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**REVIEW BY FORT BEND COUNTY COMMISSIONERS COURT**

On this 12 day of APRIL, 2011, before the Fort Bend Commissioners Court came on to be heard and reviewed the accompanying notice of HURTADO CONSTRUCTION COMPANY

Job Location SEVERAL STREETS {SEE ATTACHMENT}

Dated 03/29/11 BOND NO 58S200903 Permit No. 83935

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 Statues. Upon Motion of Commissioner MEYERS, seconded by Commissioner PATTERSON, 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 [Signature]  
County Engineer

By \_\_\_\_\_  
Drainage District Engineer/Manager

Presented to Commissioners Court and approved.  
Recorded in Volume 4-12-11  
Minutes of Commissioners Court.

Clerk of Commissioners Court  
By [Signature]  
Deputy

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

AUTHORIZED

BOND NO 58S200903

THE STATE OF TEXAS           §

KNOW ALL MEN BY THESE PRESENTS:

COUNTY OF FORT BEND       §

THAT WE, Hurtado Construction Company whose address is 2115 Center Street, Richmond, Texas 77469, Texas, hereinafter called the Principal, and First National Insurance Company of America, a Corporation existing under and by virtue of the laws of the State of Washington and authorized to do an indemnifying business in the State of Texas, and whose principal office is located at 1001 Fourth Avenue, Safeco Plaza, Seattle, Washington 98154, whose officer residing in the State of Texas, authorized to accept service in all suits and actions brought within said State is Jeremy Mequieros and whose address is 1600 N. Collins Blvd, Suite 3000, Richardson, Texas 75080, 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 \*SIX HUNDRED NINETEEN THOUSAND- FORTY FIVE AND 00/100 Dollars (\$19,045.00) 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.

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 28th day of March, 2011.

Hurtado Construction Company

PRINCIPAL

[Signature]  
BY

First National Insurance Company of America

SURETY

[Signature]  
BY Jacqueline Kirk, Attorney in Fact

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.

FIRST NATIONAL INSURANCE COMPANY OF AMERICA  
SEATTLE, WASHINGTON  
POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS: That First National Insurance Company of America (the "Company"), a Washington stock insurance company, pursuant to and by authority of the By-law and Authorization hereinafter set forth, does hereby name, constitute and appoint. **PAMELA PROKOP, LARRY H. SENKEL, STEVEN FOSTER, JACQUELINE KIRK, ALL OF THE CITY OF HOUSTON, STATE OF TEXAS** .....

, 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 **ONE HUNDRED MILLION AND 00/100\*\*\*\*\* DOLLARS (\$ 100,000,000.00\*\*\*\*\* )** 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 IV - Execution of Contracts: Section 12. Surety Bonds and Undertakings.

Any officer or other official of the Corporation 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 Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and 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 IV, Section 12 of the By-laws, Garnet W. Elliott, Assistant Secretary of First National Insurance Company of America, is authorized to appoint such attorneys-in-fact as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

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 First National Insurance Company of America has been affixed thereto in Plymouth Meeting, Pennsylvania this 25th day of February, 2011.



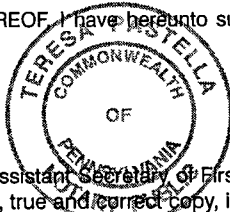
FIRST NATIONAL INSURANCE COMPANY OF AMERICA

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

COMMONWEALTH OF PENNSYLVANIA ss  
COUNTY OF MONTGOMERY

On this 25th day of February, 2011, before me, a Notary Public, personally came Garnet W. Elliott, to me known, and acknowledged that he is an Assistant Secretary of First National Insurance Company of America; that he knows the seal of said corporation; and that he executed the above Power of Attorney and affixed the corporate seal of First National Insurance Company of America 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.



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

By Teresa Pastella  
Teresa Pastella, Notary Public

CERTIFICATE

I, the undersigned, Assistant Secretary of First National Insurance Company of America, 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 IV, Section 12 of the By-laws of First National Insurance Company of America.

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 First National Insurance Company of America at a meeting duly called and held on the 18th day of September, 2009.

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.

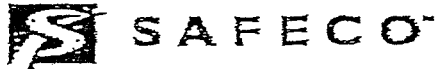
IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the said company, this 28th day of March, 2011.



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.



\*\*\*\*FIRST NATIONAL INSURANCE COMPANY OF AMERICA IS PART OF THE SAFECO GROUP, WHICH IS  
PART OF THE LIBERTY MUTUAL INSURANCE COMPANIES\*\*\*\*

State of Texas Surety Bond Claim Notice

In accordance with Section 2253.021(f) of the Texas Government Code and  
Section 53.202(6) of the Texas Property Code, any notice of claim to the named  
surety under this bond(s) should be sent to:

SAFECO Surety  
Adams Building  
4834 154th PL NE  
Redmond, WA 98052

Mailing Address:  
SAFECO Surety  
PO Box 34754  
Seattle, WA 98124

Phone: (425) 376-6535  
Fax: (425) 376-6533

## **IMPORTANT NOTICE**

**TO OBTAIN INFORMATION OR MAKE A COMPLAINT:  
YOU MAY CONTACT THE TEXAS DEPARTMENT OF INSURANCE  
TO OBTAIN INFORMATION ON COMPANIES, COVERAGES,  
RIGHTS OR COMPLAINTS AT:**

**1-800-252-3439**

**YOU MAY WRITE THE TEXAS DEPARTMENT OF INSURANCE:**

**P. O. BOX 149104  
AUSTIN, TEXAS 78714-9104  
FAX #(512) 475-1771**

### **PREMIUM OR CLAIM DISPUTES:**

**SHOULD YOU HAVE A DISPUTE CONCERNING YOUR PREMIUM  
OR ABOUT A CLAIM, YOU SHOULD CONTACT THE AGENT OR  
COMPANY FIRST. IF THE DISPUTE IS NOT RESOLVED, YOU MAY  
CONTACT THE TEXAS DEPARTMENT OF INSURANCE.**

**ATTACH THIS NOTICE TO YOUR POLICY**

**THIS NOTICE IS FOR INFORMATION ONLY AND DOES NOT BECOME  
A PART OR CONDITION OF THE ATTACHED DOCUMENT.**

# 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. 083935

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

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

- (2) Bond:
- District Attorney, approval when applicable.
  - Perpetual bond currently posted.  
No. \_\_\_\_\_  
Amount \_\_\_\_\_
  - Performance bond submitted.  
No. 58S200903  
Amount \$619,045.00
  - 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)

03/29/2011  
\_\_\_\_\_  
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. 83935 PCT. No. 3

BOND No. 585200903

Formal notice is hereby given that \_\_\_\_\_  
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>ATTACHED</u>	:	:	:
:	:	:	:
:	:	:	:

**Along Roads and/or Drainage Ditches**

Road or Ditch Name	Distance & Direction From Nearest Intersection	To	Distance
<u>ATTACHED</u>	:	:	:
:	:	:	:
:	:	:	:

**General Description**

ATTACHED

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: HURTADO CONSTRUCTION CO.

AGENT and/or OWNER

[Signature]  
(Signature)

NAME & TITLE BENJAMIN C. VASQUEZ, GM  
(Please Print)

DATE 03/29/2011

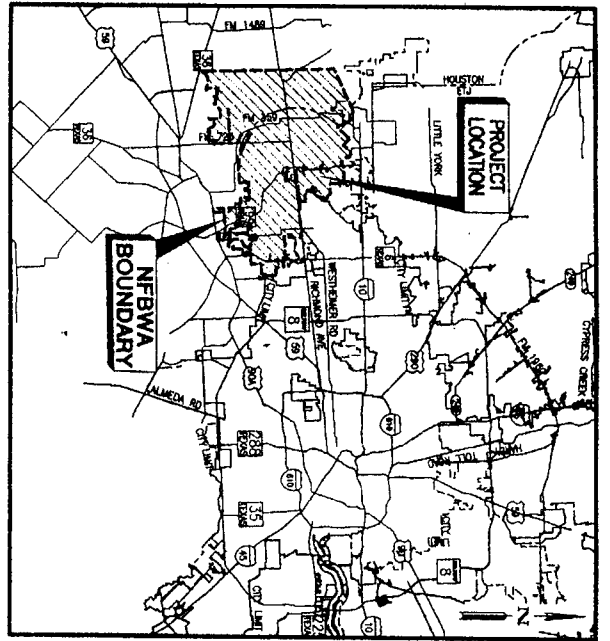
ADDRESS 2115 CENTRA ST.  
(Street/P.O. Box)

RICHMOND, TX. 77469  
City State Zip

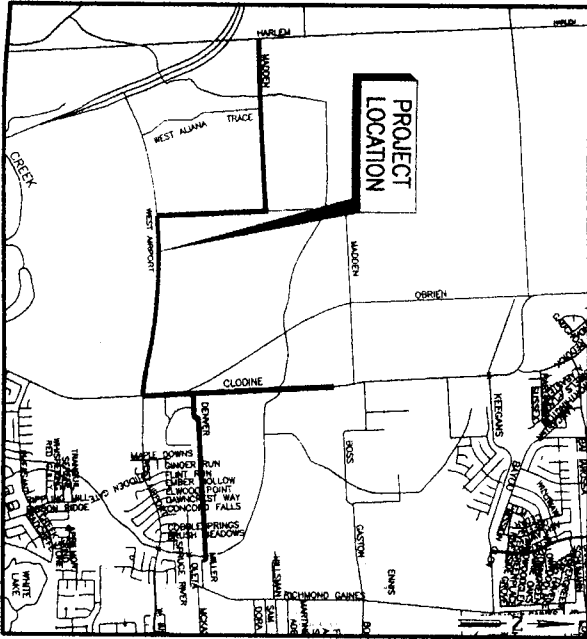
TELEPHONE NO: 281 802 8717  
(accessible 24 hrs/day, 7 days/week)

<p><b>Does project comply with Fort Bend County Outdoor Lighting Ordinance?</b></p> <p>Yes ( )</p> <p>No ( )</p>
--

ATTACHMENT:							
Road or or ditch name	In, Under, or Across Roads and/or Drainage Ditches				Type of Construction		
	Distance & Direction from	Length of	Bored	Jacked	Driven	Cased	
	Nearest Intersection	Crossing					
West Belfort @ W. Aliana Trace Dr.	39+32.73 to 40+83.59	150.86'				x	
W. Aliana Trace Blvd @ W. Airport Blvd	0+95 to 2+04	109'				x	
W. Airport Blvd	4+80 to 5+00	20'				x	
W. Airport Blvd	26+66 to 28+01	135'				x	
W. Airport Blvd	28+85 to 29+90	105'				x	
W. Airport Blvd	47+38 to 48+91	153'				x	
W. Airport Blvd	61+55 to 62+65	110'				x	
W. Airport Blvd	63+41.52 to 64+76.52	135'				x	
W. Airport Blvd @ FM 1464	86+13.90 to 88+40	226'				x	
Clodine Road	6+71.30 to 7+01.30	30'				x	
Clodine Road	8+25.28 to 8+45.28	20'				x	
Clodine Road	20+15 to 20+94	79'				x	
Clodine Road	39+08 to 39+28	20'				x	
Clodine Road	47+50 to 49+10	160'				x	
Clodine Road	67+44.40 to 67+64.40	20'				x	
Clodine Road	67+72.63 to 68+78.56	106'				x	
Clodine Road	69+60 to 70+15	55'				x	
Denver Miller	2+23.46 to 2+57.80	34'				x	
Denver Miller	9+17.51 to 10+00.54	83'				x	
Denver Miller	10+93.0 to 11+23.0	30'				x	
Denver Miller	12+32.47 to 12+77.04	45'				x	
Denver Miller	15+03.00 to 16+48.00	145'				x	
Denver Miller	19+07 to 19+60	53'				x	
Denver Miller	19+60 to 24+20	460'				x	
Denver Miller	24+20 to 24+76.50	57'				x	
Denver Miller	30+20 to 30+80	60'				x	
<b>Along Roads and/or Drainage Ditches</b>							
Road or Ditch Name	Distance & Direction from Nearest Intersection	To	Distance				
W. Belfort Blvd	1+00 to 22+00	W. Aliana Trace Blvd	2100'				
W. Aliana Trace Blvd	1+00 to 40+83	W. Belfort Blvd	3983'				
W. Airport Blvd	0+89 to 88+40	Fm 1464	8751'				
Clodine Road	1+95 to 71+44	Denver Miller	6949'				
Denver Miller	2+23 to 38+63	Denver Miller	3590'				
<b>General Description</b>							
Installation of 20" Waterline along West Belfort, West Aliana Trace, West Airport Boulevard, Clodine Road and Denver Miller Road							



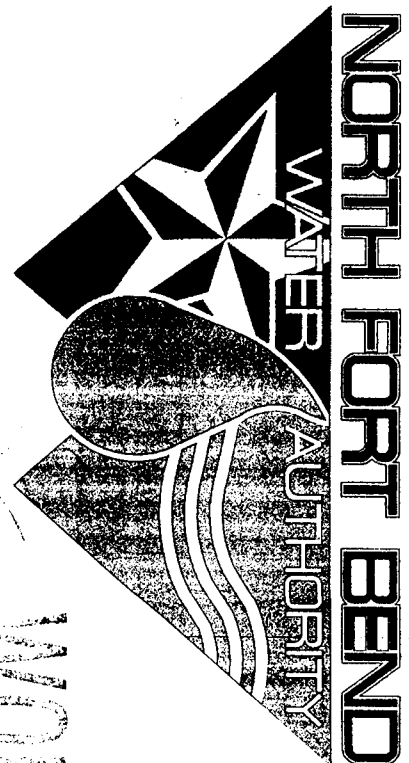
VICINITY MAP  
N.T.S.



LOCATION MAP  
N.T.S.

KEY MAP NO. 526 Y&Z, 527 T,W&X  
566 C&D, 567 A&B  
ZIP CODE: 77469 & 77478

WEST ALMA TRACE, CLODINE, AND



<u>DIRECTORS</u>	<u>PRECINCT</u>
DAVID SPELL	1
ROBERT DARDEN	2
BRUCE FAY	3
MELONY F. GAY, P.E.	4
ROBERT L. PATTON	5
PETER HOUGHTON	6
PAT HEBERT	7

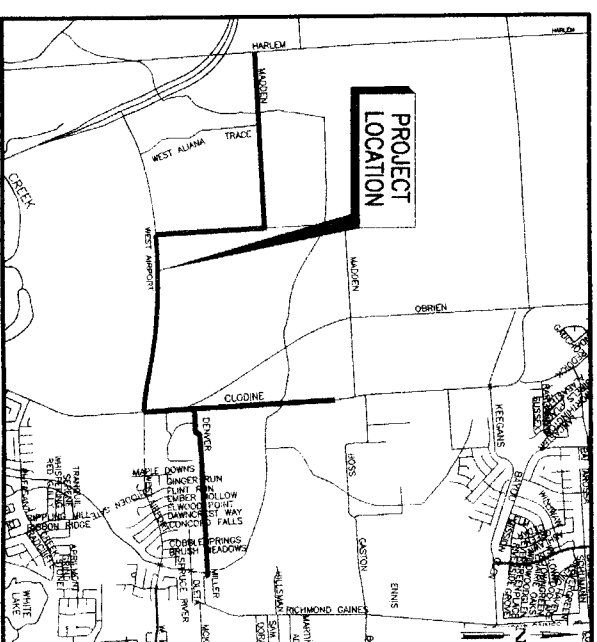
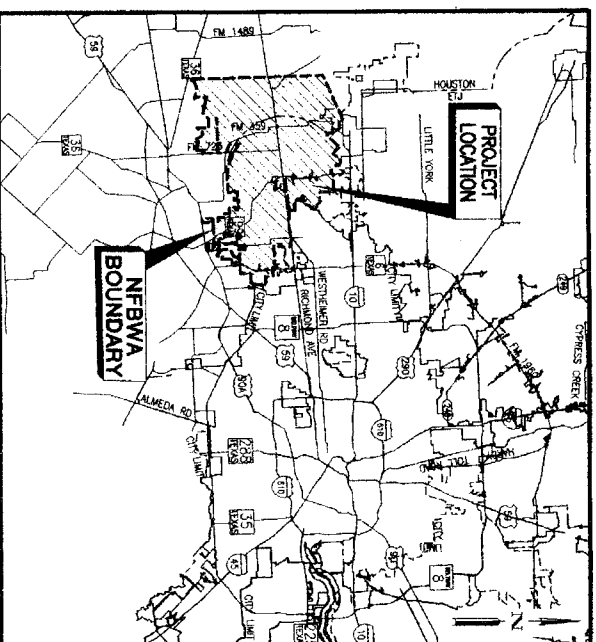
JANUARY 2011

DATE

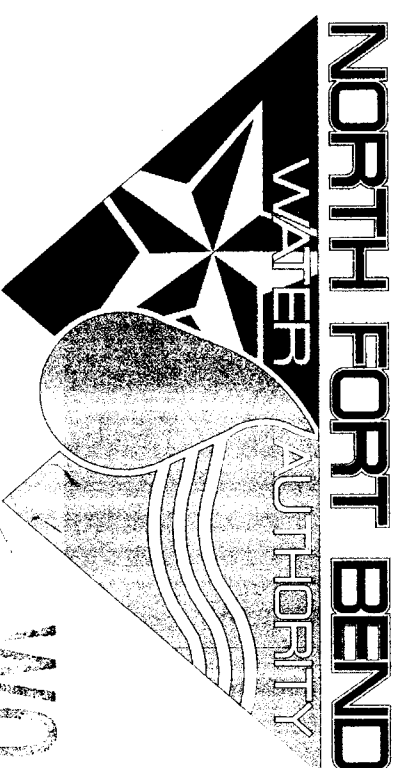
# NORTH FORT BEND WATER AUTHORITY

## CONSTRUCTION OF PROPOSED WATER LINE SEGMENT 4B

### 20" WATER LINE ALONG WEST BELFORT, WEST ALIANA TRACE, WEST AIRPORT BOULEVARD, CLODINE, AND DENVER MILLER ROAD



KEY MAP NO. 526 Y&Z, 527 T,W&X  
566 C&D, 567 A&B  
ZIP CODE: 77469 & 77478



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 HEBERT	7

**WORKING COPY**

**ALL ADDENDA NOTED**

**DATE 3/15/11 BY TPL**

FORT BEND COUNTY  
APPROVED:   
JESSE HEGERER, P.E.  
FORT BEND COUNTY ENGINEER  
DATE: 2/16/11

I, AARON B. HARGROVE P.E., CERTIFY THAT THIS PROJECT PARTIALLY IN SHADED ZONE "AE" AND "X".  
FIRM MAP # 48157C0115J & 48157C0120J  
DATE: 01/03/97  
BFE: 830-81.0

LMS NO: 10112135  
LOG NO: 10-1024

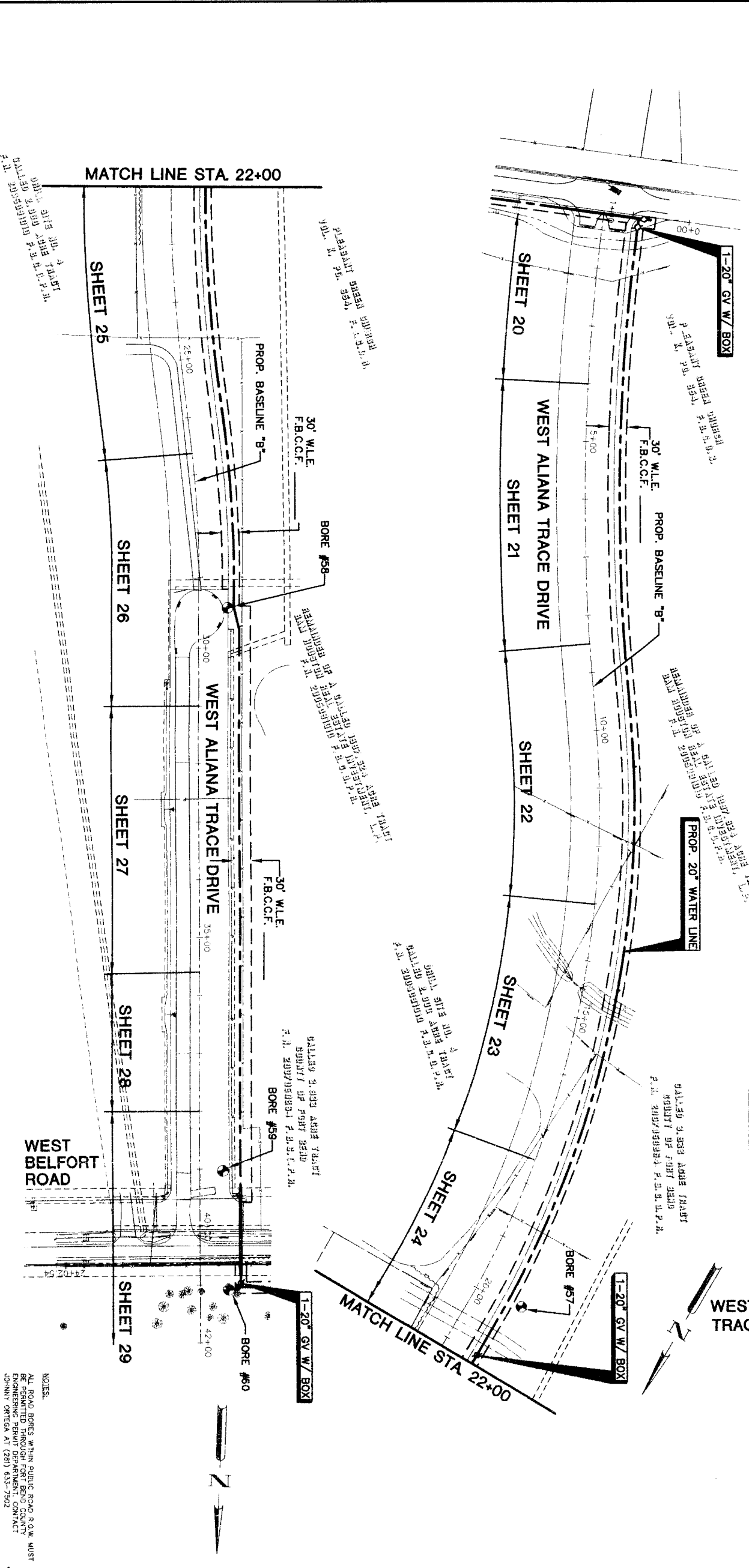
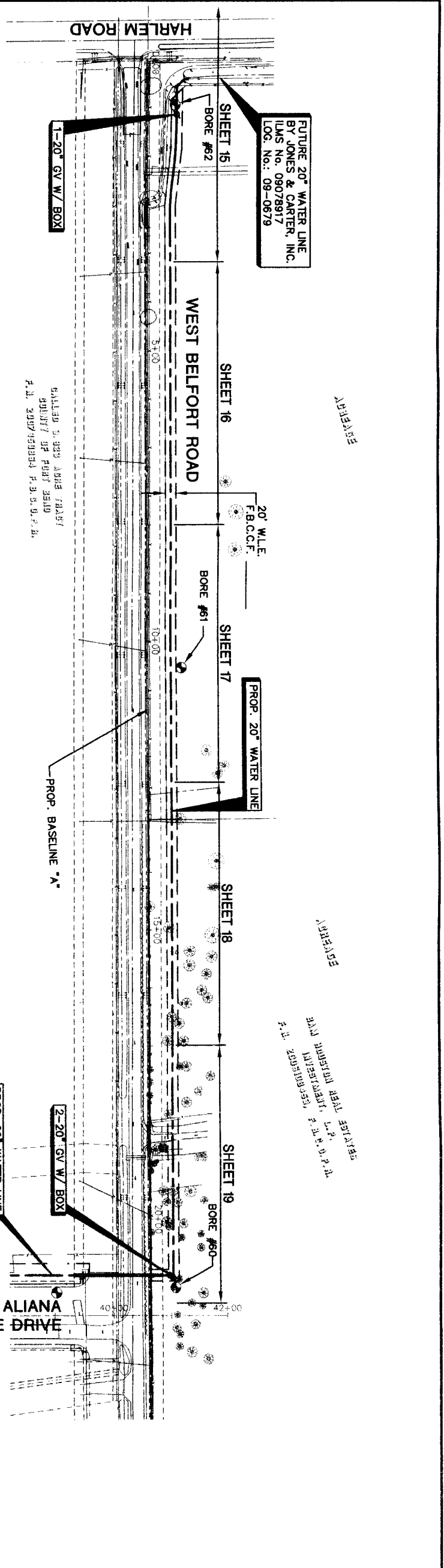
- NOTE:
- \* NO PROPOSED SANITARY SEWER WORK IS SHOWN ON THIS PLAN SET, NOR IS IT INCLUDED IN THE SCOPE OF WORK.
  - \* NO PROPOSED STORM SEWER WORK IS SHOWN ON THIS PLAN SET, NOR IS IT INCLUDED IN THE SCOPE OF WORK.

- 1. PRIOR TO THE CONSTRUCTION OF THESE FACILITIES WITHIN OR BY THE DISTRICT, THE DISTRICT OR ITS ENGINEER WILL GIVE WRITTEN NOTICE BY REGISTERED OR CERTIFIED MAIL TO THE DIRECTOR OF PUBLIC WORKS AND ENGINEERING, CITY OF HOUSTON, STATING THE DATE SUCH CONSTRUCTION WILL BE COMMENCED, TELEPHONE NO. (713) 863-1450 FAX NO. (832) 395-4424.
- 2. ALL EXISTING SWALE AND/OR DRAINAGE DITCH DISTURBED DURING CONSTRUCTION WILL BE RESTORED TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.

<b>BROWN &amp; GAY</b> Brown & Gay Engineers, Inc. 10777 Westheimer, Suite 400, Houston, TX 77042 Tel: 281-558-8700 Fax: 281-558-9701 Civil Engineers and Surveyors	
<b>CITY OF HOUSTON</b> DEPARTMENT OF PUBLIC WORKS AND ENGINEERING F-1046 	
DATE: 1-15-11 DRAWN BY:	PROJECT: 115 & 120 OF 550 SHEET: 1 OF 108 DATE: 01/03/97 BFE: 830-81.0
CITY ENGINEER DIRECTOR OF PUBLIC WORKS AND ENGINEERING	FOR CITY OF HOUSTON, USE ONLY CITY ENGINEER NO. 2 47757







FUTURE 20" WATER LINE  
 BY JONES & CARTER, INC.  
 I.L.M.S. No. 09078917  
 LOG. No.: 09-0879

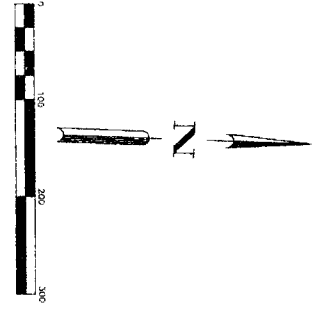
PROP. 20" WATER LINE

2-20" GV W/ BOX

PROP. 20" WATER LINE

1-20" GV W/ BOX

1-20" GV W/ BOX



NO.	DATE	REVISION	APPROV.
1			
2			
3			

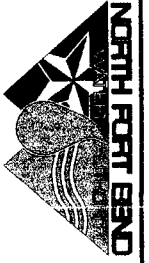
**BROWN & GAY ENGINEERS, INC.**  
 ENGINEERS, INC.  
 30777 Highway 29, Suite 400  
 Houston, TX 77058  
 Tel: 281-568-8300  
 Fax: 281-568-8300  
 www.browngay.com

**John B. Hargrove**  
 PROFESSIONAL ENGINEER  
 LICENSE NO. 93705  
 State of Texas

**John D. Hargrove**  
 PROFESSIONAL ENGINEER  
 LICENSE NO. 93706  
 State of Texas

NFBWA SEGMENT 4B

SHEET LAYOUT AND  
 CORE BORING PLAN (1 OF 5)



**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

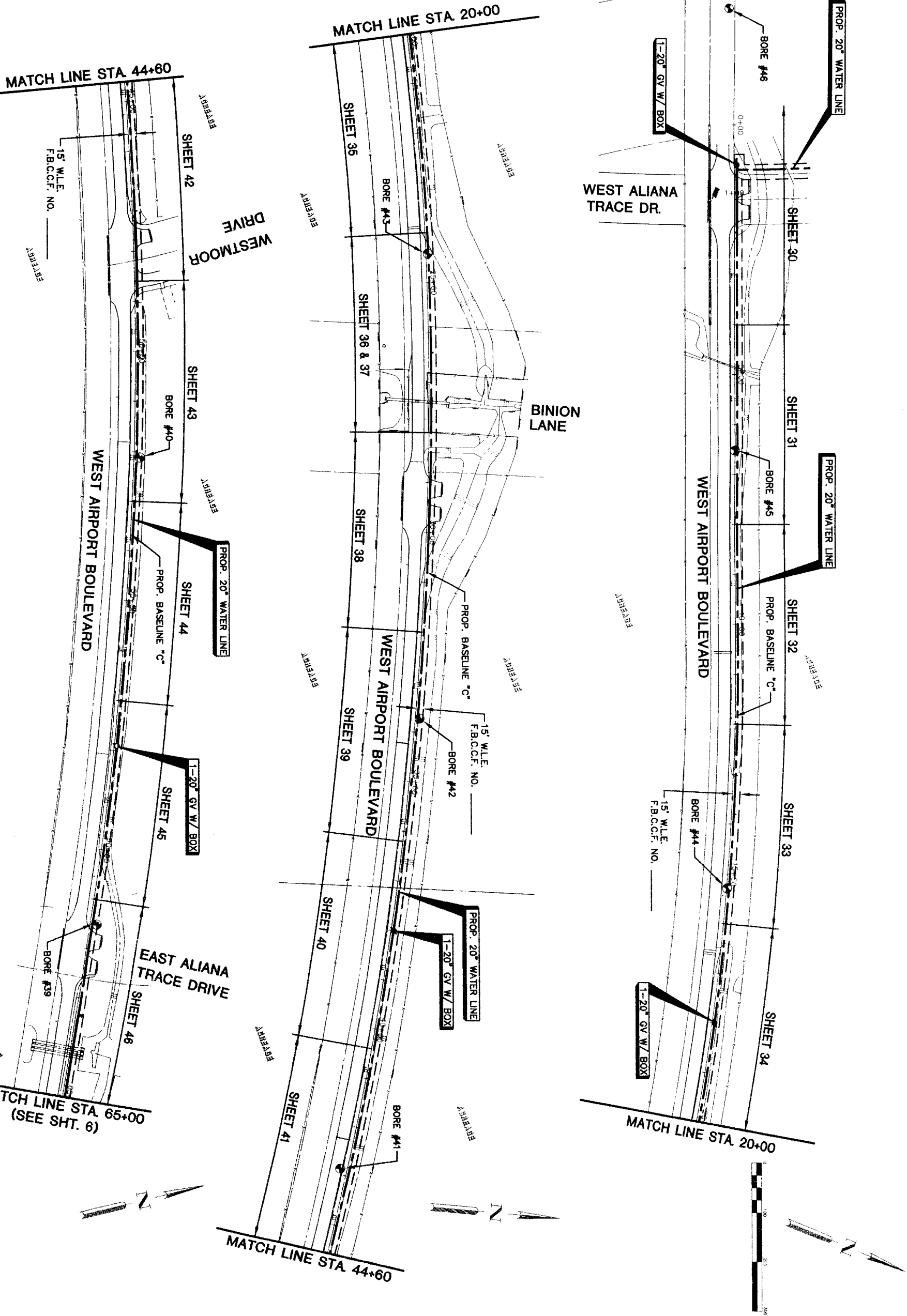
DATE: 1/15/11  
 DRAWN BY: J. Kelly, 12.11

DRAWING SCALE: 1" = 100'

SHEET NO. 4 OF 108  
 47752

NOTES:  
 ALL ROAD BORES WITHIN PUBLIC ROAD R.O.W. MUST  
 BE APPROVED BY THE CITY OF HOUSTON  
 ENGINEERING PERMIT DEPARTMENT. CONTACT  
 JOHNNY ORTEGA AT (281) 631-7502





AKS/11

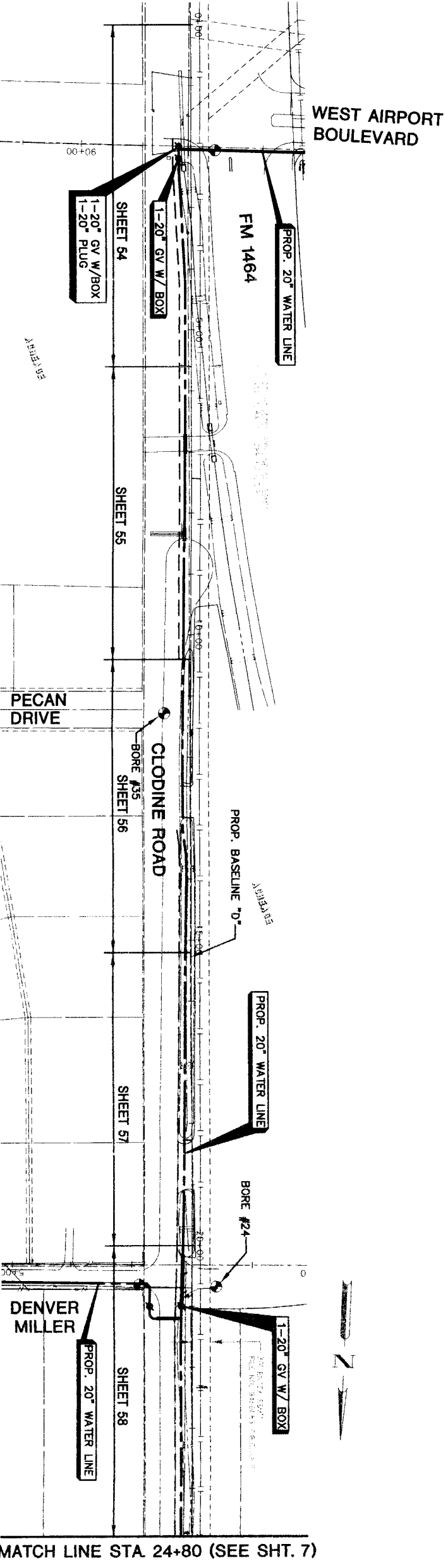
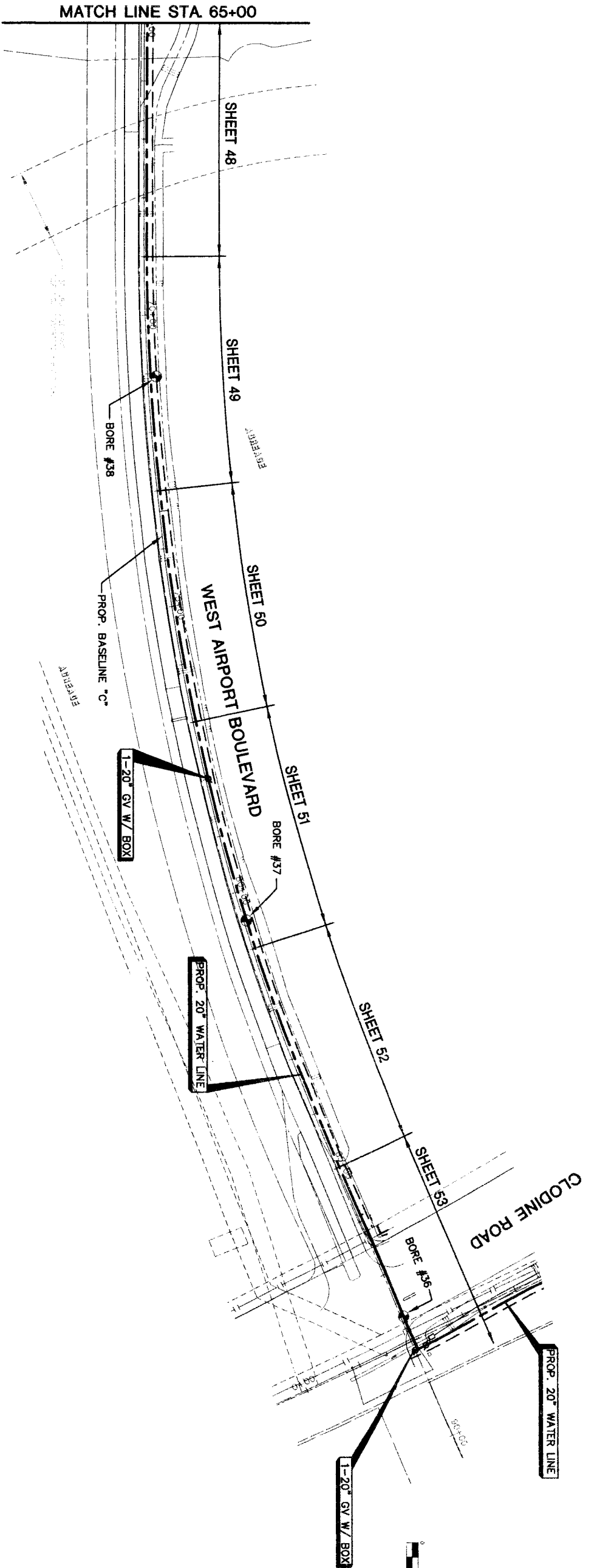


BILLED TO: THE CITY OF HOUSTON  
 BY: J. B. J. P. A.

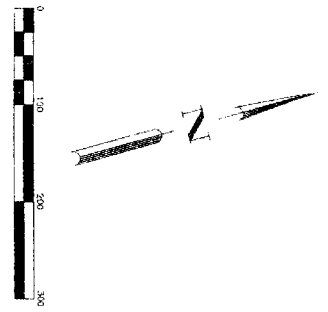
NOTES:  
 ALL ROAD BORES WITHIN PUBLIC ROAD R.O.W. MUST BE PERMITTED THROUGH  
 FORT BEND COUNTY ENGINEERING PERMIT DEPARTMENT, CONTACT JOHNNY  
 ORTEGA AT (281) 633-7502

2/5/11

																			
 <p><b>CITY OF HOUSTON</b>          DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p>		 <p><b>BROWN &amp; GAY</b>          ENGINEERS, INC.          10777 Westheimer, Suite 400          Houston, Texas 77042          Tel: 281-568-8300          Fax: 281-568-8701</p>																	
<p><b>SHEET LAYOUT AND CORE BORING PLAN (2 OF 5)</b></p>		<p><b>FBWA SEGMENT 4B</b></p>																	
<p>STREET &amp; GRID: _____</p> <p>DATE: 1.13.11</p> <p>SCALE: 1"=100'</p>		<p>NO. DATE REVISION APPROVED</p> <table border="1"> <tr><td>1</td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td></tr> </table>		1				2				3				4			
1																			
2																			
3																			
4																			
<p>FILE NO.: _____</p> <p>DRAWING SCALE: _____</p> <p>FOR CITY OF HOUSTON USE ONLY</p> <p>47757</p>		<p>STATE OF TEXAS          PROFESSIONAL ENGINEERING          LICENSE NO. 93708          J. B. J. P. A.</p>																	



NOTES:  
 ALL ROAD BORES WITHIN PUBLIC ROAD R.O.W. MUST BE PERMITTED THROUGH  
 FORT BEND COUNTY ENGINEERING PERMIT DEPARTMENT CONTACT JOHNNY  
 CRTEGA AT (281) 633-7902



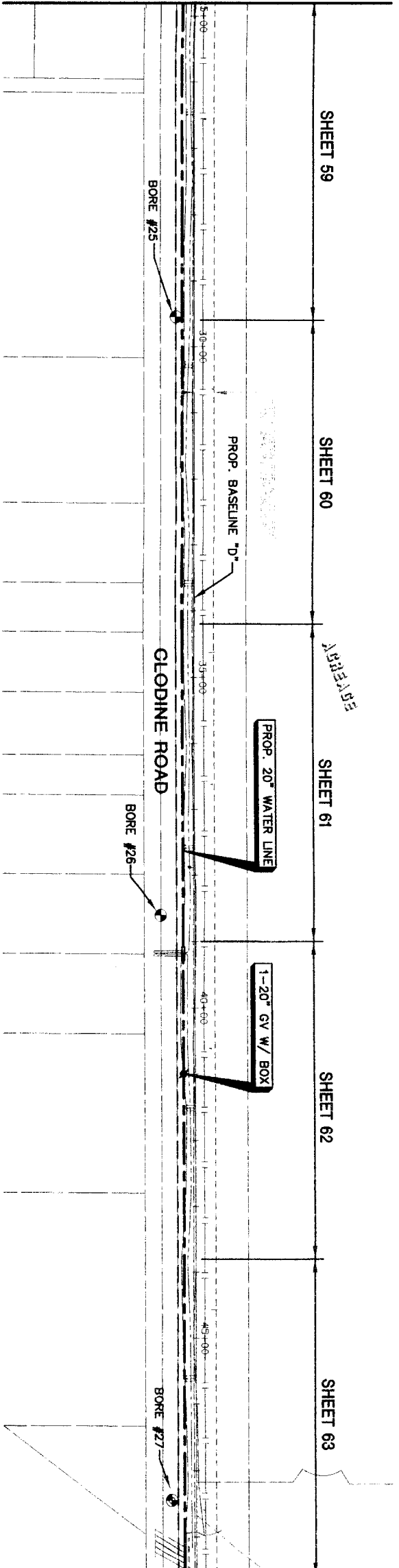
MATCH LINE STA. 24+80 (SEE SHT. 7)

MATCH LINE STA. 65+00

2/15/11

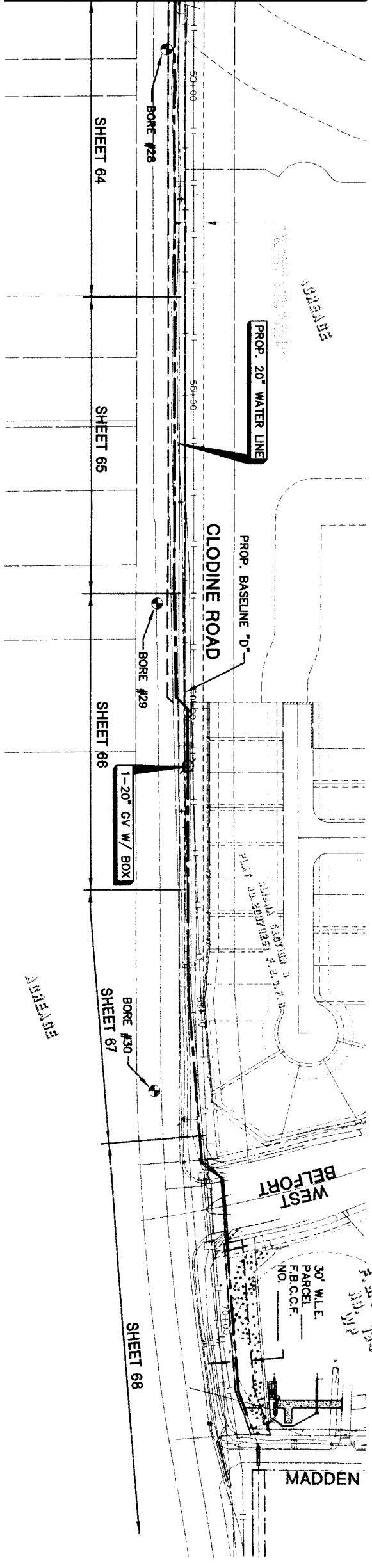
		<p><b>BROWN &amp; GAY</b>          ENGINEERS, INC.          19777 Newland, Suite 200          Houston, TX 77062          Tel: 281-558-8700          Fax: 281-558-8702          www.browngay.com</p>																					
<p><b>REVISION</b></p> <table border="1"> <tr><td>NO.</td><td>DATE</td><td>REVISION</td><td>APPROVED</td></tr> <tr><td>1</td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td></tr> </table>		NO.	DATE	REVISION	APPROVED	1				2				3				4				<p><b>APPROVAL</b></p> <p><i>John P. Hargrove</i>          JOHN P. HARGROVE          P.E. LICENSE # 93706          93706          CIVIL ENGINEER</p> <p><i>John P. Hargrove</i>          JOHN P. HARGROVE          P.E. LICENSE # 93706          93706          CIVIL ENGINEER</p>	
NO.	DATE	REVISION	APPROVED																				
1																							
2																							
3																							
4																							
<p><b>NFBWA SEGMENT 4B</b></p>																							
<p><b>SHEET LAYOUT AND CORE BORING PLAN (3 OF 5)</b></p>																							
<p><b>NORTH PORT END</b></p>																							
<p><b>CITY OF HOUSTON</b>          DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p>																							
<p>NOTE: ALL STRUCTURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURE</p>																							
<p>DATE: 1-13-11</p> <p>STREET &amp; BORING: 1-13-11</p>		<p>STAMP: 1-13-11</p> <p>STAMP: 1-13-11</p>																					
<p>FILE NO.:</p>		<p>FOR CITY OF HOUSTON USE ONLY</p>																					
<p>DRAWING SCALE:</p>		<p>47757</p>																					
<p>1"=100'</p>		<p>SHEET NO. 6 OF 108</p>																					

MATCH LINE STA. 24+80 (SEE SHT. 6)



MATCH LINE STA. 48+60

MATCH LINE STA. 48+60



NOTES:  
 1. ALL ROAD BORES WITHIN PUBLIC ROAD R.O.W. MUST BE PERMITTED THROUGH FORT BEND COUNTY ENGINEERING PERMIT DEPARTMENT CONTACT JOHNNY ORISON AT (281) 933-7502

2/15/11


NO.	DATE	REVISION	APPROVAL
4			
3			
2			
1			

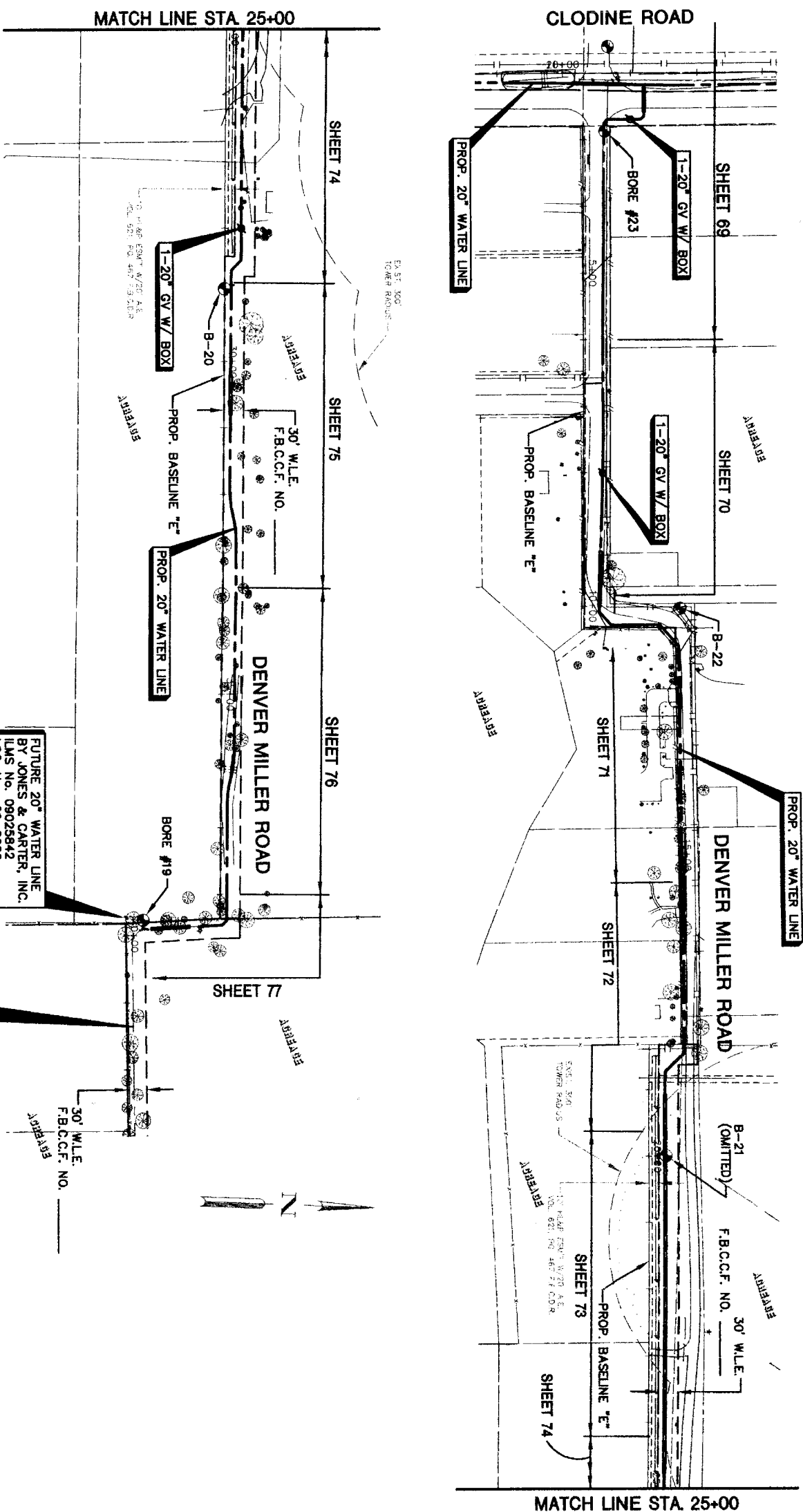
**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 93706  
 9071 Westheimer, Suite 400  
 Houston, TX 77040  
 Tel: 281-568-8100  
 Fax: 281-568-8100  
 www.browngay.com  
 Professional Engineer  
 License No. 33324  
 State of Texas  
 F-1046

**NFBWA SEGMENT 4B**  
 SHEET LAYOUT AND  
 CORE BORING PLAN (4 OF 5)



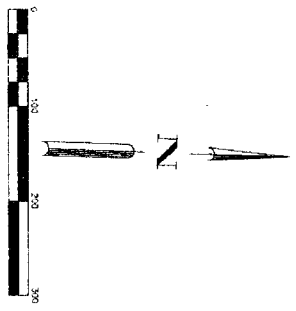
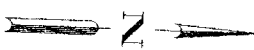
**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 WATER, STORMWATER, AND TRANSPORTATION  
 WATER QUALITY  
 STORM WATER QUALITY  
 STORM WATER QUALITY  
 STREET & BRIDGE  
 1.13.11

FILE NO:  
 DRAWING SCALE: 1"=100'  
 FROM CITY OF HOUSTON SEE ONLY  
 SHEET No. 7 OF 108  




FUTURE 20" WATER LINE  
 BY BROWN & GAY ENGINEERS, INC.  
 I.L.M.S. No. 10018293  
 LOG. No.: 10-0145

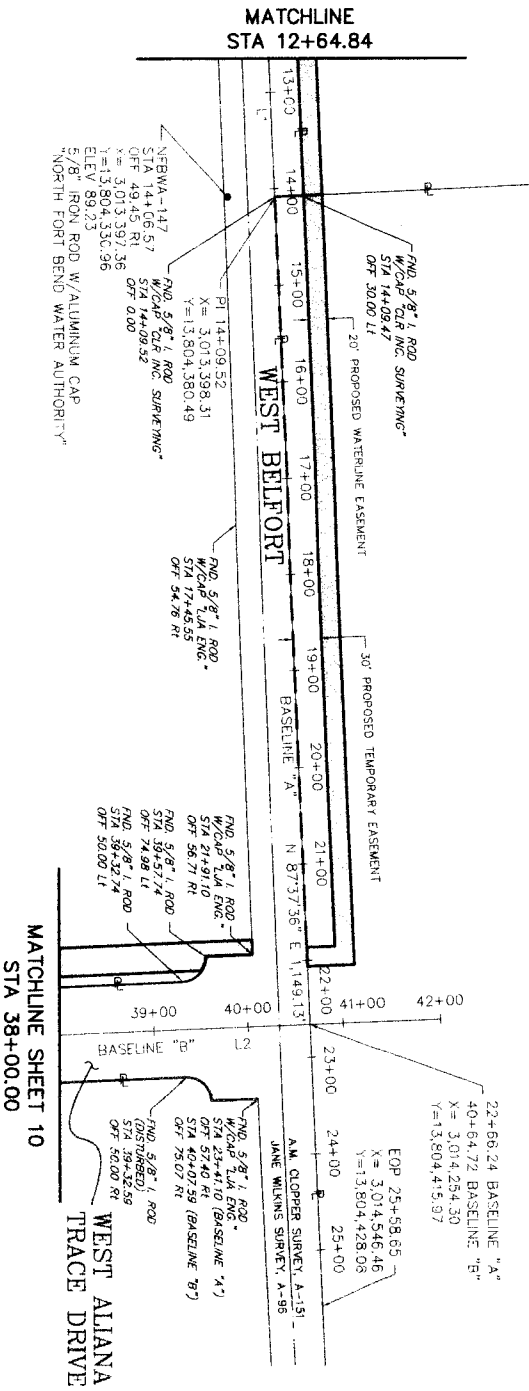
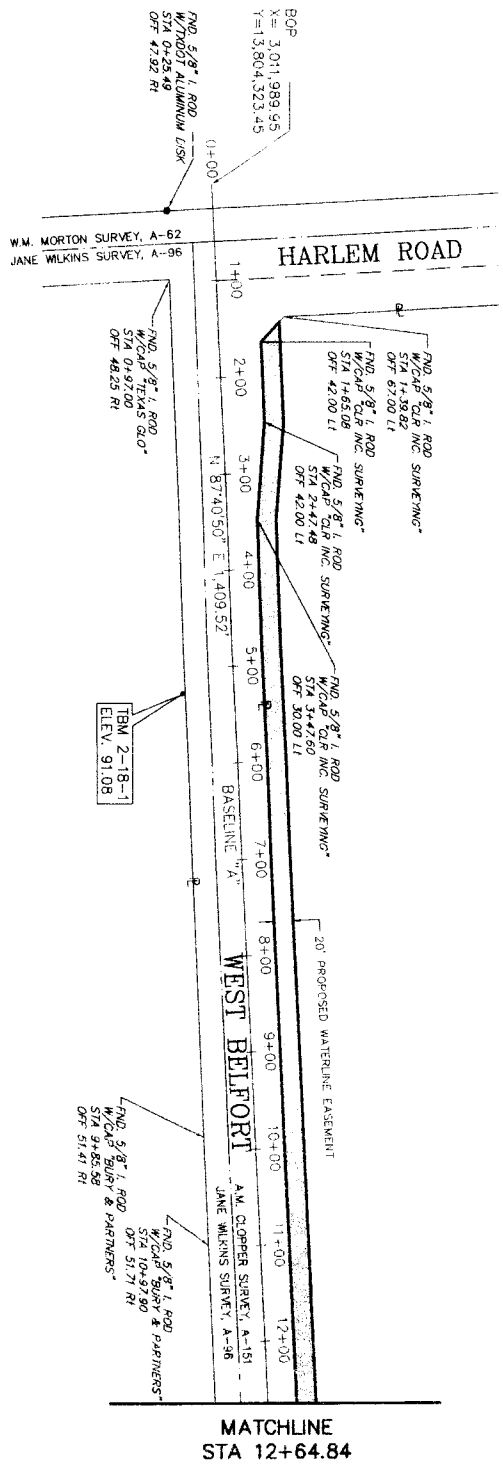
FUTURE 20" WATER LINE  
 BY JONES & CARTER, INC.  
 I.L.M.S. No. 09025842  
 LOG. No.: 09-0226



NOTES:  
 1. ALL ROAD WORKS WITHIN PUBLIC ROAD R.O.W. MUST BE PERMITTED THROUGH FORT BEND COUNTY ENGINEERING PERMIT DEPARTMENT. CONTACT JOHNNY CRITSA AT (281) 833-7502

2/15/11

<p><b>BROWN &amp; GAY ENGINEERS, INC.</b>          10777 Westheimer, Suite 400          Houston, Texas 77042          Tel: 281-468-8700          Fax: 281-468-8701          One Engineer and Surveyor</p>			
<p><b>NFBWA SEGMENT 4B</b></p>			
<p><b>SHEET 8 OF 108</b></p>			
<p><b>CORE BORING LAYOUT AND</b></p>			
<p><b>ENGINEERING PLAN (5 OF 5)</b></p>			
<p><b>CITY OF HOUSTON</b>          DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p>		<p>DATE: 07/13/11          DRAWN: [Signature]          CHECKED: [Signature]          APPROVED: [Signature]</p>	
FILE NO.:	PROJECT NO.:	SHEET NO.:	TOTAL SHEETS:
		8	108
<p>DRAWING SCALE: 1"=100'</p>		<p>FOR CITY OF HOUSTON USE ONLY</p>	
		<p>47757</p>	



**PRIMARY BENCHMARK:**  
 NEBWA-147: 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY ALUMINUM CAP SET 888.0 FEET WEST OF WEST ALIANA TRACE DRIVE 12.4 FEET SOUTH OF MADDEN ROAD. KEY MAP NO. 526Y. ELEVATION: 89.23 FEET. NAD-83, 2002 ADJUSTMENT.

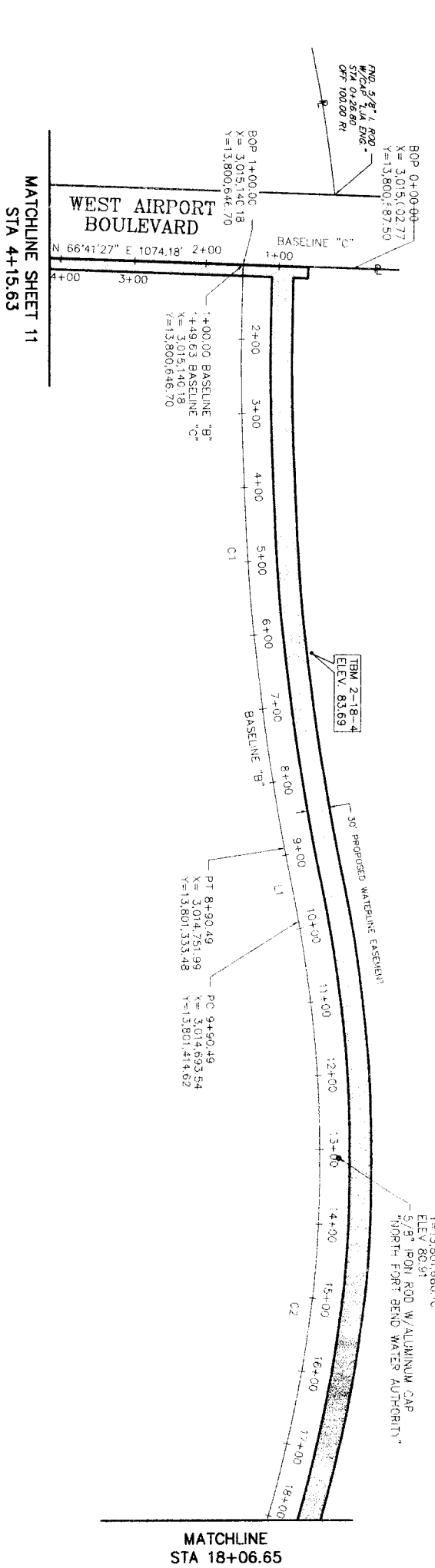
**SECONDARY BENCHMARK:**  
 TBM 2-18-1: 5/8-INCH IRON ROD WITH BROWN GAY CAP, LOCATED ON THE SOUTH SIDE OF MADDEN ROAD APPROXIMATELY 450 FEET EAST OF THE INTERSECTION OF THE FIRST FLOOD POLE EAST OF HARLEM ROAD. KEY MAP NO. 526Y. ELEVATION: 91.08 FEET. NAD-83, 2002 ADJUSTMENT.

LINE DATA	NUMBER	BEARING	DISTANCE
L2	N 02°10'07" W	1,322.14	

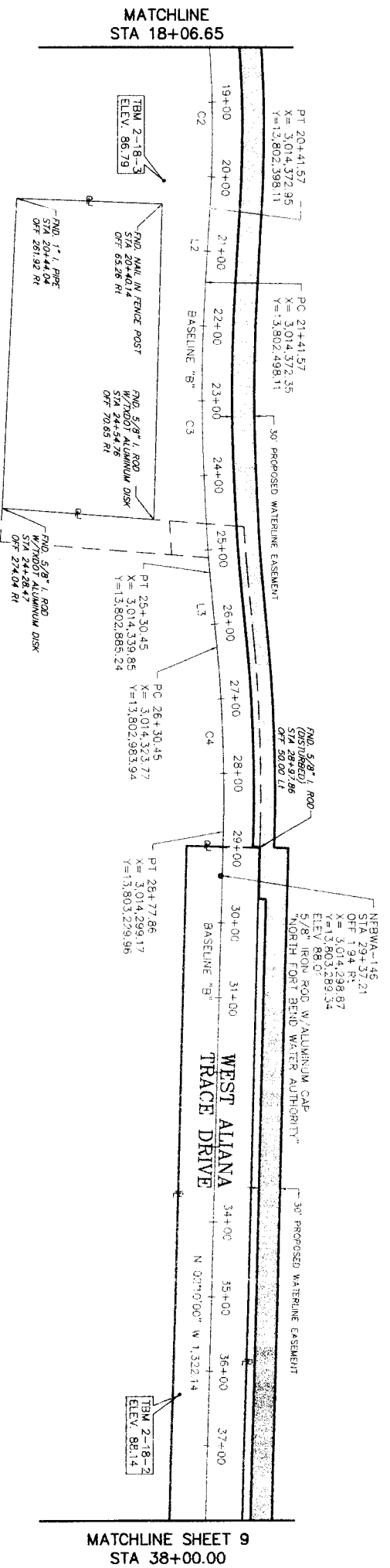


8/5/11

<p><b>BROWN &amp; GAY ENGINEERS, INC.</b>          10777 Westheimer, Suite 400          Houston, Texas 77042          Phone: 281-554-4700          Fax: 281-554-4701          www.browngay.com</p>		<p><b>NRWA SEGMENT 4B</b></p> <p><b>SURVEY CONTROL MAP (SHEET 1 OF 6)</b></p>	
<p><b>CITY OF HOUSTON</b>          DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p>		<p><b>NORTH FORT BEND</b></p>	
<p>NO. DATE</p> <p>1</p> <p>2</p> <p>3</p> <p>4</p>	<p>REVISION</p> <p>APPROV</p>	<p>WASTEWATER</p> <p>STORM WATER QUALITY</p> <p>STORM</p> <p>STREET &amp; BRIDGE</p>	<p>SYSTEM WATER QUALITY</p> <p>FACILITIES</p>
<p>FILE NO:</p> <p>DRAWING SCALE</p> <p>1" = 100'</p>		<p>FOR CITY OF HOUSTON USE ONLY</p> <p>47757</p>	
<p>SHEET 9 OF 108</p>			



MATCHLINE  
STA 18+06.65



MATCHLINE SHEET 9  
STA 38+00.00

**PRIMARY BENCHMARKS:**

NRBWA-145: 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY ALUMINUM CAP SET 1234 FEET NORTH OF WEST AIRPORT BOULEVARD APPROXIMATELY 1050 FEET NORTHWEST OF GRAND PARKWAY NORTH BOUND. KEY MAP NO. 5660  
 ELEVATION: 80.91 FEET  
 NANO-88, 2002 ADJUSTMENT

NRBWA-146: 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY ALUMINUM CAP SET IN A CUL-DE-SAC AT THE END OF WEST WOOD BARCADE KEY MAP NO. 5262  
 ELEVATION: 88.01 FEET  
 NANO-88, 2002 ADJUSTMENT

**SECONDARY BENCHMARKS:**

TBM 2-18-2: BOX CUT ON TOP OF CURB LOCATED ON THE EAST SIDE OF MADON ROAD. KEY MAP NO. 5562  
 NANO-88, 2002 ADJUSTMENT  
 ELEVATION: 88.14 FEET

TBM 2-18-3: 5/8-INCH IRON ROD WITH BROWN GAY CAP. LOCATED APPROXIMATELY 11 FEET SOUTH OF THE SOUTHWEST CORNER OF A CEMETERY. KEY MAP NO. 5660  
 NANO-88, 2002 ADJUSTMENT  
 ELEVATION: 86.79 FEET

TBM 2-18-4: 5/8-INCH IRON ROD WITH BROWN GAY CAP. LOCATED APPROXIMATELY 550 FEET NORTH OF WEST AIRPORT DRIVE AND 1,000 FEET EAST OF STATE HIGHWAY 99 IN A PASTURE. KEY MAP ELEVATION: 83.69 FEET  
 NANO-88, 2002 ADJUSTMENT

NUMBER	RADIUS	DELTA ANGLE	ARC LENGTH	CHORD BEARING	CHORD LENGTH
C1	15800.01	1234.51°	797.48	N 297°28'36" W	798.93
C2	16896.99	3523.31°	1,051.08	N 80°31'16" W	1,028.42
C3	2200.01	0°54'45"	388.88	N 04°47'54" W	389.25
C4	1589.59	0°59'18"	247.41	N 0°42'58" W	247.25

LINE DATA	NUMBER	BEARING	LENGTH	DISTANCE
L1	N	07°10'00"	100.00'	100.00'
L2	N	07°10'00"	100.00'	100.00'
L3	N	08°15'16"	100.00'	100.00'



NO.	DATE	REVISION	APPROVAL
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 4077 Westheimer - Suite 400  
 Houston, TX 77026  
 Tel: 281.556.8000  
 Fax: 281.556.8001  
 -- Civil Engineers and Surveyors --

**STATE OF TEXAS**  
 LAND SURVEYING  
 JIM SULLIVAN  
 LICENSE NO. 6338  
 EXPIRES 09-01-11

**NRBWA SEGMENT 4B**  
 SURVEY CONTROL MAP  
 (SHEET 2 OF 6)



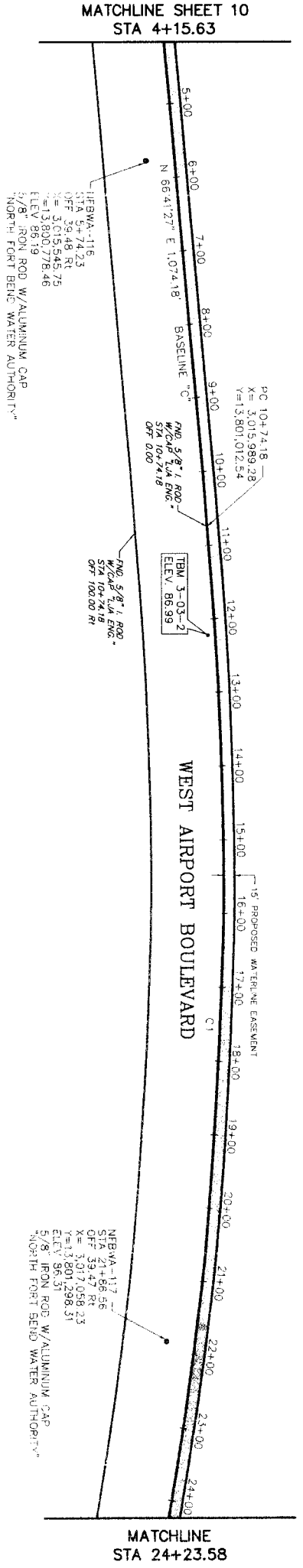
**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE	BY	REVISION

WATERMETER: STORM WATER QUALITY  
 STREET & METERS: FACILITIES  
 FILE NO.: FOR CITY OF HOUSTON USE ONLY  
 DRAINING SCALE: 1" = 100'  
 SHEET No. 10 OF 108

2/1/11





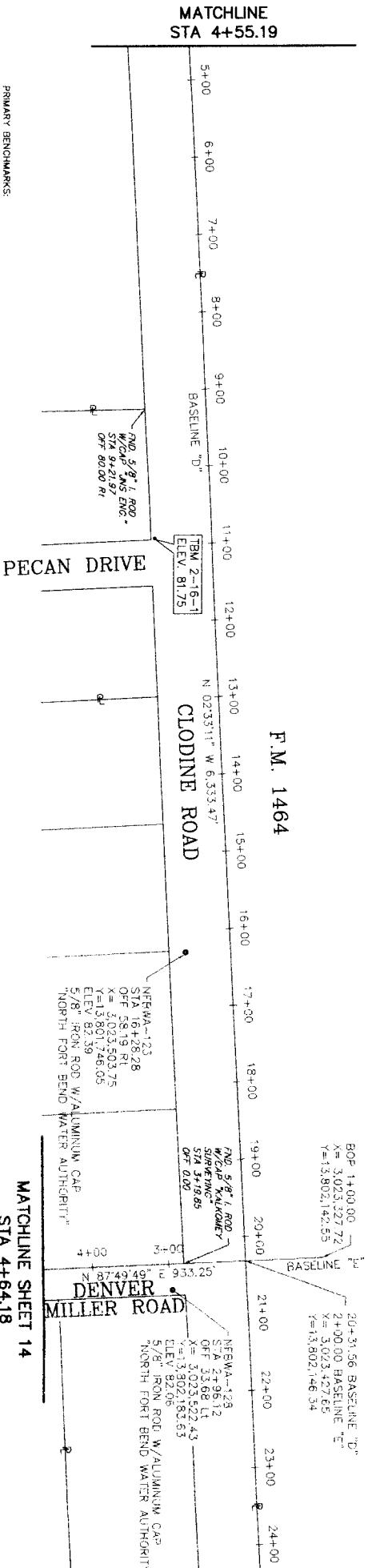
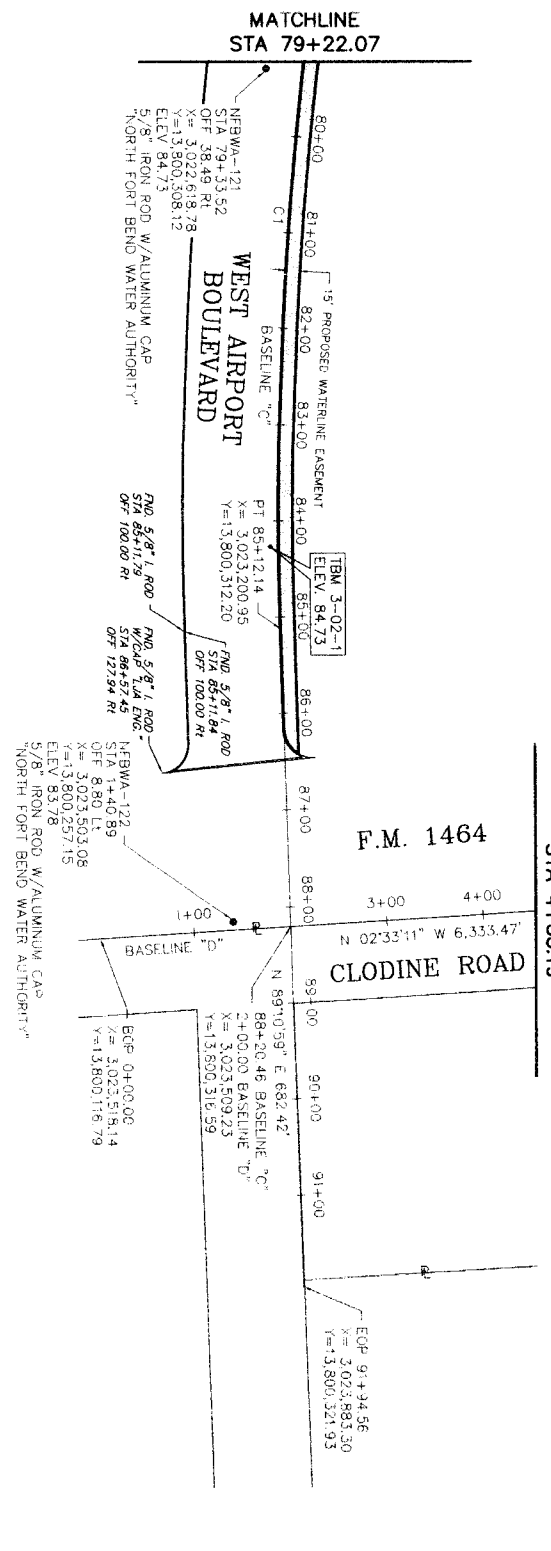
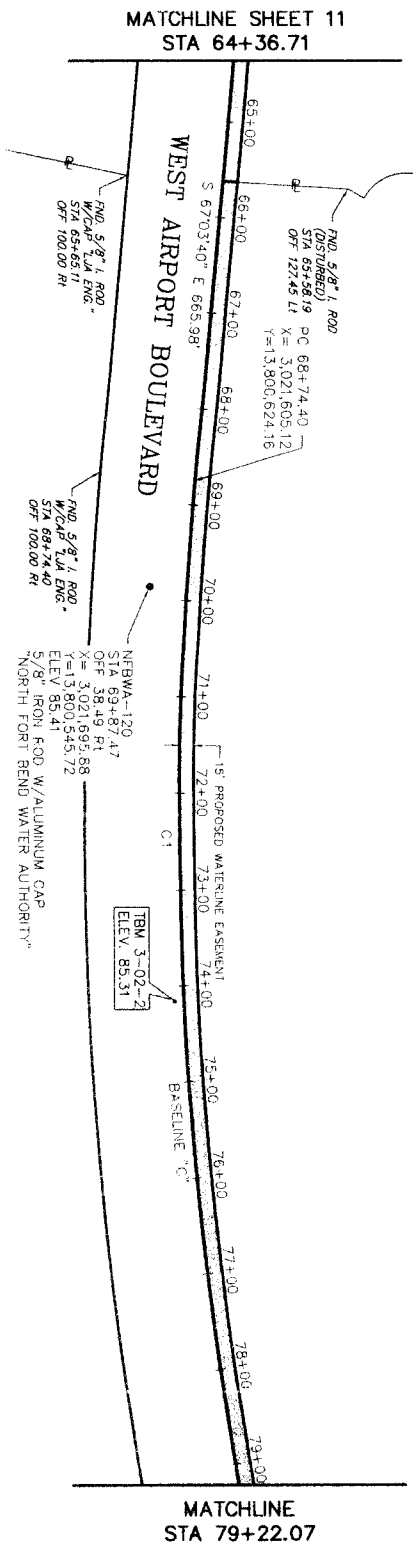
**CURVE DATA**

NUMBER	RADIUS	DELTA ANGLE	ARC LENGTH	CHORD BEARING	CHORD LENGTH
C1	5,050.00	155°56'22"	1,404.89	N 74°33'58" E	1,400.36
C2	7,050.00	307°18'31"	3,728.35	S 82°12'55" E	3,598.02



2/15/11

		<p><b>CITY OF HOUSTON</b> DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p>	<p><b>BROWN &amp; GAY</b> ENGINEERS, INC.</p>	<p>NO. DATE</p> <p>1</p> <p>2</p> <p>3</p>
<p><b>SURVEY CONTROL MAP</b> (SHEET 3 OF 6)</p>				
<p>WESTWATER</p> <p>STORM WATER QUALITY</p>		<p>DATE: 01-06-2011</p> <p>BY: JIM SULLIVAN</p>	<p>PROJECT: NEBWA SEGMENT 4B</p>	
<p>DRAWING SCALE</p> <p>1" = 100'</p>		<p>SHEET 11 OF 108</p>		



**PRIMARY BENCHMARKS:**  
 NFBMA-120: 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY ALUMINUM CAP SET APPROXIMATELY 1.650 FEET WEST OF F.M. 1464 4.0 FEET SOUTH OF WEST AIRPORT BOULEVARD. KEY MAP NO. 567A. ELEVATION: 85.41 FEET. NAAD-88, 2002 ADJUSTMENT.  
 NFBMA-121: 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY ALUMINUM CAP SET APPROXIMATELY 300 FEET WEST OF F.M. 1464 4.0 FEET SOUTH OF WEST AIRPORT BOULEVARD. KEY MAP NO. 567A. ELEVATION: 84.73 FEET. NAAD-88, 2002 ADJUSTMENT.  
 NFBMA-122: 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY ALUMINUM CAP SET AT THE INTERSECTION OF WEST AIRPORT BOULEVARD AND F.M. 1464, 23.5 FEET WEST OF F.M. 1464. KEY MAP NO. 567B. ELEVATION: 83.78 FEET. NAAD-88, 2002 ADJUSTMENT.  
 NFBMA-123: 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY ALUMINUM CAP SET APPROXIMATELY 430 FEET SOUTH OF DENVER MILLER 3.3 FEET EAST OF F.M. 1464. KEY MAP NO. 567B. ELEVATION: 82.93 FEET. NAAD-88, 2002 ADJUSTMENT.

**SECONDARY BENCHMARK:**  
 NFBMA-128: 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY ALUMINUM CAP SET AT THE NORTHEAST CORNER OF THE INTERSECTION OF F.M. 1464 AND DENVER MILLER 3.0 FEET NORTH OF DENVER MILLER. KEY MAP NO. 567B. ELEVATION: 82.06 FEET. NAAD-88, 2002 ADJUSTMENT.  
 TBM 2-16-1: BOX CUT ON A HEADWALL OF A 24-INCH RCP LOCATED ON THE SOUTHEAST SIDE OF F.M.1464 AND PECAN DRIVE. KEY MAP NO. 567A. ELEVATION: 81.75 FEET. NAAD-88, 2002 ADJUSTMENT.  
 TBM 3-02-1: BOX CUT ON THE BACK OF CURB ON THE NORTH SIDE OF WEST AIRPORT BOULEVARD APPROXIMATELY 724 FEET WEST OF F.M. 1464. KEY MAP NO. 567B. ELEVATION: 84.73 FEET. NAAD-88, 2002 ADJUSTMENT.  
 TBM 3-02-2: BOX CUT ON THE BACK OF CURB AT AN EXPANSION JOINT ON THE NORTH SIDE OF WEST AIRPORT BOULEVARD APPROXIMATELY 1.240 FEET WEST OF THE F.M. 1464, LOCATED AT THE NORTHWEST INTERSECTION OF WEST AIRPORT BOULEVARD AND F.M. 1464. KEY MAP NO. 567A. ELEVATION: 85.31 FEET. NAAD-88, 2002 ADJUSTMENT.

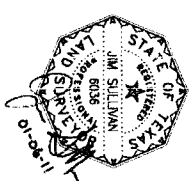
NUMBER	RADIUS	BETA ANGLE	ARC LENGTH	CHORD BEARING	CHORD LENGTH
1	3545.99	25.95 ST	193.71	S 78/59.21 E	1782.03



9/5/11

NO.	DATE	REVISION	APPROV.
1			
2			

**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 10777 Westheimer, Suite 402  
 Houston, TX 77042  
 Tel: 281-558-5100  
 Fax: 281-558-5101  
 www.browngay.com  
 — Civil Engineers and Surveyors —

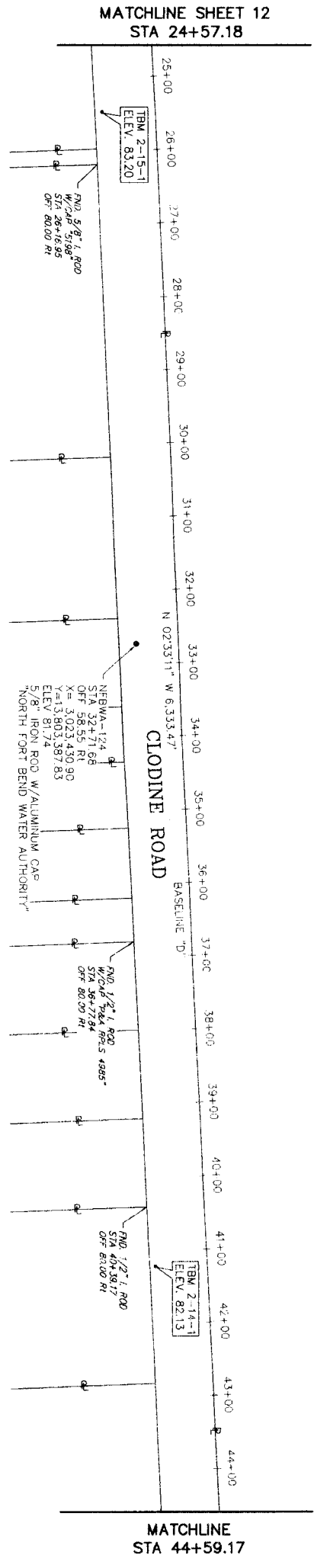


**NFBMA SEGMENT 4B**  
 SURVEY CONTROL MAP  
 (SHEET 4 OF 6)



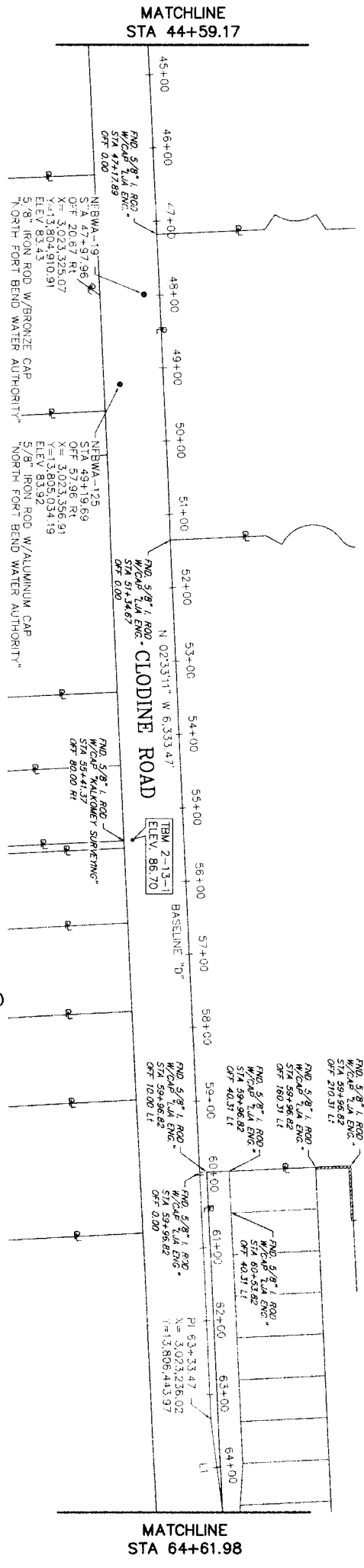
**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERWAY	STRAIN WATER QUALITY
STRAIN	FACTORS
SHEET & BOISE	
FILE NO.	FOR DR. P. REVISION USE ONLY
DRAWING SCALE	
1" = 100'	
47757	
SHEET 12 OF 108	



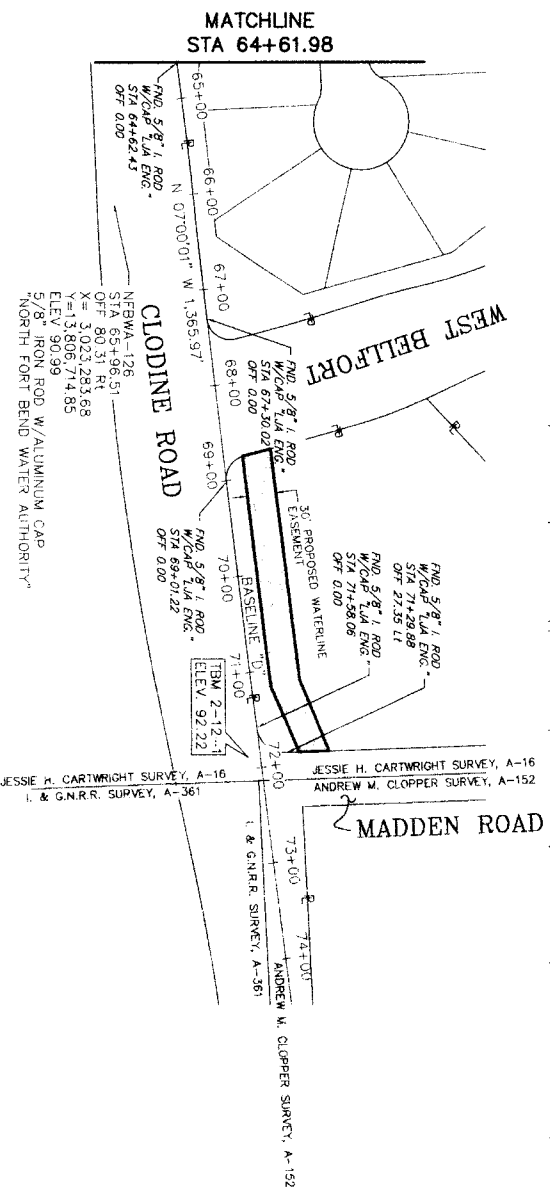
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 STA 24+57.18

MATCHLINE  
 STA 44+59.17



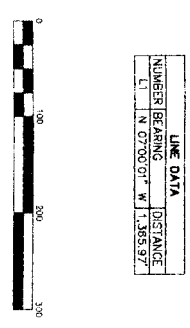
MATCHLINE  
 STA 44+59.17

MATCHLINE  
 STA 64+61.98




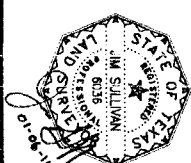
MATCHLINE  
 STA 64+61.98

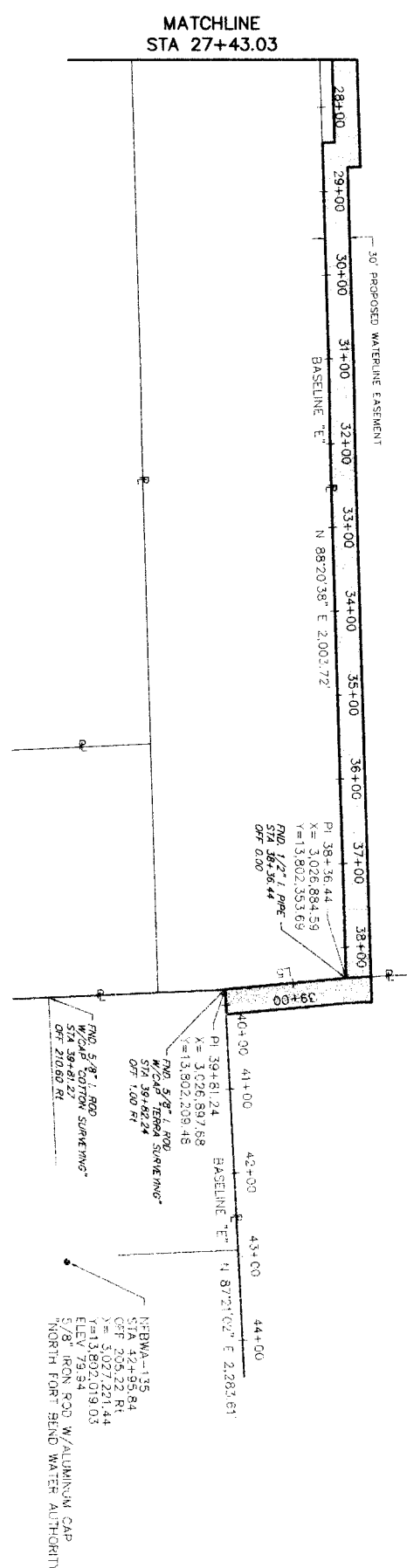
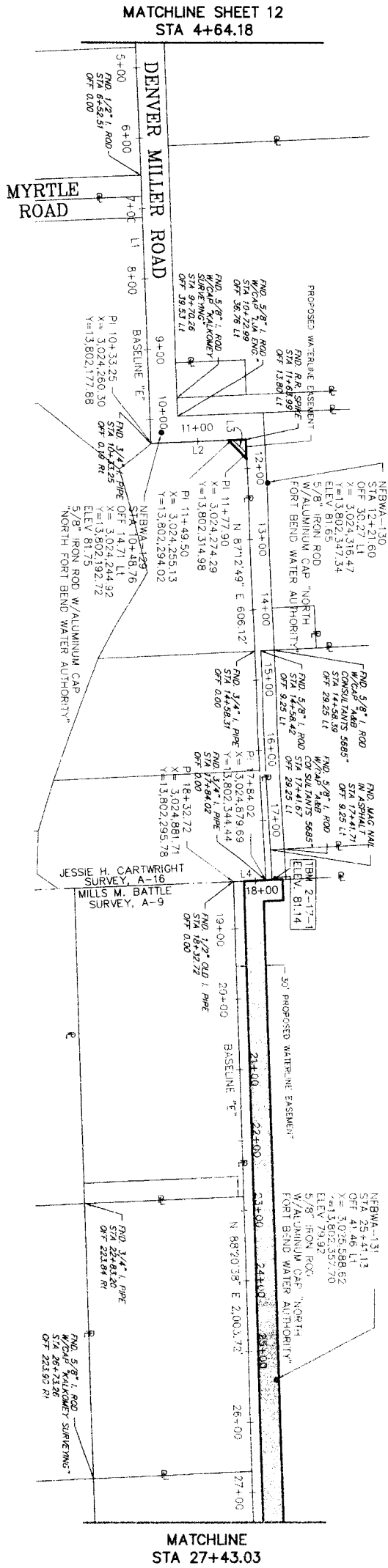
- PRIMARY BENCHMARKS**
- NFBWA-118: 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY BRONZE DISK AT THE SOUTHWEST CORNER OF A CONCRETE FOUNDATION AT THE INTERSECTION OF RED GULLY AND F.M. 1464. KEY MAP NO. 527X. NAVD-88, 2002 ADJUSTMENT. ELEVATION: 83.43 FEET.
  - NFBWA-124: 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY ALUMINUM CAP SET APPROXIMATELY 1,400 FEET NORTH OF DENVER MILLER 6.2 FEET EAST OF F.M. 1464. KEY MAP NO. 527X. NAVD-88, 2002 ADJUSTMENT. ELEVATION: 81.74 FEET.
  - NFBWA-125: 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY ALUMINUM CAP SET APPROXIMATELY 2,900 FEET NORTH OF DENVER MILLER 6.6 FEET EAST OF F.M. 1464. KEY MAP NO. 527X. NAVD-88, 2002 ADJUSTMENT. ELEVATION: 83.92 FEET.
  - NFBWA-126: 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY ALUMINUM CAP SET SOUTH OF THE INTERSECTION OF WEST REUTHER STREET AND F.M. 1464, 83 FEET EAST OF F.M. 1464 IN ELEVATION: 90.99 FEET. NAVD-88, 2002 ADJUSTMENT.
- SECONDARY BENCHMARKS**
- TBM 2-12-1: BOX CUT ON HEADWALL OF 36-INCH RCP LOCATED AT THE SOUTHWEST CORNER F.M. 1464 AND MADDEN ROAD. KEY MAP NO. 527X. NAVD-88, 2002 ADJUSTMENT. ELEVATION: 92.22 FEET.
  - TBM 2-13-1: BOX CUT ON A 24-INCH RCP LOCATED ON THE EAST SIDE OF F.M. 1464 ON THE SOUTH SIDE OF DENVERWAY AT 10351 F.M. 1464. NAVD-88, 2002 ADJUSTMENT. ELEVATION: 96.70 FEET.
  - TBM 2-14-1: BOX CUT ON CONCRETE HEADWALL OF A 24-INCH RCP LOCATED ON THE EAST SIDE OF F.M. 1464 ON DENVERWAY AT 10821 F.M. 1464. NAVD-88, 2002 ADJUSTMENT. ELEVATION: 82.13 FEET.
  - TBM 2-15-1: BOX CUT ON A 24-INCH RCP LOCATED ON THE EAST SIDE OF F.M. 1464, BEING THE FOURTH DRIVE NORTH OF DENVER MILLER KEY MAP NO. 567B. NAVD-88, 2002 ADJUSTMENT. ELEVATION: 83.20 FEET.



LINE DATA	
NUMBER	BEARING
1	N 07°00'01\"/>

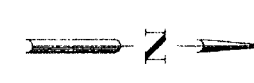
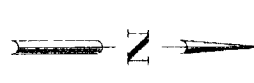
sk/ll

 <b>CITY OF HOUSTON</b> DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	<b>BROWN &amp; GAY ENGINEERS, INC.</b> Survey Control Map (Sheet 5 of 6)		<b>NORTH FORT BEND</b> SURVEY CONTROL MAP (SHEET 5 OF 6)
NORTH FORT BEND WATER AUTHORITY 1308 CLODINE ROAD HOUSTON, TEXAS 77042 TEL: 281-598-8100 FAX: 281-598-8100 WWW: WWW.NFBWA.COM	Brown & Gay Engineers, Inc. 1100 West Loop West, Suite 400 Houston, TX 77042 Tel: 281-598-8100 Fax: 281-598-8100 www.browngay.com	J.M. SULLIVAN LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS LICENSE NO. 6235	NORTH FORT BEND WATER AUTHORITY 1308 CLODINE ROAD HOUSTON, TEXAS 77042 TEL: 281-598-8100 FAX: 281-598-8100 WWW: WWW.NFBWA.COM



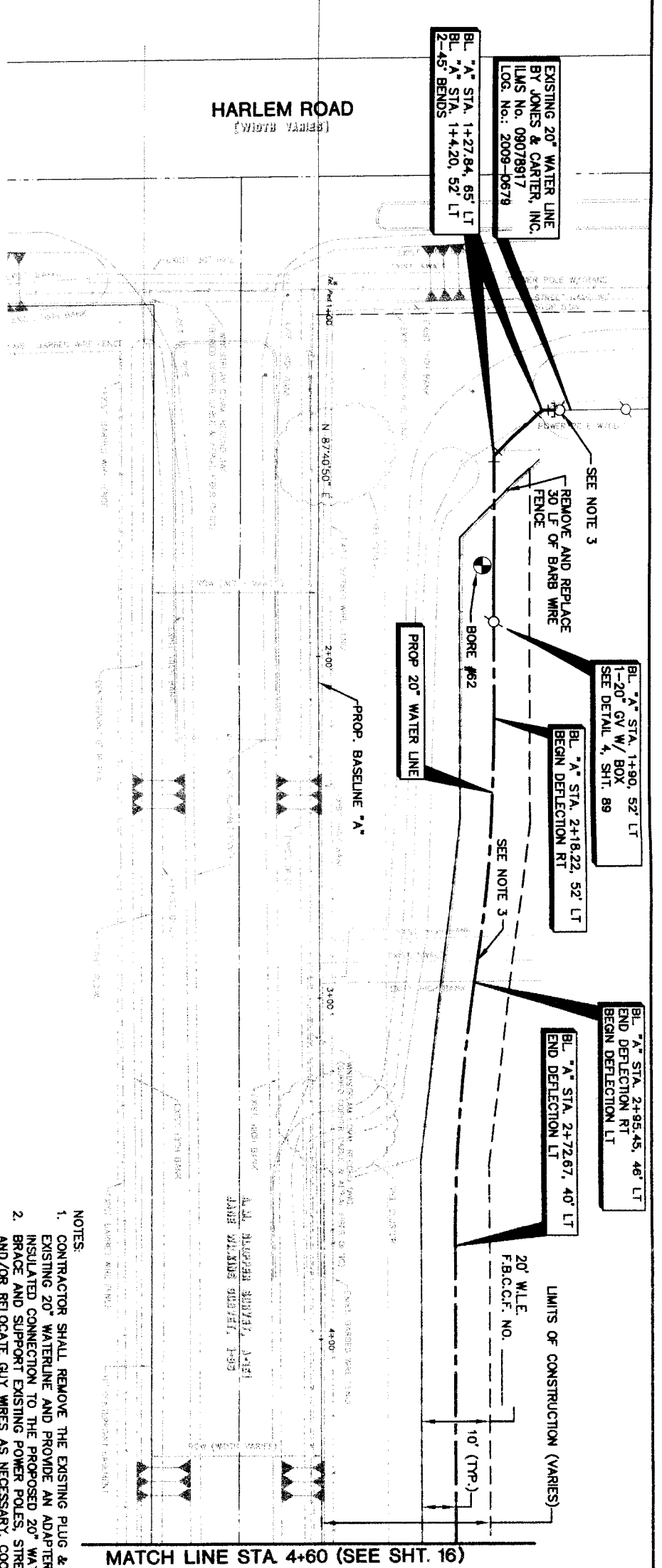
- PRIMARY BENCHMARKS:**
- NFBWA-129: 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY ALUMINUM CAP SET APPROXIMATELY 750 FEET EAST OF F.M. 1464 216 FEET SOUTHEAST OF DENVER MILLER NEAR A BEND IN THE ROAD. ELEVATION: 81.75 FEET
  - NFBWA-130: 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY ALUMINUM CAP SET 8.2 FEET NORTH OF DENVER MILLER EAST OF DENVER MILLER NEAR THE SECOND BEND IN THE ROAD. KEY MAP NO. 567B ELEVATION: 81.65 FEET
  - NFBWA-131: 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY ALUMINUM CAP SET 30 FEET SOUTH OF DENVER MILLER NEAR THE MOST NORTHEASTERLY BEND IN THE ROAD. KEY MAP NO. 567C ELEVATION: 72.92 FEET
  - NFBWA-135: 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY ALUMINUM CAP SET 250 FEET NORTH OF THE SOUTH EDGE OF PAYMENT NEAR THE WEST END OF OLETA LANE 25.5 FEET EAST OF A WROUGHT IRON FENCE. KEY MAP NO. 567C ELEVATION: 79.94 FEET
- SECONDARY BENCHMARK:**
- TBM 2-17-1: RAIL ROAD SPIKE IN THE CENTERLINE OF DENVER MILLER ROAD WHERE THE ASPHALT MEETS THE GRAVEL ROAD WEST OF A CATTLE GUARD. KEY MAP NO. 567B NAAD-88, 2002 ADJUSTMENT ELEVATION: 81.14 FEET

LINE BEARING	DISTANCE
L1 N 87°48'48" E	933.25
L2 N 02°33'11" W	118.25
L3 N 42°28'48" E	28.40
L4 S 02°21'18" E	48.70
L5 S 02°11'19" E	14.80



	<p><b>BROWN &amp; GAY</b>                  ENGINEERS, INC.                  Brown &amp; Gay Engineers, Inc.                  18777 Westmore Square                  Houston, TX 77058                  Tel: 281-558-9700                  Fax: 281-558-9701                  — Civil Engineers and Surveyors —</p>		<p><b>NFBWA SEGMENT 4B</b></p> <p><b>SURVEY CONTROL MAP</b>                  (SHEET 6 OF 6)</p>
<p><b>CITY OF HOUSTON</b>                  DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p>		<p>DATE CITY ENGINEERS WOULD FOR ONE YEAR ONLY A TRUE DATE OF SIGNATURES                  TITLE AND SIGNATURE</p>	
<p>WATERLINE: STORM WATER QUALITY</p>		<p>FOR CH. OF REVISION USE ONLY</p>	
<p>STATION: FEET</p>		<p>FILE NO.:</p>	
<p>SHEET &amp; BRIDGE:</p>		<p>DRAWING SCALE:</p>	
<p>1" = 100'</p>		<p>SHEET 14 OF 108</p>	

2/15/11



EXISTING 20" WATER LINE  
 BY JONES & CARTER, INC.  
 ILLMS No. 08078917  
 LOG. No.: 2009-0678

BL "A" STA. 1+27.84, 65' LT  
 BL "A" STA. 1+4.20, 52' LT  
 2-45' BENDS

BL "A" STA. 1+90, 52' LT  
 1-20" GV W/ BOX  
 SEE DETAIL 4, SHT. 89

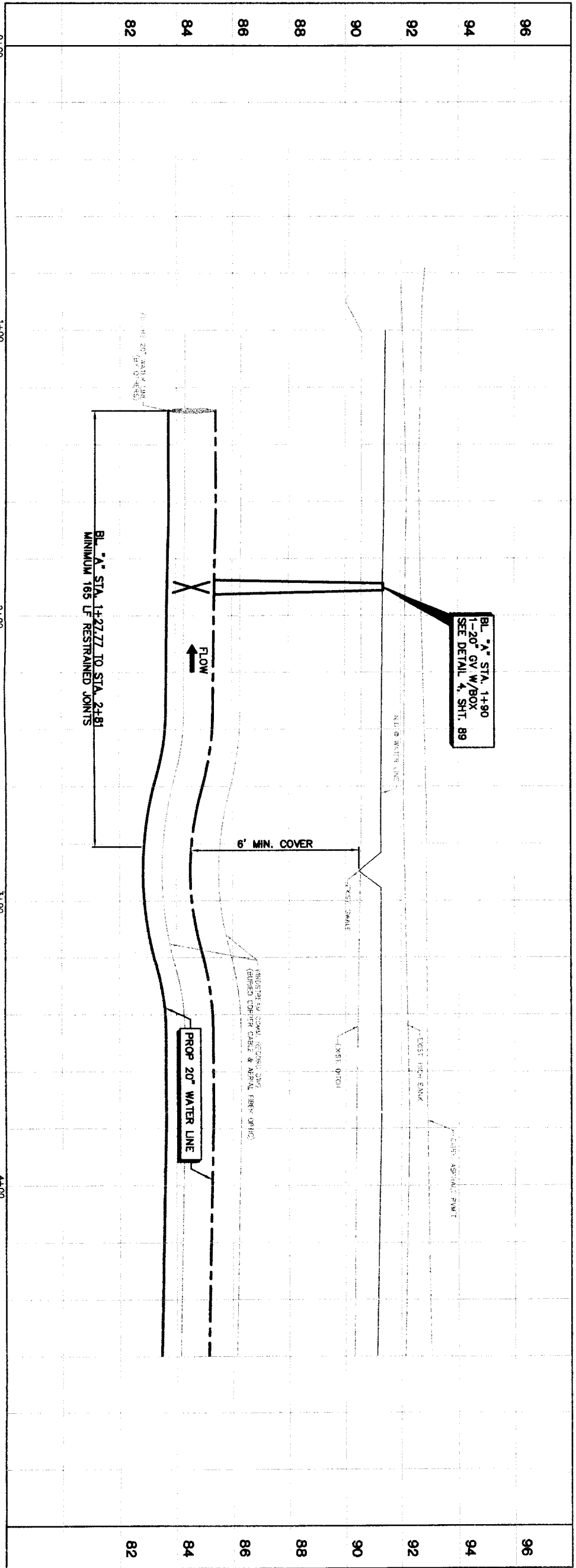
BL "A" STA. 2+16.22, 52' LT  
 BEGIN DEFLECTION RT

BL "A" STA. 2+72.67, 40' LT  
 END DEFLECTION LT

PROP 20" WATER LINE

LIMITS OF CONSTRUCTION (VARIES)  
 20' W.L.E.  
 F.B.C.C.F. NO. \_\_\_\_\_  
 10' (TRP.)

- NOTES:
1. CONTRACTOR SHALL REMOVE THE EXISTING PLUG & CLAMP ON EXISTING 20" WATERLINE AND PROVIDE AN ADAPTER AND INSULATED CONNECTION TO THE PROPOSED 20" WATERLINE. BRACE AND SUPPORT EXISTING POWER POLES, STREET LAMPS AND/OR RELOCATE GUY WIRES AS NECESSARY. COORDINATE WORK WITH CENTER POINT ENERGY.
  2. CONTRACTOR SHALL REMOVE THE PLUG AND CLAMP AND PROVIDE AN ADAPTER AND INSULATED CONNECTION TO THE 20" STUBOUT.
  3. CONTRACTOR TO INSTALL TEMPORARY BARBED WIRE FENCE TO PROTECT LANDOWNER'S LIVESTOCK FROM CONSTRUCTION ACTIVITIES.



BL "A" STA. 1+90  
 1-20" GV W/ BOX  
 SEE DETAIL 4, SHT. 89

BL "A" STA. 1+27.77 TO STA. 2+81  
 MINIMUM 165 LF RESTRAINED JOINTS

6" MIN. COVER

PROP 20" WATER LINE



MATCH LINE STA. 4+60 (SEE SHT. 16)

PRIVATE UTILITY LINES SHOWN

DATE: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_  
 ENGINEER: \_\_\_\_\_  
 SIGNATURE: \_\_\_\_\_  
 DATE: \_\_\_\_\_

NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL LONE STAR NOTIFICATION CENTER, (713) 223-4567 OR -800-669-6344  
 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-3777.

NO.	DATE	REVISION	APPROVED
1			
2			
3			
4			

**BROWN & GAY**  
 ENGINEERS, INC.  
 93705  
 10777 Washington, Suite 400  
 Houston, TX 77042  
 Tel: 281-558-8000  
 Fax: 281-558-8000

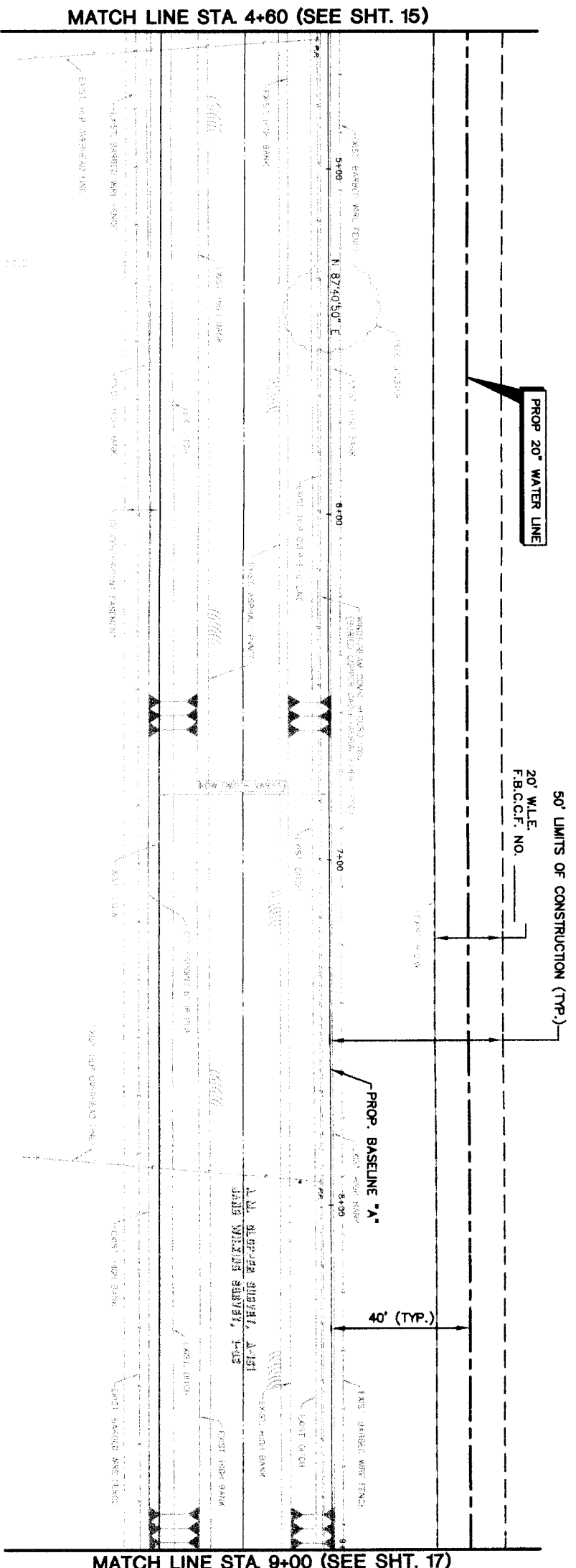
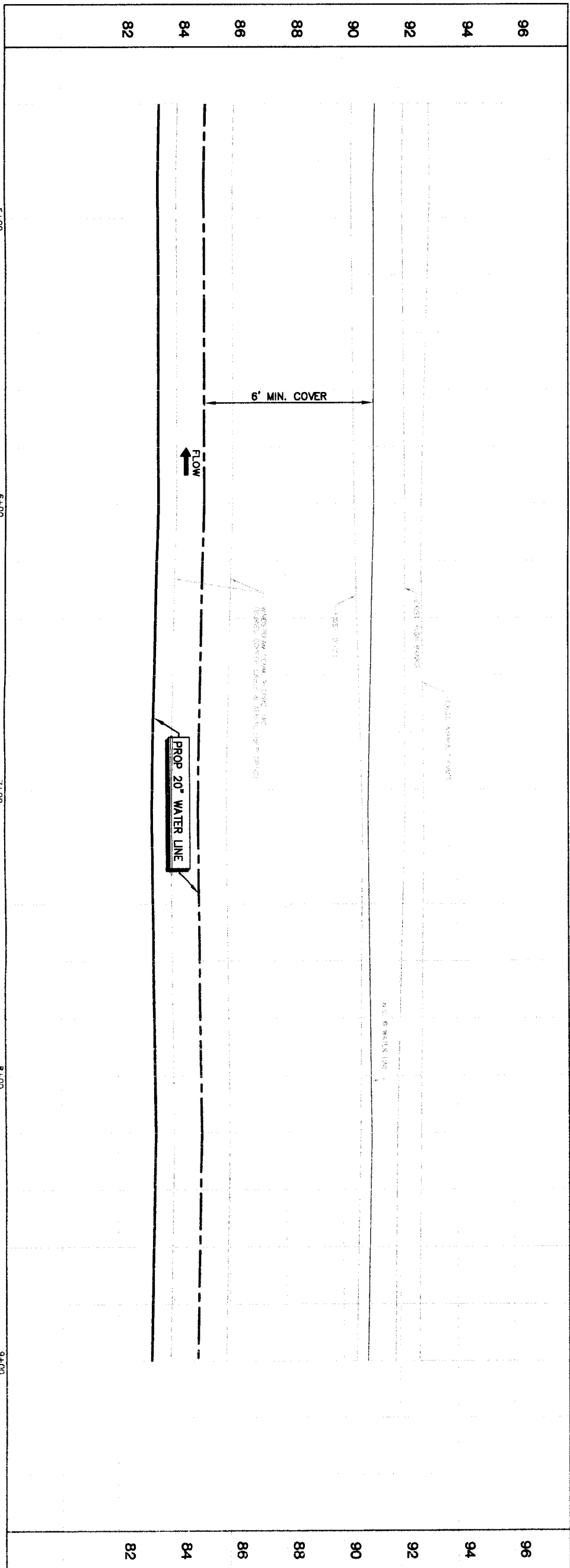
**STATE OF TEXAS**  
 AARON B. HARGROVE  
 LICENSE NO. 23531  
 Professional Engineer  
 Mechanical  
 State of Texas

**NSFWA SEGMENT 4B**  
 PLAN & PROFILE  
 BASELINE "A"  
 ALONG WEST BELFORT ROAD  
 FROM STA 1+00 TO STA 4+60



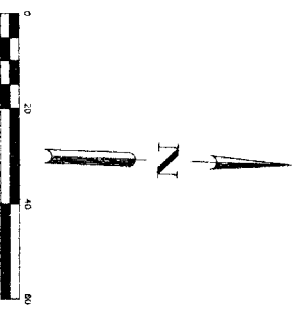
**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 WATER AND TRANSPORTATION

WATERMAIN: STORM WATER QUALITY FACILITIES  
 STREET & EROSION FACILITIES  
 FILE NO.: FOR CITY OF HOUSTON USE ONLY  
 DRAWING SCALE:  
 HORIZ: 1"=20'  
 VERT: 1"=2'  
 SHEET NO. 15 OF 108



WEST BELFORT ROAD

- NOTES:  
 1. CONTRACTOR TO INSTALL TEMPORARY BARBED WIRE FENCE TO PROTECT LANDOWNER'S LIVESTOCK FROM CONSTRUCTION ACTIVITIES.



PRIVATE UTILITY LINES SHOWN

Date:  
 Centerpoint Energy/Electric Facilities: (Approved only for crossing underground ductlines; unless otherwise noted) Valid At Time Of Review Only  
**SBC UTILITY LINES SHOWN**  
 Date:  
 SBC Approved for underground conduit facilities only. Signature valid for one year.  
 Date:

Centerpoint Energy/ Gas Facilities (Gas service lines are not shown)  
 NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL LHM: STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-669-8344  
 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED: CALL CENTERPOINT AT 713-207-1777.

NO.	DATE	REVISION	APPROVED
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 10017 Westheimer Street, Suite 100  
 Houston, TX 77042  
 Tel: 281-558-8100  
 Fax: 281-558-8100  
 www.browngay.com  
 — Civil Engineering and Surveying —

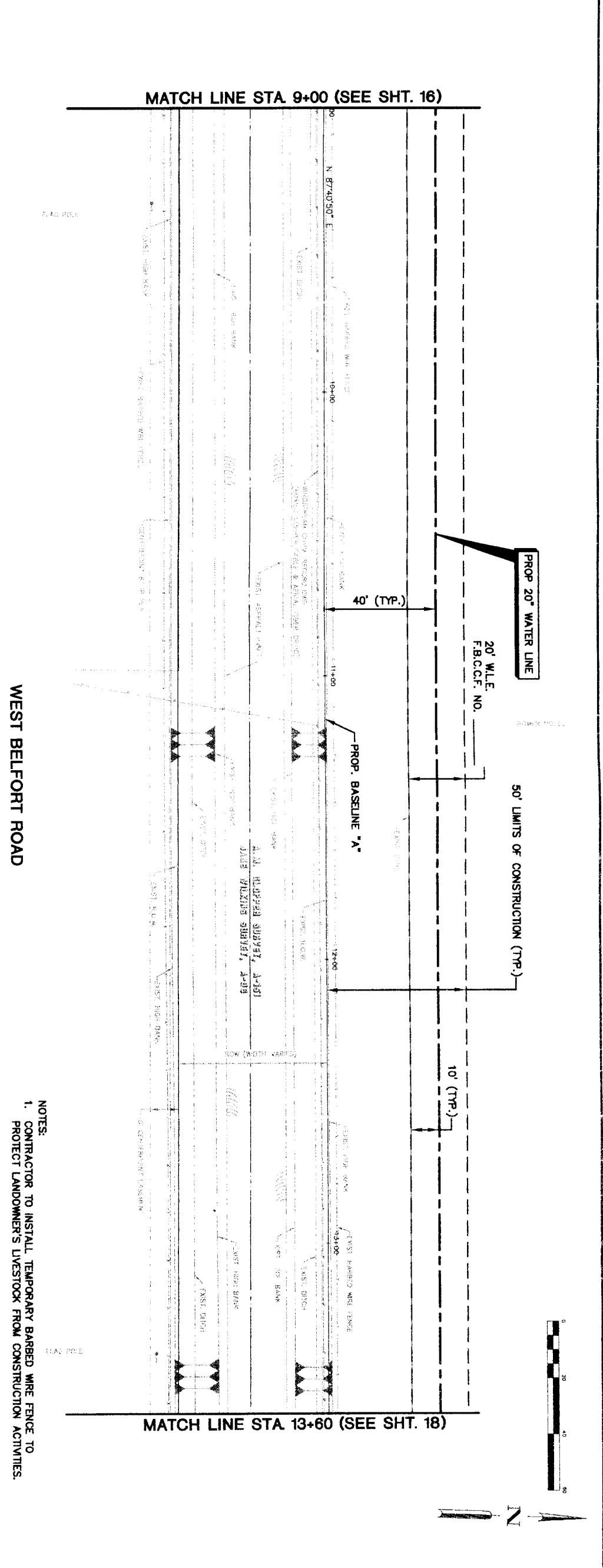
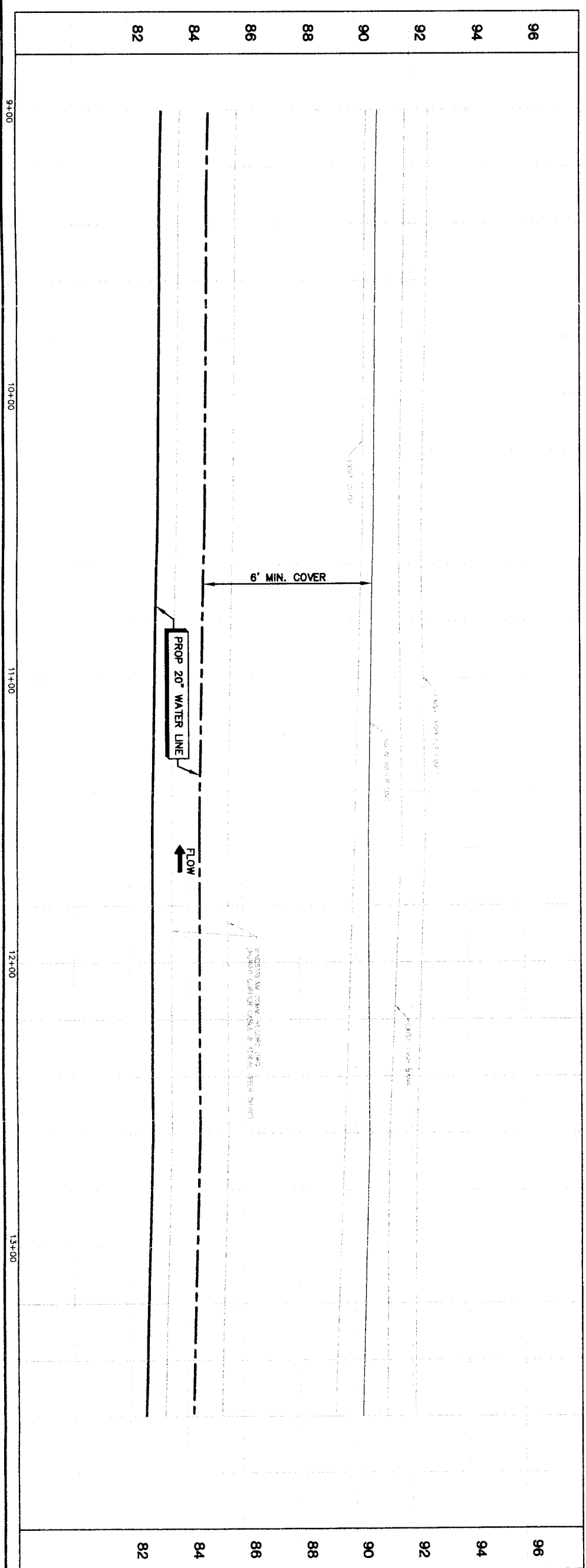
**SEAL**  
 STATE OF TEXAS  
 PROFESSIONAL ENGINEER  
 LICENSE NO. 10107  
 EXPIRES 08/31/2012  
 ALAN B. HARGROVE  
 83706  
 HONORARY MEMBER  
 SOCIETY OF PROFESSIONAL ENGINEERS  
 OF TEXAS

**NFBWA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE 'A'**  
**ALONG WEST BELFORT ROAD**  
**FROM STA 4+60 TO STA 9+00**



**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 WATER  
 STAFF AND TRANSPORTATION

NOTE: CITY SIGNATURES VALID FOR ONE YEAR OR 7 AFTER DATE OF SIGNATURES  
 WASTEWATER  
 STORM WATER QUALITY  
 STORM WATER QUANTITY  
 STREETS & BRIDGES  
 FACILITIES  
 FILE NO.: FOR CITY OF HOUSTON USE ONLY  
 DRAWING SCALE  
 HORIZ: 1"=20'  
 VERT: 1"=2'  
 SHEET No. 16 of 108



- NOTES:  
 1. CONTRACTOR TO INSTALL TEMPORARY BARBED WIRE FENCE TO PROTECT LANDOWNER'S LIVESTOCK FROM CONSTRUCTION ACTIVITIES.

PRIVATE UTILITY LINES SHOWN

Date:  
 Centipoint Energy/ Electric Facilities (approved only for crossing underground ductlines, unless otherwise noted) Void At Time Of Review Only  
 SBC UTILITY LINES SHOWN  
 Date:  
 SBC Approved for underground conduit facilities only. Signature valid for one year.  
 Date:  
 Centipoint Energy/ Gas Facilities (GAS service lines are not shown.)  
 Date:  
 NOTICE  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL LOU STARR 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	APPROV.
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 10777 Westheimer Road, Suite 600  
 Houston, Texas 77042  
 Tel: 281-566-8700  
 Fax: 281-566-8701  
 — Civil Engineers and Surveyors —  
 License No. 93706  
 State of Texas  
 Professional Seal

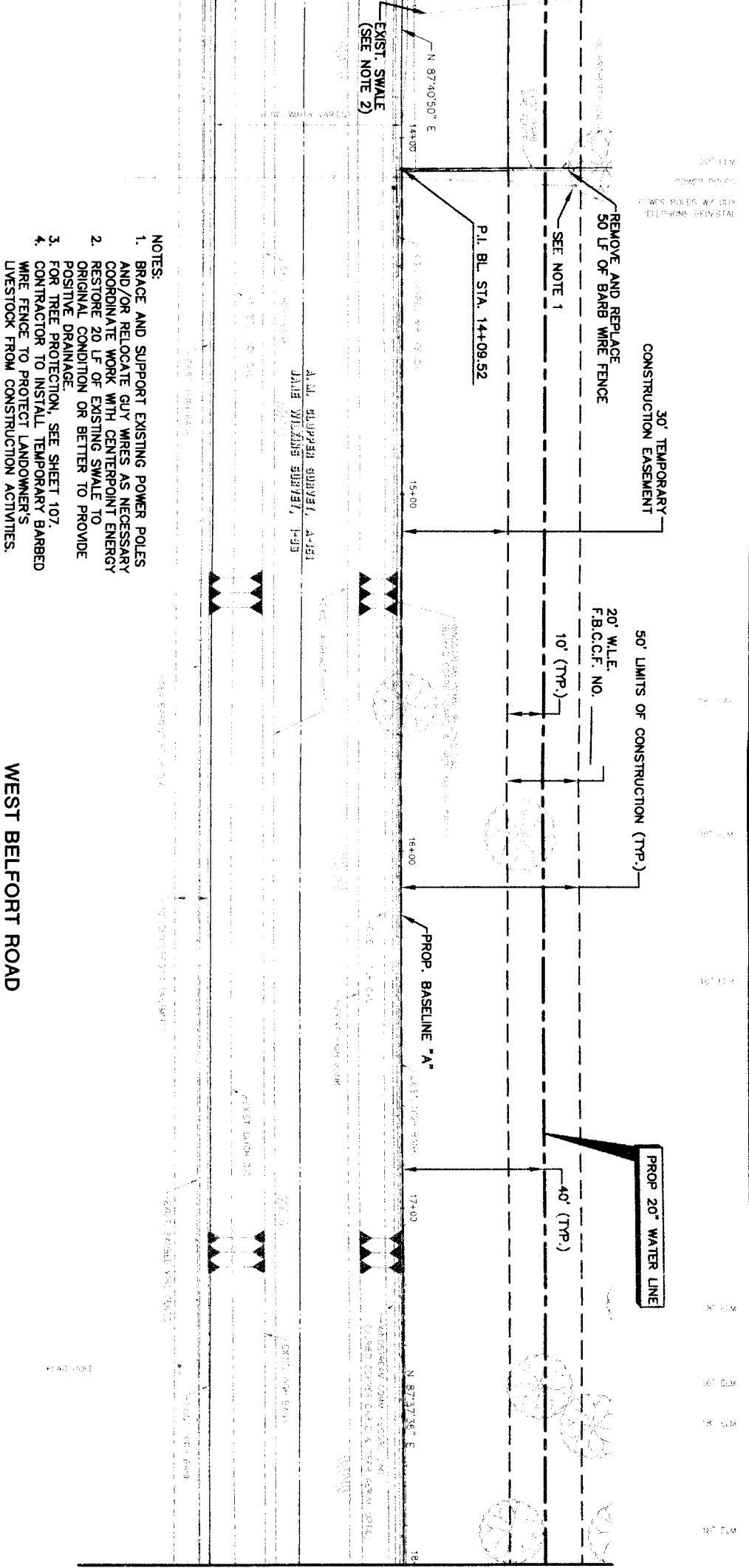
**NFBWA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE \"A\"**  
**ALONG WEST BELFORT ROAD**  
**FROM STA 9+00 TO STA 13+60**



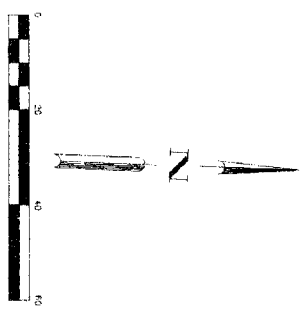
**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 PLANNING AND TRANSPORTATION

WATERWAY	STON WATER QUALITY
STORM	FACTORS
STREET & BRIDGE	
FILE NO.	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
HORIZ : 1"=20'	
VERT : 1"=2'	
SHEET No.	17 OF 108

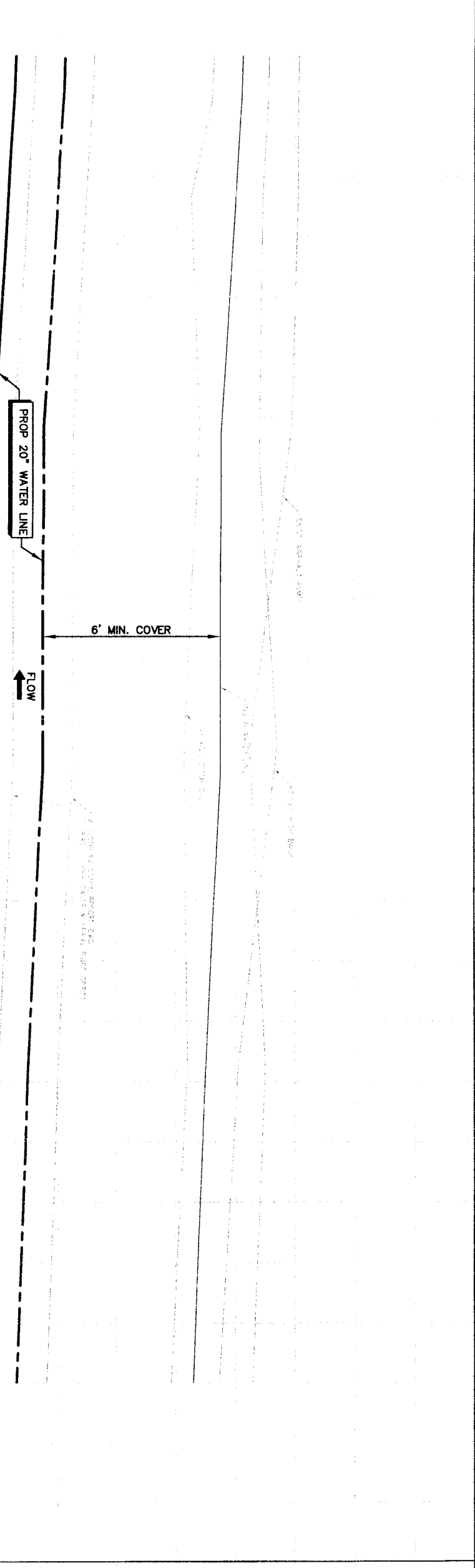
MATCH LINE STA 13+60 (SEE SHT. 17)



MATCH LINE STA 18+00 (SEE SHT. 19)



96  
94  
92  
88  
86  
84  
82



96  
94  
92  
88  
86  
84  
82

PRIVATE UTILITY LINES SHOWN

Date:  
 Centerpoint Energy/ Electric Facilities (approved only for crossing underground utilities, unless otherwise noted) valid at time of Review Only  
 SBC UTILITY LINES SHOWN  
 Date:

Date:  
 SBC Approved for underground conduit facilities only  
 Signature valid for one year  
 Date:

NOTICE:  
 Centerpoint Energy/ Gas Facilities (Gas service lines are not shown)  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW, OR EASEMENTS CALL LONE STAR NOTIFICATION CENTER (713) 223-4567 OR 1-800-666-6344  
 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED CALL CENTERPOINT AT 713-207-7777.

NO.	DATE	REVISION	APPROVAL
1			
2			
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4			

**BROWN & GAY**  
 ENGINEERS, INC.

Brown & Gay Engineers, Inc.  
 1077 Westheimer Road, Suite 400  
 Houston, Texas 77030  
 Tel: 281-466-8700  
 Fax: 281-466-8701  
 --- Civil Engineers and Surveyors ---  
 Brown & Gay Engineers, Inc.  
 F-1048

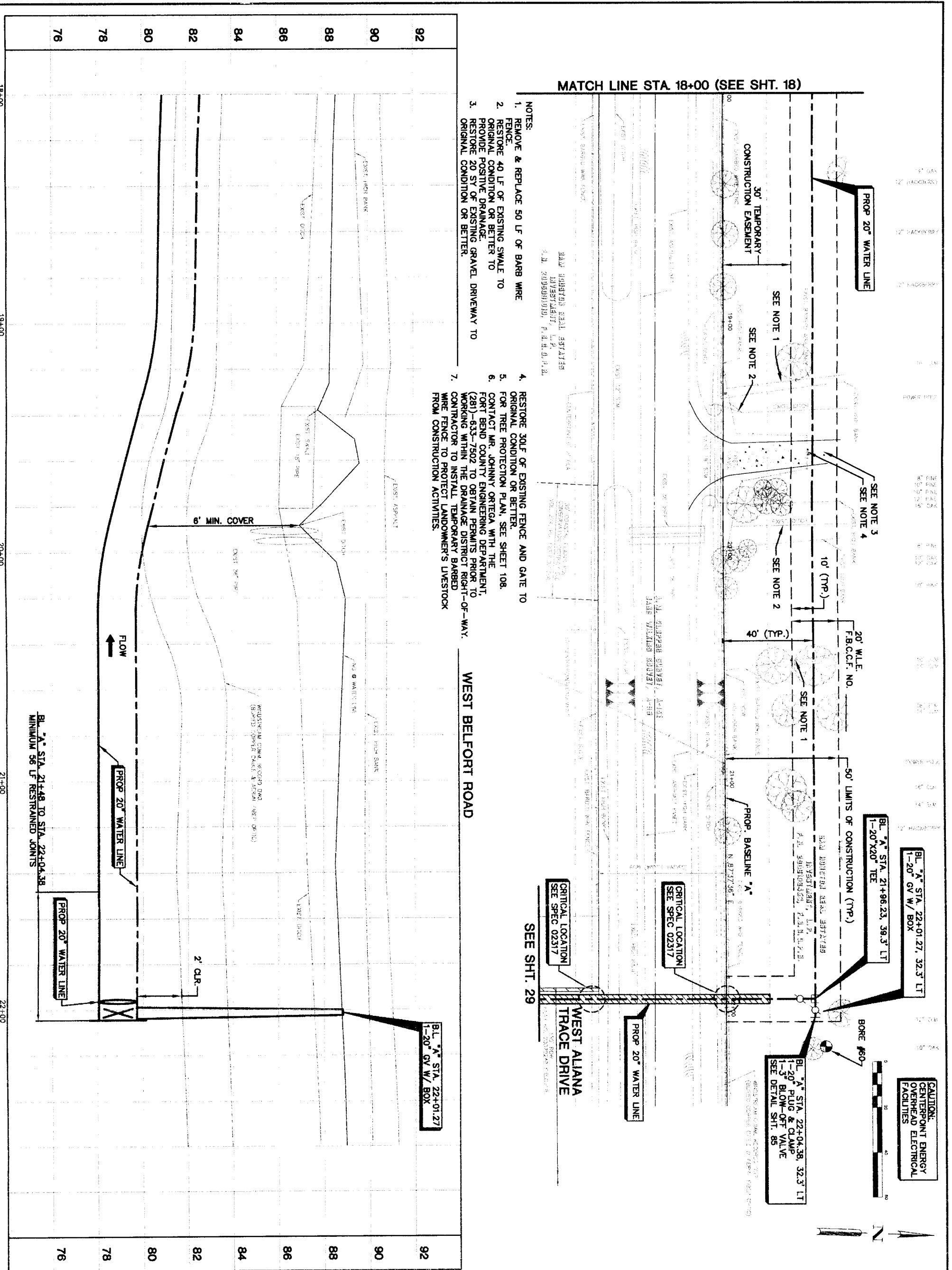
**NFBWA SEGMENT 4B**  
 PLAN & PROFILE  
 BASELINE "A"  
 ALONG WEST BELFORT ROAD  
 FROM STA 13+60 TO STA 18+00



**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 TRAFFIC AND TRANSPORTATION

WASTEWATER	STORM WATER QUALITY
STORM	FACILITIES
STREET & BRIDGE	

NOTE: CITY SQUARES SHALL USE ONE (1) OR MORE (2) OF SQUARES  
 FILE NO:  
 DRAWING SCALE  
 HORIZ: 1"=20'  
 VERT: 1"=2'  
 SHEET 18 OF 108



- NOTES:
1. REMOVE & REPLACE 50 LF OF BARB WIRE FENCE.
  2. RESTORE 40 LF OF EXISTING SWALE TO ORIGINAL CONDITION OR BETTER TO PROVIDE POSITIVE DRAINAGE.
  3. RESTORE 20 SY OF EXISTING GRAVEL DRIVEWAY TO ORIGINAL CONDITION OR BETTER.

4. RESTORE 30L OF EXISTING FENCE AND GATE TO ORIGINAL CONDITION OR BETTER.
5. FOR TREE PROTECTION PLAN, SEE SHEET 108.
6. CONTACT MR. JOHNNY ORTEGA WITH THE FORT BEND COUNTY ENGINEERING DEPARTMENT, (281)-633-7502 TO OBTAIN PERMITS PRIOR TO WORKING WITHIN THE DRAINAGE DISTRICT RIGHT-OF-WAY.
7. WIRE FENCE TO INSTALL TEMPORARY BARBED WIRE FENCE TO PROTECT LANDOWNER'S LIVESTOCK FROM CONSTRUCTION ACTIVITIES.

**CAUTION:**  
 CENTERPOINT ENERGY  
 OVERHEAD ELECTRICAL  
 FACILITIES



BL "A" STA. 22+01.27, 32.3' LT  
 1-20" GV W / BOX

BL "A" STA. 21+96.23, 39.3' LT  
 1-20" X20" TEE

BL "A" STA. 22+04.38, 32.3' LT  
 1-3" BLOW-OFF VALVE  
 SEE DETAIL SHIT. 85

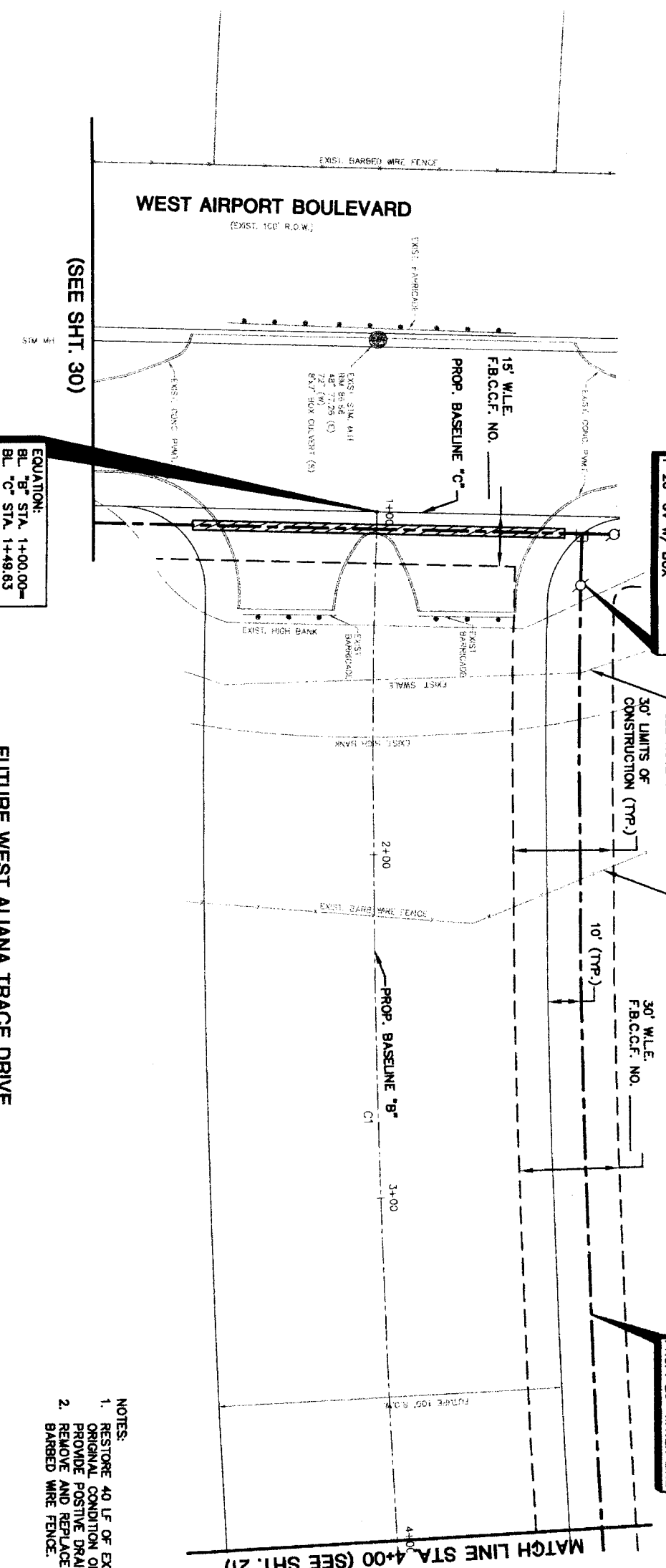
CRITICAL LOCATION  
 SEE SPEC 02317

CRITICAL LOCATION  
 SEE SPEC 02317

BL "A" STA. 22+01.27  
 1-20" GV W / BOX

<p>PRIVATE UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>Centerpoint Energy/ Electric Facilities (approved only for crossing underground facilities unless otherwise noted) Valid At Time of Review Only</p> <p>SBC UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>SBC Approved for underground conduit facilities only. Signature valid for one year.</p> <p>Date: _____</p> <p>Centerpoint Energy/ Gas Facilities (Gas service lines are not shown.)</p> <p>NOTICE: EXCAVATING IN STREET AT LEAST 48 HOURS BEFORE WORKING. STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-669-8344</p> <p>TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED CALL CENTERPOINT AT 713-207-7777</p>	
<p><b>BROWN &amp; GAY ENGINEERS, INC.</b></p> <p>Brown &amp; Gay Engineers, Inc.                  5077 Westheimer Road, Suite 600                  Houston, Texas 77056                  Tel: 281-464-4000                  Fax: 281-556-5701                  www.browngay.com</p> <p>Professional Engineer                  State of Texas                  License No. 93708                  F-1046</p>	
<p><b>NFBWA SEGMENT 4B</b></p> <p><b>PLAN &amp; PROFILE</b></p> <p><b>BASELINE "A"</b></p> <p><b>ALONG WEST BELFORT ROAD</b></p> <p><b>FROM STA 18+00 TO STA 22+40</b></p>	
<p><b>CITY OF HOUSTON</b></p> <p>DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p> <p>PLANNING AND TRANSPORTATION</p>	
<p>DATE: FEB 22, 2011</p> <p>FILE NO.: _____</p> <p>DRAWING SCALE: _____</p> <p>HORIZ: 1"=20'</p> <p>VERT: 1"=2'</p> <p>SHEET NO.: 19 OF 108</p>	

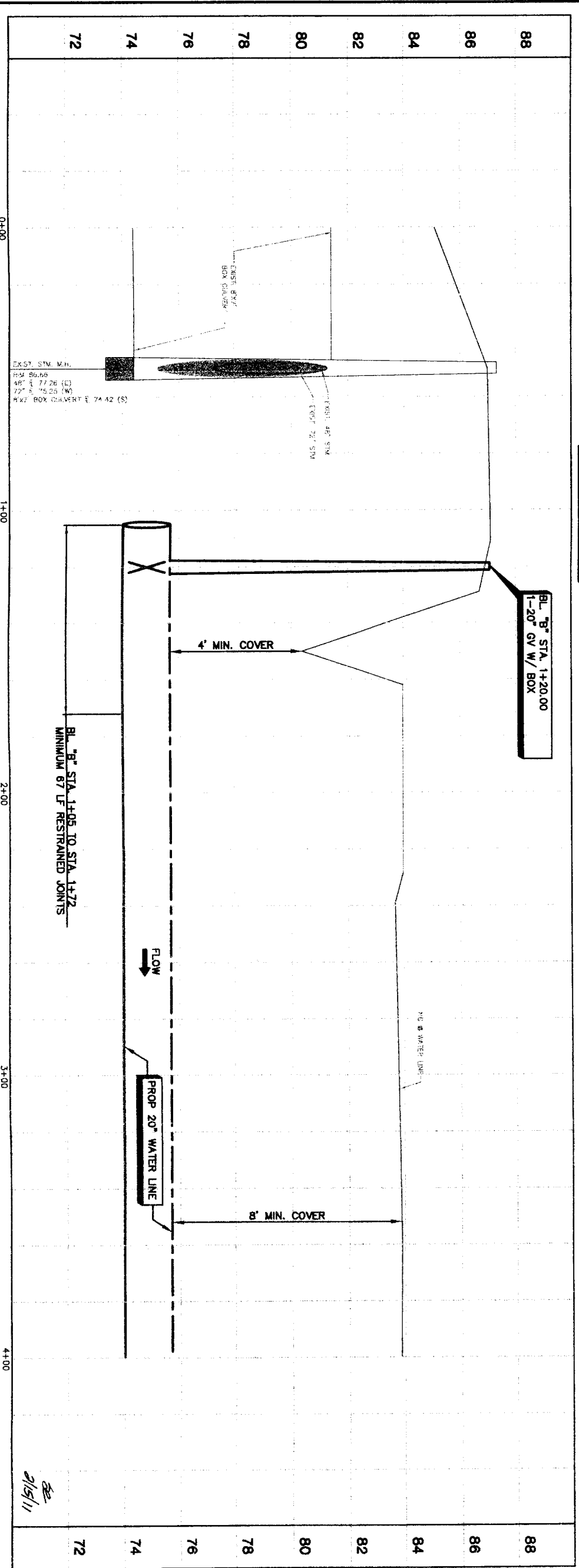
NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C1	123°4'51"	3600.00	790.49	N 29°28'36" W	788.90



EQUATION:  
 BL "B" STA. 1+00.00=  
 BL "C" STA. 1+49.65

FUTURE WEST ALIANA TRACE DRIVE

- NOTES:
- RESTORE 40 LF OF EXISTING SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.
  - REMOVE AND REPLACE 40 LF OF EXISTING BARBED WIRE FENCE.



BL "B" STA. 1+20.00  
 1-20" GV W/ BOX

BL "B" STA. 1+05 TO STA. 1+72  
 MINIMUM 87 LF RESTRAINED JOINTS

PRIVATE UTILITY LINES SHOWN

DATE: \_\_\_\_\_  
 CENTERPOINT ENERGY/ELECTRIC FACILITIES (APPROVED ONLY) VALID AT TIME OF REVIEW ONLY  
 SBC UTILITY LINES SHOWN  
 DATE: \_\_\_\_\_  
 SBC APPROVED FOR UNDERGROUND CONDUIT FACILITIES ONLY  
 SIGNATURE VALID FOR ONE YEAR  
 DATE: \_\_\_\_\_  
 NOTICE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL ONE: STAK NOTIFICATION CENTER, (713) 223-4567 OR 1-800-688-6344  
 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED CALL CENTERPOINT AT 713-207-7777.

NO.	DATE	REVISION	APPROVAL
1			
2			
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**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 10777 Westheimer, Suite 200  
 Houston, TX 77042  
 Tel: 281-566-8100  
 Fax: 281-566-8100  
 www.browngay.com

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 TRAFFIC AND INFRASTRUCTURE

**NORTH PORT BAND**

PLAN & PROFILE  
 BASELINE "B"  
 ALONG WEST ALIANA TRACE DRIVE  
 FROM STA. 0+00 TO STA. 4+00

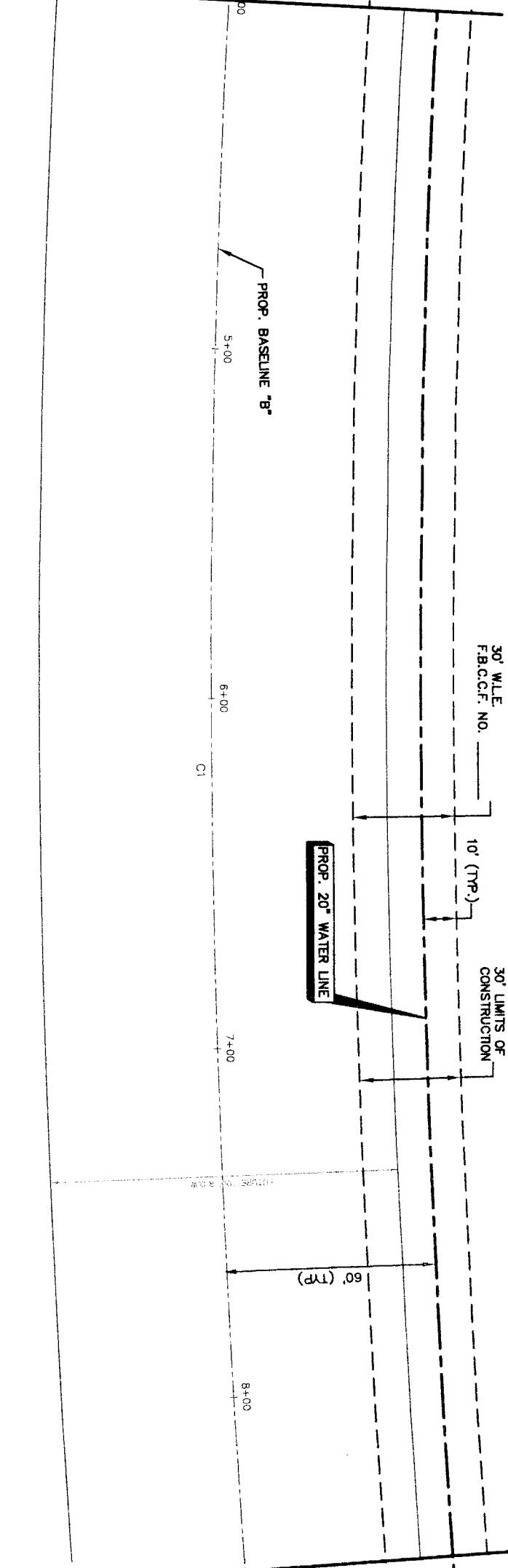
NRWA SEGMENT 4B

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

DATE: 1-24-11  
 DRAWN BY: J. Smith  
 CHECKED BY: M. Jones  
 STATION: 0+00 TO 4+00  
 STREET & CROSS: \_\_\_\_\_  
 FACILITIES: \_\_\_\_\_  
 STORM WATER QUALITY: \_\_\_\_\_  
 FILE NO.: \_\_\_\_\_  
 DRAWING SCALE: \_\_\_\_\_  
 HORIZ: 1"=20'  
 VERT: 1"=2'  
 SHEET NO. 20 OF 108

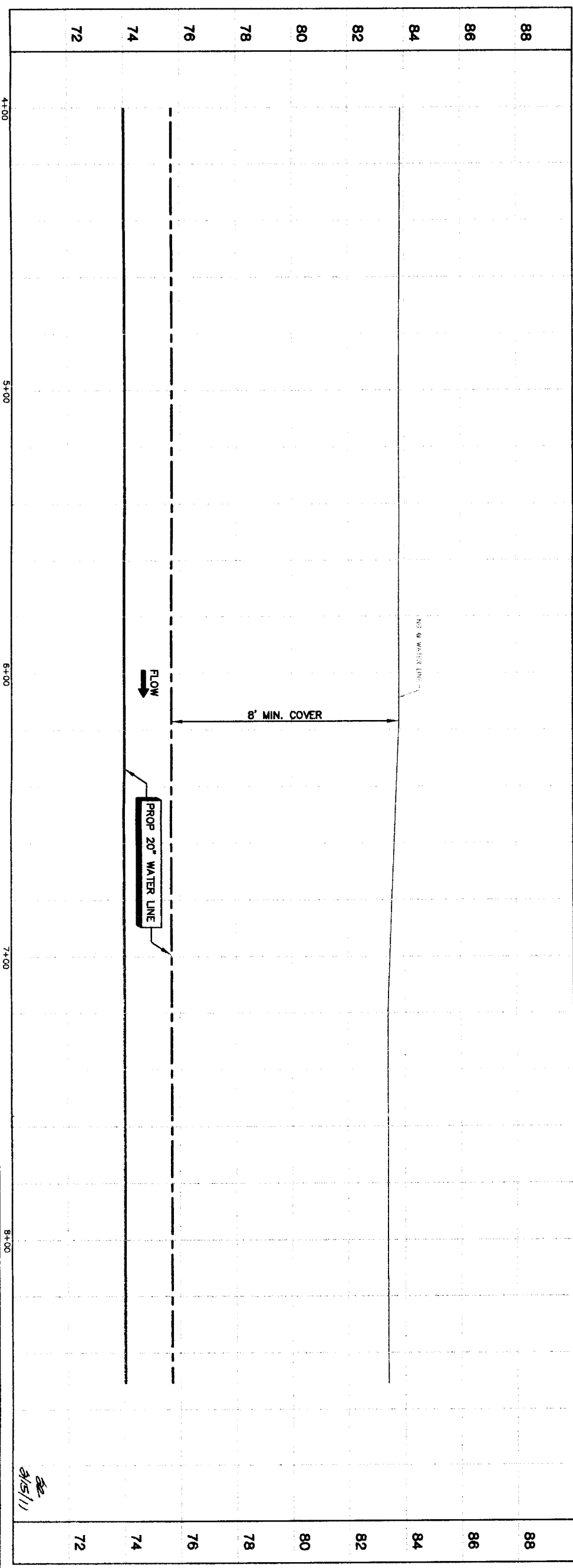
NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C1	1234.51°	3600.00	790.49	N 29°28'36" W	788.90

MATCH LINE STA. 4+00 (SEE SHT. 20)



MATCH LINE STA. 8+50 (SEE SHT. 22)

FUTURE WEST ALIANA TRACE DRIVE



PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 Centerpoint Energy/ Electric Facilities: (approved only for crossing underground ductlines, unless otherwise noted.)  
 Valid At: Time Of Review Only  
 SBC UTILITY LINES SHOWN  
 Date: \_\_\_\_\_  
 SBC Approved for underground conduit facilities only.  
 Signature valid for one year.  
 Date: \_\_\_\_\_

Centerpoint Energy/ Gas Facilities  
 GAS service lines are not shown.)  
 NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL ONE 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	APPROVAL
1			
2			
3			
4			

**BROWN & GAY**  
 ENGINEERS, INC.  
 10777 Houston TX 77042  
 TEL: 281-558-8100  
 FAX: 281-558-9701  
 —Old Engineers are Engineers—  
 Brown & Gay Engineers, Inc.  
 F-1048

**NRBWA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE 'B'**  
**ALONG WEST ALIANA TRACE DRIVE**  
**FROM STA. 4+00 TO STA. 8+50**

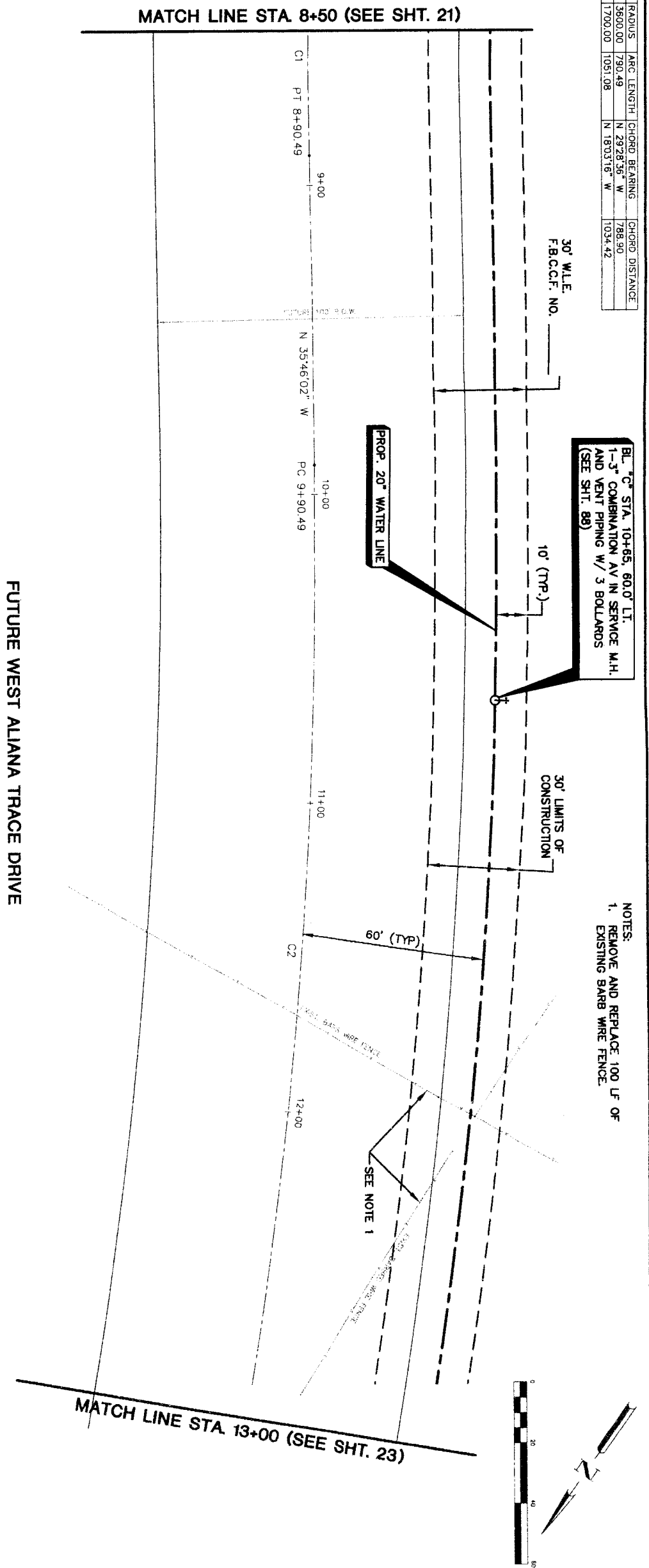


**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 1341 MAIN ST. HOUSTON, TX 77002  
 DATE: 11.13.11

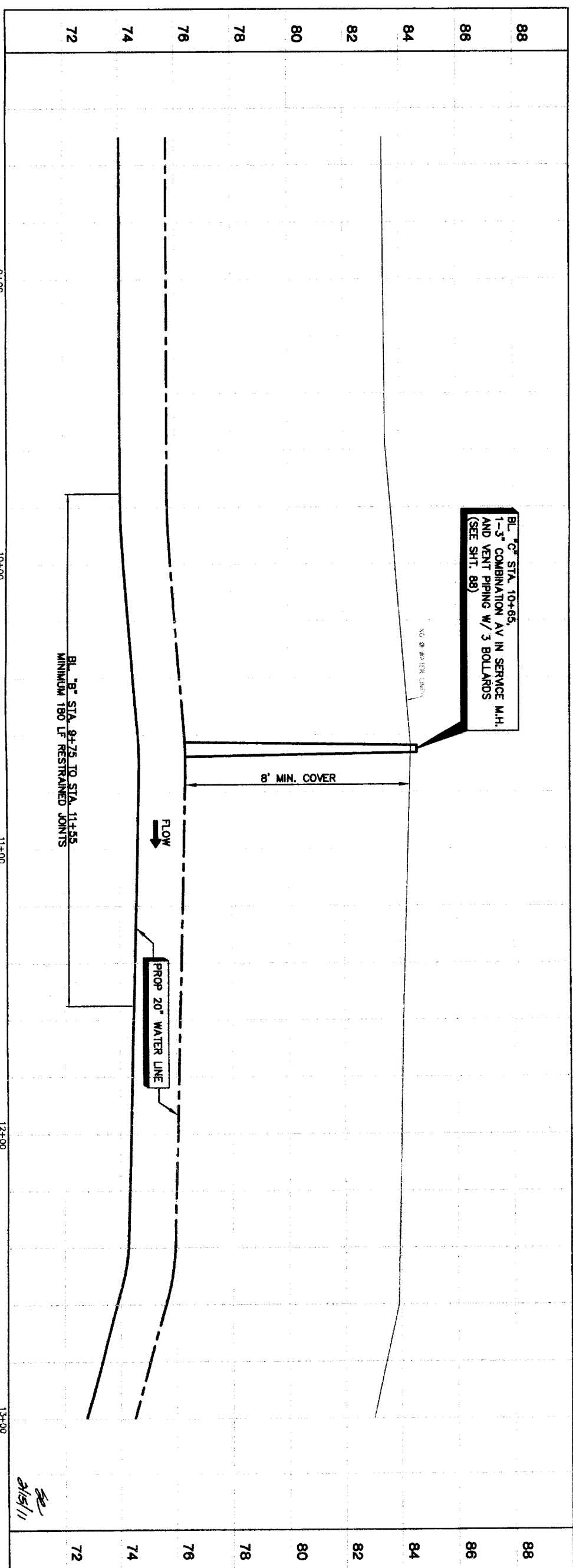
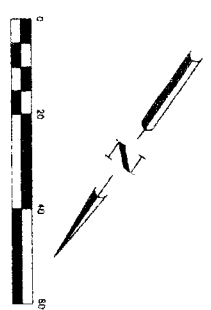
NOTE: CITY SPECIFICATIONS VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURE  
 DESIGNER: *[Signature]*  
 CHECKER: *[Signature]*  
 DATE: 11.13.11  
 STANDARD WATER QUALITY  
 FAD/UBS

FILE NO: \_\_\_\_\_  
 DRAWING SCALE  
 HORIZ: 1"=20'  
 VERT: 1"=2'  
 SHEET No. 21 of 108

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
CI	1234.51°	3600.00	790.49	N 29°28'36" W	788.90
C2	3525.31°	1700.00	1051.08	N 18°03'16" W	1034.42



NOTES:  
 1. REMOVE AND REPLACE 100 LF OF EXISTING BARB WIRE FENCE.



BL "C" STA. 10+65,  
 1-3" COMBINATION AV IN SERVICE M.H.  
 AND VENT PIPING W/ 3 BOLLARDS  
 (SEE SHT. 88)

BL "B" STA. 9+75 TO STA. 11+55  
 MINIMUM 180 LF RESTRAINED JOINTS

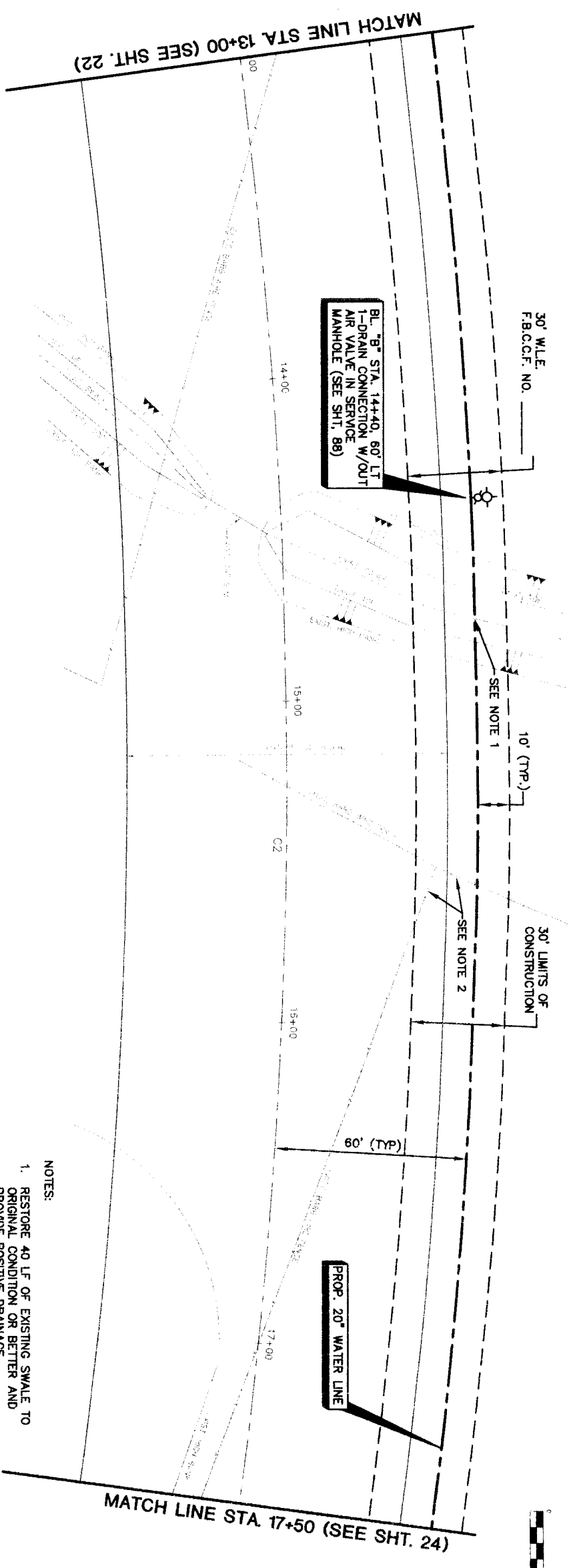
8' MIN. COVER

FLOW

PROP 20" WATER LINE

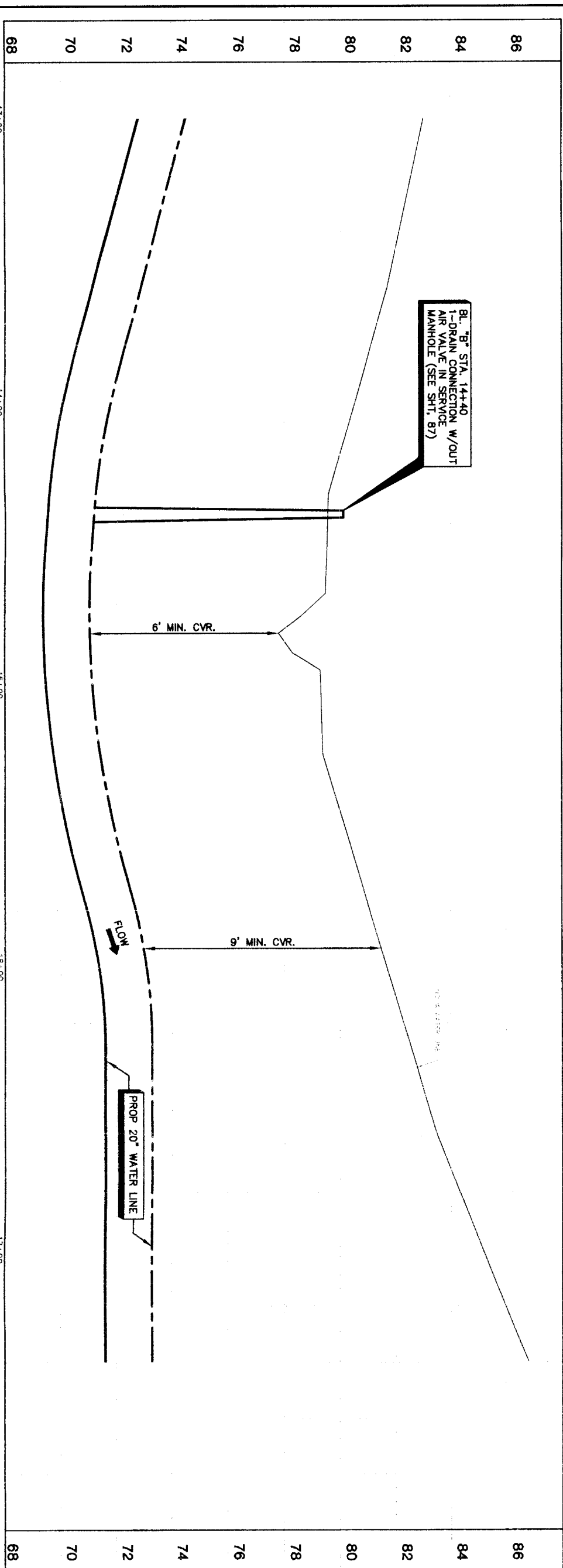
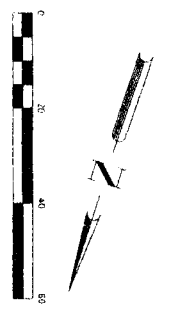
<p>PRIVATE UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>Centerpoint Energy/ Electric Facilities (Approved only for crossing underground facilities, unless otherwise noted) valid at time of review only.</p> <p>SBC UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>SBC Approved for underground conduit facilities only. Signature valid for one year.</p> <p>Date: _____</p> <p>Centerpoint Energy/ Gas Facilities (Gas service lines are not shown.)</p>		<p>NOTICE:</p> <p>AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW, OR EXISTENTS CALL ONE: STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-689-8344</p> <p>TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7777.</p>	
<p><b>BROWN &amp; GAY ENGINEERS, INC.</b></p> <p>Brown &amp; Gay Engineers, Inc.          10777 Westchase Square, Suite 100          Houston, Texas 77036          Tel: 281-468-8700          Fax: 281-558-8701          www.browngay.com</p>		<p><b>CITY OF HOUSTON</b></p> <p>DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p> <p>1-31 MONTHLY AND INSPECTION</p> <p>1-13-11</p> <p>1-13-11</p> <p>1-13-11</p>	
<p><b>NORTH FORT BEND</b></p> <p>PLAN &amp; PROFILE</p> <p>BASELINE "B"</p> <p>ALONG WEST ALANA TRACE DRIVE</p> <p>FROM STA. 8+50 TO STA. 13+00</p>		<p>DATE CITY SEALS/STAMPS VALID FOR ONE YEAR ONLY AFTER DATE OF EXPIRATION</p> <p>47757</p>	
<p>FILE NO.:</p> <p>DRAWING SCALE:</p> <p>HORIZ: 1"=20'</p> <p>VERT: 1"=2'</p> <p>SHEET No. 22 of 108</p>		<p>FOR CITY OF HOUSTON USE ONLY</p>	

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C2	3625.31°	1700.00	1051.08	N 1803°16' W	1034.42



FUTURE WEST ALIANA TRACE DRIVE

- NOTES:
1. RESTORE 40 LF OF EXISTING SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.
  2. REMOVE AND REPLACE 52 LF OF EXISTING BARB WIRE FENCE.



BL. "B" STA. 14+40  
1-DRAIN CONNECTION W/OUT AIR VALVE IN SERVICE MANHOLE (SEE SHT. 87)

BL. "B" STA. 14+40, 60' LT  
1-DRAIN CONNECTION W/OUT AIR VALVE IN SERVICE MANHOLE (SEE SHT. 88)

PROP. 20" WATER LINE

PROP. 20" WATER LINE

PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
Centerpoint Energy/Electric Facilities (Approved only for crossing underground facilities; unless otherwise noted.)  
Valid At Time Of Review Only  
SIC UTILITY LINES SHOWN  
Date: \_\_\_\_\_  
SIC Approved for underground conduit facilities only  
Signature valid for one year.  
Date: \_\_\_\_\_

Centerpoint Energy/ Gas Facilities  
Gas service lines are not shown.  
NOTICE:  
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL LOU STAB NOTIFICATION CENTER, (713) 223-4587 OR 1-800-669-8344  
TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7777.

NO.	DATE	REVISION	APPROX.
1			
2			
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4			

**BROWN & GAY ENGINEERS, INC.**  
Brown & Gay Engineers, Inc.  
10777 Westchase, Suite 400  
Houston, Texas 77042  
Tel: 281-558-8700  
Fax: 281-558-8701  
Our Engineers are Supervisors

**STATE OF TEXAS**  
JAMES B. HANCOCK  
COMMISSIONER  
93708  
PROFESSIONAL ENGINEER  
No. 12583  
Brown & Gay Engineers, Inc.  
F-1048

**NFBWA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE "B"**  
**ALONG WEST ALIANA TRACE DRIVE**  
**FROM STA. 13+00 TO STA. 17+50**

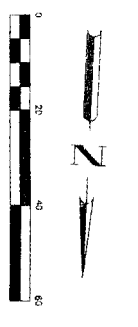
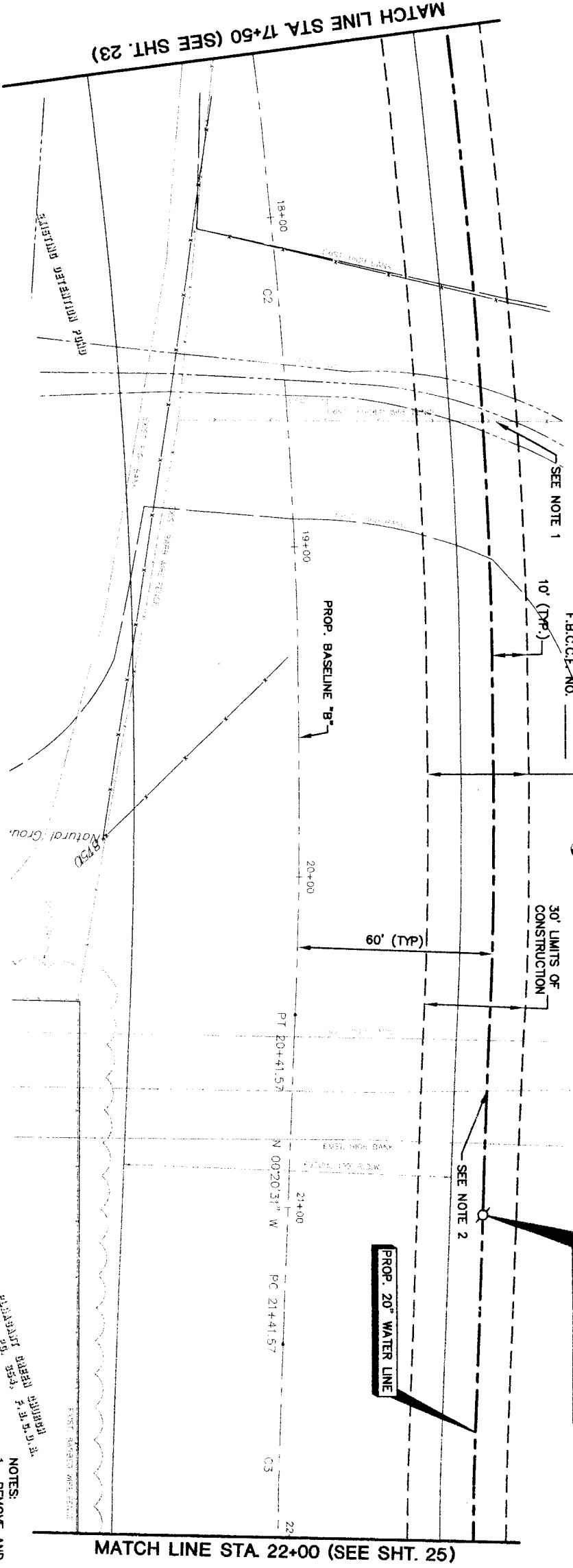


**CITY OF HOUSTON**  
DEPARTMENT OF PUBLIC WORKS AND ENVIRONMENT  
TRAFFIC AND TRANSPORTATION

NOTE: CITY ENGINEERS VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES	
WATER MAIN	STORM WATER QUALITY
STORM	FAHRES
SHEET & BRIDGE	
FILE NO.:	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
HORIZ: 1"=20'	
VERT: 1"=2'	

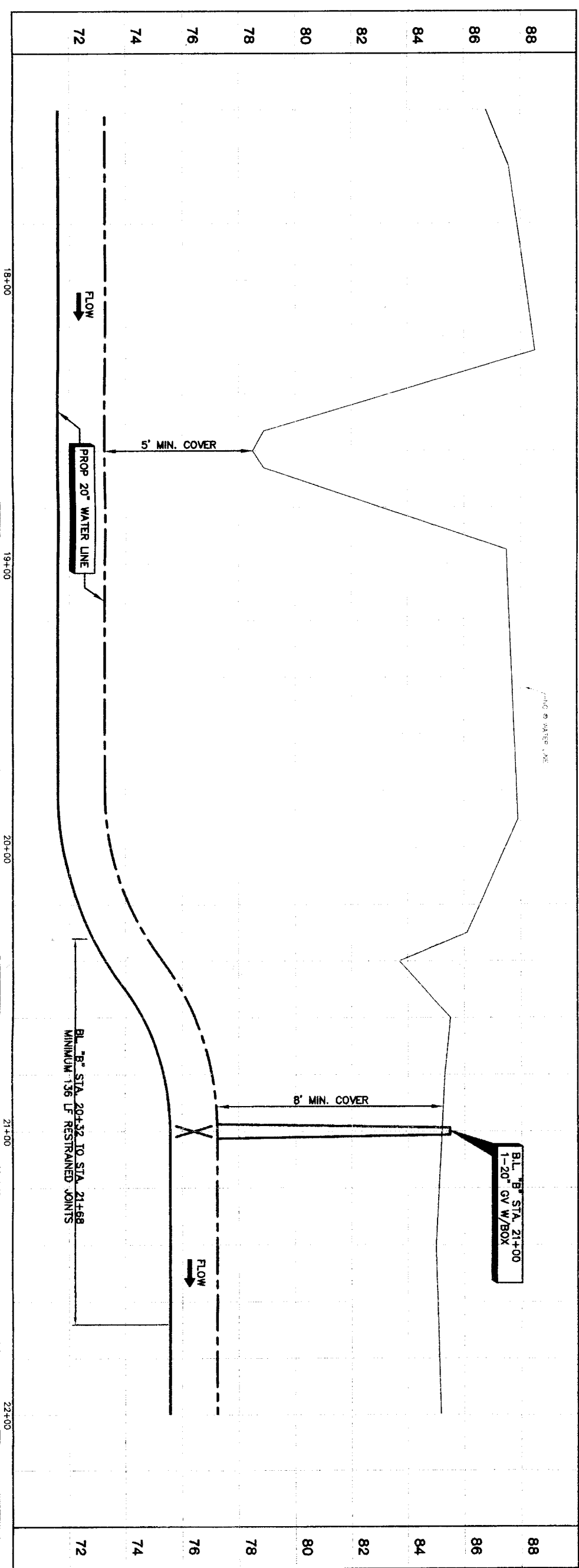
SHEET NO. **23** OF 108

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C2	3525.31°	1700.00	1051.08	N 1803.16° W	1034.42
C3	0854.45°	2500.00	398.88	N 04°47'54" E	398.49



**FUTURE WEST ALIANA TRACE DRIVE**

- NOTES:**
1. REMOVE AND REPLACE 30 LF OF EXISTING BARB WIRE FENCE.
  2. RESTORE 40 LF OF EXISTING SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.



**PRIVATE UTILITY LINES SHOWN**

<p>Centerpoint Energy/ Electric Facilities (approved only, valid at time of review only)          SBC UTILITY LINES SHOWN</p>	<p>Date: _____</p>
<p>SBC Approved for underground conduit facilities only          Signature valid for one year</p>	<p>Date: _____</p>
<p>Centerpoint Energy/ Gas Facilities          (Gas service lines are not shown.)</p>	<p>Date: _____</p>
<p><b>NOTICE:</b>          AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW, OR EASEMENTS CALL ONE STAR NOTIFICATION CENTER (713) 223-4567 OR 1-800-659-8344</p>	<p>TO APPEAR FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7777</p>

NO.	DATE	REVISION	APPROV.
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**BROWN & GAY ENGINEERS, INC.**  
 1100 West Loop West, Suite 200  
 Houston, TX 77027  
 TEL: 281-966-8700  
 FAX: 281-966-8701  
 www.browngay.com

*John D. Harp*  
 F-1046

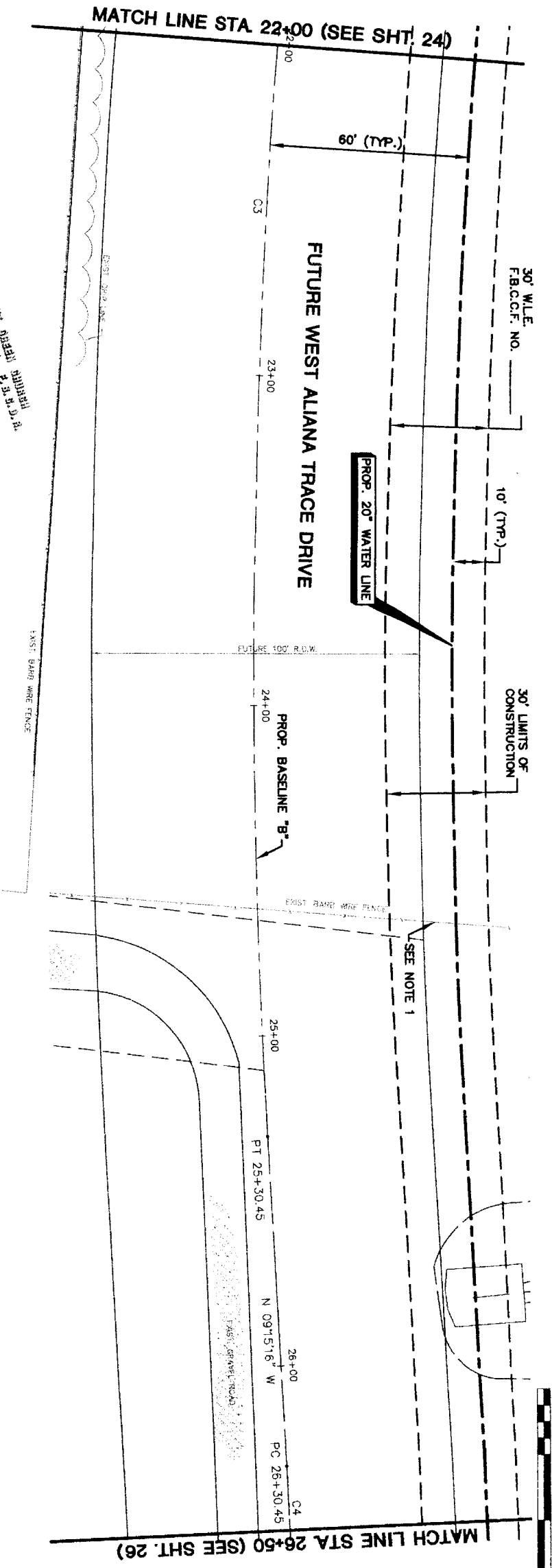
**NFBWA SEGMENT 4B**

**PLAN & PROFILE**  
**BASELINE "B"**  
**ALONG WEST ALIANA TRACE DRIVE**  
**FROM STA. 17+50 TO STA. 22+00**

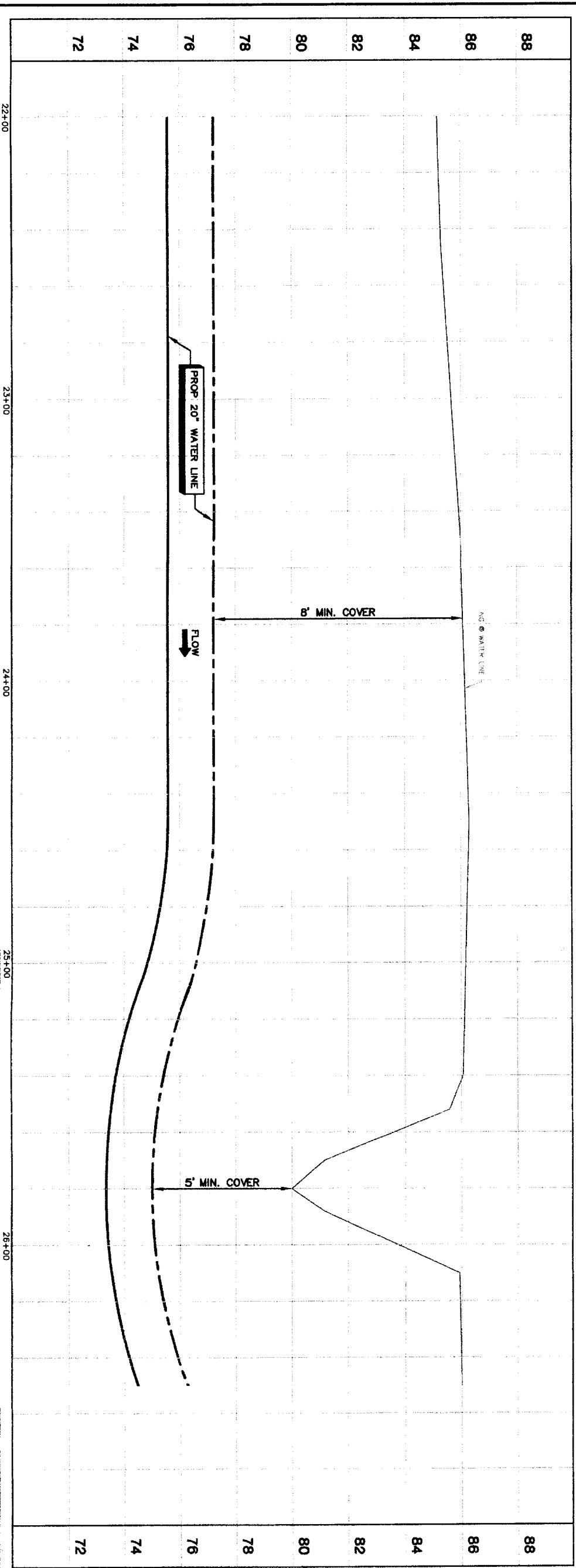
**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 PUBLIC WORKS DIVISION

<p>NOTE: CITY REQUIREMENTS VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES</p>	<p>DATE: _____</p>
<p>PROJECT &amp; PROFILE</p>	<p>DATE: _____</p>
<p>FILE NO.:</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE</p>	<p>DATE: _____</p>
<p>HORIZ: 1"=20'</p>	<p>DATE: _____</p>
<p>VERT: 1"=2'</p>	<p>DATE: _____</p>
<p>SHEET NO. 24 OF 108</p>	<p>DATE: _____</p>

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C3	085°45'	2500.00	388.88	N 04°47'54" E	388.49
C4	070°16'	2000.00	247.41	N 05°42'38" W	247.25



NOTES:  
1. REMOVE AND REPLACE 30 LF OF EXISTING BARR WIRE FENCE.



PRIVATE UTILITY LINES SHOWN

Centerpoint Energy/ Electric Facilities (approved only for crossing underground facilities unless otherwise noted. Void at Time of Reveal Only)  
SBC UTILITY LINES SHOWN  
Date: \_\_\_\_\_  
Signature valid for one year.  
SBC Approved for underground conduit facilities only.  
Date: \_\_\_\_\_  
Centerpoint Energy/ Gas Facilities  
Gas service lines are not shown.  
Date: \_\_\_\_\_

NOTICE:  
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW, OR EASEMENTS CALL LONE STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-689-8344  
TO ARRANGE FOR LINES TO BE TURNED OFF, OR MOVED, CALL CENTERPOINT AT 713-207-7777.

NO.	DATE	REVISION	APPROVED
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**BROWN & GAY ENGINEERS, INC.**  
Brown & Gay Engineers, Inc.  
1401 West Loop West, Suite 400  
Houston, TX 77027  
Tel: 281-688-8700  
Fax: 281-688-8702  
www.browngay.com  
— Civil Engineers and Surveyors —  
L. Brown  
L. Gay

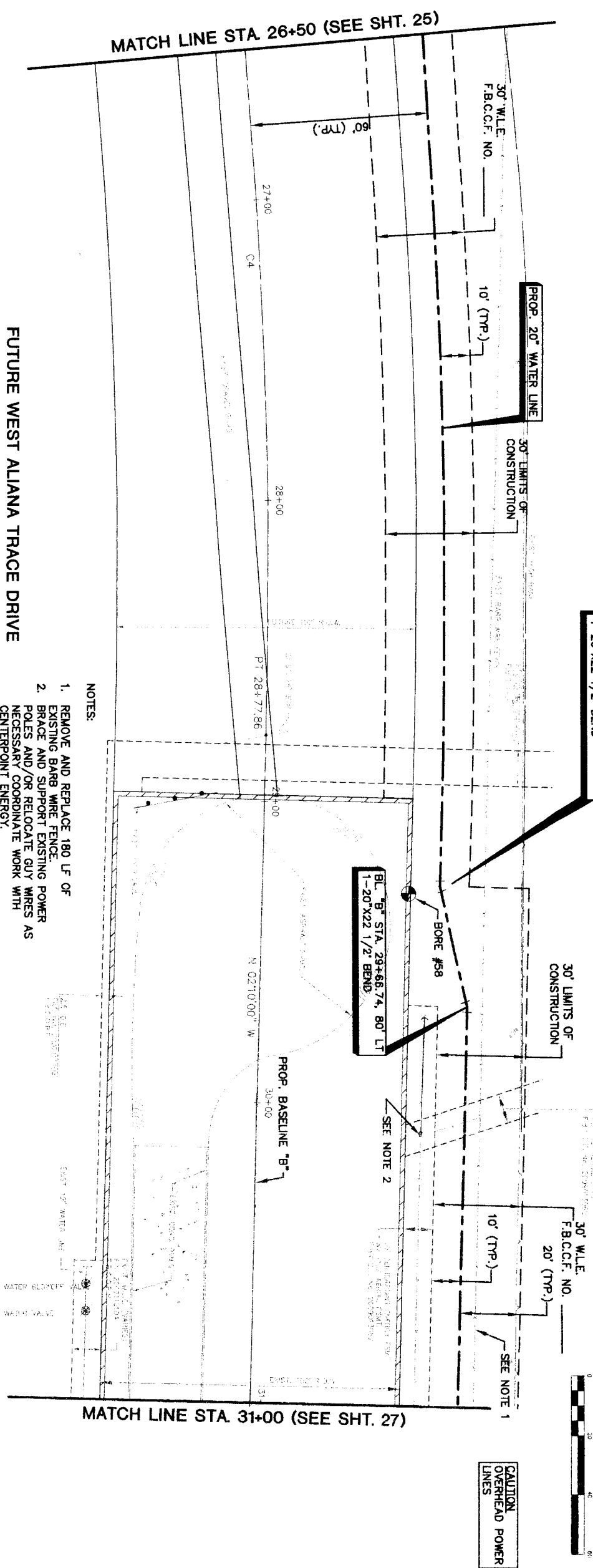
**NFBWA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE 'B'**  
**ALONG WEST ALANA TRACE DRIVE**  
**FROM STA 22+00 TO STA 26+50**



**CITY OF HOUSTON**  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
PLANS AND ENGINEERING

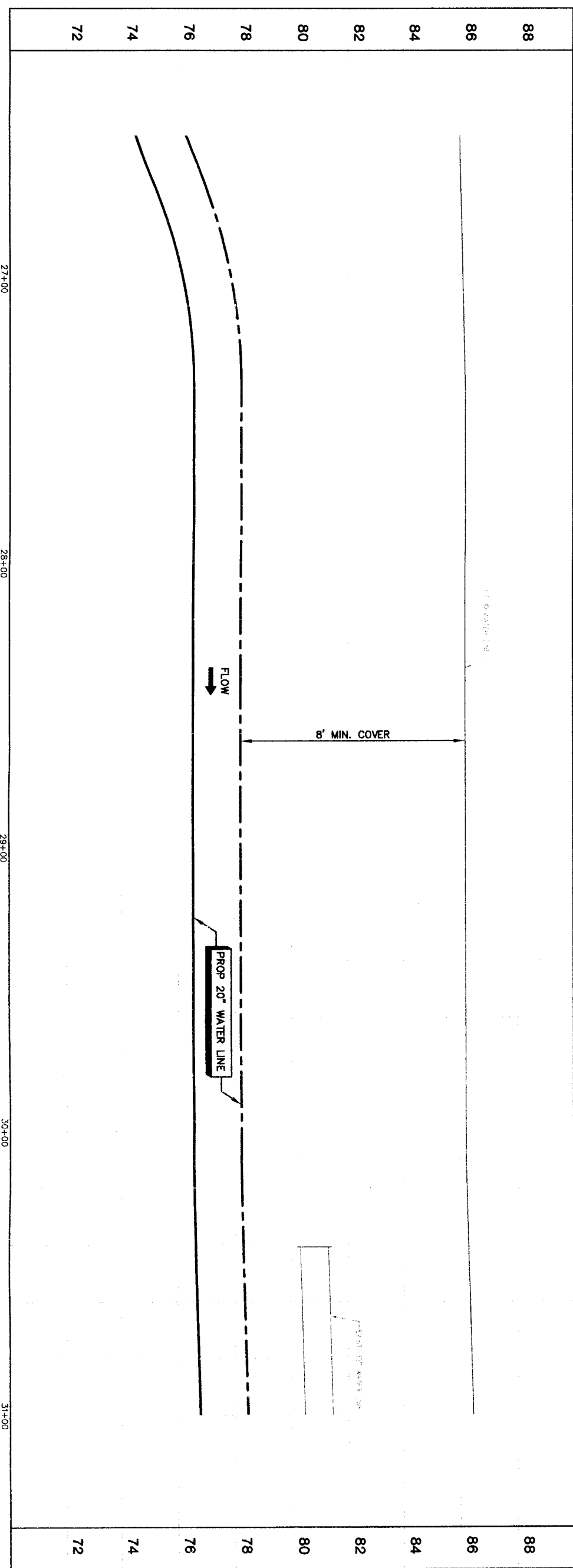
DATE: 02/22/2011 10:55am	BY: WRIGHT
LOCATION: M:\Projects\NFBWA\NFB13-50 - Segment 4\NFBWA\Sheets	
NAME: PLAN & PROFILE ALONG WEST ALANA FROM STA 22+00 TO STA 26+50.dwg	
FILE NO:	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE:	
HORIZ: 1"=20'	
VERT: 1"=2'	
SHEET NO: 25	OF 108

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C4	07°05'16"	2000.00	247.41	N 05°42'38" W	247.25



- NOTES:
1. REMOVE AND REPLACE 180 LF OF EXISTING BARR WIRE FENCE.
  2. BRACE AND SUPPORT EXISTING POWER POLES AND/OR RELOCATE GUY WIRES AS NECESSARY COORDINATE WORK WITH CENTERPOINT ENERGY.

DATE: 02/28/11



CAUTION OVERHEAD POWER LINES

PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 Centerpoint Energy/ Electric Facilities (approved only noted) for crossing underground facilities, unless otherwise noted. Void At Time Of Review Only.  
 SBC UTILITY LINES SHOWN  
 Date: \_\_\_\_\_  
 SBC Approved for underground conduit facilities only. Signature valid for one year.  
 Date: \_\_\_\_\_  
 Centerpoint Energy/ Gas Facilities (GAS service lines are not shown.)  
 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 713-507-7777.

NO.	DATE	REVISION	APPROVAL
1			
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**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 5777 West Loop West, Suite 200  
 Houston, Texas 77028  
 Tel: 281-588-8700  
 Fax: 281-588-8701  
 CNE Engineers and Surveyors

**NFBWA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE "B"**  
**ALONG WEST ALIANA TRACE DRIVE**  
**FROM STA. 26+50 TO STA. 31+00**

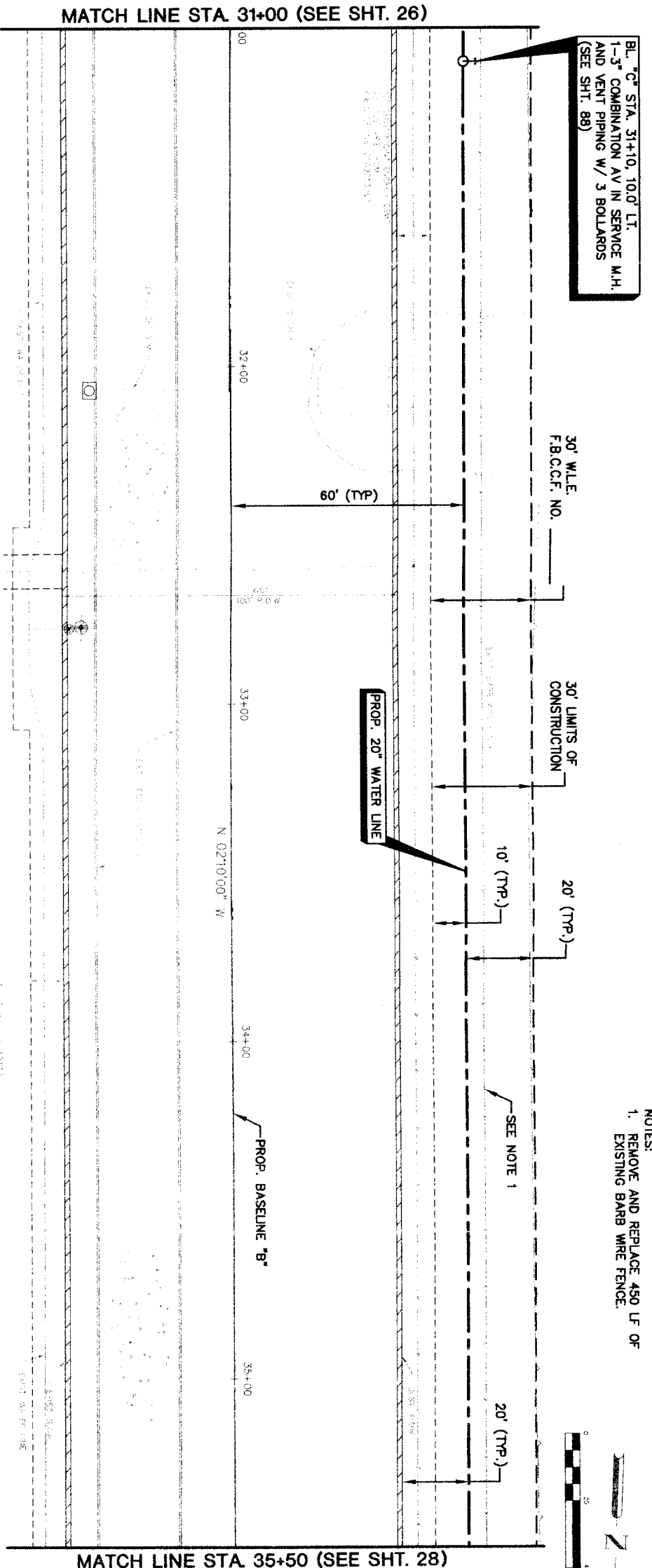
**NORTH FORT BEND**

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

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 NORTH AND TRANSPORTATION

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

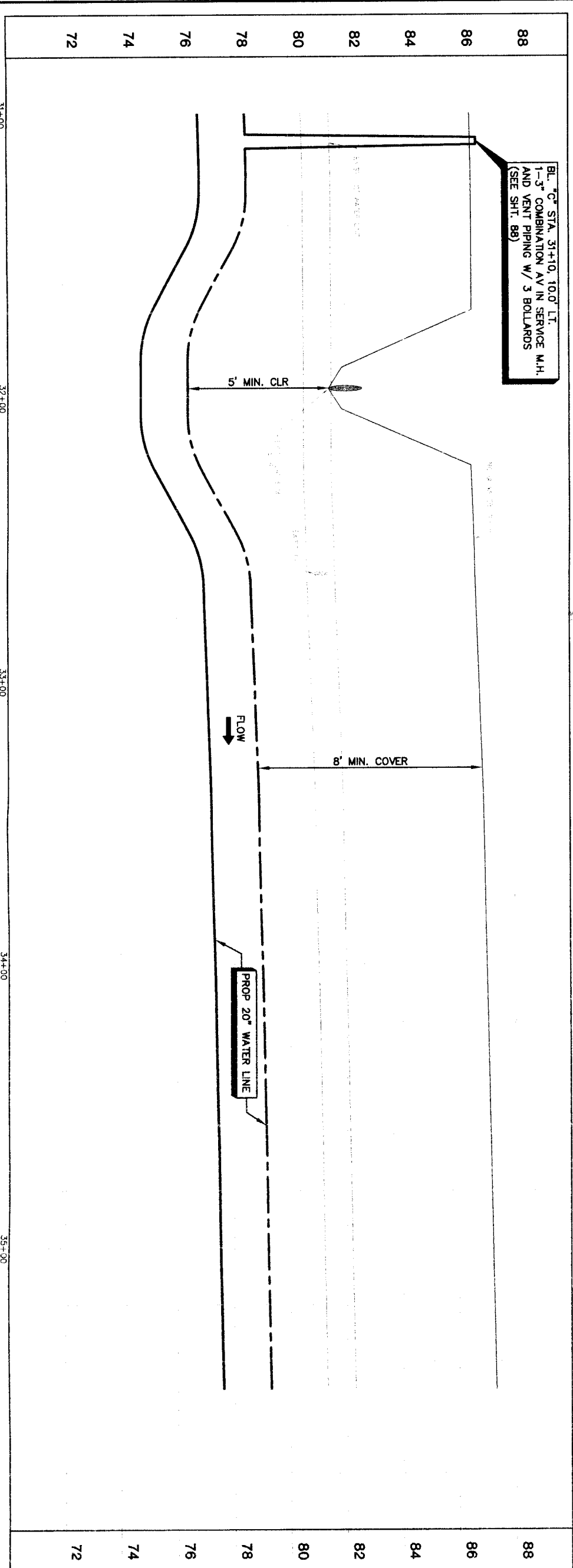
SHEET NO. 26 OF 108	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
HORIZ : 1"=20'	
VERT : 1"=2'	



BL. "C" STA. 31+10, 10.0' LT.  
 1-3" COMBINATION AV IN SERVICE M.H.  
 AND VENT PIPING W/ 3 BOLLARDS  
 (SEE SHT. 88)

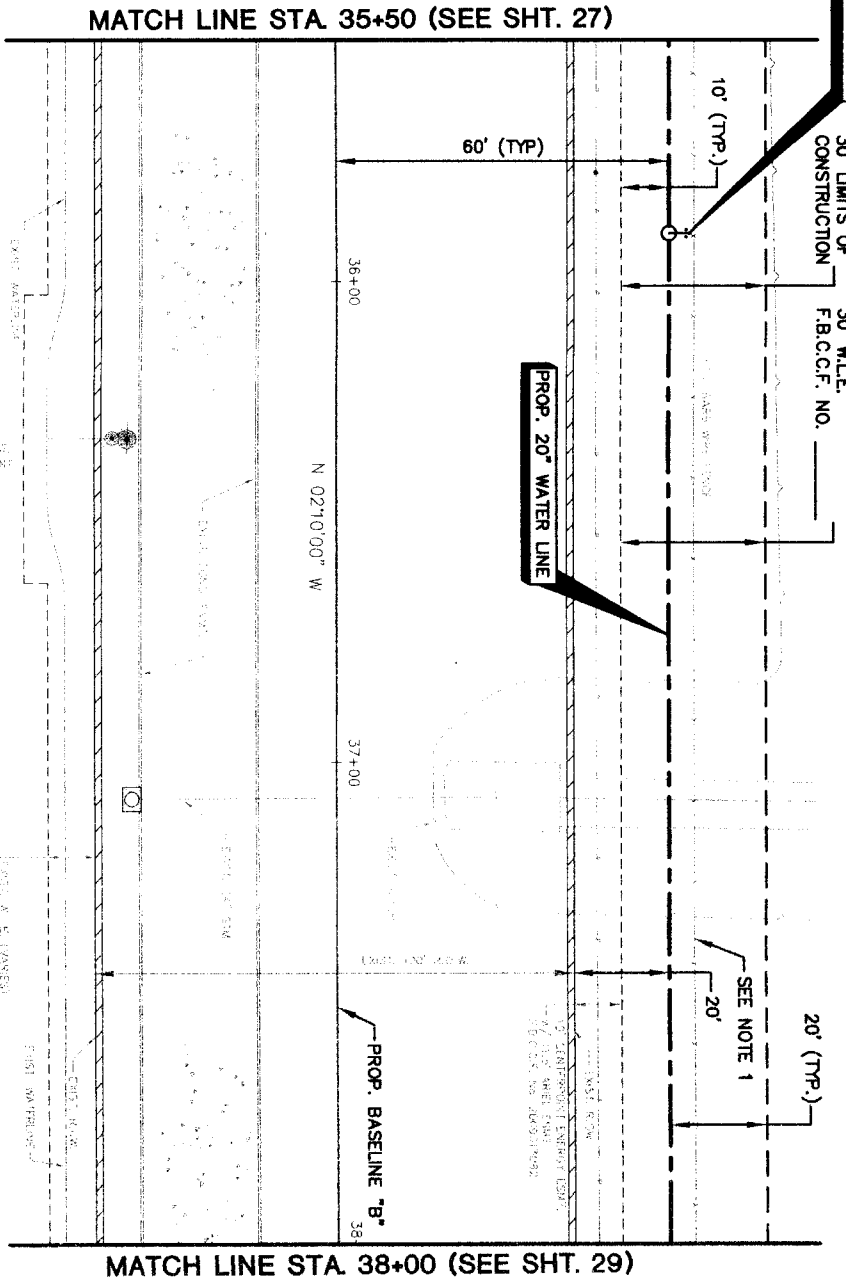
BL. "C" STA. 31+10, 10.0' LT.  
 1-3" COMBINATION AV IN SERVICE M.H.  
 AND VENT PIPING W/ 3 BOLLARDS  
 (SEE SHT. 88)

- NOTES:  
 1. REMOVE AND REPLACE 450 LF OF EXISTING BARB WIRE FENCE.



PRIVATE UTILITY LINES SHOWN	
Date:	
Centerpoint Energy/ Electric Facilities (approved only for crossing underground ductlines, unless otherwise noted.) Valid At Time Of Review Only	
SBC UTILITY LINES SHOWN	Date:
SBC Approved for underground conduit facilities only. Signature valid for one year.	Date:
Centerpoint Energy/ Gas Facilities GAS service lines are not shown.	
NOTICE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.C.W. OR EASEMENTS CALL LOUIE STAR NOTIFICATION CENTER (713) 223-4567 OR 1-800-658-6344 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-7777.	
NO. DATE REVISION APPROX.	
1	
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<b>BROWN &amp; GAY</b> ENGINEERS, INC. Brown & Gay Engineers, Inc. 10277 Westchase Square 400 Houston, Texas 77036 Tel: 281-558-8700 Fax: 281-558-9701 Civil Engineers and Surveyors Brown & Gay Engineers, Inc. F-1048	
<b>NFBWA SEGMENT 4B</b> <b>PLAN &amp; PROFILE</b> <b>BASELINE "B"</b> <b>ALONG WEST ALIANA TRACE DRIVE</b> <b>FROM STA. 31+00 TO STA. 35+50</b>	
<b>CITY OF HOUSTON</b> DEPARTMENT OF PUBLIC WORKS AND ENGINEERING TRAFFIC AND TRANSPORTATION	
NOTE: CITY SEAL/STAMPES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES	
MATERIALS	STONE WATER QUALITY
STORM	FINISHES
STREET & BRIDGE	
FILE NO:	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
HORIZ. 1"=20'	
VERT. 1"=2'	
SHEET No. 27 of 108	

BL. "C" STA. 35+90, 10.0' LT.  
 1-3" COMBINATION AV IN SERVICE M.H.  
 AND VENT PIPING W/ 3 BOLLARDS  
 (SEE SHT. 88)

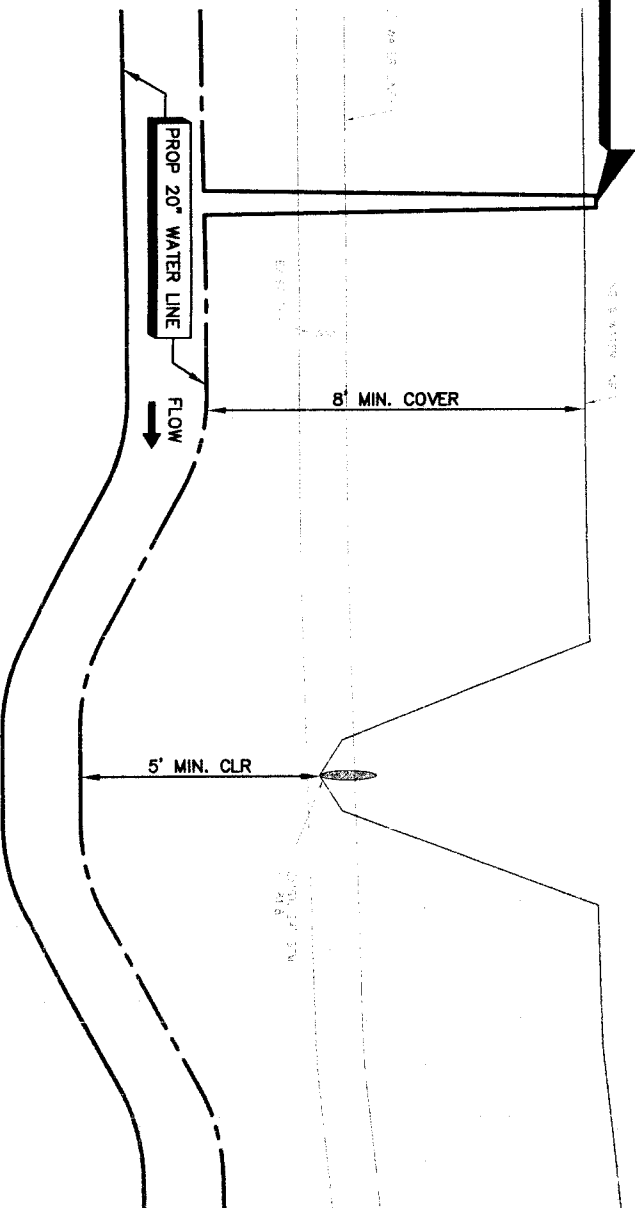


MATCH LINE STA 35+50 (SEE SHT. 27)

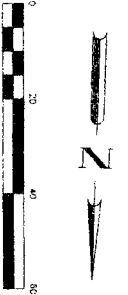
MATCH LINE STA 38+00 (SEE SHT. 29)

FUTURE WEST ALIANA TRACE DRIVE

BL. "C" STA. 35+90, 10.0' LT.  
 1-3" COMBINATION AV IN SERVICE M.H.  
 AND VENT PIPING W/ 3 BOLLARDS  
 (SEE SHT. 88)



- NOTES:  
 1. REMOVE AND REPLACE 250 LF OF  
 EXISTING BARB WIRE FENCE.



PRIVATE UTILITY LINES SHOWN

Date:	
Centerpoint Energy/ Electric Facilities: (approved only for crossing underground ductlines, unless otherwise noted). Valid At Time Of Review Only	
SBC UTILITY LINES SHOWN	Date:
SBC Approved for underground conduit facilities only. Signature valid for one year.	Date:
Centerpoint Energy/ Gas Facilities	Date:
Centerpoint Energy/ Gas Facilities	Date:
NOTICE: AT LEAST 48 HOURS BEFORE EXCAVATING, IN STREET ROW OR ELEMENTS CALL ONE STAR NOTIFICATION CENTER: (713) 223-4567 OR 1-800-669-8344	
TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7177.	

NO.	DATE	REVISION	APPROV.
1			
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**BROWN & GAY ENGINEERS, INC.**  
 5077 Montrose, Suite 400  
 Houston, Texas 77056  
 Tel: 281-566-9700  
 Fax: 281-566-9701  
 www.browngay.com

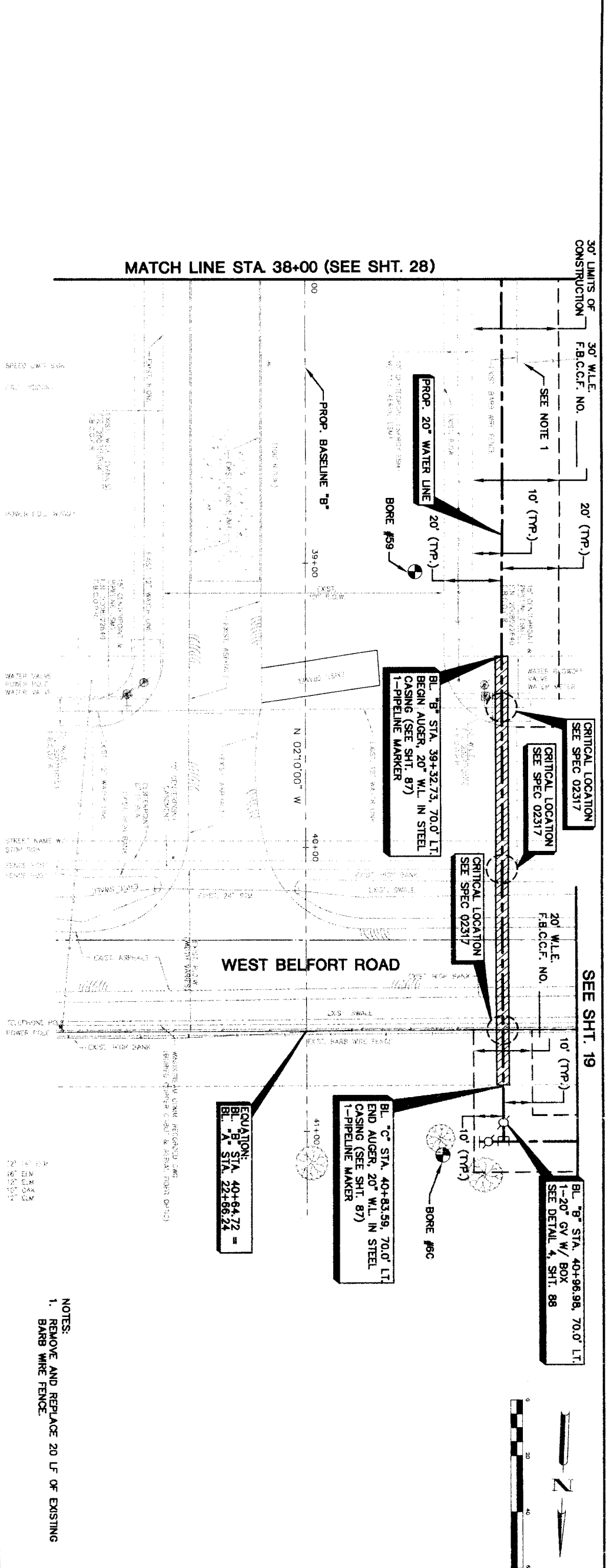
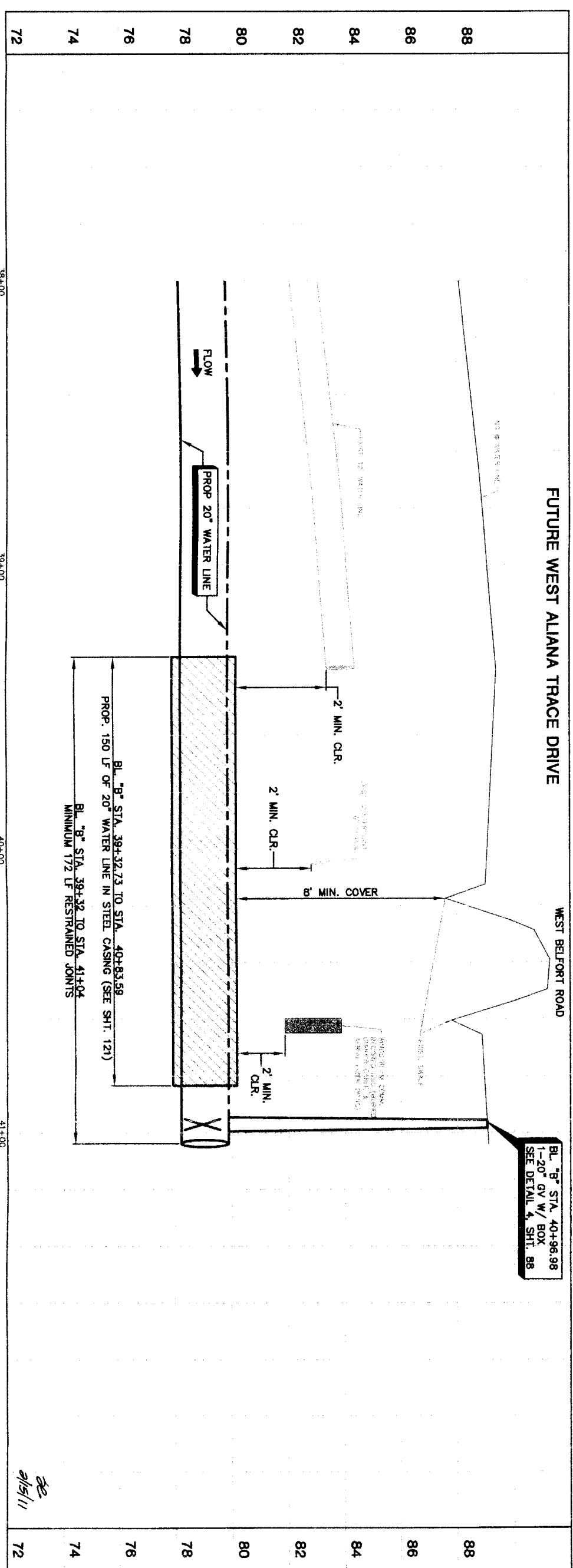
**Professional Engineer Seal:**  
 License No. 93706  
 State of Texas  
 Mechanical Engineering  
 Expires 12/31/2011

**NFBWA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE "B"**  
**ALONG WEST ALIANA TRACE DRIVE**  
**FROM STA. 35+50 TO STA. 38+00**

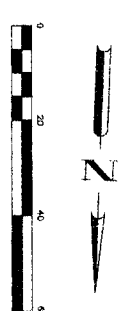


**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 TRAFFIC AND INFRASTRUCTURE

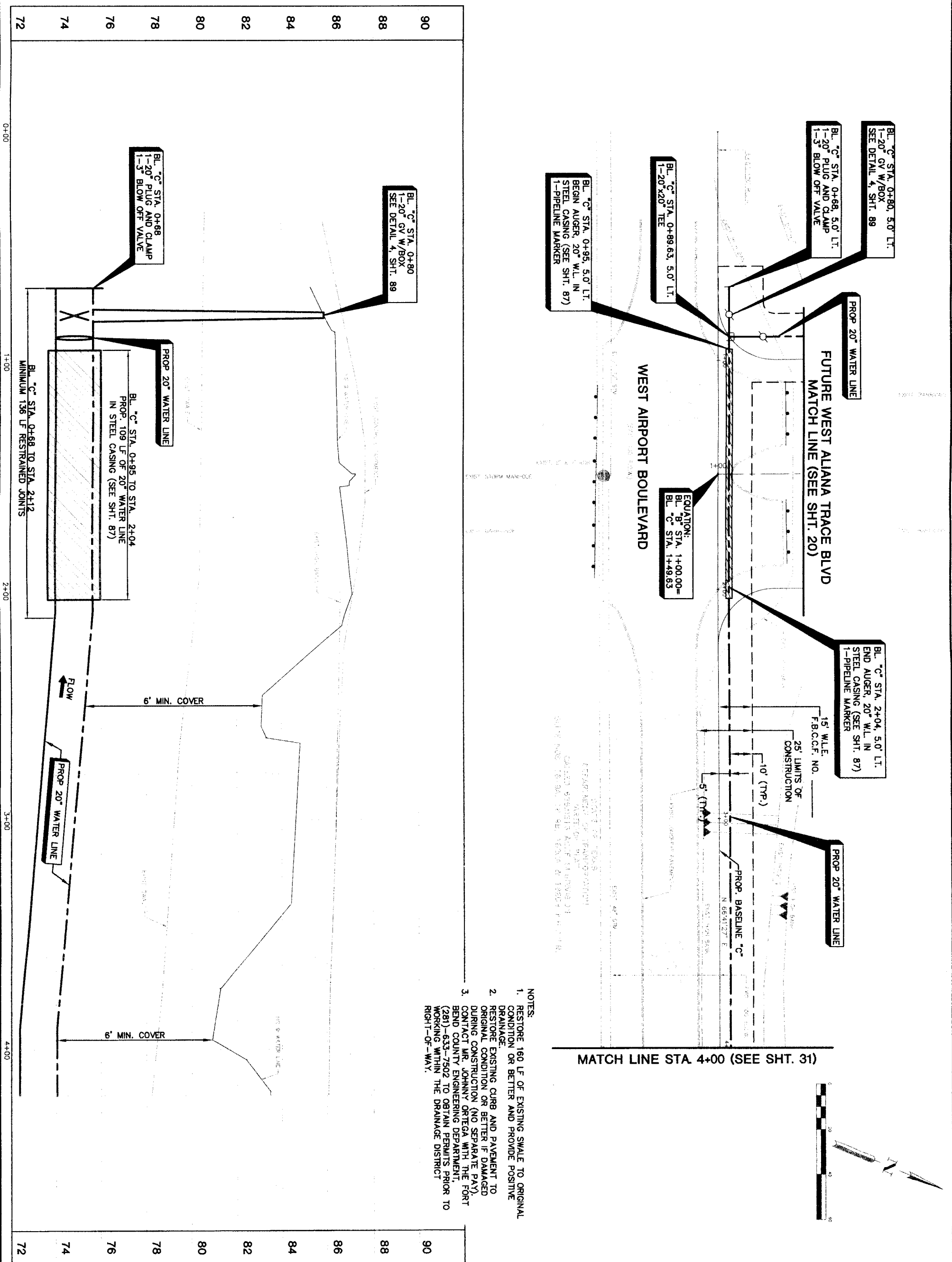
WATERMANS	STOCK WATER QUALITY
STRONG	FACILITIES
STREET & BRIDGE	
FILE NO:	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
HORIZ: 1"=20'	
VERT: 1"=2'	
SHEET NO: 28 OF 108	



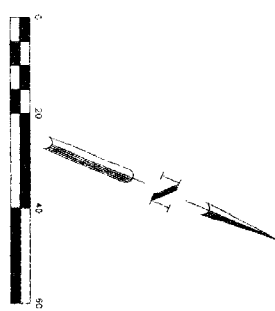
NOTES:  
 1. REMOVE AND REPLACE 20 LF OF EXISTING BARR WIRE FENCE.



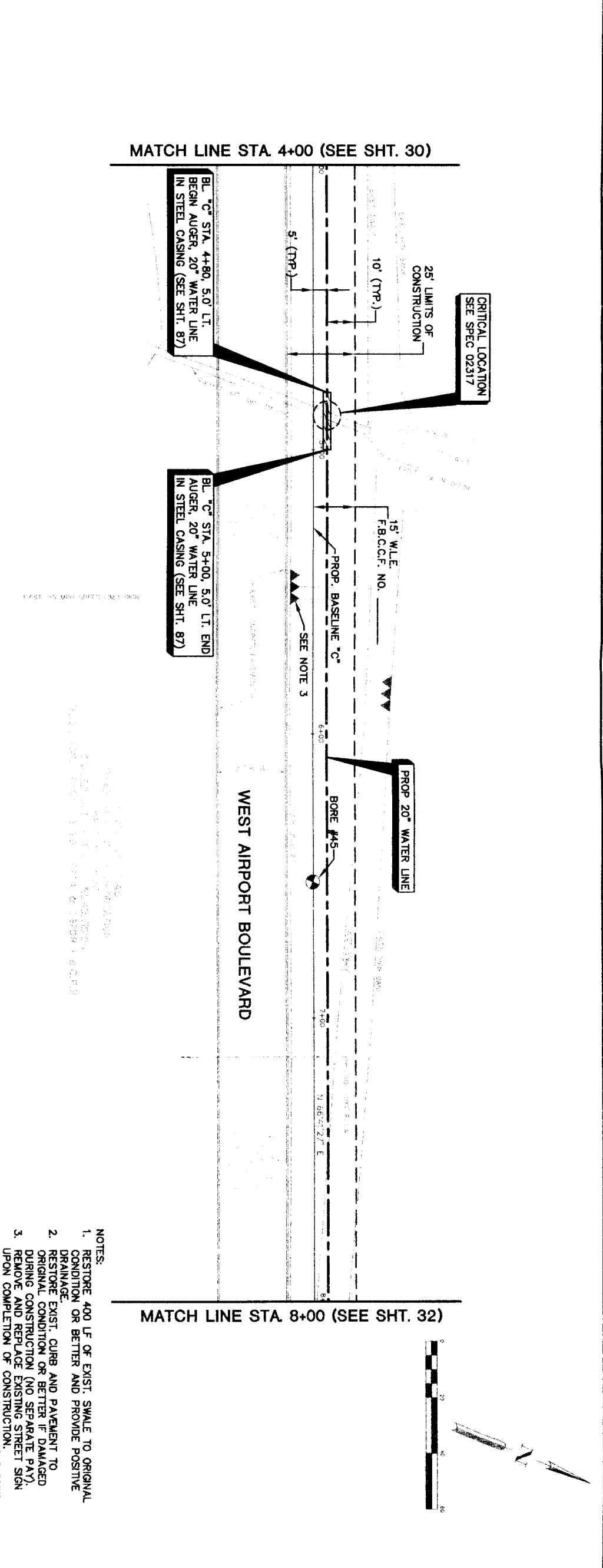
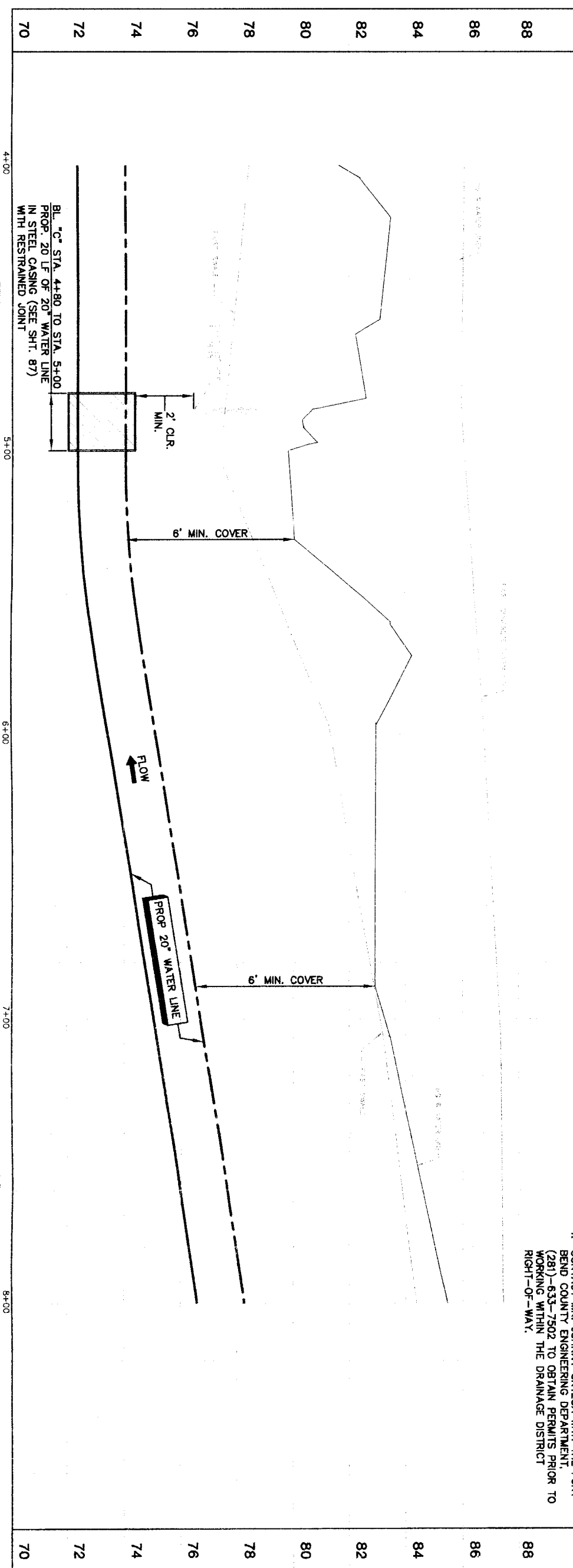
<b>PRIVATE UTILITY LINES SHOWN</b> Date: _____ Signature: _____ SBC Approved for underground conduit facilities only. Signature valid for one year. Date: _____ Centennial Energy/gas facilities (gas service lines are not shown). NOTICE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS 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.	
<b>BROWN &amp; GAY ENGINEERS, INC.</b> ANTONIO, B. HANGNON LICENSED PROFESSIONAL ENGINEER 93706 HOUSTON, TX 77024 9277 Westmoreland, Suite 400 Houston, TX 77024 Tel: 281-558-9711 Fax: 281-558-9711 www.browngay.com Civil Engineers and Surveyors	
<b>NFBWA SEGMENT 4B</b> <b>PLAN &amp; PROFILE</b> <b>BASELINE \"B\"</b> <b>ALONG WEST ALIANA TRACE DRIVE</b> <b>FROM STA. 38+00 TO END</b>	
<b>CITY OF HOUSTON</b> DEPARTMENT OF PUBLIC WORKS AND ENGINEERING TRAFFIC AND TRANSPORTATION 1-27-11 1/13/11 SHEET & SPECIFIC	
FILE NO.: _____ DRAWING SCALE: HORIZ: 1"=20' VERT: 1"=2' SHEET NO. 29 OF 108	



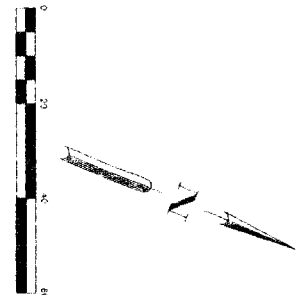
- NOTES:**
1. RESTORE 160 LF OF EXISTING SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.
  2. RESTORE EXISTING CURB AND PAVEMENT TO ORIGINAL CONDITION OR BETTER IF DAMAGED DURING CONSTRUCTION (NO SEPARATE PAY).
  3. CONTACT MR. JOHNNY ORTEGA WITH THE PORT BEND COUNTY ENGINEERING DEPARTMENT, (281)-633-7502 TO OBTAIN PERMITS PRIOR TO WORKING WITHIN THE DRAINAGE DISTRICT RIGHT-OF-WAY.



<p>PRIVATE UTILITY LINES SHOWN</p>	<p>Date:          Contract Energy / Gas Facilities          (Showing underground facilities, (as shown only valid at time of review only)  <b>SBC UTILITY LINES SHOWN</b>          Date:          SBC Approved for underground conduit facilities only.          Signature valid for one year.          Date:</p>	<p>NOTICE:          AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW, OR EASEMENTS CALL LOHE STAR NOTIFICATION CENTER, (713) 223-4587 OR 1-800-589-8344          TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7777.</p>	<p>Scale: 1" = 20'          HORIZ: 1" = 20'          VERT: 1" = 2'</p>	<p><b>BROWN &amp; GAY ENGINEERS, INC.</b>          Brown &amp; Gay Engineers, Inc.          10777 Westmoreland, Suite 400          Houston, TX 77042          Tel: 281-668-6700          Fax: 281-668-6700          Civil Engineers and Surveyors</p>	<p><b>NFBWA SEGMENT 4B</b>  <b>PLAN &amp; PROFILE</b>  <b>BASELINE 'C'</b>  <b>ALONG WEST AIRPORT BOULEVARD</b>  <b>FROM STA. 1+00 TO STA. 4+00</b></p>	<p><b>CITY OF HOUSTON</b>          DEPARTMENT OF PUBLIC WORKS AND ENGINEERING          TRAFFIC AND TRANSPORTATION</p>	<p><b>NORTH PORT BEND</b></p>	<p>DATE: FEB 24, 2011          TIME: 9:32 AM          USER: wright</p>
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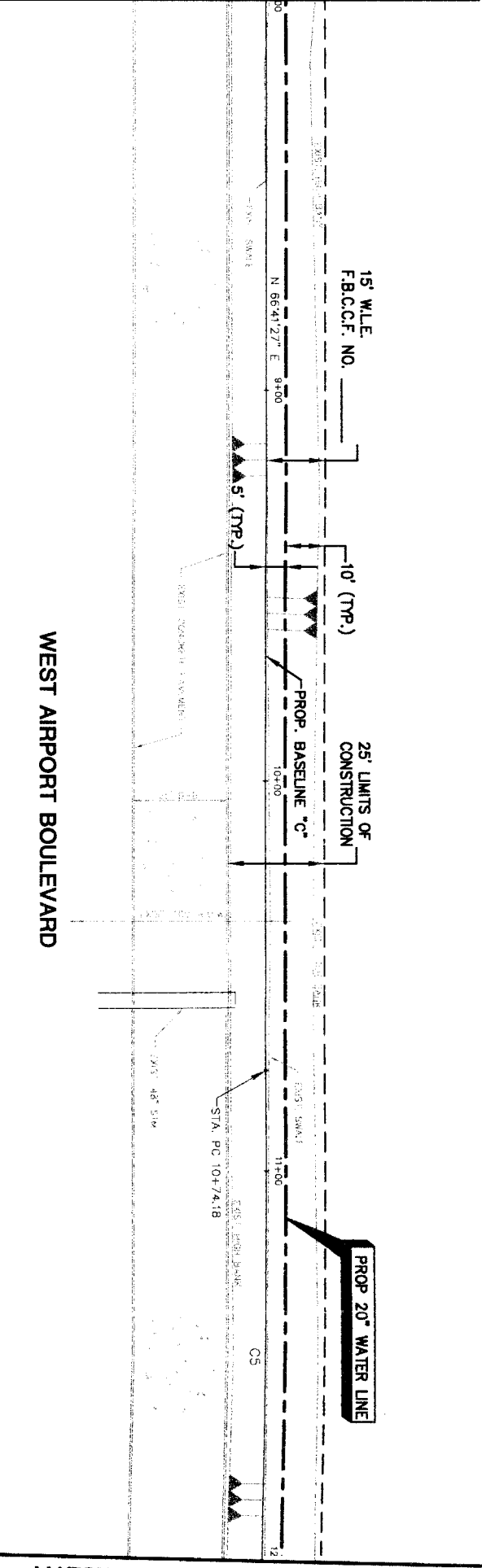
- NOTES:
1. RESTORE 400 LF OF EXIST. SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.
  2. RESTORE EXIST. CURB AND PAVEMENT TO ORIGINAL CONDITION OR BETTER IF DAMAGED DURING CONSTRUCTION (NO SEPARATE PAY).
  3. REMOVE AND REPLACE EXISTING STREET SIGN UPON COMPLETION OF CONSTRUCTION.
  4. CONTACT MR. JOHNNY ORTEGA WITH THE FORT BEND COUNTY ENGINEERING DEPARTMENT, (281)-633-7502 TO OBTAIN PERMITS PRIOR TO WORKING WITHIN THE DRAINAGE DISTRICT RIGHT-OF-WAY.



<p>PRIVATE UTILITY LINES SHOWN</p>	
<p>DATE: _____</p> <p>Prepared: Energy/Service Facilities (approved only)          Checked: _____          Valid At: Time Of Review Only</p>	<p>DATE: _____</p> <p>SBC UTILITY LINES SHOWN</p>
<p>DATE: _____</p> <p>SBC Approved for underground conduit facilities only.          Signature valid for one year.</p>	<p>DATE: _____</p> <p>Centerpoint Energy/ Gas Facilities          GAS service lines are not shown.</p>
<p>NOTICE:          AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET          R.O.W. OR EASEMENTS CALL LINE STAB NOTIFICATION          CENTER, (713) 223-4587 OR 1-860-669-5344</p>	
<p>TO ARRANGE FOR LINES TO BE TURNED OFF OR          MOVED, CALL CENTERPOINT AT 713-297-7777.</p>	
<p>NO. _____ DATE _____</p> <p>REVISION _____</p>	<p>APPROVED: _____</p>
<p><b>BROWN &amp; GAY ENGINEERS, INC.</b>          5377 Old Katy Road, Suite 200          Houston, TX 77056          Tel: 281-568-8700 Fax: 281-568-8700          www.browngay.com</p>	
<p><b>NFBWA SEGMENT 4B</b>          PLAN &amp; PROFILE          BASELINE "C"          ALONG WEST AIRPORT BOULEVARD          FROM STA. 4+00 TO STA. 8+00</p>	
<p><b>CITY OF HOUSTON</b>          DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p>	
<p>NOTE: CITY SEALING SHALL BE FOR ONE YEAR ONLY AFTER DATE OF SEALING</p>	
<p>WASTEWATER: _____</p> <p>STORM: _____</p> <p>STREET &amp; BRIDGE: _____</p>	<p>STORM WATER QUALITY: _____</p> <p>FAULTS: _____</p>
<p>FILE NO.: _____</p> <p>DRAWING SCALE: _____</p> <p>HORIZ: 1"=20'</p> <p>VERT: 1"=2'</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>SHEET NO. 31 OF 108</p>	

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
CS	15°55'22"	5050.00'	1404.89'	74°39'38"	1400.36'

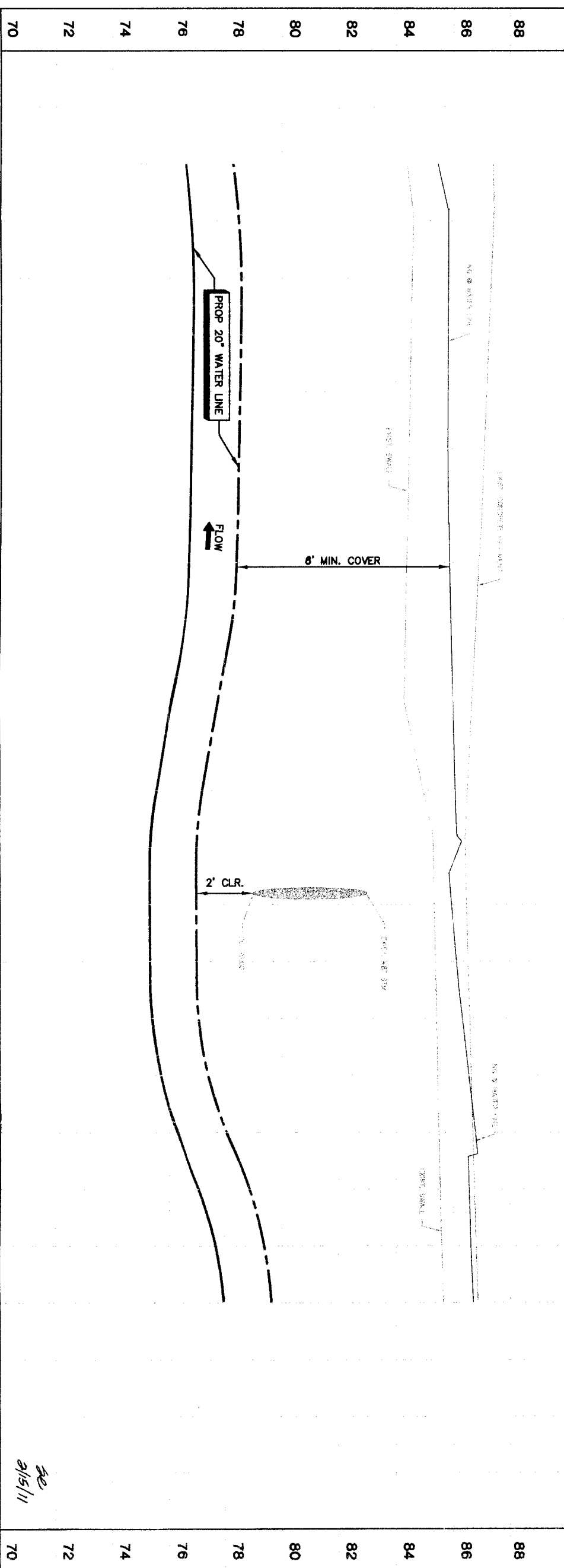
MATCH LINE STA. 8+00 (SEE SHT. 31)



MATCH LINE STA. 12+00 (SEE SHT. 33)

- NOTES:
- RESTORE 400 LF OF EXIST. SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.
  - RESTORE EXIST. CURB AND PAVEMENT TO ORIGINAL CONDITION OR BETTER IF DAMAGED DURING CONSTRUCTION (NO SEPARATE PAY).

LAST MODIFIED: Jun 06, 2011 - 11:50am BY USER: Sheen  
 DWG. LOCATION: M:\Projects\NFBWA\FB13-50 - Segment 4\48\_CADD\Sheen\  
 DWG. NAME: PLAN & PROFILE ALONG WEST AIRPORT FROM STA 8+00 TO STA 12+00.dwg



2/15/11

PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 Centipoint Energy/ Electric Facilities: (Approved only for crossing underground ductlines, unless otherwise noted.)  
 Valid At Time Of Review Only  
 SPC UTILITY LINES SHOWN  
 Date: \_\_\_\_\_  
 SPC Approved for underground conduit facilities only.  
 Signature valid for one year.  
 Date: \_\_\_\_\_

NOTE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL ONE 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	APPROV.
1			
2			
3			
4			

**BROWN & GAY**  
 ENGINEERS, INC.  
 93708  
 Houston, TX 77042  
 Tel: 281-558-8700  
 Fax: 281-558-8700  
 www.browngay.com

*John D. Hargrove*  
 PROFESSIONAL ENGINEER  
 No. 12570  
 State of Texas  
 F-1048

**NFBWA SEGMENT 48**  
 PLAN & PROFILE  
 BASELINE 'C'  
 ALONG WEST AIRPORT BOULEVARD  
 FROM STA 8+00 TO STA 12+00



**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION

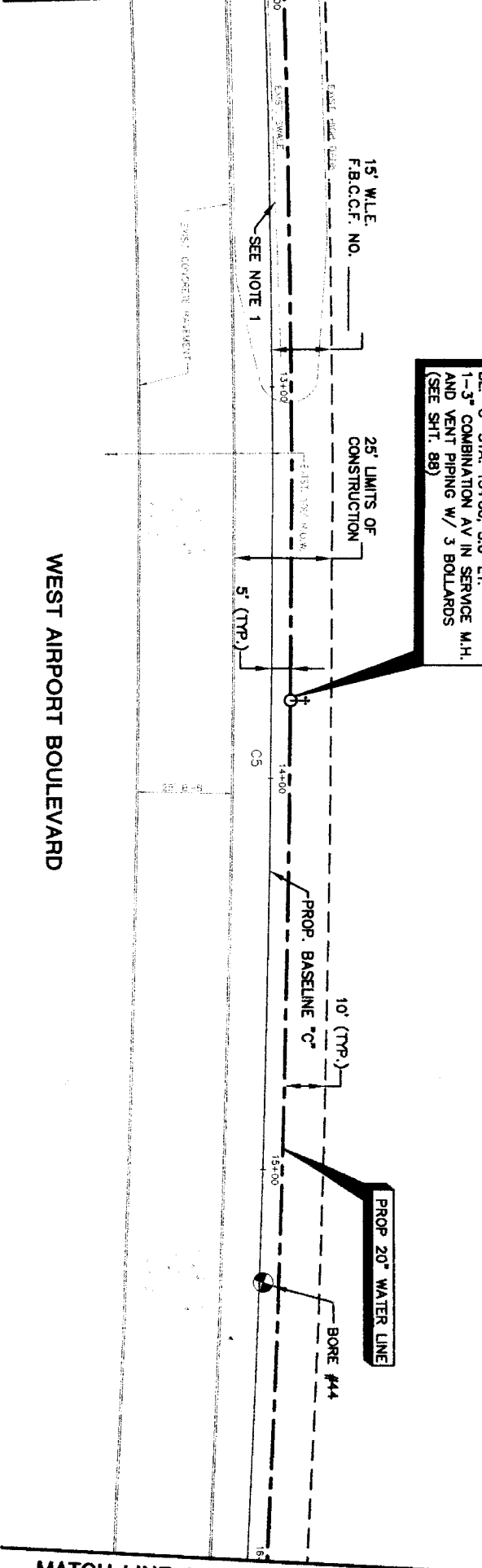
NOTE: CITY ENGINEERS VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES  
 WATER: \_\_\_\_\_  
 STORM: \_\_\_\_\_  
 SWEET & BRIDGE: \_\_\_\_\_

FILE NO.: \_\_\_\_\_  
 DRAWING SCALE: \_\_\_\_\_  
 HORIZ: 1"=20'  
 VERT: 1"=2'

FOR CITY OF HOUSTON USE ONLY  
 SHEET NO. 32 OF 108

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
05	15°56'22"	5050.00	1404.89	74°39'38"	1400.36

MATCH LINE STA. 12+00 (SEE SHT. 32)



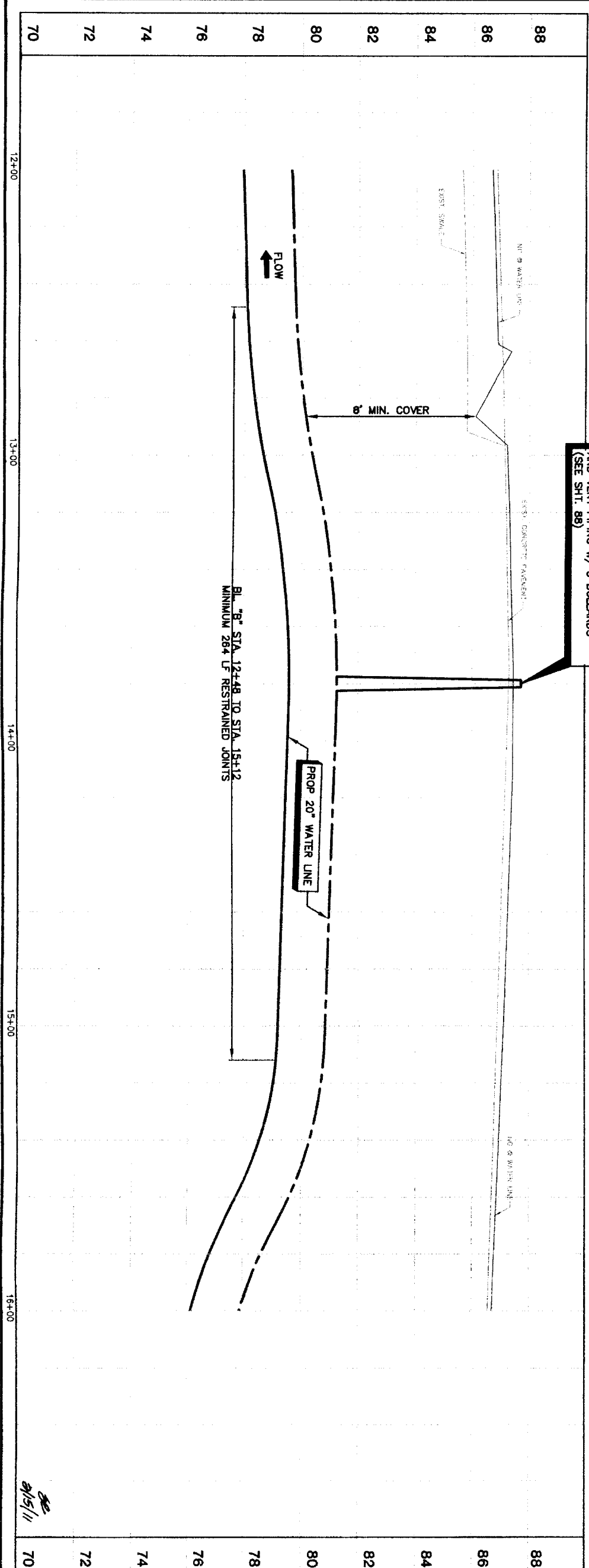
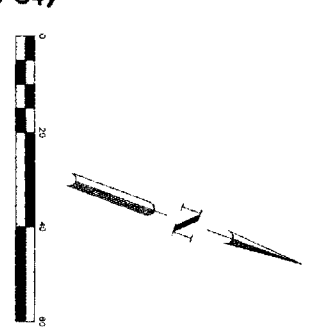
BL. 'C' STA. 13+80, 5.0' LT.  
1-3" COMBINATION AV IN SERVICE M.H.  
AND VENT PIPING W/ 3 BOLLARDS  
(SEE SHT. 88)

BL. 'C' STA. 13+80,  
1-3" COMBINATION AV IN SERVICE M.H.  
AND VENT PIPING W/ 3 BOLLARDS  
(SEE SHT. 88)

PROP 20" WATER LINE

BL. 'B' STA. 12+48 TO STA. 15+12  
MINIMUM 26' LF RESTRAINED JOINTS

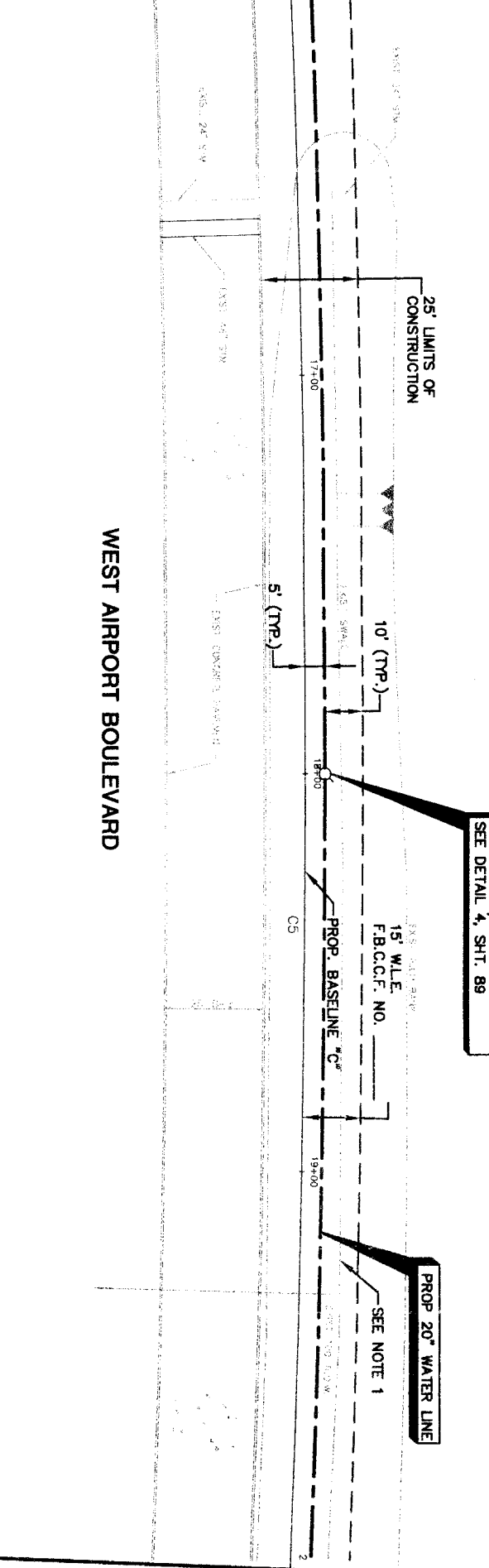
- NOTES:
1. RESTORE 95 LF OF EXIST. SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.
  2. RESTORE EXIST. CURB AND PAVEMENT TO ORIGINAL CONDITION OR BETTER IF DAMAGED DURING CONSTRUCTION (NO SEPARATE PAY).
  3. REMOVE AND REPLACE EXISTING STREET SIGN UPON COMPLETION OF CONSTRUCTION.



<p>PRIVATE UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>Centerpoint Energy/ Electric Facilities (approved only for crossing underground ductiles, unless otherwise noted. Valid At Time Of Review Only)</p> <p>59C UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>59C Approved for underground conduit facilities only. Signaling valid for one year.</p> <p>Date: _____</p> <p>Centerpoint Energy/ Gas Facilities (gas service lines are not shown.)</p> <p>NOTICE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW OR SEGMENTS CALL LONE STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-669-8344</p> <p>TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7777.</p>		<p>DATE</p> <p>NO.</p> <p>REVISION</p> <p>APPROX.</p>	<p><b>BROWN &amp; GAY</b> ENGINEERS, INC.</p> <p>Brown &amp; Gay Engineers, Inc. 10777 Westheimer Road Houston, Texas 77042 Tel: 281-566-8000 Fax: 281-566-8001 City Engineers and Surveyors</p> <p><b>CITY OF HOUSTON</b> DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p> <p><b>NORTH FORT BAND</b></p> <p>PLAN &amp; PROFILE BASELINE 'C' ALONG WEST AIRPORT BOULEVARD FROM STA. 12+00 TO STA. 16+00</p> <p>NOTE: CITY ENGINEERS WARD FOR ONE YEAR AFTER DATE OF SIGNATURES</p> <p>STREET &amp; BRIDGE</p> <p>FILE NO.:</p> <p>DRAWING SCALE</p> <p>HORIZ: 1"=20'</p> <p>VERT: 1"=2'</p> <p>SHEET NO. 33 OF 108</p> <p>DATE: 2/15/11</p>
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NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C5	15.56°22'	5050.00	1404.89	74.59°38'	1400.36

MATCH LINE STA 16+00 (SEE SHT. 33)

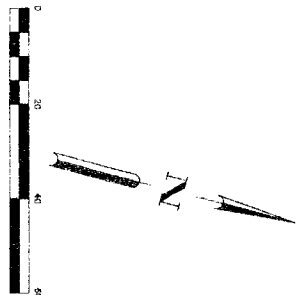


BL "C" STA. 18+00, 5.0' LT.  
1-20" GV W/BOX  
SEE DETAIL 4, SHT. 89

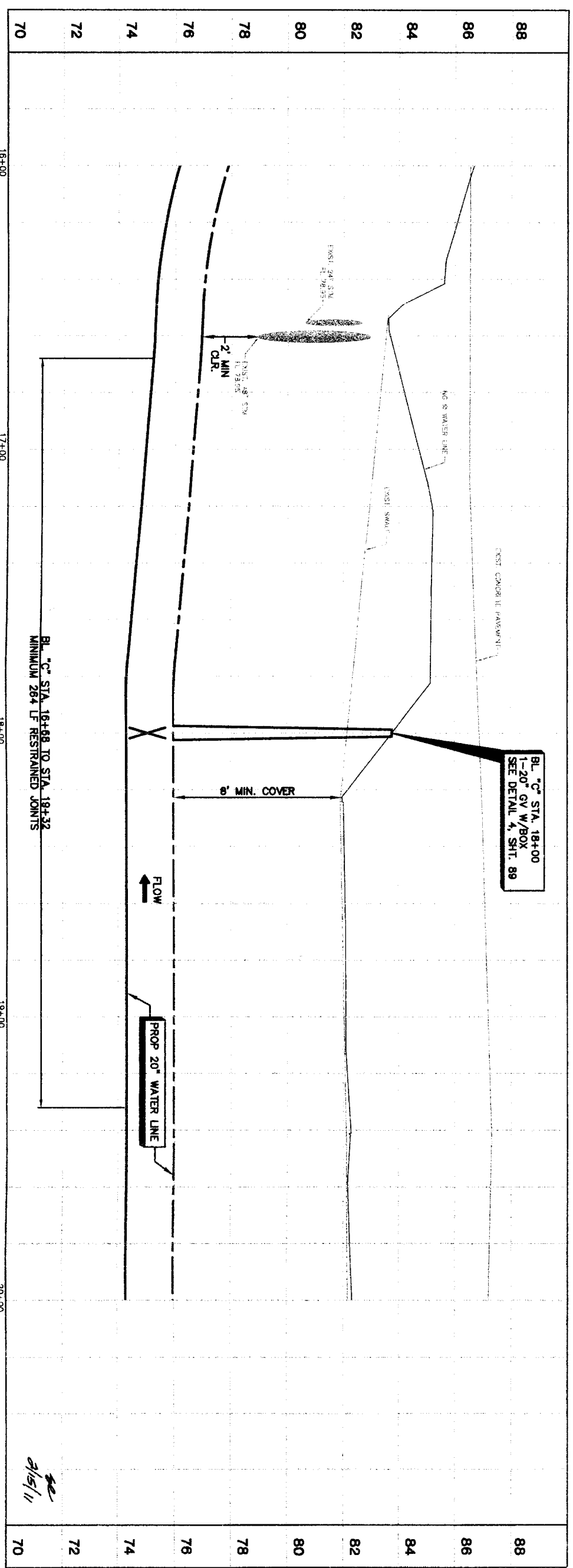
PROP. 20" WATER LINE  
SEE NOTE 1

- NOTES:
1. RESTORE 360 LF OF EXIST. SMALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.
  2. RESTORE EXIST. CURB AND PAVEMENT TO ORIGINAL CONDITION OR BETTER IF DAMAGED DURING CONSTRUCTION (NO SEPARATE PAY).

MATCH LINE STA 20+00 (SEE SHT. 35)



LAST MODIFIED: Jan 06, 2011 - 11:57am BY USER: Sheen  
DWG. LOCATION: M:\Projects\WFBWA\WFB13-50 - Segment 4\4B\_CADD\Sheets\  
DWG. NAME: PLAN & PROFILE ALONG WEST AIRPORT FROM STA. 16+00 TO STA. 20+00.dwg



BL "C" STA. 18+00  
1-20" GV W/BOX  
SEE DETAIL 4, SHT. 89

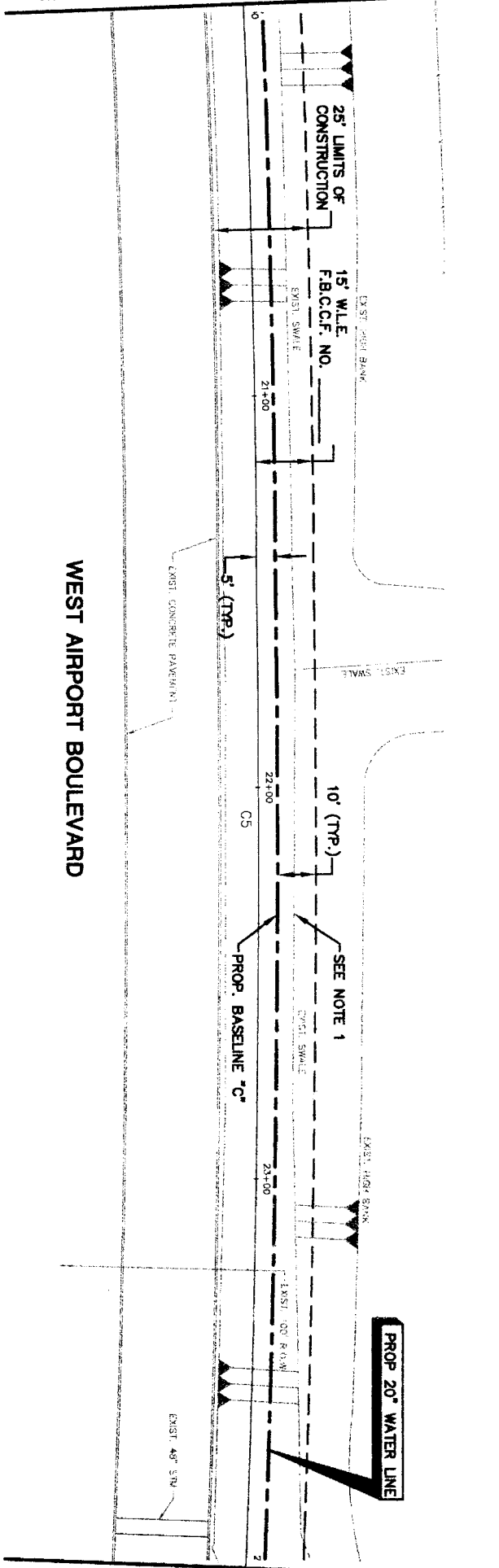
PROP. 20" WATER LINE

BL "C" STA. 18+08 TO STA. 18+32  
MINIMUM 284 LF RESTRAINED JOINTS

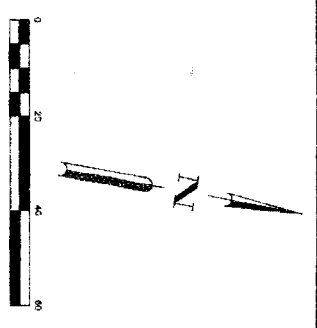
<p>PRIVATE UTILITY LINES SHOWN</p>	
<p>Date:</p> <p>Contractor Energy/Electric Facilities (approved only for underground conduits, unless otherwise noted). Void At Time Of Review Only</p> <p>SRC UTILITY LINES SHOWN</p> <p>Date:</p> <p>SAC Approved for underground conduit facilities only. Signature valid for one year.</p> <p>Date:</p>	<p>NOTICE:</p> <p>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</p> <p>TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7771.</p>
<p>DATE</p> <p>NO.</p> <p>REVISION</p> <p>APPROVAL</p>	<p>DATE</p> <p>NO.</p> <p>REVISION</p> <p>APPROVAL</p>
<p><b>BROWN &amp; GAY ENGINEERS, INC.</b></p> <p>Engineers, Inc.</p> <p>30777 Gowanus Street, Suite 400 Houston, TX 77042 Tel: 281-566-8700 Fax: 281-566-8701 City Engineers and Surveyors</p>	
<p><b>NFBWA SEGMENT 4B</b></p> <p><b>PLAN &amp; PROFILE</b></p> <p><b>BASELINE "C"</b></p> <p><b>ALONG WEST AIRPORT BOULEVARD</b></p> <p><b>FROM STA. 16+00 TO STA. 20+00</b></p>	
<p><b>CITY OF HOUSTON</b></p> <p>DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p> <p>1-1341 PARKWAY AND TRANSPORTATION</p> <p>STREET &amp; BRIDGE</p> <p>PROJECT NO. 1-1341-13-111</p> <p>DATE: 1/13/11</p> <p>DESIGNED BY: [Signature]</p> <p>CHECKED BY: [Signature]</p> <p>FILE NO.:</p> <p>DRAWING SCALE:</p> <p>HORIZ: 1"=20'</p> <p>VERT: 1"=2'</p> <p>SHEET No. 34 OF 108</p>	

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C5	159.822°	5050.00	1404.89	74.39 38°	1400.36

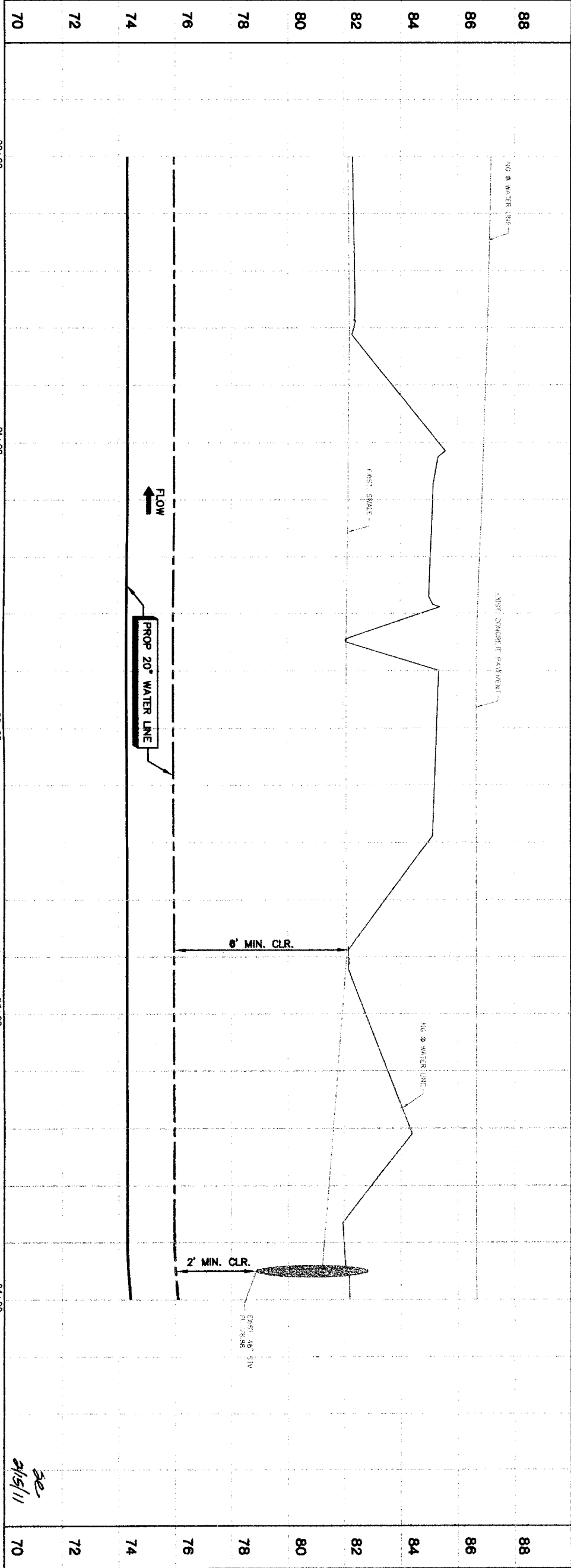
MATCH LINE STA. 20+00 (SEE SHT. 34)



MATCH LINE STA. 24+00 (SEE SHT. 36)



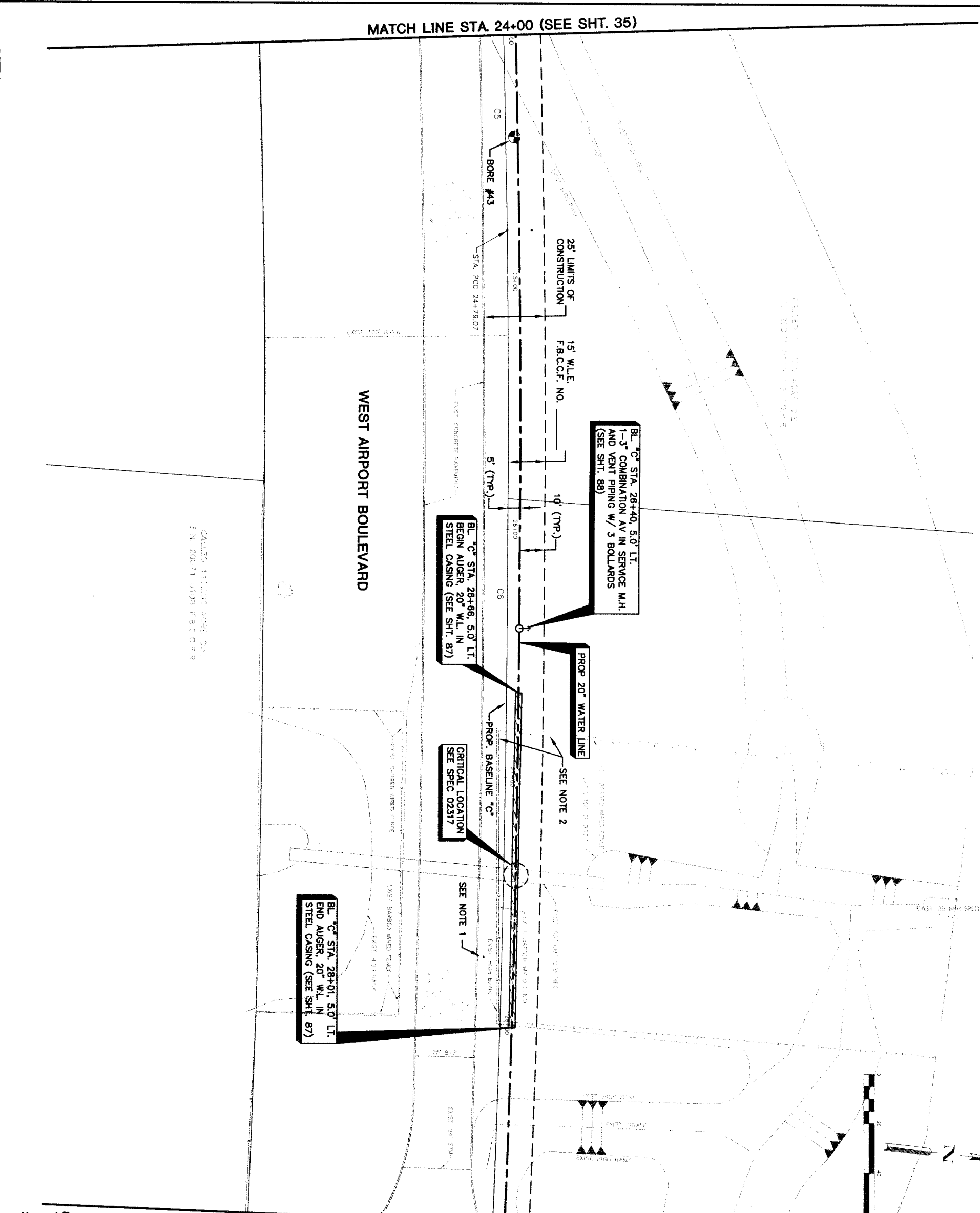
- NOTES:
1. RESTORE 400 LF OF EXIST. SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.
  2. RESTORE EXIST. CURB AND PAVEMENT TO ORIGINAL CONDITION OR BETTER IF DAMAGED DURING CONSTRUCTION (NO SEPARATE PAY).



<p><b>PRIVATE UTILITY LINES SHOWN</b></p> <p>Date:</p> <p>Contractor: Energy/Gas Facilities          Date:</p> <p>SBC Approved for underground conduit facilities only.          Signature valid for one year.          Date:</p> <p>SBC UTILITY LINES SHOWN 3</p>		<p><b>NOTICE:</b></p> <p>AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL LINE STAK NOTIFICATION CENTER, (713) 223-4567 OR 1-800-669-8344</p> <p>TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-1777.</p>	
<p><b>BROWN &amp; GAY ENGINEERS, INC.</b></p> <p>Brown &amp; Gay Engineers, Inc.          10777 Westmore, Suite 202          Houston, TX 77062          Tel: 281-556-6070          Fax: 281-556-6070          www.browngay.com</p>		<p><b>STATE OF TEXAS</b></p> <p>SEAL OF PROFESSIONAL ENGINEER</p> <p>ARLON B. HANCOCK          93706          LICENSE NO. 10124</p>	
<p><b>NRWA SEQUENT 4B</b></p> <p><b>PLAN &amp; PROFILE</b></p> <p><b>BASELINE 'C'</b></p> <p><b>ALONG WEST AIRPORT BOULEVARD</b></p> <p><b>FROM STA. 20+00 TO STA. 24+00</b></p>			
<p><b>CITY OF HOUSTON</b></p> <p>DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p> <p>FOR CITY OF HOUSTON USE ONLY</p>			
<p>DRAWING SCALE</p> <p>HORIZ: 1"=20'</p> <p>VERT: 1"=2'</p> <p>SHEET NO. 35 OF 108</p> <p>47757</p>			

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C5	15°56'22"	5050.00	1404.89	74°39'38"	1400.36
C6	30°18'31"	7050.00	3729.35	82°12'55"	696.02

MATCH LINE STA 24+00 (SEE SHT. 35)



MATCH LINE STA 28+80 (SEE SHT. 38)

- NOTES:
1. REMOVE AND REPLACE EXISTING STREET SIGN UPON COMPLETION OF CONSTRUCTION. REMOVE AND REPLACE 155 LF OF EXISTING BARBED WIRE FENCE AS NECESSARY.

PRIVATE UTILITY LINES SHOWN

Centerpoint Energy/Electr. Facilities (Approved only)  
 City of Houston - Streets, Sidewalks, Stormwater, Road  
 Valid At Time Of Review Only

SBC UTILITY LINES SHOWN

Date:

SBC Approved for underground conduit facilities only.  
 Signature valid for one year.  
 Date:

Centerpoint Energy/ Gas Facilities  
 GAS service lines (not shown)  
 Date:

NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW OR EASEMENTS CALL LONE STAR NOTIFICATION CENTER, (713) 223-4597 OR 1-800-669-6344  
 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-7777.

NO.	DATE	REVISION	APPROV.
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**

Jason B. Hargrove  
 93706  
 10777 Westheimer, Suite 400  
 Houston, TX 77042  
 Tel: 281-908-8100  
 Fax: 281-908-8109  
 www.browngay.com

Brown & Gay Engineers, Inc.  
 License No. 1-1046

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

NFPA SEGMENT 4B

PLAN

BASELINE "C"

ALONG WEST AIRPORT BOULEVARD  
 FROM STA. 24+00 TO STA. 28+00



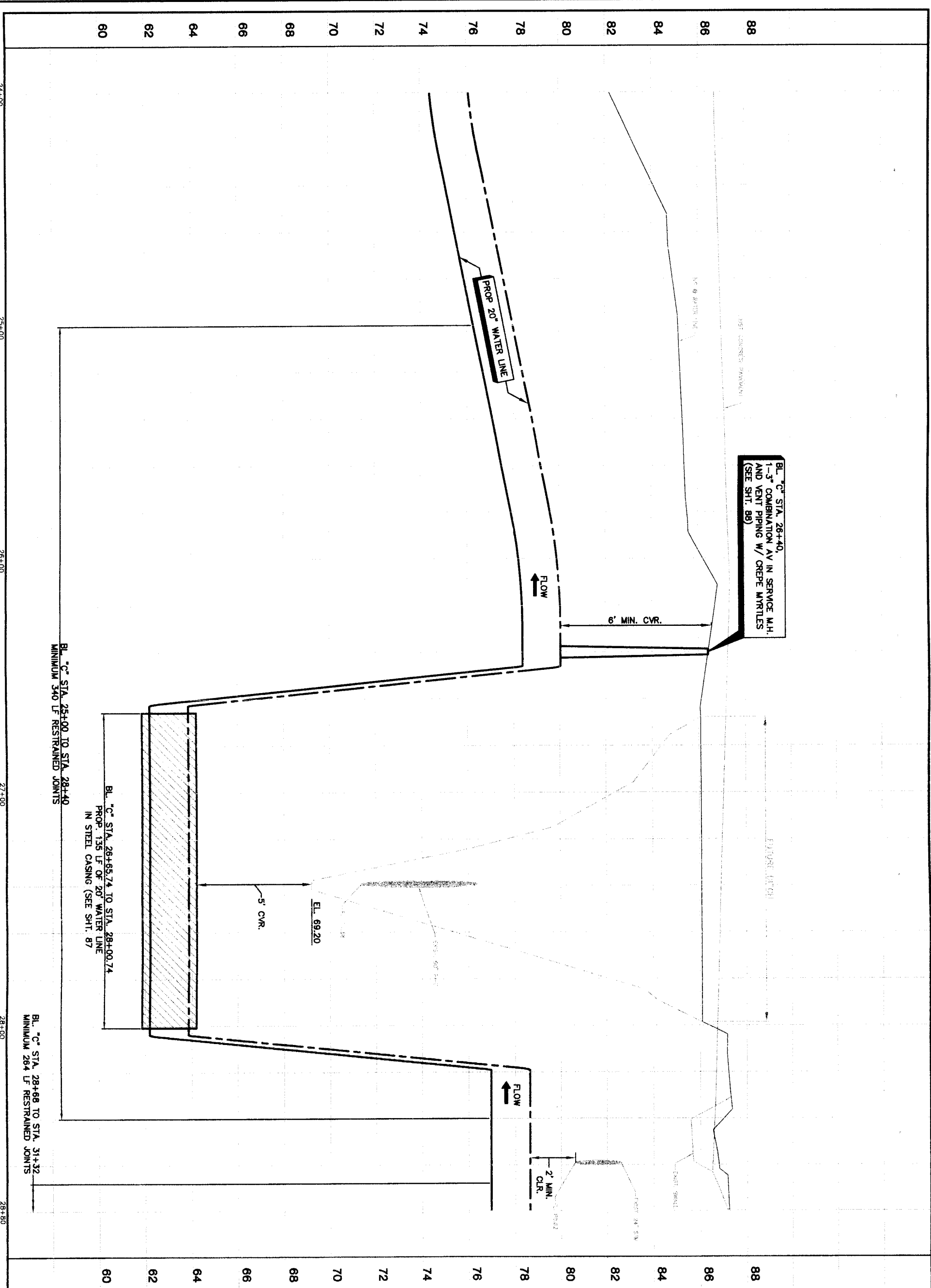
**CITY OF HOUSTON**

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 02/24/2011

SCALE: AS SHOWN

WATERMAIN	STORM WATER QUALITY
STORM	TRAFFIC
SHEET & BRIDGE	
FILE NO.	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
HORIZ: 1"=20'	
VERT: 1"=2'	
SHEET NO. 36	OF 108



PRIVATE UTILITY LINES SHOWN

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

Get Checklist, Energy/Electrical Facilities Approved only for existing underground ductlines, unless otherwise noted. Valid At Time Of Review Only.

**SBC UTILITY LINES SHOWN**

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

SBC Approved for underground conduit facilities only. Signature valid for one year. Date: \_\_\_\_\_

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

NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL LOWE STATE NOTIFICATION CENTER, (713) 223-4367 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
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 12777 Westheimer, Suite 400  
 Houston, TX 77042  
 Phone: 281-486-8700  
 Fax: 281-486-8703  
 Civil Engineers and Surveyors  
 License No. 33706  
 State of Texas  
 Professional Seal

**NTBWA SEGMENT 4B**  
**PROFILE**  
**BASELINE 'C'**  
**ALONG WEST AIRPORT BOULEVARD**



**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 TRADING AND TRANSPORTATION

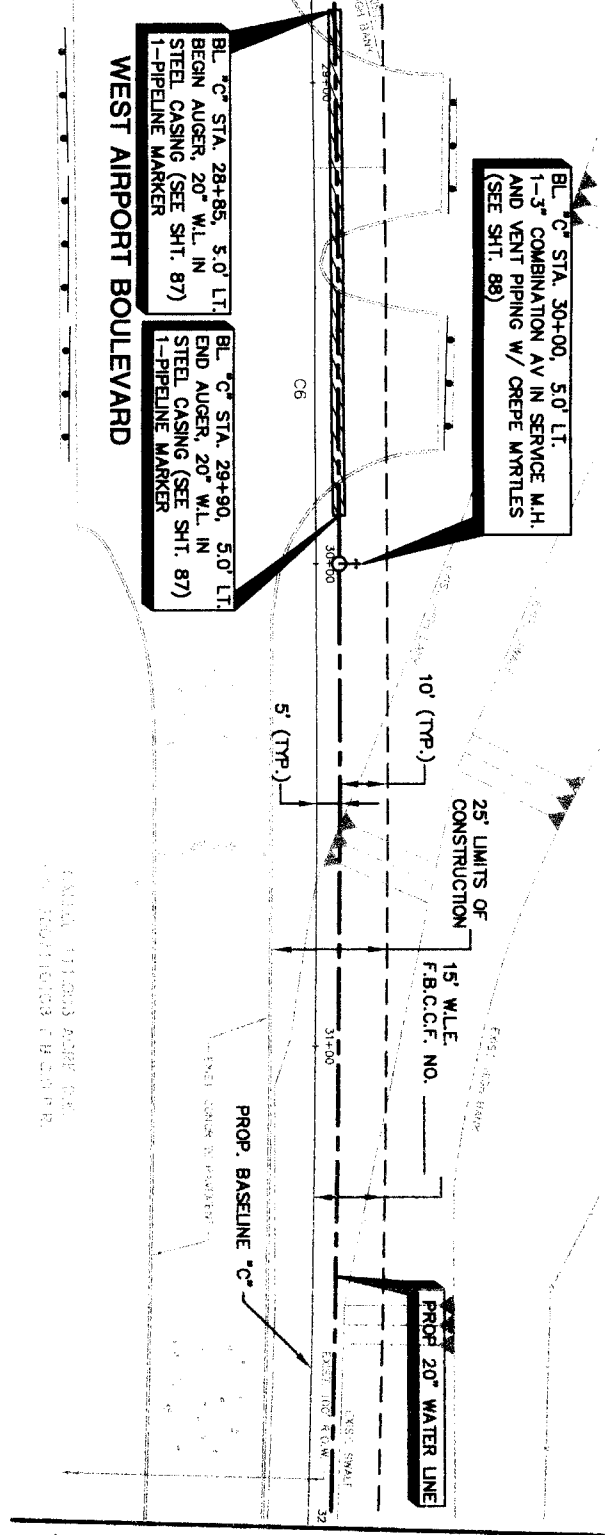
NOTE: CITY SEPARATES WILD FOR ONE YEAR ONLY AFTER DATE OF SIGNATURE.  
 WATER: FROM WATER QUALITY FACILITIES  
 STREET & BRIDGE: FOR CITY OF HOUSTON USE ONLY

DRIVING SCALE  
 HORZ: 1"=20'  
 VERT: 1"=2'  
 SHEET No. 37 of 108

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
06	301.831°	7050.00	3729.35	8212.55°	3686.02

DATE: 11/05/2010  
 TIME: 2:05:11 PM  
 USER: J. HARRIS

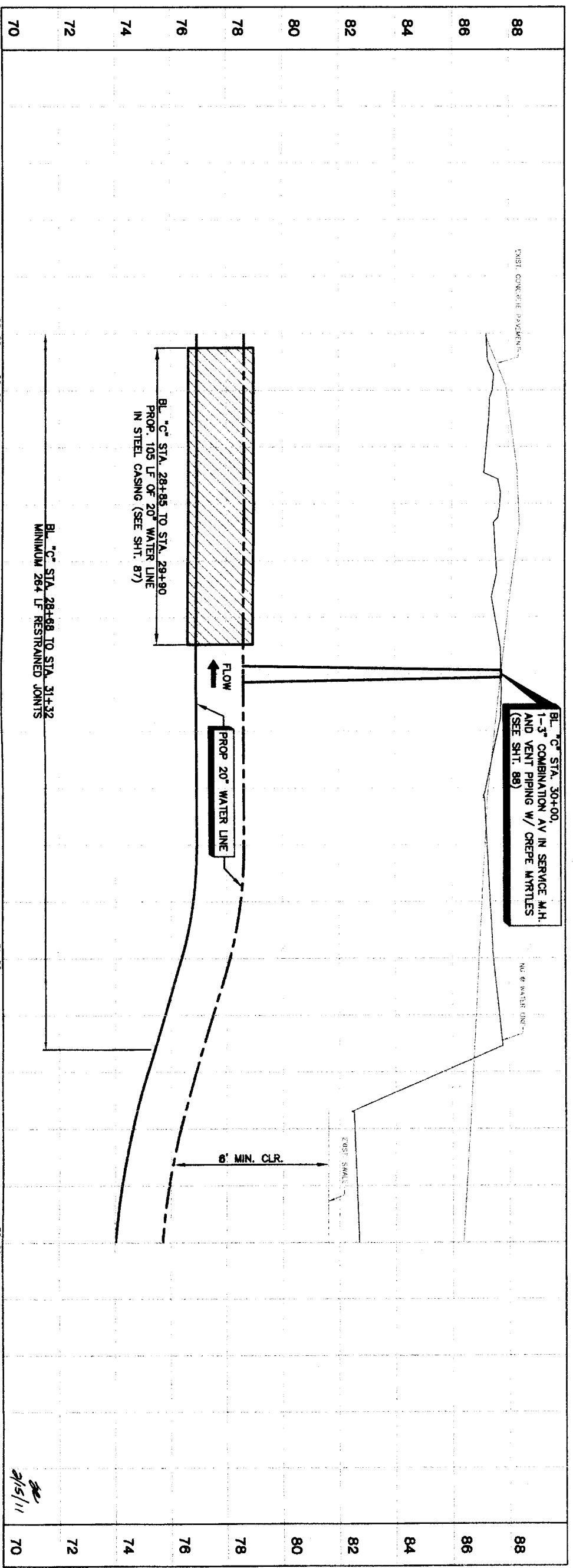
MATCH LINE STA. 28+80 (SEE SHT. 36)



MATCH LINE STA. 32+00 (SEE SHT. 39)

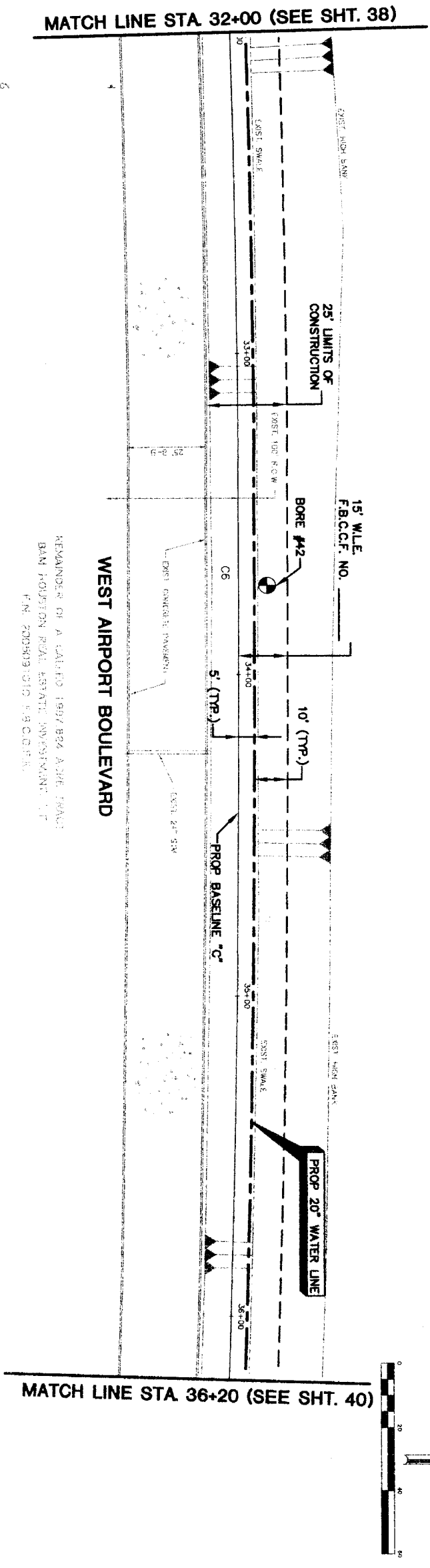
- NOTES:
- RESTORE 180 LF OF EXIST. SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.
  - CONTACT MR. JOHNNY ORTEGA WITH THE FORT BEND COUNTY ENGINEERING DEPARTMENT, (281)-833-7502 TO OBTAIN PERMITS PRIOR TO WORKING WITHIN THE DRAINAGE DISTRICT RIGHT-OF-WAY.

LAST MODIFIED: Jan 06, 2011 - 11:56am BY USER: Sheen  
 DWG. LOCATION: M:\Projects\NFBWA\FB13-50 - Segment 4\4B\_CADD\Sheen\  
 DWG. NAME: PLAN & PROFILE ALONG WEST AIRPORT FROM STA. 28+00 TO STA. 32+00.dwg



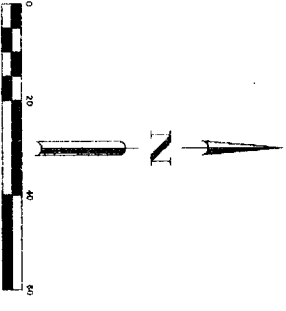
<p>PRIVATE UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>Contractor Energy/Electric Facilities (Approved only Valid At Time Of Review Only)</p> <p>SBC UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>SBC Approved for underground conduit facilities only</p> <p>Signature valid for one year.</p> <p>Date: _____</p> <p>Contractor Energy/Gas Facilities (Gas service lines are not shown)</p>		<p>NOTICE:</p> <p>AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL LONG STAR NOTIFICATION CENTER (713) 223-4567 OR 1-800-668-8344</p> <p>TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7777.</p>
<p><b>BROWN &amp; GAY ENGINEERS, INC.</b></p> <p>3706        Houston, TX 77002        Tel: 281-558-8700        Fax: 281-558-8700        www.browngay.com</p>		<p><b>NORTH FORT BEND</b></p> <p>PLAN &amp; PROFILE        BASELINE 'C'        ALONG WEST AIRPORT BOULEVARD        FROM STA. 28+00 TO STA. 32+00</p>
<p><b>CITY OF HOUSTON</b></p> <p>DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p> <p>STREET &amp; ROWS</p> <p>DATE: 11/11/11</p> <p>DESIGNED BY: J. HARRIS</p> <p>CHECKED BY: J. HARRIS</p> <p>DATE: 11/11/11</p>		<p>DATE: 11/11/11</p> <p>SCALE: 1"=20'</p> <p>HORIZ: 1"=20'</p> <p>VERT: 1"=2'</p> <p>SHEET No. 38 OF 108</p>

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C6	30718.31°	7050.00	3729.35	8212.55°	3686.02



MATCH LINE STA 32+00 (SEE SHT. 38)

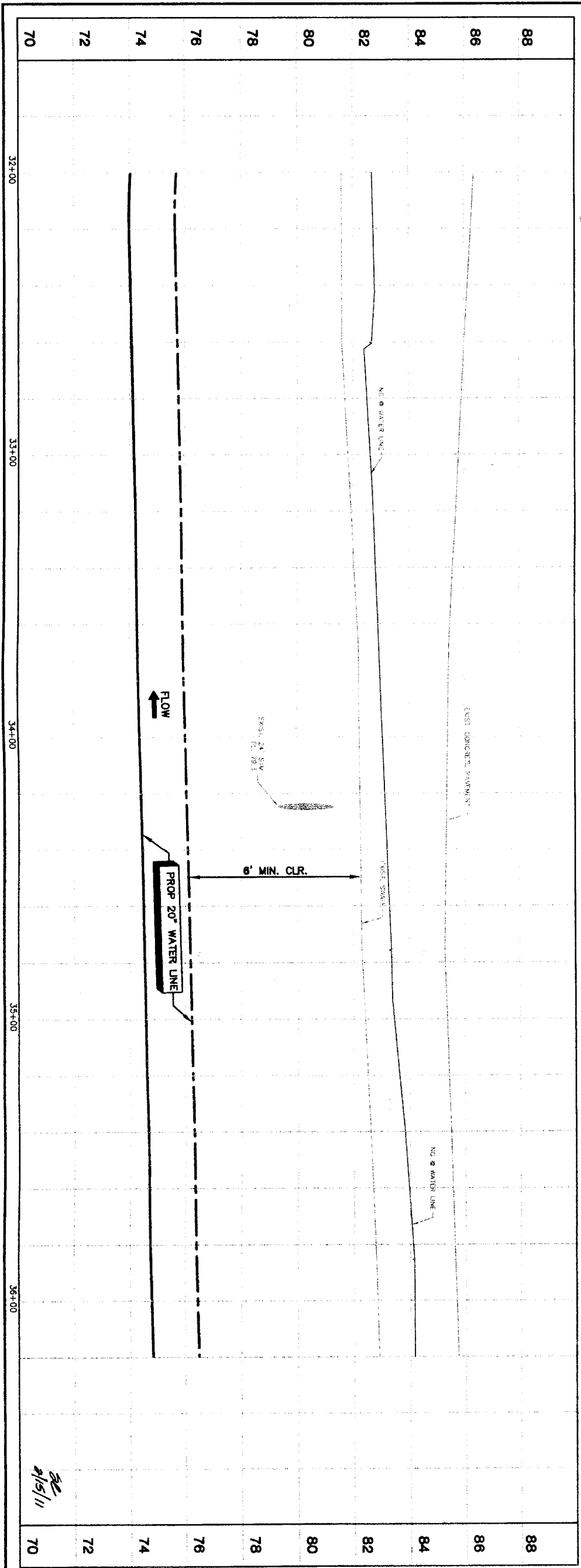
MATCH LINE STA 36+20 (SEE SHT. 40)



REMANDER OF A CALLED 1997 B24 ADJ. FRAC. BAN HOUSTON REAL ESTATE INVESTMENT L.P. FIN. 2005091010 4.8 C.D.P.E.

EXIST. 35 SPEED LIMITS SIGN

- NOTES:
- RESTORE 420 LF OF EXIST. SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.



**PRIVATE UTILITY LINES SHOWN**

Date:

Contractor: Energy/ Electric Facilities (approved only for drawing underground utilities, unless otherwise noted. Valid At Time Of Review Only)

**SBC UTILITY LINES SHOWN**

Date:

SBC Approved for underground conduit facilities only. Signature valid for one year.

Date:

Contractor: Energy/ Gas Facilities

GAS service lines are not shown.

NOTICE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET CENTERLINE STAR NOTIFICATION CENTER (713) 253-4567 OR 1-800-688-8344 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-7777.

**BROWN & GAY ENGINEERS, INC.**

Engineers, Inc.

Aaron B. Harbove  
Lic. No. 33706

12777 Westheimer, Suite 400  
Houston, TX 77042  
Tel: 281-944-9100  
Fax: 281-944-9102

City of Houston  
Department of Public Works and Engineering  
1-537 DRAWING AND INSPECTION

Project: **WEST AIRPORT BOULEVARD**  
Segment: **4B**

Plan & Profile  
Baseline "C"

Along West Airport Boulevard  
From Sta. 32+00 to Sta. 36+2

North Port Bend

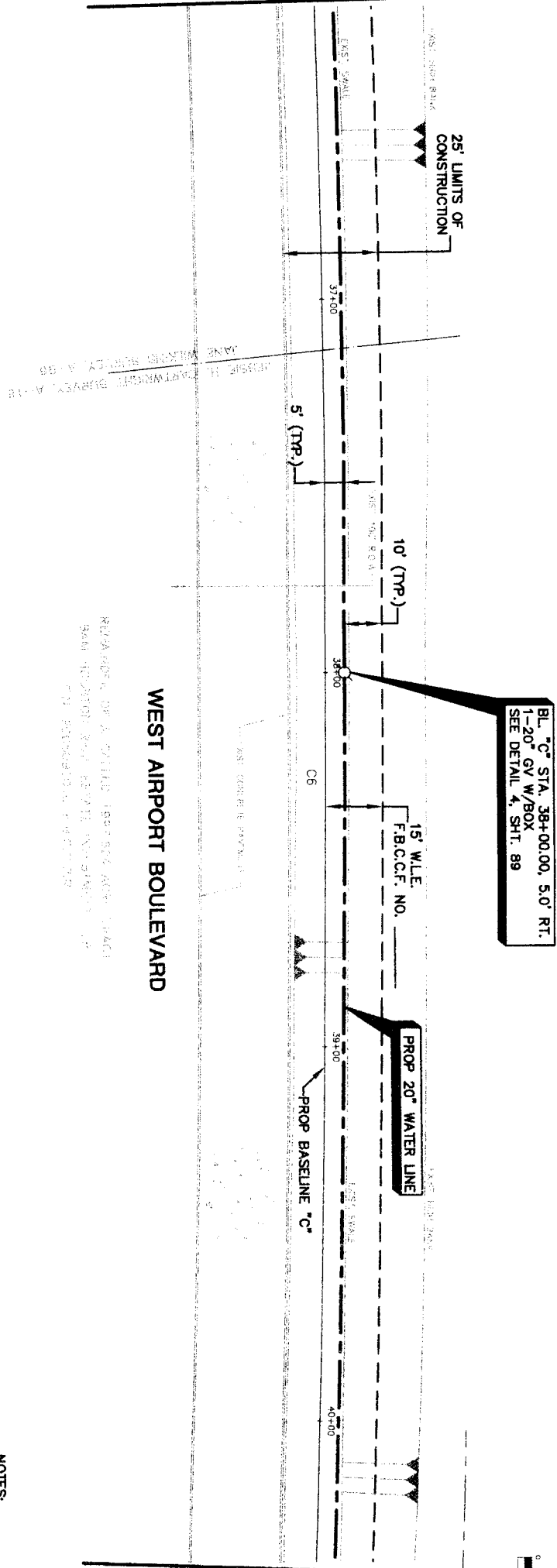
Scale: **1"=20'**  
**1"=2'**

Sheet: **39** of 108

Date: **2/15/11**

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C6	30°18'31"	7050.00	3729.35	82°12'55"	3686.02

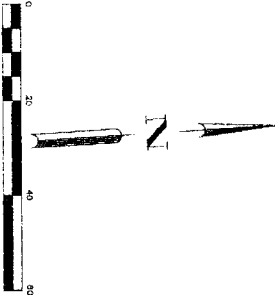
MATCH LINE STA 36+20 (SEE SHT. 39)



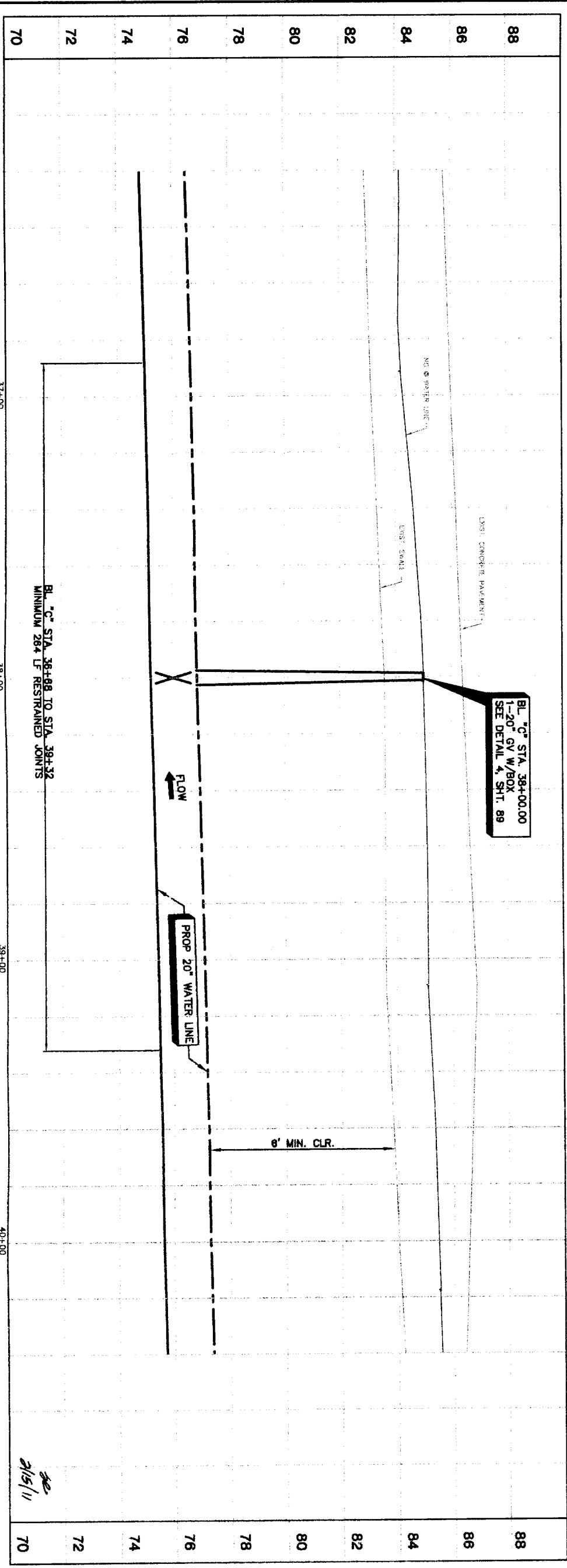
BL "C" STA. 38+00.00, 5.0' RT.  
 1-20" GV W/BOX  
 SEE DETAIL 4, SHT. 89

BL "C" STA. 38+00.00  
 1-20" GV W/BOX  
 SEE DETAIL 4, SHT. 89

- NOTES:  
 1. RESTORE 420 LF OF EXIST. SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.



MATCH LINE STA 40+40 (SEE SHT. 41)



3/15/11

PRIVATE UTILITY LINES SHOWN

DATE:  
 Centerpoint Energy/ Electric Facilities (approved only for crossing underground ductlines, unless otherwise noted)  
 Void At Time Of Review Only  
 SBO UTILITY LINES SHOWN

DATE:  
 ESC Approved for underground conduit facilities only.  
 Signature valid for one year.

DATE:  
 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.

NO.	DATE	REVISION	APPROVED
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 4777 Westchase Road, Suite 400  
 Houston, Texas 77056  
 Tel: 281-658-8700  
 Fax: 281-658-9701  
 Civil Engineers and Surveyors

Professional Seal:  
 State of Texas  
 License No. 53708-D  
 James D. Kuyper  
 F-1048

**NFBWA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE "C"**  
**ALONG WEST AIRPORT BOULEVARD**  
**FROM STA. 36+20 TO STA. 40+40**



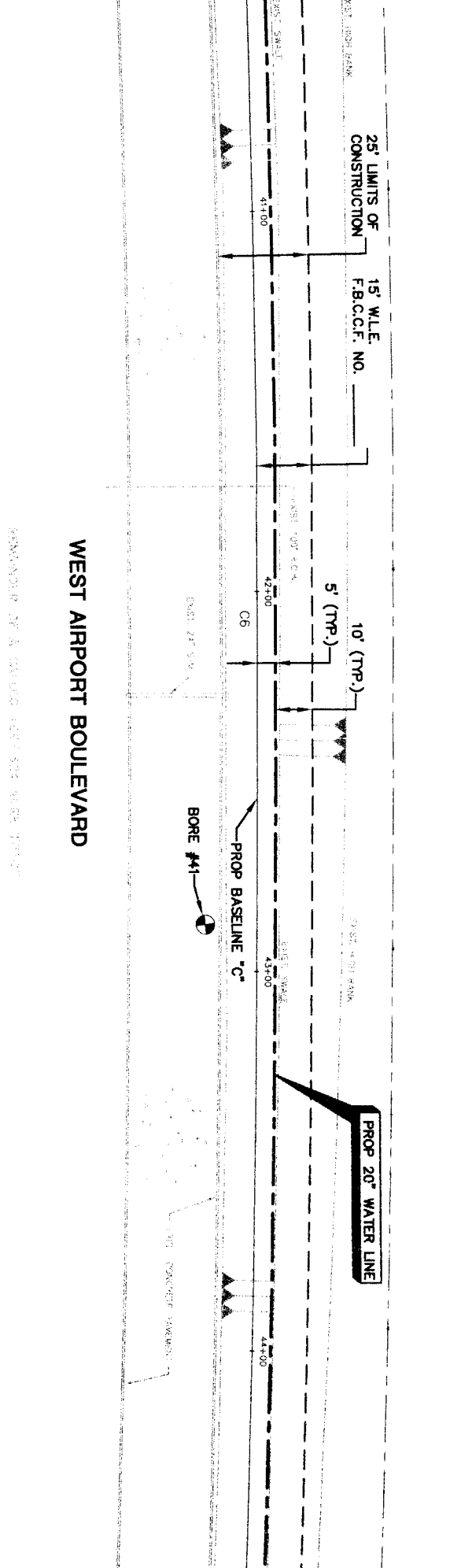
**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 WATER AND TRANSPORTATION

NOTE: CITY SPECIALTIES VALID FOR ONE YEAR ONLY AFTER DATE OF SUBMITTAL  
 WATER  
 STORM WATER QUALITY  
 STREET & BRIDGE

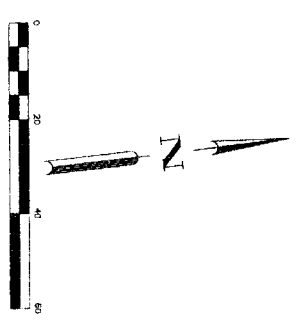
FILE NO.:  
 DRAWING SCALE:  
 HORIZ: 1"=20'  
 VERT: 1"=2'  
 SHEET No. 40 of 108

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
06	307.831°	7050.00	3728.35	827.255°	3686.02

MATCH LINE STA 40+40 (SEE SHT. 40)



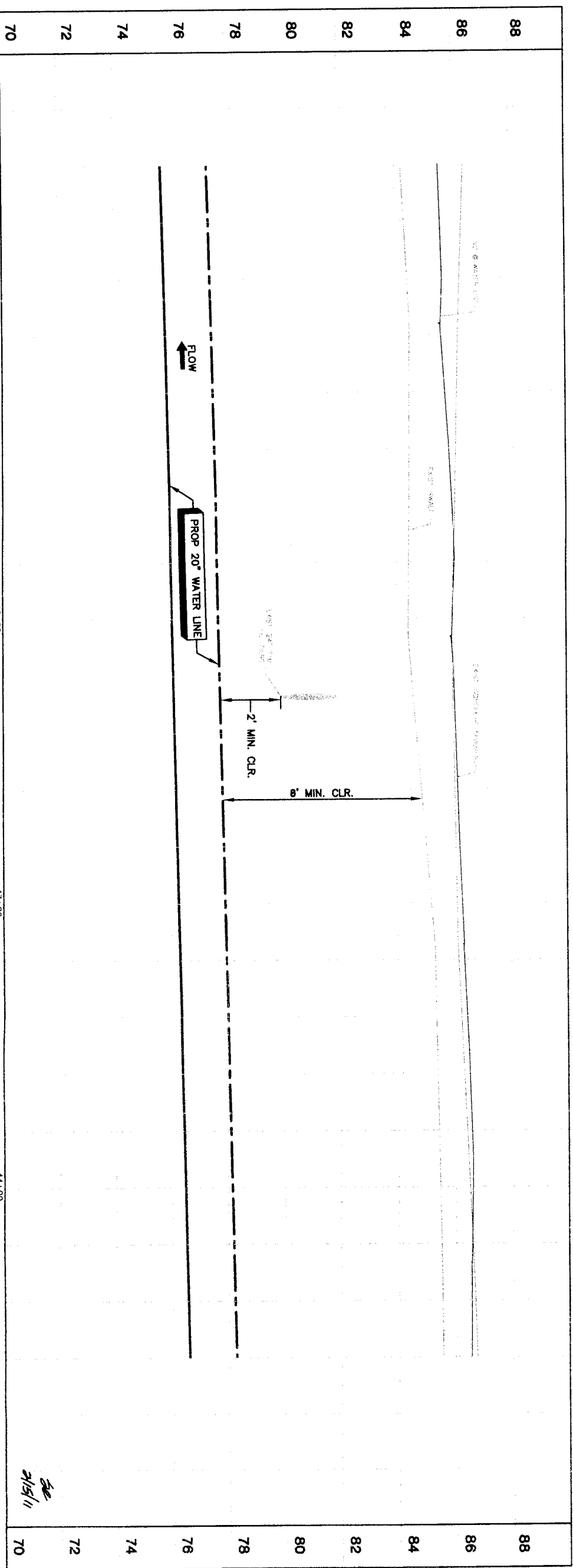
MATCH LINE STA 44+60 (SEE SHT. 42)



STANDARD OF A GRADE FOR THE PROPOSED BAW CONSTRUCTION SHALL BE THE EXISTING FIN FLOOR OF THE ADJACENT

WEST AIRPORT BOULEVARD

- NOTES:
- RESTORE 420 LF OF EXIST. SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.



2/15/11

PRIVATE UTILITY LINES SHOWN

DATE: \_\_\_\_\_  
 SBC Approved for underground conduit facilities only. Signature valid for one year. Date: \_\_\_\_\_  
 SBC UTILITY LINES SHOWN

NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR BASEMENTS CALL ONE STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-689-6344  
 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-7777.

NO.	DATE	REVISION	APPROVED
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 93706  
 1177 Westmoreland, Suite 400  
 Houston, TX 77062  
 Tel: 281-588-9721  
 Fax: 281-588-9721  
 www.browngay.com  
 State of Texas Professional Engineer License No. 11048  
 Brown & Gay Engineers, Inc.

**NFBWA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE 'C'**  
**ALONG WEST AIRPORT BOULEVARD**  
**FROM STA. 40+40 TO STA. 44+8**



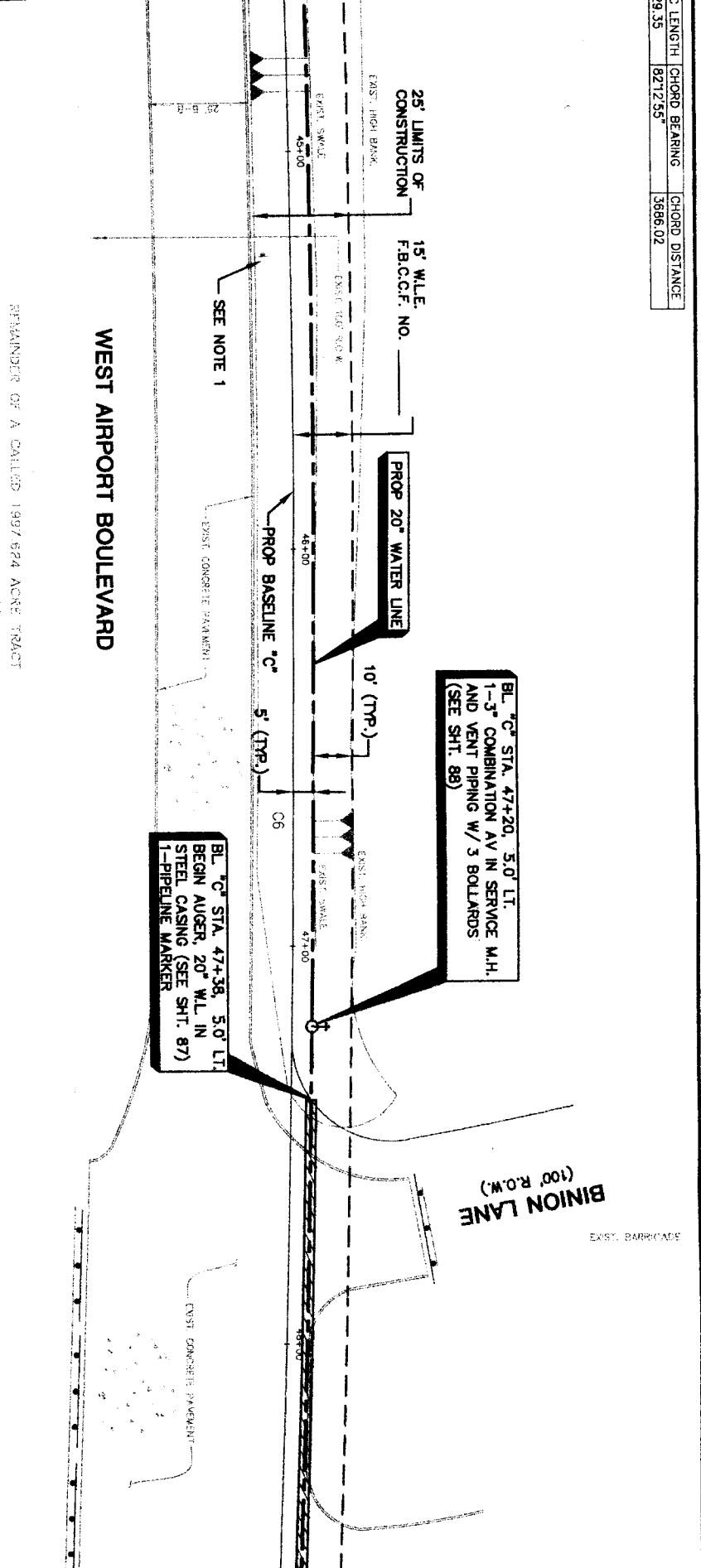
**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 WATER AND SEWERAGE DIVISION  
 MASTER ENGINEER: [Signature]  
 DATE: 1.13.11

FILE NO.: \_\_\_\_\_  
 DRAWING SCALE: \_\_\_\_\_  
 HORIZ: 1"=20'  
 VERT: 1"=2'  
 SHEET NO.: 41 OF 108



NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C6	3078.31°	7050.00	3729.35	92712.55°	3686.02

MATCH LINE STA. 44+60 (SEE SHT. 41)



MATCH LINE STA. 48+60 (SEE SHT. 43)

2-WAY TRAFFIC SIGN

REMAINDER OF A CALLED 1997/624 ACRE TRACT  
 9447 HOUSTON REAL ESTATE INVESTMENT, L.P.  
 F.N. 2003031010 F.B.C.D.P.R.

BL. "C" STA. 47+20, 5.0' LT.  
 1-3" COMBINATION AV IN SERVICE M.H.  
 AND VENT PIPING W/ 3 BOLLARDS  
 (SEE SHT. 88)

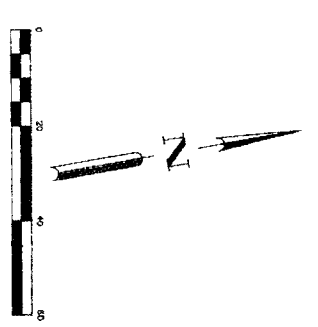
BL. "C" STA. 47+38, 5.0' LT.  
 BEGIN AUGER, 20" W.L. IN  
 STEEL CASING (SEE SHT. 87)  
 1-PIPELINE MARKER

BL. "C" STA. 47+20,  
 1-3" COMBINATION AV IN SERVICE M.H.  
 AND VENT PIPING W/ 3 BOLLARDS  
 (SEE SHT. 88)

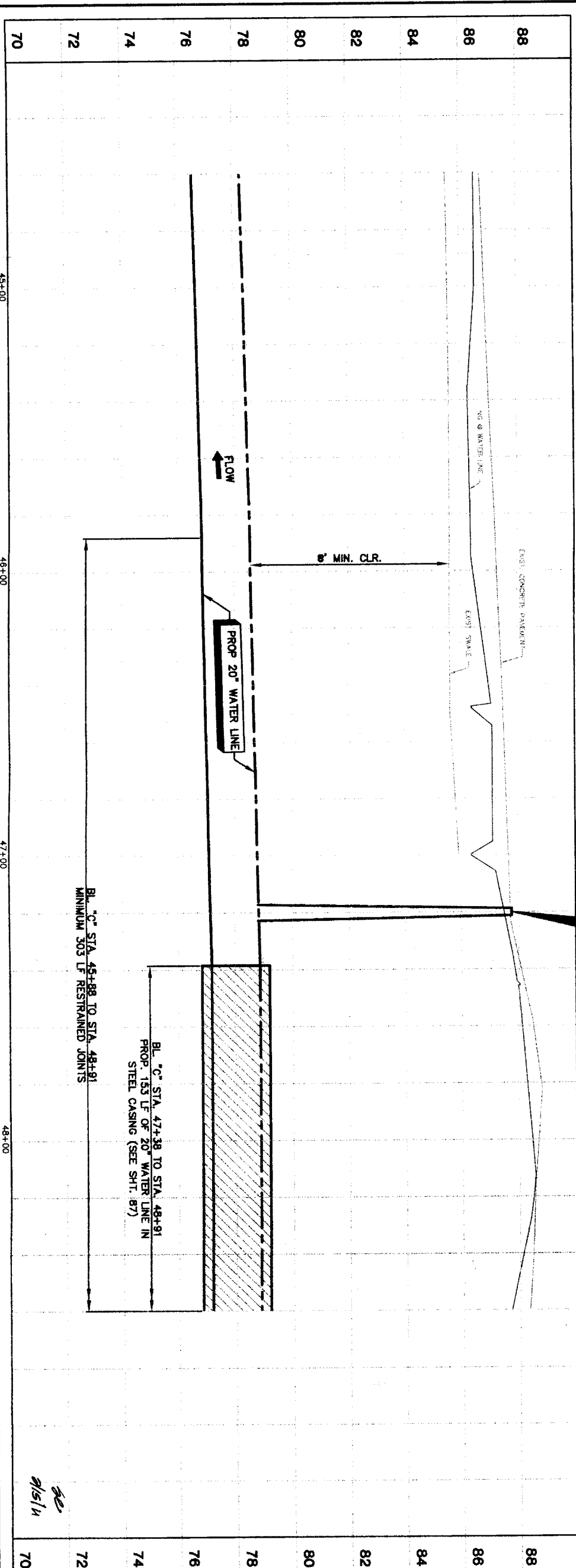
BL. "C" STA. 47+38 TO STA. 48+91  
 PROP. 1.53 LF OF 20" WATER LINE IN  
 STEEL CASING (SEE SHT. 87)

BL. "C" STA. 45+88 TO STA. 48+91  
 MINIMUM 303 LF RESTRAINED JOINTS

- NOTES:
1. REMOVE AND REPLACE EXISTING STREET SIGN UPON COMPLETION OF CONSTRUCTION.
  2. RESTORE 400 LF OF EXIST. SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.
  3. CONTACT MR. JOHNNY ORTEGA WITH THE DEPARTMENT (281)-833-7502 TO OBTAIN PERMITS PRIOR TO WORKING WITHIN THE DRAINAGE DISTRICT RIGHT-OF-WAY.



LAST MODIFIED: Jan 06, 2011 - 11:59am BY USER: Sheen  
 DWG. LOCATION: M:\Projects\NFBWA\FB13-50 - Segment 4\48\_CADD\Sheets\  
 DWG. NAME: AIRPORT\_PP12.dwg



PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 SBC Approved for underground conduit facilities only.  
 Signature valid for one year.  
 Date: \_\_\_\_\_

NOTICE: EXCAVATING IN STREET ROW, OR BASEMENTS CALL LANE, 800-689-9344 CENTER, (713) 223-4587 OR 1-800-689-9344 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-7777.

NO.	DATE	REVISION	APPROV.
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 Houston, TX 77002  
 400 West Loop South, Suite 400  
 Houston, TX 77002  
 Tel: 281-538-9300  
 Fax: 281-538-9300  
 www.browngay.com  
 — Civil Engineers and Surveyors —

NFBWA SEGMENT 4B  
 PLAN & PROFILE  
 BASELINE "C"  
 ALONG WEST AIRPORT BOULEVARD  
 FROM STA. 44+80 TO STA. 48+80



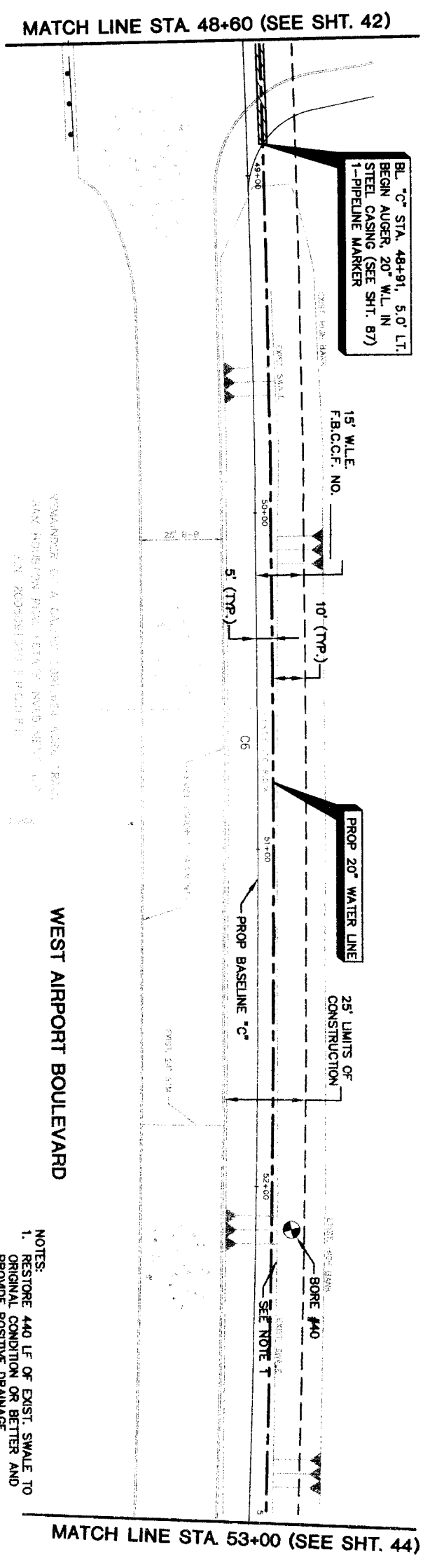
**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 1/13/11  
 DRAWN BY: J. H. H. 11/3/11  
 CHECKED BY: J. H. H. 11/3/11  
 SCALE: AS SHOWN

DRAWING SCALE  
 HORIZ: 1"=20'  
 VERT: 1"=2'  
 SHEET NO: 42 OF 108

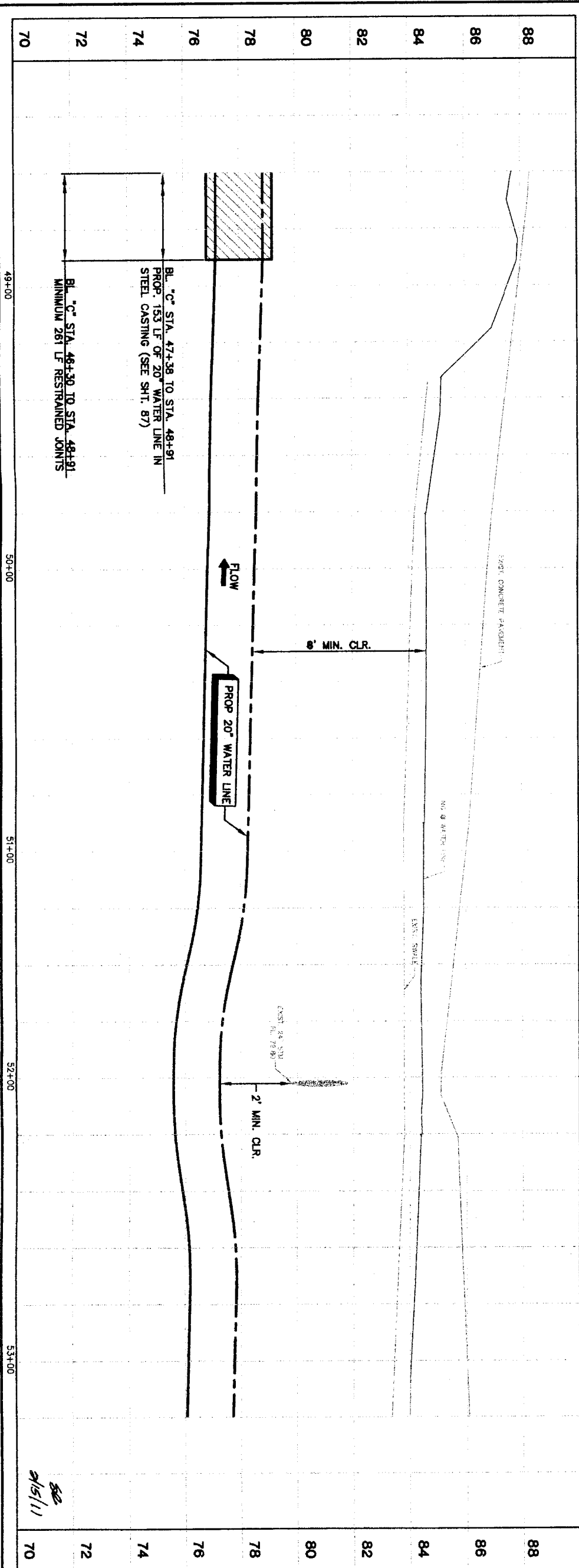
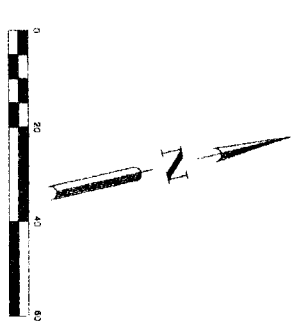


NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
06	30°18'31"	7050.00	3729.35	82°12'55"	3586.02



**WEST AIRPORT BOULEVARD**

- NOTES:**
1. RESTORE 440 LF OF EXIST. SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.
  2. CONTACT MR. JOHNNY ORTEGA WITH THE FORT BEND COUNTY ENGINEERING DEPARTMENT, (281)-633-7502 TO OBTAIN PERMITS PRIOR TO WORKING WITHIN THE DRAINAGE DISTRICT RIGHT-OF-WAY.



**PRIVATE UTILITY LINES SHOWN**

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

Contracting Energy/ Gas Facilities Signature valid for one year. Date: \_\_\_\_\_

**NOTICE:**  
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL LINE STAKE NOTIFICATION CENTER: (713) 223-4567 OR 1-800-869-8344  
TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-7777.

**BROWN & GAY ENGINEERS, INC.**  
LAWRENCE E. HARRIS, P.E.  
10777 Independence, Suite 400  
Houston, TX 77042  
Tel: 281-555-8100  
Fax: 281-555-8101  
Old engineers and architect -  
P-1048

**CITY OF HOUSTON**  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
HSAH, TRAFFIC AND TRANSPORTATION  
1531  
10/13/11  
10/13/11  
10/13/11

**NORTH FORT BEND**  
ALONG WEST AIRPORT BOULEVARD  
FROM STA. 48+60 TO STA. 53+00

**PLAN & PROFILE**  
BASELINE 'C'

**REVISION**

NO.	DATE	REVISION	APPROX.
1			
2			
3			
4			

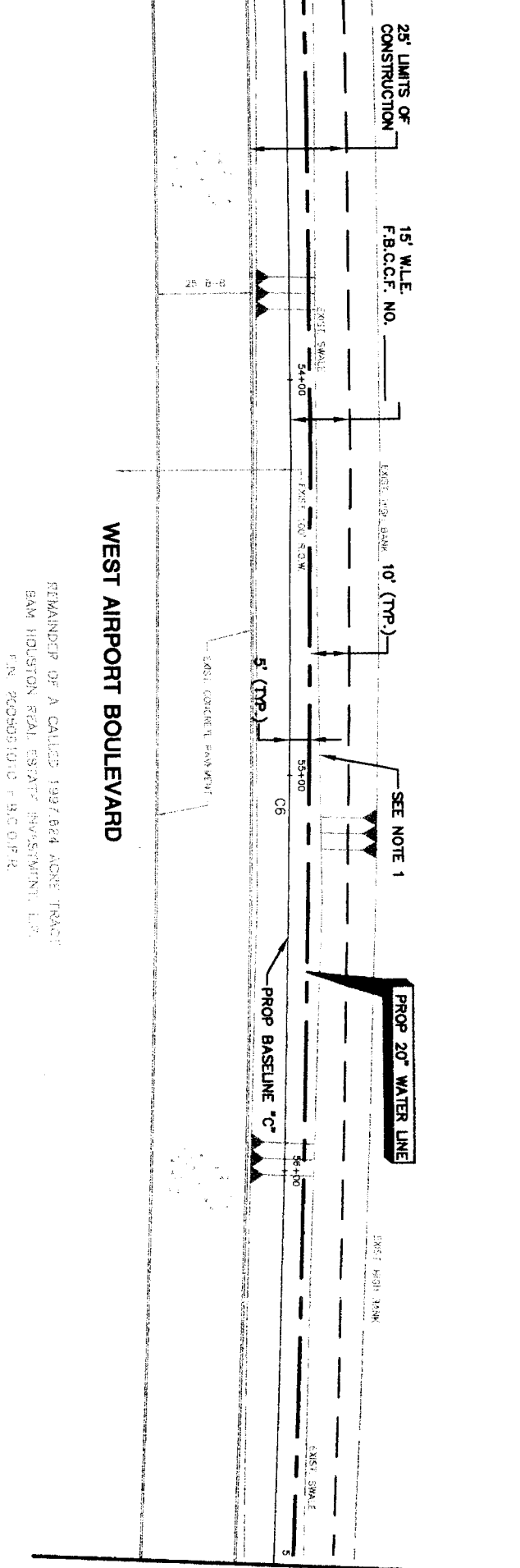
DRAWING SCALE  
HORIZ: 1"=20'  
VERT: 1"=2'

SHEET No. 43 OF 108

47757

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C6	307°8'31"	7050.00	3729.35	82°12'55"	3686.02

MATCH LINE STA 53+00 (SEE SHT. 43)

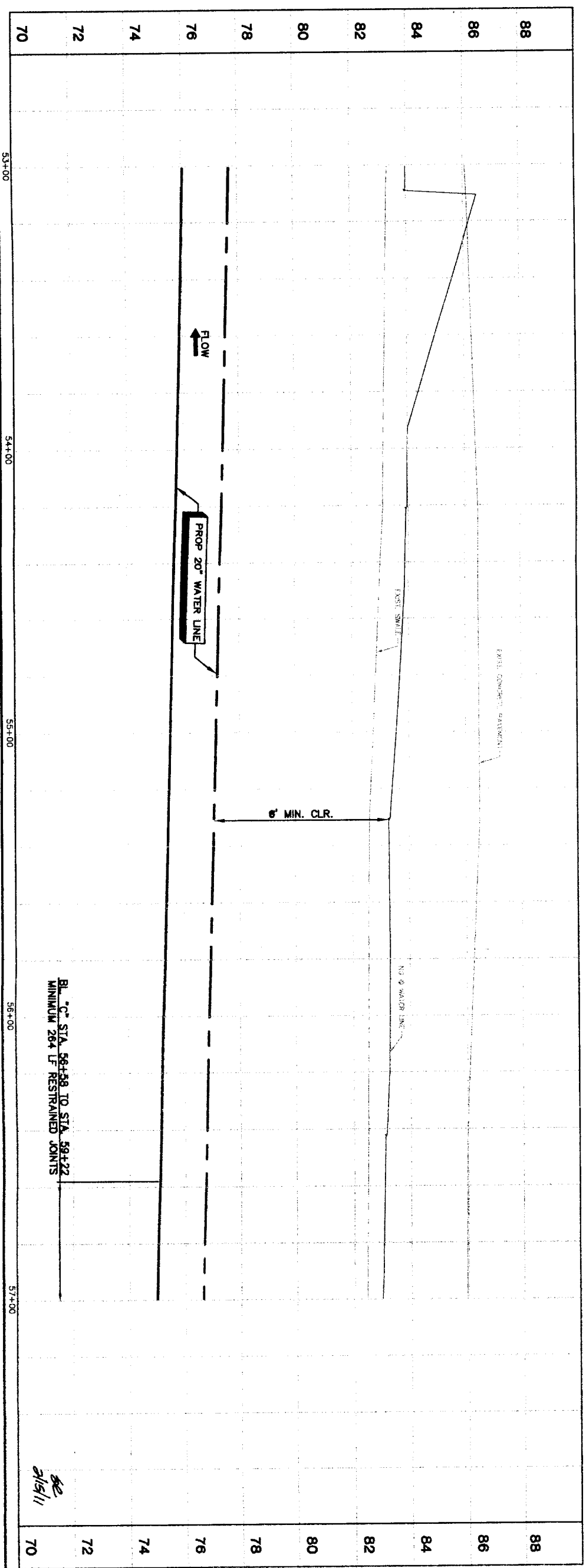


MATCH LINE STA 57+00 (SEE SHT. 45)

WEST AIRPORT BOULEVARD

REMAINDER OF A CALLED 1997.024 MORE TRACT  
 BAM HOUSTON REAL ESTATE INVESTMENT, L.P.  
 P.N. 2000051010 F.B.C.O.P.R.

- NOTES:
- RESTORE 400 LF OF EXIST. SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.



BL. 'C' STA. 58+38 TO STA. 59+22  
 MINIMUM 26' LF RESTRAINED JOINTS

2/15/11

PRIVATE UTILITY LINES SHOWN

Centerpoint Energy/ Gas Facilities  
 GAS service lines are not shown.  
 NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W OR EASEMENTS CALL ONE STAR NOTIFICATION CENTER. (713) 223-4567 OR 1-800-689-8344  
 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7777.

Date: \_\_\_\_\_  
 Signature valid for one year

NO.	DATE	REVISION	APPROVED
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 6077 Westheimer, Suite 400  
 Houston, Texas 77056  
 Tel: 281-566-8700  
 Fax: 281-558-9777  
 www.browngay.com  
 Professional Engineers and Surveyors  
 License No. 93708  
 State of Texas  
 F-1046

NRMA SEGMENT 4B  
**PLAN & PROFILE BASELINE 'C' ALONG WEST AIRPORT BOULEVARD FROM STA. 63+00 TO STA. 67+00**



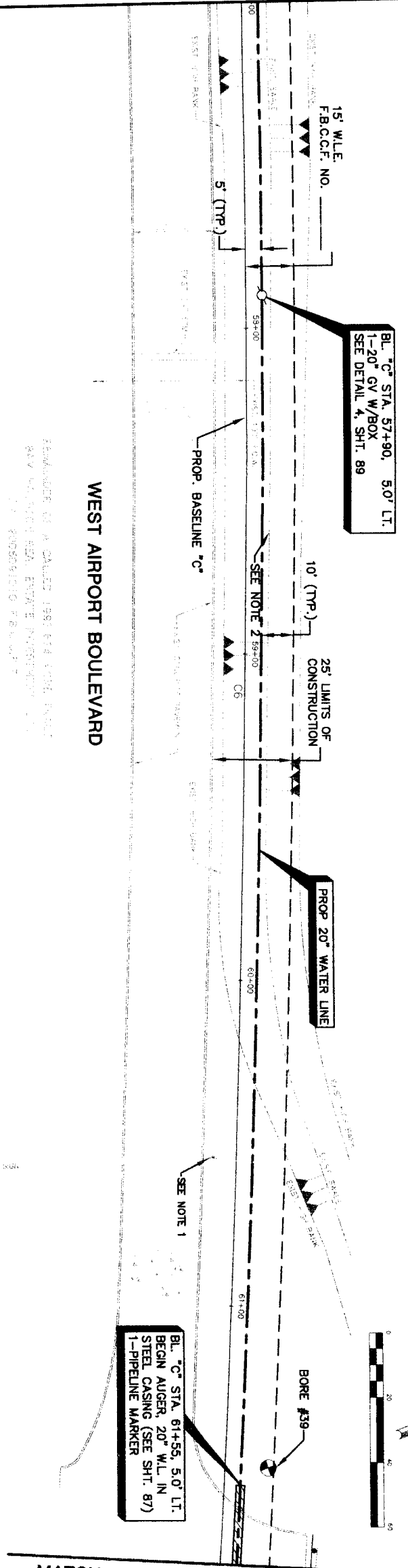
**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 WATER DIVISION  
 STAFF ENGINEER  
 DATE: 1/13/11

FILE NO.: \_\_\_\_\_  
 DRAWING SCALE: \_\_\_\_\_  
 HORIZ: 1"=20'  
 VERT: 1"=2'  
 SHEET NO. 44 OF 106



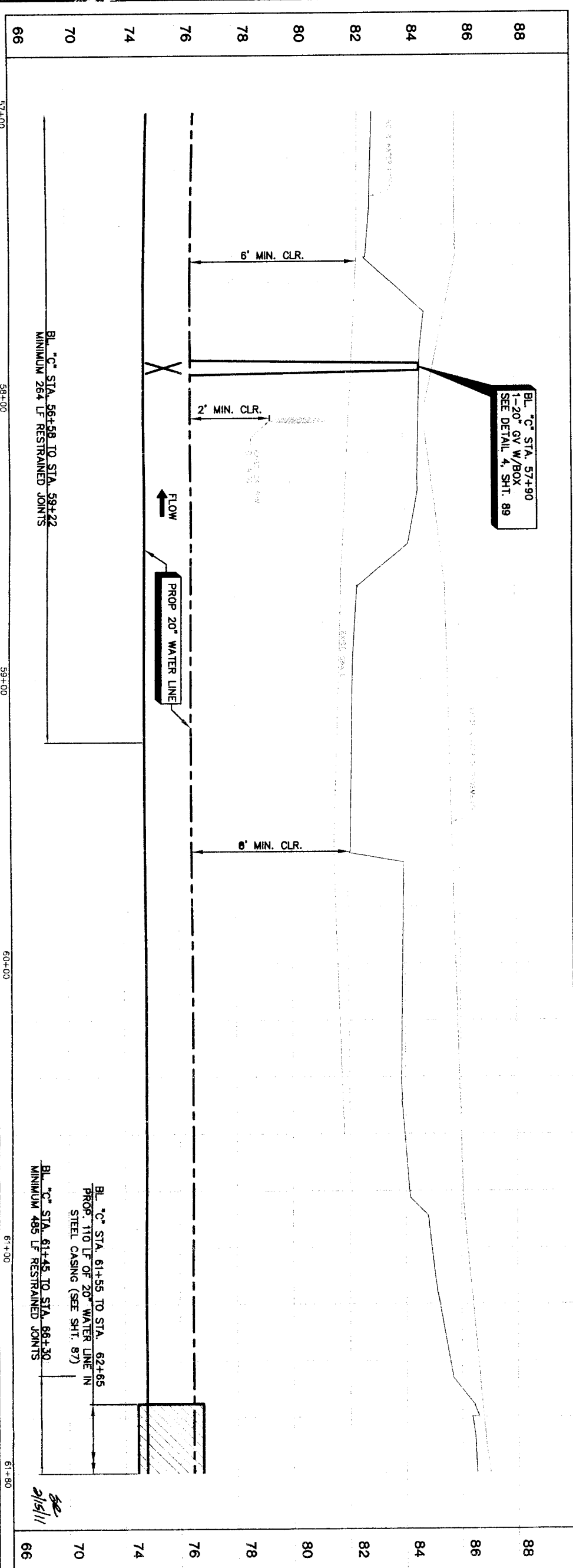
NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C6	30°18'31"	7050.00	3729.35	82°12'55"	3686.02

MATCH LINE STA. 57+00 (SEE SHT. 44)



MATCH LINE STA. 61+80 (SEE SHT. 46)

- NOTES:
1. REMOVE AND REPLACE EXISTING STREET SIGN UPON COMPLETION OF CONSTRUCTION.
  2. RESTORE 350 LF OF EXIST. SMALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.

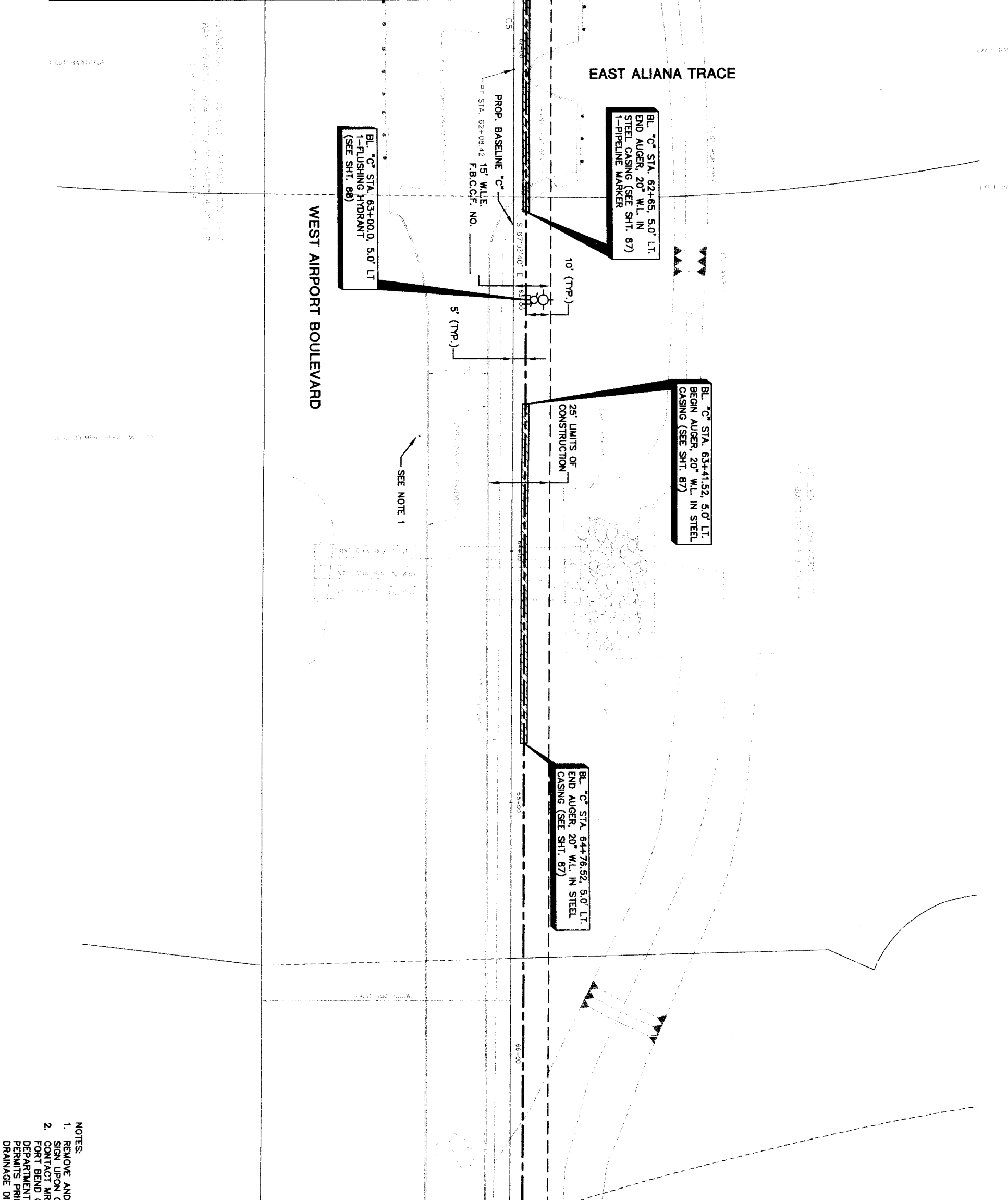


<p>PRIVATE UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>Centerpoint Energy/ Electric Facilities (approved only for crossing underground ductlines, unless otherwise noted.) Valid At Time Of Review Only</p> <p>SBC UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>SAC Approved for underground conduit facilities only. Signature valid for one year.</p> <p>Date: _____</p> <p>Centerpoint Energy/ Gas Facilities (gas service lines are not shown.)</p> <p>NOTICE</p> <p>AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW, OR EASEMENTS CALL LINE STAR NOTIFICATION CENTER. (713) 223-4567 OR 1-800-659-8344</p> <p>TO APPEAR FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7777.</p>		<p>DATE: 2/15/11</p> <p>BY: [Signature]</p> <p>PROJECT: WEST AIRPORT BOULEVARD</p> <p>DATE: 2/15/11</p> <p>BY: [Signature]</p>
<p><b>BROWN &amp; GAY ENGINEERS, INC.</b></p> <p>10777 Westchase Square, Suite 400          Westchase, Texas 77063          Tel: 281-666-8700 Fax: 281-666-8701          www.browngay.com</p>		<p><b>CITY OF HOUSTON</b></p> <p>DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p> <p>STREETS AND TRANSPORTATION</p> <p>DATE: 2/15/11</p> <p>BY: [Signature]</p>
<p><b>PLAN &amp; PROFILE</b></p> <p><b>BASELINE "C"</b></p> <p><b>ALONG WEST AIRPORT BOULEVARD</b></p> <p><b>FROM STA. 57+00 TO STA. 61+80</b></p> <p><b>NORTH FORT BEND</b></p>		<p>FILE NO.: _____</p> <p>DRAWING SCALE: _____</p> <p>HORIZ: 1"=20'</p> <p>VERT: 1"=2'</p> <p>SHEET NO. 45 OF 108</p>

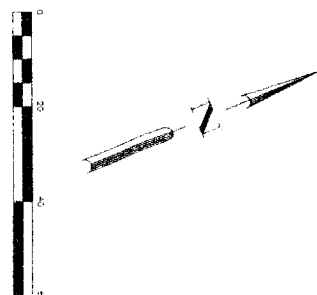
LAST MODIFIED: Jan 11, 2011 3:29pm BY USER: dpraz  
 DWG. LOCATION: H:\Projects\WFBMA\FB13-50 - Segment 4\AB\_CADD\Sheets\  
 DWG. NAME: PLAN & PROFILE ALONG WEST AIRPORT FROM STA. 57+00 TO STA. 61+80.dwg

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
06	307.631	7050.00	3729.35	82.7255	3686.02

MATCH LINE STA. 61+80 (SEE SHT. 45)



MATCH LINE STA. 66+60 (SEE SHT. 48)



- NOTES:
1. REMOVE AND REPLACE EXISTING STREET SIGN UPON COMPLETION OF CONSTRUCTION.
  2. CONTACT MR. JOHNNY ORTEGA WITH THE FORT BEND COUNTY ENGINEERING DEPARTMENT, (281)-633-7502 TO OBTAIN PERMITS PRIOR TO WORKING WITHIN THE DRAINAGE DISTRICT RIGHT-OF-WAY.

PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 Centerpoint Energy/ Electric Facilities (approved only for crossing underground ductlines, unless otherwise noted) valid At Time of Review only  
**SBC UTILITY LINES SHOWN**  
 Date: \_\_\_\_\_  
 SBC Approved for underground conduit facilities only  
 Signature valid for one year  
 Date: \_\_\_\_\_  
 Centerpoint Energy/ Gas Facilities  
 (Gas service lines are not shown.)  
 Date: \_\_\_\_\_

NOTICE: EXCAVATING IN STREET  
 PLACEMENT OF ASSESSMENTS CALL TOLL STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-660-8344  
 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED CALL CENTERPOINT AT 713-207-7777.

NO.	DATE	REVISION	APPROVAL
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 10777 Westmoreland, Suite 603  
 Fort Bend County, Texas 77459  
 Tel: 281-666-8202 Fax: 281-666-8201  
 — Civil Engineers and Surveyors —  
 F-1046

**NFBWA SEGMENT 4B**

**PLAN**  
**BASELINE 'C'**  
**ALONG WEST AIRPORT BOULEVARD**  
**FROM STA. 61+80 TO STA. 66+60**

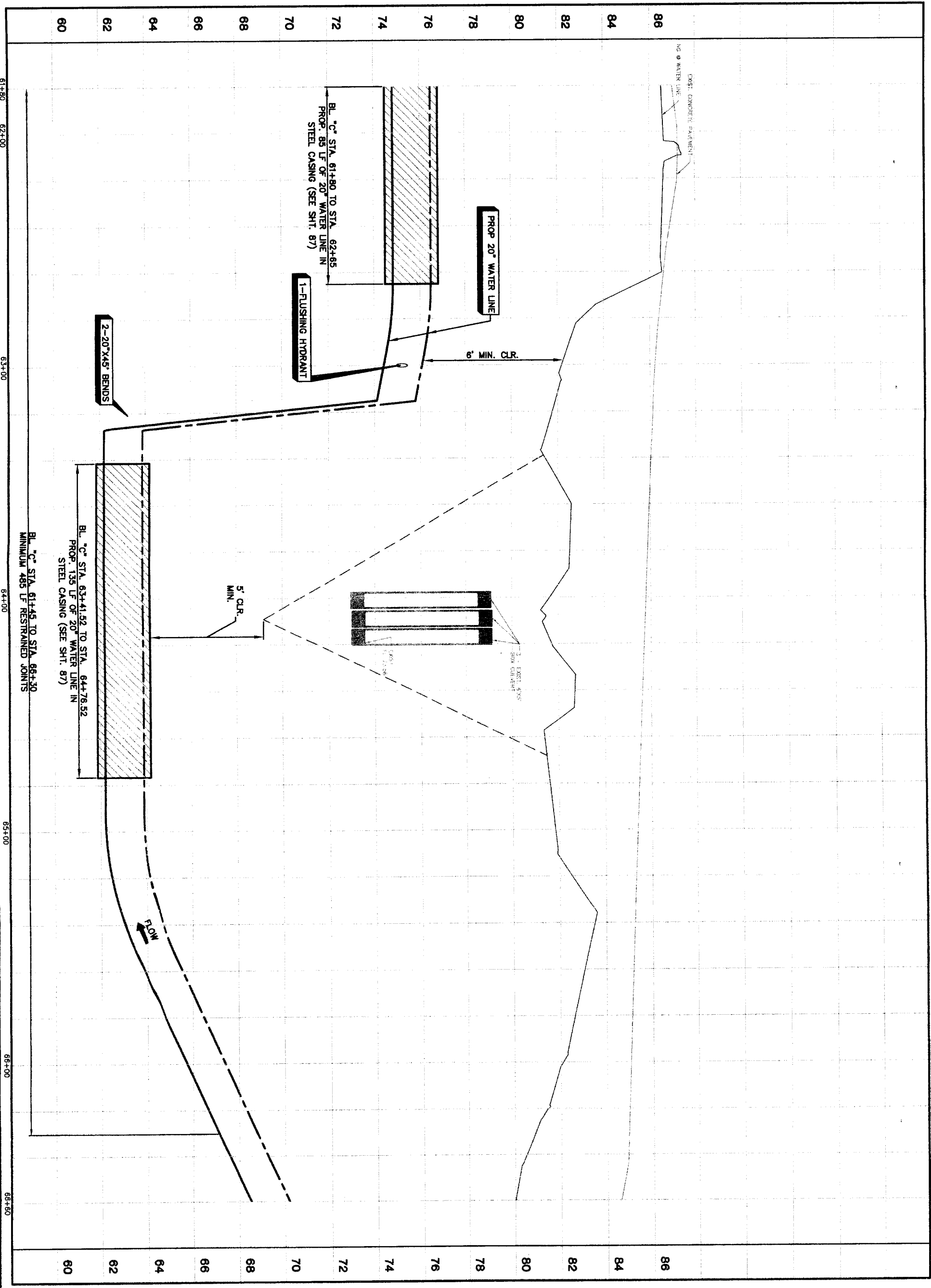
Professional Engineer Seal for **David D. Karpis**, License No. 93706, State of Texas, Mechanical Engineering.

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 TRAFFIC AND TRANSPORTATION

**NORTH FORT BEND**

NOTE: CITY SPALLS/SLABS VALID FOR ONE YEAR ONLY AFTER DATE OF DEMONSTRATION

WATER	STORM WATER QUALITY
WATER	STORM WATER QUALITY
STREET & BRIDGE	UTILITIES
FILE NO.	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
HORIZ: 1"=20'	
VERT: 1"=20'	
SHEET NO. 46 OF 108	



PRIVATE UTILITY LINES SHOWN

DATE: \_\_\_\_\_  
 City/Point Energy/ Gas Facilities (Gas service lines are not shown)  
 SBC Approved for underground conduit facilities only.  
 Signature valid for one year.  
 Date: \_\_\_\_\_  
 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	APPEND
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**  
 Sharon B. Gay, Engineer, Inc.  
 9177 Westmoreland Street, Suite 400  
 Houston, TX 77042  
 P: 281-554-0700  
 F: 281-554-0700  
 Civil Engineers and Surveyors  
 License No. 2423  
 License No. 14-1048

**NFBWA SEGMENT 4B**  
**PROFILE**  
**BASELINE 'C'**  
**ALONG WEST AIRPORT**  
**FROM STA. 61+80 TO STA. 68+60**

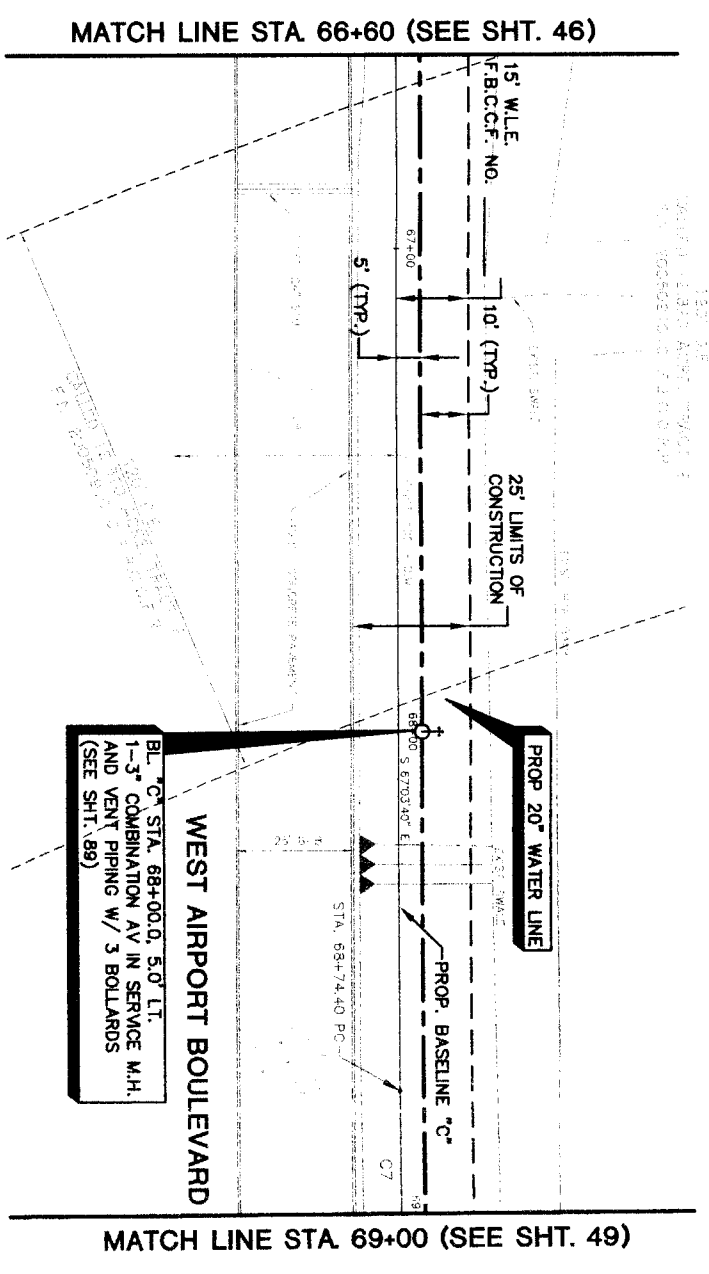


**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 TRENCH AND RECONSTRUCTION

NOTE: CITY SOLUTIONS VALID FOR ONE YEAR FROM DATE OF SIGNATURE

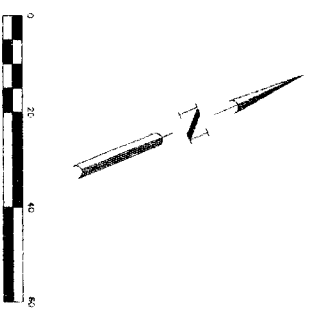
DATE	DATE
WATER MAIN	STORM WATER QUALITY
STREET & BRIDGE	FACILITIES
FILE NO.	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
HORIZ: 1"=20'	
VERT: 1"=2'	
SHEET No. 47 of 108	

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C7	23°45'21"	3950.00	1637.74	78°56'20"	1826.03

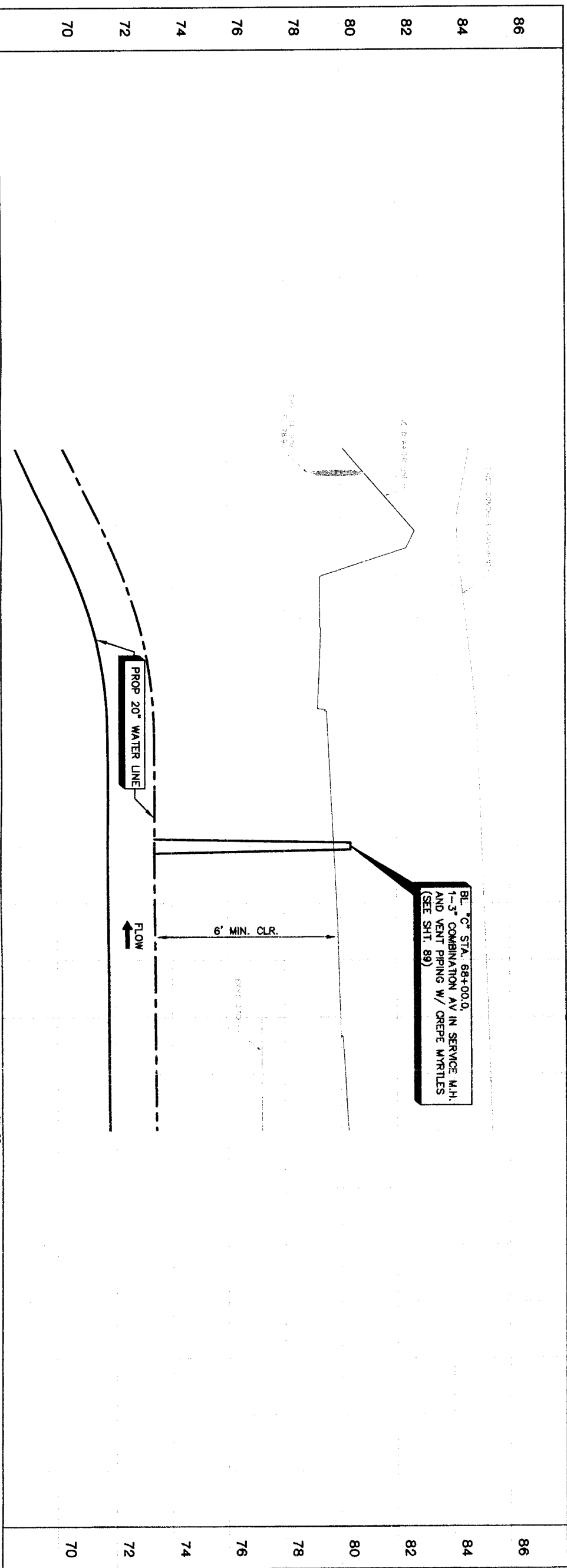


BL "C" STA. 68+00.0, 5.0' LT.  
1-3" COMBINATION AV IN SERVICE M.H.  
AND VENT PIPING W/ 3 BOLLARDS  
(SEE SHIT. 89)

- NOTES:
- RESTORE 240 LF OF EXIST. SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.



LAST MODIFIED: Feb 24, 2011 - 9:38am BY USER: wright  
 DWG. LOCATION: M:\Projects\NFBWA\FB11-50 - Segment 4\4R\_CADD\Sheets\  
 DWG. NAME: PLAN & PROFILE ALONG WEST AIRPORT FROM STA. 65+00 TO STA. 66+60.dwg



BL "C" STA. 68+00.0,  
1-3" COMBINATION AV IN SERVICE M.H.  
AND VENT PIPING W/ CREPE MYRTLES  
(SEE SHIT. 89)

6' MIN. CLR.

PROP 20" WATER LINE

FLOW

PRIVATE UTILITY LINES SHOWN		Date
Centerpoint Energy/ Electric Facilities (approved only for crossing underground ductlines, unless otherwise noted) Valid at time of Review Only		Date
SBC UTILITY LINES SHOWN		Date
SBC Approved for underground conduit facilities only. Signature valid for one year.		Date
Centerpoint Energy/ Gas Facilities (Gas service lines are not shown)		Date
NOTICE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW, SEE EASEMENTS PULL DOWN 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
1		
2		
3		
4		
		APPROV.
<b>BROWN &amp; GAY ENGINEERS, INC.</b> Brown & Gay Engineers, Inc. 10777 Westmore, Suite 600 Houston, Texas 77036 Tel: 281-666-4020 Fax: 281-666-8881 Civil Engineers and Surveyors F-1045		
<b>NFBWA SEGMENT 4B</b> <b>PLAN &amp; PROFILE</b> <b>BASELINE "C"</b> <b>ALONG WEST AIRPORT BOULEVARD</b> <b>FROM STA. 66+60 TO STA. 69+00</b>		
<b>CITY OF HOUSTON</b> DEPARTMENT OF PUBLIC WORKS AND ENGINEERING TRAFFIC AND TRANSPORTATION		
WATER	STORM WATER QUALITY	
STREET & SIDEWALK	FACILITIES	
FILE NO.	FORM CITY OF HOUSTON USE ONLY	
DRAWING SCALE		
HORIZ : 1"=20'		
VERT : 1"=2'		
SHEET NO. 48 OF 108		

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C7	23°45'21"	3950.00	1637.74	78°56'20"	1826.03

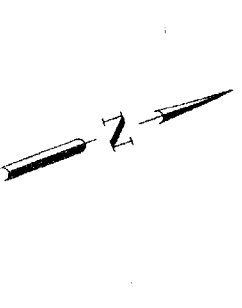
REMAINDER OF A CALLED 1997.524 ACRE TRACT  
 BAM HOUSTON REAL ESTATE INVESTMENT, L.P.  
 F.N. 2005091010 F.B.C.C.P.R.

MATCH LINE STA 69+00 (SEE SHT. 48)

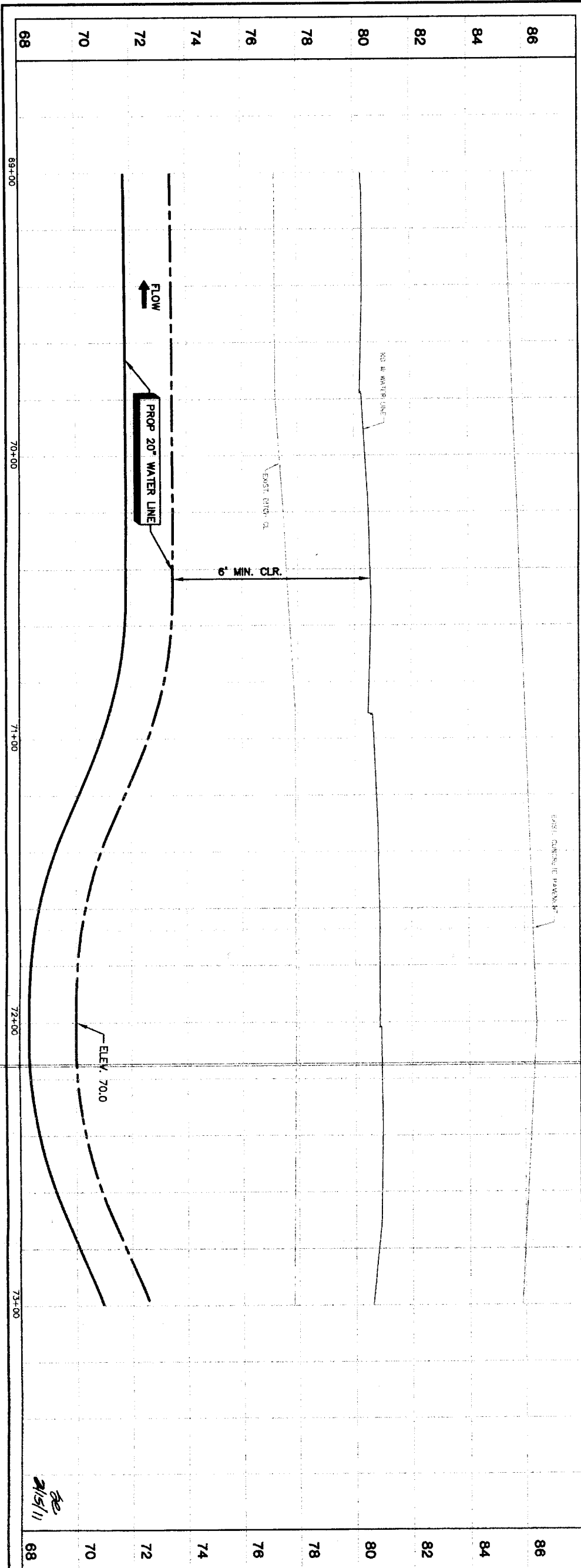
REMAINDER OF A CALLED 1997.524 ACRE TRACT  
 BAM HOUSTON REAL ESTATE INVESTMENT, L.P.  
 F.N. 2005091010 F.B.C.C.P.R.

WEST AIRPORT BOULEVARD

MATCH LINE STA 73+00 (SEE SHT. 50)



- NOTES:
- RESTORE 400 LF OF EXIST. SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.



PRIVATE UTILITY LINES SHOWN

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

Centerpoint Energy/ Electric Facilities (approved only for crossing underground ducts, unless otherwise noted. Void At Time of Review Only)

SBC UTILITY LINES SHOWN

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

SBC Approved for underground conduit facilities only. Signature valid for one year.

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

Centerpoint Energy/ Gas Facilities (Gas facilities shown are not shown)

NOTICE:

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL ONE 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	APPROVAL
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 10777 North Loop East, Suite 200  
 Houston, TX 77058  
 713.281.0868-8770  
 Fax 281.0868.8770  
 Civil Engineers and Surveyors  
 License No. 1-1046

STATE OF TEXAS  
 JARON B. HARGROVE  
 93706  
 LICENSED PROFESSIONAL ENGINEER  
 L. Brown & Gay Engineers, Inc.

**NORTH FORT BEND**

**PLAN & PROFILE**  
**BASELINE 'C'**  
**ALONG WEST AIRPORT BOULEVARD**  
**FROM STA. 69+00 TO STA. 73+00**

NOTE: CITY RESOURCES VALID FOR ONE YEAR FROM DATE OF SIGNATURE

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 1531 PRINCE AND AUSTIN ST.  
 HOUSTON, TX 77002

STATION: 71+51.11  
 DATE: 11/15/11

FILE NO.: \_\_\_\_\_  
 FOR CITY OF HOUSTON USE ONLY

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

47757

SHEET 49 OF 108

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C7	23.5921°	3990.00	1837.74	7856°20'	1628.03

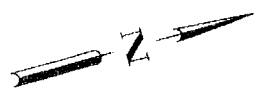
REMAINDER OF A CALLED 1997 824 ACRE TRACT  
 BAW HOUSTON REAL ESTATE INVESTMENT, L.P.  
 L.N. 2005091010 F.B.C.O.P.R.

REMAINDER OF A CALLED 1997 824 ACRE TRACT  
 BAW HOUSTON REAL ESTATE INVESTMENT, L.P.  
 L.N. 2005091010 F.B.C.O.P.R.

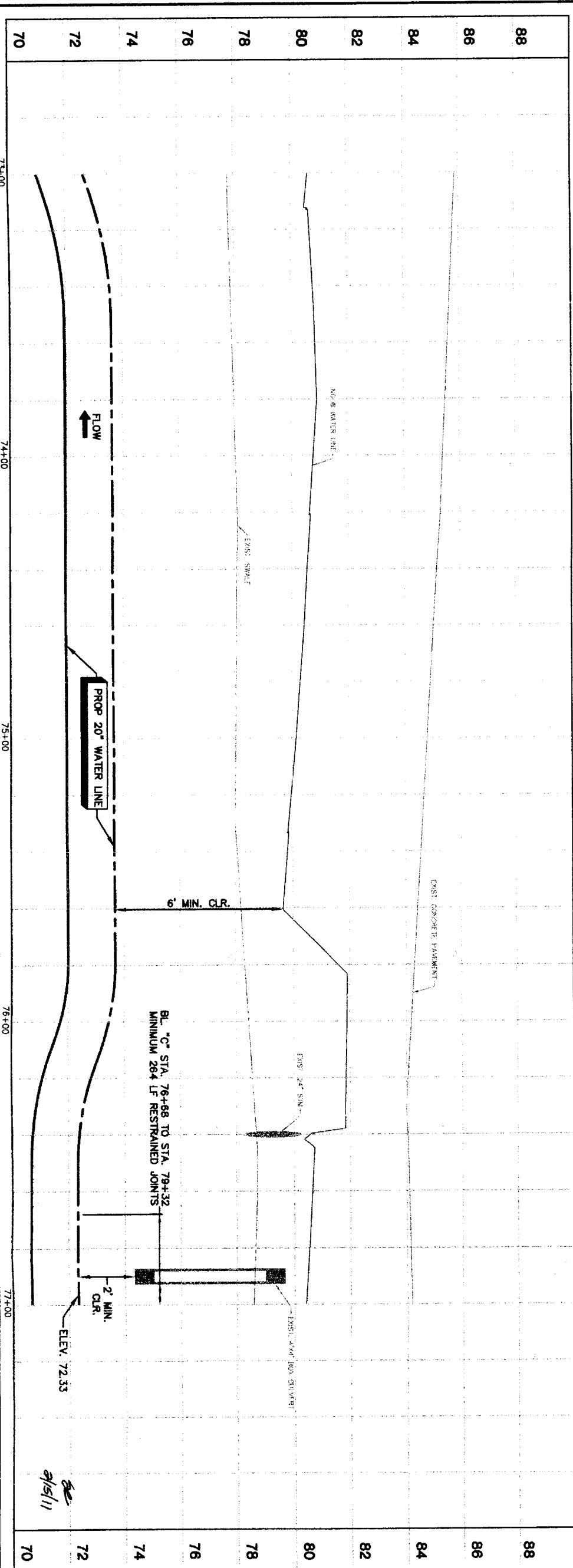
MATCH LINE STA 73+00 (SEE SHT. 49)

WEST AIRPORT BOULEVARD

MATCH LINE STA 77+00 (SEE SHT. 51)



- NOTES:
- RESTORE 400 LF OF EXIST. SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.



PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 Signature: \_\_\_\_\_  
 Title: \_\_\_\_\_  
 SBC Approved for underground conduit facilities only.  
 Date: \_\_\_\_\_  
 Signature: \_\_\_\_\_  
 Title: \_\_\_\_\_  
 SBC Utility Lines Shown  
 Date: \_\_\_\_\_  
 Signature: \_\_\_\_\_  
 Title: \_\_\_\_\_  
 Notice:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL LINE STAKE NOTIFICATION CENTER, (713) 223-4567 OR 1-800-869-8344  
 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-2772.

NO.	DATE	REVISION	APPROVED
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 1700 West Loop West, Suite 1000  
 Houston, TX 77056  
 Tel: 281-566-8100  
 Fax: 281-566-8101  
 www.browngay.com  
 Prof. Engineers and Surveyors  
 License No. 1-1048

**MARKON B. HARGROVE**  
 LICENSED PROFESSIONAL ENGINEER  
 No. 93706  
 State of Texas  
 Markon B. Hargrove  
 Brown & Gay Engineers, Inc.  
 1-1048

**NRBWA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE 'C'**  
**ALONG WEST AIRPORT BOULEVARD**  
**FROM STA 73+00 TO STA 77+00**



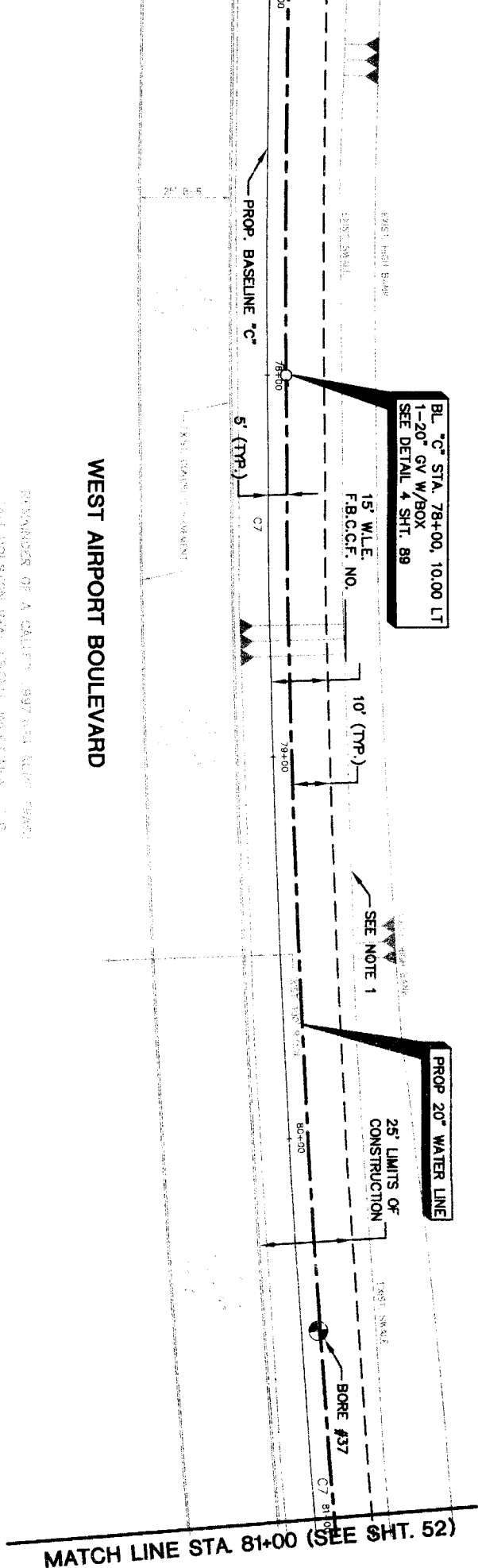
**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 WATER  
 UTILITY LINES AND TRANSPORTATION  
 DATE: 11/11  
 DRAWN BY: [Signature]  
 CHECKED BY: [Signature]  
 PROJECT NO.: 11-1048

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES  
 FILE NO.: \_\_\_\_\_  
 DRAWING SCALE: \_\_\_\_\_  
 HORIZ: 1"=20'  
 VERT: 1"=2'  
 SHEET NO. 50 of 108

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C7	23°45'21"	3950.00	1637.74	78°56'20"	1626.03

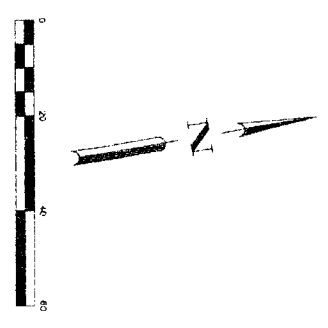
REMAINDER OF A CALLED 1987 842 ADJUST TRACK  
 94M PROPOSED 15" W/LE W/BOX  
 1" V. SCALE

MATCH LINE STA. 77+00 (SEE SHT. 50)

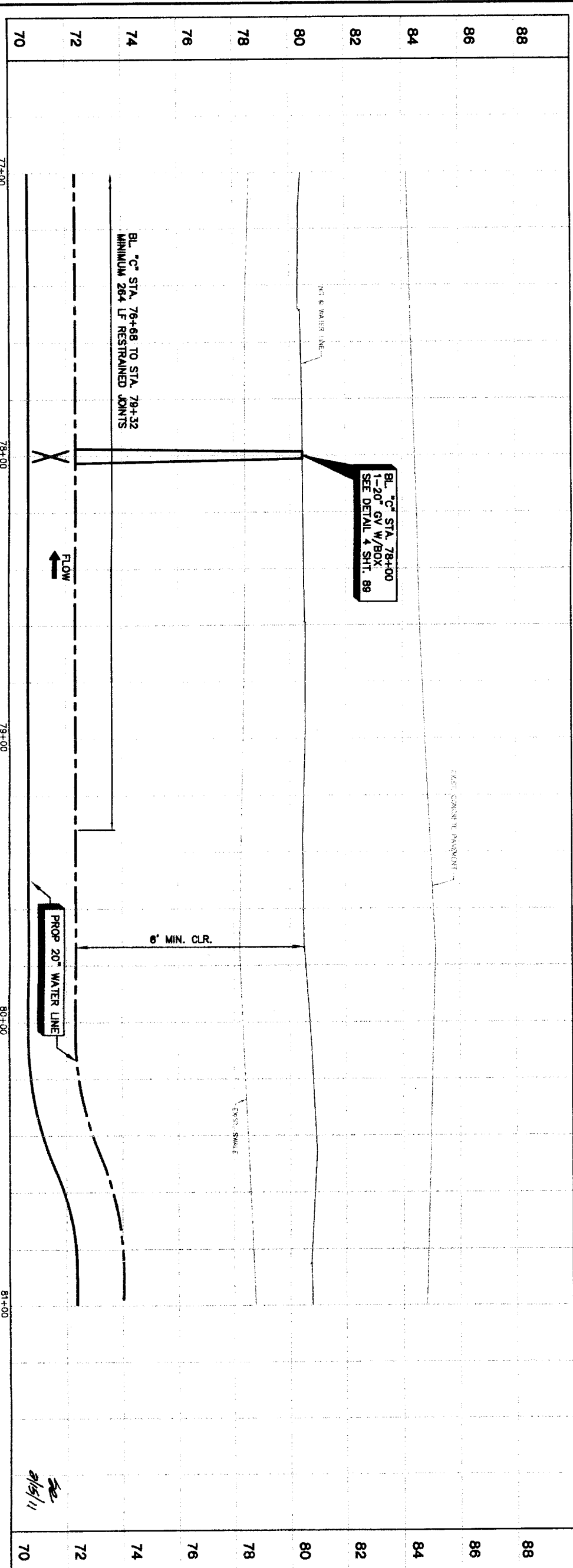


WEST AIRPORT BOULEVARD

REMAINDER OF A CALLED 1997 842 ADJUST TRACK  
 94M PROPOSED 15" W/LE W/BOX  
 1" V. SCALE



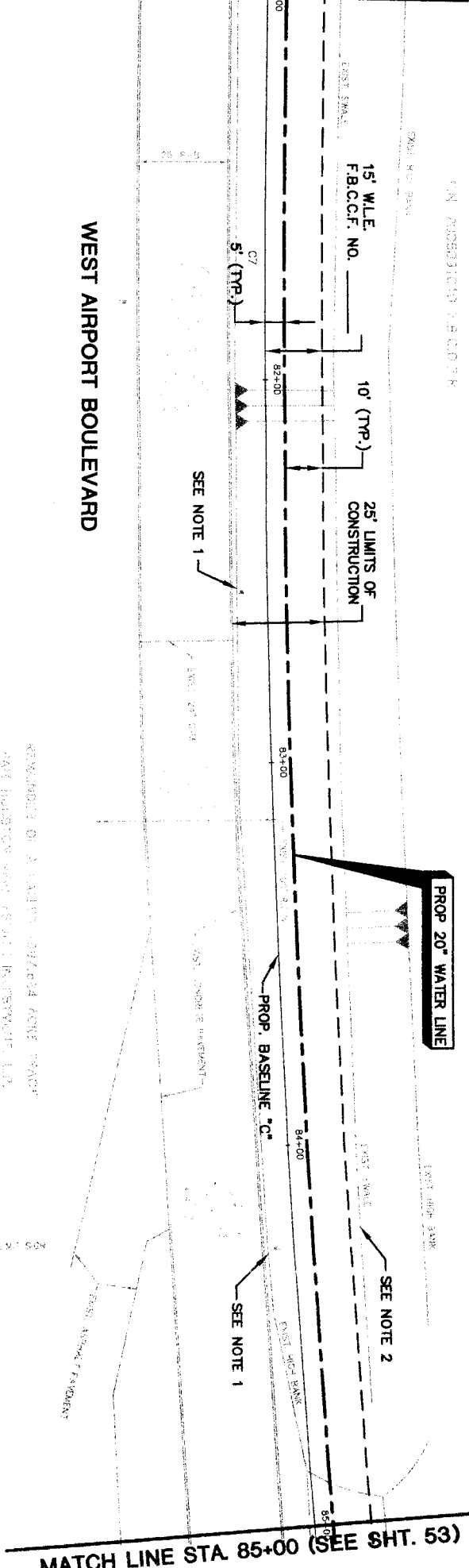
- NOTES:
- RESTORE 400 LF OF EXIST. SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.



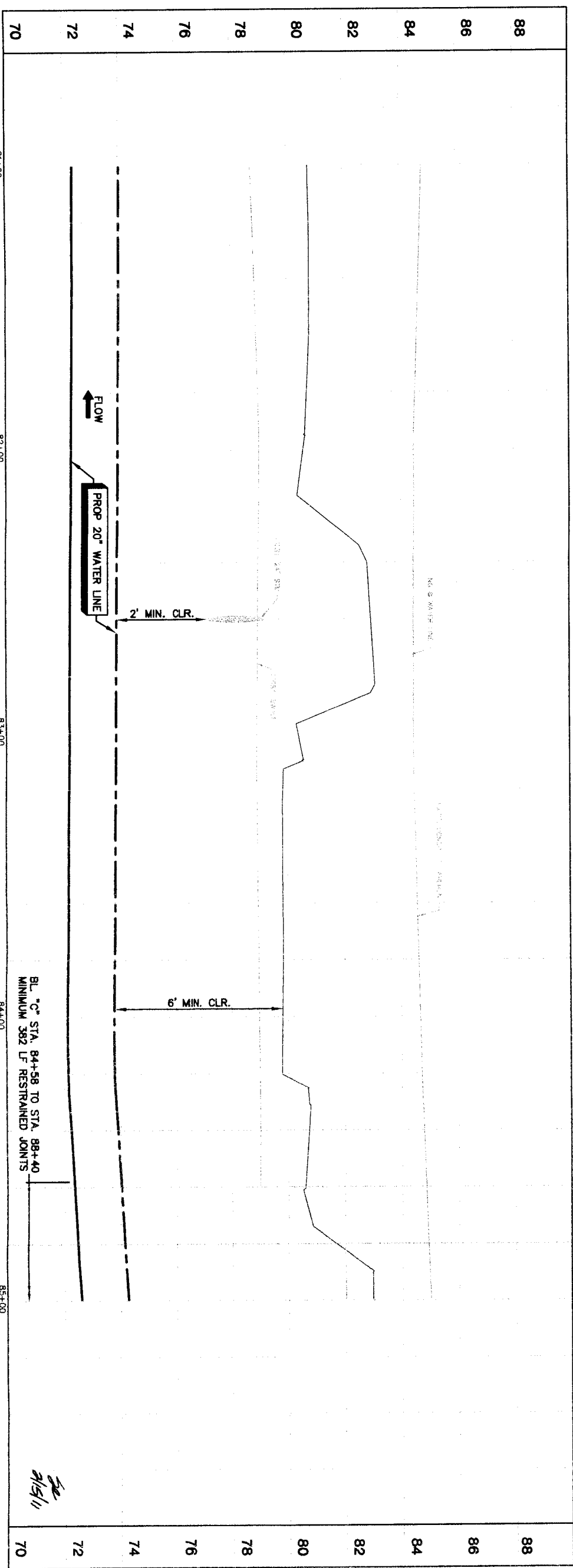
<p>PRIVATE UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>Centerpoint Energy/ Electric Facilities (Approved only for existing underground ductlines, unless otherwise noted) valid in the City of Houston only.</p> <p>SBC UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>SBC Approved for underground conduit facilities only. Signature valid for one year.</p> <p>Date: _____</p> <p>Centerpoint Energy/ Gas Facilities (Gas service lines are not shown).</p> <p>NOTICE:</p> <p>AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL TUNE STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-669-8344</p> <p>TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7777.</p>	
<p><b>BROWN &amp; GAY ENGINEERS, INC.</b></p> <p>10700 Houston, TX 77036        Tel: 281-565-8700        Fax: 281-565-8707        Civil Engineers and Surveyors</p> <p><b>LENSI D. SIMMONS</b>        LAMON B. HARGROVE        93708        F-1048</p>	
<p><b>NTBWA SEGMENT 4B</b></p> <p><b>PLAN &amp; PROFILE</b></p> <p><b>BASELINE 'C'</b></p> <p><b>ALONG WEST AIRPORT BOULEVARD</b></p> <p><b>FROM STA. 77+00 TO STA. 84+00</b></p>	
<p><b>CITY OF HOUSTON</b></p> <p>DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p> <p>STORM WATER QUALITY</p> <p>DATE: 11/11</p>	
<p>FILE NO: _____</p> <p>DRAWING SCALE</p> <p>HORIZ: 1"=20'</p> <p>VERT: 1"=2'</p> <p>SHEET NO: 51 OF 108</p>	

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C7	23.4521°	3950.00	1637.74	78.56°20'	1626.03

MATCH LINE STA 81+00 (SEE SHT. 51)



- NOTE:
1. REMOVE AND REPLACE EXISTING STREET SIGNS UPON COMPLETION OF CONSTRUCTION.
  2. RESTORE 400 LF OF EXIST. SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.



**PRIVATE UTILITY LINES SHOWN**

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

Centerpoint Energy/ Electric Facilities (approved only for crossing underground ductlines, unless otherwise noted. Void At Time Of Review Only)

**SBC UTILITY LINES SHOWN**

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

SBC Approved for underground conduit facilities only. Signature valid for one year.

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

Centerpoint Energy/ Gas Facilities

Gas service lines are not shown.

NOTE:

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL ONE STAR NOTIFICATION CENTER. (713) 223-4567 OR 1-800-689-8344

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7777.

NO.	DATE	REVISION	APPROV.
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**

Brown & Gay Engineers, Inc.  
 5777 West Loop West, Suite 200  
 Houston, TX 77028  
 Tel: 281-988-8700  
 Fax: 281-988-8700  
 E-mail: info@brownandgay.com  
 Chief Engineer and Surveyor: \_\_\_\_\_  
 F-1046

**NFBWA SEGMENT 4B**

**PLAN & PROFILE BASELINE "C" ALONG WEST AIRPORT BOULEVARD FROM STA. 81+00 TO STA. 85+00**

**NORTH FORT BEND**

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 TRAINING AND INSPECTION

DATE: 1/5/11

FILE NO.: \_\_\_\_\_

DRAWING SCALE: \_\_\_\_\_

HORIZ: 1"=20'

VERT: 1"=2'

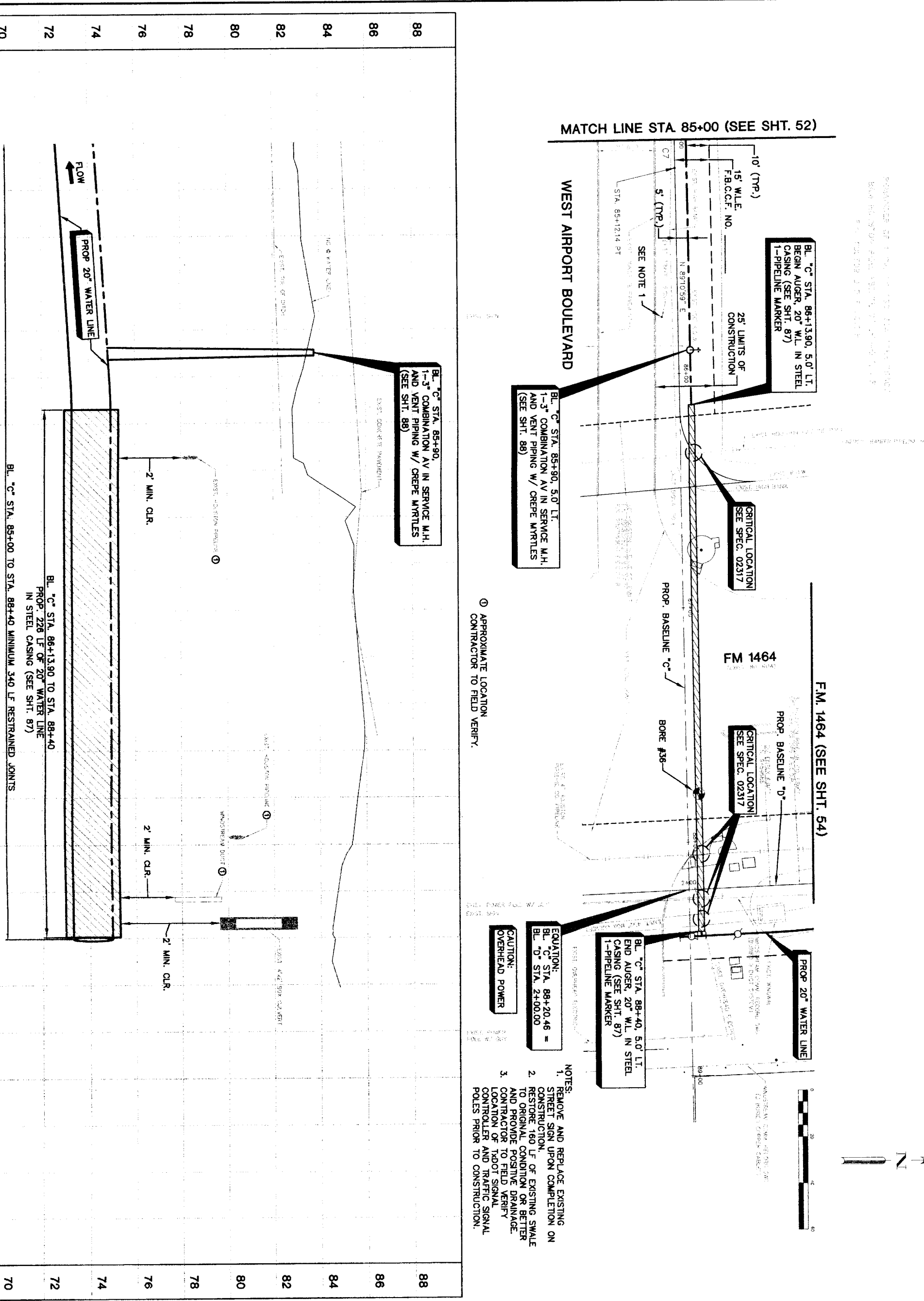
SHEET NO. 52 OF 108

FOR CITY OF HOUSTON USE ONLY

47757

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C7	23°59'21"	3950.00	1637.74	78°58'20"	1828.93

DATE: 02/25/2011 10:45:30 AM  
 USER: wright  
 PROJECT: WEST AIRPORT FROM STA. 85+00 TO END



**PRIVATE UTILITY LINES SHOWN**

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

Centerpoint Energy/ Gas Facilities (approved only)  
 Void At Time Of Review Only

**SBC UTILITY LINES SHOWN**

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

SBC Approved for underground conduit facilities only  
 Signature valid for one year.  
 Date: \_\_\_\_\_

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

**NOTICE:**  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW, OR EASEMENTS CALL TOLL FREE STATE NOTIFICATION CENTER (713) 223-4567 OR 1-800-659-8344  
 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-7777.

**BROWN & GAY ENGINEERS, INC.**  
 AARON B. HARGROVE  
 LICENSE NO. 93705  
 13777 Washington, Dallas, TX 75240  
 Tel: 281-284-8000  
 Fax: 281-284-8001  
 www.browngay.com  
 Civil Engineers and Surveyors  
 F-1046

**STATE OF TEXAS**  
 PROFESSIONAL ENGINEER  
 LICENSE NO. 93705  
 AARON B. HARGROVE

**NEBWA SEGMENT 48**

**PLAN & PROFILE**  
**BASELINE "C"**  
**ALONG WEST AIRPORT BOULEVARD**  
**FROM STA. 85+00 TO END**

**NORTH FORT BEND**

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 TRAFFIC AND TRANSPORTATION

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

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

FILE NO: \_\_\_\_\_

DRAWING SCALE

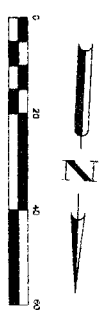
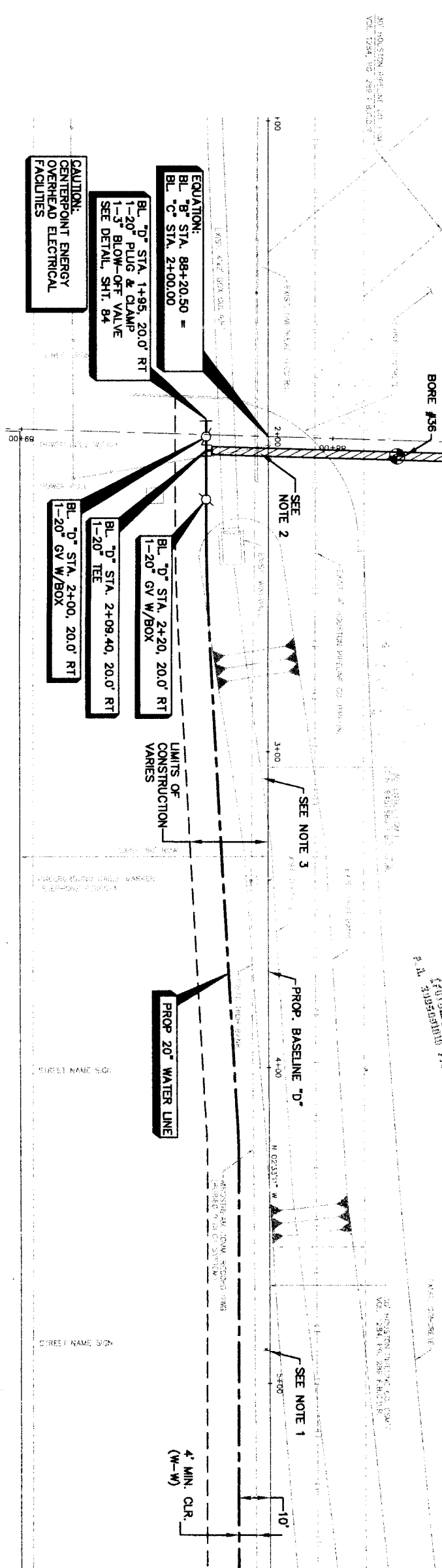
HORIZ: 1"=20'  
 VERT: 1"=2'

SHEET NO: 53 OF 108

FOR CITY OF HOUSTON USE ONLY

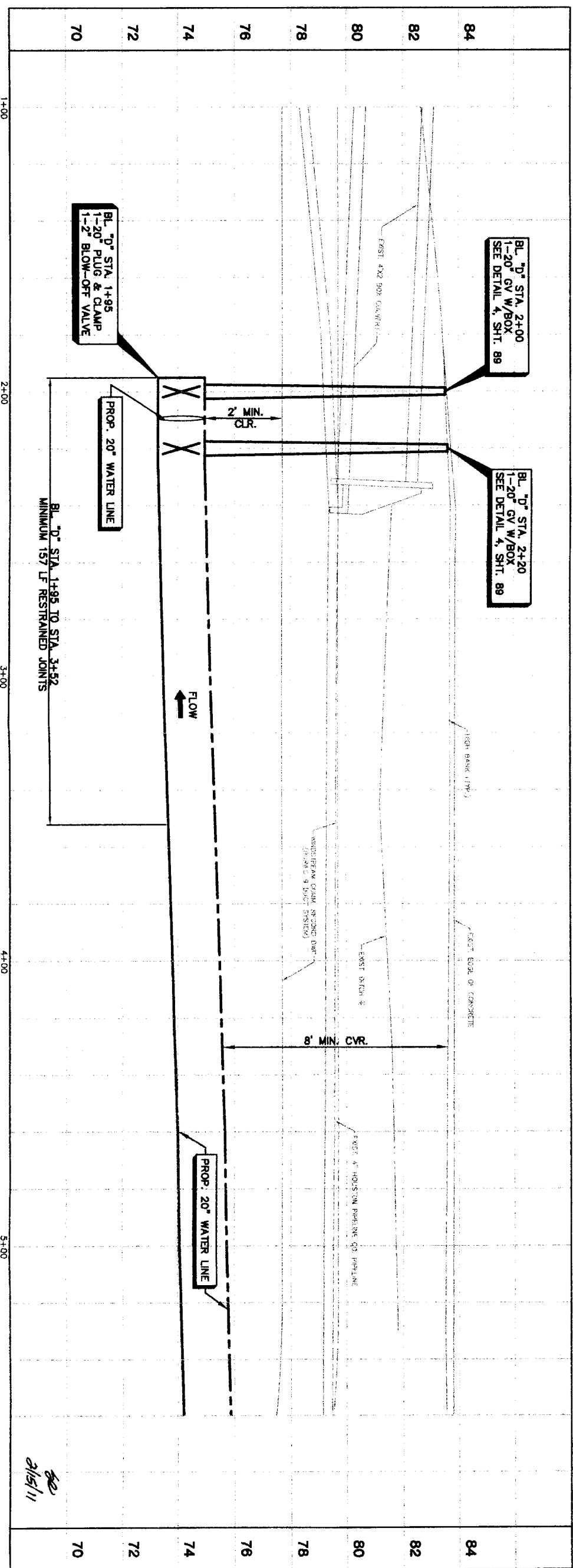
- NOTES:
1. REMOVE AND REPLACE EXISTING STREET SIGN UPON COMPLETION OF BACKFILL
  2. BRACE AND SUPPORT EXISTING POWER POLES AND/OR RELOCATE GUY WIRES AS NECESSARY. COORDINATE WORK WITH CENTERPOINT ENERGY.
  3. RESTORE 200 LF OF EXISTING SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.

**WEST AIRPORT BOULEVARD  
(SEE SHT. 53)**

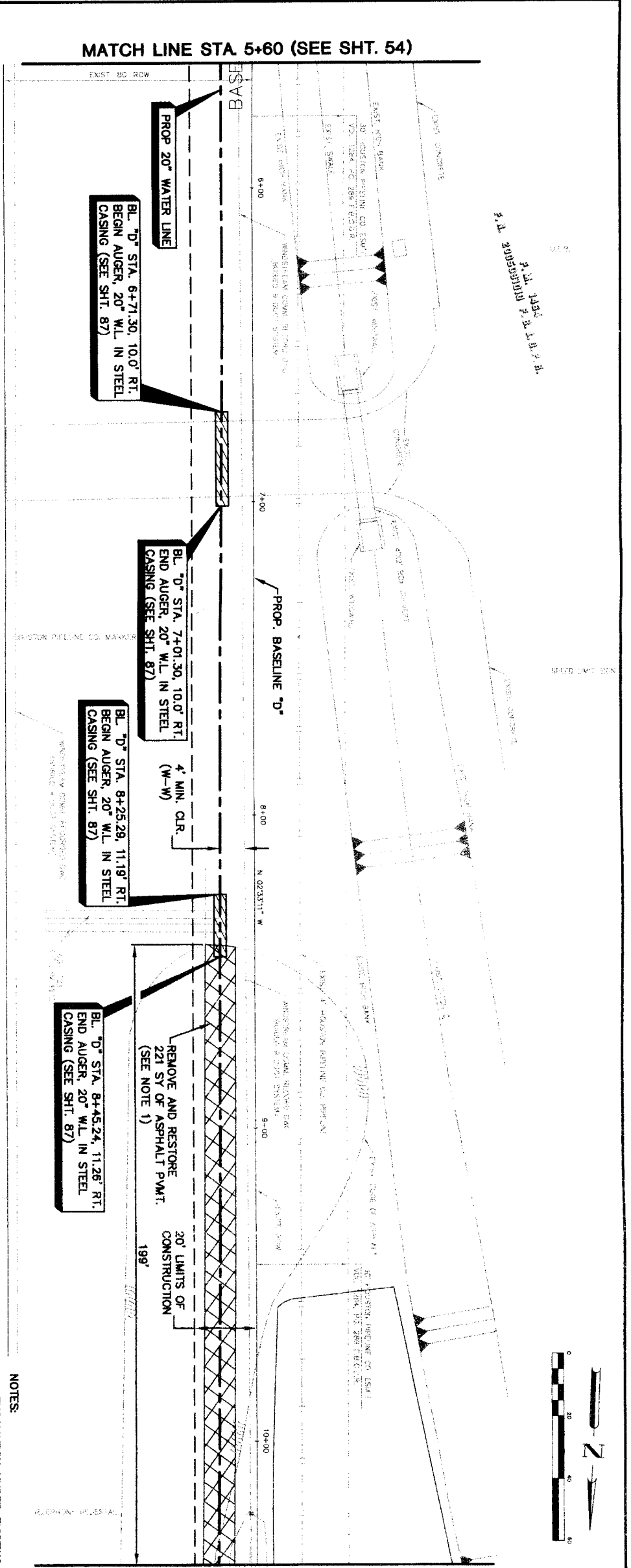


MATCH LINE STA. 5+60 (SEE SHT. 55)

**CLODINE ROAD**



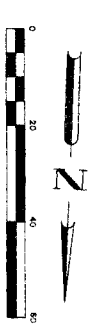
<p>PRIVATE UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>Centerpoint Energy/Electric Facilities (Approved only for crossing underground ductlines, unless otherwise noted. Valid At Time Of Review Only)</p> <p>SBC UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>SBC Approved for underground conduit facilities only. Signature valid for one year.</p> <p>Date: _____</p> <p>Centerpoint Energy/ Gas Facilities (Gas service lines are not shown.)</p> <p>NOTICE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW, OR EXEMPTS CALL ONE STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-669-8344</p> <p>TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7777.</p>		<p><b>BROWN &amp; GAY ENGINEERS, INC.</b></p> <p>Brown &amp; Gay Engineers, Inc. 10777 Westheimer, Suite 600 Houston, Texas 77042 Tel: 281-555-9700 Fax: 281-555-9701 — Civil Engineers and Surveyors —</p>	<p><b>CITY OF HOUSTON</b></p> <p>DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p> <p>STREET WATER QUALITY</p> <p>DATE: 2/15/11</p>	<p><b>NORTH FORT BAND</b></p> <p>PLAN &amp; PROFILE BASELINE 'D' ALONG CLODINE ROAD FROM STA. 1+00 TO STA. 5+60</p> <p>FILE NO.: _____</p> <p>DRAWING SCALE: _____</p> <p>HORIZ: 1"=20'</p> <p>VERT: 1"=2'</p> <p>SHEET NO. 54 OF 108</p>
---	--	---	--	---



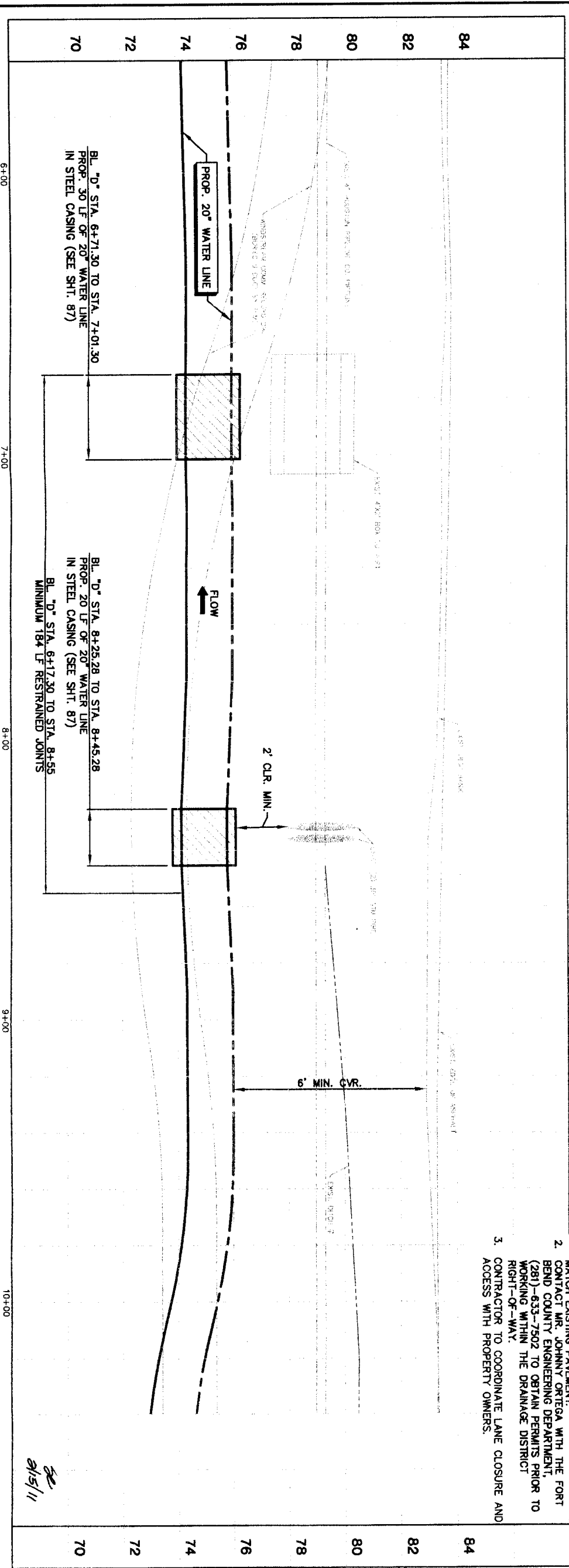
MATCH LINE STA 5+60 (SEE SHT. 54)

MATCH LINE STA 10+40 (SEE SHT. 56)

CLODINE ROAD



- NOTES:
1. EXCAVATION UNDER EXISTING PAVEMENT TO BE BACKFILLED WITH CEMENT STABILIZED SAND. PROPOSED ASPHALT TO BE LAID IN LIFTS TO MATCH EXISTING PAVEMENT.
  2. CONTACT MR. JOHNNY ORTEGA WITH THE FORT BEND COUNTY ENGINEERING DEPARTMENT, (281)-633-7502 TO OBTAIN PERMITS PRIOR TO WORKING WITHIN THE DRAINAGE DISTRICT RIGHT-OF-WAY.
  3. CONTRACTOR TO COORDINATE LANE CLOSURE AND ACCESS WITH PROPERTY OWNERS.



<p>PRIVATE UTILITY LINES SHOWN</p> <p>Date:</p> <p>Signature valid for one year.</p> <p>Date:</p>		<p>NOTICE:</p> <p>AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL LONE STAR NOTIFICATION CENTER, (713) 223-4557 OR 1-800-659-8344</p> <p>TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7777.</p>	
<p>Centerpoint Energy/ Gas Facilities (Approved only, not valid at time of Review only)</p> <p>Signature valid for one year.</p> <p>Date:</p>		<p>DATE: _____</p> <p>NO. _____</p> <p>DATE: _____</p> <p>NO. _____</p>	
<p>DATE: _____</p> <p>NO. _____</p>		<p>DATE: _____</p> <p>NO. _____</p>	
<p>DATE: _____</p> <p>NO. _____</p>		<p>DATE: _____</p> <p>NO. _____</p>	

**BROWN & GAY ENGINEERS, INC.**

Professional Engineer License No. 93705

14777 Westheimer, Suite 400 Houston, TX 77042

147 281-568-8700

147 281-568-8700

City of Houston and Associates

*John B. Winters*

**NFBWA SEGMENT 4B**

**PLAN & PROFILE**

**BASELINE 'D'**

**ALONG CLODINE ROAD**

**FROM STA. 5+60 TO STA. 10+40**

**CITY OF HOUSTON**

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

1-827 TRADING AND TRANSPORTATION

STORM WATER QUALITY

STREET & BRIDGE

*John B. Winters*

3/15/11

NOTE: CITY SQUARES VALID FOR ONE YEAR AFTER DATE OF SIGNATURE

DRAWING SCALE

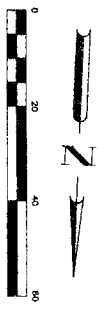
HORIZ: 1"=20'

VERT: 1"=2'

SHEET NO. 55 OF 108

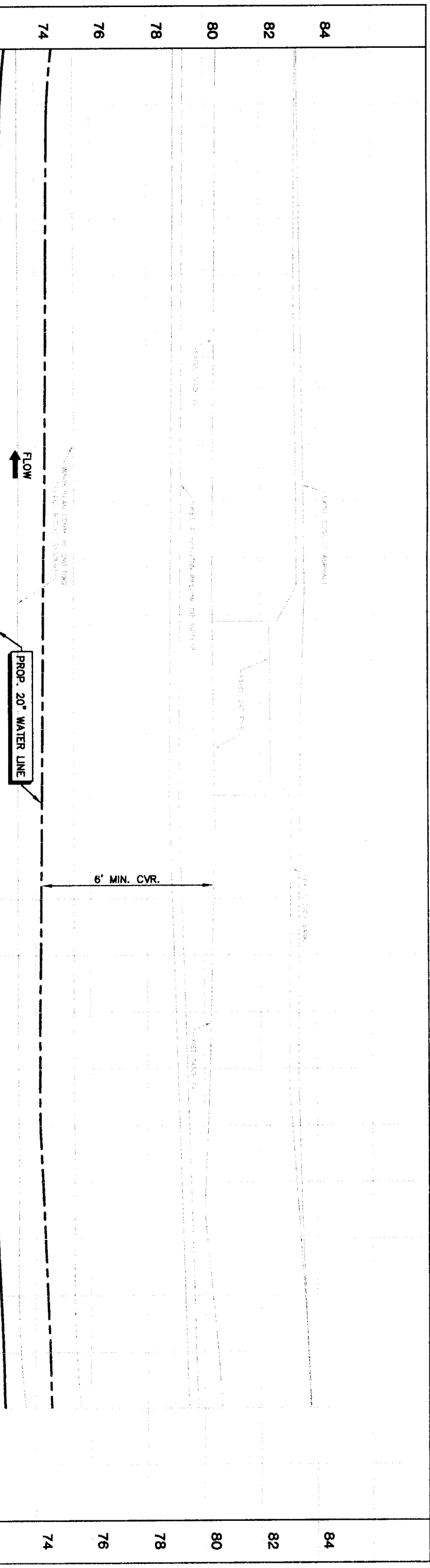
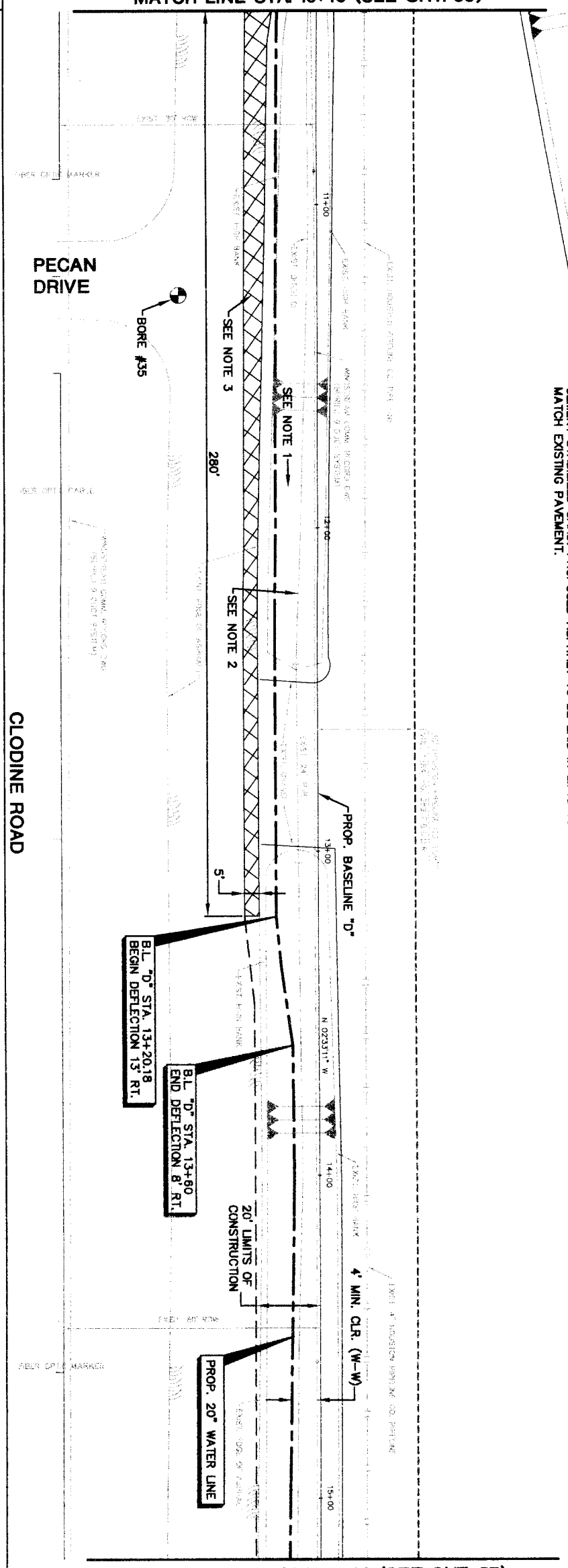
47757

- NOTES:
1. REMOVE & REPLACE EXISTING STREET SIGN
  2. UPON COMPLETION OF BACKFILL
  3. RESTORE 480 LF OF EXISTING DITCH TO ORIGINAL CONDITION OR BETTER. REMOVE AND RESTORE 155 SY OF ASPHALT PAVT. TO ORIGINAL CONDITION OR BETTER.
  4. EXCAVATION UNDER EXISTING PAVEMENT TO BE BACKFILLED WITH CEMENT STABILIZED SAND. PROPOSED ASPHALT TO BE LAID IN LIFTS TO MATCH EXISTING PAVEMENT.



MATCH LINE STA. 10+40 (SEE SHT. 55)

MATCH LINE STA. 15+20 (SEE SHT. 57)



PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 Centerpoint Energy/ Electric Facilities (approved only for crossing underground utilities, unless otherwise noted. Valid At Time Of Revision Only)  
 SEC UTILITY LINES SHOWN  
 Date: \_\_\_\_\_  
 Signature valid for one year.  
 Date: \_\_\_\_\_

NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL ONE 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	APPROV.
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 53706  
 Houston, TX 77042  
 Tel: 281-558-8700  
 Fax: 281-558-8710  
 www.browngay.com

**Professional Engineer**  
 License No. 12513  
 State of Texas  
 MARION B. HARGROVE  
 53706  
 Houston, TX 77042  
 Tel: 281-558-8700  
 Fax: 281-558-8710  
 www.browngay.com

**NFBMA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE "D"**  
**ALONG CLODINE ROAD**  
**FROM STA. 10+40 TO STA. 15+20**

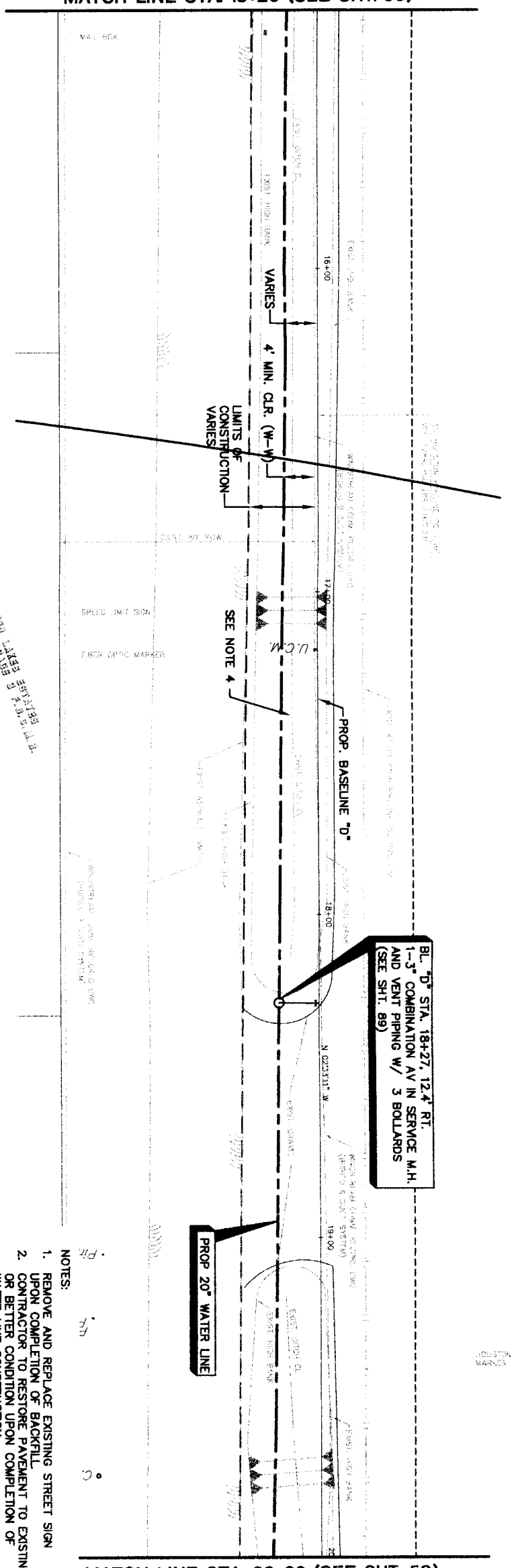


**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 TRAFFIC AND TRANSPORTATION

NOTE: CITY SPECIFICATIONS VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES  
 WATER: STORM WATER QUALITY  
 STREETS & BRIDGES: FACILITIES  
 FILE NO.: FOR CITY OF HOUSTON USE ONLY  
 DRAWING SCALE:  
 HORZ. : 1"=20'  
 VERT. : 1"=2'

SHEET No. 56 of 108

MATCH LINE STA. 15+20 (SEE SHT. 56)



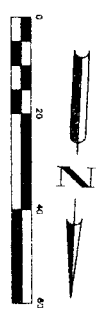
BL "D" STA. 18+27, 12.4' RT.  
 1-3" COMBINATION AV IN SERVICE M.H.  
 AND VENT PIPING W/ 3 BOLLARDS  
 (SEE SHT. 89)

BL "D" STA. 18+27  
 1-3" COMBINATION AV IN SERVICE M.H.  
 AND VENT PIPING W/ 3 BOLLARDS  
 (SEE SHT. 89)

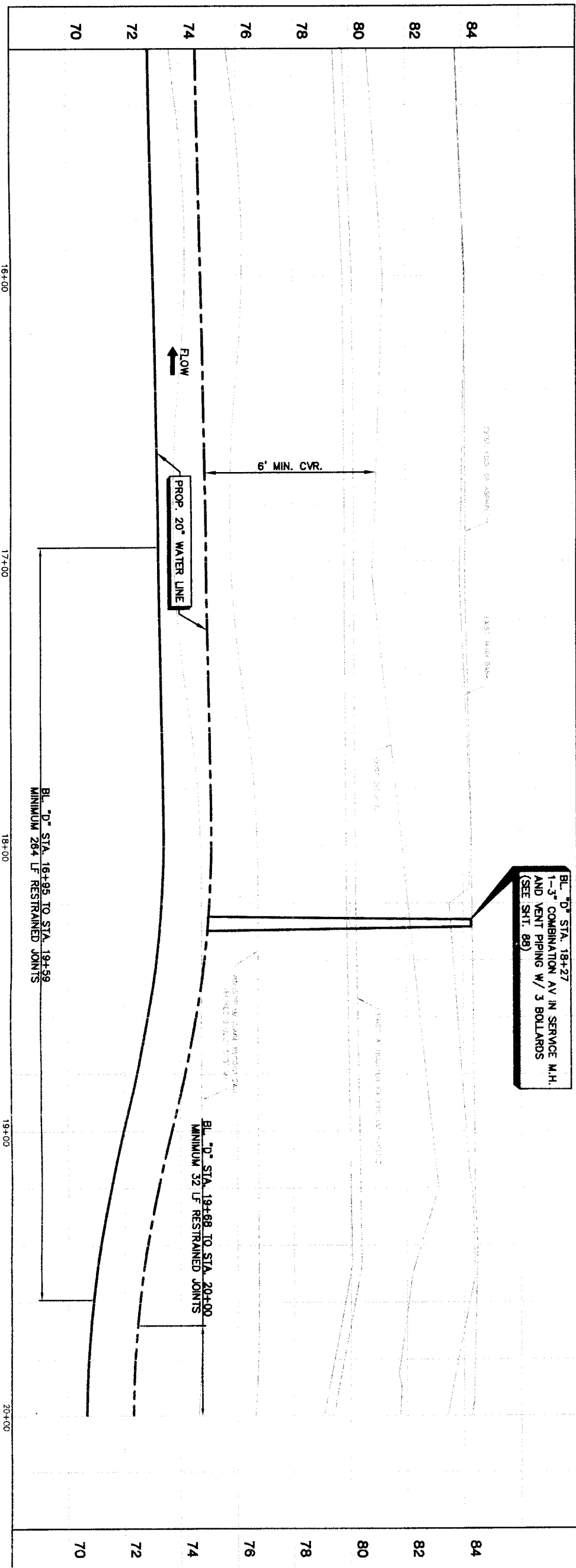
PROP. 20" WATER LINE

PROP. 20" WATER LINE

- NOTES:
1. REMOVE AND REPLACE EXISTING STREET SIGN UPON COMPLETION OF BACKFILL.
  2. CONTRACTOR TO RESTORE PAVEMENT TO EXISTING OR BETTER CONDITION UPON COMPLETION OF WATER LINE CONSTRUCTION.
  3. RESTORE 395 LF OF EXISTING SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.



MATCH LINE STA. 20+00 (SEE SHT. 58)



BL "D" STA. 19+68 TO STA. 20+00  
 MINIMUM 32' LF RESTRAINED JOINTS

BL "D" STA. 16+95 TO STA. 19+59  
 MINIMUM 28.4' LF RESTRAINED JOINTS

PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 Centertop Energy/ Electric Facilities (Approved only for crossing underground ductlines, unless otherwise noted) Valid At Time Of Review Only  
 SBC UTILITY LINES SHOWN  
 Date: \_\_\_\_\_  
 SBC Approval for underground conduit facilities only. Signature valid for one year.  
 Date: \_\_\_\_\_  
 NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL ONE 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
1			
2			
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4			

**BROWN & GAY ENGINEERS, INC.**  
 CARON B. JARGROVE  
 93706  
 HOUSTON, TX 77042  
 TEL: 281-558-9700  
 FAX: 281-558-9701  
 www.browngay.com

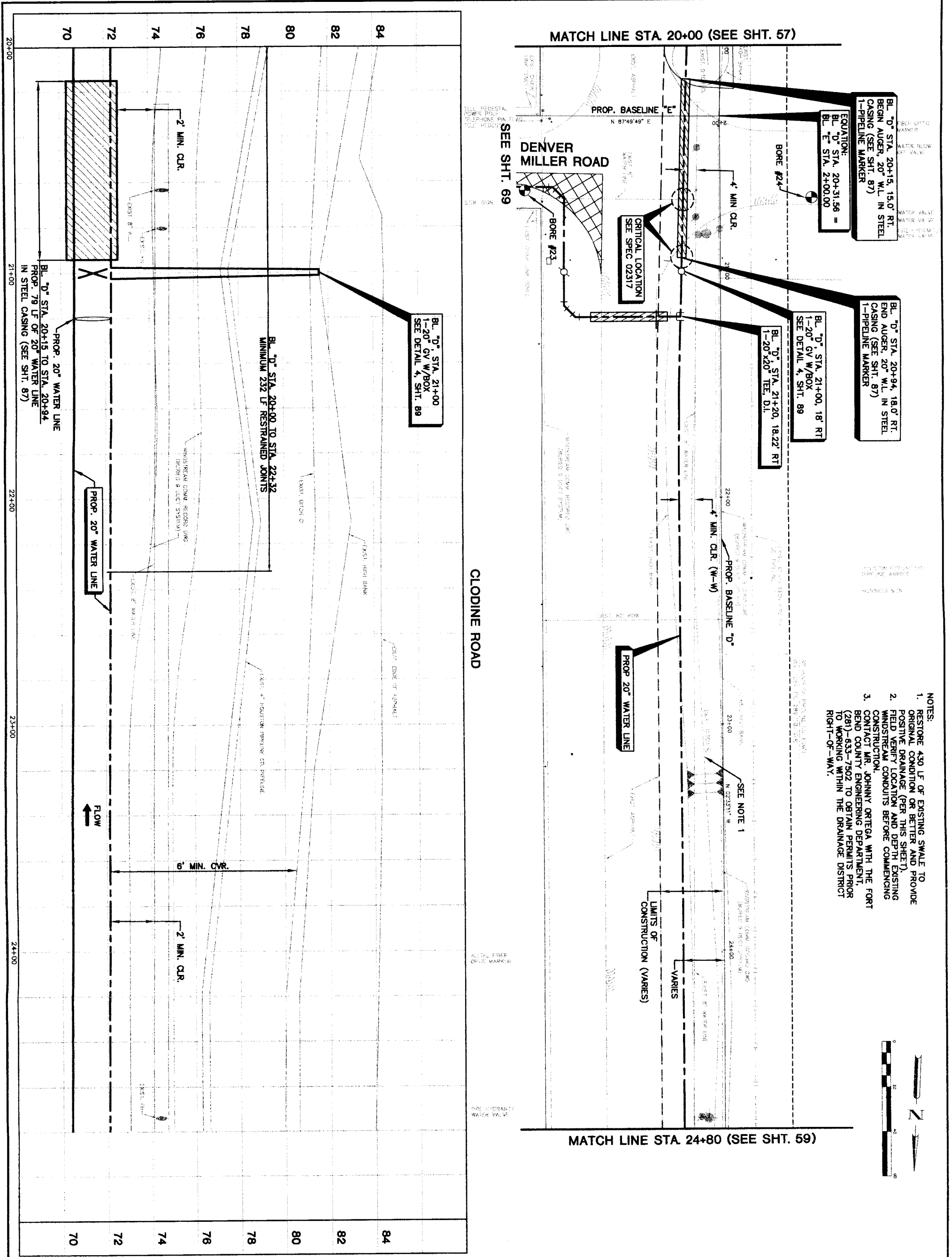
Professional Engineer Seal for Caron B. Jargrove, License No. 93706, State of Texas.

**NFBA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE "D"**  
**ALONG CLODINE ROAD**  
**FROM STA. 15+20 TO STA. 20+00**



**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 TRAFFIC AND TRANSPORTATION

NOTE: CITY SQUARES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES	
WASTEWATER	STORM WATER QUALITY
STREET & BRIDGE	FACILITIES
FILE NO.:	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
HORIZ: 1"=20'	
VERT: 1"=2'	
SHEET No. 57 OF 108	



- NOTES:**
- RESTORE 450 LF OF EXISTING SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE (PER THIS SHEET).
  - FIELD VERIFY LOCATION AND DEPTH EXISTING WINDSTREAM CONDUITS BEFORE COMMENCING CONSTRUCTION.
  - CONTACT MR. JOHNNY ORTEGA WITH THE FORT BEND COUNTY ENGINEERING DEPARTMENT, (281)-633-7502 TO OBTAIN PERMITS PRIOR TO WORKING WITHIN THE DRAINAGE DISTRICT RIGHT-OF-WAY.



**PRIVATE UTILITY LINES SHOWN**

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

Centerpoint Energy/ Gas Facilities (Approved only for crossing underground ductiles, unless otherwise noted) for Void at Time of Review Only

SBC UTILITY LINES SHOWN

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

SBC Approved for underground conduit facilities only. Signature valid for one year.

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

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

NOTICE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW OR EASTMENTS CALL ONE STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-689-8344

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7777.

NO.	DATE	REVISION	APPROX.
1			
2			
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**BROWN & GAY ENGINEERS, INC.**  
 10777 Highway 37, 77040  
 Houston, TX 77040  
 Tel: 281-484-8700  
 Fax: 281-568-8701  
 — Civil Engineers and Surveyors —  
 Brown & Gay Engineers, Inc.  
 F-1048

**SEAL OF THE STATE OF TEXAS**  
 PROFESSIONAL ENGINEER  
 JAMES D. BROWN  
 License No. 10484

**NFBWA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE 'D'**  
**ALONG CLODINE ROAD**  
**FROM STA 20+00 TO STA 24+80**

**NORTH FORT BEND**

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 NAME AND TRANSPORTATION

NOTE: CITY SPECIFICATIONS VALID FOR ONE YEAR ONLY AFTER DATE OF SUBMITTAL

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

FOR CITY OF HOUSTON USE ONLY

SHEET No. 58 of 108

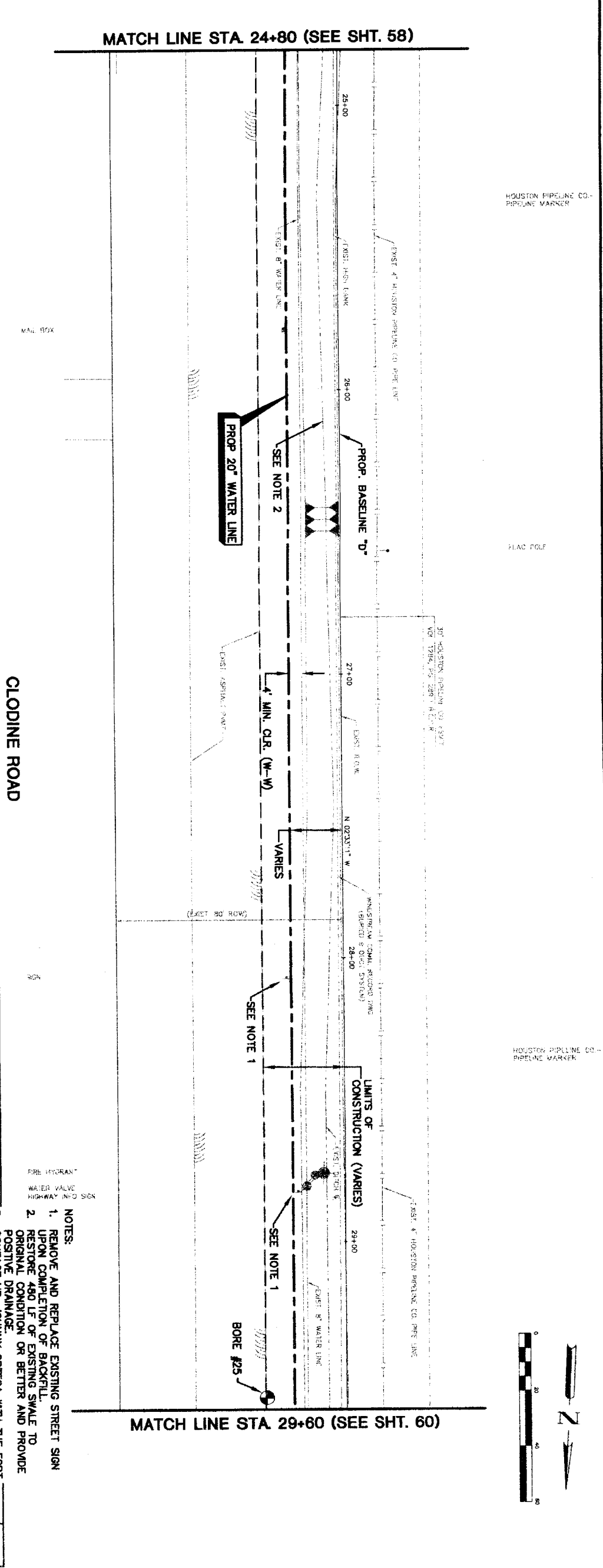
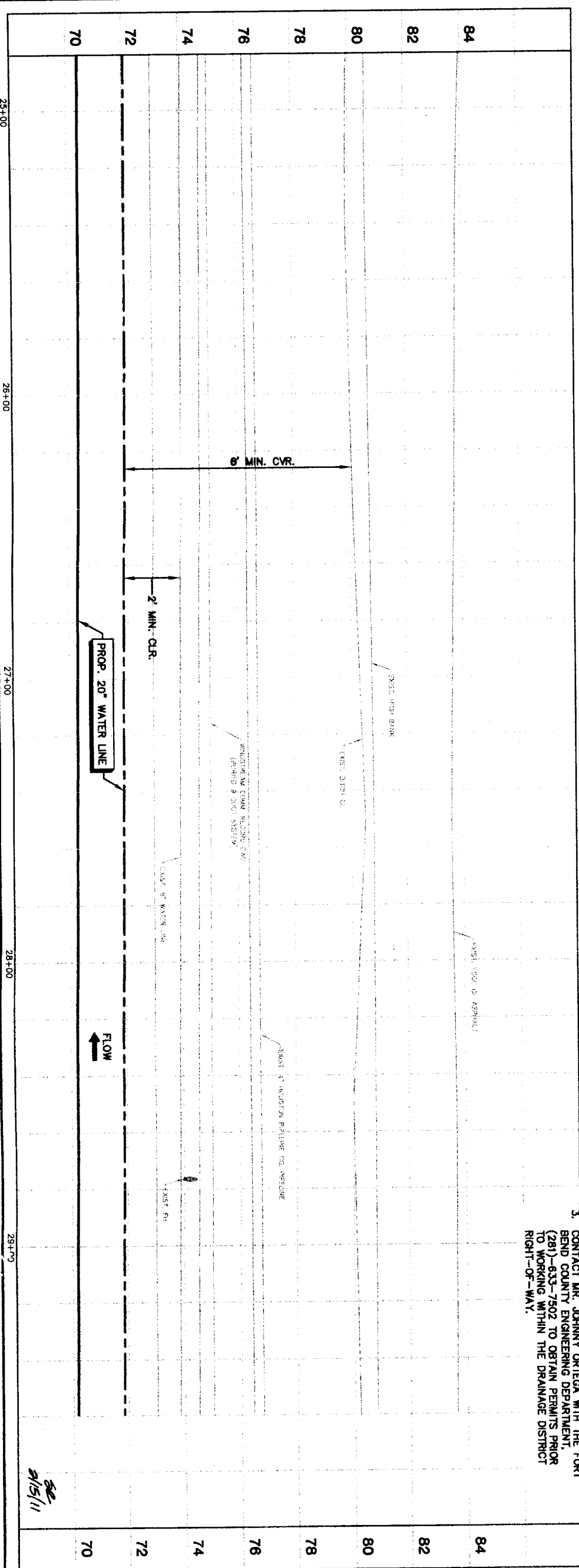
DRAWING SCALE  
 HORIZ : 1" = 20'  
 VERT : 1" = 2'

STREET & R/W

STRAIGHT WATER QUALITY

STREET & R/W

STRAIGHT WATER QUALITY

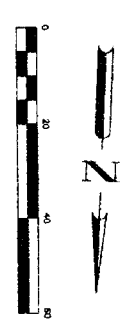


- NOTES:
1. REMOVE AND REPLACE EXISTING STREET SIGN UPON COMPLETION OF BACKFILL.
  2. RESTORE 480 LF OF EXISTING SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.
  3. CONTACT MR. JOHNNY ORTEGA WITH THE FORT BEND COUNTY ENGINEERING DEPARTMENT, (281)-633-7502 TO OBTAIN PERMITS PRIOR TO WORKING WITHIN THE DRAINAGE DISTRICT RIGHT-OF-WAY.

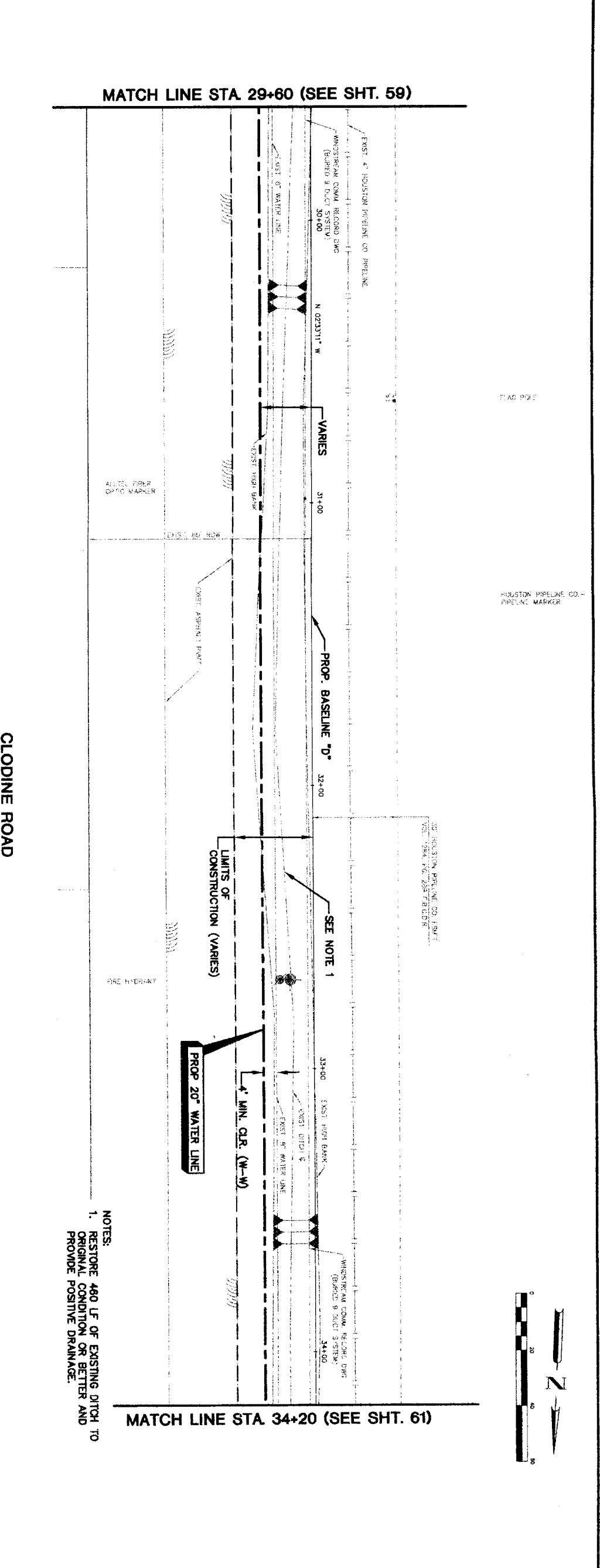
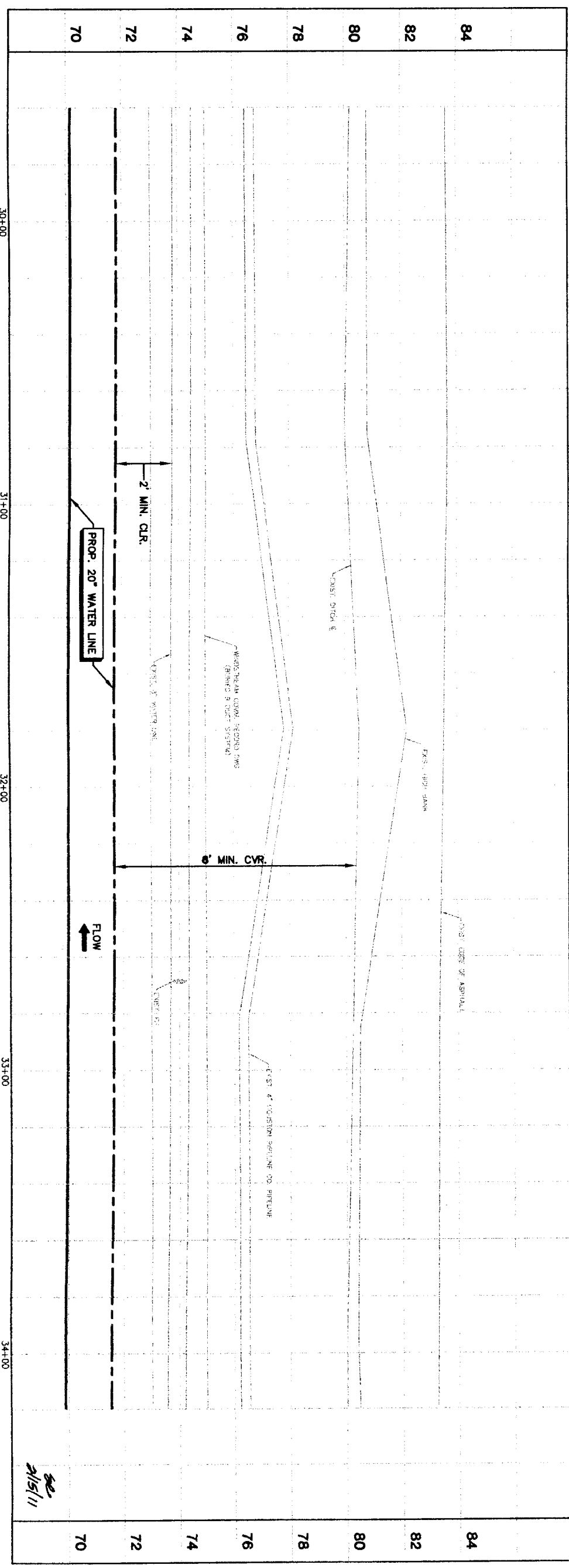
HOUSTON PIPELINE CO. PIPELINE MARKER

FLAG POLE

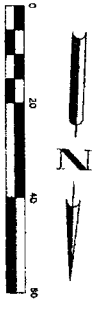
HOUSTON PIPELINE CO. PIPELINE MARKER



<p>PRIVATE UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>Centerpoint Energy/ Electric Facilities, (approved only for crossing underground ductlines, unless otherwise noted. Valid At Time Of Review Only)</p> <p>SBC UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>SBC Approved for underground conduit facilities only. Signaling valid for one year.</p> <p>Date: _____</p> <p>Centerpoint Energy/ Gas Facilities</p> <p>GAS service lines are not shown.</p> <p>NOTICE: EXCAVATING IN STREET AT LEAST 48 HOURS BEFORE CLODINE STAR NOTIFICATION CENTER (773) 223-4567 OR 1-800-659-8344</p> <p>TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7777.</p>	
<p><b>BROWN &amp; GAY ENGINEERS, INC.</b></p> <p>Engineers, Inc.</p> <p>10777 Washington, Suite 600              Houston, Texas 77036              Tel: 281-558-8200              Fax: 281-558-8201              www.browngay.com</p> <p>Professional Seal: </p> <p>Jason B. Langston              Professional Engineer              License No. 93708              State of Texas              Mechanical Engineering</p>	
<p><b>NFWMA SEGMENT 4B</b></p> <p>PLAN &amp; PROFILE BASELINE 'D' ALONG CLODINE ROAD FROM STA. 24+80 TO STA. 29+60</p> <p><b>NORTH FORT BEND</b></p> <p>CITY OF HOUSTON              DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p> <p>DATE: 11/15/11</p> <p>DESIGNED BY: </p> <p>CHECKED BY: </p> <p>STREET &amp; SINK</p> <p>STREET: _____</p> <p>SINK: _____</p> <p>STANDARD WATER QUALITY</p> <p>DATE: 11/15/11</p>	
<p>DRAWING SCALE</p> <p>HORIZ: 1"=20'</p> <p>VERT: 1"=2'</p> <p>SHEET NO. 59 of 108</p>	<p>FOR CDD OF HOUSTON USE OF</p> <p>47757</p>



- NOTES:
- RESTORE 480 LF OF EXISTING DITCH TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.



PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 Centipoint Energy/ Gas Facilities (approved only for crossing underground facilities, unless otherwise note valid at time of review only)  
 SBC UTILITY LINES SHOWN Date: \_\_\_\_\_  
 SBC approved for underground conduit facilities only. Signature valid for one year. Date: \_\_\_\_\_  
 Centipoint Energy/ Gas Facilities (approved only for crossing underground facilities, unless otherwise note valid at time of review only)  
 SBC UTILITY LINES SHOWN Date: \_\_\_\_\_

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
1			
2			
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**BROWN & GAY ENGINEERS, INC.**  
 11111 Houston, TX 77042  
 License No. 937706  
 Professional Seal: ASHON B. HARGROVE, 937706, LICENSED PROFESSIONAL ENGINEER, CIVIL, STATE OF TEXAS

**NFBWA SEGMENT 4B**  
 PLAN & PROFILE BASELINE 'D' ALONG CLODLINE ROAD FROM STA. 29+60 TO STA. 34+20

**NORTH FORT BEND**  
 CITY OF HOUSTON  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 12/11/11  
 DRAWN BY: [Signature]  
 CHECKED BY: [Signature]

DATE CITY SEALING VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURE

FILE NO.: \_\_\_\_\_  
 DRAWING SCALE: \_\_\_\_\_  
 HORIZ: 1"=20'  
 VERT: 1"=2'

SHEET No. 60 of 108

47757

HOUSTON PIPELINE CO.  
 PIPELINE MARKER

BUSKEL'S CO.

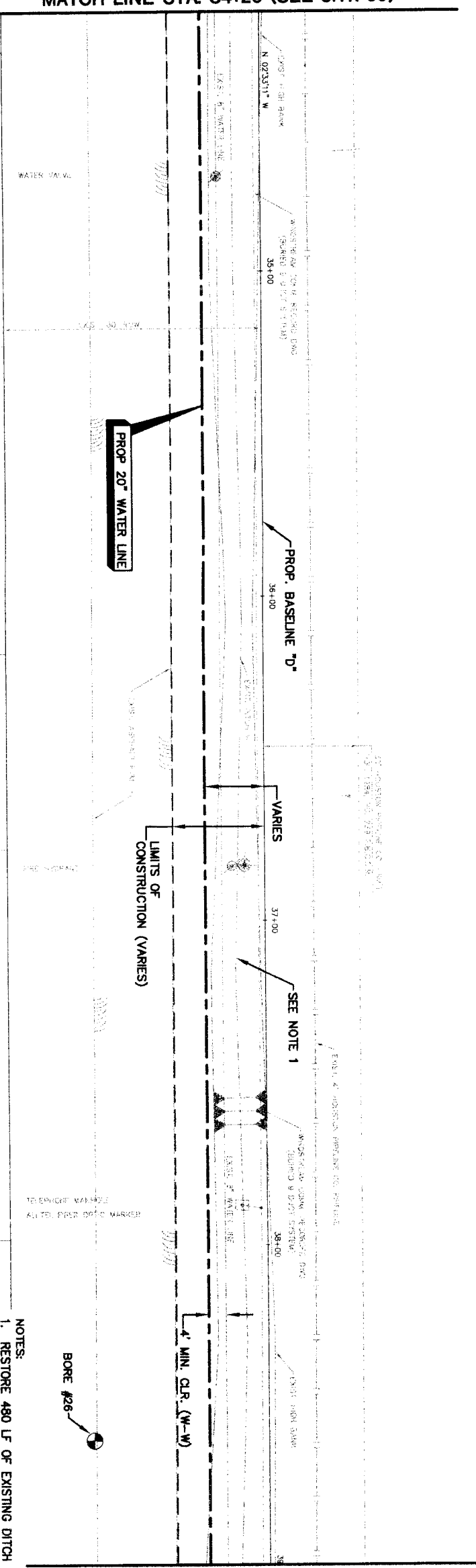
BLAC CO.

HOUSTON PIPELINE CO.  
 PIPELINE MARKER



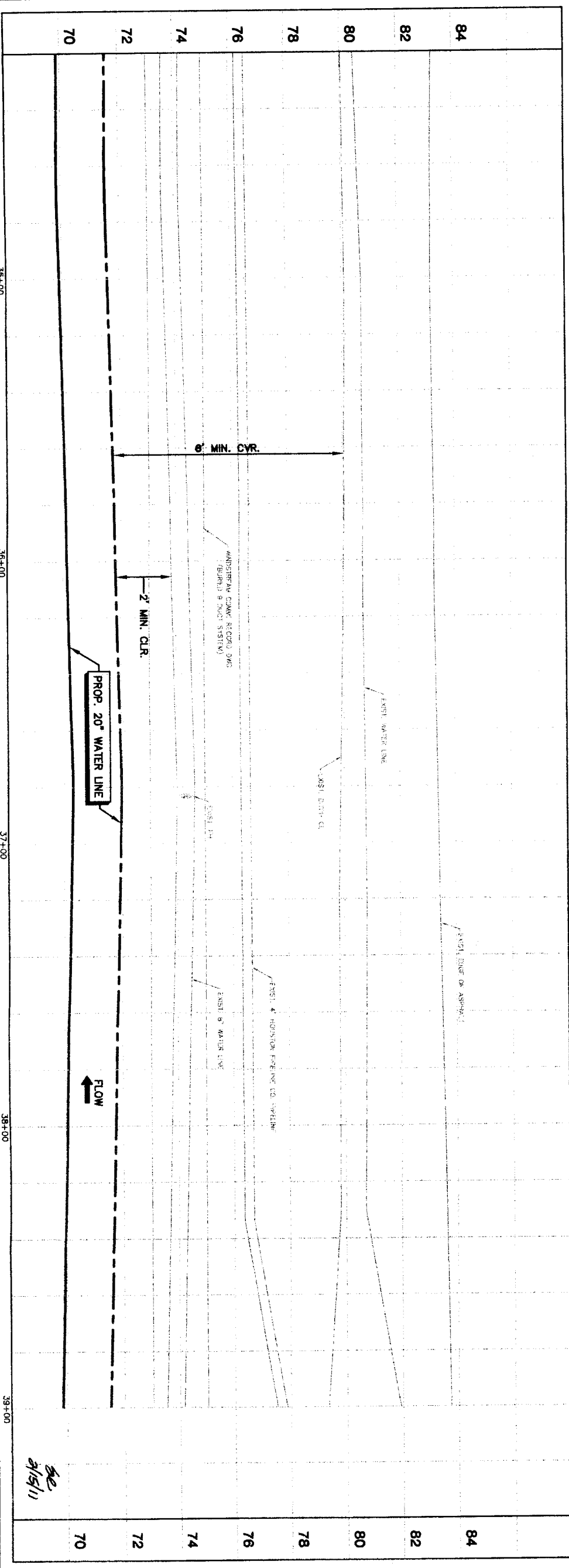
MATCH LINE STA. 34+20 (SEE SHT. 60)

MATCH LINE STA. 39+00 (SEE SHT. 62)



- NOTES:  
 1. RESTORE 480 LF OF EXISTING DITCH TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.

CLODINE ROAD



PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 Centerpoint Energy/Electric Facilities (approved only)  
 Valid At Time Of Review Only  
 SBC UTILITY LINES SHOWN  
 Date: \_\_\_\_\_  
 SBC Approved for underground conduit facilities only.  
 Signature valid for one year.  
 Date: \_\_\_\_\_  
 Centerpoint Energy/Gas Facilities  
 Date: \_\_\_\_\_  
 NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET  
 R.O.W. OR EASEMENTS CALL ONE STAR NOTIFICATION  
 CENTER (713) 223-4567 OR 1-800-689-8344  
 TO ARRANGE FOR LINES TO BE TURNED OFF OR  
 MOVED. CALL CENTERPOINT AT 713-207-7777.

NO.	DATE	REVISION	APPROVED
1			
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**BROWN & GAY ENGINEERS, INC.**  
 5011 Westheimer Road, Suite 600  
 Houston, TX 77056  
 Tel: 281-558-8100  
 Fax: 281-558-9700  
 www.browngay.com  
 — Civil Engineers and Surveyors —

**STATE OF TEXAS**  
 AARON B. HARGROVE  
 93706  
 2011 LICENSED PROFESSIONAL ENGINEER  
 License No. 123456789  
 Seal of the State of Texas

**NORTH FORT BEND**

**PLAN & PROFILE**  
**BASELINE 'D'**  
**ALONG CLODINE ROAD**  
**FROM STA. 34+20 TO STA. 39+00**

**FILE NO.:** \_\_\_\_\_  
**TOR CITY OF HOUSTON USE ONLY**

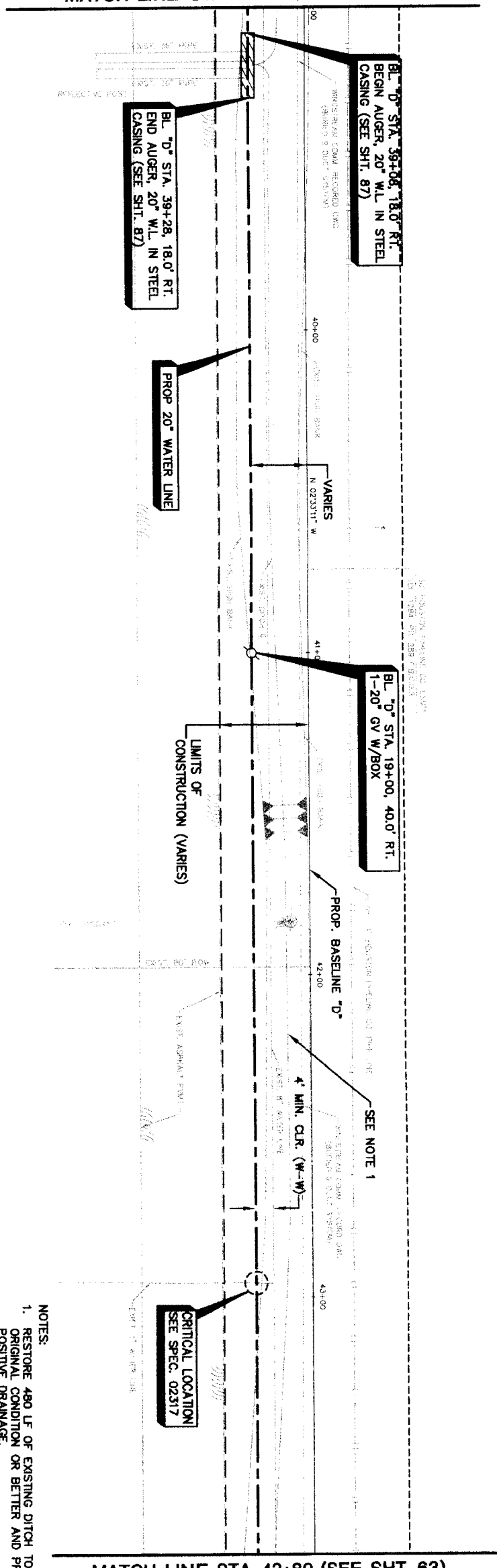
**DRAINING SCALE**

**HORIZ.:** 1"=20'  
**VERT.:** 1"=2'

**SHEET NO. 61 OF 108**

**47757**

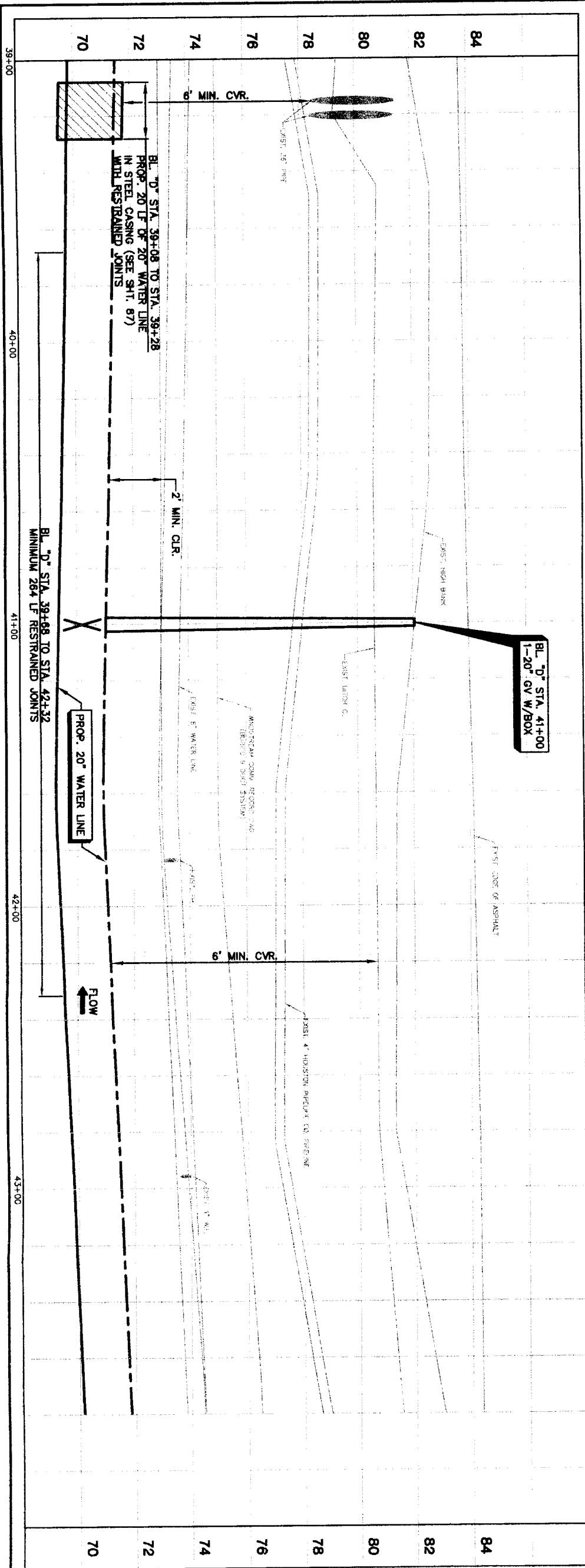
MATCH LINE STA 39+00 (SEE SHT. 61)



- NOTES:
- RESTORE 480 LF OF EXISTING DITCH TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.

MATCH LINE STA 43+80 (SEE SHT. 63)

CLODINE ROAD



PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 Centipoint Energy/ Gas Facilities (Approved only)  
 Valid At Time Of Review Only  
**SBC UTILITY LINES SHOWN**  
 Date: \_\_\_\_\_  
 SBC Approved for underground conduit facilities only.  
 Signature valid for one year.  
 Date: \_\_\_\_\_  
 Centipoint Energy/ Gas Facilities  
 GAS service lines are not shown.  
 NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET  
 R.O.W. OR EASEMENTS CALL ONE STAR NOTIFICATION  
 CENTER (713) 223-4587 OR 1-800-668-8344  
 TO ARRANGE FOR LINES TO BE TURNED OFF OR  
 MOVED. CALL CENTERPOINT AT 713-207-7177.

NO.	DATE	REVISION	APPROVAL
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 10000 Katy Road  
 Houston, TX 77024  
 Tel: 281-588-8700  
 Fax: 281-588-8702  
 www.browngay.com  
 Civil Engineers and Surveyors  
 License No. 10486

**STATE OF TEXAS**  
 AARON B. HARGROVE  
 93706  
 LICENSED PROFESSIONAL ENGINEER  
 CIVIL  
 State Seal of Aaron B. Hargrove

**NFEMA SEGMENT 4B**

**PLAN & PROFILE**  
**BASELINE "D"**  
**ALONG CLODINE ROAD**  
**FROM STA. 39+00 TO STA. 43+80**



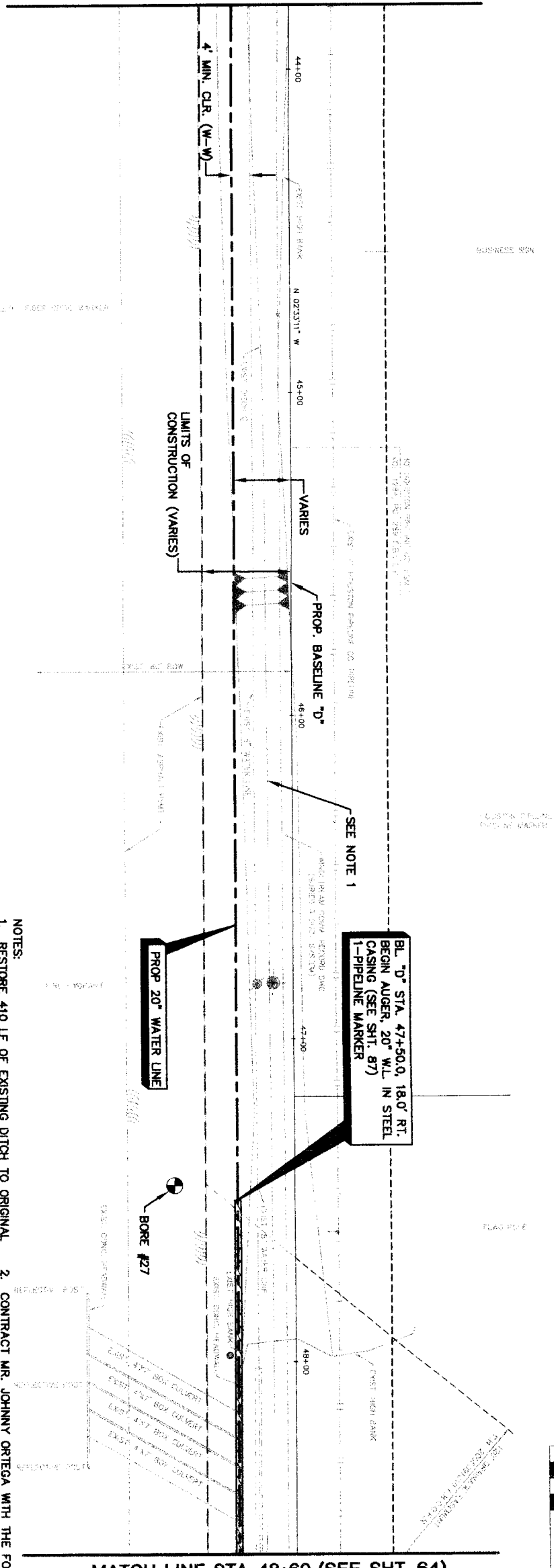
**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

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

DATE:	
FILE NO.:	
DRAWING SCALE:	
HORZ: 1"=20'	
VERT: 1"=2'	
SHEET NO.:	62 of 108

FOR CITY OF HOUSTON USE ONLY

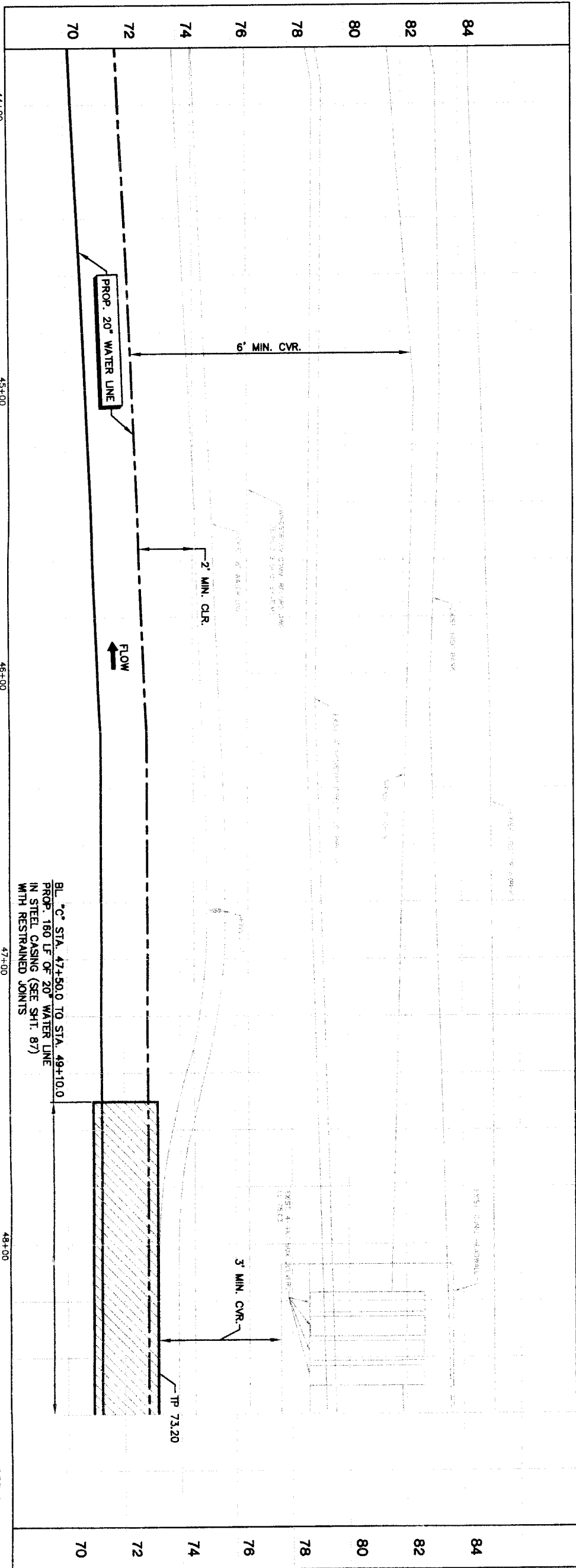
MATCH LINE STA. 43+80 (SEE SHT. 62)



MATCH LINE STA. 48+60 (SEE SHT. 64)

CLODINE ROAD

- NOTES:
- RESTORE 410 LF OF EXISTING DITCH TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.
  - CONTRACT MR. JOHNNY ORTEGA WITH THE FORT BEND COUNTY ENGINEERING DEPARTMENT, (281)-633-7500 TO OBTAIN PERMITS PRIOR TO WORKING WITHIN THE DRAINAGE DISTRICT RIGHT-OF-WAY.



BL. "C" STA. 47+50.0 TO STA. 49+10.0  
 PROP. 180 LF OF 20" WATER LINE  
 IN STEEL CASING (SEE SHT. 87)  
 WITH RESTRAINED JOINTS

PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 Centerpoint Energy/ Electric Facilities (approved only for crossing underground facilities, unless otherwise noted) Valid At Time Of Review Only  
 SBC UTILITY LINES SHOWN  
 Date: \_\_\_\_\_  
 SBC Approved for underground conduit facilities only. Signature valid for one year.  
 Date: \_\_\_\_\_  
 Centerpoint Energy/ Gas Facilities (gas service lines are not shown)  
 NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW OR EASEMENTS CALL LONG STAR NOTIFICATION CENTER, (773) 223-4567 OR 1-800-688-8344  
 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED CALL CENTERPOINT AT 713-207-7777.

NO.	DATE	REVISION	APPROVAL
1			
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**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 2717 Westheimer Road, Suite 100  
 Houston, Texas 77057  
 Tel: 281-664-8100  
 Fax: 281-555-5501  
 Civil Engineers and Surveyors - F-1048



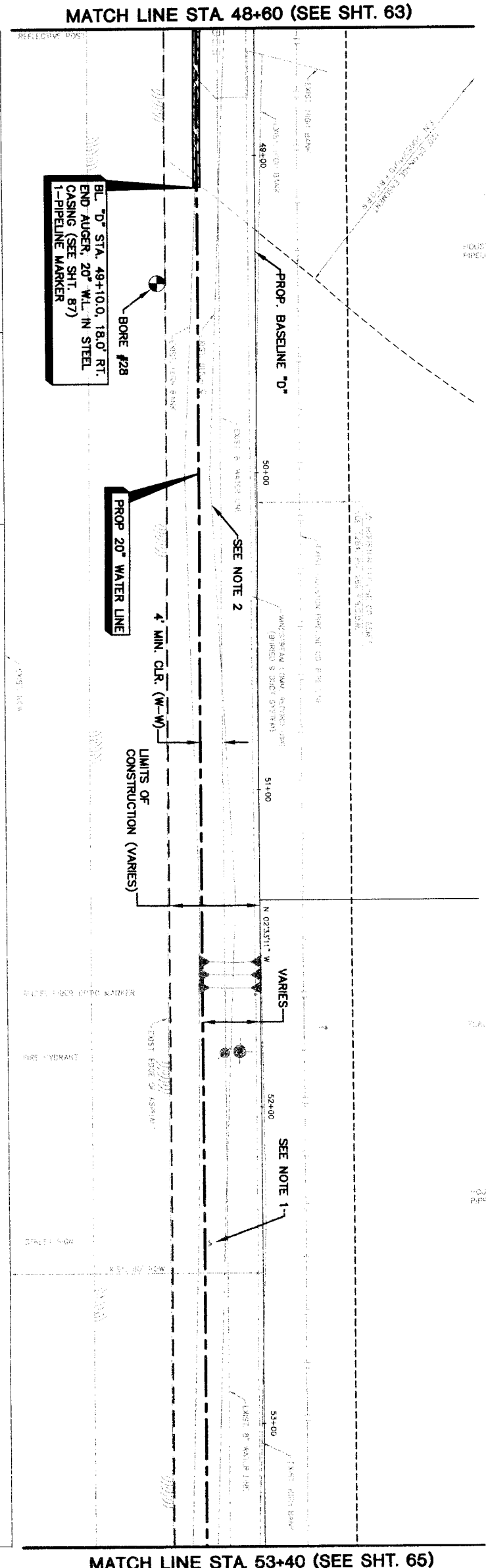
**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 TRAFFIC AND TRANSPORTATION

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

**PLAN & PROFILE**  
**BASELINE "D"**  
**ALONG CLODINE ROAD FROM**  
**STA. 43+80 TO STA. 48+60**

**NFRWA SEGMENT 4B**

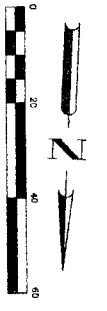
PROJECT NO.: \_\_\_\_\_  
 SHEET NO.: **63** OF 108



HOUSTON PIPELINE CO.  
FIRELINE MARKER

PLAN FILE

HOUSTON PIPELINE CO.  
FIRELINE MARKER

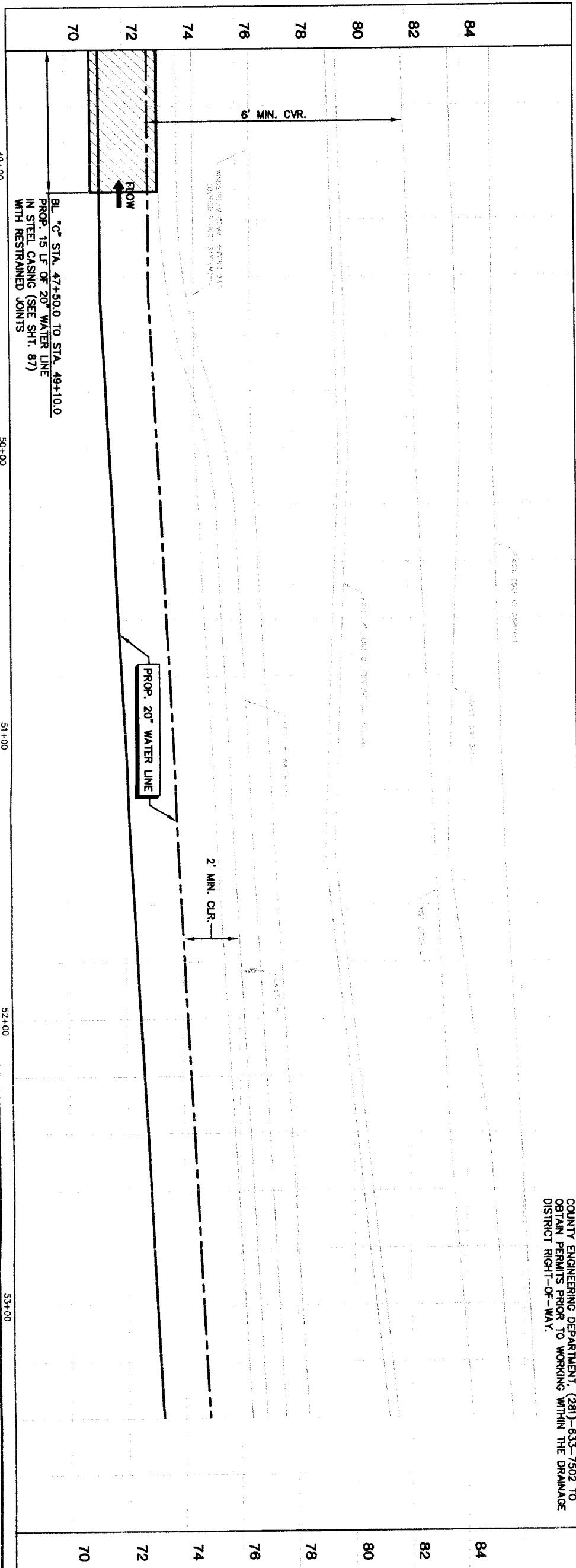


MATCH LINE STA 48+60 (SEE SHT. 63)

MATCH LINE STA 53+40 (SEE SHT. 65)

CLODINE ROAD

- NOTES:
1. REMOVE AND REPLACE EXISTING STREET SIGN UPON COMPLETION OF BACKFILL.
  2. RESTORE 470 LF OF EXISTING DITCH TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE. CONTACT MR. JOHNNY ORTEGA WITH THE FORT BEND COUNTY ENGINEERING DEPARTMENT, (281)-633-7502 TO OBTAIN PERMITS PRIOR TO WORKING WITHIN THE DRAINAGE DISTRICT RIGHT-OF-WAY.



NFBWA SEGMENT 48

PLAN & PROFILE  
 BASELINE 'D'  
 ALONG CLODINE ROAD  
 FROM STA 48+60 TO STA. 53+40



CITY OF HOUSTON  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

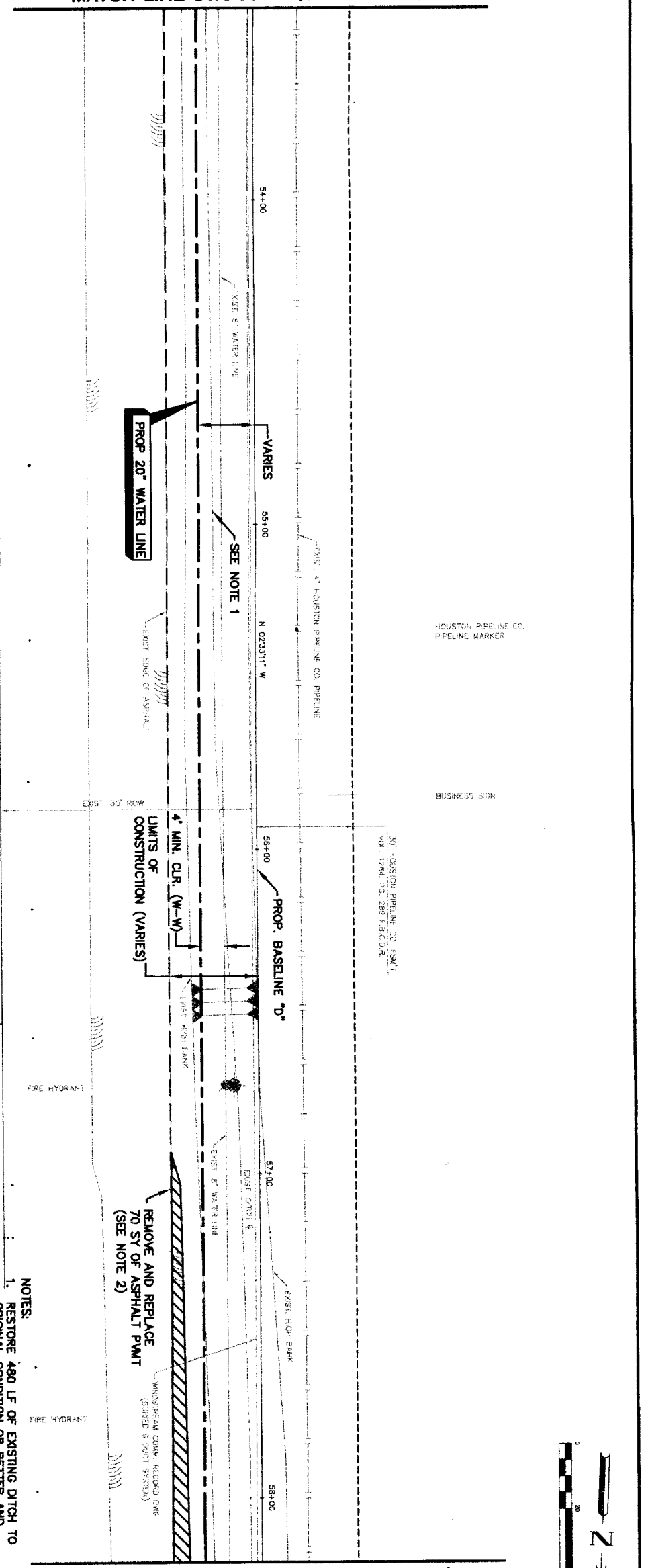
**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 5077 Westheimer Street, Suite 410  
 Houston, TX 77056  
 Tel: 281-558-9703  
 Fax: 281-558-9703  
 www.browngay.com



PRIVATE UTILITY LINES SHOWN	Date:
Centerpoint Energy/Electric Facilities (Approved only Valid At Time Of Review Only)	Date:
SBC UTILITY LINES SHOWN	Date:
SBC Approved for underground conduit facilities only. Signature valid for one year.	Date:
Centerpoint Energy/Gas Facilities (Gas service lines are not shown.)	Date:
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 713-207-2772.	

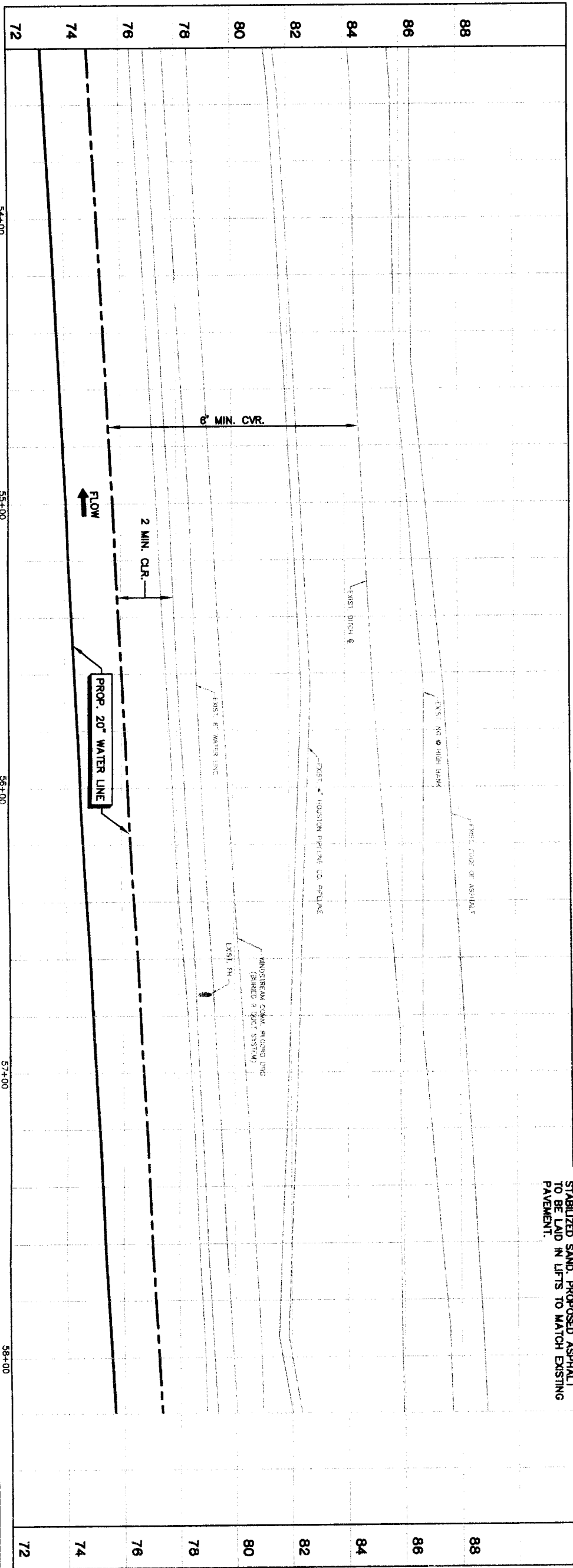
WESTWARD	STORM WATER QUALITY
STORM	TRAFFIC
STREET & BRIDGE	
FILE NO:	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
HORIZ : 1"=20'	
VERT : 1"=2'	
SHEET No: 64 of 108	

MATCH LINE STA. 53+40 (SEE SHT. 64)



MATCH LINE STA. 58+20 (SEE SHT. 66)

- NOTES:
1. RESTORE 480 LF OF EXISTING DITCH TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.
  2. EXCAVATION UNDER EXISTING PAVEMENT STABILIZED SAND, PROPOSED ASPHALT TO BE LAID IN LIFTS TO MATCH EXISTING PAVEMENT.

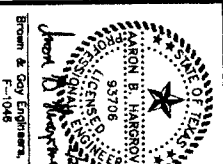


PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 Centipoint Energy/ Gas Facilities (approved only for existing underground ductlines, unless otherwise noted. Valid At Time Of Review Only)  
 SBC UTILITY LINES SHOWN  
 Date: \_\_\_\_\_  
 Signature valid for one year.  
 Date: \_\_\_\_\_

NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW OR EASEMENTS CALL LONE STAR NOTIFICATION CENTER (713) 223-4587 OR 1-800-669-8344  
 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7777.

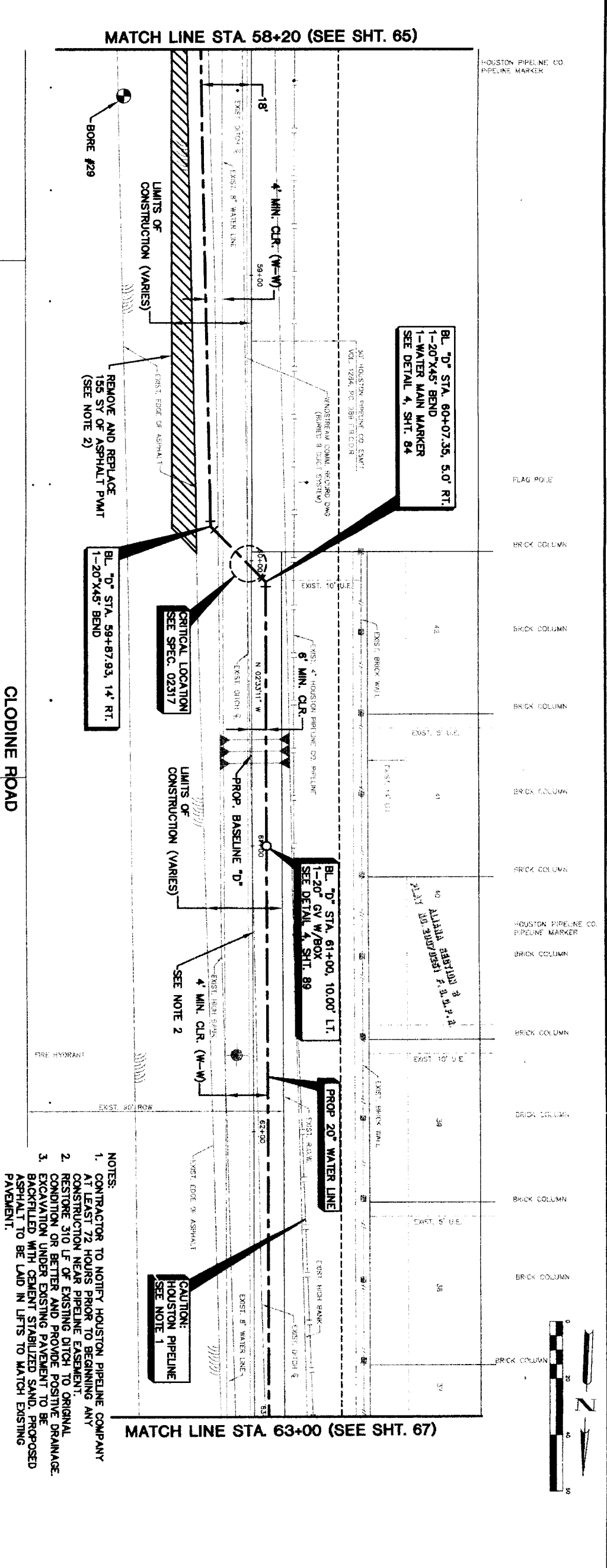
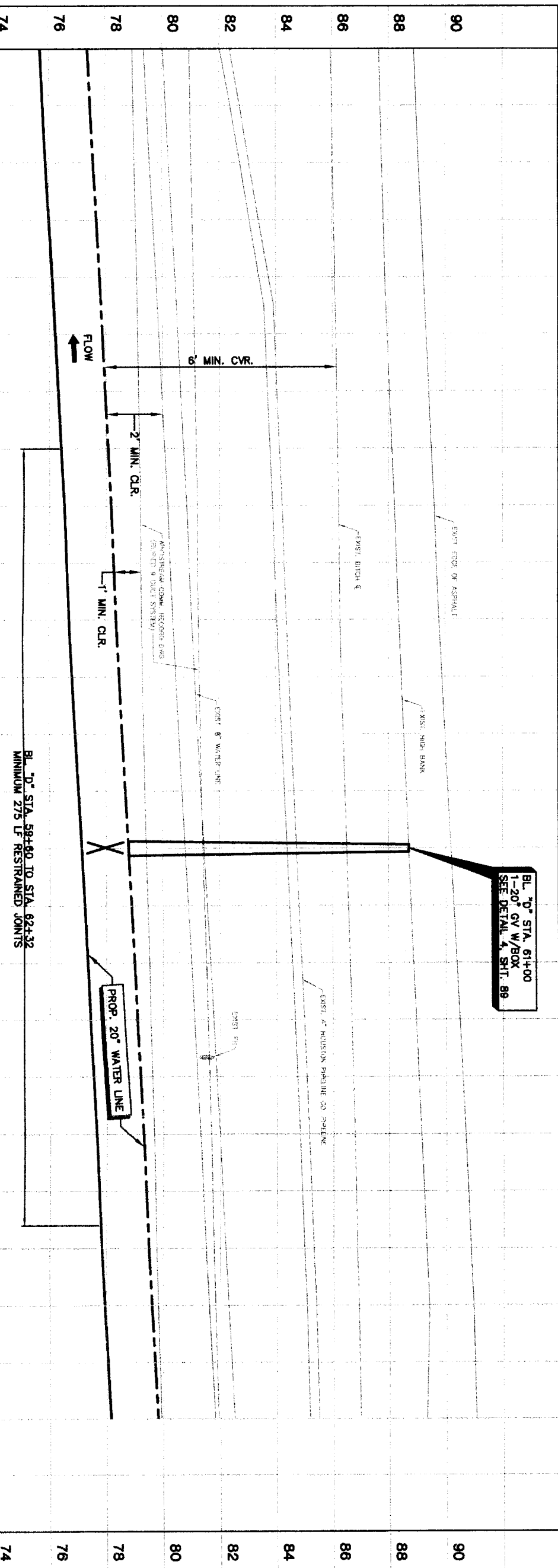
**BROWN & GAY**  
 ENGINEERS, INC.  
 Brown & Gay Engineers, Inc.  
 17777  
 Houston, TX 77042  
 Tel: 281-668-8700  
 Fax: 281-668-8700  
 www.browngay.com



**NFWMA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE 'D'**  
**ALONG CLODINE ROAD**  
**FROM STA. 53+40 TO STA. 58+20**



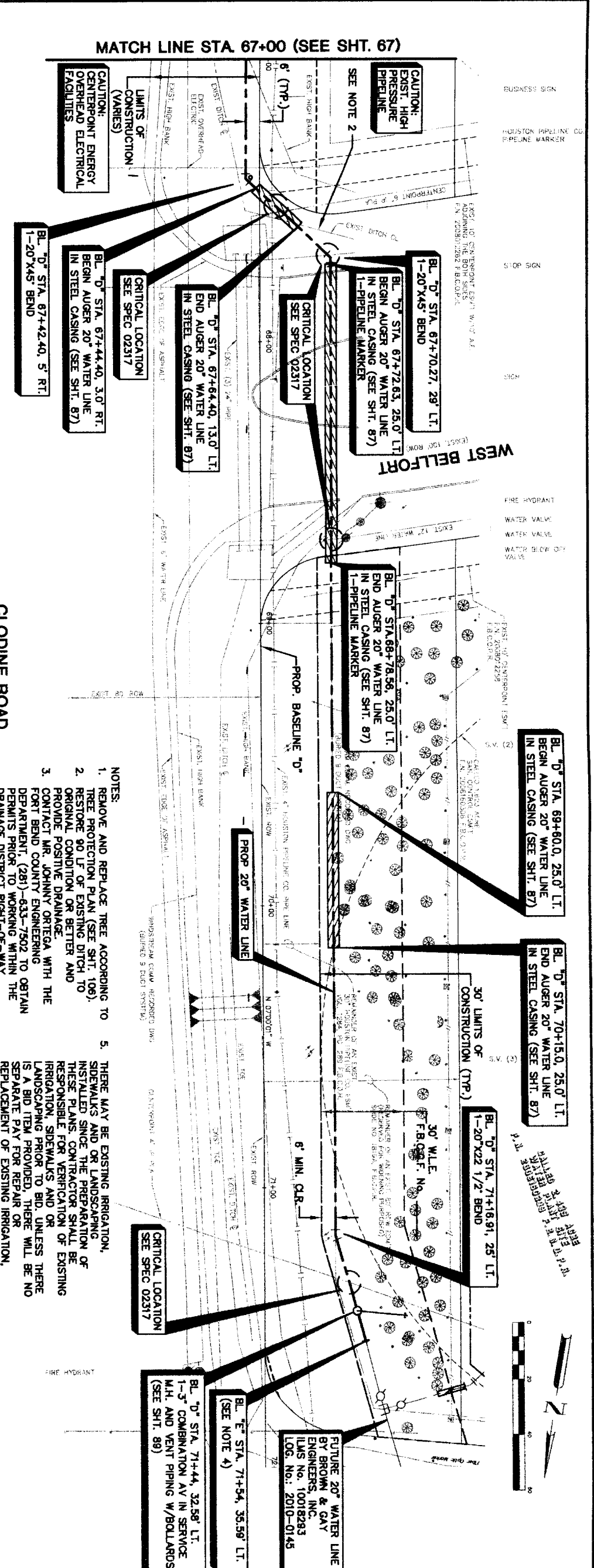
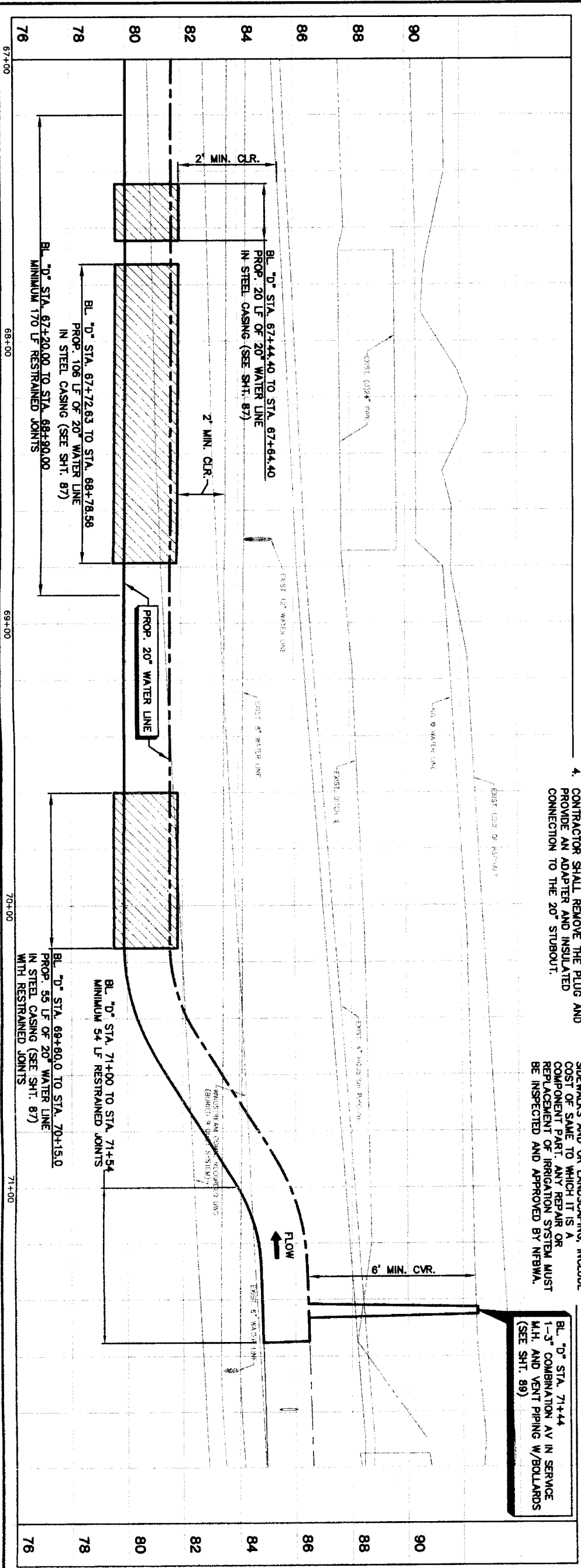
NOTE: CITY ENGINEERS VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURE	
<b>CITY OF HOUSTON</b>	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
MATERIALS	STORM WATER QUALITY
STORM	ROADWAYS
STREET & SIDEWALK	
FILE NO.	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
HORIZ : 1"=20'	
VERT : 1"=2'	
SHEET NO.	65 OF 108



- NOTES:
1. CONTRACTOR TO NOTIFY HOUSTON PIPELINE COMPANY AT LEAST 72 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION NEAR PIPELINE EASEMENT.
  2. RESTORE 310 LF OF EXISTING DITCH TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.
  3. EXCAVATION UNDER EXISTING PAVEMENT TO BE BACKFILLED WITH CEMENT STABILIZED SAND. PROPOSED ASPHALT TO BE LAID IN LIFTS TO MATCH EXISTING PAVEMENT.

<p>PRIVATE UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>Centerpoint Energy/ Electric Facilities. (Approved only for crossing underground ductlines, unless otherwise noted for valid At Time of Review Only)</p> <p>SBC UTILITY LINES SHOWN</p> <p>Date: _____</p> <p>SBC Approved for underground conduit facilities only.</p> <p>Signature valid for one year.</p> <p>Date: _____</p>		<p>NOTE:</p> <p>AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W OR EASEMENTS CALL ONE STAR NOTIFICATION CENTER. (713) 223-4567 OR 1-800-689-6344</p> <p>TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7777.</p>	
<p><b>BROWN &amp; GAY ENGINEERS, INC.</b></p> <p>Brown &amp; Gay Engineers, Inc.        17000 Houston, TX 77040        Tel: 281-466-4100        Fax: 281-466-4101        www.browngay.com</p>		<p><b>NFBWA SEGMENT 4B</b></p> <p>PLAN &amp; PROFILE        BASELINE "D"        ALONG CLODINE ROAD        FROM STA. 58+20 TO STA. 63+00</p>	
<p><b>CITY OF HOUSTON</b>        DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p>		<p><b>NORTH FORT BEND</b></p>	
<p>WATER</p>	<p>STORM WATER</p>	<p>STREET &amp; BORING</p>	<p>FILE NO. FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE</p>	<p>HORIZ : 1"=20'</p>	<p>VERT : 1"=2'</p>	<p>SHEET No. 66 OF 108</p>

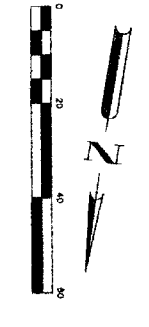




- NOTES:**
1. REMOVE AND REPLACE TREE ACCORDING TO TREE PROTECTION PLAN (SEE SHT. 106).
  2. RESTORE 90 LF OF EXISTING DITCH TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.
  3. CONTACT MR. JOHNNY ORTEGA WITH THE FORT BEND COUNTY ENGINEERING DEPARTMENT, (281)-633-7502 TO OBTAIN PERMITS PRIOR TO WORKING WITHIN THE DRAINAGE DISTRICT RIGHT-OF-WAY. CONTRACTOR SHALL REMOVE THE PLUG AND PROVIDE AN ADAPTER AND INSULATED CONNECTION TO THE 20" STUBOUT.
  4. THERE MAY BE EXISTING IRRIGATION, SIDEWALKS AND OR LANDSCAPING INSTALLED SINCE THE PREPARATION OF THESE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF EXISTING IRRIGATION, SIDEWALKS AND OR LANDSCAPING PRIOR TO BID. UNLESS THERE IS A BID ITEM PROVIDED, THERE WILL BE NO SEPARATE PAY FOR REPAIR OR REPLACEMENT OF EXISTING IRRIGATION, SIDEWALKS AND OR LANDSCAPING. INCLUDE COST OF SAE TO WHICH IT IS A COMPONENT PART ANY REPAIR OR REPLACEMENT OF IRRIGATION SYSTEM MUST BE INSPECTED AND APPROVED BY NFEMA.
  5. THERE MAY BE EXISTING IRRIGATION, SIDEWALKS AND OR LANDSCAPING INSTALLED SINCE THE PREPARATION OF THESE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF EXISTING IRRIGATION, SIDEWALKS AND OR LANDSCAPING PRIOR TO BID. UNLESS THERE IS A BID ITEM PROVIDED, THERE WILL BE NO SEPARATE PAY FOR REPAIR OR REPLACEMENT OF EXISTING IRRIGATION, SIDEWALKS AND OR LANDSCAPING. INCLUDE COST OF SAE TO WHICH IT IS A COMPONENT PART ANY REPAIR OR REPLACEMENT OF IRRIGATION SYSTEM MUST BE INSPECTED AND APPROVED BY NFEMA.

BUSINESS SIGN  
 HOUSTON PIPELINE CO. PIPELINE MARKER  
 STOP SIGN  
 SIGN  
 FIRE HYDRANT  
 WATER VALVE  
 WATER BLOW OFF VALVE

DATE: 1/21/11  
 DRAWN BY: J. H. BROWN  
 CHECKED BY: J. H. BROWN  
 3000



BL "D" STA. 71+44  
 1-3" COMBINATION AV IN SERVICE  
 M.H. AND VENT PIPING W/BOLLARDS  
 (SEE SHT. 89)

BL "D" STA. 71+44, 32.58' LT.  
 1-3" COMBINATION AV IN SERVICE  
 M.H. AND VENT PIPING W/BOLLARDS  
 (SEE SHT. 89)

BL "E" STA. 71+54, 35.59' LT.  
 (SEE NOTE 4)

BL "D" STA. 71+89.1, 25' LT.  
 1-20"x45" BEND

PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 Centerpoint Energy/Electric Facilities (operator only)  
 Valid At The Of Service Only  
 SBC UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 SBC Approved for underground conduit facilities only.  
 Signature valid for one year.

Date: \_\_\_\_\_  
 Centerpoint Energy/ Gas Facilities  
 Gas Service Lines (operator only)

NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET  
 R.O.W. OR EASEMENT'S CALL LONE STAR NOTIFICATION  
 CENTER, (713) 223-4567 OR 1-800-869-5344  
 TO ARRANGE FOR LINES TO BE TURNED OFF OR  
 MOVED. CALL CENTERPOINT AT 713-207-7777.

NO.	DATE	REVISION	APPROVED
1			
2			
3			
4			

**NFEMA SEGMENT 4B**

**PLAN & PROFILE**  
**BASELINE "D"**  
**ALONG CLODINE ROAD**  
**FROM STA. 67+00 TO STA. 71+80**

**BROWN & GAY ENGINEERS, INC.**  
 10771 Westmoreland, Suite 400  
 Houston, TX 77036  
 Tel: 281-464-8700  
 Fax: 281-464-8700  
 www.browngay.com

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 Planning and Maintenance

WATERWORKS  
 STORM WATER QUALITY

STATION: \_\_\_\_\_ FACILITIES: \_\_\_\_\_

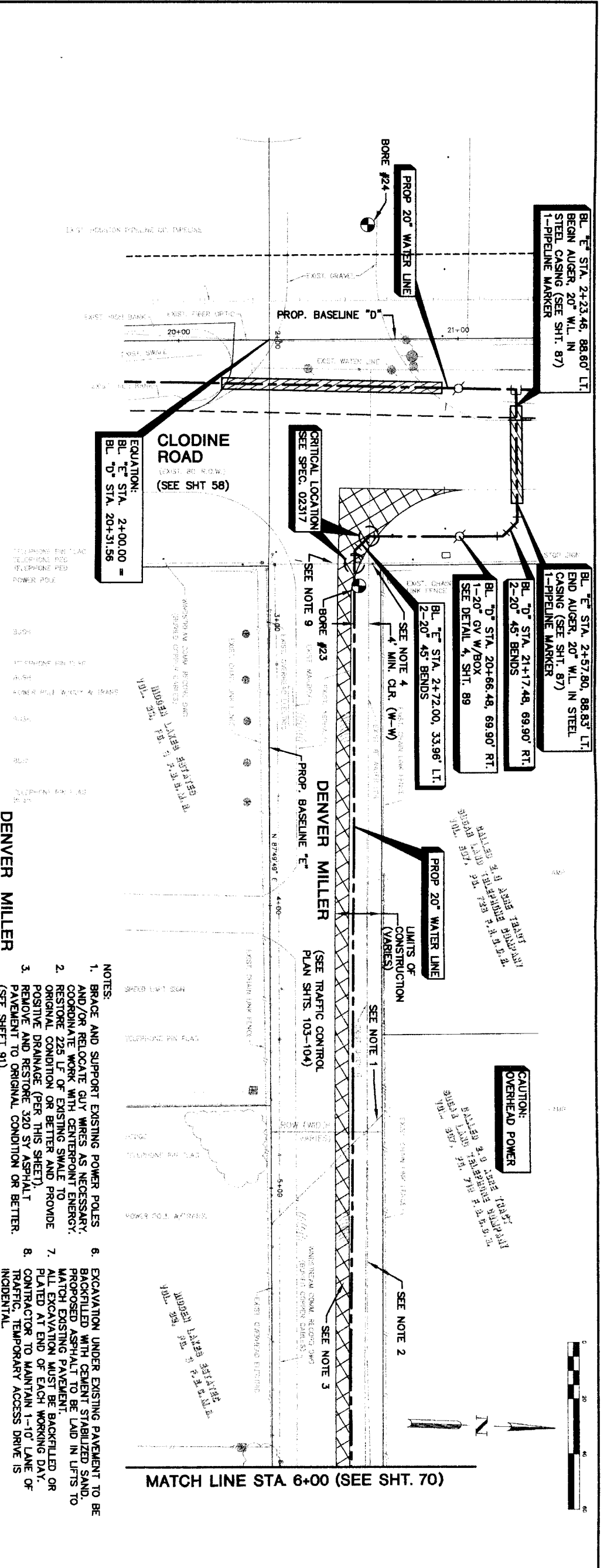
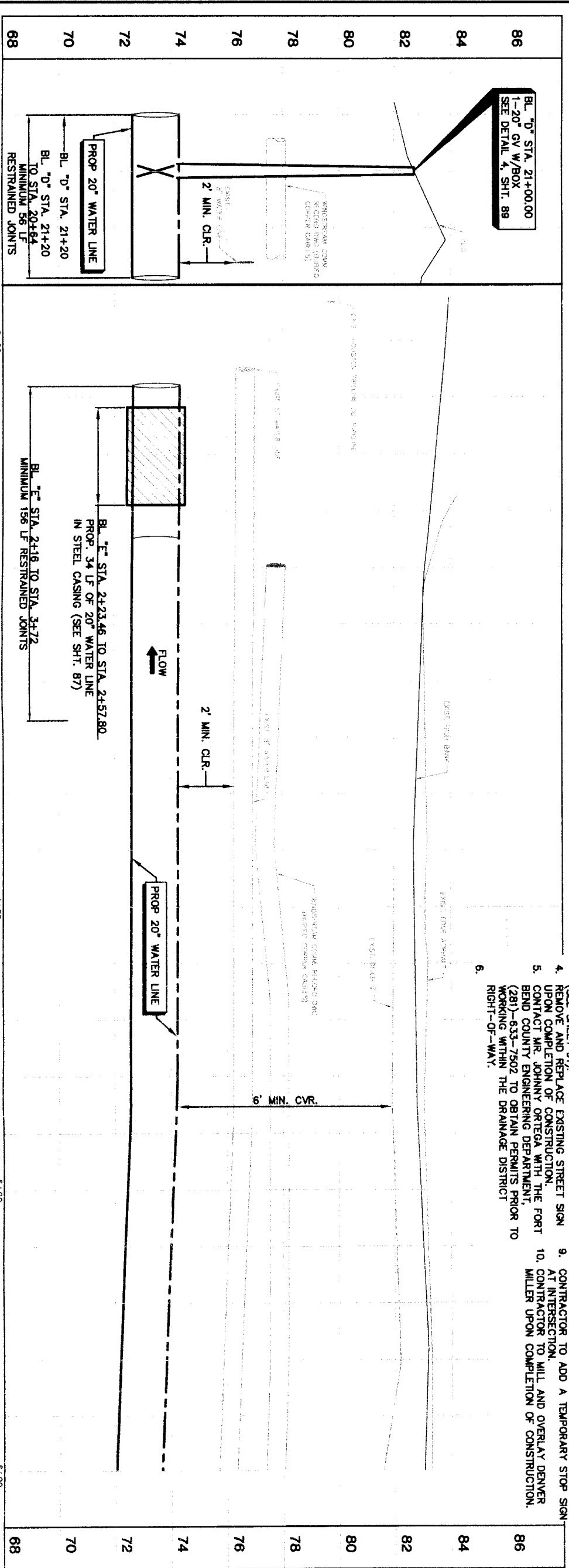
SHEET & BLOCK: \_\_\_\_\_ FROM CITY OF HOUSTON USE ONLY

FILE NO.: \_\_\_\_\_

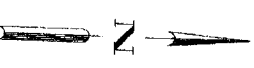
DRAWING SCALE: \_\_\_\_\_

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

SHEET No. 68 of 108



- NOTES:**
1. BRACE AND SUPPORT EXISTING POWER POLES AND/OR RELOCATE GUY WIRES AS NECESSARY. COORDINATE WORK WITH CENTERPOINT ENERGY. RESTORE 225 LF OF EXISTING SMALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE (PER THIS SHEET).
  2. REMOVE AND RESTORE 320 SY ASPHALT PAVEMENT TO ORIGINAL CONDITION OR BETTER. (SEE SHEET 91).
  3. REMOVE AND REPLACE EXISTING STREET SIGN UPON COMPLETION OF CONSTRUCTION.
  4. CONTACT MR. JOHANNY ORTEGA WITH THE FORT BEND COUNTY ENGINEERING DEPARTMENT, (281)-633-7502 TO OBTAIN PERMITS PRIOR TO WORKING WITHIN THE DRAINAGE DISTRICT RIGHT-OF-WAY.
  5. EXCAVATION UNDER EXISTING PAVEMENT TO BE BACKFILLED WITH CEMENT STABILIZED SAND. PROPOSED ASPHALT TO BE LAID IN LIFTS TO MATCH EXISTING PAVEMENT.
  6. ALL EXCAVATION MUST BE BACKFILLED OR PLATED AT END OF EACH WORKING DAY.
  7. CONTRACTOR TO MAINTAIN 1-10' LANE OF TRAFFIC. TEMPORARY ACCESS DRIVE IS INCIDENTAL.
  8. CONTRACTOR TO ADD A TEMPORARY STOP SIGN AT INTERSECTION.
  9. CONTRACTOR TO MILL AND OVERLAY DENVER MILLER UPON COMPLETION OF CONSTRUCTION.
  10. TRAFFIC CONTROL PLAN SHTS. 103-104



PRIVATE UTILITY LINES SHOWN

Centerpoint Energy/Electric facilities (as per utility notes) shown for information only. Centerpoint Energy/Electric facilities shown for information only. SGC UTILITY LINES SHOWN  
 Date: \_\_\_\_\_  
 Signature: \_\_\_\_\_

NOTICE  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL ONE 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
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**  
 93706  
 HOUSTON, TX 77042  
 TEL: 281-568-8700  
 FAX: 281-568-8702  
 www.browngay.com

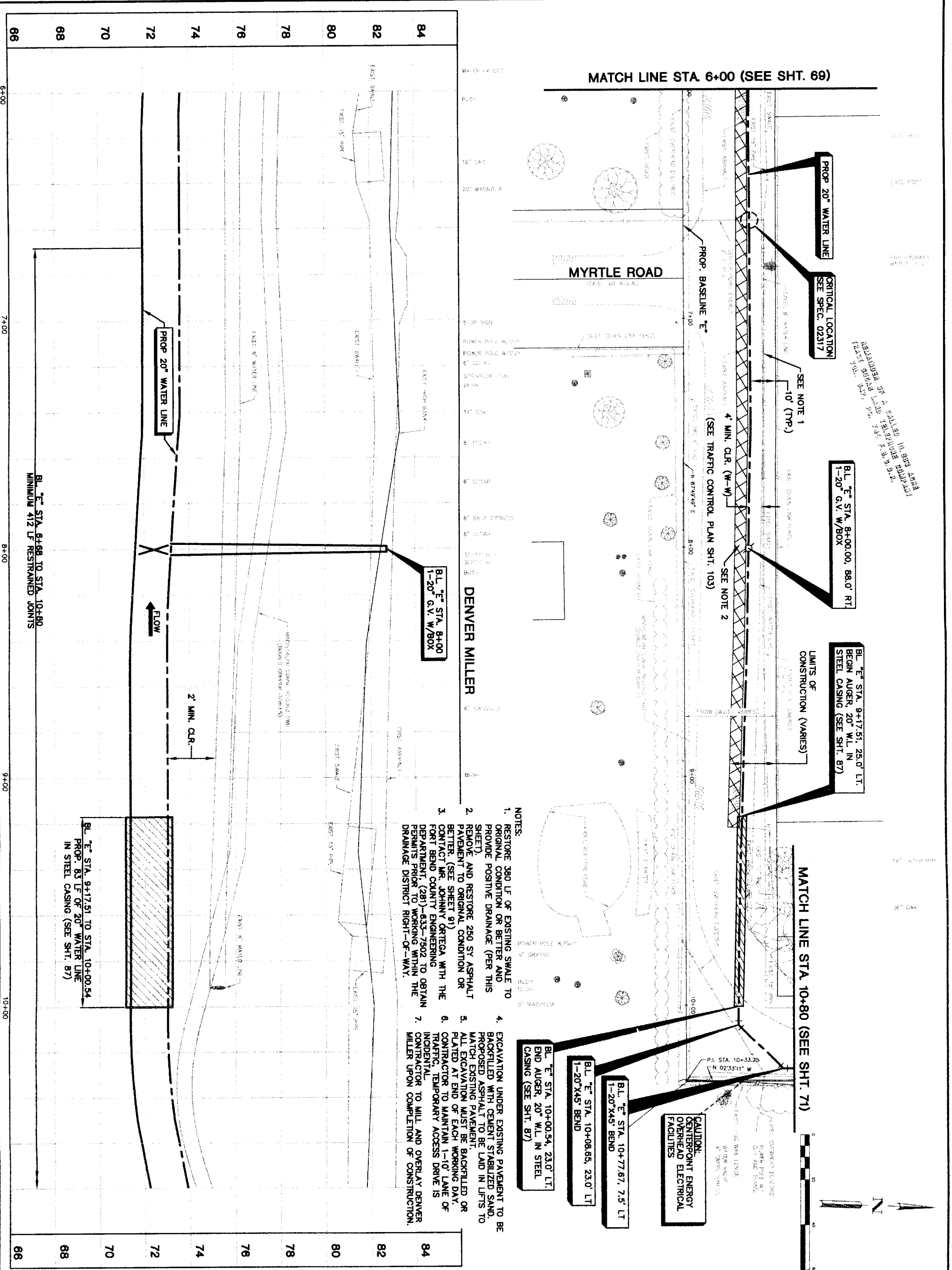
ARON B. HARGROVE  
 LICENSED PROFESSIONAL ENGINEER  
 No. 10123  
 State of Texas  
 2/22/2011

**NFBWA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE 'E'**  
**ALONG DENVER MILLER**  
**FROM STA. 2+00 TO STA. 6+00**



**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 PLANNING AND TRANSPORTATION

NOTE: CITY SQUARES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURE	FOR CITY OF HOUSTON USE ONLY
STREET & BRIDGE	
FILE NO.	
DRAWING SCALE	
HORIZ: 1"=20'	
VERT: 1"=2'	
SHEET NO. 69 OF 108	



REPLACEMENT OF A COLLAPSED 18" DIA. STAINLESS STEEL CASING WITH 24" DIA. GALV. STEEL CASING. SEE SHEET 69 FOR DETAILS.

PROP. 20" WATER LINE  
 CRITICAL LOCATION  
 SEE SPEC. 02317

BL. "E" STA. 8+00.00, 88.0' RT.  
 1-20" G.V. W/BOX

BL. "E" STA. 9+17.51, 25.0' LT.  
 BEGIN AUGER, 20" W/L IN  
 STEEL CASING (SEE SHT. 87)

MATCH LINE STA 10+80 (SEE SHT. 71)

CAUTION!  
 CENTERPOINT ENERGY  
 OVERHEAD ELECTRICAL  
 FACILITIES

BL. "E" STA. 10+00.54, 23.0' LT.  
 END AUGER, 20" W/L IN STEEL  
 CASING (SEE SHT. 87)

BL. "E" STA. 10+08.65, 23.0' LT.  
 1-20" X45" BEND

BL. "E" STA. 10+77.67, 7.5' LT.  
 1-20" X45" BEND

- NOTES:
- RESTORE 360 LF OF EXISTING SWALE TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE (PER THIS SHEET).
  - REMOVE AND RESTORE 250 SY ASPHALT PAVEMENT TO ORIGINAL CONDITION OR BETTER. (SEE SHEET 91)
  - CONTACT MR. JOHNNY ORTEGA WITH THE FORT BEND COUNTY ENGINEERING DEPARTMENT, (281)-633-7502 TO OBTAIN PERMITS PRIOR TO WORKING WITHIN THE DRAINAGE DISTRICT RIGHT-OF-WAY.
  - EXCAVATION UNDER EXISTING PAVEMENT TO BE BACKFILLED WITH CEMENT STABILIZED SAND. PROPOSED ASPHALT TO BE LAD IN LIFTS TO MATCH EXISTING PAVEMENT.
  - ALL EXCAVATION MUST BE BACKFILLED OR FILLIED AT END OF EACH WORKING DAY.
  - CONTRACTOR TO MAINTAIN 1'-10" LANE OF TRAFFIC. TEMPORARY ACCESS DRIVE IS INCIDENTAL.
  - CONTRACTOR TO MILL AND OVERLAY DENVER MILLER UPON COMPLETION OF CONSTRUCTION.

PRIVATE UTILITY LINES SHOWN

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

Centerpoint Energy/ Electric Facilities (approved only for crossing underground utilities, unless otherwise noted. Valid At The Site Only)

SBC UTILITY LINES SHOWN

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

SBC Approved for underground conduit facilities only. Signature valid for one year. Date: \_\_\_\_\_

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

NOTICE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EXISTENTS CALL ONE STAR NOTIFICATION CENTER (713) 223-4567 OR 1-800-659-6344 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-7777.

NO. DATE REVISION APPROVED

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

**BROWN & GAY ENGINEERS, INC.**  
 JARON B. HARGREAVE  
 93706  
 Houston, TX 77048  
 Tel: 281-568-8700  
 Fax: 281-568-8701  
 - Civil Engineers and Surveyors -

**Brown & Gay Engineers, Inc.**  
 10771 Westwood Suite 400  
 Houston, TX 77042  
 Tel: 281-568-8700  
 Fax: 281-568-8701  
 - Civil Engineers and Surveyors -

**NRMA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE "E"**  
**ALONG DENVER MILLER**  
**FROM STA. 6+00 TO STA. 10+80**

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 WATER AND SEWERAGE

NOTE: CITY SPECIFICATIONS VALID FOR ONE YEAR AFTER DATE OF SIGNATURE

WATERWORKS: STORM WATER QUALITY

STORM: FACILITIES

STREET & BRIDGE: FOR CITY OF HOUSTON USE ONLY

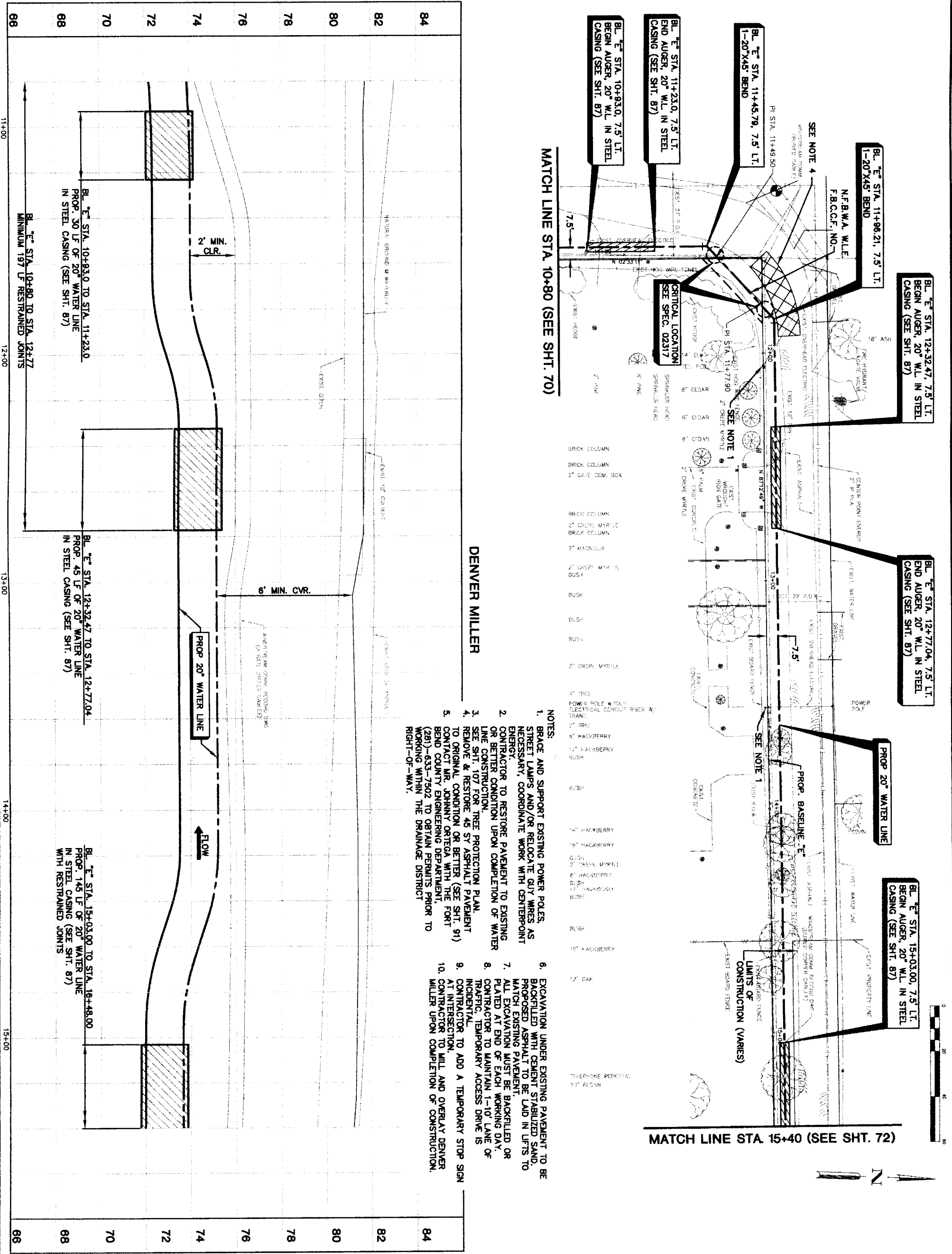
FILE NO: \_\_\_\_\_

DRAWING SCALE: \_\_\_\_\_

HORIZ: 1"=20'

VERT: 1"=2'

SHEET No: **70** OF 108



MATCH LINE STA 10+80 (SEE SHT. 70)

MATCH LINE STA 15+40 (SEE SHT. 72)

- NOTES:**
- BRACE AND SUPPORT EXISTING POWER POLES, STREET LAMPS AND/OR RELOCATE GUY WIRES AS NECESSARY, COORDINATE WORK WITH CENTERPOINT ENERGY.
  - CONTRACTOR TO RESTORE PAVEMENT TO EXISTING OR BETTER CONDITION UPON COMPLETION OF WATER LINE CONSTRUCTION.
  - SEE SHT. 107 FOR TREE PROTECTION PLAN.
  - REMOVE & RESTORE 45 SY ASPHALT PAVEMENT TO ORIGINAL CONDITION OR BETTER (SEE SHT. 91)
  - CONTACT MR. JOHNNY ORTEGA WITH THE FORT BEND COUNTY ENGINEERING DEPARTMENT, (281)-633-7802 TO OBTAIN PERMITS PRIOR TO WORKING WITHIN THE DRAINAGE DISTRICT RIGHT-OF-WAY.
  - EXCAVATION UNDER EXISTING PAVEMENT TO BE BACKFILLED WITH CEMENT STABILIZED SAND, PROPOSED ASPHALT TO BE LAID IN LIFTS TO MATCH EXISTING PAVEMENT.
  - ALL EXCAVATION MUST BE BACKFILLED OR PLATED AT END OF EACH WORKING DAY.
  - CONTRACTOR TO MAINTAIN 1'-10" LANE OF TRAFFIC, TEMPORARY ACCESS DRIVE IS INCIDENTAL.
  - CONTRACTOR TO ADD A TEMPORARY STOP SIGN AT INTERSECTION.
  - CONTRACTOR TO MILL AND OVERLAY DENVER MILLER UPON COMPLETION OF CONSTRUCTION.

PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 Centerpoint Energy/ Electric Facilities (approved only for crossing underground facilities unless otherwise noted) See All Plans of Centerpoint Energy  
 SBC UTILITY LINES SHOWN  
 Date: \_\_\_\_\_  
 SBC approved for underground conduit facilities only. Signature valid for one year.  
 Date: \_\_\_\_\_

Centerpoint Energy/ Gas Facilities (Gas Service Lines are not shown)  
 NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL ONE 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	APPROVAL
1			
2			
3			
4			

**BROWN & GAY ENGINEERS, INC.**  
 10777 Highway 1737000  
 Houston, TX 77064  
 Tel: 281-558-9700  
 Fax: 281-558-9771  
 www.browngay.com  
 — Civil Engineers and Surveyors —  
 F-1046

**INFORMA SEGMENT 4B**

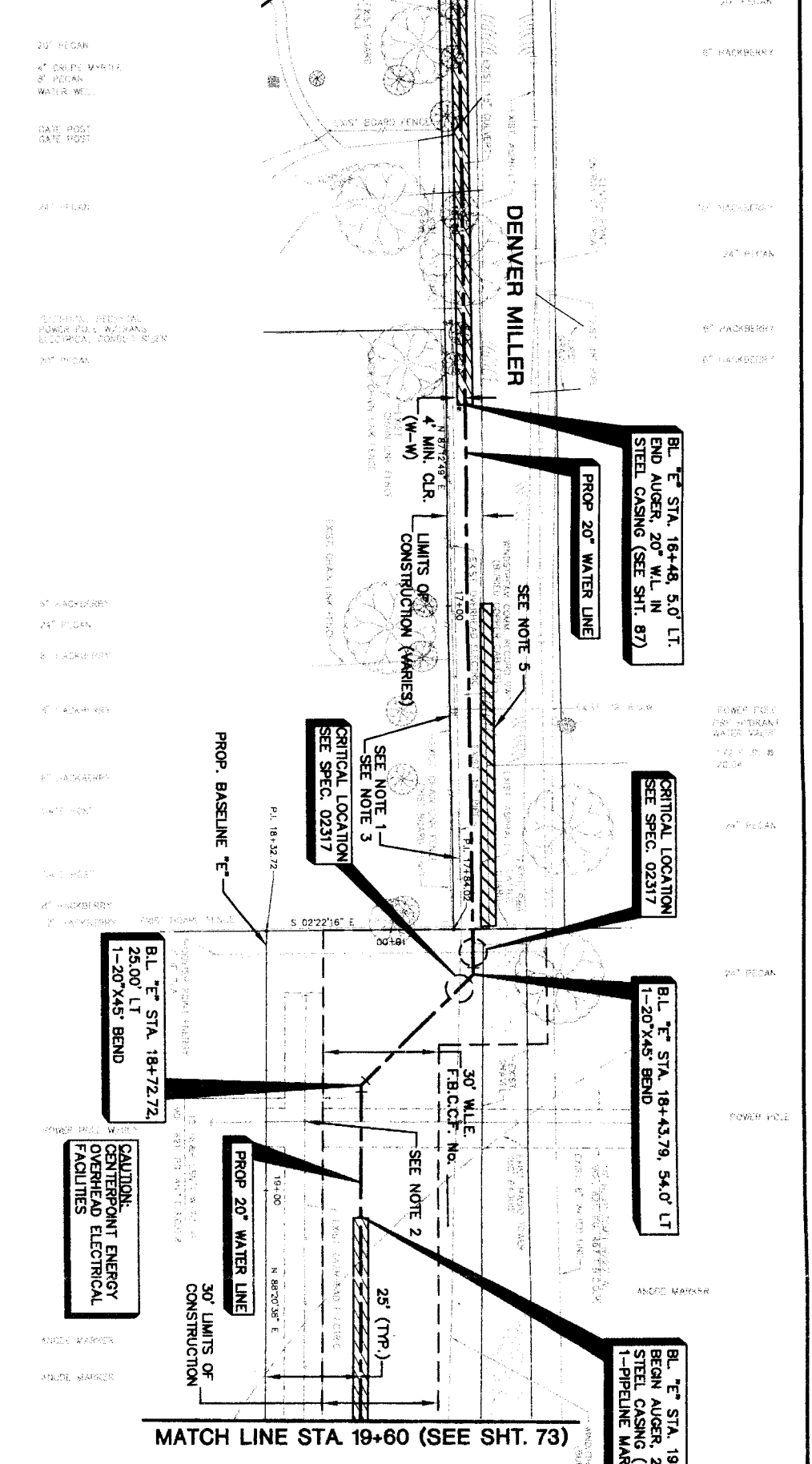
**PLAN & PROFILE BASELINE 'E' ALONG DENVER MILLER FROM STA. 10+80 TO STA. 15+40**



**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 TRAFFIC AND TRANSPORTATION

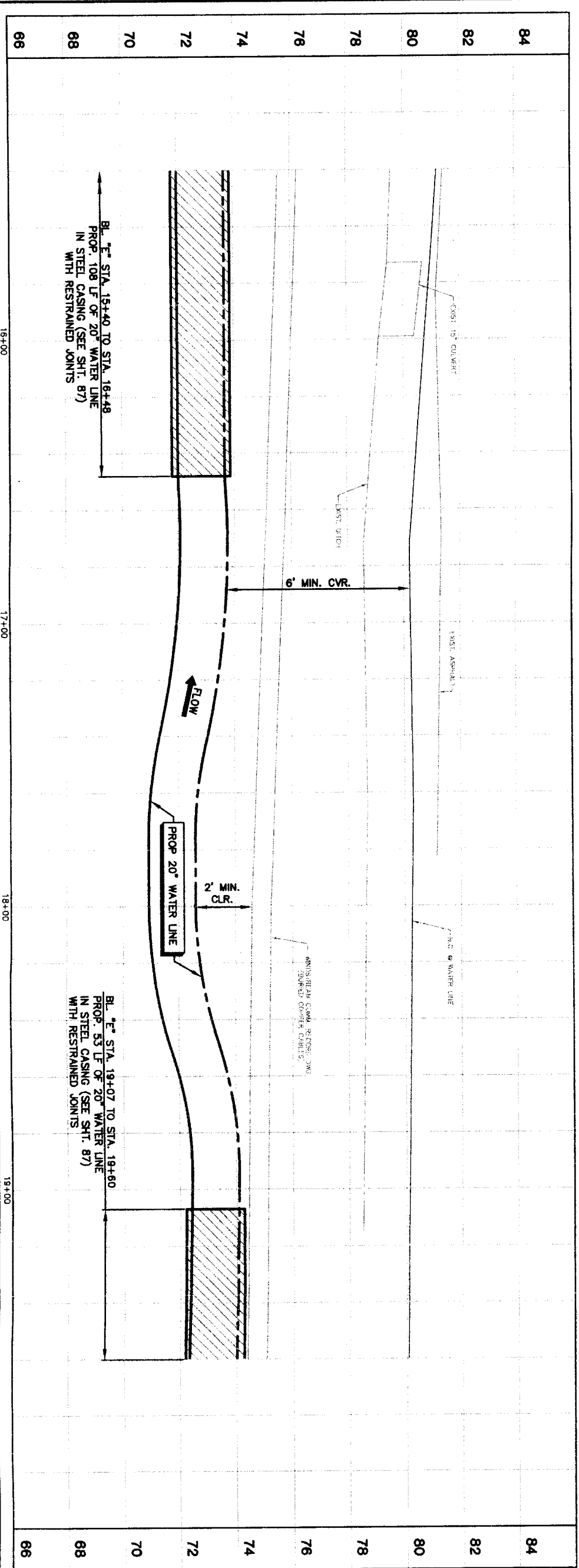
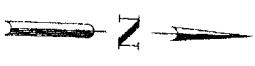
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES	FOR CITY OF HOUSTON USE ONLY
WATER	STORM WATER QUALITY
STREET & BRIDGE	FACILITIES
FILE NO:	
DRAWING SCALE	
HORIZ : 1"=20'	
VERT : 1"=2'	
SHEET No. 71 of 108	

MATCH LINE STA. 15+40 (SEE SHT. 71)



MATCH LINE STA. 19+60 (SEE SHT. 73)

- NOTES:
1. REMOVE AND REPLACE 56 LF OF 15" STORM SEWER.
  2. BRACE AND SUPPORT EXISTING POWER POLES, STREET LAMPS AND/OR RELOCATE GUY WIRES AS NECESSARY. COORDINATE WORK WITH CENTERPOINT ENERGY.
  3. CONTRACTOR TO REMOVE AND REPLACE 100 LF OF WOODEN FENCE TO ITS ORIGINAL CONDITION OR BETTER.
  4. CONTACT MR. JOHNNY ORTEGA WITH THE FORT BEND COUNTY ENGINEERING DEPARTMENT, (281)-633-7502 TO OBTAIN PERMITS PRIOR TO WORKING WITHIN THE DRAINAGE DISTRICT RIGHT-OF-WAY.
  5. REMOVE AND RESTORE 48 SY ASPHALT PAVEMENT TO ORIGINAL CONDITION OR BETTER.
  6. EXCAVATION UNDER EXISTING PAVEMENT TO BE BACKFILLED WITH CEMENT STABILIZED SAND. PROPOSED ASPHALT TO BE LAID IN LIFTS TO MATCH EXISTING PAVEMENT.
  7. ALL EXCAVATION MUST BE BACKFILLED OR PLATED AT END OF EACH WORKING DAY.
  8. CONTRACTOR TO MAINTAIN 1-10' LANE OF TRAFFIC. TEMPORARY ACCESS DRIVE IS INCIDENTAL.
  9. CONTRACTOR TO MILL AND OVERLAY DENVER MILLER UP COMPLETION OF CONSTRUCTION.



**PRIVATE UTILITY LINES SHOWN**

Date: \_\_\_\_\_  
 Centerpoint Energy / Electric Facilities (see otherwise noted)  
 valid At Time of Review Only  
 SBC UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 SBC Approved for underground conduit facilities only.  
 Signature valid for one year.  
 Date: \_\_\_\_\_

NOTE: NOTICE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW, OR EASEMENTS CALL ONE STAR NOTIFICATION CENTER, (713) 223-4367 OR 1-800-889-8344 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-7777.

**BROWN & GAY ENGINEERS, INC.**  
 93708  
 10777 Westheimer, Suite 400  
 Houston, TX 77042  
 Tel: 281-555-9701  
 Fax: 281-555-9701  
 www.browngay.com  
 — Civil Engineers and Surveyors —

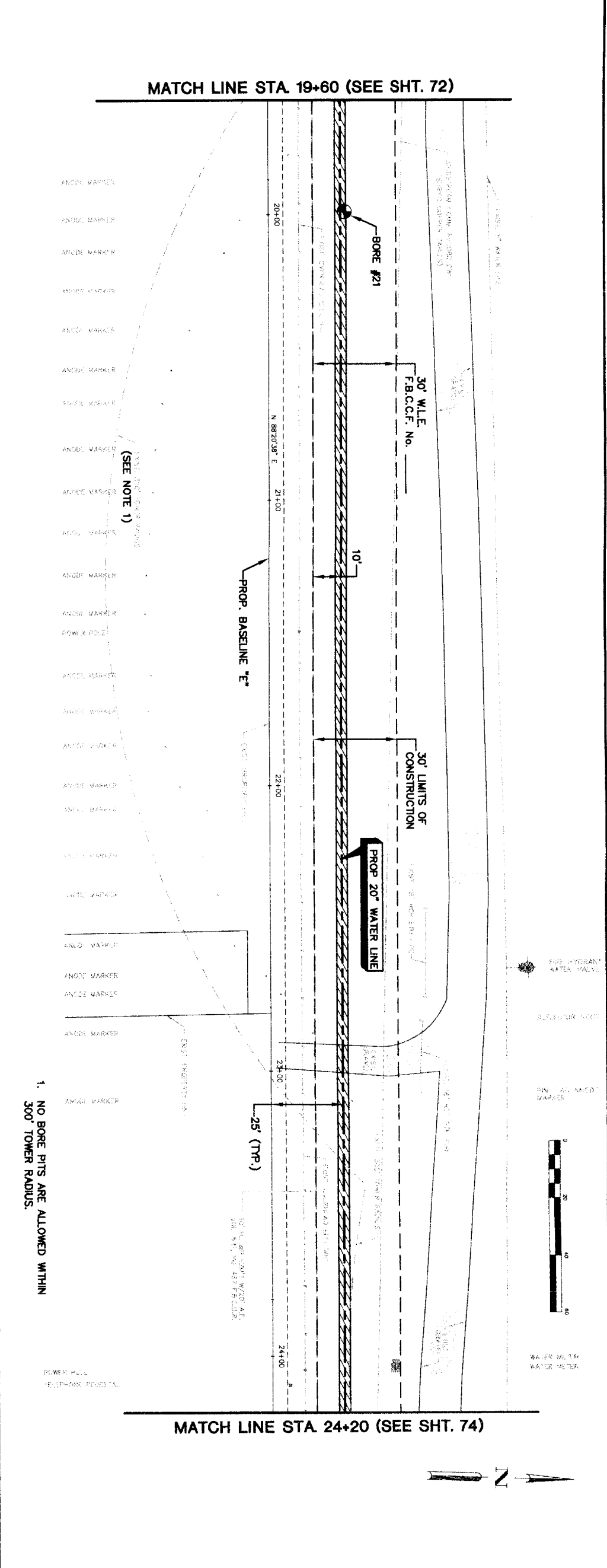
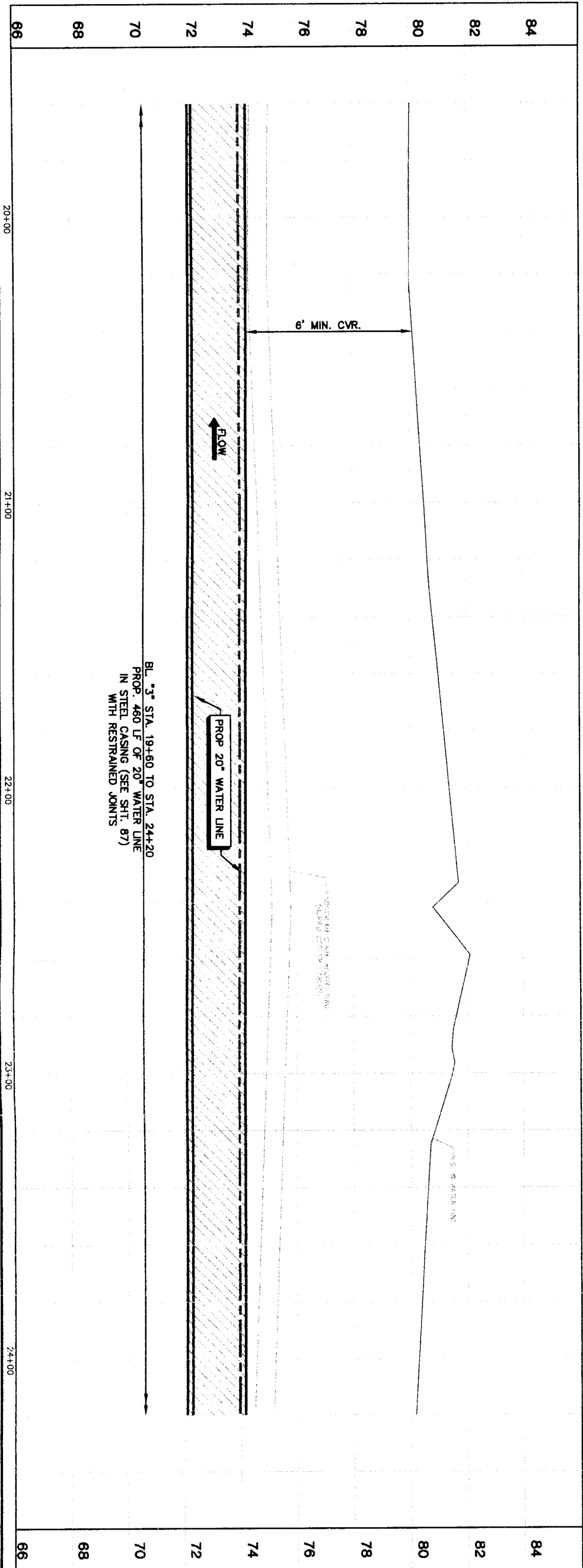
**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 PLANNING AND TRANSPORTATION

**NORTH PORT BEND**

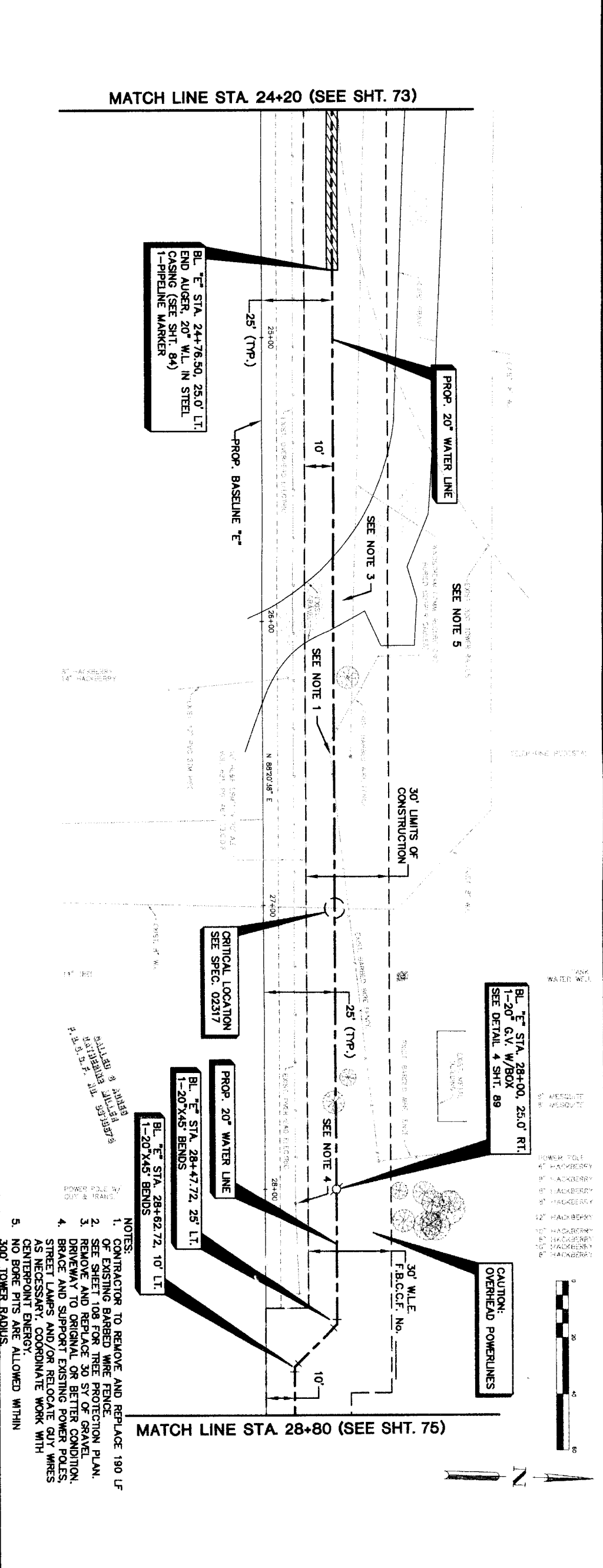
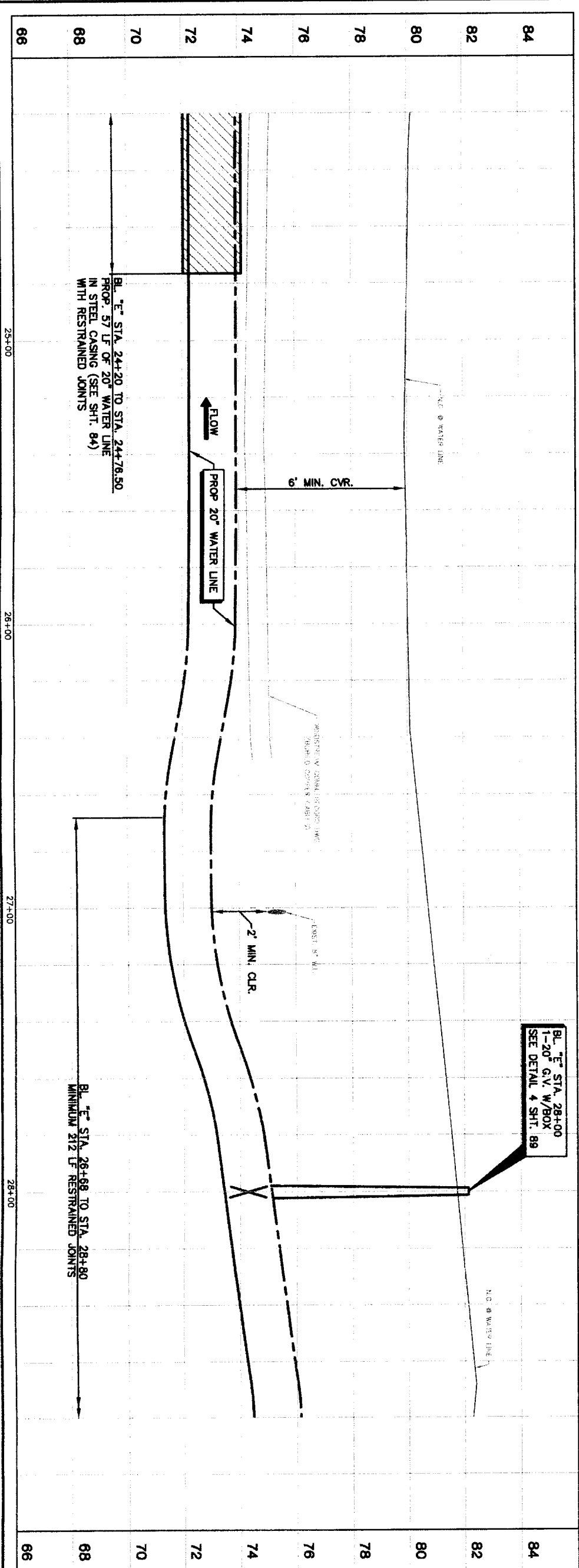
**PLAN & PROFILE BASELINE "E" ALONG DENVER MILLER FROM STA. 15+40 TO STA. 19+60**

**FILE NO.:** \_\_\_\_\_  
**DRAWING SCALE:** \_\_\_\_\_  
**HORIZ : 1"=20'**  
**VERT : 1"=2'**

**SHEET No. 72 OF 108**



<p><b>PRIVATE UTILITY LINES SHOWN</b></p> <p>Date: _____</p> <p>Centerpoint Energy/ Electric Facilities (approved only)                  (includes gas, water, sewer, storm sewer, etc.)                  Valid At Time Of Review Only</p> <p><b>SBC UTILITY LINES SHOWN</b></p> <p>Date: _____</p> <p>SBC Approved for underground conduit facilities only.                  Signature valid for one year.</p> <p>Date: _____</p> <p>Centerpoint Energy/ Gas Facilities                  Gas service lines are not shown.</p> <p>NOTICE:                  AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET                  R.O.W. OR EASEMENTS CALL ONE STAR NOTIFICATION                  CENTER, (713) 223-4567 OR 1-800-669-8344</p> <p>TO ARRANGE FOR LINES TO BE TURNED OFF OR                  MOVED, CALL CENTERPOINT AT 713-201-7777.</p>	<p><b>BROWN &amp; GAY ENGINEERS, INC.</b></p> <p>KARON B. HARGROVE                  LICENSED PROFESSIONAL ENGINEER                  LICENSE NO. 93708                  HOUSTON, TX 77042                  TEL 281-588-4300                  FAX 281-588-4300                  WWW.BANDG.COM</p> <p><i>Karon B. Hargrove</i></p> <p>Brown &amp; Gay Engineers, Inc.                  171148</p>	<p><b>NEPWA SEGMENT 4B</b></p> <p><b>PLAN &amp; PROFILE</b></p> <p><b>BASELINE 'E'</b></p> <p><b>ALONG PRIVATE PROPERTY</b></p> <p><b>FROM STA. 19+60 TO STA. 24+20</b></p>	<p><b>NORTH FORT BEND</b></p> <p><b>CITY OF HOUSTON</b></p> <p>DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p> <p>DATE AND TRANSMISSION</p> <p>WATER</p> <p>WATERMAIN</p> <p>STORM</p> <p>STREET &amp; BRIDGE</p> <p>FILE NO.</p> <p>DRAWING SCALE</p> <p>HORIZ: 1"=20'</p> <p>VERT: 1"=2'</p> <p>SHEET No. 73 of 108</p>	<p>DATE</p> <p>REVISION</p> <p>APPROV.</p>
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- NOTES:
1. CONTRACTOR TO REMOVE AND REPLACE 190 LF OF EXISTING BARBED WIRE FENCE.
  2. SEE SHEET 108 FOR TREE PROTECTION PLAN.
  3. REMOVE AND REPLACE 30 SY OF GRAVEL DRIVEWAY TO ORIGINAL OR BETTER CONDITION.
  4. BRACE AND SUPPORT EXISTING POWER POLES, STREET LAMPS, AND/OR RELOCATE GUY WIRES AS NECESSARY. COORDINATE WORK WITH CENTERPOINT ENERGY.
  5. NO BORE PITS ARE ALLOWED WITHIN 300' TOWER RADIIUS.

PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 Centerpoint Energy/Electric Facilities (Approved only for underground conduit facilities, unless otherwise noted) Valid At Time Of Review Only  
 SBC UTILITY LINES SHOWN  
 Date: \_\_\_\_\_  
 Signature valid for one year.  
 SBC Approved for underground conduit facilities only.  
 Date: \_\_\_\_\_

NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROW, OR EASEMENTS CALL LONE STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-869-8344  
 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-287-7777.

NO.	DATE	REVISION	APPROVED
1			
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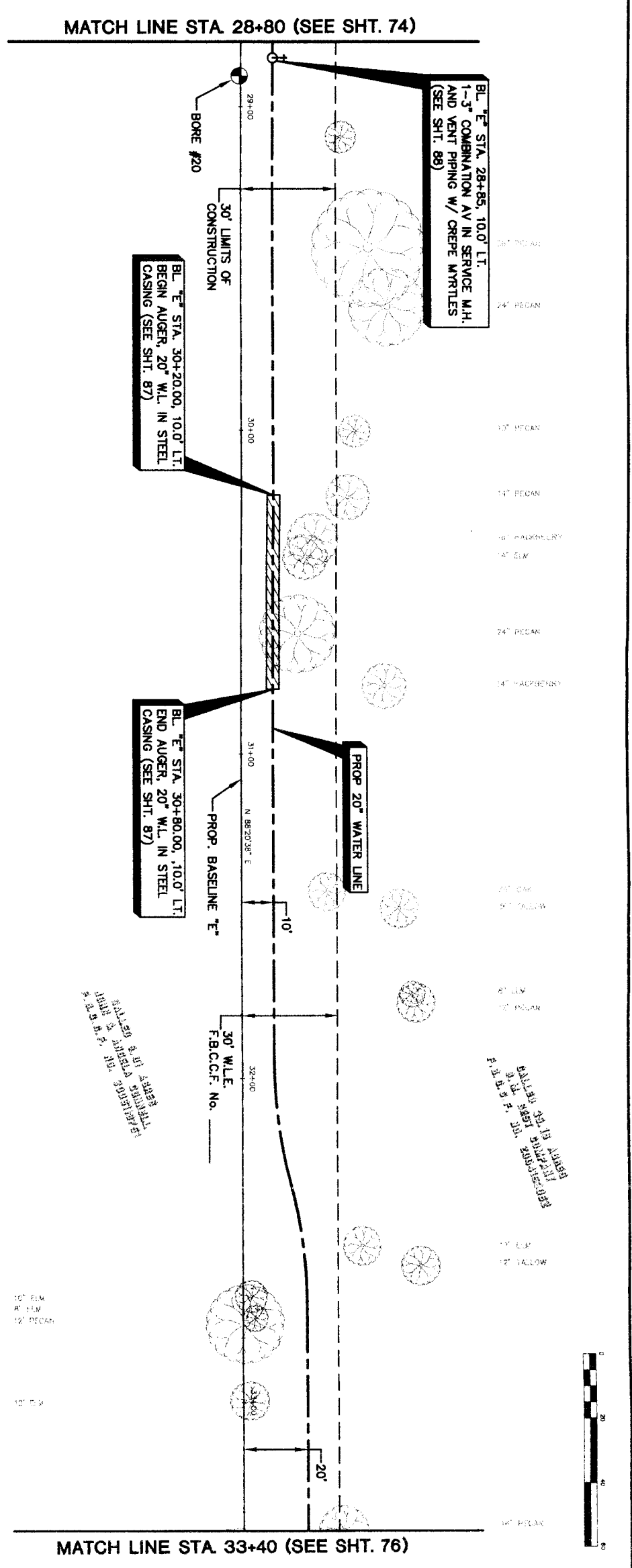
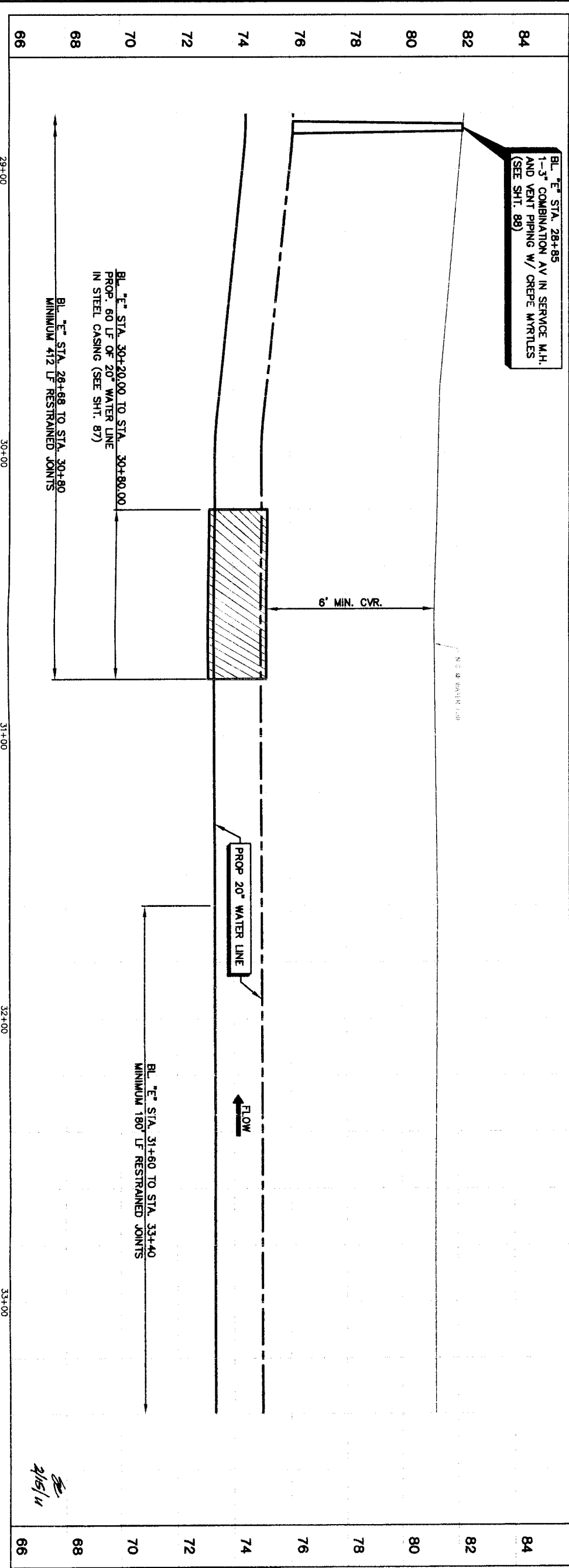
**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 10777 Westheimer, Suite 400  
 Houston, TX 77042  
 Tel: 281-558-8100  
 Fax: 281-558-8100  
 Civil Engineer and Surveyor -  
 License No. 171-1049

**NFBWA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE 1/2"**  
**ALONG PRIVATE PROPERTY**  
**FROM STA. 24+20 TO STA. 28+80**

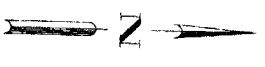


NOTE: CITY STAMPS ARE VALID FOR ONE YEAR FROM DATE OF SIGNATURE

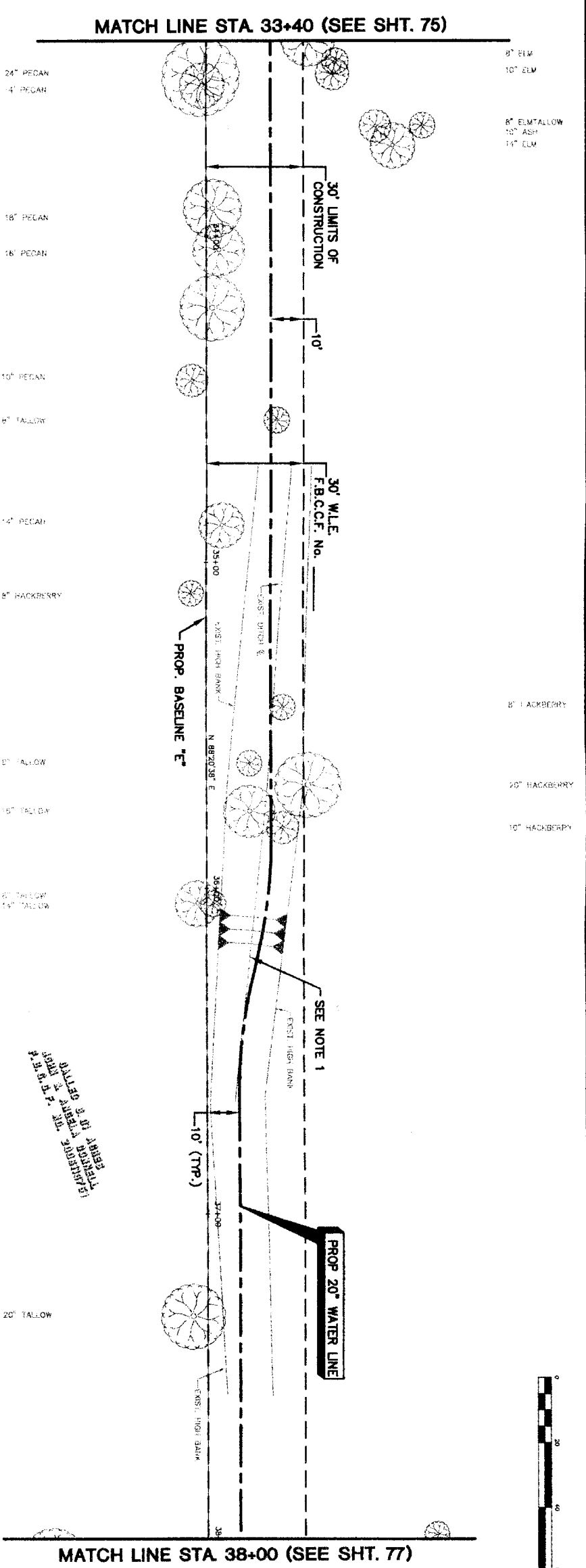
MATERIALS	STORM WATER QUALITY
STREETS & BRIDGES	TRAFFIC
FILE NO.:	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
HORIZ. : 1"=20'	
VERT. : 1"=2'	
SHEET No. 74 of 108	



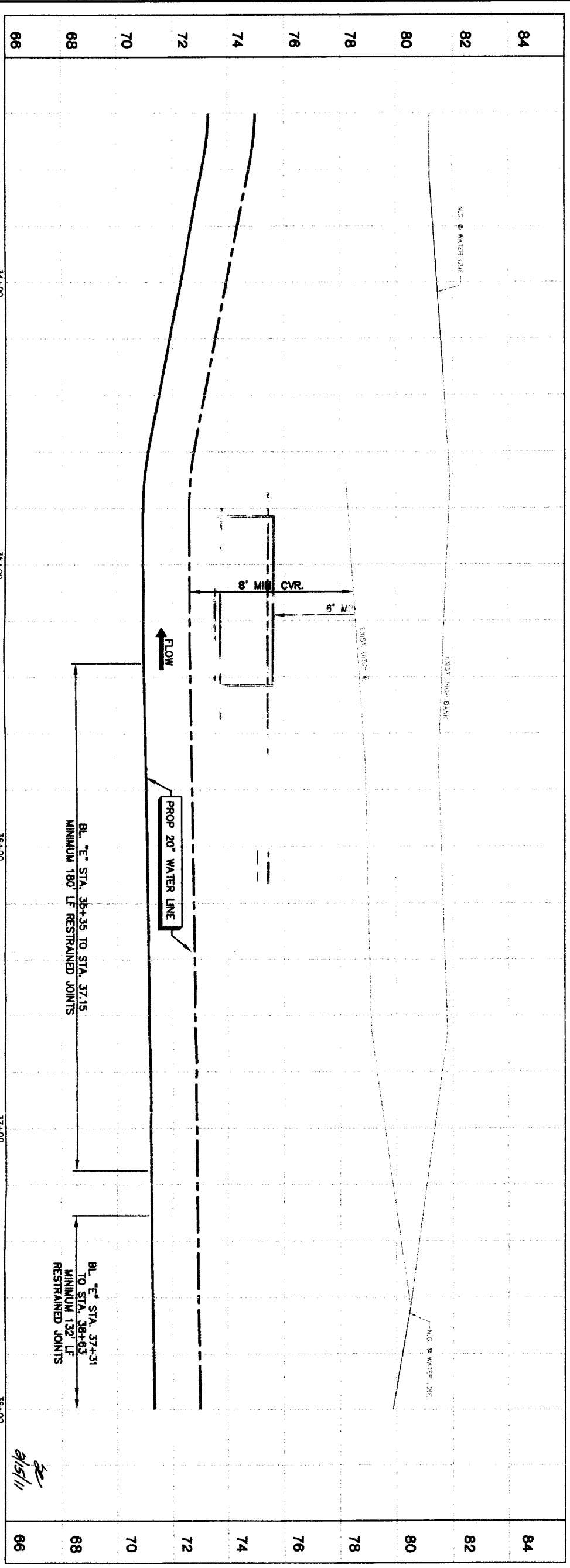
NOTES:  
 1. SEE SHEET 108 FOR TREE PROTECTION PLAN.



<p>DATE: _____          Approved for underground conduit facilities only.          SBC UTILITY LINES SHOWN</p>	<p>DATE: _____          Approved for underground conduit facilities only.          SBC UTILITY LINES SHOWN</p>	<p>DATE: _____          Approved for underground conduit facilities only.          SBC UTILITY LINES SHOWN</p>	<p>DATE: _____          Approved for underground conduit facilities only.          SBC UTILITY LINES SHOWN</p>	<p>DATE: _____          Approved for underground conduit facilities only.          SBC UTILITY LINES SHOWN</p>	<p>DATE: _____          Approved for underground conduit facilities only.          SBC UTILITY LINES SHOWN</p>
<p>PRIVATE UTILITY LINES SHOWN</p>					
<p>Centerpoint Energy/ Electric Facilities (approved only for crossing underground ductlines, unless otherwise noted. Valid At Time Of Review Only)          SBC UTILITY LINES SHOWN</p>					
<p>NOTICE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET ROOM ON EAST SIDE OF STA. STAR NOTIFICATION CENTER (713) 223-4567 OR 1-800-666-8344 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-7777.</p>					
<p>NO. DATE REVISION APPROVED</p>					
<p><b>BROWN &amp; GAY ENGINEERS, INC.</b>          3027 Westheimer, Suite 400          Houston, Texas 77027          Tel: 281-566-8700 Fax: 281-566-9701          --- Civil Engineers and Surveyors ---          F-1045</p>					
<p><b>NFWMA SEGMENT 4B</b>          PLAN &amp; PROFILE          BASELINE 'E'          ALONG PRIVATE PROPERTY          FROM STA. 28+80 TO STA. 33+4</p>					
<p><b>CITY OF HOUSTON</b>          DEPARTMENT OF PUBLIC WORKS AND ENGINEERING          1-531 TRAFFIC AND TRANSPORTATION</p>					
<p><b>NORTH FORT BAND</b></p>					
<p>NOTE: CITY SEGMENTS VALID FOR ONE YEAR AFTER DATE OF ISSUANCE</p>					
<p>FILE NO.: 199 CITY OF HOUSTON USE ONLY</p>					
<p>DRAWING SCALE</p>					
<p>HORIZ : 1"=20'          VERT : 1"=2'</p>					
<p>SHEET NO. 75 OF 108</p>					



- NOTES:**
1. RESTORE 300 LF IF EXISTING DITCH TO ORIGINAL CONDITION OR BETTER AND PROVIDE POSITIVE DRAINAGE.
  2. SEE SHEET 108 FOR TREE PROTECTION PLAN.



**PRIVATE UTILITY LINES SHOWN**

Date: \_\_\_\_\_  
 Centerpoint Energy/ Gas Facilities (approved only for crossing underground ductlines, unless otherwise noted, valid at Time Of Review Only)  
**SBC UTILITY LINES SHOWN**  
 Date: \_\_\_\_\_  
 SBC Approved for underground conduit facilities only.  
 Signature valid for one year.  
 Date: \_\_\_\_\_

Centerpoint Energy/ Gas Facilities  
 Gas Service Lines (see note below)  
 NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL ONE STAR NOTIFICATION CENTER: (713) 223-4587 OR 1-800-669-8344  
 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7777.

**BROWN & GAY ENGINEERS, INC.**

10777 Northwest Freeway, Suite 400  
 Houston, Texas 77040  
 Tel: 281-568-8700  
 Fax: 281-568-8701  
 www.browngay.com

**Professional Engineer**  
 License No. 13570  
 State of Texas  
 James B. Hargrove  
 Brown & Gay Engineers, Inc.  
 F-1048

**NTWMA SEGMENT 4B**

**PLAN & PROFILE BASELINE "E"**

**ALONG PRIVATE PROPERTY FROM STA. 33+40 TO STA. 38+00**

**NORTH PORT END**

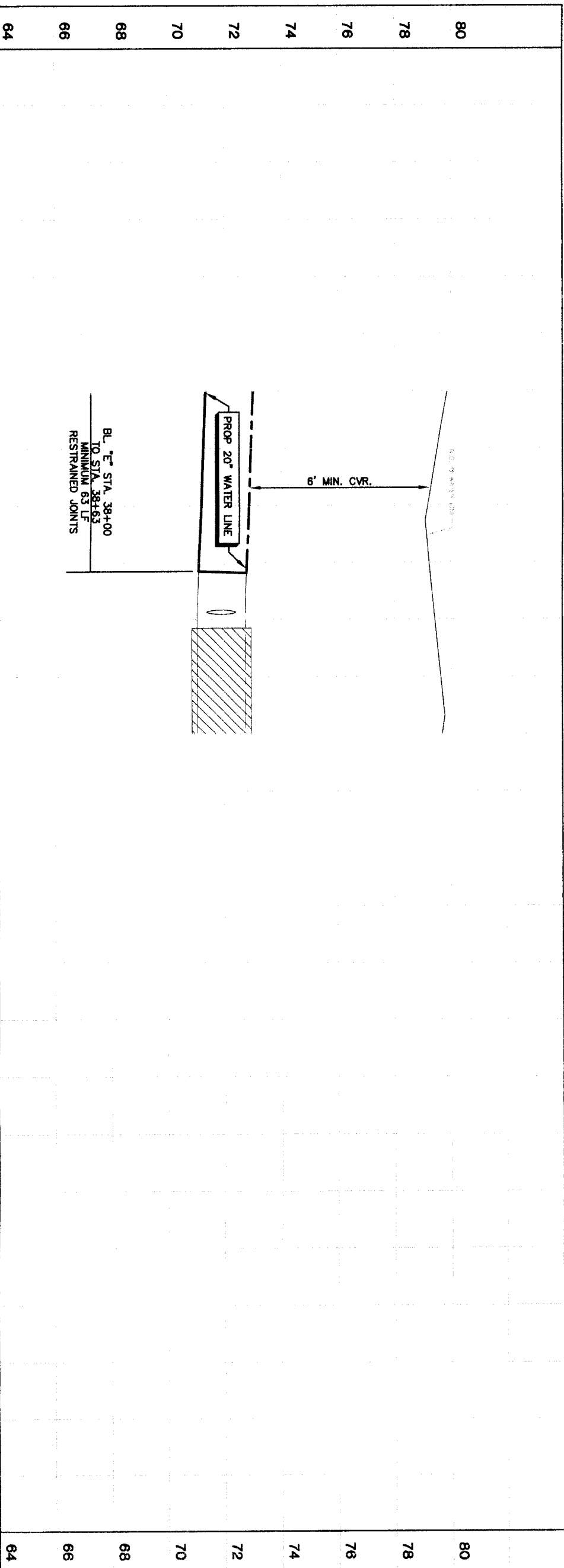
DATE: 01/15/11

FILE NO.: \_\_\_\_\_ FOR CITY OF HOUSTON USE ONLY

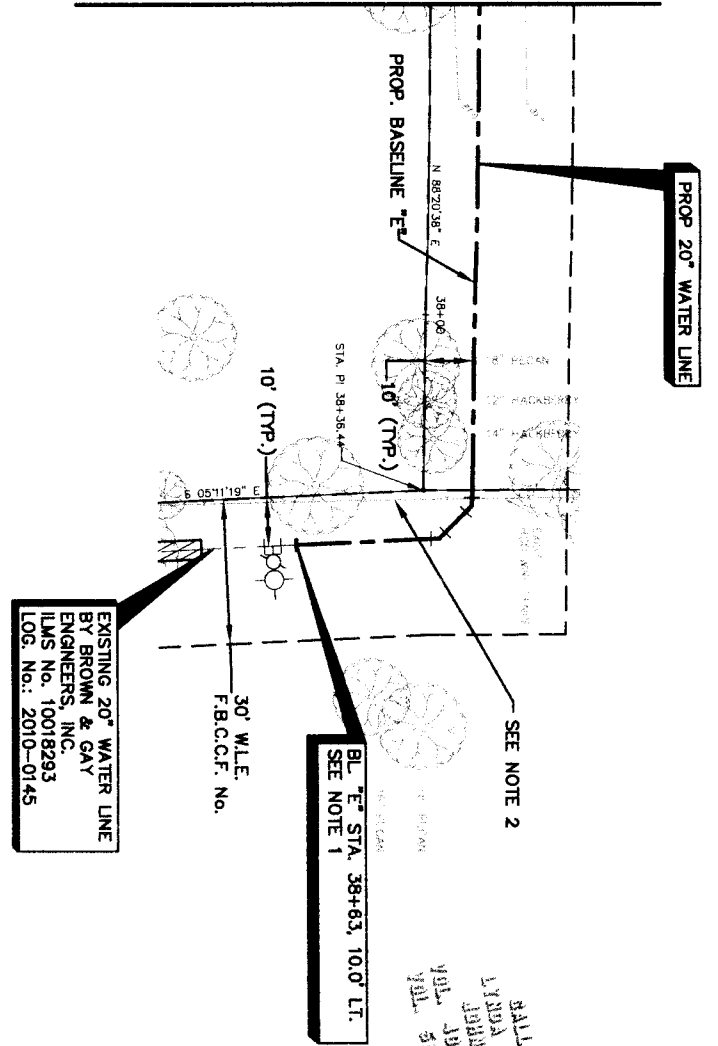
DRAWING SCALE:  
 HORIZ: 1"=20'  
 VERT: 1"=2'

SHEET No. 76 OF 108

4 7 7 5 7

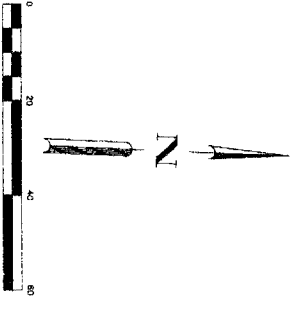


MATCH LINE STA. 38+00 (SEE SHT. 76)



ALLOWED FOR THE  
 1991 JULY 21 1991  
 LINDA LIND BULLIVANT TIPP  
 JUNIOR PUBLIC ADMINISTRATOR  
 CITY OF HOUSTON  
 JUL 21 1991

- NOTES:
- IF THE 20" STUBOUT WITH GATE VALVE, PLUG CLAMP AND 2" BLOWOFF FOR THE SEGMENT AA CONNECTION IS IN PLACE, CONTRACTOR SHALL REMOVE THE PLUG AND CLAMP AND PROVIDE AN ADAPTER AND INSULATED CONNECTION TO THE 20" STUBOUT.
  - CONTRACTOR TO REMOVE AND REPLACE 20 LF OF HOG WIRE FENCE FOR TREE PROTECTION PLAN.
  - SEE SHEET 108 FOR TREE PROTECTION PLAN.
  - CONTRACTOR TO MAINTAIN EXIST. BARBED WIRE FENCE DURING CONSTRUCTION.



PRIVATE UTILITY LINES SHOWN

Date: \_\_\_\_\_  
 Certificate Energy/Elec Facilities (approved only for crossing underground ductlines, unless otherwise noted. Valid At: Time Of Review Only)  
**SBC UTILITY LINES SHOWN**  
 Date: \_\_\_\_\_  
 SBC Approved for underground conduit facilities only. Signatures valid for one year.  
 Date: \_\_\_\_\_

NOTICE:  
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL ONE 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	APPROV.
1			
2			
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4			

**BROWN & GAY**  
 ENGINEERS, INC.  
 Brown & Gay Engineers, Inc.  
 1077 Houston TX 77042  
 TEL: 281-558-8700  
 FAX: 281-558-9701  
 -Civil Engineers and Surveyors-

Professional Engineer Seal: LAMON B. HANCOCK, No. 33708, State of Texas, Mechanical, Exp. 08/31/2012.

**NFBWA SEGMENT 4B**  
**PLAN & PROFILE**  
**BASELINE "E"**  
**ALONG PRIVATE PROPERTY**  
**FROM STA 38+00 TO STA 42+50**



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

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

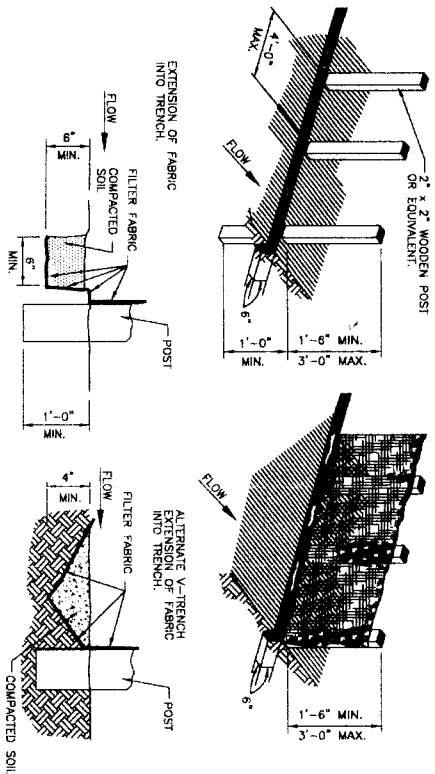
WATER: \_\_\_\_\_ STORM WATER QUALITY: \_\_\_\_\_  
 STREET # BRIDGE: \_\_\_\_\_ FACILITIES: \_\_\_\_\_

FILE NO: \_\_\_\_\_ FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE: \_\_\_\_\_  
 HORIZ. : 1"=20'  
 VERT. : 1"=2'

SHEET No. **77** OF 108

1. SET POSTS AT REQUIRED SPACING AND DEPTH. EXCAVATE A 6" x 6" TRENCH UPSLOPE ALONG THE LINE OF POSTS.
2. ATTACH FILTER FABRIC TO POSTS AND INSTALL IT INTO THE TRENCH. BACKFILL THE TRENCH AND COMPACT THE EXCAVATED SOIL.

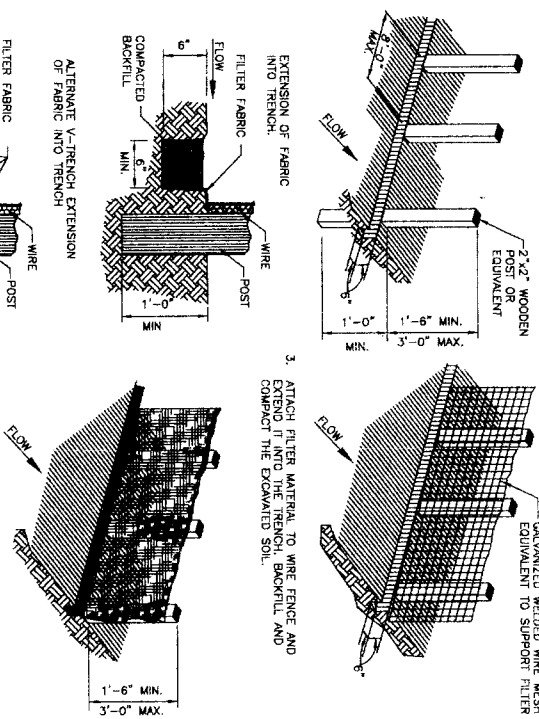


- GENERAL NOTES:
1. SET POSTS AT 4-FEET MAXIMUM SPACING. IF FACTORY PREASSEMBLED FENCE WITH SUPPORT NETTING IS USED, SPACING OF POST MAY BE INCREASED TO 8 FEET MAXIMUM.
  2. WHEN TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, OVERLAP 6 INCHES AT THE POST, FOLD TOGETHER, AND ATTACH TO A POST.
  3. REMOVE SEDIMENT DEPOSITS WHEN Silt DEPTH REACHES ONE-THIRD OF THE HEIGHT OF THE FENCE.

**FILTER FABRIC FENCE**



1. SET POSTS AT REQUIRED SPACING AND DEPTH. EXCAVATE 6" x 6" TRENCH UPSLOPE ALONG THE LINE OF POSTS.
2. SECURE MESH FENCING TO POSTS

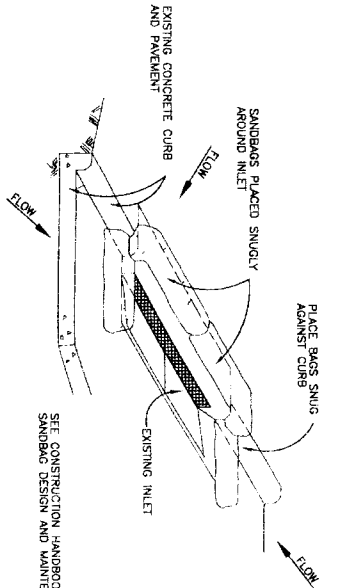


- GENERAL NOTES:
1. SECURELY FASTEN MESH FENCING TO POSTS WITH STAPLES OR THE WIRES.
  2. SECURELY FASTEN FILTER FABRIC TO MESH FENCING.
  3. WHEN TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, OVERLAP 6 INCHES AT A POST, FOLD TOGETHER, AND ATTACH TO A POST.
  4. REMOVE SEDIMENT DEPOSITS WHEN Silt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

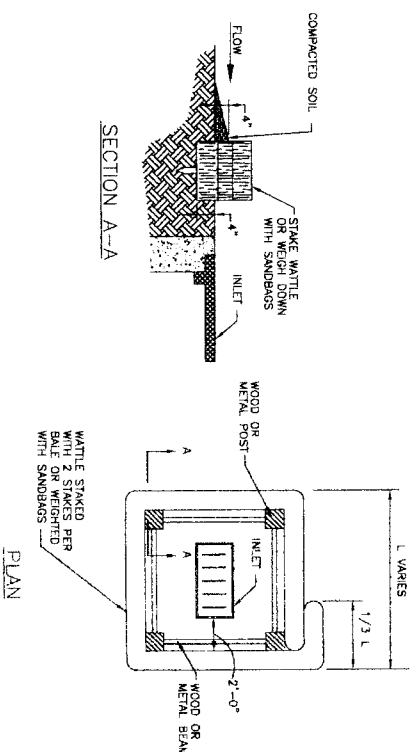
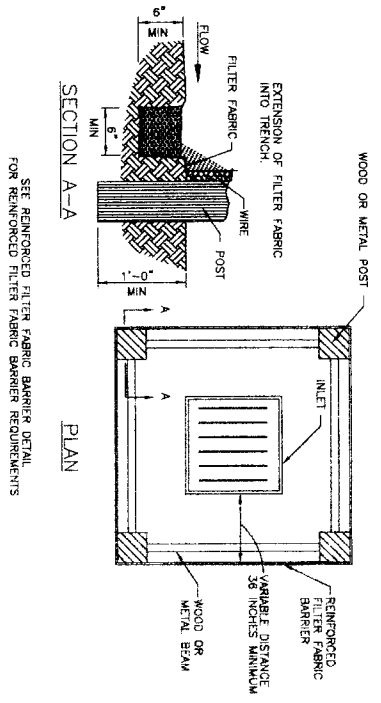
**REINFORCED FILTER FABRIC BARRIER**



- GENERAL NOTES:
1. BAGS OR WATTLES CAN BE USED FOR THIS APPLICATION.
  2. PROVIDE WOVEN OR UNWOVEN GEOTEXTILE FILTER FABRIC FOR BAGS.
  3. PREPARE COARSE SAND AND AGGREGATE MIX FOR FILL MATERIAL FOR BAGS. USE ONLY PARTICLES CONSISTING OF CLEAN, HARD, DURABLE MATERIALS FREE FROM ADHERENT COATINGS, SALT, ALKALI, OIL, CLAY, LOAM, SHALE, SOFT OR FLAKY MATERIALS, OR ORGANIC AND INJURIOUS MATTER.
  4. REMOVE SEDIMENT DEPOSIT WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-THIRD THE HEIGHT OF THE BARRIER.

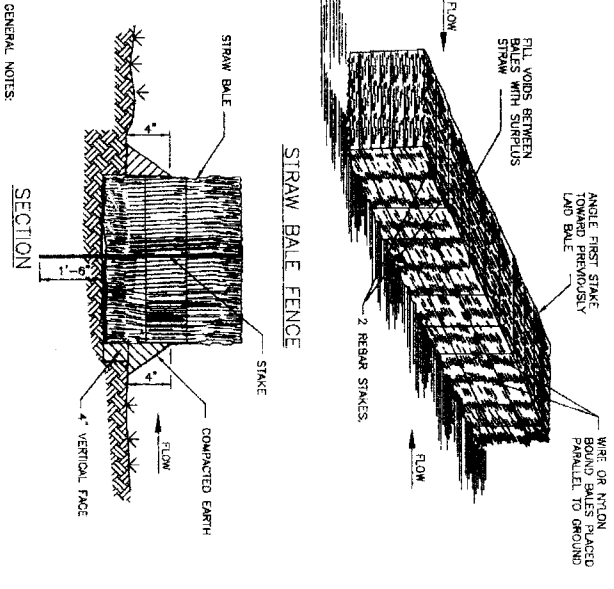


**INLET PROTECTION BARRIERS FOR STAGE II INLETS**



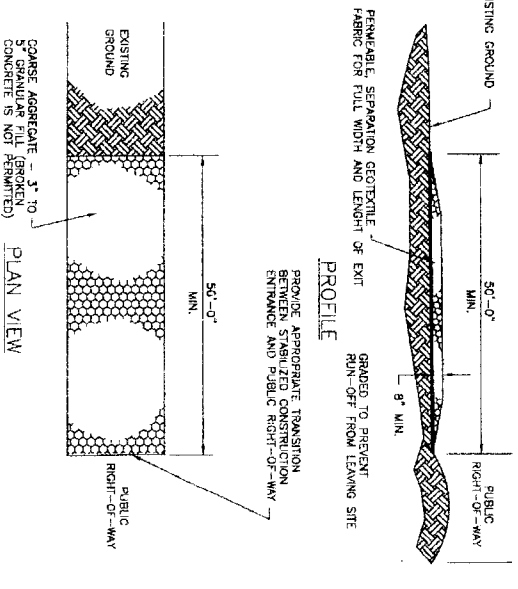
NOTE: TYPICALLY STRAW BALES ARE NOT RECOMMENDED FOR INLET PROTECTION BARRIERS.

**INLET PROTECTION BARRIERS FOR STAGE I INLETS**



- GENERAL NOTES:
1. LIMIT USE TO ONSITE SWALES FOR PURPOSES OF LOW FLOW VELOCITY DISPERSION FOR EROSION CONTROL. USE STRAW BALE FENCES TO TREAT OVERLAND FLOW ONLY. DO NOT USE STRAW BALE FENCES TO TREAT FLOW IN CHANNELS.
  2. PLACE BALES IN A ROW WITH ENDS TIGHTLY BUTTING ADJACENT BALES. FILL THE VOIDS BETWEEN BALES WITH SURPLUS STRAW. PLACE BALES WITH BINDING PARALLEL TO GROUND SURFACE.
  3. LAYER EACH BALE AT LEAST 4 INCHES IN THE SOIL.
  4. SECURELY ANCHOR BALES IN PLACE BY REBAR STAKES. DRIVE STAKES THROUGH THE BALES AND AT LEAST 18 INCHES INTO THE GROUND. ANGLE THE STAKE IN EACH BALE TOWARD THE PREVIOUS BALE TO FORCE THE BALES TOGETHER.
  5. SAND BALES WITH WIRE OR NYLON ROPE TIED ACROSS THE STRAW BALES.
  6. REPLACE WITH NEW STRAW BALE FENCE EVERY TWO MONTHS.
  7. WATTLES STAKED INTO THE GROUND ARE A PREFERRED SUBSTITUTE FOR STRAW BALE FENCES.

**STRAW BALE FENCE**



- GENERAL NOTES:
1. MINIMUM LENGTH IS AS SHOWN ON CONSTRUCTION DRAWINGS OR 50 FEET, WHICHEVER IS MORE.
  2. CONSTRUCT AND MAINTAIN CONSTRUCTION EXIT WITH CONSTANT WIDTH ACROSS ITS LENGTH, INCLUDING ALL POINTS OF INGRESS OR EGRESS.
  3. UNLESS SHOWN ON THE CONSTRUCTION DRAWINGS, STABILIZATION FOR OTHER AREAS WILL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION EXIT.
  4. WHEN SHOWN ON THE CONSTRUCTION DRAWINGS, WOOD OR LENGTHEN STABILIZED AREA TO ACCOMMODATE A TRUCK WASHING AREA. PROVIDE DOWEL SECTIONS TYPICAL FOR THE TRUCK WASHING AREA.
  5. PROVIDE PERIODIC TOP DRESSING WITH ADDITIONAL COARSE AGGREGATE TO MAINTAIN THE REQUIRED DEPTH OR WHEN SURFACE BECOMES PACKED WITH WOOD.
  6. PERIODICALLY TURN AGGREGATE TO EXPOSE A CLEAN DRIVING SURFACE.
  7. ALTERNATE METHODS OF CONSTRUCTION INCLUDE STABILIZED SOIL, LIME/STONE AGGREGATE, OR OTHER FILL MATERIAL IN AN APPLICATION OF THICKNESS OF 8 INCHES. WOOD WATS, OAK OR OTHER HARDWOOD TIMBERS PLACED EDGE TO EDGE AND ACROSS SUPPORT WOODEN BEAMS WHICH ARE PLACED ON TOP OF EXISTING SOIL IN AN APPLICATION THICKNESS OF 6\"/>

**STABILIZED CONSTRUCTION ACCESS**



NO.	DATE	REVISION	APPROVED
1			
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3			
4			

**BROWN & GAY ENGINEERS, INC.**  
 10717 Westheimer, Suite 200  
 Houston, TX 77042  
 Tel: 281-558-0715  
 Fax: 281-558-0715

Professional Engineer  
 License No. 93706  
 State of Texas

**STORM WATER POLLUTION PREVENTION PLAN DETAILS**

**NORTH PORT BAND**

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 11.13.11  
 FACILITIES: STORM WATER QUALITY  
 STREET & BLOCK: RFB  
 FILE NO.: RFB CITY OF HOUSTON USE ONLY  
 DRAWING SCALE: N.T.S.  
 SHEET NO.: 78 OF 108

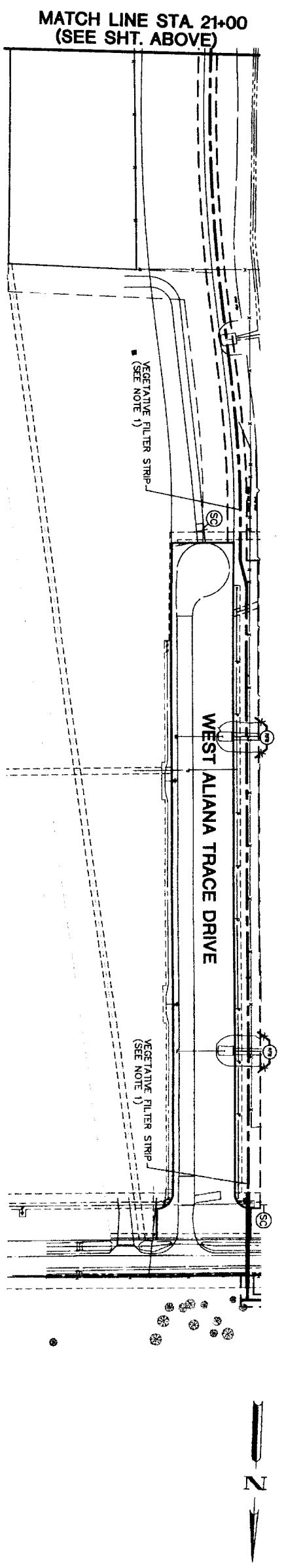
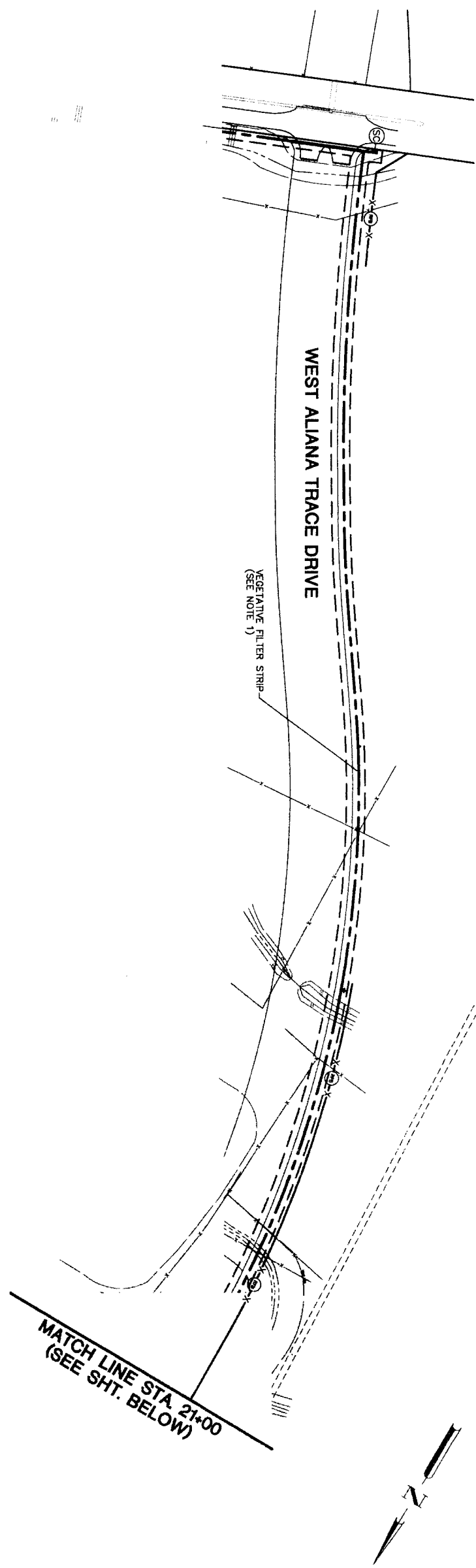
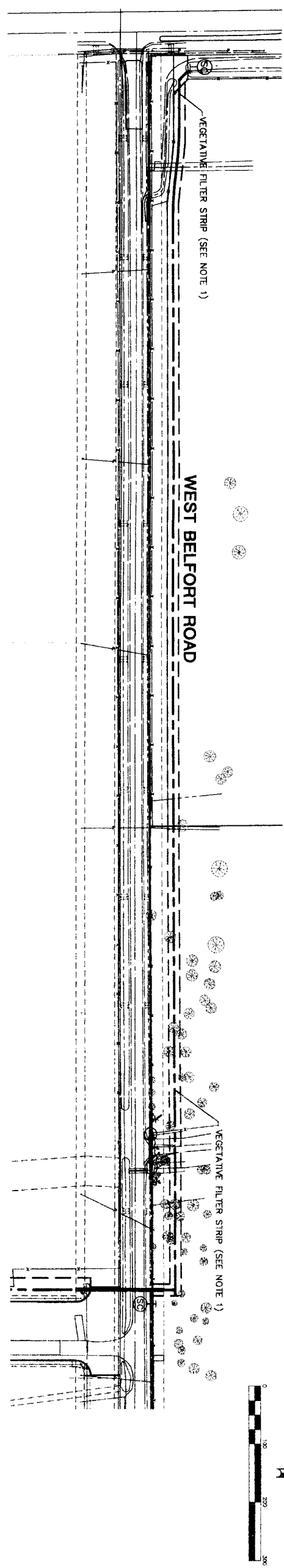
47757

8/15/11

NOTES:  
 1. CONTRACTOR TO MAINTAIN VEGETATED FILTER STRIP ON DOWNSTREAM SIDE OF CONSTRUCTION ACTIVITIES. INCLUDES USE OF SOD WHERE EXISTING VEGETATION IS INADEQUATE.

**LEGEND**

- INLET PROTECTION BARRIER
- FILTER FABRIC FENCE
- REINFORCED FILTER FABRIC BARRIER
- STABILIZED CONSTRUCTION ACCESS



NO.	DATE	REVISION	APPROVED
1			
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**BROWN & GAY ENGINEERS, INC.**  
 3717  
 Houston, TX 77042  
 Tel: 281-508-8700  
 Fax: 281-508-8101  
 www.browngay.com

**AMNON B. HARSBOY**  
 93708  
 PROFESSIONAL ENGINEER  
 STATE OF TEXAS  
 License No. 93708  
 John O. Thompson  
 Brown & Gay Engineers, Inc.  
 F-1046

**NFBWA SEGMENT 4B**  
**STORM WATER POLLUTION PREVENTION PLAN (1 OF 4)**



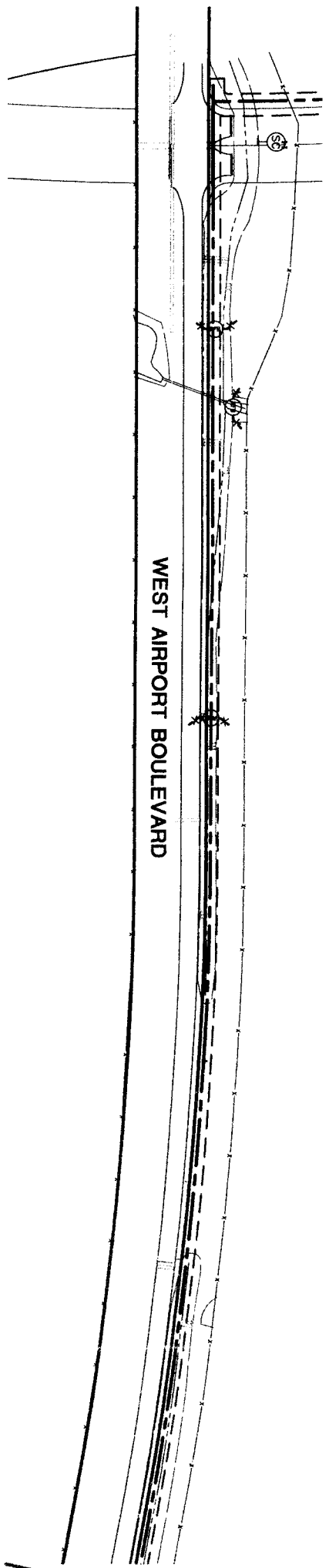
**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 HIGHWAYS AND TRANSPORTATION

WASTEWATER	STORM WATER QUALITY
STREET & BRIDGE	FACILITY
FILE NO.	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
1"=100'	

SHEET NO. **79** OF 108

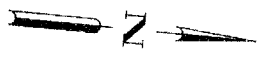
**NOTES:**  
 1. CONTRACTOR TO MAINTAIN VEGETATED FILTER STRIP ON DOWNSTREAM SIDE OF CONSTRUCTION ACTIVITIES. INCLUDES USE OF SOD WHERE EXISTING VEGETATION IS INADEQUATE.

- LEGEND**
- INLET PROTECTION BARRIER - - - - -
  - FILTER FABRIC FENCE - - - - -
  - REINFORCED FILTER FABRIC BARRIER - - - - -
  - STABILIZED CONSTRUCTION ACCESS - - - - -
  - IPB
  - FF
  - RFB
  - SCA



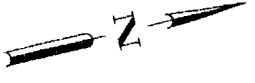
MATCH LINE STA. 21+00 (SEE ABOVE)

MATCH LINE STA. 40+00 (SEE BELOW)



MATCH LINE STA. 40+00 (SEE ABOVE)

MATCH LINE STA. 60+00 (SEE SHT. 81)



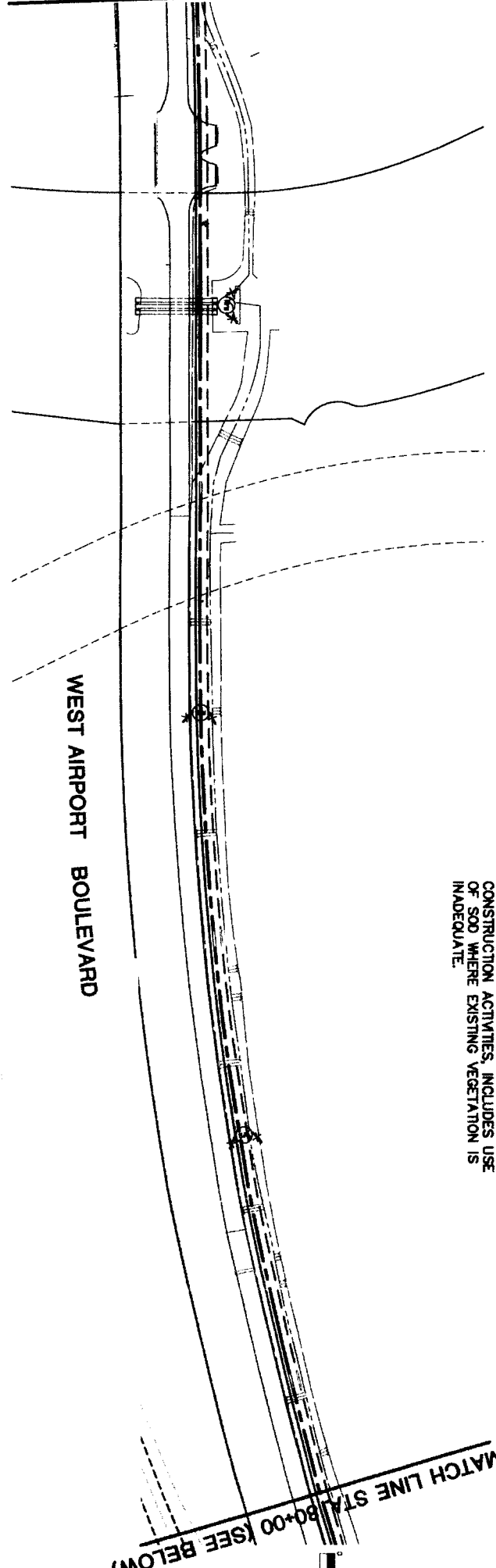
WEST AIRPORT BOULEVARD

WEST AIRPORT BOULEVARD

WEST AIRPORT BOULEVARD

<p>NOTE: CITY SOWTIMES VALID FOR ONE YEAR AFTER DATE OF SIGNATURE</p> <p><b>CITY OF HOUSTON</b>          DEPARTMENT OF PUBLIC WORKS AND ENGINEERING          BRIDGE AND INFRASTRUCTURE</p>	<p><b>NORTH FORT BEND</b></p>	<p><b>BROWN &amp; GAY ENGINEERS, INC.</b>          93706          HOUSTON, TX 77024          TEL: 281-544-8700          FAX: 281-544-8700          www.browngay.com</p>	<p><b>STATE OF TEXAS</b>          PROFESSIONAL ENGINEERING          LICENSE NO. 93706          AARON B. HANCOCK          JOHN D. HANCOCK          BROWN &amp; GAY ENGINEERS, INC.          F-1048</p>	<p><b>WFRMA SEGMENT 4B</b></p> <p><b>STORM WATER POLLUTION PREVENTION PLAN</b>          (2 OF 4)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>REVISION</th> <th>APPROVED</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	NO.	DATE	REVISION	APPROVED	1				2				3				4				<p>FILE NO.:</p> <p>FOR CITY OF HOUSTON USE ONLY</p>	<p>DRAWING SCALE</p> <p>1"=100'</p>	<p>SHEET NO. 80 OF 108</p>
NO.	DATE	REVISION	APPROVED																									
1																												
2																												
3																												
4																												

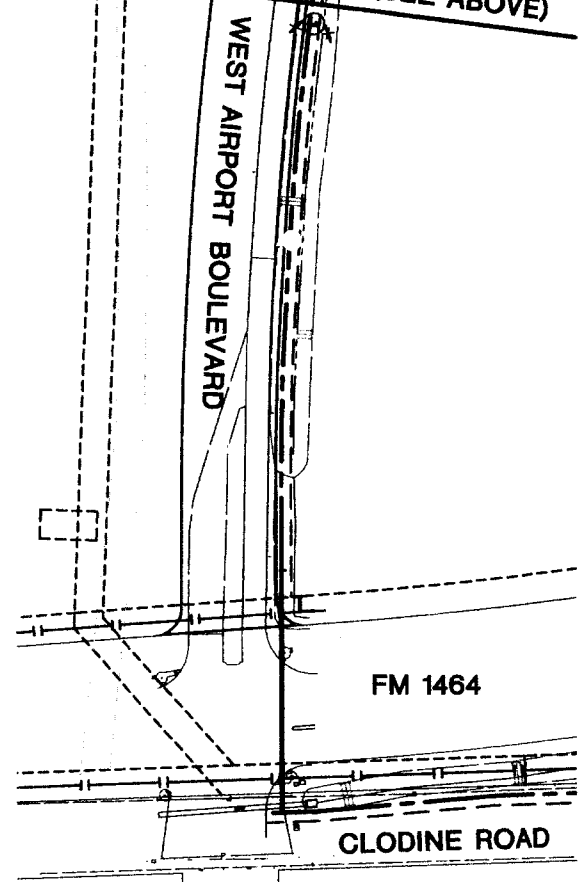
MATCH LINE STA. 60+00 (SEE SHIT. 80)



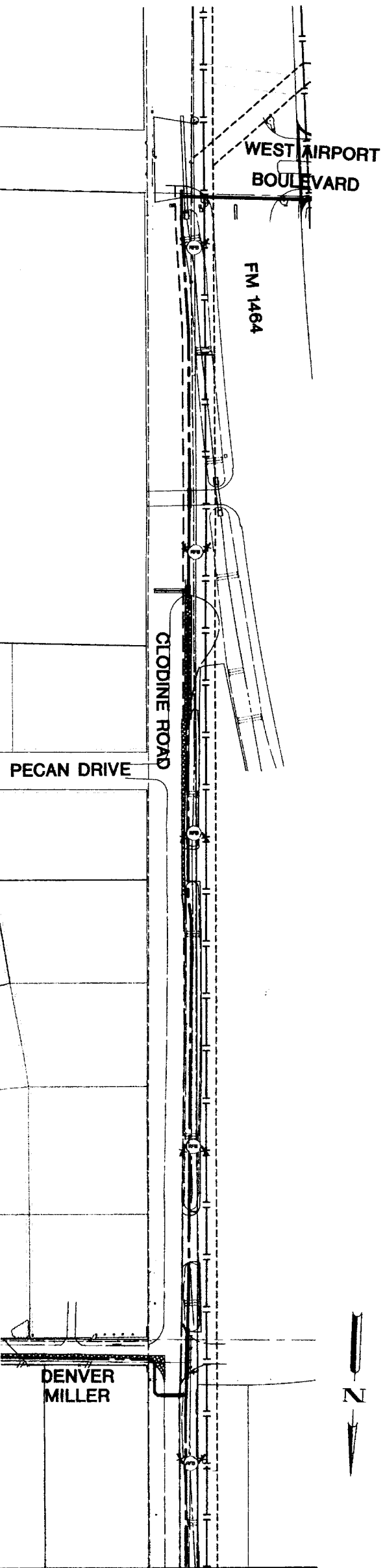
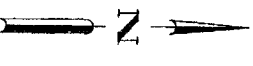
- NOTES:  
 1. CONTRACTOR TO MAINTAIN VEGETATED FILTER STRIP ON DOWNSTREAM SIDE OF CONSTRUCTION ACTIVITIES. INCLUDES USE OF SOD WHERE EXISTING VEGETATION IS INADEQUATE.

MATCH LINE STA. 80+00 (SEE BELOW)

MATCH LINE STA. 80+00 (SEE ABOVE)



- LEGEND
- INLET PROTECTION BARRIER
  - FILTER FABRIC FENCE
  - REINFORCED FILTER FABRIC BARRIER
  - STABILIZED CONSTRUCTION ACCESS



MATCH LINE STA. 24+00 (SEE SHIT. 82)

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**NORTH FORT BEND**

NOTE: CITY ENGINEERS SHALL FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

STORM WATER POLLUTION PREVENTION PLAN (3 OF 4)

**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 17777 Northwest Fwy, Suite 400  
 Houston, TX 77060  
 Tel: 281-566-8700  
 Fax: 281-566-9701  
 www.browngay.com

**STORM WATER POLLUTION PREVENTION PLAN (3 OF 4)**

NO. DATE REVISION APPROVED

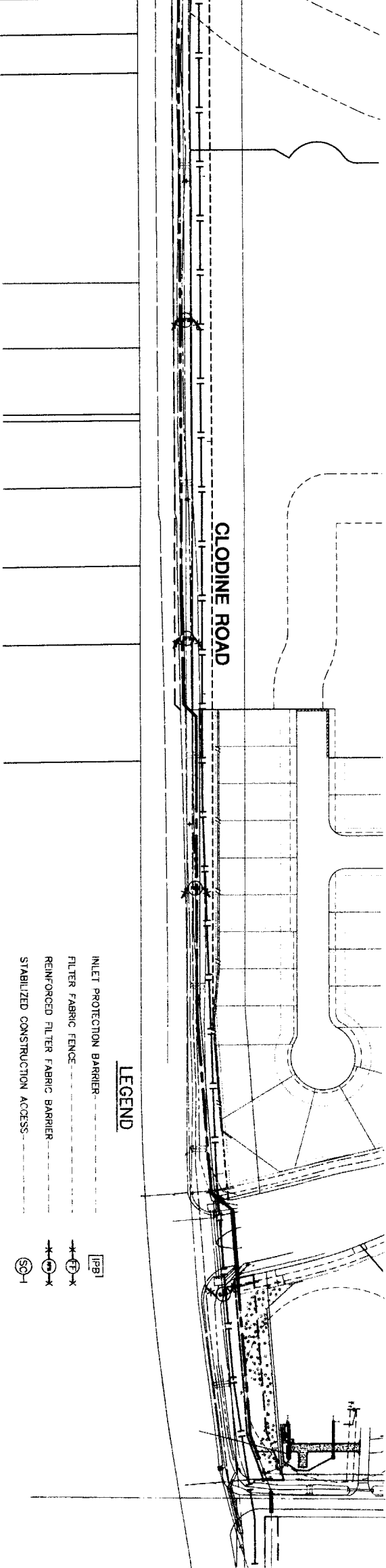
1			
2			
3			
4			

FILE NO: \_\_\_\_\_ FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE: 1"=100'

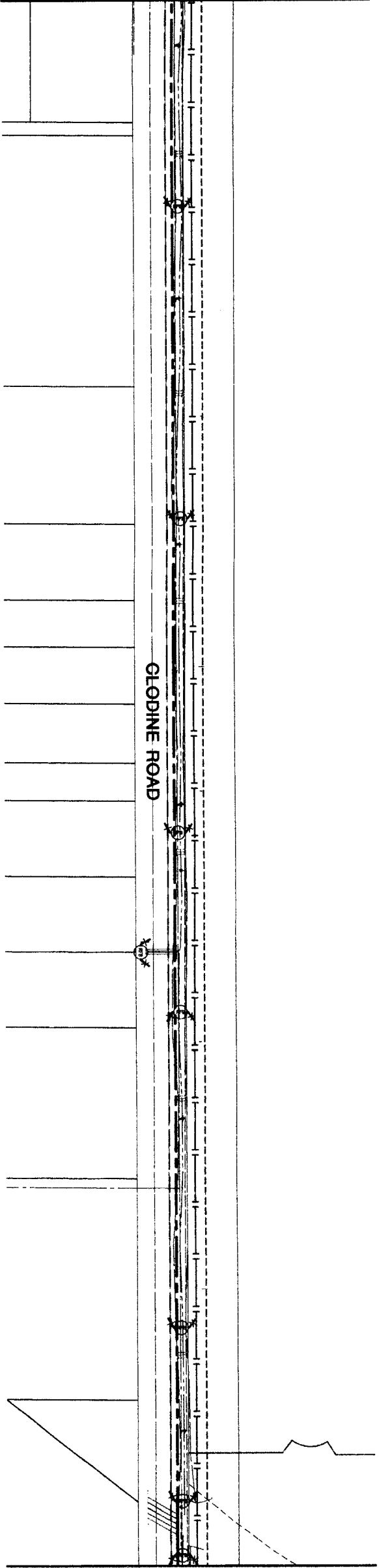
SHEET NO. 81 OF 108

MATCH LINE STA. 49+00 (SEE ABOVE)

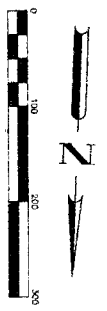


- LEGEND**
- INLET PROTECTION BARRIER - [Symbol]
  - FILTER FABRIC FENCE - [Symbol]
  - REINFORCED FILTER FABRIC BARRIER - [Symbol]
  - STABILIZED CONSTRUCTION ACCESS - [Symbol]

MATCH LINE STA. 24+00 (SEE SHT. 81)



- NOTES:**
1. CONTRACTOR TO MAINTAIN VEGETATED FILTER STRIP ON DOWNSTREAM SIDE OF CONSTRUCTION ACTIVITIES. INCLUDES USE OF SOG WHERE EXISTING VEGETATION IS INADEQUATE.



MATCH LINE STA. 49+00 (SEE BELOW)

NO.	DATE	REVISION	APPROX.
4			
3			
2			
1			

**BROWN & GAY ENGINEERS, INC.**  
 93706  
 LICENSED PROFESSIONAL ENGINEERS  
 STATE OF TEXAS  
 F-1046

Brown & Gay Engineers, Inc.  
 12777 Woodloch near 350th St  
 Houston, TX 77060  
 Tel: 281-468-8700  
 Fax: 281-558-9791  
 - Civil Engineers and Surveyors -

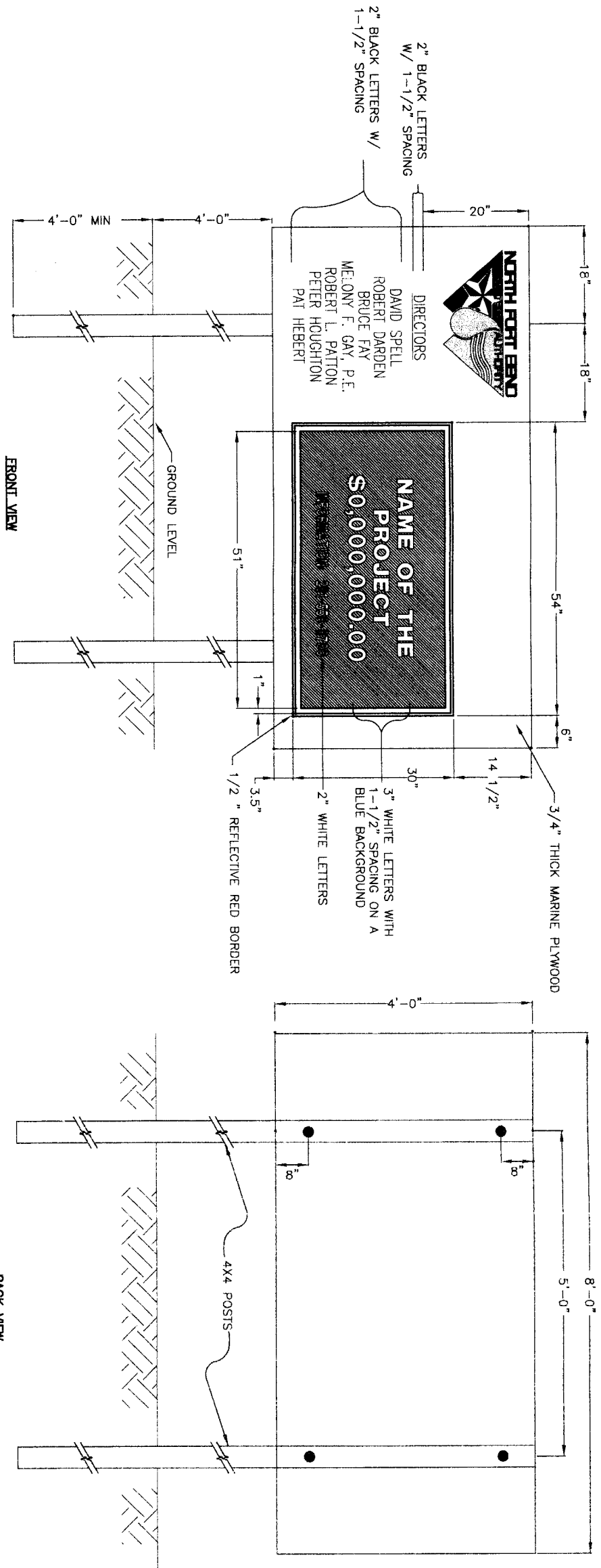
**STORM WATER POLLUTION PREVENTION PLAN (4 OF 4)**



**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

NOTE: CITY SEAL/STAMP VALID FOR ONE YEAR ONLY AFTER DATE OF QUALITY CONTROL SIGNATURE  
 DATE: 1-13-11  
 SIGNATURE: [Signature]  
 TITLE: [Title]  
 SHEET NO. 82 OF 108

STORM WATER QUALITY  
 FACILITIES  
 FILE NO:  
 DRAWING SCALE  
 1"=100'  
 SHEET NO. 82 OF 108



PROJECT SIGN  
 SCALE: 1"=1'

DATE: AUGUST 31, 2010  
 REF. NO. 01  
 SHEET No. 83 of 108

**NORTH FORT BEND**

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 PLANNING AND TRANSPORTATION

STREET & BRIDGE

STANDARD SPECIFICATIONS FOR ONE YEAR GUARANTEE AFTER DATE OF COMPLETION

FOR CITY OF HOUSTON USE ONLY

47757

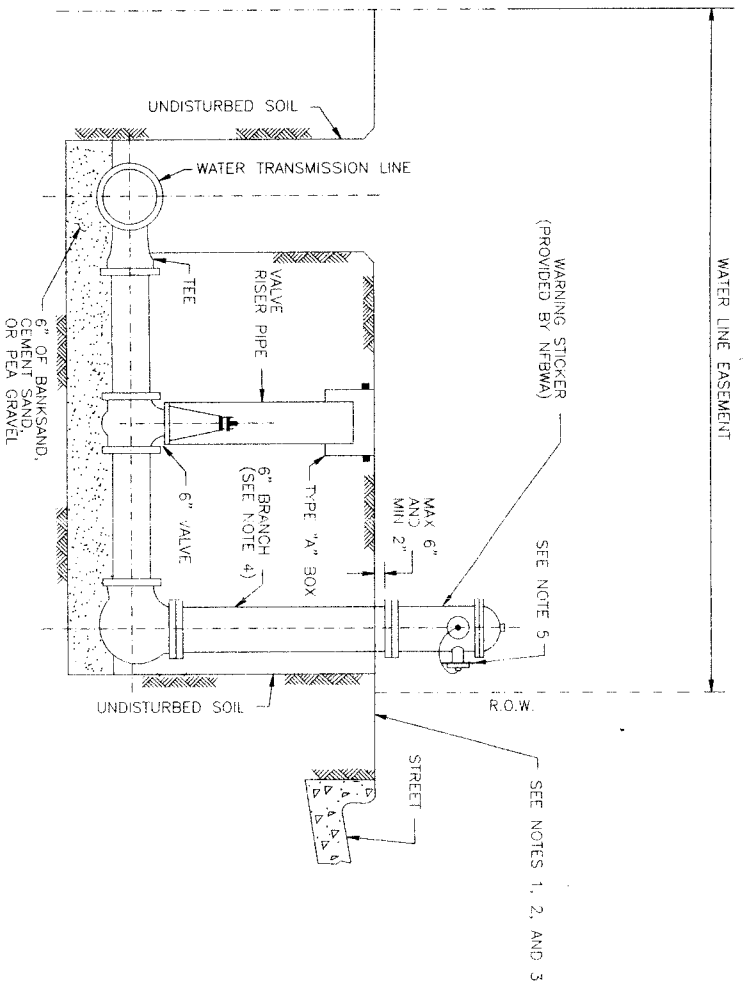
**BROWN & GAY ENGINEERS, INC.**  
 ENGINEERS, INC.  
 93706  
 HOUSTON, TX 77042  
 281.468.8203  
 CIVIL ENGINEERS AND SURVEYORS

APPROVED: [Signature]

**NTBWA SEGMENT 4B**

**PROJECT SIGN DETAILS**

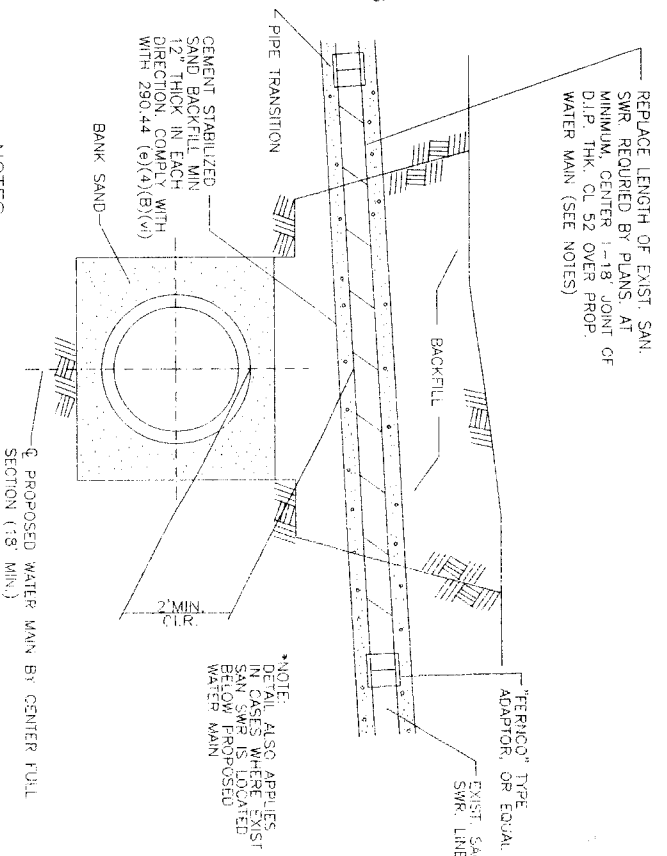
NO.	DATE	REVISION	APPROVED
1			
2			
3			
4			



**NOTES:**

1. LOCATE FLUSHING HYDRANTS AS SHOWN ON PLANS. PROVIDE TEMPORARY MEANS TO DIFFUSE FLOW FROM HYDRANT AND PREVENT EROSION OF EXISTING GROUND DURING FLUSHING.
2. ON OPEN-DITCH ROADWAYS OR OTHER CORRIDORS, SET THE FLUSHING HYDRANTS WITHIN 3 FEET OF RIGHTS-OF-WAY LINES, EASEMENT LINE OR AS SHOWN ON PLANS. INSIDE OF CENTERPOINT ENERGY RIGHTS-OF-WAY CONSTRUCT FLUSHING HYDRANTS OVER THE CENTERLINE OF PIPE. TURN BRANCH OF TEE POINTING UP AND PROVIDE 6" ELBOW AND ORIENT FLUSHING HYDRANT ASSEMBLY OVER THE CENTERLINE OF THE PROPOSED PIPE.
3. THE FLUSHING HYDRANT STEAMER NOZZLE SHALL FACE THE STREET UNLESS DIRECTED OTHERWISE BY ENGINEER.
4. PROVIDE RESTRAINED JOINTS FOR FLUSHING HYDRANT ASSEMBLY.
5. PAINT FLUSHING HYDRANT BLACK. INSTALL DISK ON PUMPER NOZZLE AND LABEL "NFBWA" FOR FLUSHING ONLY.
6. IF WATER TRANSMISSION LINE IS PVC OR D.I. PIPE MATERIAL, INSTALL A D.I. TEE. IF WATER TRANSMISSION LINE IS STEEL OR CONCRETE CYLINDER PIPE MATERIAL, INSTALL A MANUFACTURER'S FLANGED TEE AT THE SPRING LINE.

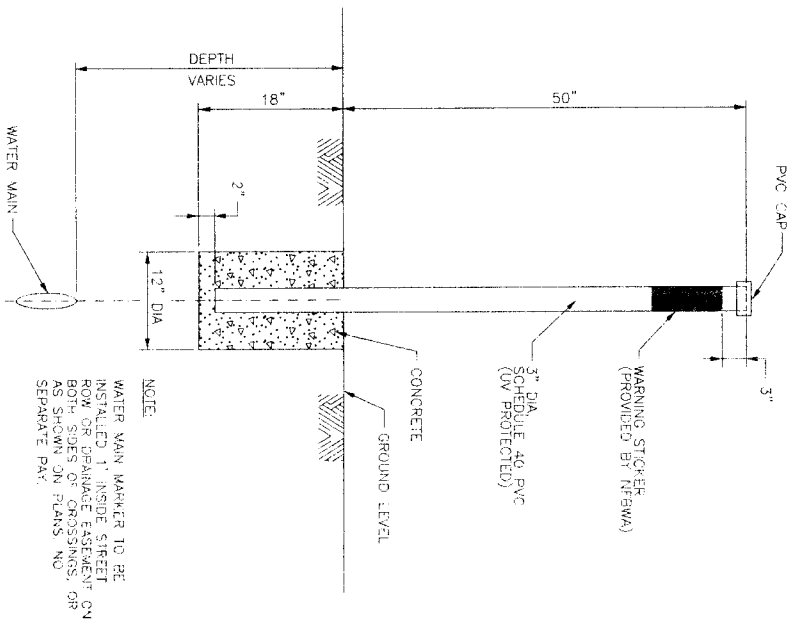
**1 STANDARD FLUSHING HYDRANT ASSEMBLY**  
 N.T.S.



**NOTES:**

1. P.V.C. PIPE MAY BE USED WITH PRESSURE RATING OF 250. OR 18.
2. FOR WATER LINE UNDER SAN. SEWER, BOTH PIPES MUST PASS PRESSURE AND LEAKAGE TEST DESCRIBED IN AWWA C500 FOR DURATION SPECIFIED BY ENGINEER (2 HR. MIN.)

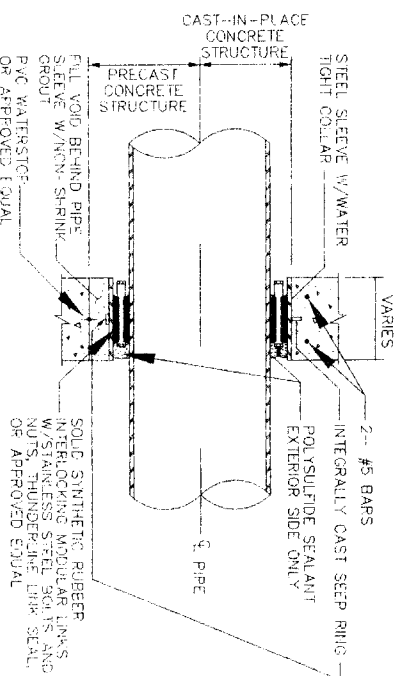
**2 PROPOSED WATERLINE CROSSING UNDER EXISTING SANITARY SEWER**  
 N.T.S.



**NOTES:**

1. ALL MATERIALS AND COATINGS TO BE IN ACCORDANCE WITH WATER MAIN STANDARD SPECIFICATIONS.
2. RESTRAIN EXISTING PIPING BEYOND OFFSET SECTION AS REQUIRED TO PREVENT MOVEMENT.

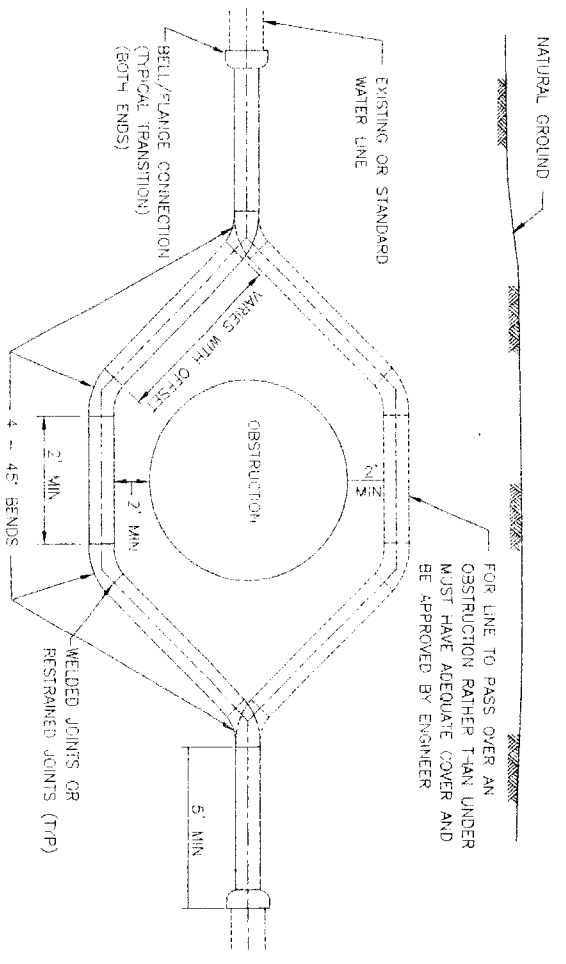
**3 TYPICAL PIPE OFFSET SECTION FOR WATER MAINS**  
 N.T.S.



**WALL PENETRATION NOTES:**

1. POLYURETHANE SEALANT EXTERIOR SIDE ONLY.
2. SOLID SYNTHETIC RUBBER INTERLOCKING MODULAR LINKS W/STAINLESS STEEL BOLTS AND NUTS, THUNDER-LINE LINK SEAL OR APPROVED EQUAL.
3. IF MANHOLE IS CAST IN PLACE CONSTRUCTION, PROVIDE DETAILS FOR WALL PENETRATION, INCLUDING EXTRA REINFORCING. DETAILS TO BE SEALED BY PROFESSIONAL ENGINEER LICENSED IN TEXAS.

**4 TYPICAL WALL PENETRATION DETAIL**  
 N.T.S.



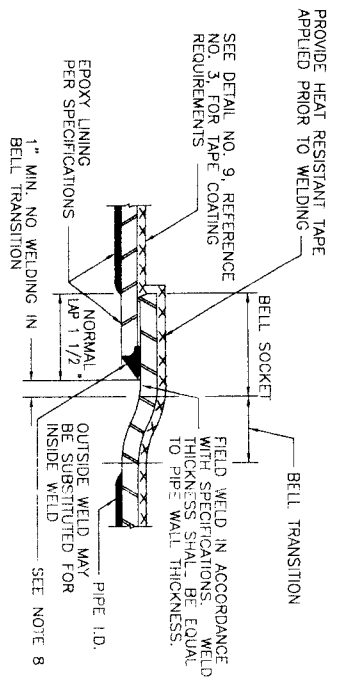
FOR LINE TO PASS OVER AN OBSTRUCTION RATHER THAN UNDER MUST HAVE ADEQUATE COVER AND BE APPROVED BY ENGINEER

DATE: AUGUST 31, 2010

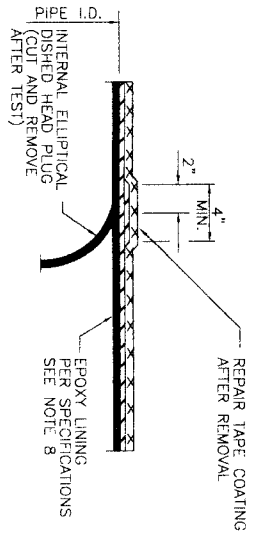
REF. NO. 02  
 SHEET NO. 84 OF 108  
 DRAWING SCALE N.T.S.  
 FOR CITY OF HOUSTON USE ONLY  
 47757

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 STANDARD WATER QUALITY  
 1-13-11  
 15.11

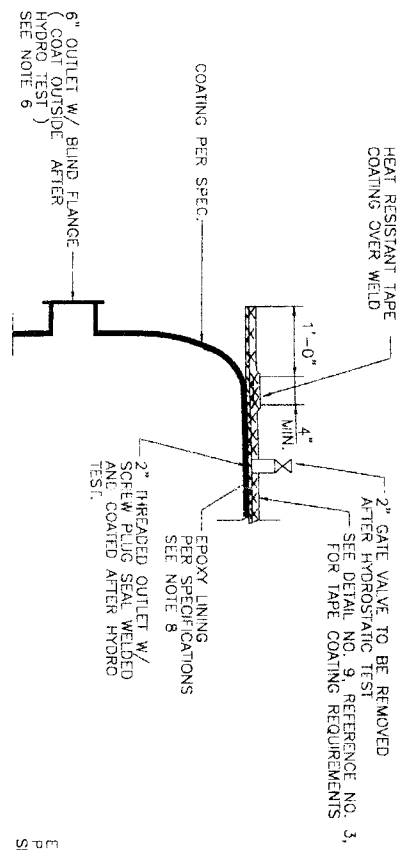
**BROWN & GAY ENGINEERS, INC.**  
 12077 Westmonte Suite 400  
 Houston, TX 77060  
 (713) 261-0800  
 www.browngay.com  
 Professional Engineer License No. 93706  
 State of Texas  
 NORTH PORT BEND  
 STANDARD WATER LINE DETAILS  
 NFBWA SEGMENT 4B



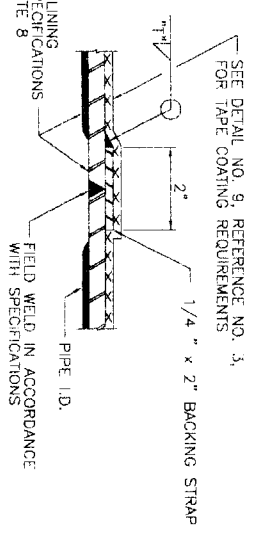
1 LAP-WELD FIELD JOINT - STEEL PIPE W/ EPOXY LINING  
 (FOR WATER LINES 36-INCH DIAMETER AND LARGER)



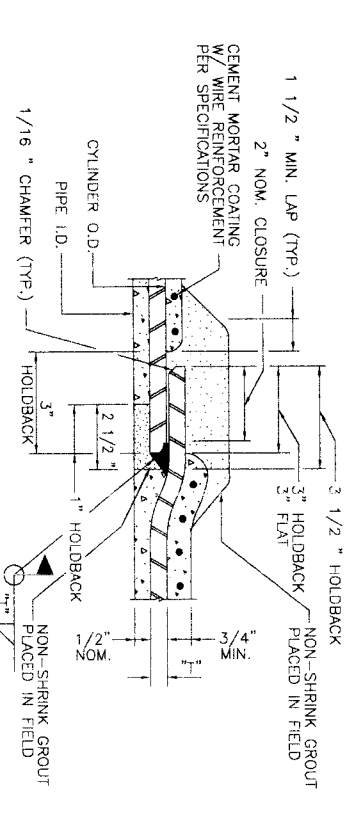
2 INTERNAL ELLIPTICAL DISHED HEAD PLUG REMOVAL  
 (FOR WATER LINES 36-INCH DIAMETER AND LARGER)



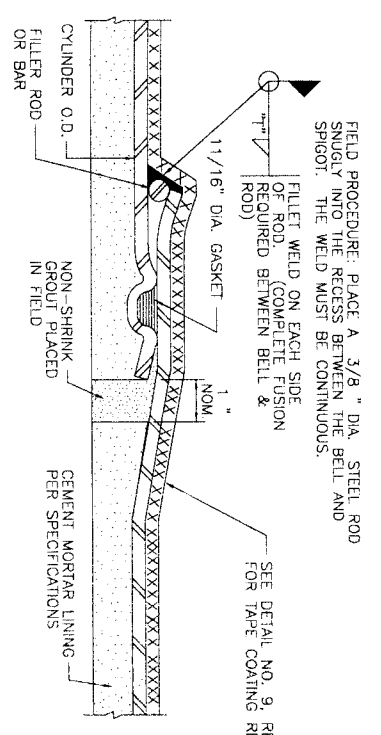
3 INTERNAL ELLIPTICAL DISHED HEAD PLUG  
 (SEE NOTE 7)



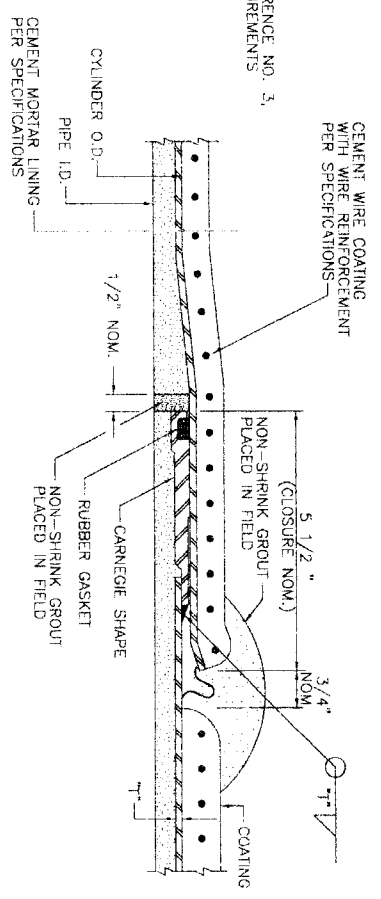
4 BUTT WELD FIELD JOINT - STEEL PIPE (TAPE COATED)  
 (FOR WATER LINES 36-INCH DIAMETER AND LARGER).



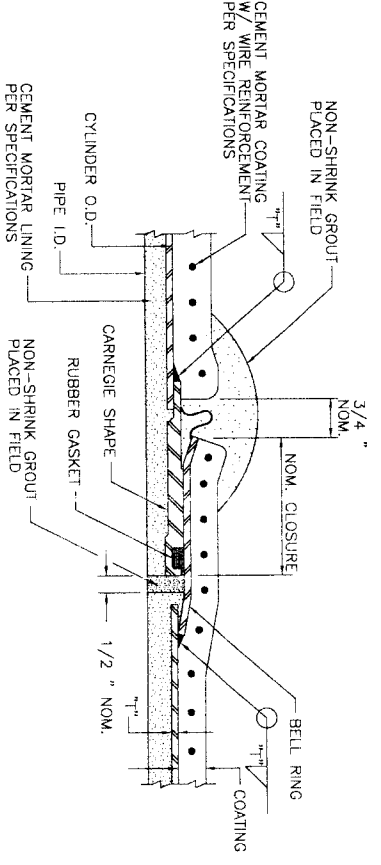
5 LAP-WELD FIELD JOINT - STEEL PIPE WITH CEMENT MORTAR COATING  
 (FOR WATER LINES 36-INCH DIAMETER AND LARGER)



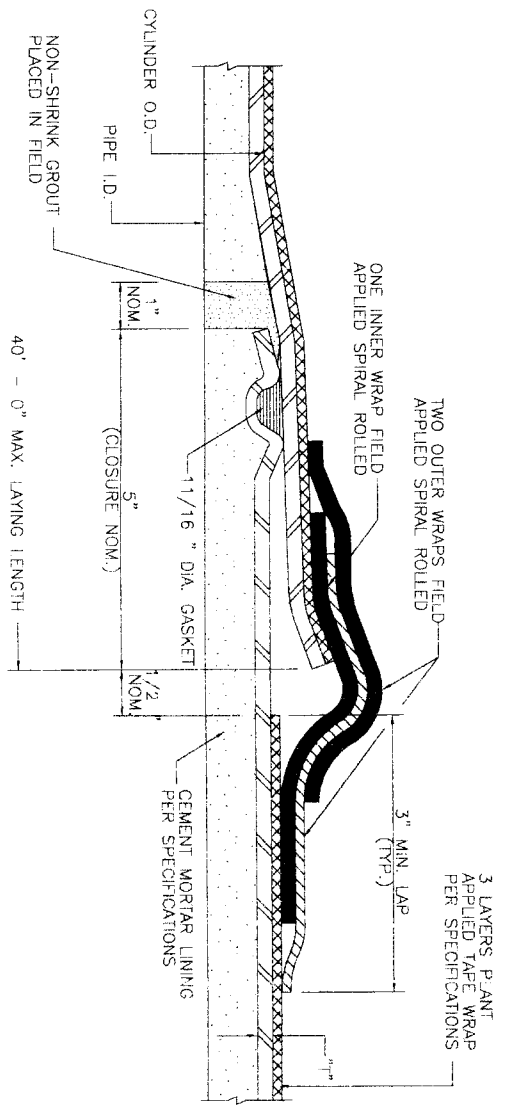
6 FIELD WELDED O-RING JOINT  
 (FOR ADJUSTMENTS ONLY AS APPROVED BY ENGINEER AND PIPE MANUFACTURER. SEE DETAIL NO. 9, REFERENCE NO. 3, FOR DIMENSIONS) REFER TO DETAIL 1 OR 5 FOR STANDARD WELDED JOINTS.  
 (FOR WATER LINES 36-INCH DIAMETER AND LARGER)



7 ROLLED JOINT STEEL PIPE  
 STEEL PIPE DETAILS



8 CARNEGIE JOINT - STEEL PIPE



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

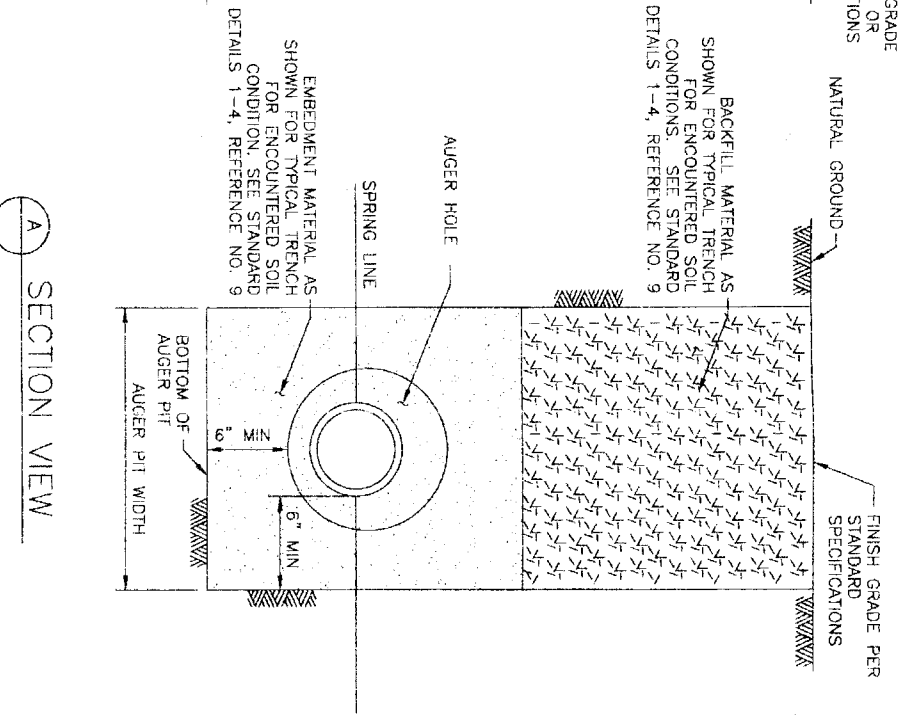
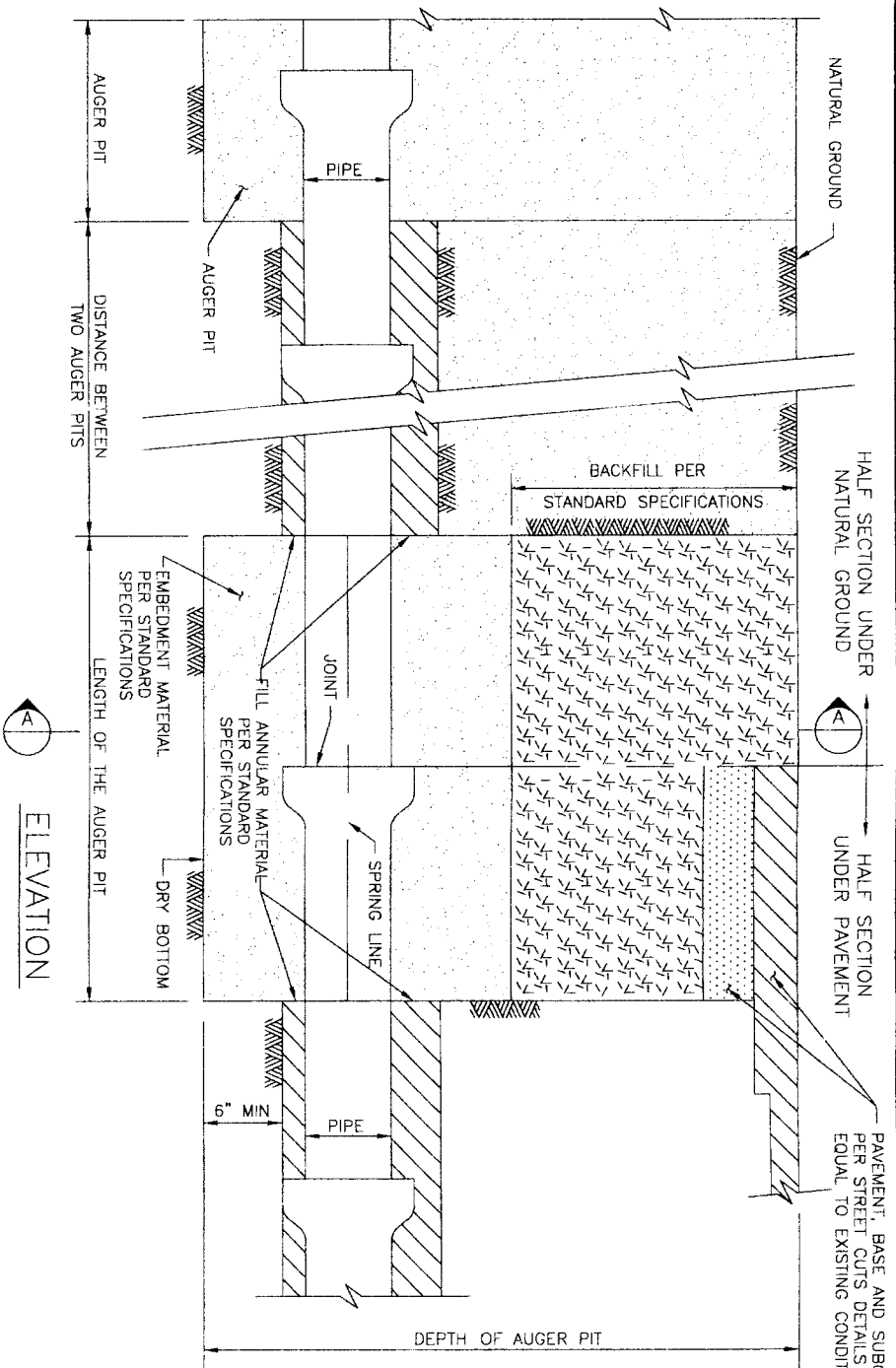
NOTES:

1. T = STEEL PIPE WALL THICKNESS AND SIZE OF FILLET ATTACHMENT WELD.
2. ALL REFERENCES TO PIPE DIAMETER FOR THIS PROJECT SHALL SIGNIFY SIZE MEASURED TO INSIDE DIAMETER OF THE LINED PIPE.
3. REFER TO SPECIFICATIONS FOR POLYURETHANE ALTERNATIVE TO TAPE OR CEMENT MORTAR COATING.
4. DETAILS 1, 2, 3 AND 4 SHOW EPOXY LINING. CEMENT MORTAR LINING TO BE SIMILAR TO DETAILS ON THIS SHEET SHOWING CEMENT MORTAR LINED PIPE, AS APPROVED BY ENGINEER.
5. DETAILS 5, 6, 7 AND 8 SHOW CEMENT MORTAR COATING. TAPE COATING TO BE SIMILAR TO DETAIL 6, REFERENCE NO. 3, AS APPROVED BY ENGINEER.
6. INSTALL 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, FLEXIBLE MASTIC SEALER SHALL BE APPLIED TO THE EXTERIOR OF THE JOINT PRIOR TO JOINT ENGAGEMENT WHEN PIPE IS INSTALLED IN A TUNNEL OR ENCASMENT PIPE.
10. SEE DETAIL NO. 7 REFERENCE NO. 4 FOR CLOSURE PIECE REQUIREMENTS.

DATE: AUGUST 31, 2010  
 REF. NO. 03  
 SHEET NO. 85 OF 108

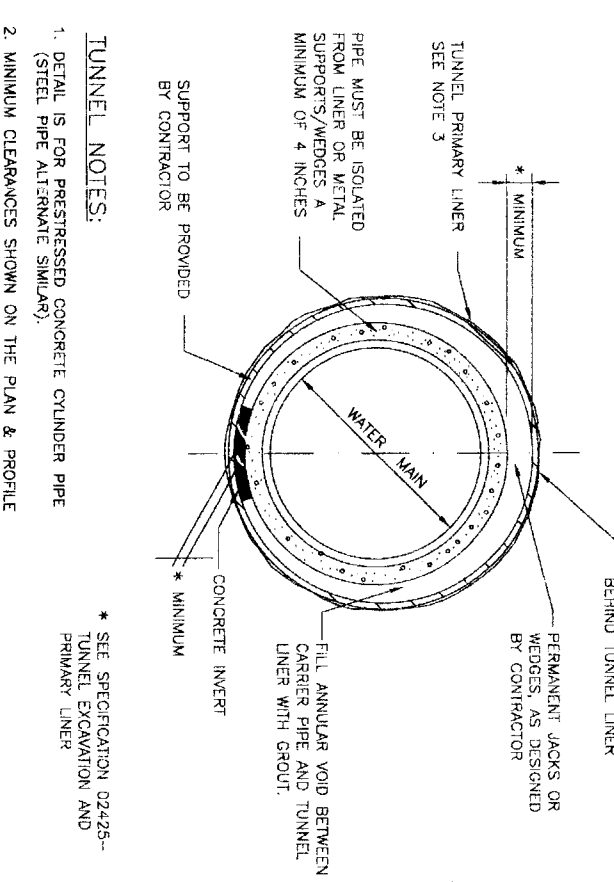
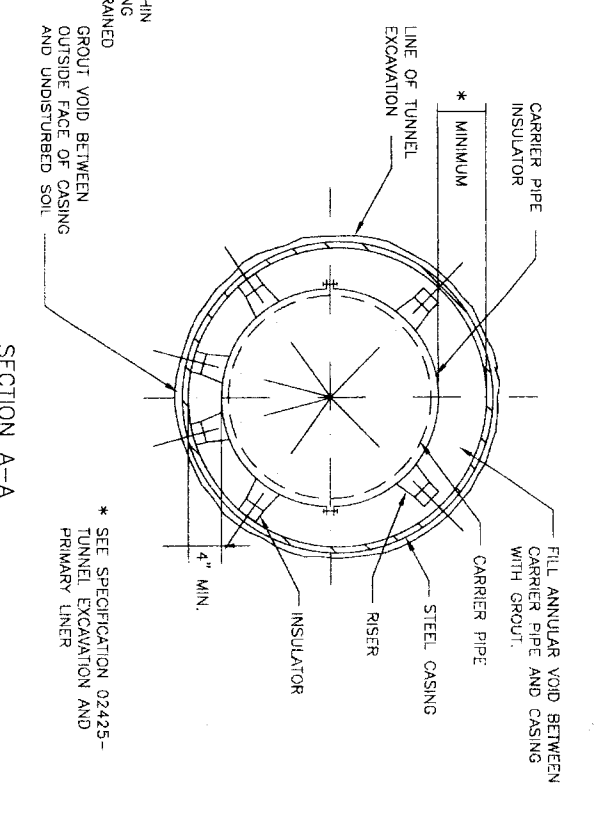
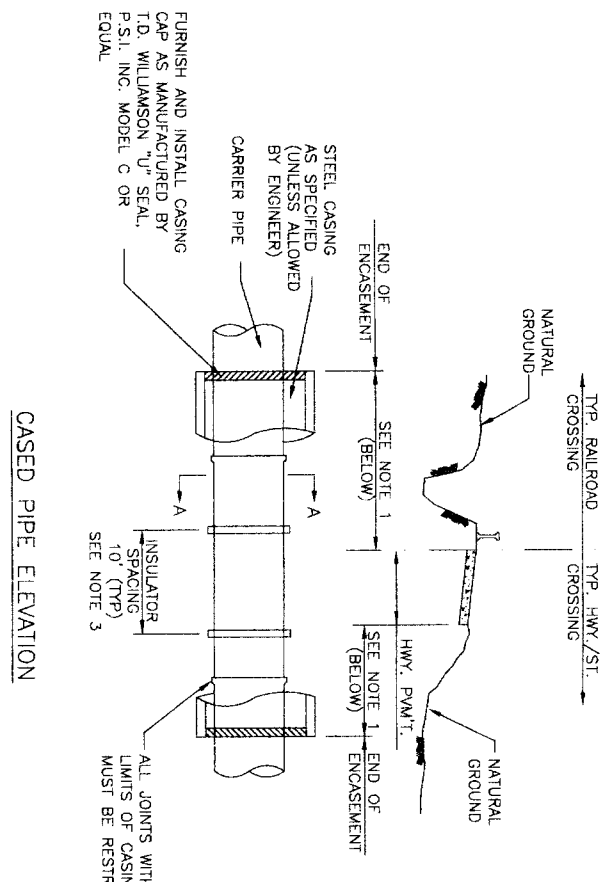
<p><b>BROWN &amp; GAY ENGINEERS, INC.</b>                  1101 Houston, TX 77042                  TEL: 281-568-8700                  FAX: 281-568-8707                  Civil Engineers and Surveyors</p>		<p><b>Brown &amp; Gay Engineers, Inc.</b>                  License No. 10444                  F-1044</p>	
<p><b>NTBW SEGMENT 4B</b></p>			
<p><b>STEEL PIPE DETAILS</b></p>			
<p><b>NORTH FORT BEND COUNTY</b>                  DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p>		<p>NOTE: CITY SQUARES VALID FOR ONE YEAR AFTER DATE OF SIGNATURE</p>	
<p>DATE: 8/31/10</p>		<p>FILE NO.:</p>	
<p>DRAWING SCALE: N.T.S.</p>		<p>FOR CITY OF HOUSTON USE ONLY</p>	
<p>47757</p>			





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

A SECTION VIEW



2 CASING DETAIL (FOR WATER MAINS LESS THAN 36-INCHES IN DIAMETER, UNLESS ALLOWED BY ENGINEER.)

3 TUNNEL DETAIL (FOR WATER MAINS 36-INCHES AND LARGER)

- CASING NOTES:**
1. LENGTH OF ENGAGEMENT SHALL BE AS SHOWN ON THE PLAN & PROFILE DRAWINGS.
  2. LAY CASING PIPE IN OPEN CUT, TUNNEL OR BORE, AS NOTED ON PLAN & PROFILE DRAWINGS.
  3. SEE SPECIFICATIONS FOR APPROPRIATE MODEL ACCORDING TO PIPE DIAMETER.

FURNISH AND INSTALL CASING CAP AS MANUFACTURED BY T.D. WILLIAMSON "U" SEAL, P.S.I. INC. MODEL C OR EQUAL

ALL JOINTS WITHIN LIMITS OF CASING MUST BE RESTRAINED

GROUT VOID BETWEEN OUTSIDE FACE OF CASING AND UNDISTURBED SOIL

\* SEE SPECIFICATION 02425-TUNNEL EXCAVATION AND PRIMARY LINER

**TUNNEL 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 SUBMITTAL OF THE TUNNEL LINER DESIGN SIGNED AND SEALED BY A PROFESSIONAL ENGINEER.
4. PROVIDE CATHODIC PROTECTION FOR LINER.
5. ALL JOINTS WITHIN LIMITS OF CASING MUST BE RESTRAINED.

\* SEE SPECIFICATION 02425-TUNNEL EXCAVATION AND PRIMARY LINER

DATE: AUGUST 31, 2010

REF. NO. 05

SHEET No. 87 OF 108

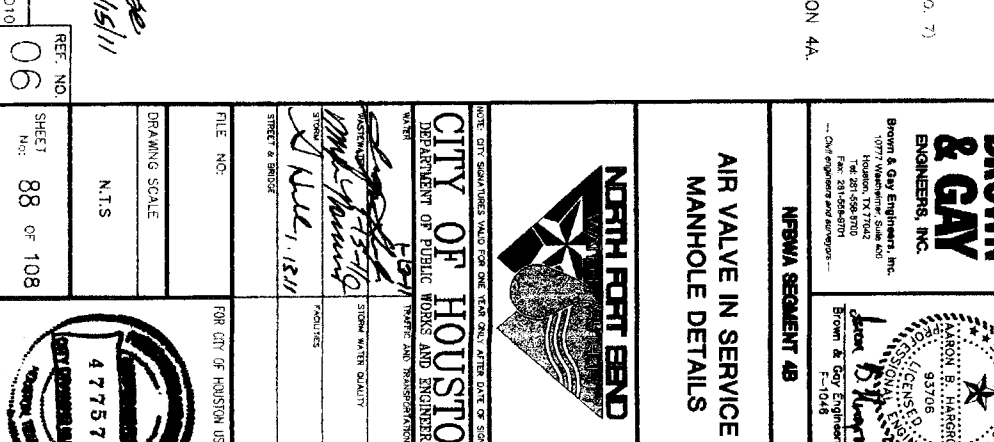
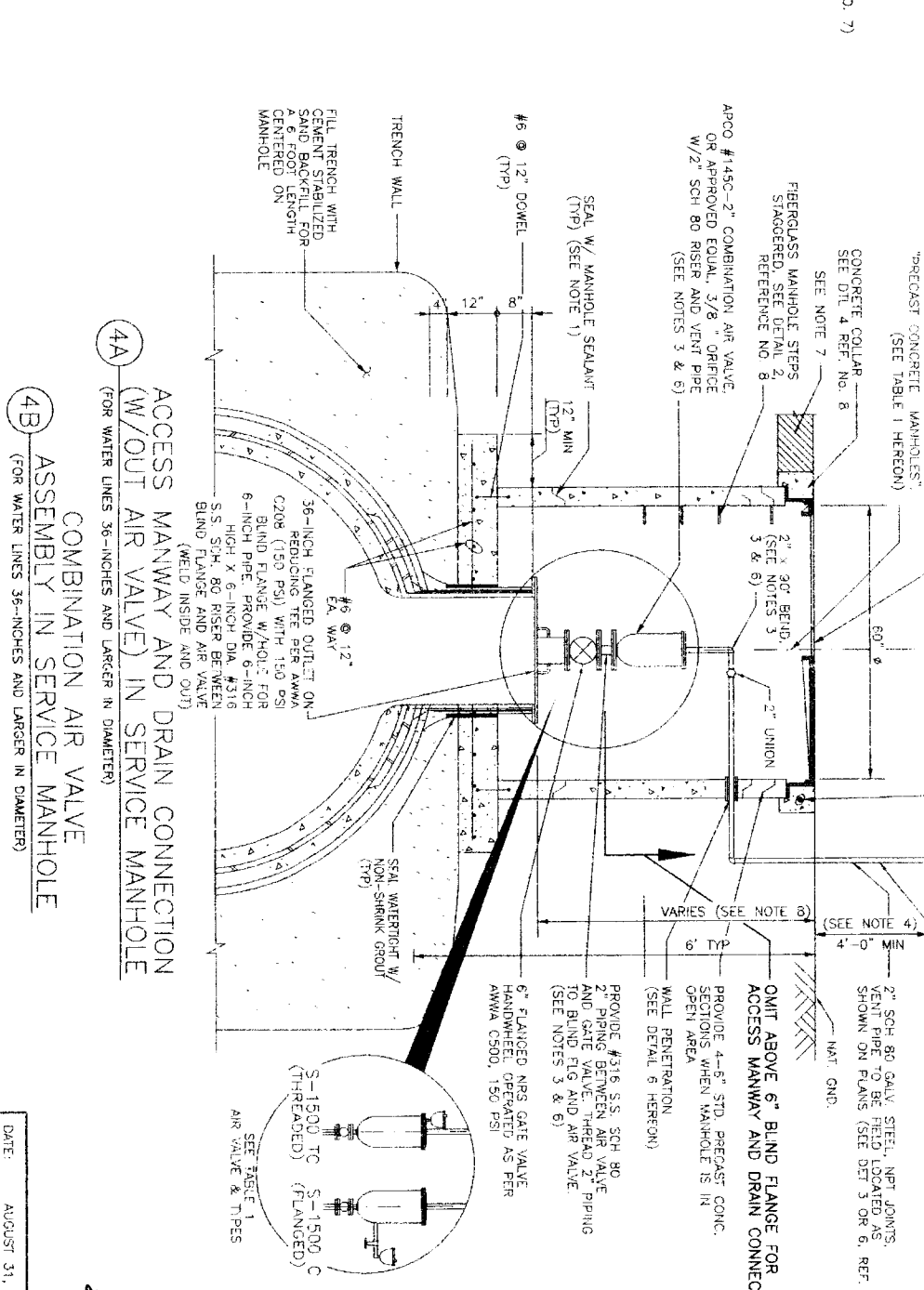
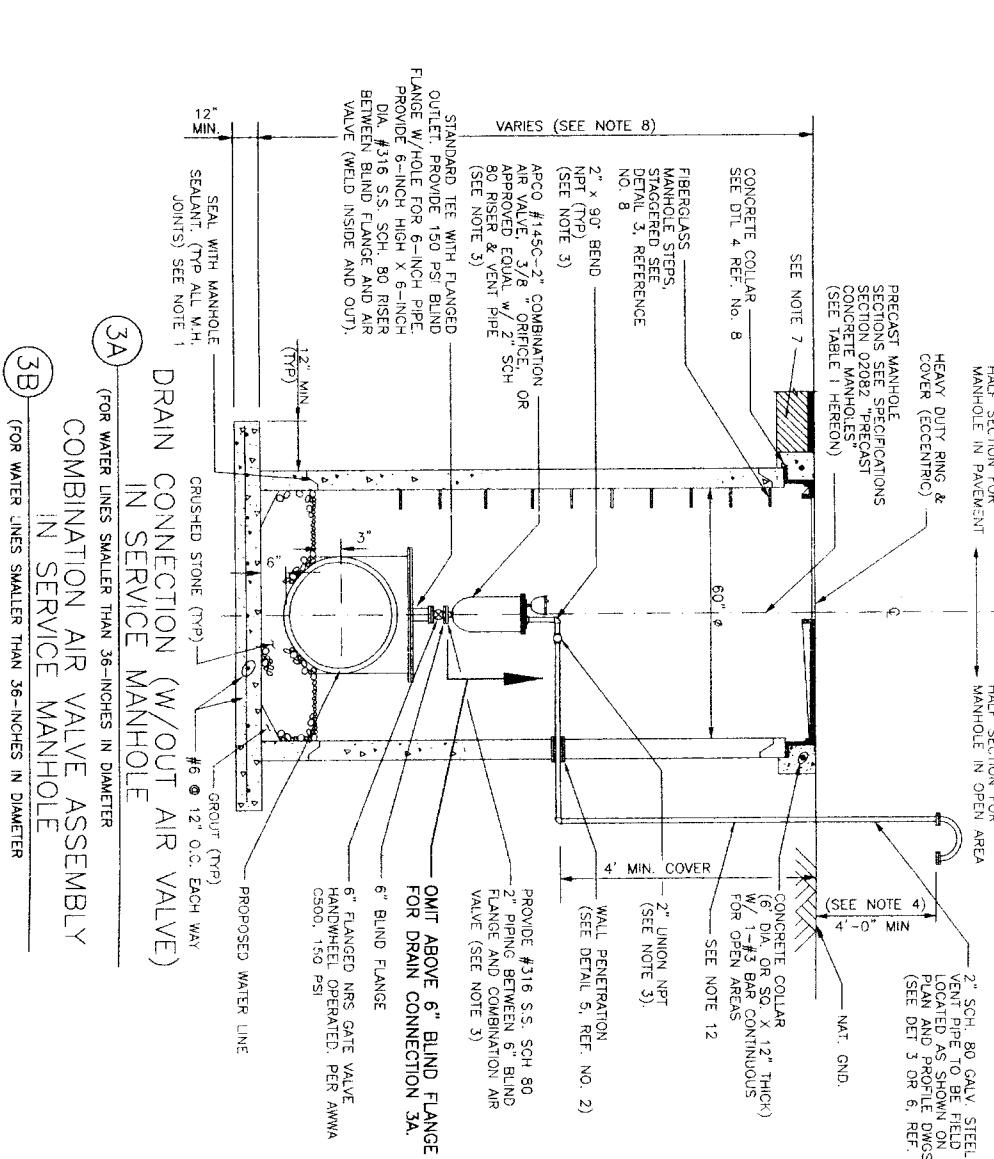
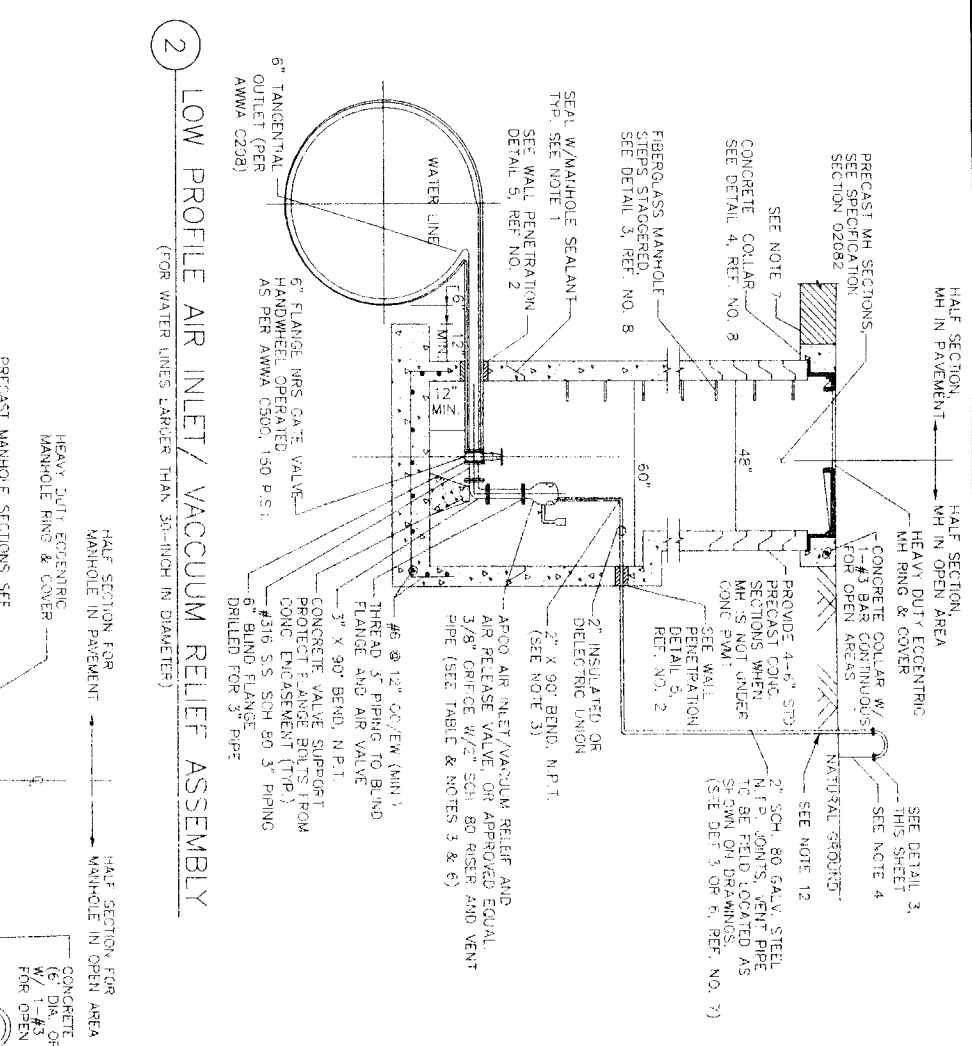
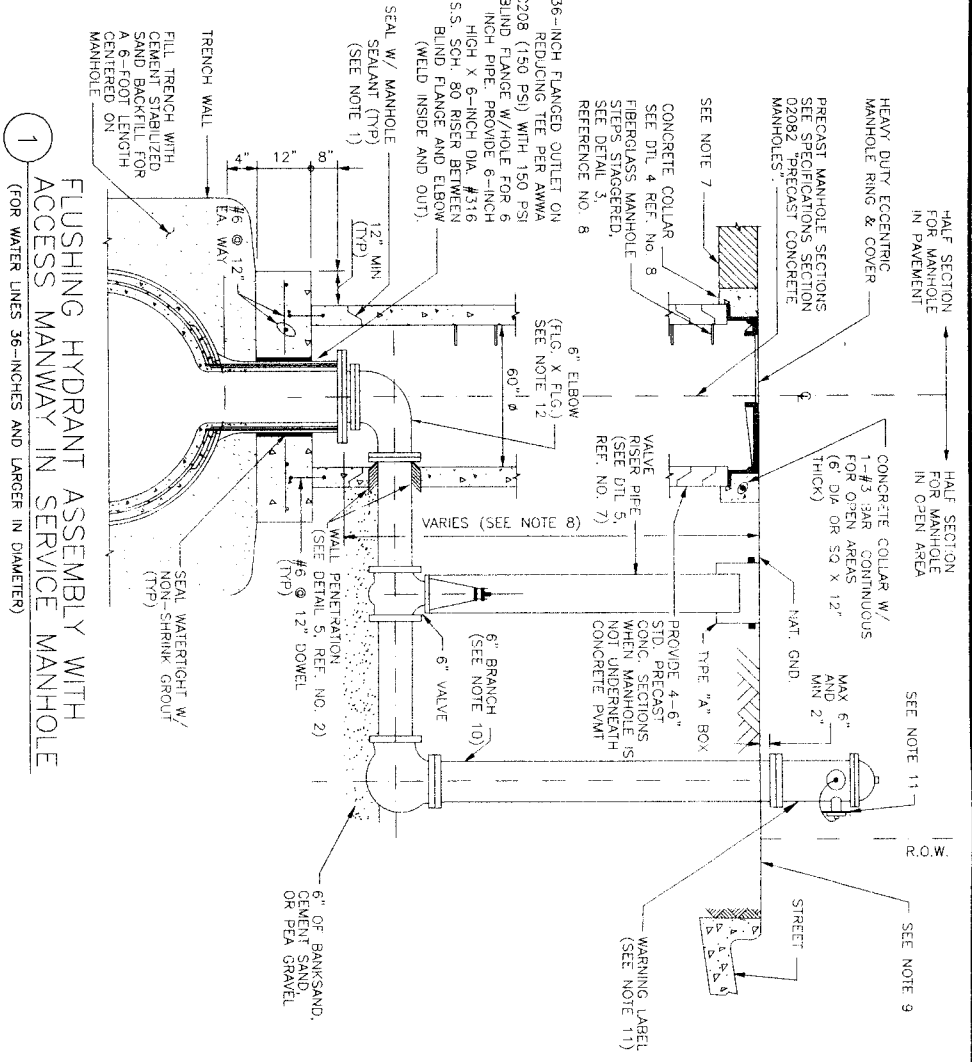
**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**BROWN & GAY ENGINEERS, INC.**  
 1077 Westmore Street  
 Houston, TX 77028  
 Tel: 281-584-7000  
 Fax: 281-584-7000  
 www.browngay.com

**NORTH FORT BEND TRENCHLESS CONSTRUCTION DETAILS**

FILE NO: \_\_\_\_\_  
 DRAWING SCALE: N.T.S.  
 SHEET No. 87 OF 108

FOR CITY OF HOUSTON USE ONLY  
 47757



**TABLE 1 - Air Valve & Types**

Water Main Diameter	Air Valve Size	APCO Model	MH SIZE
<30"	2"	145C	60"
<30"	3"	147C	60"
<30"	3"	1503C	60"
<30"	3"	1503C	60"
<30"	4"	1504C	60"

\*or approved equal

- GENERAL NOTES:**
- PROVIDE RAIN-NEK OR APPROVED EQUAL BETWEEN PRECAST SEGMENTS OF THE MANHOLE.
  - PROVIDE AN APPROVED PETROLEUM BASED TAPE ENCLOSURING ALL BOLTS IN MANHOLES & VALVES
  - IF 3" AIR VALVE IS CALLED FOR ON THE PLAN AND PROFILE SHEETS THEN PROVIDE APCO #1503C OR 1503C AIR VALVE OR APPROVED EQUAL. AIR VALVE OR APPROVED EQUAL SHALL BE 2" IN DIAMETER SHALL BE 3" IN DIAMETER AND SHALL BE CONSTRUCTED OF THE SAME MATERIAL AND CLASS.
  - VERIFY THAT LOCATION OF SCREEN IS 1 FOOT ABOVE 100-YEAR FLOOD PLAN ELEVATION OR 4 FEET ABOVE NATURAL GROUND WHICHEVER IS HIGHER.
  - REFER TO PLAN AND PROFILE SHEETS FOR THE LOCATIONS OF COMBINATION AIR VALVES.
  - IF 4" AIR VALVE IS CALLED FOR ON THE PLAN AND PROFILE SHEETS THEN PROVIDE APCO #1504C OR 1504C AIR VALVE OR APPROVED EQUAL. AIR VALVE OR APPROVED EQUAL SHALL BE 4" IN DIAMETER AND SHALL BE CONSTRUCTED OF THE SAME MATERIAL AND CLASS.
  - FOR PAVEMENT REPAIR SEE REF. NO. 9 EXCAVATION, BEDDING, BACKFILL AND PAVEMENT REPAIR DETAILS.
  - FOR MANHOLES DEEPER THAN 20 FEET, INCREASE SIZE OF ACCESS MANHOLES TO 72-INCH OR 84-INCH DIAMETER & PROVIDE SAFETY CLIMBING RAIL (SAF-T-CLIMB OR APPROVED EQUAL).
  - LOCATE FLUSHING HYDRANTS AS SHOWN ON PLANS. PROVIDE TEMPORARY MEANS TO DIFFUSE FLOW FROM HYDRANT AND PREVENT EROSION OF EXISTING GROUND DURING FLUSHING.
  - PROVIDE RESTRAINED JOINTS FOR FLUSHING HYDRANT ASSEMBLY.
  - PAINT FLUSHING HYDRANT BLACK. INSTALL DRINK WATER TAPPER NOZZLE AND LABEL "FBWA - FOR FLUSHING ONLY".
  - FLUSHING HYDRANT ASSEMBLY (DETAIL 1), OR VENT PIPING, BOLLARD (DETAILS 3 & 4) AND WALL PENETRATIONS SHALL BE ORIENTED ALONG CENTERLINE OF WATER LINE WHEN LOCATED INSIDE OF CENTERPOINT ENERGY RIGHTS-OF-WAY.

DATE: AUGUST 31, 2010

REF. NO. 06

SHEET 88 OF 108

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**BROWN & GAY ENGINEERS, INC.**  
 2815 WEST 28TH STREET  
 HOUSTON, TEXAS 77018  
 TEL: 281-468-8700  
 FAX: 281-468-8701

**NORTH FORT BAND**

**AIR VALVE IN SERVICE MANHOLE DETAILS**

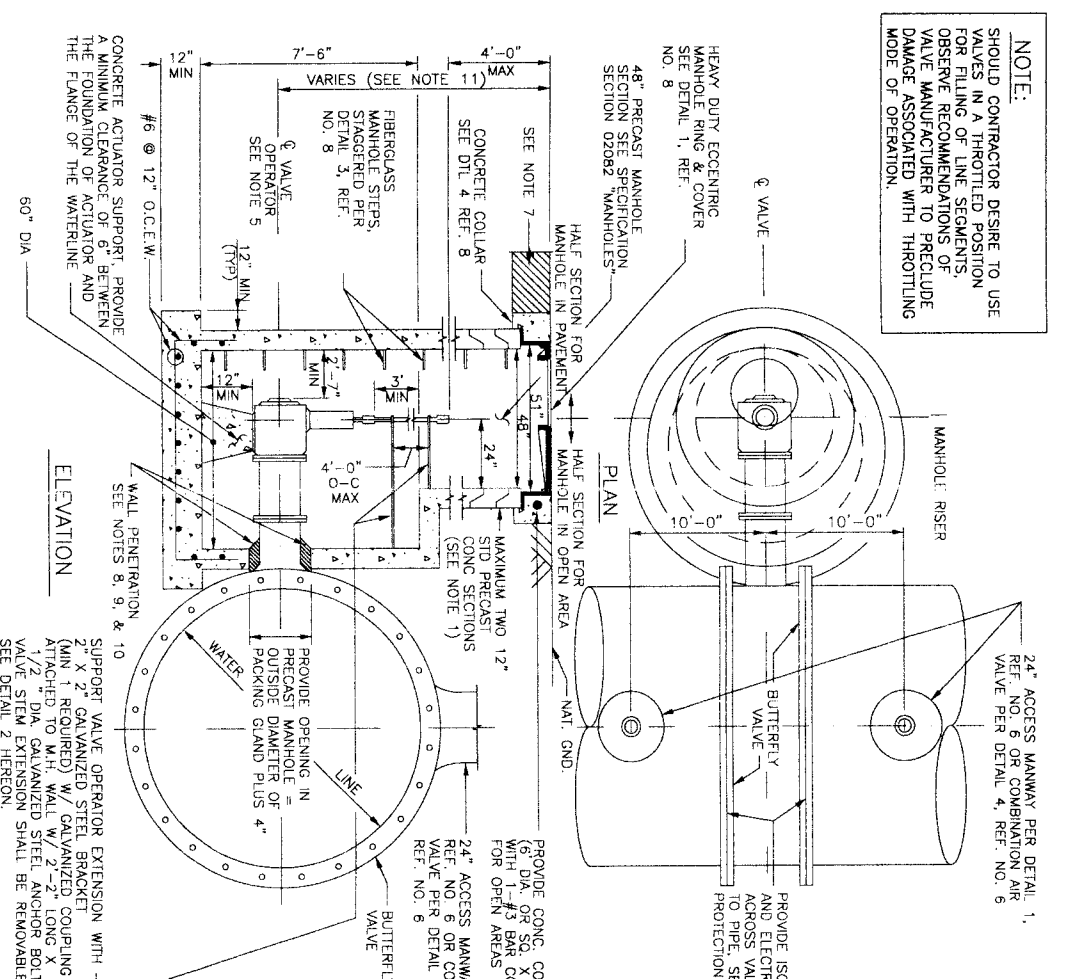
**SECTION 48**

DATE: AUGUST 31, 2010

REF. NO. 06

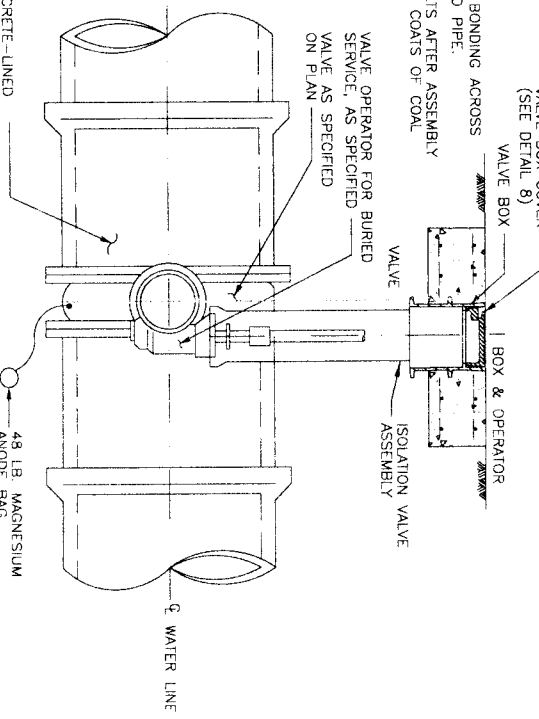
SHEET 88 OF 108

**NOTE:**  
 SHOULD CONTRACTOR DESIRE TO USE  
 VALVE IN A THROTTLED POSITION  
 FOR FILING OF LINE SEGMENTS,  
 OBSERVE RECOMMENDATIONS OF  
 VALVE MANUFACTURER TO PRECLUDE  
 DAMAGE ASSOCIATED WITH THROTTLED  
 MODE OF OPERATION.



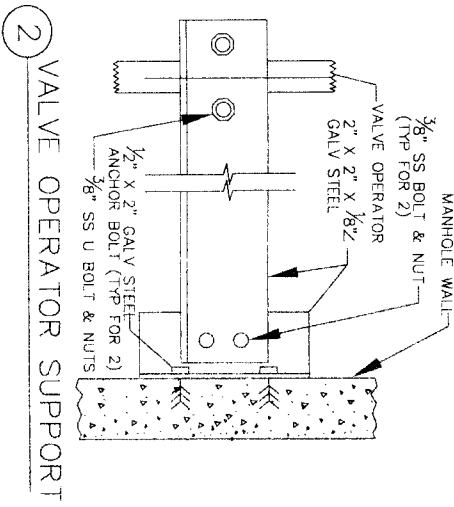
**1 BUTTERFLY VALVES WITH ACTUATOR MANHOLE**  
 (FOR WATER LINES 30-INCHES AND LARGER IN DIAMETER)

- NOTES:**
1. INSTALL ELECTRICAL BONDING ACROSS VALVE FROM PIPE TO PIPE.
  2. FIELD COAT ALL BOLTS AFTER ASSEMBLY TO .35 MDT WITH 2 COATS OF COAL TAR EPOXY.

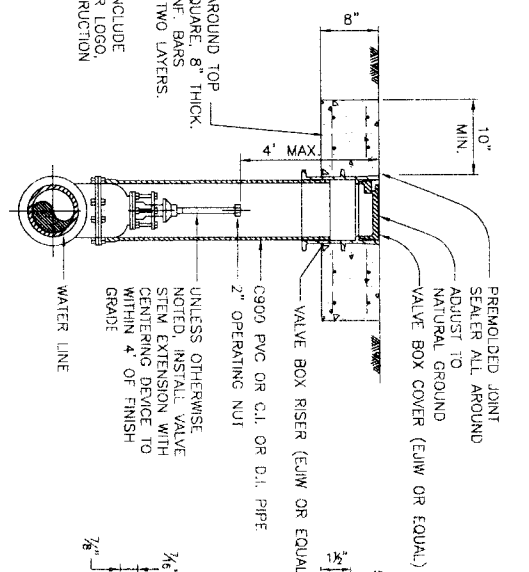


**4 ISOLATION VALVE ASSEMBLY**  
 (FOR WATER LINES 24-INCHES IN DIAMETER AND SMALLER)

24" ACCESS MANWAY PER DETAIL 1, REF. NO. 6 OR COMBINATION AIR VALVE PER DETAIL 4, REF. NO. 6

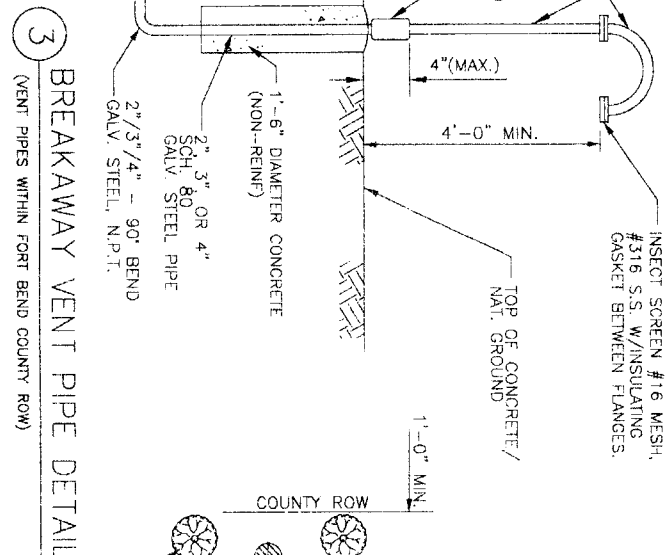


**2 VALVE OPERATOR SUPPORT**



**5 VALVE BOX DETAIL**

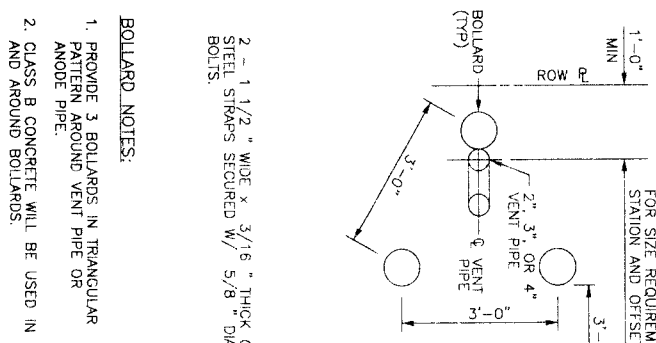
**8 VALVE BOX COVER DETAIL**  
 (EAST JORDAN IRON WORKS (EJWV) OR EQUAL)



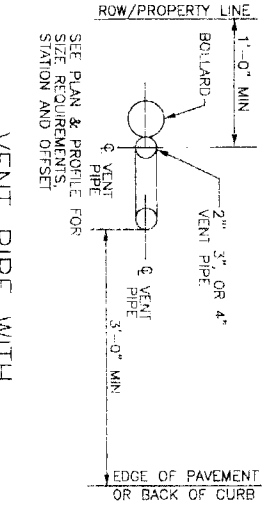
**3 BREAKAWAY VENT PIPE DETAIL**  
 (VENT PIPES WITHIN FORT BEND COUNTY ROW)

**GENERAL NOTES:**

1. PROVIDE RAANKK OR APPROVED EQUAL BETWEEN PRECAST SEGMENTS OF THE MANHOLE.
2. PROVIDE AN APPROVED RETROEUM BASED TAPE ENCAPSULATING ALL BOLTS IN MANHOLES & VAULTS.
3. ALL JOINTS SHALL BE BONDED. SEE THE CATHODIC PROTECTION DETAILS.
4. FIELD COAT ALL FLANGE BOLTS, FLANGE COUPLING, FLANGE ADAPTER AND THROUGH THE ASSEMBLY AFTER ASSEMBLY TO .35 MDT W/ 2 COATS OF COAL TAR EPOXY.
5. 2" OPERATING NUT ON LARGE DIAMETER BUTTERFLY VALVES SHALL TURN COUNTER CLOCKWISE TO OPEN VALVE.
6. PLACE MANHOLE ON COMPACTED (95% SP) BOTTOM.
7. FOR PAVEMENT REPAIR, SEE REF. NO. 9 "EXCAVATION, BEDDING, BACKFILL AND PAVEMENT REPAIR DETAILS".
8. POLYURETHANE SEALANT EXTERIOR SIDE OF WALL PENETRATION ONLY.
9. SOLID SYNTHETIC RUBBER INTERLOCKING MODULAR LINKS W/ STAINLESS STEEL BOLTS AND NUTS, THUNDERLINE LINK SEAL, OR APPROVED EQUAL.
10. IF MANHOLE IS CAST IN PLACE CONSTRUCTION, PROVIDE FOR WALL PENETRATION DETAILS TO BE SEALED BY PROFESSIONAL ENGINEER LICENSED IN TEXAS.
11. FOR MANHOLES DEEPER THAN 20 FEET, INCREASE SIZE OF ACCESS MANHOLES TO 72-INCH OR 84-INCH DIAMETER & PROVIDE SAFETY CLIMBING RAIL (SAF-1-CLMB) OR APPROVED EQUAL.



**6 VENT PIPE WITH 3 BOLLARDS DETAIL**



**7 VENT PIPE WITH 1 BOLLARD DETAIL**

**BROWN & GAY ENGINEERS, INC.**  
 17777 Highway 17, TX 77460  
 Houston, TX 77058  
 Tel: 281-558-8900  
 Fax: 281-558-9170  
 - Civil Engineer and Surveyor -

**NFBWA SEGMENT 4B**

**VALVE AND VENT PIPING AND SERVICE MANHOLE DETAILS**

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**North Fort Bend**

DATE: AUGUST 31, 2010

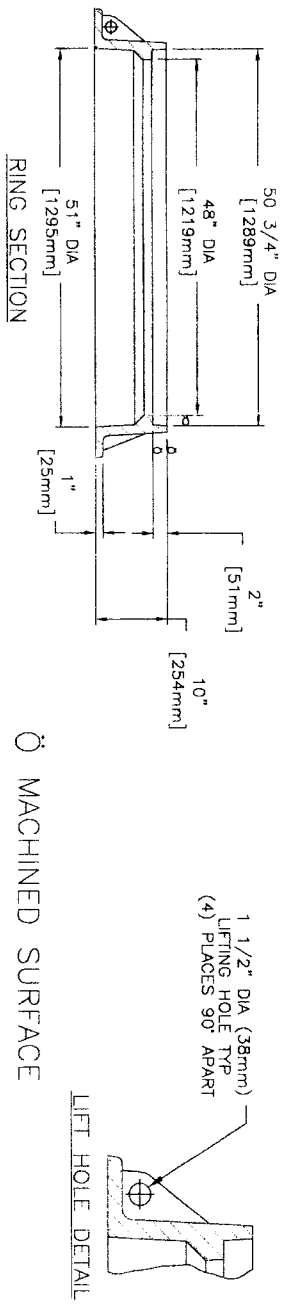
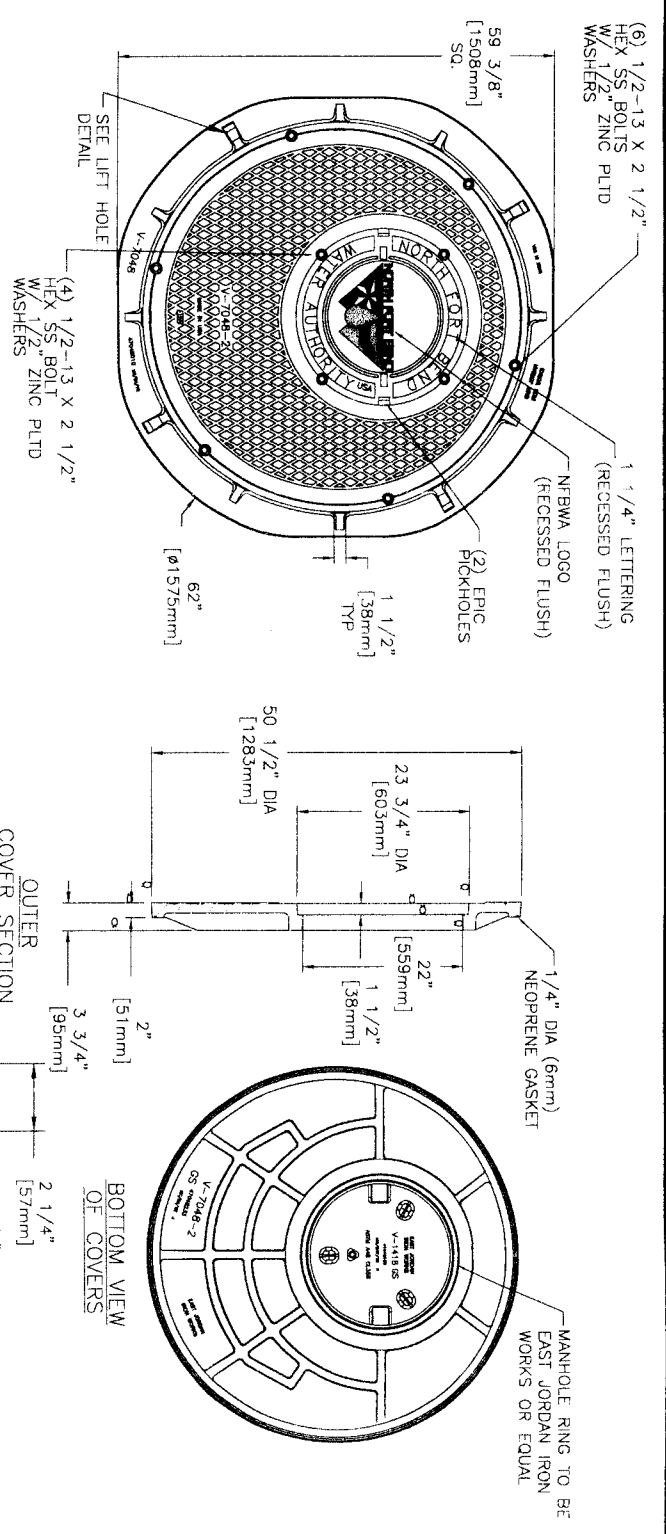
REF. NO. 07

SHEET NO. 89 OF 108

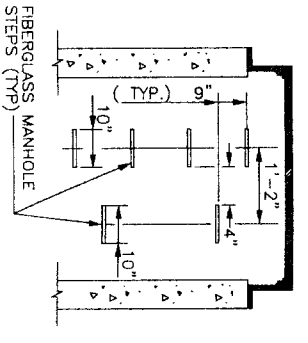
DRAWING SCALE: N.T.S.

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47757

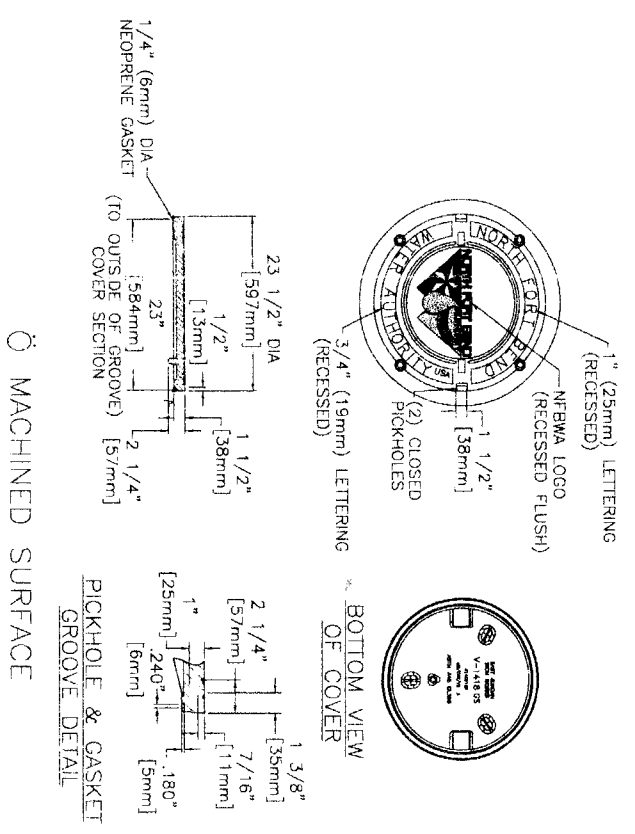


1 HEAVY DUTY MANHOLE RING AND COVER  
 (MANHOLE RING AND COVER TO BE EAST JORDAN IRON WORKS OR EQUAL)

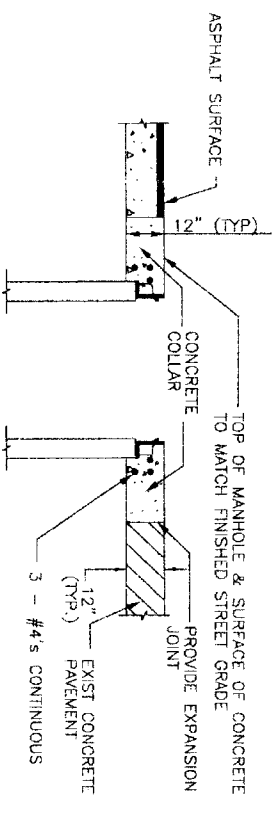
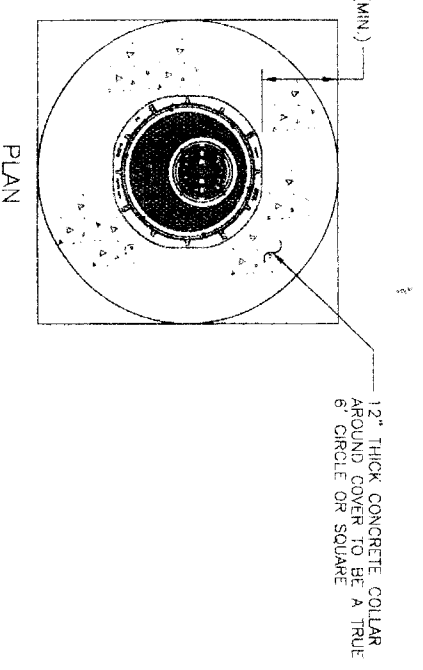


- NOTES - MANHOLE STEPS:
1. PROVIDE MODEL PSI-PP STEPS AS MANUFACTURED BY M.A. INDUSTRIES INC. OR APPROVED EQUAL.
  2. BOTTOM MANHOLE STEP SHALL BE NO HIGHER THAN 12" ABOVE MANHOLE INVERT.
  3. STEPS PLACED BY PRECASTER. FIELD PLACEMENT NOT ALLOWED.

3 MANHOLE STEP DETAIL



2 HEAVY DUTY MANHOLE COVER  
 (MANHOLE RING AND COVER TO BE EAST JORDAN IRON WORKS OR EQUAL)



- NOTE - MANHOLE IN PAVEMENT
1. CONSTRUCT THE FINAL TWO FEET OF THE MANHOLE AND PLACE CONCRETE WITHIN BLOCKOUT AFTER THE STREET PAVEMENT HAS BEEN INSTALLED.

4 MANHOLE IN PAVEMENT

DATE: AUGUST 31, 2010

REF. NO. 08

SHEET 90 OF 108



**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**BROWN & GAY ENGINEERS, INC.**  
 10777 Westheimer, Suite 400  
 Houston, TX 77042  
 Tel: 281.566.4711  
 Fax: 281.566.4711

**NORTH PORT BEND**  
 HEAVY DUTY MANHOLE DETAILS

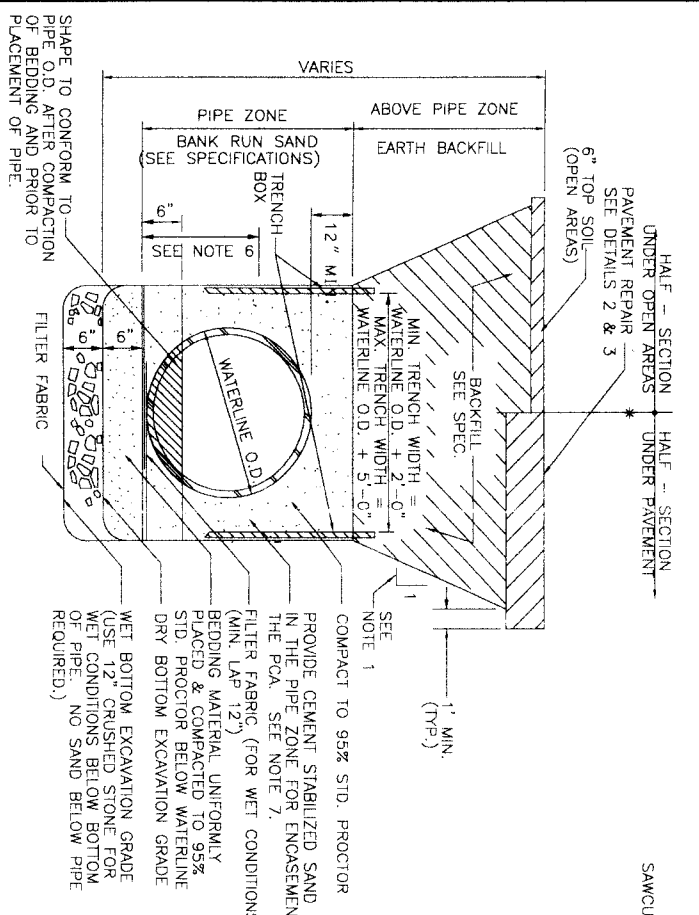
DATE: 8/31/10

FILE NO: N.T.S.

DRAWING SCALE: FOR CITY OF HOUSTON USE ONLY

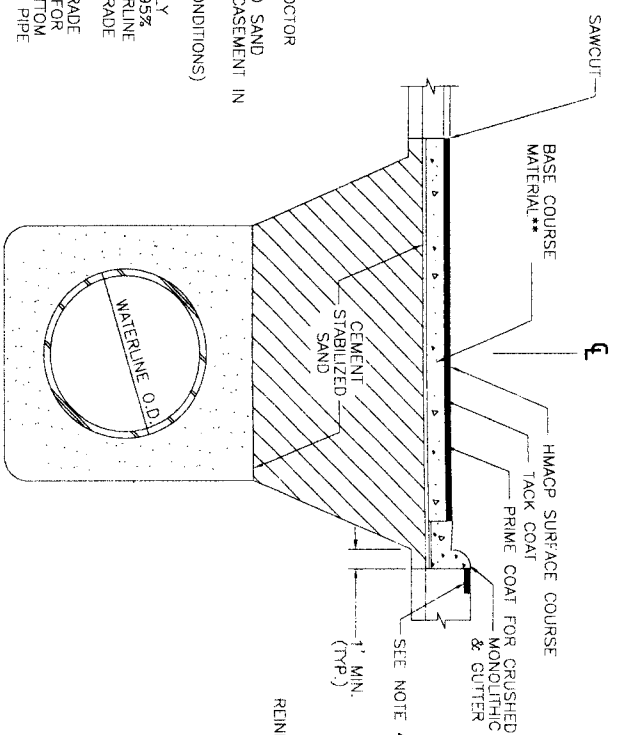
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NO.	DATE	REVISION	APPROVED
1			
2			
3			
4			



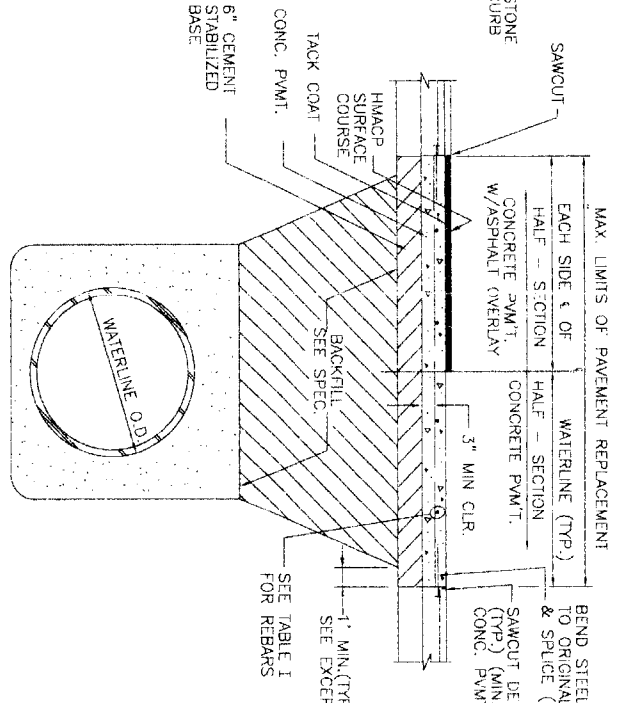
1 EXCAVATION & BACKFILL DETAIL (FOR LARGE DIAMETER WATER LINE)

- NOTES:
- SEE TRENCH SAFETY SYSTEM SPECIFICATIONS FOR MAXIMUM ALLOWABLE SLOPES.
  - FOR WET BOTTOM EXCAVATION LIMITS OF CRUSHED STONE, EXTEND AS SHOWN.
  - KEY CONCRETE TRENCH DAM MINIMUM OF 6 INCHES INTO TRENCH BOTTOM AND WALLS.
  - TRENCH DAM MAY BE FORMED OR UNFORMED. ACTUAL SHAPE OF CONCRETE TRENCH DAM CROSS SECTION MAY BE DETERMINED BY CONTRACTOR IN FIELD, MEETING 6-INCH MINIMUM THICKNESS AND 6-INCH KEY DEPTH REQUIREMENTS.
  - TRENCH DAM SHALL BE PLACED AT LEAST 5 FT. AWAY FROM ANY PIPELINE STRUCTURE (EACH SIDE). SEE SECTION 02317 FOR OTHER REQUIREMENTS.
  - THIS PORTION OF PIPE EMBEDMENT ZONE MUST BE RECOMPACTED TO PROPER DENSITIES AFTER MOVING SUPPORT SYSTEM FORWARD.
  - USE FILTER FABRIC AS A BOND BREAKER BETWEEN CEMENT STABILIZED SAND AND PIPE.



2 TYPICAL REPAIR OF FLEXIBLE BASE PAVEMENT

- NOTES:
- \* OMIT CURB WHEN EXISTING ROADWAY DOES NOT HAVE ONE.
  - \*\* BASE COURSE MATERIAL SHALL CONSIST OF THE FOLLOWING OPTIONS:
    1. HOT MIX ASPHALTIC BASE COURSE (BLACK BASE)
    2. RECYCLED CRUSHED CONCRETE BASE COURSE
    3. FOR ENTIRE ROADWAY REPLACEMENT.
    4. INSTALL 1 FOOT STRIP OF SOD GRASS TO PREVENT EROSION UNTIL GRASS IS ESTABLISHED.



3 TYPICAL REPAIR OF CONCRETE PAVEMENT OR CONCRETE PAVEMENT W/ ASPHALT OVERLAY

- NOTES:
- MIN. THICKNESS 6" FOR ROADWAY WITH LESS THAN OR EQUAL TO 27' F/F OF CURB.
  - MIN. THICKNESS 7" FOR ROADWAY WITH GREATER THAN 27' F/F OF CURB.
  - MIN. THICKNESS 8" FOR MAJOR THOROUGHFARES.
  - REINFORCING STEEL ARE SHOWN ON TABLE I & II.
  - SEAL CONCRETE JOINTS BEFORE APPLYING ASPHALT OVERLAY.

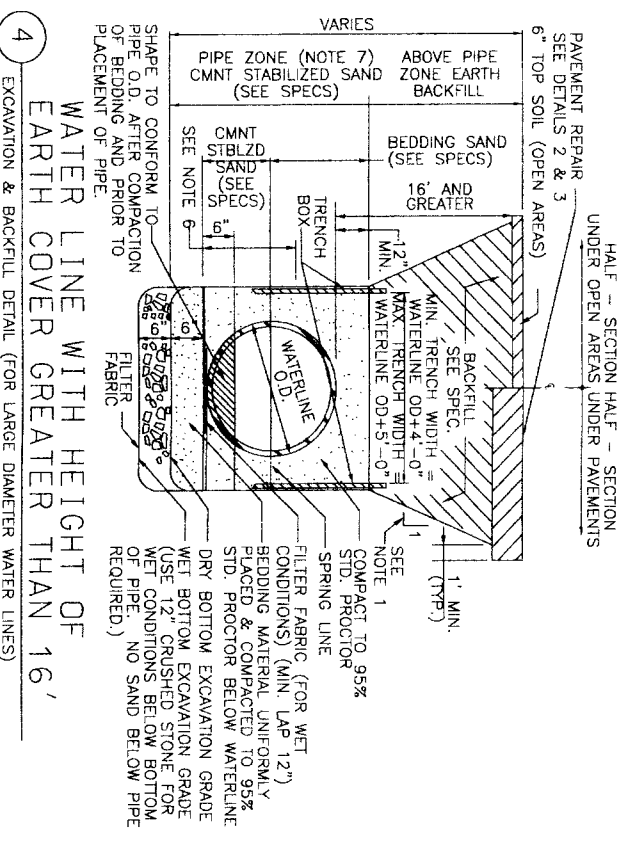
TABLE II: DOWEL SIZES & SPACINGS AT EXPANSION JOINTS FOR VARIOUS PAVEMENT THICKNESS.

PAVEMENT THICKNESS (IN.)	DOWEL SIZE (IN.)	LENGTH (IN.)	SPACING (IN.)
5	3/4"	18	12
7	7/8"	18	12
8	1"	18	12
9	1 - 1/8"	20	12
10	1 - 1/4"	20	12
11	1 - 1/2"	20	12
12	1 - 3/4"	20	12

TABLE I: REINFORCING STEEL INFORMATION FOR VARIOUS PAVEMENT THICKNESS (F) WITH L = EXPANSION JOINT SPACING = 80 FT. Fc = 3000 PSI AND Ft = 60,000 PSI.

F (IN.)	REBAR SIZE & SPACING	MIN LENGTH OF LAP (IN.)
6	A) #3 AT 11 IN., B) #4 AT 20 IN.	16 & 22
7	A) #4 AT 17 IN.	22
8	A) #5 AT 23 IN., B) #4 AT 15 IN.	22
9	A) #5 AT 20 IN., B) #4 AT 13 IN.	22
10	A) #4 AT 12 IN., B) #5 AT 18 IN.	22 & 27
11	A) #4 AT 10 IN., B) #5 AT 16 IN.	22 & 27
12	A) #4 AT 10 IN., B) #5 AT 15 IN.	22 & 27

DOWELS AT EXPANSION JOINTS FOR REINFORCED PAVEMENT: CHANGE THE DOWELS SIZES & SPACING AT EXPANSION JOINTS FOR REINFORCED PAVEMENTS FROM 3/4 IN. DIAMETER, 10 IN. LONG & SPACED AT 22 IN. ON CENTERS TO THE FOLLOWING: (SEE TABLE II. BELOW)



4 WATER LINE WITH HEIGHT OF EARTH COVER GREATER THAN 16' EXCAVATION & BACKFILL DETAIL (FOR LARGE DIAMETER WATER LINES)

- NOTES:
- SEE TRENCH SAFETY SYSTEM SPECIFICATIONS FOR MAXIMUM ALLOWABLE SLOPES.
  - FOR WET BOTTOM EXCAVATION LIMITS OF CRUSHED STONE, EXTEND AS SHOWN.
  - KEY CONCRETE TRENCH DAM MINIMUM OF 6 INCHES INTO TRENCH BOTTOM AND WALLS.
  - TRENCH DAM MAY BE FORMED OR UNFORMED. ACTUAL SHAPE OF CONCRETE TRENCH DAM CROSS SECTION MAY BE DETERMINED BY CONTRACTOR IN FIELD, MEETING 6-INCH MINIMUM THICKNESS AND 6-INCH KEY DEPTH REQUIREMENTS.
  - TRENCH DAM SHALL BE PLACED AT LEAST 5 FT. AWAY FROM ANY PIPELINE STRUCTURE (EACH SIDE). SEE SECTION 02317 FOR OTHER REQUIREMENTS.
  - THIS PORTION OF PIPE EMBEDMENT ZONE MUST BE RECOMPACTED TO PROPER DENSITIES AFTER MOVING SUPPORT SYSTEM FORWARD.
  - USE POLYETHYLENE WRAP AS A BOND BREAKER BETWEEN CEMENT STABILIZED SAND AND PIPE.

- GENERAL NOTES:
- ROADWAY EXCAVATION, SITE GRADING, AND HYDROLOGIC SEEDING OR SODDING WITHIN R.O.W. AND/OR LIMITS OF CONSTRUCTION IN ACCORDANCE WITH CONSTRUCTION SPECIFICATIONS.
  - MEASUREMENT AND PAYMENT (INCLUDING DRIVEWAYS) SHALL BE AS PER SPECIFICATION SECTIONS UNLESS OTHERWISE SHOWN ON BID FORM.
  - NEW ASPHALTIC PAVEMENTS SHALL BE MIN. 2" HMACP TOP W/BASE AND SUBGRADE PER DETAILS AND SPECIFICATIONS, UNLESS STATED ON DRAWINGS.
  - NEW CONCRETE PAVEMENTS TO BE SAME THICKNESS AS EXISTING, UNLESS OTHERWISE DIRECTED BY THE NFBMA.
  - STREETS OR DRIVEWAYS SHALL BE REPAIRED OR REPLACED USING HIGH EARLY STRENGTH CONCRETE AS INDICATED ON DRAWINGS, ACCORDING TO PAVEMENT REPLACEMENT SCHEDULE WHERE PROVIDED, OR AS DIRECTED BY NFBMA.
  - APPLICABLE TO EXISTING CONCRETE AREAS THAT REQUIRE REMOVAL AND REPLACEMENT CONCRETE DUE TO OPEN TRENCH (EXCLUDE THE MEDIAN ISLAND).
  - ANY REMOVAL AND REPLACEMENT OF PAVEMENT NOT IDENTIFIED ON THE DRAWINGS SHALL BE COORDINATED WITH THE PROJECT MANAGER AND THE NFBMA.
  - ALL PAVEMENT REPLACEMENT SHALL BE CONDUCTED IN ACCORDANCE WITH APPLICABLE COUNTY CONSTRUCTION SPECIFICATIONS.

DATE: AUGUST 31, 2010

REF. NO. 09  
 SHEET No. 91 OF 108

**BROWN & GAY ENGINEERS, INC.**  
 18777 FM 1960, SUITE 200, HOUSTON, TX 77062  
 TEL: 281-558-8700 FAX: 281-558-9700  
 www.browngay.com

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 STAFF AND TRANSPORTATION

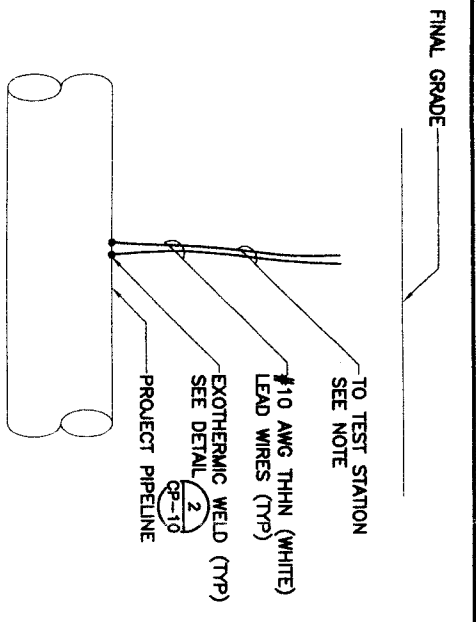
**NORTH PORT BAND**

**EXCAVATION, BEDDING, BACKFILL AND PAVEMENT REPAIR DETAILS**

**NFBMA REQUIREMENT 4B**

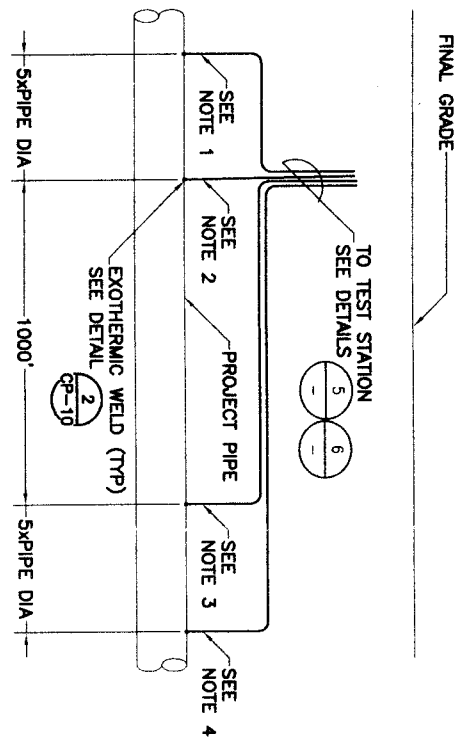
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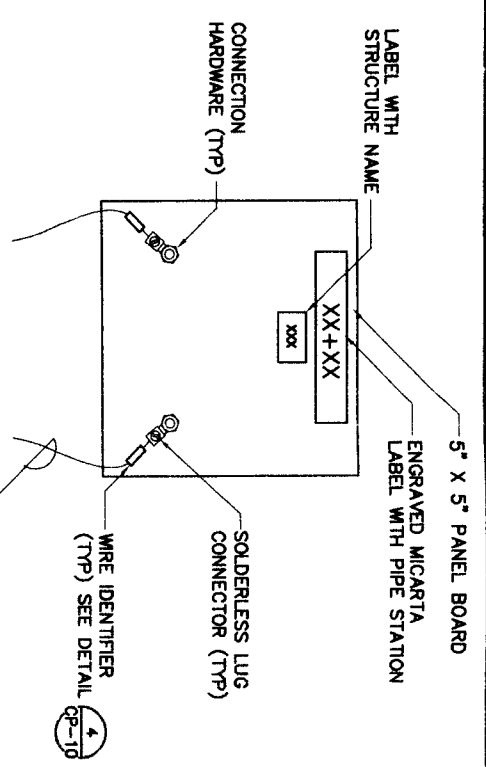
- NOTES:
1. IF TEST STATION IS POST MOUNTED, REFER TO DETAIL (3)
  2. IF TEST STATION IS FLUSH MOUNTED, REFER TO DETAIL (2)

MONITORING TEST STATION (MTS) (1)  
 NTS



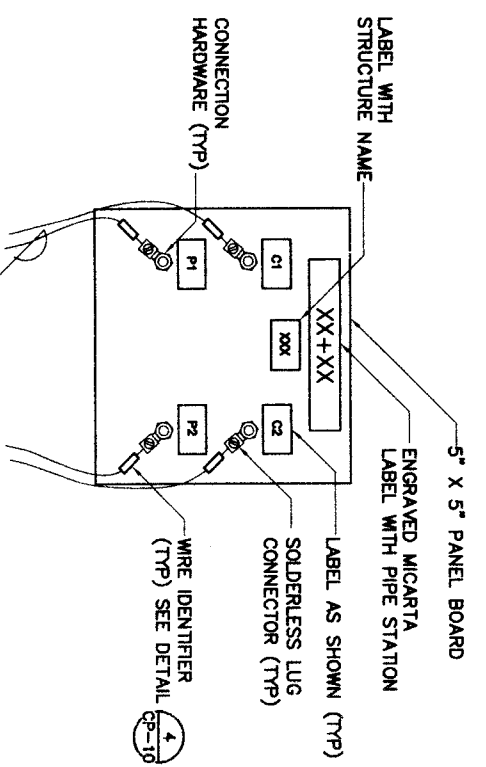
- NOTES:
1. LINE CURRENT TEST LEAD C1 AWG #10 THHN (BLUE)
  2. LINE CURRENT TEST LEAD P1 AWG #8 THHN (RED)
  3. LINE CURRENT TEST LEAD P2 AWG #8 THHN (YELLOW)
  4. LINE CURRENT TEST LEAD C2 AWG #10 THHN (WHITE)
  5. IF TEST STATION IS POST MOUNTED, REFER TO DETAIL (3)
  6. IF TEST STATION IS FLUSH MOUNTED, REFER TO DETAIL (2)

LINE CURRENT TEST STATION (LCTS) (4)  
 NTS



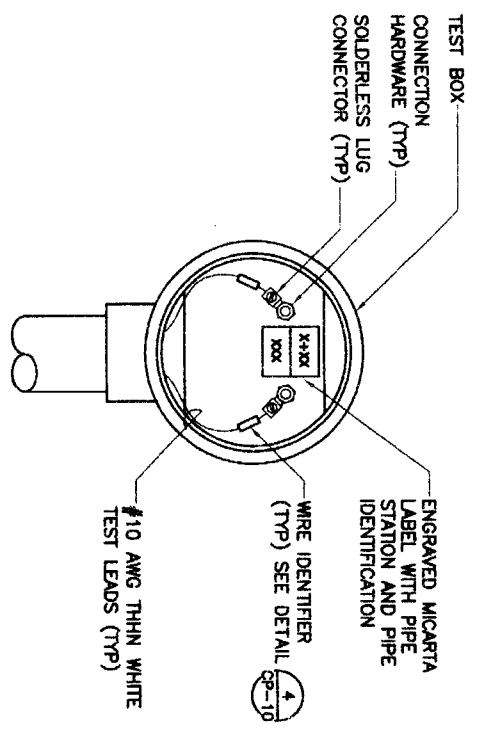
- NOTE:
- TEST BOARD SHALL BE SET IN A FLUSH-TO-GRADE TEST STATION. SEE DETAIL (5)

MTS TEST BOARD (2)  
 NTS



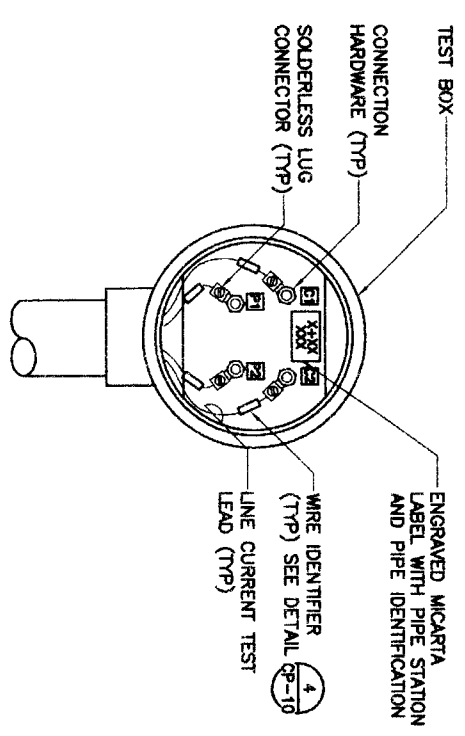
- NOTE:
- TEST BOARD SHALL BE SET IN A FLUSH-TO-GRADE TEST STATION. SEE DETAIL (5)

LCTS TEST BOARD (5)  
 NTS



- NOTE:
- TEST BOX SHALL BE ATTACHED TO A POST MOUNTED TEST STATION. SEE DETAIL (1)

POST MOUNTED MTS TEST BOX (3)  
 NTS



- NOTE:
- TEST BOX SHALL BE ATTACHED TO A POST MOUNTED TEST STATION. SEE DETAIL (1)

POST MOUNTED LCTS TEST BOX (6)  
 NTS

DATE: AUGUST 31, 2010

REF. NO. CP-2

SHEET No. 93 OF 108



**V&A**  
 ENGINEERS, INC.  
 10777 Westheimer, Suite 400  
 Houston, TX 77042  
 Tel: (713) 268-9000 Fax: (713) 268-9008  
 THE REGISTRATION BOARD FOR ENGINEERS

**BROWN & GAY**  
 ENGINEERS, INC.  
 10777 Westheimer, Suite 400  
 Houston, TX 77042  
 Tel: (713) 268-9000 Fax: (713) 268-9008  
 THE REGISTRATION BOARD FOR ENGINEERS

**NFBWA SEGMENT 4B**  
 CATHODIC PROTECTION TEST STATION DETAILS (1 OF 4)

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

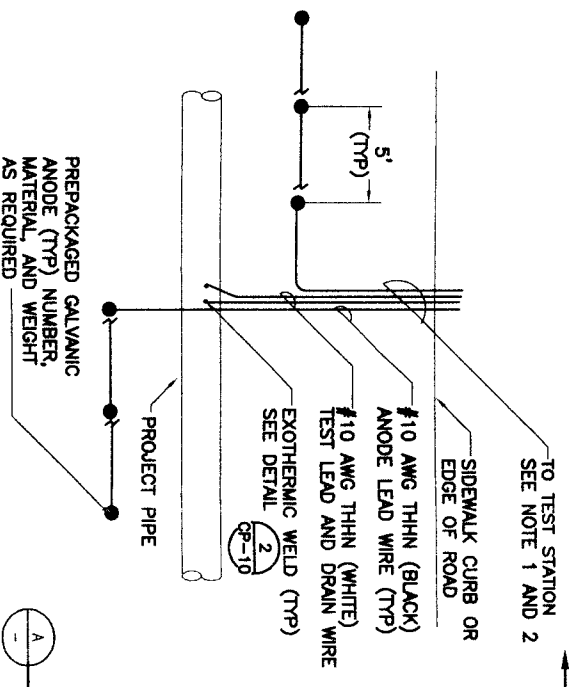
**NORTH PORT BEND**

DATE: 8/15/11

STATION: 4114411.15.11

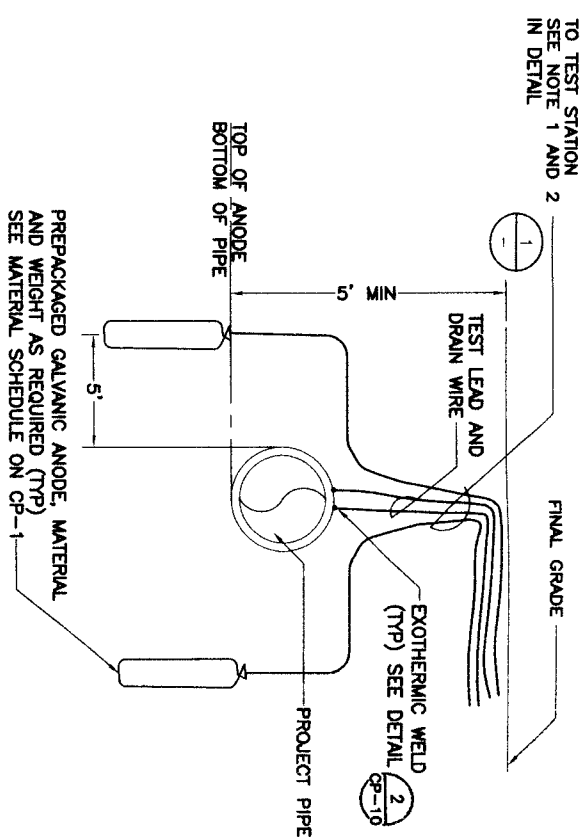
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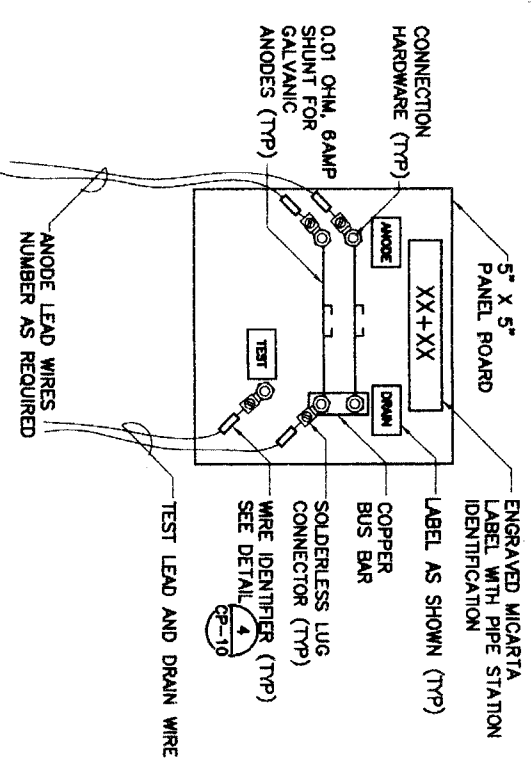


- NOTE:
1. IF TEST STATION IS POST MOUNTED, REFER TO DETAIL 3
  2. IF TEST STATION IS FLUSH MOUNTED, REFER TO DETAIL 2

ANODE TEST STATION  
 (ATS) PLAN  
 NTS 1

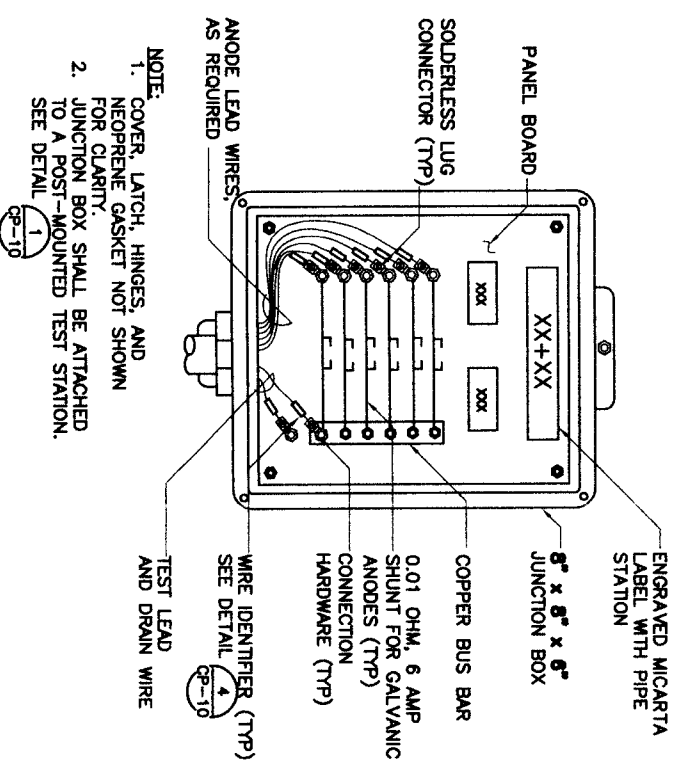


ATS SECTION  
 NTS A



- NOTE:
1. TEST BOARD SHALL BE SET IN A FLUSH-TO-GRADE TEST STATION. SEE DETAIL 5

ATS TEST BOARD  
 NTS 2



- NOTE:
1. COVER, LATCH, HINGES, AND NEOPRENE GASKET NOT SHOWN FOR CLARITY.
  2. JUNCTION BOX SHALL BE ATTACHED TO A POST-MOUNTED TEST STATION. SEE DETAIL 1

ATS JUNCTION BOX  
 NTS 3

DATE: AUGUST 31, 2010

REF. NO. CP-3

SHEET No. 94 OF 108

**CATHODIC PROTECTION TEST STATION DETAILS (2 OF 4)**

**NORTH PORT BEND**

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

PROJECT: *Northport*

DATE: *12/15/10*

DESIGNED BY: *[Signature]*

CHECKED BY: *[Signature]*

SCALE: N.T.S.

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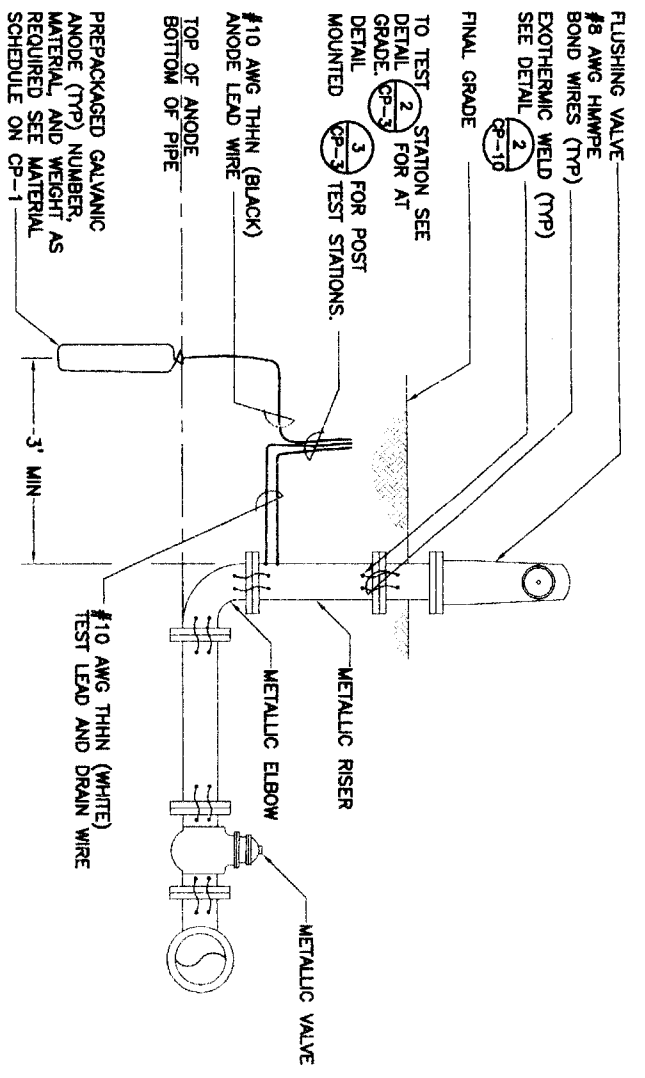
**BROWN & GAY ENGINEERS, INC.**

10777 Westchase Parkway, Suite 408  
 Houston, TX 77036  
 Tel: 281-558-8700 Fax: 281-558-8701

**V&A**

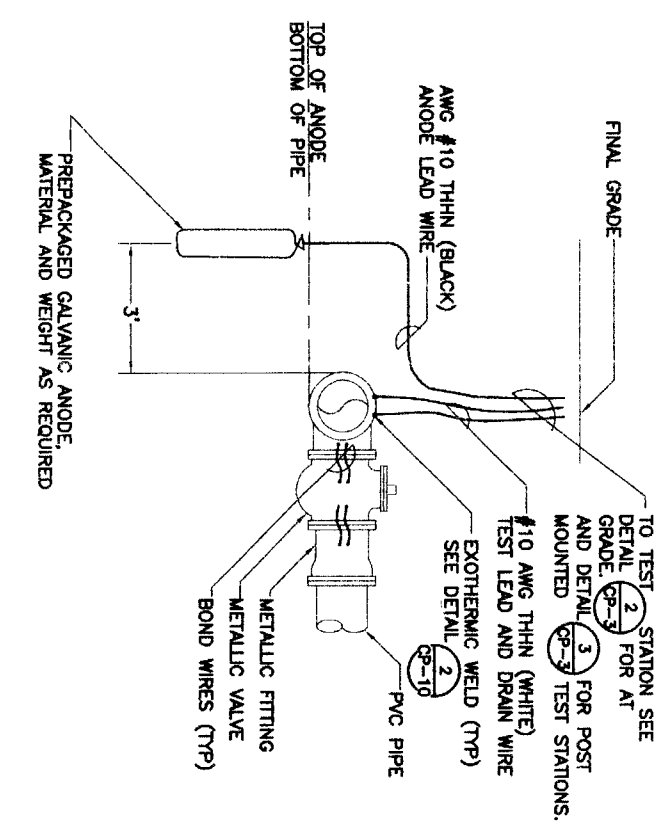
Professional Engineer  
 License No. 12412

**NFBWA SEGMENT 4B**



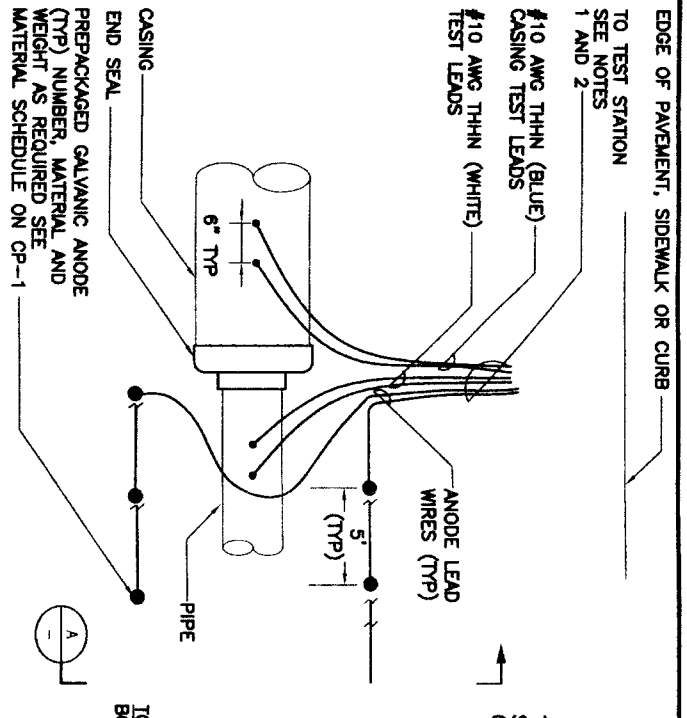
TYPICAL ANODE INSTALLATION  
 AT FLUSHING VALVE  
 NTS

- GENERAL NOTES:**
1. 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.
  2. INSTALL ANODES ON ALL METALLIC VALVES, FITTINGS, TEES, CROSSES, FIRE HYDRANTS, AND OTHER METALLIC APERTURANCES AS SHOWN ON THE DRAWINGS AND INDICATED IN THE SPECIFICATIONS
  3. SEE DETAIL (2) FOR TYPICAL SECTION OF ANODE AND FITTING
  4. METALLIC FITTINGS WITH TWO OR MORE VALVES SHALL BE INSTALLED WITH TWO GALVANIC ANODES. METALLIC FITTINGS WITH ONE OR NO VALVES SHALL BE INSTALLED WITH ONE GALVANIC ANODE.
  5. TOP OF ANODE SHOULD BE AT THE PIPE'S INVERT DEPTH AS SHOWN ON DETAIL (1) AND (2)



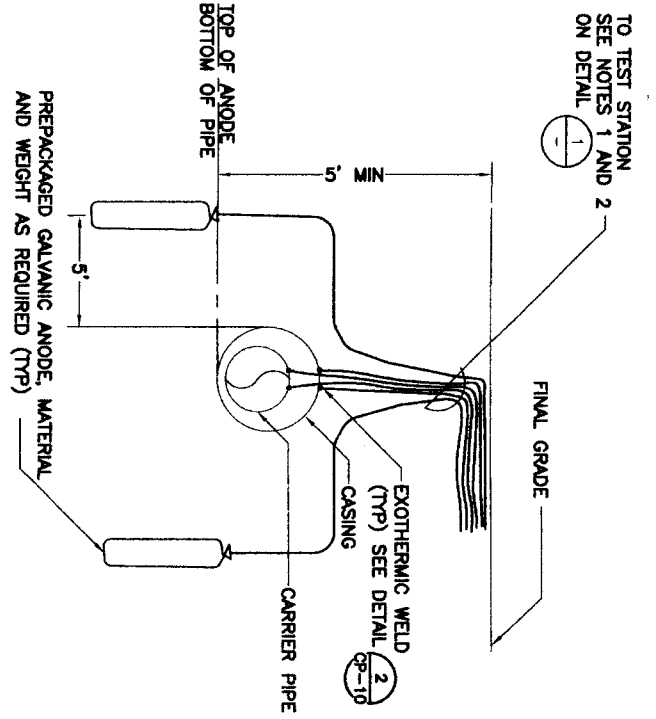
ANODE INSTALLATION  
 AT FITTING/VALVE  
 NTS

<p>Project: 07-0777                  4520 Lamar Road                  Houston, TX 77042                  Tel: 281-555-0100                  Fax: 281-555-0100                  THE REGISTRATION NO. P9154</p>		<p>Jose Luis Villalobos                  REGISTERED PROFESSIONAL ENGINEER                  No. 79925                  State of Texas</p>	
<p><b>BROWN &amp; GAY ENGINEERS, INC.</b>                  Brown &amp; Gay Engineers, Inc.                  DEPARTMENT OF PUBLIC WORKS AND ENGINEERING                  10777 Westheimer, Suite 403                  Houston, TX 77042                  Tel: 281-555-0100                  Fax: 281-555-0100                  — Civil Engineers and Surveyors —</p>			
<p><b>NFBWA SEGMENT 4B</b></p>			
<p><b>CATHODIC PROTECTION TEST STATION DETAILS (3 OF 4)</b></p>			
<p><b>NORTH FORT BEND</b></p>			
<p><b>CITY OF HOUSTON</b>                  DEPARTMENT OF PUBLIC WORKS AND ENGINEERING                  1-844-368-3684                  WATER AND WASTEWATER                  1-844-368-3684                  STORM WATER QUALITY                  1-844-368-3684                  STREET &amp; BRIDGE                  1-844-368-3684                  TRAILWAYS                  1-844-368-3684</p>			
<p>NOTE: CITY CONTRACTORS VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURE</p>		<p>FOR CITY OF HOUSTON USE ONLY</p>	
FILE NO.:	DRAWING SCALE:		
REF. NO.:	N.T.S.		
DATE:	SHEET NO. 95 OF 108		
CP-4	<p>47757</p>		

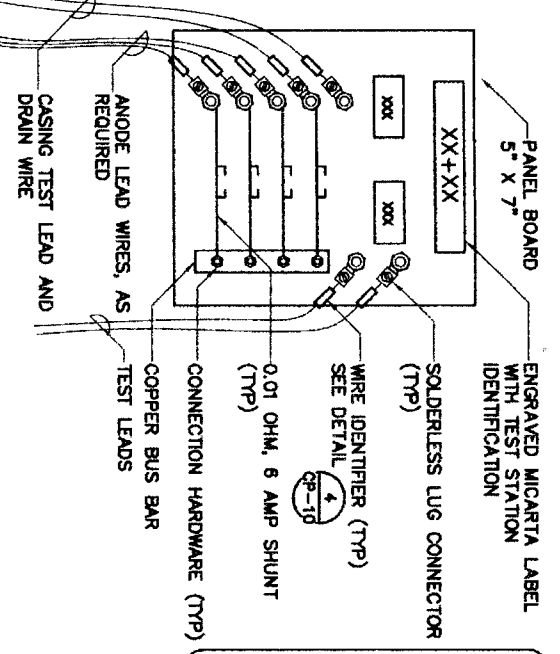


- NOTES:**
1. IF TEST STATION IS POST MOUNTED, REFER TO DETAIL (3)
  2. IF TEST STATION IS FLUSH MOUNTED, REFER TO DETAIL (2)

CASING ANODE TEST STATION (CATS) PLAN (1)  
 NTS

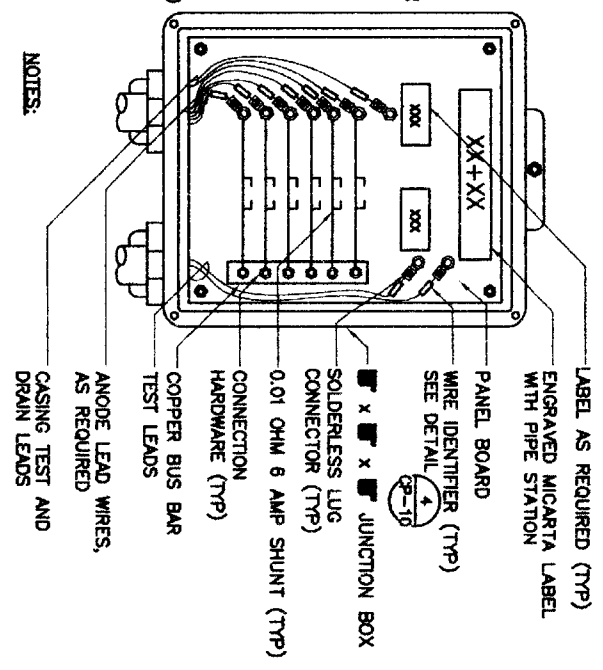


CATS SECTION (A)  
 NTS



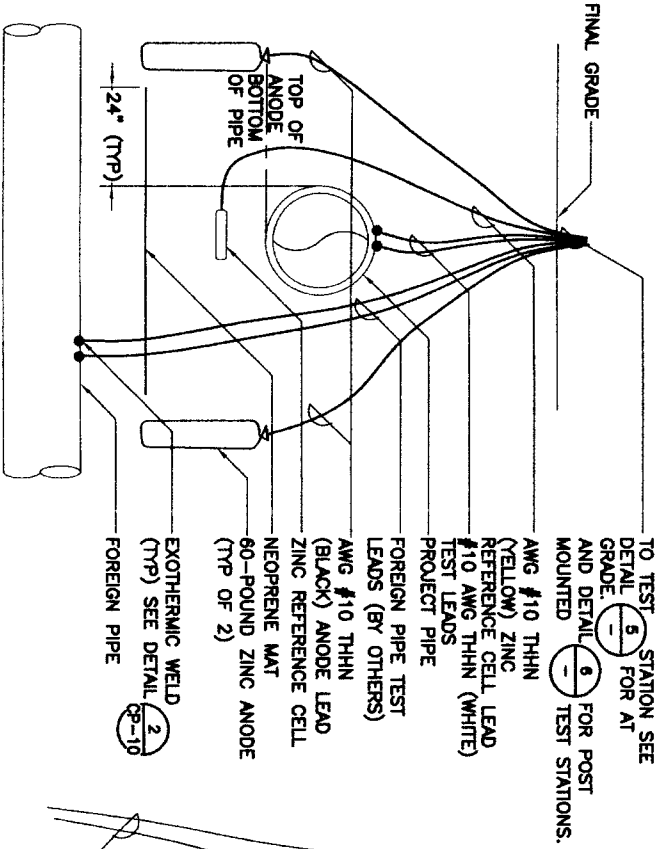
- NOTE:**
- TEST BOARD SHALL BE SET IN A FLUSH-TO-GRADE TEST STATION. SEE DETAIL (5)

CATS TEST BOARD (2)  
 NTS



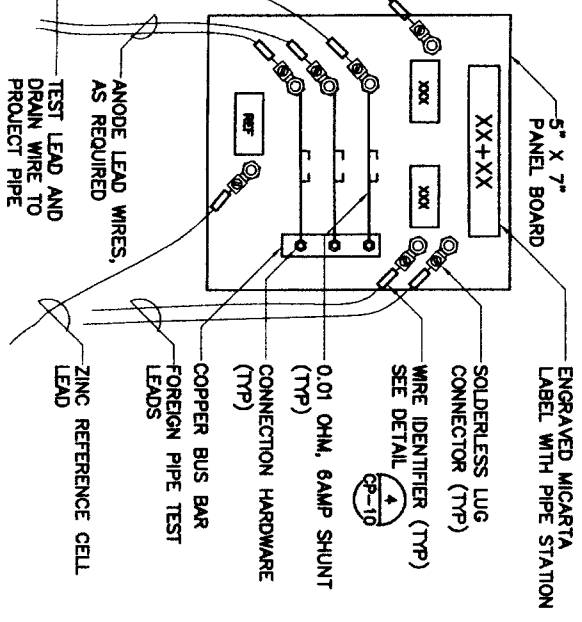
- NOTES:**
1. COVER, LATCH, HINGES, AND NEOPRENE GASKET NOT SHOWN FOR CLARITY.
  2. SIZE THE JUNCTION BOX TO FIT THE SHUNTS.
  3. JUNCTION BOX SHALL BE ATTACHED TO A POST-MOUNTED TEST STATION. SEE DETAIL (1)

CATS JUNCTION BOX (3)  
 NTS



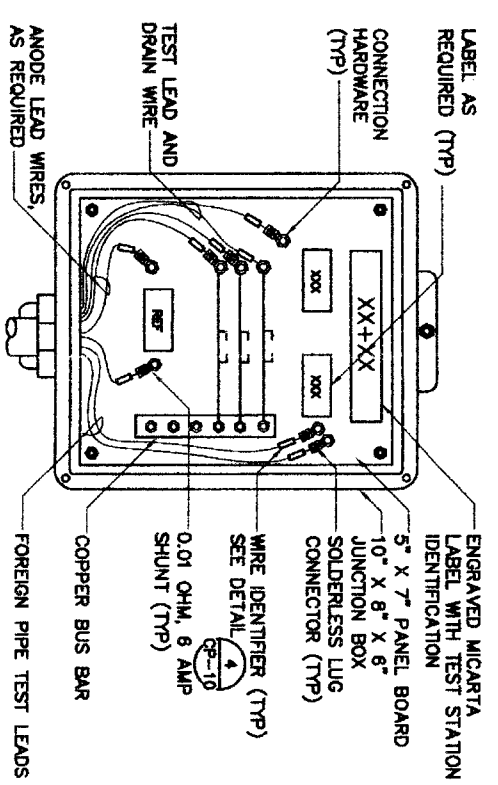
- NOTES:**
1. CONNECTIONS TO FOREIGN PIPELINES SHALL BE MADE BY A REPRESENTATIVE OF THE FOREIGN PIPELINE OWNER.
  2. INSTALL ZINC REFERENCE CELL MIDWAY BETWEEN PROJECT PIPELINE AND NEOPRENE MAT.
  3. INSTALL ANODES FIVE FEET FROM PROJECT PIPE AND FOREIGN PIPE.

FOREIGN PIPELINE TEST STATION-(FPTS) (4)  
 NTS



- NOTE:**
- TEST BOARD SHALL BE SET IN A FLUSH-TO-GRADE TEST STATION. SEE DETAIL (5)

FPTS TEST BOARD (5)  
 NTS



- NOTES:**
1. COVER, LATCH, HINGES, AND NEOPRENE GASKET NOT SHOWN FOR CLARITY.
  2. SIZE THE JUNCTION BOX TO FIT THE SHUNTS.
  3. JUNCTION BOX SHALL BE ATTACHED TO A POST-MOUNTED TEST STATION.
  4. SEE DETAIL (1)

FPTS JUNCTION BOX (6)  
 NTS

DATE: AUGUST 31, 2010

REF. NO. CP-5

SHEET No. 96 OF 108



**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 WATER DIVISION  
 STORM WATER QUALITY  
 TREATMENT AND TRANSPORTATION

PROJECT: 13-50  
 SHEET: 96 OF 108  
 DATE: 8/31/10

**NORTH FORT BAND**

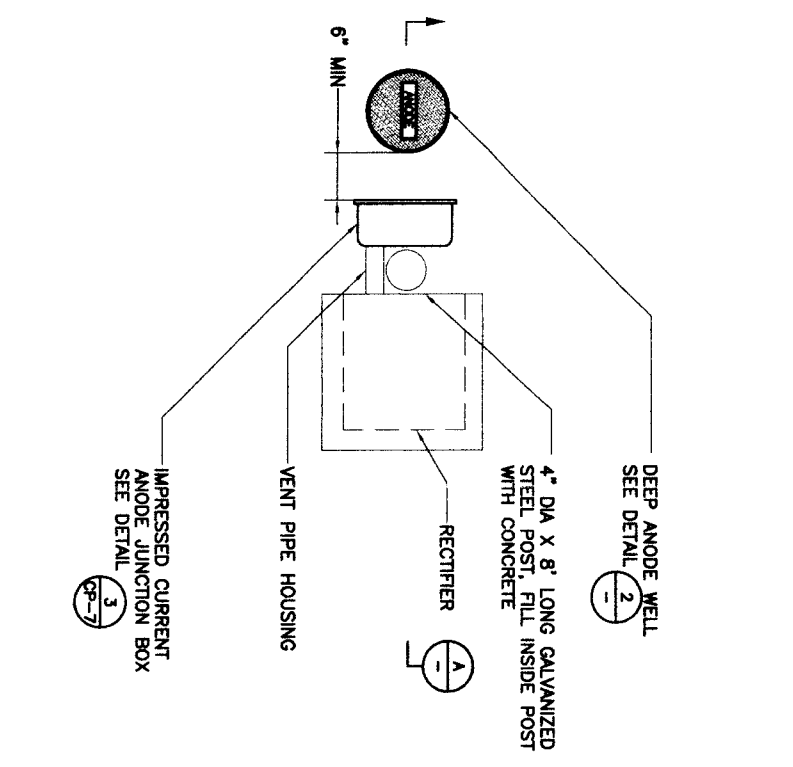
**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 10777 Highway 281, Suite 810  
 Houston, TX 77064  
 Tel: 281-588-8100  
 Fax: 281-588-8101  
 www.browngay.com

**NFBWA SEGMENT 4B**

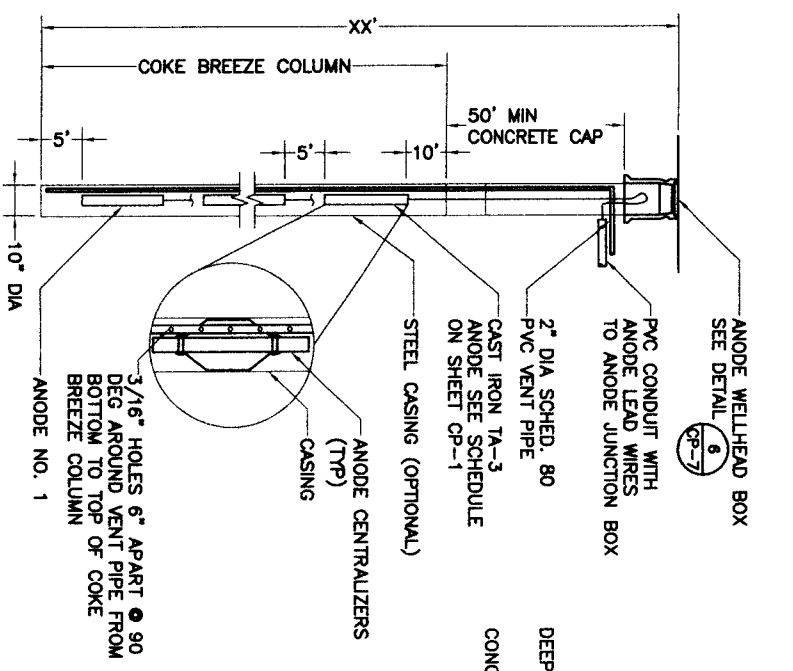
**CATHODIC PROTECTION TEST STATION DETAILS (4 OF 4)**

**V&S A**

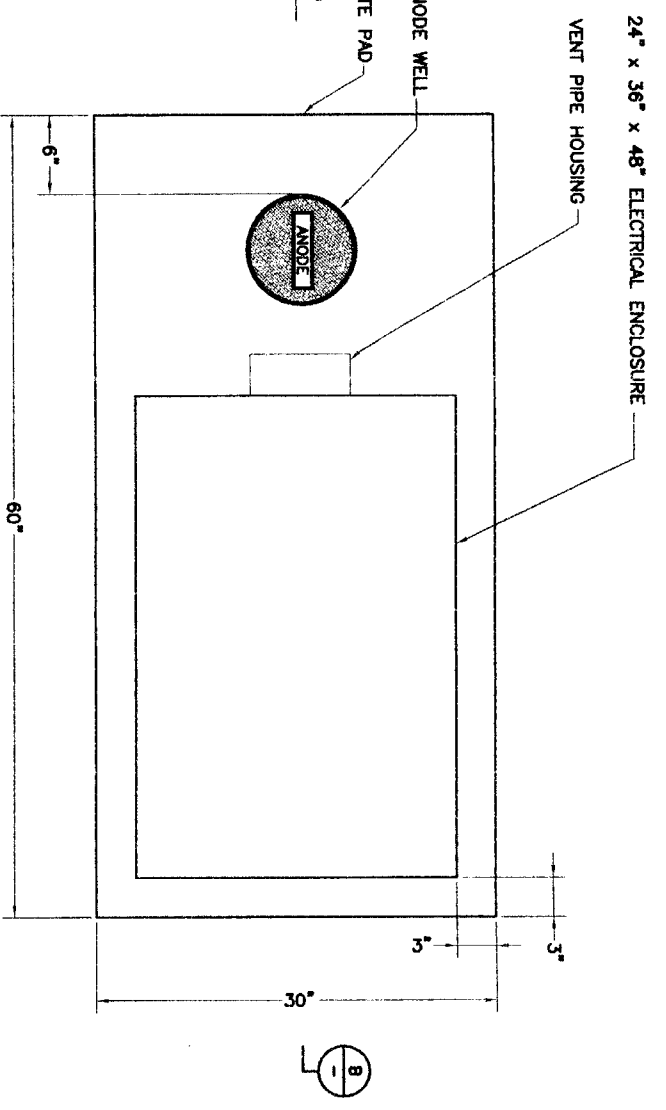
Project: 07-007  
 8220 Lovell Road  
 Houston, TX 77064  
 Tel: (713) 588-8000 Fax: (713) 588-8008  
 Tel: (713) 588-8000 Fax: (713) 588-8004  
 TDD: (713) 588-8000 FAX: (713) 588-8004



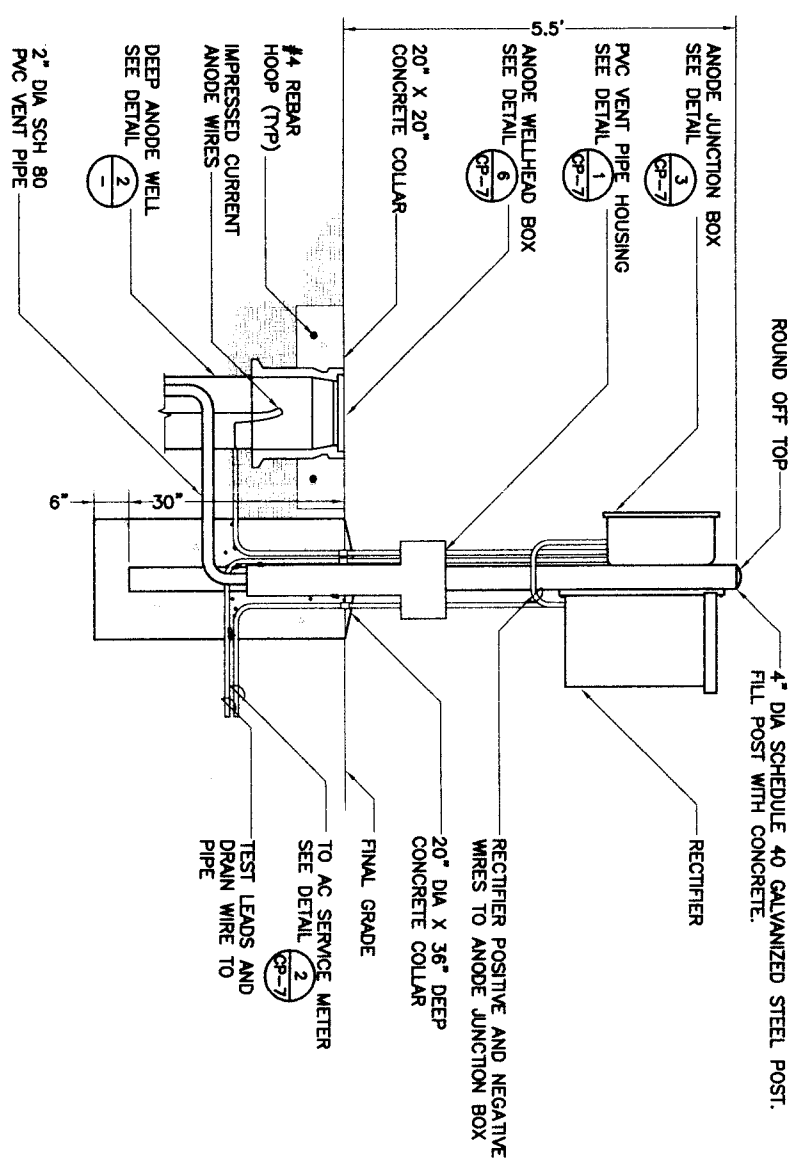
POST MOUNTED RECTIFIER INSTALLATION  
 PLAN VIEW  
 NTS 1



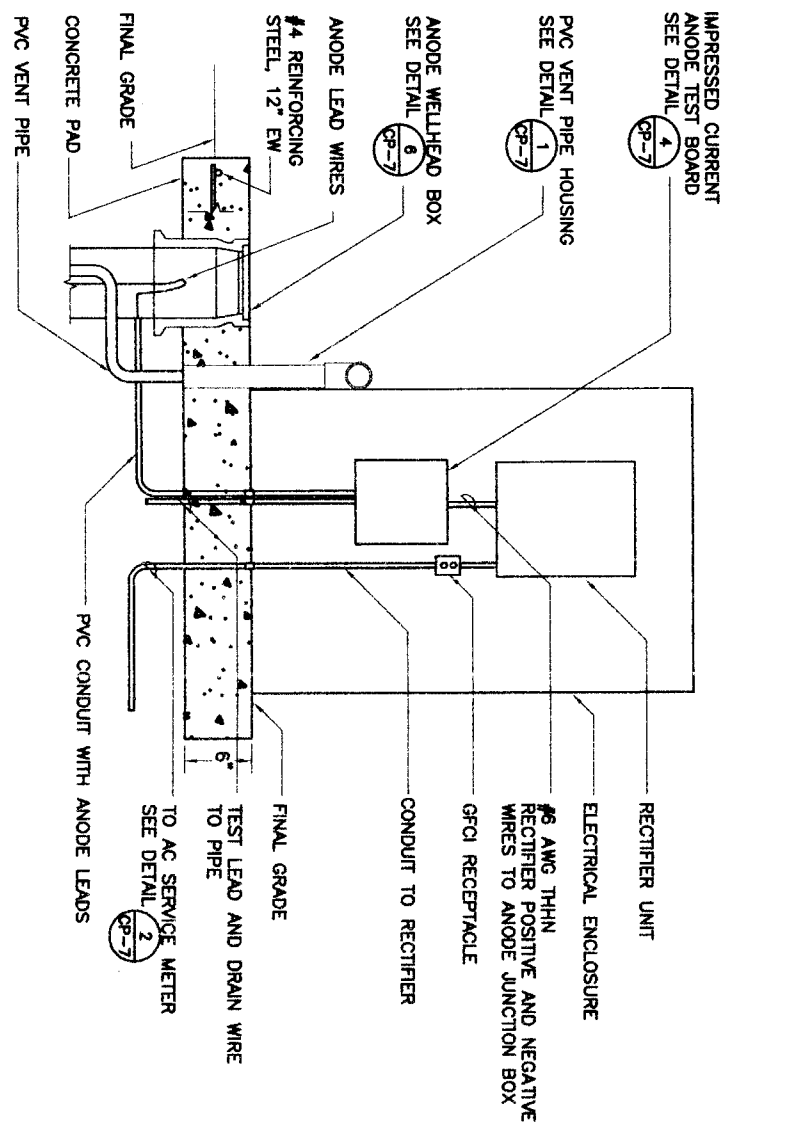
DEEP ANODE WELL  
 NTS 2



RECTIFIER INSTALLATION WITH ELECTRICAL ENCLOSURE  
 PLAN VIEW  
 NTS 3



POST MOUNTED RECTIFIER INSTALLATION  
 SECTION  
 NTS A



RECTIFIER INSTALLATION WITH ELECTRICAL ENCLOSURE  
 ELEVATION VIEW  
 NTS B

DATE: AUGUST 31, 2016

REF. NO. CP-6

SHEET NO. 97 OF 108



DRAWING SCALE: N.T.S.

FOR CITY OF HOUSTON USE ONLY

STORM WATER QUALITY

TRACER

DATE: 1/13/11

BY: [Signature]

CITY OF HOUSTON  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**NORTH FORT BEND**

**BROWN & GAY ENGINEERS, INC.**

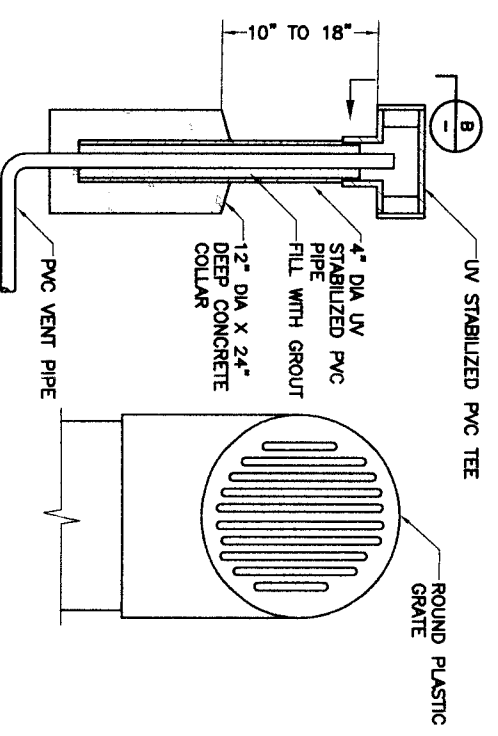
Project: 07/077  
 Houston, TX 77005  
 4320 James Road  
 Houston, TX 77005  
 Phone: 281-734-6698  
 FAX: 281-734-6698  
 LICENSE NO. 12416

10777 Westmore, Suite 400  
 Houston, TX 77055  
 Tel: 281-466-8700  
 Fax: 281-566-8711  
 Civil Engineers and Surveyors

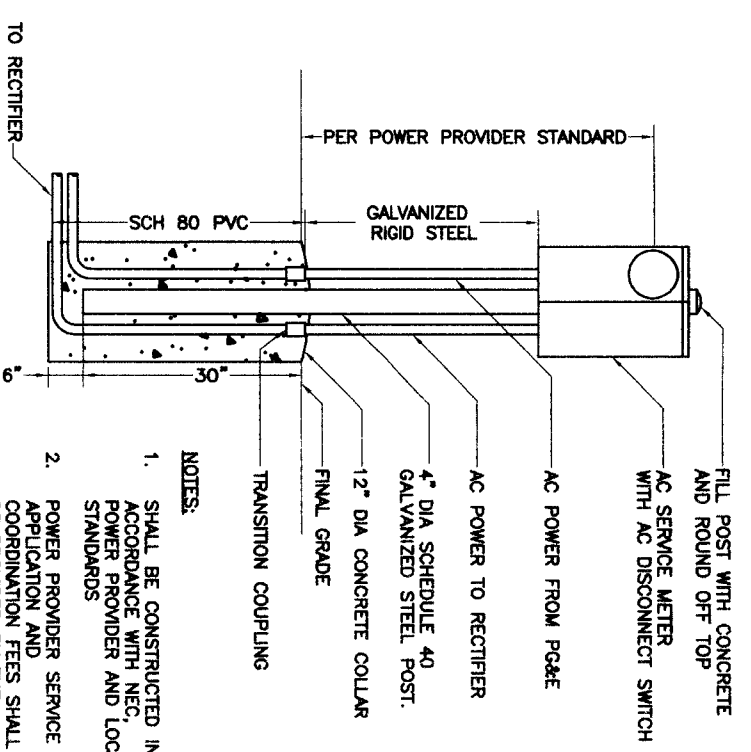
12/16/11

**NFBWA SEGMENT 4B**

**CATHODIC PROTECTION RECTIFIER DETAILS (1 OF 2)**

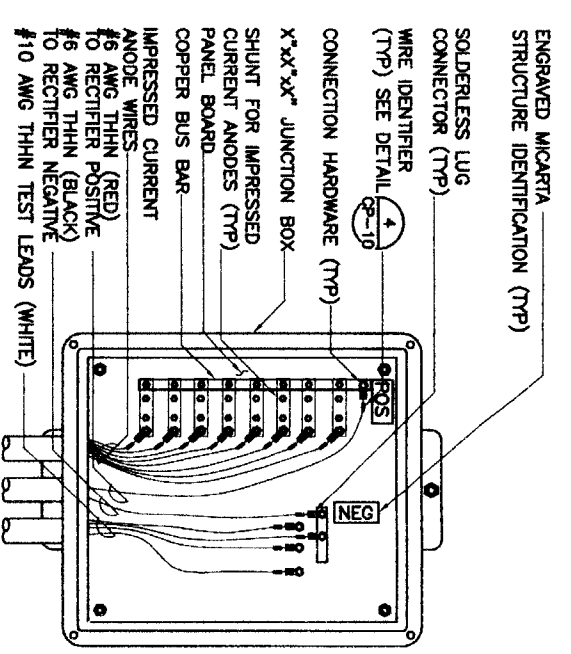


VENT PIPE HOUSING  
 NTS 1



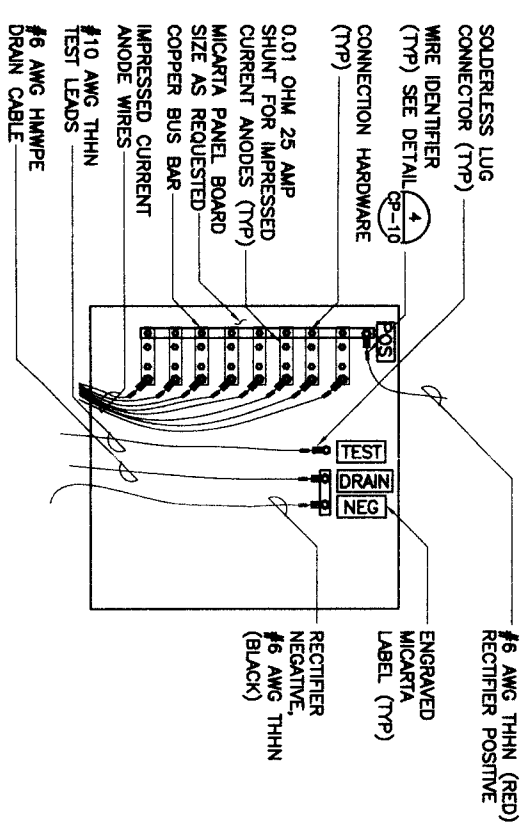
AC SERVICE METER  
 NTS 2

- NOTES:
1. SHALL BE CONSTRUCTED IN ACCORDANCE WITH NEG, POWER PROVIDER AND LOCAL STANDARDS
  2. POWER PROVIDER SERVICE APPLICATION AND COORDINATION FEES SHALL BE PROVIDED BY THE CONTRACTOR.

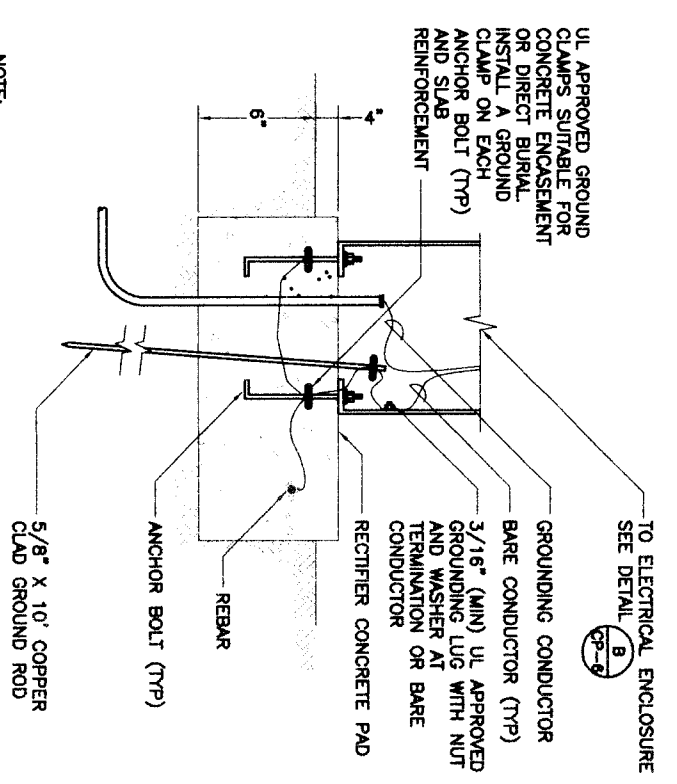


IMPRESSED CURRENT ANODE JUNCTION BOX  
 NTS 3

- NOTES:
1. COVER, LATCH, HINGES, AND NEOPRENE GASKET NOT SHOWN FOR CLARITY
  2. SIZE THE JUNCTION BOX TO FIT THE SHUNTS.

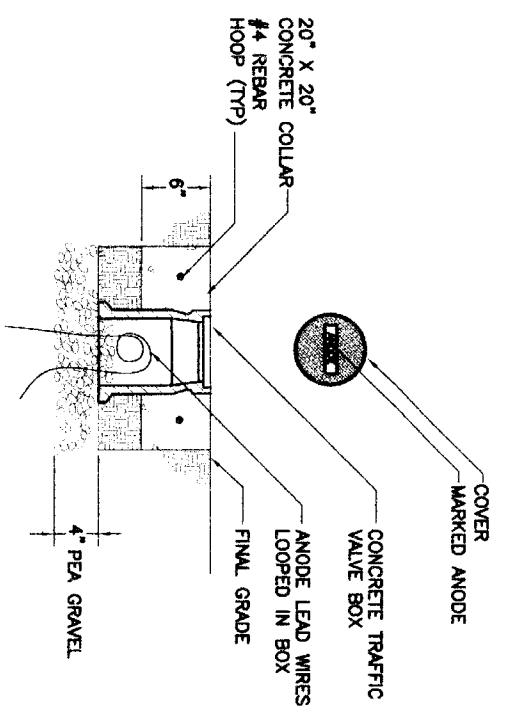


IMPRESSED CURRENT ANODE TEST BOARD  
 NTS 4



GROUND ROD  
 NTS 5

NOTE:  
 THE GROUND ROD SHALL BE INSTALLED OBLIQUELY THROUGH THE FOUNDATION IN UNDISTURBED SOIL AT AN ANGLE NOT TO EXCEED 45° FROM VERTICAL.



ANODE WELLHEAD BOX  
 NTS 6

NOTE:  
 CONCRETE COLLAR REQUIRED IF TRAFFIC VALVE BOX IS NOT LOCATED IN RECTIFIER'S CONCRETE PAD

DATE: AUGUST 31, 2010  
 REF. NO. CP-7  
 SHEET No. 98 OF 108

47757  
 NORTH PORT BEND  
 CITY OF HOUSTON  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

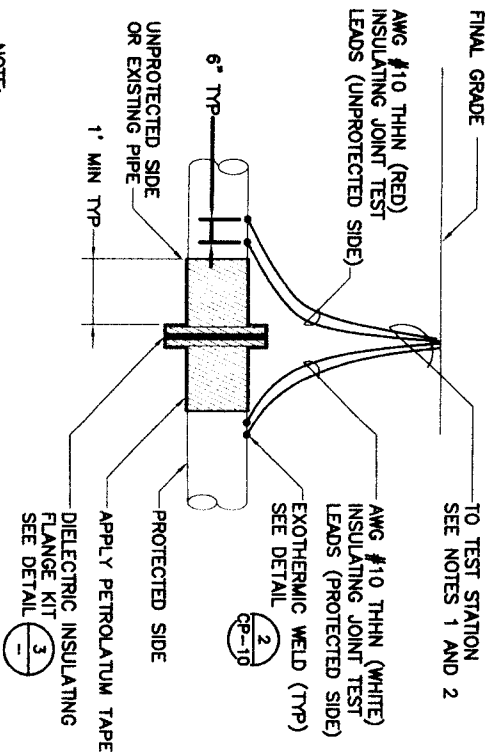
**BROWN & GAY ENGINEERS, INC.**  
 10777 Southwest Fwy., Suite 400  
 Houston, TX 77062  
 Tel: 281-558-8700  
 Fax: 281-558-8701

**V&S A**  
 Project: 07/077  
 8120 James Road  
 Houston, TX 77063  
 Tel: 713-566-0097, Fax: 713-566-0096  
 TYPE REDESIGNATION NO. E9154

**CATHODIC PROTECTION RECTIFIER DETAILS (2 OF 2)**

**NFBWA SEGMENT 4B**

DATE: AUGUST 31, 2010

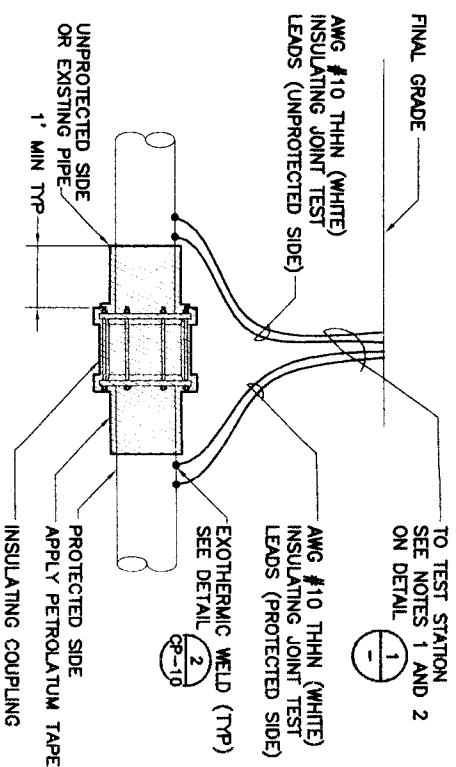


NOTE:  
 DO NOT APPLY PETROLATUM TAPE IF FLANGE IS LOCATED ABOVE GRADE OR IN A VAULT.

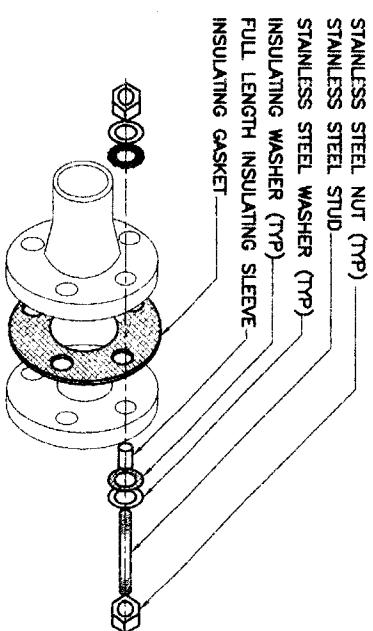
NOTES:

1. IF TEST STATION IS POST MOUNTED, REFER TO DETAIL (5)
2. IF TEST STATION IS FLUSH MOUNTED, REFER TO DETAIL (4)

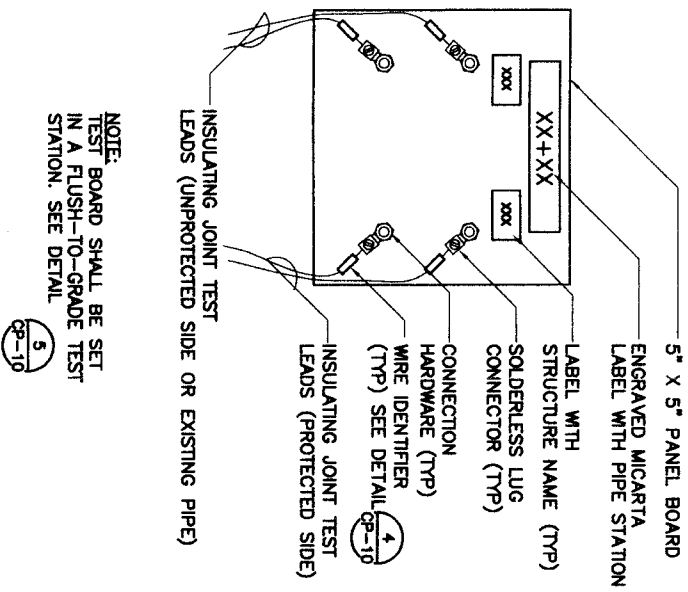
INSULATING JOINT FLANGE CONNECTION TEST STATION (JITS) NTS



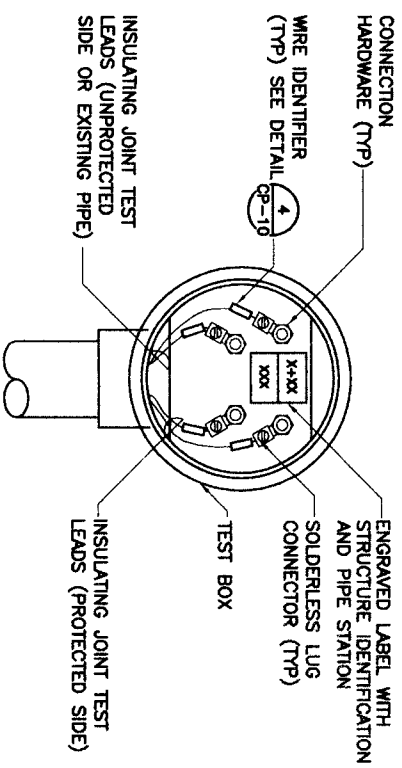
INSULATING JOINT TEST STATION - COUPLING CONNECTION (JITS-COUPLING) NTS



DIELECTRIC INSULATING FLANGE KIT NTS



LITS TEST BOARD NTS

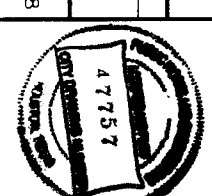


POST MOUNTED JITS TEST BOX NTS

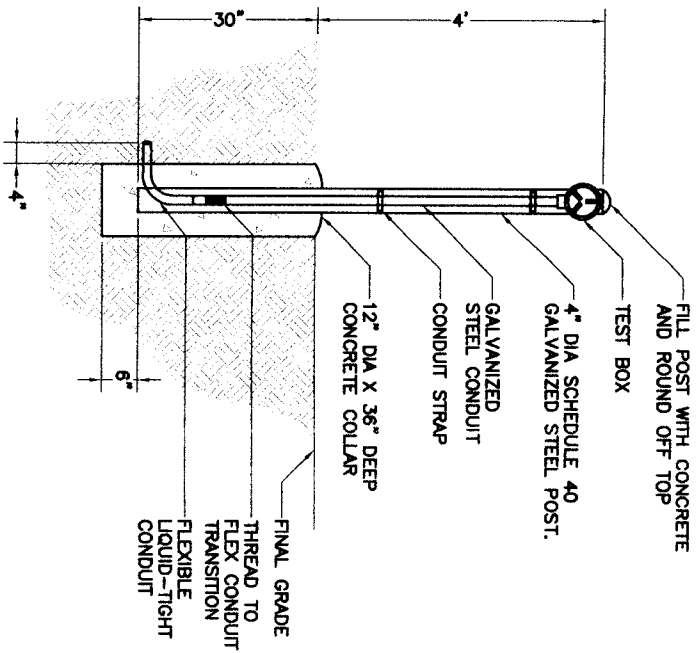
DATE: AUGUST 31, 2010

REF. NO. CP-8

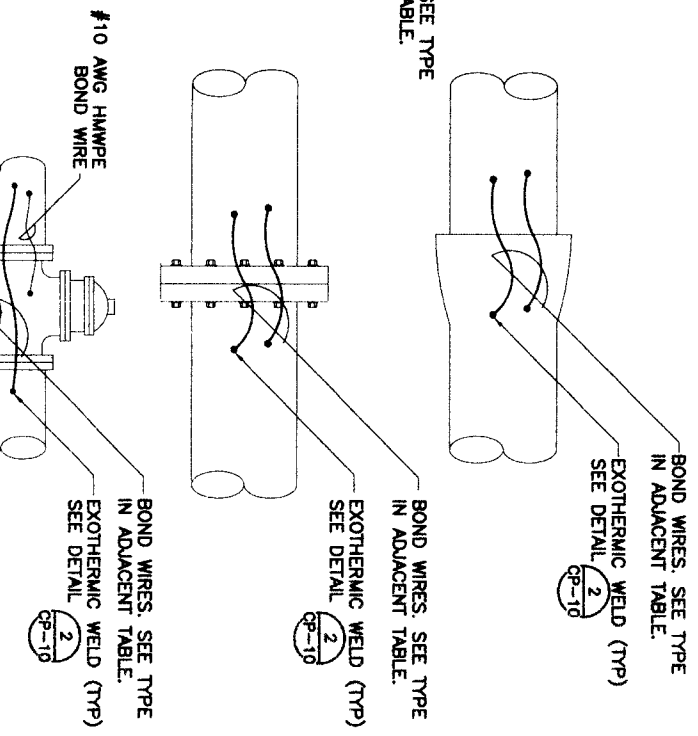
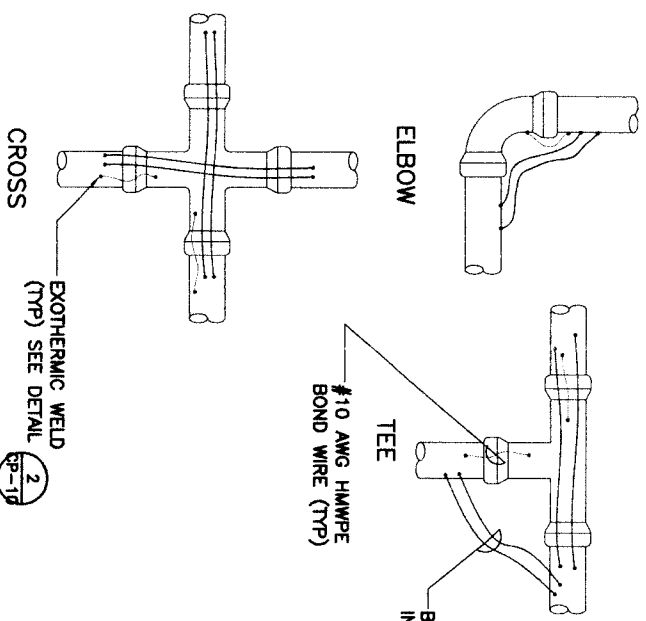
SHEET No. 99 of 108



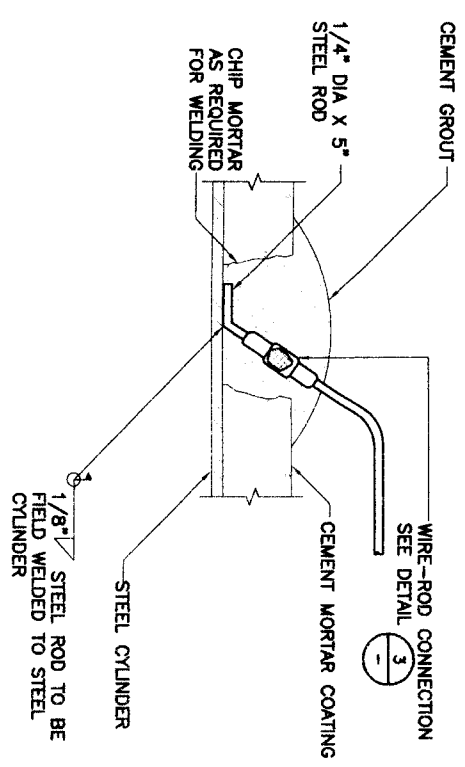
<p><b>VSA</b>                  PROFESSIONAL ENGINEERS                  4221 Fines Road                  Houston, TX 77066                  Tel: (713) 868-9000 Fax: (713) 868-9000                  TX REGISTRATION NO. 5053</p>		<p><b>BROWN &amp; GAY ENGINEERS, INC.</b>                  Brown &amp; Gay Engineers, Inc.                  10777 Westmore Lane, Suite 400                  Houston, TX 77036                  Tel: 281-568-8100 Fax: 281-568-8101                  — Civil Engineers and Architects —</p>		<p><b>CITY OF HOUSTON</b>                  DEPARTMENT OF PUBLIC WORKS AND ENGINEERING                  WATER TREATMENT PLANTS AND TRANSPORTATION                  1-53-11                  STREET &amp; BRIDGE                  FILE NO:                  DRAWING SCALE                  N.T.S.                  FOR CITY OF HOUSTON USE ONLY</p>		<p><b>NORTH FORT BAND</b>                  CATHODIC PROTECTION INSULATING JOINT DETAILS</p>	
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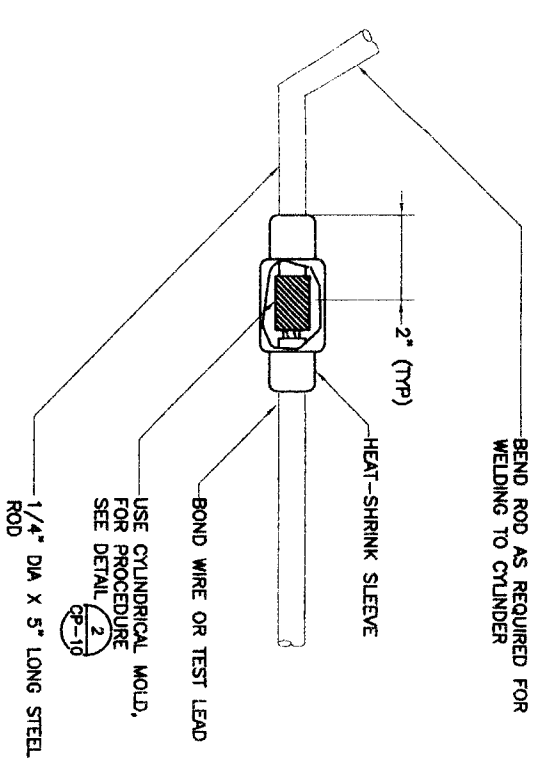
POST MOUNTED TEST STATION (1)  
 NTS



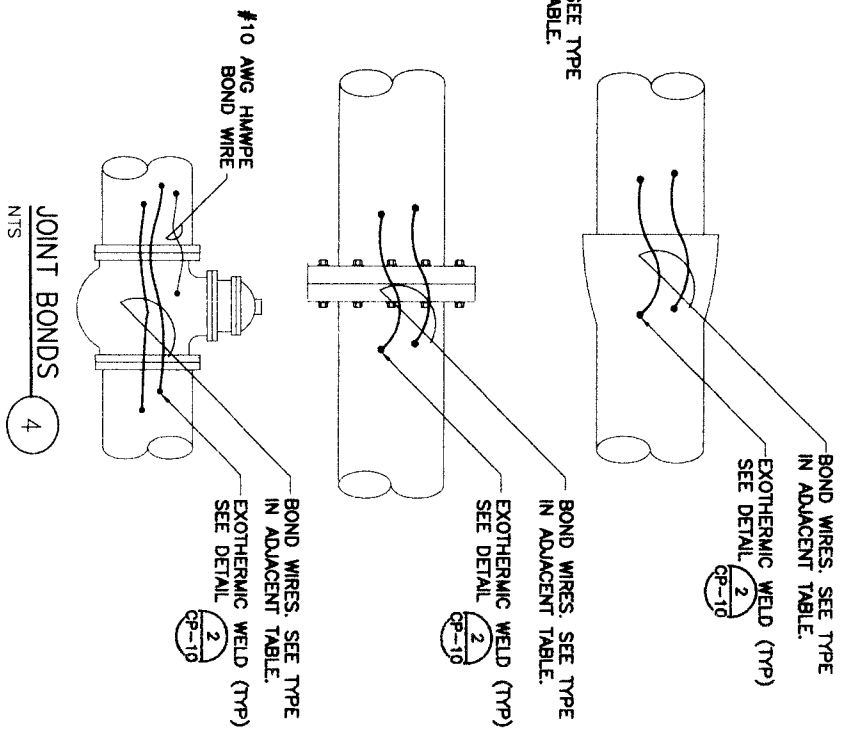
TEST LEAD CONNECTION MORTAR COATED STEEL PIPE AND AWMA C-303 (2)  
 NTS



NOTES:  
 1. REINFORCING WIRE NOT SHOWN FOR CLARITY.

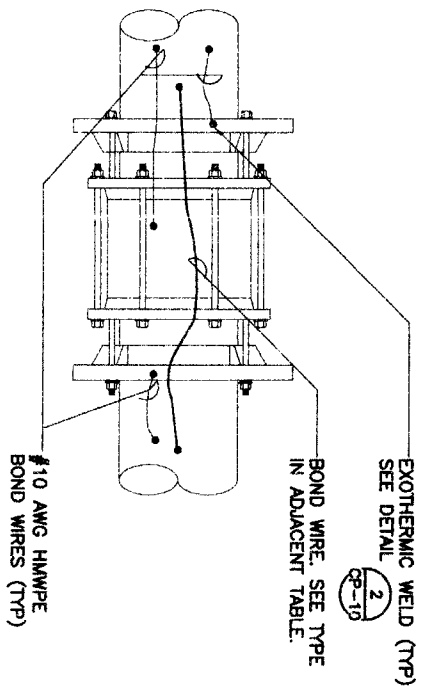


WIRE-ROD CONNECTION (3)  
 NTS



JOINT BONDS (4)  
 NTS

PIPE DIAMETER (INCHES)	CABLE SIZE (AWG)
14 OR LESS	6
16 TO 20	4
24 TO 30	2
36 TO 42	1/0
54	2/0



Project 07-077  
 2007-2008  
 Houston, TX 77006  
 Tel: (713) 566-8067, Fax: (713) 566-8068  
 TIRE REGISTRATION NO. E91954

**BROWN & GAY**  
 ENGINEERS, INC.  
 Brown & Gay Engineers, Inc.  
 10777 Westheimer, Suite 403  
 Houston, TX 77042  
 Tel: (281) 858-9700  
 Fax: (281) 858-9701  
 ONE ENGINEERS AND ARCHITECTS

STATE OF TEXAS  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 26385  
 79525

NFBWA SEGMENT 4B

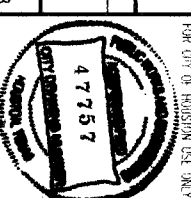
CATHODIC PROTECTION JOINT BONDING

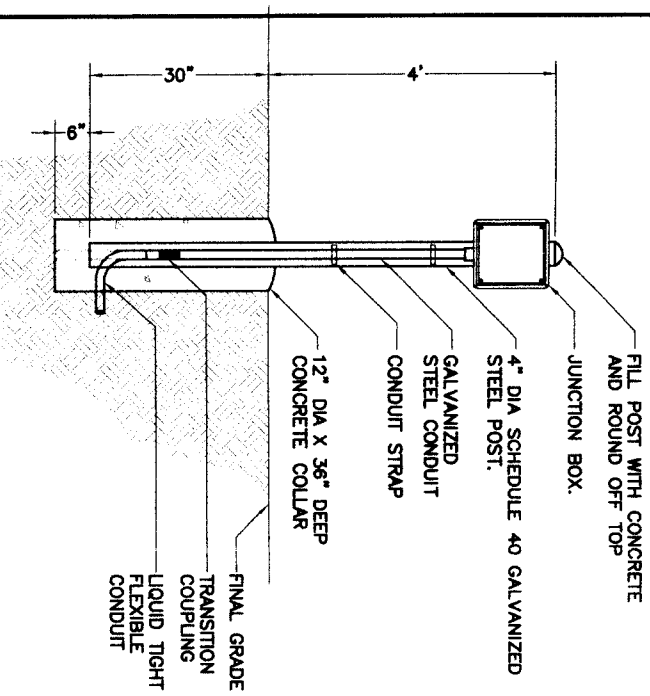


CITY OF HOUSTON  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 01/13/11  
 DRAWING SCALE: N.T.S.  
 SHEET NO. 100 OF 108

DATE: AUGUST 31, 2010  
 REF. NO. CP-9  
 SHEET NO. 100 OF 108



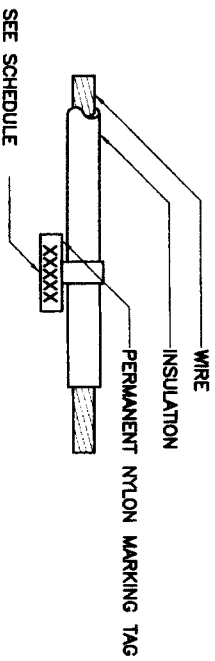


POST MOUNTED TEST STATION WITH JUNCTION BOX  
 NTS 1

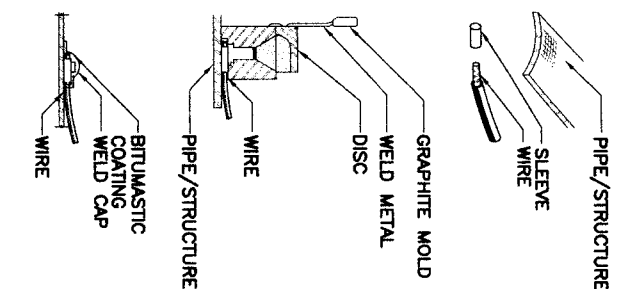
STRUCTURE	LABEL
XX" DIP WATER LINE	XX" DI
X" STEEL GAS LINE	X" G
XX" WATER	XX" W
GALVANIC ANODE	GA
REFERENCE ELECTRODE	RE
IMPRESSED CURRENT ANODE	ICA

NOTE:  
 "XX" INDICATES PIPE DIAMETER IN INCHES.

WIRE IDENTIFIER 4



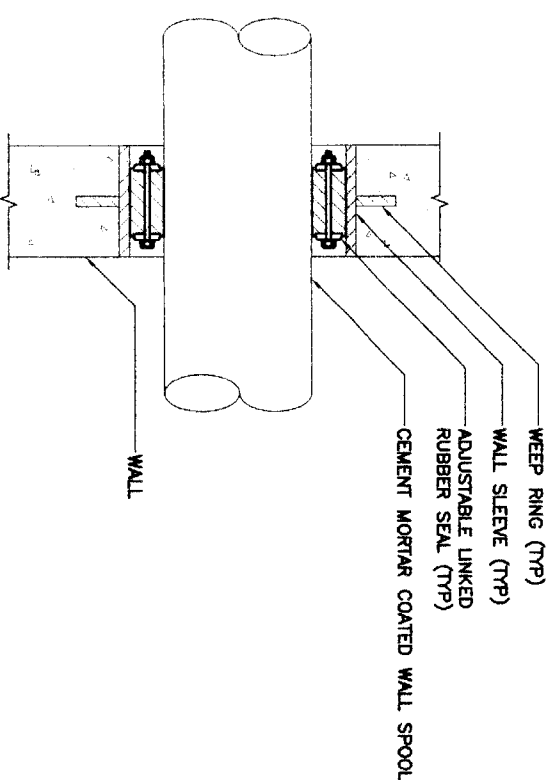
SEE SCHEDULE



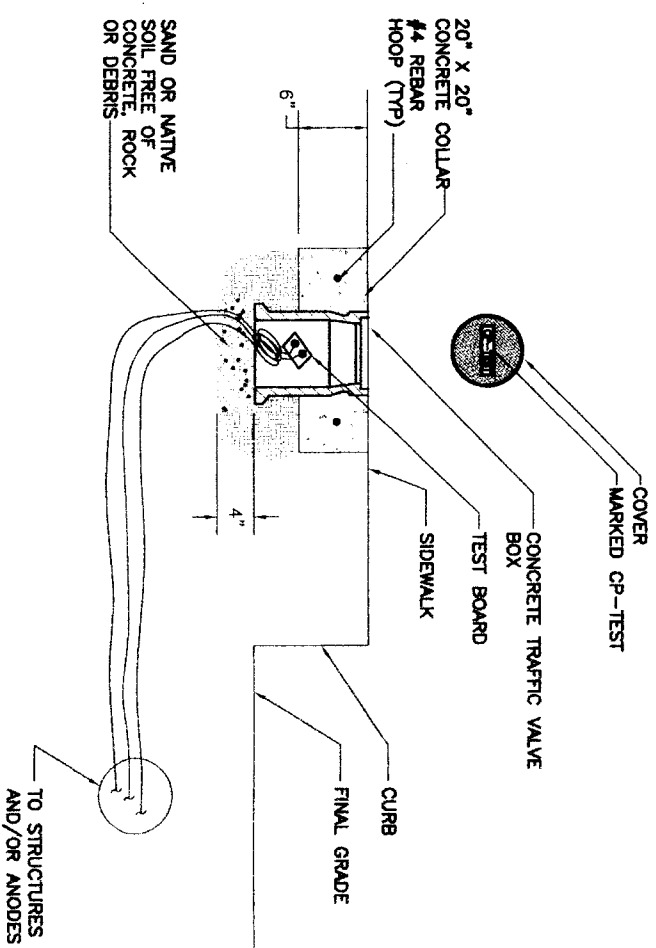
1. FILE PIPE/STRUCTURE TO BARE METAL AND CLEAN SURFACE.
2. STRIP INSULATION FROM WIRE AND ATTACH SLEEVE.
3. HOLD MOLD FIRMLY WITH OPENING AWAY FROM OPERATOR. IGNITE WITH FLINT GUN REMOVE SLAG FROM CONNECTION WITH CHIPPING HAMMER.
4. COVER CONNECTION WITH BITUMASTIC COATING OVER ALL EXPOSED METAL. PLACE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



WALL PENETRATION  
 NTS 3



FLUSH-TO GRADE TEST STATION BOX  
 NTS 5

DATE: AUGUST 31, 2010

REF. NO. CP-10

SHEET NO. 101 OF 108

2/15/11

AS SHOWN

47757

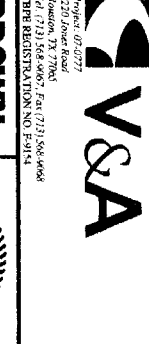
FOR CITY OF HOUSTON USE ONLY



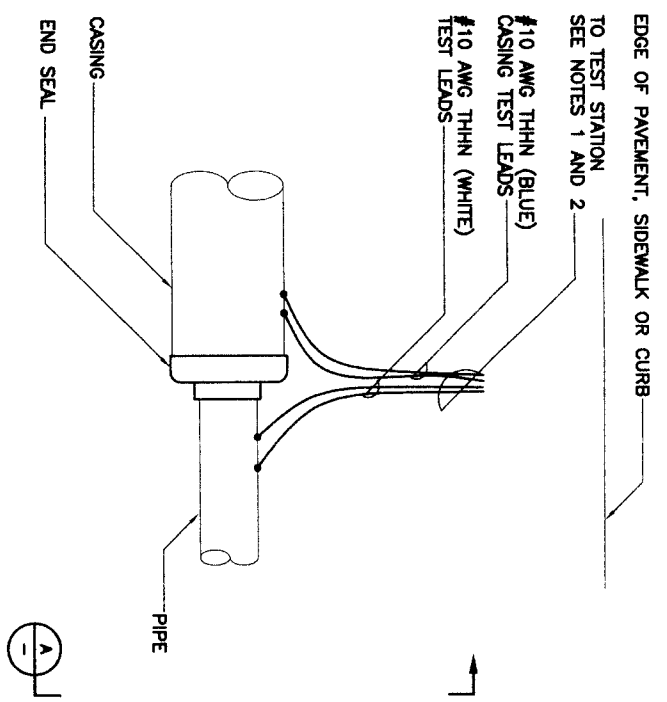
CATHODIC PROTECTION MISCELLANEOUS DETAILS (1 OF 2)

NFBWA SEGMENT 4B

Brown & Gay Engineers, Inc.  
 30777 Independence Blvd., Suite 400  
 Houston, Texas 77048  
 Tel: 281-468-8700  
 Fax: 281-468-8701  
 Civil Engineers and Surveyors

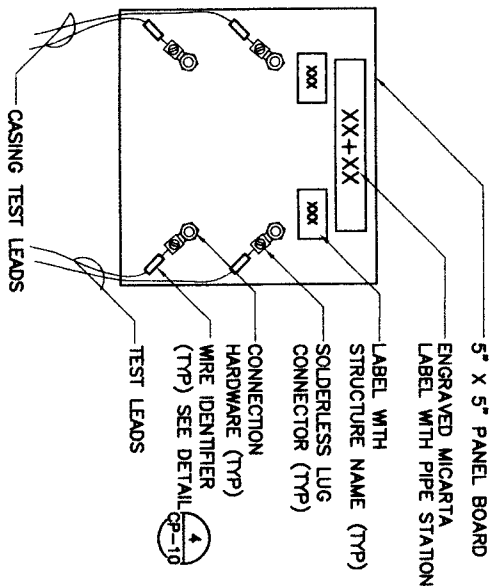


Project: 07-0777  
 8270 Jones Road  
 Houston, TX 77036  
 Tel: 281-468-8700  
 Fax: 281-468-8701  
 TBPB REGISTRATION NO. 63914



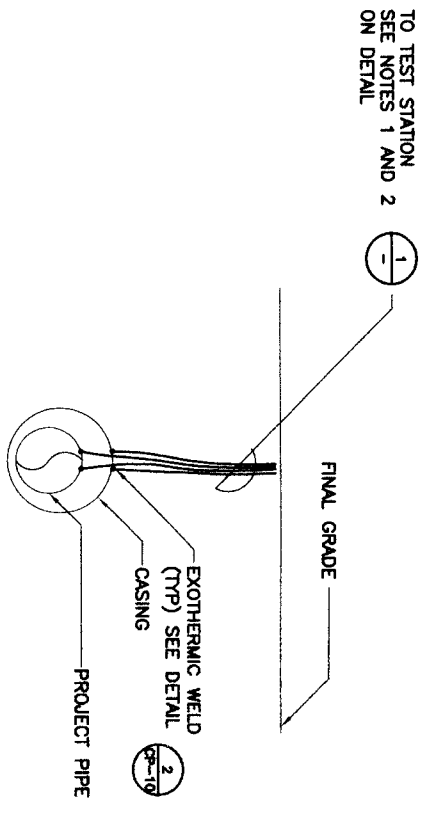
- NOTES:
1. IF TEST STATION IS POST MOUNTED, REFER TO DETAIL (2)
  2. IF TEST STATION IS FLUSH MOUNTED, REFER TO DETAIL (3)

CASING TEST STATION (CTS) PLAN  
 NTS (1)

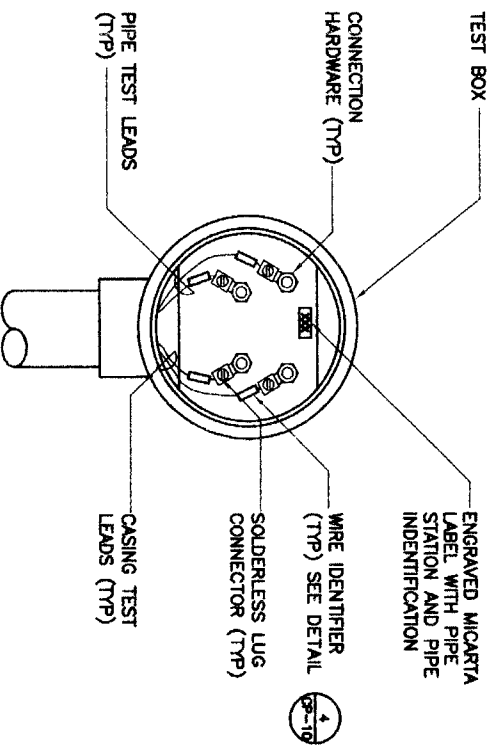


NOTE:  
 TEST BOARD SHALL BE SET IN A FLUSH-TO-GRADE TEST STATION. SEE DETAIL (5)

CTS TEST BOARD  
 NTS (3)



CASING TEST STATION (CTS) SECTION  
 NTS (A)



NOTE:  
 TEST BOX SHALL BE ATTACHED TO A POST MOUNTED TEST STATION. SEE DETAIL (1)

POST MOUNTED CTS TEST BOX  
 NTS (2)

**V&A**  
 Project: 07-0777  
 6250 Jones Road  
 Houston, TX 77036  
 Tel: 281-556-0907 / Fax: 281-556-0908  
 TBE REGISTRATION NO. E29154

**BROWN & GAY ENGINEERS, INC.**  
 Brown & Gay Engineers, Inc.  
 10777 Westchase, Suite 400  
 Houston, TX 77036  
 Tel: 281-669-8700  
 Fax: 281-669-8700  
 — Civil Engineers and Surveyors —

**NFBWA SEGMENT 4B**  
 CATHODIC PROTECTION  
 MISCELLANEOUS DETAILS  
 (2 OF 2)



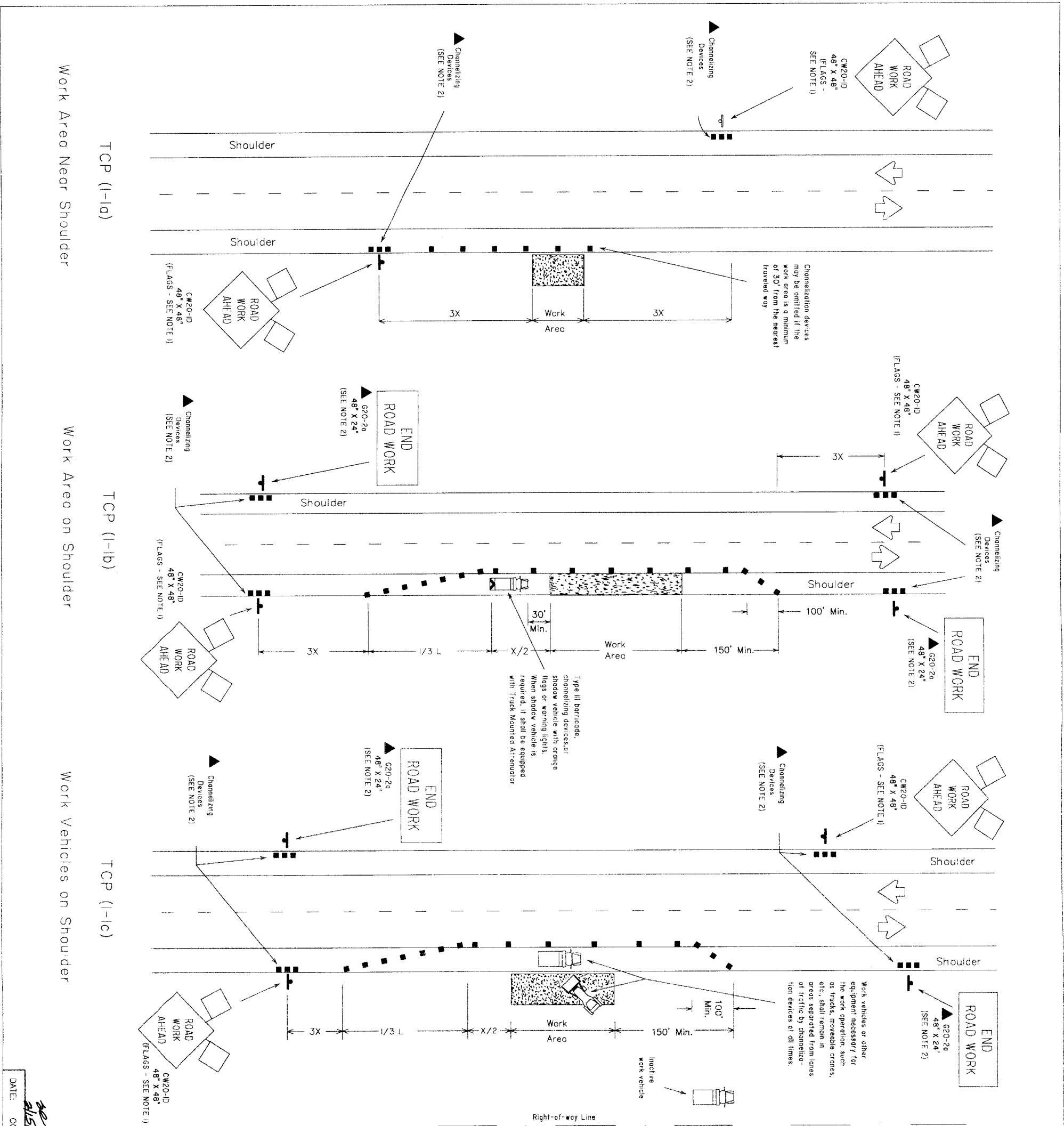
NOTE: CITY SCHEDULES VALID FOR ONE YEAR ONLY AFTER DATE OF SCHEDULES

DATE	2/15/11
FILE NO.	15-119
STREET & BRIDGE	11th St & Bridge
STATION	11+00.00 to 11+50.00
DESIGNER	W. Williams
CHECKER	M. Williams
DATE	1-15-11
SCALE	AS SHOWN
FOR USE OF HOUSTON USE ONLY	

REF. NO. CP-11  
 SHEET No. 102 of 108  
 DATE: AUGUST 31, 2010  
 DRAWING SCALE: N.T.S.  
 47757

LEVELS DISPLAYED										DATE:	DN:	
1	2	3	4	5	6	7	8	9	10	11	12	CK:
13	14	15	16	17	18	19	20	21	22	23	24	ACC:
25	26	27	28	29	30	31	32	33	34	35	36	FILE:
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	

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 The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



Work Area Near Shoulder

Work Area on Shoulder

Work Vehicles on Shoulder

TCP (I-10)

TCP (I-1b)

TCP (I-1c)

Channelization devices may be omitted if the work area is a minimum of 30' from the nearest traveled way

Type III barricade, channelizing devices or shadow vehicle with orange flags or warning lights. When shadow vehicle is required, it shall be equipped with Truck Mounted Attenuator

Work vehicles or other equipment necessary for the work operation, such as trucks, mobile cranes, etc., shall remain in areas separated from lanes of traffic by channelization devices at all times.

LEGEND

- Heavy Work Vehicle
- Truck Mounted Attenuator
- Flag
- Channelizing Devices
- Truck Mounted Attenuator
- Trailer Mounted
- Portable Channelizing Message Board
- Fishing Arrow Panel
- Sign Panel
- Flagger

Posted Speed	Formic	Minimum Distance	Minimum Sign Spacing
30	150'	165'	120'
35	205'	225'	160'
40	265'	295'	240'
45	325'	365'	320'
50	385'	435'	400'
55	445'	505'	500'
60	505'	575'	600'
65	565'	645'	700'
70	625'	715'	800'

Typical Usage:

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

GENERAL NOTES:

- Unless otherwise stated in the plans, flags attached to signs are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
- On high speed facilities advance warning signs should be installed approximately 3X from the work area or from the beginning of a lane or shoulder taper. On low speed facilities the advance warning signs should be placed based on the 'X' minimum distance.
- Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer  
 Traffic Operations Division - TE  
 Texas Department of Transportation  
 125 East 11th Street  
 Austin, Texas 78701-2483  
 Phone: (512) 416-3335  
 Fax: (512) 416-3161  
 E-mail: TRF-STANDARD@highway.dot.state.tx.us

The requirements for shadow vehicles will be listed in the project GENERAL NOTES, Item 502, Barricades, Signs and Traffic Handling

DATE: OCTOBER 7, 2009

REF. NO. T1

TRAFFIC CONTROL PLAN

TCP(I-1)-98

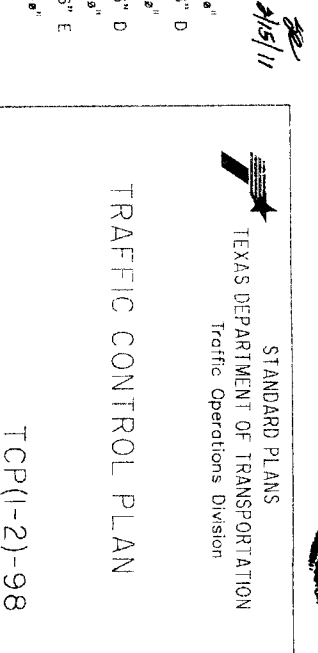
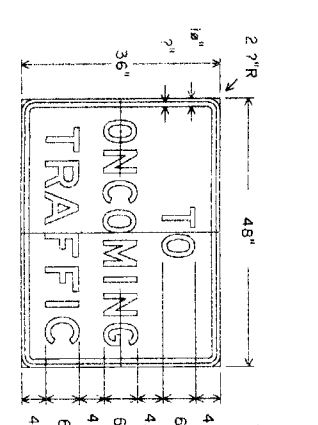
103

LEVELS DISPLAYED															
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	

DISCLAIMER  
 The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

TCP (I-2a)  
 One Lane Closed  
 Adequate Field of View

TCP (I-2b)  
 One Lane Closed  
 Inadequate Field of View



Standard Engineer  
 Traffic Operations Division - TE  
 Texas Department of Transportation  
 825 East 11th Street  
 Austin, Texas 78701-2483  
 Phone (512) 416-3355  
 Fax (512) 416-3161  
 E-mail TPF-STANDARD@denvergov.org

TRAFFIC CONTROL PLANS  
 TEXAS DEPARTMENT OF TRANSPORTATION  
 Traffic Operations Division

TRAFFIC CONTROL PLAN  
 TCP(I-2)-98

DATE: OCTOBER 7, 2009  
 REF. NO. T2  
 SHEET 104

GENERAL NOTES:

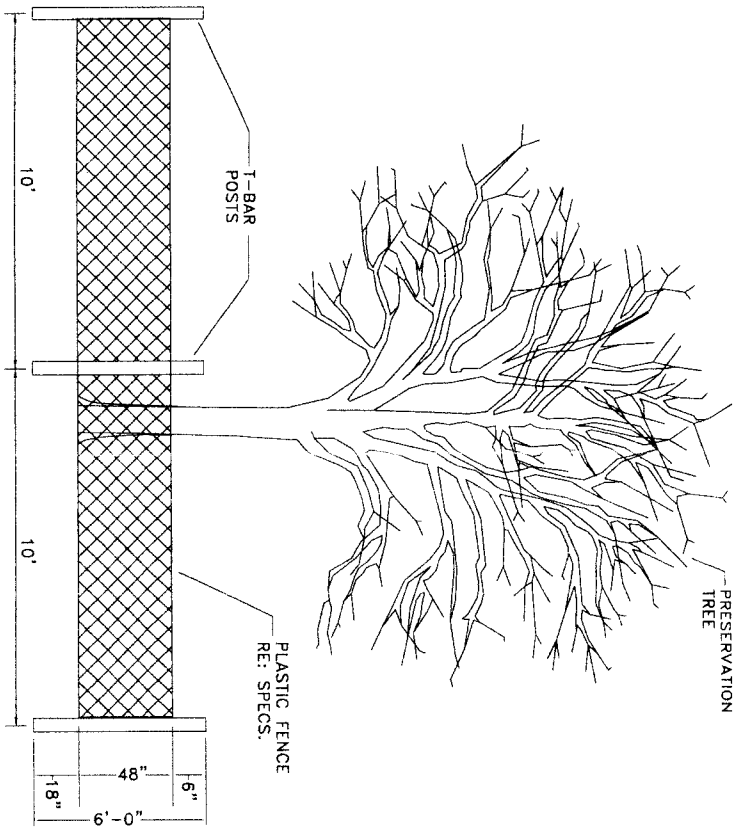
- Flags attached to signs are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stored elsewhere in the plots.
- The BE PREPARED TO STOP sign may be installed after the ONE LANE ROAD AHEAD sign, but proper sign spacing shall be maintained.
- ROAD WORK AHEAD sign may be repeated if the visibility of the work zone is less than 1500'.
- YIELD TO ONCOMING TRAFFIC sign shall be placed on a support of a 7' maximum mounting height.
- Flags should use two-way radios or other methods of communication to control traffic.
- Length of work area should be based on the ability of flaggers to communicate.
- Distance along curve of work area should be adequate length for motorists to identify and react to flagger signals.

LEGEND

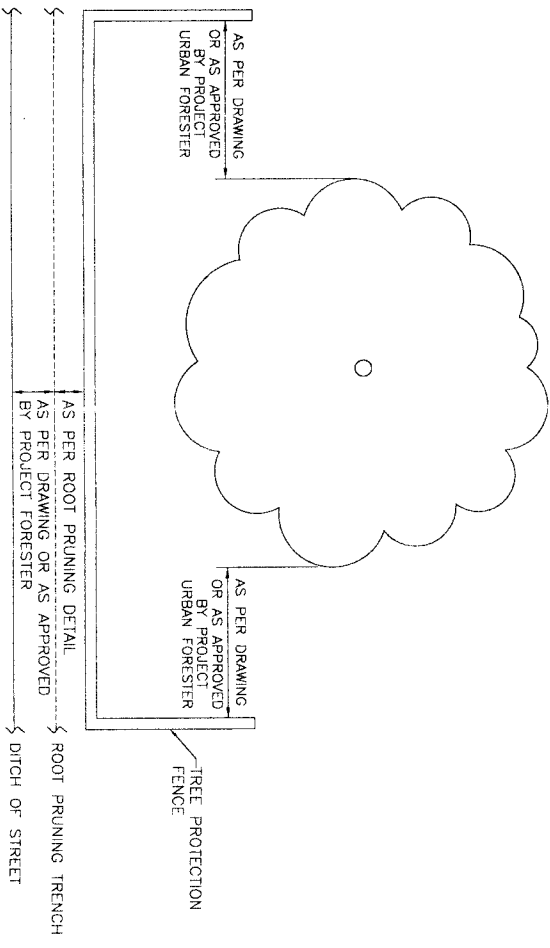
- Heavy Work Vehicle
- Tractor Mounted
- Flashing Arrow Panel
- Sign Post
- Channelizing Devices
- Truck Mounted Attenuator
- Flag
- Portable or Message Sign

Posted Speed	Form	Minimum Distance	Minimum Spacing of Device	Minimum Sign Spacing
30	W <sup>2</sup>	150'	165'	120'
35	L = 60	205'	225'	160'
40		265'	295'	240'
45		450'	495'	320'
50		500'	550'	400'
55		550'	605'	500'
60		600'	660'	600'
65		700'	715'	700'
70		700'	770'	800'

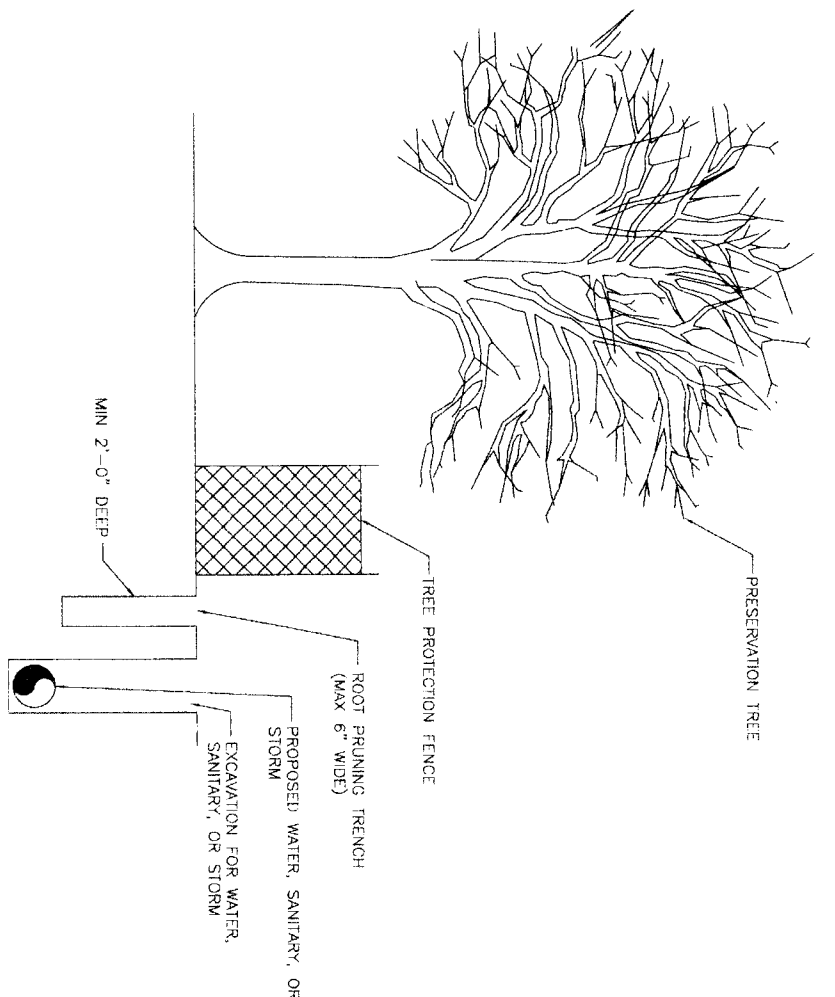
The requirement for shadow vehicles will be listed in the project GENERAL NOTES. Item 502, Barricades, Signs and Traffic Handling



**TREE PROTECTION FENCING DETAIL A**  
 NOT TO SCALE



**TREE PROTECTION FENCING DETAIL B**  
 NOT TO SCALE



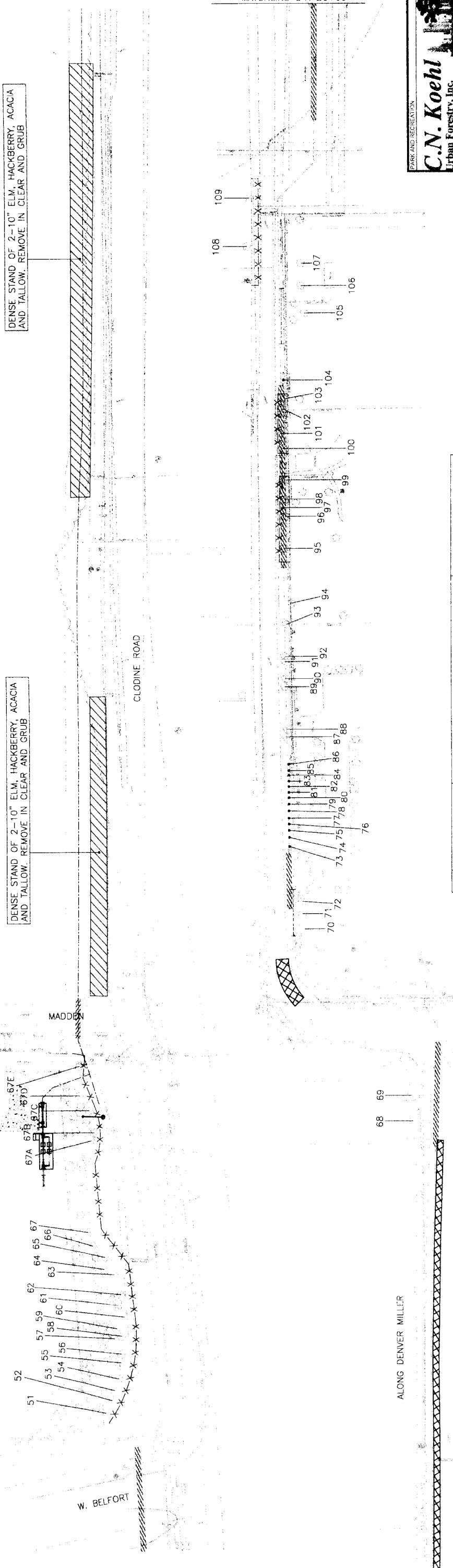
**ROOT PRUNE FOR WATER, SANITARY, OR STORM LINE**  
 NOT TO SCALE

**NOTES:**

1. ALL TREES SHOWN ON THE TREE PROTECTION PLANS 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 GRADING).
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 (DRIFLINE). THE DRIFLINE 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, RELOCATE PROTECTIVE FENCING TO 2 FEET BEHIND THE GRADE CHANGE AREA. GRADE SHALL REMAIN UNCHANGED WHERE POSSIBLE.
6. ANY ROOT SEVERED 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 THOROUGHLY ONCE 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 DRIFLINE OF TREES. NO PERMANENT SOIL OR MULCH IS PERMITTED ON THE ROOT FLARE OF ANY TREE.
9. PRUNING SHALL BE PERFORMED 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 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 DISTURBED AND UNDISTURBED ROOT ZONES, WITH IRRIGATION TRENCHER TO MINIMIZE DAMAGE TO REMAINING ROOTS. MARK AND REVIEW 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 6" LIFTS, AND COMPACTED AS REQUIRED BY SPECIFICATIONS.
13. IN AREAS WHERE LIME STABILIZATION ABUTS OR ENCLOSES UPON ROOT ZONES, AND WHERE ROOT PRUNING IS CALLED FOR, INSTALL 10-MIL. PLASTIC SHEETING TO FULL DEPTH OF ROOT PRUNING TRENCH AND 6" OVER TOP. CUT AND REMOVE EXPOSED PLASTIC AT COMPLETION OF WORK.

DATE: AUGUST 31, 2010  
 REF. NO. TP1  
 SHEET NO. 105 OF 108

<p>PARK AND RECREATION  <b>C.N. Koehl</b>                  Urban Forestry, Inc.                  2337 Cambridge Street • Katy, Texas 77493                  281-381-0222 ckoehl@pennarbortony.com</p>		<p><b>BROWN &amp; GAY ENGINEERS, INC.</b>                  Brown &amp; Gay Engineers, Inc.                  4077 Westheimer, Suite 202                  Houston, TX 77062                  713-554-8100                  www.browngay.com</p>	<p><b>CITY OF HOUSTON</b>                  DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p>
<p><b>NORTH FORT BEND</b></p>		<p><b>STATE OF TEXAS</b>                  AARON B. HANCOCK                  93706                  LICENSED PROFESSIONAL ENGINEER                  10/04/04</p>	<p><b>TRUCKS AND TRANSPORTATION</b></p>
<p><b>TREE PROTECTION PLAN</b>                  (1 OF 4)</p>		<p><b>NFBMA SEGMENT 4B</b></p>	<p>DATE: 8/15/11</p>
<p>NOTE: CITY SOMETIMES VALID FOR ONE YEAR ONLY. 7/13/07 OR SOONER.</p>		<p>STREET &amp; BORNE</p>	<p>FILE NO.:</p>
<p>DRAWING SCALE</p>		<p>AS SHOWN</p>	<p>FROM CITY OF HOUSTON USE ONLY</p>
<p>47757</p>			



DENSE STAND OF 2-10" ELM, HACKBERRY, ACACIA AND TALLOW. REMOVE IN CLEAR AND GRUB

DENSE STAND OF 2-10" ELM, HACKBERRY, ACACIA AND TALLOW. REMOVE IN CLEAR AND GRUB

MADISON

W. BELFORT

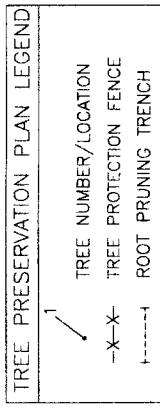
CLODINE ROAD

ALONG DENVER MILLER

MATCHLINE STA 20+00

Tree No.	Description	Comments	Treatment
68-115	Sugarberry	Impacted by new paver drive installed by home owner. Water line to be augered. Tree will not be impacted	Clearance prune
69-25	Live Oak	Impacted by new paver drive installed by home owner. Water line to be augered. Tree will not be impacted	Root prune for waterline
70-8	Cedar	Private tree	Root prune for waterline
71-8	Cedar	Private tree	Root prune for waterline
72-8	Cedar	Private tree	Remove in clear and grub
73	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
74	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
75	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
76	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
77	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
78	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
79	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
80	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
81	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
82	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
83	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
84	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
85	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
86	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
87	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
88	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
89	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
90	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
91	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
92	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
93	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
94	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
95	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
96	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
97	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
98	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
99	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
100	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
101	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
102	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
103	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
104	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
105	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
106	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
107	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
108	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
109	Sugarberry	Growing along fence line and under powerline	Remove in clear and grub

NOTE: THIS TREE PROTECTION PLAN WAS DEVELOPED WITH INFORMATION PROVIDED BY THE DESIGN ENGINEER IN DRAWINGS AND FIELD SURVEY. THE PLAN SHOWS THE PROPOSED VERTICAL OFFSETS AND AREAS OF NECESSARY EXCAVATION. CHANGES MADE TO DESIGN MAY COMPROMISE THE TREE PROTECTION PLAN. CONDITION OF EACH TREE IS BASED ON VISUAL EVALUATION AT TIME OF DESIGN. CONDITION AND STRUCTURAL INTEGRITY OF EACH TREE IS NOT GUARANTEED BY DESIGNER AT ANY POINT IN THE FUTURE. AS ENVIRONMENTAL AND MAINTENANCE INFLUENCES ON EACH TREE CAN NOT BE DETERMINED BY DESIGNER.



Tree No.	Description	Comments	Treatment
51	4" Crepe Myrtle	Newly planted	Fence
52	4" Crepe Myrtle	Newly planted	Fence
53	4" Crepe Myrtle	Newly planted	Fence
54	4" Crepe Myrtle	Newly planted	Fence
55	4" Crepe Myrtle	Newly planted	Fence
56	4" Crepe Myrtle	Newly planted	Fence, Auger waterline
57	4" Yaupon	Newly planted	Fence, Auger waterline
58	4" Yaupon	Newly planted	Fence, Auger waterline
59	4" Yaupon	Newly planted	Fence, Auger waterline
60	4" Yaupon	Newly planted	Fence, Auger waterline
61	4" Yaupon	Newly planted	Fence, Auger waterline
62	4" Yaupon	Newly planted	Fence, Auger waterline
63	5" Crepe Myrtle	Newly planted	Fence, Auger waterline
64	5" Crepe Myrtle	Newly planted	Fence, Auger waterline
65	5" Crepe Myrtle	Newly planted	Fence
66	5" Crepe Myrtle	Newly planted	Fence
67	5" Crepe Myrtle	Newly planted	Fence
67A	5" Crepe Myrtle	Newly planted	Fence
67B	5" Crepe Myrtle	Newly planted	Fence
67C	5" Crepe Myrtle	Newly planted	Fence
67D	5" Crepe Myrtle	Newly planted	Fence
67E	5" Crepe Myrtle	Newly planted	Fence

**C.N. Koehl**  
PARK AND RECREATION  
Urban Forestry, Inc.  
9237 Canvashack Street • Katy, Texas 77493  
817-541-8822 ckoehl@urbanforestry.com

**BROWN & GAY**  
ENGINEERS, INC.  
Brown & Gay Engineers, Inc.  
Houston, Texas 77002  
10777 Westheimer • Suite 400  
Houston, Texas 77036  
Tel: 281-559-9131  
Fax: 281-559-9131  
www.browngay.com  
--- Civil Engineers and Surveyors ---

**CITY OF HOUSTON**  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
WATER  
STORM WATER QUALITY  
FACILITIES  
STREET & BRIDGE

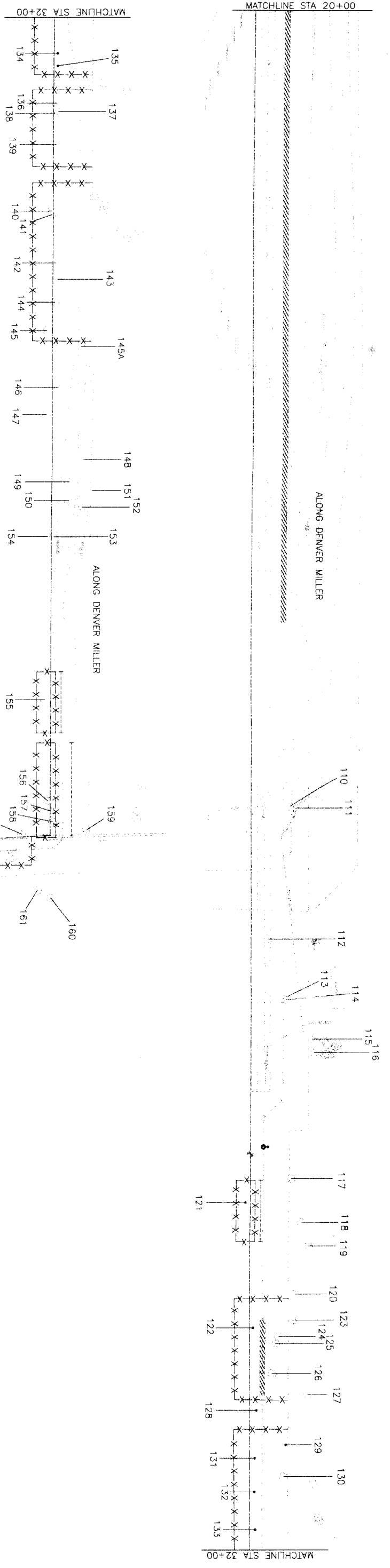
**TREE PROTECTION PLAN**  
(2 OF 4)

FILE NO:  
DRAWING SCALE:  
AS SHOWN

FOR CITY OF HOUSTON USE ONLY

REF. NO. **TP6**  
SHEET **106** OF **108**  
DATE: **AUGUST 31, 2010**

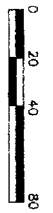
Tree No.	Description	Comments	Treatment
110	11" Sugarberry	Trees on Denver Miller	Remove in clear and grub
111	15" Sugarberry		Remove in clear and grub
112	8" Boxelder		Remove in clear and grub
113	5" Acacia		Remove in clear and grub
114	6" Sugarberry		Remove in clear and grub
115	13" Sugarberry	Private tree, will not be impacted	
116	12" Sugarberry	Private tree, will not be impacted	
117	12" Sugarberry	Private tree, will not be impacted	
118	25" Pecan	Thin canopy, private tree, will not be impacted	
119	26" Pecan	Private tree, will not be impacted	
120	11" Pecan	Private tree, will not be impacted	
121	17" Pecan	Thin canopy	Root prune for waterline, Fence
122	21" Pecan	Thin canopy	Fence, Auger waterline
123	15" Pecan	Private tree, will be protected with #122	
124	19" Sugarberry	Will be protected with Pecan trees	
125	11" Red Elm		Fence, Auger waterline
126	26" Red Elm		Fence, Auger waterline
127	14" Sugarberry	Private tree, will not be impacted	
128	12" Pecan	Trunk lying down, Remove for bore pit location to protect larger adjacent trees	Remove in clear and grub
129	12" Pecan		Fence, Auger waterline
130	18" Persimmon	Will be protected with Pecan trees	
131	22" Pecan		Fence, Auger waterline
132	17" Pecan		Fence, Auger waterline
133	22" Pecan		Fence, Auger waterline
134	15" Pecan		Fence, Auger waterline
135	20" Pecan		Fence, Auger waterline
136	10" Cedar Elm		Fence, Auger waterline
137	9" Cedar Elm		Fence, Auger waterline
138	24" Pecan		Fence, Auger waterline
139	12" Cedar Elm		Fence, Auger waterline
140	26" Pecan		Fence, Auger waterline
141	16" Pecan		Fence, Auger waterline
142	27" Pecan		Fence, Auger waterline
143	15" Pecan		Fence, Auger waterline
144	23" Pecan		Fence, Auger waterline
145	9" Pecan		Fence, Auger waterline
145A	8" Tallow		Remove in clear and grub
146	12" Sugarberry		Remove in clear and grub
147	8" Sugarberry		Remove in clear and grub
148	7" Sugarberry	Dead	Remove in clear and grub
149	9" Tallow		Remove in clear and grub
150	15" Tallow		Remove in clear and grub
151	22" Sugarberry		Remove in clear and grub
152	9" Sugarberry		Remove in clear and grub
153	10" Tallow		Remove in clear and grub
154	15" Tallow		Remove in clear and grub
155	22" Pecan	Private tree	Root prune for waterline, Fence, Clearance prune
156	21" Pecan	Private tree	Root prune for waterline, Fence, Clearance prune
157	14" Pecan		Root prune for waterline, Fence, Clearance prune
158	13" Sugarberry	Top missing, Will be protected with tree 157	
159	20" Pecan		Clearance prune, Root prune for waterline
160	17" Pecan	Private tree, will not be impacted	
161	17" Pecan	Private tree, will not be impacted	
162	22" Pecan	Private tree	Fence, Auger waterline



**NOTE**  
 THIS TREE PROTECTION PLAN WAS DEVELOPED WITH INFORMATION PROVIDED BY DESIGN ENGINEERS IN DRAWINGS DATED MARCH 2009. THE PLAN CONSIDERS ALL FITTINGS, VERTICAL OFFSETS AND AREAS OF NECESSARY EXCAVATION. CHANGES MADE TO DESIGN MAY COMPROMISE THE TREE PROTECTION PLAN. CONDITION OF EACH TREE IS BASED ON VISUAL EVALUATION AT TIME OF DESIGN. CONDITION AND STRENGTH INTERIORITY OF EACH TREE IS NOT GUARANTEED BY DESIGNER. POINT OF PRUNING AS SHOWN AS ENVIRONMENTAL AND MAINTENANCE INFLUENCES ON EACH TREE CAN NOT BE DETERMINED BY DESIGNER.

**TREE PRESERVATION PLAN LEGEND**

- 1 TREE NUMBER/LOCATION
- X-X- TREE PROTECTION FENCE
- ROOT PRUNING TRENCH



DATE: AUGUST 31, 2010  
 8/5/10

REF. NO. TP5  
 SHEET NO. 107 OF 108

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

FILE NO. 1434  
 DRAWING SCALE AS SHOWN

FOR CITY OF HOUSTON USE ONLY  
 47757

**C.N. Koehl**  
 Urban Forestry, Inc.  
 3333 Genssback Street • Katy, Texas 77493  
 281.361.0002 ckoehl@urbanforestry.com

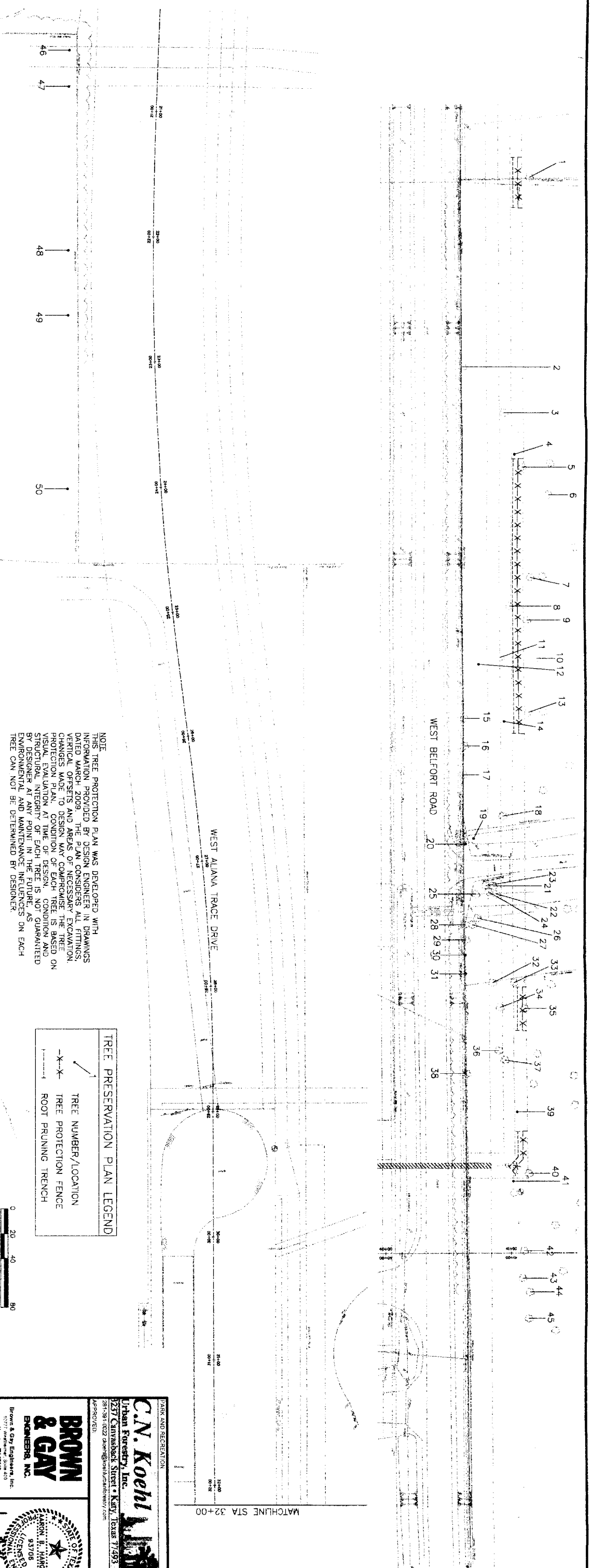
**BROWN & GAY**  
 ENGINEERS, INC.  
 Brown & Gay Engineers, Inc.  
 30777 Westchase, Suite 60  
 Houston, TX 77062  
 Tel: 281.558.8705  
 Fax: 281.558.8705  
 www.browngay.com

**NFBMA SEGMENT 4B**

**TREE PROTECTION PLAN (3 OF 4)**

**NORTH FORT BEND**

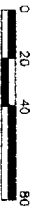
STATE OF TEXAS  
 KARRON B. HARGROVE  
 LICENSE NO. 93706  
 PROFESSIONAL FORESTRY



NOTE  
 THIS TREE PROTECTION PLAN WAS DEVELOPED WITH INFORMATION PROVIDED BY DESIGN ENGINEER IN DRAWINGS DATED MARCH 2009. THE PLAN CONSIDERS ALL FITTINGS, VERTICAL OFFSETS AND AREAS OF NECESSARY EXCAVATION. CHANGES MADE TO DESIGN MAY COMPROMISE THE TREE PROTECTION PLAN. CONDITION OF EACH TREE IS BASED ON VISUAL EVALUATION AT TIME OF DESIGN. CONDITION AND STRUCTURAL INTEGRITY OF EACH TREE IS NOT GUARANTEED BY DESIGNER AT ANY POINT IN THE FUTURE. AS ENVIRONMENTAL AND MAINTENANCE INFLUENCES ON EACH TREE CAN NOT BE DETERMINED BY DESIGNER.

**TREE PRESERVATION PLAN LEGEND**

- X—X— TREE NUMBER/LOCATION
- X—X— TREE PROTECTION FENCE
- X—X— ROOT PRUNING TRENCH



Tree No.	Description	Comments	Treatment
1	24" Cedar Elm	Private tree	Root prune for waterline, Fence, Clearance prune
2	18" Live Oak	Growing along fence line and under powerline	Remove in clear and grub
3	25" Cedar Elm		Remove in clear and grub
4	19" Cedar Elm		Remove in clear and grub
5	21" Cedar Elm	Private tree	Root prune for waterline, Fence, Clearance prune
6	22" Cedar Elm	Private tree	Root prune for waterline, Fence, Clearance prune
7	19" Cedar Elm	Private tree	Root prune for waterline, Fence, Clearance prune
8	22" Cedar Elm	Private tree	Root prune for waterline, Fence, Clearance prune
9	19" Cedar Elm	Private tree	Root prune for waterline, Fence, Clearance prune
10	22" Cedar Elm	Private tree	Root prune for waterline, Fence, Clearance prune
11	20" Cedar Elm	Private tree	Remove in clear and grub
12	10" Gum Burnellio	Private tree	Remove in clear and grub
13	16" Water Oak	Private tree	Root prune for waterline, Fence, Clearance prune
14	10" Cedar Elm	Topped, Poor condition	Remove in clear and grub
15	13" Sugarberry	Topped, Poor condition	Remove in clear and grub
16	13" Sugarberry	Topped, Poor condition	Remove in clear and grub
17	13" Sugarberry	Topped, Poor condition	Remove in clear and grub
18	18" Cedar Elm	Remove in clear and grub	Remove in clear and grub
19	17" Pecan	Remove in clear and grub	Remove in clear and grub
20	17" Green Ash	Remove in clear and grub	Remove in clear and grub
21	11" Pine	Remove in clear and grub	Remove in clear and grub
22	14" Pine	Remove in clear and grub	Remove in clear and grub
23	11" Pine	Remove in clear and grub	Remove in clear and grub
24	11" Pine	Remove in clear and grub	Remove in clear and grub
25	19" Southern Red Oak	Remove in clear and grub	Remove in clear and grub

Tree No.	Description	Comments	Treatment
26	10" Pine	Trees on Madden Road	Remove in clear and grub
27	11" Southern Red Oak		Remove in clear and grub
28	12" Water Oak	Growing along fence line, More than 1/2 of trunk decayed, Poor	Remove in clear and grub
29	12" Pine	Growing along fence line and under powerline	Remove in clear and grub
30	12" Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
31	12" Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
32	18" Cedar Elm		Remove in clear and grub
33	18" Cedar Elm		Remove in clear and grub
34	16" Cedar Elm		Remove in clear and grub
35	16" Cedar Elm		Root prune for waterline, Fence, Clearance prune
36	18" Cedar Elm		Remove in clear and grub
37	15" Cedar Elm		Remove in clear and grub
38	13" Sugarberry	Growing along fence line and under powerline	Remove in clear and grub
39	19" Cedar Elm		Remove in clear and grub
40	14" Cedar Elm		Root prune for waterline, Fence, Clearance prune
41	8" Gum Burnellio	Private tree, will not be impacted	
42	13" Cedar Elm	Private tree, will not be impacted	
43	18" Cedar Elm	Private tree, will not be impacted	
44	18" Cedar Elm	Private tree, will not be impacted	
45	16" Cedar Elm	Private tree, will not be impacted	
46	13" Sugarberry	Trees on West Aliana Trace Drive	Clearance prune
47	9" Gum Burnellio		Clearance prune
48	8" Gum Burnellio		Clearance prune
49	13" Sugarberry		Clearance prune
50	17" Sugarberry		Clearance prune

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 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 151  
 NAME AND TRANSPORTATION  
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 47757

**TREE PROTECTION PLAN (4 OF 4)**  
 DRAWING SCALE: 1"=40'  
 SHEET NO. 108 OF 108  
 DATE: AUGUST 31, 2010  
 REF. NO. TP7