



City of Dallas
Water Utilities Department

**Drafting Standards
for
Pipeline Projects**

Drafting Standards for Pipeline Projects

First Edition JANUARY, 1988
Revised JANUARY, 1998

Effective - MAY, 1988
Effective - MAY, 1998

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City of Dallas
Water Utilities Department

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SECTION 1

(SCOPE)

The drafting standards in this manual are to apply to the preparation of design plans for construction of water distribution mains and wastewater mains which will be under the jurisdiction of the Water Utilities Department. These design plans will become a permanent document/record of the distribution or collection system; therefore these standards must be adhered to. This manual contains the requirements for establishing: plan format, drafting symbology, arrangement of specific design notes, and general design notes. These standards are compatible with drafting table techniques as well as the Microstation / Intergraph computer aided (CAD) technology.

SECTION 2

(PLAN FORMAT)

2.01 Original Design Plans (media)

Original plans are to be plotted in ink on 24"x36", 4 mil, double matte, mylar sheets. Plans are to have standard D.W.U. border, title block, and profile grid (CAD reference files are available). The orientation of the plan view should allow the placement of the design lengthwise along the plan sheet while orientating north towards the top or right side of the view.

Three sheet configurations are available for developing design plans:

A) Plans with Profile sheet: The plan / profile sheet is recommended for general use as it allows the placement of the design plan view and profile view on the same sheet.

B) Full Plan Sheet: The full plan sheet may be used when a plan / profile sheet does not provide sufficient plan space, when a design can be developed independently of a profile or when developing structural details. When a design requires a full plan sheet and also needs a profile, then a full profile sheet must be included with the design. The design must be thoroughly referenced to file, sheet, and line designation between the plan sheet and the profile sheet.

C) Full Profile Sheet: Full profile sheets are used to provide supplemental profile space.

2.02 Scales for Plan/Profile Drawings

The following scales are acceptable for developing / plotting design plans. Exceptions to these scales require approval by a Project Designer. (Note: CAD drawings are to be developed at a 1 to 1 ratio and then plotted to scale.)

A) Plan View / Horizontal Scale:

1"=40' This scale is recommended & preferred for general use since it allows the efficient use of plan space while providing sufficient plan detail.

1"=20' This scale provides sufficient plan detail for typically congested projects similar to replacement mains that are constructed in alleys, easement, or street R.O.W.s which have an extensive number of underground facilities.

B) Profile View / Vertical Scale:

1"=6' All profiles are to be drawn on the vertical scale of 1"=6' with major horizontal lines at five (5) foot intervals and to the same horizontal scale as the plan view.

C) Special Details:

Special details, such as structures, may require the use of a scale which can provide greater detail than those available on the standard civil engineer scale. For these instances, the use of an appropriate architectural scale which provides greater detail is acceptable.

2.03 Stationing / Baseline

All water and wastewater pipeline projects shall be developed with a continuous one hundred foot stationing format. This station format provides the means of referencing pertinent points of construction and proposed appurtenances along with providing a reference between the plan and profile views. Typically, projects will begin with a zero station point (0+00) established by a field survey and then proceed to the project ending point. When a field survey is not available, a in-office baseline format must be developed.

The beginning station (0+00) for proposed wastewater mains shall be at the down stream connection point (M.H.), then proceed up stream. When not dictated by a down stream connection point, stationing should begin from west to east, or south to north (the Designer should specify this with their survey request). The west to east and south to north stationing configuration provides left to right reading of plans (with north directed to the top or to the right).

2.04 Multiple Sheet Projects

When a design spans more than one plan sheet, a design match mark must be established to reference the continuation of the design from one sheet to another. The following guidelines should be followed when establishing the location of match marks:

- A) Match Marks are to be placed at full or half station points (e.g. 10+00 or 10+50).
- B) Match Marks are to be perpendicular to the design alignment at the station referenced as the match mark point.
- C) When at all possible, place match marks outside of street intersections, highway crossings, railroad crossings and areas of proposed construction by other than open cut.
- D) Place match marks to maximize the use of the available plan and profile space while considering any space requirements of location maps, general notes, construction details, etc.
- E) Analyze the profile section at the proposed match mark and insure that the location of the match mark will not create any confusion in the profile view.

When an extensive vertical drop occurs in the profile view, a profile vertical shift match mark may be required. This type of match mark allows the vertical shifting of the design so it can be fitted into the profile view. The profile vertical shift match mark should be placed at full or half station points (e.g. 7+00 or 7+50) and the elevations clearly indicated in each shift area.

2.05 First Sheet Requirements

In addition to any designs, the first sheet is to include a project location map, and a listing of pertinent general notes. For projects having six or more plan sheets, the location maps and general notes may be incorporated as part of a project cover sheet in lieu of placement on the first design sheet.

A) Location maps, not placed on cover sheets, should be positioned at the upper right hand corner on the first sheet plan view and oriented with north pointing to the top of the sheet. It shall be of sufficient detail and size (normally 3 to 4 inches square) to convey the project location in reference to the local thoroughfares. The project is to be identified and its limits indicated with leader lines.

B) General Notes that apply to the construction of an entire project should be listed on the cover sheet or on the first sheet for projects without a cover sheet. General notes that apply to only one sheet, or multiple sheets for only one portion of the overall project shall appear on the first sheet of that portion for which the notes apply.

2.06 Project Cover Sheet

Single facility projects having six or more plan view sheets or multiple location projects are to have a project cover sheet. The cover sheet is to incorporate project name, contract number, sheet key map, file number index, project location map, general notes and may include construction phasing.

A) Single facility type projects (i.e. major transmission/interceptor pipelines) shall have a sheet key map incorporated into the cover sheet. The map is to show the overall layout of the project and indicate the limits of each design sheet.

B) Multiple location projects (i.e. replacement/rehabilitating facilities at various locations) shall have a file number to street/location index and detailed location maps for each area of the project.

2.07 Lettering / Text Format

The standard lettering style for design plans is single stroke, upper and lower case, inclined Gothic letters (Intergraph / Microstation Text Font 23). This style of lettering has been the standard for the civil engineering field and produces a neat, legible text that can be accomplished quickly by free hand lettering (see Figure 2.1).



FIGURE 2.1

The typical design project will have numerous notes and call outs that require the use of various lettering/text sizes. For the recommended sizes and for examples of lettering/text configurations see Section 4.00 "Drafting Symbology" and Section 5.00 "Drafting Examples".

Occasionally the orientation of water and wastewater design plans requires the placement of call out notes at various angles skew to the horizontal position. For the recommended lettering orientation, consult Figure 2.2.

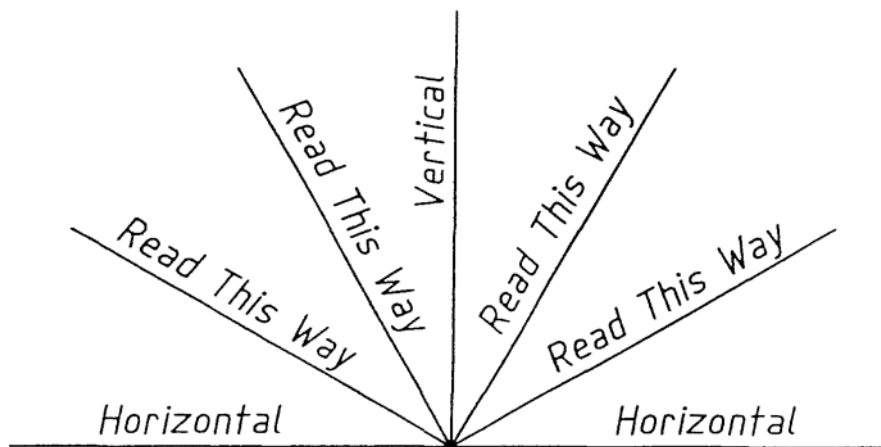


FIGURE 2.2

2.08 Traffic Control-Detour Plans

Pipeline projects within major thoroughfares may require the development of a traffic control/detour plan to mitigate the impact of construction on traffic flow. The traffic control plan will be a street/lane schematic drawing showing thoroughfare, construction location, cross streets, drive turnouts to commercial properties at sufficient proportion/detail (not to scale is acceptable) that will clearly indicate the proposed barricading, traffic mergers, lane closures, detour routes, and traffic control signage placement. A graphic example & location index of each specific Texas Department of Transportation sign used to be included on the schematic detail sheet. Any specific phasing of barricading and implementation of the traffic control plan may also be noted on the drawing.

SECTION 3

(DATA TO BE RECORDED)

3.01 Survey Information (PLAN VIEW)

Survey / Baselines are to include the following information:

- A) Centerline stations, deflection angles, and curve data.
- B) Ties to all topographical and physical features located by survey. C) Stations and distances to iron pins and boundary monuments.
- D) Bearings and distances for the boundaries of all properties through which easements are to be obtained.
- E) Control Number (When Survey Performed by D.W.U.).

3.02 Topography (PLAN VIEW)

The majority of the existing topographical information will be obtained from a survey. Additional topographical information may be obtained from existing or proposed paving plans, storm drainage plans, tax maps and investigative field trips. The following existing and/or proposed features should be shown:

- A) Roadways (material type, thickness, widths and bases).
- B) Driveways (material type, thickness, widths and bases).
- C) High and Low Banks for Creeks.
- D) All trees/special landscaping within R.O.W. or within 25 feet of survey line.
- E) Fences and retaining walls within R.O.W. or within 25 feet of survey line.
- F) All dedicated R.O.W.'s (streets, alleys, railroads, highways, utilities, etc.) with names and owners shown.
- G) Lot and Block numbers.
- H) Corporation lines with involved cities listed.
- I) Any buildings with their address which might be impacted by main construction.

3.03 Utilities (PLAN VIEW)

Existing and proposed utility information should initially be obtained from the utility records supplied by each utility and then its location confirmed by survey or investigative field trip. The following existing and/or proposed utility information should be shown on design plans:

- A) Type and size of utility (i.e. PIP & Anchors etc.).
- B) Location in reference to R.O.W.
- C) Type of pipe/conduits and appurtenances.
- D) Direction of flow for storm drainage and wastewater mains.
- E) Utility caution notes with current representative contacts.
- F) Design references and As-Built References.

3.04 Design Criteria (PLAN VIEW)

The designer is to provide the following design information in the plan view:

- A) The design alignment with reference to its location from survey, R.O.W., physical features, other utilities, etc.
- B) Specific design notes, stationed and organized in a sequential arrangement around the items described for construction.
- C) All design station equations, P.I. points, and all curve data (length, radius, tangent, delta angle, etc).
- D) For areas of construction "By Other Than Open Cut" indicate station limits of construction, type of encasement pipe (when applicable) and any special conditions.
- E) The specific size and type of material of proposed main when applicable for the plan view.
- F) Indicate the location and limits of any existing facility being replaced, removed, killed or abandoned.
- G) The general notes that are applicable to the specific conditions regarding the design.

3.05 Underground Utilities and Physical Features (PROFILE VIEW)

Utility information can be obtained from several sources (Survey, Utility Maps, Previous Designs, Field Investigations, etc.) and then consolidated into the design profile view:

- A) Existing and proposed ground lines.
- B) Proposed top of curb (when available).
- C) Station and elevations of existing and proposed utilities that cross the alignment of the proposed D.W.U. facility.
- D) 100 ft. stationing along bottom of profile.
- E) 100 ft. left and right ground lines (for wastewater collection mains in unserved areas).
- F) Show short sections of existing or proposed utilities that run parallel to the proposed D.W.U. facilities.

3.06 Design Criteria (PROFILE VIEW)

The designer is to provide the following design information in the profile view:

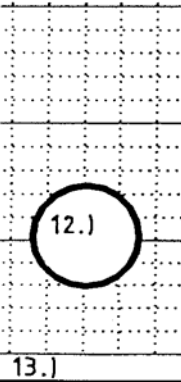
- A) Place the station and description above the main for all proposed appurtenances, and fittings on the main alignment.
- B) Place flow line elevations below the main at: changes in elevation, grade breaks, beginning and ending of main and at significant main line appurtenances (excluding valves without M.H.'s).
- C) Show station equations and designate the amount of gap or overlap.
- D) List stations and elevations at P.V.C., P.V.I., P.V.T., and length of vertical curves.
- E) Show percent grades along the vertical alignment of all proposed D.W.U. mains.
- F) For areas of construction "By Other Than Open Cut" indicate station limits of construction, type of encasement pipe (when applicable) and any special conditions.

G) List the linear feet of pipe, pipe size, acceptable pipe materials (including class and/or material specifications) and pipe embedment classification.

H) Show a minimum of two benchmarks per project and one per sheet. One benchmark should describe an elevation at the beginning of the project and one benchmark should describe an elevation at the ending of project.

3.07 Title Block

The standard title block provides an area to conveniently list the pertinent project reference information. The following title block (Figure 3.1) has been divided into areas in which the noted information is to be listed. For an example of a filled in title block with a legend of the pen sizes and lettering guideline sizes to be used, see Section 4.00 "Drafting Symbology".

	1.)						
	2.)						
	3.)						
	4.)						
	<i>CITY OF DALLAS, TEXAS</i>						
	<i>DESIGN</i>	<i>DRAWN</i>	<i>DATE</i>	<i>SCALE</i>	<i>NOTES</i>	<i>FILE</i>	<i>NO.</i>
	5.)	6.)	7.)	8.)	9.)	10.)	11.)
	13.)						

AREA	INFORMATION LISTED
1.)	Size and type of main or project name.
2.)	Project location: street name, block number, creek name, etc.
3.)	Project limits: from _____ to _____
4.)	"WATER UTILITIES DEPARTMENT"
5.)	Name (First Initial and Last Name) designer.
6.)	Name (First Initial and Last Name) of persons who drew the plan.
7.)	Date plans were completed.
8.)	Horizontal and Vertical Scale.
9.)	Survey control number and surveyor's last name.
10.)	File Prefix 1685W" or "411Q"
11.)	File Number.
12.)	Sheet Number.
13.)	CAD file name and file path

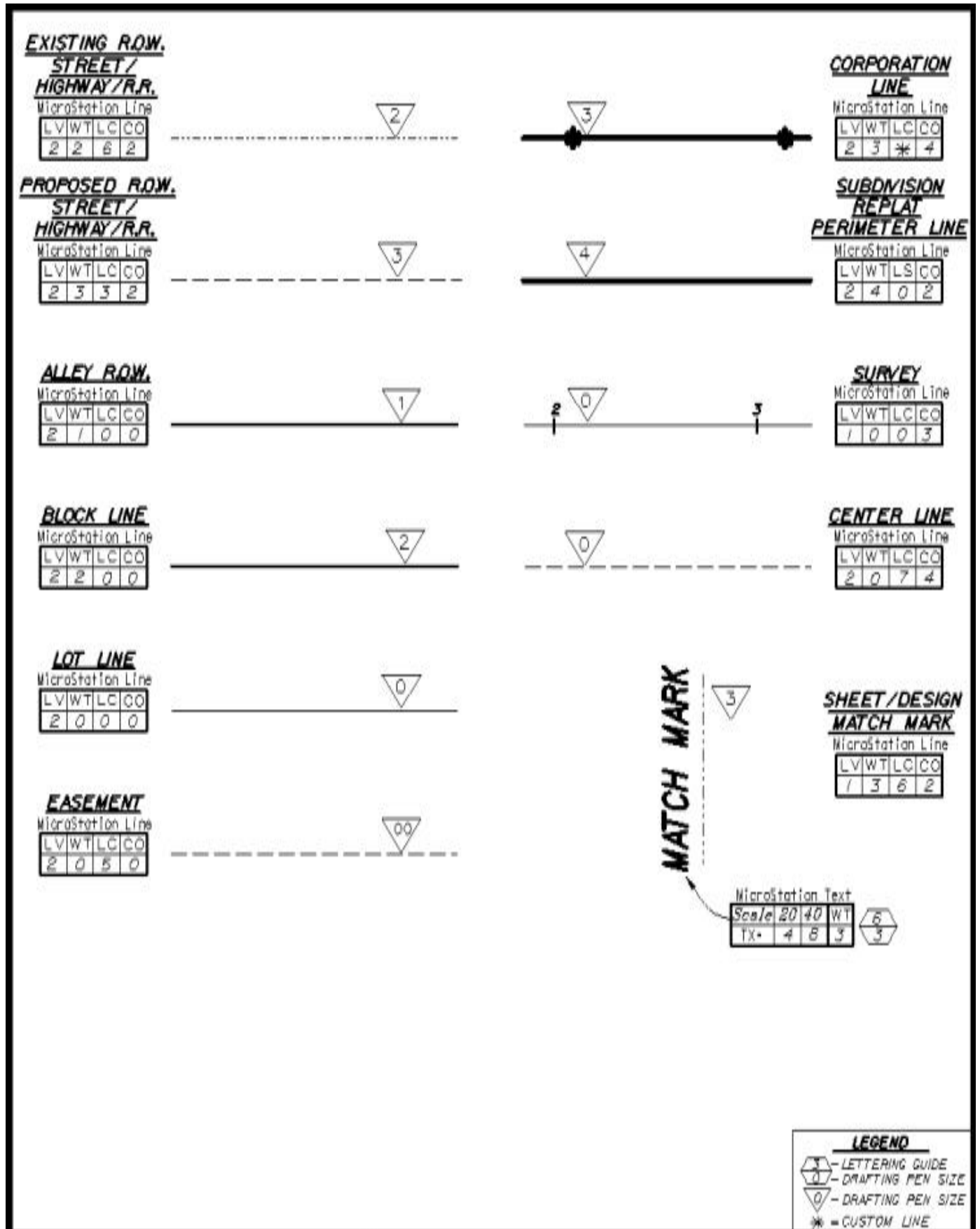
FIGURE 3.1

SECTION 4

(Drawing Symbologies & Text Designations)

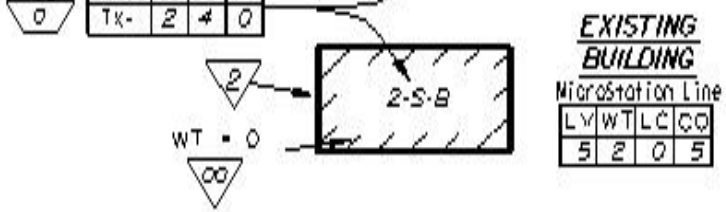
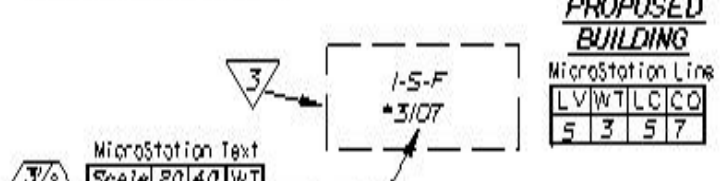
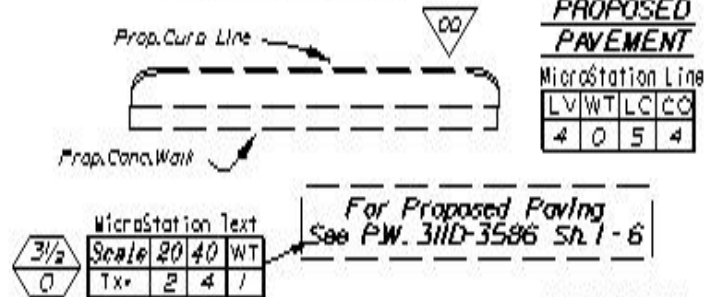
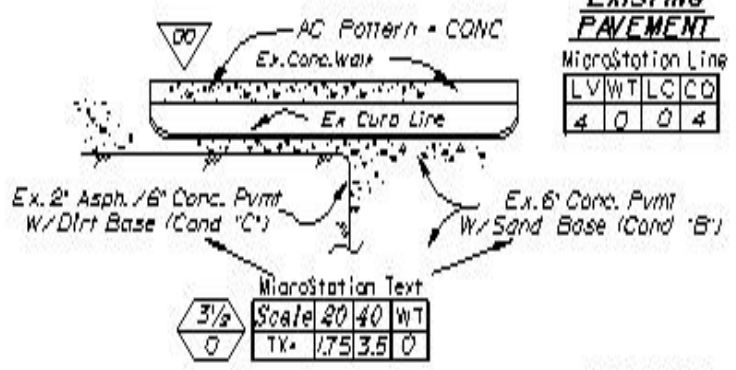
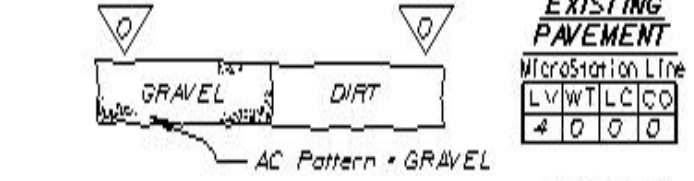
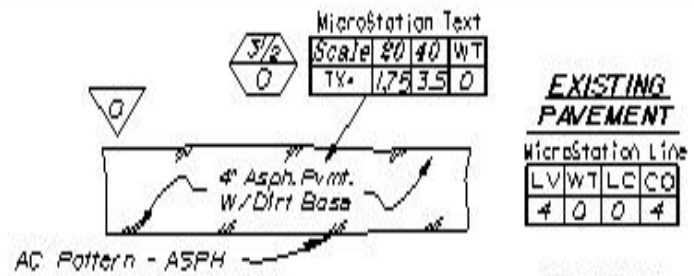
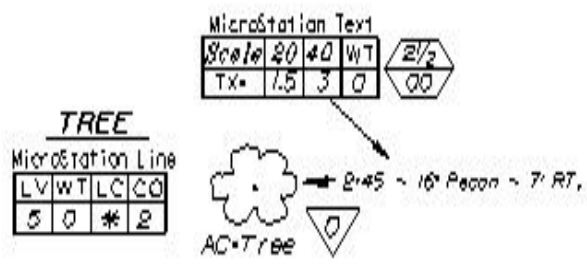
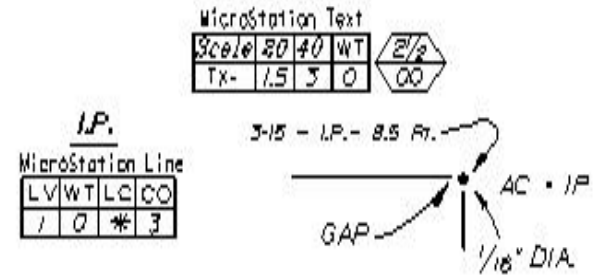
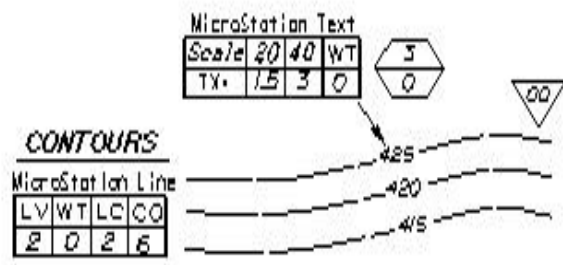
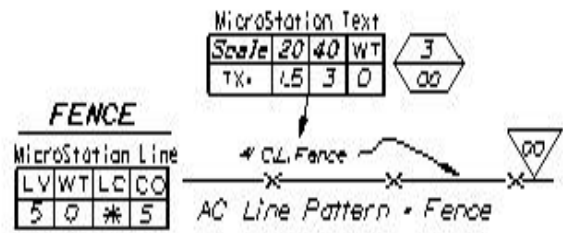
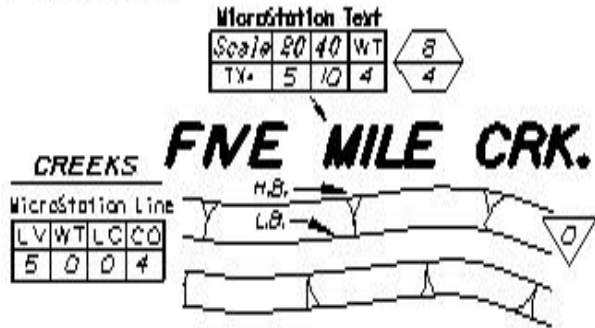
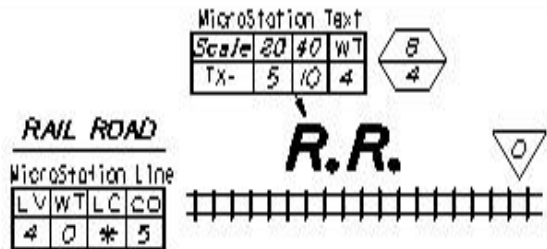
LEGEND for MicroStation Key-In

AC = Active Cell
CO = Color
LC = Line Code (Style)
LV = Level Designation
TX = Text Size
WT = Weight



PROPERTY / R.O.W.
PLAN VIEW

4.01

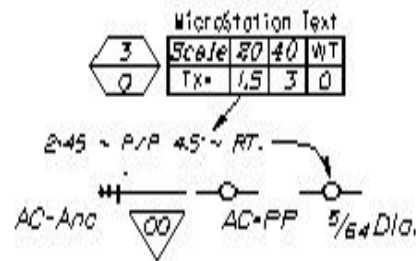
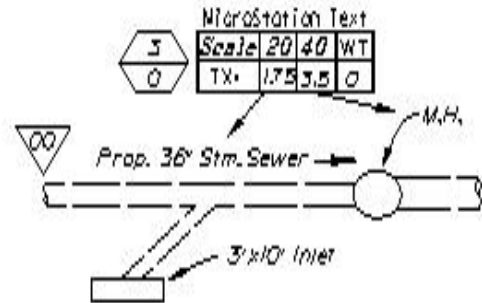
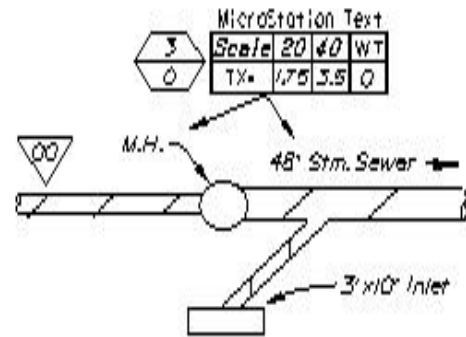
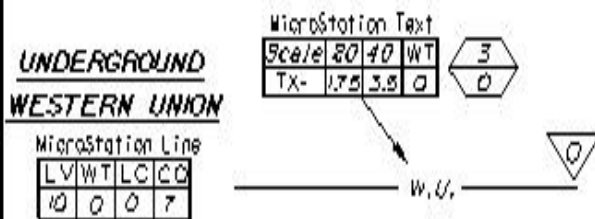
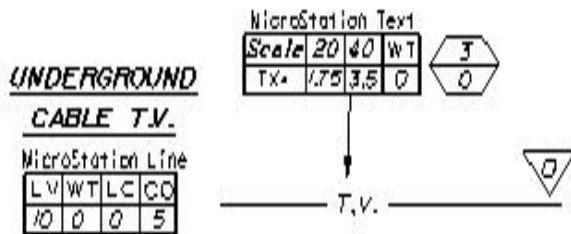
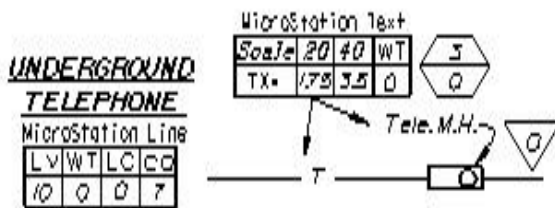
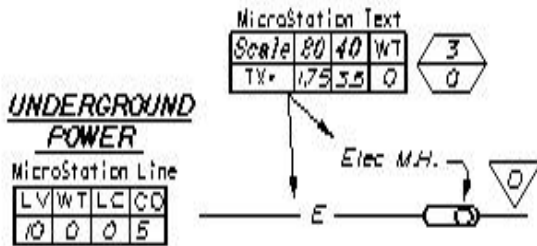
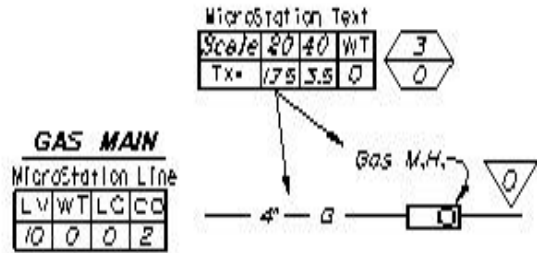


LEGEND

- 5 - LETTERING GUIDE
- 0 - DRAFTING PEN SIZE
- 0 - DRAFTING PEN SIZE
- * - CUSTOM LINE



GENERAL TOPOGRAPHY / PAVEMENT PLAN VIEW 4.02



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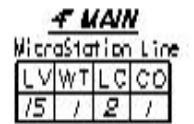
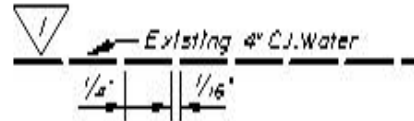
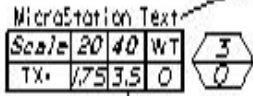
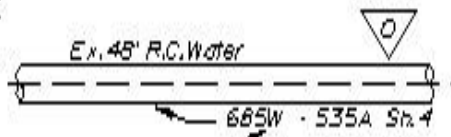
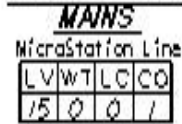
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	DRAFTING PEN SIZE
	DRAFTING PEN SIZE
	CUSTOM LINE



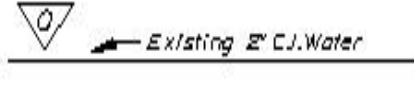
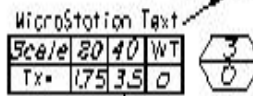
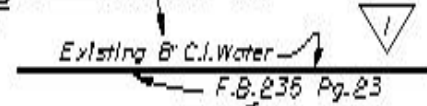
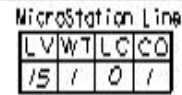
**PUBLIC / PRIVATE UTILITIES
PLAN VIEW**

4.03

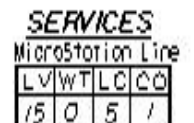
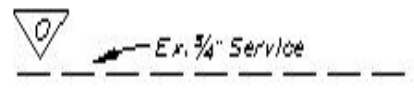
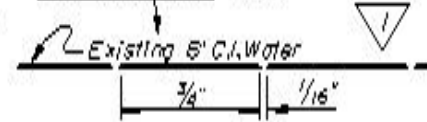
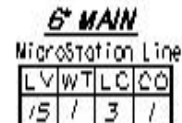
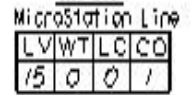
30" & LARGER MAINS



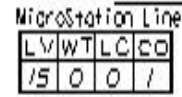
8" TO 27" MAINS



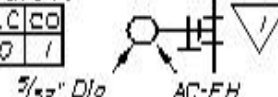
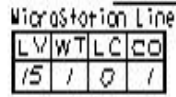
2" & SMALLER MAIN



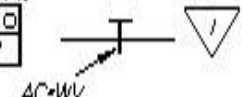
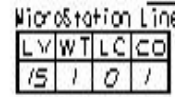
WATER METER



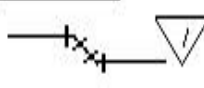
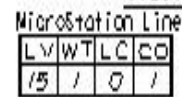
FIRE HYDRANT



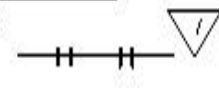
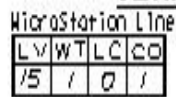
EX. VALVE



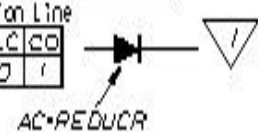
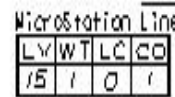
HORIZ. BENDS



VERT. BENDS

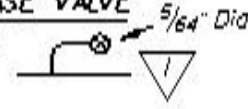
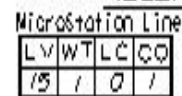


REDUCER

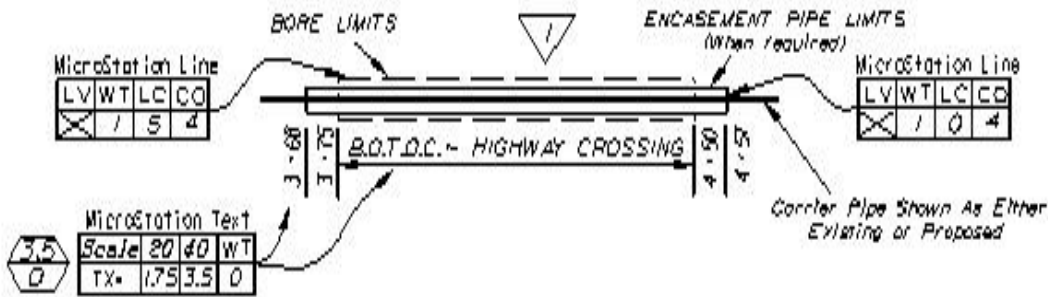


NR

RELEASE VALVE



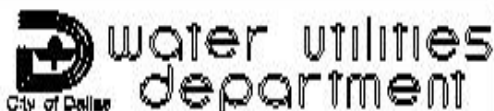
BY OTHER THAN OPEN CUT / HIGHWAY / RAILROAD CROSSINGS for EXISTING or PROPOSED MAINS



✕ NOTE ,EXISTING - LV-15 & PROPOSED - LV-16

LEGEND

- LETTERING GUIDE
- DRAFTING PEN SIZE
- DRAFTING PEN SIZE
- CUSTOM LINE



EXISTING WATER MAINS APPURTENANCES & TEXT PLAN VIEW

30" & LARGER

MAINS

Microstation Line

LV	WT	LC	CO
16	3	0	2



2" & SMALLER

MAIN

Microstation Line

LV	WT	LC	CO
16	3	0	2



8" TO 27" MAINS

Microstation Line

LV	WT	LC	CO
16	4	0	2



SERVICES

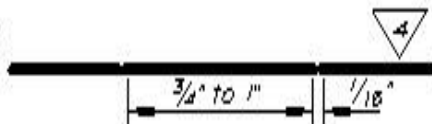
Microstation Line

LV	WT	LC	CO
16	2	0	2

6" MAIN

Microstation Line

LV	WT	LC	CO
16	4	3	2



FUTURE WATER

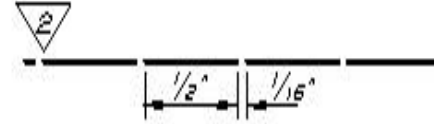
Microstation Line

LV	WT	LC	CO
16	0	5	2

4" MAIN

Microstation Line

LV	WT	LC	CO
16	4	2	2



PROP. MAIN ON OTHER SH.

Microstation Line

LV	WT	LC	CO
16	2	2	2

FIRE HYDRANT

Microstation Line

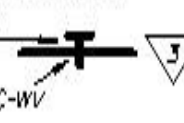
LV	WT	LC	CO
16	3	0	2



PROP. VALVE

Microstation Line

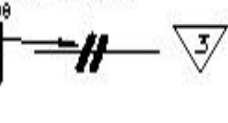
LV	WT	LC	CO
16	3	0	2



CUT & PLUG

Microstation Line

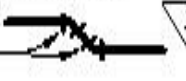
LV	WT	LC	CO
16	3	0	2



HORIZ. BENDS

Microstation Line

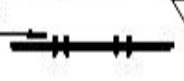
LV	WT	LC	CO
16	3	0	2



VERT. BENDS

Microstation Line

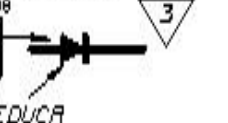
LV	WT	LC	CO
16	3	0	2



REDUCER

Microstation Line

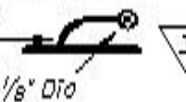
LV	WT	LC	CO
16	3	0	2



AIR RELEASE VALVE

Microstation Line

LV	WT	LC	CO
16	3	0	2



WATER M.H. w/BYPASS

Microstation Line

LV	WT	LC	CO
16	3	0	2



Microstation Text

4	Scale	20	40	WT
1	Tx.	2.5	5	2

Microstation Text

5	Scale	20	40	WT
3	Tx.	3.5	7	3

INSTALL 8" WATER

AC Line Pattern - Cloud & WT - 3

Kill Ex. 6" Water Built 1955

AC Line Pattern - Cloud & WT - 2

7+33 Install
 8" x 6" tee B.B.F.
 6" Valve F.M.J.
 Fire Hydrant
 8" Valve (East)

INSTALL ~ 3/4" Blowoff
 For Flushing Of main
 No Separate Pay Item

P.I. 14+80
 27'55"03" LT
 Install
 8" 22 1/2" Bend

AC Line Pattern - Cloud & WT - 1

LEGEND

3	- LETTERING GUIDE
2	- DRAFTING PEN SIZE
0	- DRAFTING PEN SIZE
*	- CUSTOM LINE

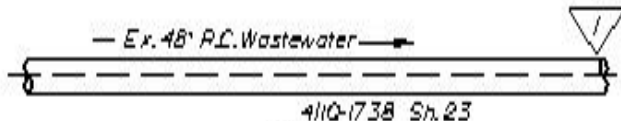


PROPOSED WATER MAINS, APPURTENANCES & TEXT PLAN VIEW

**30" & LARGER
MAINS**

Microstation Line

LV	WT	LC	CC
20	1	0	6



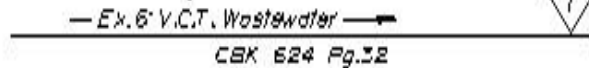
Microstation Text

Scale	20	40	WT	3/16
Tx.	175	5.5	0	0

6" TO 27" MAINS

Microstation Line

LV	WT	LC	CC
20	1	0	5



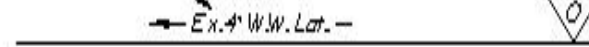
Microstation Text

Scale	20	40	WT	3/16
Tx.	175	3.5	0	0

LATERALS

Microstation Line

LV	WT	LC	CC
20	0	0	6



MANHOLE

Microstation Line

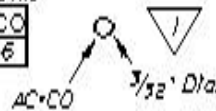
LV	WT	LC	CC
20			6



CLEAN-OUT

Microstation Line

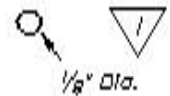
LV	WT	LC	CC
20	1	0	6



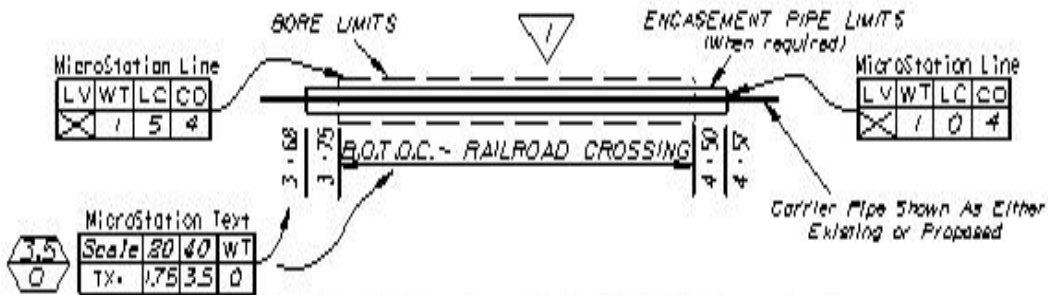
ACCESS DEVICE

Microstation Line

LV	WT	LC	CC
20	1	0	6



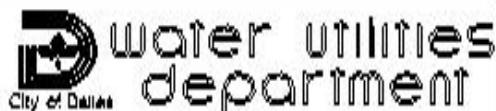
**BY OTHER THAN OPEN CUT /
HIGHWAY / RAILROAD CROSSINGS
for EXISTING or PROPOSED MAINS**



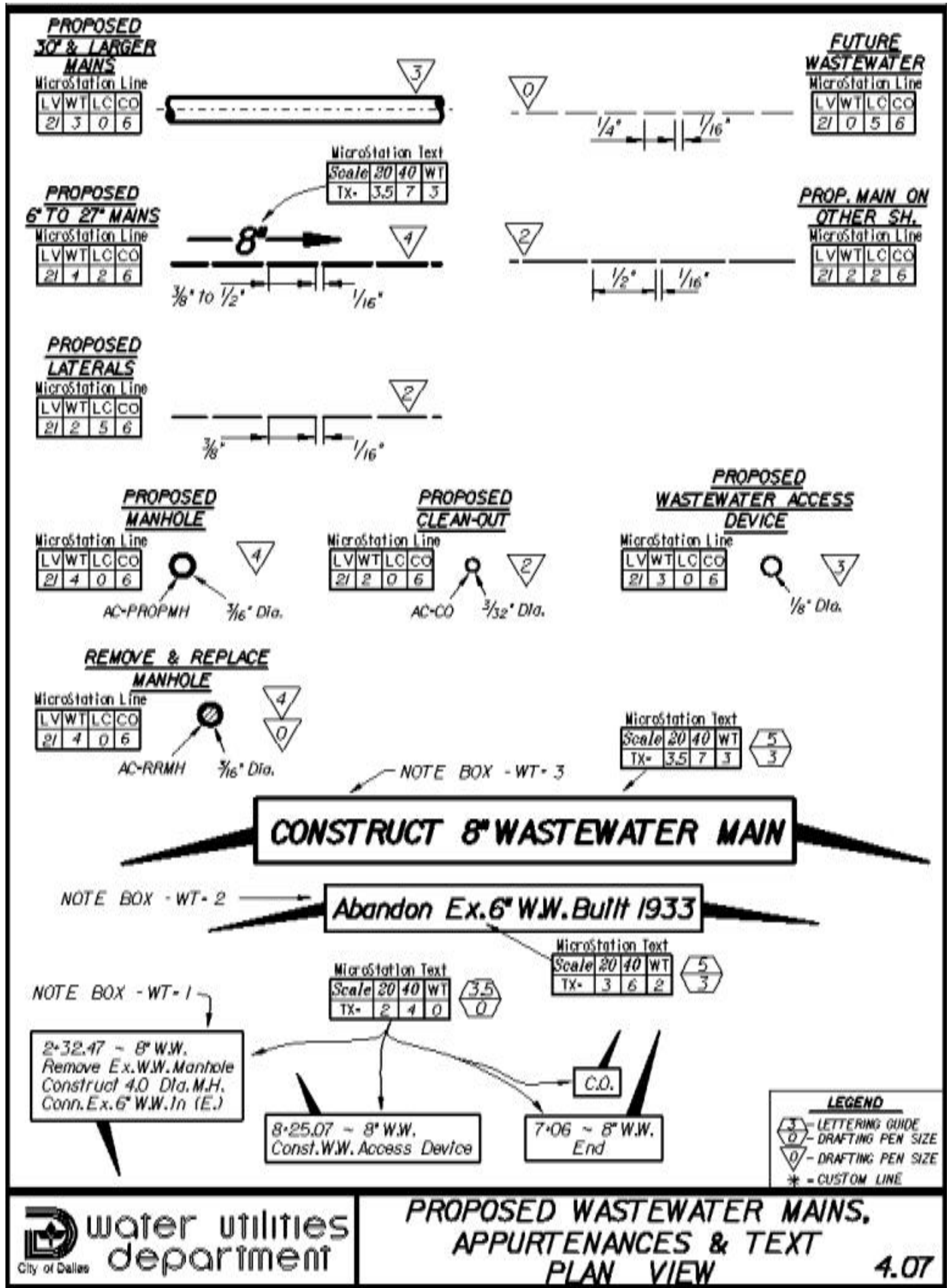
⊗ NOTE : EXISTING - LV-20 & PROPOSED - LV-21

LEGEND

- LETTERING GUIDE
- DRAFTING PEN SIZE
- DRAFTING PEN SIZE
- CUSTOM LINE



**EXISTING WASTEWATER MAINS
APPURTENANCES & TEXT
PLAN VIEW**



RAIL, ROADS, CREEKS
& STREET NAMES

HICKORY ST.

Microstation Text

Scale	20	40	WT	8
TX	5	10	4	4



LINE LABEL

LINE 'A'

Microstation Text

Scale	20	40	WT	6
TX	3.5	7	3	3



NEXT SHEET REFERENCE

See Sheet 3

Microstation Text

Scale	20	40	WT	5
TX	3.5	7	2	2



AT

MATCH MARK 6+00

Microstation Text

Scale	20	40	WT	6
TX	4	8	3	3



MATCH MARKS

BLOCK NUMBERS

BLK 2/7604

Microstation Text

Scale	20	40	WT	5
TX	3	6	2	2



LOT NUMBERS

12

Microstation Text

Scale	20	40	WT	3/2
TX	2	4	1	0



LOT DIMENSIONS



Microstation Text

Scale	20	40	WT	2/2
TX	1.5	3	0	00



ADDRESSES



Microstation Text

Scale	20	40	WT	3/2
TX	2	4	0	00



SURVEY CALL-OUTS

3-75 - P/P - 18.5 Ft.

Microstation Text

Scale	20	40	WT	2/2
TX	1.5	3	0	00



UTILITY LABELS

Ex. 8" C.I. Water

Microstation Text

Scale	20	40	WT	3
TX	1.75	3.5	0	0



FILE NUMBER REFERENCES

685W - 650 Sh 43

Microstation Text

Scale	20	40	WT	3
TX	1.75	3.5	0	0



PAVEMENT LABELS

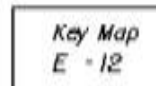
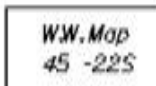
Ex. 8" Conc. W/ 2" Asph. Overlay
Sand Base

Microstation Text

Scale	20	40	WT	3/2
TX	1.75	3.5	0	0



AS-BUILT
REFERENCE MAPS



Microstation Text

Scale	20	40	WT	3/2
TX	2	4	0	0



NOTE: Text is to be placed on the same level as the item that it defines

LEGEND	
	LETTERING GUIDE
	DRAFTING PEN SIZE
	DRAFTING PEN SIZE
*	CUSTOM LINE



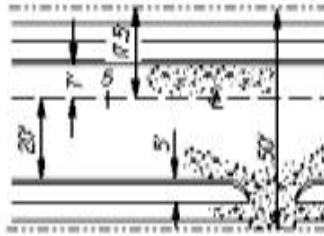
**GENERAL TEXT
PLAN VIEW**

4.08

**CROSS TIES,
DIMENSIONS, &
SURVEY STATIONS**

MicroStation Text

Scale	20	40	WT
TX-	1.5	3	0



TREE LIST

STATION	LT.	RT.	SIZE	DESCRIPT.
P-30	32'		8'	Oak
P-58		18'	14'	Elm
P-83		15'	20'	Pecan

TREE LIST

MicroStation Text

Scale	20	40	WT
TX-	2.5	5	2

MicroStation Text

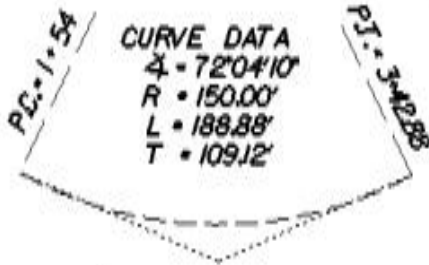
Scale	20	40	WT
TX-	1.5	3	0

WT = 1

CURVE DATA

MicroStation Text

Scale	20	40	WT
TX-	2	4	1



P.I. = 35 + 17.5
Δ = 25° 23' 45"

WT = 1

SURVEY P.I.

MicroStation Text

Scale	20	40	WT
TX-	2	4	1

**UTILITY
CAUTION NOTES**

MicroStation Text

Scale	20	40	WT
TX-	2	4	1

CAUTION
Exist. Gas Main In Area.
Contact Lone Star Gas Co.
48 Hrs Prior To Construction
Phone = 1-800-344-8377

WT = 1

POSTING EASEMENTS

MicroStation Text

Scale	20	40	WT
TX-	2	4	0

John Smith & Betty Smith 1/12/86
10' Center Line Wastewater Easement From
Sta. 1+75 to Sta. 3+75 In Blk. 6876 Lots 5 & 6
SPECIAL CONDITIONS
C.D. 871271
Vol. 76503 Pg. 4352 Date: 4/30/86

GENERAL NOTES

MicroStation Text

Scale	20	40	WT
TX-	3	6	3

GENERAL NOTES

MicroStation Text

Scale	20	40	WT
TX-	2	4	0

- 1) Compact fillings are not authorized for this project.
- 2) Contractor is to maintain existing wastewater flow and existing wastewater services at all times.

TITLE BLOCK

12" WATER MAIN						
OLIVE STREET						
ROSS Ave. to WOODALL RODGERS Frwy.						
WATER UTILITES DEPARTMENT						
CITY OF DALLAS, TEXAS						
12 <small>path = 7487</small>	DESIGN	DRAWN	DATE	SCALE	NOTES	FILE NO.
	I. PALMER	W. TURNER	NOV 1995	1"=30' H. 1"=6V.	RJ RONS 018-18	685W 543

MicroStation Text

Scale	20	40	WT
TX-	5	10	4

MicroStation Text

Scale	20	40	WT
TX-	3.5	7	3

MicroStation Text

Scale	20	40	WT
TX-	6	12	4

MicroStation Text

Scale	20	40	WT
TX-	2	4	0

MicroStation Text

Scale	20	40	WT
TX-	5	10	4

LEGEND

3/0	LETTERING GUIDE
0	- DRAFTING PEN SIZE
0	- DRAFTING PEN SIZE
*	= CUSTOM LINE



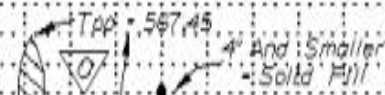
TITLE BLOCK & ADDITIONAL TEXT
PLAN VIEW 4.09

EXIST. UTILITIES

CROSSING ALIGNMENT

MicroStation Line

L	V	W	T	L	C	C	O
10	0	0	0	0			



MicroStation Text
 Scale 20 40 WT
 Tx= 175 3.5 0

PROP. UTILITIES

CROSSING ALIGNMENT

MicroStation Line

L	V	W	T	L	C	C	O
10	1	5	0				

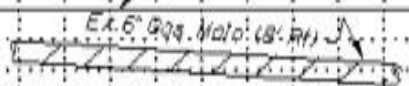


EXIST. UTILITIES

PARALLEL TO ALIGNMENT

MicroStation Line

L	V	W	T	L	C	C	O
10	0	0	0	0			

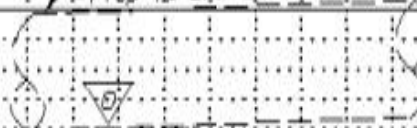


PROP. UTILITIES

PARALLEL TO ALIGNMENT

MicroStation Line

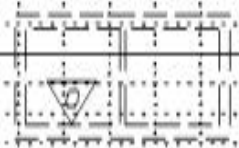
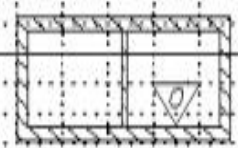
L	V	W	T	L	C	C	O
10	1	5	0				



EXISTING BOX CULVERT

MicroStation Line

L	V	W	T	L	C	C	O
4	0	0	4				



PROPOSED BOX CULVERT

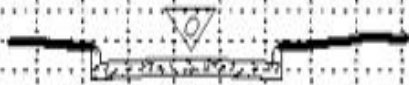
MicroStation Line

L	V	W	T	L	C	C	O
4	1	5	4				

EXISTING CONCRETE PAVEMENT

MicroStation Line

L	V	W	T	L	C	C	O
4	0	0	4				



PROPOSED PAVING

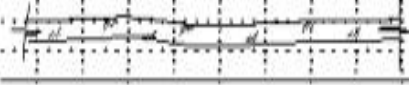
MicroStation Line

L	V	W	T	L	C	C	O
4	1	5	4				

EXISTING ASPHALT PAVEMENT

MicroStation Line

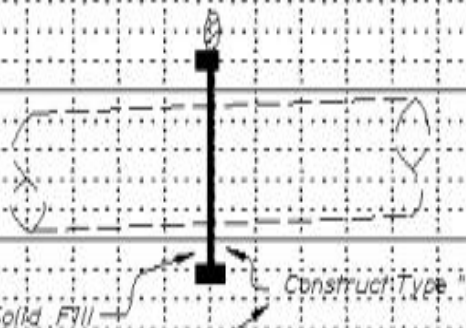
L	V	W	T	L	C	C	O
4	0	0	4				



TYPE 'A' UTILITY SUPPORT

MicroStation Line

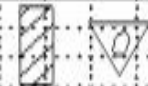
L	V	W	T	L	C	C	O
10	1	5	0				



EXISTING DUCTS

MicroStation Line

L	V	W	T	L	C	C	O
10	0	0	0				



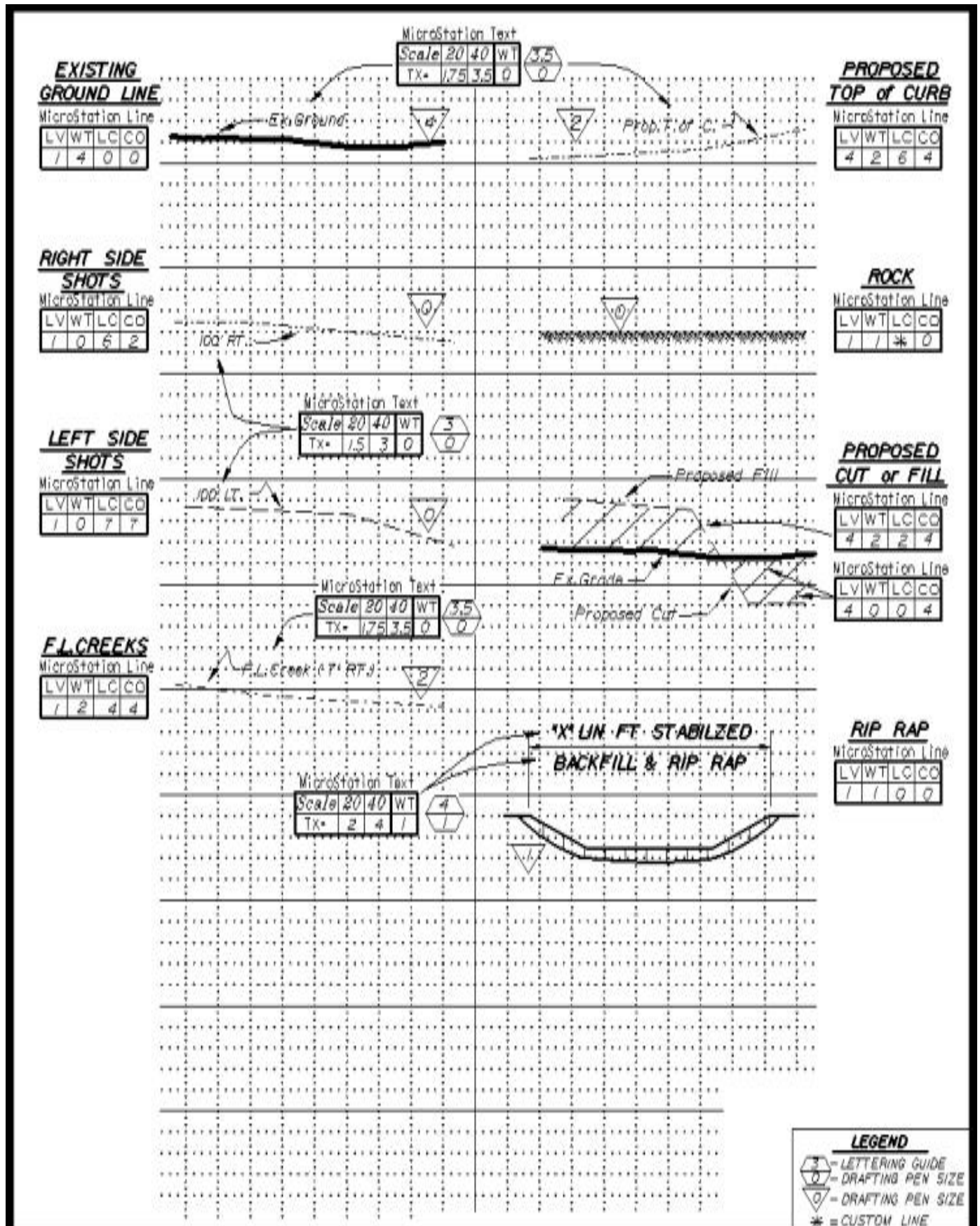
MicroStation Text
 Scale 20 40 WT
 Tx= 175 3.5 0

LEGEND

- LETTERING GUIDE
- DRAFTING PEN SIZE
- DRAFTING PEN SIZE
- CUSTOM LINE

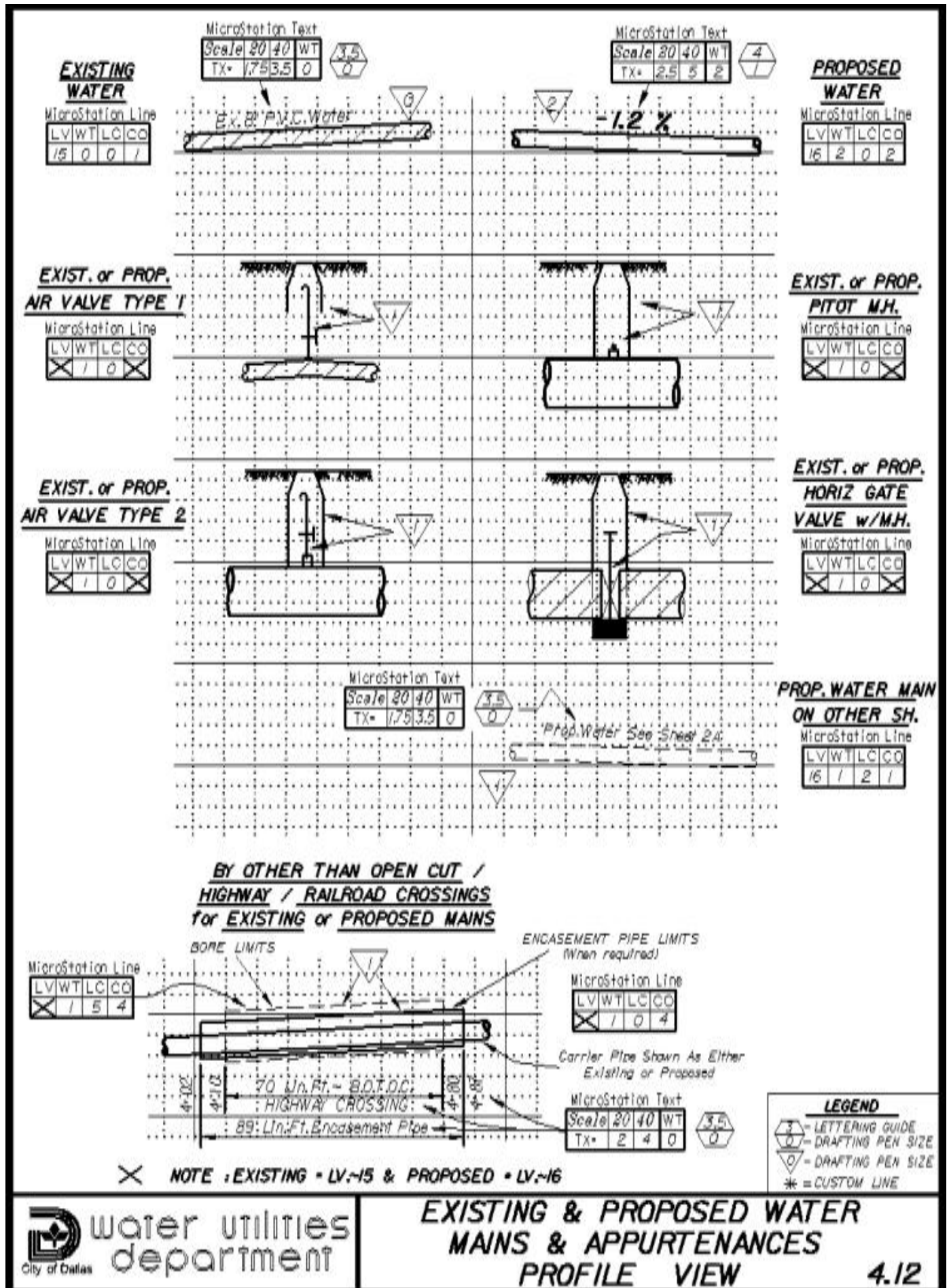


U.G. UTILITIES / PAVEMENT PROFILE VIEW

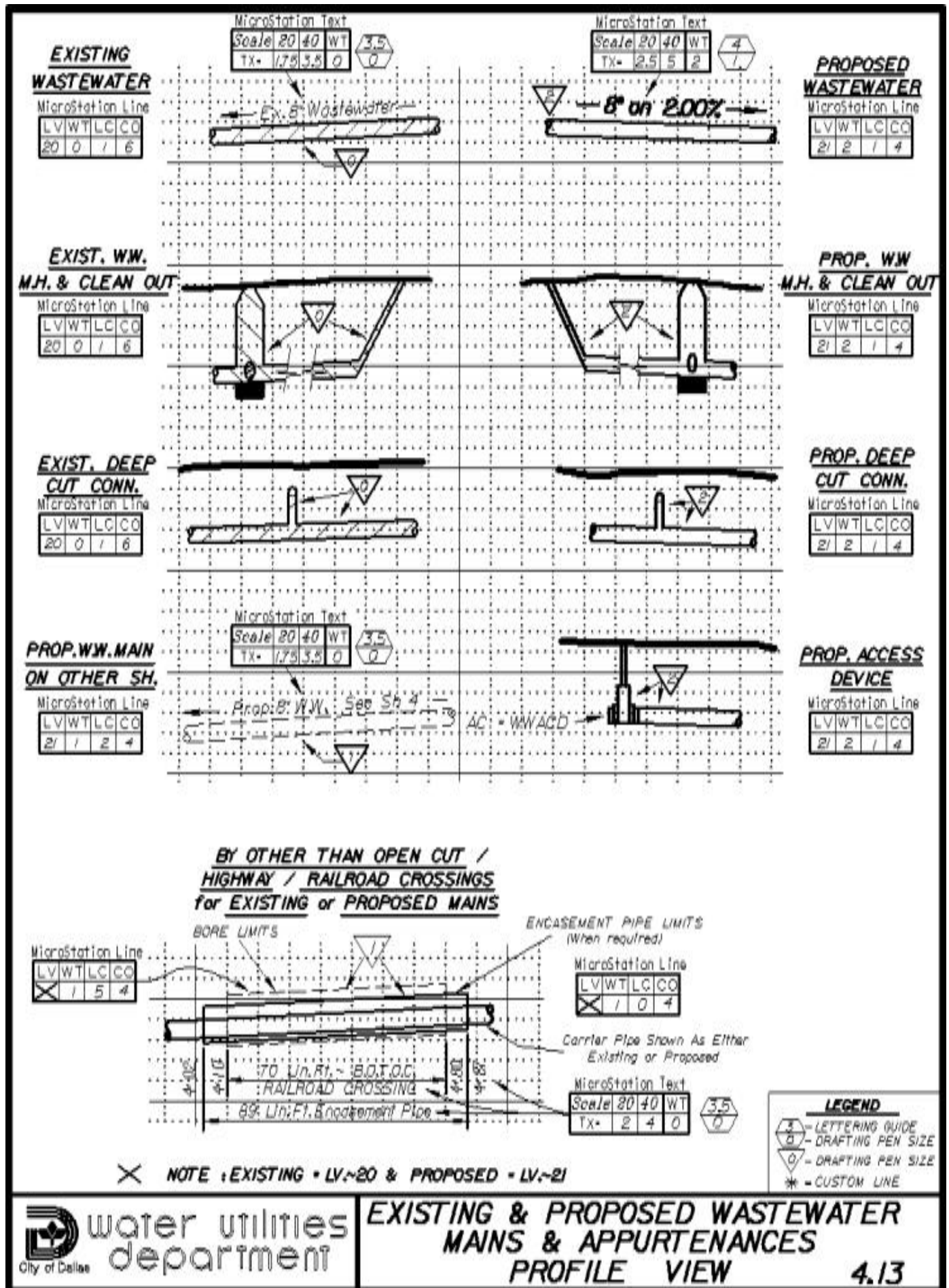


**GROUND & GRADE/CUT SYMBOLS
 PROFILE VIEW**

4.11



EXISTING & PROPOSED WATER MAINS & APPURTENANCES PROFILE VIEW



EXISTING & PROPOSED WASTEWATER MAINS & APPURTENANCES PROFILE VIEW

4.13

PROPOSED WASTEWATER (Size, Direction & %)	8" ON 0.40%	MicroStation Text Scale 20/40 WT Tx= 2.5 5.0 2	4 1
PROPOSED WATER (%)	1.20%	MicroStation Text Scale 20/40 WT Tx= 2.5 5.0 2	4 1
RIGHT & LEFT SHOTS	100' LT.	MicroStation Text Scale 20/40 WT Tx= 1.75 3.5 0	2.5 00
STATION NUMBER	6	MicroStation Text Scale 20/40 WT Tx= 2.5 5.0 1	4 1
HORIZONTALLY ALIGNED NOTES & CALL-OUTS	E. & Ground: 6' Opp. (7' LT.)	MicroStation Text Scale 20/40 WT Tx= 1.75 3.5 0	3 0
ELEVATION GRID (Grid)	570	MicroStation Text Scale 20/40 WT Tx= 3.5 7.0 3	5 3
LINE NAME	LINE "A"	MicroStation Text Scale 20/40 WT Tx= 3.5 7.0 2	5 2
VERTICAL ALIGNED CALL-OUTS / F.L.	5:97' Ex: 18' Btm. Sew. F.L. = 567.25	MicroStation Text Scale 20/40 WT Tx= 1.75 3.5 0	3 0
OTHER UTILITY ELEVATIONS	TOP = 438.57	MicroStation Text Scale 20/40 WT Tx= 1.75 3.5 0	3 0
PROPOSED L.F. & EMBEDMENT (W. & W.W.)	1,200 L.F. Class 200	MicroStation Text Scale 20/40 WT Tx= 3 6 2	5 2
EXCEPTION TO EMBED./BACKFILL (W. & W.W.)	Standard Rip Rap & Stabilized Backfill	MicroStation Text Scale 20/40 WT Tx= 2 4 1	4 1
OHMS READINGS	Ohms = 900	MicroStation Text Scale 20/40 WT Tx= 2.5 5 2	5 2
MicroStation Text Scale 20/40 WT Tx= 2.0 4.0 0	<p>B.M. STD. W.D. B.M. AT INTERSECTION OF MILLER RD. AND LIMESTONE DR. ON EAST SIDE OF MILLER RD. ON STORM SEWER INLET ELEV. = 492.87</p>	MicroStation Text Scale 20/40 WT Tx= 2.5 5.0 1	3 0 4 1

NOTE: Text is to be placed on the same level as the item that it defines

LEGEND

3 - LETTERING GUIDE
 0 - DRAFTING PEN SIZE
 0 - DRAFTING PEN SIZE
 * - CUSTOM LINE

water utilities
department

City of Dallas

**GENERAL TEXT
PROFILE VIEW**

4.14

SECTION 5 (CAD ELEMENT & TEXT ATTRIBUTES)

5.01 Overview

The CAD elements and text attributes defined in this manual apply to the Microstation/Intergraph software format. All drawings created by CAD processes are to be similar in appearance to drawings that are developed by hand using D.W.U. drawing standards. The tables contained in this section are compilations of CAD parameters to be used. (see also SECTION 4)

5.02 Seed Files / Basic Settings

The Microstation CAD format allows the creation of drawings with basic settings (predefined seed file & project interface), that define file appearance along with defining active drawing parameters. The following settings are germane to D.W.U.'s file setup and were developed from MicroStation's default

project interface and two dimensional seed file.

A) Working Units:

1 m.u. (ft or '), 12 s.u. (in or "), 1.000 p.u. (unit per s.u.)

B) Cell Library :

DWU.CELL, is a library of common D.W.U. cells (symbols) developed by Design Services for items used in creating drawings.

C) Color Table:

COLOR.TBL a standard table provided by Microstation

D) Element Class:

PRIMARY for all elements

E) Dimension Format & Units:

Format: MECHANICAL

Primary Unit: ENGLISH (ft. or ' & in. or ")

Angle Format: DEGREES

Angle Display: Deg.(°) Min.(.) Sec.(") i.e. 45°25'30"

Minimum Accuracy: 0.12 or 2-PLACE

5.03 Reference Files

During the development of the drawing/design, the use of reference files is an acceptable and sometimes a very efficient procedure for managing the project. However, when the project is completed (prior to archiving or delivering CAD files to D.W.U. Mapping & Capital Services for permanent storage), the file is to be copied into a stand-alone format with all elements, borders, notes, grid etc. included in the file. The final copying of referenced files into a standalone, individual sheet format, will provide assured future retrieval of all information that is contained on the engineers sealed hard copy.

5.04 Plotting / Scaling

It is imperative to establish the final scaling (plot scale) of the CAD file prior to any placement of text or cells. Font size and active scale settings for cells will dictate their appearance when plotted to the desired final drawing scale. CAD files are to be developed at 1 to 1 "full scale" and then set to the appropriate 1"=40' or 1"=20' scale when plotting.

The final key in controlling drawing appearance is selecting and if necessary rewriting the plot configuration file and/or developing a plot pen table that will define; element/line styles, weights, pen selection, stroking tolerances, gray shading, etc., along with controlling the plotter that will be used to print the CAD file. Several plot configuration files have been developed for the selected plotters that are utilized in the Design Services Program.

SEE FOLLOWING TABLES
& SECTION 4
FOR CAD ELEMENT & TEXT DEFINITIONS

TABLE 5.1
(Text - Size & Weight)

PLANVIEW

DESCRIPTION	AMES GUIDE #	40 SCALE TX=	20 SCALE TX=	WEIGHT
Survey Line Stations	3	3.0	1.5	0
Survey Ties & Labels (Rt. & Lt.)	2.5	3.0	1.5	0
Survey Curve & P.I. Data	3.5	4.0	2.0	I
Dimensions / Cross-Ties	3	3.0	1.5	0
Utility Labels - DWU & Others	3	3.5	175	0
Pavement - Type & Base	3	3.5	175	0
Match Marks	6	8.0	4.0	3
Tree List	2.5	3.0	1.5	0
Street Names / Railroad / Creeks / Rivers	8	10.0	5.0	4
Block Numbers	6	6.0	3.0	2
Lot Numbers	3.5	4.0	2.0	I
Lot Dimensions	2.5	3.0	1.5	0
Addresses	3.5	4.0	20	0
Caution Notes	3.5	4.0	2.0	0
Proposed Wastewater Flow Direction	5	7.0	3.5	3
Proposed Line Label (i.e. LINE "A")	5	7.0	3.5	2
Design Notes (In Cloud or Box)	3.5	4.0	2.0	0
"CONSTRUCT 8" WASTEWATER"	5	7.0	3.5	3
"INSTALL8" WATER"	5	7.0	3.5	3
General Notes - Title	5	6.0	3.0	3
Notes - Text	3.5	40	20	0

PROFILE

DESCRIPTION	AMES GUIDE #	40 SCALE TX=	20 SCALE TX=	WEIGHT
Stations	4	4.0	2.0	0
Notes & Labels (Horz.)(i.e. "Top of Curb")	3	3.5	175	0
Station Notes & Labels & F.L. (Vertical)	3	3.5	175	0
Utility Elevations (i.e. "Top of Pipe")	2.5	3.5	175	0
Grid Elevations	5	7.0	3.5	3
Match Marks	6	8.0	4.0	3
Bench Marks (Text Body)	3.5	4.0	2.0	0
Prop. flow Direction &or Grade (W&WW)	4	5.0	2.5	2
Lin. Ft. & Embedment Notes (W & WW)	4	6.0	3.0	2
Proposed Line Label (i.e. LINE "A")	5	7.0	3.5	2

This list of Microstation text sizes (TX=) are used at working units of { 1 ft. M.U. - 12in. S.U - 1000 P.U } to generate text that is comparable to hand lettering sizes. Use Microstation Font Style FT=23.

TABLE 5.2
Level / Style Designations

Level	Level Name	Description	WT.	LC.	CO.
1	SURVEY	Field Survey Information (Plan & Profile) - With Associated Text/Labels/Ties			
		Survey Line	0	0	3
		Survey Station Hatch Mark (AC=DASH, Cell)	0	0	3
		Survey Stationing(Plan)	0	0	0
		Survey Stationing (Profile)	1	0	0
		Survey P.I. & Curve Data	0	0	0
		North Arrow (AC=DASH, Cell)	*	*	*
		Match Marks (Plan & Profile)	3	7	2
		Match Marks Text (Plan & Profile)	3	0	2
		Ground Line (Profile)	4	0	0
		Rt. 100' Ground Line (Profile)	0	6	2
		Lt. 100' Ground Line (Profile)	0	4	7
		Ohms Reading Symbol & Text	1	*	2
		Bench Marks Text	0	0	0
2	PROPERTY	Property / R.O.W. . With Associated Text/Labels/Dimensions			
		Existing - Street/Highway/Railroad R.OW.	2	6	2
		Proposed - Street/Highway/Railroad R.OW.	3	3	2
		Alley (Ex. & Prop.)	1	0	0
		Iron Rods/Pins (AC=IP, Cell)	0	0	2
		Highway Monuments	0	0	2
		Block Lines	2	0	0
		lot Line	0	0	0
		Corporation lines	3	*	4
		Easements& Ties/Dimensions	0	5	0
		Subdivision Re-Plat Perimeter Line	4	6	7
3	Unassigned				
4	STREET	Edge of Pavements/Culverts/Bridges/Sidewalks - With Associated Text/Labels/Ties			
		Existing - Concrete Curb Line (AC=CONC, Cell Pattern)	0	*0	4
		Proposed - Concrete Curb Line	0	*5	4
		Edge of Asphalt Pavement - Street/Alley/Drive (AC=ASPH, Cell Pat.)	0	0	4
		Edge of Gravel Pavement - Street/Alley/Drive (AC=GRAVEL, Cell Pat.)	0	0	4
		Edge of Dirt - Street/Drive/Alley	0	0	4
		Existing - Box & Street Culverts (Cross Hatch)	0	0	4
		Proposed - Box & Street Culverts	0	5	4
		Existing - Concrete Sidewalks (AC=CONC, Cell Pattern)	0	0	4
		Proposed - Concrete Sidewalk	0	5	4
		Existing - Bridges	1	0	4
		Proposed - Bridges	1	5	4
		TEXT - for Pavement Descriptions/Labels/Etc	0	0	4
5	TOPOGRAPHY	General Topography Items - With Associated Text/Labels/Ties			
		Trees (AC=TREE, Cell)	0	0	2
		Tree List	0	0	0
		Fences (AC=FENCE, Linear Pattern)	0	*	5
		Existing Building (Cross Hatched)	2	0	7
		Power/Utility Poles (AC=PP, Cell)	0	0	0
		Utility Pole Anchors (AC=ANC, Cell)	0	0	0
		Existing - Buildings	2	0	5
		Proposed - Buildings	3	5	7
		Railroad Tracks (Custom line Style)	0	*	5
		High-low Banks/Ditches/Creeks	0	0	4
6	Unassigned				

* - Refer to SECTION 4 for Detailed Settings
All Text line Style Settings are "LS=0", Solid line

TABLE 5.2

Level / Style Designations


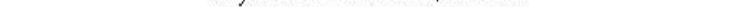






Level	Level Name	Description	WT.	LC.	CO.
7	Unassigned				
8	Unassigned				
9	Unassigned				
10	UTILITIES	Non D.W.U. Utilities (plan & Profile) - With Associated Text/Labels/Ties			
		Gas Mains	0	0	2
		Underground Telephone	0	0	5
		Underground Electric	0	0	7
		Existing - Storm water Drains (Cross Hatched)	0	0	4
		Proposed - Storm water Drains	0	5	4
		Non D.W.U. Utility Text/Labels	0	0	0
11	WARNING	(CAUTION NOTES) Gas/Telephone/T. U. Electric/Etc.	1	0	5
12	Unassigned				
13	Unassigned				
14	Unassigned				
15	EX WATER	Existing Water Mains & Appurtenances (Plan & Profile)	*	1	*
		Existing Water Labels/Ties (Plan & Profile)	*	0	0
16	PROP WATER	Proposed Water Mains & Appurtenances (Plan & Profile)	*	7	*
		Proposed Water Design Notes W/Clouds (Plan& Profile)	*	0	0
17	Unassigned				
18	Unassigned				
19	Unassigned				
20	EXWW	Existing Wastewater Mains & Appurtenances (Plan & Profile)	*	6	*
		Existing Wastewater Labels/Ties (Plan & Profile)	*	0	0
21	PROP WW	Proposed Wastewater Mains & Appurtenances (Plan & Profile)	*	6	*
		Proposed Wastewater Design Notes W/Boxes (Plan & Profile)	*	0	0
22	Unassigned				
23	Unassigned				
24	Unassigned				
25	DESIGN	(GENERAL DESIGN NOTES ONLY)			
26	Unassigned				
27	Unassigned				
28	Unassigned				
29	Unassigned				
30-39	Unassigned				
40	OUTLINE	36" X 24" Sheet Outline (AC=MYLAR, Cell or Reference Border)	1	0	2
41	BORDER	Border & True Block (AC = MYLAR, Cell or Reference Border)	4	0	2
42	MIN PROFILE	100' Horz. & 5' Vert. Lines (AC=MYLAR, Cell or Reference Border)	0	*0	*
43	FOOT PROFILE	One Foot Profile Line (AC = MYLAR, Cell or Reference Border)	0	*1	*
44	TENTH PROFILE	LEVEL NO LONGER USED			
45	POINTS	P1/P2 Precision Points For Mylars (AC=MYLAR, Cell or Refer. Border)	0	0	4
46	TITLE BLOCK	True Block Text/Labeling	*	*	*
		Intergraph Path To "xxxx.DGN" Project File	0	0	0
		Location Map W/Labeling	*	*	*
47-49	Unassigned				
50-59	Unassigned				
60-69	Unassigned				

* - Refer to SECTION 4 for Detailed Settings
All Text Line Style Settings are "LS=0", Solid Line

TABLE 5.3
Line Attributes / Plot Configuration Definitions



























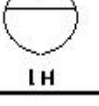














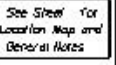

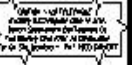














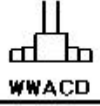
<i>Microstation Weights (WT)</i>	<i>Microstation Colors (CO)</i>
WT=0 — <u>thickness = .009 in.</u>	CO=0 — (White)
WT=1 — <u>thickness = .016 in.</u>	CO=1 — (Blue)
WT=2 — <u>thickness = .024 in.</u>	CO=2 — (Green)
WT=3 — <u>thickness = .032 in.</u>	CO=3 — (Red)
WT=4 — <u>thickness = .040 in.</u>	CO=4 — (Yellow)
WT=5 — <u>thickness = .048 in.</u>	CO=5 — (Magenta)
WT=6 — <u>thickness = .056 in.</u>	CO=6 — (Orange)
WT=7 — <u>thickness = .064 in.</u>	CO=7 — (Cyan)

Microstation Line Styles (LC)

LC=0	Style Definition Solid	
LC=1	Style Definition (20,42) Dot	
LC=2	Style Definition (480,60) Medium Dash	
LC=3	Style Definition (800,60) Long Dash	
LC=4	Style Definition (500,60,70,60) Dot - Dash	
LC=5	Style Definition (200,42) Short Dash	
LC=6	Style Definition (800,60,70,60,70,60) Dash-Dot-Dot	
LC=7	Style Definition (1000,60,70,60) Long Dash - Short Dash	

NOTE - The standard MicroStation line styles and weights are modified by plot configuration files and drivers for specific plotters. The lines above are modified for Hewlett Packard HPGL2 language format.

TABLE 5.4
Cell Library – Graphics & Name Designation

								
ANC	ARROW	ASPH	BIGD	BORE	BREAK3	BRICK	CL	CLOUD
								
CO	CONC	CURB	DASH	DEF	DELTA	DOGNOR	DOT	ECNOTE
								
ELECMH	EXMH	FENCE	FH	GASMH	GASMTR	GCNOTE	GRAVEL	IH
								
IP	MAINS	MHBOTT	MHTOP	NORTH	OHMS	PFH	PLMI	PP
								
PROPMH	REDUCR	REFNOT	RRMH	SAND	SEESH	SL	TCNOTE	TEE
								
TELEMH	TRAFCN	TRAF_A	TRAF_C	TRAF_L	TRAF_R	TRAF_S	TREE	TRL INE
								
US	WM	WMBOX	WV	WWACD				

This cell library has been developed to help maintain uniformity. Most cells have been created at 1:1 scale. These cells can easily be placed by keying the active scale to the desired scale that you will plot the drawing at (i.e. as=40 or 20)

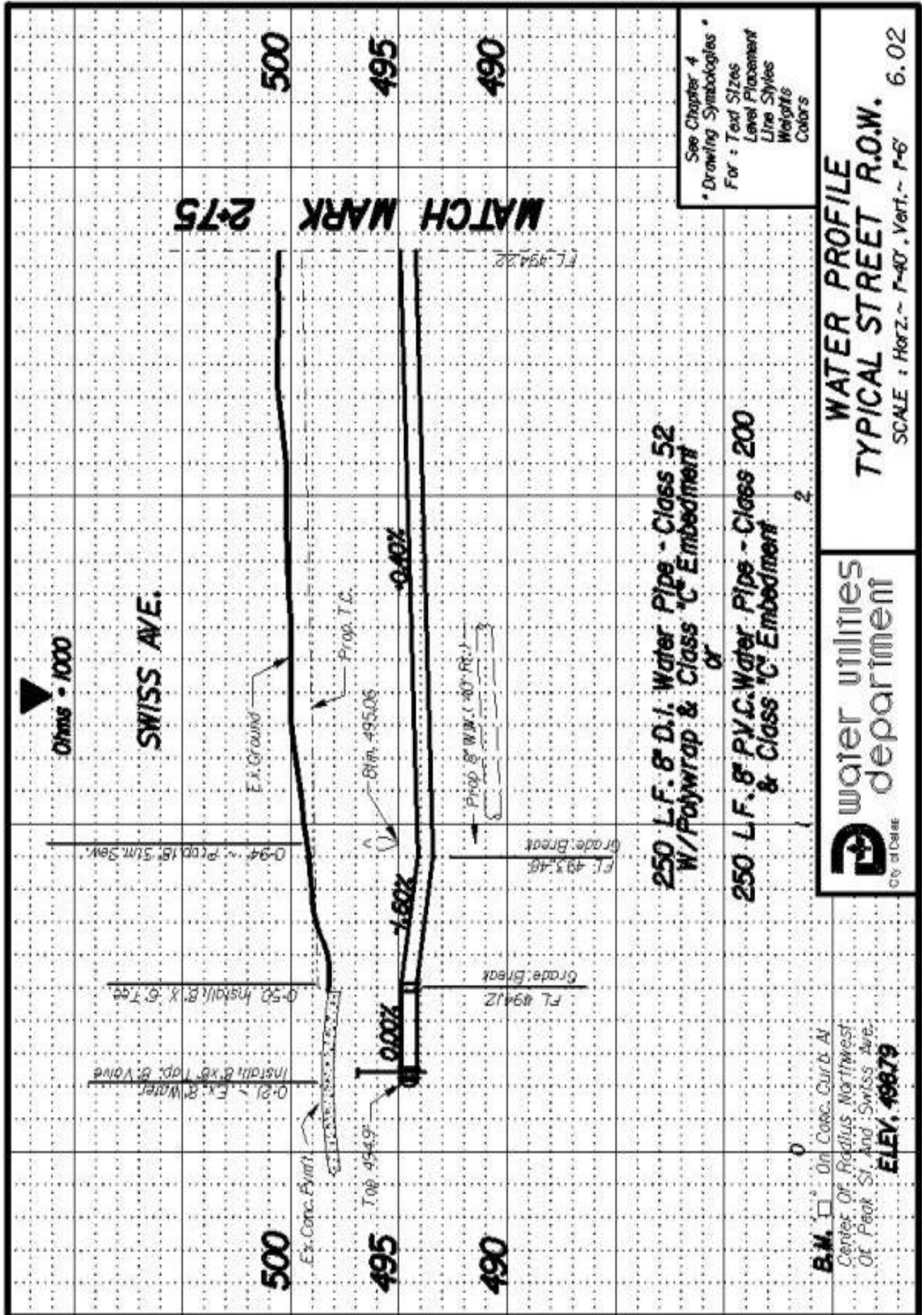
NOTE: Set Microstation Working Units to 1Ft. mu -12 in su - 1000 pu

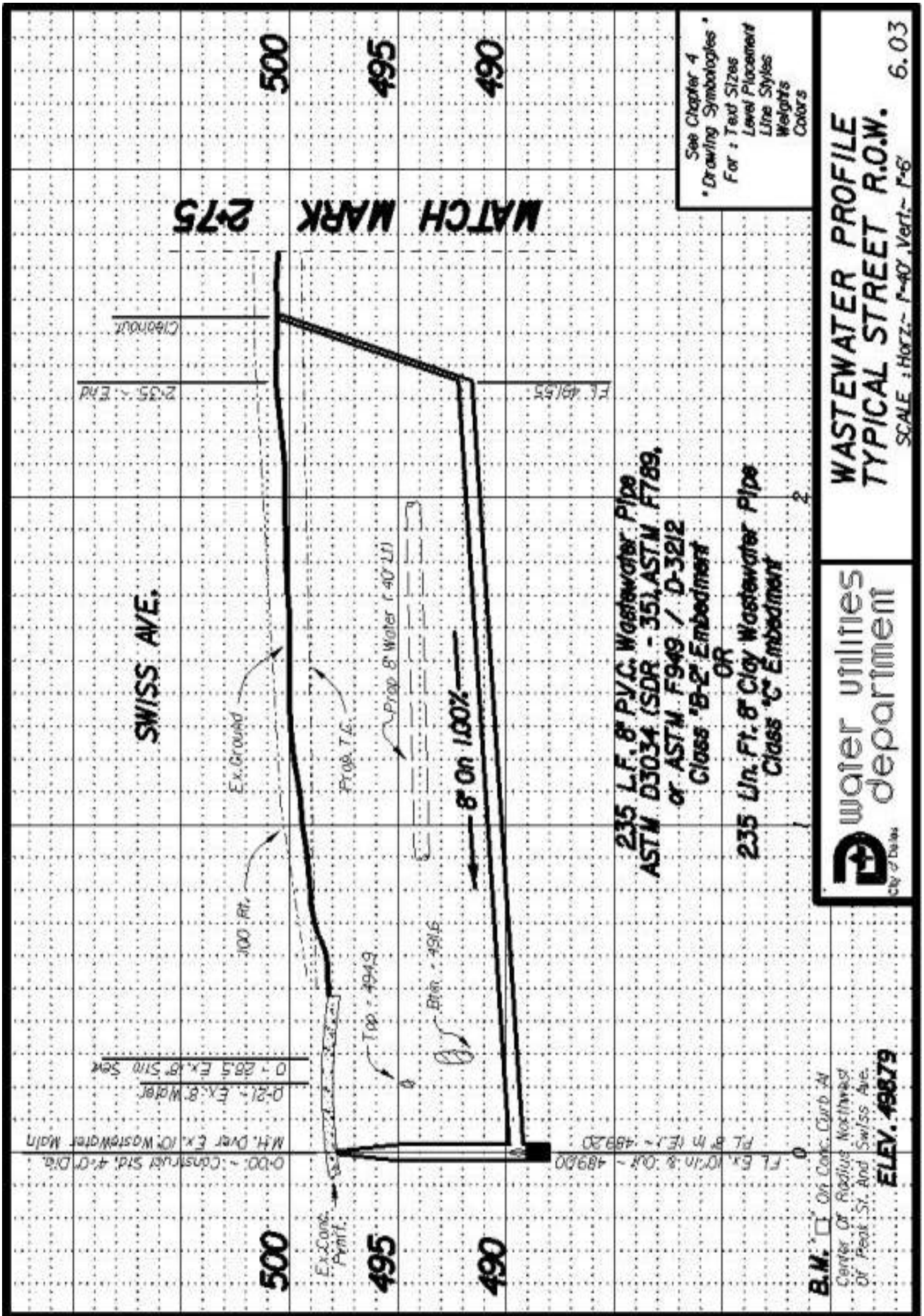
SECTION 6

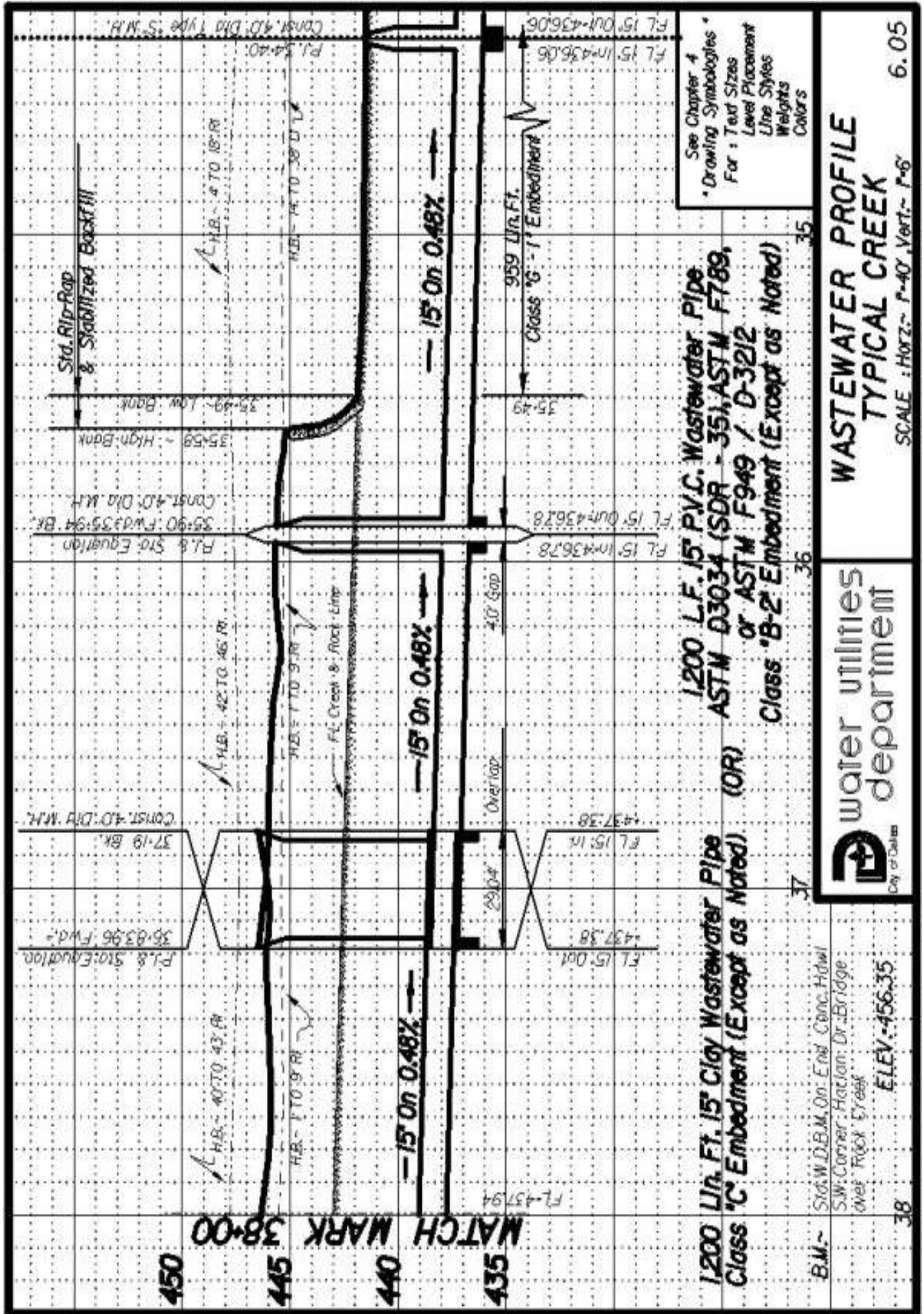
(Drawing Examples)

LEGEND for MicroStation Key-In

AC = Active Cell
CO = Color
LC = Line Code (Style)
LV = Level Designation
TX = Text Size
WT = Weight







See Chapter 4
 * Drawing Symbolologies *
 For : Text Sizes
 Level Placement
 Line Styles
 Weights
 Colors

1200 L.F. 15" P.V.C. Wastewater Pipe
 ASTM D3034 (SDR - 35), ASTM F789,
 or ASTM F949 / D-3212
 Class "B-2" Embedment (Except as Noted)

1200 Lin. Ft. 15" Clay Wastewater Pipe
 Class "C" Embedment (Except as Noted). (OR)
 Class "B-2" Embedment (Except as Noted)

WASTEWATER PROFILE
TYPICAL CREEK
 SCALE : Horz:- 1"=40', Vert:- 1"=6'

water utilities
department
 City of Dallas

B.M. ~ Std. W.D.B.M. On: End Conc. Hdwl
 S.W. Corner: Fraction: Dr: Bridge
 over: Rock Creek
 ELEV.: 456.35

TYPICAL POSTING OF PERMANENT EASEMENT WITH TEMPORARY WORKING SPACE EASEMENT

Information Obtained from Easement Instrument

Grantor of Easement & Date of Instrument ---
Size, Type & Location -----

- * Special Conditions (When Acquired) -----
- ** Council Order -----
- ** County Records: Vol., Pg. Date Recorded -----

Example of Posting Permanent Easement

John Smith & Betty Smith 1/12/96
*10' Center Line Wastwater Easement From
Sta. 1+75 to Sta. 3+75 In Blk. 6876 Lots 5 & 6*
SPECIAL CONDITIONS
C.O. 971271
Vol. 76503 Pg. 4352 Date: 4/30/96

Information Obtained from Easement Instrument

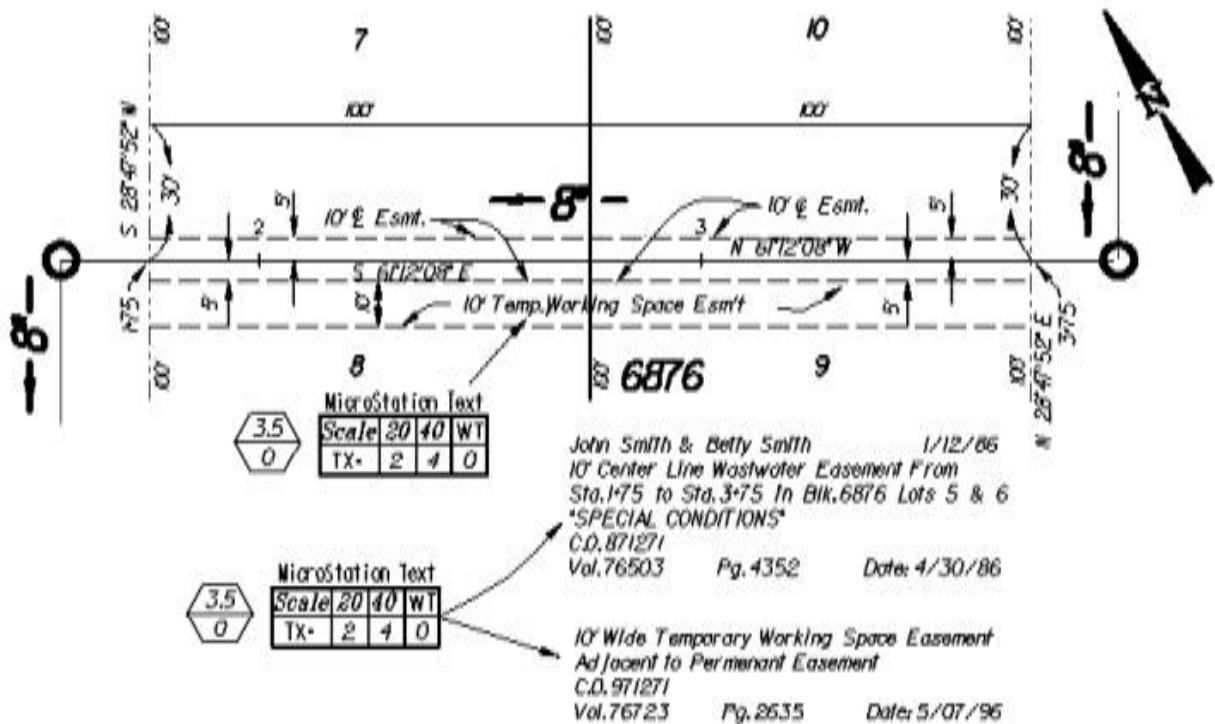
Size, Type & Location -----

- ** Council Order -----
- ** County Records: Vol., Pg. Date Recorded -----

Example of Posting Temporary Working Space Easement

*10' Wide Temporary Working Space Easement
Adjacent to Permanent Easement*
C.O. 971271
Vol. 76503 Pg. 4352 Date: 4/30/96

- * Special conditions typically refer to agreements that have been negotiated between the property owner and the city for the granting of an easement. Typically, "special conditions" are incorporated in "Exhibit B" easement documents and should also be incorporated in the special provisions of the bid specifications.
- ** Council Order & County Records data to be posted when easement has been recorded and returned to property management.



ILLUSTRATION

Information Provided by
Easement InstrumentExample of Posting
on Design PlansIRREGULAR SHAPED EASEMENT

Granter of Easement & Date of Instrument ---	<i>Steve Wilson</i>	<i>10/12/95</i>
Size, Type & Location (If easement description is lengthy, do not list by bearing or distance)	<i>Irregular Shaped Water Easement ,15' X 198.05' X 71.44' X 56.84' X 113' X 25.75' ; In Blk.6845 Lot 3</i>	
Council Order -----	<i>C.O.</i>	
County Records: Vol., Pg. Date Recorded -----	<i>Vol.</i>	<i>Pg. Date:</i>

UTILITY COMPANY EASEMENT

Granter of Easement & Date of Instrument ---	<i>T.U. Electric</i>	<i>7/25/97</i>
Size, Type & Location -----	<i>30' Easement for 16" Water Main Crossing The 100' T.U. R.O.W. At Matilda St. & Birch Dr. Blk 5608</i>	
Special Conditions ----- (Needs Special Notation On Plans)	<i>No Dragline or Boom Type Equipment Shall Be Used In This Easement</i>	
Special Conditions -----	<i>*SPECIAL CONDITIONS*</i>	
Council Order -----	<i>C.O.</i>	
County Records: Vol., Pg. Date Recorded -----	<i>Vol.</i>	<i>Pg. Date:</i>

EASEMENT BY CONDEMNATION

Subjects / Parties Involved -----	<i>Mable Lee Norman</i>	
Size, Type & Location -----	<i>15 Wastewater Easement From Sta 59+00 to Sta 60+87 ,Blk.7498 Lot 1 EASEMENT ACQUIRED BY CONDEMNATION</i>	
Cause Number -----	<i>Cause No. cc-95-682-b</i>	
Council Order -----	<i>C.O.</i>	
County Records: Vol., Pg. Date Recorded -----	<i>Vol.</i>	<i>Pg. Date:</i>

EASEMENT RELEASE OR ABANDONMENT

Process & Date -----	<i>ABANDON EASEMENT 4/30/98</i>	
Size, Type & Location -----	<i>10' Water Easement from Sta. 0+65 to Sta 1+96 ,Blk 8563 Lot 17</i>	
County record of Original Easement -----	<i>Vol 4572 Pg. 385</i>	
Council Order -----	<i>C.O.</i>	
County Records: Vol., Pg. Date Recorded -----	<i>Vol.</i>	<i>Pg. Date:</i>

The following are typical illustrations showing the posting of approvals, agreements, and wastewater backflow release notes.

TEXAS HIGHWAY DEPARTMENT APPROVAL

HIGHWAY APPROVAL 10/12/95
Approval for a 12" wastewater main along north side of N.W. Highway (Loop 12) from 345 ft. east of Durham St. extending easterly a distance of 685 ft.
PERMIT NO.199510750 EXPIRES 4/12/96

PARK DEPARTMENT APPROVAL

PARK DEPARTMENT APPROVAL 8/22/97
Approval for construction of a 15" wastewater main from Sta 0+00 to Sta 19+54 through a portion of White Rock Creek Parkway. For special conditions see memo dated November 15, 1996, subject: White Rock Creek Parkway.

MicroStation Text

Scale	20	40	WT	3.5
TX.	2	4	0	0

R. R. LICENSE AGREEMENT

R. R. LICENSE AGREEMENT 12/25/96
Agreement obtained from A.T.&S.F. Railroad for the construction of a 20" water main crossing at Beaumont St. from water Sta 0+75 to 2+37 @ R.R. mile marker 357+25 C.O.

TEXAS TURNPIKE AUTHORITY AGREEMENT

TEXAS TURNPIKE AUTHORITY AGREEMENT 4/30/96
Approval obtained for construction of 24" wastewater main crossing turnpike R.O.W. from west R.O.W. of Loop 12 for 245 ft. to Texas & Pacific R.R. R.O.W. As per special specifications in letter of agreement.

WASTEWATER BACKFLOW RELEASE

WASTEWATER BACKFLOW RELEASE 6/17/96
Jack Raymond Jones to City of Dallas, Block 2/6573, Lot 5 Street address 4574 Winford St.
C.O. 964647
Vol. 73985 Pg. 362 Date: 8/24/96