

# REVIEW BY FORT BEND COUNTY COMMISSIONERS COURT

On this 27 day of APRIL, 2010, before the Fort Bend Commissioners Court came on to be heard and reviewed the accompanying notice of CRAVENS SERVICES, INC.

**Job Location** GAINES RD, ELDRIDGE RD, SUGARLAND HOWELL, SUGARLAND BLOSSOM, KEEGANS BAYOU

**Dated** 04/16/10 **BOND NO.** 024022518 **Permit No.** 83748

to make use of certain Fort Bend County property subject to, "A Revised Order Regulating the Laying, Construction, Maintenance, and Repair of Buried Cables, Conduits, and Pole Lines, In, Under, Across or Along Roads, Streets, Highways, and Drainage Ditches in Fort Bend County, Texas, Under the Jurisdiction of the Commissioners Court of Fort Bend County, Texas," as passed by the Commissioners Court of Fort Bend County, Texas, date the 3<sup>rd</sup> day of August, 1987, recorded in Volume \_\_\_\_\_ of the Minutes of the Commissioners Court of Fort Bend County, Texas, to the extent that such order is not inconsistent with Article 1436a, Vernon's Texas Civil Statutes. Upon Motion of Commissioner Meyers, seconded by Commissioner Morrison, duly put and carried, it is ORDERED, ADJUGED AND DECREED that said notice of said above purpose is hereby acknowledged by the Commissioners Court of Fort Bend County, Texas, and that said notice be placed on record according to the regulation order thereof.

**Notes:**

1. Evidence of review by the Commissioners Court must be kept on the job site and failure to do so constitutes grounds for job shutdown.
2. Written notices are required:
  - a. 48 hours in advance of construction start up, and
  - b. When construction is completed and ready for final inspection

**Mail notices to:** Permit Administrator  
Fort Bend County Engineering  
P.O. Box 1449  
Rosenberg, Texas 77471  
281-633-7500

3. This permit expires one (1) year from date of permit if construction has not commenced.

By

County Engineer

By

Drainage District Engineer/Manager

Presented to Commissioners Court and approved.

Recorded in Volume 422-10  
Minutes of Commissioners Court.

Clerk of Commissioners Court

By Sherry Finn  
Deputy

**PERFORMANCE BOND COVERING ALL CABLE, CONDUIT AND/OR POLE LINE  
ACTIVITY IN, UNDER, ACROSS OR ALONG FORT BEND COUNTY ROADS**

AUTHORIZED

BOND NO. 024022518

THE STATE OF TEXAS       §

KNOW ALL MEN BY THESE PRESENTS:

COUNTY OF FORT BEND       §

THAT WE, Cravens Services, Inc. whose address is 11603 Windfern Rd., Suite C, Houston, TX 77067 Texas, hereinafter called the Principal, and Liberty Mutual Insurance Company, a Corporation existing under and by virtue of the laws of the State of MA and authorized to do an indemnifying business in the State of Texas, and whose principal office is located at 175 Berkeley St., Boston, MA 02116 whose officer residing in the State of Texas, authorized to accept service in all suits and actions brought within said State is (\*) and whose address is 12750 Merit Dr., Suite 710, Dallas, TX 75251 hereinafter called the Surety, and held and firmly bound unto, Robert E. Hebert, County Judge of Fort Bend County, Texas, or his successors in office, in the full sum of (\*) Dollars (\$ 205,632.00) current, lawful money of the United States of America, to be paid to said Robert E. Hebert, County Judge of Fort Bend County, Texas, or his successors in office, to which payment well and truly to be made and done, we, the undersigned, bind ourselves and each of us, our heirs, executors, administrators, successors, assigns, and legal representatives, jointly and severally, by these presents.

(\*) Richard Maxey

(\*)Two Hundred Five Thousand Six Hundred Thirty-Two & 00/100

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

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

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

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

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

EXECUTED this 12th day of April, 2010.

Cravens Services, Inc.

PRINCIPAL

BY [Signature] - President

Liberty Mutual Insurance Company

SURETY

BY [Signature]  
Debbie L. Welsh, Attorney-in-Fact

## CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of MARIN

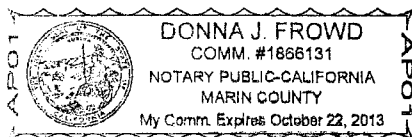
On April 12, 2010 before me, Donna J. Frowd, Notary Public,  
personally appeared Debbie L. Welsh who proved to me  
on the basis of satisfactory evidence to be the person(s) whose  
name(s) is/are subscribed to the within instrument and  
acknowledged to me that he/she/they executed the same in  
his/her/their authorized capacity(ies), and that by his/her/their  
signature(s) on the instrument the person(s), or the entity upon  
behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of  
California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

(seal)

Signature Donna J. Frowd



THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

LIBERTY MUTUAL INSURANCE COMPANY  
BOSTON, MASSACHUSETTS  
POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS: That Liberty Mutual Insurance Company (the "Company"), a Massachusetts stock insurance company, pursuant to and by authority of the By-law and Authorization hereinafter set forth, does hereby name, constitute and appoint

**MICHAEL B. MCGOWAN, SUSAN J. MCGOWAN, DONNA L. WELSH, DONNA J. FROWD, DEBBIE L. WELSH, MICHELLE L. SWEENEY, JESSICA L. NOWLIN, ALL OF THE CITY OF NOVATO, STATE OF CALIFORNIA.....**

....., each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations in the penal sum not exceeding **SEVENTY FIVE MILLION AND 00/100\*\*\*\*\* DOLLARS (\$ 75,000,000.00\*\*\*\*\*)** each, and the

execution of such undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents, shall be as binding upon the Company as if they had been duly signed by the president and attested by the secretary of the Company in their own proper persons.

That this power is made and executed pursuant to and by authority of the following By-law and Authorization:

ARTICLE XIII - Execution of Contracts: Section 5. Surety Bonds and Undertakings.

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

By the following instrument the chairman or the president has authorized the officer or other official named therein to appoint attorneys-in-fact:

Pursuant to Article XIII, Section 5 of the By-Laws, Garnet W. Elliott, Assistant Secretary of Liberty Mutual Insurance Company, is hereby authorized to appoint such attorneys-in-fact as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

That the By-law and the Authorization set forth above are true copies thereof and are now in full force and effect.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Company and the corporate seal of Liberty Mutual Insurance Company has been affixed thereto in Plymouth Meeting, Pennsylvania this 15th day of October, 2009.

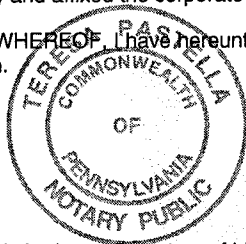
LIBERTY MUTUAL INSURANCE COMPANY

By Garnet W. Elliott  
Garnet W. Elliott, Assistant Secretary

COMMONWEALTH OF PENNSYLVANIA ss  
COUNTY OF MONTGOMERY

On this 15th day of October, 2009, before me, a Notary Public, personally came Garnet W. Elliott, to me known, and acknowledged that he is an Assistant Secretary of Liberty Mutual Insurance Company; that he knows the seal of said corporation; and that he executed the above Power of Attorney and affixed the corporate seal of Liberty Mutual Insurance Company thereto with the authority and at the direction of said corporation.

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



COMMONWEALTH OF PENNSYLVANIA  
Notarial Seal  
Teresa Pastella, Notary Public  
Plymouth Twp., Montgomery County  
My Commission Expires March 28, 2013  
Member, Pennsylvania Association of Notaries

By Teresa Pastella  
Teresa Pastella, Notary Public

CERTIFICATE

I, the undersigned, Assistant Secretary of Liberty Mutual Insurance Company, do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy, is in full force and effect on the date of this certificate; and I do further certify that the officer or official who executed the said power of attorney is an Assistant Secretary specially authorized by the chairman or the president to appoint attorneys-in-fact as provided in Article XIII, Section 5 of the By-laws of Liberty Mutual Insurance Company.

This certificate and the above power of attorney may be signed by facsimile or mechanically reproduced signatures under and by authority of the following vote of the board of directors of Liberty Mutual Insurance Company at a meeting duly called and held on the 12th day of March, 1980.

VOTED that the facsimile or mechanically reproduced signature of any assistant secretary of the company, wherever appearing upon a certified copy of any power of attorney issued by the company in connection with surety bonds, shall be valid and binding upon the company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the said company, this 12th day of April, 2010.



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

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

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



# COUNTY OF FORT BEND

## Engineering Department

P.O. BOX 1449

Rosenberg, Texas 77471-1449

Johnny Ortega

Permit Administrator

1124 Blume Road

Phone: (281) 341-7500

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

PERMIT NO. 083748

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.

- X (1) Complete Application Form.
- X a. Name of road, street, and/or drainage ditch affected.
- X b. Vicinity map showing course of direction.
- c. Plans and specifications.

- (2) Bond:
- District Attorney, approval when applicable.
- Perpetual bond currently posted.
- No.
- Amount
- X Performance bond submitted.
- No. 024022518
- Amount \$205,632.00
- Cashier's Check.
- No.
- Amount

- (3) Verbal permission given for emergencies, to start construction before approved in Commissioner's Court.

    
Precinct Engineer Acknowledgment

    
Date

    
Precinct Commissioner Acknowledgment

    
Date

- (4)   
Drainage District Approval when applicable

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

  
Johnny Ortega CFM/ Permit Administrator  
(REVISED 5/30/08)

04/16/2010  
Date

**NOTICE OF PROPOSED CABLE, CONDUIT AND/OR POLE LINE ACTIVITY  
IN, UNDER, ACROSS OR ALONG ROADS, STREETS, HIGHWAYS AND DRAINAGE DITCHES  
IN FORT BEND COUNTY**

APPLICANT'S JOB NO. \_\_\_\_\_  
 PERMIT No. 83748 PCT. No. 3  
 BOND No. 024022518

Formal notice is hereby given that Cravens Services Inc.  
 proposes to lay, construct, maintain and/or repair cable, conduit and/or pole line, in, under,  
 across, or along roads, streets, highways and drainage ditches in Fort Bend County, as follows:

**In, Under, or Across Roads and/or Drainage Ditches**

Road or Ditch Name	: Distance & Direction From : : Nearest Intersection	: Length of : : Crossing	: Type of Construction : : Bored: Jacked: Driven: Cased
<u>Goines Rd</u>	<u>N. of Old Richmond Rd</u> <u>2500 feet</u>	<u>70'</u>	<u>X</u> : : : <u>X</u>
<u>Weldridge Dr</u>	<u>N. of Old Richmond Rd</u> <u>2500 feet</u>	<u>103</u>	<u>X</u> : : : <u>X</u>
<u>St. Hwy 6</u>	<u>N. of Old Richmond Rd</u> <u>1200 feet</u>	<u>198</u>	<u>X</u> : : : <u>X</u>

**Along Roads and/or Drainage Ditches**

Road or Ditch Name	: Distance & Direction From : : Nearest Intersection	: To : :	: Distance : :
<u>Keegan Bayou</u>	<u>S. of Old Richmond Rd</u> <u>700 feet</u>	<u>Eldridge Pkwy</u>	<u>327'</u>

**General Description**

The Location and description of the proposed installation and appurtenances is more fully shown on the attached detail drawings. The laying, construction, maintenance and/or repair of the proposed installation shall be subject to "A Revised Order Regulating the Laying, Construction, Maintenance and/or Repair of Cables, Conduits, and/or 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 Commissioners Court of Fort Bend County, Texas, dated the 3rd day of August, 1987, recorded in Volume 539 of the Minutes of the Commissioners Court of Fort Bend County, Texas.

Written notices are required: 1) 48 hours in advance of start of construction and  
 2) when construction is complete and ready for final inspection.

Mail to: Permit Administrator/Fort Bend County Engineering  
 P.O. Box 1449, Rosenberg, TX 77471.

Violation of requirements shall constitute grounds for job shut down.

COMPANY NAME: Cravens Services Inc.  
 AGENT and/or OWNER

[Signature]  
 (Signature)

NAME & TITLE Billie J. Nichols - PM  
 (Please Print)

DATE 4-14-10

ADDRESS 11603 Windfern Rd  
 (Street/P.O. Box)

Houston TX 77064  
 City State Zip

TELEPHONE NO: 713-300-1530  
 (accessible 24 hrs/day, 7 days/week)

Does project  
 comply with Fort  
 Bend County  
 Outdoor Lighting  
 Ordinance?

Yes ( )

No ( )

**NOTICE OF PROPOSED CABLE, CONDUIT AND/OR POLE LINE ACTIVITY  
IN, UNDER, ACROSS OR ALONG ROADS, STREETS, HIGHWAYS AND DRAINAGE DITCHES  
IN FORT BEND COUNTY**

APPLICANT'S JOB NO. \_\_\_\_\_  
 PERMIT No. 82744 PCT. No. 3  
 BOND No. 024022518

Formal notice is hereby given that Cravens Services Inc.  
 proposes to lay, construct, maintain and/or repair cable, conduit and/or pole line, in, under,  
 across, or along roads, streets, highways and drainage ditches in Fort Bend County, as follows:

**In, Under, or Across Roads and/or Drainage Ditches**

Road or Ditch Name	Distance & Direction From Nearest Intersection	Length of Crossing	Type of Construction Bored: Jacked: Driven: Cased
<u>Sugarland Howell Rd</u>	<u>S. of Old Richmond Rd 700 feet</u>	<u>73</u>	<u>X</u> : : : <u>X</u>
<u>Sugarland Blossom</u>	<u>N. of Old Richmond Rd 200 feet</u>	<u>73</u>	<u>X</u> : : : <u>X</u>
<u>Eldridge PKY</u>	<u>S. of Old Richmond Rd 300 feet</u>	<u>108</u>	<u>X</u> : : : <u>X</u>

**Along Roads and/or Drainage Ditches**

Road or Ditch Name	Distance & Direction From Nearest Intersection	To	Distance

**General Description**

The Location and description of the proposed installation and appurtenances is more fully shown on the attached detail drawings. The laying, construction, maintenance and/or repair of the proposed installation shall be subject to "A Revised Order Regulating the Laying, Construction, Maintenance and/or Repair of Cables, Conduits, and/or 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 Commissioners Court of Fort Bend County, Texas, dated the 3rd day of August, 1987, recorded in Volume 639 of the Minutes of the Commissioners Court of Fort Bend County, Texas.

Written notices are required: 1) 48 hours in advance of start of construction and  
 2) when construction is complete and ready for final inspection.

Mail to: Permit Administrator/Fort Bend County Engineering  
 P.O. Box 1449, Rosenberg, TX 77471.

Violation of requirements shall constitute grounds for job shut down.

COMPANY NAME: Cravens Services Inc  
 AGENT and/or OWNER

[Signature]  
 (Signature)

NAME & TITLE Billie Jo Wicks - P.M  
 (Please Print)

DATE 4-14-10

ADDRESS 11603 Windfern Rd  
 (Street/P.O. Box)

Houston TX 77064  
 City State Zip

TELEPHONE NO: 713-300-1530  
 (accessible 24 hrs/day, 7 days/week)

Does project  
 comply with Fort  
 Bend County  
 Outdoor Lighting  
 Ordinance?

Yes ( )

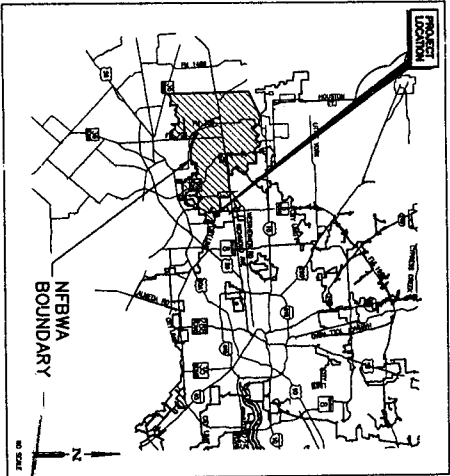
No ( )

# NORTH FORT BEND WATER AUTHORITY

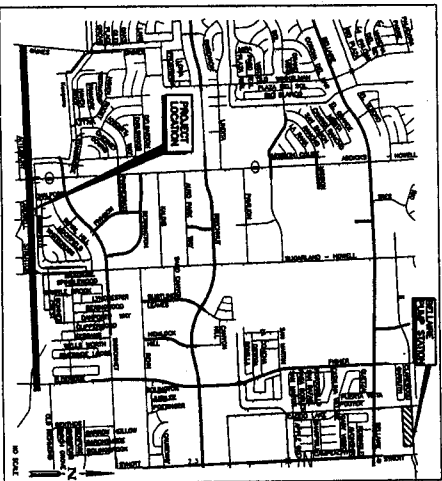
## SEGMENT 1B

### PROPOSED 48" WATER LINE IN CENTERPOINT EASEMENT

### FROM GAINES ROAD TO ELDRIDGE PARKWAY

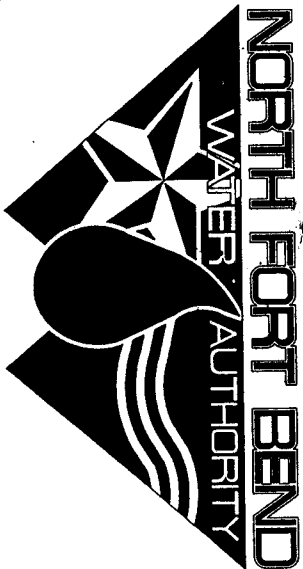


LOCATION MAP  
N.T.S.



VICINITY MAP  
N.T.S.

KEY MAP NO. 522 V. 528 S & T  
GAINES MAP NO. 47530 & 47535  
ZIP CODES 77418 AND 77083



- | DIRECTORS           | PRECINCT |
|---------------------|----------|
| DAVID SPELL         | 1        |
| ROBERT DARDEN       | 2        |
| BRUCE FAY           | 3        |
| MELONY F. GAY, P.E. | 4        |
| ROBERT L. PATTON    | 5        |
| PETER HOUGHTON      | 6        |
| PAT HIEBERT         | 7        |

*Robert Deviller Jr.*  
FORT BEND COUNTY ENGINEER  
DATE: 12/2/09

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

Contractor shall notify the City of Houston Department of Public Works and Engineering, Engineering Construction Division (Telephone No. 832-395-4405) 48 hours before starting work on this project.

FIRM Insurance Rate Map  
Panel 820 & 840 of 1150  
48C201C0820L & 48C201C0840L  
BFE Elevation: 72' to 78'

I, ROBERT DEVILLER JR., P.E., certify that this project is entirely located outside the area with 100-year flood frequency.

\* No FIRM mapped waterway work is indicated

PLMS NO: 08030598  
LOG NO2008-0253

AECOM	
NOTE: CITY ENGINEER'S SIGNATURE REQUIRED FOR ONE YEAR ONLY	
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
PROJECT NO. 1112-07	DATE 11/12/07
PROJECT NAME 1112-07	PROJECT & SUBPROJECT
PROJECT LOCATION 1112-07	PROJECT & SUBPROJECT
CITY ENGINEER	FOR CITY OF HOUSTON USE ONLY
DIRECTOR OF PUBLIC WORKS AND ENGINEERING	
SHEET 1 OF 8	

SHEET NO.

DWG. NAME

REF. NO.

DWG. NAME

01	COVER SHEET	PROPOSED 48-INCH WATERLINE- BASELINE STA 245+00 TO STA 248+40
02	SHEET INDEX	PROPOSED 48-INCH WATERLINE- BASELINE STA 248+40 TO STA 253+40 (PLAN)
03	CONSTRUCTION NOTES	PROPOSED 48-INCH WATERLINE- BASELINE STA 248+40 TO STA 253+40 (PROFILE)
04	SURVEY CONTROL MAP (SHEET 1 OF 5)	PROPOSED 48-INCH WATERLINE- BASELINE STA 253+40 TO STA 257+00
05	SURVEY CONTROL MAP (SHEET 2 OF 5)	PROPOSED 48-INCH WATERLINE- BASELINE STA 257+00 TO STA 261+00
06	SURVEY CONTROL MAP (SHEET 3 OF 5)	PROJECT SIGN DETAIL
07	SURVEY CONTROL MAP (SHEET 4 OF 5)	STANDARD WATER LINE DETAILS
08	SURVEY CONTROL MAP (SHEET 5 OF 5)	STEEL PIPE DETAILS
09	MONUMENTATION AND BENCHMARK DATA	PRESTRESSED CONCRETE CYLINDER PIPE DETAILS
10	OVERALL LAYOUT 1	TUNNEL AND CASING DETAILS
11	OVERALL LAYOUT 2	COMBINATION AIR VALVE AND DETAILS
12	PROPOSED 48-INCH WATERLINE- BASELINE STA 150+00 TO STA 155+00 (PLAN)	HEAVY DUTY MANHOLE RING AND COVER DETAILS
13	PROPOSED 48-INCH WATERLINE- BASELINE STA 150+00 TO STA 155+00 (PROFILE)	MISCELLANEOUS DETAILS
14	PROPOSED 48-INCH WATERLINE- BASELINE STA 155+00 TO STA 160+00	VALVE AND SERVICE MANHOLE DETAILS
15	PROPOSED 48-INCH WATERLINE- BASELINE STA 160+00 TO STA 164+00	CATHODIC PROTECTION SCHEDULES
16	PROPOSED 48-INCH WATERLINE- BASELINE STA 164+00 TO STA 169+00 (PLAN)	CATHODIC PROTECTION TEST STATION DETAILS 1 OF 4
17	PROPOSED 48-INCH WATERLINE- BASELINE STA 169+00 TO STA 169+00 (PROFILE)	CATHODIC PROTECTION TEST STATION DETAILS 2 OF 4
18	PROPOSED 48-INCH WATERLINE- BASELINE STA 169+00 TO STA 174+00 (PLAN)	CATHODIC PROTECTION TEST STATION DETAILS 3 OF 4
19	PROPOSED 48-INCH WATERLINE- BASELINE STA 169+00 TO STA 174+00 (PROFILE)	CATHODIC PROTECTION RECTIFIER DETAILS 1 OF 2
20	PROPOSED 48-INCH WATERLINE- BASELINE STA 174+00 TO STA 179+00	CATHODIC PROTECTION RECTIFIER DETAILS 2 OF 2
21	PROPOSED 48-INCH WATERLINE- BASELINE STA 179+00 TO STA 184+00	CATHODIC PROTECTION INSULATING JOINT DETAILS
22	PROPOSED 48-INCH WATERLINE- BASELINE STA 184+00 TO STA 188+00 (PLAN)	CATHODIC PROTECTION JOINT BONDING
23	PROPOSED 48-INCH WATERLINE- BASELINE STA 184+00 TO STA 188+00 (PROFILE)	CATHODIC PROTECTION MISCELLANEOUS DETAILS 1 OF 2
24	PROPOSED 48-INCH WATERLINE- BASELINE STA 188+00 TO STA 192+00	CATHODIC PROTECTION MISCELLANEOUS DETAILS 2 OF 2
25	PROPOSED 48-INCH WATERLINE- BASELINE STA 192+00 TO STA 195+00 (PLAN)	QUANTITY
26	PROPOSED 48-INCH WATERLINE- BASELINE STA 195+00 TO STA 199+00	TREE PROTECTION PLAN
27	PROPOSED 48-INCH WATERLINE- BASELINE STA 199+00 TO STA 203+00 (PLAN)	STORM WATER POLLUTION PREVENTION PLAN (SHEET 1 OF 5)
28	PROPOSED 48-INCH WATERLINE- BASELINE STA 199+00 TO STA 203+00 (PROFILE)	STORM WATER POLLUTION PREVENTION PLAN (SHEET 2 OF 5)
29	PROPOSED 48-INCH WATERLINE- BASELINE STA 203+00 TO STA 208+00	STORM WATER POLLUTION PREVENTION PLAN (SHEET 3 OF 5)
30	PROPOSED 48-INCH WATERLINE- BASELINE STA 208+00 TO STA 213+00	STORM WATER POLLUTION PREVENTION PLAN (SHEET 4 OF 5)
31	PROPOSED 48-INCH WATERLINE- BASELINE STA 213+00 TO STA 218+00	STORM WATER POLLUTION PREVENTION PLAN (SHEET 5 OF 5)
32	PROPOSED 48-INCH WATERLINE- BASELINE STA 218+00 TO STA 222+00	STORM WATER POLLUTION PREVENTION PLAN DETAILS
33	PROPOSED 48-INCH WATERLINE- BASELINE STA 222+00 TO STA 227+00 (PLAN)	TRAFFIC CONTROL PLAN GAINES ROAD STA 150+00 TO STA 153+00
34	PROPOSED 48-INCH WATERLINE- BASELINE STA 227+00 TO STA 227+00 (PROFILE)	TRAFFIC CONTROL PLAN STATE HIGHWAY 6 STA 192+00 TO STA 195+00
35	PROPOSED 48-INCH WATERLINE- BASELINE STA 227+00 TO STA 231+00	TRAFFIC CONTROL PLAN SUGARLOESS LANE STA 222+00 TO STA 225+00
36	PROPOSED 48-INCH WATERLINE- BASELINE STA 231+00 TO STA 236+00	TRAFFIC CONTROL PLAN SUGARLOESS LANE STA 231+00 TO STA 234+00
37	PROPOSED 48-INCH WATERLINE- BASELINE STA 236+00 TO STA 241+00	TRAFFIC CONTROL PLAN ELDRIDGE PARKWAY STA 256+00 TO STA 259+00
38	PROPOSED 48-INCH WATERLINE- BASELINE STA 241+00 TO STA 245+00 (PLAN)	
39	PROPOSED 48-INCH WATERLINE- BASELINE STA 245+00 (PROFILE)	
40		

41	PROPOSED 48-INCH WATERLINE- BASELINE STA 245+00 TO STA 248+40
42	PROPOSED 48-INCH WATERLINE- BASELINE STA 248+40 TO STA 253+40 (PLAN)
43	PROPOSED 48-INCH WATERLINE- BASELINE STA 248+40 TO STA 253+40 (PROFILE)
44	PROPOSED 48-INCH WATERLINE- BASELINE STA 253+40 TO STA 257+00
45	PROPOSED 48-INCH WATERLINE- BASELINE STA 257+00 TO STA 261+00
46	PROJECT SIGN DETAIL
47	STANDARD WATER LINE DETAILS
48	STEEL PIPE DETAILS
49	PRESTRESSED CONCRETE CYLINDER PIPE DETAILS
50	TUNNEL AND CASING DETAILS
51	COMBINATION AIR VALVE AND DETAILS
52	HEAVY DUTY MANHOLE RING AND COVER DETAILS
53	MISCELLANEOUS DETAILS
54	VALVE AND SERVICE MANHOLE DETAILS
55	CATHODIC PROTECTION SCHEDULES
56	CATHODIC PROTECTION TEST STATION DETAILS 1 OF 4
57	CATHODIC PROTECTION TEST STATION DETAILS 2 OF 4
58	CATHODIC PROTECTION TEST STATION DETAILS 3 OF 4
59	CATHODIC PROTECTION RECTIFIER DETAILS 1 OF 2
60	CATHODIC PROTECTION RECTIFIER DETAILS 2 OF 2
61	CATHODIC PROTECTION INSULATING JOINT DETAILS
62	CATHODIC PROTECTION JOINT BONDING
63	CATHODIC PROTECTION MISCELLANEOUS DETAILS 1 OF 2
64	CATHODIC PROTECTION MISCELLANEOUS DETAILS 2 OF 2
65	QUANTITY
66	TREE PROTECTION PLAN
67	STORM WATER POLLUTION PREVENTION PLAN (SHEET 1 OF 5)
68	STORM WATER POLLUTION PREVENTION PLAN (SHEET 2 OF 5)
69	STORM WATER POLLUTION PREVENTION PLAN (SHEET 3 OF 5)
70	STORM WATER POLLUTION PREVENTION PLAN (SHEET 4 OF 5)
71	STORM WATER POLLUTION PREVENTION PLAN (SHEET 5 OF 5)
72	STORM WATER POLLUTION PREVENTION PLAN DETAILS
73	TRAFFIC CONTROL PLAN GAINES ROAD STA 150+00 TO STA 153+00
74	TRAFFIC CONTROL PLAN STATE HIGHWAY 6 STA 192+00 TO STA 195+00
75	TRAFFIC CONTROL PLAN SUGARLOESS LANE STA 222+00 TO STA 225+00
76	TRAFFIC CONTROL PLAN SUGARLOESS LANE STA 231+00 TO STA 234+00
77	TRAFFIC CONTROL PLAN ELDRIDGE PARKWAY STA 256+00 TO STA 259+00
78	

EXISTING SYMBOLS

EXISTING PROFILE

EXISTING TREES

PLAN

PROPOSED

PROFILE

STANDARD ABBREVIATIONS

SHEET INDEX

SECTION 18-PROPOSED 48-INCH WATERLINE FROM OLD  
INCHING ROAD TO BELLEVUE BOULEVARD

AECOM

AECOM USA GROUP, INC.  
6757 WOODWAY, SUITE 101 WEST  
HOUSTON, TEXAS 77057-1049  
TELEPHONE: 713-861-1000  
FAX: 713-861-1001

INBWA SEGMENT 1B



CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

NOTE: CITY ENGINEERS SHALL REVIEW THIS SHEET ONLY AFTER DATE OF  
SUBMITTAL.

DATE: 11/13/09

BY: [Signature]

FOR: [Signature]

FILE NO: 60073234

DRAWING SCALE

N.T.S.

SHEET NO. 2 OF 78







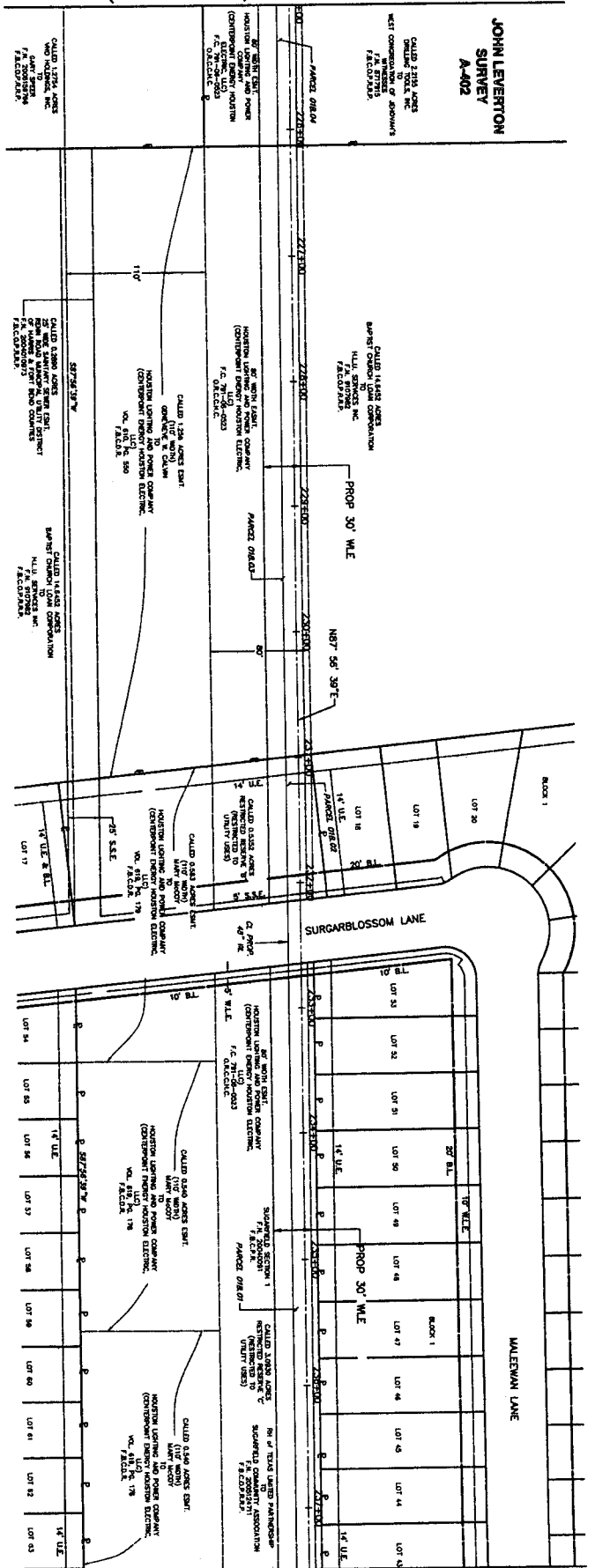






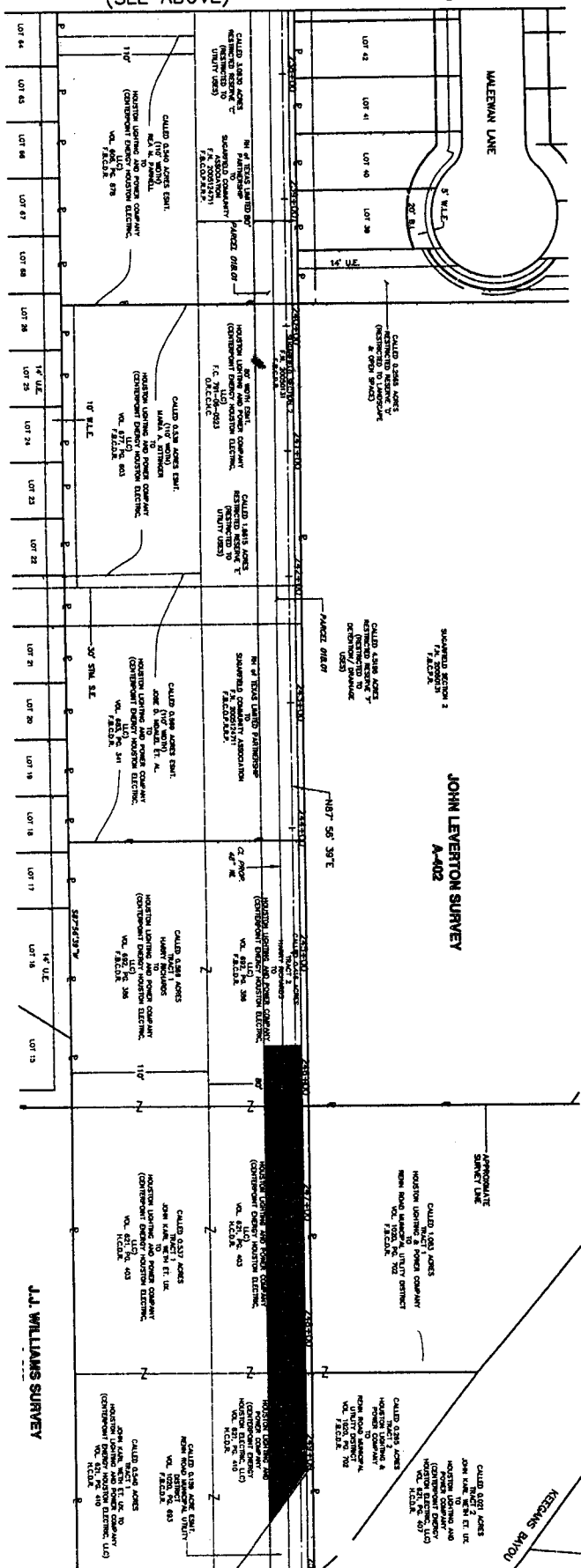
			
<p style="text-align: right;"><i>William C. Williams</i></p>		<p style="text-align: center;"><b>NORTH FORT BEND</b></p>	
<p> <b>PROJECT 18-PROPOSED 44.50% WATERLINE IN CONNECTION WITH THE 150' DIAMETER TANKS ROAD 10 ELMHURST CONFECTIONER BUILDING PARKWAY</b>  <b>SURVEY CONTROL MAP</b>  <b>(SHEET 3 OF 5)</b> </p>		<p style="text-align: center;"> <b>CITY OF HOUSTON</b>  <b>DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</b> </p>	
<p> <b>APPROVED FOR THE CITY OF HOUSTON:</b>  <b>DATE:</b> 11/11/2019  <b>BY:</b> [Signature]         </p>		<p> <b>APPROVED FOR THE CITY OF HOUSTON:</b>  <b>DATE:</b> 11/11/2019  <b>BY:</b> [Signature]         </p>	
<p> <b>FILE NO.:</b> 0007334  <b>DRAWING SCALE:</b> 1" = 50'  <b>DATE:</b> 11/11/2019         </p>		<p> <b>FOR THE ENGINEER (SEE ONLY):</b>  <b>DATE:</b> 11/11/2019  <b>BY:</b> [Signature]         </p>	
<p> <b>SHEET 6 OF 78</b> </p>		<p> <b>46446</b> </p>	

STA 225+00



(SEE BELOW)

STA 237+50




(SEE SHEET 8)

STA 250+00



4			
3			
2			
1			
NO.	DATE	REVISION	APPROVAL

*Handwritten signature*



**AECOM**

**AECOM**  
5757 WOODWAY, SUITE 101 WE  
HOUSTON, TEXAS 77057-1599  
WWW.AECOM.COM

NFBWA SEGMENT 1B

SEGMENT 18-PROPOSED 48-INCH WATERLINE IN  
CENTERPOINT EASEMENT FROM GAINES ROAD TO ELDRIDGE  
PARKWAY  
**SURVEY CONTROL MAP**  
(SHEET 4 OF 5)



CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

STREET &amp; BRIDGE

8-1142-9

STORY

1. 41.11.2007

## CONTENTS

7	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466
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FILE NO: 80071234

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**DRAWING SCALE**

[illegible]

1-250'

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SHEET 1 OF 1

7 of 18

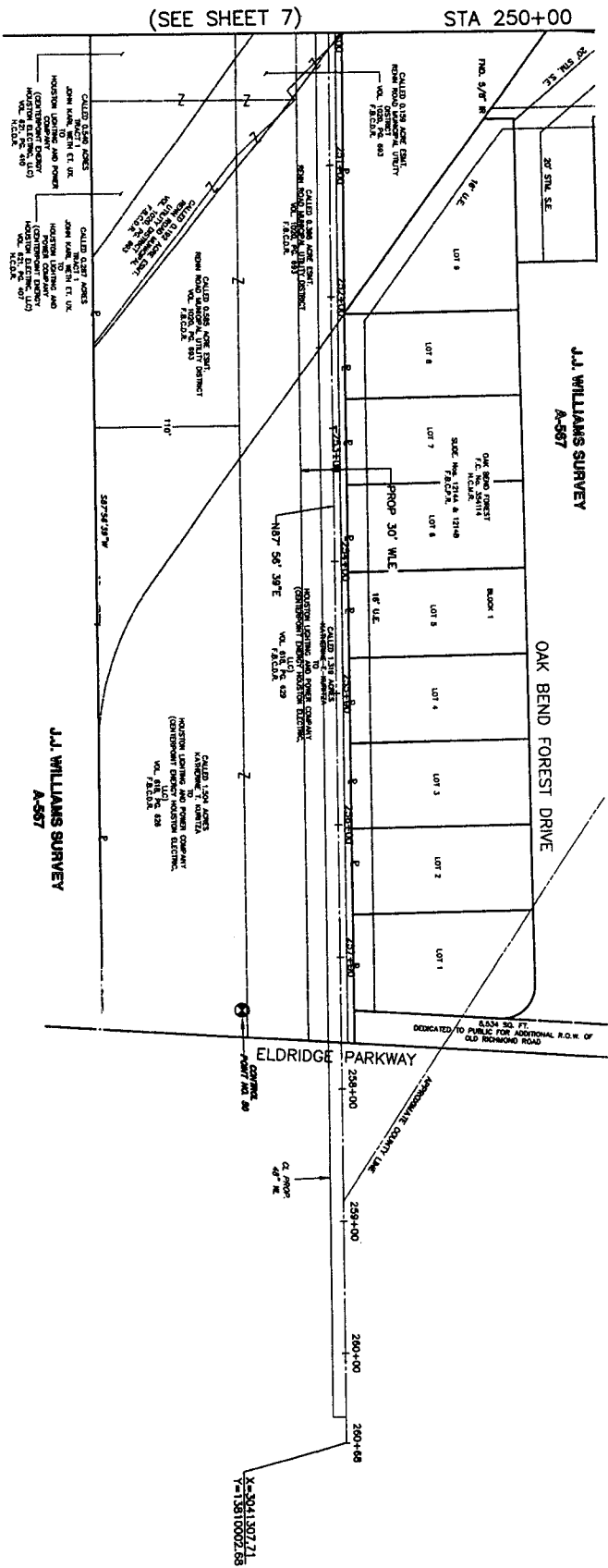
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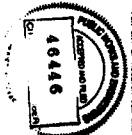
SHEET  
No: 7 of 78



AECOM 5757 NORTHMOX SUITE 101 WEST HOUSTON, TEXAS 77057-1909 WWW.AECOM.COM		CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
NFBWA SEGMENT 1B SEGMENT 1B-PROPOSED 46-INCH WATERLINE IN CENTERPOINT EASTMAN FROM CAMERON ROAD TO ELDRIDGE SURVEY CONTROL MAP (SHEET 5 OF 5)		NOTE: CITY RESOURCES WARD FOR ONE YEAR ONLY AFTER DATE OF SERVICES	
PROJECT NO. 60073234		DATE 11/24/09	
DRAWING SCALE 1" = 50'		SHEET 5 OF 5	
FILE NO. 60073234		SHEET 5 OF 5	
SHEET NO. 8 OF 78		SHEET 5 OF 5	

[illegible]





PRIVATE UTILITY LINES SHOWN

Date: 10/14/09  
Checked by: [Signature]  
Drawn by: [Signature]  
Scale: 1" = 20'  
Note: See separate sheet for underground facility details.

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET  
TO AVOID FOR LINES TO BE TURNED OFF OR  
MOVED. CALL CENTERMAN AT 713.267.7777.



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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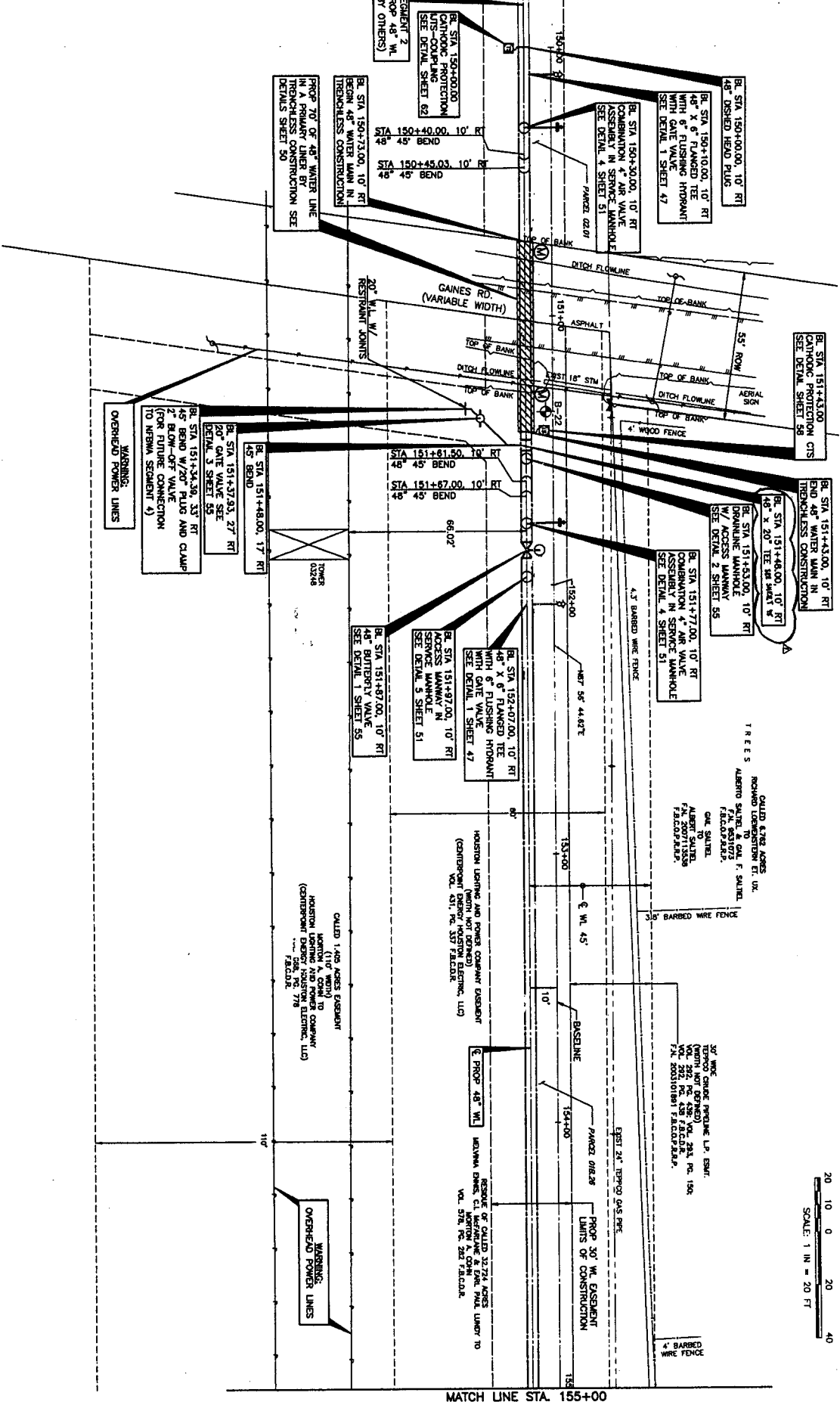
AECOM USA GROUP, INC.  
5757 WOODWAY, SUITE 101 WEST  
HOUSTON, TEXAS 77057-1189  
TYPE: TEL. NO. F-3062

NEBMA SEGMENT 1B  
SEGMENT 1B-PROPOSED 48-INCH WATER LINE IN  
CENTERPOINT EXHIBENT FROM GAINES ROAD TO ELDRIDGE  
PARKWAY  
(STA. 150+00 TO STA. 155+00.00)



CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
SHEET 1B OF 1B

DATE: 11.12.09  
DRAWN BY: [Signature]  
CHECKED BY: [Signature]  
FILE NO.: 6007234  
DRAWING SCALE: 1" = 20'  
SHEET NO.: 12 OF 78

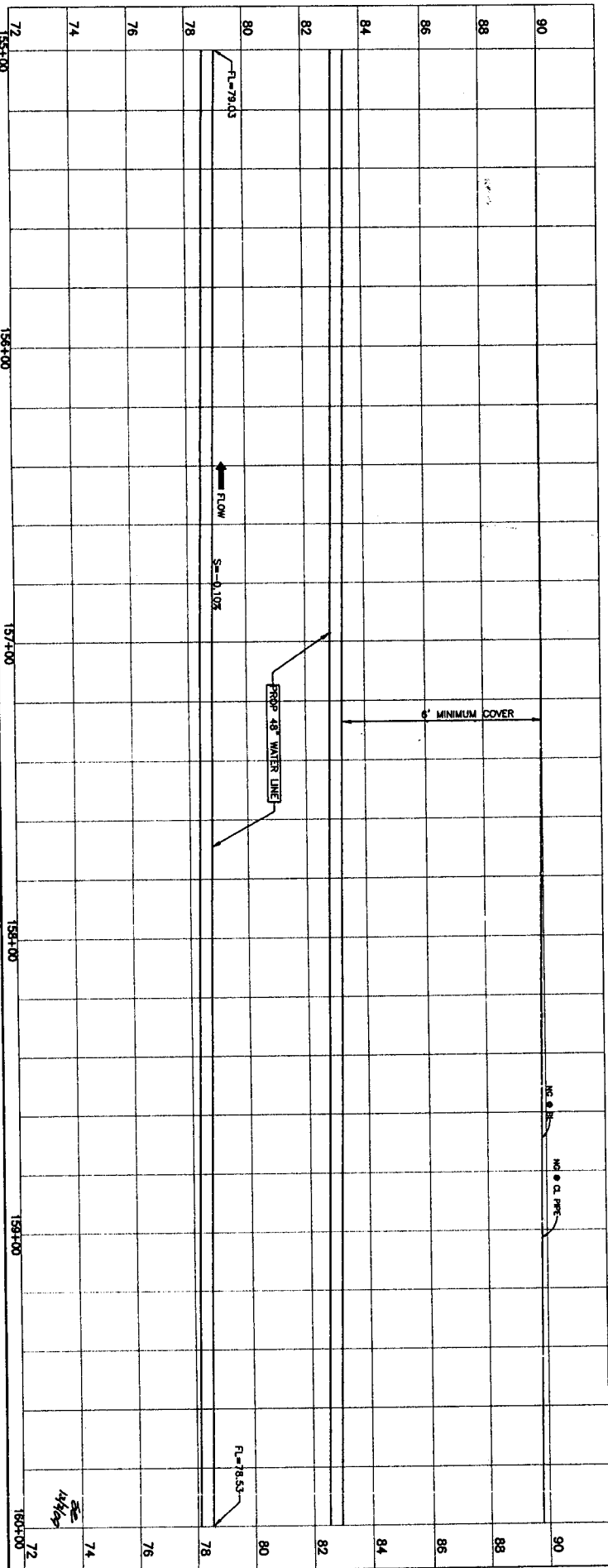
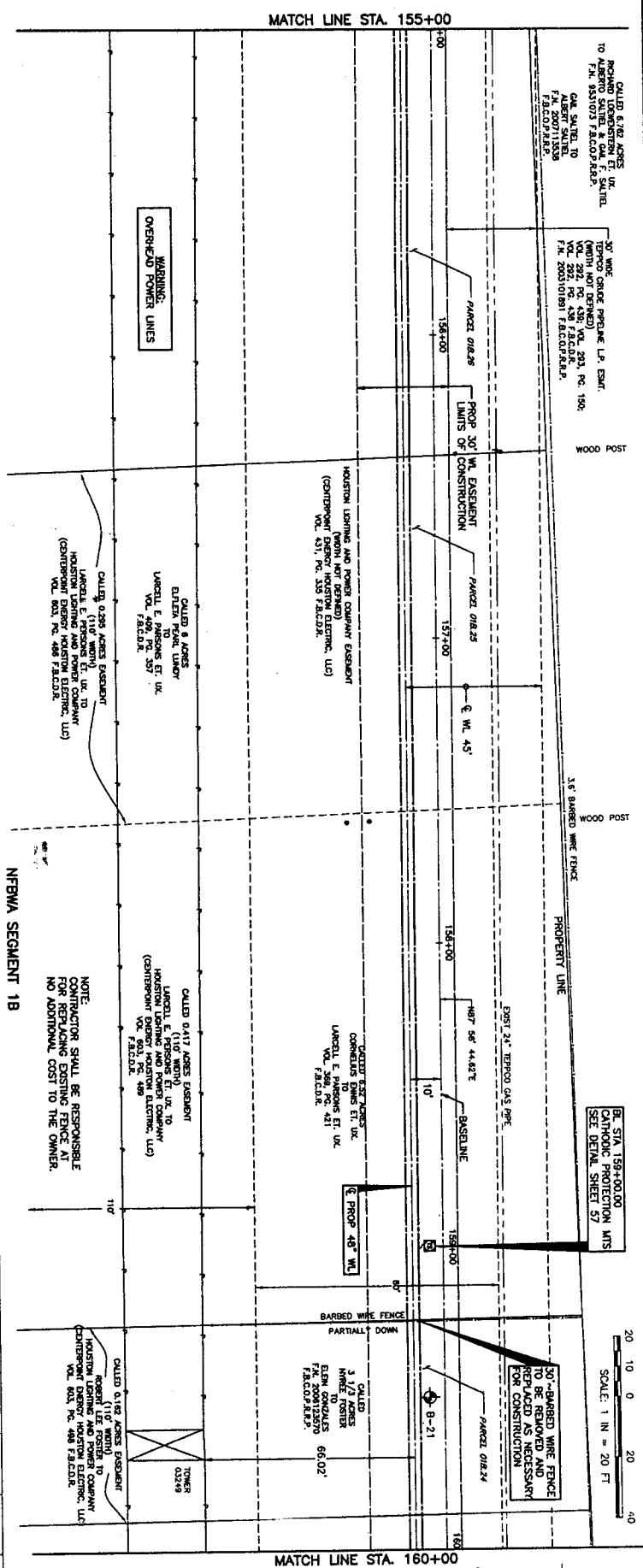


NOTE:

1. CONTRACTOR TO INSTALL INTERNAL ELUPTICAL DISHED HEAD PLUG IF PROPOSED 48" WATER LINE (BY OTHERS) IS NOT EXISTING AT THE TIME OF CONSTRUCTION. IF PROPOSED 48" WATER LINE (BY OTHERS) EXIST AT TIME OF CONSTRUCTION, REMOVE PLUG FROM EXISTING LINE AND CONNECT TO LINE IN LEAD OF INSTALLING PLUG AT STA. 150+00.00.
2. ALL FLUSHING HOPIANT NOZZLES SHALL BE LOCATED TO DRAIN TOWARDS DITCHES ALONG GAINES ROAD.







PRIVATE UTILITY LINES SHOWN

Centerpoint Energy/ Electric Facilities. (approved only for crossing underground ductlines, unless otherwise noted.)

Date: 9/17/04

Date: 4/30/91  
Signature: [Signature]  
SBC Approved for underground conduit facilities only.  
Signature: [Signature]  
Date: 9/17/91  
Contestant Energy/ Gas Facilities  
GAS service lines (are not shown)

NOTICE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL LONE STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-669-8344 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-7777.

**AECOM**

AECOM USA GROUP, INC.  
5757 WOODWAY, SUITE 101 WE  
HOUSTON, TEXAS 77057-1589  
WWW.AECOM.COM  
TYPE REG. NO. F-3062

NFBWA SEGMENT 1B

SEGMENT 1B-PROPOSED 48-INCH WATER LINE IN  
CENTERPOINT EASEMENT FROM GAINES ROAD TO ELDRIDGE  
PARKWAY  
(STA. 155+00 TO STA. 160+00)



NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

MADE IN	USA	SHEET & POUCH
DESIGNER	Karen C. 11/19/01	TOWING
REGISTERED TO	M.R. O'Connell	STROM WATER QUALITY
STATUS	A, bud 11.12.01	
DATE ORDER		

FILE NO:	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE

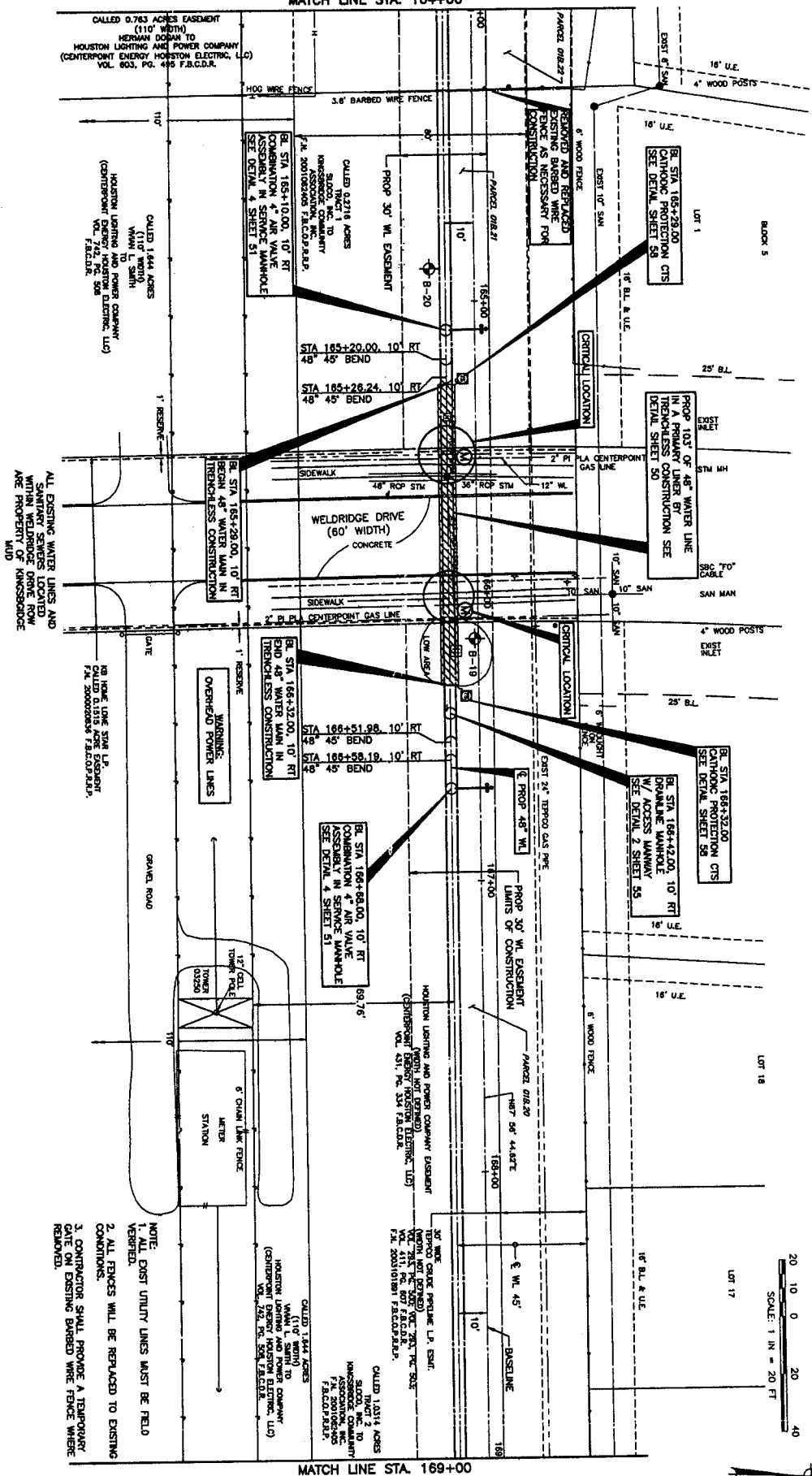
HORZ : 1 = 20  
VERT : 1" = 2'  
46440

14 OF 78  
SHEET

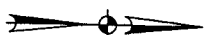




**MATCH LINE STA. 164+00**



SCALE: 1 IN. = 20 FT.



PRIVATE UTILITY LINES SHOWN

<p><i>Ch. Lawrence</i></p> <p>Cellarport Energy/ Electric, Fuelless, (Approved only)          Used At: Thin of Rubber Dry</p> <p><b>SBS LINELINE LINES SHOWN</b></p> <p>SBS Approved for one year.</p> <p><i>12/22/97</i></p>	<p>Date: <i>12/6/97</i></p>
<p>Cellarport Energy/ Gas Fuelless          (Gas ventless lines are not shown)</p>	<p>Date: <i>10/6/97</i></p>

NOTE:  
AT LEAST 48 HOURS BEFORE EXCAVATING IN S  
R.O.W. OR EASEMENTS CALL LONE STAR NOTIFICATION  
CENTER, (713) 223-4567 OR 1-800-669-83  
TO ARRANGE FOR LINES TO BE TURNED OFF OR  
MOVED. CALL CENTERPOINT AT 713-207-7777.

*Journal of Management Education* 30(1)  
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 10.1177/0095647205282506  
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1		
NO. DATE		RECEIVED

**AECOM**

AECOM USA GROUP, INC.  
5757 WOODWAY, SUITE 101 W  
HOUSTON, TEXAS 77057-1599  
WWW.AECOM.COM  
TYPE REG. NO. F-3062

## NFBWA SEGMENT 1B

SEGMENT 1B-PROPOSED 48-INCH WATER LINE IN  
CENTERPOINT EASEMENT FROM GAINES ROAD TO ELDRIDGE  
PARWAY

(STA 164+00 TO STA. 169+00)



NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING**STREET & PHONE**

WESTMONT  
11-10-1979  
11-10-1979

77.5: Grand Ave	STORM WATER QUAL
STORM	1A

11.12.9

FILE NO.	FOR CITY OF HOUSTON USE ONLY
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**DRAWING:**

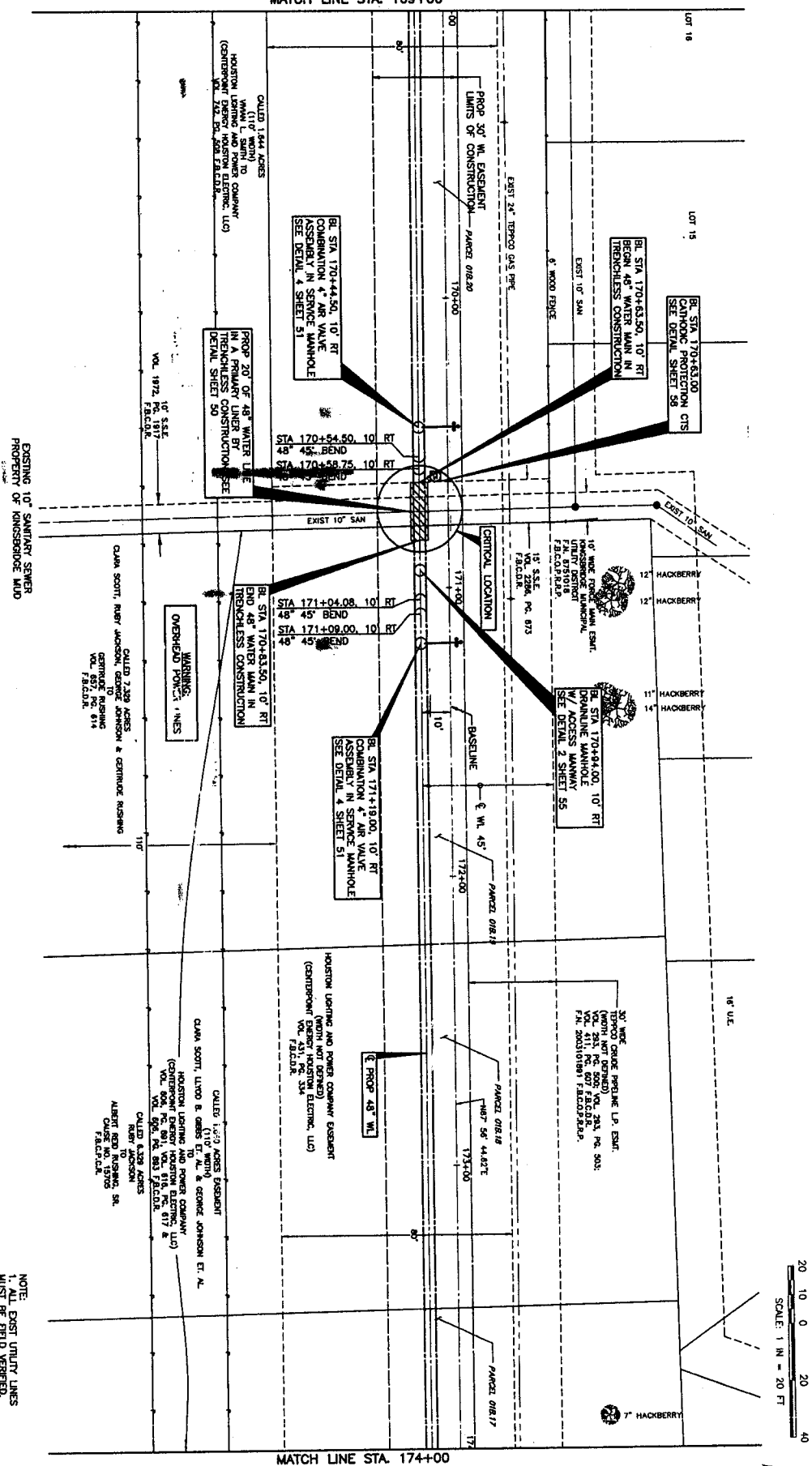
VERT : 1" = 2'

**SAFETY**





**MATCH LINE STA. 169+00**



NOTE:  
1. ALL EXIST UTILITY LINES  
MUST BE FIELD VERIFIED.

PRIVATE UTILITY LINES SHOWN

*Chen* Date: *7/17/89*  
 Contaminant(s): *Electric Failures (grounded or ungrounded electrical equipment, unless otherwise noted)*  
 Valid at Time of Release: *Only*  
 SPC (UTILITY LINES SHOWN)  
*See Attachment*  
 Date: *7/26/89*  
 SSC Applied for underground conduit facilities only:  
 Specimens will be sent per:  
*See Attachment*  
 Date: *7/17/89*  
 Contaminant(s): *Electricity (down electrical lines and other facilities)*  
 GDS service lines and/or other:

NOTICE:  
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET  
R.O.W. OR EASEMENTS CALL LONE STAR NOTIFICATION  
CENTER, (713) 223-4567 OR 1-800-669-6344  
TO ARRANGE FOR LINES TO BE TURNED OFF OR  
MOVED. CALL CENTERPOINT AT 713-207-7777.

**AECOM**

AECOM USA GROUP, INC.  
5757 WOODWAY, SUITE 1  
HOUSTON, TEXAS 77057-  
WWW.AECOM.COM  
TBP&E REG. NO. F-3062

**NFBWA SEGMENT 1B**

SEGMENT 1B-PROPOSED 48-INCH WATER LINE IN  
CENTERPOINT EASEMENT FROM GAINES ROAD TO ELDRIDGE  
PARKWAY

(STA. 169+00 TO STA. 174+00)



NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE C

CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

11/2/09	STREET & BRIDGE
---------	-----------------

MAILED 10	TRAFFIC
APR 11 1969	STANDARD MARINE INSURANCE CO.

STATION	2-NH-11.12.9
FACILITIES	STATION WITH SPARK

FILE NO:	FOR CITY OF HOUSTON USE ONLY
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80073234

DRAWING SCALE

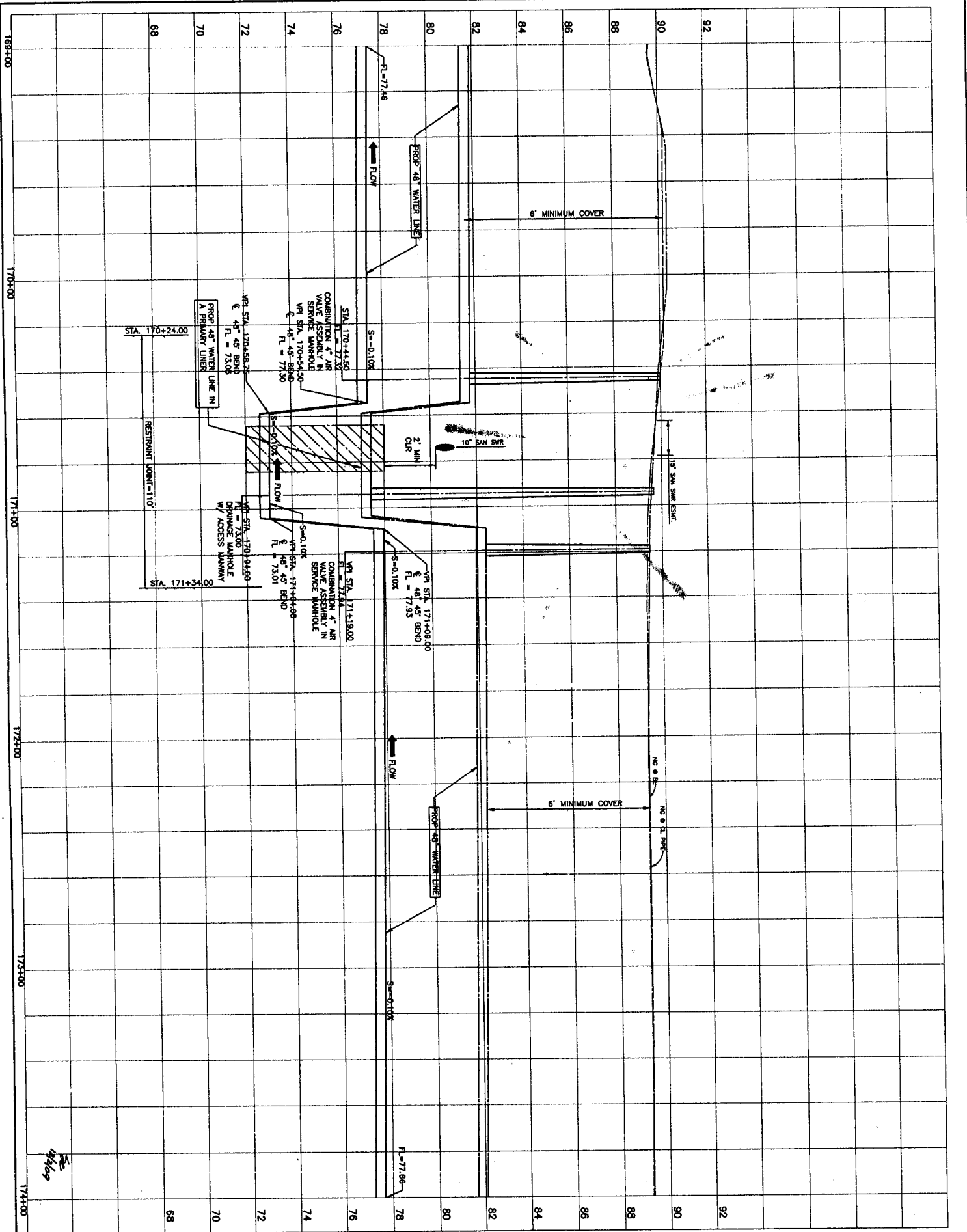
H087 : 1" = 20'

ACCEPTED AND PLATD

46446  
VERT : 1" = 2'

18 of 78





PRIVATE UTILITY LINES SHOWN

Date: 9/11/09  
Checked by: [Signature]  
SEC. UTILITY LINES SHOWN  
SEC. Approved for underground conduit facilities only.  
SEC. Approved for any use.  
Date: 9/11/09

NOTE:  
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET  
R.O.W. OR EASEMENTS CALL LONE STAR NOTIFICATION  
CENTER, (713) 223-4567 OR 1-800-668-6344  
TO ARRANGE FOR LINES TO BE TURNED OFF OR  
MOVED. CALL CENTERPOINT AT 713-207-7777.



AECOM

AECOM USA GROUP, INC.  
5757 WOODWAY, SUITE 101 WEST  
HOUSTON, TEXAS 77057-1599  
TIRE REG. NO. F-3062

NTBWA SEGMENT 1B

SEGMENT 1B-PROPOSED 48-INCH WATER LINE IN  
CENTERPOINT DISCOUNT PARKWAY  
(STA. 169+00 TO STA. 174+00)



NOTE: CITY SQUARES WARD FOR ONE YEAR ONLY AFTER DATE OF  
SIGNATURES  
CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
DATE: 9/11/09  
BY: [Signature]  
TITLE: [Signature]  
DATE: 9/11/09  
TITLE: [Signature]

FILE NO.: 60073234

DRAWING SCALE

HORIZ: 1" = 20'

VERT: 1" = 2'

SHEET NO.: 19 OF 78



Centerpoint Energy/ Electric Facilities. (approved only for crossing underground facilities, unless otherwise noted.)

NOTICE:  
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET  
R.O.W. OR EASEMENTS CALL LONE STAR NOTIFICATION  
CENTER (713) 223-4567 OR 1-800-669-8344  
TO ARRANGE FOR LINES TO BE TURNED OFF OR  
MOVED. CALL CENTERPOINT AT 713-207-7777.

184788 6 10-5

STATE OF TEXAS  
COUNTY OF DALLAS  
I, CLAYTON L. DAVIS, County Clerk, do hereby certify that the within and foregoing is a true and correct copy of the original as the same appears from the records of said County.

CLAYTON L. DAVIS  
County Clerk

[illegible]

NFBWA SEGMENT 1B  
 SEGMENT 1B--PROPOSED 48-INCH WATER LINE IN  
 CENTERPOINT EASEMENT FROM GAMES ROAD TO ELDRIDGE  
 PARKWAY  
 (STA. 174+00 TO STA. 179+00)

**NORTH FORT BEND**



**CITY OF HOUSTON**

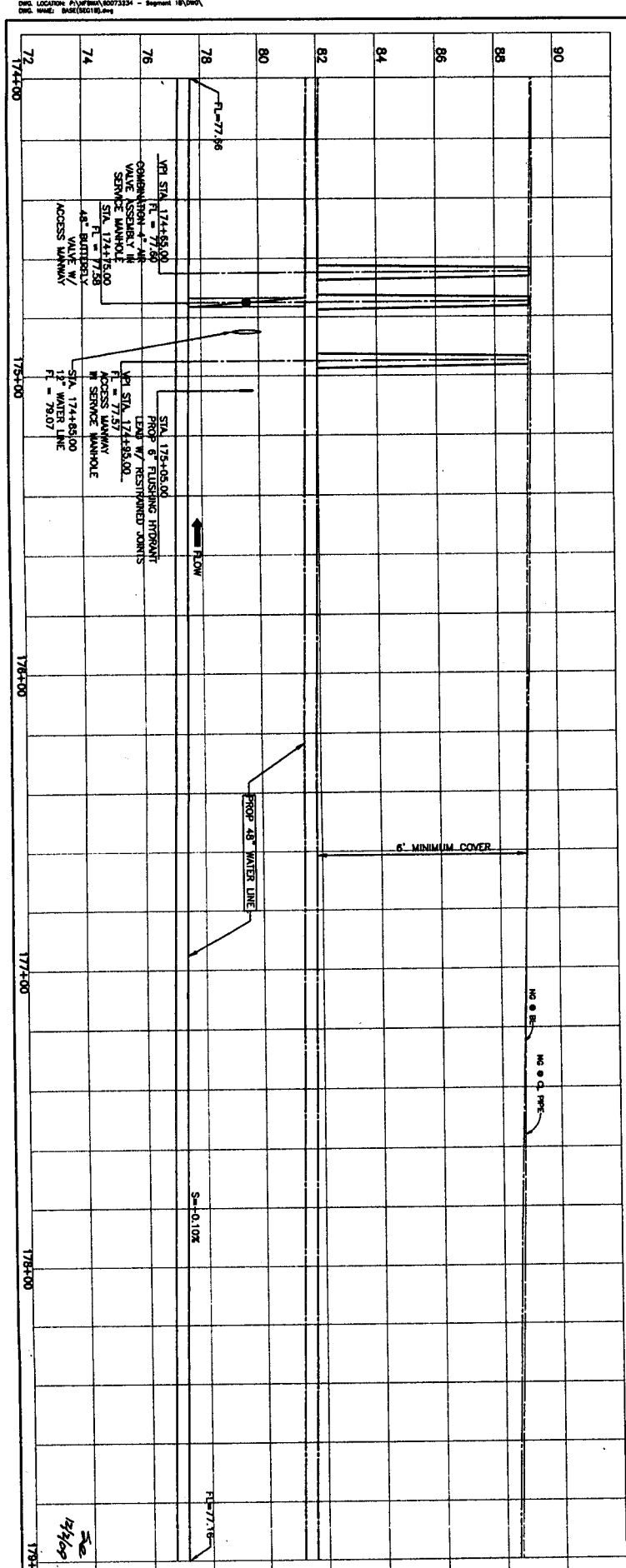
**DEPARTMENT OF PUBLIC WORKS AND ENGINEERING**

**SPAWNGRUES**

**NOTE: CITY SPRAWNGRUES VALID FOR ONE YEAR ONLY AFTER DATE OF**

MAILED	SERIAL & INDEX
<i>March 11, 1967</i>	INDEXING
<i>M.P. Black-H-29</i>	STANDARD QUALITY
<i>March 11, 1967</i>	
CHECKS	
FILE NO:	FOR CITY OF HOUSTON USE ONLY
60073234	
HOLDING STATE	

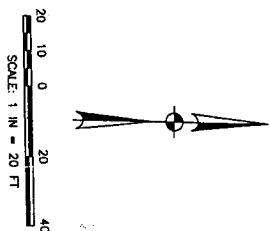
HORIZ : 1" = 20' VERT : 1" = 2'	SHEET No. 20 of 78
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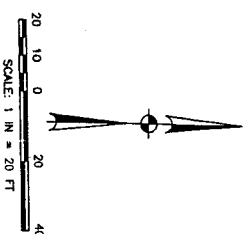
LAST MODIFIED: Oct 05, 2009 - 1:08pm BY USER: selt  
DWG. LOCATION: P:\NFW\80073234 - Segment 18\DWG\  
DWG. NAME: BASE(SEG18).dwg







[illegible]





AECOM AECOM USA GROUP, INC. 5757 WOODLAND, SUITE 101 WEST HOUSTON, TEXAS 77057-1509 TYP. TEL. NO. F-3002	
NFPA SEGMENT 1B SEGMENT 1B-PROPOSED 48-INCH WATER LINE IN CENTERPOINT RESIDENT FROM JAMES ROAD TO ELDRIDGE TRAILWAY (STA. 188+00 TO STA. 188+00)	
	
NOTE: GUY SPALLIES WARD FOR ONE YEAR ONLY AFTER DATE OF SPALLIES	
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING DATE: 11/11/17 BY: [Signature] 11/12/17	
TITLE: NO. 000702324	DATE: 11/12/17 BY: [Signature]
DRAWING SCALE HORIZ. : 1" = 20' VERT. : 1" = 2'	TYP. TEL. NO. F-3002
SHEET 24 OF 78	FOR CITY OF HOUSTON USE ONLY 



Date: 9/14/04  
Checked by: [Signature]  
Drawn by: [Signature]  
Scale: 1" = 20'  
Sheet: 26 of 78

NOTICE:  
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW, OR EXISTING CALL, STATE NOTIFICATION CENTER (713) 253-4867 OR 1-800-688-6344 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-253-7171.



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AECOM  
AECOM USA GROUP, INC.  
3717 NORTHWAY SUITE 101 WEST  
HOUSTON, TEXAS 77057-1588  
PHONE: 713-261-1000  
FAX: 713-261-1002

NEBMA SEGMENT 1B  
SEGMENT 1B-PROPOSED 48-INCH WATER LINE IN CENTERPOINT EXISTING FROM GAINES ROAD TO ELDRIDGE PARKWAY  
(STA. 192+00 TO STA. 195+60)



CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
DATE: 11/16/04  
DRAWN BY: [Signature]  
CHECKED BY: [Signature]  
FILE NO.: 60073234  
DRAWING SCALE: 1" = 20'  
SHEET: 26 of 78

NOTE: CITY SIGNATURES MUST BE FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES.

DATE: 11/16/04

FILE NO.: 60073234

DRAWING SCALE: 1" = 20'

SHEET: 26 of 78

48446

PRIVATE UTILITY LINES SHOWN

DATE: 7/12/15  
DRAWN BY: J. B. B. / J. B. B.  
CHECKED BY: J. B. B. / J. B. B.  
DATE: 7/12/15  
NOTICE: DRAWING IN STREET  
TO BE TURNED OFF OR  
MOVED. CALL CENTERPOINT AT 713-207-7777.



NO.	DATE	REVISION
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AECOM

2221 W. 10TH STREET  
HOUSTON, TEXAS 77057-1800  
TEL: 713-261-1000 FAX: 713-261-1002

NFBWA SEGMENT 1B

SEGMENT 1B-PROPOSED 48-INCH WATER LINE IN  
CENTERPOINT ESSENTIAL FROM CANEES ROAD TO ELMHURST  
PARKWAY

(STA. 195+60 TO STA. 199+00)



NOTE: CITY SCHEDULES VALID FOR ONE YEAR ONLY AFTER DATE OF  
ISSUANCE.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DESIGNED BY: J. B. B. / J. B. B.

CHECKED BY: J. B. B. / J. B. B.

DATE: 7/12/15

SCALE: 1" = 20'

FILE NO.: 60072324

DRAWING SCALE

1" = 20'

SHEET NO.: 27 OF 78

FOR INFORMATION OF CITY

46446

DATE: 7/12/15

DATE: 7/12/15

DATE: 7/12/15

DATE: 7/12/15

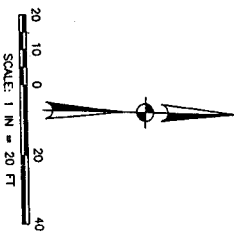
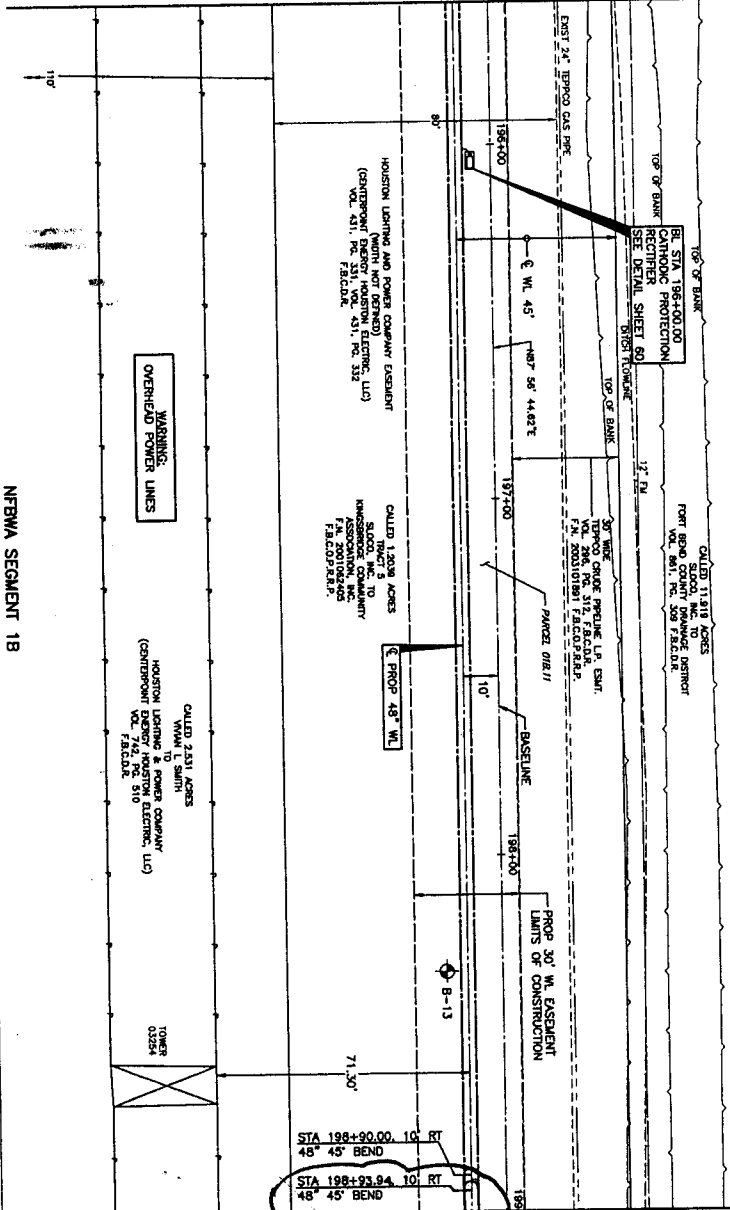
DATE: 7/12/15

DATE: 7/12/15

DATE: 7/12/15

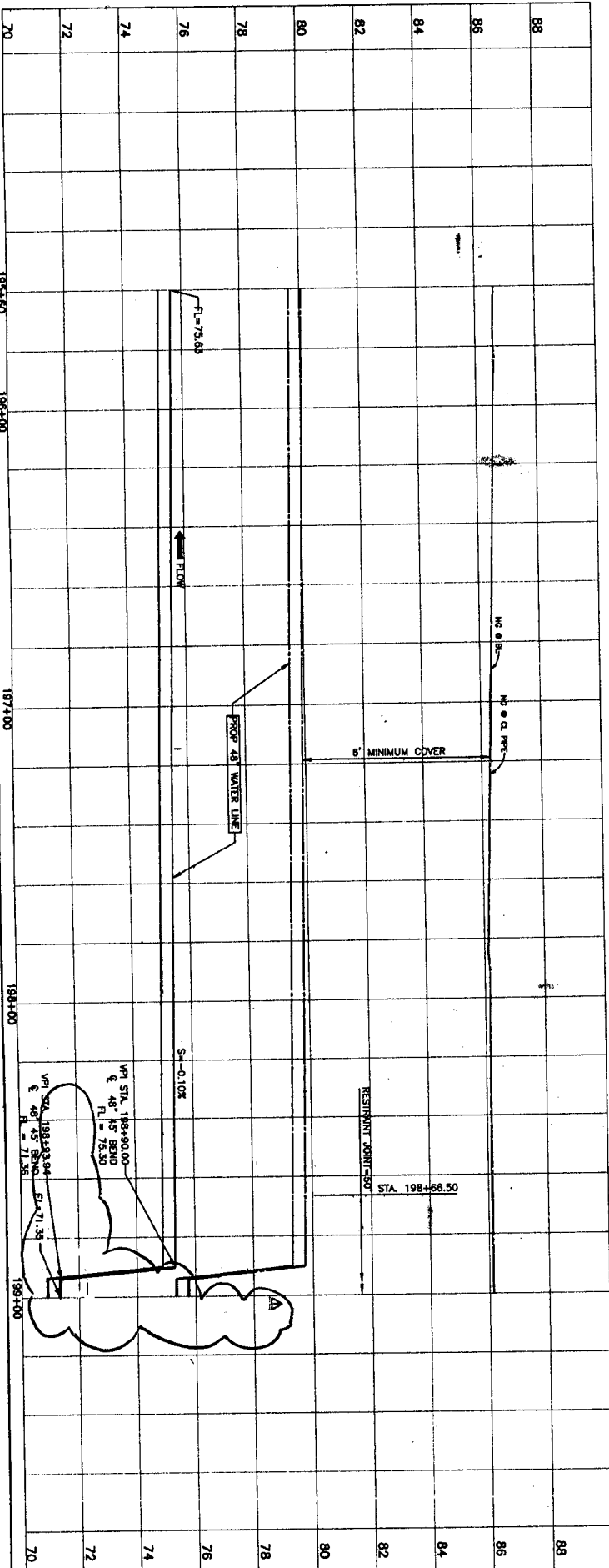
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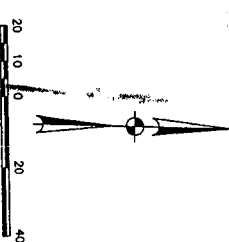
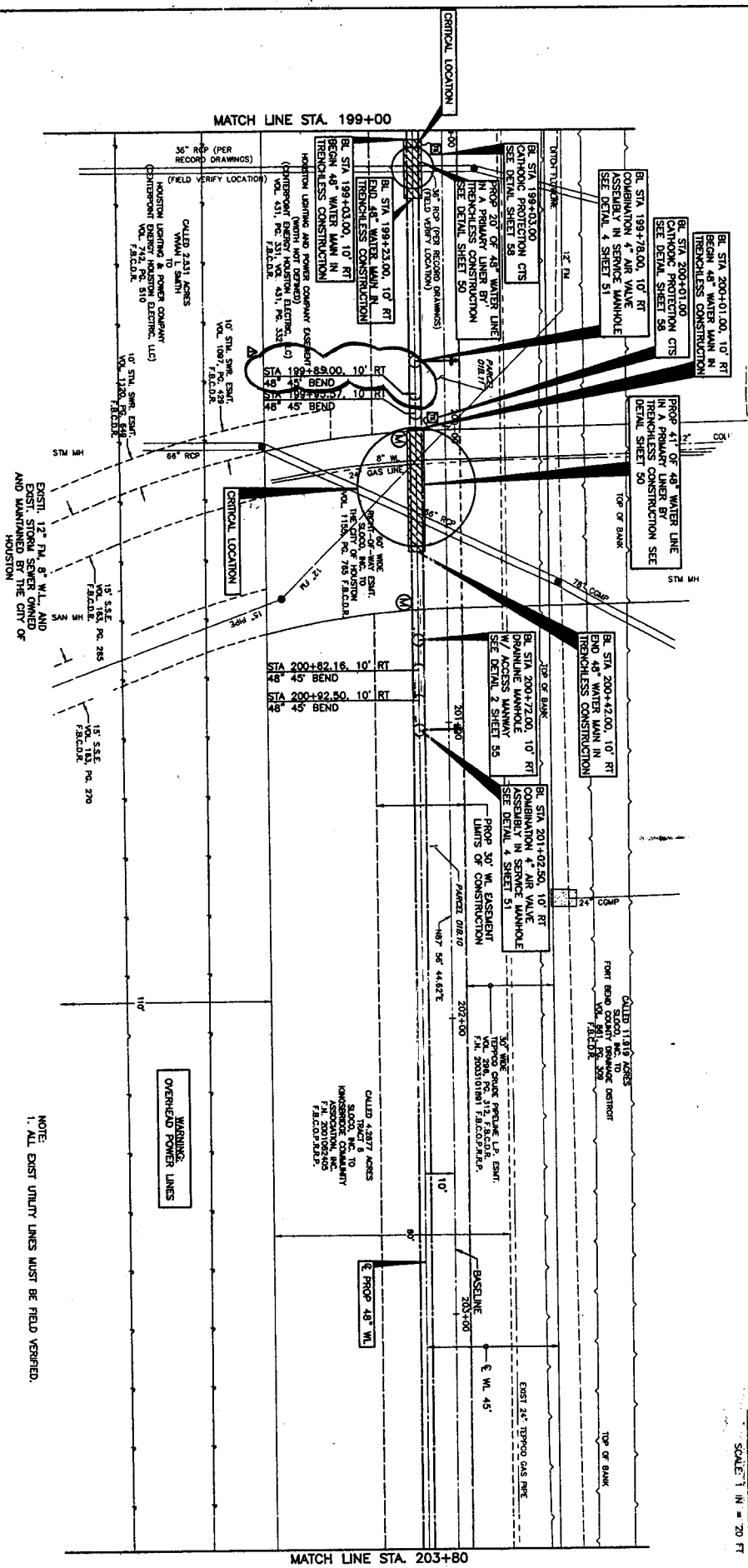
MATCH LINE STA. 195+60



SCALE: 1" = 20' FT

NFBWA SEGMENT 1B





NOTE:  
1. ALL EXIST UTILITY LINES MUST BE FIELD VERIFIED.

WARNING:  
OVERHEAD POWER LINES

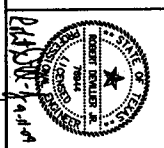
TERPOD PIPELINE NOTES:  
A. FOR ANY LABOR IN TERPOD PIPELINE EXCAVATE THESE CALL 72 HOURS BEFORE WORKING. THE CONTRACT PERSON IS RESPONSIBLE FOR THE DAMAGE TO THE EXISTING UTILITY LINES. ANY DAMAGE TO THE EXISTING UTILITY LINES AS A RESULT OF THE CROSSING WILL BE AT THE CONTRACTOR'S EXPENSE. THIS WILL INCLUDE, BUT NOT LIMITED TO, DAMAGING THE PIPELINE LOADING, CAUSING ANY DENIALS, OR OTHER SUCH DAMAGE THAT WOULD REQUIRE REPAIRS IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS.

B. ALL UTILITIES CROSSING TERPOD PIPELINES SHALL BE REQUIRED TO MAINTAIN A MINIMUM SEPARATION DISTANCE OF 24 INCHES.

PRIVATE UTILITY LINES SHOWN

Date: 9/2/09  
By: [Signature]  
Check: [Signature]  
Date: 9/2/09

NOTE:  
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL ONE STAR NOTIFICATION CENTER, (713) 233-4567 OR 1-800-669-8344 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-7777.



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AECOM

INTERVA SEGMENT 1B  
SEGMENT 1B, PROPOSED 48-INCH WATER MAIN IN CENTERPOINT EXCAVATION PARKWAY  
(STA. 199+00 TO STA. 203+80)



CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

By: [Signature]  
Date: 11/2/09

FILE NO.: 00072324  
DRAWING SCALE: 1" = 20'

SHEET NO.: 28 OF 78



PRIVATE UTILITY LINES SHOWN

Date: 12/6/09  
Checked by: [Signature]  
Drawn by: [Signature]  
Scale: 1" = 20'  
Sheet: 29 of 78

NOTICE:  
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET  
R.O.W. OR EASEMENTS CALL LONE STAR NOTIFICATION  
CENTER, (713) 223-4567 OR 1-800-669-8344  
TO ARRANGE FOR LINES TO BE TURNED OFF OR  
MOVED. CALL CENTERPOINT AT 713-507-7777.

DATE: 12-6-09  
BY: [Signature]  
CHECKED BY: [Signature]  
SCALE: 1" = 20'  
SHEET: 29 OF 78

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ACCOM  
ACCOM USA GROUP, INC.  
5757 WOODWAY, SUITE 101 WEST  
HOUSTON, TEXAS 77057-1998  
TYPE: REG. NO. F-3082

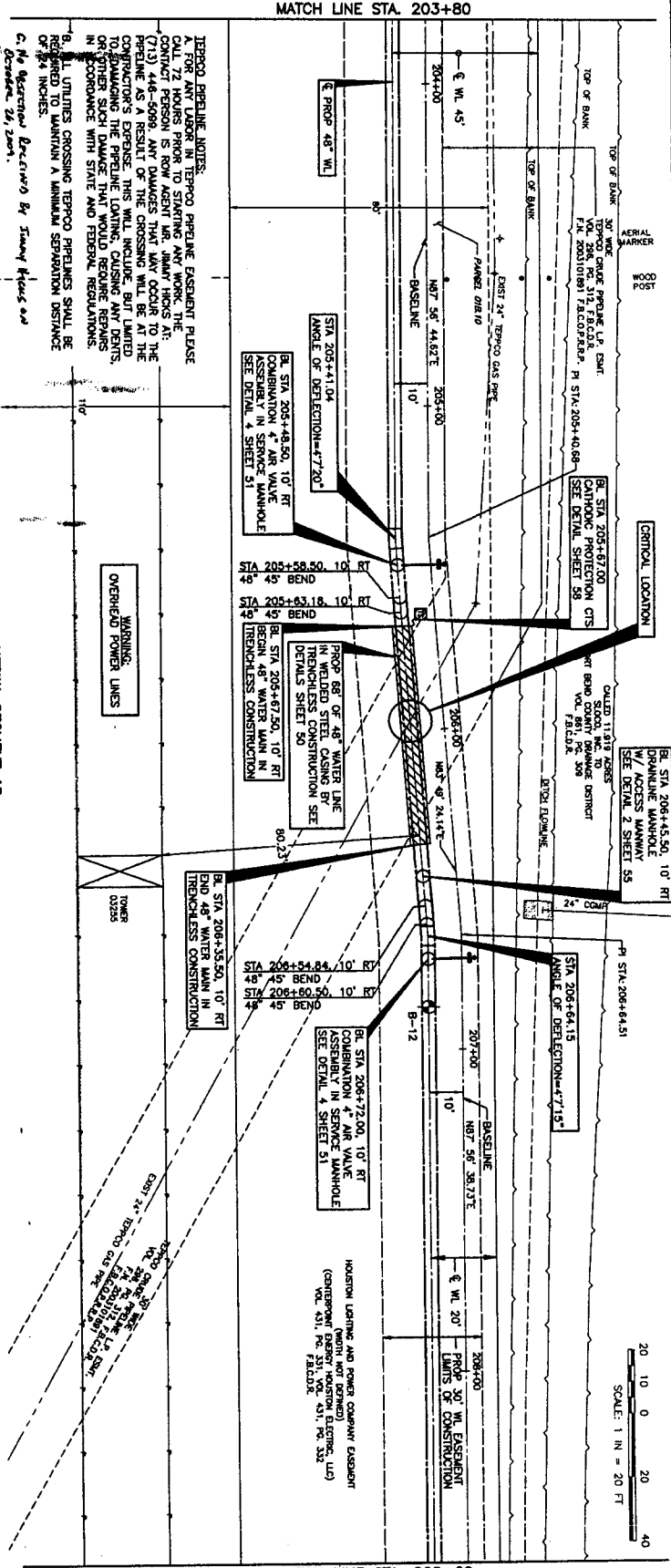
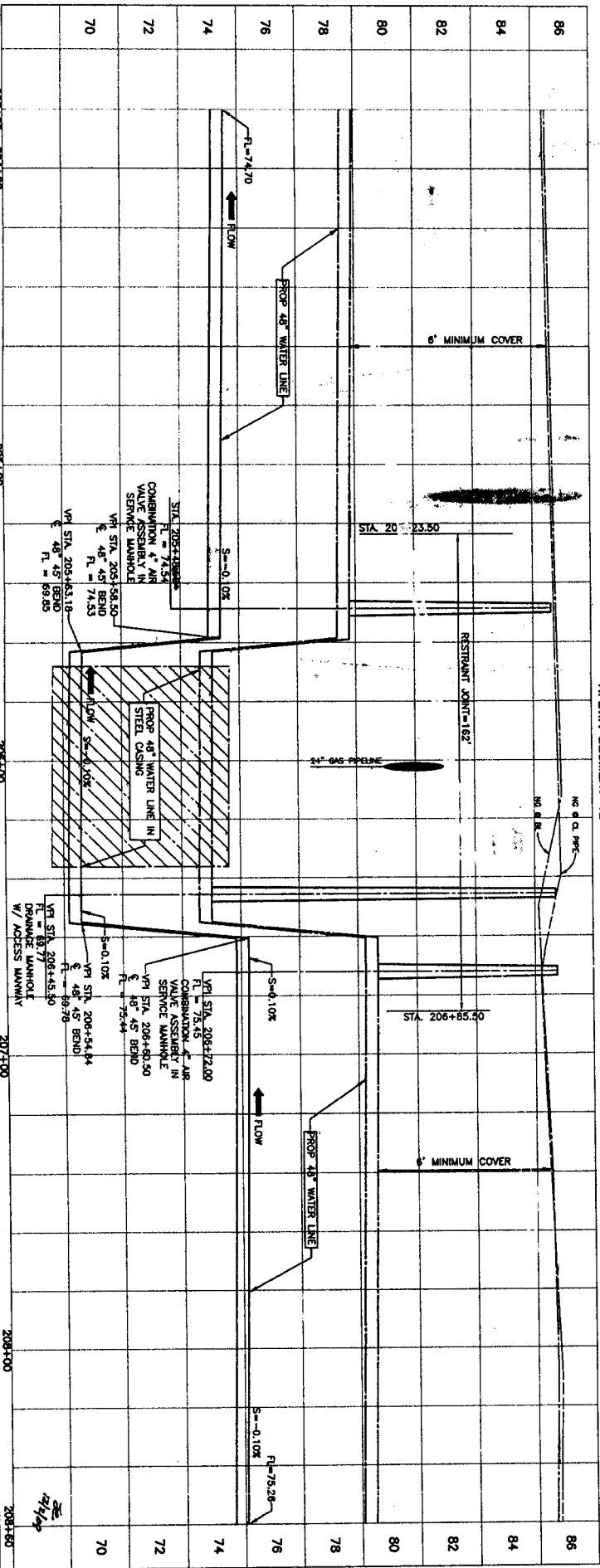
NTBWA SEGMENT 1B  
SEGMENT 1B-PROPOSED 48-INCH WATER LINE IN  
CENTERPOINT EASEMENT FROM  
PARKWAY  
(STA. 199+00 TO STA. 203+80)



CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
DATE: 12-6-09  
BY: [Signature]  
CHECKED BY: [Signature]  
SCALE: 1" = 20'  
SHEET: 29 OF 78

FILE NO.: 60072324  
DRAWING SCALE: 1" = 20'  
VERT: 1" = 2'  
SHEET: 29 OF 78





PRIVATE UTILITY LINES SHOWN

Date: 9/1/15  
By: [Signature]  
Check: [Signature]  
Scale: 1" = 20'

NOTE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET OR ON HIGHWAY, THE CONTRACTOR SHALL BE REQUIRED TO ADVISE THE UTILITY ENGINEER (UTL) OF THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FOR PROTECTING ALL UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING A MINIMUM SEPARATION DISTANCE OF 36 INCHES.

UTL: [Signature]  
Date: 9/1/15

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURE.

CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
[Signature]  
Date: 11/11/14

FILE NO: 80072324

DRAWING SCALE: HORIZ: 1" = 20' VERT: 1" = 2'

SHEET NO: 30 OF 78

ACCOM

ACCOM USA GROUP, INC.  
10000 WEST LOOP SOUTH, SUITE 100  
HOUSTON, TEXAS 77042  
TEL: 281.416.1000  
WWW.ACCON.COM

NFBWA SEGMENT 1B

SEGMENT 1B-PROPOSED 48-INCH WATER LINE IN CENTERPOINT ESSENTIAL FROM CANES ROAD TO ELDORADO PARKWAY

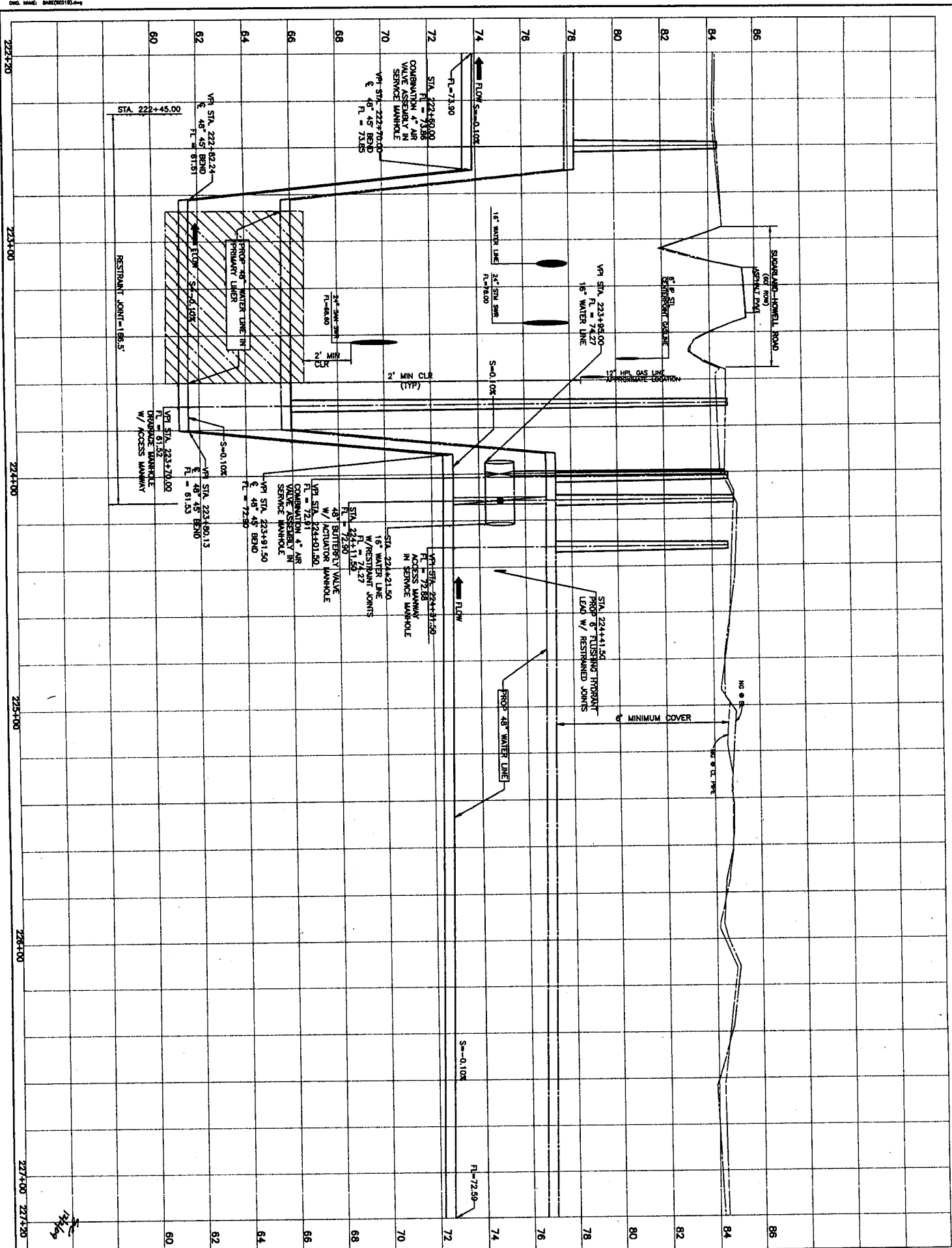
(STA. 203+80 TO STA. 208+60)

44466







[illegible]

<p>Contingent Energy/Electric facilities (approved only if the facility is a new facility, unless otherwise noted).</p> <p>WSP at the time of Review only</p> <p>SGS UTILITY LINES SHOWN</p>	Date:
<p>Contingent Energy/Electric facilities (approved only if the facility is a new facility, unless otherwise noted).</p> <p>WSP at the time of Review only</p> <p>SGS UTILITY LINES SHOWN</p>	Date:
<p>SGS approved for underground conduit facilities only.</p> <p>Signature valid for one year.</p>	Date:
<p>Contingent Energy/Electric facilities (approved only if the facility is a new facility, unless otherwise noted).</p> <p>WSP at the time of Review only</p> <p>SGS UTILITY LINES SHOWN</p>	Date:

**AECOM**

AECOM USA GROUP, INC.  
5757 WOODWAY, SUITE 101 WEST  
HOUSTON, TEXAS 77057-1599  
WWW.AECOM.COM  
TELE REG. NO. F-3082

NFBWA SEGMENT 1B

SEGMENT 1B-PROPOSED 48-INCH WATER LINE IN  
CENTERPOINT EASEMENT FROM GAINES ROAD TO ELDRIDGE  
PARKWAY

(STA. 222+20 TO STA. 227+20)



NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

STREET & BRIDGE 11/24/09

DATE: 10/10/2018

WOLFE	STORM WATER QUALITY
11-12-9	
STORM	

11.12.07

## PROPERTIES

FILE NO: 0007074

FOR COPY OF JOURNAL USE ONLY

600/5254

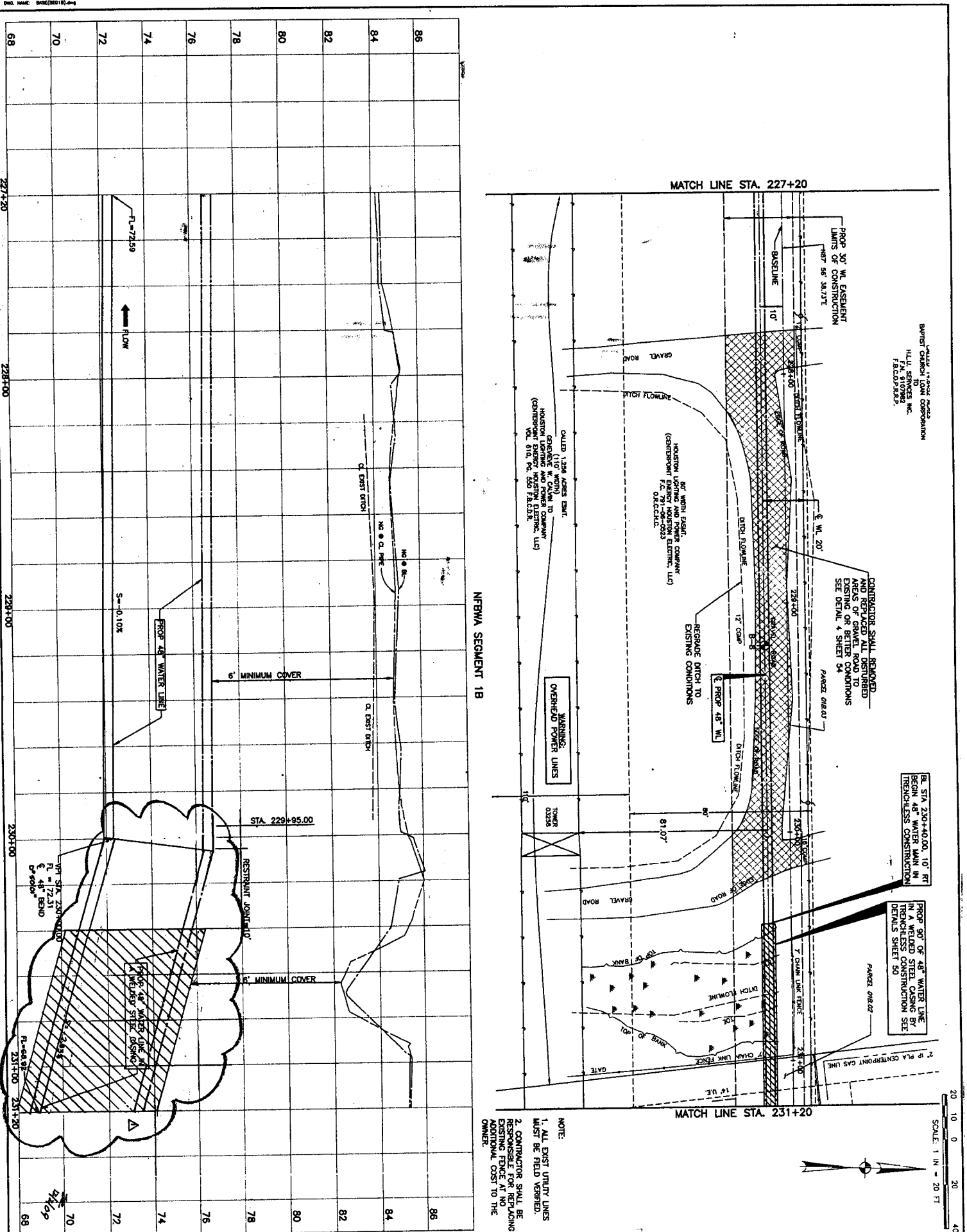
DRAWING SCALE

HORZ : 1" = 20'	46446
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VERT : 1" = 2'

SHEET  
No.: 35 of 78

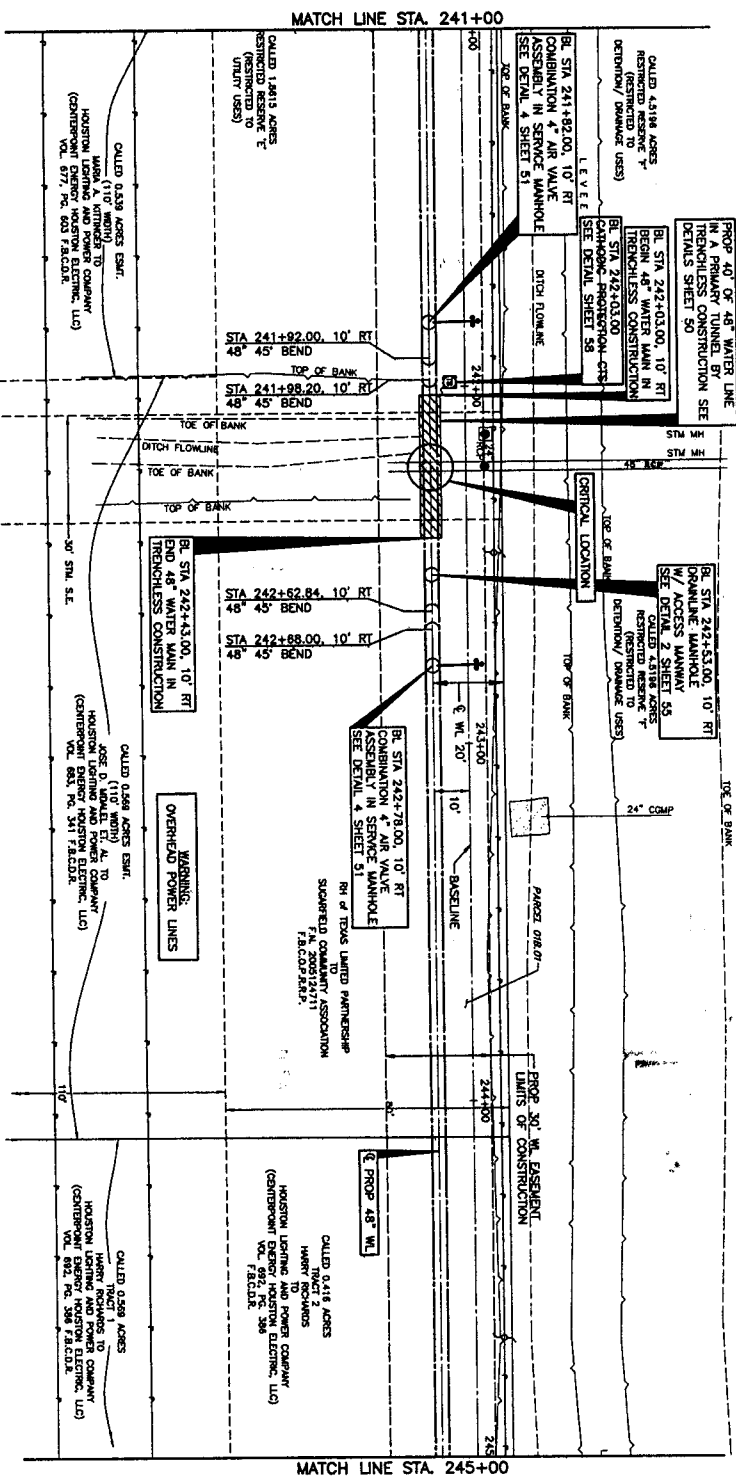


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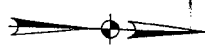






NOTE  
1. CONDITION OF CHANNEL/SWALE UPON COMPLETION OF JOB SHALL BE EQUAL TO EXISTING CONDITIONS.

SCALE: 1 IN = 20 FT



PRIVATE UTILITY LINES SHOWN

Date: 9/14/09  
Contractor: [Signature]  
City of Houston  
Department of Public Works and Engineering  
Date: 9/14/09  
City of Houston  
Department of Public Works and Engineering

NOTICE  
AT LEAST 48 HOURS BEFORE THE START OF ANY EXCAVATION IN STREET ROW, OR EASEMENTS CALL ONE STATE NOTIFICATION CENTER, (713) 223-4567 OR 1-800-669-8344  
TO AVOID FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-7777.



NO.	DATE	REVISION	APPROVED
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AECOM

AECOM USA GROUP, INC.  
1111 WEST  
HOUSTON, TEXAS 77057-1589  
WWW.AECOM.COM  
100% REG. NO. F-3062

NEBMA SEGMENT 1B

SEGMENT 1B-PROPOSED 48-INCH WATER LINE IN CENTERPOINT EASEMENT FROM GAINES ROAD TO ELDRIDGE PARKWAY  
(STA. 241+00 TO STA. 245+00)



NOTE: CITY SQUARES WAD FOR ONE YEAR ONLY AFTER DATE OF

CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 9/14/09  
SHEET 39 OF 78  
DATE: 9/14/09  
SHEET 39 OF 78

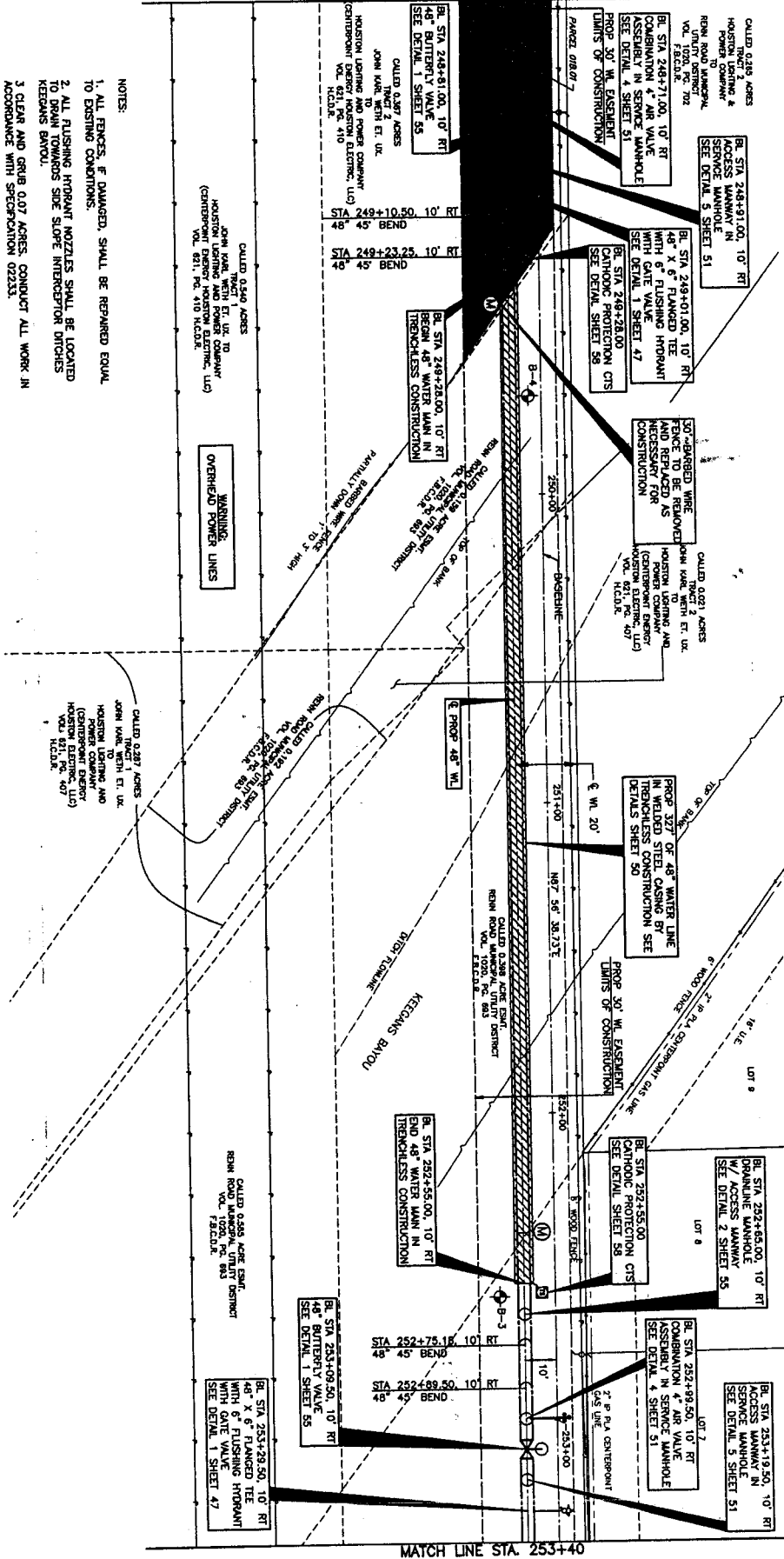
PROJECT NO. 60073234  
DRAWING SCALE  
HORIZ: 1" = 20'  
VERT: 1" = 2'







MATCH LINE STA. 248+40



MATCH LINE STA. 253+40

LEGEND

LIMITS OF CLEANING AND GRUBBING

- NOTES:
1. ALL FENCES, IF DAMAGED, SHALL BE REPAIRED EQUAL TO EXISTING CONDITIONS.
  2. ALL FLUSHING APPARATUS SHALL BE LOCATED TO DRAIN TOWARDS SIDE SLOPE INTERCEPTOR DITCHES KEYSANS BAYOU.
  3. CLEAR AND GRUB 0.07 ACRES, CONDUCT ALL WORK IN ACCORDANCE WITH SPECIFICATION 02253.

20 10 0 20 40  
SCALE: 1" = 20 FT

PRIVATE UTILITY LINES SHOWN

Date: 9/14/11  
Contract (Energy/ Gas/ Water/ Sewer/ Stormwater/ Other) (Check one)  
Weld At Time Of Review Only

Signature: [Signature]  
Date: 9/14/11  
SSE: Approved for underground contact facilities only.  
Signature: [Signature]  
Date: 9/14/11

NOTICE  
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW, OR EASEMENTS CALL LONE STAR NOTIFICATION CENTER. (713) 223-4567 OR 1-800-669-8344  
TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-7777.



AECOM

AECOM USA GROUP, INC.  
2000 WEST 13TH STREET, SUITE 101  
HOUSTON, TEXAS 77057-1399  
19th Floor, Box 17-3082

NFBWA SEGMENT 1B

SEGMENT 1B-PROPOSED 48-INCH WATER LINE IN CENTERPOINT DRAINAGE FROM CAMERON ROAD TO ELDRIDGE PARKWAY  
(STA. 248+40 TO STA. 253+40)



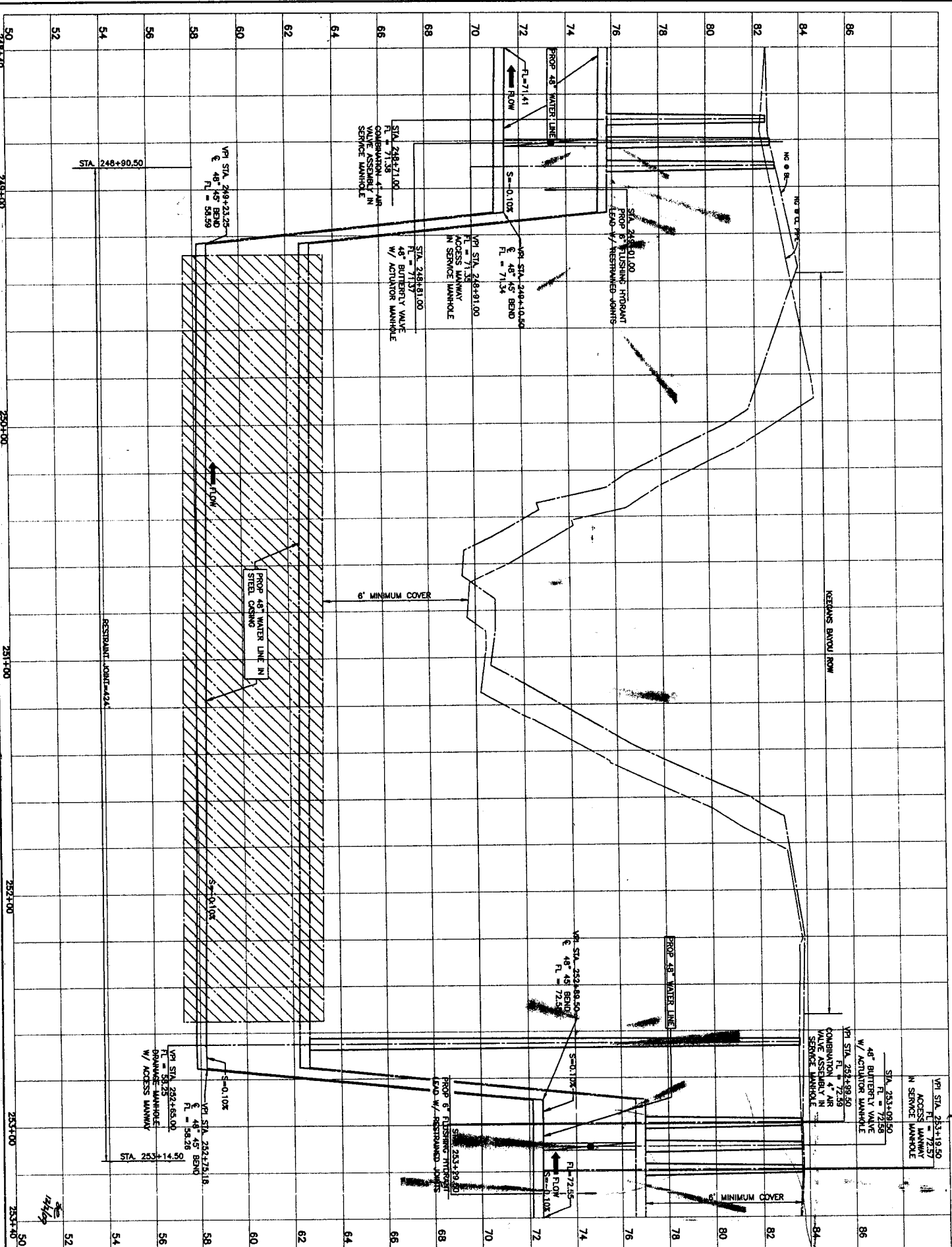
CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 11/19/09  
BY: [Signature]  
CHECKED: [Signature]  
DATE: 11/19/09

FILE NO.: 60073234  
DRAWING SCALE: 1" = 20'

SHEET NO.: 42 OF 78





PRIVATE UTILITY LINES SHOWN

Centerpoint Energy/ Electric facilities (approved only for crossing underground ductlines, unless otherwise noted).

Date: \_\_\_\_\_

SAC approval for underground conduit facilities only.

Centerpoint Energy/ Gas Facilities  
(GAS service lines are not shown.)

AT LEAST 48 HOURS BEFORE EXCAVATING IN R.O.W. OR EASEMENTS CALL LONE STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-669-8888.

**AECOM**

AECOM USA GROUP, INC.  
5757 WOODWAY, SUITE 101 WEST  
HOUSTON, TEXAS 77057-1589  
WWW.AECOM.COM  
TYPE REG. NO. F-3082

NFBWA SEGMENT 1E

**CENTERPOINT EASEMENT FROM GAINES ROAD TO ELDRIDGE PARKWAY**

(STA. 248+40 TO STA. 253+40)



CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

11-20-68	TRAFFIC
WEST 12-9	
11-20-68	

PROBES	11.1 E. 91
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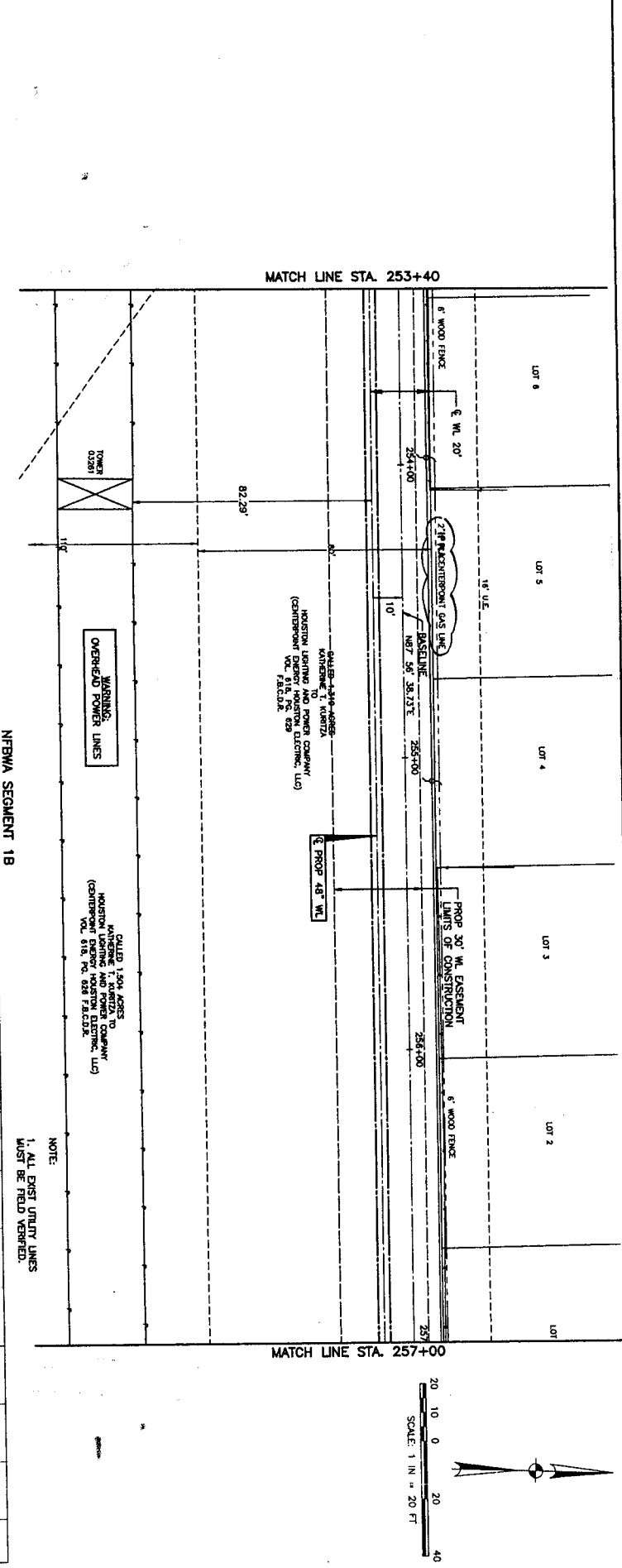
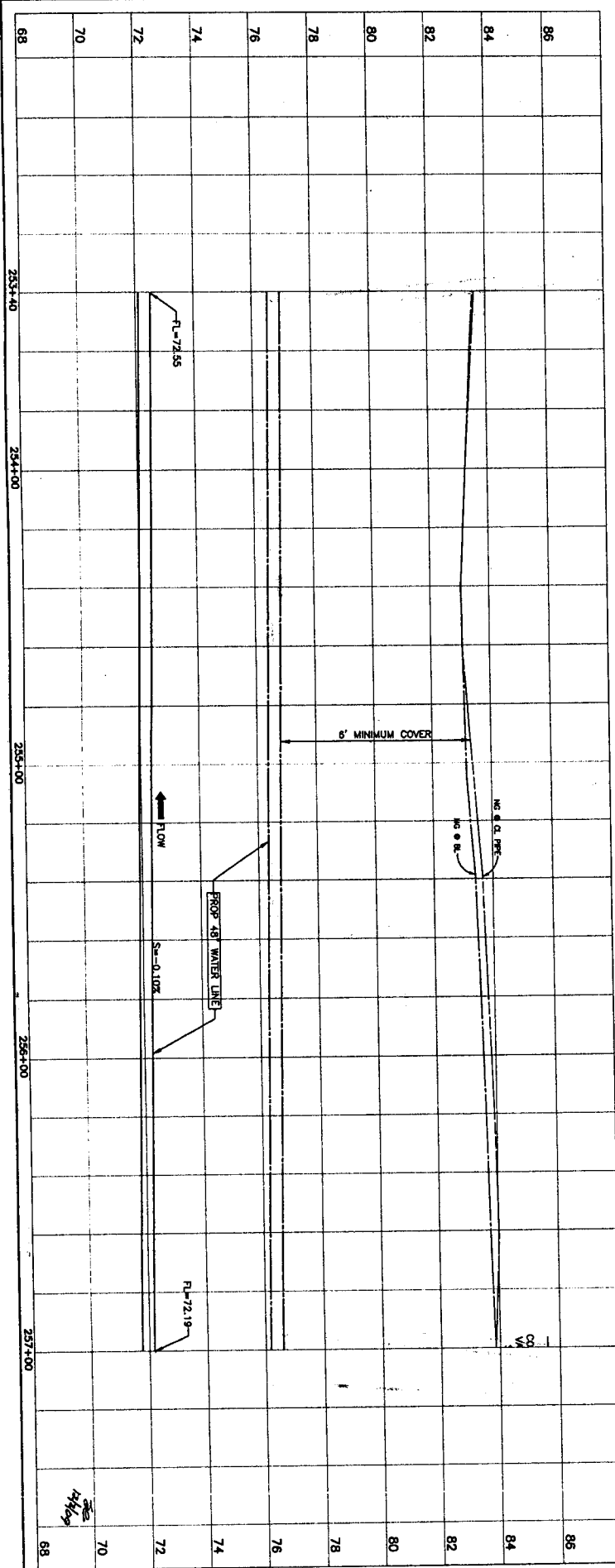
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HORZ : 1" = 20'

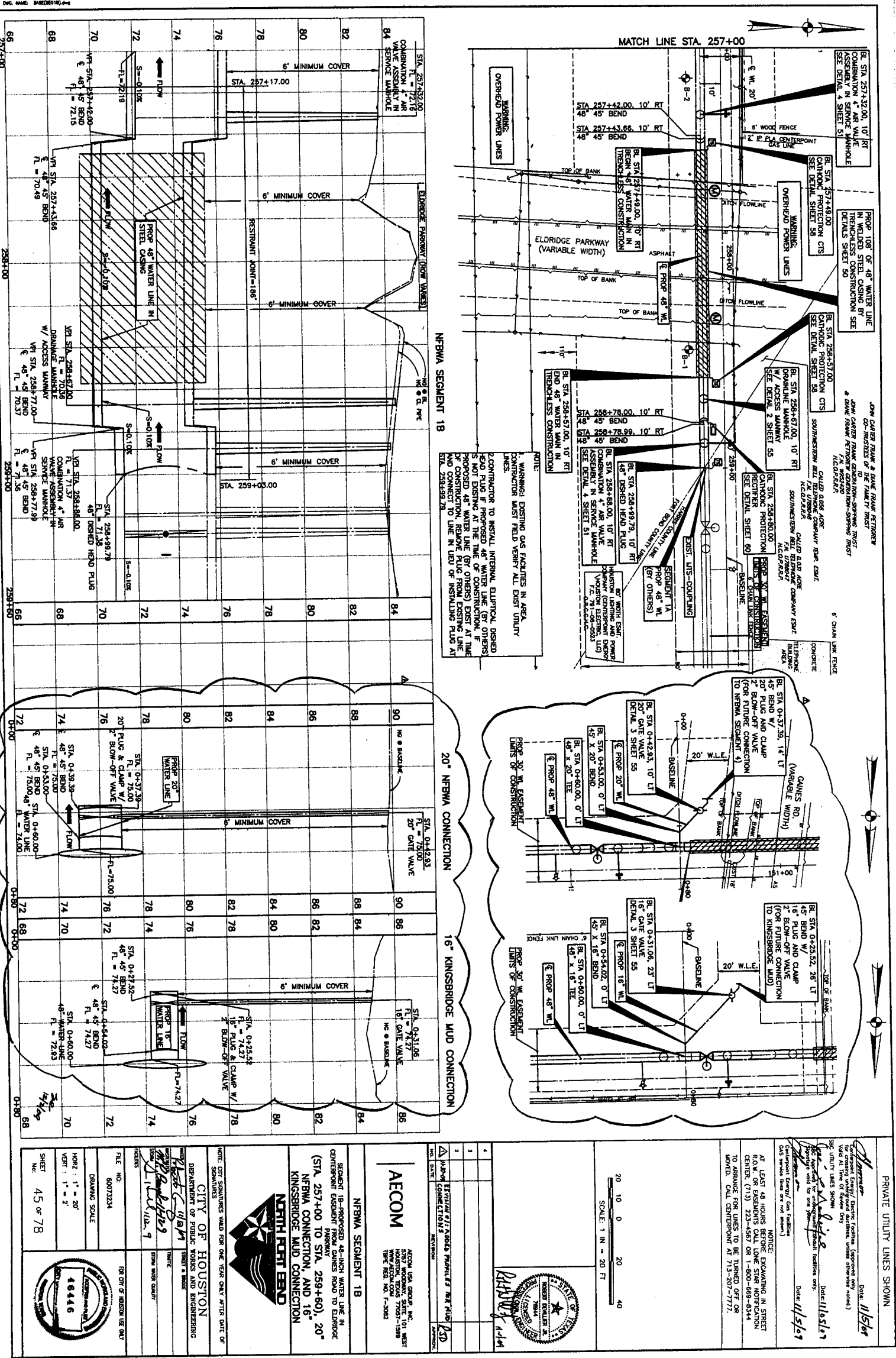
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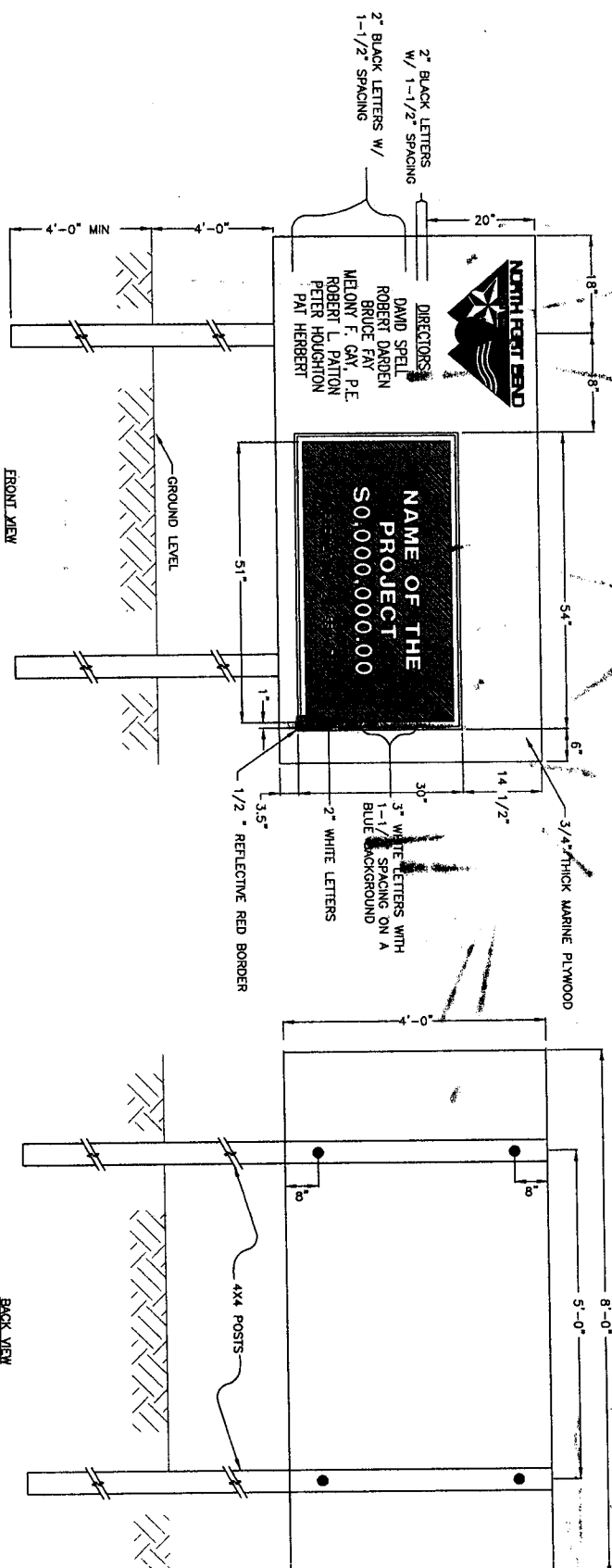
SHEET 47 OF 70



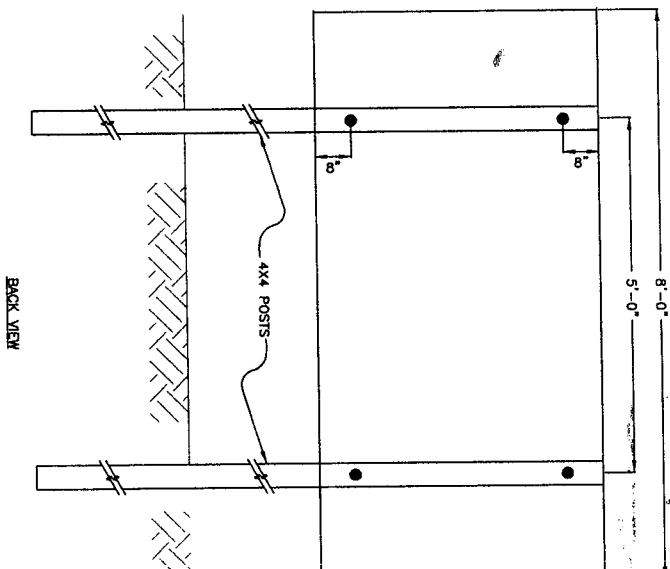


<b>PRIVATE UTILITY LINES SHOWN</b>	
DATE: 9/14/08 BY: [Signature] CHECKED: [Signature] DATE: 9/14/08	
NOTE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET FOR ANY UTILITY, THE CITY OF HOUSTON MUST BE NOTIFIED BY PHONE (713) 223-4587 OR 1-800-669-8344. A WORK ORDER WILL BE ISSUED. (713) 223-4587 OR 1-800-669-8344. A WORK ORDER WILL BE ISSUED. (713) 223-4587 OR 1-800-669-8344.	
NOTE: ALL EXIST UTILITY LINES MUST BE FIELD VERIFIED.	
NOTE: CITY SEGMENTS VALID FOR ONE YEAR ONLY AFTER DATE OF SEGMENTATION.	
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING STREET & BRIDGE STREET NO. 11111 STREET NAME STREET WIDTH STREET WIDTH QUALITY	
FILE NO. 00073234 DRAWING SCALE 1" = 20' SHEET NO. 44 OF 78	
AECOM 10000 AECOM DRIVE, SUITE 100 HOUSTON, TEXAS 77037-1598 TEL: 281.416.1000 FAX: 281.416.1002	
NFBWA SEGMENT 1B SEGMENT 1B-PROPOSED 48-INCH WATER LINE IN CENTERPOINT EXISTENT FROM GAINES ROAD TO ELDORADO PARKWAY (STA. 253+40 TO STA. 257+00)	
NORTH POINT BEND	
STATE OF TEXAS COUNTY OF DALLAS CITY OF HOUSTON CITY ENGINEER [Signature] DATE: 9/14/08	





PROJECT SIGN  
N.T.S.



NO.	DATE	REVISION	APPROV
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**AECOM**  
AECOM USA GROUP, INC.  
5757 WOODWAY, SUITE 101 WEST  
HOUSTON, TEXAS 77057-1599  
WWW.AECOM.COM  
TYPE REG. NO. F-3082

AECOM USA GROUP, INC.  
5757 WOODWAY, SUITE 101 WEST  
HOUSTON, TEXAS 77057-1509  
WWW.AECOM.COM  
TYPE REGD, NO. F--3082

## NFBWA SEGMENT 18

SEGMENT 1B-PROPOSED 48-INCH WATERLINE FROM OLD  
RICHMOND ROAD TO BELLAIRE BOULEVARD

### PROJECT SIGN DETAIL



NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

STREET & BRIDGE

10/10/11	10/10/11
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11	STORM WATER O
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11.12.9

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608 CITY

FOR CIVIL

60073234

PAINTING SCALE

WEIGHING SCALE

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N.T.S.

Kerry Lynn

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46 of 78

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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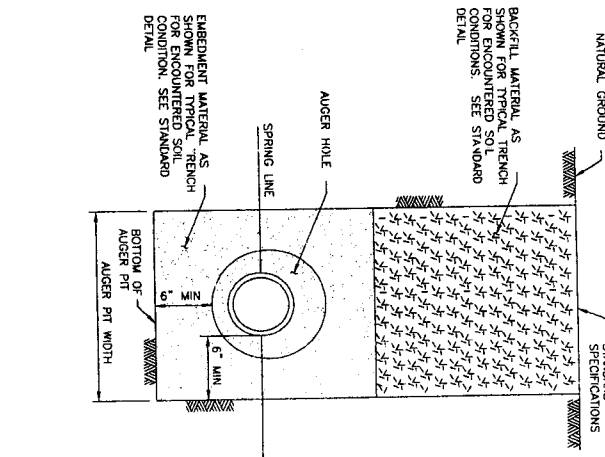
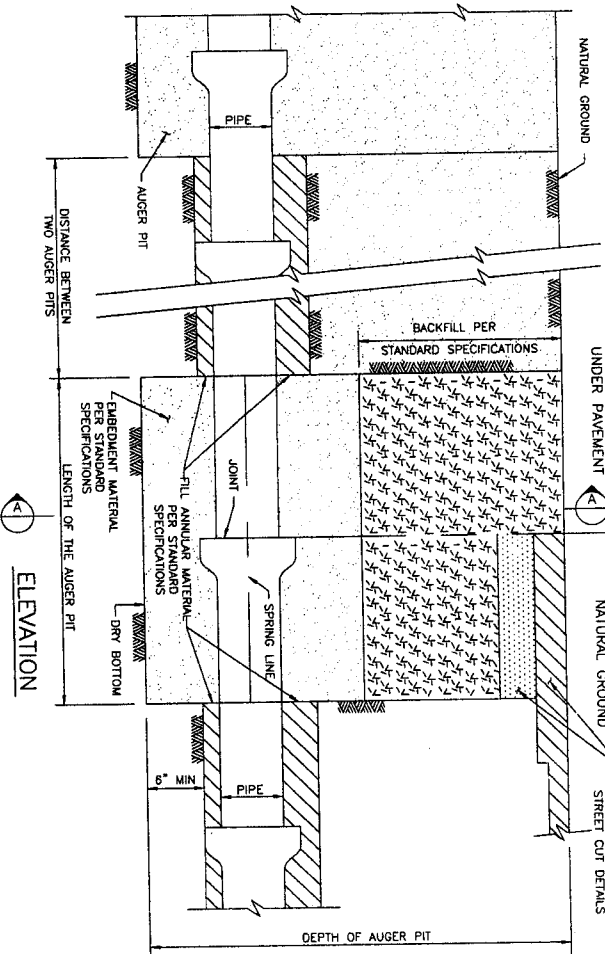
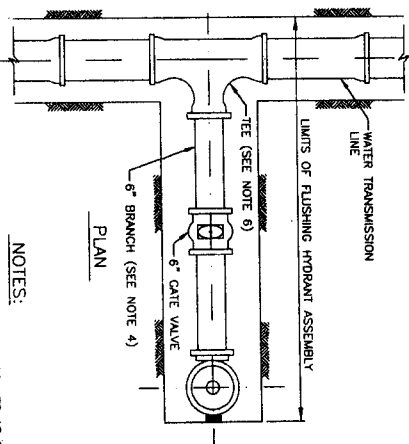
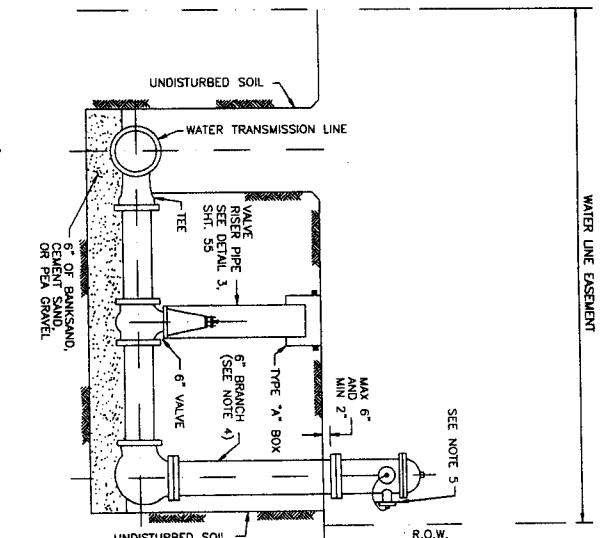
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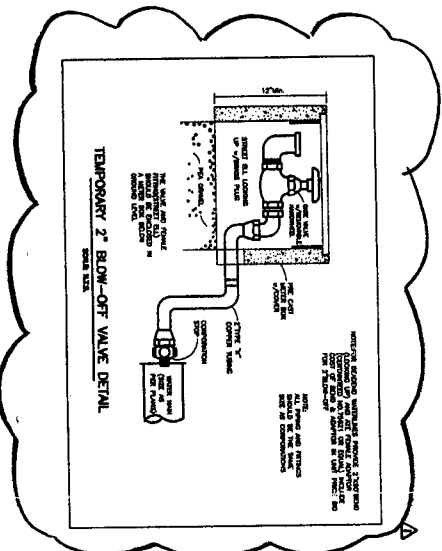




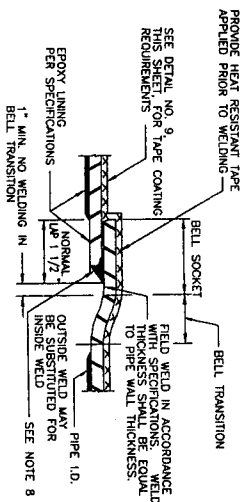
1 STANDARD FIRE HYDRANT DETAIL  
N.T.S.

2 WATER DISTRIBUTION LINE BEDDING AND BACKFILL FOR OPEN CUT TRENCHES  
N.T.S.

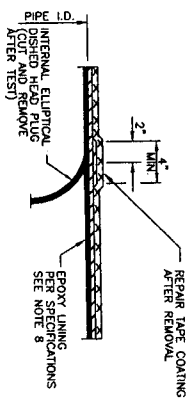
3 BEDDING AND BACKFILL AUGER PIT & AUGER HOLE  
N.T.S.



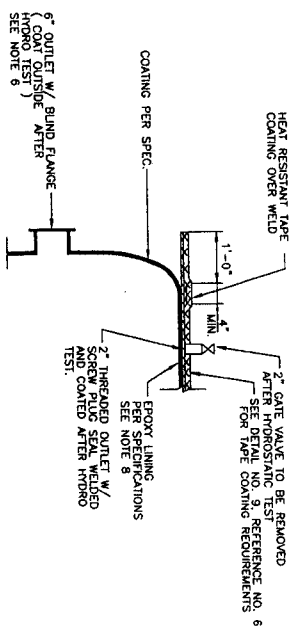
<p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p> <p>26</p> <p>27</p> <p>28</p> <p>29</p> <p>30</p> <p>31</p> <p>32</p> <p>33</p> <p>34</p> <p>35</p> <p>36</p> <p>37</p> <p>38</p> <p>39</p> <p>40</p> <p>41</p> <p>42</p> <p>43</p> <p>44</p> <p>45</p> <p>46</p> <p>47</p> <p>48</p> <p>49</p> <p>50</p> <p>51</p> <p>52</p> <p>53</p> <p>54</p> <p>55</p> <p>56</p> <p>57</p> <p>58</p> <p>59</p> <p>60</p> <p>61</p> <p>62</p> <p>63</p> <p>64</p> <p>65</p> <p>66</p> <p>67</p> <p>68</p> <p>69</p> <p>70</p> <p>71</p> <p>72</p> <p>73</p> <p>74</p> <p>75</p> <p>76</p> <p>77</p> <p>78</p> <p>79</p> <p>80</p> <p>81</p> <p>82</p> <p>83</p> <p>84</p> <p>85</p> <p>86</p> <p>87</p> <p>88</p> <p>89</p> <p>90</p> <p>91</p> <p>92</p> <p>93</p> <p>94</p> <p>95</p> <p>96</p> <p>97</p> <p>98</p> <p>99</p> <p>100</p>		<p>REVISION</p> <p>DATE</p> <p>BY</p> <p>CHKD</p> <p>APP'D</p>
<p>ACCOM</p> <p>ACCOM USA GROUP, INC.</p> <p>5757 WOODWAY, SUITE 101 WEST</p> <p>HOUSTON, TEXAS 77057-1198</p> <p>TELEPHONE: 713-865-1100</p> <p>FAX: 713-865-1101</p> <p>WWW.AC-COM.COM</p>		
<p>NOTE: SEGMENT 18 - APPROVED 14-NOV-2004 WATERLINE FROM OLD ROADWAY TO BELLME BOWLEND</p> <p>WATER LINE DETAILS</p>		
<p>NORTH PORT BEND</p>		
<p>NOTE: CITY SQUARES WELD FOR ONE TON ONLY AFTER DATE OF SIGNATURE</p> <p>CITY OF HOUSTON</p> <p>DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p> <p>DATE: 11/11/04</p> <p>BY: [Signature]</p> <p>CHKD: [Signature]</p> <p>APP'D: [Signature]</p> <p>SCALE: 1\"/&gt; </p>		
<p>TITLE NO: 60073234</p> <p>DRAWING SCALE: N.T.S.</p> <p>SHEET NO: 47 of 78</p>		



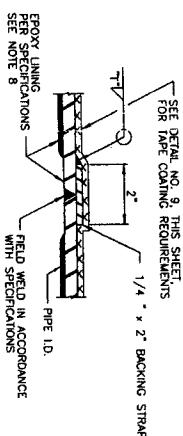
1 LAP-WELD FIELD JOINT - STEEL PIPE W/ EPOXY LINING  
(FOR WATER LINES 36-INCH DIAMETER AND LARGER)



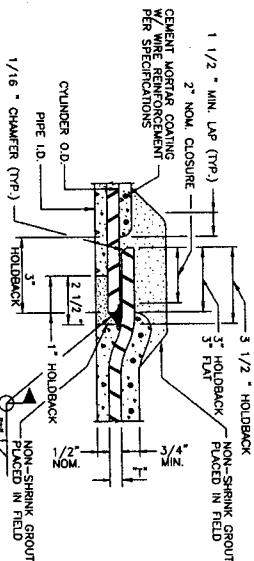
2 INTERNAL ELLIPTICAL DISH HEAD PLUG REMOVAL  
(FOR WATER LINES 36-INCH DIAMETER AND LARGER)



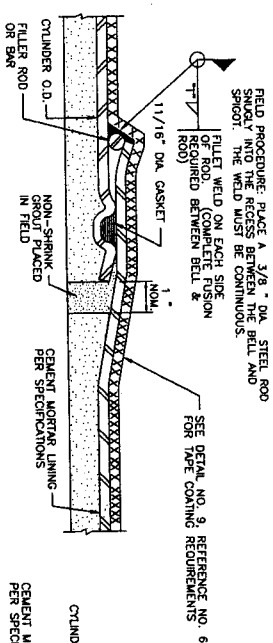
3 INTERNAL ELLIPTICAL DISH HEAD PLUG  
(FOR WATER LINES 36-INCH DIAMETER AND LARGER)



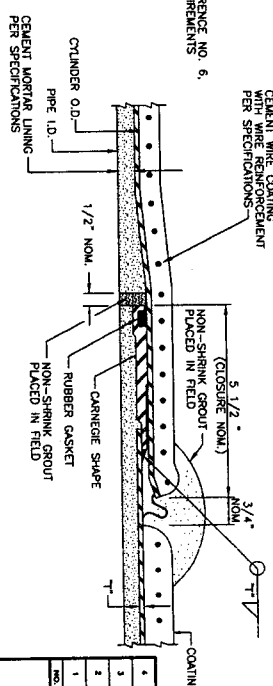
4 BUTT WELD FIELD JOINT - STEEL PIPE (TAPE COATED)  
(FOR WATER LINES 36-INCH DIAMETER AND LARGER)



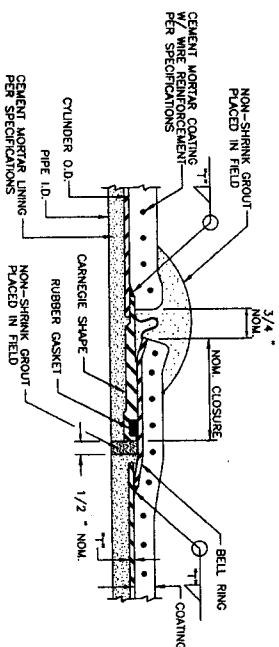
5 LAP-WELD FIELD JOINT - STEEL PIPE WITH CEMENT MORTAR COATING  
(FOR WATER LINES 36-INCH DIAMETER AND LARGER)



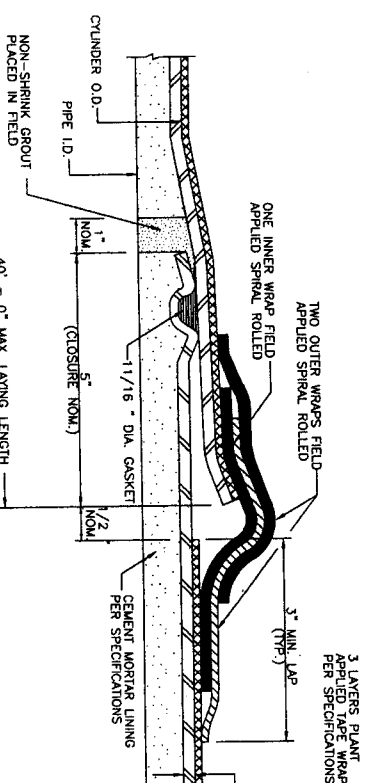
6 FIELD WELDED O-RING JOINT  
(FOR ADJUSTMENTS ONLY AS APPROVED BY ENGINEER AND PIPE MANUFACTURER. SEE DETAIL NO. 9, THIS SHEET, FOR FIELD WELDING DETAILS. REFER TO DETAIL 1 OR 3 FOR STANDARD DIAMETER AND LARGER).



7 ROLLED JOINT STEEL PIPE



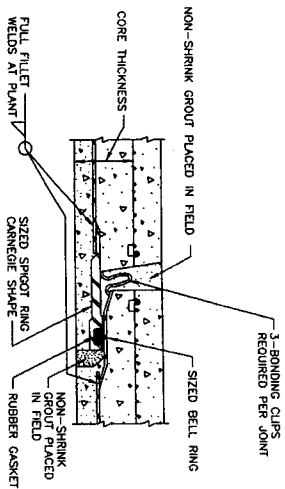
8 CARNEGIE JOINT - STEEL PIPE



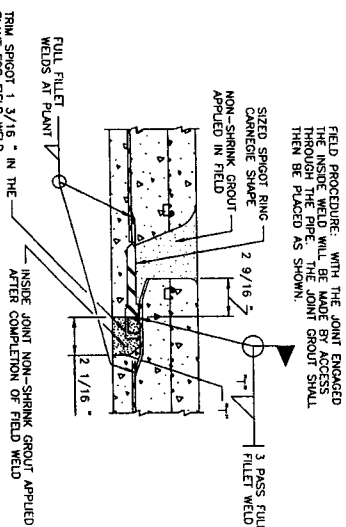
9 O-RING STEEL PIPE JOINT DETAIL  
(CEMENT MORTAR LINED & TAPE WRAPPED)

- NOTES:
1. 1" MIN. STEEL PIPE WALL THICKNESS AND SIZE OF RILET ATTACHMENT WELD.
  2. ALL REFERENCES TO PIPE DIAMETER FOR THIS PROJECT SHALL BE TO THE EXTERNAL DIAMETER UNLESS OTHERWISE NOTED TO THE INTERNAL DIAMETER.
  3. REFER TO SPECIFICATIONS FOR POLYMER/EPoxy LINING ALTERNATIVE TO TAPE OR CEMENT MORTAR COATING.
  4. DETAILS 1, 2, 3 AND 4 SHOW EPOXY LINING DETAILS. THESE DETAILS ARE SUBJECT TO APPROVAL BY ENGINEER.
  5. DETAILS 5, 6 AND 7 SHOW CEMENT MORTAR COATING. THESE DETAILS ARE SUBJECT TO APPROVAL BY ENGINEER.
  6. INSTALLED 6 INCH FLANGED OUTLETS ON EITHER SIDE OF THE DISHED HEAD PLUG.
  7. DISHED HEAD PLUGS SHALL BE CAPABLE OF WITHSTANDING THE HYDROSTATIC TEST PRESSURE FROM EITHER SIDE, WITH THE OPPOSITE SIDE EMPTY OF WATER.
  8. SEE SPECIFICATIONS FOR REPAIR OF EPOXY LINING.
  9. WHEN CEMENT MORTAR COATING IS USED FOR STEEL PIPE, REPAIR OF THE JOINT PRIOR TO JOINT ENLARGEMENT WHEN PIPE IS INSTALLED IN A TUNNEL OR ENCLOSURE.
  10. SEE SHEET 49 FOR CLOSURE PIECE REQUIREMENTS.

<p><b>CITY OF HOUSTON</b> DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p>	
<p>PROJECT: 18-PROPOSED 48-INCH WATERLINE FROM OLD RICHMOND ROAD TO BELLAIR BOULEVARD</p>	<p>STEEL PIPE DETAILS</p>
<p>NOTE: CITY SIGNATURES VALID FOR ONE YEAR AFTER DATE OF SIGNATURE.</p>	
<p>DATE: 11/11/19</p>	<p>TIME: 11:11 AM</p>
<p>FILE NO: 60072324</p>	<p>100 CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE: N.T.S.</p>	<p>40446</p>
<p>SHEET NO: 48 OF 78</p>	<p>11/11/19</p>

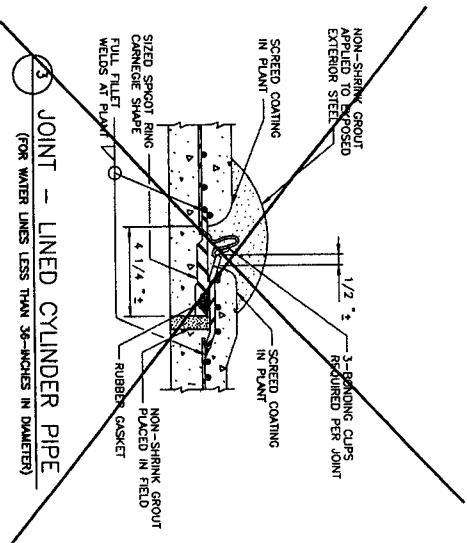


1 JOINT - EMBEDDED CYLINDER PIPE

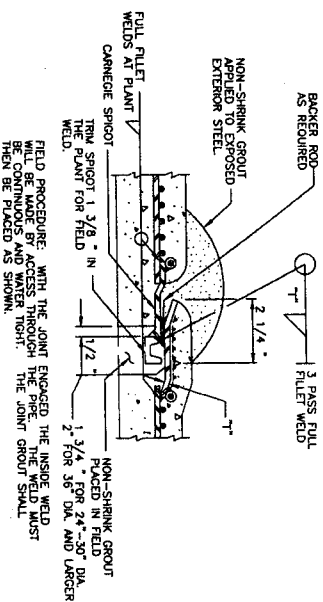


2 WELDED JOINT - EMBEDDED CYLINDER PIPE  
( FOR WATERLINES 36-INCHES DIAMETER AND LARGER )

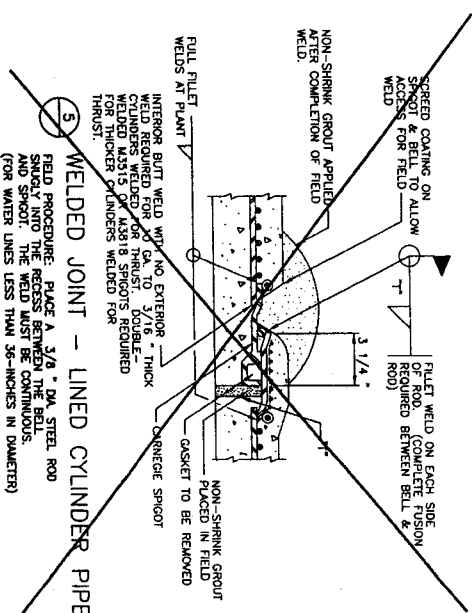
- NOTES**
1. T = PIPE WALL THICKNESS AND SIZE OF FILLET ATTACHMENT WELD.
  2. P = STEEL CYLINDER PERIMETER.
  3. INSTALL 6-INCH FLANGED OUTLETS ON EITHER SIDE OF THE DISHED HEAD PLUG.
  4. DISHED HEAD PLUGS SHALL BE CAPABLE OF WITHSTANDING THE HYDROSTATIC TEST PRESSURE FROM EITHER SIDE, WITH THE OPPOSITE SIDE EMPTY OF WATER.
  5. FLEXIBLE MASTIC SEALER SHALL BE APPLIED TO THE EXTERIOR OF THE JOINT PRIOR TO JOINT ENGAGEMENT. MASTIC SHALL BE APPLIED IN A TUNNEL OR ENCLOSURE.



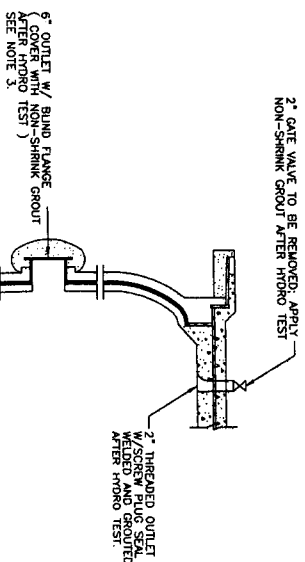
3 JOINT - LINED CYLINDER PIPE  
( FOR WATER LINES LESS THAN 36-INCHES IN DIAMETER )



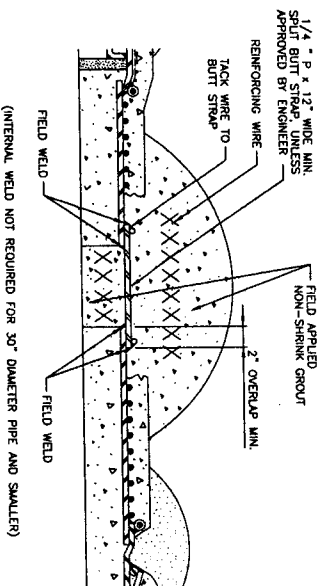
4 WELDED JOINT WITH TRIMMED SPICOT - LINED CYLINDER PIPE  
( FOR WATERLINES 36-INCHES DIAMETER AND LARGER )



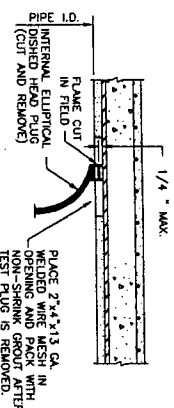
5 WELDED JOINT - LINED CYLINDER PIPE  
( FOR WATER LINES LESS THAN 36-INCHES IN DIAMETER )



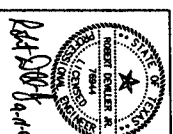
6 INTERNAL ELLIPTICAL DISHED HEAD PLUG LINED CYLINDER PIPE  
( CONCRETE EMBEDDED CYLINDER PIPE IS SIMILAR, AS APPROVED BY ENGINEER )



7 CLOSURE PIECE  
( STEEL PIPE SIMILAR )



8 INTERNAL ELLIPTICAL DISHED HEAD PLUG REMOVAL EMBEDDED CYLINDER PIPE  
( CONCRETE EMBEDDED CYLINDER PIPE SHOWN, AS APPROVED BY ENGINEER )



NO.	DATE	REVISION	APPROVAL
1			
2			
3			

**AECOM**

AECOM USA GROUP, INC.  
5757 WOODWAY, SUITE 101 WEST  
HOUSTON, TEXAS 77057-1589  
WWW.AECOM.COM  
TYPE: REGD. NO. F-2002

**NFBWA SEGMENT 1B**

SEGMENT 1B-PROPOSED 48-INCH WATERLINE FROM OLD  
NICHOLSON ROAD TO BELLARUE BOULEVARD  
PRESTRESSED CONCRETE  
CYLINDER PIPE DETAILS



NOTE: CITY SQUARERS VALID FOR ONE YEAR ONLY AFTER DATE OF  
SIGNATURES

**CITY OF HOUSTON**

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 11/14/11

PROJECT: 11/14/11

DESIGNER: 11/14/11

CHECKER: 11/14/11

FILE NO.: 60072324

DRAWING SCALE: N.T.S.

SHEET NO.: 49 OF 78

FOR CITY OF HOUSTON USE ONLY

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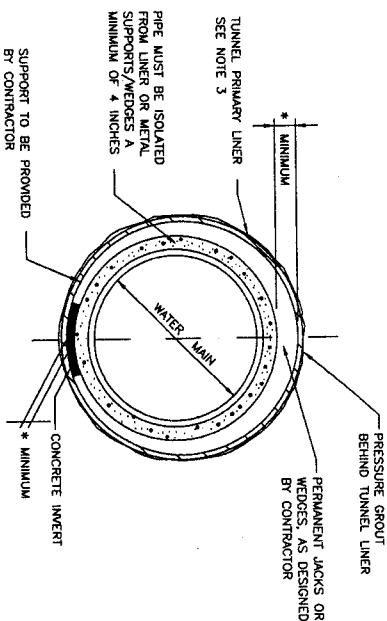
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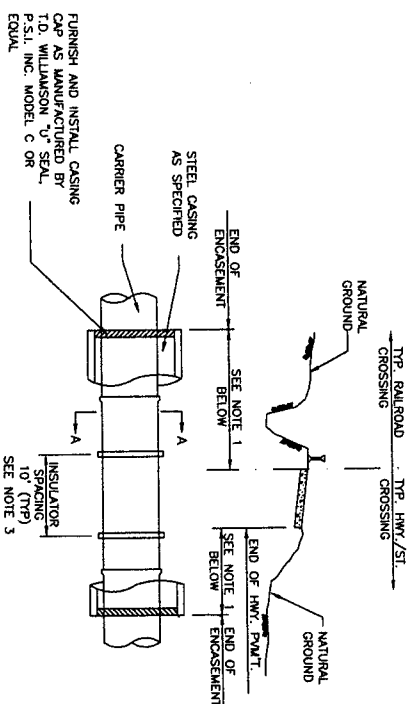


NOTES:

1. DETAIL IS FOR PRESTRESSED CONCRETE CYLINDER PIPE (STEEL PIPE ALTERNATE SIMILAR).
2. MINIMUM CLEARANCES SHOWN ON THE PLAN & PROFILE DRAWINGS ARE TO THE O.D. OF TUNNEL LINER. ADJUST PROFILE AS REQUIRED TO MAINTAIN CLEARANCES IDENTIFIED. NO SEPARATE PAY.
3. CONTRACTOR TO PROVIDE SUFFICIENT OF THE TUNNEL LINER DESIGN SLOPED AND SEALED BY A PROFESSIONAL ENGINEER.
4. PROVIDE CATHODIC PROTECTION FOR LINER.

**\* SEE SPECIFICATIONS**

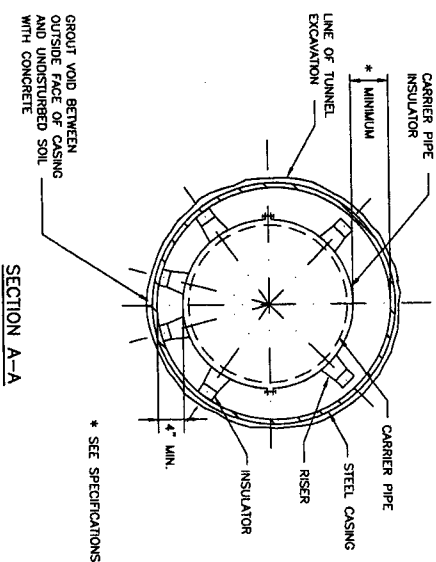
### ① TUNNEL DETAIL



NOTES:

1. LENGTH OF ENCASEMENT SHALL BE AS SHOWN ON THE PLAN & PROFILE DRAWINGS.
2. LAY CASING PIPE IN OPEN CUT, TUNNEL OR EASING CUT.
3. SEE SPECIFICATIONS FOR APPROPRIATE MODEL ACCORDING TO PIPE DIALETER.
4. PROVIDE CATHODIC PROTECTION FOR CASING.

### CASING DETAIL







**\* SEE SPECIFICATIONS**

MINIMUM TUNNEL LINER / CASING SIZE AND THICKNESS				
	PIPE DIAMETER (IN) I.D.	OA (IN) / WALL THICKNESS (IN) (NOTE 1) 2-FLANGE LINER PLATE (SEE NOTE 2)	4-FLANGE LINER PLATE THICKNESS	CASING I.D. / WALL THICKNESS
48	POOR	72 / 0.1345	72 / 0.1345	78 / 0.3125
	BAR-WRAPPED	68 / 0.1048	68 / 0.1345	66 / 0.3125
	DP	68 / 0.1048	68 / 0.1345	66 / 0.3125
	STEEL	68 / 0.1048	68 / 0.1345	66 / 0.3125
NOTES:				
1	DIAMETER OF LINER PLATE IS AT NEUTRAL AXIS			
2	LINER PLATE IS TWO FLANGE AND NORMALLY 2-INCH CONFIGURATION BY 6-INCH PROOF			


**NOTES:**

- 1 DIAMETER OF LINER PLATE IS AT NEUTRAL AXIS.
- 2 LINER PLATE IS TWO FLANGE AND NORMALLY 2-INCH CORRUGATION BY 6-INCH PRO

4				
3				
2				
1	 REVISION No. 1 - DETAIL AND NOTES DATE: 11/11/84 DRAWN BY: JLD	 11/11/84	 11/11/84	


  
 AECOM USA, INC.  
 5732 WOODWAY, SUITE 101 WEST  
 HOUSTON, TEXAS 77063-1849  
 TEL: 713/865-1000 FAX: 713/865-1002

NFWMA SEGMENT 1B  
 TUNNEL AND  
 CASING DETAILS



**NORTH FORT BEND**

NOTE: ON SEGMENTS VALID FOR ONE YEAR ONLY AFTER DATE OF  
 SOUTHERN  
 CITY OF HOUSTON  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 PROJECT NO. 11/11/84  
 SHEET 1 OF 1

DRAWING SCALE  
 N.T.S.  
 SHEET NO. 50 OF 78


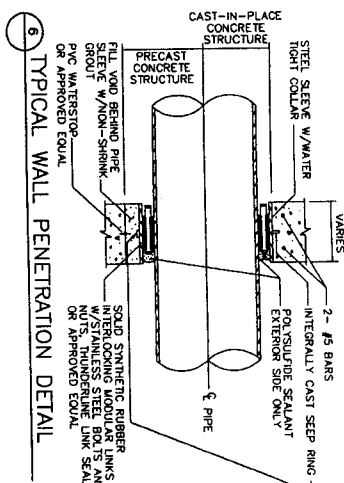


TABLE 1 - Air Valve & Types				
Water Main Diameter	Valve Size	APCO Model	MH Size	
36"	2"	1450	60"	
	3"	1470	60"	
		1500C	60"	
		1501C	60"	
>36"	4"	1504C	60"	

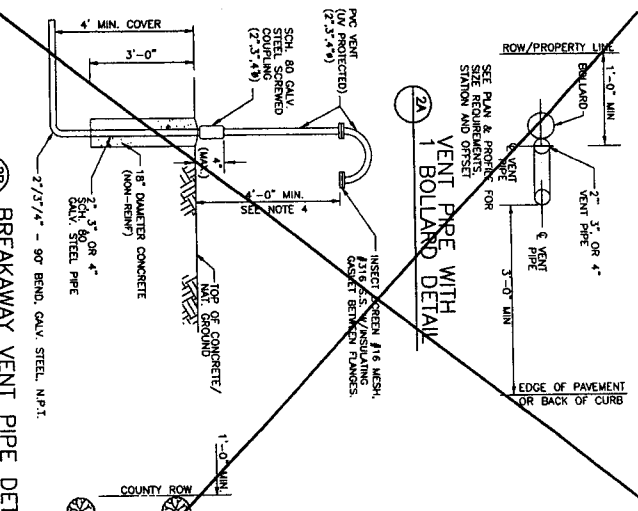
\*or approved equal



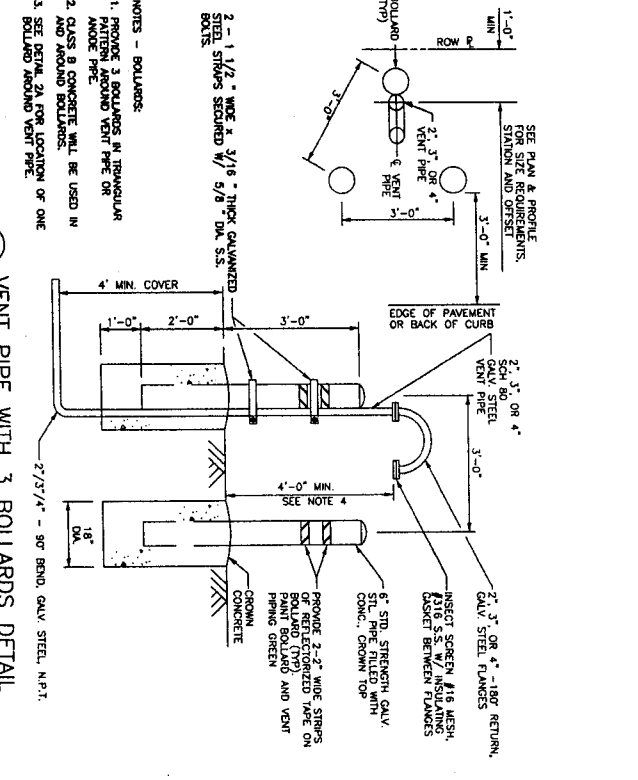
6 TYPICAL WALL PENETRATION DETAIL

- NOTES:
1. PROVIDE RAIL-HEX OR APPROVED EQUAL AND LOCATIONS OF COMBINATION AIR VALVES.
  2. PROVIDE AN APPROVED PETROLEUM BASED SEALANT FOR ALL JOINTS.
  3. IF 3" AIR VALVE IS CALLED FOR ON THE PLAN AND APPROVED EQUAL IS NOT SHOWN TO BE 2" DIAMETER, PROVIDE ALL OTHER PIPING AND APPURTENANCES IN UNIFORMED AND CLASS.
  4. VERIFY THAT LOCATION OF SPHEN IS 1 FOOT ABOVE 100-YEAR FLOOD PLANE ELEVATION OR 4 FEET ABOVE NATURAL GROUND WHICHEVER IS HIGHER.
  5. REFER TO PLAN AND PROFILE SHEETS FOR TYPES AND LOCATIONS OF COMBINATION AIR VALVES.
  6. IF 4" AIR VALVE IS CALLED FOR ON THE PLAN AND APPROVED EQUAL IS NOT SHOWN TO BE 3" DIAMETER, PROVIDE ALL OTHER PIPING AND APPURTENANCES IN UNIFORMED AND CLASS.
  7. FOR PARALLEL PIPING, SEE SHEET 9A FOR PARALLEL PIPING DETAILS.
  8. FOR MANHOLE DEPTHS GREATER THAN 90 FEET, PROVIDE 100-YEAR FLOOD PLANE ELEVATION TO 17-INCH OR 64-INCH DIAMETER & PROVIDE SAFETY CLIMBING RAIL (SW-1-CLIMB) OR APPROVED EQUAL.

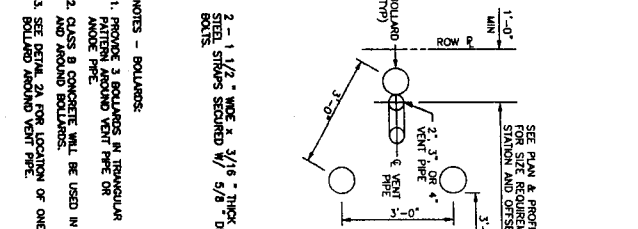
2B BREAKAWAY VENT PIPE DETAIL (VENT PIPES WITHIN COUNTY ROW)



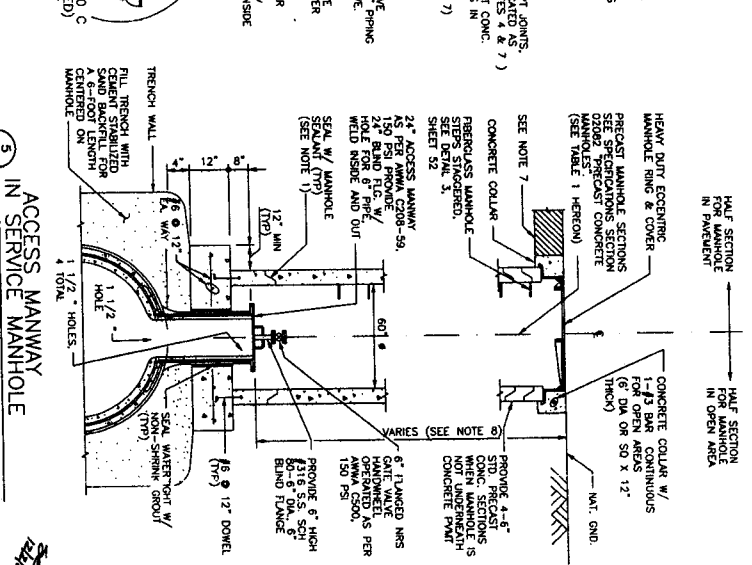
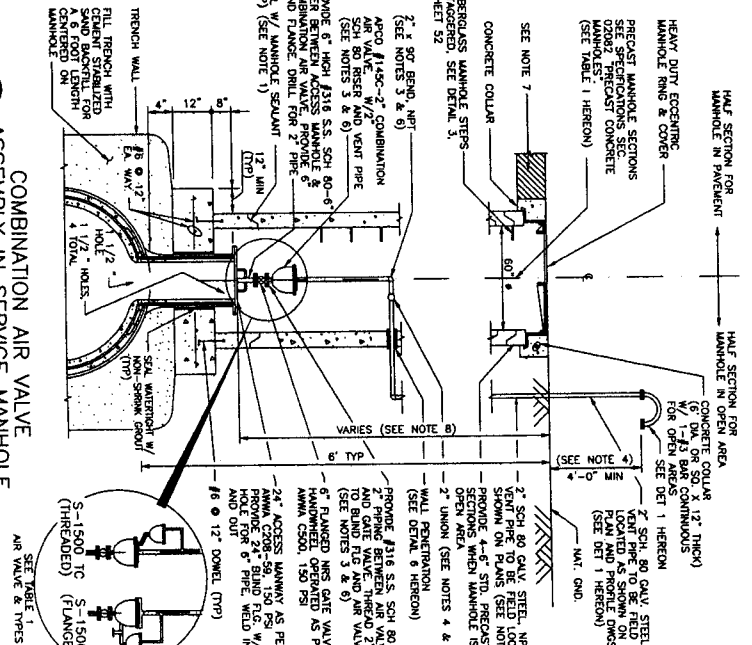
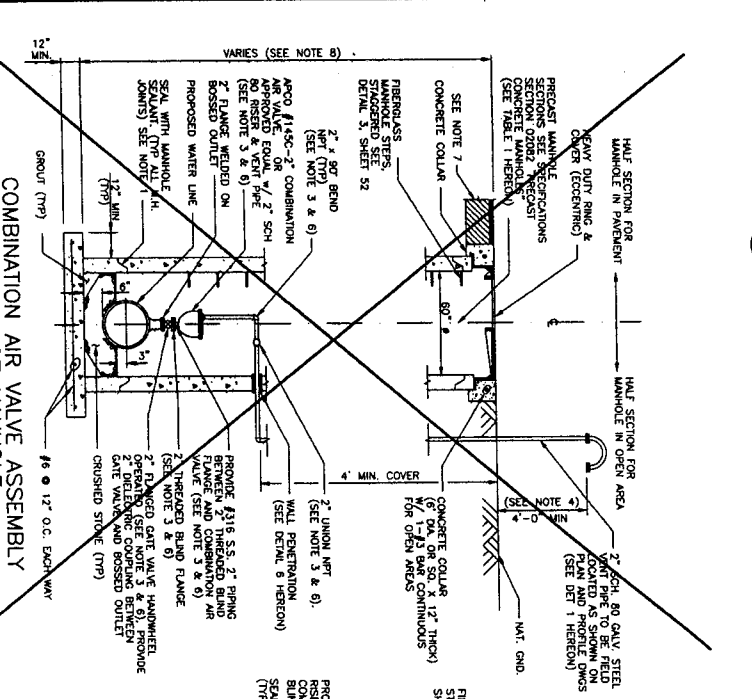
2A VENT PIPE WITH 1 BOLLARD DETAIL



1 VENT PIPE WITH 3 BOLLARDS DETAIL



- NOTES - BOLLARDS:
1. PROVIDE 3 BOLLARDS IN REGULAR SPACING AND VENT PIPE OR APPROVED PIPE.
  2. ALL RAILROAD BOLLARDS.
  3. SEE SHEET 2A FOR LOCATION OF ONE BOLLARD AROUND VENT PIPE.



NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURE.

PROJECT: 18-PROPOSED 48-INCH WATERLINE FROM OLD RICHMOND ROAD TO BELLEVUE BOULEVARD

SEGMENT: 18

COMBINATION AIR VALVE AND DETAILS

DATE: 11/11/11

BY: [Signature]

CITY OF HOUSTON

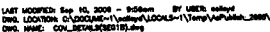
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

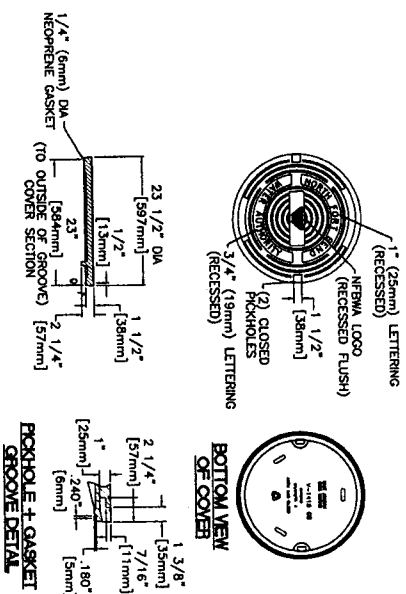
FILE NO: 60073334

DRAWING SCALE: N.T.S.

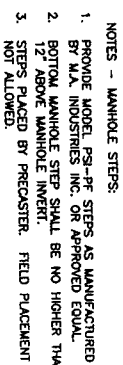
SHEET NO: 51 of 78

46446





• MACHINED SURFACE



### MANHOLE STEP DETAIL

AECOM USA GROUP, INC.  
5757 WOODWAY, SUITE 101 WEST  
HOUSTON, TEXAS 77057-1599  
WWW.AECOM.COM  
TYPE REGD. NO. F-3062

SEGMENT 1B-PROPOSED 48-INCH WATERLINE FROM OLD  
RICHMOND ROAD TO BELLAIRE BOULEVARD

**NORTH PORT BEND**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

11/12/69 STREET & BLOCK

DATE

STORGE WATER QUALITY

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FOR GIFT OF HOUSHIAN USE ONLY

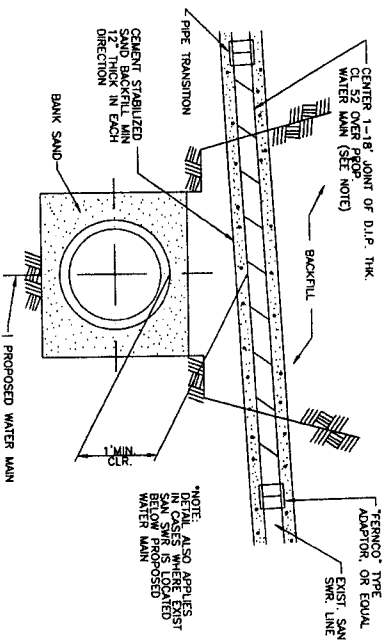


N.T.S. 46446

PROPERTY OF THE UNIVERSITY

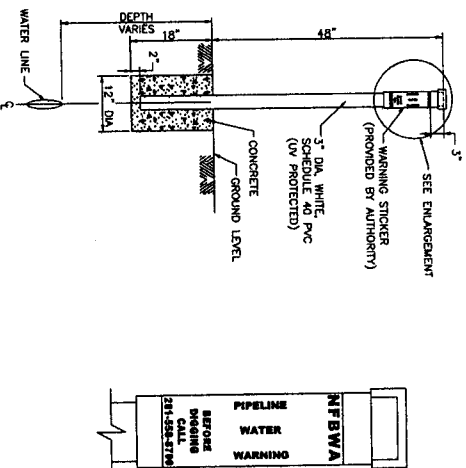
01/10/2003

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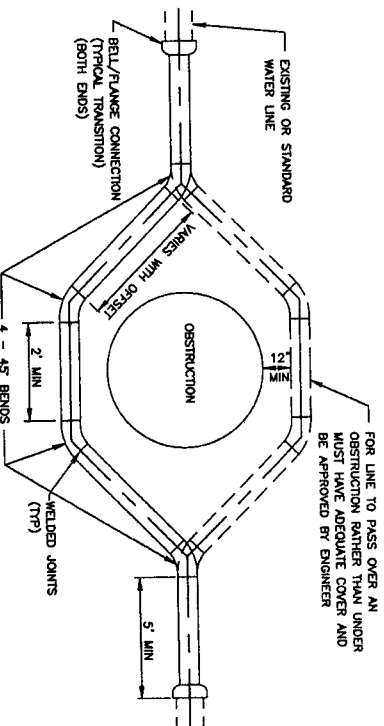
NOTES:  
P.V.C. PIPE WITH PRESSURE RATING OF 250, OR 18 MAY BE USED.

## 1 D.I.P. OVER PROPOSED WATER LINE



NOTES:  
1. WATER LINE MARKERS TO BE INSTALLED 1' INSIDE STREET RIGHT-OF-WAY OR HARRIS COUNTY FLOOD CONTROL BOARD EASEMENT ON BOTH SIDES OF ROAD. MARKERS TO BE PLACED ON BOTH SIDES OF ROAD. NO SEPARATE PLAN.  
2. ENSURE MARKERS DO NOT BLOCK MAINTENANCE ACCESS FROM ROADWAY.

## 3 WATER LINE MARKER



NOTE:  
1. ALL MATERIALS AND COATINGS TO BE IN ACCORDANCE WITH WATER MAIN STANDARD SPECIFICATIONS.  
2. RESTRAIN EXISTING SPRING BEYOND OFFSET MOVEMENT.

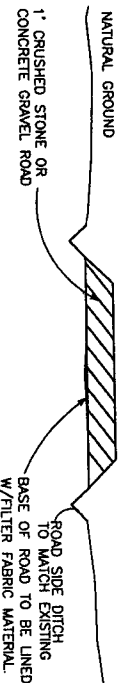
## 2 TYPICAL PIPE OFFSET SECTION FOR WATER MAINS

MATERIAL FOR GRAVEL ROAD TO CONSIST OF DURABLE PARTICLES OF CRUSHED STONE OR CONCRETE WITH BINDER MATERIALS WITH THE FOLLOWING PHYSICAL REQUIREMENTS:

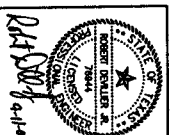
RETAINED ON SQUARE SIEVE	PERCENT BY WEIGHT
1-3/4-INCH	0-35
7/8-INCH	10-35
3/8-INCH	20-50
NO. 40	45-65
NO. 40	70-85

LIQUID LIMIT NOT TO EXCEED 35 (TYP) (TX)-104-E)  
PLASTICITY INDEX NOT TO EXCEED 18 (TYP) (TX)-106-E)

NOTE: CONSTRUCTION SHALL RESTORE ROADSIDE DITCH EQUAL TO EXISTING CONDITIONS. ALL DISTURBED AREAS OF ROADSIDE DITCH SHALL BE FULLY SLOPED UPON COMPLETION OF RESTORATION.



## 4 GRAVEL ROAD CROSS SECTION (TYP.)



AECOM

AECOM USA GROUP, INC.  
6727 WOODWAY SUITE 101 WEST  
HOUSTON, TEXAS 77057-1508  
TYPE REGD. NO. F-3002

INTBWA SEGMENT 1B

SEGMENT 1B-PROPOSED 48-INCH WATERLINE FROM OLD RICHMOND ROAD TO BELLAIRE BOULEVARD

MISCELLANEOUS DETAILS



NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES  
CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DESIGNED BY: *Robert Dentler*  
CHECKED BY: *John H. H. H.*  
DATE: *11.11.09*  
SHEET & NO.: *11.11.09*  
WHITE  
STONE WATER QUALITY

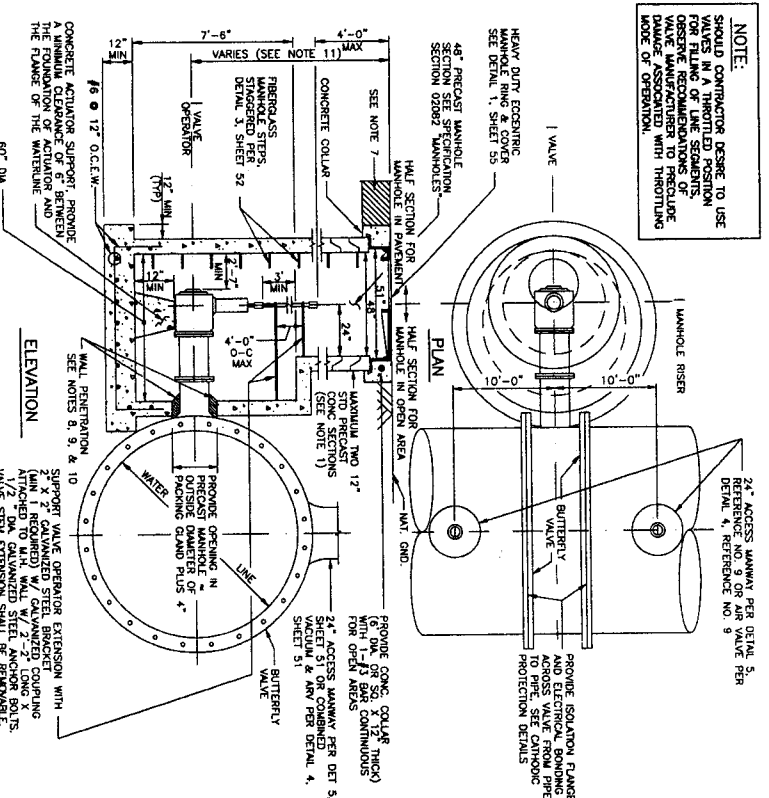
FILE NO.: 60073234  
DRAWING SCALE  
N.T.S.  
FOR CITY OF HOUSTON USE ONLY

SHEET NO.: 54 OF 78

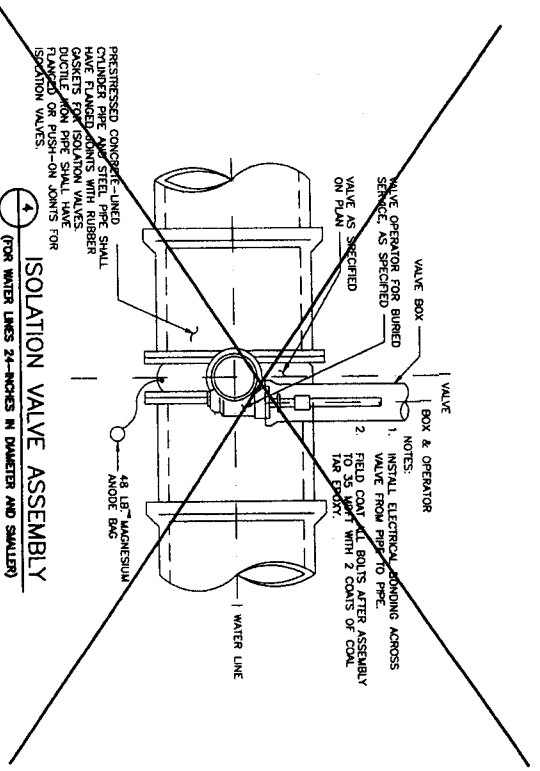




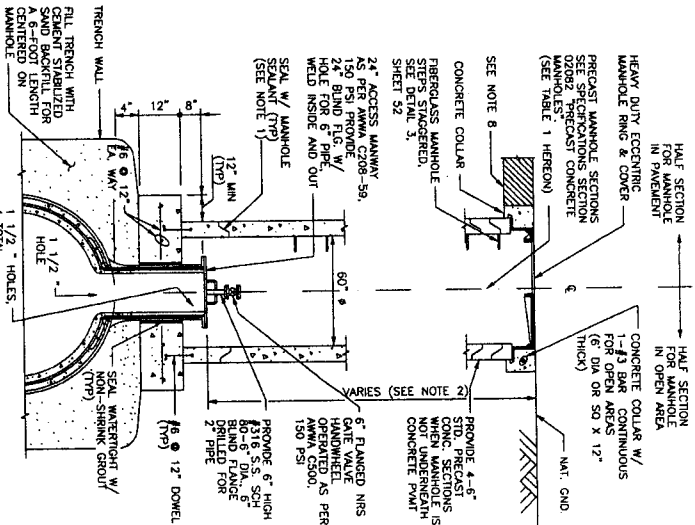
NOTE:  
SHOULD CONTRACTOR DESIRE TO USE  
VALVES IN A THROTTLED POSITION  
OR IN A POSITION OTHER THAN  
FULL OPEN OR FULL CLOSED,  
OBTAIN RECOMMENDATIONS OF  
VALVE MANUFACTURER TO PRECLUDE  
DAMAGE ASSOCIATED WITH THROTTLED  
MODE OF OPERATION.



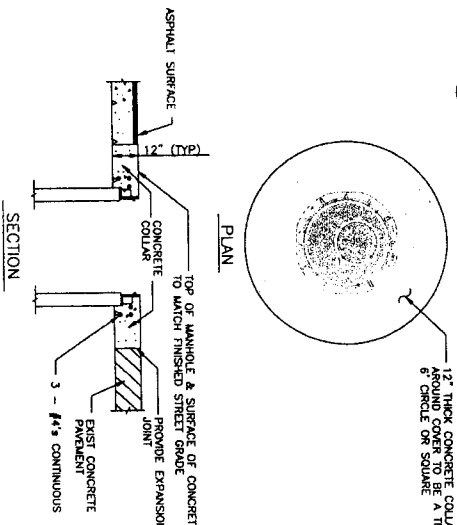
1 MAINLINE VALVES WITH ACTUATOR MANHOLE  
(FOR WATER LINES 30-INCHES AND LARGER IN DIAMETER)



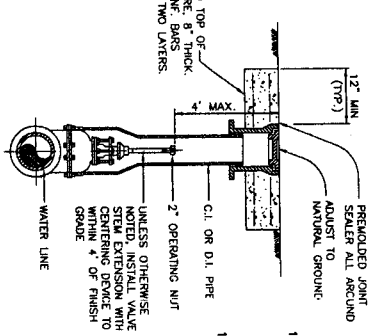
4 ISOLATION VALVE ASSEMBLY  
(FOR WATER LINES 24-INCHES IN DIAMETER AND SMALLER)



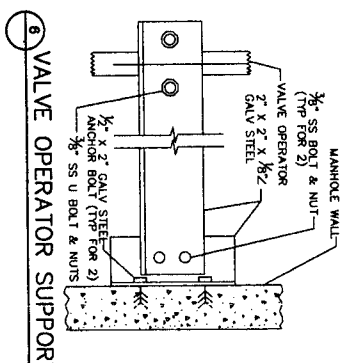
2 DRAINLINE CONNECTION WITH VALVE MANHOLE



5 MANHOLE IN PAVEMENT



3 VALVE BOX DETAIL



6 VALVE OPERATOR SUPPORT

- NOTES:
1. PRECAST RAINWAY OR APPROVED EQUAL, BETWEEN PRECAST SEGMENTS OF THE MANHOLE.
  2. PRECAST AN APPROVED PETROLEUM BASED TAPE ENCASEMENT ALL BOLTS IN MANHOLES & VALVES.
  3. ALL JOINTS SHALL BE BONDED, SEE THE CATHODIC PROTECTION DETAILS.
  4. FIELD COAT ALL FLANGE BOLTS, FLANGE COUPLING, FLANGE COUPLER AND THROTTLE ASSEMBLIES AFTER CASTING. COAT WITH 1/2 COATS OF COAL TAR EPOXY.
  5. BUTTERFLY VALVES SHALL TURN CLOCKWISE TO OPEN VALVE.
  6. PLACE MANHOLE ON NEW COMPACTED (95% SPD) BOTTOM.
  7. POLYURETHANE SEALANT EXTERIOR SIDE ONLY.
  8. SEALER ALL AROUND.
  9. SOLID SYNTHETIC RUBBER INTERLOCKING MODULAR LINES W/STAINLESS STEEL BOLTS AND NUTS UNDERLAP LINES SEAL, OR APPROVED EQUAL.
  10. IF MANHOLE IS CAST IN PLACE CONSTRUCTION, INCLUDING EXTRA REINFORCING, DETAILS TO BE SEALED BY PROFESSIONAL ENGINEER LICENSED IN TEXAS.
  11. FOR MANHOLES DEEPER THAN 20 FEET, INCREASE SIZE OF ACCESS MANHOLES TO 24-INCH OR 30-INCH DIAMETER & PROVIDE SCAFFOLDING RAIL (3/4" x 1" x 12' OR APPROVED EQUAL).



AECOM

AECOM USA GROUP, INC.  
6750 MOOREWAY, SUITE 101 WEST  
HOUSTON, TEXAS 77057-1500  
TYPE REVISION NO. F-10002

NTMVA SEGMENT 1B

VALVE AND SERVICE  
MANHOLE DETAILS



CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 11/11/19  
DRAWN BY: [Signature]  
CHECKED BY: [Signature]

FILE NO: 6007234  
DRAWING SCALE: N.T.S.  
SHEET NO: 55 OF 78




## GENERAL NOTES

- | Station | Type of Test Station                       | Pole Mounted or Flush | Structure(s)           |
|---------|--|-----------------------|------------------------|
| 150+00  | Insulating Joint Test Station              | Flush                 | 48"W / Segment 2 48"W  |
| 151+43  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 159+00  | Potential Test Station                     | Flush                 | 48"W                   |
| 165+29  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 166+32  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 170+63  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 178+00  | Potential Test Station                     | Flush                 | 48"W                   |
| 184+95  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 189+95  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 192+75  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 194+73  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 199+03  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 200+01  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 205+67  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 215+00  | Potential Test Station                     | Flush                 | 48"W                   |
| 222+87  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 231+30  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 232+05  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 242+03  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 249+28  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 252+55  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 257+49  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 258+57  | Casing Test Station                        | Flush                 | 48"W / Casing          |
| 259+00  | Insulating Joint Test Station <sup>2</sup> | Flush                 | 48"W / Segment 1A 48"W |

- ### RECTIFIER SCHEDULE

Pipe Material	Station	Size		Anodes		Anode Well Depth (Feet)	Structure	Details
		Volts	Amps	Number	Type			
Steel Pipes with Bonded Dielectric Coating	198+00	24	8	3	Tk-3	95	48" Water	1/60
Mortar-Coated Steel Pipe and Bar-Wrapped Steel Cylindrical Pipe	198RND & 259+80	30	22	8	Tk-3	160	48" Water	1/60



STATE OF TEXAS  
FOR LUIS VILLARREAL  
198230  
NOTARY PUBLIC  
My Comm. Expires 12/31/2016

NOTARY PUBLIC  
NOTES: CANNOT BE REPRODUCED WITHOUT WRITTEN PERMISSION  
NOTARY PUBLIC  
NOTES: CANNOT BE REPRODUCED WITHOUT WRITTEN PERMISSION

NOTE: CITY SIGNATURES WOULD FOR ONE YEAR ONLY AFTER DATE OF SUBMISSION

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DESIGNED BY: *Robert C. Miller*

DRAWN BY: *Robert C. Miller*

CHECKED BY: *Robert C. Miller*

DATE: *11/11/12*

REVISIONS:

SEGMENT 1B - PROPOSED 44-INCH WATERLINE FROM OLD ROXBOROUGH ROAD TO BELLEVUE BOULEVARD

CATHODIC PROTECTION SCHEDULES

NORTH FORT BEND

MEMMA SEGMENT 1B

SEGMENT 1B - PROPOSED 44-INCH WATERLINE FROM OLD ROXBOROUGH ROAD TO BELLEVUE BOULEVARD

CATHODIC PROTECTION SCHEDULES

NORTH FORT BEND

MEMMA SEGMENT 1B

FILE NO. 680712334

DRAWING SCALE

N.T.S.

SHEET 56 OF 78

DATE: 11/11/12

REVISIONS:

NO. DATE REVISIONS

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FILE NO. 680712334

DRAWING SCALE

N.T.S.

SHEET 56 OF 78

DATE: 11/11/12

REVISIONS:

NO. DATE REVISIONS

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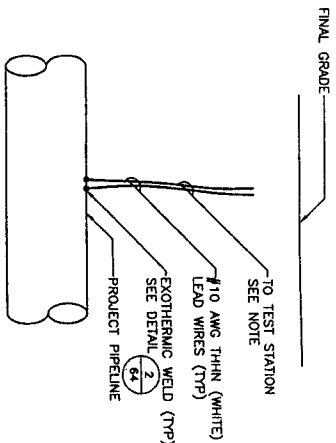
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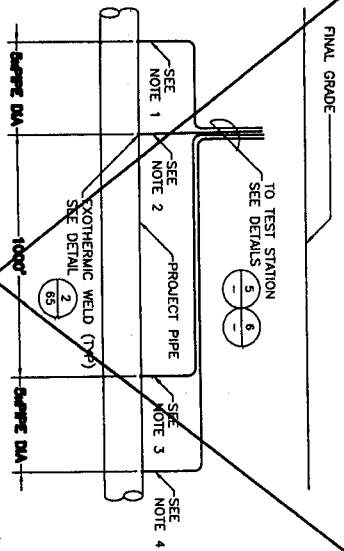
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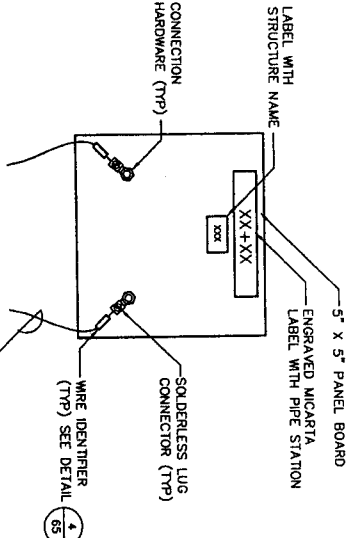
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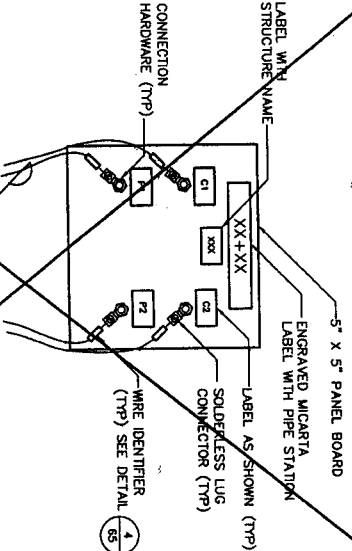
MONITORING TEST STATION (MTS) (1) NTS



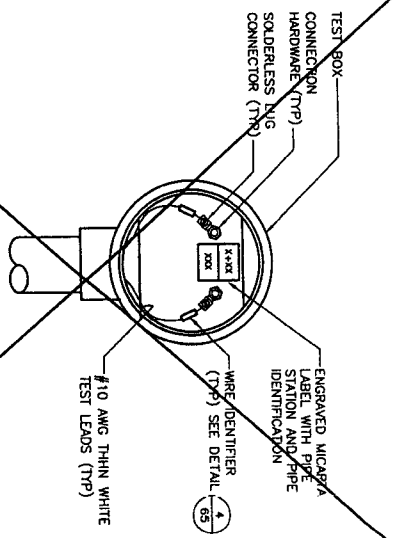
LINE CURRENT TEST STATION (LCTS) (5) NTS



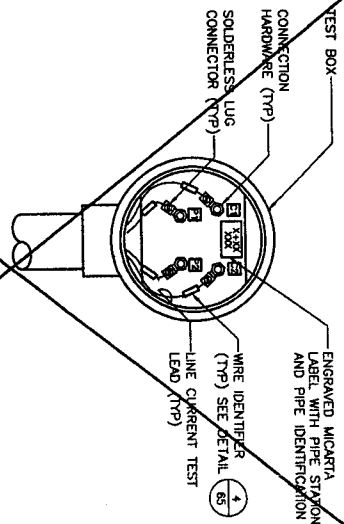
MTS TEST BOARD (2) NTS



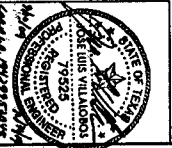
LCTS TEST BOARD (5) NTS



POST MOUNTED MTS TEST BOX (3) NTS



POST MOUNTED LCTS TEST BOX (6) NTS



NO.	DATE	REVISION	APPROVED
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4			

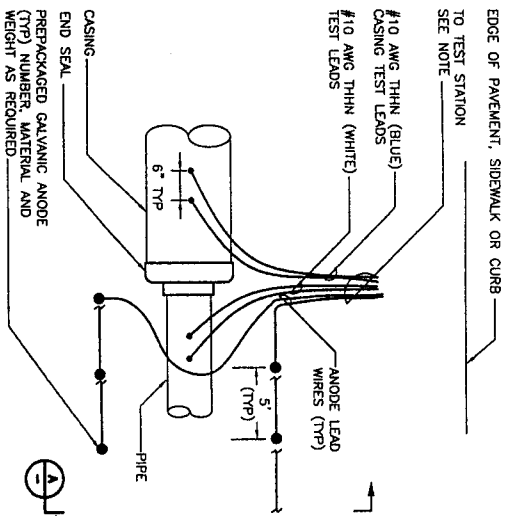
**V&A**  
NFBWA SEGMENT 1B  
SEGMENT 1B-PROPOSED 48-INCH WATERLINE FROM OLD RICHMOND ROAD TO BELLEVUE BOULEVARD  
CATHODIC PROTECTION  
TEST STATION DETAILS  
1 OF 3



**CITY OF HOUSTON**  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
DATE: 11/20/97  
BY: [Signature]  
CHECKED: [Signature]  
IN CHARGE: [Signature]

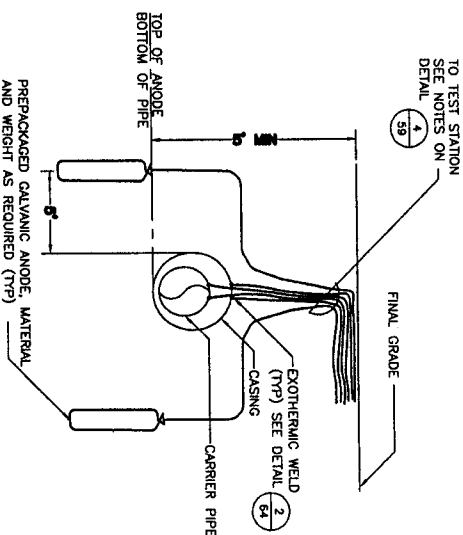
FILE NO.: 66073234  
DRAWING SCALE: N.T.S.  
SHEET No. 57 OF 78



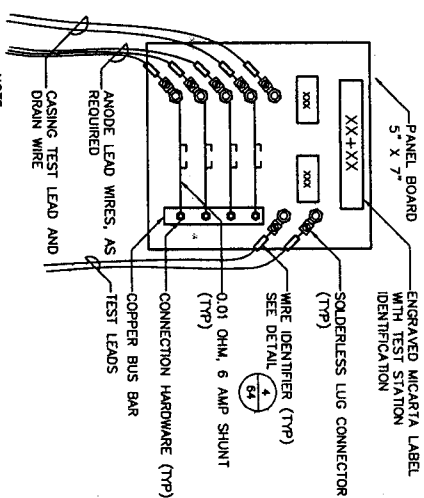


NOTES:  
1. IF TEST STATION IS FLUSH MOUNTED, REFER TO DETAIL 5/64

CASING TEST STATION (CTS) PLAN 1/NTS

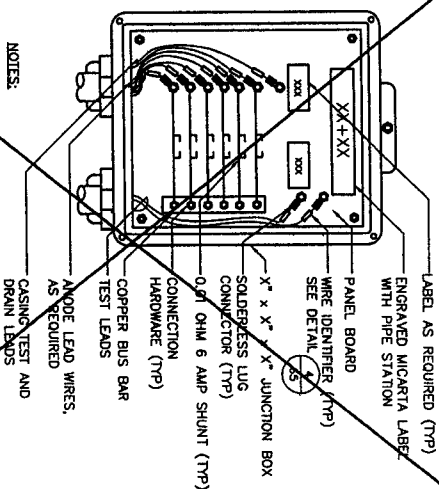


CTS SECTION A/NTS



NOTE:  
TEST BOARD SHALL BE SET IN A FLUSH-TO-GRADE TEST STATION, SEE DETAIL 5/64

CTS TEST BOARD 2/NTS



NOTES:  
1. COVER LATCH, HINGES, AND NEOPRENE GASKET NOT SHOWN FOR CLARITY.  
2. SIZE THE JUNCTION BOX TO FIT THE SHUNTS.  
3. POST-MOUNTED TEST STATION, SEE DETAIL 1/65

CTS JUNCTION BOX 3/NTS



4			
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NO.	DATE	REVISION	APPROVAL

**V&A**

NFBWA SEGMENT 1B

SEGMENT 1B, PROPOSED 44-INCH WATERLINE FROM OLD ROCKWOLD ROAD TO BELLARE BOULEVARD

CATHODIC PROTECTION TEST STATION DETAILS

2 OF 3



NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

**CITY OF HOUSTON**

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 11/14/21

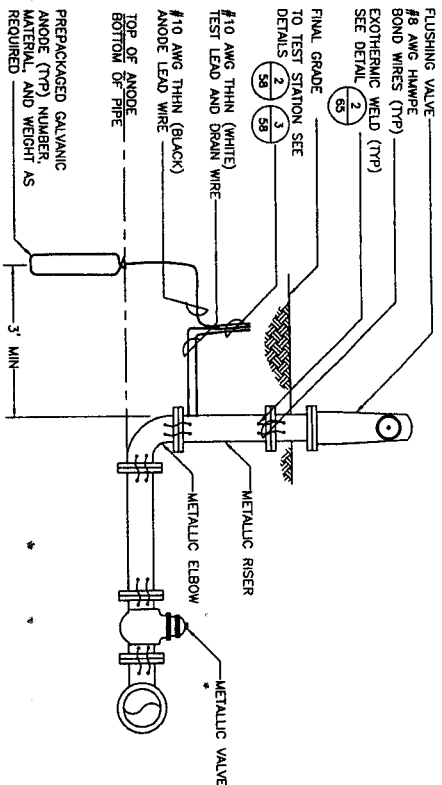
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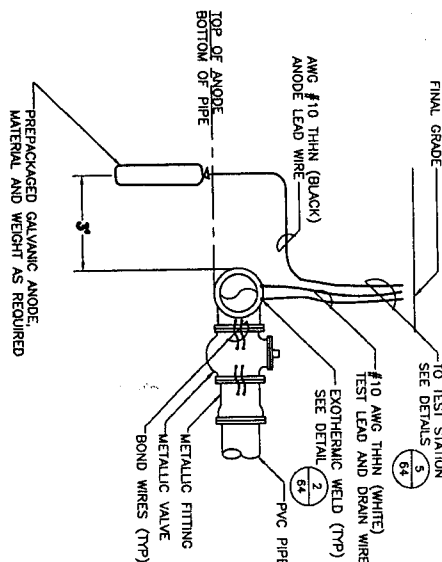
DRAWING SCALE: N.T.S.

SHEET NO.: 58 OF 78



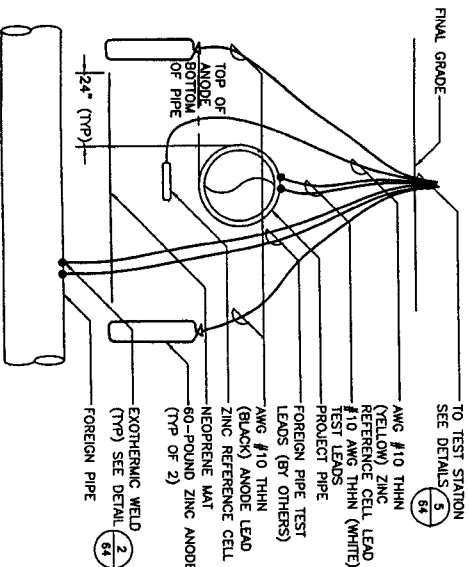


TYPICAL ANODE INSTALLATION  
AT FLUSHING VALVE



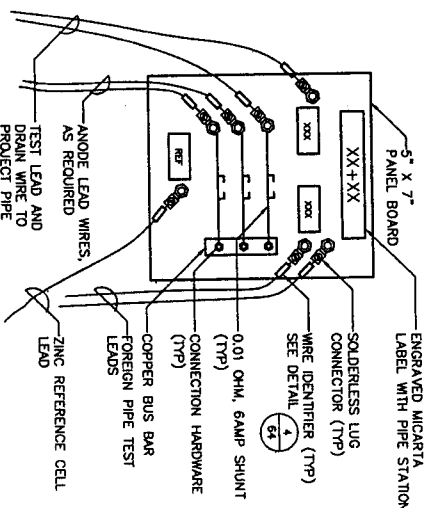
ANODE INSTALLATION  
AT FITTING/VALVE

- GENERAL NOTES:
- THESE DETAILS ARE TYPICAL. THE NUMBER, AND ARRANGEMENT OF FITTINGS AND VALVES MAY VARY. THE DETAIL THAT IS MOST SIMILAR TO THE ACTUAL ARRANGEMENT SHOULD BE USED.
  - INSTALL ANODES ON ALL METALLIC VALVES, FITTINGS, TEST CROSSES, FIRE HYDRANTS, AND OTHER METALLIC APPURTENANCES AS SHOWN ON THE SPECIFICATIONS
  - SEE DETAIL 2 FOR TYPICAL SECTION OF ANODE AND FITTING
  - METALLIC FITTINGS WITH TWO OR MORE VALVES SHALL BE INSTALLED WITH TWO GALVANIC ANODES. NO VALVES SHALL BE INSTALLED WITH ONE GALVANIC ANODE.
  - TOP OF ANODE SHOULD BE AT THE PIPE'S INVERT DEPTH

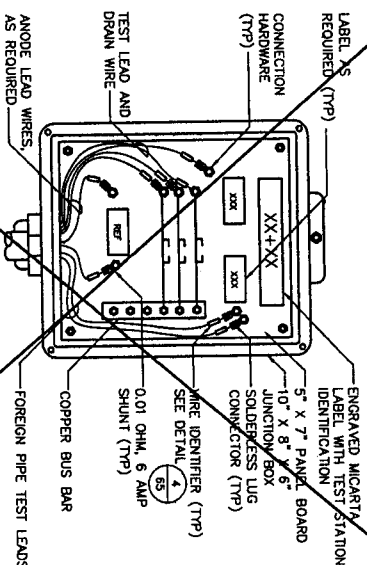


- NOTES:
- CONNECTIONS TO FOREIGN PIPELINES SHALL BE MADE BY THE OWNER'S REPRESENTATIVE.
  - INSTALL ZINC REFERENCE CELL MIDWAY BETWEEN PROJECT PIPELINE AND NEOPRENE MAT.
  - INSTALL ANODES FIVE FEET FROM PROJECT PIPE AND FOREIGN PIPE.

FOREIGN PIPELINE TEST STATION

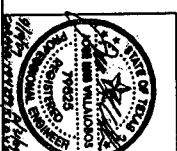


FOREIGN PIPELINE TEST STATION  
TEST BOARD



FOREIGN PIPELINE TEST STATION  
JUNCTION BOX

- NOTES:
- COVER, LATCH, HINGES, AND NEOPRENE GASKET NOT SHOWN FOR CLARITY.
  - SIZE THE JUNCTION BOX TO FIT THE SHUNTS.
  - JUNCTION BOX SHALL BE ATTACHED TO A POST-MOUNTED TEST STATION.



4			
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NO. DATE	REVISION	APPROVAL	



NOTE: ON SCHEDULES WARD FOR ONE YEAR ONLY AFTER DATE OF SCHEDULES

CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

NAME: *Robert J. Smith*  
TITLE: *Engineer*  
DATE: *12/15/99*

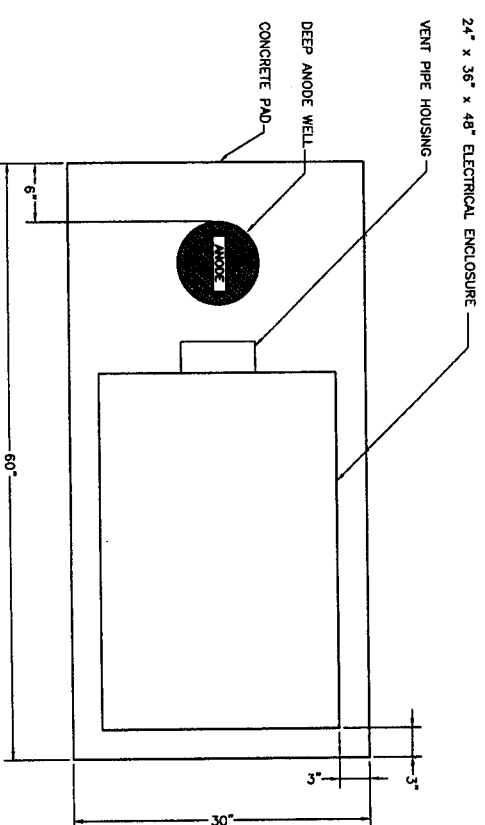
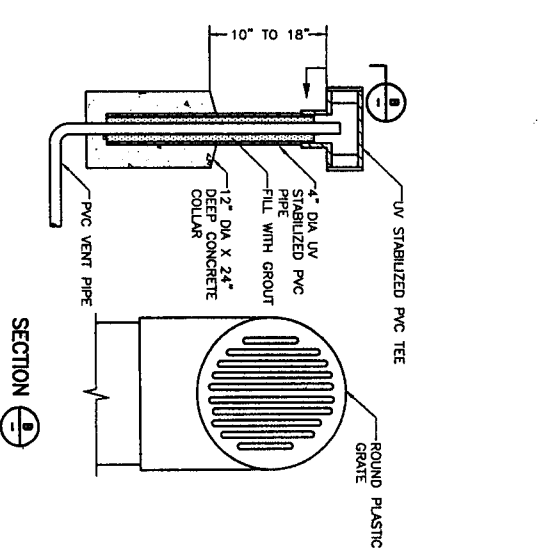
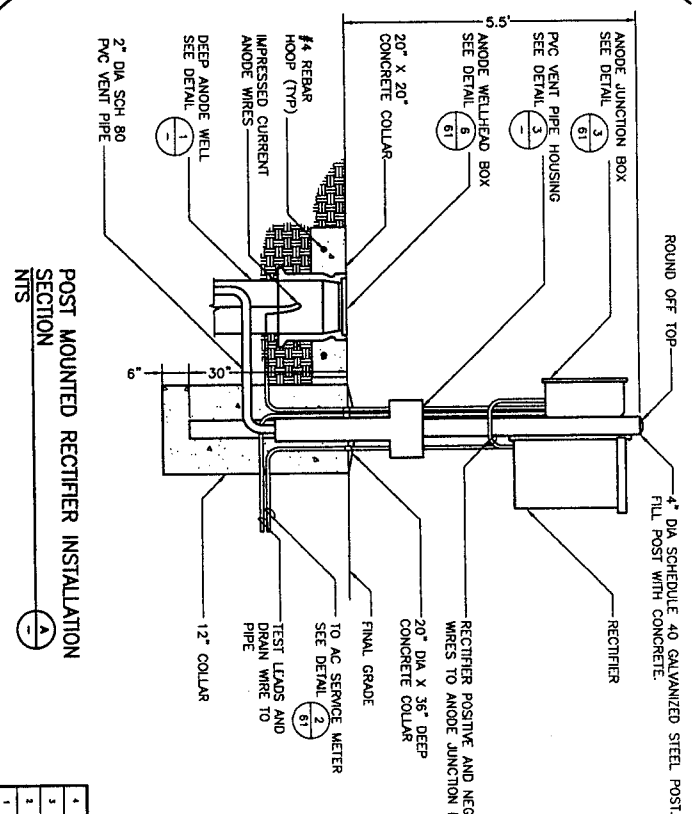
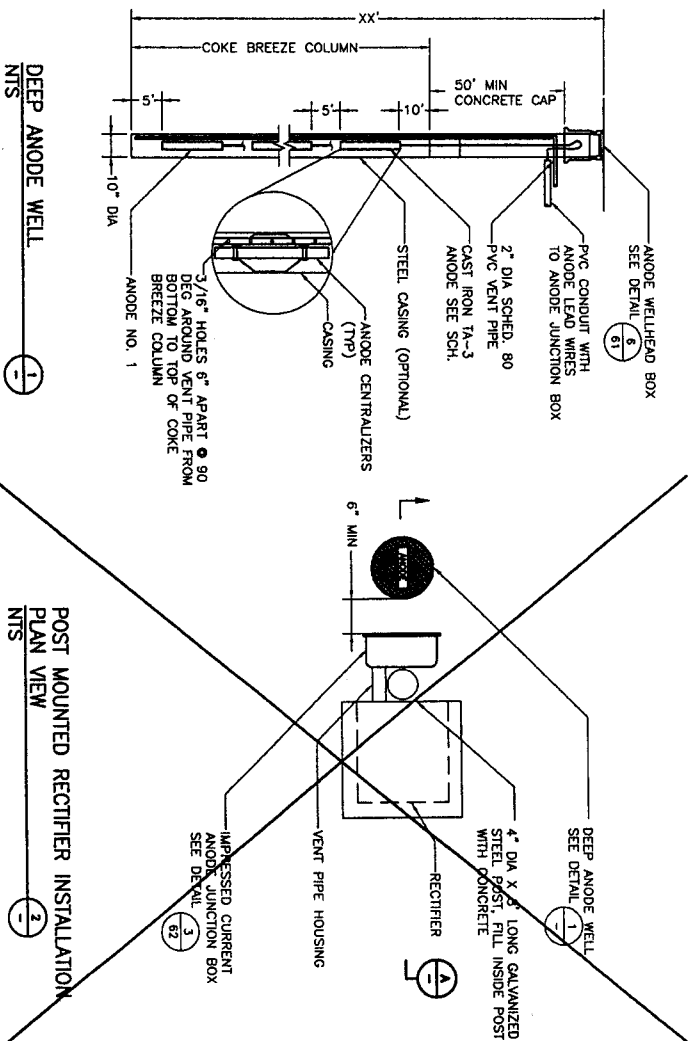
PROJECT: *12/15/99*  
SHEET: *12/15/99*

FILE NO.: 60073234

DRAWING SCALE: N.T.S.

SHEET NO.: 59 OF 78





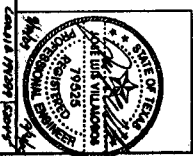
NOTE:  
FOR AN ELEVATION VIEW OF THE RECTIFIER INSTALLATION  
SEE DETAIL 61

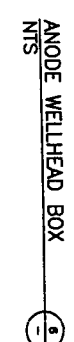
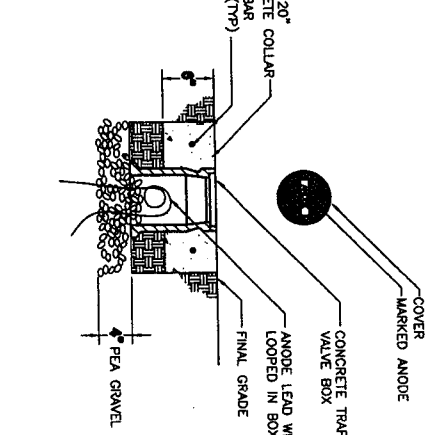
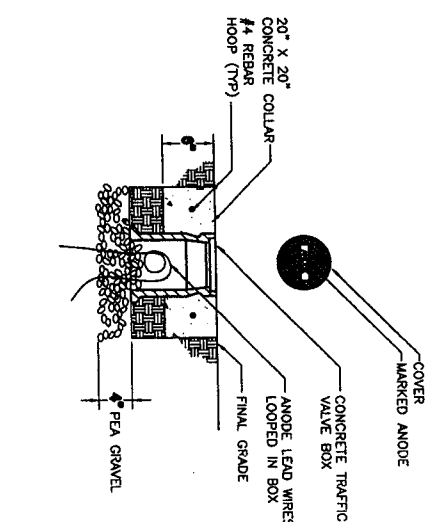
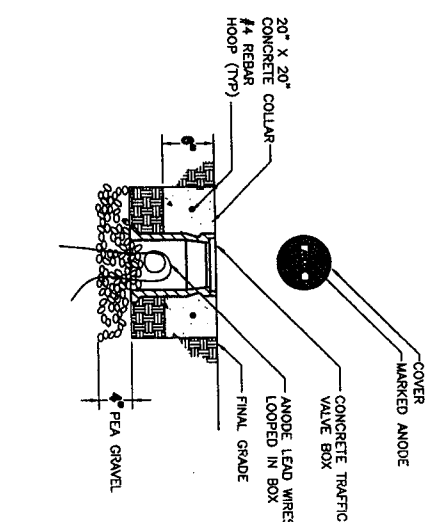
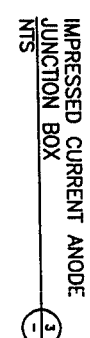
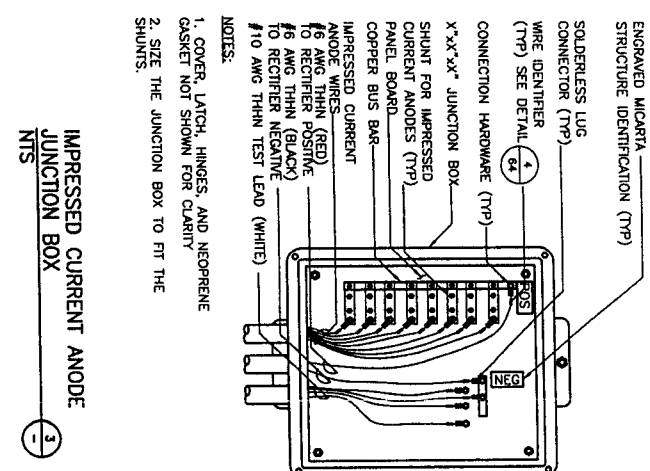
VENT PIPE HOUSING  
NTS

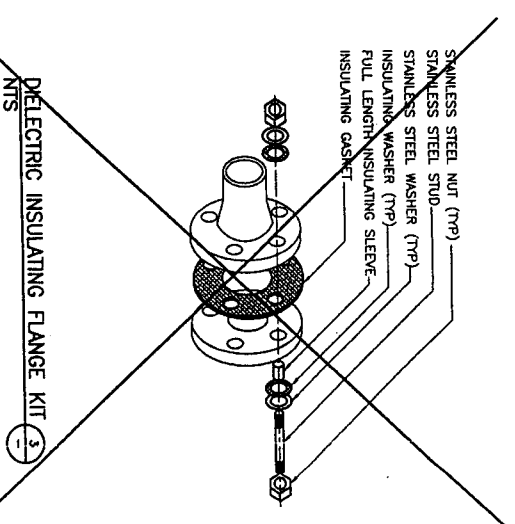
RECTIFIER INSTALLATION WITH ELECTRICAL ENCLOSURE  
PLAN VIEW  
NTS

12/1/94

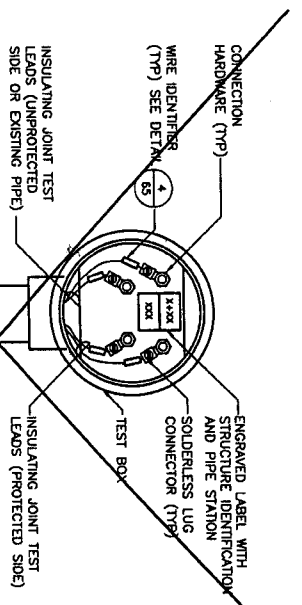
		<b>NFBWA SEGMENT 1B</b> SEGMENT 1B-PROPOSED 48-INCH WATERLINE FROM OLD RICHMOND ROAD TO BELLAIRE BOULEVARD <b>CATHODIC PROTECTION</b> <b>RECTIFIER DETAILS</b> 1 OF 2	
NOTE: FOR QUANTITIES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES			
<b>CITY OF HOUSTON</b> DEPARTMENT OF PUBLIC WORKS AND ENGINEERING 1100 West 6th Street, Suite 1100 Houston, Texas 77001 713.251.1129		DRAWING NO. 60073234 DRAWING SCALE N.T.S. SHEET No. 60 OF 78	
FOR CITY OF HOUSTON USE ONLY 40446 10/1/94		FOR CITY OF HOUSTON USE ONLY 40446 10/1/94	







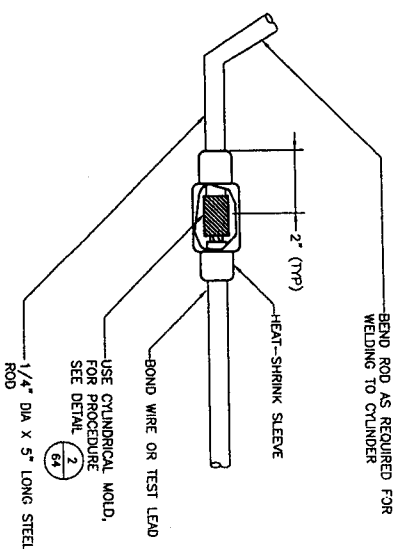
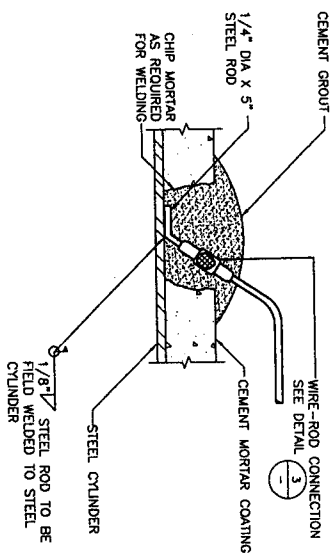
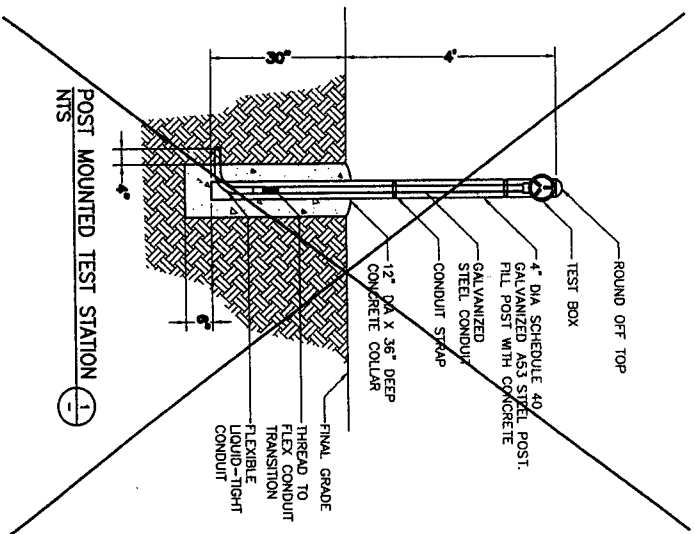


~~3~~ DIELECTRIC INSULATING FLANGE KIT

 $\frac{1}{64}$ 

		DATE: 11/25/1977 BY: [Signature]	
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NO. DATE	REVISION	APPROVAL	
<div style="display: flex; justify-content: space-between;"> <div> <p><b>CFV&amp;A</b></p> <p><b>CFV&amp;A</b></p> </div> <div> <p><b>NFMA SEGMENT 1B</b></p> <p>SEGMENT 1B-PROPOSED 48-INCH WATERLINE FROM OLD          RICHMOND ROAD TO BELLEVUE BOULEVARD</p> <p><b>CATHODIC PROTECTION          INSULATING JOINT DETAILS</b></p> </div> <div> <p><b>NORTH FOOT BEAD</b></p>  </div> </div>			
NOTE: CITY ENGINEERS WAIVED FOR ONE YEAR ONLY AFTER DATE OF SIGNATURE			
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING			
DATE: 11/25/1977 BY: [Signature] PROJECT NO. 1111.1.9	CHECKED BY: [Signature] DATE: 11/25/1977	APPROVAL: [Signature] DATE: 11/25/1977	
FILE NO.	80013234	PER CITY OF HOUSTON USE ONLY 466466	
DRAWING SCALE	N.T.S.		
SHEET NO. 62 of 78			

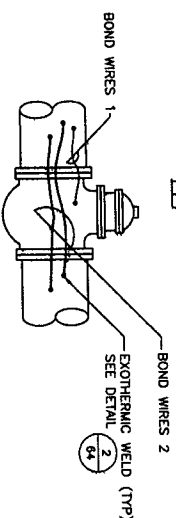
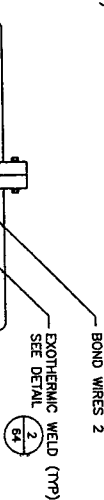
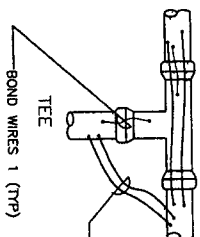
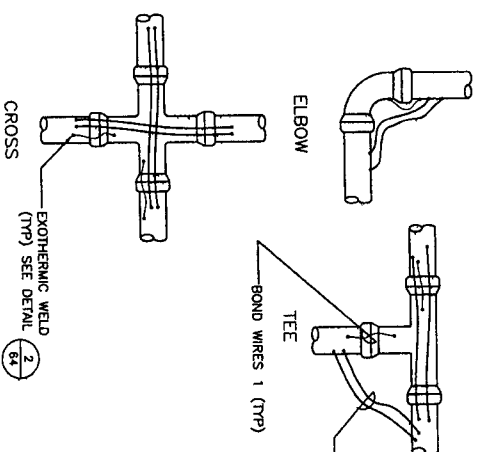




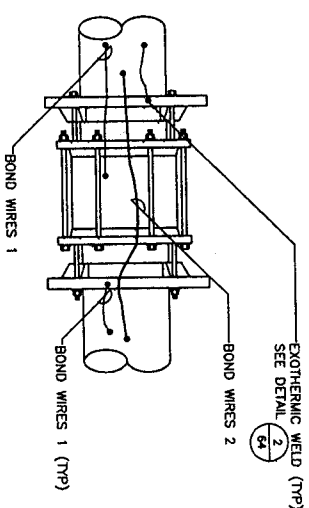
- NOTES:
1. REINFORCING WIRE NOT SHOWN FOR CLARITY.
  2. TEST LEAD CONNECTION TO THE PIPE AT PIPE BELL ONLY.

TEST LEAD CONNECTION MORTAR  
COATED STEEL PIPE AND AWWA C-303  
NTS

WIRE-ROD CONNECTION  
NTS



JOINT BONDS  
NTS



NO.	DATE	REVISION	APPROVED
1			
2			
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SCHEMATIC 1B-PROPOSED 48-INCH WATERLINE FROM OLD  
NORTH FORT BEAD  
CATHODIC PROTECTION  
JOINT BONDING

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF  
SIGNATURES

CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

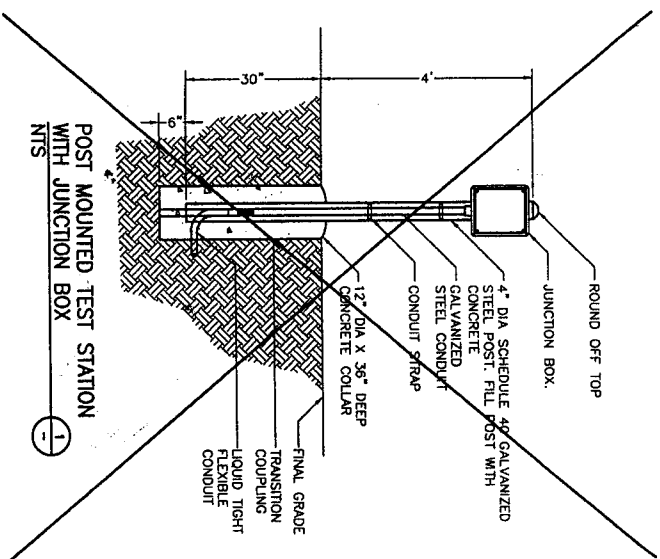
DESIGNED BY: *Mark C. Givahy*  
CHECKED BY: *Mark C. Givahy*  
DATE: *11/11/97*

SCALE: *1" = 10'*  
SHEET: *11.9*

FILE NO.: 60073234  
DRAWING SCALE: N.T.S.

FOR CITY OF HOUSTON USE ONLY  
4646

SHEET NO. 63 OF 78



POST MOUNTED TEST STATION  
WITH JUNCTION BOX

---

NTS

1

STRUCTURE	LABEL
XX" DIP WATER LINE	XX" DI
X" STEEL GAS LINE	X" G
XX" WATER	XX" W
GALVANIC ANODE	GA
REFERENCE ELECTRODE	RE
IMPRESSED CURRENT ANODE	ICA

### NOTE:

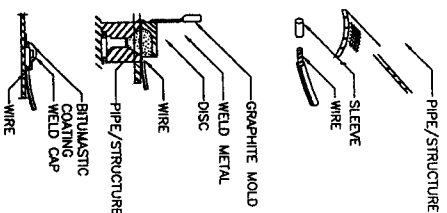
"XX" INDICATES PIPE DIAMETER IN INCHES.

WIRE IDENTIFIER

---

NTS

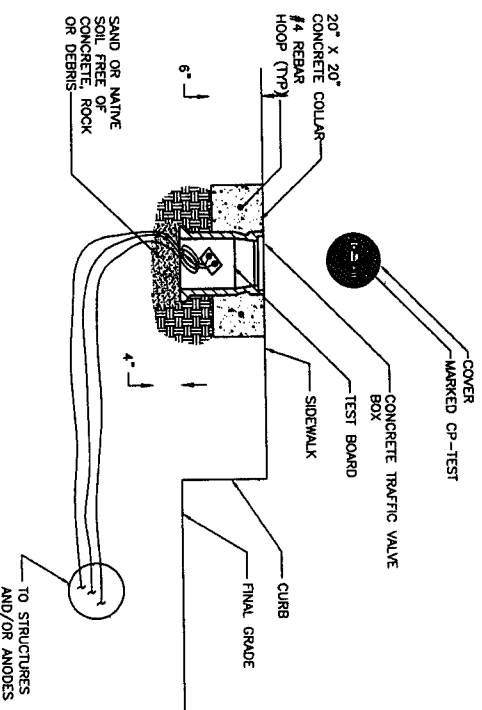
④  
-



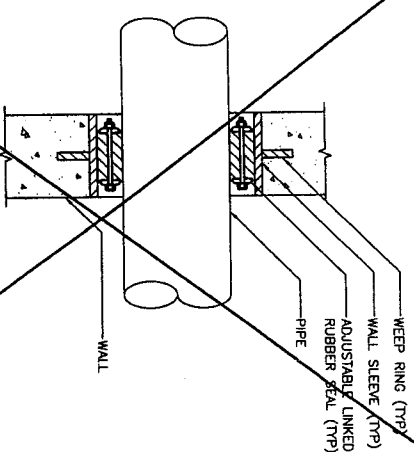
1. FILE PIPE/STRUCTURE TO BARE METAL AND CLEAN SURFACE.
2. STRIP INSULATION FROM WIRE AND ATTACH SLEEVE.
3. HOLD MOLD FIRMLY WITH OPENING AWAY FROM OPERATOR. IGNITE WITH FLINT GUN REMOVE SLAG FROM CONNECTION WITH CHIPPING HAMMER.
4. COVER CONNECTION WITH BITUMASTIC COATING OVER ALL EXPOSED METAL. PLACE WELD CAP OVER CONNECTION. REPAIR ALL DAMAGE TO COATING AND LINING IN ACCORDANCE WITH MFG. RECOMMENDATIONS.

**NOTE:**  
DETAIL SHOWS PROCEDURE FOR HORIZONTAL ORIENTATION. PROCEDURE FOR VERTICAL ORIENTATION IS SIMILAR.

EXOTHERMIC WELD



FLUSH-TO GRADE TEST STATION BOX






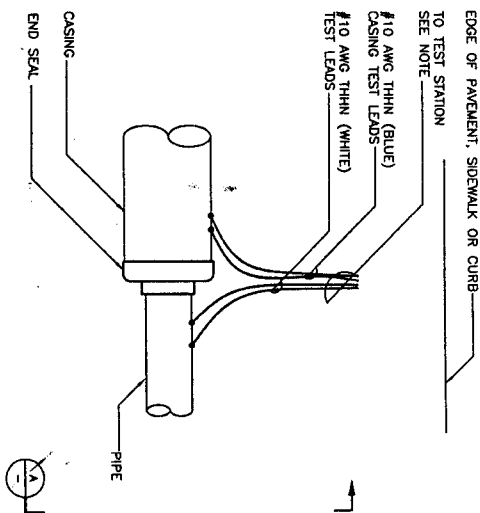
WALL PENETRATION

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NTS

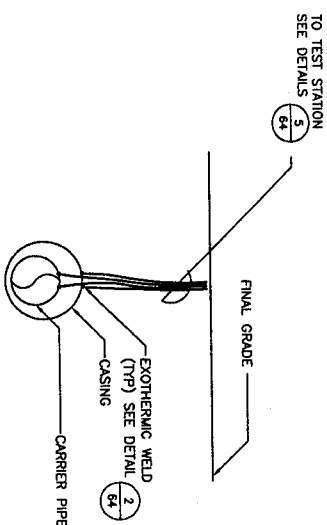
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		DATE: 10/19/97 BY: [Signature]	
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NO. DATE	REVISION	APPROVAL	
NORTH PORT BRAND 			
ITEMBA SEGMENT 1B SEGMENT 1B-PROPOSED 48-INCH WATERLINE FROM OLD RICHMOND ROAD TO BELLEURE BOULEVARD CATHODIC PROTECTION MISCELLANEOUS DETAILS 1 OF 2			
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES			
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING STREET & BRIDGE DIST 6 11/20/97 DESIGNED BY: [Signature] CHECKED BY: [Signature] INCHES SCALE:			
FILE NO. 60073234		FOR CITY OF HOUSTON USE ONLY 	
DRAWING SCALE		NORTH WATER QUALITY DATE: 10/19/97 BY: [Signature]	
N.T.S.		SHEET 64 OF 78 NO. 64	

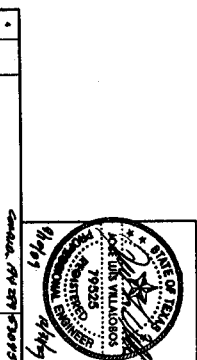
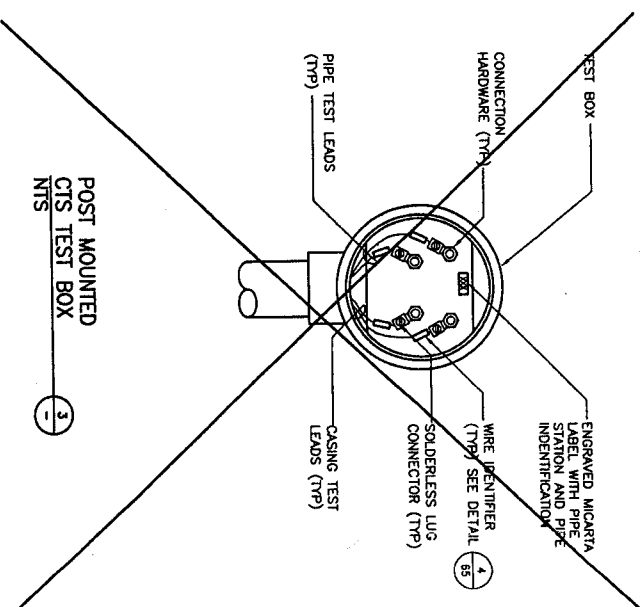


NOTES:  
1. IF TEST STATION IS FLUSH MOUNTED, REFER TO DETAIL 5/64

CASING TEST STATION (CTS) PLAN  
NTS



CASING TEST STATION (CTS) SECTION  
NTS

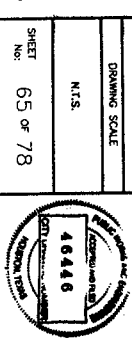


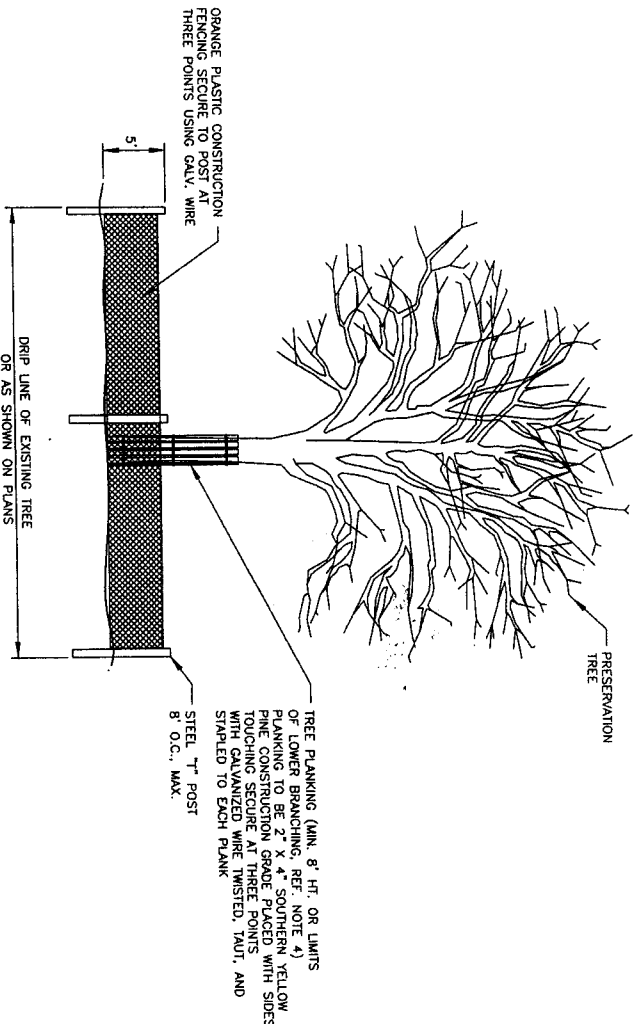
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NO.	DATE	REVISION	APPROVAL

NFTMA SEGMENT 1B  
SEGMENT 1B - PROPOSED 48-INCH WATERLINE FROM OLD RICHMOND ROAD TO BELLEVUE BOULEVARD  
CATHODIC PROTECTION  
MISCELLANEOUS DETAILS  
2 OF 2

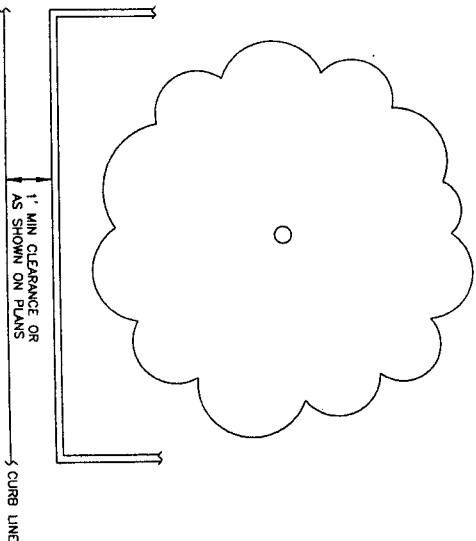


NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES  
CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
DESIGNED BY: *[Signature]*  
CHECKED BY: *[Signature]*  
DATE: 11.11.09  
SCALE: AS SHOWN  
SHEET NO: 65 OF 78





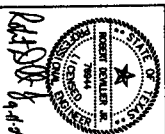
① TREE PROTECTION DETAIL



② TREE PROTECTION DETAIL

NOTES:

1. ALL TREES SHOWN ON THE TREE PRESERVATION PLANS WITH [redacted] SHALL BE PROTECTED THROUGHOUT CONSTRUCTION WITH TREE PROTECTION.
2. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GROUND).
3. FENCING SHALL BE LOCATED AS SHOWN ON DRAWINGS, OR COMPLETELY SURROUND THE TREE OR CLUSTERS OF TREES AND WILL BE LOCATED AT THE OUTERMOST LIMITS OF THE TREE BRANCHES (DRIPLINE). THE DRIPLINE DEFINES THE "ROOT ZONE". WITHIN THE LIMITS OF FENCING, THE CONTRACTOR SHALL PREVENT THE FOLLOWING FROM OCCURRING WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OWNER'S REPRESENTATIVE:
  - A. SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC OR STORAGE OF EQUIPMENT OR MATERIALS.
  - B. ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN 3" CUT OR FILL) OR TRENCHING NOT REVIEWED OR AUTHORIZED.
  - C. WOUNDS TO EXPOSED ROOTS, TRUNK, OR LIMBS BY MECHANICAL EQUIPMENT.
  - D. OTHER ACTIVITIES DETRIMENTAL TO TREES SUCH AS CHEMICAL STORAGE, CONCRETE TRUCK CLEANING, AND FIRES.
4. WHERE EXCEPTIONS RESULT IN A FENCE BEING CLOSER THAN 4 FEET TO A TRUNK, PROTECT THE TRUNK WITH STRAPPED-ON PLANKING TO A HEIGHT OF 8' (OR TO THE LIMITS OF THE LOWER BRANCHING) AS INDICATED ON TREE PROTECTION PLANS.
5. ALL GRADING WITHIN PROTECTED ROOT ZONE AREAS SHALL BE DONE BY HAND TO MINIMIZE ROOT DAMAGE AND SOIL COMPACTION. PRIOR TO GRADING, REDUCING THE EXPOSED ROOTS TO 2 FEET BEHIND THE GRADE CHANGE AREA. GRADE SHALL REMAIN UNCHANGED WHERE POSSIBLE.
6. ANY ROOT EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOP SOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN 2 DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES DRYING OF THE ROOT DUE TO EVAPORATION.
7. TREES IMPACTED BY CONSTRUCTION ACTIVITIES SHALL BE WATERED THROUGHOUT A WEEK DURING PERIODS OF HOT AND/OR DRY WEATHER. TREE CROWNS SHALL BE SPRAYED WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.
8. NO LANDSCAPE TOPSOIL DRESSING GREATER THAN 3" MAXIMUM SHALL BE PERMITTED WITHIN THE DRIPLINE OF TREES. NO PERMANENT SOIL OR MULCH IS PERMITTED ON THE ROOT FLARE OF ANY TREE.
9. PRUNING SHALL BE PROVIDED BY THE CONTRACTOR TO PROVIDE CLEARANCE FOR STRUCTURES OR CONSTRUCTION ACTIVITIES. PRUNING SHALL TAKE PLACE BEFORE CONSTRUCTION BEGINS, ONLY WITH PRIOR APPROVAL FROM AUTHORITY'S ENGINEER. ALL PRUNING MUST BE DONE ACCORDING TO RECOGNIZED, APPROVED STANDARDS OF THE INDUSTRY (REFERENCE THE NAA PRUNING STANDARDS), AND BY AN EXPERIENCED AND QUALIFIED ARBORIST WHOSE PRIMARY BUSINESS IS TREE CARE.
10. PROVIDE CORRECTIVE PRUNING AT THE COMPLETION OF CONSTRUCTION TO REMOVE ANY BROKEN OR DAMAGED LIMBS, UNDER THE DIRECTION OF THE AUTHORITY'S ENGINEER.
11. IF REQUIRED, ROOT PRUNE BY TRENCHING A CLEAN 4" WIDE X 24" DEEP CUT BETWEEN THE EXPOSED AND UNDISTURBED ROOT ZONES, WITH IRRIGATION TRENCHES TO MINIMIZE DAMAGE TO REMAINING ROOTS, MARK, AND REVEN TRENCH LINE WITH AUTHORITY'S ENGINEER PRIOR TO TRENCHING.
12. AS SOON AS 4" WIDE X 24" DEEP TRENCH IS CUT, EXPOSED ROOTS SHALL BE HAND CUT TO CREATE CLEAN ROOT CUTS. AS SOON AS HAND CUTS ARE COMPLETE, BACKFILL TRENCH WITH A SANDY LOAM TOPSOIL PLACED IN 8" LIFTS, AND COMPACTED AS REQUIRED BY SPECIFICATIONS.
13. IN AREAS WHERE LIME STABILIZATION ABUTS OR ENCROACHES UPON ROOT ZONES, AND WHERE ROOT PRUNING IS CALLED FOR, INSTALL TOILET PLASTIC SHEETING TO FULL DEPTH OF ROOT PRUNING TRENCH AND 6" OVER TOP. CUT AND REMOVE EXPOSED PLASTIC AT COMPLETION OF WORK.



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AECOM  
AECOM USA GROUP, INC.  
6321 WOODWAY, SUITE 101 WEST  
HOUSTON, TEXAS 77057-1009  
TYPE: REGD. NO. F-2002

SEGMENT 1B - PROPOSED 14-ACRE WATERLINE FROM OLD  
NORTH FORT ROAD TO BELLAIR BOULEVARD  
TREE PROTECTION PLAN



NOTE: CITY SQUARES VALID FOR ONE YEAR ONLY AFTER DATE OF  
SIGNATURES  
CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
DATE: 10/1/09  
BY: [redacted]  
CHECKED BY: [redacted]  
SCALE: AS SHOWN  
SHEET NO. 67 OF 78



(SEE ABOVE)

STA 162+50

WELDRIDGE DRIVE

PROP 30' W.L.E.  
LIMITS OF CONSTRUCTION

(SEE SHEET 71)

STA 175+00

GAINS ROAD

10' X 50' SC  
SEE NOTE 3

PROP 30' W.L.E.  
LIMITS OF CONSTRUCTION

(SEE BELOW)

STA 162+50

LEGEND:  
FF - FILTER FABRIC FENCE  
SC - STABILIZED CONSTRUCTION ACCESS  
IPB - INLET PROTECTION BARRIER

NOTES:

1. STORM WATER POLLUTION PREVENTION DEVICES SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND DRAWINGS.
2. ALL DISTURBED AREAS THAT ARE NOT PAVED, COVERED BY PAVEMENT, SIDEWALK, OR STRUCTURE SHALL BE HYDROMULCHED.
3. REMOVE AND REPLACE STABILIZED CONSTRUCTION ACCESS AS NEEDED (NO SEPARATE PAY).



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ACCOM

ACCOM  
5727 WOODWAY, SUITE 101 WEST  
HOUSTON, TEXAS 77057-1549  
713.261.2200, F. 281.261.2200

NFBMA SEGMENT 1B

SEGMENT 1B - PROPOSED 48-INCH WATERLINE IN  
CENTERPOINT ESSENTIAL FROM GAINS ROAD TO EXDORGE  
PARKWAY

STORM WATER POLLUTION PREVENTION  
PLAN (SHEET 1 OF 5)



NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF  
SIGNATURES

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 08-06-09

BY: [Signature]

FOR: [Signature]

PROJECT: 08072334

FILE NO.: 08072334

DRAWING SCALE: 1" = 50'

100 CITY OF HOUSTON USE ONLY

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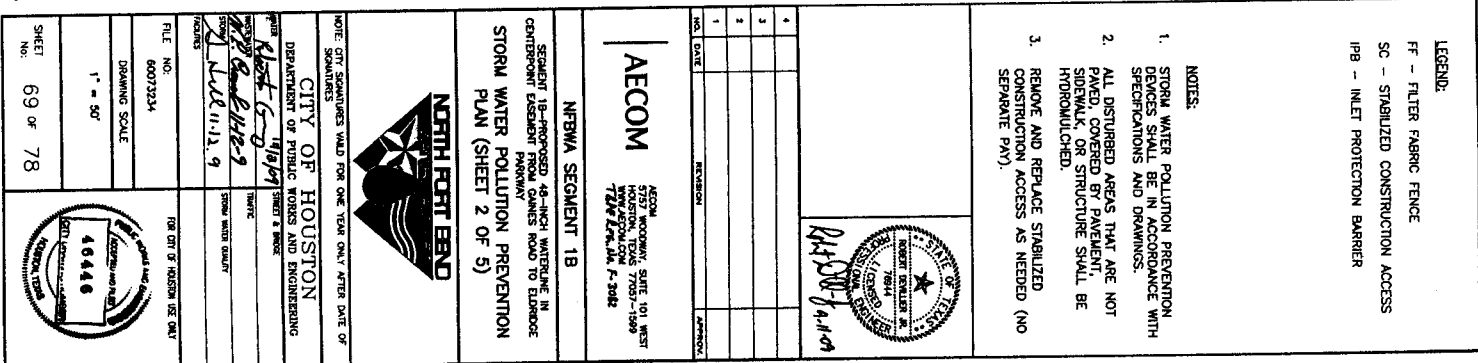
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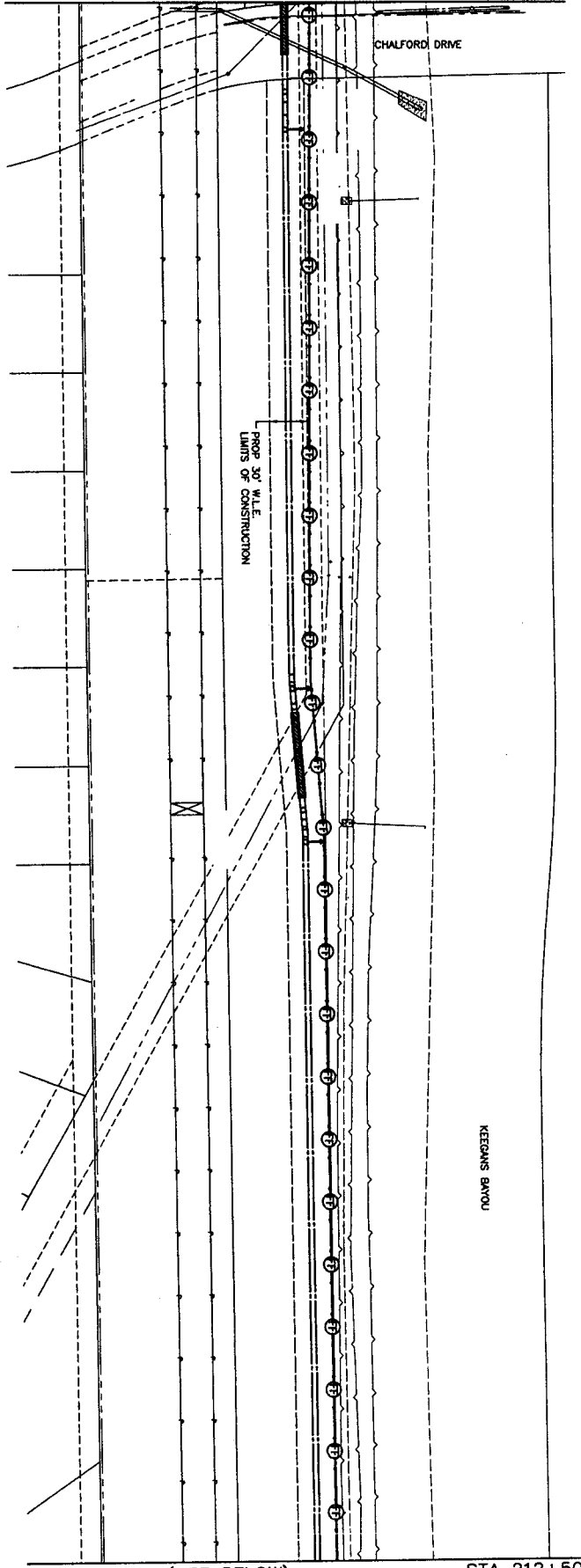
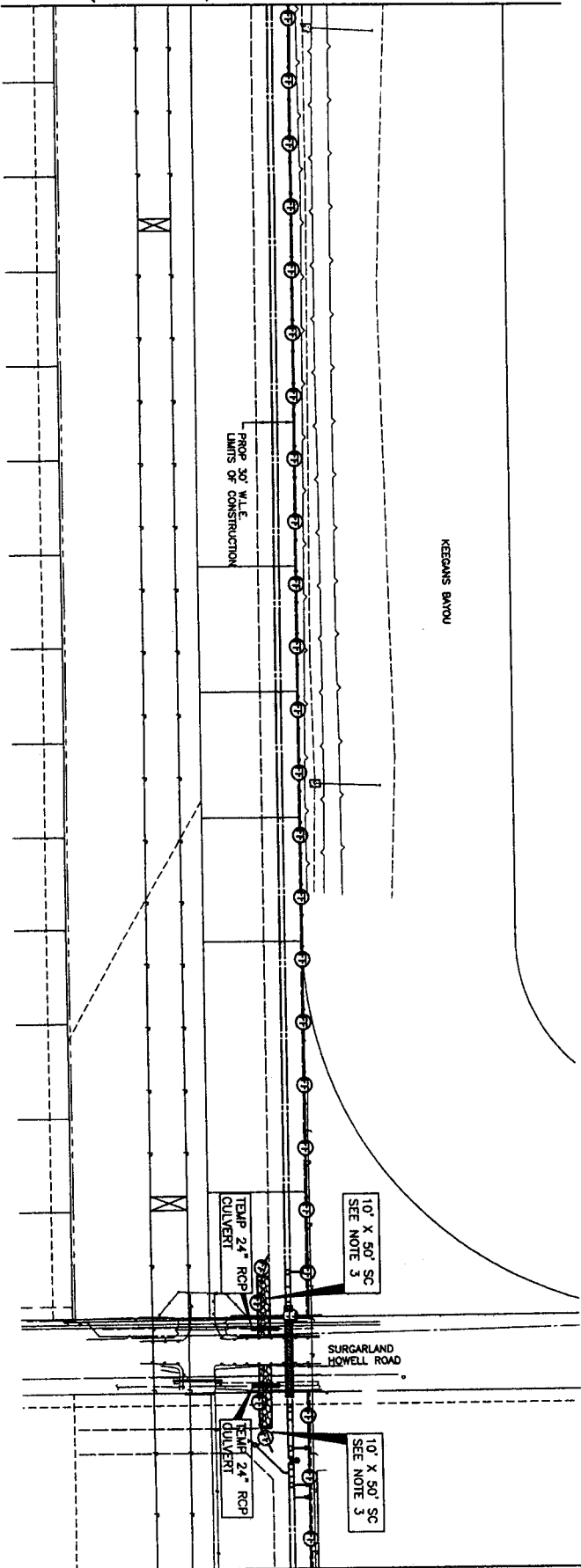


(SEE ABOVE)

STA 212+50

(SEE SHEET 71)

STA 200+00



(SEE SHEET 73)

STA 225+00

(SEE BELOW)

STA 212+50

- LEGEND:
- FF - FILTER FABRIC FENCE
  - SC - STABILIZED CONSTRUCTION ACCESS
  - IPB - INLET PROTECTION BARRIER
- NOTES:
- STORM WATER POLLUTION PREVENTION DEVICES SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND DRAWINGS.
  - ALL DISTURBED AREAS THAT ARE NOT PAVED, COVERED, OR PLANTED, SHALL BE REVEGETATED WITH SEEDS AND MULCH. HYDROLOGICAL.
  - REMOVE AND REPLACE STABILIZED CONSTRUCTION ACCESS AS NEEDED (NO SEPARATE PAY).



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AECOM

AECOM  
2227 WOODWAY, SUITE 101 WEST  
HOUSTON, TEXAS 77057-1500  
713.861.1000 F. 5082

NFBWA SEGMENT 1B

SEGMENT 1B - PROPOSED 42-ACRE INTERIOR IN  
CENTROPOINT DESIGNATED PARKWAY  
STORM WATER POLLUTION PREVENTION  
PLAN (SHEET 3 OF 5)



NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF  
SIGNATURES

CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
SHEET 3 OF 5

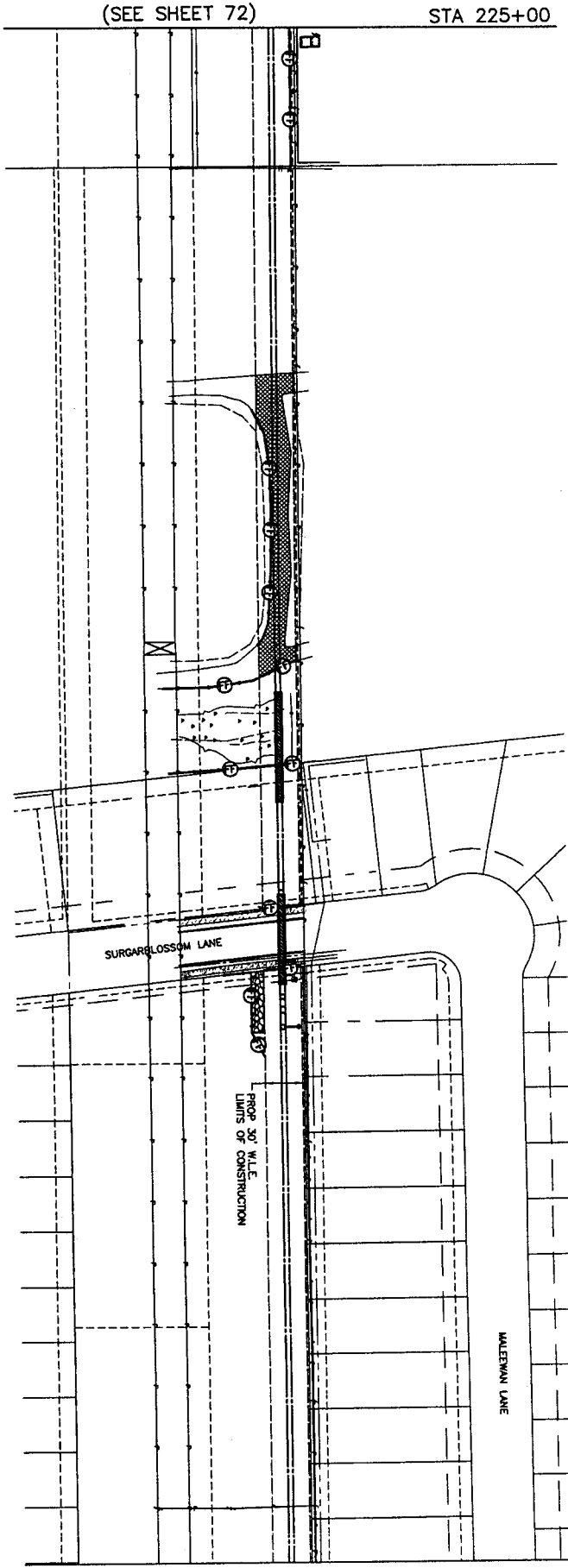
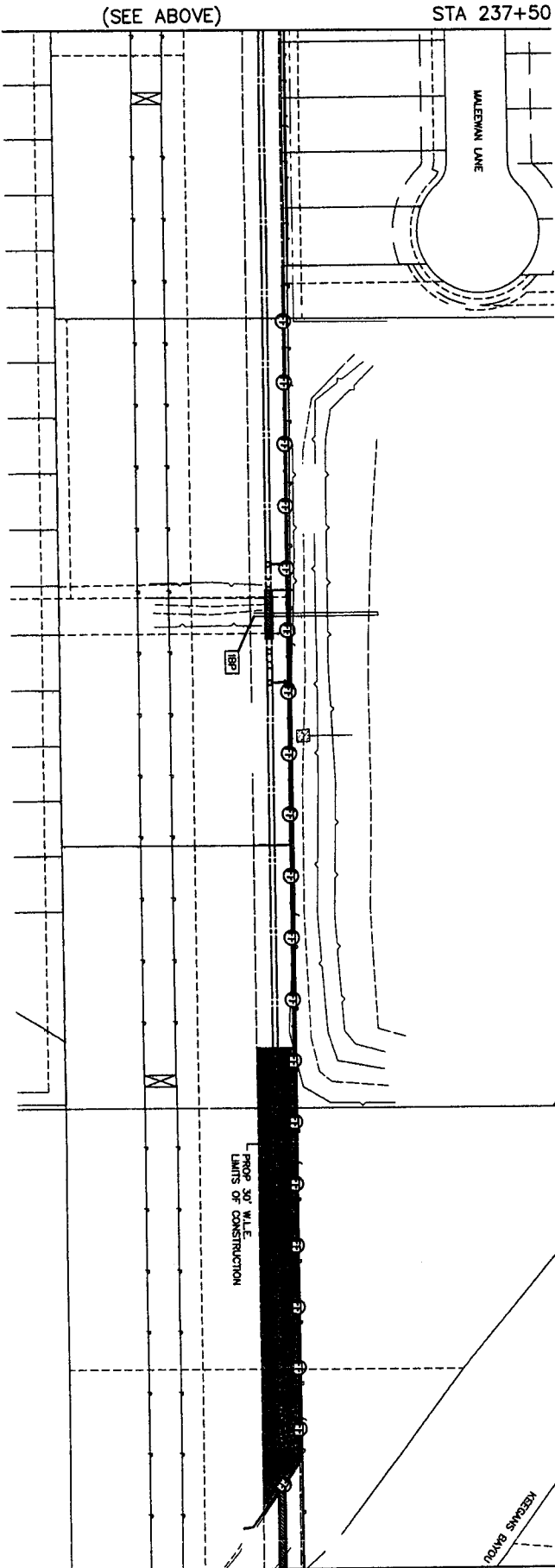
DATE: 10/11/04  
BY: [Signature]  
FOR CITY OF HOUSTON USE ONLY

FILE NO.: 60073234

DRAWING SCALE: 1" = 50'

SHEET NO.: 70 OF 78





STA 250+00

STA 237+50

- LEGEND:
- FF - FILTER FABRIC FENCE
  - SC - STABILIZED CONSTRUCTION ACCESS
  - IPB - INLET PROTECTION BARRIER
- NOTES:
- STORM WATER POLLUTION PREVENTION DEVICES SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND DRAWINGS.
  - ALL DISTURBED AREAS THAT ARE NOT STABILIZED BY PAVEMENT SIDEWALK OR STRUCTURE SHALL BE HYDROLOGICALLY.
  - REMOVE AND REPLACE STABILIZED CONSTRUCTION ACCESS AS NEEDED (NO SEPARATE PAY).



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AECOM

AECOM  
2000 HOOVER, SUITE 101 WEST  
HOUSTON, TEXAS 77057-1899  
713.774.6000  
713.774.6001 FAX  
F-10042

NFBWA SEGMENT 1B

SEQUENT 1B-PROPOSED 48-INCH WATERLINE IN  
CENTROPOINT DESIGNED PARKWAY  
STORM WATER POLLUTION PREVENTION  
PLAN (SHEET 4 OF 5)



CITY OF HOUSTON  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 10/10/07  
BY: [Signature]  
CHECKED: [Signature]  
APPROVED: [Signature]

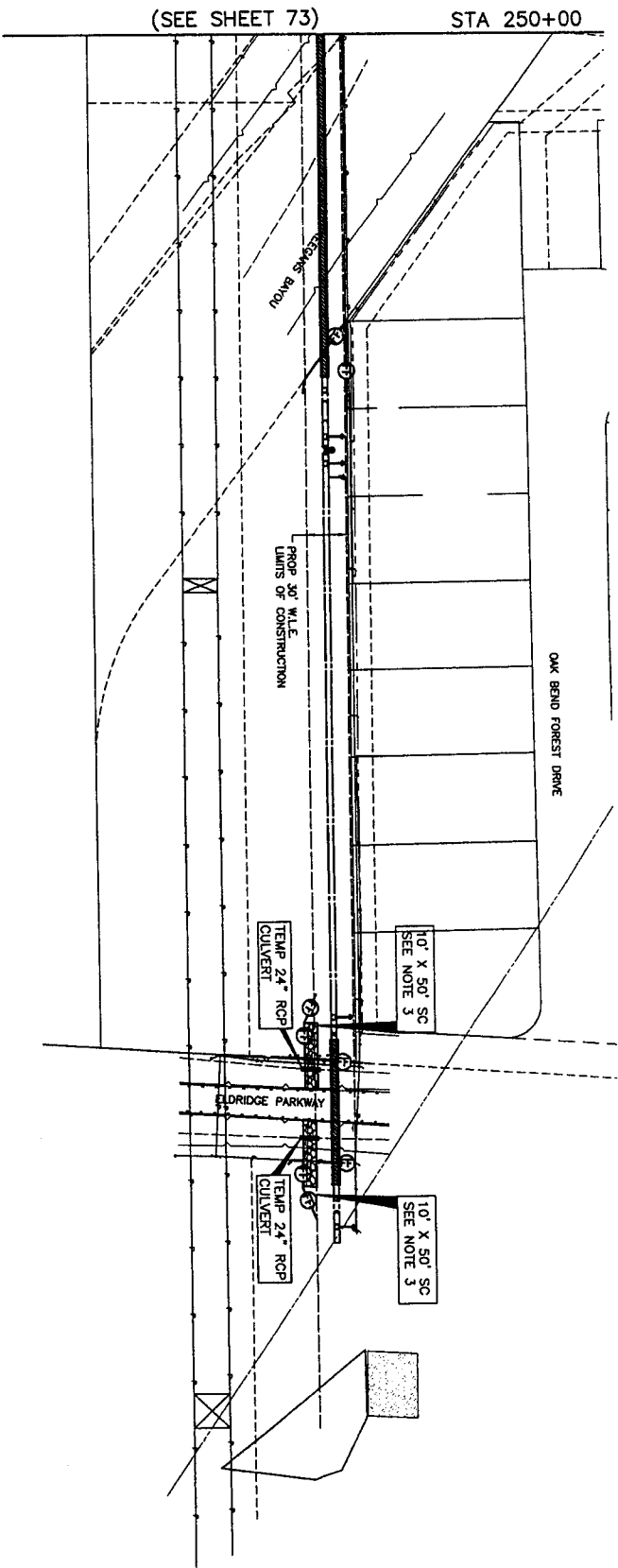
FILE NO. 60073234

DRAWING SCALE 1" = 50'

SHEET No. 71 OF 78







LEGEND:

- FF - FILTER FABRIC FENCE
- SC - STABILIZED CONSTRUCTION ACCESS
- IPB - INLET PROTECTION BARRIER

NOTES:

- STORM WATER POLLUTION PREVENTION DEVICES SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND DRAWINGS.
- ALL DISTURBED AREAS THAT ARE NOT PAVED, COVERED BY PAVEMENT, SIDEWALK, OR STRUCTURE SHALL BE HYDROLOGICALLY RESTORED.
- REMOVE AND REPLACE STABILIZED CONSTRUCTION ACCESS AS NEEDED (NO SEPARATE PAY).



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NO. DATE	REVISION

AECOM

AECOM  
5757 WOODWAY, SUITE 101 WEST  
HOUSTON, TEXAS 77057-1988  
TEL: 713.861.1000 FAX: 713.861.1012

NFBWA SEGMENT 1B

SEGMENT 1B-PROPOSED 48-INCH WATERLINE IN CENTERPOINT EASTBENT FROM GAINES ROAD TO ELDRIDGE PARKWAY  
STORM WATER POLLUTION PREVENTION PLAN (SHEET 5 OF 5)



NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
STREET & BRIDGE

DESIGNED BY: *[Signature]*  
CHECKED BY: *[Signature]*  
DATE: 11/11/09  
SCALE: AS SHOWN  
SHEET NO. 72 OF 78

FILE NO.: 66073234  
DRAWING SCALE: 1" = 50'  
FOR CITY OF HOUSTON USE ONLY

11/11/09





$\sqrt{a}$ 

UTILITY LINES SHOWN

Approved for underground conduit facilities only.

Interpoint Energy/ Gas Facilities  
(\$ services fees are not shown.)

ALL LEASES & EASEMENTS CALL LONE STAR NOTIFI  
R.O.W. OR EASEMENTS CALL LONE STAR NOTIFI

**MOVED. CALL CENTERPOINT AT 713-207-7777**

DATE

ROBERT DE  
786

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[illegible]

DATE	REVISION
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**AECOM**

1576 KKH.No.1-

**THE UNIVERSITY OF MICHIGAN**

1. **THESE**

1000



CITY OF HOUSTON

11/10/07  
P6256 G-7

2. April 11.12.9

FILE NO: 100-443888-100




DRAWING SCALE

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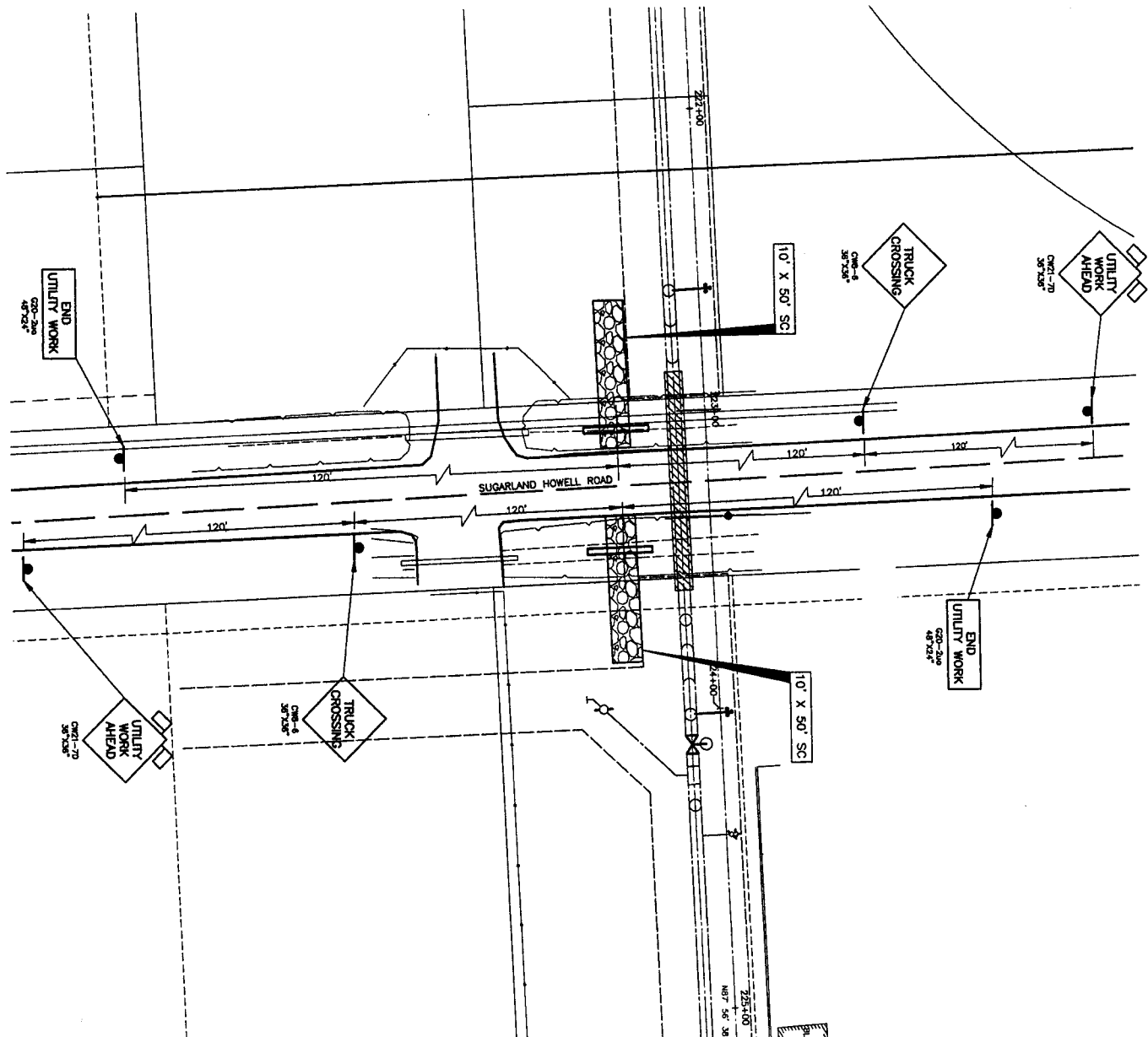
## NOTES:

- POSTED SPEED LIMIT: 55 MPH



PRIVATE UTILITY LINES SHOWN		Date: _____	
Contract Energy/ Electric facilities (approved and noted) Contract Gas facilities (approved and noted) Contract Water, Sewer facilities (noted) Void at Time of Issue Only		Date: _____	
SEC UTILITY LINES SHOWN Specified and for one year. Specified and for underground conduit facilities only.		Date: _____	
Contract Energy/ Gas facilities (not specified and for one year)		Date: _____	
NOTICE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW, OR EASEMENTS CALL ONE STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-669-8344 TO APPEAR FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-7777.			
 Robert G. Butler P.E.			
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NO.	DATE	REVISION	APPROVAL
<b>AECOM</b> AECOM TECHNOLOGY, STATE, AND WEST 5501 WEST TEXAS DRIVE, SUITE 1100 FORT WORTH, TEXAS 76102-1100 TEL: 817/339-7100, FAX: 817/339-8181			
<b>INTERVA SEGMENT 1B</b>			
SEGMENT 1B-PROPOSED 48-INCH WATERLINE IN CENTERPOINT EASEMENT FROM ANY TRAFFIC CONTROL PLAN STATE HIGHWAY 6 STA 192+00 TO STA 195+00			
 <b>NORTH FORT BEND</b>			
NOTE: CITY SPECIMENS VALID FOR ONE YEAR ONLY AFTER DATE OF ISSUANCE			
<b>CITY OF HOUSTON</b> DEPARTMENT OF PUBLIC WORKS AND ENGINEERING			
WORKS ORDER NO. <b>West 6-11807</b>			
PROJECT NAME <b>West 6-11807</b>			
SHEET NO. <b>1</b> OF <b>1</b>			
DATE <b>11/11/11</b>			
SCALE <b>AS SHOWN</b>			
FILE NO. <b>60073234</b>			
DRAWING SCALE <b>N.T.S.</b>			
SHEET NO. <b>75</b> OF <b>78</b>			
			

- NOTES:
1. ALL ADVANCED WARNING SIGNS TO BE SET PRIOR TO START OF CONSTRUCTION ACTIVITIES AND TO REMAIN IN PLACE UNTIL ALL CONSTRUCTION ACTIVITIES ARE COMPLETE AND ACCEPTED BY FORT BEND COUNTY. THE CONTRACTOR WILL COORDINATE WITH THE FORT BEND COUNTY ENGINEERING DEPARTMENT IN ESTABLISHING TRAFFIC ROUTES AND LOCATION OF SIGNS.
  2. LANE CLOSURES SHALL BE DURING OFF PEAK HOURS ONLY MON-FRI
  3. MAX. PAVEMENT DROP-OFF SHALL NOT EXCEED 2".
  4. POLICE SHALL BE NEEDED TO CONTROL TRAFFIC AT ALL MAJOR INTERSECTIONS.
  5. ALL FLAGGERS SHALL BE IN RADIO CONTACT WITH EACH OTHER AT ALL TIMES.
  6. ALL PAVEMENT MARKINGS COVERED BY OVERLAY SHALL BE REPLACED BEFORE OPENING TO TRAFFIC
  7. ADVANCE SIGNING SHALL BE PLACED A MINIMUM OF TWO WEEKS IN ADVANCE TO INFORM OF POSSIBLE DELAY. CONTRACTOR SHALL NOTIFY THE FORT BEND COUNTY ENGINEERING DEPARTMENT AT 281-633-7500 AT LEAST TWO WEEKS PRIOR TO ANY CONSTRUCTION.
  8. ALL PORTABLE SIGNING, DRUMS AND CONES SHALL BE REMOVED AT THE END OF EACH DAY.
  9. AS OVERLAY IS COMPLETED ALL CHANNELIZATION SHALL BE MOVED ON TO LANE LINES TO OPEN CENTER LEFT TURN LANE TO TRAFFIC.
  10. IF WORK ZONE IS NEEDED OVERNIGHT ALL CONES OR TUBULAR MARKERS SHALL BE REPLACED WITH DRUMS W/YS FLASHING LIGHTS AND TEMPORARY PAVEMENT MARKINGS SHALL BE IN PLACE FOR NIGHTTIME OPERATION AS DIRECTED BY THE ENGINEER.
  11. SIGN R20-3 IS REQUIRED IN ADVANCE OF PROJECT LIMITS.
  12. ACCESS TO EXISTING BUSINESSES OR RESIDENCES SHALL BE MAINTAINED AT ALL TIMES.



POSTED SPEED LIMIT: 40 MPH

PRIVATE UTILITY LINES SHOWN

DATE: \_\_\_\_\_

CONTRACTOR'S SIGNATURE: \_\_\_\_\_

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CONTRACTOR'S SIGNATURE: \_\_\_\_\_

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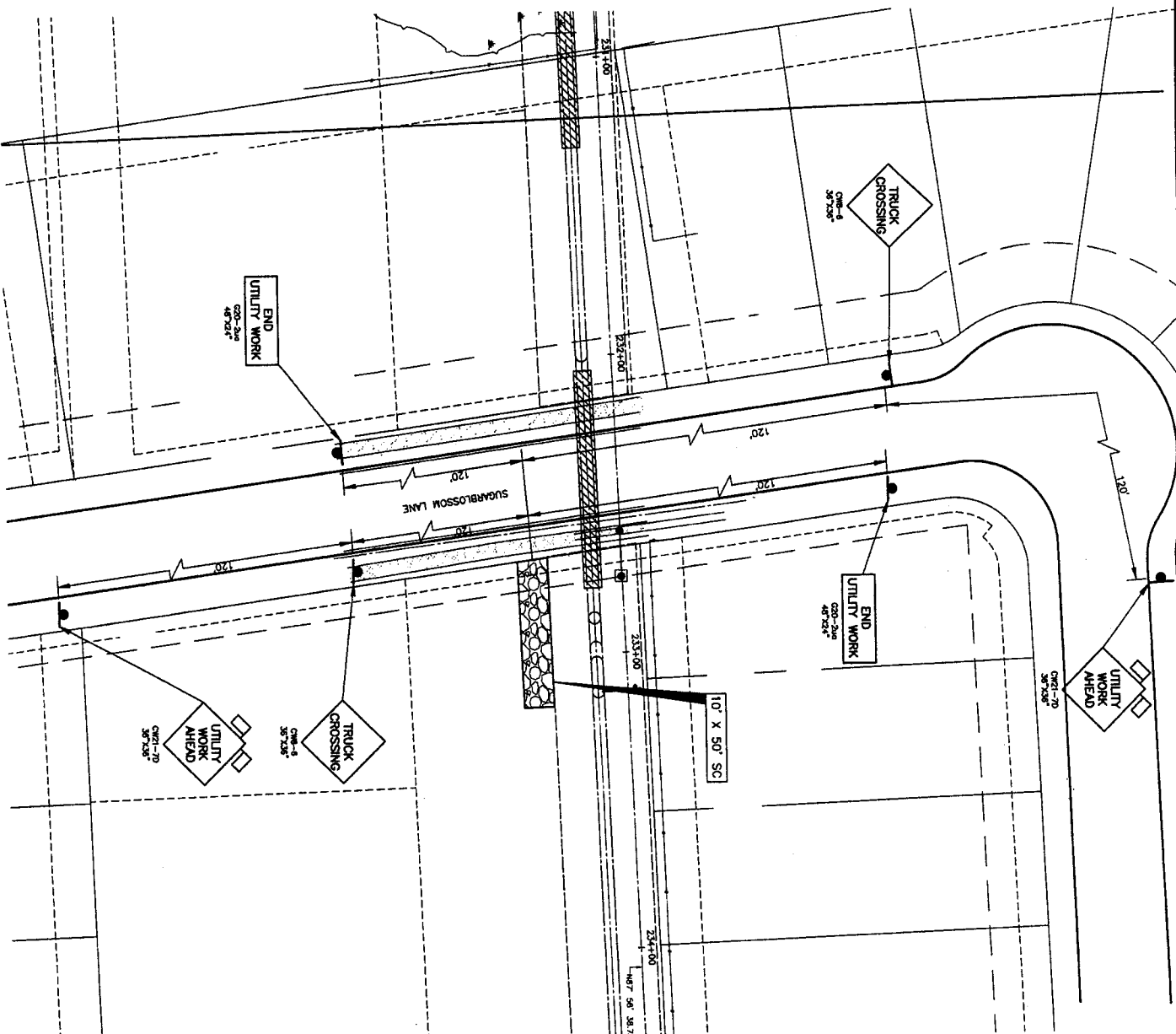
DATE: \_\_\_\_\_

CONTRACTOR'S SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_

CONTRACTOR'S SIGNATURE: \_\_\_\_\_

- NOTES:
1. ALL ADVANCED WARNING SIGNS TO BE SET PRIOR TO START OF CONSTRUCTION ACTIVITIES AND TO REMAIN IN PLACE UNTIL ALL CONSTRUCTION ACTIVITIES ARE COMPLETE AND ACCEPTED BY FORT BEND COUNTY. THE CONTRACTOR WILL COORDINATE WITH FORT BEND COUNTY ENGINEERING DEPARTMENT IN ESTABLISHING TRAFFIC ROUTES AND LOCATION OF SIGNS.
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  3. MAX. PAVEMENT DROP-OFF SHALL NOT EXCEED 2".
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  12. ACCESS TO EXISTING BUSINESSES OR RESIDENCES SHALL BE MAINTAINED AT ALL TIMES.



PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
Contractor Utility/Electric Facilities (approved only)  
Valid At Time Of Review Only

SEC UTILITY LINES SHOWN

Date: \_\_\_\_\_

SEC: Approved for underground conduit facilities only.

Signature valid for one year.

Date: \_\_\_\_\_

Contractor Utility/Electric Facilities

(this section must be filled in)

NOTICE:

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET

R.O.W. OR EASEMENTS CALL LONE STAR NOTIFICATION

CENTER, (713) 223-4567 OR 1-800-669-8344

TO ARRANGE FOR LINES TO BE TURNED OFF OR

MOVED. CALL CENTERPOINT AT 713-207-7777.



NO.	DATE	REVISION	APPROVED
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AECOM

AECOM  
5555 WINDWARD, SUITE 101 WEST  
HOUSTON, TEXAS 77057-1989  
TEL: 713.774.1000 FAX: 713.774.1002

NFBWA SEGMENT 1B

SEGMENT 1B-PROPOSED 48-INCH WATERLINE IN  
CENTERPOINT EASEMENT FROM GAINES ROAD TO ELDORADO

TRAFFIC CONTROL PLAN

SUGARBLOSSOM LANE

STA 231+00 TO STA 234+00



NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF

SIGNATURES

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 11/09/09

SHEET 2 OF 2

BY: [Signature]

FOR: [Signature]

FILE NO: 00073234

DRAWING SCALE: N.T.S.

SHEET NO: 77 OF 78

FOR CITY OF HOUSTON USE ONLY



