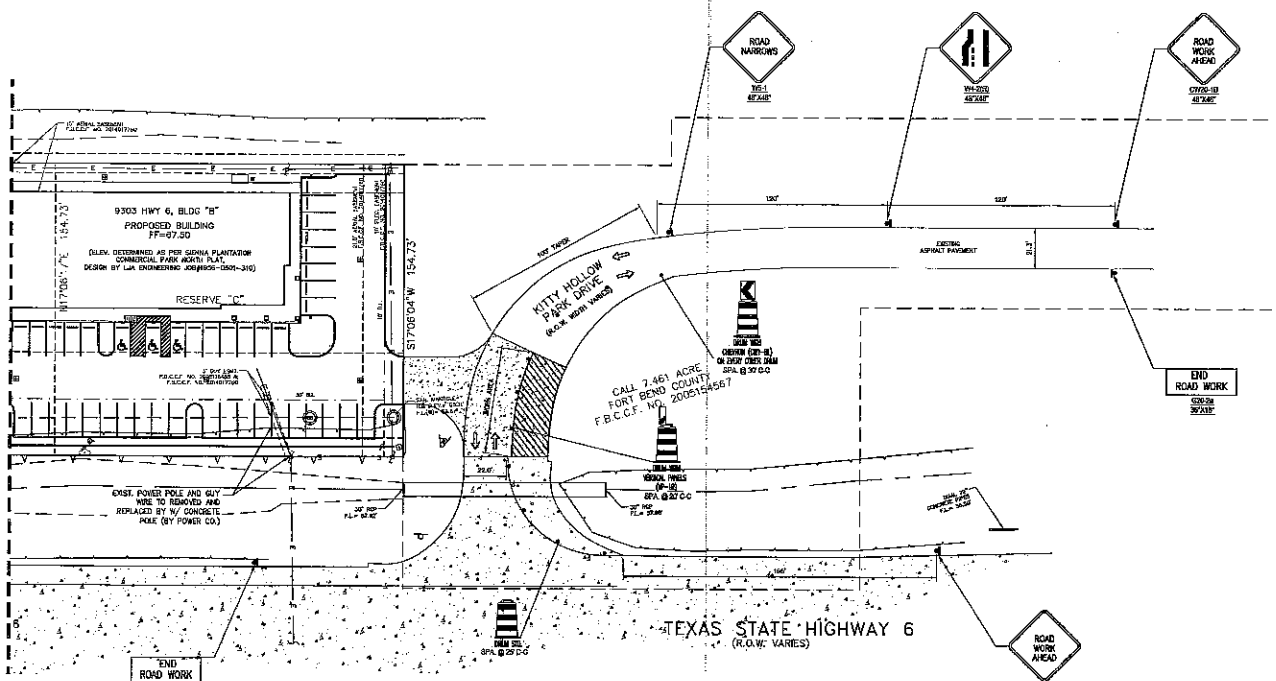
TRAFFIC NOTES

1. CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD - LATEST EDITION WITH REVISIONS) DURING CONSTRUCTION.
2. NO LANES SHALL BE BLOCKED FROM 7 A.M. TO 9 A.M. AND 4 P.M. TO 6:30 P.M. MONDAY THRU FRIDAY.
3. OFF DUTY POLICE OFFICERS/FLAGGERS ARE REQUIRED TO DIRECT TRAFFIC WHEN LANES ARE BLOCKED.
4. CONTRACTOR SHALL COVER THE EXCAVATION WITH STEEL PLATES ANCHORED PROPERLY DURING NON-WORKING HOURS AND ALLOW NORMAL TRAFFIC FLOW. IF COVERING IS NOT FEASIBLE, USE TRANTEX FR 336 EFX 36" DELINEATOR OR APPROVED EQUAL WITH SHIELDING AND BASE EXPOXIED TO PAVEMENT NEXT TO EXCAVATION DURING NON-WORKING HOURS.
5. APPROVED COPIES OF "TRAFFIC CONTROL PLANS" SHALL BE AVAILABLE FOR INSPECTION AT ALL TIMES.
6. IF THE CONTRACTOR CHOOSES TO USE A DIFFERENT METHOD OF TRAFFIC CONTROL PLAN DURING THE CONSTRUCTION THAN WHAT IS OUTLINED IN THE CONTRACT DRAWINGS, (S)HE SHALL BE RESPONSIBLE TO PREPARE AND SUBMIT ALTERNATE PLANS* TO TRAFFIC SECTION OF HCPID FOR APPROVAL TEN WORKING DAYS PRIOR TO IMPLEMENTATION.

*THESE PLANS SHALL BE DRAWN TO SCALE ON REPRODUCIBLE MYLARS AND SEALED BY A LICENSED ENGINEER IN THE STATE OF TEXAS. PLANS WILL BECOME A PART OF THE CONTRACT DRAWINGS.

7. IF THE PROJECT IS WITHIN 400 FEET FROM A SIGNALIZED INTERSECTION, THE CONTRACTOR SHALL CONTACT FORT BEND COUNTY ENGINEERING DEPARTMENT, AT 281-633-7500, (EVE (5) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.

KITTY HOLLOW PARK RD. — STREET NAME
20 MPH — SPEED LIMIT



TRAFFIC CONTROL PLAN - PHASE 2

SCALE: 1" = 30'-0"

PROPERTY DESCRIPTION:
BEING A CALL 3.864 ACRE TRACT OF LAND RECORDED AS SIENNA PLANTATION COMMERCIAL PARK NORTH SECTION 2A, PHASE TWO, UNDER PLAT NO. 2006156 F.B.C.P.R. LOCATED IN THE ELISHA ROARK SURVEY, A-77 FORT BEND COUNTY, TEXAS

FEMA NOTE:
ACCORDING TO FEMA FLOOD INSURANCE RATE MAP (FIRM) NO. 48157C0205L, MAP REVISED APRIL 2, 2014, THE SURVEYED TRACT LIES IN ZONE "X" UNSHADED, DEFINED BY FEMA AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

BENCHMARK NOTE:
BENCHMARK 1: CITY OF MISSOURI CITY (HGN#63)
-BRASS DISK SET IN CONCRETE AT THE SOUTHWESTERN CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNO ROAD APPROXIMATELY 20 FEET WEST OF A STORM INLET ON THE WEST SIDE OF SIENNA PARKWAY.
ELEVATION= 65.07' (NAVD 88, 2001 ADJ.)

BENCHMARK 2: SIENNA PARKWAY AT HIGHWAY 6 MONUMENT
-BRASS DISK SET ON THE FIRST INLET SOUTH OF STATE HIGHWAY 6 ON THE WEST SIDE OF SIENNA PARKWAY
ELEVATION= 65.81' (NAVD 88, 2001 ADJ.)

TEMPORARY BENCHMARK (TBM):
-BOX CUT IN THE SOUTHEAST CORNER OF A CONCRETE SIDEWALK WHICH LIES ON THE WEST LINE OF THE SUBJECT TRACT.
ELEVATION= 66.92'

SURVEY SYMBOLS:

- ELECTRIC BOX
- FLUSH VALVE
- GRATE INLET
- GUY ANCHOR
- LIGHT STANDARD
- MANHOLE
- OVERHEAD ELECTRIC LINE
- PIPELINE MARKER
- POWER POLE
- TEMPORARY BENCHMARK
- TRAFFIC SIGN
- TRAFFIC SIGNAL POLE
- TRAFFIC SIGNAL BOX
- WATER METER
- WATER VALVE

SURVEY LEGEND:

- B.L. = BUILDING LINE
- C.I.R. = CAPPED IRON ROD
- ESMT. = EASEMENT
- ELEC. = ELECTRICAL
- ELEV. = ELEVATION
- F.B.C.C.F. = FORT BEND COUNTY CLERK'S FILE
- F.B.C.P.R. = FORT BEND COUNTY PLAT RECORDS
- F.L. = FLOWLINE
- FND. = FOUND
- M.H. = MANHOLE
- RCP. = REINFORCED CONCRETE PIPE
- SAN. = SANITARY
- S.S.E. = SANITARY SEWER EASEMENT
- TYP. = TYPICAL
- W.L.E. = WATER LINE EASEMENT

LEGEND:
DIRECTION OF TRAFFIC

APPROVED: Development Coordinator
DATE: 6/8/17

LJA ENGINEERING
Quail Valley Business Park
1306 FM 1092, Suite 305
Missouri City, Texas 77459-1564
Tel : (713) 562-6100
TX FIRM REGISTRATION NO. F-15913

LJA SURVEYING
16935 Beckett's Oaks Ct.
Houston, Texas 77083
Tel : (281) 201-8624
Mobile: (832) 671-3409

REV/DATE	DESCRIPTION
1 12-08-16	ISSUE FOR PERMIT
1 05-04-17	REVISED PER COUNTY COMMENTS
1	
1	

PROJECT NAME:
SHOPPES AT SIENNA PLANTATION
9129 & 9303 STATE HIGHWAY 6 AT KITTY HOLLOW PARK DRIVE
MISSOURI CITY, TX 77459

STATE OF TEXAS
JOSEPH S. ARROYO
69464
LICENSED PROFESSIONAL ENGINEER
05-04-17

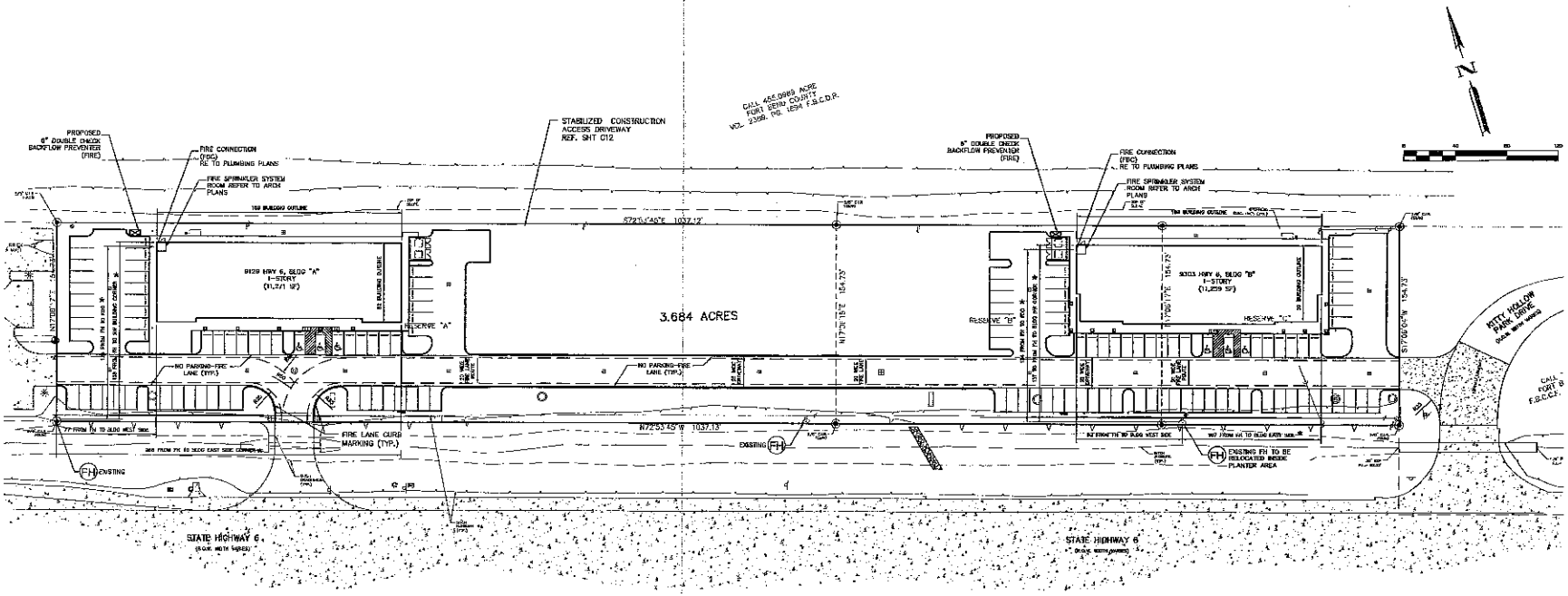
THE USE OF FINAL SIGNED AND SEAL DRAWINGS IS AUTHORIZED AND GRANTED SOLELY FOR THE PURPOSE OF THIS SPECIFIC PROJECT AND LOCATION, AND NOT FOR CONSTRUCTION OR USE FOR ANY OTHER PROJECT.

SHEET NUMBER:
C5.2

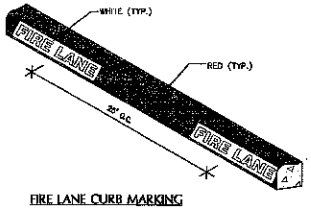
SHEET TITLE:
TCP– PHASE 2 AT KITTY HOLLOW PARK DR.

DRAWN BY: V.M.
CHECK BY: JSA

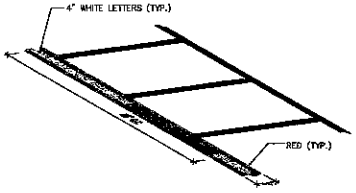
LJA PROJECT NUMBER:
016-06-003



★ NOTE:
FIRE HYDRANT DISTANCE TO FDC AND MOST REMOTE PORTION OF BUILDING: MEETS REQUIREMENTS AS PER IFC 2015, SEC. 507.



FIRE LANE CURB MARKING



NO PARKING FIRE LANE STRIPPING DETAIL

MISSOURI CITY FIRE MARSHALL NOTES:

Specifically Knox Box will be required for key box and FDC lock cap. Premises identification and key boxes, shall meet requirements as per Sec. 505 and 506 of the IFC 2015 edition.

Underground Fire Main, Fire Alarm, and Fire Sprinkler System will require separate permits and deferred plans for review and approval prior to start of any installation.

LEGEND:

- FIRE HYDRANT
- FIRE LANE ACCESS ROUTE
- FIRE LANE PAINTED LINES

CITY OF MISSOURI CITY FIRE LANE STRIPPING & ILLUSTRATION NOTES:

All required curbs marked as fire lanes shall be provided and maintained with fire lane striping that consists of a red background stripe from the roadway to the back of the curb.

Four-inch-high white letters stating "FIRE LANE NO PARKING TOW-AWAY ZONE" shall be painted upon the red stripe at 25-foot increments along the entire length of the fire lane showing the exact boundary of the fire lane.

The text painted on the surface should have about 12 inches of separation between each statement, "FIRE LANE," "NO PARKING," or "TOW-AWAY ZONE" with a 25-foot separation before repeating the statement.

For areas where space is limited, these areas shall adjust the marking to show the exact boundary of the fire lane with the approval by the Chief, Fire Marshal or an authorized representative of the Fire Department.

This design shall be utilized unless otherwise approved by the Chief, Fire Marshal or an authorized representative of the Fire Department.

MAINTENANCE:
All designated fire lanes shall be maintained and kept in a state of good repair at all times by the owner or person in control of the premises. Upon notification that the fire lane is not clearly marked, the fire lane shall be repaired or repainted to meet the city code. Failure to maintain the fire lane shall constitute a violation of the fire code.

REFERENCE: City Ordinance 0-08-72, Chapter 38 Section 503.3.1

Quail Valley Business Park
1306 FM 1092, Suite 383
Missouri City, Texas 77459-1564
Tel : (713) 562-6100

TX FIRM REGISTRATION NO. F-15913

16935 Beckons Oaks Ct.
Houston, Texas 77083
Tel : (281) 201-8624
Mobile: (832) 671-3409

REV/DATE	DESCRIPTION
1 12-08-16	ISSUE FOR PERMIT
2 06-04-17	REVISED PER COUNTY COMMENTS
3	
4	

PROJECT NAME:

SHOPPES AT SIENNA PLANTATION

9129 & 9303 STATE HIGHWAY 6 AT KITTY HOLLOW PARK DRIVE
MISSOURI CITY, TX 77459

STATE OF TEXAS
JOSEPH S. ABBOUD
69584
LICENSED PROFESSIONAL ENGINEER
06-04-17

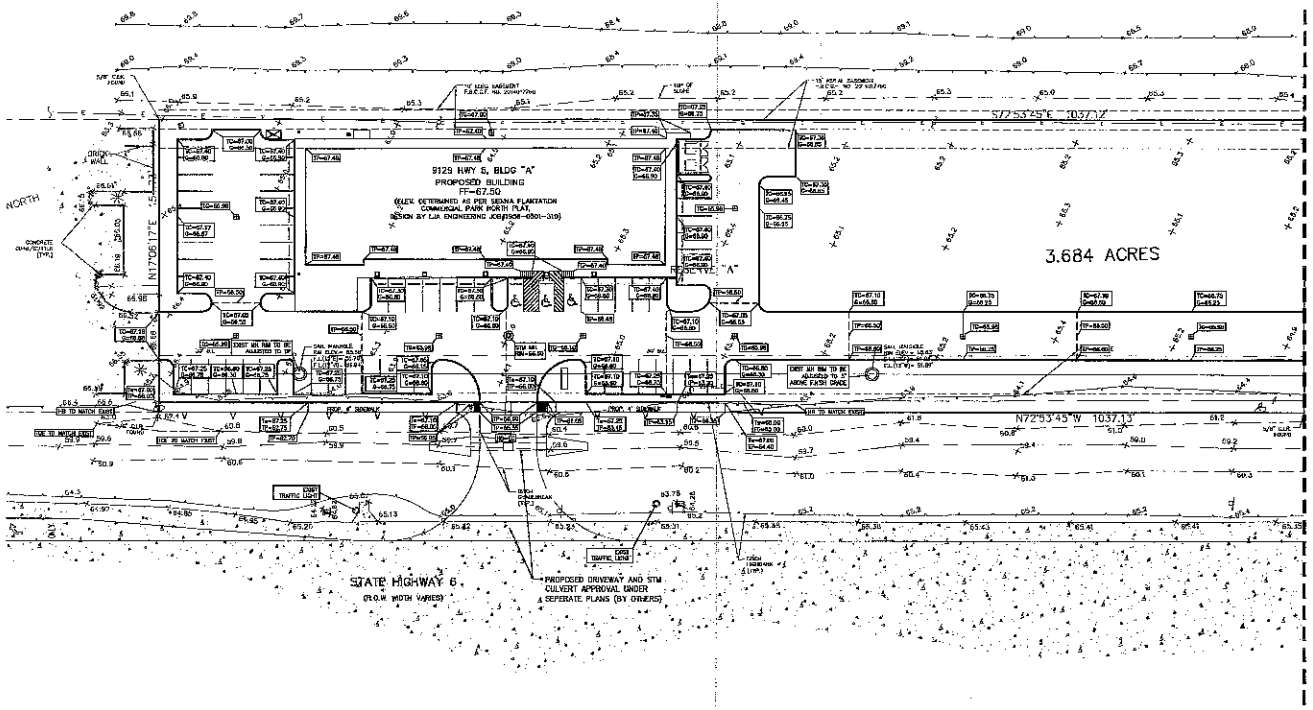
THE USE OF FINAL SIGNED AND SEAL DRAWINGS IS AUTHORIZED AND GRANTED SOLELY FOR THE PURPOSE OF THIS SPECIFIC PROJECT AND LOCATION, AND NOT FOR CONSTRUCTION OR USE FOR ANY OTHER PROJECT.

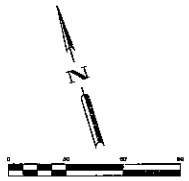
SHEET NUMBER:
C6

SHEET TITLE:
FIRE APPARATUS ACCESS PLAN

DRAWN BY: V.M.
CHECK BY: JSA

G+A PROJECT NUMBER:
016-06-003





PROPERTY DESCRIPTION:
BEING A CALL 3.684 ACRE TRACT OF LAND RECORDED AS SIENNA PLANTATION COMMERCIAL PARK NORTH SECTION 3-A, PHASE TWO, UNDER PLAT NO. 2006/158 F.B.C.P.R. LOCATED IN THE ELIJAH ROBINSON SURVEY, A-77 FORT BEND COUNTY, TEXAS.

FEMA NOTE:
ACCORDING TO FEMA FLOOD INSURANCE RATE MAP (FIRM) NO. 48157C0295L, MAP REVISED APRIL 2, 2014, THE SURVEYED TRACT LIES IN ZONE "X" UNSHADED, DEFINED BY FEMA AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

BENCHMARK NOTE:
BENCHMARK 1: CITY OF MISSOURI CITY PCM-003
-BRASS DISK SET IN CONCRETE AT THE SOUTHWESTERN CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNO ROAD APPROXIMATELY 25 FEET WEST OF A STORM INLET ON THE WEST SIDE OF SIENNA PARKWAY.
ELEVATION= 65.07' (NAVD 88, 2001 ADJ.)

BENCHMARK 2: SIENNA PARKWAY AT HIGHWAY 6 MONUMENT
-BRASS DISK SET ON THE FIRST INLET SOUTH OF STATE HIGHWAY 6 ON THE WEST SIDE OF SIENNA PARKWAY
ELEVATION= 69.81' (NAVD 88, 2001 ADJ.)

TEMPORARY BENCHMARK (TBM):
-BOX CUT IN THE SOUTHEAST CORNER OF A CONCRETE SIDEWALK WHICH LIES ON THE WEST LINE OF THE SUBJECT TRACT.
ELEVATION= 69.82

SURVEY SYMBOLS:

- = ELECTRIC BOX
- = FLUSH VALVE
- = GRATE INLET
- = GUY ANCHOR
- = LIGHT STANDARD
- = MANHOLE
- = OVERHEAD ELECTRIC LINE
- = PIPELINE MARKER
- = POWER POLE
- = TEMPORARY BENCHMARK
- = TRAFFIC SIGN
- = TRAFFIC SIGNAL POLE
- = TRAFFIC SIGNAL BOX
- = WATER METER
- = WATER VALVE

SURVEY LEGEND:

- B.L. = BUILDING LINE
- C.I.R. = CAPPED IRON ROD
- ESMT. = EASEMENT
- ELEC. = ELECTRICAL
- ELEV. = ELEVATION
- F.B.C.C.F. = FORT BEND COUNTY CLERK'S FILE
- F.B.C.P.R. = FORT BEND COUNTY PLAT RECORDS
- F.L. = FLOWLINE
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- M.H. = MANHOLE
- RCP. = REINFORCED CONCRETE PIPE
- SAN. = SANITARY
- S.S.E. = SANITARY SEWER EASEMENT
- TYP. = TYPICAL
- W.L.E. = WATER LINE EASEMENT

PROPOSED LEGEND:

- FF FINISH FLOOR
- FG FINISH GRADE
- G GUTTER
- HB HIGH BANK
- TC TOP OF CURB
- TP TOP OF PAVEMENT
- Tw TOP OF WALL
- ME MATCH EXISTING
- EG EXISTING GRADE

ONE-CALL NOTIFICATION SYSTEM
CALL BEFORE YOU DIG!!!
(713) 223-4567 (In Houston)
(New Statewide Number Outside Houston)
1-800-545-6005

NOTE: ALL BACKFILL FOR TRENCHES AND STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% OF STANDARD PROCTOR DENSITY

THE CONTRACTOR SHALL FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING PUBLIC AND PRIVATE UTILITIES THAT HAVE OR MAY HAVE ANY EFFECT ON THE PROPOSED IMPROVEMENTS BEFORE ANY WORK COMMENCES. THE LAYING OF ALL GRAVITY FLOW PIPES SHALL BEGIN AT THE OUTFALL OR CONNECTION TO THE EXISTING SYSTEM AND PROCEED UPSTREAM. IF ANY DISCREPANCY FROM THE PLANS IS FOUND, THE CONTRACTOR IS TO NOTIFY ARBOUD ENGINEERING, LLC BEFORE PROCEEDING FURTHER.

ARBOUD
Quail Valley Business Park
1306 FM 1092, Suite 303
Missouri City, Texas 77459-1564
Tel : (713) 562-6100

TX FIRM REGISTRATION NO. F-15913

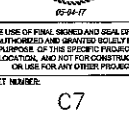
16935 Becketts Oaks Ct.
Houston, Texas 77083
Tel : (281) 301-8624
Mobile: (832) 671-3409

REV/DATE	DESCRIPTION
1 12-08-16	ISSUE FOR PERMIT
1 05-04-17	REVISED PER COUNTY COMMENTS
1	
1	

PROJECT NAME:

SHOPPES AT SIENNA PLANTATION

9129 & 9303 STATE HIGHWAY 6 AT KITTY HOLLOW PARK DRIVE
MISSOURI CITY, TX 77459



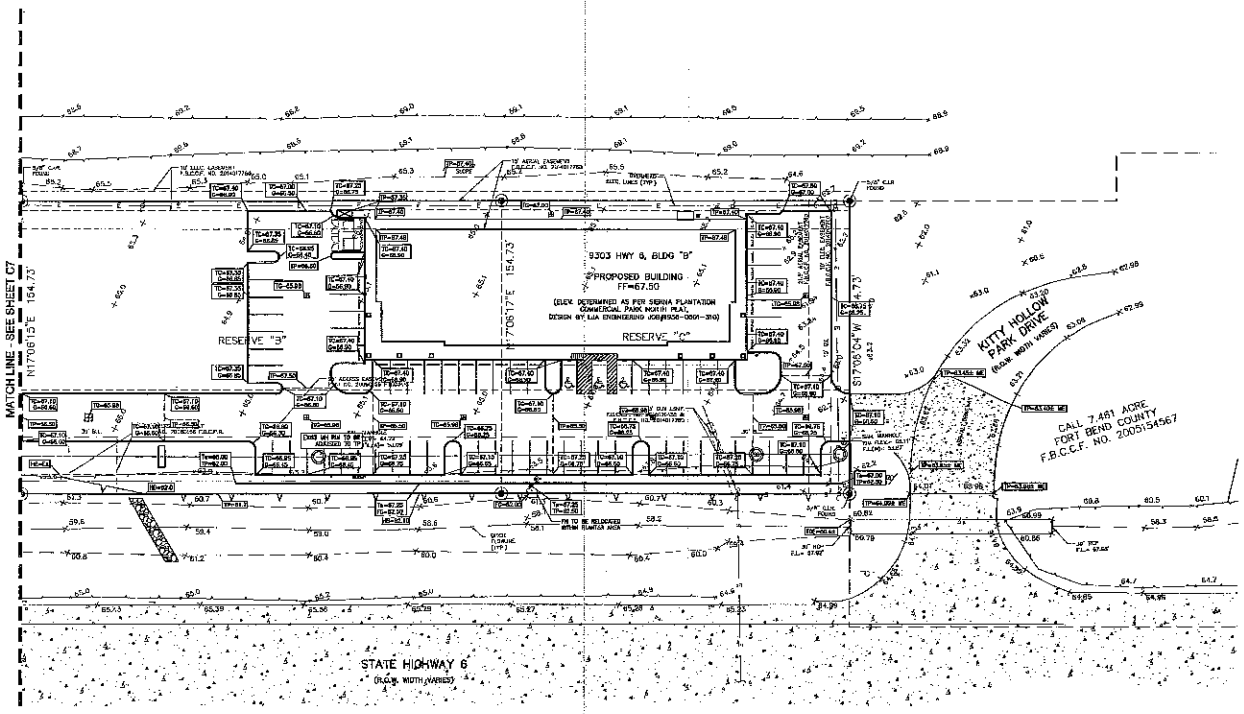
THE USE OF FINAL SIGNED AND SEAL DRAWINGS IS AUTHORIZED AND GRANTED SOLELY FOR THE PURPOSE OF THIS SPECIFIC PROJECT AND LOCATION, AND NOT FOR CONSTRUCTION OR USE FOR ANY OTHER PROJECT.

SHEET NUMBER:
C7

SHEET TITLE:
GRADING PLAN
1 OF 2

DRAWN BY: V.M.
CHECK BY: JSA

LJA PROJECT NUMBER:
016-06-003



PROPERTY DESCRIPTION:
BEING A CALL 3.594 ACRE TRACT OF LAND RECORDED AS SIENNA PLANTATION COMMERCIAL PARK NORTH SECTION 3-A, PHASE TWO, UNDER PLAT NO. 2006[illegible] F.B.C.P.R. LOCATED IN THE ELIJAH ROBINS SURVEY, A-77 FORT BEND COUNTY, TEXAS

FEMA NOTE:
ACCORDING TO FEMA FLOOD INSURANCE RATE MAP (FIRM) NO. 48157C0295L, MAP REVISED APRIL 2, 2014, THE SURVEYED TRACT LIES IN ZONE "X" (UNSHADED) DEFINED BY FEMA AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

BENCHMARK NOTE:
BENCHMARK 1: CITY OF MISSOURI CITY PCM-003
-BRASS DISK SET IN CONCRETE AT THE SOUTHWESTERN CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRANQUIL-FRESNO ROAD APPROXIMATELY 29 FEET WEST OF A STORM INLET ON THE WEST SIDE OF SIENNA PARKWAY.
ELEVATION= 69.07' (NAVD 88, 2001 ADJ.)

BENCHMARK 2: SIENNA PARKWAY AT HIGHWAY 6 MONUMENT
-BRASS DISK SET ON THE FIRST INLET SOUTH OF STATE HIGHWAY 6 ON THE WEST SIDE OF SIENNA PARKWAY
ELEVATION= 65.81' (NAVD 88, 2001 ADJ.)

TEMPORARY BENCHMARK (TBM):
-BOX CUT IN THE SOUTHEAST CORNER OF A CONCRETE SIDEWALK WHICH LIES ON THE WEST LINE OF THE SUBJECT TRACT.
ELEVATION= 66.52'

SURVEY SYMBOLS:

- ELECTRIC BOX
- FLUSH VALVE
- GRATE INLET
- GUY ANCHOR
- LIGHT STANDARD
- MANHOLE
- OVERHEAD ELECTRIC LINE
- PIPELINE MARKER
- POWER POLE
- TEMPORARY BENCHMARK
- TRAFFIC SIGN
- TRAFFIC SIGNAL POLE
- TRAFFIC SIGNAL BOX
- WATER METER
- WATER VALVE

SURVEY LEGEND:

B.L.	= BUILDING LINE
C.I.R.	= CAPPED IRON ROD
EASMT.	= EASEMENT
ELEC.	= ELECTRICAL
ELEV.	= ELEVATION
F.B.C.C.F.	= FORT BEND COUNTY CLERK'S FILE
F.B.C.P.R.	= FORT BEND COUNTY PLAT RECORDS
F.L.	= FLOWLINE
FND.	= FOUND
M.H.	= MANHOLE
RCP.	= REINFORCED CONCRETE PIPE
SAN.	= SANITARY
S.S.E.	= SANITARY SEWER EASEMENT
TYP.	= TYPICAL
W.L.E.	= WATER LINE EASEMENT

PROPOSED LEGEND:

FF	FINISH FLOOR
FG	FINISH GRADE
G	GUTTER
HB	HIGH BANK
TC	TOP OF CURB
TP	TOP OF PAVEMENT
Tw	TOP OF WALL
ME	MATCH EXISTING
EG	EXISTING GRADE

ONE-CALL NOTIFICATION SYSTEM
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(Non Statewide Number Outside Houston)
1-800-545-6005

NOTE: ALL BACKFILL FOR TRENCHES AND STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% OF STANDARD PROCTOR DENSITY

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APPROVED: [signature]
Developer/Coordinator
DATE: 5/8/17

ABBOUD ENGINEERING
Quail Valley Business Park
1306 FM 1092, Suite 303
Missouri City, Texas 77459-1564
Tel : (713) 562-6100
TX FIRM REGISTRATION NO. F-15913

16935 Beckett's Oaks Ct.
Houston, Texas 77083
Tel : (281) 201-8624
Mobile: (832) 673-3409

REV/DATE	DESCRIPTION
1 12-08-16	ISSUE FOR PERMIT
2 05-04-17	REVISED PER COUNTY COMMENTS
3	
4	

PROJECT NAME:

SHOPPES AT SIENNA PLANTATION

9129 & 9303 STATE HIGHWAY 6 AT KITTY HOLLOW PARK DRIVE
MISSOURI CITY, TX 77459

STATE OF TEXAS
JOSEPH E. ABBOUD
68804
LICENSED
PROFESSIONAL ENGINEER
05-04-17

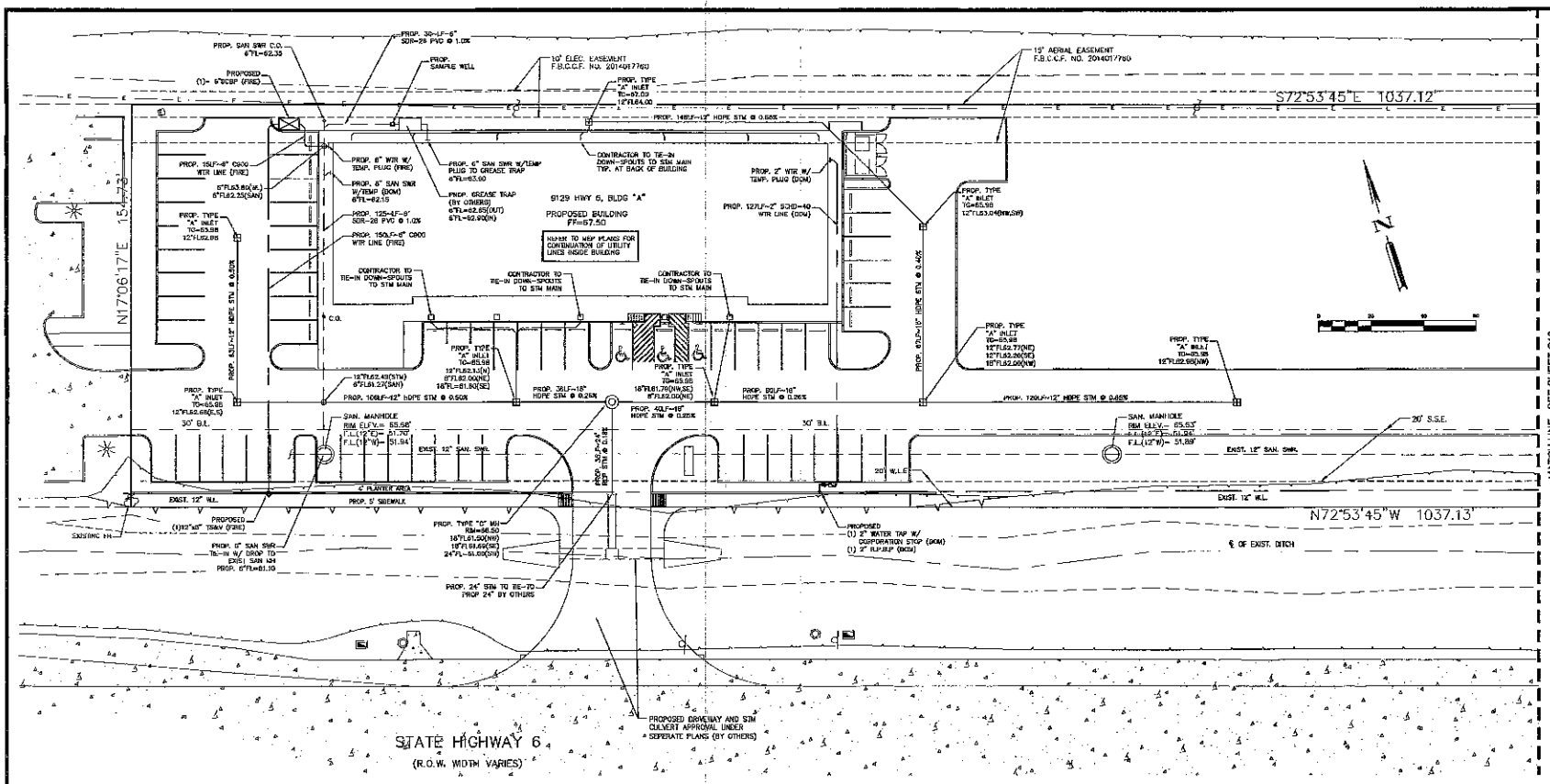
THE USE OF FINAL SIGNED AND SEAL DRAWINGS IS AUTHORIZED AND GRANTED SOLELY FOR THE PURPOSE OF THE SPECIFIC PROJECT AND LOCATION, AND NOT FOR CONSTRUCTION OR USE FOR ANY OTHER PROJECT.

SHEET NUMBER:
C8

SHEET TITLE:
GRADING PLAN
2 OF 2

DRAWN BY: V.M.
CHECK BY: JSA

G+A PROJECT NUMBER:
016-08-003



UTILITY NOTES:

THE CONNECTION TO ANY EXISTING PUBLIC WATERLINE SHALL BE MADE BY THE MUD OPERATOR (SI ENVIRONMENTAL) IN ACCORDANCE WITH THE RATE ORDER AND SHALL BE AT THE CUSTOMER'S EXPENSE.

ANY ADJUSTMENTS TO THE DISTRICS FACILITIES SHALL BE MADE BY THE DISTRICTS OPERATOR AND AT THE CUSTOMER'S EXPENSE.

THE DISTRICTS OPERATOR SHALL INSPECT AND APPROVE ALL CONNECTIONS TO THE DISTRICTS FACILITIES.

PROPERTY DESCRIPTION:
BEING A CALL 3.984 ACRE TRACT OF LAND RECORDED AS SIENNA PLANTATION COMMERCIAL PARK NORTH SECTION 3-A, PARCEL TWO, UNDER PLAT NO. 2006155 F.B.C.P.R. LOCATED IN THE ELIJAH ROARK SURVEY, A-77 FORT BEND COUNTY, TEXAS

FEMA NOTE:
ACCORDING TO FEMA FLOOD INSURANCE RATE MAP (FIRM) NO. 48157C0085L, MAP REVISED APRIL 2, 2014, THE SURVEYED TRACT LIES IN ZONE "X" UNSHADED, DEFINED BY FEMA AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

BENCHMARKS NOTE:
BENCHMARK 1: CITY OF MISSOURI CITY PCM-008
-BRASS DISK SET IN CONCRETE AT THE SOUTHWESTERN CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNO ROAD APPROXIMATELY 36 FEET WEST OF A STORM INLET ON THE WEST SIDE OF SIENNA PARKWAY.
ELEVATION= 66.07' (NAVD 88, 2001 ADJ.)

BENCHMARK 2: SIENNA PARKWAY AT HIGHWAY 6 MONUMENT
-BRASS DISK SET ON THE FIRST INLET SOUTH OF STATE HIGHWAY 6 ON THE WEST SIDE OF SIENNA PARKWAY
ELEVATION= 65.97' (NAVD 88, 2001 ADJ.)

TEMPORARY BENCHMARK (TBM):
-BOX CUT IN THE SOUTHEAST CORNER OF A CONCRETE SIDEWALK WHICH LIES ON THE WEST LINE OF THE SUBJECT TRACT.
ELEVATION= 66.92'

SURVEY SYMBOLS:

- ELECTRIC BOX
- FLUSH VALVE
- GRATE INLET
- GUY ANCHOR
- LIGHT STANDARD
- MANHOLE
- OVERHEAD ELECTRIC LINE
- PIPELINE MARKER
- POWER POLE
- TEMPORARY BENCHMARK
- TRAFFIC SIGN
- TRAFFIC SIGNAL POLE
- TRAFFIC SIGNAL BOX
- WATER METER
- WATER VALVE

SURVEY LEGEND:

- B.L. = BUILDING LINE
- C.I.R. = CAPPED IRON ROD
- EASMT. = EASEMENT
- ELEC. = ELECTRICAL
- ELEV. = ELEVATION
- F.B.C.O.P. = FORT BEND COUNTY CLERK'S FILE
- F.B.C.P.R. = FORT BEND COUNTY PLAT RECORDS
- F.L. = FLOWLINE
- FND. = FOUND
- M.H. = MANHOLE
- RCP. = REINFORCED CONCRETE PIPE
- SAN. = SANITARY
- S.S.E. = SANITARY SEWER EASEMENT
- TYP. = TYPICAL
- W.L.E. = WATER LINE EASEMENT

PROPOSED LEGEND:

- WATER LINE
- SANITARY SEWER LINE
- SANITARY SEWER MANHOLE
- SANITARY SEWER CLEAN OUT
- BACKFLOW PREVENTOR
- WATER METER
- WATER LINE VALVE
- WATER LINE TEE CONNECTION
- WATER LINE ELBOW CONNECTION
- UTILITY LINE PLUG

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ABBOUD ENGINEERING, LLC
Quail Valley Business Park
1306 FM 1092, Suite 303
Missouri City, Texas 77459-1564
Tel : (713) 562-6100

TX FIRM REGISTRATION NO. F-13913

16935 Becketts Oaks Ct.
Houston, Texas 77083
Tel : (281) 201-8624
Mobile: (832) 671-3409

REV/DATE	DESCRIPTION
1 12-05-16	ISSUE FOR PERMIT
1 05-04-17	REVISED PER COUNTY COMMENTS
1	
1	

PROJECT NAME:

SHOPPES AT SIENNA PLANTATION

9129 & 9303 STATE HIGHWAY 6 AT KITTY HOLLOW PARK DRIVE
MISSOURI CITY, TX 77459

JOSEPH S. ABBOUD
69694
05-04-17

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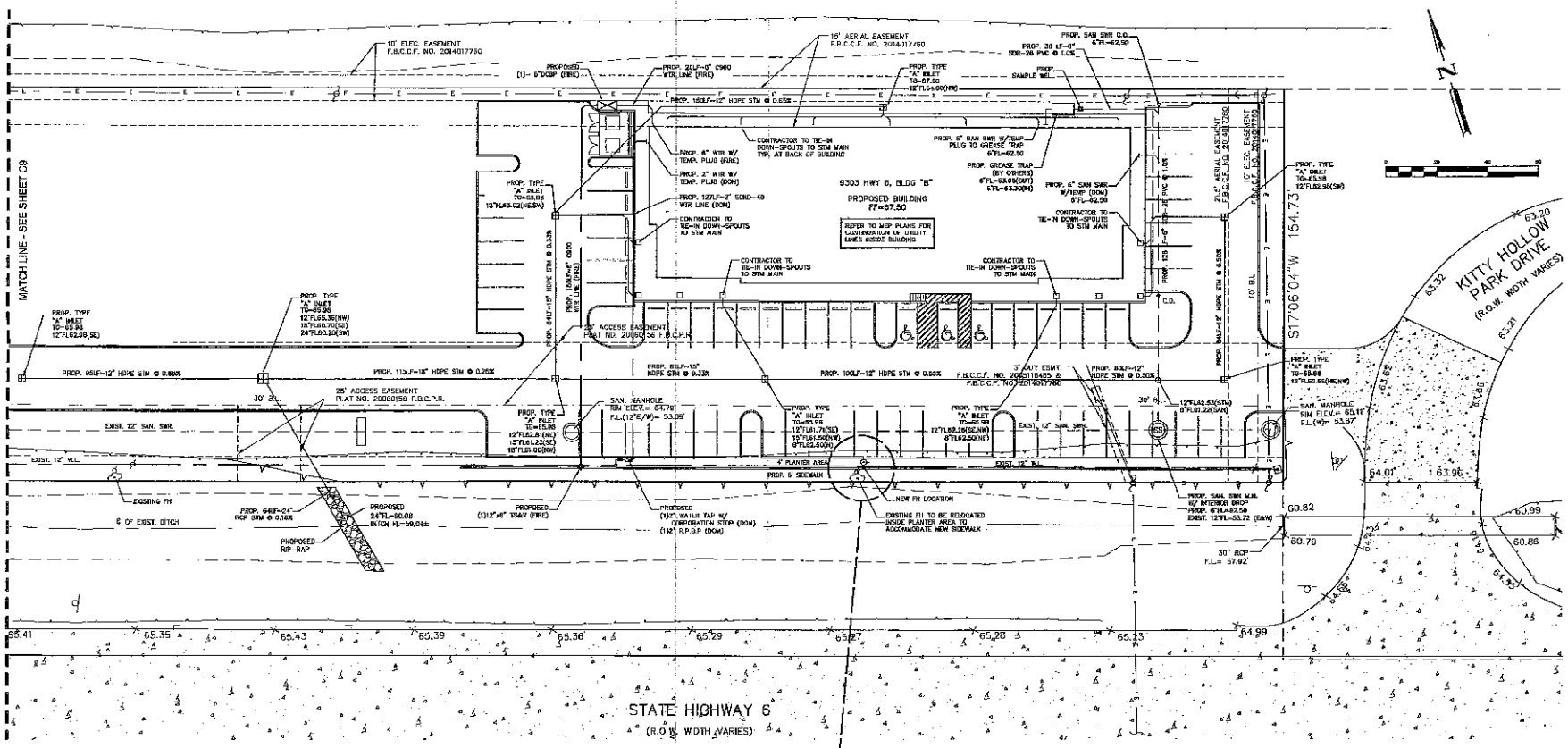
SHEET NUMBER: C9

SHEET TITLE: UTILITY PLAN 1 OF 2

DRAWN BY: V.M. | CHECK BY: JSA

G+A PROJECT NUMBER: 016-06-003



PROPERTY DESCRIPTION:
BEING A CALL 3.664 ACRE TRACT OF LAND RECORDED AS SIENNA PLANTATION COMMERCIAL PARK NORTH SECTION 8-A, PHASE TWO, UNDER PLAT NO. 20060156 F.B.C.P.R. LOCATED IN THE ELIJAH ROARK SURVEY, A-77 FORT BEND COUNTY, TEXAS

FEMA NOTE:
ACCORDING TO FEMA FLOOD INSURANCE RATE MAP (FIRM) NO. 48157C0295L, MAP REVISED APRIL 2, 2014, THE SURVEYED TRACT LIES IN ZONE "X" UNSHADED, DEFINED BY FEMA AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

BENCHMARK NOTE:
BENCHMARK 1: CITY OF MISSOURI CITY FCM-005
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ELEVATION= 66.07' (NAVD 88, 2001 ADJ.)

BENCHMARK 2: SIENNA PARKWAY AT HIGHWAY 6 MONUMENT
-BRASS DISK SET ON THE FIRST INLET SOUTH OF STATE HIGHWAY 6 ON THE WEST SIDE OF SIENNA PARKWAY
ELEVATION= 65.81' (NAVD 88, 2001 ADJ.)

TEMPORARY BENCHMARK (TBM):
-BOX CUT IN THE SOUTHEAST CORNER OF A CONCRETE SIDEWALK WHICH LIES ON THE WEST LINE OF THE SUBJECT TRACT.
ELEVATION= 59.92'

SURVEY SYMBOLS:

- = ELECTRIC BOX
- = FLUSH VALVE
- = GRATE INLET
- = GUY ANCHOR
- = LIGHT STANDARD
- = MANHOLE
- = OVERHEAD ELECTRIC LINE
- = PIPELINE MARKER
- = POWER POLE
- = TEMPORARY BENCHMARK
- = TRAFFIC SIGN
- = TRAFFIC SIGNAL POLE
- = TRAFFIC SIGNAL BOX
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ELEV. = ELEVATION
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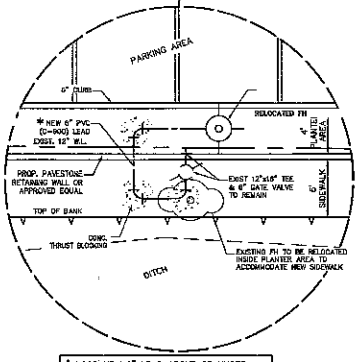

* LOOP NEW 6" LEAD ABOVE OR UNDER EXISTING 12" W.L. DEPENDING ON COVER REQUIREMENT ON NEW F.H. LEAD PIPE

PROPOSED LEGEND:

- WATER LINE
- SANITARY SEWER LINE
- SANITARY SEWER MANHOLE
- C.O. SANITARY SEWER CLEAN OUT
- BACKFLOW PREVENTOR
- WATER METER
- WATER LINE VALVE
- WATER LINE TEE CONNECTION
- WATER LINE ELBOW CONNECTION
- UTILITY LINE PLUG

UTILITY NOTES:

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REV/DATE	DESCRIPTION
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PROJECT NAME:

SHOPPES AT SIENNA PLANTATION

9129 & 9303 STATE HIGHWAY 6 AT KITTY HOLLOW PARK DRIVE
MISSOURI CITY, TX 77459

JOSEPH S. ABBOUD
05-04-17

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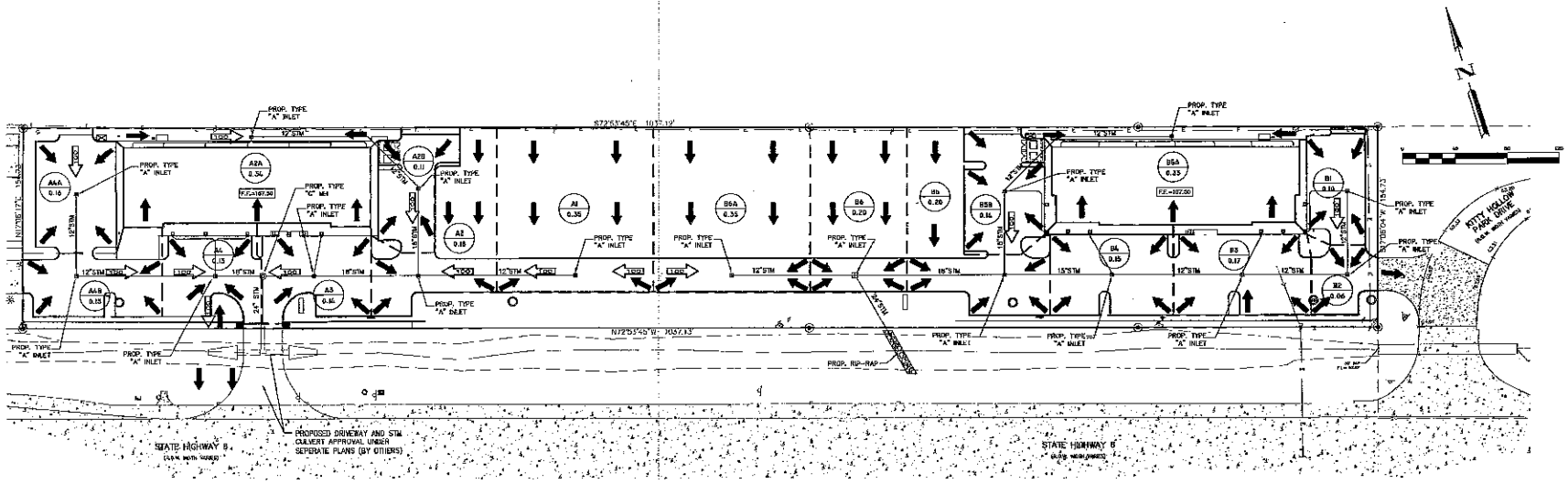
SHEET NUMBER: C10

SHEET TITLE: UTILITY PLAN 2 OF 2

DRAWN BY: V.M. | CHECK BY: JSA

G+A PROJECT NUMBER: 016-06-003



L.J.A. Engineering, Inc.

2929 Briarpark Drive, Suite 400
Houston, Texas 77063
Phone: (713) 953-5200
Fax: (713) 953-5026
www.ljaengineering.com
Houston • Austin • Dallas

Memorandum

To: Milad Ali, P.E. – TxDOT Houston Hydraulics

From: David Zuniga, P.E., CFM – LJA Engineering, Inc.

Date: July 28, 2016

Re: Drainage Analysis for the Shoppes at Sienna Plantation Ph. 2
LJA Job No. 1859-1801

The purpose of this memorandum is to summarize the culvert and ditch analysis for the Shoppes at Sienna Plantation Phase 2 to show there is capacity in the existing SH 6 ditch system to accommodate the developed flows.

The existing drainage areas were utilized from the State Highway 6 record drawing provided by TxDOT dated 2001.

The Shoppes at Sienna Plantation are 5.97 acres of the total 17 acres within drainage area 8A and 8A from the TxDOT drainage area map attached. For the purpose of this analysis, all flow is assumed to flow towards the east through the Kitty Hollow driveway culverts and Outlet 8 for the total 17 acre drainage area. Based on Manning's Equation, the SH 6 roadside ditch has the capacity to convey 447 cfs with one foot of freeboard. Developed 100-year flow from drainage areas 8A and 8A combined are 272 cfs. This 272 cfs includes an additional 134 cfs coming from offsite through the system in addition to the 143 cfs from the drainage area. This 100-year flow was routed through the existing double 6'x6' RBC under SH 6. The culvert analysis was completed using the HY-8 culvert analysis program. The culvert analysis shows the flows do not overtop SH 6 for the 100-year event. The output is attached for your review.

The 100-year event from the 5.97 acre The Shoppes at Sienna Plantation creates 52.5 cfs. This flow value will travel through the double 30" RCP's at Kitty Hollow driveway. HY-8 was used to analyze the culverts and shows the driveway is not overtopped for the 100-year event. The output is attached for your review.

Flow calculation, drainage area map and culvert output information is attached for your review. Based on this analysis, the SH 6 roadside ditch, the double 6'x6' RBC under SH 6 and the double 30" RCP under Kitty Hollow driveway have capacity for the 100-year event.

PROJECT:	SIENNA PLANTATION
JOB #:	16-06-003
Governing Agency:	Fort Bend
BY:	V.M. DATE:
CHK. BY:	JSA DATE:
Last Revised:	07/28/2016

Equations:

Intensity = b/((d+TC)^e)

b = 62
d = 7.9
e = 0.71

T.C. = (10*A^.1781)+Tc Minimum
To min. 15 Min.

Area (name)	INLET/STM MH FROM	INLET/STM MH TO	Drainage Area	Total Area (acres)	Time Con. (min)	Run off Coefficient	Sum of C*A	Intensity I in in/hr.	Runoff Q in c.f.s.	Mannings "n"	length (ft.)	# of pipe (qty)	Dia. Of Pipe (D) (in.)	Grade % ft / 100 ft	Design Velocity (fps)	Design Capacity (cfs)
A	A1	A2	0.35	0.35	15.00	0.80	0.28	9.98	2.79	0.013	120	1	12	0.65	3.66	2.87
A	A2	A3	0.18	0.53	15.55	0.80	0.42	9.80	4.15	0.013	80	1	15	0.26	3.03	5.36
A	A3	A4	0.14	0.67	15.89	0.80	0.54	9.67	5.19	0.013	75	1	15	0.26	3.03	5.36
A	A4	OUT	0.13	0.80	16.40	0.80	0.64	9.55	6.11	0.013	68	1	24	0.10	3.06	9.60
A	A2A	A2B	0.34	0.34	15.00	0.80	0.27	9.98	2.71	0.013	148	1	12	0.65	3.66	2.87
A	A2B	A2	0.11	0.45	15.67	0.80	0.36	9.76	3.51	0.013	67	1	15	0.40	3.33	4.09
A	A4A	A4B	0.16	0.16	15.00	0.80	0.13	9.98	1.28	0.013	83	1	12	0.50	3.21	2.52
A	A4B	A4B	0.23	0.29	15.33	0.80	0.23	9.86	2.29	0.013	106	1	12	0.00	3.21	2.52
B	B1	B2	0.10	0.10	15.00	0.80	0.08	9.98	0.80	0.013	64	1	12	0.50	3.21	2.52
B	B2	B3	0.06	0.16	15.33	0.80	0.13	9.86	1.28	0.013	80	1	12	0.50	3.21	2.52
B	B3	B4	0.17	0.33	15.73	0.80	0.26	9.74	2.57	0.013	100	1	12	0.50	3.36	2.64
B	B4	B5	0.15	0.48	16.24	0.80	0.38	9.59	3.68	0.013	82	1	15	0.33	3.02	3.71
B	B5	B6	0.20	0.68	16.70	0.80	0.54	9.47	5.15	0.013	115	1	18	0.26	3.03	6.36
B	B6	OUT	0.20	0.88	17.33	0.80	0.70	9.30	6.55	0.013	64	1	24	0.10	3.06	9.60
B	B5A	B5B	0.33	0.33	15.00	0.80	0.26	9.98	2.63	0.013	150	1	12	0.65	3.36	2.64
B	B5B	B6	0.14	0.47	15.74	0.80	0.38	9.74	3.68	0.013	64	1	15	0.33	3.02	3.71
B	B6A	B6	0.35	0.35	15.00	0.80	0.28	9.98	2.79	0.013	98	1	12	0.65	3.66	2.87

STORM DRAINAGE DETENTION NOTE:
PER TxDOT FEDERAL PROJECT No. HP 1431 DATED 4-29-99 AND A MEMORANDUM BY LJA CONSULTING ENGINEERS DATED 07-29-15 THE SUBJECT TRACT REQUIRES NO DETENTION.

PROPERTY DESCRIPTION:
BEING A CALL 3.984 ACRE TRACT OF LAND RECORDED AS SIENNA PLANTATION COMMERCIAL PARK NORTH SECTION 3-A, PHASE TWO, UNDER PLAT NO. 2000195 F.B.C.P.R. LOCATED IN THE ELIJAH ROARK SURVEY, A-77 FORT BEND COUNTY, TEXAS.

FEMA NOTE:
ACCORDING TO FEMA FLOOD INSURANCE RATE MAP (FIRM) NO. 48157C0230L, MAP REVISED APRIL 2, 2014, THE SURVEYED TRACT LIES IN ZONE "X" UNSHADED, DEFINED BY FEMA AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

BENCHMARK NOTE:
BENCHMARK 1: CITY OF MISSOURI CITY PCM-103
-BRASS DISK SET IN CONCRETE AT THE SOUTHWESTERN CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNO ROAD APPROXIMATELY 25 FEET WEST OF A STORM INLET ON THE WEST SIDE OF SIENNA PARKWAY.
ELEVATION= 68.97' (NAVD 88, 2001 ADJ.)

BENCHMARK 2: SIENNA PARKWAY AT HIGHWAY 6 MONUMENT
-BRASS DISK SET ON THE FIRST INLET SOUTH OF STATE HIGHWAY 6 ON THE WEST SIDE OF SIENNA PARKWAY
ELEVATION= 68.81' (NAVD 88, 2001 ADJ.)

1 TEMPORARY BENCHMARK (TEMP):
-BOX CUT IN THE SOUTHEAST CORNER OF A CONCRETE SIDEWALK WHICH LIES ON THE WEST LINE OF THE SUBJECT TRACT.
ELEVATION= 68.82

LEGEND :

- 100 YR. SHEET FLOW
- 2 YR. SHEET FLOW
- PROPOSED DRAINAGE AREA DIVIDE
- AREA # / AREA (Ac.)

ABROOD
Quail Valley Business Park
1306 FM 1092, Suite 303
Missouri City, Texas 77459-1564
Tel : (713) 562-6100
TX FIRM REGISTRATION NO. F-15913

16935 Beckett's Oaks Ct.
Houston, Texas 77083
Tel : (281) 201-8624
Mobile: (832) 671-3409

REV/DATE	DESCRIPTION
1 12-08-16	ISSUE FOR PERMIT
2 05-04-17	REVISED PER COUNTY COMMENTS
3	
4	

PROJECT NAME:

SHOPPES AT SIENNA PLANTATION

9129 & 9303 STATE HIGHWAY 6 AT KITTY HOLLOW PARK DRIVE
MISSOURI CITY, TX 77459

JOSEPH S. ABROOD
05-04-17

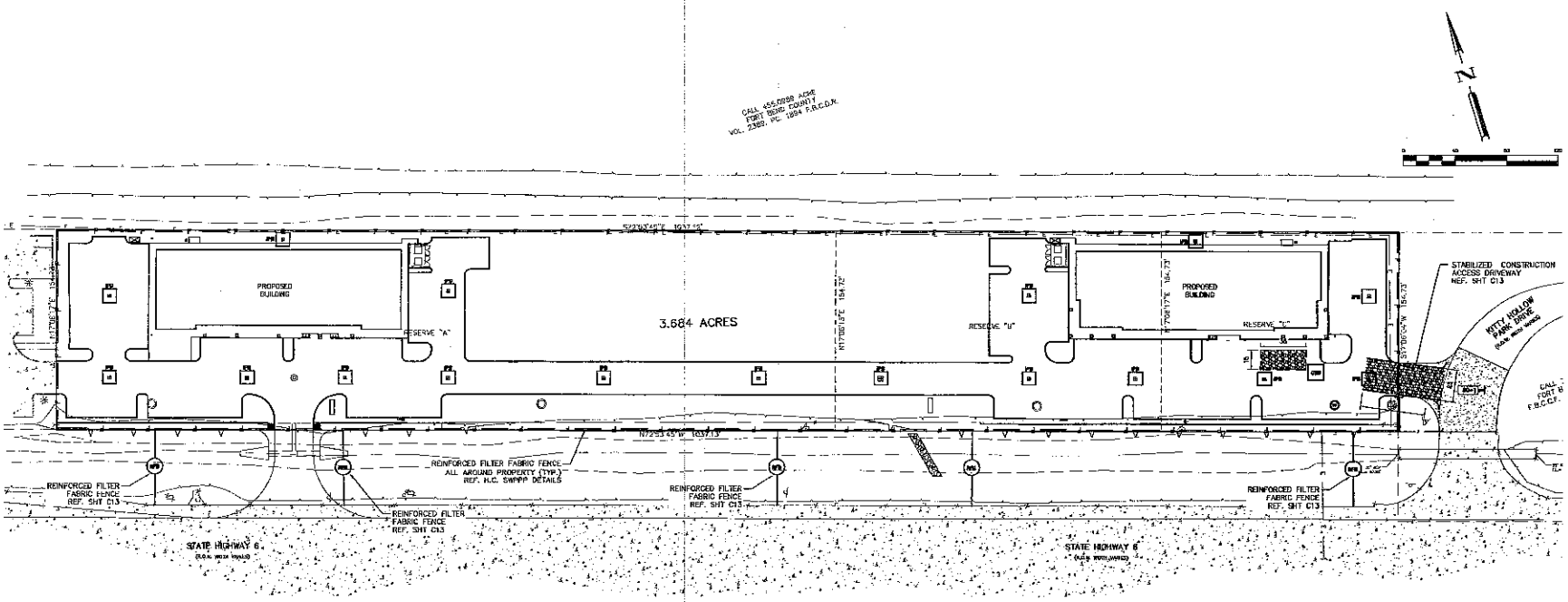
THE USE OF FINAL SIGNED AND SEAL DRAWINGS IS AUTHORIZED AND GRANTED SOLELY FOR THE PURPOSE OF THIS SPECIFIC PROJECT AND LOCATION, AND NOT FOR CONSTRUCTION OR USE FOR ANY OTHER PROJECT.

SHEET NUMBER: C11

SHEET TITLE: DRAINAGE AREA PLAN

DRAWN BY: V.M. | CHECK BY: JSA

O&A PROJECT NUMBER: 016-06-003



LEGEND :

- SILT FENCE
- PROTECT INLET (REF: C-10)
- CONCRETE TRUCK WASHOUT AREA
- REINFORCE FILTER BARRIER
- STABILIZED CONSTRUCTION ACCESS
- CONCRETE TRUCK WASH-OUT AREA
- INLET PROTECTION BARRIER

PROPERTY DESCRIPTION:
BEING A CALL 3.684 ACRE TRACT OF LAND RECORDED AS SIENNA PLANTATION COMMERCIAL PARK NORTH SECTION 2-A, PHASE TWO, UNDER PLAT NO. 2009168 F.B.C.P.R. LOCATED IN THE ELIJAH ROARK SURVEY, A-77 FORT BEND COUNTY, TEXAS

FEMA NOTE:
ACCORDING TO FEMA FLOOD INSURANCE RATE MAP (FIRM) NO. 48157C0225L, MAP REVISED APRIL 2, 2014, THE SURVEYED TRACT LIES IN ZONE "X" UNSHADED, DEFINED BY FEMA AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

BENCHMARK NOTE:
BENCHMARK 1: CITY OF MISSOURI CITY PCM-003
-BRASS DISK SET IN CONCRETE AT THE SOUTHWESTERN CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNO ROAD APPROXIMATELY 29 FEET WEST OF A STORM INLET ON THE WEST SIDE OF SIENNA PARKWAY.
ELEVATION= 68.07' (NAVD 88, 2001 ADJ.)

BENCHMARK 2: SIENNA PARKWAY AT HIGHWAY 6 MONUMENT
-BRASS DISK SET ON THE FIRST INLET SOUTH OF STATE HIGHWAY 6 ON THE WEST SIDE OF SIENNA PARKWAY
ELEVATION= 66.81' (NAVD 88, 2001 ADJ.)

TEMPORARY BENCHMARK (TBM):
-BOX CUT IN THE SOUTHEAST CORNER OF A CONCRETE SIDEWALK WHICH LIES ON THE WEST LINE OF THE SUBJECT TRACT.
ELEVATION= 68.92

APPROVED: _____ Development Coordinator
DATE: 5/8/17

ARKITECTS
Quail Valley Business Park
1306 FM 1092, Suite 303
Missouri City, Texas 77459-1564
Tel : (713) 562-6100
TX FIRM REGISTRATION NO. F-15913

16935 Becketts Oaks Ct.
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Tel : (281) 201-8624
Mobile: (832) 671-3409

REV/DATE	DESCRIPTION
1 12-08-16	ISSUE FOR PERMIT
2 05-04-17	REVISED PER COUNTY COMMENTS
3	
4	

PROJECT NAME:

SHOPPES AT SIENNA PLANTATION

9129 & 9303 STATE HIGHWAY 6 AT KITTY HOLLOW PARK DRIVE
MISSOURI CITY, TX 77459

STATE OF TEXAS
JOSHUA ABIODUN
GBIDAM
LICENSED
05-04-17

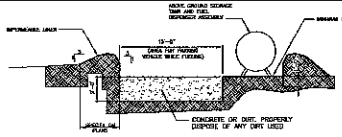
THE USE OF FINAL SIGNED AND SEAL DRAWINGS IS AUTHORIZED AND GRANTED SOLELY FOR THE PURPOSE OF THIS SPECIFIC PROJECT AND LOCATION, AND NOT FOR CONSTRUCTION OR USE FOR ANY OTHER PROJECT.

SHEET NUMBER:
C12

SHEET TITLE:
STORM WATER POLLUTION PREVENTION PLAN

DRAWN BY: V.M.
CHECK BY: JSA

O+A PROJECT NUMBER:
016-06-003



GENERAL NOTES:

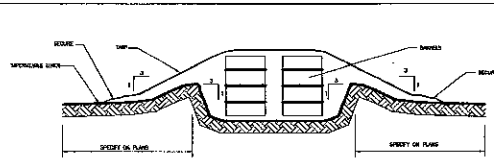
1. THE TOP OF THE FOUNDATION AREA DEPENDS ON THE SIZE OF ABOVE GROUND STORAGE TANK AND DISPENSER EQUIPMENT.
2. PROVIDE A MINIMUM OF 1 FOOT CLEARANCE TO THE EDGE OF THE CONTENTS (DIRB).
4. PROVIDE A MINIMUM SLOPE OF 1 % BEHIND THE WALL.
5. INSTALL APPROVABLE LINER AS PER MANUFACTURER'S RECOMMENDATIONS.

DO NOT PLACE TANK OR SHED DIRECTLY ON LINER.

TFA

SYMBOL

ABOVE GROUND TEMP. VEHICLE & EQUIPMENT FUELING AREA WITH TANK



GENERAL NOTES:

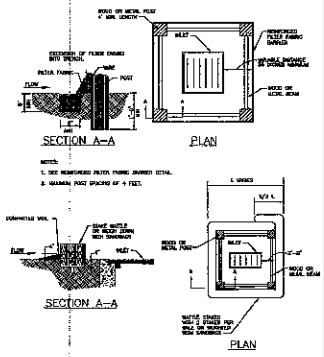
1. ALTERNATIVELY, STORE BARRELS IN AN ENCLOSED BUILDING OR SHED.
2. INSTALL APPROVABLE LINER AS PER MANUFACTURER'S RECOMMENDATIONS. 10mm MINIMUM.

SUMPHRAFT DESIGNED AREA WITH VOLUME GREATER THAN OR EQUAL 20 TIMES VOLUME OF BARRELS

BSA

SYMBOL

BARREL STORAGE AREA



NOTE:
TYPICALLY STORM SEWER INLETS ARE NOT RECOMMENDED FOR EARLY PROTECTION BARRIERS.

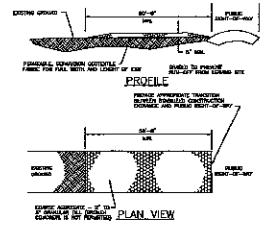
IPB

SYMBOL

SECTION A–A

PLAN

INLET PROTECTION BARRIERS FOR STAGE I INLETS



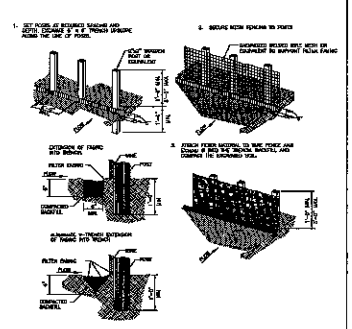
PROFILE

PLAN VIEW

GENERAL NOTES:

1. MINIMUM LENGTH IS AN ANNUAL ON CONSTRUCTION DRAWINGS OR 50 FEET, WHICHEVER IS MORE.
2. CONSTRUCT AND MAINTAIN CONSTRUCTION EXIT WITH TURNAWAY WIDTH ACROSS ITS WIDTH, INCLUDING ALL POINTS OF ACCESS, OR EXPOSE.
3. MAJOR CUTTING OR FILL CONSTRUCTION DRAINAGE, CONSTRUCTION EXIT, OTHER AREAS WILL MAKE THE SAME AVAILABLE THROUGH AND MORE TRANSPORTS IN THE STABILIZED CONSTRUCTION EXIT.
4. WHEN GRADING OR USE CONSTRUCTION DRAINAGE, BEGIN ON LONGEST COMPLETED AREA TO ACCOMMODATE A MOVE THROUGH AREA. PROVIDE SUFFICIENT SHOP TOP FOR THE TRUCK equipment area.
5. FINISHED STONED TOP SPECIFIED MAY ADDITIONAL COARSE AGGREGATE TO MAINTAIN THE REQUIRED SIZE OR WHICH SURFACE MATERIALS PROVIDE WITH SIZE.
6. PERIODICALLY TURN AGGREGATE TO EXPOSE A CLEAN DRYING SURFACE.
7. ALTERNATE METHOD OF CONSTRUCTION AVAILABLE:
   HOLLOW STABILIZED SOIL: COMPACTED CONSTRUCTION STABILIZED FILL, LIMESTONE AGGREGATE, OR OTHER FILL MATERIAL, IS AN ALTERNATE TO CONSTRUCTION STABILIZED SOIL.
   FILL MATERIAL IS AN ALTERNATE TO CONSTRUCTION STABILIZED SOIL.
   STABILIZED SOIL IS AN ALTERNATE TO CONSTRUCTION STABILIZED SOIL.
   WOODEN BEAMS WHICH ARE PLACED ON TOP OF EXISTING SOIL IS AN EXPLANATION PROCEDURE OF A MODE.
   STEEL MATS: PERFORATED MATS PLACED ACROSS PERPENDICULAR SUPPORT MEMBERS.
8. MINIMUM 14' WIDTH FOR ONE WAY TRAFFIC AND 20' WIDTH FOR TWO WAY TRAFFIC.

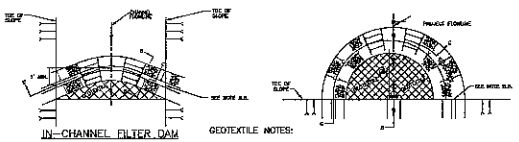
STABILIZED CONSTRUCTION ACCESS



GENERAL NOTES:

1. SECURELY FASTEN MESH SEGMENT TO POSTS WITH STAPLES OR TIE WIRES.
2. SECURELY FASTEN FILTER FABRIC TO MESH FRAMES.
3. WHEN TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, OVERLAP 6 INCHES AT A POST, FOLD TOGETHER, AND ATTACH TO A POST.
4. BURIED SEDIMENT BEYOND WHEN SILT REACHES ONE-THIRD OF THE HEIGHT OF THE FENCE IN DEPTH.

REINFORCED FILTER FABRIC BARRIER



IN–CHANNEL FILTER DAM

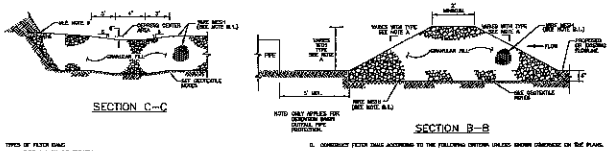
PLAN

GEOTEXTILE NOTES:

MIN. ACB	DIOC NO.	125 MM	
MAX. AOS	MOAE NO.	90 MM	
BOOST	02/SY	4 OZ. MIN	

FILTER DAM AT DETENTION BASIN OUTFALL PIPE

PLAN



SECTION C–C

SECTION B–B

A. TYPES OF FILTER DAMS:

1. TYPE 1 (HAY-REINFORCED)
   a. HEIGHT — 18-21 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
   b. TOP WIDTH — 2 FEET (MINIMUM).
   c. SLOPES — 3:1 (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 — 3:1 (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 (DRAINS)
   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.

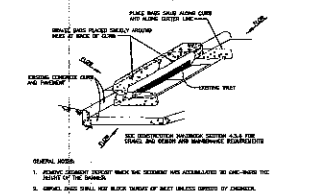
B. CONSTRUCT FILTER DAMS ACCORDING TO THE FOLLOWING CRITERIA UNLESS SHOWN OTHERWISE ON THE PLANS.

1. TYPE 2 AND 3 FILTER DAMS SECURE MESH OR GAUGE REINFORCED WOVEN WIRE MESH WITH 1 INCH DIAMETER HEXAGONAL OPENINGS.
2. GRANULAR FILL
   a. PLACE ON MESH TO HEAVY AND SLOPED SHOWN ON PLANS OR AS SPECIFIED BY THE ENGINEER.
   b. 3-4 INCHES ROCK BLOCK FILTER DAM TYPES 1,2, AND 4 AND 4-6 INCHES FOR HEAVY FILTER DAM TYPE 3.
   NOTES TO GRANULAR FILL IN SPECIFICATION SECTION NO. 02278—RIPRAP AND GRANULAR FILL.
3. WRAP MESH FOLD AT UPSTREAM WIRE FACE GRANULAR FILL AND SECURELY SECURED TO EXCEEP ON THE DOWNSTREAM WIRE BEING SURE TIES OR HOOK RINGS.
4. 14 GUAGING SECURE ON STAKE MESH TO STREAM BED FROM TO MAXIMUM PLACEMENT.
5. RIPE SPECIFICATION SECTION NO. 02244—FILTER DAMS.
6. EXTEND ONE FOOT MINIMUM MESH SLOPE AND RAISE ONE FOOT HIGHER THAN SENSOR OF DEPRESSED AREA AT SLOPE.

FILTER DAM

MR – TYPE

SYMBOL



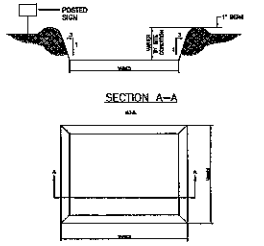
GENERAL NOTES:

1. REMOVE SEDIMENT DEPOSIT WHICH HAS SEDIMENT HAS ACCUMULATED TO ONE-HALF THE HEIGHT OF THE BARRIER.
2. GRAVEL BAGS SHALL NOT BLOCK THROAT OF INLET UNLESS APPROVED BY ENGINEER.

IPB–B

SYMBOL

INLET PROTECTION BARRIERS FOR STAGE II INLETS



SECTION A–A

PLAN VIEW

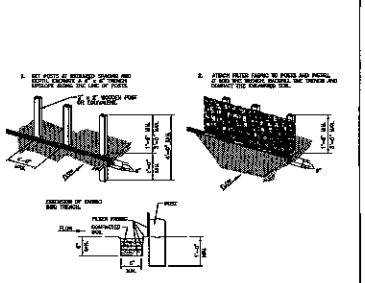
GENERAL NOTES:

1. POST A SIGN REMARKS "CONCRETE WASH OUT PIT" NEAR 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. DURING THE CONCRETE SETTING OF CURBS, DRIVING PILES, THE CONCRETE WHICH SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF PROPERLY BY THE CONTRACTOR. AFTER REMOVAL OF THE CONTENTS, BREAK THE WASH OUT PIT SHALL BE FILLED WITH CLEAN FILL MATERIAL AND COMPACTED TO MINIMUM CONDITIONS, OR AS DIRECTED BY THE PROJECT REPRESENTATIVE.
4. CONCRETE WASH OUT PITS SHALL NOT BE LOCATED DIRECTLY ADJACENT TO, NOR AT THE AREA INTO THE STORM SEWER SYSTEM OR ANY OTHER SHALL, CREEK, OR WATERWAY.
5. CONSTRUCT SHORT TERM AND MAINTAIN OF WASHOUT AREA TO SUPPORT EXPECTED LOADINGS FROM TRUCKS (MAXIMUM).

CONCRETE TRUCK WASHOUT AREA

CTW

SYMBOL



GENERAL NOTES:

1. SET POSTS AT 6-FOOT MAXIMUM SPACING. IF EXCEPT EXCEEDS/EXCEEDS FOOT WITH SUPPORT METHOD IS LOCAL EFFORTS OF POST MAY BE INCREASED TO 8 FEET MAXIMUM.
2. WHEN TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, OVERLAP 6 INCHES AT A POST, FOLD TOGETHER, AND ATTACH TO THE POSTS.
3. BURIED SEDIMENT EXCEEDS WHEN SILT DEPOSE REACHES ONE-THIRD OF THE HEIGHT OF THE FENCE.

FILTER FABRIC FENCE

FF

SYMBOL

NOTE:
DETAILS SHOWN HEREON ARE EXPECTED TO BE FOUND IN MOST PROJECTS. ADDITIONAL DETAILS, NOT INCLUDED WITH HARRIS COUNTY STANDARD SPECIFICATIONS AND MAY BE FOUND ON HCPC—HCS WEBSITE

Quail Valley Business Park
1306 FM 1092, Suite 303
Missouri City, Texas 77459-1564
Tel : (713) 562-6100

TX FIRM REGISTRATION NO. F-15913

16935 Becketts Oaks Ct.
Houston, Texas 77083
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Mobile: (832) 671-3409

REV/DATE	DESCRIPTION
1 12-08-16	ISSUE FOR PERMIT
2 05-04-17	REVISED PER COUNTY COMMENTS
3	
4	

PROJECT NAME

SHOPPES AT SIENNA PLANTATION

9129 & 9303 STATE HIGHWAY 6 AT KITTY HOLLOW PARK DRIVE
MISSOURI CITY, TX 77459

STATE OF TEXAS
JOSEPH S. ABRAM
89404
LICENSED
PROFESSIONAL ENGINEER
05-04-17

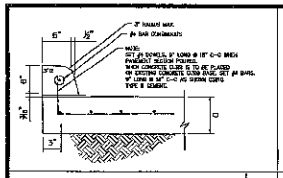
THE USE OF FINAL SIGNED AND SEAL DRAWINGS IS AUTHORIZED AND GRANTED SOLELY FOR THE PURPOSE OF THIS SPECIFIC PROJECT AND LOCATION, AND NOT FOR CONSTRUCTION OR USE FOR ANY OTHER PROJECT.

SHEET NUMBER:
C13

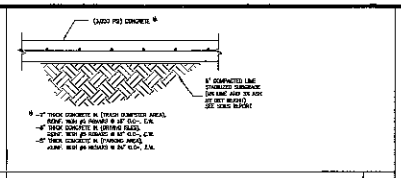
SHEET TITLE:
STORM WATER POLLUTION PREVENTION DETAILS

DRAWN BY: V.M.
CHECK BY: JSA

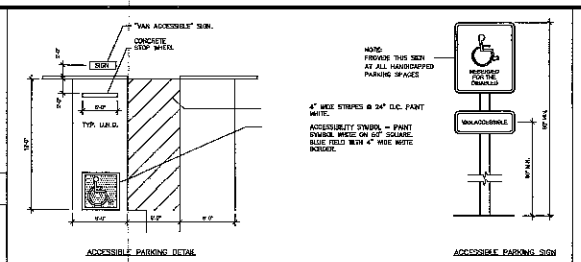
G+A PROJECT NUMBER:
016-08-003



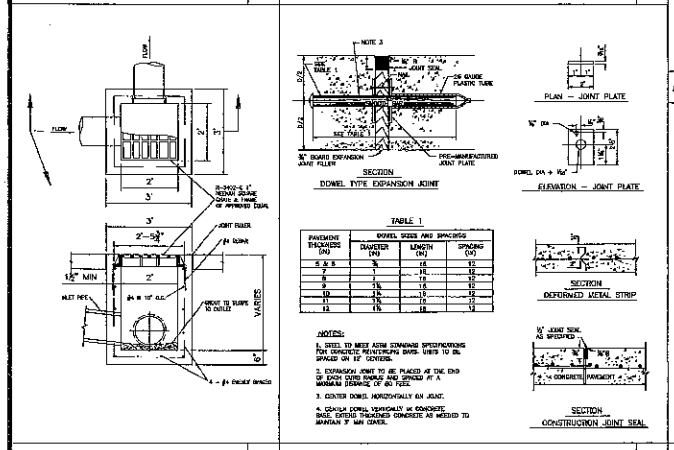
CONCRETE CURB — SCALE: N.T.S. — 1



CONCRETE PAVING — SCALE: N.T.S. — 2

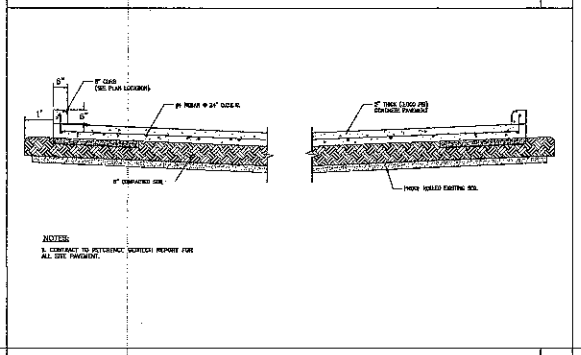


ACCESSIBLE PARKING DETAILS — SCALE: N.T.S. — 3

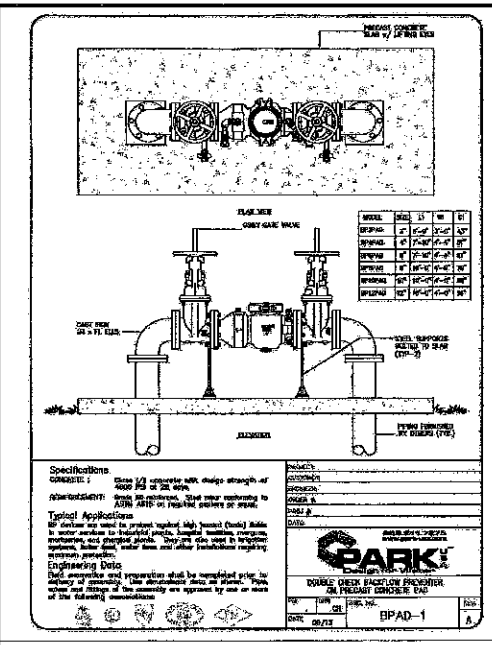


STANDARD INLET — SCALE: N.T.S. — 4

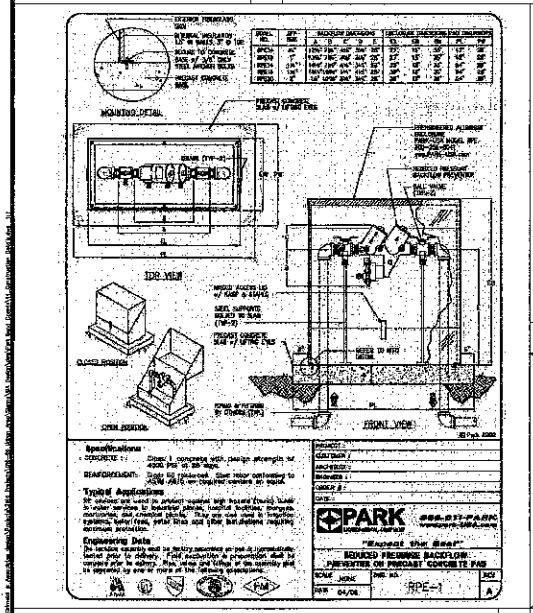
EXPANSION & CONSTRUCTION JOINT — SCALE: N.T.S. — 5



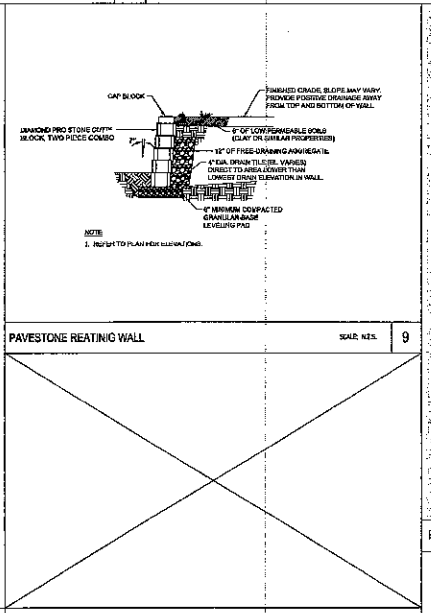
CONCRETE PAVEMENT & CURB DETAIL — SCALE: N.T.S. — 6



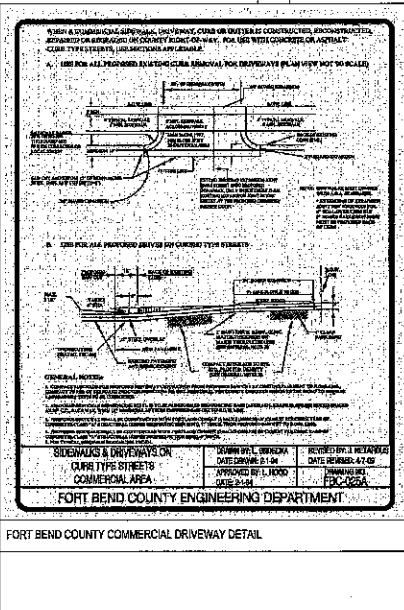
DOUBLE CHECK BACKFLOW PREVENTER - FIRE — SCALE: N.T.S. — 7



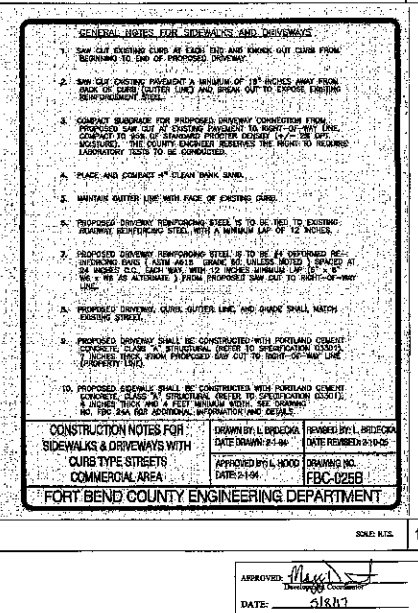
REDUCED PRESSURE BACKFLOW PREVENTER - DOMESTIC — SCALE: N.T.S. — 8



PAVESTONE REATINIG WALL — SCALE: N.T.S. — 9



FORT BEND COUNTY COMMERCIAL DRIVEWAY DETAIL — SCALE: N.T.S. — 10



APPROVED: Development Coordinator

DATE: 5/8/17

Quail Valley Business Park
1306 FM 1092, Suite 303
Missouri City, Texas 77459-1564
Tel : (713) 562-6100

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SHOPPES AT SIENNA PLANTATION

9129 & 9303 STATE HIGHWAY 6 AT KITTY HOLLOW PARK DRIVE
MISSOURI CITY, TX 77459

PROJECT NAME:

05-04-17

THE USE OF FINAL SIGNED AND SEAL DRAWINGS IS AUTHORIZED AND DEMITED SOLELY FOR THE PURPOSE OF THIS SPECIFIC PROJECT AND LOCATION, AND NOT FOR CONSTRUCTION OR USE FOR ANY OTHER PROJECT.

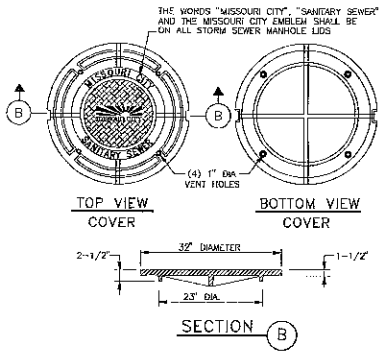
SHEET NUMBER: C14

SHEET TITLE: CONSTRUCTION DETAILS

DRAWN BY: V.M. — CHECK BY: JSA

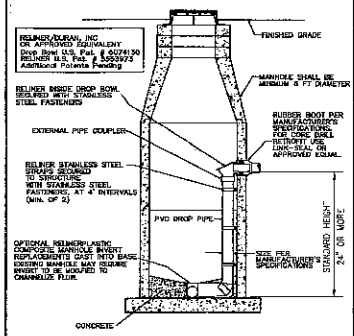
N.T.S.

G+A PROJECT NUMBER: 016-08-003



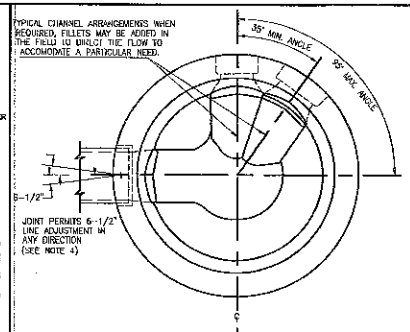
SANITARY SEWER MANHOLE LID

N.T.S.



STANDARD DROP DETAIL

(SEE C.S.S. NOTES)



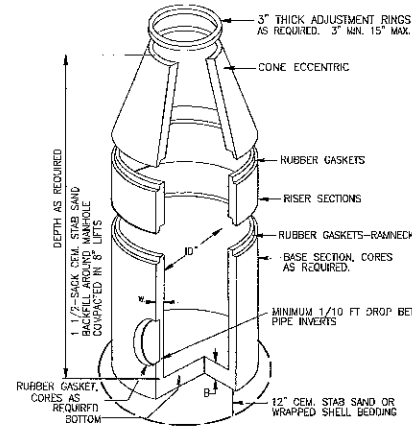
NOTE:

1. INLET AND OUTLET PIPING CONNECTIONS TO MANHOLE SHALL BE ALIGNED TO PREVENT REVERSE FLOW.
2. INLET AND OUTLET CONNECTIONS ARE LIMITED TO A MAXIMUM 90° INCLUDED ANGLE OF CONVERGENCE. ANGLES LESS THAN 90° MEASURED BETWEEN THE INLET AND OUTLET WILL NOT BE ALLOWED.
3. MINIMUM 35° AND MAXIMUM 90° INCLUDED ANGLES MUST BE PROVIDED BETWEEN MULTIPLE INFLUENT CONNECTIONS.
4. ANGLE OF DEFLECTION AT PIPING JOINTS AS PER MANUFACTURE'S RECOMMENDATIONS.
5. MANHOLE SHALL HAVE A MINIMUM OF 1/10 FT FALL FROM INLET TO OUTLET.

PIPING CONNECTIONS DETAIL

NOTES:

1. CONTRACTOR SHALL CONTACT CITY OF MISSOURI CITY DEPARTMENT OF PUBLIC WORKS AT (281) 403-8570 IF WET SAND OR OTHER UNSTABLE SOIL CONDITIONS, HIGH WATER TABLE AND/OR UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED.
2. SHOULD A CONFLICT ARISE BETWEEN INFORMATION DEPICTED ON APPROVED CONSTRUCTION DRAWINGS AND INFORMATION INCLUDED IN PROJECT SPECIFICATIONS, CITY OF MISSOURI CITY INFRASTRUCTURE STANDARDS SHALL GOVERN.
3. SANITARY SEWER MANHOLES SHALL BE CONSTRUCTED A MINIMUM OF FOUR FOOT FROM BACK OF CURB ON CURB AND GUTTER ROADWAYS AND THREE FEET FROM EDGE OF TRAVELLED ROADWAY ON THOSE THOROUGHFARES HAVING NO CURBING, MEASURED FROM OUTSIDE DIAMETER OF MANHOLE. SANITARY SEWER MANHOLES SHALL NOT BE INSTALLED BENEATH STREET PAVING EXCEPT WHERE SPECIFICALLY AUTHORIZED BY CITY ENGINEER AND SO DESIGNATED ON APPROVED CONSTRUCTION DRAWINGS.
4. SANITARY SEWER MANHOLE COVERS SHALL BE A MINIMUM OF 32 INCHES IN DIAMETER. ALL SUCH MANHOLE COVERS SHALL HAVE THE CITY OF MISSOURI CITY EMBLEM AND THE WORDS "MISSOURI CITY" AND "SANITARY SEWER" CAST IN RAISED RELIEF AS DEPICTED IN CITY OF MISSOURI CITY STANDARD CONSTRUCTION DETAILS SHEETS. ALL SANITARY SEWER MANHOLES SHALL INCORPORATE INFLOW PROTECTORS.
5. MANHOLE RIM ELEVATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY. CONTRACTORS SHALL ADJUST RIM ELEVATIONS TO 0.4 FEET ABOVE FINISHED GRADE WITHIN RIGHTS-OF-WAY AND EASEMENTS AT EACH MANHOLE LOCATION AFTER FINAL GRADING. ADJUSTMENTS TO MANHOLE RIM ELEVATIONS SHALL BE ACCOMPLISHED BY THE USE OF THROAT RINGS ONLY (MAX. OF TWELVE INCHES PERMITTED). THE AREA ADJACENT TO SANITARY SEWER MANHOLE LOCATIONS SHALL BE GRADED AWAY FROM SUCH MANHOLES SO AS PREVENT ENTRY OF STORM WATER RUNOFF TO THE SANITARY SEWER SYSTEM.
6. DROP CONNECTIONS ARE REQUIRED WHEN INVERT ELEVATION OF SEWER LINE TO BE CONNECTED EXCEEDS 24 INCHES DISTANCE ABOVE INVERT ELEVATION OF MANHOLE BASE. ALL DROP CONNECTIONS SHALL BE CONSTRUCTED OF SAME MATERIALS AS SEWER AND SHALL BE CONSTRUCTED INTERIOR TO MANHOLE. PIPE CONNECTIONS TO MANHOLES SHALL BE SO CONSTRUCTED AS BE WATERTIGHT AND TO ALIGN UPPER INSIDE PIPE WALL ELEVATIONS OF ALL PIPING CONNECTED TO BASE OF MANHOLE UNIFORMLY, REGARDLESS OF PIPE DIAMETERS.
7. CONNECTIONS TO EXISTING AND/OR NEW SANITARY SEWER MANHOLES CONSTRUCTED OF PRECAST CONCRETE NOT HAVING PRECORED HOLES OF CORRECT DIAMETER AND LOCATION, FIELD CORING ONLY SHALL ACCOMPLISH AT THE INVERT ELEVATION. IN NO INSTANCE WILL EITHER MANUAL OR PNEUMATIC CHISELS AND/OR HAMMER DRILLS BE UTILIZED TO BREAK HOLES IN PRECAST CONCRETE MANHOLES, PIPE SEGMENTS OR OTHER PRECAST STRUCTURES SUCH AS LIFT STANDOUTS. PIPE SHALL BE PLACED IN THE CORED HOLE AND SECURED WITH THE USE OF LINK-SEAL, GROUTED SMOOTH AND THE INTERIOR LINING SHALL BE REPAIRED.
8. BEDDING AND BACKFILL OF SANITARY SEWER PIPING AND MANHOLES SHALL BE ACCOMPLISHED IN ACCORDANCE WITH CITY OF MISSOURI CITY INFRASTRUCTURE STANDARDS. A 1.5 SACK PER TON MIX IS REQUIRED FOR ALL CEMENT STABILIZED SAND BEDDING AND SUCH BEDDING SHALL BE INSTALLED IN LIFTS OF EIGHT INCHES MAXIMUM.
9. SOLVENT WELDED JOINTS ARE NOT AN ACCEPTABLE JOINING METHOD FOR SANITARY SEWERS CONSTRUCTED OF PVC PIPING MATERIALS AND LOCATED WITHIN RIGHTS-OF-WAY OR EASEMENTS. RUBBER GASKETED BELL AND SPIGOT SANITARY SEWER JOINTS ARE MANDATORY. BELL (FEMALE) ENDS OF PIPE SHALL BE INSTALLED ON UPSTREAM SIDE WITH SPIGOT (MALE) ENDS ORIENTED DOWNSTREAM.
10. SANITARY SEWER SERVICE LEADS SHALL BE EXTENDED TO RIGHTS-OF-WAY AND/OR EASEMENT LINES AS APPLICABLE AND CAPPED/PLUGGED FOR FUTURE CONNECTIONS. SERVICE LEADS ARE TO BE INSTALLED SO AS TO PASS UNDER POTABLE WATER PIPING AT CROSSINGS WHERE POSSIBLE.
11. EACH SANITARY SEWER SERVICE LEAD STUB, PLUGGED WYE BRANCH OUTLET AND STACK SHALL BE MARKED WITH A 4" PVC AT THE TIME OF CONSTRUCTION, BEGINNING AT THE INVERT ELEVATION OF THE STUB OR WYE AND AT AN ELEVATION TWO FEET BELOW THE CAPPED TERMINATION POINT OF THE STACK AND EXTENDING TWO FEET ABOVE FINISHED GRADE. EACH MARKER SHALL BE PAINTED RED AND LABELED "SANITARY SEWER STUB", "SANITARY SEWER WYE" OR SANITARY SEWER STACK" AS AS APPROPRIATE WITH STUB, WYE BRANCH OUTLET OR STACK SIZE NOTED.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LOCATION OF ALL EXISTING UTILITIES PRIOR TO EXCAVATION. DURING THE COURSE OF ANY AND ALL CLEARING, GRUBBING, FILL, GRADING, EXCAVATION OR OTHER CONSTRUCTION, CONTRACTOR SHALL ENSURE THAT STORM DRAINAGE PATHWAYS ARE MAINTAINED AND REMAIN OPEN TO ENSURE POSITIVE DRAINAGE AND THAT SUCH CONVEYANCES ARE NOT IMPEDED OR BLOCKED IN ANY WAY. STORM SEWER INLETS SHALL BE PROTECTED FROM ENTRY OF SILT, TRASH, DEBRIS AND ANY SUBSTANCES DELETERIOUS TO THE STORM SEWER SYSTEM AND/OR WATERWAYS RECEIVING STORM WATER RUNOFF. CONTRACTOR SHALL AT COMPLETION OF WORK, FILL LOW SPOTS AND GRADE ALL RIGHTS-OF-WAY AND UTILITY EASEMENTS AND REGRADE/RESTORE DITCHES AS NECESSARY TO MAINTAIN AND/OR ESTABLISH POSITIVE DRAINAGE.
13. ALL SANITARY SEWER PIPING AND BEDDING SHALL BE INSPECTED BY CITY CONSTRUCTION INSPECTOR FOR CONFORMANCE WITH CITY INFRASTRUCTURE STANDARDS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROPERLY NOTIFY THE CITY OF ALL CONSTRUCTION ACTIVITIES AND TO CONFORM TO CITY OF MISSOURI CITY PUBLIC WORKS DEPARTMENT INSPECTION POLICY.
14. POURED IN PLACE MANHOLES REQUIRE THE SPECIFIC APPROVAL OF THE CITY OF MISSOURI CITY ENGINEER.
15. C.S.S. 1' ABOVE PIPE AND 6" BELOW PIPE MINIMUM.
16. SEE GENERAL NOTES AND C.S.S. NOTES.



NOTES

1. LIFTING INSERTS AS REQUIRED.
2. ALL JOINTS SHALL BE SEALED WITH APPROVED RUBBER GASKET/RAMNECK
3. STRUCTURE TO BE PLACED ON 12" STABILIZED BASE.
4. C.S.S. SHALL BE BROUGHT TO WITHIN 2-FT OF TOP OF MANHOLE.
5. PRE-CAST MANHOLE SHALL BE IN COMPLAINCE APPROVED PRODUCT LIST.
6. INTERIOR LINING SHALL BE IN COMPLANCE WITH APPROVED PRODUCT LIST.
7. INVERTS SHALL COMPLY WITH C.O.M.C., INFRASTRUCTURE DESIGN MANUAL SPECIFICATIONS.
8. INFLOW PROTECTORS REQUIRED ON ALL SANITARY MANHOLES.
9. REFER TO SANITARY MANHOLE LIDS, C.S.S. NOTES, MODIFIED BEDDING DETAILS AND NOTES.
10. PRIOR TO INTERIOR LINING, GROUT ALL JOINTS TO A SMOOTH SURFACE.
11. VACCUM TESTING OF MANHOLE SHALL BE AFTER GROUTING AND PRIOR TO INTERIOR LINING.

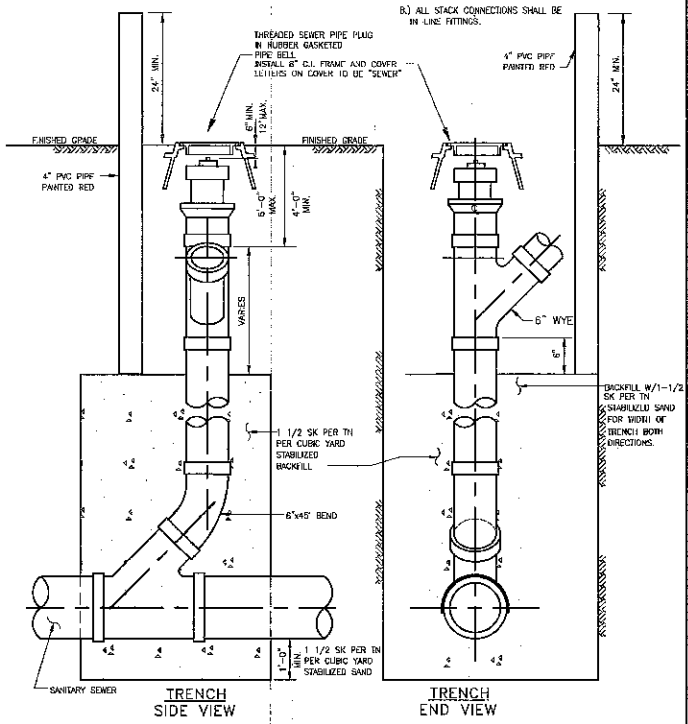
PRECAST SANITARY MANHOLE

N.T.S.

NOTES:

A.) NO STACKS ON MAINS OVER 16' DEEP or IN WET SAND CONDITIONS.

B.) ALL STACK CONNECTIONS SHALL BE IN LINE FITTINGS.

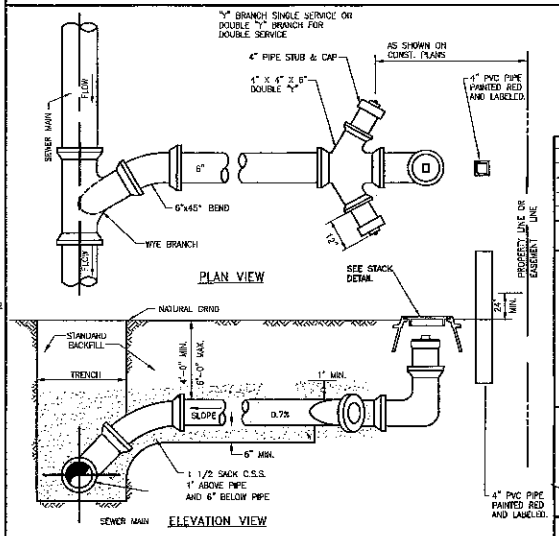


TRENCH SIDE VIEW

TRENCH END VIEW

STACK DETAIL

N.T.S.



SANITARY SEWER SERVICE CONNECTION

N.T.S.

No.	Date	REVISION

SANITARY SEWER CONSTRUCTION DETAILS

missouri CITY TEXAS

SEAL: STATE OF TEXAS, JOSEPH S. ARGUD, 69884, LICENSED, PROFESSIONAL ENGINEER

DESIGN ENGINEER DATE 02-15-17

CONSTRUCTION PLANS FOR:

SHOPPES AT SIENNA PLANTATION

C15

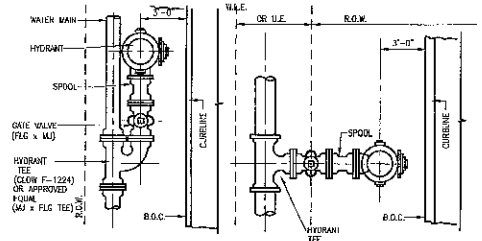
JOB No.:
SCALE: AS NOTED
SUBMITTED:
DATE: FEBRUARY 2015

MC-10-15

SHEET 11 OF 29

PLOT TIME: TIME STAMP

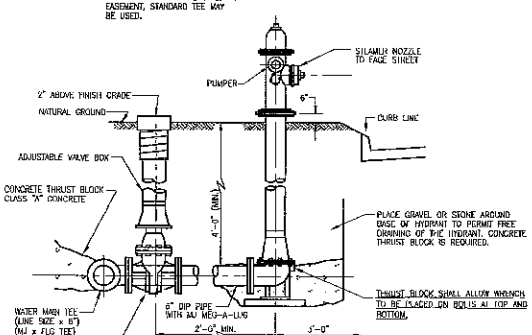
CAD FILE PATH: CAD_FILE_PATH
PLOT DATE: DATE



R.O.W. INSTALLATION
N.T.S.

EASEMENT INSTALLATION
N.T.S.

NOTE:
WHEN WATER LINE IS LOCATED IN EASEMENT, STANDARD TEE MAY BE USED.



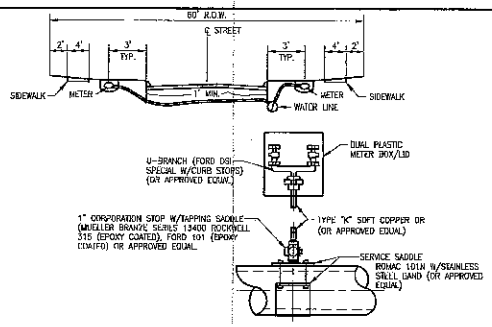
FLUSHING VALVE COLOR CODE

MAIN LINE DIAMETER	BONNET, PUMPER CAP AND STEAMER CAP
6 INCHES (AND LESS)	YELLOW
8 INCHES	WHITE
10 TO 20 INCHES	GREEN
24 TO 60 INCHES	ORANGE

FLUSHING VALVE BODY TO BE FACTORY PAINTED GRAY POLYURETHANE ENAMEL

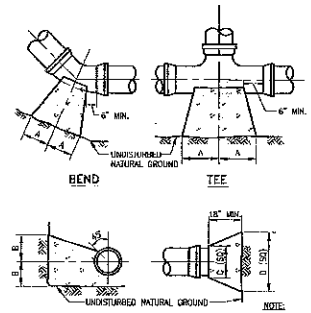
NOTE:
1. ALL FLUSHING VALVES SHALL BE COMPLY WITH THE APPROVED PRODUCTS LIST. STEAMER NOZZLE SHALL BE A 6" STORZ CONNECTION WITH CAP AND PUMPER 2.5" N.S.T.
2. FLUSHING VALVE SHALL BE MECHANICAL JOINT.

TYPICAL GATE & FLUSHING VALVE INSTALLATION
N.T.S.



NOTE:
USE COPPER OR APPROVED TUBING OF 1" MINIMUM SIZE FOR SINGLE AND DOUBLE LEADS TO METER.

WATER SERVICE CONNECTION (DOUBLE SERVICE) AND WATER SERVICE TAPPING ASSEMBLY DETAIL
N.T.S.



NOTE:
THRUST BLOCKS AT TRENCH FACE MUST HAVE A MINIMUM BEARING SURFACE OF 10 SQ. FEET AND SHALL BE NO SMALLER THAN 1.5 TIMES PIPE DIAMETER.
ALL CONCRETE SHALL BE 5.5 SACK MIN., 3500 P.S.I. AND SHALL CURE 24 HOURS BEFORE BACKFILL

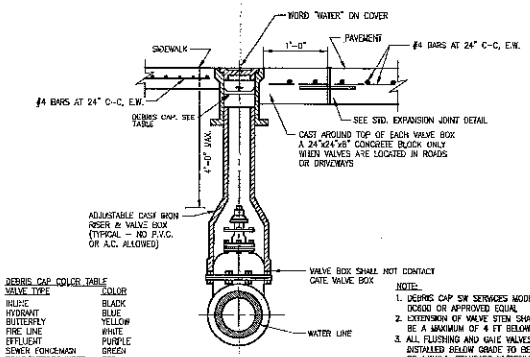
THRUST BLOCK DETAIL
N.T.S.

NOTE:
1. POLYETHYLENE FILM SHALL BE USED AS A WRAP TO PROTECT CAST IRON AND OTHER METALS IN A CORROSIVE SOIL ENVIRONMENT.
2. AN 8 MIL POLYETHYLENE FILM WRAP SHALL BE REQUIRED AROUND ALL METAL PIPE AND APPURTENANCES (EXCEPT FIRE HYDRANTS).
3. POLYETHYLENE FILM SHALL BE FURNISHED AND INSTALLED EITHER IN TUBULAR FORM PRIOR TO LOWERING THE PIPE IN TRENCH OR IN SHEET FORM.
4. POLYETHYLENE TUBE ENCASEMENT SHALL CONFORM WITH THE MINIMUM REQUIREMENTS OF "POLYETHYLENE ENCASEMENT FOR GRAY AND DUCTILE CAST-IRON PIPING FOR WATER AND OTHER LIQUIDS", ANSI/AWWA C105, CURRENT REVISION. SOILS WITHIN A PROJECT SHALL BE TESTED IN ACCORDANCE WITH APPENDIX A OF ANSI/AWWA C105 TO ADEQUATELY DETERMINE THE REQUIREMENTS FOR ENCASEMENT.

POLYETHYLENE WRAP FOR IRON PIPE

SIZE	90° BEND		45° BEND		22 1/2° BEND		TEES		PLUGS	
	A	B	A	B	A	B	A	B	A	B
2 1/2"	12"	7"	6"	7"	6"	6"	7"	8"	8"	14"
6"	18"	10"	9"	10"	6"	12"	10"	12"	10"	21"
8"	22"	13"	12"	13"	8"	10"	13"	16"	12"	29"
10"	26"	17"	14"	17"	10"	13"	16"	20"	14"	38"
12"	29"	21"	16"	21"	11"	16"	18"	24"	16"	41"
14"	35"	24"	19"	24"	12"	20"	22"	27"	18"	48"
16"	38"	27"	21"	27"	12"	24"	24"	30"	20"	54"

BENDS, TEES & PLUGS FOR PIPE OF VARIOUS SIZES

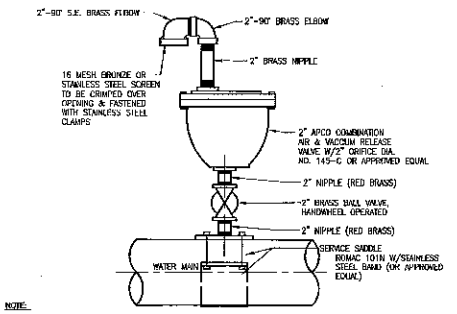


DEBRIS CAP COLOR TABLE

VALVE TYPE	COLOR
WLVE	BLACK
HYDRANT	BLUE
BUTTERFLY	YELLOW
FIRE LINE	WHITE
EFFLUENT	PURPLE
SEWER FORCEMAIN	GREEN
ZONE/INTERCONNECT	RED

NOTE:
1. DEBRIS CAP SIW SERVICES MODEL DC600 OR APPROVED EQUAL
2. EXTENSION OF VALVE STEM SHALL BE A MAXIMUM OF 4 FT BELOW GRADE
3. ALL FLUSHING AND GATE VALVES TO INSTALLED BELOW GRADE TO BE AWWA STANDARD W/RESILIENT SEATS AND NON RISING STEM DESIGN.

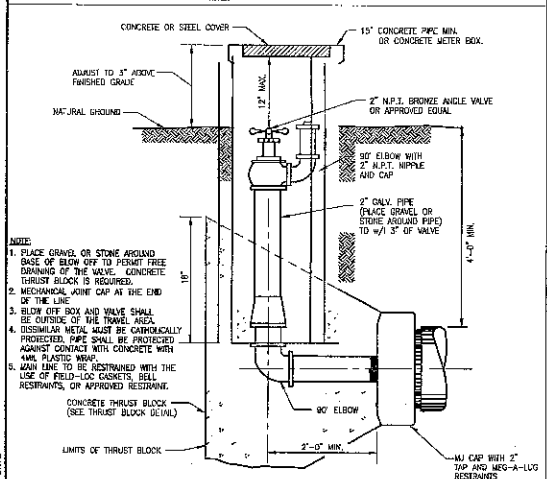
VALVE BOX INSTALLATION DETAIL
N.T.S.



NOTE:
1. BELOW GROUND CONNECTION TO MAIN SHALL BE WITH A 2" SERVICE SADDLE.
2. ABOVE GROUND CONNECTION WITH A SERVICE SADDLE OR A TEE WITH A TAPPED FLANGE.

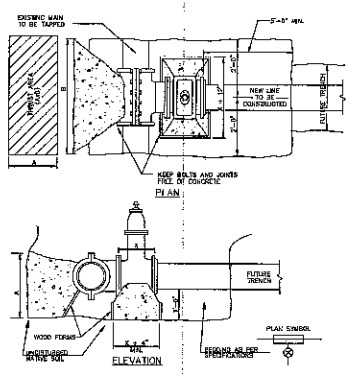
WATER MAIN

AIR RELEASE VALVE DETAIL
N.T.S.



NOTE:
1. PLACE GRAVEL OR STONE AROUND BASE OF BLOW OFF TO PERMIT FREE DRAINING OF THE VALVE. CONCRETE THRUST BLOCK IS REQUIRED.
2. MECHANICAL JOINT CAP AT THE END OF THE LINE.
3. BLOW OFF BOX AND VALVE SHALL BE OUTSIDE OF THE TRAVEL AREA.
4. DISSIMILAR METAL MUST BE CATHODICALLY PROTECTED. PIPE SHALL BE PROTECTED AGAINST CONTACT WITH CONCRETE WITH 4MIL PLASTIC WRAP.
5. MAIN LINE TO BE RESTRAINED WITH THE USE OF FIELD-LOC GASKETS, BELL RESTRAINTS, OR APPROVED RESTRAINT.

2" BLOW OFF VALVE ASSEMBLY
N.T.S.



NOTES:
1. BLOCKING IS TO EXTEND TO UNDISTURBED GROUND.
2. ALL TAPS SHALL BE COORDINATED THROUGH THE UTILITY OWNER.
3. INSTALL TEMPORARY BLOCKING UNDER VALVE UNTIL TAP IS MADE. ALL FLANGE BOLTS SHALL BE CLEAR OF FOOTINGS.
4. TAPPING SLEEVES ARE TO BE FULL CIRCLE STAINLESS STEEL, CLASS 316 PSL.
5. INSTALLATION SHALL BE LEAK TESTED PRIOR TO TAP. LEAK TEST SHALL CONSIST OF A 200 PSI TEST FOR 2 HOURS.
6. TAPPING SLEEVE SHALL BE PLACED AT A MINIMUM OF 10" FROM ANY BELL, COUPLING, VALVE, FITTING, OR OTHER OBSTRUCTION.
7. PROTECT ALL CONCRETE CONTACT AREAS WITH 8 MIL SHEET PLASTIC.
8. THRUST BLOCKING PER STD SPECIFICATIONS
9. INSTALL VALVE, METER & FRAME & COVER PER SPECIFICATIONS AND DETAILS
10. CONCRETE STRAIN BE 3.5 SACK MIN. 3,500 PSI AND SHALL CURE 24 HOURS BEFORE BACKFILL
11. VALVE SHALL BE FLG x MJ
12. SIZE ON SIZE TAPPING IS ALLOWED
13. CONTRACTOR SHALL VERIFY AND PROVIDE AREA OF THRUST BLOCKING FOR TAPPING SADDLE. TABLE IS FOR REFERENCE.

SIZE OF PIPE BEING CONNECTED	MINIMUM THRUST AREA REQUIRED EQUALS (AVB)
4" AND LESS	3 SF
6"	4 SF
8"	8 SF
12"	13 SF
15"	23 SF

TAPPING SLEEVE & VALVE DETAIL
N.T.S.

CONSTRUCTION NOTES:

1. WATER LINE 6" (IN.) AND LESS SHALL BE AWWA C-900 DR14 CLASS 200
   WATER LINE GREATER THAN 6 IN BUT LESS THAN 14 IN ø SHALL BE AWWA C-900 DR 18 CLASS 150
   WATER LINE 14 IN AND GREATER SHALL BE AWWA C-905
2. ALL FLUSHING VALVES AND GATE VALVES TO BE AMERICAN WATER WORKS ASSOC. (AWWA) STANDARD COUNTERCLOCKWISE OPENING WITH NON-RISING STEM DESIGN.
3. THE MAXIMUM ALLOWABLE SIZE OF A TAPPING SLEEVE AND VALVE ON AN EXISTING PIPE IS SIZE ON SIZE.
4. ALL DUCTILE IRON PIPE SHALL BE MORTAR LINED. DIP SHALL BE CLASS 350 4 IN-12 IN AND CLASS 230 14 IN AND GREATER. NO A.C. PIPE WILL BE ALLOWED AND ALL DUCTILE IRON FITTINGS SHALL BE MORTAR LINED MECHANICAL JOINTS.
5. ALL BACKFILL WITHIN THE R.O.W. SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.

No.	DATE	REVISION

WATER LINE CONSTRUCTION DETAILS

missouri CITY TEXAS

SEAL: STATE OF TEXAS — JOSEPH E. ASBOUD — 68694 — LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: DATE: 02-15-17

CONSTRUCTION PLANS FOR:

SHOPPES AT SIENNA PLANTATION

C16

JOB No.:
SCALE: AS NOTED
SUBMITTED:
DATE: FEBRUARY 2015

MC-11-15

SHEET 12 OF 29

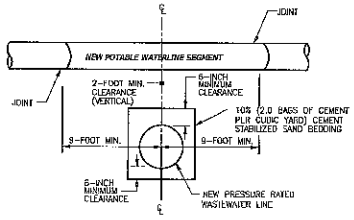
PLOT TIME: TIME STAMP

CAD FILE PATH: CAD FILE PATH
PLOT DATE: DATE

PLOT TIME: TIME STAMP

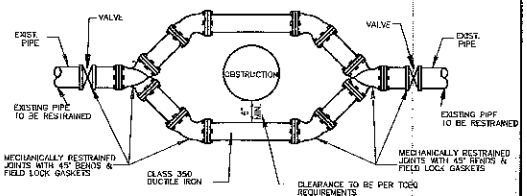
I

NEW POTABLE WATERLINE CROSSING NEW PRESSURE RATED WASTEWATER LINE WITH SEGMENT LENGTHS OF EIGHTEEN (18) FEET OR GREATER, HAVING 2 FEET OF VERTICAL CLEARANCE AND 4 FEET OF HORIZONTAL CLEARANCE



- WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN JOINTS OF THE WASTEWATER LINE.
- MINIMUM WASTEWATER PIPE STIFFNESS OF 115 PSI AT 5% DEFLECTION.
- EMBED WASTEWATER LINE IN CEMENT STABILIZED SAND TO AT LEAST 12" INCHES BEYOND EACH JOINT OF CROSSED SECTION OF PIPE.

II



1. NO SERVICE CONNECTIONS SHALL BE LOCATED WITHIN VERTICAL REALIGNMENT
2. AIR RELEASE VALVE TO BE INSTALLED ON THE VERTICAL REALIGNMENT AT THE HIGH POINT OF THE LOW SIDE.

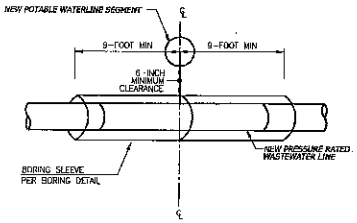
BOTTOM OF VERTICAL ALIGNMENT SHALL BE ONE PIECE. IF JOINTS ARE REQUIRED, WATER MAIN SEGMENT SHALL BE CENTERED BELOW PIPE OR IN A BORE SLEEVE.
ALL JOINTS SHALL BE FIELD LOCK GASKET & WATER MAIN SHALL BE EQUIPPED WITH STAINLESS STEEL SPACERS & END CAPS.

VERTICAL REALIGNMENT ASSEMBLY

III

ENCASED WASTEWATER LINE

NEW POTABLE WATERLINE CROSSING NEW PRESSURE RATED WASTEWATER LINE WITH SEGMENT LENGHTS OF OF LESS THAN EIGHTEEN (18) FEET

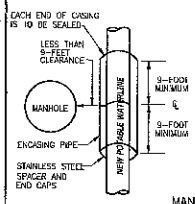


- MINIMUM CASING PIPE STIFFNESS OF 115 PSI AT 5% DELECTION.
- MINIMUM CASING PIPE DIAMETER = 2 X WASTEWATER LINE DIAMETER.
- UTILIZE BORING SLEEVE DETAIL

GENERAL NOTES:

1. CONTRACTOR SHALL CONTACT CITY OF MISSOURI CITY DEPARTMENT OF PUBLIC WORKS AT (281) 403-8570 IF WET SAND OR OTHER UNSTABLE SOIL CONDITIONS, HIGH WATER TABLE AND/OR UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED.
2. SHOULD A CONFLICT ARISE BETWEEN INFORMATION DEPICTED ON APPROVED CONSTRUCTION DRAWINGS AND INFORMATION INCLUDED IN PROJECT SPECIFICATIONS, CITY OF MISSOURI CITY INFRASTRUCTURE STANDARDS SHALL GOVERN.
3. ALL NEW POTABLE WATER LINES AND SANITARY SEWER FORCE MAINS SHALL BE BEDDED IN COMPACTED BANK SAND A MINIMUM OF 6 INCHES BELOW, ABOVE AND TO EITHER SIDE OF SUCH PIPING.
4. ALL NEW SANITARY SEWER GRAVITY DRAIN LINES SHALL BE BEDDED IN CEMENT STABILIZED SAND CONFORMING TO THE REQUIREMENTS FOR EITHER CLASS "A" STANDARD BEDDING OR CLASS "A-A" BEDDING AS APPLICABLE. USE OF MODIFIED "A" OR MODIFIED "A-A" BEDDING FOR SANITARY SEWER INSTALLATIONS WHERE WET SAND CONDITIONS ARE ENCOUNTERED AND SEPARATION DISTANCE TO POTABLE WATER LINES IS LESS THAN 9 FEET REQUIRES APPROVAL BY CITY ENGINEER.
5. CEMENT STABILIZED BEDDING SHALL BE A MINIMUM 2 SACK PER CUBIC YARD C.S.S., INSTALLED IN MAXIMUM LIFTS OF 8 INCHES AND MECHANICALLY TAMPED TO 95% PROCTOR.
6. WHERE REQUIRED, SLEEVING (ENCASEMENT) OF POTABLE WATER PIPING AND/OR SANITARY SEWER GRAVITY DRAIN LINES AND FORCE MAINS SHALL BE PROVIDED. SUCH SLEEVING (ENCASEMENT) SHALL BE CONSTRUCTED OF APPROVED PIPING MATERIALS HAVING A MINIMUM PRESSURE RATING OF 150 PSI AND ANNULAR SPACES AT EACH END SHALL BE SEALED WITH A MATERIAL APPROVED FOR SUCH USE.
7. ALL NEW POTABLE WATER LINES SHALL BE SLEEVED (ENCASED) WHERE A MINIMUM OF 9 FEET SEPARATION DISTANCE TO EXISTING OR PROPOSED SANITARY SEWER MANHOLE, LIFT STATION OR WASTEWATER TREATMENT PLANT CANNOT BE MAINTAINED. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CLOSEST PROXIMITY.
8. ALL NEW POTABLE WATER LINES SHALL BE SLEEVED (ENCASED) WHERE LESS THAN 2 FEET VERTICAL OR 4 FEET HORIZONTAL CLEARANCE TO EXISTING OR PROPOSED SANITARY SEWER GRAVITY LINES OR FORCE MAINS CANNOT BE MAINTAINED. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CROSSING. WHERE PIPING IS NOT PARALLEL AND MINIMUM SEPARATION DISTANCES CANNOT BE MAINTAINED, SLEEVING SHALL EXTEND AT LEAST 9 FEET PAST THE POINT WHERE MINIMUM SEPARATION DISTANCES ARE ACHIEVED.
9. ALL NEW POTABLE WATER LINES SHALL BE CONSTRUCTED ABOVE EXISTING OR PROPOSED SANITARY SEWER GRAVITY LINES OR FORCE MAINS WHERE POSSIBLE. WHERE INSTALLATION BENEATH SANITARY SEWER GRAVITY LINES OR FORCE MAINS IS UNAVOIDABLE AT POINTS OF CROSSING, SLEEVING (ENCASEMENT) IS REQUIRED FOR ALL NEW POTABLE WATER LINES CONSTRUCTED OF PVC PIPING MATERIALS, REGARDLESS OF SEPARATION DISTANCE. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CROSSING.
10. ALL NEW SANITARY SEWER GRAVITY LINES AND/OR FORCE MAINS CONSTRUCTED OF PVC PIPING MATERIALS SHALL BE SLEEVED (ENCASED) WHERE LESS THAN 2 FEET VERTICAL OR 4 FEET HORIZONTAL CLEARANCE TO EXISTING POTABLE WATER PIPING CANNOT BE MAINTAINED. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CLOSEST PROXIMITY.
11. ALL NEW SANITARY SEWER GRAVITY LINES AND/OR FORCE MAINS SHALL BE CONSTRUCTED BELOW EXISTING POTABLE WATER LINES WHERE POSSIBLE. WHERE INSTALLATION ABOVE POTABLE WATER LINES IS UNAVOIDABLE, SLEEVING (ENCASEMENT) IS REQUIRED FOR ALL SUCH SANITARY SEWER LINES CONSTRUCTED OF PVC PIPING MATERIALS, REGARDLESS OF SEPARATION DISTANCE. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CROSSING.
12. WHERE NEW SANITARY SEWER SIZING (24 INCH AND GREATER) PRECLUDES THE USE OF PVC PIPING MATERIALS AND SLEEVING (ENCASEMENT) OF THE SANITARY SEWER WOULD OTHERWISE BE REQUIRED BUT IS IMPRACTICAL, THE EXISTING POTABLE WATER PIPING SHALL EITHER BE OFFSET TO PROVIDE THE REQUIRED MINIMUM CLEARANCES OR SLEEVED (ENCASED) IN LIEU OF SLEEVING (ENCASING) THE SANITARY SEWER LINE. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CROSSING.
13. IN NO INSTANCE SHALL A FIRE HYDRANT BE INSTALLED WITHIN 9 LINEAR FEET OF A SANITARY SEWER SYSTEM.
14. NOTE: SEPARATION DISTANCES ARE MEASURED FROM THE OUTSIDE DIAMETERS OF EACH PIPE AND FROM THE EXTERIOR SURFACES OF MANHOLES, LIFT STATIONS, WASTEWATER TREATMENT PLANTS AND ASSOCIATED APPURTENANCES.
15. REFER TO GENERAL SANITARY, WATER AND C.S.S. NOTES.

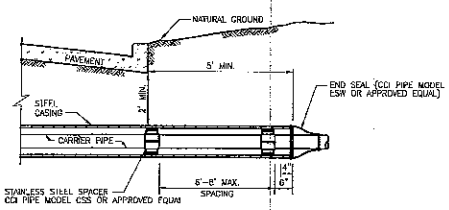
DETAIL OF WATER LINE CROSSING WASTEWATER FACILITIES WHERE SEPARATION IS LESS THAN 9' (NINE FEET)



MANHOLE CLEARANCE

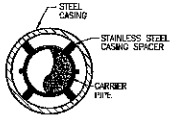
ENCASING PIPE

- 150 PSI PRESSURE CLASS PIPE MINIMUM 18 FEET LONG DIAMETER = 2 X WATERLINE DIAMETER
- SPACE AROUND CARRIER PIPE SHALL BE SUPPORTED AT 6 FT TO 8 FT INTERVALS MAXIMUM WITH STAINLESS STEEL SPACERS (CCI PIPE MODEL CSS OR APPROVED EQUAL).
- CENTERED ON CROSSING
- BOTH ENDS SEALED WITH END CAPS (CCI PIPE MODEL ESW OR APPROVED EQUAL)



ELEVATION

BORING SLEEVE DETAIL

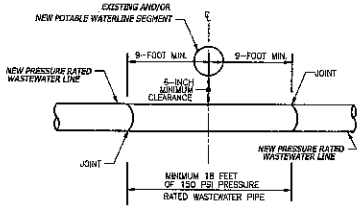


CASING SCHEDULE		
CARRIER PIPE	NOMINAL CASING ID	MIN. WALL THICKNESS (IN.)
6"	12"	0.11
8"	14"	0.15
10"	16"	0.18
12"	18"	0.20

1. CASING SIZE AND THICKNESS SHALL CONFORM TO THE MINIMUM REQUIREMENTS AS SHOWN ON CASING SCHEDULE, OTHER PERMITS AS REQUIRED.
2. MAINTAIN 4" 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 AND SPACER.
4. IF JOINTS ARE REQUIRED IN THE BORING SLEEVE THEN THE PIPE SHALL BE JOINT RESTRAINED.

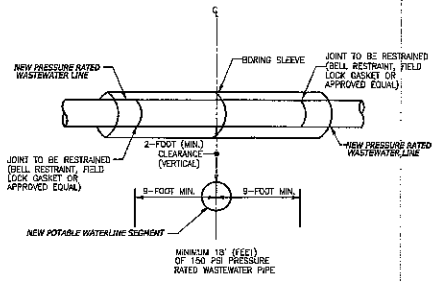
ALTERNATIVE A:

PRESSURE RATED WASTEWATER PIPE



ALTERNATIVE B:

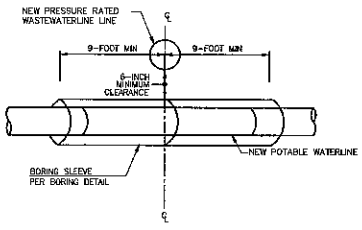
EXISTING POTABLE WATERLINE CROSSING EXISTING PRESSURE RATED WASTEWATER LINE



- NEW WATERLINE (WITHOUT CASING) TO BE CONSTRUCTED DUCTILE IRON WITH MECHANICAL JOINTS OR RESTRAINED JOINTS
- BOTH WATERLINE AND WASTEWATER LINE MUST PASS A PRESSURE AND LEAKAGE TEST AS SPECIFIED IN AWWA C600 STANDARDS.

ALTERNATIVE C:

ENCASE NEW POTABLE WATERLINE UNDER A NEW PRESSURE RATED WASTEWATER LINE



- SAME ENCASEMENT CRITERIA AS "ALTERNATIVE B" OR
- NEW WATERLINE (WITHOUT CASING) TO BE CONSTRUCTED DUCTILE IRON WITH MECHANICAL JOINTS OR RESTRAINED JOINTS
- BOTH WATERLINE AND WASTEWATER LINE MUST PASS A PRESSURE AND LEAKAGE TEST AS SPECIFIED IN AWWA C600 STANDARDS.

NO.	DATE	REVISION

WATER LINE CROSSING DETAILS

missouri CITY TEXAS

SEAL: STATE OF TEXAS JOSEPH B. ABOUD 99834 LICENSED PROFESSIONAL ENGINEER DATE 02-15-17

DESIGN ENGINEER

CONSTRUCTION PLANS FOR:

SHOPPES AT SIENNA PLANTATION

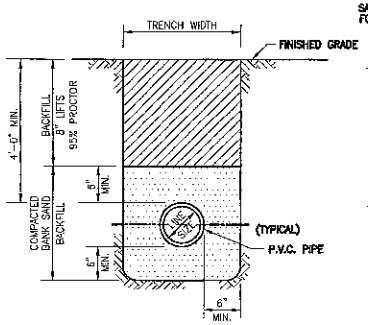
C17

JOB NO.:
SCALE: AS NOTED
SUBMITTED:
DATE: FEBRUARY 2015

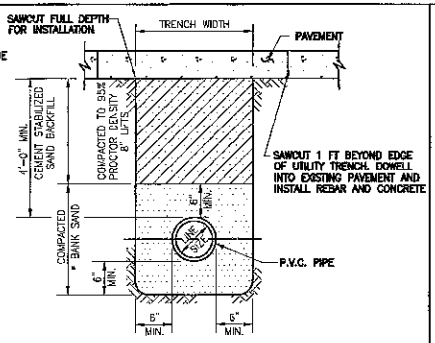
MC-12-15

SHEET 13 OF 29

CAD FILE PATH: CADD_FILE_PATH
PLOT DATE: DATE



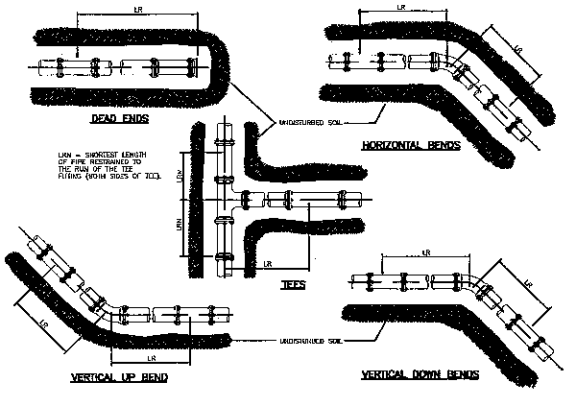
P.V.C. PIPE BEDDING & BACKFILL
N.T.S.



P.V.C. PIPE BEDDING & BACKFILL
PAVING DETAIL
CLASS "A-A"
N.T.S.

* SEE C.S.S. AND BANK SAND NOTES

SANITARY FORCE MAIN & WATER LINE BEDDING AND BACKFILL



RESTRAINED LENGTHS, LR, FOR DUCTILE IRON PIPE

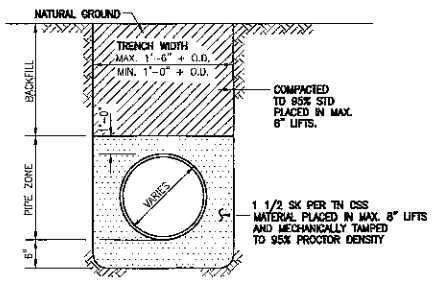
NOMINAL PIPE SIZE INCHES	HORIZONTAL BENDS			TEES		VERTICAL OFFSETS						DEAD ENDS
						90° BEND FITTINGS		45° BEND FITTINGS		22-1/2° BEND FITTINGS		
	90°	45°	22-1/2°	LRH=6'	LRH=10'	DOWN BEND	UP BEND	DOWN BEND	UP BEND	DOWN BEND	UP BEND	
4	16	7	4	39	8	31	16	13	7	6	3	31
6	25	10	5	43	20	44	20	18	10	9	5	44
8	32	13	6	56	34	58	30	24	13	11	6	58
10	38	16	8	66	45	69	38	29	16	14	8	69
12	45	19	9	80	57	81	45	34	19	16	9	81
14	51	21	10	91	68	92	51	39	21	18	10	92
16	57	24	11	103	79	104	57	43	24	21	11	104
18	62	26	12	113	89	115	62	48	26	23	12	115
20	68	28	14	125	100	126	68	52	28	25	14	126
24	79	33	16	145	121	147	79	61	33	29	16	147

RESTRAINED LENGTHS, LR, FOR DUCTILE IRON PIPE WITH POLYETHYLENE WRAP

NOMINAL PIPE SIZE INCHES	HORIZONTAL BENDS			TEES		VERTICAL OFFSETS						DEAD ENDS
						90° BEND FITTINGS		45° BEND FITTINGS		22-1/2° BEND FITTINGS		
	90°	45°	22-1/2°	LRH=6'	LRH=10'	DOWN BEND	UP BEND	DOWN BEND	UP BEND	DOWN BEND	UP BEND	
4	26	11	5	69	18	72	28	30	11	14	5	72
6	36	15	7	99	47	102	36	43	15	20	7	102
8	47	19	9	130	78	133	47	55	19	26	9	133
10	56	23	11	157	103	159	56	66	23	32	11	159
12	65	27	13	183	131	187	65	77	27	37	13	187
14	74	31	15	211	158	214	74	89	31	42	15	214
16	82	34	16	238	183	241	82	100	34	48	16	241
18	89	37	18	263	207	266	90	110	38	53	18	266
20	99	41	20	289	233	292	98	121	41	58	20	292
24	113	47	22	337	280	340	113	141	47	68	22	340

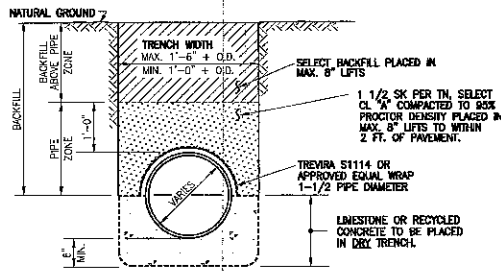
NOTES:
1. ALL JOINTS WITHIN THE SPECIFIED LENGTH LR MUST BE RESTRAINED. ALL LENGTHS ARE GIVEN IN FEET. THESE ARE MINIMUM LENGTHS AND THE DESIGN ENGINEER IS TO VERIFY.
2. THE MAXIMUM TEST PRESSURE SHALL NOT EXCEED 200 PSI
3. RESTRAINED LENGTHS MAY BE REDUCED WHEN SUPPORTED BY ENGINEERING CALCULATIONS.
4. FOR PVC WATER LINES USE THE DIP WITH POLYETHYLENE WRAP TABLE.

JOINT RESTRAINT FOR DUCTILE IRON PIPE AND POLYETHYLENE WRAPPED DUCTILE IRON WATER PIPES



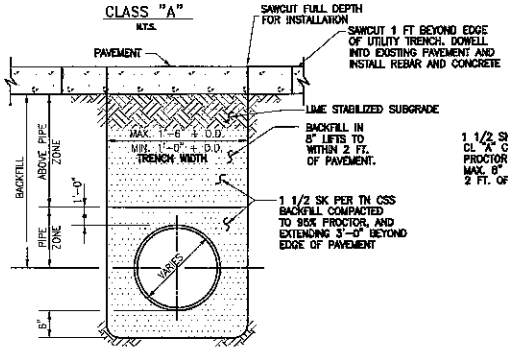
USE FOR SEWERS IN EASEMENTS & SIDE LOTS NOT UNDER EXISTING OR FUTURE ROADS, STREETS, OR DRIVEWAYS.

CLASS "A"
N.T.S.



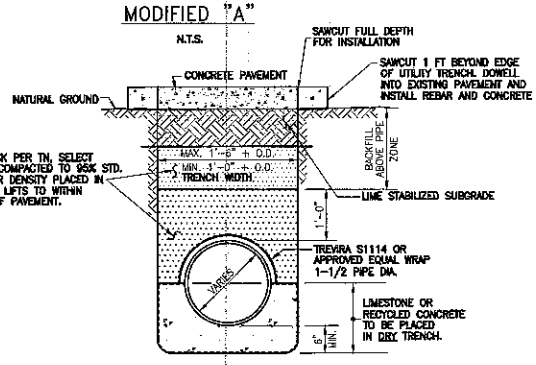
USE FOR SEWERS IN EASEMENTS & SIDE LOTS NOT UNDER EXISTING OR FUTURE ROADS, STREETS, OR DRIVEWAYS.

MODIFIED "A"
N.T.S.



USE FOR SEWERS UNDER EXISTING OR FUTURE ROADS STREETS OR DRIVEWAYS.

CLASS "A"-"A"
N.T.S.



USE FOR SEWERS UNDER EXISTING OR FUTURE ROADS STREETS OR DRIVEWAYS.

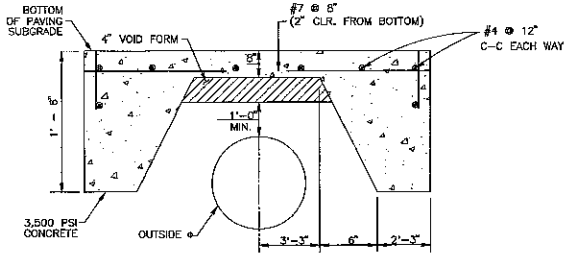
MODIFIED "A-A"
N.T.S.

SANITARY SEWER BEDDING AND BACKFILL

REFER TO:
1. GENERAL NOTES
2. C.S.S. NOTES

CONSTRUCTION NOTES

1. CONTRACTOR SHALL CONTACT MISSOURI CITY DEPARTMENT OF PUBLIC WORKS IMMEDIATELY IF WET SAND CONDITIONS ARE ENCOUNTERED.
2. LIMESTONE AND RECYCLED CONCRETE DIMENSIONS SHOWN ARE TYPICAL BUT MAY BE VARIED BY ORDER OF CITY ENGINEER.
3. LIMESTONE OR RECYCLED CONCRETE SHALL BE IN ACCORDANCE WITH TXDOT SPECIFICATION No. 248 FLEXIBLE BASE, TYPE A, GRADE 2 AGGREGATE.
4. NO BEDDING SHALL BE INSTALLED IN WET CONDITIONS. WHEN WELL POINTING OR IN WET SAND CONDITIONS, MAINTAIN GROUND WATER 1 (FT) BELOW BOTTOM OF TRENCH FOR A MINIMUM OF 24-HRS AFTER BEDDING AND BACKFILL IS IN PLACE.
5. ALL MATERIALS SHALL BE FROM THE APPROVED PRODUCTS LIST UNLESS SPECIFICALLY APPROVED BY THE CITY ENGINEER.
6. SANITARY SEWER BEDDING FOR WET SAND CONDITIONS SHALL BE AS PER MODIFIED "A" OR "A-A".
7. ALL SAND BEDDING FOR WATER LINES SHALL BE CLEAN, MECHANICALLY COMPACTED BANK SAND.
8. REFER TO: MANHOLE DETAILS, SANITARY, C.S.S., GENERAL, WATER CROSSING, WATER DISTRIBUTION DETAILS AND NOTES.



PROTECTIVE SLAB DETAIL
ZERO LOAD TRANSFER CONCRETE SLAB

NO.	DATE	REVISION

WATER LINE, SANITARY SEWER FORCE MAIN BEDDING DETAILS

missouri CITY TEXAS

SEAL: STATE OF TEXAS JOSEPH S. ARDNER 69894 LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: DATE 09-15-17

CONSTRUCTION PLANS FOR:

SHOPPES AT SIENNA PLANTATION

C18

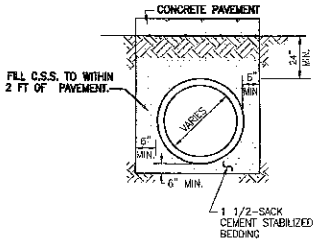
JOB No.:
SCALE: AS NOTED
SUBMITTED:
DATE: FEBRUARY 2015

MC-15-15

SHEET 15 OF 29

PLOT TIME: TIME STAMP

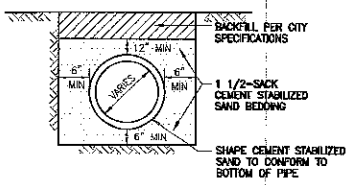
CAD FILE NAME: CADD_FILE_PATH
PLOT DATE: DATE



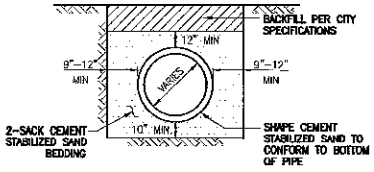
BEDDING DETAIL FOR
CONCRETE CULVERT USED
UNDER ROADWAY PAVEMENT

CLASS "A-A"

N.T.S.



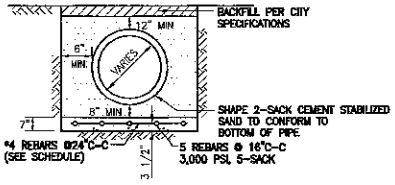
BEDDING DETAIL FOR
REINFORCED CONCRETE PIPE
STORM SEWER
36" DIAMETER & SMALLER



NOTES

1. 1.5-SACK CEMENT PER TON STABILIZED SAND PLACED BEFORE PIPE IS PLACED (10" MINIMUM FOR 42" TO 60", 14" MINIMUM FOR 66" TO 108")

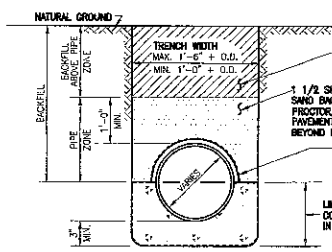
BEDDING DETAIL FOR
REINFORCED CONCRETE PIPE
STORM SEWER
42" TO 108" DIAMETER
WHERE SATISFACTORY SOIL CONDITIONS EXIST



NOTES

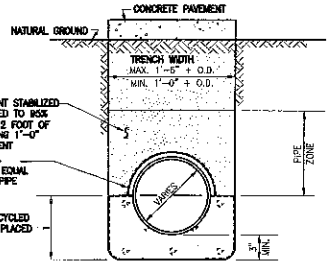
1. 1 1/2 SK PER TN STABILIZED SAND PLACED BEFORE PIPE IS PLACED (8" MINIMUM FOR 42" TO 60", 12" MINIMUM FOR 66" TO 108").

SEAL SLAB
BEDDING DETAIL FOR
REINFORCED CONCRETE PIPE
STORM SEWER
42" TO 108" DIAMETER
WHERE UNSATISFACTORY SOIL CONDITIONS EXIST



MODIFIED "A"

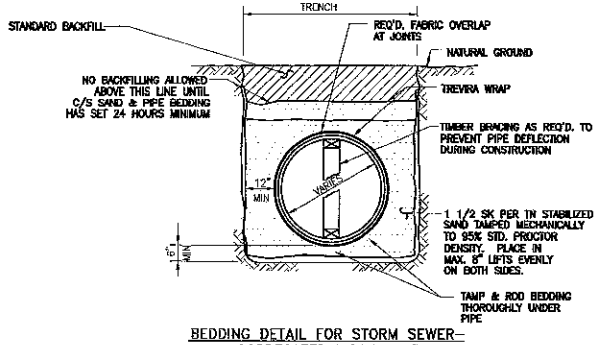
N.T.S.



USE FOR SEWERS UNDER EXISTING OR FUTURE ROADS, STREETS, DRIVEWAYS OR OTHER PVM'T.

MODIFIED "A-A"

N.T.S.



BEDDING DETAIL FOR STORM SEWER-
CORREGATED METAL PIPE

N.T.S.

CONSTRUCTION NOTES

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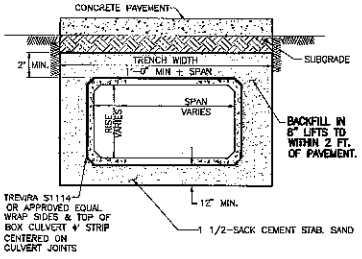
2. LIMESTONE AND RECYCLED CONCRETE DIMENSIONS SHOWN ARE TYPICAL BUT MAY BE VARIED BY ORDER OF CITY ENGINEER.
3. LIMESTONE OR RECYCLED CONCRETE SHALL BE IN ACCORDANCE WITH TXDOT SPECIFICATION No. 248 FLEXIBLE BASE, TYPE A, GRADE 2 AGGREGATE.
4. NO BEDDING SHALL BE INSTALLED IN WET CONDITIONS. WHEN WELL POINTING OR IN WET SAND CONDITIONS, MAINTAIN GROUND WATER 1' (FT.) BELOW BOTTOM OF TRENCH FOR A MINIMUM OF 24-HRS AFTER BEDDING AND BACKFILL IS IN PLACE.
5. R.C.P. AND BOX CULVERTS SHALL BE INSTALLED WITH APPROVED GASKETS ONLY.
6. MANHOLES SHALL BE PROVIDED WHERE MODIFIED "A" OR MODIFIED "A-A" BEDDING IS USED. STACKS ARE NOT ALLOWED.
7. REFER TO: MANHOLE DETAILS, INLETS, OUTFALL AND END TREATMENT DETAILS, C.S.S., GENERAL NOTES, AND STORM NOTES.
8. SPECIFIC DESIGNS MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER FOR MANHOLE ACCESS TO BOX CULVERTS AS REQUIRED.
9. ALL BACKFILL WITHIN THE R.O.W. SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.

TYPICAL SEAL SLAB
BAR SCHEDULE
(OR AS DIRECTED BY ENGINEER)

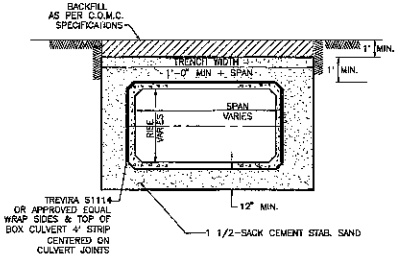
PIPE SIZE	LGT LAT #4 BARS	NO LONGIT #5 BARS
42"	5'4"	5
48"	6'8"	6
54"	6'8"	6
60"	8'0"	7
66"	8'0"	7
72"	9'4"	8
78"	9'4"	8
84"	9'4"	8
90"	10'8"	9
96"	10'8"	9
102"	12'0"	10
108"	12'0"	10



BEDDING DETAIL FOR
REINFORCED CONCRETE BOX
CULVERT UNDER ROADWAY PAVEMENT

NOTES

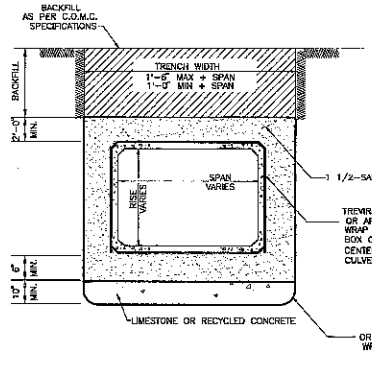
1. 2-SACK CEMENT PER CUBIC YARD STABILIZED SAND PLACED BEFORE PIPE IS PLACED (8" MINIMUM FOR 42" TO 60", 12" MINIMUM FOR 66" TO 108").



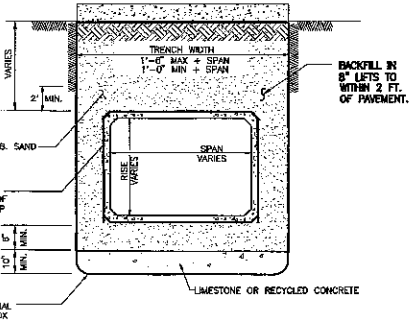
BEDDING DETAIL FOR
REINFORCED CONCRETE BOX
PLACED IN EASEMENT

NOTES

1. 2-SACK CEMENT PER CUBIC YARD STABILIZED SAND PLACED BEFORE PIPE IS PLACED (8" MINIMUM FOR 42" TO 60", 12" MINIMUM FOR 66" TO 108").



BEDDING DETAIL FOR
REINFORCED CONCRETE BOX CULVERT
W/MODIFIED BEDDING



BEDDING DETAIL FOR
REINFORCED CONCRETE BOX CULVERT
W/MODIFIED BEDDING
UNDER ROADWAY PAVEMENT

No.	DATE	REVISION

STORM SEWER PIPE BEDDING
AND BACKFILL DETAILS

missouri CITY
TEXAS

SEAL:

DESIGN ENGINEER: DATE 02-15-17

CONSTRUCTION PLANS FOR:

SHOPPES AT SIENNA
PLANTATION

C19

JOB No.:
SCALE: AS NOTED
SUBMITTED:
DATE: FEBRUARY 2015

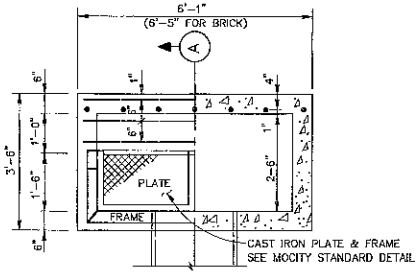
MC-16-15

SHEET 17 OF 29

PLOT TIME: TIME STAMP

CAD FILE PATH: CWDL/FILE_PATH
PLOT DATE: DATE

"B-B" INLET
(REPLACEMENT ONLY)



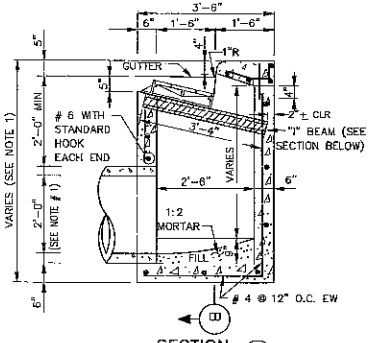
HALF PLAN HALF-SECTION PLAN

GENERAL NOTES:

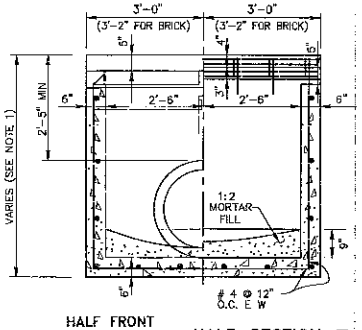
USE STD CAST IRON FRAME & PLATES.
LEAD SHALL LEAVE INLET AT LOCATION AND GRADE REQUIRED.
WHEN BRICK INLETS ARE BUILT EXTEND DOWELS 4 INCHES FROM CURB BEAM INTO BRICKWORK.
WHEN BRICK INLETS ARE BUILT, WALLS SHALL BE INCREASED TO 8 INCHES, AND INLET BEAMS TO BE 4 INCHES LONGER.

NOTES:

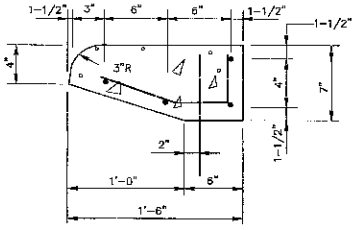
1. DIMENSION VARIES BASED ON PIPE DIAMETER AND WALL THICKNESS.
2. CENTER REINFORCING IN SLAB AND WALLS.
3. CENTER STEEL BEAM ON INLET AND CAST INTO WALLS AS SHOWN.



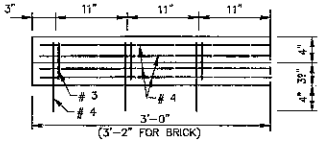
SECTION (A)



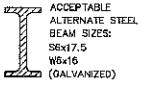
HALF FRONT ELEVATION HALF-SECTION (B)



TRANSVERSE SECTION



HALF-FRONT ELEV

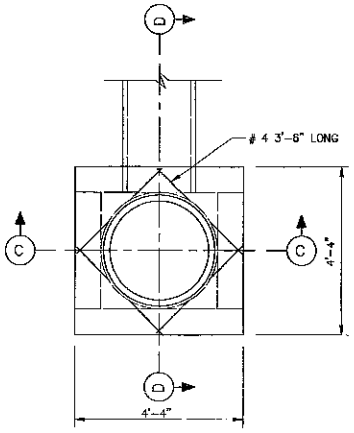


ACCEPTABLE ALTERNATE STEEL BEAM SIZES:
S6x17.5
W6x16
(GALVANIZED)

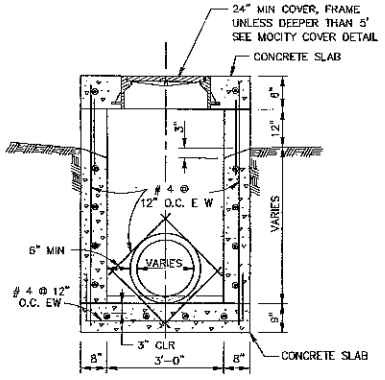
I-BEAM SECTION

PRECAST CURB BEAM

CURB BEAM BAR LIST				
NO	SIZE	LENGTH	SHAPE	LOC
4	# 4	5'-10"	ST	HOR
7	# 4	0'-10"	ST	VERT
7	# 3	1'-6"	BT	



PLAN



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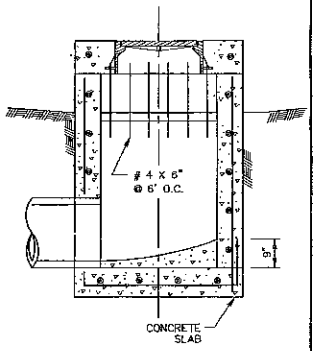
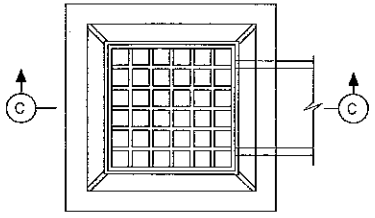
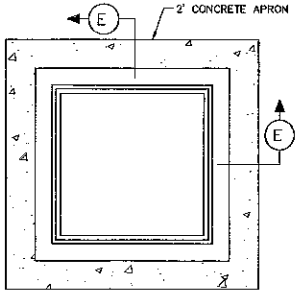


SECTION (D)

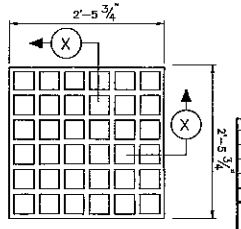
TYPE "E" INLET
N.T.S.



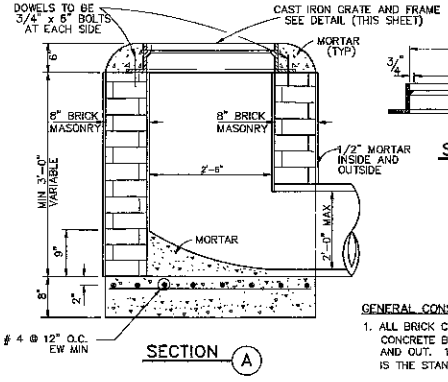
PLAN



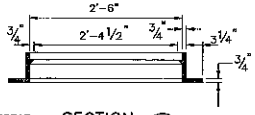
FRAME



GRATE



SECTION (A)



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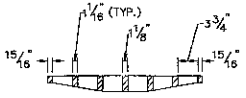


SECTION (X)

TYPE "A" INLET
N.T.S.

GENERAL CONSTRUCTION NOTES:

1. ALL BRICK CONSTRUCTION SHALL USE APPROVED CONCRETE BRICK WITH 1/2" (IN.) MORTAR INSIDE AND OUT. 1/4" TO 1/2" MORTAR JOINT, 3/8" (IN.) IS THE STANDARD.

REFER TO:

1. *GENERAL NOTES*
2. *STORM SEWER NOTES*

NO.	DATE	REVISION

STORM SEWER INLET CONSTRUCTION DETAILS I

missouri CITY TEXAS

SEAL: JOSEPH S. ABBOUD 68884 LICENSED PROFESSIONAL ENGINEER
DATE 02-15-17
DESIGN ENGINEER

CONSTRUCTION PLANS FOR:

SHOPPES AT SIENNA PLANTATION

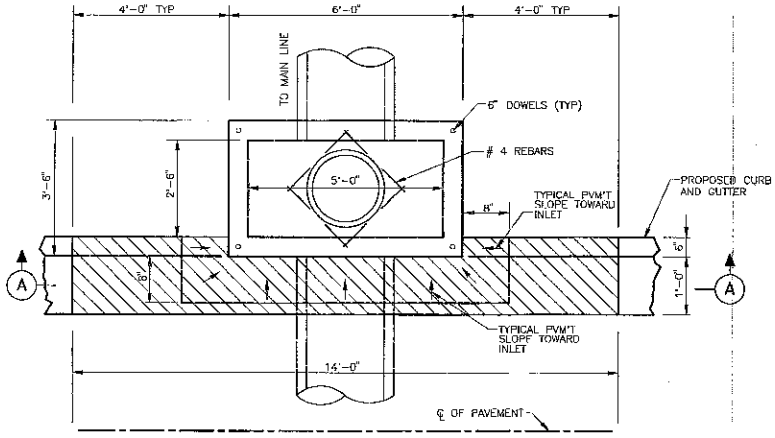
C20

JOB NO.:
SCALE: AS NOTED
SUBMITTED:
DATE: FEBRUARY 2015

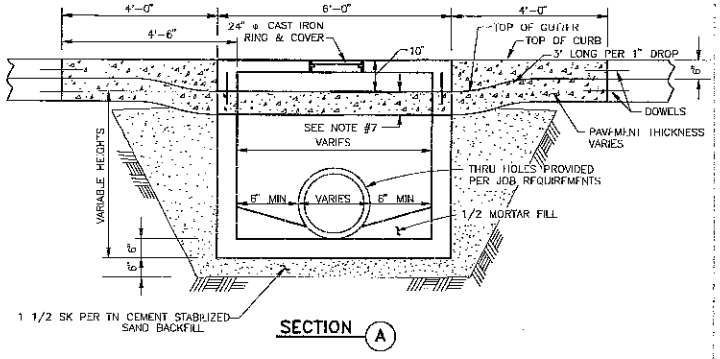
MC-5-15

SHEET 5 OF 26

PLOT TIME: TIME STAMP
CAD FILE NAME: CA20_FILE_PATH
PLOT DATE: DATE



PLAN

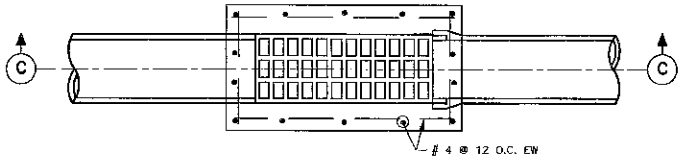


SECTION (A)

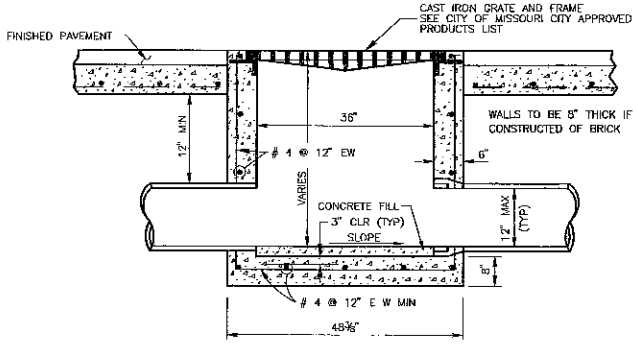
TYPE "H-2" INLET

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 INLET FIRST STAGE.
4. GRADE 60 REINFORCED. #4 STEEL REBAR TO CONFORM TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.
5. PRECAST INLET MUST BE CONSTRUCTED TO SPECIFICATIONS REQUIRED BY APPROVED DRAWINGS. (SEE GENERAL NOTES)
6. TOPS POURED-IN-PLACE REQUIRE #4 REBAR @ 12" O.C. EACH WAY, 3,500 PSI CONCRETE MINIMUM AND 3" THICK MINIMUM.
7. PAVEMENT DEPTH AT INLET SHALL BE EQUAL TO OR GREATER THAN REQUIRED PAVEMENT DEPTH.
8. DEPRESS

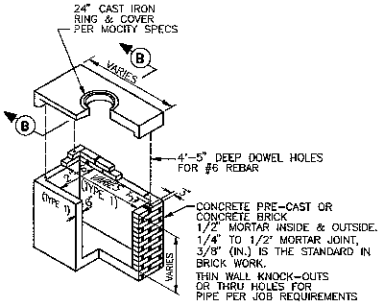


PLAN

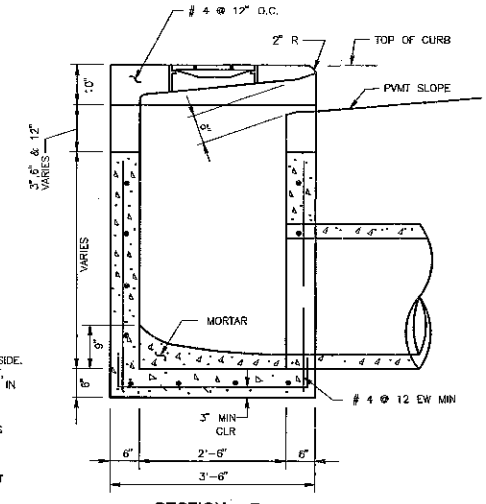


SECTION (C)

TYPE "D" INLET



NOTE:
REFER TO INSTALLATION FOR TYPE H-2 5'-0" CURB INLET ON PAVING DETAIL SHEET



SECTION (B)

TYPE "H-2" PRECAST INLET

N.T.S.

REFER TO:

1. *GENERAL NOTES*
2. *SEE C.S.S., PAVEMENT NOTES*

NO.	DATE	REVISION

STORM SEWER INLET CONSTRUCTION DETAILS II

missouri CITY TEXAS

SEAL: STATE OF TEXAS JOSEPH S. ABBOUD 119394 LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: DATE: 02-15-17

CONSTRUCTION PLANS FOR:

SHOPPES AT SIENNA PLANTATION

C21

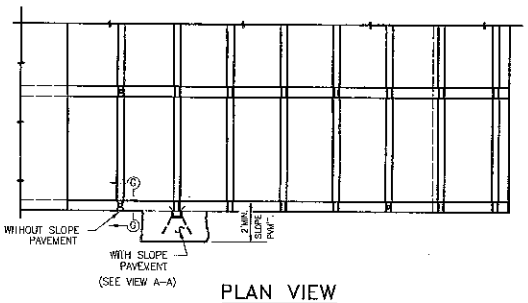
JOB No.:
SCALE: AS NOTED
SUBMITTED:
DATE: JUNE 2010

MC-6-10

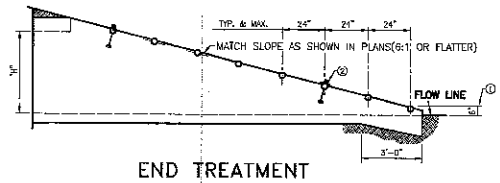
SHEET 5 OF 27

PLOT TIME: TIME STAMP

CAD FILE PATH: CADD_FILE_PATH
PLOT DATE: DATE



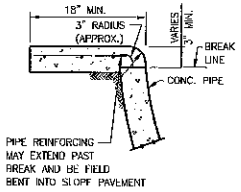
PLAN VIEW



END TREATMENT
SINGLE & MULTIPLE
BOX CULVERTS

N.T.S.

①TOP OF SAFETY PIPE RUNNER(TYP.)
②THIRD PIPE RUNNER TO HAVE BOLTED CONNECTION FOR CLEANOUT ACCESS.

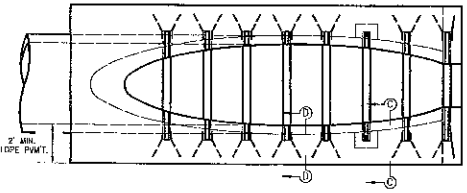


SECTION D

NOTES:

1. THESE DETAILS ARE TO BE USED AS A GUIDE FOR INSTALLATION OF SAFETY PIPE RUNNERS FOR CROSS-DRAINAGE STRUCTURES WHERE OUT OF CONTROL VEHICLES MAY TRAVERSE THE OPENING APPROXIMATELY PERPENDICULAR TO THE SAFETY PIPE RUNNER. SOME INSTALLATIONS MAY REQUIRE THE PREPARATION OF SPECIAL DETAILS. IN GENERAL, SAFETY PIPE RUNNERS ARE INSTALLED ON CROSS-DRAINAGE STRUCTURES AT MAXIMUM SPACINGS OF APPROXIMATELY 24 INCHES.
   SINGLE AND MULTIPE 24" (IN.) OR SMALLER DIAMETER PIPES ARE PERMISSIBLE WITHOUT PIPE RUNNERS. SINGLE OR MULTIPLE BOX CULVERTS WITH SPANS OF 24" OR LESS ARE ALSO PERMISSIBLE WITHOUT SAFETY PIPE RUNNERS.
   DESIGN: SAFETY PIPE RUNNERS ARE DESIGNED FOR A TRAVERSING LOAD OF 1,800 POUNDS AT YIELD AS RECOMMENDED BY RESEARCH REPORT 280-J, SAFETY TREATMENT OF ROADSIDE CROSS-DRAINAGE STRUCTURES, TEXAS TRANSPORTATION INSTITUTE, MARCH 1981.
2. SEE STORM OUTFALL DETAILS FOR SLOPE PAVEMENT REQUIREMENTS.

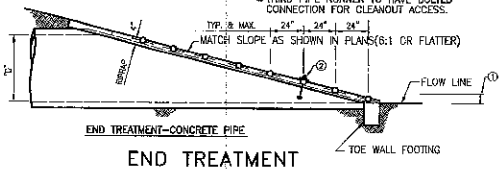
DIA.	WALL	O.D.	SLOPE	PIPE LGTH	TYPE	A INCH	B INCH	C INCH	D INCH	L	LENGTH END SEC FT.
24"	3"	30"	3:1	2-8"	2	3	9	36	54	7'-6"	11.27
			4:1	2-6"	2	3	9	24	48	5'-3"	12.33
			6:1	3-6"	3	3	9	36	72	12'-2"	18.23
36"	4"	44"	3:1	2-7"	2	4	10	36	54	10'-8"	14.75
			4:1	3-6"	3	4	10	26	60	13'-0"	18.21
			6:1	4-6"	4	4	10	36	72	18'-0"	25.36
42"	4"	51"	3:1	2-7"	2	4	10	27	45	11'-3"	15.81
			4:1	3-7"	3	4	10	51	75	16'-5"	21.9
			6:1	4-7"	4	4	10	54	90	22'-6"	30.41
48"	5"	58"	3:1	3-8"	3	5	11	36	54	13-6"	18.44
			4:1	3-7"	3	5	11	39	63	17'-3"	23.27
			6:1	4-7"	4	5	11	36	72	24'-0"	32.44
54"	5"	65"	3:1	3-6"	3	5	11	27	45	14'-3"	19.5
			4:1	4-6"	4	5	11	36	60	19-0"	25.43
			6:1	5-7"	5	5	11	63	99	29-3"	38.27
60"	6"	72"	3:1	3-7"	3	6	12	45	63	17'-3"	22.64
			4:1	4-7"	4	6	12	60	84	23'-0"	29.98
			6:1	5-7"	5	6	12	45	81	30'-9"	40.28



PLAN VIEW
CONCRETE PIPE

NOTE:
24" (IN.) TREATMENT REQUIRES NO BARS.
36" (IN.) AND LARGER REQUIRES BARS.
ALL BOLTED BARS ARE ACCEPTABLE

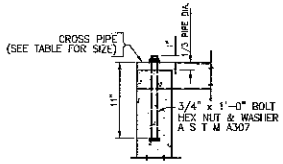
①TOP OF SAFETY PIPE RUNNER(TYP.)
②THIRD PIPE RUNNER TO HAVE BOLTED CONNECTION FOR CLEANOUT ACCESS.



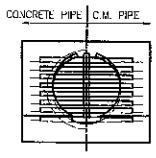
END TREATMENT-CONCRETE PIPE

END TREATMENT
CONCRETE PIPE

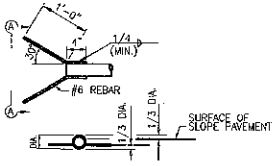
N.T.S.



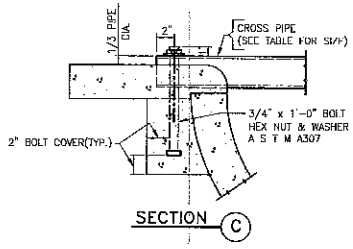
SECTION G



END VIEW
CONCRETE



VIEW A-A



SECTION C

DEEPEN AND WIDEN SLOPE PAVEMENT AROUND END OF CROSS PIPE AND PROVIDE BOLTED CONNECTION TO ALLOW CLEANOUT ACCES.

REQUIRED PIPE SIZES FOR GIVEN PIPE YIELD

CULVERT SIZE	PIPE RUNNER LENGTH	35 KS: ASTM A53, TX E & S GR. B			42 KS: ASTM A500, GR. B			52 KS: API 5LX52		
		NOM.	O.D.	I.D.	NOM.	O.D.	I.D.	NOM.	O.D.	I.D.
36"	48"	3" XXS 3 1/2" XS	3.500 4.000	2.300 3.364	3" x S 3 1/2" STD.	3.500 4.000	2.900 3.548	3" STD.	3.500	3.068
42"	54"	3" XXS 3 1/2" XS 4" STD.	3.500 4.000 4.500	2.300 3.364 4.026	3" XXS 3 1/2" XS 4" STD.	3.500 4.000 4.500	2.300 3.364 4.026	3" XS 3 1/2" STD.	3.500 4.000	2.900 3.548
48"	60"	3" XXS 4" XS	3.500 4.500	2.300 3.826	3" XXS 3 1/2" XS 4" STD.	3.500 4.000 4.500	2.300 3.364 4.026	3" XXS 3 1/2" STD.	3.500 4.000	2.300 3.548
54"	66"	4" XS 5" STD.	4.500 5.563	3.826 5.047	3" XXS 4" STD.	3.500 4.500	2.300 4.026	3" XXS 3 1/2" XS 4" STD.	3.500 4.000 4.500	2.300 3.364 4.026
60"	72"	4" XS 5" STD.	4.500 5.563	3.826 5.047	4" XS 5" STD.	4.500 5.563	3.826 5.047	3" XXS 3 1/2" XS 4" STD.	3.500 4.000 4.500	2.300 3.364 4.026

NO.	DATE	REVISION

SLOPE END TREATMENTS

missouri CITY TEXAS

SEAL: STATE OF TEXAS JOSEPH S. ABBOUD 89884 LICENSED PROFESSIONAL ENGINEER DATE 09-15-17

DESIGN ENGINEER:

CONSTRUCTION PLANS FOR:

SHOPPES AT SIENNA PLANTATION

C22

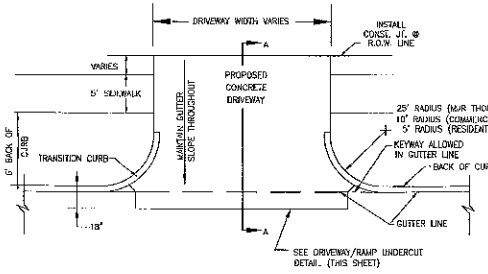
JOB No.:
SCALE: AS NOTED
SUBMITTED:
DATE: FEBRUARY 2015

MC-9-15

SHEET 30 OF 28

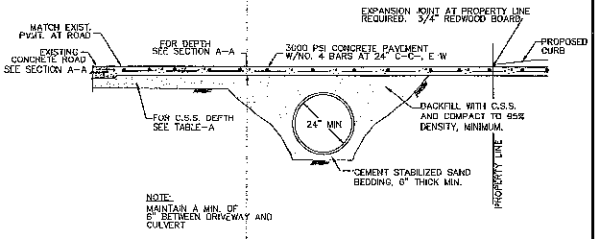
PLOT TIME: TIME STAMP

CAD FILE PATH: CADD_FILE_PATH
PLOT DATE: DATE



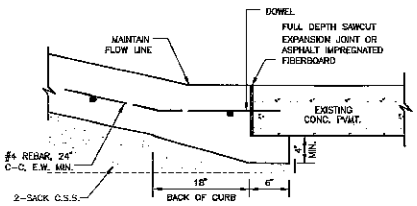
6" CONCRETE CURB DRIVEWAY PLAN

N.T.S.



CONCRETE APRON DETAIL – DRIVEWAY PROFILE FOR CULVERT DRAINAGE

N.T.S.



DRIVEWAY/RAMP UNDERCUT

N.T.S.

NOTES:

1.) SAW CUT & BREAKOUT NO MORE THAN 72 HOURS PRIOR TO PROPOSED CONCRETE PLACEMENT. NOTIFY MISSOURI CITY PRIOR TO CUT.

2.) UNSTABLE SUBGRADE SHALL BE OVER EXCAVATED & REPLACED WITH CONCRETE.

3.) IT IS CONTRACTOR'S RESPONSIBILITY TO NOTIFY MISSOURI CITY 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

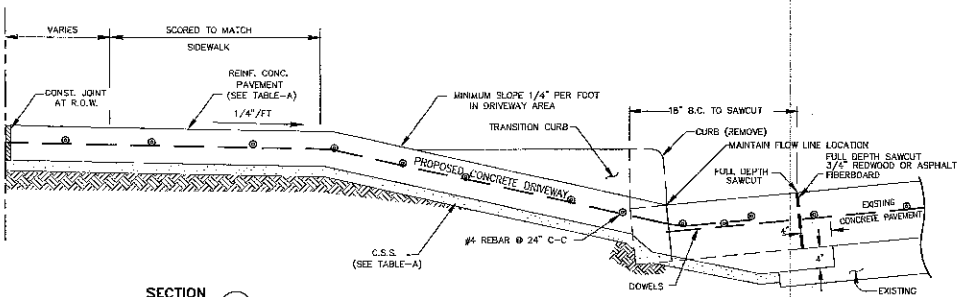
6.) FOR INDUSTRIAL DRIVES, PAVEMENT SHALL HAVE A DEPTH OF 8" (IN).

7.) EXPANSION JOINT AT PROPERTY LINE REQUIRED. 3/4" REDWOOD BOARD WITH No. 4 DOWELS MINIMUM.

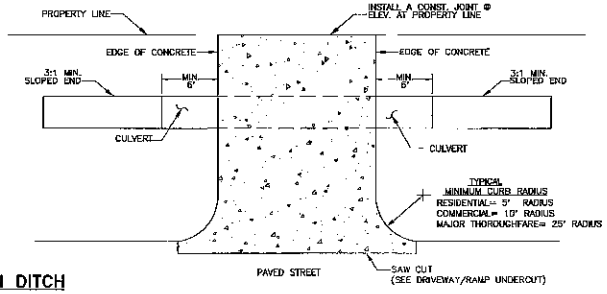
8.) MAXIMUM ALLOWABLE DRIVEWAY GRADE IN PUBLIC R.O.W. IS 5%.

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 R.O.W. LINE, PROVIDE A 3/4" REDWOOD EXPANSION JOINT WITH DOWELS AT R.O.W. LINE.

10.) REFER TO GENERAL , C.S.S., ASPHALT, AND CONCRETE PAVEMENT NOTES.



SECTION (A)



OPEN DITCH CONCRETE DRIVEWAY PLAN

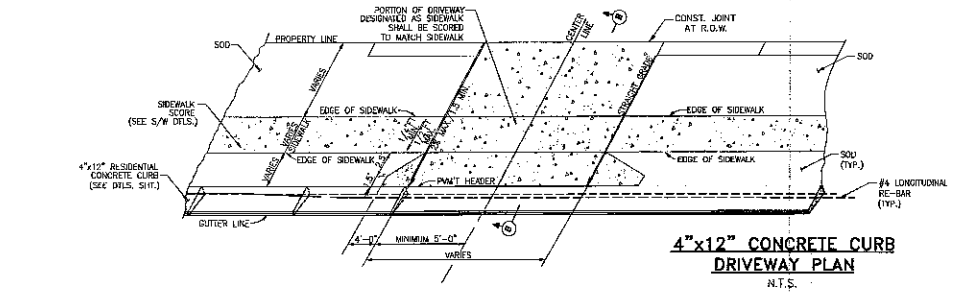
(USED ONLY WHEN CONNECTING TO A CONCRETE ROADWAY)

N.T.S.

TABLE–A

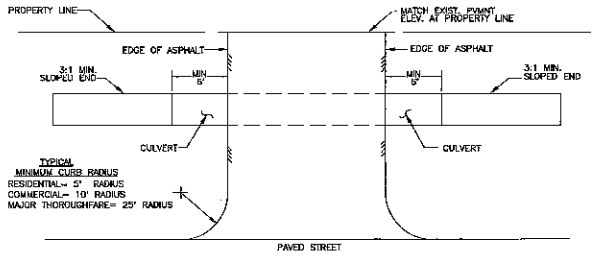
CEMENT STABILIZED SAND 1 1/2 SK PER TN	
RESIDENTIAL	4" MINIMUM
COMMERCIAL	6" MINIMUM
INDUSTRIAL	8" MINIMUM
REINFORCED CONCRETE PAVEMENT AND APPROACHES 3,000 PSI MIN	
RESIDENTIAL	6" MINIMUM
COMMERCIAL	7" MINIMUM
INDUSTRIAL	8" MINIMUM

DRIVEWAY PAVEMENT CONSTRUCTION TABLE



4"x12" CONCRETE CURB DRIVEWAY PLAN

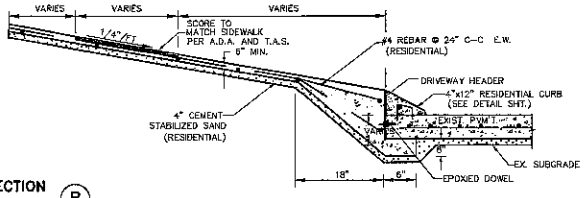
N.T.S.



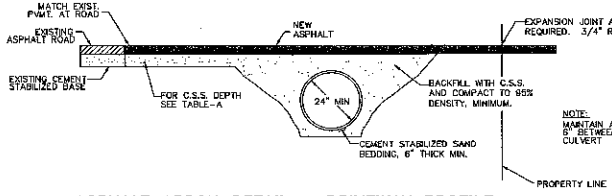
ASPHALT DRIVEWAY PLAN

(USED ONLY WHEN CONNECTING TO AN ASPHALT ROADWAY)

N.T.S.



SECTION (B)



ASPHALT APRON DETAIL – DRIVEWAY PROFILE FOR CULVERT DRAINAGE

N.T.S.

NO.	DATE	REVISION

DRIVEWAY CONSTRUCTION DETAILS

missouri CITY TEXAS

SEAL: JOSEPH S. ABBOUD, 68884, LICENSED PROFESSIONAL ENGINEER, STATE OF TEXAS

DATE 02-15-17

DESIGN ENGINEER:

CONSTRUCTION PLANS FOR:

SHOPPES AT SIENNA PLANTATION

C23

JOB No.:

SCALE: AS NOTED

SUBMITTED:

DATE: FEBRUARY 2015

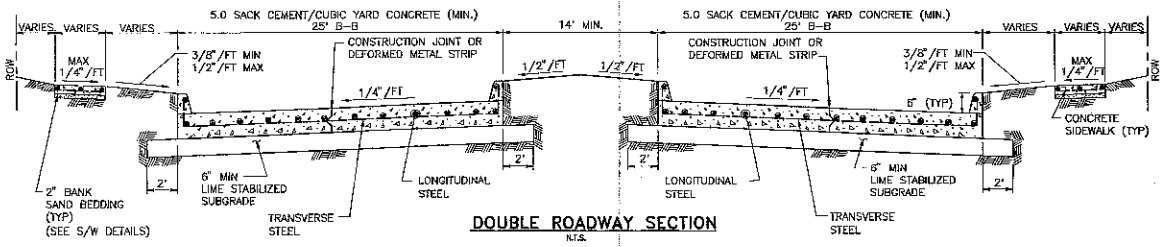
MC–22–15

SHEET 23 OF 29

PLOT TIME: TIME STAMP

CAD FILE PATH: CADD_FILE_PATH

PLOT DATE: DATE

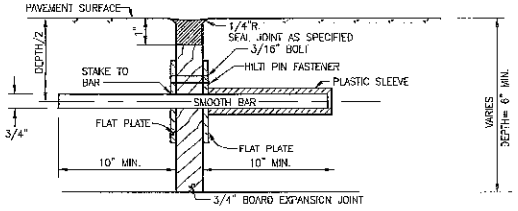


DOUBLE ROADWAY SECTION

N.T.S.

CONSTRUCTION NOTES:

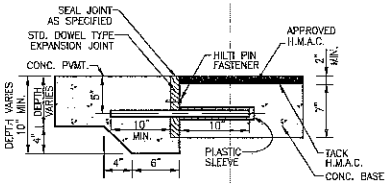
1. 6 INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI REINFORCED CONCRETE WITH #4 BARS 24 INCHES O.C., E.W. IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR RESIDENTIAL STREETS.
2. 7 INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI REINFORCED CONCRETE WITH #4 BARS 24 INCHES O.C., IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR COLLECTOR AND THOROUGHFARE STREETS.
3. HARD AGGREGATE IS NOT ALLOWED IN STREET PAVEMENT MIX. ADMIXTURES REQUIRE CITY OF MISSOURI CITY PUBLIC WORKS DEPARTMENT APPROVAL.
4. TRANSVERSE EXPANSION JOINTS ARE REQUIRED AT MAXIMUM SPACING OF 60'-0" O.C., AND VERTICAL CURB JOINTS TO BE SEALED WITH SPECIAL JOINT SEALANT ASTM-D-1190-74 OR AASHTO-M173-60 (ELASTOMERIC TYPE, HOT POURED)
5. FOR PAVEMENT FINISH USE BURLAP DRAG OR BELTED FINISH. CURING COMPOUND REQUIRED ON ALL CONCRETE.
6. PAVEMENT DEPTHS >7" REQUIRED BASED ON GEDTECH REPORT AND CITY ENGINEER'S APPROVAL.
7. STORM WATER POLLUTION PROTECTION SHALL BE DESIGNED, CONSTRUCTED, MAINTAINED AND SHALL BE IN TOTAL COMPLIANCE WITH THE STORM QUALITY MANUAL OF THE CITY OF MISSOURI CITY.
8. REFER TO GENERAL, C.S.S., AND PAVEMENT NOTES.



STEEL TO MEET ASTM STD. SPEC. FOR CONC. REBAR UNIT TO BE 24" O.C., AND 10" MIN.

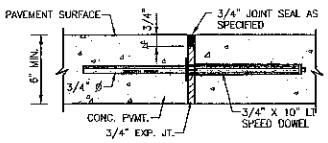
DOWEL TYPE EXPANSION JOINT

N.T.S.



DOWEL TYPE EXPANSION JOINT

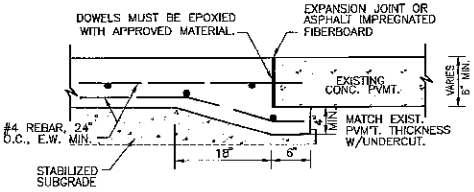
N.T.S.
(CONC. PAVING TO CONC. BASE)



SPEED DOWEL EXPANSION JOINT

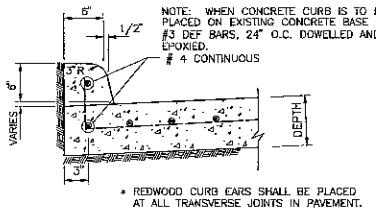
N.T.S.

DOWELS ARE TO BE IMBEDDED MIN. 8" INTO EXISTING CONCRETE.



UNDERCUT DETAIL WITH HEADER

N.T.S.



NOTE: WHEN CONCRETE CURB IS TO BE PLACED ON EXISTING CONCRETE BASE #3 DEF BARS, 24" O.C. DOWELLED AND EPOXIED.
4 CONTINUOUS

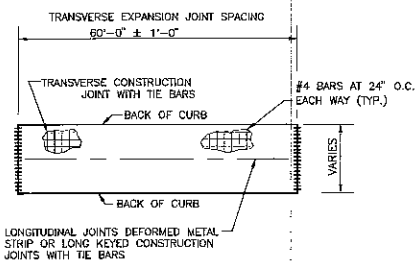
* REDWOOD CURB EARS SHALL BE PLACED AT ALL TRANSVERSE JOINTS IN PAVEMENT.

CONCRETE CURB

N.T.S.

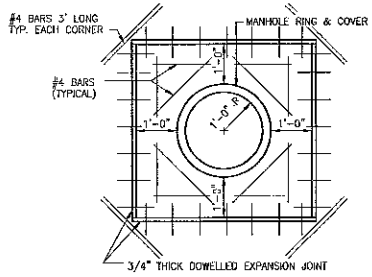
CONSTRUCTION NOTE:

ALL NEW CURB REQUIRES 3,500 P.S.I. @ 28-DAYS, AND A MINIMUM OF 1-LB/CY OF APPROVED POLYPROYLENE FIBER MESH.



PAVING PANEL FOR 6" & 7" PAVEMENT

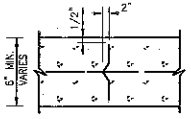
N.T.S.



MANHOLE BLOCKOUT

N.T.S.
(STORM & SANITARY) IN PAVEMENT

THE LOCATION OF CONSTRUCTION JOINTS AND DEFORMED STRIPS MAY BE VARIED, WITH THE APPROVAL OF THE DEPARTMENT OF PUBLIC WORKS, TO SUIT THE PROPOSED CONSTRUCTION METHODS OF THE CONTRACTOR. MAXIMUM SPACING FOR LONGITUDINAL CONTROL JOINTS IS 15'-0".



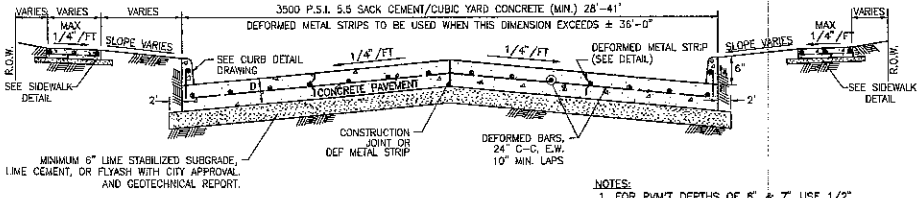
DEFORMED METAL STRIP

N.T.S.

No.	DATE	REVISION

CONCRETE PAVEMENT CONSTRUCTION DETAILS

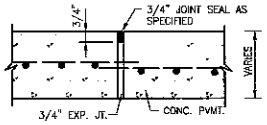
missouri CITY TEXAS



SINGLE ROADWAY SECTION

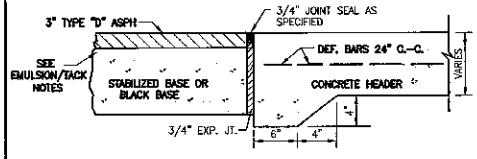
N.T.S.

NOTES:
1. FOR PVM'T DEPTHS OF 6" & 7" USE 1/2" DEFORMED BARS, 24" O.C., 10' LAPS. ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M. NO. A-15-54T AND A-306-53T. LAP SPLICES TO BE A MINIMUM OF 10 INCHES. STAGGER SPLICES IN ADJACENT BARS.



CONSTRUCTION JOINT SEAL

N.T.S.



PAVING HEADER

(FOR USE IN CONNECTING CONC. PVMT. TO ASPHALT PVMT.)
(PROP. OR EXIST.)

SEAL

STATE OF TEXAS JOSEPH E. ABOUD 49968 LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER DATE 09-15-17

CONSTRUCTION PLANS FOR:

SHOPPES AT SIENNA PLANTATION

C24

JOB No.:	MC-17-15
SCALE: AS NOTED	
SUBMITTED:	
DATE: FEBRUARY 2015	SHEET 18 OF 29

PLOT TIME: TYPE STAMP

CAD FILE PATH: CADD\FILE_PATH
PLOT DATE: DATE

STATE OF TEXAS
COUNTY OF FORT BEND

WE, PROSPERITY CHOICE INVESTMENT, LP ACTING BY AND THROUGH PHOENIX/PROPERTY INVESTMENT, INC., ITS GENERAL PARTNER ACTING BY AND THROUGH QUYEN NGO, VICE PRESIDENT OF PHOENIX/PROPERTY INVESTMENT, INC., OWNERS, HEREIN - SIN REFERRED TO AS OWNERS OF THE 3.684 ACRE TRACT DESCRIBED IN THE ABOVE AND FOREGOING PLAT OF SIENNA PLANTATION COMMERCIAL PARK NORTH SECTION TWO-A PHASE TWO, 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 THE PUBLIC FOREVER, ALL STREETS, ALLEYS, PARKS, WATER COURSES, DRAINS, EASEMENTS, AND PUBLIC PLACES SHOWN THEREON FOR THE PURPOSES AND CONSIDERATIONS THEREIN EXPRESSED, AND DO HEREBY BIND OURSELF, ITS HEIRS, AND ASSIGNS TO WARRANT AND FOREVER DEFEND THE TITLE TO THE LAND SO DEDICATED.

FURTHER, OWNERS HAVE DEDICATED AND BY THESE PRESENTS DO DEDICATE TO THE USE OF THE PUBLIC FOR PUBLIC UTILITY PURPOSES, FOREVER, UNOBSTRUCTED AERIAL EASEMENTS. THE AERIAL EASEMENTS SHALL EXTEND HORIZONTALLY AN ADDITIONAL SEVEN FEET, SIX INCHES (11' 6") FOR TEN FEET (10' 0") PERIMETER GROUND EASEMENTS OR SEVEN FEET, SIX INCHES (7' 6") FOR FOURTEEN FEET (14' 0") PERIMETER GROUND EASEMENTS OR FIVE FEET, SIX INCHES (5' 6") FOR SIXTEEN FEET (16' 0") PERIMETER GROUND EASEMENTS, FROM A PLANE SIXTEEN FEET (16' 0") ABOVE GROUND LEVEL UNDERGROUND LOCATED ADJACENT TO AND ADJOINING SAID PUBLIC UTILITY EASEMENTS THAT ARE DESIGNATED WITH AERIAL EASEMENTS (U.E. & A.E.) AS INDICATED AND DEPICTED HEREON, WHEREBY THE AERIAL EASEMENTS TOTAL TWENTY ONE FEET, SIX INCHES (21' 6") IN WIDTH.

FURTHER, OWNERS HAVE DEDICATED AND BY THESE PRESENTS DO DEDICATE TO THE USE OF THE PUBLIC FOR PUBLIC UTILITY PURPOSES, FOREVER, UNOBSTRUCTED AERIAL EASEMENTS. THE AERIAL EASEMENTS SHALL EXTEND HORIZONTALLY AN ADDITIONAL TEN FEET (10' 0") FOR TEN FEET (10' 0") BACK-TO-BACK GROUND EASEMENTS OR SEVEN FEET (7' 0") FOR FOURTEEN FEET (14' 0") BACK-TO-BACK GROUND EASEMENTS OR SEVEN FEET (7' 0") FOR SIXTEEN FEET (16' 0") BACK-TO-BACK GROUND EASEMENTS FROM A PLANE SIXTEEN FEET (16' 0") ABOVE GROUND LEVEL GRADE LOCATED ADJACENT TO BOTH SIDES AND ADJOINING AND PUBLIC UTILITY EASEMENTS THAT ARE DESIGNATED WITH AERIAL EASEMENTS (U.E. & A.E.) AS INDICATED AND DEPICTED HEREON, WHEREBY THE AERIAL EASEMENTS TOTAL THIRTY FEET (30' 0") IN WIDTH.

FURTHER, OWNERS DO HEREBY CERTIFY THAT WE ARE THE OWNERS OF ALL PROPERTY IMMEDIATELY ADJACENT TO THE BOUNDARIES OF THE ABOVE AND FOREGOING PLAT OF SIENNA PLANTATION COMMERCIAL PARK NORTH SECTION TWO-A PHASE TWO UNDER BUILDING SETBACK LINES OR PUBLIC UTILITY EASEMENTS ARE TO BE ESTABLISHED OUTSIDE THE BOUNDARIES OF THE ABOVE AND FOREGOING PLAT AND DO HEREBY MAKE AND ESTABLISH ALL BUILDING SETBACK LINES AND DEDICATE TO THE USE OF THE PUBLIC FOREVER ALL PUBLIC UTILITY EASEMENTS SHOWN IN SAID ADJACENT ACREAGE.

WE FURTHER ACKNOWLEDGE THAT THE DEDICATIONS AND/OR EXACTIONS MADE HEREIN ARE PROPORTIONAL TO THE IMPACT OF THE SUBDIVISION WITHIN THE PUBLIC IMPROVEMENTS REQUIRED IN ORDER THAT THE DEVELOPMENT WILL COMPORT WITH THE PRESENT AND FUTURE GROWTH NEEDS OF THE CITY, WE, OUR SUCCESSORS AND ASSIGNS HEREBY WAIVE ANY CLAIM, DAMAGE, OR CAUSE OF ACTION THAT WE MAY HAVE AS A RESULT OF THE DEDICATION OR EXACTIONS MADE HEREIN.

IN TESTIMONY WHEREOF, PROSPERITY CHOICE INVESTMENT, LP CAUSED THESE PRESENTS TO BE SIGNED BY PHOENIX/PROPERTY INVESTMENT, INC., ITS GENERAL PARTNER, BY QUYEN NGO, ITS VICE PRESIDENT THEREUNTO AUTHORIZED, THIS 8TH DAY OF May, 2006.

PROSPERITY CHOICE INVESTMENT, LP
BY: PHOENIX/PROPERTY INVESTMENT, INC., GENERAL PARTNER

BY: Quyen Ngo
QUYEN NGO, VICE PRESIDENT

STATE OF TEXAS
COUNTY OF FORT BEND

BEFORE, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED QUYEN NGO, VICE PRESIDENT OF PHOENIX/PROPERTY INVESTMENT, INC., KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT, AND ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATIONS THEREIN EXPRESSED AND IN THE CAPACITY THEREIN AND HEREIN SET OUT, AND AS THE ACT AND DEED OF SAID CORPORATION.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, THIS 8TH DAY OF May, 2006.

NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS

MY COMMISSION EXPIRES: 9/21/2009

I, JESSE T. POULSON, BY AUTHORITY UNDER THE LAWS OF THE STATE OF TEXAS TO PRACTICE THE PROFESSION OF SURVEYING, DO HEREBY CERTIFY THAT THIS 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, AND POINTS OF CURVATURE, HAVE BEEN MARKED WITH IRON (OR OTHER SUITABLE PERMANENT FERROUS METAL) PIPES OR RODS, HAVING AN OUTSIDE DIAMETER OF NOT LESS THAN FIVE EIGHTHS (5/8") INCH AND A LENGTH OF NOT LESS THAN THREE FEET (3') (SEE NOTE 2). ALL BOUNDARY CORNERS HAVE BEEN TIED TO THE NEAREST SURVEY CORNER.

05/25/06
JESSE T. POULSON
REGISTERED PROFESSIONAL LAND SURVEYOR
TEXAS REGISTRATION NO. 1891

I, JAMES E. BROWN V, PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS DO HEREBY CERTIFY THAT THIS PLAT MEETS ALL REQUIREMENTS OF FORT BEND COUNTY AND THE CITY OF MISSOURI CITY, TO THE BEST OF MY KNOWLEDGE.

JAMES E. BROWN V
LICENSED PROFESSIONAL ENGINEER
TEXAS REGISTRATION NO. 83861

5-26-06

THIS IS TO CERTIFY THAT THE PLANNING AND ZONING COMMISSION OF THE CITY OF MISSOURI CITY, TEXAS, HAS APPROVED THIS PLAT AND SUBDIVISION OF SIENNA PLANTATION COMMERCIAL PARK NORTH SECTION TWO-A PHASE TWO, IN CONFORMANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE ORDINANCES OF THE CITY OF MISSOURI CITY, TEXAS, WHEN AND AUTHORIZED THE RECORDING OF THIS PLAT THIS 8TH DAY OF June, 2006.

BY: RON LEE, CHAIRMAN

BY: BILL MOORAR, VICE CHAIRMAN

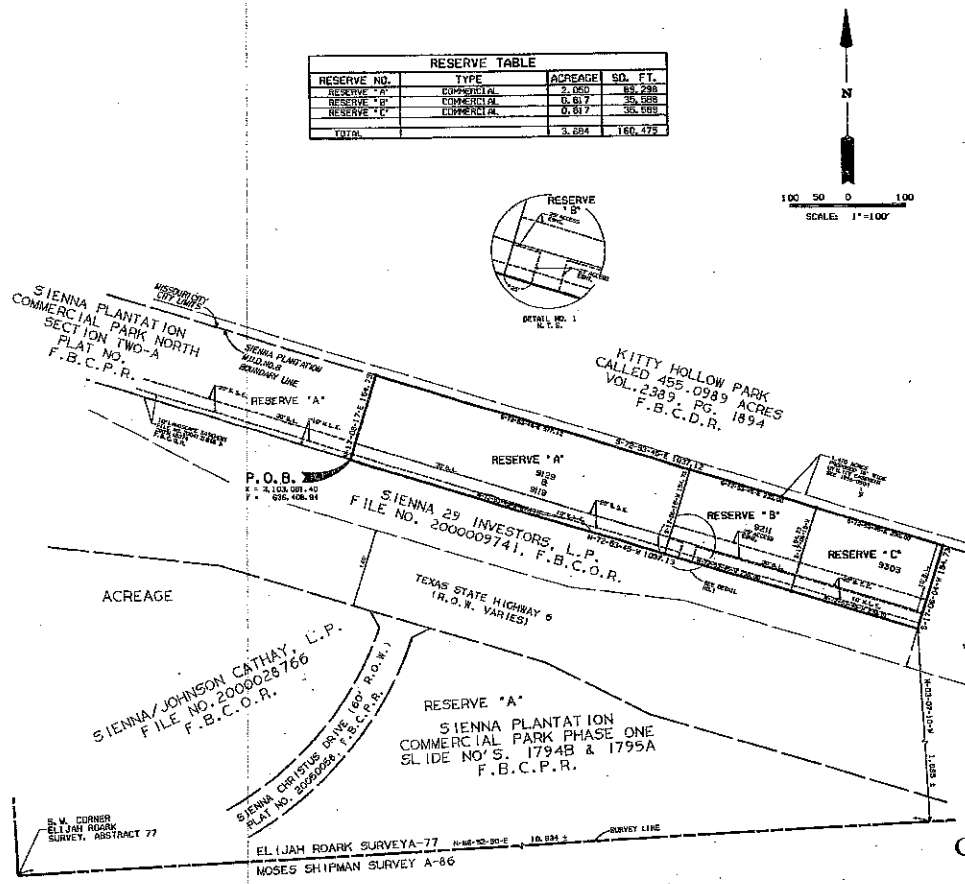
I, DIANNE WILSON, COUNTY CLERK IN AND FOR FORT BEND COUNTY, HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT WITH ITS CERTIFICATE OF AUTHENTICATION WAS FILED FOR RECORDATION IN MY OFFICE ON June 8, 2006, AT 9:12 O'CLOCK A.M., IN PLAT NO. 20060158 OF THE PLAT RECORDS OF SAID COUNTY.

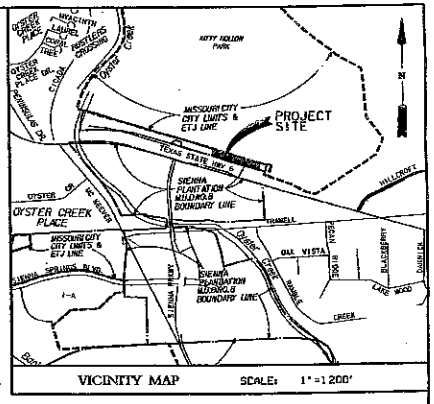
WITNESS MY HAND AND SEAL OF OFFICE, AT RICHMOND, TEXAS, THE DAY AND DATE LAST ABOVE WRITTEN.

DIANNE WILSON, CLERK OF THE COUNTY COURT, FORT BEND COUNTY, TEXAS

BY: DEPUTY TERRY DRAKE

RESERVE TABLE			
RESERVE NO.	TYPE	ACREAGE	SQ. FT.
RESERVE "A"	COMMERCIAL	3.060	83,298
RESERVE "B"	COMMERCIAL	0.617	26,888
RESERVE "C"	COMMERCIAL	0.017	35,689
TOTAL		3.684	160,475





VICINITY MAP SCALE: 1"=1200'

FILED AND RECORDED
OFFICIAL PUBLIC RECORDS
2006 Jun 08 04:12 PM 2006045158
70 $150.00
Dianne Wilson, Ph.D. COUNTY CLERK
FT BEND COUNTY TEXAS

GENERAL NOTES

1. B.L. INDICATES BUILDING LINE; U.E. INDICATES UTILITY EASEMENT; STM. E.E. INDICATES STORM SEWER EASEMENT; S.S. INDICATES SANITARY SEWER EASEMENT; A.E. INDICATES AERIAL EASEMENT; D.E. INDICATES DRAINAGE EASEMENT; L.E. INDICATES LAKE EASEMENT; D.E. INDICATES DRAINAGE EASEMENT; F.B.C.D.R. INDICATES FORT BEND COUNTY DEED RECORDS; F.B.C.P.R. INDICATES FORT BEND COUNTY PLAT RECORDS; S.S.E. INDICATES SANITARY SEWER EASEMENT; F.M.E. INDICATES FORCE MAIN EASEMENT; D.E. INDICATES DRAINAGE EASEMENT.
2. PHONE AND NG PIPELINE OR PIPELINE EASEMENTS WITHIN THE BOUNDARIES OF THIS PLAT.
3. THE 100-YEAR (BASE FLOOD) ELEVATION FOR THE SUBJECT TRACT IS 66.15 PER FEMA FIRM PANEL NUMBER 0 (DATED JANUARY 3, 1983). MINIMUM FINISHED FLOOR ELEVATIONS FOR STRUCTURES NOT MAINTAINED WITH CONTROL GRADE TO BE CONSTRUCTED AT LEAST PLATTED SEVENTEEN INCHES (17") ABOVE THE 100-YEAR (BASE) FLOOD ELEVATION. SITE ELEVATIONS, DOWNSTREAM FLOOD, PLUS 0.5FT. AS EXISTING SITE ELEVATIONS FOR PORTIONS OF THE SUBJECT TRACT ARE LOWER THAN 66.15. FLOOD MANAGEMENT REQUIREMENTS MUST BE ADDRESSED.
4. THE TOP OF ALL FLOOR SLABS SHALL BE A MINIMUM OF 67.70 FEET (NGVD MEAN SEA LEVEL). IN ADDITION TO THIS FEATURE, THE FLOOR SLAB SHALL BE LESS THAN 1.0 FEET ABOVE NATURAL GROUND. SCALED CRITICAL CARE FACILITIES ARE CONSIDERATED WITHIN PLATTED SUBDIVISIONS. MINIMUM FINISHED FLOOR ELEVATIONS OF ALL NON STRUCTURES MUST BE A MINIMUM OF 1.0 FEET (12 INCHES) ABOVE THE 100-YEAR FLOOD ELEVATION. THE 500-YEAR FLOOD ALTERNATIVE FOR SUBJECT TRACT WAS DEVELOPED BY LOWN TEXAS DRAIN, INC. IN PROJECT, IS 68.15.
5. THE CITY OF MISSOURI CITY SHALL NOT BE RESPONSIBLE FOR THE MAINTENANCE OF DRIVEWAYS, DRAINAGE, STRUCTURES OR ANY OTHER IMPROVEMENTS OVER DRAINAGE EASEMENTS AND RESERVES.
6. BENCHMARK: FND. A B.L.S. NGS. ON THE TOP OF A FIVE EIGHTHS INCH COPPER COATED ROD SUNK WITH THE UPPER PORTION OF THE ROD ENGRAVED IN A 6 INCH IRON PIPE LOCATED APPROXIMATELY 0.8 FEET NORTH OF THE WOOD POST, B.L. AND R.L. INCLINE AND APPROXIMATELY 20 FEET EAST OF OLD POWER POLE AND ALSO ON COASTAL STATES PIPELINE EASEMENT AND 1 FOOT EAST OF WIRELESS POST. NGS. NO. 5-1208 ELEV. = 68.47 1973 ADJUSTMENT.
7. THIS PLAT LIES WITHIN FORT BEND COUNTY DRAINAGE DISTRICT, FORT BEND COUNTY EMERGENCY DISTRICT AND THE CITY OF MISSOURI CITY.
8. FIVE EIGHTHS (5/8") INCH IRON RODS THREE FEET (3') IN LENGTH ARE SET ON ALL PERIMETER BOUNDARY CORNERS, UNLESS OTHERWISE NOTED.
9. THIS PLAT LIES WHOLLY WITHIN SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 9, AND SIENNA PLANTATION LAKES IMPROVEMENT DISTRICT.
10. THIS PLAT WAS PREPARED FROM INFORMATION FURNISHED BY PARTNERS TITLE COMPANY, GF NO. 2006-0501-310, EFFECTIVE DATE FEBRUARY 2, 2006. THE SURVEYOR HAS NOT ABSTRACTED THE WHOLE PROPERTY.
11. ALL REQUIRED UTILITY COMPANIES HAVE BEEN CONTACTED AND ALL PUBLIC UTILITY EASEMENTS AS SHOWN ON THE ABOVE AND FOREGOING PLAT CONTAINING ALL OF THE EASEMENTS REQUIRED BY THE UTILITY COMPANIES CONTACTED.
12. ALL BEARINGS ARE REFERENCED TO THE TEXAS STATE PLANE COORDINATE SYSTEM SOUTH CENTRAL ZONE (NAD 27). COORDINATES SHOWN ARE SURFACE AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY A FACTOR OF 0.999867373.
13. NO BUILDING OR OTHER STRUCTURES, EXCEPT PERMITS FOR CONSTRUCTION OF PUBLIC IMPROVEMENTS WILL BE ISSUED BY THE CITY OF MISSOURI CITY, TEXAS, FOR CONSTRUCTION WHICH HAVE BEEN CONSTRUCTED OF THE DEDICATION AND ACCEPTED BY THE CITY OF THE GUARANTEE OF CONSTRUCTION OF PUBLIC IMPROVEMENTS REQUIRED BY SECTION 82-206 OF THE CODE OF ORDINANCES OF THE CITY OF MISSOURI CITY, TEXAS, IS SUBMITTED TO AND APPROVED BY THE CITY.
14. PRIOR TO THE BEGINNING OF THE DEVELOPMENT PROCESS, FOR UTILITIES, AND PAVING BY FORT BEND COUNTY, ALL FLOOD CONTROL AND STREET PLANS MUST BE REVIEWED AND HONORED.
15. SIDEWALKS SHALL BE CONSTRUCTED AS REQUIRED BY SECTIONS 82-164 OF THE CODE OF ORDINANCES OF THE CITY OF MISSOURI CITY.
16. THE DRAINAGE SYSTEM FOR THIS SUBDIVISION IS DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE FORT BEND COUNTY DRAINAGE CRITERIA MANUAL WHICH ALLOWS STREET FLOWS WITH INCIDENTAL OVERFALL INCIDENTS.
17. METER LOCATION IN ACCORDANCE WITH CONTEMPORARY ENERGY SERVICE STANDARDS, ARTICLE 4820-D. ELECTRIC METERS SHALL BE LOCATED IN AN AREA ACCESSIBLE WITHOUT CUSTOMER ASSISTANCE AND NOT BLOCKED BY FENCES, WALLS OR GATES. FOR FURTHER INFORMATION IN THE SUGAR LAND DISTRICT AREA, CALL 1(281)261-3255.
18. SHARED ACCESS AND PARKING FACILITIES SHALL BE PROVIDED AS REQUIRED UNDER THE PROVISIONS OF SUBSECTION 82-156 OF THE CODE OF ORDINANCES OF THE CITY OF MISSOURI CITY, TEXAS.
19. DRIVEWAY APPROACHES SHALL BE PROVIDED IN ACCORDANCE WITH THE MISSOURI CITY DRIVEWAY APPROACH POLICY AS REQUIRED UNDER THE PROVISIONS OF SUBSECTION 82-160 OF THE CODE OF ORDINANCES OF THE CITY OF MISSOURI CITY, TEXAS.
20. THE DEVELOPMENT OF THIS TRACT IS SUBJECT TO THE PROVISIONS OF ORDINANCE NO. 0-94-56.
21. ALL OF THE PROPERTY SUBDIVIDED IN THE ABOVE AND FOREGOING PLAT IS WITHIN THE INCORPORATED BOUNDARIES OF THE CITY OF MISSOURI CITY, TEXAS.
22. THIS PLAT IS SUBORDINATED TO:
JOHN HOPE ETC. TRUSTEE, MILITARY MORTGAGE, DATED, AS RECORDED IN FILE NO. 2006066735 OFFICIAL RECORDS OF FORT BEND COUNTY, TEXAS.

SIENNA PLANTATION COMMERCIAL PARK NORTH SECTION TWO-A PHASE TWO

A PLAT OF 3.684 ACRES LOCATED IN THE ELIJAH ROARK SURVEY, ABSTRACT 77, AND BEING A PART OF THE PROSPERITY CHOICE INVESTMENT, L.P. 5.975 ACRES RECORDED IN FILE NO. 2004131848 OF THE OFFICIAL PUBLIC RECORDS OF FORT BEND COUNTY, CITY OF MISSOURI CITY, FORT BEND COUNTY, TEXAS.

3 RESERVES

MAY 12, 2006 JOB NO. 1956-0501-310

OWNERS:
PROSPERITY CHOICE INVESTMENT, LP
BY: PHOENIX / PROPERTY INVESTMENT, INC., ITS GENERAL PARTNER
QUYEN NGO, VICE PRESIDENT
6100 CORPORATE DRIVE, SUITE 555, HOUSTON, TEXAS 77036 PH. (713) 988-1182

ENGINEER:
LJA Engineering & Surveying, Inc.
2929 Briarpark Drive
Suite 600
Houston, Texas 77042-3703
Phone 713.953.5030
Fax 713.953.5026

JESSE T. POULSON,
REGISTERED PROFESSIONAL LAND SURVEYOR,
TEXAS REGISTRATION NO. 1891

JAMES E. BROWN V
LICENSED PROFESSIONAL ENGINEER,
TEXAS REGISTRATION NO. 83861