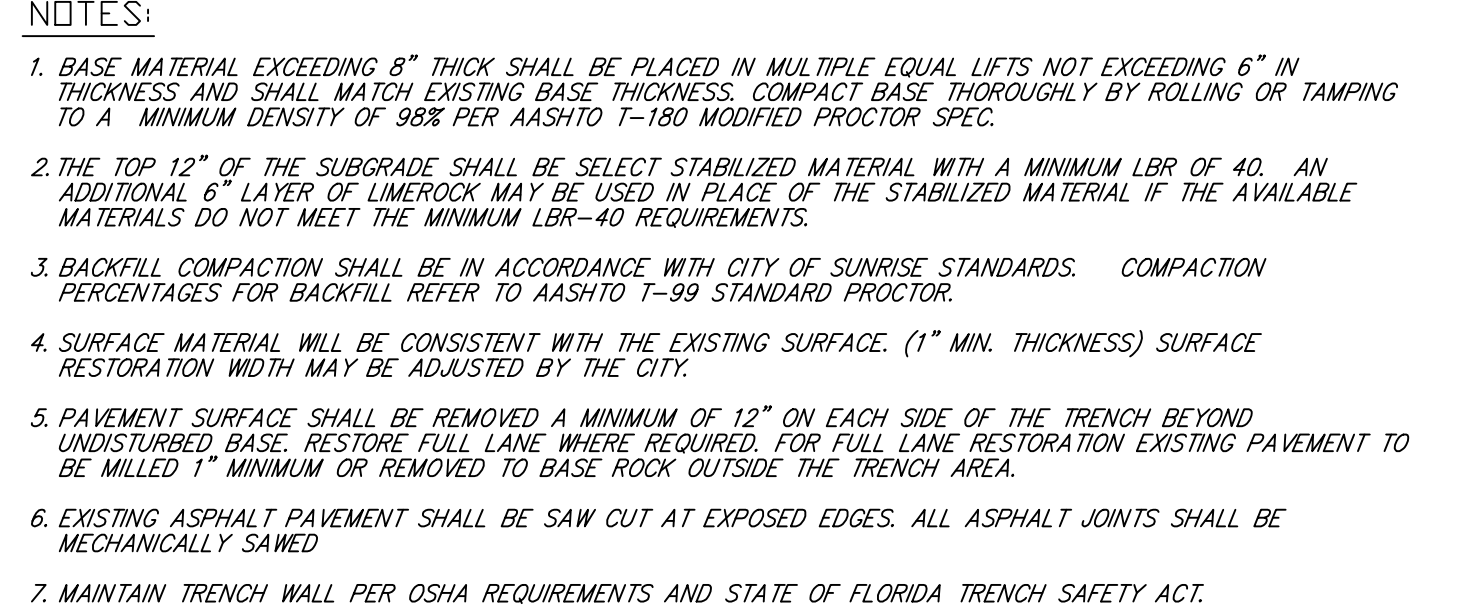


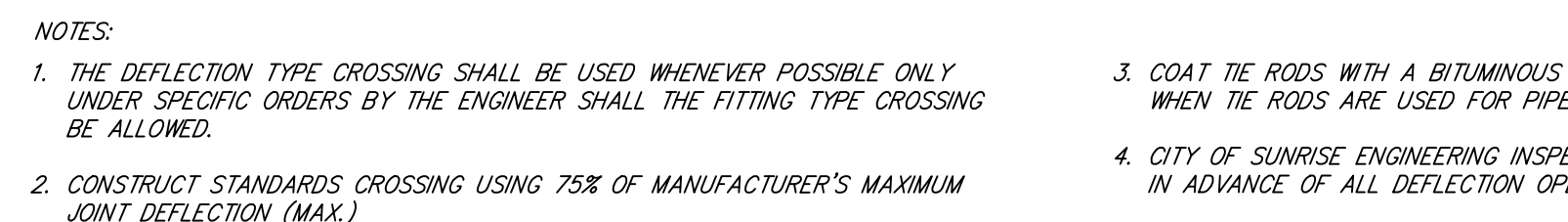
SCALE: NONE



SCALE: NONE



SCALE: NONE



* 18" MIN. CLEARANCE REQUIRED FOR WATER AND SEWER MAIN CROSSING. 12" MIN. CLEARANCE REQUIRED FOR OTHER TYPE UTILITIES CROSSING. ENCASEMENT IN CONCRETE IS NOT PERMITTED

SCALE: NONI



1. All bends, tees, crosses, reducers, and dead ends shall be restrained through an approved means of mechanical joint restraint using MEGALUGS and all thread rods. All branch valves shall be restrained with MEGALUGS and all thread rods. Any line terminated as a construction phase that is a known future extension, shall have a plugged valve at the end and restrained with MEGALUGS and all thread rods.
2. All bends, tees, crosses, reducers, and dead ends for 16" diameter pipe and larger shall have mechanical joints with MEGALUGS and all thread rods or approved equal for restraint in lieu of thrust blocks.
3. The following table shall serve as a general guide only; it is the Engineer of Record's responsibility to precisely design and specify the minimum lengths of restrained pipe considering the existing soil composition and pipe laying conditions. The minimum test pressure shall be 150 psi with a 2.5 safety factor.

| Pipe Diameter | Full Thrust Conditions: | | | |
|---------------|---|---|---|---|
| | 90° Elbow Vertical Elbows down Branch of Tee or Cross Reducers | 45° Elbow Horizontal or Vertical up | 22-1/2° Elbow Horizontal or Vertical up | 11-1/4° Elbow Horizontal or Vertical up |
| 4" | 2L | 1L | 1L | 1L |
| 6" | 3L | 2L | 1L | 1L |
| 8" | 4L | 2L | 1L | 1L |
| 10" | 5L | 2L | 1L | 1L |
| 12" | 5L | 2L | 1L | 1L |
| 16" | 6L | 3L | 2L | 1L |

** L = ONE PIPE LENGTH (20 FEET)

48 HOURS BEFORE DIGGING
BROWARD • PALM BEACH • INDIAN RIVER
ST LUCIE • MARTIN COUNTIES
CALL TOLL FREE
1-800-432-4770
SUNSHINE STATE 1 CALL
UNDERGROUND UTILITIES
NOTIFICATION CENTER

WHERE SANITARY SEWERS OR FORCE MAINS MUST CROSS A WATERMAIN WITH LESS THAN 18 INCHES VERTICAL DISTANCE, BOTH THE SEWER AND THE WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE (DIP), MIN. CLASS 52 AT THE CROSSING. SUFFICIENT LENGTHS OF DIP MUST BE USED TO PROVIDE A MINIMUM SEPARATION OF 10 FEET BETWEEN ANY TWO JOINTS. ALL JOINTS ON THE WATER MAIN WITHIN 20 FEET OF THE CROSSING MUST BE MECHANICALLY RESTRAINED. A MINIMUM VERTICAL CLEARANCE OF 12 INCHES MUST BE MAINTAINED AT ALL CROSSINGS.

ALL CROSSINGS SHALL BE ARRANGED SO THAT THE SEWER PIPE AND THE WATER MAIN PIPE JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING (PIPES CENTERED ON THE CROSSING).

WHERE A NEW PIPE CONFLICTS WITH AN EXISTING PIPE WITH LESS THAN 18 INCHES VERTICAL CLEARANCE, THE PIPE SHALL BE ARRANGED TO MEET THE CROSSING REQUIREMENTS ABOVE.

2. A MINIMUM OF 10-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN ANY TYPE OF SEWER AND WATER MAIN IN PARALLEL INSTALLATIONS WHENEVER POSSIBLE.

IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10 FOOT HORIZONTAL SEPARATION, THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER OR FORCE MAIN AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.

WHERE IT IS NOT POSSIBLE TO MAINTAIN A VERTICAL DISTANCE OF 18 INCHES IN PARALLEL INSTALLATIONS, THE WATER MAIN SHALL BE CONSTRUCTED OF DIP AND THE SANITARY SEWER OR THE FORCE MAIN SHALL BE CONSTRUCTED OF DIP WITH A MINIMUM VERTICAL SEPARATION OF 6 INCHES. THE WATER MAIN SHOULD ALWAYS BE ABOVE THE SEWER. JOINTS ON THE WATER MAIN SHALL BE LOCATED AS FAR APART AS POSSIBLE FROM JOINTS ON THE SEWER OR FORCE MAIN (STAGGERED JOINTS).

F. NO DEVIATION FROM APPROVED PLANS SHALL BE PERMITTED WITHOUT THE WRITTEN CONSENT OF THE CITY ENGINEER.

CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THESE
PLANS WITH ANY PAVING AND DRAINAGE PLANS IN THIS AREA.

THE FOLLOWING DOCUMENTS ARE TO BE ON FILE AT THE OFFICE OF THE CITY ENGINEER PRIOR TO THE CONNECTION OF THE FIRST WATER METER:

A. FINAL ENGINEERING PLANS APPROVED BY THE CITY OF SUNRISE
COMMUNITY DEVELOPMENT DEPARTMENT

B. LETTERS OF ACCEPTANCE FROM:

- BROWARD COUNTY HEALTH DEPARTMENT
- BROWARD COUNTY DER - WASTEWATER LICENSING SECTION / FLORIDA DEPT. OF ENVIRONMENTAL PROTECTION (FDEP)

C. COPIES OF BACTERIOLOGICAL REPORTS STAMPED BY THE HEALTH DEPARTMENT

D. CERTIFICATION OF ENGINEER OF RECORD

E. LETTER FROM DEVELOPER STATING ACTUAL COST OF CONSTRUCTION

F. LETTER FROM DEVELOPER STATING THAT NO LIENS HAVE BEEN FILED RELATING TO INSTALLATION OF UTILITIES

G. BILL OF SALE ABSOLUTE FOR SYSTEM

H. GRANT OF EASEMENT OR LETTER STATING THAT EASEMENTS ARE ON THE PLAT

1. LETTER FROM DEVELOPER COMMITTING TO RECORDATION OF APPROPRIATE DOCUMENTS WITHIN 90 DAYS

J. ADDRESS PLAN OF PROJECT

K. FIVE (5) SIGNED AND SEALED COPIES OF ASBUILTS CERTIFIED BY A LAND SURVEYOR AND ENGINEER REGISTERED IN THE STATE OF FLORIDA, AND ONE COPY OF AS-BUILTS ON 3.5" DISK(S), IN AUTOCAD (RELEASE 12 OR HIGHER).

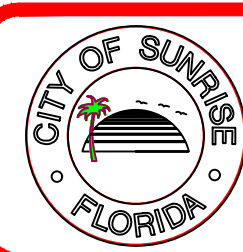
L. FINAL INSPECTION VERIFICATION BY CITY OF SUNRISE ENGINEERING INSPECTOR

M. TEMPORARY METER REMOVAL LETTER

ALL INSTALLATIONS WITHIN BROWARD COUNTY RIGHT-OF-WAY SHALL BE IN CONFORMITY WITH THE BROWARD COUNTY ENGINEERING DIVISION "MINIMUM STANDARDS".

LEAVE BLANK - FOR CITY USE ONLY

| | | | | | |
|--------------------|---------------|------------|--------------------------------|------------------|-----------|
| Designed By: _____ | | | | | |
| Drawn By: _____ | | | | | |
| Checked By: _____ | | | | | |
| | 2 | 3/1/12 | HEALTH DEPT. UPDATES | | SD |
| | 1 | 4/10/98 | UPDATES DUE TO SPEC. REVISIONS | | JF |
| | SYMBOL | NO. | DATE | REVISIONS | BY |



CITY OF SUNRISE

APPROVED BY: _____ DATE: _____

 REGISTERED ENGINEER NO. _____
 STATE OF FLORIDA

GENERAL WATER AND SANITARY SEWER DETAILS AND NOTES

ORIGINAL ISSUE
DATE: 03/26/97

PROJECT
NUMBER

NOT TO
SCALE

