

BROWARD COUNTY PUBLIC WORKS DEPARTMENT	STREET & WATERWORKS DIVISION 1000 WEST GORDON ROAD WEST PALM BEACH, FL 33411 PHONE NO. 561-835-6001 FAX NO. 561-835-6002	<div style="text-align: center; font-size: 2em; font-weight: bold;">811</div> <div style="text-align: center; font-size: 1.5em; font-weight: bold;">Know what's below. Call before you dig.</div>
<div style="font-size: 0.8em; margin-bottom: 10px;"> 1. PRIOR TO BEGINNING ANY WORK, CONSTRUCTION SHALL CONTACT ALL UTILITY COMPANIES THAT HAVE FACILITIES WITHIN THE PROJECT AREA. 2. THE ABOVE NOTICE SHALL APPEAR ON THE COVER SHEET OF ALL CONSTRUCTION PLANS SUBMITTED TO THE COUNTY. </div> <div style="border: 1px solid black; height: 150px; width: 100%;"></div>		
REPLACES FORMER DWG NO. 101 REVISED 5/14/2018	UTILITY LOCATES	
		FIGURE <div style="font-size: 2em; font-weight: bold;">101</div>

BROWARD COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD TRENCH BACKFILL
2003 WITH CURRENT BOARD
REVISIONS
PAGE NO. PER E&S 0405
DATE: 04/01/2008

STANDARD TRENCH

The diagram illustrates a cross-section of a trench. At the bottom is a layer labeled "BOTTOM OF ROADWAY BASE COURSE (LIMEROCK) OR EXISTING GROUND". Above this is a "PIPE (6\"/>

Labels and dimensions include:

- VERTICAL**: Indicated on the left side of the trench.
- PIPE (6\"/>**
- REFER TO PAVEMENT RESTORATION DETAILS**: Points to the area above the pipe.
- ROUTABLE BACKFILL PLACED AND COMPACTED TO AT LEAST 100% OF MAXIMUM DENSITY, 4\"/>**
- SLEIGHT BACKFILL PLACED AND COMPACTED TO AT LEAST 100% OF MAXIMUM DENSITY PER AASHTO T-99C IN LAYERS NOT TO EXCEED 4\"/>**
- SEEDING MATERIAL, SEE NOTE NO. 1**: Indicated in the area above the backfill.
- FOUNDATION REQUIRED IN UNSTABLE SOILS, SEE NOTE NO. 3**: Indicated at the bottom of the trench.

NOTES:

- UNLESS OTHERWISE SPECIFIED, SEEDING MATERIAL SHALL CONSIST OF SLEIGHT BACKFILL MATERIAL, 2" MAXIMUM PARTICLE SIZE, CONNECTED TO AT LEAST 100% OF MAX. DENSITY, 4" LIFTS, PER AASHTO SPEC. NO. 1. T99C.
- WHERE REQUIRED, SHEETING AND SHORING SHALL BE IN ACCORDANCE WITH SDMA REQUIREMENTS.
- WHERE UNSTABLE SOILS ARE ENCOUNTERED, INCLUDING PEAT, MUCK OR OTHER ORGANIC SOILS, EASST, SILT AND CLAYS, A FOUNDATION IS REQUIRED AS DETERMINED BY THE ENGINEER OF RECORD.

REPLACES FORM
DWG NO. 180
REVISED
5/14/2018

TYPICAL TRENCH BACKFILL

FIGURE
180

BROWARD COUNTY
PUBLIC WORKS DEPARTMENT

THIS IS A STANDARDIZED SPECIFICATION
FOR THE BROWARD COUNTY STANDARD SPECIFICATIONS
FOR ROADWAY CONSTRUCTION
FOR THE YEAR 2014
FOR THE YEAR 2014
FOR THE YEAR 2014

STANDARD DETAIL

NOTES:

1. BASE MATERIAL OVER DITCH SHALL BE TWICE THE THICKNESS OF THE ORIGINAL.
2. BASE MATERIAL SHALL BE PLACED IN 4" MAXIMUM LAYERS (LOOSE MEASUREMENT) AND EACH LAYER THOROUGHLY ROLLED OR TAMPED TO 90% OF MAXIMUM DENSITY, PER MASTO'S 1.00.
3. ASPHALT CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAW CUT.
4. ASPHALT MATERIAL SHALL HAVE A COMPACTNESS WITH THE SURROUNDING SUBGRADE MATERIAL.
5. BASE MATERIAL SHALL HAVE A MINIMUM COMPACTION OF 70%.
6. SUB GRADE MATERIAL SHALL BE GRANULAR AND ANGULAR AND SHALL HAVE A MINIMUM LL OF 40.
7. IF THE DITCH IS FILLED THOROUGHLY, IT SHALL BE COVERED WITH A 2" THICK ASPHALT CONCRETE PATCH TO KEEP THE FULL MATERIAL FROM RAVELLING, UNTIL REPLACED WITH A PERMANENT PATCH.
8. FOR EXTER ROADWAYS REFER TO SPECIFICATIONS AND REQUIREMENTS.

T = EXISTING LOWEST BASE THICKNESS.

REPLACES FORMER
DWG NO. 190

REVISED
5/14/2018

RESTORATION OF ROADWAY CUT
FOR
PERPENDICULAR UTILITY INSTALLATION

FIGURE
183

<p>REDUCER</p> <p>• SEE NOTE 3</p>		
<p>GENERAL NOTES:</p> <ol style="list-style-type: none"> VALUES IN TABLE ARE BASED ON 3" OF COVER, 100 PSI INTERNAL PRESSURE, 100°F DESIGN, 100 PSI MAXIMUM WATER OIL, AND/ANNUA (DSB, & CDS)/A151-55 LAYING CONDITION 3. ASME (2847) 500 PSI 60 PSI TYPE A AND SAFETY FACTOR OF 3.5. RESTRAINED LENGTHS WERE COMPUTED PER DDMRA THRU-PUT RESTRAINT DESIGN FOR DUCTILE IRON PIPE AND TWO PIPE THRUST RESTRAINT DESIGN: HANDBOOK, EBAA IRON, INC. CONFIRM THE EXACT LENGTH OF RESTRAINT REQUIRED FOR REDUCING PIPE IN ORDER TO AVOID CUTTING AND INDOORING RESTRAINED LENGTHS WITH THE DESIGNER. THE CONTRACTOR IS RESPONSIBLE FOR PROPER INSTALLATION OF THE RESTRAINED UNITS TO PREVENT VOIDING OF THE PIPE & FITTINGS. IN THE EVENT OF A COLLAPSE RESTRAINED LENGTHS SHOWN ON THE TABLE ARE RESTRAINED LENGTHS SHOWN ON THE DRAWINGS. (THE LONGEST RESTRAINED LENGTH SHALL BE USED). 		
<p align="center">RESTRAINED JOINT INFORMATION</p>		
<p align="center">ENGINEERING STANDARDS 2022</p>		
<p>ENGINEERING DIVISION</p> <p>CITY OF POMFANO BEACH</p>		<p>RESTRAINED JOINT INFORMATION</p>
<p>REVISIONS</p> <p>BY DATE</p>	<p>SCALE: N.T.S.</p>	<p>DATE: MAY 2025</p> <p align="right">116-1</p>

PVC HORIZONTAL BENDS AND VERTICAL U ⁹⁰ BENDS					
RESTRAINED JOINT LENGTH - L		BENDS		MINIMUM DISTANCE IN FEET FROM FITTING - (EAGL REQS)	
PIPE SIZE (IN.)	90°	45°	22.5°	11.25°	ONDS WITH 1/2" OR LESS WALL THICKNESS
6	56	11	6	3	23
8	33	14	7	4	58
12	46	19	10	5	95

PVC VERTICAL DOWN BEND					
RESTRAINED JOINT LENGTH - L		BENDS		MINIMUM DISTANCE IN FEET FROM FITTING - (EAGL REQS)	
PIPE SIZE (IN.)	90°	45°	22.5°	11.25°	ONDS WITH 1/2" OR LESS WALL THICKNESS
6	26	11	6	3	33
8	33	14	7	4	58
12	46	19	10	5	95

DIP HORIZONTAL BENDS AND VERTICAL U ⁹⁰ BENDS					
RESTRAINED JOINT LENGTH - L		BENDS		MINIMUM DISTANCE IN FEET FROM FITTING - (EAGL REQS)	
PIPE SIZE (IN.)	90°	45°	22.5°	11.25°	ONDS WITH 1/2" OR LESS WALL THICKNESS
6	26	11	6	3	33
8	33	14	7	4	58
12	46	19	10	5	95

DIP VERTICAL DOWN BEND					
RESTRAINED JOINT LENGTH - L		BENDS		MINIMUM DISTANCE IN FEET FROM FITTING - (EAGL REQS)	
PIPE SIZE (IN.)	90°	45°	22.5°	11.25°	ONDS WITH 1/2" OR LESS WALL THICKNESS
6	26	11	6	3	33
8	33	14	7	4	58
12	46	19	10	5	95

DIP HORIZONTAL BENDS AND VERTICAL U ⁹⁰ BENDS					
RESTRAINED JOINT LENGTH - L		BENDS		MINIMUM DISTANCE IN FEET FROM FITTING - (EAGL REQS)	
PIPE SIZE (IN.)	90°	45°	22.5°	11.25°	ONDS WITH 1/2" OR LESS WALL THICKNESS
6	26	11	6	3	33
8	33	14	7	4	58
12	46	19	10	5	95

DIP VERTICAL DOWN BEND					
RESTRAINED JOINT LENGTH - L		BENDS		MINIMUM DISTANCE IN FEET FROM FITTING - (EAGL REQS)	
PIPE SIZE (IN.)	90°	45°	22.5°	11.25°	ONDS WITH 1/2" OR LESS WALL THICKNESS
6	26	11	6	3	33
8	33	14	7	4	58
12	46	19	10	5	95

[illegible]

The diagram illustrates a cross-section of a utility pipe installed in the ground. The ground surface is indicated by a horizontal line with diagonal hatching on either side. The pipe is shown as a horizontal cylinder. Key features and dimensions are labeled:

- GROUND LEVEL:** Indicated by an arrow pointing to the top surface of the ground.
- SEE NOTE (2):** A callout pointing to the ground surface.
- MARKING BALLS:** Two small circles on the ground surface, one on each side of the pipe.
- 4" MIN:** Dimension indicating the minimum depth from the ground surface to the top of the pipe.
- 24" (6") MIN:** Dimension indicating the minimum depth from the ground surface to the center of the pipe.
- 40° MAX:** Dimension indicating the maximum angle of the pipe's axis relative to the horizontal ground surface.
- 4" MIN:** Dimension indicating the minimum depth from the ground surface to the bottom of the pipe.
- TYPICAL UTILITY PIPE:** A label pointing to the pipe itself.

POTABLE WATER MAIN

REUSE WATER MAIN OR STORMWATER SEWERS OR STORMWATER FORCE MAINS

A MINIMUM HORIZONTAL SEPARATION: 3' (OUTSIDE TO OUTSIDE). SHALL BE MAINTAINED BETWEEN POTABLE WATER MAINS AND EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER AND REGULATED WATER MAINS.

POTABLE WATER MAIN

EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER

A MINIMUM HORIZONTAL SEPARATION: 3' (OUTSIDE TO OUTSIDE). SHALL BE MAINTAINED BETWEEN EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER • SEE NOTE (C)(3).

POTABLE WATER MAIN

SANITARY OR STORMWATER SEWERS AND FORCE MAINS

A MINIMUM HORIZONTAL SEPARATION OF 8' (OUTSIDE TO OUTSIDE). SHALL BE MAINTAINED BETWEEN POTABLE WATER MAINS AND EXISTING OR PROPOSED GRAVITY-OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN OR NOT REGULATED REUSE WATER MAIN. SEE NOTE (C)(3).

MINIMUM HORIZONTAL SEPARATION REQUIREMENTS FOR POTABLE WATER, REUSE, STORMWATER AND SEWER LINES

SPECIAL UTILITY CROSSING - FITTING TYPE

- * 1" MINIMUM CLEARANCE REQUIRED FOR PRESSURE TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FLOW OR 6" REINFORCE WATER MAIN CROSSINGS. IF MINIMUM CLEARANCE CANNOT BE OBTAINED REFER TO "PROTECTION OF POTABLE WATER SUPPLY" FOR WATER MAIN CROSSINGS. SEE NOTE (2) ON STANDARD NO. 122-3.
- * 6" MINIMUM CLEARANCE REQUIRED FOR WATER AND STORMWATER, SEWER MAIN CROSSINGS. SEE NOTE 2(A), ON STANDARD NO. 122-3.

STANDARD UTILITY CROSSING - DEFLECTION TYPE

NOTES:

1. THE DEFLECTION TYPE CROSSING SHALL BE USED WHEREVER POSSIBLE. THE DEFLECTION TYPE CROSSING OF THE ENGINEER SHALL THE FITTING TYPE CROSSING BE ALLOWED.
2. CONDUIT/STANDARD CROSSINGS EXCEEDING 36" OR MORE, SHALL PASS OF MANUFACTURERS' MAXIMUM JOINT DEFLECTION.
3. FOR POTABLE WATER MAIN, REFER TO "PROTECTION OF POTABLE WATER SUPPLY."

UTILITY CROSSINGS


ENGINEERING STANDARDS 2022

REVISIONS	ENGINEERING DIVISION	UTILITY CROSSINGS
BY DATE	CITY OF POMPAU BEACH	DATE JAN. 2022
ESS 03/13		

SCALE: N.T.S.

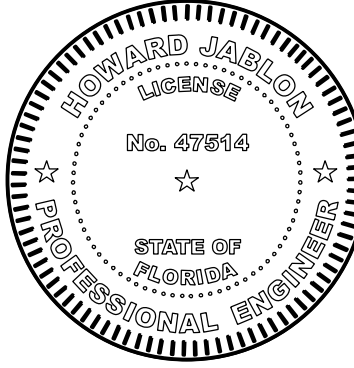
122-1

[illegible][illegible]



Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.

Check positive response codes before you dig!



THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY HOWARD E. JABLON ON THE DATE NOTED ABOVE USING A SHA AUTHENTICATION CODE.

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SHA AUTHENTICATION CODE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

[illegible]

AJ HYDRO
ENGINEERING, INC.
5932 NW 73RD COURT
PARKLAND, FL 33067
TEL (954) 347-3397
AJHYDRO@BELLSOUTH.NET

PROJECT: C

COASTAL WASTE & RECYCLING 18

TITLE:

WATER DISTRIBUTION
SYSTEM STANDARD DETAILS #1

SEAL :	DATE :
P&Z	03/15/25
	DRAWING NO.
	23-0300
HOWARD JABLON, PE	SHEET NO.
#475 P225-1200005	2 OF 5