

REVIEW BY FORT BEND COUNTY COMMISSIONERS COURT

On this 5th day of July, 2016, Commissioners Court came on to be heard and reviewed the accompanying notice of EHT Engineering / Missouri City Job Location 3402 McMahon WAY, Missouri City, TX 77459 Date 6/20/2016 Bond No. no bond required, Permit No. 2016-7194 to make use of certain Fort Bend County property subject to, "A Revised 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 the 3rd day of August, 1987, recorded in Volume _____ of the Minutes of the Commissioners Court of Fort Bend County, Texas, to the extent that such order is not inconsistent with Article 1436a, Vernon's Texas Civil Statutes. Upon Motion of Commissioner Meyers, seconded by Commissioner Patterson, 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.

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
 Mail notices to: Permit Administrator
 Fort Bend County Engineering
 301 Jackson Street
 Richmond, Texas 77469
 281-633-7500
3. This permit expires one (1) year from date of permit if construction has not commenced.

By: Charles O. Wolf
County Engineer

By: Mark Vogt
Drainage District Engineer/Manager

Presented to Commissioners Court and approved.
Recorded in Volume 715/116 10A
Minutes of Commissioners Court

Clerk of Commissioners Court
By: [Signature]
Deputy **RENEE MICHULKA**

RECEIVED

JUN 29 2015

FBC DRAINAGE DIST.

RECEIVED

JUN 29 2015

FBC DRAINAGE DIST.

CITY OF MISSOURI CITY

REGIONAL WATER TREATMENT PLANT

WATER TRANSMISSION MAINS, PHASE III



PROJECT No. 80023

MAYOR
ALLEN OWEN

CITY MANAGER
ANTHONY J. SNIPES

DISTRICT COUNCIL MEMBERS

YOLANDA FORD
DISTRICT A

DON SMITH
DISTRICT B

ANTHONY MAROULIS
DISTRICT C

FLOYD EMERY
DISTRICT D

COUNCIL MEMBERS AT-LARGE

JERRY WYATT
POSITION 1

CHRIS PRESTON
POSITION 2



MISSOURI CITY

VICINITY MAP
NO SCALE

FORT BEND COUNTY ENGINEER
ENGINEER: *Richard A. Stokley, P.E.*
DATE: 5/19/16
APPROVED: *Maggie East*
DEVELOPMENT COORDINATOR
DATE: 5/19/16

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

CITY OF MISSOURI CITY
DEPARTMENT OF PUBLIC WORKS

APPROVED: *Scott Elmer, PE* DATE: 5-11-16
SCOTT ELMER, P.E., DIRECTOR OF PUBLIC WORKS

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

COMPANY	NAME	PHONE NUMBER	ADDRESS
CITY OF MISSOURI CITY PUBLIC WORKS		(281) 433-8300	132 TEXAS PARKWAY MISSOURI CITY, TX 75459
FORT BEND COUNTY	NATHAN HATCHER	(281) 633-7300	1331 BELMONT ROAD MCKINNEY, TX 75069
LEVEL MANAGEMENT SERVICES	CLARK CARROLL	(281) 249-6454	810 WOODWAY # DUGLAND, TX 75709
SIENNA PLANTATION MUD #1 (ENGINEERING)	CIAD HARBINIK, P.E.	(713) 783-7888	799 KILBARD AVENUE IRVINGTON, TX 75039
SIENNA PLANTATION LID	MICHAEL BISK, P.E.	(713) 953-5300	3009 NEWPARK DRIVE, SUITE 600 IRVINGTON, TX 75039
SIENNA ANDISON DEVELOPMENT	DARLEK DUFF	(281) 778-7777	5777 SIENNA PARKWAY, SUITE 100 MISSOURI CITY, TX 75459
SIENNA PLANTATION HOA	JAMES VILLEGAS	(281) 778-3558	8086 SCARLETT TRACE MISSOURI CITY, TX 75459
SIENNA PLANTATION MUD	BRANDI BARR	(713) 405-1730	12335 SEDGEWOOD DUGLAND, TX 75709
SI ENVIRONMENTAL	MARCUS LONGBRIA	(281) 645-2580	4200 BRADSHAW ROAD MCKINNEY, TX 75069
SI ENRICH SYSTEMS	PARKER ERWIN	(281) 414-5067	11011 SAC BARKO AVENUE, SUITE 425 IRVINGTON, TX 75039
SI ENERGY	RYAN HERWECK	(281) 969-5001	8010 REVERENDS DRIVE (SHELVARD), SUITE 200 MISSOURI CITY, TX 75429
EXCO PIPELINE COMPANY	MICHAEL BLAZA	(832) 654-7933	800 BILLS ST. PLUMBING DUGLAND, TX 75709
DCP MIDSTREAM (SAN ANTONIO PIPELINE)	KE SCHMIDTKE	(979) 540-7638	801 PRIVATE ROAD 1042 WALLACESVILLE, TX 75794
DCW PIPELINE	BERRY CARL	(979) 293-8077	1214 ENCLAVE PARKWAY IRVINGTON, TX 75039
DWOF LOCAL ROADMASTER	RAY WOODBEE	(913) 843-3178	101 NORTH OGDON ALVA, TX 75011
QTAR VALLEY UTILITY DISTRICT (COMM SWTP OPERATIONS)	MARK DAURITY	(281) 506-5026	3114 EXHIBITWAY RD. MISSOURI CITY, TEXAS 75459



Jonathan A. Baum
JONATHAN AARON BAUM, P.E.

SEQ. NO.	SHEET NO.	SHEET TITLE
1	D-01	COVER SHEET
2	D-02	GENERAL NOTES
3	C-01	OVERALL PLAN
4	C-02	CROSS SECTIONS
5	C-03	WATER TRANSMISSION MAIN, PHASE III - STA. 0+00 TO STA. 8+00 - PLAN AND PROFILE
6	C-04	WATER TRANSMISSION MAIN, PHASE III - STA. 8+00 TO STA. 16+00 - PLAN AND PROFILE
7	C-05	WATER TRANSMISSION MAIN, PHASE III - STA. 16+00 TO STA. 24+00 - PLAN AND PROFILE
8	C-06	WATER TRANSMISSION MAIN, PHASE III - STA. 24+00 TO STA. 32+00 - PLAN AND PROFILE
9	C-07	WATER TRANSMISSION MAIN, PHASE III - STA. 32+00 TO STA. 40+00 - PLAN AND PROFILE
10	C-08	WATER TRANSMISSION MAIN, PHASE III - STA. 40+00 TO STA. 48+00 - PLAN AND PROFILE
11	C-09	WATER TRANSMISSION MAIN, PHASE III - STA. 48+00 TO STA. 56+00 - PLAN AND PROFILE
12	C-10	WATER TRANSMISSION MAIN, PHASE III - STA. 56+00 TO STA. 64+00 - PLAN AND PROFILE
13	C-11	WATER TRANSMISSION MAIN, PHASE III - STA. 64+00 TO STA. 72+00 - PLAN AND PROFILE
14	C-12	WATER TRANSMISSION MAIN, PHASE III - STA. 72+00 TO STA. 80+00 - PLAN AND PROFILE
15	C-13	WATER TRANSMISSION MAIN, PHASE III - STA. 80+00 TO STA. 88+00 - PLAN AND PROFILE
16	C-14	WATER TRANSMISSION MAIN, PHASE III - STA. 88+00 TO STA. 96+00 - PLAN AND PROFILE
17	C-15	WATER TRANSMISSION MAIN, PHASE III - STA. 96+00 TO STA. 104+00 - PLAN AND PROFILE
18	C-16	WATER TRANSMISSION MAIN, PHASE III - STA. 104+00 TO STA. 112+00 - PLAN AND PROFILE
19	C-17	WATER TRANSMISSION MAIN, PHASE III - STA. 112+00 TO STA. 120+00 - PLAN AND PROFILE
20	C-18	WATER TRANSMISSION MAIN, PHASE III - STA. 120+00 TO END - PLAN AND PROFILE
21	C-19	CIVIL DETAILS I
22	C-20	CIVIL DETAILS II
23	C-21	CIVIL DETAILS III
24	C-22	CIVIL DETAILS IV
25	M-01	TRANSFER PUMP STATION PLAN AND SECTION
26	M-02	SIENNA WATER PLANT #3 FLOW CONTROL AND METERING BUILDING SITE PLAN
27	M-03	SIENNA WATER PLANT #3 FLOW CONTROL AND METERING BUILDING PLAN AND SECTION
28	M-04	SIENNA WATER PLANT #3 FLOW CONTROL AND METERING BUILDING ELEVATIONS
29	M-05	MECHANICAL DETAILS I
30	S-01	TRANSFER PUMP STATION ELECTRICAL PLAN & INSTRUMENTATION
31	S-02	SIENNA WATER PLANT #3 FLOW CONTROL AND METERING BUILDING PLAN AND SECTION
32	S-03	EXISTING METER CONTROL CENTER METERING OVERLINE DIAGRAM METERING SYSTEMS

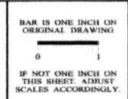
PROJECT NO.: 15-6259
SEQUENCE No. 1 OF 32
SHEET No. G-01

A	B	C	D	E	F	G	H	I
GENERAL NOTES 1. CONTRACTOR IS RESPONSIBLE FOR HAVING ALL EXISTING 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 THIS PLAN AND SPECIFICATIONS. ALL PERMITS SHALL BE OBTAINED PRIOR TO COMMENCEMENT OF WORK. 3. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE CITY OF MISSOURI CITY PUBLIC WORKS DEPARTMENT PRIOR TO ANY PLACEMENT WORK REQUIRING INSPECTION INCLUDING, BUT NOT LIMITED TO, LAYING, PAVING OPERATIONS, CONCRETE PLACEMENT, PAVING AND SET OF CURBS, DRIVEWAYS, POLE INSTALLATION, AND ANY TYPING OR LABORATORY. DEPARTMENT OF PUBLIC WORKS MAY BE REACHED AT 801-451-0700 OR BY CONTACTING THE ASSISTANT INSPECTOR. 4. ALL SURVEYING WORK SHALL BE REQUIRED, IN WRITING, WITH THE DEPARTMENT OF PUBLIC WORKS AT LEAST 48 HOURS IN ADVANCE. SURVEY AND REVISION WORK REQUIRES THE WRITTEN REQUEST AND MUST BE APPROVED BY THE PUBLIC WORKS DIRECTOR. FAILURE MAY BE SUBJECT TO 24-HOUR NOTICE. REQUIRED INSTRUCTIONS MAY BE SUBJECT TO DEPARTMENT OF PUBLIC WORKS NON-NOTIFICATION MAY RESULT IN NON-COMPLIANCE, WORK STOPPED STOPPAGE AND POSSIBLE INSPECTION FEES. 5. FULL-TIME REPRESENTATIVE PROVIDED BY THE PROJECT ENGINEER'S REPRESENTATIVE SHALL BE PROVIDED AT ALL CRITICAL POINTS OF CONSTRUCTION AND AS DEMANDS REQUIRE 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, DIBOLD 2010, AND THE CITY OF MISSOURI CITY STANDARD DETAIL SHEETS. THE CITY OF MISSOURI CITY DESIGN MANUAL SHALL BE ACCESSED FROM THE DEPARTMENT OF PUBLIC WORKS, 102 TEXAS PARKWAY, FORTS 26-40-0476. THE LATEST REVISIONS AND AMENDMENTS SHALL BE OBSERVED. WORKING CONFLICT MAY ARISE BETWEEN INFORMATION ON APPROVED CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS, AND CITY OF MISSOURI CITY STANDARD SHEETS, THEN THE CITY OF MISSOURI CITY STANDARD SHEETS GOVERN. 7. ADDRESS ORIGINATOR SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE PROJECT. ADDRESS ORIGINATOR AREA OR STRUCTURE IDENTIFIED DURING CONSTRUCTION SHALL BE IDENTIFIED TO THE SATISFACTION OF THE CITY OF MISSOURI CITY. ALL CONSTRUCTION WORK SHALL COMPLY WITH THE REQUIREMENTS OF I.C.M. FORM WATER QUALITY MANUAL. IF NON-COMPLIANCE OCCURS, CONTRACTOR SHALL REMEDY IMMEDIATELY AT HIS OWN EXPENSE. 8. ANY POLLUTION CONTROL DEVICE, SOIL OR SEDIMENT AREA DAMAGED, OBTAINED OR REMOVED SHALL BE REPLACED OR REPAIRED AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR IS RESPONSIBLE FOR WATERING ANY SOIL OR SOIL WHICH HAS BEEN INSTALLED UNTIL ADEQUATE GROWTH IS ACHIEVED TO PREVENT EROSION. 9. STORM WATER POLLUTION PROTECTION SHALL BE OBTAINED, CONSTRUCTED, MAINTAINED AND SHALL BE IN TOTAL COMPLIANCE WITH THE STORM WATER QUALITY MANUAL OF THE CITY OF MISSOURI CITY. 10. ANY MATERIALS OR WORKMANSHIP NOT MEETING OR EXCEEDING THE CITY OF MISSOURI CITY STANDARDS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND WILL BE REPAIRED OR RE-DO AT THE CONTRACTOR'S EXPENSE. 11. THE CONTRACTOR SHALL KEEP THE STREETS, RIGHT-OF-WAY, AND WORK AREA CLEAR OF DEBRIS, MUD, AND OTHER. 12. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING TRAFFIC SAFETY CONTROL DEVICES UP TO AND INCLUDING FLAGMEN OR POLE OPERATORS, IF DEEMED NECESSARY BY THE CITY OF MISSOURI CITY. 13. THE CONTRACTOR SHALL CONTACT THE CITY OF LOCAL METROPOLITAN UTILITY DISTRICT AS APPROPRIATE TO OPERATE EXISTING UTILITIES AND PREPARE TO MAKE TIES. 14. ALL BACKFILL WITHIN PUBLIC RIGHT-OF-WAY OR ADJACENT SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY (IN 4" LIFT) AND TESTED FOR C.U.C. BY THE CITY OF MISSOURI CITY. 15. IT IS PERMISSIBLE TO USE A BACKFILL FOR TRENCH BACKFILL OR FILL OF A TRENCHING MACHINE. 16. THE CONTRACTOR SHALL NEVER UNLOAD ANY TRACTOR'S VEHICLE OR EQUIPMENT ON ANY EXISTING PAVEMENT OR CROSS OVER ANY EXISTING PAVEMENT CURB. 17. ALL FENCES/GRADES ARE TO CONFORM TO A MINIMUM 3/8" OR 1/2" PER FOOT POSITIVE DRAINAGE. IS DRIPPED BY ABRASION. 18. 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. 19. ALL FENCED AREAS SHALL VARY UNIFORMLY BETWEEN FINISHED ELEVATIONS. 20. ALL TRENCH BRACKETS SHALL CONFORM TO THE CITY OF MISSOURI CITY STANDARD. THE INITIAL TRENCH EXPENSE SHALL BE BORNE BY THE OWNER. IF ANY OF THE TRENCHES TO BE REPAIRED, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REMOVE OR REPLACE SPLIT MATERIAL SO THE TRENCH STANDARD CAN BE MET. ADDITIONAL TESTING TO MEET EXISTING SHALL BE AT THE CONTRACTOR'S EXPENSE. 21. CONTRACTOR SHALL PROVIDE TESTING, BIRMINGHAM, AND BRACING AS NECESSARY TO PREVENT WORKMAN'S AND COLLAPSE UTILITIES DURING ALL PHASES OF CONSTRUCTION AS PER O.E.A. REQUIREMENTS. 22. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE TEXAS STANDARD SPECIFICATIONS, 200, AND THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AND ANY REVISIONS THEREOF. 23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BARRIERS, FENCING AND PROTECTING ALL MATERIALS AND EQUIPMENT STORED ON THE JOB SITE IN A SAFE AND WORKMAN-LIKE MANNER BEFORE AND AFTER WORKING HOURS UNTIL JOB COMPLETION. 24. THE LAYING AND UNLOADING OF ALL PIPE, VALVES, FITTINGS, 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 PROTECT THE NEAREST STORAGE AREAS FOR MATERIALS AND EQUIPMENT. 25. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, EQUIPMENT, AND LABOR FOR INSTALLATION, INSTALLATION, AND COMPLETION OF THE PROJECT AS SHOWN ON THE PLANS AND SPECIAL PROVISIONS TO COMPLY WITH THE CITY OF MISSOURI CITY STANDARDS. 26. NO PRECAST UTILITIES (E.G., PRECAST CULVERTS, ETC.) SHALL BE INSTALLED WITHIN A FEET BAR OF CURB. 27. PLANS DO NOT EXTEND TO OR INCLUDE DESIGN OR SYSTEM PERTAINING TO THE SAFETY OF THE CONTRACTOR OR HIS EMPLOYEES, AGENTS, OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE REGISTERED PROFESSIONAL ENGINEER (RPE) DOES NOT EXTEND TO ANY SUCH SYSTEM THAT MAY NOW OR IN THE FUTURE BE INCORPORATED IN THE PLAN. THE CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS INCLUDING CURRENT TRAFFIC SAFETY SYSTEMS, WHICH SHALL BE SUBMITTED BY A LICENSED PROFESSIONAL ENGINEER. APPROPRIATE TRAFFIC SAFETY PLAN SHALL BE SUBMITTED BY THE CONTRACTOR PRIOR TO EXECUTION OF A CONTRACT FOR THE WORK. THE RPE HAS THE RIGHT TO WITHDRAW HIS SERVICES TO THE CITY OF MISSOURI CITY. TRAFFIC CONTROL. 28. ALL CHANGES IN DIRECTION FOR REPAIRS SHALL BE DONE IN A CIRCULAR MANNER, NOT ANGULAR. 29. PROVIDE ONE LANE OPEN TO TRAFFIC AT ALL TIMES. 30. THE CONTRACTOR SHALL NOTIFY ALL PROPERTY OWNERS A MINIMUM OF 24 HOURS PRIOR TO STARTING CONSTRUCTION ON ALL DRIVEWAYS, SIDEWALKS AND CURBS SHALL BE PROVIDED AT ALL DRIVEWAYS AT NO SEPARATE COST. 31. OPEN TRENCHES SHALL BE ALLOWED ONLY DURING ACTIVE CONSTRUCTION AND SHALL NOT BE LEFT OPEN OVER NIGHT AND SHALL BE FENCED OR BARRICADED AT END OF SHIFT NO MORE THAN 10 FEET OF TRENCH WILL BE OPEN AT ONE TIME. 32. PROTECT ALL TREES NOT CALLED OUT TO BE REMOVED. 33. SIGN ROAD DISTURBANCE DURING CONSTRUCTION ARE TO BE REPLACED BY A REGISTERED PUBLIC LAND SURVEYOR FOR THE PROPERTY OWNER AT HIS OWN EXPENSE. 34. THE CONTRACTOR SHALL FILL EXISTING CONDITIONS BEFORE BEGINNING CONSTRUCTION.			CONCRETE/PAVING NOTES 1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND AUTORIZATION REQUIRED BY CITY OF MISSOURI CITY. 2. CONTRACTOR SHALL HAVE ALL UTILITIES LOCATED PRIOR TO INSTALLATION 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 DAMAGE FACILITIES AT HIS OWN EXPENSE. ALL MATERIALS TO BE PLACED IN THE PAVED AREA SHALL BE SUBJECT TO FRESH GRADE BY THE PAVING CONTRACTOR WITH THE USE OF APPROVED BLACKTOPS. 4. WHEN THE TOP OF CURB OR BOTTOM OF SIDEWALK IS AT ELEVATION LOWER THAN THE SURROUNDING GROUND, THE PAVING CONTRACTOR SHALL BACKFILL IN LAYERS NOT EXCEEDING 4 INCHES IN THICKNESS. EACH LAYER SHALL BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY. THE DISTURBED AREA SHALL BE REPAIRED, REGRADED, AND BUILT UP TO MATCH EXISTING FINISHED SURFACE. THE TYPE OF POLLUTION CONTROL SHALL BE DETERMINED BY THE APPROVED PLAN, PROJECT ENGINEER, AND/OR THE CITY OF MISSOURI CITY ENGINEER. 5. ALL PAVING SHALL BE IN ACCORDANCE WITH THE CITY OF MISSOURI CITY INFRASTRUCTURE, OPERATIONS, APPROVED PLANS AND SPECIFICATIONS WITH THE LATEST REVISIONS AND AMENDMENTS. IN THE EVENT OF A CONFLICT, THE CITY OF MISSOURI CITY INFRASTRUCTURE DEPARTMENT GOVERN. 6. PAVING CONTRACTOR SHALL PROVIDE AND MAINTAIN SET PROTECTION FENCES ON ALL STAGE I CURB INLETS. THE PAVING CONTRACTOR SHALL MAINTAIN ANY OTHER POLLUTION CONTROL DEVICES, I.E. ADDITIONAL SET BARRIERS, ROAD BARS, ETC. FOR THE DURATION OF THE PROJECT. ANY DAMAGE OR WEAR/TEAR TO SUCH DEVICES SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE. 7. EXISTING PAVEMENTS, CURBS, SIDEWALKS, DRIVEWAYS, ETC. SHALL BE DEMOLISHED OR REPAIRED DURING CONSTRUCTION SHALL BE REPLACED TO THE CITY OF MISSOURI CITY STANDARDS AS SET BY THE CONTRACTOR'S STANDARD SHEETS. 8. CONDITION OF THE WORK AREA INCLUDING ROAD, RIGHT-OF-WAY, ETC. UPON COMPLETION OF THE JOB SHALL BE AS GOOD OR BETTER THAN THE CONDITION PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE CONCRETE. 9. ALL DRIVEWAYS WILL BE LOCATED TO AVOID EXISTING CURB INLET STRUCTURES. 10. REPAIRS AND KEYWAYS SHALL NOT INTERFERE WITH CURB INLET STRUCTURES. 11. CURB INLETS ARE NOT ALLOWED AT "T" INTERSECTIONS. 12. FULL-DEPTH REPAIRS IS ALLOWED AS DESCRIBED IN THE INFRASTRUCTURE DEPARTMENT MANUAL. 13. ALL CONCRETE PLACED SHALL BE UNIFORMITY MIXED WITH A MINIMUM CURENG COVERED AND DUMPED IN 2" LIFT IN THE TYPICAL STANDARD SPECIFICATIONS FOR CONSTRUCTION. IMMEDIATE APPLICATION WILL BE SUBJECT TO THE INJECTION OF THE CONCRETE. 14. SIX (6) INCH 5.5 KSI 300 PSI @ 28 DAYS, REINFORCED WITH #4 REBAR, 3" O.C. EACH WAY IS THE MINIMUM ACCEPTABLE CONSTRUCTION FOR MAJOR COLLECTOR TRENCHES. 15. REBAR IN TRENCHES IS TO BE COVERED BY 2" DAYS, REINFORCED WITH #4 REBAR, 3" O.C. IS THE MINIMUM ACCEPTABLE PAVING CONSTRUCTION FOR MAJOR COLLECTOR TRENCHES. 16. EXISTING 18" INCH 5.5 KSI 300 PSI @ 28 DAYS, WITH #4 C.C. EACH WAY IS THE MINIMUM ACCEPTABLE FOR MAJOR THROUGHFARE STREETS. 17. WHEN PAVING CONCRETE PAVEMENT INTERSECTS "T" PAVEMENT, "T" PAYMENT SHALL BE CONSTRUCTED TO THE ENDS OF ALL CURB RETURNS. 18. ALL RETURNS SHALL HAVE A MIN. 2" FT. RADIUS AT THE BACK OF CURB UNLESS OTHERWISE NOTED. 19. ALL INTERSECTIONS SHALL BE CONSTRUCTED WITH WHEELBAR STREETS IN ACCORDANCE WITH THE TEXAS ACCESSIBILITY STANDARDS, THE AMERICAN DISABILITY ACT, AND THE CITY OF MISSOURI CITY STANDARD SHEETS. REBAR SHALL BE INSTALLED AT ALL INTERSECTIONS. 20. CONCRETE REINFORCEMENT SHALL BE CONSTRUCTED WITH EACH STREET RIGHT-OF-WAY IN ACCORDANCE WITH THE CITY OF MISSOURI CITY, THE A.A., AND THE T.E.A. STANDARDS (LATEST REVISIONS). 21. CRACKS IN CURB OR LARGER ARE NOT ACCEPTABLE IN NEW PAVEMENT. CRACKS 1/8" OR LESS SHALL BE ADMITTED ON AN INDIVIDUAL BASIS, SUBJECT TO APPROVAL OF THE CITY. 22. PREPARE TESTING AND LABOR DOCUMENTATION IS REQUIRED. FAILURE TO MEET THE MINIMUM PAVEMENT REQUIREMENTS WILL RESULT IN THE REJECTION OF EACH PAVEMENT. IMMEDIATE REPAIRS AND REPLACEMENT OF REJECTED PAVEMENT SECTION WILL BE NECESSARY TO SATISFY THESE REQUIREMENTS. 23. LINE DEPTH DETERMINATIONS WILL BE CONDUCTED AT EACH LOCATION OF IDENTIFIED TRENCH. LINE-STABILIZED BIRKBEAD SHALL BE A MINIMUM OF 1/2" OF UNIFORM OVERLAP DIRECTED BY CITY ENGINEER. DENSITY TESTING SHALL BE DONE IMMEDIATELY PRIOR TO PLACEMENT OF REINFORCED TRENCH, AND SHALL BE CONFORMED TO A MINIMUM OF 95% STANDARD DENSITY TESTS SHALL BE RETAINED IN THE EVENT OF A 15-CRACK 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. 24. CONCRETE CYLINDERS, SLUMP, AND AN ENTRAINMENT TESTS ARE REQUIRED FOR EACH IN CURB VARIOUS OF CONCRETE PAVING WITH A MINIMUM OF ONE SET UP FOR EACH PLACEMENT. THE CITY OF MISSOURI CITY RESERVE THE RIGHT TO REQUEST ANY ADDITIONAL TESTS AT THE CONTRACTOR'S EXPENSE, IF ANY MATERIAL APPEARS BELOW STANDARDS. 25. NO 1" REBAR, 18-INCH C.C. E.B. IS THE MINIMUM ACCEPTABLE FOR SIDEWALKS NUMBER 4 REBAR, 24-INCH C.C. EACH WAY TO THE MINIMUM ACCEPTABLE FOR CONCRETE APPROACHES, RAMPERS, BARRIERS, OPERATIONS, AND PERSONNEL. 26. COLD WEATHER PRECAUTIONS: CONCRETE PAVEMENT SHALL NOT BE PLACED WITHIN THE AMBIENT TEMPERATURE IS 40°F AND FALLING. CONCRETE MAY BE PLACED IF THE AMBIENT TEMPERATURE IS 40°F AND RISING. CONTRACTOR SHALL PROVIDE AN APPROVED COVERING MATERIAL (GELCO MATS, POLYETHYLENE SHEETING, ETC.) IN THE EVENT TEMPERATURES FALL BELOW 40°F AND RISE ON OTHER CEMENTS SHALL BE SUBJECT TO PREVIOUS TESTING. 27. HOT WEATHER: NO CONCRETE PAVEMENT METHOD SHALL BE PLACED IF THE AMBIENT TEMPERATURE IS ABOVE 95°F. AIR AND WATER REDUCER ARE REQUIRED IF MIXTURE TEMPERATURE REACHES 85°F OR ABOVE. 28. IF NO AIR AND WATER REDUCER HAS BEEN ADDED, NO CONCRETE SHALL BE PLACED IF MORE THAN 10 MINUTES AFTER BATCH TIME. IF AIR AND WATER REDUCER HAS BEEN ADDED, NO CONCRETE SHALL BE PLACED IF MORE THAN 10 MINUTES AFTER BATCH TIME. 29. STRUCTURE TEMPERATURES AND TEMPS DURING PLACEMENT MAY VARY. REFER TO TYPICAL PROVISIONS FOR MORE DETAILS. 30. TRANSVERSE EXPANSION JOINTS ARE REQUIRED AT A MAXIMUM SPACING OF 800' OR 10' C.C. WITH CONCRETE VERTICAL JOINTS EXTENDING THROUGH THE CURB & EVERY EXPANSION JOINT. ALL JOINTS AND VERTICAL CURB JOINTS SHALL BE SEALED WITH LIQUID RUBBER CONFORMING TO TYPICAL TRENCH BRACKETS (LATEST REVISIONS). 31. EXPANSION JOINT LAYOUT FOR INTERSECTIONS SHALL BE PROVIDED BY ENGINEER FOR CITY APPROVAL. 32. NO WORK SHALL BE ALLOWED IN ANY CONCRETE WITHIN THE CITY LIMITS OR ETC. 33. ALL REBAR SHALL BE 60% TENSILE OVERLAP SHALL BE DOUBLE THE MINIMUM. 34. ALL NEW CURB PROFILES SHALL BE 18" HIGH, 24" WIDE, AND A MINIMUM 1/4" DEPTH OF APPROVED POLYURETHANE FLOOR FINS.			CEMENT STABILIZED SAND 1. ALL STABILIZED SAND SHALL BE A MINIMUM OF 1 1/2 INCH PER FT. 2. CEMENT STABILIZED SAND (C.S.) SHALL ACHIEVE A MINIMUM OF 95% UNIFORM PROCTOR DENSITY. 3. A MINIMUM OF 2" GRANULAR MATERIAL SHALL BE PLACED EACH WAY. THE GRANULAR PROPORTION ONE SAMPLE MAY BE USED WITH THE CITY OF MISSOURI CITY APPROVAL. THE CITY OF MISSOURI CITY RESERVE THE RIGHT TO REQUIRE ADDITIONAL TESTS AT THE CONTRACTOR'S EXPENSE IF IT IS DEEMED NECESSARY. 4. ANY C.S. NOT MEETING CITY OF MISSOURI CITY STANDARDS SHALL BE REMOVED AND RE-DO AT THE CONTRACTOR'S EXPENSE. 5. BOTH CEMENT CONTENT AND COMPRESSIVE TESTS SHALL BE CONDUCTED ON C.S. SAMPLES. 6. ALL C.S. SHALL BE COMPACTED TO A MINIMUM OF 95% UNIFORM PROCTOR DENSITY TO REACH A MINIMUM DENSITY OF 95%. 7. CEMENT STABILIZED SAND MAY NOT BE STORED FOR LONG PERIODS. MATERIALS ALLOWED 72 HOURS FROM BATCH TIME TO HAVING BEEN INSTALLED.		
BANK SAND 1. BANK SAND IS DEFINED AS A WELL-GRAINED SAND, FREE OF SILT, CLAY, FINE OR SOLUBLE MATERIALS AND ORGANIC MATTER, MEETING THE UNIFIED SOIL CLASSIFICATION SYSTEM (GROUP SYMBOL U-1) CRITERIA WITH A PLASTICITY INDEX OF LESS THAN 10. NO MORE THAN 10% OF MATERIAL CAN PASS THE #20 SIEVE. HOT MIX ASPHALTIC BASE COURSE 1. NO HOT MIX ASPHALTIC BASE SHALL BE INSTALLED UNLESS THE SUBGRADE HAS BEEN PROPERLY PREPARED AND TESTED AS PER THE PLAN 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, BINDER, AND INSTALLATION SHALL COMPLY WITH TYPICAL STANDARD SHEETS FOR CONSTRUCTION OF DRIVEWAYS, STREETS, AND BRIDGES (SECTION 10711) AND ITS LATEST REVISIONS. 3. HOT MIX ASPHALTIC MATERIALS SHALL BE AT TEMPERATURES BETWEEN 200°F AND 220°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 BY THE BRUSH AND 4" OFF AND RISING. 5. PLACE BASE COURSES 2 INCHES OR GREATER IN THICKNESS IN TWO OR MORE LAYERS. EACH LAYER SHALL HAVE A COMPACTED THICKNESS OF NOT GREATER THAN 4 INCHES. 6. BASE MATERIALS MAY ONLY BE PLACED AGAINST CLEAN, STRAIGHT EDGES. SAW CUTTING, FULL DEPTH IS REQUIRED IF EXISTING EDGES ARE BROWN OR CRACKED. 7. COMPACTION SHALL BE DONE WITH MATERIAL IS STILL HOT AND AS SOON AS IT WILL BEAR THE ROLLER OR COMPACTOR WEIGHT WITHOUT UNDER DISPLACEMENT (ON ROAD CRACKS). 8. COMPACT SUBGRADE (CONCRETE) WITH ROLLERS OR TAMPERE RELOCATIONS NOT NEARLY ACCESSIBLE (E.G., LEGS, CURBS, WALLS, ETC.) 9. UNLESS OTHERWISE SPECIFIED, COMPACT DENSITY TO NOT LESS THAN 95% OF MAXIMUM POSSIBLE DENSITY. 10. A CERTIFIED LAB SHALL BE AT ALL TIMES TO TEST AND FURNISH DOCUMENTATION THE CONSTRUCTION METHODS AND QUALITY OF MATERIALS. 11. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY TO A.C.R. AN ASPHALT BRITISH AND CITY OF MISSOURI CITY REQUIREMENTS. FAILURE TO COMPLY WILL RESULT IN REJECTION OF SUCH MATERIALS AND SUCH SHALL BE RE-DO AT THE CONTRACTOR'S EXPENSE. 12. NO HOT OPEN BASE TO TRAFFIC UNITS. IT CAN BE MAINTAINED IN GOOD CONDITION AND IS CAPABLE OF SUPPORTING WEIGHT WITHOUT DAMAGE OR DEFORMATION.			EROSION AND SEDIMENTATION CONTROL NOTES 1. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL INSTALL EROSION AND SEDIMENTATION CONTROL AT LOCATIONS SHOWN ON THE PLAN. 2. AT COMPLETION OF THE CONTRACT, OWNER AND/OR OWNER REPRESENTATIVE WITH THE CONTRACTOR SHALL EXAMINE EROSION AND SEDIMENTATION CONTROL SYSTEM BEFORE BEGINNING CONSTRUCTION OF THE MAIN PARTS OF THE PROJECT. 3. CONTRACTOR SHALL MAINTAIN, REPAIR AND/OR REPLACE DAMAGED BARRIERS AND SEDIMENTATION CONTROL SYSTEM THROUGHOUT THE DURATION OF THE CONTRACT, AND MAINTAIN THEM. 4. CONTRACTOR SHALL PROVIDE PROTECTED STORAGE AREAS FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS, AND OTHER POTENTIALLY TOXIC MATERIALS. 5. CONTRACTOR SHALL LOCATE PUMP/STORAGE AREAS AWAY FROM STORM WATER CONVEYANCE SYSTEM. CONTRACTOR SHALL BE FENCED, AND SHALL BE BARRIERS AROUND FUEL STORAGE AREA (NO SEPARATE FENCE). 6. CONTRACTOR SHALL ADVISE OWNER IMMEDIATELY, VERBALLY, AND IN WRITING OF ANY FUEL OR TOXIC MATERIAL SPILLS INTO THE PROJECT CONSTRUCTION AREA AND THE ACTION TAKEN TO REMOVE THE PAVEMENT. 7. CONTRACTOR IS RESPONSIBLE FOR MONITORING OF HIS FUEL MATERIALS AND COMPENSATED EMISSIONS AT A LEGALLY APPROVED MANNER (NO SEPARATE FENCE). 8. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE ENVIRONMENTAL LAWS. 9. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATELY MAINTAINED SAFETY FACILITIES. 10. AT COMPLETION OF THE CONTRACT, OWNER AND/OR OWNER REPRESENTATIVE WITH THE CONTRACTOR SHALL EXAMINE EROSION AND SEDIMENTATION CONTROL SYSTEM BEFORE BEGINNING CONSTRUCTION OF THE MAIN PARTS OF THE PROJECT.					
PORT BEND COUNTY NOTES 1. PORT BEND COUNTY MUST BE NOTIFIED TO THE PRE-CONSTRUCTION MEETING. 2. CONTRACTOR SHALL NOTIFY PORT BEND COUNTY ENGINEERING DEPARTMENT 48 HOURS PRIOR TO COMMENCING CONSTRUCTION AND 48 HOURS NOTICE TO ANY CONSTRUCTION ACTIVITY WITHIN THE LIMITS OF THE PORT BEND COUNTY ENGINEERING DEPARTMENT'S JURISDICTION. 3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FROM PORT BEND COUNTY PRIOR TO COMMENCING CONSTRUCTION OF ANY IMPROVEMENTS WITHIN COUNTY ROAD RIGHT-OF-WAYS.			ASPHALT - OILS AND EMULSIONS 1. CONTRACTOR SHALL VERIFY LINES AND GRADINGS 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 AND EMULSION SHALL BE DISTRIBUTED EVENLY AND SMOOTHLY UNLESS OTHERWISE NECESSARY FOR PROPER DISTRIBUTION. 4. MAINTAIN REQUIRED SURFACE CONDITIONS UNTIL ACCEPTED BY THE CITY OF MISSOURI CITY. 5. PRIME COAT SHALL BE 1.5% M.C., 1.0% OR L.P.R. FINE AND SHALL COMPLY WITH TYPICAL STANDARD SPECIFICATIONS FOR CONSTRUCTION OF DRIVEWAYS, STREETS, AND BRIDGES (1070) AND ITS LATEST REVISIONS. 6. TACK COAT SHALL BE 1.5% AND SHALL COMPLY TO TYPICAL SPECIFICATIONS AND ITS LATEST REVISIONS. 7. M.C. AND M.C. 1.0% OR L.P.R. FROM PRIME SHALL BE DISTRIBUTED AT A RATE OF 25 TO 35 GALLONS PER SQUARE YARD AND MAY NOT BE APPLIED WHEN AMBIENT TEMPERATURE IS 40°F AND FALLING. OTHER TACK COATS MAY NOT BE USED DURING THE PERIOD OF APRIL 1 THROUGH SEPTEMBER 15 AS PER ATMS 246. 8. 1% MAXIMUM WATER DILUTION IS PARTS WATER TO ONE PART ASPHALT. 9. IF TACK COAT SHALL BE APPLIED AT A RATE BY TYPICAL SPECIFICATIONS, THE BOUNDARY VARIATION SHALL BE CONTACT WITH CURB, ETC. SHALL BE PAIRED WITH AN EVEN TACK COAT APPLIED BY BRUSH OR BROOM. CONTACT MATERIAL SHALL BE HEATED TO 120°F TO 130°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 80°F AND FALLING.			LINING SUBGRADE 1. LINE SHALL BE A "SLOPE" AS PER TYPICAL 30 UNLESS SPECIFICALLY RECOMMENDED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE PUBLIC WORKS ENGINEER. 2. SUBGRADES SHALL BE FURNISHED AT OR ABOVE THE MINIMUM "SLOPE" CONTINUED AS APPROVED BY THE ENGINEER. 3. SUBGRADES SHALL BE STABILIZED WITH A MINIMUM 8% FINEST (NO. 20) SIEVE, 82 INCHES (2") THICK TO EXHAUSTIVE PLASTICITY INDEX (PI) TO FIFTY (5) AS DETERMINED. LINE SHALL, AND ONE PRESENT (UNLESS FIELD VARIATION IS 10% OR LESS AND NOT OUTLINED, THEN THE LINE SHALL BE STABILIZED WITH 8% OF U.S. 200 SIEVE) TO BE INCREASED TO SEVEN INCHES OF THICK AND COMPACTED TO NOT LESS THAN 95% UNIFORM PROCTOR DENSITY. 4. LINE SET TO SOLID CONTENT TESTS SHALL BE CONDUCTED ON WET, ONE (1) OR MORE (2) TONS OF MATERIAL DISTRIBUTED UNIFORMITY THROUGHOUT THE SUBGRADE. 5. THE SUBGRADE SHALL BE SHAPED AND GRADED TO CONFORM TO THE TYPICAL SECTION, AS SHOWN ON THE PLAN, PRIOR TO TREATING THE EXISTING MATERIAL. 6. LINES APPROVED BY THE CITY ENGINEER, LINE OPERATIONS SHALL NOT BE STARTED WHEN THE AMBIENT AIR TEMPERATURE IS BELOW 40°F AND FALLING. LINES MAY BE PLACED WITH APPROVAL, BE STARTED WHEN THE AMBIENT AIR TEMPERATURE IS 50°F AND RISING. LINES SHALL NOT BE PLACED WHEN WETTER THAN THE ENGINEER'S APPROVAL, AND UNLESS THE ENGINEER IS APPROVED BY THE CITY ENGINEER. 7. THE SUBGRADE MATERIAL AND SLURRY SHALL BE THOROUGHLY MIXED, MOISTENED TO THE PROPER MOISTURE CONTENT (1% OR 2%) AND LEFT TO CURE (UNLESS OTHERWISE NOTED). 8. AFTER CURING, THE SUBGRADE SHALL BE FURNISHED WITH POLYMERIZATION REQUIREMENTS AS SET, AFTER EXCESS TYPICAL PART 2. 9. MINIMUM FINISHING 1.5% FINISH 1.0% MINIMUM FINISHING 2.0% FINISH 1.0% MINIMUM FINISHING 3.0% FINISH 1.0% MINIMUM FINISHING 4.0% FINISH 1.0% 10. SEVEN TESTS SHALL BE CONDUCTED EVERY 100 LF ON ALTERNATING LANS OF TRAFFIC OR EVERY 50 LF ON SINGLE LANES AS REQUIRED. AT LEAST ONE TEST SHALL BE CONDUCTED ON EACH ROADWAY OR CURB-TO-CURB. 11. THE MATERIAL SHALL BE STABILIZED ON MINIMUM 10% OR 2% UNIFORM PROCTOR TO COMPACTION. COMPACTION TO A MINIMUM 95% DENSITY SHALL BE OBTAINED IMMEDIATELY AFTER ALL POLYMERIZATION AND MOISTURE REQUIREMENTS ARE MET. THROUGHOUT THE ENTIRE OPERATION, THE SURFACE SHALL BE SMOOTH AND UNIFORM WITH THE LINES AND GRADINGS ON THE PLAN. 12. WHEN THE SUBGRADE IS TO BE TESTED IMMEDIATELY, DENSITY OR FINISH, IT SHALL BE WORKED IN ACCORDANCE WITH TYPICAL SUBGRADE 20-47 "WORKING A SECTION" WHICH MAY REQUIRE AN ADDITIONAL 2% OF THE SPECIFIED LINE AREA. 13. THE TREATED SUBGRADE SHALL BE KEPT MOIST AND PREVENTED FROM DRYING IN THE EVENT OF A ONE-HALF (1/2) INCH RAINFALL AND/OR IF THE MATERIAL MOISTURE IS LOW. DENSITY AND MOISTURE TESTS SHALL BE RETAINED. 14. NO SUBGRADE SHALL BE COVERED WITH ANOTHER MATERIAL UNLESS APPROVED BY THE CITY OF MISSOURI CITY AND LINES 10711 TESTS HAVE BEEN COMPLETED. LINE DEPTH TESTS SHALL BE CONDUCTED ON EVERY 100 LF OF ROADWAY ON ALTERNATING LANS ON EVERY 50 LF OF SINGLE LANES. AT LEAST ONE LINE SHALL BE CONDUCTED ON EACH ROADWAY AS NOTED ON THE PLAN.		

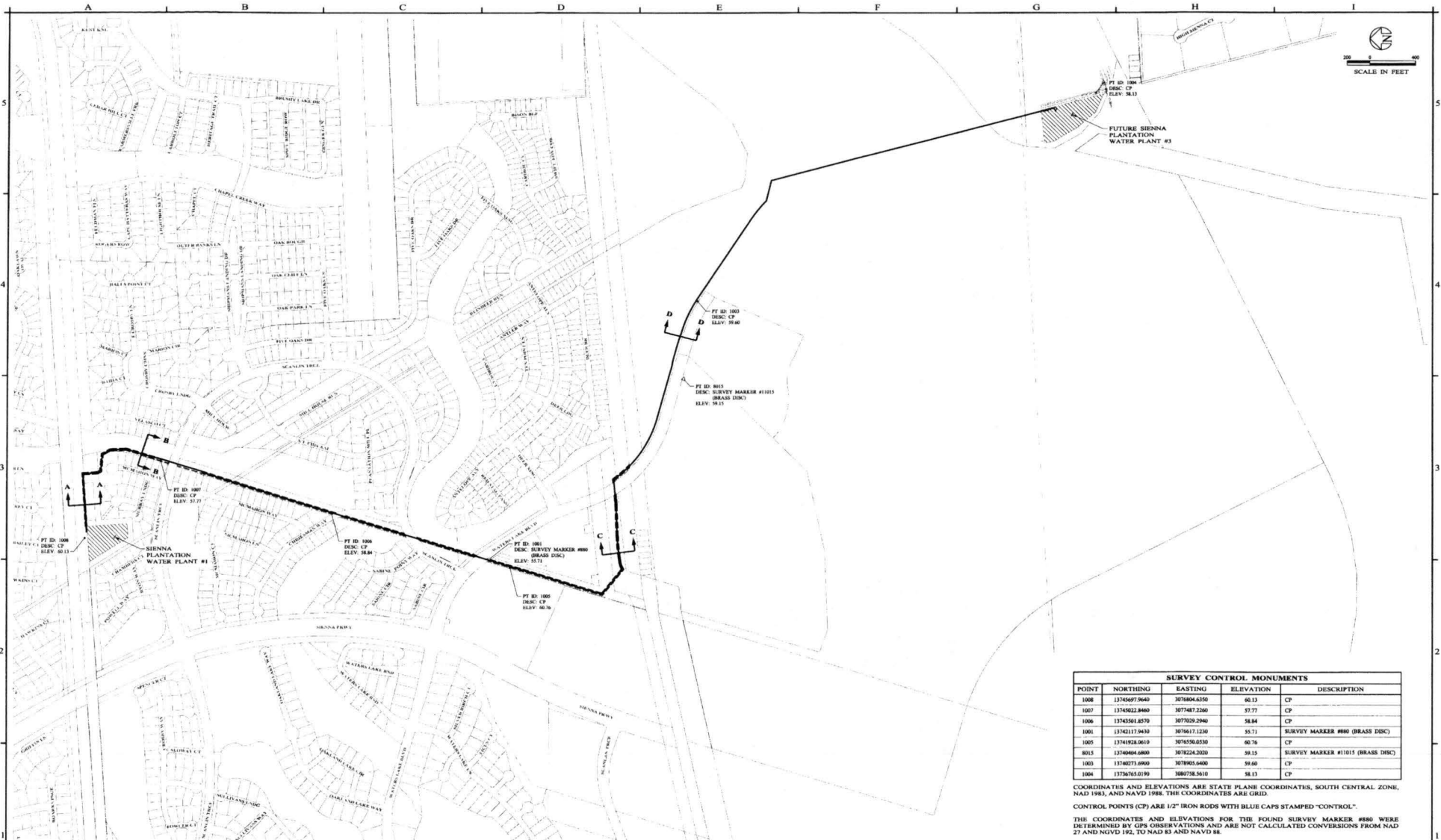
NO. 1	REVISION	DATE	05/16/2016	05/16/2016	DESIGNED BY	J.A.R.	SCALE	NO SCALE	CITY OF MISSOURI CITY REGIONAL WATER TREATMENT PLANT GENERAL NOTES	PROJECT NO.	15-6259
	BID SET	05/16/2016			DRAWN BY	J.C.	DATE	05/16/2016		SEQUENCE NO.	2 OF 32
					CHECKED BY	J.A.R.				SHEET NO.	G-02



ENPROTEC/HIBBS & TODD, INC.
 ENVIRONMENTAL AND CIVIL ENGINEERING
 402 Cedar Street
 325-09-5000
 Austin, Texas 78601
 PE Firm Registration No. 151
 PG Firm Registration No. 50133
 RPLS Firm Registration No. 10011900 & 10007300



Maggi



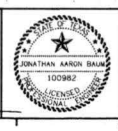
SURVEY CONTROL MONUMENTS				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
1008	13740497.9640	3078804.4350	60.11	CP
1007	13740822.8400	3077487.2260	27.77	CP
1006	13741501.8570	3077029.2940	58.84	CP
1001	13740211.8450	3078617.1230	55.71	SURVEY MARKER #880 (BRASS DISC)
1005	13741828.0610	3078550.6530	62.76	CP
8015	13740404.6800	3078224.2020	58.15	SURVEY MARKER #1015 (BRASS DISC)
1003	13740273.6900	3078905.6400	59.60	CP
1004	13736765.0190	3080758.3610	58.11	CP

COORDINATES AND ELEVATIONS ARE STATE PLANE COORDINATES, SOUTH CENTRAL ZONE, NAD 1983, AND NAVD 1988. THE COORDINATES ARE GRID.

CONTROL POINTS (CP) ARE 1/2" IRON RODS WITH BLUE CAPS STAMPED "CONTROL".

THE COORDINATES AND ELEVATIONS FOR THE FOUND SURVEY MARKER #880 WERE DETERMINED BY GPS OBSERVATIONS AND ARE NOT CALCULATED CONVERSIONS FROM NAD 27 AND NAVD 192, TO NAD 83 AND NAVD 88.

NO.	REVISION	DATE
1	IHD SET	05/16/2016



eHT ENPROTEC/HIBBS & TODD, INC.
 ENVIRONMENTAL AND CIVIL ENGINEERING
 402 Cedar Street
 325-650-0560
 Abilene, Texas 79601
 PE Firm Registration No. 1151
 PG Firm Registration No. 50103
 RPLS Firm Registration No. 10071900 & 10007300

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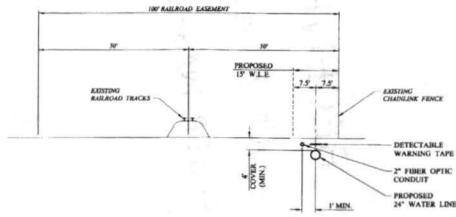
DESIGNED BY J.A.B.	SCALE 1" = 400'
DRAWN BY S.K.	DATE 05/06/2016
CHECKED BY J.A.B.	

**CITY OF MISSOURI CITY
 REGIONAL WATER TREATMENT PLANT**

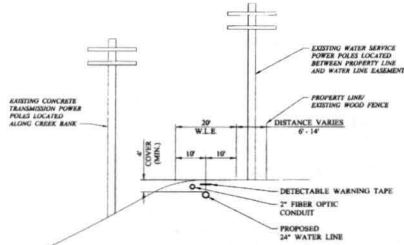
OVERALL PLAN

PROJECT NO.: 15-6259
SEQUENCE NO. 3 OF 32
SHEET No. C-01

Maggi 5/19/16

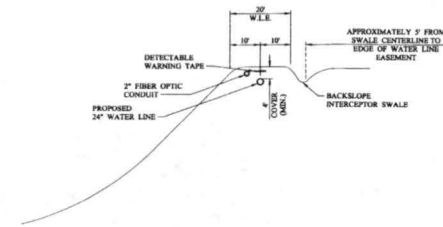


SECTION "A-A"
APPROX. STATION 0+00 TO 5+00

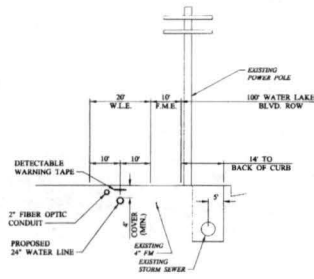


NOTE
ALL WATERLINE INSTALLATION WITHIN 15' FEET OF ANY POWER POLES SHALL BE INSTALLED BY BORING.

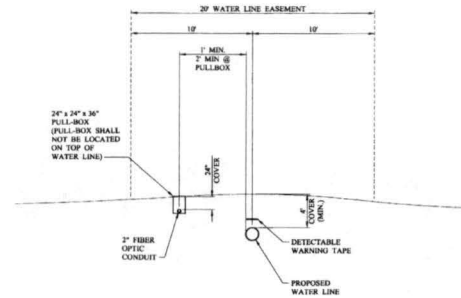
SECTION "B-B"
APPROX. STATION 10+50 TO 12+00



SECTION "C-C"
STATION 58+00 TO 61+00



SECTION "D-D"
STATION 66+00 TO 78+00



TYPICAL SECTION THROUGH OPEN AREA

NO.	REVISION	DATE
1	BID SET	05/16/2016



ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
325-658-5500
Abilene, Texas 79601
PE Firm Registration No. 11551
PG Firm Registration No. 50103
RPLS Firm Registration Nos. 10011800 & 10007300

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DESIGNED BY
J.A.B.
DRAWN BY
J.A.C.
CHECKED BY
J.A.B.
SCALE
NO SCALE
DATE
05/06/2016

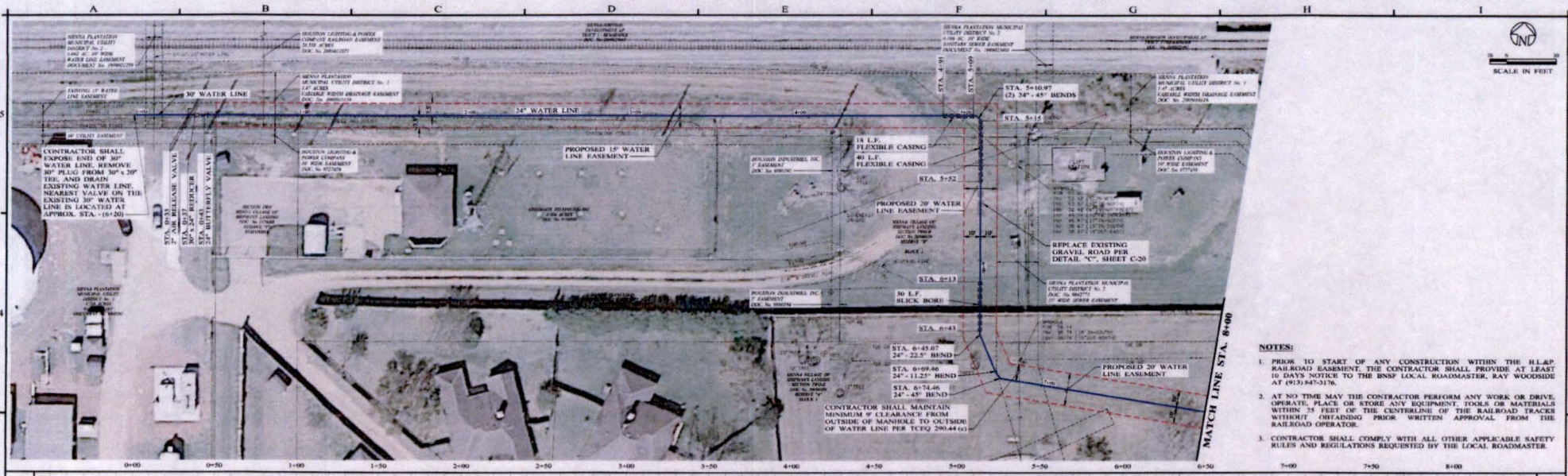
**CITY OF MISSOURI CITY
REGIONAL WATER TREATMENT PLANT**
CROSS - SECTIONS

PROJECT NO.:
15-6259
SEQUENCE No.
4 OF 32
SHEET No.
C-02

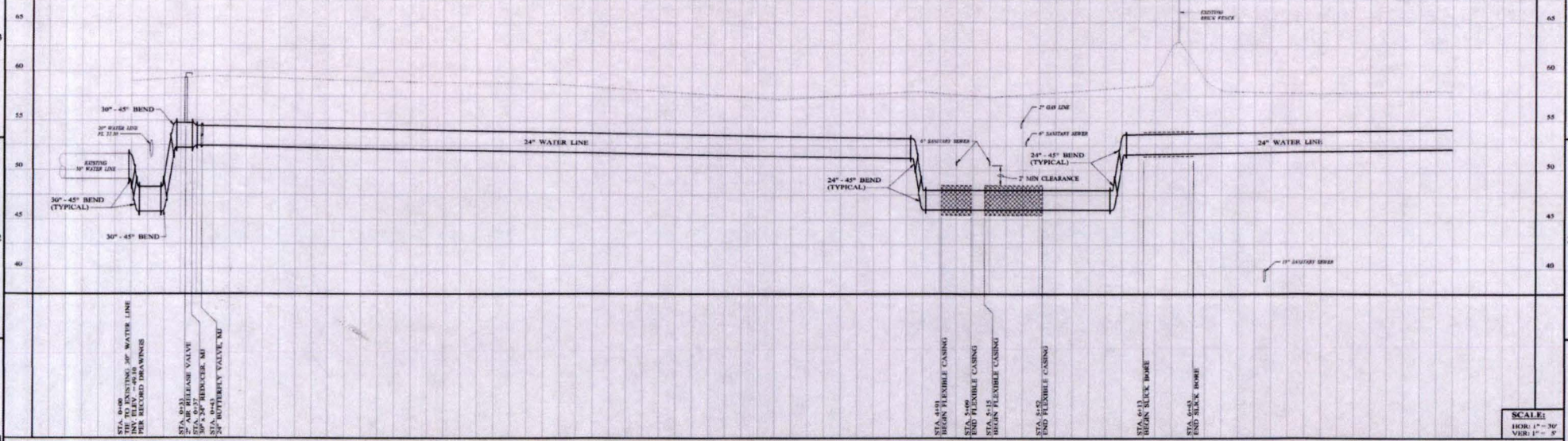
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JUN 29 2016
FBC DRAINAGE DIST.

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JUN 29 2016
FBC DRAINAGE DIST.



- NOTES:**
1. PRIOR TO START OF ANY CONSTRUCTION WITHIN THE H.L.A.P. RAILROAD EASEMENT, THE CONTRACTOR SHALL PROVIDE AT LEAST 10 DAYS NOTICE TO THE BNSF LOCAL ROADMASTER, RAY WOODSIDE AT (913) 847-3176.
 2. AT NO TIME MAY THE CONTRACTOR PERFORM ANY WORK OR DRIVE, OPERATE, PLACE OR STORE ANY EQUIPMENT, TOOLS OR MATERIALS WITHIN 25 FEET OF THE CENTERLINE OF THE RAILROAD TRACKS WITHOUT OBTAINING PRIOR WRITTEN APPROVAL FROM THE RAILROAD OPERATOR.
 3. CONTRACTOR SHALL COMPLY WITH ALL OTHER APPLICABLE SAFETY RULES AND REGULATIONS REQUESTED BY THE LOCAL ROADMASTER.



NO.	REVISION	DATE	05/16/2016
1	3RD SET	05/16/2016	

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
325-698-5560
Abilene, Texas 79601
PE Firm Registration No. 1151
PG Firm Registration No. 82103
RPLS Firm Registration Nos. 10011900 & 10007300

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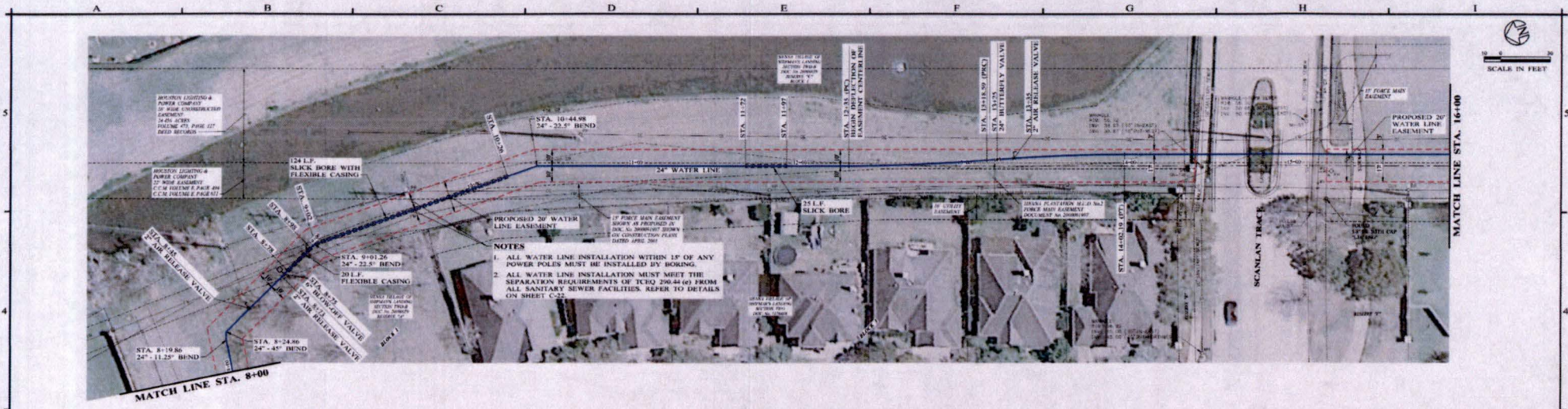
DESIGNED BY: J.A.B.
DRAWN BY: J.A.T.
CHECKED BY: J.A.B.

SCALE: AS NOTED
DATE: 05/16/2016

CITY OF MISSOURI CITY
REGIONAL WATER TREATMENT PLANT
WATER TRANSMISSION MAIN, PHASE III
STA. 0+00 TO STA. 8+00
PLAN AND PROFILE

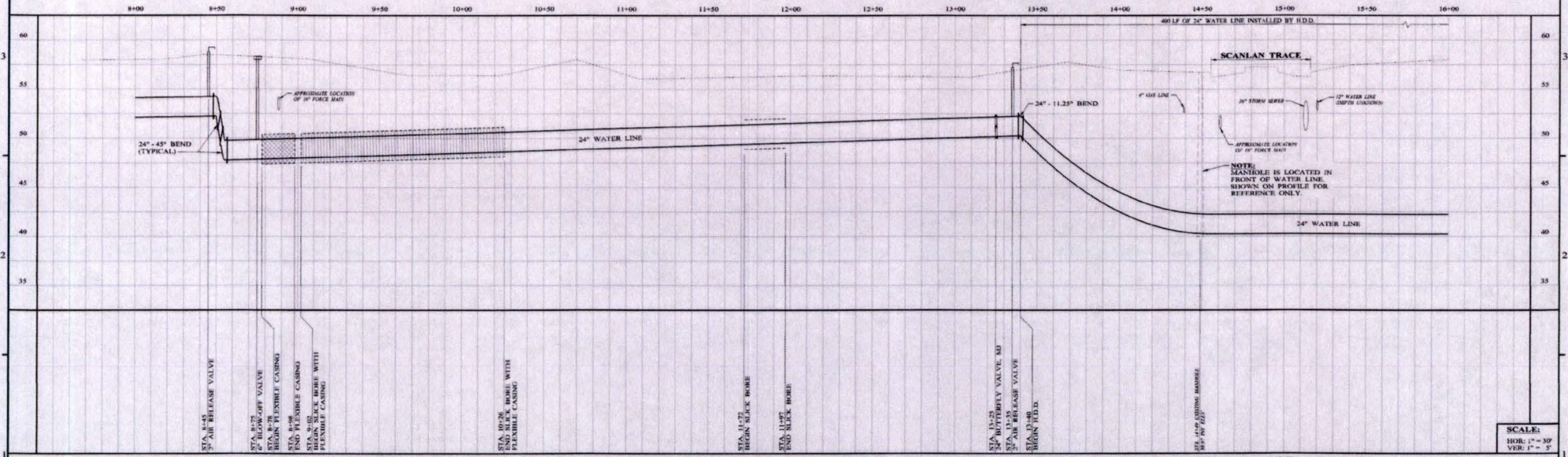
PROJECT NO.: 15-6259
SEQUENCE No: 5 OF 32
SHEET No: C-03

Maggi 5/19/16



NOTES

1. ALL WATER LINE INSTALLATION WITHIN 15' OF ANY POWER POLES MUST BE INSTALLED BY BORING.
2. ALL WATER LINE INSTALLATION MUST MEET THE SEPARATION REQUIREMENTS OF TCRD 290.44 (c) FROM ALL SANITARY SEWER FACILITIES. REFER TO DETAILS ON SHEET C-22.



NO. REVISION DATE

1	BID SET	05/16/2016
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eHT ENPROTEC/HIBBS & TODD, INC.
 ENVIRONMENTAL AND CIVIL ENGINEERING
 402 Cedar Street
 325-698-5500
 Austin, Texas 78601
 PE Firm Registration No. 51151
 PG Firm Registration No. 52123
 RPLS Firm Registration Nos. 1001800 & 10007300

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CHECKED BY	J.A.B.

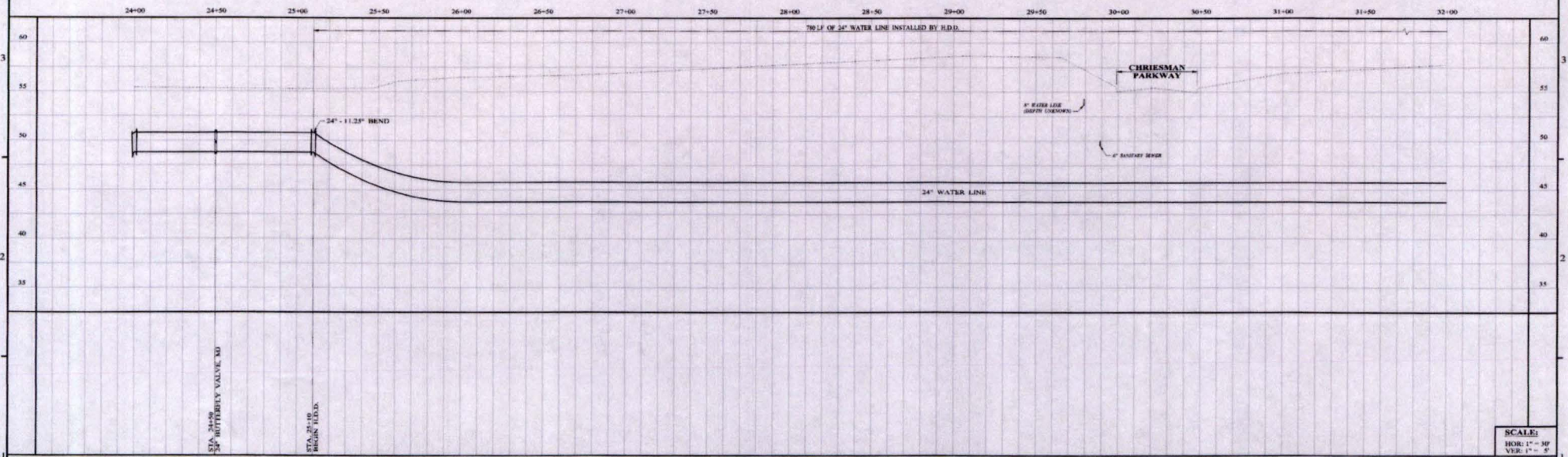
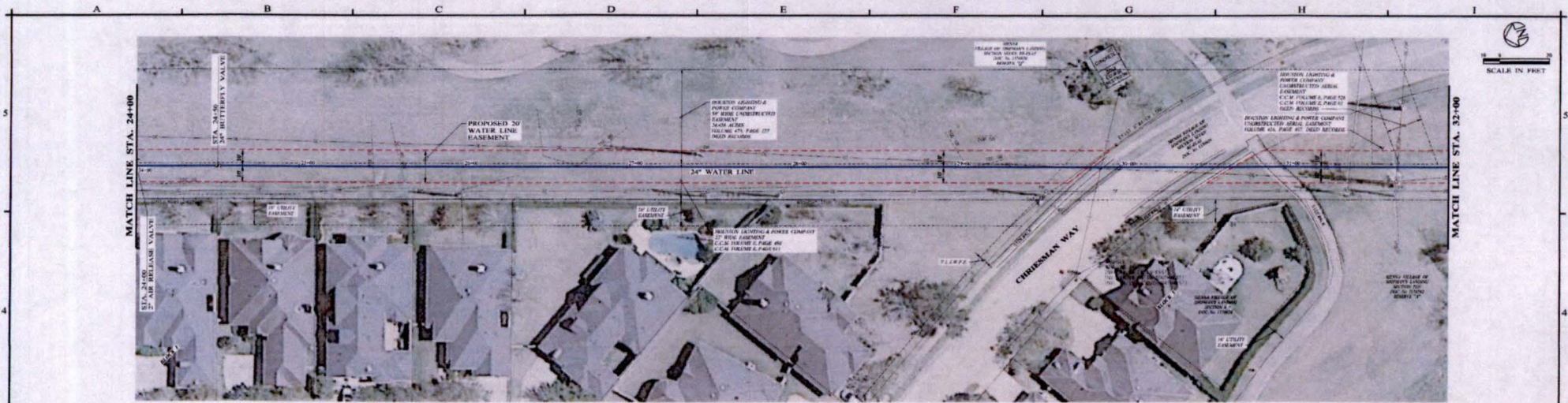
DATE
05/16/2016

SCALE
AS NOTED

**CITY OF MISSOURI CITY
 REGIONAL WATER TREATMENT PLANT
 WATER TRANSMISSION MAIN, PHASE III
 STA. 8+00 TO STA. 16+00
 PLAN AND PROFILE**

PROJECT NO.: 15-6259
 SEQUENCE No. 6 OF 32
 SHEET No. C-04

Nagge 5/19/16



NO.	REVISION	DATE
1	BID SET	05/16/2016

DATE: 05/06/2016

Jonathan Skay

ENPROTEC/HIBBS & TODD, INC.
 ENVIRONMENTAL AND CIVIL ENGINEERING
 402 Cedar Street
 325-698-5580
 PE Firm Registration No. 1151
 PD Firm Registration No. 52153
 RPLS Firm Registration Nos. 10011980 & 10007300

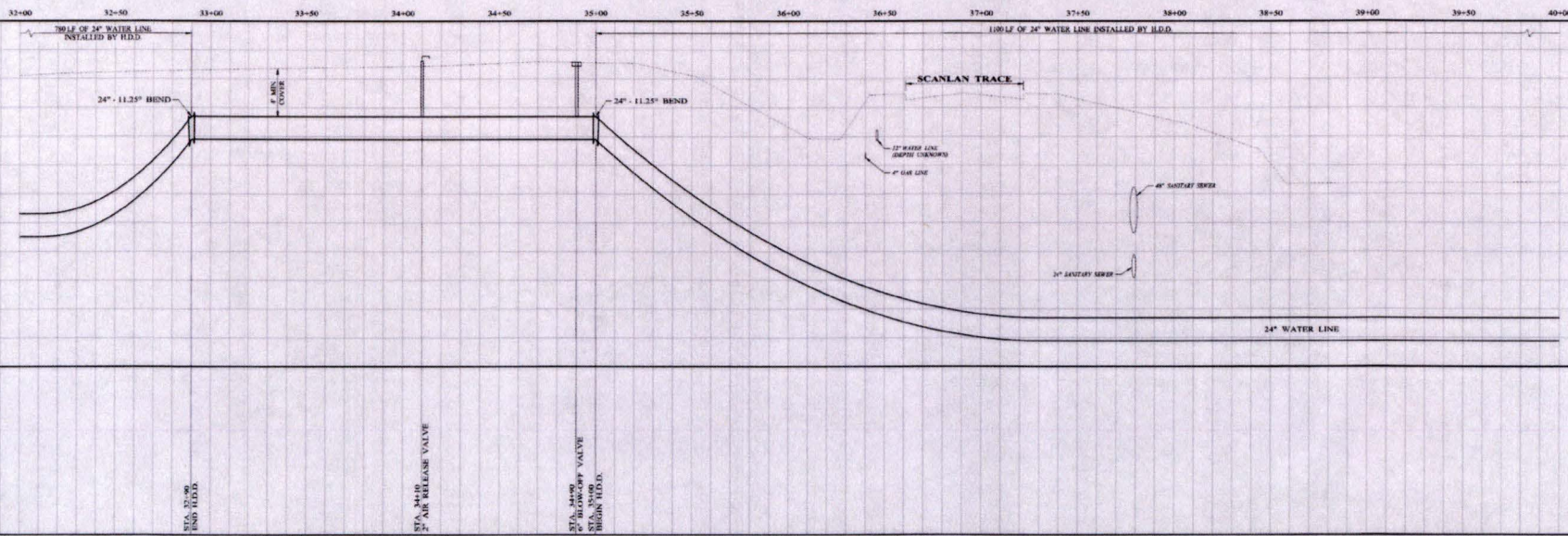
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DESIGNED BY I.A.B.	SCALE AS NOTED
DRAWN BY I.A.B.	DATE 05/06/2016
CHECKED BY I.A.B.	

**CITY OF MISSOURI CITY
 REGIONAL WATER TREATMENT PLANT
 WATER TRANSMISSION MAIN, PHASE III
 STA. 24+00 TO STA. 32+00
 PLAN AND PROFILE**

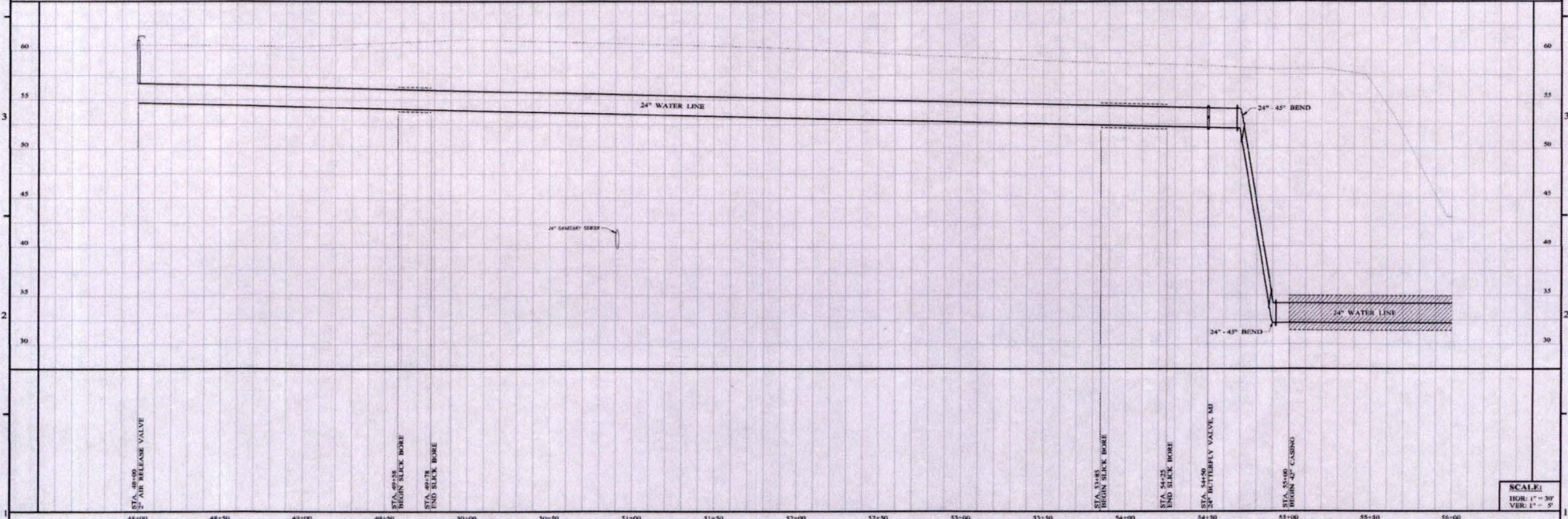
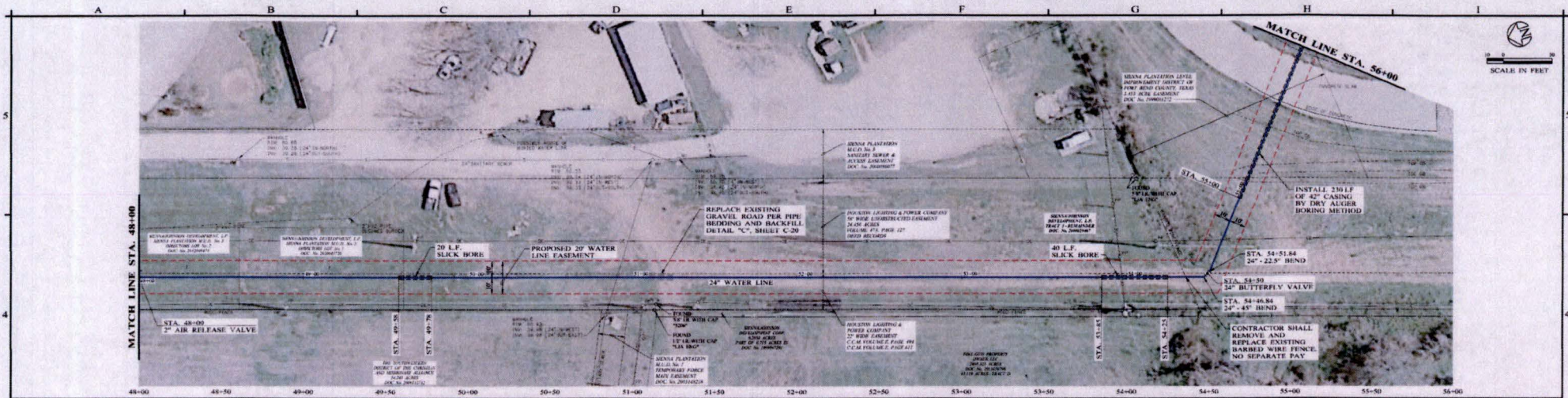
PROJECT NO.:	15-6259
SEQUENCE No.:	8 OF 32
SHEET No.:	C-06

Maggi 5/19/16

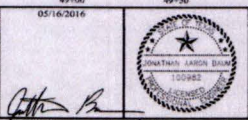


NO. 1 REVISION BID SET		DATE 05/16/2016			BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	DESIGNED BY J.A.B.	SCALE AS NOTED	CITY OF MISSOURI CITY REGIONAL WATER TREATMENT PLANT WATER TRANSMISSION MAIN, PHASE III STA. 32+00 TO STA. 40+00 PLAN AND PROFILE	PROJECT NO. 15-6259
						CHECKED BY J.A.B.	DATE 05/16/2016		SEQUENCE No. 9 OF 32

Maggi 5/19/16



NO.	REVISION	DATE
1	WHD SHET	05/16/2016



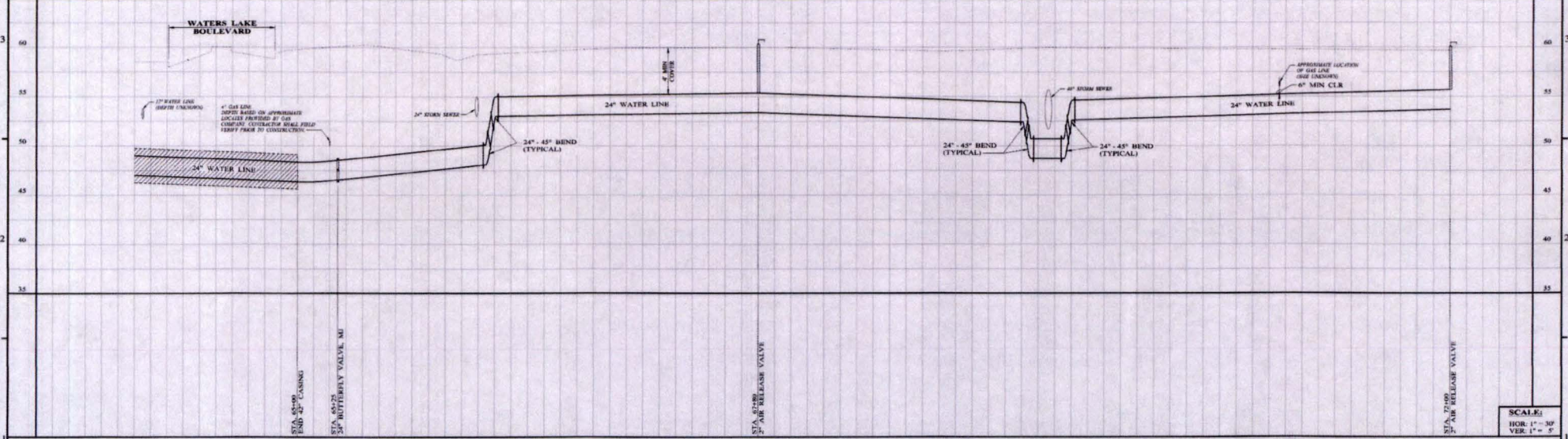
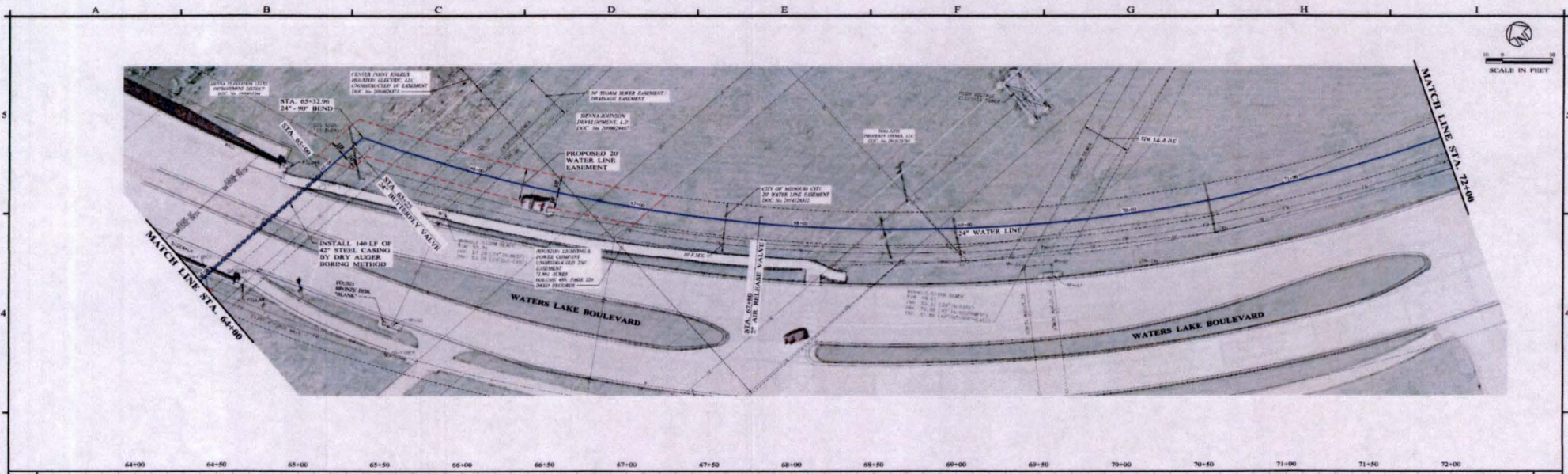
eHT ENPROTEC/HIBBS & TODD, INC.
 ENVIRONMENTAL AND CIVIL ENGINEERING
 402 Cedar Street
 323-980-0560
 Address: Texas 79601
 PE Firm Registration No. 1151
 PG Firm Registration No. 50103
 RPLS Firm Registration Nos. 10011800 & 10007300

DESIGNED BY J.A.B.	SCALE AS NOTED
DRAWN BY S.C.	DATE 05/16/2016
CHECKED BY J.A.B.	

CITY OF MISSOURI CITY
REGIONAL WATER TREATMENT PLANT
WATER TRANSMISSION MAIN, PHASE III
STA. 48+00 TO STA. 56+00
PLAN AND PROFILE

PROJECT NO.: 15-6259
 SEQUENCE No. 11 OF 32
 SHEET No. C-09

Maggi S19116



NO.	REVISION	DATE
1	BID SET	05/16/2016

03/16/2016

ENPROTEC/HIBBS & TODD, INC.
 ENVIRONMENTAL AND CIVIL ENGINEERING
 402 Cedar Street, P.O. Box 1151, Abilene, Texas 79601
 PE Firm Registration No. 82103, PS Firm Registration No. 82103
 RPLS Firm Registration Nos. 10011900 & 10007300

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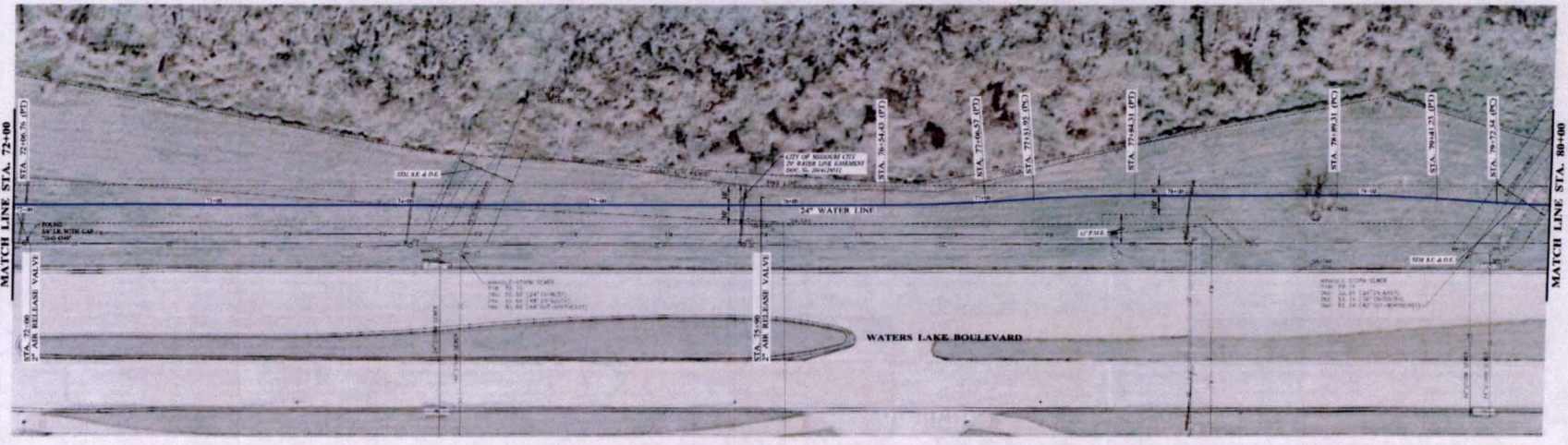
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 DRAWN BY: J.S.
 CHECKED BY: J.A.B.

SCALE: AS NOTED
 DATE: 05/16/2016

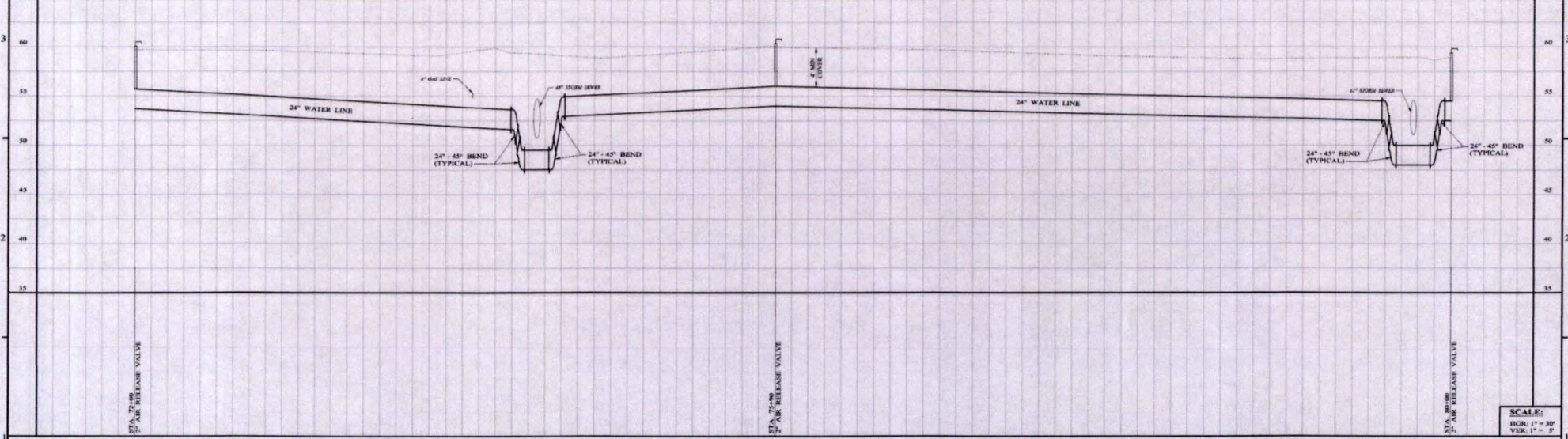
**CITY OF MISSOURI CITY
 REGIONAL WATER TREATMENT PLANT
 WATER TRANSMISSION MAIN, PHASE III
 STA. 64+00 TO STA. 72+00
 PLAN AND PROFILE**

PROJECT NO.: 15-6259
 SEQUENCE No. 13 OF 32
 SHEET No. C-11

Magge J 5/19/16



72+00 72+50 73+00 73+50 74+00 74+50 75+00 75+50 76+00 76+50 77+00 77+50 78+00 78+50 79+00 79+50 80+00



72+00 72+50 73+00 73+50 74+00 74+50 75+00 75+50 76+00 76+50 77+00 77+50 78+00 78+50 79+00 79+50 80+00

NO.	REVISION	DATE
1	BID SET	05/16/2016

05/16/2016



ENPROTEC/HIBBS & TODD, INC.
 ENVIRONMENTAL AND CIVIL ENGINEERING
 402 Cedar Street, Abilene, Texas 79601
 PE Firm Registration No. 1151
 PG Firm Registration No. 62103
 RPLS Firm Registration Nos. 10011900 & 10007300

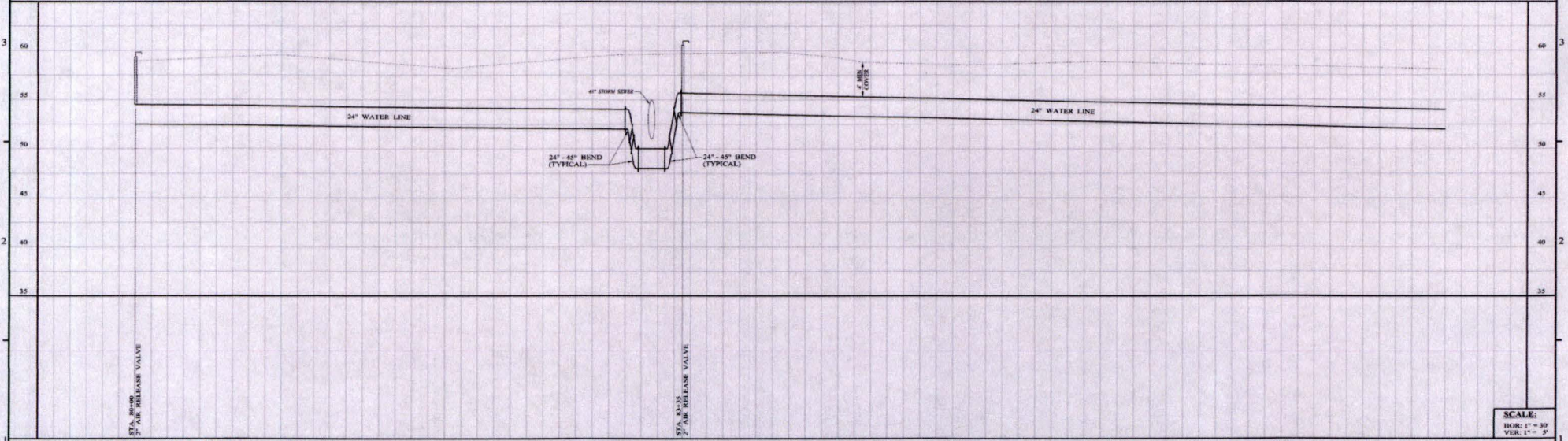
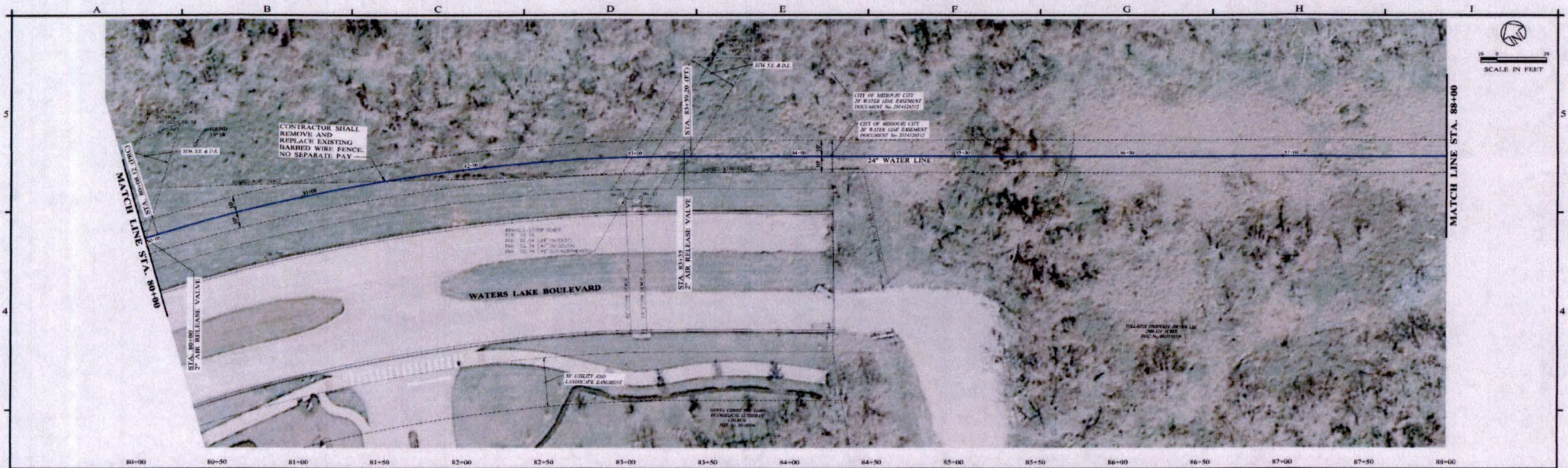
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 CHECKED BY: J.A.R.
 DATE: 05/16/2016

**CITY OF MISSOURI CITY
 REGIONAL WATER TREATMENT PLANT
 WATER TRANSMISSION MAIN, PHASE III
 STA. 72+00 TO STA. 80+00
 PLAN AND PROFILE**

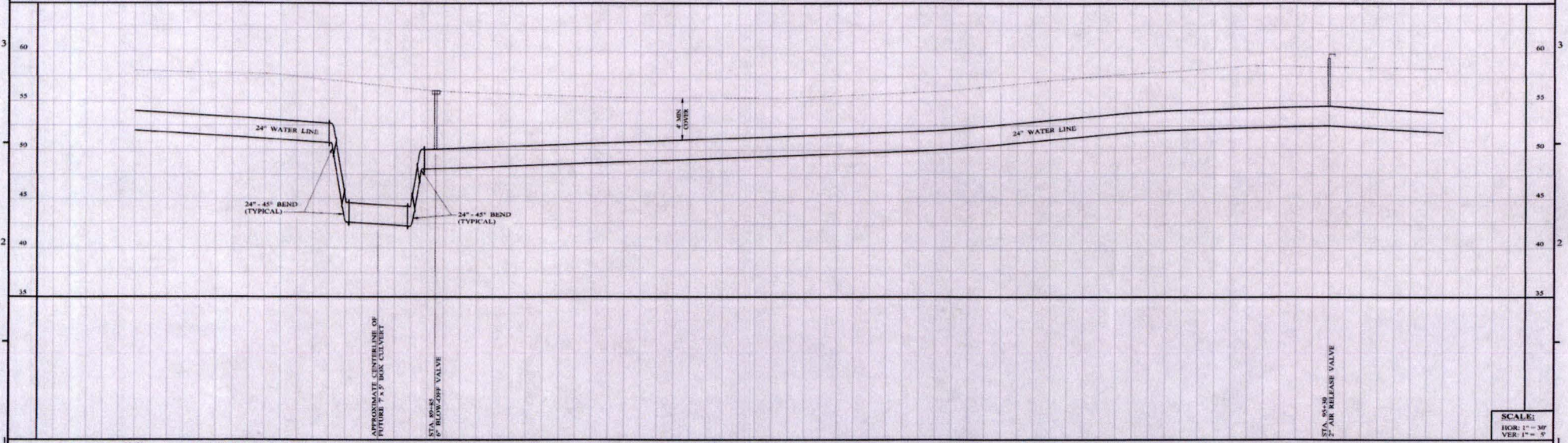
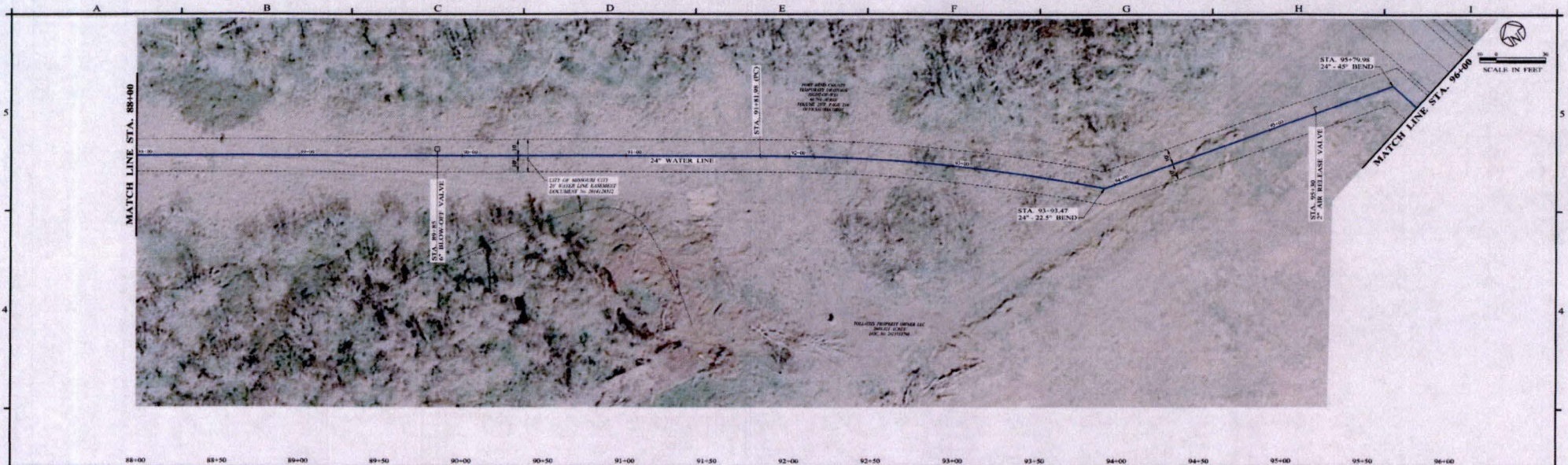
PROJECT NO.: 15-6259
 SEQUENCE No. 14 OF 32
 SHEET No. C-12

Maggi 5/19/16



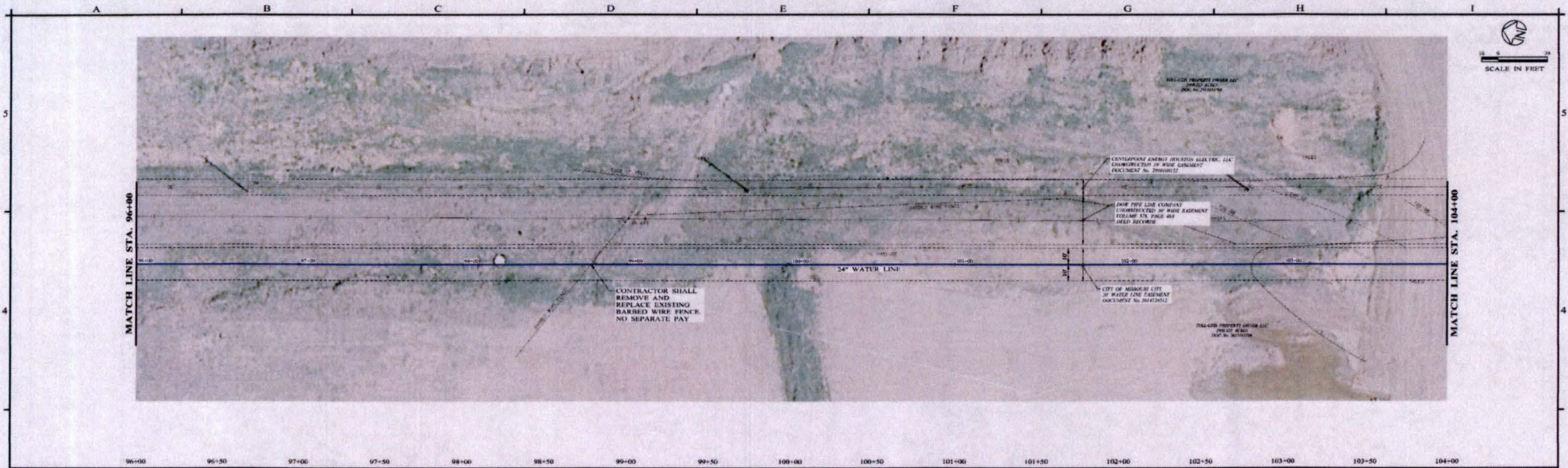
NO. 1	REVISION	DATE	05/06/2016			ENPROTEC/HIBBS & TODD, INC. ENVIRONMENTAL AND CIVIL ENGINEERING 402 Cedar Street 325-698-5560 PE Firm Registration No. 1151 PG Firm Registration No. 82103 RPLS Firm Registration Nos. 10011900 & 10007300	BAR IS ONE INCH ON ORIGINAL DRAWING 0 1 IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY.	DESIGNED BY J.A.B.	SCALE AS NOTED	CITY OF MISSOURI CITY REGIONAL WATER TREATMENT PLANT WATER TRANSMISSION MAIN, PHASE III STA. 80+00 TO STA. 88+00 PLAN AND PROFILE	PROJECT NO. 15-6259
								DRAWN BY J.A.B.	DATE 05/06/2016		CHECKED BY J.A.B.

Maggi *[Signature]* 5/19/16

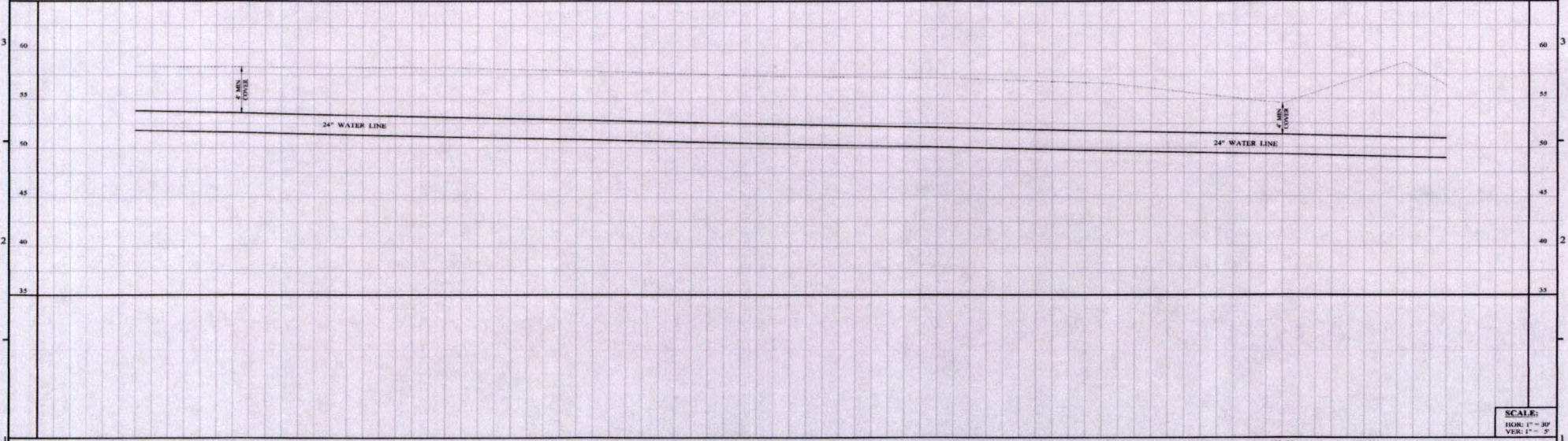


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1	ISSUED SHEET	03/16/2016					DRAWN BY	J.C.K.	DATE	05/16/2016		CHECKED BY	J.A.B.
											SHEET No.	C-14	

Maggi 5/19/16



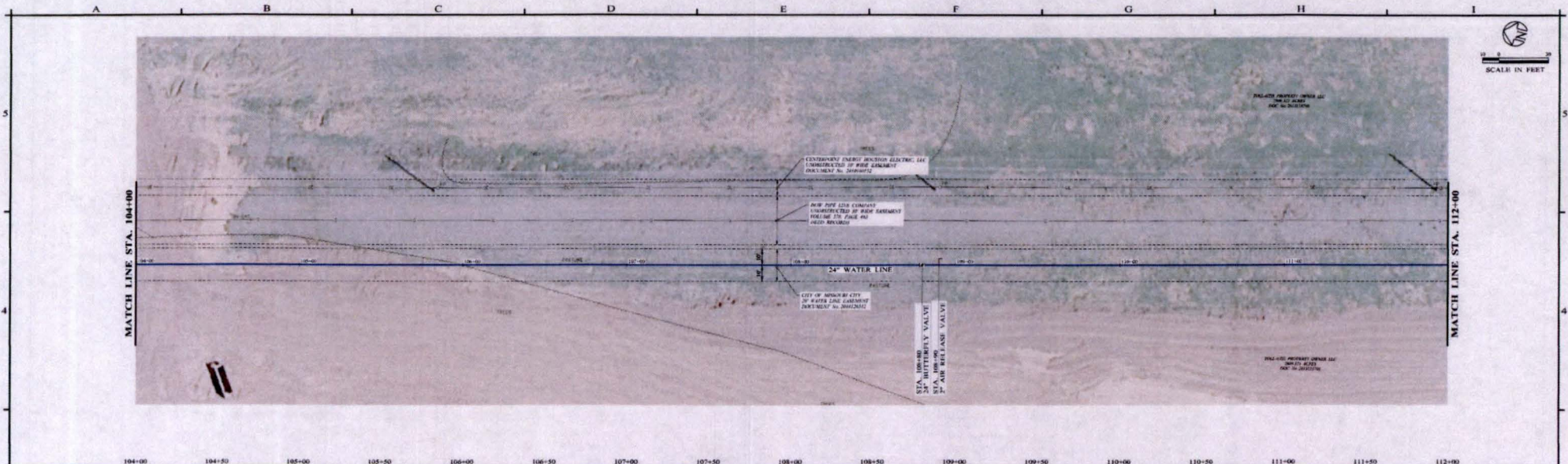
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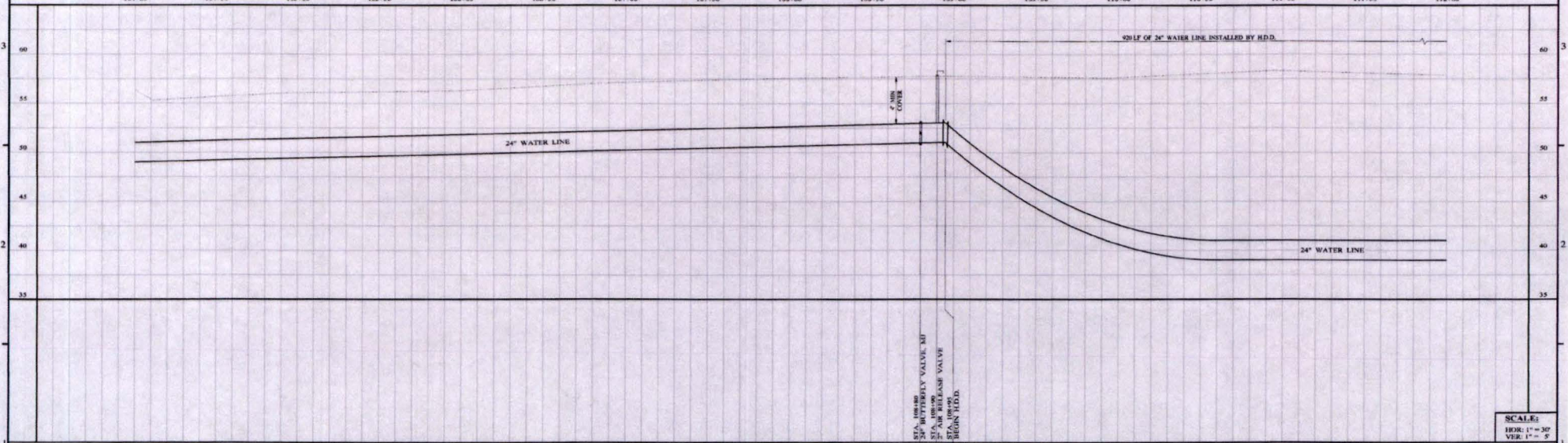
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HOR: 1" = 30'
VER: 1" = 2'

NO. REVISION DATE		03/30/2016				ENPROTEC/HIBBS & TODD, INC. ENVIRONMENTAL AND CIVIL ENGINEERING 402 Cedar Street 325-688-5560 RPLS Firm Registration Nos. 10011900 & 10007300	BAR IS ONE INCH ON ORIGINAL DRAWING G I IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY.	DESIGNED BY J.A.B.	SCALE AS NOTED	CITY OF MISSOURI CITY REGIONAL WATER TREATMENT PLANT WATER TRANSMISSION MAIN, PHASE III STA. 96+00 TO STA. 104+00 PLAN AND PROFILE	PROJECT NO.: 15-6259
1	BID SET	05/16/2016						DRAWN BY S.J.C.	DATE 05/06/2016		CHECKED BY J.A.B.
										SHEET No. C-15	

Maggi *LA* *5/19/16*



SCALE IN FEET
1" = 30'



SCALE:
HOR. 1" = 30'
VER. 1" = 5'

NO.	REVISION	DATE
1	BID SET	05/16/2016

05/06/2016
John B.



ENPROTEC/HIBBS & TODD, INC.
 ENVIRONMENTAL AND CIVIL ENGINEERING
 402 Cedar Street
 325-668-5560
 Peoria, Illinois 61601
 PE Firm Registration No. 11151
 PG Firm Registration No. 50163
 RPLS Firm Registration Nos. 10011900 & 10007300

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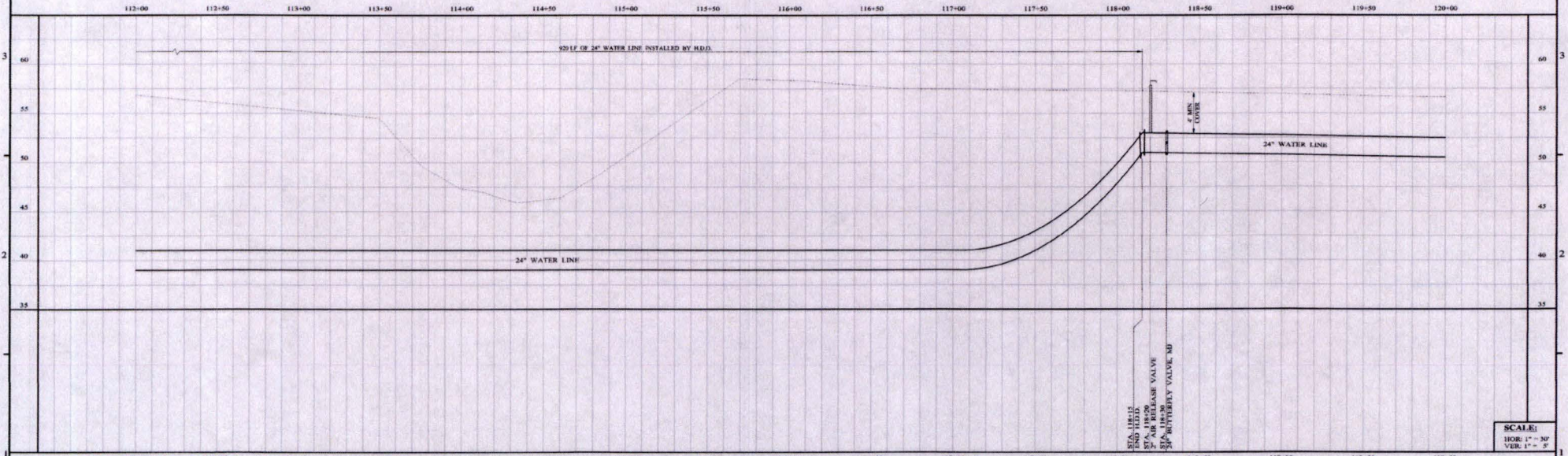
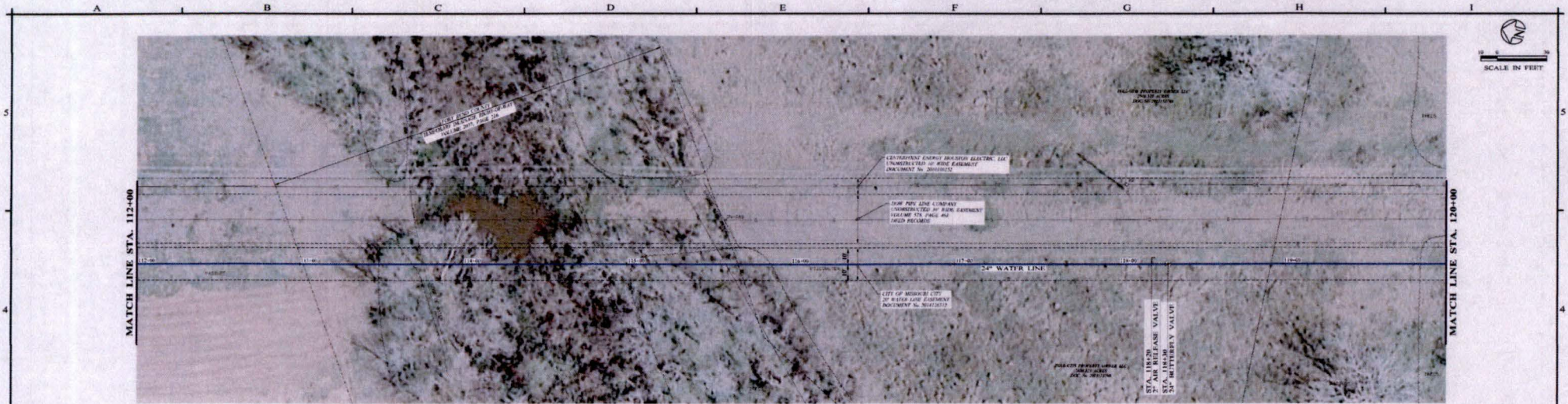
DESIGNED BY
 L.A.B.
 DRAWN BY
 J.K.
 CHECKED BY
 L.A.B.

SCALE
 AS NOTED
 DATE
 05/06/2016

**CITY OF MISSOURI CITY
 REGIONAL WATER TREATMENT PLANT
 WATER TRANSMISSION MAIN, PHASE III
 STA. 104+00 TO STA. 112+00
 PLAN AND PROFILE**

PROJECT NO.:
15-6259
 SEQUENCE No.
18 OF 32
 SHEET No.
C-16

Maggi 5/19/16



NO.	REVISION	DATE
1	WHD SBT	05/16/2016



eht **ENPROTEC/HIBBS & TODD, INC.**
 ENVIRONMENTAL AND CIVIL ENGINEERING
 402 Cedar Street
 325-698-5560
 Abilene, Texas 79601
 PE Firm Registration No. 1151
 EC Firm Registration No. 52152
 RPLS Firm Registration Nos. 1001960 & 10007300

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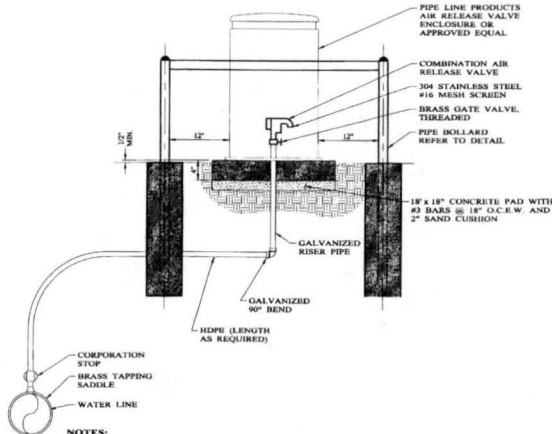
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 I.A.B.
 AS NOTED
 DRAWN BY
 J.S.C.
 CHECKED BY
 I.A.B.
 DATE
 05/06/2016

CITY OF MISSOURI CITY
REGIONAL WATER TREATMENT PLANT
WATER TRANSMISSION MAIN, PHASE III
STA. 112+00 TO STA. 120+00
PLAN AND PROFILE

PROJECT NO.: **15-6259**
 SEQUENCE No. **19 OF 32**
 SHEET No. **C-17**

Maggi 5/19/16

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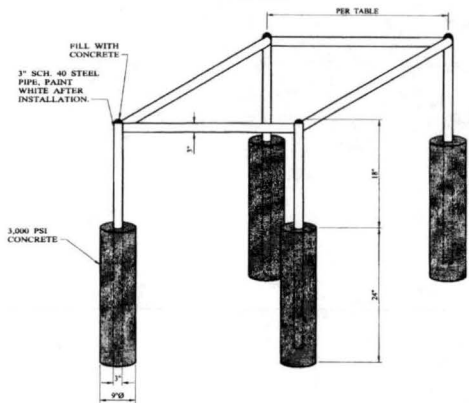


NOTES:

1. ALL ITEMS USED SHALL BE FROM THE CITY OF MISSOURI CITY APPROVED PRODUCTS LIST OR ENGINEER APPROVED EQUAL.
2. CONTRACTOR SHALL ENSURE A POSITIVE SLOPE ON ALL PIPING FROM THE WATER LINE MAIN TO THE AIR RELEASE VALVE.
3. ALL CONNECTION POINTS REQUIRE INTERNAL STIFFENERS WHEN HDPE PIPE IS USED.
4. AIR RELEASE VALVE ENCLOSURE SIZE SHALL BE SELECTED BASED ON BRAND OF AIR RELEASE VALVE CHOSEN BY THE CONTRACTOR. ADJUST SIZE OF CONCRETE PAD ACCORDINGLY. AIR RELEASE VALVE ENCLOSURE SHALL BE SECURED TO THE CONCRETE PAD BY BOLTING. CONTRACTOR SHALL PROVIDE AND INSTALL PAD LOCK ON VALVE ENCLOSURE. KEY SHALL BE PROVIDED TO OWNER PRIOR TO PROJECT CLOSEOUT. CONTRACTOR SHALL DRILL AND INSTALL CONCRETE ANCHORS IN PATTERN MATCHING VALVE ENCLOSURE.
5. AIR RELEASE VALVE PAD TO BE HORIZONTALLY LOCATED IN THE FIELD AT THE HIGH POINTS SHOWN ON THE DRAWINGS. ENTIRE AIR RELEASE VALVE PAD MUST BE LOCATED WITHIN THE WATER LINE EASEMENT OR STREET R.O.W.

AIR RELEASE VALVE DETAIL

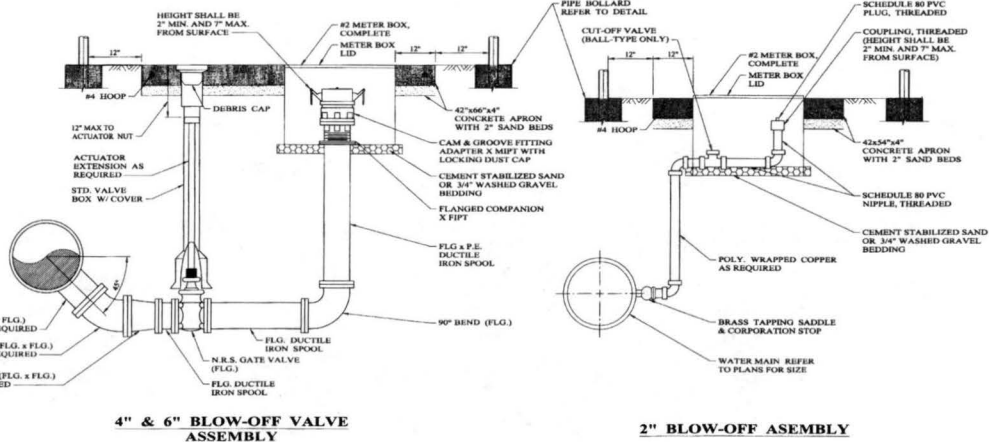
NO SCALE



PIPE BOLLARD DETAIL

NO SCALE

	LENGTH	WIDTH
AIR RELEASE VALVES	36"	36"
4" BLOW-OFF VALVES	90"	66"
2" BLOW-OFF VALVES	78"	66"
FIBER OPTIC PULL BOXES	64"	72"
BUTTERFLY VALVE	36"	36"

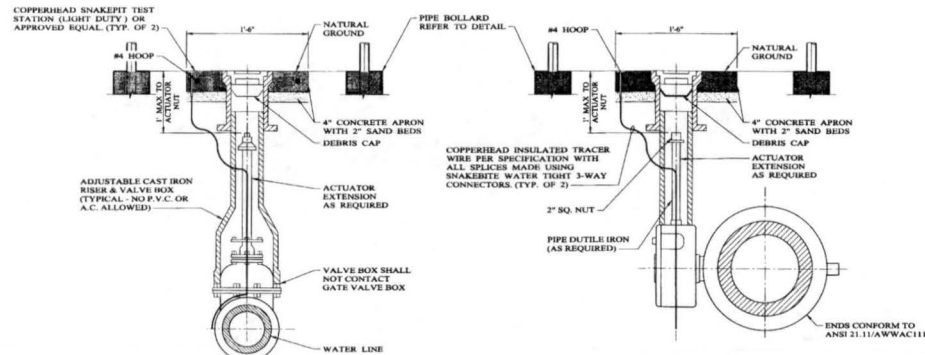


4" & 6" BLOW-OFF VALVE ASSEMBLY

NOTES

1. PIPING GREATER THAN 2" SHALL BE DUCTILE IRON PIPE CLASS 53 WITH FLANGED CONNECTIONS. ALL VENT PIPING 2" AND LESS SHALL BE SCHEDULE 80 PVC.
2. ALL FITTINGS TO BE 150 P.S.I. RATED & ANSI/ASME CLASS 1B POLYETHYLENE COVERING.
3. ALL DUCTILE IRON PIPE BELOW GRADE SHALL BE WRAPPED IN APPROVED POLYETHYLENE COVERING.
4. ALL ITEMS SHALL BE ON THE CITY OF MISSOURI CITY APPROVED PRODUCTS LIST.
5. ALL MECHANICAL JOINT CONNECTIONS TO HDPE PIPE REQUIRE INTERNAL STIFFENERS.
6. CONTRACTOR SHALL SUBMIT ANY SUBSTITUTIONS OF FITTINGS TO ENGINEER FOR APPROVAL.
7. AN ADDITIONAL 90° BEND SHALL BE INSTALLED WHEN REQUIRED TO FIELD LOCATE THE LONG SIDE OF BLOW-OFF VALVE PADS PARALLEL TO THE WATER LINE.

2" BLOW-OFF ASSEMBLY



GATE VALVE BOX INSTALLATION DETAIL

BUTTERFLY VALVE

NOTES

1. DEBRIS CAP SHALL BE AS MANUFACTURED BY SW SERVICES, LLC OR ENGINEER APPROVED EQUAL.
2. DEBRIS CAP HANDLE COLOR CODE: GATE VALVE - BLACK; BUTTERFLY VALVE - YELLOW.

NO.	REVISION	DATE
1	BID SET	05/16/2016



eHT ENPROTEC/HIBBS & TODD, INC.
 ENVIRONMENTAL AND CIVIL ENGINEERING
 402 Cedar Street
 325-696-5060
 PE Firm Registration No. 1151
 PG Firm Registration No. 52103
 RPLS Firm Registration Nos. 10011900 & 10007200

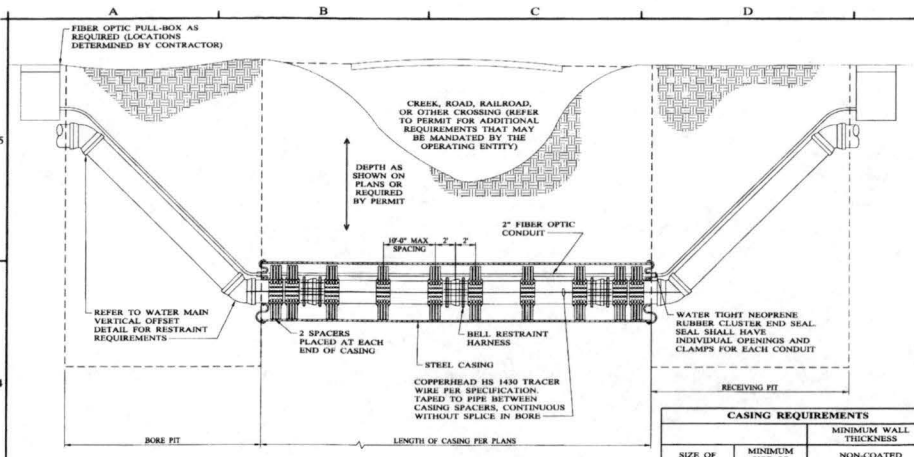
DESIGNED BY J.A.B.	SCALE NO SCALE
DRAWN BY J.A.C.	DATE 05/16/2016
CHECKED BY J.A.B.	

**CITY OF MISSOURI CITY
REGIONAL WATER TREATMENT PLANT**

CIVIL DETAILS I

PROJECT NO.: 15-6259
SEQUENCE No. 21 OF 32
SHEET No. C-19

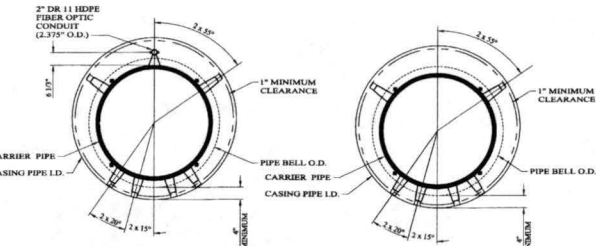
Maggi D... 5/19/16



PIPE CASING DETAIL
N.T.S.

CASING REQUIREMENTS		
SIZE OF CARRIER PIPE	MINIMUM SIZE OF CASING	MINIMUM WALL THICKNESS
12"	18"	0.312"
14"	20"	0.400"
16"	22"	0.500"
18"	24"	0.531"
20"	26"	0.563"
24"	30"	0.563"
30"	36"	0.625"
36"	42"	0.750"
48"	60"	0.787"

- NOTES**
- SPACERS SHOULD BE SIZED TO SECURELY FASTEN ONTO THE CARRIER PIPE BARREL O.D. AND A CASING SPACER SHOULD BE USED WITH A MINIMUM RUNNER HEIGHT TO KEEP THE PIPE FROM RESTING OR SLIDING ON ITS JOINT DURING INSTALLATION.
 - SPACERS SHOULD BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. SPECIAL CARE SHOULD BE TAKEN TO ENSURE THAT ALL COMPONENT PARTS ARE CORRECTLY ASSEMBLED AND EVENLY TIGHTENED, AND THAT NO DAMAGE OCCURS DURING TIGHTENING OF THE SPACERS OR THE CARRIER PIPE INSERTION THE ANNULUS BETWEEN THE CARRIER PIPE AND THE CASING SHOULD BE SEALED AT EACH END OF THE CASING TO PREVENT WATER FROM ENTERING.
 - THERE MUST BE NO INADVERTENT CONTACT BETWEEN THE CASING AND THE CARRIER PIPE. THE POSITIONING OF SPACERS SHOULD ENSURE THAT THE CARRIER PIPE HAS A MINIMUM OF THREE (3) FEET OF COVER AT THE LOWEST POINT OF THE BORE DITCH ON EITHER END OF THE CASING.
 - CASING SHALL BE PLACED AT SUFFICIENT DEPTH TO ENSURE THE CARRIER PIPE HAS A MINIMUM OF THREE (3) FEET OF COVER AT THE LOWEST POINT OF THE BORE DITCH ON EITHER END OF THE CASING.
 - CASING SPACERS SHALL BE USED TO INSTALL THE CARRIER PIPE INSIDE THE ENCASUREMENT PIPE. CASING SPACERS SHALL FASTEN TIGHTLY ONTO THE CARRIER PIPE SO THAT WHEN THE CARRIER PIPE IS BEING INSTALLED THE SPACERS WILL NOT MOVE ALONG THE PIPE-LINE. CASING SPACERS SHALL BE DOUBLED ON EACH END OF THE ENCASUREMENT.
 - EACH CASING SPACER SHALL BE CAPABLE OF PROVIDING SUPPORT FOR THE CARRIER PIPE IN SERVICE.
 - CONTRACTOR SHALL USE CARE WHEN INSTALLING PVC PIPE WITHIN CASING TO PREVENT "OVER-BELLING" OF THE PIPE JOINT RESTRAINT DEVICES SHALL BE INSTALLED ON ALL JOINTS WITHIN THE CASING AND THE PIPE SHALL BE PULLED THROUGH THE CASING DURING INSTALLATION. CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING JOINT RESTRAINTS WILL FIT INSIDE CASING PRIOR TO CONSTRUCTION.
 - BORE AND RECEIVING PITS SHALL BE FIELD LOCATED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ALL REQUIRED DIMENSIONS, SHORING, FLOOR SLAB MATERIALS, TOTAL DEPTH, AND METHOD OF DIGGING.
 - BORE AND RECEIVING PITS SHALL REQUIRE TRENCH PROTECTION, SHORING, BRACING, ETC. ALL EXCAVATION SAFETY SYSTEMS SHALL MEET THE REQUIREMENTS OF OSHA 29CFR 1926 AND DESIGNED BY AN ENGINEER REGISTERED IN THE STATE OF TEXAS. DESIGN OF THE BORE AND RECEIVING PITS SHALL BE INCLUDED IN THE CONTRACTOR'S PLAN AS STIPULATED IN SECTION 02220. NO SEPARATE PAY.
 - BORE AND RECEIVING PITS SHALL REQUIRE DEWATERING. CONTRACTOR SHALL DESIGN, IMPLEMENT AND MAINTAIN ALL DEWATERING SYSTEMS NECESSARY INCLUDING BUT NOT LIMITED TO SUMP PUMPS, WELL POINTS, ETC. TO SAFELY AND EFFICIENTLY COMPLETE THE BORING OPERATIONS.
 - CONTRACTOR IS REQUIRED TO DEVELOP AND SUBMIT A SURFACE SETTLEMENT MONITORING PLAN PRIOR TO BEGINNING BORING OPERATIONS. REFER TO SECTION 02410.
 - ALL COSTS ASSOCIATED WITH THE BORE AND RECEIVING PITS INCLUDING BUT NOT LIMITED TO EXCAVATION SAFETY SYSTEMS, DEWATERING, MONITORING, AND ACTUAL CONSTRUCTION COSTS ARE INCIDENTAL TO THE BORING BID ITEM. NO SEPARATE PAY.

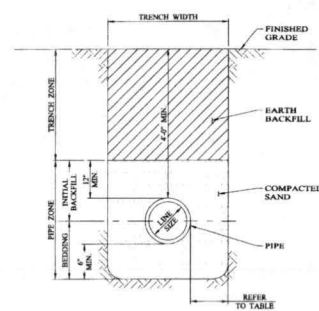


CASING SPACING DETAIL WITH FIBER OPTIC CONDUIT **CASING SPACER DETAIL**

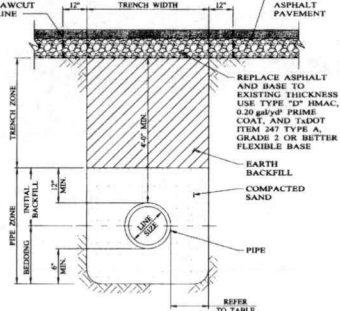
- NOTES:**
- RISERS SHALL BE 10 GA STEEL (12" LENGTH)
 - BANDS SHALL BE 14 GA STEEL (12" LENGTH)
 - STEEL SPACERS SHALL BE PVC COATED
 - SKIDS SHALL BE GLASS FILLED POLYMER (2" WIDE x 1.5" HIGH x 17" LENGTH)
 - SPACERS SHALL BE MANUFACTURED BY PIPELINE SEAL & INSULATOR INC. OR APPROVED EQUAL.

PIPE SIZE	TRENCH WIDTH
18"	O.D. + 18"
18" - 24"	O.D. + 24"
30" - 42"	O.D. + 36"
48"	O.D. + 48"

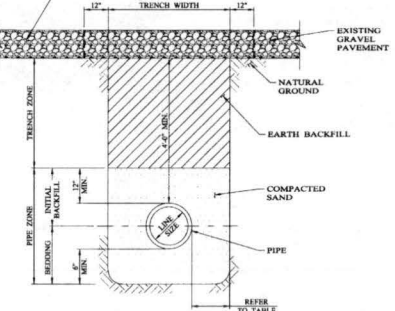
- CONSTRUCTION NOTES**
- CONTRACTOR SHALL CONTACT RESIDENT INSPECTOR IMMEDIATELY IF WET SAND CONDITIONS ARE ENCOUNTERED.
 - REFER TO SPECIFICATION SECTION 02225-3.3 & 3.5 COMPACTION REQUIREMENTS.
 - NO BEDDING SHALL BE INSTALLED IN WET CONDITIONS WHEN WELL POINTING OR IN WET SAND CONDITIONS. MAINTAIN GROUND WATER 1(FEET) BELOW BOTTOM OF TRENCH FOR A MINIMUM OF 24 HRS AFTER BEDDING AND BACKFILL IS IN PLACE. REFER TO SPECIFICATION 02225-3.2 A.10.
 - ALL MATERIALS SHALL BE FROM THE APPROVED PRODUCTS LIST UNLESS SPECIFICALLY APPROVED BY THE CITY ENGINEER.
 - REFER TO SPECIFICATION 02225-3.2 A.8 FOR ADDITIONAL BEDDING REQUIREMENTS IN WET CONDITIONS AS DETERMINED BY ENGINEER.
 - ALL SAND BEDDING FOR WATER LINES SHALL BE CLEAN, MECHANICALLY COMPACTED
 - REFER TO CITY OF MISSOURI CITY MANHOLE DETAILS, C.S.S., GENERAL, WATER CROSSING, WATER DISTRIBUTION DETAILS AND NOTES.



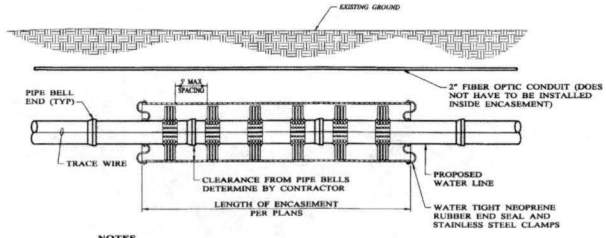
DETAIL "A" PIPE BEDDING & BACKFILL
OUTSIDE PAVEMENT



DETAIL "B" PIPE BEDDING & BACKFILL
UNDER EXISTING ASPHALT PAVEMENT



DETAIL "C" PIPE BEDDING & BACKFILL
UNDER EXISTING GRAVEL SURFACE



- NOTES**
- FLEXIBLE ENCASUREMENT PIPE SHALL BE INSTALLED WHEN CLEARANCE BETWEEN PROPOSED WATER LINE AND EXISTING WASTEWATER LINES DOES NOT MEET THE REQUIREMENTS OF TCEQ 290.44(C).
 - FLEXIBLE ENCASUREMENT PIPE MUST HAVE A PIPE STIFFNESS OF 115 ppi AT 5% DEFLECTION. ALLOWABLE ENCASUREMENT PIPE MATERIAL IS ASTM F697 PS 115, AWWA C-905 PIPE, AWWA C-906 DR 17, OR APPROVED EQUAL.
 - SIZE OF ENCASUREMENT PIPE SHALL BE SELECTED BY THE CONTRACTOR. IN NO CASE MAY THE ENCASUREMENT PIPE BE SMALLER THAN 2 NOMINAL PIPE SIZES LARGER THAN THE PROPOSED WATER LINE. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING CLEARANCE OF THE PIPE BELLS WHEN SELECTING ENCASUREMENT SIZE.

FLEXIBLE ENCASUREMENT DETAIL

NO.	REVISION	DATE
1	BID SET	05/16/2016



ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
325-698-5560
Arlene, Texas 79601
Registration No. 15115
PG Firm Registration No. 50103
RPLS Firm Registration Nos. 10071900 & 10007300

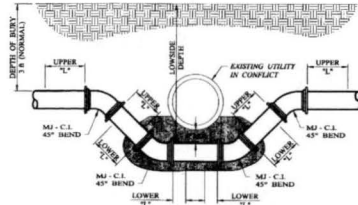
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DESIGNED BY: J.A.B.
SCALE: NO SCALE
DRAWN BY: S.C.
DATE: 05/06/2016
CHECKED BY: J.A.B.

CITY OF MISSOURI CITY
REGIONAL WATER TREATMENT PLANT
CIVIL DETAILS II

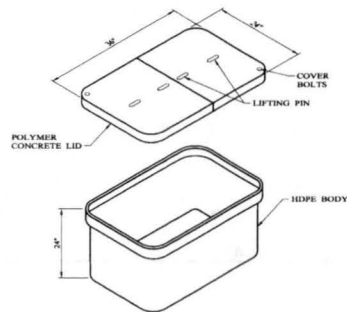
PROJECT NO.: 15-6259
SEQUENCE No. 22 OF 32
SHEET No. C-20

Maggi 5/19/16

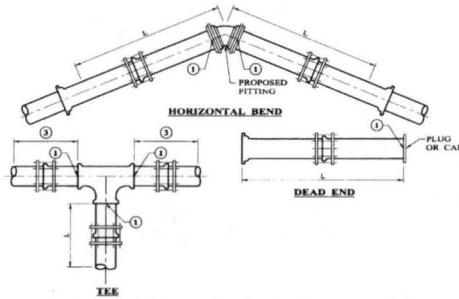


PIPE SIZE	THURST RESTRAINT TABLE	LOWSIDE DEPTH							
		6'	8'	10'	12'	14'	16'	18'	20'
8"	UPPER "L"	10	10	10	10	10	10	10	10
	LOWER "L"	4	3	3	2	2	2	2	2
12"	UPPER "L"	23	23	23	23	23	23	23	23
	LOWER "L"	6	4	4	3	3	2	2	2
14"	UPPER "L"	27	27	27	27	27	27	27	27
	LOWER "L"	6	5	4	4	3	3	3	2
18"	UPPER "L"	33	33	33	33	33	33	33	33
	LOWER "L"	8	6	5	4	4	3	3	3
20"	UPPER "L"	36	36	36	36	36	36	36	36
	LOWER "L"	8	7	5	5	4	4	3	3
24"	UPPER "L"	42	42	42	42	42	42	42	42
	LOWER "L"	10	8	6	5	5	4	4	4
30"	UPPER "L"	51	51	51	51	51	51	51	51
	LOWER "L"	12	9	8	7	6	5	5	4
36"	UPPER "L"	59	59	59	59	59	59	59	59
	LOWER "L"	13	11	9	8	7	6	5	5

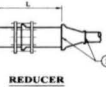
WATER MAIN VERTICAL OFFSET DETAIL
NO SCALE



FIBER OPTIC PULLBOX DETAIL



TYPE FITTING	THURST RESTRAINT TABLE							
	8"	12"	14"	16"	20"	24"	30"	36"
90° BEND	13	18	21	23	28	32	38	44
45° BEND	4	4	5	5	7	8	10	12
22.5° BEND	3	4	5	5	6	7	8	9
11.25° BEND	2	2	2	2	3	4	4	5
DEAD END	28	32	32	32	38	44	52	60
TEE	14	14	14	14	18	22	28	34
REDUCER	42	32	32	32	32	32	32	32

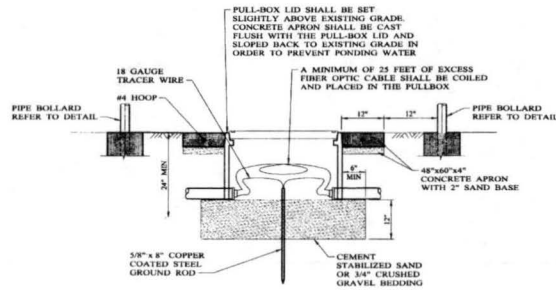


FOR ADDITIONAL RESTRAINT AT HELL AND SPIGOT CONNECTIONS ALONG STRAIGHT RUN OF PIPE.

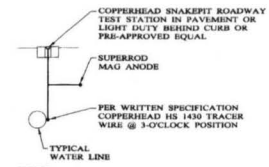
NOTES:

- INSTALL MECHANICAL THRUST RESTRAINT GLANDS AT ALL FITTINGS.
- ALL RESTRAINED LENGTHS HAVE BEEN CALCULATED AT THE MINIMUM COVER OF 4'. AT LOCATIONS WHERE FITTINGS ARE TO BE INSTALLED DEEPER THAN 4' THE RESTRAINED LENGTHS MAY BE REDUCED. CONTRACTOR SHALL SUBMIT ANY REDUCTIONS IN RESTRAINED LENGTH TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
- RESTRAINED LENGTHS FOR TEES HAVE BEEN CALCULATED ASSUMING A FULL JOINT OF PIPE WILL BE INSTALLED ON EACH SIDE OF THE TEE ALONG THE RUN. IF A JOINT WILL BE INSTALLED CLOSER THAN 20' TO THE TEE, THE CONTRACTOR MUST SUBMIT AN ALTERNATE RESTRAINT PLAN TO THE ENGINEER PRIOR TO CONSTRUCTION.

THRUST RESTRAINT DETAIL
NO SCALE

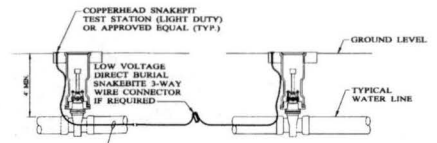


FIBER OPTIC PULLBOX INSTALLATION DETAIL



NOTE
1. INSTALL ANODES AT MAXIMUM DISTANCE AS RECOMMENDED BY THE MANUFACTURER.

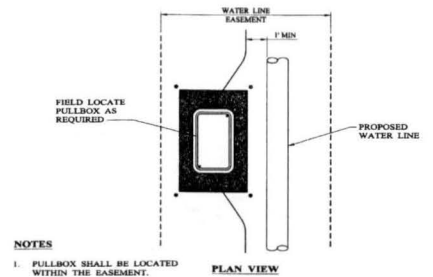
DETAIL "B"
NO SCALE



NOTES

- REFER TO TECHNICAL SPECIFICATIONS FOR TRACER WIRE INSTALLATION.
- TRACER WIRE MUST BE INSTALLED PER DETAIL "B" AND SHALL BE TAPED TO THE PIPE AT 10' INTERVALS.

UTILITY PIPE LOCATION MATERIALS DETAIL
NO SCALE

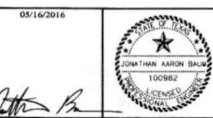


NOTES

- PULLBOX SHALL BE LOCATED WITHIN THE EASEMENT.
- PULLBOX SHALL NOT BE LOCATED ABOVE THE WATER LINE.

FIBER OPTIC CONDUIT LOCATION DETAIL

NO.	REVISION	DATE
1	BID SET	05/16/2016



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RPLS Firm Registration Nos. 10071900 & 10007200

DESIGNED BY: J.A.B.
DRAWN BY: J.A.C.
CHECKED BY: J.A.B.
SCALE: NO SCALE
DATE: 05/16/2016

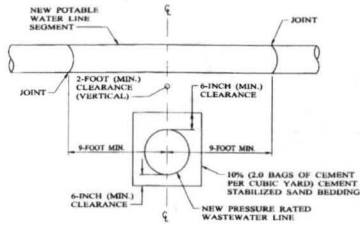
CITY OF MISSOURI CITY
REGIONAL WATER TREATMENT PLANT
CIVIL DETAILS III

PROJECT NO.: 15-6259
SEQUENCE No. 23 OF 32
SHEET No. C-21

Maggi 5/19/16

NOTE

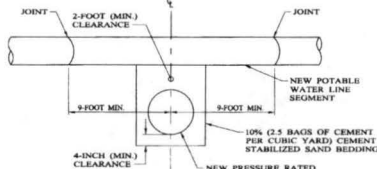
NEW POTABLE WATER LINE CROSSING NEW PRESSURE RATED WASTEWATER LINE WITH SEGMENT LENGTHS OF EIGHTEEN (18) FEET OR GREATER, HAVING 2 FEET OF VERTICAL CLEARANCE AND 4 FEET OF HORIZONTAL CLEARANCE.



NOTES

- WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN JOINTS OF THE WASTEWATER LINE.
- MINIMUM WASTEWATER PIPE STIFFNESS OF 115 PSI AT 3% DEFLECTION.
- EMBED WASTEWATER LINE IN CEMENT STABILIZED SAND TO AT LEAST 12" INCHES BEYOND EACH JOINT OF CROSSING SECTION OF PIPE.

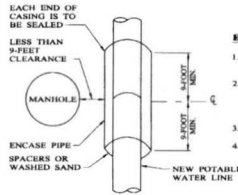
DETAIL OF WATER LINE CROSSING WASTEWATER FACILITIES WHERE SEPARATION IS LESS THAN 9 FEET



NOTES

- WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN JOINTS OF THE WASTEWATER LINE.
- MINIMUM WASTEWATER PIPE STIFFNESS OF 115 PSI AT 3% DEFLECTION.
- EMBED WASTEWATER LINE IN CEMENT STABILIZED SAND TO AT LEAST 12" INCHES BEYOND EACH JOINT OF CROSSING SECTION OF PIPE.

NEW POTABLE WATER LINE CROSSING NEW PRESSURE RATED WASTEWATER LINE



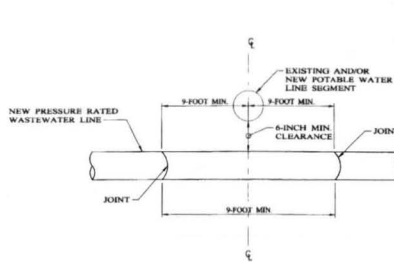
ENCASING PIPE

- 150 PSI PRESSURE CLASS PIPE MINIMUM 18 FEET LONG DIAMETER = 2x WATER LINE DIAMETER.
- SPACE AROUND CARRIER PIPE SHALL BE SUPPORTED AT FIVE (5) FOOT (OR LESS INTERVALS WITH SPACERS) OR SHALL BE FILLED TO THE SPRINGLINE WITH WASHED SAND.
- CENTERED ON CROSSING.
- BOTH ENDS SEALED WITH CEMENT GROUT OR A MANUFACTURED WATER TIGHT SEAL.

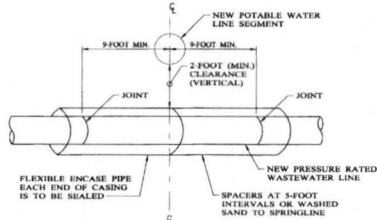
MANHOLE CLEARANCE

GENERAL NOTES:

- CONTRACTOR SHALL CONTACT THE RESIDENT INSPECTOR IF WET SAND OR OTHER UNSTABLE SOIL CONDITIONS, HIGH WATER TABLE AND/OR UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED.
- 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.
- CEMENT STABILIZED BEDDING SHALL BE A MINIMUM 2 SACK PER TON C.S.S. INSTALLED IN MAXIMUM LIFTS OF 8 INCHES AND MECHANICALLY TAMPED TO 90% PROCTOR.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- IN NO INSTANCE SHALL A FIRE HYDRANT BE INSTALLED WITHIN 15 FEET OF A SANITARY SEWER SYSTEM.
- 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.



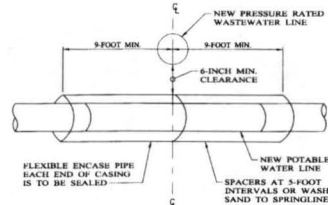
**ALTERNATIVE A:
PRESSURE RATED WASTEWATER PIPE**



NOTE

MINIMUM 18 (FEET) OF 150 PSI PRESSURE RATED WASTEWATER LINE

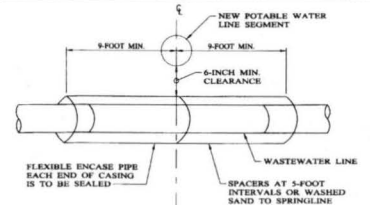
**ALTERNATIVE B:
EXISTING POTABLE WATER LINE CROSSING EXISTING PRESSURE RATED WASTEWATER LINE**



NOTE

SAME ENCASUREMENT CRITERIA AS "ALTERNATIVE B" OR NEW WATER LINE (WITHOUT CASING) TO BE CONSTRUCTED OF PVC C-900 (DR-18), DUCTILE IRON WITH MECHANICAL JOINT OR STEEL PIPE WITH WELDED JOINTS. BOTH WATER LINE AND WASTEWATER LINE MUST PASS A PRESSURE AND LEAKAGE TEST AS SPECIFIED IN AWWA C600 STANDARDS.

**ALTERNATIVE C:
ENCASE NEW POTABLE WATER LINE UNDER A NEW PRESSURE RATED WASTEWATER LINE**



GENERAL NOTES

- MINIMUM CASING PIPE STIFFNESS OF 115 PSI AT 3% DEFLECTION.
- MINIMUM CASING PIPE DIAMETER = 2x WASTEWATER LINE DIAMETER.
- THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE (5) FOOT (OR LESS) INTERVALS WITH SPACERS OR SHALL BE FILLED TO THE SPRINGLINE WITH WASHED SAND.
- EACH END CASING IS TO BE SEALED WITH WATER TIGHT NON-SHRINK GROUT OR MANUFACTURED WATER TIGHT SEAL.

ENCASED WASTEWATER LINE

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

NO.	REVISION	DATE	05/06/2016
1	BID SET	05/16/2016	



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 Abilene, Texas 79601
 PE Firm Registration No. 1151
 PG Firm Registration No. 50103
 RPLS Firm Registration Nos. 10011800 & 10007300

DESIGNED BY J.A.B.	SCALE NO SCALE
DRAWN BY S.X.	DATE 05/06/2016
CHECKED BY J.A.B.	

**CITY OF MISSOURI CITY
 REGIONAL WATER TREATMENT PLANT
 CIVIL DETAILS IV**

PROJECT NO: 15-6259
SEQUENCE No. 24 OF 32
SHEET No. C-22

Maggi 5/19/16

A B C D E F G H I

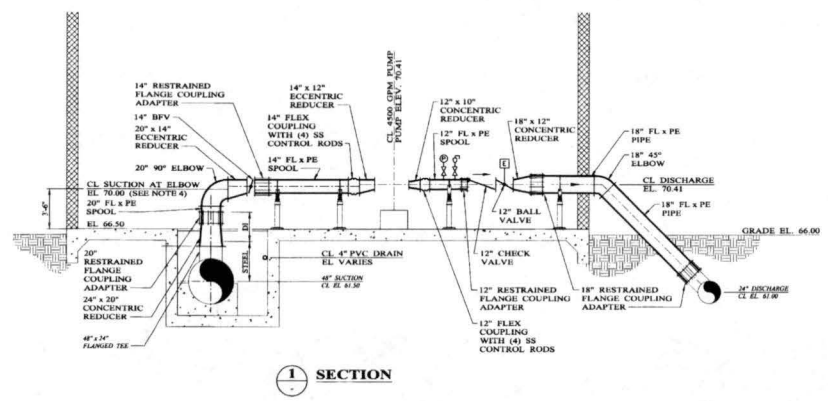
TAGGING CONVENTION

EQUIP-AREA#SUBAREA#UNIT#ITEM#
 XXXX-XXXXXXX EQUIPMENT CODE (2-4 CHARACTERS)
 XXXX-XXXXXXX AREA CODE (2 DIGITS)
 XXXX-XXXXXXX SUB-AREA CODE (2 DIGITS)
 XXXX-XXXXXXX UNIT NUMBER (00)
 XXXX-XXXXXXX ITEM NUMBER (SEQUENTIAL)
 EXAMPLE:
 BV-05400109 = 9th BUTTERFLY VALVE ON THE FIRST MEMBRANE
 RACK FOR THE CIP PROCESS IN THE MEMBRANE BUILDING.

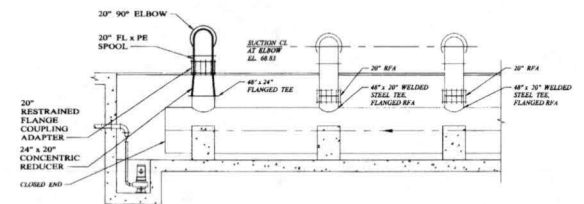
SUB-AREA CODE	
SUB-AREA	LOCATION
15	SEWAGE WATER PLANT #1

AREA CODE	
AREA	LOCATION
07	TRANSFER PUMP STATION
13	OFF-SITE

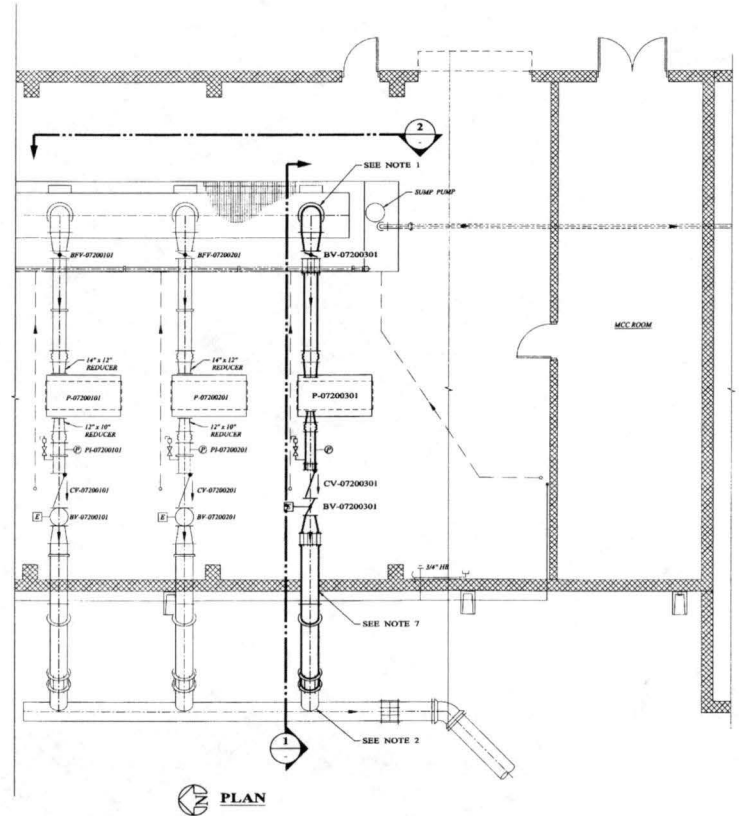
EQUIPMENT CODE	
EQUIPMENT CODE	DESCRIPTION
AV	COMBINATION AIR RELEASE/VACUUM VALVE
BV	BUTTERFLY VALVE
BV	BALL VALVE
CV	CHECK VALVE
FCV	FLOW CONTROL VALVE
FM	FLOW METER
GV	GATE VALVE
P	PUMP
PI	PRESSURE GAUGE



1 SECTION



2 SECTION



PLAN

- NOTES:**
- CONTRACTOR SHALL CUT HOLE IN EXISTING ALUMINUM GRATING. OPENING SHALL BE BANDED.
 - CONTRACTOR SHALL REMOVE EXISTING 18" BLIND FLANGE AND CONNECT PIPING AS SHOWN. NOTE THAT THIS AREA WAS PREVIOUSLY BACKFILLED WITH LIMB-STABILIZED MATERIAL THAT IS VERY HARD.
 - PUMP P-07200101 IS A NEW 3,500 GPM PUMP. EXISTING PUMP TO BE REMOVED AND DISPOSED OF BY CONTRACTOR.
 - PUMP P-07200201 IS A NEW 4,500 GPM PUMP. EXISTING PUMP TO BE REMOVED AND DISPOSED OF BY CONTRACTOR.
 - NEW PUMPS THAT ARE REPLACING EXISTING PUMPS SHALL BE FABRICATED TO MEET EXISTING PIPING ELEVATIONS. CONTRACTOR MAY, AT HIS OWN EXPENSE, HAVE TO EXTEND OR SHORTEN ONE OR BOTH OF THE EXISTING FLOPE PIPE SPOOLS.
 - AIR RELEASE VALVE VENT SHALL BE PIPED TO DRAIN WITH 1" SS TUBING.
 - CONTRACTOR SHALL CORE WALL AND SEAL PER DETAIL F ON SHEET M-05.

NO.	REVISION	DATE
1	BID SET	05/16/2016



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 402 Cedar Street
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 Abilene, Texas 79601
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 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

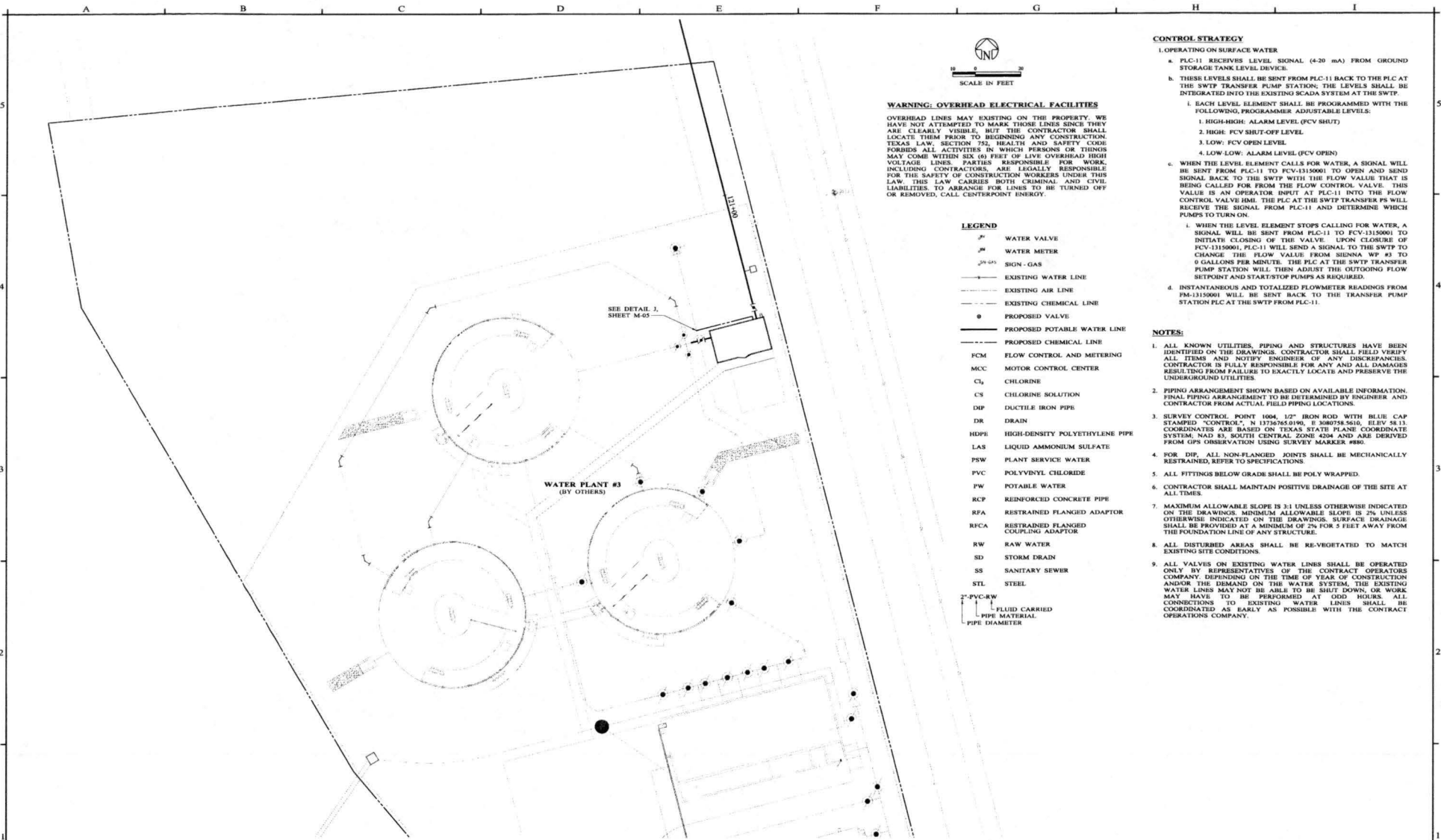
DESIGNED BY J.S.H.	SCALE 3/16" = 1'-0"
DRAWN BY J.A.C.	DATE 05/06/2016
CHECKED BY J.S.H.	

**CITY OF MISSOURI CITY
 REGIONAL WATER PLANT #1**
**TRANSFER PUMP STATION
 PLAN AND SECTIONS**

PROJECT NO. 15-6259
SEQUENCE No. 25 OF 32
SHEET No. M-01

Maggs 5/19/16

A B C D E F G H I



WARNING: OVERHEAD ELECTRICAL FACILITIES

OVERHEAD LINES MAY EXISTING ON THE PROPERTY. WE HAVE NOT ATTEMPTED TO MARK THOSE LINES SINCE THEY ARE CLEARLY VISIBLE, BUT THE CONTRACTOR SHALL LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 72, HEALTH AND SAFETY CODE FORBIDS ALL ACTIVITIES IN WHICH PERSONS OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES. PARTIES RESPONSIBLE FOR WORK, INCLUDING CONTRACTORS, ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITIES. TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED, CALL CENTERPOINT ENERGY.

- LEGEND**
- 1" WATER VALVE
 - 1" WATER METER
 - 2 1/2" GAS SIGN - GAS
 - EXISTING WATER LINE
 - EXISTING AIR LINE
 - EXISTING CHEMICAL LINE
 - PROPOSED VALVE
 - PROPOSED POTABLE WATER LINE
 - PROPOSED CHEMICAL LINE
 - FCM FLOW CONTROL AND METERING
 - MCC MOTOR CONTROL CENTER
 - CL CHLORINE
 - CS CHLORINE SOLUTION
 - DI DUCTILE IRON PIPE
 - DR DRAIN
 - HDPE HIGH-DENSITY POLYETHYLENE PIPE
 - LAS LIQUID AMMONIUM SULFATE
 - PSW PLANT SERVICE WATER
 - PVC POLYVINYL CHLORIDE
 - PW POTABLE WATER
 - RCP REINFORCED CONCRETE PIPE
 - RFA RESTRAINED FLANGED ADAPTOR
 - RFCR RESTRAINED FLANGED COUPLING ADAPTOR
 - RW RAW WATER
 - SD STORM DRAIN
 - SS SANITARY SEWER
 - STL STEEL
 - 2" PVC-RW FLUID CARRIED PIPE MATERIAL
 - PIPE DIAMETER

- CONTROL STRATEGY**
1. OPERATING ON SURFACE WATER
 - a. PLC-11 RECEIVES LEVEL SIGNAL (4-20 mA) FROM GROUND STORAGE TANK LEVEL DEVICE.
 - b. THESE LEVELS SHALL BE SENT FROM PLC-11 BACK TO THE PLC AT THE SWTP TRANSFER PUMP STATION. THE LEVELS SHALL BE INTEGRATED INTO THE EXISTING SCADA SYSTEM AT THE SWTP.
 1. EACH LEVEL ELEMENT SHALL BE PROGRAMMED WITH THE FOLLOWING, PROGRAMMER ADJUSTABLE LEVELS:
 1. HIGH-HIGH, ALARM LEVEL (FCV SHUT)
 2. HIGH, FCV SHUT-OFF LEVEL
 3. LOW, FCV OPEN LEVEL
 4. LOW-LOW, ALARM LEVEL (FCV OPEN)
 - c. WHEN THE LEVEL ELEMENT CALLS FOR WATER, A SIGNAL WILL BE SENT FROM PLC-11 TO FCV-1150001 TO OPEN AND SEND SIGNAL BACK TO THE SWTP WITH THE FLOW VALVE THAT IS BEING CALLED FOR FROM THE FLOW CONTROL VALVE. THIS VALUE IS AN OPERATOR INPUT AT PLC-11 INTO THE FLOW CONTROL VALVE HMI. THE PLC AT THE SWTP TRANSFER PUMP WILL RECEIVE THE SIGNAL FROM PLC-11 AND DETERMINE WHICH PUMPS TO TURN ON.
 1. WHEN THE LEVEL ELEMENT STOPS CALLING FOR WATER, A SIGNAL WILL BE SENT FROM PLC-11 TO FCV-1150001 TO INITIATE CLOSURE OF THE VALVE. UPON CLOSURE OF FCV-1150001, PLC-11 WILL SEND A SIGNAL TO THE SWTP TO CHANGE THE FLOW VALVE FROM SIENNA WP #3 TO 9 GALLONS PER MINUTE. THE PLC AT THE SWTP TRANSFER PUMP STATION WILL THEN ADJUST THE OUTGOING FLOW SETPOINT AND START/STOP PUMPS AS REQUIRED.
 4. INSTANTANEOUS AND TOTALIZED FLOWMETER READINGS FROM FM-1150001 WILL BE SENT BACK TO THE TRANSFER PUMP STATION PLC AT THE SWTP FROM PLC-11.

- NOTES:**
1. ALL KNOWN UTILITIES, PIPING AND STRUCTURES HAVE BEEN IDENTIFIED ON THE DRAWINGS. CONTRACTOR SHALL FIELD VERIFY ALL ITEMS AND NOTIFY ENGINEER OF ANY DISCREPANCIES. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES RESULTING FROM FAILURE TO EXACTLY LOCATE AND PRESERVE THE UNDERGROUND UTILITIES.
 2. PIPING ARRANGEMENT SHOWN BASED ON AVAILABLE INFORMATION. FINAL PIPING ARRANGEMENT TO BE DETERMINED BY ENGINEER AND CONTRACTOR FROM ACTUAL FIELD PIPING LOCATIONS.
 3. SURVEY CONTROL POINT 1004, 1/2" IRON ROD WITH BLUE CAP STAMPED "CONTROL", N 13736765.0196, E 3080754.5616, ELIV. 98.13. COORDINATES ARE BASED ON TEXAS STATE PLANT COORDINATE SYSTEM, NAD 83, SOUTH CENTRAL ZONE 4204 AND ARE DERIVED FROM GPS OBSERVATION USING SURVEY MARKER #86.
 4. FOR DIP, ALL NON-FLANGED JOINTS SHALL BE MECHANICALLY RESTRAINED, REFER TO SPECIFICATIONS.
 5. ALL FITTINGS BELOW GRADE SHALL BE POLY WRAPPED.
 6. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE OF THE SITE AT ALL TIMES.
 7. MAXIMUM ALLOWABLE SLOPE IS 3:1 UNLESS OTHERWISE INDICATED ON THE DRAWING. MINIMUM ALLOWABLE SLOPE IS 2% UNLESS OTHERWISE INDICATED ON THE DRAWING. SURFACE DRAINAGE SHALL BE PROVIDED AT A MINIMUM OF 2% FOR 5 FEET AWAY FROM THE FOUNDATION LINE OF ANY STRUCTURE.
 8. ALL DISTURBED AREAS SHALL BE RE-VEGETATED TO MATCH EXISTING SITE CONDITIONS.
 9. ALL VALVES ON EXISTING WATER LINES SHALL BE OPERATED ONLY BY REPRESENTATIVES OF THE CONTRACT OPERATORS COMPANY. DEPENDING ON THE TIME OF YEAR OF CONSTRUCTION AND/OR THE DEMAND ON THE WATER SYSTEM, THE EXISTING WATER LINES MAY NOT BE ABLE TO BE SHUT DOWN, OR WORK MAY HAVE TO BE PERFORMED AT ODD HOURS. ALL CONNECTIONS TO EXISTING WATER LINES SHALL BE COORDINATED AS EARLY AS POSSIBLE WITH THE CONTRACT OPERATORS COMPANY.

NO.	REVISION	DATE
1	BID SET	05/16/2016

05/06/2016

Jordan S. Hibbs

115729

eHT ENPROTEC/HIBBS & TODD, INC.

ENVIRONMENTAL AND CIVIL ENGINEERING

402 Cedar Street
325-699-0560

Arlene, Texas 79601
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration Nos. 10071900 & 10007300

BAR IS ONE INCH ON ORIGINAL DRAWING

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DESIGNED BY J.S.H.	SCALE 1" = 20'
DRAWN BY J.S.H.	DATE 05/06/2016
CHECKED BY J.S.H.	

**CITY OF MISSOURI CITY
REGIONAL WATER TREATMENT PLANT**

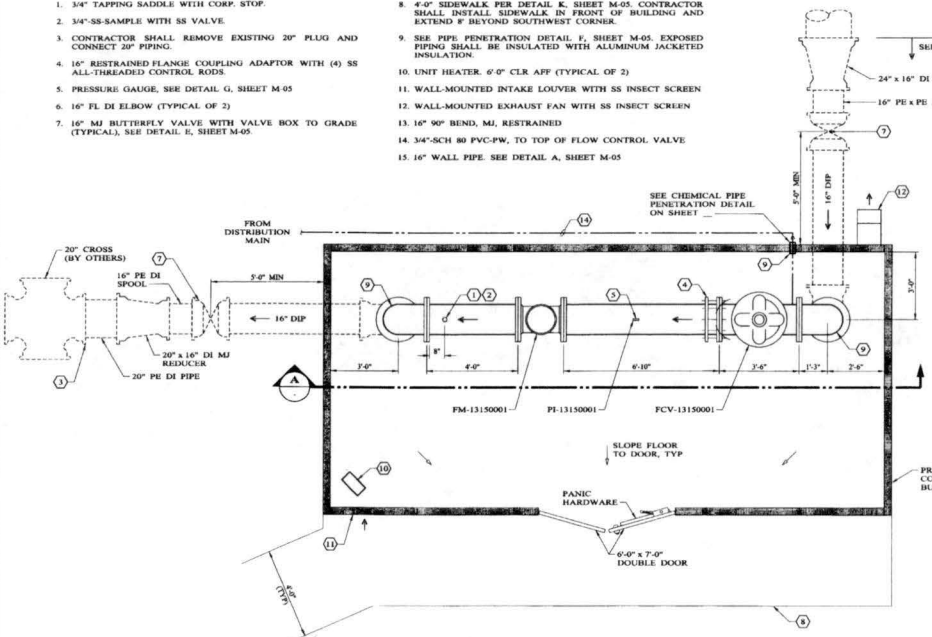
**SIENNA WATER PLANT #3
FLOW CONTROL AND METERING
BUILDING SITE PLAN**

PROJECT NO. 15-6259
SEQUENCE No. 26 OF 32
SHEET No. M-02

Maggi 5/19/16

NOTES INDICATED BY NUMBER IN ○:

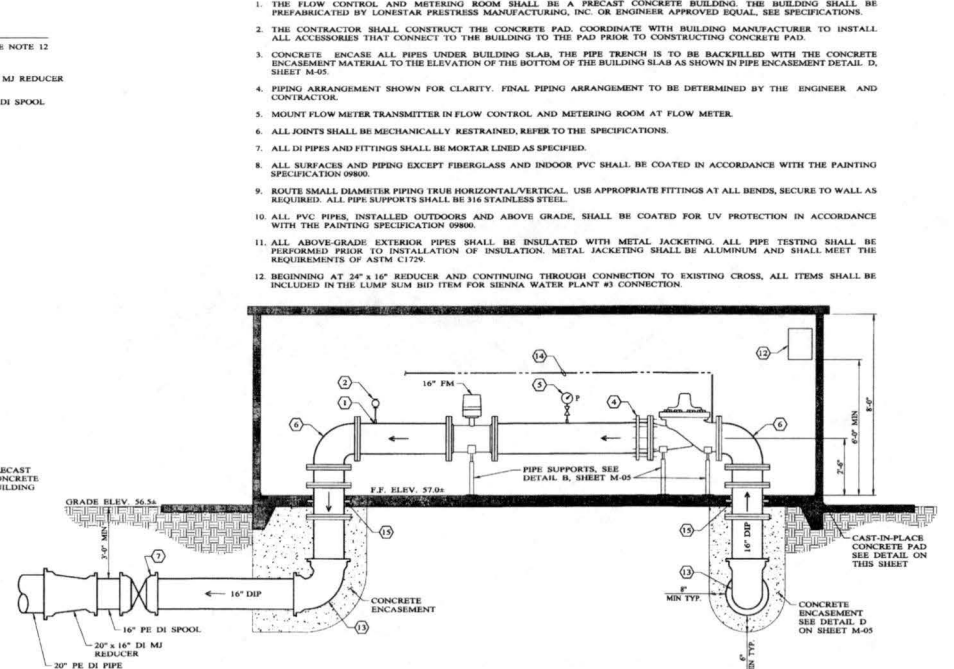
- 3/4" TAPPING SADDLE WITH CORP. STOP.
- 3/4" SS-SAMPLE WITH SS VALVE.
- CONTRACTOR SHALL REMOVE EXISTING 20" PLUG AND CONNECT 20" PIPING.
- 16" RESTRAINED FLANGE COUPLING ADAPTOR WITH (4) SS ALL-THREADED CONTROL RODS.
- PRESSURE GAUGE, SEE DETAIL G, SHEET M-05
- 16" FL DI ELBOW (TYPICAL OF 2)
- 16" MJ BUTTERFLY VALVE WITH VALVE BOX TO GRADE (TYPICAL), SEE DETAIL E, SHEET M-05
- 4'-0" SIDEWALK PER DETAIL K, SHEET M-05. CONTRACTOR SHALL INSTALL SIDEWALK IN FRONT OF BUILDING AND EXTEND 7' BEYOND SOUTHWEST CORNER.
- SEE PIPE PENETRATION DETAIL F, SHEET M-05. EXPOSED PIPING SHALL BE INSULATED WITH ALUMINUM JACKETED INSULATION.
- UNIT HEATER, 6'-0" CLR AFF (TYPICAL OF 2)
- WALL-MOUNTED INTAKE LOUVER WITH SS INSECT SCREEN
- WALL-MOUNTED EXHAUST FAN WITH SS INSECT SCREEN
- 16" 90° BEND, MJ, RESTRAINED
- 3/4" SCH 80 PVC-PW, TO TOP OF FLOW CONTROL VALVE
- 16" WALL PIPE. SEE DETAIL A, SHEET M-05



**SIENNA WATER PLANT #3
FLOW CONTROL & METERING BUILDING**
SCALE: 3/8" = 1'-0"

NOTES:

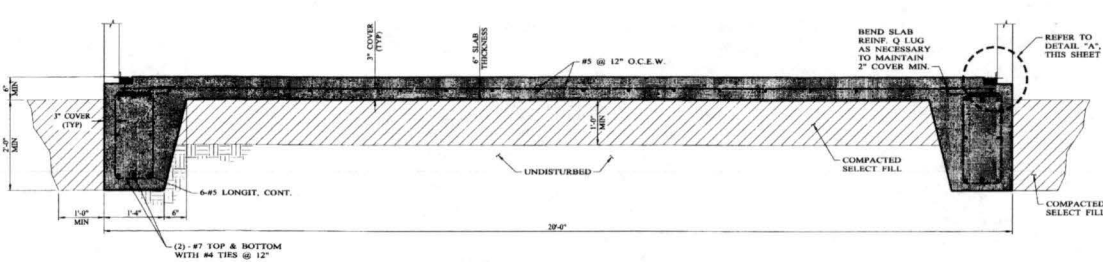
- THE FLOW CONTROL AND METERING ROOM SHALL BE A PRECAST CONCRETE BUILDING THE BUILDING SHALL BE PREFABRICATED BY LONESTAR PRESTRESS MANUFACTURING, INC. OR ENGINEER APPROVED EQUAL. SEE SPECIFICATIONS.
- THE CONTRACTOR SHALL CONSTRUCT THE CONCRETE PAD, COORDINATE WITH BUILDING MANUFACTURER TO INSTALL ALL ACCESSORIES THAT CONNECT TO THE PAD PRIOR TO CONSTRUCTING CONCRETE PAD.
- CONCRETE ENCASE ALL PIPES UNDER BUILDING SLAB, THE PIPE TRENCH IS TO BE BACKFILLED WITH THE CONCRETE ENCASUREMENT MATERIAL TO THE ELEVATION OF THE BOTTOM OF THE BUILDING SLAB AS SHOWN IN PIPE ENCASUREMENT DETAIL D, SHEET M-05
- PIPING ARRANGEMENT SHOWN FOR CLARITY. FINAL PIPING ARRANGEMENT TO BE DETERMINED BY THE ENGINEER AND CONTRACTOR.
- MOUNT FLOW METER TRANSMITTER IN FLOW CONTROL AND METERING ROOM AT FLOW METER.
- ALL JOINTS SHALL BE MECHANICALLY RESTRAINED, REFER TO THE SPECIFICATIONS.
- ALL DI PIPES AND FITTINGS SHALL BE MORTAR LINED AS SPECIFIED.
- ALL SURFACES AND PIPING EXCEPT FIBERGLASS AND INDOOR PVC SHALL BE COATED IN ACCORDANCE WITH THE PAINTING SPECIFICATION 09900.
- ROUTE SMALL DIAMETER PIPING TRUE HORIZONTAL/VERTICAL. USE APPROPRIATE FITTINGS AT ALL BENDS, SECURE TO WALL AS REQUIRED. ALL PIPE SUPPORTS SHALL BE 316 STAINLESS STEEL.
- ALL PVC PIPES, INSTALLED OUTDOORS AND ABOVE GRADE, SHALL BE COATED FOR UV PROTECTION IN ACCORDANCE WITH THE PAINTING SPECIFICATION 09900.
- ALL ABOVE-GRADE EXTERIOR PIPES SHALL BE INSULATED WITH METAL JACKETING. ALL PIPE TESTING SHALL BE PERFORMED PRIOR TO INSTALLATION OF INSULATION. METAL JACKETING SHALL BE ALUMINUM AND SHALL MEET THE REQUIREMENTS OF ASTM C1729.
- BEGINNING AT 24" x 16" REDUCER AND CONTINUING THROUGH CONNECTION TO EXISTING CROSS, ALL ITEMS SHALL BE INCLUDED IN THE LUMP SUM BID ITEM FOR SIENNA WATER PLANT #3 CONNECTION.



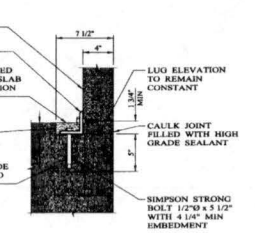
SECTION A
SCALE: 3/8" = 1'-0"

FOUNDATION NOTES:

- SUBGRADE TO BE SCARIFIED TO A MINIMUM DEPTH OF 6" AND COMPACTED TO 95% STANDARD PROCTOR DENSITY (ASTM D-690) AT -1% TO +3% OF OPTIMUM MOISTURE CONTENT.
- SELECT FILL TO CONSIST OF INACTIVE, INORGANIC SANDY CLAY TYPE SOIL WITH A PI BETWEEN 10 AND 20. PLACE SELECT FILL IN MAXIMUM 8" LOOSE LAYERS AND COMPACT AS SPECIFIED IN NOTE 1, ABOVE.
- CONCRETE REINFORCEMENT SHALL CONFORM TO ASTM A-615 GRADE 60, EXCEPT #3 BARS MAY CONFORM TO GRADE 40.
- DETAILING AND FABRICATION OF CONCRETE REINFORCEMENT AND ACCESSORIES SHALL BE IN ACCORDANCE WITH ACI 325, LATEST EDITION.
- LAP ALL CONTINUOUS REINFORCING BARS AT LEAST 36 BAR DIAMETERS AT SPLICES, TEES, AND CORNERS. HORIZONTAL LAP SPLICES SHALL BE STAUGHERD.
- PROVIDE 6 MIL POLY VAPOR BARRIER UNDER CONCRETE SLAB AND GRADE BEAMS.



TYPICAL FOUNDATION SECTION
SCALE: 3/4" = 1'-0"



DETAIL "A"
SCALE: 1 1/2" = 1'-0"

NO.	REVISION	DATE
1	BID SET	05/10/2016

05/06/2016

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
325-688-0560
Abilene, Texas 79601
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration No. 10071900 & 10007300

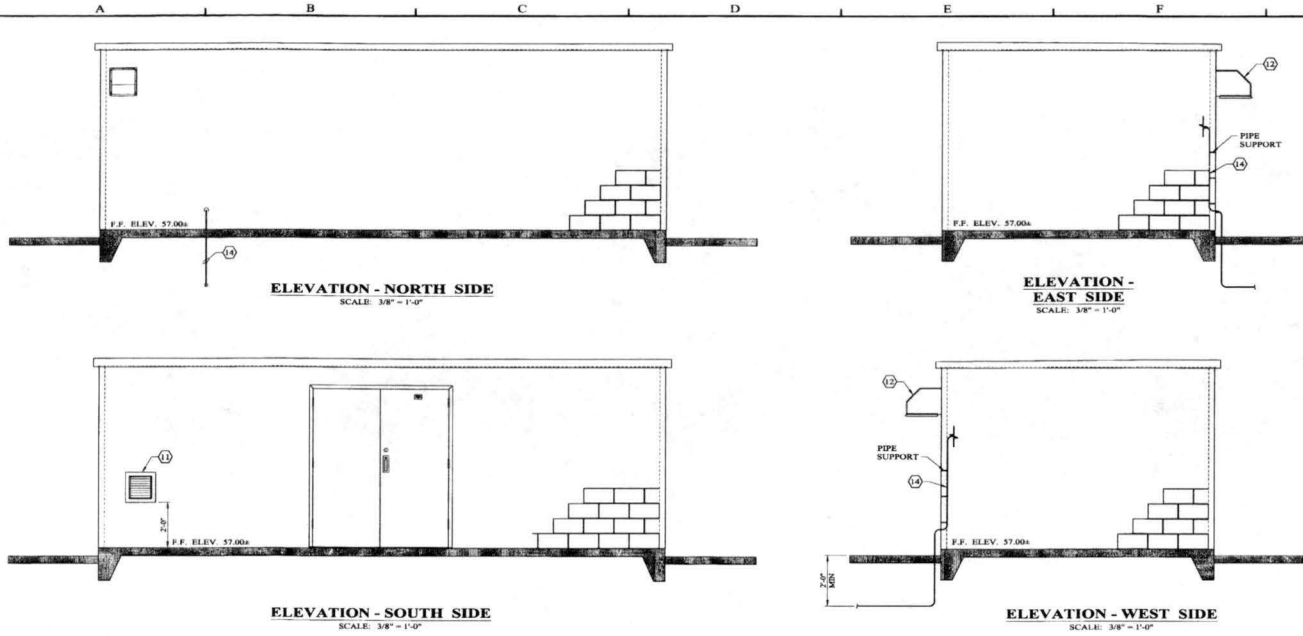
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY.

DESIGNED BY: JSR/J.C.C.
SCALE: AS NOTED
DRAWN BY: J.S.K.
DATE: 05/06/2016
CHECKED BY: JSR/J.C.C.

**CITY OF MISSOURI CITY
REGIONAL WATER TREATMENT PLANT**
**SIENNA WATER PLANT #3
FLOW CONTROL AND METERING
BUILDING PLAN AND SECTIONS**

PROJECT NO: **15-6259**
SEQUENCE No: **27 OF 32**
SHEET No: **M-03**

Maggi D. Stille

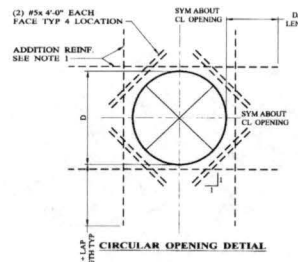
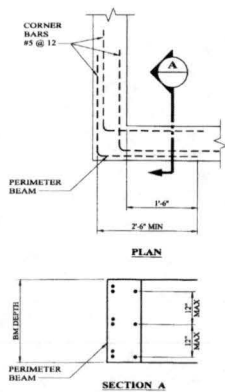


- NOTES:**
- THE FLOW CONTROL AND METERING ROOM SHALL BE A PRECAST CONCRETE BUILDING. THE BUILDING SHALL BE PREFABRICATED BY LONESTAR PRESTRESS MANUFACTURING, INC. OR ENGINEER APPROVED EQUAL. SEE SPECIFICATIONS.
 - THE CONTRACTOR SHALL CONSTRUCT THE CONCRETE PAD COORDINATE WITH BUILDING MANUFACTURER TO INSTALL ALL ACCESSORIES THAT CONNECT TO THE BUILDING TO THE PAD PRIOR TO CONSTRUCTING CONCRETE PAD.
 - CONCRETE ENCASE ALL PIPES UNDER BUILDING SLAB, THE PIPE TRENCH IS TO BE BACKFILLED WITH THE CONCRETE ENCASEMENT MATERIAL TO THE ELEVATION OF THE BOTTOM OF THE BUILDING SLAB AS SHOWN IN PIPE ENCASEMENT DETAIL D, SHEET M-05.
 - PIPING ARRANGEMENT SHOWN FOR CLARITY. FINAL PIPING ARRANGEMENT TO BE DETERMINED BY THE ENGINEER AND CONTRACTOR.
 - MOUNT FLOW METER TRANSMITTER IN FLOW CONTROL AND METERING ROOM AT FLOW METER.
 - ALL JOINTS SHALL BE MECHANICALLY RESTRAINED, REFER TO THE SPECIFICATIONS.
 - ALL DI PIPES AND FITTINGS SHALL BE MORTAR LINED AS SPECIFIED.
 - ALL SURFACES AND FITTINGS EXCEPT FIBERGLASS AND INDOOR PVC SHALL BE COATED IN ACCORDANCE WITH THE PAINTING SPECIFICATION 0990.
 - ROUTE SMALL DIAMETER PIPING TRUBS HORIZONTAL/VERTICAL. USE APPROPRIATE FITTINGS AT ALL BENDS, SECURE TO WALL AS REQUIRED. ALL PIPE SUPPORTS SHALL BE 316 STAINLESS STEEL.
 - ALL PVC PIPES, INSTALLED OUTDOORS AND ABOVE GRADE, SHALL BE COATED FOR UV PROTECTION IN ACCORDANCE WITH THE PAINTING SPECIFICATION 0990.
 - ALL ABOVE-GRADE EXTERIOR PIPES SHALL BE INSULATED WITH METAL JACKETING. ALL PIPE TESTING SHALL BE PERFORMED PRIOR TO INSTALLATION OF INSULATION. METAL JACKETING SHALL BE ALUMINUM AND SHALL MEET THE REQUIREMENTS OF ASTM C1729.
 - APPLICABLE SPECIFICATIONS AND CODES
 - INTERNATIONAL BUILDING CODE, IRC 2015 WITH APPLICABLE EDITIONS OF THE CODE REFERENCED STANDARDS.
 - LOCAL JURISDICTION AMENDMENTS.
 - DESIGN CRITERIA
 - DEAD LOAD:
 - ACTUAL TRIBUTARY STRUCTURE WEIGHT
 - SUPERIMPOSED DEAD LOAD: 10 PSF
 - LIVE LOAD:
 - SLAB ON GRADE: 250 PSF
 - ROOF: 40 PSF (NOT REDUCIBLE)
 - WIND:

RISK CATEGORY:	III
2. ULTIMATE WIND SPEED, VULT:	150 MPH
3. NOMINAL WIND SPEED, VASD:	115 MPH
4. EXPOSURE:	C
 - SEISMIC:
 - ABOVE GRADE, NON WATER BEARING STRUCTURES:
 - RISK CATEGORY: III
 - IMPORTANCE FACTOR: 1.25
 - SPECTRAL RESPONSE ACCELERATION, SS: 0.069g
 - SPECTRAL RESPONSE ACCELERATION, SI: 0.037g
 - SITE CLASS: D
 - SEISMIC DESIGN CATEGORY: A
 - SPECTRAL RESPONSE COEFFICIENT, SDS: 0.074g
 - SPECTRAL RESPONSE COEFFICIENT, SDI: 0.059g
 - GROUND SNOW LOAD, Fg: 0 PSF
 - THE FOLLOWING NON-CONTRACTUAL GEOTECHNICAL REPORT IS THE BASIS OF THIS STRUCTURAL DESIGN:

GEOTECHNICAL FIRM NAME:	NINVO & MOORE
ADDRESS:	2313 WEST SAM HOUSTON PARKWAY NORTH, SUITE 119, HOUSTON, TEXAS 77043
REPORT NUMBER:	700243026
REPORT DATE:	OCTOBER 16, 2015

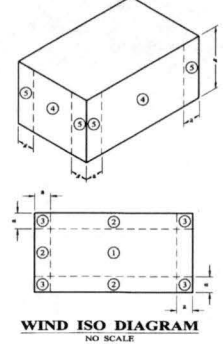
 ALLOWABLE SOIL BEARING PRESSURES ARE AS FOLLOWS: 1500 PSF



COMPONENT AND CLADDING WIND PRESSURES, PSF (POSITIVE PRESSURE, NEGATIVE SUCTION)

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5
MAX PRESSURE	+10.0	+10.0	+10.0	+4.8	+4.8
MIN PRESSURE	-4.8	-4.8	-10.0	-10.0	-10.0

NOTE: PRESSURES GIVEN ARE FOR AN EFFECTIVE WIND AREA LESS THAN 10 SQUARE FEET.



- NOTES INDICATED BY NUMBER IN $\text{\textcircled{0}}$:**
- 3/4" TAPPING SADDLE WITH CORP. STOP.
 - 3/4"-SS-SAMPLE WITH SS VALVE.
 - CONTRACTOR SHALL REMOVE EXISTING 20" PLUG AND CONNECT 20" PIPING.
 - 16" RESTRAINED FLANGE COUPLING ADAPTOR WITH (4) SS ALL-THREADED CONTROL RODS.
 - PRESSURE GAUGE, SEE DETAIL G, SHEET M-05
 - 16" FL DI ELBOW (TYPICAL OF 2)
 - 16" MJ BUTTERFLY VALVE WITH VALVE BOX TO GRADE (TYPICAL), SEE DETAIL E, SHEET M-05.
 - 6'-0" SIDEWALK PER DETAIL K, SHEET M-05. CONTRACTOR SHALL INSTALL SIDEWALK IN FRONT OF BUILDING AND EXTEND 5' BEYOND SOUTHWEST CORNER.
 - SEE PIPE PENETRATION DETAIL F, SHEET M-05. EXPOSED PIPING SHALL BE INSULATED WITH ALUMINUM JACKETED INSULATION.
 - UNIT HEATER, 6'-0" CLR AFF (TYPICAL OF 2)
 - WALL-MOUNTED INTAKE LOUVER WITH SS INSECT SCREEN
 - WALL-MOUNTED EXHAUST FAN WITH SS INSECT SCREEN
 - 16" 90° BEND, MJ, RESTRAINED
 - 3/4"-SCH 80 PVC-PW, TO TOP OF FLOW CONTROL VALVE
 - 16" WALL PIPE. SEE DETAIL A, SHEET M-05

NO.	REVISION	DATE
1	IBD SET	05/16/2016



ENPROTEC/HIBBS & TODD, INC.
 ENVIRONMENTAL AND CIVIL ENGINEERING
 402 Cedar Street
 325-698-5860
 Abilene, Texas 79601
 PE Firm Registration No. 1151
 PG Firm Registration No. 52103
 RPLS Firm Registration No. 10071900 & 10007300

BAR IS ONE INCH ON ORIGINAL DRAWING
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DESIGNED BY: JSH/RLC
 DRAWN BY: SAC
 CHECKED BY: JSH/RLC

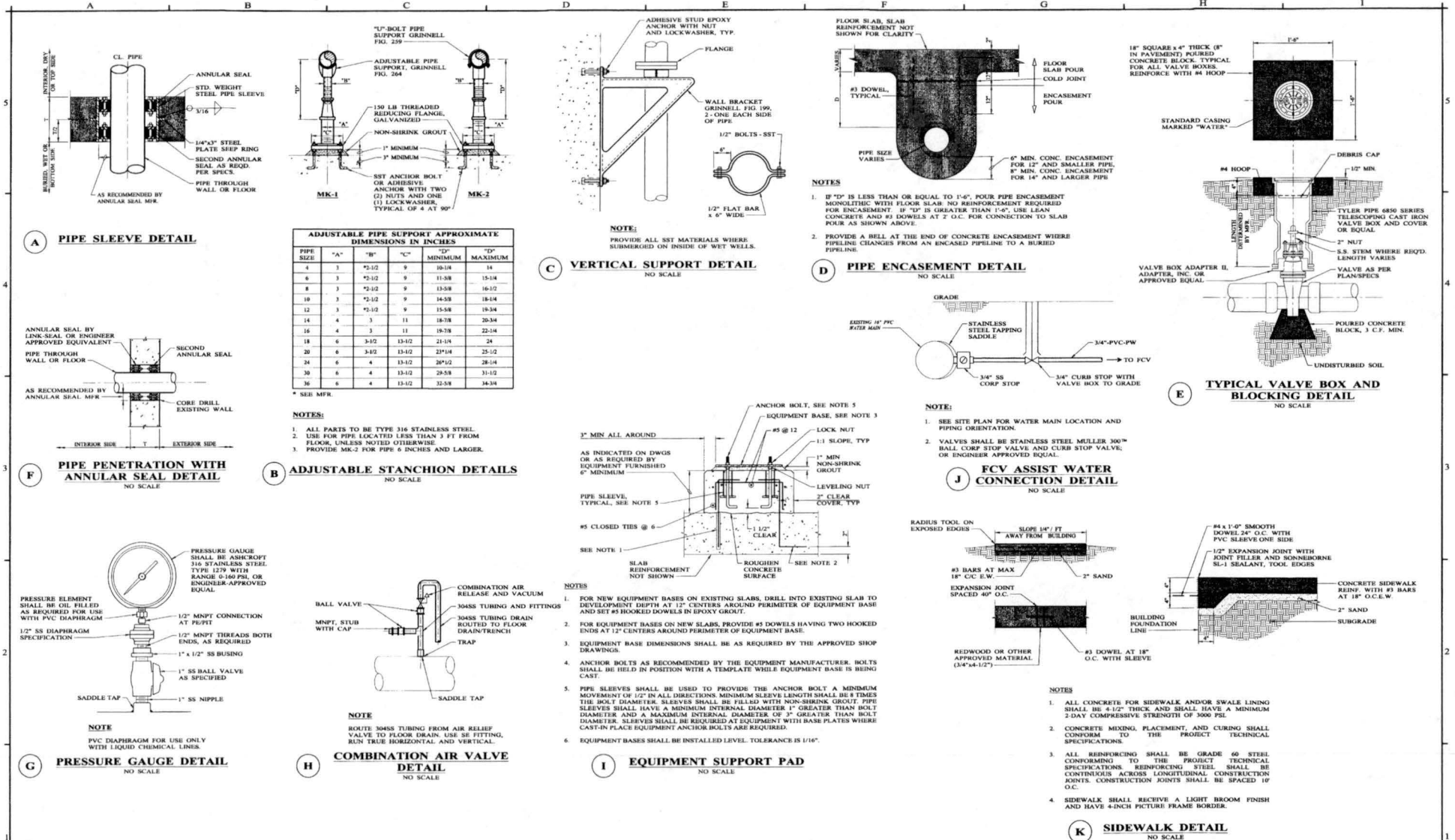
SCALE: AS NOTED
 DATE: 05/06/2016

**CITY OF MISSOURI CITY
 REGIONAL WATER TREATMENT PLANT
 SIENNA WATER PLANT #3
 FLOW CONTROL AND METERING
 BUILDING ELEVATIONS**

HR
 STATE OF TEXAS REGISTERED PROFESSIONAL ENGINEER

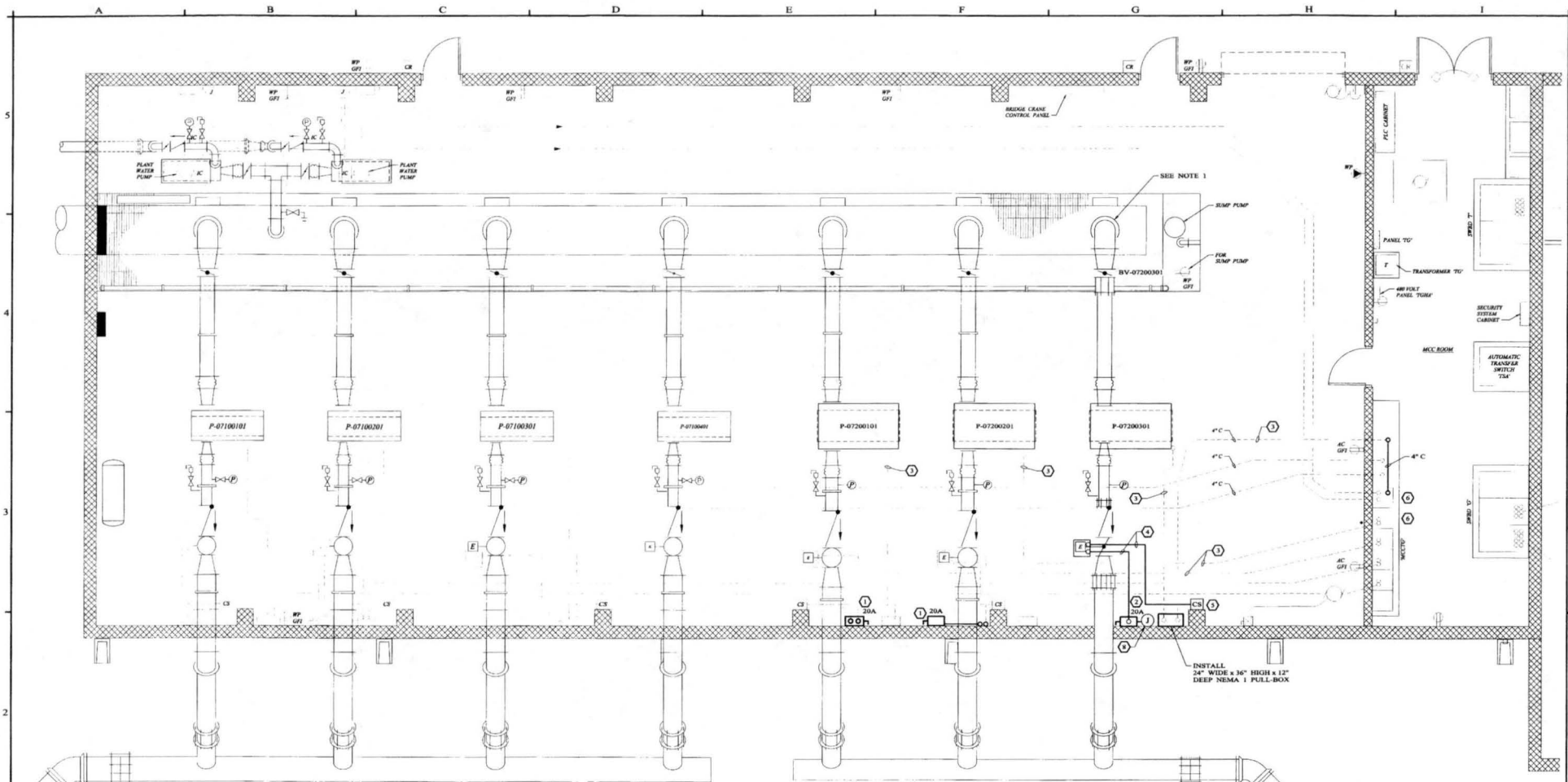
PROJECT NO: **15-6259**
 SEQUENCE No: **28 OF 32**
 SHEET No: **M-04**

Maggi D. 5/19/16



NO.	REVISION	DATE	05/06/2016			ENPROTEC/HIBBS & TODD, INC. ENVIRONMENTAL AND CIVIL ENGINEERING 402 Cedar Street 325-698-5560	DESIGNED BY J.S.H. DRAWN BY J.C. CHECKED BY J.S.H.	SCALE AS NOTED DATE 05/06/2016	CITY OF MISSOURI CITY REGIONAL WATER TREATMENT PLANT MECHANICAL DETAILS I	PROJECT NO. 15-6259
1	BID SET	05/16/2016	SEQUENCE No. 29 OF 32							
									SHEET No. M-05	

Maggi... 5/19/16



ELECTRICAL NOTES

1. CONNECT EXISTING LOCAL DISCONNECT SWITCH FOR MOTOR OPERATED VALVE. THE DISCONNECT SWITCH IS INSTALLED ON THE WALL. BREAK THE EXISTING POWER SUPPLY TO THE VALVE AND ROUTE THROUGH THE NEW DISCONNECT SWITCH SUCH THAT THE SWITCH CAN BE ISOLATED FROM THE POWER CIRCUIT BY OPENING THE DISCONNECT SWITCH. LOCATE SWITCH IN A CONVENIENT LOCATION AS APPROVED BY THE ENGINEER. INSTALL JUNCTION BOX ABOVE SWITCH FOR POWER FEED SPLICE. PROVIDE ALL CONDUIT AND CABLE REQUIRED. EXISTING CONDUIT MAY BE REUSED WHERE APPLICABLE.
2. INSTALL NEW STAINLESS STEEL LOCAL DISCONNECT SWITCH.
3. INSTALL NEW CONDUCTORS IN EXISTING CONDUIT.
4. ROUTE CONDUIT FOR VALVE POWER AND CONTROL BELOW PIPING AND CLOSE TO WALL TO AVOID CREATING A TRIPPING HAZARD.
5. INSTALL VALVE CONTROL STATION AT SAME ELEVATION AS EXISTING CONTROL STATIONS.
6. MODIFY THE EXISTING MOTOR CONTROL CENTER AS INDICATED. INSTALL NEW STARTERS IN THE EXISTING MCC. INSTALL NEW CONDUCTORS TO MOTORS AND VALVES AS INDICATED.
7. ROUTE CONDUIT FOR P-07200301 TO THE EXISTING CONDUIT. ROUTE NEW CONDUCTORS TO MOTOR AND VALVE AS INDICATED.
8. BREAK INTO THE EXISTING POWER SUPPLY TO THE MOTOR ELECTRIC OPERATED VALVES AND POWER THE NEW DISCONNECT SWITCH.

NO.	REVISION	DATE
1	BID SET	05/16/2016

05/06/2016
Chawthorn



eHT ENPROTEC/HIBBS & TODD, INC.
 ENVIRONMENTAL AND CIVIL ENGINEERING
 402 Cedar Street
 Abilene, Texas 79601
 PE Firm Registration No. 1151
 PG Firm Registration No. 82103
 RPLS Firm Registration Nos. 10011900 & 10007300

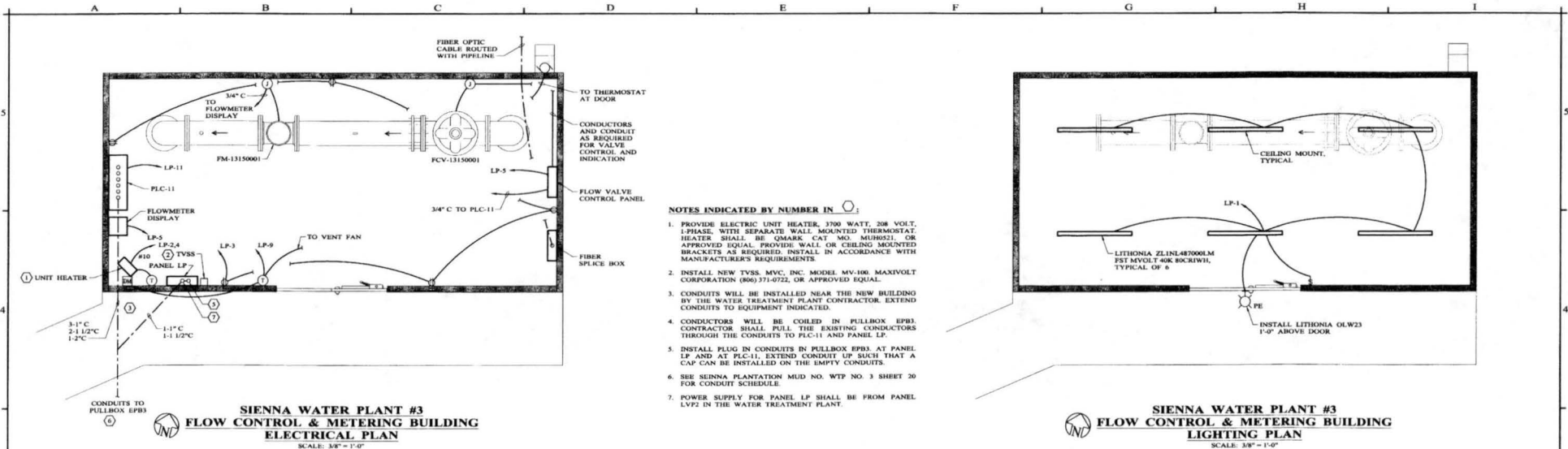
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DESIGNED BY C.W.V.	SCALE 1/4" = 1'-0"
DRAWN BY J.X.	DATE 05/06/2016
CHECKED BY C.W.V.	

**CITY OF MISSOURI CITY
 REGIONAL WATER TREATMENT PLANT**
**TRANSFER PUMP STATION
 ELECTRIC PLAN & INSTRUMENTATION**

PROJECT NO. 15-6259
SEQUENCE No. 30 OF 32
SHEET No. E-01

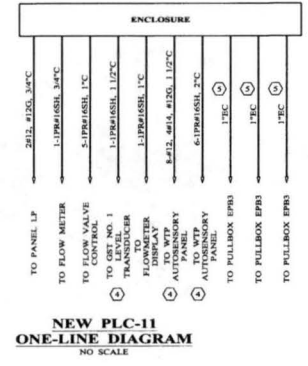
Maggi 5/16/16



LOCATION: FLOW CONTROL & METERING BUILDING
TYPE ENCLOSURE: NEMA 1 SURFACE MOUNT
INTERRUPTING RATING: 10,000 AMPERS RMB
PANEL RATING: 120/208 VOLTS, 1Ø, 3-WIRE, 100 AMPERES

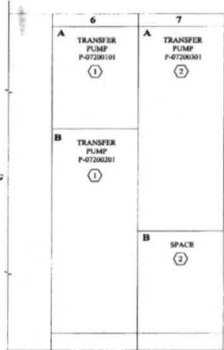
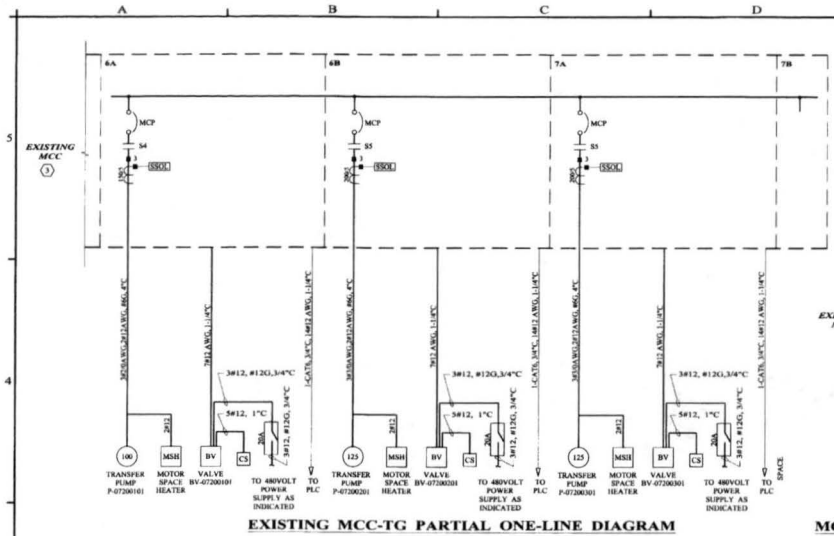
PANELBOARD DESIGNATION: LP
GROUND BUS: YES
NEUTRAL BUS: YES
MAIN CIRCUIT BREAKER SIZE: 60A

CKT. No.	TRIP AMPS	No. POLES	LOAD SERVED	CIRCUIT LOAD (AMPS)			LOAD SERVED	No. POLES	TRIP AMPS	CKT. No.	
				CIRCUIT LOAD AMPS	LINE 1	LINE 2					
1	20	1	LIGHTS	4.0	21.5	-	17.5			2	
3	20	1	RECEPTACLES	7.5	-	24.5	17.5			4	
5	20	1	FLOW METER	1.0	1.0	-	-			6	
7	20	1	FLOW VALVE CONTROL	1.0	-	1.0	-			8	
9	20	1	VENT FAN	5.8	5.8	-	-			10	
11	20	1	PLC-11	5.0	-	5.0	-			12	
13	20	1	-	-	-	-	-			14	
15	20	1	-	-	-	-	-			16	
17	20	1	-	-	-	-	-			18	
19	20	1	-	-	-	-	-			20	
21	20	1	-	-	-	-	-			22	
23	20	1	-	-	-	-	-			24	
25	20	1	-	-	-	-	-			26	
TOTAL CONNECTED KVA = 7.0				TOTAL			28.1	30.5			

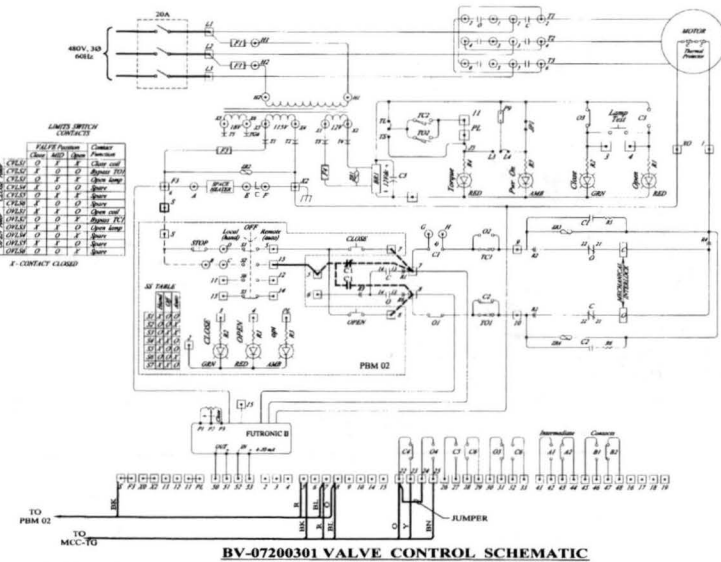
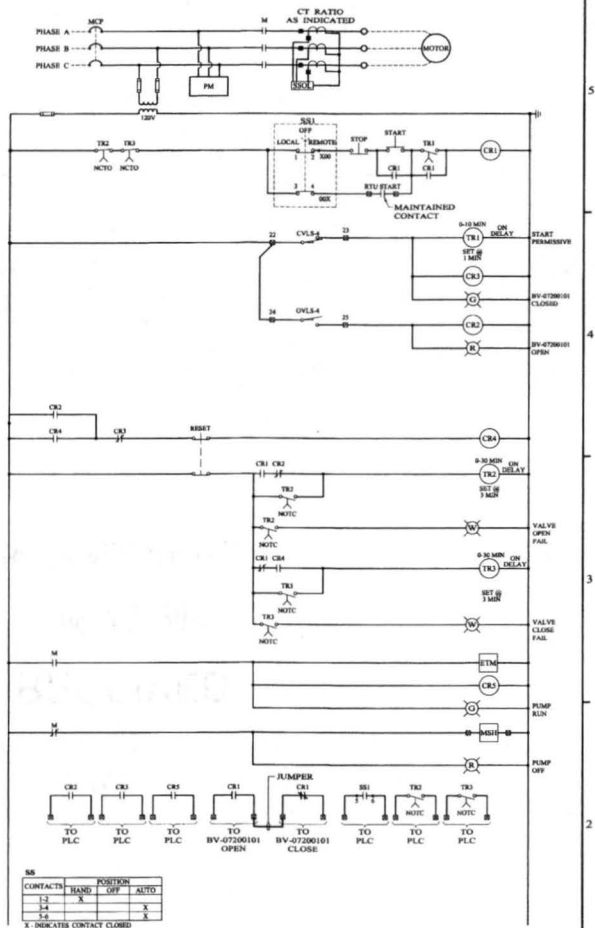


NO. 1	REVISION BID SET	DATE 05/16/2016	05/06/2016			ENPROTEC/HIBBS & TODD, INC. ENVIRONMENTAL AND CIVIL ENGINEERING 402 Cedar Street 325-698-9560 RPLS Firm Registration No. 10011800 & 10007300	BAR IS ONE INCH ON ORIGINAL DRAWING 	DESIGNED BY C.W.V.	SCALE AS NOTED	CITY OF MISSOURI CITY REGIONAL WATER TREATMENT PLANT SIENNA WATER PLANT #3 FLOW CONTROL AND METERING BUILDING PLAN AND SECTIONS	PROJECT NO. 15-6259
											SHEET NO. E-02

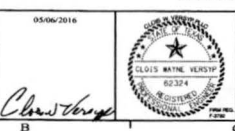
Maggi 5/19/16



- NOTES INDICATED BY NUMBER IN ①:**
- REMOVE THE EXISTING STARTER, AND DOORS IN THE EXISTING VERTICAL SECTION. INSTALL NEW STARTERS, BRACKETS, DOORS, AND ALL OTHER REQUIRED EQUIPMENT FOR PUMPS P-0720010 AND P-0720020.
 - REMOVE THE EXISTING STARTER, AND DOORS IN THE EXISTING VERTICAL SECTION. INSTALL NEW STARTERS, BRACKETS, DOORS, AND ALL OTHER REQUIRED EQUIPMENT FOR PUMPS P-0720030. PROVIDE ADDITIONAL PREPARED SPACES AS INDICATED.
 - THE EXISTING MOTOR CONTROL CENTER IS A SQUARE D MODEL 8. CONTRACTOR SHALL OBTAIN SHOP DRAWINGS FROM SQUARE D. ALL COMPONENTS INSTALLED SHALL BE SQUARE D COMPONENTS APPROVED FOR USE IN THE MOTOR CONTROL CENTER.



NO.	REVISION	DATE
1	BID SET	05/16/2016



ENPROTEC/HIBBS & TODD, INC.
 ENVIRONMENTAL AND CIVIL ENGINEERING
 402 Cedar Street
 325-698-6660
 Azilena, Texas 79801
 PE Firm Registration No. 1151
 PG Firm Registration No. 50103
 RPLS Firm Registration Nos. 10011900 & 10007300

DESIGNED BY C.W.V.	SCALE NO SCALE
DRAWN BY J.S.K.	DATE 05/06/2016
CHECKED BY C.W.V.	

**CITY OF MISSOURI CITY
 REGIONAL WATER TREATMENT PLANT**

**EXISTING MOTOR CONTROL
 CENTER MCC-T2 ONE-LINE
 DIAGRAM MODIFICATIONS**

PROJECT NO.: 15-6259
SEQUENCE No. 32 OF 32
SHEET No. E-03

Magill 5/19/16

RECEIVED

JUN 29 2016

FBC DRAINAGE DIST.