

REVIEW BY FORT BEND COUNTY COMMISSIONERS COURT

On this 14 day of DECEMBER, 2010, before the Fort Bend Commissioners Court came on to be heard and reviewed the accompanying notice of LEWIS CONTRACTORS, INC.

Job Location HARLEM

Dated 12/06/10 BOND NO 105511508 Permit No. 83864
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 3rd day of August, 1987, recorded in Volume _____ of the Minutes of the Commissioners Court of Fort Bend County, Texas, to the extent that such order is not inconsistent with Article 1436a, Vernon's Texas Civil Statutes. Upon Motion of Commissioner Meyers, seconded by Commissioner Prestage, duly put and carried, it is ORDERED, ADJUGED AND DECREED that said notice of said above purpose is hereby acknowledged by the Commissioners Court of Fort Bend County, Texas, and that said notice be placed on record according to the regulation order thereof.

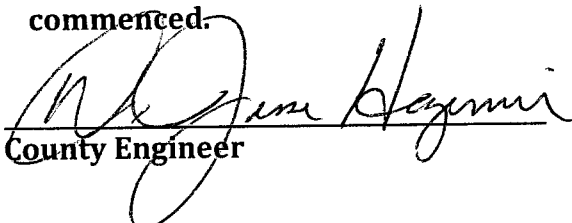
Notes:

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

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

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

By


County Engineer

By

Drainage District Engineer/Manager

Presented to Commissioners Court and approved.

Recorded in Volume 12-14-10
Minutes of Commissioners Court.

Clerk of Commissioners Court

By Sherry Fisk
Deputy

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

AUTHORIZED

BOND NO 105511508

THE STATE OF TEXAS §

KNOW ALL MEN BY THESE PRESENTS:

COUNTY OF FORT BEND §

THAT WE, Lewis Contractors, Inc. whose address is PO Box 1623, Bertram, TX 78605, Texas, hereinafter called the Principal, and Travelers Casualty and Surety Company of America, a Corporation existing under and by virtue of the laws of the State of CT and authorized to do an indemnifying business in the State of Texas, and whose principal office is located at One Tower Square, Hartford, CT 06183, whose officer residing in the State of Texas, authorized to accept service in all suits and actions brought within said State is John W. Schuler and whose address is 1405 E. Riverside Dr., Austin, TX 78741, 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 Five Hundred Seventy Thousand One Hundred Twenty Six and 62/100s Dollars (\$570,126.62) 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 30th day of November, 20 10.

Lewis Contractors, Inc.

PRINCIPAL

BY

Travelers Casualty and Surety Company of America
SURETY

BY John W. Schuler, Attorney-in-Fact



POWER OF ATTORNEY

Farmington Casualty Company
Fidelity and Guaranty Insurance Company
Fidelity and Guaranty Insurance Underwriters, Inc.
St. Paul Fire and Marine Insurance Company
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company
Travelers Casualty and Surety Company
Travelers Casualty and Surety Company of America
United States Fidelity and Guaranty Company

Attorney-In Fact No. 220331

Certificate No. 003683304

KNOW ALL MEN BY THESE PRESENTS: That St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company and St. Paul Mercury Insurance Company are corporations duly organized under the laws of the State of Minnesota, that Farmington Casualty Company, Travelers Casualty and Surety Company, and Travelers Casualty and Surety Company of America are corporations duly organized under the laws of the State of Connecticut, that United States Fidelity and Guaranty Company is a corporation duly organized under the laws of the State of Maryland, that Fidelity and Guaranty Insurance Company is a corporation duly organized under the laws of the State of Iowa, and that Fidelity and Guaranty Insurance Underwriters, Inc., is a corporation duly organized under the laws of the State of Wisconsin (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint

Todd Jackson, and John W. Schuler

of the City of Austin, State of Texas, their true and lawful Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this 24th day of May, 2010.

Farmington Casualty Company
Fidelity and Guaranty Insurance Company
Fidelity and Guaranty Insurance Underwriters, Inc.
St. Paul Fire and Marine Insurance Company
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company
Travelers Casualty and Surety Company
Travelers Casualty and Surety Company of America
United States Fidelity and Guaranty Company



State of Connecticut
City of Hartford ss.

By: George W. Thompson
George W. Thompson, Senior Vice President

On this the 24th day of May, 2010, before me personally appeared George W. Thompson, who acknowledged himself to be the Senior Vice President of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

In Witness Whereof, I hereunto set my hand and official seal.
My Commission expires the 30th day of June, 2011.



Marie C. Tetreault
Marie C. Tetreault, Notary Public

This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, which resolutions are now in full force and effect, reading as follows:

RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

FURTHER RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

FURTHER RESOLVED, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

FURTHER RESOLVED, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, Kori M. Johanson, the undersigned, Assistant Secretary, of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 30th day of November, 20 10


Kori M. Johanson, Assistant Secretary



To verify the authenticity of this Power of Attorney, call 1-800-421-3880 or contact us at www.travelersbond.com. Please refer to the Attorney-In-Fact number, the above-named individuals and the details of the bond to which the power is attached.



IMPORTANT NOTICE

TO OBTAIN INFORMATION OR MAKE A COMPLAINT:

You may contact Travelers Casualty and Surety Company of America, for information or to make a complaint at:

Travelers Bond
Attn: Claims

You may contact the Texas Department of Insurance to obtain the information on companies, coverages, rights or complaints at:

Texas Department of Insurance
P.O. Box 149104
Austin, TX 78714-9104
(800) 252-3439

ATTACH THIS NOTICE TO YOUR BOND. This notice is for information only and does not become a part or a condition of the attached document and is given to comply with Section 2253-021, Government Code, and Section 53.202, Property Code, effective September 1, 2001.

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. 083864

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

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

- (2) Bond:
- District Attorney, approval when applicable.
- Perpetual bond currently posted.
- No.
- Amount
- X Performance bond submitted.
- No. 105511508
- Amount \$570,126.62
- Cashier's Check.
- No.
- Amount

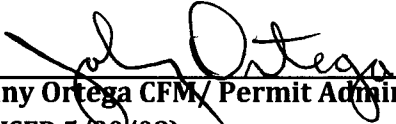
- (3) Verbal permission given for emergencies, to start construction before approved in Commissioner's Court.

 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)

12/06/2010
Date

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

APPLICANT'S JOB NO.

PERMIT No. 83864 PCT. No. 3

BOND No. 105511508

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

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

Road or Ditch Name	Distance & Direction From Nearest Intersection	Length of Crossing	Type of Construction			
			Bored	Jacked	Driven	Cased

Along Roads and/or Drainage Ditches

Road or Ditch Name	Distance & Direction From Nearest Intersection	To	Distance
<u>HARLEM RD</u>	<u>WEST BELFORT : HADEN</u> <u>GOING NORTH</u>	<u>LONG POINT</u> <u>SLOUGH</u>	<u>12,485 IF</u>

General Description

20", 24", 42" WATERLINE FROM HARLEM RD TO LONG POINT SLOUGH

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: LEWIS CONTRACTORS INC.
AGENT and/or OWNER

S. J. V.
(Signature)

NAME & TITLE STEVE HUGDAHL - PROJECT MANAGER
(Please Print)

DATE 11/2/10

ADDRESS 7200 FM 2243
(Street/P.O. Box)

GEORGETOWN TX 78628
City State Zip

TELEPHONE NO: 512-260-7100 / 512-203-8594
(accessible 24 hrs/day, 7 days/week)

Does project
comply with Fort
Bend County
Outdoor Lighting
Ordinance?

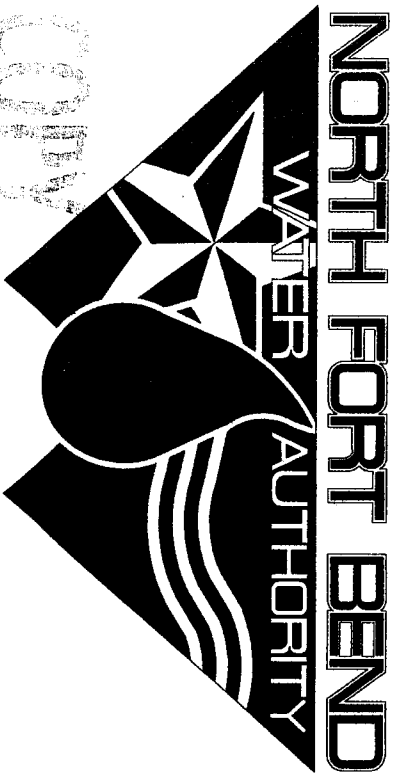
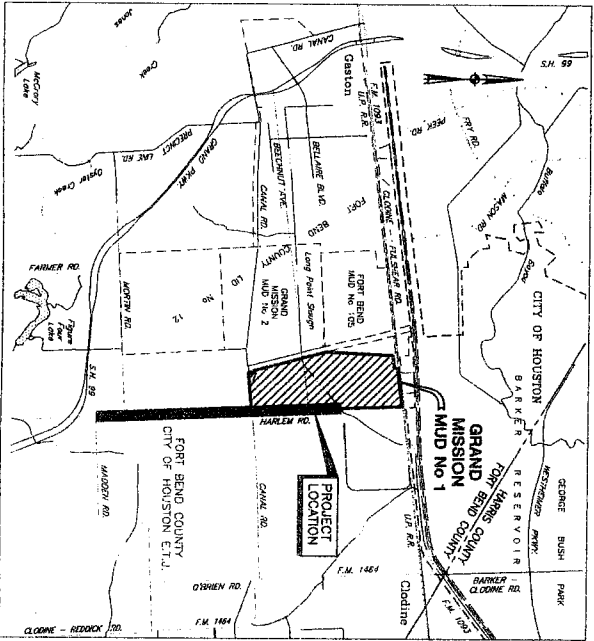
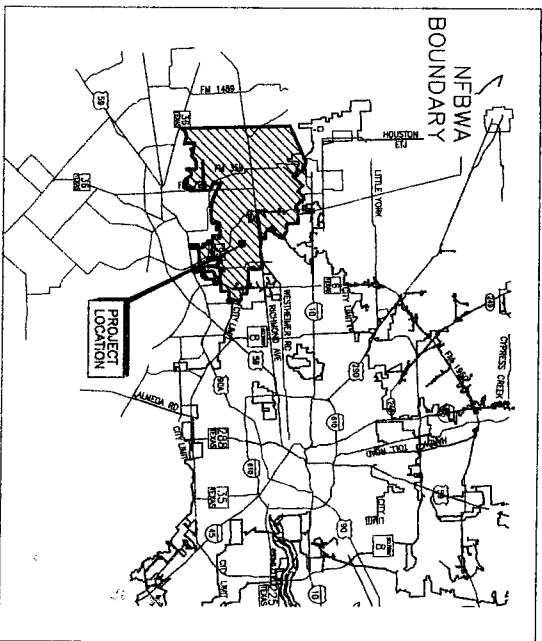
Yes ()

No ()

NORTH FORT BEND WATER AUTHORITY

SEGMENT 5

PROPOSED 20", 24" AND 42" WATERLINES ALONG HARLEM ROAD FROM MADDEN ROAD NORTH TO LONG POINT SLOUGH



FOR THE CITY OF HOUSTON
10/24/2010 T.H

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



FORT BEND COUNTY

J. Jesse Hegemier, P.E.
JESSE HEGEMIER, P.E.
Fort Bend County Engineer

5/9/10
DATE

FROM
FLOOD INSURANCE RATE MAP
PANEL 105 & 115 OF (550)
MAP # 48157C00105J & 48157C00115J
BFE ELEVATION 93.0
1. KENNETH J. MARTINEC, P.E., certify that this project is entirely located outside the
area with a 100 year flood frequency.

ONE-CALL NOTIFICATION SYSTEM
CALL BEFORE YOU DIG!!
(713) 223-4567 (in Houston)
(New Statewide Number Outside
Houston)
1-800-545-8005

- NOTES:
- Contractor shall notify the City of Houston, Department of Public Works and Engineering (713-837-7000) 48 hours before starting work on this project.
 - Contractor shall notify the City of Houston, Department of Public Works and Engineering, Engineering Construction Division (Telephone No. 713-883-1450) 48 hours before starting work on this project.
 - No proposed storm sewer or drainage work is shown, nor any proposed change in drainage path or pattern is in this project proposed work scope.
 - No known proposed wastewater line work is included in this project's work scope.

JC JONES & CARTER, INC.
ENGINEERS • PLANNERS • SURVEYORS
Texas Board of Professional Engineers Registration No. F-459
5305 Oldham Dr., Suite 100 Houston, Texas 77057 (713) 777-8357



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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER
M.P. Lopez 9-2-10
10/1/09-22-10

STREET & BROOK
STREET & BROOK

CITY ENGINEER
FOR CITY OF HOUSTON USE ONLY
CITY DWG NO.:

47223

47223

SHEET
No: 1 OF 62

REVISION DATE: 10/01/08

PROPOSED 20", 24" AND 42" WATERLINES ALONG HARLEM ROAD FROM MADDEN ROAD NORTH TO LONG POINT SLOUGH

ISSUE DATE: JULY 2010

ILMS NO: 09078917
LOG NO: 09-0679

SHEET NO. DWG. NAME

SHEET NO. DWG. NAME

- 1 COVER SHEET

2 SHEET INDEX

3 CONSTRUCTION NOTES

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5 OVERALL SITE LAYOUT SHEET 2 OF 2

6 SURVEY CONTROL SHEET 1 OF 4

7 SURVEY CONTROL SHEET 2 OF 4

8 SURVEY CONTROL SHEET 3 OF 4

9 SURVEY CONTROL SHEET 4 OF 4

10 HARLEM ROAD BASELINE STA 1+00 TO 6+00

11 HARLEM ROAD BASELINE STA 6+00 TO 11+00

12 HARLEM ROAD BASELINE STA 11+00 TO 16+00

13 HARLEM ROAD BASELINE STA 16+00 TO 21+00

14 HARLEM ROAD BASELINE STA 21+00 TO 26+00

15 HARLEM ROAD BASELINE STA 26+00 TO 31+00

16 HARLEM ROAD BASELINE STA 31+00 TO 36+00

17 HARLEM ROAD BASELINE STA 36+00 TO 41+00

18 HARLEM ROAD BASELINE STA 41+00 TO 46+00

19 HARLEM ROAD BASELINE STA 46+00 TO 51+00

20 HARLEM ROAD BASELINE STA 51+00 TO 56+00

21 HARLEM ROAD BASELINE STA 56+00 TO 61+00

22 HARLEM ROAD BASELINE STA 61+00 TO 66+00

23 HARLEM ROAD BASELINE STA 66+00 TO 71+00

24 HARLEM ROAD BASELINE STA 71+00 TO 76+00

25 HARLEM ROAD BASELINE STA 76+00 TO 81+00

26 HARLEM ROAD BASELINE STA 81+00 TO 86+00

27 HARLEM ROAD BASELINE STA 86+00 TO 91+00

28 HARLEM ROAD BASELINE STA 91+00 TO 96+00

29 HARLEM ROAD BASELINE STA 96+00 TO 101+00

30 HARLEM ROAD BASELINE STA 101+00 TO 106+00

31 HARLEM ROAD BASELINE STA 106+00 TO 111+00

32 HARLEM ROAD BASELINE STA 111+00 TO 116+00

33 HARLEM ROAD BASELINE STA 116+00 TO 121+00

34 HARLEM ROAD BASELINE STA 121+00 TO 126+00

35 HARLEM ROAD BASELINE STA 126+00 TO 131+00

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47 CATHODIC PROTECTION INSULATING JOINT DETAILS

48 CATHODIC PROTECTION JOINT BONDING

49 CATHODIC PROTECTION MISCELLANEOUS DETAILS SHEET 1 OF 2

50 CATHODIC PROTECTION MISCELLANEOUS DETAILS SHEET 2 OF 2

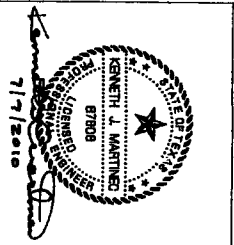
51 PROJECT SIGN AND PIPELINE MARKER DETAILS

52 STANDARD WATERLINE DETAILS

53 STEEL PIPE DETAILS

54 PRESTRESSED CONCRETE CYLINDER PIPE DETAILS

- 55 TRENCHLESS CONSTRUCTION DETAILS
- 56 HEAVY DUTY MANHOLE RING AND COVER DETAILS
- 57 VALVE AND SERVICE MANHOLE DETAILS
- 58 COMBINATION AIR VALVE DETAILS
- 59 EXTRA DEPTH MANHOLE DETAILS
- 60 EXCAVATION, BEDDING, BACKFILL, & PAVEMENT REPAIR DETAILS
- 61 BARRICADE DETAILS
- 62 STORM WATER POLLUTION PREVENTION DETAILS



4		
3		
2		
1		
NO.	DATE	REVISION
APPROV.		

JC JONES & CARTER, P.C.
ENGINEERS & PLANNERS, S.U.B. 15245
Texas Board of Professional Engineering Examiners No. 5245
6535 Galloway Dr., Suite 100 Houston, Texas 77061 (713) 777-8387

SEGMENT 5

SHEET INDEX



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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE	7/6/2010	STREET & BRIDGE
DESIGNED BY	7/6/2010	TRAFFIC
CHECKED BY	7/6/2010	STORM WATER QUALITY
IN CHARGE	7/6/2010	

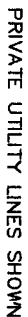
FILE NO.: FOR CITY OF HOUSTON USE ONLY (CITY DWG NO.):

DRAWING SCALE

HORIZ :
VERT :

SHEET No: 2 OF 62





[Signature]


GAS service lines are not shown.

Sprache V1: german

CALL CENTERPOINT AT 713-

ELEV = 93.74'

7/7/2016



STATE OF TEXAS
KENNETH J. MARTINEZ
PROBATION DEPARTMENT
87808

WORLD JOURNAL OF LITERATURE, Spring 1990 FOUNDATION, 18005 1/13/91 1/13/91

DECLARATION

CONFIDENTIAL



QUESTIONS TO BE ASKED:

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WASLEWATER	TRAFALGAR
------------	-----------

STORM WATER QUALITY

ACTIVITIES

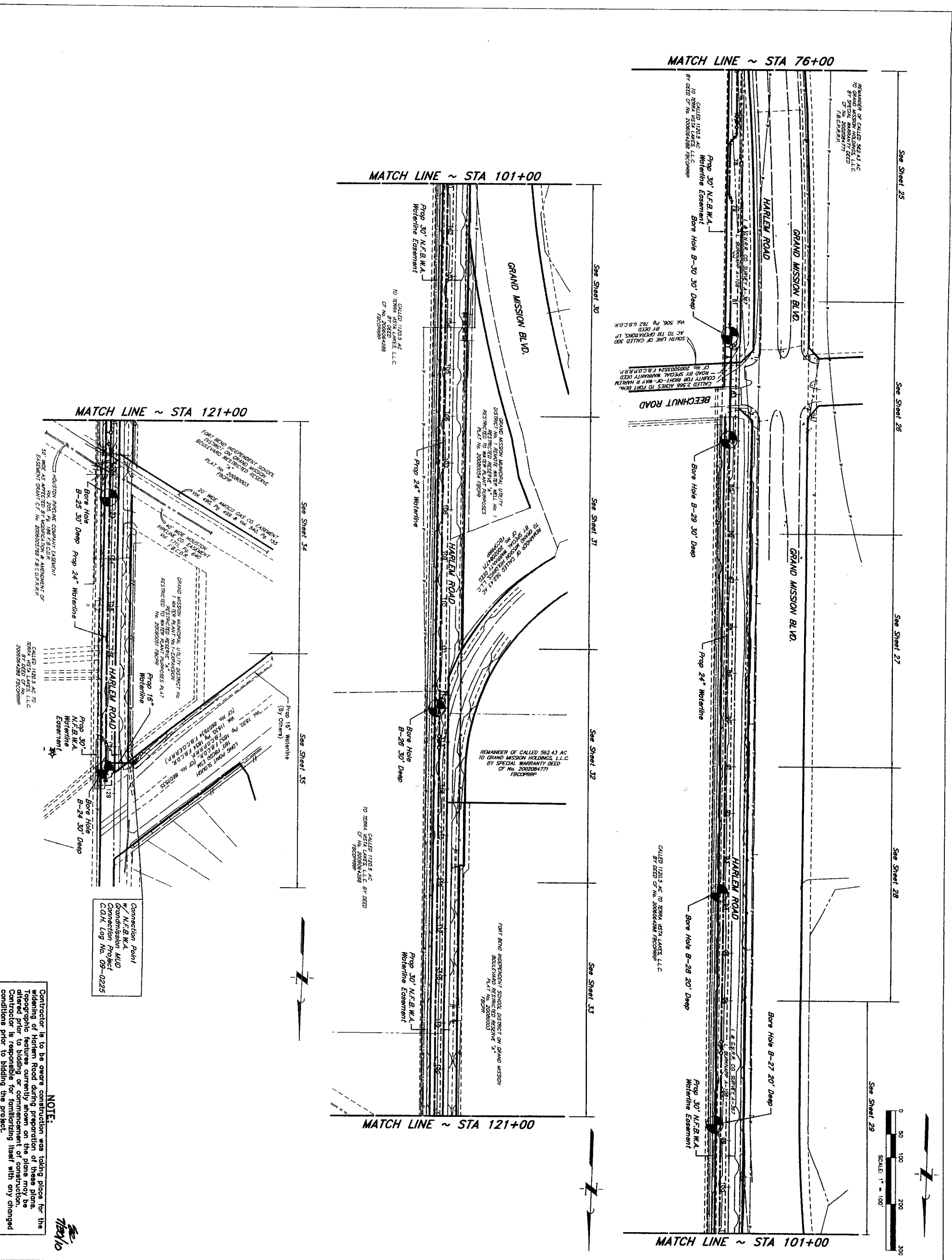
FILE NO: _____
FOR CITY OF HOUSTON USE
ONLY CITY DWG. NO.:

DRAWING SCALE

HQ37 : 1" = 100'

47228

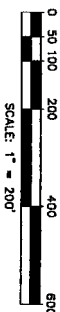
4 OF 62 SHEET



NOTE:
Contractor is to be aware construction was taking place for the widening of Harlem Road during preparation of these plans. Topographic features currently shown on the plans may be altered prior to bidding or commencement of construction. Contractor is responsible for familiarizing itself with any changed conditions prior to bidding the project.

Connection Point
w/ N.F.B.W.A.
Construction MUD
Connection Project
C.O.H. Log No. 09-0225

PRIVATE UTILITY LINES SHOWN	
Contractor: <i>Thompson</i>	Date: 10/7/10
Centerpoint Energy/ Gas Facilities Gas service lines are not shown.	Date: 10/7/10
Contract: <i>Thompson & Co.</i>	Date: 7-13-10
NOTICE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL TOLL FREE NOTIFICATION CENTER (713) 223-4357 OR 1-800-859-8344 TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED. CALL CENTERPOINT AT 713-207-2222.	
BENCHMARK: CONTROL POINT NO. 103 BEING A SET 5/8" IRON ROD WITH AN ALUMINUM CAP STAKED NORTH FORT BEND COUNTY ROAD 5220-NORTH FORT BEND COUNTY ROAD NEAR A TEPPO PIPELINE EASEMENT (MWD-88, 2002 ADJUSTMENT) ELEV = 83.74'	
APPROVED: <i>J. L. Martinez</i>	
REVISION:	
NO. DATE REVISION APPROVAL	
1	
2	
3	
4	
J. L. JONES & CARTER, INC. ENGINEERS-PLANNERS-SURVEYORS Texas Board of Professional Engineers Registration No. F-439 6535 Gulshan Dr., Suite 100 Houston, Texas 77061 (713) 777-4327	
SEGMENT 6	
OVERALL SITE LAYOUT SHEET 2 OF 2	
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
DATE: 7/8/10	SHEET & BRIDGE
DESIGNED BY: <i>Thompson</i>	THAWTE
CHECKED BY: <i>Thompson</i>	STORM WATER QUALITY
FILE NO.:	
DRAWING SCALE:	
HORIZ : 1" = 100'	
VERT :	
SHEET 5 OF 62	



- GENERAL NOTES
1. BOUNDARY WORK WAS PERFORMED BY OTHERS.
2. BEARINGS SHOWN HEREON ARE BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM. SOUTH CENTRAL ZONE NAD83 AREAS ARE DETERMINED USING NORTH ARIZONA ZONE NAD83 COORDINATES. COORDINATES SHOWN HEREON ARE SURFACE AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999872.
3. ELEVATIONS SHOWN HEREON ARE BASED ON NORTH FORT BEND WATER AUTHORITY SURVEY CONTROL. DATA POINT 103 HAVING A PUBLISHED ELEVATION OF 82.74' MAY BE 2002 ADJUSTMENT CONTROL. POINT IS A 5.5'-HIGH ROH ROD WITH A 1.50" DIA. STEEL SCREW BEARING ON REDUCED STREET 18'-FEET EAST OF HAWKINS ROAD NEAR A TPOPO PEEPING FACILITY.
4. THIS SURVEY DOES NOT PROVIDE ANY DETERMINATION CONCERNING WETLANDS, FAULT LINES, TOXIC WASTE OR ANY OTHER ENVIRONMENTAL ISSUES. SUCH MATTERS SHOULD BE DETERMINED BY THE CLIENT OR PROSPECTIVE PURCHASER TO AN EXPERT CONSULTANT.

JF JONES & CARTER, INC.
ENGINEERS • PLANNERS • SURVEYORS
Texas Board of Professional Engineers Registration No. F-439
6335 Gaulton Dr., Suite 100 Houston, Texas 77061 (713) 777-5537

SURVEY CONTROL
SHEET 1 OF 4



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

SIGNATURES

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

[illegible]

M.I. Good-9-21-10

0622-6-110

FILE NO:	FOR CITY OF HOUSTON USE
----------	-------------------------

DRAWING SCALE

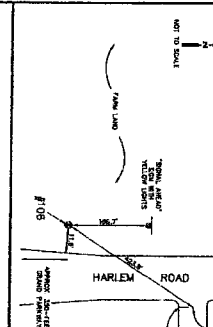
HORZ : 1" = 200'

[illegible]

SHEET
No: 6 OF 67

COH LOG NO: 09-0679

NORTH FORT BEND WATER AUTHORITY		SEGMENT 5 CONTROL POINT 106 - SHEET 1
CONTROL POINT NUMBER 106 KEY MAP PAGE: 526-Y	GRID COORDINATES Y: 13,802,084.40 X: 3,011,632.43	VERTICAL DATUM: NAVD-88 VERTICAL ADJUSTMENT: 2002 ADJ. (SEE VERTICAL NOTES)
HORIZONTAL DATUM: NAD83	SURFACE COORDINATES Y: 13,803,878.68 X: 3,012,043.95	POINT ESTABLISHED BY RTK POINTS DIRECTLY TIED: 20 & 23
HORIZONTAL ADJUSTMENT: (CORE 88 - EPOCH 2002)	SCALE FACTOR: 1.00013	
MARKER: ALUMINUM CAP	ELEVATION 90.21 FT.	
STAMPING: "NORTH FORT BEND WATER AUTHORITY 105"		
GEODETIC COORDINATES: LATITUDE: N 29° 39' 52.08204" LONGITUDE: W 95° 42' 53.71811"		
DESCRIPTION: CONTROL POINT IS A 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY SURVEY CONTROL DATA SHOWN HEREIN IS BASED ON SECONDARY CONTROL POINTS SET 208.1-FEET SOUTH OF THE CENTRELINE OF MORTIN ROAD AND 13.5-FEET EAST OF HARLEM ROAD.		
VERTICAL NOTES: THIS SURVEY IS CONDUCTED TO THE NOS PUBLISHED CORES ARE ADJUSTED BY NOS IN 2002 DATE 2002.		

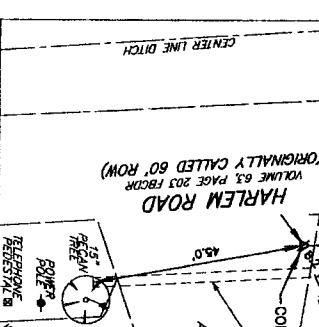


DATE: 2002

ENGINEER: JC JONES & CARTER, R.L.
5535 GULFON DR., SUITE 100
HOUSTON, TEXAS 77056
(713) 771-3337

NORTH FORT BEND
ENGINEERS • PLANNERS • SURVEYORS

NORTH FORT BEND WATER AUTHORITY		SEGMENT 5 CONTROL POINT 7000 - SHEET 1
CONTROL POINT NUMBER 7000 KEY MAP PAGE: 526-Y	GRID COORDINATES Y: 13,803,003.48 X: 3,011,658.57	VERTICAL DATUM: NAVD-88 VERTICAL ADJUSTMENT: 2002 ADJ. (SEE VERTICAL NOTES)
HORIZONTAL DATUM: NAD83	SURFACE COORDINATES Y: 13,804,979.87 X: 3,012,050.09	SUPPLEMENTAL SURVEY CONTROL DATA SHOWN HEREIN IS BASED ON SECONDARY CONTROL POINTS SET 208.1-FEET SOUTH OF THE CENTRELINE OF HARLEM ROAD AND 13.5-FEET EAST OF HARLEM ROAD.
HORIZONTAL ADJUSTMENT: (CORE 99 - EPOCH 2002)	SCALE FACTOR: 1.00013	
MARKER: 5/8" (WITH PLASTIC CAP)	ELEVATION 93.50 FT.	
STAMPING: "NORTH FORT BEND WATER AUTHORITY 105"		
GEODETIC COORDINATES: LATITUDE: 29°39'44.25344" LONGITUDE: 95°42'53.61282"		
DESCRIPTION: CONTROL POINT IS A 5/8-INCH IRON ROD (WITH CAP) STAMPED 7000. THE POINT IS LOCATED ON THE EAST SIDE OF HARLEM ROAD. THE POINT IS LOCATED ON THE EAST SIDE OF HARLEM ROAD. THE POINT IS LOCATED ON THE EAST SIDE OF HARLEM ROAD.		
VERTICAL NOTES: ELEVATIONS SHOWN HEREIN ARE BASED ON NORTH FORT BEND WATER AUTHORITY SURVEY CONTROL DATA SHOWN HEREIN IS BASED ON SECONDARY CONTROL POINTS SET 208.1-FEET SOUTH OF THE CENTRELINE OF HARLEM ROAD AND 13.5-FEET EAST OF HARLEM ROAD.		

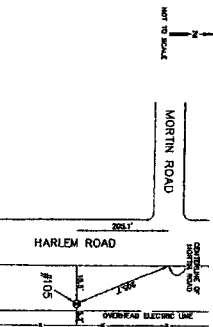


DATE: 2002

ENGINEER: JC JONES & CARTER, R.L.
5535 GULFON DR., SUITE 100
HOUSTON, TEXAS 77056
(713) 771-3337

NORTH FORT BEND
ENGINEERS • PLANNERS • SURVEYORS

NORTH FORT BEND WATER AUTHORITY		SEGMENT 5 CONTROL POINT 105 - SHEET 1
CONTROL POINT NUMBER 105 KEY MAP PAGE: 526-Y	GRID COORDINATES Y: 13,803,803.68 X: 3,011,627.24	VERTICAL DATUM: NAVD-88 VERTICAL ADJUSTMENT: 2002 ADJ. (SEE VERTICAL NOTES)
HORIZONTAL DATUM: NAD83	SURFACE COORDINATES Y: 13,805,588.15 X: 3,012,018.75	POINT ESTABLISHED BY RTK POINTS DIRECTLY TIED: 20 & 23
HORIZONTAL ADJUSTMENT: (CORE 88 - EPOCH 2002)	SCALE FACTOR: 1.00013	
MARKER: ALUMINUM CAP	ELEVATION 90.21 FT.	
STAMPING: "NORTH FORT BEND WATER AUTHORITY 105"		
GEODETIC COORDINATES: LATITUDE: N 29° 39' 52.08204" LONGITUDE: W 95° 42' 53.71811"		
DESCRIPTION: CONTROL POINT IS A 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY SURVEY CONTROL DATA SHOWN HEREIN IS BASED ON SECONDARY CONTROL POINTS SET 208.1-FEET SOUTH OF THE CENTRELINE OF MORTIN ROAD AND 13.5-FEET EAST OF HARLEM ROAD.		
VERTICAL NOTES: THIS SURVEY IS CONDUCTED TO THE NOS PUBLISHED CORES ARE ADJUSTED BY NOS IN 2002 DATE 2002.		

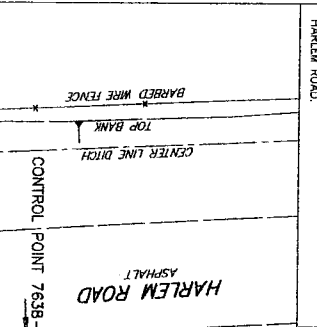


DATE: 2002

ENGINEER: JC JONES & CARTER, R.L.
5535 GULFON DR., SUITE 100
HOUSTON, TEXAS 77056
(713) 771-3337

NORTH FORT BEND
ENGINEERS • PLANNERS • SURVEYORS

NORTH FORT BEND WATER AUTHORITY		SEGMENT 5 CONTROL POINT 7638 - SHEET 1
CONTROL POINT NUMBER 7638 KEY MAP PAGE: 526-U	GRID COORDINATES Y: 13,804,883.79 X: 3,011,669.19	VERTICAL DATUM: NAVD-88 VERTICAL ADJUSTMENT: 2002 ADJ. (SEE VERTICAL NOTES)
HORIZONTAL DATUM: NAD83	SURFACE COORDINATES Y: 13,806,480.40 X: 3,011,960.69	SUPPLEMENTAL SURVEY CONTROL DATA SHOWN HEREIN IS BASED ON SECONDARY CONTROL POINTS SET 208.1-FEET SOUTH OF THE CENTRELINE OF HARLEM ROAD AND 13.5-FEET EAST OF HARLEM ROAD.
HORIZONTAL ADJUSTMENT: (CORE 88 - EPOCH 2002)	SCALE FACTOR: 1.00013	
MARKER: 5/8" (WITH PLASTIC CAP)	ELEVATION 92.05 FT.	
STAMPING: "NORTH FORT BEND WATER AUTHORITY 105"		
GEODETIC COORDINATES: LATITUDE: 29°42'54.08992" LONGITUDE: 95°42'54.08992"		
DESCRIPTION: CONTROL POINT IS A 5/8-INCH IRON ROD (WITH CAP) STAMPED 7638. THE POINT IS LOCATED ON THE EAST SIDE OF HARLEM ROAD. THE POINT IS LOCATED ON THE EAST SIDE OF HARLEM ROAD. THE POINT IS LOCATED ON THE EAST SIDE OF HARLEM ROAD.		
VERTICAL NOTES: ELEVATIONS SHOWN HEREIN ARE BASED ON NORTH FORT BEND WATER AUTHORITY SURVEY CONTROL DATA SHOWN HEREIN IS BASED ON SECONDARY CONTROL POINTS SET 208.1-FEET SOUTH OF THE CENTRELINE OF HARLEM ROAD AND 13.5-FEET EAST OF HARLEM ROAD.		

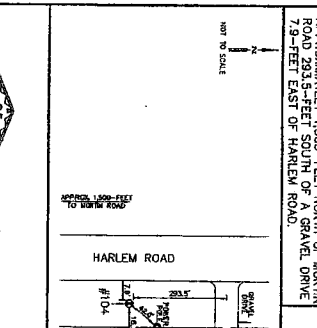


DATE: 2002

ENGINEER: JC JONES & CARTER, R.L.
5535 GULFON DR., SUITE 100
HOUSTON, TEXAS 77056
(713) 771-3337

NORTH FORT BEND
ENGINEERS • PLANNERS • SURVEYORS

NORTH FORT BEND WATER AUTHORITY		SEGMENT 5 CONTROL POINT 104 - SHEET 1
CONTROL POINT NUMBER 104 KEY MAP PAGE: 526-U	GRID COORDINATES Y: 13,805,489.65 X: 3,011,533.31	VERTICAL DATUM: NAVD-88 VERTICAL ADJUSTMENT: 2002 ADJ. (SEE VERTICAL NOTES)
HORIZONTAL DATUM: NAD83	SURFACE COORDINATES Y: 13,807,284.95 X: 3,011,324.81	POINT ESTABLISHED BY RTK POINTS DIRECTLY TIED: 20 & 23
HORIZONTAL ADJUSTMENT: (CORE 96 - EPOCH 2002)	SCALE FACTOR: 1.00013	
MARKER: ALUMINUM CAP	ELEVATION 91.68 FT.	
STAMPING: "NORTH FORT BEND WATER AUTHORITY 104"		
GEODETIC COORDINATES: LATITUDE: N 29° 40' 08.89427" LONGITUDE: W 95° 42' 54.24027"		
DESCRIPTION: CONTROL POINT IS A 5/8-INCH IRON ROD WITH A NORTH FORT BEND WATER AUTHORITY SURVEY CONTROL DATA SHOWN HEREIN IS BASED ON SECONDARY CONTROL POINTS SET 208.1-FEET SOUTH OF THE CENTRELINE OF HARLEM ROAD AND 13.5-FEET EAST OF HARLEM ROAD.		
VERTICAL NOTES: THIS SURVEY IS CONDUCTED TO THE NOS PUBLISHED CORES ARE ADJUSTED BY NOS IN 2002 DATE 2002.		

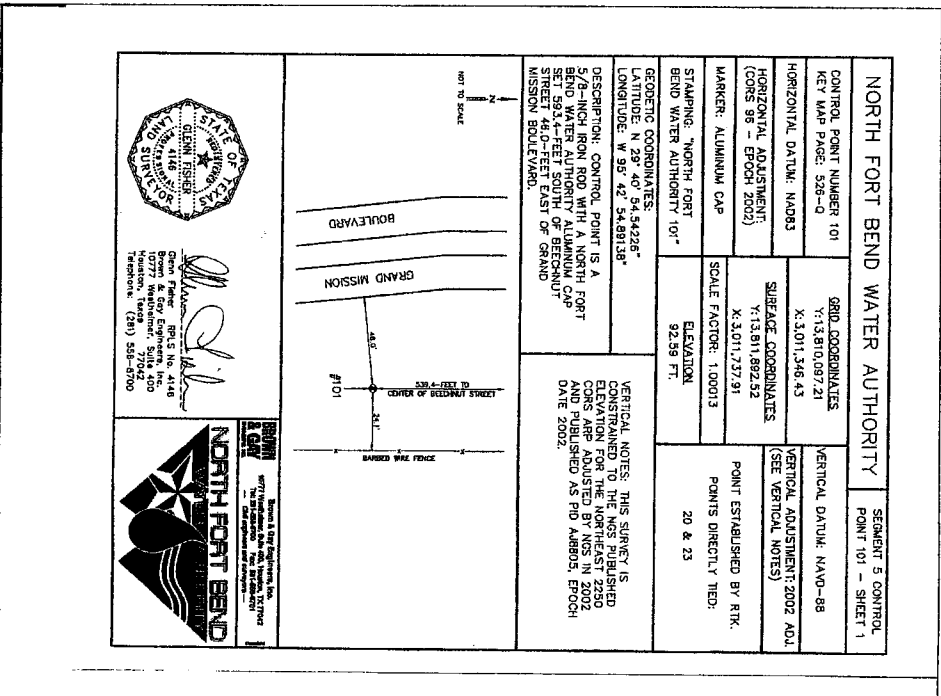
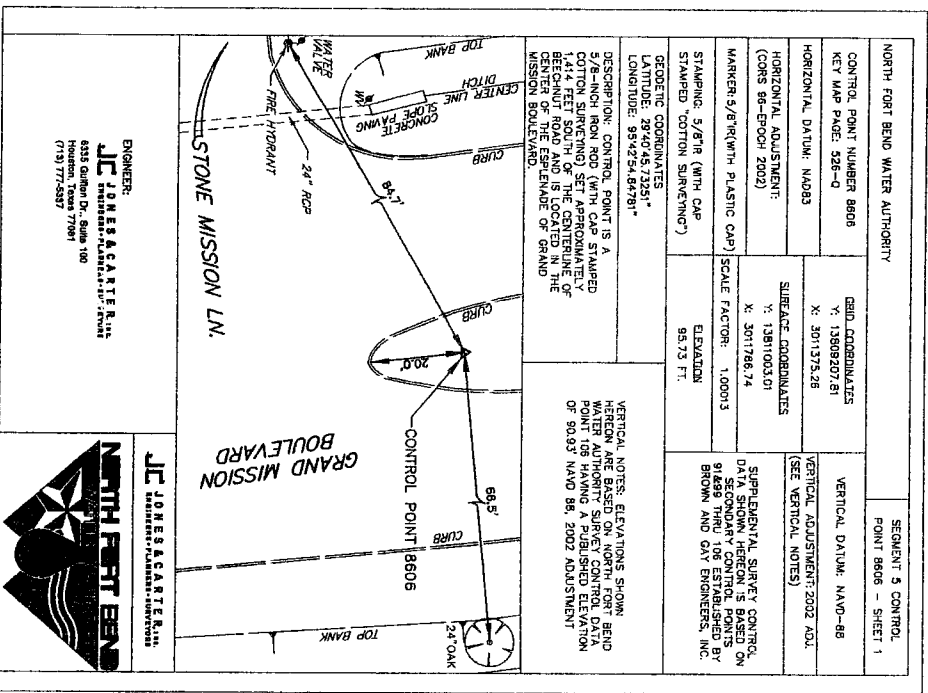
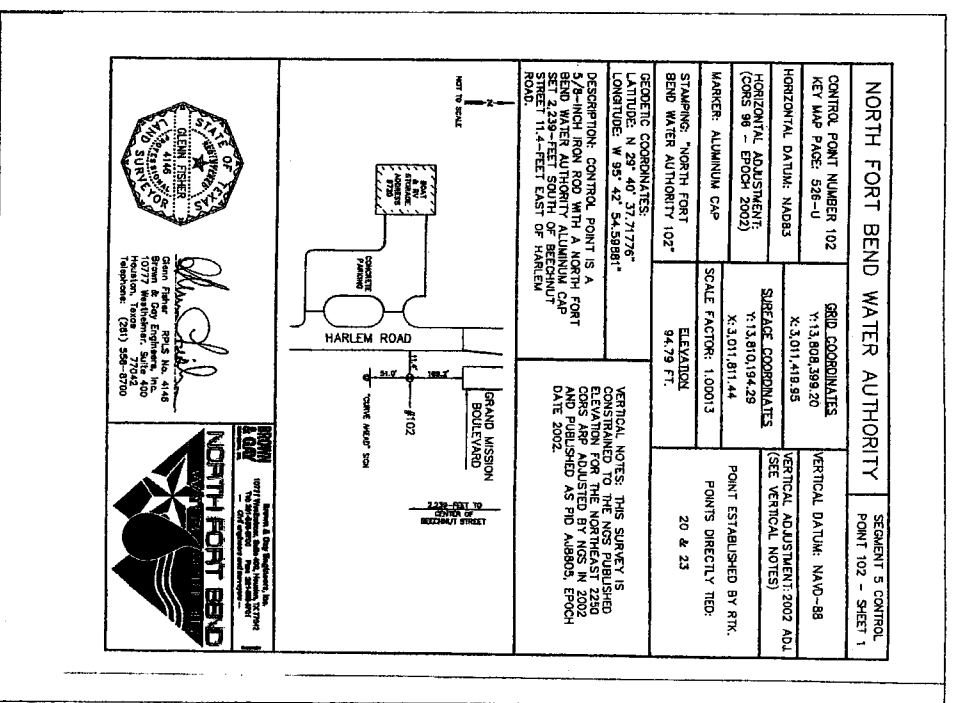
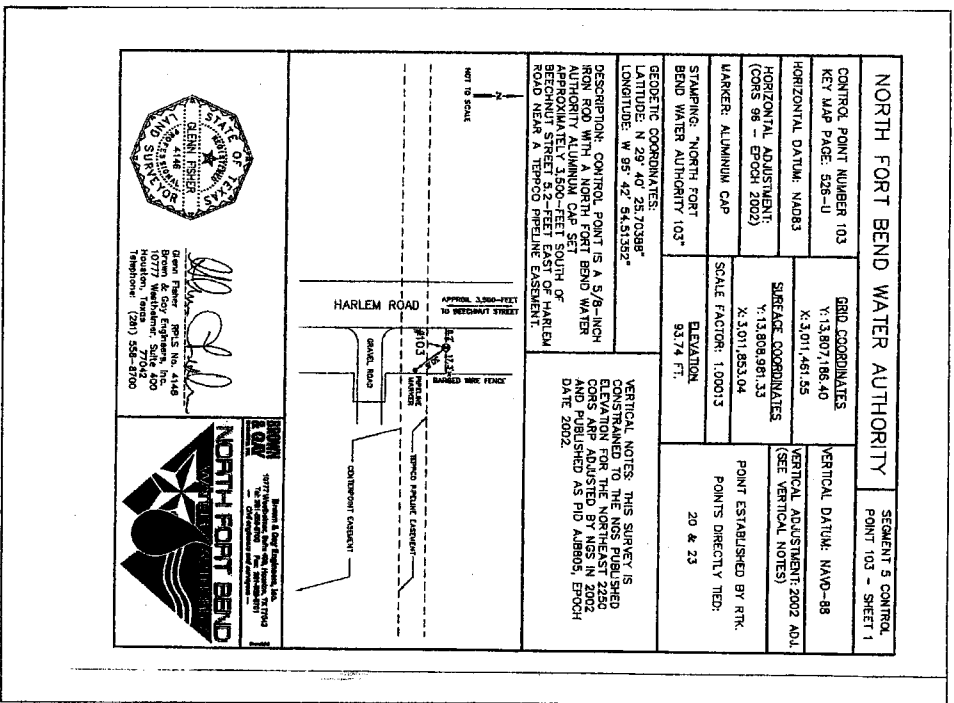
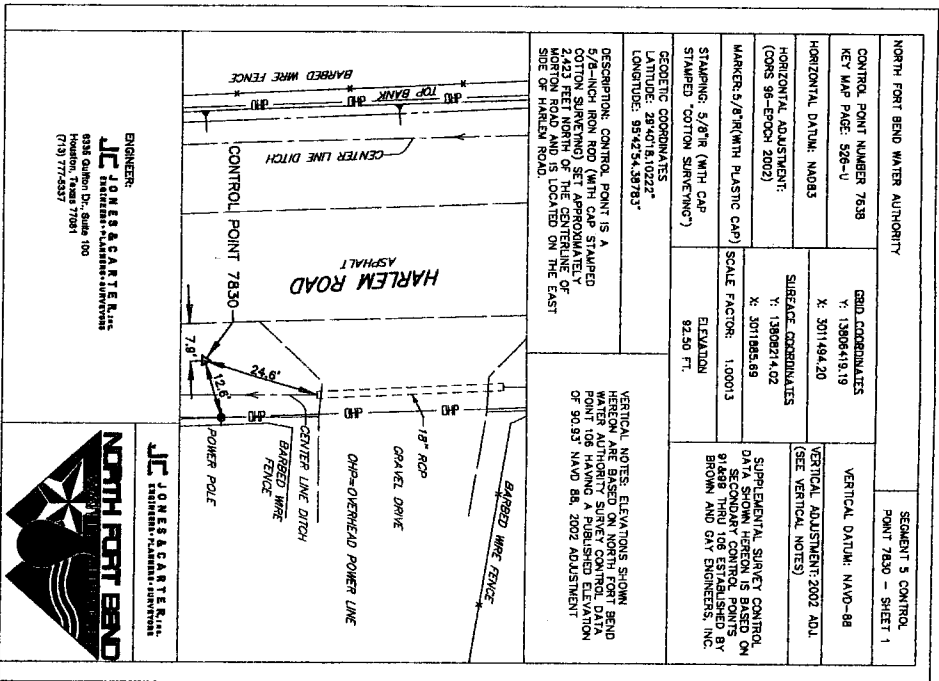


DATE: 2002

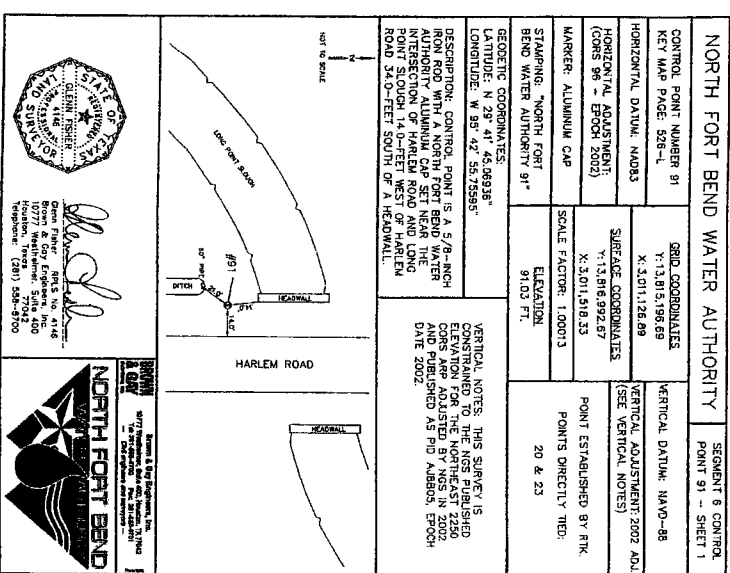
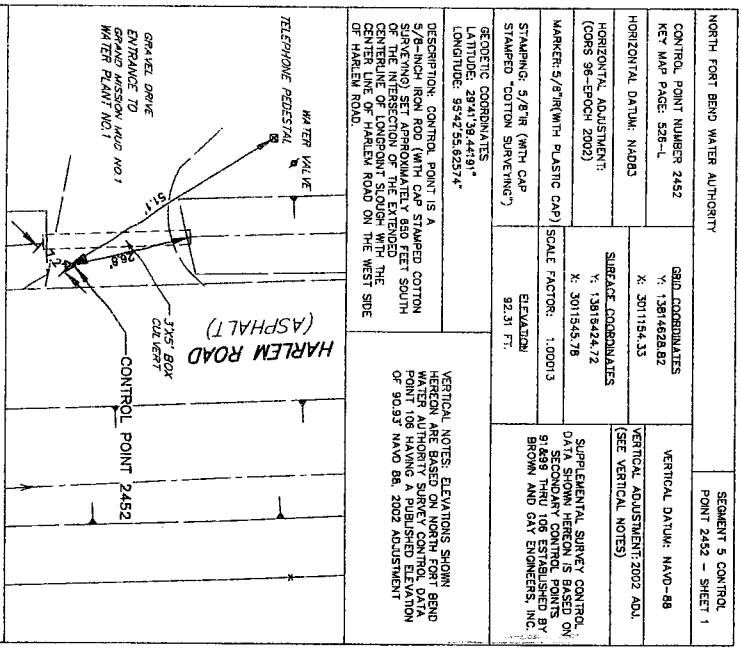
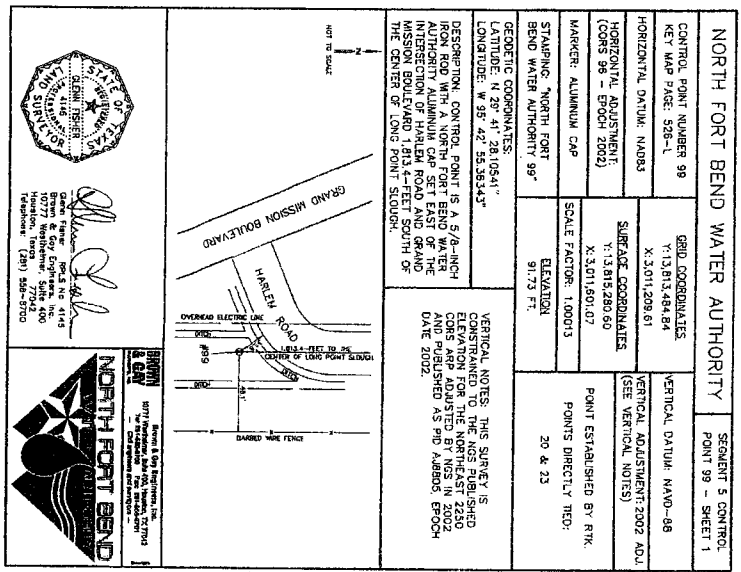
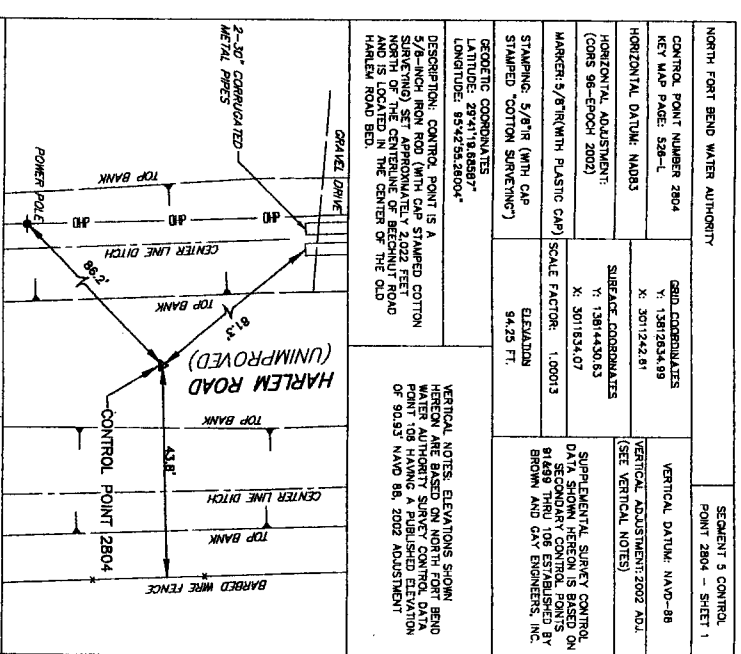
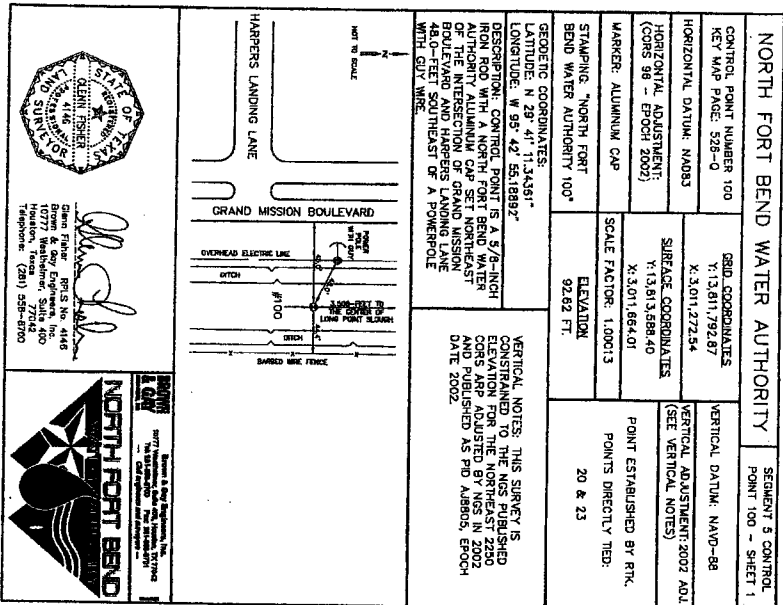
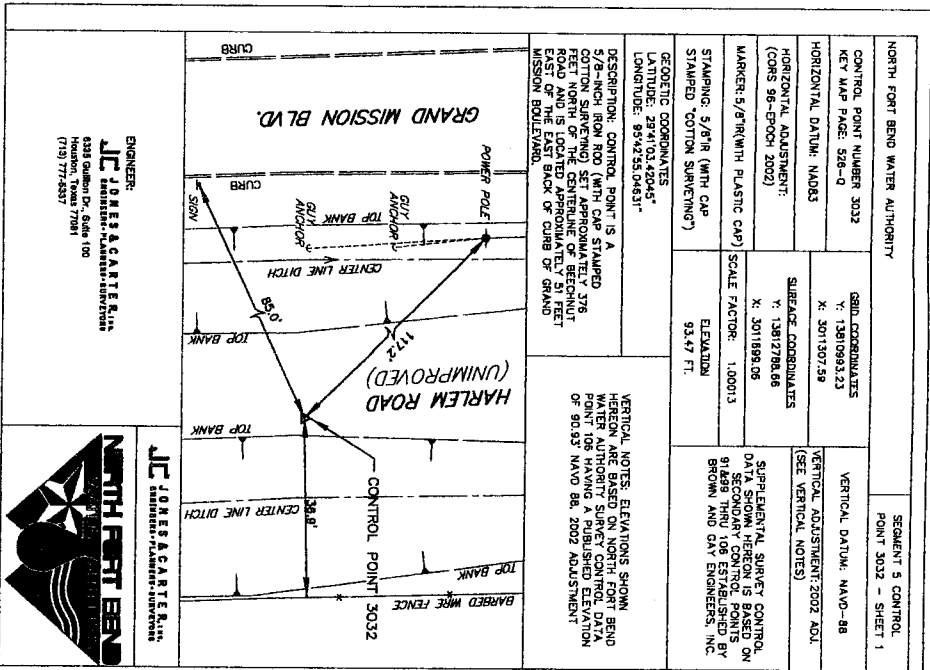
ENGINEER: JC JONES & CARTER, R.L.
5535 GULFON DR., SUITE 100
HOUSTON, TEXAS 77056
(713) 771-3337

NORTH FORT BEND
ENGINEERS • PLANNERS • SURVEYORS

SURVEY CONTROL SHEET 2 OF 4	
SEGMENT 5	
JC JONES & CARTER, R.L. ENGINEERS • PLANNERS • SURVEYORS Texas Board of Professional Engineers Registration No. F-439 6355 Gulfon Dr., Suite 100 Houston, Texas 77061 (713) 771-3337	
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES	
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
WATER: Robert C. 7/6/10 SHEET & BRIDGE STREET: 7/6/10 STORM: 7/6/10 SIGNAL: 7/6/10 SIGNAL QUALITY: 7/6/10	
FILE NO.: DRAWING SCALE: HORIZ.: VERT.: SHEET NO. 7 OF 62	
FOR CITY OF HOUSTON USE ONLY CITY Dwg NO.: 47228	



4				
3				
2				
1				
NO.	DATE	REVISION	APPROVAL	
JC JONES & CARTER, INC. ENGINEERS • PLANNERS • SURVEYORS Texas Board of Professional Engineers Registration No. 2-429 5535 Gordin Dr., Suite 100 Houston, Texas 77061 (713) 777-5537				
SEGMENT 5				
SURVEY CONTROL SHEET 3 OF 4				
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES				
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING				
WATER: <i>[Signature]</i> 7/21/10				
STREET & BRIDGE: <i>[Signature]</i> 7/21/10				
TOWNSHIP: <i>[Signature]</i> 7/21/10				
STORM WATER QUALITY: <i>[Signature]</i> 7/21/10				
FILE NO.:				
DRAWING SCALE:				
HORIZ. : VERT. :				
SHEET No. 8 OF 62				
FOR CITY OF HOUSTON USE ONLY CITY DWG NO.:				



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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER
FILE NO: *100-10*
SHEET NO: *9* OF *62*

DRAWING SCALE
HORIZ: 1" = 200'
VERT: 1" = 200'

FOR CITY OF HOUSTON USE ONLY
ONLY CITY OWN NO.:

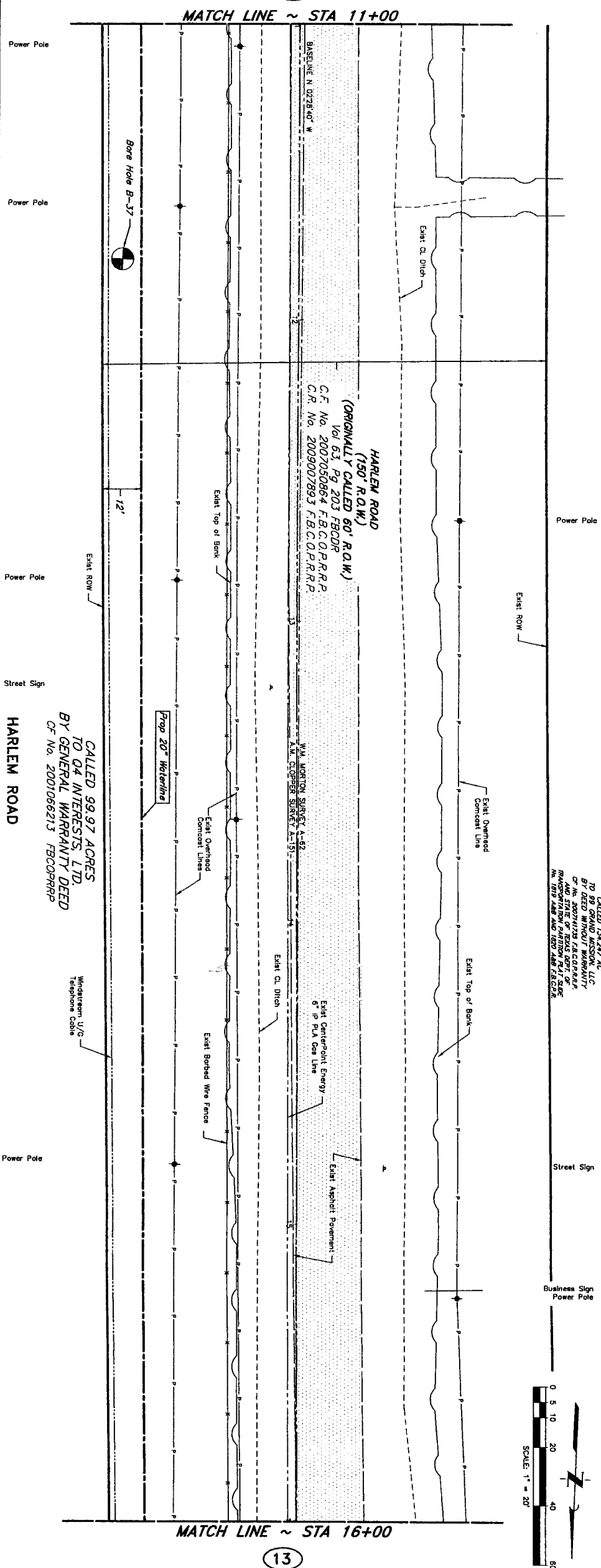
47223

SEGMENT 5

SURVEY CONTROL
SHEET 4 OF 4

NORTH FORT BEND

JC JONES & CARTER, INC.
5535 Gifford Dr., Suite 100
Houston, Texas 77061
(713) 777-4337



PRIVATE UTILITY LINES SHOWN

Date: 10/1/20

Valid At Time Of Review Only

Centerpoint Energy/ Gas Facilities

Date: 1-15-10
 Name: Shirley N. Simpson

R.O.W. OR EASEMENTS CALL LONE STAR NOTIFICATION CENTER (713) 223-4567 OR 1-800-669-8144


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

BENCHMARK: CONTROL POINT NO. 103 BEING A SET OF IRON ROD WITH AN ALUMINUM CAP STAMPED "NORTH E"

BENCHMARK: CONTROL POINT NO. 103 BEING A SET 5/8" IRON ROD WITH AN ALUMINUM CAP STAMPED "NORTH FORT BEND WATER AUTHORITY" SET APPROXIMATELY 3,900-FEET SOUTH OF BEECHNUT STREET 5.2-FEET EAST OF HARLEM ROAD NEAR A TEPCCO PIPELINE EASEMENT.
ELEV. = 93.74'
(NAND-BG, 2002 ADJUSTMENT)

NOTES:

1. DEFLECTIONS NOT TO EXCEED MANUFACTURER'S MAXIMUM DEFLECTION OR 1", WHICHEVER IS SMALLER.

See
7/9/00

7/7/2010

4		
3		
2		
1		
NO.	DATE	REVISION
		APPROVED

JONES & CARTER, INC.
ENGINEERS • PLANNERS • SURVEYORS
Texas Board of Professional Engineers Registration No. F-459
8835 Goshen Dr., Suite 100 Houston, Texas 77061 (713) 777-5537

HARLEM ROAD BASELINE
STA 11+00 TO 16+00



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

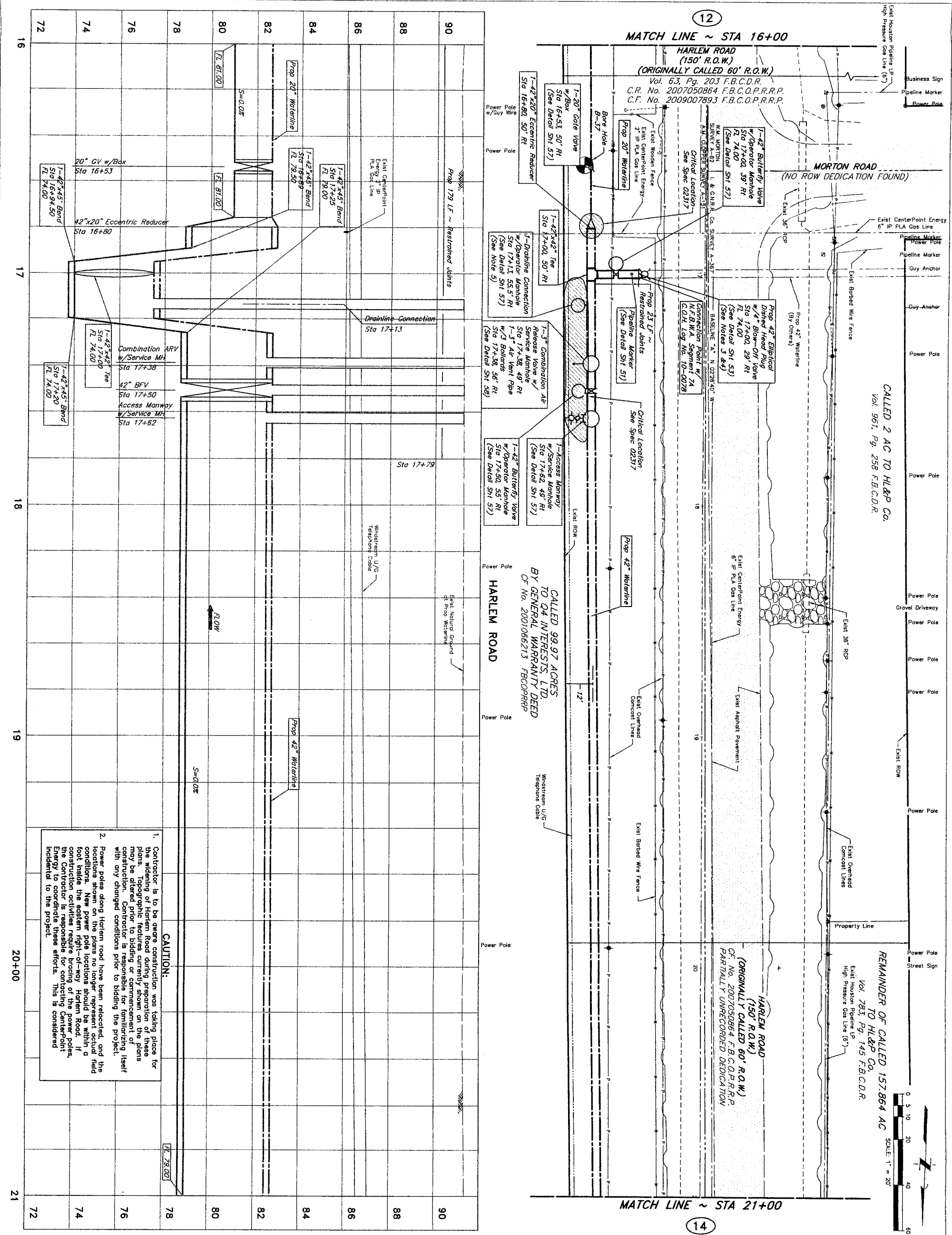
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
7/21/10 STREET & BRIDGE

DATE	10-2-10	TRAFFIC
SIGNATURE	[Signature]	STORM WATER QUALITY
PRINT NAME	John A. [Signature]	
DATE	10-2-10	

FILE NO:	FOR CITY OF HOUSTON USE ONLY CITY DRWG NO.:
DRAWING SCALE	

4 7 2 2 3





PRIVATE UTILITY LINES SHOWN

10/10/10
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Checked: [Signature]
Drawn: [Signature]
Title: [Signature]
Scale: 1" = 20'

10/10/10
Date: 10/10/10
Checked: [Signature]
Drawn: [Signature]
Title: [Signature]
Scale: 1" = 20'

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Date: 10/10/10
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Scale: 1" = 20'

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Title: [Signature]
Scale: 1" = 20'

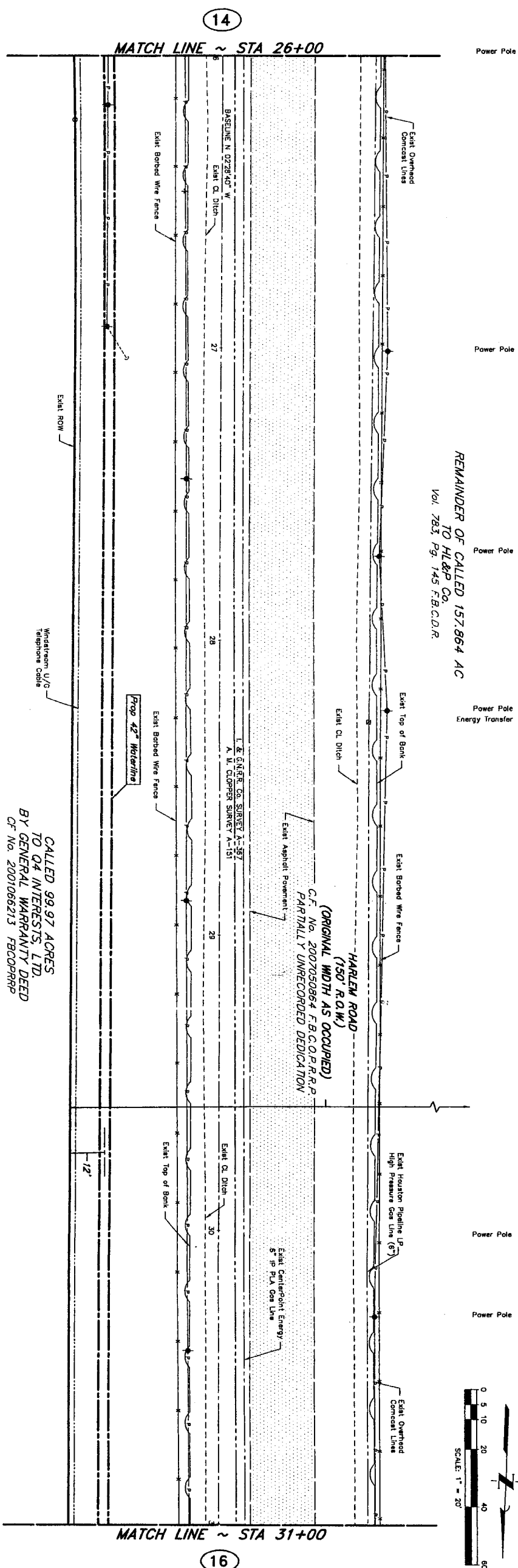
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Date: 10/10/10
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Drawn: [Signature]
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Scale: 1" = 20'

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Title: [Signature]
Scale: 1" = 20'

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Title: [Signature]
Scale: 1" = 20'

10/10/10
Date: 10/10/10
Checked: [Signature]
Drawn: [Signature]
Title: [Signature]
Scale: 1" = 20'



PRIVATE UTILITY LINES SHOWN

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

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

Date: 10/7/15

Comcast
Nancy A. Egan
Date: 7-13-10

NOTICE:
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET
R.O.W. OR EASEMENTS CALL LOWE STAR NOTIFICATION
CENTER, (713) 223-4567 OR 1-800-669-8344

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

BENCHMARK: CONTROL POINT NO. 103 BEING A SET 5/8" IRON ROD WITH AN ALUMINUM CAP STAMPED "NORTH FORT BEND WATER AUTHORITY SET APPROXIMATELY 3,500- FEET SOUTH OF BEECHNUT STREET 5.2- FEET EAST OF HARLEN ROAD NEAR A TERPOO PIPELINE EASEMENT.
ELEV. = 93.74'
(MWD-88, 2002 ADJUSTMENT)

NOTES:

1. DEFLECTIONS NOT TO EXCEED MANUFACTURER'S MAXIMUM DEFLECTION OR 0.97", WHICHEVER IS SMALLER.

7130110

71712010

STATE OF TEXAS
JERRY L. WATKINS
87808
NOTARY PUBLIC
COMMISSION EXPIRES 08/01/2012

NO.	DATE	REVISION	APP
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JC JONES & CARTER, INC.
ENGINEERS • PLANNERS • SURVEYORS
Texas Board of Professional Engineers Registration No. F-439
6335 Guilford Dr., Suite 100 Houston, Texas 77061 (713) 777-6337

SEGMENT 5

HARLEM ROAD BASELINE
STA 26+00 TO 31+00



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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER 01-7/21/10 STREET & BRIDGE

5

WASTEWATER	TRAFFIC
0	0

STORM	STORM WATER QUALITY
-------	---------------------

11/20/2014 11:20:14 AM 11/20/2014 11:20:14 AM

Facilities

[illegible]

FILE NO: _____

FOR CITY OF HOUSTON USE

ONLY CITY DRUG NO.:

--	--

DRAWING SCALE

RECEIVED AND FILED

HOKZ : 1 = 20

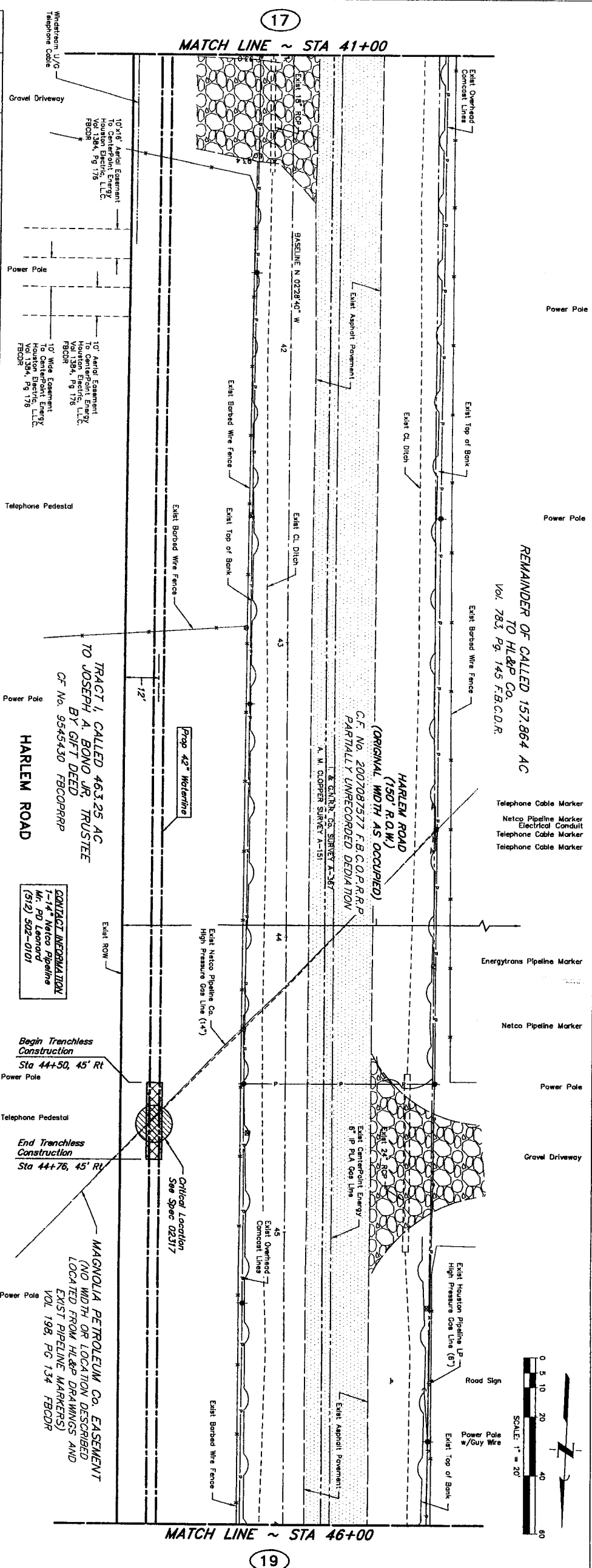
VERT : 1" = 2' 47 22 23

[illegible]

SHEET 1 OF 3

No: 107

1



PRIVATE UTILITY LINES SHOWN

Summer
Date: 10/7/

Conspicuous lettering/ markings. (Approved only for crossing underground ductlines, unless otherwise noted.)
Valid At Time Of Review Only

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

--	--


Comcast
 Hugo A. Eguigure
 Date: 7-18-1

NOTICE:
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET
R.O.W. OR EASEMENTS CALL LOWE STAR NOTIFICATION
CENTER, (713) 223-4567 OR 1-800-689-8344
TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED.
CALL CENTERPOINT AT 713-207-2222.

BENCHMARK: CONTROL POINT NO. 103 BEING A SET 5/8" IRON ROD WITH AN ALUMINUM CAP STAMPED "NORTH FORT BEND WATER AUTHORITY" SET APPROXIMATELY 3,500'-FEET SOUTH OF BEECHNUT STREET 5.2'-FEET EAST OF HARLEN ROAD NEAR A TEPSCO PIPELINE EASTMENT.
ELEV = 93.74'
(NAD-83, 2002 ADJUSTMENT)

NOTES:


1. DEFLECTIONS NOT TO EXCEED MANUFACTURER'S MAXIMUM DEFLECTION OR 0.97", WHICHEVER IS SMALLER.



*Trenchless Construction
w/ Steel Casing
(See Detail Sht 55)*

7/30/10

7/7/2010



NO.	DATE	REVISION
-----	------	----------

JC JONES & CARTER, INC.
ENGINEERS • PLANNERS • SURVEYORS
Texas Board of Professional Engineer Registration No. F-439
6335 Gaulton Dr., Suite 100 Houston, Texas 77061 (713) 777-5337

SEGMENT 5

HARLEM ROAD BASELINE
STA 41+00 TO 46+00



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

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

CITY OF HOUSTON

WATER	2157/21/12	STREET & BRIDGE
-------	------------	-----------------

WATER	2157/21/12	STREET & BRIDGE
-------	------------	-----------------

WASTEWATER	TRAFFIC
Waste Pool	

11.2. 1990	STORM WATER QUALITY
STORM	

7-22-60	FACILITIES
---------	------------

FILE NO:	FOR CITY OF HOUSTON ONLY CITY DWG NO.
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FILE NO:	FOR CITY OF HOUSTON ONLY CITY DWG NO.
----------	--

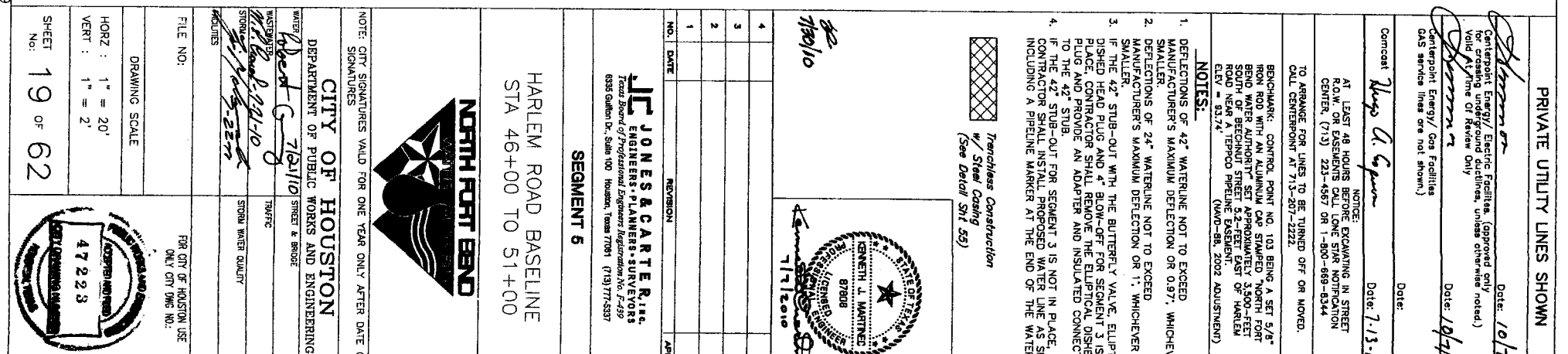
DRAWING SCALE

HORZ : 1" = 20'

VERT : 1" = 2'

SHEET
18 OF 62





VERT : 1" = 2'
47223



DRAWING SCALE





REMAINDER OF CALLED 157.864 AC
TO HL&P Co.
Vol. 783, Pg. 145 F.B.C.D.R.

Power Pole

PRIVATE UTILITY LINES SHOWN

Chamorro Date: 10/7/10

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

Valid At Time of Review Only

Chamorro

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

Date: 10/7/10

Comcast	7/13/10
Shugo Aizawa	Date: 7.13.10

NOTICE:
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET
R.O.W. OR EASEMENTS CALL LONE STAR NOTIFICATION
CENTER (713) 223-4567 OR 1-800-666-6344

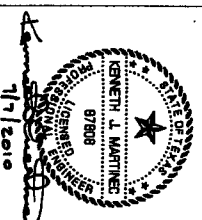
TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED.
CALL CENTERPOINT AT 713-207-2222.

BENCHMARK: CONTROL POINT NO. 103 BEING A SET 5/8" IRON ROD WITH AN ALUMINUM CAP STAMPED NORTH FORT BEND WATER AUTHORITY SET APPROXIMATELY 3,500- FEET SOUTH OF BEECHCROFT STREET 5.2- FEET EAST OF HARLEM ROAD NEAR A TEPICO PIPELINE EASEMENT.
ELEV. = 93.74'
(NAVD-88, 2002 ADJUSTMENT)

NOTES:

1. DEFLECTION NOT TO EXCEED MANUFACTURER'S MAXIMUM DEFLECTION OR 1" WHICHEVER IS SMALLER.

7/30/10



7/7/2014

4			
3			
2			
1			
NO. DATE	REVISION	APPROV	

J.C. JONES & CARTER, Inc.
ENGINEERS • PLANNERS • SURVEYORS
Texas Board of Professional Engineers Registration No. P-439
6335 Gulfton Dr., Suite 100 Houston, Texas 77061 (713) 771-5337

HARLEM ROAD BASELINE
STA 51+00 TO 56+00



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

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

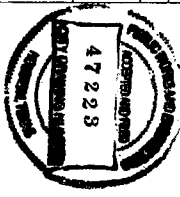
WASTEWATER	TOXIC
STORM	STORM WATER QUALITY
FACILITIES	

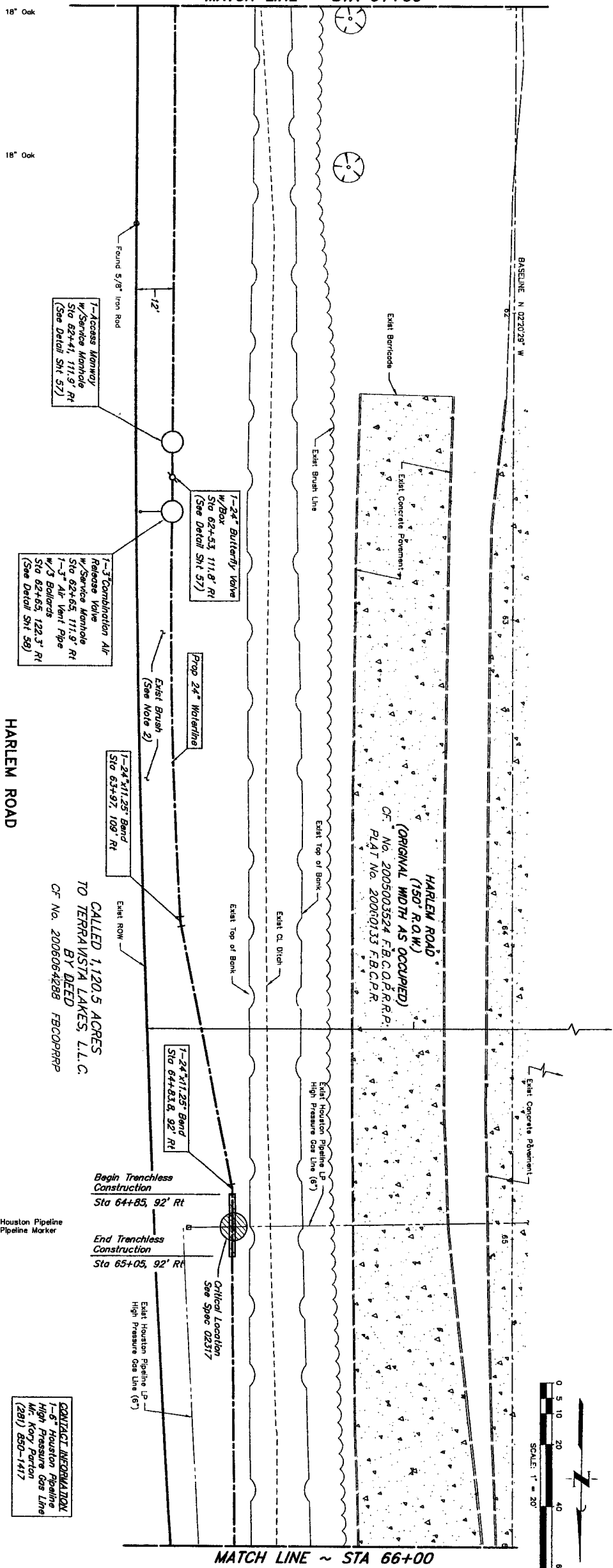
FILE NO:	FOR CITY OF HOUSTON USE ONLY CITY DWG NO.:
----------	---

DRAWING SCALE

HORZ : 1" = 20'
VERT : 1" = 2'
47223

SHEET
No: 20 OF 62





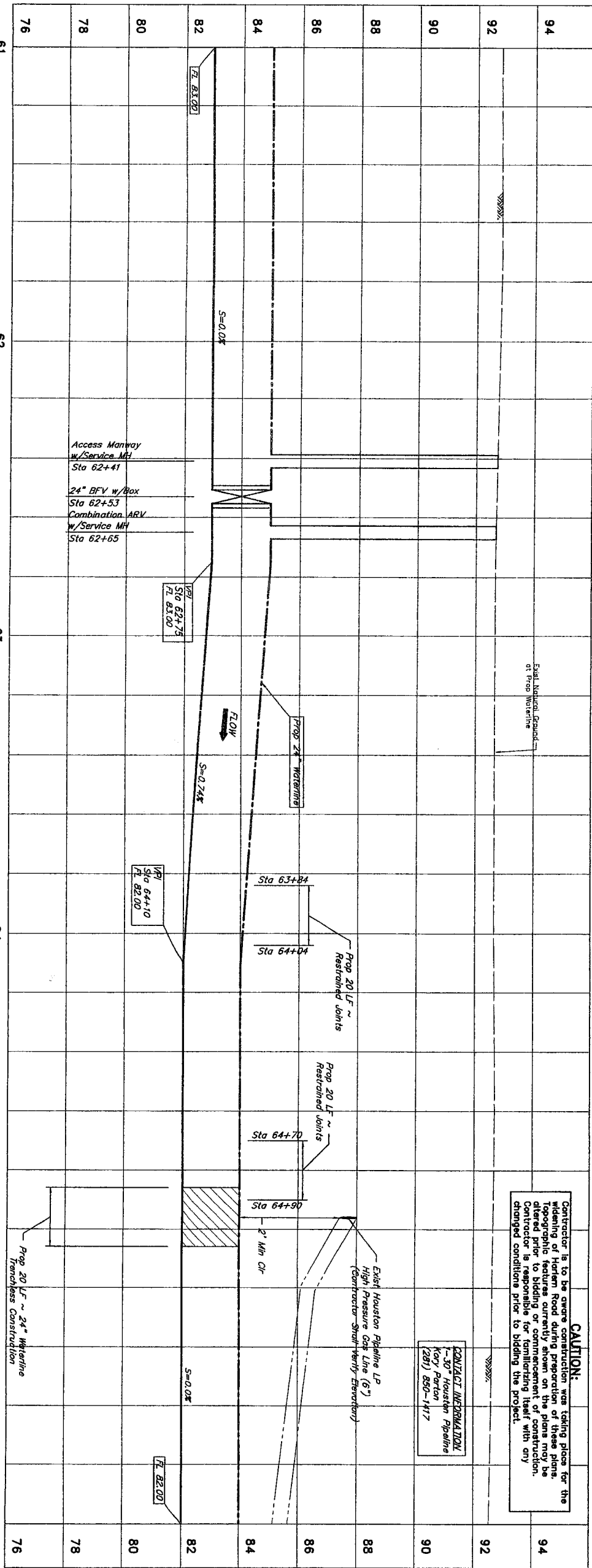
HARLEM ROAD

CALLED 1,120.5 ACRES
TO TERRAVISTA LAKES, L.L.C.
BY DEED
OF No. 2006064288 FBCOPRRP

CAUTION:
Contractor is to be aware construction was taking place for the widening of Harlem Road during preparation of these plans. Topographic features currently shown on the plans may be altered prior to bidding or commencement of construction. Contractor is responsible for familiarizing itself with any changed conditions prior to bidding the project.

CONTACT INFORMATION
Kory Parton
(281) 850-1417

CONTACT INFORMATION
1-6" Houston Pipeline
High Pressure Gas Line
Mr. Kory Parton
(281) 850-1417



PRIVATE UTILITY LINES SHOWN

Date: 10/7/10
Centerpoint Energy/ Electric Facilities (Approved only
for crossing under public facilities, unless otherwise noted.)
Date: 10/14/10
Centerpoint Energy/ Gas Facilities
GAS service lines are not shown.)
Date:

Comcast
Date: 7/13/10

NOTICE
AT EAST 48 HOURS BEFORE OCCUPANCY IN STREET
ROW OR EXISTING OR PROPOSED SIDEWALK
CENTERLINE (713) 223-4567 OR 1-800-666-8344
TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED.
CALL CENTERPOINT AT 713-207-2222

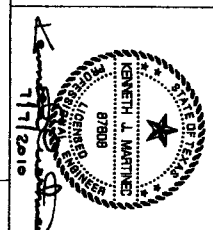
BENCHMARK: CONTROL POINT NO. 103 BEING A SET 5/8"
IRON ROD IN CONCRETE FOUNDATION APPROXIMATELY 3500 FEET
SOUTH OF BENCHMARK SET APPROXIMATELY 3500 FEET
ROAD NEAR A TEPICO PIPELINE EASEMENT
(NAD-83, 2002 ADJUSTMENT)
ELEV = 93.74

NOTES:

1. DEFLECTION NOT TO EXCEED MANUFACTURER'S MAXIMUM
DEFLECTION OR 1" WHICHEVER IS SMALLER.
2. LIMITS OF CLEARING AS NEEDED FOR CONSTRUCTION PURPOSES
BEGINNING AT STA 58+82 AND ENDING AT STA 73+88.
3. CONTRACTOR SHALL RESTORE EXISTING SWALE TO EXISTING
CONDITION OR BETTER.

Trenchless
Construction

7/30/10



JC JONES & CARTER, INC.
ENGINEERS - PLANNERS - SURVEYORS
Texas Board of Professional Engineers Registration No. 1-439
6555 Galatin Dr., Suite 100 Houston, Texas 77061 (713) 771-8337

SEGMENT 5

HARLEM ROAD BASELINE
STA 61+00 TO 66+00



CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER

DESIGNED BY: K. Jones

DATE: 7/21/10

STATION: 61+00 TO 66+00

SCALE: 1" = 20'

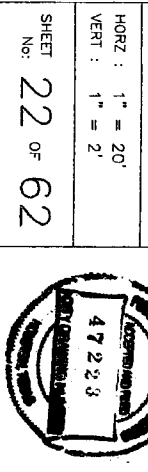
FILE NO.:

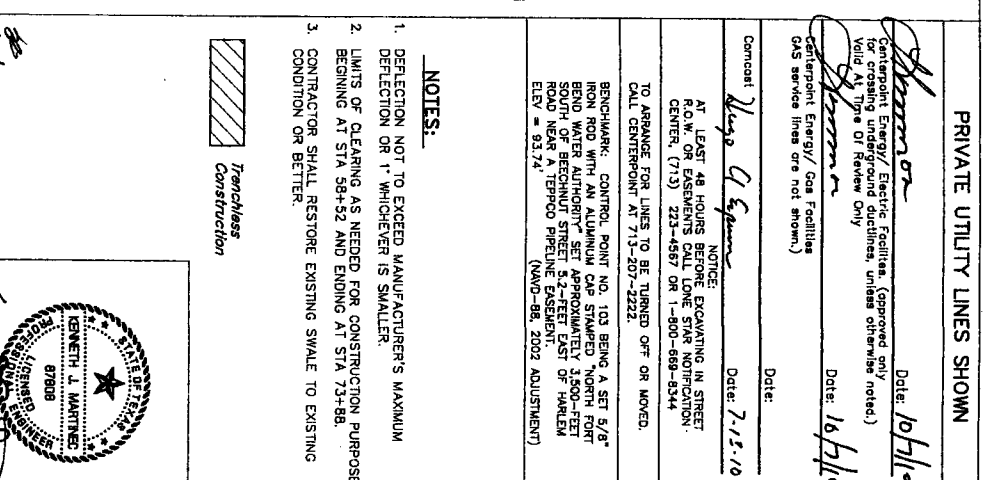
DRAWING SCALE

HORIZ: 1" = 20'

VERT: 1" = 2'

SHEET 22 OF 62





4					
3					
2					
1					
NO.	DATE	REVISION	APPROV		

JC JONES & CARTER, INC.
ENGINEERS-PLANNERS-SURVEYORS
 Texas Board of Professional Engineers Registration No. F-459
 6535 Gulfton Dr., Suite 100 Houston, Texas 77061 (713) 777-6357

SEGMENT 6

HARLEM ROAD BASELINE
 STA 66+00 TO 71+00

NORTH PORT BAND

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

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

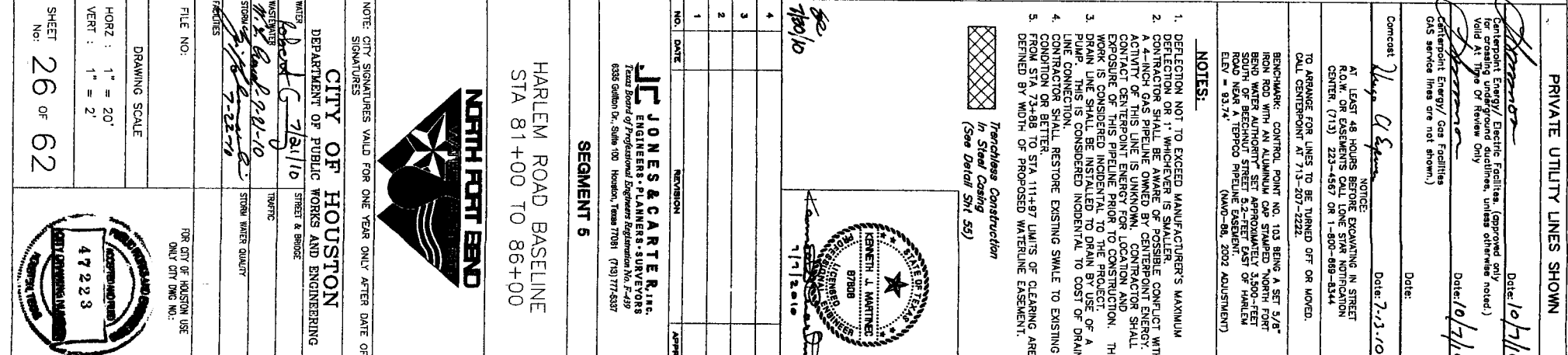
WATER
 Robert C. 12/21/10
 Mr. R. Band, 12/21/10
 Street & Bridge
 12/21/10
 12/21/10

TRAFFIC
 STREET & BRIDGE

STORM WATER QUALITY
 12/21/10

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

FOR CITY OF HOUSTON USE
 ONLY CITY DWG NO.:
 472223



Power Pole

Guy Anchor

C Inlet
Guy Anchor

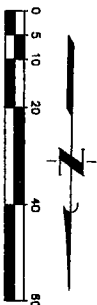
Power Pole

Power Pole

Power Pole

Guy Anchor

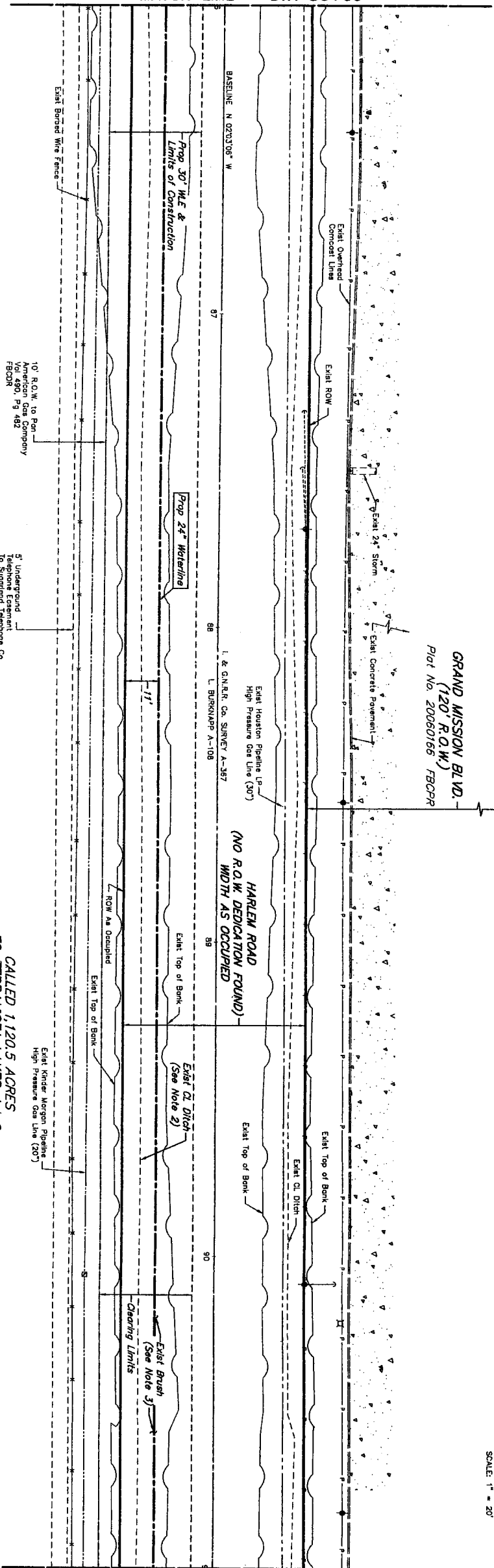
Street Light



GRAND MISSION BL VD -
(120' R.O.W.)
PLOT NO. 20060166 FBCPR

26

MATCH LINE ~ STA 86+00



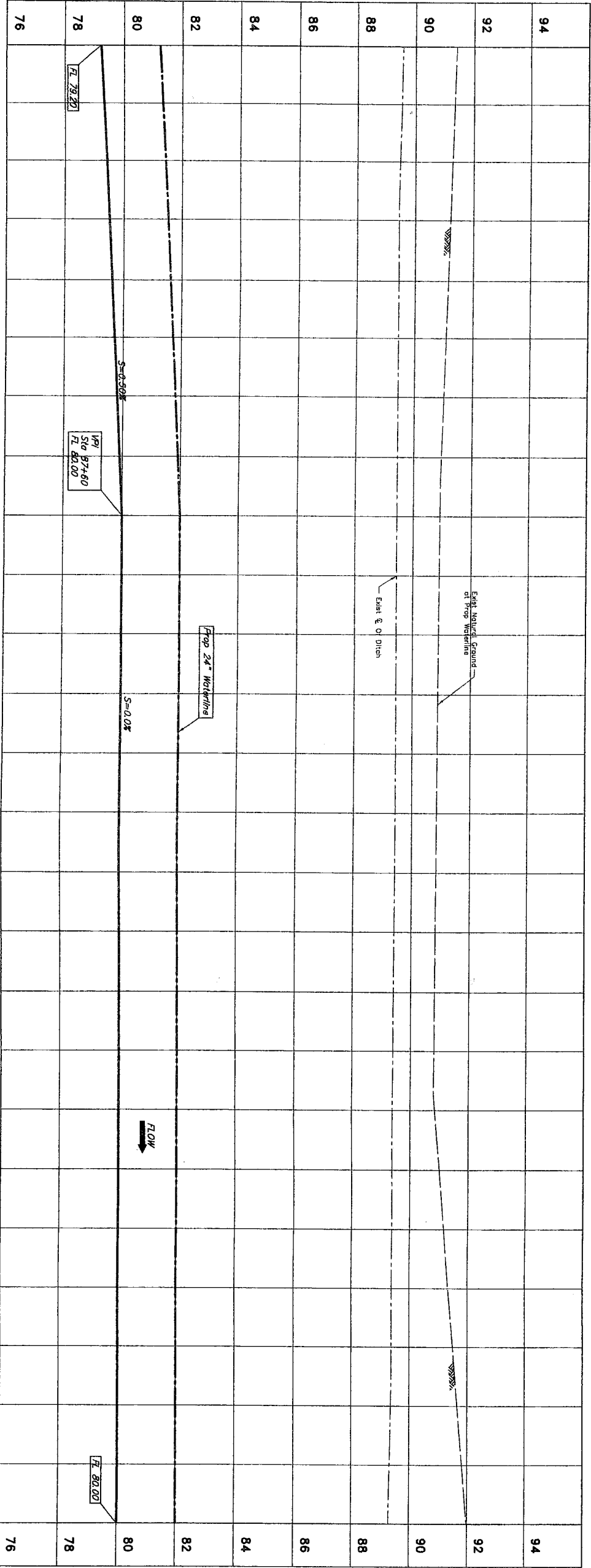
28

MATCH LINE ~ STA 91+00

HARLEM ROAD

CALLED 1,120.5 ACRES
TO TERRAVISTA LAKES, L.L.C.
BY DEED
CF No. 2006064288 FBCPRRP

Kinder Morgan
Pipeline Marker



PRIVATE UTILITY LINES SHOWN

DATE: 10/1/10
BY: [Signature]

DATE: 10/1/10
BY: [Signature]

DATE: 7-13-10
BY: [Signature]

DATE: 7-13-10
BY: [Signature]

DATE: 7-13-10
BY: [Signature]

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BY: [Signature]

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BY: [Signature]

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BY: [Signature]

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BY: [Signature]

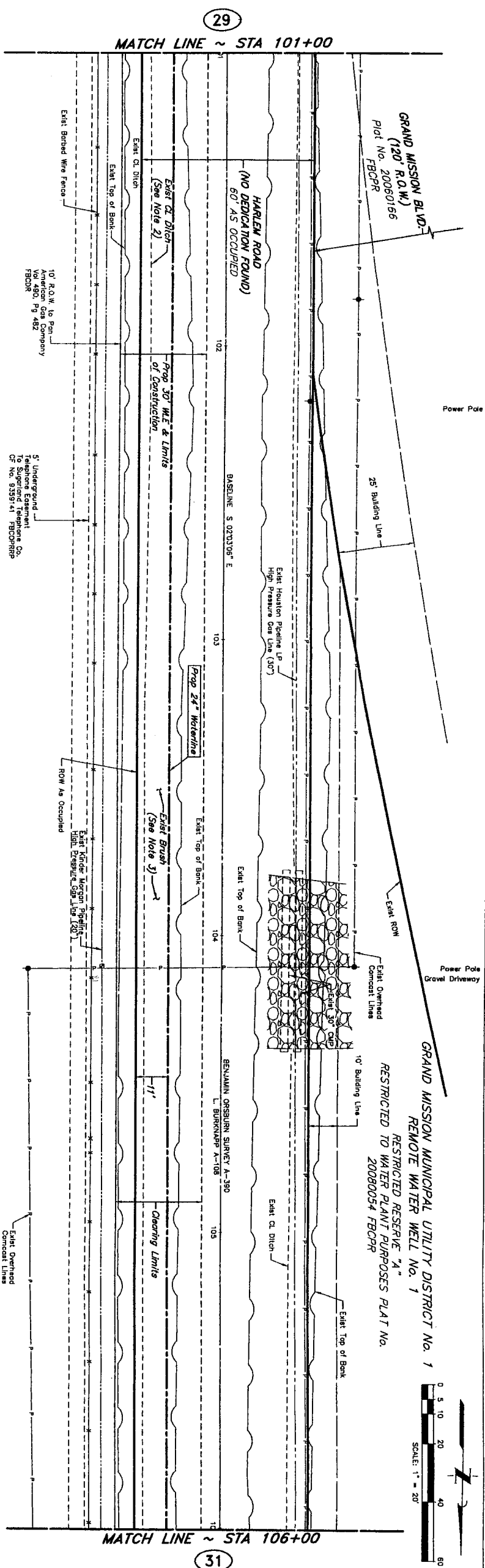
DATE: 7-13-10
BY: [Signature]

DATE: 7-13-10
BY: [Signature]

DATE: 7-13-10
BY: [Signature]

DATE: 7-13-10
BY: [Signature]

DATE: 7-13-10
BY: [Signature]



PRIVATE UTILITY LINES SHOWN

Date: 10/7/20

is noted.

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

Date: _____

Date: 7.13-1
 Date: 7.13-1

Date: 7

NOTICE: AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL LONE STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-588-6344

OR MOVE

BENCHMARK: CONTROL POINT NO. 103 BEING A SET 3 IRON ROD WITH AN ALUMINUM CAP STAMPED "NORTH F BEND WATER AUTHORITY" SET APPROXIMATELY 3,500-FOOT SOUTH OF BEECHNUT STREET 5.2-FEET EAST OF HARRI ROAD NEAR A TEPPO PIPELINE EASEMENT.
ELEV = 53.74
(NAND-BB, 2002 ADJUSTMENT)

ADJUSTMENT

NOTE:

1. DEFLECTIONS ARE NOT TO EXCEED MANUFACTURER'S MA DEFLECTION OR 1" WHICHEVER IS SMALLER.
2. CONTRACTOR SHALL RESTORE EXISTING SWALE TO EXIST CONDITION OR BETTER.
3. FROM STA 73+88 TO STA 111+97 LIMITS OF CLEARING & DERMED BY WIDTH OF PROPOSED WATERLINE EASEMENT.

7/7/201

NO.	DATE	REVISION
-----	------	----------

1000

JC JONES & CARTER, INC.
ENGINEERS • PLANNERS • SURVEYORS
Texas Board of Professional Engineers Registration No. F-439
6335 Gulton Dr., Suite 100 Houston, Texas 77061 (713) 777-5337

777-5337

SEGMENT 5

HARLEM ROAD BASELINE
STA 101+00 TO 106+00



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

AFTER

CITY OF HOUSTON

ON

STREET & BRIDGE	7/21/10	ALTER
-----------------	---------	-------

1

ASTEWATER	TRAFFIC
-----------	---------

10/14/2011 11/22/11	SICKLE WALKER QUALITY
------------------------	-----------------------

1

FOR OFFICIAL USE ONLY

11/20/2011

DRAWING SCALE

10

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

47223

23

30 OF 62

11





NOTICE:
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET

CALL CENTERPOINT AT 713-207-2222

ELEV = 93.74' (NAD-88, 2002 ADJUSTMENT)

NOTE:

13010		
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JONES & CARL ENGINEERS-PLANNERS-SURVEYORS
Texas Board of Professional Engineers Registration No. F-439
 6335 Gullhorn Dr., Suite 100 Houston, Texas 77061 (713) 777-8337

SEGMENT 5

$$\frac{1}{2} + \frac{1}{2} = 1$$


SIGNATURES

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

STREET & BRIDGE

01/20/10

WATER	TRAFFIC
-------	---------

E. East-7-21-10

STORM WATER QUALITY

1-6671

E NO:	FOR CITY
-------	----------

ONLY

1

DRAWING SCALE

[illegible]

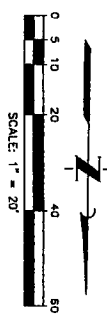
RZ : 1" = 20'

RT: 1" = 2' 47

7400

○

1



FORT BEND INDEPENDENT SCHOOL
DISTRICT ON GRAND MISSION
BLVD. RESTRICTED RESERVE "A"

Grovel Driveway


<p><i>Shannon</i></p> <p>Date: 10/2/11</p>	<p>Defendant Energy/ Electric Facilities (approved only for crossing underground ductlines, unless otherwise noted.)</p> <p>Valid 4 Years Of Review Only</p> <p><i>Shannon</i></p> <p>Date: 7/1/11</p>
<p><i>Shannon</i></p> <p>Date: 10/2/11</p>	<p>Defendant Energy/ Gas Facilities (approved only for crossing underground ductlines, unless otherwise noted.)</p> <p>Valid 4 Years Of Review Only</p> <p><i>Shannon</i></p> <p>Date: 7/1/11</p>
<p>Comcast</p> <p><i>Shannon</i></p> <p>Date: 7-13-10</p>	<p>Date:</p>

NOTICE:
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET
COURT OF OWNERS MUST CALL LONE STAR ANTIPOACHING
CORPORATION (713) 423-5859 OR 1-800-689-9234
TO ARRANGE FOR LINES TO BE REMOVED OFF OR MOVED.
CALL CENTER/PHONE AT 713-207-2222.

BENCHMARK: CONTROL POINT NO. 101 BEING A SET 5.47"
IRON ROD WITH AN ALUMINUM CAP STAMPED NORTH
BENCH WATER AUTHORITY SET APPROXIMATELY 3,500-FEET
SOUTH OF BEECHHURST STREET 3.2-FEET EAST OF HARLEM
BLVD. = 03.74
(NAD=83, 2002 ADJUSTMENT)

1. NOTE:
DEFLECTIONS ARE NOT TO EXCEED MANUFACTURER'S MAXIMUM DEFLECTION OR 1" WHICHEVER IS SMALLER.
2. CONTRACTOR SHALL RESTORE EXISTING SWALE TO EXISTING CONDITION OR BETTER.
3. FROM STA 73+88 TO STA 111+87 LIMITS OF CLEARING ARE DEFINED BY WIDTH OF PROPOSED WATERLINE EASEMENT.

4			
3			
2			
1			
NO.	DATE	REVISION	APPROV.



JONES & CARTER INC.
ENGINEERS-PLANNERS-SURVEYORS
Texas Board of Professional Engineers Registration No. F-439
 6536 Gulfport Dr., Suite 100 Houston, Texas 77081 (713) 77-6337

SEGMENT 6

HARLEM ROAD BASELINE
STA 111+00 TO 116+00



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

CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
WATER	TRAFFIC
WASTEWATER	STREET & BRIDGE
STORM	STORM WATER QUALITY
HAZARDOUS WASTES	

FILE NO:	FOR CITY OF HOUSTON USE ONLY CITY DRG NO.:
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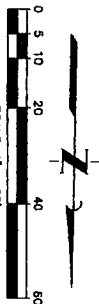
DRAWING SCALE

HORZ : 1" = 20'

VERT : 1 = 2

47223

SHEET No: 32 OF 62



Date: 10/27/

ily
e noted.)

Date: 10/17

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

GAS service lines are not shown.)

Comcast
Hugo A. Capron

AT LEAST 48 HOURS BEFORE NOTICE: Atty. A. Segura

R.O.W. OR EASEMENTS CALL LONE STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-669-8344

BENCHMARK: CONTROL POINT NO. 103 BEING A SET 5/8" IRON ROD WITH AN ALUMINUM CAP STAMPED "NORTH FORT BEND WATER AUTHORITY" SET APPROXIMATELY 3,500-FEET SOUTH OF BEECHNUT STREET 5.2-FEET EAST OF HARLEM ROAD NEAR A TEPSCO PIPELINE EASEMENT.
ELEV = 93.74'
(NAVD-86, 2002 ADJUSTMENT)

1. DEFLECTIONS ARE NOT TO EXCEED MANUFACTURER'S MAXIMUM DEFLECTION OR 1" WHICHEVER IS SMALLER.
2. CONTRACTOR SHALL RESTORE EXISTING SWALE TO EXISTING CONDITION OR BETTER.

NOTE.

7/30/10

7/7/2016

7/30/10

JONES & CARTER, INC.
ENGINEERS • PLANNERS • SURVEYORS
Texas Board of Professional Engineers Registration No. F-439
6336 Quilten Dr., Suite 100 Houston, Texas 77081 (713) 777-5357

CEEWENI 3

HARLEM ROAD BASELINE
STA 116+00 TO 121+00



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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	7/21/10	STREET & BRIDGE
Forest G		
WATER		

WASTEWATER	INDUSTRIAL
M.F. Good 7-21-10	
STORM	STORM WATER QUALITY

2-10-22-2 FACILITIES	
-------------------------	--

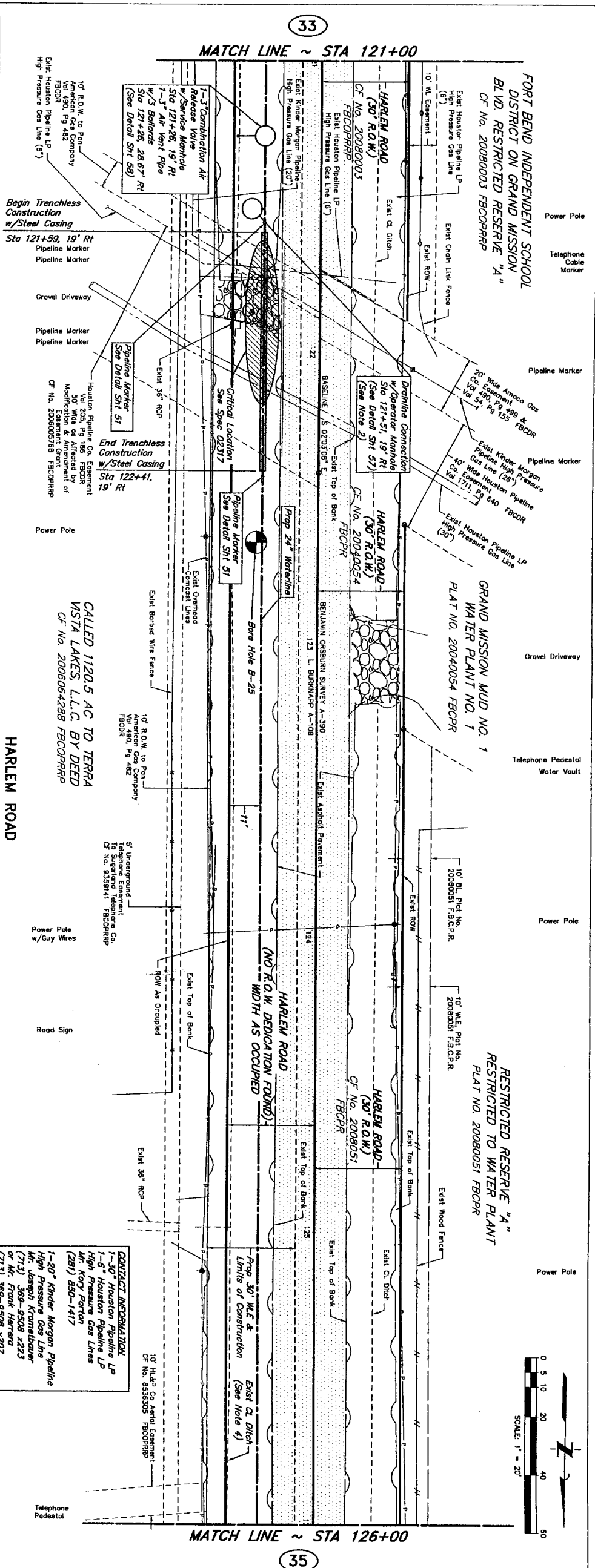
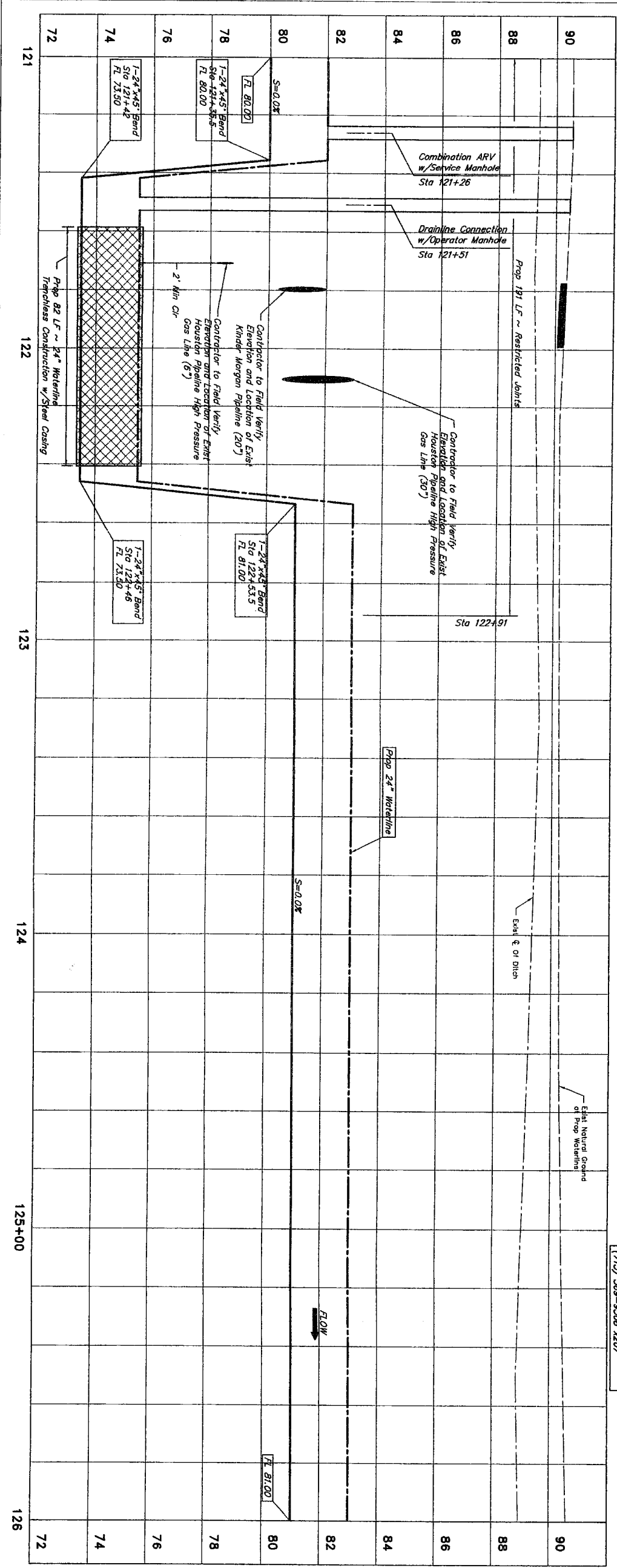
FILE NO:	FOR CITY OF HOUSTON USE DATE & CITY CLERK, INC.
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DRAWING SCALE

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

SHEET 33 OF 62



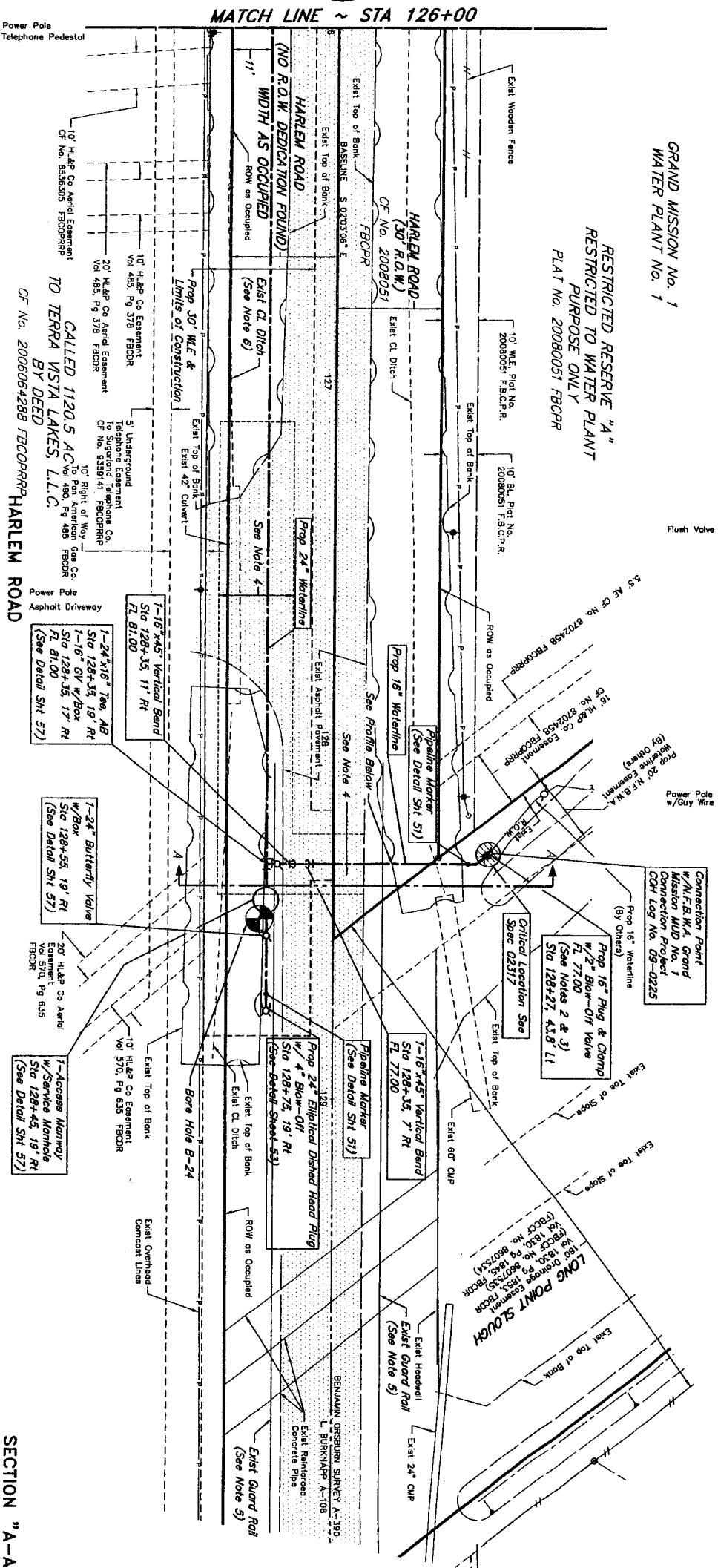


CON LOG NO: 09-0679

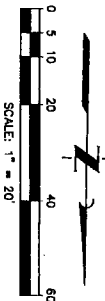
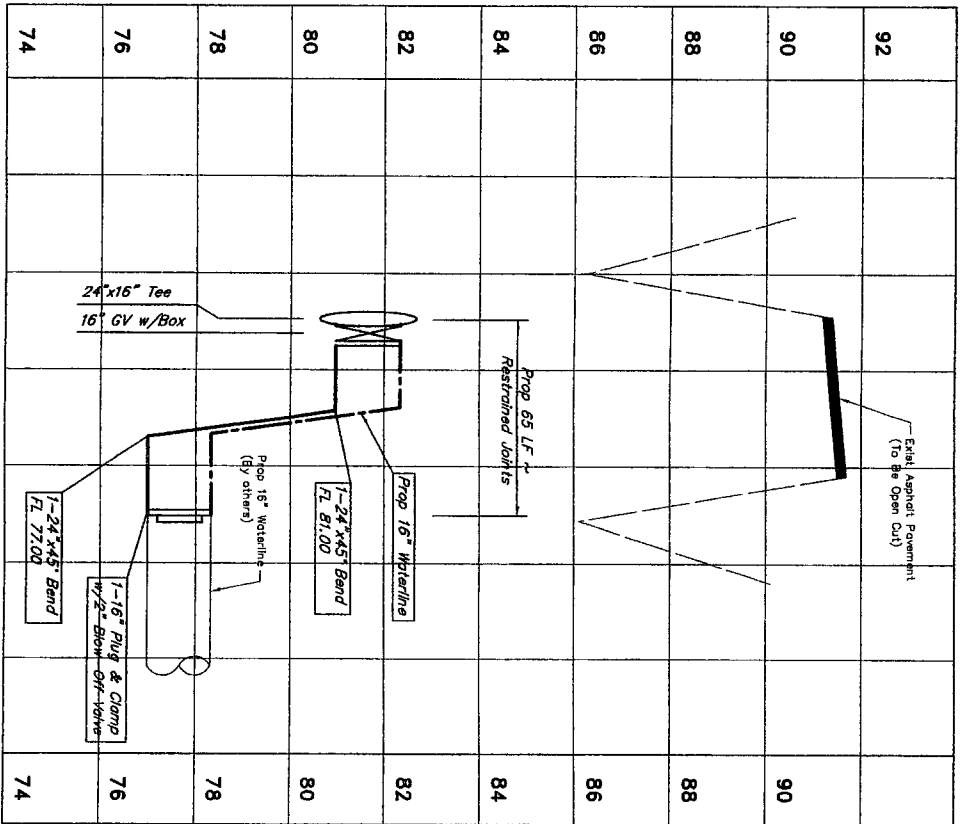
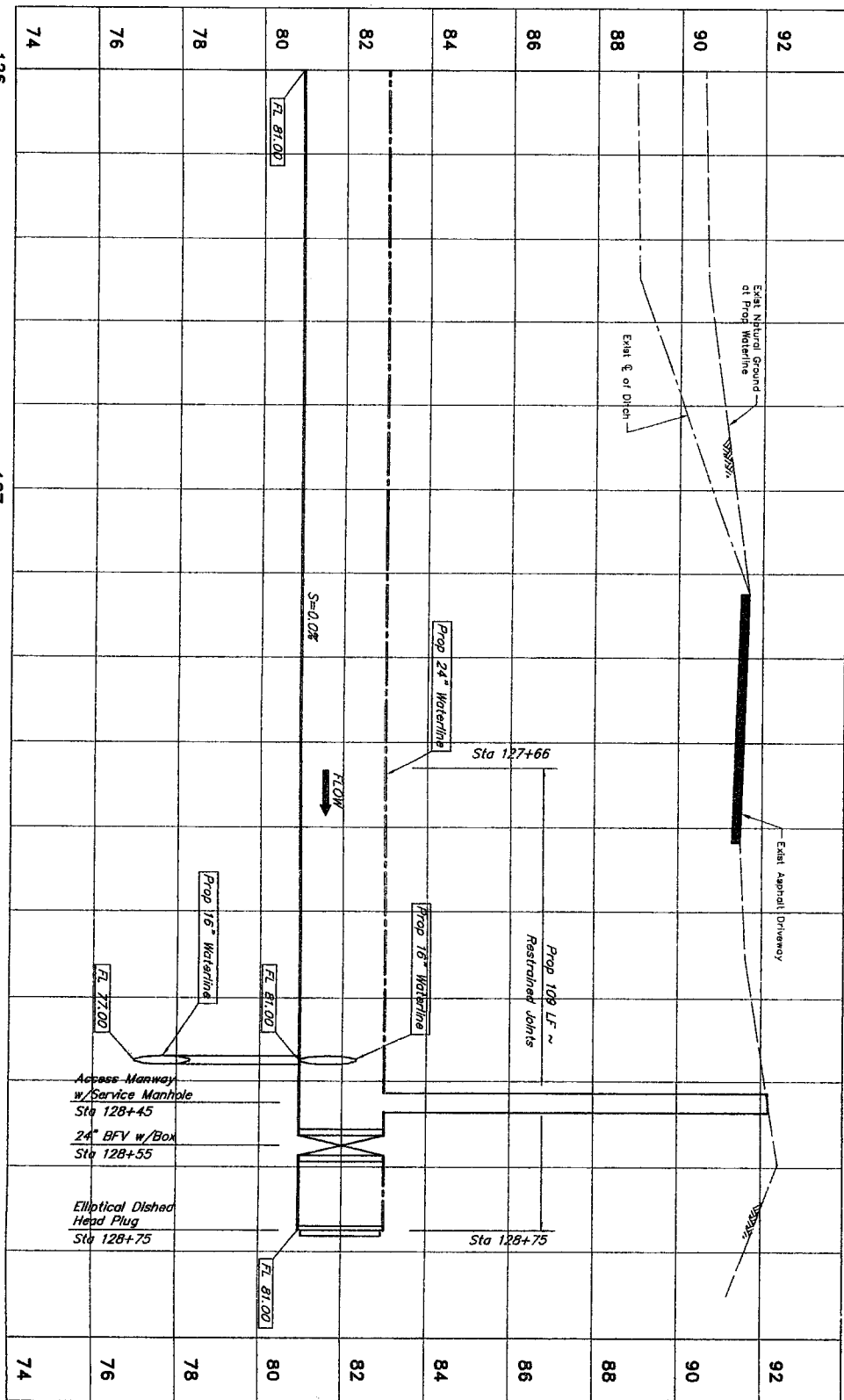
PRIVATE UTILITY LINES SHOWN	
DATE: 10/1/10	
DRAWN BY: [Signature]	
CHECKED BY: [Signature]	
DATE: 10/1/10	
NOTES:	
1. DEFLECTIONS ARE NOT TO EXCEED MANUFACTURER'S MAXIMUM DEFLECTION OR 1" WHICHEVER IS SMALLER.	
2. PUMP, THIS IS CONSIDERED INCIDENTAL TO COST OF DR. LINE CONNECTION.	
3. CONTRACTOR SHALL PROVIDE 48 HOURS NOTICE TO REPRESENTATIVES OF HOUSTON PIPELINE LP AND KINDER MORGAN PIPELINE PRIOR TO ANY CONSTRUCTION ACTIVITY REQUIREMENTS. SEE SPEC 0110 FOR ALL OTHER CONDITIONS OR BETTER.	
4. CONTRACTOR SHALL RESTORE EXISTING SMALE TO EXISTING CONDITION OR BETTER.	
Trenchless Construction w/ (See Detail Sht 55)	
[Stamp: STATE OF TEXAS, COUNTY OF HARRIS, ENGINEER, KENNETH L. MARTINEZ, 07808]	
7/17/2010	
7/30/10	
4	
3	
2	
1	
NO. DATE	
REVISION	
APPROVED	
J.C. JONES & CARTER, INC. ENGINEERS-PLANNERS-SURVEYORS	
7000 Board of Engineers' Professional Seal, No. 7-439	
6033 Galloway Dr., Suite 100 Houston, Texas 77061 (713) 777-3337	
SEGMENT 5	
HARLEM ROAD BASELINE	
STA 121+00 TO 126+00	
NORTH FORT BEND	
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES	
CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
WATER	
STORM	
FLOODING	
FILE NO:	
DRAWING SCALE	
HORIZ: 1" = 20'	
VERT: 1" = 2'	
SHEET 34 OF 62	
47223	

GRAND MISSION No. 1
WATER PLANT No. 1

RESTRICTED RESERVE "A"
RESTRICTED TO WATER PLANT
PURPOSE ONLY
PLAT No. 20080051 FBCPR



SECTION "A-A"



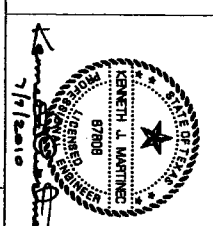
PRIVATE UTILITY LINES SHOWN

Date: 10/10/10
Date: 6/11/10
Date: 7/11/10

NOTICE:
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET
FOR ANY UTILITY, CALL ONE, TWO, THREE, FOUR, FIVE
CENTERS, (713) 223-4567 OR 1-800-688-5344
TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED.
CALL CENTERPOINT AT 713-207-2222.

NOTES:
1. DEFLECTIONS ARE NOT TO EXCEED MANUFACTURER'S
MAXIMUM DEFLECTION OR 1" WHICHEVER IS SMALLER.
2. IF THE 16" STUB-OUT WITH GATE VALVE, PLUG & CLAMP,
AND 2" BLOW-OFF IS IN PLACE, CONTRACTOR SHALL
REMOVE THE PLUG & CLAMP AND PROVIDE AN ADAPTER
IF THE 16" STUB-OUT IS NOT IN PLACE, CONTRACTOR
SHALL REMOVE THE PLUG & CLAMP AND PROVIDE AN ADAPTER
CONTRACTOR SHALL REMOVE AND REPLACE ASPHALT
ROADWAY AS NEEDED FOR CONSTRUCTION OF PROPOSED 16"
AND 24" WATER LINES.
3. CONTRACTOR TO REMOVE AND REPLACE EXISTING GUARD
RAIL AS NEEDED FOR CONSTRUCTION ACTIVITIES TO EXISTING
OR BETTER CONDITION. THIS WORK IS CONSIDERED
INCIDENTAL TO THE PROJECT.
4. CONTRACTOR SHALL RESTORE EXISTING SMALE TO EXISTING
CONDITION OR BETTER.

1. DEFLECTIONS ARE NOT TO EXCEED MANUFACTURER'S
MAXIMUM DEFLECTION OR 1" WHICHEVER IS SMALLER.
2. IF THE 16" STUB-OUT WITH GATE VALVE, PLUG & CLAMP,
AND 2" BLOW-OFF IS IN PLACE, CONTRACTOR SHALL
REMOVE THE PLUG & CLAMP AND PROVIDE AN ADAPTER
IF THE 16" STUB-OUT IS NOT IN PLACE, CONTRACTOR
SHALL REMOVE THE PLUG & CLAMP AND PROVIDE AN ADAPTER
CONTRACTOR SHALL REMOVE AND REPLACE ASPHALT
ROADWAY AS NEEDED FOR CONSTRUCTION OF PROPOSED 16"
AND 24" WATER LINES.
3. CONTRACTOR TO REMOVE AND REPLACE EXISTING GUARD
RAIL AS NEEDED FOR CONSTRUCTION ACTIVITIES TO EXISTING
OR BETTER CONDITION. THIS WORK IS CONSIDERED
INCIDENTAL TO THE PROJECT.
4. CONTRACTOR SHALL RESTORE EXISTING SMALE TO EXISTING
CONDITION OR BETTER.



JC JONES & ASSOCIATES, INC.
ENGINEERS & PLANNERS-SURVEYORS
Texas Board of Professional Engineers Registration No. F-439
6335 Gullhorn Dr., Suite 100 Houston, Texas 77061 (713) 777-6397

HARLEM ROAD BASELINE
STA 126+00 TO 131+00



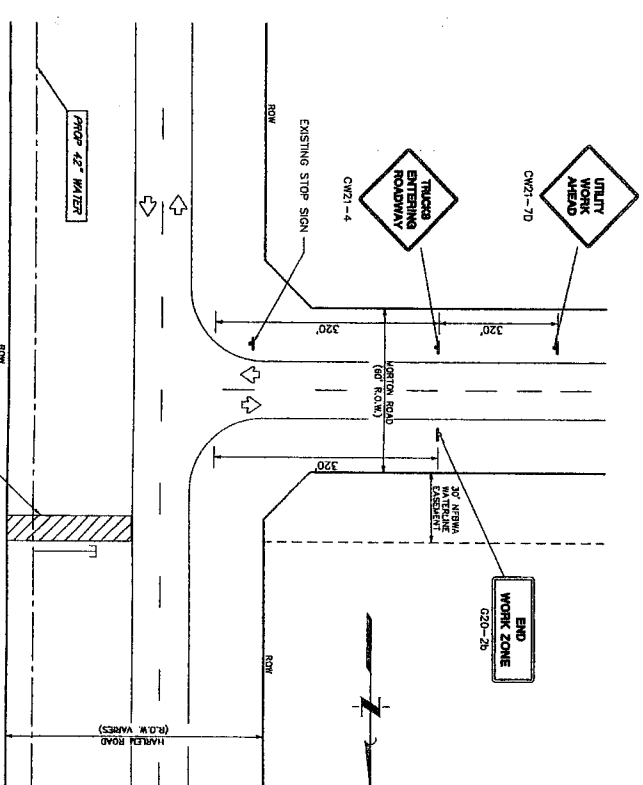
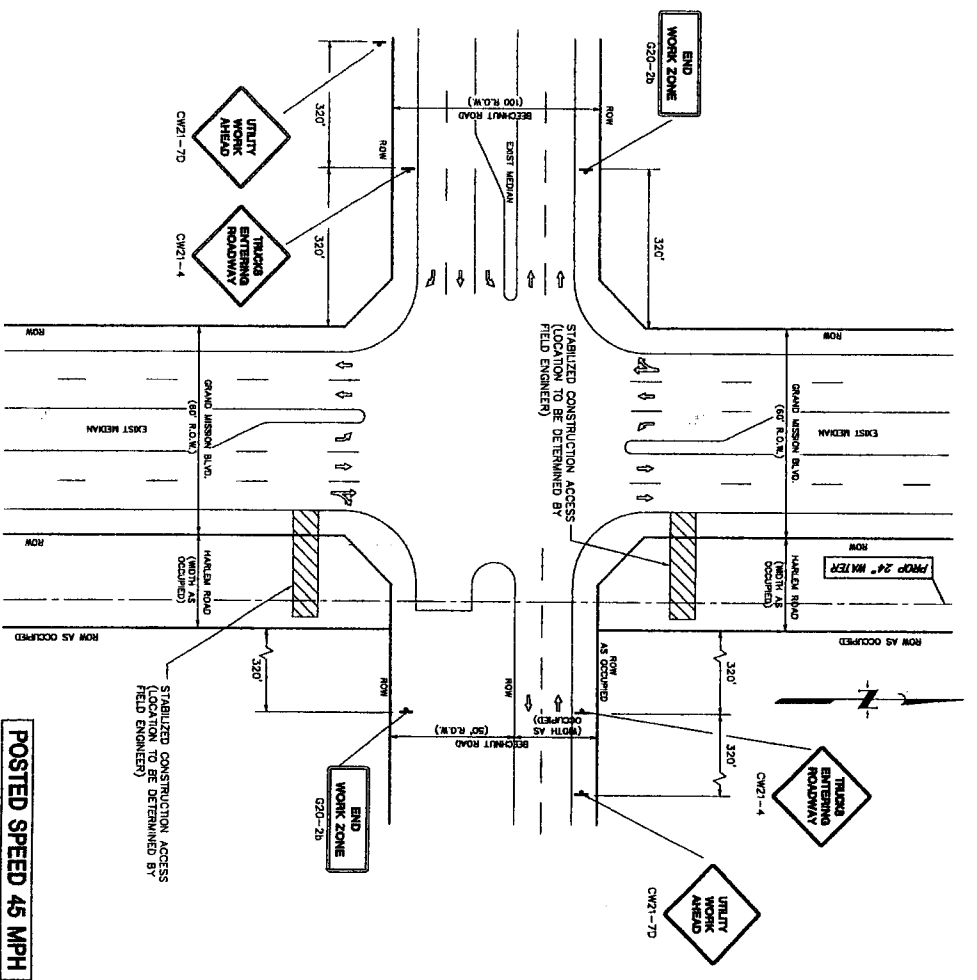
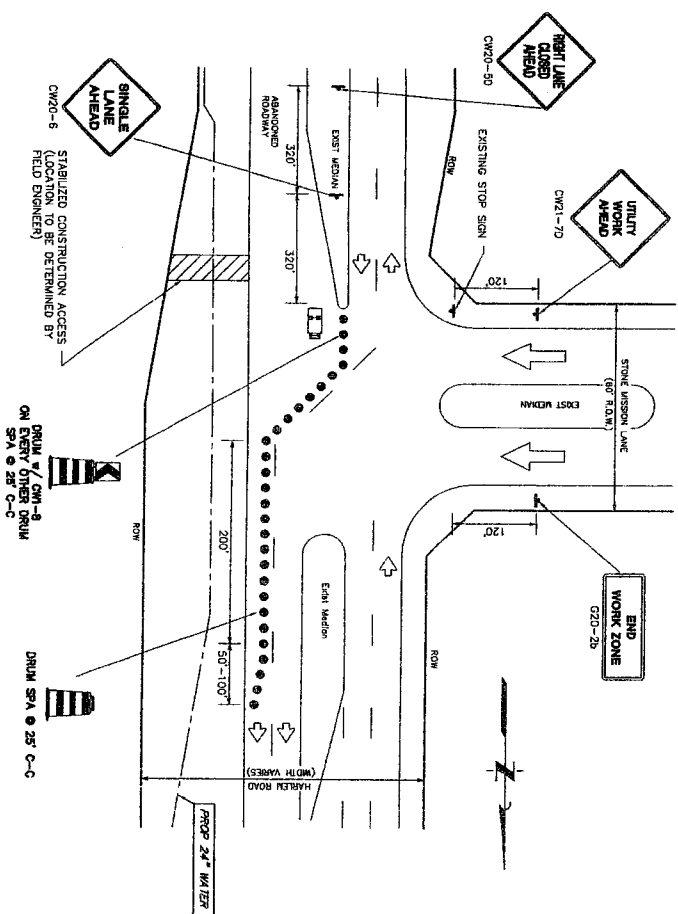
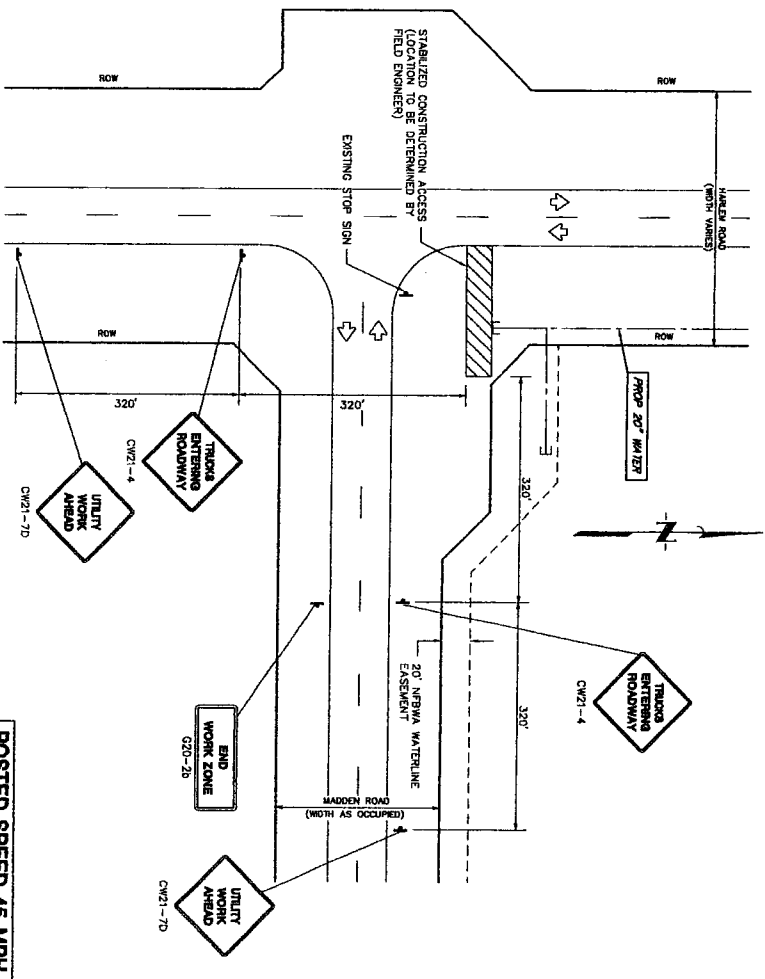
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF
SIGNATURES
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER
STREET & BRIDGE
STORM
STORM WATER QUALITY

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

SHEET NO. 35 OF 62





NOTES:

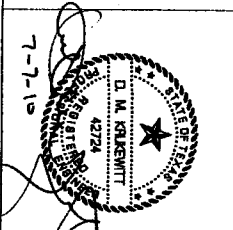
1. CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART 4 OF TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUD) - LATEST EDITION WITH REVISIONS) DURING CONSTRUCTION.
2. NO LINES SHALL BE BLOCKED FROM 7 A.M. TO 9 A.M. AND 4 P.M. TO 6:30 P.M. MONDAY THRU FRIDAY.
3. OFF DUTY POLICE OFFICERS/FLAGGERS ARE REQUIRED TO DIRECT TRAFFIC WHEN LINES ARE BLOCKED.
4. CONTRACTOR SHALL COVER THE EXCAVATION WITH STEEL PLATES ANCHORED PROPERLY, DURING NON-WORKING HOURS AND ALLOW NORMAL TRAFFIC FLOW.
5. APPROVED COPIES OF "TRAFFIC CONTROL PLANS" SHALL BE AVAILABLE FOR INSPECTION AT ALL TIMES.
6. IF THE CONTRACTOR CHOOSES TO USE A DIFFERENT METHOD OF TRAFFIC CONTROL PLAN DURING THE CONSTRUCTION THAT IS OUTLINED IN THE CONTRACT DRAWINGS, THE CONTRACTOR SHALL BE RESPONSIBLE TO PREPARE AND SUBMIT ALTERNATE PLANS TO THE TRAFFIC SECTION OF HAND FOR APPROVAL TEN WORKING DAYS PRIOR TO IMPLEMENTATION.
7. IF THE PROJECT IS WITHIN 400 FEET FROM A SIGNALIZED INTERSECTION, THE CONTRACTOR SHALL CONTACT FORT BEND COUNTY PUBLIC INFRASTRUCTURE DEPARTMENT, SIGNAL DIVISION AT 281-653-7500 FIVE (5) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.

CONSTRUCTION WARNING
SIGN SPACING

Posted Speed or 85% Speed (MPH)	Min. Distance (feet)
30 or less	120
35	160
40	240
45	320
50	400
55	500
65	700

LEGEND

- STABILIZED CONSTRUCTION ACCESS (TO BE DETERMINED BY FIELD ENGINEER)
- OPEN TO TRAFFIC
- SIGN WITH POST
- TUBULAR MARKERS, CONES OR DRUMS



J. JONES & CARTER, INC.
ENGINEERS • PLANNERS • SURVEYORS
Texas Board of Professional Engineers Registration No. F-499
8335 Gullhorn Dr., Suite 100 Houston, Texas 77061 (713) 777-8337

SEGMENT 5

TRAFFIC CONTROL PLAN
SHEET 1 OF 2



CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

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

DATE: 7/2/10
BY: [Signature]
TITLE: [Signature]
STREET & BRIDGE: [Signature]
STORM WATER QUALITY: [Signature]
FOR CITY OF HOUSTON USE ONLY: [Signature]

DRAWING SCALE

HORIZ : 4" = 100'
VERT : 1" = 10'

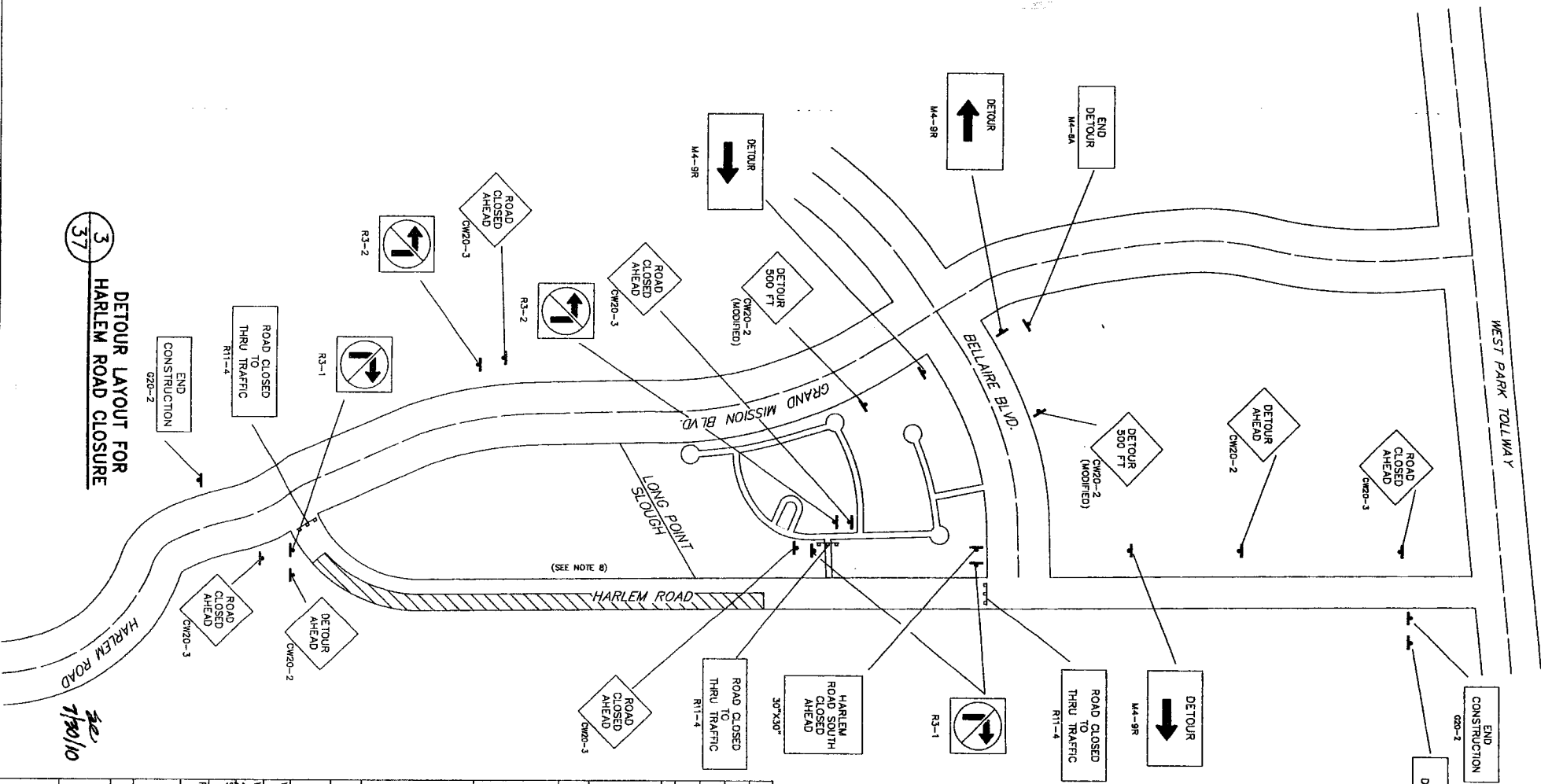
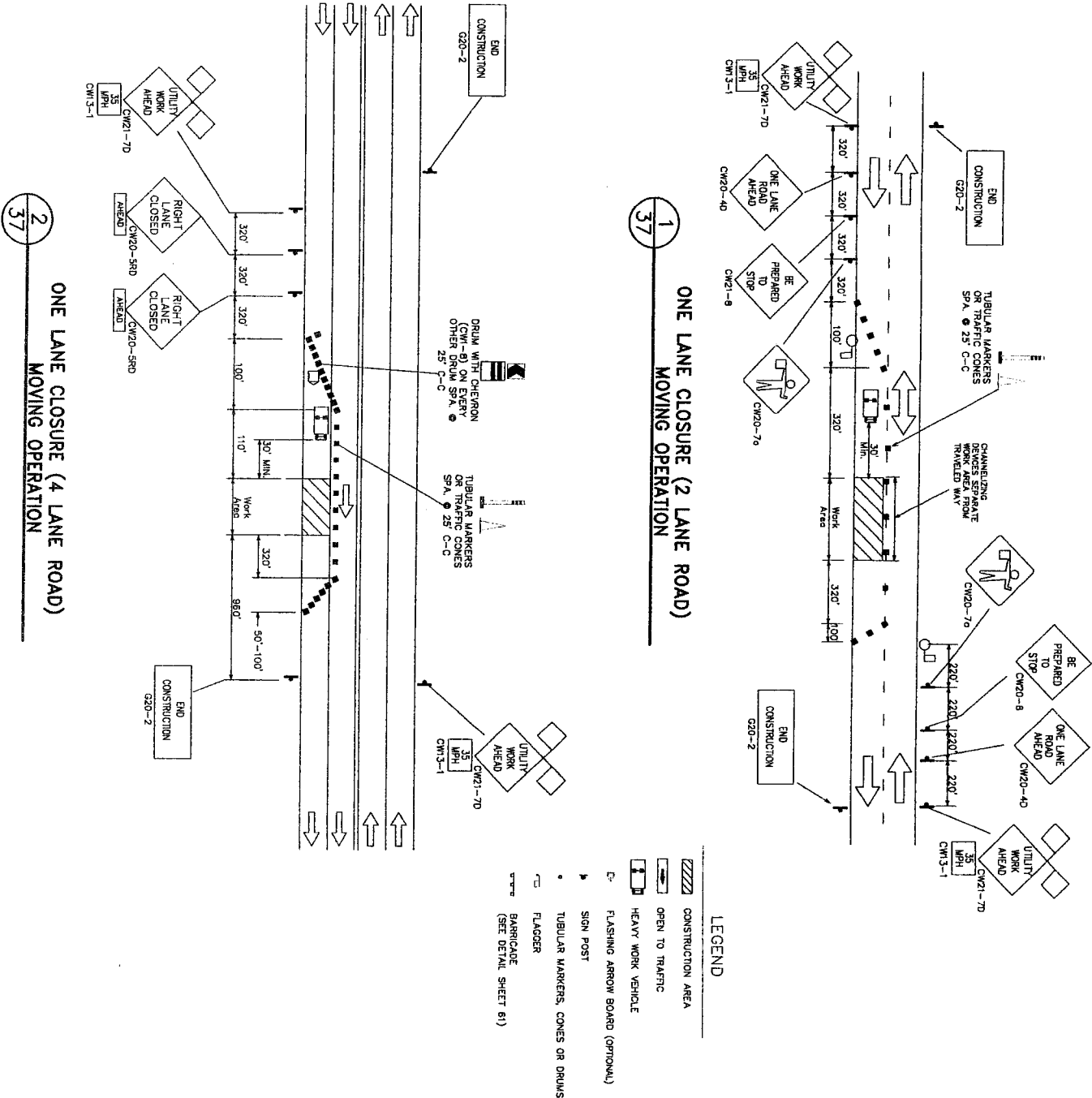
SHEET NO. 36 OF 62

7/2/10

- NOTES:
1. CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) - LATEST EDITION WITH REVISIONS DURING CONSTRUCTION.
 2. NO LANES SHALL BE BLOCKED FROM 7 A.M. TO 9 A.M. AND 4 P.M. TO 6:30 P.M. MONDAY THRU FRIDAY.
 3. OFF DUTY POLICE OFFICERS/FLAGGERS ARE REQUIRED TO DIRECT TRAFFIC WHEN LANES ARE BLOCKED.
 4. CONTRACTOR SHALL COVER THE EXCAVATION WITH STEEL PLATES ANCHORED PROPERLY DURING NON-WORKING HOURS AND ALLOW NORMAL TRAFFIC FLOW.
 5. APPROVED COPIES OF "TRAFFIC CONTROL PLANS" SHALL BE AVAILABLE FOR INSPECTION AT ALL TIMES.
 6. IF THE CONTRACTOR CHOOSES TO USE A DIFFERENT METHOD OF TRAFFIC CONTROL, PLAN DURING THE CONSTRUCTION THAN WHAT IS OUTLINED IN THE CONTRACT DRAWINGS, (S)HE SHALL BE RESPONSIBLE TO PREPARE AND SUBMIT ALTERNATE PLANS TO TRAFFIC SECTION OF HARD FOR APPROVAL, TEN WORKING DAYS PRIOR TO IMPLEMENTATION.
 7. IF THE PROJECT IS WITHIN 400 FEET FROM A SIGNALIZED INTERSECTION, THE CONTRACTOR SHALL CONTACT FORT BEND COUNTY PUBLIC INFRASTRUCTURE DEPARTMENT, SIGNAL DIVISION AT 281-633-7500 FIVE (5) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.
 8. CONTRACTOR TO COORDINATE ACCESS TO HARLEM ROAD WITH THE OPERATOR FOR GRAND MISSION LAD NO. 1 AND THE REPRESENTATIVE FOR THE ADJACENT MIDDLE SCHOOL.

POSTED SPEED 45 MPH

TRAFFIC CONTROL SYSTEM
FOR HARLEM ROAD
NOT TO SCALE



CONSTRUCTION WARNING
SIGN SPACING

Posted Speed or 85% Speed (MPH)	X Min. Distance (feet)
30 or less	120
35	160
40	240
45	320
50	400
55	500
65	700

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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DESIGNED: *[Signature]* 7/21/10
DRAWN: *[Signature]* 7/21/10
CHECKED: *[Signature]* 7/21/10
IN CHARGE: *[Signature]* 7/21/10

FILE NO.:
DRAWING SCALE:
HORIZ.:
VERT.:
SHEET NO.: 37 OF 62

FOR CITY OF HOUSTON USE
ONLY CITY DWG. NO.: 47223

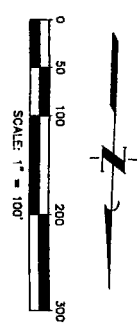
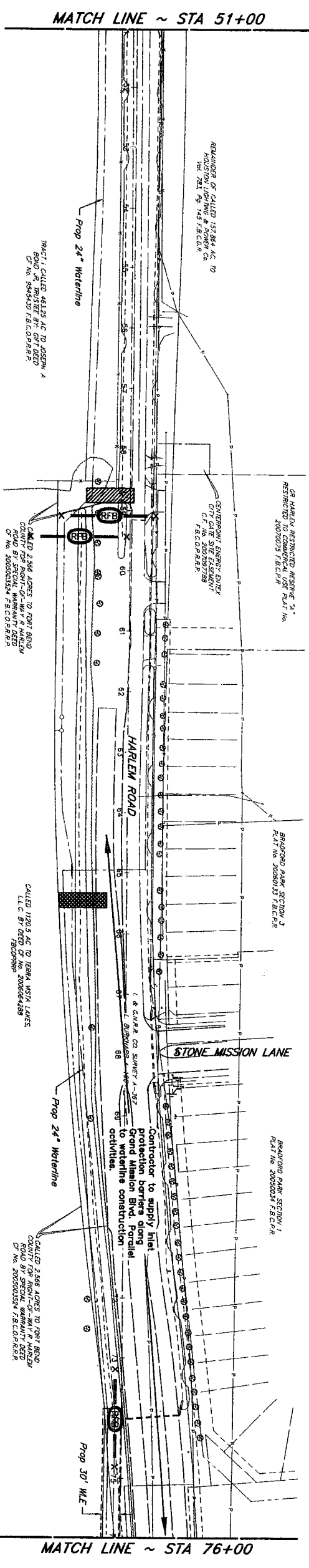
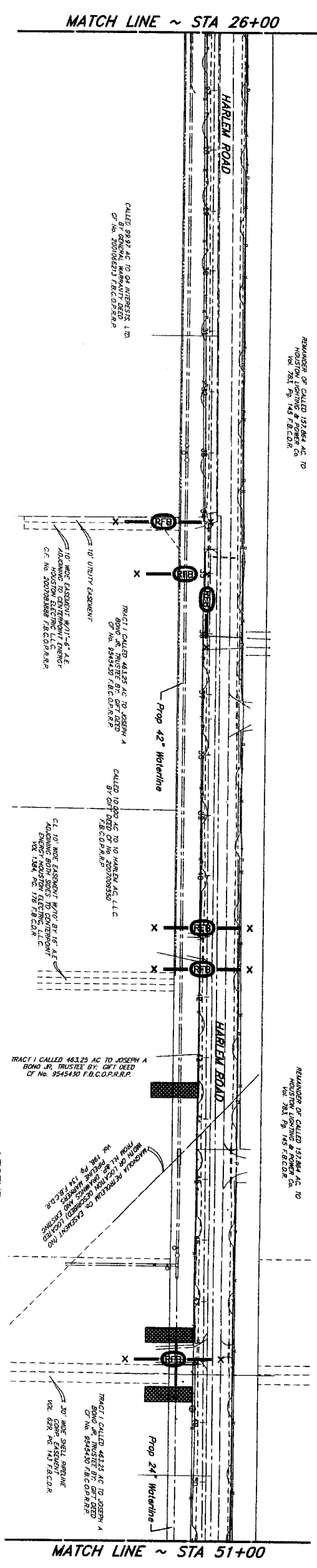
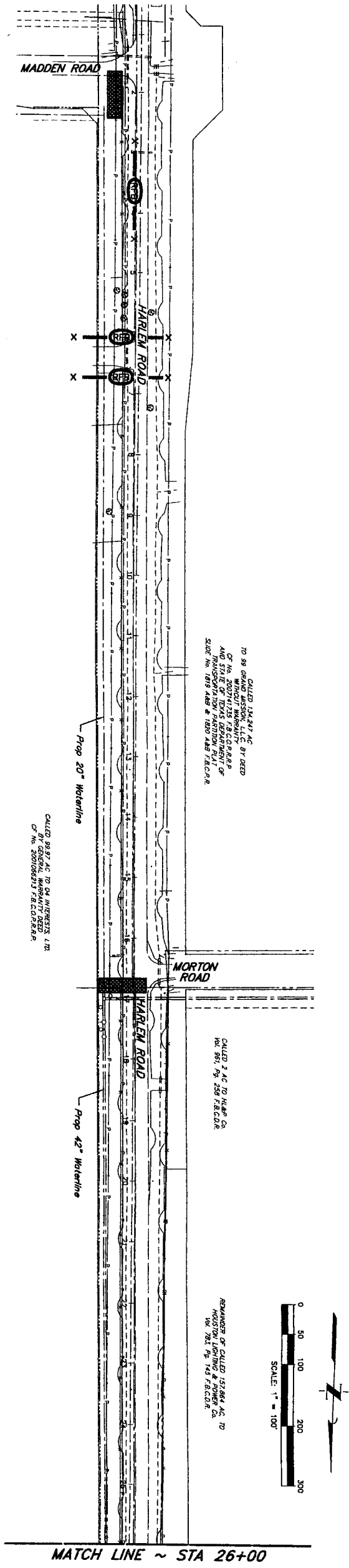
TRAFFIC CONTROL PLAN
SHEET 2 OF 2

SEGMENT 5

JC JONES & CARTER, INC.
ENGINEERS-PLANNERS-SURVEYORS
Texas Board of Professional Engineers Registration No. F-439
6506 Graham Dr., Suite 100 Houston, Texas 77061 (713) 774-5337

NORTH FORT BEND

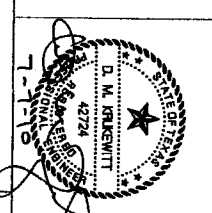
7-7-10

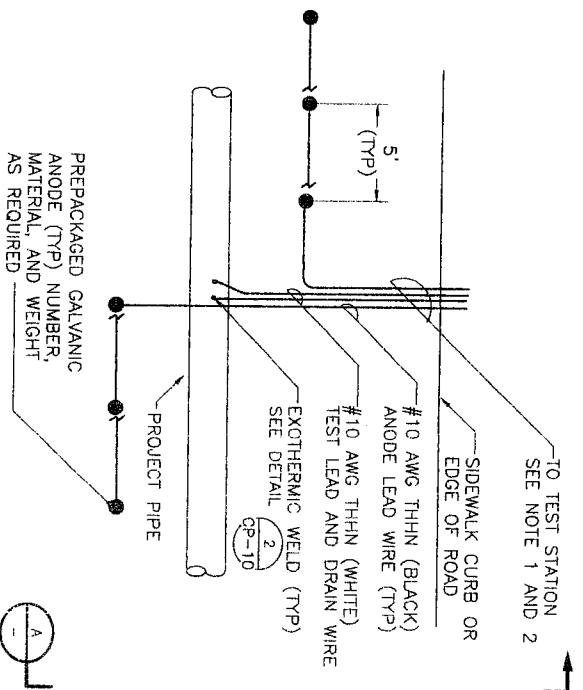


COH LOG NO: 09-0879

SHEET 38 of 62	
DRAWING SCALE	
HORIZ : 1" = 100'	
VERT :	
FILE NO:	FOR CITY OF HOUSTON USE ONLY (BY DWG NO.)
DRAWING SCALE	
HORIZ : 1" = 100'	
VERT :	
SHEET 38 of 62	

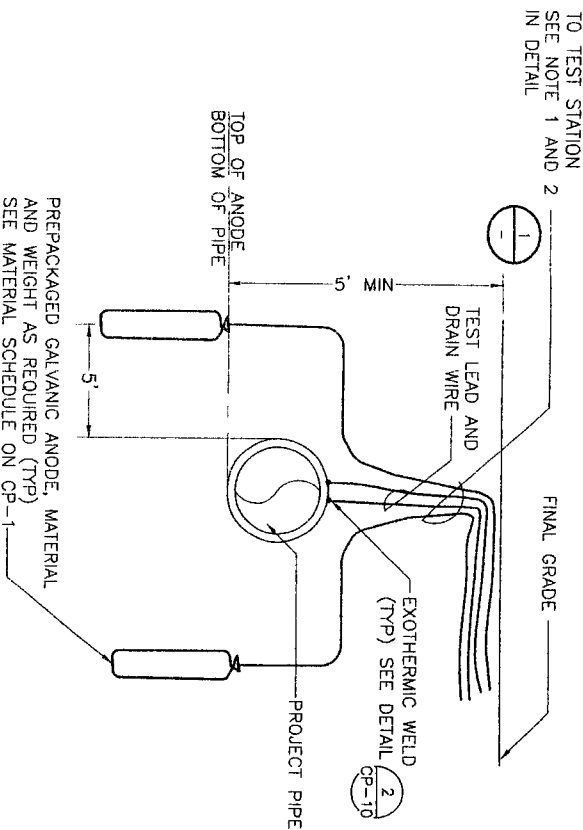
STORM WATER POLLUTION PREVENTION PLAN SHEET 1 OF	
SEGMENT 5	
J.C. JONES & CARTER, INC. ENGINEERS-PLANNERS-SURVEYORS Texas Board of Professional Engineers Registration No. T-439 6335 Gullion Dr., Suite 100 Houston, Texas 77061 (713) 777-5537	
SIGNATURES	
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES	
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING WATER STREET & BRIDGE STORM WATER QUALITY	
FOR CITY OF HOUSTON USE ONLY (BY DWG NO.)	



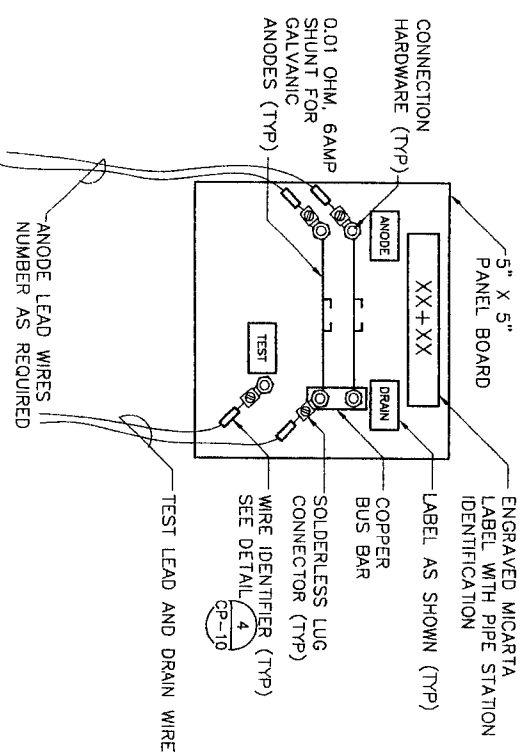


NOTE:
1. IF TEST STATION IS POST MOUNTED, REFER TO DETAIL CP-10
2. IF TEST STATION IS FLUSH MOUNTED, REFER TO DETAIL CP-10

ANODE TEST STATION
(ATS) PLAN
NTS 1

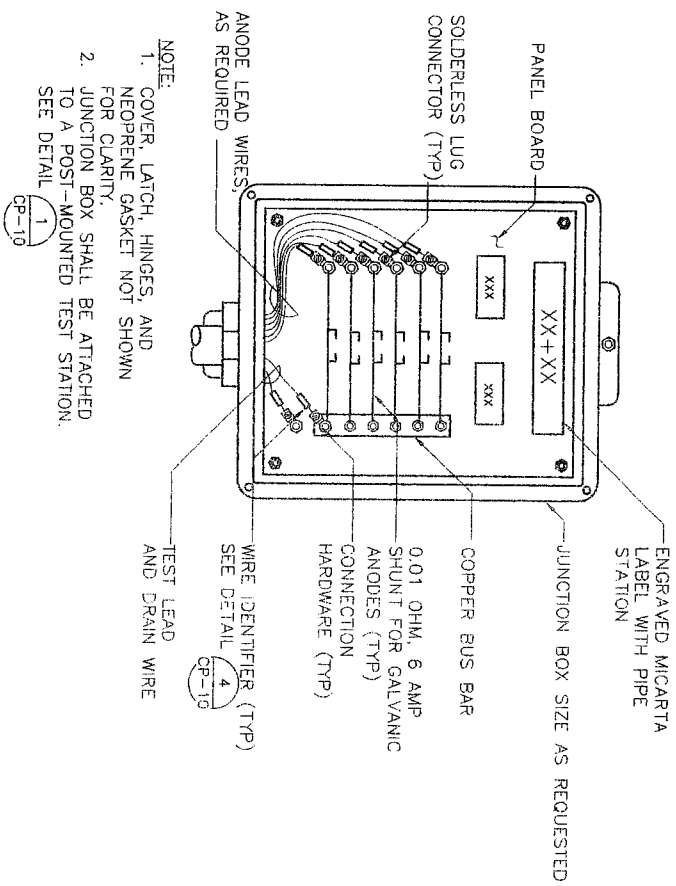


ATS SECTION
NTS A



NOTE:
TEST BOARD SHALL BE SET IN A FLUSH-TO-GRADE TEST STATION.
SEE DETAIL CP-10

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 CP-10

ATS JUNCTION BOX
NTS 3

V&A
Project: CP-1077
4220 Dowd Road, Suite 100
Houston, TX 77065
Tel: (832) 467-2194, Fax: (832) 467-0429



7/8/10
SEGMENT 5
12/31/10

CATHODIC PROTECTION
TEST STATION DETAILS
2 OF 4



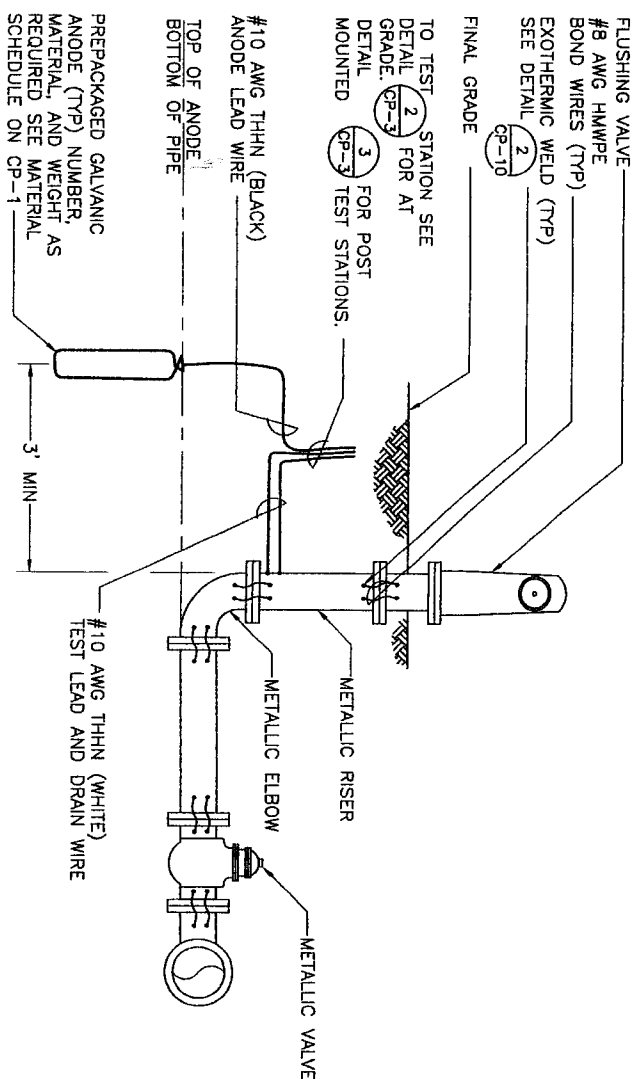
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
Robert C. Williams
7/8/10
12/31/10

DATE: 06/09/10 7:20:09

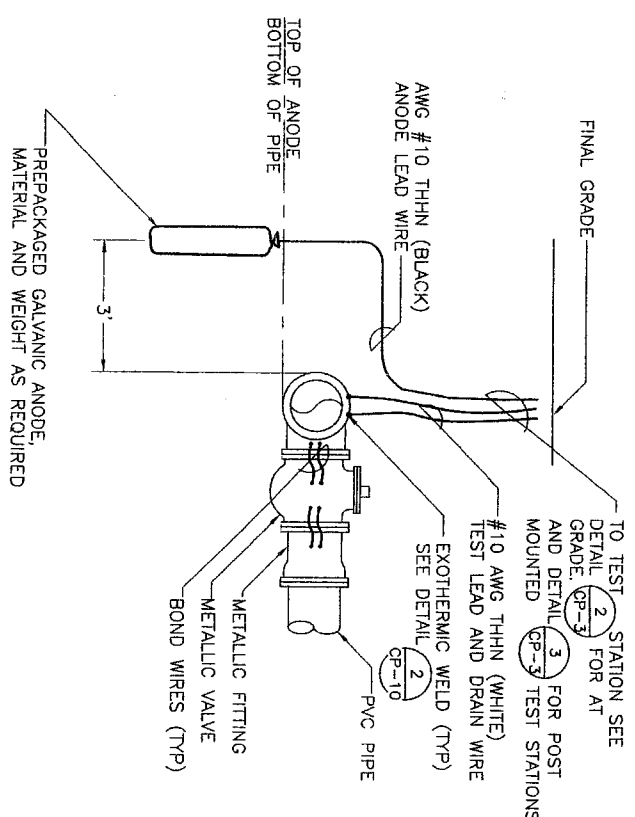
DATE: 06/09/10 7:20:09

REF. NO.
CP-4





TYPICAL ANODE INSTALLATION
AT FLUSHING VALVE





ANODE INSTALLATION
AT FITTING/VALVE

NTS

2

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 APPURTENANCES AS SHOWN ON THE DRAWINGS AND INDICATED IN THE SPECIFICATIONS
3. SEE DETAIL  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 



3/8/10
12/31/10
SEGMENT 5

CATHODIC PROTECTION
TEST STATION DETAILS
3 OF 4



NOTICE TO SUBMITTERS: MAIL OR DELIVER DRAWING TO: SUBMITTERS
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
TRAFFIC AND TRANSPORTATION
MAIL ROOM
7-5-10

[illegible]

FOR CITY OF HOUSTON USE ONLY

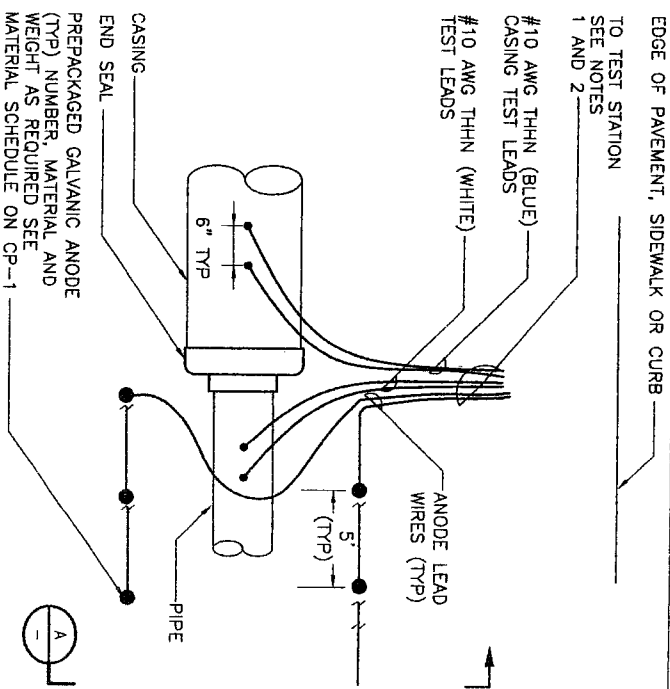
DRAWING SCALE



28
7/30/10

REF. NO.
CP-6

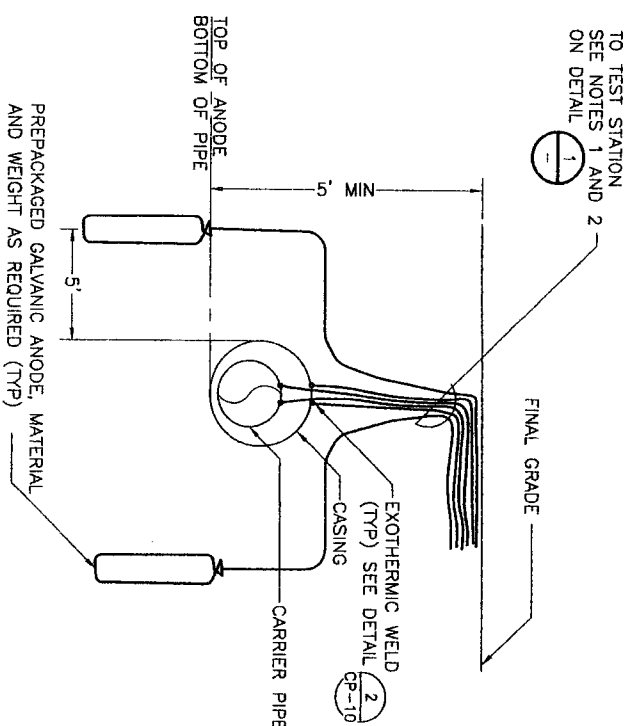
DATE: OCTOBER 7, 2009





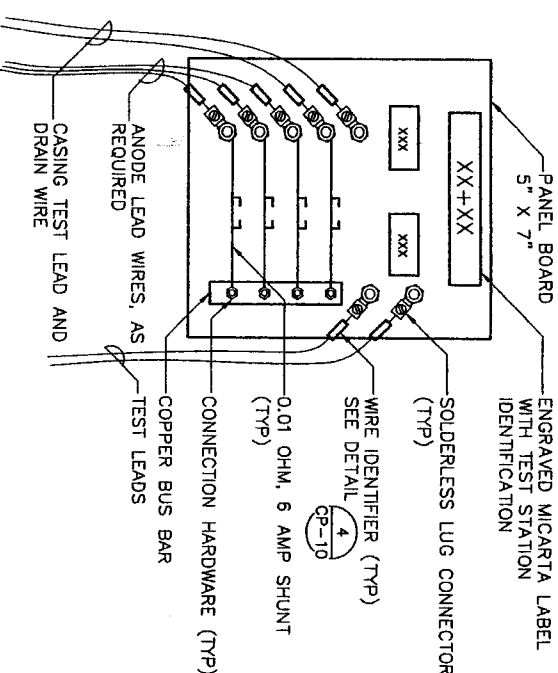
- NOTES:
1. IF TEST STATION IS POST MOUNTED, REFER TO DETAIL 
 2. IF TEST STATION IS FLUSH MOUNTED, REFER TO DETAIL 

CASING ANODE TEST STATION (CATS) PLAN



CATS SECTION
NTS

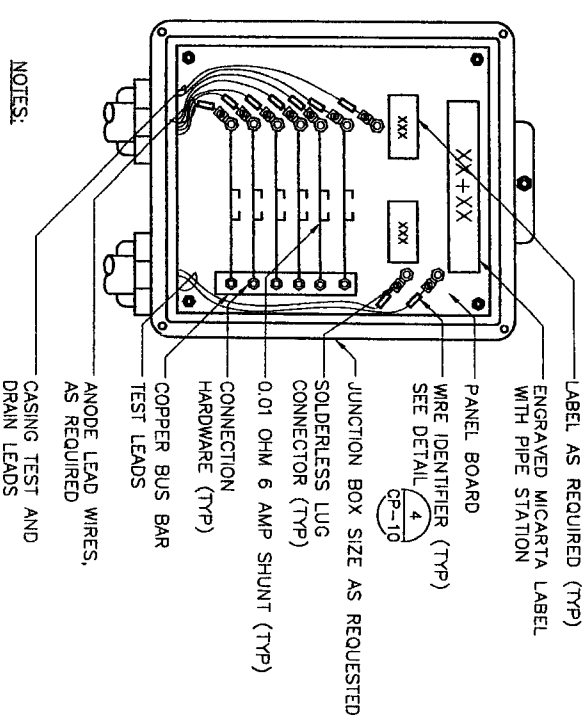
A



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

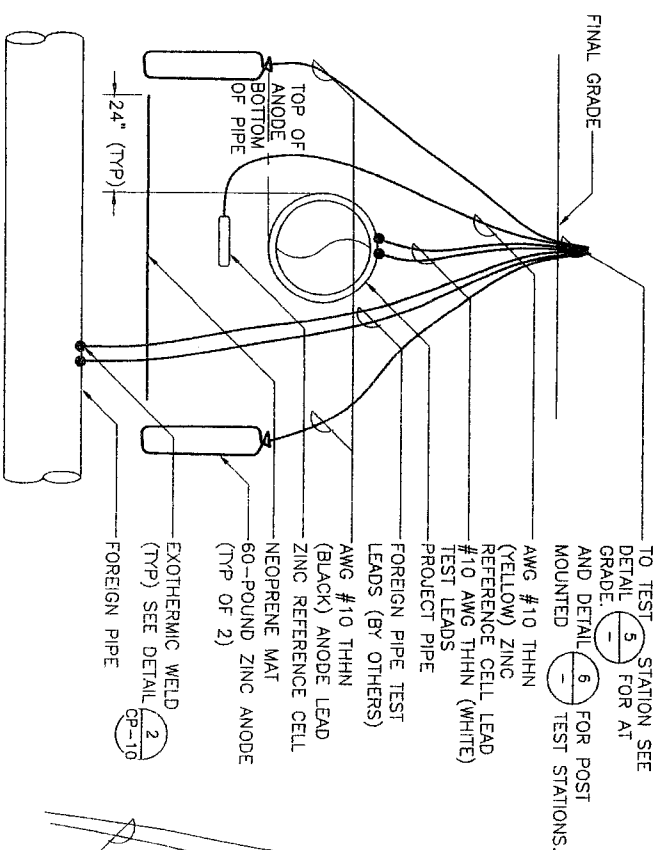
CATS TEST BOARD

2



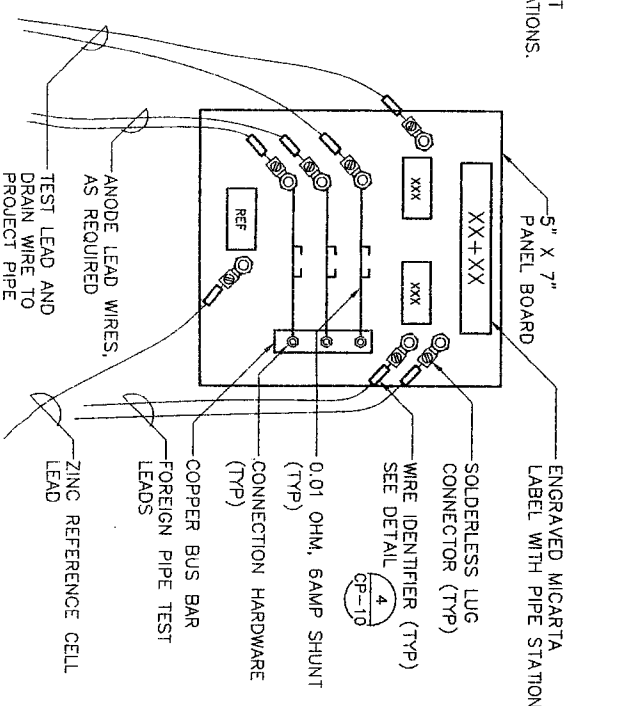
1. COVER, LATCH, HINGES, AND NEOPRENE GASKET NOT SHOWN FOR CLARITY.
 2. SIZE THE JUNCTION BOX TO FIT THE SHUNTS
 3. JUNCTION BOX SHALL BE ATTACHED TO A POST-MOUNTED TEST STATION.
- SEE DETAIL **1**

CATS JUNCTION BOX
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 INSOPRENE MAT.
 3. INSTALL ANODES FIVE FEET FROM PROJECT PIPE AND FOREIGN PIPE.

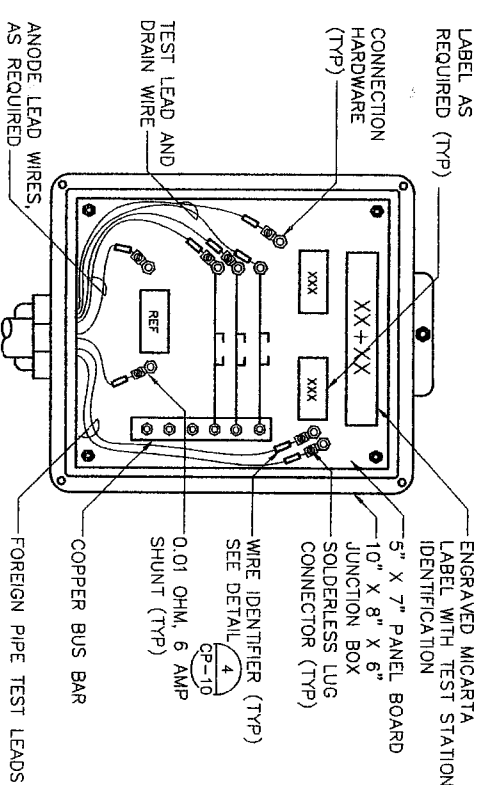
FOREIGN PIPELINE TEST STATION--(FPPTS)
NTS




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

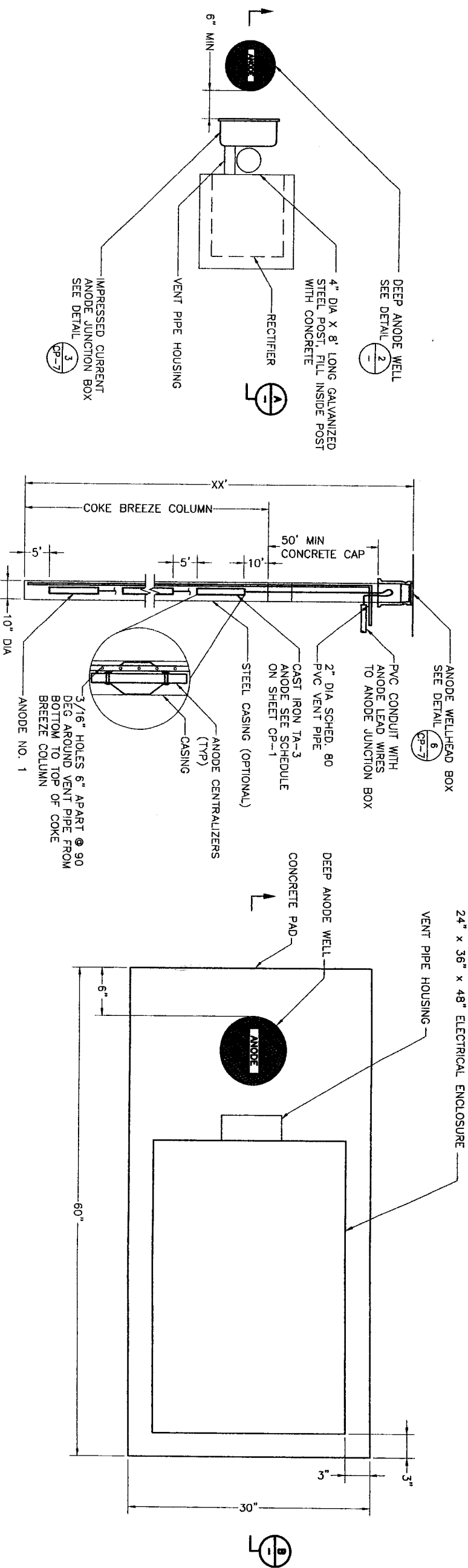
FPTS
TEST BOARD
NTS

5



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 

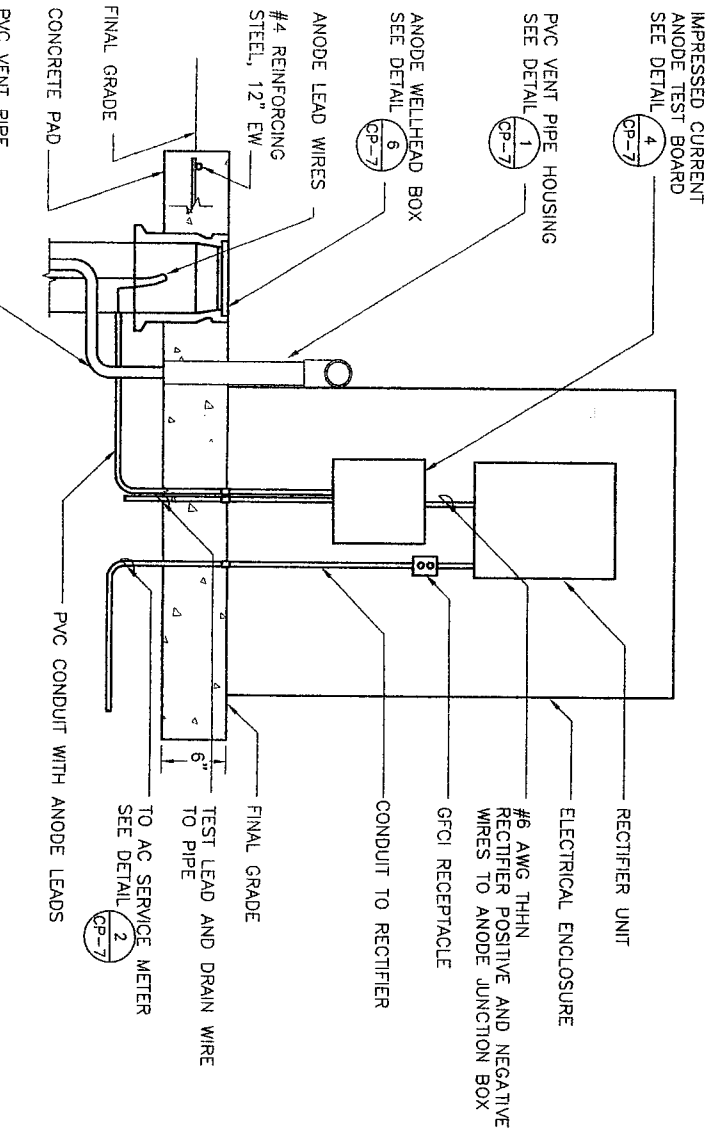
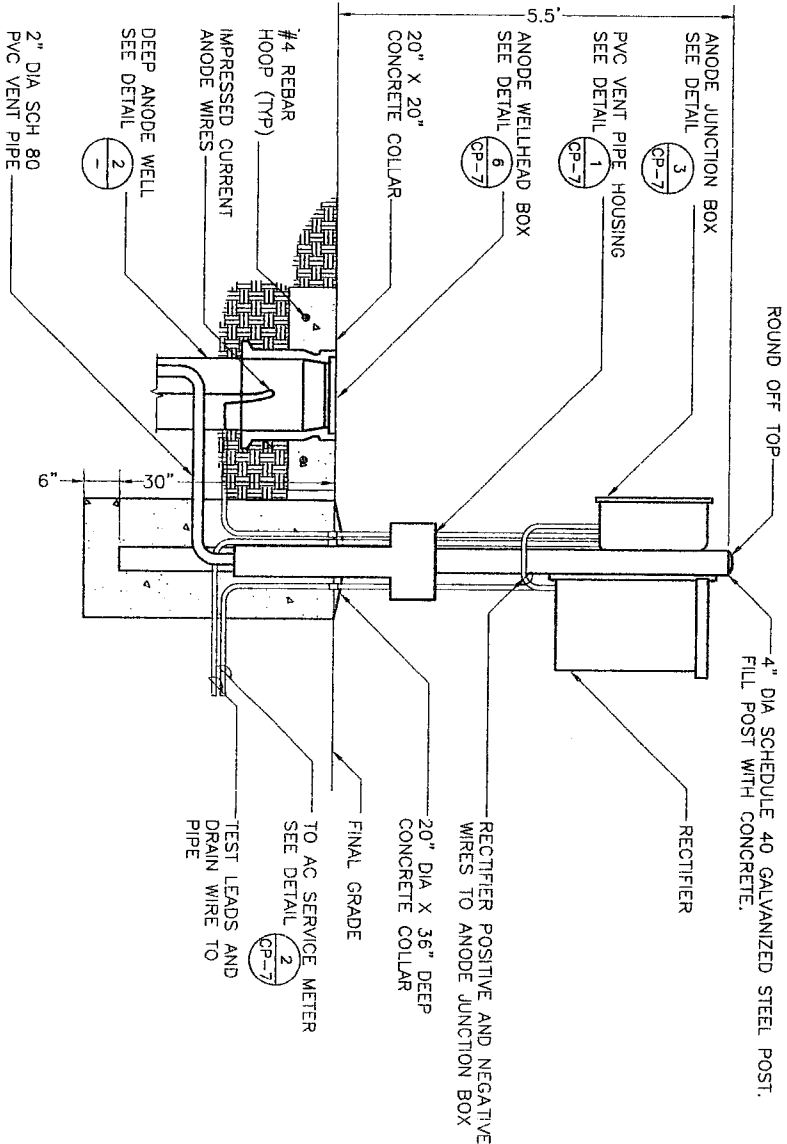
FPTS
JUNCTION BOX
NTS



POST MOUNTED RECTIFIER INSTALLATION
PLAN VIEW
1
NTS

DEEP ANODE WELL
2
NTS

RECTIFIER INSTALLATION WITH ELECTRICAL ENCLOSURE
PLAN VIEW
3
NTS



POST MOUNTED RECTIFIER INSTALLATION
SECTION
A
NTS

RECTIFIER INSTALLATION WITH ELECTRICAL ENCLOSURE
ELEVATION VIEW
B
NTS

3V&A

Project: 07-0777
8220 Jones Road, Suite 300
Houston, TX 77065
Tel: (832) 467-2194, Fax: (832) 467-0420

JOSE LUIS VILLALBA
REGISTERED PROFESSIONAL ENGINEER
79525
STATE OF TEXAS

7/10/10
JEA Consulting Engineers
7-8194

SEGMENT 5

CATHODIC PROTECTION
RECTIFIER DETAILS
1 OF 2

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
12/20/10
12/20/10
12/20/10

FOR CITY OF HOUSTON USE ONLY

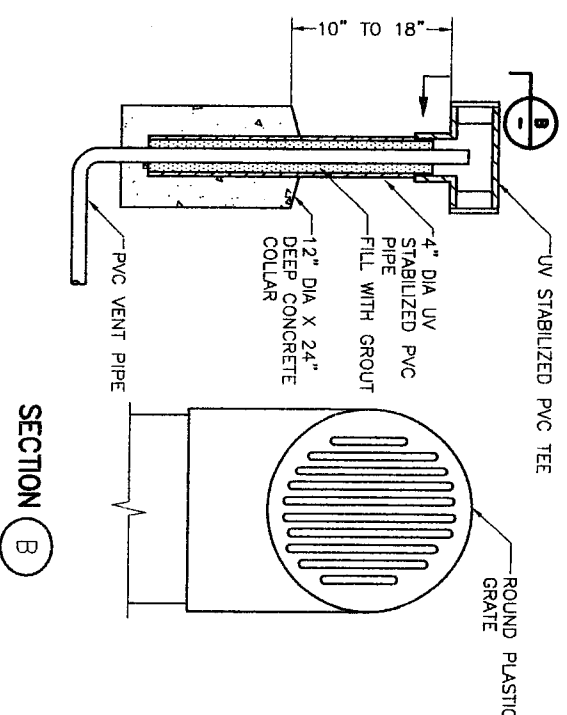
DATE: OCTOBER 7, 2008

REF. NO. CP-5

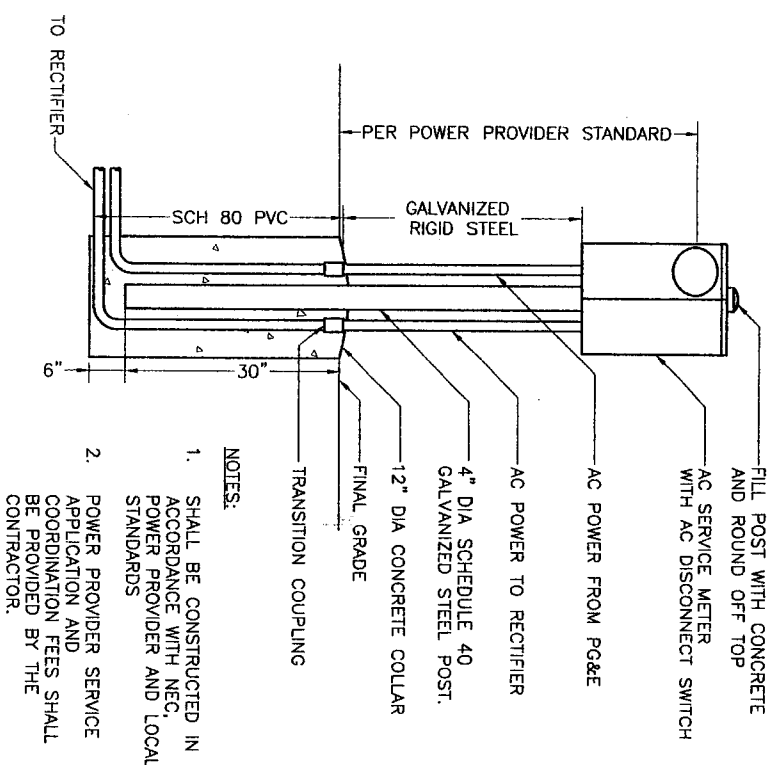
SHEET NO. 45 OF 62

DRAWING SCALE: 1/8" = 1'-0"

47223

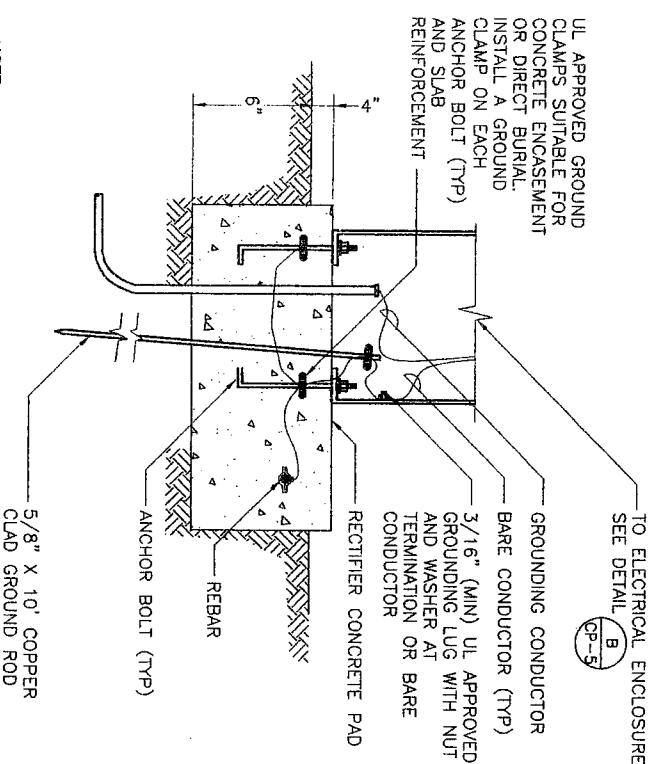
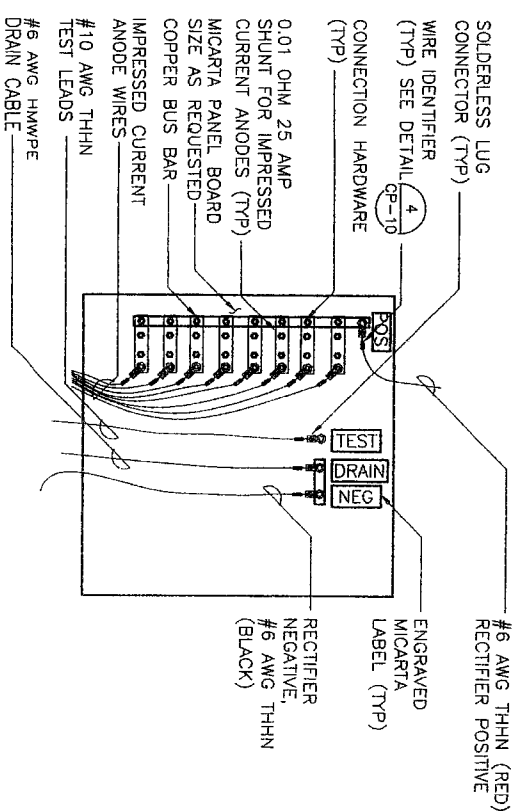


VENT PIPE HOUSING _____ 1



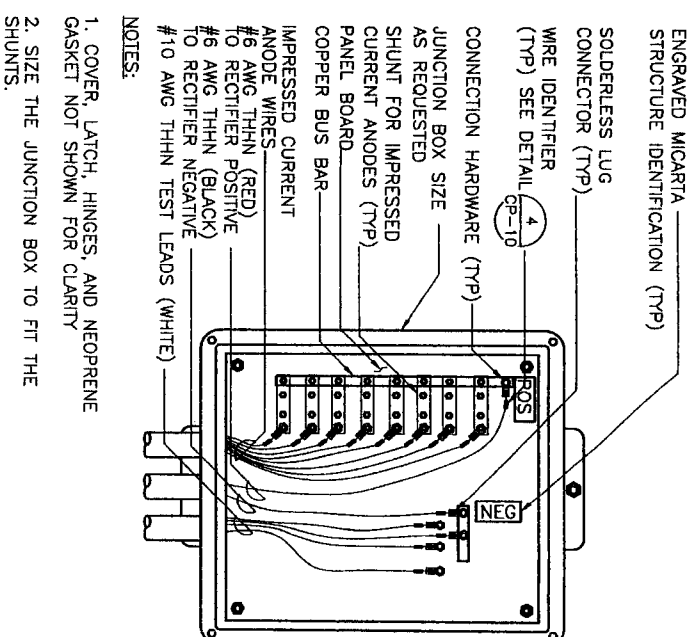
AC SERVICE METER
NTS

2



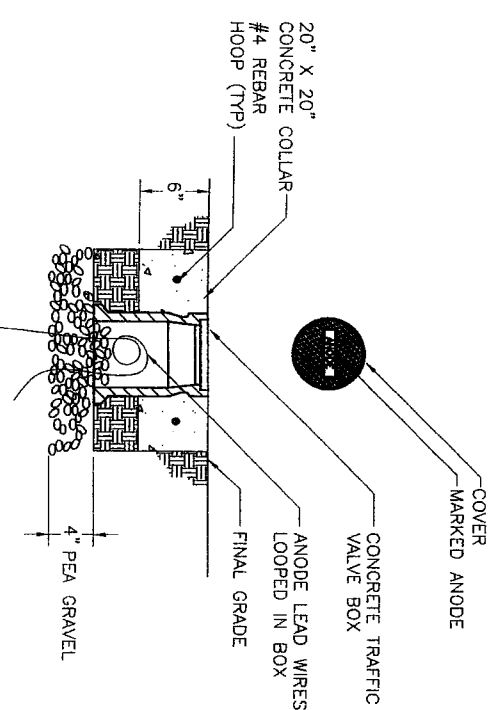
GROUND ROD
NITS

5

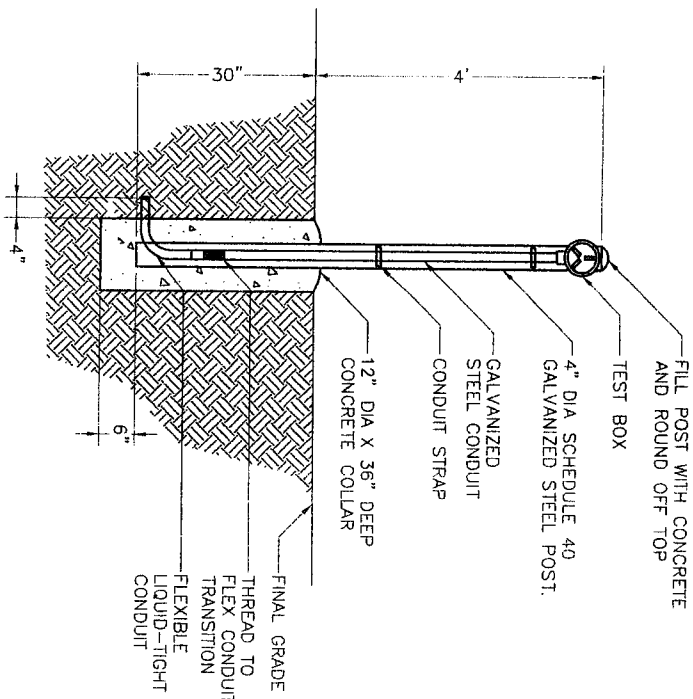


IMPRESSED CURRENT ANODE
JUNCTION BOX

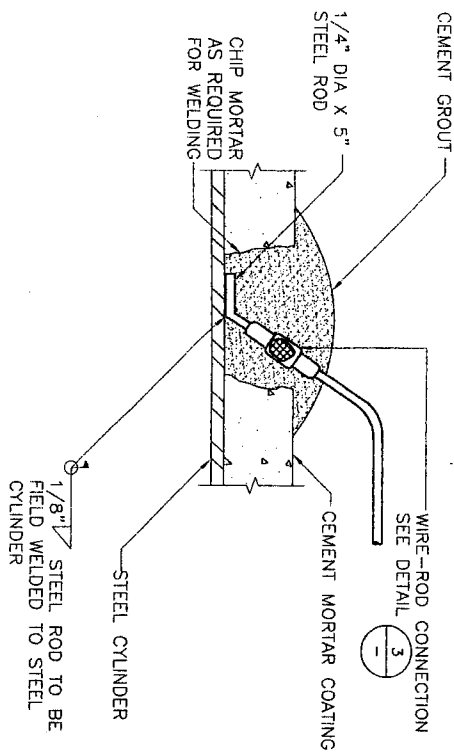
3



ANODE WELLHEAD BOX
NTS

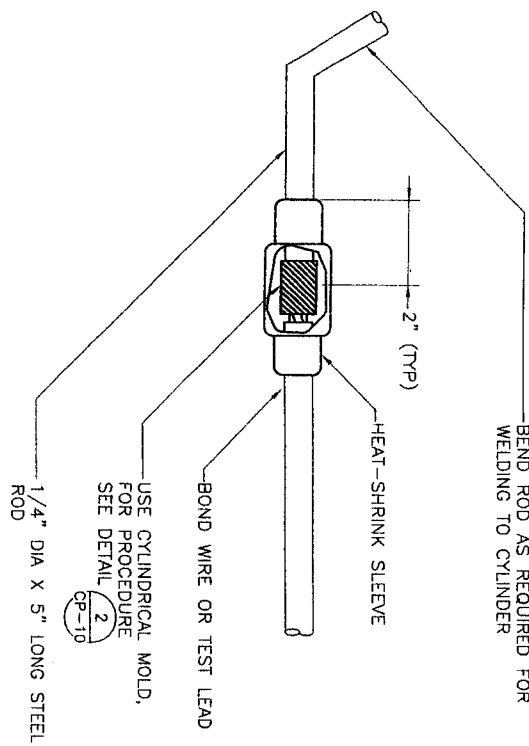


POST MOUNTED TEST STATION 1

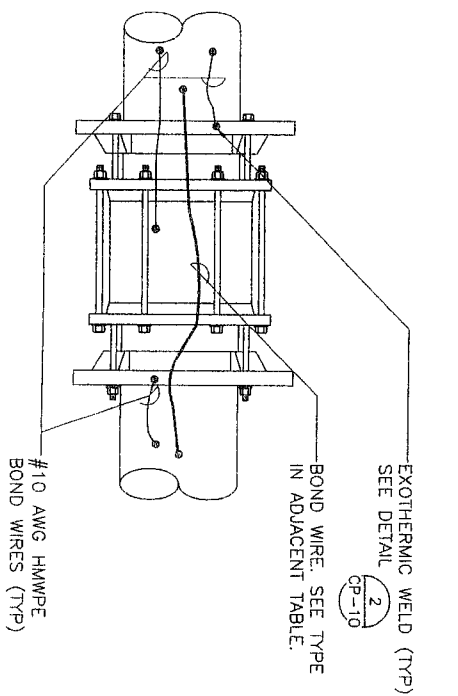
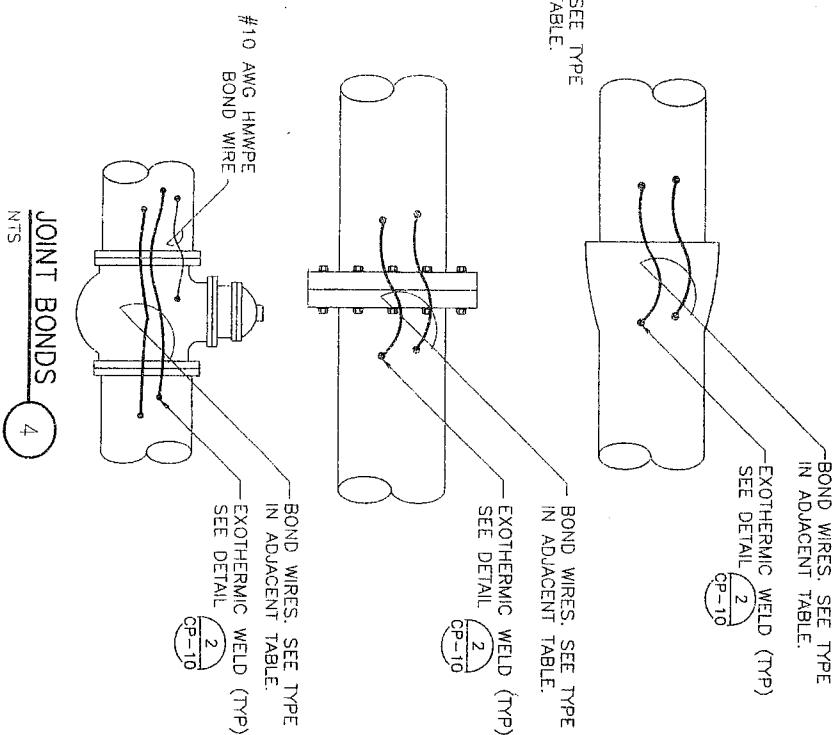
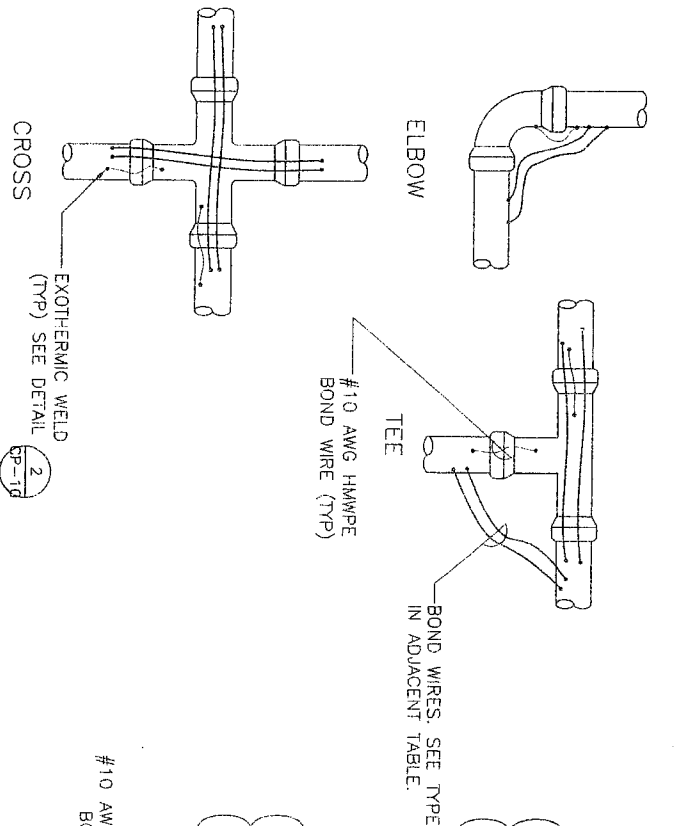


NOTES:
1. REINFORCING WIRE NOT SHOWN FOR CLARITY.

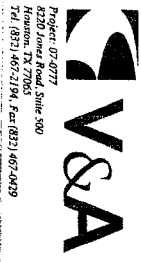
TEST LEAD CONNECTION MORTAR COATED STEEL PIPE AND AWWA C-303 2



WIRE-ROD CONNECTION 3



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



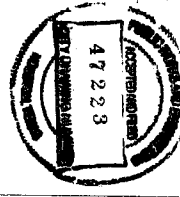
4/6/10
SEGMENT 5
12/3/10
CATHODIC PROTECTION JOINT BONDING

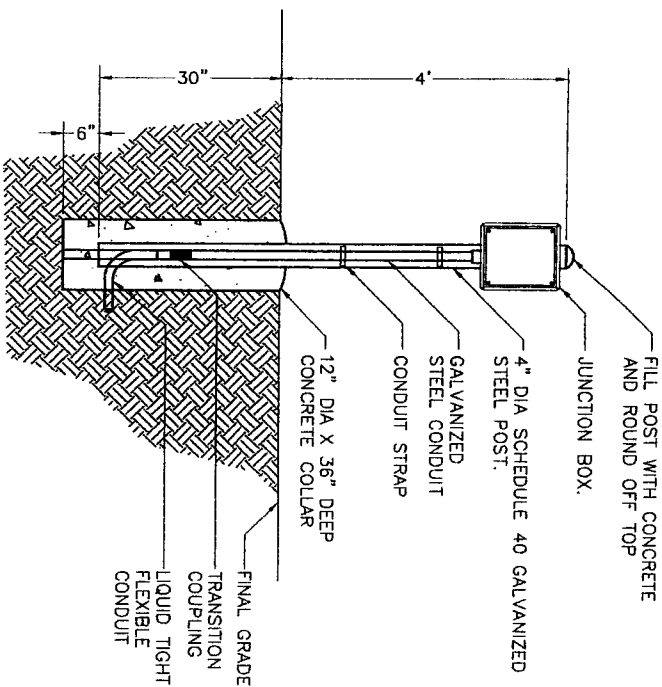


CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
Robert C. Galt
4/6/10
7/30/10
47223

CP-9

REF. NO. 48 of 62

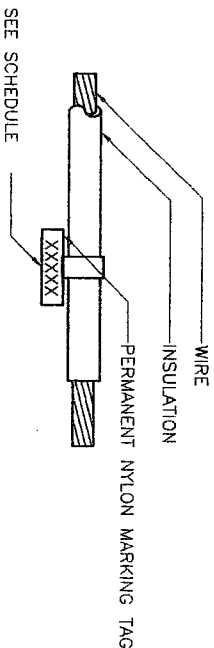




POST MOUNTED TEST STATION
WITH JUNCTION BOX

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

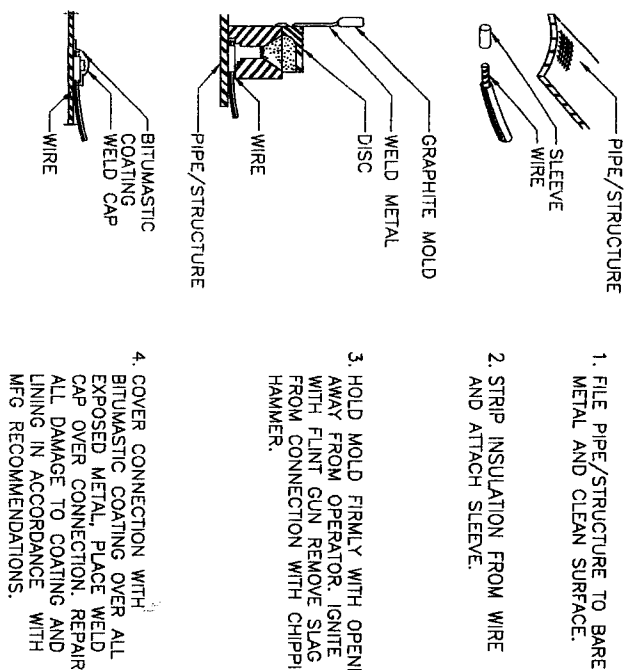
NOTE:

"XX" INDICATES PIPE DIAMETER IN INCHES.

WIRE IDENTIFIER

4

NTS



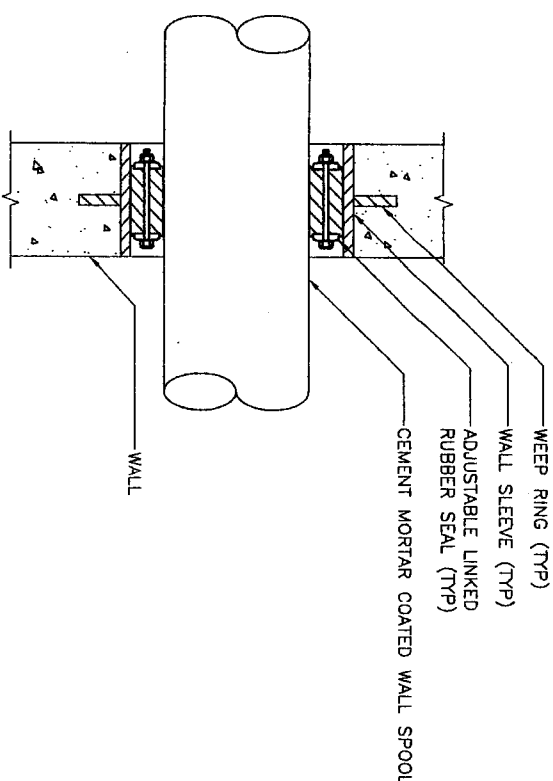
NOTE:

DETAIL SHOWS PROCEDURE FOR HORIZONTAL ORIENTATION. PROCEDURE FOR VERTICAL ORIENTATION IS SIMILAR.

EXOTHERMIC WELD

NTS

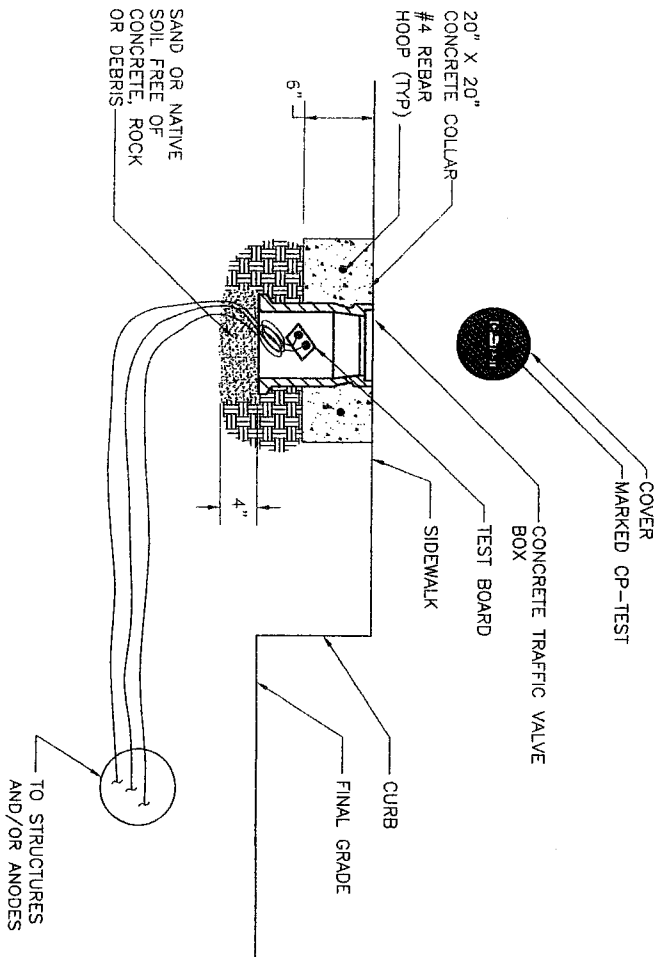
2



WALL PENETRATION

NTS

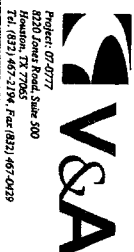
3



FLUSH-TO GRADE TEST STATION BOX

NTS

5



Project: 07-0777
Drawn: J. L. Smith, S. J. Smith
Reviewed: J. L. Smith, S. J. Smith
Date: 07/08/10
Tel: (817) 467-2194 Fax: (817) 467-0429



Jose L. Villalobos
V&A Consulting Engineers
P.E. No. 79525
F-8154

7/8/10
SEGMENT 5
12/8/10

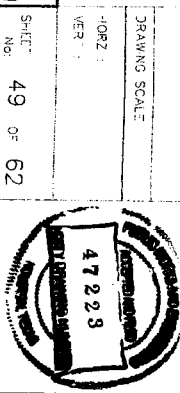
CATHODIC PROTECTION
MISCELLANEOUS DETAILS
1 OF 2



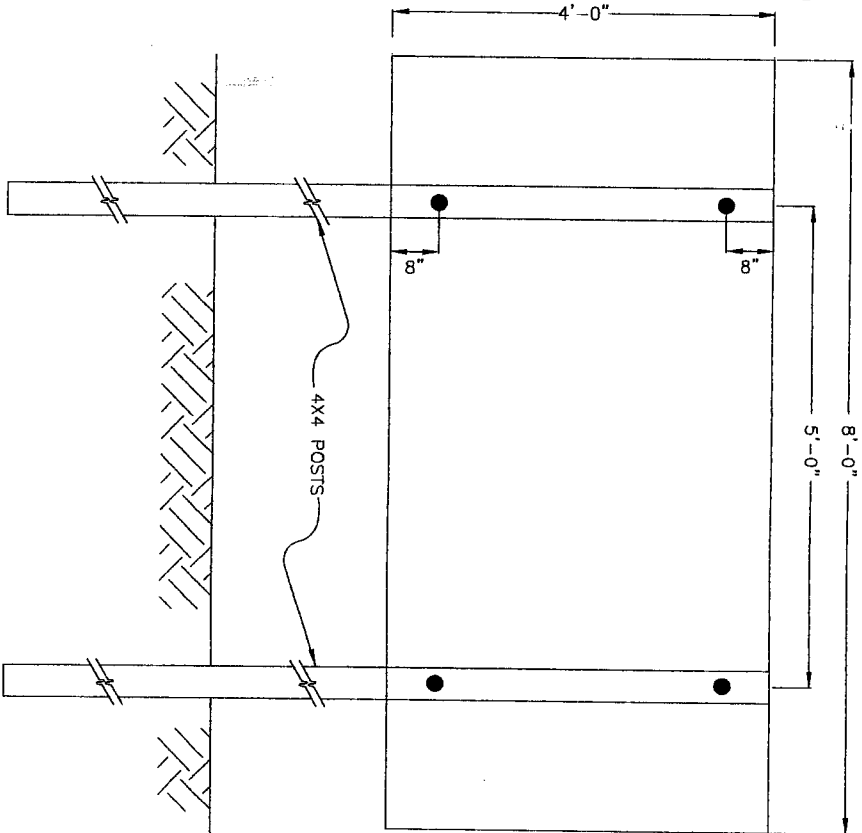
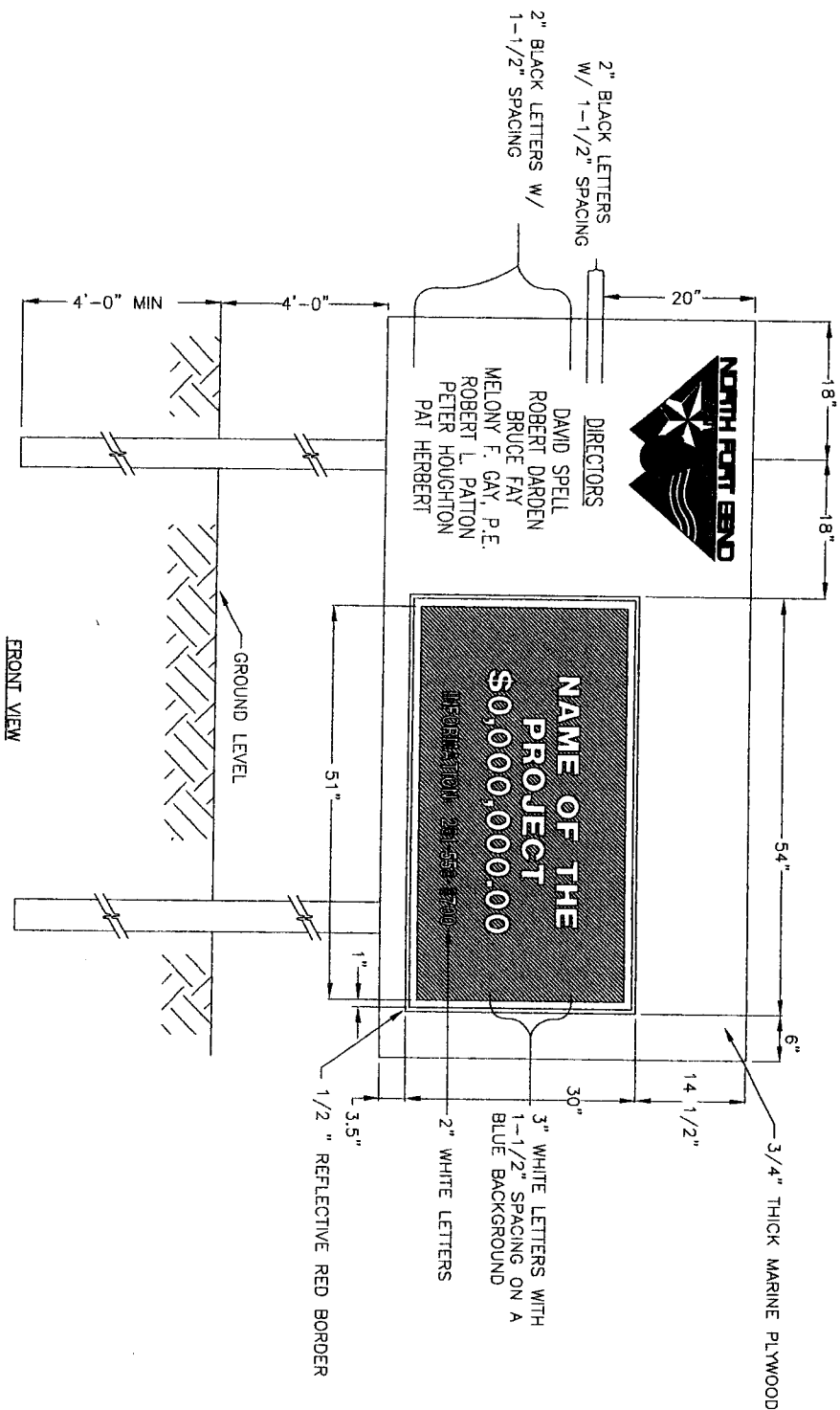
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
Water
Road G-7/21/10
Water

MP & J
7/8/10
7/8/10

FILE NO:
DRAWING SCALE:
SHEET: 49 OF 62
DATE: OCTOBER 7, 2009

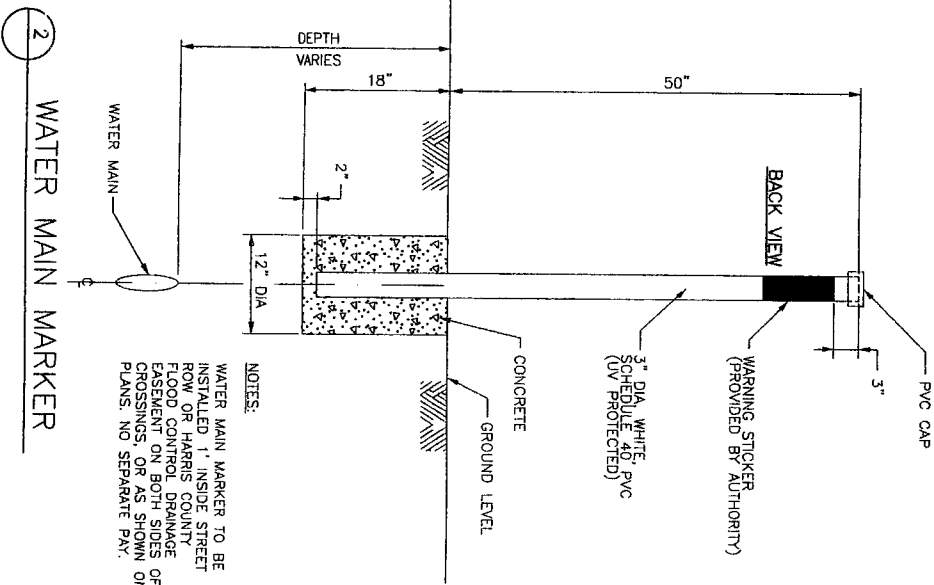


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CP-10
7/8/10

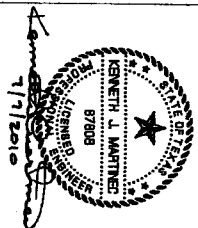


1 PROJECT SIGN
SCALE: 1"=1'

PROJECT SIGN LOCATIONS	
STREET	APPROX STATION
MADDEN RD.	2+00
BEECHNUT RD.	83+50
GRAND MISSION BLVD. AT HARLEM RD.	112+00



2 WATER MAIN MARKER



NO.	DATE	REVISION	APPROV.
1			
2			
3			
4			

J.C. JONES & CARTER, INC.
ENGINEERS • PLANNERS • SURVEYORS
3838 Oaklawn Dr., Suite 100 Houston, Texas 77061 (713) 777-8857

SEGMENT 5

PROJECT SIGN AND PIPELINE
MARKER DETAILS



NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES	
CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
DESIGNED BY: <i>[Signature]</i>	STREET & BRIDGE
CHECKED BY: <i>[Signature]</i>	TRAFFIC
STAMP: <i>[Signature]</i>	STORM WATER QUALITY

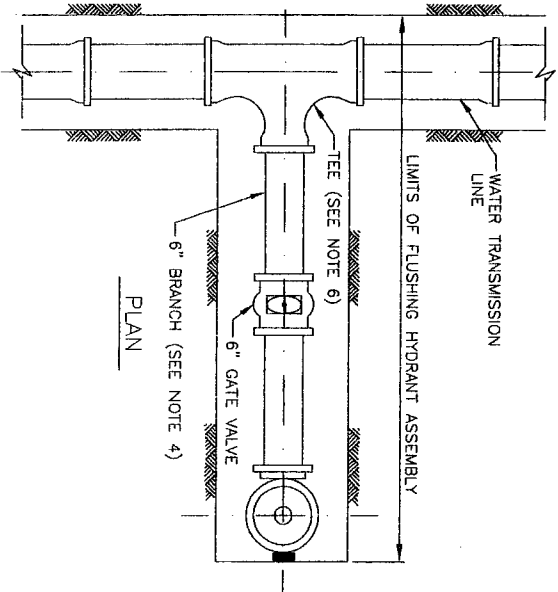
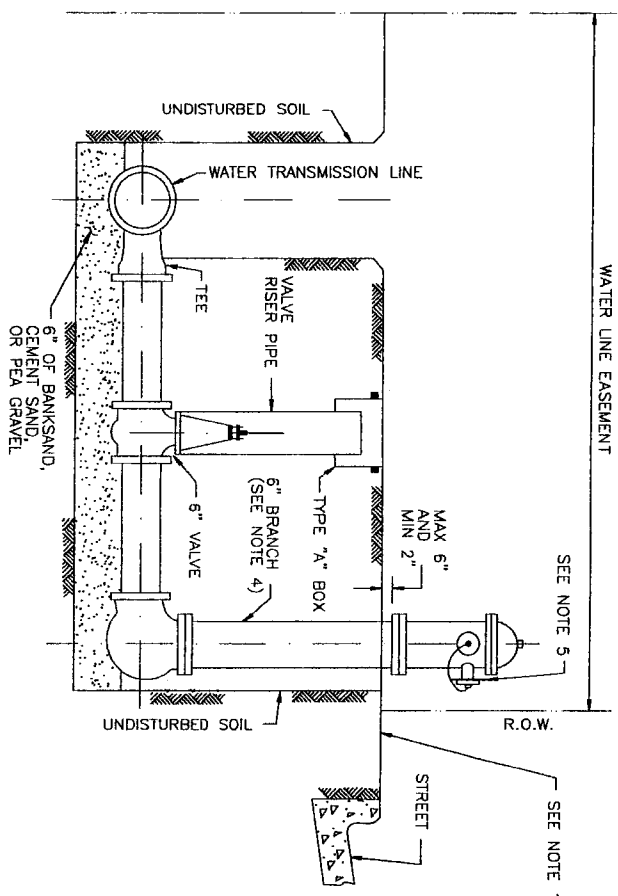
FILE NO: _____

DRAWING SCALE

HORZ : _____
VERT : _____

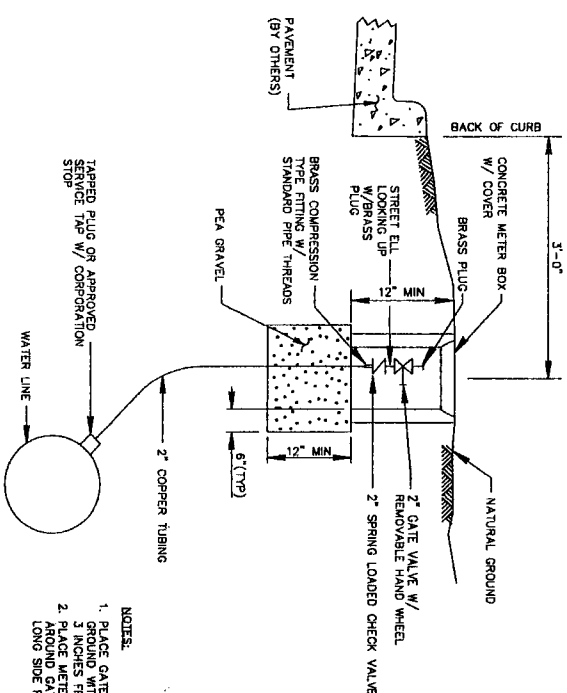
SHEET NO: 51 OF 62



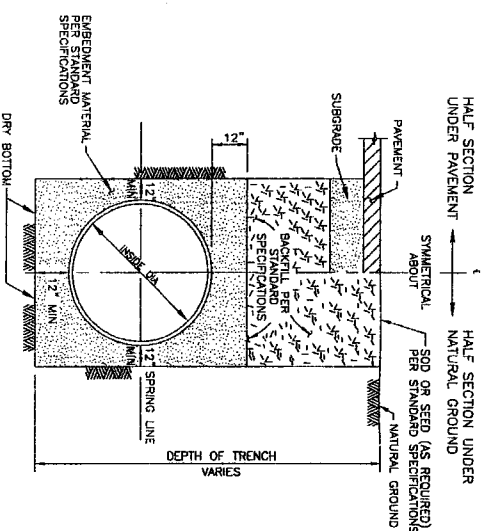


- NOTES:

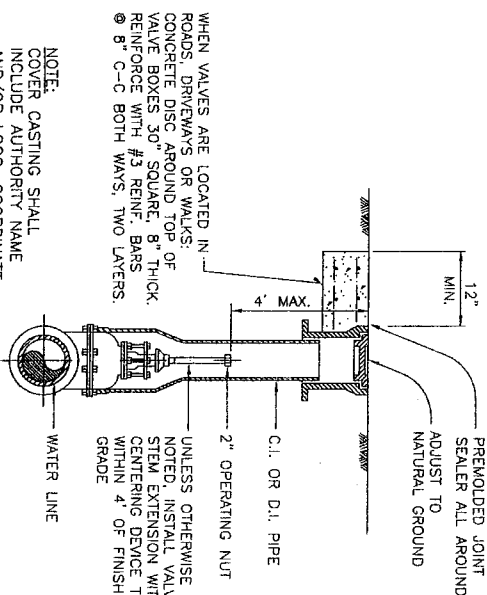
1. LOCATE FLUSHING HYDRANTS AS SHOWN ON PLANS. PROVIDE TEMPORARY MEANS TO DIFFUSE FLOW FROM HYDRANT AND PREVENT EROSION OF EXISTING GROUND DURING FLUSHING.
2. ON OPEN-DITCH ROADWAYS OR OTHER CORRIDORS, SET THE FLUSHING HYDRANTS WITHIN 3 FEET OF RIGHTS-OF-WAY LINES, EASEMENT LINE OR AS SHOWN ON PLANS.
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.
7. FOR PAVEMENT REPAIR, SEE REF. No. 12 "EXCAVATION, BEDDING, BACKFILL AND PAVEMENT REPAIR DETAILS".
8. PROVIDE RAM-NECK OR APPROVED EQUAL BETWEEN PRECAST SEGMENTS OF THE MANHOLE.
9. 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).



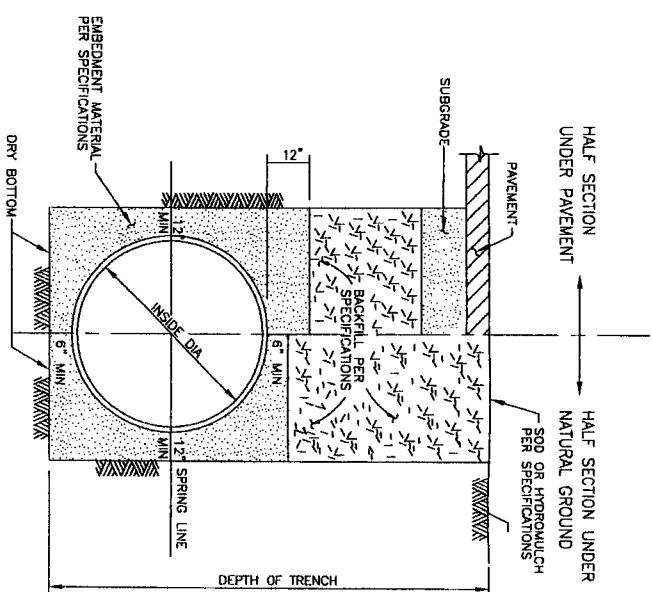
PERMANENT BLOW-OFF DETAIL



3 WATER DISTRIBUTION LINE BEDDING AND BACKFILL FOR OPEN CUT TRENCHES



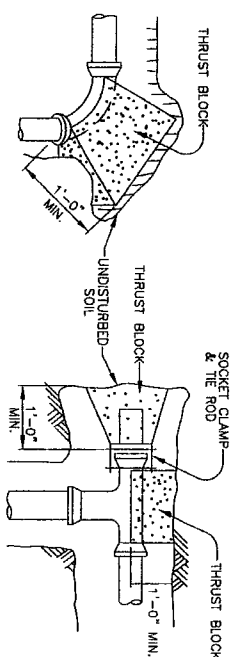
VALVE BOX DETAIL



SMALL WATER MAIN
BEDDING AND BACKFILL FOR
OPEN CUT TRENCHES

- NOTES:

1. FOR USE ON EXISTING PIPES AND PROPOSED LINES SMALLER THAN 12" ONLY.
2. ALL THRUST BLOCKS TO BE CLASS B CONCRETE ALL CONCRETE TO BE POURED AGAINST FIRM UNDISTURBED SOIL.
3. FOR PIPE SMALLER THAN 4" DIA., USE 1 (ONE) S.F. BEARING AREA FOR ALL BENDS, TEES AND PLUGS.



90° BEND

TEE & PLUG	PIPE SIZE	BEARING AREA
4"	2 S.F.	6"
6"	4 S.F.	8"
8"	7 S.F.	10"
10"	11 S.F.	12"
12"	15 S.F.	14"
14"	21 S.F.	16"
16"	28 S.F.	18"
18"	34 S.F.	20"
20"	42 S.F.	22"
22"	50 S.F.	24"
24"	59 S.F.	26"
26"	68 S.F.	28"
28"	78 S.F.	30"
30"	88 S.F.	32"
32"	99 S.F.	34"
34"	110 S.F.	36"
36"	122 S.F.	38"
38"	134 S.F.	40"
40"	146 S.F.	42"
42"	159 S.F.	44"
44"	172 S.F.	46"
46"	185 S.F.	48"
48"	199 S.F.	50"
50"	212 S.F.	52"
52"	226 S.F.	54"
54"	240 S.F.	56"
56"	254 S.F.	58"
58"	269 S.F.	60"
60"	283 S.F.	62"
62"	298 S.F.	64"
64"	313 S.F.	66"
66"	328 S.F.	68"
68"	343 S.F.	70"
70"	358 S.F.	72"
72"	373 S.F.	74"
74"	389 S.F.	76"
76"	404 S.F.	78"
78"	420 S.F.	80"
80"	436 S.F.	82"
82"	452 S.F.	84"
84"	468 S.F.	86"
86"	484 S.F.	88"
88"	500 S.F.	90"
90"	517 S.F.	92"
92"	533 S.F.	94"
94"	550 S.F.	96"
96"	567 S.F.	98"
98"	584 S.F.	100"
100"	601 S.F.	



TEE & PLUG

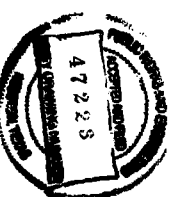
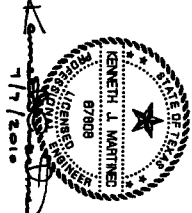
90° BEND		TEE & PLUG	
PIPE SIZE	BEARING AREA	PIPE SIZE	BEARING AREA
4"	3 S.F.	4"	2 S.F.
6"	6 S.F.	6"	4 S.F.
8"	10 S.F.	8"	7 S.F.
10"	16 S.F.	10"	11 S.F.
12"	22 S.F.	12"	15 S.F.
14"	30 S.F.	14"	21 S.F.
18"	49 S.F.	18"	34 S.F.
24"	87 S.F.	24"	62 S.F.

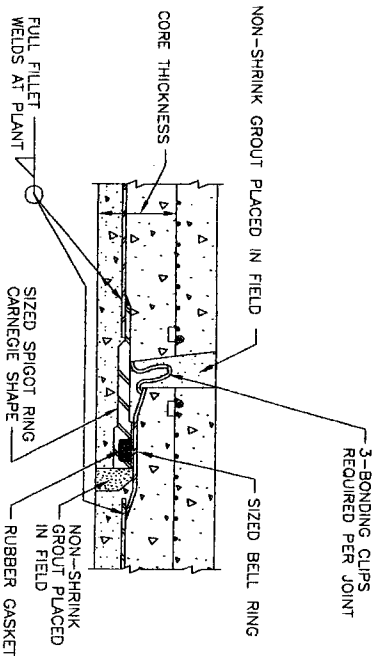
CONCRETE HORIZONTAL
THRUST BLOCK



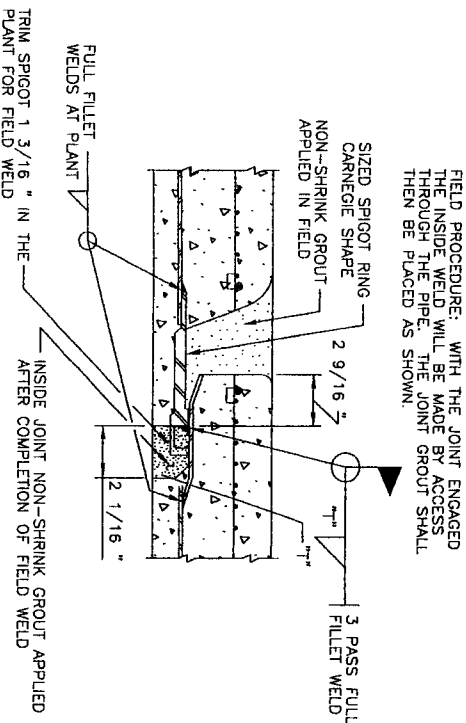
4 VALVE BOX DETAIL

4			
3			
2			
1			
NO. DATE	REVISION	APPROV.	
<p align="center">  J.C. JONES & CARTER, INC. ENGINEERS • PLANNERS • SURVEYORS 17224 Road 6 Professional Engineers Registration No. 7-439 6555 Quinlan Dr., Suite 100 Houston, Texas 77057 (713) 777-5357 </p>			
<p align="center">SEGMENT 5</p>			
<p align="center">STANDARD WATERLINE DETAILS</p>			
<p align="center">  NORTH FORT BEND COUNTY TEXAS </p>			
<p>NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES</p>			
<p align="center">CITY OF HOUSTON</p>			
<p align="center">DEPARTMENT OF PUBLIC WORKS AND ENGINEERING</p>			
WATERMASTER	STREET & BRIDGE	TRAFFIC	
WATERMASTER <i>W. J. Jones</i> 11-11-10 11-11-10	STREET & BRIDGE <i>W. J. Jones</i> 11-11-10 11-11-10	TRAFFIC <i>W. J. Jones</i> 11-11-10 11-11-10	
STORM	STORM WATER QUALITY		
STORM <i>W. J. Jones</i> 11-11-10 11-11-10	STORM WATER QUALITY <i>W. J. Jones</i> 11-11-10 11-11-10		

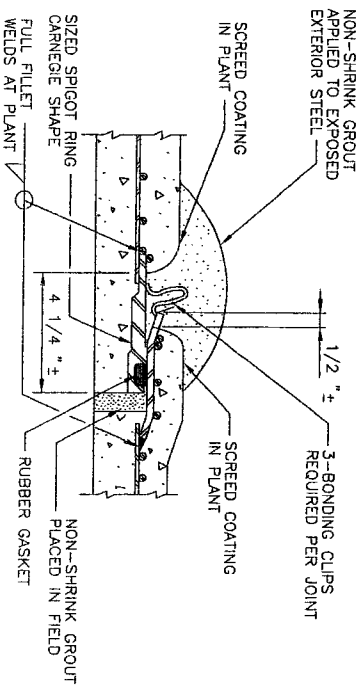




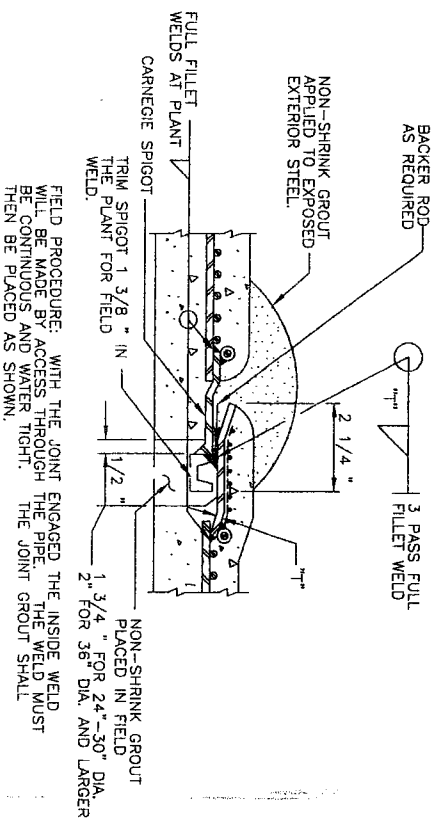
1 JOINT - EMBEDDED CYLINDER PIPE



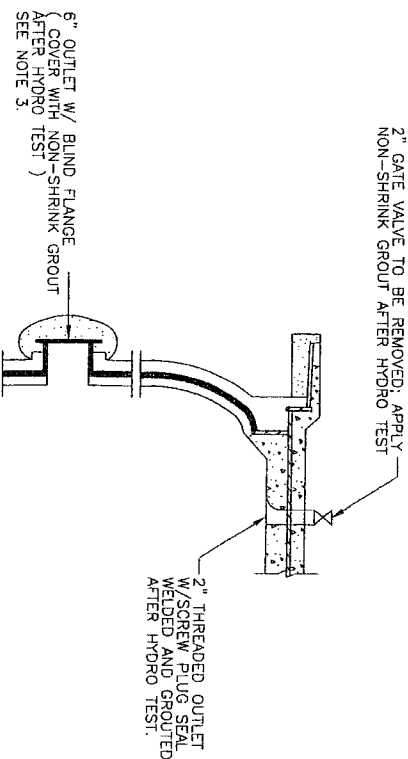
2 WELDED JOINT - EMBEDDED CYLINDER PIPE
(FOR WATERLINES 36-INCHES DIAMETER AND LARGER)



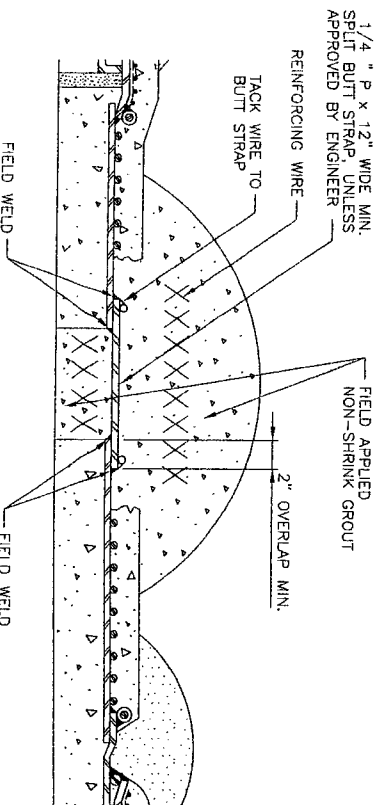
3 JOINT - LINED CYLINDER PIPE
(FOR WATER LINES LESS THAN 36-INCHES IN DIAMETER)



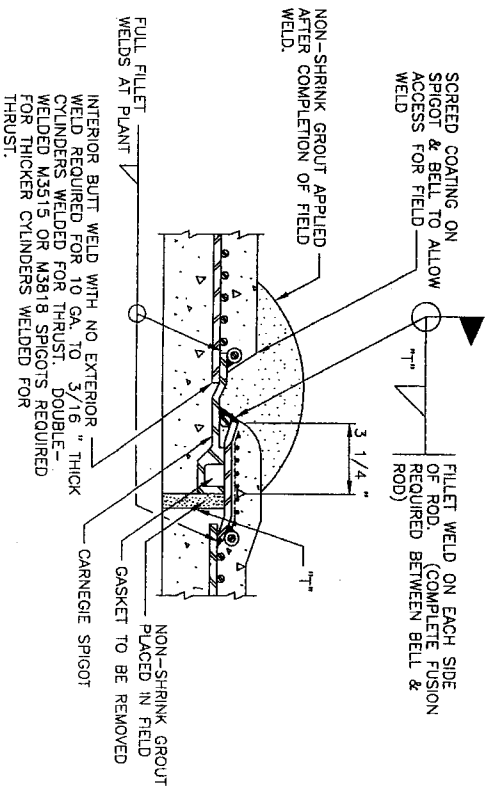
4 WELDED JOINT WITH TRIMMED SPIGOT - LINED CYLINDER PIPE
(FOR WATERLINES 36-INCHES DIAMETER AND LARGER)



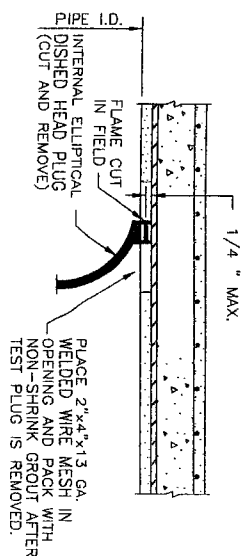
6 INTERNAL ELLIPTICAL DISHED HEAD PLUG LINED CYLINDER PIPE
(CONCRETE EMBEDDED CYLINDER PIPE IS SIMILAR, AS APPROVED BY ENGINEER)
(SEE NOTE 4)



7 CLOSURE PIECE
(STEEL PIPE SIMILAR)



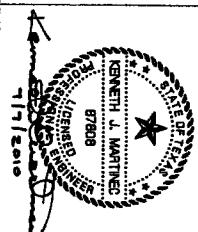
5 WELDED JOINT - LINED CYLINDER PIPE
FIELD PROCEDURE: PLACE A 3/8\"/>



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

NOTES

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



4			
3			
2			
1			
NO.	DATE	REVISION	APPROVAL

JC JONES & CARTER, INC.
ENGINEERS • PLANNERS • SURVEYORS
Texas Board of Professional Engineers Registration No. F-439
8535 Gaffney Dr., Suite 100 Houston, Texas 77061 (713) 777-5837

SEGMENT 5

PRESTRESSED CONCRETE
CYLINDER PIPE DETAILS

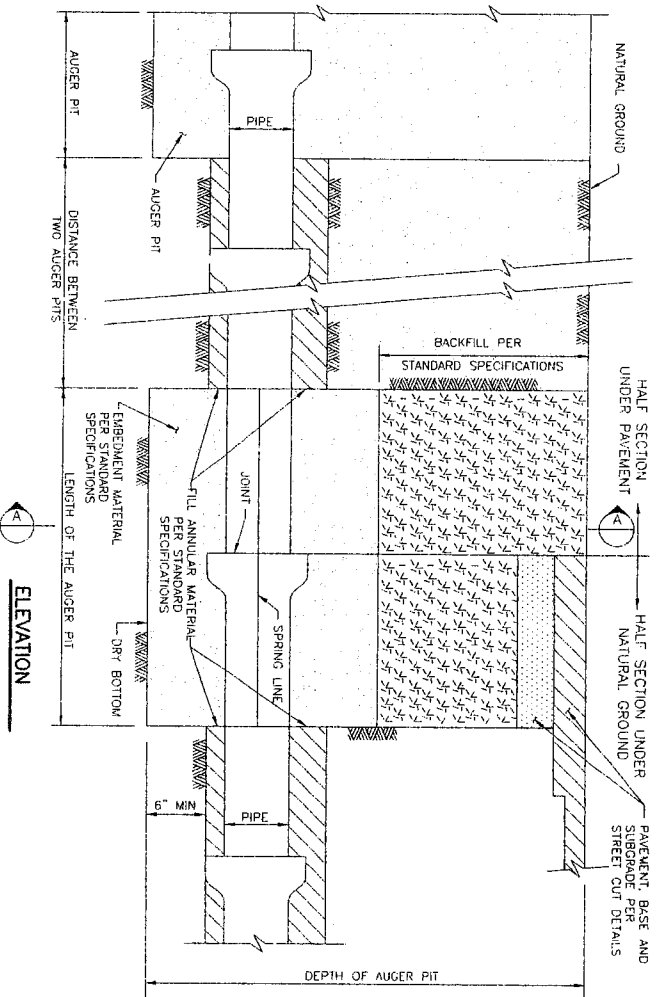


NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES	
CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
WATER	APPROVED 7/23/10
WASTEWATER	APPROVED 7-23-10
STORM	APPROVED 7-23-10
TRAFFIC	
SHOW WATER QUALITY	

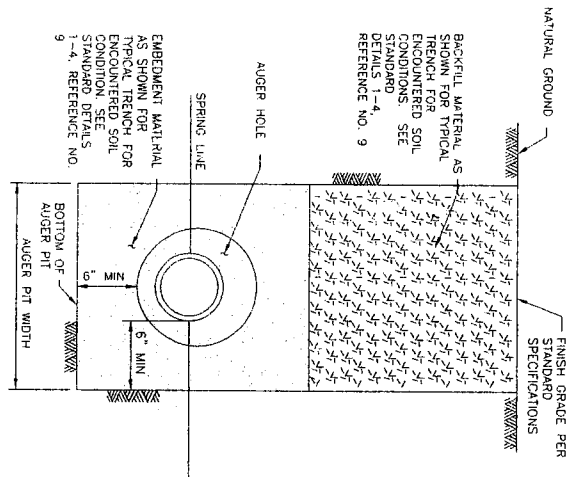
FILE NO.:
DRAWING SCALE:
FOR CITY OF HOUSTON USE ONLY (CITY DWG NO.):

SHEET No: 54 of 62
HORIZ :
VERT :
47223

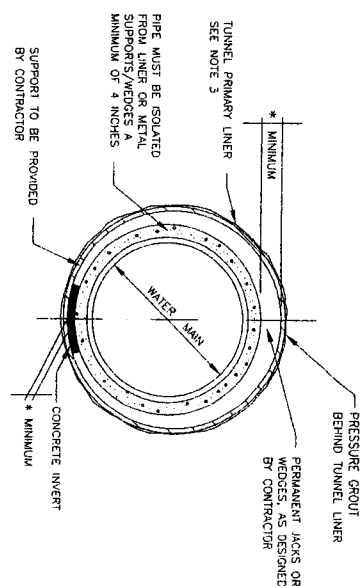




1 AUGER PIT & AUGER HOLE
N.T.S.



A SECTION VIEW



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

- NOTES:
1. LENGTH OF ENCASMENT SHALL BE AS SHOWN
 2. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TO FACE UNLESS NOTED OTHERWISE
 3. SEE SPECIFICATIONS FOR APPROPRIATE MODEL, ACCORDING TO PIPE DIAMETER.
 4. PROVIDE CATHODIC PROTECTION FOR CASING.

CASED PIPE ELEVATION

SECTION A-A

2 CASING DETAIL
(FOR WATER MAINS LESS THAN 36-INCHES IN DIAMETER)

Location	Casing Type	Watermain Diameter	Water main Material	Casing I.D./ Wall Thickness (in/in)	2-Flange Liner Diameter/ Thickness (in/in)	4-Flange Liner Diameter/ Thickness (in/in)
Nalco Pipeline Crossing (Sheet 18 Sta. 44+50 to 44+79)	Steel Casing/Primary Tunnel Liner	42	Steel PCOP	60.0/3.75	56.0/0.747 in.	56.0/1.79 in.
Tropco Pipeline Crossing (Sheet 19 Sta. 47+71 to 48+40)	Steel Casing/Primary Tunnel Liner	24	Steel PCOP	36.0/2.19	36.0/0.747 in.	36.0/1.79 in.
Beechcroft Road Crossing (Sheet 26 Sta. 82+28 to 83+53)	Steel Casing/Primary Tunnel Liner	24	Steel PCOP	36.0/2.19	36.0/0.747 in.	36.0/1.79 in.
Houston Pipeline and Kinder Morgan Pipeline Crossings (Sheet 34 Sta. 121+59 to 122+41)	Steel Casing/Primary Tunnel Liner	24	Steel PCOP	36.0/2.19	36.0/0.747 in.	36.0/1.79 in.

4					
3					
2					
1					
NO.	DATE	REVISION	APPROVAL		

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

SEGMENT 5

TRENCHLESS CONSTRUCTION DETAILS

NORTH FORT BEND
WATER UTILITY
ENGINEERS & CARTER, INC.
ENGINEERS & PLANNERS - SURVEYORS
Texas Board of Professional Engineers Registration No. F-439
6335 Galton Dr., Suite 100 Houston, Texas 77081 (713) 771-5357

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
WATER
STREET & BRIDGE
TRAFFIC
STORM WATER QUALITY
UTILITIES

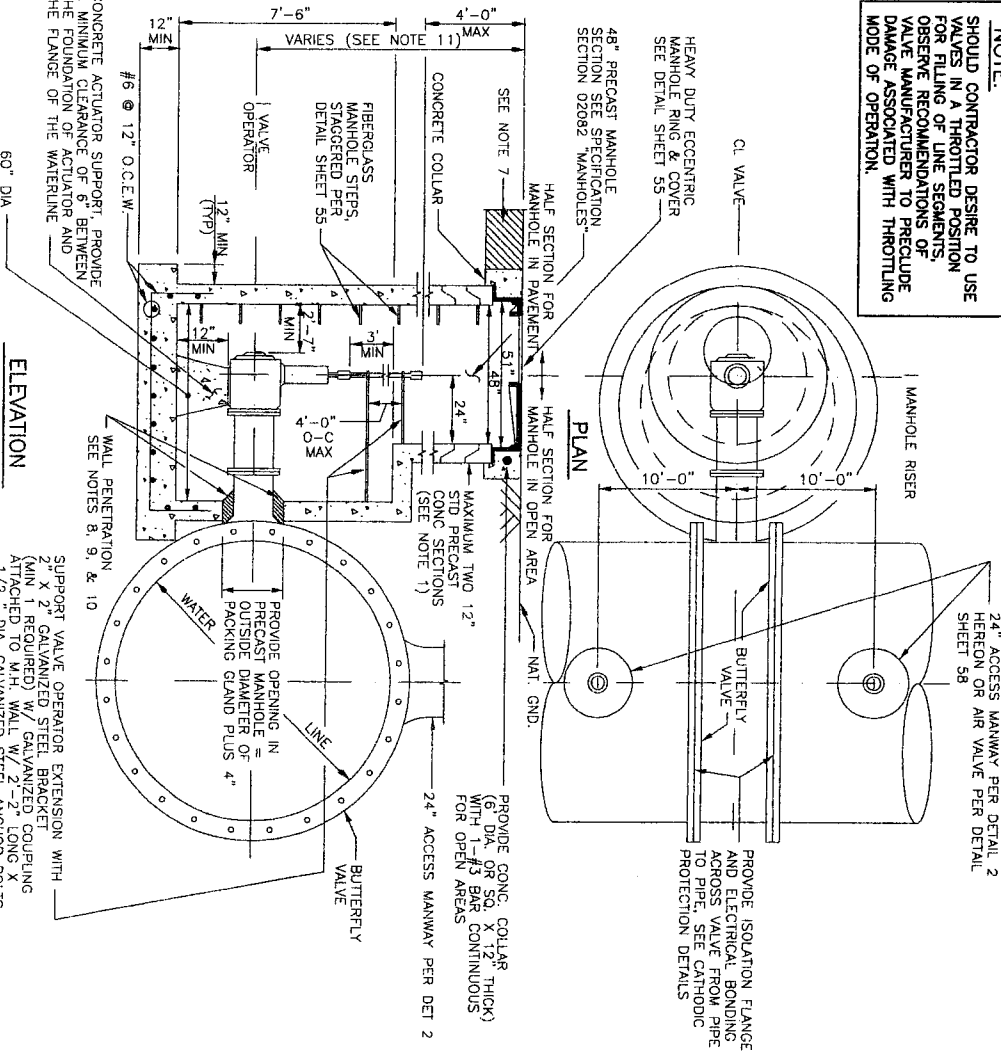
FILE NO.:
DRAWING SCALE:
HORIZ :
VERT :
SHEET No. 55 of 62

FOR CITY OF HOUSTON USE
ONLY CITY DWG NO.:
47223

7/17/2010

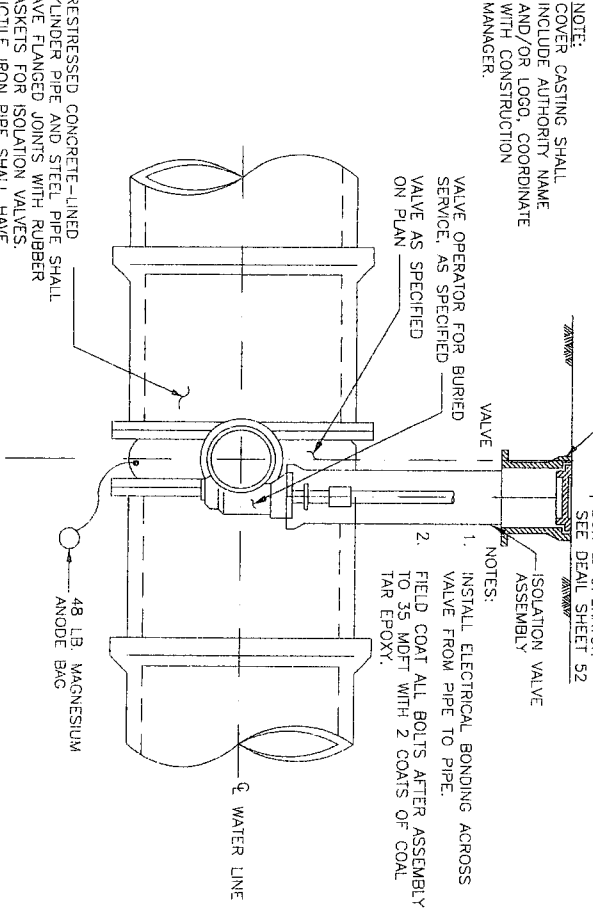


NOTE:
SHOULD CONTRACTOR DESIRE TO USE VALVES IN A THROTTLED POSITION FOR FILLING OF LINE SEGMENTS, OBSERVE RECOMMENDATIONS OF VALVE MANUFACTURER TO PRECLUDE DAMAGE ASSOCIATED WITH THROTTLED MODE OF OPERATION.

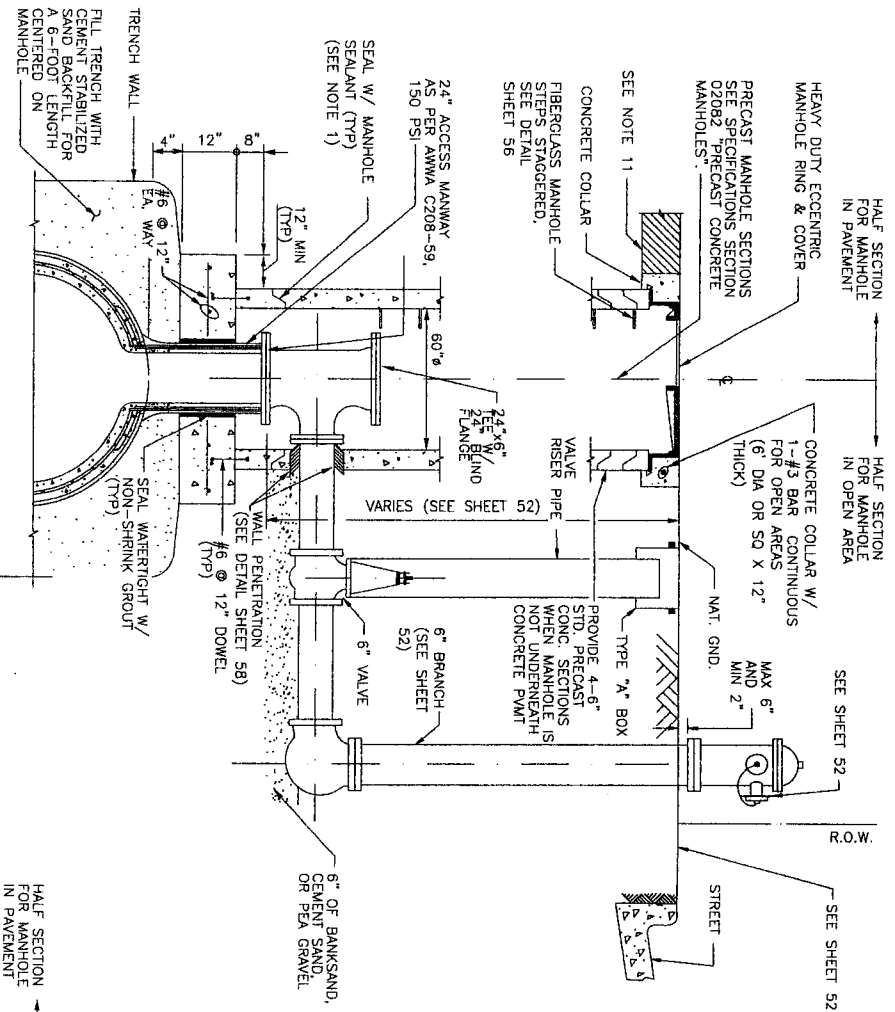


1 MAINLINE VALVES WITH OPERATOR MANHOLE
(FOR WATER LINES 30-INCHES AND LARGER IN DIAMETER)

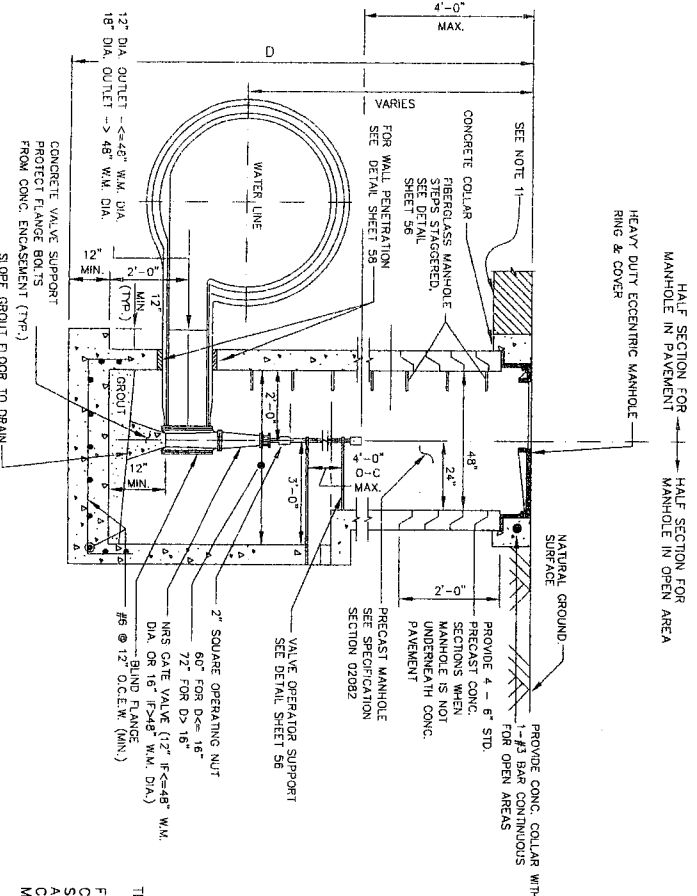
NOTE:
COVER CASTING SHALL INCLUDE AUTHORITY NAME AND/OR LOGO, COORDINATE WITH CONSTRUCTION MANAGER.



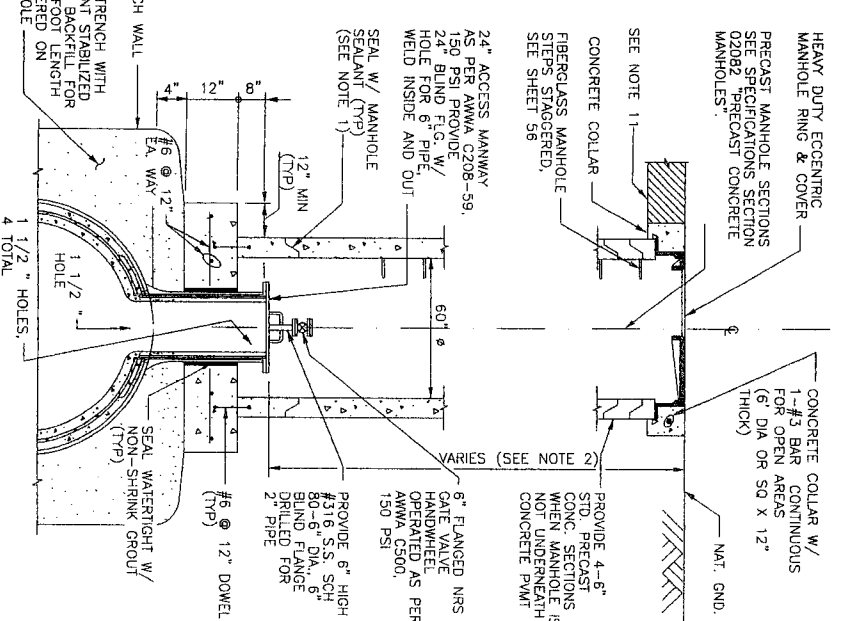
2 ACCESS MANWAY IN SERVICE MANHOLE
(FOR WATER LINES 30-INCHES AND LARGER IN DIAMETER)



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

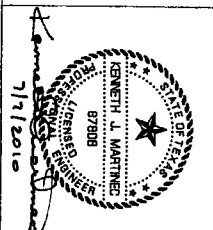


4 OPERATOR MANHOLE DETAIL FOR DRAINLINE VALVE CONNECTION



5 ACCESS MANWAY IN SERVICE MANHOLE

- NOTES:
1. PROVIDE RANMEN OR APPROVED EQUAL BETWEEN PRECAST SEGMENTS OF THE MANHOLE.
 2. PROVIDE AN APPROVED PETROLEUM BASED TAPE ENCAPSULATING ALL BOLTS IN MANHOLES & VALVES.
 3. ALL JOINTS SHALL BE BONDED. SEE THE CATHODIC PROTECTION DETAILS.
 4. FIELD COAT ALL FLANGE BOLTS, FLANGE COUPLING, FLANGE COUPLING ADAPTER AND THRUST 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 CLOCKWISE TO OPEN VALVE.
 6. PLACE MANHOLE ON NEW COMPACTED (95% SPD) BOTTOM.
 7. FOR PAVEMENT REPAIR, SEE CITY OF HOUSTON STANDARDS.
 8. POLYSULFIDE SEALANT EXTERIOR SIDE ONLY.
 9. SOLID SYNTHETIC RUBBER INTERLOCKING MODULAR UNITS W/ STAINLESS STEEL BOLTS AND NUTS, THUNDERLINE LINK SEAL, OR APPROVED EQUAL.
 10. IF MANHOLE IS CAST IN PLACE CONSTRUCTION, INCLUDE DETAILS FOR WALL PENETRATION, INCLUDING DETAILS FOR REINFORCING 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-T-CLIMB) OR APPROVED EQUAL.



J. JONES & CARTER, INC.
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Texas Board of Professional Engineers Registration No. F-439
6535 Gulberg Dr., Suite 100 Houston, Texas 77061 (713) 771-5337

SEGMENT 5

VALVE AND SERVICE MANHOLE DETAILS



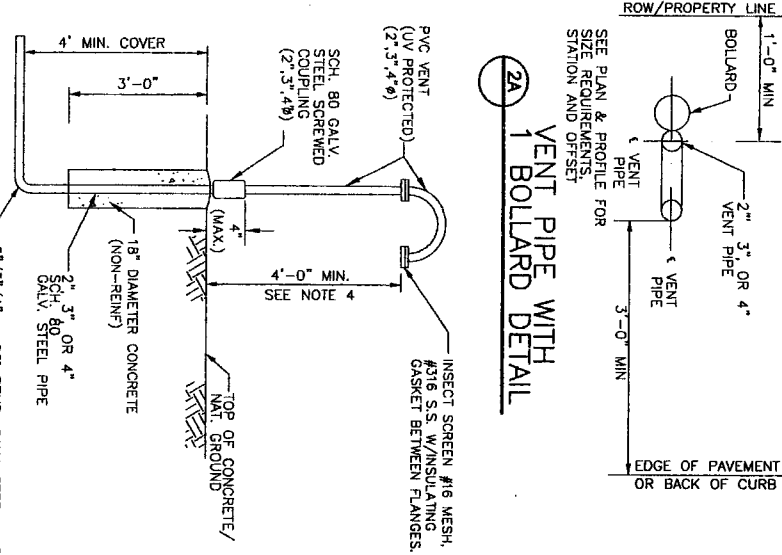
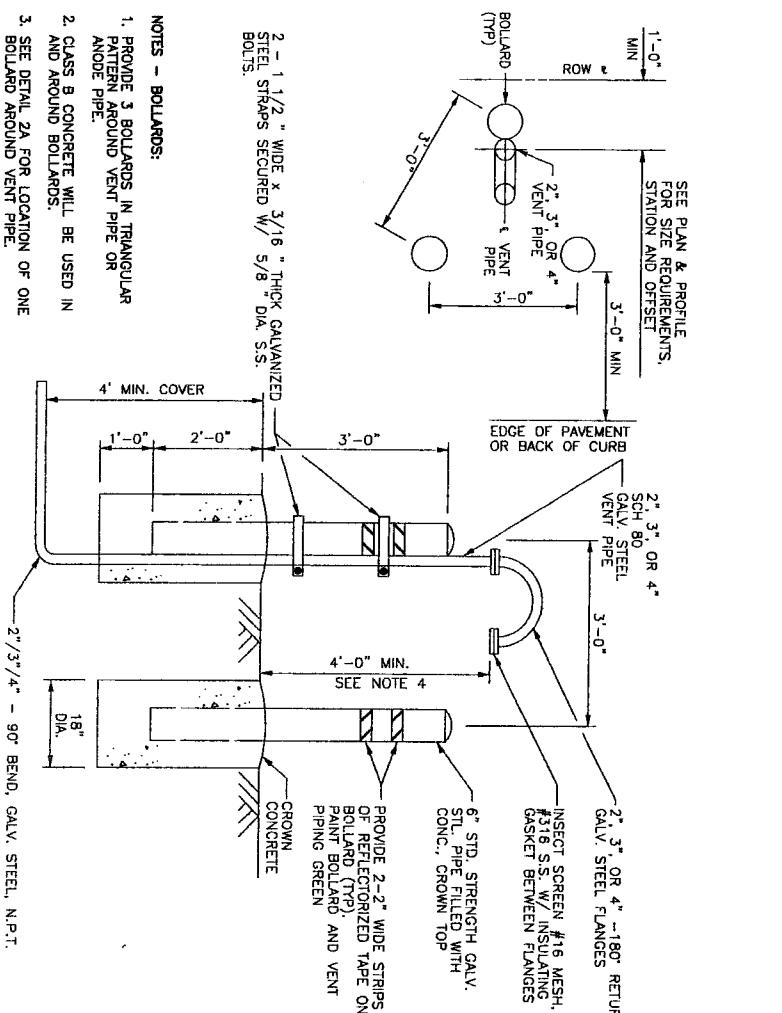
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER: *Robert C. Jones* 7/12/10
STORM: *Michael J. Jones* 7/12/10

FILE NO: _____
DRAWING SCALE: _____

FOR CITY OF HOUSTON USE
ONLY CITY OWN NO.:



- NOTES:**
1. PROVIDE RAM-NEK OR APPROVED EQUAL BETWEEN PRECAST SEGMENTS OF THE MANHOLE.
 2. PROVIDE AN APPROVED PETROLEUM RESISTANT ENCASEMENT FOR ALL BOLTS IN MANHOLES & VAULTS.
 3. IF 3" AIR VALVE IS CALLED FOR ON THE PLAN AND PROFILE SHEETS THEN PROVIDE APOCO #1503TC OR 1503C AIR VALVE. ALL OTHER PIPING AND APPURTENANCES SHOWN TO BE 2" IN DIAMETER SHALL BE 3" IN DIAMETER, AND SHALL BE CONSTRUCTED OF THE SAME MATERIAL AND CLASS.
 4. VERIFY THAT LOCATION OF SCREEN IS 1 FOOT ABOVE 100-YEAR FLOOD PLAIN ELEVATION OR 4 FEET ABOVE NATURAL GROUND WHICHEVER IS HIGHER.
 5. REFER TO PLAN AND PROFILE SHEETS FOR TYPES AND LOCATIONS OF COMBINATION AIR VALVES.
 6. IF 4" AIR VALVE IS CALLED FOR ON THE PLAN AND PROFILE SHEETS, 1540TC, ALL OTHER PIPING AND APPURTENANCES SHOWN TO BE 2" IN DIAMETER SHALL BE 4" IN DIAMETER, AND SHALL BE CONSTRUCTED OF THE SAME MATERIAL AND CLASS.
 7. FOR PAVEMENT REPAIR, SEE REF. NO. 12 EXCAVATION, BEDDING, BACKFILL AND PAVEMENT REPAIR DETAILS.
 8. 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.
 9. LOCATE FLUSHING HYDRANTS AS SHOWN ON PLANS. PROVIDE TEMPORARY MEANS TO DIFFUSE FLOW FROM HYDRANT AND PREVENT EROSION OF EXISTING GROUND DURING FLUSHING.
 10. PROVIDE RESTRAINED JOINTS FOR FLUSHING HYDRANT ASSEMBLY.
 11. PAINT FLUSHING HYDRANT BLACK. INSTALL DISK ON PUMPER NOZZLE AND LABEL "NFBWA - FOR FLUSHING ONLY".

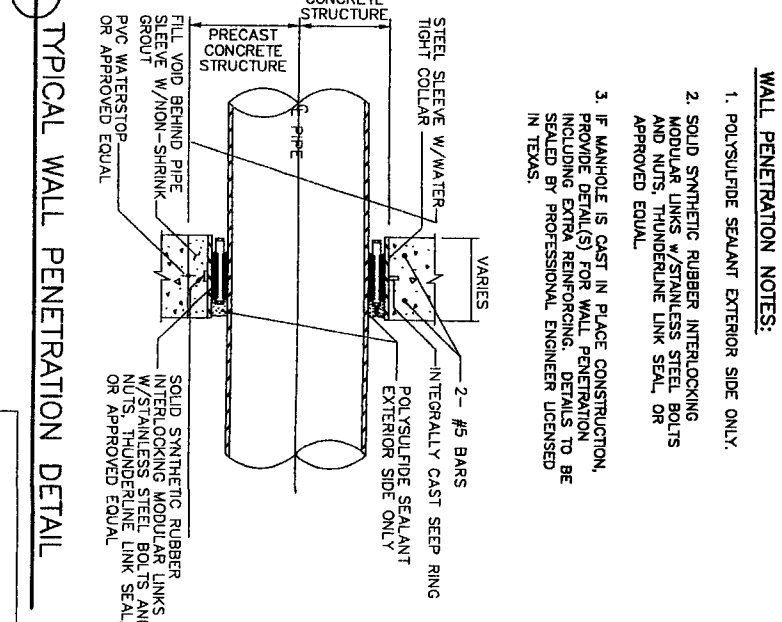
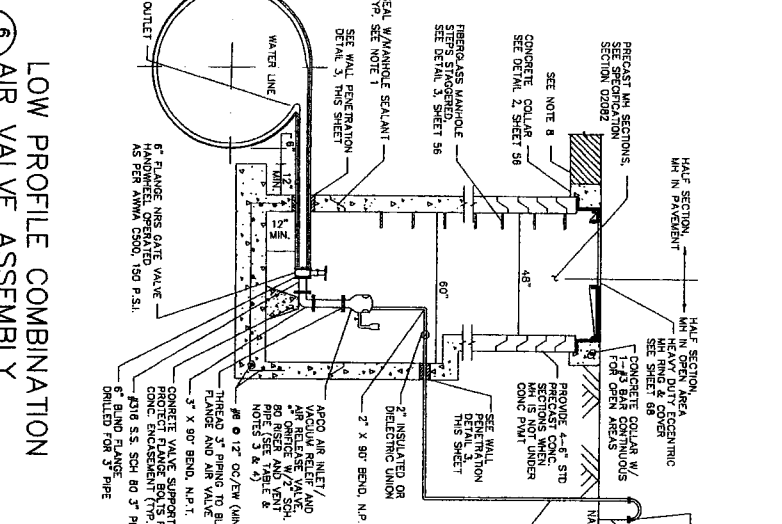
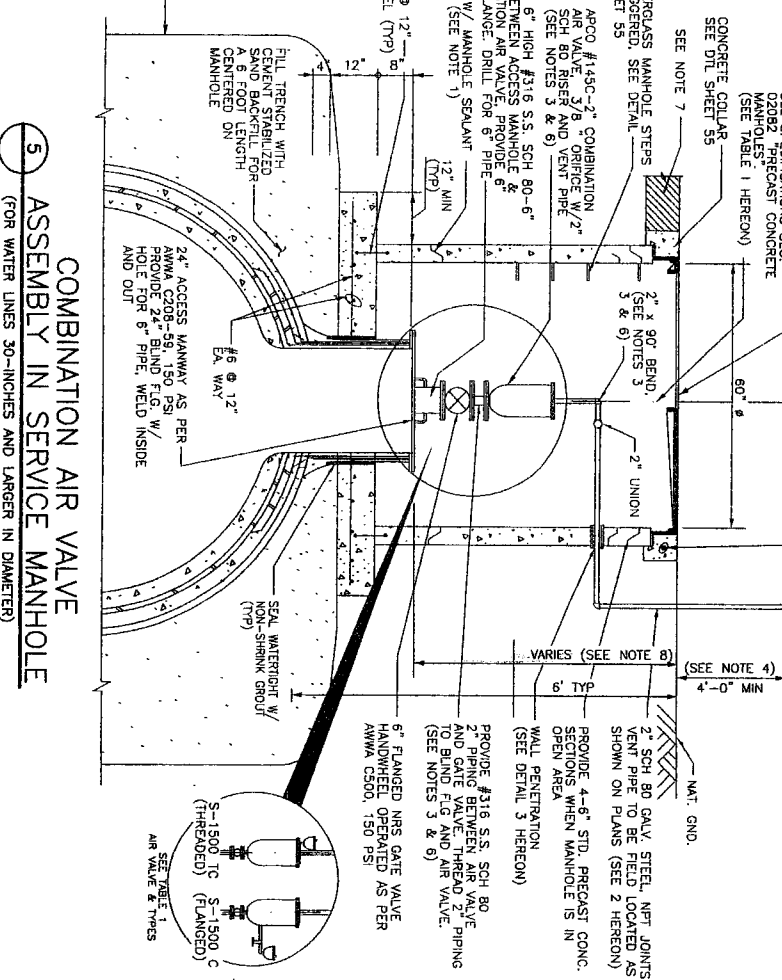
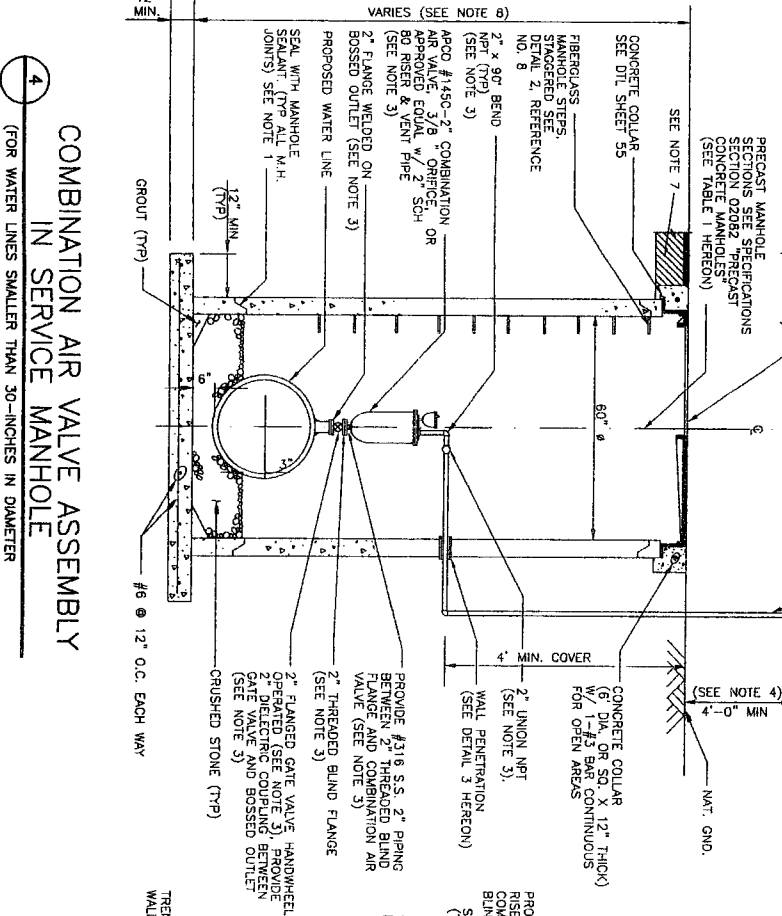


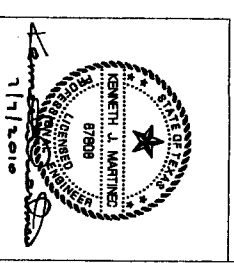
TABLE 1 - Air Valve & Types				
Water Main Diameter	Air Valve Size	APOCO Model	MHI Size	
≤36"	2"	145C	80"	
	3"	147C	60"	
		1503C	60"	
>36"	4"	1503TC	60"	
		1504C	60"	

*or approved equal



WALL PENETRATION NOTES:

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



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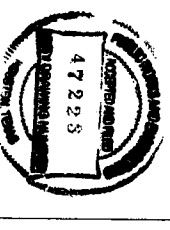
SEGMENT 6

COMBINATION AIR VALVE DETAILS

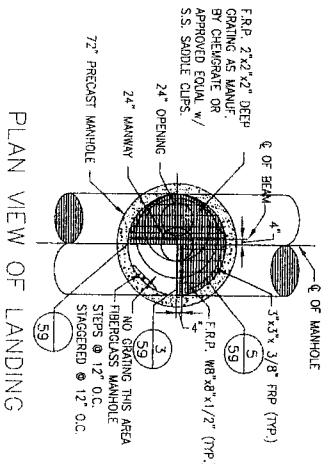
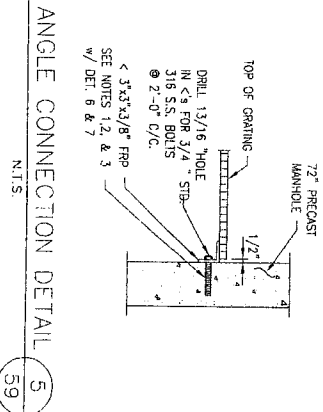
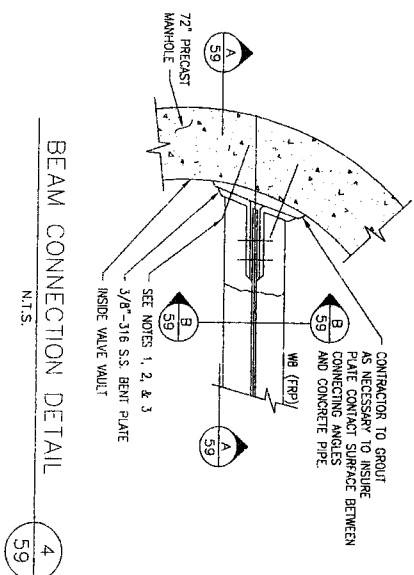
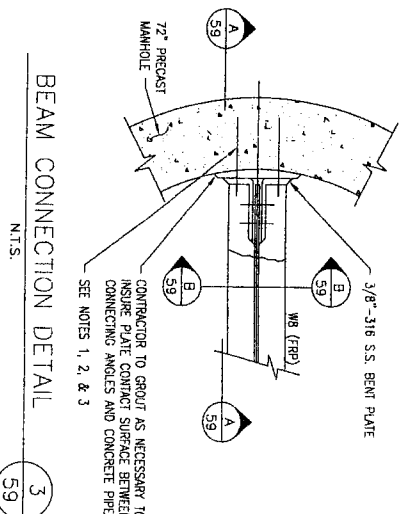
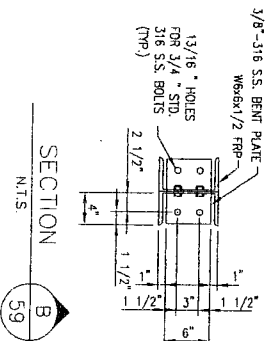
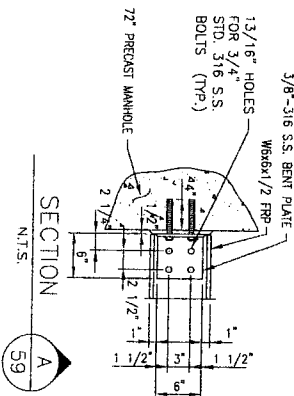


CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
STREET & BRIDGE

FILE NO.:
DRAWING SCALE:
HORIZ.:
VERT.:
SHEET: 58 OF 62
NO. 47225

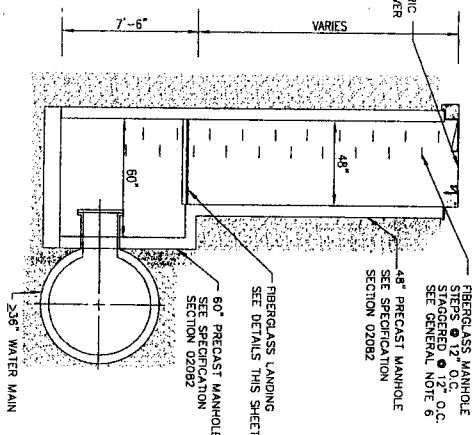


- NOTES:
1. CONTRACTOR TO DRILL 1 1/4" DIAMETER HOLES 4" DEEP INTO REINFORCED CONCRETE PIPE FOR 3/4" DIAMETER ANCHOR BOLTS.
 2. GROUT IN 3/4" DIAMETER ANCHOR BOLTS WITH GROUT 435 AS MANUFACTURED BY I.W. INDUSTRIES, OR APPROVED EQUAL. OF ALL MATERIALS SPECIFIED SHALL BE FOLLOWED IN STRICT ACCORDANCE.
 3. ANCHOR BOLTS SHALL BE 3/4" DIAMETER 6" LONG 316 S.S. ALL THREAD BOLTS WITH 2" PROJECTION.

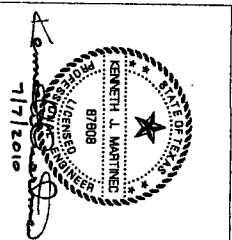
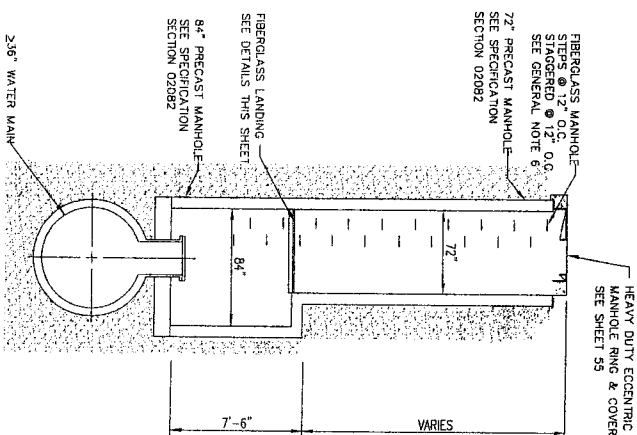


- NOTE:
1. ALL STEEL TO BE GRADE 40.
 2. ALL CONCRETE TO BE CLASS "A".
 3. COORDINATE THE LOCATION AND TYPE JOINTS BETWEEN OFFSET BOX AND PRECAST SECTIONS.
 4. PROVIDE RAFTER OR APPROVED EQUAL BETWEEN PRECAST SECTIONS OF THE MANHOLE.

1
59 EXTRA DEPTH FOR BVV AND DRAINLINE
OPERATOR MANHOLES WITH INVERTS > 8' DEEP
(SEE PLANS FOR LOCATIONS)
SCALE: N.T.S.



2
59 SERVICE MANHOLES WITH INVERTS > 8' DEEP
EXTRA DEPTH DETAIL FOR
(SEE PLANS FOR LOCATIONS)
SCALE: N.T.S.



4			
3			
2			
1			
NO. DATE REVISION APPROX.			

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SEGMENT 5

EXTRA DEPTH MANHOLE DETAILS



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

CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
DATE: 6/22/10	SHEET & BRIDGE
DESIGNED: M. J. Jones	TRAVEL
DRAWN: M. J. Jones	STORM WATER QUALITY
CHECKED: M. J. Jones	

FILE NO: FOR CITY OF HOUSTON USE ONLY CITY DWG NO.:

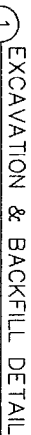
DRAWING SCALE:

HORIZ: 4" = 1'-0"

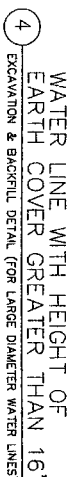
VERT: 4" = 1'-0"

SHEET No: 59 OF 62





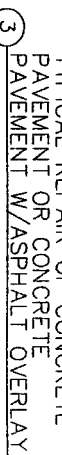
- (FOR LARGE DIAMETER WATER LINE)



- 4 EXCAVATION & BACKFILL DETAIL (FOR LARGE DIAMETER WATER LINES)



- ## 2 FLEXIBLE BASE PAVEMENT



- 3 PAVEMENT W/ ASPHALT OVERLAY

DOWEL SIZES & SPACING			
PAVENT THICKNESS (IN.)	DIAMETER (IN.)	LENGTH (IN.)	SPACING (IN.)
6	$\frac{3}{8}$ -	18	12
7	$\frac{7}{8}$ -	18	12
8	$\frac{1}{2}$ -	18	12
9	$\frac{1}{2}$ -	20	12
10	$\frac{1}{2}$ -	20	12
11	$\frac{1}{2}$ -	20	12
12	$\frac{1}{2}$ -	20	12

EXCAVATION, BEDDING, BACKFILL, &
PAVEMENT REPAIR DETAILS

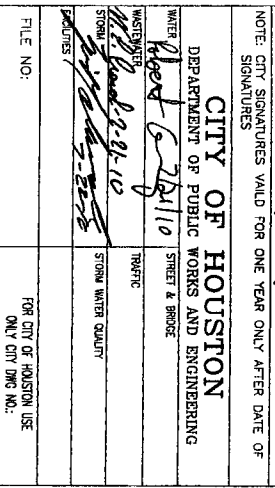




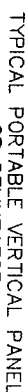
Diagram illustrating the cross-section of a traffic marking. The marking consists of a series of parallel stripes. The total width of the marking is labeled as 36" APPROX. The height of the stripes is labeled as 18" MIN. The stripes are labeled as 4"-8" WIDE STRIPES. The material beneath the stripes is labeled as WOOD OR METAL PANEL REQUIRED UNDER STRIPES WHEN SET ON ASPHALT. The entire marking is labeled as USED FOR TRAFFIC MARKING.



CW-8 CHEVRON SIGNS, CW-6A ARROW SIGNS OR VP-1 VERTICAL PANELS MOUNTED ABOVE DRUMS MAY BE USED AS SUPPLEMENTS TO DRUM DELINEATION.



VERTICAL PANELS ARE NORMALLY USED AS CHANNELIZING DEVICES TO INDICATE TANGENT OR NEARLY TANGENT ROADWAY ALIGNMENT WHERE GOOD TARGET VALUE OF THE DEVICE IS NEEDED IN DAYTIME AS WELL AS AT NIGHTTIME. IN ADDITION, VERTICAL PANELS SHOULD BE USED AT THE EDGE OF SHOULDER DROP-OFFS AND OTHER SUCH AREAS AS LANE TRANSITIONS WHERE POSITIVE DAY AND NIGHT DELINEATION MAY BE REQUIRED. VERTICAL PANELS SHOULD BE MOUNTED BACK TO BACK IF USED AT THE EDGE OF CUTS ADJACENT TO TWO-WAY TWO LANE ROADWAYS. STRIPES SHOULD ALWAYS SLOPE DOWNWARD TOWARD THE TRAVELED WAY.



OTHER SIMILAR SUPPORTS MAY BE USED WHEN APPROVED
OR DIRECTED BY THE CON DEPT OF TRAFFIC AND
TRANSPORTATION



THE MOST RECENT EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AND ITS REVISIONS, SHALL GOVERN THE CONSTRUCTION AND USE OF ALL ITEMS HEREIN DESCRIBED.

CHANNELIZATION DEVICES OTHER THAN BARRICADES SHOULD NORMALLY BE USED FOR CHANNELIZATION PURPOSES.

BARRICADES SHOULD USUALLY BE PLACED PERPENDICULAR TO THE TRAFFIC FLOW. OTHER CHANNELIZATION DEVICES SUCH AS DRUMS, VERTICAL PANELS OR PORTABLE BARRIERS SHOULD BE USED WHERE NEEDED TO SEPARATE TRAFFIC FROM THE WORK AREA. IN ALL CASES, THE BARRICADES SHOULD BE SO LOCATED AS TO MOST ADVANTAGEOUSLY WARD OFF AND DIRECT TRAFFIC.

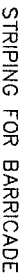
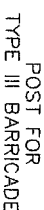
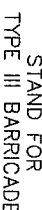
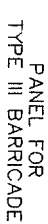
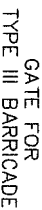
BARRICADES MAY BE DESIGNED AND CONSTRUCTED FROM WOOD OR ANY OTHER SUITABLE MATERIAL IN A MANNER APPROVED BY THE DEPARTMENT OF TRAFFIC AND TRANSPORTATION. THE CONSTRUCTION DETAILS SHOWN HEREON ARE TYPICAL, AND ARE SUBMITTED ONLY AS GUIDELINES FOR ROAD SUPPORT SYSTEMS FOR BARRICADES. THE NUMBER AND SPACING OF PILES, MINIMUM LENGTH AND HEIGHT (ABOVE PAVEMENT) OF PILES MUST BE ADHERED TO WHEN ALTERNATE DESIGNS ARE USED.

BARRICADES ARE TO BE CONSTRUCTED OF CLEAN SOUND MATERIAL. ALL SURFACES ABOVE GROUND, WHICH ARE NOT STRIPPED, SHALL BE WHITE EXCEPT THE UNPAINTED GALVANIZED METAL OR ALUMINUM COMPONENTS. MADE OF LUMBER SHALL BE PAINTED WITH A MINIMUM OF TWO COATS OF AN APPROVED BRAND OF WHITE PAINT TO SECURE THOROUGH COVERAGE AND A UNIFORM WHITE COLOR.

THE REFLECTORIZED WHITE AND REFLECTORIZED ORANGE (REFLECTORIZED RED) STRIPES FOR BARRICADES, DUMPS AND VERTICAL PANELS SHALL BE CONSTRUCTED OF "HIGH INTENSITY SHEETING AND SHALL BE MAINTAINED TO MEET THE FOLLOWING MINIMUM COLOR AND REFLECTIVITY REQUIREMENTS SET BY DOT:

THE CONTRACTOR SHALL MAINTAIN EACH BARRICADE IN A CLEAN AND GOOD CONDITION.

BARRICADES SHALL BE REMOVED UPON COMPLETION OF THE WORK AND/OR THE ELIMINATION OF THE HAZARD ON ANY SECTION.



FOR ALL TYPES OF BARRICADES WITH RAILS LESS THAN 3'-0" LONG, STRIPES 4" WIDE SHALL BE USED. IDENTIFICATION MARKINGS MAY BE SHOWN ONLY ON BACK SIDE OF BARRICADE RAILS.

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BARRICADE DETAILS



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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

7/21/10 STREET & BRIDGE

WATER	TRAFFIC
-------	---------

2. 10-2-21/10

9-22-78

[illegible]

FOR CITY OF HOUSTON USE
ONLY CITY DUES NO.

100

DRAWING SCALE

RECORDED AND INDEXED

RT : 47298

HOITY DRINKING MANS

2 3

NO. 10

ON

