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

REVIEW BY FORT BEND COUNTY COMMISSIONERS COURT

[X] **Right of Way Permit**

[ ] **Commercial Driveway Permit**

Permit No: 2017-14600

Applicant: **G&A Boring Direccional/Costello, Inc.**

Job Location Site: **several streets in New Territory, Sugar Land, TX 77479**

Bond No. **CMB-15203-00** **Date of Bond:** **5/8/2017** **Amount:** **$50,000.00**

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

Notes:

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

On this 11th day of July, 2017, Upon Motion of Commissioner _____, seconded by Commissioner _____, duly put and carried, it is ORDERED, ADJUDGED AND DECREED that said notice of said above purpose is hereby acknowledged by the Commissioners Court of Fort Bend County, Texas, and that said notice be placed on record according to the regulation order thereof.

Signature

By: Charles O. Ay
for County Engineer

N/A
By: _____
Drainage District Engineer/Manager

Presented to Commissioners Court and approved.

Date Recorded _____ Comm. Court No. _____

Clerk of Commissioners Court

By: _____
Deputy

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

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

[X] **Right of Way Permit**

[ ] **Commercial Driveway Permit**

Permit No: 2017-14600

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

(1) COMPLETE APPLICATION FORM:

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

(2) BOND:

- [ ] County Attorney, approval when applicable.
- [X] Perpetual bond currently posted. Bond No: CMB-15203-00 Amount: $50,000.00
- [ ] Performance bond submitted. Bond No: Amount:
- [ ] Cashier's Check Check No: Amount:

(3) DRAINAGE DISTRICT APPROVAL (WHEN APPLICABLE):

Drainage District Approval

Date

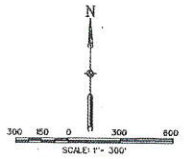
We have reviewed this project and agree it meets minimum requirements.

Cindy O. Al

Permit Administrator

6/30/17

Date



LEGEND

PROPOSED
TEE — RE-USED WATER LINE — GATE VALVE — BLOW-OFF

PROPOSED (BY OTHERS)
TEE — RE-USED WATER LINE — GATE VALVE — BLOW-OFF

EXISTING
WATER LINE — FLUSH VALVE — TEE — GATE VALVE — BLOW-OFF

2" RE-USED WATER LINE

SHEET REFERENCE

EXIST. POWER LINE

NOTES

1. SEE PLAN AND PROFILE SHEETS FOR GAB MAINS.
2. ALL RE-USED WATER LINES TO BE INSTALLED BY TRENCHLESS CONSTRUCTION UNLESS OTHERWISE NOTED.

Total Contract Amount: $438,498.00
Total Line to be Installed: 15,708 LF
Cost per linear foot: $27.92/LF
Total Line for Phase 3: 2,185 LF
Total Construction Cost for Phase 3: $61,005.20

NO.	REVISION	DATE	BY

DESIGNED BY: RLM
DRAWN BY: RLM
QA/QC CHECKED BY:
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
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE

WATER LINE LAYOUT

Jon S. Vandenberg
66071
LICENSED
PROFESSIONAL ENGINEER
10/27/2016

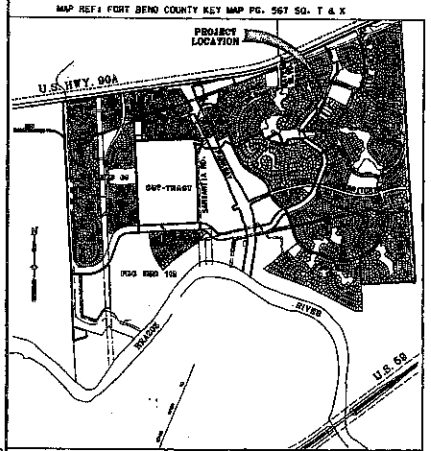
APPROVED: DEVELOPMENT COORDINATOR
DATE: 12/16/16

SHEET 4 OF 36 SHEETS
JOB NO. 189920020-142

EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE JOB NO. 189920020-142
FORT BEND COUNTY, LID 7

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

MAP REF: FORT BEND COUNTY KEY MAP PG. 567 SQ. T & X



VICINITY MAP
SCALE 1"=2/2 MILE

CITY OF SUGAR LAND
APPROVED
DATE 12/06/16

Joe R. Vasquez
STATE OF TEXAS
30271
REGISTERED PROFESSIONAL ENGINEER
10/27/2016

FORT BEND COUNTY
ENGINEER: for RICHARD B. STOLLEIS, P.E.
DATE: 12/16/16

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

APPROVED: DEVELOPMENT COORDINATOR
DATE: 12/16/16

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. 100488

JOB NO. 1606CORD-142

DATE: OCTOBER 2016

811 Know what's below. Call before you dig.

CONTACT NUMBERS

CITY OF SUGAR LAND - ENGINEERING DEPT	281-275-2789
F.B.C. M.U.D. No. 67 & 111 - OPERATOR - MUNICIPAL OPERATIONS & CONSULTING, INC.	281-357-0551
F.B.C. M.U.D. No. 67 & 111 - ENGINEER - COSTELLO, Inc.	713-783-7788
FORT BEND COUNTY DRAINAGE DISTRICT	281-342-2863

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6.	SPRINGER WAY - STA. 11-00.00 TO STA. 19-00.00 AND DARNEY HILL COURT
7.	RE-USED WATER LINE "A" AND WALKER'S PARK DR. - STA. 1-00.00 TO 8-00.00
8.	WALKER'S PARK DR. - STA. 8-00.00 TO 16-00.00 AND RE-USED WATER LINE "B"
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14.	ELLIS CREEK BLVD. - STA. 7-00.00 TO 17-00.00
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EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE JOB No. 1606CORD-142

FORT BEND COUNTY LID 7

P:\Projects\1606CORD-142 EAST HOMEWARD WAY\CONSTRUCTION PLANS\1606CORD-142 CS.DWG
10/27/2016

GENERAL NOTES

1. THE CONTRACTOR SHALL NOTIFY CONSTRUCTION@FORTBENDCOUNTYTX.GOV OF THE FORT BEND COUNTY ENGINEER'S OFFICE 48 HOURS BEFORE BEGINNING CONSTRUCTION.
2. 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.
3. MAINTAIN A MINIMUM OF 1-FOOT CLEARANCE BETWEEN ALL UTILITIES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PURCHASING ANY WATER NEEDED DURING CONSTRUCTION OR TESTING.
5. DESIGN PROCEDURES ARE IN GENERAL COMPLIANCE WITH THE FORT BEND COUNTY DRAINAGE CRITERIA & CITY OF SUGAR LAND DESIGN MANUAL.
6. 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
7. 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.
8. 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.
9. CONTRACTOR SHALL MAINTAIN ADEQUATE DRAINAGE AT ALL TIMES DURING CONSTRUCTION OF PROPOSED IMPROVEMENTS.
10. 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 (281-490-8442)

    HOUSTON PIPELINE COMPANY (713-989-7009)

    COMCAST CABLE (MR. KENT WILSON AT 281-415-3082)

    DOW PIPELINE COMPANY (1-800-223-4412)

    ATMOST 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.
11. 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.
12. 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.
13. 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.
14. 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.
15. THE CONTRACTOR SHALL COORDINATE WITH THE HOMEOWNER ON ANY WORK THAT EFFECTS HOMEOWNER OR THAT COULD PROHIBIT ENTRANCE TO AND FROM THEIR PROPERTY. IF 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.
16. NO TRENCHES SHALL BE LEFT OPEN OR UNATTENDED AT ANY TIME.
17. ALL DISTURBED AREA SHALL BE REGRADED, SEEDED OR SODDED, AND FERTILIZED.
18. IN THE EVENT OF A CONFLICT BETWEEN THE CONSTRUCTION PLANS AND TECHNICAL SPECIFICATIONS, THE CONSTRUCTION PLANS SHALL TAKE PRECEDENCE.
19. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FROM FORT BEND COUNTY.
20. 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.
21. 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

1. 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.
2. 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.
3. ALL RE-USED WATER LINES 2" 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. 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

4. 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
5. WHEREVER POSSIBLE, ALL MAIN LINE GATE VALVES ARE TO BE LOCATED OPPOSITE PAVING CURB RETURNS AS INDICATED.
6. 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 131 ARE BRIAN DUBEL (832) 383-8033 OR KEITH ARBANT (832) 458-7142 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.
7. MAINTAIN A MINIMUM OF 9 FEET OF WALL TO WALL SEPARATION BETWEEN RE-USED WATER LINES AND POTABLE WATER LINES. MAINTAIN A MINIMUM OF 5 FEET OF WALL TO WALL SEPARATION BETWEEN RE-USED WATER LINES AND SANITARY SEWERS OR SANITARY SEWER MANHOLES.
8. 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.
9. FLUSH VALVES SHALL BE AMERICAN DARLING 5-3/2" B-84-B, MUELLER SUPER CENTURION A-423 OR APPROVED EQUAL. THE FLUSH VALVES SHALL MEET THE REQUIREMENTS OF UL 244.
10. RE-USED WATER LINES SHALL BE LOCATED 1 FEET BELOW POTABLE WATER LINES AT ALL CROSSINGS.

SIDEWALK NOTES

1. 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 #"x12" REBAR ON 12" CENTERS.
2. SIDEWALKS SHALL BE STANDARD BROOM FINISH CONCRETE WITH A FOUR INCH (4") SMOOTH "PICTURE FRAME" BORDER AROUND EACH 5'0"x4'0" SECTION.
3. 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) 945-8056 OR (713) 957-8097 (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) 207-8046 OR (713) 207-5769.

FORT BEND COUNTY

CONSTRUCTION - GENERAL NOTES

1. FORT BEND COUNTY MUST BE INVITED TO THE PRE-CONSTRUCTION MEETING.
2. CONTRACTOR SHALL NOTIFY FORT BEND COUNTY ENGINEERING DEPARTMENT 48 HOURS PRIOR TO COMMENCING CONSTRUCTION AND 48 HOUR NOTICE TO ANY CONSTRUCTION ACTIVITY WITHIN THE LIMITS OF THE PAVING AT CONSTRUCTION@FORTBENDCOUNTYTX.GOV .
3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FROM FORT BEND COUNTY PRIOR TO COMMENCING CONSTRUCTION OF ANY IMPROVEMENTS WITHIN COUNTY ROAD RIGHT OF WAYS.
4. ALL PAVING IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FORT BEND COUNTY "RULES, REGULATIONS AND REQUIREMENTS RELATING TO THE APPROVAL AND ACCEPTANCE OF IMPROVEMENTS IN SUBDIVISIONS AS CURRENTLY AMENDED.
5. ALL ROAD WIDTHS, CURB RADII AND CURB ALIGNMENT SHOWN INDICATES BACK OF CURB
6. A CONTINUOUS LONGITUDINAL REINFORCING BAR SHALL BE USED IN THE CURBS.
7. ALL CONCRETE PAVEMENT SHALL BE 6 ½ SACK CEMENT WITH A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI AT 28 DAYS. TRANSVERSE EXPANSION JOINTS SHALL BE INSTALLED AT EACH CURB RETURN AND AT A MAXIMUM SPACING OF 60 FEET.
8. ALL WEATHER ACCESS TO ALL EXISTING STREETS AND DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES.
9. 4"X 12" REINFORCED CONCRETE CURB SHALL BE PLACED IN FRONT OF SINGLE FAMILY LOTS ONLY. ALL OTHER AREAS SHALL BE 6" REINFORCED CONCRETE CURB.
10. AT ALL INTERSECTION LOCATIONS, TYPE 7 RAMPS SHALL BE PLACE IN ACCORDANCE WITH TXDOT PED-12A STANDARD DETAIL SHEET. A.D.A. - HANDICAP RAMPS SHALL BE INSTALLED WITH STREET PAVING AT ALL INTERSECTIONS AND COMPLY WITH CURRENT A.D.A. REGULATIONS.
11. CURB HEADERS ARE REQUIRED AT CURB CONNECTIONS TO HANDICAP RAMPS, WITH NO CONSTRUCTION JOINT WITHIN 6' OF RAMPS.
12. ALL INTERSECTIONS UTILIZING TRAFFIC CONTROL MEASURES SHALL HAVE A.D.A. WHEEL CHAIR RAMPS INSTALLED.
13. GUIDELINES ARE SET FORTH IN THE TEXAS "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", AS CURRENTLY AMENDED, SHALL BE OBSERVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE FLAGMEN, SIGNING, STRIPING AND WARNING DEVICES, ETC., DURING CONSTRUCTION - BOTH DAY AND NIGHT.
14. ALL R1-1 STOP SIGNS SHALL BE 30"X30" WITH DIAMOND GRADE SHEETING PER TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
15. STREET NAME SIGNAGE SHALL BE ON A 9" HIGH SIGN FLAT BLADE WIREFLECTIVE GREEN BACKGROUND. STREET NAMES SHALL BE UPPER AND LOWERCASE LETTERING WITH UPPERCASE LETTERS OF 6" MINIMUM AND LOWERCASE LETTERS OF 4.5" MINIMUM. THE LETTERS SHALL BE REFLECTIVE WHITE. STREET NAME SIGNS SHALL BE MOUNTED ON STOP SIGN POST.
16. A BLUE DOUBLE REFLECTORIZED BUTTON SHALL BE PLACED AT ALL FIRE HYDRANT LOCATIONS. THE BUTTON SHALL BE PLACED 12 INCHES OFF OF THE CENTERLINE OF THE STREET ON THE SAME SIDE AS THE HYDRANT.

811 Know what's below. Call before you dig.

WARNING POWER LINES OVERHEAD

NO.	REVISION	DATE	BY

DESIGNED BY: RLM
DESIGN CHECKED BY: JRV
DRAWN BY: RLM
CODE CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: RS DATE: 1-27-17
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. 260
TBPLS FIRM REG. No. 100496

NEW TERRITORY
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE

CONSTRUCTION NOTES

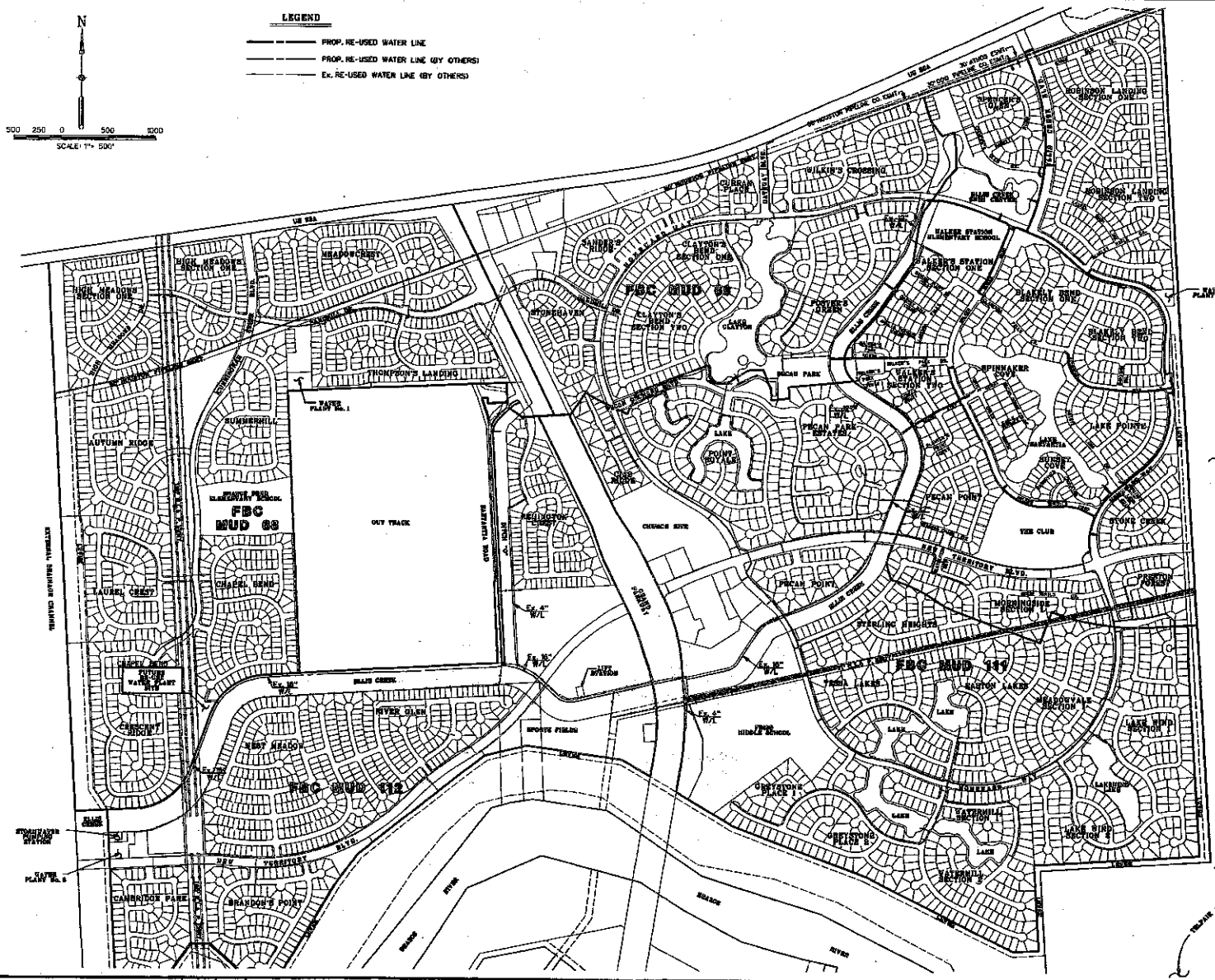
STATE OF TEXAS
JOE R. VALDEZ
50071
REGISTERED PROFESSIONAL ENGINEER
11/2/2015

SHEET 2 OF 36 SHEETS
JOB NO. 19990080-148

APPROVED: DEVELOPMENT COORDINATOR
DATE: 12/16/16

EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE JOB NO. 19990080-148

FORT BEND COUNTY LID 7



Know what's below. Call before you dig

WARNING POWER LINES OVERHEAD

Ex. OVERHEAD POWER
Ex. UNDERGROUND ELECTRICAL
Ex. GAS LINE

FORT BEND COUNTY, TEXAS

VERIFICATION OF PRIVATE UTILITY LOCAL

APPROVED: DEVELOPER/COORDINATOR

DATE: 12/16/16

NO.	REVISION	DATE	BY

DESIGNED BY: RLM
DESIGN CHECKED BY: JRV
DRAWN BY: RLM
CODE CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: DG DATE 12-7-16
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
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE

OVERALL LAYOUT

Jon R. Vandenberg
92071
LICENSED PROFESSIONAL ENGINEER
10/27/2016

SHEET 3 OF 36 SHEETS

JOB NO. 19990020-142

EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE JOB NO. 19990020-142

N

300 150 0 300 600

SCALE: 1" = 300'

LEGEND

PROPOSED

TEE — GATE VALVE — RE-USED WATER LINE — BLOW-OFF

PROPOSED (BY OTHERS)

TEE — GATE VALVE — RE-USED WATER LINE — BLOW-OFF

EXISTING

WATER LINE — FLUSH VALVE — TEE — GATE VALVE — BLOW-OFF

2" RE-USED WATER LINE

SHEET REFERENCE

EXIST. FOSTER LINE

NOTES

1. SEE PLAN AND PROFILE SHEETS FOR GAS MAINS.
2. ALL RE-USED WATER LINES TO BE INSTALLED BY TRENCHLESS CONSTRUCTION UNLESS OTHERWISE NOTED.

NO.	REVISION	DATE	BY

DESIGNED BY: RLM
DESIGN CHECKED BY: JLV
DRAWN BY: RLM
CODE CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: RS DATE: 1-27-17
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
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE

WATER LINE LAYOUT

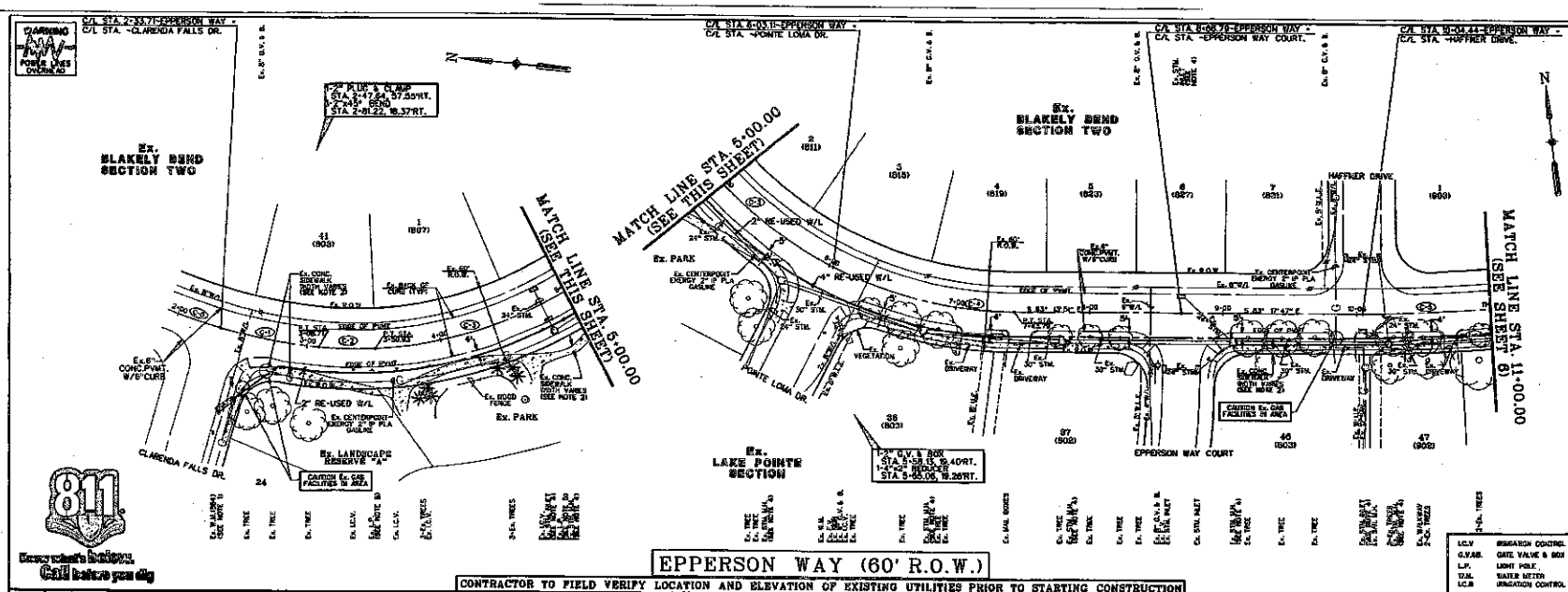
STATE OF TEXAS — Jon R. Vandiver — 60071 — REGISTERED PROFESSIONAL ENGINEER
10/27/2016

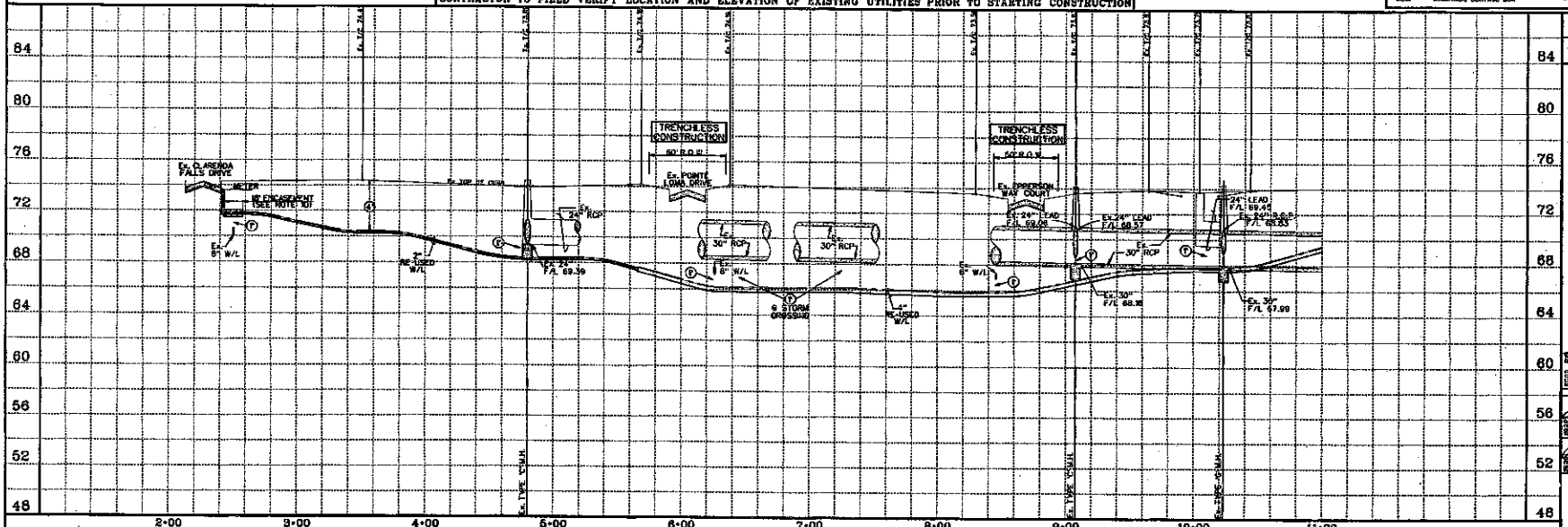
APPROVED: Mass
DEVELOPMENT CONSTRUCTION
DATE: 12/16/16

SHEET 4 OF 36 SHEETS

JOB NO. 19990080-142

FORT BEND COUNTY, TEXAS
NEW TERRITORY EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE
JOB NO. 19990080-142





NOTES

1. CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER SYSTEM. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, AWRCA & 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. DIMT
4. CONTRACTOR SHALL MAINTAIN A MINIMUM 18-FOOT CUT TO CUT HORIZONTAL SEPARATION FOR STORM 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. DMIT
8. DMIT
9. DMIT
10. SEE DETAILS SL-WA-13 AND SL-WA-16 ON SHEET 33.

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 BLDG OFF VALVE
47 (9002)	INDICATES LOT NUMBER INDICATES STREET ADDRESS
	Ex. CONCAST CABLE
	Ex. OVERHEAD POWER
	Ex. UNDERGROUND ELECTRICAL
	Ex. GAS LINE
LCV	INDICATION CONTROL VALVE
G.V.&B.	GATE VALVE & BOX
L.P.	LIGHT POLE
W.M.	WATER METER
I.C.B.	IRRIGATION CONTROL BOX

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

CL CURVE DATA

(C1) P.C. STA. 2+00.00 TO P.T. STA. 2+33.71
Δ = 9° 00'00"
R = 400.00'
L = 133.71
CB = S30° 01'57"W
CH = 133.09

(C1) P.C. STA. 2+33.71 TO P.T. STA. 2+68.71
Δ = 10° 46'35"
R = 400.00'
L = 75.00
CB = S5° 16'00"E
CH = 74.89

(C2) P.C. STA. 3+28.71 TO P.T. STA. 3+62.93
Δ = 8° 03'00"
R = 235.00'
L = 33.23
CB = S3° 16'07"E
CH = 33.19

(C3) P.C. STA. 3+51.93 TO P.T. STA. 3+93.51
Δ = 18° 56'47"
R = 125.00'
L = 103.10
CB = S12° 32'59"E
CH = 244.87

(C4) P.C. STA. 5+03.10 TO P.T. STA. 5+43.79
Δ = 26° 10'00"
R = 300.00'
L = 140.83
CB = S62° 07'50"E
CH = 139.58

(C5) P.C. STA. 8+04.44 TO P.T. STA. 8+44.79
Δ = 11° 17'18"
R = 500.00'
L = 340.33
CB = N62° 02'38"E
CH = 338.67

TEMPORARY OF PRIVATE UTILITY LINES

Date 11/5/16

Date 11/5/16

APPROVED: DEVELOPMENT COORDINATOR
DATE: 12/16/16

NO.	REVISION	DATE	BY

DESIGNED BY: RLM
DESIGN CHECKED BY: JRV
DRAWN BY: RLM
CODO CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: RS DATE: 6-7-17
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
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE
PLAN AND PROFILE

EPPERSON WAY
STA. 2+00.00 TO STA. 11+00.00

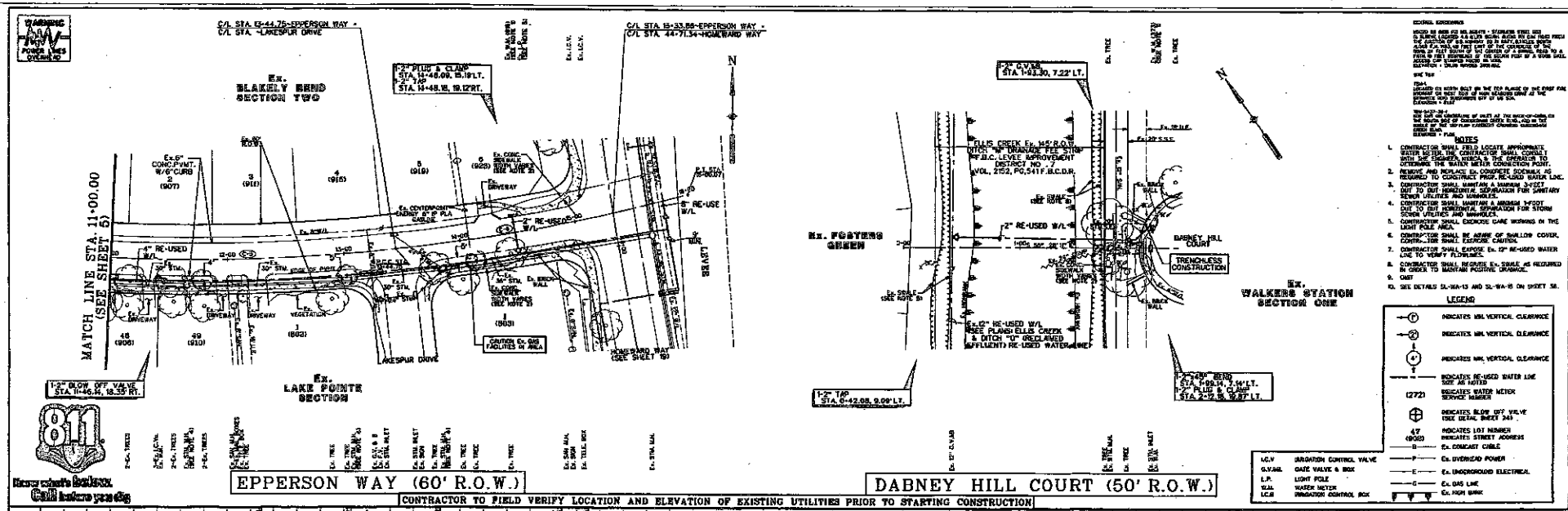
STATE OF TEXAS
JON R. VANDERVER
60071
REGISTERED PROFESSIONAL ENGINEER
10/27/2016

SHEET 5 OF 36 SHEETS

JOB NO. 199990020-142

EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE JOB NO. 199990020-142

POTTS ROAD COUNTY LIFT



DESIGNED BY: RLM
DESIGN CHECKED BY: JRV
DRAWN BY: RLM
CODO CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: RS DATE: 1-27-17
QA/QC REVISIONS BY: RLM

NO.	REVISION	DATE	BY

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
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE
PLAN AND PROFILE
EPPERSON WAY
STA. 11+00.00 TO STA. 16+00.00
AND DABNEY HILL COURT

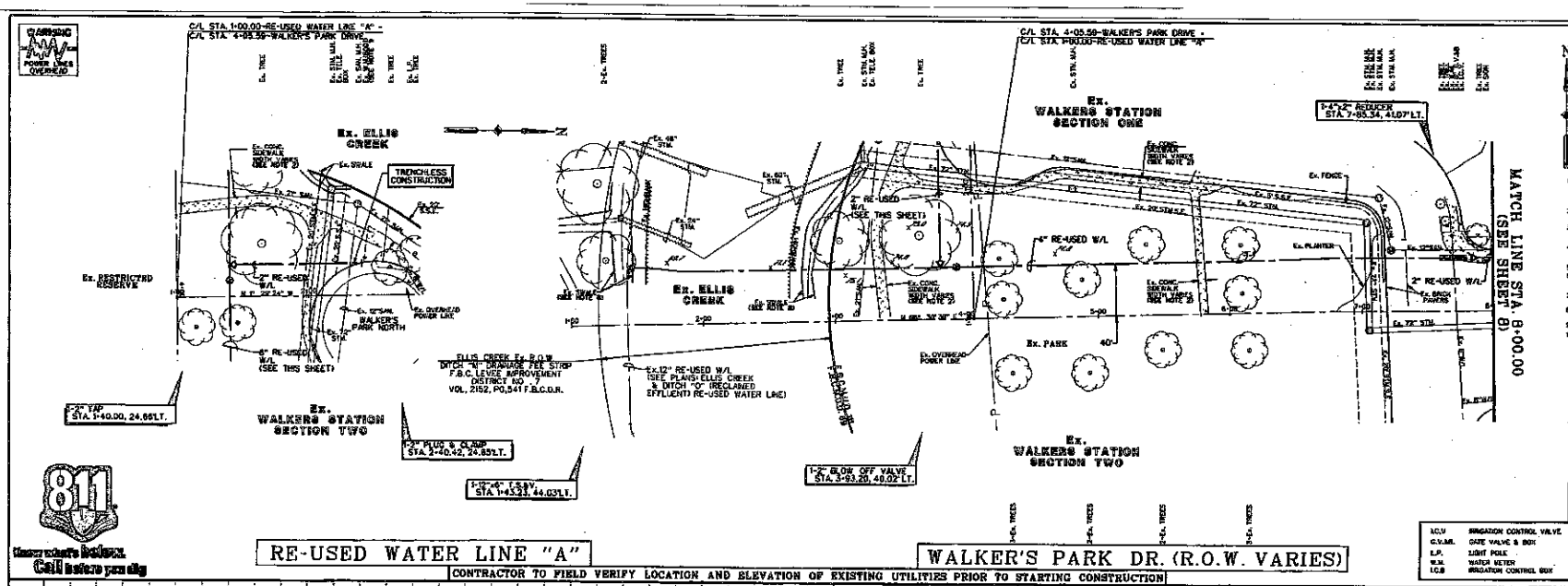
Jon R. Vanderhill
80071
10/27/2016

SHEET 6 OF 36 SHEETS

JOB NO. 199992080-142

EAST HOMEWARD WAY RECLAIMED EFFLUENT RE-USED WATER LINE JOB NO. 199992080-142

FORT BEND COUNTY, LTD 2



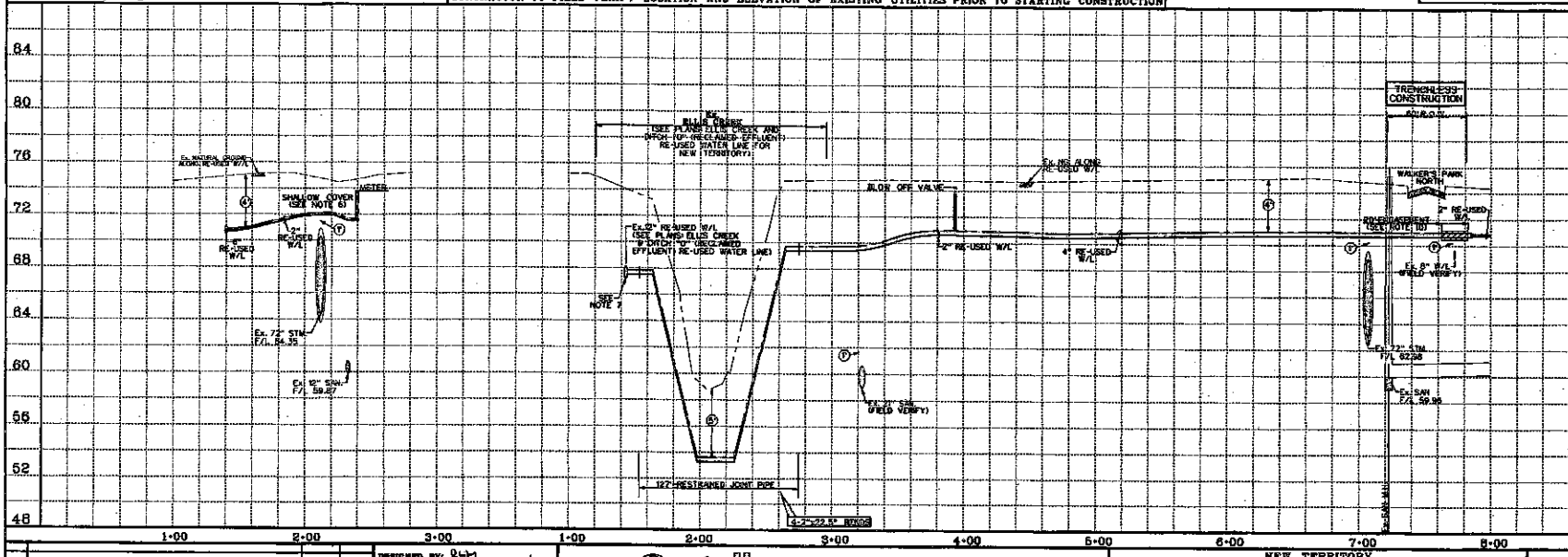
NOTES

1. CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, RTRCA & 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. CWT
6. CONTRACTOR SHALL BE AWARE OF SHALLOW COVER BETWEEN Ex. UTILITIES. CONTRACTOR SHALL EXERCISE CAUTION.
7. CONTRACTOR SHALL EXPOSE Ex. 12" RE-USED WATER LINE TO VERIFY FLOWLINES.
8. CONTRACTOR SHALL REGRADE Ex. DITCH AS REQUIRED IN ORDER TO MAINTAIN POSITIVE DRAINAGE.
9. DWT
10. SEE DETAILS SL-WA-13 AND SL-WA-15 ON SHEET 36.

LEGEND

(1)	INDICATES MIN. VERTICAL CLEARANCE
(2)	INDICATES MIN. VERTICAL CLEARANCE
(4")	INDICATES MIN. VERTICAL CLEARANCE
	INDICATES RE-USED WATER LINE SIZE AS NOTED
(2721)	INDICATES WATER METER SERVICE NUMBER
	INDICATES BLOW OFF VALVE (SEE DETAIL SHEET 24)
47 (8012)	INDICATES LOT NUMBER INDICATES STREET ADDRESS
—S—	Ex. COMCAST CABLE
—P—	Ex. OVERHEAD POWER
—C—	Ex. UNDERGROUND ELECTRICAL
—G—	Ex. GAS LINE
	Ex. HIGH BANK

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



SCALE: 1" = 40' HORIZ.
1" = 6' VERT.

CL CURVE DATA

DESIGNED BY:	RLM
DESIGN CHECKED BY:	JRV
DRAWN BY:	RLM
CODE CHECKED BY:	
SURVEY CHECKED BY:	
QA/QC BY:	RC DATE 11/7/16
QA/QC REVISIONS BY:	RLM

NO.	REVISION	DATE	BY

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
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE
PLAN AND PROFILE
RE-USED WATER LINE "A"
AND WALKER'S PARK DR.
STA. 1+00.00 TO STA. 8+00.00

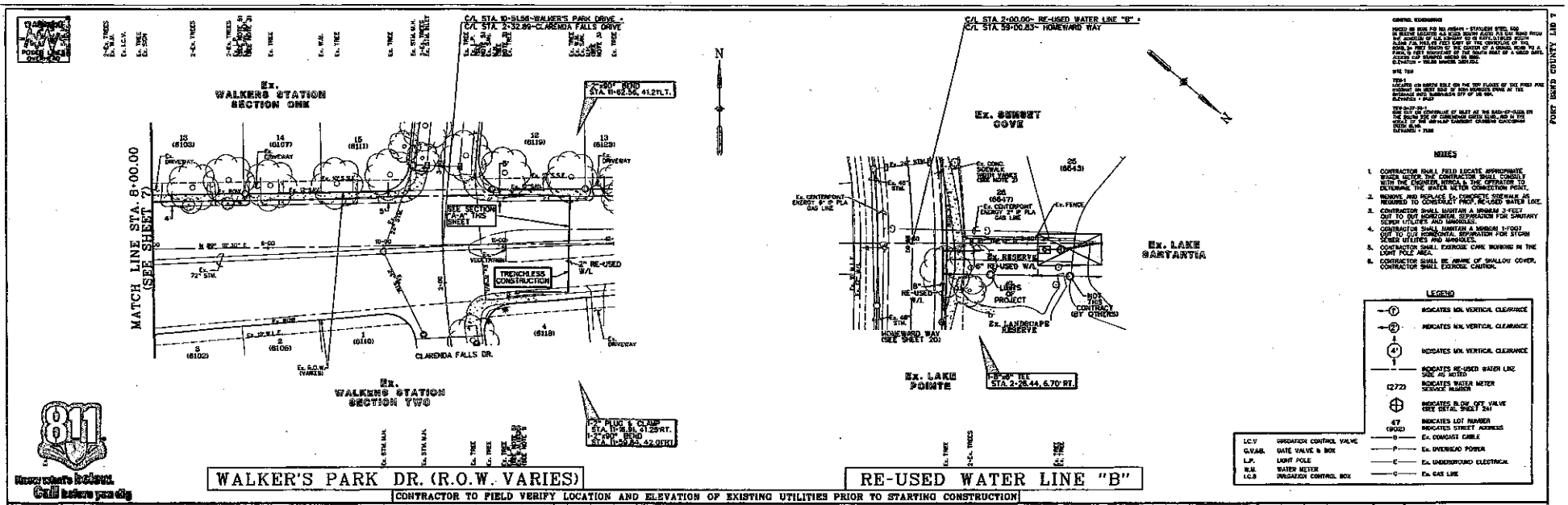
STATE OF TEXAS
Jon S. Vandenhi
50371
REGISTERED PROFESSIONAL ENGINEER
10/27/2016

APPROVED: DEVELOPER'S ENGINEER
DATE: 12/12/2016

SHEET 7 OF 36 SHEETS

JOB NO. 199990000-142

EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE PLAN AND PROFILE

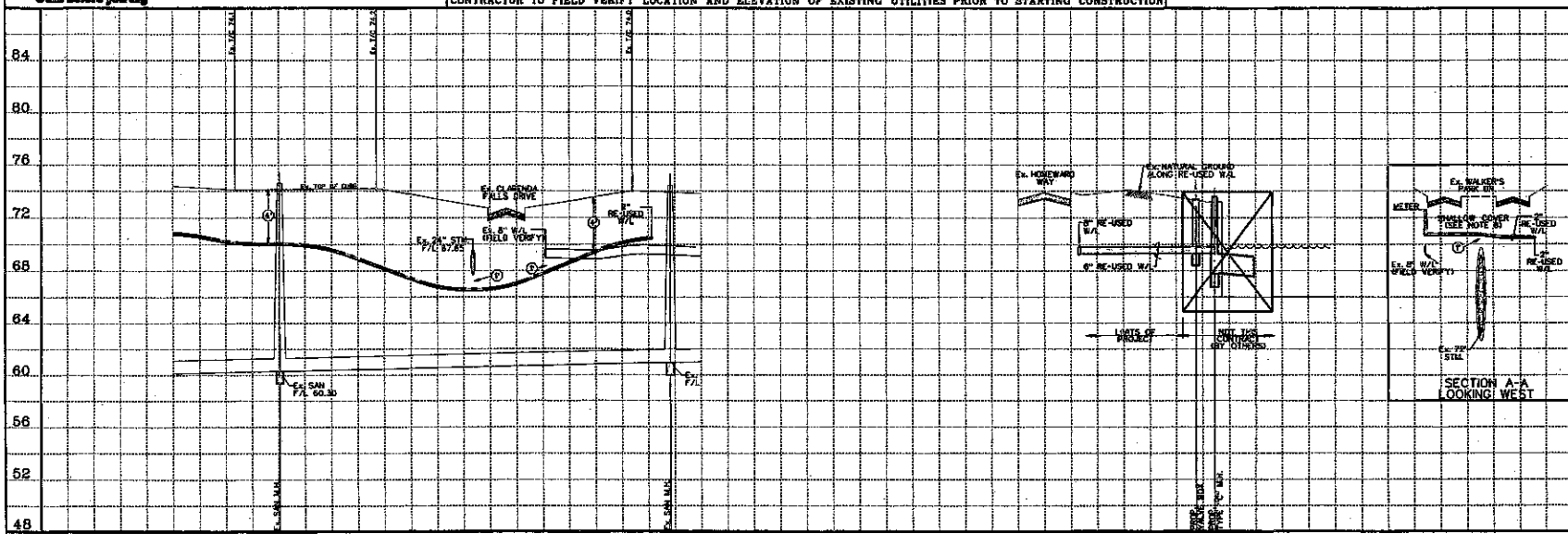


811 Know what's below. Call before you dig

WALKER'S PARK DR. (R.O.W. VARIES)

RE-USED WATER LINE "B"

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



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

C/L CURVE DATA

NO.	REVISION	DATE	BY

DESIGNED BY: RLM
DESIGN CHECKED BY: JRV
DRAWN BY: RLM
CODO CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: RS DATE: 1/30/14
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
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE
PLAN AND PROFILE
WALKER'S PARK DR.
STA. 8+00.00 TO STA. 12+00.00
AND RE-USED WATER LINE "B"

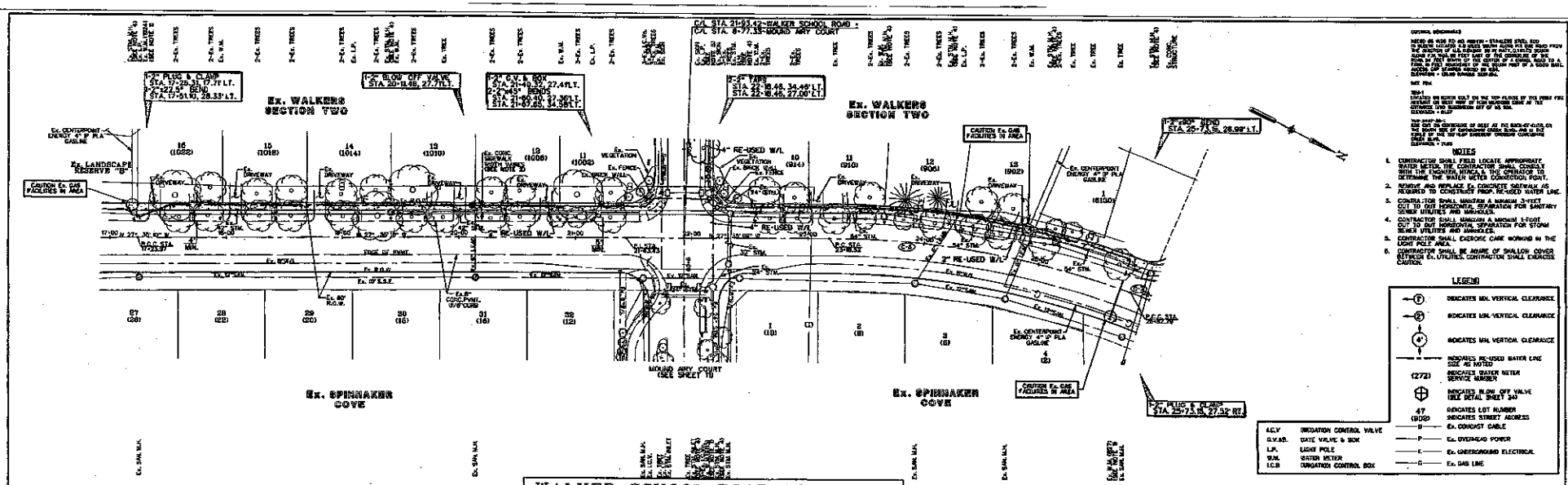
STATE OF TEXAS
Jon R. Vandervelt
50071
REGISTERED PROFESSIONAL ENGINEER
10/27/2016

SHEET 8 OF 36 SHEETS

JOB NO. 1009G060-142

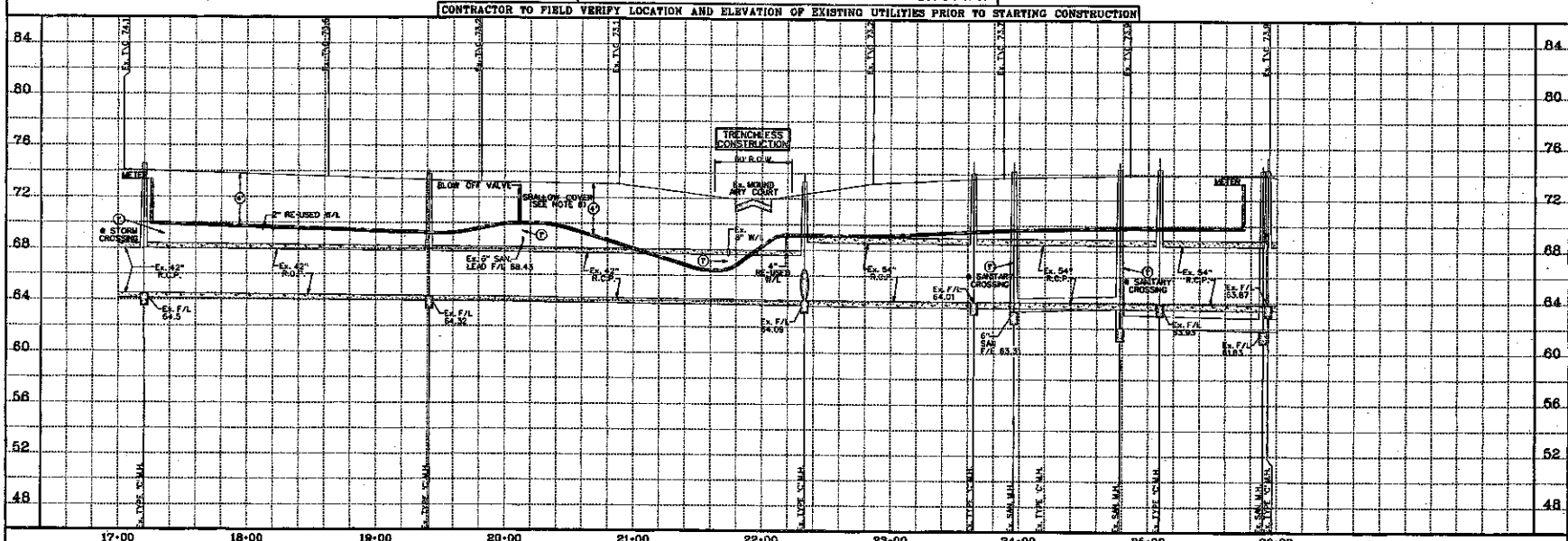
FORT BEND COUNTY, LID 7

EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE JOB NO. 1009G060-142



WALKER SCHOOL ROAD (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

P.C. STA. 23+82.50 TO P.T. STA. 25+82.79	P.C. STA. 29+82.79 TO P.T. STA. 31+31.62
Δ = 22°17'18"	Δ = 41°53'40"
R = 750.00'	R = 750.00'
L = 254.27'	L = 548.83'
CB = N17°24'30"W	CB = N37°33'56"W
CH = 252.90'	CH = 536.67'

VERIFICATION OF PRIVATE UTILITY LINES

APPROVED: DEVELOPMENT COORDINATOR

DATE: 12/16/16

NO.	REVISION	DATE	BY

DESIGNED BY: RLM
DESIGN CHECKED BY: JAV
DRAWN BY: RLM
CODO CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: RLS DATE: 11-1-11
QA/QC REVISIONS BY: RLS

Costello

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

TBPE FIRM REG. No. 282
TBPLS FIRM REG. No. 100466

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

WALKER SCHOOL ROAD
STA. 17+00.00 TO STA. 26+00.00

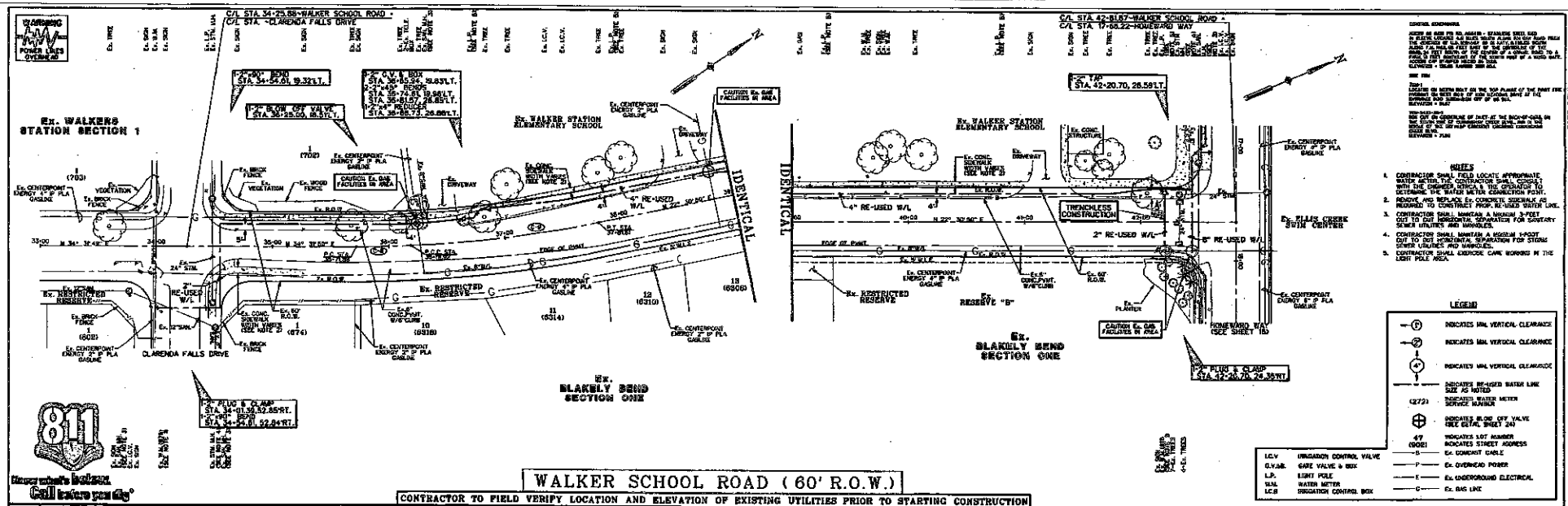
STATE OF TEXAS Jon E. Vandenberg 60071 REGISTERED PROFESSIONAL ENGINEER
11/2/2016

SHEET 9 OF 36 SHEETS

JOB NO. 19998080-142

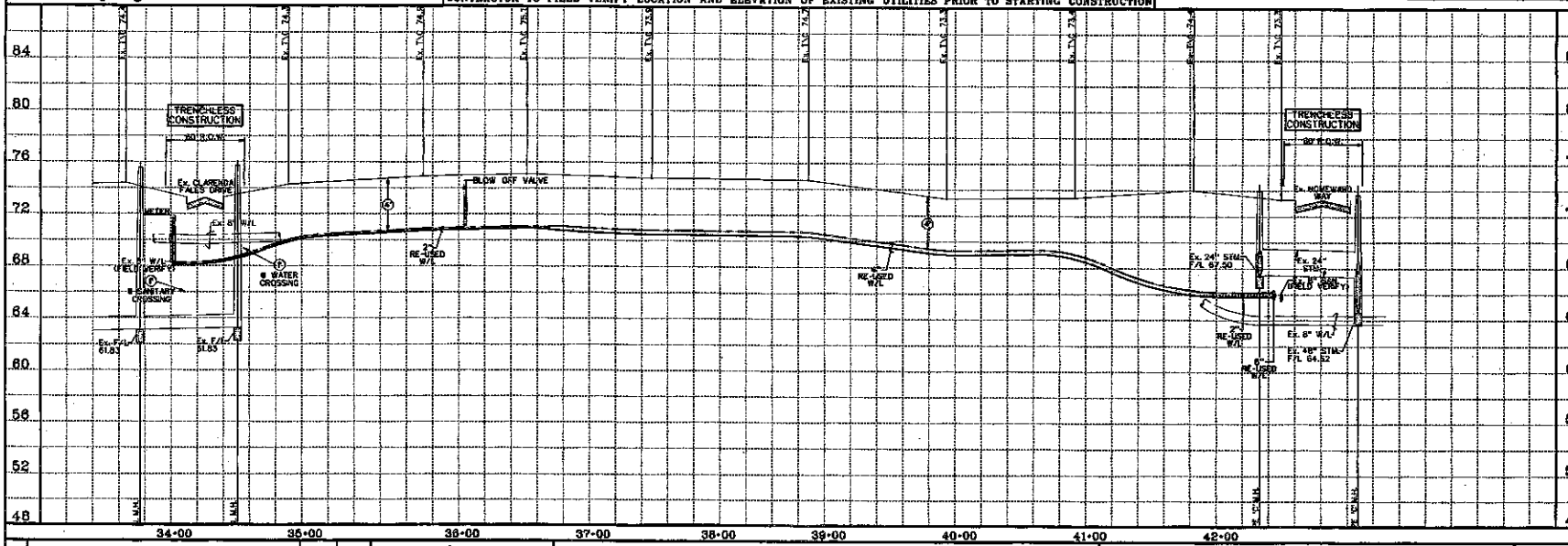
FORT BEND COUNTY LIT. 7

EAST HOMEWARD WAY (RECLAIMED) WATER LINE PLAN AND PROFILE



WALKER SCHOOL ROAD (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-8)	(C-9)
P.C. STA. 39+21.86 TO P.T. STA. 39+46.42	P.C. STA. 39+18.92 TO P.T. STA. 39+61.01
Δ = 2°41'43"	Δ = 9°18'17"
R = 600.00'	R = 590.00'
L = 42.54'	L = 95.94'
CB= N63°18'38"E	CB= N67°19'28"E
CH= 42.54	CH= 95.81

VERIFICATION OF PRIVATE UTILITY LINES

APPROVED: DEVELOPER/OWNER REPRESENTATIVE DATE 12/16/16

NO.	REVISION	DATE	BY

DESIGNED BY: RLM
DESIGN CHECKED BY: JRV
DRAWN BY: RLM
CODO CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: DS DATE: 1-17-17
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. 100468

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

WALKER SCHOOL ROAD
STA. 33+00.00 TO STA. 42+81.87

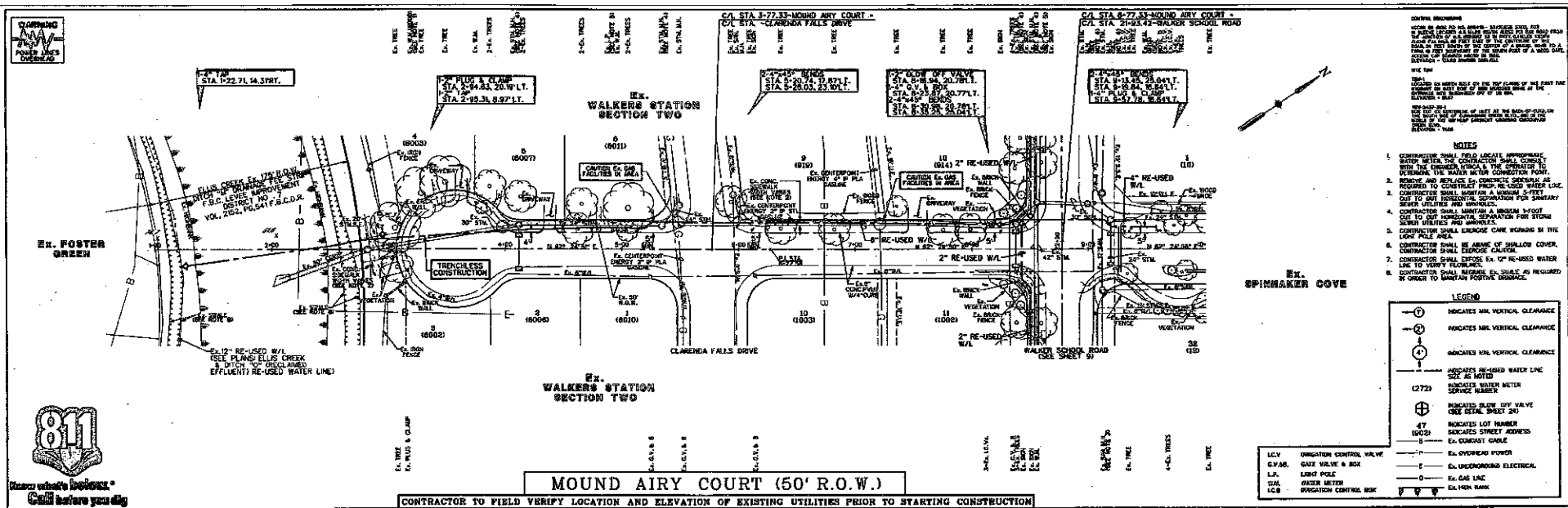
STATE OF TEXAS — Joe B. Vanderkill — 50071 — REGISTERED PROFESSIONAL ENGINEER — 10/27/2016

SHEET 10 OF 36 SHEETS

JOB NO. 1000080-142

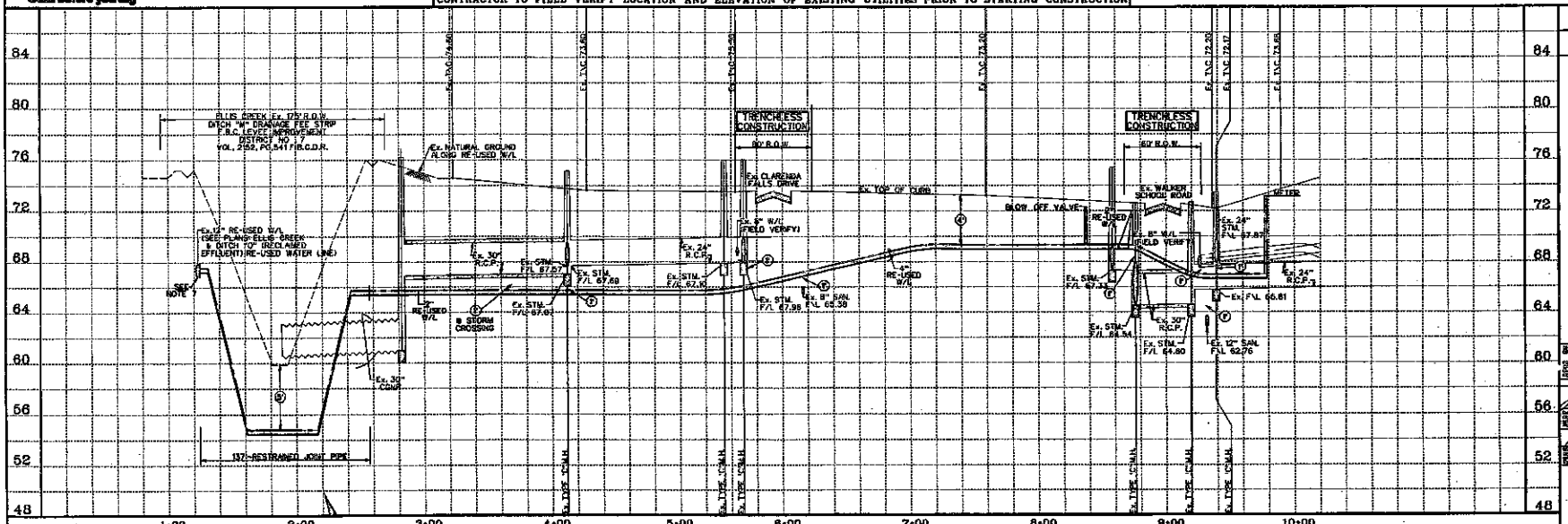
EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE JOB NO. 1000080-142

PORT BEND COUNTY, LTD. 7



MOUND AIRY 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

NO.	REVISION	DATE	BY

DESIGNED BY: RLM
DESIGN CHECKED BY: JRV
DRAWN BY: RLM
CODO CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: KS DATE 1-27-11
QA/QC REVISIONS BY: RLM

Costello

Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7768 (713) 783-3580, Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486

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

MOUND AIRY COURT

STATE OF TEXAS
JOB R. VERGARA
5107
REGISTERED PROFESSIONAL ENGINEER
10/27/2015

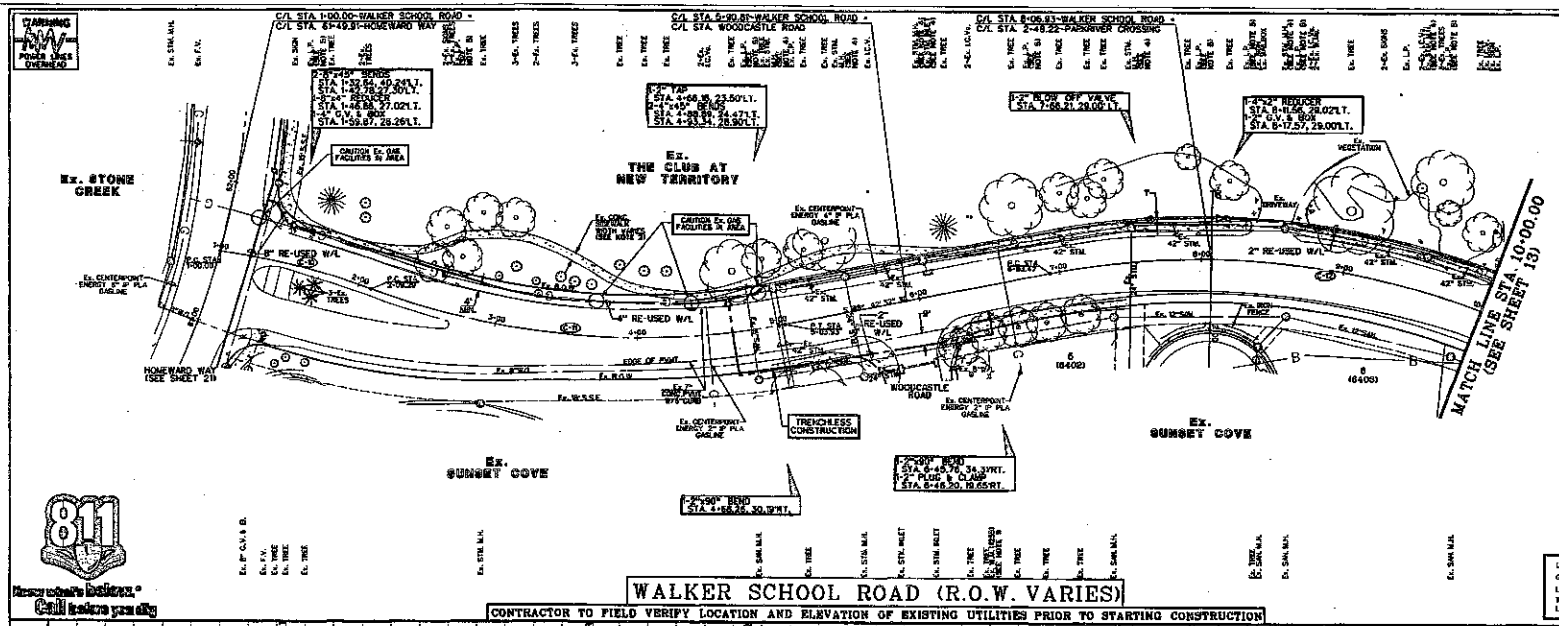
SHEET 11 OF 36 SHEETS

JOB NO. 1999800-142

APPROVED: DEVELOPER/CONTRACTOR
DATE: 12/16/16

EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE JOB NO. 1999800-142

FORT BEND COUNTY LID 7



NOTES

1. CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER NTMOLA 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 CUT TO CUT HORIZONTAL SEPARATION FOR SANITARY SEWER UTILITIES AND MANHOLES.
4. CONTRACTOR SHALL MAINTAIN A MINIMUM 1-FOOT CUT TO CUT HORIZONTAL SEPARATION FOR STORM SEWER UTILITIES AND MANHOLES.
5. CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA.
6. DIST
7. DIST
8. DIST
9. DIST
10. SEE DETAILS SL-WA-13 AND SL-WA-15 ON SHEET 38.

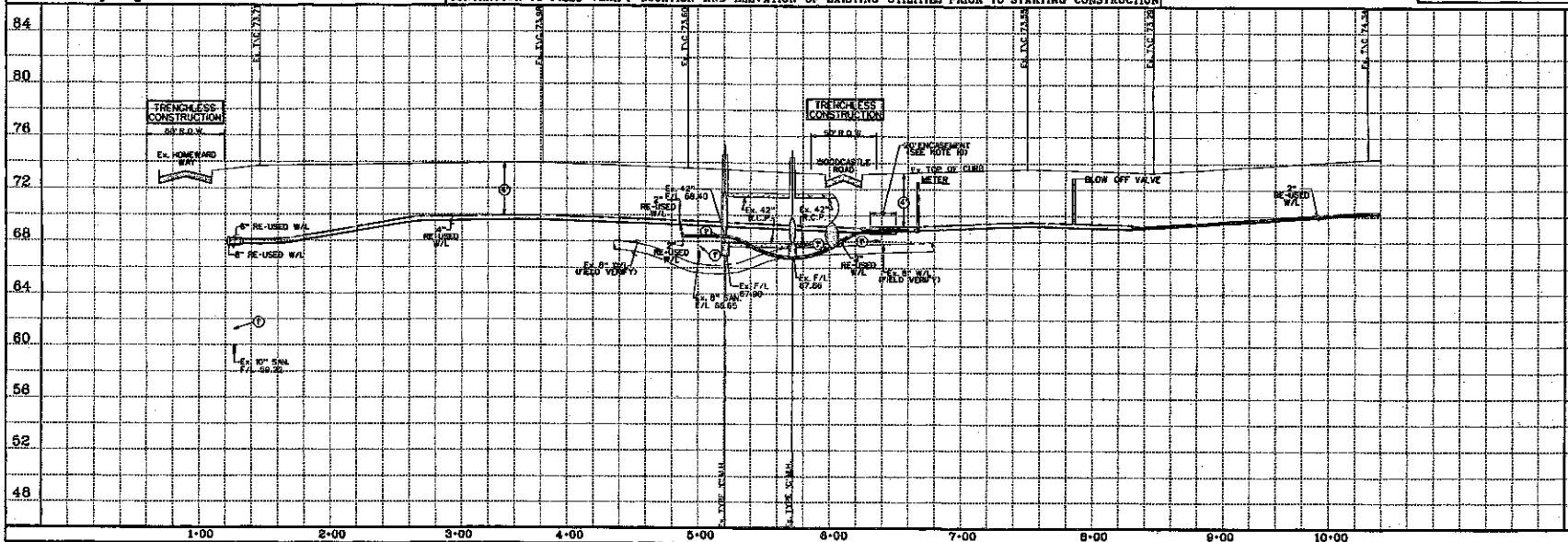
LEGEND

(P)	INDICATES MIN. VERTICAL CLEARANCE
(27)	INDICATES MIN. VERTICAL CLEARANCE
(4+)	INDICATES MIN. VERTICAL CLEARANCE
	INDICATES RE-USED WATER LINE SIZE AS NOTED
(2722)	INDICATES WATER METER SERVICE NUMBER
	INDICATES BLOW OFF VALVE (SEE DETAIL SHEET 24)
47 (9093)	INDICATES LOT NUMBER INDICATES STREET ADDRESS
	Ex. CONCRET CABLE
	Ex. OVERHEAD POWER
	Ex. UNDERGROUND ELECTRICAL
	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

WALKER SCHOOL ROAD (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-10)
P.C. STA. 1+00.00 TO P.T. STA. 2+08.39
Δ = 12° 00'25"
R = 570.00'
L = 208.29'
CD= N64°08'05"W
CH= 208.00

(C-11)
P.C. STA. 2+08.39 TO P.T. STA. 2+43.29
Δ = 31° 51'05"
R = 630.00'
L = 204.63'
CD= N27°27'57"W
CH= 202.00

(C-12)
P.C. STA. 6+93.47 TO P.T. STA. 11+41.97
Δ = 46° 43'35"
R = 600.00'
L = 448.96'
CD= N67°39'49"W
CH= 436.57

APPROVED: DEVELOPMENT COORDINATOR
DATE: 12/11/2016

NO.	REVISION	DATE	BY

DESIGNED BY: ELM
DESIGN CHECKED BY: JRV
DRAWN BY: ELM
CODE CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: DC DATE: 12-7-16
QA/QC REVISIONS BY: ELM

Costello
Engineering and Surveying
9660 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7786 (713) 783-3580, Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486

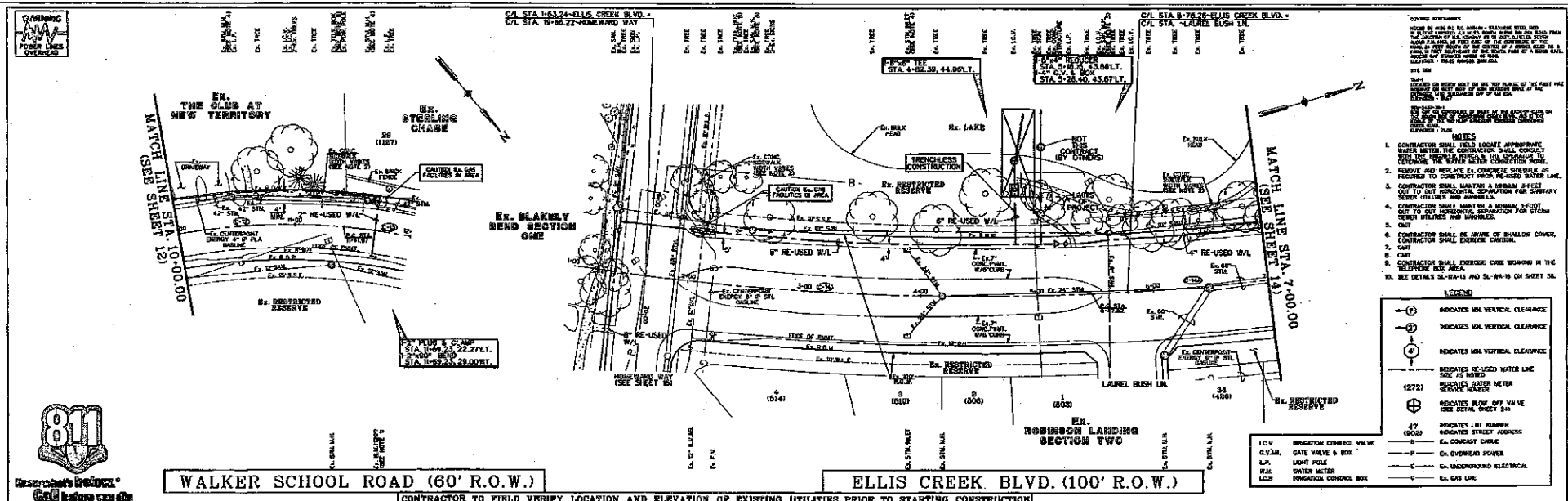
NEW TERRITORY
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE
PLAN AND PROFILE

WALKER SCHOOL ROAD
STA. 1+00.00 TO STA. 10+00.00

STATE OF TEXAS
Jon D. Vescovo
60371
REGISTERED PROFESSIONAL ENGINEER
10/27/2016

SHEET 12 OF 36 SHEETS
JOB NO. 16090020-142

FORT BEND COUNTY LIS #
SHT HOMEWARD WAY RECLAIMED EFFLUENT RE-USED WATER LINE JOB NO. 16090020-142



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
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE
PLAN AND PROFILE
WALKER SCHOOL ROAD
STA. 10+00.00 TO STA. 12+00.00
AND ELLIS CREEK BLVD.
STA. 1+00.00 TO STA. 7+00.00

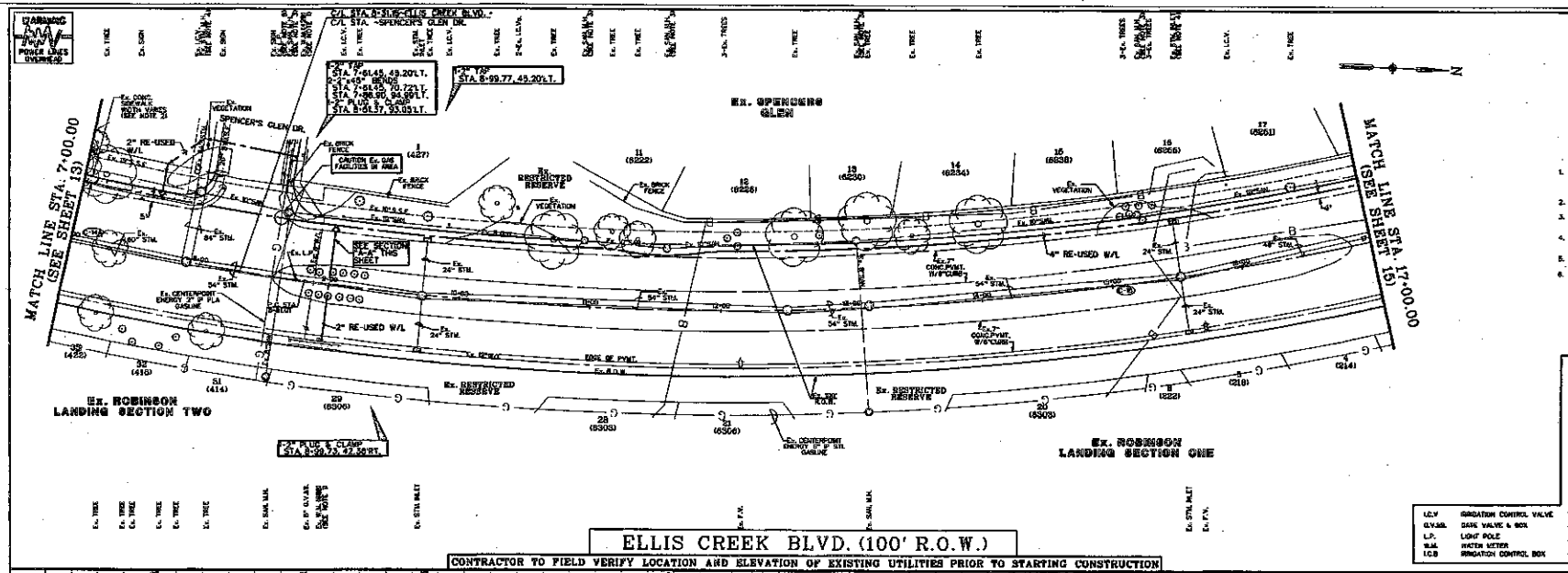
DESIGNED BY: ELM
DESIGN CHECKED BY: JRV
DRAWN BY: ELM
CODE CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: DATE:
QA/QC REVISIONS BY: ELM

NO.	REVISION	DATE	BY

SHEET 13 OF 36 SHEETS

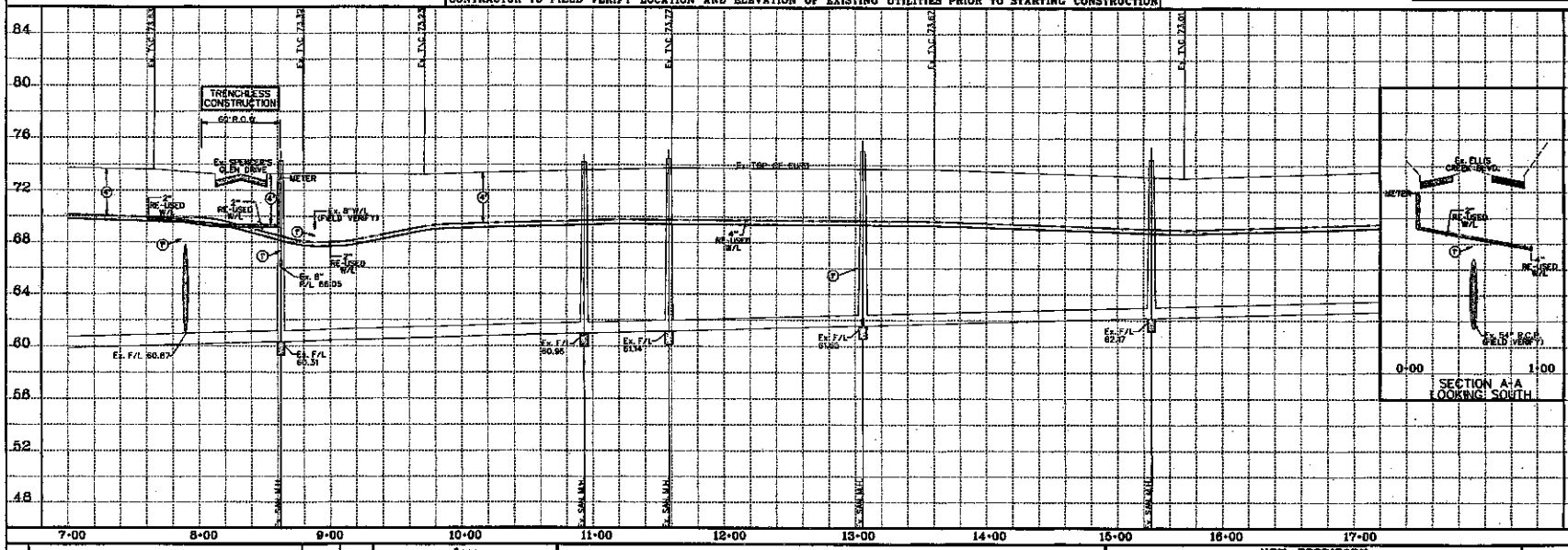
JOB NO. 1808020-142

EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE JOB NO. 1808020-142



ELLIS CREEK BLVD. (100' 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

(2-18)	(2-19)
P.C. STA. 8+47.93 TO P.T. STA. 9+21.91	P.C. STA. 9+61.91 TO P.T. STA. 10+76.18
Δ = 8° 16'18"	Δ = 29° 49'32"
R = 2300.00'	R = 2290.00'
L = 333.48	L = 1014.17
CB= N6° 38'33"E	CB= N0° 34'23"E
CH= 333.30	CH= 1003.70

811 Know what's below. Call before you dig.

VERIFICATION OF PRIVATE UTILITY LOCATE

APPROVED: DEVELOPMENT COORDINATION

DATE: 12/16/16

NO.	REVISION	DATE	BY

DRAWN BY: RLM
DESIGN CHECKED BY: JRV
DRAWN BY: RLM
CODO CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: DG DATE: 1-22-17
QA/QC REVISIONS BY: RLM

Costello

Engineering and Surveying
9950 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3550, Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100496

NEW TERRITORY
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE
PLAN AND PROFILE
ELLIS CREEK BLVD.
STA. 7+00.00 TO STA. 17+00.00

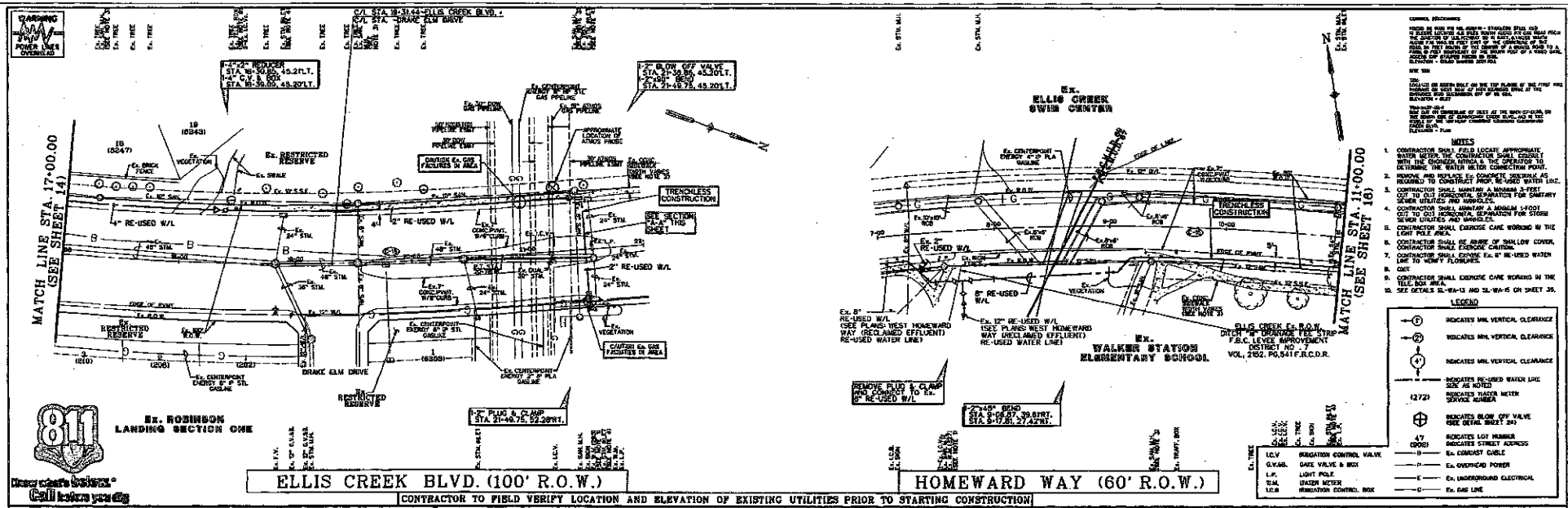
STATE OF TEXAS
Jon R. Vandenberg
65071
REGISTERED PROFESSIONAL ENGINEER
10/27/2016

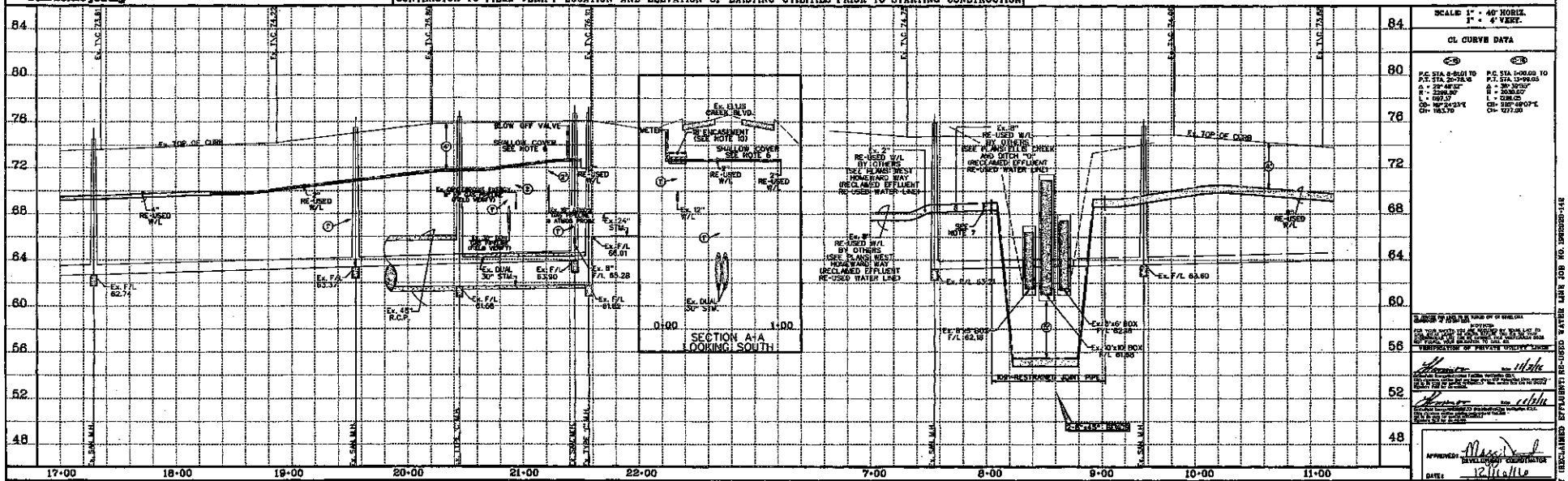
SHEET 14 OF 36 SHEETS

JOB NO. 19998040-142

EAST HOMEWARD WAY RECLAIMED EFFLUENT RE-USED WATER LINE FOR NO. 19998040-142

FORT BEND COUNTY, TX





NO.	REVISION	DATE	BY

DESIGNED BY: ELM
DESIGN CHECKED BY: JRV
DRAWN BY: ELM
CODD CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: AL DATE: 10/27/16
QA/QC REVISIONS BY: ELM

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

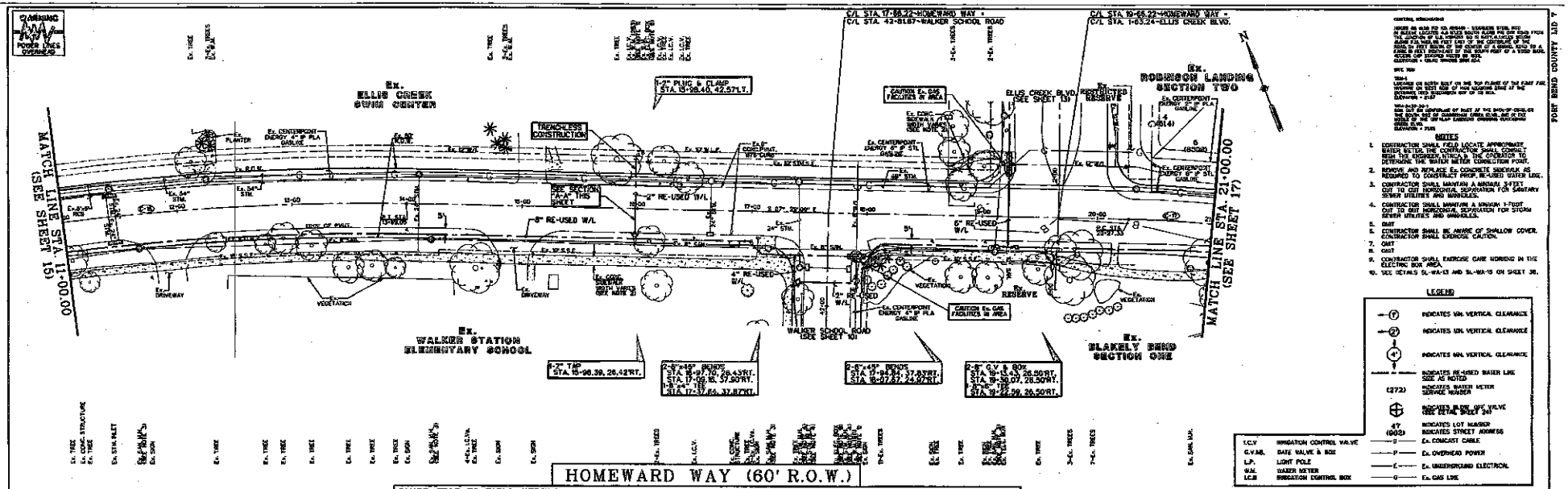
NEW TERRITORY
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE
PLAN AND PROFILE
ELLIS CREEK BLVD.
STA. 17+00.00 TO STA. 22+00.00
AND HOMEWARD WAY
STA. 7+00.00 TO STA. 11+00.00

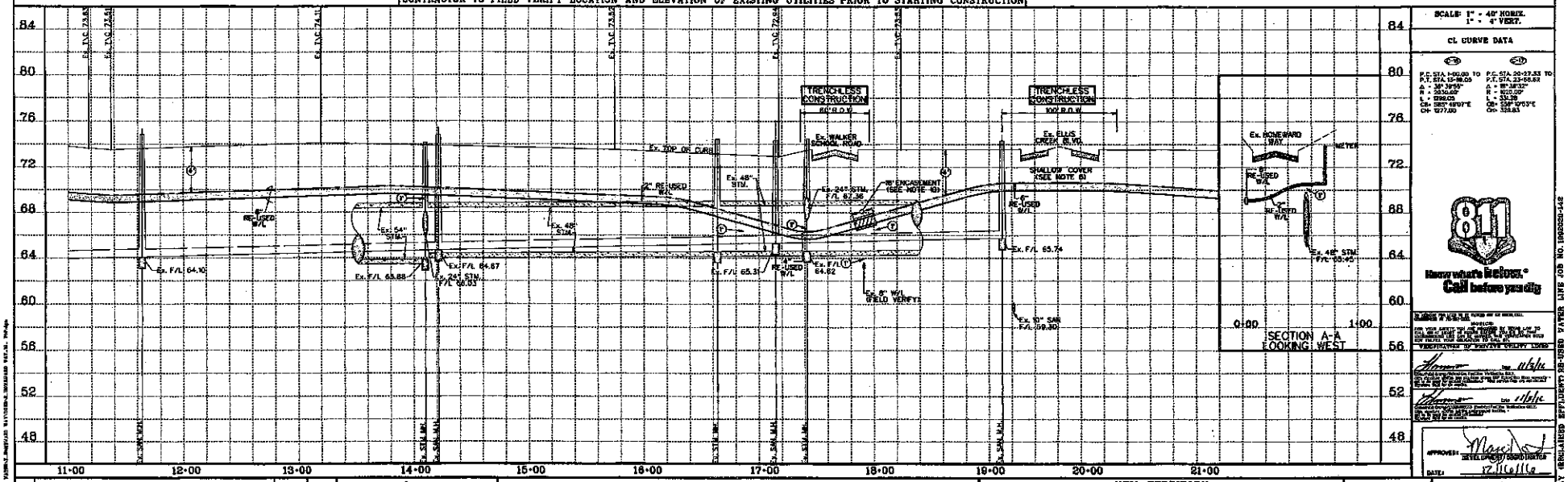
Jon R. Vandenhoe
80071
10/27/2016

SHEET 15 OF 36 SHEETS

JOB NO. 1999G020-142

FORT BEND COUNTY, LTD. 2





NO.	REVISION	DATE	BY

DRAWN BY: RLM
DESIGN CHECKED BY: SRV
DRAWN BY: RLM
CODE 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
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE
PLAN AND PROFILE

HOMEWARD WAY
STA. 11+00.00 TO STA. 21+00.00

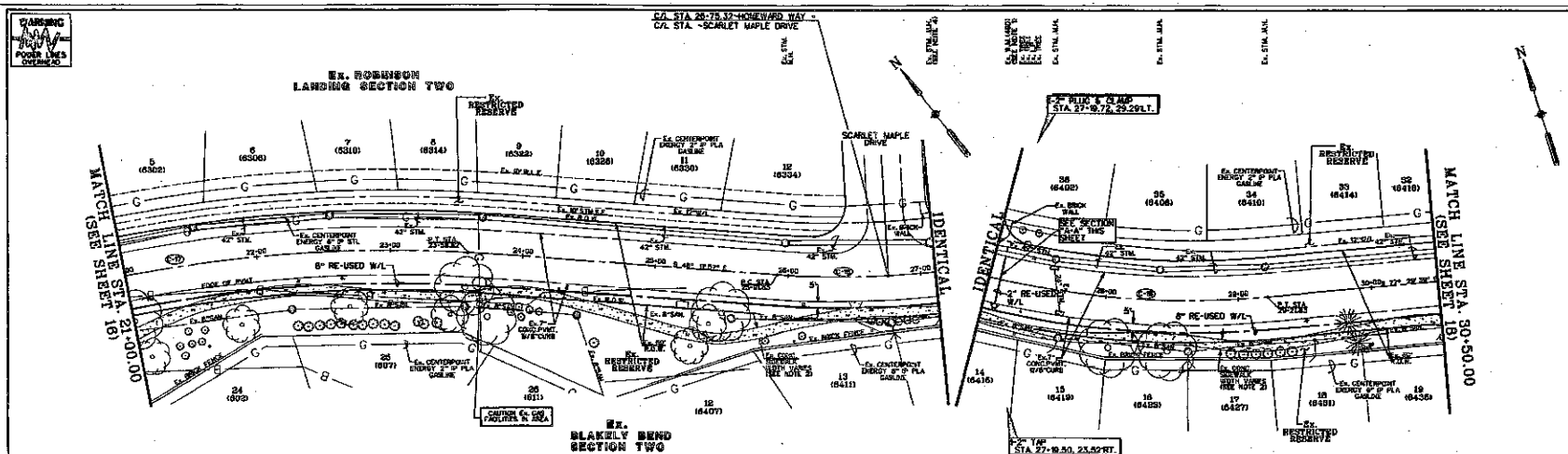
STATE OF TEXAS — Jon R. Vandenhof — 50071 — REGISTERED PROFESSIONAL ENGINEER — 10/27/2016

SHEET 16 OF 36 SHEETS

JOB NO. 19992060-148

EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE JOB NO. 19992060-148

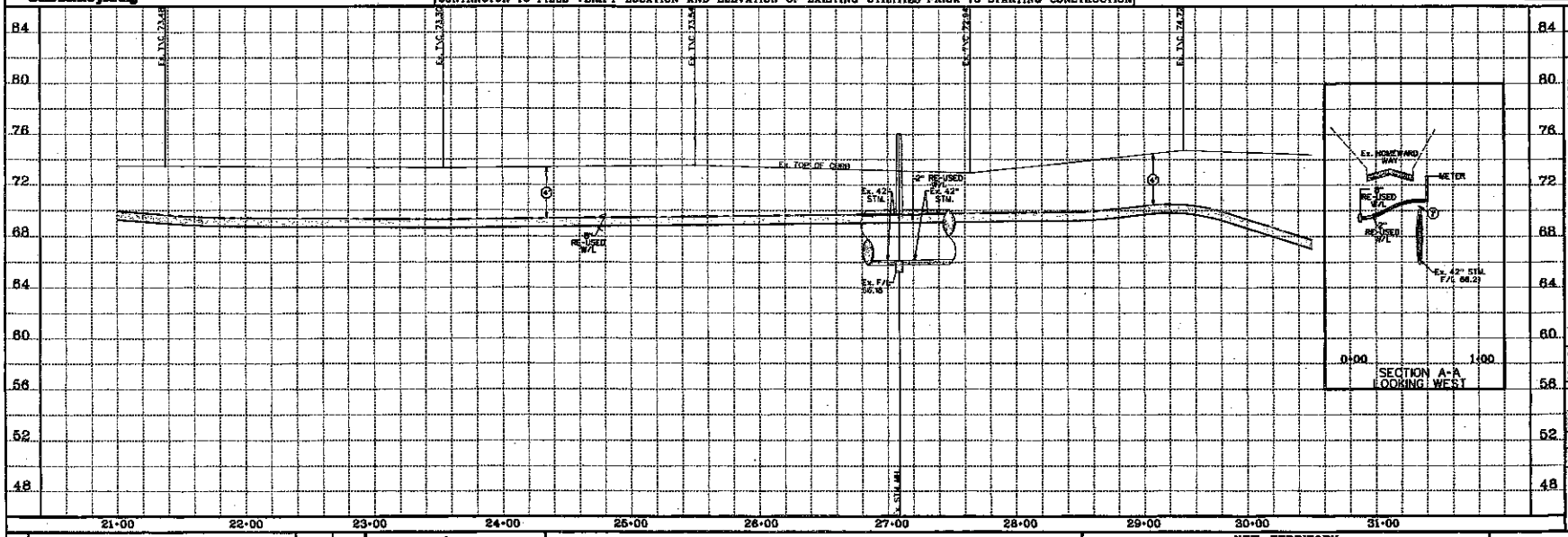
FORT BEND COUNTY, TEXAS



811 Know what's below. Call before you dig

HOMEWARD WAY (60' R.O.W.)

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



NOTES

1. CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER TEE. CONTRACTOR SHALL CONSULT WITH THE ENGINEER, OWNER, & 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.

LEGEND

(T)	INDICATES MIN. VERTICAL CLEARANCE
(W)	INDICATES MIN. VERTICAL CLEARANCE
(4')	INDICATES MIN. VERTICAL CLEARANCE
	INDICATES RE-USED WATER LINE SEE AS NOTED
(272)	INDICATES WATER METER SERVICE NUMBER
⊕	INDICATES IN-LINE SPL VALVE SEE DETAIL SHEET 24
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.&R.	GATE VALVE & BOX
L.P.	LIGHT POLE
W.M.	WATER METER
F.V.	FLUSH VALVE
I.C.B	IRRIGATION CONTROL BOX

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

CL CURVE DATA

(27)	(28)
P.C. STA. 25+27.33 TO P.T. STA. 23+34.22	P.C. STA. 25+21.83 TO P.T. STA. 29+21.83
Δ = 16°26'22"	Δ = 29°16'51"
R = 1025.00'	R = 845.00'
L = 331.25	L = 430.00
CB= S56°10'53"E	CB= S67°30'12"E
CH= 329.87	CH= 426.14

VERIFICATION OF PRIVATE UTILITY LINES

APPROVED: DEVELOPER/CONTRACTOR
DATE: 12/11/2016

DESIGNED BY: RLM			
DESIGN CHECKED BY: JRV			
DRAWN BY: RLM			
CODD CHECKED BY:			
SURVEY CHECKED BY:			
QA/QC BY: RS DATE: 1-27-17			
QA/QC REVISIONS BY: RLM			
NO.	REVISION	DATE	BY

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

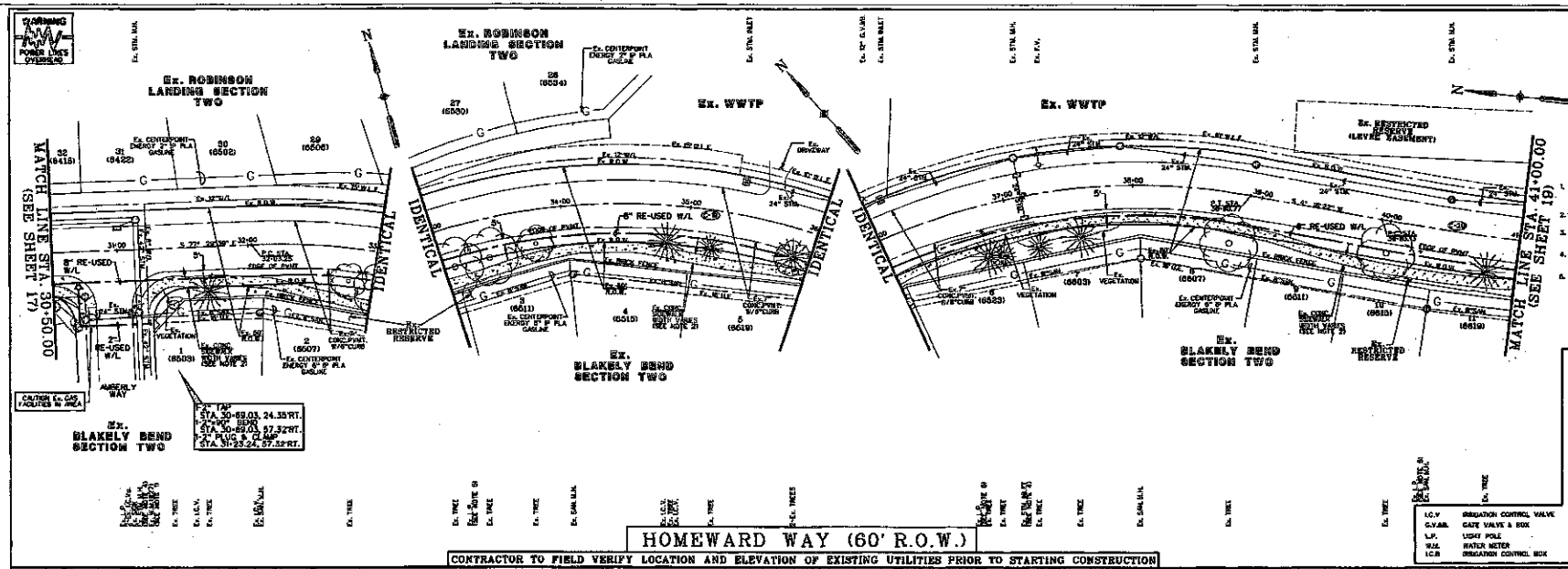
NEW TERRITORY
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE
PLAN AND PROFILE

HOMEWARD WAY
STA. 21+00.00 TO STA. 30+50.00

STATE OF TEXAS — Jon E. Vandenhik — 80071 — REGISTERED PROFESSIONAL ENGINEER — 10/27/2016

SHEET 17 OF 36 SHEETS
JOB NO. 1999020-142

FORT BEND COUNTY, LID 7
EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE JOB NO. 1999020-142



NOTES

1. CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, OWNER & 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 9-FEET CUT TO CUT HORIZONTAL SEPARATION FOR SANITARY SEWER UTILITIES AND MANHOLES.
4. CONTRACTOR SHALL MAINTAIN A MINIMUM 3-FOOT CUT TO CUT HORIZONTAL SEPARATION FOR STORM SEWER UTILITIES AND MANHOLES.
5. CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA.

LEGEND

(T)	INDICATES MIN. VERTICAL CLEARANCE
(W)	INDICATES MIN. VERTICAL CLEARANCE
(G)	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 24)
47 (9021)	INDICATES LOT NUMBER / INDICATES STREET ADDRESS
	Ex. CABLE
	Ex. OVERHEAD POWER
	Ex. UNDERGROUND ELECTRICAL
	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

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

CL CURVE DATA

C-18	C-20
P.C. STA. 32+63.29 TO P.T. STA. 35+62.77	P.C. STA. 39+83.13 TO P.T. STA. 41+25.83
Δ = 82°07'08"	Δ = 11°21'04"
R = 400.00'	R = 2000.00'
L = 597.51'	L = 396.88'
CB= S36°43'37"E	CB= S2°30'40"E
CH= 630.37'	CH= 301.37'

811 Know what's below. Call before you dig.

"VERIFICATION OF PRIVATE UTILITY LINES"

APPROVED: DEVELOPMENT COORDINATOR
DATE: 12/06/11

NO.	REVISION	DATE	BY

DESIGNED BY: RLM
DESIGN CHECKED BY: JRV
DRAWN BY: RLM
CODO CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: DS DATE: 1-30-11
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

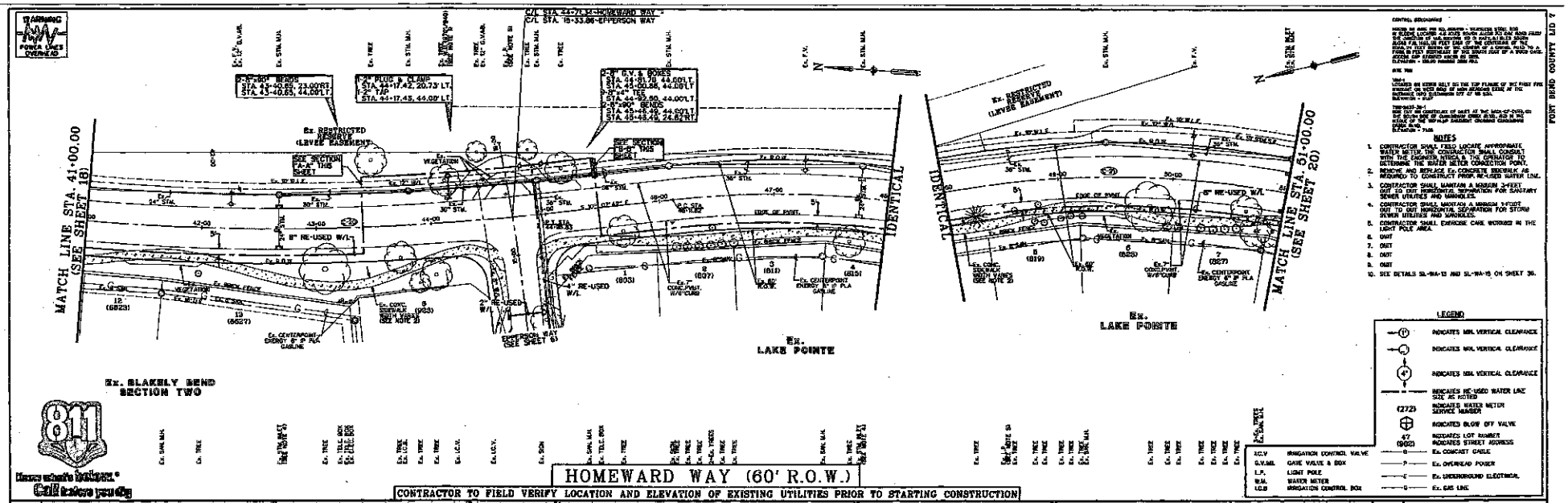
NEW TERRITORY
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE
PLAN AND PROFILE

HOMEWARD WAY
STA. 30+50.00 TO STA. 41+00.00

STATE OF TEXAS
Jon R. Vanderhill
59071
REGISTERED PROFESSIONAL ENGINEER
10/27/2011

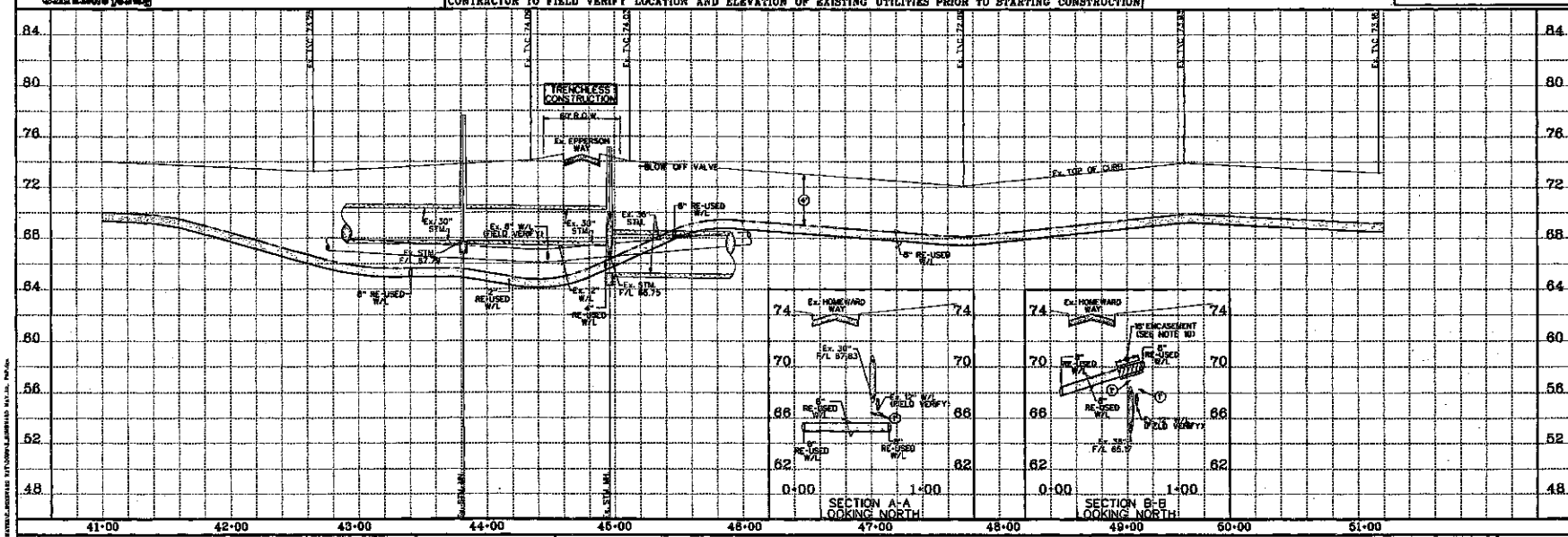
SHEET 18 OF 36 SHEETS
JOB NO. 1999026-142

FORT BEND COUNTY LID 7
EAST HOMEWARD WAY RECLAIMED EFFLUENT RE-USED WATER LINE JOB NO. 1999026-142



HOMEWARD WAY (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

(28)	(29)
P.C. STA. 38+93.15 TO P.T. STA. 44+98.83	P.C. STA. 46+78.2 TO P.T. STA. 54+96.89
Δ = 14°24'04"	Δ = 60°12'30"
R = 2000.00'	R = 815.00'
L = 502.89	L = 856.89
CB= S37°55'46"E	CB= S30°02'13"W
CD= 501.37	CD= 818.00

TRANSFER OF CAPITAL ASSETS LIBRO

APPROVED: DEVELOPMENT CONSTRUCTION
DATE: 12/14/16

NO.	REVISION	DATE	BY

DESIGNED BY: RLM
DESIGN CHECKED BY: JRV
DRAWN BY: RLM
CADD CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: DATED
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. 100468

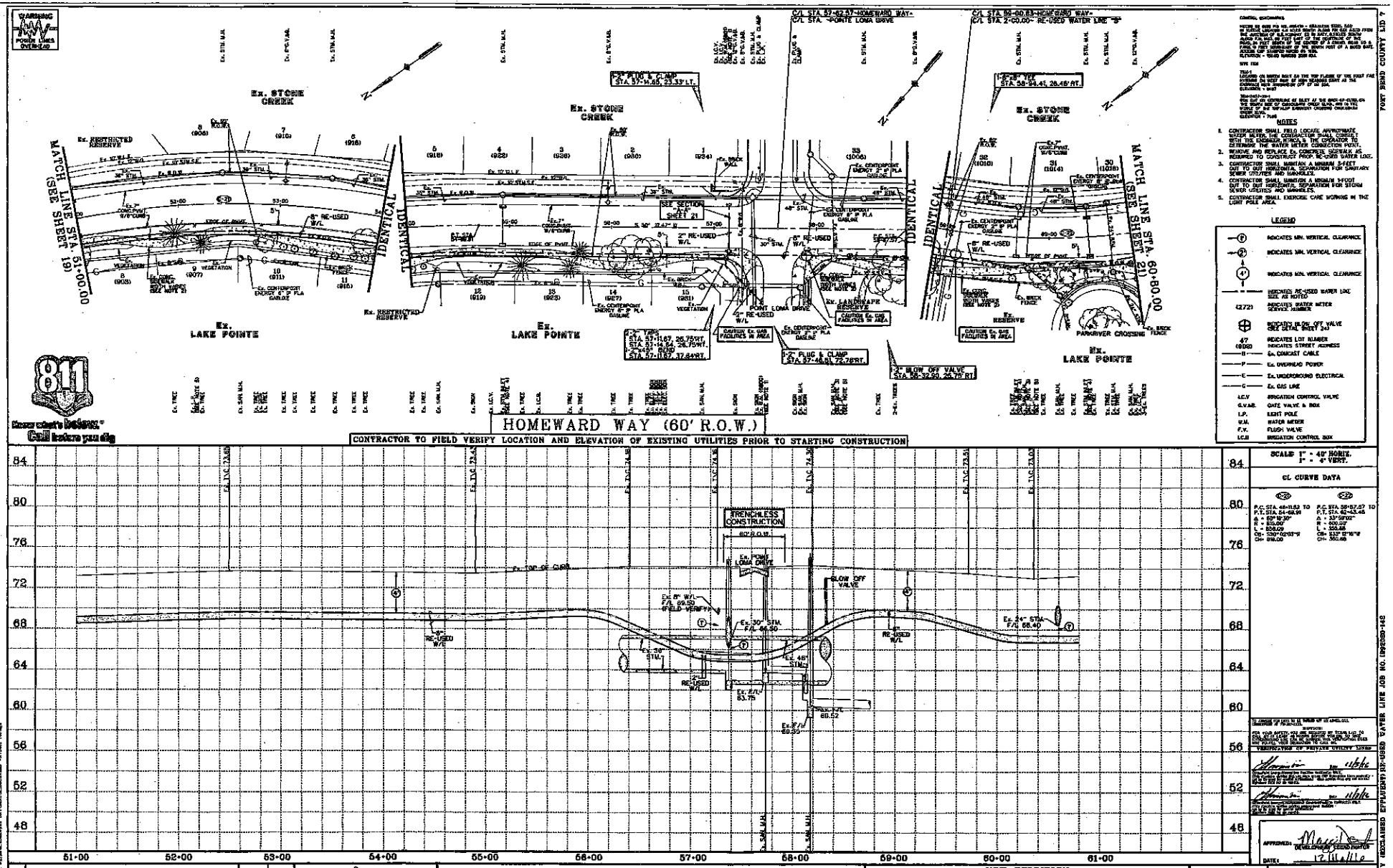
NEW TERRITORY
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE
PLAN AND PROFILE

HOMEWARD WAY
STA. 41+00.00 TO STA. 51+00.00

Jon R. Vanderwilt
90071
REGISTERED PROFESSIONAL ENGINEER
10/27/2016

SHEET 19 OF 36 SHEETS
JOB NO. 19992080-142

EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE JOB NO. 19992080-142
FORT BEND COUNTY LID 7



NOTES

1. CONTRACTOR SHALL FIELD LOCATE APPROXIMATE WATER METER, THE CONTRACTOR SHALL CONFIRM WITH THE ENGINEER/OWNER, 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 5-FEET OUT TO OUT HORIZONTAL SEPARATION FOR SANITARY SEWER LATERALS AND SERVICES.
4. CONTRACTOR SHALL MAINTAIN A MINIMUM 3-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR STORM SEWER UTILITIES AND SERVICES.
5. CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA.

LEGEND

(P)	INDICATES MIN. VERTICAL CLEARANCE
(P)	INDICATES MIN. VERTICAL CLEARANCE
(4')	INDICATES MIN. VERTICAL CLEARANCE
1	INDICATES RE-USED WATER LINE SIZE AS NOTED
(272)	INDICATES WATER METER SERVICE NUMBER
	INDICATES BLOW OFF VALVE SEE DETAIL SHEET 34
47 (6100)	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
F.V.	FLUSH VALVE
I.C.B.	IRRIGATION CONTROL BOX

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

CL CURVE DATA

(20)	(22)
P.C. STA. 48+11.83 TO P.T. STA. 54+48.96	P.C. STA. 58+57.57 TO P.T. STA. 62+33.48
Δ = 69°16'30"	Δ = 33°58'02"
R = 525.00'	R = 600.00'
L = 636.09	L = 355.46
CB= S30°20'03"W	CB= S33°12'16"W
CH= 598.00	CH= 350.48

VERIFICATION OF PRIVATE UTILITY LINES

APPROVED: DEVELOPER/OWNER REPRESENTATIVE
DATE: 12/14/16

NO.	REVISION	DATE	BY

DESIGNED BY: ELM
DESIGN CHECKED BY: JRV
DRAWN BY: ELM
CODE CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: RS DATE: 11-17
QA/QC REVISIONS BY: ELM

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
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE
PLAN AND PROFILE

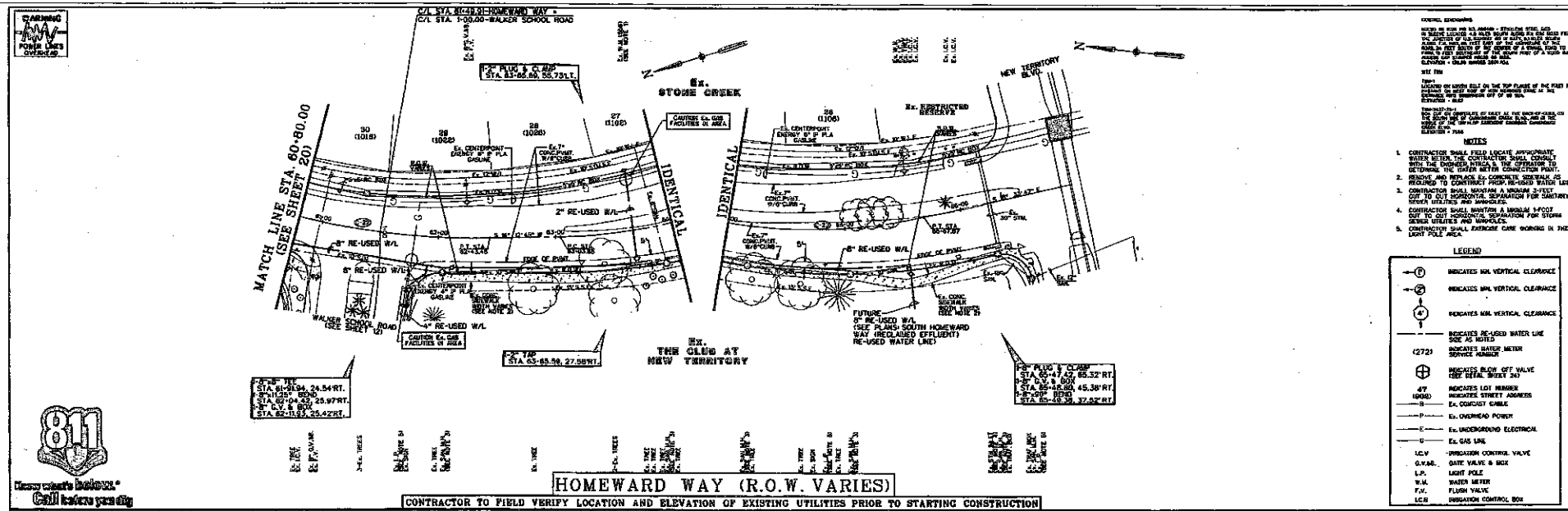
HOMEWARD WAY
STA. 51+00.00 TO STA. 60+80.00

STATE OF TEXAS
Joe R. Vandervort
60071
REGISTERED PROFESSIONAL ENGINEER
10/27/2016

SHEET 20 OF 36 SHEETS
JOB NO. 1999C080-142

FORT BEND COUNTY LID 7

EAST HOMEWARD WAY RECLAIMED EFFLUENT/RE-USED WATER LINE JOB NO. 1999C080-142



NOTES

1. CONTRACTOR SHALL FIELD LOCATE APPROPRIATE WATER METER. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER, NTMCA & 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 3-FOOT OUT TO OUT HORIZONTAL SEPARATION FOR STORM SEWER UTILITIES AND MANHOLES.
5. CONTRACTOR SHALL EXERCISE CARE WORKING IN THE LIGHT POLE AREA.

LEGEND

- (P) INDICATES MIN. VERTICAL CLEARANCE
- (G) INDICATES MIN. VERTICAL CLEARANCE
- (E) 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 24)
- 47 INDICATES LOT NUMBER
- (9999) INDICATES STREET ADDRESS
- Ex. COMCAST CABLE
- Ex. OVERHEAD POWER
- Ex. UNDERGROUND ELECTRICAL
- Ex. GAS LINE
- I.C.V. IRRIGATION CONTROL VALVE
- G.V.&B. GATE VALVE & BOX
- L.P. LIGHT POLE
- W.M. WATER METER
- F.V. FLUSH VALVE
- I.C.B. IRRIGATION CONTROL BOX

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

CL CURVE DATA

(32)	(33)
P.C. STA. 62+87.93 TO P.T. STA. 63+41.45	P.C. STA. 63+63.85 TO P.T. STA. 63+57.87
Δ = 33°58'02"	Δ = 34°48'33"
R = 600.00'	R = 425.00'
L = 353.52	L = 364.02
CB= S33°42'16"W	CB= S17°80'37"E
CH= 348.48	CH= 358.39

NOTICE
For your safety and our protection, at least 48 hours prior to beginning any excavation, call the Texas Excavation Safety System, Inc. at 1-800-245-4545 to locate all underground utilities in the area.
"VERIFICATION OF PRIVATE UTILITY LINES"

APPROVED: DEVELOPMENT COORDINATION
DATE: 12/16/16

NO.	REVISION	DATE	BY

DESIGNED BY: ELM
DESIGN CHECKED BY: JRV
DRAWN BY: ELM
CODE CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: RS DATE: 12-7-16
QA/QC REVISIONS BY: ELM

Costello

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TBPLS FIRM REG. No. 100488

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

HOMEWARD WAY
STA. 60+80.00 TO STA. 67+00.00

Jon R. Vanderwal
50071
10/27/2016

SHEET 21 OF 36 SHEETS

JOB NO. 19998080-142

EAST HOMEWARD WAY RECLAIMED EFFLUENT RE-USED WATER LINE JOB NO. 19998080-142

FORT BEND COUNTY, TEXAS

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 RESEEDED AS PER THE POLLUTION PREVENTION PLAN.
7. UPON PROJECT COMPLETION AND FINAL STABILIZATION, ALL SILT FENCE SHALL BE REMOVED AND DISPOSED OF.

APPROVED: DEVELOPMENT COORDINATION
DATE: 12/16/16

NO.	REVISION	DATE	BY

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

Costello

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TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100468

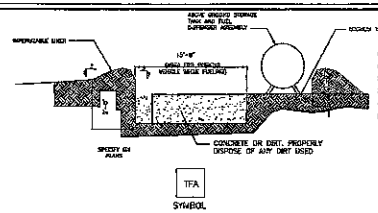
NEW TERRITORY
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE

POLLUTION PREVENTION PLAN LAYOUT

STATE OF TEXAS
JOE R. VALDEZ
50071
REGISTERED PROFESSIONAL ENGINEER
10/27/2016

SHEET 22 OF 36 SHEETS
JOB NO. 199920320-142

EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE JOB NO. 199920320-142
FORT BEND COUNTY, LID 4

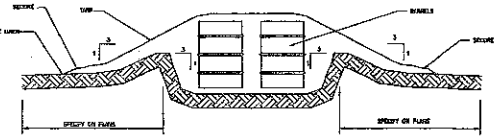


GENERAL NOTES:

1. SIZE SIZE OF TANK FOUNDATION AREA DEPENDS ON THE SIZE OF ABOVE GROUND STORAGE TANK AND DISPENSER ASSEMBLY.
2. ASSEMBLY.
3. PROVIDE A MINIMUM OF 3 FOOT CLEARANCE TO THE EDGE OF THE CONCRETE CURB.
4. PROVIDE A MINIMUM SLOPE OF 1 % TOWARD THE SUMP PIT.
5. INSTALL CONTAINMENT SUMP AS PER MANUFACTURER'S RECOMMENDATIONS.

DO NOT PLACE TANK OR SKID DIRECTLY ON LINER

ABOVE GROUND TEMP. VEHICLE & EQUIPMENT FUELING AREA WITH TANK



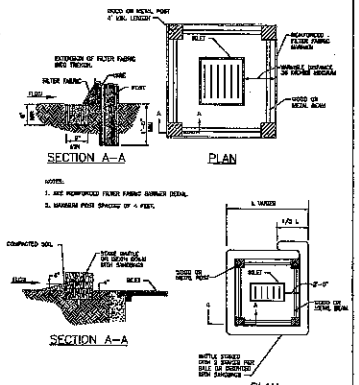
GENERAL NOTES:

1. ALTERNATIVELY, STORE BARRELS IN AN ENCLOSED BUILDING OR SHED.
2. INSTALL IMPERMEABLE LINER AS PER MANUFACTURER'S RECOMMENDATIONS. ASTM D5890/96.
3. CONSTRUCT BERM/DIKE WITH MIN VOLUME GREATER THAN OR EQUAL TO TOTAL VOLUME OF BARRELS

BARREL STORAGE AREA

BSA

SYMBOL



NOTES:

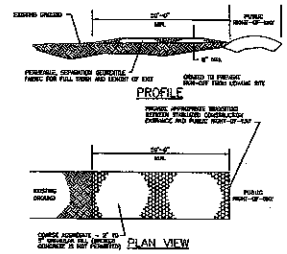
1. SEE REINFORCED FILTER FABRIC BARRIER DETAIL.
2. MAXIMUM POST SPACING OF 4 FEET.

NOTE:
TYPICALLY STRAW BALES ARE NOT RECOMMENDED FOR INLET PROTECTION BARRIERS.

INLET PROTECTION BARRIERS FOR STAGE I INLETS

IPB

SYMBOL



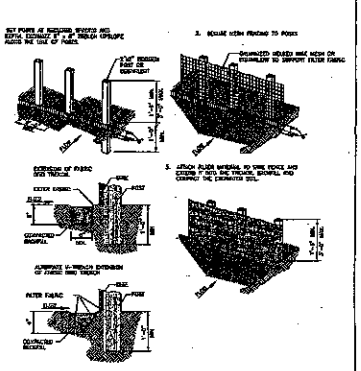
GENERAL NOTES:

1. MINIMUM LENGTH IS AS SHOWN ON CONSTRUCTION DRAWINGS OR 50 FEET, WHICHEVER IS MORE.
2. CONSTRUCT AND MAINTAIN CONSTRUCTION EXIT THAT CONVEYS TRUCK ACROSS SITE LOADS, INCLUDING ALL POINTS OF INGRESS OR EGRESS.
3. UNLESS SHOWN ON THE CONSTRUCTION DRAWINGS, STABILIZATION FOR OTHER AREAS CALL FOR THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION EXIT.
4. WHEN SHOWN ON THE CONSTRUCTION DRAWINGS, WIDEN THE EXITS WHEN PLACED AREA TO ACCOMMODATE A TRUCK TURNING RADIUS. PROVIDE OUTLET SEDIMENT TRAP FOR THE TRUCK WASHED AREA.
5. PROVIDE PERVIOUS NON CRUSHING BERM ADDITIONAL COARSE AGGREGATE TO INCREASE THE REQUIRED DEPTH OR BERM WITHIN SECONDS PACKED WITH MUD.
6. PERIODICALLY TOP DRESSING TO DISPOSE A CLEAN GRAVEL SURFACE.
7. ALTERNATIVE METHODS OF CONSTRUCTION PROJECT
   - CONCRETE STABILIZED BED. COMPACTED CONCRETE SUBGRADED BED, LIMESTONE AGGREGATE, OR OTHER FILL MATERIAL, BY AN APPLICATION OF THICKNESS OF 6 INCHES.
   - WOOD MATS: DAMS OR OTHER HARDWOOD SLEEPERS PLACED BESIDE TO EDGE AND ACROSS TRACKOUT BROKEN BRANCH WHICH ARE PLACED ON TOP OF EXISTING SOIL OR AN APPLICATION THICKNESS OF 6 INCHES.
   - SPIKE MATS: PERFORATED MATS PLACED ACROSS PERPENDICULAR SUPPORT MEMBERS.
8. MINIMUM 14' WIDTH FOR ONE WAY TRAFFIC AND 20' WIDTH FOR TWO WAY TRAFFIC.

STABILIZED CONSTRUCTION ACCESS

SCE-1

SYMBOL



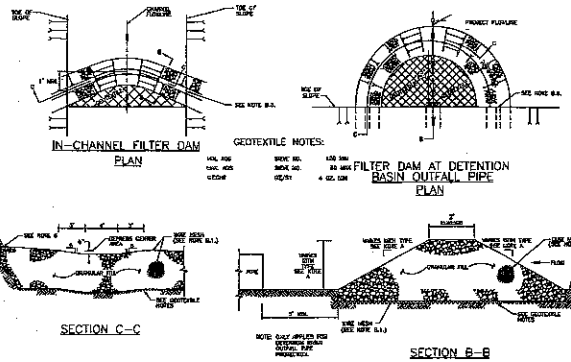
GENERAL NOTES:

1. SECURELY FASTEN WIRE FENCING TO POSTS WITH STAPLES OR TIE WIRES.
2. SECURELY FASTEN FILTER FABRIC TO WIRE FENCING.
3. SEALS FOR SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, OVERLAP 6 INCHES AT A POST, FOLD TOGETHER, AND ATTACH TO A POST.
4. REMOVE SEDIMENT DEPOSITS WHEN SILT REACHES ONE-THIRD OF THE HEIGHT OF THE FENCE IN DEPTH.

REINFORCED FILTER FABRIC BARRIER

X — RFB — X

SYMBOL



GEOTEXTILE NOTES:

WOVEN MONO FILAMENT	SEWN SEL.	100 MIN
WOVEN MULTI FILAMENT	WOVEN SEL.	80 MIN
NEEDLE PUNCHED	NEEDLE PUNCH	4 OZ. MIN

TYPES OF FILTER DAMS

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

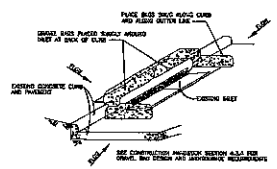
A. CONSTRUCT FILTER DAMS ACCORDING TO THE FOLLOWING GENERAL NOTES UNLESS SHOWN OTHERWISE ON THE PLANS.

1. TYPE 2 AND 3 FILTER DAMS: SQUARE WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1 INCH UNIFORM DIMENSION, OPENINGS.
2. GRANULAR FILL
   a. PLACE GRAVEL FILL WITH NO MESSING AND SLOPES SHOWN ON PLANS OR AS SPECIFIED BY THE ENGINEER.
   b. 3-8 INCHES FOR ROCK FILTER DAM TYPES 1,2, AND 4 AND 4-8 INCHES FOR ROCK FILTER DAM TYPE 3. REFER TO GRANULAR FILL IN SPECIFICATION SECTION NO. 02378-RIPRAP AND GRANULAR FILL.
3. WIRE MESH: FOLD AT UPSTREAM SIDE OVER GRANULAR FILL AND TIGHTLY SECURED TO STAKE OR THE ENGINEERING WIRE MESH WITH 50 LB TIES ON ROCK BERMS.
4. IN STREAMS: REMOVE ALL STONE SIZE TO STREAM BED FROM TO INCREASE PLACEMENT.
5. SEE SPECIFICATION SECTION NO. 02378-FILTER DAMS.
6. PLACED ONE FOOT MINIMUM INTO SLOPE AND MAKE ONE FOOT HIGHER THAN CENTER OF DEPRESSED AREA AT SLOPE.

FILTER DAM

RFD - TYPE

SYMBOL



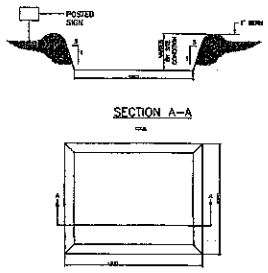
GENERAL NOTES:

1. REMOVE SEDIMENT DEPOSIT WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-THIRD THE HEIGHT OF THE BARRIER.
2. GRAVEL BAGS SHALL JUST BLOCK THROUGH OF INLET UNLESS DIRECTED BY ENGINEER.

INLET PROTECTION BARRIERS FOR STAGE II INLETS

IPB-2

SYMBOL



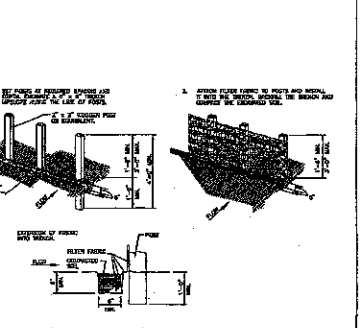
GENERAL NOTES:

1. POST A SIGN READING "CONCRETE WASH OUT PIT" NEXT TO THE PIT.
2. VERBALLY INSTRUCT THE CONCRETE TRUCK DRIVERS WHERE THE PIT IS AND TO WASH OUT THEIR TRUCKS IN THE PIT AND NO WHERE ELSE.
3. WHEN THE CONCRETE DRYING UP HARDENS, BREAK OUT. THE CONCRETE WASTE SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF PROPERLY BY THE CONTRACTOR. AFTER REMOVAL OF THE HARDENED WASTE, THE HOLE OUT THE SHALL BE FILLED WITH CLEAN FILL MATERIAL AND COMPACTED TO IN-SITU CONDITIONS, OR AS DIRECTED BY THE PROJECT SPECIFICATIONS.
4. CONCRETE WASH OUT PITS SHALL NOT BE LOCATED DIRECTLY ADJACENT TO, SUCH AS ANY EXISTING WATER THE STORM WATER SYSTEM OR ANY CLEAN SURFACE, DITCH, OR WATERWAY.
5. CONSTRUCT ENTRY ROAD AND BERTHS OF TRAFFIC AREA TO SUPPORT EXPECTED LOADING FROM TRUCKS EQUIPMENT.

CONCRETE TRUCK WASHOUT AREA

CWO

SYMBOL



GENERAL NOTES:

1. SET POSTS AT 4-FOOT MAXIMUM SPACING. IF EXISTING PREFABRICATED FENCE WITH SUPPORT POSTING IS USED, SPACING OF POST SET BE DECREASED TO 2 FEET MAXIMUM.
2. WOVEN THE SECTIONS OF FILTER FABRIC MEASURE FROM OTHER, OVERLAP 6 INCHES AT THE POST, FOLD TOGETHER, AND ATTACH TO THE POST.
3. REMOVE SEDIMENT DEPOSITS WHEN SILT DEPTH REACHES ONE-THIRD OF THE HEIGHT OF THE FENCE.

FILTER FABRIC FENCE

X — FF — X

SYMBOL

NOTE:
DETAILS SHOWN HEREON ARE EXPECTED TO BE FOUND IN MOST PROJECTS. ADDITIONAL DETAILS AND PROCEDURES MAY BE REQUIRED BASED ON PROJECT SPECIFIC SPECIFICATIONS AND MAY BE FOUND ON NOTES-AND SHEETS.

NO.	REVISION	DATE	BY

DESIGNED BY: RLM
DESIGN CHECKED BY: JRV
DRAWN BY: RLM
CODE CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: DH DATE: 1-22-17
QA/QC REVISIONS BY: RLM

Costello

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

NEW TERRITORY
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE

POLLUTION PREVENTION PLAN DETAILS

Jon R. VanderWalle
62071
REGISTERED PROFESSIONAL ENGINEER
10/27/2016

APPROVED: DEVELOPER / REGISTERED PROFESSIONAL ENGINEER
DATE: 12/16/16

SHEET 23 OF 36 SHEETS

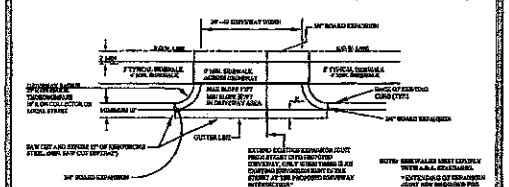
JOB NO. 19092020-142

FORT BEND COUNTY, TEXAS

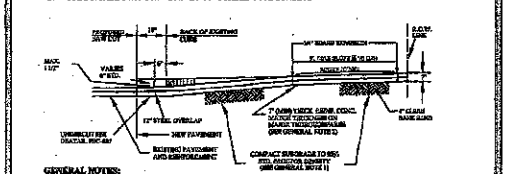
EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE JOB NO. 19092020-142

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:

SIDEWALKS & DRIVEWAYS ON CURB TYPE STREETS COMMERCIAL AREA	DRAWN BY: L. BRODECKA DATE DRAWN: 2-1-94	REVISED BY: J. RETARDUS DATE REVISED: 4-7-09
	APPROVED BY: L. HOOD DATE: 2-1-94	DRAWING NO. FBC-025A

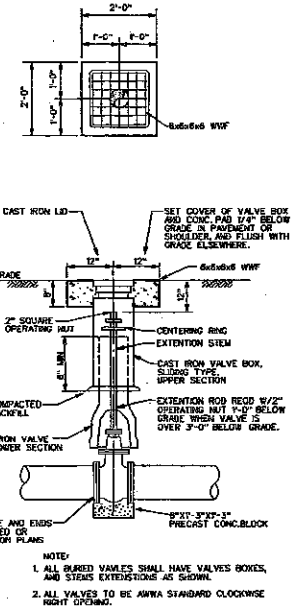
FORT BEND COUNTY ENGINEERING DEPARTMENT

GENERAL NOTES FOR SIDEWALKS AND DRIVEWAYS

1. SAW CUT EXISTING CURB AT EACH END AND KNOCK OUT CURB FROM BEGINNING TO END OF PROPOSED DRIVEWAY.
2. SAW CUT EXISTING PAVEMENT A MINIMUM OF 18" INCHES AWAY FROM BACK OF CURB (GUTTER LINE) AND BREAK OUT TO EXPOSE EXISTING REINFORCEMENT STEEL.
3. COMPACT SUBGRADE FOR PROPOSED DRIVEWAY CONNECTION FROM PROPOSED SAW CUT AT EXISTING PAVEMENT TO RIGHT-OF-WAY LINE, COMPACT TO 95% OF STANDARD PROCTER DENSITY (+/- 2% OPT. MOISTURE). THE COUNTY ENGINEER RESERVES THE RIGHT TO REQUIRE LABORATORY TESTS TO BE CONDUCTED.
4. PLACE AND COMPACT 4" CLEAN BANK SAND.
5. MAINTAIN GUTTER LINE WITH FACE OF EXISTING CURB.
6. PROPOSED DRIVEWAY REINFORCING STEEL IS TO BE TIED TO EXISTING ROADWAY REINFORCING STEEL WITH A MINIMUM LAP OF 12 INCHES.
7. PROPOSED DRIVEWAY REINFORCING STEEL IS TO BE #4 DEFORMED RE-INFORCING BARS (ASTM A615 GRADE 60, UNLESS NOTED) SPACED AT 24 INCHES C.C., EACH WAY, WITH 12 INCHES MINIMUM LAP (6" x 6" W6 x W6 AS ALTERNATE) FROM PROPOSED SAW CUT TO RIGHT-OF-WAY LINE.
8. PROPOSED DRIVEWAY, CURB, GUTTER LINE, AND GRADE SHALL MATCH EXISTING STREET.
9. PROPOSED DRIVEWAY SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE, CLASS "A" STRUCTURAL (REFER TO SPECIFICATION 03301), 7 INCHES THICK, FROM PROPOSED SAW CUT TO RIGHT-OF-WAY LINE (PROPERTY LINE).
10. PROPOSED SIDEWALK SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE, CLASS "A" STRUCTURAL (REFER TO SPECIFICATION 03301), 4 INCHES THICK AND 4 FEET MINIMUM WIDTH. SEE DRAWING NO. FBC 24A FOR ADDITIONAL INFORMATION AND DETAILS.

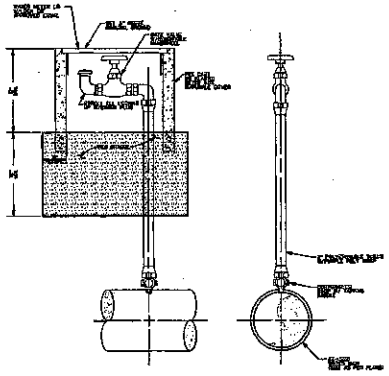
CONSTRUCTION NOTES FOR SIDEWALKS & DRIVEWAYS WITH CURB TYPE STREETS COMMERCIAL AREA	DRAWN BY: L. BRODECKA DATE DRAWN: 2-1-94	REVISED BY: L. BRODECKA DATE REVISED: 9-10-05
	APPROVED BY: L. HOOD DATE: 2-1-94	DRAWING NO. FBC-025B

FORT BEND COUNTY ENGINEERING DEPARTMENT



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

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



NOTES:
1. ALL PIPES AND FITTING SHOULD BE THE SAME SIZE AS MAINLINE.
2. FOR 2" BLOW-OFF, PROVIDE 2" x 10" BEND (MAXIMUM 45) AND SALT SHAPED BED PLATE.

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

NO.	REVISION	DATE	BY

DESIGNED BY: RLM
DESIGN CHECKED BY: TRV
DRAWN BY: RLM
COGO CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: AS DATE: 12-27-17
QA/QC REVISIONS BY: RLM

Costello

Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
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TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486

NEW TERRITORY
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE

MISCELLANEOUS DETAILS

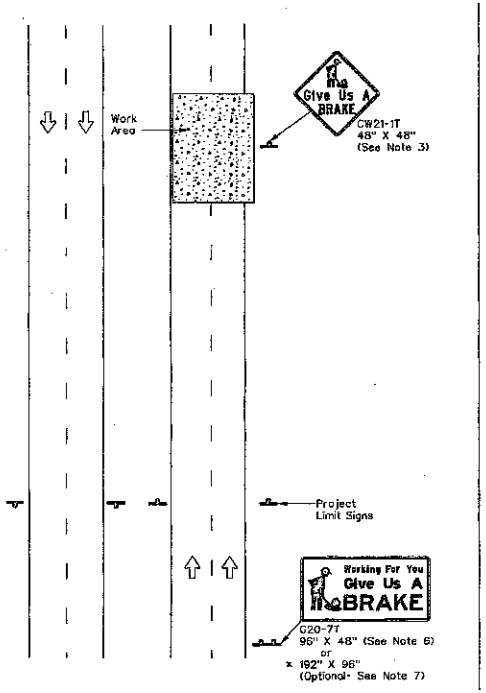
Jon R. Vanderhal
60071
REGISTERED PROFESSIONAL ENGINEER
10/27/2016

APPROVED: Mark Dwyer
DEVELOPMENT COORDINATOR
DATE: 12/14/17

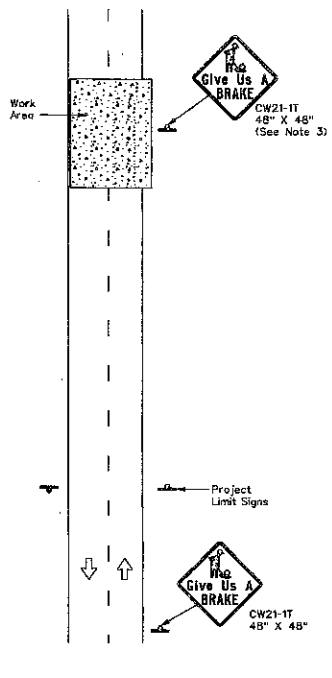
SHEET 24 OF 36 SHEETS
JOB NO. 19998020-142

FORT BEND COUNTY LID 7

EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE JOB NO. 19998020-142



DIVIDED HIGHWAY



UNDIVIDED HIGHWAY

SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL

x When the optional larger WORKING FOR YOU GIVE US A BRAKE (G20-7T) 192" x 96" sign is required, the locations shall be noted elsewhere in the plans.

SUMMARY OF LARGE SIGNS

BACKGROUND COLOR	SIGN DESIGNATION	SIGN	SIGN DIMENSIONS	REFLECTIVE SHEETING	SQ FT	GALVANIZED STRUCTURAL STEEL Size	(LF) ①	(LF) ②	DRILLED SHAFT 24" DIA. (LF)
Orange	G20-7T	Working For You Give Us A BRAKE	96" X 48"	Type B_{FL} or C_{FL}	32	▲	▲	▲	▲
Orange	G20-7T	Working For You Give Us A BRAKE	192" X 96"	Type B_{FL} or C_{FL}	128	WBx18	16	17	12

▲ See Note 6 Below

LEGEND	
	Sign
	Large Sign
	Traffic Flow

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B_{FL} OR TYPE C_{FL}
BLACK	LEGEND & BORDERS	NON-REFLECTIVE ACRYLIC FILM

GENERAL NOTES

1. See BC and SMD sheets for additional sign support details.
2. Sign locations shall be approved by the Engineer.
3. For projects more than two miles in length, Give Us a BRAKE signs should be repeated halfway through the project. The Give Us a Brake (CW21-1T) may be used for this purpose.
4. Work zone speed limits are sometimes used in conjunction with GIVE US A BRAKE signing. See BC(3) for location and spacing of construction speed zone signing when required.
5. Give Us a Brake (CW21-1T) signs and supports shall be considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling."
6. The 96" X 48" Working For You Give Us A BRAKE (G20-7T) may use a 1/2" or 5/8" plywood substrate or 0.125" aluminum sheeting substrate and may be supported by two 4" x 6" wood posts with drilled holes for breakaway as per BC(5) and will be subsidiary to Item 502.
7. The Working For You Give Us A BRAKE (G20-7T) 192" X 96" sign shall be paid for under the following specification items:
   - Item 636 - Aluminum Signs
   - Item 647 - Large Roadside Sign Supports and Assemblies.
   - Item 416 - Drilled Shaft Foundations
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

Texas Department of Transportation — Traffic Operations Division Standard

WORK ZONE "GIVE US A BRAKE" SIGNS

WZ(BRK)-13

FILE: wzbrk-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 5-98 7-13 / 8-96 3-03	DIST		COUNTY	SHEET NO.

APPROVED: Director, Traffic Operations Division — DATE: 12/16/16

NO.	REVISION	DATE	BY

DESIGNED BY: RLM
DESIGN CHECKED BY: JRV
DRAWN BY: RLM
CODE CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: EJ DATE: 1-11-17
QA/QC REVISIONS BY: RLM

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TBPLS FIRM REG. No. 100466

NEW TERRITORY
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE

WORK ZONE
"GIVE US A BRAKE"
SIGNS

Joe S. Vandiver, 50021, Registered Professional Engineer, State of Texas — 10/27/2016

SHEET 25 OF 36 SHEETS
JOB NO. 19992080-142

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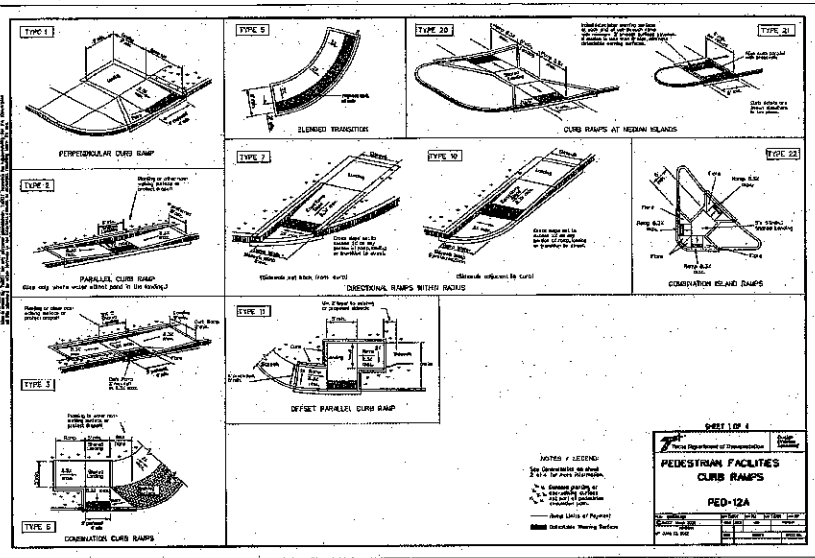
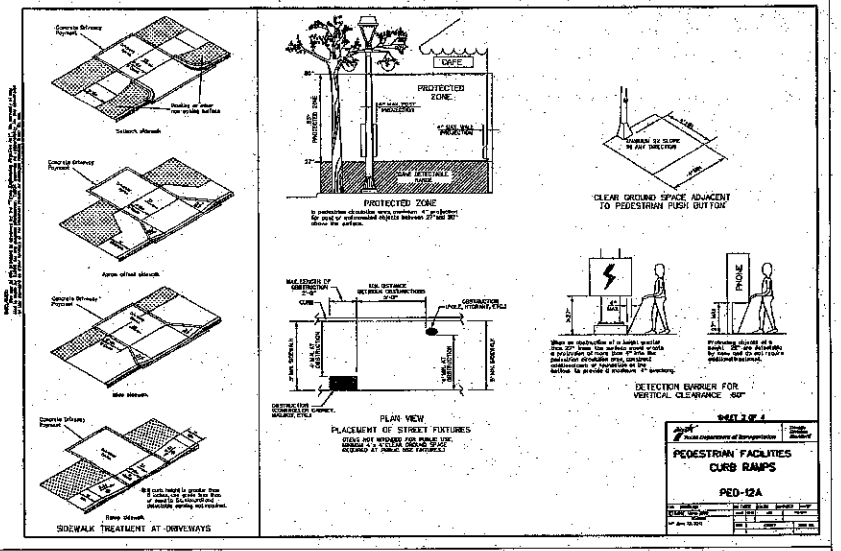
EAST HOMEWARD WATER LINE JOB NO. 19992080-142 — RE-USED WATER — FORT BEND COUNTY, TEXAS





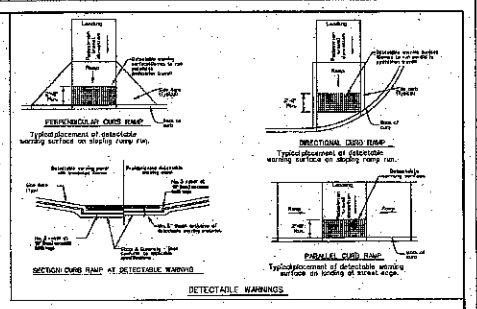
General Notes

Curb Ramps

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Lower slopes that will still drain properly should be used. Adjust curb ramp length or grade of opposite sidewalk as necessary.
3. The minimum sidewalk width is 5' (1.5m). The sidewalk is adjacent to the back of curb, or if sidewalk width is determined, there is 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5% 5' passing areas at intervals not to exceed 200' are required.
4. Landings shall be 5' x 5' minimum with a maximum 2% slope in any direction.
5. Maintaining space at the bottom of curb ramps shall be a minimum of 4'x 4' width, extended within the crosswalk and shall contain the parallel detectable warning path.
6. Maximum allowable cross slope on sidewalk and curb ramp surfaces of 2%.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped to the maximum allowable parallel to the curb. Returned curbs may be used only where pedestrian circulation path does not cross the curb ramp. Where returned curbs are used, a flared surface is provided adjacent to the curb ramp or other approved protection.
8. Additional information on curb ramp location design, light reflective value and texture may be found in the current edition of the Texas Accessibility Standards (TAS) and of TAC 68.65.
9. In order to a pedestrian refuge area, the median should be a minimum of 6' wide measured from back of curb. Medians should be designed to provide accessible passage over or through them.
10. Shall intersection sidewalks do not provide a minimum 2% S landing at the top of curb ramps, shall be cut through level and the surface of the street.
11. Diagonal crosswalks, diagonal curbs and stop bar lines are shall be as shown elsewhere in the plans. At intersections where crosswalk markings and curb ramps shall align with theoretical crosswalk unless otherwise directed.
12. Handrails are not required on curb ramps. Provide curb ramps wherever an accessible route crosses barrier-free curb.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 8" for ramps flares and landings unless otherwise specified.
15. Provide a smooth transition where the curb ramps connect to the street.
16. Curb shown on street inside the limits of pavement are considered part of the curb ramp for payment, neither are concrete curb gutter or sidewalk curb and gutter.
17. Existing features that comply with TAS may remain in place unless otherwise shown on the plans.

Detectable Warning Material

18. Curb ramps and curbless or detectable warning surfaces shall consist of raised truncated domes according with Section 705.1.2 of the TAS. The surface must contrast visually with adjacent surfaces, including walk, flares, gutters and walkways. Color shall be light brown or dark red. Detectable warning surface material adjacent to unaligned crosswalks shall be specified elsewhere in the plans.
19. Detectable Warning Materials must meet TxDOT Department Materials Specification DMS-11040 "Detectable Warning Surface Truncated Dome Units, Install Products or equivalent with local authority approval.
20. Detectable warning surfaces must be slip resistant and not allow water to accumulate.
21. Detectable warning surfaces shall be a minimum of 24" in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian would cross before the street.
22. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb, flush the edge of curbs to be perpendicular to the grade, and flush to the back of curb. For curb the detectable warning surface may be curved along the curb radius.
23. Detail sheet on Sheet 1 of 4 indicates the approximate location for the detectable warning surface for each curb ramp type.

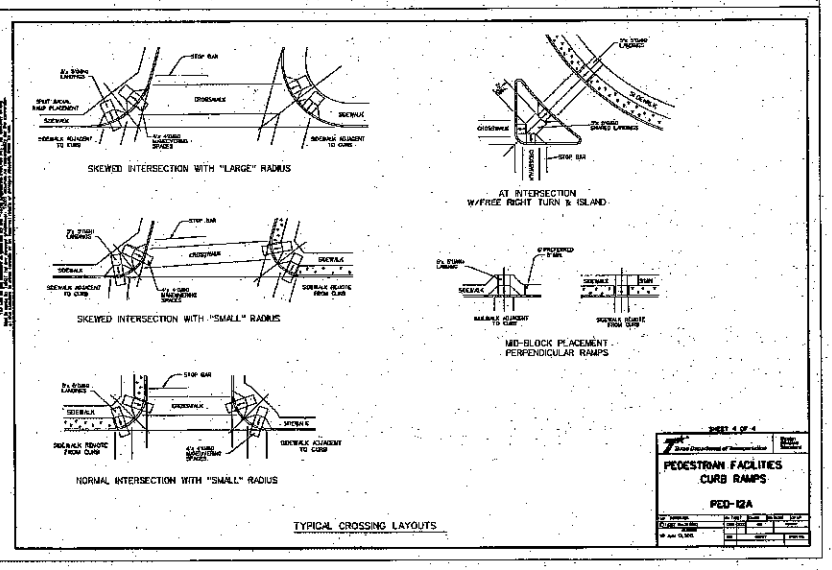


Detectable Warning Pavers

24. Install detectable warning pavers units meeting all requirements of ASTM C-936, C-33. Lay in a tee by tee and level same pattern or as directed.
25. Lay full size units first followed by square units remaining at at least 25 percent of a full unit. Cut detectable warning paver units using a power saw.

Sidewalks

26. Provide clear ground space at operable parts including pedestrian push buttons. Operable parts shall be placed within one of the reach ranges specified in TAS 308.
27. Place traffic signal or illumination poles around intersections away from ramps. Damage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
28. Street grades and cross slopes shall be as shown elsewhere in the plans.
29. Changes in level greater than 1/4" rise are not permitted.
30. The beam operable grade should be level to maintain accessibility. The running slope of adjacent sidewalk, driveway or parking surface shall be 2% or less and grade of adjacent sidewalk, driveway or parking surface greater than 5% must be detailed. Ramp grade may be adjustable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with TAS 505.
31. Handrail extensions shall not protrude into the visible landing area or into ramp parking protection marks.
32. Driveway and turnouts shall be constructed and paid for in accordance with Item "Driveways, Drainage and Turnouts". Driveways shall be constructed and paid for as determined with Item "Sidewalks".
33. Sidewalk details are shown elsewhere in the plans.



NO.	REVISION	DATE	BY

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CODE CHECKED BY:
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QA/QC BY: DATE
QA/QC REVISIONS BY: RLM

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TBPLS FIRM REG. No. 100486

NEW TERRITORY
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT) RE-USED WATER LINE

PEDESTRIAN FACILITIES
CURB RAMPS - PED 12A

Jon R. Vandenberg
50071
REGISTERED PROFESSIONAL ENGINEER
10/27/2016

APPROVED: DEVELOPMENT COORDINATOR
DATE: 12/16/16

SHEET 26 OF 36 SHEETS
JOB NO. 19003020-142

EAST HOMEWARD WAY (RECLAIMED EFFLUENT) RE-USED WATER LINE, ICB NO. 19003020-142
FORT BEND COUNTY, LID 7

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, UNDG. 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 2002), 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 SEWER 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 AS 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 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 LOCATIONS AND BUILDING 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 COMMISSIONING.

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 90% STANDARD PROCTOR DENSITY. THE DISTURBED AREA SHALL BE SEEDED, SODDED, FERTILIZED, AND/OR SILT BARRIER FENCED WITHIN 10 WORKING DAYS. THE TYPE OF POLLUTION CONTROL WILL BE DETERMINED BY THE APPROVED PLANS 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 I CURB INLETS. THE PAVING CONTRACTOR SHALL MAINTAIN ANY OTHER POLLUTION CONTROLS ESTABLISHED, I.E., ADDITIONAL SILT BARRIERS, SAND BAGS, ETC., FOR THE DURATION OF THE PROJECT. ANY DAMAGED OR MISSING DEVICES SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
7. EXISTING PAVEMENTS, CURBS, SIDEWALKS, DRIVEWAYS, ETC., DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO THE CITY OF 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 CONFLICTING 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. THE 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" O.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" O.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" O.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 40°F AND FALLING. CONCRETE MAY BE PLACED IF THE AMBIENT TEMPERATURE IS 35° AND RISING. CONTRACTOR SHALL PROVIDE AN APPROVED COVERING MATERIAL (COTTON MATS, POLYETHYLENE SHEETING, ETC.) IN THE EVENT TEMPERATURE SHOULD FALL BELOW 32°F. NO SALT OR OTHER CHEMICALS SHALL BE ADDED TO CONCRETE TO PREVENT FREEZING.
25. HOT WEATHER. NO CONCRETE PAVEMENT MIXTURE SHALL BE PLACED IF THE MIXTURE TEMPERATURE IS ABOVE 95°F. AIR AND WATER REDUCER ARE REQUIRED IF MIXTURE TEMPERATURE REACHES 85°F OR ABOVE.
26. IF NO AIR AND WATER REDUCER HAS BEEN ADDED, NO CONCRETE SHALL BE PLACED IF MORE THAN 60 MINUTES PAST BATCH TIME. IF AIR AND WATER REDUCER HAS BEEN ADDED, NO CONCRETE SHALL BE PLACED IF MORE THAN 90 MINUTES PAST BATCH TIME.
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' O-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 50% 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 8".
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 WATER, 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 THE 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.I PRIME AND SHALL COMPLY WITH TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS, AND BRIDGES (1993) AND ITS LATEST REVISIONS.
6. TACK COAT SHALL BE SS-1 AND SHALL COMPLY TO TXDOT, S.S.C.H.S. & B. (1993) AND ITS LATEST REVISIONS.
7. M.C.-30 AND M.C.-70 AND EPR-1 PRIME SHALL BE DISTRIBUTED AT A RATE OF .25 TO .35 GALLONS PER SQUARE YARD. AND MAY NOT BE APPLIED WHEN AMBIENT TEMPERATURE IS 50°F AND FALLING. (NOTICE: CUTBACK ASPHALTS MAY NOT BE USED DURING THE PERIOD OF APRIL 16 THROUGH SEPT. 15 AS PER ASTM D-244).
8. EPR-1 MAXIMUM WATER DILUTION IS 3 PARTS WATER TO ONE PART EPR-1.
9. SS-1 TACK COAT SHALL BE APPLIED AT A RATE NOT TO EXCEED 0.08 GAL. PER SQUARE YARD OF SURFACE AREA. CONTACT JOINTS, CURBS, ETC. SHALL BE PAINTED WITH AN EVEN THIN COAT APPLIED BY BRUSH OR BROOM. COATING MATERIAL SHALL BE HEATED TO 125°F TO 160°F WHEN APPLIED. TACK COAT MAY BE APPLIED WHEN AMBIENT TEMPERATURES ARE 40°F AND RISING. TACK COAT MAY NOT BE APPLIED IF AMBIENT AIR IS 50°F AND FALLING.

LIMING SUBGRADE:

1. LIME SHALL BE A "SLURRY" AS PER TXDOT 260 UNLESS SPECIFICALLY RECOMMENDED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE 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 40°F AND FALLING. LIMING MAY, WITH APPROVAL, BE STARTED WHEN THE AMBIENT AIR TEMPERATURE IS 35°F AND RISING. LIME SHALL NOT BE PLACED WHEN WEATHER CONDITIONS, IN THE ENGINEER'S OPINION, ARE UNSUITABLE.
7. THE SUBGRADE MATERIAL AND 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 90% 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.
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 250°F AND 325°F, WHEN PLACED.
4. MATERIALS MAY NOT BE PLACED IN WET CONDITIONS OR IF THE AMBIENT TEMPERATURE IS BELOW 60°F AND FALLING. MATERIALS MAY BE INSTALLED IF THE AMBIENT TEMPERATURE IS TAKEN IN THE SHADE AND IS 40°F AND RISING.
5. PLACE BASE COURSES 4 INCHES OR GREATER IN THICKNESS IN TWO OR MORE LAYERS, EACH HAVING A COMPACTED THICKNESS OF NOT GREATER THAN 4 INCHES.
6. BASE MATERIAL MAY ONLY BE PLACED AGAINST CLEAN, STRAIGHT EDGES. SAW CUTTING, FULL DEPTH, IS REQUIRED IF EXISTING EDGES ARE ROUGH OR UNEVEN.
7. COMPACTION SHALL BEGIN WHILE MATERIAL IS STILL HOT AND AS SOON AS IT WILL BEAR THE ROLLER OR COMPACTOR WEIGHT WITHOUT UNDUE DISPLACEMENT OR HAIR CRACKING.
8. COMPACT SURFACE UNIFORMLY WITH ROLLERS OR TAMPERS IN LOCATIONS NOT READILY ACCESSIBLE (I.E., ALONG CURBS, WALLS, ETC.).
9. UNLESS OTHERWISE SPECIFIED, COMPACT DENSITY TO NOT LESS THAN 95% OF MAXIMUM POSSIBLE DENSITY.
10. A CERTIFIED LAB SHALL BE ON SITE AT ALL TIMES TO TEST AND PROPERLY DOCUMENT THE CONSTRUCTION METHODS AND QUALITY OF MATERIALS.
11. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY TO A.S.T.M. ASPHALT INSTITUTE AND CITY OF 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 200 SQ. YD., WHICHEVER MAY APPLY AND SHALL BE STAGGERED RELATIVE TO TESTING SITES IN ABUTTING TRAFFIC LANES. FAILURE TO MEET MINIMUM REQUIREMENTS SHALL RESULT IN THE REPLACEMENT OF SAID MATERIAL AT CONTRACTOR'S EXPENSE.

No.	DATE	REVISION

STATE OF TEXAS
Art. R. Vasquez
86071
REGISTERED PROFESSIONAL ENGINEER

SEAL:

DATE 10-27-16

SIGNATURE OVERRIDDEN

CITY OF SUGAR LAND
TEXAS

CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT)
RE-USED WATER LINE

GENERAL CONSTRUCTION NOTES I

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

SL

ASPHALTIC CONCRETE PAVEMENT:

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

1. TEST AND ANALYSIS OF AGGREGATE AND BINDER MATERIALS WILL BE PERFORMED IN ACCORDANCE WITH ASTMD 1557 AND ASTMD 4318. CEMENT SHALL BE ASTMC 150 TYPE I.
2. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES (1993) AND ITS LATEST REVISIONS AND CITY OF SUGAR LAND STANDARDS.
3. PRIME COAT SHALL BE M.C. 30 OR EPR-1 PRIME.
4. DESIGN MIX FOR MINIMUM AVERAGE COMPRESSIVE STRENGTH OF 200 PSI IN 48 HRS. PROVIDE MINIMUM CEMENT CONTENT OF 2 SK PER TON OF MIX. CEMENT CONTENT MAY BE RAISED AT THE CONTRACTOR'S EXPENSE IF TESTS ON FIELD SAMPLES FALL BELOW 200 PSI.
5. THREE SAMPLES SHALL BE MOLDED EACH DAY FOR EACH 300 TONS OF PRODUCTION. COMPRESSIVE STRENGTH SHALL BE THE AVERAGE OF THREE TESTS FOR EACH PRODUCTION LOT. CONTRACTOR SHALL REPLACE, AT HIS OWN EXPENSE, ANY MATERIAL BELOW MINIMUM REQUIREMENTS.
6. CONTRACTOR SHALL VERIFY LINES, GRADES, AND COMPACTED SUBGRADING AS READY TO RECEIVE MATERIALS PRIOR TO ITS PLACEMENT.
7. CEMENT STABILIZED BASE MAY NOT BE PLACED IF AMBIENT TEMPERATURE IS 40°F AND FALLING. BASE MATERIAL MAY BE PLACED IF AMBIENT TEMPERATURE IS 35°F AND RISING.
8. MATERIAL MAY NOT BE PLACED IN LIFTS EXCEEDING 6 INCHES IN DEPTH. EACH LIFT SHALL HAVE DENSITIES TAKEN.
9. CEMENT STABILIZED BASE MAY NOT BE STORED FOR LONG PERIODS. DELIVERY OF MATERIAL AND UTILIZATION SHOULD BE TIMED ACCORDINGLY. MAXIMUM TIME ALLOWED 3 HRS. FROM BATCH TIME TO HAVING BEEN INSTALLED.
10. CEMENT STABILIZED BASE SHALL NOT BE INSTALLED IN WET OR SOFT AREAS.
11. COMPACT TO MINIMUM DENSITY OF 95% OF MAXIMUM DRY DENSITY. UNLESS OTHERWISE INDICATED ON DRAWINGS, MOISTURE SHALL BE BETWEEN + OR -2% OPTIMUM AS DETERMINED BY ASTMD 698.
12. AFTER COMPACTING FINAL COURSE, BLADE SURFACE TO FINAL GRADE. ANY IRREGULARITIES, WEAK SPOTS, AREAS OF EXCESSIVE WETNESS, OR SURFACE HAIR LINE CRACKING SHALL BE REPAIRED AND/OR REPLACED AT CONTRACTOR'S EXPENSE.
13. A CERTIFIED LAB SHALL BE ON SITE AT ALL TIMES TO TEST AND PROPERLY DOCUMENT THE CONSTRUCTION METHODS AND QUALITY OF MATERIALS.
14. COMPACTION TESTING WILL BE PERFORMED IN ACCORDANCE WITH ASTM D 1556 OR ASTM D 2922 AND ASTM D 3017 AT RANDOMLY SELECTED LOCATIONS AS DIRECTED BY CITY OF SUGAR LAND CONSTRUCTION INSPECTOR.
15. A MINIMUM OF ONE CORE SHALL BE TAKEN AT RANDOM LOCATIONS PER 300 LF PER LANE OF ROADWAY OR ONE PER 250 SQ. YD., WHICHEVER MAY APPLY AND SHALL BE STAGGERED RELATIVE TO TESTING SITES IN ABUTTING TRAFFIC LANES.
16. CURE FOR A MINIMUM OF 7 DAYS BEFORE ADDING ASPHALT PAVEMENT COURSES.
17. COVER SURFACE WITH CURING MEMBRANES AT THE FOLLOWING RATES: MC-30:0.01 GAL. PER SQ. YD., OR EPR-1 PRIME:0.15 GAL. PER SQ. YD.: DO NOT USE CUTBACK ASPHALT APRIL 16 TO SEPTEMBER 15. PROTECT THE MEMBRANE BY ALLOWING MEMBRANE TO FULLY CURE PRIOR TO PERMITTING TRAFFIC TO DRIVE ON IT.
18. UNSTABILIZED CRUSHED CONCRETE MAY NOT BE USED ON PUBLIC STREETS, ROADS, OR RIGHTS-OF-WAY.
19. STABILIZED LIMESTONE BASE MAY BE SUBSTITUTED FOR STABILIZED CRUSHED CONCRETE IF SUBMITTED AND APPROVED BY THE CITY ENGINEER.

STORM SEWER NOTES:

1. 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.
2. ALL PIPE STORM SEWERS SHALL BE INSTALLED, BEDDED, AND BACKFILLED IN ACCORDANCE WITH CITY OF SUGAR LAND STANDARD DETAIL DRAWINGS.
3. 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%.
4. 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.
5. ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES OR INLETS ARE TO BE PLUGGED WITH 8" BRICK WALLS WITH FULL MORTAR HEAD AND BUD JOINTS AND GROUTED WITH A MINIMUM OF 1/2-INCH NON-SHRINK GROUT INSIDE AND OUTSIDE, UNLESS OTHERWISE NOTED.
6. AVOID TO MAXIMUM EXTENT, MANHOLES IN HANDICAP RAMPS.
7. 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.
8. RIM ELEVATIONS SHOWN ON THE PLANS ARE APPROXIMATE ONLY. UTILITY CONTRACTOR SHALL ADJUST RIM ELEVATIONS TO 0.4 FEET ABOVE THE FINISH GRADE AT EACH LOCATION AFTER CONTRACTOR HAS COMPLETED FINAL GRADING. SLOPED FILL SHALL BE ADDED FOR STORM WATER DRAINAGE AWAY FROM RIM.
9. RIM ELEVATIONS SHALL BE PROPERLY ADJUSTED TO GRADE IN PAVEMENT AND SIDEWALKS. APPROVED BLOCKOUTS SHALL BE USED IN PAVEMENT.
10. ALL STORM SEWER MANHOLE COVERS MUST INCLUDE "STORM SEWER" AND "DUMP NO WASTE", "DRAINS TO WATERWAYS" WITH CITY OF SUGAR LAND EMBLEM AS DEPICTED IN THE DETAIL SHEETS.
11. MINIMUM STORM SEWER SIZE SHALL BE 24-INCH DIAMETER. ALL STORM SEWER PIPES 24" AND LARGER ARE TO BE REINFORCED CONCRETE PIPE ASTM C-76 CLASS III, INCLUDING INLET LEADS CROSSING UNDER EXISTING OR PROPOSED PAVEMENTS. ALL INLET LEADS SHALL BE 24" R.C.P. OR LARGER. ALL STORM SEWER PIPE SHALL BE RUBBER GASKETED. ALL CMP PIPE SHALL BE IN ACCORDANCE WITH C.O.S.L. APPROVED PRODUCT LIST AND STANDARD DETAILS.
12. CONTRACTOR SHALL VERIFY NATURAL GROUND SHOTS PRIOR TO MANHOLE CONSTRUCTION.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING 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 ALL 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.
14. CONTRACTOR TO PROVIDE A MINIMUM OF 6-INCHES CLEARANCE AT UTILITY CROSSINGS AND A MINIMUM OF TWELVE (12) INCHES AT SANITARY SEWER CROSSING.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING, MAINTAINING, AND RESTORING ANY BACKSLOPE DRAINAGE SYSTEM DISTURBED OR DEFORMED AS A RESULT OF HIS WORK.
16. ALL DITCHES SHALL BE RESTORED TO PROPOSED ELEVATIONS TO INSURE PROPER DRAINAGE. ALL OUTFALLS SHALL BE COMPACTED AND ALL DISTURBED AREAS SHALL BE RESEEDED OR RESODDED WITHIN 10 WORKING DAYS OF EACH OCCURRENCE (NO SEPARATE PAY).
17. 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.
18. ALL STORM SEWERS MUST BE CLEAN/FREE OF DIRT AND DEBRIS AT THE TIME AND INITIAL AND FINAL ACCEPTANCE.
19. REFER TO GENERAL NOTES AND C.S.S. NOTES.

SANITARY SEWER NOTES:

1. SANITARY SEWERS, FORCE MAINS, MANHOLES, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS SHALL BE DESIGNED AND CONSTRUCTED AS PER THE REQUIREMENTS OF THE CITY OF 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.
2. ALL MATERIALS AND PRODUCTS USED IN THE CONSTRUCTION OF SANITARY SEWERS, FORCE MAINS, MANHOLES, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS SHALL COMPLY WITH THE CITY OF SUGAR LAND DESIGN STANDARDS AND THE CURRENT APPROVED PRODUCTS LIST.
3. 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.
4. 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.
5. 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.
6. 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.
7. MANHOLE RIM ELEVATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY. UTILITY CONTRACTORS SHALL ADJUST RIM ELEVATIONS TO 0.4 FEET ABOVE FINISHED GRADE, AND 0.5 FEET ABOVE NATURAL GROUND WITHIN RIGHTS-OF-WAY AND EASEMENTS AT EACH MANHOLE LOCATION AFTER PAVEMENT CONTRACTOR HAS COMPLETED FINAL GRADING. THE AREA ADJACENT TO SANITARY SEWER MANHOLE LOCATIONS SHALL BE GRADED AWAY FROM SUCH MANHOLES SO AS PREVENT ENTRY OF STORM WATER RUNOFF TO THE SANITARY SEWER SYSTEM.
8. MINIMUM SEPARATION DISTANCES AS REQUIRED BY TCEQ SECTION 317.33, 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.
9. TESTING OF SANITARY SEWERS, FORCE MAINS, MANHOLES, LIFT STATIONS AND WASTEWATER TREATMENT PLANTS SHALL BE CONDUCTED AS NOTED IN SANITARY SEWER CHAPTER OF THE CITY OF SUGAR LAND DESIGN STANDARDS AND AS PER THE REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY "DESIGN CRITERIA FOR SEWERAGE SYSTEMS".
10. 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.
11. ALL COMMERCIAL DEVELOPMENTS WITH A FAR SIDE SANITARY SERVICE LEAD ACROSS THE STREET SHALL PROVIDE A SIX (6) INCH RISER AND CLEANOUT ON THE PROPERTY SIDE. PUBLIC MAINTENANCE OF THE FAR SIDE LEAD SHALL END AT THIS RISER.

WATER DISTRIBUTION NOTES:

1. 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.
2. 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.
3. ALL GATE VALVES INSTALLED BELOW GRADE SHALL BE OF NON-RISING STEM DESIGN.
4. ALL FIRE HYDRANTS SHALL BE PAINTED AND/OR REPAINTED WITH GEO-GLEN 303 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-231 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.
5. MINIMUM SEPARATION DISTANCES AS REQUIRED BY TCEQ SECTION 317.33, 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 GREATHER THAN 9' (NINE) FT. CANNOT BE MAINTAINED.
6. EACH WATER SERVICE LEAD STUB SHALL BE MARKED WITH A PRESSURE TREATED 4 X 4 TIMBER 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.
7. TESTING OF WATER MAINS, WATER SERVICE LINES AND ASSOCIATED APPURTENANCES SHALL BE CONDUCTED AS PER REQUIREMENTS OF AWWA C605-94.
8. DISINFECTION OF WATER MAINS, WATER SERVICE LINES AND ASSOCIATED APPURTENANCES SHALL BE CONDUCTED AS PER REQUIREMENTS OF AWWA C651 AND TCEQ. NO CONNECTIONS SHALL BE MADE TO EXISTING WATER LINES UNTIL NEWLY CONSTRUCTED WATER LINES HAVE BEEN THOROUGHLY DISINFECTED, TESTED, FLUSHED, AND SAMPLED AND CONNECTION HAS BEEN AUTHORIZED BY THE CITY ENGINEER.
9. 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.
10. ALL MECHANICALLY RESTRAINED FITTINGS MUST BE MEGALUG RESTRAINED JOINTS OR APPROVED EQUAL.
11. 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.

PR	DATE	REVISION

SEAL: STATE OF TEXAS — Jon H. Vandewill — 50971 — REGISTERED PROFESSIONAL ENGINEER

DESIGN ENGINEER: DATE: 10-27-16

CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT)
RE-USED WATER LINE

GENERAL CONSTRUCTION NOTES II

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

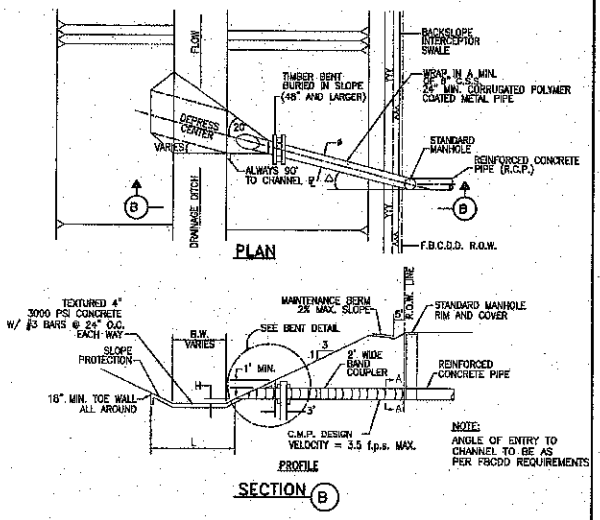
SL-02
SHEET 28 OF 36

Costello
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 10018800

PLOT TIME:

CAD FILE PATH:
PLOT DATE:

12/16/16

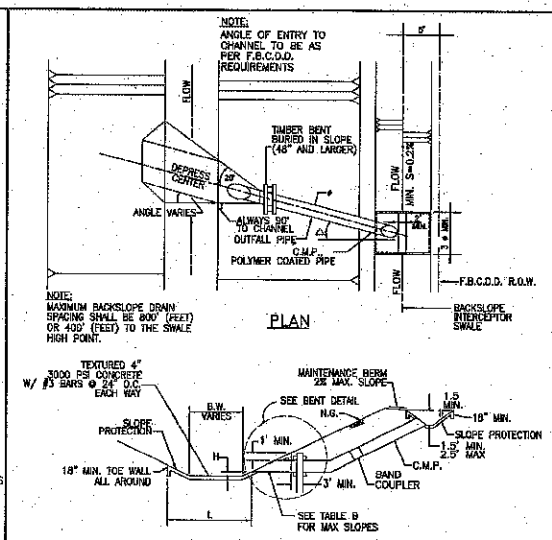


NOTE:
ANGLE OF ENTRY TO CHANNEL TO BE AS PER F.B.C.D.D. REQUIREMENTS

STORM SEWER OUTFALL

N.T.S.

SL-DR-15

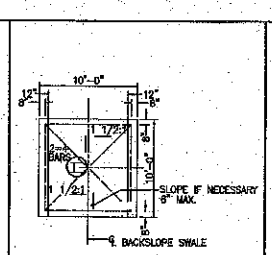


NOTE:
MAXIMUM BACKSLOPE DRAIN SPACING SHALL BE 800' (FEET) OR 400' (FEET) TO THE SWALE HIGH POINT.

BACKSLOPE INLET & OUTFALL

N.T.S.

SL-DR-16



INLET DETAIL

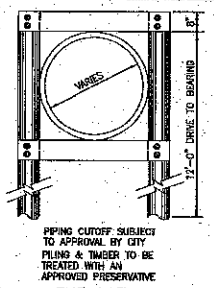
TABLE A

SIZE 2 2/3" X 1/2" CORRUGATION	PIPE GAUGE	BAND COUPLER GAUGE	SIZE 3"X1" & 5"X1" CORRUGATION	PIPE GAUGE	BAND COUPLER GAUGE
24"	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	18
84"	8	10	84"	14	18

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



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

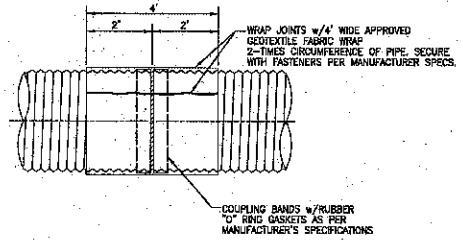
END VIEW

CONSTRUCTION NOTES:

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

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

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



NOTES:

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

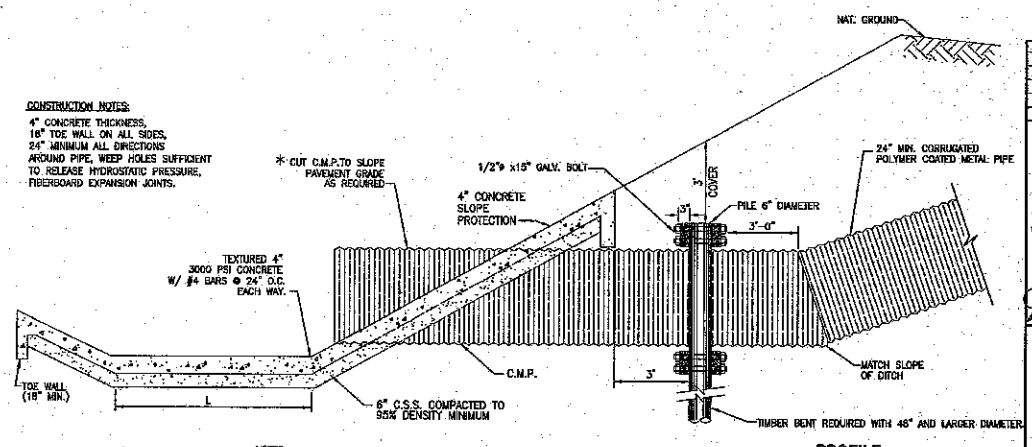
STORM SEWER JOINT WRAP DETAIL

N.T.S.

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.



PROFILE

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

Costello

TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 10046

No.	DATE	REVISION

STATE OF TEXAS — Jon R. Vandewitt — 80071 — REGISTERED PROFESSIONAL ENGINEER

SEAL

DESIGN ENGINEER: DATE 10-27-16

CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT)
REUSED WATER LINE

STORM SEWER OUTFALL CONSTRUCTION DETAILS

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

SL-06
SHEET 29 OF 36

PLOT TIME:
CAD FILE PATH:
PLOT DATE:

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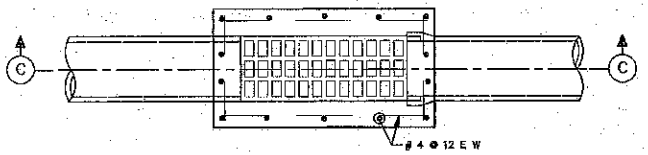

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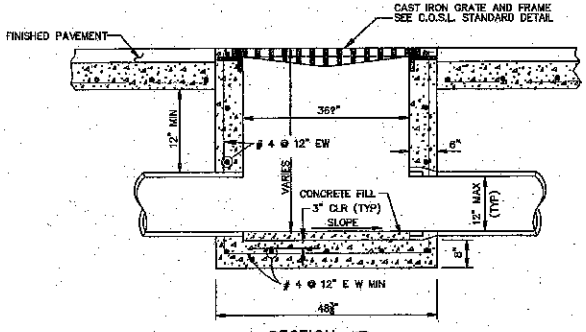
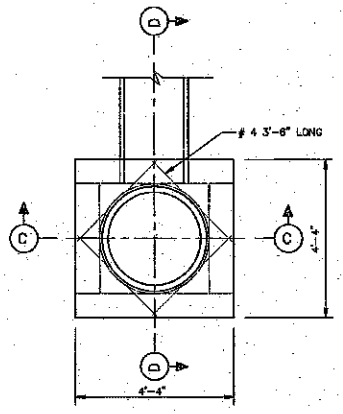


SECTION C

SL-DR-24

TYPE "D" INLET



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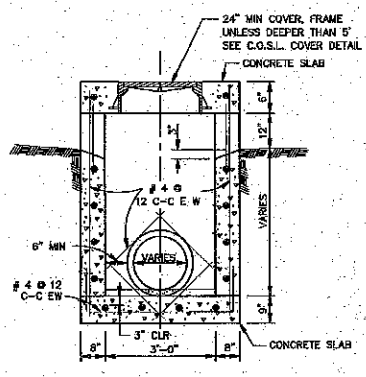

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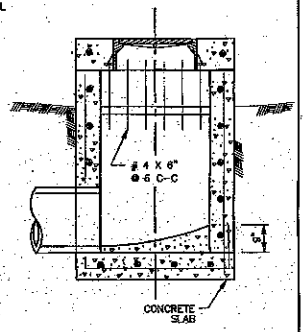


SECTION D

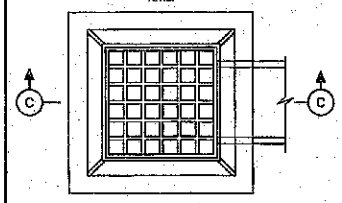
TYPE "E" INLET

N.T.S.

SL-DR-22

TYPE "A" INLET

N.T.S.



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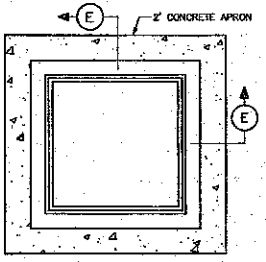

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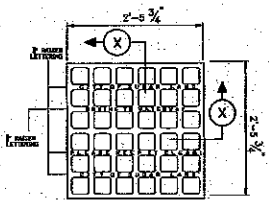
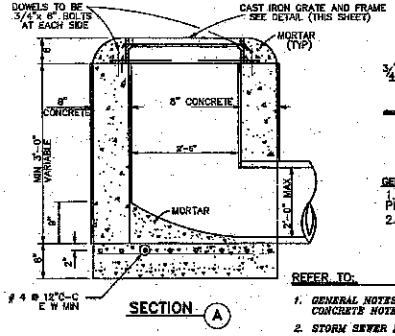
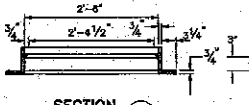


GRATE



SECTION A



SECTION E

SECTION X

GENERAL CONSTRUCTION NOTES:

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

REFER TO:

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

Costello

TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100496

SL-DR-23

No.	DATE	REVISION

STATE OF TEXAS
Jon R. Vandenwege
50071
REGISTERED PROFESSIONAL ENGINEER

SEAL:

DATE: 10-27-16
DESIGN ENGINEER:

CITY OF SUGAR LAND
TEXAS

CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT)
RE-USED WATER LINE

STORM SEWER INLET
CONSTRUCTION DETAILS I

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

SL-07

SHEET 30 OF 36

12/16/16

PLOT TIME:

CAD FILE PATH:
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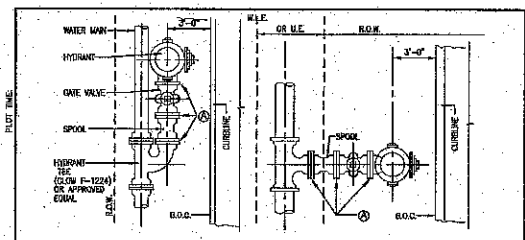
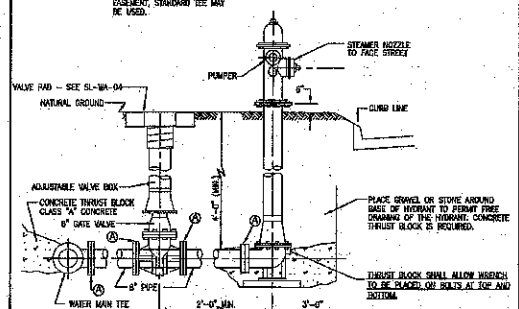


R.O.W. INSTALLATION
N.T.S.

EASEMENT INSTALLATION
N.T.S.

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



FLUSHING VALVE COLOR CODE

MAIN LINE DIAMETER	BONNET, PUMPER CAP AND STEAMER CAP
6 INCHES (AND LESS)	YELLOW
8 INCHES	WHITE
12 TO 18 INCHES	GREEN
GREATER THAN 18 INCHES	ORANGE

FIRE HYDRANT BODY TO BE PAINTED CED-CLEN 301 BRIGHT SILVER ALUMINUM POLYURETHANE ENAMEL, BY CED-CLEN ENTERPRISES OR APPROVED EQUAL.

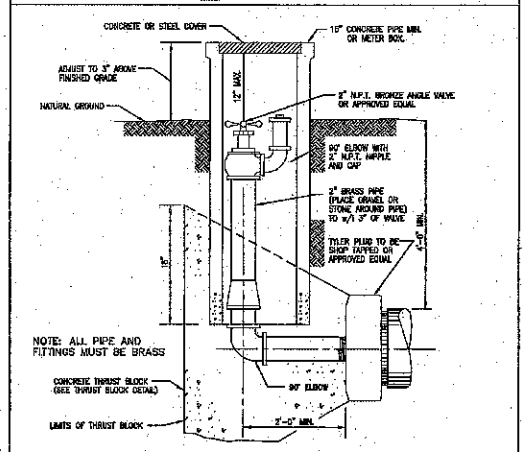
NOTE:
ALL FIRE HYDRANTS SHALL BE MUELLER, KENNEDY, AMERICAN, M & H OR APPROVED EQUAL WITH STEAMER NOZZLE SIZE 4.125" PUMPER 2.5" N.S.T.

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

Ⓐ =RESTRAINED JOINT

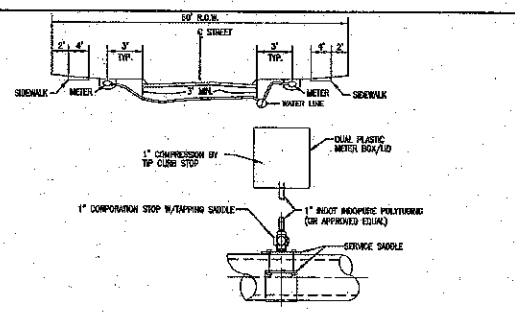
TYPICAL GATE & FIRE HYDRANT INSTALLATION
N.T.S.

SL-WA-01



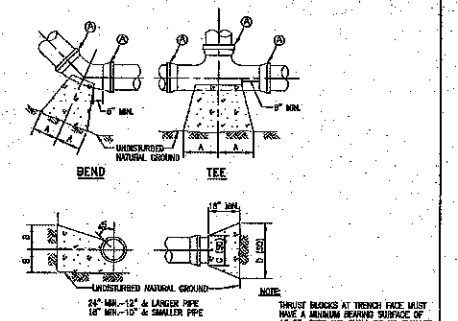
2" BLOW OFF VALVE ASSEMBLY
N.T.S.

SL-WA-02



WATER SERVICE CONNECTION
AND
WATER SERVICE TAPPING ASSEMBLY DETAIL
N.T.S.

SL-WA-03

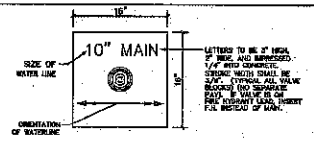


NOTE:
THRUST BLOCKS AT TRENCH FACE MUST HAVE A MINIMUM BEARING SURFACE OF 30 SQ. FEET AND SHALL BE NO SMALLER THAN 1.5 TIMES PIPE DIAMETER.
ALL CONCRETE SHALL BE 5 SACK MIN. 3000 P.S.I.

Ⓐ =RESTRAINED JOINT

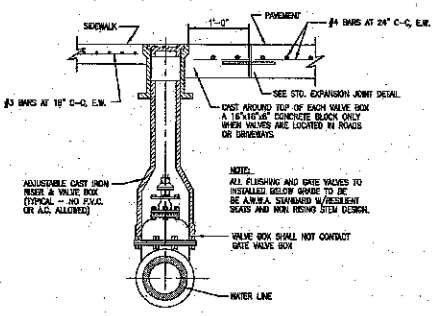
THRUST BLOCK DETAIL
N.T.S.

SL-WA-05



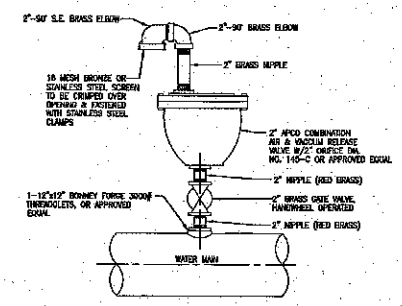
CONCRETE PAD
N.T.S.

NOTE: ALL VALVES MUST HAVE CONCRETE PAD



VALVE BOX INSTALLATION DETAIL
N.T.S.

SL-WA-04



WATER MAIN

AIR RELEASE VALVE DETAIL
N.T.S.

SL-WA-06

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 WRAP SHALL BE REQUIRED AROUND ALL METAL PIPE AND APPURTENANCES (EXCEPT FIRE HYDRANTS).
3. POLYETHYLENE FILM SHALL BE FURNISHED AND INSTALLED EITHER IN TUBULAR FORM PRIOR TO LOWERING THE PIPE IN TRENCH OR IN SHEET FORM.
4. POLYETHYLENE TUBE ENCASEMENT SHALL CONFORM WITH THE MINIMUM REQUIREMENTS OF "POLYETHYLENE ENCASEMENT FOR GRAY AND DUCTILE CAST-IRON PIPING FOR WATER AND OTHER LIQUIDS", ANSI/AWWA C105, CURRENT REVISION. SOLD WITHIN A PROJECT SHALL BE TESTED IN ACCORDANCE WITH APPENDIX A OF ANSI/AWWA C105 TO ADEQUATELY DETERMINE THE REQUIREMENTS FOR ENCASEMENT.
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
3 1/2"	12"	7"	6"	5"	6"	7"	8"	8"	14"	7"
6"	16"	10"	9"	10"	7"	12"	10"	12"	10"	21"
8"	22"	13"	12"	13"	8"	10"	13"	16"	12"	29"
10"	28"	17"	14"	17"	10"	13"	16"	20"	14"	36"
12"	33"	21"	16"	21"	11"	16"	18"	24"	16"	41"
14"	35"	24"	18"	24"	12"	20"	22"	27"	18"	48"
16"	38"	27"	21"	27"	13"	24"	24"	30"	20"	54"
20"	51"	40"	30"	40"	16"	30"	30"	40"	30"	76"
24"	60"	45"	36"	45"	18"	36"	36"	45"	36"	75"
30"	80"	68"	36"	68"	22"	36"	36"	48"	36"	96"

BENDS, TEES & PLUGS
FOR PIPE OF VARIOUS SIZES

SL-WA-08

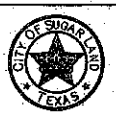
Costello

TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 10048

SEAL

DATE 10-27-16

DESIGN ENGINEER



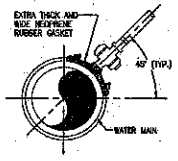
CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

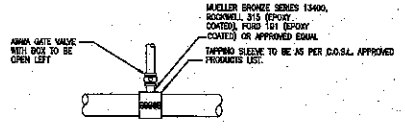
CONSTRUCTION PLANS FOR:
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT)
RE-USED WATER LINE

WATER LINE
CONSTRUCTION DETAILS

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

SL-15
SHEET 31 OF 36





TAPPING SLEEVE & VALVE DETAIL
N.T.S.

SL-WA-07

CONSTRUCTION NOTES:

1. WATER LINES 12" (IN.) AND LESS SHALL BE AWWA C-600 DR18
   WATER LINE GREATER THAN 12" (IN.) IN # 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.

SL-WA-08

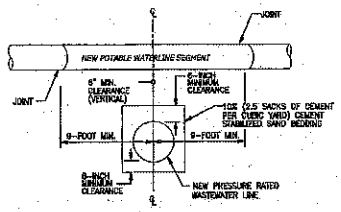
CAD FILE NAME:
PLOT DATE:

PLOT TIME:

Mary D. 12/16/16

I

NEW POTABLE WATERLINE CROSSING NEW PRESSURE RATED WASTEWATER LINE WITH SEGMENT LENGHTS OF EIGHTEEN (18) FEET OR GREATER, HAVING 6 INCHES OF VERTICAL CLEARANCE AND 4 FEET OF HORIZONTAL CLEARANCE

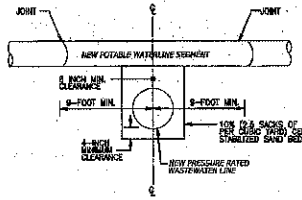


- WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN JOINTS OF THE WASTEWATER LINE.
- MINIMUM WASTEWATER PIPE STIFFNESS OF 115 PSI AT 5% DEFLECTION.
- EMBED WASTEWATER LINE IN CEMENT STABILIZED SAND TO AT LEAST 12" INCHES BEYOND EACH JOINT OF CROSSED SECTION OF PIPE.

SL-WA-09

II

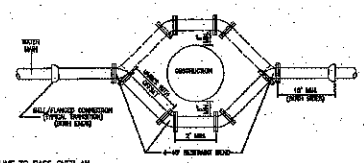
NEW POTABLE WATERLINE CROSSING NEW PRESSURE RATED WASTEWATER LINE



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

SL-WA-10

III



FOR A LINE TO PASS OVER AN OBSTRUCTION RATHER THAN UNDER, IT MUST HAVE ADEQUATE COVER AND BE APPROVED BY THE ENGINEERING DEPARTMENT.

MIN. PIPE WALL THICKNESS	
4"	0.250"
6"	0.280"
8"	0.322"
12"	0.375"
AND LARGER	

NOTES:

1. PIPE MATERIAL SHALL BE AWWA C900 PVC, DR-14, 200 PSI WITH INTEGRAL PVC RETAINED JOINTS.
2. OFFSET ASSEMBLY MUST PASS OVER THE OBSTRUCTION AS LONG AS THE MINIMUM CLEARANCE IS MAINTAINED. SPECIAL APPROVAL FROM THE UNITED CITIES MANAGER MUST BE GRANTED FOR THE OFFSET TO PASS UNDER THE OBSTRUCTION.
3. MATERIAL AND CONTROL SHALL BE IN ACCORDANCE WITH WATER MAIN STANDARD SPECIFICATIONS.
4. RESTRAIN EXISTING PIPING BEYOND OFFSET SECTION AS REQUIRED TO PREVENT MOVEMENT.
5. ALL PVC PRODUCTS MUST BE LISTED ON CITY OF SUGAR LAND'S APPROVED PRODUCTS LIST.

PVC WATER PIPE OFFSET ASSEMBLY

SL-WA-11

GENERAL NOTES:

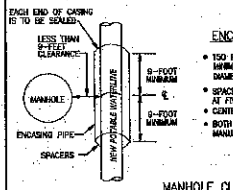
1. CONTRACTOR SHALL CONTACT CITY OF SUGAR LAND ENGINEERING DEPARTMENT AT (281) 225-2780 IF WET SAND OR OTHER UNSTABLE SOIL CONDITIONS, HIGH WATER TABLE AND/OR UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED.
2. SHOULD A CONFLICT ARISE BETWEEN INFORMATION DEPICTED ON APPROVED CONSTRUCTION DRAWINGS AND INFORMATION INCLUDED IN PROJECT SPECIFICATIONS, CITY OF SUGAR LAND DESIGN STANDARDS SHALL GOVERN.
3. ALL NEW POTABLE WATER LINES AND SANITARY SEWER FORCE MAINS SHALL BE BEDDED IN COMPACTED BANK SAND A MINIMUM OF 6 INCHES BELOW, ABOVE AND TO EITHER SIDE OF SUCH PIPING.
4. ALL NEW SANITARY SEWER GRAVITY DRAIN LINES SHALL BE BEDDED IN CEMENT STABILIZED SAND CONFORMING TO THE REQUIREMENTS FOR EITHER CLASS "A" STANDARD BEDDING OR CLASS "A-A" BEDDING AS APPLICABLE. USE OF MODIFIED "A" OR MODIFIED "A-A" BEDDING FOR SANITARY SEWER INSTALLATIONS WHERE WET SAND CONDITIONS ARE ENCOUNTERED AND SEPARATION DISTANCE TO POTABLE WATER LINES IS LESS THAN 9 FEET REQUIRES APPROVAL BY CITY ENGINEER.
5. CEMENT STABILIZED BEDDING SHALL BE A MINIMUM 1.5 SACK PER CUBIC YARD C.S.S., INSTALLED IN MAXIMUM LIFTS OF 6 INCHES AND MECHANICALLY TAMPED TO 95% PROCTOR.
6. WHERE REQUIRED, SLEEVING (ENCASEMENT) OF POTABLE WATER PIPING AND/OR SANITARY SEWER GRAVITY DRAIN LINES AND FORCE MAINS SHALL BE PROVIDED. SUCH SLEEVING (ENCASEMENT) SHALL BE CONSTRUCTED OF APPROVED PIPING MATERIALS HAVING A MINIMUM PRESSURE RATING OF 150 PSI AND ANNULAR SPACES AT EACH END SHALL BE SEALED WITH A MATERIAL APPROVED FOR SUCH USE.
7. ALL NEW POTABLE WATER LINES SHALL BE SLEEVED (ENCASED) WHERE A MINIMUM OF 9 FEET SEPARATION DISTANCE TO EXISTING OR PROPOSED SANITARY SEWER MANHOLE, LIFT STATION OR WASTEWATER TREATMENT PLANT CANNOT BE MAINTAINED. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CLOSEST PROXIMITY.
8. ALL NEW POTABLE WATER LINES SHALL BE SLEEVED (ENCASED) WHERE LESS THAN 2 FEET VERTICAL OR 4 FEET HORIZONTAL CLEARANCE TO EXISTING OR PROPOSED SANITARY SEWER GRAVITY LINES OR FORCE MAINS CANNOT BE MAINTAINED. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CROSSING. WHERE PIPING IS LAID PARALLEL AND MINIMUM SEPARATION DISTANCES CANNOT BE MAINTAINED, SLEEVING SHALL EXTEND AT LEAST 9 FEET PAST THE POINT WHERE MINIMUM SEPARATION DISTANCES ARE ACHIEVED.
9. ALL NEW POTABLE WATER LINES SHALL BE CONSTRUCTED ABOVE EXISTING OR PROPOSED SANITARY SEWER GRAVITY LINES OR FORCE MAINS WHERE POSSIBLE. WHERE INSTALLATION BENEATH SANITARY SEWER GRAVITY LINES OR FORCE MAINS IS UNAVOIDABLE AT POINTS OF CROSSING, SLEEVING (ENCASEMENT) IS REQUIRED FOR ALL NEW POTABLE WATER LINES CONSTRUCTED OF PVC PIPING MATERIALS, REGARDLESS OF SEPARATION DISTANCE. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CROSSING.
10. ALL NEW SANITARY SEWER GRAVITY LINES AND/OR FORCE MAINS CONSTRUCTED OF PVC PIPING MATERIALS SHALL BE SLEEVED (ENCASED) WHERE LESS THAN 2 FEET VERTICAL OR 4 FEET HORIZONTAL CLEARANCE TO EXISTING POTABLE WATER PIPING CANNOT BE MAINTAINED. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CLOSEST PROXIMITY.
11. ALL NEW SANITARY SEWER GRAVITY LINES AND/OR FORCE MAINS SHALL BE CONSTRUCTED BELOW EXISTING POTABLE WATER LINES WHERE POSSIBLE. WHERE INSTALLATION ABOVE POTABLE WATER LINES IS UNAVOIDABLE, SLEEVING (ENCASEMENT) IS REQUIRED FOR ALL SUCH SANITARY SEWER LINES CONSTRUCTED OF PVC PIPING MATERIALS, REGARDLESS OF SEPARATION DISTANCE. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CROSSING.
12. WHERE NEW SANITARY SEWER SIZING (24 INCH AND GREATER) PRECLUDES THE USE OF PVC PIPING MATERIALS AND SLEEVING (ENCASEMENT) OF THE SANITARY SEWER WOULD OTHERWISE BE REQUIRED BUT IS IMPRACTICAL, THE EXISTING POTABLE WATER PIPING SHALL EITHER BE OFFSET TO PROVIDE THE REQUIRED MINIMUM CLEARANCES OR SLEEVED (ENCASED) IN LIEU OF SLEEVING (ENCASING) THE SANITARY SEWER LINE. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CROSSING.
13. IN NO INSTANCE SHALL A FIRE HYDRANT BE INSTALLED WITHIN 9 LINEAR FEET OF A SANITARY SEWER SYSTEM.
14. NOTE: SEPARATION DISTANCES ARE MEASURED FROM THE OUTSIDE DIAMETERS OF EACH PIPE AND FROM THE EXTERIOR SURFACES OF MANHOLES, LIFT STATIONS, WASTEWATER TREATMENT PLANTS AND ASSOCIATED APPURTENANCES.
15. REFER TO GENERAL SANITARY, WATER AND C.S.S. NOTES.

Costello

TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 10046B

SL-WA-18

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

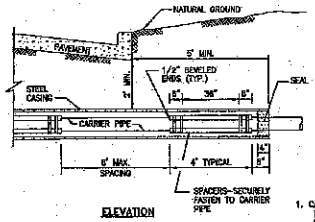


ENCASING PIPE

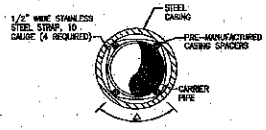
- 150 PSI PRESSURE CLASS PIPE MINIMUM 18 FEET LONG DIAMETER = 2 X WATERLINE DIAMETER
- SPACE AROUND CARRIER PIPE SHALL BE SUPPORTED AT FIVE (5) FOOT (OR LESS INTERVALS WITH SPACERS)
- CENTERED ON CROSSING
- BOTH ENDS SEALED WITH CEMENT GROUT OR A MANUFACTURED WATER TIGHT SEAL.

MANHOLE CLEARANCE

SL-WA-12



ELEVATION



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

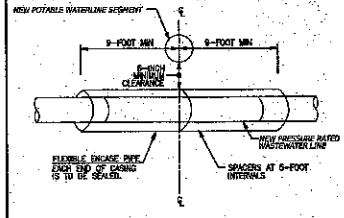
1. CASING SIZE AND THICKNESS SHALL CONFORM TO THE MINIMUM REQUIREMENTS AS SHOWN ON CASING SCHEDULE, OTHER PERMITS AS REQUIRED.
2. MAINTAIN 8" MINIMUM CLEARANCE BETWEEN THE MAXIMUM OUTSIDE DIAMETER OF CARRIER PIPE AND CASING AT ALL LOCATIONS.
3. DIMENSIONS ARE APPROXIMATE ONLY. CONTRACTOR SHALL INSTALL ADEQUATELY SIZED CASING TO ACCOMMODATE THE CARRIER PIPE.

SL-WA-13

IV

ENCASED WASTEWATER LINE

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

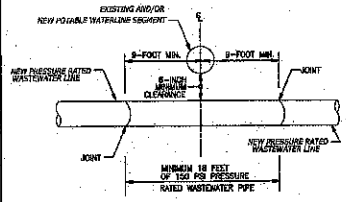


- MINIMUM CASING PIPE STIFFNESS OF 115 PSI AT 5% DEFLECTION.
- MINIMUM CASING PIPE DIAMETER = 2 X WASTEWATER LINE DIAMETER.
- THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE (7) FOOT (OR LESS). INTERVALS WITH SPACERS
- EACH END CASING IS TO BE SEALED WITH WATER TIGHT NO-SHRINK GROUT OR MANUFACTURED WATER TIGHT SEAL

SL-WA-17

ALTERNATIVE A:

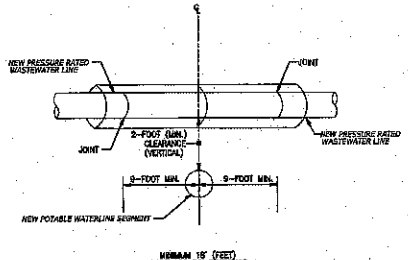
PRESSURE RATED WASTEWATER PIPE



SL-WA-14

ALTERNATIVE B:

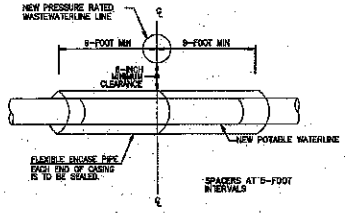
EXISTING POTABLE WATERLINE CROSSING EXISTING PRESSURE RATED WASTEWATER LINE



SL-WA-15

ALTERNATIVE C:

ENCASE NEW POTABLE WATERLINE UNDER A NEW PRESSURE RATED WASTEWATER LINE



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

SL-WA-16

No.	DATE	REVISION

SEAL: THE STATE OF TEXAS — JOSE R. VERDUZCO — 50071 — REGISTERED PROFESSIONAL ENGINEER

DESIGN ENGINEER: DATE 10-27-16

CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT)
RE-USED WATER LINE

WATER LINE CROSSING DETAILS

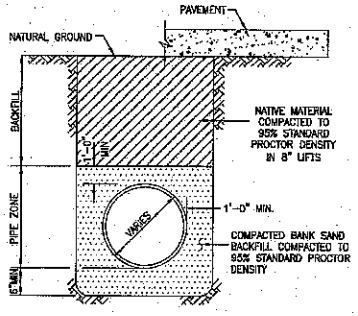
JOB No.:
DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
SCALE:

SL-16
SHEET 32 OF 36

PLOT TIME

CAD FILE PATH:
PLOT DATE:

Maggie Dot 12/16/16



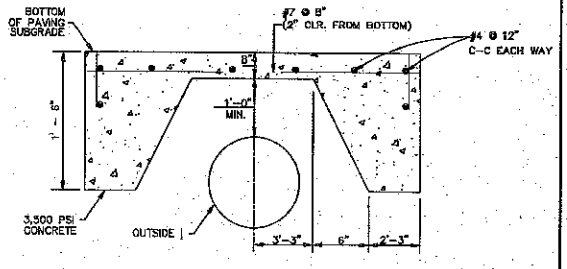
P.V.C. PIPE BEDDING & BACKFILL

N.T.S.

*SEE CONSTRUCTION NOTES

SANITARY FORCE MAIN & WATER LINE BEDDING AND BACKFILL

SL-BB-01



PROTECTIVE SLAB DETAIL

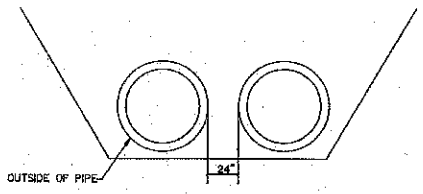
ZERO LOAD TRANSFER CONCRETE SLAB

SL-BB-04

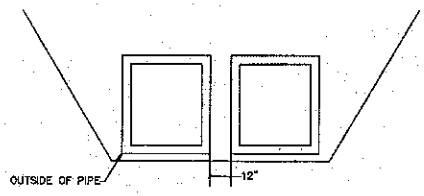
CONSTRUCTION NOTES

1. CONTRACTOR SHALL CONTACT SUGAR LAND ENGINEERING DEPARTMENT IMMEDIATELY IF WET SAND CONDITIONS ARE ENCOUNTERED.
2. LIMESTONE AND RECYCLED CONCRETE DIMENSIONS SHOWN ARE TYPICAL BUT MAY BE VARIED BY ORDER OF CITY ENGINEER.
3. LIMESTONE OR RECYCLED CONCRETE SHALL BE IN ACCORDANCE WITH TXDOT SPECIFICATION No. 246 FLEXIBLE BASE, TYPE A, GRADE 2 AGGREGATE.
4. NO BEDDING SHALL BE INSTALLED IN WET CONDITIONS. WHEN WELL POINTING OR IN WET SAND CONDITIONS, MAINTAIN GROUND WATER 1 (FT) BELOW BOTTOM OF TRENCH FOR A MINIMUM OF 24-HRS AFTER BEDDING AND BACKFILL IS IN PLACE.
5. ALL MATERIALS SHALL BE FROM THE APPROVED PRODUCTS LIST UNLESS SPECIFICALLY APPROVED BY THE CITY ENGINEER.
6. SANITARY SEWER BEDDING FOR WET SAND CONDITIONS SHALL BE AS PER MODIFIED "A".
7. ALL SAND BEDDING FOR WATER LINES SHALL BE CLEAN, MECHANICALLY COMPACTED BANK SAND.
8. REFER TO: MANHOLE DETAILS, SANITARY, C.S.S., GENERAL, WATER CROSSING, WATER DISTRIBUTION DETAILS AND NOTES.
9. ALL BEDDING WILL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
10. A GEOTECHNICAL REPORT MAY BE REQUIRED TO ANALYZE THE BEARING CAPACITY OF EXISTING SOILS AND MAKE A DETERMINATION IF ADDITIONAL BEDDING AND BACKFILL IS APPROPRIATE.

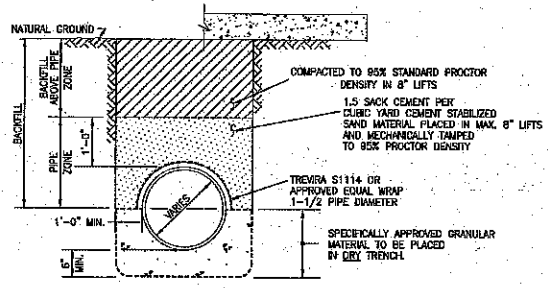
SL-BB-05



PIPE SEPARATION



RCB SEPARATION



MODIFIED "A"

N.T.S.

NOTE: C.S.S. SHALL BE INSTALLED A MIN. 1' ABOVE TOP OF PIPE.

SANITARY SEWER BEDDING AND BACKFILL

SL-BB-03

REFER TO:

1. *GENERAL NOTES*
2. *C.S.S. NOTES*

Costello

TBPE FIRM REG. No. 250
TBPLS FIRM REG. No. 10046

No.	DATE	REVISION

STATE OF TEXAS — Jon R. Vanderwill — 50071 — REGISTERED PROFESSIONAL ENGINEER

SEAL:

DESIGN ENGINEER: DATE 10-27-16

CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:
EAST ROMEWARD WAY
(RECLAIMED EFFLUENT)
RE-USED WATER LINE

WATER LINE, SANITARY SEWER FORCE MAIN BEDDING DETAILS

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

SL-19

SHEET 33 OF 36

12/16/16

PLOT TIME:
CAD FILE PATH:
PLOT DATE:

HYPER-CHLORINATED WATER NOTES

1. HYPER-CHLORINATED WATER SHALL NOT BE DISCHARGED TO THE STORM SEWER OR DRAINAGE SYSTEM UNLESS THE CHLORINE CONCENTRATION IS REDUCED TO 4 PPM OR LESS BY CHEMICALLY TREATING THE DECHLORINATE OR BY ONSITE RETENTION UNTIL NATURAL ATTENUATION OCCURS.
2. DISCHARGE OF HIGH FLOW RATE AND VELOCITIES SHALL BE DIRECTED TO VELOCITY DISSIPATION DEVICES.
3. CHLORINE CAN BURN VEGETATION, SO IT SHOULD NOT BE USED TO WATER VEGETATION THAT IS BEING USED FOR STABILIZATION, VEGETATED FILTERS OR BUFFERS, OR OTHER VEGETATION TO BE PRESERVED.
4. HYPER-CHLORINATED WATER MAY BE DISCHARGED TO AN ONSITE RETENTION AREA UNTIL NATURAL ATTENUATION OCCURS. THE AREA MAY BE A DRY STORMWATER RETENTION BASIN, OR A PORTION OF THE SITE MAY BE GRADED TO FORM A TEMPORARY PIT OR BERMED AREA.
5. NATURAL ATTENUATION OF THE CHLORINE MAY BE AIDED BY AERATION. AIR CAN BE ADDED TO THE WATER BY DIRECTING THE DISCHARGE OVER A ROUGH SURFACE BEFORE IT ENTERS THE TEMPORARY RETENTION AREA OR AN AERATION DEVICE CAN BE PLACED IN THE RETENTION AREA.
6. ONSITE DISCHARGE MAY REQUIRE SEVERAL HOURS TO A FEW DAYS BEFORE THE WATER IS SAFE TO DISCHARGE. THE RATE AT WHICH CHLORINE WILL ATTENUATE IS AFFECTED BY SOIL CONDITIONS AND WEATHER CONDITIONS. ATTENUATION WILL OCCUR QUICKEST DURING WARM, SUNNY, AND DRY PERIODS.

SANITARY WASTE NOTES

1. THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE NUMBER OF PORTABLE TOILETS BASED ON THE NUMBER OF EMPLOYEES USING THE TOILETS AND THE HOURS THEY WILL WORK.
2. SANITARY FACILITIES SHALL BE PLACED ON A MINIMUM OF 50 FEET AWAY FROM STORM DRAIN INLETS, CONVEYANCE, CHANNELS OR SURFACE WATERS. IF UNABLE TO MEET THE 50 FOOT REQUIREMENT DUE TO SITE CONFIGURATION, PORTABLE TOILETS SHALL BE A MINIMUM OF 20 FEET AWAY FROM STORM DRAIN INLETS, CONVEYANCE CHANNELS OR SURFACE WATER AND SECONDARY CONTAINMENT SHALL BE PROVIDE IN CASE OF SPILLS.
3. THE LOCATION OF THE PORTABLE TOILETS SHALL BE ACCESSIBLE TO MAINTENANCE TRUCKS WITHOUT DAMAGING EROSION AND SEDIMENT CONTROLS OR CAUSING EROSION OR TRACKING PROBLEMS.
4. SANITARY FACILITIES SHALL BE FULLY ENCLOSED AND DESIGNED IN A MANNER THAT MINIMIZES THE EXPOSURE OF SANITARY WASTE TO PRECIPITATION AND STORMWATER RUNOFF.
5. WHEN HIGH WINDS ARE EXPECTED, PORTABLE TOILETS SHALL BE ANCHORED OR OTHERWISE SECURED TO PREVENT THEM FROM BEING BLOWN OVER.
6. THE COMPANY THAT SUPPLIES AND MAINTAINS THE PORTABLE TOILETS SHALL BE NOTIFIED IMMEDIATELY IF A TOILET IS TIPPED OVER OR DAMAGED IN A WAY THAT THE RESULTS IN A DISCHARGE. DISCHARGED SOLID MATTER SHALL BE VACUUMED INTO A SEPTIC TRUCK BY THE COMPANY THAT MAINTAINS THE TOILETS.
7. THE OPERATOR OF THE MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) SHALL BE NOTIFIED IF A DISCHARGE FROM THE PORTABLE TOILETS ENTERS THE MS4 OR A NATURAL CHANNEL.
8. SANITARY FACILITIES SHALL NOT BE PERMITTED ON PUBLIC SIDEWALKS, STREETS OR INLETS.

DEBRIS AND TRASH NOTES

1. ALL WASTE SOURCES AND STORAGE AREAS SHALL BE LOCATED A MINIMUM OF 50 FEET AWAY FROM INLETS, SWALES, DRAINAGE WAYS, CHANNELS AND OTHER WATERS. IF THE SITE CONFIGURATION PROVIDES SUFFICIENT SPACE TO DO SO, IN NO CASE SHALL MATERIAL AND WASTE SOURCES BE CLOSER THAN 20 FROM INLETS, SWALES, DRAINAGE WAYS, CHANNELS, AND OTHER WATERS.
2. CONSTRUCTION WASTE AND TRASH SHALL BE STORED IN A MANNER THAT MINIMIZES ITS EXPOSURE TO PRECIPITATION AND STORMWATER RUNOFF.
3. WHENEVER POSSIBLE, MINIMIZE PRODUCTION OF DEBRIS AND TRASH.
4. INSTRUCT CONSTRUCTION WORKERS IN PROPER DEBRIS AND TRASH STORAGE AND HANDLING PROCEDURES.
5. SEGREGATE POTENTIAL HAZARDOUS WASTE FROM NON-HAZARDOUS CONSTRUCTION SITE DEBRIS.
6. PROHIBIT LITTERING BY WORKERS AND VISITORS.
7. POLICE SITE DAILY FOR LITTER AND DEBRIS.
8. ENFORCE SOLID WASTE HANDLING AND STORAGE PROCEDURES.
9. IF FEASIBLE, RECYCLE CONSTRUCTION AND DEMOLITION DEBRIS SUCH AS WOOD, METAL, AND CONCRETE.
10. TRASH AND DEBRIS SHALL BE REMOVED FROM THE SITE AT REGULAR INTERVALS THAT ARE SCHEDULED TO EMPTY CONTAINERS WHEN THEY ARE 90 PERCENT FULL OR MORE FREQUENTLY.
11. GENERAL CONSTRUCTION DEBRIS MAY BE HAULED TO A LICENSED CONSTRUCTION DEBRIS LANDFILL.
12. USE WASTE AND RECYCLING HAULERS/FACILITIES APPROVED BY THE LOCAL MUNICIPALITY.
13. CHIPPING OF TREES AND BRUSH FOR USE SUCH AS MULCH IS PREFERRED ALTERNATIVE TO OFFSITE DISPOSAL.
14. NO WASTE, TRASH, OR DEBRIS SHALL BE BURIED, BURNED OR OTHER WISE DISPOSED OF ONSITE.
15. CLEARLY MARK ON ALL DEBRIS AND TRASH CONTAINERS WHICH MATERIALS ARE ACCEPTABLE. FOREMAN AND/OR CONSTRUCTION SUPERVISOR SHALL MONITOR ONSITE SOLID WASTE STORAGE AND DISPOSAL PROCEDURES DAILY.

SPILL AND LEAK RESPONSE NOTES

1. RECORDS OF RELEASES THAT EXCEED THE REPORTABLE QUANTITY (RQ) FOR OIL AND HAZARDOUS SUBSTANCES SHOULD BE MAINTAINED IN ACCORDANCE WITH THE FEDRAL AND STATE REGULATIONS.
2. EMERGENCY CONTACT INFORMATION AND SPILL RESPONSE PROCEDURES SHALL BE POSTED IN A READILY AVAILABLE AREA FOR ACCESS BY ALL EMPLOYEES AND SUBCONTRACTORS.
3. SPILL CONTAINMENT KITS SHOULD BE MAINTAINED FOR PETROLEUM PRODUCTS AND OTHER CHEMICALS THAT ARE REGULARLY ONSITE. MATERIALS IN KITS SHOULD BE BASED ON CONTAINMENT GUIDELINES IN THE MATERIALS SAFETY AND DATA SHEETS (MSDSS) FOR THE SUBSTANCE MOST FREQUENTLY ONSITE.
4. SPILL KITS ARE INTENDED FOR RESPONSE TO SMALL SPILLS, TYPICALLY LESS THAN 5 GALLONS, OF SUBSTANCES THAT ARE NOT EXTREMELY HAZARDOUS.
5. SIGNIFICANT SPILLS OR OTHER RELEASES WARRANT IMMEDIATE RESPONSE BY TRAINED PROFESSIONALS.
6. SUSPECTED JOB-SITE CONTAMINATION SHOULD BE IMMEDIATELY REPORTED TO REGULATORY AUTHORITIES AND PROTECTIVE ACTIONS TAKEN.
7. THE CONTRACTOR SHOULD BE REQUIRED TO DESIGNATE A SITE SUPERINTENDENT, FOREMAN, SAFETY OFFICER, OR OTHER SENIOR PERSON WHO IS ONSITE DAILY TO BE THE SPILL AND LEAK RESPONSE COORDINATOR (SLRC) AND MUST HAVE KNOWLEDGE OF AND BE TRAINED IN CORRECT SPILL AND LEAK RESPONSE PROCEDURES.

SUBGRADE STABILIZATION NOTES

1. MINIMIZE THE DISCHARGE OF THE CHEMICAL STABILIZERS BY THE CONTRACTOR LIMITING THE AMOUNT OF STABILIZING AGENT ONSITE TO THAT WHICH CAN BE THOROUGHLY MIXED AND COMPACTED BY THE END OF EACH WORKDAY.
2. STABILIZERS SHALL BE APPLIED AT RATES THAT RESULT IN NO RUN OFF.
3. STABILIZATION SHALL NOT OCCUR IMMEDIATELY BEFORE AND DURING RAINFALL EVENTS.
4. NO TRAFFIC OTHER THAN WATER TRUCKS AND MIXING EQUIPMENT SHALL BE ALLOWED TO PASS OVER THE AREA BEING STABILIZED UNTIL AFTER COMPLETION OF MIXING THE CHEMICAL.
5. AREA ADJACENT AND DOWNSTREAM OF STABILIZED AREAS SHALL BE ROUGHENED TO INTERCEPT CHEMICAL RUNOFF AND REDUCE RUNOFF VELOCITY.
6. GEOTEXTILE FABRICS SUCH AS THOSE USED FOR SILT FENCE SHOULD NOT BE USED TO TREAT CHEMICAL RUNOFF, BECAUSE THE CHEMICALS ARE DISSOLVED IN THE WATER AND WON'T BE AFFECTED BY A BARRIER AND THE SUSPENDED SOLIDS ARE SIGNIFICANTLY SMALLER THAN THE APPARENT OPENING SIZE OF THE FABRIC.
7. IF SOIL STABILIZERS ARE STORED ONSITE, THEY SHALL BE CONSIDERED HAZARDOUS MATERIAL AND SHALL BE MANAGED ACCORDING TO THE CRITERIA OF CHEMICAL MANAGEMENT TO CAPTURE ANY ACCIDENTAL LIME OR CHEMICAL OVERFLOW.
8. THE CONTRACRTOR SHALL INSTALL BMP'S TO ALL INLETS AND OPENINGS CONNECTED TO THE STORM SEWER SYSTEMS TO PREVENT LIME FROM ENTERING THE MS4 SYSTEM.

No.	DATE	REVISION

STATE OF TEXAS
Jon R. Vandenhoff
50071
PROFESSIONAL ENGINEER

SEAL:

Jason Brunette DATE: 10-27-16

CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

Costello
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 10048B

CONSTRUCTION PLANS FOR:
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT)
RE-USED WATER LINE

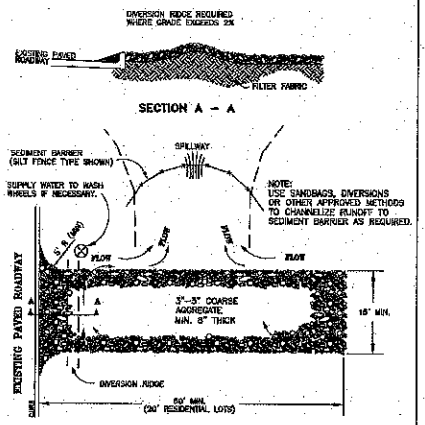
GENERAL EROSION CONTROL NOTES

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

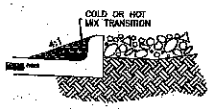
SL-33
SHEET 34 OF 36

Maggie Dorf 12/16/16

PLOT TIME:
CAD FILE PATH:
PLOT DATE:

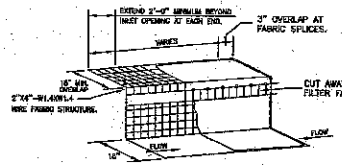


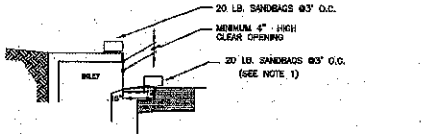
WHEN SEDIMENT HAS SUBSTANTIALLY CLOGGED THE VOID AREA BETWEEN THE ROCKS, THE AGGREGATE MAT MUST BE WASHED DOWN OR REPLACED. PERIODIC RE-GRADING AND TOP DRESSING WITH ADDITIONAL STONE MUST BE DONE TO KEEP THE EFFICIENCY OF THE ENTRANCE FROM DIMINISHING.

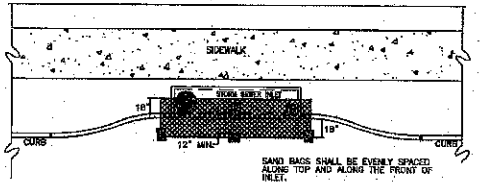


TRANSITION

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







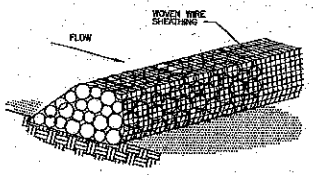
CURB INLET PROTECTION DETAIL
N.T.S.

NOTES:

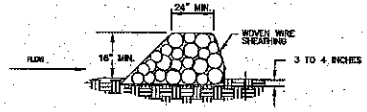
1. A SECTION OF FILTER FABRIC SHALL BE REMOVED AS SHOWN ON THIS DETAIL TO PROVIDE A 4" MINIMUM CLEAR OPENING. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR HOG RINGS AT THIS LOCATION.
2. INSPECTION SHALL BE MADE BY CONTRACTOR AND SILT ACCUMULATION MUST BE REMOVED WHEN DEPTH REACHES 2".
3. CONTRACTOR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

INLET OPENING	MINIMUM NUMBER OF SAND BAGS	
	TOP	FRONT
6'	5	3
10'	3	3
15'	3	4
20'	4	4

ROCK BERM DETAIL
N.T.S.



ISOMETRIC PLAN VIEW



CROSS SECTION
N.T.S.

ROCK BERM GENERAL NOTES

1. USE ONLY OPEN GRADED ROCK 4–8 INCHES IN DIAMETER FOR STREAM FLOW CONDITION. USE OPEN GRADED ROCK 3–5 INCHES IN DIAMETER FOR OTHER CONDITIONS.

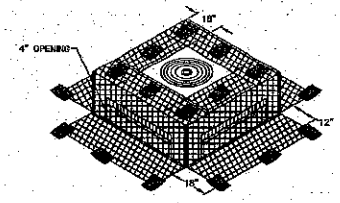
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING A MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE SIZE OF 20 GAUGE AND SHALL BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP.

3. THE ROCK BERM SHALL BE INSPECTED EVERY TWO WEEKS OR AFTER EACH 1/2" RAIN EVENT AND SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

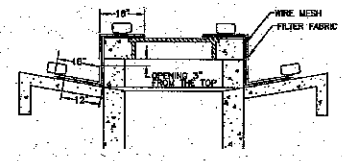
4. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD OF THE HEIGHT OF THE BERM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.

5. WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

6. ROCK BERM SHOULD BE USED AS CHECK DAMS FOR CONCENTRATED FLOW AND ARE NOT INTENDED FOR USE IN PERIMETER PROTECTION.

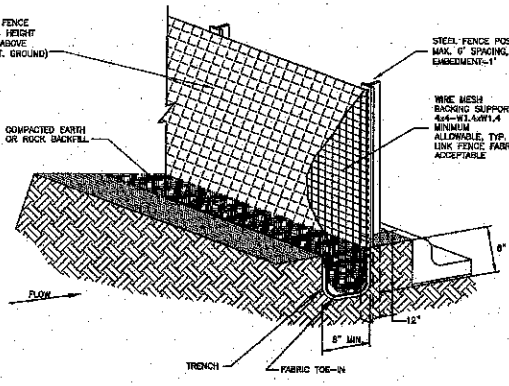


ISOMETRIC VIEW



SECTION

FILTER FABRIC WYE INLET PROTECTION
N.T.S.



ISOMETRIC PLAN VIEW
N.T.S.

SILT FENCE GENERAL NOTES

1. 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.

2. 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.

3. 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.

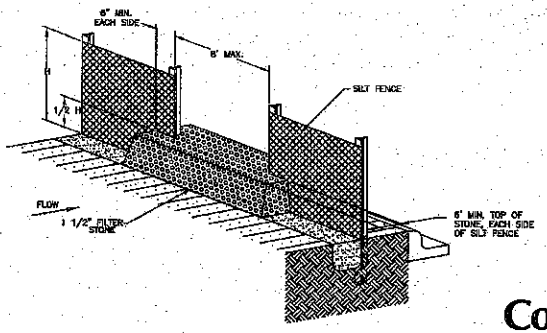
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS ATTACHED TO THE STEEL FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

5. INSPECTION SHALL BE MADE EVERY TWO WEEKS AND AFTER EACH 1/2" RAINFALL. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.

6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

7. 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 OR 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



SILT FENCE
STONE OVERFLOW STRUCTURE
N.T.S.

Costello

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

No.	DATE	REMARKS

STATE OF TEXAS
Jon R. Vandenwit
50071
REGISTERED PROFESSIONAL ENGINEER

SEAL:

DESIGN ENGINEER: Date 10-27-16

CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:
EAST HOMEWARD WAY
(RECLAIMED EFFLUENT)
RE-USED WATER LINE

EROSION CONTROL DETAILS – 1

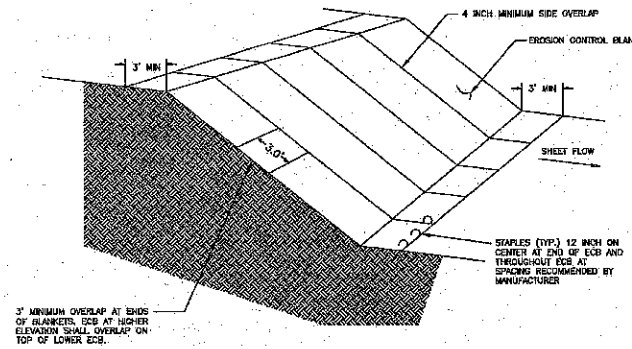
JOB No.:
DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
SCALE:

SL-34
SHEET 35 OF 36

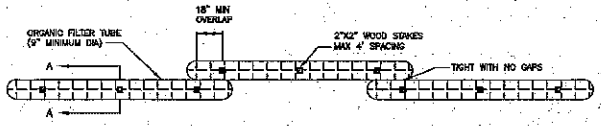
12/16/16

PLOT TIME:

CAD FILE NAME:
PLOT DATE:



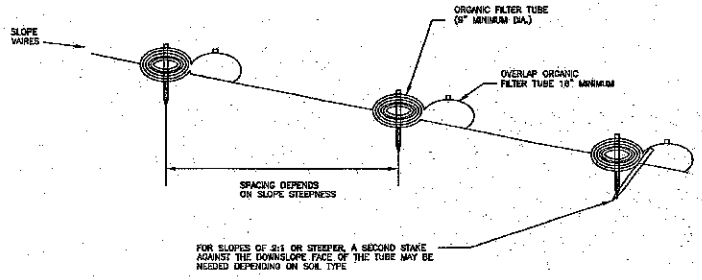
EROSION CONTROL BLANKETS
N.T.S.



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

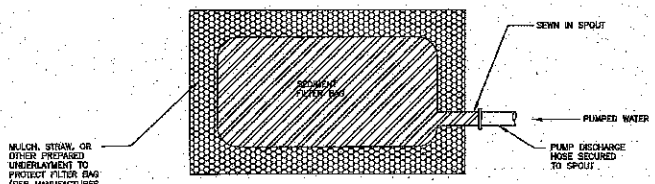
ORGANIC FILTER TUBES NOTES

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.

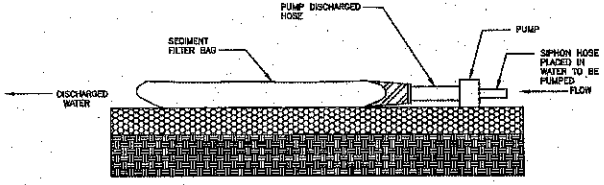


ORGANIC FILTER TUBE PERIMETER CONTROL PROFILE
N.T.S.

FILTER TUBE
N.T.S.



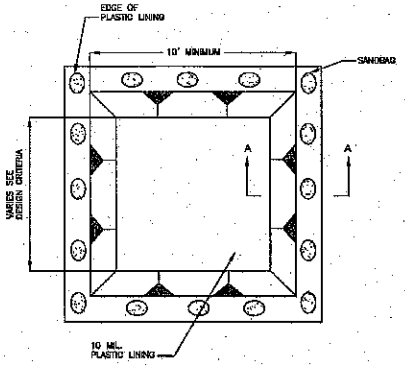
SEDIMENT FILTER BAG PLAN VIEW
N.T.S.



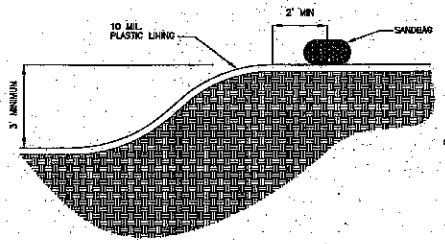
SEDIMENT FILTER BAG PROFILE
N.T.S.

NOTE: A FILTRATION BAG IS NOT REQUIRED IF 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

STATE OF TEXAS — Jon R. Vandenberg — 50371 — REGISTERED PROFESSIONAL ENGINEER

SEAL

DESIGN ENGINEER — DATE 10-27-16

CITY OF SUGAR LAND, TEXAS
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:
EAST ROMEWARD WAY
(RECLAIMED EFFLUENT)
RE-USED WATER LINE

EROSION CONTROL DETAILS – 2

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

SL–35
SHEET 36 OF 38

Costello
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 10018

12/16/16

PLOT TIME:
CAD FILE PATH:
PLOT DATE: