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: 2017-15893

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: [redacted] Amount: $15,301.89
- [ ] Cashier's Check Check No: _____ Amount: _____

(3) DRAINAGE DISTRICT APPROVAL (WHEN APPLICABLE):

_____ _____
Drainage District Approval Date

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

_____ _____
Permit Administrator Date

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: 2017-15893

Applicant: **Harris Construction Company, LTD.**

Job Location Site: **8411 Sienna Springs Boulevard, Missouri City, TX 77459**

Bond No. [redacted] **Date of Bond:** **9/6/2017** **Amount:** **$15,301.89**

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 26th day of September, 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. Dy
County Engineer

By: N/A
Drainage District Engineer/Manager

Presented to Commissioners Court and approved.

Date Recorded _____ Comm. Court No. _____

Clerk of Commissioners Court

By: _____
Deputy

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

BOND NO [redacted]

THE STATE OF TEXAS §

COUNTY OF FORT BEND §

KNOW ALL MEN BY THESE PRESENTS:

THAT WE, Harris Construction Company, Ltd. **whose (*address, phone*) is** 6602 Guhn Rd., Houston, TX 77040/ 713-690-0791 **Texas, hereinafter called the Principal, and** Liberty Mutual Insurance Company, **a Corporation existing under and by virtue of the laws of the state of** Massachusetts **and authorized to do an indemnifying business in the state of Texas, and whose principal office is located at (*name/address/phone*)** Allen Knepper / 10713 W. Sam Houston Parkway N., Suite 650, Houston, Texas 77064/ 713-744-1756 **whose officer residing in the State of Texas, authorized to accept service in all suits and actions brought whining said state is** Massachusetts **and whose address is** 175 Berkeley St. Boston, MA 02117, **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 Fifteen Thousand Three Hundred One and 89/00 Dollars ($ 15,301.89) 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 6th day of September, 2017.

Harris Construction Company, Ltd.
PRINCIPAL

BY Glenn Harris

Liberty Mutual Insurance Company
SURETY

BY Michelle Ulery, Attorney in Fact

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.
This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 7223447

American Fire and Casualty Company
The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That American Fire & Casualty Company and The Ohio Casualty Insurance Company are corporations duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, C.A. McClure; Kelly J. Brooks; Kenneth L. Meyer; Michelle Ulery

all of the city of CYPRESS, state of TX each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 5th day of January, 2016.

American Fire and Casualty Company
The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: David M. Carey
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 5th day of January, 2016, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of American Fire and Casualty Company, Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Plymouth Twp., Montgomery County
My Commission Expires March 28, 2017
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts – SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Gregory W. Davenport, the undersigned, Assistant Secretary, of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 6th day of September, 20 17.

By: Gregory W. Davenport
Gregory W. Davenport, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

Liberty Mutual
SURETY

TEXAS
IMPORTANT NOTICE

To obtain information or make a complaint:

You may call toll-free for information or to make a complaint at
1-877-751-2640

You may also write to:

2200 Renaissance Blvd., Ste. 400
King of Prussia, PA 19406-2755

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
Consumer Protection (111-1A)
P. O. Box 149091
Austin, TX 78714-9091
FAX: (512) 490-1007
Web: http://www.tdi.texas.gov
E-mail: ConsumerProtection@tdi.texas.gov

PREMIUM OR CLAIM DISPUTES:

Should you have a dispute concerning your premium or about a claim you should first contact the agent or call 1-800-843-6446. 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.

TEXAS
AVISO IMPORTANTE

Para obtener informacion o para someter una queja:

Usted puede llamar al numero de telefono gratis para informacion o para someter una queja al
1-877-751-2640

Usted tambien puede escribir a:

2200 Renaissance Blvd., Ste. 400
King of Prussia, PA 19406-2755

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 Consumer Protection (111-1A)
P. O. Box 149091
Austin, TX 78714-9091
FAX # (512) 490-1007
Web: http://www.tdi.texas.gov
E-mail: ConsumerProtection@tdi.texas.gov

DISPUTAS SOBRE PRIMAS O RECLAMOS:

Si tiena una disputa concerniente a su prima o a un reclamo, debe comunicarse con el agente o primero. Si no se resuelve la disputa, puede entonces comunicarse con el departamento (TDI)

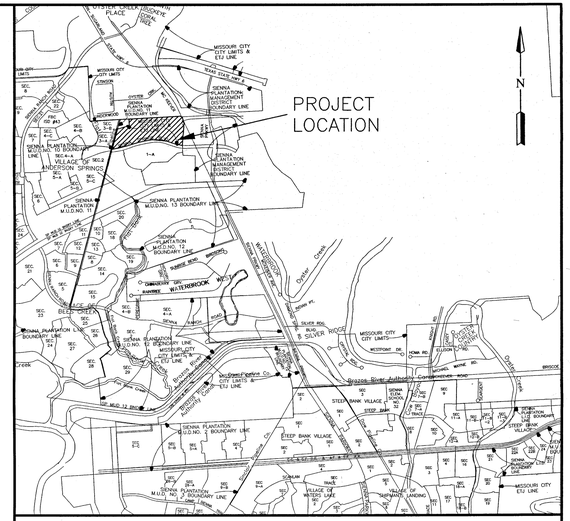
UNA ESTE AVISO A SU POLIZA:

Este aviso es solo para proposito de informacion y no se convierte en parte o condicion del documento adjunto.

CONSTRUCTION PLANS FOR
WATER, SANITARY SEWER, & DRAINAGE FACILITIES, PAVING AND APPURTENANCES
TO SERVE
SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A
SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO.10
CITY OF MISSOURI CITY, FORT BEND COUNTY, TEXAS

JOB NO. 1194-1127A (PAVING)
1470-1127A (WS&D)

DATE: JULY 2017
SPMUD 10 TCEQ PWS ID # 0790452



VICINITY MAP
SCALE: 1"=1/2 MILE KEY MAP NO. 649 D

NOTES

1. THESE PLANS WERE PREPARED TO MEET OR EXCEED FORT BEND COUNTY AND CITY OF MISSOURI CITY SUBDIVISION RULES AND REGULATIONS (AS APPLICABLE) AS CURRENTLY AMENDED.
2. CONSTRUCTION WILL BE MONITORED BY A PROFESSIONAL ENGINEER TO INSURE COMPLIANCE WITH THE CONSTRUCTION PLANS AND SPECIFICATIONS.
3. CONTRACTOR SHALL NOTIFY THE FOLLOWING ENTITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION.

MISSOURI CITY PUBLIC WORKS DEPARTMENT	(281) 403-8570
SIENNA PLANTATION LEVEE IMPROVEMENT DISTRICT (MICHAEL RUSK, P.E.)	(713) 953-5181
LJA ENGINEERING, INC. (DION FELAN)	(281) 384-2012
FORT BEND COUNTY DRAINAGE DISTRICT (JEFFREY JANECEK)	(281) 342-2863
FORT BEND COUNTY ENGINEER (RICHARD W. STOLLEIS, P.E.)	(281) 342-3039
DOW PIPELINE COMPANY (PEDRO LAGOS)	(281) 471-9440 Ext.222
SI-ENVIRONMENTAL (CHRIS WILSON)	(832) 490-1570
SIENNA/JOHNSON NORTH L.P. (DEREK GOFF)	(281) 778-7931
EL PASO FIELD SERVICES (FORMERLY COAST " L PIPELINE) (STEVE SWAFFORD)	(713) 854-3903
PHILLIPS PIPELINE COMPANY (CHARLES FRETWELL)	(713) 456-1413
SIENNA PLANTATION M.U.D. NO. 5 (MR. CHAD HABLINSKI, P.E.)	(713) 783-7788

4. ONLY AUTHORIZED INDIVIDUALS FROM EITHER THE TESTING COMPANY OR A REPRESENTATIVE OF LJA Engineering, Inc. HAVE THE AUTHORITY TO ADD WATER TO A CONCRETE TRUCK.
5. CONTRACTOR SHALL CONTACT THE FOLLOWING UTILITY COMPANIES TO VERIFY THE LOCATION OF THEIR UTILITIES 48 HOURS PRIOR TO COMMENCEMENT OF EXCAVATION OR CONSTRUCTION IN THE VICINITY OF THEIR FACILITIES.

CENTERPOINT ENERGY SOUTH OF RAILROAD (ADRIAN MORENO)	(713) 945-6274
CENTERPOINT ENERGY NORTH OF RAILROAD (MARSHA SOMMERFELD)	(281) 561-3240
SI-ENERGY GAS (RYAN HERWECK)	(281) 778-6250 ext. 5003
G.T.E. TELEPHONE COMPANY (JESSE FLOWER)	(281) 499-2574
EN-TOUCH (WESLEY PENNIX)	(281) 225-9350
TEXAS ONE CALL	1-800-245-4545

6. CONTRACTOR SHALL CONTACT ANY PERTINENT PIPELINE COMPANIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF EXCAVATION OR CONSTRUCTION IN THE VICINITY OF THEIR EASEMENTS AND/OR RIGHT-OF-WAYS.
7. THE OPENING AND CLOSING OF ALL VALVES ON EXISTING WATER LINES MUST BE PERFORMED EXCLUSIVELY BY THE DISTRICT OPERATOR. CONTRACTOR/APPLICANT SHALL CONTACT SI ENVIRONMENTAL AT (832) 490-1610 FOR ALL REQUIRED TAPPING AND INSPECTION SERVICES

SI-ENVIRONMENTAL (CHRIS WILSON)	(832)490-1570

8. THE DISTRICT OPERATOR MUST PERFORM ALL WATER LINE BACTERIOLOGICAL TESTS. LJA Engineering, Inc. SHALL BE RESPONSIBLE FOR CONTACTING THE DISTRICT.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC FLOW DETOURING INCLUDING LANE CLOSURES. TRAFFIC BARRELS, SIGNAGE, AND ALL OTHER APPURTENANCES (INCIDENTAL TO BID). ONE LANE OF CONTINUAL TRAFFIC FLOW IN EACH DIRECTION SHALL REMAIN OPEN AT ALL TIMES.
10. IN THE CASE OF A CONFLICT BETWEEN THE CITY OF MISSOURI CITY, FORT BEND COUNTY, PLANS OR SPECIFICATIONS, THE MORE STRINGENT SHALL APPLY.
11. CONTRACTOR SHALL PROVIDE SEALED TRENCH SAFETY DRAWINGS TO THE CITY OF MISSOURI CITY AT THE TIME OF CONSTRUCTION PERMIT ISSUANCE.
12. CHANNEL 3-3 SHALL BE MAINTAINED BY SIENNA PLANTATION LEVEE IMPROVEMENT DISTRICT OF FORT BEND COUNTY, TEXAS
13. CONTRACTOR SHALL NOTIFY FORT BEND COUNTY ENGINEERING 48 HOURS PRIOR TO COMMENCING CONSTRUCTION AND 24 HOURS PRIOR TO ANY PAVING OPERATION AT EMAIL: CONSTRUCTION@FORTBENDCOUNTYTX.GOV

I HEREBY CERTIFY THAT THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE CONSTRUCTED CONDITION. THE PLANS WERE PREPARED AND THE CONSTRUCTION WAS PERFORMED IN SUBSTANTIAL ACCORDANCE WITH THE CITY OF MISSOURI CITY DESIGN STANDARDS

OMAR NOE ESCOBAR, JR., P.E. 107281 _____ DATE

WS&D RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____
TITLE:_____

PAVING RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____
TITLE:_____

APPROVED FOR CONSTRUCTION
BY alc DATE 7/19/17

OWNER: SIENNA/JOHNSON NORTH L.P.

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49	TREE PROTECTION PLAN – MC–26–15
50	SIGN CONSTRUCTION DETAILS – MC–27–15
51	TRAFFIC SIGNAL DETAILS – MC–28–15
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53	EROSION CONTROL DETAILS
54	MISCELLANEOUS DETAILS I

FORT BEND COUNTY ENGINEERING DEPARTMENT
ENGINEER: Mark D. Stanglo, PE, PTOE for RICHARD W. STOLLEIS, P.E.
DATE: 7/19/17

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

APPROVED: _____ DEVELOPMENT COORDINATOR
DATE: 7/12/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER
APPROVED: _____ DATE: 7/10/17

APPROVAL VOID IF NO PROGRESS HAS BEEN MADE TOWARDS THE COMPLETION OF THE PROJECT WITHIN TWO YEARS FROM DATE OF SIGNATURE.

STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER
7.5.17

ENGINEER:
LJA Engineering, Inc.
1904 W. Grand Parkway North
Suite 100
Katy, Texas 77449
Phone 713.953.5200
Fax 713.953.5026
FRN-F-1386

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194–1127A & 1470–1127A

Date\Time : Thu, 06 Jul 2017 – 10:18am
Path\Name : I:\Prodsk1\1194-1127A\1194-1127A\ACAD_Sheet Files\01 COVER SHEET.dwg

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 281-403-0676. 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 MOST STRINGENT 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 APPROPIATE 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 8 INCH LIFTS) AND TESTED FOR ±2% OPTIMINUM BY AN APPROVED LAB.
16. IT 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 6" PER 100 FT. POSITIVE DRAINAGE IS DEPICTED 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 SHEETING, 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, 2014, AND THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (2009), AND ANY REVISIONS THERETO.
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 SUBMITED 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 DESCRIBED 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 PAVEMENT CONSTRUCTION FOR RESIDENTIAL STREETS
14. SEVEN (7) INCH, 5.5 SK, 3500 PSI @ 28 DAYS, REINFORCED WITH #4 REBAR, 24" O.C. EACH WAY IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR MAJOR COLLECTOR STREETS. **(LJA SPECIFICATIONS REQUIRE #4 REBAR, 18 INCHES O.C. E.W. FOR (7) INCH PAVEMENT)**
15. EIGHT (8) INCH, 5.5 SK, 3500 PSI @ 28 DAYS, REINFORCED WITH #4 REBAR, 24" O.C. EACH WAY IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR MAJOR THOROUGHFARE STREETS. **(LJA SPECIFICATIONS REQUIRE #4 REBAR, 18 INCHES O.C. E.W. FOR (8) INCH PAVEMENT)**
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 6% 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 RETAKEN 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(8)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.
34. ALL PAVING IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FBC RULES REGULATIONS AND REQUIREMENTS RELATING TO THE APPROVAL & ACCEPTANCE OF IMPROVEMENTS IN SUBDIVISIONS AS CURRENTLY AMENDED.
35. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FROM FBC PRIOR TO COMMENCING CONSTRUCTION OF ANY IMPROVEMENTS WITHIN COUNTY ROAD R.O.W.
36. CONTRACTOR SHALL NOTIFY FORT BEND COUNTY ENGINEERING DEPARTMENT 48 HOURS PRIOR TO COMMENCING CONSTRUCTION AND 48 HOURS NOTICE TO ANY CONSTRUCTION ACTIVITY WITHIN THE LIMITS OF THE PAVING AT CONSTRUCTION@FORTBENDCOUNTYTX.GOV.

CEMENT STABILIZED SAND

1. ALL STABILIZED SAND SHALL BE A MINIMUM OF 1 1/2 SK PER TN. **(TCEQ SPECIFICATIONS REQUIRE 2 1/2 SK PER CY AT UTILITY CROSSINGS)**
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 OR 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 ABUTTING TRAFFIC LANES. FAILURE TO MEET MINIMUM REQUIREMENTS SHALL RESULT IN THE REPLACEMENT OF SAID MATERIAL AT CONTRACTOR'S EXPENSE.

EROSION AND SEDIMENTATION CONTROL NOTES:

PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL INSTALL EROSION AND SEDIMENTATION CONTROLS AT LOCATIONS SHOWN ON THE PLANS.

1. CONTRACTOR SHALL INSPECT ALL EROSION AND SEDIMENTATION CONTROL SYSTEMS SPECIFIED HEREIN, AT A MINIMUM OF ONCE EVERY CALENDAR DAY.
2. CONTRACTOR SHALL MAINTAIN, REPAIR AND/OR REPLACE DAMAGED EROSION AND SEDIMENTATION CONTROL SYSTEM THROUGHOUT THE DURATION OF THE CONTRACT. (NO SEPARATE PAY).
3. CONTRACTOR SHALL PROVIDE PROTECTED STORAGE AREAS FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS, AND OTHER POTENTIALLY TOXIC MATERIALS.
4. CONTRACTOR SHALL LOCATE FUEL/MATERIAL STORAGE AREAS AWAY FROM STORM WATER CONVEYANCE SYSTEM. CONTRACTOR SHALL USE SILT FENCING, HAY BALES, OR BERMS AROUND FUEL STORAGE AREAS. (NO SEPARATE PAY).
5. 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.
6. CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF HIS FUELS, MATERIALS, AND CONTAMINATED EXCAVATIONS IN A LEGALLY APPROVED MANNER. (NO SEPARATE PAY).
7. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE ENVIRONMENTAL LAWS.
8. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATELY MAINTAINED SANITARY FACILITIES.
9. 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.
10. 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
11. PRIOR TO CONTRACTOR STARING CONSTRUCTION OF THE CONTRACT, ANY DAMAGE NOTED AT THIS TIME SHALL BE REPAIRED AT OWNER'S EXPENSE.
    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.
12.

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 0.06 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.

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, I

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 RAVELS (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, THE MORE STRINGENT 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 SHAI L 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 217 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 POLYUREHANE 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 290.44(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 CITY OF MISSOURI CITY STANDARDS FOR CONSTRUCTION REQUIREMENTS OF OTHER INSTALLATIONS WHERE DISTANCES ARE GREATER 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 TIMBER 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, 290.44.f (3) T.C.E.Q. 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.
10. 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.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER DISTRIBUTION SYSTEM
GENERAL CONSTRUCTION NOTES

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

7.1. The hydrostatic leakage rate for polyvinyl chloride (PVC) pipe and appurtenances shall not exceed the amount allowed or recommended by formulas in America Water Works Association (AWWA) C-605 as required in 30 TAC §290.44(a)(5). Please ensure that the formula for this calculation is correct and most current formula is in use;

Where: $Q = \frac{LD\sqrt{P}}{148,000}$

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

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER DISTRIBUTION SYSTEM
GENERAL CONSTRUCTION NOTES CONT.

7.2. The hydrostatic leakage rate for ductile iron (DI) pipe and appurtenances shall not exceed the amount allowed or recommended by formulas in America Water Works Association (AWWA) C-600 as required in 30 TAC §290.44(a)(5). Please ensure that the formula for this calculation is correct and most current formula is in use;

Where: $Q = \frac{SD\sqrt{P}}{148,000}$

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

8. Projects constructed on or after January 4, 2014 must comply with the changes made to the Safe Drinking Water Act to reduce lead content. In accordance with 30 TAC §290.44(b)(1) The use of pipes, pipe fittings, plumbing fittings, and fixtures that contain more than 0.25% lead or solders and flux that contains more than 0.20% lead is prohibited.
9. The system must be designed to maintain a minimum pressure of 35 psi at all points within the distribution network at flow rates of at least 1.5 gallons per minute per connection. When the system is intended to provide firefighting capability, it must also be designed to maintain a minimum pressure of 20 psi under combined fire and drinking water flow conditions as required by 30 TAC §290.44(d).
10. The contractor shall install appropriate air release devices in the distribution system at all points where topography or other factors may create air locks in the lines. All vent openings to the atmosphere shall be covered with 16-mesh or finer, corrosion resistant screening material or an acceptable equivalent as required by 30 TAC §290.44(d)(1).
11. Pursuant to 30 TAC §290.44(d)(4), accurate water meters shall be provided. Service connections and meter locations should be shown on the plans.
12. Pursuant to 30 TAC §290.44(d)(5), sufficient valves and blowoffs to make repairs. The engineering report shall establish criteria for this design.
13. Pursuant to 30 TAC §290.44(d)(6), the system shall be designed to afford effective circulation of water with a minimum of dead ends. All dead-end mains shall be provided with acceptable flush valves and discharge piping. All dead-end lines less than two inches in diameter will not require flush valves if they end at a customer service. Where dead ends are necessary as a stage in the growth of the system, they shall be located and arranged to ultimately connect the ends to provide circulation.
14. The contractor shall maintain a minimum separation distance in all directions of nine feet between the proposed waterline and wastewater collection facilities including manholes and septic tank drain fields. If this distance cannot be maintained, the contractor must immediately notify the project engineer for further direction. Separation distances, installation methods, and materials utilized must meet 30 TAC §290.44(e)(1-4) of the current rules.
15. Pursuant to 30 TAC §290.44(e)(5), the separation distance from a potable waterline to a wastewater main or lateral manhole or cleanout shall be a minimum of nine feet. Where the nine-foot separation distance cannot be achieved, the potable waterline shall be encased in a joint of at least 150 psi pressure class pipe at least 18 feet long and two nominal sizes larger than the new conveyance. The space around the carrier pipe shall be supported at five-foot intervals with spacers or be filled to the spring line with washed sand. The encasement pipe shall be centered on the crossing and both ends sealed with cement grout or manufactured sealant.
16. Pursuant to 30 TAC §290.44(e)(6), fire hydrants shall not be installed within nine feet vertically or horizontally of any wastewater line, wastewater lateral, or wastewater service line regardless of construction.
17. Pursuant to 30 TAC §290.44(e)(7), suction mains to pumping equipment shall not cross wastewater mains, wastewater laterals, or wastewater service lines. Raw water supply lines shall not be installed within five feet of any tile or concrete wastewater main, wastewater lateral, or wastewater service line.
18. Pursuant to 30 TAC §290.44(e)(8), waterlines shall not be installed closer than ten feet to septic tank drain fields.
19. Pursuant to 30 TAC §290.44(f)(1), the contractor shall not place the pipe in water or where it can be flooded with water or sewage during its storage or installation.
20. Pursuant to 30 TAC §290.44(f)(2), when waterlines are laid under any flowing or intermittent stream or semi-permanent body of water the water main shall be installed in a separate watertight pipe encasement. Valves must be provided on each side of the crossing with facilities to allow the underwater portion of the system to be isolated and tested.
21. The contractor shall disinfect the new water mains in accordance with AWWA Standard C-651 and then flush and sample the lines before being placed into service. Samples shall be collected for microbiological analysis to check the effectiveness of the disinfection procedure which shall be repeated if contamination persists. A minimum of one sample for each 1,000 feet of completed water line will be required or at the next available sampling point beyond 1,000 feet as designated by the design engineer, in accordance with 30 TAC §290.44(f)(3).

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____ DEVELOPMENT COORDINATOR

DATE: 7/12/17

WS&D RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____

PAVING RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____

No.	DATE	REVISION

GENERAL CONSTRUCTION NOTES II

missouri CITY TEXAS

DEPARTMENT OF PUBLIC WORKS

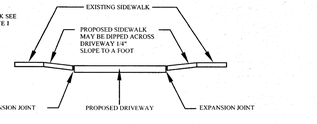
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL:

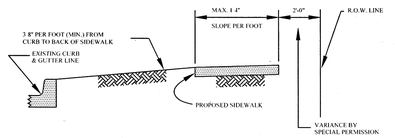
STATE OF TEXAS
OMAR NOE

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

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



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



GENERAL NOTES:

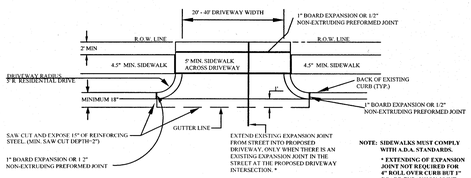
1. PROPOSED SIDEWALK SHALL BE CONSTRUCTED WITH PORTLAND CEMENT (5 ½ SACKS OF CEMENT PER CUBIC YARD OF CONCRETE), CLASS "A" STRUCTURAL (REFER TO SPECIFICATION 03301), 4 ½" THICK AND MINIMUM 4' WIDTH.

SIDEWALKS & DRIVEWAYS ON CURB TYPE STREETS RESIDENTIAL AREA	DRAWN BY: L. BRDECKA DATE DRAWN: 2-1-94	REVISED BY: R. GOMEZ DATE REVISED: 11-1-05
	APPROVED BY: L. HOOD DATE: 2-1-94	DRAWING NO. FBC-010B

FORT BEND COUNTY ENGINEERING DEPARTMENT

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

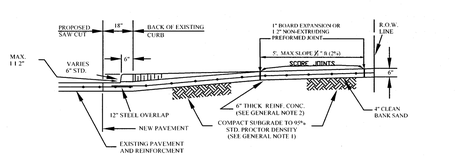
A. USE FOR ALL PROPOSED EXISTING CURB REMOVAL FOR DRIVEWAYS (PLAN VIEW NOT TO SCALE)



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

*** EXTENDING OF EXPANSION JOINT NOT REQUIRED FOR 4" ROLL OVER CURB BUT 1" BOARD EXPANSION JOINT MUST BE PROVIDED BACK OF CURB.**

B. USE FOR ALL PROPOSED DRIVES ON CURBED TYPE STREETS



GENERAL NOTES:

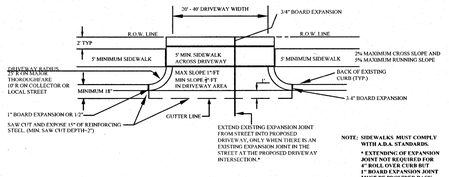
1. COMPACT SUBGRADE FOR PROPOSED DRIVEWAY CONNECTION FROM PROPOSED SAW CUT AT EXISTING PAVEMENT TO R.O.W. LINE, COMPACT TO 95% OF STANDARD PROCTOR DENSITY(+/- 2% OPT. MOISTURE), THE COUNTY ENGINEER RESERVES THE RIGHT TO REQUIRE LABORATORY TESTS TO BE CONDUCTED.
2. PROPOSED DRIVEWAY REINFORCING STEEL IS TO BE #4 DEFORMED REINFORCING BARS (ASTM A615, GRADE 60, UNLESS NOTED) SPACED AT 24" C.C., EACH WAY, WITH 12" MINIMUM LAP FROM PROPOSED SAW CUT TO R.O.W. LINE.
3. PROPOSED DRIVEWAY SHALL BE CONSTRUCTED WITH PORTLAND CEMENT (5 ½ SACKS OF CEMENT PER CUBIC YARD OF CONCRETE), CLASS "A" STRUCTURAL (REFER TO SPECIFICTION 03301), 6" THICK, FROM PROPOSED SAW CUT TO R.O.W. LINE.
4. PROPOSED SIDEWALK SHALL BE CONSTRUCTED WITH PORTLAND CEMENT (5 ½ SACKS OF CEMENT PER CUBIC YARD OF CONCRETE), CLASS "A" STRUCTURAL (REFER TO SPECIFICTION 03301), 4 ½" THICK.

SIDEWALKS & DRIVEWAYS ON CURB TYPE STREETS RESIDENTIAL AREA	DRAWN BY: L. BRDECKA DATE DRAWN: 2-1-94	REVISED BY:L. BRDECKA DATE REVISED: 8-18-16
	APPROVED BY: L. HOOD DATE: 2-1-94	DRAWING NO. FBC-010A

FORT BEND COUNTY ENGINEERING DEPARTMENT

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

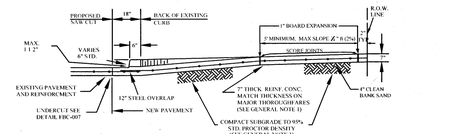
A. USE FOR ALL PROPOSED EXISTING CURB REMOVAL FOR DRIVEWAYS (PLAN VIEW NOT TO SCALE)



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

*** EXTENDING OF EXPANSION JOINT NOT REQUIRED FOR 4" ROLL OVER CURB BUT 1" BOARD EXPANSION JOINT MUST BE PROVIDED BACK OF CURB**

B. USE FOR ALL PROPOSED DRIVES ON CURBED TYPE STREETS



GENERAL NOTES:

1. COMPACT SUBGRADE FOR PROPOSED DRIVEWAY CONNECTION FROM PROPOSED SAW CUT AT EXISTING PAVEMENT TO R.O.W. LINE, COMPACT TO 95% OF STANDARD PROCTOR DENSITY(+/- 2% OPT. MOISTURE), THE COUNTY ENGINEER RESERVES THE RIGHT TO REQUIRE LABORATORY TESTS TO BE CONDUCTED.
2. PROPOSED DRIVEWAY #4 REINFORCING STEEL IS TO BE #4 DEFORMED REINFORCING BARS (ASTM A615, GRADE 60, UNLESS NOTED) SPACED AT 24" C.C., EACH WAY, WITH 12" MINIMUM LAP FROM PROPOSED SAW CUT TO R.O.W. LINE.
3. PROPOSED DRIVEWAY #5 SHALL BE CONSTRUCTED WITH PORTLAND CEMENT (5 SACKS /3000 PSI OF CEMENT PER CUBIC YARD OF CONCRETE), CLASS "A" STRUCTURAL (REFER TO SPECIFICTION 03301), 7" THICK, FROM PROPOSED SAW CUT TO R.O.W. LINE.
4. PROPOSED SIDEWALK SHALL BE CONSTRUCTED WITH PORTLAND CEMENT (5 SACKS /3000 PSI OF CEMENT PER CUBIC YARD OF CONCRETE), CLASS "A" STRUCTURAL (REFER TO SPECIFICTION 03301), 4.5" THICK.
5. FOR TYPICAL SIDEWALK DETAIL SEE FBC-011.

SIDEWALKS & DRIVEWAYS ON CURB TYPE STREETS COMMERCIAL AREA	DRAWN BY: L. BRDECKA DATE DRAWN: 2-1-94	REVISED BY:L. BRDECKA DATE REVISED: 8-18-16
	APPROVED BY: L. HOOD DATE: 2-1-94	DRAWING NO. FBC-025A

FORT BEND COUNTY ENGINEERING DEPARTMENT

GENERAL NOTES FOR SIDEWALKS AND DRIVEWAYS

1. SAW CUT EXISTING CURB AT EACH END AND KNOCK OUT OUT CURB FROM BEGINNING TO END OF PROPOSED DRIVEWAY.
2. SAW CUT EXISTING PAVEMENT A MINIMUM OF 18" INCHES AWAY FROM BACK OF CURB (GUTTER LINE) AND BREAK OUT TO EXPOSE EXISTING REINFORCEMENT STEEL.
3. COMPACT SUBGRADE FOR PROPOSED DRIVEWAY CONNECTION FROM PROPOSED SAW CUT AT EXISTING PAVEMENT TO R.O.W. LINE, COMPACT TO 95% OF STANDARD PROCTER DENSITY (+/- 2% OPT. MOISTURE). THE COUNTY ENGINEER RESERVES THE RIGHT TO REQUIRE LABORATORY TESTS TO BE CONDUCTED.
4. PLACE AND COMPACT 4" CLEAN BANK SAND.
5. MAINTAIN GUTTER LINE WITH FACE OF EXISTING CURB.
6. PROPOSED DRIVEWAY REINFORCING STEEL IS TO BE TIED TO EXISTING ROADWAY REINFORCING STEEL WITH A MINIMUM LAP OF 12 INCHES.
7. PROPOSED DRIVEWAY REINFORCING STEEL IS TO BE #4 DEFORMED REINFORCING BARS (ASTM A615 GRADE 60, UNLESS NOTED) SPACED AT 24 INCHES C.C., EACH WAY, WITH 12 INCHES MINIMUM LAP (6" x 6" W6 x W6 AS ALTERNATE) FROM PROPOSED SAW CUT TO RIGHT-OF-WAY LINE.
8. PROPOSED DRIVEWAY, CURB, GUTTER LINE, AND GRADE SHALL MATCH EXISTING STREET.
9. PROPOSED DRIVEWAY SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE, CLASS "A" STRUCTURAL (REFER TO SPECIFICATION 03301), 7 INCHES THICK, FROM PROPOSED SAW CUT TO RIGHT-OF-WAY LINE (PROPERTY LINE).
10. PROPOSED SIDEWALK SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE, CLASS "A" STRUCTURAL (REFER TO SPECIFICATION 03301), 4 ½ INCHES THICK AND 5 FEET MINIMUM WIDTH. SEE DRAWING NO. FBC 24A FOR ADDITIONAL INFORMATION AND DETAILS.
11. SIDEWALKS SHALL BE BUILT OR CAUSED TO BE BUILT NOT LESS THAN 5 FEET IN WIDTH ON BOTH SIDES OF ALL DEDICATED RIGHTS-OF-WAY WITHIN SAID PLAT AND ON THE CONTIGUOUS RIGHT-OF-WAY OF ALL PERIMETER ROADS SURROUNDING SAID PLAT, IN ACCORDANCE WITH A.D.A.

GENERAL NOTES FOR SIDEWALKS AND DRIVEWAYS

1. PROPOSED DRIVEWAY, SIDEWALK, CURB, GUTTER LINE AND GRADE SHALL MATCH EXISTING STREET.
2. PROPOSED SIDEWALK SHALL BE CONSTRUCTED WITH PORTLAND CEMENT, CLASS A STRUCTURAL (REFER TO SPECIFICATION 03301), 4 INCHES THICK AND 4 FEET MINIMUM WIDTH.
3. PROPOSED DRIVEWAY AND CURB SHALL BE BUILT WITH PORTLAND CEMENT CONCRETE, CLASS A STRUCTURAL (REFER TO SPECIFICATION 03301), 6 INCHES THICK, FROM PROPOSED SAW CUT AT EXISTING PAVEMENT TO RIGHT-OF-WAY LINE AND TO BE REINFORCED WITH #4 DEFORMED REINFORCING BARS (MINIMUM, ASTM A615 GRADE 60, UNLESS NOTED) SPACED AT 24 INCHES C.C., EACH WAY, WITH 10 INCHES MINIMUM LAP.
4. PROPOSED DRIVEWAY REINFORCING STEEL IS TO BE TIED TO EXISTING ROADWAY REINFORCING STEEL WITH A MINIMUM 12 INCHES LAP.
5. PROPOSED GUTTER LINE IS TO BE MAINTAINED AT FACE OF EXISTING CURB.
6. SAW CUT EXISTING CURB AT EACH END OF PROPOSED DRIVEWAY AND KNOCK OUT EXISTING CURB.
7. SAW CUT EXISTING PAVEMENT MINIMUM 2 INCHES AND BREAK OUT TO EXPOSE EXISTING REINFORCEMENT STEEL AT LEAST 12 INCHES AT PROPOSED DRIVEWAY INTERSECTION. FULL DEPTH CUT IS ACCEPTABLE PROVIDING 18" LONG DRILL IN DOWELS ARE INSTALLED AT A SPACING TO MATCH EXISTING WITH A 6" EMBEDMENT.
8. COMPACT SUBGRADE FOR PROPOSED DRIVEWAY CONNECTION FROM PROPOSED SAW CUT AT EXISTING PAVEMENT TO RIGHT-OF-WAY LINE, COMPACT TO 95% OF STANDARD PROCTER DENSITY (+/- 2% OPT. MOISTURE). THE COUNTY ENGINEER RESERVES THE RIGHT TO REQUIRE LABORATORY TESTS IF HE DEEMS THEM NECESSARY.
9. PLACE AND COMPACT 4 INCH CLEAN BANK SAND.
10. PROPOSED AREA FROM BACK OF CURB TO SIDEWALK AND FROM SIDEWALK TO RIGHT-OF-WAY LINE MAY BE CONCRETE OR DIRT (ROADWAYS WITH CURBS AND SIDEWALKS).
11. IF MORE THAN ONE PROPOSED DRIVEWAY IS BUILT ON THE SAME PROPERTY, SAID DRIVE WAYS SHALL BE SEPARATED BY A MINIMUM DISTANCE OF AT LEAST 20 FEET (ROADWAYS WITH CURBS AND SIDEWALKS).
12. SIDEWALKS SHALL HAVE 3/4 INCH REDWOOD BOARD EXPANSION JOINTS EVERY 20 FEET ON CENTER.
13. PLACE ONE-INCH BOARD EXPANSION JOINT AT RIGHT-OF-WAY LINE.
14. EXPANSION JOINT FILLER SHALL BE PRE FORMED CONFORMING TO AASHTO M-33 OR M-213 BETWEEN SIDEWALK AND CURB, AROUND FIRE HYDRANTS AND UTILITY POLES.

FORT BEND COUNTY 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 HOUR NOTICE TO ANY CONSTRUCTION ACTIVITY WITHIN THE LIMITS OF THE PAVING AT CONSTRUCTION@FORTBENDCOUNTYTX.GOV .
3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FROM FORT BEND COUNTY PRIOR TO COMMENCING CONSTRUCTION OF ANY IMPROVEMENTS WITHIN COUNTY ROAD RIGHT OF WAYS.
4. ALL PAVING IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FORT BEND COUNTY "RULES, REGULATIONS AND REQUIREMENTS RELATING TO THE APPROVAL AND ACCEPTANCE OF IMPROVEMENTS IN SUBDIVISIONS AS CURRENTLY AMENDED.
5. ALL ROAD WIDTHS, CURB RADII AND CURB ALIGNMENT SHOWN INDICATES BACK OF CURB
6. A CONTINUOUS LONGITUDINAL REINFORCING BAR SHALL BE USED IN THE CURBS.
7. ALL CONCRETE PAVEMENT SHALL BE 5-1/2 SACK CEMENT WITH A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI AT 28 DAYS. TRANSVERSE EXPANSION JOINTS SHALL BE INSTALLED AT EACH CURB RETURN AND AT A MAXIMUM SPACING OF 60 FEET.
8. ALL WEATHER ACCESS TO ALL EXISTING STREETS AND DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES.
9. 4"X 12" REINFORCED CONCRETE CURB SHALL BE PLACED IN FRONT OF SINGLE FAMILY LOTS ONLY. ALL OTHER AREAS SHALL BE 6" REINFORCED CONCRETE CURB.
10. AT ALL INTERSECTION LOCATIONS, TYPE 7 RAMPS SHALL BE PLACE IN ACCORDANCE WITH TXDOT PED-12A STANDARD DETAIL SHEET. A.D.A. – HANDICAP RAMPS SHALL BE INSTALLED WITH STREET PAVING AT ALL INTERSECTIONS AND COMPLY WITH CURRENT A.D.A. REGULATIONS.
11. CURB HEADERS ARE REQUIRED AT CURB CONNECTIONS TO HANDICAP RAMPS, WITH NO CONSTRUCTION JOINT WITHIN 5' OF RAMPS.
12. ALL INTERSECTIONS UTILIZING TRAFFIC CONTROL MEASURES SHALL HAVE A.D.A. WHEEL CHAIR RAMPS INSTALLED.
13. GUIDELINES ARE SET FORTH IN THE TEXAS "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 DEVICES, ETC., DURING CONSTRUCTION – BOTH DAY AND NIGHT.
14. ALL R1-1 STOP SIGNS SHALL BE 30"X30" WITH DIAMOND GRADE SHEETING PER TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
15. STREET NAME SIGNAGE SHALL BE ON A 9" HIGH SIGN FLAT BLADE W/REFLECTIVE GREEN BACKGROUND. STREET NAMES SHALL BE UPPER AND LOWERCASE LETTERING WITH UPPERCASE LETTERS OF 6" MINIMUM AND LOWERCASE 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 OF THE CENTERLINE OF THE STREET ON THE SAME SIDE AS THE HYDRANT.
17. THE PROJECT AND ALL PARTS THEREOF SHALL BE SUBJECT TO INSPECTION FROM TIME TO TIME BY INSPECTORS DESIGNATED BY FORT BEND COUNTY. NO SUCH INSPECTIONS SHALL RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER. NEITHER FAILURE TO INSPECT NOR FAILURE TO DISCOVER OR REJECT ANY OF THE WORK AS NOT IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS, REQUIREMENTS AND SPECIFICATIONS OF FORT BEND COUNTY OR ANY PROVISION OF THIS PROJECT SHALL BE CONSTRUCTED TO IMPLY AN ACCEPTANCE OF SUCH WORK OR TO RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER.

WS&D RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

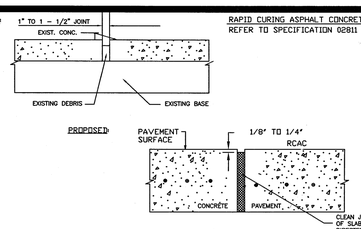
PAVING RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

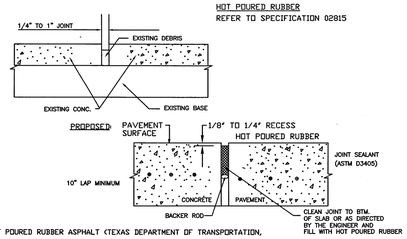
CONTRACTOR:_____ DATE:_____

TITLE:_____

EXISTING: 1" TO 1 - 1/2" JOINT — RAPID CURING ASPHALT CONCRETE (RCAC) REFER TO SPECIFICATION 02811



EXISTING: 1/4" TO 1" JOINT — HOT POURED RUBBER REFER TO SPECIFICATION 02815

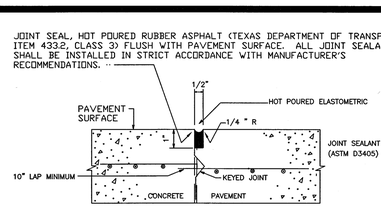


JOINT SEAL, HOT POURED RUBBER ASPHALT (TEXAS DEPARTMENT OF TRANSPORTATION, ITEM 433.2, CLASS 3) FLUSH WITH PAVEMENT SURFACE. ALL JOINT SEALANT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

CLEANING & SEALING PAVEMENT JOINTS EXISTING CONCRETE	APPROVED BY: LOUIS E. HOOD, P.E.	DRAWN BY: L. BRDECKA
	DATE DRAWN: 2-1-94 REVISED: 10-4-95	DRAWING NO.: FBC-005A

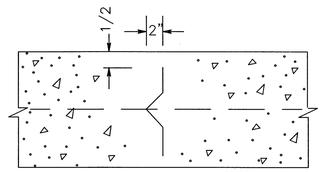
FORT BEND COUNTY ENGINEERING DEPARTMENT

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



CONSTRUCTION JOINT SEAL

N.T.S.



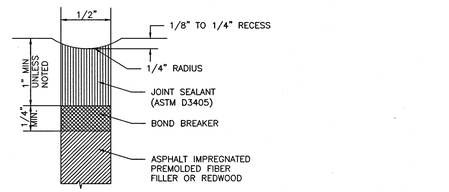
DEFORMED METAL STRIP

N.T.S.

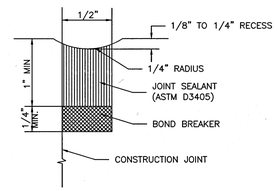
THE LOCATION OF DEFORMED STRIPS MAY BE VARIED, WITH THE APPROVAL OF THE FORT BEND COUNTY ENGINEERING DEPARTMENT, TO SUIT THE PROPOSED CONSTRUCTION METHODS OF THE CONTRACTOR. MAXIMUM LONGITUDINAL SPACING FOR DEFORMED STRIPS IS 14'-0". DEFORMED METAL STRIPS SHALL BE PLACED VERTICALLY ALONG A STRAIGHT ALIGNMENT.

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

FORT BEND COUNTY ENGINEERING DEPARTMENT



EXPANSION JOINT



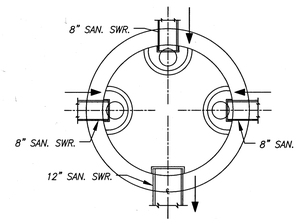
CONSTRUCTION JOINT

JOINT SEALANT FOR EXPANSION JOINT AND CONSTRUCTION JOINT	APPROVED BY: LOUIS E. HOOD, P.E.	DRAWN BY: L. BRDECKA
	DATE DRAWN: 2-1-94 REVISED: 10-4-95	DRAWING NO.: FBC-006

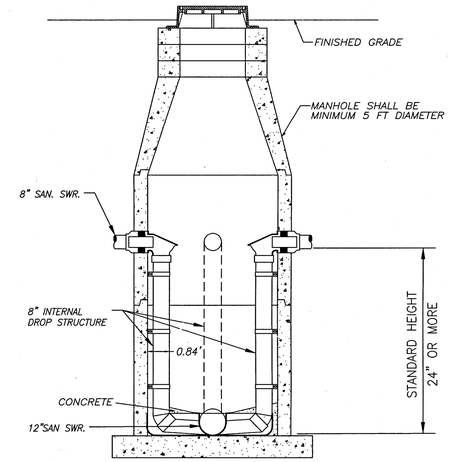
FORT BEND COUNTY ENGINEERING DEPARTMENT

NOTE:
IN THE EVENT THAT THERE IS A CONFLICT BETWEEN AGENCY CRITERIA, THE MORE STRINGENT SHALL APPLY.

NOTES:
1. *SANITARY MANHOLES ON MAINS 8"-12" IN DIAMETER AND LESS THAN 12' (FEET) IN DEPTH SHALL BE 4' (FOOT) IN DIAMETER. SANITARY MANHOLES DEEPER THAN 12' (FEET) DEEP SHALL BE 5' (FOOT) IN DIAMETER.*
2. *SANITARY MANHOLES ON MAINS 15"-27" IN DIAMETER SHALL BE 5' (FOOT) IN DIAMETER.*
3. *SANITARY MANHOLES WITH AN INTERNAL DROP STRUCTURES SHALL BE A MINIMUM OF 5' (FOOT) IN DIAMETER.*



PLAN



STANDARD DROP DETAIL

(SEE C.S.S. NOTES)

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____ DEVELOPMENT COORDINATOR

DATE: 7/12/17

No.	DATE	REVISION

F.B.C.E. GENERAL CONSTRUCTION NOTES & DETAILS

missouri CITY TEXAS

DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: _____ DATE 7.6.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

JOB No.:

SCALE: AS NOTED
SUBMITTED: _____
DATE: FEBRUARY 2015

SHEET 04 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194-1127A

Date\Time : Thu, 06 Jul 2017 - 10:19pm - USER : dronge
Path\Name : I:\Projdata\1194\1194-1127A\1194-1127A\ACAD\...Sheet Files\04 MISCELLANEOUS DETAILS II & FBCE GENERAL CONSTRUCTION NOTES.dwg

4

STATE OF TEXAS
COUNTY OF FORT BEND

WE, SIENNA/JOHNSON NORTH, L.P., ACTING BY AND THROUGH ALVIN SAN MIGUEL, VICE PRESIDENT/GENERAL MANAGER, OF SIENNA/JOHNSON NORTH, L.P., OWNERS OF THE 20.378 ACRE TRACT DESCRIBED IN THE ABOVE AND FOREGOING PLAT OF SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A, DO HEREBY MAKE AND ESTABLISH SAID SUBDIVISION PLAT OF SAID PROPERTY ACCORDING TO ALL LINES, DEDICATIONS, RESTRICTIONS AND NOTATIONS ON SAID 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 OURSELVES, OUR HEIRS AND ASSIGNS TO WARRANT AND FOREVER DEFEND THE TITLE TO THE LAND SO DEDICATED.

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

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 ELEVEN 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 UPWARD, LOCATED ADJACENT TO AND ADJOINING SAID PUBLIC UTILITY EASEMENTS THAT ARE DESIGNATED WITH AERIAL EASEMENTS (U.E. AND A.E.) AS INDICATED AND DEPICTED, HEREON, WHEREBY THE AERIAL EASEMENT TOTALS 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 PURPOSE 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 EIGHT FEET (8'0") 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 UPWARD, LOCATED ADJACENT TO BOTH SIDES AND ADJOINING SAID PUBLIC UTILITY EASEMENTS THAT ARE DESIGNATED WITH AERIAL EASEMENTS (U.E. AND A.E.) AS INDICATED AND DEPICTED HEREON, WHEREBY THE AERIAL EASEMENT TOTALS THIRTY FEET (30'0") IN WIDTH.

FURTHER, WE DO HEREBY DECLARE THAT ALL PARCELS OF LAND DESIGNATED AS LOTS ON THIS PLAT ARE INTENDED FOR THE CONSTRUCTION OF SINGLE FAMILY RESIDENTIAL DWELLING UNITS THEREON AND SHALL BE RESTRICTED FOR SAME UNDER THE TERMS AND CONDITIONS OF SUCH RESTRICTIONS FILED SEPARATELY.

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

FURTHER, WE DO HEREBY DEDICATE TO THE PUBLIC A STRIP OF LAND THIRTY (30) FEET WIDE ON EACH SIDE OF THE CENTER LINE OF ANY AND ALL BAYOUS, CREEKS, GULLIES, RAVINES, DRAWS AND DRAINAGE DITCHES LOCATED IN SAID SUBDIVISION, AS EASEMENTS FOR DRAINAGE PURPOSES. FORT BEND COUNTY OR ANY OTHER GOVERNMENTAL AGENCY SHALL HAVE THE RIGHT TO ENTER UPON SAID EASEMENT AT ANY AND ALL TIMES FOR THE PURPOSES OF CONSTRUCTION AND MAINTENANCE OF DRAINAGE FACILITIES AND STRUCTURES.

FURTHER, WE DO HEREBY COVENANT AND AGREE THAT ALL OF THE PROPERTY WITHIN THE BOUNDARIES OF THIS SUBDIVISION AND ADJACENT TO ANY DRAINAGE EASEMENT, DITCH, GULLY, CREEK OR NATURAL DRAINAGE WAY SHALL HEREBY BE RESTRICTED TO KEEP SUCH DRAINAGE WAYS AND EASEMENTS CLEAR OF FENCES, BUILDINGS, EXCESSIVE VEGETATION AND OTHER OBSTRUCTIONS TO THE OPERATIONS AND MAINTENANCE OF THE DRAINAGE FACILITY AND THAT SUCH ABUTTING PROPERTY SHALL NOT BE PERMITTED TO DRAIN DIRECTLY INTO THIS EASEMENT EXCEPT BY MEANS OF AN APPROVED DRAINAGE STRUCTURE.

FURTHER, WE DO HEREBY CERTIFY THAT WE ARE THE OWNERS OF ALL PROPERTY IMMEDIATELY ADJACENT TO THE BOUNDARIES OF THE ABOVE AND FOREGOING SUBDIVISION OF SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A WHERE BUILDING SETBACK LINES OR PUBLIC UTILITY EASEMENTS ARE TO BE ESTABLISHED OUTSIDE THE BOUNDARIES OF THE ABOVE AND FOREGOING SUBDIVISION AND DO HEREBY MAKE AND ESTABLISH ALL BUILDING SETBACK LINES AND DEDICATE TO THE USE OF THE PUBLIC, ALL PUBLIC UTILITY EASEMENTS SHOWN IN SAID ADJACENT ACREAGE.

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

IN TESTIMONY WHEREOF, SIENNA/JOHNSON NORTH, L.P., A TEXAS LIMITED PARTNERSHIP, HAS CAUSED THESE PRESENTS TO BE SIGNED BY ALVIN SAN MIGUEL, ITS VICE PRESIDENT/GENERAL MANAGER, THEREUNTO AUTHORIZED

THIS _____ DAY OF _____, 2017.

SIENNA/JOHNSON NORTH, L.P.

BY:_____
ALVIN SAN MIGUEL, VICE PRESIDENT/GENERAL MANAGER

STATE OF TEXAS
COUNTY OF FORT BEND

BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED ALVIN SAN MIGUEL, VICE PRESIDENT/GENERAL MANAGER OF SIENNA/JOHNSON NORTH, L.P., 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.

GIVEN UNDER MY HAND AND SEAL OF OFFICE,

THIS _____ DAY OF _____, 2017.

_____
NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS

I, JON P. BORDOVSKY, A REGISTERED PROFESSIONAL LAND SURVEYOR, AM AUTHORIZED UNDER THE LAWS OF THE STATE OF TEXAS TO PRACTICE THE PROFESSION OF LAND SURVEYING AND HEREBY CERTIFY THAT THE ABOVE SUBDIVISION IS TRUE AND CORRECT, WAS PREPARED FROM AN ACTUAL SURVEY OF THE PROPERTY MADE UNDER MY SUPERVISION ON THE GROUND AND THAT ALL BOUNDARY CORNERS, ANGLES, POINTS OF CURVATURE AND OTHER POINTS OF REFERENCE HAVE BEEN MARKED WITH IRON (OR OTHER SUITABLE PERMANENT METAL) PIPES OR RODS HAVING AN OUTSIDE DIAMETER OF NOT LESS THAN FIVE-EIGHTHS (5/8) INCH WITH PLASTIC CAP MARKED "GBI PARTNERS" AND A LENGTH OF NOT LESS THAN THREE (3) FEET (SEE NOTE 9).

_____
JON P. BORDOVSKY, R.P.L.S.
REGISTERED PROFESSIONAL LAND SURVEYOR
TEXAS REGISTRATION NO. 6405

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

_____
OMAR NOE ESCOBAR, JR., P.E.
LICENSED PROFESSIONAL ENGINEER
TEXAS LICENSE NO. 107281

STATE OF TEXAS
COUNTY OF FORT BEND

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 VILLAGE OF ANDERSON SPRINGS SECTION 27A IN CONFORMANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE ORDINANCES OF THE CITY OF MISSOURI CITY AS SHOWN HEREON AND AUTHORIZED THE RECORDING OF THIS PLAT

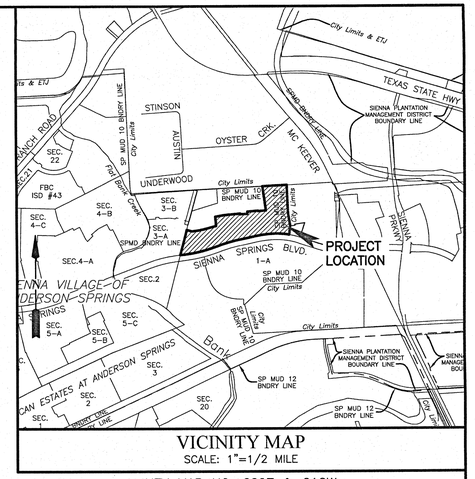
THIS _____ DAY OF _____, 2017.

_____
SONYA BROWN-MARSHALL, CHAIRMAN

_____
TIMOTHY R. HANEY, VICE CHAIRMAN

NOTES:

1. PRIMARY CONTROL MONUMENT: BRASS DISK SET IN CONCRETE AT THE SOUTHWESTERN CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNO ROAD. SURVEY MARKER NO. PCM-003 ELEV. = 66.07 (NAVD88 2001 ADJUSTMENT)
2. PROJECT BENCHMARK: BRASS DISC SET ON THE BULLET NOSE OF THE SOUTHERLY MEDIAN LOCATED AT THE INTERSECTION OF SIENNA SPRINGS BOULEVARD AND GREAT HORSE. ELEV. = 60.51 (NAVD88 2001 ADJUSTMENT)
3. ALL BEARINGS REFERENCED TO THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (NAD83). COORDINATES SHOWN ARE SURFACE AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY A FACTOR OF 0.999867651
4. THIS PLAT WAS PREPARED TO MEET CITY OF MISSOURI CITY AND FORT BEND COUNTY REQUIREMENTS.
5. THIS PLAT WAS PREPARED FROM INFORMATION FURNISHED BY STEWART TITLE COMPANY, FILE NO. 1790269CPL DATED JUNE 01, 2017 THE SURVEYOR HAS NOT ABSTRACTED THE ABOVE PROPERTY.
6. THIS PLAT LIES WHOLLY WITHIN SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT 10, SIENNA PLANTATION LEVEE IMPROVEMENT DISTRICT, FORT BEND SUBSIDENCE DISTRICT, FORT BEND COUNTY DRAINAGE DISTRICT, THE ETJ OF THE CITY OF MISSOURI CITY AND FORT BEND COUNTY.
7. BY GRAPHICAL PLOTTING THE SUBJECT TRACT LIES WITHIN ZONE "X" (SHADED ON THE FIRM MAP), ZONE "X" (SHADED) IS DEFINED AS "AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREA OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD". "NOTE 1" READS AS FOLLOWS: "THIS AREA IS SHOWN AS BEING PROTECTED FROM THE 1-PERCENT-ANNUAL-CHANCE OR GREATER FLOOD HAZARD BY LEVEE SYSTEM. OVERTOPPING OR FAILURE OF ANY LEVEE SYSTEM IS POSSIBLE." AS SHOWN ON FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP, MAP NUMBER 48157C 0435L, MAP REVISED APRIL 2, 2014. "LJA DOES NOT WARRANT NOR SUBSCRIBE TO THE ACCURACY OR SCALE OF SAID MAPS".
8. ALL EXISTING AND PROPOSED PIPELINES OR PIPELINE EASEMENTS THROUGH THE SUBDIVISION HAVE BEEN SHOWN.
9. BUILDINGS SHALL BE SET BACK A MINIMUM DISTANCE OF 30 FEET FROM ANY PIPELINE OR 15 FEET FROM ANY PIPELINE EASEMENT, WHICHEVER IS GREATER.
10. FIVE EIGHTHS INCH (5/8") IRON RODS THREE FEET (3') IN LENGTH WITH A PLASTIC CAP MARKED "GBI PARTNERS" WILL BE SET ON ALL PERIMETER BOUNDARY CORNERS. LOT, BLOCK, AND RESERVE CORNERS WILL BE SET UPON COMPLETION OF ROAD CONSTRUCTION AND PRIOR TO LOT CONSTRUCTION.
11. THE MINIMUM SLAB ELEVATION SHALL BE ELEVATED TO OR ABOVE A HEIGHT WHICH IS HIGHER OF EIGHTEEN INCHES ABOVE HIGHEST ADJACENT GRADE, OR TWELVE INCHES ABOVE THE MAXIMUM ONE PERCENT ANNUAL FLOOD RISK FLOODPLAIN PONDING ELEVATION IN THE NEAREST DRAINAGE SYSTEM AS PER SECTION 42 – ARTICLE III OF THE MISSOURI CITY CODE OF ORDINANCES. FORT BEND COUNTY FLOODPLAIN REGULATIONS ARTICLE 5 SECTION B REQUIRES THAT THE MINIMUM SLAB BE SET AT AN ELEVATION EIGHTEEN INCHES ABOVE THE BASE FLOOD ELEVATION WHICH IS MORE STRINGENT AND THEREFORE USED TO DETERMINE MINIMUM SLAB. THE TOP OF ALL FLOOR SLABS SHALL BE A MINIMUM OF 62.15 FEET ABOVE MEAN SEA LEVEL. THE TOP OF SLAB ELEVATION AT ANY POINT ON THE PERIMETER OF THE SLAB SHALL NOT BE LESS THAN EIGHTEEN (18) INCHES ABOVE NATURAL GROUND, ALL SLAB ELEVATIONS SHALL BE ONE FOOT ABOVE THE 100-YEAR FLOOD ELEVATION AS ESTABLISHED BY FEMA AS PER SECTION 82-97(11).
12. THE DRAINAGE SYSTEM FOR THIS SUBDIVISION SHALL BE DESIGNED TO MEET THE REQUIREMENTS OF THE FORT BEND COUNTY DRAINAGE CRITERIA MANUAL WHICH ALLOWS STREET PONDING DURING INTENSE RAINFALL EVENTS.
13. ALL DRAINAGE AND FLOODWAY EASEMENTS SHALL BE KEPT CLEAR OF FENCES, BUILDINGS, PLANTINGS, AND OTHER OBSTRUCTIONS TO THE OPERATIONS AND MAINTENANCE OF THE DRAINAGE FACILITY AS REQUIRED BY SUBSECTION 82-168(D) OF THE CODE OF ORDINANCES OF THE CITY OF MISSOURI CITY, TEXAS.
14. ALL PROPERTY TO DRAIN INTO THE DRAINAGE EASEMENT ONLY THROUGH AN APPROVED DRAINAGE STRUCTURE.
15. LOT LINES SHALL HAVE A MINIMUM FIVE (5) FOOT SIDE YARD SETBACK FOR LOTS 1-34, BLOCK 1, LOTS 1-8, BLOCK 2, LOTS 1-4, BLOCK 3 & LOTS 1-11, BLOCK 4.
16. A MINIMUM DISTANCE OF 10' SHALL BE MAINTAINED BETWEEN RESIDENTIAL DWELLINGS.
17. THE CITY OF MISSOURI CITY SHALL NOT BE RESPONSIBLE FOR MAINTENANCE OF DRIVEWAYS, SIDEWALKS, EMERGENCY ACCESS EASEMENTS, RECREATIONAL AREAS, OPEN SPACE AND RESERVES.
18. SIDEWALKS SHALL BE BUILT OR CAUSED TO BE BUILT NOT LESS THAN 5-FEET IN WIDTH ON BOTH SIDES OF ALL DEDICATED RIGHTS-OF-WAY WITHIN SAID PLAT AND ON CONTIGUOUS RIGHT-OF-WAY OF ALL PERIMETER ROADS SURROUNDING SAID PLAT, IN ACCORDANCE WITH ADA REQUIREMENTS.
19. SIDEWALKS SHALL BE CONSTRUCTED AS REQUIRED BY SECTION 82-164 OR THE CODE OF ORDINANCES OF THE CITY OF MISSOURI CITY, TEXAS.
20. DRIVEWAY APPROACHES SHALL BE PROVIDED IN ACCORDANCE WITH THE MISSOURI CITY DRIVE WAY APPROACH POLICY AS REQUIRED UNDER THE PROVISIONS OF SUBSECTION 82-160 OF THE CODE OF ORDINANCES OF THE CITY OF MISSOURI CITY, TEXAS.
21. ALL REQUIRED UTILITY COMPANIES HAVE BEEN CONTACTED AND ALL PUBLIC UTILITY EASEMENTS AS SHOWN ON THE ABOVE AND FOREGOING PLAT CONSTITUTE ALL OF THE EASEMENTS REQUIRED BY THE UTILITY COMPANIES CONTACTED AT THE TIME OF PLATTING.
22. IN ACCORDANCE WITH CENTER POINT ENERGY ELECTRICAL SERVICE MANUAL, ARTICLE 421.2, ELECTRIC METERS SHALL BE LOCATED IN A POSITION THAT IS ACCESSIBLE AT ALL TIMES WITHOUT CUSTOMER ASSISTANCE. ACCESS TO THE METER SHALL NOT BE BLOCKED BY GATES, WALLS OR FENCES.
23. GAS METER LOCATION: GAS METERS SHALL BE LOCATED IN AN AREA ACCESSIBLE WITHOUT CUSTOMER ASSISTANCE, AND NOT BLOCKED BY FENCES, WALLS OR GATES. FOR FURTHER INFORMATION PLEASE CONTACT SIENERGY AT 281-778-6250.
24. ALL OF THE PROPERTY SUBDIVIDED IN THE ABOVE AND FOREGOING PLAT IS WITHIN THE ETJ BOUNDARIES OF THE CITY OF MISSOURI CITY, TEXAS.
25. NO BUILDING OR OTHER PERMIT, EXCEPT PERMITS FOR CONSTRUCTION OF PUBLIC IMPROVEMENTS WILL BE ISSUED BY THE CITY OF MISSOURI CITY, TEXAS, FOR CONSTRUCTION WITHIN THIS SUBDIVISION UNTIL SUCH TIME AS ALL PUBLIC IMPROVEMENTS OF THE SUBDIVISION HAVE BEEN CONSTRUCTED BY THE DEVELOPER AND ACCEPTED BY THE CITY OR 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.
26. PRIOR TO THE BEGINNING OF THE ONE-YEAR MAINTENANCE PERIOD FOR UTILITIES AND PAVING BY FORT BEND COUNTY. ALL BLOCK CORNERS AND STREET RIGHT-OF-WAY WILL BE MONUMENTED.
27. ADEQUATE FIRE FLOWS SHALL BE PROVIDED ALONG THE ENTIRE LENGTH OF THE PROPOSED WATER LINE.
28. REQUIRED FIRE FLOWS SHALL BE PROVIDED BASED ON THE SIZE AND CONSTRUCTION OF ALL BUILDINGS AS REQUIRED BY THE INTERNATIONAL FIRE CODE AS ADOPTED BY THE CITY.
29. THE PLACEMENT OF FIRE HYDRANTS SHALL BE PROVIDED BASED ON THE MINIMUM DISTANCE REQUIREMENTS AS ESTABLISHED IN THE INTERNATIONAL FIRE CODE AS ADOPTED BY THE CITY (500FT. FOR RESIDENTIAL DEVELOPMENT AND 300FT. FOR COMMERCIAL DEVELOPMENT). ALL FIRE HYDRANTS SHALL BE INSTALLED ACCORDING TO THE INTERNATIONAL FIRE CODE AS ADOPTED BY THE CITY.
30. STREET LIGHTING SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE CITY OF MISSOURI CITY INFRASTRUCTURE DESIGN MANUAL, CHAPTER 4 STREET LIGHTING AND OVERHEAD UTILITIES. THE INSTALLATION, OPERATION, AND MAINTENANCE OF ORNAMENTAL STREET LIGHTS SHALL NOT BE THE RESPONSIBILITY OF THE CITY OF MISSOURI CITY, EXCEPT AS PROVIDED THEREIN.
31. OWNERSHIP AND MAINTENANCE RESPONSIBILITY OF THE DRAINAGE RESERVES AND CHANNELS IS VESTED IN THE SIENNA PLANTATION LEVEE IMPROVEMENT DISTRICT. THE OWNERSHIP AND MAINTENANCE RESPONSIBILITY OF LANDSCAPE RESERVES IS VESTED IN THE HOMEOWNERS ASSOCIATION (HOA).
32. DRIVEWAY LOCATION FOR THE LOT ON THE INSIDE OF A KNUCKLE OR 90 DEGREE TURN, DRIVEWAY MUST BE PLACED ON THE LOT FRONTAGE ALONG THE INSIDE APPROACH LANE PRIOR TO THE RIGHT TURN, TO AVOID SIGHT OBSTRUCTION SAFETY HAZARDS.
33. THIS PLAT LIES WITHIN LIGHTING ZONE 2.
34. ▲ INDICATES ZERO LOT LINE SIDE OF THE LOTS AND A FIVE (5) FOOT MAINTENANCE ACCESS EASEMENT IS DEDICATED ON THE ABUTTING LOT ALONG THE SIDE PROPERTY LINES OF EACH ZERO LOT LINE. THIS AFFECTS LOTS 5-38, BLOCK 3 ONLY.



VICINITY MAP
SCALE: 1"=1/2 MILE

KEY MAP NO. 609Z & 610W

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

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

APPROVED BY THE COMMISSIONERS' COURT OF FORT BEND COUNTY, TEXAS,

THIS _____ DAY OF _____, 2017.

_____
VINCENT M. MORALES, JR.
PRECINCT 1, COUNTY COMMISSIONER

_____
GRADY PRESTAGE
PRECINCT 2, COUNTY COMMISSIONER

_____
ROBERT E. HEBERT
COUNTY JUDGE

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

_____
JAMES PATTERSON
PRECINCT 4, COUNTY COMMISSIONER

I, LAURA RICHARD, COUNTY CLERK IN AND FOR FORT BEND COUNTY, HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT WITH ITS CERTIFICATE OF AUTHENTICATION WAS FILED FOR RECORDATION IN MY OFFICE ON _____, 2017 AT _____ O'CLOCK _____M. IN PLAT NUMBER _____ OF THE PLAT RECORDS OF FORT BEND COUNTY, TEXAS.

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

_____
LAURA RICHARD, COUNTY CLERK
FORT BEND COUNTY, TEXAS

BY: _____
DEPUTY

FOR INFORMATION ONLY
FINAL PLAT OF
SIENNA
VILLAGE OF ANDERSON SPRINGS
SECTION 27A

A SUBDIVISION OF 20.378 ACRES OF LAND SITUATED IN THE MOSES SHIPMAN LEAGUE, ABSTRACT 86, ALSO BEING A PARTIAL REPLAT OF H.C.C.S CAMPUS SIENNA PLANTATION SECTION 1 20070119 F.B.C.O.P.R. FORT BEND COUNTY, TEXAS.

91 LOTS 14 RESERVES (4.809 ACRES) 5 BLOCKS

JULY 05, 2017 JOB NO. 1194-1127P

OWNER:
SIENNA/JOHNSON NORTH, L.P.
ALVIN SAN MIGUEL, VICE PRESIDENT/GENERAL MANAGER
5777 SIENNA PARKWAY, SUITE 100, MISSOURI CITY, TEXAS 77459
PH. (281) 778-7777

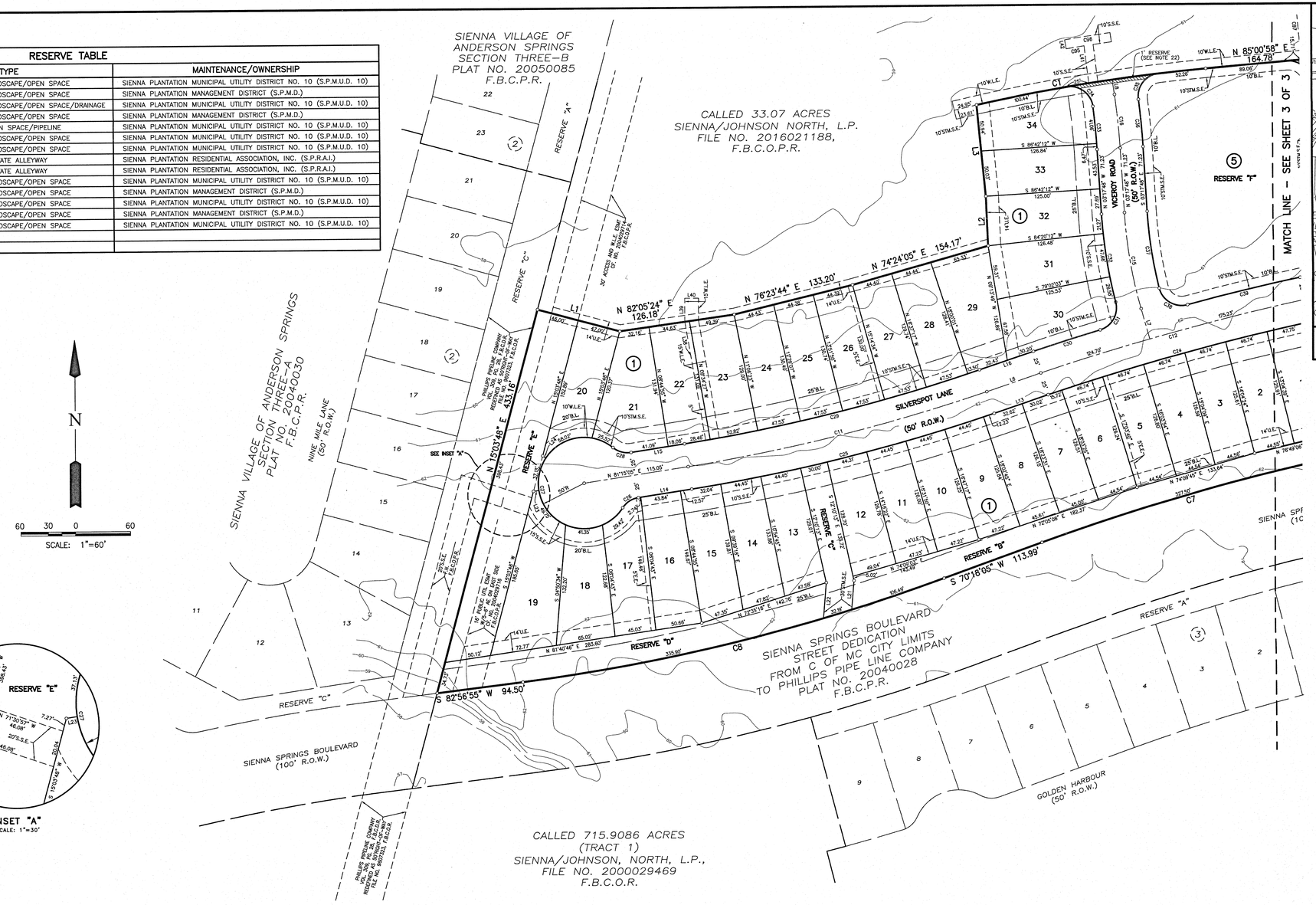
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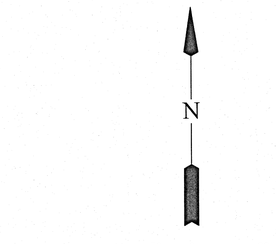
SURVEYORS:
GBI PARTNERS, L.P.
LAND SURVEYING CONSULTANTS
13340 S. GESSNER RD. · MISSOURI CITY, TX 77489
PHONE: 281-499-4539 · www.gbisurvey.com
TBPLS FIRM # 10130300
JON P. BORDOVSKY, R.P.L.S.
REGISTERED PROFESSIONAL LAND SURVEYOR
TEXAS REGISTRATION NO. 6405

ENGINEER:
LJA Engineering, Inc.
1904 W. Grand Parkway North, Suite 100, Katy, Texas 77449
Phone 713.953.5200 Fax 713.953.5026 FRN-F-1386
OMAR NOE ESCOBAR, JR.
LICENSED PROFESSIONAL ENGINEER,
TEXAS REGISTRATION NO. 107281

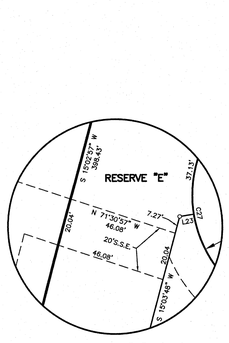
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Date\Time : Thu, 06 Jul 2017 - 5:26pm

RESERVE TABLE				
RESERVE	ACREAGE	SQ.FT.	TYPE	MAINTENANCE/OWNERSHIP
A	0.068	2,975	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10 (S.P.M.U.D. 10)
B	0.337	14,665	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MANAGEMENT DISTRICT (S.P.M.D.)
C	0.115	4,996	RESTRICTED TO LANDSCAPE/OPEN SPACE/DRAINAGE	SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10 (S.P.M.U.D. 10)
D	0.325	14,151	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MANAGEMENT DISTRICT (S.P.M.D.)
E	0.412	17,967	RESTRICTED TO OPEN SPACE/PIPELINE	SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10 (S.P.M.U.D. 10)
F	1.054	45,891	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10 (S.P.M.U.D. 10)
G	0.105	4,567	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10 (S.P.M.U.D. 10)
H	0.397	17,298	RESTRICTED TO PRIVATE ALLEYWAY	SIENNA PLANTATION RESIDENTIAL ASSOCIATION, INC. (S.P.R.A.I.)
I	0.524	22,835	RESTRICTED TO PRIVATE ALLEYWAY	SIENNA PLANTATION RESIDENTIAL ASSOCIATION, INC. (S.P.R.A.I.)
J	0.798	34,773	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10 (S.P.M.U.D. 10)
K	0.266	11,605	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MANAGEMENT DISTRICT (S.P.M.D.)
L	0.046	1,984	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10 (S.P.M.U.D. 10)
M	0.284	12,387	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MANAGEMENT DISTRICT (S.P.M.D.)
N	0.078	3,407	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10 (S.P.M.U.D. 10)
TOTAL	4.809	209,501		





LINE TABLE		
LINE	BEARING	DISTANCE
L1	S 74°56'12" E	93.00'
L2	N 02°18'28" W	54.19'
L3	N 05°26'19" W	100.97'
L4	N 86°42'12" E	124.71'
L5	N 03°39'51" W	37.89'
L6	N 71°36'29" E	62.64'
L7	N 15°45'34" W	34.34'
L8	N 07°58'03" W	16.44'
L9	N 09°52'58" W	49.54'
L10	N 82°06'30" E	2.58'
L11	N 03°18'32" W	37.44'
L12	S 77°56'24" W	4.86'
L13	S 71°36'29" W	62.64'
L14	S 81°15'05" W	59.14'
L15	N 81°15'05" E	59.14'
L16	N 71°36'29" E	62.64'
L17	N 77°56'24" E	9.06'
L18	N 01°17'40" W	30.65'
L19	S 20°48'41" E	37.07'
L20	N 32°22'45" E	14.28'
L21	N 04°50'37" E	31.58'
L22	N 04°50'37" E	38.77'
L23	S 81°09'53" W	6.04'
L24	S 56°17'02" E	4.08'
L25	S 88°42'20" W	27.50'
L26	N 03°09'23" W	47.81'
L27	S 01°17'40" E	20.00'
L28	S 02°36'04" E	71.04'
L29	S 06°39'44" E	27.93'
L30	S 05°32'54" E	42.93'
L31	S 06°39'44" E	27.80'
L32	N 02°36'04" W	71.04'
L33	N 03°09'23" W	27.82'
L34	N 88°42'20" E	83.77'
L35	N 41°49'56" E	14.50'
L36	S 57°04'33" E	14.14'
L38	N 09°34'27" W	131.51'
L39	N 00°07'55" E	25.48'
L40	S 89°52'05" E	15.00'
L41	N 06°54'22" W	41.02'
L42	N 09°14'19" W	10.00'
L43	N 82°36'44" E	20.00'
L44	N 83°26'31" E	15.00'
L45	S 83°20'12" W	20.00'
L46	N 83°20'53" E	20.00'
L47	S 86°40'14" W	134.32'
L48	S 80°22'22" W	47.04'
L49	S 09°37'38" E	15.00'
L50	S 00°02'05" W	20.00'



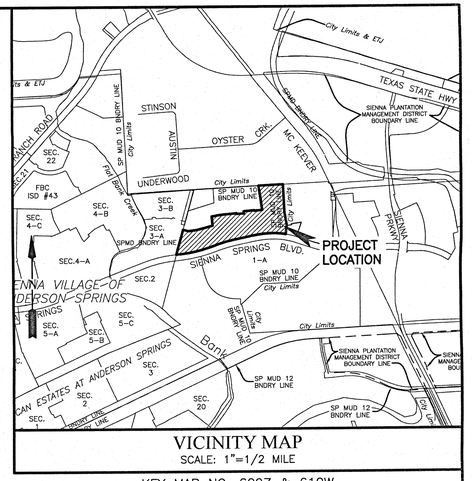
INSET "A"
SCALE: 1"=30'

CURVE TABLE					
CURVE	RADIUS	DELTA	ARC	CHORD	CHORD BEARING
C1	1975.00'	7°22'07"	254.00'	253.82'	N 81°19'55" E
C2	1225.00'	0°31'04"	11.07'	11.07'	S 03°33'20" E
C3	1525.00'	0°16'03"	7.12'	7.12'	S 04°46'16" E
C4	1190.00'	2°39'28"	55.20'	55.19'	N 07°16'11" W
C5	1250.00'	15°49'33"	345.27'	344.17'	N 88°44'58" W
C6	2550.00'	5°23'52"	240.24'	240.15'	S 80°38'20" W
C7	2550.00'	7°38'19"	339.96'	339.71'	S 74°07'14" W
C8	2150.00'	12°38'50"	474.58'	473.62'	S 76°37'30" W
C9	800.00'	8°45'48"	122.36'	122.24'	S 07°40'42" E
C10	1200.00'	0°29'36"	10.33'	10.33'	N 03°32'36" W
C11	2000.00'	9°38'36"	336.62'	336.22'	N 76°25'47" E
C12	2714.00'	6°19'54"	299.93'	299.77'	S 74°46'26" W
C13	2725.00'	5°23'52"	256.72'	256.63'	S 80°38'20" W
C14	1425.00'	6°39'59"	165.80'	165.71'	S 86°40'15" W
C15	490.00'	12°27'46"	106.58'	106.37'	S 09°31'41" E
C16	725.00'	4°40'15"	59.10'	59.09'	N 05°37'56" W
C17	500.00'	6°35'10"	57.47'	57.44'	S 06°35'23" E
C18	1500.00'	1°36'29"	42.10'	42.10'	N 04°06'03" W
C19	3000.00'	6°35'50"	345.43'	345.24'	N 04°35'35" W
C20	30.00'	87°17'14"	45.70'	41.41'	N 34°06'56" E
C21	400.00'	6°19'06"	44.11'	44.09'	N 06°28'05" W
C22	400.00'	1°47'29"	12.51'	12.51'	N 04°12'17" W
C23	25.00'	96°57'35"	42.31'	37.44'	N 53°34'49" W
C24	2689.00'	6°19'54"	297.16'	297.01'	S 74°46'26" W
C25	2025.00'	9°38'36"	340.82'	340.42'	S 76°25'47" W
C26	25.00'	48°11'23"	21.03'	20.41'	S 57°09'24" W

CURVE TABLE					
CURVE	RADIUS	DELTA	ARC	CHORD	CHORD BEARING
C27	50.00'	276°22'46"	241.19'	66.67'	N 08°44'55" W
C28	25.00'	48°11'23"	21.03'	20.41'	S 74°39'13" E
C29	1975.00'	9°38'36"	332.41'	332.02'	N 76°25'47" E
C30	2739.00'	1°36'02"	76.51'	76.51'	N 72°24'30" E
C31	25.00'	87°21'13"	38.12'	34.53'	N 29°31'55" E
C32	515.00'	10°50'54"	97.51'	97.36'	N 08°43'15" W
C33	700.00'	3°53'23"	47.52'	47.51'	N 05°14'30" W
C34	25.00'	92°15'08"	40.25'	36.04'	N 53°18'45" W
C35	25.00'	90°47'15"	39.61'	35.60'	S 38°06'23" W
C36	750.00'	3°59'27"	52.24'	52.23'	S 05°17'31" E
C37	465.00'	10°28'57"	85.07'	84.95'	S 08°32'16" E
C38	25.00'	90°56'18"	39.68'	35.64'	S 59°14'54" E
C39	2739.00'	2°39'26"	127.03'	127.02'	N 76°36'41" E
C40	25.00'	86°39'18"	37.81'	34.31'	N 34°36'45" E
C41	825.00'	5°25'06"	78.02'	77.99'	N 06°00'21" W
C42	25.00'	91°41'14"	40.01'	35.87'	N 49°08'25" W
C43	775.00'	4°58'19"	67.25'	67.23'	S 05°46'57" E
C44	25.00'	93°47'30"	40.92'	36.51'	S 55°09'52" E
C45	2750.00'	1°08'42"	54.95'	54.95'	N 78°30'45" E
C46	25.00'	88°57'59"	38.82'	35.03'	N 34°36'06" E
C47	525.00'	6°35'05"	60.34'	60.30'	N 06°35'21" W
C48	1475.00'	1°36'29"	41.40'	41.40'	N 04°06'03" W
C49	1525.00'	1°36'29"	42.80'	42.80'	S 04°06'03" E
C50	475.00'	6°35'04"	54.59'	54.56'	S 06°35'20" E
C51	25.00'	88°58'09"	38.82'	35.04'	S 54°21'57" E
C52	2750.00'	2°11'17"	105.02'	105.02'	N 82°14'37" E

CURVE TABLE					
CURVE	RADIUS	DELTA	ARC	CHORD	CHORD BEARING
C53	1450.00'	4°40'48"	118.44'	118.41'	N 85°40'40" E
C54	25.00'	89°18'44"	38.97'	35.14'	N 43°21'42" E
C55	2975.00'	6°35'50"	342.55'	342.36'	N 04°35'35" W
C56	25.00'	45°29'23"	19.85'	19.33'	N 30°38'12" W
C57	50.00'	276°16'12"	241.09'	66.74'	N 84°45'12" E
C58	25.00'	50°46'49"	22.16'	21.44'	S 17°29'54" W
C59	3025.00'	6°35'50"	348.31'	348.12'	S 04°35'35" E
C60	30.00'	86°05'22"	45.08'	40.95'	S 44°20'21" E
C61	30.00'	88°59'01"	46.59'	42.05'	N 43°11'50" E
C62	25.00'	90°44'16"	39.59'	35.58'	N 46°39'48" W
C63	1400.00'	4°37'48"	113.13'	113.10'	S 85°39'10" W
C64	2700.00'	5°23'52"	254.37'	254.27'	S 80°38'20" W
C65	25.00'	96°48'36"	42.24'	37.39'	S 29°32'05" W
C66	400.00'	1°56'28"	13.55'	13.55'	S 19°50'27" E
C67	400.00'	6°14'03"	43.52'	43.50'	S 17°41'39" E
C68	30.00'	87°28'59"	45.81'	41.48'	S 58°19'07" E
C69	1010.00'	3°54'38"	68.94'	68.92'	N 03°15'00" W
C70	1200.00'	2°40'56"	56.18'	56.17'	N 03°51'51" W
C71	3010.00'	0°38'00"	33.27'	33.27'	N 02°50'23" W
C72	25.00'	89°57'47"	39.25'	35.34'	N 48°08'17" W
C73	25.00'	95°28'45"	41.66'	37.00'	S 39°08'27" W
C74	15.00'	89°50'14"	23.52'	21.18'	N 48°24'39" W
C75	15.00'	91°08'18"	23.86'	21.42'	S 41°06'05" W
C76	1210.00'	1°52'00"	39.42'	39.42'	S 03°32'04" E
C77	440.00'	4°03'40"	31.19'	31.18'	S 04°37'54" E
C78	460.00'	4°03'40"	32.60'	32.60'	N 04°37'54" W

CURVE TABLE					
CURVE	RADIUS	DELTA	ARC	CHORD	CHORD BEARING
C79	1190.00'	5°59'51"	124.56'	124.51'	N 05°36'00" W
C80	15.00'	101°06'52"	26.47'	23.17'	N 42°33'44" W
C81	25.00'	95°28'45"	41.66'	37.00'	S 39°08'27" W
C82	1210.00'	1°47'25"	37.81'	37.81'	S 07°42'13" E
C83	15.00'	86°31'16"	22.65'	20.56'	S 50°04'08" E
C84	15.00'	91°07'50"	23.86'	21.42'	N 41°06'19" E
C85	15.00'	88°53'57"	23.27'	21.01'	S 48°52'48" E
C86	15.00'	89°45'10"	23.50'	21.17'	N 41°47'39" E
C87	1220.00'	0°33'33"	11.91'	11.91'	N 02°48'09" W
C88	2990.00'	0°38'00"	33.05'	33.05'	N 02°50'23" W
C89	25.00'	89°57'47"	39.25'	35.34'	N 48°08'17" W
C90	15.00'	101°06'52"	26.47'	23.17'	S 36°19'23" W
C91	15.00'	90°00'00"	23.56'	21.21'	N 43°42'20" E
C92	990.00'	3°54'38"	67.57'	67.56'	N 03°15'00" W
C93	15.00'	88°07'28"	23.07'	20.86'	N 49°16'03" W
C94	15.00'	90°09'30"	23.60'	21.24'	S 41°35'29" W
C95	2016.00'	0°33'43"	19.77'	19.77'	S 81°02'33" W
C96	2026.00'	1°25'01"	50.10'	50.10'	S 81°28'11" W
C97	1165.00'	3°38'01"	73.88'	73.87'	N 05°34'16" W
C98	1215.00'	2°45'11"	58.38'	58.38'	N 05°10'53" W
C99	1485.00'	1°45'31"	45.58'	45.58'	N 05°47'03" W
C100	1515.00'	2°07'31"	56.20'	56.19'	N 05°58'03" W



VICINITY MAP
SCALE: 1"=1/2 MILE

KEY MAP NO. 609Z & 610W

LEGEND

B.L.	INDICATES BUILDING LINE
U.E.	INDICATES UTILITY EASEMENT
D.E.	INDICATES DRAINAGE EASEMENT
E.E.	INDICATES ELECTRICAL EASEMENT
W.L.E.	INDICATES WATER LINE EASEMENT
S.S.E.	INDICATES SANITARY SEWER EASEMENT
STM.S.E.	INDICATES STORM SEWER EASEMENT
F.B.C.P.R.	INDICATES FORT BEND COUNTY PLAT RECORDS
F.B.C.O.R.	INDICATES FORT BEND COUNTY OFFICIAL RECORDS
F.B.C.O.P.R.	INDICATES FORT BEND COUNTY OFFICIAL PUBLIC RECORDS
F.B.C.D.R.	INDICATES FORT BEND COUNTY DEED RECORDS
	INDICATES STREET NAME CHANGE
F.N.	INDICATES FILE NUMBER
S.N.	INDICATES SEE NOTE
RES.	INDICATES RESERVE
U.V.E.	INDICATES UNOBSTRUCTED VIEW EASEMENT
G.E.	INDICATES GAS EASEMENT

FOR INFORMATION ONLY
FINAL PLAT OF
SIENNA
VILLAGE OF ANDERSON SPRINGS
SECTION 27A

A SUBDIVISION OF 20.378 ACRES OF LAND SITUATED IN THE MOSES SHIPMAN LEAGUE, ABSTRACT 86, ALSO BEING A PARTIAL REPLAT OF H.C.C.S CAMPUS SIENNA PLANTATION SECTION 1 20070119 F.B.C.O.P.R. FORT BEND COUNTY, TEXAS.

91 LOTS 14 RESERVES (4.809 ACRES) 5 BLOCKS

JULY 05, 2017 JOB NO. 1194-1127P

OWNER:
SIENNA/JOHNSON NORTH, L.P.
ALVIN SAN MIGUEL, VICE PRESIDENT/GENERAL MANAGER
5777 SIENNA PARKWAY, SUITE 100, MISSOURI CITY, TEXAS 77459
PH. (281) 778-7777

7/12/17

SURVEYORS:
GBI PARTNERS, L.P.
LAND SURVEYING CONSULTANTS
13340 S. GESSNER RD. . MISSOURI CITY, TX 77489
PHONE: 281-499-4539 . www.gbisurvey.com
TBPLS FIRM # 10130300
JON P. BORDOVSKY, R.P.L.S.
REGISTERED PROFESSIONAL LAND SURVEYOR
TEXAS REGISTRATION NO. 6405

ENGINEER:
LJA Engineering, Inc.
1904 W. Grand Parkway North, Suite 100, Katy, Texas 77449
Phone 713.953.5200 Fax 713.953.5026 FRN-F-1386

OMAR NOE ESCOBAR, JR.
LICENSED PROFESSIONAL ENGINEER,
TEXAS REGISTRATION NO. 107281

SHEET 05A OF 54

MYLAR CHECK: _____ CAD: _____
Path\Name : i:\Projdsk1\PLATTING\1194\FINPLT\VAS27A_FP.dwg
Date\Time : Thu, 06 Jul 2017 - 5:27pm

CALLED 6.9914 ACRES
DIADAM FARMS, L.L.C.
FILE NO. 2001004980
F.B.C.O.P.R.

CALLED 2.914 ACRES
MANOHAR RAO AND SHAILAJA P.RAO
FILE NO. 1999096264
F.B.C.O.P.R.

CALLED 6.1388 ACRES
CONSUELO QUINTERO
VOL.1959 PG. 1602
F.B.C.O.P.R.

CALLED 1.500 ACRES
JAMES R. SEYMOUR, et ux
VOL.2143 PG. 1587
F.B.C.O.P.R.

P.O.B.
NAD83 GRID COORDINATES
X= 3,100,392.99
Y= 634,817.40

N 86°52'50" E 405.81'

SIENNA PLANTATION M.U.D. 10 BOUNDARY LINE

ELIJAH ROARK SURVEY, A-77

MOSES SHIPMAN LEAGUE, A-86

SURVEY LINE

167'LL&P. ESMT. W/S-6' A.E. ON SOUTH SIDE FILE NO. 2002105008 F.B.C.O.P.R.

167'L&P. ESMT. W/S-6' A.E. ON SOUTH SIDE FILE NO. 2002105008 F.B.C.O.P.R.

30'D.E. & S.S.E. DC NO. 2004029715 F.B.C.O.P.R.

30'D.E. & S.S.E. DC NO. 2004029715 F.B.C.O.P.R.

CALLED 33.07 ACRES
SIENNA/JOHNSON NORTH, L.P.
FILE NO. 2016021188,
F.B.C.O.P.R.

MATCH LINE - SEE SHEET 2 OF 3

N 00°35'55" W 1,305.33'

S 03°07'10" E 455.07'

S 08°23'30" E 244.99'

S 08°49'49" W 145.58'

11.75 ACRES
FORT BEND COUNTY
FILE NO. 2016021151,
F.B.C.O.P.R.

RESERVE "A"
H.C.C.S. CAMPUS SIENNA PLANTATION SECTION 1
PLAT NO. 20070119, F.B.C.P.R.

SIENNA PLANTATION M.U.D. 10 BOUNDARY LINE

CALLED 33.07 ACRES
SIENNA/JOHNSON NORTH, L.P.
FILE NO. 2016021188,
F.B.C.O.P.R.

SIENNA PLANTATION
FORT BEND COUNTY LIBRARY
FILE NO. 2007299
F.B.C.O.P.R.

SIENNA SPRINGS BOULEVARD
STREET DEDICATION
FROM C OF MC CITY LIMITS
TO PHILLIPS PIPE LINE COMPANY
PLAT NO. 20040028
F.B.C.P.R.

SIENNA SPRINGS BOULEVARD (100' R.O.W.)

RESERVE "B"

GREAT HORSE LANE (100' R.O.W.)

GOLDEN HARBOUR (50' R.O.W.)

SIENNA VILLAGE OF ANDERSON SPRINGS
SECTION ONE-A
PLAT NO. 20040029
F.B.C.P.R.

DAGGERWING WAY (50' R.O.W.)

DARK KITE TRAIL (50' R.O.W.)

LEAFWING TRAIL (50' R.O.W.)

LEAFWING TRAIL (WIDTH VARIES)

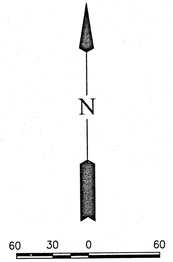
SILVERSPOT LANE (50' R.O.W.)

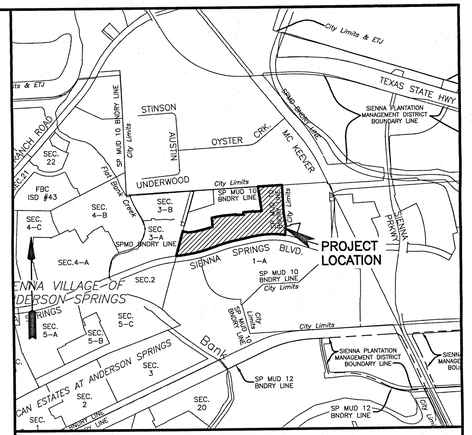
RESERVE "A" RESERVE "B" RESERVE "C" RESERVE "D" RESERVE "E" RESERVE "F" RESERVE "G" RESERVE "H" RESERVE "I" RESERVE "J" RESERVE "K" RESERVE "L"

N 85°05'43" E 175.00'

N 85°21'46" E 132.83'

S 77°56'24" W 256.29'





VICINITY MAP
SCALE: 1"=1/2 MILE

KEY MAP NO. 609Z & 610W

RESERVE TABLE				
RESERVE	ACREAGE	SQ.FT.	TYPE	MAINTENANCE/OWNERSHIP
A	0.068	2,975	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10 (S.P.M.U.D. 10)
B	0.337	14,665	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MANAGEMENT DISTRICT (S.P.M.D.)
C	0.115	4,996	RESTRICTED TO LANDSCAPE/OPEN SPACE/DRAINAGE	SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10 (S.P.M.U.D. 10)
D	0.325	14,151	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MANAGEMENT DISTRICT (S.P.M.D.)
E	0.412	17,967	RESTRICTED TO OPEN SPACE/PIPELINE	SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10 (S.P.M.U.D. 10)
F	1.054	45,891	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10 (S.P.M.U.D. 10)
G	0.105	4,567	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10 (S.P.M.U.D. 10)
H	0.397	17,298	RESTRICTED TO PRIVATE ALLEYWAY	SIENNA PLANTATION RESIDENTIAL ASSOCIATION, INC. (S.P.R.A.I.)
I	0.524	22,835	RESTRICTED TO PRIVATE ALLEYWAY	SIENNA PLANTATION RESIDENTIAL ASSOCIATION, INC. (S.P.R.A.I.)
J	0.798	34,773	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10 (S.P.M.U.D. 10)
K	0.266	11,605	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MANAGEMENT DISTRICT (S.P.M.D.)
L	0.046	1,984	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10 (S.P.M.U.D. 10)
M	0.284	12,387	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MANAGEMENT DISTRICT (S.P.M.D.)
N	0.078	3,407	RESTRICTED TO LANDSCAPE/OPEN SPACE	SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10 (S.P.M.U.D. 10)
TOTAL	4.809	209,501		

LEGEND

B.L.	INDICATES BUILDING LINE
U.E.	INDICATES UTILITY EASEMENT
D.E.	INDICATES DRAINAGE EASEMENT
E.E.	INDICATES ELECTRICAL EASEMENT
W.L.E.	INDICATES WATER LINE EASEMENT
S.S.E.	INDICATES SANITARY SEWER EASEMENT
STM.S.E.	INDICATES STORM SEWER EASEMENT
F.B.C.P.R.	INDICATES FORT BEND COUNTY PLAT RECORDS
F.B.C.O.R.	INDICATES FORT BEND COUNTY OFFICIAL RECORDS
F.B.C.O.P.R.	INDICATES FORT BEND COUNTY OFFICIAL PUBLIC RECORDS
F.B.C.D.R.	INDICATES FORT BEND COUNTY DEED RECORDS
⌒	INDICATES STREET NAME CHANGE
F.N.	INDICATES FILE NUMBER
S.N.	INDICATES SEE NOTE
RES.	INDICATES RESERVE
U.V.E.	INDICATES UNOBSTRUCTED VIEW EASEMENT
G.E.	INDICATES GAS EASEMENT

FOR INFORMATION ONLY
FINAL PLAT OF
SIENNA
VILLAGE OF ANDERSON SPRINGS
SECTION 27A

A SUBDIVISION OF 20.378 ACRES OF LAND SITUATED IN THE MOSES SHIPMAN LEAGUE, ABSTRACT 86, ALSO BEING A PARTIAL REPLAT OF H.C.C.S CAMPUS SIENNA PLANTATION SECTION 1 20070119 F.B.C.O.P.R. FORT BEND COUNTY, TEXAS.

91 LOTS 14 RESERVES (4.809 ACRES) 5 BLOCKS

JULY 05, 2017 JOB NO. 1194-1127P

OWNER:

SIENNA/JOHNSON NORTH, L.P.

ALVIN SAN MIGUEL, VICE PRESIDENT/GENERAL MANAGER
5777 SIENNA PARKWAY, SUITE 100, MISSOURI CITY, TEXAS 77459
PH. (281) 778-7777

7/12/17

SURVEYORS:

GBI PARTNERS, L.P.
LAND SURVEYING CONSULTANTS
13340 S. GESSNER RD. • MISSOURI CITY, TX 77489
PHONE: 281-499-4539 • www.gbisurvey.com
TBPLS FIRM # 10130300
JON P. BORDOVSKY, R.P.L.S.
REGISTERED PROFESSIONAL LAND SURVEYOR
TEXAS REGISTRATION NO. 6405

ENGINEER:

LJA Engineering, Inc.
1904 W. Grand Parkway North
Suite 100
Katy, Texas 77449
Phone 713.953.5200
Fax 713.953.5026
FRN-F-1386

OMAR NOE ESCOBAR, JR.
LICENSED PROFESSIONAL ENGINEER,
TEXAS REGISTRATION NO. 107281

MYLAR CHECK:

CAD:

Path\Name : I:\Projdsk1\PLATTING\1194\PWKPLT\VAS27A_FP.dwg

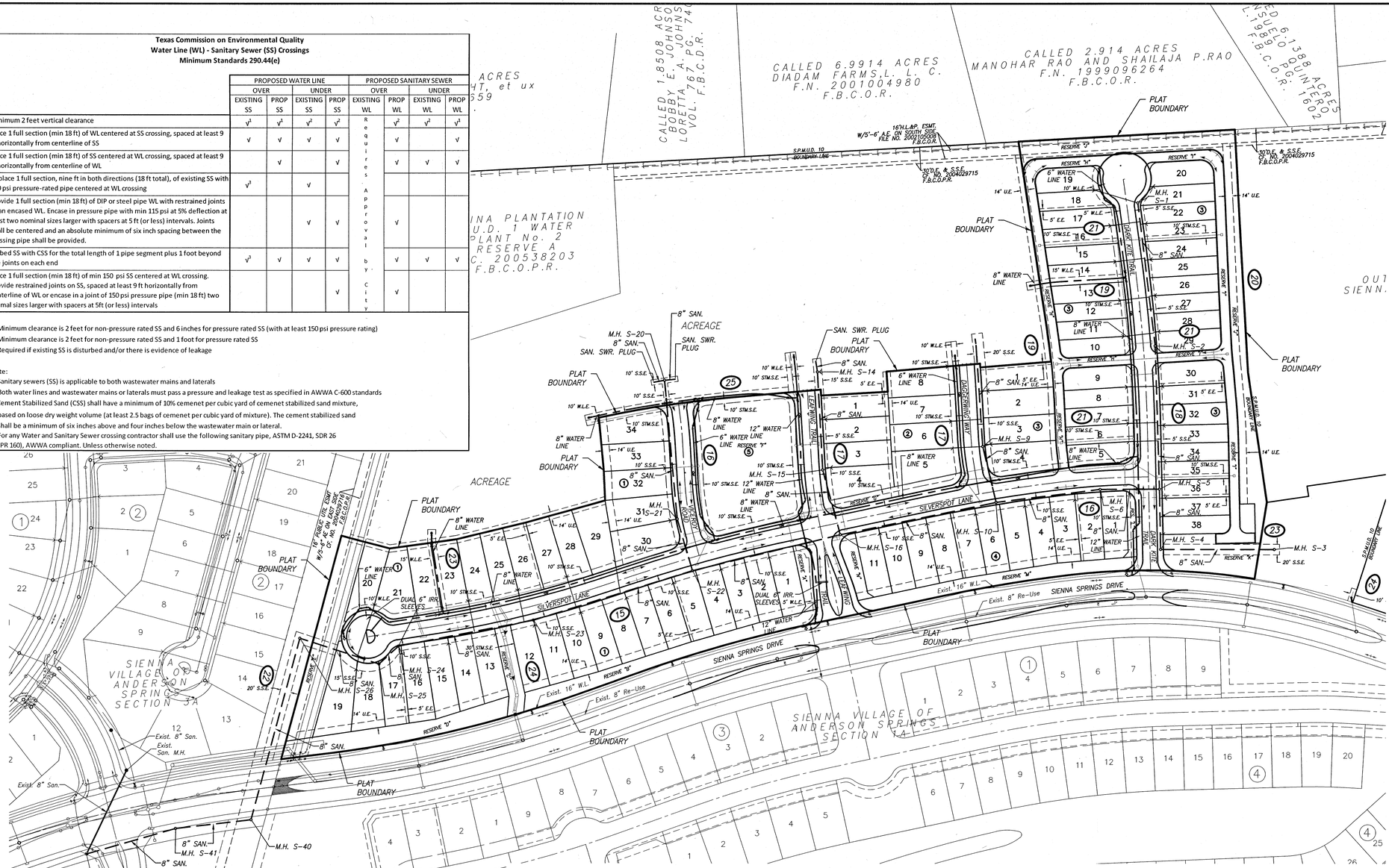
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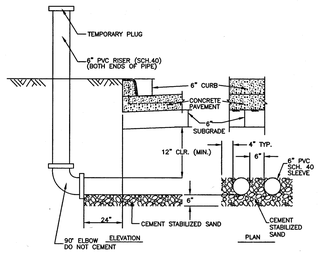
Texas Commission on Environmental Quality
Water Line (WL) - Sanitary Sewer (SS) Crossings
Minimum Standards 290.44(e)

	PROPOSED WATER LINE				PROPOSED SANITARY SEWER			
	OVER		UNDER		OVER		UNDER	
	EXISTING SS	PROP SS	EXISTING SS	PROP SS	EXISTING WL	PROP WL	EXISTING WL	PROP WL
Minimum 2 feet vertical clearance	√[1]	√[1]	√[2]	√[2]	Requires Approval by City	√[2]	√[2]	√[1]
Place 1 full section (min 18 ft) of WL centered at SS crossing, spaced at least 9 ft horizontally from centerline of SS	√	√	√	√		√		√
Place 1 full section (min 18 ft) of SS centered at WL crossing, spaced at least 9 ft horizontally from centerline of WL		√		√		√	√	√
Replace 1 full section, nine ft in both directions (18 ft total), of existing SS with 150 psi pressure-rated pipe centered at WL crossing	√[3]		√					
Provide 1 full section (min 18 ft) of DIP or steel pipe WL with restrained joints or an encased WL. Encase in pressure pipe with min 115 psi at 5% deflection at least two nominal sizes larger with spacers at 5 ft (or less) intervals. Joints shall be centered and an absolute minimum of six inch spacing between the crossing pipe shall be provided.			√	√		√		
Embed SS with CSS for the total length of 1 pipe segment plus 1 foot beyond the joints on each end	√[3]	√	√	√		√	√	√
Place 1 full section (min 18 ft) of min 150 psi SS centered at WL crossing. Provide restrained joints on SS, spaced at least 9 ft horizontally from centerline of WL or encase in a joint of 150 psi pressure pipe (min 18 ft) two noimal sizes larger with spacers at 5ft (or less) intervals				√		√		

1. Minimum clearance is 2 feet for non-pressure rated SS and 6 inches for pressure rated SS (with at least 150 psi pressure rating)
2. Minimum clearance is 2 feet for non-pressure rated SS and 1 foot for pressure rated SS
3. Required if existing SS is disturbed and/or there is evidence of leakage

Note:
a. Sanitary sewers (SS) is applicable to both wastewater mains and laterals
b. Both water lines and wastewater mains or laterals must pass a pressure and leakage test as specified in AWWA C-600 standards
c. Cement Stabilized Sand (CSS) shall have a minimum of 10% cemenet per cubic yard of cemenet stabilized sand mixture, based on loose dry weight volume (at least 2.5 bags of cemenet per cubic yard of mixture). The cement stabilized sand shall be a minimum of six inches above and four inches below the wastewater main or lateral.
d. For any Water and Sanitary Sewer crossing contractor shall use the following sanitary pipe, ASTM D-2241, SDR 26 (PR 160), AWWA compliant. Unless otherwise noted.





DUAL IRRIGATION SLEEVES
(NOT TO SCALE)

WATER DISTRIBUTION SYSTEM LEGEND

- PROPOSED WATER LINE AND GATE VALVE AND BOX
- PROPOSED WATER LINE W/BENDS
- PROPOSED WATER LINE W/TEE
- PROPOSED WATER LINE W/FLUSHING VALVE UNIT
  A. LINE SIZE X 6" TEE
  B. 6" GATE VALVE AND BOX
  C. FLUSHING VALVE
- 10' W.L.E. — INDICATES WATER LINE EASEMENT
- 2" BLOW-OFF ASSEMBLY W/PLUG AND CLAMP

WASTEWATER COLLECTION SYSTEM LEGEND

- PROPOSED SANITARY SEWER AND MANHOLE
- EXISTING SANITARY SEWER AND MANHOLE
- DOUBLE SANITARY SEWER SERVICE LEAD
- SINGLE SANITARY SEWER SERVICE LEAD
- 10' S.S.E. — INDICATES SANITARY SEWER EASEMENT
- (XX) — INDICATES SHEET REFERENCES
- (1) — INDICATES BLOCK NUMBER

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNOI RD. SURVEY MARKER NO. PCM-003 ELEVATION = 66.07 2001 ADJUSTMENT

NOTES:

PAVE RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

WS&D RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____ DEVELOPMENT COORDINATOR

DATE: 7/12/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

WATER AND SANITARY SEWER LAYOUT

LJA Engineering, Inc.
1904 W. Grand Parkway North, Suite 100, Katy, Texas 77449
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

LJA PROJECT NO.: 1194-1127A & 1470-1127A

DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

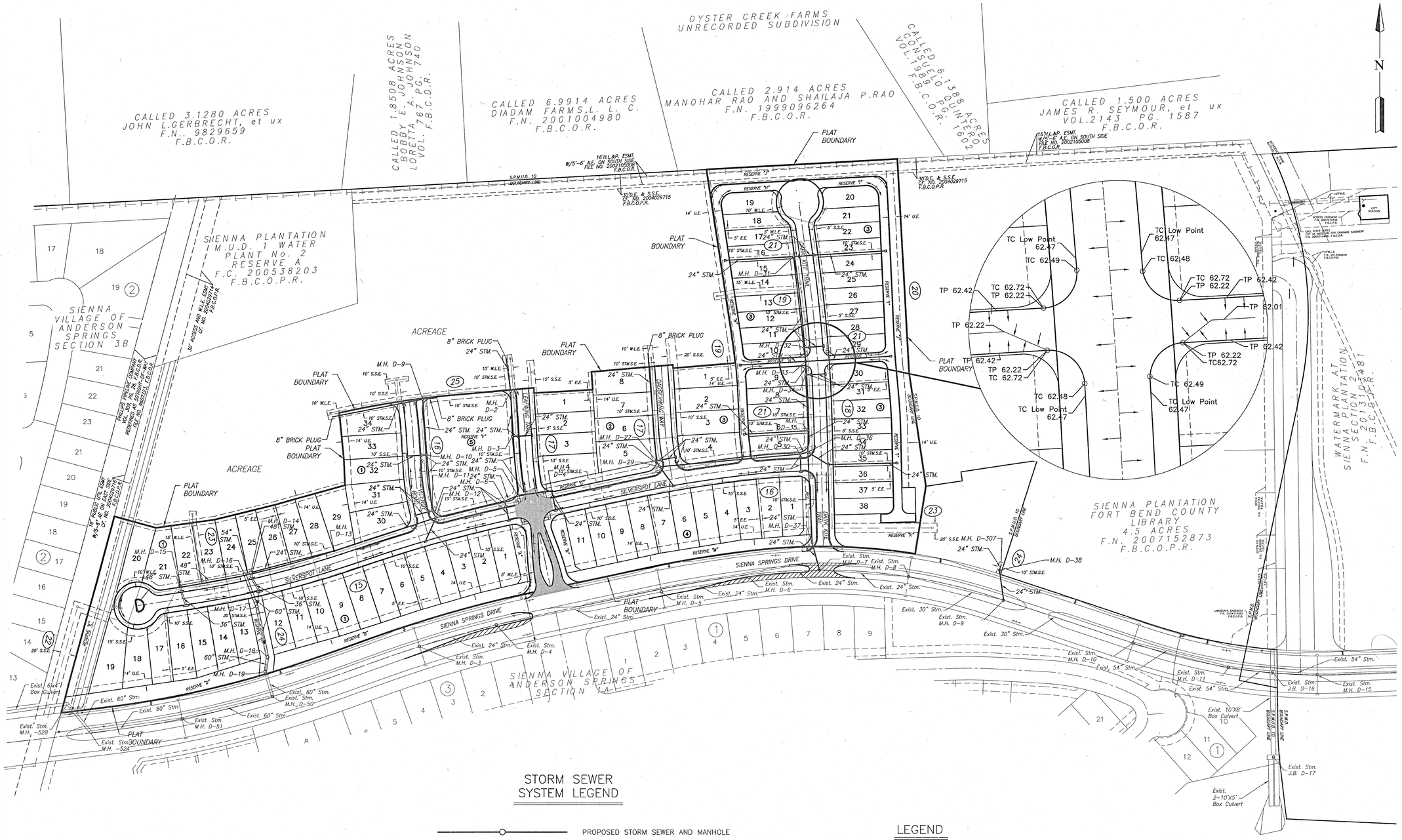
SCALE: 1" = 100'

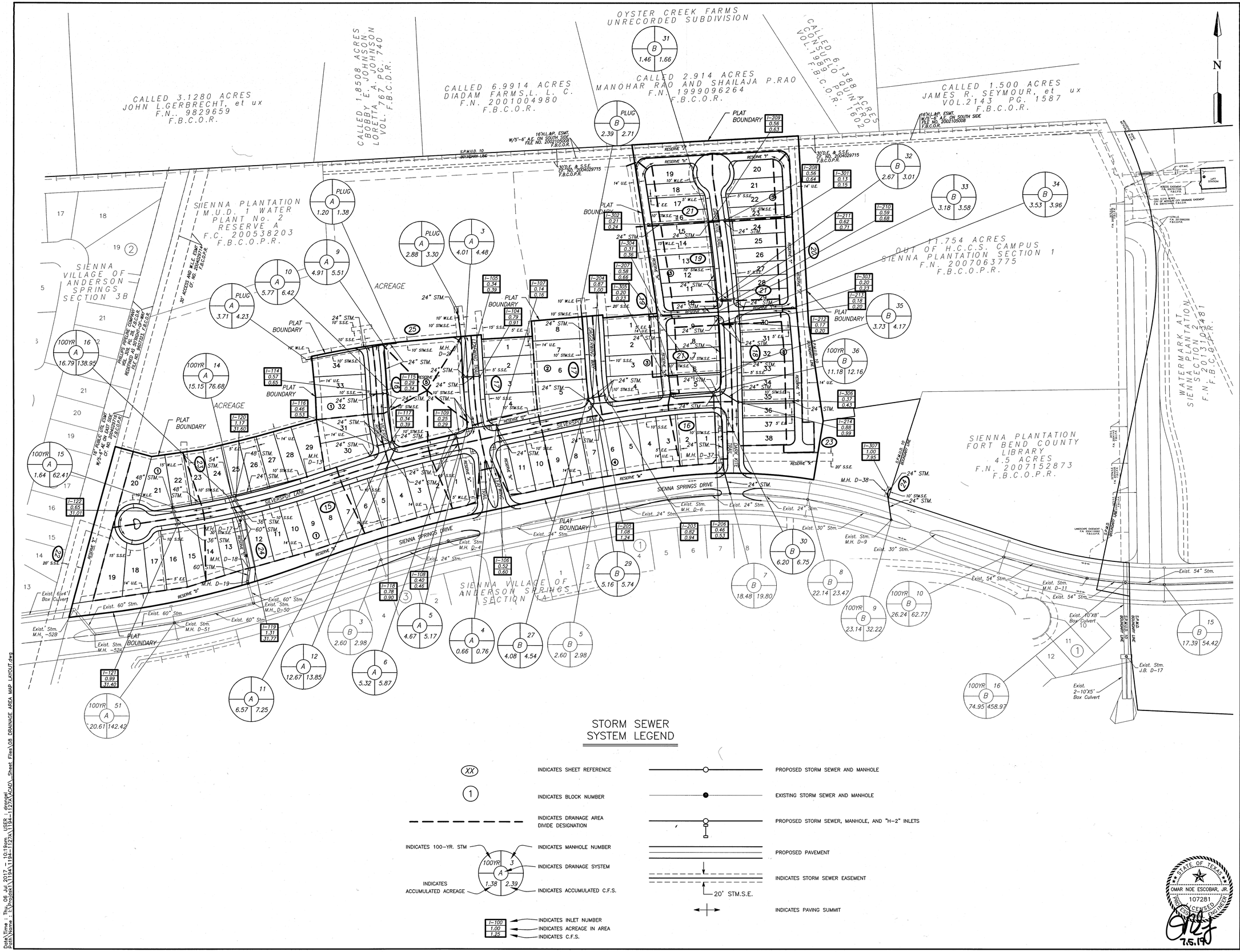
SHEET NO. 06 OF 54

OMAR NOE ESCOBAR, JR. 107281 LICENSED PROFESSIONAL ENGINEER 7.5.17

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A & 1470-1127A

Date\Time : Thu, 06 Jul 2017 - 10:19pm USER : dsorge
Path\Name : I:\Projekt\1194\1194-1127A\ACAD_Sheet Files\06 WATER AND SANITARY SEWER LAYOUT.dwg


CALLED 3.1280 ACRES
JOHN L.GERBRECHT, et ux
F.N.. 9829659
F.B.C.O.R.
CALLED 1.8508 ACRES
BOBBY E. JOHNSON
LORETTA A. JOHNSON
VOL. 767, PG. 740
F.B.C.O.R.
OYSTER CREEK FARMS
UNRECORDED SUBDIVISION
CALLED 6.9914 ACRES
DIADAM FARMS,L. L. C.
F.N. 2001004980
F.B.C.O.R.
CALLED 2.914 ACRES
MANOHAR RAO AND SHAILAJA P.RAO
F.N. 1999096264
F.B.C.O.R.
CALLED 6.1380 ACRES
CONSUELO BOUNDER
VOL. 1989, PG. 160
F.B.C.O.R.
CALLED 1.500 ACRES
JAMES R. SEYMOUR, et ux
VOL.2143 PG. 1587
F.B.C.O.R.
SIENNA PLANTATION
M.U.D. 1 WATER
PLANT No. 2
RESERVE A
F.C. 200538203
F.B.C.O.P.R.
SIENNA
VILLAGE OF
ANDERSON
SPRINGS
SECTION 3B
SIENNA PLANTATION
FORT BEND COUNTY
LIBRARY
4.5 ACRES
F.N. 2007152873
F.B.C.O.P.R.
WATERMARK AT
SIENNA PLANTATION
SECTION 2
2013037481
F.B.C.O.P.R.
PLAT BOUNDARY
ACREAGE
SILVERSPOT LANE
SIENNA SPRINGS DRIVE
SIENNA VILLAGE OF
ANDERSON SPRINGS
SECTION 1A
TC Low Point
TC 62.47
TC 62.49
TC 62.48
TC 62.72
TC 62.22
TP 62.42
TP 62.22
TP 62.01
TC62.72
TC 62.49
TC Low Point
TC 62.47
TP 62.42
TP 62.22
TC 62.72
TC Low Point
TC 62.47
TC 62.48
TP 62.22
TP 62.42
TP 62.42
TP 62.22
TC62.72
TC 62.49
TC Low Point
TC 62.47
TC 62.48
TP 62.42
TP 62.22
TC 62.72
TP 62.22
TP 62.01
TP 62.42



STORM SEWER SYSTEM LEGEND

- XX — INDICATES SHEET REFERENCE
- 1 — INDICATES BLOCK NUMBER
- INDICATES DRAINAGE AREA DIVIDE DESIGNATION
- INDICATES 100-YR. STM / INDICATES MANHOLE NUMBER / INDICATES DRAINAGE SYSTEM / INDICATES ACCUMULATED ACREAGE / INDICATES ACCUMULATED C.F.S. (100YR 3 A 1.38 2.39)
- 1-100 / 1.00 / 1.25 — INDICATES INLET NUMBER / INDICATES ACREAGE IN AREA / INDICATES C.F.S.
- PROPOSED STORM SEWER AND MANHOLE
- EXISTING STORM SEWER AND MANHOLE
- PROPOSED STORM SEWER, MANHOLE, AND "H-2" INLETS
- PROPOSED PAVEMENT
- INDICATES STORM SEWER EASEMENT
- 20' STM.S.E.
- INDICATES PAVING SUMMIT

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNOI RD. SURVEY MARKER NO. PCM-003 ELEVATION = 66.07 2001 ADJUSTMENT

NOTES:

PAVE RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____

WS&D RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____
DEVELOPMENT COORDINATOR

DATE: 7/12/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

DRAINAGE AREA MAP LAYOUT

LJA Engineering, Inc.
1904 W. Grand Parkway North, Suite 100, Katy, Texas 77449
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

LJA PROJECT NO.: 1194-1127A & 1470-1127A

DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

SCALE: 1" = 100'

STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER
7.5.17

SHEET NO. 08 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A & 1470-1127A

Date\Time : Thu 06 Jul 2017 - 10:19pm USER : drgnel
Path\Name : P:\Projects\1194\1194-1127A\ACAD_Sheet Files\08 DRAINAGE AREA MAP LAYOUT.dwg

3 YEAR STORM CALCULATIONS – STORM SYSTEM A

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
1	PLUG 1	2.88	2.88	4	10.25	1.14	0.00	3.30	134.400	24	0.013	0.0018	9.6	3.06	0.24	0.00	**55.230**	54.988	**1.05**	0.02	0.03	0.02	57.39	57.36	60.53	60.03	60.53
PLUG 1	2	0.00	2.88	4	10.98	1.13	0.00	3.26	72.696	24	0.013	0.0018	9.6	3.06	0.13	0.00	54.988	54.857	**1.04**	0.02	0.02	0.02	57.36	57.35	60.75	60.25	60.75
2	3	0.00	2.88	4	11.38	1.12	0.00	3.24	96.219	24	0.013	0.0018	9.6	3.06	0.17	0.00	54.857	54.684	**1.03**	0.02	0.02	0.02	57.35	57.33	61.15	60.65	61.15
3	5	1.13	4.01	4	11.90	1.12	0.00	4.48	125.821	24	0.013	0.0018	9.6	3.06	0.23	0.00	54.684	54.458	**1.43**	0.04	0.05	0.04	57.33	57.28	60.70	60.20	60.70
5	6	0.66	4.67	4	12.59	1.11	0.00	5.17	30.451	24	0.013	0.0018	9.6	3.06	0.05	0.00	54.458	54.403	**1.64**	0.05	0.02	0.05	57.28	57.26	61.08	60.58	61.08
6	12	0.65	5.32	4	12.75	1.10	0.00	5.87	151.378	24	0.013	0.0018	9.6	3.06	0.27	0.00	54.403	54.130	**1.87**	0.07	0.10	0.07	57.26	57.16	60.62	60.12	60.62
12	13	7.35	12.67	4	13.58	1.09	0.00	13.85	228.218	24	0.013	0.0018	9.6	3.06	0.41	0.22	53.913	53.502	**4.41**	0.37	0.85	0.37	57.16	56.31	60.54	60.04	60.54
13	14	0.00	12.67	4	14.82	1.08	0.00	13.65	183.759	24	0.013	0.0018	9.6	3.06	0.33	0.27	53.230	52.899	**4.35**	0.36	0.67	0.36	56.31	55.64	60.60	60.10	60.60
14	16	2.48	15.15	4	15.82	1.07	0.00	16.15	13.098	54	0.013	0.0006	48.3	3.04	0.01	2.31	50.588	50.580	**1.02**	0.01	0.00	0.01	55.64	55.64	60.12	59.62	60.12
16	17	1.64	16.79	4	15.89	1.07	0.00	17.89	72.986	60	0.013	0.0005	58.4	2.97	0.04	1.84	48.738	48.702	**0.91**	0.00	0.00	0.00	55.64	55.64	60.60	60.10	60.60
17	18	0.00	16.79	4	16.30	1.06	0.00	17.82	110.133	60	0.013	0.0005	58.4	2.97	0.06	0.00	48.702	48.646	**0.91**	0.00	0.01	0.00	55.64	55.63	60.12	59.62	60.12
18	19	0.00	16.79	4	16.92	1.05	0.00	17.71	31.686	60	0.013	0.0005	58.4	2.97	0.02	0.00	48.644	48.628	**0.90**	0.00	0.00	0.00	55.63	55.63	62.00	61.50	62.00
19	STUB	0.00	16.79	4	17.09	1.05	0.00	17.68	5.000	60	0.013	0.0005	58.4	2.97	0.00	1.32	47.313	47.310	**0.90**	0.00	0.00	0.00	55.63	55.63	62.00	61.50	62.00
STUB	Exist. 50	0.00	16.79	4	17.12	1.05	0.00	17.67	50.000	60	0.013	0.0005	58.4	2.97	0.02	0.00	47.310	47.285	**0.90**	0.00	0.00	0.00	55.63	55.63	60.14	59.64	60.14
Exist. 50	Exist. 51	0.00	16.79	4	17.40	1.05	0.00	17.63	200.000	60	0.013	0.0005	58.4	2.97	0.10	0.00	47.285	47.185	**0.90**	0.00	0.01	0.00	55.63	55.62	60.00	59.50	60.00
Exist. 51	Exist. 52A	3.83	20.62	4	18.52	1.04	0.00	21.43	196.000	60	0.013	0.0005	60.4	3.08	0.11	0.00	47.185	47.080	**1.09**	0.01	0.01	0.01	55.62	55.61	60.00	59.50	60.00
Exist. 52A	Exist. 52B	0.00	20.62	4	19.58	1.03	0.00	21.24	78.000	60	0.013	0.0005	59.1	3.01	0.04	0.00	47.080	47.040	**1.08**	0.01	0.01	0.01	55.61	55.60	60.00	59.50	60.00
Exist. 52B	Exist. PLUG	0.00	20.62	4	20.02	1.03	0.00	21.16	64.000	6 x 4	0.013	0.0005	67.1	2.79	0.03	0.00	47.040	47.010	**0.88**	0.00	0.00	0.00	55.60	55.60	60.00	59.50	60.00
Exist. PLUG	Exist. 70	0.00	20.62	4	20.40	1.02	0.00	21.10	155.000	6 x 4	0.013	0.0005	70.4	2.93	0.08	0.00	47.010	46.930	**0.88**	0.00	0.01	0.00	55.60	55.59	60.00	59.50	60.00
Exist. 70	Exist. 53A	0.00	20.62	4	21.28	1.02	0.00	20.95	83.000	60	0.013	0.0005	57.3	2.92	0.04	0.00	46.930	46.890	**1.07**	0.01	0.01	0.01	55.59	55.59	60.00	59.50	60.00
Exist. 53A	Exist. 53B	0.91	21.53	4	21.75	1.01	0.00	21.80	20.000	60	0.013	0.0005	58.4	2.97	0.01	0.00	46.890	46.880	**1.11**	0.01	0.00	0.01	55.59	55.58	60.00	59.50	60.00
Exist. 53B	Exist. 54	0.00	21.53	4	21.86	1.01	0.00	21.78	153.000	60	0.013	0.0005	55.8	2.84	0.07	0.00	46.880	46.810	**1.11**	0.01	0.01	0.01	55.58	55.57	60.00	59.50	60.00
Exist. 54	Exist. 55	0.00	21.53	4	22.76	1.01	0.00	21.64	96.000	60	0.013	0.0005	59.6	3.03	0.05	0.00	46.810	46.760	**1.10**	0.01	0.01	0.01	55.57	55.57	60.00	59.50	60.00
Exist. 55	Exist. 56	1.11	22.64	4	23.29	1.00	0.00	22.67	242.000	60	0.013	0.0005	58.1	2.96	0.12	0.00	46.760	46.640	**1.15**	0.01	0.02	0.01	55.57	55.55	60.00	59.50	60.00
Exist. 56	Exist. 57	1.75	24.39	4	24.65	0.99	0.00	24.20	278.000	8 x 5	0.013	0.0005	136.7	3.42	0.14	0.00	46.640	46.500	**0.60**	0.00	0.00	0.00	55.55	55.54	60.00	59.50	60.00
Exist. 57	Exist. 58	0.71	25.10	4	26.01	0.98	0.00	24.69	134.000	8 x 5	0.013	0.0004	128.9	3.22	0.05	0.00	46.500	46.440	**0.62**	0.00	0.00	0.00	55.54	55.54	60.00	59.50	60.00
Exist. 58	Exist. Outfall	0.00	25.10	4	26.70	0.98	0.00	24.58	135.000	8 x 5	0.013	0.0005	138.8	3.47	0.07	0.00	46.440	46.370	**0.61**	0.00	0.00	0.00	55.54	55.54	* 60.00	59.50	60.00

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
4	5	0.66	0.66	4	10.11	1.15	0.00	0.76	72.398	24	0.013	0.0018	9.6	3.06	0.13	0.00	**55.360**	55.230	**0.24**	0.00	0.00	0.12	57.36	57.28	60.66	60.16	60.66

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
7	PLUG 2	3.71	3.71	4	10.11	1.15	0.00	4.25	69.813	24	0.013	0.0018	9.6	3.06	0.13	0.00	**54.850**	54.724	**1.35**	0.04	0.02	0.04	57.44	57.41	60.15	59.65	60.15
PLUG 2	9	0.00	3.71	4	10.49	1.14	0.00	4.23	195.470	24	0.013	0.0018	9.6	3.06	0.35	0.00	54.724	54.372	**1.35**	0.03	0.07	0.03	57.41	57.34	60.40	59.90	60.40
9	10	1.20	4.91	4	11.55	1.12	0.00	5.51	111.317	24	0.013	0.0018	9.6	3.06	0.20	0.00	54.372	54.172	**1.75**	0.06	0.07	0.06	57.34	57.28	60.94	60.44	60.94
10	11	0.86	5.77	4	12.16	1.11	0.00	6.42	127.541	24	0.013	0.0018	9.6	3.06	0.23	0.00	54.172	53.943	**2.04**	0.08	0.10	0.08	57.28	57.18	60.40	59.90	60.40
11	12	0.80	6.57	4	12.85	1.10	0.00	7.25	16.631	24	0.013	0.0018	9.6	3.06	0.03	0.00	53.943	53.913	**2.31**	0.10	0.02	0.10	57.18	57.16	60.24	59.74	60.24

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
8	PLUG 3	1.20	1.20	4	10.11	1.15	0.00	1.38	43.820	24	0.013	0.0018	9.6	3.06	0.08	0.00	**55.250**	55.171	**0.44**	0.00	0.00	0.00	57.35	57.35	60.55	60.05	60.55
PLUG 3	9	0.00	1.20	4	10.35	1.14	0.00	1.37	30.000	24	0.013	0.0018	9.6	3.06	0.05	0.00	55.171	55.117	**0.44**	0.00	0.00	0.00	57.35	57.34	60.70	60.20	60.70

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
15	16	1.64	1.64	4	10.08	1.15	0.00	1.88	139.797	48	0.013	0.0007	38.1	3.03	0.10	0.00	**51.548**	51.450	**0.15**	0.00	0.00	0.00	55.64	55.64	60.24	59.74	60.24

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
101	1	1.54	1.54	4	10.00	1.15	0.00	1.77	61.784	24	0.013	0.0032	12.9	4.11	0.20	0.00	**56.090**	55.890	**0.56**	0.01	0.00	0.32	58.09	57.89	61.09	60.59	61.09

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
102	103	0.79	0.79	4	10.00	1.15	0.00	0.91	28.321	24	0.013	0.0071	19.1	6.07	0.20	0.00	**55.530**	55.330	**0.29**	0.00	0.00	0.50	57.53	57.39	60.53	60.03	60.53
103	1	0.55	1.34	4	10.08	1.15	0.00	1.54	8.000	24	0.013	0.0125	25.4	8.07	0.10	0.00	55.330	55.230	**0.49**	0.00	0.00	0.00	57.39	57.39	60.53	60.03	60.53

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
104	105	0.79	0.79	4	10.00	1.15	0.00	0.91	28.035	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.700**	55.500	**0.29**	0.00	0.00	0.71	57.70	57.50	60.70	60.20	60.70
105	3	0.34	1.13	4	10.08	1.15	0.00	1.30	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	55.500	55.400	**0.41**	0.00	0.00	0.77	57.50	57.40	60.70	60.20	60.70

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
106	107	0.52	0.52	4	10.00	1.15	0.00	0.60	28.002	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.660**	55.460	**0.19**	0.00	0.00	0.71	57.66	57.46	60.66	60.16	60.66
107	4	0.14	0.66	4	10.08	1.15	0.00	0.76	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	55.460	55.360	**0.24**	0.00	0.00	0.77	57.46	57.36	60.66	60.16	60.66

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
108	109	0.40	0.40	4	10.00	1.15	0.00	0.46	28.006	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.620**	55.420	**0.15**	0.00	0.00	0.71	57.62	57.42	60.62	60.12	60.62
109	6	0.25	0.65	4	10.08	1.15	0.00	0.75	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	55.420	55.320	**0.24**	0.00	0.00	0.77	57.42	57.32	60.62	60.12	60.62

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
110	111	1.86	1.86	4	10.00	1.15	0.00	2.14	28.000	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.150**	54.950	**0.68**	0.01	0.00	0.01	57.44	57.44	60.15	59.65	60.15

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
112	113	0.80	0.80	4	10.00	1.15	0.00	0.92	28.000	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.550**	55.350	**0.29**	0.00	0.00	0.71	57.55	57.35	60.55	60.05	60.55
113	8	0.40	1.20	4	10.08	1.15	0.00	1.38	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	55.350	55.250	**0.44**	0.00	0.00	0.00	57.35	57.35	60.55	60.05	60.55

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
114	115	0.57	0.57	4	10.00	1.15	0.00	0.65	28.006	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.400**	55.200	**0.21**	0.00	0.00	0.43	57.40	57.28	60.40	59.90	60.40
115	10	0.29	0.86	4	10.08	1.15	0.00	0.99	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	55.200	55.100	**0.31**	0.00	0.00	0.00	57.28	57.28	60.40	59.90	60.40

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
116	117	0.46	0.46	4	10.00	1.15	0.00	0.53	28.017	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.240**	55.040	**0.17**	0.00	0.00	0.23	57.24	57.18	60.24	59.74	60.24
117	11	0.34	0.80	4	10.08	1.15	0.00	0.92	8.000	24	0.013	0.0125	25.4	8.07	0.10	0.00	55.040	54.940	**0.29**	0.00	0.00	0.00	57.18	57.18	60.24	59.74	60.24

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
118	12	0.78	0.78	4	10.00	1.15	0.00	0.90	48.991	24	0.013	0.0041	14.5	4.61	0.20	0.00	**55.500**	55.300	**0.29**	0.00	0.00	0.41	57.50	57.30	60.50	60.00	60.50

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
119	120	1.31	1.31	4	10.00	1.15	0.00	1.50	29.690	36	0.013	0.0067	54.9	7.76	0.20	0.00	**54.120**	53.920	**0.21**	0.00	0.00	0.67	57.12	56.92	60.12	59.62	60.12
120	14	1.17	2.48	4	10.06	1.15	0.00	2.85	14.000	48	0.013	0.0071	121.7	9.69	0.10	1.00	52.920	52.820	**0.23**	0.00	0.00	0.71	56.92	56.82	60.12	59.62	60.12

| FROM MH | TO MH | AREA (AC) | TOTAL AREA (AC) | CITY CURVE NO. | Tc (MIN) | CI | Q INPUT (CFS) | Q TOTAL (CFS) | REACH (FT) | LINE SIZE (IN) | LINE MANN. CONST. | LINE SLOPE | DESIGN Q (CFS) | DESIGN V (FPS) | SLOPE FALL (FT) | M.H. DROP (FT) | FLOWLINE UP-STREAM (FT) | FLOWLINE DOWN-STREAM (FT) | ACTUAL V (FPS) | THEOR. H.G.L. SLOP

3 YEAR STORM CALCULATIONS – STORM SYSTEM B

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
25	26	2.39	2.39	4	10.11	1.15	0.00	2.74	123.273	24	0.013	0.0018	9.6	3.06	0.22	0.00	55.780	55.558	**0.87**	0.01	0.02	0.18	57.78	57.56	61.08	60.58	61.08
26	PLUG 2	0.00	2.39	4	10.78	1.13	0.00	2.71	23.376	24	0.013	0.0018	9.6	3.06	0.04	0.00	55.558	55.516	**0.86**	0.01	0.00	0.18	57.56	57.52	61.38	60.88	61.38
PLUG 2	27	0.00	2.39	4	10.91	1.13	0.00	2.71	230.000	24	0.013	0.0018	9.6	3.06	0.41	0.00	55.516	55.102	**0.86**	0.01	0.03	0.02	57.52	57.48	61.25	60.75	61.25
27	29	1.69	4.08	4	12.16	1.11	0.00	4.54	14.788	24	0.013	0.0018	9.6	3.06	0.03	0.00	55.102	55.075	**1.45**	0.04	0.01	0.04	57.48	57.48	60.54	60.04	60.54
29	30	1.08	5.16	4	12.24	1.11	0.00	5.74	300.452	24	0.013	0.0018	9.6	3.06	0.54	0.00	55.075	54.535	**1.83**	0.06	0.19	0.06	57.48	57.28	60.84	60.34	60.84
30	36	1.04	6.20	4	13.88	1.09	0.00	6.75	16.162	24	0.013	0.0018	9.6	3.06	0.03	0.00	54.535	54.506	**2.15**	0.09	0.01	0.09	57.28	57.27	60.49	59.99	60.49
36	37	**4.98**	**11.18**	4	13.96	1.09	0.00	12.16	192.765	24	0.013	0.0018	9.6	3.06	0.35	0.00	54.506	54.159	**3.87**	0.29	0.55	0.29	57.27	56.71	60.71	60.21	60.71
37	Exist. 7	0.00	11.18	4	15.01	1.08	0.00	12.02	59.935	24	0.013	0.0018	9.6	3.06	0.11	0.00	54.159	54.051	**3.83**	0.28	0.17	0.28	56.71	56.55	60.50	60.00	60.50
Exist. 7	Exist. 8	7.30	18.48	4	15.34	1.07	0.00	19.80	190.000	24	0.013	0.0018	9.6	3.06	**0.34**	2.19	51.860	51.518	**6.30**	0.76	1.45	0.76	56.55	55.10	59.49	58.99	59.49
Exist. 8	Exist. 9	3.66	**22.14**	4	16.37	1.06	0.00	23.47	210.000	30	0.013	0.0013	14.8	3.02	0.27	0.50	51.020	50.747	**4.78**	0.33	0.68	0.33	55.10	54.41	58.94	58.44	58.94
Exist. 9	Exist. 10	1.00	23.14	4	17.53	1.05	0.00	24.26	290.000	30	0.013	0.0013	14.8	3.02	0.38	0.00	50.750	50.373	**4.94**	0.35	1.01	0.35	54.41	53.40	59.59	59.09	59.59
Exist. 10	Exist. 11	3.10	26.24	4	19.13	1.03	0.00	27.13	210.000	54	0.013	0.0006	48.3	3.04	0.13	2.00	48.370	48.244	**1.71**	0.02	0.04	0.02	53.40	53.36	58.89	58.39	58.89
Exist. 11	Exist. 16	0.00	26.24	4	20.28	1.02	0.00	26.87	94.000	54	0.013	0.0006	48.3	3.04	0.06	0.00	48.240	48.184	**1.69**	0.02	0.02	0.02	53.36	53.35	59.54	59.04	59.54
Exist. 16	Exist. 17	48.71	74.95	4	20.80	1.02	0.00	76.44	183.000	10 x 8	0.013	0.0003	246.2	3.08	0.05	3.49	44.690	44.630	**0.96**	0.00	0.00	0.00	53.35	53.34	60.00	59.50	60.00
Exist. 17	Exist. Outfall	0.00	74.95	4	21.79	1.01	0.00	75.86	105.000	20 x 5	0.013	0.0003	286.9	2.87	0.03	0.00	44.630	44.600	**0.76**	0.00	0.00	0.00	53.34	53.34	60.00	59.50	60.00

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
31	32	1.46	1.46	4	10.71	1.14	0.00	1.66	194.531	24	0.013	0.0081	20.4	6.49	1.57	0.00	**58.520**	56.950	**0.53**	0.01	0.01	0.81	60.52	58.95	63.62	63.32	63.62
32	33	1.21	2.67	4	11.21	1.13	0.00	3.01	29.328	24	0.013	0.0018	9.6	3.06	0.05	0.00	56.950	56.897	**0.96**	0.02	0.01	0.18	58.95	58.90	62.25	61.75	62.25
33	34	0.51	3.18	4	11.37	1.12	0.00	3.58	28.696	24	0.013	0.0018	9.6	3.06	0.05	0.00	56.897	56.846	**1.14**	0.02	0.01	0.18	58.90	58.85	62.36	61.86	62.36
34	35	0.35	3.53	4	11.53	1.12	0.00	3.96	119.085	24	0.013	0.0086	21.0	6.69	1.02	0.00	56.846	55.822	**1.26**	0.03	0.04	0.86	58.85	57.82	62.26	61.76	62.26
35	36	0.20	3.73	4	11.82	1.12	0.00	4.17	45.847	24	0.013	0.0086	21.0	6.69	0.39	0.00	55.822	55.428	**1.33**	0.03	0.02	0.86	57.82	57.43	61.43	60.93	61.43

Existing Trunk Line

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
Exist. 3	Exist. 4	3.65	3.65	4	10.13	1.15	0.00	4.18	170.000	24	0.013	0.0018	9.6	3.06	0.31	0.00	**53.430**	53.124	**1.33**	0.03	0.06	0.03	57.15	57.09	59.53	59.03	59.53
Exist. 4	Exist. 5	0.00	3.65	4	11.06	1.13	0.00	4.13	360.000	24	0.013	0.0018	9.6	3.06	0.65	0.00	53.120	52.472	**1.31**	0.03	0.12	0.03	57.09	56.97	60.03	59.53	60.03
Exist. 5	Exist. 6	3.65	7.30	4	13.01	1.10	0.00	8.03	190.000	24	0.013	0.0018	9.6	3.06	0.34	0.00	52.472	52.130	**2.56**	0.13	0.24	0.13	56.97	56.73	59.43	58.93	59.43
Exist. 6	Exist. 7	0.00	7.30	4	14.05	1.09	0.00	7.94	150.000	24	0.013	0.0018	9.6	3.06	0.27	0.00	52.130	51.860	**2.53**	0.12	0.18	0.12	56.73	56.55	59.98	59.48	59.98

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
Exist. 12	Exist. 13	1.64	1.64	4	10.19	1.15	0.00	1.88	275.000	24	0.013	0.0018	9.6	3.06	0.50	0.00	**53.690**	53.195	**0.60**	0.01	0.02	0.18	55.69	55.20	64.70	64.20	64.70
Exist. 13	Exist. 60	1.90	3.54	4	11.69	1.12	0.00	3.96	17.000	24	0.013	0.0018	9.6	3.06	0.03	2.50	50.700	50.669	**1.26**	0.03	0.01	0.03	55.17	55.17	62.90	62.40	62.90
Exist. 60	Exist. 14	8.80	12.34	4	11.78	1.12	0.00	13.80	258.000	54	0.013	0.0006	48.3	3.04	0.15	0.00	50.669	50.530	**0.87**	0.00	0.01	0.05	55.17	55.03	61.78	61.28	61.78
Exist. 14	Exist. 15	1.90	14.24	4	13.20	1.10	0.00	15.64	260.000	54	0.013	0.0006	48.3	3.04	0.16	0.00	50.530	50.374	**0.98**	0.01	0.02	0.06	55.03	54.87	61.08	60.58	61.08
Exist. 15	Exist. 16	3.15	17.39	4	14.63	1.08	0.00	18.78	96.000	54	0.013	0.0006	48.3	3.04	0.06	0.00	50.370	50.312	**1.18**	0.01	0.01	0.06	54.87	54.81	59.38	58.88	59.38

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
Exist. Stub	Exist. 60	8.80	8.80	4	10.00	1.15	0.00	10.11	50.000	54	0.013	0.0006	48.3	3.04	0.03	0.00	**50.699**	50.669	**0.64**	0.00	0.00	0.06	55.20	55.17	61.78	61.28	61.78

Proposed Inlets

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
201	202	1.61	1.61	4	10.00	1.15	0.00	1.85	28.100	24	0.013	0.0071	19.1	6.09	0.20	0.00	**56.080**	55.880	**0.59**	0.01	0.00	0.71	58.08	57.88	61.08	60.58	61.08
202	25	0.78	2.39	4	10.08	1.15	0.00	2.74	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	55.880	55.780	**0.87**	0.01	0.00	0.77	57.88	57.78	61.08	60.58	61.08

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
203	204	0.82	0.82	4	10.00	1.15	0.00	0.94	28.036	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.540**	55.340	**0.30**	0.00	0.00	0.21	57.54	57.48	60.54	60.04	60.54
204	27	0.87	1.69	4	10.08	1.15	0.00	1.94	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	55.340	55.240	**0.62**	0.01	0.00	0.01	57.48	57.48	60.54	60.04	60.54

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
205	29	1.08	1.08	4	10.00	1.15	0.00	1.24	49.427	24	0.013	0.0040	14.4	4.59	0.20	0.00	**55.840**	55.640	**0.39**	0.00	0.00	0.40	57.84	57.64	60.84	60.34	60.84

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
206	207	0.46	0.46	4	10.00	1.15	0.00	0.53	28.005	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.490**	55.290	**0.17**	0.00	0.00	0.71	57.49	57.29	60.49	59.99	60.49
207	30	0.58	1.04	4	10.08	1.15	0.00	1.19	8.000	24	0.013	0.0125	25.4	8.07	0.10	0.00	55.290	55.190	**0.38**	0.00	0.00	0.08	57.29	57.28	60.49	59.99	60.49

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
301	208	0.13	0.13	4	10.00	1.15	0.00	0.15	155.143	24	0.013	0.0035	13.5	4.30	0.55	0.00	**59.370**	58.820	**0.05**	0.00	0.00	0.35	61.37	60.82	64.37	63.87	64.37
208	209	0.56	0.69	4	10.60	1.14	0.00	0.79	28.080	24	0.013	0.0071	19.1	6.09	0.20	0.00	**58.820**	58.620	**0.25**	0.00	0.00	0.71	60.82	60.62	63.82	63.32	63.82
209	31	0.56	1.25	4	10.68	1.14	0.00	1.42	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	58.620	58.520	**0.45**	0.00	0.00	0.77	60.62	60.52	63.82	63.32	63.82

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
302	31	0.21	0.21	4	10.00	1.15	0.00	0.24	145.376	24	0.013	0.0058	17.2	5.49	0.84	0.00	**59.460**	58.620	**0.08**	0.00	0.00	0.58	61.46	60.62	64.46	63.96	64.46

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
210	211	0.59	0.59	4	10.00	1.15	0.00	0.68	28.024	24	0.013	0.0071	19.2	6.10	0.20	0.00	**57.250**	57.050	**0.22**	0.00	0.00	0.71	59.25	59.05	62.25	61.75	62.25
211	32	0.62	1.21	4	10.08	1.15	0.00	1.39	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	57.050	56.950	**0.44**	0.00	0.00	0.77	59.05	58.95	62.25	61.75	62.25

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
303	33	0.20	0.20	4	10.00	1.15	0.00	0.23	181.545	24	0.013	0.0020	10.1	3.21	0.36	0.00	**57.360**	57.000	**0.07**	0.00	0.00	0.20	59.36	59.00	62.36	61.86	62.36

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
304	33	0.31	0.31	4	10.00	1.15	0.00	0.36	138.686	24	0.013	0.0058	17.2	5.48	0.80	0.00	**57.800**	57.000	**0.11**	0.00	0.00	0.58	59.80	59.00	62.80	62.30	62.80

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
212	213	0.17	0.17	4	10.00	1.15	0.00	0.20	28.000	24	0.013	0.0071	19.2	6.10	0.20	0.00	**57.260**	57.060	**0.06**	0.00	0.00	0.71	59.26	59.06	62.26	61.76	62.26
213	34	0.18	0.35	4	10.08	1.15	0.00	0.40	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	57.060	56.960	**0.13**	0.00	0.00	0.77	59.06	58.96	62.26	61.76	62.26

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
305	35	0.20	0.20	4	10.00	1.15	0.00	0.23	135.624	24	0.013	0.0018	9.6	3.06	0.24	0.00	**56.430**	56.186	**0.07**	0.00	0.00	0.18	58.43	58.19	61.43	60.93	61.43

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
306	214	0.37	0.37	4	10.00	1.15	0.00	0.43	146.707	24	0.013	0.0018	9.6	3.06	0.26	0.00	**55.900**	55.636	**0.14**	0.00	0.00	0.18	57.90	57.64	60.90	60.40	60.90
214	36	0.88	1.25	4	10.80	1.13	0.00	1.42	50.397	24	0.013	0.0040	14.3	4.55	0.20	0.00	55.636	55.436	**0.45**	0.00	0.00	0.40	57.64	57.44	60.71	60.21	60.71

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
307	38	1.00	1.00	4	10.00	1.15	0.00	1.15	12.445	24	0.013	0.0018	9.6	3.06	0.02	0.00	**55.700**	55.678	**0.37**	0.00	0.00	0.18	57.70	57.68	60.70	60.20	60.70
38	Exist. 9	0.00	1.00	4	10.07	1.15

100 YEAR STORM CALCULATIONS – STORM SYSTEM A

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
1	PLUG 1	2.88	2.88	4	10.25	1.14	0.00	3.30	134.400	24	0.013	0.0018	9.6	3.06	0.24	0.00	**55.230**	54.998	**1.05**	0.02	0.03	0.02	62.15	62.12	60.53	60.03	60.53
PLUG 1	2	0.00	2.88	4	10.98	1.13	0.00	3.26	72.696	24	0.013	0.0018	9.6	3.06	0.13	0.00	54.998	54.857	**1.04**	0.02	0.02	0.02	62.12	62.10	60.75	60.25	60.75
2	3	0.00	2.88	4	11.38	1.12	0.00	3.24	96.219	24	0.013	0.0018	9.6	3.06	0.17	0.00	54.857	54.684	**1.03**	0.02	0.02	0.02	62.10	62.09	61.15	60.65	61.15
3	5	1.13	4.01	4	11.90	1.12	0.00	4.48	125.821	24	0.013	0.0018	9.6	3.06	0.23	0.00	54.684	54.458	**1.43**	0.04	0.05	0.04	62.09	62.04	60.70	60.20	60.70
5	6	0.66	4.67	4	12.59	1.11	0.00	5.17	30.451	24	0.013	0.0018	9.6	3.06	0.05	0.00	54.458	54.403	**1.64**	0.05	0.02	0.05	62.04	62.02	61.08	60.58	61.08
6	12	0.65	5.32	4	12.75	1.10	0.00	5.87	151.378	24	0.013	0.0018	9.6	3.06	0.27	0.00	54.403	54.130	**1.87**	0.07	0.10	0.07	62.02	61.92	60.62	60.12	60.62
12	13	7.35	12.67	4	13.58	1.09	0.00	13.85	228.218	24	0.013	0.0018	9.6	3.06	0.41	0.22	53.913	53.502	**4.41**	0.37	0.85	0.37	61.92	61.07	60.54	60.04	60.54
13	14	0.00	12.67	4	14.82	1.08	0.00	13.65	183.759	24	0.013	0.0018	9.6	3.06	0.33	0.27	53.230	52.899	**4.35**	0.36	0.67	0.36	61.07	60.40	60.60	60.10	60.60
14	16	2.48	15.15	4	15.82	1.07	60.53	76.68	13.098	54	0.013	0.0006	**48.3**	3.04	0.01	2.31	50.588	50.580	**4.82**	0.15	0.02	0.15	60.40	60.38	60.12	59.62	60.12
16	17	1.64	16.79	4	15.89	1.07	121.06	138.95	72.986	60	0.013	0.0005	**58.4**	2.97	0.04	1.84	48.738	48.702	**7.08**	0.28	0.21	0.28	60.38	60.18	60.60	60.10	60.60
17	18	0.00	16.79	4	16.30	1.06	121.06	138.87	110.133	60	0.013	0.0005	**58.4**	2.97	0.06	0.00	48.702	48.646	**7.07**	0.28	0.31	0.28	60.18	59.86	60.12	59.62	60.12
18	19	0.00	16.79	4	16.92	1.05	121.06	138.76	31.686	60	0.013	0.0005	**58.4**	2.97	0.02	0.00	48.644	48.628	**7.07**	0.28	0.09	0.28	59.86	59.77	62.00	61.50	62.00
19	STUB	0.00	16.79	4	17.09	1.05	121.06	138.73	5.000	60	0.013	0.0005	**58.4**	2.97	0.00	1.32	47.313	47.310	**7.07**	0.28	0.01	0.28	59.77	59.76	62.00	61.50	62.00
STUB	Exist. 50	0.00	16.79	4	17.12	1.05	121.06	138.73	50.000	60	0.013	0.0005	**58.4**	2.97	0.02	0.00	47.310	47.285	**7.07**	0.28	0.14	0.28	59.76	59.62	60.14	59.64	60.14
Exist. 50	Exist. 51	0.00	16.79	4	17.40	1.05	121.06	138.68	200.000	60	0.013	0.0005	58.4	2.97	0.10	0.00	47.285	47.185	**7.06**	0.28	0.56	0.28	59.62	59.05	60.00	59.50	60.00
Exist. 51	Exist. 52A	3.83	20.62	4	18.52	1.04	121.06	142.49	196.000	60	0.013	0.0005	60.4	3.08	0.11	0.00	47.185	47.080	**7.26**	0.30	0.58	0.30	59.05	58.47	60.00	59.50	60.00
Exist. 52A	Exist. 52B	0.00	20.62	4	19.58	1.03	121.06	142.29	78.000	60	0.013	0.0005	59.1	3.01	0.04	0.00	47.080	47.040	**7.25**	0.30	0.23	0.30	58.47	58.24	60.00	59.50	60.00
Exist. 52B	Exist. PLUG	0.00	20.62	4	20.02	1.03	121.06	142.22	64.000	6 x	4	0.013	0.0005	67.1	2.79	0.03	0.00	47.040	47.010	**5.93**	0.21	0.13	0.21	58.24	58.10	60.00	59.50	60.00
Exist. PLUG	Exist. 70	0.00	20.62	4	20.40	1.02	121.06	142.15	155.000	6 x	4	0.013	0.0005	70.4	2.93	0.08	0.00	47.010	46.930	**5.92**	0.21	0.33	0.21	58.10	57.78	60.00	59.50	60.00
Exist. 70	Exist. 53A	0.00	20.62	4	21.28	1.02	121.06	142.01	83.000	60	0.013	0.0005	57.3	2.92	0.04	0.00	46.930	46.890	**7.23**	0.30	0.25	0.30	57.78	57.53	60.00	59.50	60.00
Exist. 53A	Exist. 53B	0.91	21.53	4	21.75	1.01	121.06	142.85	20.000	60	0.013	0.0005	58.4	2.97	0.01	0.00	46.890	46.880	**7.28**	0.30	0.06	0.30	57.53	57.47	60.00	59.50	60.00
Exist. 53B	Exist. 54	0.00	21.53	4	21.86	1.01	121.06	142.84	153.000	60	0.013	0.0005	55.8	2.84	0.07	0.00	46.880	46.810	**7.27**	0.30	0.46	0.30	57.47	57.01	60.00	59.50	60.00
Exist. 54	Exist. 55	0.00	21.53	4	22.76	1.01	121.06	142.69	96.000	60	0.013	0.0005	59.6	3.03	0.05	0.00	46.810	46.760	**7.27**	0.30	0.29	0.30	57.01	56.73	60.00	59.50	60.00
Exist. 55	Exist. 56	1.11	22.64	4	23.29	1.00	121.06	143.73	242.000	60	0.013	0.0005	58.1	2.96	0.12	0.00	46.760	46.640	**7.32**	0.30	0.73	0.30	56.73	55.99	60.00	59.50	60.00
Exist. 56	Exist. 57	1.75	24.39	4	24.65	0.99	151.31	175.50	278.000	8 x	5	0.013	0.0005	136.7	3.42	0.14	0.00	46.640	46.500	**4.39**	0.08	0.23	0.08	55.99	55.76	60.00	59.50	60.00
Exist. 57	Exist. 58	0.71	25.10	4	26.01	0.98	151.31	175.99	134.000	8 x	5	0.013	0.0004	128.9	3.22	0.06	0.00	46.500	46.440	**4.40**	0.08	0.11	0.08	55.76	55.65	60.00	59.50	60.00
Exist. 58	Exist. Outfall	0.00	25.10	4	26.70	0.98	151.31	175.89	135.000	8 x	5	0.013	0.0005	138.8	3.47	0.07	0.00	46.440	46.370	**4.40**	0.08	0.11	0.08	55.65	55.54	60.00	59.50	60.00

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
4	5	0.66	0.66	4	10.11	1.15	0.00	0.76	72.398	24	0.013	0.0018	9.6	3.06	0.13	0.00	**55.360**	55.230	**0.24**	0.00	0.00	0.00	62.04	62.04	60.66	60.16	60.66

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
7	PLUG 2	3.71	3.71	4	10.11	1.15	0.00	4.25	69.813	24	0.013	0.0018	9.6	3.06	0.13	0.00	**54.850**	54.724	**1.35**	0.04	0.02	0.04	62.20	62.17	60.15	59.65	60.15
PLUG 2	9	0.00	3.71	4	10.49	1.14	0.00	4.23	195.470	24	0.013	0.0018	9.6	3.06	0.35	0.00	54.724	54.372	**1.35**	0.03	0.07	0.03	62.17	62.10	60.40	59.90	60.40
9	10	1.20	4.91	4	11.55	1.12	0.00	5.51	111.317	24	0.013	0.0018	9.6	3.06	0.20	0.00	54.372	54.172	**1.75**	0.06	0.07	0.06	62.10	62.04	60.94	60.44	60.94
10	11	0.86	5.77	4	12.16	1.11	0.00	6.42	127.541	24	0.013	0.0018	9.6	3.06	0.23	0.00	54.172	53.943	**2.04**	0.08	0.10	0.08	62.04	61.94	60.40	59.90	60.40
11	12	0.80	6.57	4	12.85	1.10	0.00	7.25	16.631	24	0.013	0.0018	9.6	3.06	0.03	0.00	53.943	53.913	**2.31**	0.10	0.02	0.10	61.94	61.92	60.24	59.74	60.24

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
8	PLUG 3	1.20	1.20	4	10.11	1.15	0.00	1.38	43.820	24	0.013	0.0018	9.6	3.06	0.08	0.00	**55.250**	55.171	**0.44**	0.00	0.00	0.00	62.11	62.10	60.55	60.05	60.55
PLUG 3	9	0.00	1.20	4	10.35	1.14	0.00	1.37	30.000	24	0.013	0.0018	9.6	3.06	0.05	0.00	55.171	55.117	**0.44**	0.00	0.00	0.00	62.10	62.10	60.70	60.20	60.70

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
15	16	1.64	1.64	4	10.08	1.15	60.53	62.41	139.797	48	0.013	0.0007	38.1	3.03	0.10	0.00	**51.548**	51.450	**4.97**	0.19	0.26	0.19	60.64	60.38	60.24	59.74	60.24

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
101	1	1.54	1.54	4	10.00	1.15	0.00	1.77	61.784	24	0.013	0.0032	12.9	4.11	0.20	0.00	**56.090**	55.890	**0.56**	0.01	0.00	0.01	62.15	62.15	61.09	60.59	61.09

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
102	103	0.79	0.79	4	10.00	1.15	0.00	0.91	28.321	24	0.013	0.0071	19.1	6.07	0.20	0.00	**55.530**	55.330	**0.29**	0.00	0.00	0.00	62.15	62.15	60.53	60.03	60.53
103	1	0.55	1.34	4	10.08	1.15	0.00	1.54	8.000	24	0.013	0.0125	25.4	8.07	0.10	0.00	55.330	55.230	**0.49**	0.00	0.00	0.00	62.15	62.15	60.53	60.03	60.53

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
104	105	0.79	0.79	4	10.00	1.15	0.00	0.91	28.035	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.700**	55.500	**0.29**	0.00	0.00	0.00	62.09	62.09	60.70	60.20	60.70
105	3	0.34	1.13	4	10.08	1.15	0.00	1.30	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	55.500	55.400	**0.41**	0.00	0.00	0.00	62.09	62.09	60.70	60.20	60.70

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
106	107	0.52	0.52	4	10.00	1.15	0.00	0.60	28.002	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.660**	55.460	**0.19**	0.00	0.00	0.00	62.04	62.04	60.66	60.16	60.66
107	4	0.14	0.66	4	10.08	1.15	0.00	0.76	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	55.460	55.360	**0.24**	0.00	0.00	0.00	62.04	62.04	60.66	60.16	60.66

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
108	109	0.40	0.40	4	10.00	1.15	0.00	0.46	28.006	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.620**	55.420	**0.15**	0.00	0.00	0.00	62.02	62.02	60.62	60.12	60.62
109	6	0.25	0.65	4	10.08	1.15	0.00	0.75	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	55.420	55.320	**0.24**	0.00	0.00	0.00	62.02	62.02	60.62	60.12	60.62

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
110	111	1.86	1.86	4	10.00	1.15	0.00	2.14	28.000	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.150**	54.950	**0.68**	0.01	0.00	0.01	62.20	62.20	60.15	59.65	60.15
111	7	1.85	3.71	4	10.08	1.15	0.00	4.26	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	54.950	54.850	**1.35**	0.04	0.00	0.04	62.20	62.20	60.15	59.65	60.15

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
112	113	0.80	0.80	4	10.00	1.15	0.00	0.92	28.000	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.550**	55.350	**0.29**	0.00	0.00	0.00	62.11	62.11	60.55	60.05	60.55
113	8	0.40	1.20	4	10.08	1.15	0.00	1.38	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	55.350	55.250	**0.44**	0.00	0.00	0.00	62.11	62.11	60.55	60.05	60.55

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
114	115	0.57	0.57	4	10.00	1.15	0.00	0.65	28.006	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.400**	55.200	**0.21**	0.00	0.00	0.00	62.04	62.04	60.40	59.90	60.40
115	10	0.29	0.86	4	10.08	1.15	0.00	0.99	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	55.200	55.100	**0.31**	0.00	0.00	0.00	62.04	62.04	60.40	59.90	60.40

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
116	117	0.46	0.46	4	10.00	1.15	0.00	0.53	28.017	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.240**	55.040	**0.17**	0.00	0.00	0.00	61.94	61.94	60.24	59.74	60.24
117	11	0.34	0.80	4	10.08	1.15	0.00	0.92	8.000	24	0.013	0.0125	25.4	8.07	0.10	0.00	55.040	54.940	**0.29**	0.00	0.00	0.00	61.94	61.94	60.24	59.74	60.24

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
118	12	0.78	0.78	4	10.00	1.15	0.00	0.90	48.991	24	0.013	0.0041	14.5	4.61	0.20	0.00	**55.500**	55.300	**0.29**	0.00	0.00	0.00	61.92	61.92	60.50	60.00	60.50

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
119	120	1.31	1.31	4	10.00	1.15	30.26	31.77	29.690	36	0.013	0.0067	54.9	7.76	0.20	0.00	**54.120**	53.920	**4.49**	0.23	0.07	0.23	60.50	60.43	60.12	59.62	60.12
120	14	1.17	2.48	4	10.06	1.15	60.53	63.37	14.000	48	0.013	0.0071	121.7	9.69	0.10	1.00	52.920	52.820	**5.04**	0.19	0.03	0.19	60.43	60.40	60.12	59.62	60.12

| FROM MH | TO MH | AREA (AC) | TOTAL AREA (AC) | CITY CURVE NO. | Tc (MIN) | CI | Q INPUT (CFS) | Q TOT

100 YEAR STORM CALCULATIONS – STORM SYSTEM B

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
25	26	2.39	2.39	4	10.11	1.15	0.00	2.74	123.273	24	0.013	0.0018	9.6	3.06	0.22	0.00	55.440	55.218	**0.87**	0.01	0.02	0.01	58.78	58.76	60.74	60.24	60.74
26	PLUG 2	0.00	2.39	4	10.78	1.13	0.00	2.71	23.376	24	0.013	0.0018	9.6	3.06	0.04	0.00	55.218	55.176	**0.86**	0.01	0.00	0.01	58.76	58.75	61.38	60.88	61.38
PLUG 2	27	0.00	2.39	4	10.91	1.13	0.00	2.71	230.000	24	0.013	0.0018	9.6	3.06	0.41	0.00	55.176	54.762	**0.86**	0.01	0.03	0.01	58.75	58.72	61.25	60.75	61.25
27	29	1.69	4.08	4	12.16	1.11	0.00	4.54	14.788	24	0.013	0.0018	9.6	3.06	0.03	0.00	54.762	54.735	**1.45**	0.04	0.01	0.04	58.72	58.72	60.36	59.86	60.36
29	30	1.08	5.16	4	12.24	1.11	0.00	5.74	300.452	24	0.013	0.0018	9.6	3.06	0.54	0.00	54.735	54.195	**1.83**	0.06	0.19	0.06	58.72	58.52	60.64	60.14	60.64
30	36	1.04	6.20	4	13.88	1.09	0.00	6.75	16.162	24	0.013	0.0018	9.6	3.06	0.03	0.00	54.195	54.166	**2.15**	0.09	0.01	0.09	58.52	58.51	60.79	60.29	60.79
36	37	4.98	11.18	4	13.96	1.09	0.00	12.16	192.765	24	0.013	0.0018	9.6	3.06	0.35	0.00	54.166	53.819	**3.87**	0.29	0.55	0.29	58.51	57.95	61.09	60.59	61.09
37	Exist. 7	0.00	11.18	4	15.01	1.08	0.00	12.02	59.935	24	0.013	0.0018	9.6	3.06	0.11	0.00	53.819	53.711	**3.83**	0.28	0.17	0.28	57.95	57.79	60.50	60.00	60.50
Exist. 7	Exist. 8	7.30	18.48	4	15.34	1.07	0.00	19.80	190.000	24	0.013	0.0018	9.6	3.06	0.34	1.85	51.860	51.518	**6.30**	0.76	1.45	0.76	57.79	56.34	59.49	58.99	59.49
Exist. 8	Exist. 9	3.66	22.14	4	16.37	1.06	0.00	23.47	210.000	30	0.013	0.0013	14.8	3.02	0.27	0.50	51.020	50.747	**4.78**	0.33	0.68	0.33	56.34	55.65	58.94	58.44	58.94
Exist. 9	Exist. 10	1.00	23.14	4	17.53	1.05	7.95	32.22	290.000	30	0.013	0.0013	14.8	3.02	0.38	0.00	50.750	50.373	**6.56**	0.61	1.78	0.61	55.65	53.87	59.59	59.09	59.59
Exist. 10	Exist. 11	3.10	26.24	4	19.13	1.03	35.65	62.77	210.000	54	0.013	0.0006	48.3	3.04	0.13	2.00	48.370	48.244	**3.95**	0.10	0.21	0.10	53.87	53.66	58.89	58.39	58.89
Exist. 11	Exist. 16	0.00	26.24	4	20.28	1.02	35.65	62.52	94.000	54	0.013	0.0006	48.3	3.04	0.06	0.00	48.240	48.184	**3.93**	0.10	0.09	0.10	53.66	53.57	59.54	59.04	59.54
Exist. 16	Exist. 17	48.71	74.95	4	20.80	1.02	382.53	458.97	183.000	10 x 8	0.013	0.0003	246.2	3.08	0.05	3.49	44.690	44.630	**5.74**	0.09	0.16	0.09	53.57	53.41	60.00	59.50	60.00
Exist. 17	Exist. Outfall	0.00	74.95	4	21.79	1.01	382.53	458.39	105.000	20 x 5	0.013	0.0003	286.9	2.87	0.03	0.00	44.630	44.600	**4.58**	0.06	0.07	0.06	53.41	53.34	60.00	59.50	60.00

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
31	32	1.46	1.46	4	10.70	1.14	0.00	1.66	194.531	24	0.013	0.0072	19.2	6.12	1.40	0.00	**58.570**	57.170	**0.53**	0.01	0.01	0.72	60.57	59.17	63.86	63.36	63.86
32	33	1.21	2.67	4	11.23	1.13	0.00	3.01	29.328	24	0.013	0.0018	9.6	3.06	0.05	0.00	57.170	57.117	**0.96**	0.02	0.01	0.18	59.17	59.12	62.47	61.97	62.47
33	34	0.51	3.18	4	11.39	1.12	0.00	3.58	28.696	24	0.013	0.0018	9.6	3.06	0.05	0.00	57.117	57.066	**1.14**	0.02	0.01	0.18	59.12	59.07	62.61	62.11	62.61
34	35	0.35	3.53	4	11.54	1.12	0.00	3.96	119.085	24	0.013	0.0086	21.0	6.69	1.02	0.00	57.066	56.042	**1.26**	0.03	0.04	0.45	59.07	58.52	62.47	61.97	62.47
35	36	0.20	3.73	4	11.84	1.12	0.00	4.17	45.847	24	0.013	0.0086	21.0	6.69	0.39	0.00	56.042	55.648	**1.33**	0.03	0.02	0.03	58.52	58.51	61.43	60.93	61.43

Existing Trunk Line

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
Exist. 3	Exist. 4	3.65	3.65	4	10.13	1.15	0.00	4.18	170.000	24	0.013	0.0018	9.6	3.06	0.31	0.00	**53.430**	53.124	**1.33**	0.03	0.06	0.03	58.39	58.33	59.53	59.03	59.53
Exist. 4	Exist. 5	0.00	3.65	4	11.06	1.13	0.00	4.13	360.000	24	0.013	0.0018	9.6	3.06	0.65	0.00	53.120	52.472	**1.31**	0.03	0.12	0.03	58.33	58.21	60.03	59.53	60.03
Exist. 5	Exist. 6	3.65	7.30	4	13.01	1.10	0.00	8.03	190.000	24	0.013	0.0018	9.6	3.06	0.34	0.00	52.472	52.130	**2.56**	0.13	0.24	0.13	58.21	57.97	59.43	58.93	59.43
Exist. 6	Exist. 7	0.00	7.30	4	14.05	1.09	0.00	7.94	150.000	24	0.013	0.0018	9.6	3.06	0.27	0.00	52.130	51.860	**2.53**	0.12	0.18	0.12	57.97	57.79	59.98	59.48	59.98

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
Exist. 12	Exist. 13	1.64	1.64	4	10.19	1.15	0.00	1.88	275.000	24	0.013	0.0018	9.6	3.06	0.50	0.00	**53.690**	53.195	**0.60**	0.01	0.02	0.18	55.69	55.20	64.70	64.20	64.70
Exist. 13	Exist. 60	1.90	3.54	4	11.69	1.12	0.00	3.96	17.000	24	0.013	0.0018	9.6	3.06	0.03	2.50	50.700	50.669	**1.26**	0.03	0.01	0.03	55.17	55.17	62.90	62.40	62.90
Exist. 60	Exist. 14	8.80	12.34	4	11.78	1.12	0.00	13.80	258.000	54	0.013	0.0006	48.3	3.04	0.15	0.00	50.669	50.530	**0.87**	0.00	0.01	0.05	55.17	55.03	61.78	61.28	61.78
Exist. 14	Exist. 15	1.90	14.24	4	13.20	1.10	0.00	15.64	260.000	54	0.013	0.0006	48.3	3.04	0.16	0.00	50.530	50.374	**0.98**	0.01	0.02	0.06	55.03	54.89	61.08	60.58	61.08
Exist. 15	Exist. 16	3.15	17.39	4	14.63	1.08	35.65	54.42	96.000	54	0.013	0.0006	48.3	3.04	0.06	0.00	50.370	50.312	**3.42**	0.08	0.07	0.08	54.89	54.81	59.38	58.88	59.38

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
Exist. Stub	Exist. 60	8.80	8.80	4	10.00	1.15	0.00	10.11	50.000	54	0.013	0.0006	48.3	3.04	0.03	0.00	**50.699**	50.669	**0.64**	0.00	0.00	0.06	55.20	55.17	61.78	61.28	61.78

Proposed Inlets

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
201	202	1.61	1.61	4	10.00	1.15	0.00	1.85	28.100	24	0.013	0.0071	19.1	6.09	0.20	0.00	**55.740**	55.540	**0.59**	0.01	0.00	0.01	58.78	58.78	60.74	60.24	60.74
202	25	0.78	2.39	4	10.08	1.15	0.00	2.74	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	55.540	55.440	**0.87**	0.01	0.00	0.01	58.78	58.78	60.74	60.24	60.74

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
203	204	0.82	0.82	4	10.00	1.15	0.00	0.94	28.036	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.360**	55.160	**0.30**	0.00	0.00	0.00	58.72	58.72	60.36	59.86	60.36
204	27	0.87	1.69	4	10.08	1.15	0.00	1.94	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	55.160	55.060	**0.62**	0.01	0.00	0.01	58.72	58.72	60.36	59.86	60.36

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
205	29	1.08	1.08	4	10.00	1.15	0.00	1.24	49.427	24	0.013	0.0040	14.4	4.59	0.20	0.00	**55.640**	55.440	**0.39**	0.00	0.00	0.00	58.72	58.72	60.64	60.14	60.64

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
206	207	0.46	0.46	4	10.00	1.15	0.00	0.53	28.005	24	0.013	0.0071	19.2	6.10	0.20	0.00	**55.790**	55.590	**0.17**	0.00	0.00	0.00	58.52	58.52	60.79	60.29	60.79
207	30	0.58	1.04	4	10.08	1.15	0.00	1.19	8.000	24	0.013	0.0125	25.4	8.07	0.10	0.00	55.590	55.490	**0.38**	0.00	0.00	0.00	58.52	58.52	60.79	60.29	60.79

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
301	208	0.13	0.13	4	10.00	1.15	0.00	0.15	155.143	24	0.013	0.0037	13.9	4.41	0.58	0.00	**59.450**	58.870	**0.05**	0.00	0.00	0.37	61.45	60.87	64.45	63.95	64.45
208	209	0.56	0.69	4	10.59	1.14	0.00	0.79	28.080	24	0.013	0.0071	19.1	6.09	0.20	0.00	**58.870**	58.670	**0.25**	0.00	0.00	0.71	60.87	60.67	63.87	63.37	63.87
209	31	0.56	1.25	4	10.66	1.14	0.00	1.42	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	58.670	58.570	**0.45**	0.00	0.00	0.77	60.67	60.57	63.86	63.36	63.86

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
302	31	0.21	0.21	4	10.00	1.15	0.00	0.24	145.376	24	0.013	0.0057	17.1	5.45	0.83	0.00	**59.500**	58.670	**0.08**	0.00	0.00	0.57	61.50	60.67	64.50	64.00	64.50

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
210	211	0.59	0.59	4	10.00	1.15	0.00	0.68	28.024	24	0.013	0.0071	19.2	6.10	0.20	0.00	**57.470**	57.270	**0.22**	0.00	0.00	0.71	59.47	59.27	62.47	61.97	62.47
211	32	0.62	1.21	4	10.08	1.15	0.00	1.39	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	57.270	57.170	**0.44**	0.00	0.00	0.77	59.27	59.17	62.47	61.97	62.47

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
303	33	0.20	0.20	4	10.00	1.15	0.00	0.23	181.545	24	0.013	0.0034	13.1	4.18	0.61	0.00	**57.610**	57.000	**0.07**	0.00	0.00	0.27	59.61	59.12	62.61	62.11	62.61

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
304	33	0.31	0.31	4	10.00	1.15	0.00	0.36	138.686	24	0.013	0.0050	16.1	5.13	0.70	0.00	**57.700**	57.000	**0.11**	0.00	0.00	0.42	59.70	59.12	62.70	62.20	62.70

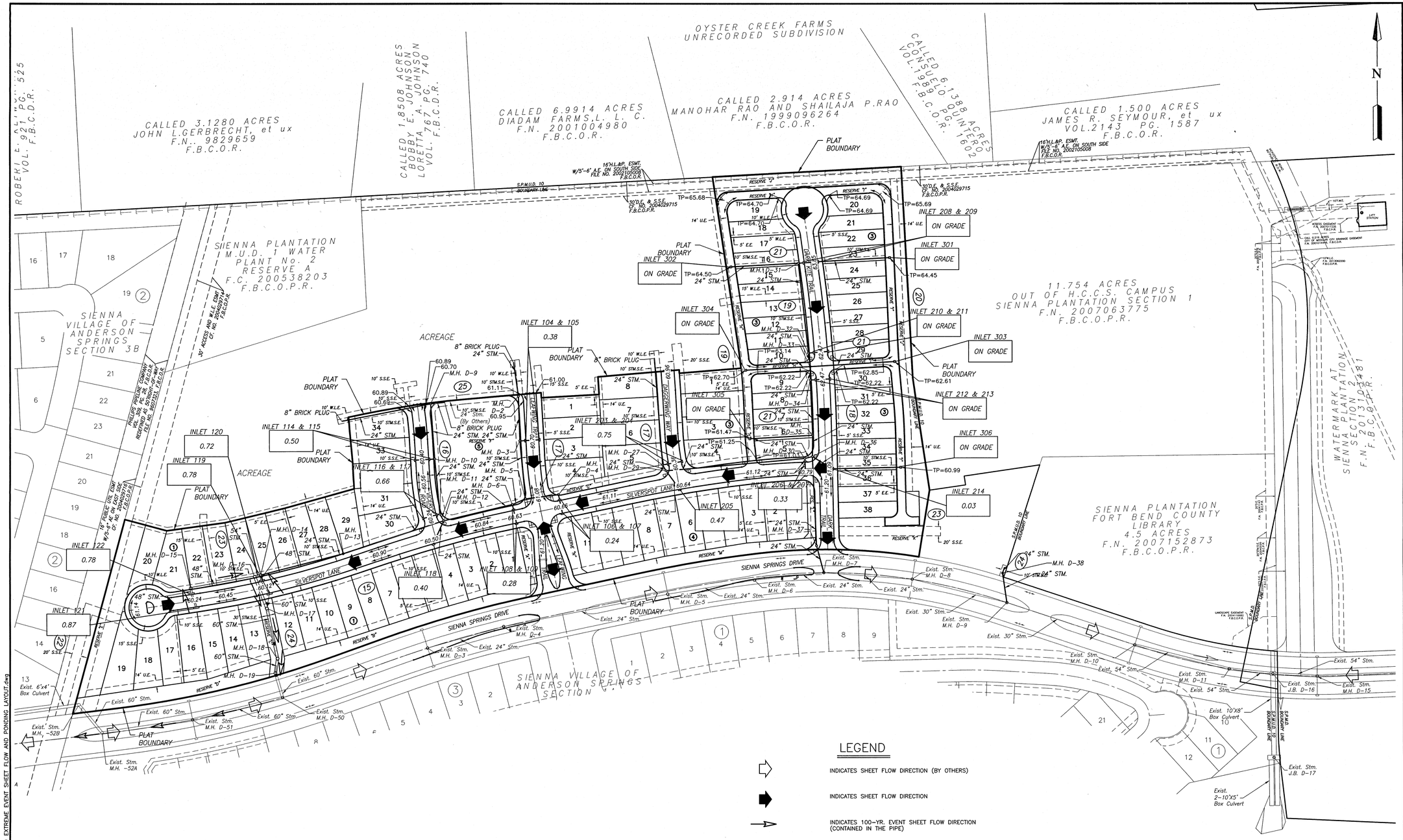
FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
212	213	0.17	0.17	4	10.00	1.15	0.00	0.20	28.000	24	0.013	0.0071	19.2	6.10	0.20	0.00	**57.470**	57.270	**0.06**	0.00	0.00	0.71	59.47	59.27	62.47	61.97	62.47
213	34	0.18	0.35	4	10.08	1.15	0.00	0.40	13.000	24	0.013	0.0077	19.9	6.33	0.10	0.00	57.270	57.170	**0.13**	0.00	0.00	0.77	59.27	59.17	62.47	61.97	62.47

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
306	214	0.37	0.37	4	10.00	1.15	0.00	0.43	146.707	24	0.013	0.0018	9.6	3.06	0.26	0.00	**55.990**	55.726	**0.14**	0.00	0.00	0.00	58.58	58.56	60.74	60.24	60.99
214	36	0.88	1.25	4	10.80	1.13	0.00	1.42	50.397	24	0.013	0.0040	14.3	4.55	0.20	0.00	55.726	55.526	**0.45**	0.00	0.00	0.00	58.51	58.51	61.09	60.59	61.09

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
307	38	1.00	1.00	4	10.00	1.15	7.95	9.10	12.445	24	0.013	0.0018	9.6	3.06	0.02	0.00	**55.700**	55.678	**2.90**	0.16	0.02	0.18	57.70	57.68	60.70	60.20	60.70
38	Exist. 9	0.00	1.00	4	10.07	1.15	7.95	9.10	64.167	24	0.013	0.0031	12.7	4.03	0.20	0.00	55.678	55.478	**2.90**	0.16	0.10	0.31	57.68	57.48	60.71	60.21	60.71

Existing Intlets

FROM MH	TO MH	AREA (AC)	TOTAL AREA (AC)	CITY CURVE NO.	Tc (MIN)	CI	Q INPUT (CFS)	Q TOTAL (CFS)	REACH (FT)	LINE SIZE (IN)	LINE MANN. CONST.	LINE SLOPE	DESIGN Q (CFS)	DESIGN V (FPS)	SLOPE FALL (FT)	M.H. DROP (FT)	FLOWLINE UP-STREAM (FT)	FLOWLINE DOWN-STREAM (FT)	ACTUAL V (FPS)	THEOR. H.G.L. SLOPE (%)	H (FT)	ACTUAL H.G.L. SLOPE (%)	UPST. H.G.L. (FT)	DNST. H.G.L. (FT)	UPST. TC ELEV. (FT)	UPST. MAX H.G.L. (FT)	UPST. N.G. ELEV. (FT)
Exist. 102	Exist. 3	1.85	1.85



LEGEND

- INDICATES SHEET FLOW DIRECTION (BY OTHERS)
- INDICATES SHEET FLOW DIRECTION
- INDICATES 100-YR. EVENT SHEET FLOW DIRECTION (CONTAINED IN THE PIPE)
- 54.07 — INDICATES TOP OF CURB ELEVATION
- 0.00 — INDICATES 100-YR EXTREME EVENT MAXIMUM PONDING HEIGHT ABOVE THE TOP OF CURB (IN FEET)
- (7) — INDICATES SHEET REFERENCES

NOTES:
1. EXTREME (100 YEAR) EVENT DATA REFLECTS PONDING LEVELS ABOVE CURB RECEIVING CHANNEL AT 25-YEAR WATER SURFACE ELEVATION
2. ALL TOP OF CURB ELEVATIONS SHOWN ARE FOR 6" CURB.

STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER
7.6.17

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNOI RD. SURVEY MARKER NO. PCM-003 ELEVATION = 66.07 2001 ADJUSTMENT

NOTES:

PAVE RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

WS&D RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED:_____
DEVELOPMENT COORDINATOR

DATE: 7/12/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

EXTREME EVENT SHEET FLOW AND PONDING LAYOUT

LJA Engineering, Inc.
1904 W. Grand Parkway North, Suite 100, Katy, Texas 77449
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

LJA PROJECT NO.: 1194-1127A & 1470-1127A

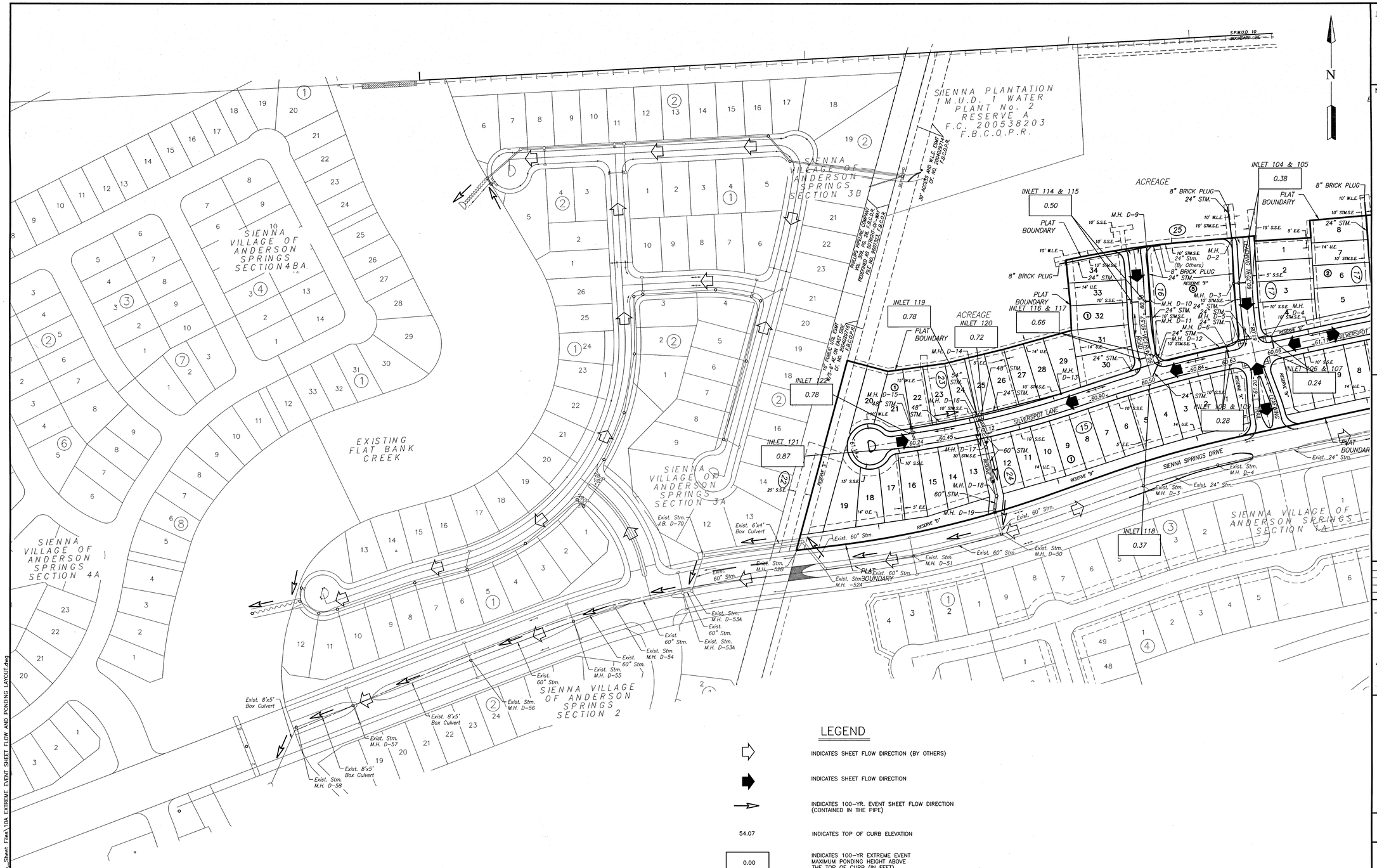
DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

SCALE: 1" = 100'

SHEET NO. 10 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A & 1470-1127A

Date\Time : Thu, 06 Jul 2017 - 10:26pm, USER : dsprojet
Path Name : I:\projdsk\1194\1194-1127A\1194-1127A\CAD_Sheet Files\10 EXTREME EVENT SHEET FLOW AND PONDING LAYOUT.dwg



LEGEND

⇨	INDICATES SHEET FLOW DIRECTION (BY OTHERS)
➡	INDICATES SHEET FLOW DIRECTION
→	INDICATES 100-YR. EVENT SHEET FLOW DIRECTION (CONTAINED IN THE PIPE)
54.07	INDICATES TOP OF CURB ELEVATION
0.00	INDICATES 100-YR EXTREME EVENT MAXIMUM PONDING HEIGHT ABOVE THE TOP OF CURB (IN FEET)
(1)	INDICATES SHEET REFERENCES

NOTES:
1. EXTREME (100 YEAR) EVENT DATA REFLECTS PONDING LEVELS ABOVE CURB RECEIVING CHANNEL AT 25-YEAR WATER SURFACE ELEVATION
2. ALL TOP OF CURB ELEVATIONS SHOWN ARE FOR 6" CURB.

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNOI RD. SURVEY MARKER NO. PCM-003 ELEVATION = 66.07 2001 ADJUSTMENT

NOTES:

PAVE RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

WS&D RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____
DEVELOPMENT COORDINATOR

DATE: 7/12/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

EXTREME EVENT SHEET FLOW AND PONDING LAYOUT

LJA Engineering, Inc.
1904 W. Grand Parkway North, Suite 100, Katy, Texas 77449
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

LJA PROJECT NO.: 1194-1127A & 1470-1127A

DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

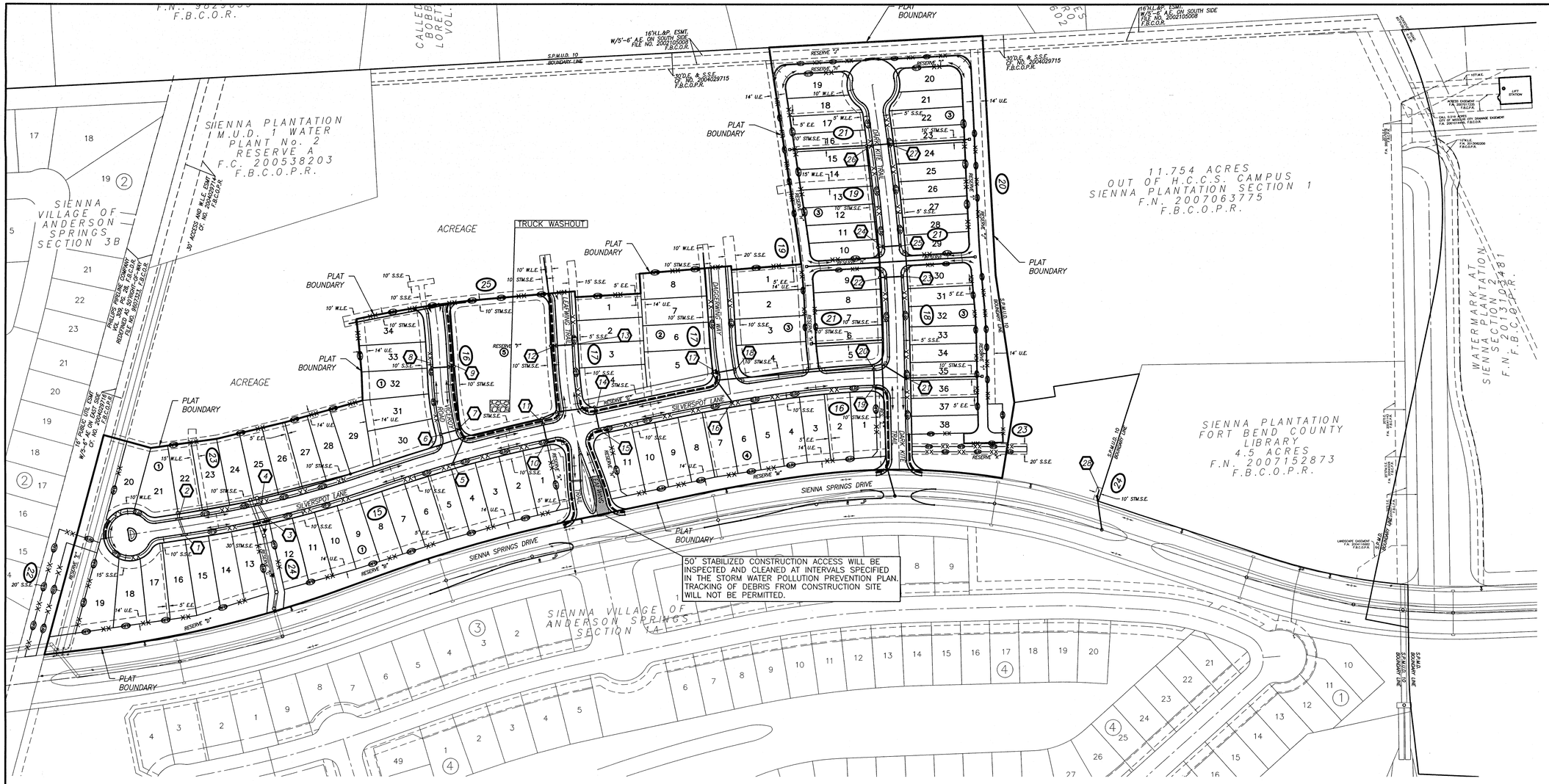
SCALE: 1" = 100'

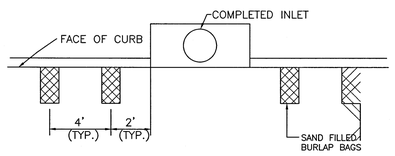
SHEET NO. 10A OF 54

STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194-1127A & 1470-1127A

Date\Time : Thu, 06 Jul 2017 - 10:21pm USER : dgrogel
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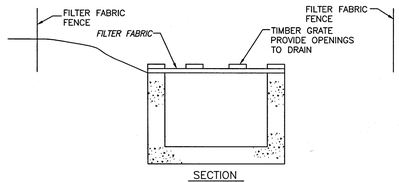




IMMEDIATELY AFTER COMPLETION OF THE SECOND STAGE INLET THE UTILITY CONTRACTOR WILL PLACE 2 BURLAP BAGS ON EACH SIDE OF THE INLET, PERPENDICULAR TO THE CURB, AS SHOWN ABOVE. BAGS WILL BE REMOVED PRIOR TO OPENING THE STREET TO PUBLIC ACESS.

INLET PROTECTION BARRIER DETAIL

NTS



"H-2" INLET (STAGE 1)

INLET FABRIC COVERING

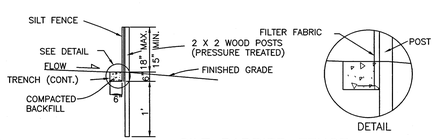
(INCIDENTAL TO BID ITEM)

FILTER FABRIC FENCE NOTES:

1. A CONTINUOUS SILT BARRIER FENCE SHALL BE CONSTRUCTED AROUND ALL FIRST STAGE INLETS BY THE UTILITY CONTRACTOR.

INLET PROTECTION BARRIER

NTS



SILT BARRIER FENCE

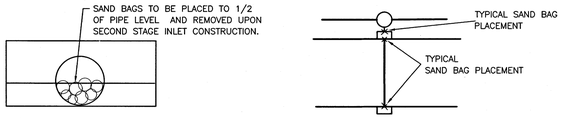
NTS

FILTER FABRIC FENCE NOTES:

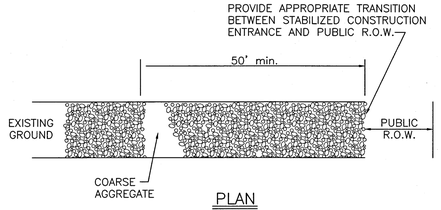
1. A MIN. 20' STRIP OF SILT BARRIER FENCE SHALL BE CONSTRUCTED BEHIND THE SECOND STAGE INLETS BY THE UTILITY CONTRACTOR.

STABILIZED EXIT GENERAL NOTES

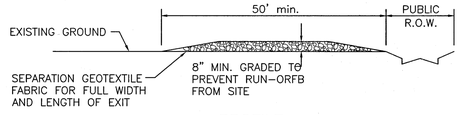
1. LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS, BUT NOT LESS THAN 50 FEET.
2. THICKNESS SHALL BE NOT LESS THAN 8 INCHES.
3. WIDTH SHALL BE NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
4. STABILIZATION FOR OTHER AREAS SHALL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION EXIT, UNLESS OTHERWISE SHOWN ON THE CONSTRUCTION DRAWINGS.
5. STABILIZED AREA MAY BE WIDENED OR LENGTHENED TO ACCOMMODATE A TRUCK WASHING AREA, WHEN SHOWN ON THE CONSTRUCTION DRAWING. AN OUTLET SEDIMENT TRAP MUST BE PROVIDED FOR THE TRUCK WASHING AREA.



STAGE 1 INLET DETAIL



PLAN



PROFILE

LEGEND

- INDICATES STABILIZED CONSTRUCTION EXIT (BY UTILITY CONTRACTOR)
- (21) INDICATES INLET PROTECTION BARRIERS AS PER DETAILS (THIS SHEET).
- INDICATES REINFORCED FILTER FABRIC BARRIER
- (1) INDICATES SHEET REFERENCES
- INDICATES EROSION CONTROL BLANKET
- SIDEWALK

EROSION AND SEDIMENT NOTES TO CONTRACTOR

1. UTILITY CONTRACTOR SHALL INSTALL SILT BARRIERS FOR INLETS AS DETAILED ON THIS SHEET FOR STAGE I AND II PROTECTION(INCIDENTAL TO BID ITEM).
2. PRIOR TO SUBSTANTIAL COMPLETION OF THE PROJECT, THE UTILITY CONTRACTOR SHALL REMOVE THE SEDIMENT AND WASTE MATERIAL (DEFINED AS ORGANICS, DEBRIS, TRASH, ETC.) FROM ALL STORM SEWERS AND INSTALL FILTER FABRIC FENCES AND/OR INLET PROTECTION BARRIERS AS DIRECTED BY ENGINEER.
3. PAVING CONTRACTOR SHALL MAINTAIN ALL SILT BARRIERS AND STORM WATER POLLUTION PREVENTION DEVICES AS PREVIOUSLY INSTALLED BY UTILITY CONTRACTOR UNTIL COMPLETION OF PROJECT.
4. PAVING CONTRACTOR SHALL INSTALL 2 FT. OF SOLID, BLOCK SODDING OR APPROVED EROSION CONTROL BLANKET BEHIND ALL CONCRETE CURBS.
5. CONTRACTORS SHALL VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION.
6. ALL DISTURBED AREAS WITHIN THE RIGHT-OF-WAY NOT COVERED BY PAVEMENT SHALL BE HYDROMULCH SEEDED BY THE PAVING CONTRACTOR IN ACCORDANCE WITH TECHNICAL SPECIFICATION ITEM NO. 4241.
7. ALL NON-WOODED LOTS SHALL BE BROADCAST SEEDED (OR OTHER ACCEPTABLE METHOD, APPROVED BY THE ENGINEER) BY THE PAVING CONTRACTOR UPON COMPLETION OF LOT GRADING ACTIVITIES.

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNOI RD. SURVEY MARKER NO. PCM-003 ELEVATION = 66.07 2001 ADJUSTMENT

NOTES:

PAVE RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

WS&D RECORD DRAWING

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CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED:_____ DEVELOPMENT COORDINATOR

DATE: 7/12/17

missouri CITY TEXAS

DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

EROSION CONTROL PLAN LAYOUT

LJA Engineering, Inc.
1904 W. Grand Parkway North, Suite 100, Katy, Texas 77449
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

LJA PROJECT NO.: 1194-1127A & 1470-1127A

DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

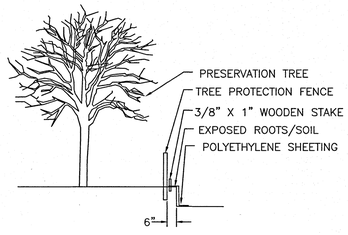
SCALE: 1" = 100'

SHEET NO. 11 OF 54

STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER — 7.6.17

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A & 1470-1127A

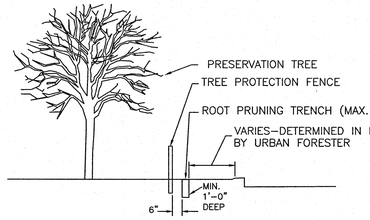
Date\Time : Thu, 06 Jul 2017 - 10:21am, USER : dnagel
Path\Name : I:\Projdata\1194-1127A\1194-1127A\CAD_Sheet Files\11 EROSION CONTROL PLAN LAYOUT.dwg



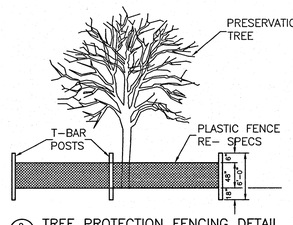
3 / TP.5 POLYETHYLENE SHEETING DETAIL
NOT TO SCALE

GENERAL NOTES

1. TREE PROTECTION, ROOT PRUNING, ETC... SHALL BE PROVIDED BY OTHERS AS DIRECTED BY OWNER
2. CONTRACTOR SHALL CONSTRUCT TEMPORARY SWALES



1 / TP.5 ROOT PRUNING DETAIL
NOT TO SCALE



2 / TP.5 TREE PROTECTION FENCING DETAIL
NOT TO SCALE

WETLANDS

1. ALL CONSTRUCTION ACTIVITIES WITHIN WETLAND AREAS SHALL BE COMPLETED BY BACKHOE OR SIMILAR EQUIPMENT THAT PERMITS SCOOPING OF EARTH MATERIAL.SHOVING, PUSHING, OR MOUNDING OF EARTH MATERIAL BY DOZER, ROAD GRADER, OR SIMILAR EQUIPMENT IS NOT PERMITED.
2. WETLAND MATTING SHALL BE USED FOR ALL CONSTRUCTION ACCESS
3. WETLAND CLEARING IS DEFINED AS REMOVAL OF VEGETATION DOWN TO EXISTING NATURAL GROUND OR WATER SURFACE ELEVATION. ACTUAL LIMITS OF WETLAND CLEARING SHALL BE DEFINED BY THE ENGINEER IN THE FIELD. VEGETATION REMOVAL MUST BE COMPLETED BY METHODS THAT RESTRICT DISTURBANCE OF WETLANDS. WETLAND CLEARING METHODS MUST BE APPROVED BY THE ENGINEER.

N



NOTES:

1. PRIOR TO CONSTRUCTION CONTRACTOR SHALL WALK SITE WITH OWNER TO DETERMINE AND FLAG SPECIMEN TREES.
2. CONTRACTOR IS RESPONSIBLE FOR PROTECTING SPECIMEN TREES FROM INJURY DURING CONSTRUCTION.
3. IN ADDITION TO THE INSTRUCTIONS OF PART 3.08 OF ITEM NO. 4811 – GENERAL SOURCE CONTROLS. THE CONTRACTOR SHALL CONSTRUCT AN EARTHEN LEVEE AROUND FUEL TANKS SUFFICIENT IN HEIGHT AND PERIMETER TO CONTAIN THE TOTAL VOLUME CONTENT OF THE TANK. CONTRACTOR SHALL FURNISH OWNER WITH CALCULATIONS THAT CONTAINMENT VOLUME BEING PROVIDED IS SUFFICIENT. DIRT WHICH IS CONTAMINATED BY FUEL, OIL, ETC. SPILLS SHALL BE REMOVED AND PROPERLY DISPOSED OF (AT NO COST TO THE OWNER).
4. LOCATE FUEL/MATERIAL STORAGE AREAS AWAY FROM STORM WATER CONVEYANCE SYSTEMS. USE A LINER UNDER ABOVE GROUND STORAGE TANKS. USE SILT FENCING, HAY BALES, OR BERMS AROUND FUEL STORAGE AREAS. (NO UNDERGROUND STORAGE TANKS WILL BE ALLOWED.)
5. CONTRACTOR WILL ADVISE OWNER IMMEDIATELY, VERBALLY, AND IN WRITING, OF ANY FUEL SPILLS ONTO THE PROJECT/CONSTRUCTION AREA AND THE ACTIONS TAKEN TO REMEDY THE PROBLEM.
6. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL ENVIRONMENTAL LAWS.
7. CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF FUELS, MATERIALS, AND EXCAVATIONS IN A LEGALLY APPROVED MANNER.
8. CONTRACTOR WILL PROVIDE PROTECTED STORAGE AREAS FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS, AND OTHER POTENTIALLY TOXIC MATERIALS.
9. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATELY MAINTAINED SANITARY FACILITIES.
10. ALL UNSATISFACTORY AND/OR WASTE MATERIALS INCLUDING VEGETATION, ROOTS, CONCRETE AND DEBRIS SHALL BE DISPOSED OF OFFSITE BY THE CONTRACTOR. THE USE OF A BURN PIT WILL BE AN ACCEPTABLE METHOD TO DISPOSE OF MATERIALS BUT WILL NEED TO BE BACKFILLED TO 95% STD. PROCTOR DENSITY.
11. CONTRACTOR IS RESPONSIBLE FOR CLEANING MUD AND/OR DIRT TRACKED ONTO EXISTING STREETS BY HIS WORKMAN'S, SUPPLIER'S OR SUBCONTRACTOR'S VEHICLES. STREETS MUST BE CLEANED ON AN ONGOING BASIS WHEN THE TRACKING OCCURS; NOT TO EXCEED 24 HOURS.
12. CONTRACTOR SHALL KEEP CONSTRUCTION SITE FREE OF LITTER, I.E., LUNCH WRAPPERS, SODA CANS, ETC., ON A DAILY BASIS.

ACRES

CLEARING, GRUBBING, AND STRIPPING OF INTERNAL R.O.W.	= 4.82 ACRES
CLEARING, GRUBBING, AND STRIPPING OF PUBLIC UTILITY EASEMENTS	= 2.00 ACRES
CLEARING, GRUBBING, AND STRIPPING OF LOTS	= 9.71 ACRES
CLEARING, GRUBBING, AND STRIPPING OF BACK–LOT UTILITY EASEMENTS	= 1.23 ACRES
CLEARING, GRUBBING, AND STRIPPING OF RESERVES	= 3.16 ACRES
TOTAL CLEARING	= 20.92 ACRES

LEGEND

- LIMITS OF CLEARING, GRUBBING, AND STRIPPING OF RESERVES
- LIMITS OF CLEARING, GRUBBING, AND STRIPPING OF R.O.W.
- LIMITS OF CLEARING, GRUBBING, AND STRIPPING OF PUBLIC UTILITY EASEMENT
- LIMITS OF CLEARING, GRUBBING, AND STRIPPING OF LOTS
- !!!!!!!!! WOODED DO NOT DISTURB !!!!!!!!!
- LIMITS OF CLEARING, GRUBBING, STRIPPING OF BACK–LOT UTILITY EASEMENTS
- AREA NOT TO BE DISTURBED
- (XX) INDICATES SHEET REFERENCES

NOTE:
CONTRACTOR TO OBTAIN WRITTEN AUTHORIZATION FROM DEVELOPER PRIOR TO COMMENCEMENT OF CLEARING

STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER
7.5.17

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL–FRESNOI RD. SURVEY MARKER NO. PCM–003 ELEVATION = 66.07 2001 ADJUSTMENT

NOTES:

PAVE RECORD DRAWING

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CONTRACTOR:_____ DATE:_____

TITLE:_____

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CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED:_____
DEVELOPMENT COORDINATOR

DATE: 7/12/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

CLEARING AND GRUBBING LAYOUT

LJA Engineering, Inc.
1904 W. Grand Parkway North, Suite 100, Katy, Texas 77449
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

LJA PROJECT NO.: 1194–1127A & 1470–1127A

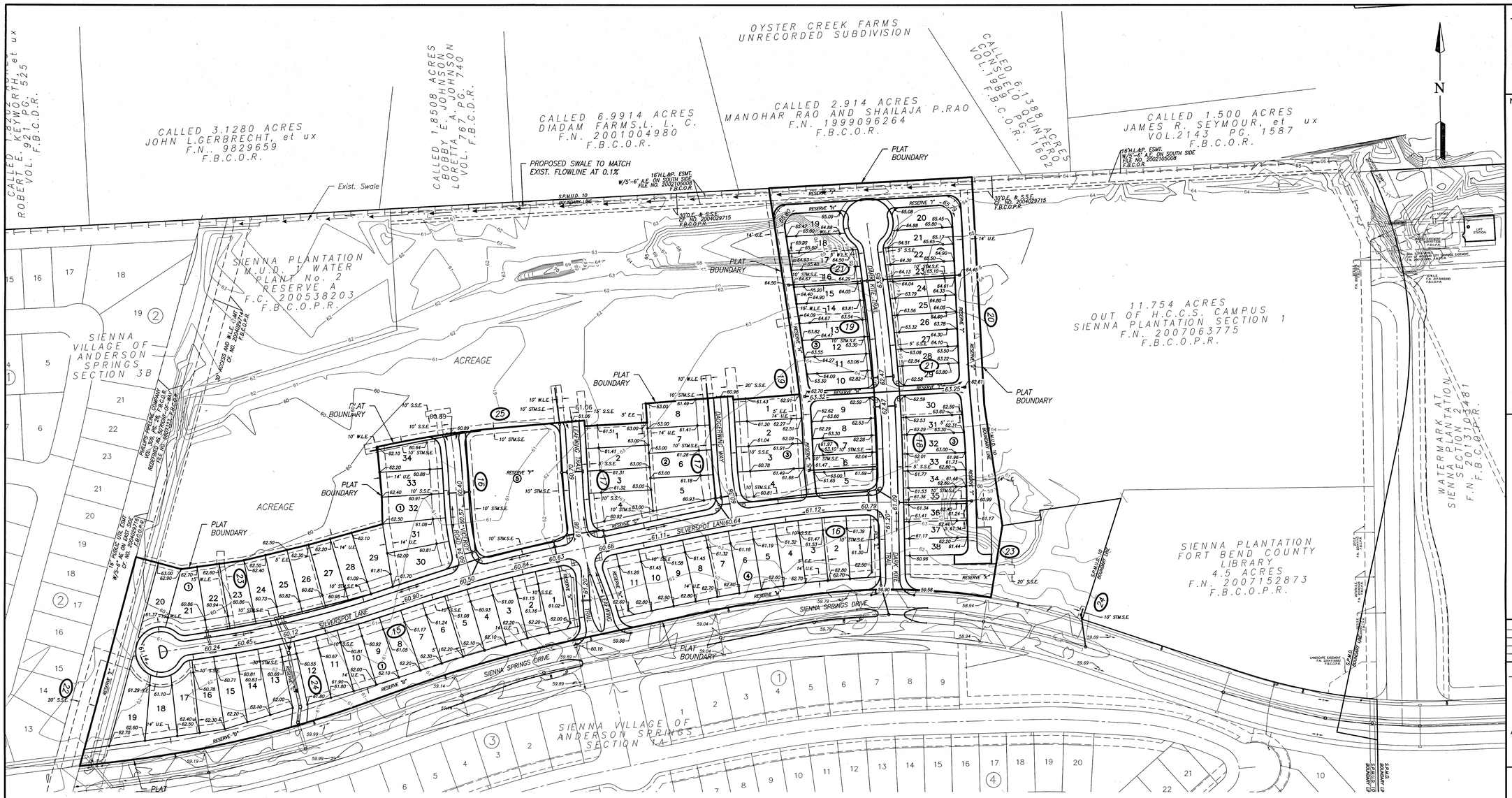
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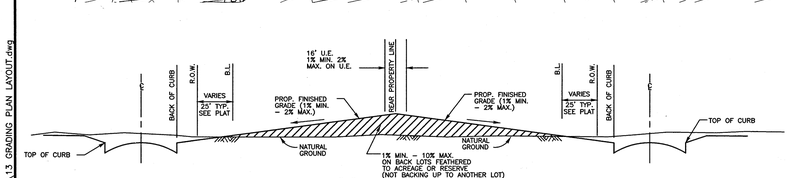
SCALE: 1" = 100'

SHEET NO. 12 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194–1127A & 1470–1127A

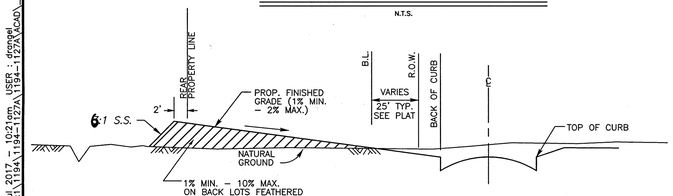
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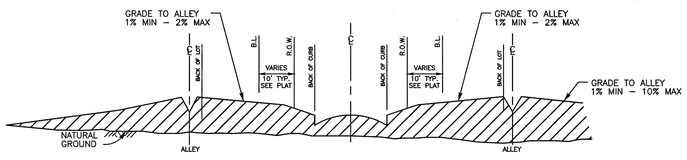
TYPE "A" LOT GRADING DETAIL
(FOR LOTS WITH COMMON REAR PROPERTY LINE
OR BACKING TO ACREAGE / RESERVE)
BLOCK 2

N.T.S.



TYPE "A" LOT GRADING DETAIL
(FOR LOTS BACKING TO A RESERVE)
BLOCK 1 AND 4

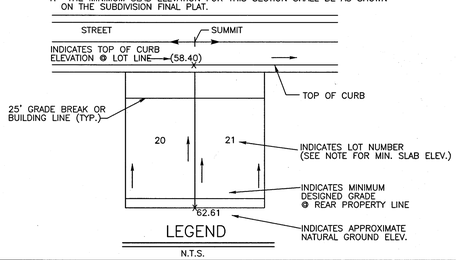
N.T.S.



TYPE "B" LOT GRADING DETAIL
(FOR LOTS BACKING TO ALLEYS)
BLOCK 3

N.T.S.

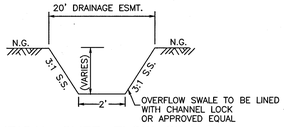
NOTE:
1. THE MINIMUM SLAB ELEVATION FOR THIS SECTION SHALL BE AS SHOWN ON THE SUBDIVISION FINAL PLAT.



LEGEND

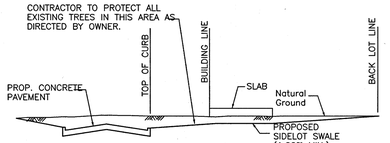
N.T.S.

NOTE:
CONTRACTOR SHALL PROTECT ALL
SPECIMEN TREES.



TYPICAL OVER FLOW SWALE

N.T.S.



TYPICAL GRADING FOR NON–FILLED AREAS (BY BUILDER)

N.T.S.

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL–FRESNOI RD. SURVEY MARKER NO. PCM–003 ELEVATION = 66.07 2001 ADJUSTMENT

NOTES:

PAVE RECORD DRAWING

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TITLE: _____

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TITLE: _____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____
DEVELOPMENT COORDINATOR

DATE: 7/12/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

GRADING PLAN LAYOUT

LJA Engineering, Inc.
1904 W. Grand Parkway North
Suite 100
Katy, Texas 77449
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

LJA PROJECT NO.: 1194–1127A & 1470–1127A

DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

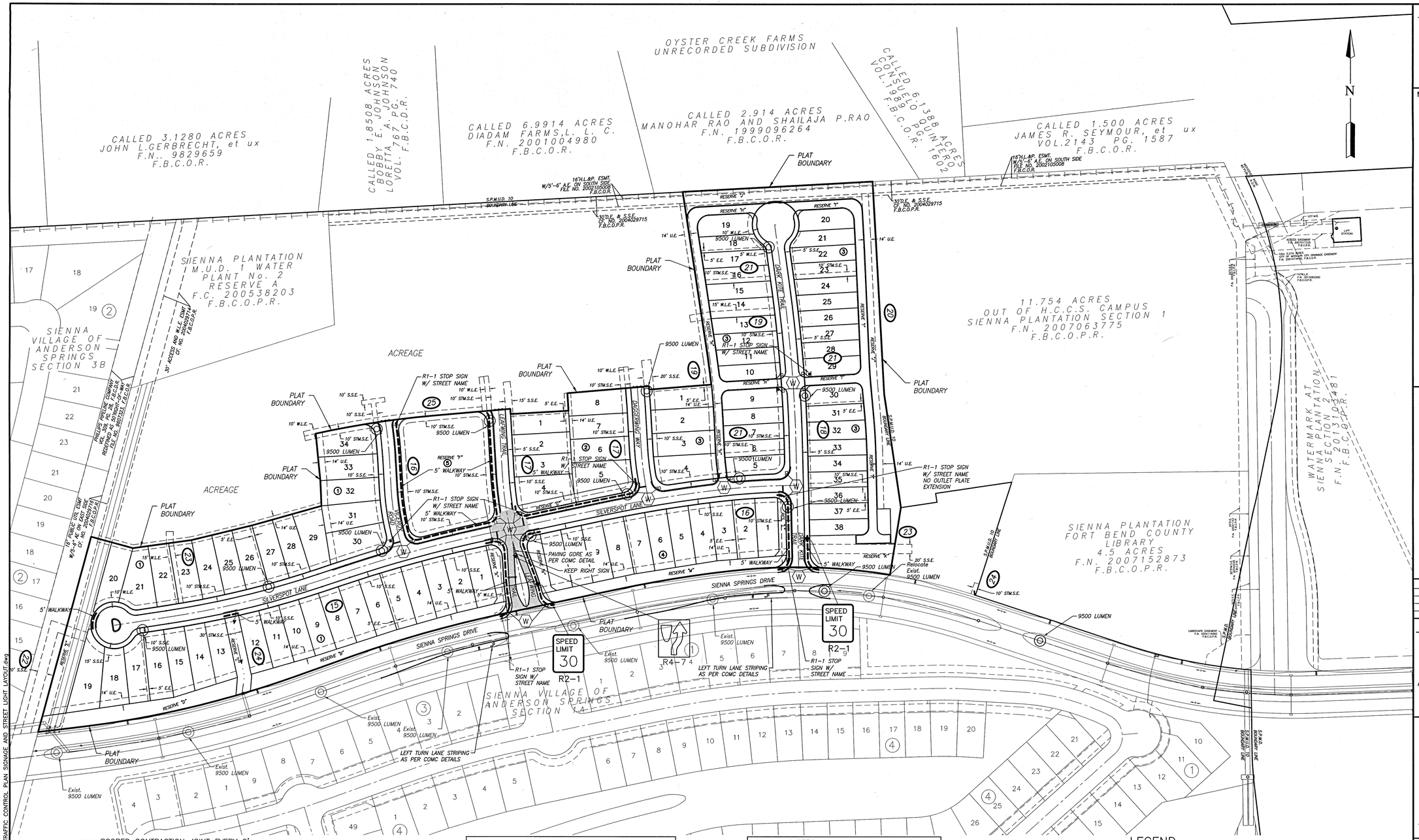
SCALE: 1" = 100'

SHEET NO. 13 OF 54

STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED
PROFESSIONAL ENGINEER
7-5-17

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194–1127A & 1470–1127A

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BENCHMARK:

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CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____ DEVELOPMENT COORDINATOR

DATE: 7/12/17

missouri CITY TEXAS

DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

TRAFFIC CONTROL PLAN SIGNAGE AND STREET LIGHT LAYOUT

LJA Engineering, Inc.
1904 W. Grand Parkway North, Suite 100, Katy, Texas 77449
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

LJA PROJECT NO.: 1194-1127A & 1470-1127A

DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

SCALE: 1" = 100'

STATE OF TEXAS OMAR NOE ESCOBAR, JR. 107281 LICENSED PROFESSIONAL ENGINEER 7.5.17

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A & 1470-1127A

Date\Time : Thu 06 Jul 2017 - 10:21am USER : dnonel
Path\Name : I:\Projdsk1\1194\1194-127A\1194-127A(ACAD)\Sheet Files\14 TRAFFIC CONTROL PLAN SIGNAGE AND STREET LIGHT LAYOUT.dwg

P.I. ℄ STA. 0+16.43 ~ SILVERSPOT LANE
= P.I. ℄ STA. 0+36.48 ~ OFFSITE SANITARY WEST
P.I. ℄ STA. 1+50.00 (0.04' RT.) ~ SILVERSPOT LANE
= CENTER OF CUL-DE-SAC

P.I. ℄ STA. 2+96.36 ~ SILVERSPOT LANE
= P.I. ℄ STA. 0+54.37 ~ WATER LINE TIE IN WEST

P.I. ℄ STA. 3+99.17 ~ SILVERSPOT LANE
= P.I. ℄ STA. 0+75.00 ~ OFFSITE STORM A

P.I. ℄ STA. 7+89.00 ~ SILVERSPOT LANE
= P.I. ℄ STA. 0+50.00 ~ VICEROY ROAD

P.I. ℄ STA. 10+21.84 ~ SILVERSPOT LANE
= P.I. ℄ STA. 2+75.00 ~ LEAFWING TRAIL

STA. 1+70.27 (56.43' LT.)
102'~ 6" SAN. SWR. @ 0.70%
0'-8' CUT CLASS "A-A BEDDING"
END WITH SAN LEAD DOUBLE & RISER
INCLUDES DROP STRUCTURE AS
REQUIRED ℄ = 46.06

STA. 2+46.98 (34.99' LT.)
75'~ 6" SAN. SWR. @ 0.70%
0'-8' CUT CLASS "A-A BEDDING"
END WITH SAN LEAD RIGHT & RISER
INCLUDES DROP STRUCTURE AS
REQUIRED ℄ = 54.90

STA. 3+47.36 (35.00' LT.)
57'~ 6" SAN. SWR. @ 0.70%
0'-8' CUT CLASS "A-A BEDDING"
END WITH SAN LEAD DOUBLE & RISER
INCLUDES DROP STRUCTURE AS
REQUIRED ℄ = 46.79

STA. 4+43.61 (35.00' LT.)
60'~ 6" SAN. SWR. @ 0.70%
0'-8' CUT CLASS "A-A BEDDING"
END WITH SAN LEAD DOUBLE & RISER
INCLUDES DROP STRUCTURE AS
REQUIRED ℄ = 47.25

STA. 5+39.87 (35.00' LT.)
58'~ 6" SAN. SWR. @ 0.70%
0'-8' CUT CLASS "A-A BEDDING"
END WITH SAN LEAD DOUBLE & RISER
INCLUDES DROP STRUCTURE AS
REQUIRED ℄ = 48.27

STA. 6+35.71 (35.00' LT.)
59'~ 6" SAN. SWR. @ 0.70%
0'-8' CUT CLASS "A-A BEDDING"
END WITH SAN LEAD LEFT & RISER
INCLUDES DROP STRUCTURE AS
REQUIRED ℄ = 48.65

10' CURB INLET #122
STA. 2+46.99 (13.99' LT.)
T.C. = 60.24
℄ (S) 36" = 54.04
℄ (N) 48" = 53.04

10' CURB INLET #120
STA. 4+01.72 (14.00' LT.)
T.C. = 60.12
℄ (SE) 36" = 53.92
℄ (N) 48" = 53.92

STA. 4+91.75 (17.00' LT.)
1 - FLUSHING VALVE UNIT
INCLUDES 6" GATE VALVE
AND CLOW F-1224 OR APPROVED
EQUAL LINE SIZE BY 6" TEE
(SEE COMC DETAIL MC-11-15)

℄ CURVE DATA
STA.2+64.32 TO
STA.6+01.66
Δ=9°39'51"
R=2000.00'
L=337.34'
T=169.07

℄ CURVE DATA
STA.6+64.30 TO
STA.9+64.23
Δ=6°19'54"
R=2714.00'
L=299.93'
T=150.12

STA. 9+50.42 (17.00' LT.)
1 - FLUSHING VALVE UNIT
INCLUDES 6" GATE VALVE
AND CLOW F-1224 OR APPROVED
EQUAL LINE SIZE BY 6" TEE
(SEE COMC DETAIL MC-11-15)

TYPE "H-2" INLET #109
STA. 9+64.83 (14.00' LT.)
T.C. = 60.62
℄ (S) 24" = 55.42
℄ (N) 24" = 55.42

TYPE "H-2" INLET #107
STA. 10+66.79 (14.00' LT.)
T.C. = 60.66
℄ (S) 24" = 55.46
℄ (N) 24" = 55.46

BEGIN BASELINE
STA. 0+00.00
N=633845.40
E=3098627.31

5 - 6" X 45° BEND

1 - 8" x 8" TEE
2 - 8" GATE VALVE & BOX
1 - 8" X 6" REDUCER

WATER LINE TIE IN WEST
SEE SHEET 23

1 - 8" x 6" TEE
2 - 8" GATE VALVE & BOX

1 - 8" x 12" CROSS
2 - 8" GATE VALVE & BOX

VICEROY ROAD
SEE SHEET 16

RESERVE "F"

LEAFWING TRAIL
SEE SHEET 17

OFFSITE SANITARY WEST
SEE SHEET 21

OFFSITE STORM A
SEE SHEET 24

MATCH LINE STA. 12+00
(SEE SHEET NO. 16)
SILVERSPOT LANE

PROP. OVERFLOW SWALE
190' LF @ 0.1%

TYPICAL OVERFLOW SWALE
N.T.S.

NOTE:
PROPOSED OVERFLOW SWALE SHALL
NOT BE FILLED OR ALTERED IN ANY
WAY THAT WOULD BLOCK THE
OVERLAND FLOW OF DRAINAGE.

STA. 1+20.34 (31.86' RT.)
1 - FLUSHING VALVE UNIT
INCLUDES 6" GATE VALVE
AND LINE SIZE BY 6" TEE
(SEE COMC DETAIL MC-11-15)

10' CURB INLET #121
STA. 2+52.48 (14.00' RT.)
T.C. = 60.24
℄ (N) 36" = 54.24

10' CURB INLET #119
STA. 4+11.60 (14.00' RT.)
T.C. = 60.12
℄ (NW) 36" = 54.12

TYPE "H-2" INLET #118
STA. 7+80.32 (14.00' RT.)
T.C. = 60.50
℄ (NE) 24" = 55.50

TYPE "H-2" INLET #108
STA. 9+64.83 (14.00' RT.)
T.C. = 60.62
℄ (N) 24" = 55.62

TYPE "H-2" INLET #106
STA. 10+66.79 (14.00' RT.)
T.C. = 60.66
℄ (N) 24" = 55.66

STA. 1+19.23 (56.88' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 2+07.95 (40.02' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 2+96.69 (35.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 3+84.49 (35.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD RIGHT
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 4+57.88 (35.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 5+45.68 (35.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 6+34.28 (35.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 7+27.34 (35.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 8+21.69 (35.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 9+16.03 (35.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 11+27.80 (35.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

Curve Table

CURVE #	START	END	DELTA	RADIUS	CHORD BEARING	ARC LENGTH	CHORD DISTANCE
C1	N=633880.56 E=3098774.33	N=633877.12 E=3098771.67	093.02	3.00	S37° 45' 35.87"W	4.87	4.35
C2	N=633855.88 E=3098778.13	N=633880.56 E=3098774.33	173.97	12.50	N08° 44' 54.66"W	37.95	24.97
C3	N=633858.36 E=3098774.55	N=633855.88 E=3098778.13	093.02	3.00	S55° 15' 25.19"E	4.87	4.35

SILVERSPOT LANE (50' R.O.W.)

ALL WATERLINE DEFLECTIONS ARE TO BE ONE-HALF OF THE MANUFACTURER'S RECOMMENDED DEFLECTION AS PER MISSOURI CITY STANDARDS.

155' ~ 8" SAN. SWR. @ 0.44%
50' ~ 8" SAN. SWR. @ 0.44%
257' ~ 8" SAN. SWR. @ 0.44%
844' ~ 12' ~ 16' CUT CLASS "A" BEDDING ASTM D-2241, SDR 26 (PR 160)
312' ~ 8" SAN. SWR. @ 0.44%
285' ~ 8" SAN. SWR. @ 0.44%
60' ~ 12' ~ 16' CUT CLASS "A-A" BEDDING ASTM D-2241, SDR 26 (PR 160)
297' ~ 8" SAN. SWR. @ 0.44%
297' ~ 12' ~ 16' CUT CLASS "A" BEDDING ASTM D-2241, SDR 26 (PR 160)
155' ~ 16' ~ 20' CUT CLASS "A" BEDDING ASTM D-2241, SDR 26 (PR 160)

LEGEND

6" PAVEMENT W/ 4"x12" CURB
6" PAVEMENT W/ 6" CURB
7" PAVEMENT W/ 4"x12" CURB
7" PAVEMENT W/ 6" CURB

LEGEND

CENTER JOINTS OF SAN. SWR. AND W.L. WITH A MINIMUM PRESSURE RATING OF 150 P.S.I. AND A MINIMUM 9' FROM THE ℄ OF THE SAN. SWR.

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNOI RD. SURVEY MARKER NO. PCM-003 ELEVATION = 66.07 2001 ADJUSTMENT

NOTES:

1. ALL STEEL WATERLINES AND COATINGS SHALL BE IN CONFORMANCE WITH CITY OF MISSOURI CITY INFRASTRUCTURE STANDARDS AND/OR LATEST TCEQ REVISIONS FOR AWWAC200, AWWAC203, AND AWWAC210. MINIMUM WALL THICKNESS SHALL CONFORM TO THE THICKNESS SHOWN ON THE CITY OF MISSOURI CITY CONSTRUCTION DETAILS.(WATERLINE CROSSING DETAILS MC-12-15)
2. ALL RETURNS SHALL HAVE 25' RADIUS AT BACK OF CURB UNLESS OTHERWISE NOTED.
3. ALL PAVEMENT BUTTONS, ESPLANADE, PAINT AND MARKINGS SHALL BE AS PER THE CITY OF MISSOURI CITY STANDARDS. (SEE PAVEMENT MARKINGS DETAIL SHEET MC-24-15)
4. ALL STORM SEWER BEDDING SHALL BE AS PER THE CITY OF MISSOURI CITY CONSTRUCTION DETAILS (SEE STORM SEWER BEDDING & BACKFILL DETAIL SHEET MC-16-15)
5. ALL WATERLINE, SANITARY SEWER, AND FORCE MAIN BEDDING SHALL BE AS PER THE CITY OF MISSOURI CITY CONSTRUCTION DETAILS. (SEE WATERLINE, SANITARY SEWER, AND FORCE MAIN BEDDING DETAILS MC-15-15)
6. ALL 6" SANITARY SEWER SERVICE LEADS FROM MAIN LINES DEEPER THAN 6' SHALL BE INSTALLED AT REQUIRED GRADE ENDING WITH RISER SECTION (SEE MISCELLANEOUS DETAILS SHEET).
7. ALL 6" SANITARY SEWER SERVICE LEADS FROM MANHOLES DEEPER THAN 6' SHALL END WITH RISER SECTION (SEE MISCELLANEOUS DETAILS SHEET)
8. ALL FILL UNDER AND WITHIN ONE FOOT OF PAVEMENT SHALL BE ENGINEERED FILL.
9. ALL SANITARY MANHOLES WITH FLOWLINES GREATER THAN EIGHT FEET IN DEPTH SHALL HAVE ECCENTRIC CAST TOPS AS PER THE CITY OF MISSOURI CITY STANDARDS. (SEE SANITARY SEWER CONSTRUCTION DETAILS MC-10-15)
10. ALL SANITARY SEWER DROPS SHALL BE CONSTRUCTED AS PER THE CITY OF MISSOURI CITY STANDARDS. (SEE SANITARY SEWER CONSTRUCTION DETAILS MC-10-15)
11. ALL STORM SEWER SHALL BE RCP UNLESS OTHERWISE NOTED.
12. ALL TOP OF CURB ELEVATIONS SHOWN ARE FOR 6" CURB UNLESS OTHERWISE NOTED.

PAVE RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

WS&D RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED:_____
DEVELOPMENT COORDINATOR

DATE: 7/12/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

SILVERSPOT LANE STA. 0+00 TO 12+00

LJA Engineering, Inc.
1904 W. Grand Parkway North
Suite 100
Katy, Texas 77449
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

LJA PROJECT NO.: 1194-1127A & 1470-1127A

DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

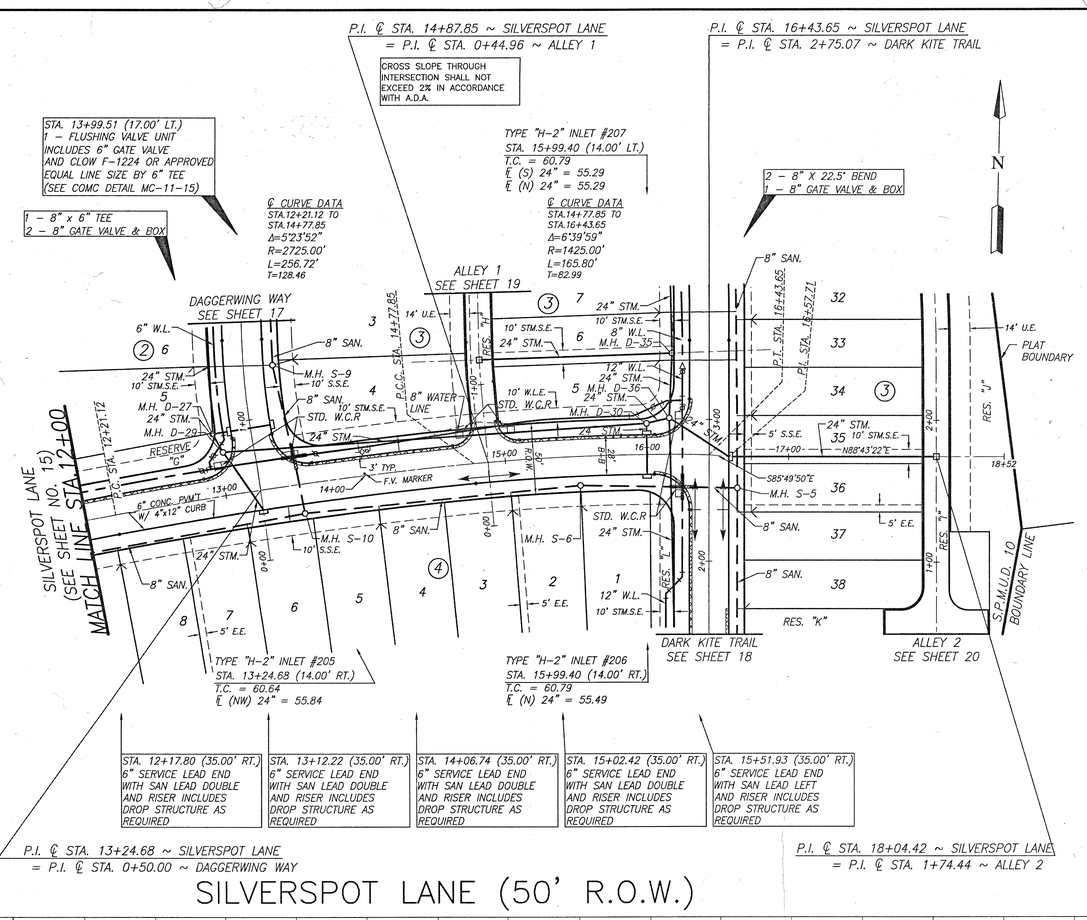
SCALE: 1" = 50' HOR.
1" = 5' VERT.

SHEET NO. 15 OF 54

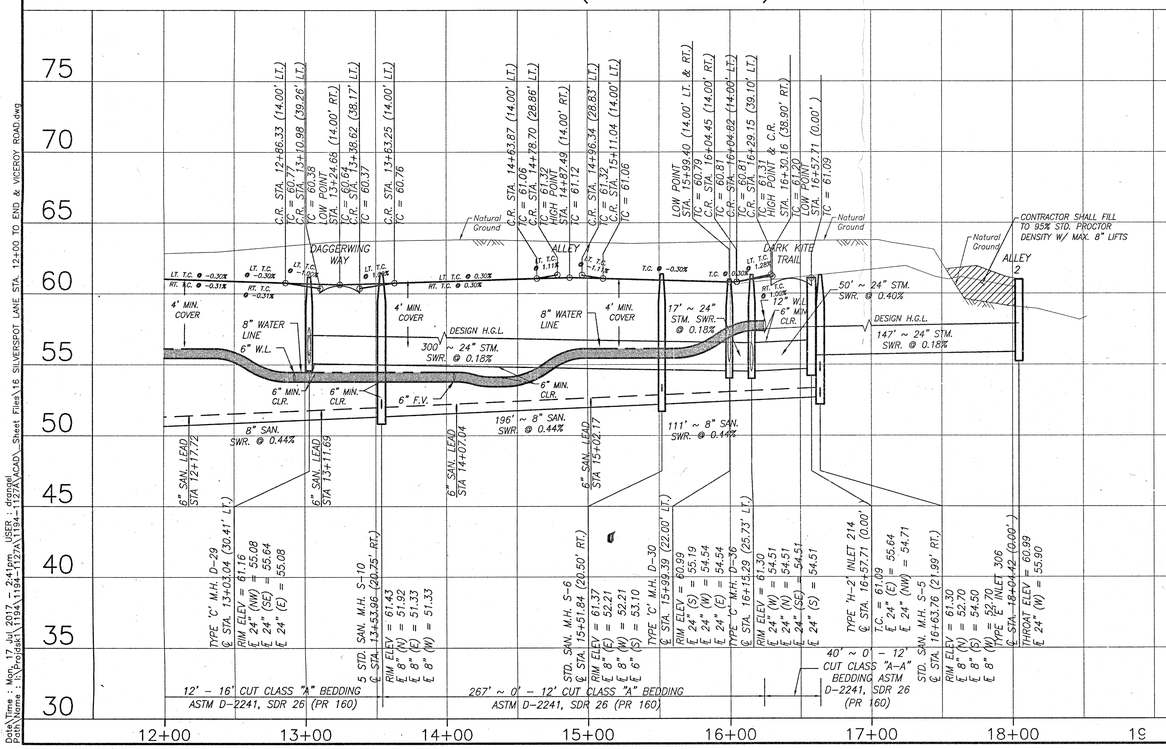
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER
7.5.17

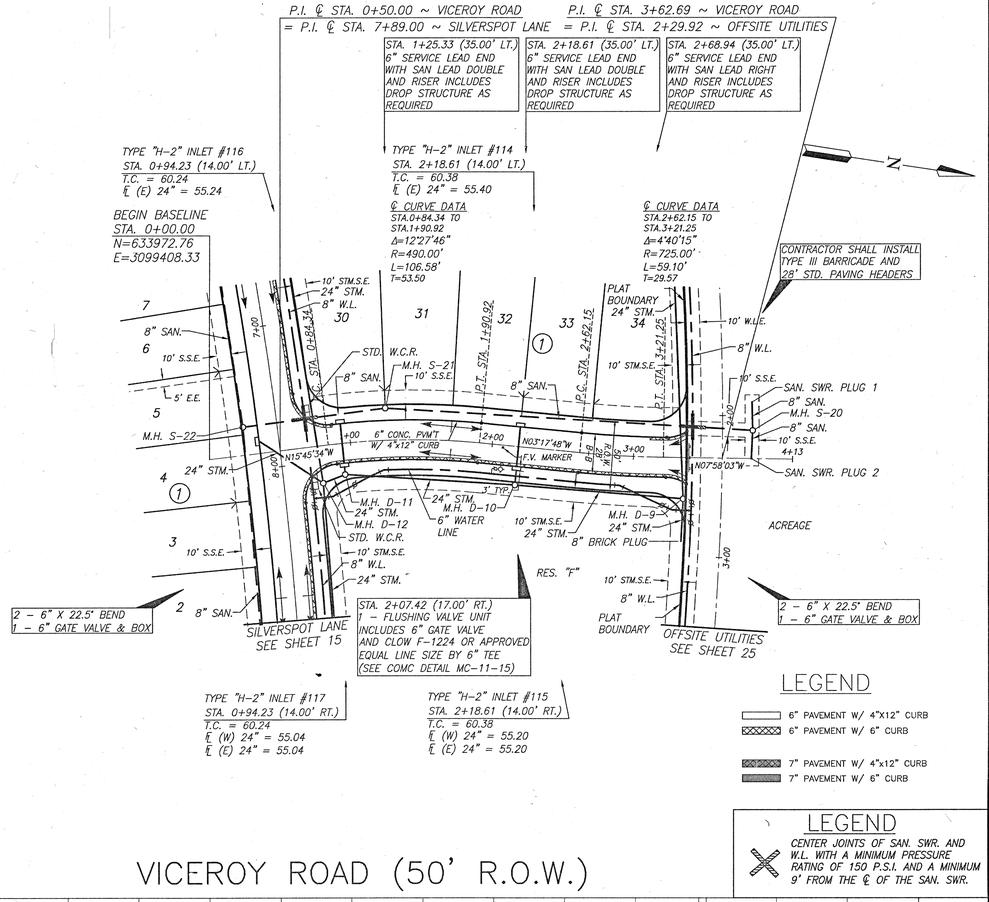
SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A & 1470-1127A

Date\Time : Thu, 06 Jul 2017 - 10:22am USER : dronpel
Path\Name : I:\Projdesk1\1194\1194-1127A\1194-1127A(ACAD)\Sheet Files\15 SILVERSPOT LANE STA 0+00 TO 12+00.dwg

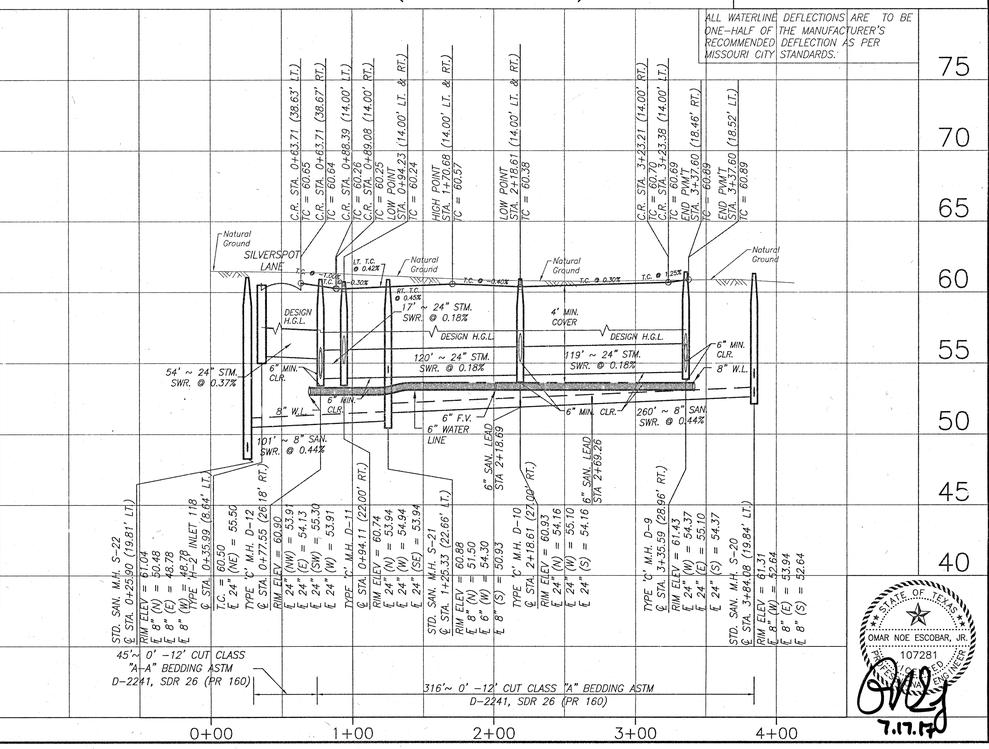


SILVERSPOT LANE (50' R.O.W.)





VICEROY ROAD (50' R.O.W.)



LEGEND

- 6" PAVEMENT W/ 4"X12" CURB
- 6" PAVEMENT W/ 6" CURB
- 7" PAVEMENT W/ 4"x12" CURB
- 7" PAVEMENT W/ 6" CURB

LEGEND

CENTER JOINTS OF SAN. SWR. AND W.L. WITH A MINIMUM PRESSURE RATING OF 150 P.S.I. AND A MINIMUM 9' FROM THE ℄ OF THE SAN. SWR.

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL–FRESNOI RD. SURVEY MARKER NO. PCM–003 ELEVATION = 66.07 2001 ADJUSTMENT

NOTES:

1. ALL STEEL WATERLINES AND COATINGS SHALL BE IN CONFORMANCE WITH CITY OF MISSOURI CITY INFRASTRUCTURE STANDARDS AND/OR LATEST TCEQ REVISIONS FOR AWWAC200, AWWAC203, AND AWWAC210. MINIMUM WALL THICKNESS SHALL CONFORM TO THE THICKNESS SHOWN ON THE CITY OF MISSOURI CITY CONSTRUCTION DETAILS.(WATERLINE CROSSING DETAILS MC–12–15)
2. ALL RETURNS SHALL HAVE 25' RADIUS AT BACK OF CURB UNLESS OTHERWISE NOTED.
3. ALL PAVEMENT BUTTONS, ESPLANADE, PAINT AND MARKINGS SHALL BE AS PER THE CITY OF MISSOURI CITY STANDARDS. (SEE PAVEMENT MARKINGS DETAIL SHEET MC–24–15)
4. ALL STORM SEWER BEDDING SHALL BE AS PER THE CITY OF MISSOURI CITY CONSTRUCTION DETAILS (SEE STORM SEWER BEDDING & BACKFILL DETAIL SHEET MC–16–15)
5. ALL WATERLINE, SANITARY SEWER, AND FORCE MAIN BEDDING SHALL BE AS PER THE CITY OF MISSOURI CITY CONSTRUCTION DETAILS. (SEE WATERLINE, SANITARY SEWER, AND FORCE MAIN BEDDING DETAILS MC–15–15)
6. ALL 6" SANITARY SEWER SERVICE LEADS FROM MAIN LINES DEEPER THAN 6' SHALL BE INSTALLED AT REQUIRED GRADE ENDING WITH RISER SECTION (SEE MISCELLANEOUS DETAILS SHEET).
7. ALL 6" SANITARY SEWER SERVICE LEADS FROM MANHOLES DEEPER THAN 6' SHALL END WITH RISER SECTION (SEE MISCELLANEOUS DETAILS SHEET)
8. ALL FILL UNDER AND WITHIN ONE FOOT OF PAVEMENT SHALL BE ENGINEERED FILL.
9. ALL SANITARY MANHOLES WITH FLOWLINES GREATER THAN EIGHT FEET IN DEPTH SHALL HAVE ECCENTRIC CAST TOPS AS PER THE CITY OF MISSOURI CITY STANDARDS. (SEE SANITARY SEWER CONSTRUCTION DETAILS MC–10–15)
10. ALL SANITARY SEWER DROPS SHALL BE CONSTRUCTED AS PER THE CITY OF MISSOURI CITY STANDARDS. (SEE SANITARY SEWER CONSTRUCTION DETAILS MC–10–15)
11. ALL STORM SEWER SHALL BE RCP UNLESS OTHERWISE NOTED.
12. ALL TOP OF CURB ELEVATIONS SHOWN ARE FOR 6" CURB UNLESS OTHERWISE NOTED.

PAVE RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____

WS&D RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____ DEVELOPMENT COORDINATOR

DATE: 7/18/17

missouri CITY TEXAS

DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

SILVERSPOT LANE STA. 12+00 TO END & VICEROY ROAD

LJA Engineering, Inc.
1904 W. Grand Parkway North
Suite 100
Katy, Texas 77449
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

LJA PROJECT NO.: 1194–1127A & 1470–1127A

DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

SCALE: 1" = 50' HOR. 1" = 5' VERT.

STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER — 7.17.17

SHEET NO. 16 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194–1127A & 1470–1127A

Date/Time : Mon, 17 Jul 2017, 2:41pm, USER : dnguyen
Path/Name : N:\Projects\1194A\1194-1127A\1194-1127A\ACAD\ Sheet Files\16 SILVERSPOT LANE STA. 12+00 TO END & VICEROY ROAD.dwg

Line Table		
Line #	Length	Direction
L1	50.408	S03° 18' 32.02"E
L2	50.408	N20° 48' 40.65"W

BEGIN BASELINE
STA. 0+00.00
N=633806.11
E=3099678.61

Existing Sienna Springs Drive

1 – REMOVE FV
1 – WET CONNECT
1 – REMOVE 16" GATE VALVE

4 – 12" X 45° BEND
2 – 12" GATE VALVE & BOX

1 – 16" x 12" TEE
1 – 12" X 22.5° BEND
1 – 12" X 11.25° BEND
1 – 12" GATE VALVE & BOX
2 – 16" GATE VALVE & BOX

CROSS SLOPE THROUGH INTERSECTION SHALL NOT EXCEED 2% IN ACCORDANCE WITH A.D.A.

CONTRACTOR SHALL SAWCUT APROX. 116' LF OF EXIST. PAVEMENT TO FULL DEPTH, REMOVE & REPLACE EXIST. CONCRETE PAVEMENT AND CURB & EXPOSE, CLEAN AND TIE EXIST. REBAR INTO PROPOSED PAVEMENT

STA. 0+92.99 (65.66' LT.)
1 – FLUSHING VALVE UNIT INCLUDES 6" GATE VALVE AND LINE SIZE BY 6" TEE
(SEE COMC DETAIL MC-11-15)

P.I. ℄ STA. 2+75.00 ~ LEAFWING TRAIL
= P.I. ℄ STA. 10+21.84 ~ SILVERSPOT LANE

TYPE "H-2" INLET #105
STA. 4+29.80 (14.00' LT.)
T.C. = 60.70
℄ (E) 24" = 55.50
℄ (W) 24" = 55.50

℄ CURVE DATA
STA.2+75.40 TO STA.3+97.77
Δ=8°45'48"
R=800.00'
L=122.36'
T=61.30

STA. 4+87.20 (17.00' LT.)
1 – FLUSHING VALVE UNIT INCLUDES 6" GATE VALVE AND CLOW F-1224 OR APPROVED EQUAL LINE SIZE BY 6" TEE
(SEE COMC DETAIL MC-11-15)

STA 5+95.95 (19.01' LT.)
1 – 12" PLUG & CLAMP
1 – 2" BLOW-OFF VALVE & BOX ASSEMBLY

1 – 12" x 8" TEE
2 – 12" GATE VALVE & BOX

℄ CURVE DATA
STA.5+19.84 TO STA.6+50.45
Δ=6°14'10"
R=1200.00'
L=130.61'
T=65.37

RESERVE "F"

ACREAGE

PLAT BOUNDARY

8" BRICK PLUG

SILVERSPOT LANE
SEE SHEET 15

TYPE "H-2" INLET #104
STA. 4+29.82 (14.00' RT.)
T.C. = 60.70
℄ (W) 24" = 55.70

CONTRACTOR SHALL INSTALL TYPE III BARRICADE AND 28' STD. PAVING HEADERS

STA. 3+84.25 (35.00' RT.)
6" SERVICE LEAD END WITH SAN LEAD DOUBLE AND RISER INCLUDES DROP STRUCTURE AS REQUIRED

STA. 4+74.84 (30.00' RT.)
6" SERVICE LEAD END WITH SAN LEAD DOUBLE AND RISER INCLUDES DROP STRUCTURE AS REQUIRED

STA. 5+63.23 (25.00' RT.)
6" SERVICE LEAD END WITH SAN LEAD DOUBLE AND RISER INCLUDES DROP STRUCTURE AS REQUIRED

P.I. ℄ STA. 5+55.18 ~ LEAFWING TRAIL
= P.I. ℄ STA. 4+74.11 ~ OFFSITE UTILITIES

P.I. ℄ STA. 0+50.00 ~ DAGGERWING WAY
= P.I. ℄ STA. 13+24.68 ~ SILVERSPOT LANE

STA. 1+40.19 (35.00' LT.)
56' ~ 6" SAN. SWR. @ 0.70%
0'–8' CUT CLASS "A–A BEDDING"
END WITH SAN LEAD LEFT & RISER INCLUDES DROP STRUCTURE AS REQUIRED ℄ = 54.50

STA. 1+89.01 (35.00' LT.)
55'~ 6" SAN. SWR. @ 0.70%
0'–8' CUT CLASS "A–A BEDDING"
END WITH SAN LEAD DOUBLE & RISER INCLUDES DROP STRUCTURE AS REQUIRED ℄ = 53.07

STA. 2+92.73 (35.00' LT.)
55'~ 6" SAN. SWR. @ 0.70%
0'–8' CUT CLASS "A–A BEDDING"
END WITH SAN LEAD DOUBLE & RISER INCLUDES DROP STRUCTURE AS REQUIRED ℄ = 53.54

TYPE "H-2" INLET #204
STA. 0+94.23 (14.00' LT.)
T.C. = 60.36
℄ (E) 24" = 55.34
℄ (W) 24" = 55.34

℄ CURVE DATA
STA.0+99.54 TO STA.1+57.01
Δ=6°35'10"
R=500.00'
L=57.47'
T=28.77

℄ CURVE DATA
STA.2+50.63 TO STA.4+20.00
Δ=6°28'11"
R=1500.00'
L=169.37'
T=84.78

STA. 2+39.64 (17.00' LT.)
1 – FLUSHING VALVE UNIT INCLUDES 6" GATE VALVE AND CLOW F-1224 OR APPROVED EQUAL LINE SIZE BY 6" TEE
(SEE COMC DETAIL MC-11-15)

STA 3+08.51 (20.19' LT..)
1 – 6" PLUG & CLAMP
1 – 2" BLOW-OFF VALVE & BOX ASSEMBLY
1 – 6" GATE VALVE & BOX

2 – 6" X 45° BEND
1 – 6" GATE VALVE & BOX

BEGIN BASELINE
STA. 0+00.00
N=634087.12
E=3099926.27

SILVERSPOT LANE
SEE SHEET 16

TYPE "H-2" INLET #203
STA. 0+94.52 (14.00' RT.)
T.C. = 60.36
℄ (W) 24" = 55.54

CONTRACTOR SHALL INSTALL TYPE III BARRICADE AND 28' STD. PAVING HEADERS

STA. 1+40.65 (35.00' RT.)
6" SERVICE LEAD END WITH SAN LEAD DOUBLE AND RISER INCLUDES DROP STRUCTURE AS REQUIRED

STA. 2+41.80 (35.00' RT.)
6" SERVICE LEAD END WITH SAN LEAD DOUBLE AND RISER INCLUDES DROP STRUCTURE AS REQUIRED

Curve Table							
CURVE #	START	END	DELTA	RADIUS	CHORD BEARING	ARC LENGTH	CHORD DISTANCE
C1	N=633911.15 E=3099650.55	N=633913.46 E=3099661.29	132.71	6.00	N77° 52' 40.34"E	13.90	10.99
C2	N=633955.38 E=3099633.96	N=633911.15 E=3099650.55	030.43	90.00	S20° 33' 08.77"E	47.79	47.23
C3	N=633968.63 E=3099632.96	N=633955.38 E=3099633.96	002.03	375.00	S04° 19' 26.37"E	13.29	13.29
C4	N=634020.19 E=3099635.85	N=634018.95 E=3099630.05	162.50	3.00	S77° 56' 23.66"W	8.51	5.93
C5	N=633960.36 E=3099658.33	N=633973.07 E=3099653.76	002.06	375.00	N19° 46' 45.59"W	13.51	13.51
C6	N=633913.46 E=3099661.29	N=633960.36 E=3099658.33	030.27	90.00	N03° 36' 46.52"W	47.55	47.00

LEAFWING TRAIL (50' R.O.W.)

DAGGERWING WAY (50' R.O.W.)

!!! CAUTION !!!
EXISTING UTILITIES TO BE FIELD VERIFIED

ALL WATERLINE DEFLECTIONS ARE TO BE ONE–HALF OF THE MANUFACTURER'S RECOMMENDED DEFLECTION AS PER MISSOURI CITY STANDARDS.

LEGEND
- 6" PAVEMENT W/ 4"X12" CURB
- 6" PAVEMENT W/ 6" CURB
- 7" PAVEMENT W/ 4"x12" CURB
- 7" PAVEMENT W/ 6" CURB
- SAW CUT

LEGEND
CENTER JOINTS OF SAN. SWR. AND W.L. WITH A MINIMUM PRESSURE RATING OF 150 P.S.I. AND A MINIMUM 9' FROM THE ℄ OF THE SAN. SWR.

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL–FRESNOI RD. SURVEY MARKER NO. PCM–003 ELEVATION = 66.07 2001 ADJUSTMENT

NOTES:

1. ALL STEEL WATERLINES AND COATINGS SHALL BE IN CONFORMANCE WITH CITY OF MISSOURI CITY INFRASTRUCTURE STANDARDS AND/OR LATEST TCEQ REVISIONS FOR AWWAC200, AWWAC203, AND AWWAC210. MINIMUM WALL THICKNESS SHALL CONFORM TO THE THICKNESS SHOWN ON THE CITY OF MISSOURI CITY CONSTRUCTION DETAILS.(WATERLINE CROSSING DETAILS MC–12–15)
2. ALL RETURNS SHALL HAVE 25' RADIUS AT BACK OF CURB UNLESS OTHERWISE NOTED.
3. ALL PAVEMENT BUTTONS, ESPLANADE, PAINT AND MARKINGS SHALL BE AS PER THE CITY OF MISSOURI CITY STANDARDS. (SEE PAVEMENT MARKINGS DETAIL SHEET MC–24–15)
4. ALL STORM SEWER BEDDING SHALL BE AS PER THE CITY OF MISSOURI CITY CONSTRUCTION DETAILS (SEE STORM SEWER BEDDING & BACKFILL DETAIL SHEET MC–16–15)
5. ALL WATERLINE, SANITARY SEWER, AND FORCE MAIN BEDDING SHALL BE AS PER THE CITY OF MISSOURI CITY CONSTRUCTION DETAILS. (SEE WATERLINE, SANITARY SEWER, AND FORCE MAIN BEDDING DETAILS MC–15–15)
6. ALL 6" SANITARY SEWER SERVICE LEADS FROM MAIN LINES DEEPER THAN 6' SHALL BE INSTALLED AT REQUIRED GRADE ENDING WITH RISER SECTION (SEE MISCELLANEOUS DETAILS SHEET).
7. ALL 6" SANITARY SEWER SERVICE LEADS FROM MANHOLES DEEPER THAN 6' SHALL END WITH RISER SECTION (SEE MISCELLANEOUS DETAILS SHEET)
8. ALL FILL UNDER AND WITHIN ONE FOOT OF PAVEMENT SHALL BE ENGINEERED FILL.
9. ALL SANITARY MANHOLES WITH FLOWLINES GREATER THAN EIGHT FEET IN DEPTH SHALL HAVE ECCENTRIC CAST TOPS AS PER THE CITY OF MISSOURI CITY STANDARDS. (SEE SANITARY SEWER CONSTRUCTION DETAILS MC–10–15)
10. ALL SANITARY SEWER DROPS SHALL BE CONSTRUCTED AS PER THE CITY OF MISSOURI CITY STANDARDS. (SEE SANITARY SEWER CONSTRUCTION DETAILS MC–10–15)
11. ALL STORM SEWER SHALL BE RCP UNLESS OTHERWISE NOTED.
12. ALL TOP OF CURB ELEVATIONS SHOWN ARE FOR 6" CURB UNLESS OTHERWISE NOTED.

PAVE RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

WS&D RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____ DEVELOPMENT COORDINATOR

DATE: 7/18/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

LEAFWING TRAIL & DAGGERWING WAY

LJA Engineering, Inc.
1904 W. Grand Parkway North, Suite 100, Katy, Texas 77449
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

LJA PROJECT NO.: 1194–1127A & 1470–1127A

DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

SCALE: 1" = 50' HOR. 1" = 5' VERT.

SHEET NO. 17 OF 54

STATE OF TEXAS · OMER NOE ESCOBAR, JR. · 107281 · LICENSED PROFESSIONAL ENGINEER

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194–1127A & 1470–1127A

Date/Time = Mon, 17 Jul 2017 – 2:40pm, USER = droppel
Path/Name = K:\Projects\1194-1127A\1194-1127A\ACAD\Sheet Files\17 LEAFWING TRAIL & DAGGERWING WAY.dwg

P.I. ℄ STA. 1+39.30 ~ DARK KITE TRAIL
= P.I. ℄ STA. 0+39.33 ~ OFFSITE SANITARY EAST

CROSS SLOPE THROUGH INTERSECTION SHALL NOT EXCEED 2% IN ACCORDANCE WITH A.D.A.

STA. 3+41.66 (35.00' LT.)
54'~ 6" SAN. SWR. @ 0.70%
0'–8' CUT CLASS "A–A BEDDING"
END WITH SAN LEAD LEFT & RISER
INCLUDES DROP STRUCTURE AS
REQUIRED ℄ = 53.46

STA. 3+75.91 (35.00' LT.)
54'~ 6" SAN. SWR. @ 0.70%
0'–8' CUT CLASS "A–A BEDDING"
END WITH SAN LEAD DOUBLE & RISER
INCLUDES DROP STRUCTURE AS
REQUIRED ℄ = 53.69

P.I. ℄ STA. 2+75.07 ~ DARK KITE TRAIL
= P.I. ℄ STA. 16+43.65 ~ SILVERSPOT LANE

STA. 4+44.72 (35.00' LT.)
55'~ 6" SAN. SWR. @ 0.70%
0'–8' CUT CLASS "A–A BEDDING"
END WITH SAN LEAD DOUBLE & RISER
INCLUDES DROP STRUCTURE AS
REQUIRED ℄ = 54.04

P.I. ℄ STA. 4+95.71 ~ DARK KITE TRAIL
= P.I. ℄ STA. 2+12.11 ~ ALLEY ENTRANCE

STA. 5+40.85 (35.00' LT.)
56'~ 6" SAN. SWR. @ 0.70%
0'–8' CUT CLASS "A–A BEDDING"
END WITH SAN LEAD DOUBLE & RISER
INCLUDES DROP STRUCTURE AS
REQUIRED ℄ = 55.29

P.I. ℄ STA. 7+19.57 ~ DARK KITE TRAIL
= P.I. ℄ STA. 2+20.42 ~ STORM B INLETS NORTH

STA. 6+09.71 (35.00' LT.)
55'~ 6" SAN. SWR. @ 0.70%
0'–8' CUT CLASS "A–A BEDDING"
END WITH SAN LEAD DOUBLE & RISER
INCLUDES DROP STRUCTURE AS
REQUIRED ℄ = 55.61

P.I. ℄ STA. 8+34.41 (2.58' RT.) ~ DARK KITE TRAIL
= CENTER OF CUL–DE–SAC

STA. 6+83.71 (35.00' LT.)
55'~ 6" SAN. SWR. @ 0.70%
0'–8' CUT CLASS "A–A BEDDING"
END WITH SAN LEAD DOUBLE & RISER
INCLUDES DROP STRUCTURE AS
REQUIRED ℄ = 55.95

STA. 7+52.13 (35.03' LT.)
56''~ 6" SAN. SWR. @ 0.70%
0'–8' CUT CLASS "A–A BEDDING"
END WITH SAN LEAD DOUBLE & RISER
INCLUDES DROP STRUCTURE AS
REQUIRED ℄ = 56.23

STA. 8+22.03 (56.13' LT.)
85'~ 6" SAN. SWR. @ 0.70%
0'–8' CUT CLASS "A–A BEDDING"
END WITH SAN LEAD DOUBLE & RISER
INCLUDES DROP STRUCTURE AS
REQUIRED ℄ = 58.79

STA. 8+13.29 (53.48' RT.)
42'~ 6" SAN. SWR. @ 0.70%
0'–8' CUT CLASS "A–A BEDDING"
END WITH SAN LEAD DOUBLE & RISER
INCLUDES DROP STRUCTURE AS
REQUIRED ℄ = 58.49

STA. 0+93.40 (45.06' LT.)
1 – FLUSHING VALVE UNIT
INCLUDES 6" GATE VALVE
AND LINE SIZE BY 6" TEE
(SEE COMC DETAIL MC–11–15)

1 – 16" x 12" TEE
2 – 16" GATE VALVE & BOX

2 – 12" X 45" BEND
1 – 12" GATE VALVE & BOX

1 – 8" x 12" TEE
1 – 12" x 8" REDUCER
2 – 12" GATE VALVE & BOX

STA. 5+84.77 (17.00' LT.)
1 – FLUSHING VALVE UNIT
INCLUDES 6" GATE VALVE
AND CLOW F–1224 OR APPROVED
EQUAL LINE SIZE BY 6" TEE
(SEE COMC DETAIL MC–11–15)

1 – 8" x 8" TEE
2 – 8" GATE VALVE & BOX
1 – 8" x 6" REDUCER

STA. 8+60.48 (41.36' LT.)
1 – FLUSHING VALVE UNIT
INCLUDES 6" GATE VALVE
(SEE COMC DETAIL MC–11–04)

2 – 6" X 45" BEND

TYPE "H–2" INLET #213
STA. 4+66.87 (14.00' LT.)
T.C. = 62.47
℄ (E) 24" = 57.06
℄ (W) 24" = 57.06

TYPE "H–2" INLET #211
STA. 5+25.52 (14.00' LT.)
T.C. = 62.47
℄ (E) 24" = 57.05
℄ (W) 24" = 57.05

TYPE "H–2" INLET #209
STA. 7+20.63 (14.00' LT.)
T.C. = 63.86
℄ (E) 24" = 58.62
℄ (W) 24" = 58.62

TYPE "H–2" INLET #214
STA. 2+73.73 (14.00' RT.)
T.C. = 61.09
℄ (NW) 24" = 54.71
℄ (E) 24" = 55.64

TYPE "H–2" INLET #212
STA. 4+66.87 (14.00' RT.)
T.C. = 62.47
℄ (W) 24" = 57.26

TYPE "H–2" INLET #210
STA. 5+25.52 (14.00' RT.)
T.C. = 62.47
℄ (W) 24" = 57.25

TYPE "H–2" INLET #208
STA. 7+19.09 (14.00' RT.)
T.C. = 63.86
℄ (W) 24" = 58.82
℄ (E) 24" = 58.82

STORM B INLET SOUTH
SEE SHEET 21

WATER LINE TIE IN EAST
SEE SHEET 19

ALLEY 1
SEE SHEET 19

CONTRACTOR SHALL SAWCUT APROX. 86' LF. OF EXIST. PAVEMENT TO FULL DEPTH, REMOVE & REPLACE EXIST. CONCRETE PAVEMENT AND CURB & EXPOSE, CLEAN AND TIE EXIST. REBAR INTO PROPOSED PAVEMENT

1 – REMOVE FV
1 – WET CONNECT
1 – REMOVE 16" GATE VALVE

BEGIN BASELINE
STA. 0+00.00
N=633893.04
E=3100240.89

OFFSITE SANITARY EAST
SEE SHEET 23

SILVERSPOT LANE
SEE SHEET 16

ALLEY ENTRANCE
SEE SHEET 21

STORM B INLETS NORTH
SEE SHEET 21

ALLEY 2
SEE SHEET 20

OFFSITE SANITARY NORTH
SEE SHEET 22

S.P.M.U.D. 10 BOUNDARY LINE

PLAT BOUNDARY

30'D,E, & S.S.E.
CF. NO. 2004029715
F.B.C.O.P.R.

16'H.L.&P. ESMT.
W/5'–6' A.E. ON SOUTH SIDE
FILE NO. 2002105008
F.B.C.O.R.

℄ CURVE DATA
STA.3+55.97 TO
STA.7+01.41
Δ=6°35'50"
R=3000.00'
L=345.43'
T=172.91

STA. 1+66.74 (25.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD LEFT
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 2+34.75 (30.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 3+02.74 (30.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 3+70.54 (30.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 4+42.99 (30.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 5+44.13 (30.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 6+11.25 (30.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 6+78.96 (30.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

STA. 7+46.54 (30.00' RT.)
6" SERVICE LEAD END
WITH SAN LEAD DOUBLE
AND RISER INCLUDES
DROP STRUCTURE AS
REQUIRED

P.I. ℄ STA. 3+47.85 ~ DARK KITE TRAIL
= P.I. ℄ STA. 2+10.09 ~ STORM B INLET SOUTH

P.I. ℄ STA. 6+52.05 ~ DARK KITE TRAIL
= P.I. ℄ STA. 2+50.93 ~ WATER LINE TIE IN EAST

DARK KITE TRAIL (50' R.O.W.)

ALL WATERLINE DEFLECTIONS ARE TO BE ONE–HALF OF THE MANUFACTURER'S RECOMMENDED DEFLECTION AS PER MISSOURI CITY STANDARDS.

!!! CAUTION !!!
EXISTING UTILITIES
TO BE FIELD VERIFIED

60 LF AUGER BORE & JACK W/30" STEEL CASING

341'~ 0' – 12' CUT CLASS "A" BEDDING
ASTM D–2241, SDR 26 (PR 160)

40'~ 0' – 12' CUT CLASS "A–A" BEDDING ASTM D–2241, SDR 26 (PR 160)

270'~ 0' – 12' CUT CLASS "A" BEDDING
ASTM D–2241, SDR 26 (PR 160)

0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00

LEGEND

- 6" PAVEMENT W/ 4"X12" CURB
- 6" PAVEMENT W/ 6" CURB
- 7" PAVEMENT W/ 4"x12" CURB
- 7" PAVEMENT W/ 6" CURB
- SAWCUT

LEGEND

CENTER JOINTS OF SAN. SWR. AND W.L. WITH A MINIMUM PRESSURE RATING OF 150 P.S.I. AND A MINIMUM 9' FROM THE ℄ OF THE SAN. SWR.

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL–FRESNOI RD. SURVEY MARKER NO. PCM–003 ELEVATION = 66.07 2001 ADJUSTMENT

NOTES:

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11. ALL STORM SEWER SHALL BE RCP UNLESS OTHERWISE NOTED.
12. ALL TOP OF CURB ELEVATIONS SHOWN ARE FOR 6" CURB UNLESS OTHERWISE NOTED.

PAVE RECORD DRAWING

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CONTRACTOR:_____ DATE:_____

TITLE:_____

WS&D RECORD DRAWING

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CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED:_____ DEVELOPMENT COORDINATOR

DATE: 7/18/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

DARK KITE TRAIL

LJA Engineering, Inc.
1904 W. Grand Parkway North
Suite 100
Katy, Texas 77449
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

LJA PROJECT NO.: 1194–1127A & 1470–1127A

DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

SCALE: 1" = 50' HOR.
1" = 5' VERT.

SHEET NO. 18 OF 54

STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
REGISTERED PROFESSIONAL ENGINEER
7.17.17

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194–1127A & 1470–1127A

Date\Time : Mon, 17 Jul 2017 – 2:35pm USER : dgrogan
Path\Name : K:\Projdata\1194–1127A\1194–1127A\CAD_Sheet Files\18 DARK KITE TRAIL.dwg

14

P.I. ℄ STA. 0+44.96 ~ ALLEY 1
= P.I. ℄ STA. 14+87.85 ~ SILVERSPOT LANE

CROSS SLOPE THROUGH INTERSECTION SHALL NOT EXCEED 2% IN ACCORDANCE WITH A.D.A.

P.I. ℄ STA. 2+65.33 ~ ALLEY 1
= P.I. ℄ STA. 0+48.00 ~ ALLEY ENTRANCE

P.I. ℄ STA. 4+18.08 ~ ALLEY 1
= P.I. ℄ STA. 0+80.00 ~ WATER LINE TIE IN EAST

P.I. ℄ STA. 0+80.00 ~ WATER LINE TIE IN EAST
= P.I. ℄ STA. 4+18.08 ~ ALLEY 1

P.I. ℄ STA. 2+50.93 ~ WATER LINE TIE IN EAST
= P.I. ℄ STA. 6+51.41 ~ DARK KITE TRAIL

TYPE "A" INLET #305
STA. 1+17.59 (0.00')
T.P. = 61.47
℄ (E) 24" = 56.43

TYPE "A" INLET #304
STA. 2+65.33 (0.00' LT.)
T.P. = 62.70
℄ (E) 24" = 57.80

TYPE "A" INLET #302
STA. 4+90.01 (0.00' RT.)
T.P. = 64.50
℄ (E) 24" = 59.46

STA 0+50.00 (0.00')
1 – 8" PLUG & CLAMP
1 – 2" BLOW-OFF VALVE & BOX ASSEMBLY

1 – 8" GATE VALVE & BOX

℄ CURVE DATA
STA.0+97.80 TO STA.1+28.69
Δ=4°03'40"
R=450.00'
L=31.90'
T=15.95

℄ CURVE DATA
STA.2+00.73 TO STA.2+70.68
Δ=3°20'26"
R=1199.75'
L=69.95'
T=34.98

℄ CURVE DATA
STA.2+70.68 TO STA.3+26.34
Δ=2°39'28"
R=1200.00'
L=55.66'
T=27.84

℄ CURVE DATA
STA.0+77.83 TO STA.1+05.31
Δ=6°17'52"
R=250.00'
L=27.48'
T=13.75

℄ CURVE DATA
STA.2+13.58 TO STA.2+29.27
Δ=3°35'45"
R=250.00'
L=15.69'
T=7.85

BEGIN BASELINE
STA. 0+00.00
N=634114.88
E=3100084.40

BEGIN BASELINE
STA. 0+00.00
N=634517.06
E=3099962.41

SECTION ALLEY (TWO WAY)
(NOT TO SCALE)

PROPERTY LINE — 3' — 18' E–E — 20' SETBACK — REAR OF LOT
N.G. — 8" P/PT — 8" P/PT — N.G.
6" CONC. PVM'T.

℄ CURVE DATA
STA.6+15.50 TO STA.6+57.16
Δ=9°52'45"
R=25.00'
L=41.66'
T=27.51

SILVERSPOT LANE SEE SHEET 16
STORM B INLET SOUTH SEE SHEET 21
ALLEY ENTRANCE SEE SHEET 21
STORM B INLETS NORTH SEE SHEET 21
WATER LINE TIE IN EAST SEE THIS SHEET RIGHT
ALLEY 1 SEE THIS SHEET LEFT
DARK KITE TRAIL SEE SHEET 18

P.I. ℄ STA. 1+17.59 ~ ALLEY 1
= P.I. ℄ STA. 0+48.00 ~ STORM B INLET SOUTH

P.I. ℄ STA. 4+90.01 ~ ALLEY 1
= P.I. ℄ STA. 0+47.98 ~ STORM B INLETS NORTH

LEGEND

6" PAVEMENT W/ 4"X12" CURB
6" PAVEMENT W/ 6" CURB
7" PAVEMENT W/ 4"x12" CURB
7" PAVEMENT W/ 6" CURB

LEGEND

CENTER JOINTS OF SAN. SWR. AND W.L. WITH A MINIMUM PRESSURE RATING OF 150 P.S.I. AND A MINIMUM 9' FROM THE ℄ OF THE SAN. SWR.

ALL WATERLINE DEFLECTIONS ARE TO BE ONE–HALF OF THE MANUFACTURER'S RECOMMENDED DEFLECTION AS PER MISSOURI CITY STANDARDS.

ALLEY 1

WATER LINE TIE IN EAST

HIGH POINT STA. 0+00.97 (0.45' LT.) T.P. = 61.12
C.R. STA. 0+58.61 (23.52' RT.) T.C. = 61.06
C.R. STA. 0+58.96 (24.05' LT.) T.C. = 61.06
C.R. STA. 0+73.71 (8.87' RT.) T.C. = 61.30
C.R. STA. 0+73.66 (9.13' LT.) T.C. = 61.32
ON GRADE INLET STA. 1+17.59 (0.00') T.P. = 60.87
C.R. STA. 2+39.62 (9.00' RT.) T.P. = 62.81
HIGH POINT & C.R. STA. 2+45.49 (25.42' RT.) T.P. = 62.81
ON GRADE INLET STA. 2+65.33 (0.00' LT.) T.P. = 62.70
HIGH POINT & C.R. STA. 2+73.19 (24.13' RT.) T.P. = 63.34
C.R. STA. 2+88.65 (9.00' RT.) T.P. = 63.09
ON GRADE INLET STA. 4+90.01 (0.00') T.P. = 64.50
C.R. STA. 6+04.21 (9.00' RT.) T.P. = 63.59
C.R. STA. 6+23.13 (10.65' LT.) T.P. = 63.57
HIGH POINT STA. 6+35.88 (14.08' RT.) T.P. = 65.81
HIGH POINT STA. 6+45.20 (13.65' LT.) T.P. = 65.95
C.R. STA. 6+49.28 (10.45' LT.) T.P. = 65.75
C.R. STA. 6+68.18 (9.28' RT.) T.P. = 65.59
C.R. STA. 7+56.81 (9.22' RT.) T.P. = 64.79
C.R. STA. 7+70.39 (27.82' RT.) GRADE BREAK STA. 7+74.81 (8.79' LT.) T.P. = 64.49
C.R. STA. 7+86.69 (70.85' RT.) T.C. = 64.44
C.R. STA. 7+97.69 (8.80' LT.) T.C. = 64.76
C.R. STA. 7+97.39 (89.35' RT.) T.C. = 64.31
C.R. STA. 8+00.57 (9.08' LT.) T.C. = 64.75

STOCKPILE REMOVED BY OTHERS
Natural Ground
CONTRACTOR SHALL FILL TO 95% STD. PROCTOR DENSITY W/ MAX. 8" LIFTS
ALLEY ENTRANCE
RT. T.P. @ 2.00%
LT. T.P. @ 1.00%
RT. T.P. @ 1.07%
LT. T.P. @ 1.20%
T.P. @ 0.79%
T.P. @ 1.00%
T.P. @ -1.00%
T.P. @ -1.01%
RT. T.P. @ -1.05%
LT. T.P. @ -0.60%
LT. T.P. @ 0.30%
T.P. @ 1.11%
SILVERSPOT LANE
8" W.L.
24" STM. SWR.
8" SAN. SWR.
TYPE 'E' INLET 305
℄ STA. 1+17.59 (0.00')
THROAT ELEV = 60.87
℄ 24" (E) = 56.43
TYPE 'A' INLET 304
℄ STA. 2+65.33 (0.00')
THROAT ELEV = 62.70
℄ 24" (E) = 57.80
TYPE 'A' INLET 302
℄ STA. 4+90.01 (0.00')
THROAT ELEV = 64.50
℄ 24" (E) = 59.46

ALLEY 1
CONTRACTOR SHALL FILL TO 95% STD. PROCTOR DENSITY W/ MAX. 8" LIFTS
4' MIN. COVER
8" WATER LINE
24" STM. SWR.
6" MIN. CLR.
8" SAN. SWR.
STA 0+50.00 (0.00')
1 – 8" PLUG & CLAMP
1 – 2" BLOW–OFF VALVE & BOX ASSEMBLY
8" W.L.
DARK KITE TRAIL

0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 0+00 1+00 2+00 3+00 4+00
75 70 65 60 55 50 45 40 35 30

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL–FRESNOI RD. SURVEY MARKER NO. PCM–003 ELEVATION = 66.07 2001 ADJUSTMENT

NOTES:

1. ALL STEEL WATERLINES AND COATINGS SHALL BE IN CONFORMANCE WITH CITY OF MISSOURI CITY INFRASTRUCTURE STANDARDS AND/OR LATEST TCEQ REVISIONS FOR AWWAC200, AWWAC203, AND AWWAC210. MINIMUM WALL THICKNESS SHALL CONFORM TO THE THICKNESS SHOWN ON THE CITY OF MISSOURI CITY CONSTRUCTION DETAILS.(WATERLINE CROSSING DETAILS MC–12–15)
2. ALL RETURNS SHALL HAVE 25' RADIUS AT BACK OF CURB UNLESS OTHERWISE NOTED.
3. ALL PAVEMENT BUTTONS, ESPLANADE, PAINT AND MARKINGS SHALL BE AS PER THE CITY OF MISSOURI CITY STANDARDS. (SEE PAVEMENT MARKINGS DETAIL SHEET MC–24–15)
4. ALL STORM SEWER BEDDING SHALL BE AS PER THE CITY OF MISSOURI CITY CONSTRUCTION DETAILS (SEE STORM SEWER BEDDING & BACKFILL DETAIL SHEET MC–16–15)
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8. ALL FILL UNDER AND WITHIN ONE FOOT OF PAVEMENT SHALL BE ENGINEERED FILL.
9. ALL SANITARY MANHOLES WITH FLOWLINES GREATER THAN EIGHT FEET IN DEPTH SHALL HAVE ECCENTRIC CAST TOPS AS PER THE CITY OF MISSOURI CITY STANDARDS. (SEE SANITARY SEWER CONSTRUCTION DETAILS MC–10–15)
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11. ALL STORM SEWER SHALL BE RCP UNLESS OTHERWISE NOTED.
12. ALL TOP OF CURB ELEVATIONS SHOWN ARE FOR 6" CURB UNLESS OTHERWISE NOTED.

PAVE RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

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CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED:_____
DEVELOPMENT COORDINATOR

DATE: 7/18/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

ALLEY 1 & WATER LINE TIE IN EAST

LJA Engineering, Inc.
1904 W. Grand Parkway North, Suite 100, Katy, Texas 77449
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

LJA PROJECT NO.: 1194–1127A & 1470–1127A

DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

SCALE: 1" = 50' HOR. 1" = 5' VERT.

SHEET NO. 19 OF 54

STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER — 7-18-17

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194–1127A & 1470–1127A

Date\Time = MON, 17 JUL 2017 - 2:45pm USER = ssc
Path\Name = K:\Projects\1194-1127A\Civil\PLAN\ROAD\Sheet Files\19 ALLEY 1 & WATER LINE TIE IN EAST.dwg

Curve Table							
CURVE #	START	END	DELTA	RADIUS	CHORD BEARING	ARC LENGTH	CHORD DISTANCE
C1	N=634078.16 E=3100388.45	N=634061.80 E=3100372.82	090.00	16.00	S43° 42' 19.71"W	25.13	22.63
C7	N=634062.88 E=3100420.30	N=634076.07 E=3100406.50	090.00	13.50	N46° 17' 40.29"W	21.21	19.09

Line Table		
Line #	Length	Direction
L2	18.000	S01° 17' 40.29"E
L1	11.500	S88° 42' 19.71"W
L5	14.000	S88° 42' 19.71"W
L4	18.000	N01° 17' 40.29"W
L3	73.000	N88° 42' 19.71"E

Point Table			
Point #	Northing	Easting	T.P. ELEV.
1	634078.1618	3100388.4496	61.45
2	634061.8044	3100372.8152	61.70
3	634061.5446	3100361.3181	61.73
4	634043.5492	3100361.7248	61.79
5	634045.1984	3100434.7061	61.76
6	634063.1938	3100434.2995	61.71
7	634062.8775	3100420.3031	61.67
8	634076.0691	3100406.5015	61.45

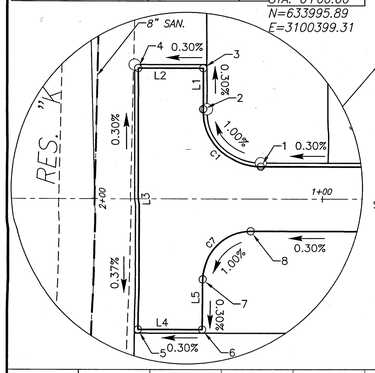
P.I. ℄ STA. 0+36.33 ~ ALLEY 2
= P.I. ℄ STA. 2+00.08 ~ OFFSITE SANITARY EAST

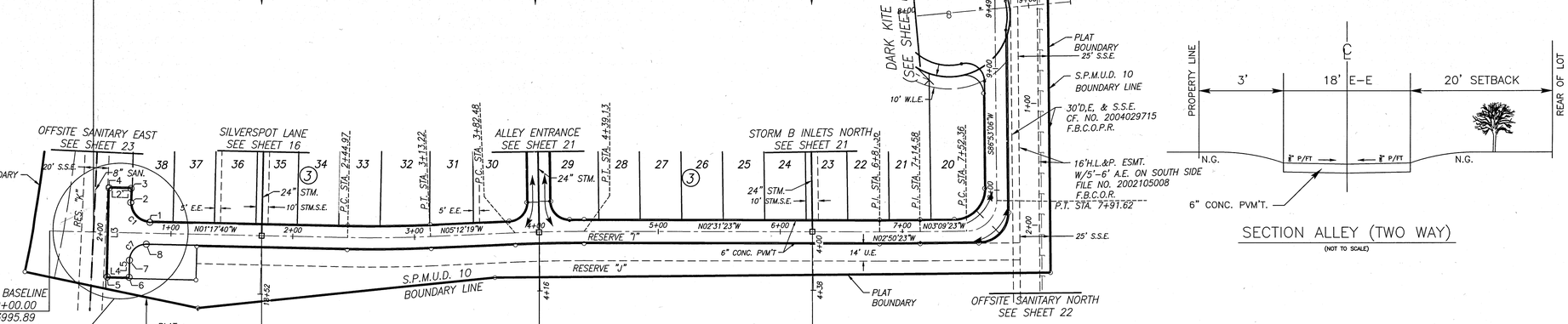
P.I. ℄ STA. 8+72.30 ~ DARK KITE TRAIL
= P.I. ℄ STA. 9+49.21 ~ ALLEY 2

TYPE "A" INLET #306
STA. 1+74.44 (0.00' RT.)
T.P. = 60.99
℄ (W) 24" = 55.90

TYPE "A" INLET #303
STA. 4+02.42 (0.30' RT.)
T.P. = 62.61
℄ (W) 24" = 57.36

TYPE "A" INLET #301
STA. 6+26.38 (0.00')
T.P. = 64.45
℄ (W) 24" = 59.37





℄ CURVE DATA
STA.2+44.97 TO
STA.3+13.22
Δ=3°54'38"
R=1000.00'
L=68.25'
T=34.14

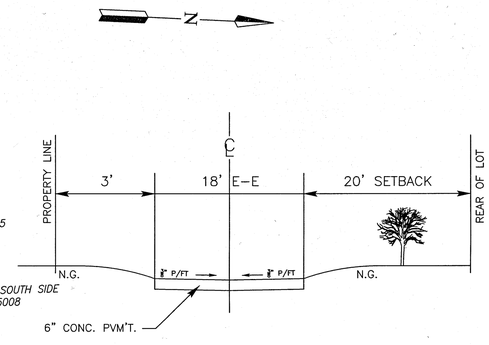
℄ CURVE DATA
STA.3+82.48 TO
STA.4+39.13
Δ=2°40'56"
R=1210.00'
L=56.64'
T=28.33

℄ CURVE DATA
STA.7+52.36 TO
STA.7+91.62
Δ=89°57'47"
R=25.00'
L=39.25'
T=24.98

P.I. ℄ STA. 1+74.44 ~ ALLEY 2
= P.I. ℄ STA. 18+04.42 ~ SILVERSPOT LANE

P.I. ℄ STA. 4+02.42 ~ ALLEY 2
= P.I. ℄ STA. 3+67.93 ~ ALLEY ENTRANCE

P.I. ℄ STA. 6+26.38 ~ ALLEY 2
= P.I. ℄ STA. 3+89.60 ~ STORM B INLETS NORTH



SECTION ALLEY (TWO WAY)
(NOT TO SCALE)

LEGEND

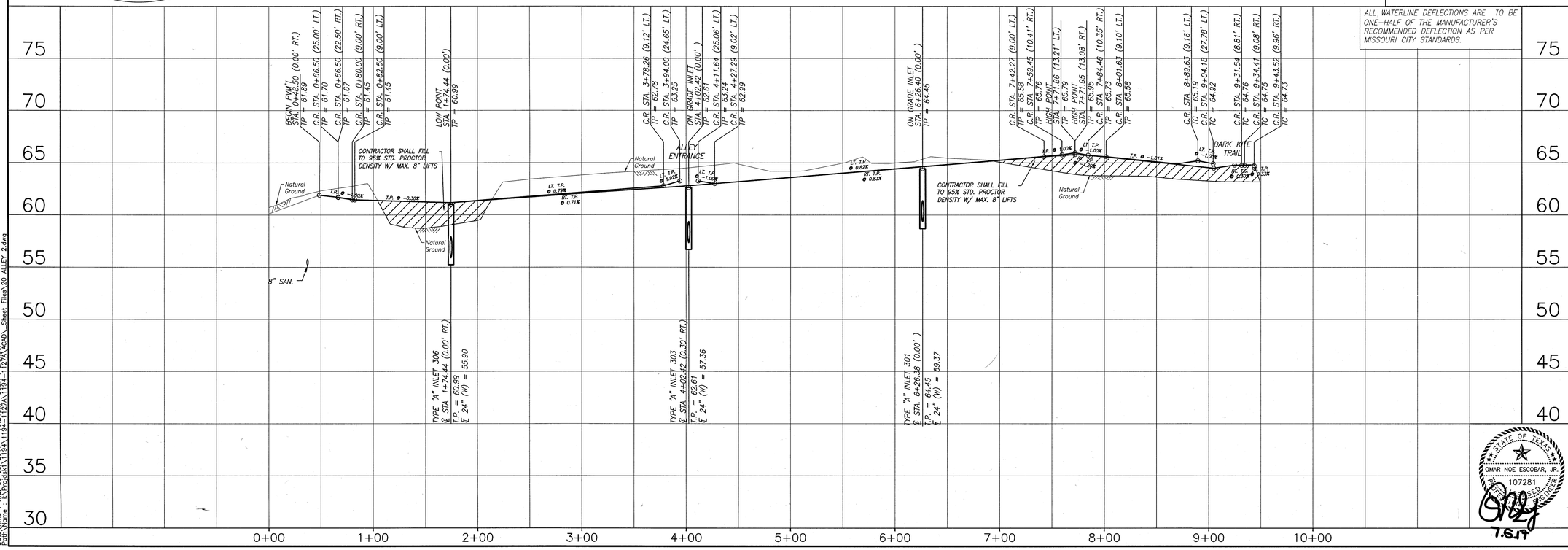
- 6" PAVEMENT W/ 4"x12" CURB
- 6" PAVEMENT W/ 6" CURB
- 7" PAVEMENT W/ 4"x12" CURB
- 7" PAVEMENT W/ 6" CURB

LEGEND

CENTER JOINTS OF SAN. SWR. AND W.L. WITH A MINIMUM PRESSURE RATING OF 150 P.S.I. AND A MINIMUM 9' FROM THE ℄ OF THE SAN. SWR.

ALL WATERLINE DEFLECTIONS ARE TO BE ONE-HALF OF THE MANUFACTURER'S RECOMMENDED DEFLECTION AS PER MISSOURI CITY STANDARDS.

ALLEY 2



BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNOI RD. SURVEY MARKER NO. PCM-003 ELEVATION = 66.07 2001 ADJUSTMENT

NOTES:

1. ALL STEEL WATERLINES AND COATINGS SHALL BE IN CONFORMANCE WITH CITY OF MISSOURI CITY INFRASTRUCTURE STANDARDS AND/OR LATEST TCEQ REVISIONS FOR AWWAC200, AWWAC203, AND AWWAC210. MINIMUM WALL THICKNESS SHALL CONFORM TO THE THICKNESS SHOWN ON THE CITY OF MISSOURI CITY CONSTRUCTION DETAILS.(WATERLINE CROSSING DETAILS MC-12-15)
2. ALL RETURNS SHALL HAVE 25' RADIUS AT BACK OF CURB UNLESS OTHERWISE NOTED.
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PAVE RECORD DRAWING

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CONTRACTOR:_____ DATE:_____

TITLE:_____

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CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED:_____
DEVELOPMENT COORDINATOR

DATE: 7/12/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

ALLEY 2

LJA Engineering, Inc.
1904 W. Grand Parkway North
Suite 100
Katy, Texas 77449
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

LJA PROJECT NO.: 1194-1127A & 1470-1127A

DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

SCALE: 1" = 50' HOR.
1" = 5' VERT.

SHEET NO. 20 OF 54

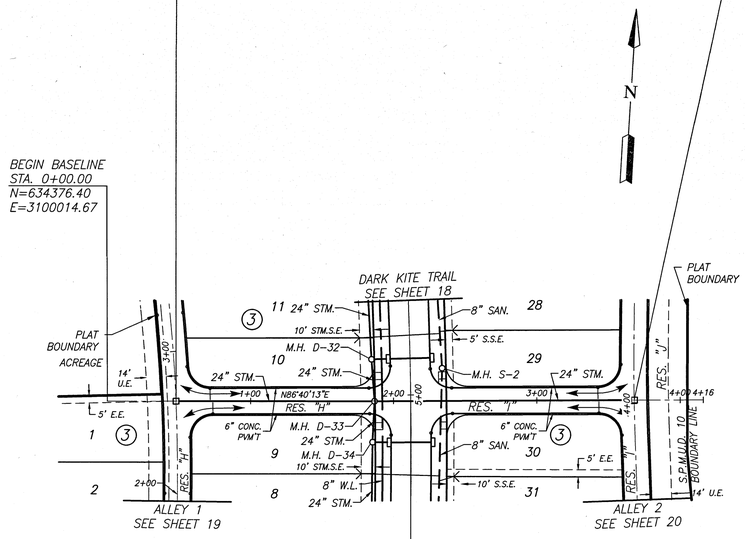
STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER
7.5.17

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A & 1470-1127A

Date\Time : Thu, 06 Jul 2017 - 10:24pm, USER : dgrogel
Path\Name : T:\Projdsk\1194-1127A\1194-127A\CAD\ Sheet Files\20 ALLEY 2.dwg

P.I. ℄ STA. 0+48.00 ~ ALLEY ENTRANCE
= P.I. ℄ STA. 2+65.33 ~ ALLEY 1

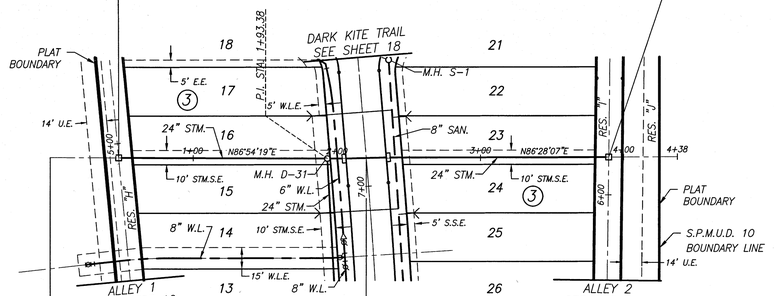
P.I. ℄ STA. 3+67.93 ~ ALLEY ENTRANCE
= P.I. ℄ STA. 4+02.42 ~ ALLEY 2



P.I. ℄ STA. 2+12.11 ~ ALLEY ENTRANCE
= P.I. ℄ STA. 4+95.93 ~ DARK KITE TRAIL

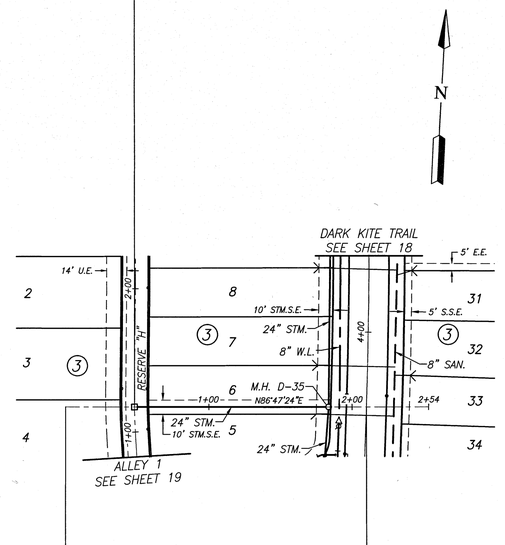
P.I. ℄ STA. 0+47.98 ~ STORM B INLETS NORTH
= P.I. ℄ STA. 4+90.01 ~ ALLEY 1

P.I. ℄ STA. 3+89.60 ~ STORM B INLETS NORTH
= P.I. ℄ STA. 6+26.38 ~ ALLEY 2



P.I. ℄ STA. 2+20.42 ~ STORM B INLETS NORTH
= P.I. ℄ STA. 7+19.57 ~ DARK KITE TRAIL

P.I. ℄ STA. 0+48.02 ~ STORM B INLET SOUTH
= P.I. ℄ STA. 1+17.59 ~ ALLEY 1



BEGIN BASELINE
STA. 0+00.00
N=634598.96
E=3099982.62

BEGIN BASELINE
STA. 0+00.00
N=634229.04
E=3100023.27

P.I. ℄ STA. 2+10.09 ~ STORM B INLET SOUTH
= P.I. ℄ STA. 3+47.85 ~ DARK KITE TRAIL

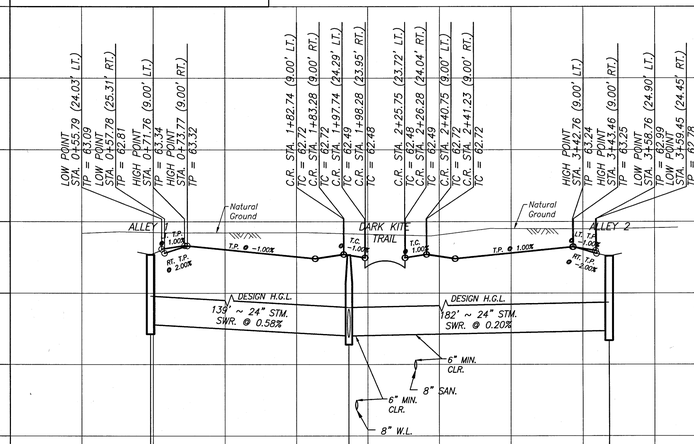
LEGEND

- 6" PAVEMENT W/ 4"X12" CURB
- 6" PAVEMENT W/ 6" CURB
- 7" PAVEMENT W/ 4"x12" CURB
- 7" PAVEMENT W/ 6" CURB

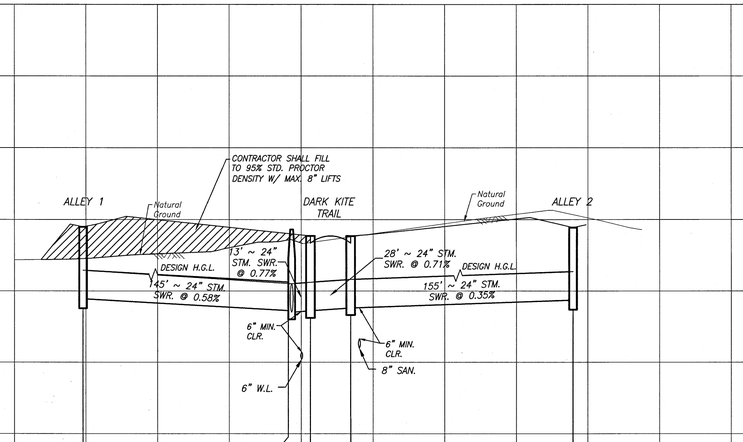
LEGEND

CENTER JOINTS OF SAN. SWR. AND W.L. WITH A MINIMUM PRESSURE RATING OF 150 P.S.I. AND A MINIMUM 9' FROM THE ℄ OF THE SAN. SWR.

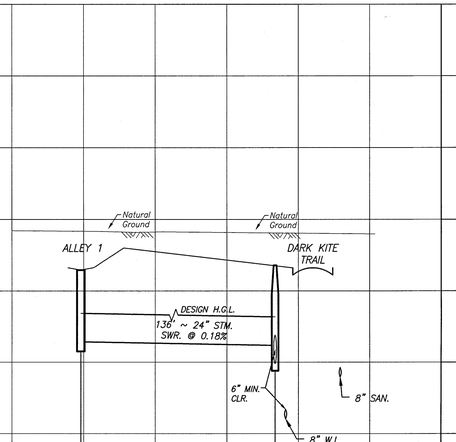
ALLEY ENTRANCE



STORM B INLETS NORTH



STORM B INLET SOUTH



BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNOI RD. SURVEY MARKER NO. PCM-003 ELEVATION = 66.07 2001 ADJUSTMENT

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PAVE RECORD DRAWING

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CONTRACTOR:_____ DATE:_____

TITLE:_____

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CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____ DEVELOPMENT COORDINATOR

DATE: 7/12/17

missouri CITY TEXAS

DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

ALLEY ENTRANCE & STORM B INLETS NORTH & STORM B INLET SOUTH

LJA Engineering, Inc.
1904 W. Grand Parkway North, Suite 100, Katy, Texas 77449
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

LJA PROJECT NO.: 1194-1127A & 1470-1127A

DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

SCALE: 1" = 50' HOR. 1" = 5' VERT.

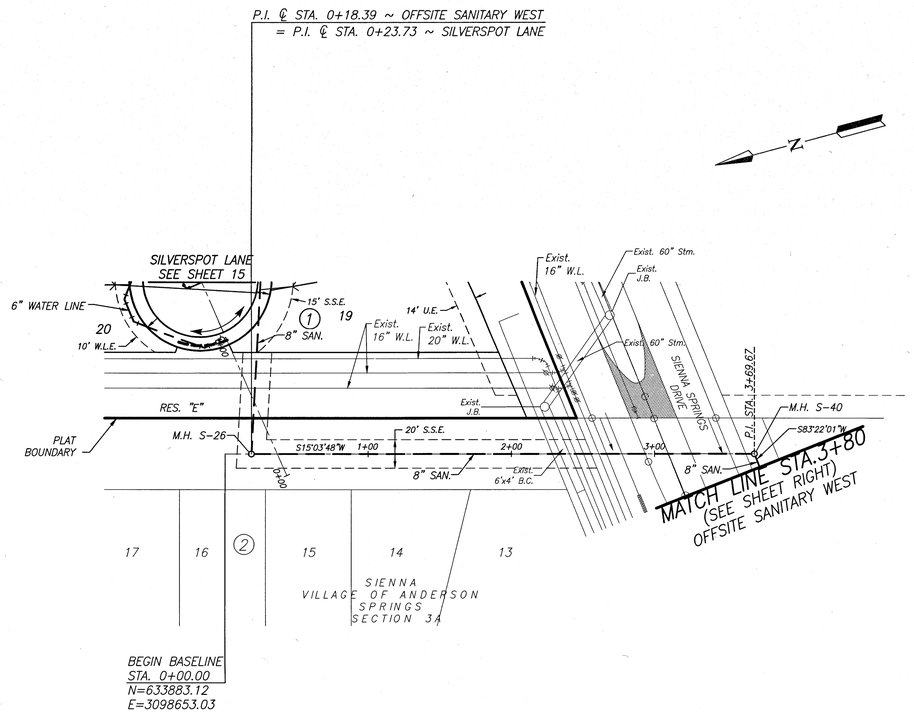
SHEET NO. 21 OF 54

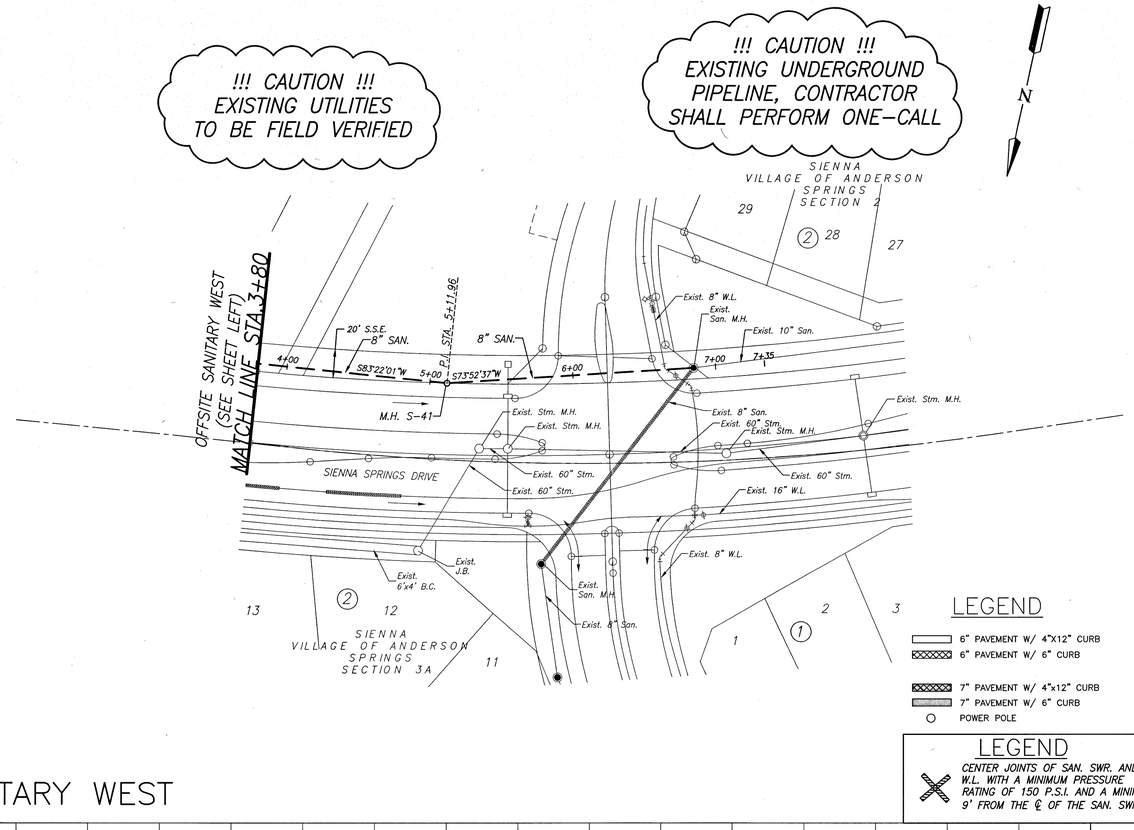
STATE OF TEXAS — 107281 — LICENSED PROFESSIONAL ENGINEER — OMAR NOE ESCOBAR, JR. — 7.6.17

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194-1127A & 1470-1127A

Date\Time : 06 Jul 2017 - 10:25am USER : drongel
Path\Name : I:\Projects\1194\1194-1127A\CAD\Sheet Files\21 ALLEY ENTRANCE & STORM B INLETS NORTH & STORM B INLET SOUTH.dwg

OFFSITE SANITARY WEST



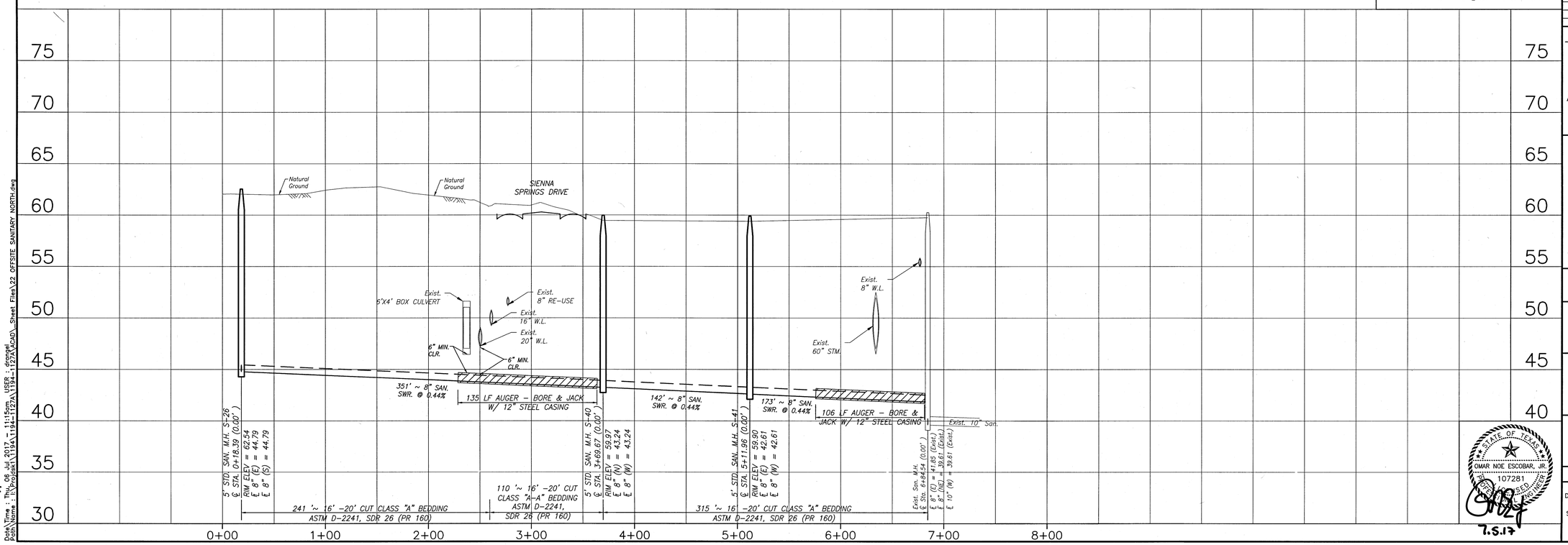


LEGEND

- 6" PAVEMENT W/ 4"X12" CURB
- 6" PAVEMENT W/ 6" CURB
- 7" PAVEMENT W/ 4"x12" CURB
- 7" PAVEMENT W/ 6" CURB
- POWER POLE

LEGEND

CENTER JOINTS OF SAN. SWR. AND W.L. WITH A MINIMUM PRESSURE RATING OF 150 P.S.I. AND A MINIMUM 9' FROM THE ℄ OF THE SAN. SWR.



BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNOI RD. SURVEY MARKER NO. PCM-003 ELEVATION = 66.07 2001 ADJUSTMENT

NOTES:

1. ALL STEEL WATERLINES AND COATINGS SHALL BE IN CONFORMANCE WITH CITY OF MISSOURI CITY INFRASTRUCTURE STANDARDS AND/OR LATEST TCEQ REVISIONS FOR AWWAC200, AWWAC203, AND AWWAC210. MINIMUM WALL THICKNESS SHALL CONFORM TO THE THICKNESS SHOWN ON THE CITY OF MISSOURI CITY CONSTRUCTION DETAILS.(WATERLINE CROSSING DETAILS MC-12-15)
2. ALL RETURNS SHALL HAVE 25' RADIUS AT BACK OF CURB UNLESS OTHERWISE NOTED.
3. ALL PAVEMENT BUTTONS, ESPLANADE, PAINT AND MARKINGS SHALL BE AS PER THE CITY OF MISSOURI CITY STANDARDS. (SEE PAVEMENT MARKINGS DETAIL SHEET MC-24-15)
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11. ALL STORM SEWER SHALL BE RCP UNLESS OTHERWISE NOTED.
12. ALL TOP OF CURB ELEVATIONS SHOWN ARE FOR 6" CURB UNLESS OTHERWISE NOTED.

PAVE RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

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CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED:_____
DEVELOPMENT COORDINATOR

DATE: 7/12/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

OFFSITE SANITARY WEST

LJA Engineering, Inc.
1904 W. Grand Parkway North, Suite 100, Katy, Texas 77449
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

LJA PROJECT NO.: 1194-1127A & 1470-1127A

DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

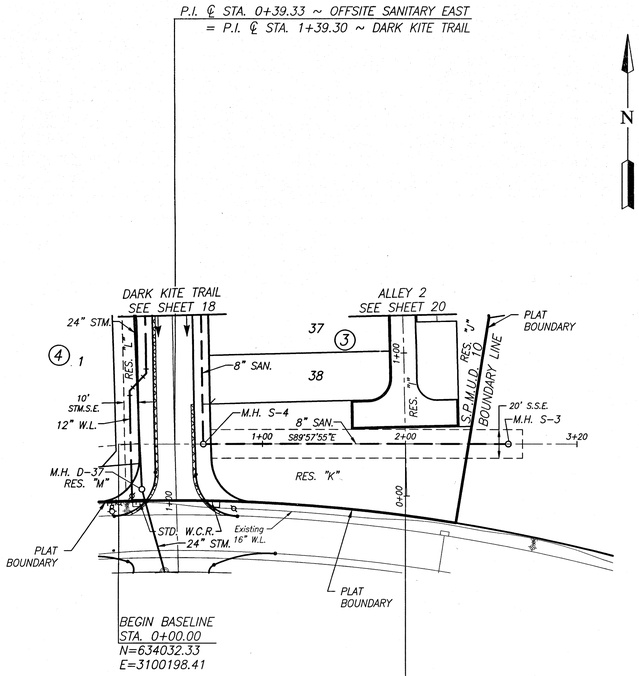
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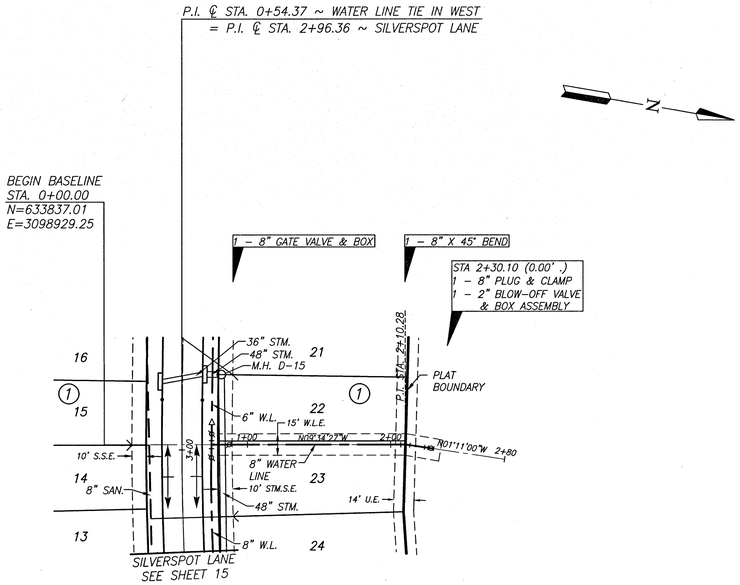
SHEET NO. 22 OF 54

STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER
7.5.17

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A & 1470-1127A

Date\Time : Thu, 06 Jul 2017 - 11:15am USER : dnorgel
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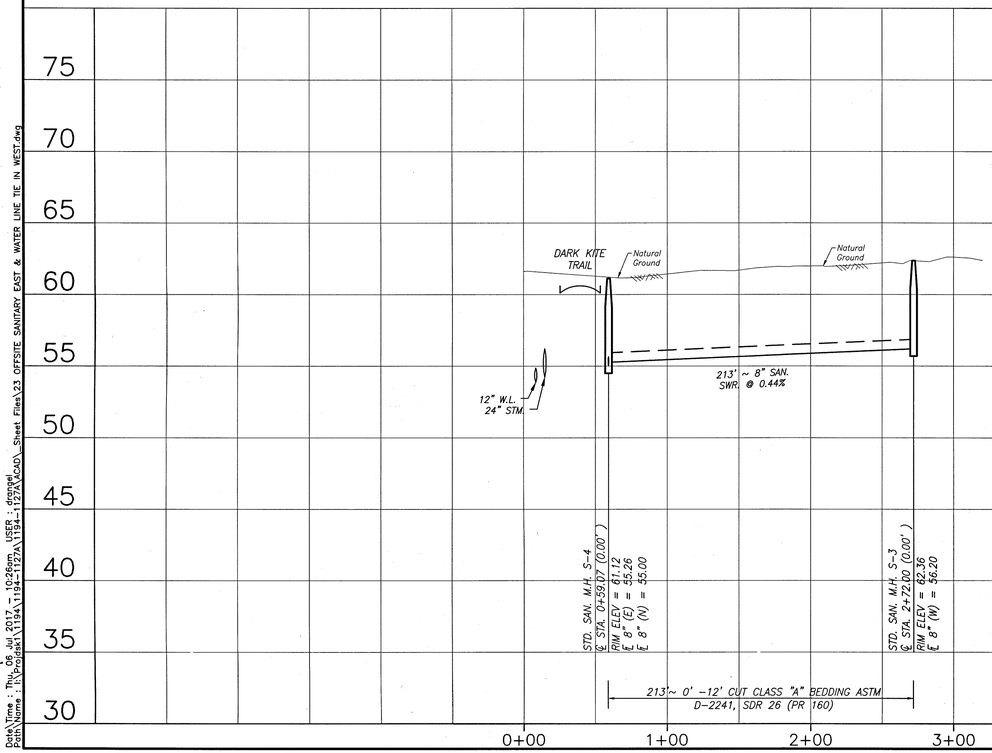
LEGEND

- 6" PAVEMENT W/ 4"X12" CURB
- 6" PAVEMENT W/ 6" CURB
- 7" PAVEMENT W/ 4"x12" CURB
- 7" PAVEMENT W/ 6" CURB

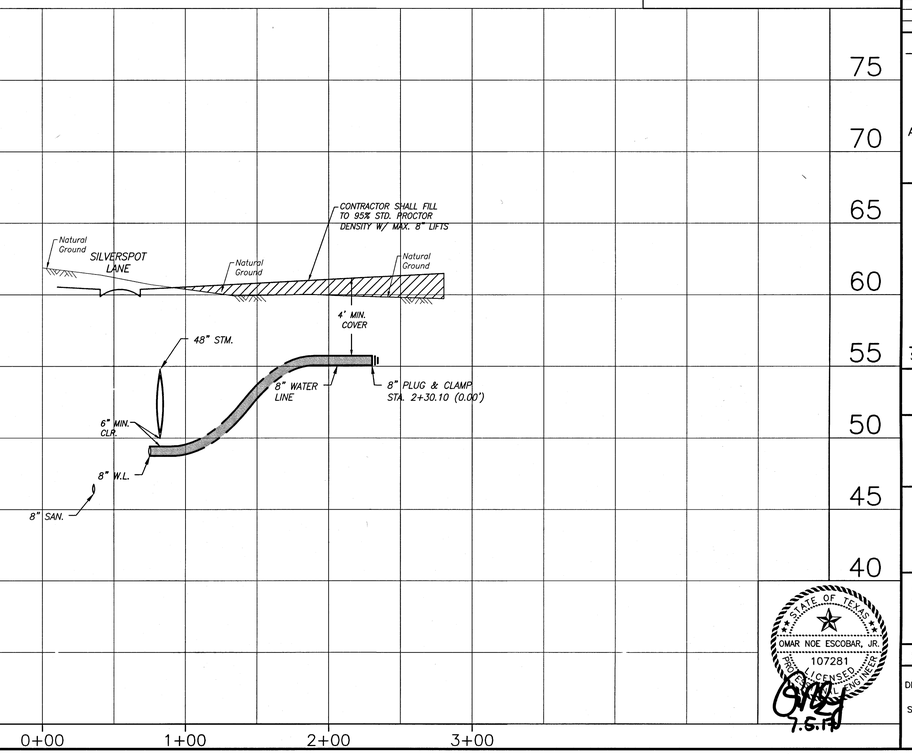
LEGEND

CENTER JOINTS OF SAN. SWR. AND W.L. WITH A MINIMUM PRESSURE RATING OF 150 P.S.I. AND A MINIMUM 9' FROM THE ℄ OF THE SAN. SWR.

OFFSITE SANITARY SOUTH



WATER LINE TIE IN WEST



STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER
7.6.17

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNOI RD. SURVEY MARKER NO. PCM-003 ELEVATION = 66.07 2001 ADJUSTMENT

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CONTRACTOR:_____ DATE:_____

TITLE:_____

WS&D RECORD DRAWING

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CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED:_____
DEVELOPMENT COORDINATOR

DATE: 7/12/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

OFFSITE SANITARY EAST & WATER LINE TIE IN WEST

LJA Engineering, Inc.
1904 W. Grand Parkway North
Suite 100
Katy, Texas 77449
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

LJA PROJECT NO.: 1194-1127A & 1470-1127A

DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

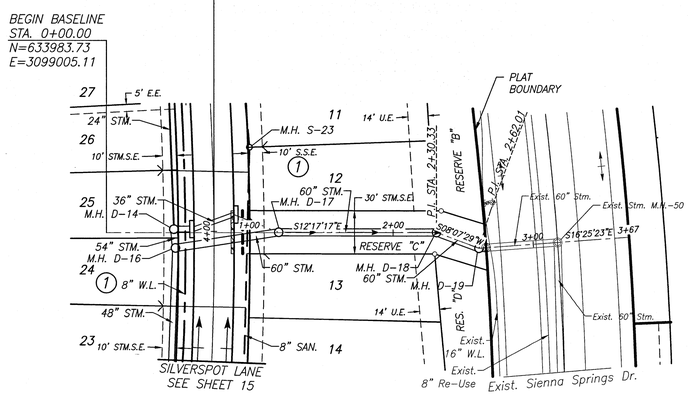
SCALE: 1" = 50' HOR.
1" = 5' VERT.

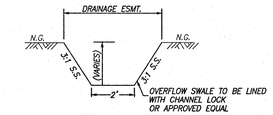
SHEET NO. 23 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A & 1470-1127A

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P.I. ℄ STA. 0+75.00 ~ OFFSITE STORM A
= P.I. ℄ STA. 3+99.17 ~ SILVERSPOT LANE

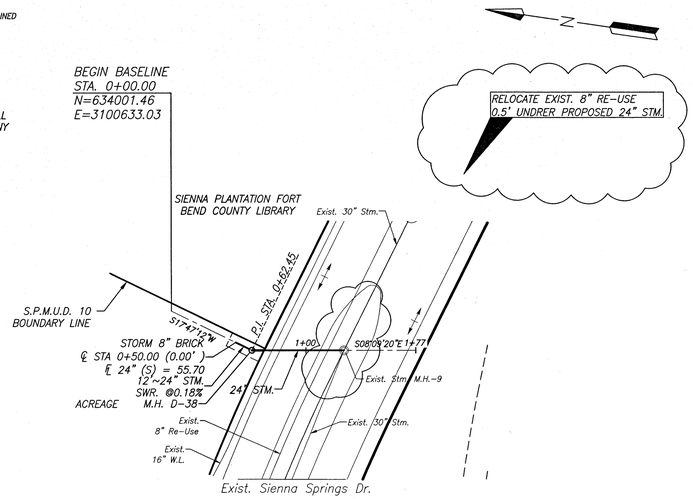




TYPICAL OVERFLOW SWALE

N.T.S.

NOTE:
PROPOSED OVERFLOW SWALE SHALL NOT BE FILLED OR ALTERED IN ANY WAY THAT WOULD BLOCK THE OVERLAND FLOW OF DRAINAGE.



LEGEND

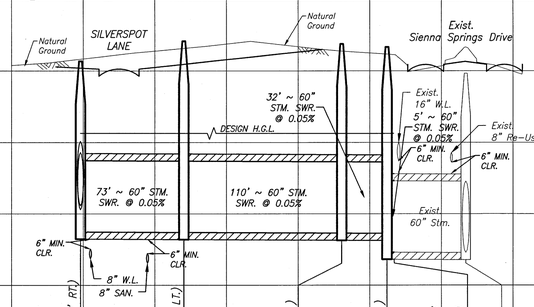
- 6" PAVEMENT W/ 4"X12" CURB
- 6" PAVEMENT W/ 6" CURB
- 7" PAVEMENT W/ 4"x12" CURB
- 7" PAVEMENT W/ 6" CURB

LEGEND

CENTER JOINTS OF SAN. SWR. AND W.L. WITH A MINIMUM PRESSURE RATING OF 150 P.S.I. AND A MINIMUM 9' FROM THE ℄ OF THE SAN. SWR.

OFFSITE STORM A





TYPE "C" M.H. D-16
℄ STA. 0+48.03 (10.69' RT.)
RIM ELEV. = 60.87
℄ 48" (W) = 50.30
℄ 54" (E) = 50.58
℄ 60" (S) = 48.74

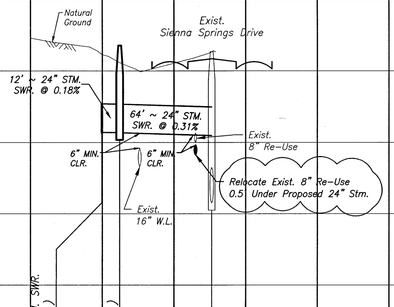
TYPE "C" M.H. D-17
STA. 1+20.19 (0.23' LT.)
RIM ELEV. = 62.08
℄ 60" (N) = 48.70
℄ 60" (S) = 48.70

TYPE "C" M.H. D-18
℄ STA. 2+30.33 (0.00')
RIM ELEV. = 61.89
℄ 60" (N) = 48.65
℄ 60" (S) = 48.64

TYPE "C" M.H. D-19
℄ STA. 2+62.01 (0.00')
RIM ELEV. = 61.67
℄ 60" (N) = 48.63
℄ 60" (S) = 47.31
REMOVE 8" BRICK PLUG ON STM. SWR.
℄ STA. 2+67.01 (0.00')
℄ 60" (N) = 47.31
Exist. Stm. M.H.
STA. 3+77.71 (0.00' Rt.)
℄ 60" (N) = 47.28 (Exist.)
℄ 60" (W) = 47.28 (Exist.)

OFFSITE STORM B





8" BRICK PLUG ON STM. SWR.
STA. 0+50.00 (0.00')
℄ 24" (S) = 55.70

TYPE "C" M.H. D-38
℄ STA. 0+62.45 (0.00')
RIM ELEV. = 61.76
℄ 24" (N) = 55.68
℄ 24" (S) = 55.68

BREAK INTO EXIST M.H.
Exist. Stm. M.H.-9
℄ Sta. 1+26.61 (0.00' Rt.)
℄ 30" (W) = 50.75 (Exist.)
℄ 30" (E) = 50.75 (Exist.)
℄ 24" (N) = 55.48

0+00 1+00 2+00 3+00 (Offsite Storm A)

0+00 1+00 2+00 (Offsite Storm B)

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNOI RD. SURVEY MARKER NO. PCM-003 ELEVATION = 66.07 2001 ADJUSTMENT

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PAVE RECORD DRAWING

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TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED:_____
DEVELOPMENT COORDINATOR

DATE: 7/12/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

OFFSITE STORM A & OFFSITE STORM B

LJA Engineering, Inc.
1904 W. Grand Parkway North, Suite 100, Katy, Texas 77449
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER
7.6.17

LJA PROJECT NO.: 1194-1127A & 1470-1127A

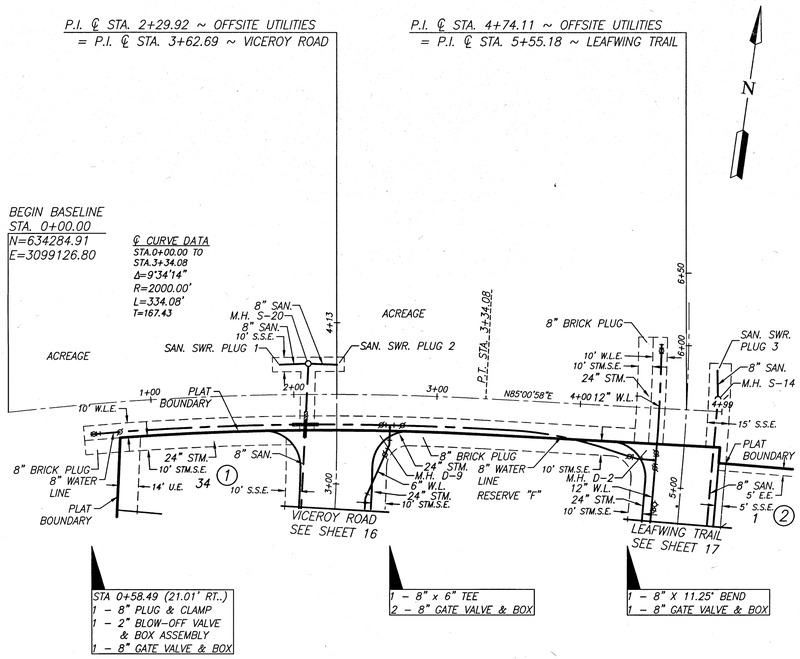
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SCALE: 1" = 50' HOR.
1" = 5' VERT.

SHEET NO. 24 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A & 1470-1127A

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LEGEND

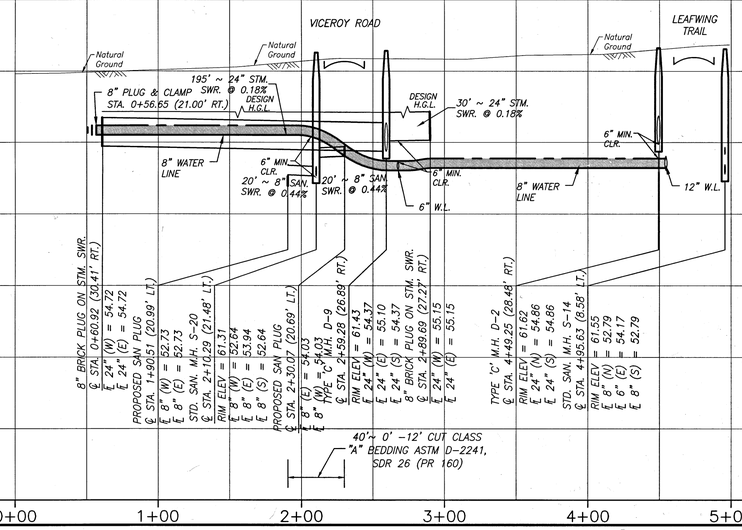
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LEGEND

CENTER JOINTS OF SAN. SWR. AND W.L. WITH A MINIMUM PRESSURE RATING OF 150 P.S.I. AND A MINIMUM 9' FROM THE ℄ OF THE SAN. SWR.

OFFSITE UTILITIES

ALL WATERLINE DEFLECTIONS ARE TO BE ONE-HALF OF THE MANUFACTURER'S RECOMMENDED DEFLECTION AS PER MISSOURI CITY STANDARDS.



Date\Time : 7/06 Jul 2017 - 10:27pm USER : dropel
Path\Name : T:\Projdsk\1194-1127A\1194-1127A\CAD\ Sheet Files\25 OFFSITE UTILITES.dwg

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNOI RD. SURVEY MARKER NO. PCM-003 ELEVATION = 66.07 2001 ADJUSTMENT

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WS&D RECORD DRAWING

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CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED:_____
DEVELOPMENT COORDINATOR

DATE: 7/12/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

OFFSITE UTILITIES

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1904 W. Grand Parkway North, Suite 100, Katy, Texas 77449
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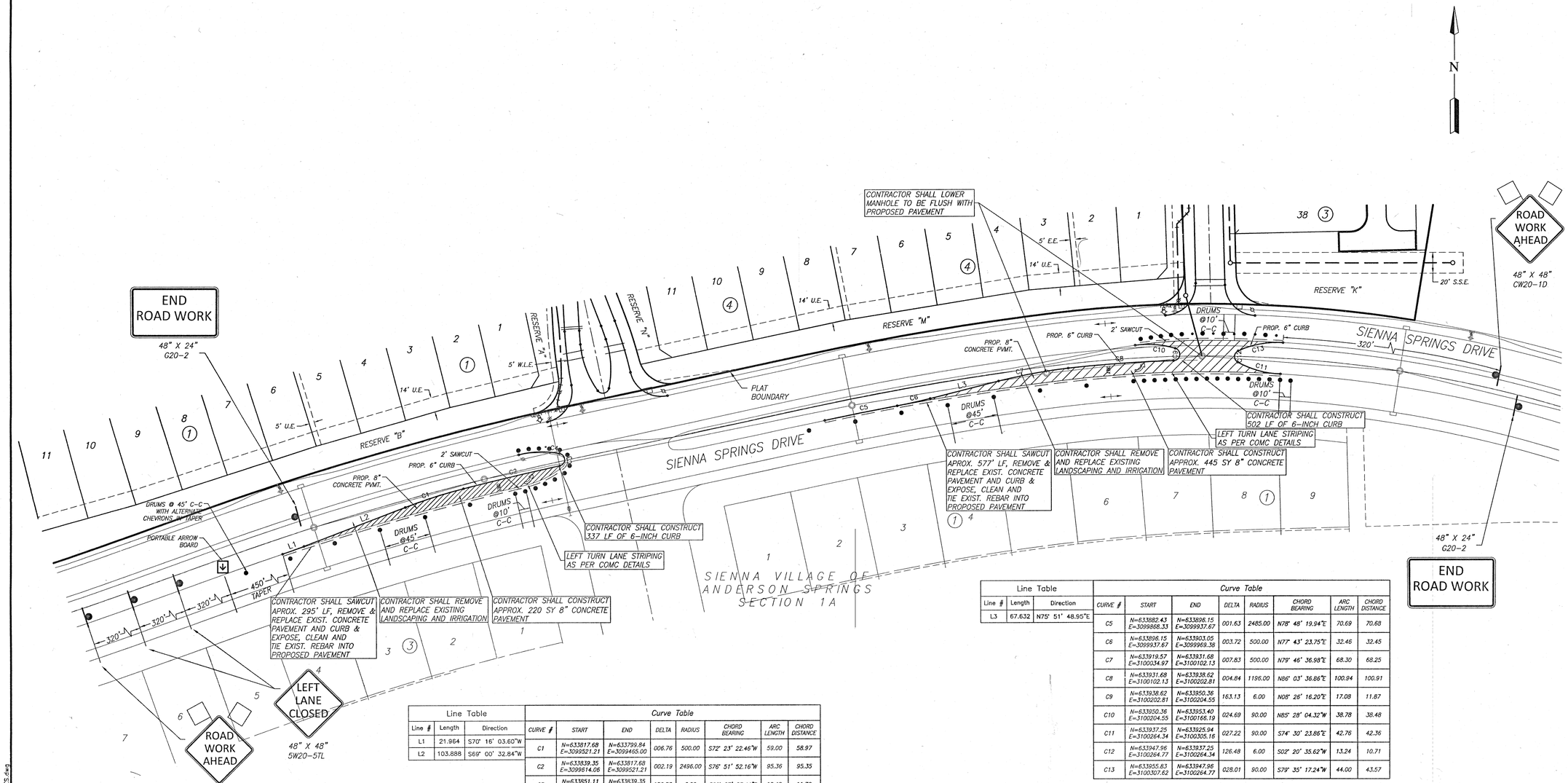
DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

SCALE: 1" = 50' HOR. 1" = 5' VERT.

SHEET NO. 25 OF 54

STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER
7.6.17

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A & 1470-1127A

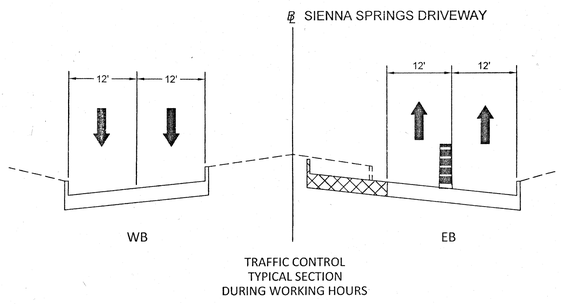


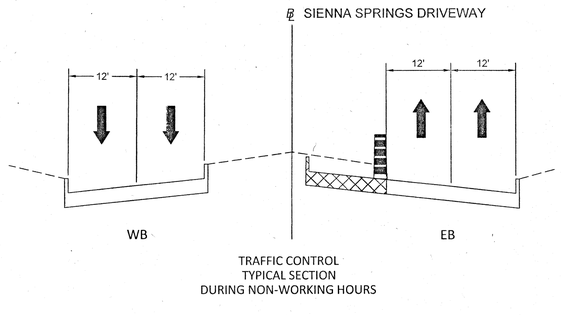
Line Table		
Line #	Length	Direction
L1	21.964	S70° 16' 03.60"W
L2	103.888	S69° 00' 32.84"W
L3	67.632	N75° 51' 48.95"E

Curve Table							
CURVE #	START	END	DELTA	RADIUS	CHORD BEARING	ARC LENGTH	CHORD DISTANCE
C1	N=633817.68 E=3099521.21	N=633799.84 E=3099455.00	006.76	500.00	S72° 23' 22.46"W	59.00	58.97
C2	N=633839.35 E=3099614.06	N=633817.68 E=3099521.21	002.19	2496.00	S76° 51' 52.16"W	95.36	95.35
C3	N=633851.11 E=3099613.97	N=633839.35 E=3099614.06	156.83	6.00	S00° 27' 23.44"E	16.42	11.76
C4	N=633850.07 E=3099574.58	N=633851.11 E=3099613.97	025.29	90.00	N88° 28' 59.32"E	39.73	39.40

Line Table		
Line #	Length	Direction
L3	67.632	N75° 51' 48.95"E

Curve Table							
CURVE #	START	END	DELTA	RADIUS	CHORD BEARING	ARC LENGTH	CHORD DISTANCE
C5	N=633882.43 E=3099868.33	N=633896.15 E=3099937.67	001.63	2485.00	N78° 48' 19.94"E	70.69	70.68
C6	N=633896.15 E=3099937.67	N=633903.05 E=3099969.36	003.72	500.00	N77° 43' 23.75"E	32.46	32.45
C7	N=633919.57 E=3100034.97	N=633931.68 E=3100102.13	007.63	500.00	N79° 46' 36.98"E	68.30	68.25
C8	N=633931.68 E=3100102.13	N=633938.62 E=3100202.81	004.84	1196.00	N86° 03' 36.86"E	100.94	100.91
C9	N=633938.62 E=3100202.81	N=633950.36 E=3100204.55	163.13	6.00	N08° 26' 16.20"E	17.08	11.87
C10	N=633950.36 E=3100204.55	N=633953.40 E=3100165.19	024.69	90.00	N85° 28' 04.32"W	38.78	38.48
C11	N=633937.25 E=3100264.34	N=633925.94 E=3100305.16	027.22	90.00	S74° 30' 23.86"E	42.76	42.36
C12	N=633947.96 E=3100264.77	N=633937.25 E=3100264.34	126.48	6.00	S02° 20' 35.62"W	13.24	10.71
C13	N=633955.83 E=3100307.62	N=633947.96 E=3100264.77	028.01	90.00	S79° 35' 17.24"W	44.00	43.57





NOTES:

1. CONTRACTOR SHALL MAINTAIN ACCESS AND ADJUST BARRELS AS NEEDED AT ALL MEDIAN OPENINGS.
2. WORK SHALL BE DONE ON ROADWAY BETWEEN THE HOURS OF 9:00 AM AND 4:00 PM, MONDAY THRU FRIDAY. WEEDEND WORK WILL BE ALLOWED ONLY WITH APPROVAL FROM CITY OF MISSOURI CITY.
3. ALL TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE IMPLEMENTED BETWEEN THE HOURS OF 9:00 AM AND 4:00 PM, MONDAY THRU FRIDAY, UNLESS DEVICES ARE IN PLACE FOR PUBLIC SAFETY AROUND ACTUAL CONSTRUCTION ZONES. ALL OTHER TEMPORARY TRAFFIC CONTROL DEVICES SUCH AS DRUMS, VERTICAL PANELS, OR CONES SHALL BE MOVED ONTO MEDIAN AFTER 4:00 PM.

LEGEND

8" PAVEMENT CONSTRUCTED

SAW CUT

STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER
7.17.17

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNOI RD. SURVEY MARKER NO. PCM-003 ELEVATION = 66.07 2001 ADJUSTMENT

NOTES:

PAVE RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

WS&D RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED:_____
DEVELOPMENT COORDINATOR

DATE: 7/18/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

SIENNA SPRINGS DRIVE LEFT TURN LANES

LJA Engineering, Inc.
1904 W. Grand Parkway North
Suite 100
Katy, Texas 77449
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

LJA PROJECT NO.: 1194-1127A & 1470-1127A

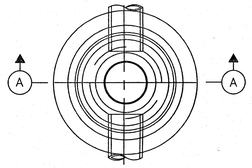
DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

SCALE: 1" = 50'

SHEET NO 25A OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A & 1470-1127A

Date\Time : Mon, 17 Jul 2017 - 9:36am USER : dnoppel
Path\Name : N:\Projdat\1194\1194-1127A\ROAD_Sheet Files\25A SIENNA SPRINGS DRIVE LEFT TURN LANES.dwg

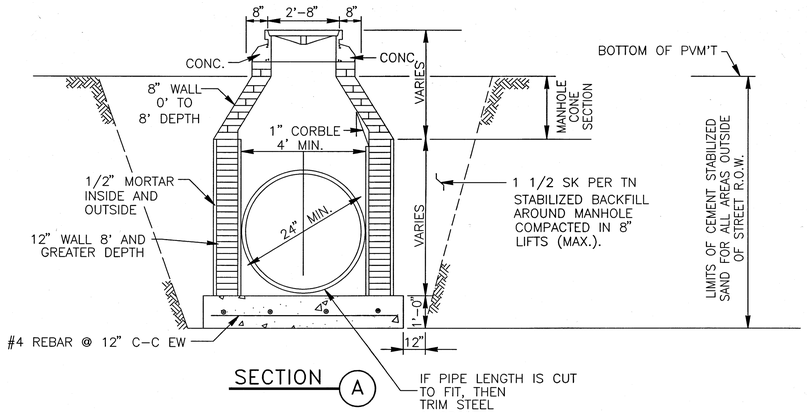


PLAN

N.T.S.

(COVER NOT SHOWN)

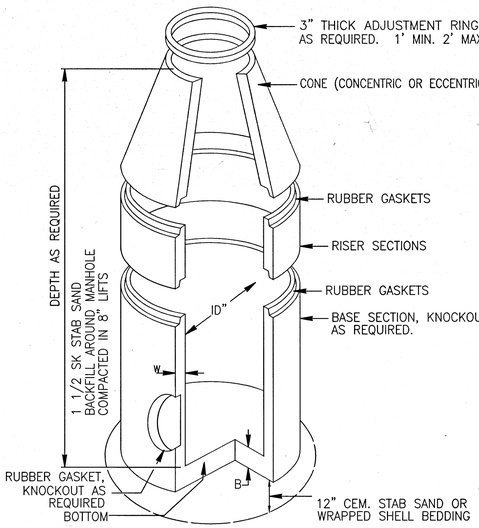
NOTES:
ALL MANHOLE CHIMNEYS SHALL BE BRICK OR THROAT RINGS.
STD. FRAME & COVER SHALL BE PER MOCITY STANDARD MH COVER



SECTION (A)

TYPE "C" MANHOLE

N.T.S.



DIMENSIONS AND WEIGHTS			
I.D. SIZE (in)	W (in)	B (in)	RISER WT/LF (lb)
48	5	6	868
60	6	8	1300
72	7	8	1811
96	9	8	3090

NOTES
1. LIFTING INSERTS AS REQUIRED.
2. ALL JOINTS SHALL BE SEALED WITH APPROVED RUBBER GASKET
3. STRUCTURE TO BE PLACED ON 12" STABILIZED BASE.
4. C.S.S. SHALL BE BROUGHT TO WITHIN 2-FT OF TOP OF MANHOLE.

SPECIFICATIONS:

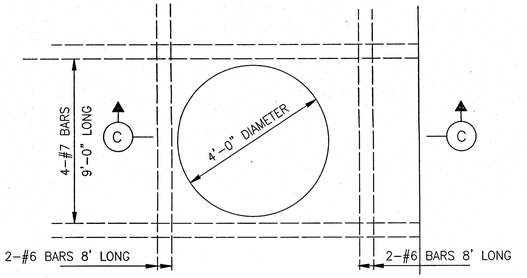
CONCRETE: CLASS 1 CONCRETE WITH A DESIGN STRENGTH OF 4500 PSI AT 28 DAYS. RATES FOR H-20 LOADING.

REINFORCEMENT: STRUCTURAL REINFORCEMENT CONFORMING TO ASTM-C-478.

C.I. CASTINGS: CAST IRON FRAMES AND GRATES ARE MANUFACTURED OF GREY CAST IRON CONFORMING TO ASTM A48-76 CLASS 35.

PRECAST CONCRETE MANHOLE

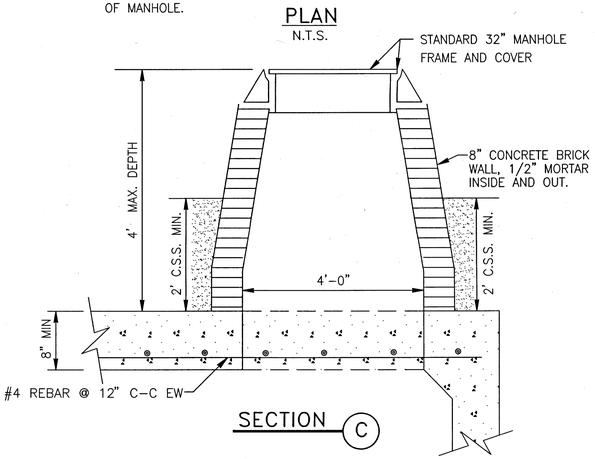
N.T.S.



STANDARD TYPE "E" INLET MAY BE USED AT TOP OF MANHOLE.

PLAN

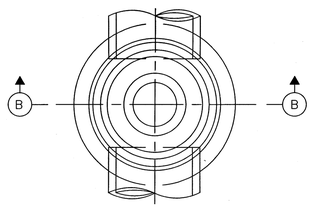
N.T.S.



SECTION (C)

MANHOLE FOR BOX SEWER

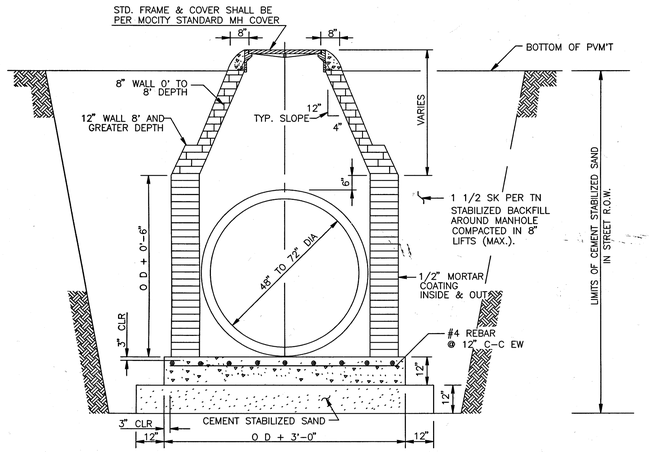
N.T.S.



PLAN

N.T.S.

COVER NOT SHOWN

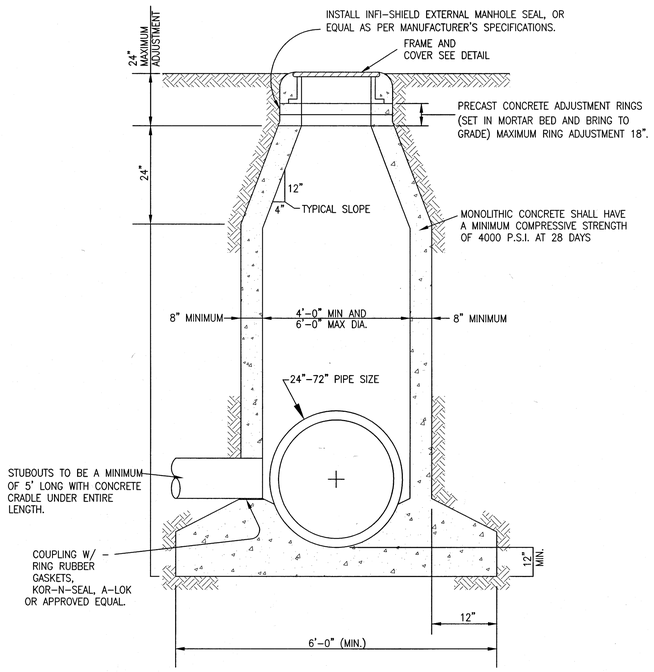


SECTION (B)

TYPE "C" MANHOLE FOR 48" TO 72" DIA RCP

N.T.S.

NOTE:
1. C.S.S. SHALL BE BROUGHT TO WITHIN 2 FEET MINIMUM OF TOP OF MANHOLE.



CIP - TYPE "C" CAST-IN-PLACE MANHOLE

N.T.S.

NOTES:
1. CONCRETE SHALL BE A MONOLITHIC POUR.
2. #4 REBAR TO BE PLACED IN BASE AND WALLS @ 12" C-C EW.
3. 1.0 LBS OF APPROVED POLYPROPYLGNE FIBER MESH PER C/Y OF CONCRETE MAY BE USED IN L REBAR
4. 1-1/2" C.S.S. BACKFILL TO BE PLACED AROUND MANHOLE COMPACTED IN 8" LIFTS (MAX).

CAST IN PLACE MANHOLE

PAVING RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

WS&D RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

GENERAL CONSTRUCTION NOTES:

1. BRICK WALLS 12'-0" BELOW TOP CASING TO BE 12 IN. THICK.
2. 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' MORTAR JOINT IS STANDARD.
3. ALL CAST CONCRETE BASES SHALL HAVE # 4 REBAR @ 12" C-C EW
4. CONCRETE SHALL BE 4000 PSI MIN.
5. USE C.S.S. BEDDING AS PER DETAILS 1 1/2 SK PER TN, COMPACTED 8" LIFTS (MAX.). TO 95% STANDARD.

FORT BEND COUNTY ENGINEERING DEPARTMENT
APPROVED: _____ DEVELOPMENT COORDINATOR
DATE: 7/12/17

REFER TO:

1. *GENERAL NOTES, C.S.S & CONCRETE NOTES.*
2. *STORM SEWER NOTES*

No.	DATE	REVISION

STORM SEWER MANHOLE CONSTRUCTION DETAILS

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL:
STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER
DESIGN ENGINEER: _____ DATE: 7.5.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

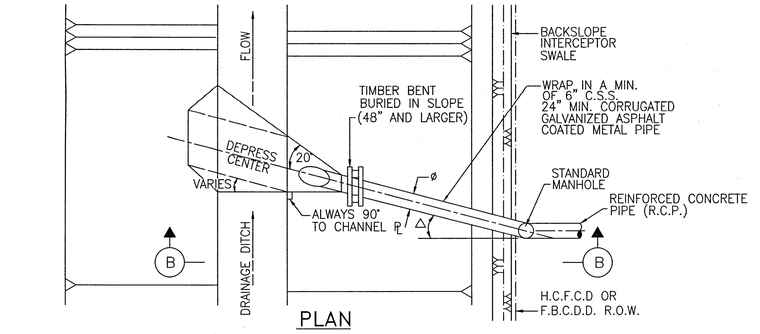
JOB No.:
SCALE: AS NOTED
SUBMITTED: _____
DATE: FEBRUARY 2015

MC-3-15

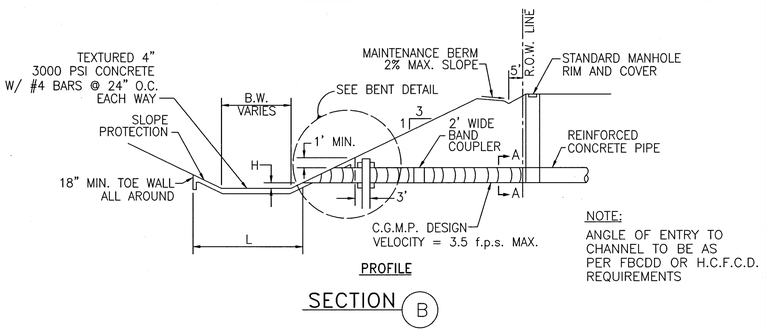
SHEET 26 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A

Date\Time : Thu, 06 Jul 2017 - 10:27am - USER : dronge
Path\Name : I:\Projdat\1194\1194-1127A\1194-1127A ACAD\ Sheet Files\26 STORM SEWER MANHOLE CONSTRUCTION DETAILS - MC-03-15.dwg



PLAN

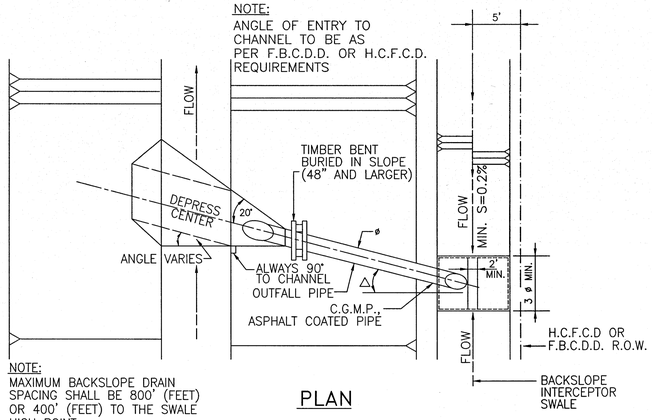


NOTE:
ANGLE OF ENTRY TO CHANNEL TO BE AS PER FBCDD OR H.C.F.C.D. REQUIREMENTS

STORM SEWER OUTFALL

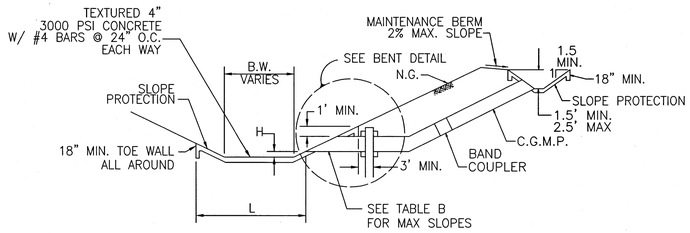
N.T.S.

NOTE:
ANGLE OF ENTRY TO CHANNEL TO BE AS PER F.B.C.D.D. OR H.C.F.C.D. REQUIREMENTS



PLAN

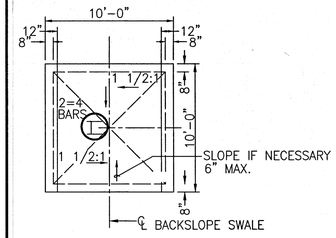
NOTE:
MAXIMUM BACKSLOPE DRAIN SPACING SHALL BE 800' (FEET) OR 400' (FEET) TO THE SWALE HIGH POINT.



PROFILE

BACKSLOPE INLET & OUTFALL

N.T.S.



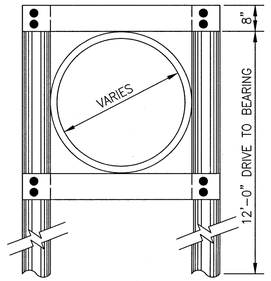
INLET DETAIL

TABLE A

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

TABLE B

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



PIPING CUTOFF SUBJECT TO APPROVAL BY CITY
PILING & TIMBER TO BE TREATED WITH AN APPROVED PRESERVATIVE

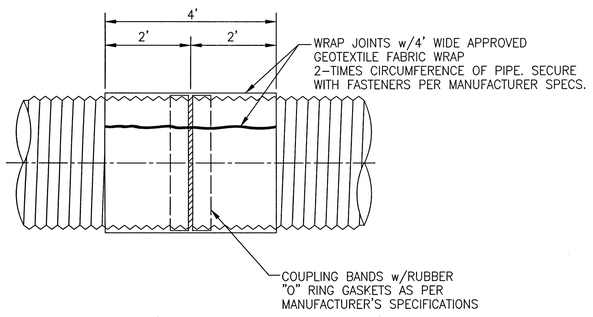
END VIEW

CONSTRUCTION NOTES:

L : B.W. / PIPE Ø ≤ 7'-6" ⇨ LENGTH WILL EXTEND ONE-HALF PIPE Ø ABOVE FL ON OPPPOSITE BANK (MIN. 36") OR A MINIMUM OF 6-PIPE Ø TOWARDS OPPOSITE BANK OF CHANNEL. WHICH EVER IS THE LESSER.

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

H : FOR PIPE SIZES 24" TO 42" H=3' MAX., AND 1' MIN.
FOR PIPE SIZES 48" AND LARGER H=1' MAX. AND MIN.



NOTES:

1. ANY PIPE DEFLECTED MORE THAN 2% SHALL BE REJECTED AND REPLACED AT CONTRACTOR'S EXPENSE.
2. INSTALLATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS INCLUDING ITEMS AS DETAILED IN INSTALLATION MANUAL FOR CORRUGATED STEEL DRAINAGE STRUCTURES.

STORM SEWER JOINT WRAP DETAIL

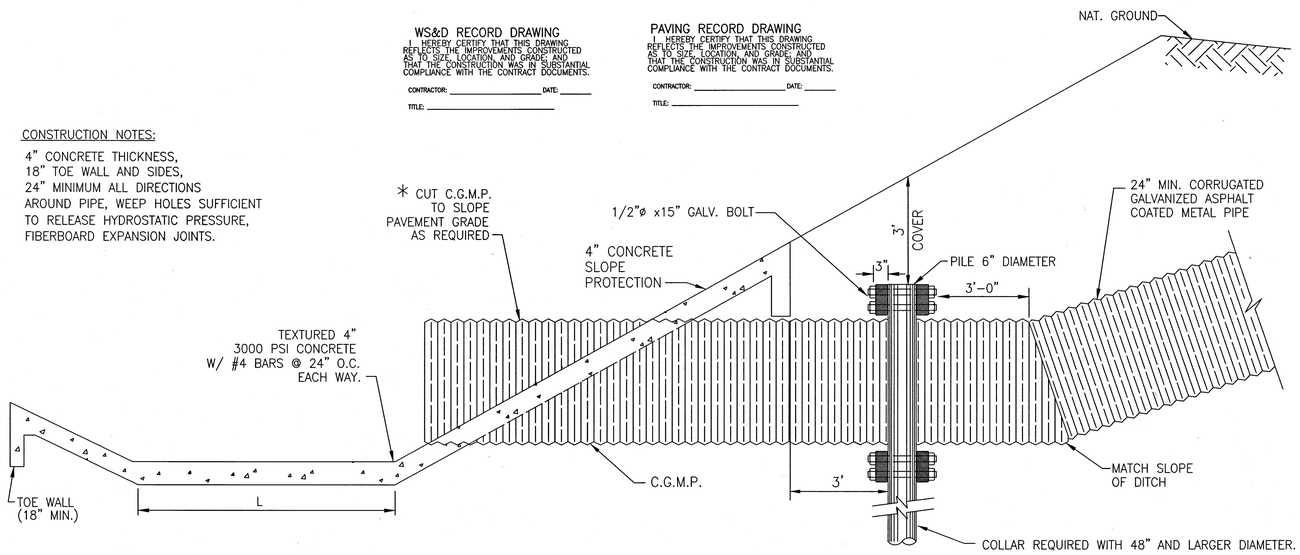
N.T.S.

WS&D RECORD DRAWING
I, HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

PAVING RECORD DRAWING
I, HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

CONSTRUCTION NOTES:

4" CONCRETE THICKNESS, 18" TOE WALL AND SIDES, 24" MINIMUM ALL DIRECTIONS AROUND PIPE, WEEP HOLES SUFFICIENT TO RELEASE HYDROSTATIC PRESSURE, FIBERBOARD EXPANSION JOINTS.



NOTES:

1. OUTFALL PIPE SHALL BE ASPHALT-COATED, CORRUGATED, GALVANIZED METAL PIPE. ALUMINIMUM PIPE OR ALUMINIZED COAT IS NOT ALLOWED.
2. STONE RIP RAP IS NOT ALLOWED.
3. SEE GENERAL, C.S.S. AND CONCRETE NOTES.
4. SEE END VIEW DETAIL (THIS SHEET).

PROFILE

TIMBER BENT FOR CORRUGATED METAL PIPE OUTFALL

N.T.S.

FORT BEND COUNTY ENGINEERING DEPARTMENT
APPROVED: _____ DEVELOPMENT COORDINATOR
DATE: 7/12/17

No.	DATE	REVISION

STORM SEWER OUTFALL CONSTRUCTION DETAILS

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER
DESIGN ENGINEER: _____ DATE 7.5.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

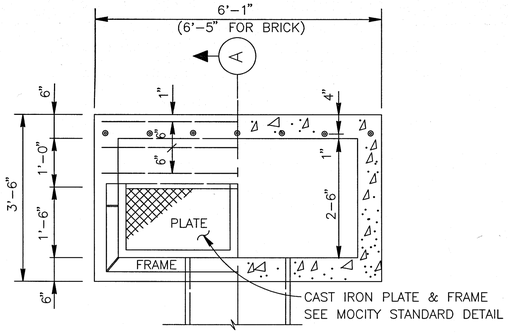
JOB No.:
SCALE: AS NOTED
SUBMITTED:
DATE: FEBRUARY 2015

MC-4-15
SHEET 27 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A

Date\Time : Thu, 06 Jul 2017 - 10:27am - USER : drangel
Path\Name : I:\Projdsk1\1194\1194-1127A\1194-1127A(CAD) Sheet Files\27 STORM SEWER OUTFALL CONSTRUCTION DETAILS - MC-04-15.dwg

"B–B" INLET
(REPLACEMENT ONLY)



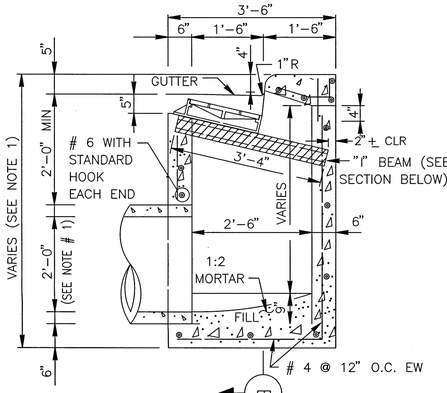
HALF PLAN HALF–SECTION PLAN

GENERAL NOTES:

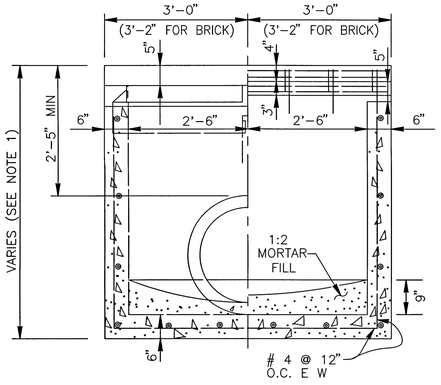
USE STD CAST IRON FRAME & PLATES.
LEAD SHALL LEAVE INLET AT LOCATION AND GRADE REQUIRED.
WHEN BRICK INLETS ARE BUILT EXTEND DOWELS 4 INCHES FROM CURB BEAM INTO BRICKWORK.
WHEN BRICK INLETS ARE BUILT, WALLS SHALL BE INCREASED TO 8 INCHES, AND INLET BEAMS TO BE 4 INCHES LONGER.

NOTES:

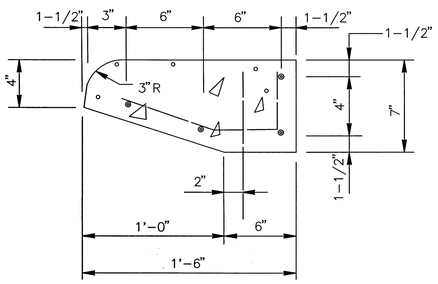
1. DIMENSION VARIES BASED ON PIPE DIAMETER AND WALL THICKNESS.
2. CENTER REINFORCING IN SLAB AND WALLS.
3. CENTER STEEL BEAM ON INLET AND CAST INTO WALLS AS SHOWN.



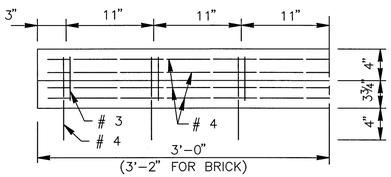
SECTION A



HALF FRONT ELEVATION HALF–SECTION B



TRANSVERSE SECTION



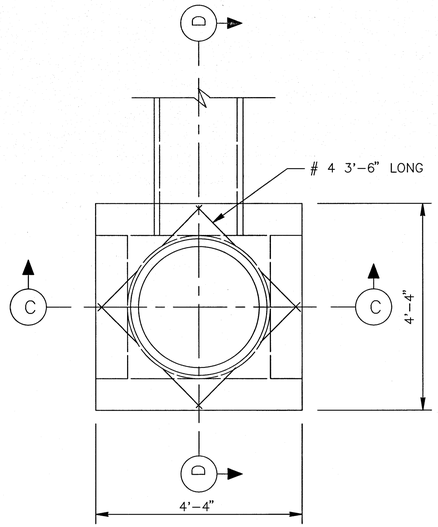
HALF–FRONT ELEV

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

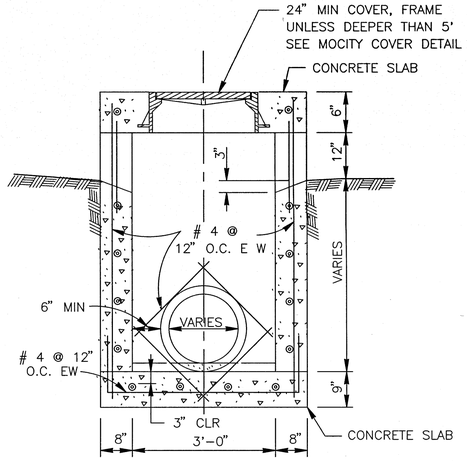
I–BEAM SECTION

PRECAST CURB BEAM

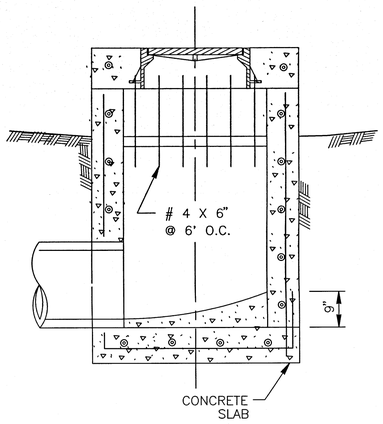
CURB BEAM BAR LIST				
NO	SIZE	LENGTH	SHAPE	LOC
4	# 4	5'–10"	ST	HOR
7	# 4	0'–10"	ST	VERT
7	# 3	1'–6"	BT	



PLAN



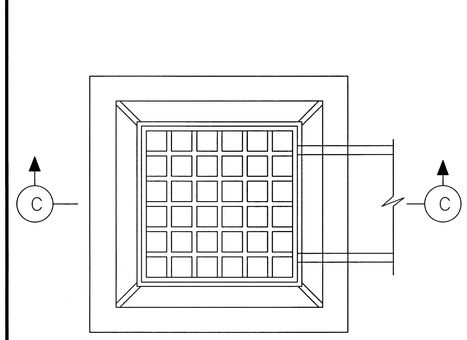
SECTION C



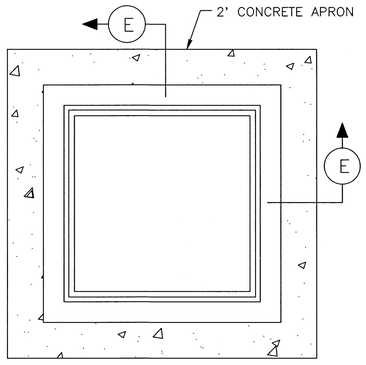
SECTION D

TYPE "E" INLET

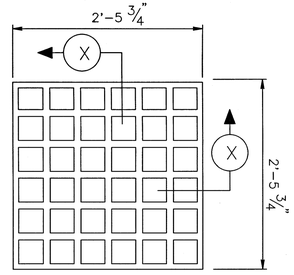
N.T.S.



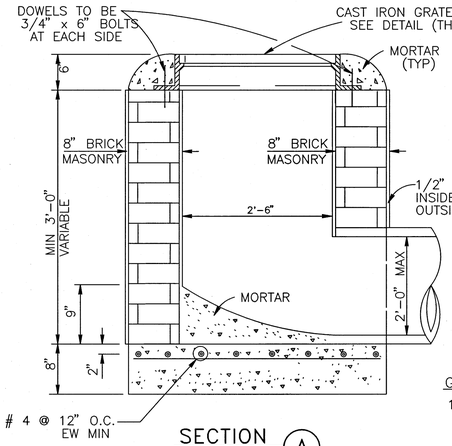
PLAN



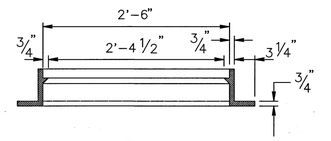
FRAME



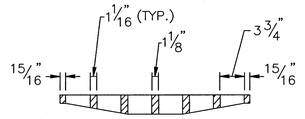
GRATE



SECTION A



SECTION E



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*

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____ DEVELOPMENT COORDINATOR

DATE: 7/12/17

WS&D RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____

PAVING RECORD DRAWING
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CONTRACTOR: _____ DATE: _____

TITLE: _____

No.	DATE	REVISION

STORM SEWER INLET CONSTRUCTION DETAILS I

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: _____ DATE 7.6.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

JOB No.:

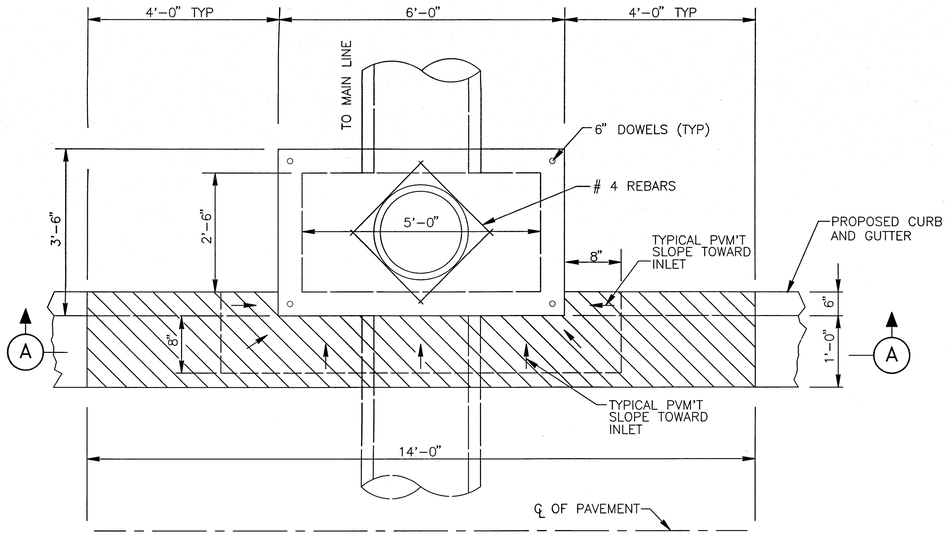
SCALE: AS NOTED
SUBMITTED:
DATE: FEBRUARY 2015

MC–5–15

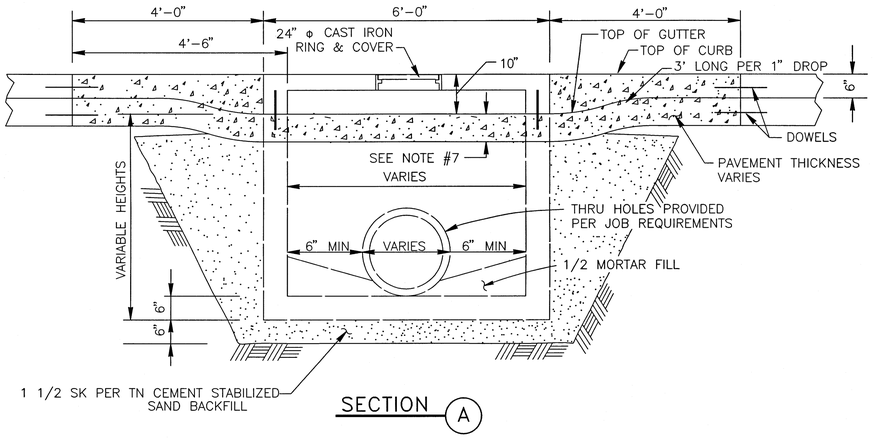
SHEET 28 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194–1127A

Date\Time : Thu, 06 Jul 2017 - 10:27am - USER : dnngel
Path\Name : I:\Projdsk1\1194\1194-1127A\ACAD_Sheet Files\28 STORM SEWER INLET CONSTRUCTION DETAILS I - MC-05-15.dwg



PLAN

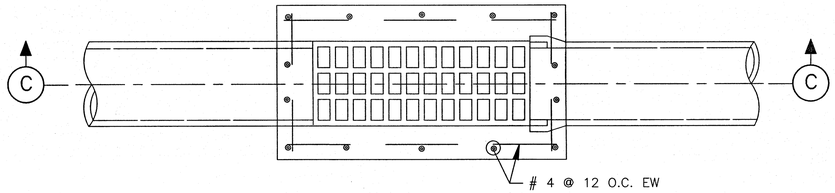


SECTION (A)

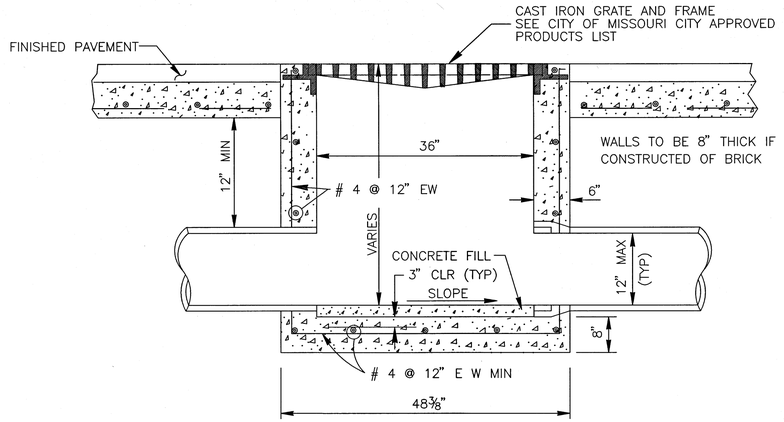
TYPE "H–2" INLET

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

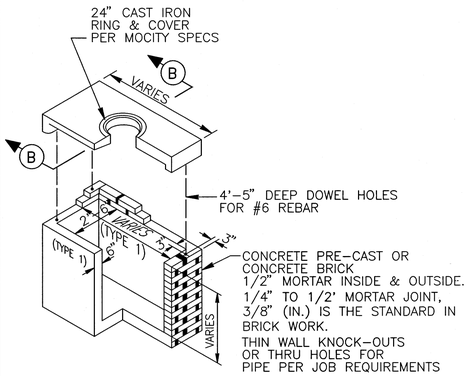


PLAN

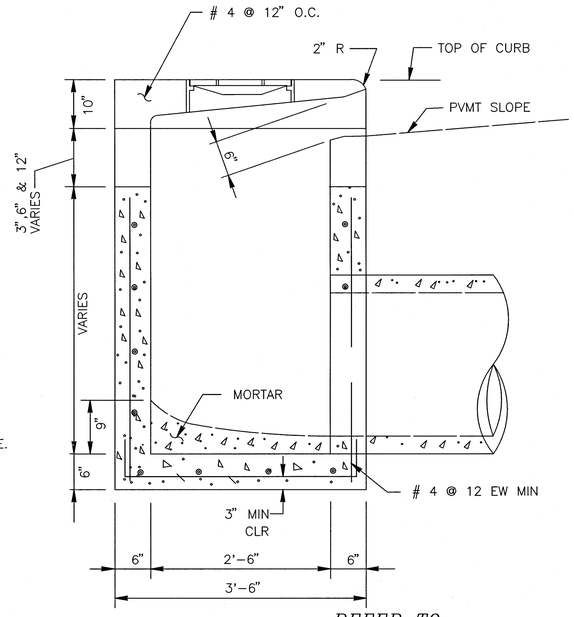


SECTION (C)

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*

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____ DEVELOPMENT COORDINATOR

DATE: 7/12/17

WS&D RECORD DRAWING

I, HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____

PAVING RECORD DRAWING

I, HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____

No.	DATE	REVISION

STORM SEWER INLET CONSTRUCTION DETAILS II

missouri CITY TEXAS

DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: _____ DATE 7.5.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

JOB No.:

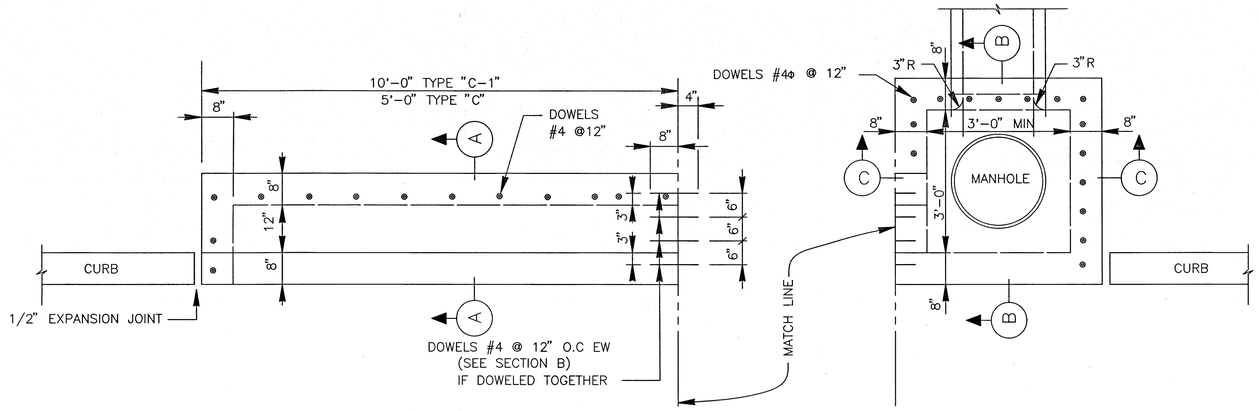
SCALE: AS NOTED
SUBMITTED: _____
DATE: FEBRUARY 2015

MC–6–15

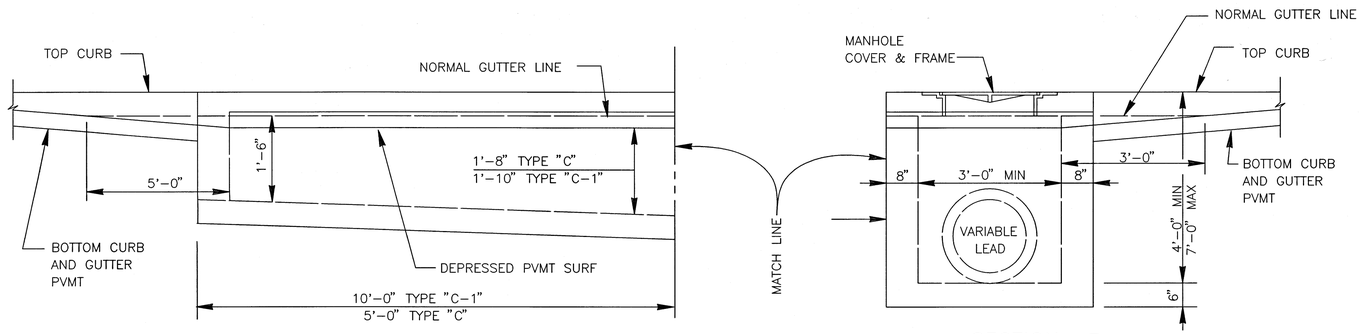
SHEET 29 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194–1127A

Date\Time : Thu, 06 Jul 2017 - 10:27am - USER : drangel
Path\Name : I:\Projdsk\1194-1127A\ACAD_Sheet Files\29 STORM SEWER INLET CONSTRUCTION DETAILS II – MC-06-15.dwg



PLAN



PLAN

SECTION (C)

GENERAL NOTES:

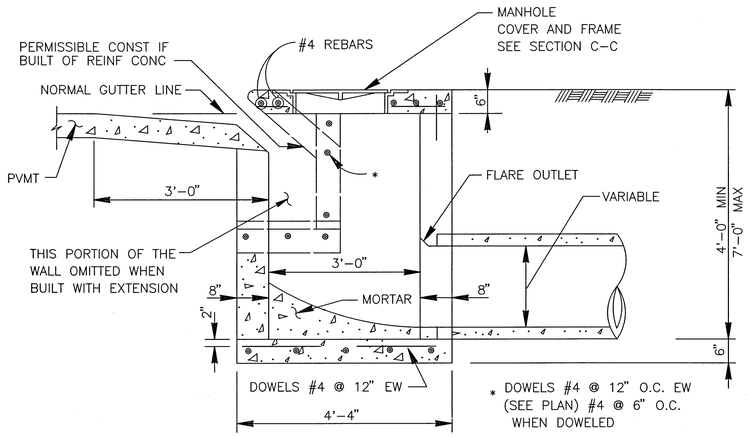
TYPE "C" INLET WITH ONE EXTENSION
TYPE "C-1" INLET WITH DOUBLE EXTENSION
TYPE "C-2" INLET WITH EXTEN. ON EACH SIDE
TYPE "C-2A" INLET WITH NO EXTENSION

NOTES:

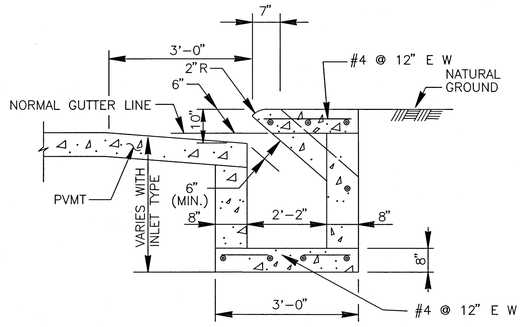
1. FOR TYPE "C-1" INLETS PROVIDE A CENTER 6"X6" COLUMNS IN THE CURB LINE BETWEEN ALL EXTENSIONS.
2. WALLS TO BE 6" IF BUILT WITH REINFORCED CONCRETE. WHEN BUILT WITH BRICK WALL, USE STRAIGHT WALL IN BACK WITH 6" REINFORCED CONCRETE TOP SLABS DOWELLED INTO BRICK WALLS WITH #4 X 8" @ 12 O.C.

WS&D RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

PAVING RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____



SECTION (B)



SECTION (A)

TYPE "C" INLET

N.T.S.

REFER TO:

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

FORT BEND COUNTY ENGINEERING DEPARTMENT
APPROVED: _____ DEVELOPMENT COORDINATOR
DATE: 7/12/17

No.	DATE	REVISION

STORM SEWER INLET
CONSTRUCTION DETAILS III

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS · OMAR NOE ESCOBAR, JR. · 107281 · LICENSED PROFESSIONAL ENGINEER
DESIGN ENGINEER: _____ DATE 7.6.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

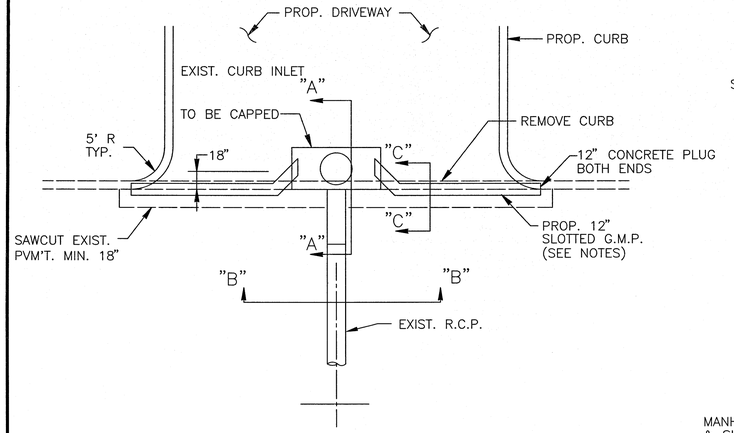
SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

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

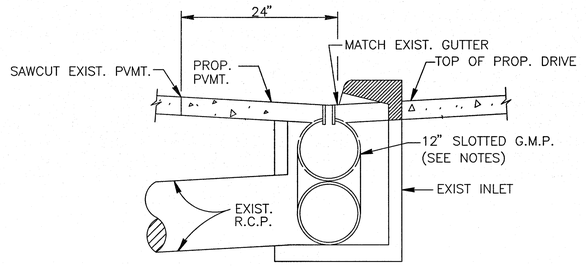
MC-7-15
SHEET 30 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A

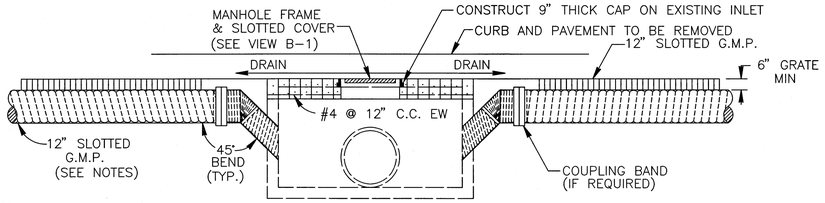
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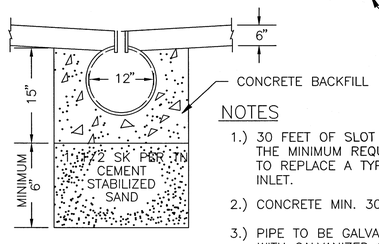
SLOTTED PIPE INSTALLATION FOR DRIVEWAY CONSTRUCTION



SECTION A–A



SECTION B–B



SECTION C–C

NOTES

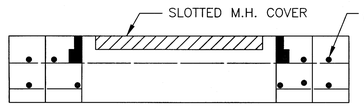
1.) 30 FEET OF SLOT IS THE MINIMUM REQUIREMENT TO REPLACE A TYPE B–B INLET.

2.) CONCRETE MIN. 3000 P.S.I.

3.) PIPE TO BE GALVANIZED TYPE II WITH GALVANIZED SLOT

4.) CONDITIONS MAY VARY. CONTRACTOR TO ROLL FITTING AND ENTER BOX BELOW 9" CAP.

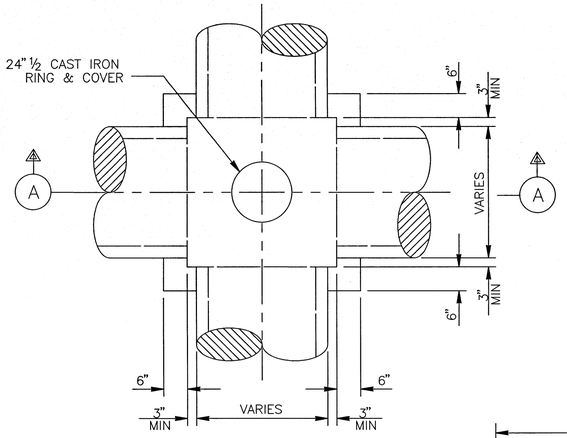
5.) SEE C.S.S. NOTES.



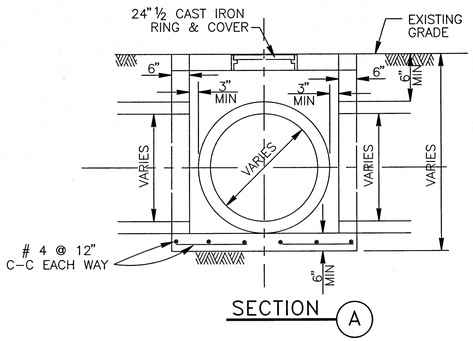
VIEW B–1

SLOTTED DRAIN DETAIL

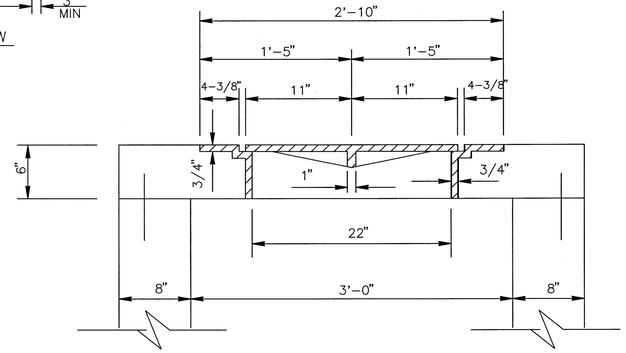
N.T.S.



PLAN VIEW



SECTION A



FRAME AND COVER SECTION

WS&D RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____

PAVING RECORD DRAWING

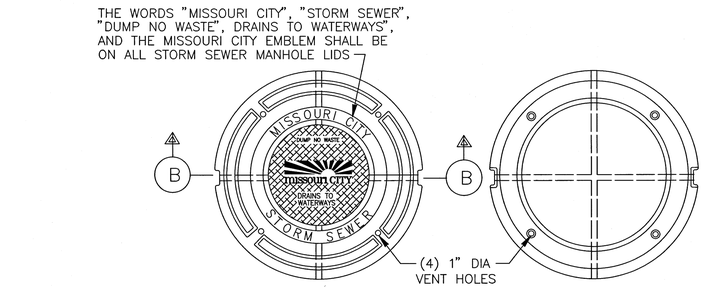
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____

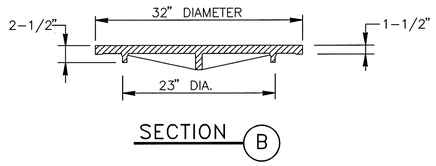
JUNCTION BOX

N.T.S.



TOP VIEW COVER

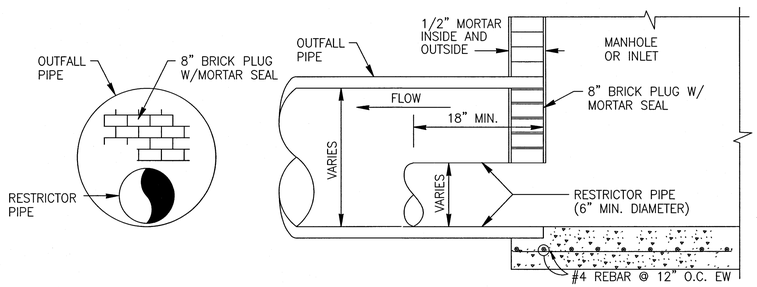
BOTTOM VIEW COVER



SECTION B

STORM SEWER MANHOLE LID

N.T.S.



CHOKE OUTFALL RESTRICTOR DETAIL

STORM SEWER CHOKE RESTRICTOR

N.T.S.

REFER TO:

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

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____ DEVELOPMENT COORDINATOR

DATE: 7/12/17

No.	DATE	REVISION

STORM SEWER CONSTRUCTION DETAILS

missouri CITY TEXAS

DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: _____ DATE 7/5/17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

JOB No.:

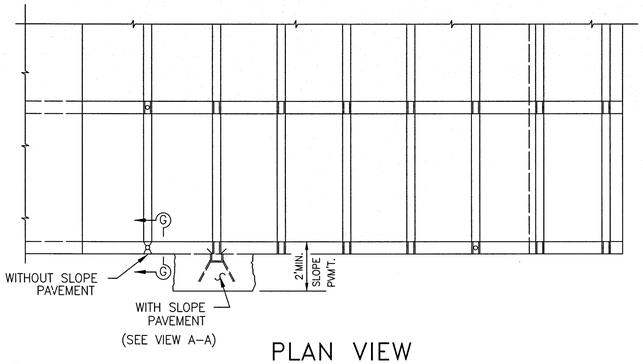
SCALE: AS NOTED
SUBMITTED:
DATE: FEBRUARY 2015

MC–8–15

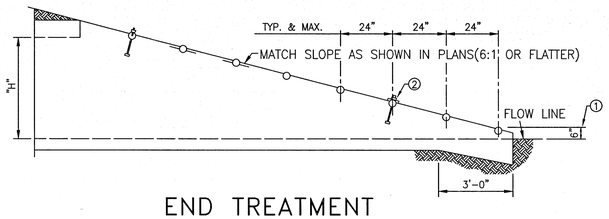
SHEET 31 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194–1127A

Date\Time : Thu, 06 Jul 2017 – 10:28am – USER : drongel
Path\Name : I:\Projdsk1\1194\1194–1127A\1194–1127A\ACAD_Sheet Files\31 STORM SEWER CONSTRUCTION DETAILS – MC–08–15.dwg



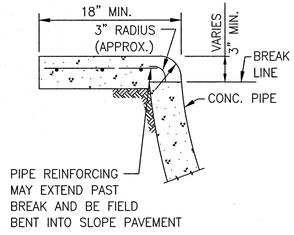
PLAN VIEW



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.

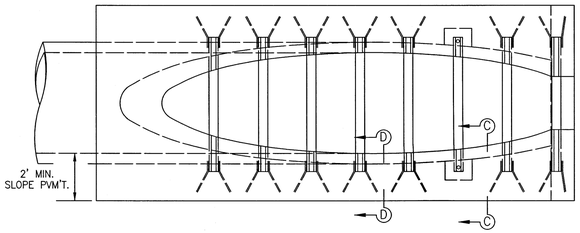


SECTION D

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.

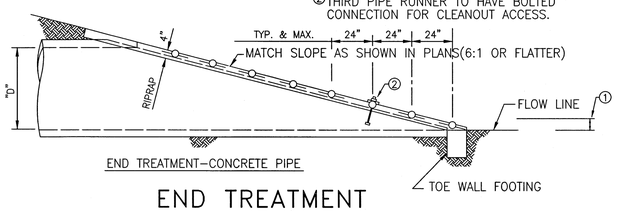
DIA.	WALL	O.D.	SLOPE	PIPE LGTH	TYPE	A INCH	B INCH	C INCH	D INCH	L	LENGTH END SEC FT.
24"	3"	30"	3:1	2–6"	2	3	9	36	54	7'–6"	11.27
			4:1	2–6"	2	3	9	24	48	5'–3"	12.33
			6:1	3–6"	3	3	9	36	72	12'–2"	18.23
36"	4"	44"	3:1	2–7"	2	4	10	36	54	10'–8"	14.75
			4:1	3–6"	3	4	10	26	60	13'–0"	18.21
			6:1	4–6"	4	4	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	3–6"	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

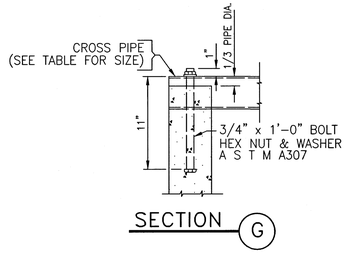
NOTE:
24" (IN.) TREATMENT REQUIRES NO BARS.
36" (IN.) AND LARGER REQUIRES BARS.
ALL BOLTED BARS ARE ACCEPTABLE

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

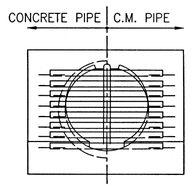


END TREATMENT
CONCRETE PIPE

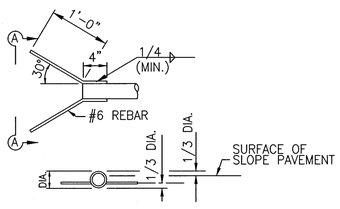
N.T.S.



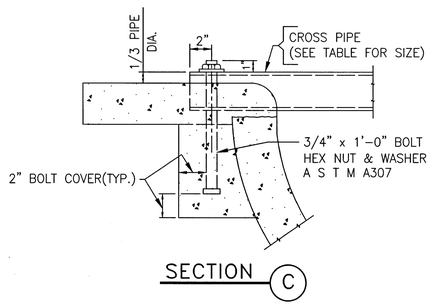
SECTION G



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..

WS&D RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

PAVING RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

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

FORT BEND COUNTY ENGINEERING DEPARTMENT
APPROVED: _____ DEVELOPMENT COORDINATOR
DATE: 7/12/17

No.	DATE	REVISION

SLOPE END TREATMENTS

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER
DESIGN ENGINEER: _____ DATE 7/6/17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

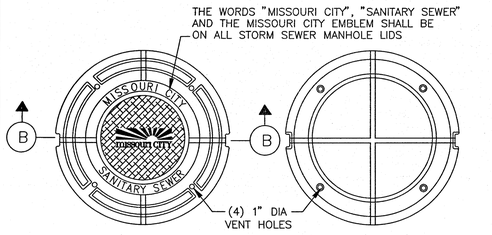
SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

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

MC–9–15
SHEET 32 OF 54

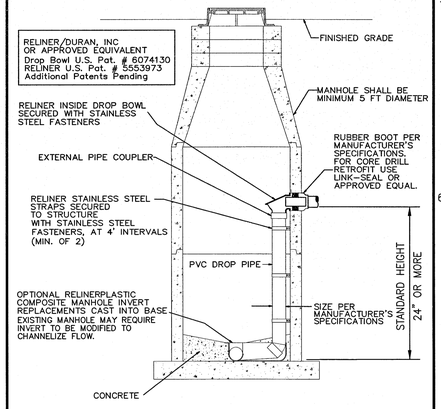
SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194–1127A

Date\Time : Thu, 06 Jul 2017 – 10:28am – USER : dronpel
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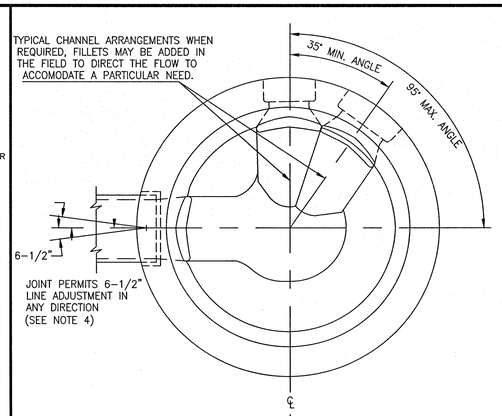
SANITARY SEWER MANHOLE LID

N.T.S.



STANDARD DROP DETAIL

(SEE C.S.S. NOTES)



PIPING CONNECTIONS DETAIL

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.

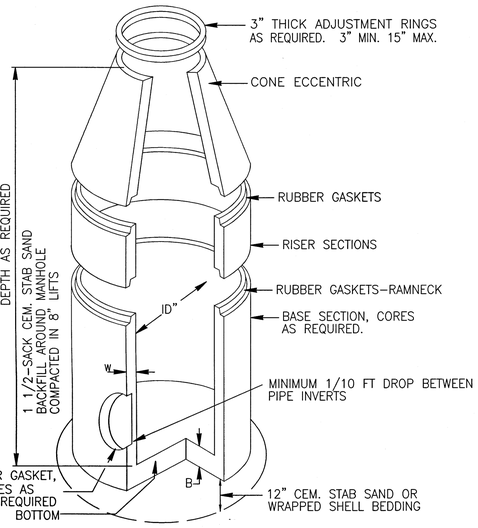
NOTES:

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 STATIONS. 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.

(TCEQ SPECIFICATIONS REQUIRE 2 1/2 SK PER CY AT UTILITY CROSSINGS)

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.

WS&D RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____



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.

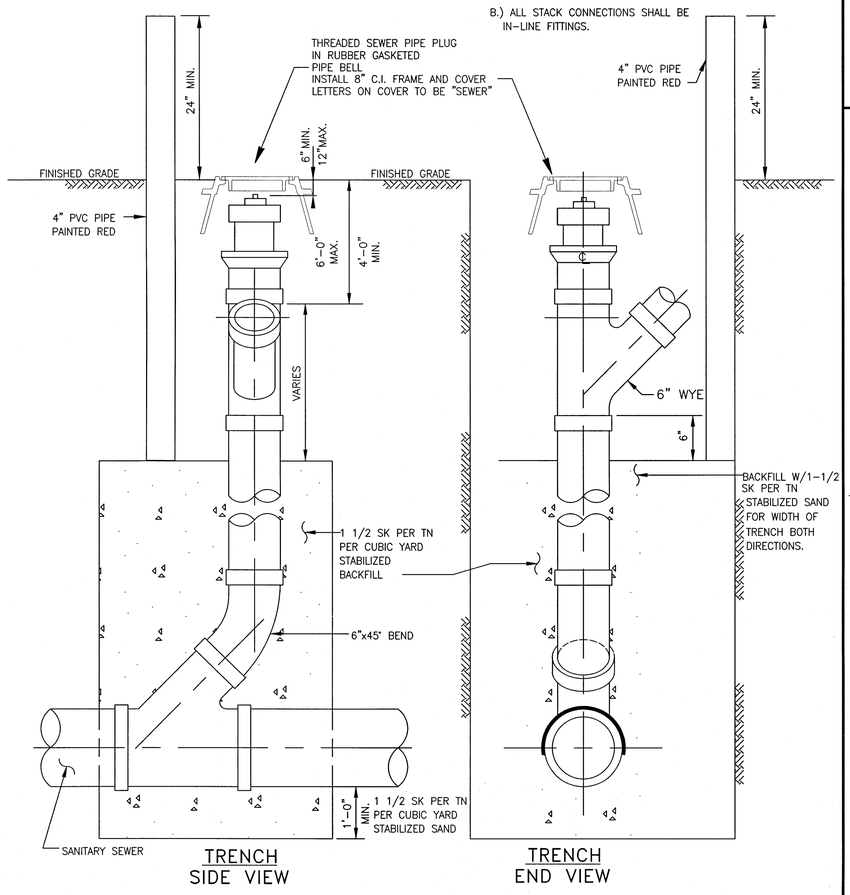
PRECAST SANITARY MANHOLE

N.T.S.

NOTES:

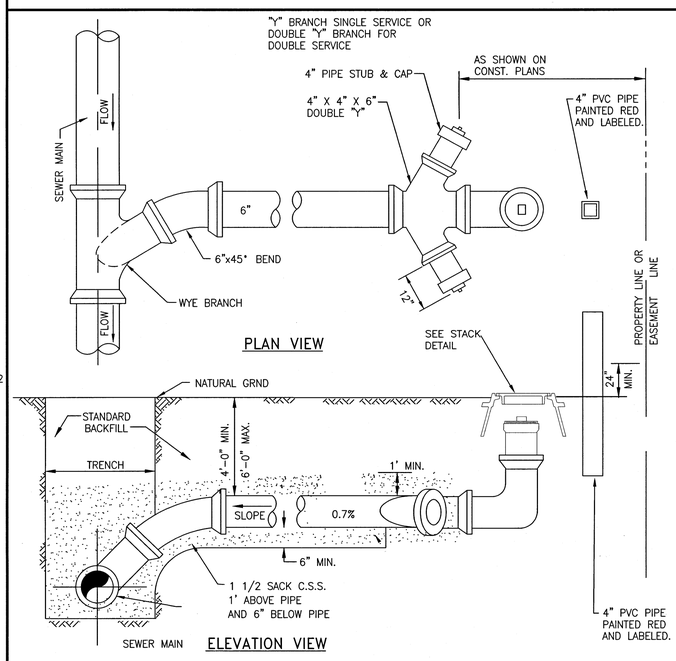
A.) NO STACKS ON MAINS OVER 16' DEEP or IN WET SAND CONDITIONS.

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



STACK DETAIL

N.T.S.



SANITARY SEWER SERVICE CONNECTION

N.T.S.

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____ DEVELOPMENT COORDINATOR

DATE: 7/12/17

PAVING RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

No.	DATE	REVISION

SANITARY SEWER CONSTRUCTION DETAILS

missouri CITY TEXAS

DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: _____ DATE 7.6.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

JOB No.:

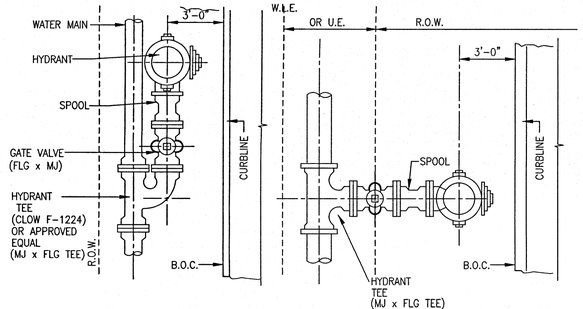
SCALE: AS NOTED
SUBMITTED: _____
DATE: FEBRUARY 2015

MC-10-15

SHEET 33 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A

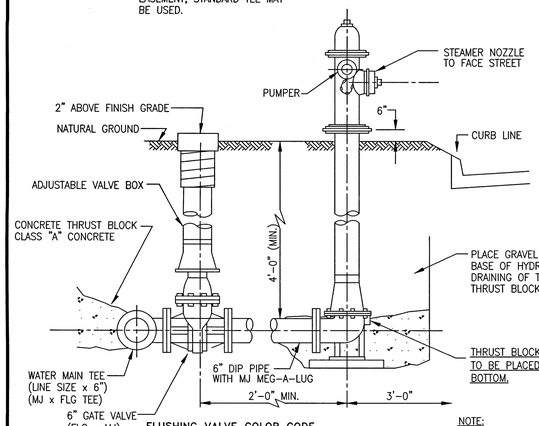
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R.O.W. INSTALLATION
N.T.S.

EASEMENT INSTALLATION
N.T.S.

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



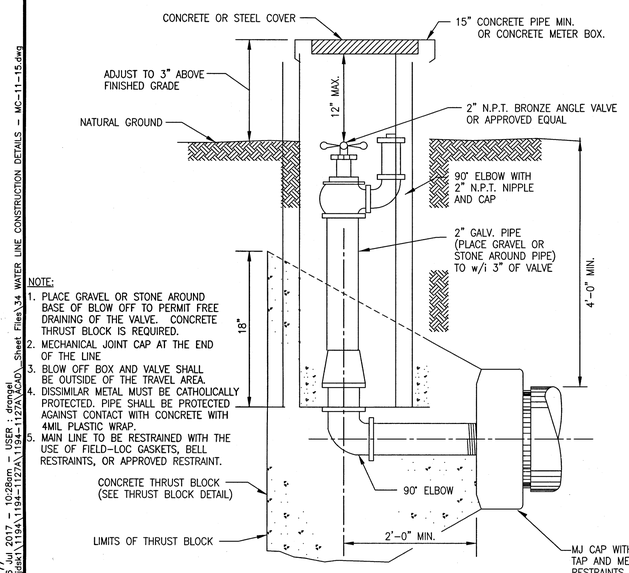
FLUSHING VALVE COLOR CODE

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

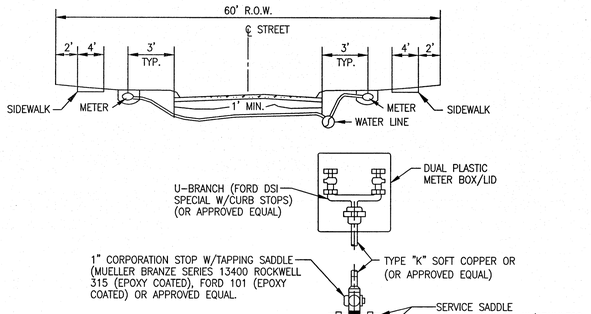
NOTE:
1. ALL FLUSHING VALVES SHALL BE COMPLY WITH THE APPROVED PRODUCTS LIST. STEAMER NOZZLE SHALL BE A 5" STORZ CONNECTION WITH CAP AND PUMPER 2.5" N.S.T.
2. FLUSHING VALVE SHALL BE MECHANICAL JOINT.

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



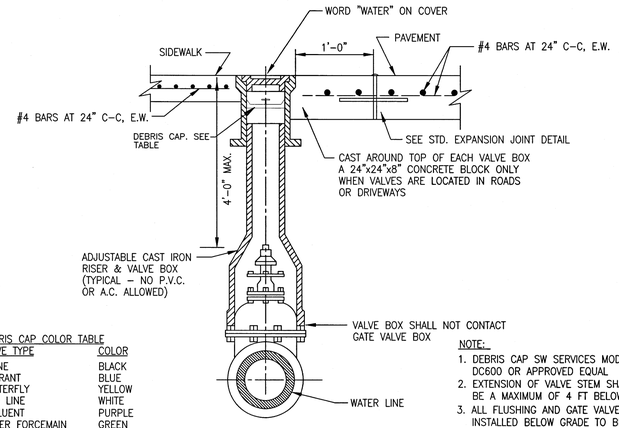
NOTE:
1. PLACE GRAVEL OR STONE AROUND BASE OF BLOW OFF TO PERMIT FREE DRAINING OF THE VALVE. CONCRETE THRUST BLOCK IS REQUIRED.
2. MECHANICAL JOINT CAP AT THE END OF THE LINE
3. BLOW OFF BOX AND VALVE SHALL BE OUTSIDE OF THE TRAVEL AREA.
4. DISSIMILAR METAL MUST BE CATHOLICALLY PROTECTED. PIPE SHALL 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.



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.

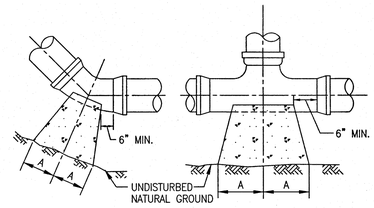


DEBRIS CAP COLOR TABLE

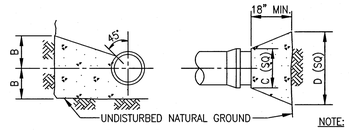
VALVE TYPE	COLOR
INLINE	BLACK
HYDRANT	BLUE
BUTTERFLY	YELLOW
FIRE LINE	WHITE
EFFLUENT	PURPLE
SEWER FORCEMAIN	GREEN
ZONE/INTERCONNECT	RED

NOTE:
1. DEBRIS CAP SW 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 BE A.W.W.A. STANDARD W/RESILIENT SEATS AND NON RISING STEM DESIGN.

VALVE BOX INSTALLATION DETAIL
N.T.S.



BEND TEE



24" MIN.-12" & LARGER PIPE
18" MIN.-10" & SMALLER PIPE

BEND & TEE PLUG

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

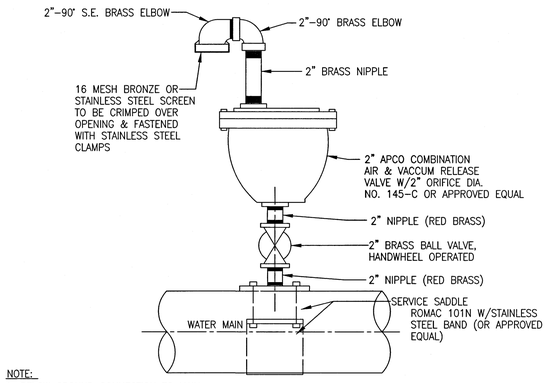
THRUST BLOCK DETAIL
N.T.S.

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"	16"	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"	36"
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"

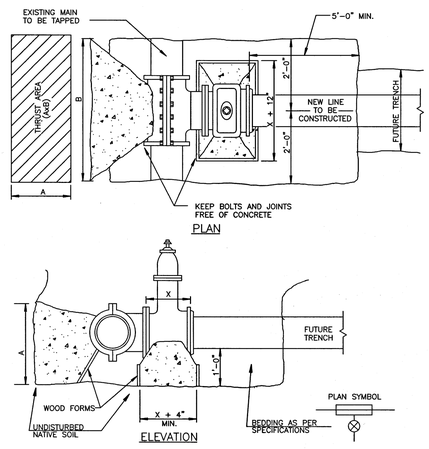
BENDS, TEES & PLUGS FOR PIPE OF VARIOUS SIZES



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.



ELEVATION

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 BEFORE TAP IS MADE. ALL FLANGE BOLTS SHALL BE CLEAR OF FOOTING.
4. TAPPING SLEEVES ARE TO BE FULL CIRCLE STAINLESS STEEL, CLASS 200 PSI.
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 18" 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 RISER & FRAME & COVER PER SPECIFICATIONS AND DETAILS
10. CONCRETE SHALL BE 5.5 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. ENGINEER 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 (AxB)
4" AND LESS	3 SF
6"	4 SF
8"	6 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 250 14 IN ANC 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.

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____ DEVELOPMENT COORDINATOR

DATE: 7/12/17

WS&D RECORD DRAWING
I, HEBERT CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____

PAVING RECORD DRAWING
I, HEBERY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____

No.	DATE	REVISION

WATER LINE CONSTRUCTION DETAILS

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: _____ DATE 7.6.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

JOB No.:

SCALE: AS NOTED
SUBMITTED: _____
DATE: FEBRUARY 2015

MC-11-15

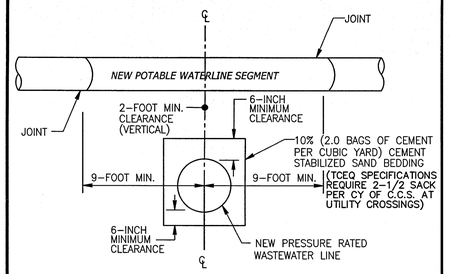
SHEET 34 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A

Date\Time : Thu, 06 Jul 2017 - 10:28am - USER : drongel
Path\Name : I:\Projdsk1\1194\1194-1127A\1194-1127A.ACAD_Sheet Files\34 WATER LINE CONSTRUCTION DETAILS - MC-11-15.dwg

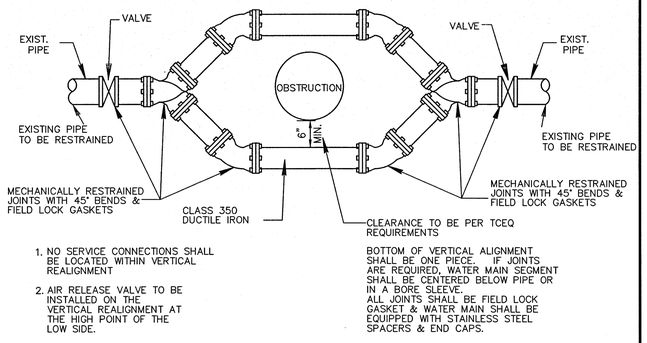
I

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



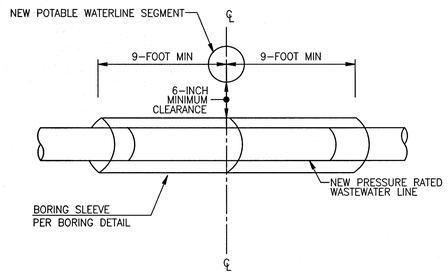
1. NO SERVICE CONNECTIONS SHALL BE LOCATED WITHIN VERTICAL REALIGNMENT
2. AIR RELEASE VALVE TO BE INSTALLED ON THE VERTICAL REALIGNMENT AT THE HIGH POINT OF THE LOW SIDE.

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

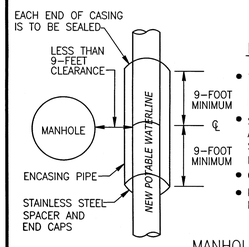


- MINIMUM CASING PIPE STIFFNEESS OF 115 PSI AT 5% DELECTION.
- MINIMUM CASING PIPE DIAMETER ∗ 2 X WASTEWATER LINE DIAMETER.
- UTILIZE BORING SLEEVE DETAIL

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.
   (TCEQ SPECIFICATIONS REQUIRE 2-1/2 SACK PER CY OF C.C.S. AT UTILITY CROSSINGS)
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 LAID 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.

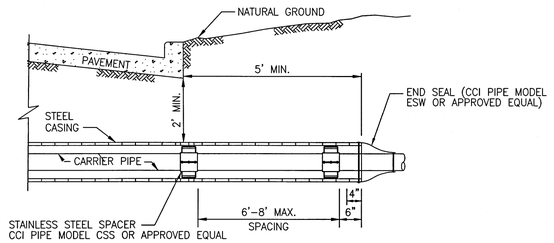
DETAIL OF WATER LINE CROSSING WASTEWATER FACILITIES WHERE SEPARATION IS LESS THAN 9' (NINE FEET)



ENCASING PIPE

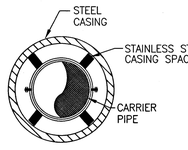
- 150 PSI PRESSURE CLASS PIPE MINIMUM 18 FEET LONG
- DIAMETER = 2 X WATERLINE DIAMETER
- SPACE AROUND CARRIER PIPE SHALL BE SUPPORTED AT 6 FT TO 8 FT INTERVALS MAXIMUM WITH STAINLESS STEEL SPACERS (CCI PIPE MODLE CSS OR APPROVED EQUAL). (TCEQ SPECIFICATIONS REQUIRE 5 FT SPACING)
- CENTERED ON CROSSING
- BOTH ENDS SEALED WITH END CAPS (CCI PIPE MODEL ESW OR APPROVED EQUAL)

MANHOLE CLEARANCE



(TCEQ SPECIFICATIONS REQUIRE 5 FT SPACING)

ELEVATION



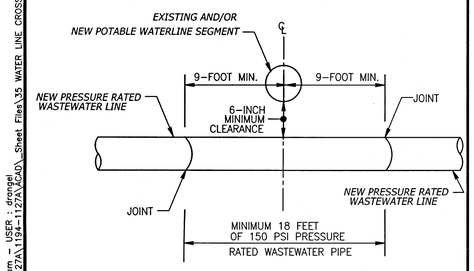
CASING SCHEDULE		
CARRIER PIPE	NOMINAL CASING ID	MIN. WALL THICKNESS (IN.)
6"	12"	0.11
8"	14"	0.15
10"	16"	0.18
12"	18"	0.20

1. CASING SIZE AND THICKNESS SHALL CONFORM TO THE MINIMUM REQUIREMENTS AS SHOWN ON CASING SCHEDULE, OTHER PERMITS AS REQUIRED.
2. MAINTAIN ½" 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.

BORING SLEEVE DETAIL

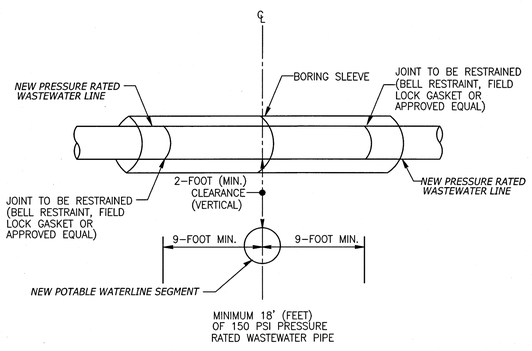
ALTERNATIVE A:

PRESSURE RATED WASTEWATER PIPE



ALTERNATIVE B:

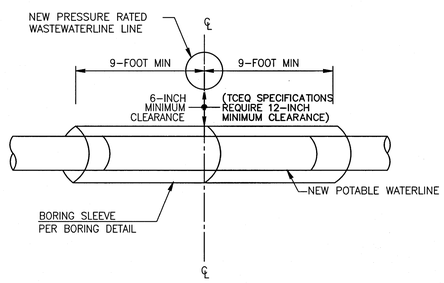
EXISTING POTABLE WATERLINE CROSSING EXISTING PRESSURE RATED WASTEWATER LINE



- 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.

WS&D RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

PAVING RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

FORT BEND COUNTY ENGINEERING DEPARTMENT
APPROVED: _____ DEVELOPMENT COORDINATOR
DATE: 7/12/17

No.	DATE	REVISION

WATER LINE CROSSING DETAILS

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER
DESIGN ENGINEER: _____ DATE 7.5.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

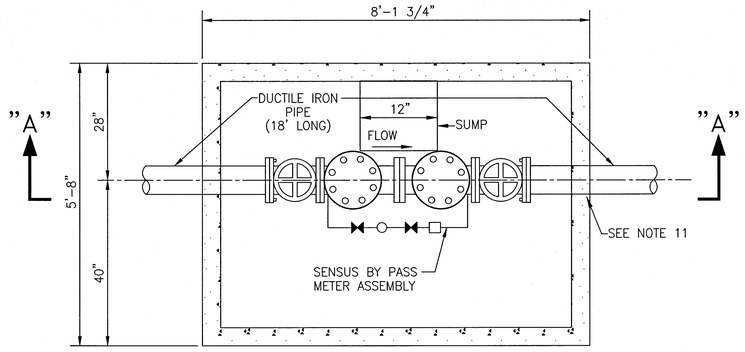
SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

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

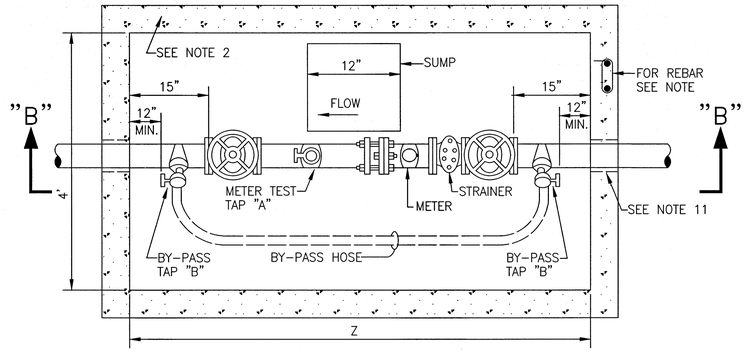
MC-12-15
SHEET 35 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A

Date\Time : Thu, 06 Jul 2017 - 10:28am - USER : drongel
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PLAN VIEW



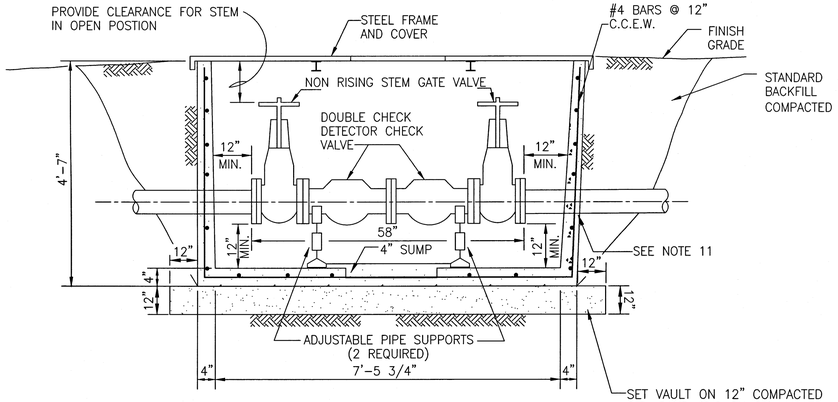
PLAN VIEW

NOTES:

1. PIPING/VAVLES SHALL BE SUPPORTED WITH PIPE SUPPORTS ANCHORED TO THE FLOOR.

NOTES:

1. NOTIFY THE PUBLIC WORKS DEPARTMENT (281) 403-8570 PRIOR TO CONSTRUCTION OF VAULT OR BY-PASS ASSEMBLY.
2. THE METER VAULT CAN BE EITHER POURED IN PLACE OR PREFABRICATED. CONCRETE SHALL BE SIX INCHES (6") THICK AND BE 3,000 PSI WITH #4 REINFORCEMENT STEEL ON TWELVE INCH (12") CENTERS EACH WAY IF THE VAULT IS POURED IN PLACE. PREFABRICATED VAULTS SHALL BE FOUR INCHES (4") THICK AND BE 4,500 PSI CONCRETE WITH #4 REINFORCEMENT STEEL ON EIGHT INCH (8") CENTERS EACH WAY. THESE ARE MINIMAL SPECIFICATIONS.
3. THE VAULT WILL NOT BE PUT IN ANY DRIVE OR PARKING AREAS AND MUST BE LOCATED IN A WATER METER EASEMENT.
4. THE VAULT LID SHALL BE A BILCO LID, TYPE Q-4 SINGLE LEAF DESIGN. ANGLE FRAME IS 1/4-INCH STEEL WITH STRAP ANCHORS BOLTED TO THE EXTERIOR. THE LEAF IS 1/4-INCH STEEL DIAMOND PATTERN PLATE, PIVOTING ON TORSION BARS FOR EASY OPERATION. THE MINIMUM LIVE LOAD CAPACITY IS 150 POUNDS PER SQUARE FOOT. THE SIZE OF THE DOOR IS THREE FEET (3') BY THREE FEET (3').
5. THE LID SHALL BE PAINTED WITH 43-38 TNEMEC DIFFUSED ALUMINUM PAINT OR APPROVED EQUAL, AND CENTERED OVER METER/NO.
6. THE BY-PASS AND METER TEST TAP SHALL BE INSTALLED INSIDE THE VAULT. TAP "A" MUST BE AT LEAST TWO (2) PIPE DIAMETERS DOWNSTREAM OF THE METER. TAPS "B" AND "C" MUST BE MADE AT APPROXIMATE FORTY-FIVE DEGREE (45') ANGLE ON EACH END OF THE PIPE AND CENTERED TEN INCHES (10") AWAY FROM THE WALL. ALL TAPS SHALL BE TWO INCHES (2") AND SHALL INCLUDE A ROCKWELL NO. 317-045514-000 FOR THREE INCH (3") BY TWO INCH (2"); ROCKEWELL NO. 317-056314-000 FOUR INCH (4") BY TWO INCH ROCKWELL NO. 317-121214-000 SERVICE SADDLES WITH BRASS NIPPLES AND NO. 7500 OHIO BRASS OR APPROVED EQUAL.
7. THE STRAINER, METER, AND FLEXIBLE COUPLING (ROCKWELL OR APPROVED EQUAL) WILL BE PROVIDED AND INSTALLED BY THE CITY OR DISTRICT OPERATOR.
8. THE STRAINER, METER AND FLEXIBLE COUPLING WILL NOT BE SET UNTIL THE METER VAULT AND TAPS ARE ACCEPTED BY THE DISTRICT OPERATOR. ALL UTILITIES MUST ALSO HAVE BEEN ACCEPTED AND RELEASED BY THE CITY OF MISSOURI CITY PUBLIC WORKS DEPARTMENT PRIOR TO METER INSTALLATION.
9. THE VALVES SHALL BE RESILENT WEDGE NON-RISING STEM DESIGN GATE VALVE WHICH HAS RECEIVED FORMAL APPROVAL FROM THE CITY OF MISSOURI CITY PUBLIC WORKS DEPARTMENT. ALL VALVES SHALL BE FLANGED BOTH ENDS AND HAVE HAND WHEELS.
10. THE METER VAULT SHALL BE SET ON 12" C.S.S. BEDDING AS SHOWN ON DETAIL DRAWINGS. A SUMP FOUR-INCHES (4") DEEP AND TWELVE INCHES (12") IN DIAMETER SHALL BE INSTALLED TO ONE SIDE IN THE CENTER OF THE BOTTOM SLAB. IF PRECAST VAULT IS USED, RAM-NEK SHALL BE USED TO SEAL ALL COLD JOINTS.
11. ALL THE WALL PENETRATIONS SHALL BE MADE WITH A CAST IN PLACE WALL SLEEVE AS APPROVED BY THE CITY OF MISSOURI CITY DEPARTMENT OF PUBLIC WORKS OR CORED. PIPE SHALL BE CENTERED AND SECURED WITH LINK SEAL AND GROUTED. BREAKING OUT THE WALL USING A JACKHAMMER OR USING KNOCKOUT PANELS WILL NOT BE ALLOWED.
12. A CONCRETE SUPPORT WILL BE INSTALLED UNDER EACH VALVE.
13. DEPTH OF VAULT SHALL BE A MINIMUM OF FOUR AND ONE-HALF FEET (4-1/2').
14. ALL PIPING INSIDE THE VAULT SHALL BE DUCTILE IRON WITH FLANGE FITTINGS. ALL PIPING SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF MISSOURI CITY PUBLIC WORKS DEPARTMENT.



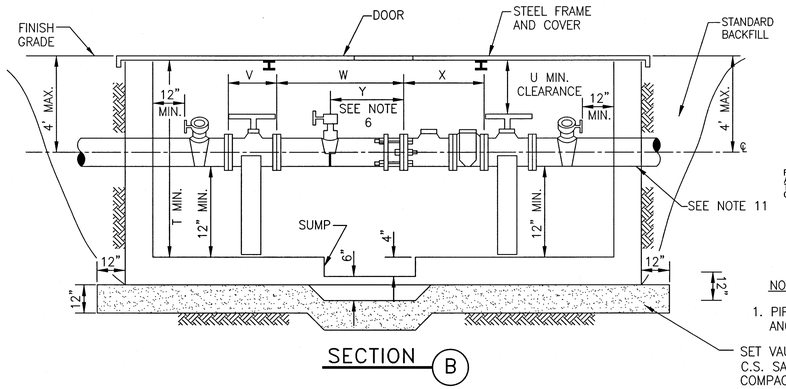
SECTION (A)

NOTES:

1. SIAMESE CONNECTION MAY BE ALLOWED WITHIN THE VAULT WHEN APPROVED BY THE DEPARTMENT OF PUBLIC WORKS AND FIRE MARSHALL.
2. FIRE VALVE MAY BE SUBSTITUTED FOR GATE VALVE ON THE CUSTOMER SIDE. SUPPLIED BY PARK EQUIPMENT COMPANY, OR APPROVED EQUAL.
3. PIPING/VAVLES SHALL BE SUPPORTED WITH PIPE SUPPORTS ANCHORED TO THE FLOOR.

DETECTOR CHECK VALVE

N.T.S.



SECTION (B)

NOTES:

1. PIPING/VALVES SHALL BE SUPPORTED WITH PIPE SUPPORTS ANCHORED TO THE FLOOR.

WS&D RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

PAVING RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

METER VAULT															
DOMESTIC															
METER SIZE	T	U	V	W	X	Y	Z		METER SIZE	T	U	V	W	X	Y	Z
3"	4'-6"	25"	8"	11-1/2"	24"	9"	6'-10"		3"	4'-6"	25"	8"	16-1/2"	19"	9"	6'-10"
4"	4'-6"	22"	9"	13-1/2"	29"	10"	7'-7"		4"	4'-6"	22"	9"	19-1/2"	23"	10"	7'-7"
6"	5'-2"	26"	10-1/2"	13-1/2"	33"	13"	8'-2"		6"	5'-2"	26"	10-1/2"	19-1/2"	27"	13"	8'-2"
									8"	6'-0"	31"	11-1/2"	25-1/2"	30"	17"	9'-1"
									10"	7'-0"	37"	13"	29-1/2"	41"	21"	10'-7"

3" TO 10"
TURBINE METER

N.T.S.

REFER TO:

1. GENERAL NOTES

FORT BEND COUNTY ENGINEERING DEPARTMENT
APPROVED: _____
DEVELOPMENT COORDINATOR
DATE: 7/12/17

No.	DATE	REVISION

WATER LINE
METER VAULT DETAILS

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER
DESIGN ENGINEER: _____ DATE 7-2017

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

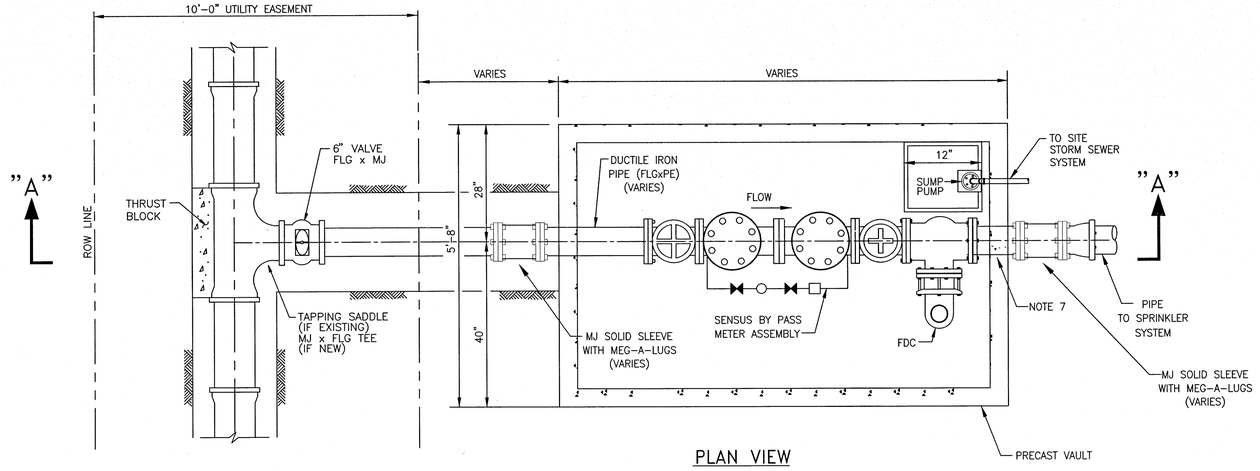
SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

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

MC-13-15
SHEET 36 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A

Date\Time : Thu, 06 Jul 2017 - 10:28am - USER : dcrogel
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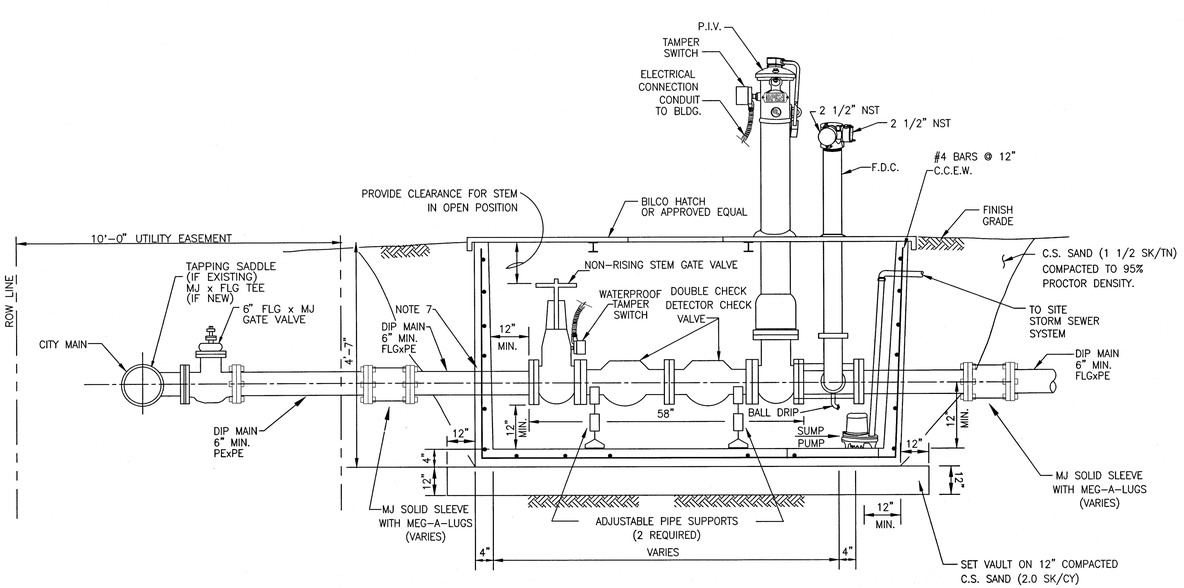


PLAN VIEW

TYPICAL FIRE SERVICE METER

NOTES:

1. FIRE HYDRANT REQUIRED WITHIN 50' LINEAR FEET OF THE FIRE DEPARTMENT CONNECTION.
2. FIRE VALVE MAY BE SUBSTITUTED FOR GATE VALVE ON THE CUSTOMER SIDE. SUPPLIED BY PARK EQUIPMENT COMPANY, OR APPROVED EQUAL.
3. ALL FIRE DEPARTMENT VAULTS SHALL BE EQUIPPED WITH A SUMP PUMP CAPABLE OF MAINTAINING WATER LEVELS BELOW THE CENTER LINE OF THE CHECK VALVES. OUTLET SHALL BE CONNECTED TO SITE STORM SEWER SYSTEM.
4. SUMP PUMP MAYBE ELIMINATED IF BOX CAN BE DRAINED VIA GRAVITY TO SITE STORM SEWER SYSTEM.
5. ALL COMPONENTS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 13 "STANDARDS FOR THE INSTALLATION OF SPRINKLER SYSTEMS".
6. REFER TO GENERAL NOTES, WATER LINE AND STORM SEWER NOTES.
7. ALL THE WALL PENETRATIONS SHALL BE MADE WITH A CAST IN PLACE WALL SLEEVE AS APPROVED BY THE CITY OF MISSOURI CITY DEPARTMENT OF PUBLIC WORKS OR CORED. PIPE SHALL BE CENTERED AND SECURED WITH LINK SEAL AND GROUTED. BREAKING OUT THE WALL USING A JACKHAMMER OR USING KNOCKOUT PANELS WILL NOT BE ALLOWED.



SECTION (A)

TYPICAL FIRE SERVICE METER

WS&D RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

PAVING RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

FORT BEND COUNTY ENGINEERING DEPARTMENT
APPROVED: _____ DEVELOPMENT COORDINATOR
DATE: 7/12/17

No.	DATE	REVISION

WATER LINE FIRE SERVICE METER VAULT

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER
DESIGN ENGINEER: _____ DATE 7.5.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

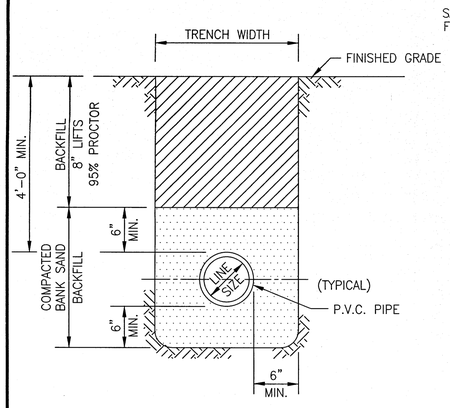
SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

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

MC-14-15
SHEET 37 OF 54

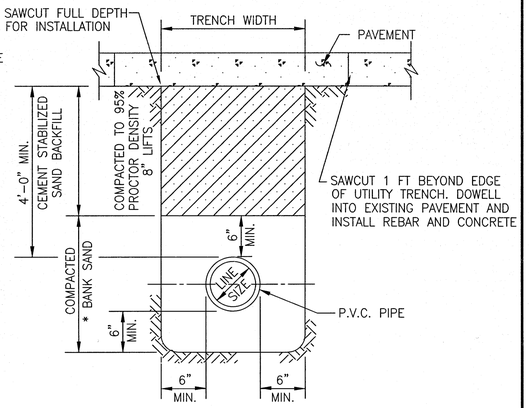
SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194-1127A

Date\Time : Thu, 06 Jul 2017 - 10:28am - USER : dronpel
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P.V.C. PIPE BEDDING & BACKFILL

N.T.S.

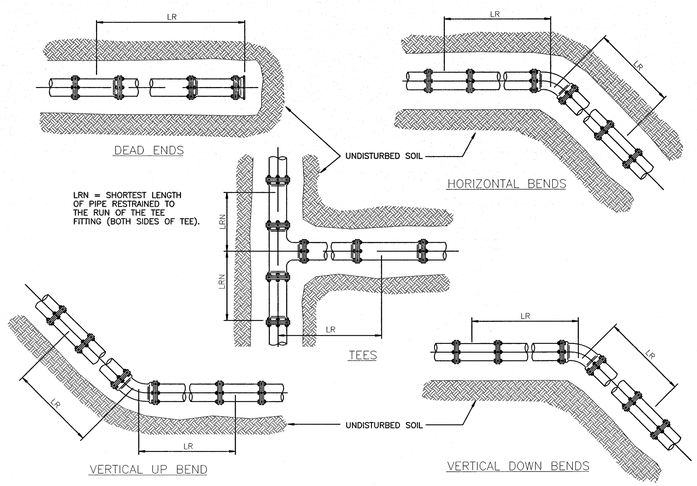


P.V.C. PIPE BEDDING & BACKFILL
PAVING DETAIL
CLASS "A-A"

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°	LRN=0'	LRN=10'	DOWN BEND	UP BEND	DOWN BEND	UP BEND	DOWN BEND	UP BEND	
4	18	7	4	30	8	31	18	13	7	6	3	31
6	25	10	5	43	20	44	25	18	10	9	5	44
8	32	13	6	56	34	58	32	24	13	11	6	58
10	38	16	8	68	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	38	21	18	10	92
16	57	24	11	103	79	104	57	43	24	21	11	104
18	62	26	12	113	90	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

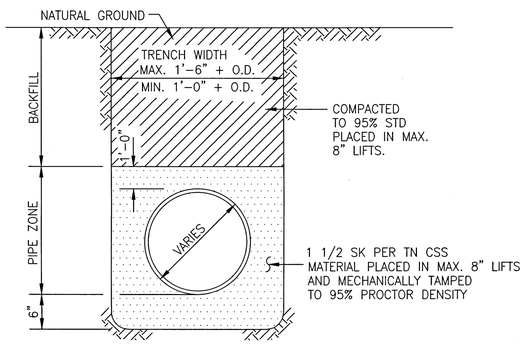
RESTRAINED LENGTHS, LR, FOR DUCTILE IRON PIPE WITH POLYETHYLENE WRAP

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°	LRN=0'	LRN=10'	DOWN BEND	UP BEND	DOWN BEND	UP BEND	DOWN BEND	UP BEND	
4	26	11	5	69	18	72	26	30	11	14	5	72
6	36	15	7	99	47	102	36	42	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	185	131	187	65	77	27	37	13	187
14	74	31	15	211	156	214	74	89	31	42	15	214
16	82	34	16	238	183	241	82	100	34	48	16	241
18	90	37	18	263	207	266	90	110	38	53	18	266
20	98	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.

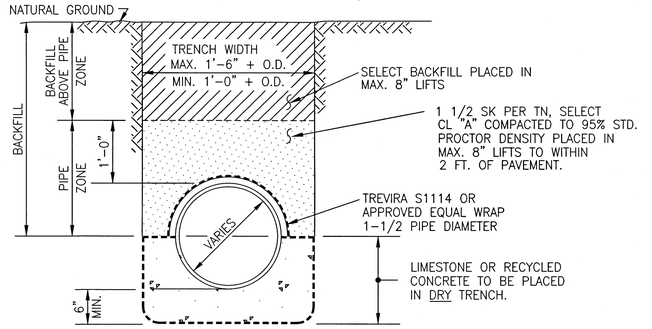
JOINT RESTRAINT FOR DUCTILE IRON PIPE AND POLYETHYLENE WRAPPED DUCTILE IRON WATER PIPES



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

CLASS "A"

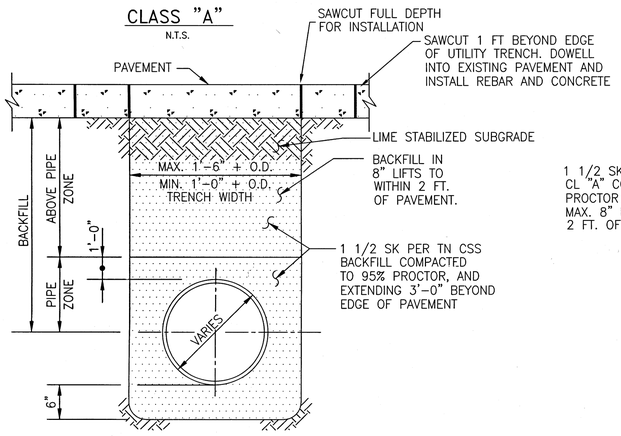
N.T.S.



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

MODIFIED "A"

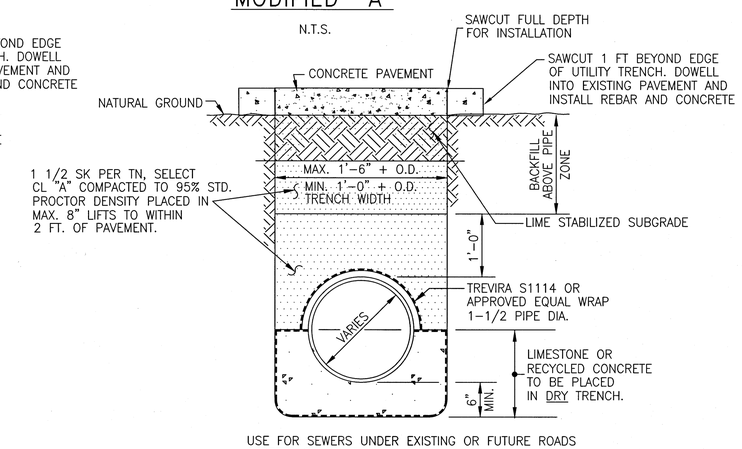
N.T.S.



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.

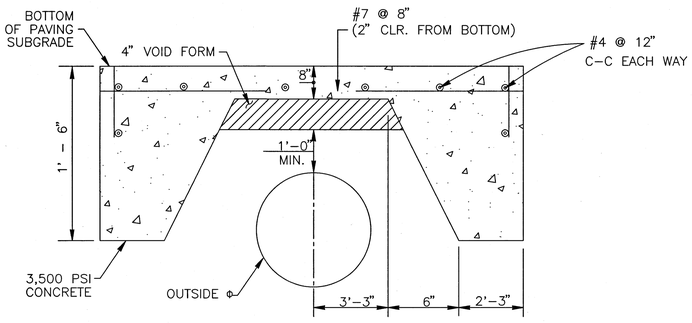
REFER TO:

1. *GENERAL NOTES*
2. *C.S.S. NOTES*

SANITARY SEWER BEDDING AND BACKFILL

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

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____ DEVELOPMENT COORDINATOR

DATE: 7/12/17

WS&D RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____

PAVING RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____

No.	DATE	REVISION

WATERLINE AND SANITARY SEWER FORCE MAIN BEDDING DETAILS

missouri CITY TEXAS

DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL:

STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: _____ DATE 7.5.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

JOB No.:

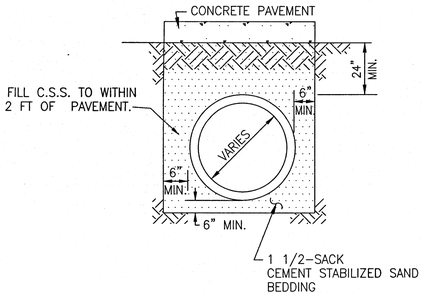
SCALE: AS NOTED
SUBMITTED: _____
DATE: FEBRUARY 2015

MC-15-15

SHEET 38 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A

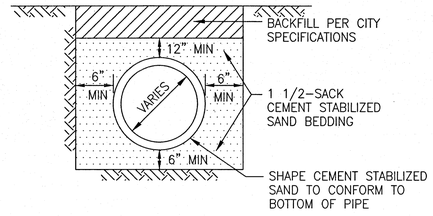
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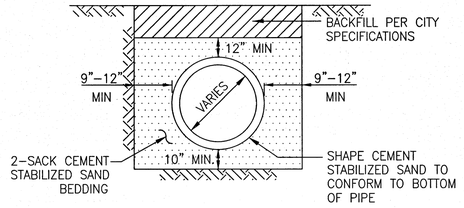
BEDDING DETAIL FOR
CONCRETE CULVERT USED
UNDER ROADWAY PAVEMENT

CLASS "A-A"

N.T.S.



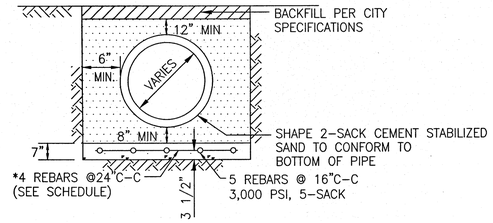
BEDDING DETAIL FOR
REINFORCED CONCRETE PIPE
STORM SEWER
36" DIAMETER & SMALLER



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")

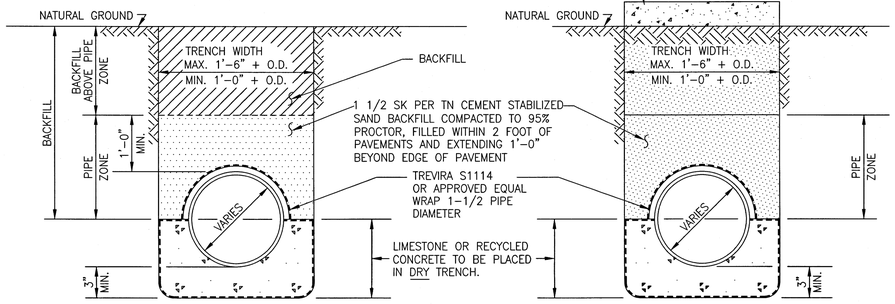
BEDDING DETAIL FOR
REINFORCED CONCRETE PIPE
STORM SEWER
42" TO 108" DIAMETER
WHERE SATISFACTORY SOIL CONDITIONS EXIST



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



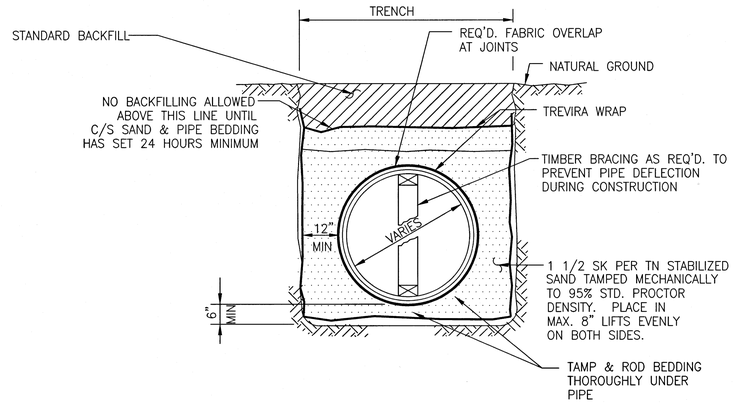
MODIFIED "A"

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

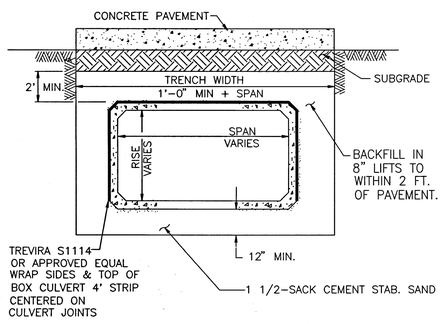
N.T.S.

CONSTRUCTION NOTES

1. CONTRACTOR SHALL CONTACT MISSOURI CITY DEPARTMENT OF PUBLIC WORKS INMEDIATELY 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. 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)

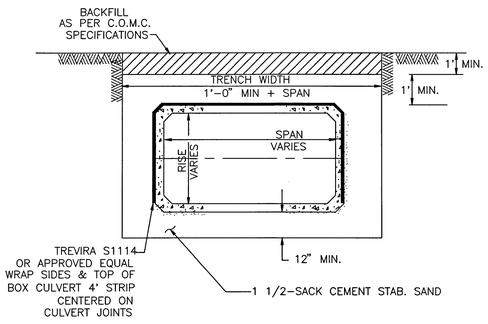
PIPE SIZE	LGT LAT #4 BARS	NO LONGIT #5 BARS
42"	5'4"	5
48"	6'8"	6
54"	6'8"	6
60"	8'0"	7
66"	8'0"	7
72"	9'4"	8
78"	9'4"	8
84"	9'4"	8
90"	10'8"	9
96"	10'8"	9
102"	12'0"	10
108"	12'0"	10



BEDDING DETAIL FOR
REINFORCED CONCRETE BOX
CULVERT UNDER ROADWAY PAVEMENT

NOTES

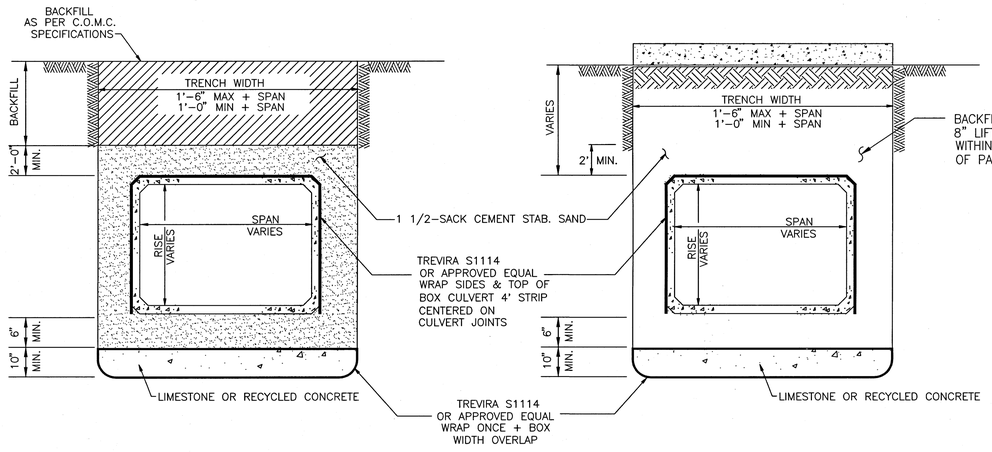
1. 2-SACK CEMENT PER CUBIC YARD STABILIZED SAND PLACED BEFORE PIPE IS PLACED (8" MINIMUM FOR 42" TO 60", 12" MINIMUM FOR 66" TO 108").



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

WS&D RECORD DRAWING
I, HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

PAVING RECORD DRAWING
I, HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

FORT BEND COUNTY ENGINEERING DEPARTMENT
APPROVED: _____
DEVELOPMENT COORDINATOR
DATE: 7/12/17

No.	DATE	REVISION

STORM SEWER PIPE BEDDING
AND BACKFILL DETAILS

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL:
STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: _____ DATE 7.6.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

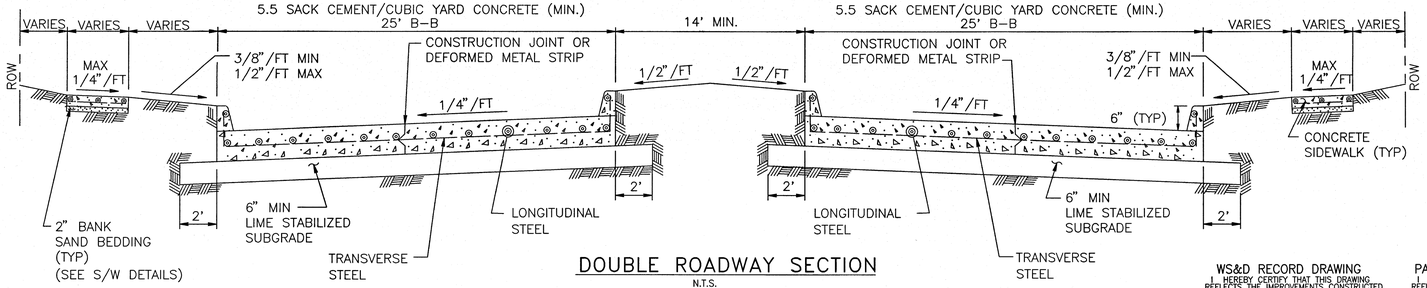
JOB No.:
SCALE: AS NOTED
SUBMITTED:
DATE: FEBRUARY 2015

MC-16-15

SHEET 39 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A

Date\Time : Thu, 06 Jul 2017 - 10:28am - USER : dronge
Path\Name : I:\Projdsk1\1194\1194-1127A\1194-1127A\CAD_Sheet Files\39 STORM SEWER PIPE BEDDING AND BACKFILL DETAILS - MC-16-15.dwg



DOUBLE ROADWAY SECTION

N.T.S.

WS&D RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____

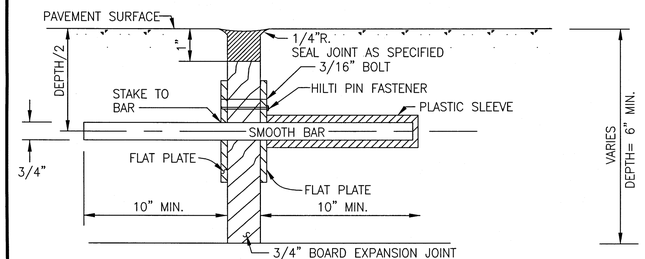
PAVING RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____

CONSTRUCTION NOTES:

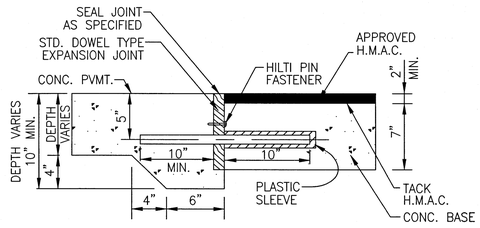
1. 6 INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI REINFORCED CONCRETE WITH #4 BARS 24 INCHES O.C., E.W. IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR RESIDENTIAL STREETS.
2. 7 INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI REINFORCED CONCRETE WITH #4 BARS 24 INCHES O.C., IS 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 GEOTECH 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.

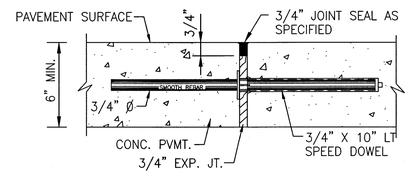
DOWEL TYPE EXPANSION JOINT

N.T.S.



DOWEL TYPE EXPANSION JOINT

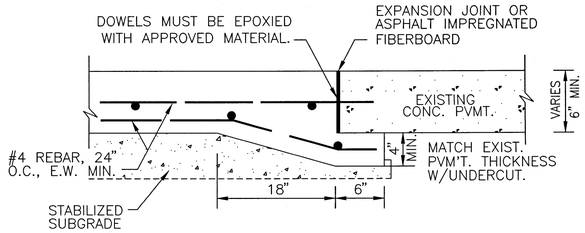
N.T.S.
(CONC. PAVING TO CONC. BASE)



SPEED DOWEL EXPANSION JOINT

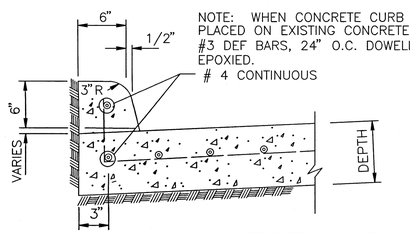
N.T.S.

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



UNDERCUT DETAIL WITH HEADER

N.T.S.

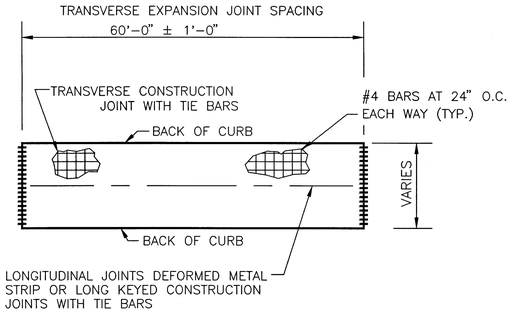


* REDWOOD CURB EARS SHALL BE PLACED AT ALL TRANSVERSE JOINTS IN PAVEMENT.

CONCRETE CURB

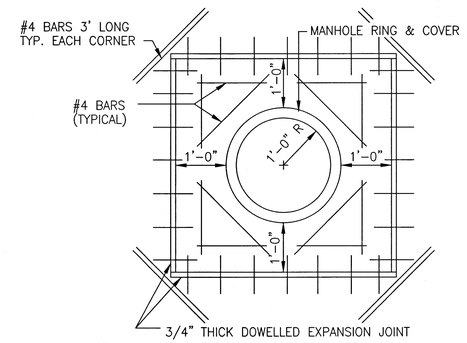
N.T.S.

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

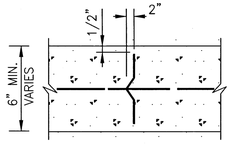
N.T.S.



MANHOLE BLOCKOUT

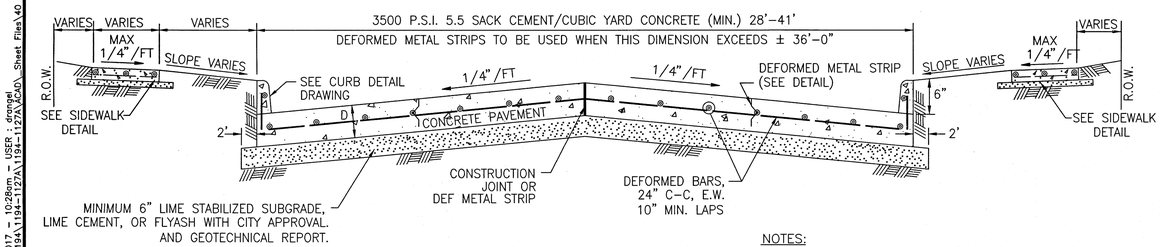
N.T.S.
(STORM & SANITARY) IN PAVEMENT

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

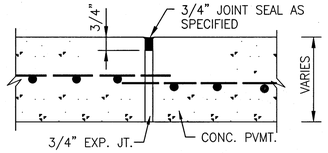
N.T.S.



SINGLE ROADWAY SECTION

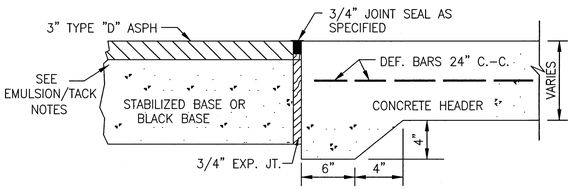
N.T.S.

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-305-53T. 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.)

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____ DEVELOPMENT COORDINATOR

DATE: 7/12/17

No.	DATE	REVISION

CONCRETE PAVEMENT CONSTRUCTION DETAILS

missouri CITY TEXAS

DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: _____ DATE 7-5-17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

JOB No.:

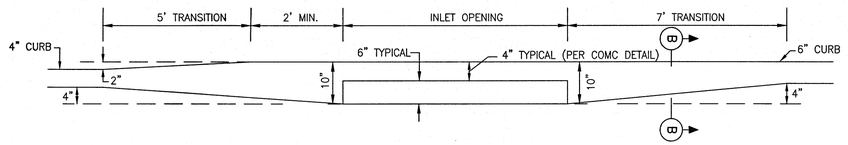
SCALE: AS NOTED
SUBMITTED:
DATE: FEBRUARY 2015

MC-17-17

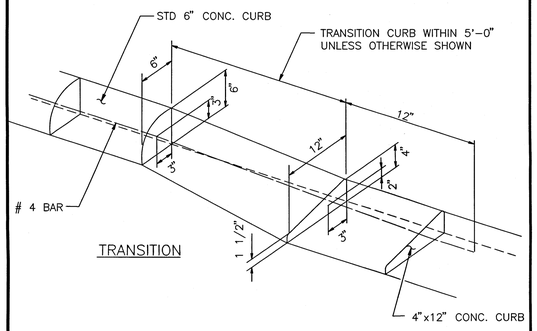
SHEET 40 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A

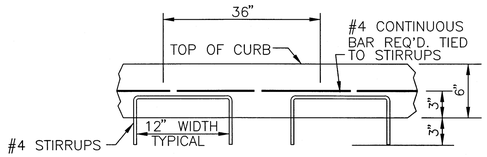
Date\Time : Thu, 06 Jul 2017 - 10:28am - USER : drongel
Path\Name : I:\Projdsk\1194\1194-1127A\1194-1127A\ACAD\ Sheet Files\40 CONCRETE PAVEMENT CONSTRUCTION DETAILS - MC-17-15.dwg



TYPICAL CURB TRANSITION FOR INLET INSTALLATION

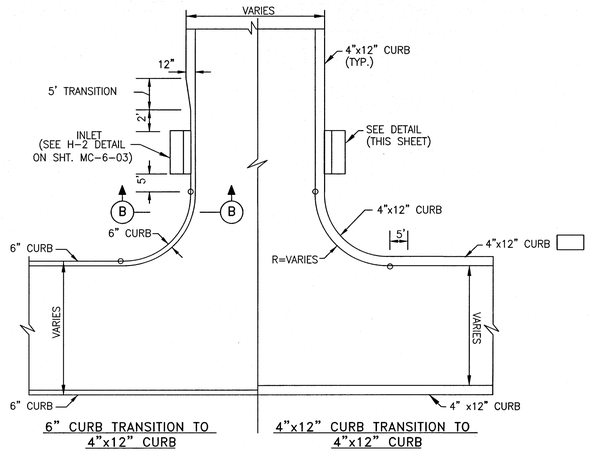


TYPICAL CURB TRANSITION



TYPICAL CONCRETE CURB REINFORCING

N.T.S.

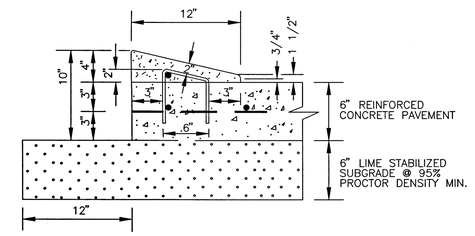


TYPICAL 4"X12" CURB W/INLET TRANSITION FOR CURB RETURNS

N.T.S.

CONSTRUCTION NOTES:

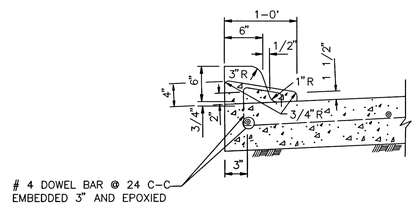
1. 6 INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI REINFORCED CONCRETE WITH #4 BARS 24 INCHES C-C, E.W. IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR RESIDENTIAL STREETS.
2. 7 INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI REINFORCED CONCRETE WITH #4 BARS 24 INCHES C-C, IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR COLLECTOR AND THOROUGHFARE STREETS.
3. TRANSVERSE EXPANSION JOINTS ARE REQUIRED AT MAXIMUM SPACING OF 60'-0" C-C, AND VERTICAL CURB JOINTS TO BE SEALED WITH SPECIAL JOINT SEALANT ASTM-D-1190-74 OR AASHTO-M173-60 (ELASTOMERIC TYPE, HOT POURED)
4. FOR PAVEMENT FINISH USE BURLAP DRAG OR BELTED FINISH. CURING COMPOUND REQUIRED ON ALL CONCRETE.
5. GEOTECH REPORT OR CITY ENGINEER MAY REQUIRE PAVEMENT DEPTHS GREATER THAN 7" (IN.).
6. 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.
7. UNSTABLE SUBGRADE SHALL BE EXCAVATED AND REPLACED WITH CEMENT STABILIZED SAND.
8. USE 1"x2" REDWOOD STAKES FOR HEADERS.
9. EDGE ALL SIDES WITH EDGING TOOL.
10. DOWEL SHALL BE 3/4" DIAMETER, WITH MINIMUM 8" PENETRATION (BOTH SIDES).
11. IT IS THE CONTRACTOR'S RESPONSIBLITY TO NOTIFY THE CITY OF MISSOURI CITY OF ANY BIRDBATH PROBLEMS PRIOR TO CONSTRUCTION OF DRIVEWAY.
12. REFER TO GENERAL, C.S.S., AND PAVEMENT NOTES.
13. 1.0 LBS. OF APPROVED POLYPROPYLENE FIBER MESH PER C/Y IN 4"X12" CURBS REQUIRED.



4"x12" MOUNTABLE CONCRETE CURB

NOTES:

1.) 1.0 LBS. OF APPROVED NON-METALLIC FIBER MESH PER C/Y IN 4"X12" CURBS.
2.) #3 RE-BAR STIRRUPS TO BE PLACED AT INTERVALS OF 2' (FT) C-C.
3.) #4 RE-BAR LONGITUDINAL SHALL BE TIED TO EACH STIRRUP
4.) MOUNTABLE CURB ONLY ALLOWED ON ≤ 41' (FT), UNDIVIDED, RESIDENTIAL ROADWAYS WITHIN SUBDIVISIONS.



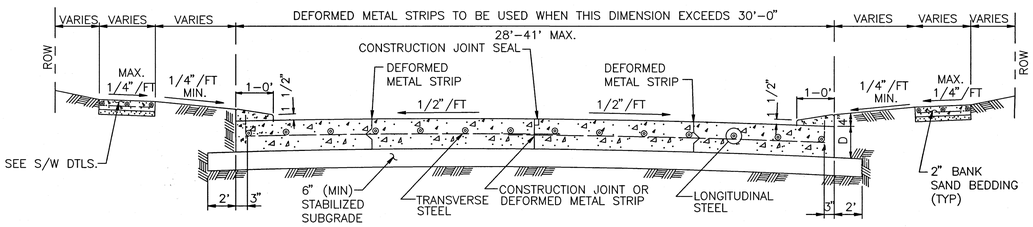
4-INCH x 12-INCH TRANSITION CURB

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

1. 6-INCH CONCRETE CURB TO BE CONSTRUCTED ON ALL ESPLANADES, ISLANDS AND NON-RESIDENTIAL STREETS. RESIDENTIAL STREETS WITH LOT FRONTAGE MAY BE CONSTRUCTED WITH EITHER 6-INCH CONCRETE CURB OR 4-INCH x 12-INCH CONCRETE CURB AS NOTED ON PLANS. 4-INCH X 12-INCH CONCRETE CURB MAY ONLY BE CONSTRUCTED ON THE LOT FRONTAGE ADJCENT TO THE RESIDENTIAL STREET.
2. ALL 4-INCH x 12-INCH CONCRETE CURBS TO BE POURED SEPARATE FROM PROPOSED CONCRETE PAVEMENT.
3. TRANSITIONS FROM 6-INCH CONCRETE CURB TO 4-INCH x 12-INCH CONCRETE CURB TO BE ACCOMPLISHED WITHIN 5 FEET (TYP.), UNLESS OTHERWISE SHOWN. REINFORCING STEEL AS SHOWN IN "4-INCH x 12-INCH TRANSITION CURB" DETAIL IS TO BE INSTALLED.
4. 1.0 LB OF APPROVED FIBER MESH PER C/Y IN ALL NEW CURB.

WS&D RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

PAVING RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____



TYPICAL SINGLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH 4"X12" CURB

* SEE 4" x 12" MOUNTABLE CURB DETAIL (THIS SHEET)

FORT BEND COUNTY ENGINEERING DEPARTMENT
APPROVED: _____ DEVELOPMENT COORDINATOR
DATE: 7/12/17

No.	DATE	REVISION

RESIDENTIAL CURB CONSTRUCTION DETAILS

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER
DESIGN ENGINEER: _____ DATE 26.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

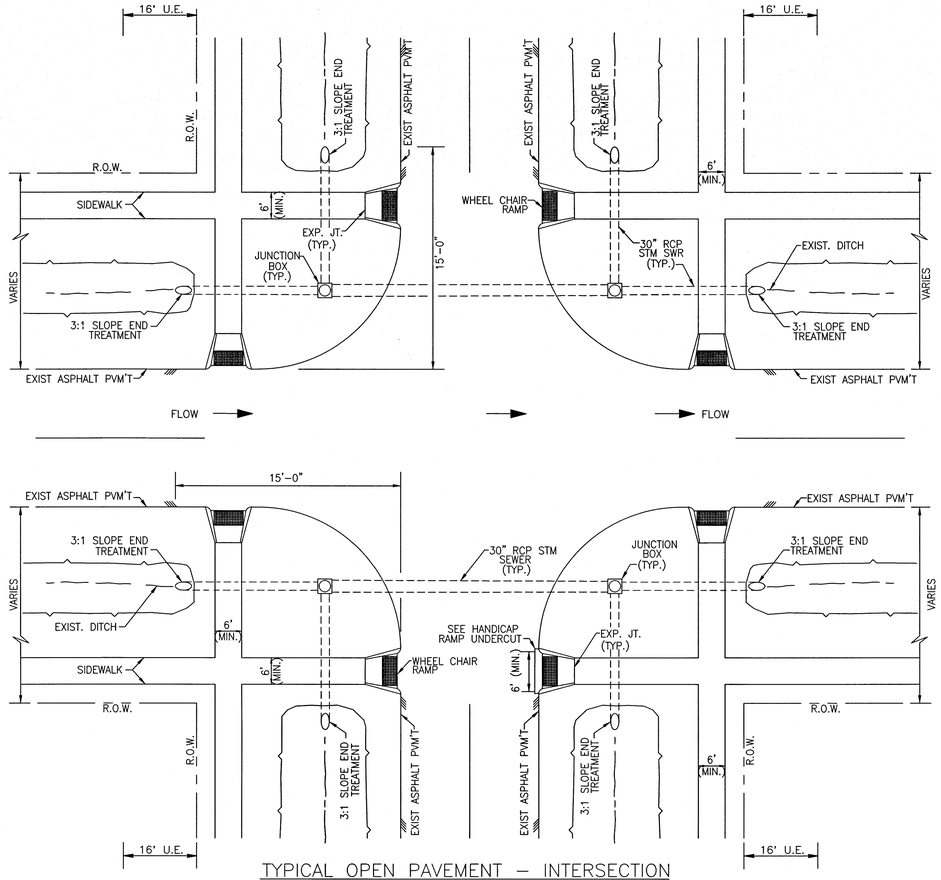
SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

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

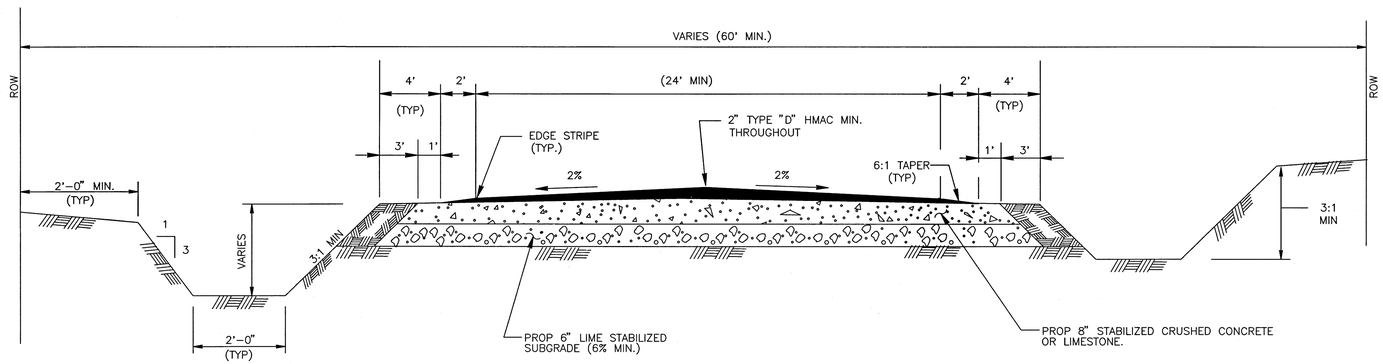
MC-18-15
SHEET 41 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A

Date\Time : Thu, 06 Jul 2017 - 10:28am - USER : drongel
Path\Name : I:\Projdsk1\1194\1194-1127A\1194-1127A(ACAD)_Sheet Files\41 RESIDENTIAL CURB CONSTRUCTION DETAILS - MC-18-15.dwg



TYPICAL OPEN PAVEMENT – INTERSECTION



ASPHALT PAVEMENT – DITCH SECTION

CROSS SECTION

REFER TO:

1. *GENERAL NOTES*
2. *ASPHALT NOTES*
3. *BASE NOTES*
4. *TACK & EMULSION NOTES*

WS&D RECORD DRAWING

I, HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

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PAVING RECORD DRAWING

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CONTRACTOR: _____ DATE: _____

TITLE: _____

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____
DEVELOPMENT COORDINATOR

DATE: 7/12/17

No.	DATE	REVISION

ASPHALT PAVEMENT CONSTRUCTION AND INTERSECTION DETAILS

missouri CITY TEXAS

DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL:

STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: _____ DATE 7.5.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

JOB No.:

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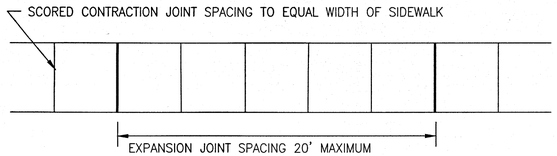
MC-19-15

SHEET 42 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194-1127A

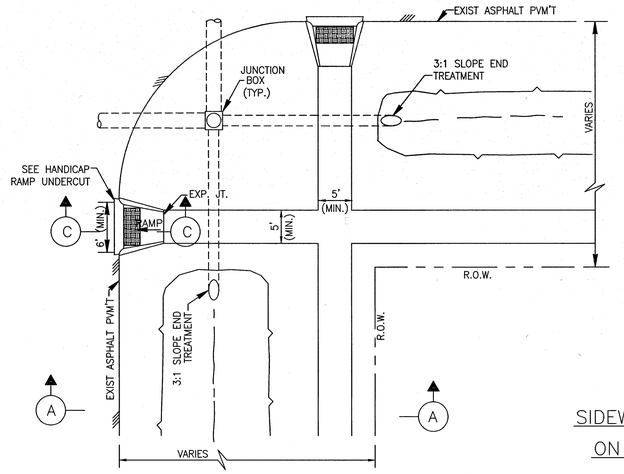
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Date\Time : Thu, 06 Jul 2017 - 10:29am - USER : drongel
Path\Name : I:\Projdat\1194\1194-1127A\1194-1127A ACAD\ Sheet Files\42 ASPHALT PAVEMENT CONSTRUCTION AND INTERSECTION DETAIL - MC-19-15.dwg



SIDEWALK JOINT DETAILS

N.T.S.



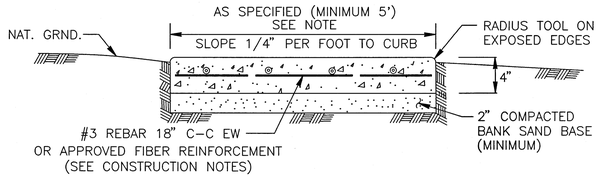
CROSS RAMP SIDEWALK CONNECTION ON OPEN DITCH

NOTES:

1. EXISTING CURB AND GUTTER TO BE SAW CUT, REMOVED AND REPLACED. DOWEL STEEL FOR MINIMUM REINFORCING OVERLAP OF 10 INCHES (10") DOWELS SHALL BE EIGHTEEN INCHES (18") LONG AND EPOXIED A MINIMUM OF (8") EIGHT INCHES INTO EXISTING PAVEMNENT.
2. IF SIDEWALKS ARE NEITHER EXISTING NOR PROPOSED WHERE WHEELCHAIR RAMP ACCESS IS REQUIRED, CONCRETE SIDEWALKS SURFACE 4 1/2" THICK SHALL BE INSTALLED TO PROVIDE ACCESS TO THE PEDESTRIAN PUSH BUTTONS.
3. DETECTABLE WARNINGS REQUIRED BY T.A.S. SECTIONS 4.1 AND 4.7 SHALL COMPLY WITH T.A.S. SECTION 4.29
4. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE. DETECTABLE WARNINGS USED ON INTERIOR SURFACE SHALL DIFFER FROM ADJOINING WALKING SURFACES IN RESILIENCY OR SOUND-ON-CANE.
5. DETECTABLE WARNING SURFACE SHALL COVER THE ENTIRE WIDTH AND 2' FOR THE DEPTH OF THE RAMP.
6. DETECTABLE WARNINGS SHALL BE INSTALLED WITH PAVERS IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
7. CONCRETE PAVER UNITS SHALL MEET ALL REQUIREMENTS OF ASTM C-935, C-33, AND SHALL BE PLACED IN A TWO BY TWO UNIT BASKET WEAVE PATTERN, UNLESS SHOWN OTHERWISE IN THE PLANS.
8. CONCRETE PAVER UNITS SHALL HAVE A TRUNCATED DOME TOP SURFACE FOR DETECTABLE WARNING TO PEDESTRIANS. DOMES SHALL BE ALIGNED IN THE DIRECTION OF PEDESTRIAN TRAVEL.
9. CONCRETE PAVER UNIT COLOR FOR THE RAMP SHALL BE A CONTRASTING COLOR THAT PROVIDES A LIGHT REFLECTIVE THAT SIGNIFICANTLY CONTRASTS WITH THE ADJACENT SURFACES. ADJACENT SURFACES INCLUDE SIDE FLARES. COLORS OTHER THAN RED-BROWN REQUIRE C.O.M.C. APPROVAL.
10. CONCRETE PAVER UNITS SHALL BE SAW CUT ONLY, AND ANY CUT UNIT SHALL NOT BE LESS THAN 25% OF A FULL UNIT.

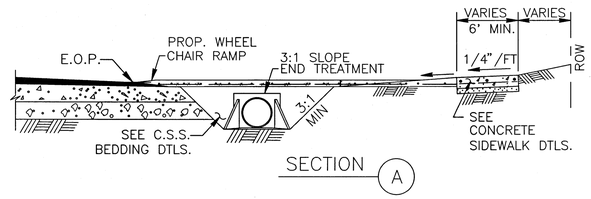
CONSTRUCTION NOTES:

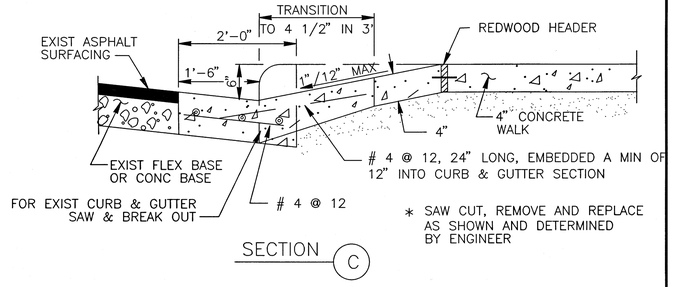
1. THE MAXIMUM WIDTH BETWEEN EXPANSION JOINTS SHALL NOT EXCEED 20'-0"
2. EXPANSION JOINT IS TO BE 1/2" THICK CLEAR HEART REDWOOD WITH DOWELS.
3. SCORED CONTRACTION JOINTS SHALL BE EVERY 5' OR EQUAL TO WIDTH OF SIDEWALK.
4. ALL EARTHEN AREAS ARE TO BE SODDED UNLESS SHOWN OTHERWISE ON DRAWINGS.
5. 6 INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI. REINFORCED CONCRETE WITH #3 BARS, 18 INCHES C-C, FOR SIDEWALKS, #4 BARS 18' C-C FOR WHEEL CHAIR RAMPS IS THE MINIMUM ACCEPTED. MINIMUM 3 LONGITUDINAL BARS. FIBER REINFORCING SIDEWALKS-STEEL AND POLYPROPYLENE BLENDED FIBER REINFORCEMENT SYSTEM SUCH AS NOVOMESH e3 AS MANUFACTURED BY S.I. CONCRETE SYSTEMS (OR PRE-APPROVED EQUAL) MAY BE USED AS AN ALTERNATE TO CONVENTIONAL REBAR REINFORCING AT A DOSAGE RATE OF 24 LBS. PER CUBIC YARD OF CONCRETE.
6. USE RADIUS TOOL ON ALL EXPOSED EDGES.
7. TOP OF THE SIDEWALK ELEVATION TO BE TOP OF CURB.
8. MEMBRANE CURING COMPOUND IS REQUIRED AS DESCRIBED IN ITEM 526 IN THE TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
9. REFER TO GENERAL NOTES AND CONCRETE/PAVING NOTES.
10. SIDEWALK EXPANSION JOINTS SHALL CONFORM TO STREET EXPANSION JOINT STANDARDS.



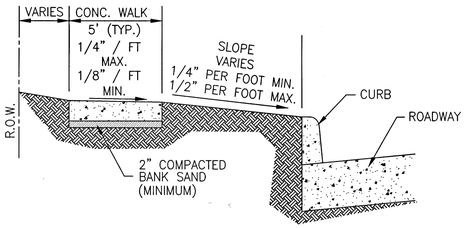
CONCRETE SIDEWALK

NOTE:
BANK SAND IS DEFINED AS A WELL-GRADED SAND, FREE OF SILT, CLAY, LOAM, FRIABLE OR SOLUBLE MATERIALS AND ORGANIC MATTER, MEETING THE UNIFIED SOILS CLASSIFICATION SYSTEM GROUP SYMBOL SW CRITERIA W/ A PLASTICITY INDEX OF ≤ 10. AND NO MORE THAN 12% OF MATERIAL CAN PASS THE No. 200 SIEVE.



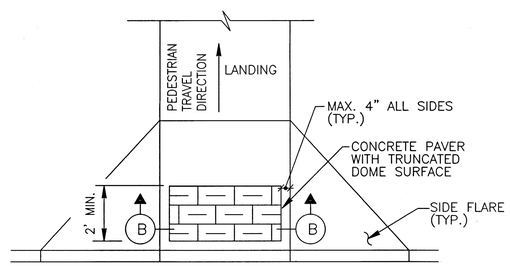


HANDICAP RAMP CURB & GUTTER *

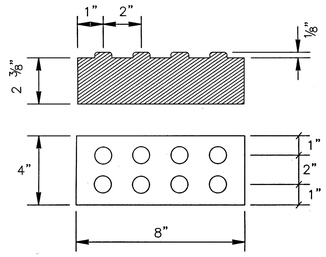


NOTE:
SEE SIDEWALK, CONC/PAVING, AND GENERAL NOTES

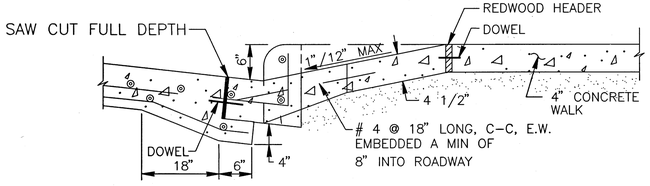
TYPICAL SINGLE ROADWAY SIDEWALK



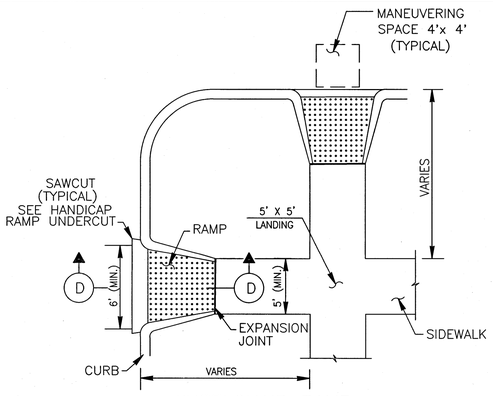
TRUNCATED DOME PATTERN CURB RAMP



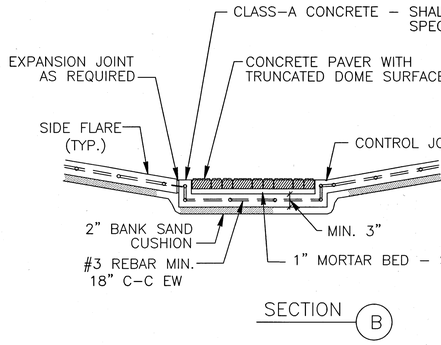
CONCRETE PAVER WITH TRUNCATED DOME SURFACE



HANDICAP RAMP UNDERCUT



WHEELCHAIR RAMP SIDEWALK CONNECTION



WS&D RECORD DRAWING
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FORT BEND COUNTY ENGINEERING DEPARTMENT
APPROVED: _____
DEVELOPMENT COORDINATOR
DATE: 7/12/17

No.	DATE	REVISION

WHEEL CHAIR RAMP & SIDEWALK DETAILS I

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL:
STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER
DESIGN ENGINEER: _____ DATE 7.5.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

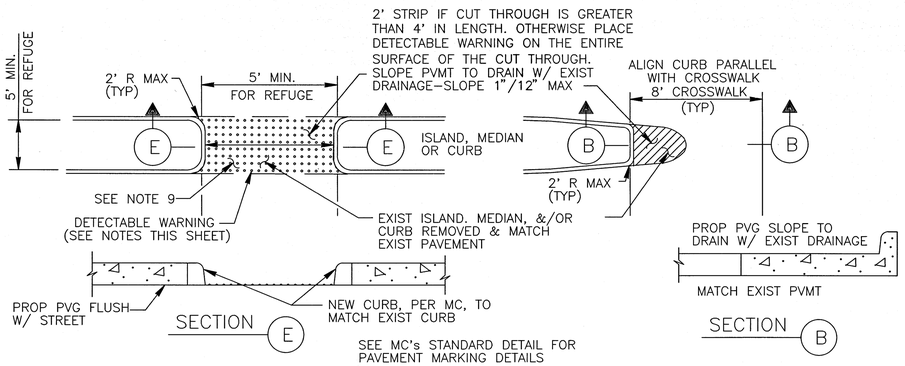
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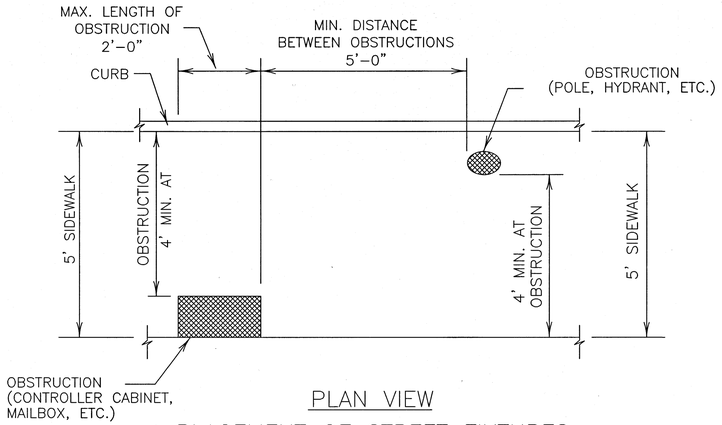
MC-20-15
SHEET 43 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A

Date\Time : Thu, 06 Jul 2017 - 10:29am - USER : drongel
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FOR ISLAND, MEDIAN, OR CURB MODIFICATIONS FOR CROSSWALKS



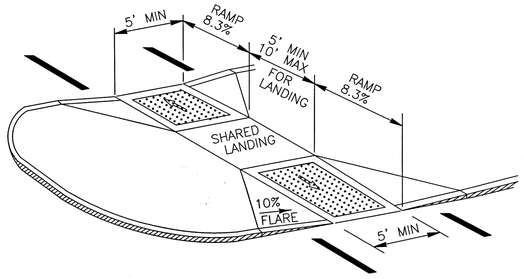
PLAN VIEW

PLACEMENT OF STREET FIXTURES

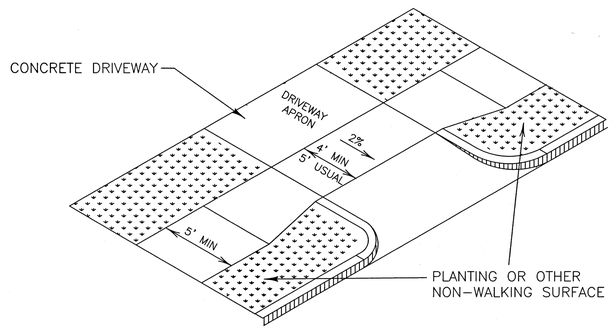
(ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' x 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.)

NOTES:

1. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED. RAMP LENGTH OR GRADE OF APPROACH SIDEWALKS MAY BE ADJUSTED AS DIRECTED.
2. THE MINIMUM SIDEWALK WIDTH IS 5' (FEET). THE LANDING SHALL BE 5' x 5' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND RAMP SURFACES IS 2%. USUAL SIDEWALK CROSS SLOPE EQUALS 1.5%. CHANGES IN LEVEL GREATER THAN 1/4" (IN.) ARE NOT PERMITTED.
3. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 5' x 5' WHOLLY CONTAINED WITHIN THE CROSSWALK AND WHOLLY OUTSIDE THE PARALLEL VEHICULAR TRAVEL PATH.
4. ANY PART OF THE ACCESSIBLE ROUTE WITH A SLOPE GREATER THAN 1:20 (5%) SHALL BE CONSIDERED A RAMP. IF A RAMP HAS A RISE GREATER THAN 6" (IN.) OR A HORIZONTAL PROJECTION GREATER THAN 72 INCHES, THEN IT SHALL HAVE HANDRAILS ON BOTH SIDES, WITH THE FOLLOWING EXCEPTIONS:
   A.) HANDRAILS ARE NOT REQUIRED ON CURB RAMPS. CURB RAMPS SHALL BE PROVIDED WHEREVER AN ACCESSIBLE ROUTE CROSSES (PENETRATES) A CURB.
   B.) THE LEAST POSSIBLE GRADE SHOULD BE USED TO MAXIMIZE ACCESSIBILITY. WHERE STRUCTURALLY IMPRACTICAL TO ACHIEVE TEXAS ACCESSIBILITY STANDARDS (TAS) COMPLIANCE, THE RUNNING SLOPE OF SIDEWALKS AND CROSSWALKS, WITHIN THE PUBLIC R.O.W., MAY FOLLOW THE GRADE OF THE PARALLEL ROADWAY WITHOUT INVOKING TEXAS ACCESSIBILITY STANDARDS (TAS) VARIANCES FOR LANDINGS OR HANDRAILS. WHERE A CONTINUOUS GRADE GREATER THAN 5% MUST BE PROVIDED, HANDRAILS MAY BE DESIRABLE ON ONE OR BOTH SIDES OF THE SIDEWALK TO IMPROVE ACCESSIBILITY. HANDRAILS MAY ALSO BE NEEDED TO PROTECT PEDESTRIANS FROM POTENTIALLY HAZARDOUS CONDITIONS.
5. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP. OTHERWISE, FLARED SIDES SHALL BE PROVIDED. ALL CONCRETE SURFACES SHALL RECEIVE A LIGHT BROOM FINISH UNLESS NOTED OTHERWISE IN THE PLANS.
6. RAMP TEXTURES MUST CONSIST OF TRUNCATED DOME SURFACES, IN ACCORDANCE WITH ADA AND TEXAS DEPARTMENT OF LICENSING AND REGULATIONS (TDLR), TEXTURES ARE REQUIRED TO BE DETECTABLE UNDERFOOT. TEXTURES ALSO SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES. SURFACES THAT WOULD ALLOW WATER TO ACCUMULATE ARE PROHIBITED.
7. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) PREPARED AND ADMINISTERED BY THE TEXAS DEPARTMENT OF LICENSING AND REGULATION (TDLR).
8. RAISED MEDIANS SEPARATE OPPOSING DIRECTIONS OF TRAFFIC AND PROVIDE A REFUGE AREA FOR PEDESTRIANS UNABLE TO CROSS THE ENTIRE ROADWAY IN THE ALLOTTED SIGNAL PHASE. TO SERVE AS A REFUGE AREA, THE MEDIAN SHALL BE A MINIMUM OF 5' (FT.) WIDE. MEDIANS SHOULD BE DESIGNED TO PROVIDE ACCESSIBLE PASSAGE OVER OR THROUGH THEM.
9. SMALL CHANNELIZATION ISLANDS, WHICH CAN NOT PROVIDE A MINIMUM 5' x 5' LANDING AT THE TOP OF RAMPS, SHALL BE CUT THROUGH LEVEL WITH THE SURFACE OF THE STREET.
10. CROSSWALK DIMENSIONS, CROSSWALK MARKINGS AND STOP BAR LOCATIONS SHALL BE AS SHOWN IN THE PLANS. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, RAMPS SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS, OR AS DIRECTED BY THE ENGINEER.
11. EXISTING FEATURES THAT COMPLY WITH T.A.S. MAY REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS.
12. TRAFFIC SIGNAL OR ILLUMINATION POLES, GROUND BOXES, CONTROLLER BOXES, SIGNS, DRAINAGE FACILITIES AND OTHER ITEMS SHALL BE PLACED SO NOT TO OBSTRUCT THE ACCESSIBLE ROUTE.



CURB RAMPS AT MEDIAN ISLANDS

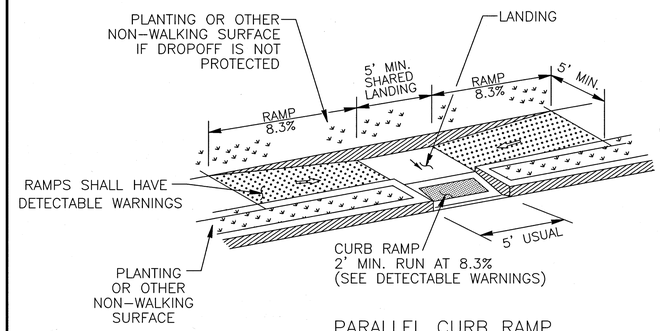


SETBACK SIDEWALK

SIDEWALK TREATMENT AT DRIVEWAYS

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PARALLEL CURB RAMP

FORT BEND COUNTY ENGINEERING DEPARTMENT
APPROVED: _____ DEVELOPMENT COORDINATOR
DATE: 7/12/17

No.	DATE	REVISION

WHEEL CHAIR RAMP & SIDEWALK DETAILS II

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS · OMAR NOE ESCOBAR, JR. · 107281 · LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: _____ DATE 7.12.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

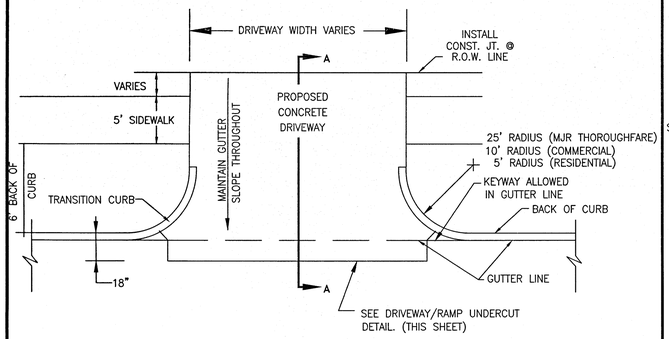
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MC–21–15
SHEET 44 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194–1127A

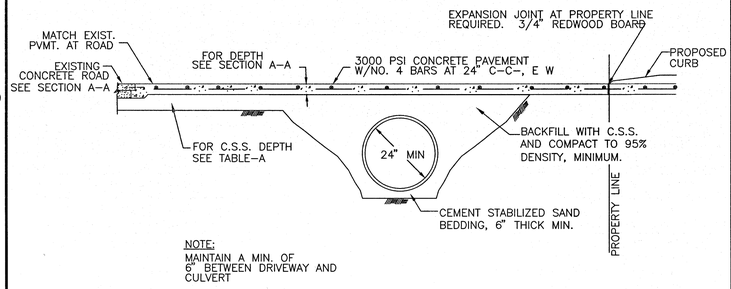
51

Date\Time : Thu, 06 Jul 2017 – 10:29am – USER : dnoppel
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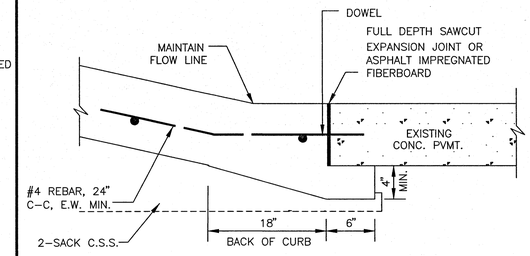
6" CONCRETE CURB DRIVEWAY PLAN

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

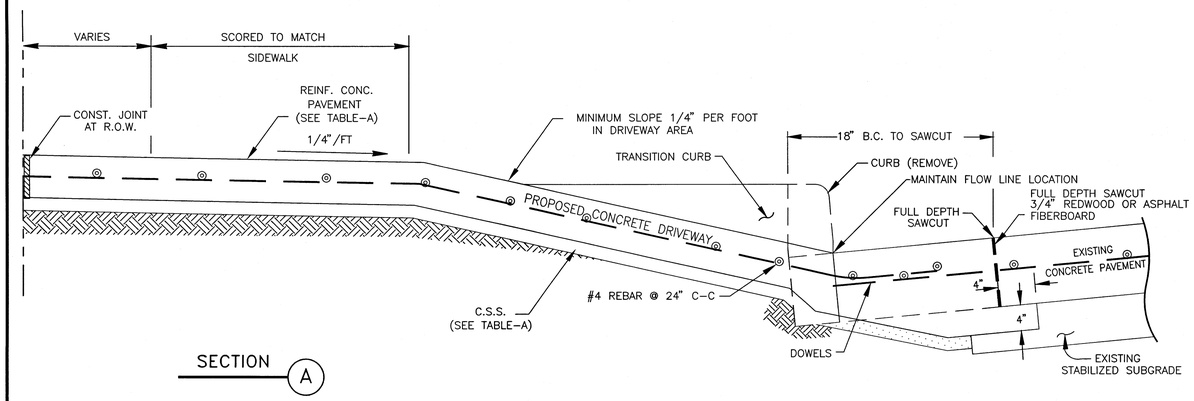
6.) FOR INDUSTRIAL DRIVES, PAVEMENT SHALL HAVE A DEPTH OF 8" (IN).

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

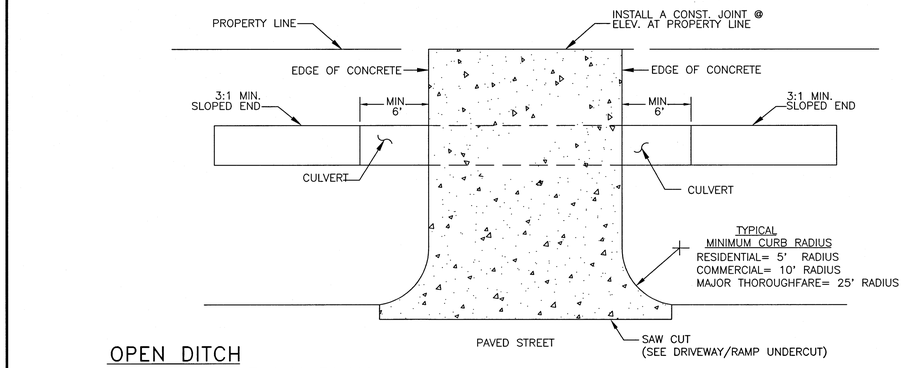
8.) MAXIMUM ALLOWABLE DRIVEWAY GRADE IN PULIC R.O.W. IS 5%.

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

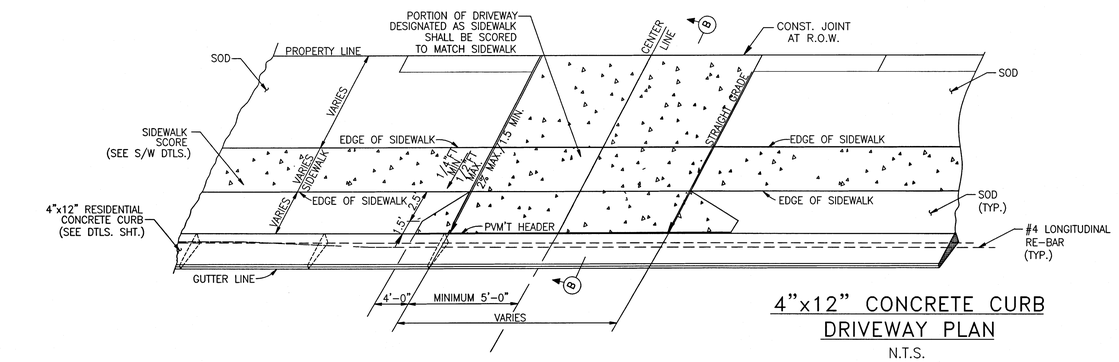
(USED ONLY WHEN CONNECTING TO A CONCRETE ROADWAY)

N.T.S.

TABLE–A

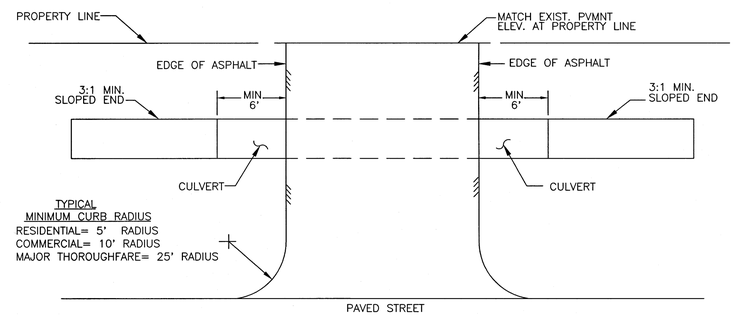
CEMENT STABILIZED SAND 1 1/2 SK PER TN	
RESIDENTIAL	4" MINIMUM
COMMERCIAL	6" MINIMUM
INDUSTRIAL	8" MINIMUM
REINFORCED CONCRETE PAVEMENT AND APPROACHES 3,000 PSI MIN	
RESIDENTIAL	6" MINIMUM
COMMERCIAL	7" MINIMUM
INDUSTRIAL	8" MINIMUM

DRIVEWAY PAVEMENT CONSTRUCTION TABLE



4"x12" CONCRETE CURB DRIVEWAY PLAN

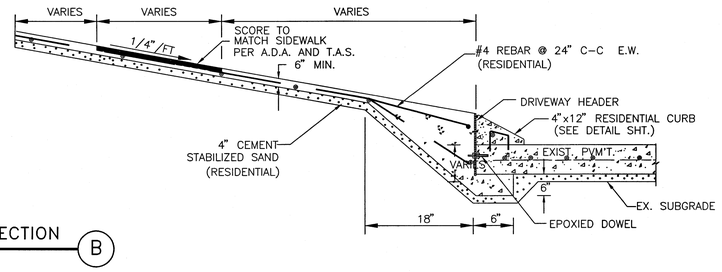
N.T.S.



ASPHALT DRIVEWAY PLAN

(USED ONLY WHEN CONNECTING TO AN ASPHALT ROADWAY)

N.T.S.



SECTION (B)

WS&D RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

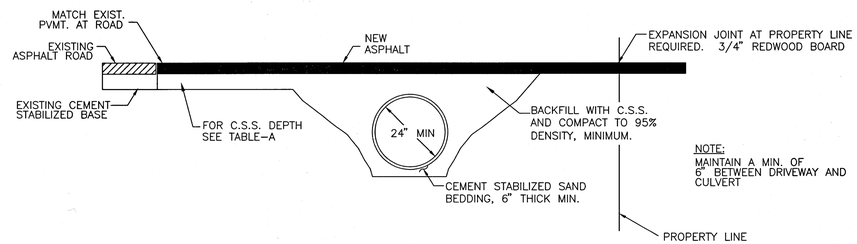
TITLE: _____

PAVING RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

TITLE: _____



ASPHALT APRON DETAIL – DRIVEWAY PROFILE FOR CULVERT DRAINAGE

N.T.S.

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____ DEVELOPMENT COORDINATOR

DATE: 7/12/17

No.	DATE	REVISION

DRIVEWAY CONSTRUCTION DETAILS

missouri CITY TEXAS

DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: _____ DATE 7.6.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

JOB No.:

SCALE: AS NOTED

SUBMITTED: _____

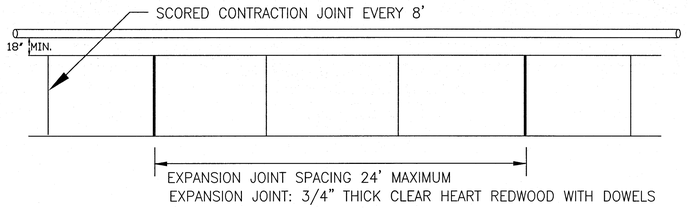
DATE: FEBRUARY 2015

MC–22–15

SHEET 45 OF 54

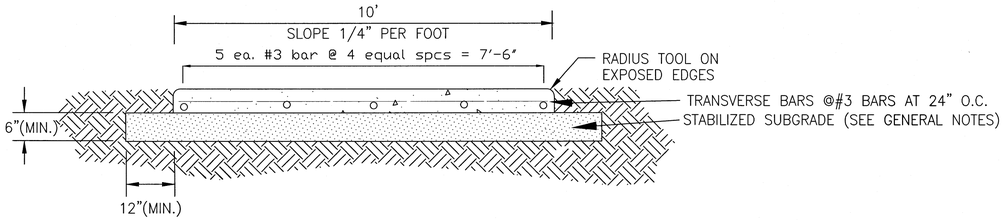
SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194–1127A

Date\Time : Thu, 06 Jul 2017 - 10:29am - USER : drongel
Path\Name : I:\Projdsk1\1194\1194-122A\1194-1127A\ACAD_Sheet Files\45 DRIVEWAY CONSTRUCTION DETAILS - MC-22-15.dwg



TRAIL JOINT DETAILS

N.T.S.



CONCRETE TRAIL FOR LEVEL GROUND ONLY

(≤4:1 CROSS SLOPE)

N.T.S.

NOTES:

4 INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI, REINFORCED CONCRETE WITH #3 BARS AT SPACINGS SHOWN IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR CONCRETE TRAILS.

USE RADIUS TOOL ON ALL EXPOSED EDGES.
MEMBRANE CURING COMPOUND IS REQUIRED AS DESCRIBED IN ITEM 526 IN THE TDOT STANDARD SPECIFICATIONS FOR ALL CONCRETE CONSTRUCTION.

NOTES:

1.) TOP OF TRAIL ELEVATION TO BE AT NATURAL GROUND, TRAIL TO BE UNIFORMLY SLOPED ACROSS ENTIRE WIDTH. NO "ROOF-TOP" X-SECT.

2.) NOTIFY UCC AT 223-4567 OR TOLL FREE AT 1-800-669-8344. 72 HRS PRIOR TO SCHEDULED START DATE. NOTIFY MISSOURI CITY PUBLIC WORKS 24 HOURS PRIOR TO SCHEDULED START DATE AT 281-403-8570.

3.) STABILIZED SUBGRADE CONSISTS OF ONE OF THE FOLLOWING (DEPENDING ON SOIL CONDITION AND GEOTECHNICAL REPORT).

A.) LIME STABILIZATION AT 6 % MINIMUM.

B.) 2 SACK/CUBIC YARD CEMENT STABILIZED SAND, 6-INCH DEPTH MIN. (SEE C.S.S. NOTES).

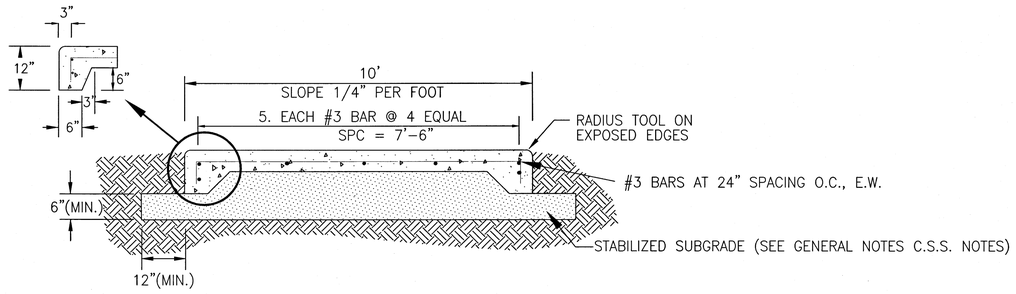
4.) ALL CONSTRUCTION TO BE IN CONFORMANCE WITH THE AMERICAN DISABILITY ACT AND TEXAS ACCESSIBILITY STANDARDS (TAS). (SEE WHEEL CHAIR RAMP DETAILS).

5.) SEE STANDARD SIDEWALK DETAILS.

6.) SEE GENERAL AND CONCRETE PAVING NOTES.

WS&D RECORD DRAWING
I, HERERY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

PAVING RECORD DRAWING
I, HERERY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____



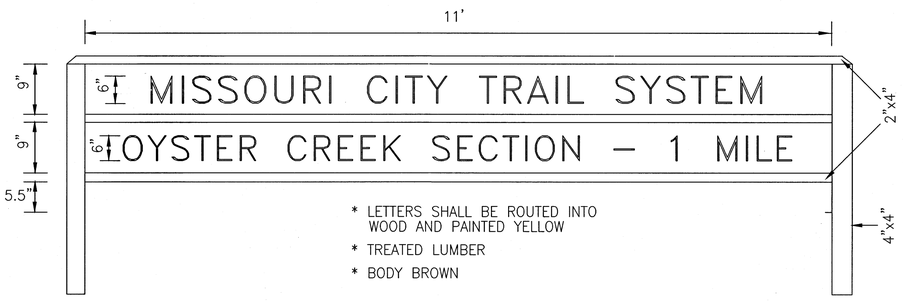
CONCRETE TRAIL FOR SLOPES OR BOTTOM OF DRAINAGE EASEMENTS

N.T.S.

NOTES:

6 INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI, REINFORCED CONCRETE WITH #3 BARS AT SPACINGS SHOWN IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR CONCRETE TRAILS.

USE RADIUS TOOL ON ALL EXPOSED EDGES.
MEMBRANE CURING COMPOUND IS REQUIRED AS DESCRIBED IN ITEM 526 IN THE TDOT STANDARD SPECIFICATIONS FOR ALL CONCRETE CONSTRUCTION.



STANDARD TRAIL SIGN

N.T.S.

FORT BEND COUNTY ENGINEERING DEPARTMENT
APPROVED: _____ DEVELOPMENT COORDINATOR
DATE: 7/12/17

No.	DATE	REVISION

TRAIL SYSTEM CONSTRUCTION DETAILS

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER
DESIGN ENGINEER: _____ DATE 7.5.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

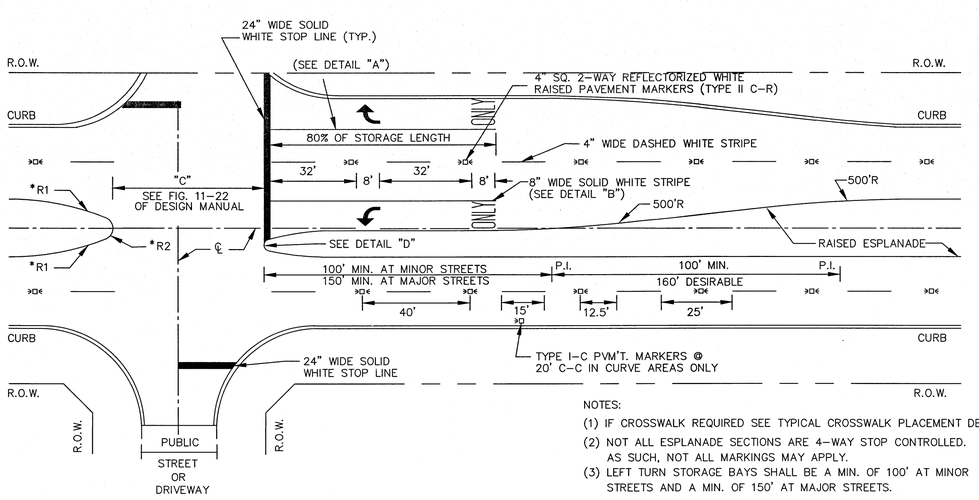
SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

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

MC-23-15
SHEET 46 OF 54

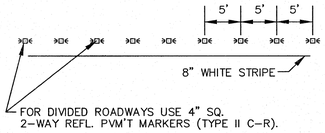
SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A

Date\Time : Thu, 06 Jul 2017 - 10:29am - USER : dtorge
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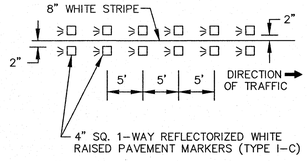


TYPICAL ESPLANADE SECTION

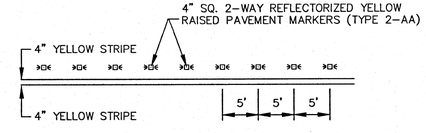
NOTES:
(1) IF CROSSWALK REQUIRED SEE TYPICAL CROSSWALK PLACEMENT DETAIL.
(2) NOT ALL ESPLANADE SECTIONS ARE 4-WAY STOP CONTROLLED. AS SUCH, NOT ALL MARKINGS MAY APPLY.
(3) LEFT TURN STORAGE BAYS SHALL BE A MIN. OF 100' AT MINOR STREETS AND A MIN. OF 150' AT MAJOR STREETS.



DETAIL "A"



DETAIL "B"



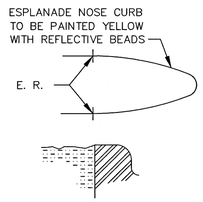
DETAIL "C"

RADIUS DIMENSIONS

ESPLANADE	*R1	*R2
<8'	N/A	W/2
8'-38'	90'	W/5
>38'	N/A	15'

PAVEMENT MARKER LEGEND

SYMBOL	DESCRIPTION
□	4" X 4" REFLECTORIZED RAISED PAVEMENT MARKER
□∈	INDICATES DIRECTION OF TRAFFIC FLOW



TYPICAL CURB SECTION

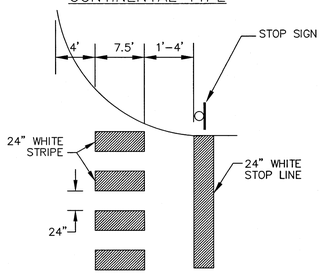
PAINT FROM THE BACK OF CURB TO THE GUTTER LINE

DETAIL "D"

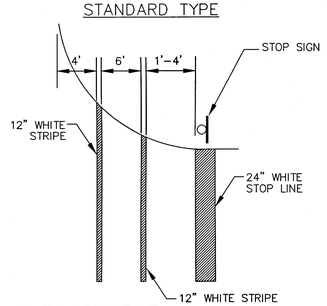
GENERAL NOTES:

1. ALL INTERSECTIONS WHERE A STOP SIGN IS LOCATED SHALL HAVE A STOP BAR. STOP BARS SHALL BE LOCATED WHERE PEDESTRIAN CROSSWALKS ARE PROVIDED, 1'-4" BEHIND CROSSWALKS.
2. STOP BARS SHALL BE 24" WIDE, AND CONSIST OF SOLID WHITE LINES EXTENDING ACROSS APPROACH LANES TO INDICATE THE POINT AT WHICH THE STOP IS INTENDED OR REQUIRED TO BE MADE.
3. ON APPROACH – BEGINNING WITH STOP BAR, INSTALL A 4" WIDE SOLID WHITE LINE FOR 50 FT BACK FROM STOP BAR SKIP 25' AND BEGIN NORMAL LANE LINES.
4. ON EXIT – BEGINNING WITH CROSSWALK, OR 12' FROM CURB LINE OF INTERSECTING STREET, INSTALL A 4" WIDE SOLID WHITE LINE FOR 50 FT. AND BEGIN NORMAL LANE LINE.
5. CROSSWALKS SHALL BE A MINIMUM INSIDE WIDTH OF 5'(FT.). AT LOCATIONS WHERE ADDITIONAL VISIBILITY IS REQUIRED, WHERE TRAFFIC CONTROL DEVICES ARE NOT PRESENT, AND IN SCHOOL ZONES CONTINENTAL CROSSWALKS SHALL BE USED.
6. ALL PAVEMENT MARKINGS AT INTERSECTIONS SHALL BE THERMOPLASTIC IN ACCORDANCE WITH C.O.M.C. APPROVED PRODUCT LIST.
7. PAVEMENT MARKINGS MUST BE SHOWN ON THE APPROVED CONSTRUCTION PLANS. ALL PAVEMENT MARKINGS MUST BE RETRO-REFLECTIVE MATERIAL APPLIED TO THE ROAD SURFACE IN A MOLTEN STATE BY SCREED/EXTRUSION, SUSPENDED EXTRUSION, OR SPRAY MEANS, WITH A SURFACE APPLICATION OF GLASS BEADS.
8. THE COLOR OF RAISED PAVEMENT MARKERS UNDER BOTH DAYLIGHT AND NIGHTTIME CONDITIONS SHALL CONFORM TO THE COLOR OF THE MARKING FOR WHICH THEY SERVE AS A POSITIONING GUIDE OR FOR WHICH THEY SUPPLEMENT OR SUBSTITUTE.
9. ALL TRAFFIC BUTTONS AND MARKERS SHALL BE INSTALLED ADJACENT TO STRIPES (APPROX. 2")
10. ALL BUTTONS SHALL BE INSTALLED WITH AN APPROVED EPOXY.
11. A BLUE REFLECTORIZED BUTTON SET 6" OFF CENTERLINE OF ROADWAY SHALL BE INSTALLED ADJACENT TO ALL FIRE HYDRANTS.
12. PAVEMENT SURFACE AREAS PRIOR TO PLACEMENT OF PAVEMENT MARKINGS, AND/OR RAISED PAVEMENT MARKERS SHALL BE CLEANED IN ACCORDANCE WITH C.O.M.C. STANDARDS. CONCRETE SURFACES SHALL BE CLEANED BY ABRASIVE BLASTING MEDIUM. ASPHALT PAVEMENT SURFACES SHALL BE CLEANED BY BRUSHING, WASHING, COMPRESSED AIR, AND/OR HIGH-PRESSURE WATER. AREAS MUST BE FREE OF CURING MEMBRANCE, DIRT, GREASE, LOOSE AND/OR FLAKING EXISTING MARKERS AND OTHER FORMS OF DEBRIS.
13. ALL ESPLANADE NOSES, AND CURBS IN LEFT TURN BAY'S SHALL BE PAINTED WITH YELLOW REFLECTORIZED PAINT. AND SHALL COMPLY WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC DEVICES, A.D.A., T.A.S., AND C.O.M.C. STANDARDS AND ALL REVISIONS THEREOF.
14. ALL ROADWAYS WITHOUT CURB SHALL HAVE A SOLID 4" WHITE REFLECTORIZED STRIPE 12" INSIDE THE EDGE OF PAVEMENT.
15. WITHIN A TANGENT SECTION THE TYPE I-C PAVEMENT MARKERS CAN BE PLACED AT 40' C-C ON ROADWAYS WITHOUT CURB AND GUTTERS.
16. ALL STREET CROSSINGS SHALL COMPLY WITH T.A.S. AND A.D.A., SEE HANDICAP CROSS DETAIL.
17. ALL PAVEMENT MARKINGS, AND/OR RAISED PAVEMENT MARKERS SHALL COMPLY WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC DEVICES, A.D.A., T.A.S., AND C.O.M.C. STANDARDS AND ALL REVISIONS THEREOF.
18. ALL MARKINGS SHALL HAVE A UNIFORM CROSS-SECTION, AND THE DENSITY AND QUALITY OF THE MARKING'S SHALL BE UNIFORM THROUGHOUT THEIR THICKNESS.
19. PAVEMENT MARKING'S PLACED THAT ARE NOT IN ALIGNMENT OR SEQUENCE, AS SHOWN ON THE PLANS OR STATED IN THE PROJECT SPECIFICATION'S SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
20. FOR SKEW INTERSECTIONS AND STREET WIDTHS NOT SHOWN, COORDINATE WITH THE C.O.M.C., DEPT. OF PUBLIC WORKS, (281) 403-8570.

CONTINENTAL TYPE



STANDARD TYPE

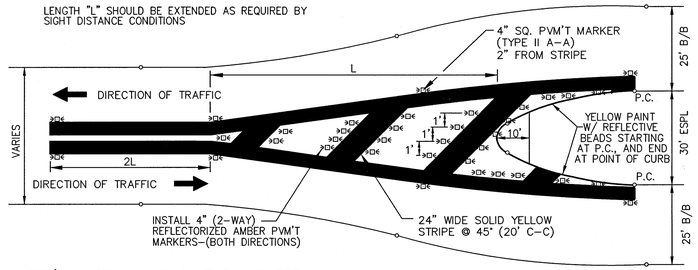


TYPICAL CROSSWALK PLACEMENT

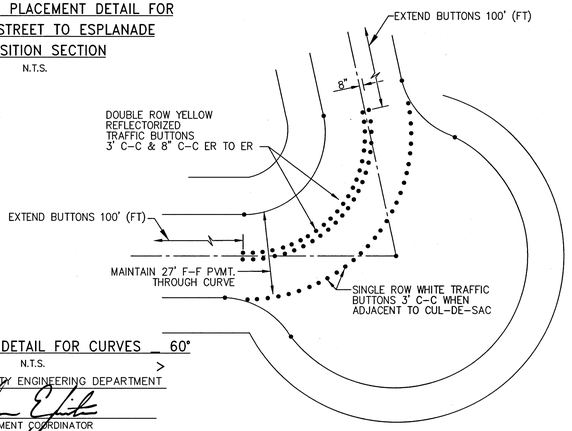
NOTE:
FOR SPEEDS 45 MPH OR MORE L=0.62 WS (L=WS)
FOR SPEEDS LESS THAN 45 MPH L= $WS^2/155$ ($L=WS^2/60$)
S=POSTED, 85TH-PERCENTILE, OR STATUTORY SPEED IN MPH
W= OFFSET DISTANCE IN FEET

MAXIMUM LENGTH OF: L= 100 FT IN URBAN AREAS
L= 200 FT IN RURAL AREAS

LENGTH "L" SHOULD BE EXTENDED AS REQUIRED BY SIGHT DISTANCE CONDITIONS



PVM'T MARKER PLACEMENT DETAIL FOR UNDIVIDED STREET TO ESPLANADE TRANSITION SECTION
N.T.S.



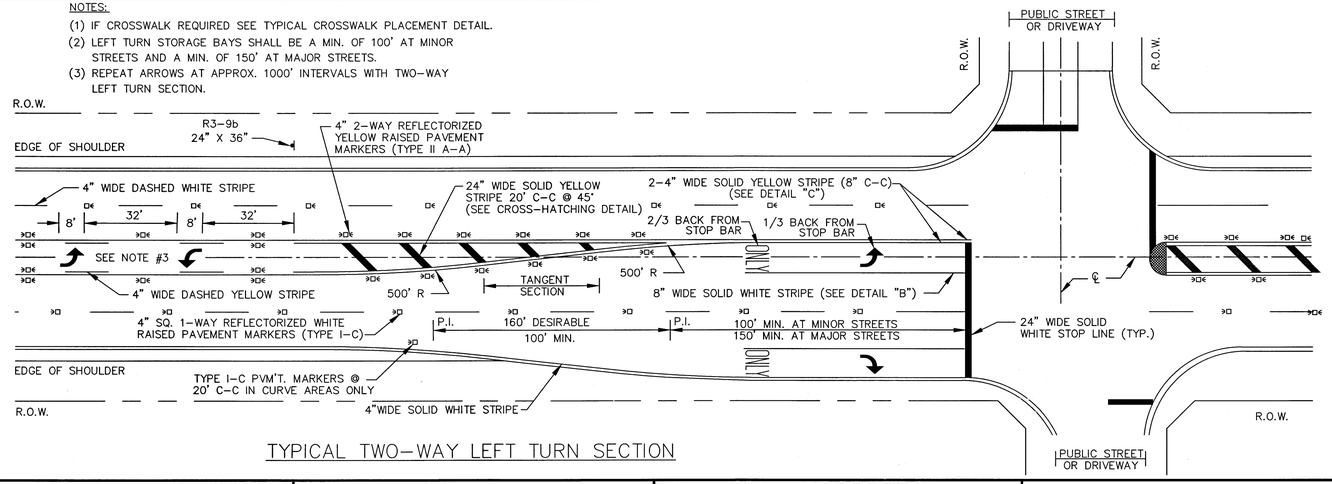
TYPICAL BUTTON DETAIL FOR CURVES
N.T.S.

FORT BEND COUNTY ENGINEERING DEPARTMENT
APPROVED: _____ DEVELOPMENT COORDINATOR
DATE: 7/12/17

WS&D RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

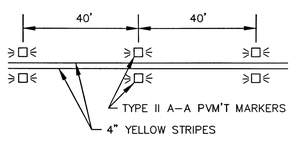
PAVING RECORD DRAWING
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CONTRACTOR: _____ DATE: _____
TITLE: _____

NOTES:
(1) IF CROSSWALK REQUIRED SEE TYPICAL CROSSWALK PLACEMENT DETAIL.
(2) LEFT TURN STORAGE BAYS SHALL BE A MIN. OF 100' AT MINOR STREETS AND A MIN. OF 150' AT MAJOR STREETS.
(3) REPEAT ARROWS AT APPROX. 1000' INTERVALS WITH TWO-WAY LEFT TURN SECTION.

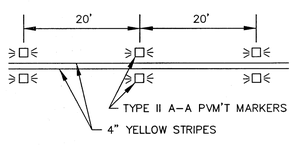


TYPICAL TWO-WAY LEFT TURN SECTION

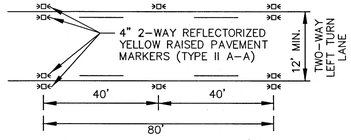
CENTER LINE DETAIL
TANGENT SECTION



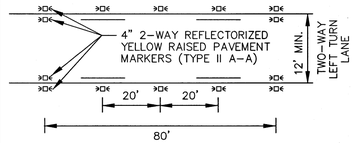
CENTER LINE DETAIL
CURVE SECTION



TWO-WAY LEFT TURN
TANGENT SECTION



TWO-WAY LEFT TURN
CURVE SECTION



No.	DATE	REVISION

PAVEMENT
MARKING DETAILS

missouri CITY
TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL:
STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED
PROFESSIONAL ENGINEER
DESIGN ENGINEER: _____ DATE 7.5.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

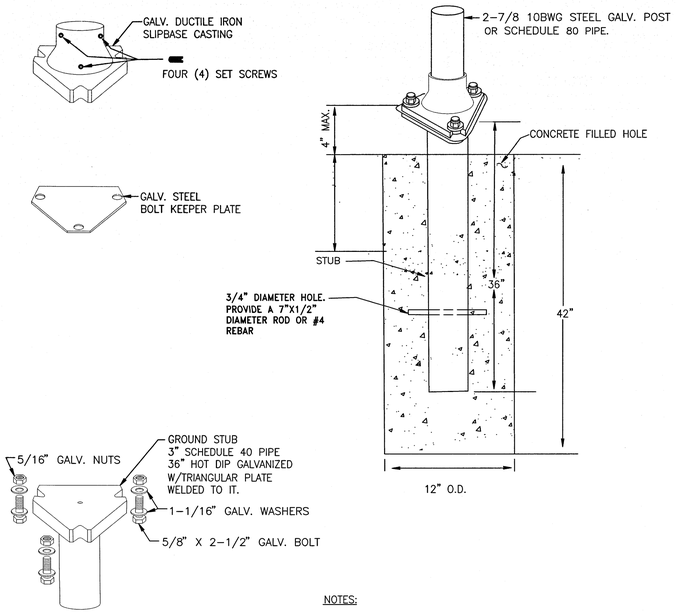
SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

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

MC-24-15
SHEET 47 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A

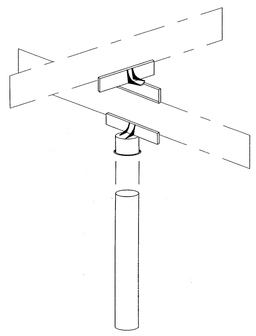
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Path\Name : I:\Projdat\1194\1194-1127A\1194-1127A\ACAD_Sheet Files\47 PAVEMENT MARKING DETAILS - MC-24-15.dwg



NOTES:

1.) FILL HOLE TO GROUND LEVEL.
2.) PRESS BASE INTO CENTER OF CONCRETE.
3.) LEVEL BASE 3" ABOVE GROUND.
4.) TIGHTEN (TORQUE) NUTS BETWEEN 60 TO 80 FT/LB MAX.

DETAIL OF STANDARD TRIANGULAR SLIPBASE INSTALLATION



SIGN MOUNTING DETAIL

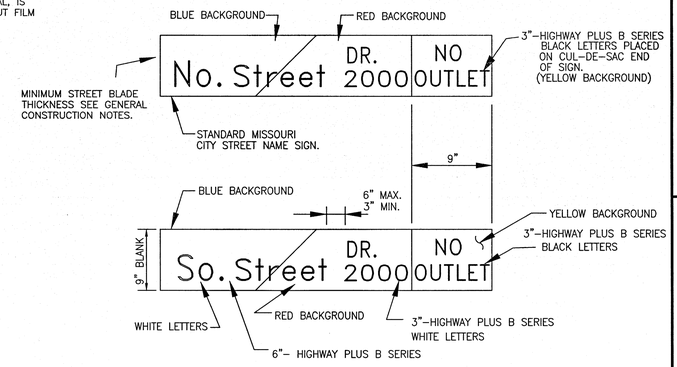
NTS

* 3M DIAMOND GRADE DG3 REFLECTIVE BACKING MATERIAL, IS REQUIRED BY MANUFACTURE WHEN USING 3M ELECTROCUT FILM SERIES 1170 SHEETING. SEE COLOR CHART BELOW.

COLOR	COLOR CODE
BLUE	1175C
RED	1172C
WHITE	4090*
YELLOW	4091*

NOTES:

1. CONTRACTOR TO VERIFY SHEETING COLORS PRIOR TO INSTALLATION OF SIGNS.
2. CONTRACTOR IS REQUIRED TO FOLLOW ALL MANUFACTURES REQUIREMENTS FOR SHEETING PRODUCTS UNLESS DIRECTED OTHERWISE BY ENGINEER.
3. CONTRACTOR IS REQUIRED TO MEET REQUIREMENTS OF THE CURRENT TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).



*LETTER SPACING FOR ALL SIGNS SHOULD MEET THE CURRENT REQUIREMENTS FOR TxDOT.

*ALL SIGNS REQUIRE 3M DIAMOND GRADE DG3 REFLECTIVE SHEETING OR ENGINEER APPROVED EQUAL.

DETAIL OF STANDARD STREET NAME SIGN

NOTICE TO BE AFFIXED TO THE BACK OF ALL MOCITY STREET SIGNS

CITY OF MISSOURI CITY

ANY PERSON WHO ATTEMPS TO, OR IN FACT ALTERS, DEFACES, INJURES, KNOCKS, DOWN OR REMOVES ANY OFFICAL TRAFFIC CONTROL DEVICE WILL BE PROSECUTED IN ACCORDANCE TO THE TEXAS CRIMINAL LAWS PENAL CODE SECTION 29.03.

MONTH
1 2 3 4 5 6
7 8 9 10 11 12

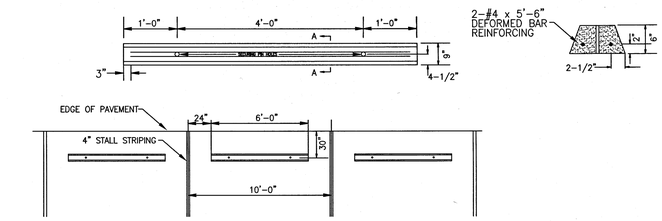
missouri CITY

YEAR
9 0 1 2 3 4
0 5 6 7 8 9

SIGN I.D. TAG DETAIL

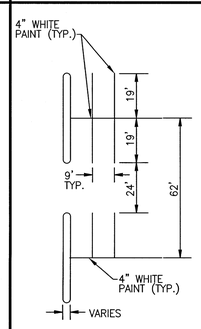
GENERAL CONSTRUCTION NOTES:

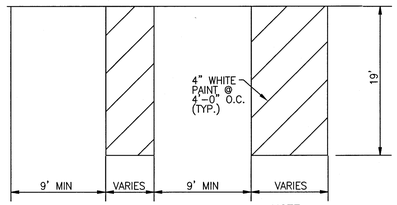
1. SECURELY ATTACH STREET NAME SIGN TO TRAFFIC SIGNAL SUPPORT WIRES WITH MULTI-LEVELING, WIND DUMPING BRACKETS.
2. SUPPORT WIRES SHOULD NOT BE PROHIBITED FROM INDEPENDENT MOVEMENT.
3. INSTALL ONE STREET NAME SIGN APPROXIMATE 2' FROM POLE ABOVE ON-COMING TRAFFIC ON EACH TRAFFIC SIGNAL SPAN.
4. THE FIRST LETTER OF EACH WORD SHALL BE UPPER CASE, SUBSEQUENT LETTERS SHALL BE LOWER CASE, ALL INDIVIDUAL LETTERS FOR EXAMPLE "F.M." SHALL BE UPPER CASE. STREET SUFFIXES & "NO OUTLET" SHALL BE UPPER CASE.
5. ALL SHEETING SHALL BE "DIAMOND GRADE" OR APPROVED EQUAL.
6. USE ANODIZED BLANKS ONLY.
7. MINIMUN SIGN TIHICKNESS:
   9" SIGNS = .080"



NOTE:
SECURE EACH WHEEL STOP TO PAVEMENT WITH TWO #5 BARS DEFORMED 10" IN LENGTH.

CONCRETE WHEEL STOPS



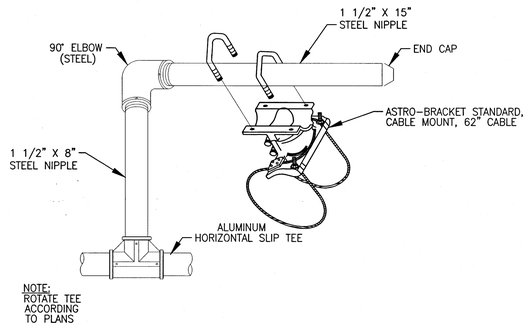


NOTE:
ALL PAVEMENT MARKINGS SHOULD BE TXDOT TYPE II MARKINGS IN ACCORDANCE WITH DMS-8200 "TRAFFIC PAINT"

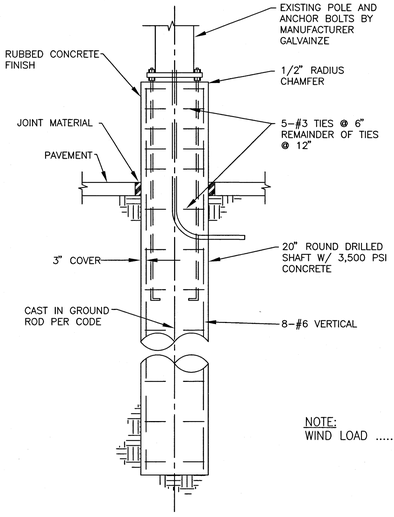
PARKING LOT STRIPING

MAST ARM:

1. 2-EACH ASTRO FOR 4 SECTION AND LARGER TRAFFIC SIGNAL HEADS.



ASTRO BRACKET CABLE MOUNT DETAIL



NOTE:
WIND LOAD ..... PER SECTION 1609 OF THE INTERNATIONAL BUILDING CODE. 110 M.P.H. BASIC WIND SPEED.

LIGHT POLE BASE DETAIL

WS&D RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS:

CONTRACTOR: _____ DATE: _____

TITLE: _____

PAVING RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS:

CONTRACTOR: _____ DATE: _____

TITLE: _____

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____
DEVELOPMENT COORDINATOR

DATE: 7/12/17

No.	DATE	REVISION

SIGN CONSTRUCTION DETAILS

missouri CITY TEXAS

DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: _____ DATE 7.5.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

JOB No.:

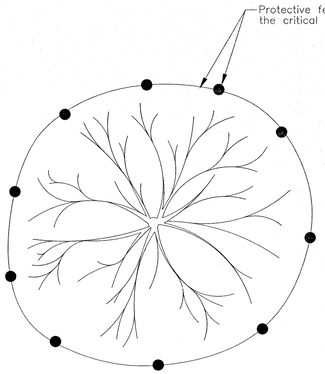
SCALE: AS NOTED
SUBMITTED: _____
DATE: FEBRUARY 2015

MC-25-17

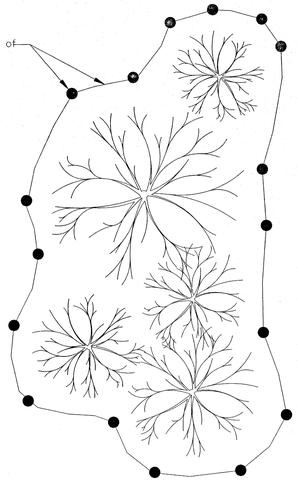
SHEET 48 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A

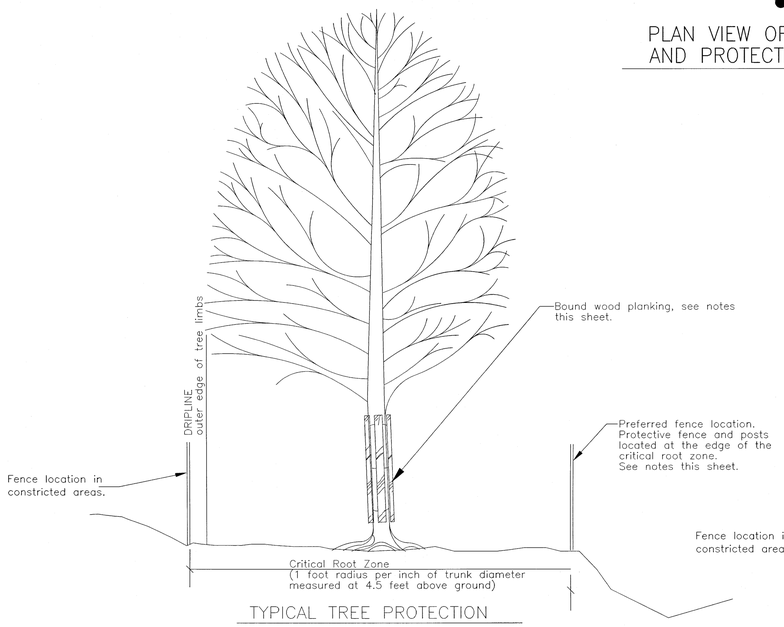
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PLAN VIEW OF INDIVIDUAL TREE AND PROTECTIVE FENCE

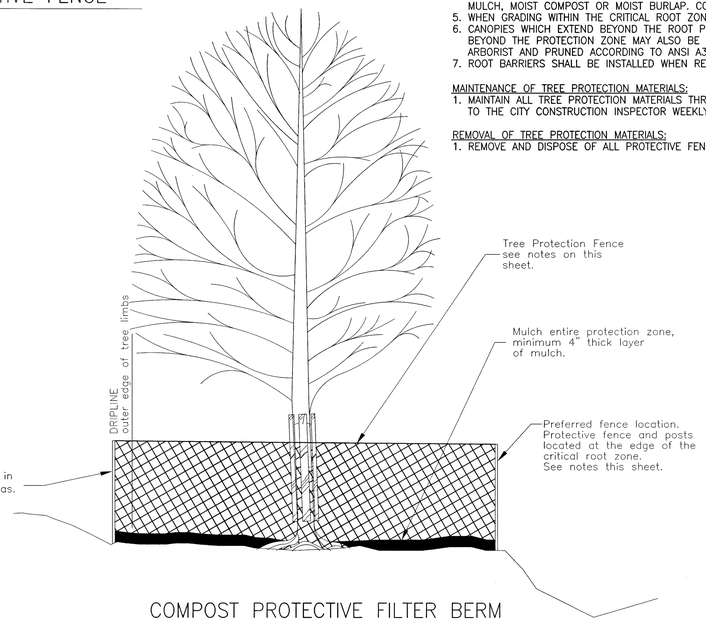


PLAN VIEW OF TREE GROUP AND PROTECTIVE FENCE



TYPICAL TREE PROTECTION

1 TREE PROTECTION
NO SCALE



COMPOST PROTECTIVE FILTER BERM

TREE PROTECTION GENERAL NOTES:

1. PROTECT AND ENSURE THE CONTINUED HEALTH OF EXISTING TREES IDENTIFIED ON THE PLANS OR DIRECTED BY THE CITY OR OTHER INDIVIDUALS DESIGNATED BY THE CITY. PROTECTIVE MEASURES INCLUDE PROVIDING, INSTALLING, MAINTAINING AND REMOVING PROTECTIVE FENCES, BOUND WOODEN PLANKING, COMPOST BERM PRUNING, BORING AND WATERING.
2. IT IS A MATTER OF PRIME IMPORTANCE THAT THE CONTRACTOR PROTECTS EXISTING TREES AND SHRUBS NOT DESIGNATED TO BE REMOVED.
3. ALL TREE PROTECTION MUST BE INSTALLED BEFORE ANY HEAVY EQUIPMENT ARRIVES ON THE SITE AND REMAINS IN PLACE FOR THE DURATION OF THE PROJECT.
4. THE CONTRACTOR IS REQUIRED TO ATTEND A PRE-CONSTRUCTION MEETING WITH THE ENGINEER, CITY PROJECT MANAGER, CITY CONSTRUCTION INSPECTOR AND THE CITY FORESTER TO DETERMINE THE LENGTH AND EXTENT OF PROTECTION THAT WILL BE PERFORMED TO EACH TREE WITHIN THE CONSTRUCTION ZONE. ALL WORK TO BE PERFORMED PER ANSI A300. ALL PRUNING SHALL BE CONDUCTED OR SUPERVISED BY AN INTERNATIONAL SOCIETY ARBORICULTURE (ISA) CERTIFIED ARBORIST.

PROTECTIVE FENCE:

1. CRITICAL ROOT ZONE (CRZ) – 1 FOOT RADIUS PER INCH OF TRUNK DIAMETER AT 4.5 FEET ABOVE THE GROUND
2. PLACE PROTECTIVE FENCE AT THE EDGE OF THE CRZ OF THE TREES TO BE PROTECTED. ALL TREES TO BE PRESERVED WITH A 6-FOOT HIGH CHAIN LINK FENCE OR 4-FOOT HIGH VINYL/PLASTIC MESH FENCE AS DETERMINED AT THE PRE-CONSTRUCTION MEETING. FENCES ARE TO BE MOUNTED ON 2-INCH DIAMETER GALVANIZED IRON POSTS, DRIVEN INTO THE GROUND TO A DEPTH OF AT LEAST 2 FEET AND SPACED NO MORE THAN 10 FEET APART.
3. WHEN A CONSTRUCTION ZONE OVERLAPS THE ROOT ZONE DUE TO A LACK OF SPACE, PLACE FENCE WITHIN 2 FEET OF THE CONSTRUCTION ZONE.
4. INSTALL PROTECTIVE COMPOST FILTER BERM AT THE BASE OF THE PROTECTIVE FENCE A SHOWN IN DETAIL AND DESCRIBED IN THESE NOTES UNDER "ROOT ZONE PROTECTION". CHIPPED HARDWOOD MULCH IS TO BE USED FOR THE ENTIRE PROTECTION ZONE TO A DEPTH OF 4-INCHES.

VEGETATIVE WATERING FOR TREE PROTECTION:
1. WATER TREES AT A RATE OF 10 GALLONS PER INCH OF TRUNK DIAMETER PER WEEK FOR EVERY WEEK DURING CONSTRUCTION ACTIVITIES DURING THE TIME PERIOD APRIL-OCTOBER. WATERING IS INCIDENTAL TO THE PROJECT/TREE PROTECTION.

TRUNK PROTECTION:
1. IF CONSTRUCTION IS REQUIRED WITHIN THE CRZ, BOUND WOOD PLANKING SHALL BE INSTALLED AROUND THE TRUNK OF THE TREE TO A HEIGHT OF 10-FEET OR TO THE HEIGHT OF THE LOWEST MAJOR BRANCH.
2. ROOTS AND BRANCHES EXTENDING PAST THE TREE PROTECTION ZONE, THAT ARE DAMAGED OR EXPOSED AS A RESULT OF CONSTRUCTION ACTIVITY, SHALL BE CAREFULLY AND CLEANLY CUT WIT A HAND SAW OR CHAIN SAW TO PREVENT FURTHER DAMAGE.
3. ALL WOUNDS TO OAK SPECIES MUST BE PAINTED WITHIN 30-MINUTES TO PREVENT OAK WILT INFECTION. USE ASPHALT PAINT FOR WOUND DRESSING. WOUND TREATMENT IS ONLY NECESSARY FEBRUARY THROUGH SEPTEMBER.
4. WHERE ROOTS MUST BE CUT WITHIN THE CRZ, THE FOLLOWING APPLIES:
A. ROOTS SHOULD BE BENT AND RELOCATED, IF AT ALL POSSIBLE.
B. ROOT CUTS SHOULD BE MADE BY HAND SAW OR CHAIN SAW. HEAVY EQUIPMENT WILL NOT BE USED TO PRUNE OR RELOCATE ROOTS. CLEAN CUTS WILL BE MADE TO LIMIT THE AMOUNT OF OPEN SURFACE WOUNDS AND HORIZONTAL TEARING.
C. ASPHALT PAINT SHALL BE APPLIED DIRECTLY TO THE CUT SURFACE WITHIN 30-MINUTES OF PRUNING.
D. BACKFILL ROOT AREAS WITH GOOD QUALITY TOPSOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE EXPOSED FOR LONGER THAN 12-HOURS, THEN COVER EXPOSED ROOTS WITH AT LEAST 4-INCHES OF MOIST MULCH, MOIST COMPOST OR MOIST BURLAP. THE ROOT AREA MUST REMAIN MOIST UNTIL TOPSOIL IS REPLACED.

BORING, TRENCHING, GRADING AND PRUNING
1. WHERE BORING IS REQUIRED FOR UNDERGROUND UTILITIES UNDER PROTECTED AREAS THIS WILL REQUIRE ALL BORING TO TAKE PLACE BENEATH THE CRZ.
2. NO EXCAVATION, GRADING, FILLING, SOIL COMPACTION, PARKING OR EQUIPMENT STORAGE IS ALLOWED WITHIN THE CRZ UNLESS IDENTIFIED IN THE PLANS AND APPROVED BY THE ENGINEER AND CITY FORESTER.
3. WHEN EXISTING GRADE MUST BE CUT WITHIN THE CRZ, CONTACT THE ENGINEER PRIOR TO BEGINNING WORK. BEFORE GRADING OR EXCAVATION WORK, SAW CUT ROOTS TO THE DEPTH OF THE PROPOSED DISTURBANCE ALONG THE EDGE OF THE PROPOSED DISTURBANCE BEFORE EXCAVATION IS STARTED.
4. BACKFILL ROOT AREAS WITH GOOD QUALITY TOPSOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE EXPOSED FOR LONGER THAN 12 HOURS, THEN COVER EXPOSED ROOTS WITH AT LEAST 4-INCHES OF MOIST MULCH, MOIST COMPOST OR MOIST BURLAP. COVER MATERIAL SHALL BE KEPT MOIST UNTIL TOPSOIL IS REPLACED.
5. WHEN GRADING WITHIN THE CRITICAL ROOT ZONE, USE HAND OR SMALL EQUIPMENT AND ALTER GRADE NO MORE THAN TWO INCHES. NO SOIL DISTURBANCE IS ALLOWED ON THE ROOT FLARE UNDER ANY CIRCUMSTANCES.
6. CANOPIES WHICH EXTEND BEYOND THE ROOT PROTECTION ZONE MAY BE PRUNED TO REMOVE DEAD OR CONFLICTING BRANCHES THAT POSE A RISK TO WORKERS, PEDESTRIAN, OR STRUCTURE SAFETY. BRANCHES EXTENDING BEYOND THE PROTECTION ZONE MAY ALSO BE RAISED TO A HEIGHT OF 13-FEET TO AVOID VEHICLES OR PEDESTRIAN CONFLICT. ALL PRUNING SHALL BE CONDUCTED BY INTERNATIONAL SOCIETY OF ARBORICULTURE CERTIFIED ARBORIST AND PRUNED ACCORDING TO ANSI A300 STANDARDS.
7. ROOT BARRIERS SHALL BE INSTALLED WHEN REQUIRED BY THE GUIDELINES ESTABLISHED IN CHAPTER 13 OF THE CITY INFRASTRUCTURE DESIGN MANUAL.

MAINTENANCE OF TREE PROTECTION MATERIALS:
1. MAINTAIN ALL TREE PROTECTION MATERIALS THROUGHOUT ENTIRE LENGTH OF PROJECT. REPAIR DAMAGE OR AFFECTED TREE PROTECTION MATERIALS. TREE PROTECTION MATERIALS SHALL BE INSPECTED AND STATUS REPORTED TO THE CITY CONSTRUCTION INSPECTOR WEEKLY.

REMOVAL OF TREE PROTECTION MATERIALS:
1. REMOVE AND DISPOSE OF ALL PROTECTIVE FENCING AND TRUNK PROTECTION AT THE END OF THE PROJECT.

WS&D RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

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CONTRACTOR: _____ DATE: _____
TITLE: _____

No.	DATE	REVISION

TREE PROTECTION PLAN

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL:
STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: _____ DATE 7.6.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

FORT BEND COUNTY ENGINEERING DEPARTMENT
APPROVED: _____ DEVELOPMENT COORDINATOR
DATE: 7/12/17

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

MC-26-15
SHEET 49 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A

Date\Time : Thu, 06 Jul 2017 - 10:30am - USER : dranger
Path\Name : I:\Projdsk1\1194\1194-1127A\1194-1127A\CAD_Sheet Files\49 TREE PROTECTION PLAN - MC-26-15.dwg

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NOTES FOR PERMANENT TRAFFIC SIGNAL:

1. INSTALL SIGNS AND SIGNALS HORIZONTALLY ON MAST ARM, 17 FT. – 6 IN. ABOVE THE ROADWAY.
2. FURNISH SIGNALS WITH 12 IN. LENS (RYG) WITH BLACK VEHICLE SIGNAL HEAD BACKPLATES.
3. USE DIAMOND GRADE SHEETING FOR SIGNS MOUNTED UNDER OR ADJACENT TO THE SIGNAL HEADS.
4. FURNISH MATERIALS NECESSARY TO INSTALL THE PEDESTRIAN PUSH BUTTON SIGNS AND PEDESTRIAN PUSH BUTTONS AS SHOWN IN THE PLANS. INSTALL PUSH BUTTONS AT 3 FT. – 6 IN. TO 4 FT. – 0 IN. ABOVE THE SIDEWALK OR CONCRETE WALKWAY.
5. ROUTE CABLE FOR LUMINAIRES TO THE SERVICE ENCLOSURE. SEE ELECTRICAL DETAILS SHEET. USE CORRECT LUMINAIRE WIRING IN ORDER TO MATCH HOLOPHANE TEAR DROP ASSEMBLY.
6. INSTALL A CONCRETE WALKWAY FROM THE END OF THE CURB RAMP OR EDGE OF PAVEMENT TO THE TRAFFIC SIGNAL POLE FOUNDATION TO PROVIDE ACCESS TO THE PEDESTRIAN PUSH BUTTON(S). PERFORM THIS WORK IN ACCORDANCE WITH ITEM 531, "SIDEWALKS".
7. INSTALL NAZTEC ETHERNET 980 ATC FULLY-ACTUATED, CONTROLLER WITH INTERNAL TIME BASE COORDINATION UNIT AND A GARMIN GPS UNIT, IN A BASE MOUNTED CABINET WITH BATTERY BACKUP ALPHA FXM 2000 IN ITS OWN EXTERNAL CABINET AND ETHERNET READY WITH ALPHA GUARD SMART CHARGE MODULE.
8. LOCATE CONTROLLER, STEEL POLES, DETECTION ZONES AS APPROVED BY CITY ENGINEER IN THE FIELD.
9. REPAIR OR REPLACE PAVEMENT AND SIDEWALKS DAMAGED BY THE CONTRACTOR'S FORCES.
10. FURNISH FULL-ACTIVATED 16 PHASE NEMA TS2 WITH INTERVAL COORDINATION UNIT, NEMA TS2 FLASHING LEFT READY MONITOR AND COMMUNICATION READY.
11. PLACE PAVEMENT MARKINGS AS SHOWN ON THE PLANS OR AS DIRECTED.
12. FURNISH AND INSTALL DUCT SEAL TO ENCLOSE THE ENDS OF EACH CONDUIT CONTAINING SIGNAL CABLE.
13. CAP SPARE CONDUITS INSTALLED IN POLE FOUNDATIONS AND GROUND BOXES USING APPROVED CAPPING DEVICES.
14. DO NOT PLACE SIGNAL HEADS OVER THE ROADWAY UNTIL ALL NECESSARY MATERIALS ARE ON HAND AS APPROVED.
15. INSTALL TWO SET SCREWS ON ALL VEHICLE SIGNAL HEAD MOUNTING HARDWARE FITTINGS.
16. WRAP SIGNAL HEADS WITH DARK PLASTIC OR SUITABLE MATERIAL TO CONCEAL THE SIGNAL FACES FROM THE TIME OF INSTALLATION UNTIL PLACING INTO OPERATION. DO NOT USE BURLAP.
17. GROUND PAINT OR POWDER COAT STEEL MAST ARM POLE ASSEMBLIES IN ACCORDANCE WITH REQUIREMENTS SHOWN IN THE LATEST TRAFFIC SIGNAL POLE FOUNDATION STANDARD. SCRAPE OR SAND THE BASE PLATE, LEVELING NUT, WASHERS AND ANCHOR BOLTS DOWN TO THE GALVANIZING COATING SO THAT PROPER CONTACT IS MADE FOR GROUNDING. USE THE GROUNDING LUG ON THE POLE TO GROUND THE POLE TO THE GROUND CONDUCTORS FROM THE CONDUITS.
18. VERIFY THE CORRECT MAST ARM POLE LENGTHS PRIOR TO ORDERING FROM KW INDUSTRIES.
19. FURNISH AUTOSCOPE ENCORE VEHICLE DETECTION SYSTEM. FURNISH VIDEO CABLE RECOMMENDED BY MANUFACTURER OR PURCHASE CABLE FROM THE SAME MANUFACTURER THAT SUPPLIED/PROVIDED PARADIGM TRAFFIC SYSTEMS AND INSTALLED BY BOB COKER.
20. REFER TO TXDOT'S WEBSITE FOR PREQUALIFIED PRODUCTS LIST REGARDING VEHICLE LED TRAFFIC SIGNAL LAMP UNIT, CONDUIT, CONDUCTORS, GROUND BOXES, AND ELECTRIC SERVICE. CHECK WEBSITE PERIODICALLY FOR CURRENT UPDATES.
21. THE LOCATION SHOWN FOR THE TRAFFIC CONTROLLER, SIGNAL POLES, VIDEO DETECTION ZONES, CONDUIT RUNS AND GROUND BOXES IS SUBJECT TO ADJUSTMENTS DUE TO FIELD CONDITIONS, WITH THE APPROVAL OF THE ENGINEER IN THE FIELD.
22. REMOVE EXISTING PAVEMENT MARKINGS AS DIRECTED. REMOVE THE PAVEMENT MARKINGS TO THE EXTENT THAT THEY ARE EITHER COMPLETELY REMOVED OR OBLITERATED TO THE SATISFACTION OF THE ENGINEER.
23. THE CONTRACTOR SHALL INSTALL A CLOSE NIPPLE WITH LOCK NUT AND BUSHING (SIZE AS REQUIRED) TO PREVENT ABRASION TO SIGNAL CABLE WHERE THE CABLE ENTERS THE UPPER PORTION OF THE SIGNAL POLE.
24. THE CONTRACTOR SHALL CONTACT MR. DARYL SAWATZKY, CONSTRUCTION INSPECTOR WITH THE CITY OF MISSOURI CITY, AT (281) 733-3682, 5 DAYS PRIOR TO BEGINNING OF ANY UNDERGROUND WORK.
25. THE CONTRACTOR SHALL CONTACT MR. RIGO CALZONCIN, STREET SUPERINTENDENT WITH THE CITY OF MISSOURI CITY, AT (281) 403-8585 TO PROGRAM THE SIGNAL CONTROLLER.
26. SYMBOLIC PEDESTRIAN SIGNAL HEAD SHALL BE "LED PEDESTRIAN AND 16-IN. COUNTDOWN SIGNAL MODULE W/ 9-IN. HEIGHT COUNTDOWN NUMBERS". INSTALL USING MOUNTING HEIGHT IN ACCORDANCE WITH THE LATEST "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
27. SIGNAL POLES AND BASES SHALL BE PICKED UP BY CONTRACTOR AT THE FOLLOWING ADDRESS:

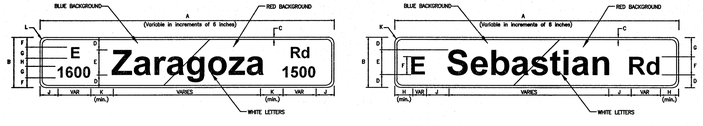
    KW INDUSTRIES, INC. 909 INDUSTRIAL BOULEVARD, SUGAR LAND, TX 77478-2887
    (281) 240-0909
28. FURNISH SIDEWINDER SW 720 SERIES CCTV CAMERA WITH LOCAL CONTROL PANEL MOUNTED IN CABINET. MOUNT PTZ CCTV ACCORDING TO PLAN SET. EXTENSION POLE SHALL BE PAINTED BLACK TO MATCH MAST ARMS.
29. FURNISH TELESTE MPX-D8 EIGHT CHANNEL VIDEO DECODER. FURNISH MPC-EL ONE CHANNEL VIDEO ENCODER.
30. COMMUNICATION SYSTEM SHALL BE ALVARION ACCESS VL UNIT 54Mbs, 5.8GHZ SUBSCRIBER UNIT. 60DB ANTENNA, SURGE PROTECTION UNITS, CAT5E OUTDOOR CABLE, CABLE HANGERS, ANTENNA AND SUBSCRIBER UNIT SHALL BE A MINIMUM 35' ABOVE GROUND MOUNTED ON A 3" DIAMETER STAINLESS STEEL SCHEDULE 80 EXTENSION ARM WITH CLAMPS AND OR ASTRO BRACKETS. THE EXTENSION ARM SHALL BE BE BLACK TO MATCH THE EXISTING MAST ARMS. THE HEIGHT OF RADIO SHALL EXCEED ANY LINE OF SIGHT ISSUES THAT ARE PRESENT FROM INTERSECTION TO TOWER LOCATION WITH ENGINEERS APPROVAL.
31. FURNISH CHAMELEON SOFTWARE LICENSE SO VIDEO MAY BE VIEWED IN TMC.
32. FURNISH ETHER WAN ETHERNET SWITCH WITH 2 FIBER PORTS, MODEL #EX71000.
33. ALL MAST ARMS OVER 50' REQUIRE A TxDOT APPROVED WIND DAMPENER. CONTRACTOR IS RESPONSIBLE FOR INSTALLING. PAINT BOTTOM OF DAMPENER BLACK TO MATCH THE MAST ARMS.
34. PAINT EXPOSED CONCRETE SIGNAL POLE FOUNDATIONS WITH AN OIL BASED LATEX PAINT OR POUR FOUNDATIONS WITH BLACK COLORING ADDED TO THE CEMENT MIX.
35. ALL BUSHINGS, MAST BOLTS AND NUTS AND VIDEO DETECTION EXTENSION POLES SHALL BE PAINTED BLACK TO MATCH MAST ARMS.
36. ALL COMMUNICATIONS EQUIPMENT NEEDS TO BE RACK MOUNTED OFF THE SHELFS TO ALLOW FOR MANUFACTURER'S PROPER HEAT DISSIPATION AND AIR FLOW.

NOTES FOR UTILITIES:

1. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY WITH THE UTILITY COMPANIES THE EXACT LOCATION OF THE EXISTING UNDERGROUND UTILITIES TO AVOID CONFLICT WITH, OR DAMAGE TO, THESE UTILITIES.
2. CONTRACTOR SHALL EXPOSE UTILITIES AS NEEDED TO INSTALL POLE FOUNDATIONS.
3. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES FOR ANY ADJUSTMENT DUE TO UTILITY CONFLICTS, AS DEFINED IN THE SPECIFICATIONS OR AS DEEMED NECESSARY BY THE ENGINEER IN THE FIELD.

NOTES FOR INTERCONNECT:

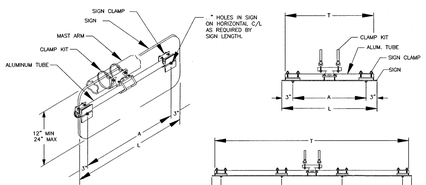
1. CONTRACTOR SHALL PROVIDE BOTH A ETHERNET SWITCH AND A 12 POSITION PATCH PANEL OF SAME MAKE AND MODEL AS EQUIPMENT CURRENTLY BEING USED BY MISSOURI CITY. THIS EQUIPMENT WILL BE INSTALLED IN THE TRAFFIC SIGNAL CONTROLLER AND THE CONTRACTOR SHALL INSURE THE EQUIPMENT OPERATES AND FUNCTIONS PROPERLY.
2. 12 FIBER SM TO BE INSTALLED AS SHOWN IN THE PLANS FROM EXISTING COMMUNICATION GROUND BOX TO PROPOSED SIGNAL CABINET. 24 FIBER OPTIC SPLICE ENCLOSURE SHALL BE INSTALLED IN EXISTING COMMUNICATIONS BOX ADJACENT TO PROPOSED SIGNAL CABINET.
3. COMMUNICATIONS SHALL BE SEAMLESS AND HIGHLY EFFICIENT AND HAVE EQUAL OR BETTER BIT ERROR RATE (BERT) AS THE EXISTING EQUIPMENT IN FIELD. UNITS SHALL PROVIDE FULL COMMUNICATIONS AND NOT DELAY BANDWIDTH OF THE CLOSED LOOP COMMUNICATIONS. NO ONE UNIT SHALL TIME OUT OR IMPEDE CLOSED LOOP SYSTEM TO TIME OUT IN ANY WAY.
4. EACH PROPOSED FIBER OPTIC CABLE RUN IN UNDERGROUND CONDUITS SHALL HAVE AN EXTRA LENGTH OF FIFTY FEET COILED IN EACH GROUND BOX AND CONTROLLER.
5. CONTRACTOR WILL BE RESPONSIBLE FOR REPLACING 144 AND 24 SM FIBER IF IT BECOMES DAMAGED DURING CONSTRUCTION.
6. FURNISH AND INSTALL THE MATERIALS NECESSARY FOR THE COMMUNICATIONS OF A FULLY FUNCTIONAL CLOSED LOOP SYSTEM AS SHOWN IN THE PLANS.
7. INTERSECTIONS SHALL BE TIED TO THE CITY OF MISSOURI CITY SIGNAL INTERCONNECTION CONNECTING THRU THE CITY'S TRAFFIC MANAGEMENT CENTER.
8. WORK IN THE CONTROLLER CABINET SHALL INCLUDE INSTALLING THE EQUIPMENT AND PERFORMING THE WORK NECESSARY TO CONNECT AND OPERATE THE WIFI COMMUNICATION SYSTEM AND TO CONNECT THRU THE CITY'S TRAFFIC MANAGEMENT CENTER.
9. WIFI COMMUNICATION EQUIPMENT SHALL BE MOUNTED INSIDE PROPOSED CONTROLLER CABINET. CONTRACTOR SHALL FOLLOW MANUFACTURER SPECIFICATIONS FOR COMMUNICATION INSTALLATION.
10. THE CONTRACTOR WILL LABEL EACH COMMUNICATION DEVICE, FIBER OPTIC CABLE AND PATCH PANEL WITH RELEVANT INFORMATION SUCH AS DIRECTION OF TRAVEL, I.P. NUMBER, AND OR PURPOSE.



A	B	C	D	E	F	G	H	J	K	L
VAR	18	.5	4	10CV–3W	4	4CV–3W	2	4	4	1.5
VAR	24	.75	6	12CV–3W	4.5	6CV–3W	3	5	5	1.5

A	B	C	D	E	F	G	H	J	K
VAR	18	.5	4	10CV–3W	7CV–3W	7	5	7.5	1.5
VAR	24	.5	6	12CV–3W	8CV–3W	10	6	9	1.5

DETAIL OF OVERHEAD MOUNTED SIGN



SIGNS (1'–6" to 3'–0" Long)

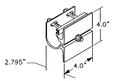
SIGN LENGTH (L)	TUBE LENGTH (T)	A
1'–6"	16"	12"
2'–0"	20"	16"
2'–6"	28"	18"
3'–0"	34"	30"

SIGNS (3'–6" to 8'–0" Long)

SIGN LENGTH (L)	TUBE LENGTH (T)	A
3'–6"	40"	12"
4'–0"	46"	14"
4'–6"	52"	16"
5'–0"	58"	18"
6'–0"	70"	22"
6'–6"	76"	24"
7'–0"	82"	26"
7'–6"	88"	28"
8'–0"	94"	30"

SIGNS (8'–6" to 10'–0" Long)

SIGN LENGTH (L)	TUBE LENGTH (T)	A	B
8'–6"	100"	19"	20"
9'–0"	106"	20"	22"
9'–6"	112"	21"	24"
10'–0"	118"	22"	26"

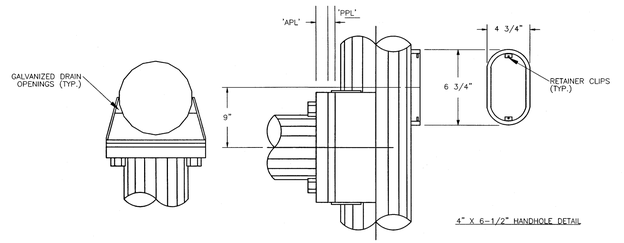


SIGN CLAMP DETAIL

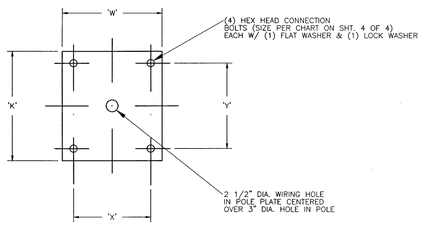
GUSSETED TUBE CROSS SECTION

TYPICAL MAST ARM SIGN MOUNT DETAILS

OVERHEAD MOUNT STREET SIGN DETAIL

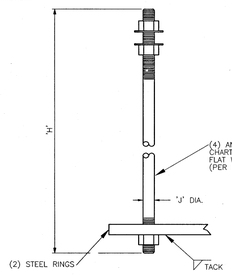


4" X 6-1/2" HANDHOLE DETAIL



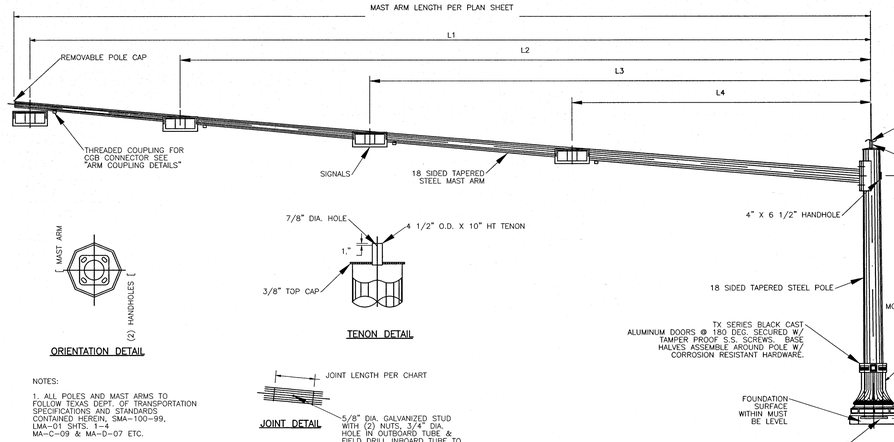
MAST ARM CONNECTION DETAIL

NOTE: FOR LMA MAST ARM CONNECTION DETAIL SEE TX D.O.T. STANDARD SHEET LMA (3)-01



ANCHOR BOLT DETAIL

MAST ARM AND POLE DETAIL



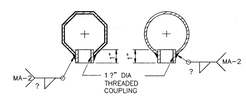
ORIENTATION DETAIL

TENON DETAIL

NOTES:

1. ALL POLES AND MAST ARMS TO FOLLOW TEXAS DEPT. OF TRANSPORTATION SPECIFICATIONS AND STANDARDS CONTAINED HEREIN, SMA-100-99, LMA-01 SHTS. 1-4 MA-C-09 & MA-D-07 ETC.
2. NO MULTI-PLY POLES WILL BE ALLOWED
3. CUSTOMER TO CONFIRM ALL DIMENSIONS & ORIENTATIONS BEFORE RELEASING ORDER FOR MANUFACTURING

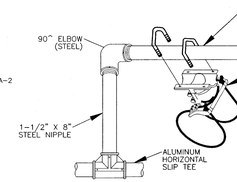
JOINT DETAIL



ARM COUPLING DETAILS

STAINLESS STEEL BANDS (OR CABLES) AND CAST BRACKET AS IN "ASTRO-BRAC", "SKY BRACKET" OR "EASY BRACKET" WITH 1.9" DIA THREADED COUPLING.

BRACKET ASSEMBLY



NOTE: ROTATE TEE ACCORDING TO PLANS

ASTRO BRACKET CABLE MOUNT DETAIL

MAST ARM:

1. 2-EACH ASTRO FOR 4 SECTION AND LARGER TRAFFIC SIGNAL HEADS.

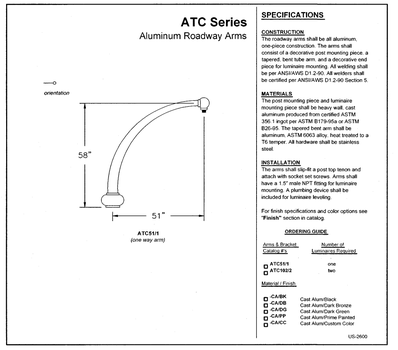
MAST ARM AND POLE DETAIL

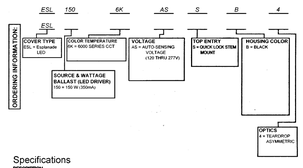
WS&D RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____

PAVING RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
CONTRACTOR: _____ DATE: _____
TITLE: _____



Teardrop Glass
Asymmetric





Specifications

DESCRIPTION
The Teardrop luminaire is styled to replicate the "teardrop" luminaires that lighted boulevards in the first half of the century. Designed for light control and ease of installation and maintenance, the Esplanade has a precision optical system for true street lighting performance.
WIRING CHAMBER
The wiring chamber has either a 1.50 inch NPT and stainless steel set screw or a welded stem. The stem slides in and is captured. Provided with a (2) station terminal block that accepts #14 through #2 wires and has a quick disconnect harness with removable electrical module.
ELECTRICAL / REFLECTOR ASSEMBLY
The electrical / reflector assembly hinges down from the wiring chamber for ease in wiring and to facilitate the removal of the electrical module. The assembly is secured in place by a stainless steel latch. The unitized electrical module consists of the electronic driver and components mounted to an aluminum plate that is easily removed by loosening two screws in keyhole slots. The disconnect plug connects the ballast to the terminal block in the wiring chamber.
REFRACTOR / DOOR ASSEMBLY
The cast aluminum door supports a tempered, thermal resistant, borosilicate glass refractor that provides IES full cutoff and meets the U.S. requirements cut off distribution. The combination of reflector, refractor maximizes efficiency and uniformity of illumination while controlling luminaire brightness. The refractor assembly and decorative skirt (when applicable) assembly hinges from the electrical / reflector assembly and is latched by a tamper-resistant, color matched bracket and wing nut assembly.
BALLAST
LED driver (see other page)
FINISH / MATERIAL
The luminaire is finished with polyester powder paint to insure maximum durability. All castings utilize low copper aluminum for maximum corrosion resistance and all exposed hardware is stainless steel.
CUL/ULL LISTING
CUL/ULL listing suitable for wet locations up to 40 degrees C.
IP RATING 66

LUMINAIRE AND ARM STANDARD

FORT BEND COUNTY ENGINEERING DEPARTMENT
APPROVED: _____ DEVELOPMENT COORDINATOR
DATE: 7/12/17

No.	DATE	REVISION

SIGN CONSTRUCTION DETAILS

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL:
STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED ENGINEER
7.5.17

DESIGN ENGINEER: _____ DATE 7.5.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

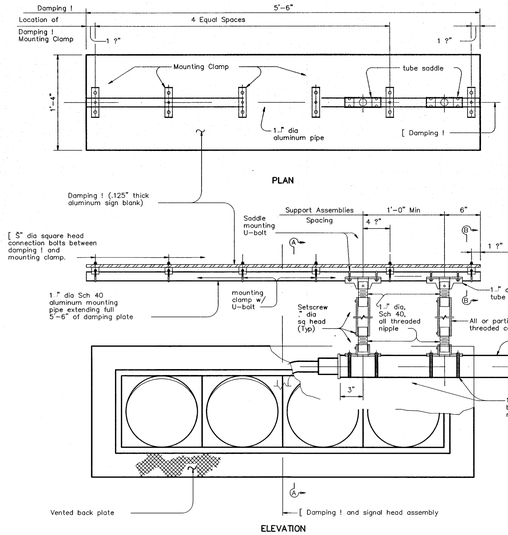
SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

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

MC-27-15
SHEET 50 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194-1127A

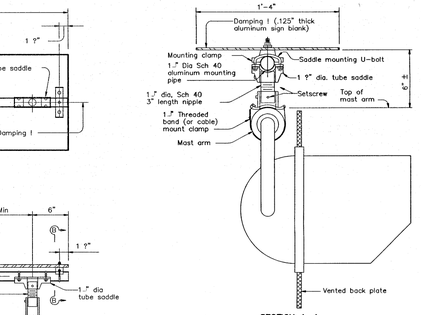
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DAMPING PLATE MOUNTING DETAILS

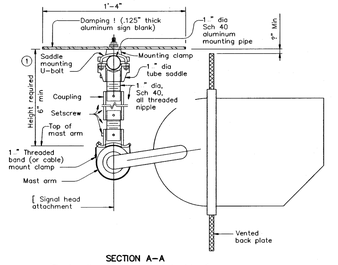
(Showing alternate placement of signal head)

① Recommended supporting assemblies to achieve required height			
Height required	One nipple each length	Two nipples each length plus	One coupling each length
6"–6 9"	3"	–	–
7"–8 9"	4"	–	–
9"–10 9"	6"	–	–
11"–15 9"	–	4"	5"
16"–24"	–	6"	10"



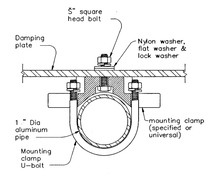
SECTION A–A

(Showing standard placement of signal head)
(Mounting clamp U-bolt is not shown for clarity)



SECTION A–A

(Showing alternate placement of signal head)
(Mounting clamp U-bolt is not shown for clarity)



SECTION B–B

(Showing damping plate attachment)

GENERAL NOTES:

In accordance with the findings of TxDOT sponsored research, the installation of a damping plate in accordance with the details shown here at the end of signal mast arms of SMA and DMA standard structures reduces excessive harmonic vertical vibration, and thus fatigue damage. Any deviation from these details may reduce the effectiveness of this damping device.

Aluminum sign blank for damping plate shall conform to Departmental Material Specifications DMS–7110. Materials for mast arm mounting clamp and tube saddle shall be aluminum castings or aluminum alloys as in accordance with manufacturers' stipulations. Mounting pipe, pipe nipple and coupling shall be aluminum alloy 6061–T6 or 6063–T6. Damping plate mounting clamp and u–bolt assemblies shall conform to Standard sheet SMD(GEN)–08. U–bolts for saddle mounting shall have a minimum yield strength of 36 ksi.

Damping plate shall be mounted horizontally. Position centerline of damping plate to align with centerline of signal head assembly. Vertical clearance between signal head (with or without backing plate) and bottom of damping plate shall be maintained as shown. The attachments shown here are examples only, other supporting details which meet both alignment and vertical clearance requirements are also acceptable.

Unless stipulated by the manufacturers, all steel parts shall be galvanized finish in accordance with Standard Specification Item 445, "Galvanizing".

Contractor shall verify applicable field dimensions before the installation.

MAST ARM DAMPING DETAIL

WS&D RECORD DRAWING
I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.
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TITLE: _____

PAVING RECORD DRAWING
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CONTRACTOR: _____ DATE: _____
TITLE: _____

FORT BEND COUNTY ENGINEERING DEPARTMENT
APPROVED: _____ DEVELOPMENT COORDINATOR
DATE: 7/12/17

No.	DATE	REVISION

TRAFFIC SIGNAL DETAILS

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS
SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL:
STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER

DESIGN ENGINEER: _____ DATE 7.6.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

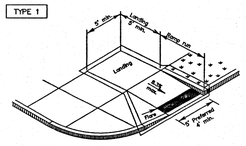
JOB No.:
SCALE: AS NOTED
SUBMITTED:
DATE: FEBRUARY 2015

MC–28–15
SHEET 51 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194–1127A

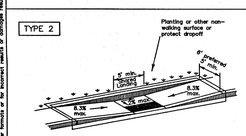
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TYPE 1



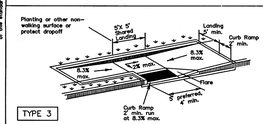
PERPENDICULAR CURB RAMP

TYPE 2

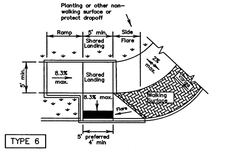


PARALLEL CURB RAMP
(Use only where water will not pond in the landing.)

TYPE 3

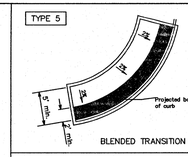


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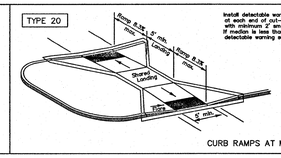


COMBINATION CURB RAMPS

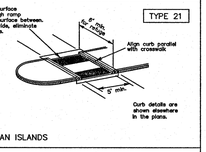
TYPE 5



TYPE 20

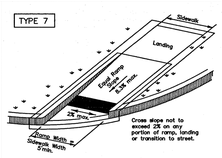


TYPE 21



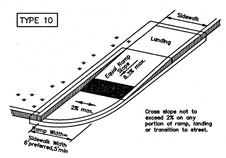
CURB RAMPS AT MEDIAN ISLANDS

TYPE 7



(Sidewalk set back from curb)

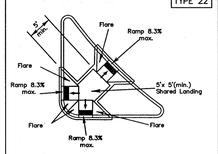
TYPE 10



(Sidewalk adjacent to curb)

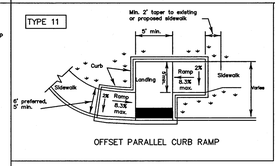
DIRECTIONAL RAMPS WITHIN RADIUS

TYPE 22



COMBINATION ISLAND RAMPS

TYPE 11



OFFSET PARALLEL CURB RAMP

NOTES / LEGEND:

See General Notes on sheet 2 of 4 for more information.

U. U. U. Denotes planting or non-walking surface not part of pedestrian circulation path.

Ramp Limits of Payment

Detectable Warning Surface

SHEET 1 OF 4

Texas Department of Transportation
Design Division Standard

PEDESTRIAN FACILITIES
CURB RAMPS

PED-12A

FILE:	ped12a.dgn	DN: TxDOT	CK: PK	DW: TxDOT	CK: HD
©TxDOT March 2002		CONT	SECT	JOB	HIGHWAY
REVISIONS					
VP June 13, 2012		DIST	COUNTY		SHEET NO.

DISCLAIMER:
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DATE:
FILE: ped12a.dgn

General Notes

Curb Ramps

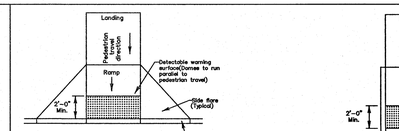
1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Lesser slopes that will still drain properly should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. The minimum sidewalk width is 5'. Where the sidewalk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

---

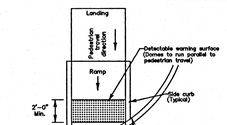
15. Provide a smooth transition where the curb ramps connect to the street.
16. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
17. Existing features that comply with TAS may remain in place unless otherwise shown on the plans.

Detectable Warning Material

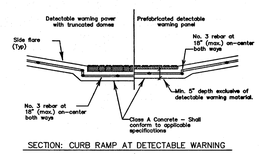
18. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with Section 705 of the TAS. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
19. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
20. Detectable warning surfaces must be slip resistant and not allow water to accumulate.
21. Detectable warning surfaces shall be a minimum of 24" in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
22. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb. Align the rows of domes to be perpendicular to the grade break between the ramp run and the street. Detectable warning surfaces may be curved along the corner radius.
23. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.



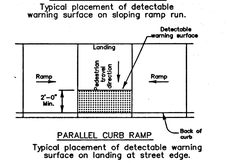
PERPENDICULAR CURB RAMP
Typical placement of detectable warning surface on sloping ramp run.



DIRECTIONAL CURB RAMP
Typical placement of detectable warning surface on sloping ramp run.



SECTION: CURB RAMP AT DETECTABLE WARNING



PARALLEL CURB RAMP
Typical placement of detectable warning surface on landing at street edge.

DETECTABLE WARNINGS

Detectable Warning Pavers

24. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
25. Lay full-size units first followed by closure units consisting of at least 25 percent of a full unit. Cut detectable warning paver units using a power saw.

Sidewalks

26. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within one or more reach ranges specified in TAS 308.
27. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
28. Street grades and cross slopes shall be as shown elsewhere in the plans.
29. Changes in level greater than 1/4 inch are not permitted.
30. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than 5% must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with TAS 505.
31. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
32. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
33. Sidewalk details are shown elsewhere in the plans.

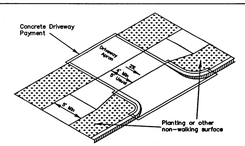
SHEET 2 OF 4

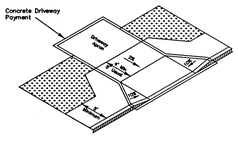
Texas Department of Transportation
Design Division Standard

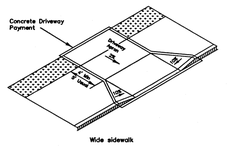
PEDESTRIAN FACILITIES
CURB RAMPS

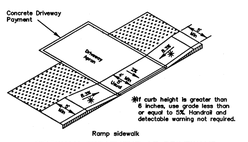
PED-12A

FILE:	ped12a.dgn	DN: TxDOT	CK: PK	DW: TxDOT	CK: HD
©TxDOT March 2002		CONT	SECT	JOB	HIGHWAY
REVISIONS					
VP June 13, 2012		DIST	COUNTY		SHEET NO.

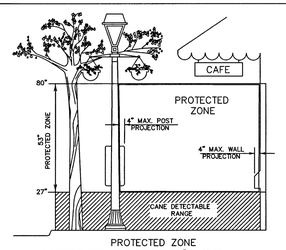




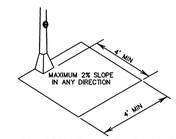




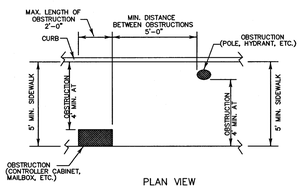
SIDEWALK TREATMENT AT DRIVEWAYS



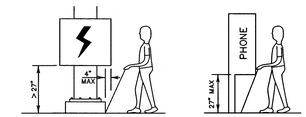
PROTECTED ZONE
In pedestrian circulation area, maximum 4" projection for post or wall mounted objects between 27"and 80" above the surface.



CLEAR GROUND SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



PLAN VIEW
PLACEMENT OF STREET FIXTURES
(ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' x 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.)



DETECTION BARRIER FOR VERTICAL CLEARANCE <80"

SHEET 3 OF 4

Texas Department of Transportation
Design Division Standard

PEDESTRIAN FACILITIES
CURB RAMPS

PED-12A

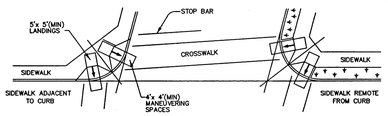
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©TxDOT March 2002		CONT	SECT	JOB	HIGHWAY
REVISIONS					
VP June 13, 2012		DIST	COUNTY		SHEET NO.



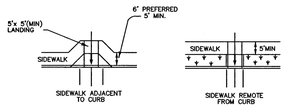
SKEWED INTERSECTION WITH "LARGE" RADIUS



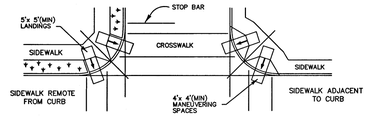
AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



SKEWED INTERSECTION WITH "SMALL" RADIUS



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS



NORMAL INTERSECTION WITH "SMALL" RADIUS

TYPICAL CROSSING LAYOUTS

SHEET 4 OF 4

Texas Department of Transportation
Design Division Standard

PEDESTRIAN FACILITIES
CURB RAMPS

PED-12A

FILE:	ped12a.dgn	DN: TxDOT	CK: PK	DW: TxDOT	CK: HD
©TxDOT March 2002		CONT	SECT	JOB	HIGHWAY
REVISIONS					
VP June 13, 2012		DIST	COUNTY		SHEET NO.

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNOI RD. SURVEY MARKER NO. PCM-003 ELEVATION = 66.07 2001 ADJUSTMENT

NOTES:

PAVE RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

WS&D RECORD DRAWING

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CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____
DEVELOPMENT COORDINATOR

DATE: 7/12/17

missouri CITY TEXAS
DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

TxDOT PEDESTRIAN FACILITIES DETAILS (PED-12A)

LJA Engineering, Inc.
1904 W. Grand Parkway North
Suite 100
Katy, Texas 77449
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

LJA PROJECT NO.: 1194-1127A & 1470-1127A

DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

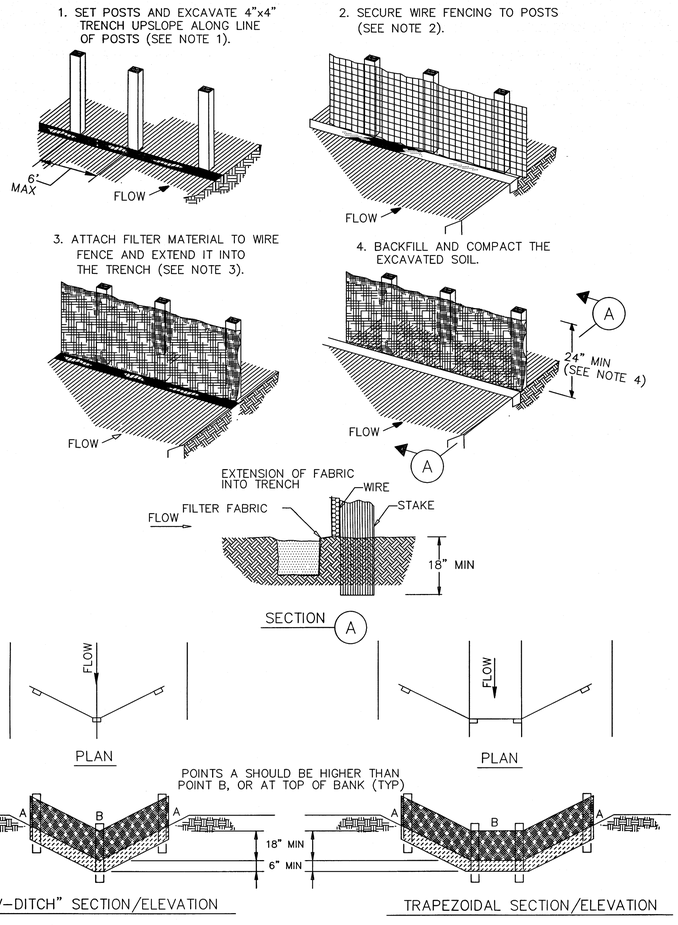
SCALE:

SHEET NO. 52 OF 54

STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER
7.5.17

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A - JOB NO. 1194-1127A & 1470-1127A

Date\Time : Thu, 06 Jul 2017 - 10:30am USER : dropel
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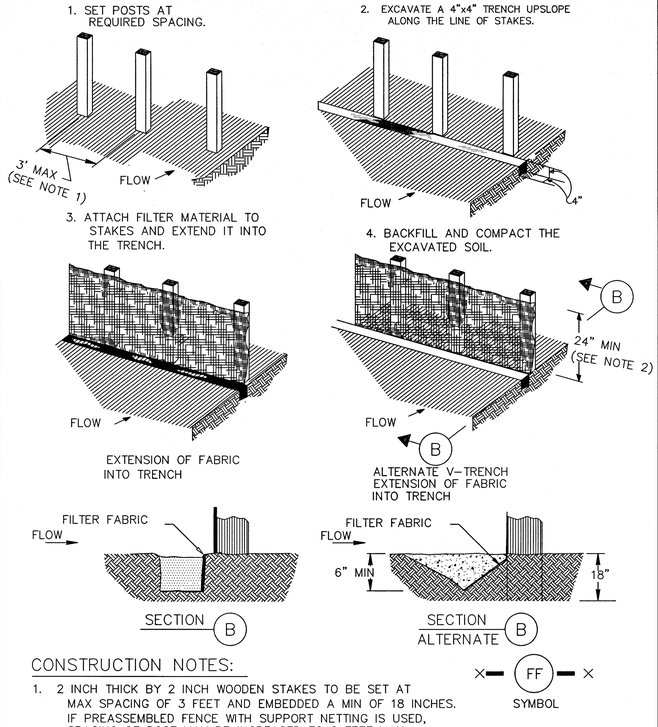


CONSTRUCTION NOTES:

1. SET 2 INCH BY 2 INCH WOODEN STAKES SPACED A MAX OF 6 FEET APART AND EMBEDDED A MIN OF 18 INCHES.
2. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH STAPLES.
3. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE, WITH TIES SPACED EVERY 24 INCHES AT TOP AND MIDSECTION.
4. MINIMUM HEIGHT OF FILTER SHOULD BE 24 INCHES AND A MAXIMUM OF 36 INCHES ABOVE NATURAL GROUND.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.

SYMBOL

REINFORCED FILTER FABRIC BARRIER

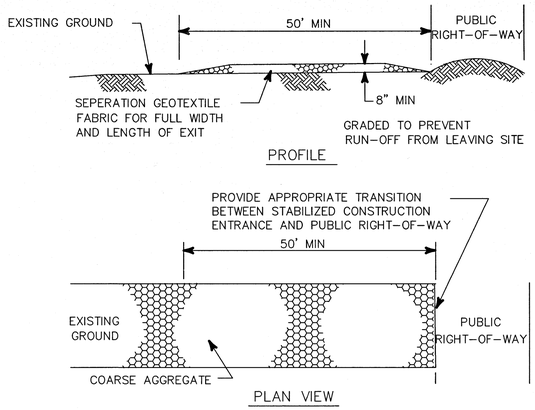


CONSTRUCTION NOTES:

1. 2 INCH THICK BY 2 INCH WOODEN STAKES TO BE SET AT MAX SPACING OF 3 FEET AND EMBEDDED A MIN OF 18 INCHES. IF PREASSEMBLED FENCE WITH SUPPORT NETTING IS USED, SPACING OF POST MAY BE INCREASED TO 8 FEET MAX.
2. ATTACH FILTER FABRIC TO WOODEN STAKES. FILTER FABRIC FENCE SHALL HAVE A MIN HEIGHT OF 24 INCHES AND MAX HEIGHT OF 36 INCHES ABOVE NATURAL GROUND.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHOULD BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.

SYMBOL

FILTER FABRIC FENCE

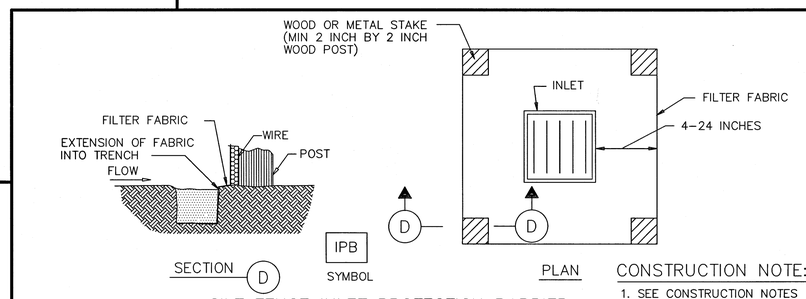


CONSTRUCTION NOTES:

1. LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS, BUT NOT LESS THAN 50 FEET.
2. THICKNESS SHALL BE NOT LESS THAN 8 INCHES.
3. WIDTH SHALL BE NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
4. STABILIZATION FOR OTHER AREAS SHALL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION EXIT, UNLESS OTHERWISE SHOWN ON THE CONSTRUCTION DRAWINGS.
5. STABILIZED AREA MAY BE WIDENED OR LENGTHENED TO ACCOMODATE A TRUCK WASHING AREA. AN OUTLET SEDIMENT TRAP MUST BE PROVIDED FOR THE TRUCK WASHING AREA.
6. STABILIZED CONSTRUCTION EXIT SHALL BE MAINTAINED FREE OF SEDIMENT FOR THE DURATION OF THE PROJECT.

SC
SYMBOL

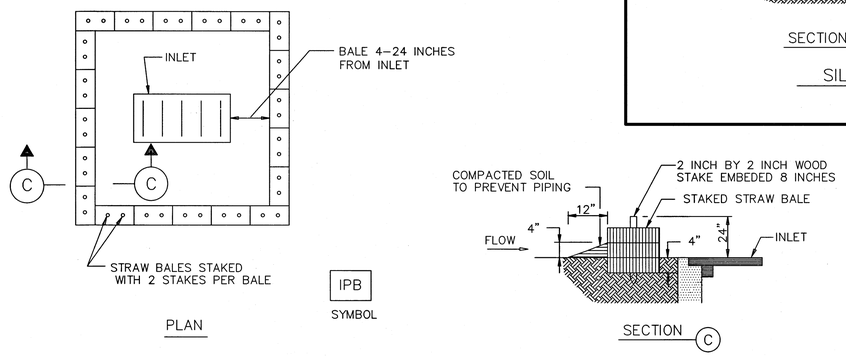
STABILIZED CONSTRUCTION EXIT



CONSTRUCTION NOTE:

1. SEE CONSTRUCTION NOTES FOR RFB.

SILT FENCE INLET PROTECTION BARRIER



STRAW BALE DROP INLET PROTECTION BARRIER

BENCHMARK:

FND. 4 INCH BRASS DISC LOCATED IN A POURED CONCRETE POST AT THE SOUTHWEST CORNER OF THE INTERSECTION OF SIENNA PARKWAY AND TRAMMEL-FRESNOI RD. SURVEY MARKER NO. PCM-003 ELEVATION = 66.07 2001 ADJUSTMENT

NOTES:

PAVE RECORD DRAWING

I HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE; AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR:_____ DATE:_____

TITLE:_____

WS&D RECORD DRAWING

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CONTRACTOR:_____ DATE:_____

TITLE:_____

DATE	REVISION	BY

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____
DEVELOPMENT COORDINATOR

DATE: 7/12/17

missouri CITY TEXAS

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

EROSION CONTROL DETAILS

LJA Engineering, Inc.
1904 W. Grand Parkway North, Suite 100, Katy, Texas 77449
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

LJA PROJECT NO.: 1194-1127A & 1470-1127A

DRAWN: DR DESIGN: DR/SF DATE: JULY 2017

SCALE:

SHEET NO. 53 OF 54

STATE OF TEXAS
OMAR NOE ESCOBAR, JR.
107281
LICENSED PROFESSIONAL ENGINEER
7.5.17

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194-1127A & 1470-1127A

Date\Time : Thu, 06 Jul 2017 - 10:30am USER : dropgel
Path\Name : I:\Projdsk\1194\1194-1127A\1194-1127A\ACAD\ Sheet Files\53 EROSION CONTROL DETAILS.dwg

ALL WATER LINE PIPE MATERIAL SHALL CONFORM TO THE FOLLOWING:

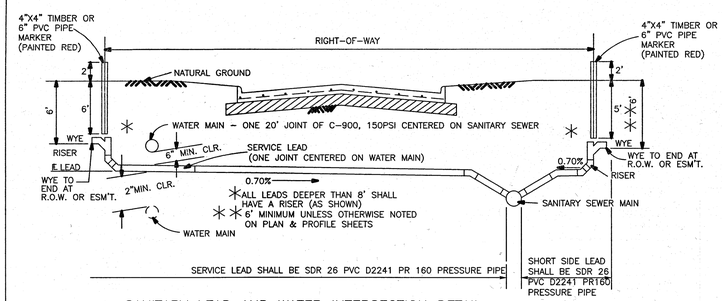
SIZE	DEPTH	MATERIAL
1 –1/2" – 3"	0' – 8'	SCH 40 OR ASTM D2241, SDR 21 (CLASS 200)
4" – 6"	0' – 8'	AWWA C–900, DR 14 (CLASS 305)
8" – 12"	0' – 8'	AWWA C–900, DR 18 (CLASS 235)
> 12"	0' – 8'	AWWA C–905, DR 18 (CLASS 235)
*STEEL SECTIONS SHALL BE USED FOR WATER LINES OVER 12' DEPTH, CONFORMING TO AWWA C–200, SCH 40 MINIMUM		

ALL SANITARY SEWER PIPE MATERIAL SHALL CONFORM TO THE FOLLOWING:

SIZE	DEPTH	MATERIAL
6" – 15"	0' – 16'	ASTM D2241, SDR 26 (115 PSI) COLOR GREEN
18" – 27"	0' – 18'	ASTM F679, SDR 26 (115 PSI) COLOR GREEN
*DUCTILE IRON PIPE SHALL BE C–151, (ANSI A21.51) WITH PROTECTO 401		
CERAMIC EPOXY LINING OR APPROVED EQUAL		
*FORCE MAIN < 12"– MEET OR EXCEED C–900, DR 18, (CLASS 235 PIPE)		
*FORCE MAIN > 12"– MEET OR EXCEED C–905, DR 18, (CLASS 235 PIPE)		

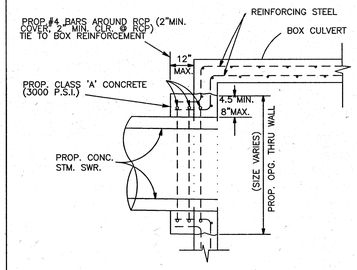
ALL STORM SEWER PIPE MATERIAL SHALL CONFORM TO THE FOLLOWING:

*PVC SHALL BE C–900, DR 18, (CLASS 150)
*RCP SHALL BE ASTM C–76, CLASS III OR STRONGER
*RCP SHALL HAVE RUBBER GASKETED JOINTS AND MEET ANSI/ASTM C–443
*CGMP SHALL MEET THE REQUIREMENTS OF CITY OF MISSOURI CITY AND FORT BEND COUNTY DRAINAGE CRITERIA FOR GAUGE AND CORRUGATIONS.



SANITARY LEAD AND WATER INTERSECTION DETAIL

NOTE: ALL SANITARY SEWER LEADS WITH A DIFFERENCE IN ELEVATION OF 2' (TWO FOOT) OR MORE FROM FLOWLINE OF THE MAIN TIE IN AT MANHOLES SHALL REQUIRE STANDARD 2' INTERNAL DROP STRUCTURE WITH EXTRA DEPTH DROP AS REQUIRED AND SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OF SANITARY SEWER LEADS. (NO SEPERATE PAY)



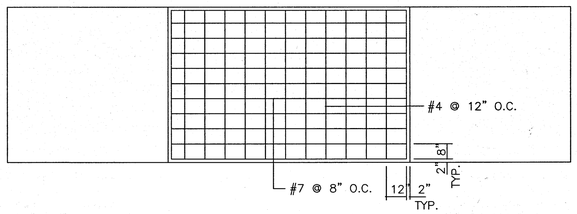
NOTES:
1. HOLE CUT IN WALL OF BOX TO BE NEAT AND DONE IN A WORKMANLIKE MANNER.
2. TIE THE PROP. COLLAR STEEL TO LONGITUDINAL AND ELLIPTICAL STEEL, WHERE APPLICABLE.
3. ALL REINFORCING STEEL TO CONFORM TO ASTM A–615, GRADE 60. PROVIDE 30–BAR DIAMETER LAPS FOR CYLINDRICAL STEEL. ALL LONGITUDINAL STEEL SHOULD BE OF ADEQUATE LENGTH TO PROVIDE LAP TIE TO REINFORCING STEEL.

STORM SEWER/BOX CULVERT CONCRETE COLLAR

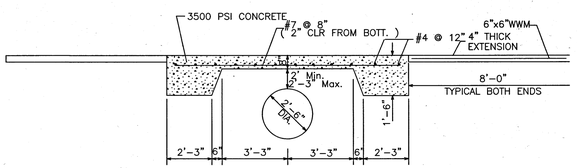
NOT TO SCALE

(INCIDENTAL TO STORM SEWER CONSTRUCTION)

NOTES:
1. CONCRETE STRENGTH @ 28 DAYS SHALL BE 3500 PSI MINIMUM.
2. REINFORCING STEEL SHALL BE GRADE 60 DEFORMED BARS.
3. SEAL ENDS OF VOID FORM TO PREVENT CONCRETE FROM FLOWING INTO VOIDS.



PLAN VIEW



PROTECTIVE SLAB DETAIL

ZERO LOAD TRANSFER CONCRETE SLAB

N.T.S.

WS&D RECORD DRAWING

I, HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

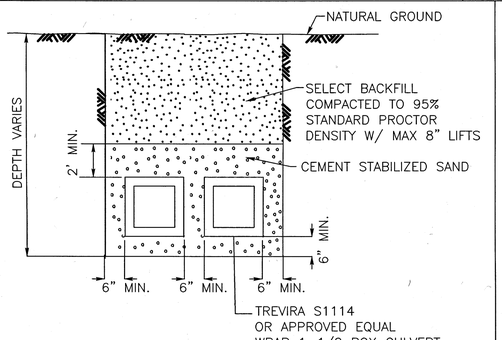
TITLE: _____

PAVING RECORD DRAWING

I, HEREBY CERTIFY THAT THIS DRAWING REFLECTS THE IMPROVEMENTS CONSTRUCTED AS TO SIZE, LOCATION, AND GRADE, AND THAT THE CONSTRUCTION WAS IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR: _____ DATE: _____

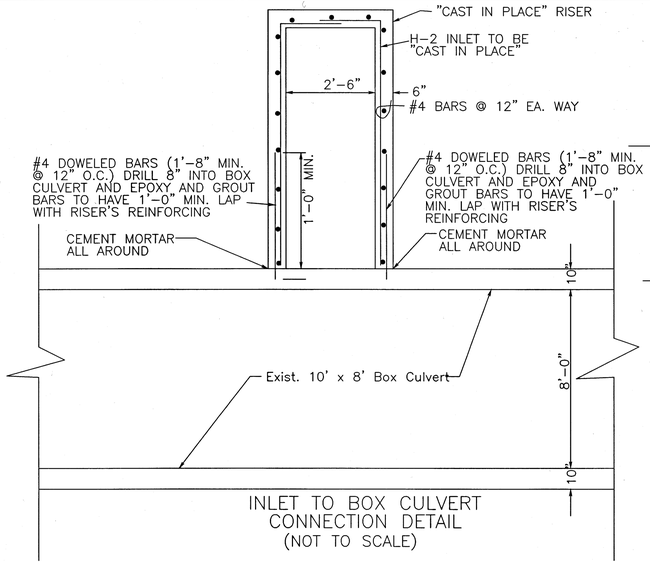
TITLE: _____



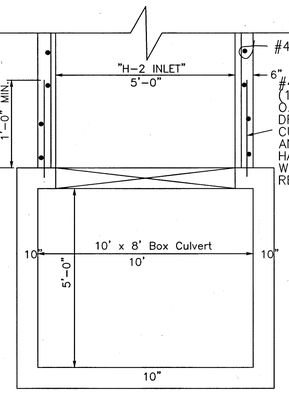
NOTE: UNDER PROPOSED OR FUTURE PAVING, BACKFILL SHALL BE CEMENT STABILIZED SAND UP TO THE PAVING SUBGRADE

MULTIPLE BOX CULVERT BEDDING AND BACKFILL DETAIL

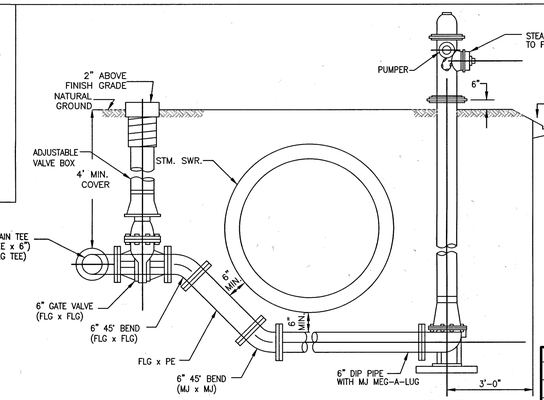
N.T.S.



INLET TO BOX CULVERT CONNECTION DETAIL
(NOT TO SCALE)

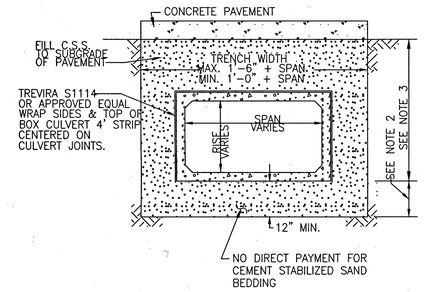


INLET TO BOX CULVERT CONNECTION DETAIL
(NOT TO SCALE)



FLUSHING VALVE ASSEMBLY DETAIL

N.T.S.

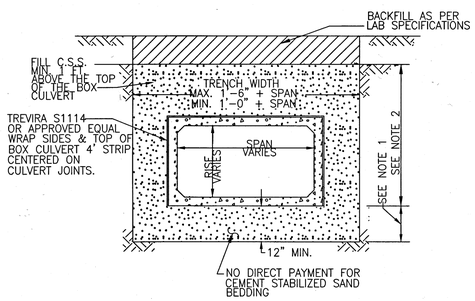


BEDDING DETAIL FOR REINFORCED CONCRETE BOX CULVERT PLACED UNDER ROADWAY PAVEMENT

N.T.S.

NOTES

1. WHERE BOX CULVERT TRENCH IS 3' FROM BACK OF CURB AND RUNNING PARALLEL WITH BACK OF CURB 2.0 SACK CEMENT PER CUBIC YARD STABILIZED SAND SHALL BE PLACED AS PER DETAIL ABOVE.
2. 2.0 SACK CEMENT PER CUBIC YARD STABILIZED SAND PLACED BEFORE BOX CULVERT IS LAID UP TO FLOW LINE OF BOX CULVERT OR ABOVE MINIMUM DEPTH 5".
3. 2.0 SACK CEMENT PER CUBIC YARD STABILIZED SAND COMPACTED TO 95% STANDARD PROCTOR DENSITY, PLACED AFTER BOX CULVERT IS LAID.

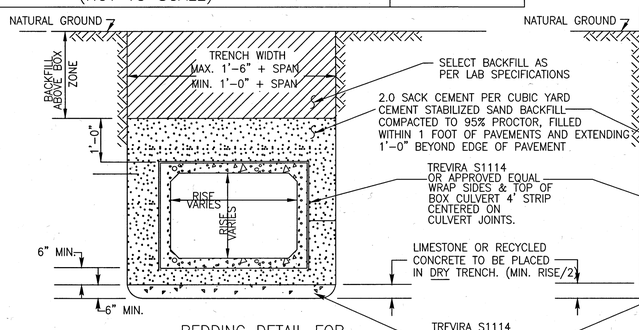


BEDDING DETAIL FOR REINFORCED CONCRETE BOX CULVERT

N.T.S.

NOTES

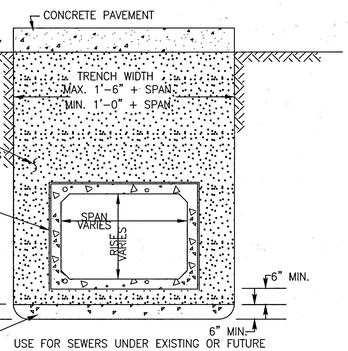
1. 2.0 SACK CEMENT PER CUBIC YARD STABILIZED SAND PLACED BEFORE PIPE IS LAID (7" MINIMUM).
2. 2.0 SACK CEMENT PER CUBIC YARD STABILIZED SAND THOROUGHLY RODDED, PLACED AFTER PIPE IS LAID.
3. WHERE SOIL CONDITIONS REQUIRE, THE ENGINEER MAY ORDER USE OF LIMESTONE, RECYCLED CONCRETE, OR OTHER APPROVED GRANULAR MATERIAL IN LIEU OF CEMENT STABILIZED SAND BEDDING.



BEDDING DETAIL FOR REINFORCED CONCRETE BOX CULVERT W/ MODIFIED BEDDING

N.T.S.

1. LIMESTONE AND RECYCLED CONCRETE DIMENSIONS SHOWN HERE ARE TYPICAL BUT ARE TO BE VARIED AS ORDERED BY THE ENGINEER.
2. PAYMENT WILL BE MADE FOR ADDITIONAL LIMESTONE OR RECYCLED CONCRETE AND FABRIC ORDERED PER BID UNIT PRICE.
3. WELL POINTS SHALL BE INSTALLED AND TRENCH PUMPED DRY PRIOR TO EXCAVATION AND KEPT DRY DURING CONSTRUCTION AND UNTIL AT LEAST 3'–0" OF EARTH AND BACKFILL HAS BEEN PLACED.
4. 2.0 SACK CEMENT PER CUBIC YARD STABILIZED SAND PLACED BEFORE BOX CULVERT IS LAID UP TO FLOW LINE OF BOX CULVERT OR ABOVE MINIMUM DEPTH 5".
5. REMAINDER OF FILL SHALL BE PLACED IN 8" MAX. LIFTS TO A POINT 1'–0" BELOW NATURAL GROUND OR FINISHED GRADE.



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

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

N.T.S.

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: _____ DEVELOPMENT COORDINATOR

DATE: 7/12/17

No.	DATE	REVISION

MISCELLANEOUS DETAILS I

missouri CITY TEXAS

DEPARTMENT OF PUBLIC WORKS

SHASHI K. KUMAR, P.E., CITY ENGINEER

SEAL: STATE OF TEXAS — OMAR NOE ESCOBAR, JR. — 107281 — LICENSED — ENGINEER

DESIGN ENGINEER: _____ DATE 7.6.17

CONSTRUCTION PLANS FOR:

SIENNA PLANTATION MUNICIPAL UTILITY DISTRICT NO. 10

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A

JOB No.:

SCALE: AS NOTED

SUBMITTED: _____

DATE: FEBRUARY 2015

SHEET 54 OF 54

SIENNA VILLAGE OF ANDERSON SPRINGS SECTION 27A – JOB NO. 1194–1127A

Date\Time : Thu, 06 Jul 2017 – 10:31am – USER : dronge\
Path\Name : i:\Projdat\1194\1194–1127A\1194–1127A\ACAD_Sheet Files\54 MISCELLANEOUS DETAILS I.dwg