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**CITY OF PUNTA GORDA**

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GENERAL NOTES

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WATER MAINS:

1. A) PVC PIPE SHALL MEET THE REQUIREMENTS OF AWWA C900. THE APPROPRIATE CLASS SHALL BE AS FOLLOWS; AND COLORED BLUE CLASS 150 DR18 – RESIDENTIAL AND COMMERCIAL AREAS AND ALL STREET CROSSINGS (OPEN-CUT, DIRECT BURY).  
 B) HDPE SHALL BE SDR 11
2. DUCTILE IRON PIPE SHALL BE CEMENT LINED, CLASS 350. MECHANICAL JOINT OR PUSH-ON JOINT SHALL MEET ALL THE REQUIREMENTS OF THE FOLLOWING ANSI/AWWA C111/A 21.11 (FOR RUBBER GASKET JOINTS): ANSI/AWWA C104/A21.4  
 A. CEMENT-MORTAR LINED DUCTILE IRON PIPE AND FITTINGS MAY BE USED ON ON ALL TYPES OF WATER MAINS.
3. FITTINGS FOR DUCTILE IRON AND ALL PVC PIPE SHALL BE CEMENT LINED DUCTILE IRON, MECHANICAL JOINT, CLASS 350, AND SHALL COMPLY WITH ANSI/AWWA C110/A 21.10 AND C111/A 21.11. ALL MJ FITTINGS ARE TO BE RESTRAINED WITH MEGA LUGS. NO PVC FITTINGS SHALL BE PERMITTED.
4. INSTALLATION OF WATER MAINS SHALL BE IN ACCORDANCE WITH ANSI/AWWA C900 (MANUAL M23) FOR PVC PRESSURE PIPE AND C600 FOR DUCTILE IRON PIPE.
5. ALL GATE VALVES SHALL COMPLY WITH AWWA C509, MANUFACTURED BY MUELLER, CLOW, KENNEDY OR AFC.
6. BACKFILL & COMPACTION: AS PER STANDARD DETAIL FOR WATER SYSTEMS.
7. PRESSURE TESTING:  
 TEST: 150 PSI      DURATION: 2 HOURS
8. LEAKAGE FORMULA:  

$$\frac{D \times L \times \sqrt{P}}{133,200} \times 2 = \text{TOTAL ALLOWABLE LOSS (IN GALLONS)}$$
 D= DIAMETER  
 L= LENGTH  
 P= PRESSURE
9. TAPPING SLEEVES SHALL BE STAINLESS STEEL WITH S.S. FLANGE MANUFACTURED BY; SMITH BLAIR 622, J.C.M. 412/432, OR FORD FTSS FOR ALL PVC PIPE EXCEPT SIZE ON SIZE.
10. ALL TAPPING VALVES ARE TO BE RESILIENT WEDGE OR SEAT. MANUFACTURED BY MUELLER, CLOW, KENNEDY OR AFC.
11. ALL HYDRANTS SHALL CONFORM TO AWWA C-502 REQUIREMENTS AND SHALL BE MUELLER, CLOW, KENNEDY OR AFC.
12. MAGNETIC LOCATION TAPE WITH A MINIMUM WIDTH OF 3" SHALL BE LAID 18" BELOW THE GROUND SURFACE. TAPE IS TO BE OF COLOR AND MARKING TO CORRESPOND TO THE PIPING LAID. TAPE ENDS ARE TO BE SPLICED TOGETHER SO AS TO PRODUCE A CONTINUOUS LENGTH OF LOCATION TAPE.
13. BACKFLOW PREVENTORS AND REDUCED PRESSURE ASSEMBLIES FOR DOMESTIC AND FIRE SUPPRESSION SHALL CONFORM TO AWWA M-14 STANDARDS.
14. ALL COLD-WATER METERS-DISPLACEMENT TYPE, BRONZE MAIN CASE, SIZE 1.2 IN. THROUGH 2 IN. SHALL MEET THE REQUIREMENTS OF AWWA C700.
15. ALL WATER METER COMPONENTS THAT COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM WITH NSF STANDARD 61.

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| <b>CITY OF PUNTA GORDA</b><br>UTILITY DEPARTMENT<br>326 W. MARION AVE.<br>PUNTA GORDA, FL. 33950<br>(941) 575-3339 (941) 575-5006 FAX<br>E-MAIL utility@ci.punta-gorda.fl.us | GENERAL NOTES |  | GN-1   |          |
|  | WATER         |  | REV BY | DATE     |
|  |               |  | W.C.   | 9/24/03  |
|  |               |  | TIM S  | 03/12/08 |

SEWER FORCE MAINS:

(SEE LOW PRESSURE SEWER MAIN DETAILS FOR LOW PRESSURE SEWER REQUIREMENTS, IF APPLICABLE)

1. PVC PIPE SHALL MEET THE REQUIREMENTS OF AWWA C900. THE APPROPRIATE CLASS SHALL BE AS FOLLOWS, AND COLORED GREEN;  
CLASS 150 DR18 – ALL FORCE MAINS IN RESIDENTIAL AND ALL COMMERCIAL AREAS AND UNDER ALL STREET CROSSING.
2. DUCTILE IRON PIPE SHALL BE PROTECTO 401 LINED, OR PRESSURE CLASS 250. MECHANICAL JOINT OR PUSH-ON JOINT SHALL MEET ALL THE REQUIREMENTS OF THE FOLLOWING ANSI/AWWA C111/A 21.11
3. ALL FITTINGS SHALL BE PROTECTO 401 LINED DUCTILE IRON, MECHANICAL JOINT, CLASS 350, AND SHALL COMPLY WITH ANSI/AWWA C110/A21.10 OR C153/A21.53. ALL MJ FITTINGS ARE TO BE RESTRAINED WITH MEGA LUGS
4. INSTALLATION OF SEWER FORCE MAINS SHALL BE IN ACCORDANCE WITH ANSI/AWWA C900 (MANUAL M23) FOR PVC PRESSURE PIPE AND C600 FOR DUCTILE IRON PIPE
5. ALL GATE VALVES SHALL BE FUSION BONDED EPOXY LINED INTERIORS WITH RESILIENT WEDGE OR SEAT, SIZES THRU 10" AND MANUFACTURED BY MUELLER, CLOW, KENNEDY OR A.F.C.
7. INSTALLATION: SEWER FORCE MAIN IS TO BE INSTALLED LEVEL OR AS DIRECTED BY THE ENGINEER.
8. BACKFILL & COMPACTION: AS PER STANDARD DETAIL FOR SEWER AND LOW PRESSURE SYSTEMS.
9. PRESSURE TESTING: TEST: 100 PSI DURATION: 2 HOURS
10. LEAKAGE FORMULA:  $\frac{D \times L \times \sqrt{P}}{133,200} \times 2 = \text{TOTAL ALLOWABLE LOSS (GALLONS)}$   

D= DIAMETER  
 L= LENGTH  
 P= PRESSURE
11. TAPPING SLEEVES SHALL BE STAINLESS STEEL WITH S.S. FLANGE AND MANUFACTURED BY; FORD FTSS, A.W., J.C.M 432, SMITH BLAIR 622 OR APPROVED EQUAL FOR ALL PVC PIPE EXCEPT SIZE ON SIZE.
12. ALL TAPPING VALVES ARE TO BE FUSION BONDED EPOXY LINED INTERIORS WITH RESILIENT WEDGE OR SEAT. MANUFACTURED BY MUELLER OR M+H.
13. PAINT ALL EXPOSED PIPE AS PER SPECIFICATIONS IN THE PROTECTIVE COATING (EXTERNAL) SECTION.
14. MAGNETIC LOCATION TAPE WITH A MINIMUM WIDTH OF 3" IS TO BE LAID 18" BELOW THE GROUND SURFACE. TAPE IS TO BE OF COLOR AND MARKING TO CORRESPOND TO THE PIPING LAID. TAPE ENDS ARE TO BE SPLICED TOGETHER SO AS TO PRODUCE A CONTINUOUS LENGTH OF LOCATION TAPE.

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GENERAL NOTES

SEWER FORCE MAIN

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| TIM S  | 03/12/08 |
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## GRAVITY SEWER

1. ALL SEWER LINES BETWEEN MANHOLES SHALL BE ABSOLUTELY STRAIGHT AND TRUE. NO CURVATURE SHALL BE TOLERATED. DEVIATION FROM LINE OR GRADE SHALL NOT BE MORE THAN 1/2 INCH FOR LINE AND 1/2 INCH FOR GRADE AT ANY SINGLE POINT.
2. PIPE LAYING SHALL PROCEED UPGRADE WITH SPIGOT ENDS POINTING IN DIRECTION OF FLOW.
3. TRENCH BOTTOM SHALL FORM A CONTINUOUS AND UNIFORM BEARING AND SUPPORT FOR THE PIPES.
4. ALL INSTALLED GRAVITY SEWER PIPE IS TO BE WASHED WITH A HIGH PRESSURE WATER HOSE AND TELEVIEWED WITH IN-LINE VIDEO CAMERA. A COPY OF THE VIDEO TAPE WILL BE TURNED OVER TO THE ENGINEER OF RECORD FOR APPROVAL, AFTER WHICH IT WILL BE GIVEN TO CITY OF PUNTA GORDA UTILITY DEPARTMENT FOR FINAL APPROVAL. A REPRESENTATIVE FROM CITY OF PUNTA GORDA UTILITY DEPARTMENT MUST BE PRESENT DURING CLEANING AND VIDEO TAPING.
5. ALL GRAVITY SEWER PIPE SHALL BE AIR TESTED AS FOLLOWS:
  - A. THE SECTION OF SEWER PIPE TO BE TESTED SHALL BE FLUSHED AND CLEANED AS NECESSARY PRIOR TO AIR TESTING.
  - B. SECTION OF PIPE TO BE TESTED SHALL BE ISOLATED WITH AIR FILLED STOPPERS OR PLUGS SUITABLE FOR AIR TESTING.
  - C. ADD AIR SLOWLY TO TEST SECTION SO THAT THE TEST PRESSURE EQUALS 5.0 PSIG + 0.43 PSIG FOR EACH FOOT OF GROUNDWATER ABOVE THE PIPE.
  - D. MAINTAIN TEST PRESSURE BY REGULATING THE AIR SUPPLY FOR A PERIOD OF 2 MINUTES. THIS WILL ALLOW FOR TEMPERATURE STABILIZATION.
  - E. AFTER 2 MINUTES DISCONNECT THE AIR SUPPLY AND ADJUST THE PRESSURE IN THE PIPE TO 5.0 PSIG + 0.43 PSIG FOR EACH FOOT OF GROUNDWATER.
  - F. MEASURE, BY MEANS OF A STOPWATCH THE TIME REQUIRED FOR A 1 PSIG DROP IN PRESSURE.
  - G. COMPARE THE RECORDED TIME WITH THE ALLOWABLE TIME IN THE FOLLOWING TABLE:

| PIPE DIAMETER<br>IN INCHES | MINUTES |
|----------------------------|---------|
| 8                          | 5.0     |
| 10                         | 5.0     |
| 12                         | 5.5     |
| 16                         | 7.5     |
| 18                         | 8.5     |
| 24                         | 11.5    |

- H. IF THE RECORDED TIME IS LESS THAN ALLOWABLE LOSS, THEN REPLACE DEFECTIVE FITTINGS AND PIPE UNTIL A SATISFACTORY TEST IS ACHIEVED.
6. ALL TEES, STUBOUTS AND SERVICE CONNECTIONS ARE TO BE PLUGGED WITH ACCEPTABLE GASKETED CAP OR PLUG CAPABLE OF WITHSTANDING INTERNAL TEST PRESSURES. ALL PLUGS OR CAPS MUST BE REMOVABLE AND THEIR REMOVAL SHALL PROVIDE A SOCKET SUITABLE FOR MAKING A FLEXIBLE JOINTED CONNECTION OR EXTENSION.
7. ALL GRAVITY SEWER PIPE SHALL BE ASTM 3034 SDR 26 GREEN PIPE EXCEPT AS FOLLOWS:
  - A. CUTS LESS THAN 4' DEEP OR DEEPER THAN 12' SHALL BE C-900 DR14 PIPE.
  - B. PIPE BETWEEN TERMINAL MANHOLE AND WET WELL SHALL BE DR14 PIPE
8. MAXIMUM DISTANCE BETWEEN MANHOES SHALL BE 400 FEET.

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GENERAL NOTES

GRAVITY SEWER

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| TIM S  | 03/12/08 |
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TRENCH EXCAVATION AND BACKFILL

1. MATERIAL SUITABLE FOR BACKFILL IN A PROPERLY DEWATERED TRENCH SHALL NOT BE EXPANSIVE NOR HAVE HIGH ORGANIC CONTENT, SHALL BE FREE OF DEBRIS, LUMPS AND CLODS, AND SHALL MEET THE FOLLOWING REQUIREMENTS:
  - A. MAXIMUM LIQUID LIMIT SHALL NOT EXCEED 12 AS DETERMINED BY ASTM D423.
  - B. MAXIMUM PLASTICITY INDEX SHALL NOT EXCEED 35 AS DETERMINED BY ASTM D424.
  - C. NOT MORE THEN 10% OF WEIGHT SHALL BE FINER THAN 74 MICRON (NO. 200) U.S. STANDARD SIEVE.

BROKEN CONCRETE SHALL NOT BE USED. FILL MATERIAL CONTAINING LIMEROCK SHALL HAVE SUFFICIENT SAND TO FILL THE VOIDS IN THE LIMEROCK. NO STONES OR ROCKS LARGER THAN THREE INCHES IN DIAMETER WILL BE PERMITTED IN ANY BACKFILL. BACKFILL MATERIAL PLACED WITHIN ONE FOOT OF PIPING AND APPURTENANCES OR IN THE UPPER SIX INCHES OF ALL BACKFILL AND FILLS SHALL NOT CONTAIN ANY STONES OR ROCKS LARGER THEAN ONE INCH IN DIAMETER.

BACKFILL MATERIAL EXCAVATED ON SITE MAY BE USED, ONLY IF IT MEETS THE ABOVE-MENTIONED REQUIREMENTS.

2. FOUNDATION MATERIAL OR BEDDING ROCK SHALL BE USED FOR BEDDING OF PIPE AND/OR MANHOLES AS INDICATED ON THE DRAWINGS. CRUSHED STONE SHALL CONSIST OF HARD, DURABLE, SUB-ANGULAR PARTICLES OF PROPER SIZE AND GRADATION, AND SHALL BE FREE FROM ORGANIC MATERIAL, WOOD, TRASH, SAND, LOAM, CLAY, EXCESS FINES AND OTHER DELETERIOUS MATERIALS. THE STONE SHALL CONFORM TO THE REQUIREMENTS OF ASTM C33, SIZE No. 57 (3/4 INCH ROCK) AND BE GRADED WITHIN THE FOLLOWING LIMITS:

| <u>U.S. SIEVE SIZE</u> | <u>PERCENT FINER BY WEIGHT</u> |
|------------------------|--------------------------------|
| 1 1/2 INCH             | 100                            |
| 1 INCH                 | 95 - 100                       |
| 1/2 INCH               | 25 - 100                       |
| No. 4                  | 0 - 10                         |
| No. 8                  | 0 - 5                          |

3. FOUNDATION STABILIZATION MATERIAL SHALL BE REQUIRED AS SPECIFIED IN THE PLANS OR AS DIRECTED BY THE ENGINEER OF RECORD. WHEN, IN THE OPINION OF THE ENGINEER OF RECORD, THE EXISTING MATERIAL IN THE BOTTOM OF THE TRENCH IS UNSUITABLE FOR SUPPORTING THE PIPE, EXCAVATE BELOW THE FLOW LINE OF THE PIPE, AS DIRECTED BY THE CITY. BACKFILL THE TRENCH TO SPECIFIED GRADE WITH FOUNDATION STABILIZATION MATERIAL. IF THE TRENCH IS PROPERLY DEWATERED, SUITABLE BACKFILL MATERIAL MAY BE USED FOR STABILIZATION. CRUSHED ROCK SHALL BE USED WHEN A DRY TRENCH CANNOT BE OBTAINED. PLACE THE FOUNDATION STABILIZATION MATERIAL OVER THE FULL WIDTH OF THE TRENCH AND COMPACT IN LAYERS NOT EXCEEDING SIX INCHES DEEP TO THE REQUIRED GRADE.
4. BACKFILLING OF TRENCHES WILL NOT BE ALLOWED UNTIL THE WORK HAS BEEN INSPECTED BY CITY OF PUNTA GORDA UTILITY DEPARTMENT. ANY WORK COVERED UP OR CONCEALED WITHOUT THE KNOWLEDGE OR CONSENT OF CITY OF PUNTA GORDA UTILITY DEPARTMENT MAY BE REQUIRED TO BE UNCOVERED OR EXPOSED AT CONTRACTORS COST.

| <u>LOCATION OR USE OF FILL</u>                        | <u>PERCENTAGE OF MAXIMUM DENSITY</u> |
|---|--------------------------------------|
| BACKFILL BENEATH PAVED AREAS, ROADWAYS OR DRIVEWAYS.  | 98% AASHTO T-180                     |
| BACKFILL BENEATH STRUCTURES, HYDRAULIC STRUCTURES.    | 98% AASHTO T-180                     |
| BACKFILL NOT BENEATH PAVED AREAS OR STRUCTURES.       | 95% AASHTO T-180                     |
| BACKFILL AROUND STRUCTURES BUT NOT BELOW PAVED AREAS. | 95% AASHTO T-180                     |

IF MORE STRINGENT COMPACTION REQUIREMENTS ARE GIVEN IN ANY OTHER DOCUMENTATION APPLICABLE TO THE WORK BEING PERFORMED, THOSE REQUIREMENTS WILL APPLY.

MAGNETIC LOCATION TAPE WITH A MINIMUM WIDTH OF THREE INCHES IS TO BE LAID EIGHTEEN (18) INCHES BELOW THE GROUND SURFACE TAPE IS TO BE OF COLOR AND MARKING TO CORRESPOND TO THE PIPING LAID. TAPE ENDS ARE TO BE SPLICED TOGETHER SO AS TO PRODUCE A CONTINUOUS LENGTH OF LOCATION TAPE.

ALL WELL POINT HOLES THAT WILL BE UNDER PARKING, DRIVING OR ROADWAY SURFACES SHALL BE BACKFILLED WITH CONCRETE IMMEDIATELY AFTER PULLING THE WELL POINTS. ALL OTHER WELL POINT HOLES SHALL BE BACKFILLED WITH FDOT No. 89 STONE IMMEDIATELY AFTER PULLING THE WELL POINTS UNLESS SPECIFIED OR DIRECTED TO DO OTHERWISE.

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GENERAL NOTES

EXCAVATION & BACKFILL

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| TIM S  | 03/12/08 |
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## TRAFFIC REGULATIONS AND MAINTENANCE OF TRAFFIC

1. ALL WORK IN STREETS AND HIGHWAYS SHALL BE SUBJECT TO THE REGULATIONS AND REQUIREMENTS OF THE APPROPRIATE AGENCIES. WORK THAT MAY AFFECT TRAFFIC ON ANY CITY OR COUNTY STREET, ROADWAY, BIKE PATH OR SIDEWALK WILL REQUIRE THE PREPARATION AND SUBMITTAL OF A MAINTENANCE OF TRAFFIC (MOT) PLAN. THE MOT PLAN MUST BE SUBMITTED ONE (1) WEEK PRIOR TO THE START OF THE PROJECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE IN FULL COMPLIANCE WITH THAT POLICY WHEN THE ROADWAY IS TO BE CLOSED OR TRAFFIC DETOURED. NO MORE THAN ONE LANE SHALL BE CLOSED AT ANY ONE TIME.

2. NOT MORE THAN ONE BLOCK OF EXCAVATION SHALL BE OPEN PER CREW AT ANY ONE TIME AND THIS DISTANCE MAY BE REDUCED IF IT CAUSES EXCESSIVE INTERFERENCE WITH TRAFFIC.

EXCAVATED OR OTHER MATERIAL STORED ADJACENT TO OR PARTIALLY UPON A ROADWAY PAVEMENT SHALL BE ADEQUATELY MARKED FOR TRAFFIC AND PEDESTRIAN SAFETY AT ALL TIMES. NECESSARY ACCESS TO ADJACENT PROPERTY SHALL BE PROVIDED AT ALL TIMES.

EXCAVATION SHALL BE CONDUCTED IN A MANNER TO CAUSE THE LEAST POSSIBLE INTERRUPTION TO TRAFFIC. WHERE TRAFFIC MUST CROSS EXCAVATIONS, THE CONTRACTOR SHALL PROVIDE SUITABLE BRIDGES AT STREET INTERSECTIONS AND DRIVEWAYS.

3. ALL TRAFFIC CONTROL SIGNS AND DEVICES, BARRICADES, FLASHERS AND SIMILAR DEVICES SHALL BE FURNISHED AND MAINTAINED IN WORKING CONDITION AT ALL TIMES BY THE CONTRACTOR.

THE CONTRACTOR SHALL PROTECT THE WORK THROUGHOUT ITS LENGTH BY THE ERECTION OF SUITABLE BARRICADES AND HANDRAILS, WHERE REQUIRED. THE CONTRACTOR SHALL FURTHER INDICATE THIS WORK AT NIGHT BY THE MAINTENANCE OF SUITABLE LIGHTS OR FLARES, ESPECIALLY ALONG OR ACROSS THOROUGHFARES. WHEREVER IT IS NECESSARY TO CROSS A PUBLIC WALK, HE SHALL PROVIDE A SUITABLE SAFE WALKWAY WITH HAND RAILINGS. THE CONTRACTOR SHALL ALSO COMPLY WITH ALL LAWS OR ORDINANCES COVERING THE PROTECTION OF SUCH WORK AND THE SAFETY MEASURES TO BE EMPLOYED THEREIN. THE CONTRACTOR SHALL CARRY OUT THE WORK SO AS NOT TO DENY ACCESS TO PRIVATE PROPERTY. ALL UTILITY ACCESS MANHOLES, VALVES, FIRE HYDRANTS AND LETTER BOXES SHALL BE KEPT ACCESSIBLE AT ALL TIMES.

4. PAVEMENT MARKINGS DAMAGED DURING THE PROJECT SHALL BE REMOVED AND REPLACED PROMPTLY BY THE CONTRACTOR.

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### GENERAL NOTES

### MAINTENANCE OF TRAFFIC

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CONSTRUCTION IN STREETS AND ROAD RIGHT-OF-WAYS:

1. ANY OPEN ROAD CUT REQUIRES PRIOR APPROVAL OF THE CITY, COUNTY, STATE OR ANY OTHER AGENCY WHICH MAY HAVE JURISDICTION.
2. ALL CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH FLORIDA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS AND STANDARDS.
3. ALL AREAS IN EXISTING RIGHT-OF-WAY DISTURBED BY CONSTRUCTION SHALL BE RESTORED EQUAL TO OR BETTER THAN ORIGINAL CONDITION AND TO THE SATISFACTION OF THE PERMITTING AGENCY.
4. STREET OR HIGHWAY RESTORATION SHALL BE DONE AS PER LOCAL OR STATE AGENCY HAVING JURISDICTION.
5. THE CONTRACTOR SHALL COMPLY WITH ALL RULES AND REGULATIONS OF THE STATE, COUNTY OR CITY AUTHORITIES REGARDING CLOSING OR RESTRICTING THE USE OF PUBLIC STREETS OR HIGHWAYS. STREETS MUST BE OPENED TO TRAFFIC BY THE END OF THE BUSINESS DAY.
6. TRAFFIC CONTROL ON ALL COUNTY AND STATE HIGHWAY RIGHT-OF-WAY SHALL MEET THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (U.S. DOT/FHA) AND REQUIREMENTS OF THE STATE AND ANY OTHER LOCAL AGENCY HAVING JURISDICTION.

PAVEMENT RESTORATION:

ROAD RESTORATION SHALL BE PERFORMED AS PER SPECIFICATIONS OF CITY OF PUNTA GORDA, CHARLOTTE COUNTY PUBLIC WORKS, DEPARTMENT OF TRANSPORTATION OR ANY OTHER GOVERNING AGENCY.

TEMPORARY PAVEMENT RESTORATION:

ALL OPEN CUTS IN PAVEMENT SHALL BE FILLED WITH TEMPORARY ASPHALT AT THE END OF EACH DAY.

DIRECTIONAL BORING:

POLYETHYLENE PIPE WILL BE IN ACCORDANCE WITH AWWA STANDARD C 906 FOR POLYETHYLENE PRESSURE PIPE AND FITTINGS. POLYETHYLENE PIPE SHALL BE SDR 11 PE-3408 WITH O.D. EQUAL TO DUCTILE IRON PIPE.

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GENERAL NOTES

RIGHT OF WAY

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| TIM S  | 03/12/08 |
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# REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR PVC PIPE

| MAIN<br>PIPE<br>SIZE | HORIZ. BENDS |     |       | TEES       |            |           |           |          | REDUCERS  |            |            | PLUGS |
|----------------------|--------------|-----|-------|------------|------------|-----------|-----------|----------|-----------|------------|------------|-------|
|                      | 90°          | 45° | 22.5° | SIZE       |            |           |           |          | SIZE      |            |            |       |
|                      |              |     |       | LENGTH     |            |           |           |          | LENGTH    |            |            |       |
| 24                   | 90           | 38  | 18    | X24<br>177 | X20<br>139 | X16<br>94 | X12<br>40 | X10<br>6 | X20<br>64 | X16<br>117 | X12<br>158 | 214   |
| 20                   | 78           | 32  | 15    | X20<br>148 | X16<br>105 | X12<br>56 | X10<br>25 | X8<br>0  | X16<br>65 | X12<br>115 | X10<br>149 | 184   |
| 16                   | 66           | 27  | 13    | X16<br>116 | X12<br>70  | X10<br>42 | X8<br>12  |          | X12<br>64 | X10<br>90  | X8<br>111  | 151   |
| 12                   | 51           | 22  | 10    | X12<br>83  | X10<br>59  | X8<br>32  | X6<br>0   |          | X10<br>34 | X8<br>62   | X6<br>86   | 118   |
| 10                   | 44           | 18  | 9     | X10<br>66  | X8<br>41   | X6<br>8   |           |          | X8<br>33  | X6<br>61   | X4<br>81   | 100   |
| 8                    | 37           | 15  | 7     | X8<br>50   | X6<br>21   | X4<br>0   |           |          | X6<br>35  | X4<br>59   |            | 83    |
| 6                    | 29           | 12  | 5     | X6<br>30   | X4<br>0    |           |           |          | X4<br>35  |            |            | 63    |
| 4                    | 21           | 8   | 4     | X4<br>14   |            |           |           |          |           |            |            | 45    |

**NOTES:**

- 1.) RESTRAIN TO NEXT FULL JOINT BEYOND GIVEN LENGTH.
- 2.) RESTRAIN 11.25° BENDS 50% OF LENGTH FOR 22.5° BENDS.
- 3.) ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.
- 4.) ALL VALVES MUST BE PROPERLY ANCHORED OR RESTRAINED TO RESIST A 150 PSI TEST PRESSURE IN EITHER DIRECTION.
- 5.) PIPE SIZES ARE GIVEN IN INCHES.
- 6.) PIPE LENGTHS ARE GIVEN IN FEET.
- 7.) LENGTHS SHOWN ARE FOR A TEST PRESSURE OF 150 PSI.
- 8.) THE RESTRAINED LENGTHS SHOWN IN THESE TABLES ARE BASED ON THE USE OF LIGHTLY COMPACTED CLEAN SAND WITH AT LEAST A 95% COARSE PARTICLE CONTENT. ACTUAL SOIL CONDITIONS MUST BE DETERMINED BY THE ENGINEER OF RECORD AND THE RESTRAINED LENGTHS MODIFIED ACCORDINGLY.

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GENERAL NOTES

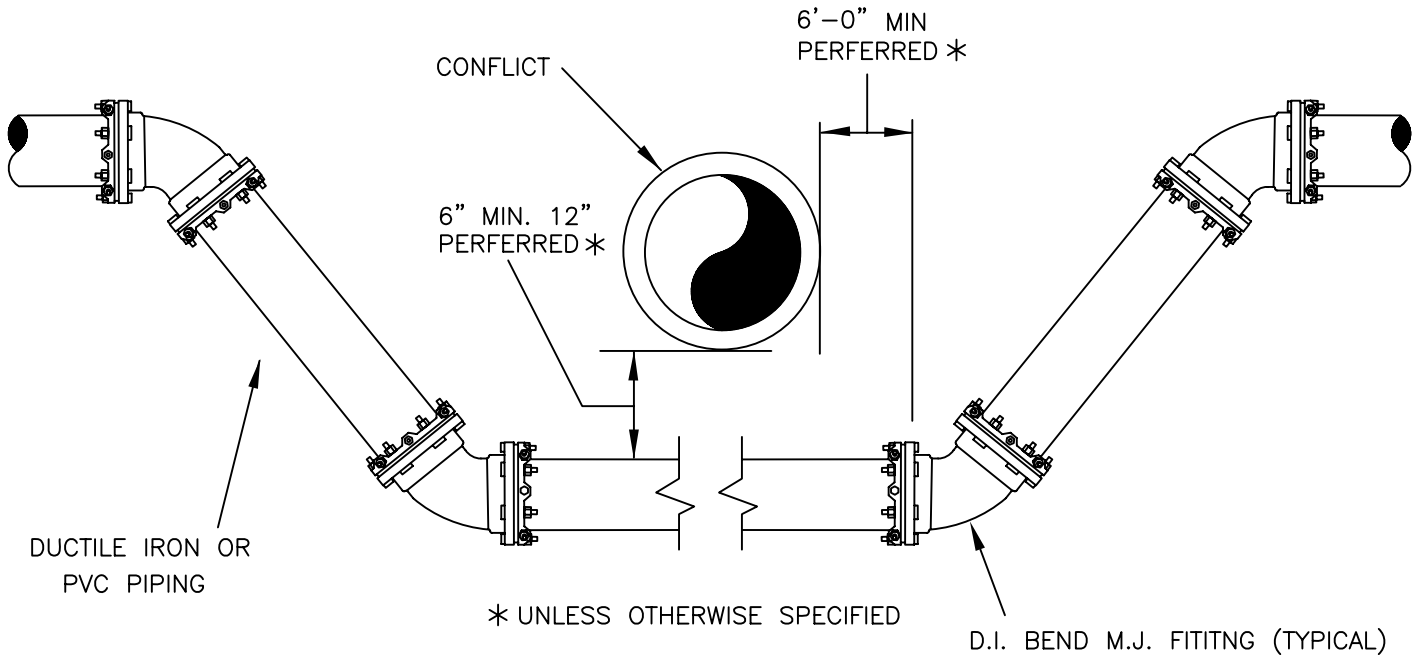
RESTRAINED LENGTHS  
FOR PVC PIPE

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| TIM S  | 03/12/08 |
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## RESTRAINT DETAIL FOR ADJUSTING PRESSURE LINE DUE TO CONFLICTS



### NOTES

1. JOINT RESTRAINT DEVICES FOR MECHANICAL JOINT DUCTILE IRON FITTINGS & PIPING SHALL BE;  
EBAA IRON INC., -SERIES 1100, OR APPROVED EQUAL
2. FOR PVC PIPE & FITTINGS; EBAA IRON INC.,  
-SERIES 2000 PV OR APPROVED EQUAL
3. IF MECHANICAL JOINT DUCTILE IRON FITTINGS ARE USED  
IN CONJUNCTION WITH P.V.C. PIPE, RESTRAINT DEVICES  
SHALL BE:  
EBAA IRON INC., -SERIES 2000 PV  
UNIFLANGE -SERIES 1300, MEGALUG  
OR APPROVED EQUAL

### CITY OF PUNTA GORDA

UTILITY DEPARTMENT  
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PUNTA GORDA, FL. 33950  
(941) 575-3339 (941) 575-5006 FAX  
E-MAIL utility@ci.punta-gorda.fl.us

### GENERAL NOTES

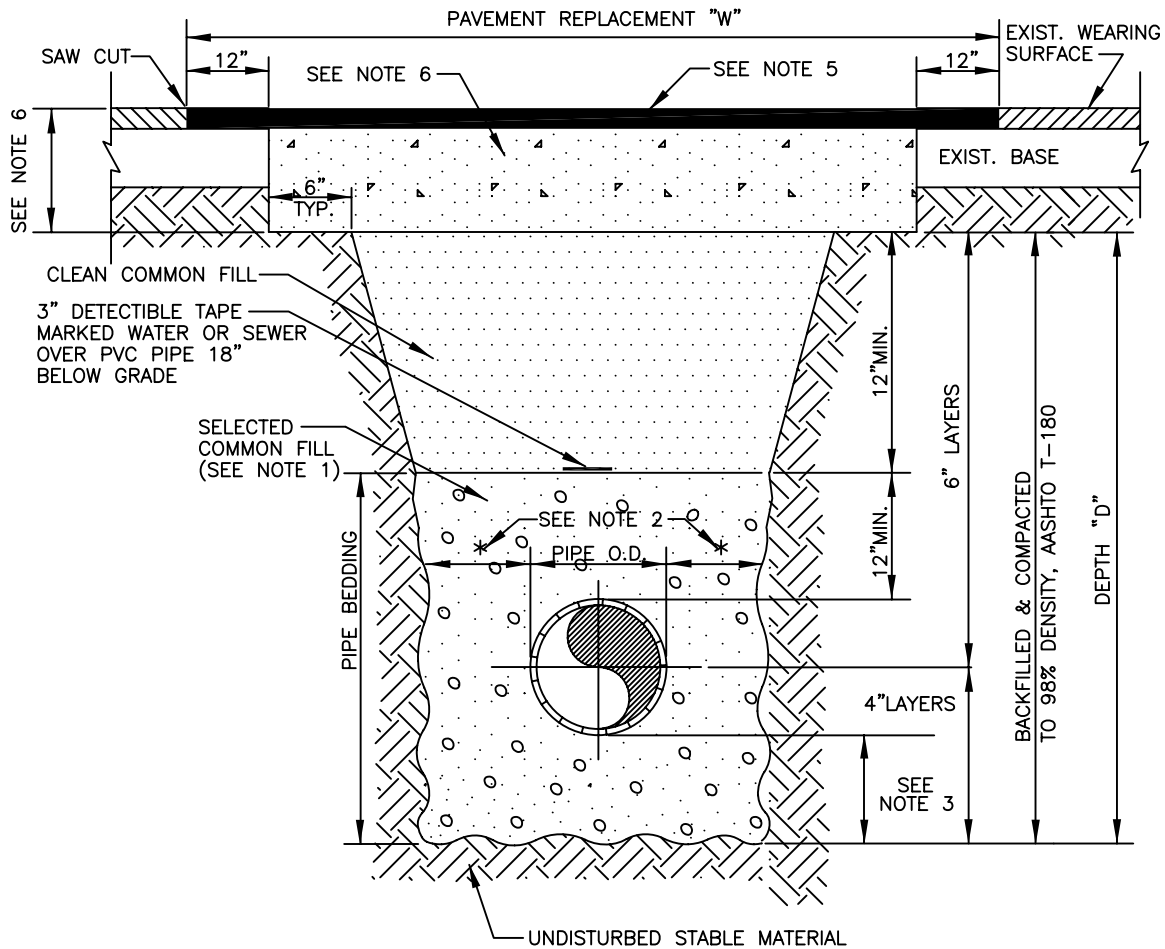
VERTICAL OFFSET WITH  
FITTINGS PVC OR DI

## GN-8

| REV BY | DATE     |
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| TIM S  | 03/12/08 |
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NOTES:

- 1.) USE OF PIPE BEDDING SHALL BE DETERMINED IN THE FIELD BY THE CITY REP.
- 2.) 10" MAX. FOR PIPE DIAMETERS LESS THAN 24"; 12" MAX. FOR PIPE DIAMETER 24" AND LESS THAN 42"; 24" MAX. FOR PIPE DIAMETER 42" AND OVER.
- 3.) 4" MAX. FOR PIPE 16" DIAMETER & LESS; 6" MAX. FOR PIPE 18" TO 36" DIAMETER; AND 9" MAX. FOR PIPE 42" DIAMETER AND LARGER.
- 4.) INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S PIPE SPECIFICATIONS.
- 5.) PAVEMENT SHALL EQUAL EXISTING THICKNESS OR 2" MIN.
- 6.) BASE SHALL BE FDOT, OPTIONAL BASE GROUP7, INDEX 514.
- 7.) BACKFILL AASHTO M-145 SHALL BE PLACED IN LAYERS NOT TO EXCEED 6 INCHES. EACH LAYER SHALL BE THOROUGHLY TAMPED AND/OR ROLLED TO 98% AASHTO T-180 DENSITY.
- 8.) TEMPORARY ASPHALT PATCHES WILL BE INSTALLED TO PROVIDE A SMOOTH ALL WEATHER SURFACE AT ALL TIMES. PERMANENT REPLACEMENT TO BE MADE AS SOON AS POSSIBLE.



**CITY OF PUNTA GORDA**

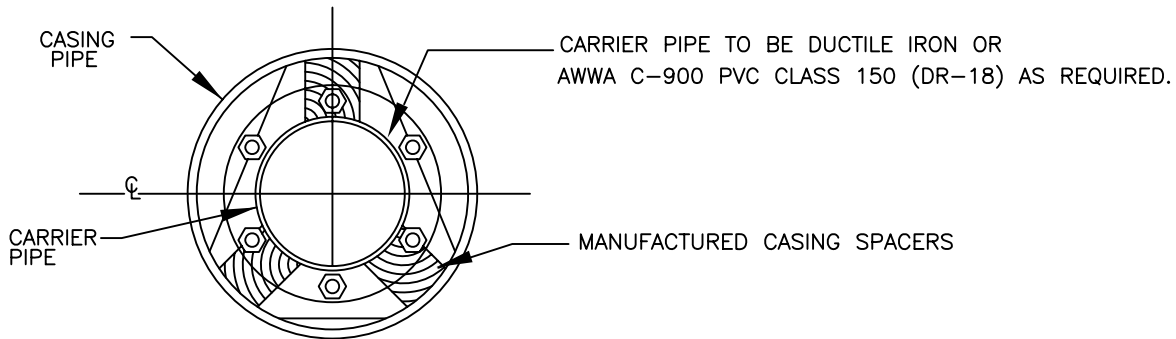
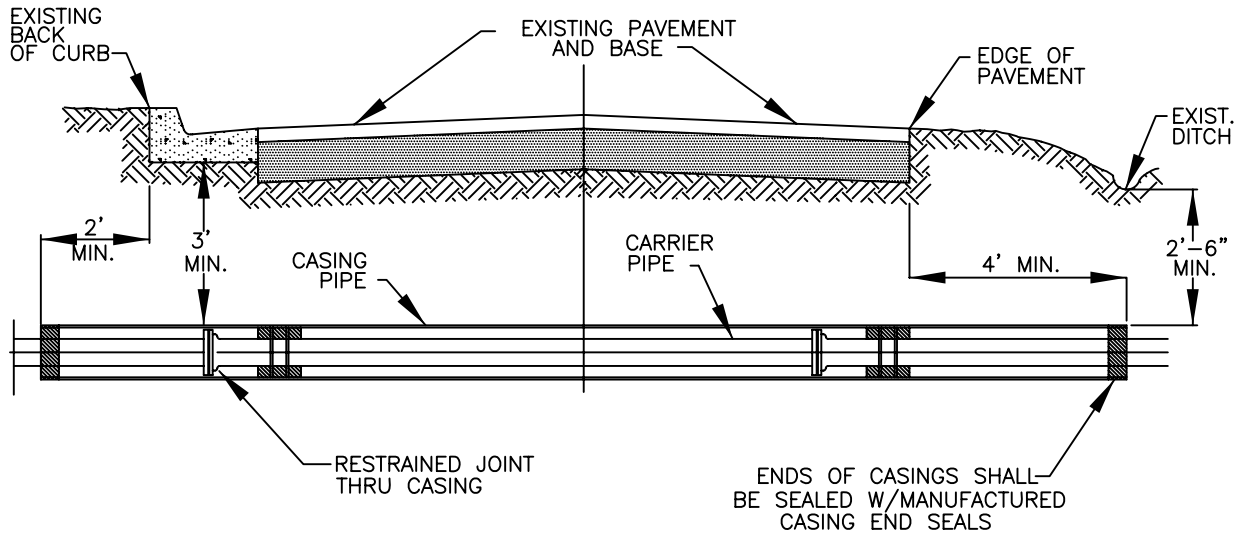
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GENERAL NOTES

TRENCH DETAIL  
 ASPHALT SURFACE

GN-9

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| CARRIER & CASING SIZE   |       |       |       |       |       |       |       |       |       |       |
|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| CARRIER                 | 4"    | 6"    | 8"    | 10"   | 12"   | 14"   | 16"   | 18"   | 20"   | 24"   |
| CASING                  | 16"   | 16"   | 20"   | 20"   | 24"   | 30"   | 30"   | 30"   | 36"   | 42"   |
| CASING / WALL THICKNESS | 0.250 | 0.250 | 0.250 | 0.250 | 0.312 | 0.312 | 0.312 | 0.375 | 0.375 | 0.500 |

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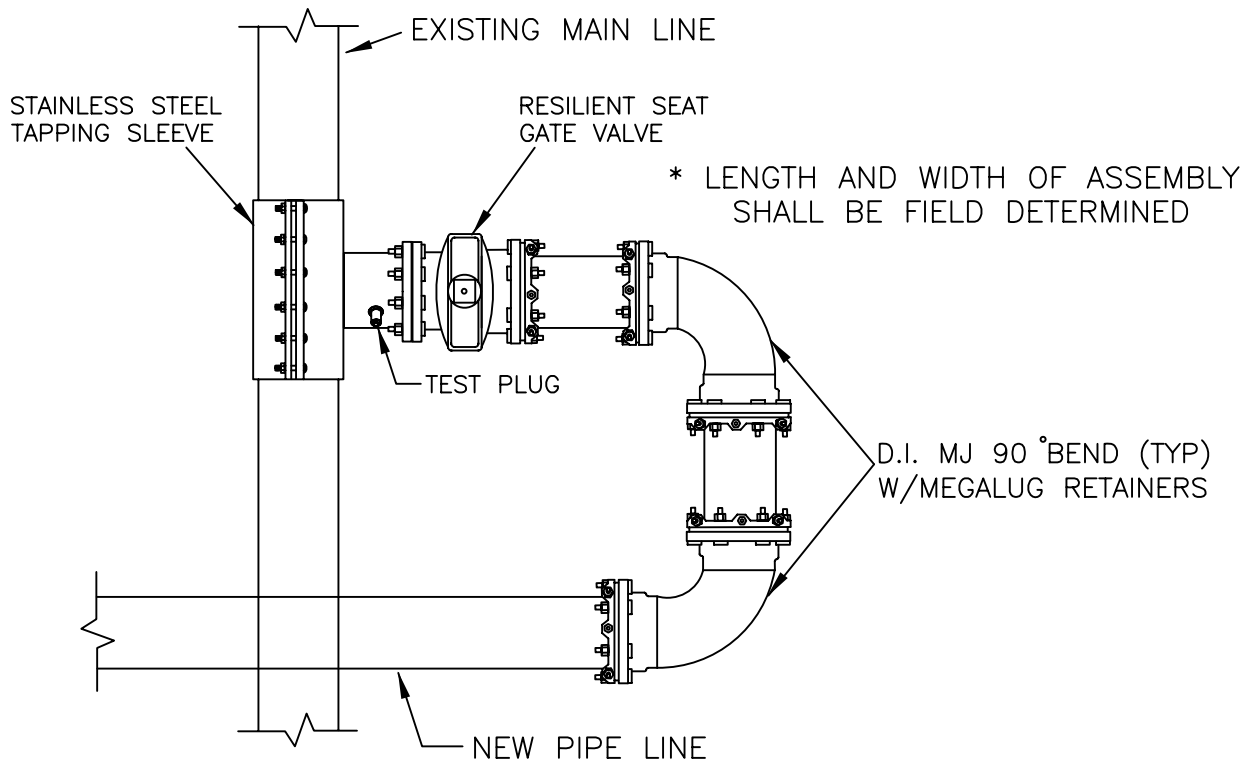
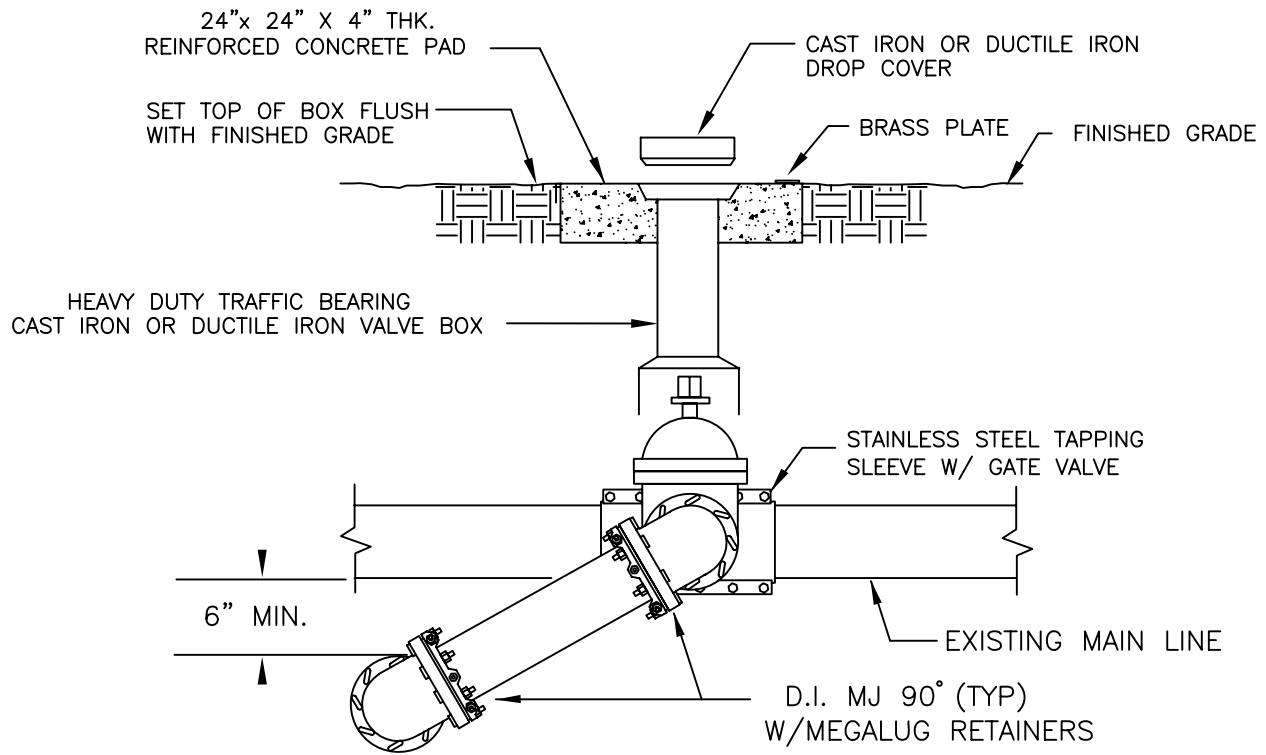
### GENERAL NOTES

JACK & BORE  
 W/STEEL CASING

GN-10

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| REV BY | DATE     |
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# REVERSE SIDE TAP



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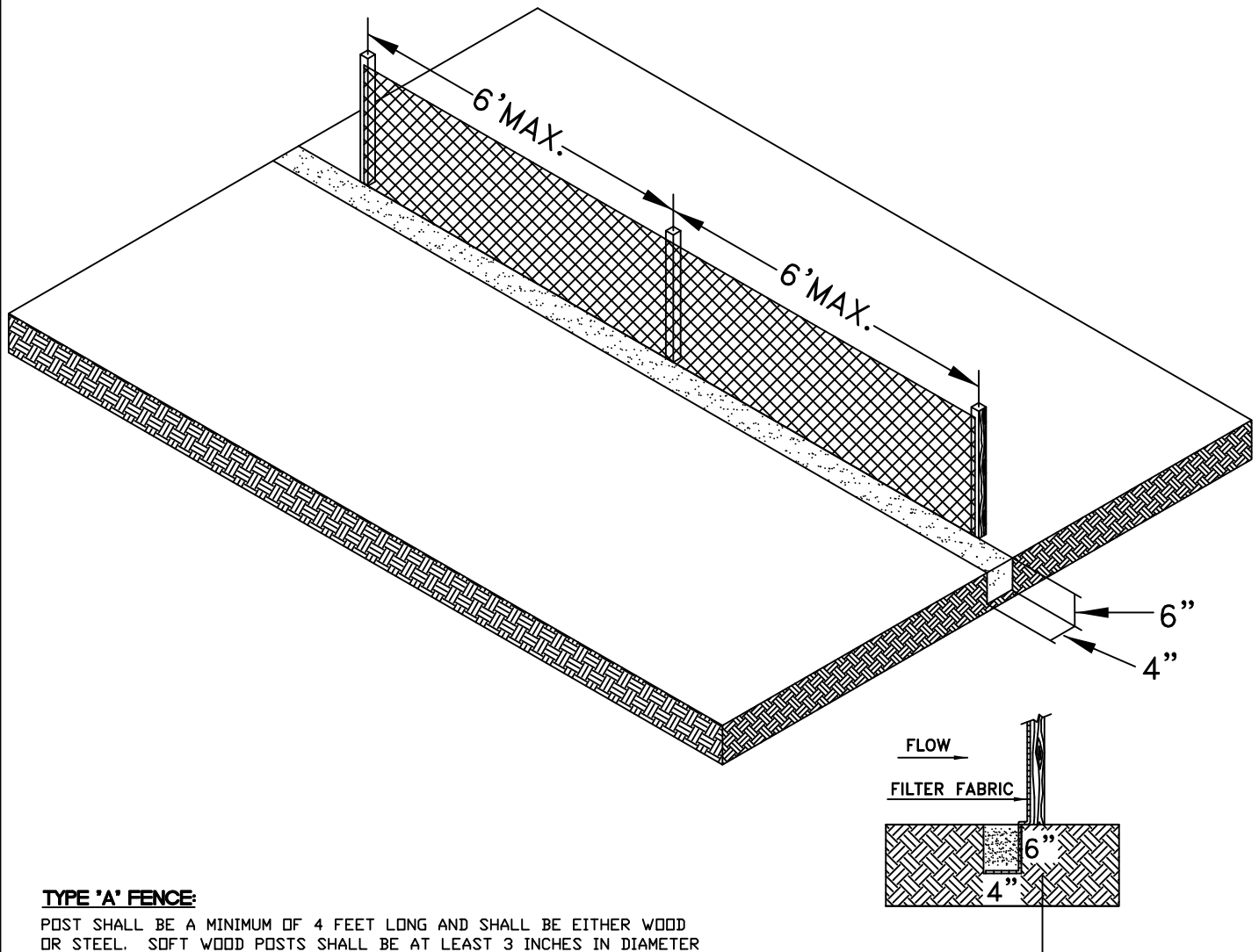
## GENERAL NOTES

REVERSE SIDE TAP  
 TO EXISTING MAIN

GN-11

| REV BY | DATE     |
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| TIM S  | 03/14/08 |
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# CONSTRUCTION OF SILT FENCE IN RIGHT-OF-WAYS:



**TYPE 'A' FENCE:**

POST SHALL BE A MINIMUM OF 4 FEET LONG AND SHALL BE EITHER WOOD OR STEEL. SOFT WOOD POSTS SHALL BE AT LEAST 3 INCHES IN DIAMETER OR NOMINAL 2"x4" STRAIGHT ENOUGH TO PROVIDE A FENCE WITHOUT NOTICEABLE MISALIGNMENT. IF HARDWOOD POSTS ARE USED THE SIZE MAY BE REDUCED TO 1-1/2"x1-1/2" WITH A MINIMUM TOLERANCE OF 1/4". STEEL POSTS SHALL BE U, T OR C SHAPED WITH A MINIMUM WEIGHT OF 1.15 POUNDS PER FOOT AND HAVE PROJECTIONS FOR FASTENING THE FENCE TO THE POSTS. MAXIMUM SPACING OF THE POSTS SHALL BE 6 FEET.

**TYPE 'B' FENCE:**

POST SHALL BE A MINIMUM OF 3 FEET LONG AND SHALL BE EITHER WOOD OR STEEL. SOFT WOOD POSTS SHALL BE AT LEAST 2 INCHES IN DIAMETER OR NOMINAL 2"x2". IF HARDWOOD POSTS ARE USED THE SIZE MAY BE REDUCED TO 1"x1" WITH A MINIMUM TOLERANCE OF 1/4". STEEL POSTS SHALL BE U, T OR C SHAPED WITH A MINIMUM WEIGHT OF 0.75 POUNDS PER FOOT AND HAVE PROJECTIONS FOR FASTENING THE FENCE TO THE POSTS. MAXIMUM SPACING SHALL BE 6 FEET.

1. SET POSTS AND EXCAVATE A 4"x6" TRENCH UPSLOPE ALONG THE LINE OF POSTS.
2. ATTACH THE FILTER FABRIC TO THE POSTS AND EXTEND IT INTO THE TRENCH.
3. BACKFILL AND COMPACT THE EXCAVATED SOIL.

**NOTE:**

GEO-TEXTILE FABRIC MAY BE ERECTED WITH OR WITHOUT A WIRE BACKING DEPENDING ON SITE CONDITIONS.

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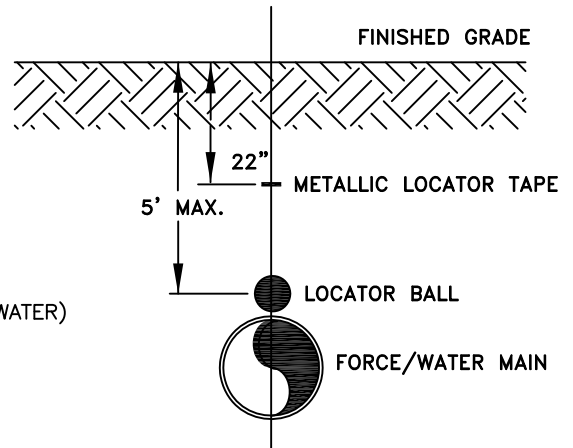
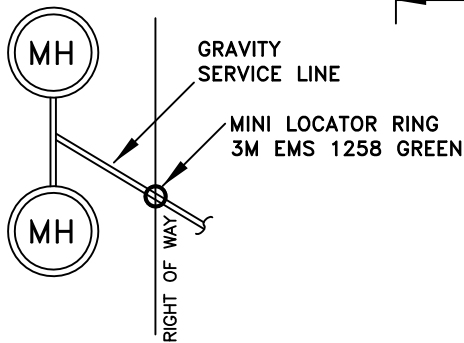
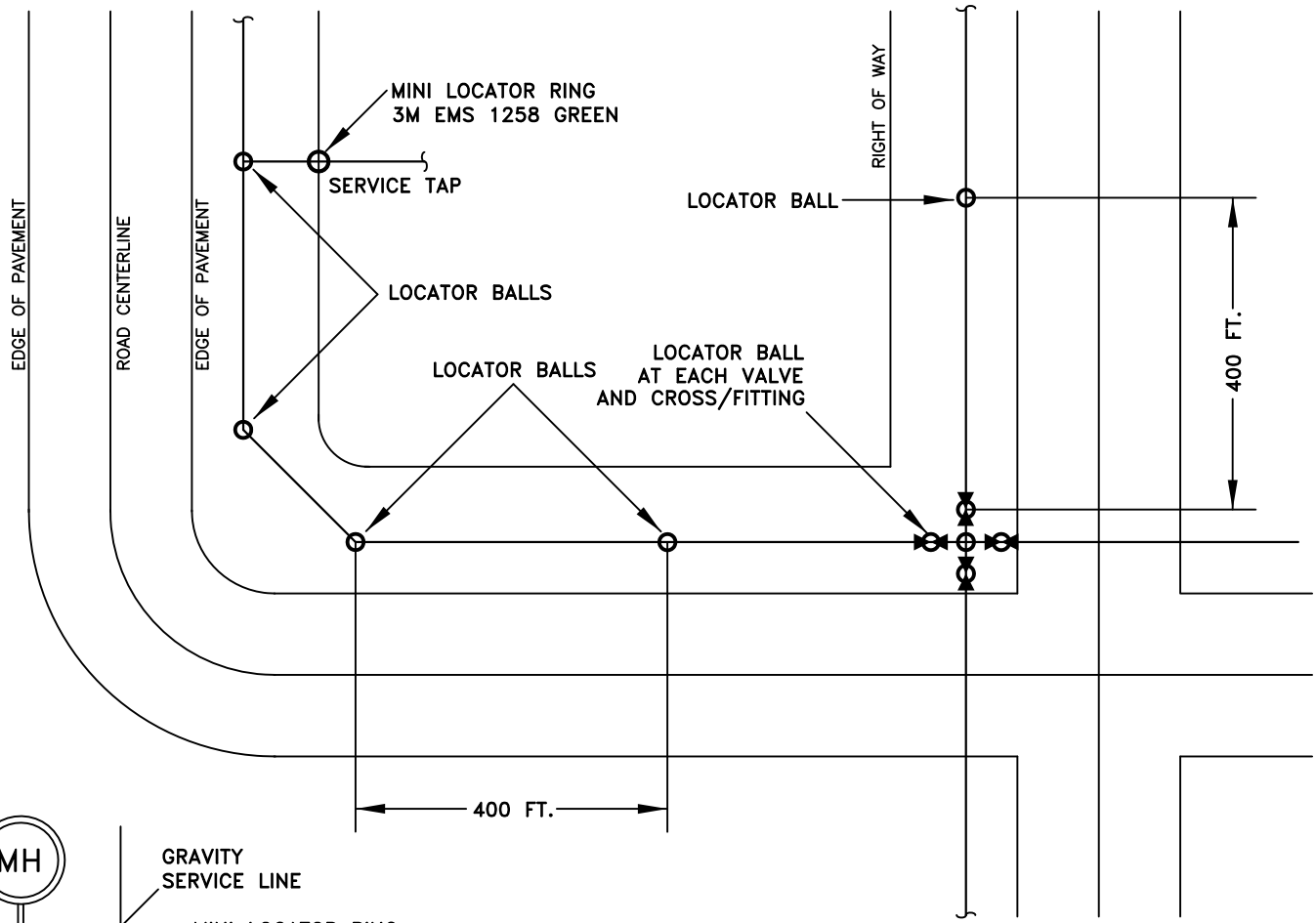
GENERAL NOTES

SILT FENCE  
 INSTALLATION

GN-12

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# MARKER BALL AND METALLIC TAPE INSTALLATION



**NOTE:**

1. METALLIC LOCATION TAPE SHALL BE PLACED DIRECTLY ABOVE THE WATER/FORCE MAIN, 22 INCHES BELOW FINISH GRADE.
2. LOCATOR BALLS SHALL BE 3M 4 INCH. MODEL; 1423-XR/ID (BLUE FOR WATER) MODEL; 1424 XR/ID (GREEN FOR WASTEWATER)
3. BALLS SHALL BE INSTALLED BY THE CONTRACTOR ON PIPE OR FITTING PER THE MANUFACTURERS INSTALLATION INSTRUCTIONS.
4. MARKERS SHALL BE INSTALLED AT ALL CHANGE OF DIRECTIONS, FITTINGS, VALVES, TAPS, MATERIAL CHANGES, AND EVERY 400 FEET RUNNING FEET FROM LAST MARKER.
5. CONTRACTOR SHALL PROGRAM LOCATOR BALLS USING THE CITY OF PUNTA GORDA'S TEMPLATE AND SUPPLY DATA IN AN ELECTRONIC FORMAT ie. MICROSOFT EXCEL OR ACCESS.

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GENERAL NOTES

MARKER BALL AND METALLIC LOCATION TAPE

GN-13

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| TS     | 3/25/2010 |
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