



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

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

- Right of Way Permit**
 Commercial Driveway Permit

Permit No: 2017-15468

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

(1) COMPLETE APPLICATION FORM:

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

(2) BOND:

- County Attorney, approval when applicable.
- Perpetual bond currently posted. Bond No: _____ Amount: _____
- Performance bond submitted. Bond No: XXXXXXXXXX Amount: \$185,993.00
- Cashier's Check Check No: _____ Amount: _____

(3) DRAINAGE DISTRICT APPROVAL (WHEN APPLICABLE):

Drainage District Approval

Date

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

Charles O. Ay

Permit Administrator

Date



**REVIEW BY FORT BEND COUNTY
COMMISSIONERS COURT**

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

- Right of Way Permit**
- Commercial Driveway Permit**

Permit No: 2017-15468

Applicant: Reliance Construction Services, L.P./Costello, Inc.

Job Location Site: New Territory, Sugar Land, TX 77479

Bond No. **Date of Bond:** 8/9/2017 **Amount:** \$185,993.00

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

Notes:

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

On this 22nd day of August, 2017, Upon Motion of Commissioner _____, seconded by Commissioner _____, duly put and carried, it is ORDERED, ADJUDGED AND DECREED that said notice of said above purpose is hereby acknowledged by the Commissioners Court of Fort Bend County, Texas, and that said notice be placed on record according to the regulation order thereof.

Signature

Presented to Commissioners Court and approved.

By: 
County Engineer

Date Recorded _____ Comm. Court No. _____

By: N/A
Drainage District Engineer/Manager

Clerk of Commissioners Court

By: _____
Deputy

POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company (herein called "the CNA Companies"), are duly organized and existing insurance companies having their principal offices in the City of Chicago, and State of Illinois, and that they do by virtue of the signatures and seals herein affixed hereby make, constitute and appoint

T J Griffin, William A Pirret, Steven K Brandon, John L Budde, Susan L Small, Terence J Griffin, Individually

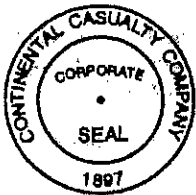
of Farmington Hills, MI, their true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on their behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

and to bind them thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of their insurance companies and all the acts of said Attorney, pursuant to the authority hereby given is hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law and Resolutions, printed on the reverse hereof, duly adopted, as indicated, by the Boards of Directors of the insurance companies.

In Witness Whereof, the CNA Companies have caused these presents to be signed by their Vice President and their corporate seals to be hereto affixed on this 1st day of July, 2015.



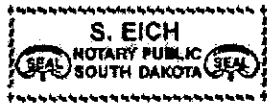
Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

Paul T. Bruflat

Paul T. Bruflat Vice President

State of South Dakota, County of Minnehaha, ss:

On this 1st day of July, 2015, before me personally came Paul T. Bruflat to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is a Vice President of Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company described in and which executed the above instrument; that he knows the seals of said insurance companies; that the seals affixed to the said instrument are such corporate seals; that they were so affixed pursuant to authority given by the Boards of Directors of said insurance companies and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said insurance companies.



My Commission Expires February 12, 2021

S. Eich

S. Eich Notary Public

CERTIFICATE

I, D. Bult, Assistant Secretary of Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company do hereby certify that the Power of Attorney herein above set forth is still in force, and further certify that the By-Law and Resolution of the Board of Directors of the insurance companies printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said insurance companies this 9th day of August, 2017.



Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

D. Bult

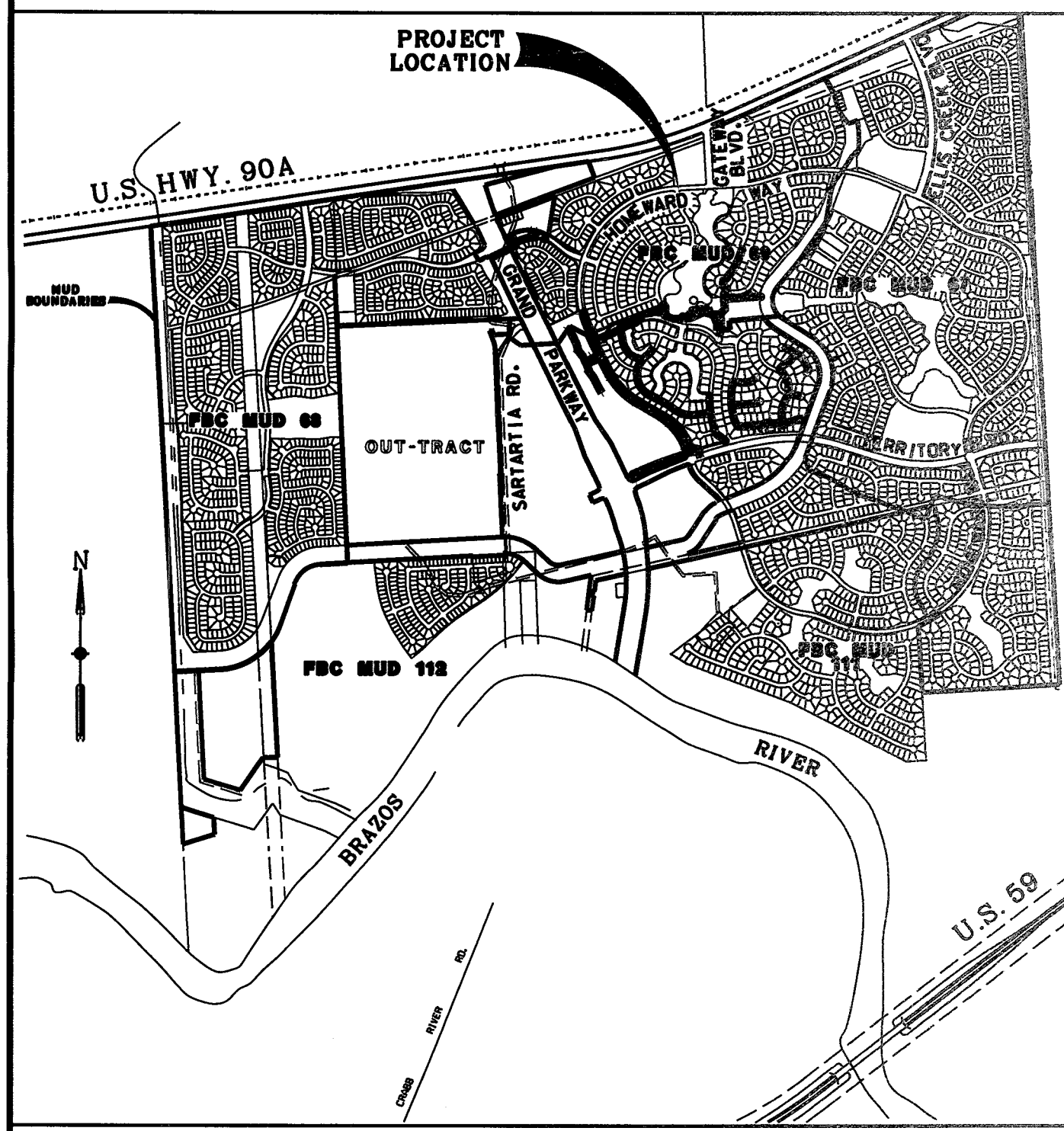
D. Bult Assistant Secretary

CONSTRUCTION PLANS FOR WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 FOR NEW TERRITORY LOCATED IN FORT BEND COUNTY LID 7 FORT BEND COUNTY, TEXAS

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MAP REF: FORT BEND COUNTY KEY MAP PG. 567 SO. "X"



VICINITY MAP
SCALE: 1"=3/8 MILE



CITY OF SUGAR LAND
APPROVED: *Guillermo Salas*
DATE: 25 July 2017



JOB NO. 1992020-142

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

DATE: JULY, 2017

FORT BEND COUNTY
ENGINEER: *Rick J. Stangle, PE, PTOE*
FOR RICHARD W. STOLLEIS, P.E.
DATE: 7/26/17
THESE SIGNATURES ARE VOID IF CONSTRUCTION HAS NOT COMMENCED IN ONE YEAR FROM DATE OF APPROVAL.
APPROVED: *Richard W. Stolleis*
DEVELOPMENT COORDINATOR
DATE: 7/17/17



Know what's below.
Call before you dig.

CONTACT NUMBERS

CITY OF SUGAR LAND - ENGINEERING DEPT _____ 281-275-2788
F.B.C. M.U.D. No. 69 & 111 - OPERATOR - MUNICIPAL OPERATIONS & CONSULTING, INC. — 281-367-5511
F.B.C. M.U.D. No. 69 & 111 - ENGINEER - COSTELLO, Inc. _____ 713-783-7788
FORT BEND COUNTY DRAINAGE DISTRICT _____ 281-342-2863

GENERAL NOTES

- THE CONTRACTOR SHALL NOTIFY CONSTRUCTION@FORTBENDCOUNTYTX.GOV OF THE FORT BEND COUNTY ENGINEER'S OFFICE 48 HOURS BEFORE BEGINNING CONSTRUCTION.
- THE CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY TEXAS ONE-CALL (811) AT LEAST 48 HOURS BEFORE PROCEEDING WITH ANY EXCAVATION.
- MAINTAIN A MINIMUM OF 1-FOOT CLEARANCE BETWEEN ALL UTILITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PURCHASING ANY WATER NEEDED DURING CONSTRUCTION OR TESTING.
- DESIGN PROCEDURES ARE IN GENERAL COMPLIANCE WITH THE FORT BEND COUNTY DRAINAGE CRITERIA & CITY OF SUGAR LAND DESIGN MANUAL.
- ALL WORK SHALL BE COMPLETED TO THE SATISFACTION OF FORT BEND COUNTY, CITY OF SUGAR LAND, THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY AND THE ENGINEER
- THESE PLANS PREPARED BY COSTELLO, INC., DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE REGISTERED PROFESSIONAL ENGINEER(S) ON THE CONSTRUCTION PLANS DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEM THAT MAY BE NECESSARY IN THE CONTRACTOR'S COMPLETION OF THE WORK. THE CONTRACTOR SHALL PROVIDE APPROPRIATE SAFETY SYSTEMS IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL LAW, INCLUDING BUT NOT LIMITED TO, OSHA AND ALL PROPOSED OSHA RULES AND REGULATIONS PUBLISHED IN THE FEDERAL REGISTER. IF SUCH RULES AND REGULATIONS ARE MORE STRINGENT THAN RULES AND REGULATIONS OF OFFICIAL RECORD.
- ALL UNSATISFACTORY AND/OR WASTE MATERIALS INCLUDING STRIPPINGS, VEGETATION, ROOTS, CONCRETE, EXCESS UTILITY AND PAVING SPOIL, AND DEBRIS SHALL BE HAULED OFF SITE BY THE CONTRACTOR. THE COST OF THIS WORK WILL BE CONSIDERED INCIDENTAL TO THE OTHER ITEMS OF THE WORK.
- CONTRACTOR SHALL MAINTAIN ADEQUATE DRAINAGE AT ALL TIMES DURING CONSTRUCTION OF PROPOSED IMPROVEMENTS.
- EXISTING UTILITIES ARE INDICATED IN AN APPROXIMATE MANNER ONLY. ALL EXISTING UTILITIES MAY NOT BE INDICATED. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF EXISTING IMPROVEMENTS PRIOR TO CONSTRUCTION OF PROPOSED IMPROVEMENTS. CONTRACTOR SHALL NOTIFY UTILITIES 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION. CONTACT THE FOLLOWING:
TEXAS ONE CALL (811)
WINDSTREAM - SUGAR LAND TELEPHONE AT (281-490-9442)
HOUSTON PIPELINE COMPANY (713-989-7000)
COMCAST CABLE (MR. KENT WILSON AT 281-415-3032)
DOW PIPELINE COMPANY (1-800-223-4412)
ATMOS ENERGY (1-866-322-8667)
CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH ALL UTILITY COMPANIES TO PROVIDE ANY REQUIRED ADJUSTMENTS. ANY DAMAGE TO EXISTING IMPROVEMENTS CAUSED AS A RESULT OF THE CONTRACTOR'S WORK WILL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE.
- ALL EXISTING LANDSCAPING, FENCES, AND OTHER EXISTING IMPROVEMENTS DAMAGED DURING CONSTRUCTION MUST BE REPLACED OR REPAIRED TO THEIR ORIGINAL CONDITION UNLESS SPECIFIED OTHERWISE IN THE CONTRACT DOCUMENTS.
- DELIVERY TICKETS FOR ALL MATERIALS (E.G., CONCRETE, CEMENT STABILIZED SAND, ETC.) SHALL BE MAINTAINED BY THE CONTRACTOR AND UPON REQUEST, BE MADE AVAILABLE FOR REVIEW BY THE ENGINEER.
- THE CONTRACTOR SHALL CONFINE ALL WORK EFFORTS WITHIN THE DESIGNATED AREA (RIGHT-OF-WAY AND EASEMENTS SHOWN ON PLANS), UNLESS SPECIFICALLY AUTHORIZED BY OWNER. EXTREME CARE SHOULD BE EXERCISED NEAR ADJACENT PROPERTY TO PROTECT ANY EXISTING TREES AND PROPERTY.
- THE CONTRACTOR SHALL PROVIDE FLAGMEN AND TRAFFIC DETOUR SIGNAGE AND BARRIERS AS REQUIRED TO MAINTAIN ACCESS AND SAFE TRAFFIC FLOW FOR THE DURATION OF THE CONSTRUCTION PERIOD. A MINIMUM OF ONE TRAFFIC LANE MUST BE AVAILABLE FOR USE AT ALL TIMES. ALL CONSTRUCTION WHICH HINDERS TRAFFIC OR REQUIRES TRAFFIC DIVERSION SHALL BE IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. INCLUDE FLAGMEN AS REQUIRED TO CONTROL TRAFFIC FOR MATERIAL AND OR EQUIPMENT DELIVERIES. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL PREPARE, SUBMIT AND OBTAIN APPROVAL FROM FORT BEND COUNTY, FOR THE PROPOSED TRAFFIC DIVERSION AND CONSTRUCTION PHASING PLAN NECESSARY FOR THIS PROJECT. CONTRACTOR IS REQUIRED TO COMPLETE ALL DRIVEWAYS AND SIDEWALKS ON THE SAME SIDE OF THE ROAD WHICH IS FIRST CONSTRUCTED PRIOR TO BEGINNING ANY WORK ON THE OPPOSITE SIDE OF THE ROADWAY.
- THE CONTRACTOR SHALL COORDINATE WITH THE HOMEOWNER ON ANY WORK THAT AFFECTS HOMEOWNER OR THAT COULD PROHIBIT ENTRANCE TO AND FROM THEIR PROPERTY. IT WILL BE ACCEPTABLE TO PROHIBIT PASSAGE ON THE DRIVEWAY ON THE EVENING THAT THE DRIVEWAY CONCRETE IS PLACED. THICKNESS AND REINFORCEMENT FOR DRIVEWAYS SHALL MATCH EXISTING, BUT AS A MINIMUM SHALL BE #3 BARS AT 24 INCHES CENTER TO CENTER WITH A MINIMUM 4-1/2" THICKNESS.
- NO TRENCHES SHALL BE LEFT OPEN OR UNATTENDED AT ANY TIME.
- ALL DISTURBED AREA SHALL BE REGRADED, SEEDED OR SODDED, AND FERTILIZED.
- IN THE EVENT OF A CONFLICT BETWEEN THE CONSTRUCTION PLANS AND TECHNICAL SPECIFICATIONS, THE CONSTRUCTION PLANS SHALL TAKE PRECEDENCE.
- THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FROM FORT BEND COUNTY.
- EXISTING SANITARY LINES AND WATER LINES ARE INDICATED BASED ON BEST AVAILABLE INFORMATION. THE ACTUAL LOCATION MAY VARY FROM WHAT IS INDICATED ON THE PLANS. PRIOR TO BEGINNING CONSTRUCTION OR LAYOUT OF PROPOSED IMPROVEMENTS, THE CONTRACTOR SHALL DIG TEST HOLES AT EVERY LOCATION WHERE THE PROPOSED RE-USED WATER LINE CROSSES AN EXISTING WATER LINE OR SANITARY SEWER LINE. ELEVATIONS SHALL BE DETERMINED BY THE CONTRACTOR ON THESE EXISTING LINES TO VERIFY THAT THERE WILL BE NO CONFLICTS. THE CONTRACTOR SHALL PROVIDE THE ELEVATION INFORMATION TO THE OWNER. FAILURE TO DIG THESE TEST HOLES AS REQUESTED WILL RESULT IN LOSS OF CONTRACTOR RIGHTS TO CLAIM ANY EXTRAS FOR LOST TIME ON THE PROJECT. IN THE EVENT THAT THE CONTRACTOR STARTS LAYING PIPE AND SUBSEQUENTLY DISCOVERS A CONFLICT, AND HAS NOT PERFORMED THE REQUESTED TEST HOLES, ALL EXTRA COSTS TO RESOLVE THE CONFLICT SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- FOR ALL 8-INCH OR LARGER RE-USED WATER LINES THERE SHALL BE A MINIMUM OF 5' OFFSET FROM THE EDGE OF PAVEMENT. FOR ALL 6-INCH OR SMALLER RE-USED WATER LINES THERE SHALL BE A MINIMUM OF 4' OFFSET FROM THE EDGE OF PAVEMENT. AT ALL ROADWAY INTERSECTIONS THERE SHALL BE A MINIMUM OF 5' OFFSET FROM THE EDGE OF PAVEMENT FOR ALL RE-USED WATER LINES.

RE-USED WATER LINE CONSTRUCTION NOTES

- ALL RE-USED WATER LINES 2" TO 12" SHALL HAVE A MINIMUM OF 4' OF COVER FROM TOP OF CURB TO TOP OF PIPE AND 4' OF COVER FROM NATURAL GROUND IF NO PAVEMENT IS SHOWN TO BE CONSTRUCTED UNLESS OTHERWISE SHOWN ON THE PLANS. ALL RE-USED WATER LINES 16" OR GREATER SHALL HAVE A MINIMUM OF 5' COVER FROM NATURAL GROUND IF NO PAVEMENT IS SHOWN TO BE CONSTRUCTED UNLESS OTHERWISE SHOWN ON THE PLANS.
- RE-USED WATER MAIN FITTINGS SHALL BE SUPPORTED WITH CONCRETE THRUST BLOCKING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY OF THE BLOCKING SO AS TO PREVENT LATERAL MOVEMENT OF SUCH FITTINGS WHEN THE WATER MAIN IS PRESSURE TESTED AND PUT INTO OPERATION.
- ALL RE-USED WATER LINES 4" TO 12" SHALL BE PURPLE POLYVINYL CHLORIDE (PVC) CONFORMING TO AWWA C-900 OR HIGH DENSITY POLYETHYLENE (HDPE) WITH PURPLE MARKINGS CONFORMING TO AWWA C-906 OR APPROVED EQUAL. ALL 2" RE-USED WATER LINES SHALL BE PURPLE PVC ASTM D 2241 SDR 21 RATED 200 PSI, HDPE DR11 IPS WITH PURPLE MARKINGS, OR APPROVED EQUAL. IF HDPE PIPE IS USED, THE CONTRACTOR SHALL USE A PIPE SIZE LARGER THAN INDICATED ON THE PLANS FOR PIPES LARGER THAN 4 INCHES. SEE TABLE BELOW.

CALL OUT	PVC C-900	HDPE C-906
2	2	2
4	4	4
6	6	8
8	8	10
10	10	12
12	12	14
14	14	16
16	16	18
18	18	20

- THE CENTERLINE OF FLUSH VALVES ARE TO BE LOCATED 3'-0" FROM THE BACK OF CURB WITH THE BASE OF FLUSHING VALVE TO BE 0' TO 6" ABOVE THE FINAL FINISHED GRADE. THE BODY OF ALL FLUSH VALVES SHALL BE PAINTED BLACK. THE BONNET SHALL BE PAINTED PURPLE. WATER FLUSHED FROM THE SYSTEM MUST BE DISCHARGED DIRECTLY INTO A SANITARY SEWER MANHOLE. NO DISCHARGE TO THE DRAINAGE SYSTEM IS PERMITTED
- WHEREVER POSSIBLE, ALL MAIN LINE GATE VALVES ARE TO BE LOCATED OPPOSITE PAVING CURB RETURNS AS INDICATED.
- THE CONTRACTOR SHALL NOT OPERATE ANY EXISTING GATE VALVES. CONTACT THE DISTRICT OPERATOR (SEE BELOW) 48 HOURS BEFORE MAKING ANY CONNECTIONS TO THE EXISTING WATER LINE AND TO OPERATE ANY EXISTING GATE VALVE. THE OPERATOR FOR FORT BEND COUNTY MUD NOS. 67, 69, AND 111 ARE BRIAN DUBIEL (832) 361-6032 OR KEITH ARRAINT (832) 458-7141 WITH MUNICIPAL OPERATIONS & CONSULTING, INC. THE OPERATOR FOR FORT BEND COUNTY MUD NOS. 68 & 112 IS CHRIS MANTHEI WITH SI ENVIRONMENTAL AT (832) 435-6114.
- MAINTAIN A MINIMUM OF 9 FEET OF WALL TO WALL SEPARATION BETWEEN RE-USED WATER LINES AND POTABLE WATER LINES. MAINTAIN A MINIMUM OF 3 FEET OF WALL TO WALL SEPARATION BETWEEN RE-USED WATER LINES AND SANITARY SEWERS OR SANITARY SEWER MANHOLES.
- AT LEAST ONE JOINT OF RE-USED WATER LINE PIPE SHALL BE INSTALLED BETWEEN A GATE VALVE AND A PLUG ON ANY DEAD-END LINE.
- FLUSH VALVES SHALL BE AMERICAN DARLING 5-1/2" B-84-8, MUELLER SUPER CENTURION A-423 OR APPROVED EQUAL. THE FLUSH VALVES SHALL MEET THE REQUIREMENTS OF UL 244.
- RE-USED WATER LINES SHALL BE LOCATED 1 FOOT BELOW POTABLE WATER LINES AT ALL CROSSINGS.

SIDEWALK NOTES

- ALL PUBLIC SIDEWALKS PARALLEL TO THE FRONT AND SIDE PROPERTY LINES SHALL BE FOUR FEET (4') IN WIDTH AND CONSTRUCTED OF CONCRETE, NOT LESS THAN FOUR INCHES (4") IN THICKNESS, WITH TOOLED JOINTS LOCATED FIVE FEET (5') ON CENTER AND 1"x4" REDWOOD EXPANSION JOINTS WITH 1/2"x12" REBAR ON 12" CENTERS.
- SIDEWALKS SHALL BE STANDARD BROOM FINISH CONCRETE WITH A FOUR INCH (4") SMOOTH "PICTURE FRAME" BORDER AROUND EACH 5'0"x4'0" SECTION.
- SIDEWALKS ACROSS THE FRONT PROPERTY LINE (AND SIDE PROPERTY LINE ON CORNER LOTS) SHALL BE LOCATED WITHIN THE RIGHT-OF-WAY, SIX INCHES (6") FROM THE PROPERTY LINE.

CAUTION: UNDERGROUND GAS FACILITIES

LOCATION OF CENTERPOINT ENERGY MAIN LINES (TO INCLUDE CENTERPOINT ENERGY, INTRASTATE PIPELINE, LLC. WHERE APPLICABLE) ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. SERVICE LINES ARE USUALLY NOT SHOWN. OUR SIGNATURE ON THESE PLANS ONLY INDICATES THAT OUR FACILITIES ARE SHOWN IN APPROXIMATE LOCATION. IT DOES NOT IMPLY THAT A CONFLICT ANALYSIS HAS BEEN MADE. THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT 1-800-545-6005 OR 811 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.

WHEN CENTERPOINT ENERGY PIPE LINE MARKINGS ARE NOT VISIBLE, CALL (713) 945-8036 OR (713) 967-8037 (7:00 am TO 4:30 pm) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.

WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF CENTERPOINT ENERGY FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES.

WHEN CENTERPOINT ENERGY FACILITIES ARE EXPOSED, SUFFICIENT SUPPORT MUST BE PROVIDED TO THE FACILITIES TO PREVENT EXCESSIVE STRESS ON THE PIPING.

FOR EMERGENCIES REGARDING GAS LINES CALL (713)659-3552 OR (713)207-4200.

THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.

WARNING: OVERHEAD ELECTRICAL LINES

OVERHEAD LINES MAY EXIST ON THE PROPERTY. THE LOCATION OF OVERHEAD LINES HAS NOT BEEN SHOWN ON THESE DRAWINGS AS THE LINES ARE CLEARLY VISIBLE, BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH & SAFETY CODE FORBIDS ACTIVITIES THAT OCCUR IN CLOSE PROXIMITY TO HIGH VOLTAGE LINES, SPECIFICALLY:

ANY ACTIVITY WHERE PERSONS OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES; AND

OPERATING A CRANE, DERRICK, POWER SHOVEL, DRILLING RIG, PILE DRIVER, HOISTING EQUIPMENT, OR SIMILAR APPARATUS WITHIN 10 FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES.

PARTIES RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THE LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED CALL CENTERPOINT ENERGY AT (713) 207-2222.

ACTIVITIES ON OR ACROSS CENTERPOINT ENERGY FEE OR EASEMENT PROPERTY

NO APPROVAL TO USE, CROSS OR OCCUPY CENTERPOINT FEE OR EASEMENT PROPERTY IS GIVEN. IF YOU NEED TO USE CENTERPOINT ENERGY PROPERTY, PLEASE CONTACT OUR SURVEYING & RIGHT OF WAY DIVISION AT (713) 207-6248 OR (713) 207-5769.

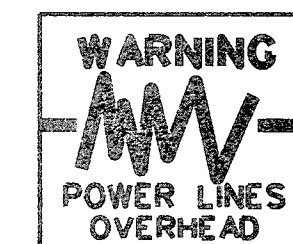
FORT BEND COUNTY

CONSTRUCTION - GENERAL NOTES

- FORT BEND COUNTY MUST BE INVITED TO THE PRE-CONSTRUCTION MEETING.
- CONTRACTOR SHALL NOTIFY FORT BEND COUNTY ENGINEERING DEPARTMENT 48 HOURS PRIOR TO COMMENCING CONSTRUCTION AND 48 HOUR NOTICE TO ANY CONSTRUCTION ACTIVITY WITHIN THE LIMITS OF THE PAVING AT CONSTRUCTION@FORTBENDCOUNTYTX.GOV.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FROM FORT BEND COUNTY PRIOR TO COMMENCING CONSTRUCTION OF ANY IMPROVEMENTS WITHIN COUNTY ROAD RIGHT OF WAYS.
- ALL PAVING IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FORT BEND COUNTY "RULES, REGULATIONS AND REQUIREMENTS RELATING TO THE APPROVAL AND ACCEPTANCE OF IMPROVEMENTS IN SUBDIVISIONS AS CURRENTLY AMENDED.
- ALL ROAD WIDTHS, CURB RADIUS AND CURB ALIGNMENT SHOWN INDICATES BACK OF CURB
- A CONTINUOUS LONGITUDINAL REINFORCING BAR SHALL BE USED IN THE CURBS.
- ALL CONCRETE PAVEMENT SHALL BE 5 1/2 SACK CEMENT WITH A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI AT 28 DAYS. TRANSVERSE EXPANSION JOINTS SHALL BE INSTALLED AT EACH CURB RETURN AND AT A MAXIMUM SPACING OF 60 FEET.
- ALL WEATHER ACCESS TO ALL EXISTING STREETS AND DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES.
- 4"X 12" REINFORCED CONCRETE CURB SHALL BE PLACED IN FRONT OF SINGLE FAMILY LOTS ONLY. ALL OTHER AREAS SHALL BE 6" REINFORCED CONCRETE CURB
- AT ALL INTERSECTION LOCATIONS, TYPE 7 RAMPS SHALL BE PLACE IN ACCORDANCE WITH TXDOT PED-12A STANDARD DETAIL SHEET. A.D.A. - HANDICAP RAMPS SHALL BE INSTALLED WITH STREET PAVING AT ALL INTERSECTIONS AND COMPLY WITH CURRENT A.D.A. REGULATIONS.
- CURB HEADERS ARE REQUIRED AT CURB CONNECTIONS TO HANDICAP RAMPS, WITH NO CONSTRUCTION JOINT WITHIN 5' OF RAMPS.
- ALL INTERSECTIONS UTILIZING TRAFFIC CONTROL MEASURES SHALL HAVE A.D.A. WHEEL CHAIR RAMPS INSTALLED.
- GUIDELINES ARE SET FORTH IN THE TEXAS "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", AS CURRENTLY AMENDED, SHALL BE OBSERVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE FLAGMEN, SIGNING, STRIPING AND WARNING DEVICES, ETC., DURING CONSTRUCTION - BOTH DAY AND NIGHT.
- ALL R1-1 STOP SIGNS SHALL BE 30"X30" WITH DIAMOND GRADE SHEETING PER TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- STREET NAME SIGNAGE SHALL BE ON A 9" HIGH SIGN FLAT BLADE W/REFLECTIVE GREEN BACKGROUND. STREET NAMES SHALL BE UPPER AND LOWERCASE LETTERING WITH UPPERCASE LETTERS OF 6" MINIMUM AND LOWERCASE LETTERS OF 4.5" MINIMUM. THE LETTERS SHALL BE REFLECTIVE WHITE. STREET NAME SIGNS SHALL BE MOUNTED ON STOP SIGN POST.
- A BLUE DOUBLE REFLECTORIZED BUTTON SHALL BE PLACED AT ALL FIRE HYDRANT LOCATIONS. THE BUTTON SHALL BE PLACED 12 INCHES OFF OF THE CENTERLINE OF THE STREET ON THE SAME SIDE AS THE HYDRANT.
- THE PROJECT AND ALL PARTS THEREOF SHALL BE SUBJECT TO INSPECTION FROM TIME TO TIME BY INSPECTORS DESIGNATED BY FORT BEND COUNTY. NO SUCH INSPECTIONS SHALL RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER. NEITHER FAILURE TO INSPECT NOR FAILURE TO DISCOVERY OR REJECT ANY OF THE WORK AS NOT IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS, REQUIREMENTS AND SPECIFICATIONS OF FORT BEND COUNTY OR ANY PROVISION OF THE PROJECT SHALL BE CONSTRUED TO IMPLY AN ACCEPTANCE OF SUCH WORK OR TO RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER.

FORT BEND COUNTY TOLL ROAD AUTHORITY CONSTRUCTION NOTES

- THE CONTRACTOR SHALL OBTAIN A PERMIT FROM FORT BEND COUNTY PERMITS OFFICE TO WORK IN THE SH 99 ROW. CONTACT JOHNNY ORTEGA AT johnny.ortega@fortbendcountytx.gov.
- THE CONTRACTOR SHALL NOTIFY PHIL MARTIN AT LEAST 48 HOURS PRIOR TO WORK AT (713) 574-5261 OR VIA EMAIL AT philmartin@mikestoneassociates.com.
- ANY WORK WITHIN THE TOLL ROAD RIGHT OF WAY REQUIRES A TRAFFIC CONTROL PLAN; EVEN IF LANES ARE NOT AFFECTED. TCP MUST MEET TXDOT OR TMUTCD REQUIREMENTS AND BE REVIEWED BY FBCTRA WITH NO OBJECTIONS PRIOR TO STARTING WORK.
- ACCESS THROUGH SH 99 MUST BE COORDINATED WITH PHIL MARTIN PRIOR TO WORK.
- THE CONTRACTOR MUST CLEAN ROADWAY OF DIRT AND DEBRIS PRIOR AT THE END OF EACH WORK DAY OR PRIOR TO OPENING ROADWAY TO TRAFFIC.
- NO LANE CLOSURES ARE PERMITTED DURING PEAK HOURS WITHOUT AUTHORIZATION FROM FBCTRA. PEAK HOURS ARE FROM 5AM TO 9AM, AND 3PM TO 7PM.



TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-901-2222.

FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date: _____
CenterPoint Energy/Natural Gas Facilities Verification ONLY. (This signature verifies that all gas lines, gas cap and gas lines are correctly marked and service lines are not shown.) Signature valid for six months.

Date: _____
CenterPoint Energy/ELECTRICAL/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities.) Signature valid for six months.

APPROVED: *[Signature]*
DEVELOPMENT COORDINATOR

DATE: 7/15/17

P:\Projects\17082014\REUSE WATER\HOMEWARD WAY\HOMEWARD WAY\ADWDWAY.DWG NOTES.dgn

WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142

NO.	REVISION	DATE	BY

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



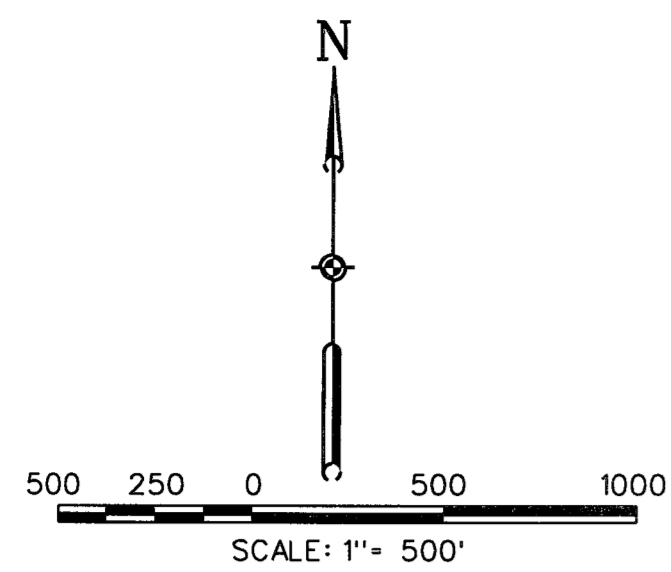
Engineering and Surveying
 9990 Richmond Avenue, Suite 450 N
 Houston, Texas 77042
 (713) 783-7788 (713) 783-3580, Fax
 TBPE FIRM REG. No. 280
 TBPLS FIRM REG. No. 100486

NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2

CONSTRUCTION NOTES

STATE OF TEXAS
 REGISTERED PROFESSIONAL ENGINEER
 Jon R. VanderWilt
 50071
 7/10/2017

SHEET 2
 OF 42 SHEETS
 JOB NO. 19992020-142



LEGEND

- PROP. RE-USED WATER LINE
- - - PROP. RE-USED WATER LINE (BY OTHERS)
- - - Ex. RE-USED WATER LINE (BY OTHERS)

CONTROL BENCHMARKS

HGCS 66 INGS PD NO. AW5410 - STAINLESS STEEL ROD IN SLEEVE LOCATED 4.8 MILES SOUTH ALONG FM OAK ROAD FROM THE JUNCTION OF U.S. HIGHWAY 90 IN KATY, 0.1 MILES SOUTH ALONG F.M. 1463.68 FEET EAST OF THE CENTERLINE OF THE ROAD, 24 FEET SOUTH OF THE CENTER OF A GRAVEL ROAD TO A FARM, 10 FEET SOUTHEAST OF THE SOUTH POST OF A WOOD GATE. ACCESS CAP STAMPED HGCS 66 8818. ELEVATION - 136.50 NAVD83 2001 ADJ.

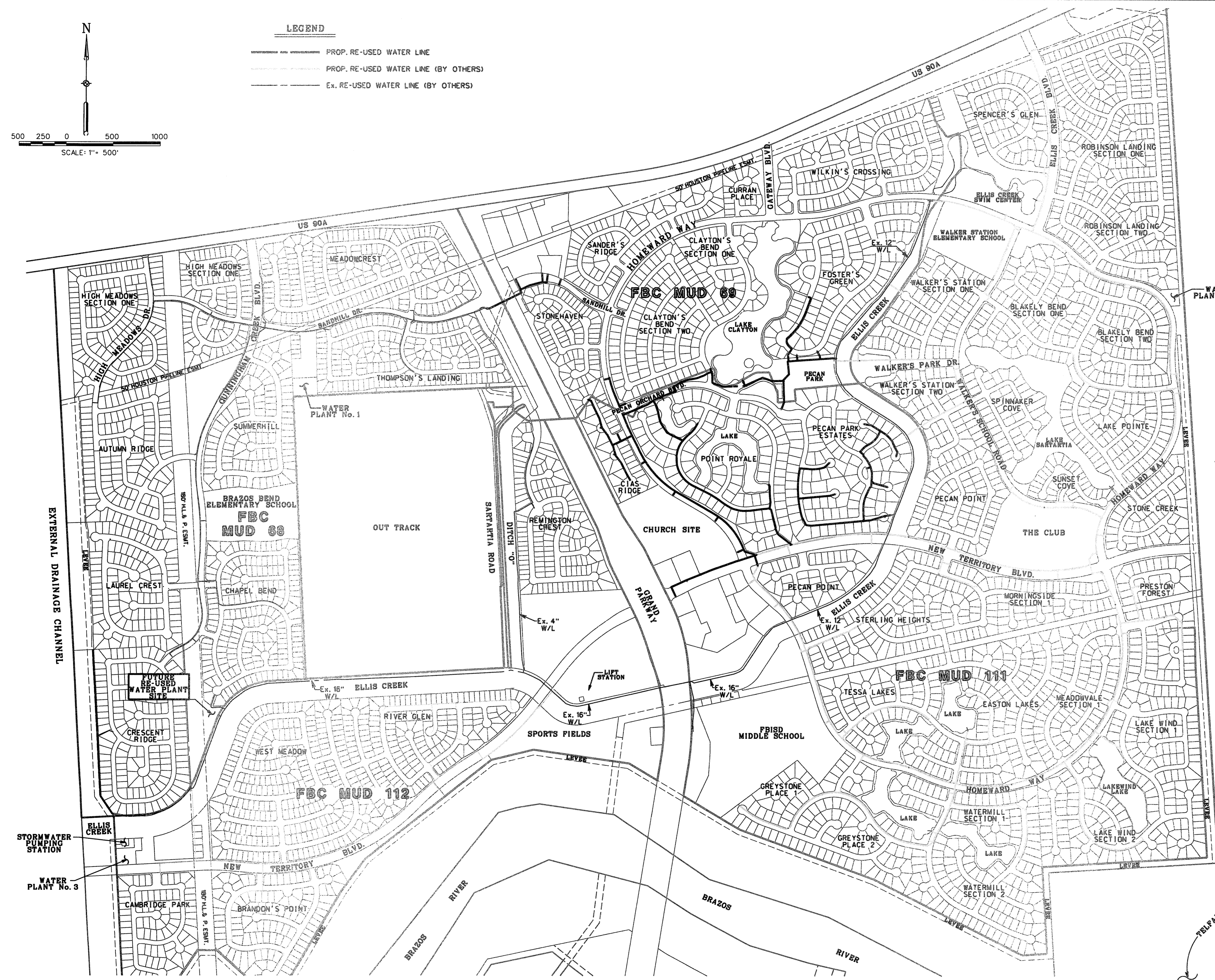
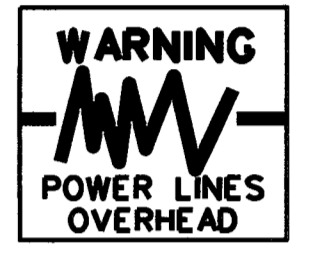
SITE TBM

TBM-1 LOCATED ON NORTH BOLT ON THE TOP FLANGE OF THE FIRST FIRE HYDRANT ON WEST ROW OF HIGH MEADOWS DRIVE AT THE ENTRANCE INTO SUBDIVISION OFF OF US 90A. ELEVATION - 6167

TBM-2437-38-1 BOX OUT ON CENTERLINE OF INLET AT THE BACK-OF-CURB ON THE SOUTH SIDE OF CUNNINGHAM CREEK BLVD., AND IN THE MIDDLE OF THE 100' R/W EASEMENT CROSSING CUNNINGHAM CREEK BLVD. ELEVATION - 7108



Know what's below.
Call before you dig



WATER PLANT No. 2

WATER PLANT No. 1

FUTURE RE-USED WATER PLANT SITE

STORM WATER PUMPING STATION

WATER PLANT No. 3

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-2222.

NOTICE:
FOR YOUR SAFETY YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date: _____
 CenterPoint Energy/Natural Gas Facilities Verification ONLY.
 (This signature verifies that you have shown CPE Natural Gas Lines correctly - call us for more details or contact) (Gas service lines are not shown.)
 Signature VSD for six months.

Date: _____
 CenterPoint Energy/ENERGOSIB Electrical Facilities Verification ONLY.
 (This signature verifies existing underground facilities - call us for more details or contact) (Cable service lines are not shown.)
 Signature VSD for six months.

APPROVED: *[Signature]*
 DEVELOPMENT COORDINATOR

DATE: 7/17/17

NO.	REVISION	DATE	BY

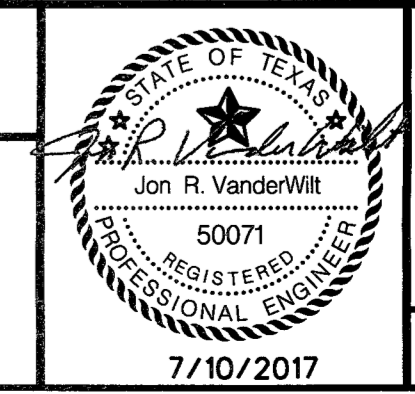
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 DESIGN CHECKED BY: _____
 DRAWN BY: RLM
 COGO CHECKED BY: _____
 SURVEY CHECKED BY: _____
 QA/QC BY: _____ DATE: _____
 QA/QC REVISIONS BY: RLM



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 (713) 783-7788 (713) 783-3580, Fax
 TBPE FIRM REG. No. 280
 TBPLS FIRM REG. No. 100486

NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2

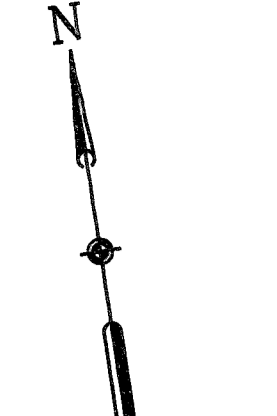
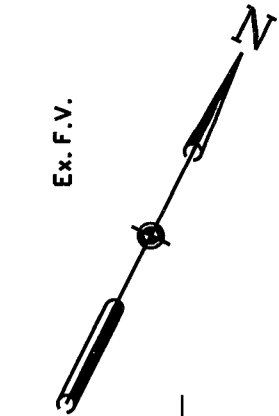
OVERALL LAYOUT



SHEET 3
 OF 42 SHEETS
 JOB NO. 19992020-142
 7/10/2017

C:\Users\jvanderwilt\Documents\19992020-142\NEW TERRITORY WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - OVERALL

WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142



2'-8" x 90" BENDS
 STA. 42-87.54, 99.79 RT.
 STA. 42-87.54, 65.50 RT.
 C.V. & B.
 STA. 43-01.91, 65.50 RT.

3" TAP
 STA. 42-74.26, 65.50 RT.
 1-2" PLUG & CLAMP
 STA. 42-74.26, 58.28 LT.
 2" BLOW OFF VALVE
 STA. 42-92.20, 65.50 RT.

2-2" PLUG & CLAMP
 STA. 45-40.77, 47.00 LT.
 STA. 45-97.01, 42.14 LT.

1-2" PLUG & CLAMP
 STA. 47-36.44, 27.41 LT.

CONTROL POINT
 HCCSD 66 INCH PD NO. 48541 - STAINLESS STEEL ROD IN SLEEVE LOCATED 4.5 MILES SOUTH ALONG PM OAK ROAD FROM THE JUNCTION OF US HIGHWAY 90 IN EAST 0.1 MILES SOUTH ALONG F.M. 163 88 FEET EAST OF THE CENTERLINE OF THE ROAD 34 FEET SOUTH OF THE CENTER OF A GRAVEL ROAD TO A FARM 19 FEET SOUTHWEST OF THE SOUTH POST OF A WOOD GATE. ELEVATION = 56.50 MANDS 2001 ADJ.
 SITE TBM
 TBM-1
 LOCATED ON NORTH BOLT ON THE TOP FLANGE OF THE FIRST FRIE HYDRANT ON WEST ROW OF HIGH WOODS DRIVE AT THE ENTRANCE INTO SUBDIVISION OFF OF US 90A. ELEVATION = 61.67
 TBM-2437-38-1
 BOX CUT ON CENTERLINE OF INLET AT THE BACK-OF-CURB ON THE SOUTH SIDE OF CUNNINGHAM CREEK BLVD. AND IN THE MIDDLE OF THE 180' H&P EASEMENT CROSSING CUNNINGHAM CREEK BLVD. ELEVATION = 71.08

- NOTES**
- CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, WATER & THE OPERATOR TO DETERMINE THE WATER METER CONNECTION POINT.
 - REMOVE AND REPLACE EX. CONCRETE SIDEWALK AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE.
 - CONTRACTOR SHALL MAINTAIN A MINIMUM 1'-FOOT LINE TO OUT HORIZONTAL SEPARATION FOR STORM SEWER UTILITIES AND MANHOLES.
 - OMIT
 - OMIT
 - OMIT
 - OMIT
 - OMIT
 - CONTRACTOR SHALL EXPOSE EX. 8" RE-USED WATER LINE TO VERIFY FLOW LINES.
 - REMOVE AND REPLACE EX. PLANTER AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE.

LEGEND

(1)	INDICATES MIN. VERTICAL CLEARANCE
(2)	INDICATES MIN. VERTICAL CLEARANCE
(4)	INDICATES MIN. VERTICAL CLEARANCE
---	INDICATES RE-USED WATER LINE SIZE AS NOTED
(272)	INDICATES WATER METER SERVICE NUMBER
B	EX. COMCAST CABLE
(Symbol)	INDICATES BLOW OFF VALVE (SEE DETAIL SHEET 3B)
47 (902)	INDICATES LOT NUMBER INDICATES STREET ADDRESS
P	EX. OVERHEAD POWER
E	EX. UNDERGROUND ELECTRICAL
G	EX. GAS LINE
I.C.V.	IRRIGATION CONTROL VALVE
G.V.&B.	GATE VALVE & BOX
F.V.	FLUSH VALVE
L.P.	LIGHT POLE
F.O.	FIBER OPTIC



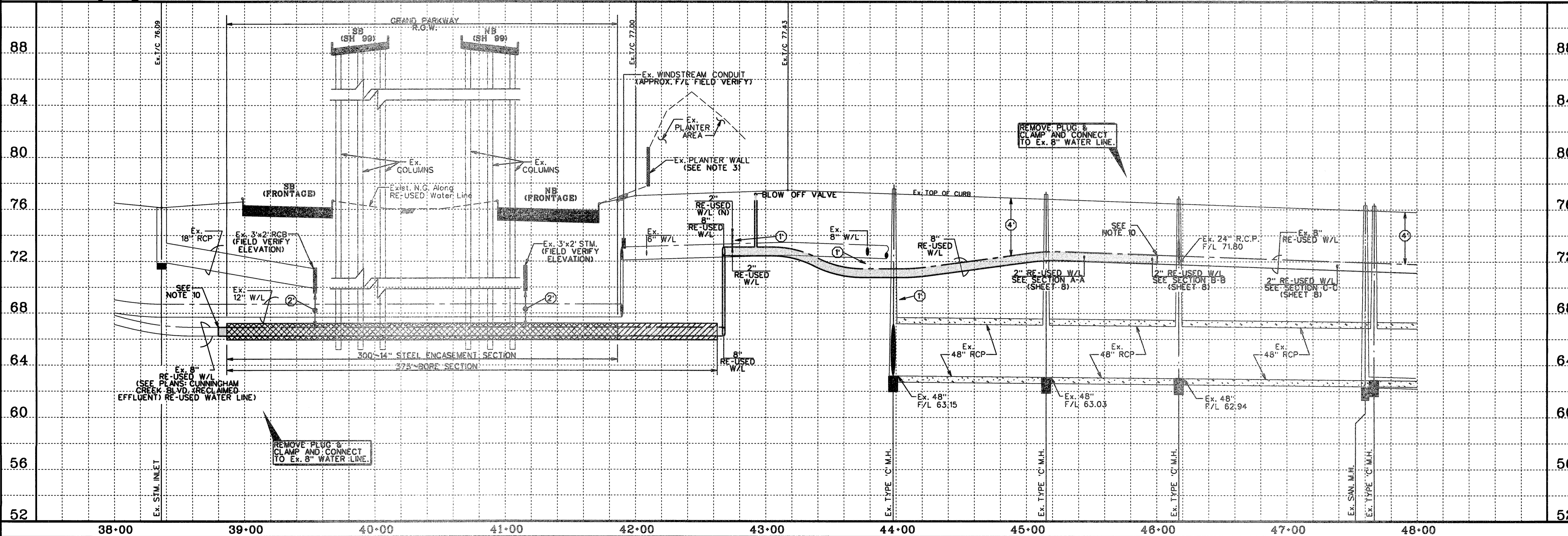
Know what's below.
 Call before you dig

REMOVE PLUG & CLAMP AND CONNECT TO EX. 8" WATER LINE.

REMOVE PLUG & CLAMP AND CONNECT TO EX. 8" WATER LINE.

1-2" TAP
 STA. 47-41.16, 35.66 RT.

SANDHILL DRIVE (R.O.W. VARIES)
 CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



SCALE: 1" = 40' HORIZ.
 1" = 4' VERT.

CL CURVE DATA

(C-1)	P.C. STA. 43-09.10 P.T. STA. 48-74.13 Δ = 64°44'54" R = 500.00' L = 565.04' CB = 383'49.24'E CH = 535.45'
-------	---

VERIFICATION OF PRIVATE UTILITY LINES

FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

DATE: _____

Signature: _____

DATE: _____

Signature: _____

APPROVED: _____
 DEVELOPMENT COORDINATOR

DATE: 7/17/17

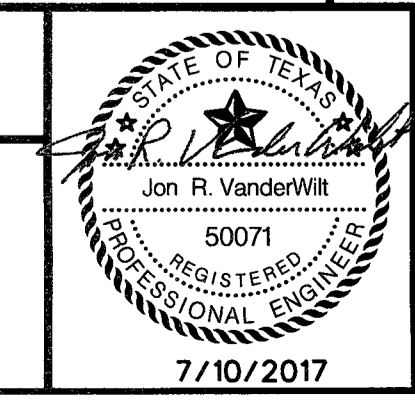
NO.	REVISION	DATE	BY

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

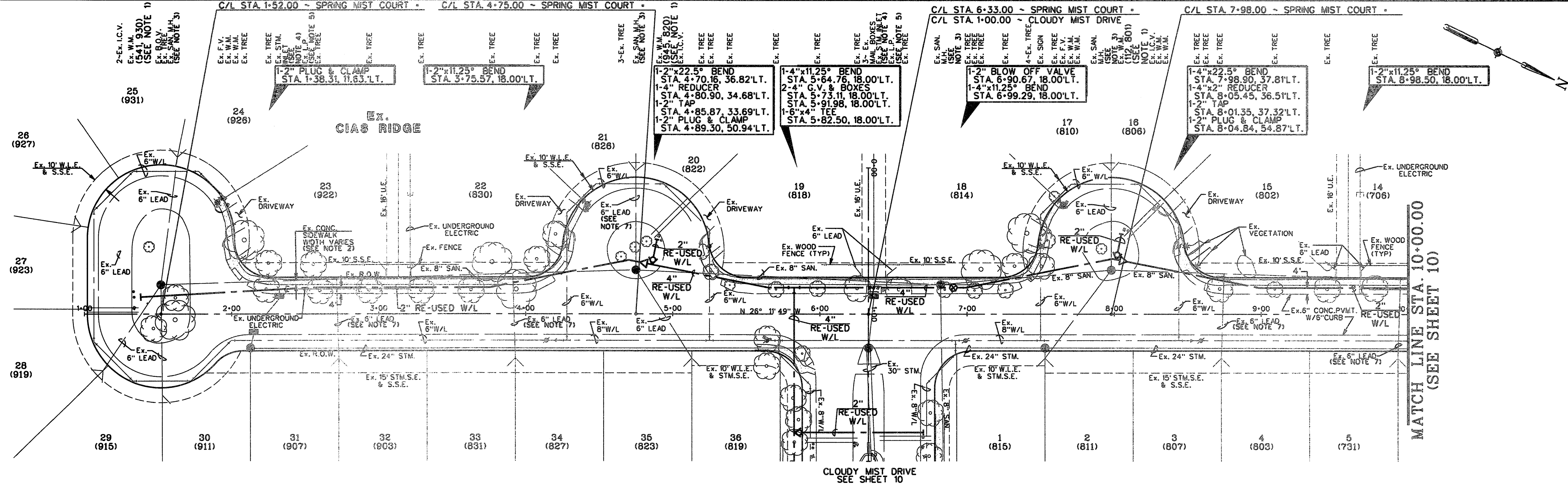


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 Houston, Texas 77042
 (713) 783-7788 (713) 783-3580, Fax
 TBPE FIRM REG. No. 280
 TBPLS FIRM REG. No. 100486

NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2
 PLAN AND PROFILE
 SANDHILL DRIVE
 STA. 38+00.00 TO STA. 46+00.00



SHEET 5
 OF 42 SHEETS
 JOB NO. 19992020-142
 7/10/2017



CONTROL BENCHMARKS
HCSD 66 INGS P.D. NO. 454110 - STAINLESS STEEL ROD IN SLEEVE...

- NOTES
1. CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER...

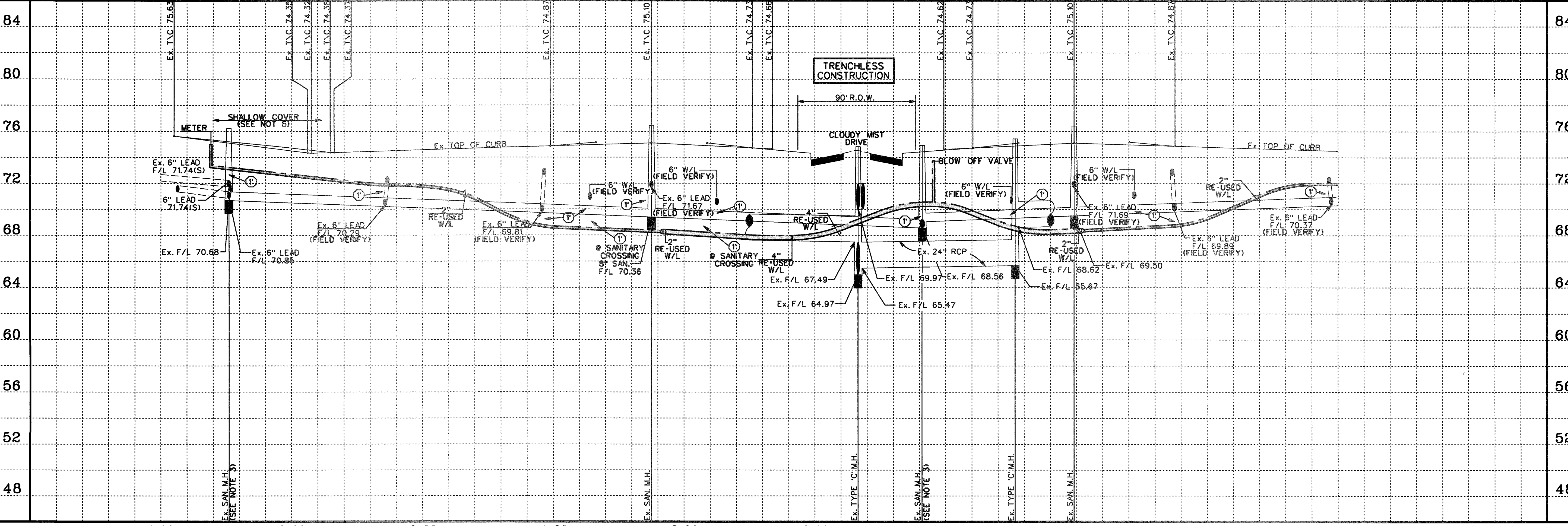
LEGEND
(1) INDICATES MIN. VERTICAL CLEARANCE
(2) INDICATES MIN. VERTICAL CLEARANCE
(4) INDICATES MIN. VERTICAL CLEARANCE



Know what's below. Call before you dig

SPRING MIST COURT (60' R.O.W.)

CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



SCALE: 1" = 40' HORIZ. 1" = 4' VERT.

CL CURVE DATA

TO AVOID FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 737-201-2222.
NOTICE: FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG...

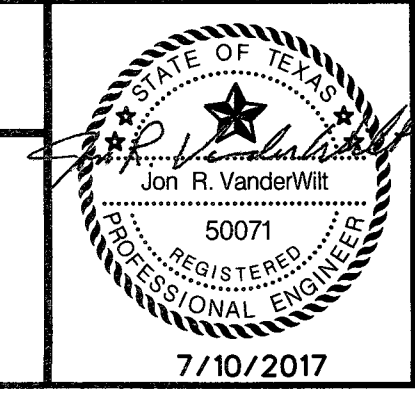
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DESIGNED BY: RLM
DESIGN CHECKED BY:
DRAWN BY: RLM
COGO CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: DATE:
QA/QC REVISIONS BY: RLM



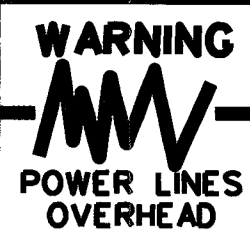
Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580, Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486

NEW TERRITORY
WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
RE-USED WATER LINE PHASE 2
PLAN AND PROFILE
SPRING MIST COURT
STA. 1+00.00 TO STA. 10+00.00

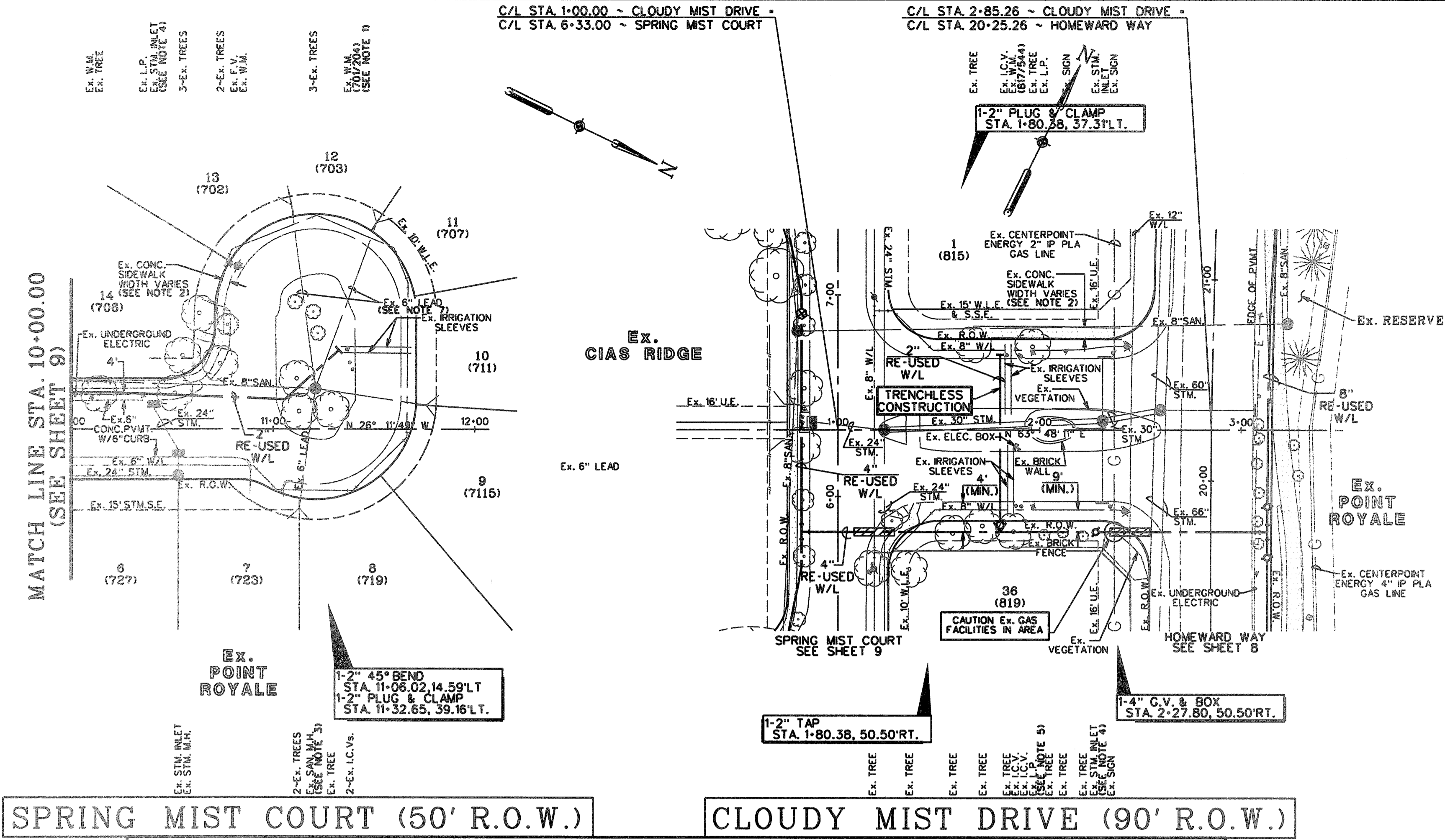


APPROVED: [Signature]
DEVELOPMENT COORDINATOR
DATE: 7/17/17
SHEET 9 OF 42 SHEETS
JOB NO. 19992020-142

WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142



Know what's below. Call before you dig



CONTROL POINTS

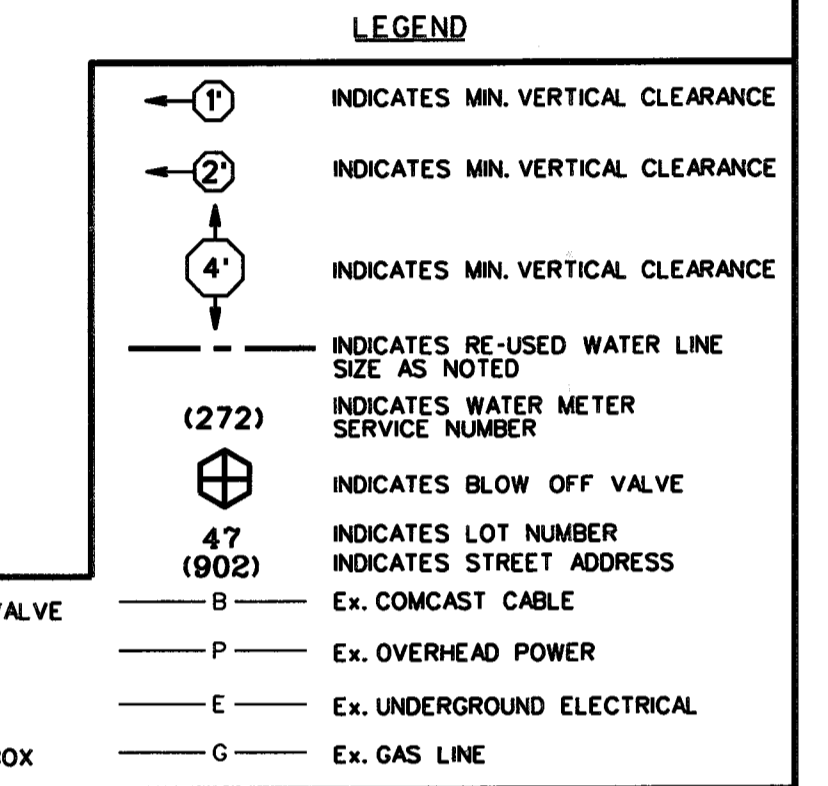
HCSD 66 INGS PD NO. 485410 - STAINLESS STEEL ROD IN SLEEVE LOCATED 4.8 MILES SOUTH ALONG PH OAK ROAD FROM THE JUNCTION OF U.S. HIGHWAY 50 IN KATY, 0.1 MILES SOUTH ALONG F.M. 1483 68 FEET EAST OF THE CENTERLINE OF THE ROAD, 24 FEET SOUTH OF THE CENTER OF A GRAVEL ROAD TO A FARM, 10 FEET SOUTHEAST OF THE SOUTH POST OF A WOOD GATE. ACCESS CAP STAMPED HCSD 66 1088. ELEVATION - 136.60 NAVD83 2001 ADJ.

SITE TBM

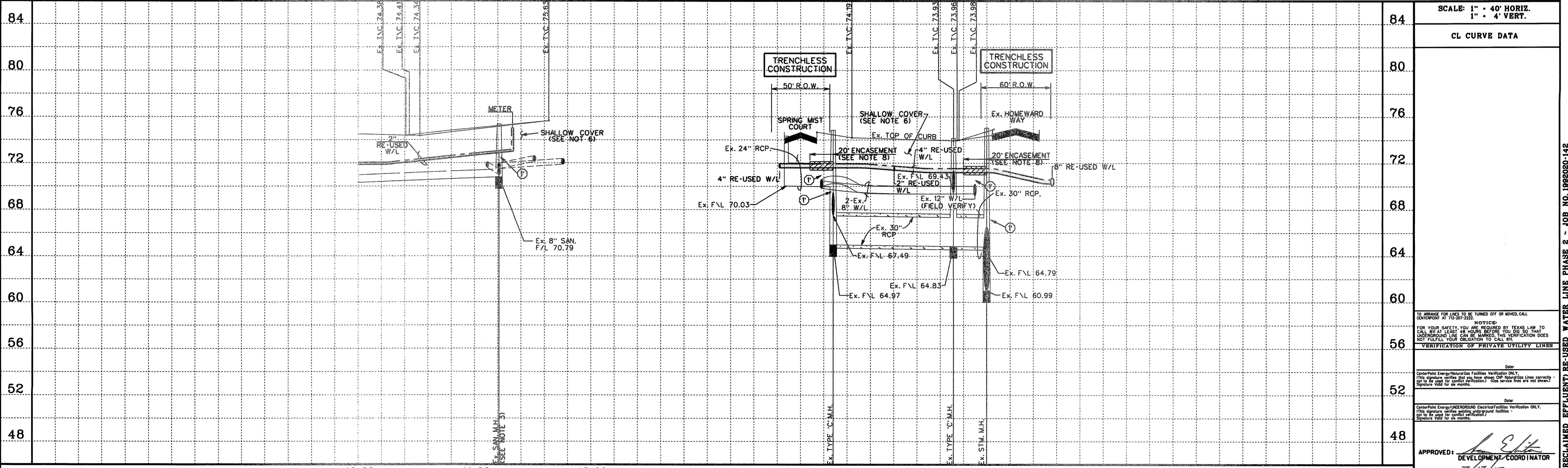
TBM-1 LOCATED ON NORTH BOLT ON THE TOP FLANGE OF THE FIRST FRIE HYDRANT ON WEST ROW OF HIGH MEADOWS DRIVE AT THE ENTRANCE INTO SUBDIVISION OFF OF US 90A. ELEVATION - 81.67

TBM-2437-38-1 BOX OUT ON CENTERLINE OF INLET AT THE BACK-OF-CURB ON THE SOUTH SIDE OF CUNNINGHAM CREEK ELEV. AND IN THE MIDDLE OF THE 180' R&P EASEMENT CROSSING CUNNINGHAM CREEK B.V.D. ELEVATION - 71.08

- NOTES
- CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, INTRCA, & THE OPERATOR TO DETERMINE THE WATER METER CONNECTION POINT.
 - REMOVE AND REPLACE EX. CONCRETE SIDEWALK AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE.
 - CONTRACTOR SHALL MAINTAIN A MINIMUM 3-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR SANITARY SEWER UTILITIES AND MANHOLES.
 - CONTRACTOR SHALL MAINTAIN A MINIMUM 1-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR STORM SEWER UTILITIES AND MANHOLES.
 - CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA.
 - CONTRACTOR SHALL BE AWARE OF SHALLOW COVER. CONTRACTOR SHALL EXERCISE CAUTION.
 - CONTRACTOR SHALL FIELD VERIFY EX. 6" SAN. LEAD PRIOR TO CROSSING WITH PROP. RE-USED WATER LINE.
 - SEE DETAILS SL-WA-13 & SL-WA-15 ON SHEET 38.



CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



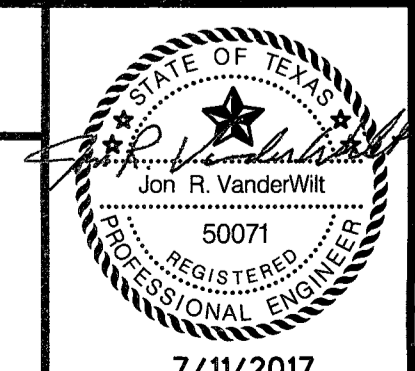
NO.	REVISION	DATE	BY

DESIGNED BY: *RLM*
 DESIGN CHECKED BY: *RLM*
 DRAWN BY: *RLM*
 COGO CHECKED BY: *RLM*
 SURVEY CHECKED BY: *RLM*
 QA/QC BY: *RLM* DATE: *7/17/17*
 QA/QC REVISIONS BY: *RLM*



Engineering and Surveying
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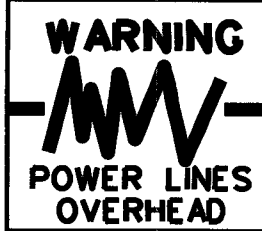
NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2
 PLAN AND PROFILE
 SPRING MIST COURT
 STA. 10+00.00 TO STA. 11+78.00
 & CLOUDY MIST DRIVE



SHEET 10
 OF 42 SHEETS
 JOB NO. 19992020-142
 7/11/2017

P:\2017\19992020\REUSE WATER\WEST HOMEWARD WAY\DWG\NEW TERRITORY RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142

WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142

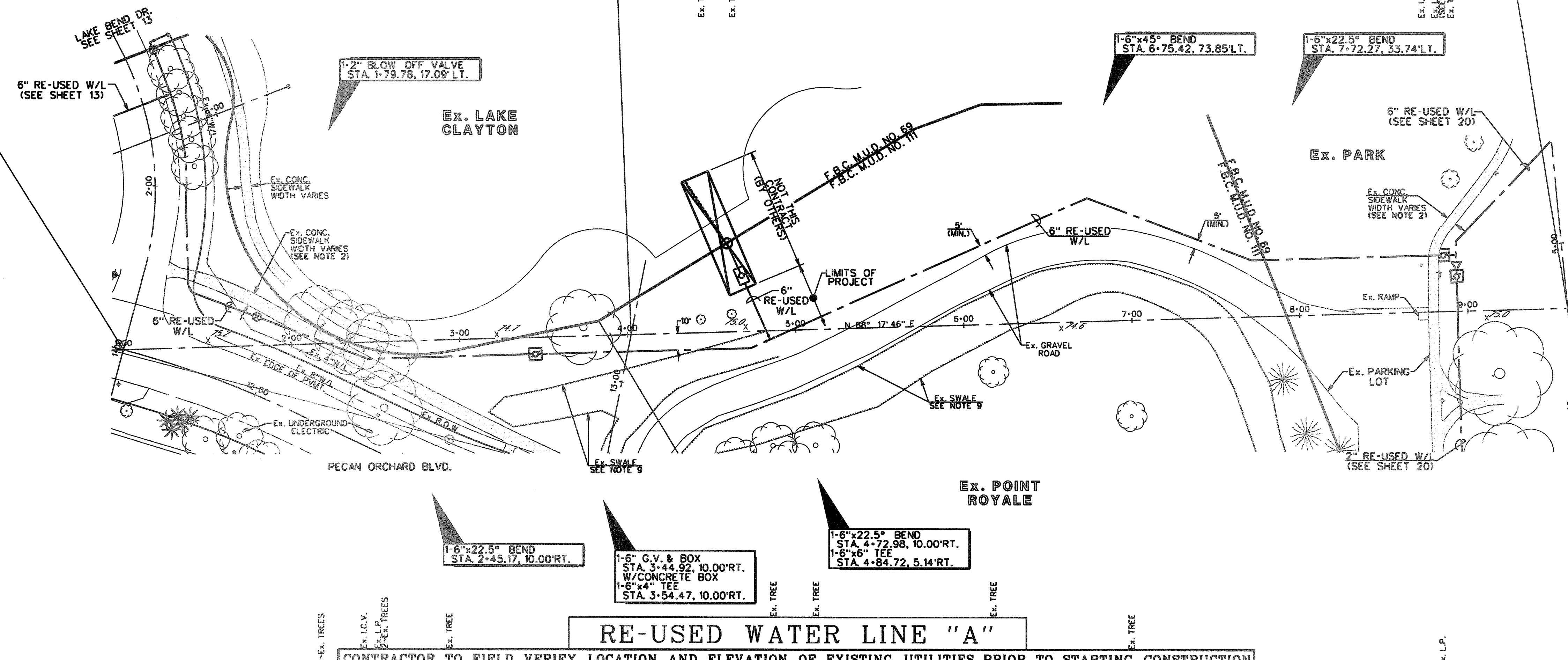


WARNING
POWER LINES
OVERHEAD

C/L STA. 1+00.00 - RE-USED WATER LINE "A" -
C/L STA. 1+00.00 - LAKE BEND DRIVE
C/L STA. 11+17.24 - PECAN ORCHARD BLVD.

C/L STA. 4+02.09 - RE-USED WATER LINE "A" -
C/L STA. 13+28.79 - RE-USED WATER LINE "C"

C/L STA. 9+59.43 - RE-USED WATER LINE "A" -
C/L STA. 4+60.90 - RE-USED WATER LINE "F"



- NOTES**
1. OMIT
 2. REMOVE AND REPLACE EX. CONCRETE SIDEWALK AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE.
 3. OMIT
 4. OMIT
 5. CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA.
 6. OMIT
 7. OMIT
 8. OMIT
 9. CONTRACTOR SHALL REGRADE EX. SWALE AS REQUIRED IN ORDER TO MAINTAIN POSITIVE DRAINAGE.

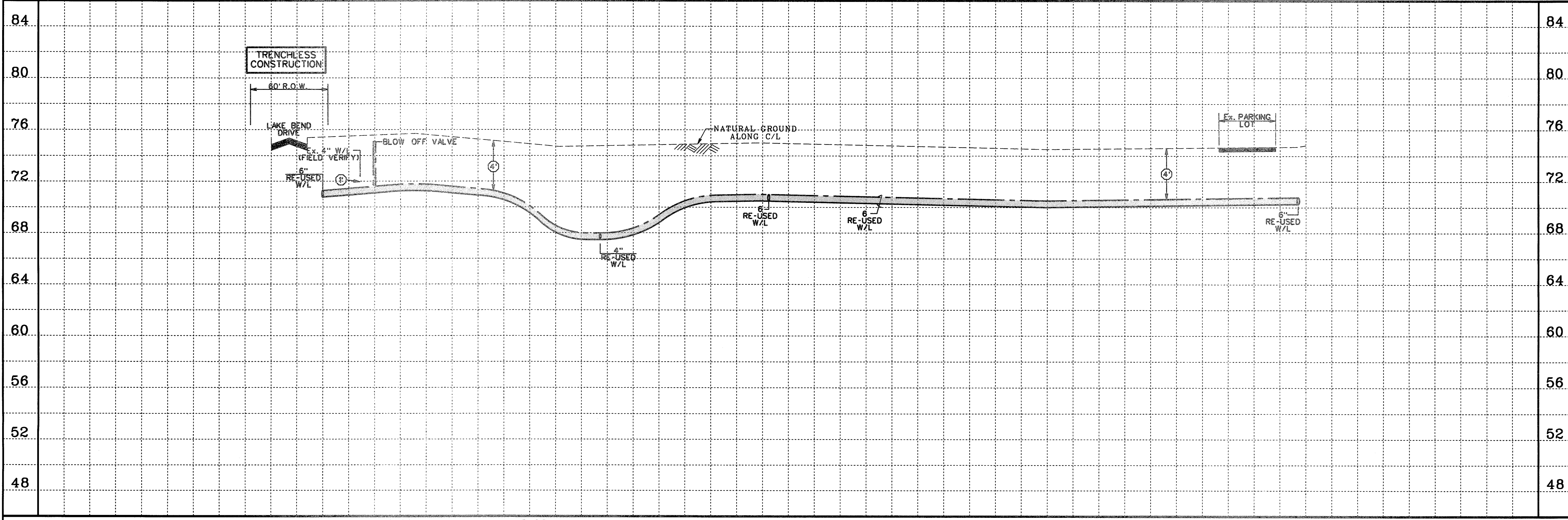
- LEGEND**
- ① INDICATES MIN. VERTICAL CLEARANCE
 - ② INDICATES MIN. VERTICAL CLEARANCE
 - ④ INDICATES MIN. VERTICAL CLEARANCE
 - INDICATES RE-USED WATER LINE SIZE AS NOTED
 - (272) INDICATES WATER METER SERVICE NUMBER
 - ⊕ INDICATES BLOW OFF VALVE (SEE DETAIL SHEET 38)
 - 47 INDICATES LOT NUMBER
 - (902) INDICATES STREET ADDRESS
 - B — EX. COMCAST CABLE
 - P — EX. OVERHEAD POWER
 - E — EX. UNDERGROUND ELECTRICAL
 - G — EX. GAS LINE
 - I.C.V. IRRIGATION CONTROL VALVE
 - G.V.S.B. GATE VALVE & BOX
 - L.P. LIGHT POLE
 - W.M. WATER METER
 - I.C.B. IRRIGATION CONTROL BOX



Know what's below.
Call before you dig

RE-USED WATER LINE "A"

CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



SCALE: 1" = 40' HORIZ.
1" = 4' VERT.

CL CURVE DATA

Station	Curve Data
1+00	60' R.O.W.
2+00	BLow OFF VALVE
3+00	NATURAL GROUND ALONG C/L
4+00	RE-USED W/L
5+00	RE-USED W/L
6+00	RE-USED W/L
7+00	RE-USED W/L
8+00	RE-USED W/L
9+00	RE-USED W/L

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-933-2222.

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUESTED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date: _____
Signature: _____

DATE: 7/11/17

NO.	REVISION	DATE	BY

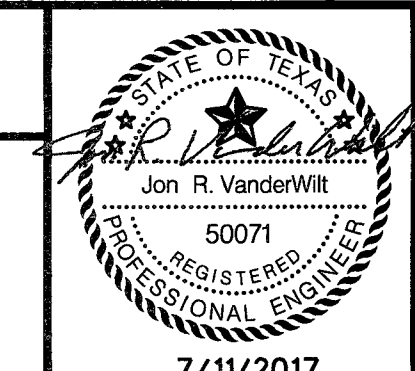
DESIGNED BY: RLM
 DESIGN CHECKED BY: RLM
 DRAWN BY: RLM
 COGO CHECKED BY: _____
 SURVEY CHECKED BY: _____
 QA/QC BY: _____ DATE: _____
 QA/QC REVISIONS BY: RLM



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

NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2
 PLAN AND PROFILE

RE-USED WATER LINE "A"



APPROVED: [Signature]
 DEVELOPMENT COORDINATOR

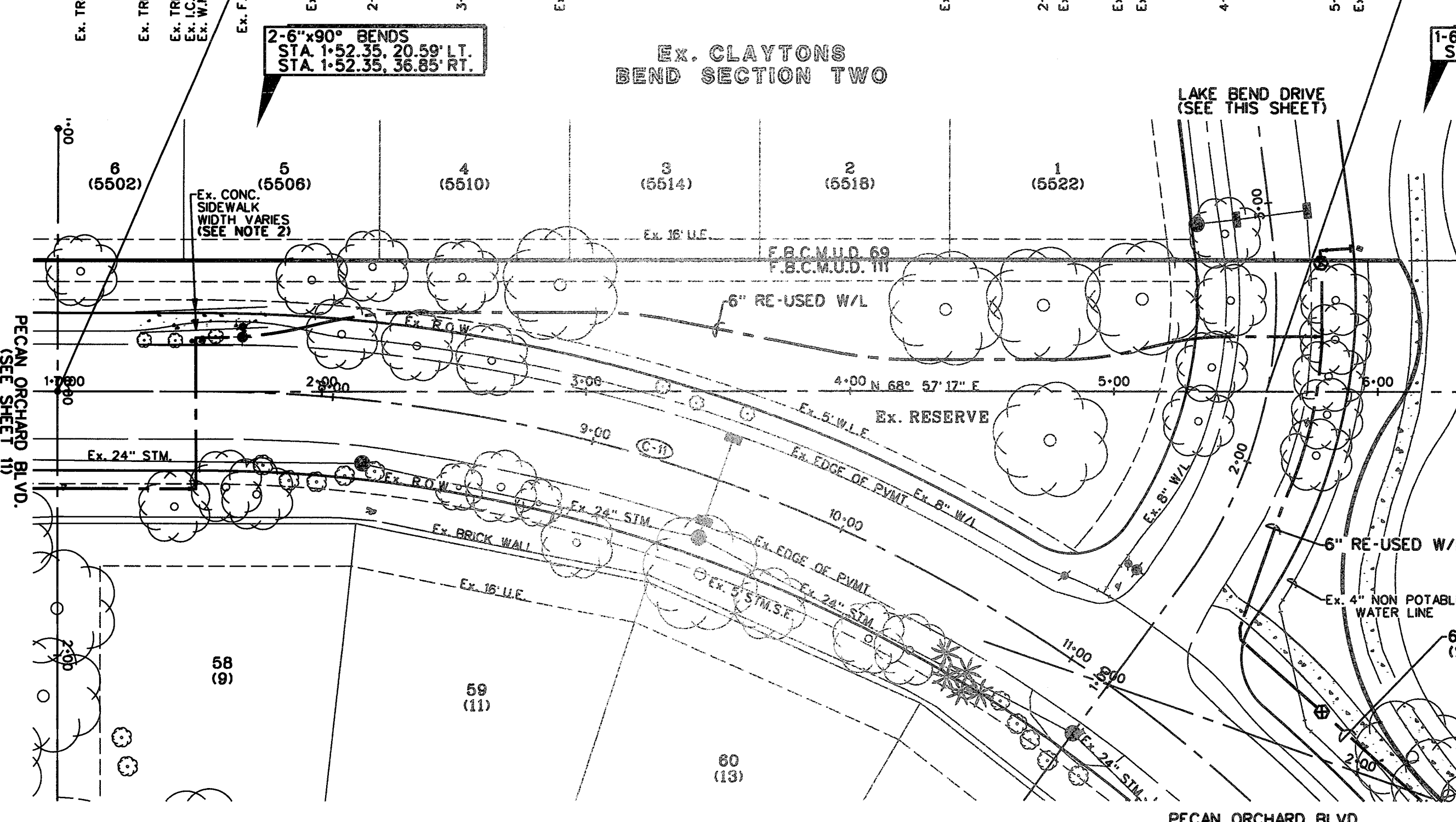
DATE: 7/11/17

SHEET 12
 OF 42 SHEETS
 JOB NO. 19992020-142

E:\Projects\19992020\142\REUSE WATER\1. HOMEWARD WAY\HOMEWARD WAY_HOMERWAY_12_PP.dwg

WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142

C/L STA. 1+00.00 / RE-USED WATER LINE "C"
 C/L STA. 1+00.00 / RE-USED WATER LINE "C"
 C/L STA. 6+95.76 / PECAN ORCHARD BLVD.

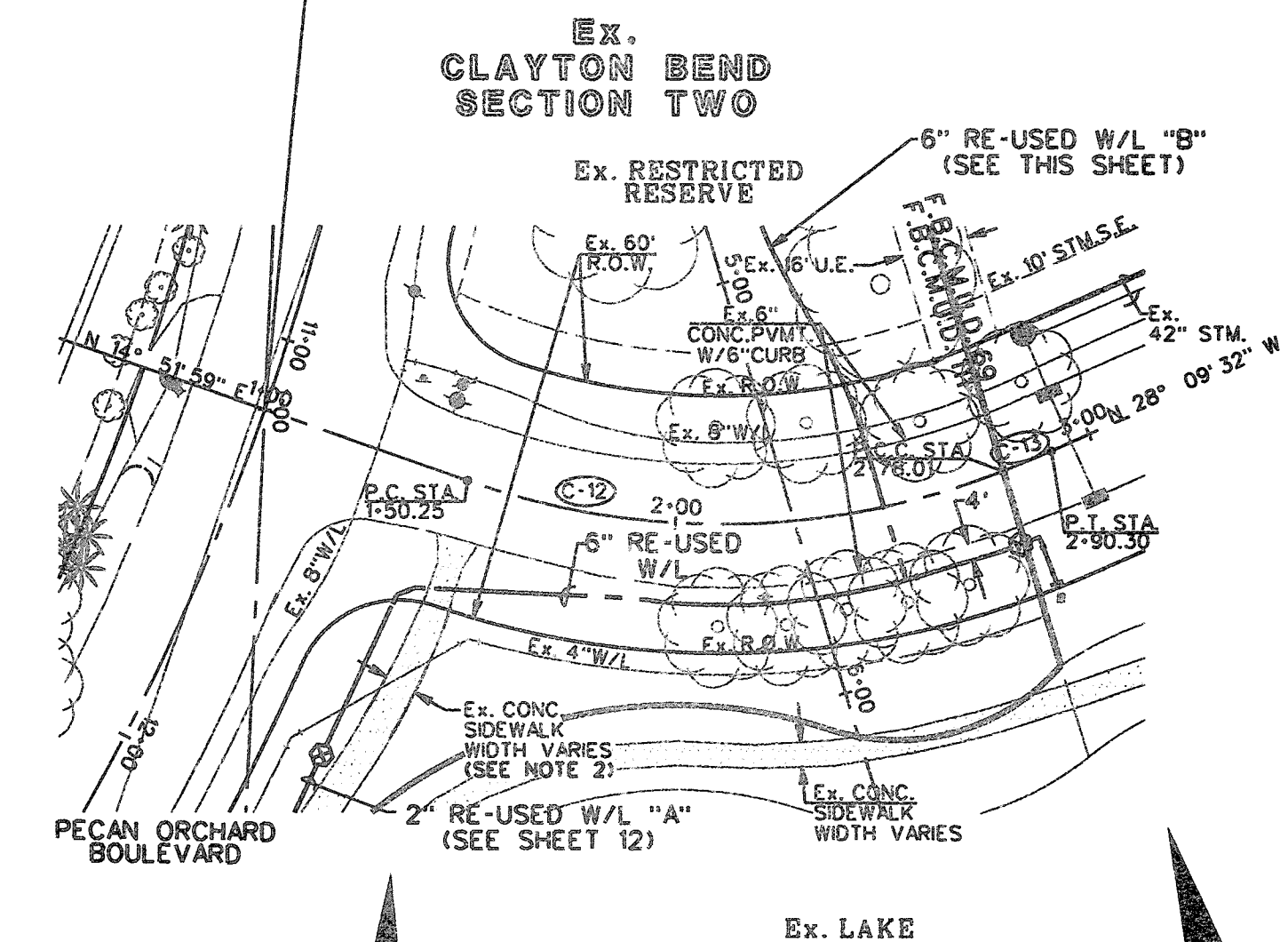


Ex. POINT ROYALE

RE-USED WATER LINE "B"

1-6"x6" TEE
 STA. 5+78.83, 21.11' LT.

C/L STA. 1+00.00 ~ LAKE BEND DR.
 C/L STA. 11+17.24 ~ PECAN ORCHARD BLVD.



Ex. CLAYTON BEND SECTION TWO

1-6"x45" BEND
 STA. 1+43.40, 30.44' RT.
 1-6"x22.5" BEND
 STA. 1+46.95, 27.56' RT.

1-2" BLOW OFF VALVE
 STA. 2+75.84, 17.35' RT.
 1-6" PLUG & CLAMP
 STA. 2+80.06, 28.99' RT.
 1-6"x90" BEND
 STA. 2+80.28, 17.42' RT.

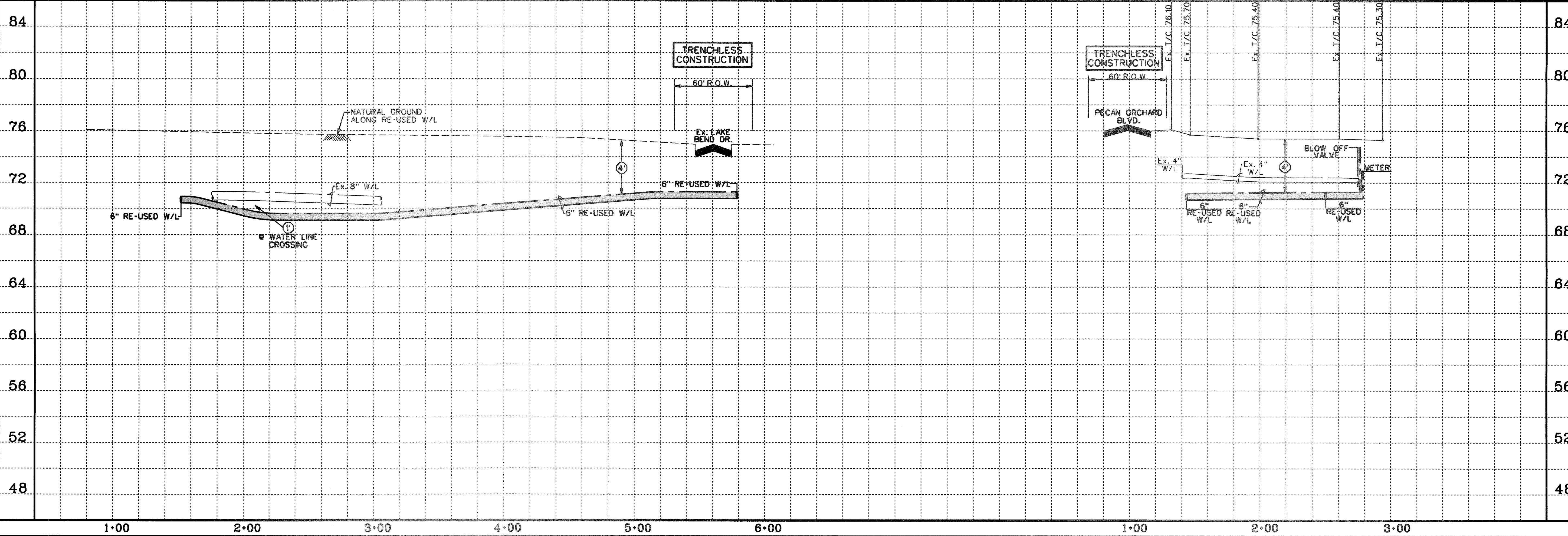
CONTROL BENCHMARKS
 HCSS 66 (HCS PD NO. 48541) - STAINLESS STEEL ROD IN SLEEVE LOCATED 4.8 MILES SOUTH ALONG FM 104 ROAD FROM THE JUNCTION OF I-10 HIGHWAY TO N. EAST, 0.1 MILES SOUTH ALONG FM 1043.66 FEET EAST OF THE CENTERLINE OF THE ROAD, 24 FEET SOUTH OF THE CENTER OF A DRIVEWAY TO A FARM, 10 FEET SOUTH OF THE SOUTH POST OF A WOOD GATE. ACCESS CAP STAMPED HCSS 66. ELEVATION = 136.80 NAVD83 2011 ADJ.
 SITE TBM
 TBM-1 LOCATED ON NORTH BOLT ON THE TOP FLANGE OF THE FIRST FRIE HYDRANT ON WEST ROW OF HIGH MEADOWS DRIVE AT THE ENTRANCE INTO SUBDIVISION OFF OF US 90A. ELEVATION = 60.7
 TBM-2437-38-1 BOX CUT ON CENTERLINE OF ALLEY AT THE BACK-OF-CURB ON THE SOUTH SIDE OF CUMMINGHAM CREEK BLVD. AND IN THE MIDDLE OF THE 150' H&P EASEMENT CROSSING CUMMINGHAM CREEK BLVD. ELEVATION = 71.08

- NOTES
- CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, NTRCA & THE OPERATOR TO DETERMINE THE WATER METER CONNECTION POINT.
 - REMOVE AND REPLACE EX. CONCRETE SIDEWALK AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE.
 - OMIT
 - OMIT
 - CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA.

- LEGEND
- INDICATES MIN. VERTICAL CLEARANCE
 - INDICATES MIN. VERTICAL CLEARANCE
 - INDICATES MIN. VERTICAL CLEARANCE
 - INDICATES RE-USED WATER LINE SIZE AS NOTED
 - INDICATES WATER METER SERVICE NUMBER
 - INDICATES BLOW OFF VALVE (SEE DETAIL SHEET 38)
 - INDICATES LOT NUMBER
 - INDICATES STREET ADDRESS
 - EX. CONCAST CABLE
 - EX. OVERHEAD POWER
 - EX. UNDERGROUND ELECTRICAL
 - EX. GAS LINE
 - IRRIGATION CONTROL VALVE
 - G.V.A.B. GATE VALVE & BOX
 - L.P. LIGHT POLE
 - W.M. WATER
 - F.V. FLUSH VALVE
 - I.C.B. IRRIGATION CONTROL BOX

CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION

LAKE BEND DR. (60' R.O.W.)



SCALE: 1" = 40' HORIZ.
 1" = 4' VERT.

CL CURVE DATA

Ⓢ
 P.C. STA. 7+50.57 TO P.T. STA. 12+25.34
 $\Delta = 46^\circ 29' 57''$
 $R = 585.00$
 $L = 474.76$
 $CB = S87^\circ 47' 45'' E$
 $CH = 461.84$

TO AVOID FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 737-207-2222.

NOTICE: FOR YOUR SAFETY YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date: _____

CenterPoint Energy/Infrastructure Facilities Verification Only. (This signature verifies that you have shown CIP Meter/Gas Lines correctly. Signature valid for six months.) Gas service lines are not shown.

Date: _____

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification Only. (This signature verifies existing underground facilities. Signature valid for six months.)

APPROVED: *[Signature]*
 DEVELOPMENT COORDINATOR

DATE: 7/17/17

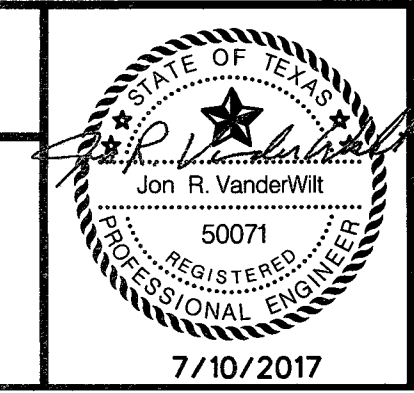
NO.	REVISION	DATE	BY

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



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

NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2
 PLAN AND PROFILE
 RE-USED WATER LINE "B"
 AND LAKE BEND DRIVE

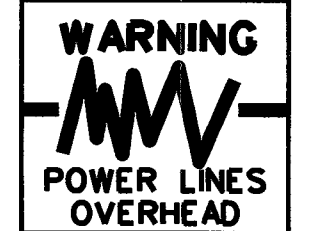


SHEET 13
 OF 42 SHEETS
 JOB NO. 19992020-142
 7/10/2017

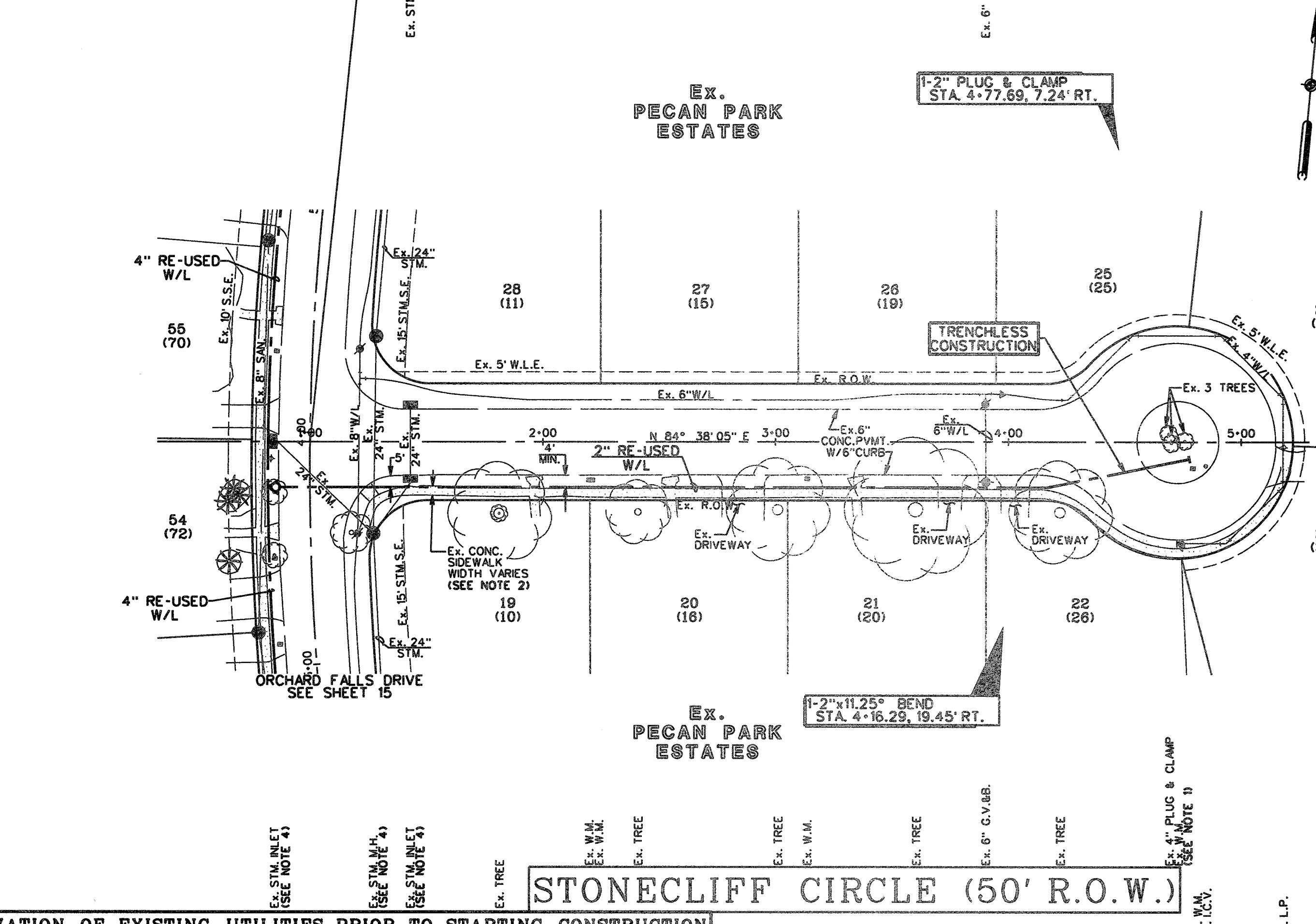
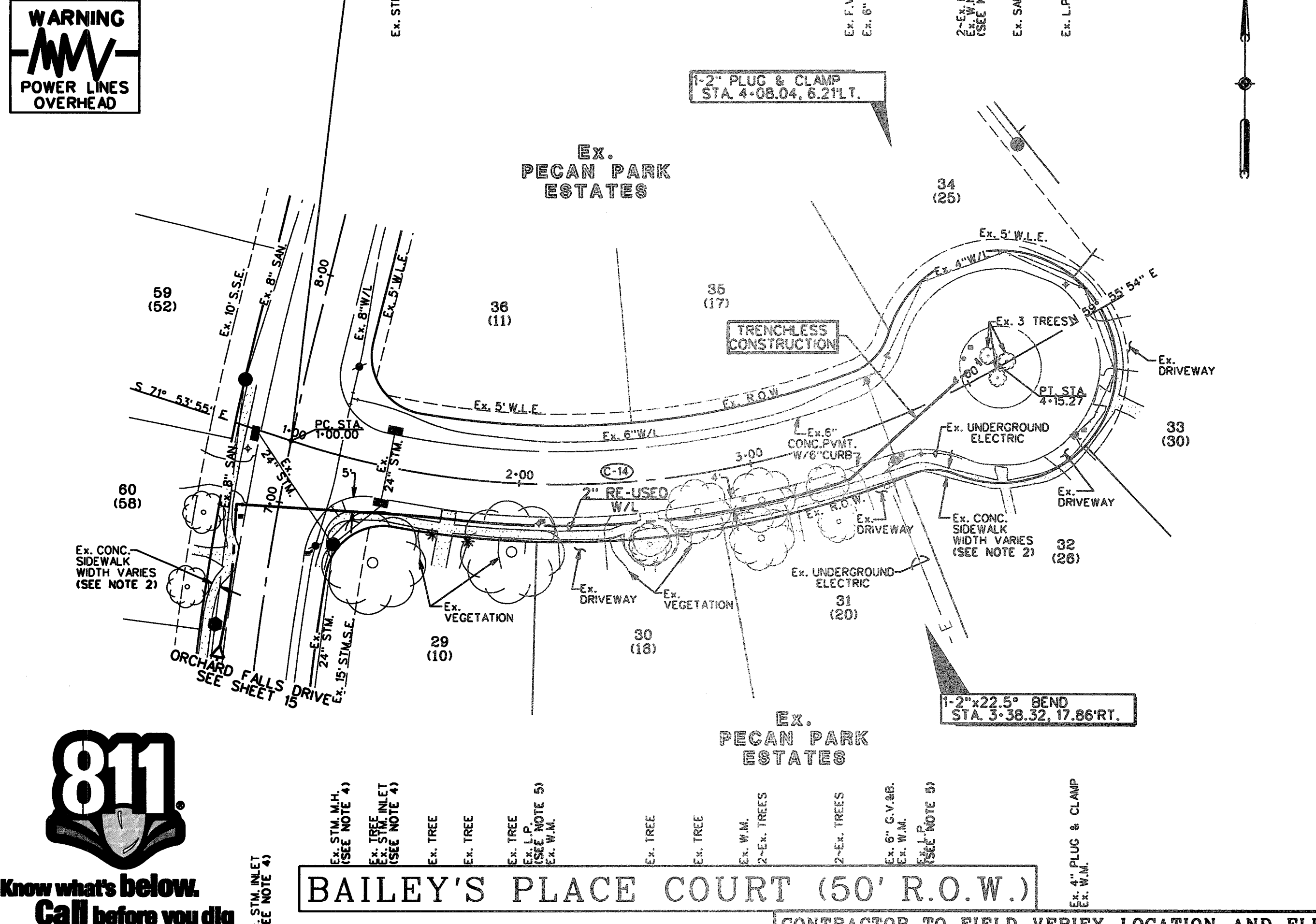
C:\Users\jvanderwilt\Documents\19992020-142\19992020-142-13.dwg

WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142

C/L STA. 1+00.00 - BAILEY'S PLACE COURT
 C/L STA. 7+26.62 - ORCHARD FALLS DRIVE



C/L STA. 1+00.00 - STONECLIFF CIRCLE
 C/L STA. 3+96.02 - ORCHARD FALLS DRIVE



CONTROL BENCHMARKS
 HGCS 66 INGS PD NO. A4541D - STAINLESS STEEL ROD IN SLEEVE LOCATED 4.8 MILES SOUTH ALONG PH OAK ROAD FROM THE JUNCTION OF I-69 HIGHWAY TO W KATY 0.1 MILES SOUTH ALONG E.M. 163.68 FEET EAST OF THE CENTERLINE OF THE ROAD 24 FEET SOUTH OF THE CENTER OF A GRAVEL ROAD TO A FARM 10 FEET SOUTH-EAST OF THE SOUTH POST OF A WOOD GATE. ACCESS CAP STAMPED HGCS 66 1981. ELEVATION = 106.60 NAVD83 2001 ADJ.
 SITE TBM
 TBM-1 LOCATED ON NORTH BOLT ON THE TOP FLANGE OF THE FIRST FRIE HYDRANT ON WEST ROW OF HIGH MEADOWS DRIVE AT THE ENTRANCE INTO SUBDIVISION OFF OF US 90A. ELEVATION = 61.7
 TBM-2437-38-1 BOX OUT ON CENTERLINE OF ALLEY AT THE BACK-OF-CURB ON THE SOUTH SIDE OF CUNNINGHAM CREEK BLVD. AND IN THE MIDDLE OF THE 180' H&P EASEMENT CROSSING CUNNINGHAM CREEK BLVD. ELEVATION = 71.08

- NOTES**
- CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, AT&CA, & THE OPERATOR TO DETERMINE THE WATER METER CONNECTION POINT.
 - REMOVE AND REPLACE EX. CONCRETE SIDEWALK AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE.
 - OMT
 - CONTRACTOR SHALL MAINTAIN A MINIMUM 1-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR STORM SEWER UTILITIES AND MANHOLES.
 - CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA.
 - CONTRACTOR SHALL BE AWARE OF SHALLOW COVER. CONTRACTOR SHALL EXERCISE CAUTION.

LEGEND

	INDICATES MIN. VERTICAL CLEARANCE
	INDICATES MIN. VERTICAL CLEARANCE
	INDICATES MIN. VERTICAL CLEARANCE
	INDICATES RE-USED WATER LINE SIZE AS NOTED
(272)	INDICATES WATER METER SERVICE NUMBER
	INDICATES BLOW OFF VALVE (SEE DETAIL SHEET 38)
47 (902)	INDICATES LOT NUMBER INDICATES STREET ADDRESS
B	EX. COMCAST CABLE
P	EX. OVERHEAD POWER
E	EX. UNDERGROUND ELECTRICAL
G	EX. GAS LINE
I.C.V.	IRRIGATION CONTROL VALVE
G.V.B.B.	GATE VALVE & BOX
L.P.	LIGHT POLE
W.M.	WATER
F.V.	FLUSH VALVE
I.C.B.	IRRIGATION CONTROL BOX

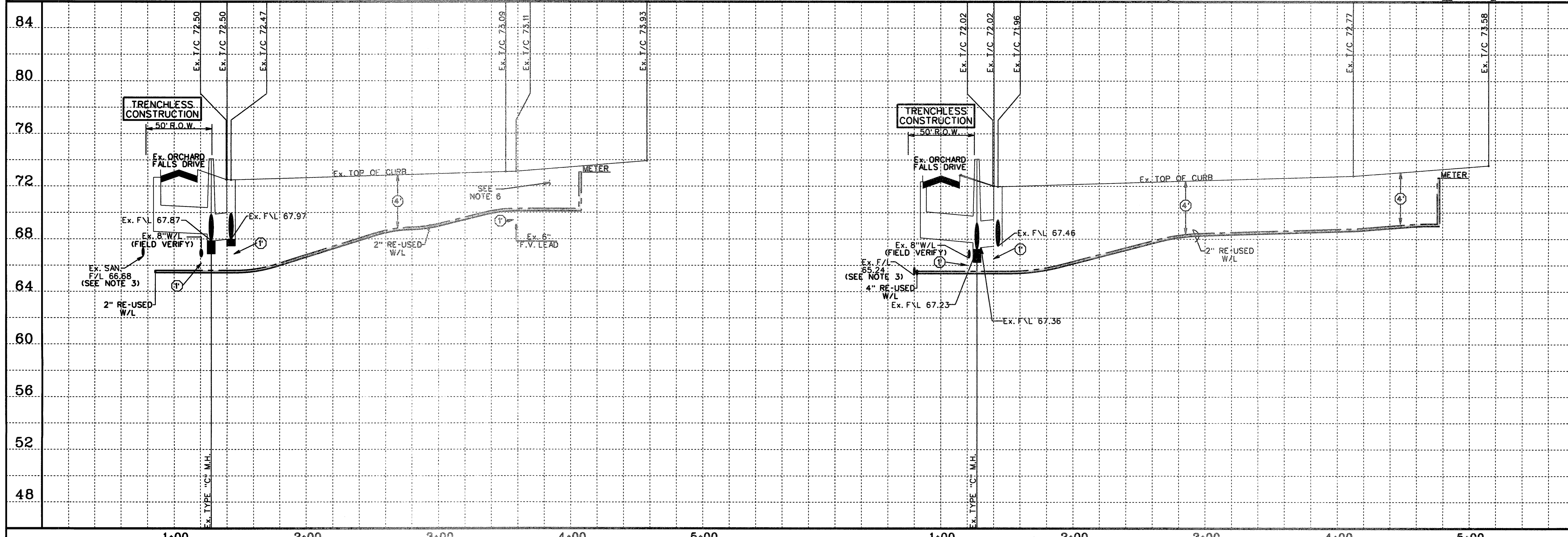


Know what's below. Call before you dig

BAILEY'S PLACE COURT (50' R.O.W.)

STONECLIFF CIRCLE (50' R.O.W.)

CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



SCALE: 1" = 40' HORIZ.
 1" = 4' VERT.

CL CURVE DATA

C-14
 P.C. STA. 1+00.00 TO P.T. STA. 4+15.27
 A = 48°10'11"
 R = 375.00'
 L = 315.27'
 CB = N84°00'59"E
 CH = 306.07'

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-201-2222

FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date: _____
 CenterPoint Energy/Natural Gas Facilities Verification ONLY. (This signature verifies that you have shown CPE/Natural Gas Lines correctly. Signature valid for six months.)

Date: _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities. Signature valid for six months.)

APPROVED:
 DEVELOPMENT COORDINATOR

DATE: 7/17/17

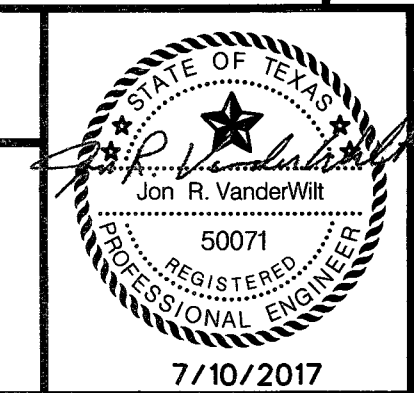
NO.	REVISION	DATE	BY

DESIGNED BY: RLM
 DESIGN CHECKED BY: RLM
 DRAWN BY: RLM
 COGO CHECKED BY: RLM
 SURVEY CHECKED BY: RLM
 QA/QC BY: RLM DATE: 7/17/17
 QA/QC REVISIONS BY: RLM



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

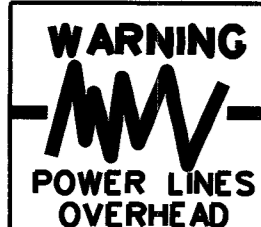
NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2
 PLAN AND PROFILE
 BAILEY'S PLACE COURT
 & STONECLIFF CIRCLE



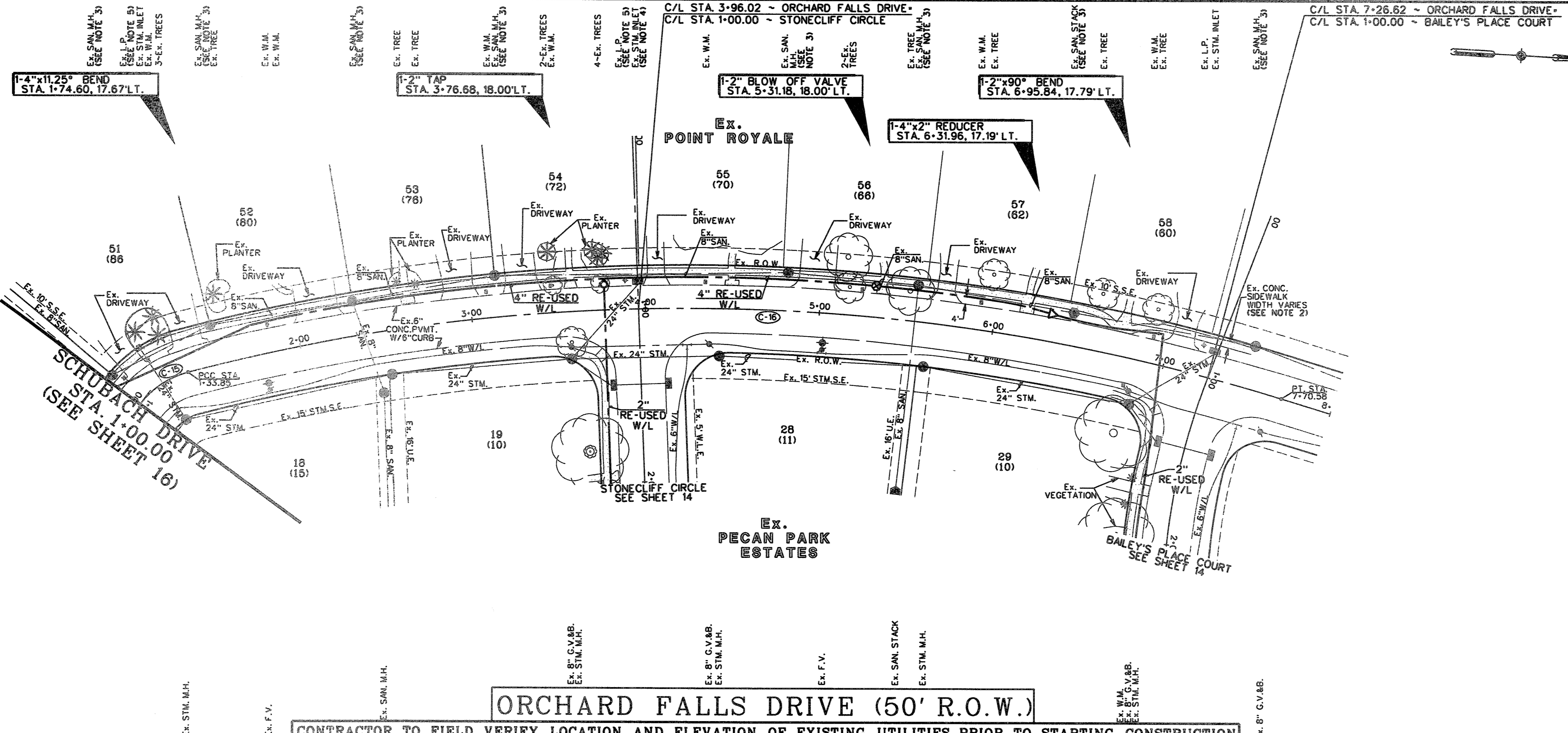
SHEET 14
 OF 42 SHEETS
 JOB NO. 19992020-142
 DATE: 7/10/2017

2/18/2017 History: UNPROCESSED REUSE WATER W. HOMEWARD WAY (INDUSTRIAL) HOMEWARD WAY (INDUSTRIAL) L.P. PP-48

WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142



WARNING POWER LINES OVERHEAD



NOTES

- CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, ITRCA & THE OPERATOR TO DETERMINE THE WATER METER CONNECTION POINT.
- REMOVE AND REPLACE EX. CONCRETE SIDEWALK AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE.
- CONTRACTOR SHALL MAINTAIN A MINIMUM 3-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR SANITARY SEWER UTILITIES AND MANHOLES.
- CONTRACTOR SHALL MAINTAIN A MINIMUM 1-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR STORM SEWER UTILITIES AND MANHOLES.
- CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA.
- CONTRACTOR SHALL BE AWARE OF SHALLOW COVER, CONTRACTOR SHALL EXERCISE CAUTION.

LEGEND

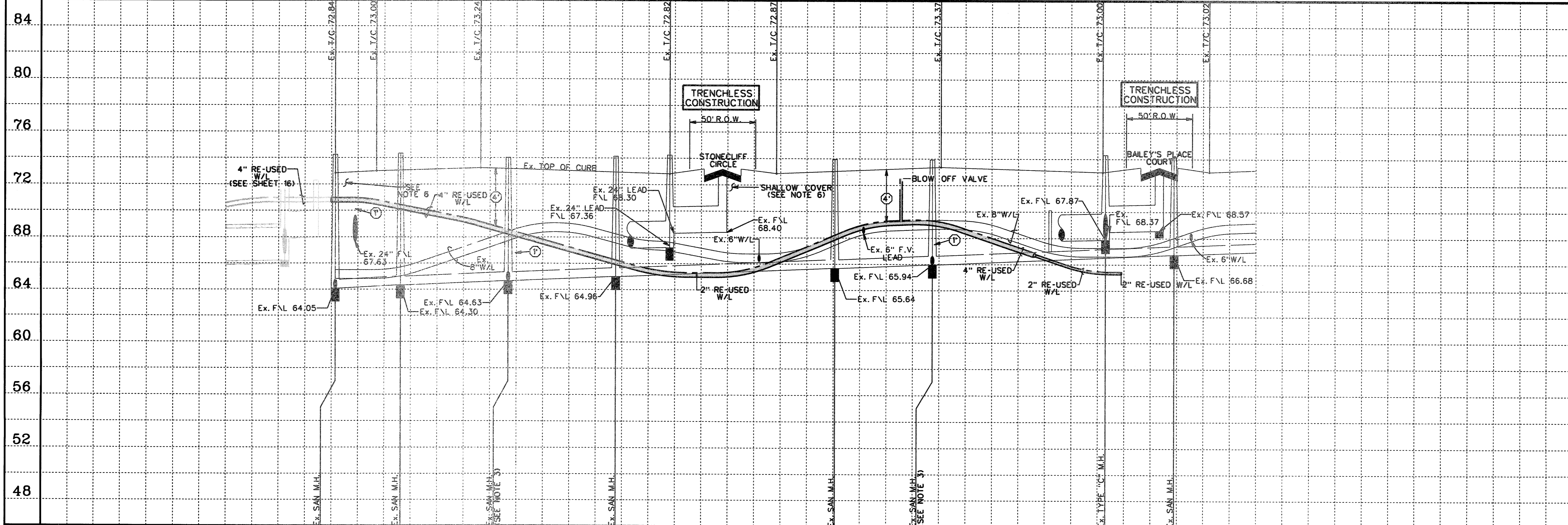
- (1) INDICATES MIN. VERTICAL CLEARANCE
- (2) INDICATES MIN. VERTICAL CLEARANCE
- (4) INDICATES MIN. VERTICAL CLEARANCE
- INDICATES RE-USED WATER LINE SIZE AS NOTED
- (272) INDICATES WATER METER SERVICE NUMBER
- ⊕ INDICATES BLOW OFF VALVE (SEE DETAIL SHEET 30)
- 47 INDICATES LOT NUMBER
- (902) INDICATES STREET ADDRESS
- B Ex. COMCAST CABLE
- P Ex. OVERHEAD POWER
- E Ex. UNDERGROUND ELECTRICAL
- G Ex. GAS LINE
- I.C.V. IRRIGATION CONTROL VALVE
- G.V.&B. GATE VALVE & BOX
- L.P. LIGHT POLE
- W.M. WATER METER
- I.C.B. IRRIGATION CONTROL BOX



Know what's below. Call before you dig

ORCHARD FALLS DRIVE (50' R.O.W.)

CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



SCALE: 1" = 40' HORIZ. 1" = 4' VERT.

CL CURVE DATA

Curve	P.C. STA	P.T. STA	A	R	L	CB	CH
C-15	1+00.00	1+33.85	38° 47' 20"	50.00'	33.85'	N37° 10' 55" W	33.21'
C-16	1+33.85	7+70.58	3° 43' 25"	150.00'	636.73'	N1° 55' 32" W	626.63'

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-201-2222

FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date: _____
CenterPoint Energy/Natural Gas Facilities Verification ONLY. (This signature verifies that you have done the required gas line verification. (Gas service lines are not shown.) Signature valid for six months.

Date: _____
CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies that you have done the required electrical line verification. (Electrical service lines are not shown.) Signature valid for six months.

APPROVED: *[Signature]* DEVELOPMENT COORDINATOR
DATE: 7/17/17

NEW TERRITORY/UNDERGROUND REUSE WATER/HOMEWARD WAY/STATIONARY IS. PP. 48

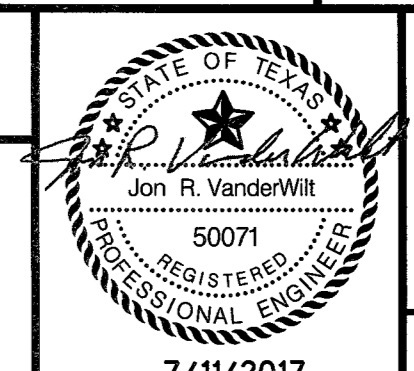
DESIGNED BY: RLM
 DESIGN CHECKED BY: RLM
 DRAWN BY: RLM
 GOOD CHECKED BY:
 SURVEY CHECKED BY:
 QA/QC BY: DATE:
 QA/QC REVISIONS BY: RLM



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

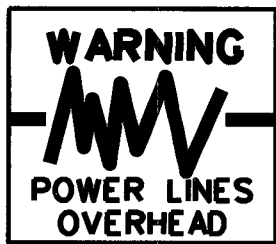
NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2
 PLAN AND PROFILE

ORCHARD FALLS DRIVE
 STA. 1+00.00 TO STA. 8+00.00



SHEET 15
 OF 42 SHEETS
 JOB NO. 19992020-142

WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142

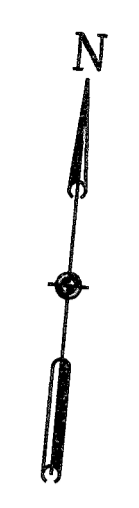


WARNING POWER LINES OVERHEAD

ORCHARD FALLS DRIVE
SEE SHEET 15

Ex. PECAN PARK ESTATES

C/L STA. 6+91.37 - SCHUBACH DRIVE
C/L STA. 14+48.94 - SIERRA OAKS DRIVE



CONTROL BENCHMARKS
HCSD 66 (NGS PD NO. 45411) - STAINLESS STEEL ROD IN SLEEVE LOCATED 4.8 MILES SOUTH ALONG 3RD C&M ROAD FROM THE JUNCTION OF U.S. HIGHWAY 90 IN KATY, 0.1 MILES SOUTH ALONG F.M. 363 66 FEET EAST OF THE CENTERLINE OF THE ROAD, 24 FEET SOUTH OF THE CENTER OF A GRAVEL ROAD TO A FARM 19 FEET SOUTHWEST OF THE SOUTH POST OF A WOOD GATE. ACCESS CAP STAMPED HCSD 66 1988. ELEVATION = 136.80 NAVD88 2001 ADJ.
SITE TBM
TBM-1 LOCATED ON NORTH BOLT ON THE TOP FLANGE OF THE FIRST FRIE HYDRANT ON WEST ROW OF HIGH MEADOWS DRIVE AT THE ENTRANCE INTO SUBDIVISION OFF OF US 90A. ELEVATION = 61.67
TBM-2437-38-1 BOX OUT ON CENTERLINE OF INLET AT THE BACK-OF-CURB, ON THE SOUTH SIDE OF CUNNINGHAM CREEK BLVD. AND IN THE MIDDLE OF THE 10' H&P EASEMENT CROSSING CUNNINGHAM CREEK BLVD. ELEVATION = 71.08

- NOTES
1. CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, ITRCA & THE OPERATOR TO DETERMINE THE WATER METER CONNECTION POINT.
 2. REMOVE AND REPLACE EX. CONCRETE SIDEWALK AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE.
 3. OMIT
 4. CONTRACTOR SHALL MAINTAIN A MINIMUM 1-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR SANITARY SEWER UTILITIES AND MANHOLES.
 5. CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA.
 6. CONTRACTOR SHALL BE AWARE OF SHALLOW COVER. CONTRACTOR SHALL EXERCISE CAUTION.
 7. OMIT
 8. OMIT
 9. OMIT
 10. CONTRACTOR SHALL EXPOSE EX. 6" RE-USED WATER LINE TO VERIFY FLOWLINES.

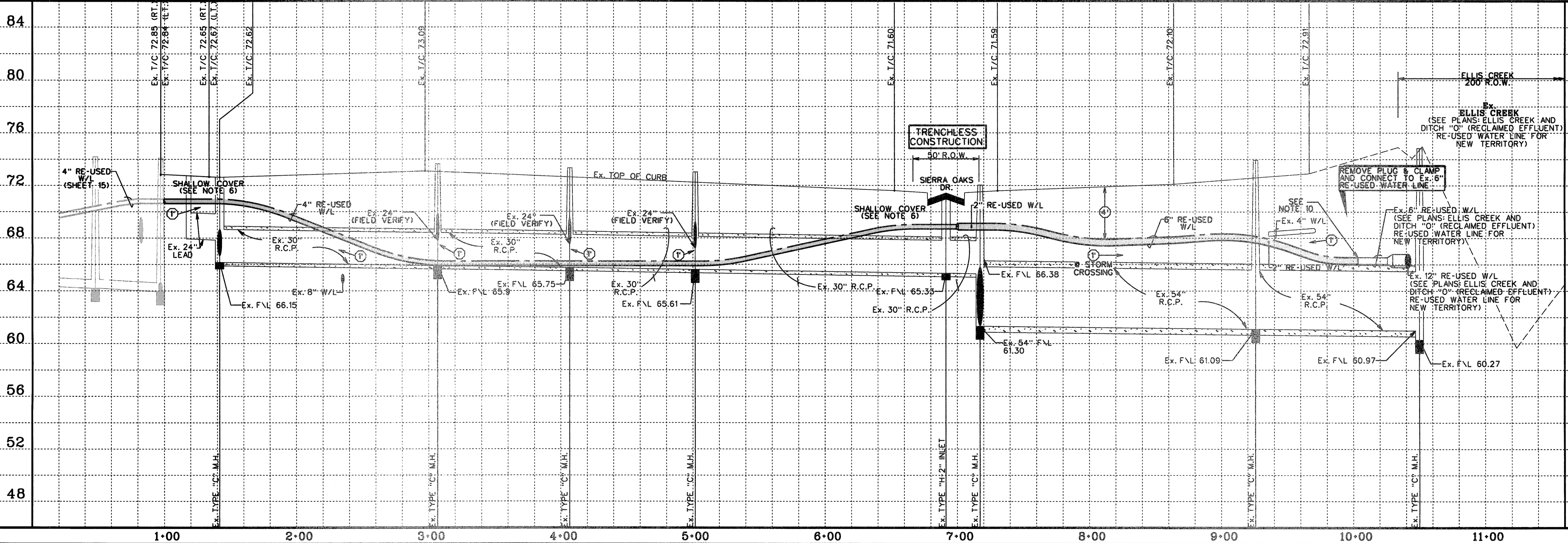
LEGEND

- ① INDICATES MIN. VERTICAL CLEARANCE
- ② INDICATES MIN. VERTICAL CLEARANCE
- ④ INDICATES MIN. VERTICAL CLEARANCE
- INDICATES RE-USED WATER LINE SIZE AS NOTED
- (272) INDICATES WATER METER SERVICE NUMBER
- ⊕ INDICATES BLOW OFF VALVE (SEE DETAIL SHEET 38)
- 47 (902) INDICATES LOT NUMBER INDICATES STREET ADDRESS
- B Ex. COMCAST CABLE
- P Ex. OVERHEAD POWER
- E Ex. UNDERGROUND ELECTRICAL
- G Ex. GAS LINE
- I.C.V. IRRIGATION CONTROL VALVE
- G.V.&B. GATE VALVE & BOX
- L.P. LIGHT POLE
- W.M. WATER METER
- I.C.B. IRRIGATION CONTROL BOX



Know what's below. Call before you dig

SCHUBACH DRIVE (60' R.O.W.)
CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



SCALE: 1" = 40' HORIZ.
1" = 4' VERT.

CL CURVE DATA

(C-17)

P.C. STA. 1+00.00 TO P.T. STA. 1+33.85
Δ = 38°47'20"
R = 50.00'
C = 33.85'
CB = 57°58'15"E
CH = 33.21

FOR YOUR SAFETY YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date: _____

Signature: _____

APPROVED: *[Signature]*
DEVELOPMENT COORDINATOR

DATE: 7/17/17

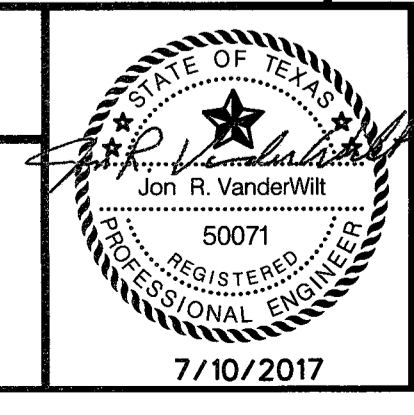
NO.	REVISION	DATE	BY

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



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

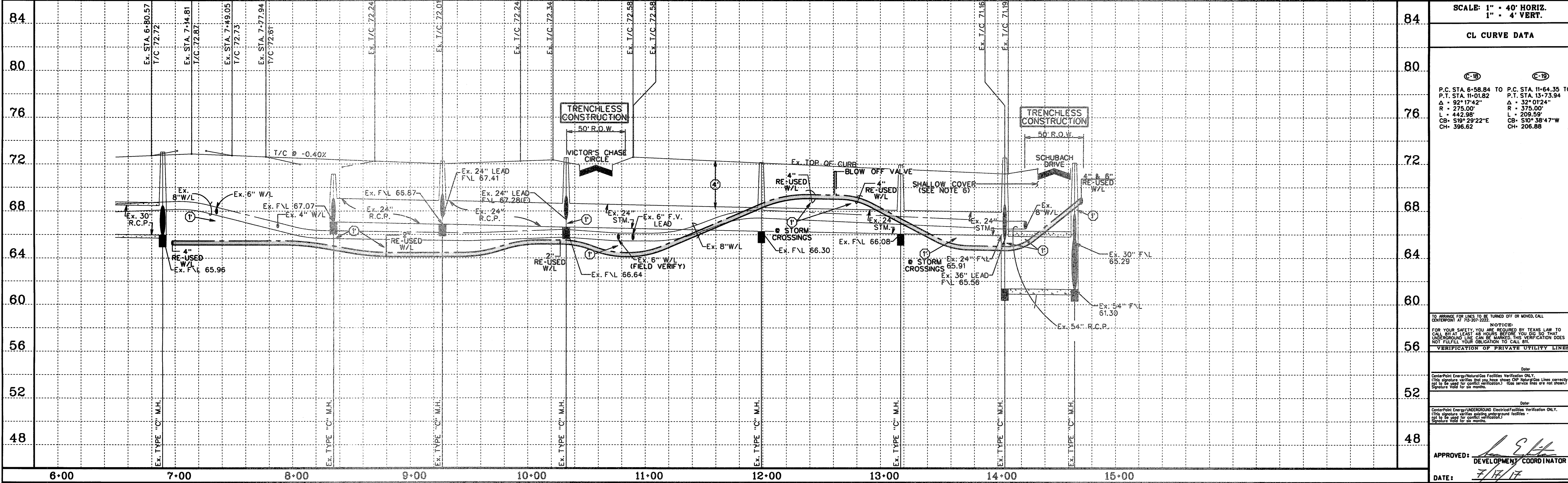
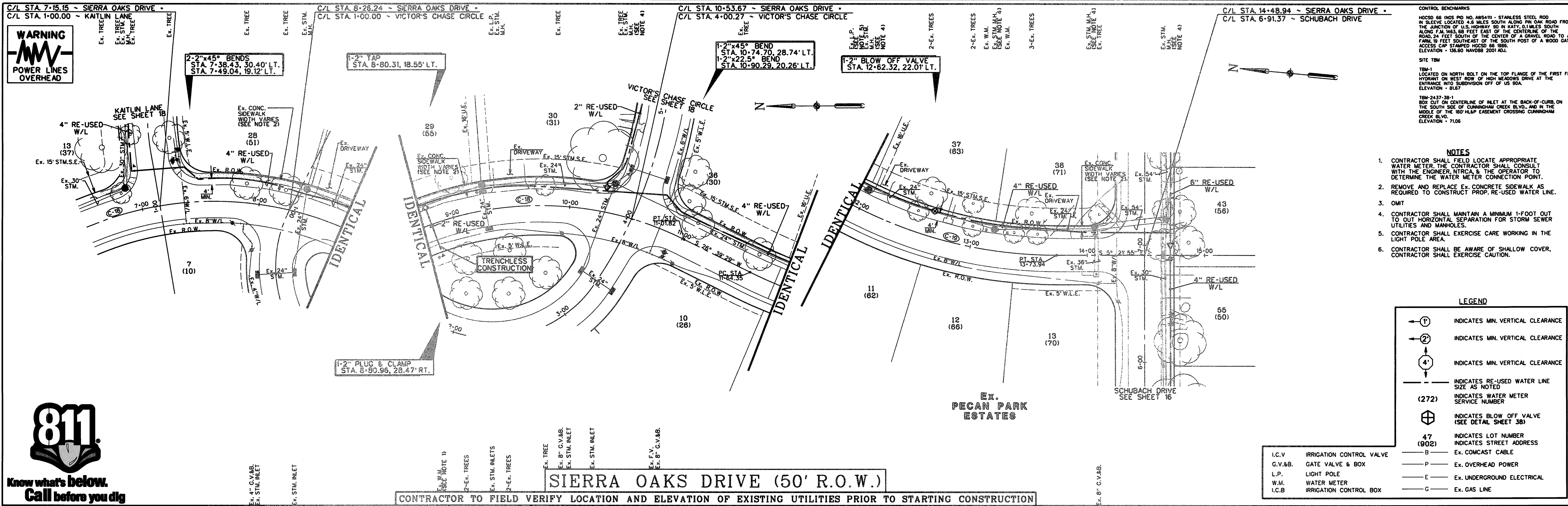
NEW TERRITORY
WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
RE-USED WATER LINE PHASE 2
PLAN AND PROFILE
SCHUBACH DRIVE
STA. 1+00.00 TO STA. 11+00.00



SHEET 16
OF 42 SHEETS
JOB NO. 19992020-142
7/10/2017

2/1/2017 10:50:44 AM W:\PROJECTS\19992020-142\JOB\19992020-142.dwg

WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142



NO.	REVISION	DATE	BY

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

Costello

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

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

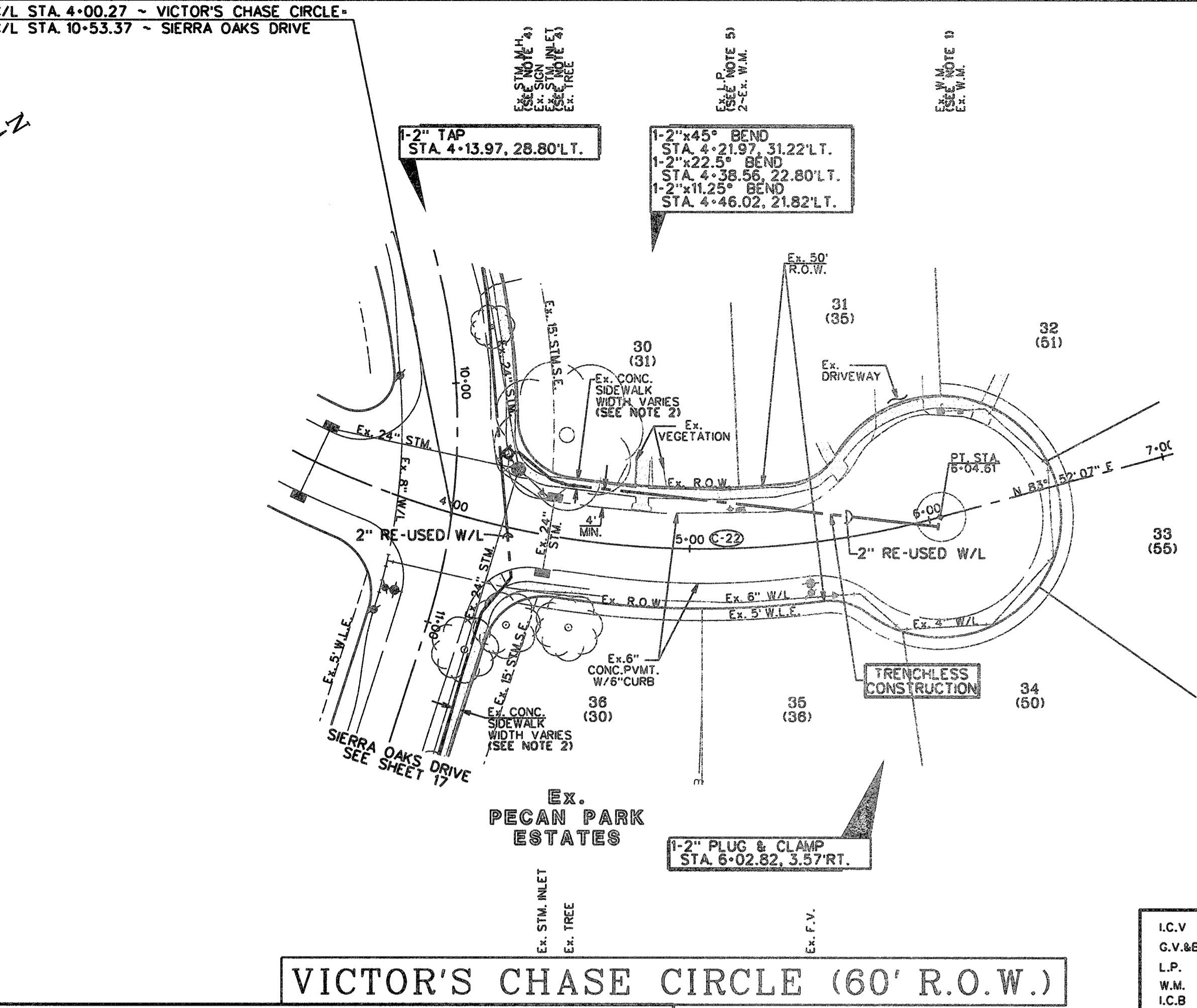
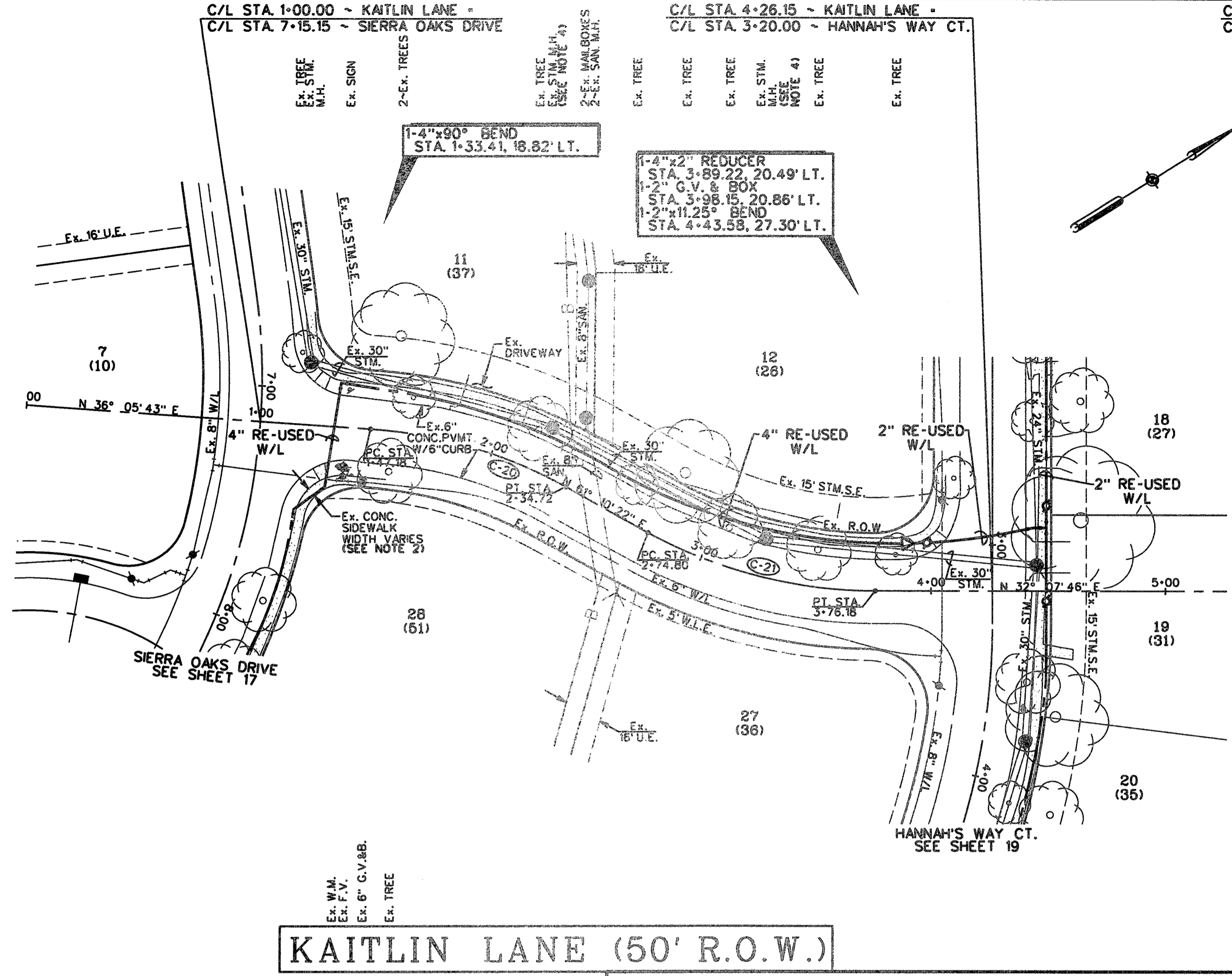
NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2
 PLAN AND PROFILE

SIERRA OAKS DRIVE

STATE OF TEXAS
 PROFESSIONAL ENGINEER
 Jon R. VanderWilt
 50071
 REGISTERED
 7/11/2017

SHEET 17
 OF 42 SHEETS
 JOB NO. 19992020-142

PORT BEND COUNTY LID 7
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142

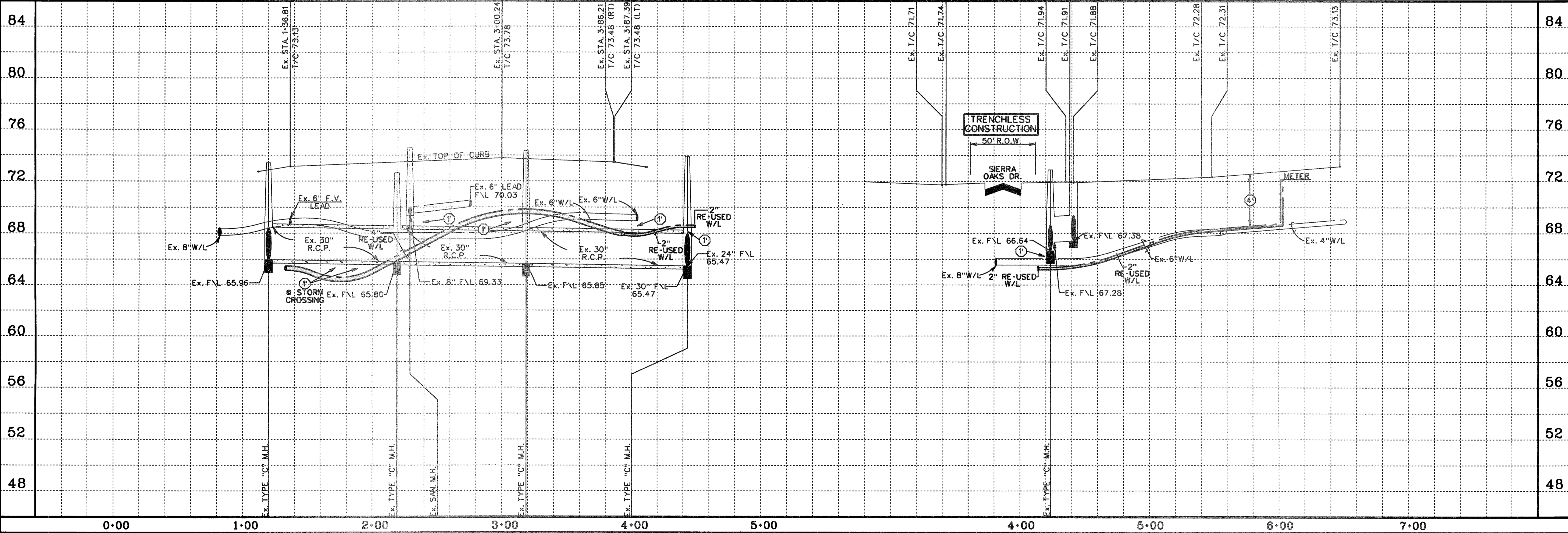


KAITLIN LANE (50' R.O.W.)

VICTOR'S CHASE CIRCLE (60' R.O.W.)

CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION

- NOTES**
- CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, NTRCA & THE OPERATOR TO DETERMINE THE WATER METER CONNECTION POINT.
 - REMOVE AND REPLACE EX. CONCRETE SIDEWALK AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE.
 - OMIT
 - CONTRACTOR SHALL MAINTAIN A MINIMUM 1-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR STORM SEWER UTILITIES AND MANHOLES.
 - CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA.
- LEGEND**
- (1) INDICATES MIN. VERTICAL CLEARANCE
 - (2) INDICATES MIN. VERTICAL CLEARANCE
 - (4) INDICATES MIN. VERTICAL CLEARANCE
 - (272) INDICATES RE-USED WATER LINE SIZE AS NOTED
 - (272) INDICATES WATER METER SERVICE NUMBER
 - (⊕) INDICATES BLOW OFF VALVE (SEE DETAIL SHEET 38)
 - 47 INDICATES LOT NUMBER
 - (902) INDICATES STREET ADDRESS
 - B EX. COMCAST CABLE
 - P EX. OVERHEAD POWER
 - E EX. UNDERGROUND ELECTRICAL
 - W.M. WATER METER
 - I.C.B. IRRIGATION CONTROL BOX
- CONTROL BENCHMARKS**
- HGCS0 66 INGS PD NO. AW5410 - STAINLESS STEEL ROD IN SLEEVE LOCATED 4.8 MILES SOUTH ALONG PINE OAK ROAD FROM THE JUNCTION OF U.S. HIGHWAY 90 TO KAITLIN LANE SOUTH ALONG F.M. 1663 68 FEET EAST OF THE CENTERLINE OF THE ROAD 24 FEET SOUTH OF THE CENTER OF A GRAVEL ROAD TO A FARM 19 FEET SOUTHEAST OF THE SOUTH POST OF A WOOD CAGE. ACCESS CAP STAMPED HESD 68 1088. ELEVATION + 156.60 NAVD88 2001 ADJ.
- SITE TBM
- TBM-1 LOCATED ON WEST BOLT ON THE TOP FLANGE OF THE FIRST FIVE HYDRANT ON WEST ROW OF HANNAH'S DRIVE AT THE ENTRANCE INTO SUBDIVISION OFF OF 80' ADA. ELEVATION + 68.7
- TBM-2437-38-1 BOX OUT ON CENTERLINE OF INLET AT THE BACK-OF-CURB ON THE SOUTH SIDE OF CUNNINGHAM CREEK BLVD. AND IN THE MIDDLE OF THE 180' R/W EASEMENT CROSSING CUNNINGHAM CREEK BLVD. ELEVATION + 71.08



SCALE: 1" = 40' HORIZ. 1" = 4' VERT.

CL CURVE DATA

Station	Curve Data
2+74.80	<p>(20)</p> <p>P.C. STA 1+47.18 TO P.T. STA 2+34.72 $\Delta = 25^{\circ}04'39''$ $R = 200.00'$ $L = 87.54'$ $CB = N48^{\circ}38'02''E$ $CH = 86.84'$</p>
3+74.80	<p>(21)</p> <p>P.C. STA 2-74.80 TO P.T. STA 3-78.18 $\Delta = 29^{\circ}02'35''$ $R = 200.00'$ $L = 101.38'$ $CB = N48^{\circ}39'04''E$ $CH = 100.30'$</p>
6+04.61	<p>(22)</p> <p>P.C. STA 3-34.28 TO P.T. STA 6-04.61 $\Delta = 41^{\circ}18'12''$ $R = 375.00'$ $L = 270.53'$ $CB = S75^{\circ}28'47''E$ $CH = 264.51'$</p>

APPROVED: *[Signature]*
 DEVELOPMENT COORDINATOR
 DATE: 7/17/17

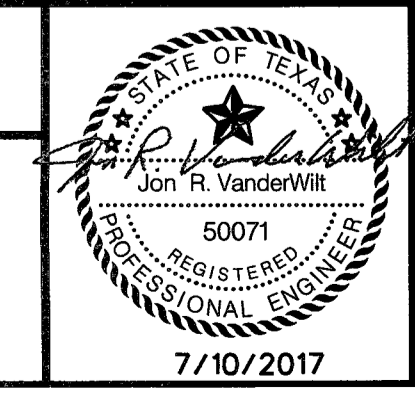
NO.	REVISION	DATE	BY

DESIGNED BY: *RLM*
 DESIGN CHECKED BY: *RLM*
 DRAWN BY: *RLM*
 COGO CHECKED BY: *RLM*
 SURVEY CHECKED BY: *RLM*
 QA/QC BY: *RLM* DATE: *7/17/17*
 QA/QC REVISIONS BY: *RLM*



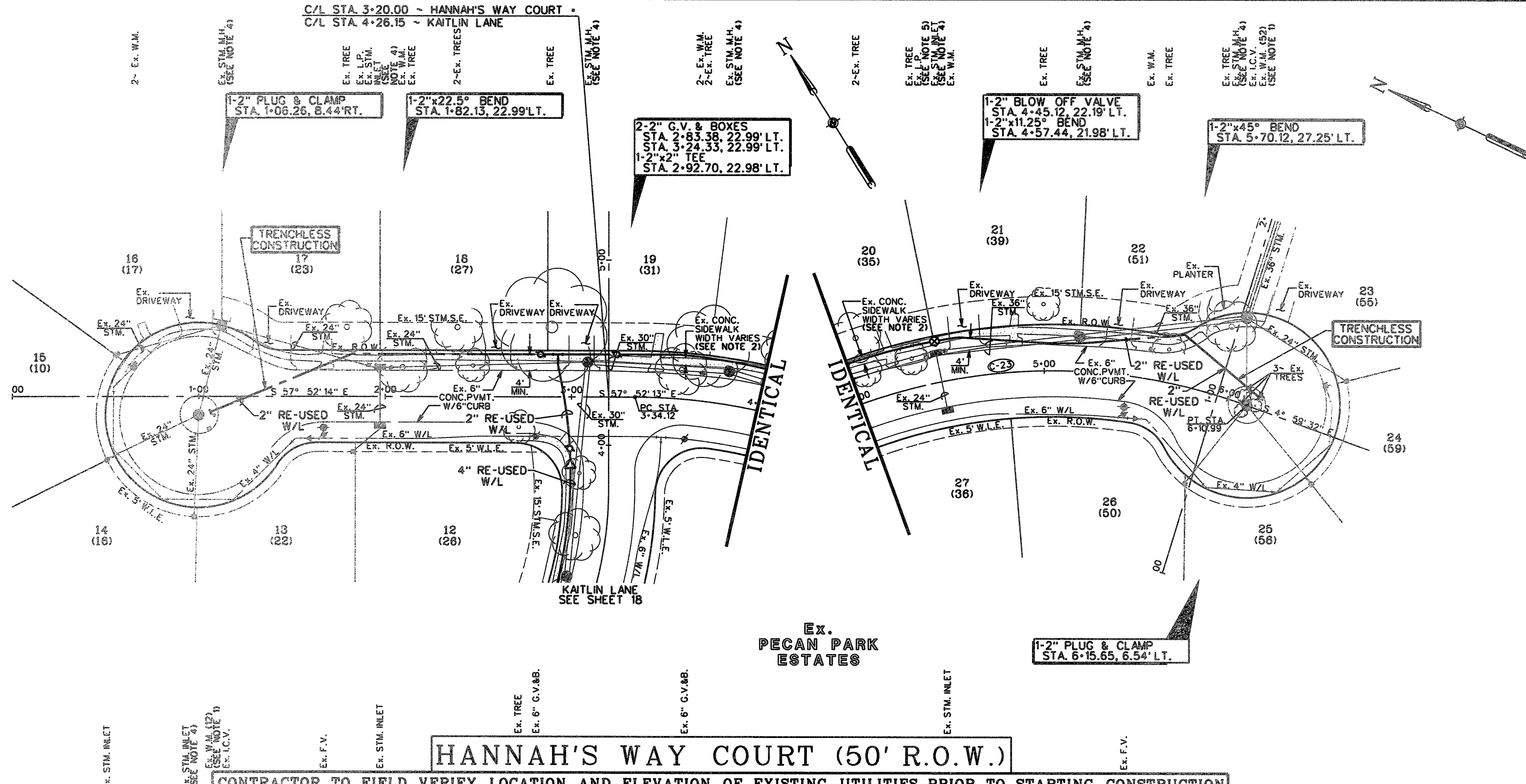
Engineering and Surveying
 9990 Richmond Avenue, Suite 450 N
 Houston, Texas 77042
 (713) 783-7788 (713) 783-3580, Fax
 TBPE FIRM REG. No. 280
 TBPLS FIRM REG. No. 100486

NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2
 PLAN AND PROFILE
**KAITLIN LANE
 & VICTOR'S CHASE CIRCLE**



SHEET **18**
 OF **42** SHEETS
 JOB NO. 19992020-142
 DATE: 7/10/2017

WARNING
POWER LINES
OVERHEAD



NOTES

- CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, NTRCA, & THE OPERATOR TO DETERMINE THE WATER METER CONNECTION POINT.
- REMOVE AND REPLACE EX. CONCRETE SIDEWALK AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE.
- OMIT
- CONTRACTOR SHALL MAINTAIN A MINIMUM 1-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR STORM SEWER UTILITIES AND MANHOLES.
- CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA.
- CONTRACTOR SHALL BE AWARE OF SHALLOW COVER. CONTRACTOR SHALL EXERCISE CAUTION.

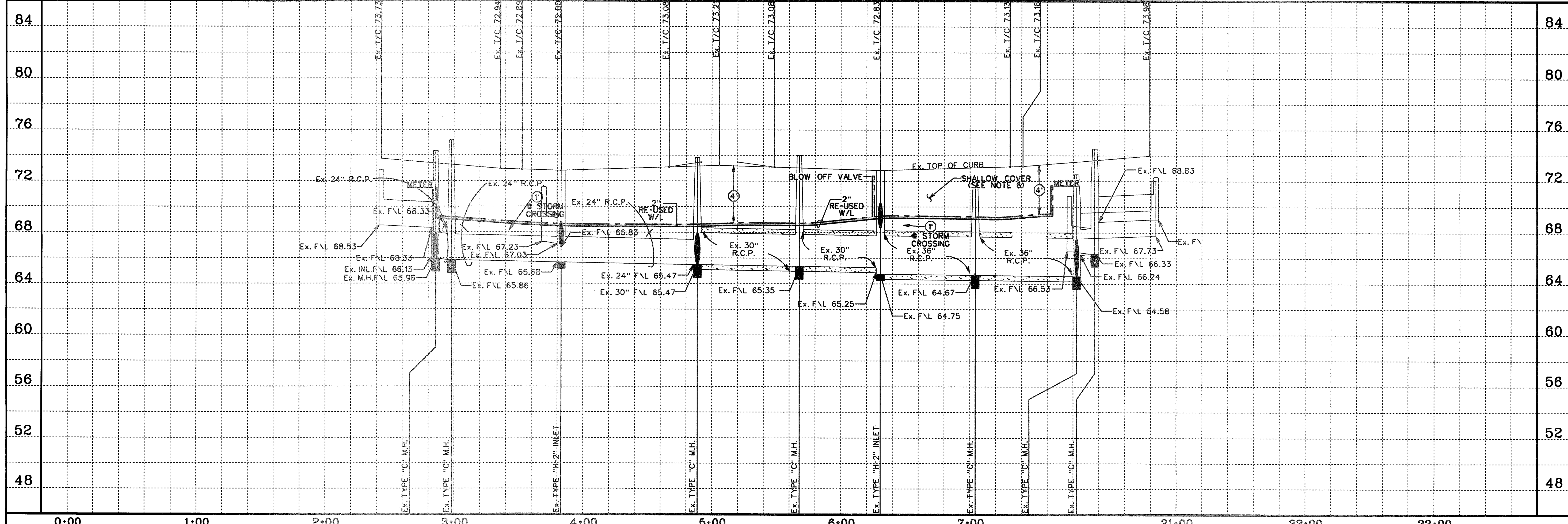
LEGEND

- ① INDICATES MIN. VERTICAL CLEARANCE
- ② INDICATES MIN. VERTICAL CLEARANCE
- ④ INDICATES MIN. VERTICAL CLEARANCE
- INDICATES RE-USED WATER LINE SIZE AS NOTED
- (272) INDICATES WATER METER SERVICE NUMBER
- ⊕ INDICATES BLOW OFF VALVE (SEE DETAIL SHEET 38)
- 47 INDICATES LOT NUMBER
- (902) INDICATES STREET ADDRESS
- B Ex. COMCAST CABLE
- P Ex. OVERHEAD POWER
- E Ex. UNDERGROUND ELECTRICAL
- G Ex. GAS LINE

I.C.V. IRRIGATION CONTROL VALVE
G.V.A.B. GATE VALVE & BOX
L.P. LIGHT POLE
W.M. WATER METER
I.C.B. IRRIGATION CONTROL BOX



HANNAH'S WAY COURT (50' R.O.W.)
CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



SCALE: 1" = 40' HORIZ.
1" = 4' VERT.

CL CURVE DATA

⊕-23

P.C. STA. 3+34.12 TO
P.T. STA. 6+10.99
A = 52°52'41"
R = 300.00'
L = 276.87'
CB = S31°25'52"E
CH = 267.15

TO RESERVE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 75-501-3223.

FOR YOUR SAFETY YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date: _____
CenterPoint Energy/NaturalGas Facilities Verification ONLY.
(This signature verifies that you have checked NaturalGas Lines correctly. Signature valid for six months.)

Date: _____
CenterPoint Energy/NEEDS/SDG Descriptive Verification ONLY.
(This signature verifies existing underground facilities. Signature valid for six months.)

APPROVED: *[Signature]*
DEVELOPMENT COORDINATOR

DATE: 7/11/17

NO.	REVISION	DATE	BY

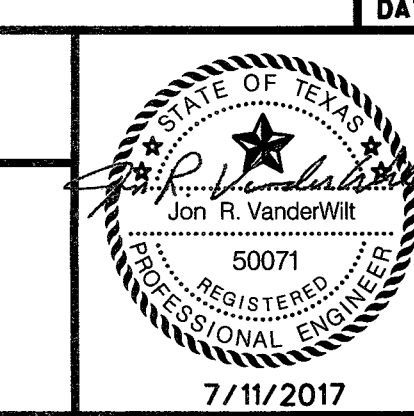
DESIGNED BY: *RLM*
 DESIGN CHECKED BY: *RLM*
 DRAWN BY: *RLM*
 COGO CHECKED BY: *RLM*
 SURVEY CHECKED BY: *RLM*
 QA/QC BY: *RLM* DATE: *7/11/17*
 QA/QC REVISIONS BY: *RLM*



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

NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2
 PLAN AND PROFILE

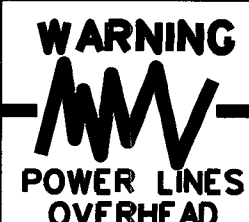
HANNAH'S WAY COURT



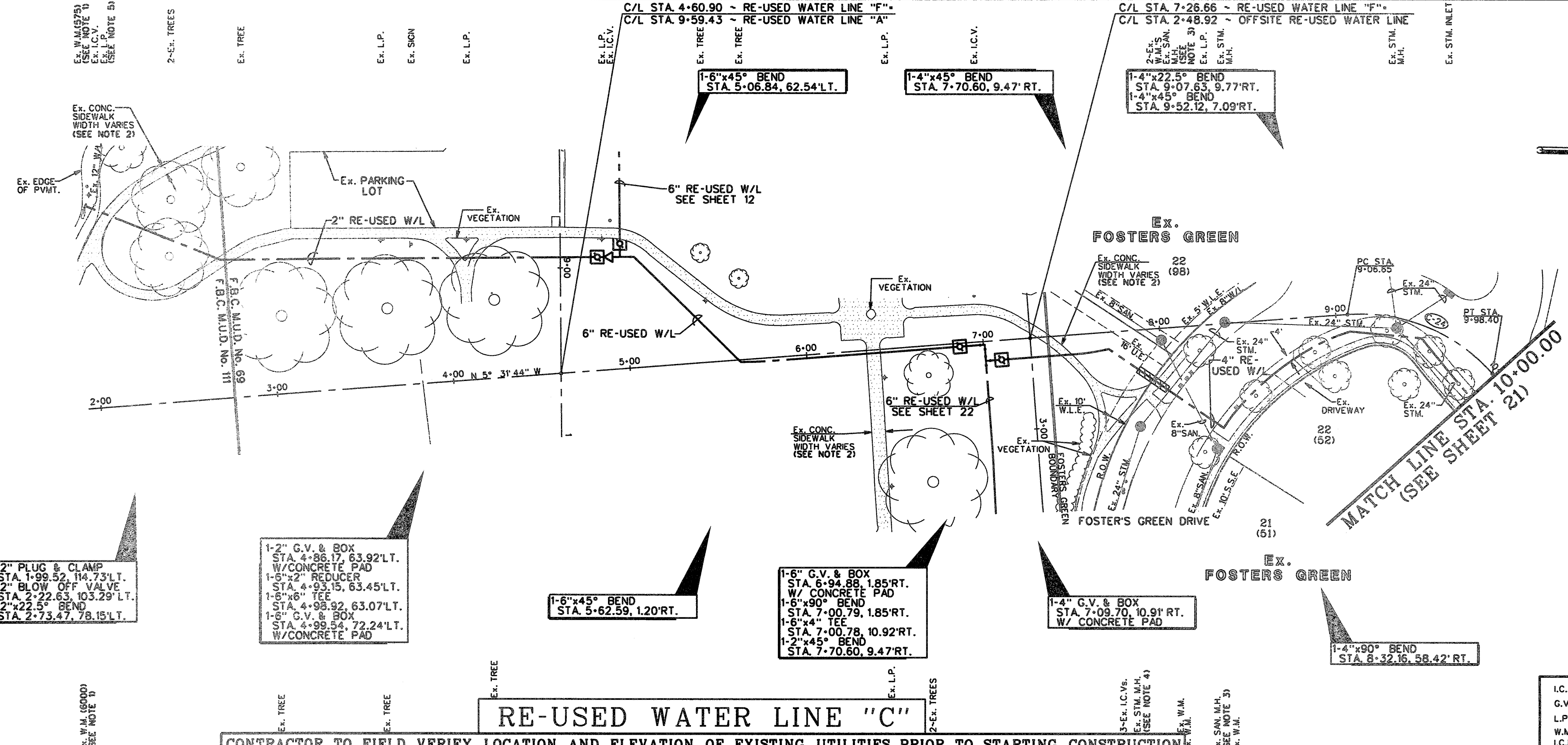
SHEET 19
 OF 42 SHEETS
 JOB NO. 19992020-142
 7/11/2017

2017/07/11/17 10:00 AM 19992020-142 PHASE 2 - HANNAH'S WAY COURT - RECLAIMED EFFLUENT RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142

WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142

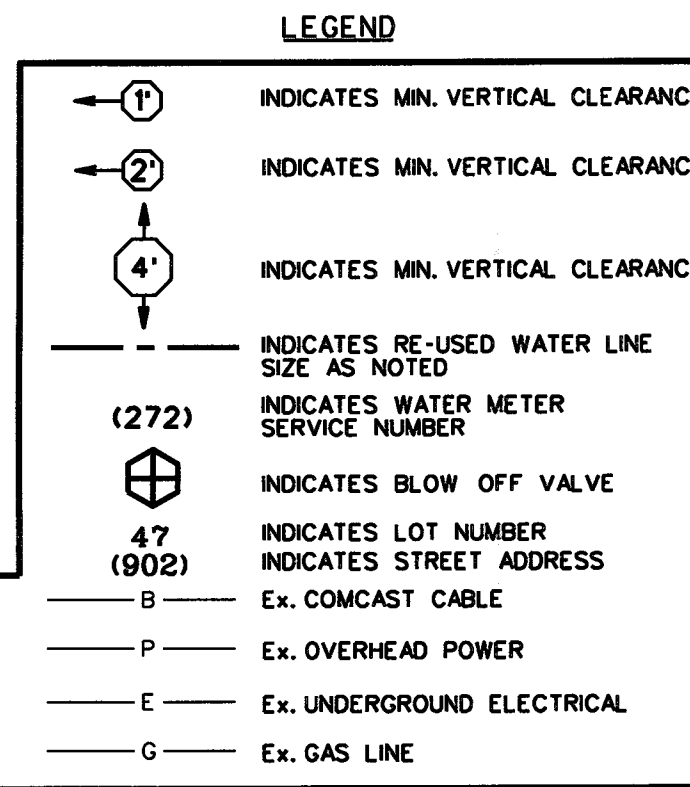


Know what's below. Call before you dig

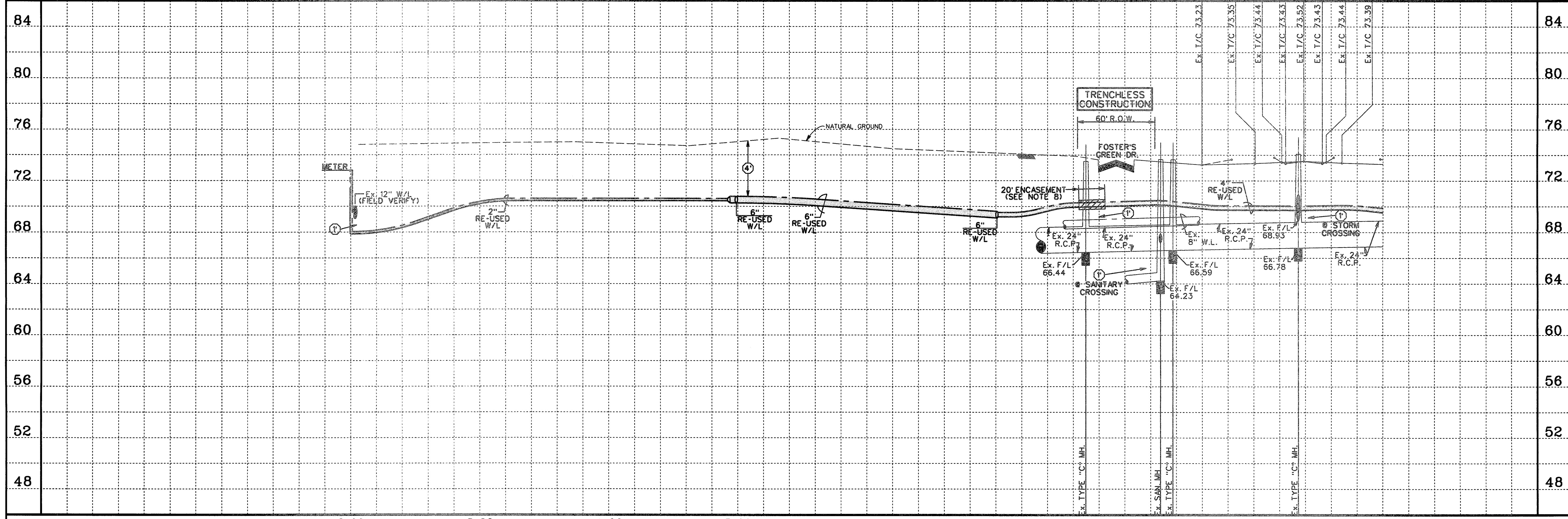


CONTROL POINTS: HGCSO 66 INGS PD NO. 405410 - STAINLESS STEEL ROD IN SLEEVE LOCATED 4.8 MILES SOUTH ALONG FM OAK ROAD FROM THE JUNCTION OF I-69 HIGHWAY 90 IN KATY, 0.1 MILES SOUTH ALONG FM 1463.68 FEET EAST OF THE CENTERLINE OF THE ROAD, 24 FEET SOUTH OF THE CENTER OF A GRAVEL ROAD TO A FARM 19 FEET SOUTHWEST OF THE SOUTH POST OF A WOOD GATE. ACCESS CAP STAMPED HGCSO 66 INGS. ELEVATION = 106.60 NAVD83 2001 ADJ. SITE TBM

- NOTES: 1. CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, NTRCA & THE OPERATOR TO DETERMINE THE WATER METER CONNECTION POINT. 2. REMOVE AND REPLACE EX. CONCRETE SIDEWALK AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE. 3. CONTRACTOR SHALL MAINTAIN A MINIMUM 3- FEET OUT TO OUT HORIZONTAL SEPARATION FOR SANITARY SEWER UTILITIES AND MANHOLES. 4. CONTRACTOR SHALL MAINTAIN A MINIMUM 1-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR STORM SEWER UTILITIES AND MANHOLES. 5. CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA. 6. OMT 7. OMT 8. SEE DETAILS SL-WA-13 & SL-WA-15 ON SHEET 38.



RE-USED WATER LINE "C" CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



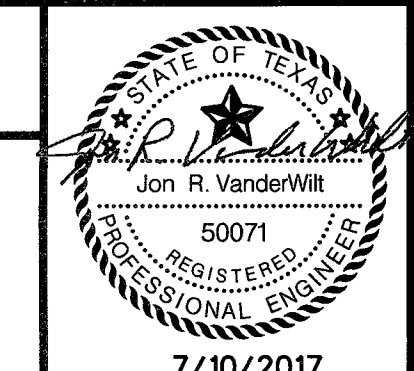
SCALE: 1" = 40' HORIZ. 1" = 4' VERT. CL CURVE DATA: P.C. STA. 9+06.65 TO P.T. STA. 9+98.40 A = 52° 34' 10" R = 100.00' L = 91.75' CB = N10° 45' 21"E CH = 88.57

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



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

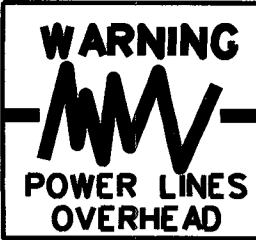
NEW TERRITORY WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 PLAN AND PROFILE RE-USED WATER LINE "C" STA. 1+00.00 TO 10+00.00



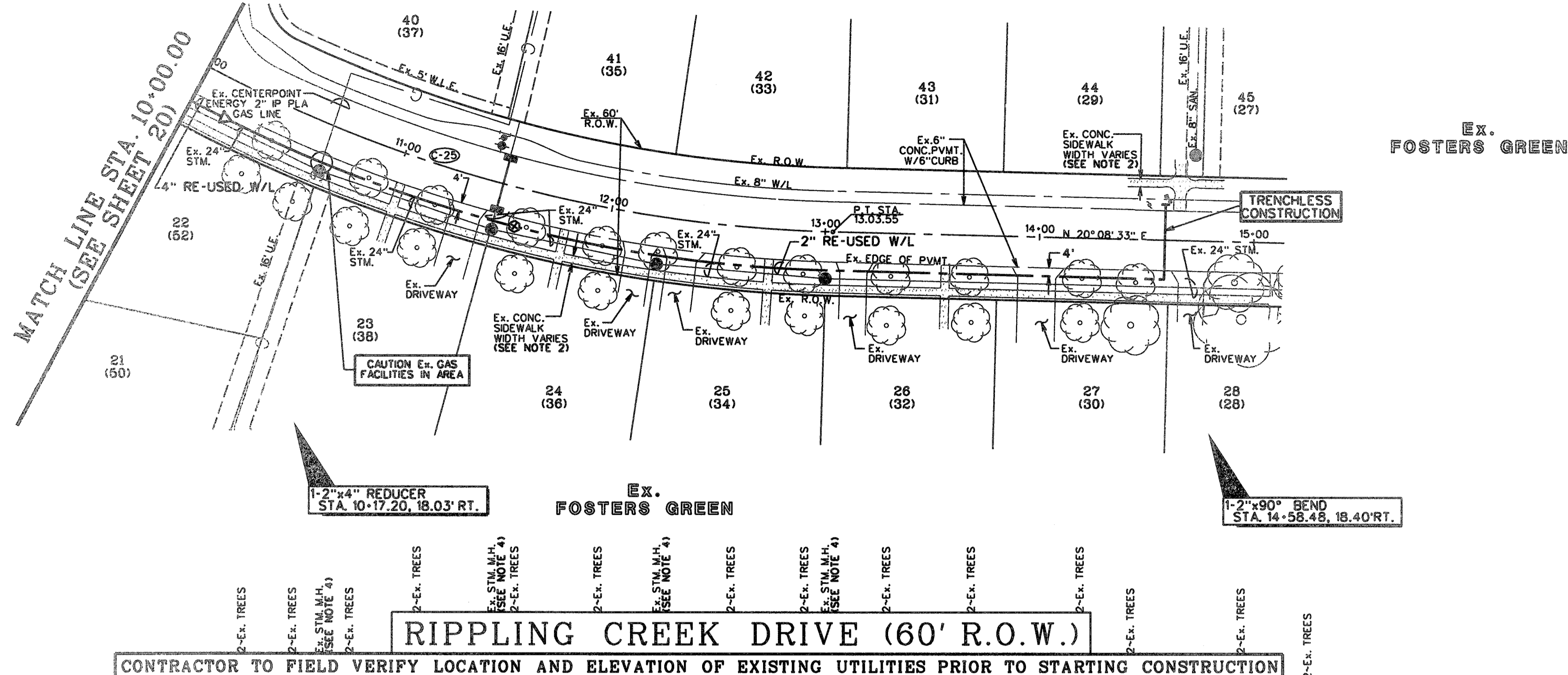
APPROVED: [Signature] DEVELOPMENT COORDINATOR DATE: 7/17/17 SHEET 20 OF 42 SHEETS JOB NO. 19992020-142

WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142

WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142



Know what's below. Call before you dig



CONTROL BENCHMARKS

HCCSD 66 INGS PD NO. AW5411 - STAINLESS STEEL ROD IN SLEEVE LOCATED 4.8 MILES SOUTH ALONG PIN OAK ROAD FROM THE JUNCTION OF U.S. HIGHWAY 50 IN RAIT, 0.1 MILES SOUTH ALONG F.M. 1463.88 FEET EAST OF THE CENTERLINE OF THE ROAD 24 FEET SOUTH OF THE CENTER OF A GRAVEL ROAD TO A FARM 19 FEET SOUTHWEST OF THE SOUTH POST OF A WOOD GATE. ACCESS CAP STAMPED HCCSD 66 INGS. ELEVATION = 106.60 NAVD83 2001 ADJ.

SITE TBM

TBM-1 LOCATED ON NORTH BOLT ON THE TOP FLANGE OF THE FIRST FRR HYDRANT ON WEST ROW OF HIGH MEADOWS DRIVE AT THE ENTRANCE INTO SUBDIVISION OFF OF US 50A. ELEVATION = 86.7

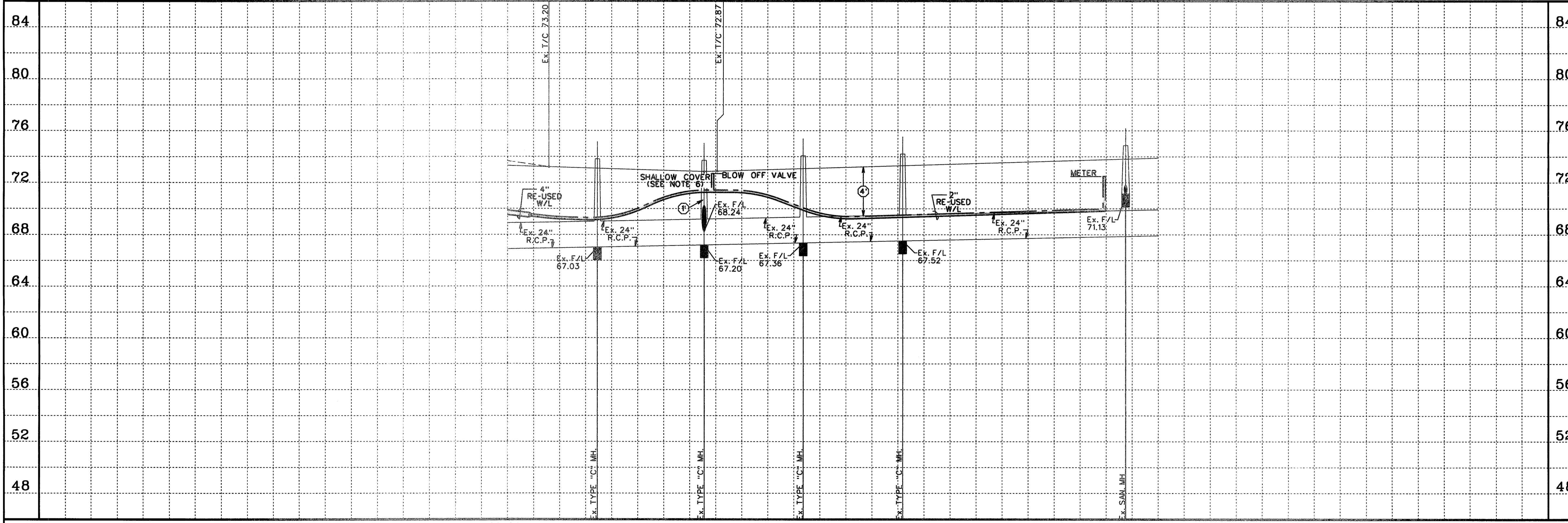
TBM-2437-38-1 BOX CUT ON CENTERLINE OF INLET AT THE BACK-OF-CURB, ON THE SOUTH SIDE OF CUNNINGHAM CREEK BLVD. AND IN THE MIDDLE OF THE 180' W/4P EASEMENT CROSSING CUNNINGHAM CREEK BLVD. ELEVATION = 71.06

- NOTES**
- CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, NTRCA, & THE OPERATOR TO DETERMINE THE WATER METER CONNECTION POINT.
 - REMOVE AND REPLACE EX. CONCRETE SIDEWALK AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE.
 - OMT
 - CONTRACTOR SHALL MAINTAIN A MINIMUM 1-FOOT SEWER TO CUT HORIZONTAL SEPARATION FOR FORTH SEWER UTILITIES AND MANHOLES.
 - OMT
 - CONTRACTOR SHALL BE AWARE OF SHALLOW COVER. CONTRACTOR SHALL EXERCISE CAUTION.

LEGEND

	INDICATES MIN. VERTICAL CLEARANCE
	INDICATES MIN. VERTICAL CLEARANCE
	INDICATES MIN. VERTICAL CLEARANCE
	INDICATES RE-USED WATER LINE SIZE AS NOTED
(272)	INDICATES WATER METER SERVICE NUMBER
	INDICATES BLOW OFF VALVE (SEE DETAIL SHEET 38)
47 (902)	INDICATES LOT NUMBER
	EX. COMCAST CABLE
	EX. OVERHEAD POWER
	EX. UNDERGROUND ELECTRICAL
	EX. FLUSH VALVE
	EX. GAS LINE
	IRRIGATION CONTROL VALVE
	GATE VALVE & BOX
	LIGHT POLE
	WATER
	FLUSH VALVE
	IRRIGATION CONTROL BOX

CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



SCALE: 1" = 40' HORIZ. 1" = 4' VERT.

CL CURVE DATA

25

P.C. STA. 9+98.40 TO P.T. STA. 13+03.55

A = 28°53'52"

R = 650.00'

L = 305.15'

CH = 133°35'29"E

CH = 302.35'

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 710-997-2222.

NOTICE: FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date: _____

CenterPoint Energy Natural Gas Facilities Verification Only. This signature verifies that you have shown CPEP Re-using Gas Lines correctly. Signature Valid for six months.

Date: _____

CenterPoint Energy UNDERGROUND Electrical Facilities Verification ONLY. This signature verifies existing underground facilities. Signature Valid for six months.

APPROVED:

DEVELOPMENT/COORDINATOR

DATE: 7/17/17

NO.	REVISION	DATE	BY

DESIGNED BY: RLM

DESIGN CHECKED BY: _____

DRAWN BY: RLM

COCO CHECKED BY: _____

SURVEY CHECKED BY: _____

QA/QC BY: _____ DATE: _____

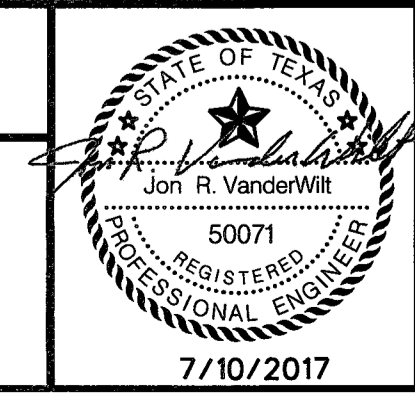
QA/QC REVISIONS BY: RLM



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

NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2
 PLAN AND PROFILE

RIPPLING CREEK DRIVE
 STA. 10+00.00 TO STA. 15+00.00

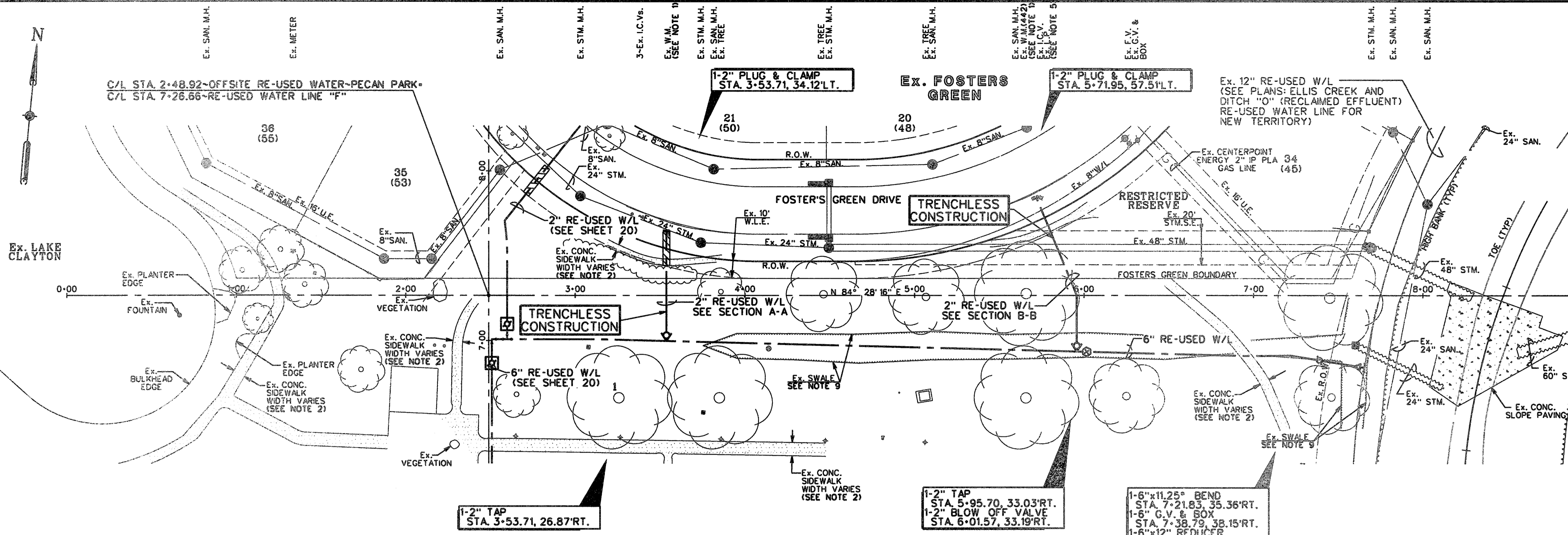


SHEET 21
 OF 42 SHEETS
 JOB NO. 10992020-142
 7/10/2017

P:\2017\10992020\142\REUSE WATER\WEST HOMEWARD WAY\HOMEWARD WAY\PHASE 2\PLAN AND PROFILE.dwg

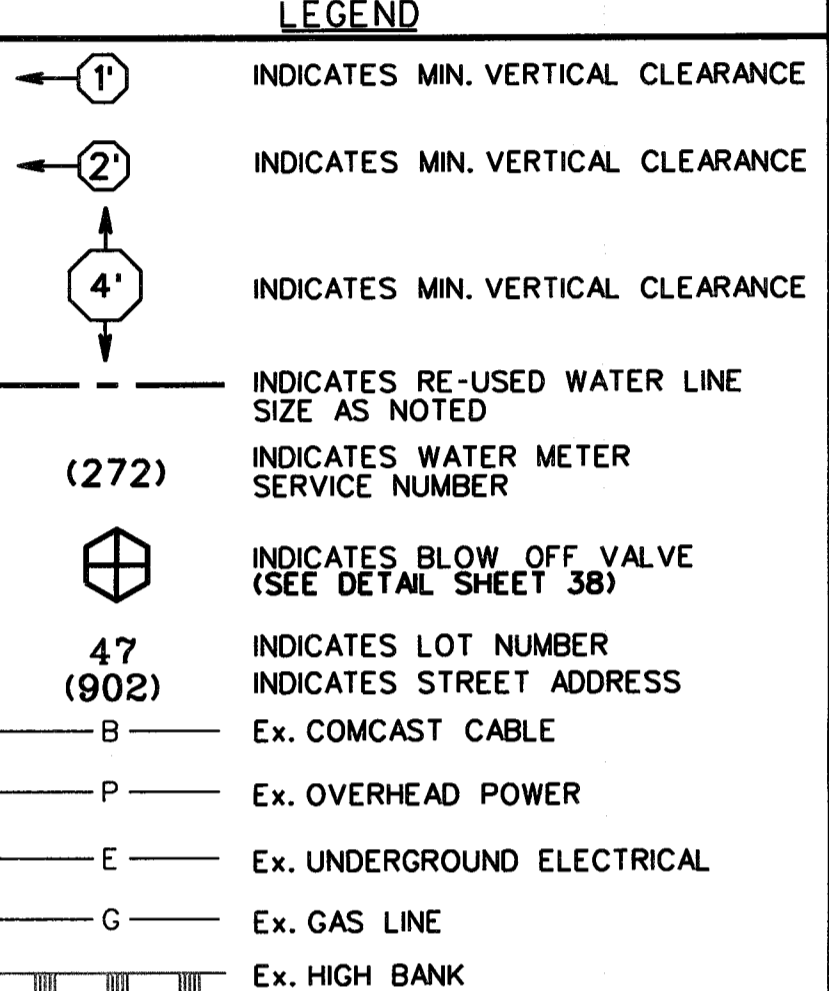
WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 10992020-142

WARNING
POWER LINES
OVERHEAD



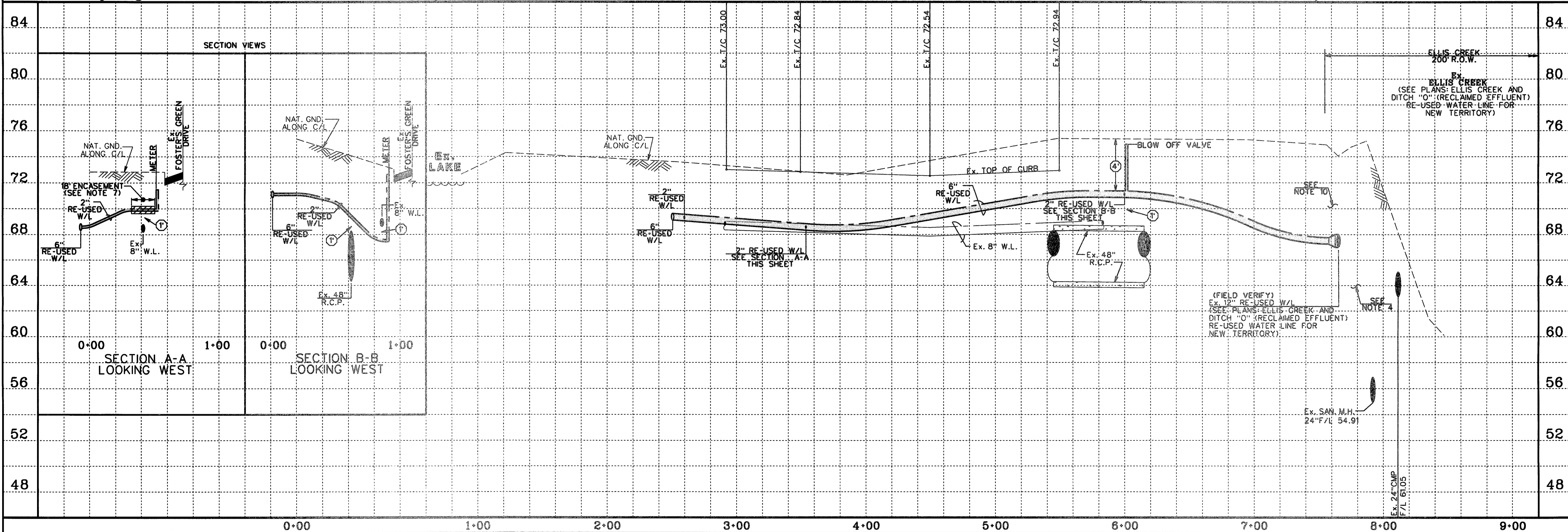
NOTES

- CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, NTRCA, & THE OPERATOR TO DETERMINE THE WATER METER CONNECTION POINT.
- REMOVE AND REPLACE EX. CONCRETE SIDEWALK AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE.
- OMIT
- OMIT
- CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA.
- OMIT
- OMIT
- OMIT
- CONTRACTOR SHALL REGRADE EX. SWALE AS REQUIRED IN ORDER TO MAINTAIN POSITIVE DRAINAGE.
- CONTRACTOR SHALL EXPOSE EX. 12" RE-USED WATER LINE TO VERIFY FLOWLINES.



Know what's below.
Call before you dig

OFFSITE RE-USED WATER~PECAN PARK
CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



SCALE: 1" = 40' HORIZ.
1" = 4' VERT.

CL CURVE DATA

84	ELLIS CREEK 200' R.O.W.
80	ELLIS CREEK (SEE PLANS: ELLIS CREEK AND DITCH "O" (RECLAIMED EFFLUENT) RE-USED WATER LINE FOR NEW TERRITORY)
76	
72	
68	
64	
60	
56	
52	
48	

TO ABRIDGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-2220.

FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date: _____

CenterPoint Energy/Natural Gas Facilities Verification ONLY. (This signature verifies that all underground gas lines are correctly marked and are safe for excavation.) Signature valid for six months.

Date: _____

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities are correctly marked and are safe for excavation.) Signature valid for six months.

APPROVED: *[Signature]*
DEVELOPMENT COORDINATOR

DATE: 7/17/13

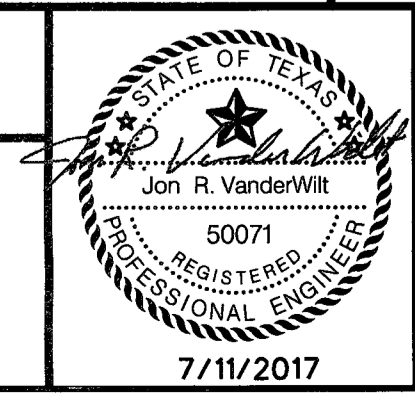
NO.	REVISION	DATE	BY

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



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

NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2
 PLAN AND PROFILE
**OFFSITE RE-USED WATER
 ~PECAN PARK**



SHEET 22
 OF 42 SHEETS
 JOB NO. 19992020-142
 7/11/2017

E:\Projects\19992020\142 REUSE WATER\N_HOMERD WAY\CONSTR\WATER\RDWAY_12.PLT.dwg

WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142



WARNING POWER LINES OVERHEAD

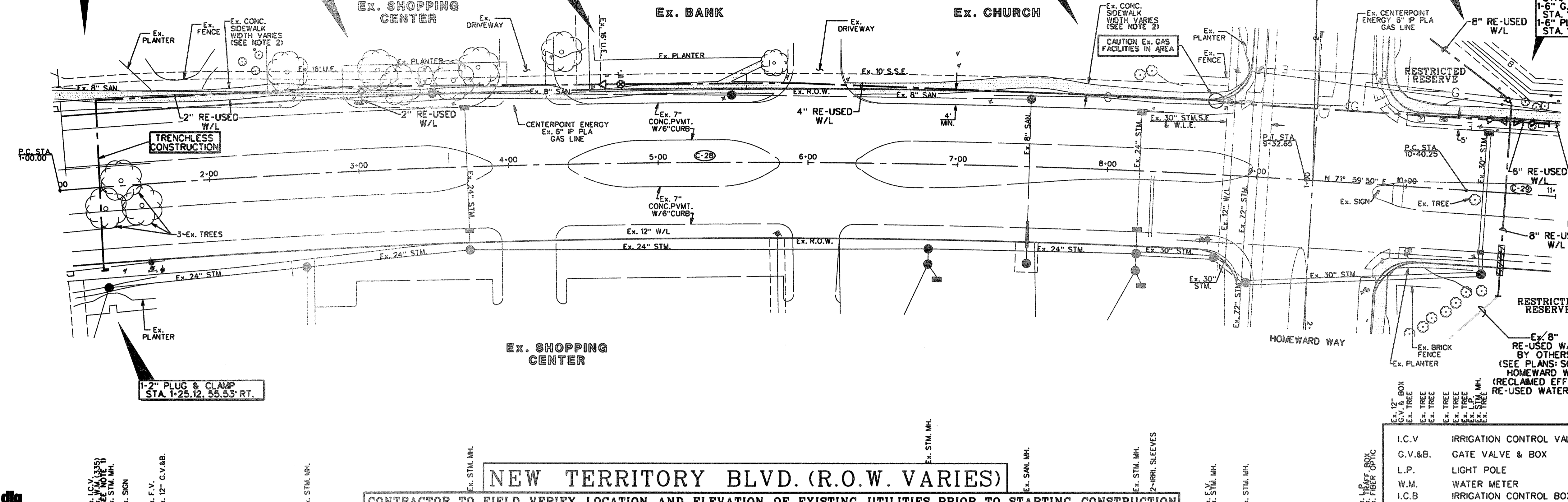
1-2"x90° BEND STA. 1-28.30, 58.40' L.T.

1-2" TAP STA. 3-04.20, 56.61' L.T. 1-2" PLUG & CLAMP STA. 3-03.77, 44.88' L.T.

2"x4" REDUCER STA. 4-64.16, 52.99' L.T. 1-2" BLOW OFF VALVE STA. 4-75.81, 52.91' L.T.

2-2"x11.25" BENDS STA. 8-68.48, 49.92' L.T. STA. 8-75.77, 48.55' L.T.

1-8"x4" REDUCER STA. 10-62.37, 47.94' L.T. 1-8"x6" REDUCER STA. 10-70.39, 47.94' L.T. 1-4" C.V. & BOX STA. 10-52.58, 47.98' L.T. 1-6" C.V. & BOX STA. 10-80.84, 47.89' L.T. 1-6" PLUG & CLAMP STA. 10-92.23, 47.85' L.T.



- NOTES**
- CONTRACTOR SHALL LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, UTILITY & THE OPERATOR TO DETERMINE THE WATER METER CONNECTION POINT.
 - REMOVE AND REPLACE EX. CONCRETE SIDEWALK AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE.
 - CONTRACTOR SHALL MAINTAIN A MINIMUM 3-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR SANITARY SEWER UTILITIES AND MANHOLES.
 - CONTRACTOR SHALL MAINTAIN A MINIMUM 1-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR STORM SEWER UTILITIES AND MANHOLES.
 - CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA.
 - OMIT
 - OMIT
 - RE-USED W/L 8" (SEE PLANS: SOUTH HOMEWARD WAY (RECLAIMED EFFLUENT RE-USED WATER LINE))
 - OMIT
 - CONTRACTOR SHALL EXPOSE EX. 6" RE-USED WATER LINE TO VERIFY FLOWLINES.

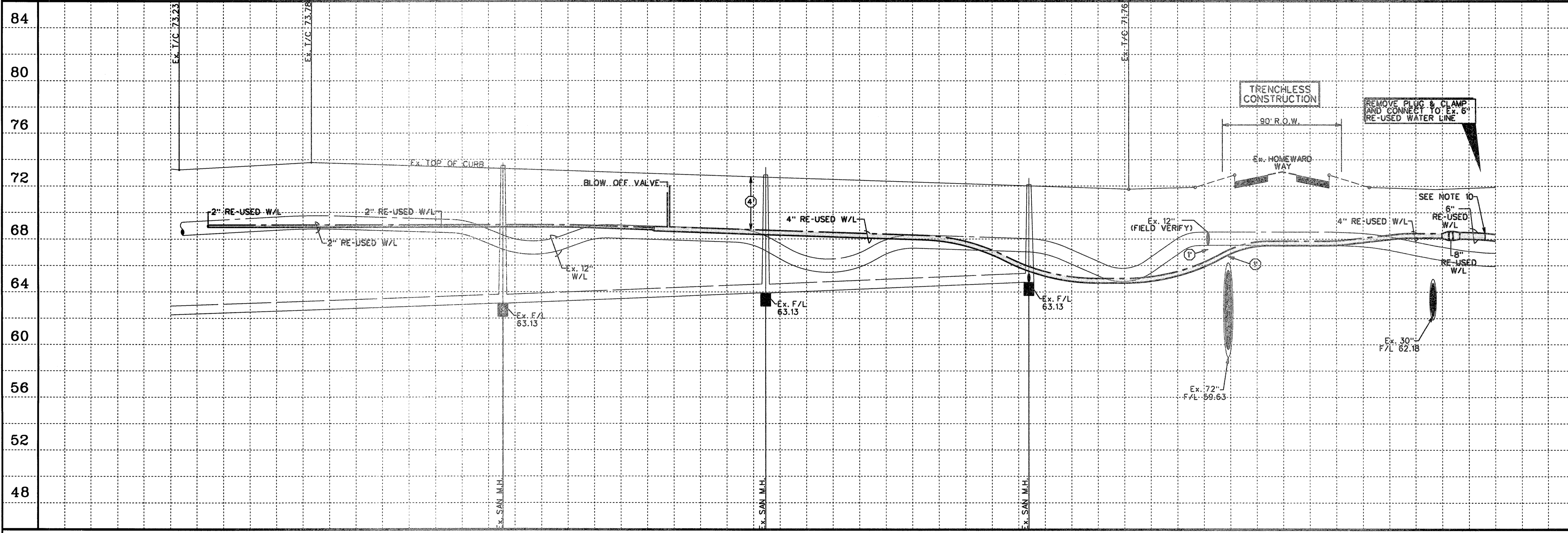
- LEGEND**
- ① INDICATES MIN. VERTICAL CLEARANCE
 - ② INDICATES MIN. VERTICAL CLEARANCE
 - ④ INDICATES MIN. VERTICAL CLEARANCE
 - INDICATES RE-USED WATER LINE SIZE AS NOTED
 - (272) INDICATES WATER METER SERVICE NUMBER
 - ⊕ INDICATES BLOW OFF VALVE (SEE DETAIL SHEET 38)
 - 47 INDICATES LOT NUMBER
 - (902) INDICATES STREET ADDRESS
 - B Ex. COMCAST CABLE
 - P Ex. OVERHEAD POWER
 - E Ex. UNDERGROUND ELECTRICAL
 - G Ex. GAS LINE
- I.C.V. IRRIGATION CONTROL VALVE
 G.V.&B. GATE VALVE & BOX
 L.P. LIGHT POLE
 W.M. WATER METER
 I.C.B. IRRIGATION CONTROL BOX



Know what's below. Call before you dig

NEW TERRITORY BLVD. (R.O.W. VARIES)

CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



SCALE: 1" = 40' HORIZ. 1" = 4' VERT.

CL CURVE DATA

Station	Curve Data
84	
80	
76	
72	
68	
64	
60	
56	
52	
48	

84	
80	
76	
72	
68	
64	
60	
56	
52	
48	

FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date: _____
 Signature: _____

CenterPoint Energy/Underground Facilities Verification ONLY.
 (This signature verifies that you have shown CPE/Underground Lines correctly - not to be used for general verification.)
 Signature valid for six months.

Date: _____
 Signature: _____

CenterPoint Energy/Underground Electrical Facilities Verification ONLY.
 (This signature verifies existing underground facilities - not to be used for general verification.)
 Signature valid for six months.

APPROVED: *[Signature]*
 DEVELOPMENT COORDINATOR

DATE: 7/17/17

NO.	REVISION	DATE	BY

DESIGNED BY: *RLM*
 DESIGN CHECKED BY: *RLM*
 DRAWN BY: *RLM*
 COGO CHECKED BY: *RLM*
 SURVEY CHECKED BY: *RLM*
 QA/QC BY: *RLM* DATE: *7/17/17*
 QA/QC REVISIONS BY: *RLM*

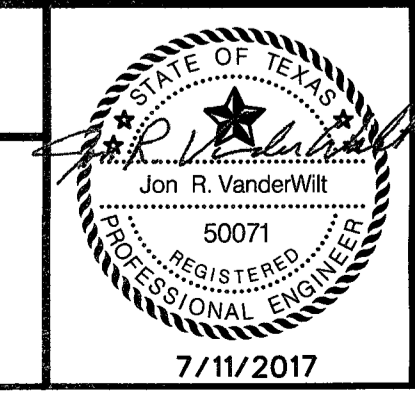


Engineering and Surveying
 9990 Richmond Avenue, Suite 450 N
 Houston, Texas 77042
 (713) 783-7788 (713) 783-3580, Fax

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

NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2
 PLAN AND PROFILE

NEW TERRITORY BLVD.
 STA. 1+00.00 TO STA. 11+00.00



SHEET 23
 OF 42 SHEETS
 JOB NO. 19992020-142

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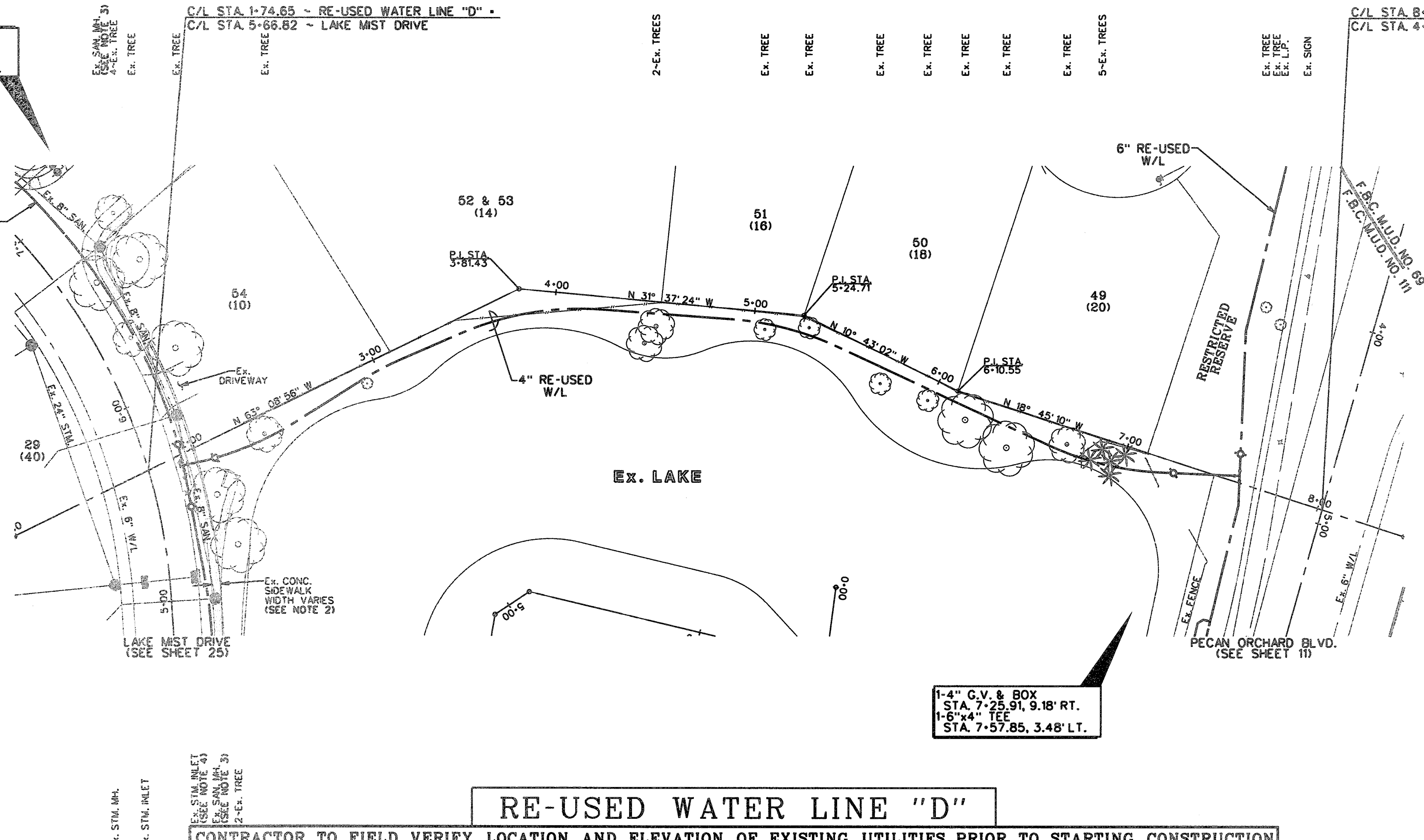
WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142

WARNING
POWER LINES
OVERHEAD

1-4"x4" TEE
STA. 1-91.24, 5.48' RT.
1-4" G.V. & BOX
STA. 2-07.27, 9.18' RT.

C/L STA. 1-74.65 - RE-USED WATER LINE "D" -
C/L STA. 5-66.82 - LAKE MIST DRIVE

C/L STA. 8-02.39 - RE-USED WATER LINE "D" -
C/L STA. 4-92.81 - PECAN ORCHARD BLVD.



CONTROL BENCHMARKS
HGSD 66 (NGS PD NO. AW5411) - STAINLESS STEEL ROD IN SLEEVE LOCATED 4.8 MILES SOUTH ALONG FM OAK ROAD FROM THE JUNCTION OF U.S. HIGHWAY 50 IN KATY, 0.1 MILES SOUTH ALONG F.M. 1463.68 FEET EAST OF THE CENTERLINE OF THE ROAD, 24 FEET SOUTH OF THE CENTER OF A GRAVEL ROAD TO A FARM, 19 FEET SOUTHWEST OF THE SOUTH POST OF A WOOD GATE. ACCESS CAP STAMPED HGSD 66 10/88. ELEVATION = 136.60 NAVD88 2001 ADJ.
SITE TBM
TBM-1 LOCATED ON NORTH BOLT ON THE TOP FLANGE OF THE FIRST FIVE HYDRANT ON WEST ROW OF HIGH MEADOWS DRIVE AT THE ENTRANCE INTO SUBDIVISION OFF OF US 90A. ELEVATION = 61.7
TBM-2437-38-1 BOX OUT ON CENTERLINE OF ALLEY AT THE BACK-OF-CURB ON THE SOUTH SIDE OF CUNNINGHAM CREEK BLVD. AND IN THE MIDDLE OF THE 180' R/W EASEMENT CROSSING CUNNINGHAM CREEK BLVD. ELEVATION = 71.06

- NOTES**
1. OMIT
 2. REMOVE AND REPLACE EX. CONCRETE SIDEWALK AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE.
 3. CONTRACTOR SHALL MAINTAIN A MINIMUM 3-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR SANITARY SEWER UTILITIES AND MANHOLES.
 4. CONTRACTOR SHALL MAINTAIN A MINIMUM 1-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR STORM SEWER UTILITIES AND MANHOLES.

LEGEND

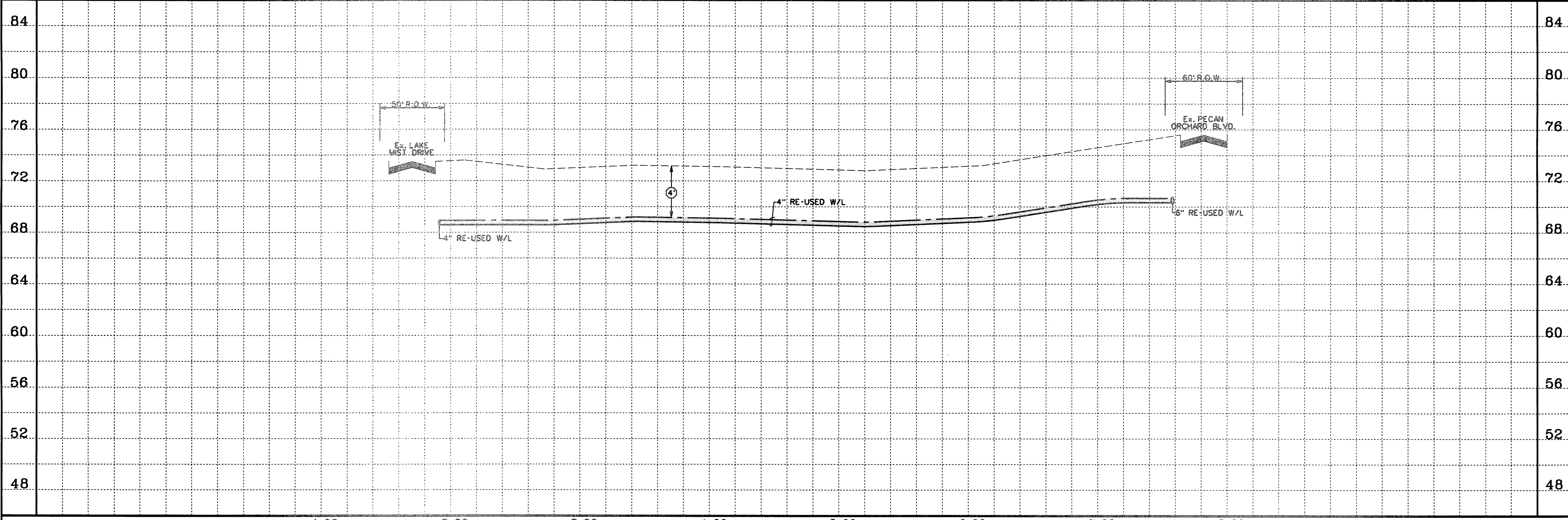
- (1) INDICATES MIN. VERTICAL CLEARANCE
- (2) INDICATES MIN. VERTICAL CLEARANCE
- (4) INDICATES MIN. VERTICAL CLEARANCE
- INDICATES RE-USED WATER LINE SIZE AS NOTED
- (272) INDICATES WATER METER SERVICE NUMBER
- ⊕ INDICATES BLOW OFF VALVE (SEE DETAIL SHEET 38)
- 47 INDICATES LOT NUMBER
- (902) INDICATES STREET ADDRESS
- B --- Ex. COMCAST CABLE
- P --- Ex. OVERHEAD POWER
- E --- Ex. UNDERGROUND ELECTRICAL
- G --- Ex. GAS LINE
- I.C.V. IRRIGATION CONTROL VALVE
- G.V.&B. GATE VALVE & BOX
- L.P. LIGHT POLE
- W.M. WATER METER
- I.C.B. IRRIGATION CONTROL BOX



Know what's below.
Call before you dig

RE-USED WATER LINE "D"

CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



SCALE: 1" = 40' HORIZ.
1" = 4' VERT.

CL CURVE DATA

TO AVOID FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-2222.

FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date: _____
Signature: _____

VERIFICATION OF UNDERGROUND ELECTRICAL FACILITIES

Date: _____
Signature: _____

APPROVED: *[Signature]*
DEVELOPMENT COORDINATOR

DATE: 7/17/12

NO.	REVISION	DATE	BY

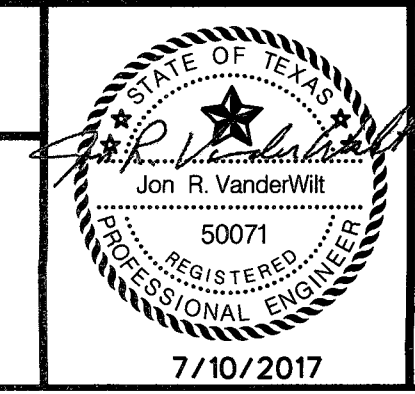
DESIGNED BY: RLM
DESIGN CHECKED BY: RLM
DRAWN BY: RLM
CADD CHECKED BY: _____
SURVEY CHECKED BY: _____
QA/QC BY: DATE: _____
QA/QC REVISIONS BY: RLM



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

NEW TERRITORY
WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
RE-USED WATER LINE PHASE 2
PLAN AND PROFILE

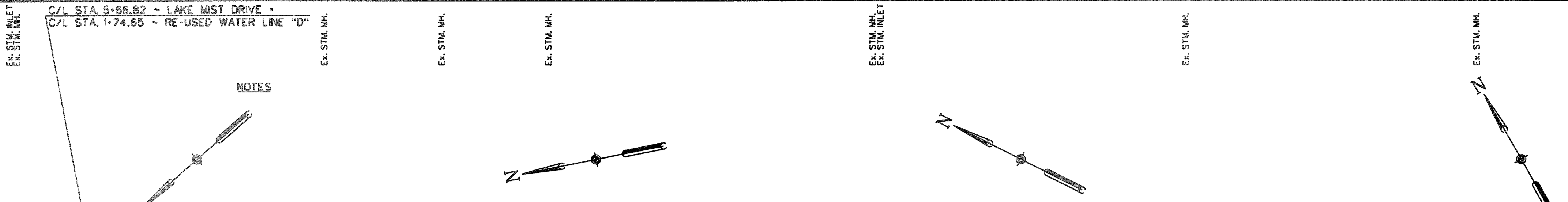
RE-USED WATER LINE "D"



SHEET 24
OF 42 SHEETS
JOB NO. 19992020-142
7/10/2017

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WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142



CONTROL BENCHMARKS

HCSD 66 (NSD PD NO. 485410) - STAINLESS STEEL ROD IN SLEEVE LOCATED 4.8 MILES SOUTH ALONG FM OAK ROAD FROM THE JUNCTION OF U.S. HIGHWAY 90 IN KATY, 0.1 MILES SOUTH ALONG F.M. 363.66 FEET EAST OF THE CENTERLINE OF THE ROAD, 24 FEET SOUTH OF THE CENTER OF A GRAVEL ROAD TO A FIRM 9 FEET SOUTHWEST OF THE SOUTH POST OF A WOOD GATE. ACCESS CAP STAMPED HCSD 66 8888 ELEVATION = 136.60 NAVD83 2001 AD.

SITE TBM

TBM-1 LOCATED ON NORTH BOLT ON THE TOP FLANGE OF THE FIRST FRIE HYDRANT ON WEST ROW OF HIGH MEADOWS DRIVE AT THE ENTRANCE INTO SUBDIVISION OFF OF US 90A. ELEVATION = 68.7

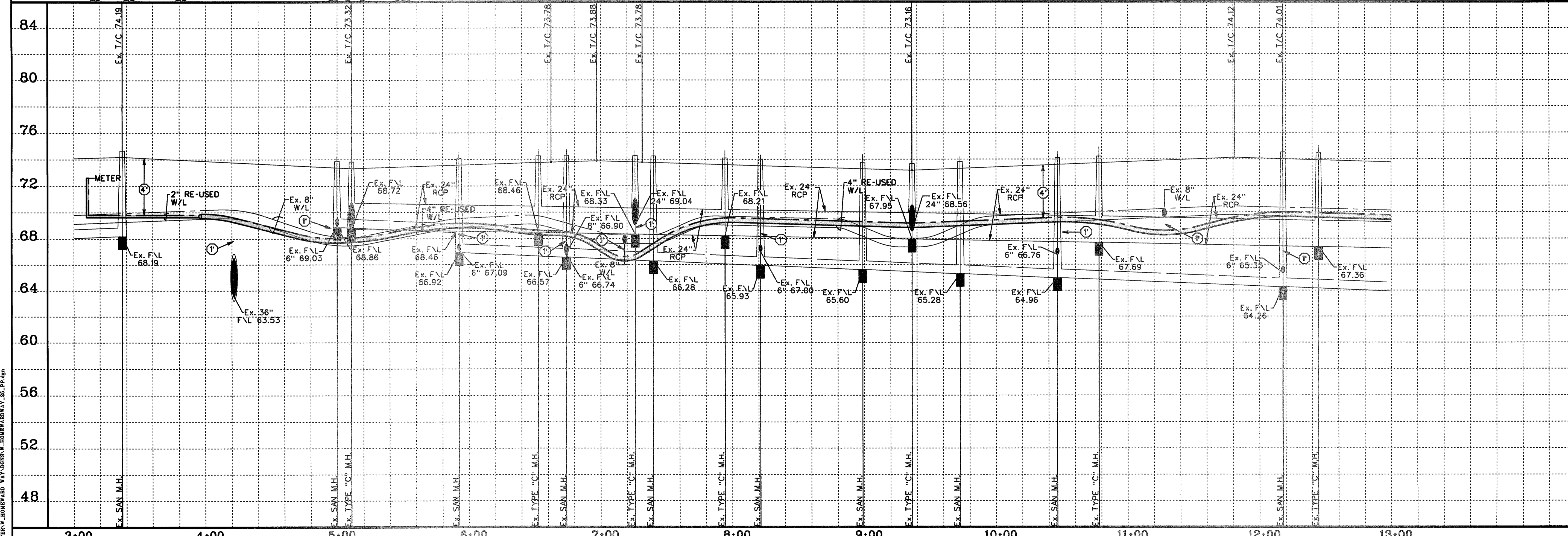
TBM-2437-38-1 BOX OUT ON CENTERLINE OF INLET AT THE BACK-OF-CURB, ON THE SOUTH SIDE OF CUNNINGHAM CREEK BLVD. AND IN THE MIDDLE OF THE 180' H&P EASEMENT CROSSING CUNNINGHAM CREEK BLVD. ELEVATION = 71.08

- NOTES**
- CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER & THE OPERATOR TO DETERMINE THE WATER METER CONNECTION POINT.
 - REMOVE AND REPLACE EX. CONCRETE SIDEWALK AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE.
 - CONTRACTOR SHALL MAINTAIN A MINIMUM 3-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR SANITARY SEWER UTILITIES AND MANHOLES.
 - CONTRACTOR SHALL MAINTAIN A MINIMUM 1-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR STORM SEWER UTILITIES AND MANHOLES.
 - CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA.
 - OMIT
 - CONTRACTOR SHALL FIELD VERIFY EX. 8" SAN LEAD PRIOR TO CORSSING WITH PROP. RE-USED WATER LINE.

- LEGEND**
- (1) INDICATES MIN. VERTICAL CLEARANCE
 - (2) INDICATES MIN. VERTICAL CLEARANCE
 - (4) INDICATES MIN. VERTICAL CLEARANCE
 - INDICATES RE-USED WATER LINE SIZE AS NOTED
 - (272) INDICATES WATER METER SERVICE NUMBER
 - ⊕ INDICATES BLOW OFF VALVE (SEE DETAIL SHEET 38)
 - 47 INDICATES LOT NUMBER
 - (902) INDICATES STREET ADDRESS
- I.C.V. IRRIGATION CONTROL VALVE
 G.V.&B. GATE VALVE & BOX
 L.P. LIGHT POLE
 W.M. WATER METER
 I.C.B. IRRIGATION CONTROL BOX
- B — Ex. COMCAST CABLE
 — P — Ex. OVERHEAD POWER
 — E — Ex. UNDERGROUND ELECTRICAL
 — G — Ex. GAS LINE

LAKE MIST DRIVE (50' ROW)

CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



SCALE: 1" = 40' HORIZ.
1" = 4' VERT.

CL CURVE DATA

(-30)	(-31)
P.C. STA. 2+55.00 TO P.T. STA. 4+1.09	P.C. STA. 4+99.87 TO P.T. STA. 10+91.75
Δ = 27°20'18"	Δ = 113°02'31"
R = 390.00	R = 300.00
L = 186.09	L = 591.89
CB = S35°50'56"W	CB = S7°00'10"E
CH = 184.33	CH = 500.45

(-32)

P.C. STA. 12+44.74 TO P.T. STA. 14+20.87

Δ = 10°05'30"

R = 1000.00

L = 176.13

CB = S58°28'40"E

CH = 175.90

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUESTED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS VERIFICATION DOES NOT EXEMPT YOU FROM OBTAINING A CALL BEFORE YOU DIG PERMIT.

VERIFICATION OF PRIVATE UTILITY LINES

Date: _____
CenterPoint Energy/Natural Gas Facilities Verification ONLY.
(This signature verifies that you have done your own field verification of private utility lines. Use service lines are not shown.)
Signature Valid for six months.

Date: _____
CenterPoint Energy/Underground Electrical Facilities Verification ONLY.
(This signature verifies existing underground facilities - not to be used for utility verification.)
Signature Valid for six months.

APPROVED: *[Signature]*
DEVELOPMENT COORDINATOR

DATE: 7/17/17

NO.	REVISION	DATE	BY

DESIGNED BY: *RLM*

DESIGN CHECKED BY: *RLM*

DRAWN BY: *RLM*

COGO CHECKED BY: _____

SURVEY CHECKED BY: _____

QA/QC BY: _____ DATE: _____

QA/QC REVISIONS BY: *RLM*

Costello

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

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

NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2
 PLAN AND PROFILE

LAKE MIST DRIVE
 STA. 3+00.00 TO STA. 13+00.00

7/11/2017

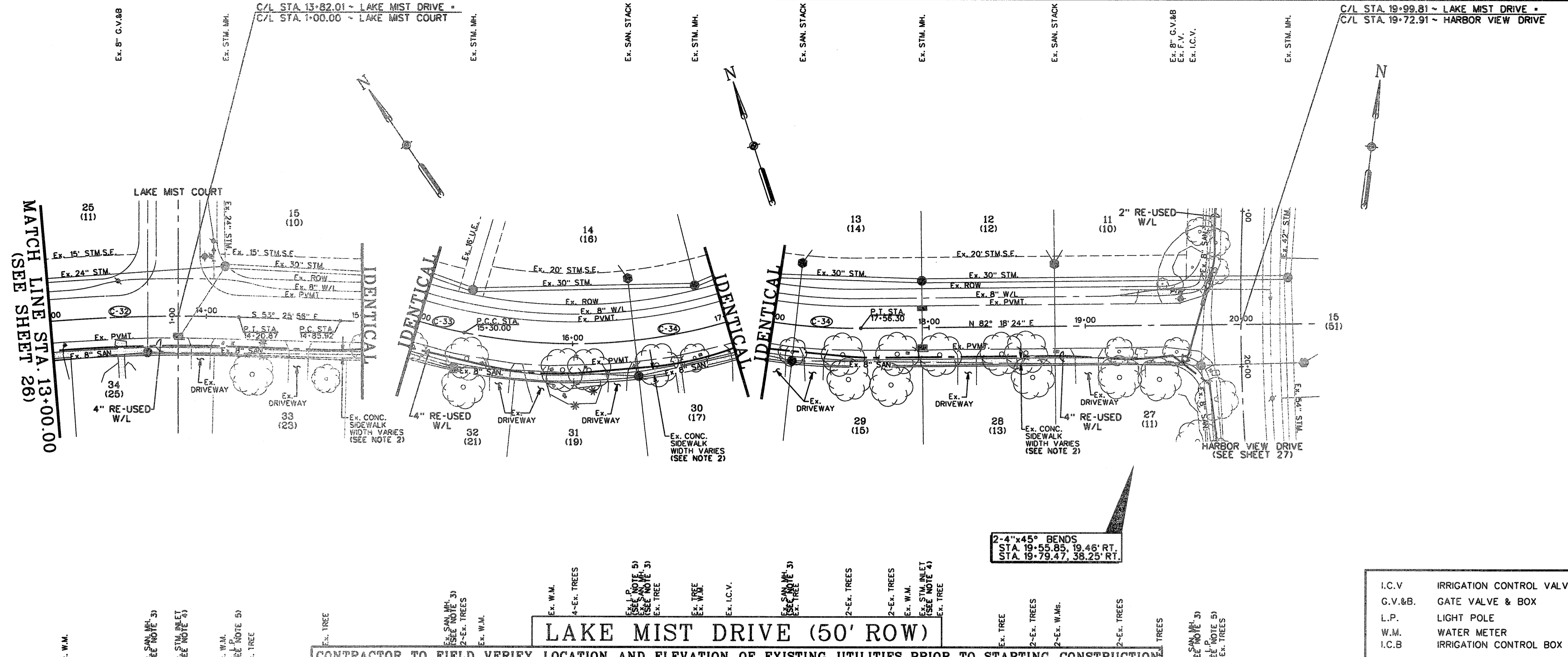
STATE OF TEXAS

Professional Engineer
 Jon R. VanderWilt
 50071

SHEET **25**
 OF **42** SHEETS
 JOB NO. 19992020-142

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WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142



CONTROL BENCHMARKS
 HGSD 66 INGS PD NO. 48541D - STAINLESS STEEL ROD IN SLEEVE LOCATED 4.8 MILES SOUTH ALONG FM OAK ROAD FROM THE JUNCTION OF U.S. HIGHWAY 90 W. KATY, 0.1 MILES SOUTH ALONG F.M. 363.68 FEET EAST OF THE CENTERLINE OF THE ROAD, 24 FEET SOUTH OF THE CENTER OF A GRAVEL ROAD TO A FARM, 19 FEET SOUTHWEST OF THE SOUTH POST OF A WOOD GATE. ACCESS CAP STAMPED HGSD 66 INGS. ELEVATION - 166.80 NAVD88 2001 ADJ.
 SITE TBM
 TBM-1 LOCATED ON NORTH BOLT ON THE TOP FLANGE OF THE FIRST FIVE HYDRANT ON WEST ROW OF HIGH MEADOWS DRIVE AT THE ENTRANCE INTO SUBDIVISION OFF OF US 90A. ELEVATION - 68.7
 TBM-2437-38-1 BOX OUT ON CENTERLINE OF INLET AT THE BACK-OF-CURB, ON THE SOUTH SIDE OF GUNNHAM CREEK BLVD. AND IN THE MIDDLE OF THE 180' PLAT EASEMENT CROSSING GUNNHAM CREEK BLVD. ELEVATION - 71.08

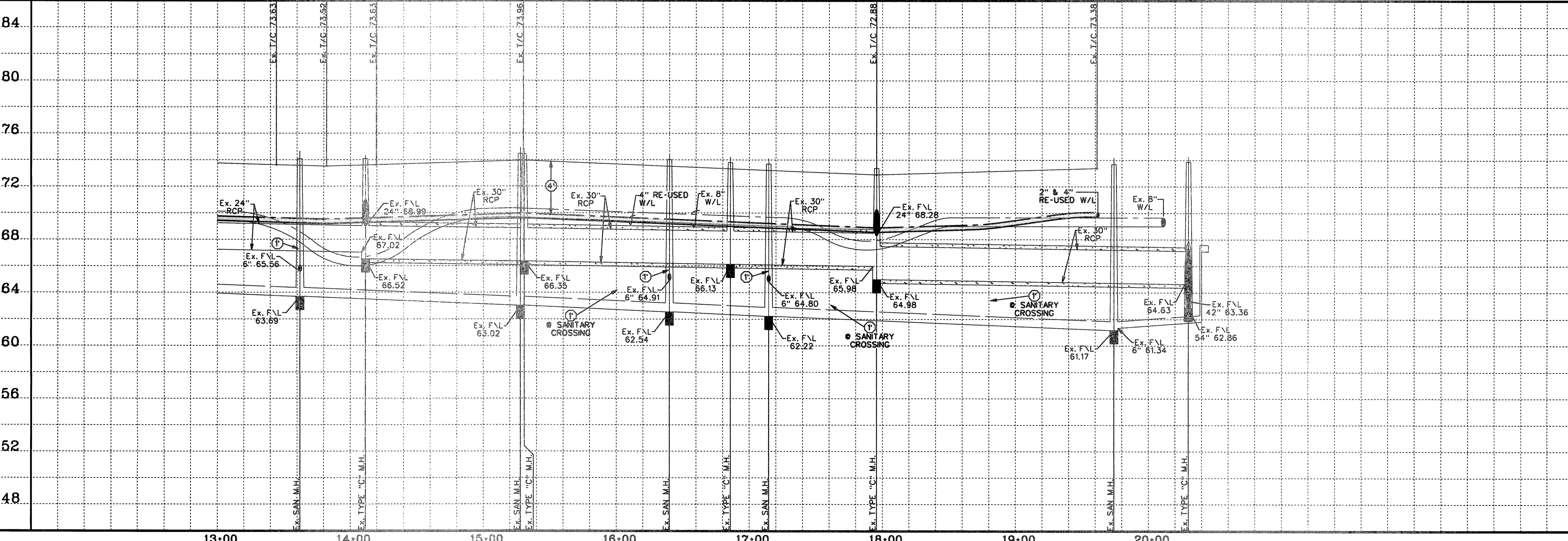
- NOTES**
- CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, NTRCA, & THE OPERATOR TO DETERMINE THE WATER METER CONNECTION POINT.
 - REMOVE AND REPLACE EX. CONCRETE SIDEWALK AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE.
 - CONTRACTOR SHALL MAINTAIN A MINIMUM 3'-FEET OUT TO OUT HORIZONTAL SEPARATION FOR SANITARY SEWER UTILITIES AND MANHOLES.
 - CONTRACTOR SHALL MAINTAIN A MINIMUM 1'-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR STORM SEWER UTILITIES AND MANHOLES.
 - CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA.

- LEGEND**
- (1) INDICATES MIN. VERTICAL CLEARANCE
 - (2) INDICATES MIN. VERTICAL CLEARANCE
 - (4) INDICATES MIN. VERTICAL CLEARANCE
 - INDICATES RE-USED WATER LINE SIZE AS NOTED
 - (272) INDICATES WATER METER SERVICE NUMBER
 - (B) INDICATES BLOW OFF VALVE (SEE DETAIL SHEET 38)
 - 47 INDICATES LOT NUMBER
 - (902) INDICATES STREET ADDRESS
 - I.C.V. IRRIGATION CONTROL VALVE
 - G.V.&B. GATE VALVE & BOX
 - L.P. LIGHT POLE
 - W.M. WATER METER
 - I.C.B. IRRIGATION CONTROL BOX
 - B --- EX. COMCAST CABLE
 - P --- EX. OVERHEAD POWER
 - E --- EX. UNDERGROUND ELECTRICAL
 - G --- EX. GAS LINE



LAKE MIST DRIVE (50' ROW)

CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



SCALE: 1" = 40' HORIZ.
1" = 4' VERT.

CL CURVE DATA

(-32)	(-33)
P.C. STA 12+44.74 TO P.C. STA 14+85.92 TO	P.C. STA 14+85.92 TO P.C. STA 15+30.00 TO
P.T. STA 14+20.87	P.T. STA 15+30.00
Δ - 10°05'30"	Δ - 7°12'55"
R - 1000.00	R - 350.00
L - 176.13	L - 44.08
CB - 55°28'40"E	CB - 53°02'23"E
CH - 175.90	CH - 44.05

P.C. STA 15+30.00 TO P.T. STA 17+56.30
 Δ - 37°02'46"
 R - 350.00
 L - 228.30
 CB - 57°10'14"E
 CH - 222.38

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-2222.

NOTICE: FOR YOUR SAFETY YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date: _____
 Signature: _____
 (This signature verifies existing underground facilities. Signature valid for 90 days.)

Date: _____
 Signature: _____
 (This signature verifies existing underground facilities. Signature valid for 90 days.)

APPROVED: *[Signature]*
DEVELOPMENT COORDINATOR

DATE: 7/17/17

NO.	REVISION	DATE	BY

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



Engineering and Surveying
 9990 Richmond Avenue, Suite 450 N
 Houston, Texas 77042
 (713) 783-7788 (713) 783-3580, Fax
 TBPE FIRM REG. No. 280
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NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2
 PLAN AND PROFILE
 LAKE MIST DRIVE
 STA. 13+00.00 TO 20+50.00

SHEET 26
 OF 42 SHEETS
 JOB NO. 19992020-142
 7/10/2017

P:\Projects\19992020-142 WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142

WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 19992020-142

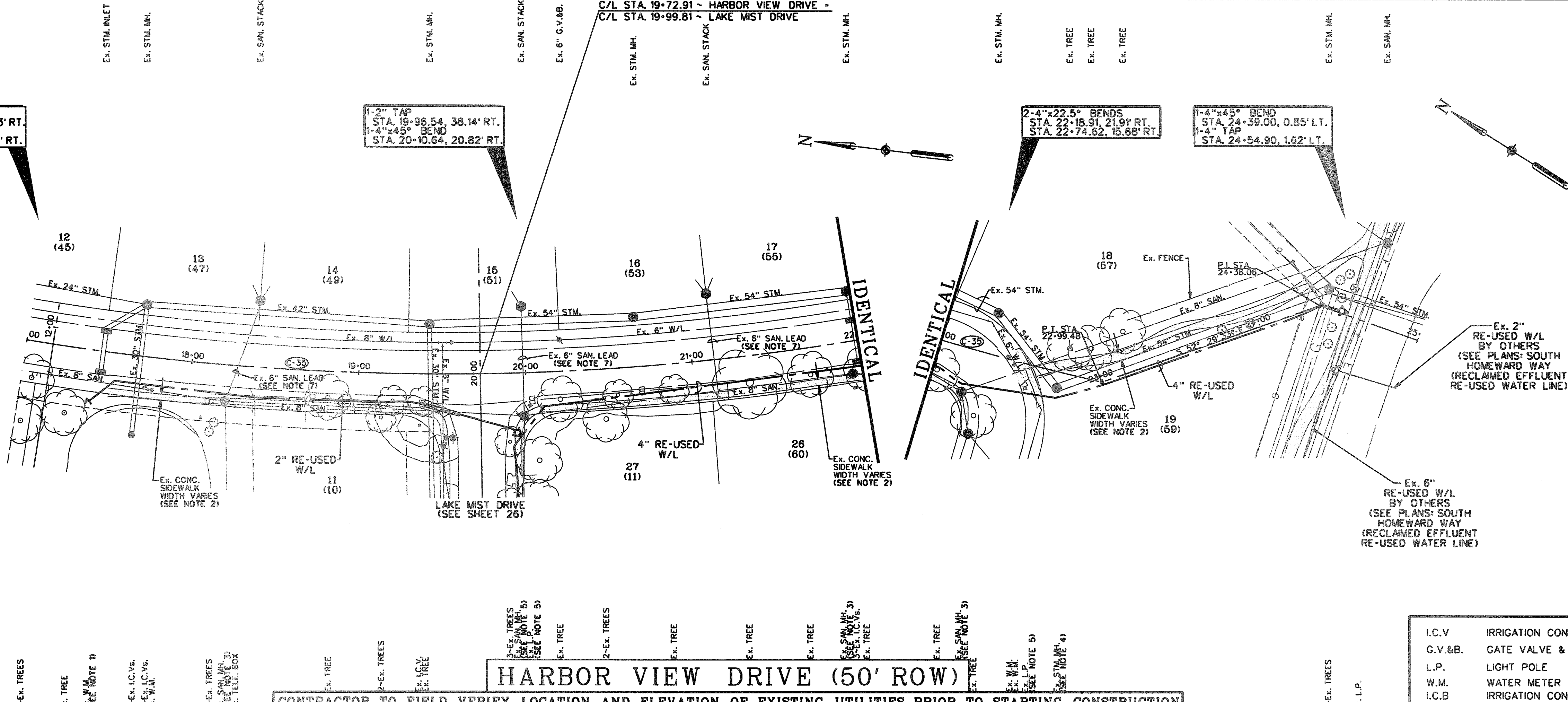
FORT BEND COUNTY LID 7
WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2 - JOB NO. 1992020-142

1-2" PLUG & CLAMP
STA. 17+42.04, 30.83' RT.
1-2"x45° BEND
STA. 17+55.47, 16.77' RT.

1-2" TAP
STA. 19+96.54, 38.14' RT.
1-2"x45° BEND
STA. 20+10.64, 20.82' RT.

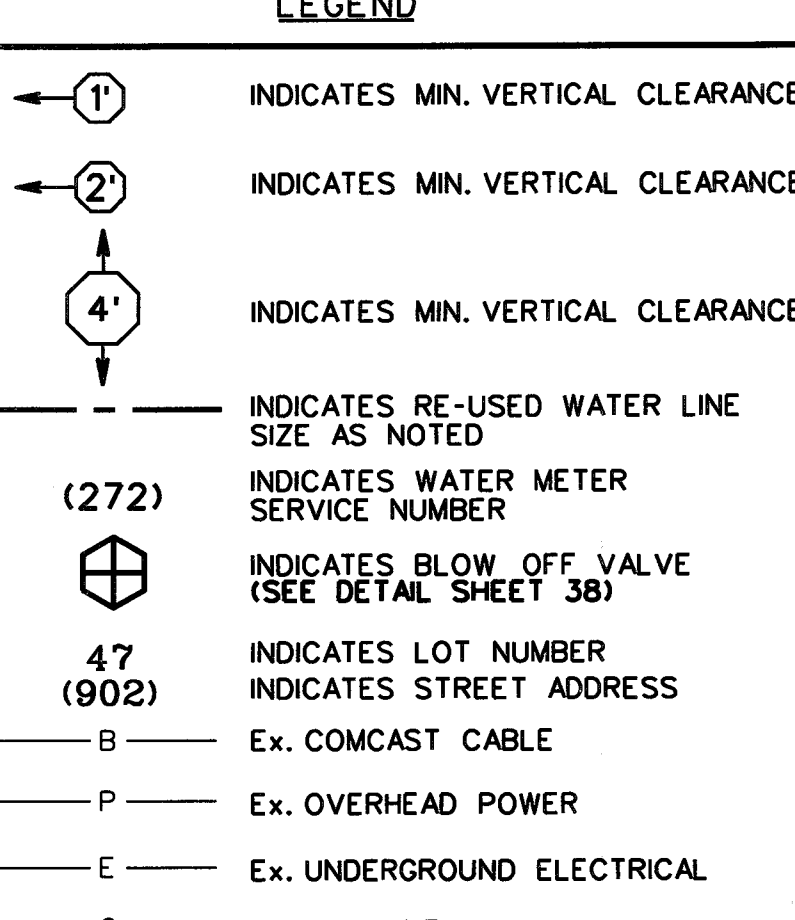
2-4"x22.5° BENDS
STA. 22+18.91, 21.91' RT.
STA. 22+74.62, 15.68' RT.

1-4"x45° BEND
STA. 24+39.00, 0.85' LT.
1-4" TAP
STA. 24+54.90, 1.62' LT.

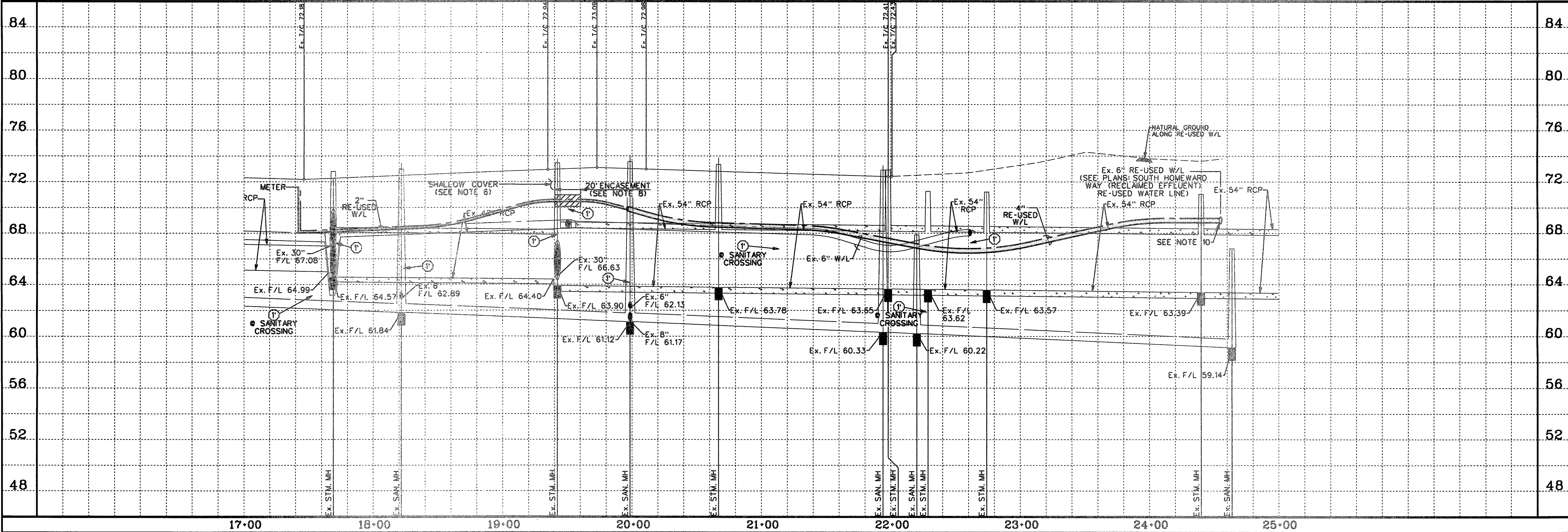


CONTROL BENCHMARKS
HOSD 66 (NGS PD NO. 485410) - STAINLESS STEEL ROD IN SLEEVE LOCATED 4.8 MILES SOUTH ALONG FM OAK ROAD FROM THE JUNCTION OF I-35 HIGHWAY 90 N. 0.1 MILES SOUTH ALONG F.M. 163.68 FEET EAST OF THE CENTERLINE OF THE ROAD, 34 FEET SOUTH OF THE CENTER OF A GRAVEL ROAD TO A FARM, 9 FEET SOUTHWEST OF THE SOUTH POST OF A WOOD GATE. ACCESS CAP STAMPED HOSD 66 1988. ELEVATION - 126.60 NAVD88 2001 ADJ.
SITE TBM
TBM-1
LOCATED ON NORTH BOLT ON THE TOP FLANGE OF THE FIRST FRIE HYDRANT ON WEST ROW OF HIGH MEADOWS DRIVE AT THE ENTRANCE INTO SUBDIVISION OFF OF US 90A. ELEVATION - 68.7
TBM-2437-38-1
BOX OUT ON CENTERLINE OF ALLEY AT THE BACK-OF-CURB, ON THE SOUTH SIDE OF CUNNINGHAM CREEK BLVD. AND IN THE MIDDLE OF THE 180' H&P EASEMENT CROSSING CUNNINGHAM CREEK BLVD. ELEVATION - 71.08

- NOTES**
- CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, NTRCA, & THE OPERATOR TO DETERMINE THE WATER METER CONNECTION POINT.
 - REMOVE AND REPLACE EX. CONCRETE SIDEWALK AS REQUIRED TO CONSTRUCT PROP. RE-USED WATER LINE.
 - CONTRACTOR SHALL MAINTAIN A MINIMUM 3-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR SANITARY SEWER UTILITIES AND MANHOLES.
 - CONTRACTOR SHALL MAINTAIN A MINIMUM 1-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR STORM SEWER UTILITIES AND MANHOLES.
 - CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA.
 - CONTRACTOR SHALL BE AWARE OF SHALLOW COVER. CONTRACTOR SHALL EXERCISE CAUTION.
 - CONTRACTOR SHALL VERIFY EX. 6" SAN. LEAD PRIOR TO CROSSING WHIT PROP. RE-USED WATER LINE.
 - SEE DETAILS SL-WA-13 & SL-WA-15 ON SHEET 38.
 - OMIT
 - CONTRACTOR SHALL EXPOSE EX. 8" RE-USED WATER LINE TO VERIFY FLOWLINES.



HARBOR VIEW DRIVE (50' ROW)
CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



SCALE: 1" = 40' HORIZ.
1" = 4' VERT.

CL CURVE DATA

③
P.C. STA 15+63.54 TO
P.T. STA 22+99.48
Δ = 28°06'39"
R = 1500.00
L = 735.94
CB = S6°06'44"E
CH = 728.58

7/17/17
SHEET 27

NO.	REVISION	DATE	BY

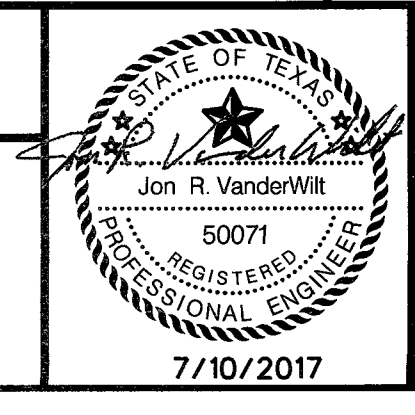
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DESIGN CHECKED BY: *RLM*
DRAWN BY: *RLM*
COCO CHECKED BY: *RLM*
SURVEY CHECKED BY: *RLM*
QA/QC BY: *RLM* DATE: *7/17/17*
QA/QC REVISIONS BY: *RLM*



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TBPE FIRM REG. No. 280
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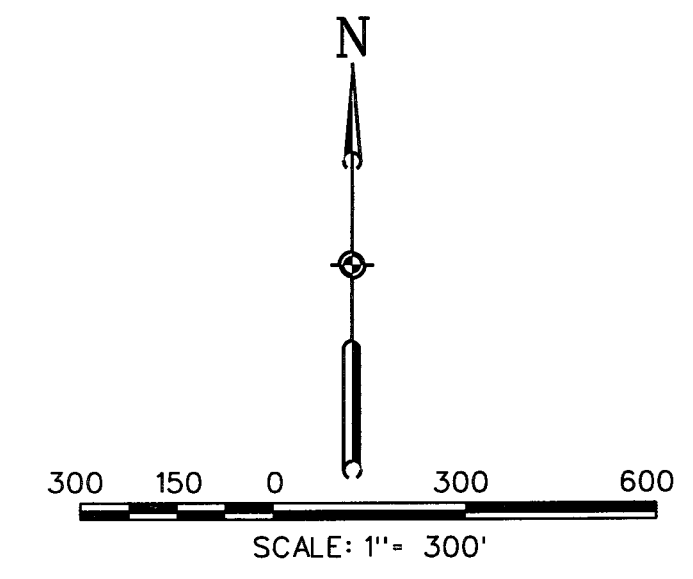
NEW TERRITORY
WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
RE-USED WATER LINE PHASE 2
PLAN AND PROFILE

HARBOR VIEW DRIVE






7/10/2017
SHEET 27
OF 42 SHEETS
JOB NO. 1992020-142

CONTROL BENCHMARKS
HCSD 66 (HGS PD NO. 485410) - STAINLESS STEEL ROD IN SLEEVE LOCATED 4.8 MILES SOUTH ALONG FM 90A ROAD FROM THE JUNCTION OF U.S. HIGHWAY 90 W. BAYLY, 0.1 MILES SOUTH ALONG F.M. 1663.66 FEET EAST OF THE CENTERLINE OF THE ROAD, 24 FEET SOUTH OF THE CENTER OF A GRAVEL ROAD TO A FARM, 10 FEET SOUTHWEST OF THE SOUTH POST OF A WOOD GATE. ACCESS CAP STAMPED HCSD 66 1008. ELEVATION - 126.60 NAVD88 2001 ADJ.
SITE TBM
TBM-1 LOCATED ON NORTH BELT ON THE TOP FLANGE OF THE FIRST FIVE HYDRANT ON WEST ROW OF HIGH MEADOWS DRIVE AT THE ENTRANCE INTO SUBDIVISION OFF OF US 90A. ELEVATION - 61.67
TBM-2437-38-1 BOX OUT ON CENTERLINE OF INLET AT THE BACK-OF-CURB ON THE SOUTH SIDE OF CUNNINGHAM CREEK BLVD. AND IN THE MIDDLE OF THE 180' R/W EASEMENT CROSSING CUNNINGHAM CREEK BLVD. ELEVATION - 71.08



POLLUTION PREVENTION LEGEND

-  INLET PROTECTION REQUIRED
-  FILTER FABRIC FENCE
-  STABILIZED CONSTRUCTION ACCESS

- NOTES:
1. PLACE FILTER FABRIC SILT FENCE +/- 5 FEET AROUND ALL INLETS.
 2. ALL SOIL STOCKPILES OF SIGNIFICANT SIZE SHALL BE ENCOMPASSED BY A SILT FENCE.
 3. ALL PROPOSED SWALES TO BE CONSTRUCTED BY THE CONTRACTOR FOR MAINTAINING SITE DRAINAGE SHALL HAVE SILT FENCES PLACED ACROSS THE ENTIRE SWALE JUST UPSTREAM OF THE OUTFALL LOCATION.
 4. A VEHICLE WASH-DOWN AREA FOR THE PROJECT MAY BE LOCATED BY THE CONTRACTOR. WHEN IN USE BY THE CONTRACTOR, THE CONTRACTOR SHALL PROTECT THE INLET WHERE THE WASH-DOWN WATER IS DIRECTED. THE LOCATION OF THE WASH-DOWN IS AT THE CONTRACTOR'S OPTION.
 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL SWPPP FEATURES INDICATED ON THIS PLAN.
 6. UPON PROJECT COMPLETION, THE ENTIRE DISTURBED AREA NOT PROPOSED FOR IMMEDIATE RECONSTRUCTION SHALL BE RESEDED AS PER THE POLLUTION PREVENTION PLAN.
 7. UPON PROJECT COMPLETION AND FINAL STABILIZATION, ALL SILT FENCE SHALL BE REMOVED AND DISPOSED OF.
 8. CONTRACTOR TO REMOVE FILTER DAM UPON COMPLETION OF PROJECT AND RESTORE DITCH TO EXISTING OR BETTER CONDITION.

P:\19992020\142 REUSE WATERLY_HOMERWAY_HOMERWAY_28.PPP LAYOUT.dgn

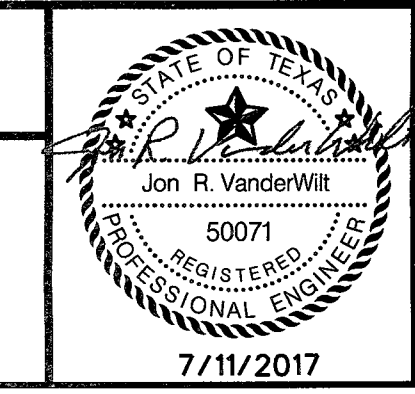
NO.	REVISION	DATE	BY

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



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NEW TERRITORY
 WEST HOMERWAY WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2
POLLUTION PREVENTION PLAN

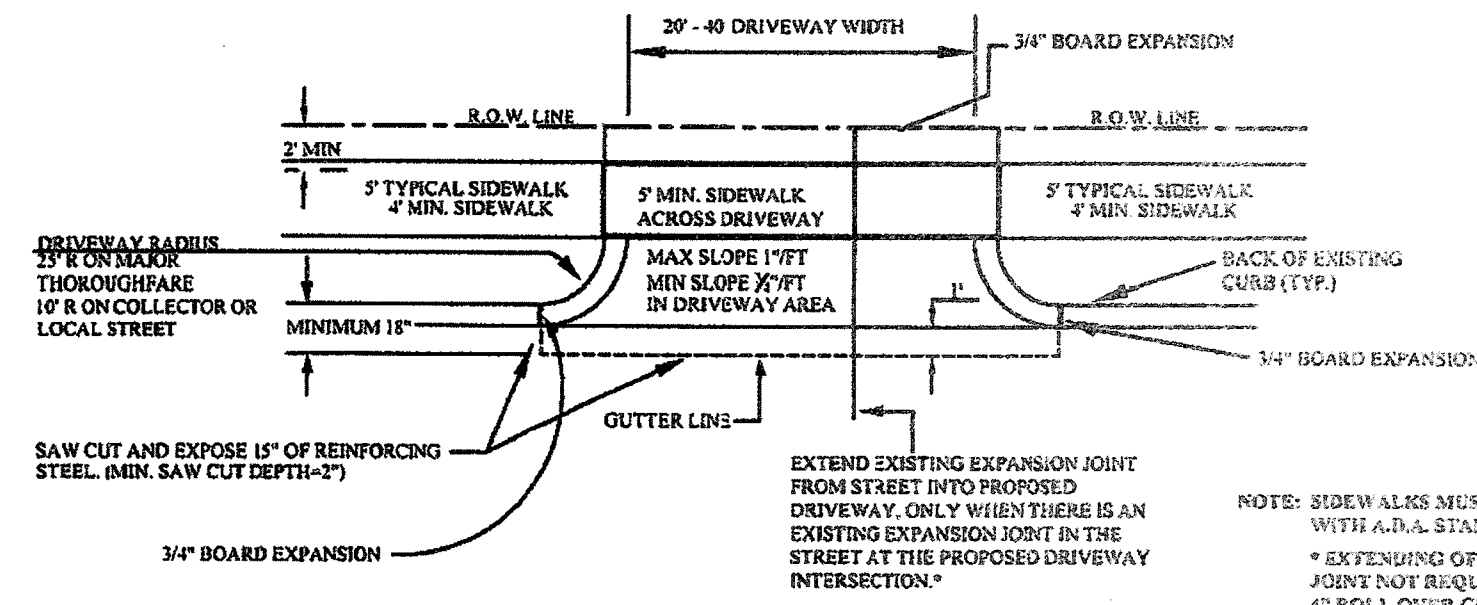


APPROVED: [Signature]
 DEVELOPMENT COORDINATOR
 DATE: 7/17/17

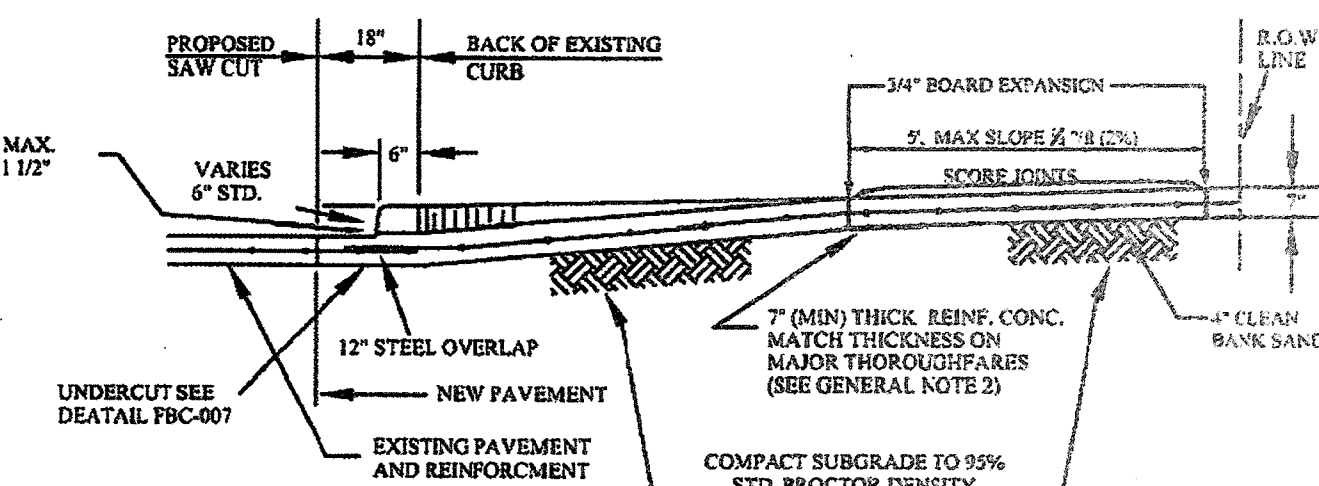
SHEET **28**
 OF **42** SHEETS
 JOB NO. 19992020-142

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

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



B. USE FOR ALL PROPOSED DRIVES ON CURBED TYPE STREETS



GENERAL NOTES:

1. COMPACT SUBGRADE FOR PROPOSED DRIVEWAY CONNECTION FROM PROPOSED SAW CUT AT EXISTING PAVEMENT TO R.O.W. LINE. COMPACT TO 95% OF STANDARD PROCTOR DENSITY (+/- 2% OPT. MOISTURE). THE COUNTY ENGINEER RESERVES THE RIGHT TO REQUIRE LABORATORY TESTS TO BE CONDUCTED.
2. PROPOSED DRIVEWAY REINFORCING STEEL IS TO BE #4 DEFORMED REINFORCING BARS (ASTM A615, GRADE 60, UNLESS NOTED) SPACED AT 24\"/>

SIDEWALKS & DRIVEWAYS ON CURB TYPE STREETS COMMERCIAL AREA

DRAWN BY: L. BRDECKA
DATE DRAWN: 2-1-94
APPROVED BY: L. HOOD
DATE: 2-1-94

REVISED BY: J. METARDUS
DATE REVISED: 4-7-09
DRAWING NO. FBC-025A

FORT BEND COUNTY ENGINEERING DEPARTMENT

GENERAL NOTES FOR SIDEWALKS AND DRIVEWAYS

1. SAW CUT EXISTING CURB AT EACH END AND KNOCK OUT CURB FROM BEGINNING TO END OF PROPOSED DRIVEWAY.
2. SAW CUT EXISTING PAVEMENT A MINIMUM OF 18\"/>

CONSTRUCTION NOTES FOR SIDEWALKS & DRIVEWAYS WITH CURB TYPE STREETS COMMERCIAL AREA

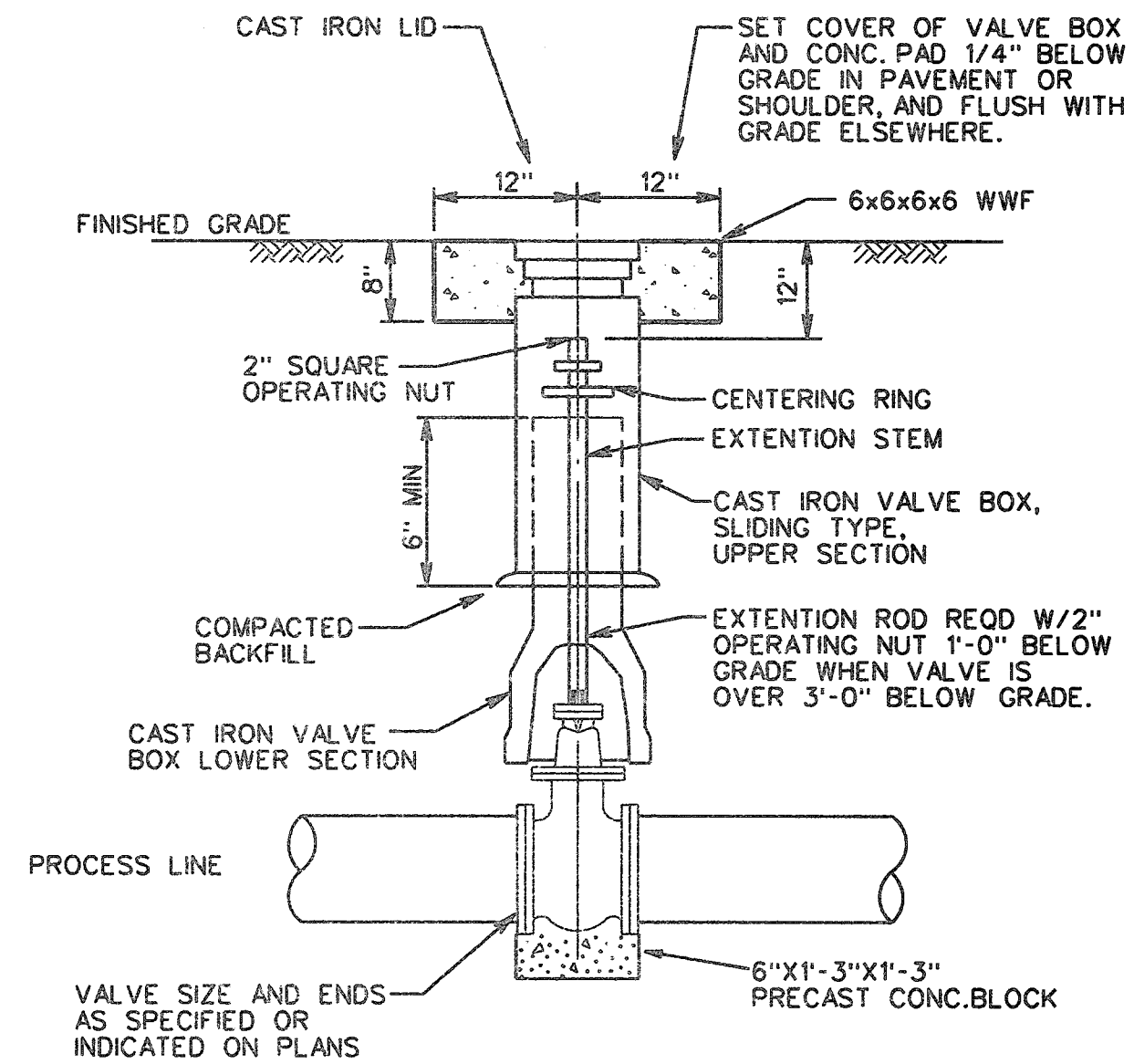
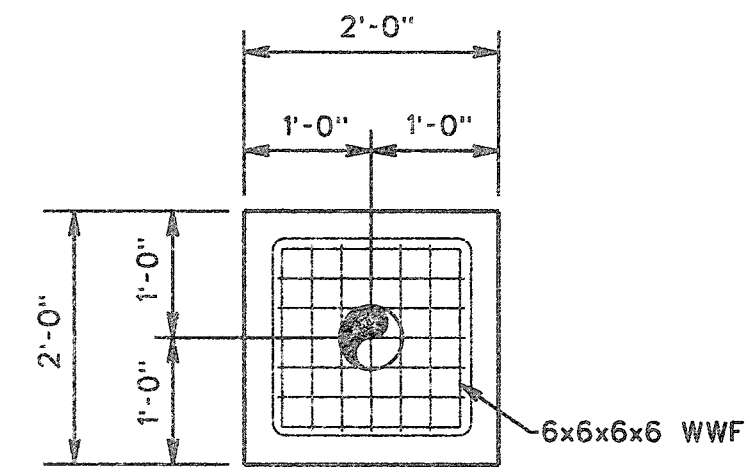
DRAWN BY: L. BRDECKA
DATE DRAWN: 2-1-94

REVISED BY: L. BRDECKA
DATE REVISED: 3-10-05

APPROVED BY: L. HOOD
DATE: 2-1-94

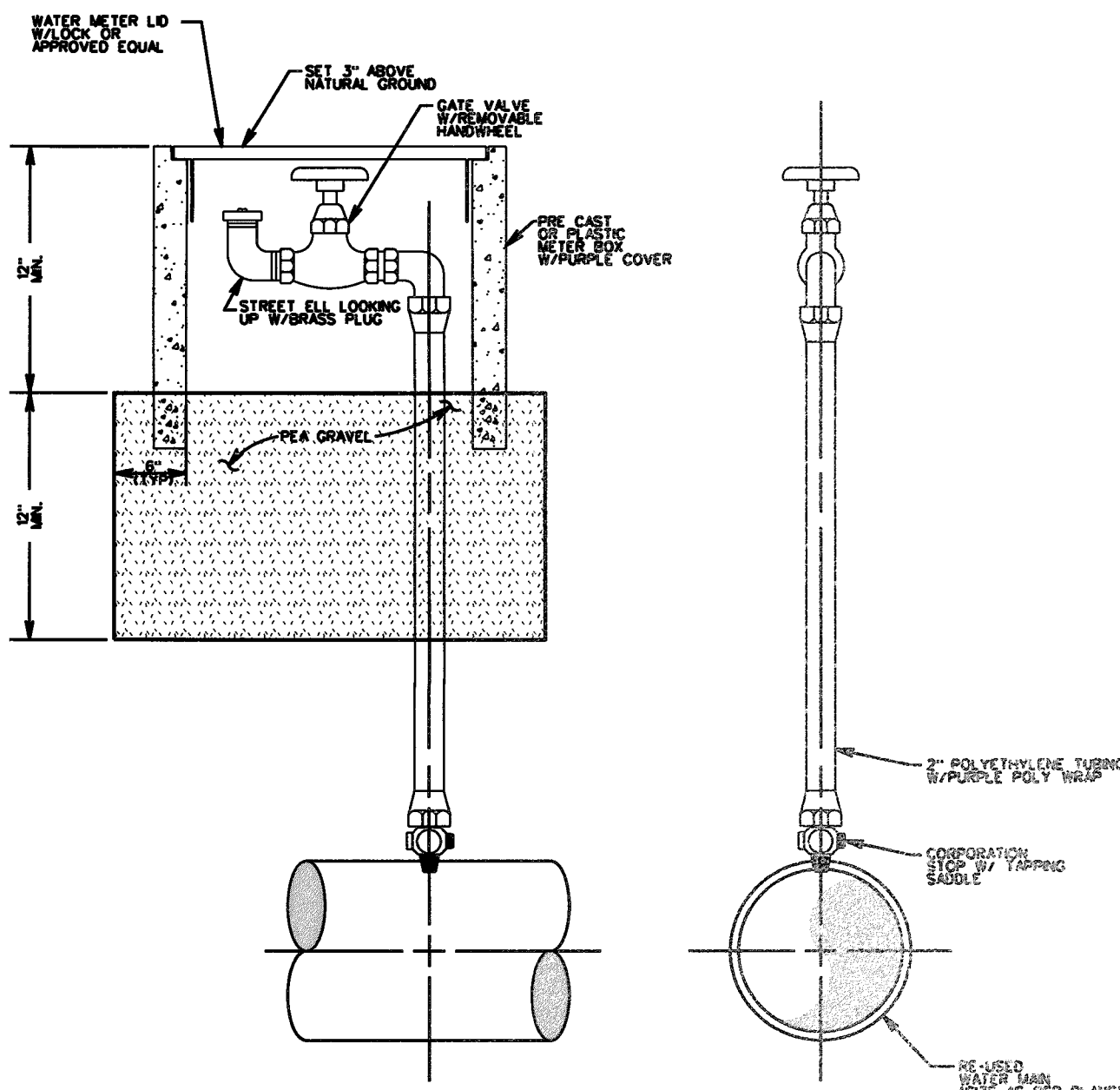
DRAWING NO. FBC-025B

FORT BEND COUNTY ENGINEERING DEPARTMENT



- NOTE:
1. ALL BURIED VALVES SHALL HAVE VALVE BOXES, AND STEMS EXTENSIONS AS SHOWN.
 2. ALL VALVES TO BE AWWA STANDARD CLOCKWISE RIGHT OPENING.

BURIED GATE VALVE BOX W/ CONCRETE PAD
R.T.S.

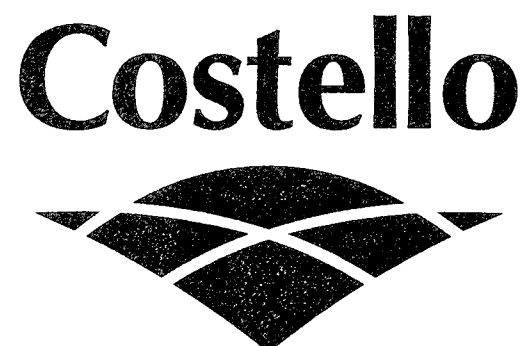


NOTES:

1. ALL PIPING AND FITTINGS SHOULD BE THE SAME SIZE AS CORRESPONDING.
2. FOR 2\"/>

2\"/> N.T.S.

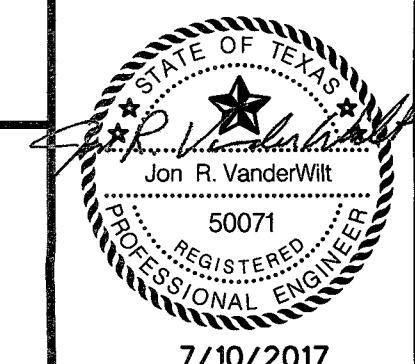
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DRAWN BY: *RLM*
COGO CHECKED BY: _____
SURVEY CHECKED BY: _____
QA/QC BY: _____ DATE: _____
QA/QC REVISIONS BY: *RLM*



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NEW TERRITORY
WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
RE-USED WATER LINE PHASE 2

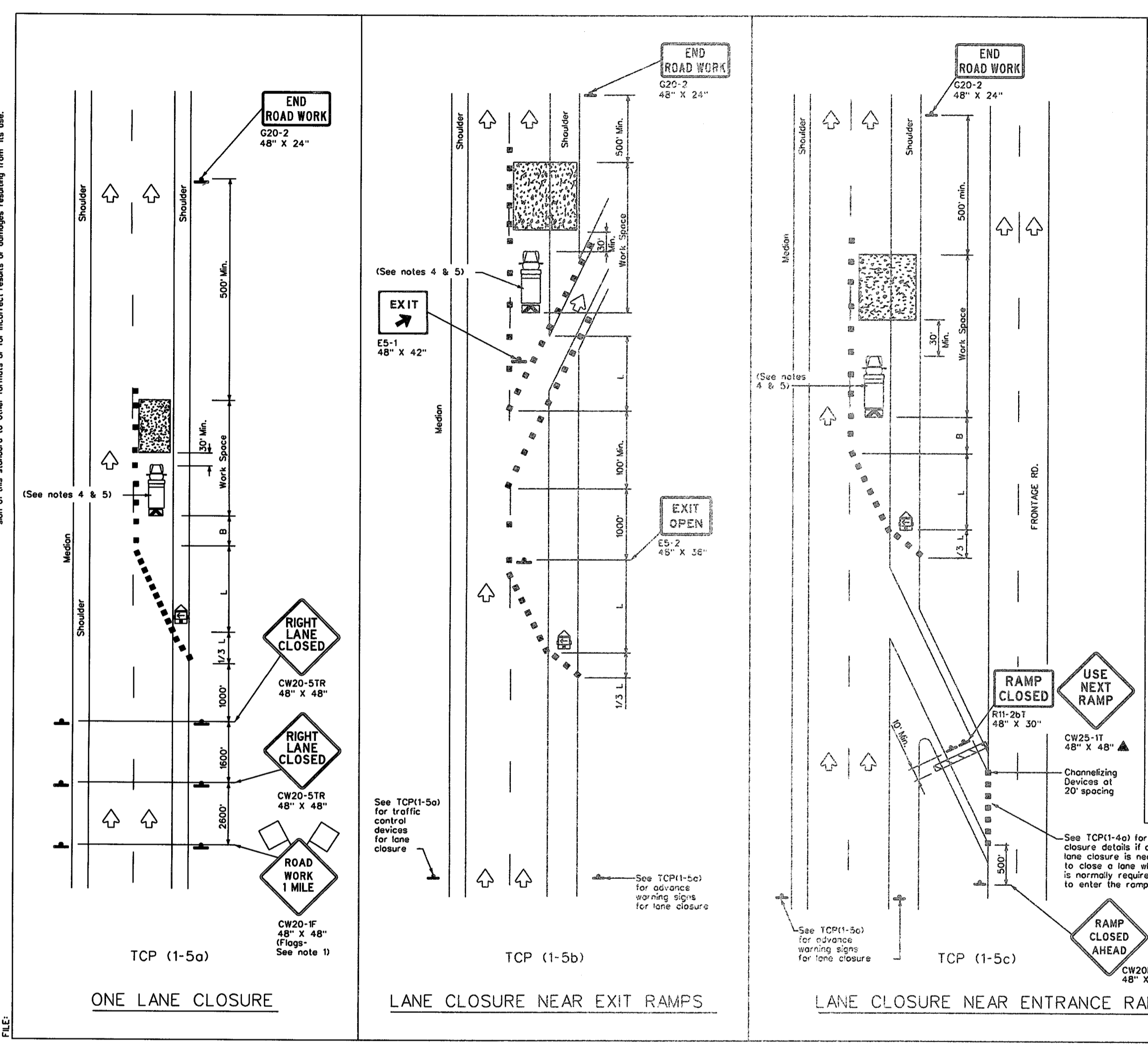
MISCELLANEOUS DETAILS



APPROVED: *[Signature]*
DEVELOPMENT COORDINATOR
DATE: 7/17/17

SHEET 30
OF 42 SHEETS
JOB NO. 19992020-142

DATE: FILE: DISCLAIMER: The use of this standard is governed by the Terms, Conditions, Practices and Procedures of the American Road & Builders Builders Association. No warranty, representation or liability is made by the Association for the use of this standard to other than the intended use or for damages resulting from its use.



LEGEND

Type 3 Barricade	Channeled Devices
Heavy Work Vehicle	Truck Mounted Attenuator (TMA)
Trailer Mounted Flashing Arrow Board	Portable Changeable Message Sign (PCMS)
Sign	Traffic Flow
Flag	Flagger

Posted Speed	Formula	Minimum Taper Lengths	Suggested Maximum Spacing of Channeled Devices	Minimum Sign Spacing	Suggested Longitudinal Buffer Space
30	WS	150' 185' 180'	30'	60'	120'
35	WS	205' 225' 245'	35'	70'	140'
40	WS	265' 295' 320'	40'	80'	160'
45	WS	325' 365' 395'	45'	90'	180'
50	WS	385' 435' 470'	50'	100'	200'
55	L-WS	445' 505' 545'	55'	110'	220'
60	L-WS	505' 575' 620'	60'	120'	240'
65	L-WS	565' 645' 695'	65'	130'	260'
70	L-WS	625' 715' 770'	70'	140'	280'
75	L-WS	685' 785' 845'	75'	150'	300'

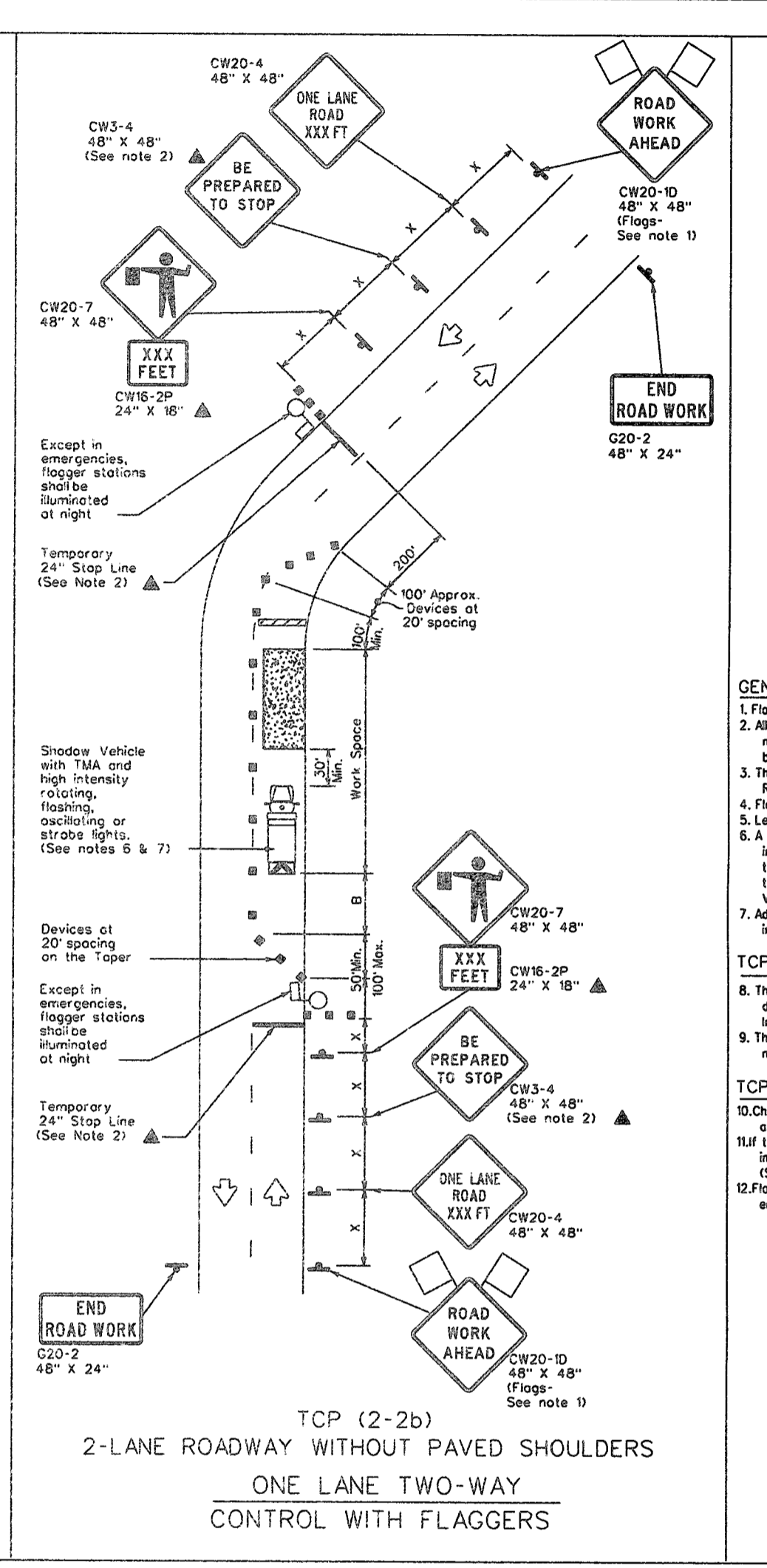
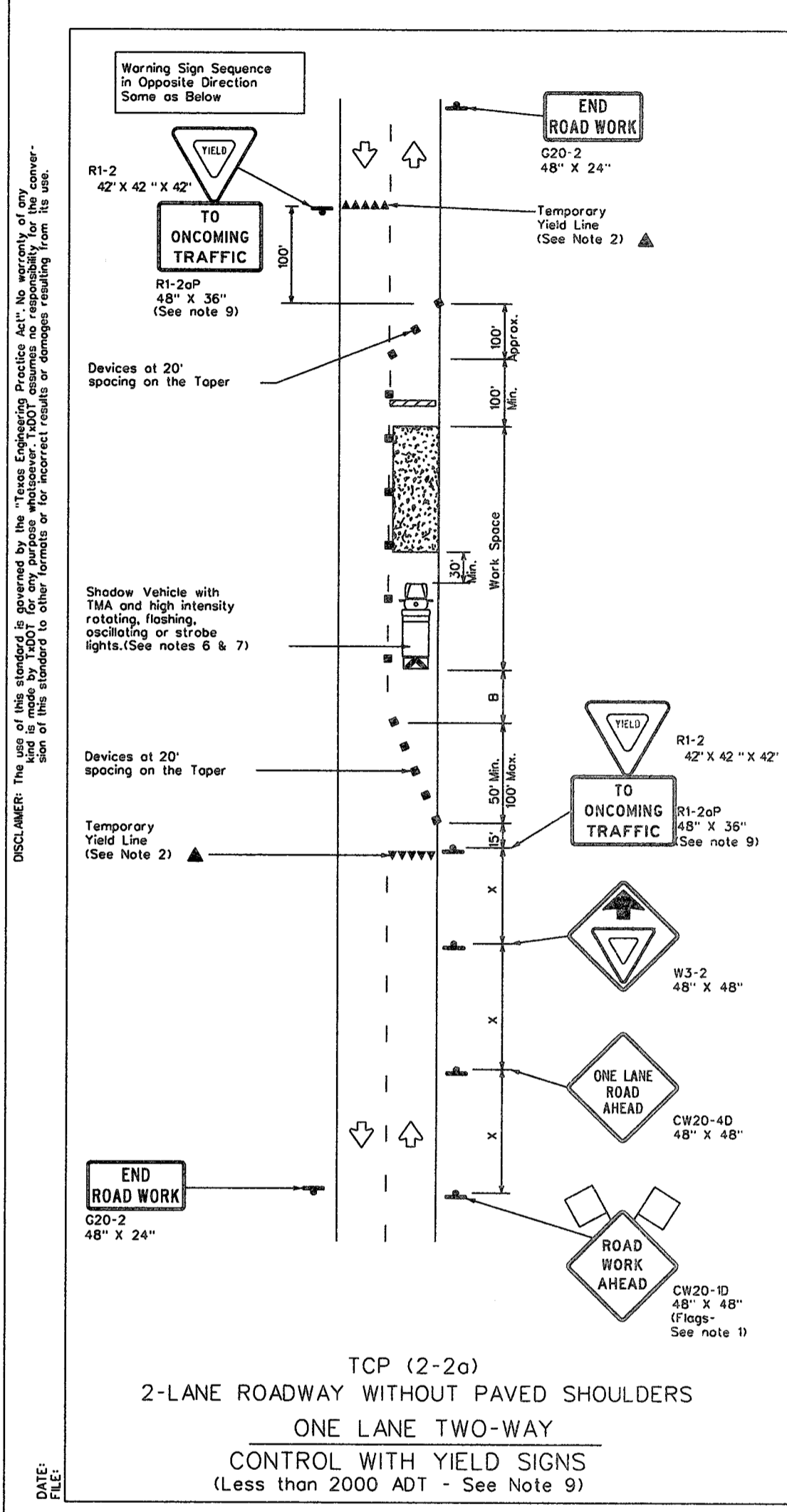
TYPICAL USAGE

MOBILE	SHORT TERM DURATION	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓

GENERAL NOTES

- Flags attached to signs where shown, are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol in the plans, or for routine maintenance work, when approved by the Engineer.
- Channeled devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channeled device. Chevrons may be attached to plastic drums as per BC Standards.
- Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of one exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channeled devices may be substituted for the Shadow Vehicle and TMA.
- Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

For construction or maintenance contract work, specific project requirements for shadow vehicles can be found in the project GENERAL NOTES for Item 502, Barricades, Signs and Traffic Handling.



LEGEND

Type 3 Barricade	Channeled Devices
Heavy Work Vehicle	Truck Mounted Attenuator (TMA)
Trailer Mounted Flashing Arrow Board	Portable Changeable Message Sign (PCMS)
Sign	Traffic Flow
Flag	Flagger

Posted Speed	Formula	Minimum Taper Lengths	Suggested Maximum Spacing of Channeled Devices	Minimum Sign Spacing	Suggested Longitudinal Buffer Space
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55	L-WS	445' 505' 545'	55'	110'	220'
60	L-WS	505' 575' 620'	60'	120'	240'
65	L-WS	565' 645' 695'	65'	130'	260'
70	L-WS	625' 715' 770'	70'	140'	280'
75	L-WS	685' 785' 845'	75'	150'	300'

TYPICAL USAGE

MOBILE	SHORT TERM DURATION	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓

GENERAL NOTES

- Flags attached to signs where shown, are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol in the plans, or for routine maintenance work, when approved by the Engineer.
- The CW20-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
- Flaggers should use two-way radios or other methods of communication to control traffic.
- Length of work space should be based on the ability of flaggers to communicate.
- A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of one exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channeled devices may be substituted for the Shadow Vehicle and TMA.
- Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
- The R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work space should be no longer than one half city block. In rural areas, roadways with less than 2000 ADT, work space should be no longer than 400 feet.
- The R1-2 "YIELD TO ONCOMING TRAFFIC" sign should be placed on a support of a 7 foot minimum mounting height.
- Channeled devices on the center line may be omitted when a plot car is leading traffic and approved by the Engineer.
- If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See Note 10).
- Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

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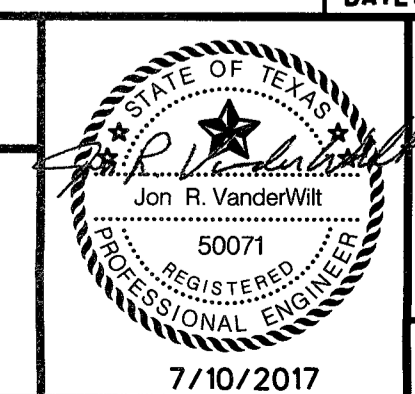
NO.	REVISION	DATE	BY

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 DRAWN BY: RLM
 COGO CHECKED BY:
 SURVEY CHECKED BY:
 QA/QC BY: DATE:
 QA/QC REVISIONS BY: RLM

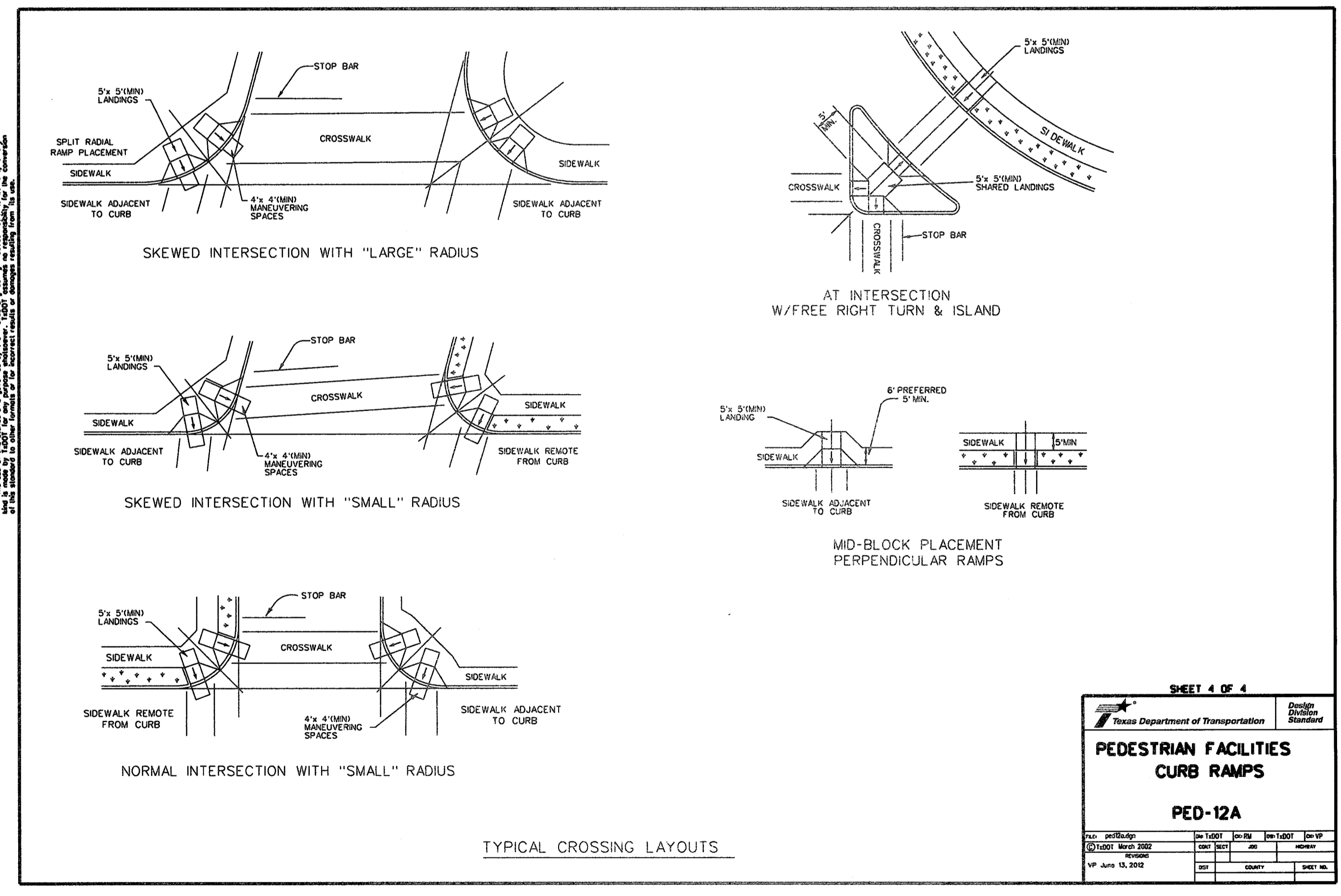
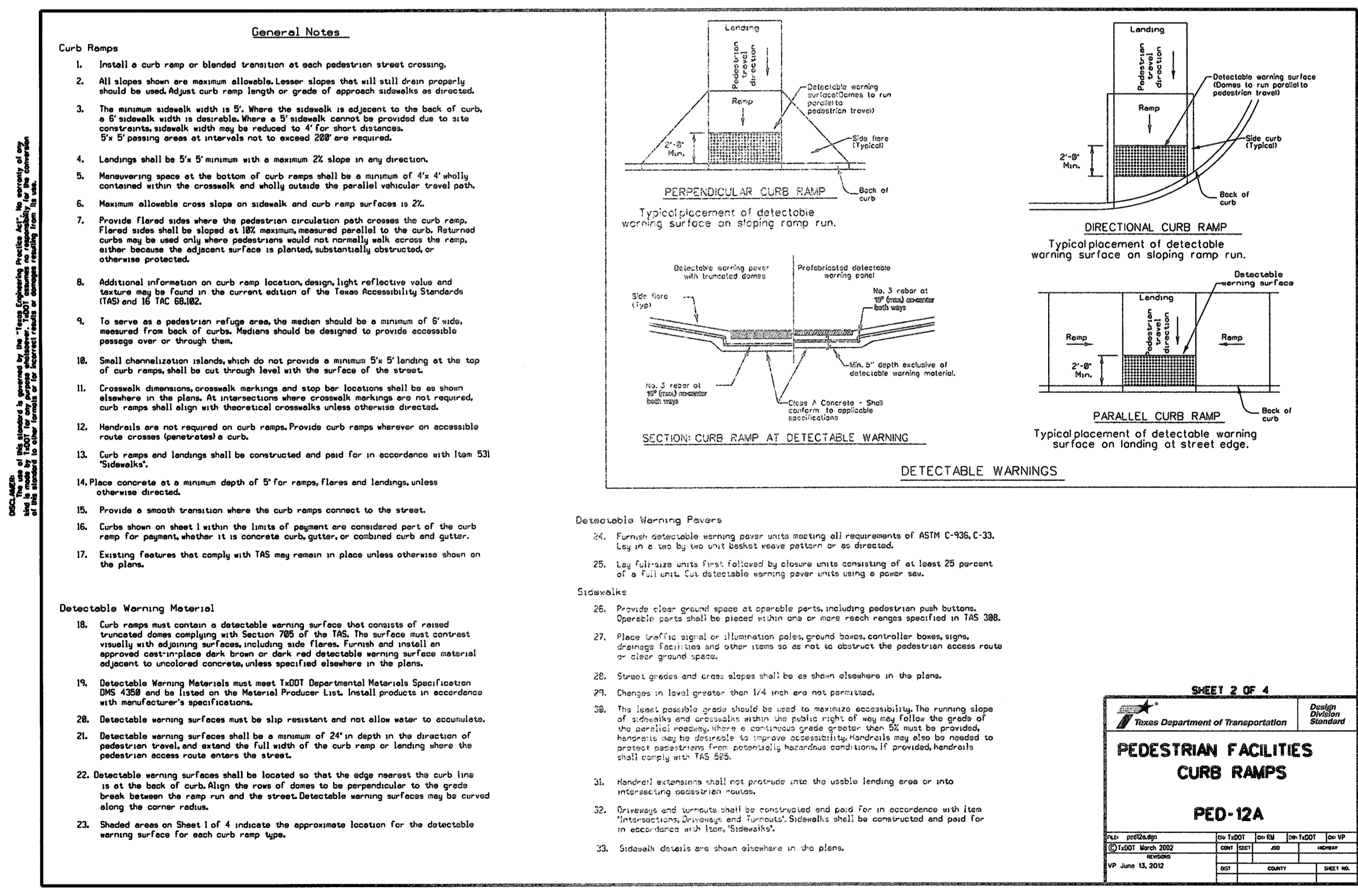
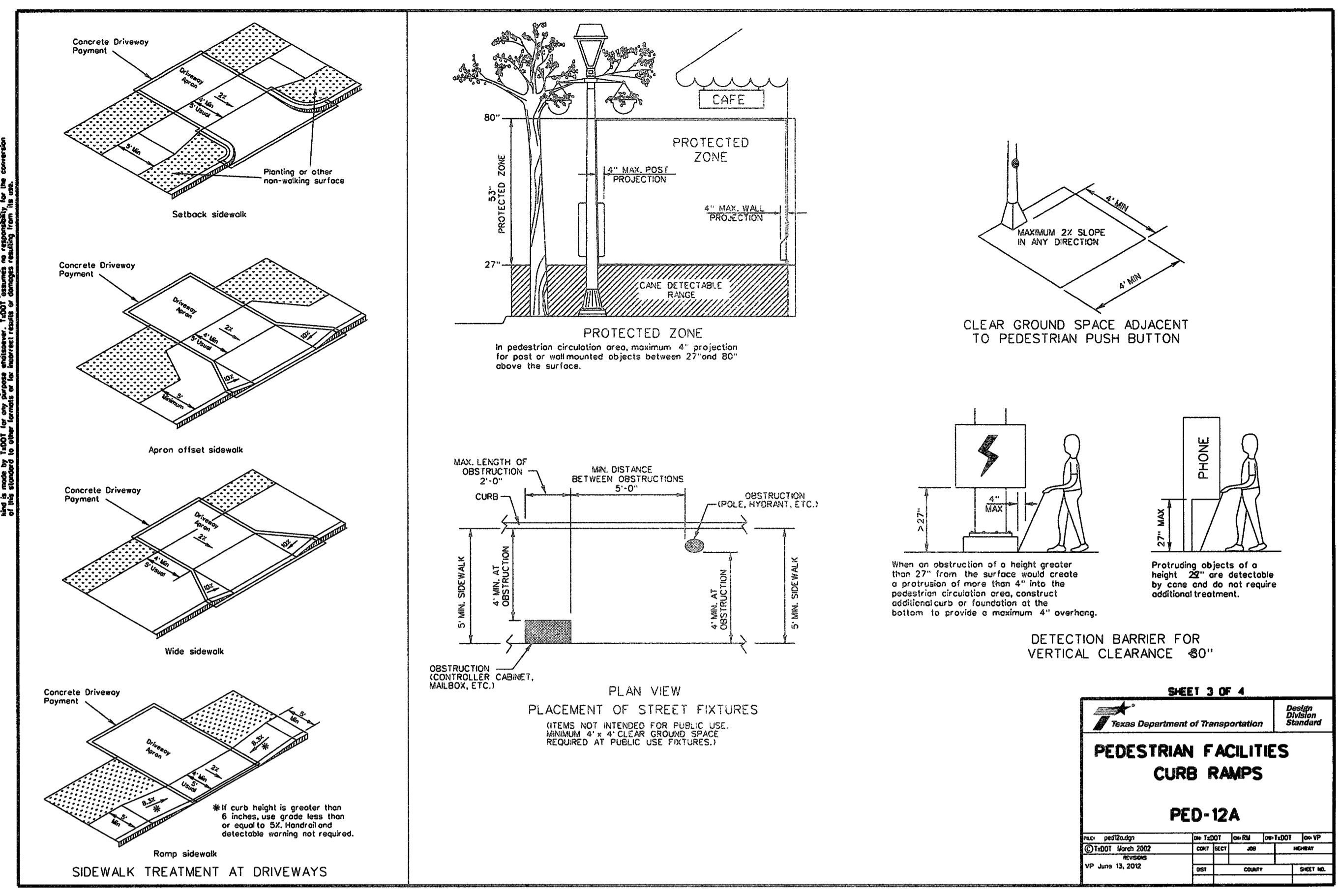
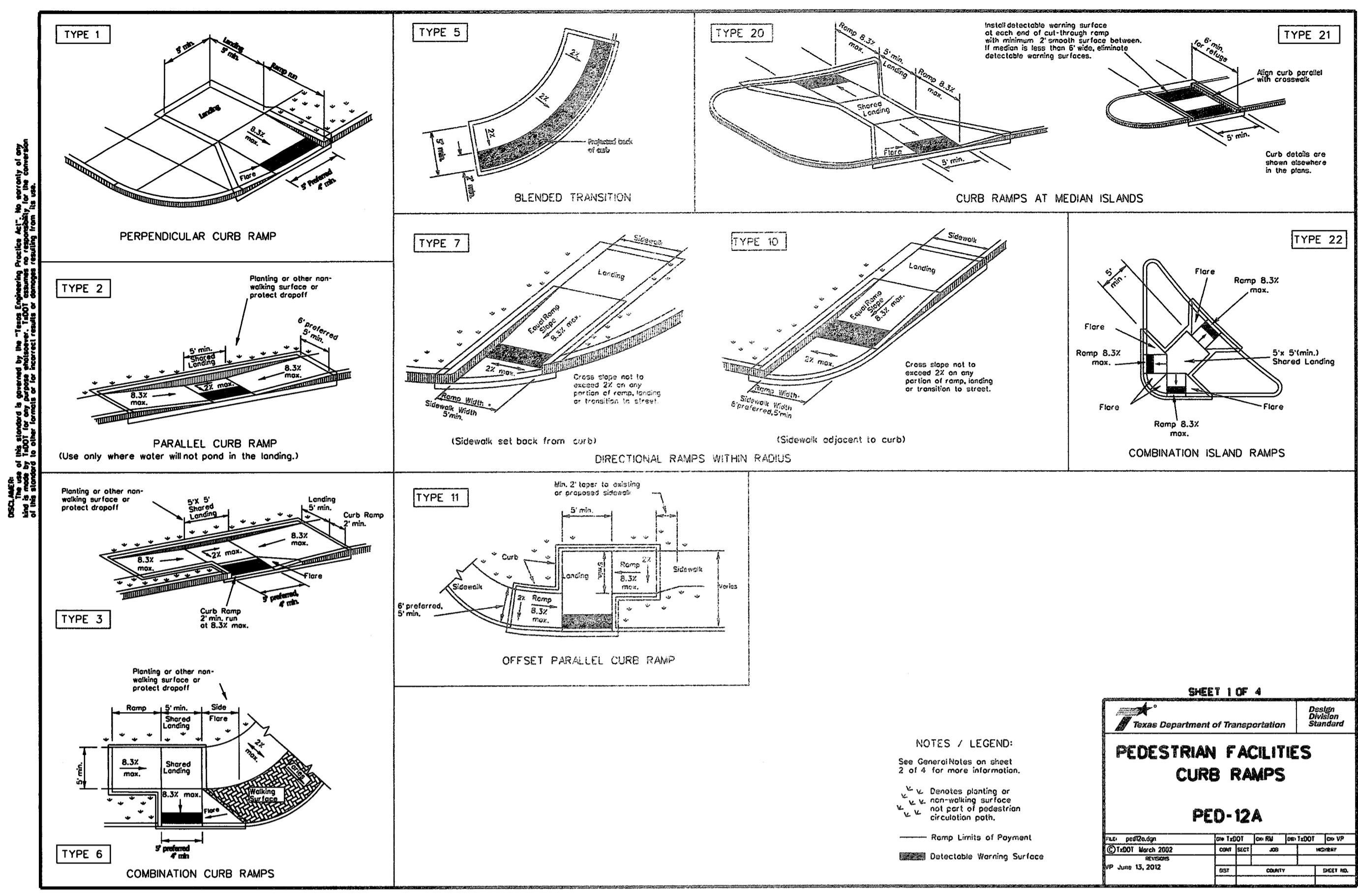


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NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2
 TRAFFIC CONTROL
 PLAN DETAILS



APPROVED: [Signature]
 DEVELOPMENT COORDINATOR
 DATE: 7/17/17
 SHEET 31 OF 42 SHEETS
 JOB NO. 199920-142



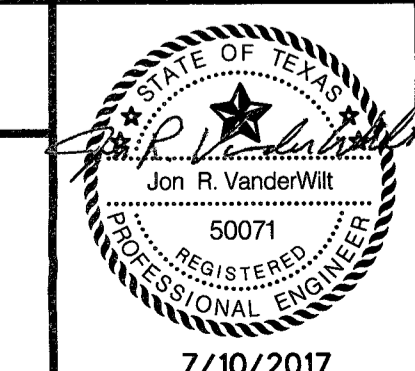
NO.	REVISION	DATE	BY

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 DRAWN BY: RLM
 COGO CHECKED BY: RLM
 SURVEY CHECKED BY: RLM
 QA/QC BY: RLM DATE: 7/17/17
 QA/QC REVISIONS BY: RLM



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NEW TERRITORY
 WEST HOMEWARD WAY (RECLAIMED EFFLUENT)
 RE-USED WATER LINE PHASE 2
**PEDESTRIAN FACILITIES
 CURB RAMPS**



APPROVED: [Signature]
 DEVELOPMENT COORDINATOR
 DATE: 7/17/17
 SHEET **32**
 OF **42** SHEETS
 JOB NO. 19992020-142
 7/10/2017

GENERAL NOTES:

- 1. CONTACT THE ENGINEERING INSPECTORS WITH THE CITY'S ENGINEERING DEPARTMENT AT (281) 275-2780 PRIOR TO STARTING WORK TO SCHEDULE A PRE-CONSTRUCTION MEETING.
2. CONTRACTOR IS RESPONSIBLE FOR HAVING ALL BURIED UTILITIES IDENTIFIED, PROTECTED, REPLACED AND/OR PROPERLY REPAIRED IF DAMAGED. REPAIRS/REPLACEMENT SHALL BE AT CONTRACTOR'S EXPENSE.
3. CONTRACTOR SHALL OBTAIN AND MAINTAIN ON SITE ALL APPLICABLE PERMITS AND AN APPROVED COPY OF THE PLANS AND SPECIFICATIONS, NOTIFY THE CITY'S ENGINEERING DEPARTMENT 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
4. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE CITY'S ENGINEERING DEPARTMENT 24 HOURS PRIOR TO WEEKDAY WORK REQUIRING INSPECTION INCLUDING, BUT NOT LIMITED TO, LIMING, PAVING OPERATIONS, CONCRETE PLACEMENT, FORMING AND SET-UP, DENSITIES, PIPE INSTALLATION, AND ANY TESTING BY LABORATORIES. THE ENGINEERING DEPARTMENT MAY BE REACHED AT 281-275-2780 OR BY CONTACTING THE ASSIGNED INSPECTOR.
5. ALL SATURDAY WORK SHALL BE REQUESTED, IN WRITING, WITH THE CITY'S ENGINEERING DEPARTMENT AT LEAST 48-HOURS IN ADVANCE. SUNDAY AND HOLIDAY WORK REQUIRES 72 HR. WRITTEN REQUESTS AND MUST BE APPROVED BY THE CITY ENGINEER. FAXES MAY BE SENT TO (281) 275-2771. REQUIRED INSPECTIONS MAY BE SUBJECT TO INSPECTION FEES. NON-NOTIFICATIONS MAY RESULT IN NON-COMPLIANCE, WORK ORDERED STOPPAGE AND DOUBLE INSPECTION FEES.
6. FULL-TIME RESIDENT INSPECTION BY THE PROJECT ENGINEER'S REPRESENTATIVE SHALL BE PROVIDED AT ALL CRITICAL POINTS OF CONSTRUCTION OR AS DEEMED NECESSARY BY THE CITY OF SUGAR LAND.
7. FOLLOW-UP INSPECTIONS OF ALL PUBLIC INFRASTRUCTURE SHALL BE SCHEDULED WITHIN 60 DAYS OF THE INITIAL INSPECTION. A COMPLETE RE-INSPECTION AND A NEW PUNCH LIST MAY BE REQUIRED AFTER THE 60 DAY PERIOD.
8. DESIGN AND CONSTRUCTION SHALL CONFORM TO THE TEXAS COMMISSION OF ENVIRONMENTAL QUALITY RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS, THE CITY OF SUGAR LAND DESIGN MANUAL (ISSUED 2007), AND THE CITY OF SUGAR LAND STANDARD DETAIL SHEETS. THE CITY OF SUGAR LAND DESIGN STANDARDS SHALL BE ACQUIRED (AND USED) FROM THE ENGINEERING DEPARTMENT. THE LATEST REVISIONS AND/OR AMENDMENTS SHALL BE OBSERVED. WHERE CONFLICT MAY ARISE BETWEEN INFORMATION ON APPROVED CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS AND CITY OF SUGAR LAND STANDARDS, THEN THE CITY DESIGN STANDARDS SHALL GOVERN.
9. ALL STATIONS ARE CENTERLINE OF STREET RIGHT-OF-WAY UNLESS OTHERWISE NOTED ON THE PLANS. EXCEPT IN SIDE OR BACK LOT EASEMENTS WHERE CENTERLINE IS CENTER OF PIPE. IN EASEMENTS WHERE SANITARY AND STORM SEWERS ARE PRESENT PARALLEL, STATIONS SHALL BE BASED ON CENTERLINE OF STORM SEWER PIPING.
10. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. ANY DRAINAGE AREA OR STRUCTURE DISTURBED, DURING CONSTRUCTION, SHALL BE RESTORED TO THE SATISFACTION OF THE CITY OF SUGAR LAND. ALL CONSTRUCTION STORM RUNOFF SHALL COMPLY WITH THE REQUIREMENTS OF THE CITY OF SUGAR LAND DESIGN STANDARDS. IF NON-COMPLIANCE OCCURS, CONTRACTOR SHALL REMEDY IMMEDIATELY AT HIS OWN EXPENSE.
11. ANY POLLUTION CONTROL DEVICE, SOD, OR SEEDED AREA DAMAGED, DISTURBED, OR REMOVED SHALL BE REPLACED OR REPAIRED AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR IS RESPONSIBLE FOR WATERING ANY SEED OR SOD WHICH HE HAS INSTALLED UNTIL ADEQUATE GROWTH IS ACHIEVED TO PREVENT EROSION.
12. STORM WATER POLLUTION PROTECTION SHALL BE DESIGNED, CONSTRUCTED, MAINTAINED AND SHALL BE IN TOTAL COMPLIANCE WITH THE STORM WATER QUALITY MANUAL OF THE CITY OF SUGAR LAND.
13. ANY MATERIALS OR WORKMANSHIP NOT MEETING OR EXCEEDING CITY OF SUGAR LAND STANDARDS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND WILL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
14. THE CONTRACTOR SHALL KEEP THE STREETS, RIGHT-OF-WAY, AND WORK AREA CLEAN OF DIRT, MUD, AND DEBRIS AS NEEDED OR AS REQUIRED BY CITY STAFF.
15. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL REQUIRED TRAFFIC SAFETY CONTROL DEVICES UP TO AND INCLUDING FLAGMEN OR POLICE OFFICERS, IF DEEMED NECESSARY BY THE CITY OF SUGAR LAND.
16. THE CONTRACTOR SHALL CONTACT THE CITY OR LOCAL MUD AS APPROPRIATE TO OPERATE EXISTING UTILITIES AND PRIOR TO MAKING TIE-INS.
17. ALL BACKFILL WITHIN PUBLIC RIGHTS-OF-WAY OR EASEMENTS SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY (IN 8 INCH LIFTS) AND TESTED FOR ±2% OPTIMUM MOISTURE BY AN APPROVED LAB.
18. IT IS PERMISSIBLE TO USE A BACKHOE FOR TRENCH EXCAVATION IN LIEU OF A TRENCHING MACHINE.
19. THE CONTRACTOR SHALL NEVER UNLOAD ANY TRACK-TYPE VEHICLE OR EQUIPMENT ON ANY EXISTING PAVEMENT OR CROSS OVER ANY EXISTING PAVEMENT OR CURB.
20. ALL FINISH GRADES ARE TO CONFORM TO A MINIMUM SLOPE OF 6" PER 100 FT. POSITIVE DRAINAGE IS DEPICTED BY ARROWS.
21. 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.
22. ALL FINISHED GRADES SHALL VARY UNIFORMLY BETWEEN FINISHED ELEVATIONS.
23. ALL TESTING PROCEDURES SHALL CONFORM TO THE CITY OF SUGAR LAND STANDARDS. THE INITIAL TESTING EXPENSE SHALL BE BORNE BY THE OWNER. IF ANY OF THE TESTS DO NOT MEET THE TESTING STANDARDS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REMOVE OR REPLACE SUCH MATERIAL SO THE TESTING STANDARDS CAN BE MET. ADDITIONAL TESTING TO MEET COMPLIANCE SHALL BE AT THE CONTRACTOR'S EXPENSE.
24. CONTRACTOR SHALL PROVIDE SHEETING, SHORING, AND BRACING AS NECESSARY TO PROTECT WORKMEN AND EXISTING UTILITIES DURING ALL PHASES OF CONSTRUCTION AS PER O.S.H.A. REQUIREMENTS.
25. ALL MATERIALS AND WORKMANSHIP NOT GOVERNED BY CITY STANDARDS SHALL CONFORM TO THE LATEST VERSION OF THE TXDOT STANDARD SPECIFICATIONS AND THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AND ANY REVISIONS THERETO.
26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFEGUARDING AND PROTECTING ALL MATERIALS AND EQUIPMENT STORED ON THE JOBSITE IN A SAFE AND WORKMAN-LIKE MANNER (DURING AND AFTER WORKING HOURS), UNTIL JOB COMPLETION.
27. THE LOADING AND UNLOADING OF ALL PIPE, VALVES, HYDRANTS, MANHOLES, AND OTHER ACCESSORIES SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PRACTICES AND SHALL BE PERFORMED WITH CARE TO AVOID ANY DAMAGE TO THE MATERIAL. THE CONTRACTOR SHALL LOCATE AND PROVIDE THE NECESSARY STORAGE AREAS FOR MATERIAL AND EQUIPMENT.
28. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, EQUIPMENT, AND LABOR FOR EXCAVATION, INSTALLATION, AND COMPLETION OF THE PROJECT AS SHOWN ON THE PLANS AND SPECIAL PROVISIONS TO COMPLY WITH CITY OF SUGAR LAND STANDARDS.
29. NO PRIVATE UTILITIES (I.E., PHONE, CABLE T.V., ELECTRICITY, ETC.) SHALL BE INSTALLED WITHIN 4 FEET BACK OF CURB.
30. PLANS DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR ITS EMPLOYEES, AGENTS, OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE REGISTERED PROFESSIONAL ENGINEER(S) HEREON DOES NOT EXTEND TO ANY SUCH SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED IN THE PLANS. THE CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS, INCLUDING CURRENT OSHA STANDARDS FOR TRENCH SAFETY SYSTEMS, SEALED BY A LICENSED PROFESSIONAL ENGINEER. APPROPRIATE TRENCH SAFETY PLANS SHALL BE SUBMITTED BY THE CONTRACTOR PRIOR TO EXECUTION OF A CONTRACT FOR HIS WORK.
31. FOR TRAFFIC SIGNAL CONSTRUCTION, CONTACT THE CITY OF SUGAR LAND INFORMATION TECHNOLOGY DEPARTMENT TO OBTAIN IP ADDRESSES FOR SIGNAL CABINET EQUIPMENT. ALLOW 5 WORKING DAYS FOR THE ADDRESS. ONCE EQUIPMENT HAS BEEN INSTALLED AND COMMUNICATIONS ESTABLISHED WITH THE TRAFFIC MANAGEMENT CENTER, IT WILL COMMISSION THE COMMUNICATION LINK. ALLOW 10 WORKING DAYS FOR COMMISSIONS.

CONCRETE/PAVING NOTES:

- 1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND AUTHORIZATION REQUIRED BY CITY OF SUGAR LAND.
2. CONTRACTOR SHALL HAVE ALL UTILITIES LOCATED PRIOR TO CONSTRUCTION AND WILL REPAIR OR REPLACE ANY DAMAGE AT CONTRACTOR'S EXPENSE.
3. PAVING CONTRACTOR SHALL PROTECT WATER, SEWER, AND DRAINAGE FACILITIES AND WILL REPLACE ANY DAMAGED FACILITIES AT HIS OWN EXPENSE. ALL MANHOLES AND VALVES WITHIN THE PAVEMENT AREA SHALL BE ADJUSTED TO FINISH GRADE BY THE PAVING CONTRACTOR WITH THE USE OF APPROVED BLOCKOUTS.
4. WHEN THE TOP OF CURB OR BOTTOM OF SIDEWALK SLAB ELEVATION VARIES FROM THE NATURAL GROUND, THE PAVING CONTRACTOR SHALL BACKFILL IN LAYERS NOT EXCEEDING 8-INCHES IN DEPTH. EACH LAYER WILL BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY. THE DISTURBED AREA SHALL BE SEED, SODDED, FERTILIZED, AND/OR SILT BARRIER FENCED WITHIN 10 WORKING DAYS. THE TYPE OF POLLUTION CONTROL WILL BE DETERMINED BY THE APPROVED PLANS AND/OR THE CITY OF SUGAR LAND CITY ENGINEER.
5. ALL PAVING SHALL BE IN ACCORDANCE WITH THE CITY OF SUGAR LAND DESIGN STANDARDS, APPROVED PLANS AND SPECIFICATIONS WITH THE LATEST REVISIONS OR AMENDMENTS. IN THE EVENT OF A CONFLICT, THE CITY OF SUGAR LAND DESIGN STANDARDS GOVERNS.
6. PAVING CONTRACTOR SHALL PROVIDE AND MAINTAIN SILT PROTECTION FENCES ON ALL STAGE 1 CURB INLETS. THE PAVING CONTRACTOR SHALL MAINTAIN ANY OTHER POLLUTION CONTROLS ESTABLISHED, I.E., ADDITIONAL SILT BARRIERS, SAND BAGS, ETC., FOR THE DURATION OF THE PROJECT. ANY DAMAGED OR MISSING DEVICES SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
7. EXISTING PAVEMENTS, CURBS, SIDEWALKS, DRIVEWAYS, ETC., DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO THE CITY OF SUGAR LAND STANDARDS AT THE CONTRACTOR'S EXPENSE.
8. CONDITION OF THE WORK AREA (INCLUDING ROADS, RIGHT-OF-WAYS, ETC.) UPON COMPLETION OF THE JOB SHALL BE AS GOOD OR BETTER THAN THE CONDITION PRIOR TO STARTING THE WORK.
9. ALL DRIVEWAYS WILL BE LOCATED TO AVOID EXISTING CURB INLET STRUCTURES.
10. REDWOOD AND KEYWAYS SHALL NOT INTERSECT WITHIN 2 FEET OF AN INLET.
11. AT INITIAL AND FINAL INSPECTIONS THE PAVEMENT WILL BE FLOODED TO CHECK FOR BIRDBATHS AND CRACKS. FLOODING OF STREETS SHALL OCCUR 1 HOUR PRIOR TO INSPECTION.
12. ALL CONCRETE PLACED SHALL BE UNIFORMLY SPRAYED WITH A MEMBRANE CURING COMPOUND AS DESCRIBED IN ITEM 526 IN THE TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. IMPROPER APPLICATION WILL RESULT IN THE REJECTION OF THE CONCRETE.
13. SIX (6) INCH, 5.5 SK, 3500 PSI @ 28 DAYS, REINFORCED WITH #4 REBAR, 24" C.C. EACH WAY IS THE MINIMUM ACCEPTABLE CONSTRUCTION FOR LOCAL STREETS.
14. SEVEN (7) INCH, 5.5 SK, 3500 PSI @ 28 DAYS, REINFORCED WITH #4 REBAR, 18" C.C. EACH WAY IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR COLLECTOR STREETS.
15. EIGHT (8) INCH, 5.5 SK, 3500 PSI @ 28 DAYS, REINFORCED WITH #4 18" C.C. EACH WAY IS THE MINIMUM ACCEPTABLE FOR ARTERIAL STREETS.
16. WHEN CONCRETE PAVEMENT INTERSECTS THICKER PAVEMENT, THE THICKER PAVEMENT SHALL BE CONSTRUCTED TO THE ENDS OF ALL CURB RETURNS.
17. ALL RETURNS SHALL HAVE A MIN. 25 FT. RADIUS AT THE FACE OF CURB UNLESS OTHERWISE NOTED.
18. ALL INTERSECTIONS SHALL BE CONSTRUCTED WITH WHEELCHAIR RAMPS IN ACCORDANCE WITH THE TEXAS ACCESSIBILITY STANDARD, THE AMERICAN DISABILITIES ACT, AND THE CITY OF SUGAR LAND STANDARDS (LATEST REVISIONS). (NO BLOCKOUTS)
19. CONCRETE SIDEWALKS SHALL BE CONSTRUCTED WITHIN EACH STREET RIGHT-OF-WAY IN ACCORDANCE WITH CITY OF SUGAR LAND, THE A.D.A., AND THE T.A.S. STANDARDS (LATEST REVISIONS).
20. CRACKS LARGER THAN 1/16-INCH ARE NOT ACCEPTABLE IN NEW PAVEMENT. CRACKS 1/16-INCH OR LESS SHALL BE ADDRESSED ON AN INDIVIDUAL BASIS BY DRILL AND EPOXY INJECTION, SUBJECT TO APPROVAL OR REJECTION.
21. PROPER TESTING AND LAB DOCUMENTATION IS REQUIRED. FAILURE TO MEET THE MINIMUM PAVEMENT REQUIREMENTS WILL RESULT IN THE REJECTION OF SAID PAVEMENT. IMMEDIATE REMOVAL AND REPLACEMENT OF SUBSTANDARD PAVEMENT SECTIONS WILL BE NECESSARY TO SATISFY THESE REQUIREMENTS.
22. 4-CONCRETE CYLINDERS, SLUMP, AND AIR ENTRAINMENT TESTS ARE REQUIRED FOR EACH 100 CUBIC YARDS OF CONCRETE PAVING WITH A MINIMUM OF ONE SET OF 4 PER PLACEMENT. THE CITY OF SUGAR LAND RESERVES THE RIGHT TO REQUEST ANY ADDITIONAL TESTS AT THE CONTRACTOR'S EXPENSE, IF ANY MATERIAL APPEARS BELOW STANDARDS.
23. NO. 3 REBAR, 18-INCH C.C. E.W. IS THE MINIMUM ACCEPTABLE FOR SIDEWALKS, NUMBER 4-REBAR, 24-INCH C-C. EACH WAY IS THE MINIMUM ACCEPTABLE FOR COMMERCIAL APPROACHES, HANDICAP RAMPS, RESIDENTIAL APPROACHES AND DRIVEWAYS.
24. COLD WEATHER PRECAUTIONS. CONCRETE PAVEMENT SHALL NOT BE PLACED WHEN THE AMBIENT TEMPERATURE IS 40F AND FALLING. CONCRETE MAY BE PLACED IF THE AMBIENT TEMPERATURE IS 35 AND RISING. CONTRACTOR SHALL PROVIDE AN APPROVED COVERING MATERIAL (COTTON MATS, POLYETHYLENE SHEETING, ETC.) IN THE EVENT TEMPERATURE SHOULD FALL BELOW 32F. NO SALT OR OTHER CHEMICALS SHALL BE ADDED TO CONCRETE TO PREVENT FREEZING.
25. HOT WEATHER. NO CONCRETE PAVEMENT MIXTURE SHALL BE PLACED IF THE MIXTURE TEMPERATURE IS ABOVE 95F. AIR AND WATER REDUCER ARE REQUIRED IF MIXTURE TEMPERATURE REACHES 85F OR ABOVE.
26. IF NO AIR AND WATER REDUCER HAS BEEN ADDED, NO CONCRETE SHALL BE PLACED IF MORE THAN 80 MINUTES PAST BATCH TIME. IF AIR AND WATER REDUCER HAS BEEN ADDED, NO CONCRETE SHALL BE PLACED IF MORE THAN 90 MINUTES PAST BATCH TIME.
27. STRUCTURE TEMPERATURES AND TIMING FOR CONCRETE PLACEMENT MAY VARY. REFER TO TXDOT STANDARDS ITEM 420 FOR DETAILS.
28. TRANSVERSE EXPANSION JOINTS SHALL BE PLACED AT ALL POINTS OF CURVATURE, POINTS OF TANGENCY AND ALL INTERSECTION CURB RETURN POINTS. MAXIMUM SPACING SHALL BE 200' AND BE SEALED WITH SEALANT CONFORMING TO TXDOT ITEM 360 (& ITEM 438) AND TXDOT DMS-6310, CLASS-2.
29. CONTROL JOINTS SHALL BE PLACED AT 20' C-C.
30. EXPANSION JOINT LAYOUT FOR INTERSECTIONS SHALL BE PROVIDED BY ENGINEER FOR CITY APPROVAL.
31. NO WIRE MESH IS ALLOWED IN ANY CONCRETE WITHIN THE CITY LIMITS OR ETJ.
32. ALL REBAR SHALL BE 100% TIED. OVERLAPS SHALL BE DOUBLE TIED MINIMUM. REINFORCED STEEL BE A MINIMUM 60% COVERAGE.
33. ALL NEW CURB REQUIRES 3,000 P.S.I. @ 28-DAYS. 4 CONCRETE CYLINDERS, SLUMP, AND AIR ENTRAINMENT TESTS ARE REQUIRED FOR EACH 50 CUBIC YARDS OF CONCRETE CURB WITH A MINIMUM OF ONE SET OF 4 PER PLACEMENT.
34. A CITY INSPECTOR MUST BE PRESENT ON ALL PROOF ROLLS, LIME DEPTH CHECKS AND DENSITY TESTS AND MUST BE CONTACTED AT LEAST 24 HOURS PRIOR TO THE TEST.
35. CONCRETE MIX DESIGN MUST BE SENT TO THE CITY FOR APPROVAL A MINIMUM 72 HOURS BEFORE THE FIRST CONCRETE POUR.
36. FOR A REGULAR MIX, SLUMP SHALL BE A MAXIMUM OF 5". FOR A MIX WITH A WATER REDUCER, SLUMP SHALL BE A MAXIMUM OF 6".
37. VEHICLES OF ALL TYPES ARE PROHIBITED FROM DRIVING ON NEW PAVEMENTS SEVEN (7) DAYS AFTER THE CONCRETE POUR AND UNTIL THE CONCRETE HAS REACHED A MINIMUM OF 3,000 PSI. PAVEMENT PROTECTION SUCH AS A DIRT LAYER OF AT LEAST 12" IS REQUIRED FOR TRACK EQUIPMENT AT PAVEMENT CROSSINGS.
38. IN LIEU OF MECHANICALLY CONTROLLED VIBRATORS CONTROLLED BY A SLIP-FORM PAVING MACHINE, HAND MANIPULATED MECHANICAL VIBRATORS SHALL BE USED FOR PROPER CONSOLIDATION OF CONCRETE IN ALL PAVEMENT AREAS (ALONG FORMS, AT JOINTS, ETC.)
39. ALL CONCRETE STREETS AND BRIDGE SURFACES SHALL HAVE A "BAKER BROOM" FINISH, WHILE ALL OTHER CONCRETE PLACEMENT SHALL HAVE A MEDIUM BROOM FINISH.
40. ALL PAVEMENT MARKINGS TO BE DONE IN CONFORMANCE WITH THE LATEST VERSION OF TMUTCD AND TXDOT STANDARD SPECIFICATIONS AND ANY REVISIONS THERETO.
41. REFER TO GENERAL NOTES.

CEMENT STABILIZED SAND:

- 1. ALL STABILIZED SAND SHALL BE A MINIMUM OF 1.5 SK PER CUBIC YARD.
2. CEMENT STABILIZED SAND (C.S.S.) SHALL ACHIEVE A MINIMUM OF 100 PSI WITHIN 48 HOURS.
3. A MINIMUM OF 2 RANDOM SAMPLES SHALL BE TAKEN EACH WEEK. (FOR SMALLER PROJECTS, ONE SAMPLE MAY SUFFICE WITH CITY OF SUGAR LAND APPROVAL.) THE CITY OF SUGAR LAND RESERVES THE RIGHT TO REQUIRE ADDITIONAL TESTS, AT THE CONTRACTORS EXPENSE IF IT IS DEEMED NECESSARY.
4. ANY C.S.S. NOT MEETING CITY OF SUGAR LAND STANDARDS SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
5. BOTH CEMENT CONTENT AND COMPRESSIVE TESTS SHALL BE CONDUCTED ON C.S.S. SAMPLES.
6. ALL C.S.S. SHALL BE COMPACTED IN MAXIMUM OF 8-INCH LIFTS AND REQUIRED TO REACH A MINIMUM DENSITY OF 95%. 7. REFER TO GENERAL NOTES.

BANK SAND:

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

ASPHALT - OILS AND EMULSIONS:

- 1. CONTRACTOR SHALL VERIFY LINES AND GRADES AND THAT COMPACTED BASE IS READY TO SUPPORT LOADS.
2. BASE MATERIAL SHALL BE DRY AND THOROUGHLY CLEAN OF LOOSE MATERIAL PRIOR TO APPLICATION.
3. OILS & EMULSION SHALL BE DISTRIBUTED EVENLY AND SMOOTHLY UNDER PRESSURE NECESSARY FOR PROPER DISTRIBUTION.
4. MAINTAIN REQUIRED SURFACE CONDITIONS UNTIL ACCEPTED BY THE CITY OF SUGAR LAND.
5. PRIME COAT SHALL BE M.C.-30, M.C.-70 OR E.P.R.1 PRIME AND SHALL COMPLY WITH TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS, AND BRIDGES (1993) AND ITS LATEST REVISIONS.
6. TACK COAT SHALL BE SS-1 AND SHALL COMPLY TO TXDOT, S.S.C.H.S. & B. (1993) AND ITS LATEST REVISIONS.
7. M.C.-30 AND M.C.-70 AND EPR-1 PRIME SHALL BE DISTRIBUTED AT A RATE OF .25 TO .35 GALLONS PER SQUARE YARD, AND MAY NOT BE APPLIED WHEN AMBIENT TEMPERATURE IS 50F AND FALLING. (NOTICE: CUTBACK ASPHALTS MAY NOT BE USED DURING THE PERIOD OF APRIL 16 THROUGH SEPT. 15 AS PER ASTM D-244).
8. EPR-1 MAXIMUM WATER DILUTION IS 3 PARTS WATER TO ONE PART EPR-1.
9. SS-1 TACK COAT SHALL BE APPLIED AT A RATE NOT TO EXCEED 0.06 GAL. PER SQUARE YARD OF SURFACE AREA. CONTACT JOINTS, CURBS, ETC. SHALL BE PAINTED WITH AN EVEN THIN COAT APPLIED BY BRUSH OR BROOM. COATING MATERIAL SHALL BE HEATED TO 125F TO 180F WHEN APPLIED. TACK COAT MAY BE APPLIED WHEN AMBIENT TEMPERATURES ARE 40F AND RISING. TACK COAT MAY NOT BE APPLIED IF AMBIENT AIR IS 50F AND FALLING.

LIMING SUBGRADE:

- 1. LIME SHALL BE A "SLURRY" AS PER TXDOT 260 UNLESS SPECIFICALLY RECOMMENDED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY ENGINEER.
2. ALL LIME SLURRIES SHALL BE FURNISHED AT OR ABOVE THE MINIMUM "DRY SOLIDS" CONTENTS AS APPROVED BY THE ENGINEER.
3. SUBGRADES SHALL BE STABILIZED WITH A MINIMUM SIX PERCENT (6%) LIME BY WEIGHT, EIGHT INCHES (8") THICK THE INITIAL MIX TO REDUCE PLASTICITY INDEX (PI) TO 20 OR LESS AS DETERMINED BY THE LIME SERIES. THE FINAL MIX SHALL BE AT SIX INCHES (6") THICK.
4. LIME DRY SOLID CONTENT TESTS SHALL BE CONDUCTED ON SITE, ONCE PER ONE-HUNDRED (100) TONS OF MATERIAL DISTRIBUTED, UNLESS OTHERWISE NOTED.
5. THE SUBGRADE SHALL BE SHAPED AND GRADED TO CONFORM TO THE TYPICAL SECTIONS, AS SHOWN ON THE PLANS, PRIOR TO TREATING THE EXISTING MATERIAL.
6. UNLESS APPROVED BY THE CITY ENGINEER, LIME OPERATIONS SHALL NOT BE STARTED WHEN THE AMBIENT AIR TEMPERATURE IS BELOW 40F. AND FALLING. LIMING MAY, WITH APPROVAL, BE STARTED WHEN THE AMBIENT AIR TEMPERATURE IS 35F AND RISING. LIME SHALL NOT BE PLACED WHEN WEATHER CONDITIONS, IN THE ENGINEER'S OPINION, ARE UNSUITABLE.
7. THE SUBGRADE MATERIAL AND SLURRY SHALL BE THOROUGHLY MIXED, BROUGHT TO THE PROPER MOISTURE CONTENT (±2) AND LEFT TO CURE USUALLY 3 DAYS (72 HRS.) MINIMUM AS APPROVED BY THE CITY ENGINEER.
8. AFTER CURING, THE SUBGRADE SHALL BE REMIXED UNTIL PULVERIZATION REQUIREMENTS ARE MET, AS PER TXDOT, TEX-101-E, PART III.
PERCENT MINIMUM PASSING 1-3/4" SIEVE.....100
PERCENT MINIMUM PASSING 3/4" SIEVE.....85
PERCENT MINIMUM PASSING No.4 SIEVE.....60
9. SIEVE TESTS SHALL BE CONDUCTED EVERY 150 LF ON ALTERNATING LANES OF TRAFFIC OR EVERY 300 LF ON SINGLE LANES AS REQUIRED. AT LEAST ONE TEST SHALL BE CONDUCTED ON EACH ROADWAY OR CUL-DE-SAC.
10. THE MATERIAL SHALL BE AERATED OR MOISTENED TO + OR -2% OPTIMUM PRIOR TO COMPACTION. COMPACTION TO A MINIMUM 95% DENSITY SHALL BEGIN IMMEDIATELY AFTER ALL PULVERIZATION AND MOISTURE REQUIREMENTS ARE MET. THROUGHOUT THIS ENTIRE OPERATION, THE SURFACE SHALL BE SMOOTH AND IN CONFORMITY WITH THE LINES AND GRADES ON THE PLANS.
11. WHEN THE SUBGRADE FAILS TO MEET DENSITY REQUIREMENTS OR SHOULD IT LOSE THE REQUIRED STABILITY, DENSITY OR FINISH, IT SHALL BE REWORKED IN ACCORDANCE WITH TXDOT SUBARTICLE 260.4(7) "REWORKING A SECTION", WHICH MAY REQUIRE AN ADDITIONAL 25% OF THE SPECIFIED LIME AMOUNT.

LIMING SUBGRADE:

- 12. 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 BECOMES DRY, AND IS NOT IN COMPLIANCE WITH THE ±2% OPTIMUM MOISTURE, DENSITY AND MOISTURE TESTS SHALL BE RETAKEN.
13. LIME DEPTH DETERMINATIONS WILL BE CONDUCTED AT EACH LOCATION OF DENSITY TESTING, LIME- STABILIZED SUBGRADE SHALL BE A MINIMUM OF 6" AT 8" UNLESS OTHERWISE DIRECTED BY CITY ENGINEER. DENSITY TESTING SHALL BE DONE IMMEDIATELY PRIOR TO PLACEMENT OF REINFORCING STEEL, AND SHALL BE COMPACTED TO A MINIMUM OF 95%. LIME DEPTH TESTS SHALL BE CONDUCTED AT EVERY 150 LF OF ROADWAY ON ALTERNATING LANES OR EVERY 300 LF OF SINGLE LANE. AT LEAST ONE TEST SHALL BE CONDUCTED ON EACH ROADWAY AND/OR CUL-DE-SAC.
14. NO SUBGRADE SHALL BE COVERED WITH ANOTHER MATERIAL UNLESS APPROVED BY THE CITY OF SUGAR LAND AND LIME DEPTH TESTS HAVE BEEN COMPLETED.

HOT MIX ASPHALTIC BASE COURSE:

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

PLOT TIME:

CAD FILE PATH:
PLOT DATE:

Table with columns: No., DATE, REVISION. Includes professional seal for Jon R. VanderWill, Registered Professional Engineer, No. 50071, State of Texas. Design Engineer: TBPE FIRM REG. No. 280. City of Sugar Land, Texas Engineering Department. Construction Plans for West Homeward Way (Reclaimed Effluent) Re-used Water Line Phase 2. General Construction Notes I. Job No., Date, Design By, Drawn By, Checked By, Scale. Sheet 33 of 42. SL-01.

ASPHALTIC CONCRETE PAVEMENT:

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

STABILIZED CRUSHED CONCRETE:

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

STORM SEWER NOTES:

- STORM SEWERS SHALL BE DESIGNED AND CONSTRUCTED WITH CITY OF SUGAR LAND'S STANDARD CONSTRUCTION SPECIFICATIONS AND IN ACCORDANCE WITH CITY OF SUGAR LAND STANDARD DETAILS SHEET AND LATEST REVISIONS.
- ALL PIPE STORM SEWERS SHALL BE INSTALLED, BEDDED, AND BACKFILLED IN ACCORDANCE WITH CITY OF SUGAR LAND STANDARD DETAIL DRAWINGS.
- ALL CEMENT STABILIZED SAND (C.S.S.) SHALL BE 1-1/2 SK PER CUBIC YD. AND MEET MINIMUM C.S.S. STANDARDS COMPACTED TO 95%.
- ALL STORM SEWERS UNDER AND WITHIN TWO (2) FOOT OF PROPOSED OR FUTURE PAVEMENTS SHALL BE BACKFILLED AND COMPACTED WITH 1-1/2 SK C.S.S. TO BOTTOM OF SUBGRADE.
- ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES OR INLETS ARE TO BE PLUGGED WITH 8" BRICK WALLS WITH FULL MORTAR HEAD AND BED JOINTS AND GROUTED WITH A MINIMUM OF 1/2-INCH NON-SHRINK GROUT INSIDE AND OUTSIDE, UNLESS OTHERWISE NOTED.
- AVOID TO MAXIMUM EXTENT, MANHOLES IN HANDICAP RAMPS.
- ALL STORM SEWER MANHOLES SHALL BE OF SUGAR LAND TYPE "C" UNLESS OTHERWISE NOTED AND SHALL BE LOCATED A MINIMUM OF THREE (3) FEET BACK OF CURB. IF CONFLICT EXISTS, RACK OVER MANHOLE TO MISS PROPOSED CURB.
- RIM ELEVATIONS SHOWN ON THE PLANS ARE APPROXIMATE ONLY. UTILITY CONTRACTOR SHALL ADJUST RIM ELEVATIONS TO 0.4 FEET ABOVE THE FINISH GRADE AT EACH LOCATION AFTER CONTRACTOR HAS COMPLETED FINAL GRADING. SLOPED FILL SHALL BE ADDED FOR STORM WATER DRAINAGE AWAY FROM RIM.
- RIM ELEVATIONS SHALL BE PROPERLY ADJUSTED TO GRADE IN PAVEMENT AND SIDEWALKS. APPROVED BLOCKOUTS SHALL BE USED IN PAVEMENT.
- ALL STORM SEWER MANHOLE COVERS MUST INCLUDE "STORM SEWER" AND "DUMP NO WASTE", "DRAINS TO WATERWAYS" WITH CITY OF SUGAR LAND EMBLEM AS DEPICTED IN THE DETAIL SHEETS.
- MINIMUM STORM SEWER SIZE SHALL BE 24-INCH DIAMETER. ALL STORM SEWER PIPES 24" AND LARGER ARE TO BE REINFORCED CONCRETE PIPE ASTM C-76 CLASS III, INCLUDING INLET LEADS CROSSING UNDER EXISTING OR PROPOSED PAVEMENTS. ALL INLET LEADS SHALL BE 24" R.C.P. OR LARGER. ALL STORM SEWER PIPE SHALL BE RUBBER GASKETED. ALL CMP PIPE SHALL BE IN ACCORDANCE WITH C.O.S.L. APPROVED PRODUCT LIST AND STANDARD DETAILS.
- CONTRACTOR SHALL VERIFY NATURAL GROUND SHOTS PRIOR TO MANHOLE CONSTRUCTION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LOCATION OF ALL EXISTING UTILITIES PRIOR TO EXCAVATION, DURING THE COURSE OF ANY AND ALL CLEARING, GRUBBING, FILL, GRADING, EXCAVATION OR OTHER CONSTRUCTION, CONTRACTOR SHALL ENSURE THAT STORM DRAINAGE PATHWAYS ARE MAINTAINED AND REMAIN OPEN TO ENSURE POSITIVE DRAINAGE AND THAT SUCH CONVEYANCES ARE NOT IMPEDED OR BLOCKED IN ANY WAY. STORM SEWER INLETS SHALL BE PROTECTED FROM ENTRY OF SILT, TRASH, DEBRIS AND ANY SUBSTANCES DELETERIOUS TO THE STORM SEWER SYSTEM AND/OR WATERWAYS RECEIVING STORM WATER RUNOFF. CONTRACTOR SHALL AT COMPLETION OF WORK, FILL LOW SPOTS AND GRADE ALL RIGHTS-OF-WAY AND UTILITY EASEMENTS AND REGRADE/RESTORE DITCHES AS NECESSARY TO MAINTAIN AND/OR ESTABLISH POSITIVE DRAINAGE.
- CONTRACTOR TO PROVIDE A MINIMUM OF 6-INCHES CLEARANCE AT UTILITY CROSSINGS AND A MINIMUM OF TWELVE (12) INCHES AT SANITARY SEWER CROSSING.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING, MAINTAINING, AND RESTORING ANY BACKSLOPE DRAINAGE SYSTEM DISTURBED AS A RESULT OF HIS WORK.
- ALL DITCHES SHALL BE RESTORED TO PROPOSED ELEVATIONS TO INSURE PROPER DRAINAGE. ALL OUTFALLS SHALL BE COMPACTED AND ALL DISTURBED AREAS SHALL BE RESEEDDED OR RESODDED WITHIN 10 WORKING DAYS OF EACH OCCURRENCE (NO SEPARATE PAY).
- THE UTILITY CONTRACTOR SHALL ROUGH CUT ALL ROADSIDE SWALES IN PROPER ALIGNMENT AND SLOPE TO WITHIN 0.2 FT. OF FINISH GRADE. THE PAVING CONTRACTOR, UPON COMPLETION OF PAVING, SHALL COMPLETE FINAL GRADING ALIGNMENT OF SWALES AND RESTORE ALL AREAS WITHIN RIGHT-OF-WAY FOR SEEDING OR SODDING AND FERTILIZATION.
- ALL STORM SEWERS MUST BE CLEAN/FREE OF DIRT AND DEBRIS AT THE TIME AND INITIAL AND FINAL ACCEPTANCE.
- REFER TO GENERAL NOTES AND C.S.S. NOTES.

SANITARY SEWER NOTES:

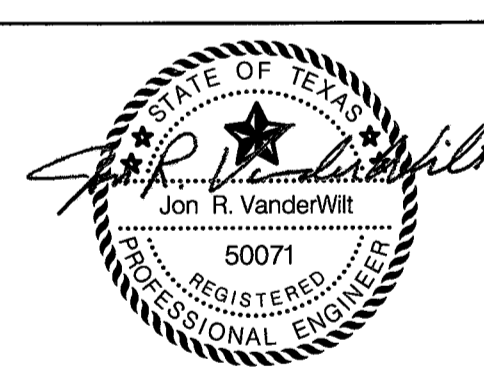

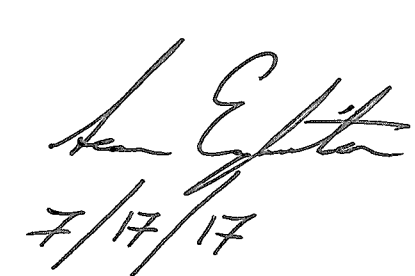
- SANITARY SEWERS, FORCE MAINS, MANHOLES, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS SHALL BE DESIGNED AND CONSTRUCTED AS PER THE REQUIREMENTS OF THE CITY OF SUGAR LAND DESIGN STANDARDS AND CORRESPONDING STANDARD CONSTRUCTION DETAILS SHEETS AND AS PER THE REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY "DESIGN CRITERIA FOR SEWERAGE SYSTEMS". SHOULD A CONFLICT ARISE BETWEEN INFORMATION DEPICTED ON APPROVED CONSTRUCTION DRAWINGS AND/OR INFORMATION INCLUDED IN PROJECT SPECIFICATIONS, CITY OF SUGAR LAND DESIGN STANDARDS SHALL GOVERN.
- ALL MATERIALS AND PRODUCTS USED IN THE CONSTRUCTION OF SANITARY SEWERS, FORCE MAINS, MANHOLES, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS SHALL COMPLY WITH THE CITY OF SUGAR LAND DESIGN STANDARDS AND THE CURRENT APPROVED PRODUCTS LIST.
- STACKS SHALL BE BUILT IN ACCORDANCE WITH THE CITY OF SUGAR LAND STANDARD DETAIL DRAWING REQUIREMENTS. EXACT LOCATION OF THE STACK SHALL BE SUPPLIED TO THE CITY ENGINEER OF SUGAR LAND BY THE PROJECT ENGINEER ON SEALED AS-BUILT DRAWINGS AT COMPLETION OF CONSTRUCTION. ALL STACKS SHALL BE INSTALLED WITHIN 3% OF PLUMB RELATIVE TO VERTICAL PLANE AND WILL BE CAPPED AND TERMINATED AT A DEPTH OF 4 FEET BELOW FINISHED GRADE, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
- EACH SANITARY SEWER SERVICE LEAD STUB, PLUGGED WYE BRANCH OUTLET AND STACK SHALL BE MARKED IN ACCORDANCE WITH THE DETAILS AT THE TIME OF CONSTRUCTION, BEGINNING AT THE INVERT ELEVATION OF THE STUB OR WYE AND AT AN ELEVATION TWO FEET BELOW THE CAPPED TERMINATION POINT OF THE STACK AND EXTENDING TWO FEET ABOVE FINISHED GRADE.
- SANITARY SEWER MANHOLES SHALL BE CONSTRUCTED AS PER DRAWINGS INCORPORATED IN CITY OF SUGAR LAND STANDARD CONSTRUCTION DETAILS SHEETS. SUCH MANHOLES SHALL BE CONSTRUCTED A MINIMUM OF ONE FOOT FROM BACK OF CURB ON CURB AND GUTTER ROADWAYS AND THREE FEET FROM EDGE OF TRAVELLED ROADWAY ON THOSE THOROUGHFARES HAVING NO CURBING, MEASURED FROM OUTSIDE DIAMETER OF MANHOLE. ALL SANITARY SEWER MANHOLES SHALL INCORPORATE INFLOW PROTECTORS. SANITARY SEWER MANHOLES SHALL NOT BE INSTALLED BENEATH STREET PAVING EXCEPT WHERE SPECIFICALLY AUTHORIZED BY CITY ENGINEER AND SO DESIGNATED ON APPROVED CONSTRUCTION DRAWINGS. BRICK MANHOLES AND FIBERGLASS MANHOLES ARE PROHIBITED. MANHOLES DEEPER THAN EIGHT FEET SHALL HAVE ECCENTRIC CONES.
- SANITARY SEWER MANHOLE COVERS SHALL BE MINIMUM OF 32 INCHES IN DIAMETER. ALL SUCH MANHOLE COVERS SHALL HAVE THE CITY OF SUGAR LAND EMBLEM AND THE WORDS "SUGAR LAND" AND "SANITARY SEWER" CAST IN RAISED RELIEF AS DEPICTED IN CITY OF SUGAR LAND STANDARD CONSTRUCTION DETAILS SHEETS.
- MANHOLE RIM ELEVATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY. UTILITY CONTRACTORS SHALL ADJUST RIM ELEVATIONS TO 0.4 FEET ABOVE FINISHED GRADE, AND 0.5 FEET ABOVE NATURAL GROUND WITHIN RIGHTS-OF-WAY AND EASEMENTS AT EACH MANHOLE LOCATION AFTER PAVEMENT CONTRACTOR HAS COMPLETED FINAL GRADING. THE AREA ADJACENT TO SANITARY SEWER MANHOLE LOCATIONS SHALL BE GRADED AWAY FROM SUCH MANHOLES SO AS PREVENT ENTRY OF STORM WATER RUNOFF TO THE SANITARY SEWER SYSTEM.
- MINIMUM SEPARATION DISTANCES AS REQUIRED BY TCEQ SECTION 317.13, APPENDIX E MUST BE MAINTAINED BETWEEN POTABLE WATER LINES AND SANITARY SEWERS, FORCE MAINS, MANHOLES, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS. INSTALLATION OF FIRE HYDRANTS WITHIN NINE FEET OF A SANITARY SEWER SYSTEM IS PROHIBITED. REFER TO THE CITY OF SUGAR LAND INFRASTRUCTURE STANDARDS AND CORRESPONDING STANDARD CONSTRUCTION DETAILS SHEETS FOR CONSTRUCTION REQUIREMENTS OF OTHER INSTALLATIONS WHERE SEPARATION DISTANCES OF GREATER THAN NINE FEET CANNOT BE MAINTAINED.
- TESTING OF SANITARY SEWERS, FORCE MAINS, MANHOLES, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS SHALL BE CONDUCTED AS NOTED IN SANITARY SEWER CHAPTER OF THE CITY OF SUGAR LAND DESIGN STANDARDS AND AS PER THE REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY "DESIGN CRITERIA FOR SEWERAGE SYSTEMS".
- ALL SANITARY SEWER PIPING AND BEDDING SHALL BE INSPECTED BY CITY CONSTRUCTION INSPECTOR FOR CONFORMANCE WITH CITY DESIGN STANDARDS PRIOR TO BACKFILLING OF PIPING IN TRENCH. CONTRACTOR SHALL NOT COVER PIPING UNTIL SUCH TIME AS INSPECTOR HAS NOTIFIED CONTRACTOR THAT RESULTS OF PIPING INSPECTION ARE SATISFACTORY AND THAT BACKFILLING MAY BE ACCOMPLISHED. ANY PIPING INSTALLED AND/OR BACKFILLED WITHOUT INSPECTOR'S SPECIFIC APPROVAL SHALL BE UNCOVERED AT INSPECTOR'S DIRECTION AND INSPECTED ACCORDINGLY. CONTRACTOR SHALL NOTIFY INSPECTOR 24-HOURS PRIOR TO INSPECTION.
- ALL COMMERCIAL DEVELOPMENTS WITH A FAR SIDE SANITARY SERVICE LEAD ACROSS THE STREET SHALL PROVIDE A SIX (6) INCH RISER AND CLEAROUT ON THE PROPERTY SIDE. PUBLIC MAINTENANCE OF THE FAR SIDE LEAD SHALL END AT THIS RISER.

WATER DISTRIBUTION NOTES:

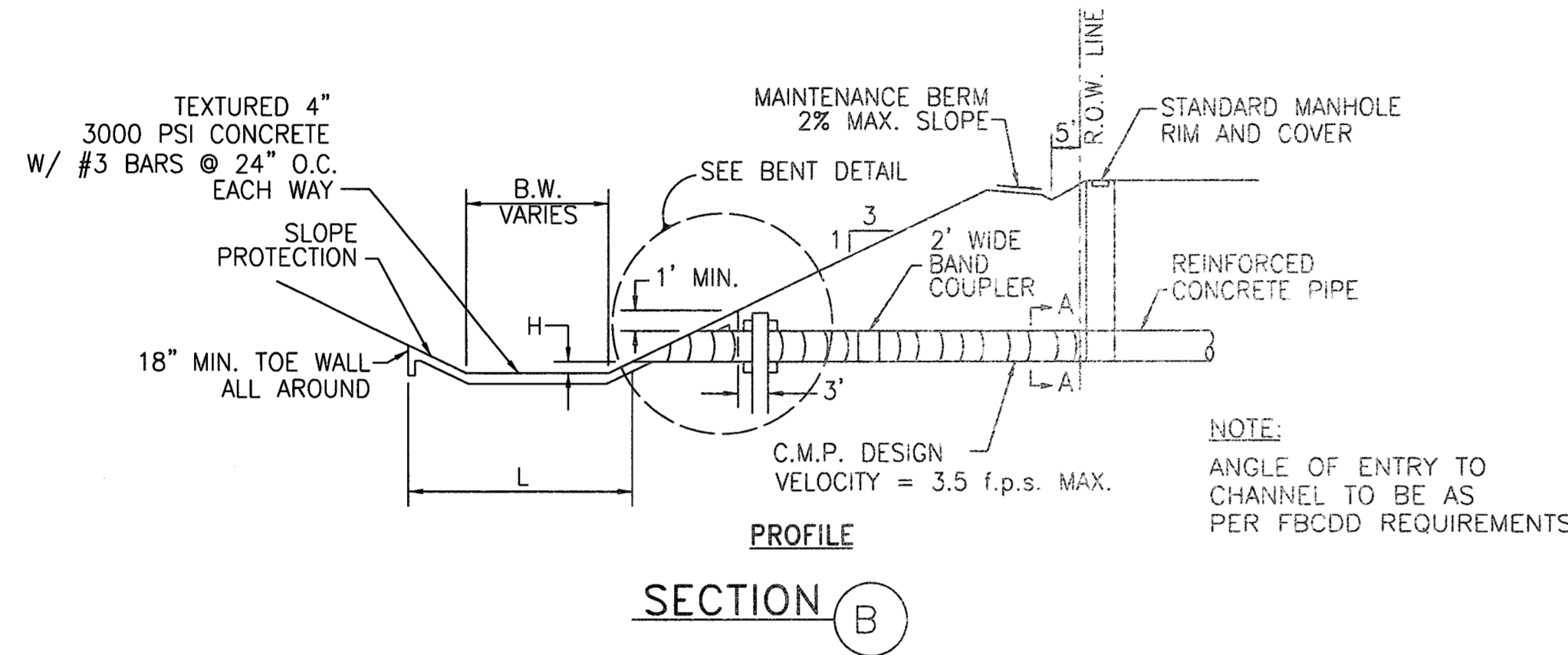
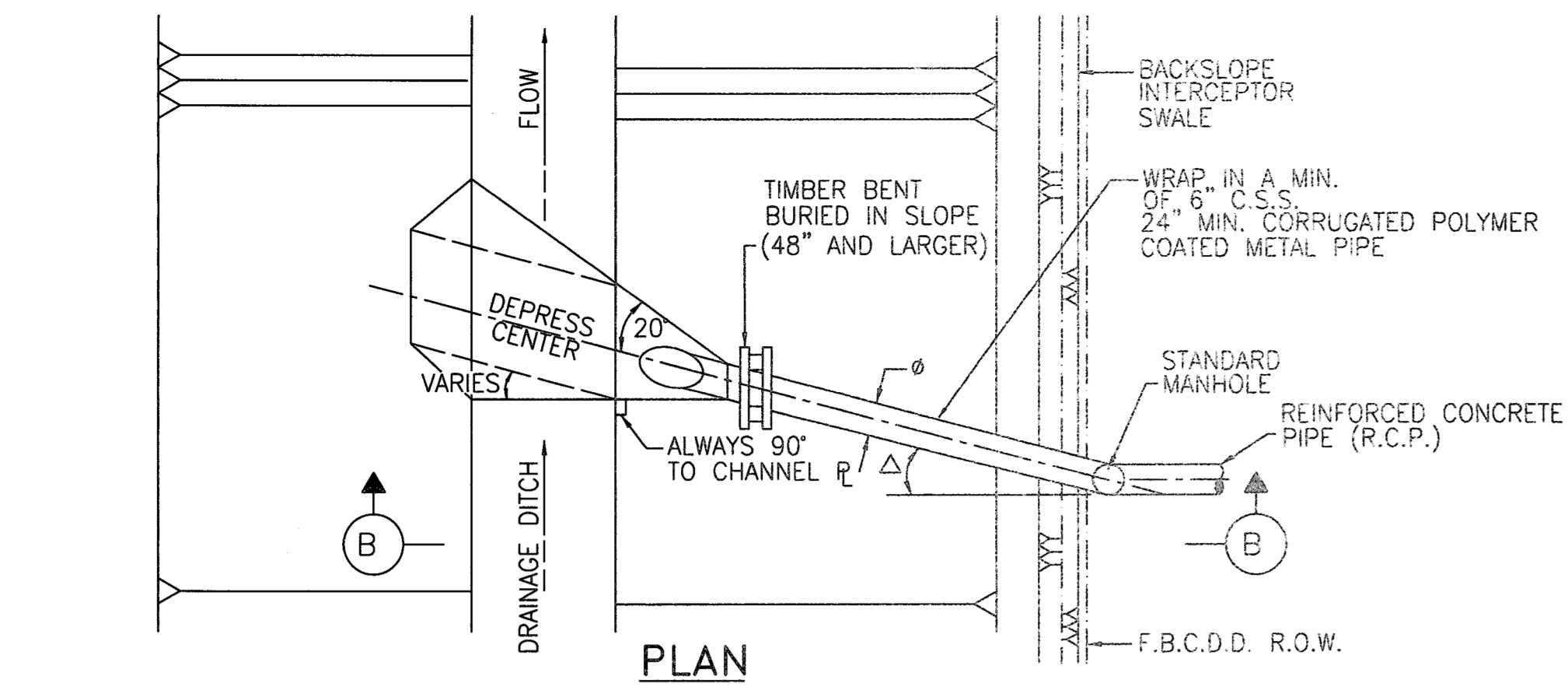
- WATER MAINS, WATER SERVICE LINES AND ASSOCIATED APPURTENANCES SHALL BE DESIGNED AND CONSTRUCTED AS PER REQUIREMENTS OF THE CITY OF SUGAR LAND DESIGN STANDARDS AND CORRESPONDING STANDARD CONSTRUCTION DETAILS SHEETS AND AS PER THE REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY. SHOULD A CONFLICT ARISE BETWEEN INFORMATION DEPICTED ON APPROVED CONSTRUCTION DRAWINGS AND/OR INFORMATION INCLUDED IN PROJECT SPECIFICATIONS, CITY OF SUGAR LAND DESIGN STANDARDS SHALL GOVERN.
- ALL MATERIALS AND PRODUCTS USED IN THE CONSTRUCTION OF WATER MAINS, WATER SERVICE LINES AND ASSOCIATED APPURTENANCES SHALL COMPLY WITH THE CITY OF SUGAR LAND DESIGN STANDARDS AND THE CURRENT APPROVED PRODUCTS LIST AS MAINTAINED BY THE CITY'S ENGINEERING DEPARTMENT.
- ALL GATE VALVES INSTALLED BELOW GRADE SHALL BE OF NON-RISING STEM DESIGN.
- ALL FIRE HYDRANTS SHALL BE PAINTED AND/OR REPAINTED WITH GEO-GLEN 301 BRIGHT SILVER POLYURETHANE ENAMEL MANUFACTURED BY GEO-GLEN ENTERPRISES, INC. SURFACE PREPARATION SHALL INCLUDE REMOVAL OF OIL, GREASE AND MOISTURE, FOLLOWED BY MEDIA BLASTING TO SSPC-SP15-10-63 SPECIFICATIONS (NEAR WHITE METAL) AS PER MANUFACTURER'S RECOMMENDATIONS. PRIME BARE METAL WITH TP-251 EPOXY PRIMER EPOXY PRIMER OR WITH TP-221, TP-231 OR TP-241 UNIVERSAL PRIMER. 80°F AND 50% RELATIVE HUMIDITY ARE OPTIMAL CONDITIONS FOR APPLICATION OF PRIMER AND OF PAINT. DO NOT APPLY PRIMER AND/OR PAINT WHEN SURFACE TO BE PAINTED IS LESS THAN 5' ABOVE THE DEW POINT IN ORDER TO PREVENT MOISTURE FROM CONDENSING ON THE SURFACE TO BE PRIMED AND/OR PAINTED. A BLUE TRAFFIC BUTTON SHALL BE INSTALLED ON THE STREET 12" OFF THE CENTER LINE FOR EACH HYDRANT
- MINIMUM SEPARATION DISTANCES AS REQUIRED BY TCEQ SECTION 317.13, 290. APPENDIX E MUST BE MAINTAINED BETWEEN POTABLE WATER LINES AND SANITARY SEWERS, FORCE MAINS, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS. INSTALLATION OF FIRE HYDRANTS WITHIN 9' (FT) OF A SANITARY SEWER SYSTEM IS PROHIBITED. REFER TO C.O.S.L. STANDARDS FOR CONSTRUCTION REQUIREMENTS OF OTHER INSTALLATIONS WHERE DISTANCES ARE GREATER THAN 9' (NINE) FT. CANNOT BE MAINTAINED.
- EACH WATER SERVICE LEAD STUB SHALL BE MARKED WITH A PRESSURE TREATED 4 X 4 TIMBER OR PVC PIPE AT THE TIME OF CONSTRUCTION, BEGINNING AT THE INVERT ELEVATION OF THE STUB AND EXTENDING TWO FEET ABOVE FINISHED GRADE. EACH TIMBER MARKER SHALL BE PAINTED BLUE AND LABELED "POTABLE WATER" WITH PIPE SIZE NOTED.
- TESTING OF WATER MAINS, WATER SERVICE LINES AND ASSOCIATED APPURTENANCES SHALL BE CONDUCTED AS PER REQUIREMENTS OF AWWA C605-94.
- DISINFECTION OF WATER MAINS, WATER SERVICE LINES AND ASSOCIATED APPURTENANCES SHALL BE CONDUCTED AS PER REQUIREMENTS OF AWWA C651 AND TCEQ. NO CONNECTIONS SHALL BE MADE TO EXISTING WATER LINES UNTIL NEWLY CONSTRUCTED WATER LINES HAVE BEEN THOROUGHLY DISINFECTED, TESTED, FLUSHED, AND SAMPLED AND CONNECTION HAS BEEN AUTHORIZED BY THE CITY ENGINEER.
- ALL WATER PIPING AND BEDDING SHALL BE INSPECTED BY THE CITY INSPECTOR FOR CONFORMANCE TO DESIGN STANDARDS PRIOR TO BACKFILLING OF PIPING IN TRENCH. CONTRACTOR SHALL NOT COVER PIPING UNTIL SUCH TIME AS INSPECTOR HAS NOTIFIED CONTRACTOR THAT RESULTS OF PIPING INSPECTION ARE SATISFACTORY AND THAT BACKFILLING MAY BE ACCOMPLISHED. ANY PIPING INSTALLED AND/OR BACKFILLED WITHOUT INSPECTOR'S SPECIFIC APPROVAL SHALL BE UNCOVERED AT INSPECTOR'S DIRECTION AND INSPECTED ACCORDINGLY. 24-HOUR NOTICE REQUIRED.
- ALL MECHANICALLY RESTRAINED FITTINGS MUST BE MEGALUG RESTRAINED JOINTS OR APPROVED EQUAL.
- THE CITY OF SUGAR LAND MUST HAVE A COPY OF THE BACTERIOLOGICAL TEST RESULTS AT LEAST 24 HOURS PRIOR TO THE INITIAL INSPECTION. IF NOT, THEN THE INSPECTION WILL BE RESCHEDULED.

PLOT TIME:

CAD FILE PATH:
PLOT DATE:

No.	DATE	REVISION
		
DESIGN ENGINEER: TBPE FIRM REG. No. 280		DATE: 7/10/2017
		
CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT		
CONSTRUCTION PLANS FOR: WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2		
GENERAL CONSTRUCTION NOTES II		
JOB No.:	DATE:	DESIGNED BY:
DRAWN BY:	CHECKED BY:	SCALE:
		SHEET 34 OF 42

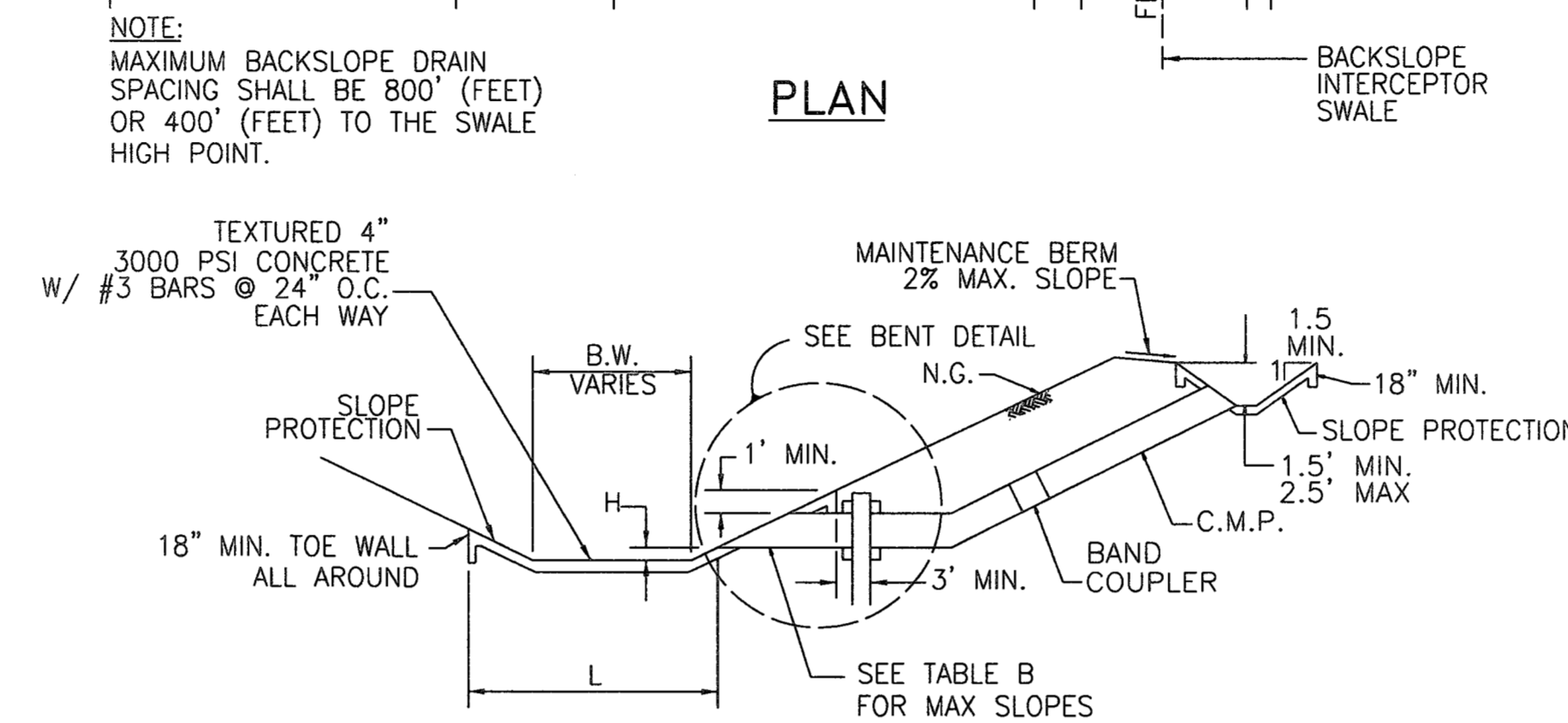
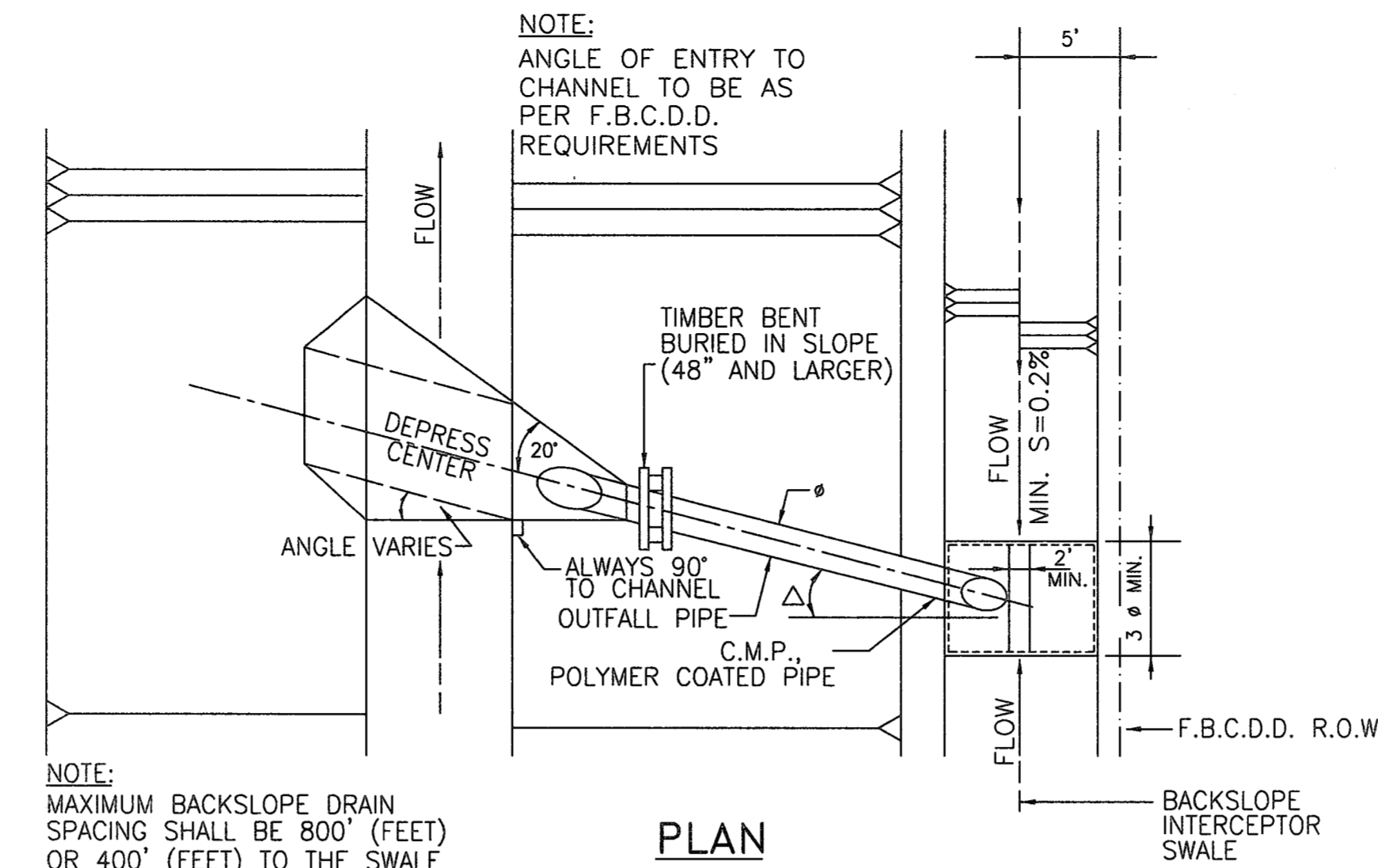
PLOT TIME:



STORM SEWER OUTFALL

N.T.S.

SL-DR-15



BACKSLOPE INLET & OUTFALL

N.T.S.

SL-DR-16

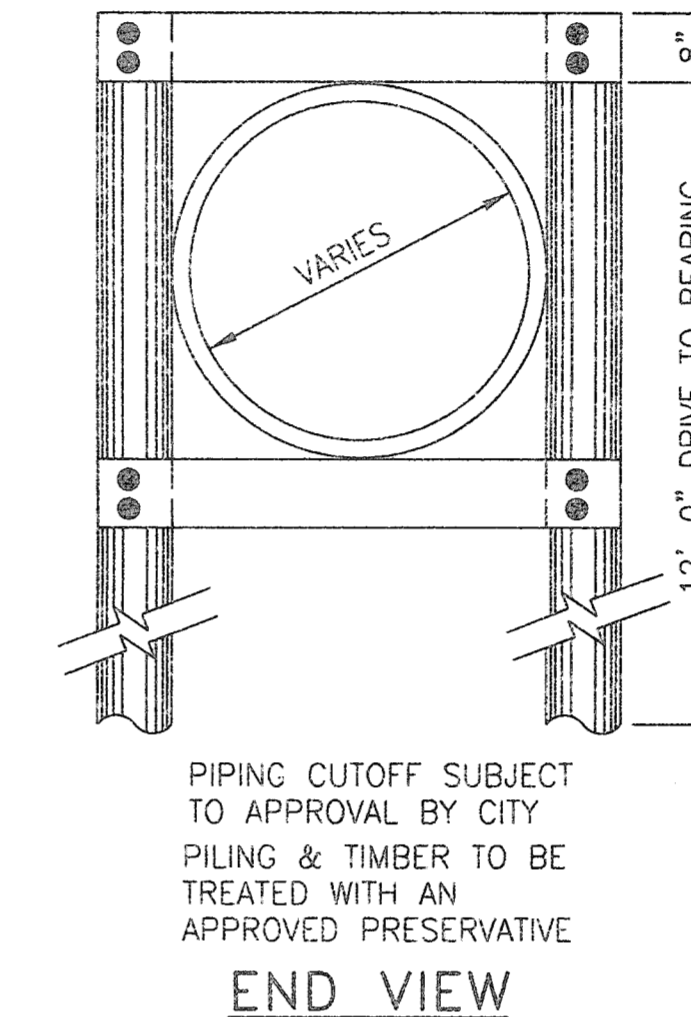
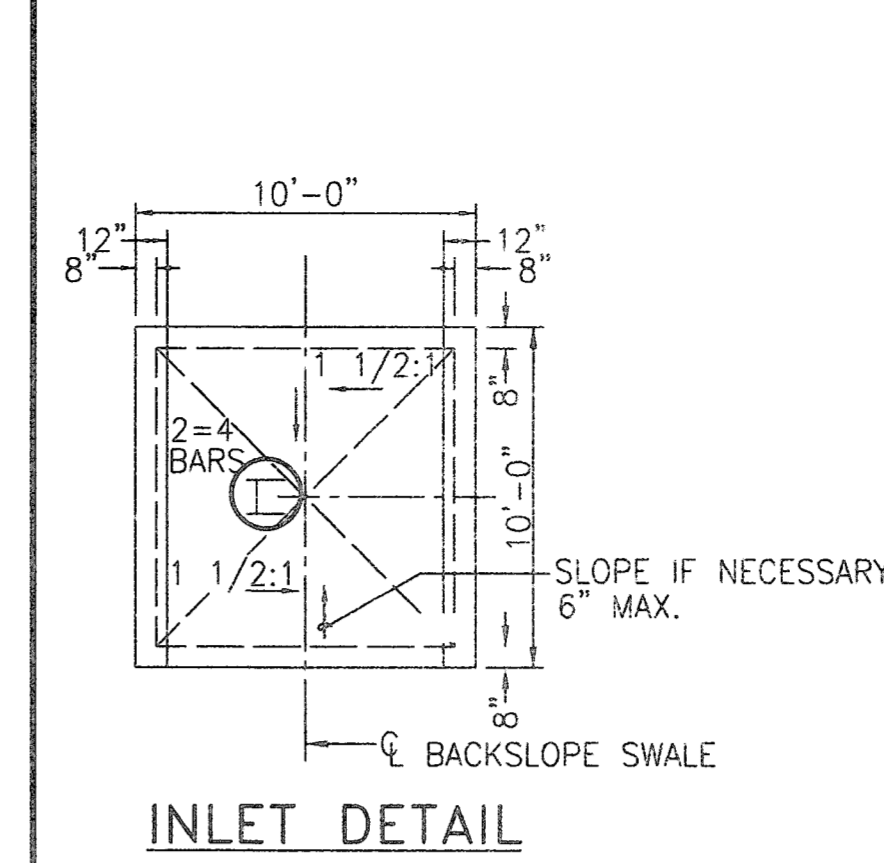


TABLE A

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

TABLE B

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

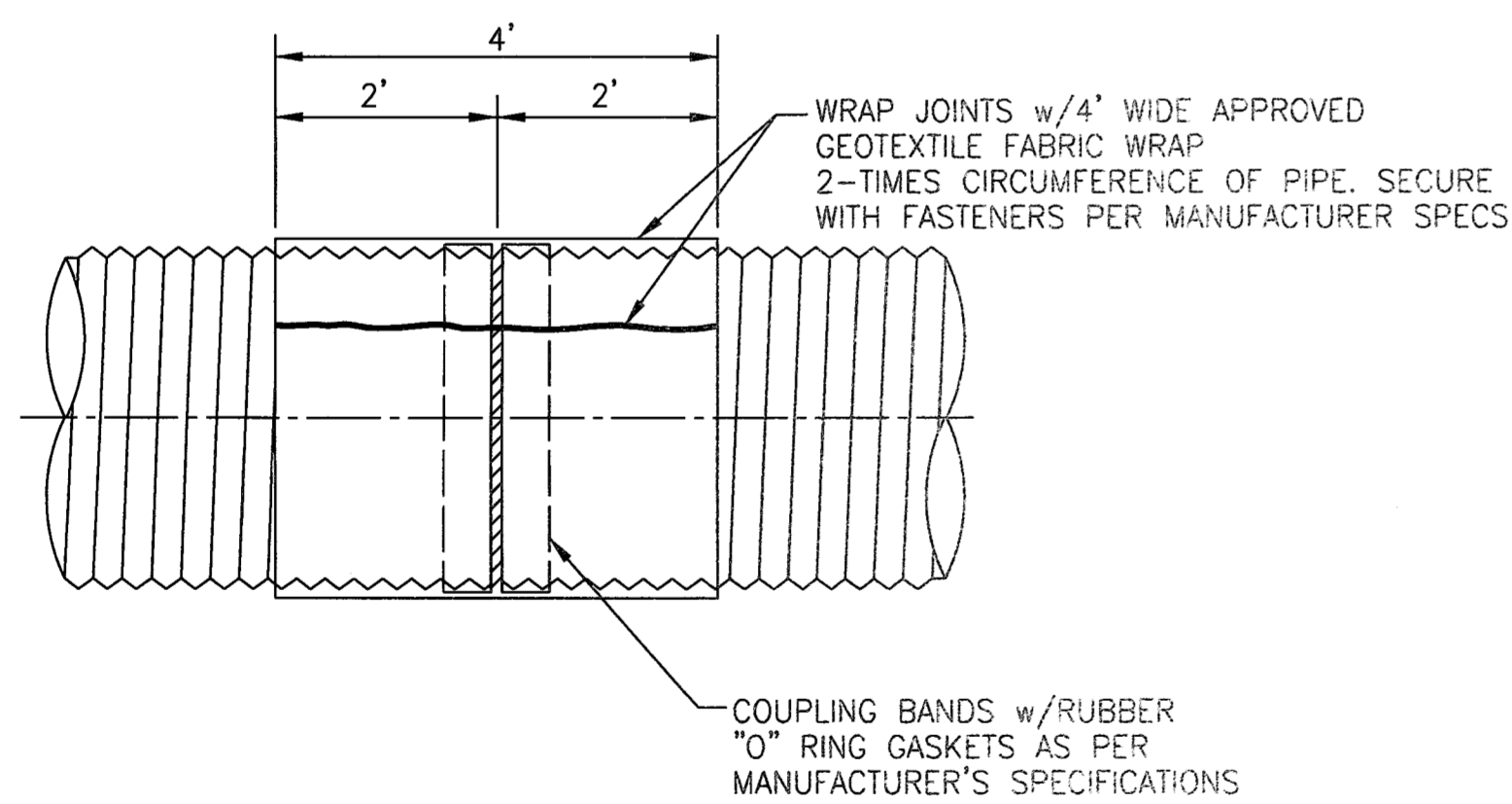
SL-DR-19

CONSTRUCTION NOTES:

L : $\frac{B.W.}{PIPE \phi} \leq 7'-6"$ → LENGTH WILL EXTEND ONE-HALF PIPE ϕ ABOVE ϕ ON OPPOSITE BANK (MIN. 36") OR A MINIMUM OF 6-PIPE ϕ TOWARDS OPPOSITE BANK OF CHANNEL. WHICH EVER IS THE LESSER.

Δ : PROP. 24" TO 42" $\Delta = 15'$
 PROP. 48" AND LARGER $\Delta = 30'$

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



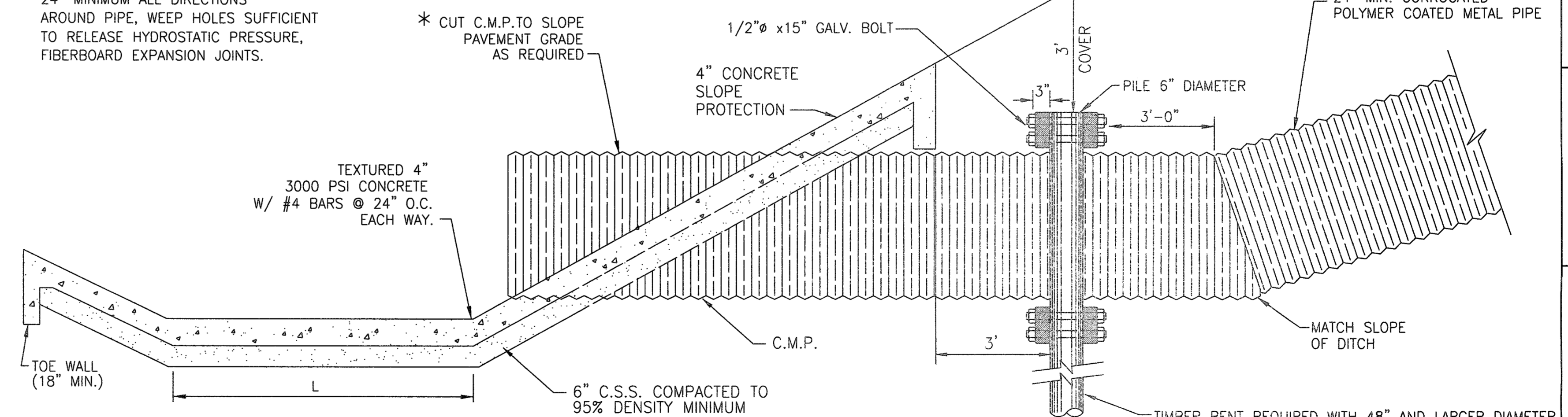
- NOTES:**
1. ANY PIPE DEFLECTED MORE THAN 2% SHALL BE REJECTED AND REPLACED AT CONTRACTOR'S EXPENSE.
 2. INSTALLATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS INCLUDING ITEMS AS DETAILED IN INSTALLATION MANUAL FOR CORRUGATED STEEL DRAINAGE STRUCTURES.

STORM SEWER JOINT WRAP DETAIL

N.T.S.

SL-DR-17

- CONSTRUCTION NOTES:**
- 4" CONCRETE THICKNESS, 18" TOE WALL ON ALL SIDES, 24" MINIMUM ALL DIRECTIONS AROUND PIPE, WEEP HOLES SUFFICIENT TO RELEASE HYDROSTATIC PRESSURE, FIBERBOARD EXPANSION JOINTS.



- NOTES:**
1. OUTFALL PIPE SHALL BE POLYMER-COATED, CORRUGATED, METAL PIPE. ALUMINUM PIPE OR ALUMINIZED COAT IS NOT ALLOWED.
 2. STONE RIP RAP IS NOT ALLOWED.
 3. SEE GENERAL, C.S.S. AND CONCRETE NOTES.
 4. SEE END VIEW DETAIL (THIS SHEET).
 5. ALL CONNECTING BANDS MUST HAVE AN APPROVED RUBBER GASKET.

TIMBER BENT FOR CORRUGATED METAL PIPE OUTFALL

N.T.S.

SL-DR-18

No.	DATE	REVISION

DATE 7/10/2017
 DESIGN ENGINEER: **TBPE FIRM REG. No. 280**

SEAL:

CITY OF SUGAR LAND, TEXAS
 ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR: WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2

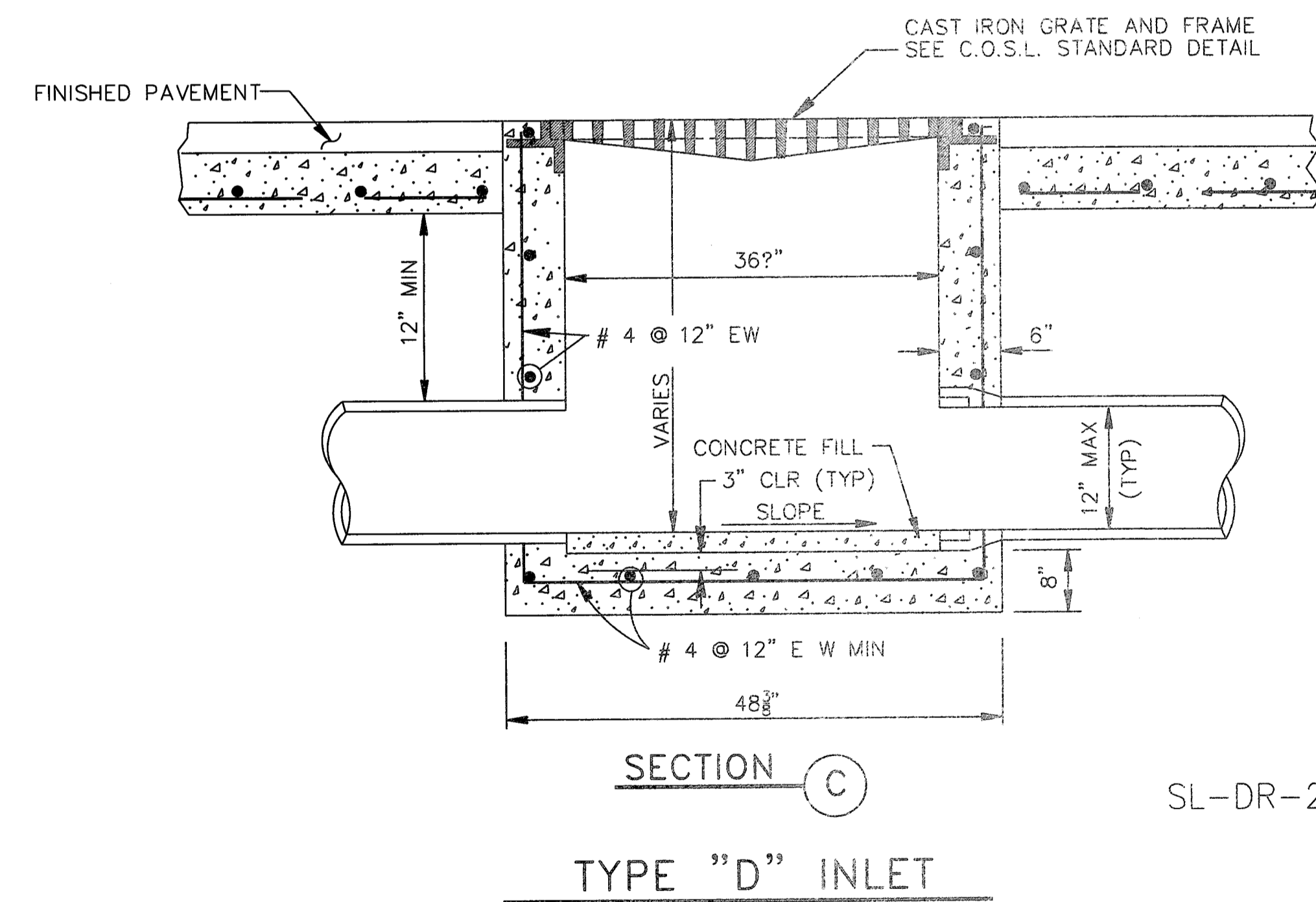
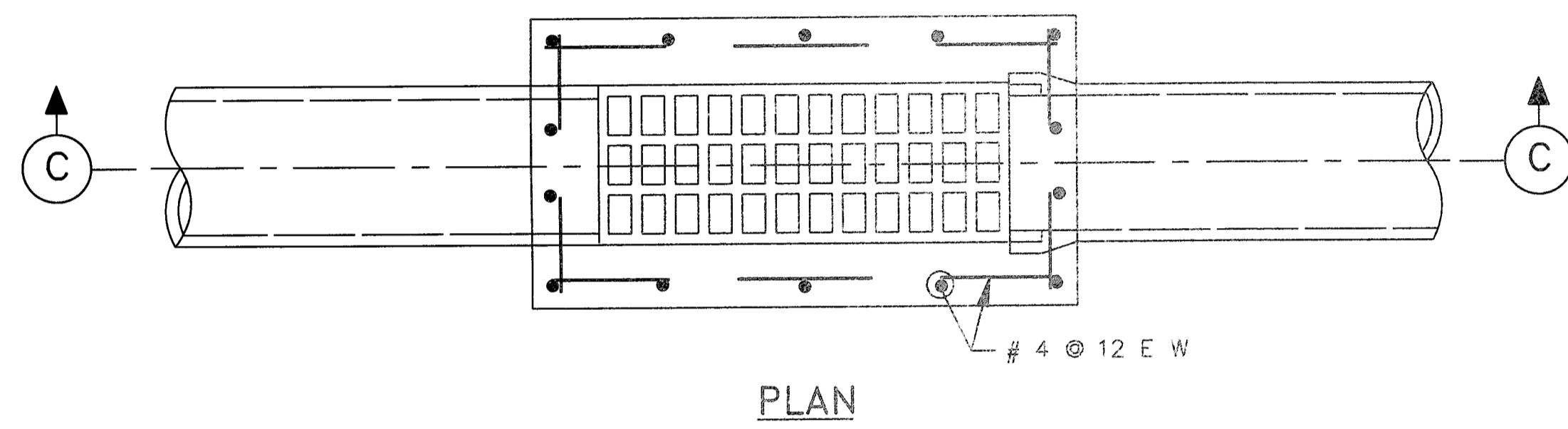
STORM SEWER OUTFALL CONSTRUCTION DETAILS

JOB No.:
 DATE:
 DESIGNED BY:
 DRAWN BY:
 CHECKED BY:
 SCALE:

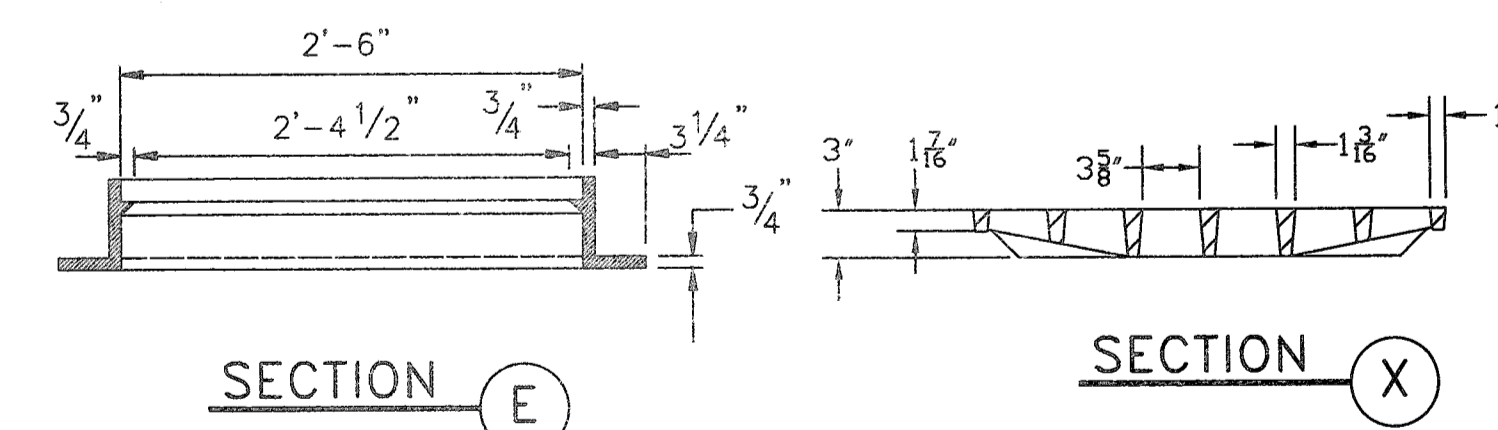
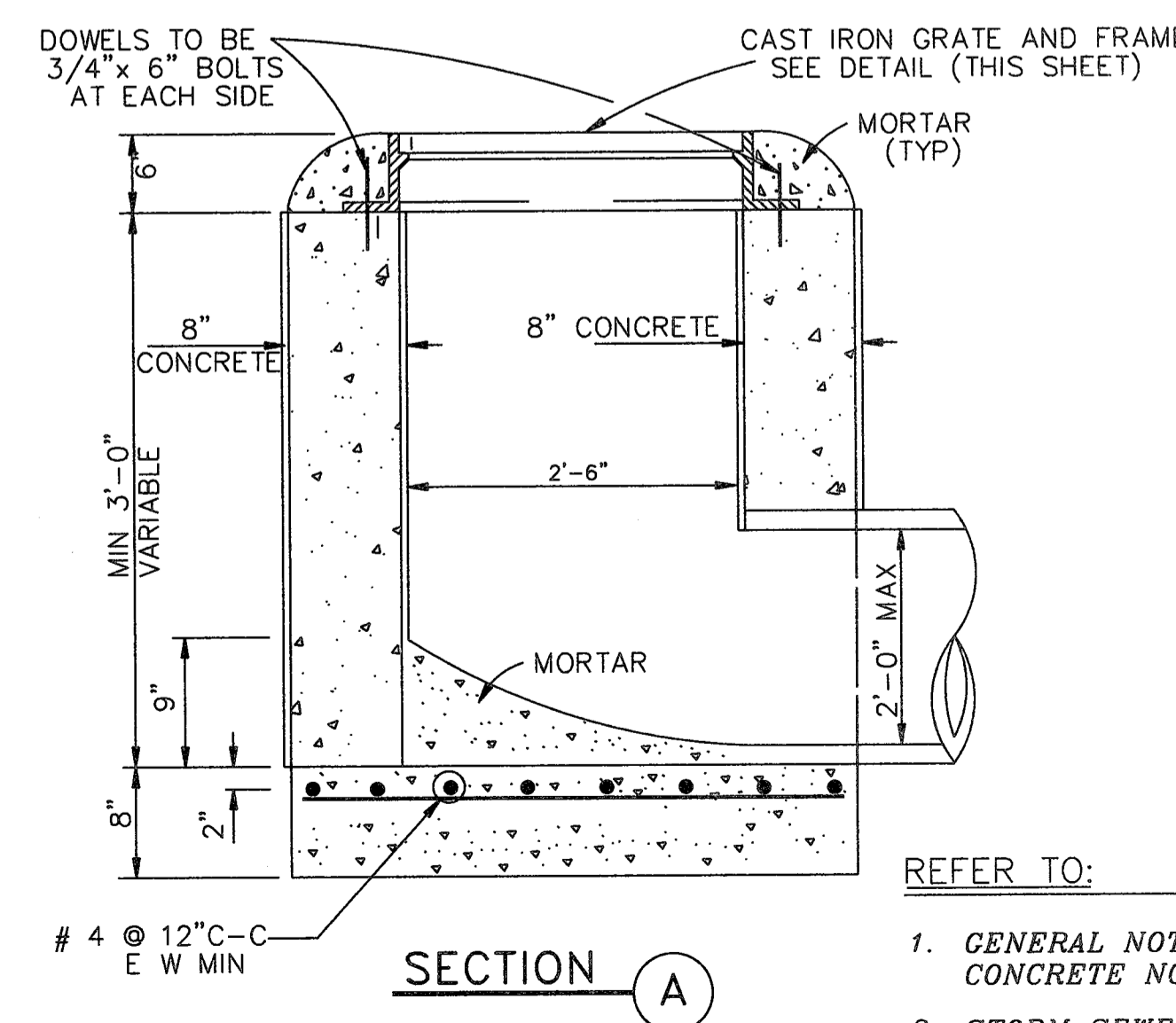
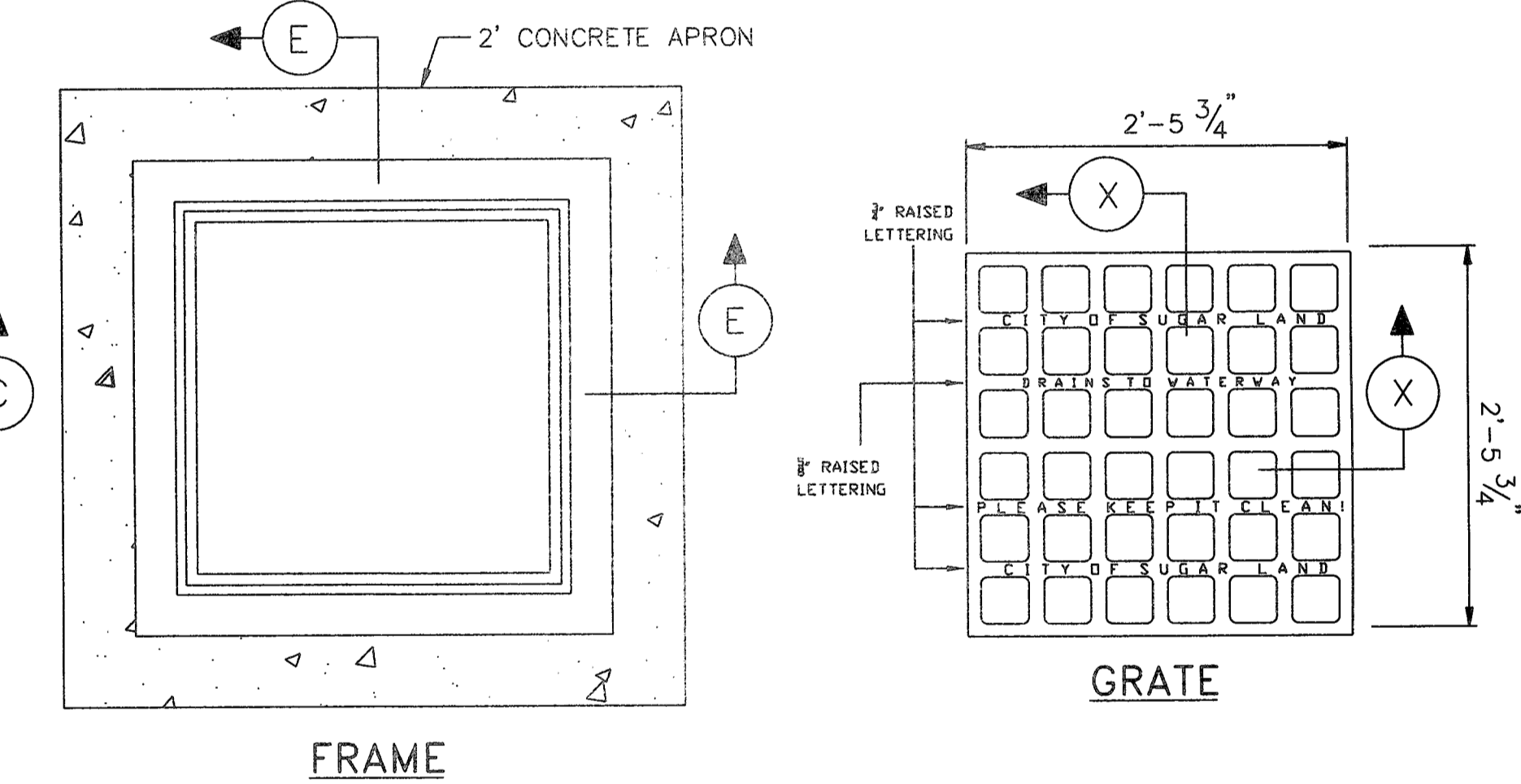
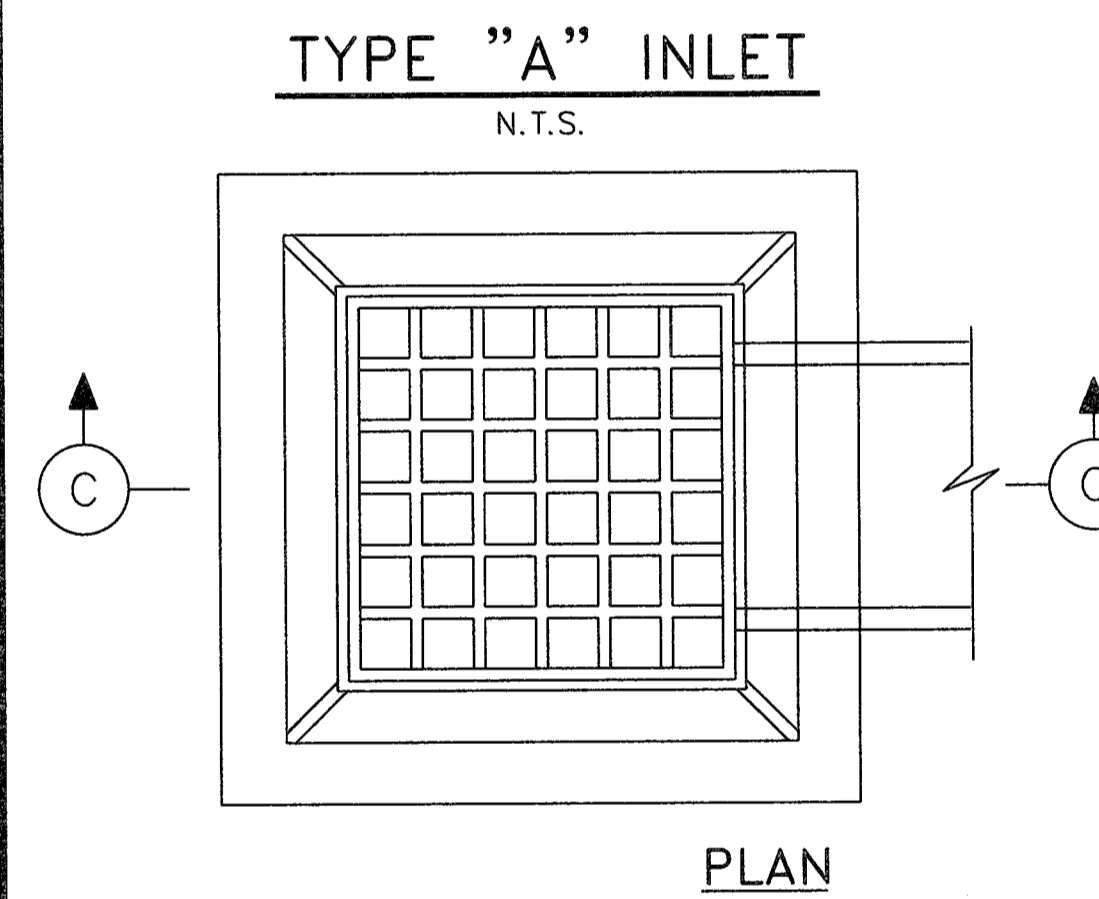
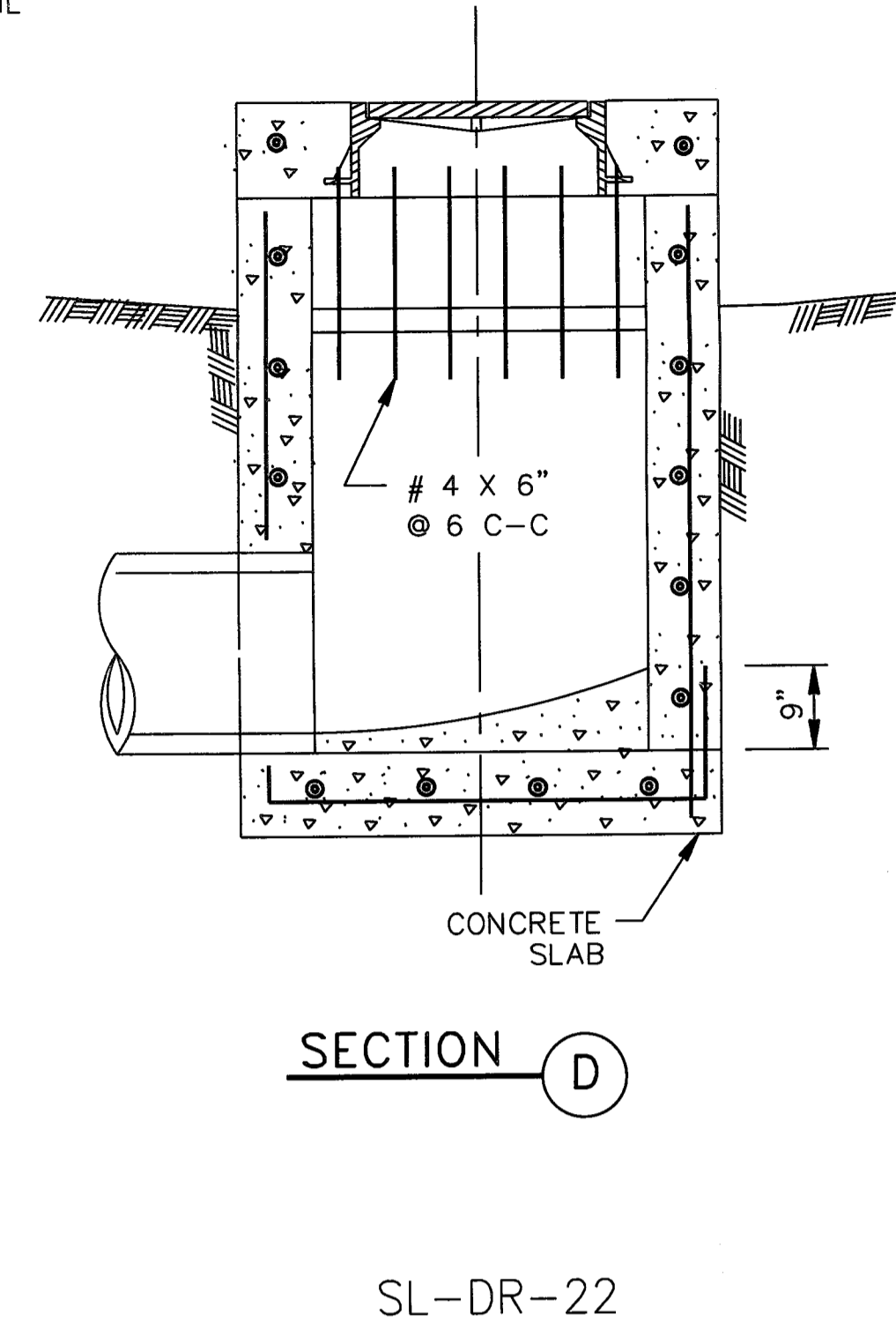
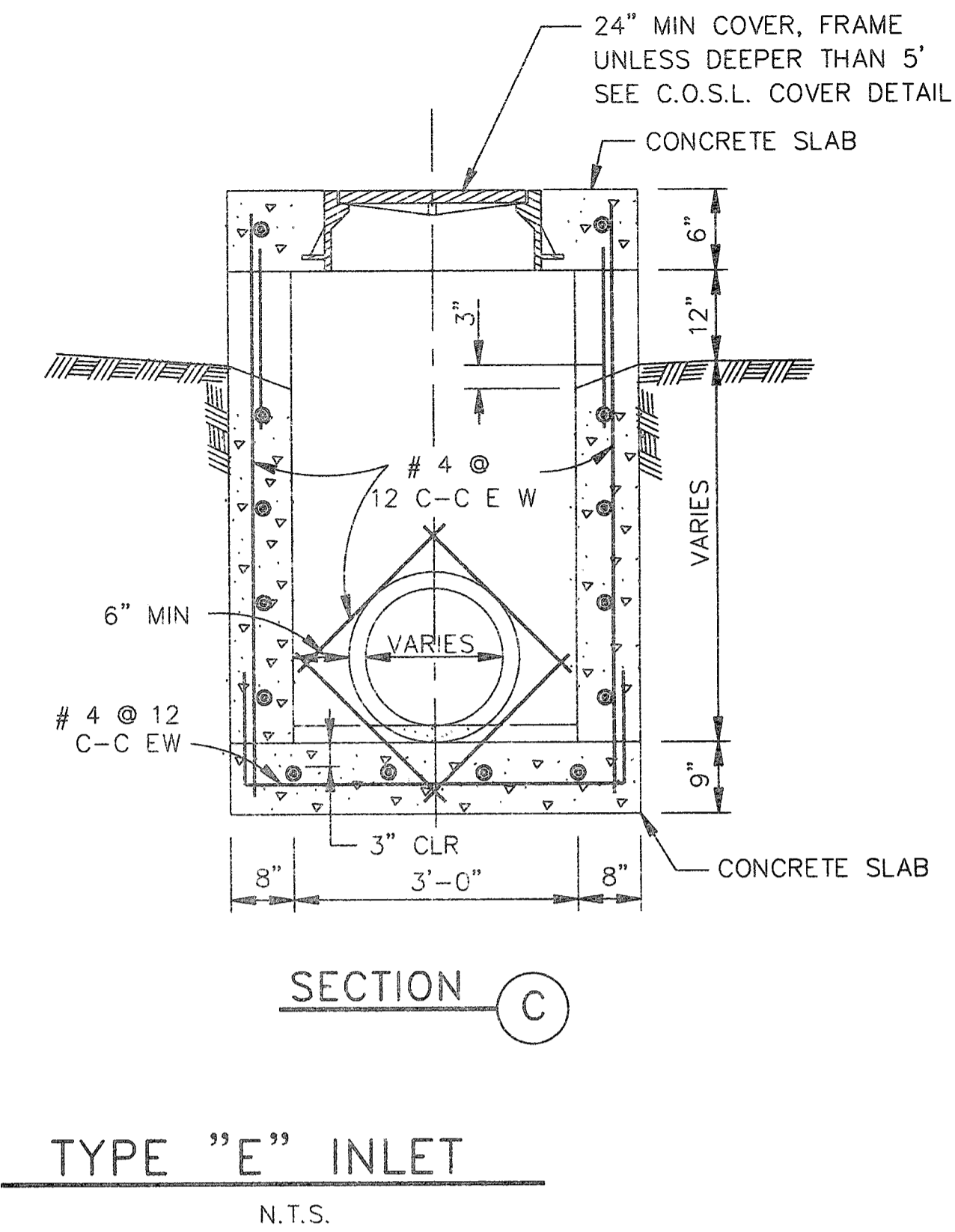
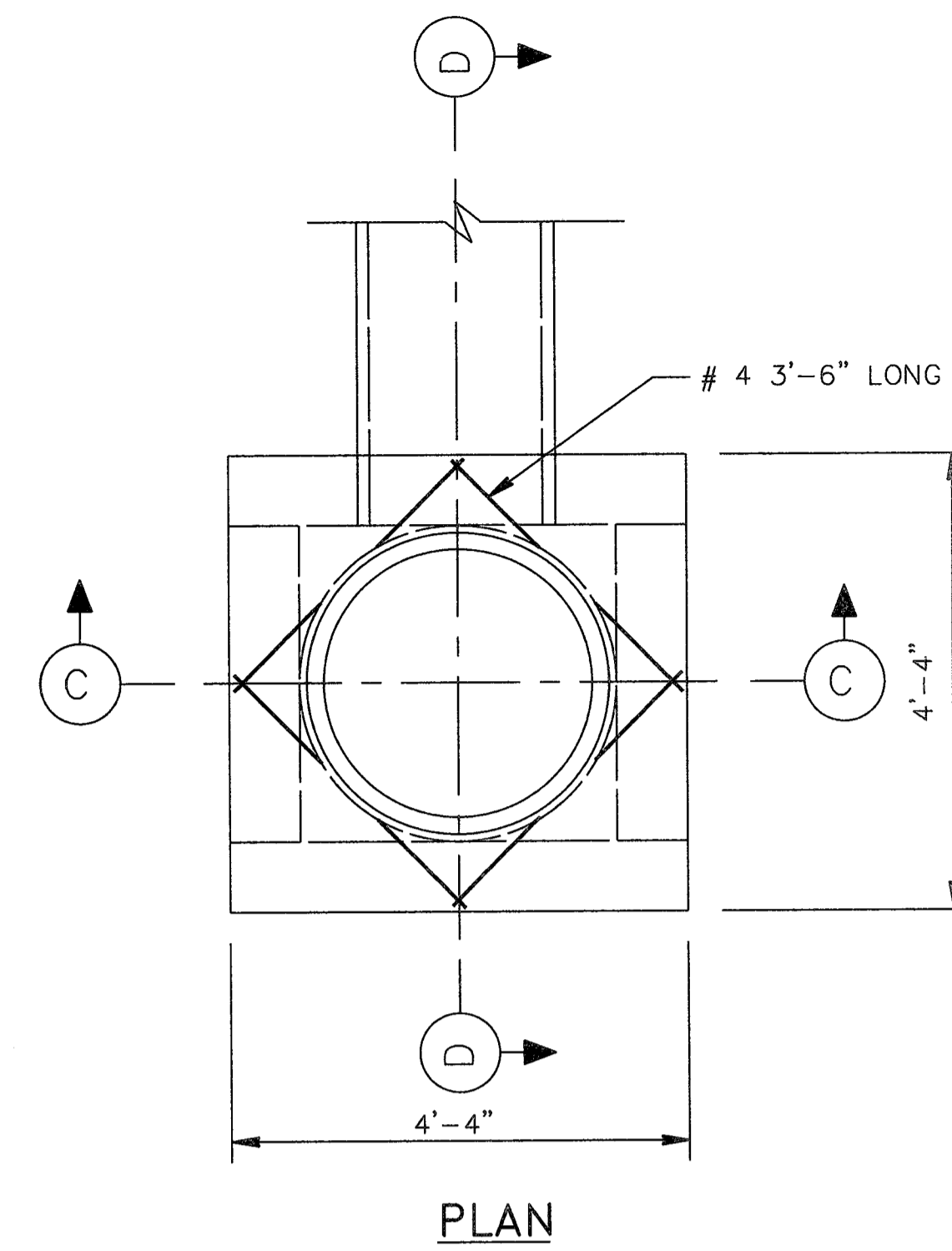
SHEET 35 OF 42

CAD FILE PATH:
 PLOT DATE:

PLOT TIME:



SL-DR-24



GENERAL CONSTRUCTION NOTES:
1. CONCRETE CAST WALLS SHALL HAVE #4 REBAR
PLACED @ 12" C-C EW.
2. GRATE LID IS EAST JORDAN IRON WORKS OR APPROVED EQUAL

REFER TO:
1. GENERAL NOTES, C.S.S. &
CONCRETE NOTES.
2. STORM SEWER NOTES

SL-DR-23

No.	DATE	REVISION

DESIGN ENGINEER: *Jon R. VanderWilt*
7/17/17

SEAL:

DATE: 7/10/2017
DESIGN ENGINEER: **TBPE FIRM REG. No. 280**

CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:
WEST HOMEWARD WAY
(RECLAIMED EFFLUENT)
RE-USED WATER LINE PHASE 2

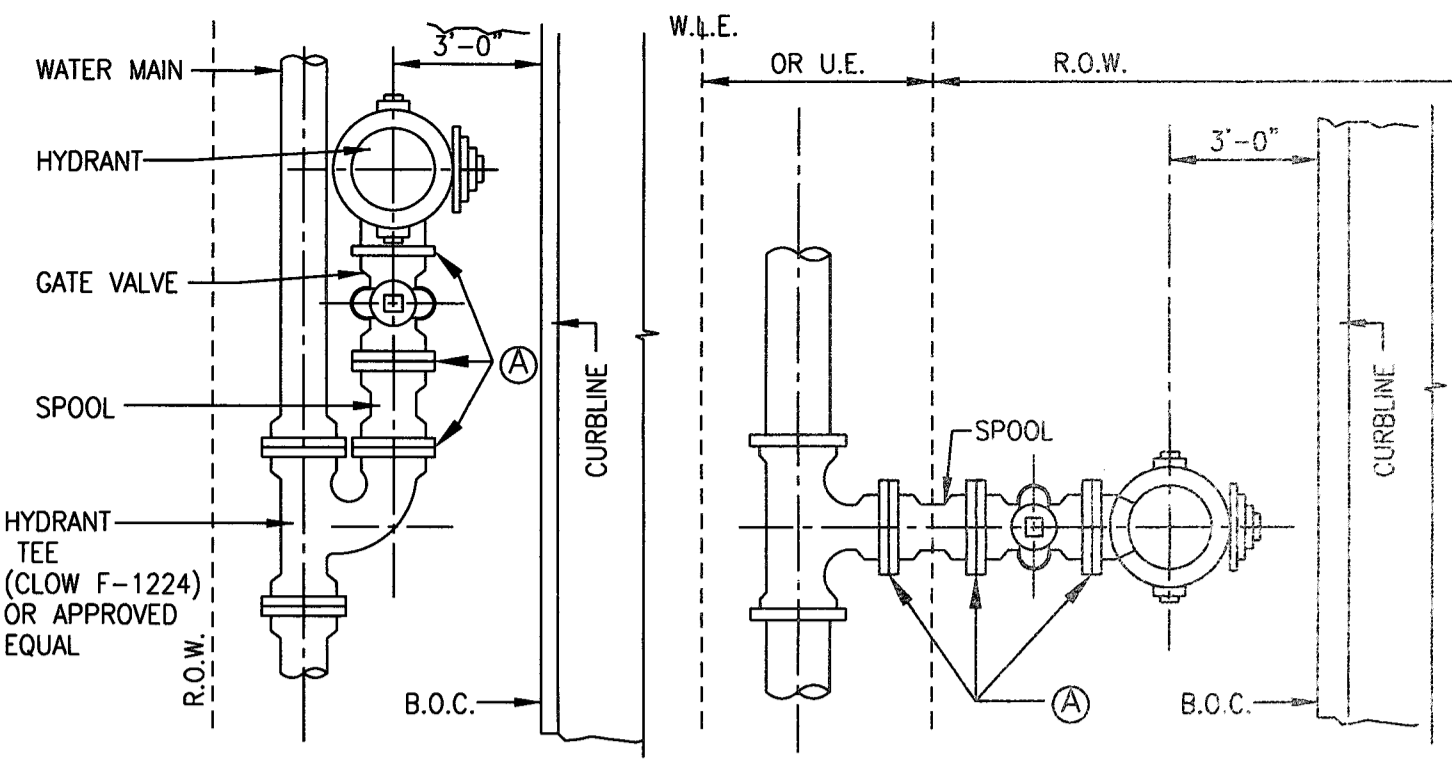
STORM SEWER INLET
CONSTRUCTION DETAILS I

JOB No.:
DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
SCALE:

SHEET 36 OF 42

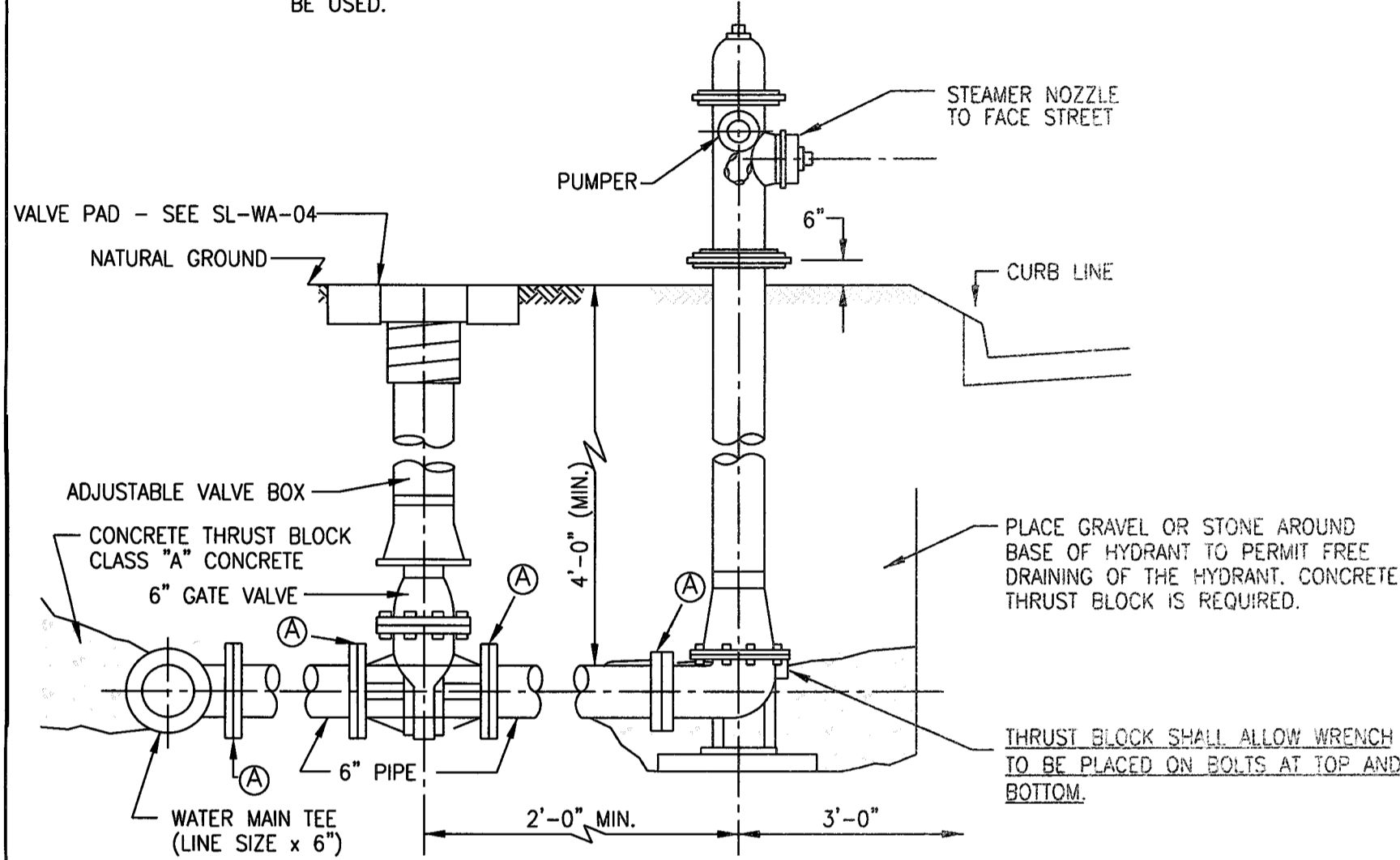
CAD FILE PATH:
PLOT DATE:

PLOT TIME:



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

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



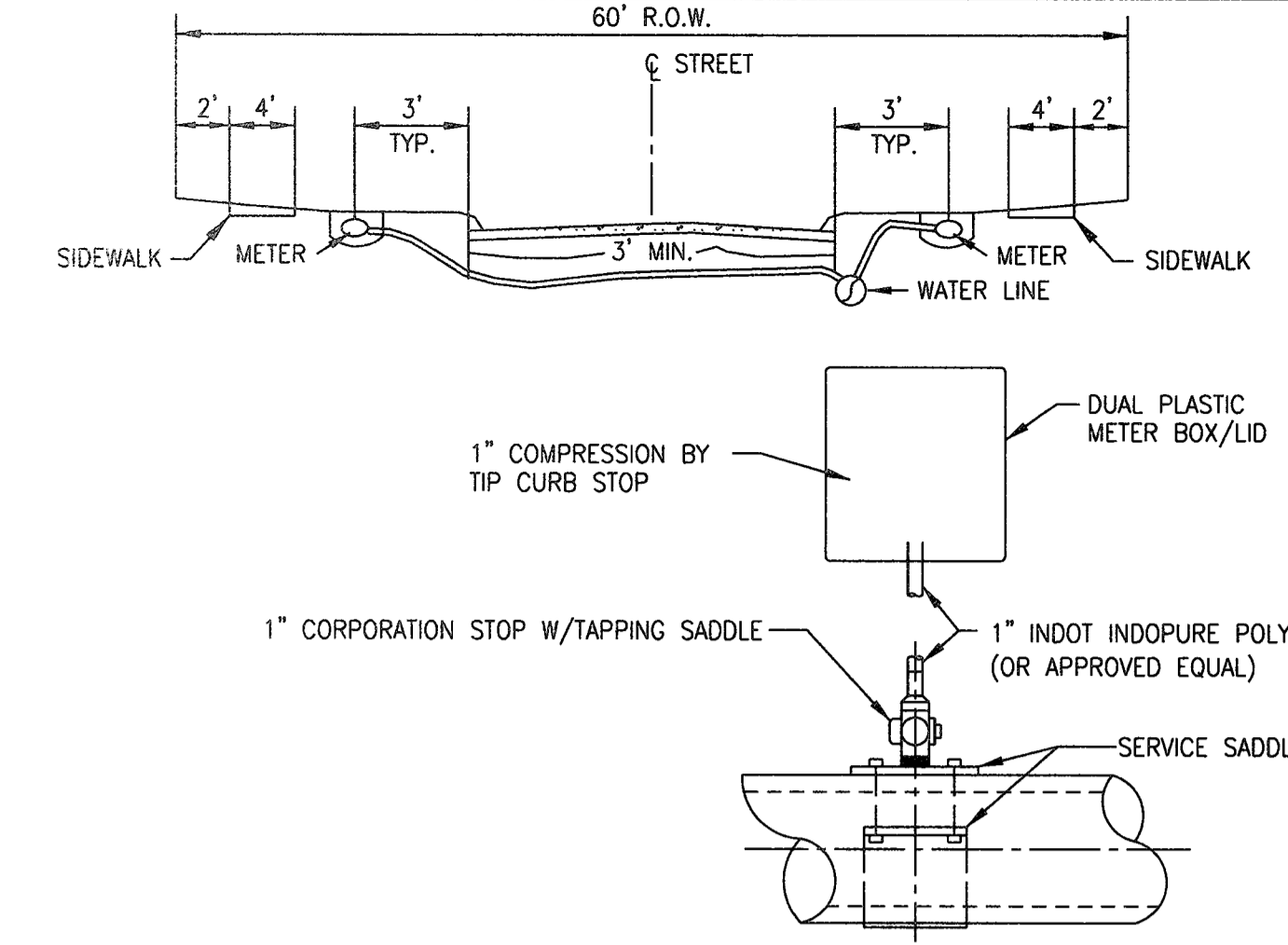
TYPICAL GATE & FIRE HYDRANT INSTALLATION N.T.S. SL-WA-01

FLUSHING VALVE COLOR CODE

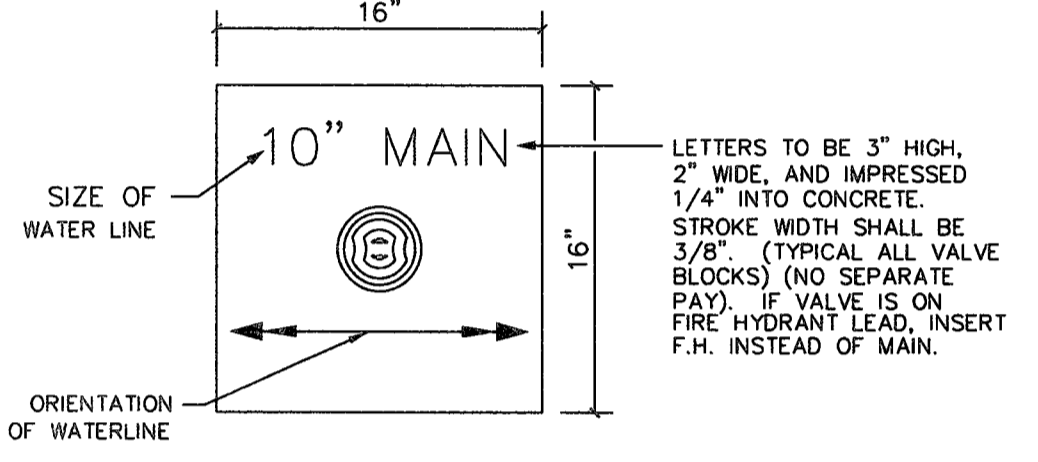
MAIN LINE DIAMETER	BONNET, PUMPER CAP AND STEAMER CAP
6 INCHES (AND LESS)	YELLOW
8 INCHES	WHITE
12 TO 16 INCHES	GREEN
GREATER THAN 16 INCHES	ORANGE

NOTE: ALL FIRE HYDRANTS SHALL BE MUELLER, KENNEDY, AMERICAN, M & H OR APPROVED EQUAL WITH STEAMER NOZZLE SIZE 4 1/2" PUMPER 2.5" N.T.S.

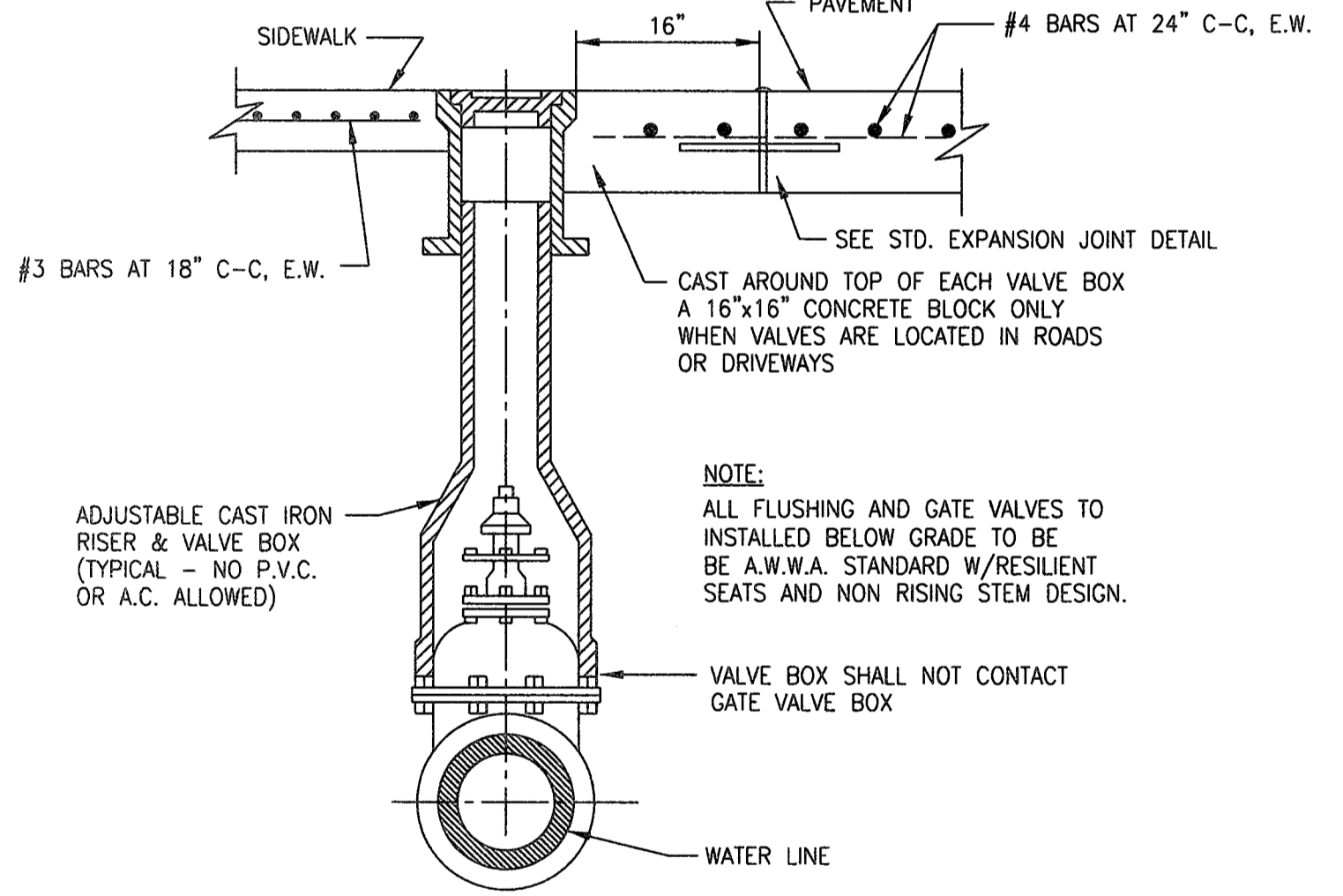
NOTE: ALL FLUSHING VALVES TO BE SAND BLASTED AND PAINTED AS PER C.O.S.L. DESIGN STANDARDS.



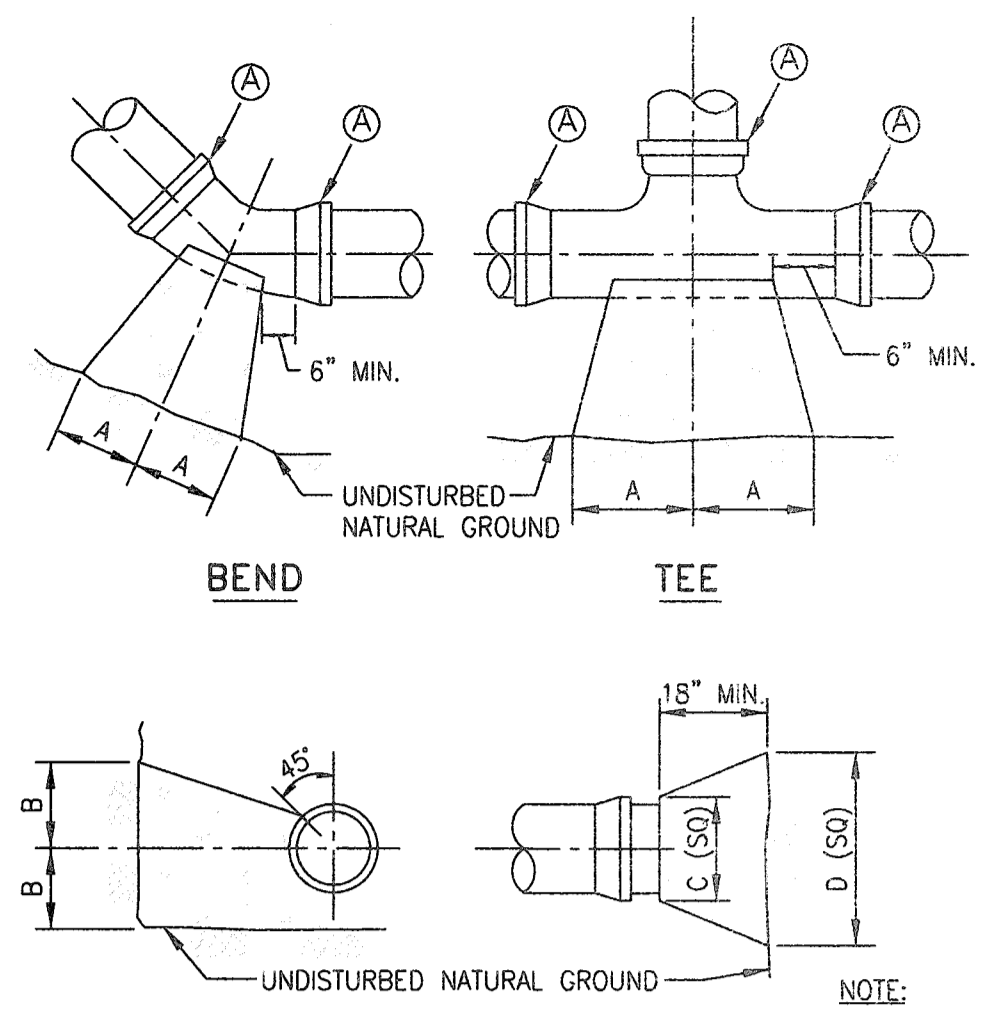
WATER SERVICE CONNECTION AND WATER SERVICE TAPPING ASSEMBLY DETAIL N.T.S. SL-WA-03



CONCRETE PAD N.T.S. NOTE: ALL VALVES MUST HAVE CONCRETE PAD

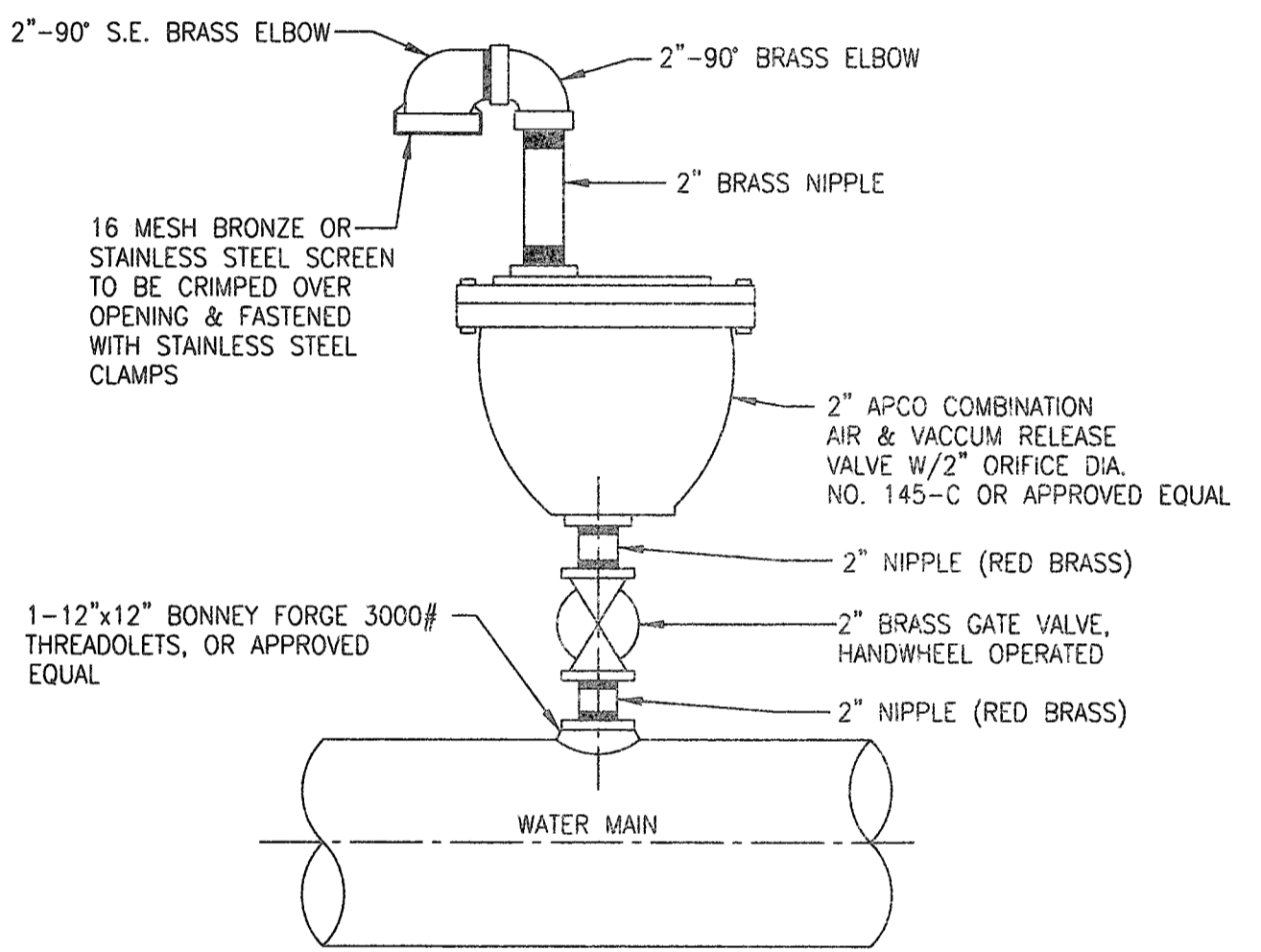


VALVE BOX INSTALLATION DETAIL N.T.S. SL-WA-04

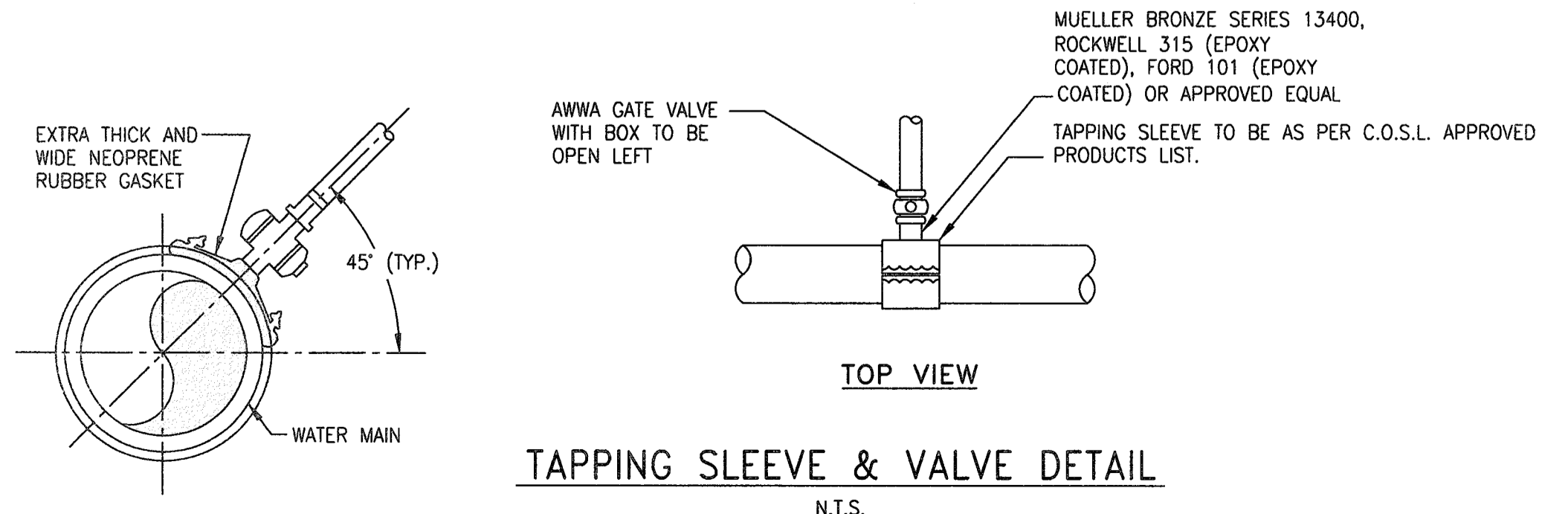


THRUST BLOCK DETAIL N.T.S. (A) = RESTRAINED JOINT

NOTE: THRUST BLOCKS AT TRENCH FACE MUST HAVE A MINIMUM BEARING SURFACE OF 10 SQ. FEET AND SHALL BE NO SMALLER THAN 1.5 TIMES PIPE DIAMETER. ALL CONCRETE SHALL BE 5 SACK MIN., 3000 P.S.I.



AIR RELEASE VALVE DETAIL N.T.S. SL-WA-06



TAPPING SLEEVE & VALVE DETAIL N.T.S. SL-WA-07

- CONSTRUCTION NOTES:**
1. WATER LINES 12" (IN.) AND LESS SHALL BE AWWA C-900 DR18 WATER LINE GREATER THAN 12" (IN.) IN Ø SHALL BE AWWA C-905 DR 18
 2. ALL FLUSHING VALVES AND GATE VALVES TO BE AMERICAN WATER WORKS ASSOC. (AWWA) STANDARD COUNTERCLOCKWISE OPENING WITH NON-RISING STEM DESIGN.
 3. ALL DUCTILE IRON PIPE SHALL BE CLASS 50 MORTAR LINED. NO A.C. PIPE WILL BE ALLOWED AND ALL DUCTILE IRON FITTINGS SHALL BE MORTAR LINED PUSHON OR MECHANICAL JOINTS.
 4. ALL BACKFILL WITHIN THE R.O.W. SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
 5. MINIMUM SPACING BETWEEN TAPS SHALL BE 2' AT ALTERNATING TAP ANGLES.

NOTES: POLYETHYLENE WRAP FOR IRON PIPE

- NOTE:
1. POLYETHYLENE FILM SHALL BE USED AS A WRAP TO PROTECT CAST IRON AND OTHER METALS IN A CORROSIVE SOIL ENVIRONMENT.
 2. AN 8 MIL POLYETHYLENE FILM SHALL BE REQUIRED AROUND ALL METAL PIPE AND APPURTENANCES (EXCEPT FIRE HYDRANTS).
 3. POLYETHYLENE FILM SHALL BE FURNISHED AND INSTALLED EITHER IN TUBULAR FORM PRIOR TO LOWERING THE PIPE IN TRENCH OR IN SHEET FORM.
 4. POLYETHYLENE TUBE ENCASUREMENT SHALL CONFORM WITH THE MINIMUM REQUIREMENTS OF "POLYETHYLENE ENCASUREMENT FOR GRAY AND DUCTILE CAST-IRON PIPING FOR WATER AND OTHER LIQUIDS", ANS/AWWA C105, CURRENT REVISION. SOILS WITHIN A PROJECT SHALL BE TESTED IN ACCORDANCE WITH APPENDIX A OF ANS/AWWA C105 TO ADEQUATELY DETERMINE THE REQUIREMENTS FOR ENCASUREMENT.
 5. ALL FITTINGS AND PIPE JOINTS WITHIN 10' OF A FITTING SHALL HAVE RESTRAINT JOINTS

SIZE	90° BEND		45° BEND		22 1/2° BEND		TEES		PLUGS	
	A	B	A	B	A	B	A	B	A	B
2 1/2"	12"	7"	6"	7"	6"	6"	8"	8"	8"	14"
6"	16"	10"	9"	10"	6"	12"	10"	12"	10"	21"
8"	22"	13"	12"	13"	8"	10"	13"	16"	12"	29"
10"	26"	17"	14"	17"	10"	13"	16"	20"	14"	36"
12"	29"	21"	16"	21"	11"	16"	18"	24"	16"	41"
14"	35"	24"	19"	24"	12"	20"	22"	27"	18"	48"
16"	38"	27"	21"	27"	12"	24"	24"	30"	20"	54"
20"	50"	40"	30"	40"	18"	30"	30"	40"	30"	*78"
24"	50"	40"	30"	40"	18"	30"	30"	40"	30"	*78"
30"	60"	48"	36"	48"	20"	36"	36"	48"	36"	*96"

BENDS, TEES & PLUGS FOR PIPE OF VARIOUS SIZES

SL-WA-08

CAD FILE PATH:
PLOT DATE:

2" BLOW OFF VALVE ASSEMBLY N.T.S. SL-WA-02

SL-WA-08

No.	DATE	REVISION

DESIGN ENGINEER: **TBPE FIRM REG. No. 280**

DATE: 7/10/2017

SEAL:

CITY OF SUGAR LAND, TEXAS

ENGINEERING DEPARTMENT

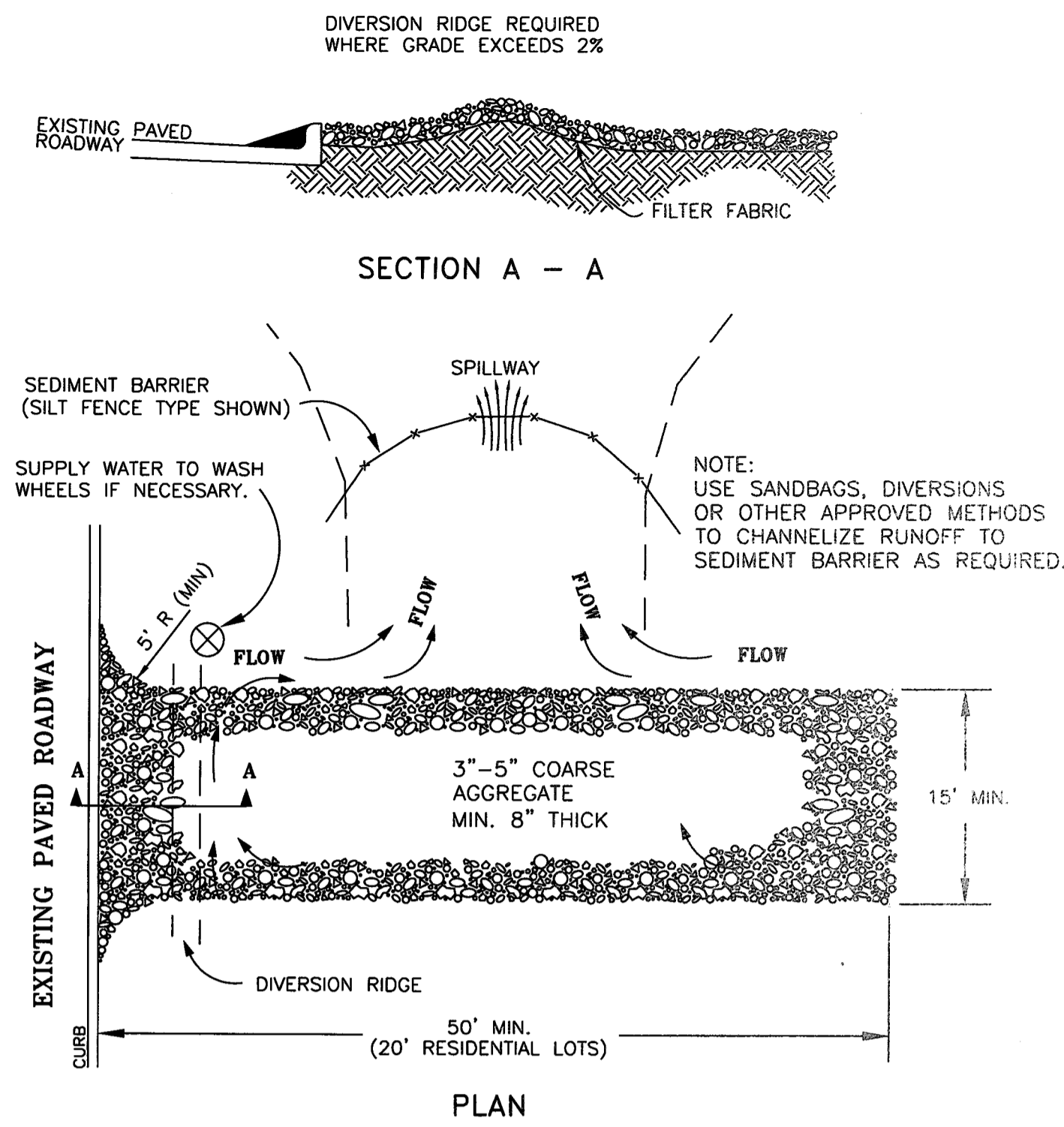
CONSTRUCTION PLANS FOR: WEST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PHASE 2

WATER LINE CONSTRUCTION DETAILS

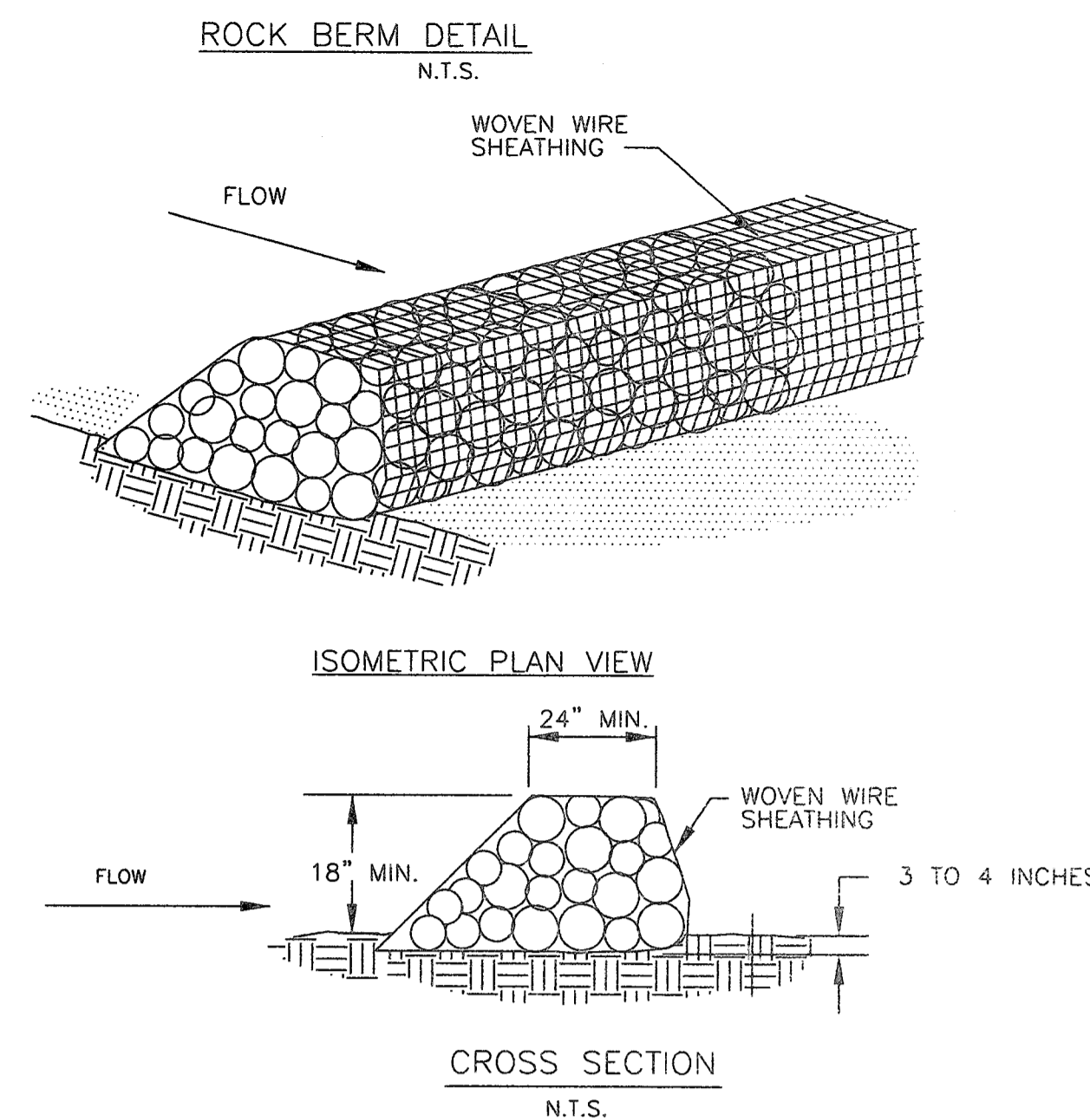
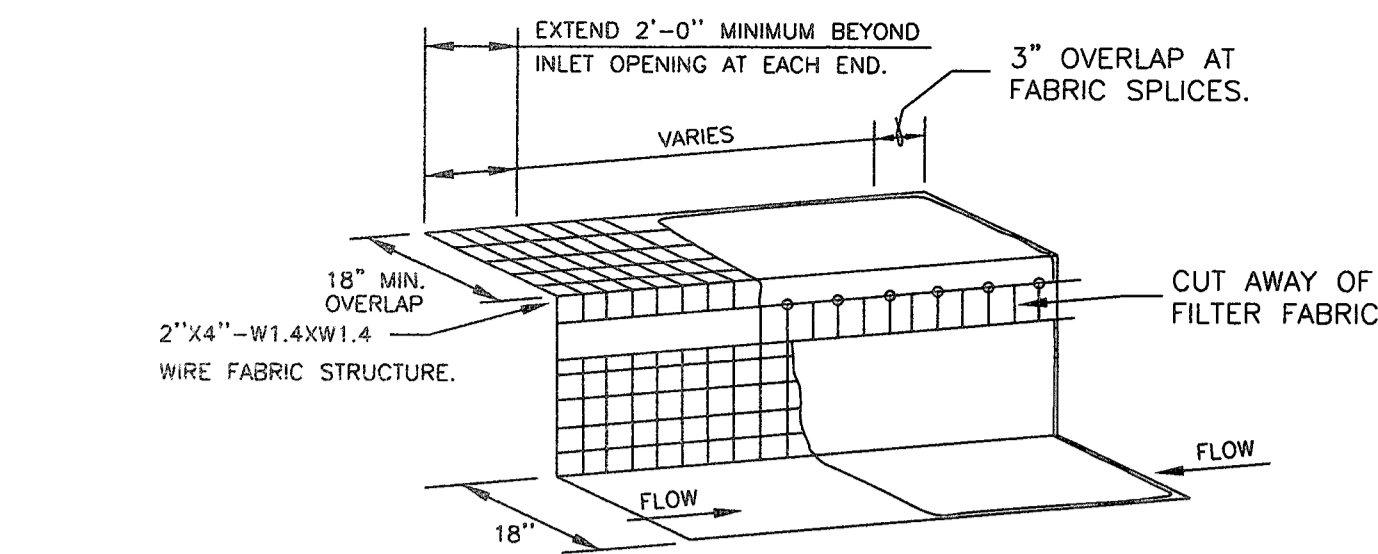
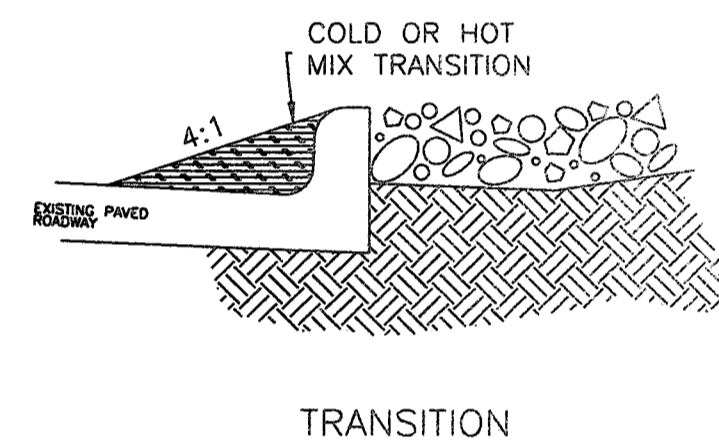
JOB No.:
DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
SCALE:

SHEET 37 OF 42

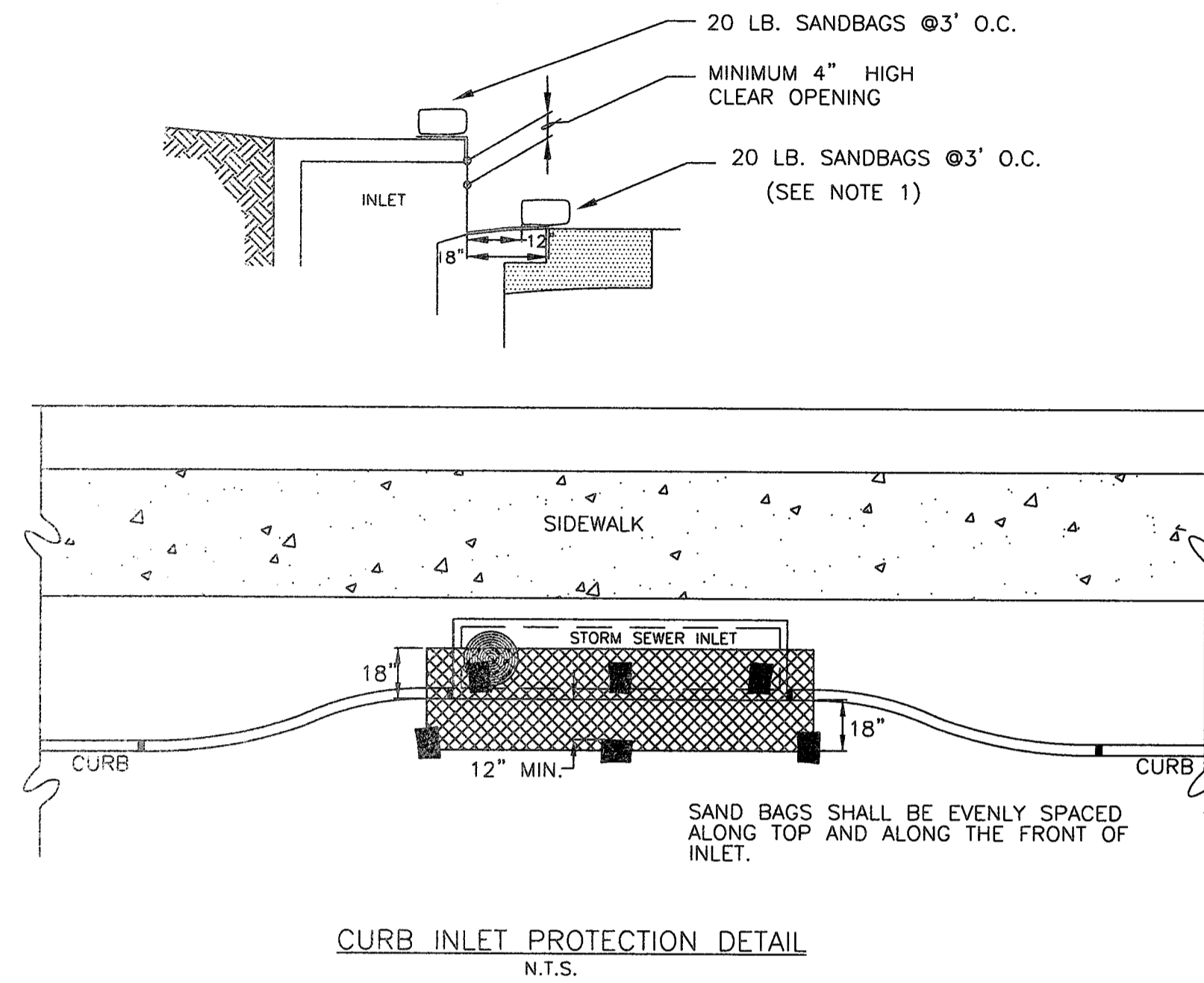
PLOT TIME:



TEMPORARY STONE CONSTRUCTION ENTRANCE/EXIT
N.T.S.



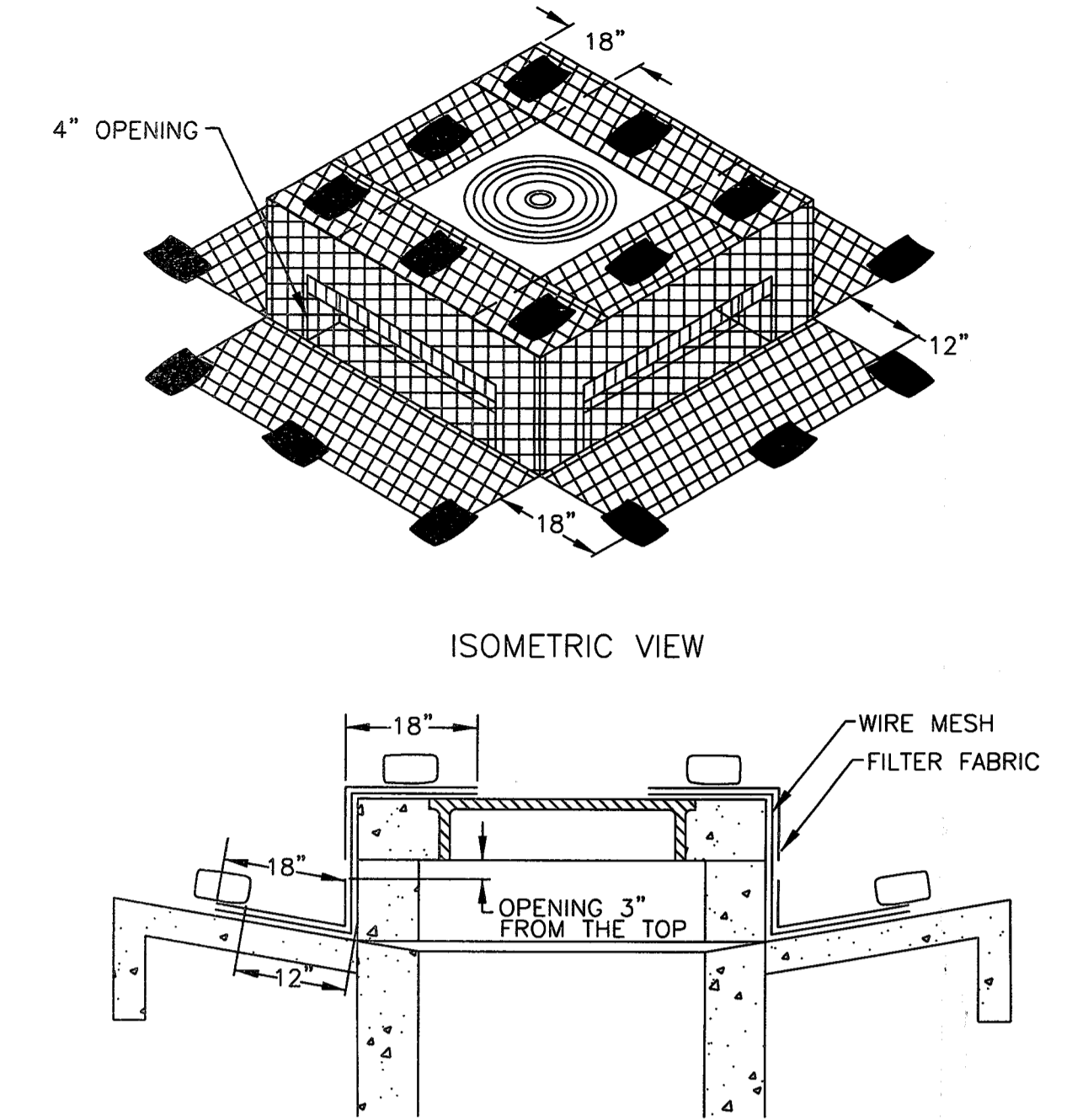
ROCK BERM GENERAL NOTES



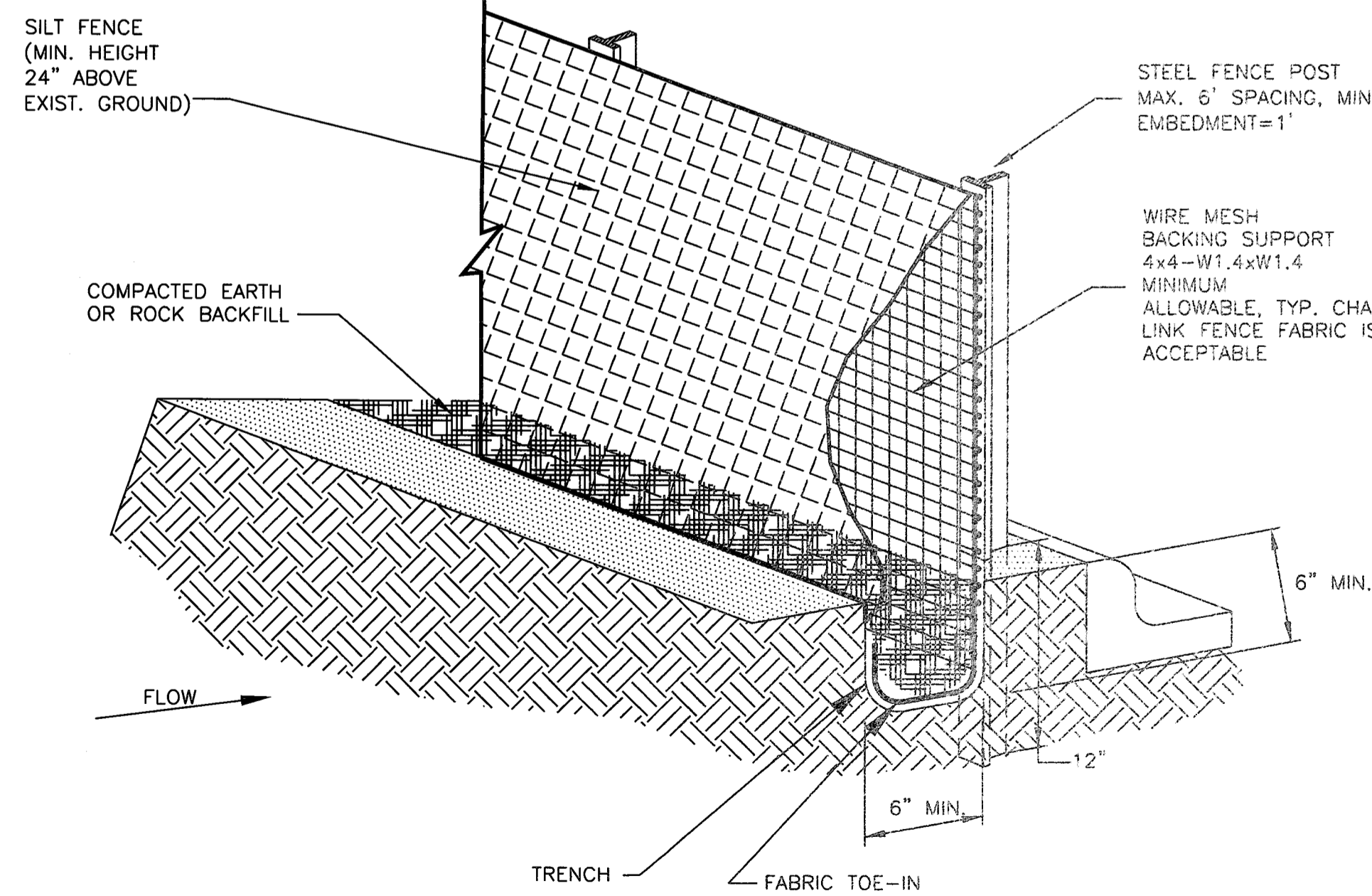
NOTES:

- A SECTION OF FILTER FABRIC SHALL BE REMOVED AS SHOWN ON THIS DETAIL TO PROVIDE A 4" MINIMUM CLEAR OPENING. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR HOG RINGS AT THIS LOCATION.
- INSPECTION SHALL BE MADE BY CONTRACTOR AND SILT ACCUMULATION MUST BE REMOVED WHEN DEPTH REACHES 2".
- CONTRACTOR SHALL MONITOR THE PERFORMANCE OF INLET PROTECTION DURING EACH RAINFALL EVENT AND IMMEDIATELY REMOVE THE INLET PROTECTION IF THE STORMWATER BEGINS TO OVERTOP THE CURB.
- INLET PROTECTIONS SHALL BE REMOVED AS SOON AS THE SOURCE OF THE SEDIMENT IS STABILIZED.

INLET OPENING	MINIMUM NUMBER OF SAND BAGS	
	TOP	FRONT
5'	2	3
10'	3	3
15'	3	4
20'	4	4

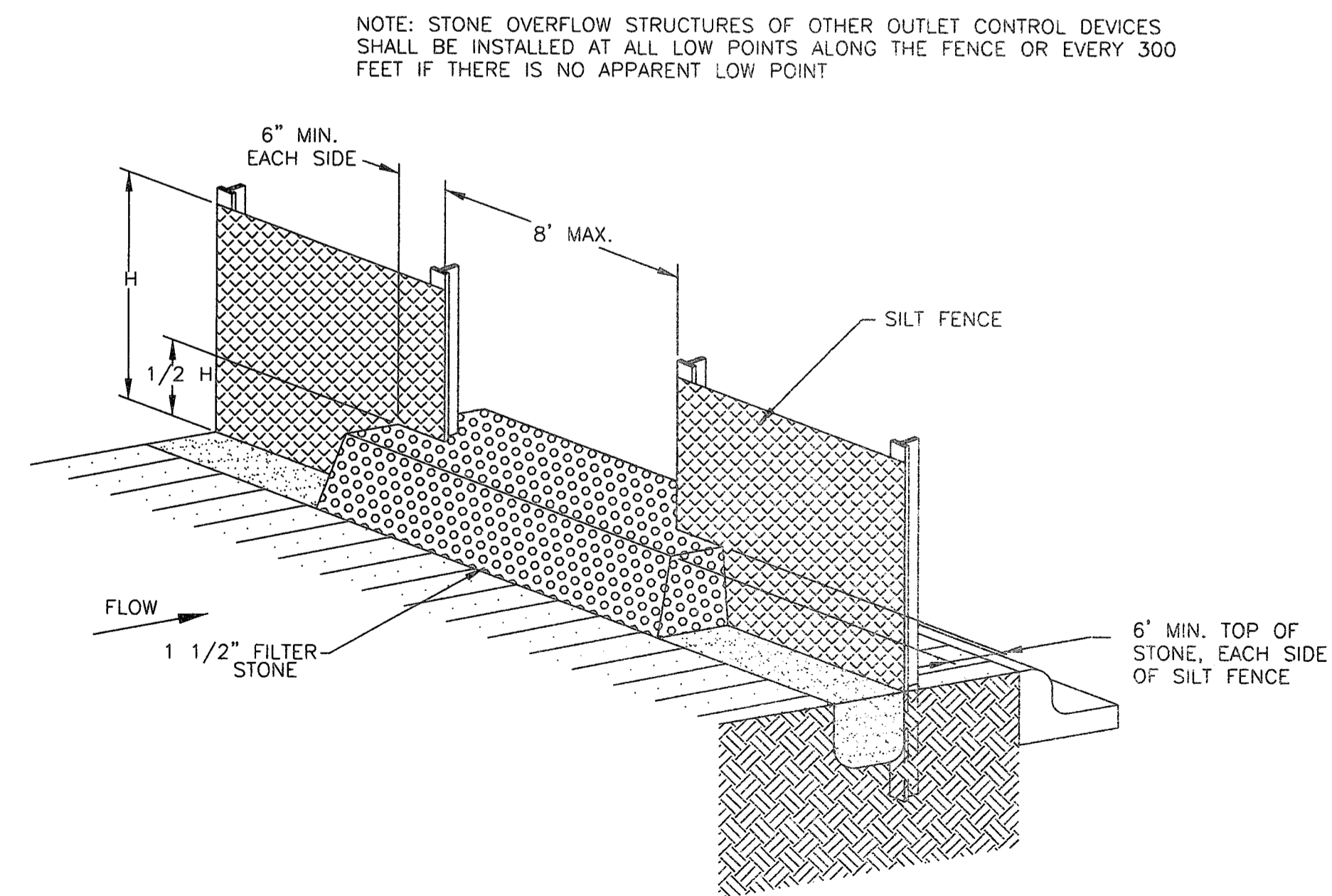


FILTER FABRIC WYE INLET PROTECTION
N.T.S.



SILT FENCE GENERAL NOTES

- STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
- THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
- THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
- SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS ATTACHED TO THE STEEL FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
- INSPECTION SHALL BE MADE EVERY TWO WEEKS AND AFTER EACH 1/2" RAINFALL. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
- SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
- ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.



NOTE: STONE OVERFLOW STRUCTURES OF OTHER OUTLET CONTROL DEVICES SHALL BE INSTALLED AT ALL LOW POINTS ALONG THE FENCE OR EVERY 300 FEET IF THERE IS NO APPARENT LOW POINT

No.	DATE	REVISION

DESIGNED BY: *Jon R. VanderWilt*
DATE: 7/17/17

SEAL:

DESIGN ENGINEER: TBPE FIRM REG. No. 280

CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:
WEST HOMEWARD WAY
(RECLAIMED EFFLUENT)
RE-USED WATER LINE PHASE 2

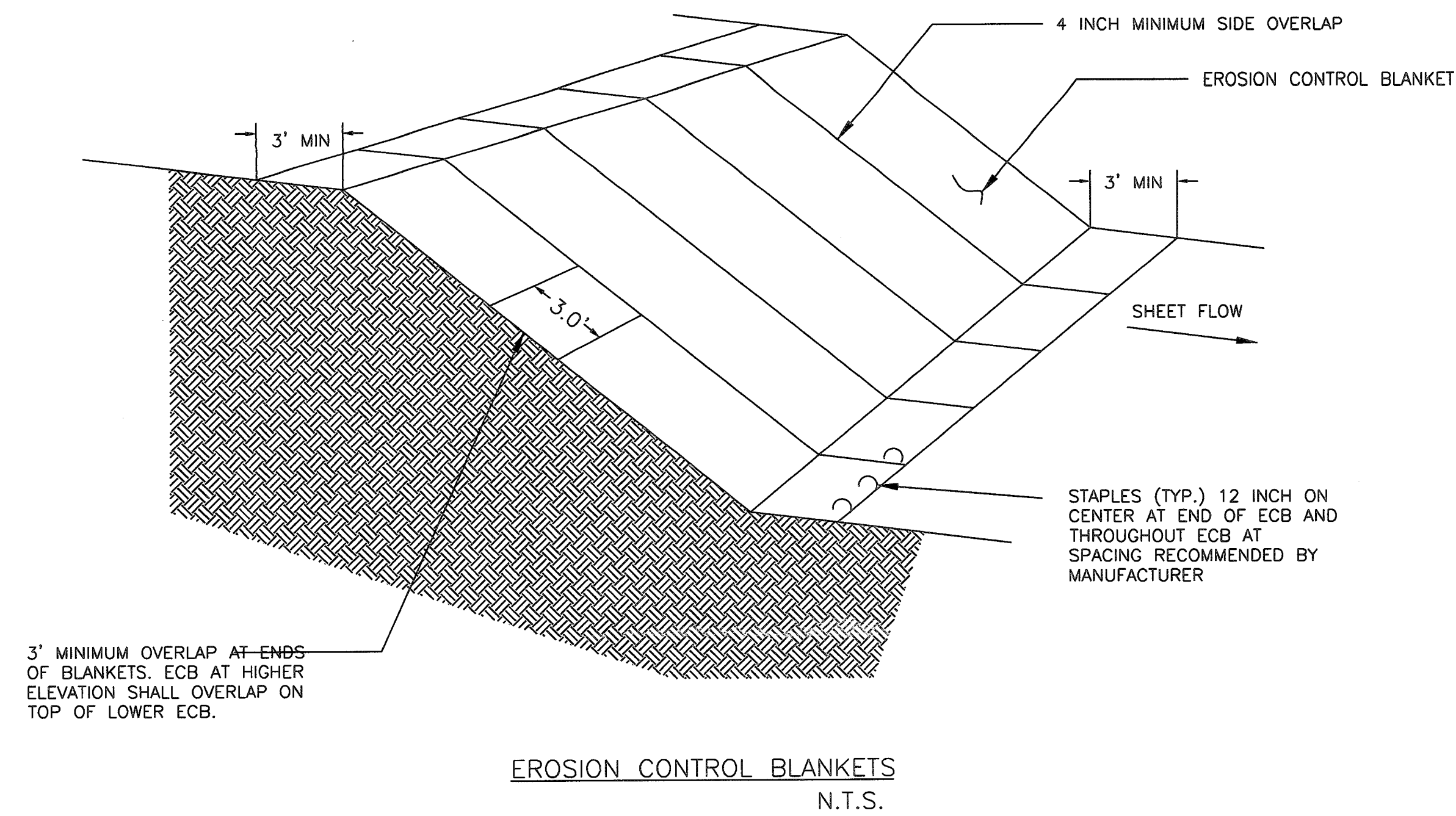
EROSION CONTROL DETAILS - 1

JOB No.:
DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
SCALE:

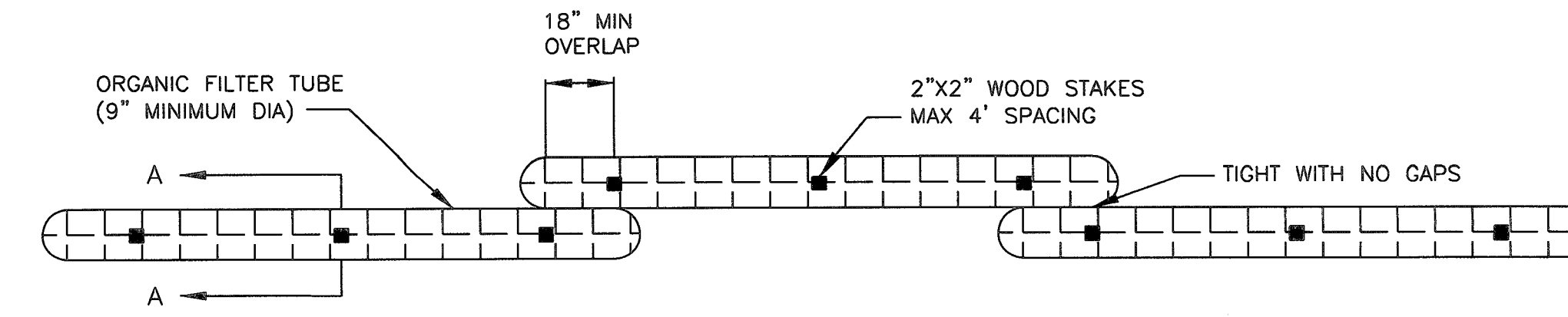
SHEET 41 OF 42

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PLOT DATE:

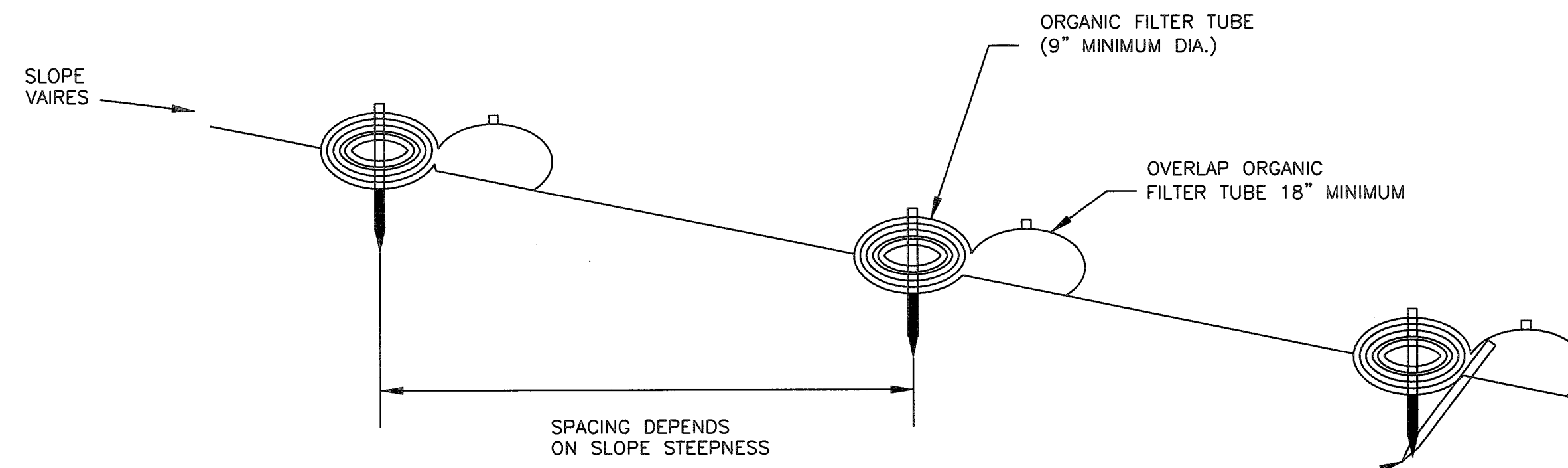
PLOT TIME:



EROSION CONTROL BLANKETS
N.T.S.



ORGANIC FILTER TUBE PERIMETER CONTROL PLAN VIEW
N.T.S.



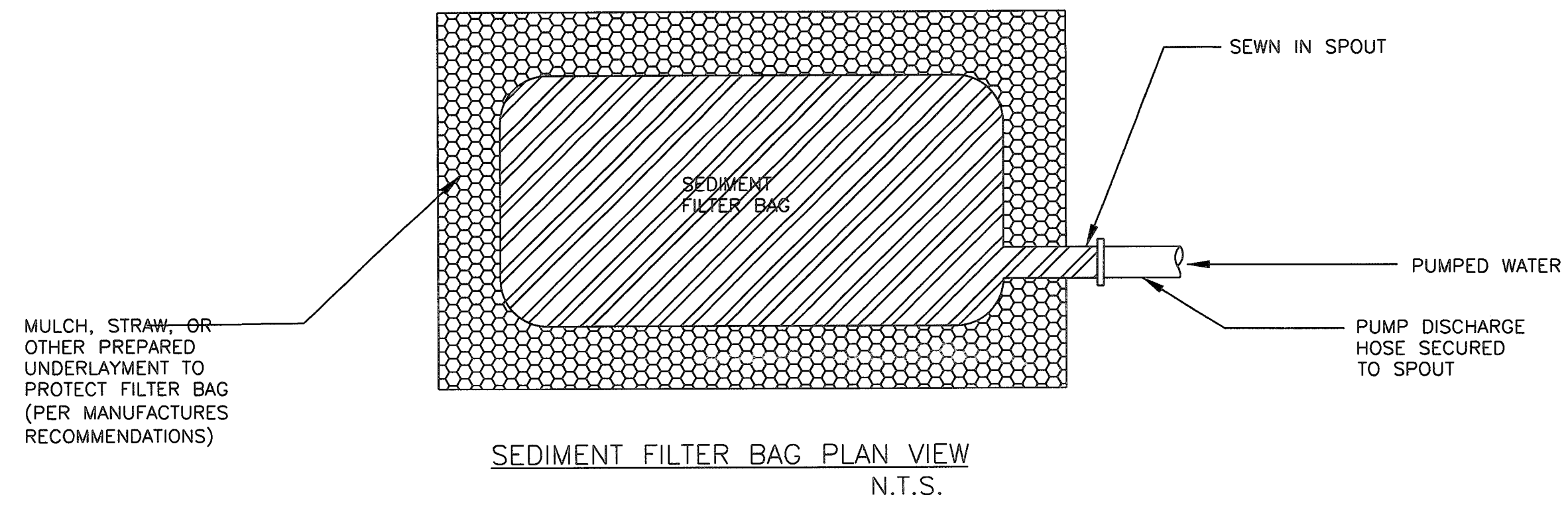
FOR SLOPES OF 2:1 OR STEEPER, A SECOND STAKE AGAINST THE DOWNSLOPE FACE OF THE TUBE MAY BE NEEDED DEPENDING ON SOIL TYPE

ORGANIC FILTER TUBE PERIMETER CONTROL PROFILE
N.T.S.

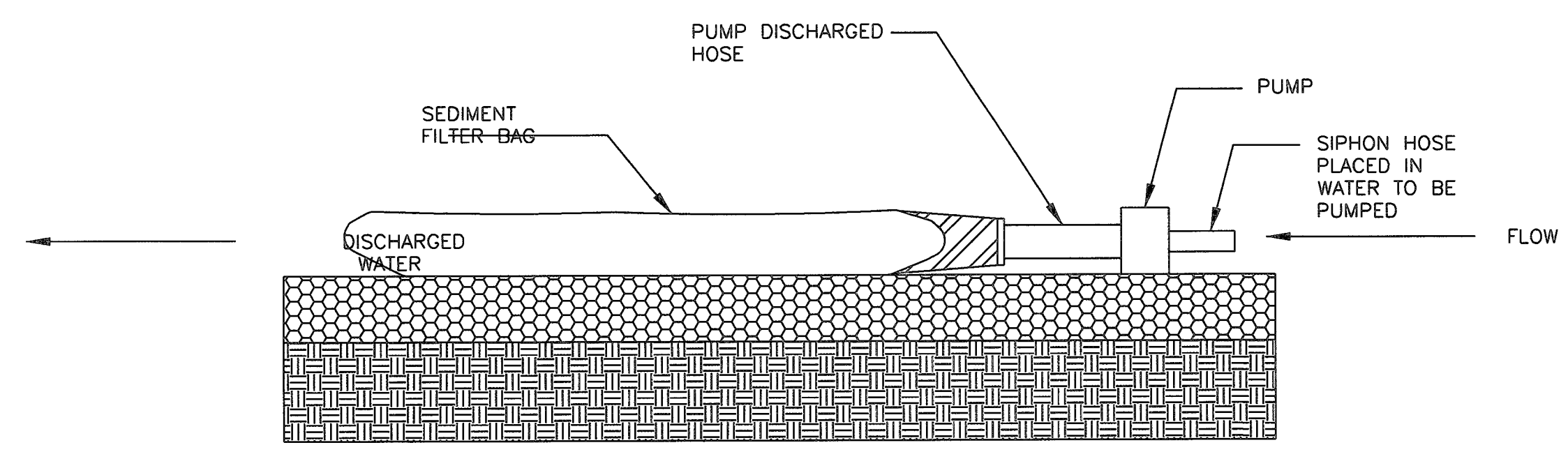
ORGANIC FILTER TUBES NOTES

1. TYPE OF NETTING, FILTER MATERIAL, DIAMETER OF TUBE, AND SPACING OF TUBES SHALL BE SPECIFIED BY THE DESIGNER BASED ON THE FOLLOWING SITE PARAMETERS:
 - SIZE OF CONTRIBUTING DRAINAGE AREA
 - STEEPNESS OF SLOPE
 - GROUND CONDITIONS (SOIL OR PAVEMENT)
2. DESIGNER SHALL SHOW ON THE DRAWINGS THE LOCATIONS WHERE TUBE ARE TO BE TURNED UPSLOPE. UPSLOPE LENGTHS SHALL BE MINIMUM OF 10 FEET.

FILTER TUBE
N.T.S.



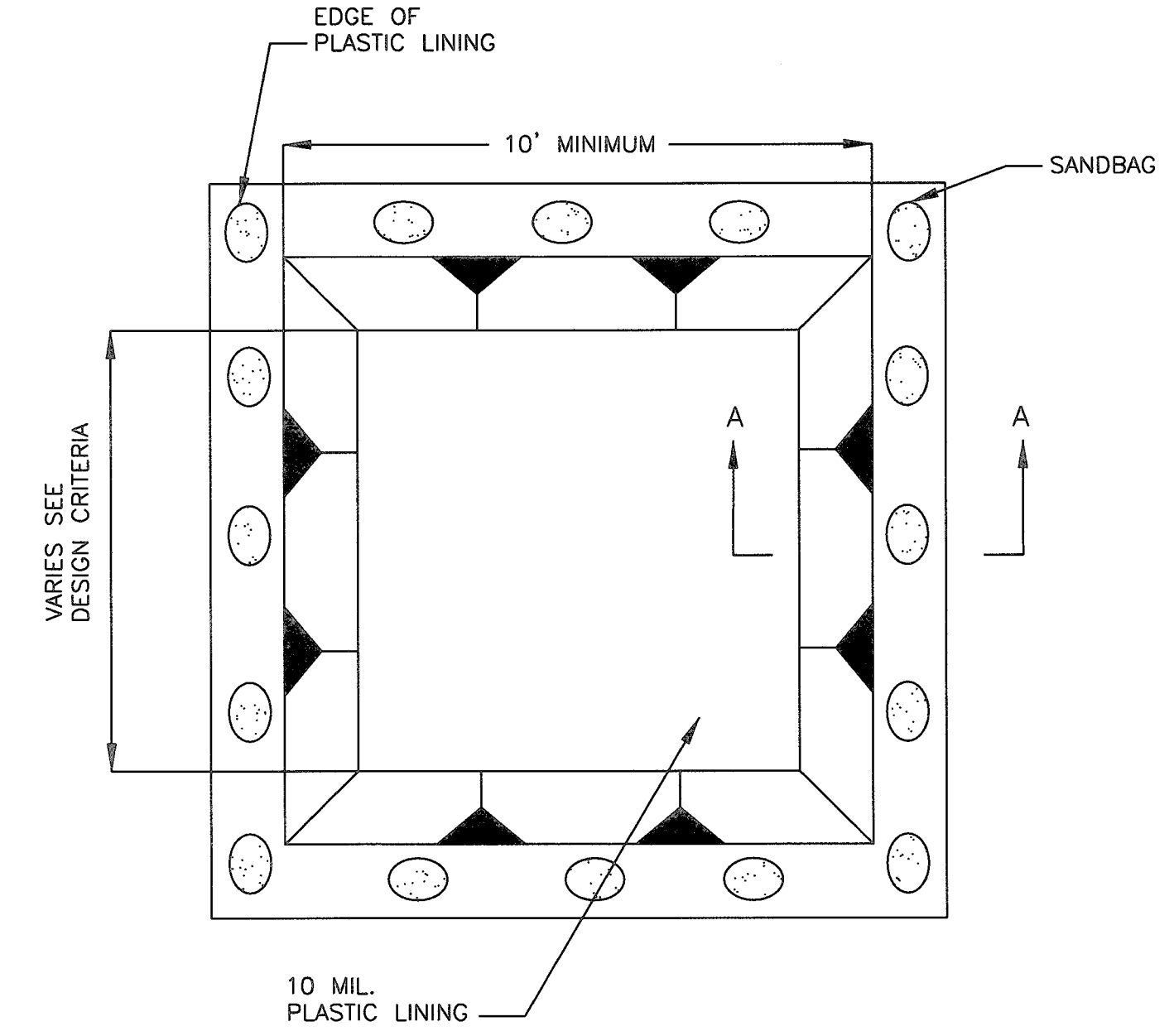
SEDIMENT FILTER BAG PLAN VIEW
N.T.S.



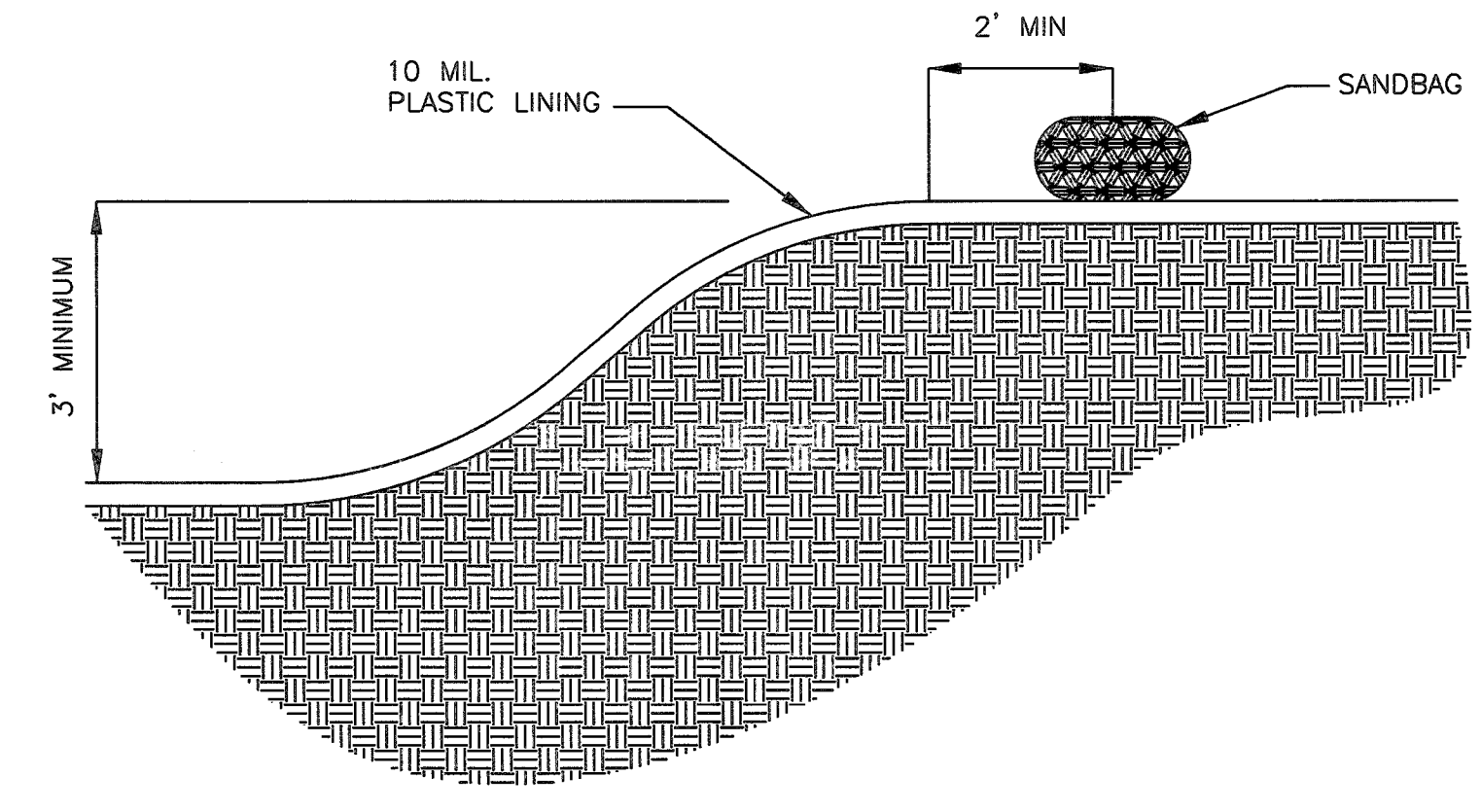
SEDIMENT FILTER BAG PROFILE
N.T.S.

NOTE: A FILTRATION BAG IS NOT REQUIRED IF THE DRAINAGE SYSTEM CAN BE ADEQUATELY PROTECTED

DEWATERING CONTROLS
N.T.S.



CONCRETE WASHOUT PLAN VIEW
N.T.S.



CONCRETE WASHOUT SECTION A-A
N.T.S.

CONCRETE WASHOUT NOTES

1. SANDBAGS MAYBE REPLACED BY A SOIL BERM TO ANCHOR THE PLASTIC BAG

CONCRETE WASHOUT AREA
N.T.S.

No.	DATE	REVISION

DESIGNED BY: *Jon R. VanderVill*
DATE: 7/17/17



DESIGN ENGINEER: TBPE FIRM REG. No. 280



CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:
WEST HOMEWARD WAY
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RE-USED WATER LINE PHASE 2

EROSION CONTROL DETAILS - 2

JOB No.:
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