MINIMUM LENGTH (FT) TO BE RESTRAINED ON EACH SIDE OF FITTING(S). *									
	PIPE SIZE								
	6"	8"	10"	12"	16"	20"	24"	30"	36"
90° BEND	36	36	54	54					
45° BEND	18	18	24	36					
22-1/2° BEND	18	18	24	36					
11-1/4° BEND	18	18	24	36					
PLUG OR BRANCH OF TEE	36	36	54	54					

* SEE NOTE 7.

NOTES:

1. FITTINGS SHALL BE RESTRAINED JOINTS UNLESS OTHERWISE INDICATED.
2. INSTALL FULL LENGTH JOINTS WITH TOTAL LENGTH EQUAL TO OR GREATER THAN SHOWN IN THE TABLE.
3. WHERE TWO OR MORE FITTINGS ARE TOGETHER, USE FITTING WHICH YIELDS GREATEST LENGTH OF RESTRAINED PIPE.
4. IN LINE VALVES AND THROUGH RUN OF TEES OUTSIDE LIMITS OF RESTRAINED JOINTS FROM OTHER FITTINGS NEED NOT BE RESTRAINED UNLESS OTHERWISE INDICATED.
5. LENGTHS SHOWN IN THE TABLE HAVE BEEN CALCULATED IN ACCORDANCE WITH THE PROCEDURE OUTLINED IN "THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE" AS PUBLISHED BY DIPRA, WITH THE FOLLOWING ASSUMPTIONS:

   WORKING PRESSURE: 70 P.S.I.*
   SOIL DESIGNATION: GOOD *
   LAYING CONDITIONS: TYPE 2 STANDARD *

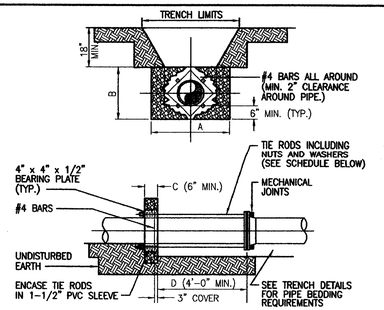
6. FOR PIPE ENCASED IN POLYETHYLENE, USE VALUES GIVEN IN PARENTHESES OR INCREASE THE GIVEN VALUE BY A FACTOR OF 1.5.
7. TO BE COMPLETED BY THE DESIGN ENGINEER.

Date	Revisions	Appr. by

CITY OF COCONUT CREEK
UTILITIES AND ENGINEERING DEPARTMENT

RESTRAINED PIPE DETAIL

Date: Nov 1999 | Scale: N.T.S. | Dwg: F108 | Fig: 108



SCHEDULE OF DIMENSIONS AND MATERIALS *

PIPE SIZE (INCHES)	DIMENSIONS				TIE RODS REQ'D	
	A	B	C	D	DIA.	NO.

NOTE: THRUST BLOCK AREAS TO BE COMPUTED ON BASIS OF ____ LBS. PER SQ. FT. SOIL RESTRAINT BEARING. (1,500 MIN) SEE NOTE 5

* TO BE COMPLETED BY ENGINEER.

NOTES:

1. ADDITIONAL REINFORCEMENTS SHALL BE AS SPECIFIED BY THE ENGINEER.
2. MINIMUM COMPRESSIVE STRENGTH FOR CONCRETE SHALL BE 2500 PSI.
3. BEDDING, BACKFILL, AND COMPACTION SHALL BE AS SPECIFIED ELSEWHERE IN THE STANDARD DRAWINGS.
4. ALL FORM BOARDS SHALL BE REMOVED PRIOR TO BACKFILL.
5. NO ALLOWANCE SHALL BE MADE FOR FRICTION BETWEEN THE PIPE WALL AND THE THRUST COLLAR.
6. DESIGN PRESSURE:_____ P.S.I.*

Date	Revisions	Appr. by

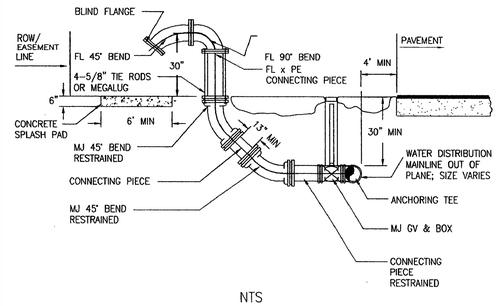
CITY OF COCONUT CREEK
UTILITIES AND ENGINEERING DEPARTMENT

WATER MAIN
THRUST COLLAR DETAIL

Date: Nov 1999 | Scale: N.T.S. | Dwg: F109 | Fig: 109

NOTE:

FL 90° BEND AND FL 45° BEND ARE SHOWN ROTATED 90° FOR CLARITY. CONSTRUCT DISCHARGE PARALLEL TO RIGHT OF WAY/EASEMENT.



NTS

NOTES:

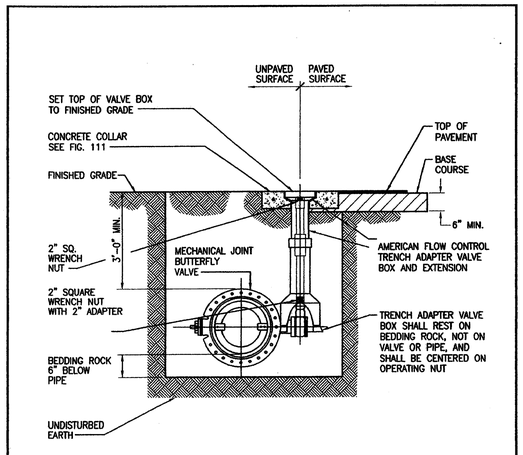
1. THIS DETAIL GRAPHICALLY REPRESENTS THE LAYOUT AND CONFIGURATION REQUIRED. THE DESIGN ENGINEER SHALL SIZE THE PIPING TO ENSURE THAT A MINIMUM VELOCITY OF 2.5 FPS IS OBTAINED IN THE PRIMARY WATER DISTRIBUTION SYSTEM MAINLINE.
2. FULL JOINT RESTRAINT IS REQUIRED; THRUST CALCULATIONS ARE NECESSARY.
3. EROSION CONTROL IS ESSENTIAL TO SATISFACTORY PERFORMANCE AND SHALL BE CONSIDERED IN THE DESIGN.
4. OTHER DESIGNS MAY BE APPROVED BY THE CITY'S UTILITIES AND ENGINEERING DIRECTOR WHO WILL HAVE SOLE DISCRETION OF APPROVAL. FIRE HYDRANTS MAY BE AN ACCEPTABLE ALTERNATIVE.

Date	Revisions	Appr. by

CITY OF COCONUT CREEK
UTILITIES AND ENGINEERING DEPARTMENT

CANON FLUSH DETAIL

Date: DEC. 1999 | Scale: N.T.S. | Dwg: F105x | Fig: 105



NOTES:

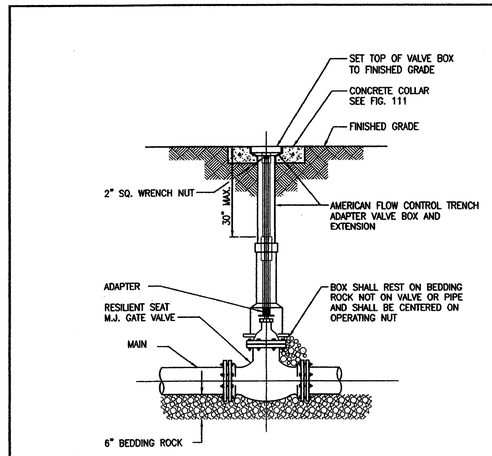
WHEN WATER VALVE IS NOT LOCATED IN PAVEMENT, PLACE A WHITE PAVEMENT REFLECTOR MARKER IN THE DRIVE LANE, ADJACENT TO THE VALVE.

Date	Revisions	Appr. by

CITY OF COCONUT CREEK
UTILITIES AND ENGINEERING DEPARTMENT

BUTTERFLY VALVE AND BOX DETAIL

Date: Nov 1999 | Scale: N.T.S. | Dwg: F116 | Fig: 116



NOTES:

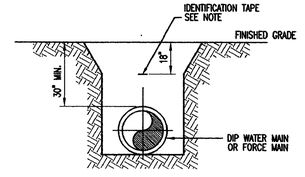
WHEN VALVE IS NOT LOCATED IN PAVEMENT, PLACE A WHITE PAVEMENT REFLECTOR MARKER IN THE DRIVE LANE, ADJACENT TO THE VALVE.

Date	Revisions	Appr. by

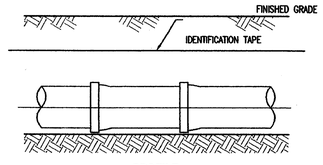
CITY OF COCONUT CREEK
UTILITIES AND ENGINEERING DEPARTMENT

GATE VALVE AND BOX DETAIL

Date: Nov. 1999 | Scale: N.T.S. | Dwg: F115 | Fig: 115



SECTION



PROFILE

NOTE:

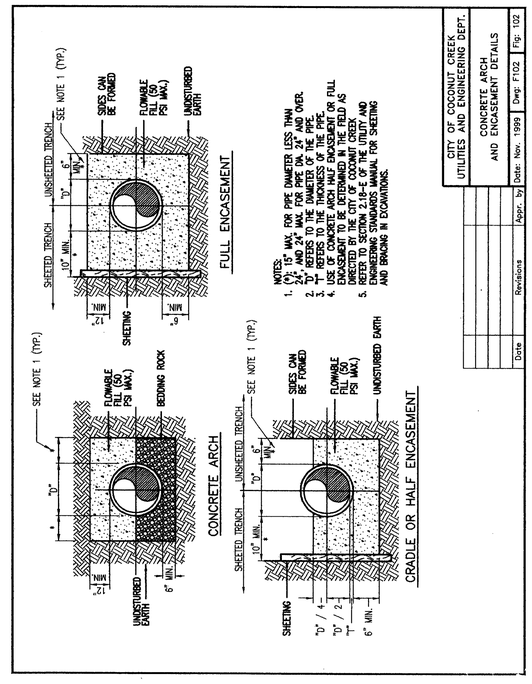
DETECTABLE IDENTIFICATION TAPE SHALL BE INSTALLED DIRECTLY OVER CENTERLINE OF THE PIPE AT 18-INCHES BELOW FINISHED GRADE.

Date	Revisions	Appr. by

CITY OF COCONUT CREEK
UTILITIES DEPARTMENT

LOCATING TAPE DETAIL

Date: Nov. 1999 | Scale: N.T.S. | Dwg: F112 | Fig: 112



NOTES:

1. (*) 15" MAX. FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. FOR PIPE DIA. 24" AND OVER.
2. "D" REFERS TO THE DIAMETER OF THE PIPE.
3. REFERS TO THE THICKNESS OF CONCRETE OR FULL ENCASEMENT TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CITY OF COCONUT CREEK
4. USE CONCRETE ARCH OR FULL ENCASEMENT OR REFER TO SECTION 2.18-E OF THE UTILITY AND ENGINEERING DESIGN STANDARDS MANUAL FOR SHEETING AND BRACING IN EXCAVATIONS.

Date	Revisions	Appr. by

CITY OF COCONUT CREEK
UTILITIES AND ENGINEERING DEPT.

CONCRETE ARCH AND ENCASEMENT DETAILS

Date: Nov. 1999 | Dwg: F102 | Fig: 102

APR 1 2002

FILE: K:\PROJECTS\01-xxx\01-2486\DWG\2486wsdt.dwg
DATE: Dec 03, 2001 - 2:38pm EST

Sun-Tech Engineering, Inc.
Engineers - Planners - Surveyors
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REVISIONS

NO.	DATE:	DESCRIPTION
1	8/11/01	PER CITY REVIEW

WESTCREEK COMMONS

COCONUT CREEK — BROWARD COUNTY, FL.

WATER DETAILS

DATE: NOV 2001

SCALE: N.T.S.

DESIGNED BY: M.G.

DRAWN BY: A.E.V.

JOB NUMBER 01-2486

SHEET No. WS4

SEAL

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Utilities Construction