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ROADWAY DETAILS

ROADWAY CONSTRUCTION NOTES

1. ALL RIGHT OF WAY OTHER THAN ROADWAY AREAS SHALL BE SEEDED AND MULCHED OR SODDED. ALL SLOPES GREATER THAN 6% SHALL BE SODDED. THE CITY RESERVES THE RIGHT TO REQUIRE SODDING IN SPECIAL AREAS WHERE EROSION IS A CONCERN.

2. THE FOLLOWING WILL BE THE STANDARD PROTECTION FOR DITCHES UNLESS DRAINAGE CALCULATIONS INDICATE OTHERWISE:

SWALE PROFILE GRADES	PROTECTION REQUIRED
0.2% – 1.0%	SEEDING AND MULCHING
1.0% – 4.0%	SODDING
4.0% AND GREATER	DITCH PAVING

3. ALL FRANCHISE UTILITY CROSSINGS, INCLUDING BUT NOT LIMITED TO FPL, BELLSOUTH AND CABLE SHALL BE INSTALLED PRIOR TO INSTALLATION AND COMPACTION OF THE ROAD SUB BASE. ANY CROSSINGS AFTER INSTALLATION OF THE SUB BASE SHALL BE BY DIRECTIONAL BORE.

4. THE LIMITS OF STABILIZED SUB BASE SHALL EXTEND TO A DEPTH OF SIX INCHES (6") BELOW THE BOTTOM OF THE BASE AND OUTWARD TO TWELVE INCHES (12") BEYOND THE CURB.

5. THE STABILIZING MATERIAL, IF REQUIRED, SHOULD BE A HIGH BEARING VALUE SOIL, SAND–CLAY, LIMEROCK, RECYCLED CONCRETE, SHELL OR OTHER MATERIAL AS APPROVED BY THE CITY AND A LICENSED SOILS ENGINEER.

6. THE SUB BASE SHALL BE STABILIZED NOT LESS THAN FORTY (40) POUNDS LIMEROCK BEARING RATIO (LBR). A COMPACTION OF NO LESS THAN NINETY–EIGHT (98%) PERCENT DENSITY BASED ON AASHTO T–180 SHALL BE REQUIRED.

7. TESTS FOR SUB BASE BEARING CAPACITY AND COMPACTION SHALL BE DONE AT A MINIMUM OF EVERY 300 FEET AND SHALL BE STAGGERED TO THE LEFT, RIGHT AND AT CENTER LINE OF THE ROADWAY.

8. BASES FOR ALL STREETS SHALL HAVE A MINIMUM SIX INCH (6") DEPTH. PRIMING AND SANDING SHALL BE REQUIRED AS SOON AS BEARING CAPACITY AND COMPACTION HAS BEEN ACHIEVED.

9. MAXIMUM DENSITY BASED ON AASHTO T–180 MODIFIED PROCTOR TEST. RECYCLED CONCRETE OR LIMEROCK BASES SHALL BE COMPACTED TO (98%)

10. MATERIAL DELIVERY TICKETS SHALL BE PROVIDED TO THE CITY AT THE TIME OF PLACEMENT.

11. TESTING OF THE IN–PLACE BASE SHALL BE DONE AT INTERVALS EQUIVALENT TO SUB BASE TESTING AND SHALL CONSIST OF, AS A MINIMUM, MOISTURE CONTENT AND COMPACTION TEST.

12. DESIGN MIXES SHALL BE SUBMITTED TO THE CITY FOR THEIR APPROVAL NO LESS THAN THREE (3) WORKING DAYS PRIOR TO ANY ROADWAY CONSTRUCTION.

13. ASPHALT SPECIFICATIONS SHALL BE SUBMITTED BY THE DESIGN ENGINEER WITH FINAL PLANS TO THE CITY. FLORIDA STATE CERTIFIED BATCH PLANTS MUST THEN CERTIFY THAT THESE APPROVED SPECIFICATIONS HAVE BEEN MET.

14. EXTRACTION AND GRADATION TESTS ON ASPHALT MIXES SHALL BE PROVIDED TO THE CITY TO INSURE THAT DESIGN MIXES MEET THE CITY STANDARD SPECIFICATIONS.

15. THE ROADWAY CROWN SHALL HAVE A STANDARD ONE QUARTER INCH (1/4") PER FOOT SLOPE.

16. ALL ROADWAYS WITH CURB AND GUTTER SECTIONS SHALL HAVE AS A STANDARD A MINIMUM LONGITUDINAL SLOPE OF 0.30%.

17. THE FINISHED PAVEMENT EDGE SHALL BE WITHIN ONE QUARTER INCH (1/4") OF THE ADJACENT CONCRETE CURB.

18. CONCRETE CURBS SHALL BE PROVIDED ON BOTH SIDES OF ALL STREETS AND CONSTRUCTED WITH 2500 PSI CONCRETE AT 28 DAYS.

19. CONCRETE CURBS SHALL BE SAW CUT TO A DEPTH EQUAL TO 1/4 OF CURB THICKNESS AT INTERVALS OF TEN FEET (10') WITH EXPANSION JOINTS AT STREET INTERSECTIONS, STRUCTURES AND ALONG CURVES AT SIXTY FEET (60') INTERVALS. ALL EXPANSION JOINT MATERIAL IS REQUIRED TO BE INSTALLED THROUGH THE ENTIRE DEPTH OF THE CONCRETE CURB.

20. AN "✘" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF WATER DISTRIBUTION SYSTEM VALVE.

21. AN "✘" SHALL BE CUT INTO THE CURB TO MARK THE LOCATION OF ALL VALVES OTHER THAN WATER DISTRIBUTION VALVES.

22. A "V" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF ALL SEWER SERVICES.

23. A "⊥" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF ALL RECLAIMED WATER SERVICES.

24. A "Λ" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF ALL WATER SERVICES.

25. THREE (3) CONCRETE CYLINDERS SHALL BE TAKEN AND TESTED FOR EVERY THREE HUNDRED (300) FEET OF ROADWAY CONSTRUCTED. TEST RESULTS SHALL THEN BE PROVIDED TO THE CITY AS THEY BECOME AVAILABLE.

26. THE DEVELOPER SHALL PROVIDE ALL REQUIRED PAVEMENT MARKINGS ON ALL ROADWAYS PER CITY, COUNTY AND STATE REQUIREMENTS. CENTERLINE STRIPES SHALL BE PROVIDED ON EXTENSIONS OF CITY COLLECTOR OR ARTERIAL ROADS, COUNTY ROADS AND STATE HIGHWAYS ONLY.

27. STOP BARS SHALL BE PLACED AT ALL SUBDIVISION ENTRANCES AND INTERSECTIONS CONTAINING CITY COLLECTOR AND ARTERIAL ROADS, COUNTY ROADS AND STATE HIGHWAYS.

28. ALL TRAFFIC CONTROL DEVICES PLACED AT INTERSECTIONS, PRIVATE STREETS, PUBLIC STREETS, COUNTY ROADS AND STATE HIGHWAYS WITHIN THE CITY LIMITS SHALL BE INSTALLED ACCORDING TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

29. THE DEVELOPER IS RESPONSIBLE FOR PAYING FEES FOR ALL STREET LIGHTS PRIOR TO ACCEPTANCE OF THE PROJECT BY THE CITY.

30. STANDARD TURNING RADII FOR INTERSECTIONS:

2–LANE ACCESS OR FEEDER	35'
LOCAL TO COLLECTOR	35'
LOCAL OR COLLECTOR TO ARTERIAL	40'
ARTERIAL TO ARTERIAL	50'

31. THE CITY SHALL BE PRESENT DURING PAVING OF ALL PUBLIC AND PRIVATE ROADS. PAVING SHALL BE PERFORMED DURING NORMAL BUSINESS HOURS, MONDAY THROUGH FRIDAY. PAVING DURING WEEKENDS IS NOT PERMITTED.

32. CONSTRUCTION METHODS AND DESIGN FOR CONCRETE PAVEMENT SHALL CONFORM TO FDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.

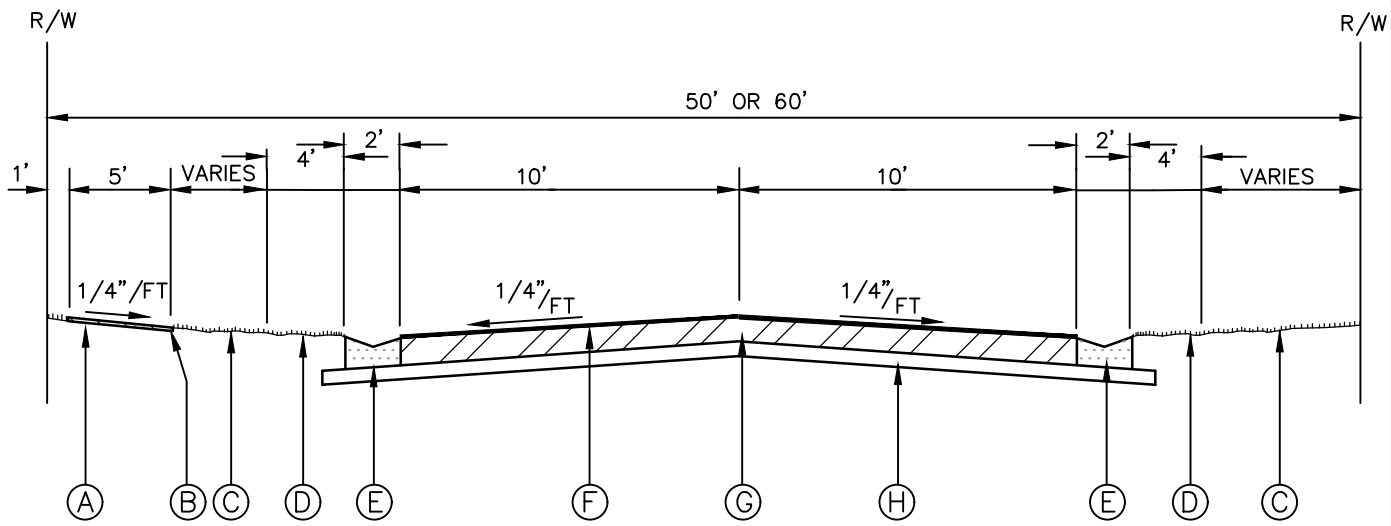
33. ALL CONTRACTORS THAT ARE PERFORMING THE CONSTRUCTION OF PUBLIC IMPROVEMENTS (WATER MAIN, SANITARY SEWER MAIN, RECLAIMED WATER MAIN, STORM WATER PIPES AND INLETS AND ALSO CONSTRUCTION OF ROADWAYS) SHALL BE CERTIFIED WITH THE FLORIDA STATE DEPARTMENT OF PROFESSIONAL REGULATIONS (DPR) FOR THE TYPE OF WORK THAT THEY PERFORM. A COPY OF THE VALID LICENSE IS REQUIRED AT PRE CONSTRUCTION MEETING.

34. UTILITY DEPTH:
– HIGH VOLTAGE UTILITIES SUCH AS POWER (FEEDER, SERVICE AND DROPS) SHALL BE BURIED A MINIMUM OF 30 INCHES IN DEPTH.

– LOW VOLTAGE UTILITIES SUCH AS PHONE AND CABLE TV SHALL BE BURIED A MINIMUM OF 12 INCHES IN DEPTH FOR FEEDER AND SERVICES. SERVICE DROPS SHALL BE BURIED A MINIMUM OF 6 INCHES IN DEPTH.

– HIGH VOLTAGE UTILITIES INSTALLED PARALLEL TO PRESSURE MAINS SHALL MAINTAIN A MINIMUM FIVE FOOT SEPARATION.

35. GEOTECHNICAL TESTING REPORTS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER SHALL BE SUBMITTED TO THE CITY PRIOR TO FINAL SIGN OFF. REPORTS SHALL CLEARLY LABEL PROJECT NAME AND PHASE.



Ⓐ 5'–0" WIDE CONCRETE SIDEWALK
4" THICK, 2500 P.S.I.
6" THICK AT DRIVEWAY

Ⓑ 6" ABOVE CENTERLINE ROAD GRADE

Ⓒ SOD or SEED AND MULCH PER F.D.O.T. STANDARD SPECIFICATION SECTION 570. 1' SOD STRIP REQUIRED ADJACENT TO CURB AND AROUND DRAINAGE STRUCTURES.

Ⓓ 4' WIDE AREA WITH MAX. SLOPE OF 1"/4 FEET

Ⓔ CONCRETE MIAMI CURB, 2500 P.S.I.

Ⓕ ASPHALT PAVEMENT:
1–1/2" ASPHALT BITUMINOUS CONCRETE SP–9.5 OR SP–12.5;
MINIMUM MARSHALL FIELD STABILITY 1500.

Ⓖ BASE:
6" LIMEROCK (LBR 100) COMPACTED TO 98% DENSITY
BASED ON AASHTO T–180 MODIFIED PROCTOR TEST.
OR
6" CRUSHED CONCRETE (LBR 100) COMPACTED TO 98% DENSITY
BASED ON AASHTO T–180 MODIFIED PROCTOR TEST.

NOTE TO ENGINEER:

ENGINEER TO SELECT
BASE OPTION

Ⓗ SUB BASE:
6" SUB BASE COMPACTED TO 98% DENSITY BASED ON AASHTO T–180 MODIFIED PROCTOR TEST WITH MINIMUM LBR 40.

NOTE:
A REPRESENTATIVE OF A CERTIFIED SOIL LABORATORY SHALL BE PRESENT DURING ALL CONSTRUCTION PHASES TO PERFORM ROADWAY COMPACTION AND DENSITY TESTING AS REQUIRED – SEE INDEX R–6(A/B).

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

50' OR 60' R/W/ ROAD SECTION

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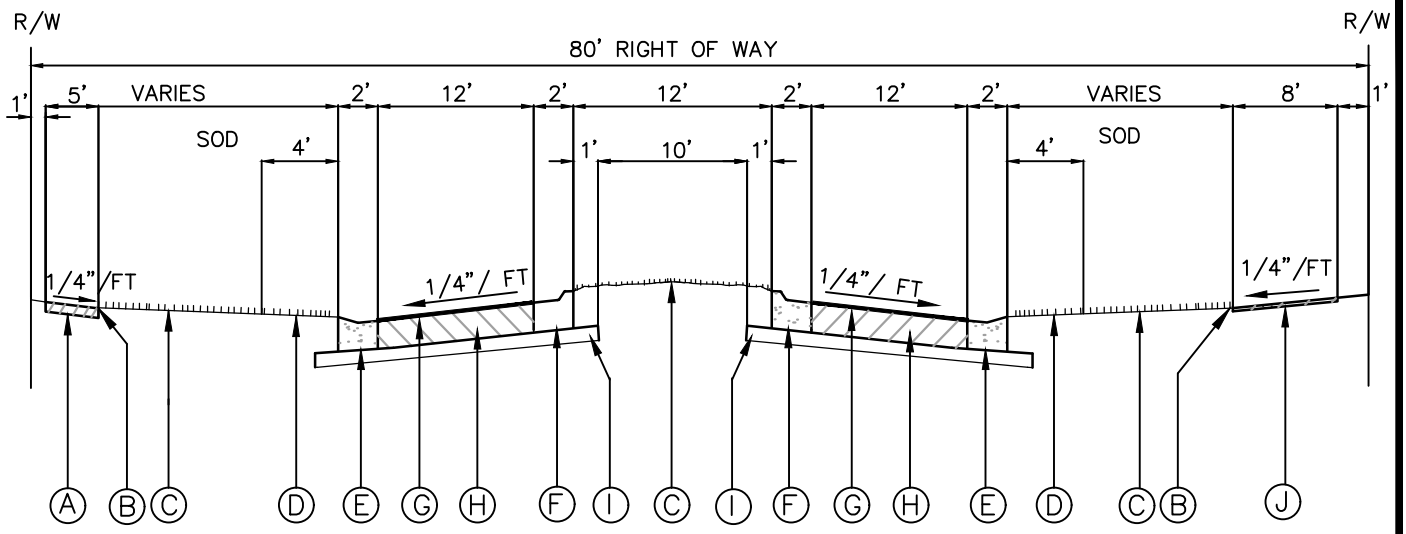

Ⓐ 5'–0" WIDE CONCRETE SIDEWALK
4" THICK, 2500 P.S.I.
6" THICK AT DRIVEWAY

Ⓑ 6" MINIMUM ABOVE CENTERLINE ROAD GRADE

Ⓒ SOD or SEED AND MULCH PER F.D.O.T. STANDARD SPECIFICATION SECTION 570.
1' SOD STRIP REQUIRED ADJACENT TO CURB AND AROUND DRAINAGE STRUCTURES.

Ⓓ 4' WIDE AREA WITH MAX. SLOPE 1"/4 FT

Ⓔ CONCRETE MIAMI CURB, 2500 P.S.I.

Ⓕ FDOT TYPE–E CONCRETE CURB, 2500 P.S.I., SLOPED TO DRAIN WATER FROM GUTTER TO ASPHALT PAVEMENT

Ⓖ ASPHALT PAVEMENT: 1–1/2" ASPHALT BITUMINOUS CONCRETE SP–9.5 OR SP–12.5; MINIMUM MARSHALL FIELD STABILITY 1500.

Ⓗ BASE:

8" LIMEROCK (LBR 100) COMPACTED TO 98% DENSITY
BASED ON AASHTO T–180 MODIFIED PROCTOR TEST.

OR

8" CRUSHED CONCRETE (LBR 100) COMPACTED TO 98% DENSITY
BASED ON AASHTO T–180 MODIFIED PROCTOR TEST.

NOTE TO ENGINEER:

ENGINEER TO SELECT
BASE OPTION

Ⓘ SUB BASE:

12" SUB BASE COMPACTED TO 98% DENSITY BASED ON AASHTO T–180 MODIFIED PROCTOR TEST WITH MINIMUM LBR 40.

NOTE:
A REPRESENTATIVE OF A CERTIFIED SOIL LABORATORY SHALL BE PRESENT DURING ALL CONSTRUCTION PHASES TO PERFORM ROADWAY COMPACTION AND DENSITY TESTING AS REQUIRED. SEE INDEX R–6(A/B).

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

80' R/W ROAD SECTION WITH MEDIAN

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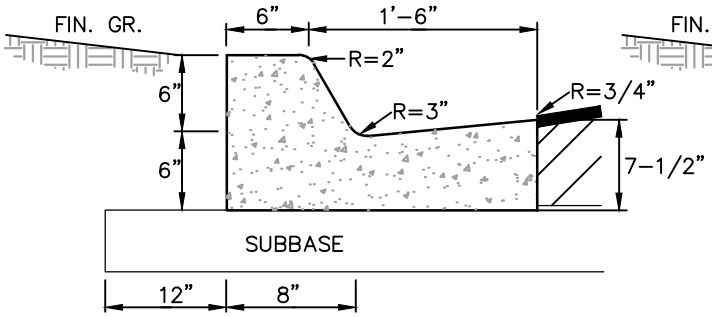
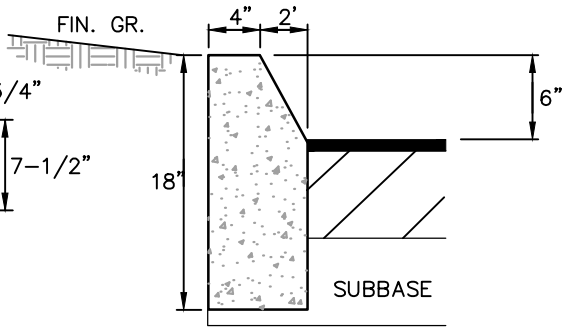
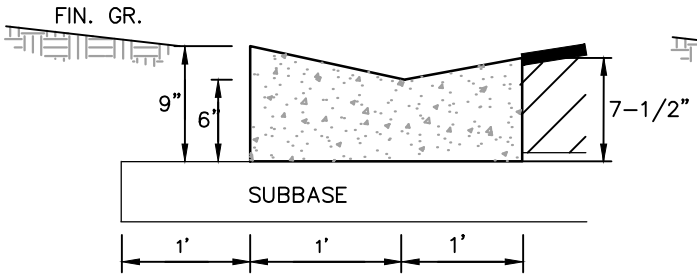


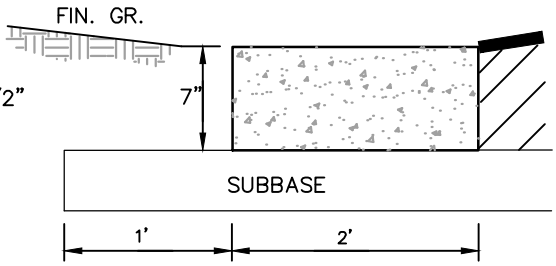
F.D.O.T. TYPE "F" CURB



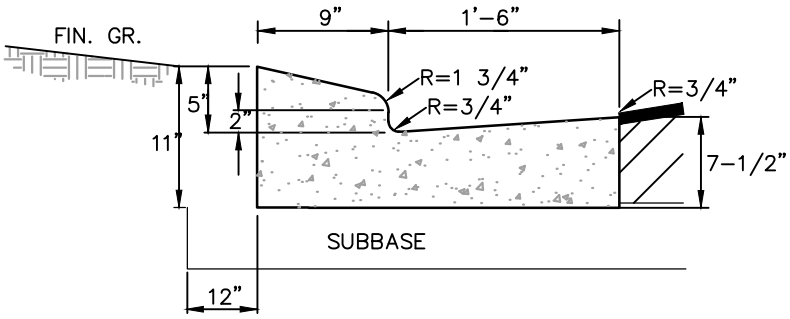
HEADER CURB



MIAMI CURB



ENVIRONMENTAL CURB



F.D.O.T. TYPE "E" CURB

NOTES:

1. ALL CURBS TO BE CONSTRUCTED OF 28 DAY, 2500 P.S.I. CONCRETE
2. 1/2" PRE-MOLDED EXPANSION JOINT REQUIRED EVERY 500', CONSTRUCTION JOINT REQUIRED EVERY 10' MAXIMUM (4' MINIMUM).
3. 1/2" PRE-MOLDED EXPANSION JOINT REQUIRED AT EACH SIDE OF ALL STORM INLET STRUCTURES AND AT ALL RADIUS POINTS.
4. 6" SUBBASE TO BE COMPACTED AND TESTED TO 98% DENSITY WITH MINIMUM L.B.R. 40 BASED ON AASHTO T-180 MODIFIED PROCTOR TEST.
5. EXPANSION JOINT MATERIAL MUST COVER THE ENTIRE CROSS SECTION OF CURB.
6. ALL EXPOSED CORNERS TO BE ROUNDED AT 3/4" MIN. RADIUS.
7. ALL CURB ENDS THAT DO NOT TIE INTO OTHER FACILITIES SHALL TRANSITION DOWN TO PAVEMENT GRADE IN 24 INCHES.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

STANDARD CURB CONSTRUCTION

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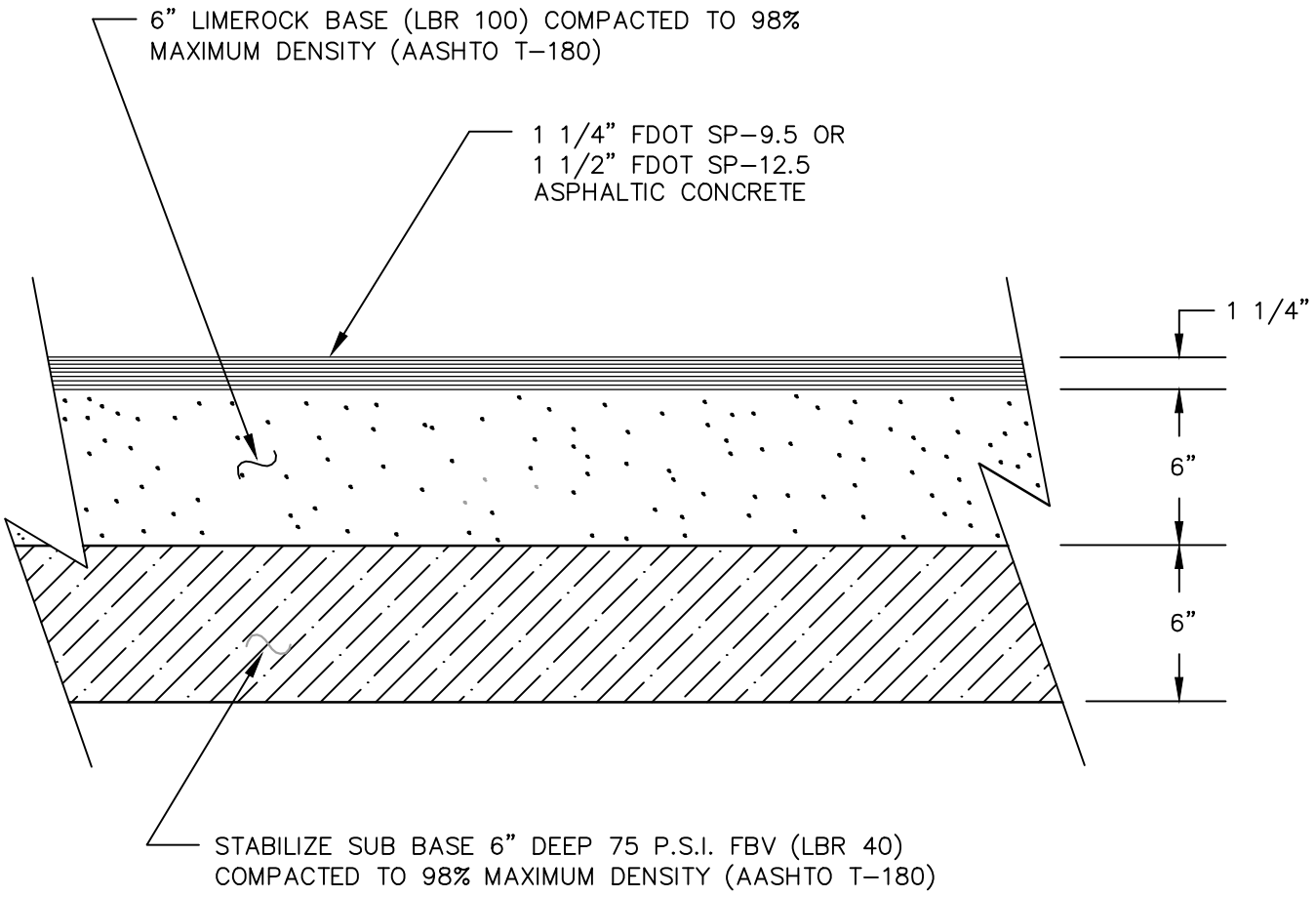

STANDARD CONSTRUCTION DETAIL

STANDARD PAVING DETAIL

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ROADWAY COMPACTION AND DENSITY TESTING REQUIREMENTS

ITEM	TEST	FREQUENCY	STANDARD	TEST METHOD
ROADWAY SUBBASE (BOTTOM OF SUBBASE DOWN 1 FOOT)	IN-PLACE DENSITY	ONE (1) TEST/300 LF	95% MODIFIED PROCTOR (ASTM D-1557 OR AASHTO T-180)	ASTM D-2937 D-2922 D-1556
STABILIZED SUBBASE	IN-PLACE DENSITY	ONE (1) TEST/300 LF	95% MODIFIED PROCTOR (ASTM D-1557 OR AASHTO T-180)	ASTM D-2937 D-2922 D-1556
STABILIZED SUBBASE	FLORIDA BEARING VALUE (FBV)	ONE (1) TEST/300 LF	FBV = 75	
STABILIZED SUBBASE	LIMEROCK BEARING RATIO (LBR)	ONE (1) TEST/SOIL TYPE	LBR = 40	
LIMEROCK BASE	IN-PLACE DENSITY	ONE (1) TEST/300 LF	98% MODIFIED PROCTOR (ASTM D-1557 OR AASHTO T-180)	ASTM D-2937 D-2922 D-1556
LIMEROCK BASE	LIMEROCK BEARING RATIO (LBR)	PROVIDE CERTIFICATE FROM PLANT	LBR 100	FM 5-515
CRUSHED CONCRETE BASE	IN-PLACE DENSITY	ONE (1) TEST/300 LF	98% MODIFIED PROCTOR (ASTM D-1557 OR AASHTO T-180)	ASTM D-2937 D-1556
CRUSHED CONCRETE BASE	LIMEROCK BEARING RATIO (LBR)	(1) PER VISIBLE CHANGE IN MATERIAL BLEND	LBR 100	
ASPHALT	EXTRACTION AND GRADATION	(1) PER DAY PER MIX	PER MIX DESIGN	D-2922
ASPHALT	THICKNESS AND DENSITY	(1) PER 300 LF ROADWAY	PER MIX DESIGN AND JOB SPECS	CORING OR NUCLEAR (DENSITY ONLY)
SOIL OPTIMUM MOISTURE/DENSITY	PROCTOR TEST	(1) PER SOIL OR BASE TYPE		ASTM D-1557 (MODIFIED) ASTM D-558 (STANDARD) AASHTO T-180 (MODIFIED) AASHTO T-99 (STANDARD)
CURB SUBBASE	IN-PLACE DENSITY	ONE (1) TEST/300 LF	98% MODIFIED PROCTOR (ASTM D-1557 OR AASHTO T-180)	
CURB SUBBASE (LBR)	LIMEROCK BEARING RATIO (LBR)	(1) TEST/SOIL CHANGE	LBR 40	

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

TECHNICAL SPECIFICATIONS FOR TESTING REQUIREMENTS

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FEB 2018

PIPED UTILITY INSTALLATION REQUIREMENTS

ITEM	TEST	FREQUENCY	STANDARD	TEST METHOD
PIPE TRENCH SUBBASE (IF SPECIFIED)	IN-PLACE DENSITY	ONE (1) TEST/300 LF	98% MODIFIED PROCTOR	ASTM D-2937 D-2922 D-1556
PIPED BACKFILL IN PAVED AREAS	IN-PLACE DENSITY	ONE (1) TEST/300 LF PER ONE (1) FOOT VERTICAL LIFT OF FILL	98% MODIFIED PROCTOR	ASTM D-2937 D-2922 D-1556
PIPED BACKFILL IN GREEN AREAS	IN-PLACE DENSITY	ONE (1) TEST/300 LF PER ONE (1) FOOT VERTICAL LIFT OF FILL	90% MODIFIED PROCTOR	ASTM D-2937 D-2922 D-1556
SOIL OPTIMUM MOISTURE/DENSITY	PROCTOR TEST	ONE (1) PER SOIL OR BASE TYPE		ASTM D-2937 (MODIFIED) ASTM D-558 (STANDARD) AASHTO T-180 (MODIFIED) AASHTO T-99 (STD.)

A. SCOPE OF WORK – THE WORK IN THIS SECTION CONSISTS OF FURNISHING AND COMPLETELY INSTALLING SEED AND MULCH OVER THE LIMITS CALLED FOR ON THE CONSTRUCTION DRAWINGS.

B. MATERIALS – GRASS SEED SHALL BE A MIXTURE OF:

PENSACOLA BAHIA (50% SCARIFIED SEED)	80 LBS/ACRE
HULLED BERMUDA	20 LBS/ACRE
BROWN TOP MILLET	30 LBS/ACRE

IN THE FALL AND WINTER MONTHS (OCT. THRU FEB.) AND WITH THE APPROVAL OF THE CITY, ANNUAL RYE GRASS SHALL BE SUBSTITUTED IN EQUAL AMOUNTS FOR THE BROWN TOP MILLET. SEED SHALL BE PREMIXED BY A SEED COMPANY TO THE PROPORTIONS DESCRIBED ABOVE, WITH CERTIFICATION FROM THE SUPPLIER PROVIDED TO THE CITY, PRIOR TO USE. MULCH USED SHALL BE STRAW OR HAY CONSISTING OF OATS, RYE OR WHEAT STRAW OF PANGOLA, PEANUT, COASTAL BERMUDA OR BAHIA GRASS HAY. MULCH SHALL BE FREE FROM UNDESIRABLE WEED AND OTHER UNDESIRABLE GRASS.

C. METHODS – GRASSING SHALL BE DONE IMMEDIATELY UPON COMPLETION OF THE FINE GRADING OPERATION. HOWEVER, NO SEEDING SHALL BE DONE WHEN THE GROUND IS FROZEN OR UNDULY WET. THE RATE OF SPREAD FOR THE SEED MATERIAL SHALL BE ONE HUNDRED AND THIRTY (130) POUNDS PER ACRE. APPROXIMATELY TWO INCHES (2"), LOOSE THICKNESS, OF MULCH MATERIAL SHALL BE APPLIED INFORMALLY OVER THE GRASSED AREAS (APPROXIMATELY 1 1/2 BALES PER 1000 SQUARE FEET). THE MULCH MATERIAL SHALL BE CUT INTO THE SOIL WITH A DISC HARROW OR OTHERWISE ANCHORED DOWN.

D. FERTILIZER –

1. ANALYSIS OF SOILS SHALL BE OBTAINED BY SUBMITTAL OF SAMPLES TO FLAGLER COUNTY. ALL APPLICATION RATES WILL BE BASED ON THIS REPORT. SUBMIT A COPY OF THIS REPORT TO THE CITY PRIOR TO COMMENCING ANY SOIL MODIFICATION.

2. THE FERTILIZER SHALL BE A COMMERCIAL GRANULAR TYPE WITH A CHEMICAL DESIGNATION AS RECOMMENDED IN THE SOILS ANALYSIS REPORT.

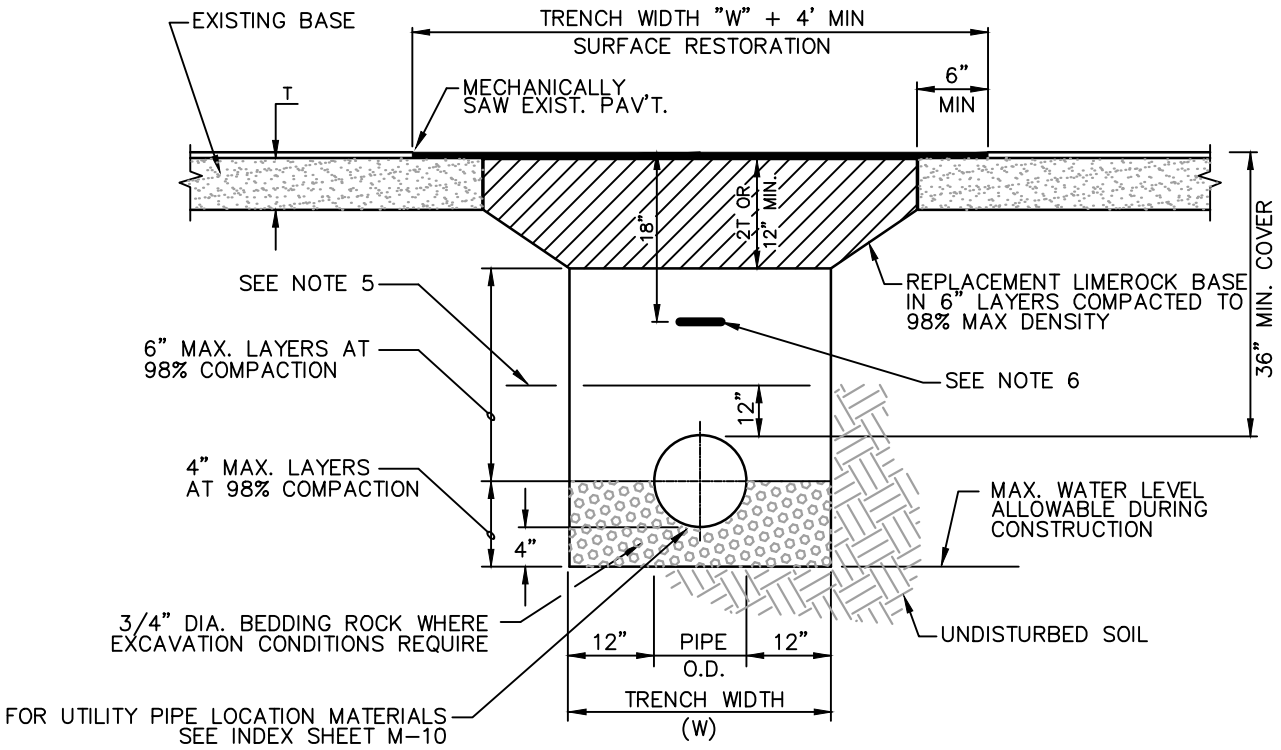
3. THE NUMERICAL DESIGNATIONS FOR FERTILIZER INDICATE THE MINIMUM PERCENTAGES (RESPECTIVELY) OF (1) TOTAL NITROGEN, (2) AVAILABLE PHOSPHORIC ACID AND (3) WATER SOLUBLE POTASH CONTAINED IN THE FERTILIZER.

a) AT LEAST 50 PERCENT (50%) OF THE PHOSPHORIC ACID SHALL BE FROM A NORMAL SUPER PHOSPHATE OR AN EQUIVALENT SOURCE WHICH WILL PROVIDE A MINIMUM OF TWO UNITS OF SULFUR.

b) THE AMOUNT OF SULFUR SHALL BE INDICATED ON THE QUANTITIVE ANALYSIS CARD ATTACHED TO EACH BAG OR CONTAINER.

4. COMMERCIAL FERTILIZERS SHALL COMPLY WITH THE STATE FERTILIZER LAWS.

5. FERTILIZER MAY, AT THE DISCRETION OF THE ENGINEER/ARCHTECT, UPON THE PRESENTATION BY THE MANUFACTURE OF SATISFACTORY FACTORY EVIDENCE OF ITS FEASIBILITY, BE APPLIED IN LIQUID FORM.



PAVEMENT CUT AND PATCH DETAIL

NOTES:

1. WHERE SOIL CONDITIONS CAN NOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
2. SHEETING WILL BE REQUIRED AS DETERMINED IN THE FIELD.
3. NEW SURFACING MATERIALS SHALL BE CONSISTENT WITH EXISTING AND SHALL HAVE LAPPED & FEATHERED JOINTS (1 1/2" MIN. THK.)
4. COMPACTION PERCENTAGES SHOWN REFER TO A.A.S.H.T.O. T-180. PROVIDE COMPACTION TEST REPORTS TO THE CITY.
5. MECHANICAL COMPACTION NOT ALLOWED BELOW THIS LEVEL.
6. INSTALL METALLIC TAPE OVER FULL LENGTH OF PIPE.
7. EIGHT INCHES (8") OF HIGH EARLY-STRENGTH CONCRETE MAY BE SUBSTITUTED FOR LIMEROCK UPON APPROVAL BY THE CITY.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

PAVEMENT CUT AND PATCH

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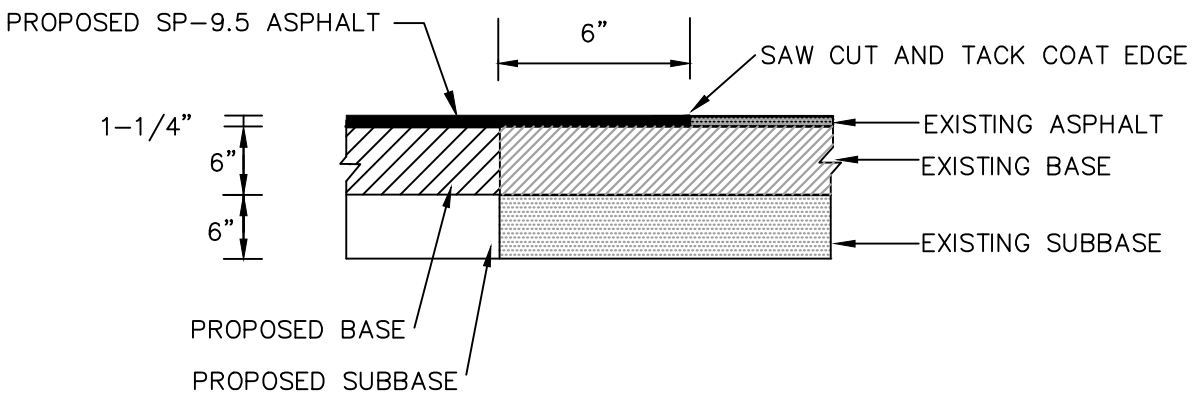

STANDARD CONSTRUCTION DETAIL

PAVEMENT BUTT JOINT

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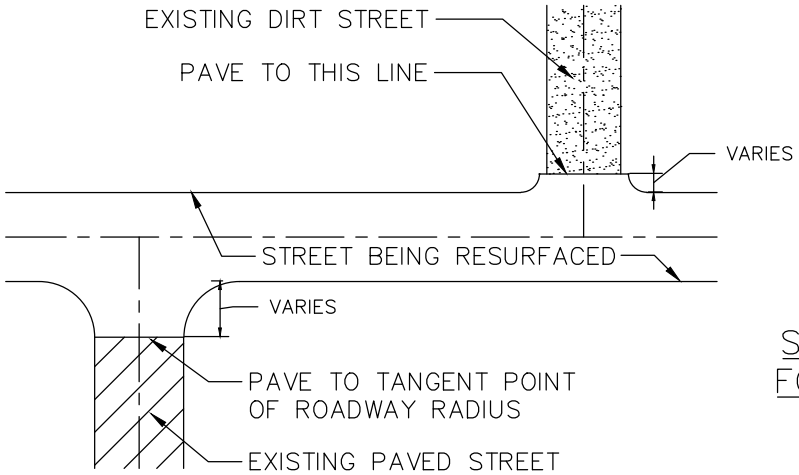
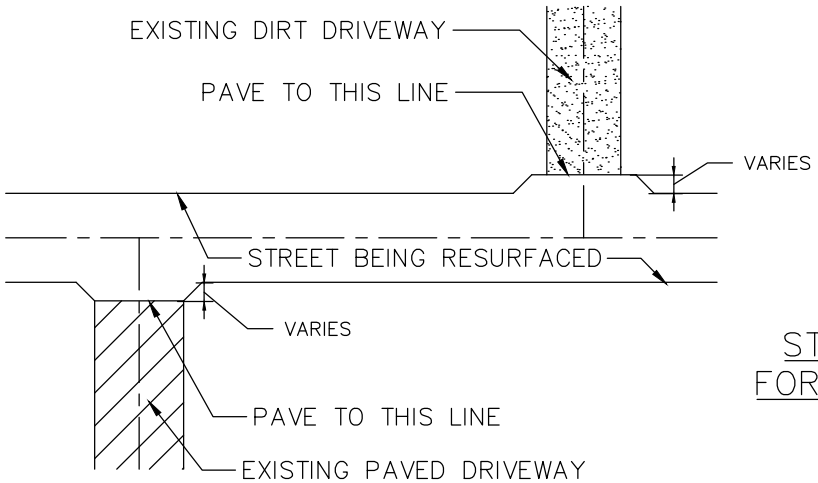
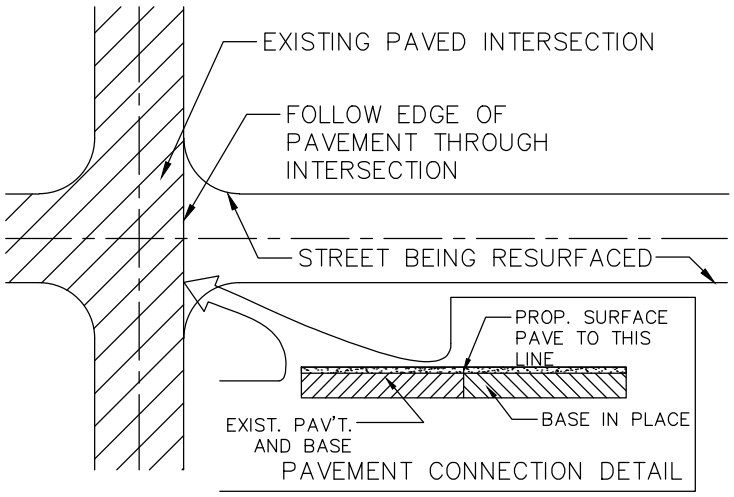


STANDARD DETAIL
FOR DIRT STREETS
AND PAVED
STREETS
THICKNESS VARIES



STANDARD DETAIL
FOR DIRT DRIVEWAYS
AND PAVED
DRIVEWAYS
THICKNESS VARIES



STANDARD DETAIL
FOR PAVED
INTERSECTION
THICKNESS VARIES

STANDARD CONSTRUCTION DETAIL

ROADWAY RESURFACING DETAILS

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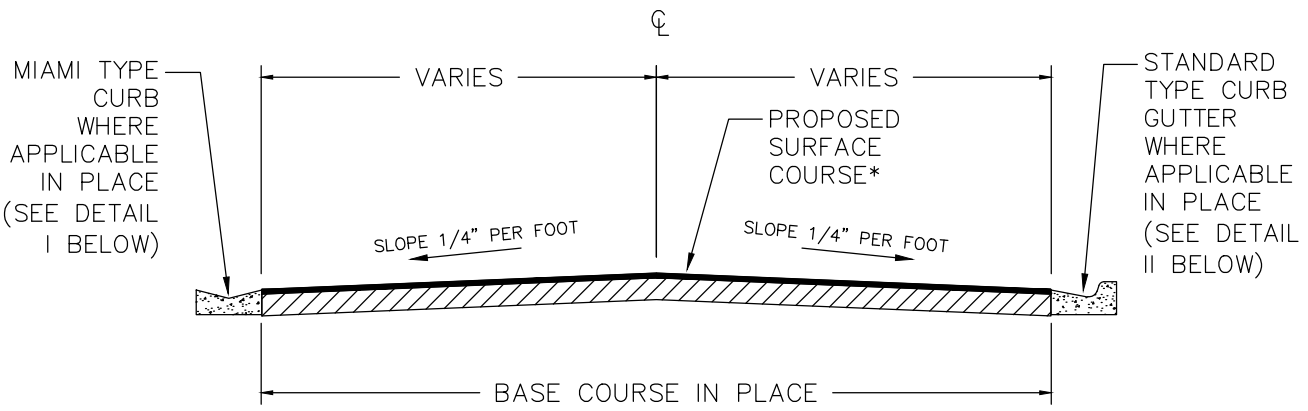
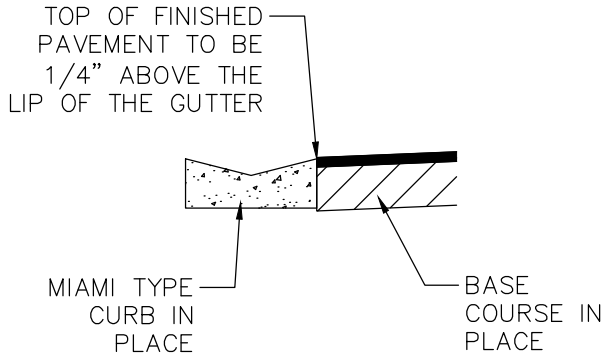
FEB 2018

TYPICAL SECTION

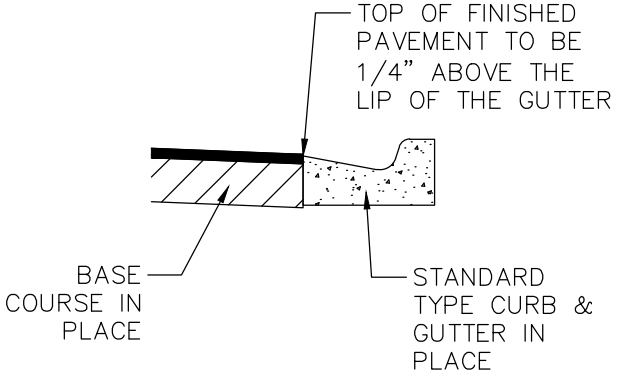


* PROPOSED SURFACE COURSE
WIDTH AND TYPE INDICATED
IN BID PROPOSAL

DETAIL I



DETAIL II



STANDARD CONSTRUCTION DETAIL

ROADWAY RESURFACING DETAILS

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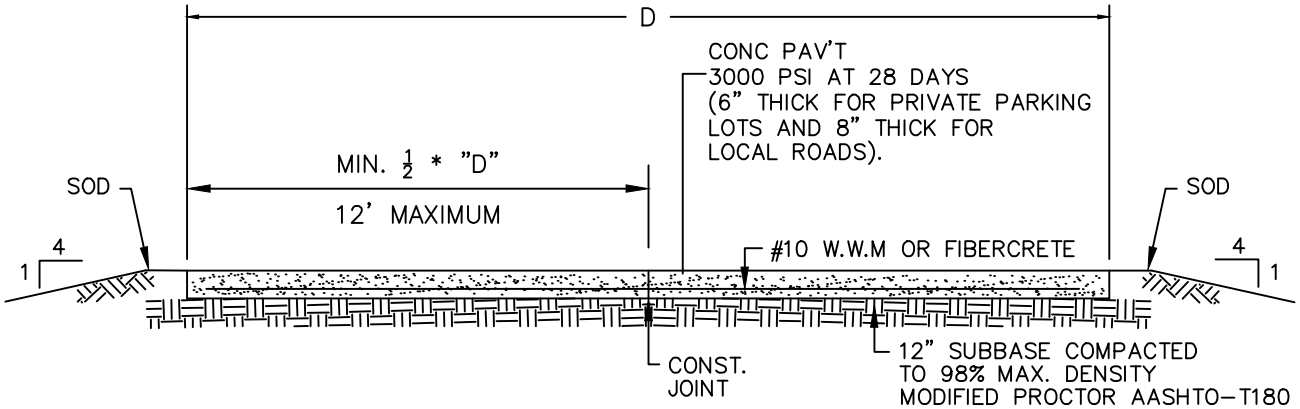
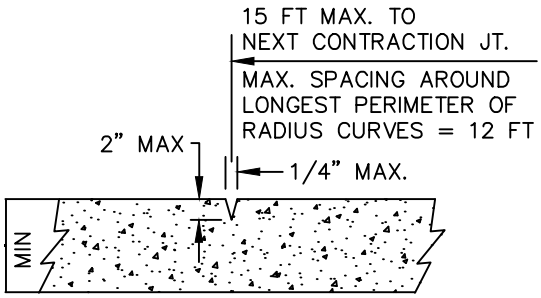
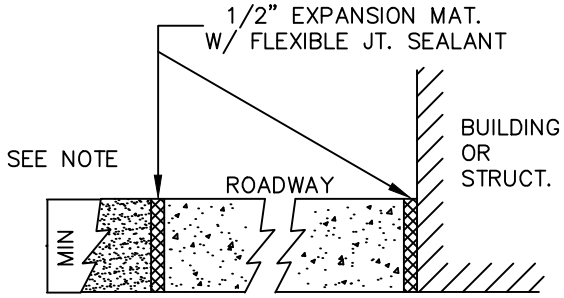


TYPICAL PAVEMENT SECTION

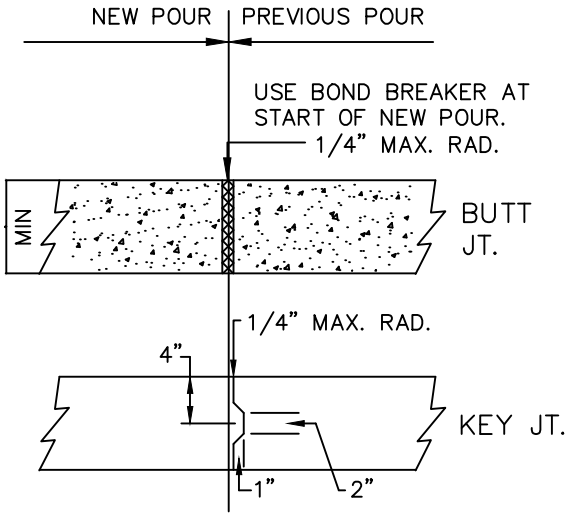
NOTE: FOR ROADWAYS, THE CROSS SLOPE SHALL BE 1/4" PER FOOT. FOR PRIVATE PARKING AREAS THE MINIMUM ALLOWABLE PAVEMENT SLOPE SHALL BE NO LESS THAN 0.50% MEASURED FROM THE RECEIVING INLET, GUTTER, OR FLUME TO ANY PAVEMENT.



CONTRACTION JOINT



EXPANSION JOINT



CONSTRUCTION JOINT

NOTES:

1. CONTRACTION JTS. MAY BE HAND FORMED, SAWED OR CONSTRUCTED W/ A 1/4" PREMOLDED FILLER JT. JOINTS MUST BE SAWED BETWEEN 4 AND 18 HOURS AFTER CONCRETE HAS BEEN PLACED.
2. EXPANSION JOINTS TO BE PLACED BETWEEN ROADWAY AND CURB. ALSO AT ANY PERMANENT STRUCTURE ABUTTING OR WITHIN THE PAVED AREA INCLUDING SIDEWALKS.
3. USE OF WOOD IS NOT AN ACCEPTABLE ALTERNATIVE TO FLEXIBLE JOINT SEALANTS.
4. FINAL DETERMINATION OF CONSTRUCTION JOINT SELECTION AND APPLICATION SHALL BE MADE BY THE ENGINEER OF RECORD BASED ON PROJECT REQUIREMENTS AND LOCATION.
5. CONSTRUCTION JOINTS WITHIN THE SLAB AREA SHOULD NOT CONTAIN PREMOLDED EXPANSION JOINT FILLER.
6. CONCRETE PAVEMENT CONSTRUCTION SHALL BE IN ACCORDANCE WITH A.C.I. PUBLICATION ACI 330R-87.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

CONCRETE PAVEMENT DETAILS

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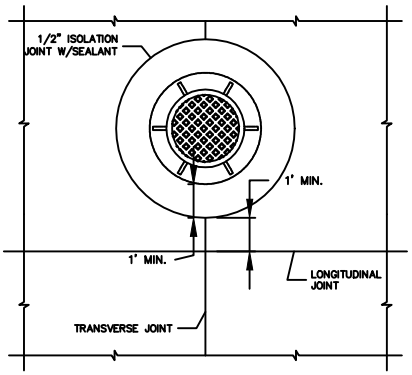
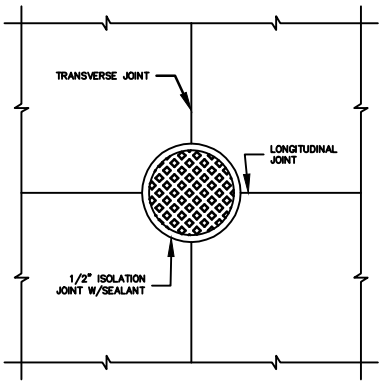
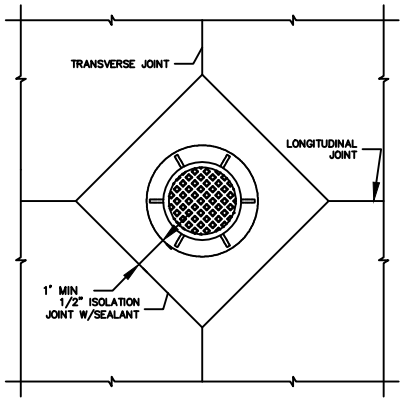
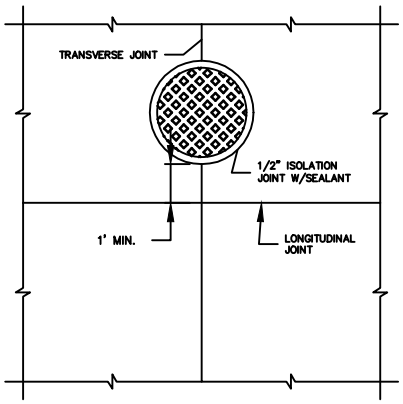








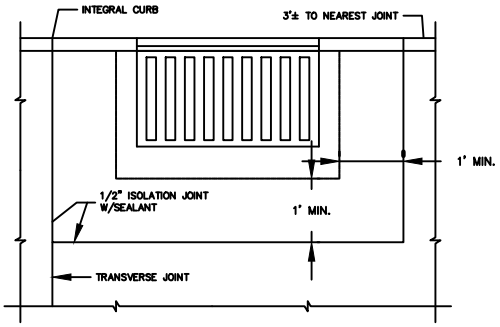
JOINTS AT MANHOLE
N.T.S.

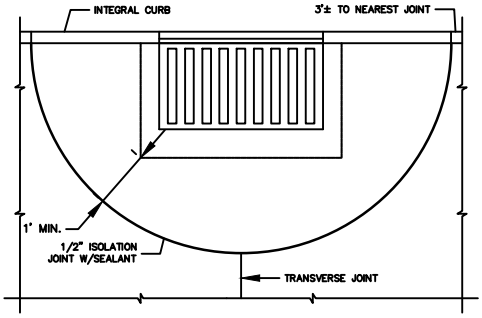
JOINT SPACING DETERMINATION:

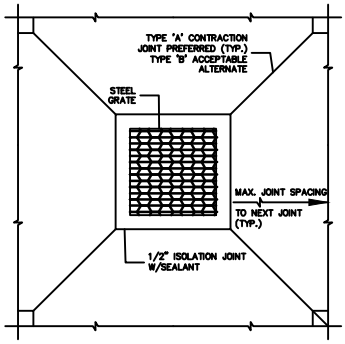
1. LAYOUT CONTROL JOINT BY STARTING WITH ANY DRAINAGE INLET WITHIN THE PAVEMENT SECTION AND WORK TOWARD EDGE OF PAVEMENT.
2. KEEP ALL JOINTS CONTINUOUS.
3. CONTROL JOINTS SHALL BE FORMED OR SAWED WITHIN 12 HOURS FROM TIME OF PLACEMENT;
   A. SIDEWALK–SPACING SHALL BE SAME AS WIDTH OF PAVEMENT AND LESS THAN 5 FEET IN LENGTH.
   B. PAVEMENT–MAXIMUM SPACING SHALL BE 2.5 TIMES THICKNESS IN UNIT OF FEET AND LESS THAN 15 FEET IN LENGTH (E.G. D=5 INCHES, SPACING AT 12'x12').

RECOMMENDED MAX. JOINT SPACING

PAVEMENT THICKNESS (INCHES)	RECOMMENDED MAXIMUM JOINT SPACING (FEET)
3.5 (FOR WHITE TOPPING ONLY)	6
4.0	10
4.5	10
5.0	12
5.5	12
6.0	15
OVER 6.0	15







JOINTS AT INLETS
N.T.S.

STANDARD CONSTRUCTION DETAIL

CONCRETE PAVEMENT DETAILS

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STORMWATER DETAILS

1. CONSTRUCTION STANDARDS FOR ALL DRAINAGE SYSTEM COMPONENTS SHALL CONFORM TO THE LATEST EDITION OF THE "FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND AS SPECIFIED HEREIN.
2. ALL STORM WATER PIPES AND STRUCTURES SHALL BE INSTALLED ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
3. DEWATERING SHALL BE PROVIDED TO KEEP GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW THE COMPONENT BEING INSTALLED.
4. ALL PIPES AND STRUCTURES SHALL BE PLACED TRUE TO LINES AND GRADES AS DEPICTED ON THE APPROVED PLANS.
5. ALL PIPE JOINTS SHALL BE PROPERLY HONED AND FILTER FABRIC LINED USING A METHOD TO HOLD THE FABRIC IN PLACE DURING BACKFILL.
6. BACKFILL AND COMPACT TO THE SPRING–LINE (CENTER OF PIPE) ELEVATION AND REQUEST CITY INSPECTION AND APPROVAL BEFORE CONTINUING.
7. ALL WORK COVERED WITHOUT CITY INSPECTION WILL BE REQUIRED TO BE EXCAVATED AND INSPECTED AT THE CONTRACTOR'S EXPENSE.
8. TRENCHES SHALL BE BACKFILLED AND COMPACTED WITH CLEAN GRANULAR MATERIAL IN MAX 6" LIFTS WITH A MINIMUM COMPACTION OF 98 PERCENT (AASHTO–T180) IN PAVED AREAS AND 95 PERCENT (AASHTO–T180) IN UNPAVED AREAS.
9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TESTS AT POINTS 1' ABOVE THE PIPE AND AT A MAX. 1' VERTICAL INTERVALS TO FINISH GRADE, AT A MAXIMUM SPACING OF 100 FEET, AND TO FURNISH COPIES OF TEST REPORTS PROMPTLY TO THE CITY.
10. ALL STORM SEWER PIPE SHALL BE REINFORCED CONCRETE (RCP), HIGH DENSITY POLYETHYLENE (HDPE), AS SHOWN ON THE PLANS.
11. STORM DRAINAGE PIPES WITHIN PUBLIC RIGHT–OF–WAY SHALL BE A MINIMUM OF FIFTEEN (15) INCH RCP DIAMETER OR EQUIVALENT.
12. STORM INLETS, MANHOLES, AND CATCH BASINS SHALL BE EITHER POURED IN PLACE OR PRECAST REINFORCED CONCRETE. STRUCTURES SHALL BE REQUIRED AT EACH CHANGE OF PIPE SIZE OR CHANGE IN PIPE DIRECTION.

13. STORM INLETS SHALL BE SPACED IN SUCH A MANNER AS TO ACCEPT ONE HUNDRED (100) PERCENT OF THE DESIGN STORM RUNOFF.

14. WET DETENTION PONDS SHALL BE EIGHT (8) FEET MINIMUM TO TWELVE (12) FEET MAXIMUM DEPTH BELOW THE DESIGN LOW OR NORMAL WATER STAGE.

15. MAXIMUM DISTANCES BETWEEN INLETS AND/OR JUNCTION BOXES:

PIPES SIZE (INCHES)	LENGTH OF RUN (FEET)
15	150
18	300
24 OR GREATER	400

16. ALL SWALES, DITCHES, AND DRY RETENTION POND SIDE SLOPES SHALL BE NO STEEPER THAT 4:1 (H:V) AND SHALL BE SODDED.

17. ALL RETENTION POND BACKSLOPES SHALL BE NO STEEPER THAN 3:1 (H:V) AND SHALL BE SODDED.

18. NORMAL ROADSIDE SWALES SHALL BE CONSTRUCTED TO A MAXIMUM DEPTH OF 18" BELOW THE OUTSIDE EDGE OF PAVEMENT OR CONCRETE CURB.

19. CONCRETE EROSION CONTROL MUST BE PROVIDED WHERE SWALES OR CULVERTS INTERCEPT DRAINAGE DITCHES.

20. A MINIMUM ONE FOOT (1') FREEBOARD ABOVE THE DESIGN HIGH WATER ELEVATION IS REQUIRED AT ALL POINTS AROUND WET RETENTION PONDS.

21. A MINIMUM SIX INCH (6") FREEBOARD ABOVE THE DESIGN HIGH WATER ELEVATION IS REQUIRED AT ALL POINTS AROUND DRY RETENTION PONDS.

22. POND INFLOW SHALL GENERALLY BE CONSTRUCTED WITH REINFORCED CONCRETE AND SHALL BE SUBJECT TO THE APPROVAL OF THE CITY.

23. OUTLET STRUCTURES ARE REQUIRED ON ALL PONDS. ALL OUTLET STRUCTURES SHALL BE PERMANENT CONCRETE OVERFLOW WEIRS OR CONCRETE OUTLET CONTROL STRUCTURES. NO SODDED WEIRS OR OTHER NON-PERMANENT OVERFLOW STRUCTURES SHALL BE ALLOWED.

24. SOIL EROSION CONTROL MEASURES SATISFACTORY TO THE CITY, SHALL BE EMPLOYED DURING CONSTRUCTION AND UPON COMPLETION OF THE POND.

25. THE CITY MAY REQUEST THAT THE DEVELOPER SUBMIT A REPORT BY A QUALIFIED HYDROLOGIST ON THE IMPACT THE POND WILL HAVE ON NEIGHBORING WATER TABLE ELEVATIONS BOTH DURING CONSTRUCTION AND AFTER POND COMPLETION. THE CITY MAY REQUIRE GROUNDWATER MONITORING DURING THE POND EXCAVATION.

26. ADEQUATE MAINTENANCE ACCESS AS APPROVED BY THE CITY SHALL BE PROVIDED AROUND THE ENTIRE PERIMETER OF ALL PONDS AND ASSOCIATED OUTFALLS DISCHARGING INTO AND OUT OF PONDS.

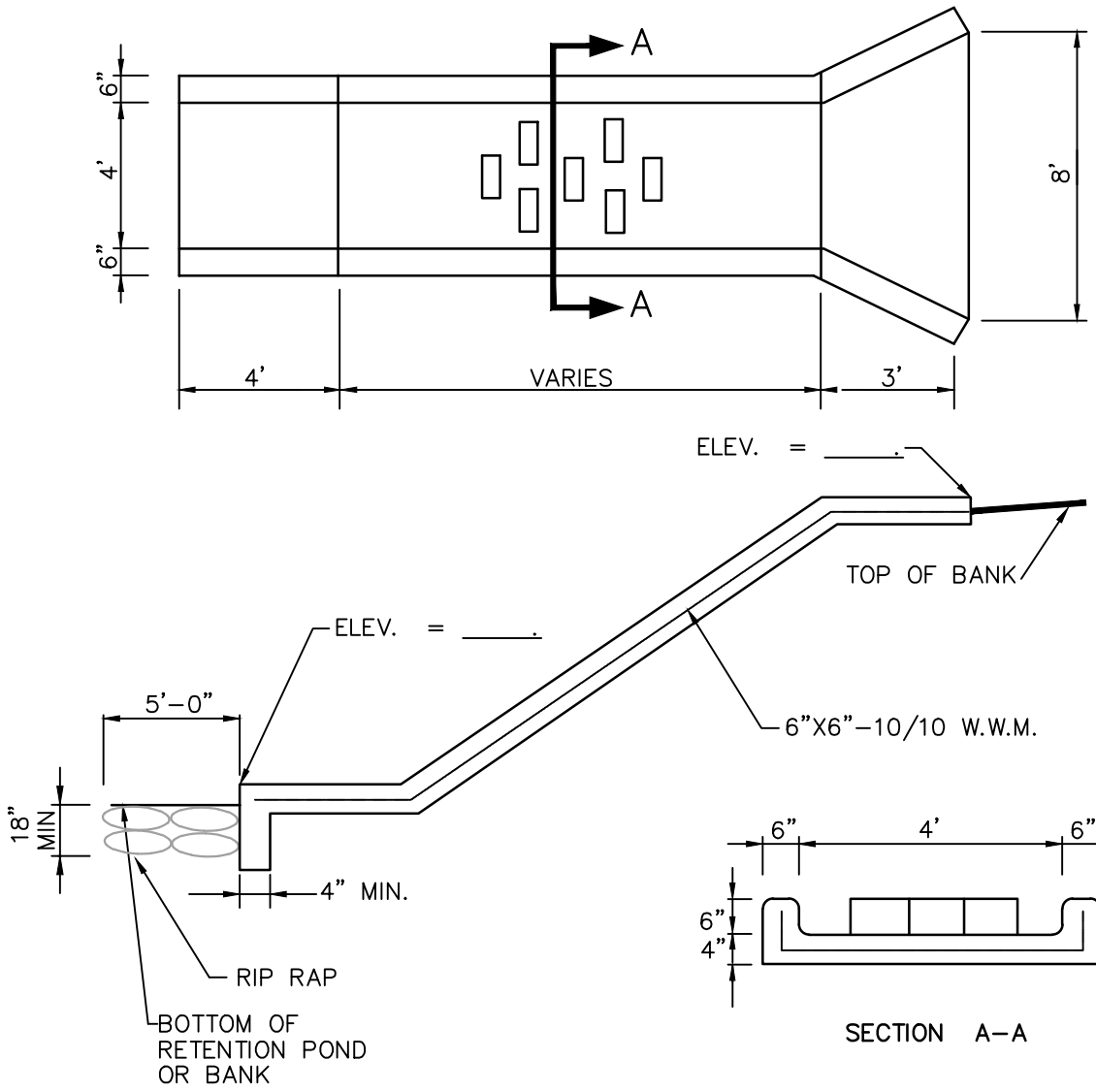
27. IN GENERAL, ALL RETENTION/DETENTION PONDS MUST BE CONSTRUCTED PRIOR TO ANY ROAD, PARKING LOT, OR BUILDING CONSTRUCTION COMMENCING OR AS CURRENT PERMIT CONDITIONS DICTATE.

28. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ANY DEWATERING PERMITS THAT MAY BE REQUIRED.

29. CULVERTS CROSSING RIGHT-OF-WAYS SHALL EXTEND FROM RIGHT-OF-WAY LINE TO RIGHT-OF-WAY LINE UNDER THE ROADWAY.

30. ALL STORM WATER DISCHARGE FROM RETENTION/DETENTION PONDS ARE REQUIRED TO BE CHANNELED INTO DEFINED DRAINAGE PATHS TO EXISTING WATER BODIES, WETLANDS, DITCHES, ETC.

31. THE CITY REQUIRES THE DEVELOPER TO TELEVISE ANY AND ALL STORM SEWER PIPE SYSTEMS IN THE PRESENCE OF THE CITY BY A REPUTABLE COMPANY THAT ENGAGES IN THIS TYPE OF WORK. THE DVD SHALL BE IN HIGH QUALITY STANDARD RESOLUTION USING A CAMERA WITH SUITABLE LIGHTING TO ALLOW A CLEAR FOCUSED PICTURE OF THE ENTIRE INSIDE PIPE CIRCUMFERENCE. THE DVD SHALL BE NON-STOP WITH AUDIO DESCRIBING WHAT IS BEING VIEWED. COPIES OF DVD SHALL BE SUBMITTED IN DVD FORMAT ACCOMPANIED BY WRITTEN LOGS DESCRIBING THE CONDITION OF THE LINES AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO REQUESTING FINAL INSPECTIONS. ANY DEFECTS NOTED SHALL BE CORRECTED PRIOR TO ACCEPTANCE BY THE CITY OR ISSUANCE OF CERTIFICATE OF OCCUPANCY.



1. CONCRETE SPILLWAY TO BE 28 DAY, 2500 P.S.I., 4" THICK.
2. PLACE SOD AT LEAST 5' AROUND ALL STRUCTURE EDGES ABOVE STANDING WATER.
3. ALL EXPOSED CORNERS TO BE ROUNDED @ 3/4" MINIMUM RADIUS.

STANDARD CONSTRUCTION DETAIL

CONCRETE SPILLWAY

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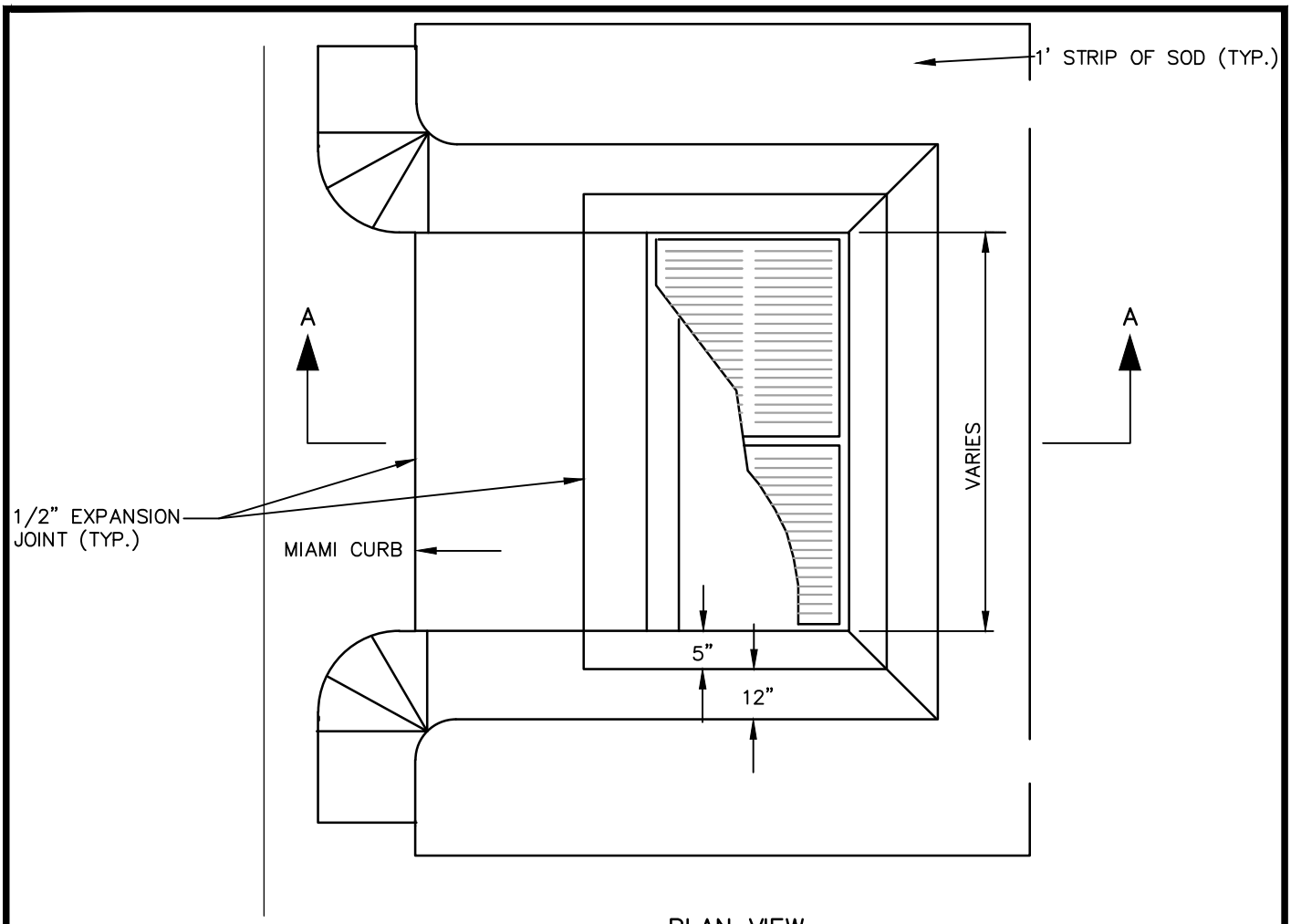
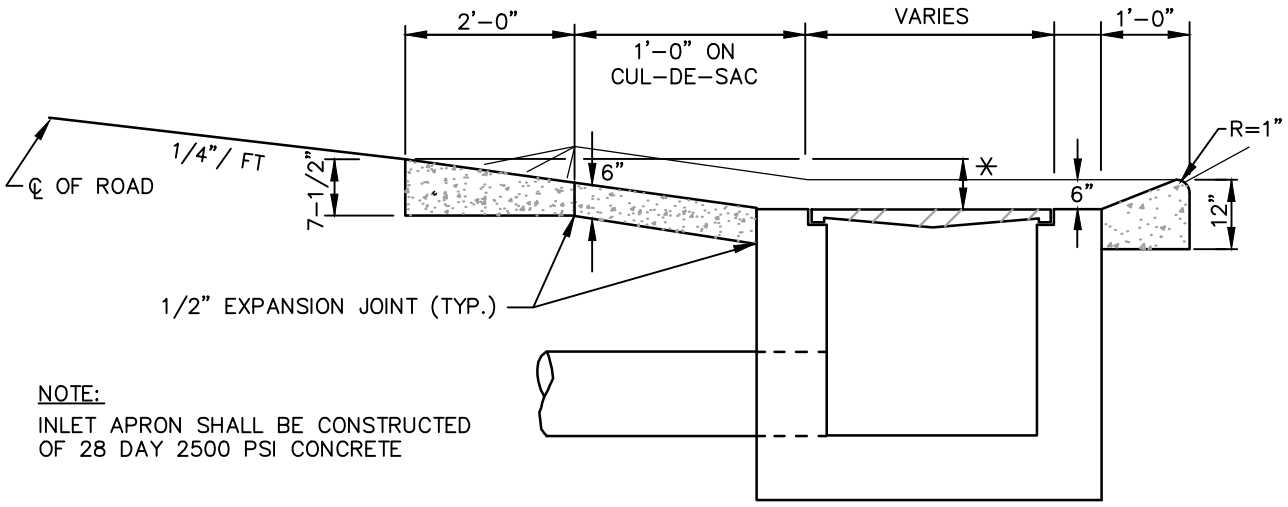


PLAN VIEW



NOTE:
INLET APRON SHALL BE CONSTRUCTED OF 28 DAY 2500 PSI CONCRETE

✳ TOP OF INLET TO BE 3" MIN TO 6" MAX BELOW EDGE OF PAVEMENT

SECTION A-A

STANDARD CONSTRUCTION DETAIL

STORM INLET APRON

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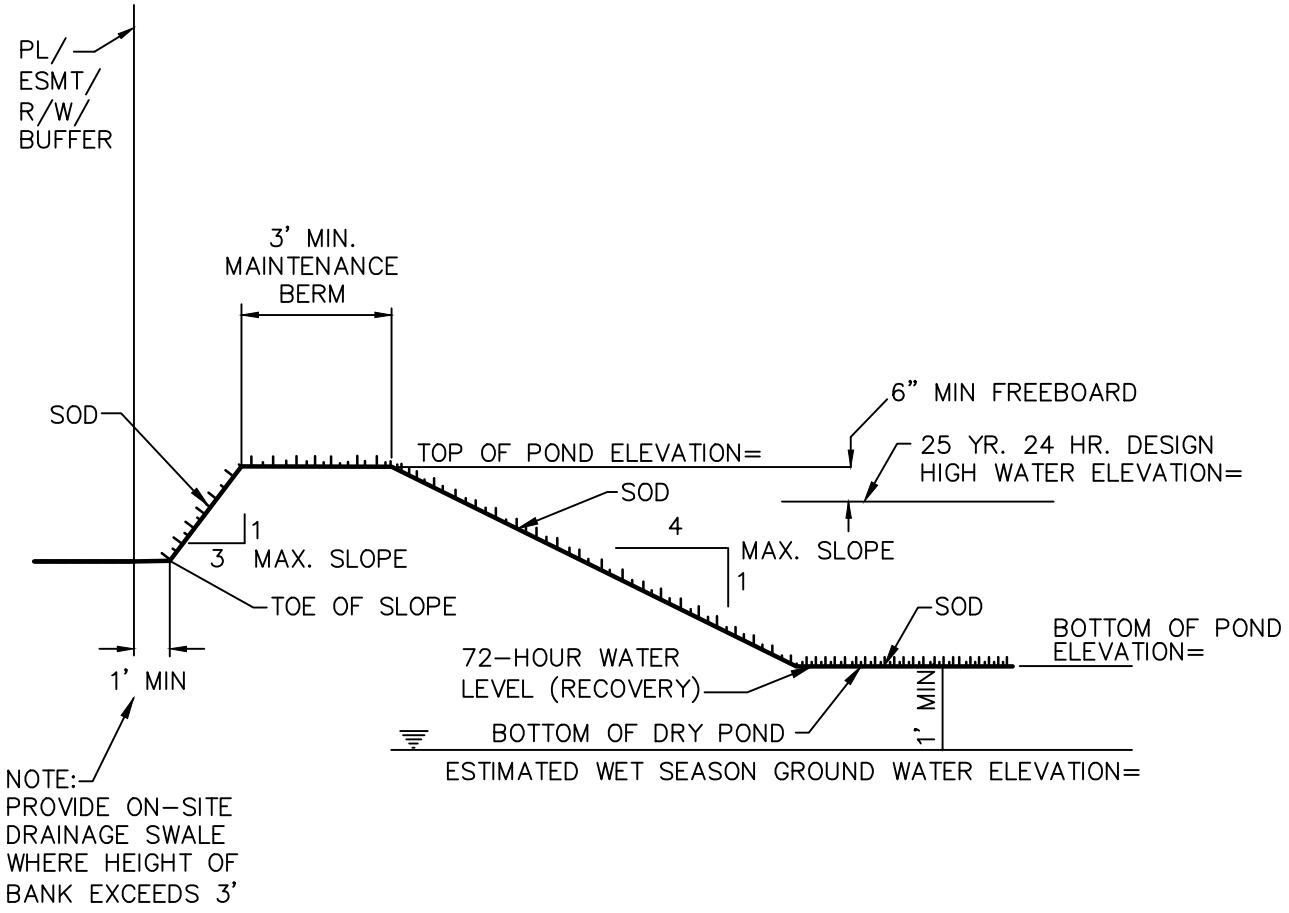

NOTES:

1. PROVIDE DESIGN DATA WHERE INDICATED (=)
2. WATER LEVEL MUST RECOVER TO BOTTOM OF POND AT OR BEFORE 72 HOURS AFTER STORM
3. PROVIDE SPILLWAY DETAILS
4. MUCK GROWN SOD IS NOT ACCEPTABLE FOR POND BOTTOM. SOD TO BE PLACED ON BOTTOM MUST BE GROWN IN SAND. PLEASE COORDINATE WITH ENGINEER OR LANDSCAPE ARCHITECT PRIOR TO PLACEMENT

STANDARD CONSTRUCTION DETAIL

DRY RETENTION POND

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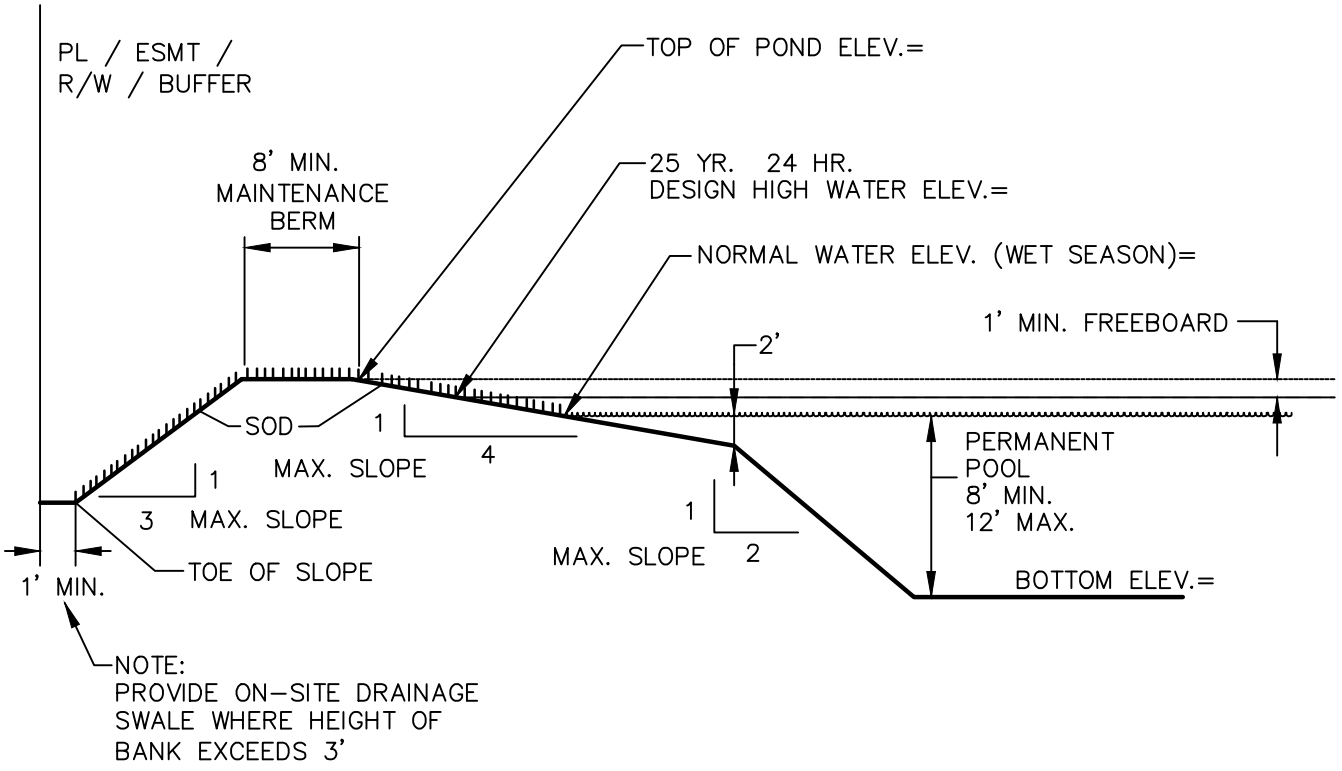

NOTES:

1. SOD IS TO BE PLACED TO EDGE OF WATER EXCEPT IN LITTORAL PLANTING AREAS.
2. A MINIMUM OF ONE FOOT OF FREEBOARD IS REQUIRED BETWEEN DESIGN HIGH WATER ELEVATION AND TOP OF BANK.
3. PROVIDE DESIGN DATA WHERE INDICATED (=)
4. PROVIDE SPILLWAY & DRAWDOWN DETAILS
5. IN ACCORDANCE WITH SECTION 3-58(F) ALL WET DETENTION POND SHALL INCLUDE AN AERATION FOUNTAIN TO ENSURE PROPER WATER QUALITY, ENHANCE MAINTENANCE AND IMPROVE AESTHETICS. PONDS SHALL BE DESIGNED TO APPEAR NATURAL AND NONGEOMETRIC.

STANDARD CONSTRUCTION DETAIL

WET RETENTION POND

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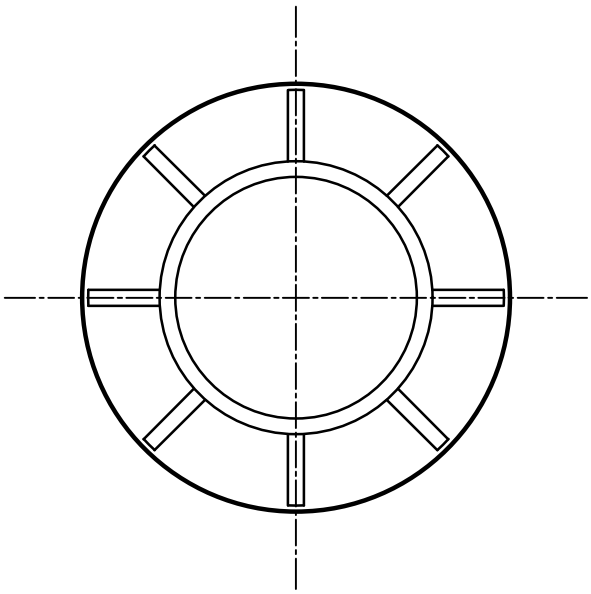
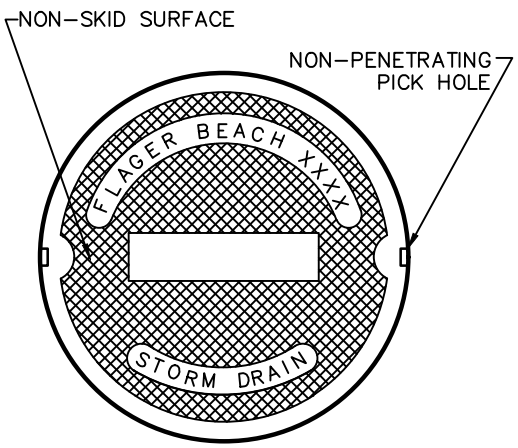
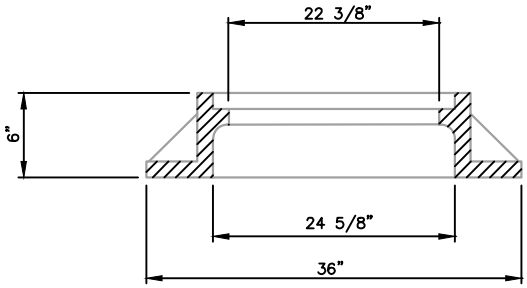


RING TOP VIEW

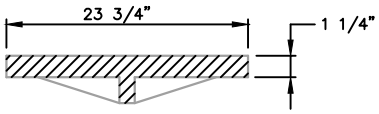


COVER DETAIL

N.T.S.



RING SECTION



COVER SECTION

NOTE: YEAR STAMP TO MATCH CASTING YEAR

U. S. FOUNDRY 195E OR APPROVED EQUAL

COVER TYPE	LOAD RATING	COVER WEIGHT	TOTAL WEIGHT
E	HEAVY DUTY	130	325

FOR MANHOLES IN FL. D.O.T. R/W OR AS DETERMINED BY THE CITY. THE COVER TYPE SHALL BE – BJ HEAVY DUTY 200 LBS W/ ORS.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

MANHOLE RING AND COVER DETAIL

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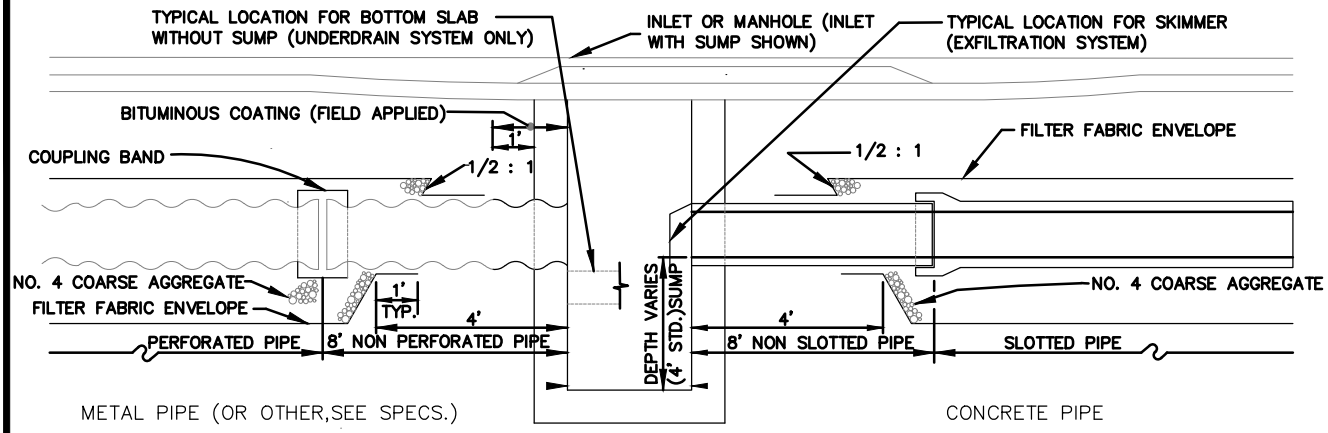
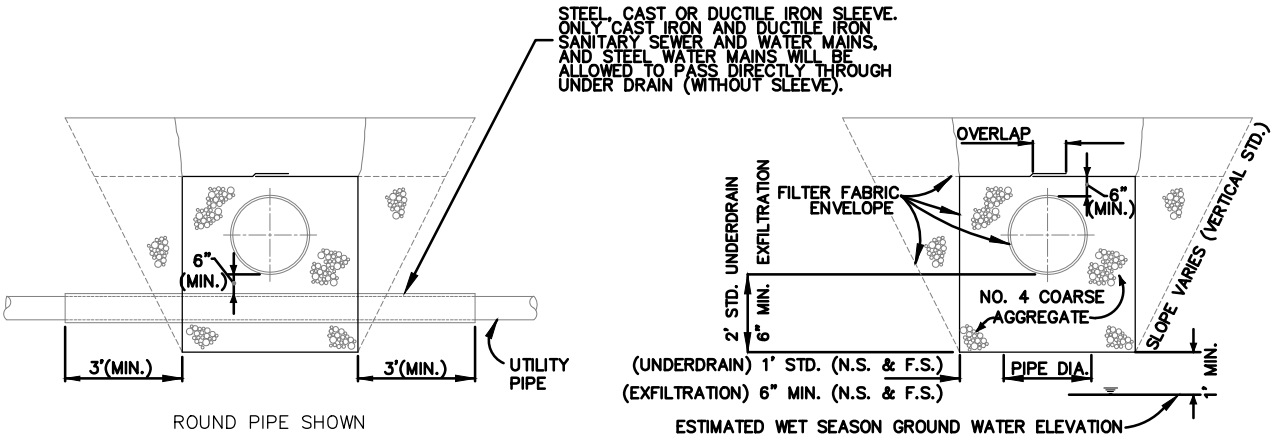


LONGITUDINAL SECTION



ROUND PIPE SHOWN

UTILITY PIPES THRU UNDER DRAIN

ROUND PIPE SHOWN

STANDARD CROSS SECTION (ENLARGED)

UNDER DRAIN AND EXFILTRATION SYSTEMS

NOT TO SCALE

NOTES:

1. UNDER DRAIN AND FILTRATION SYSTEMS SHALL CONSIST OF PERFORATED OR SLOTTED PIPE WRAPPED IN A FILTER FABRIC SLEEVE AND SURROUNDED BY FILTER AGGREGATE ALSO WRAPPED WITH FILTER FABRIC. EXFILTRATION SYSTEM REQUIRES FILTER FABRIC AT AGGREGATE ENVELOPES ONLY.
2. FILTER AGGREGATE SHALL BE GRAVEL, SLAG, CRUSHED ROCK, OR CRUSHED STONE CONFORMING TO THE REQUIREMENTS OF THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION FOR COARSE AGGREGATE, #4 STONE.
3. FILTER FABRIC SHALL BE A NON WOVEN FABRIC MADE FROM POLYETHYLENE OR POLYPROPYLENE. THE FABRIC SHALL BE INERT TO MOST SOIL CHEMICALS, RESISTANT TO ACIDS AND ALKALIS WITHIN A pH RANGE OF THREE (3) TO ELEVEN (11), AND NON BIODEGRADABLE. FILTER FABRIC SHALL WEIGH AT LEAST SIX (6) OUNCES PER SQUARE YARD AND SHALL BE AT LEAST FIFTY (50) MILS THICK.
4. INLET SUMP/SKIMMER OR EQUIVALENT PRETREATMENT IS REQUIRED FOR EXFILTRATION SYSTEM.
5. COMMERCIAL CHAMBER DETENTION SYSTEMS MAY BE SUBSTITUTED FOR THE PERFORATED PIPE EXFILTRATION SYSTEMS WITH THE APPROVAL OF THE CITY.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

UNDER DRAIN AND EXFILTRATION SYSTEMS (USE BY CITY SPECIAL APPROVAL ONLY)

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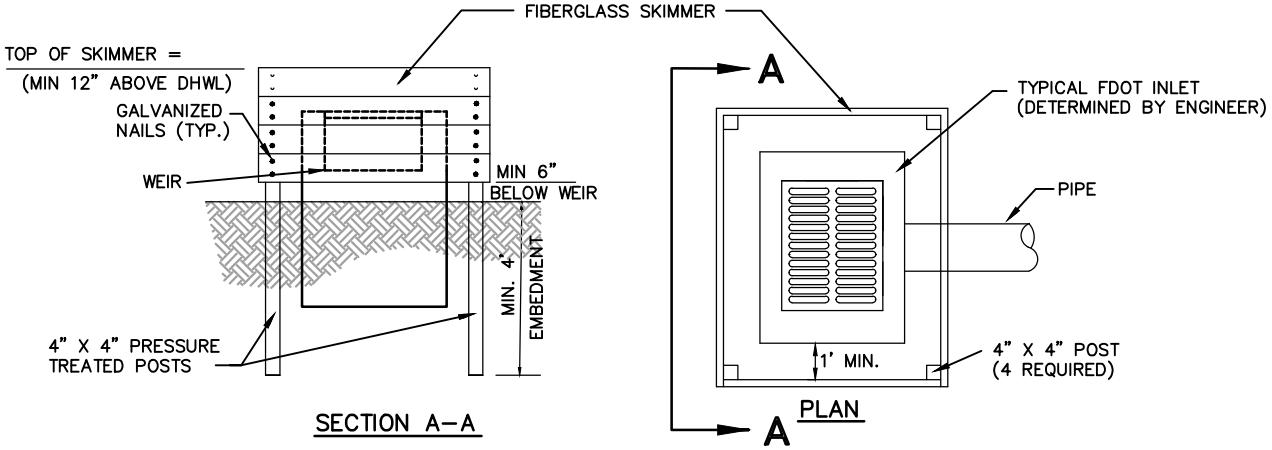
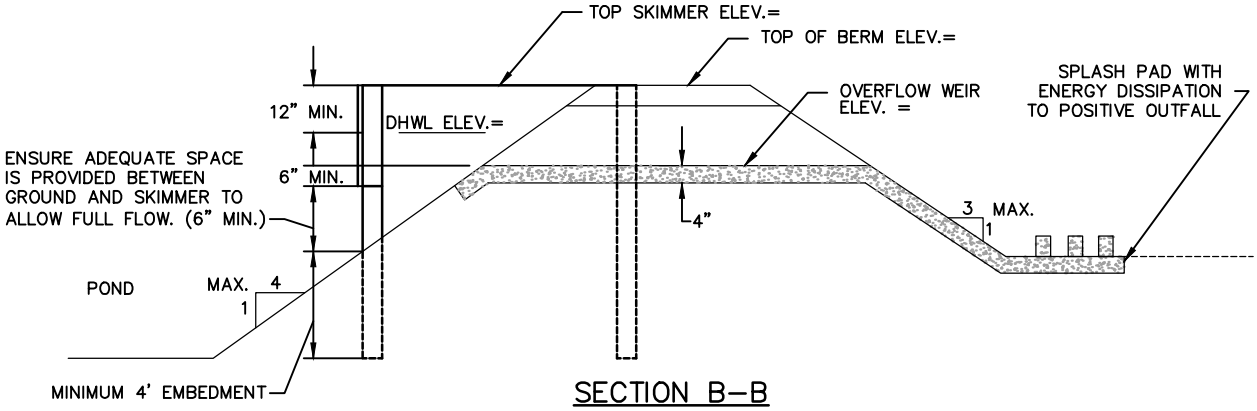
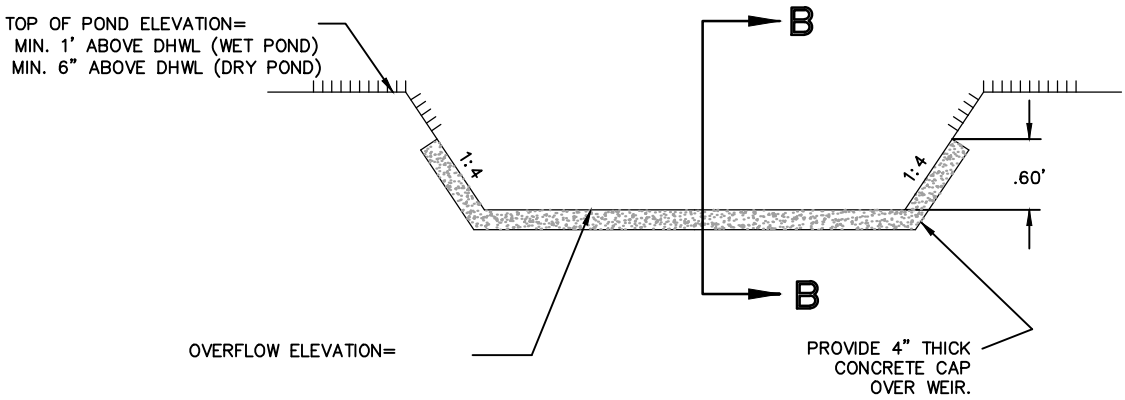


CONTROL STRUCTURE





OVERFLOW WEIR DETAIL

N.T.S.

NOTE:
PROVIDE DESIGN DATA WHERE INDICATED (=)

STANDARD CONSTRUCTION DETAIL

SKIMMER DETAIL

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STANDARD CONSTRUCTION DETAIL

CONCRETE MITERED END SECTION DETAIL

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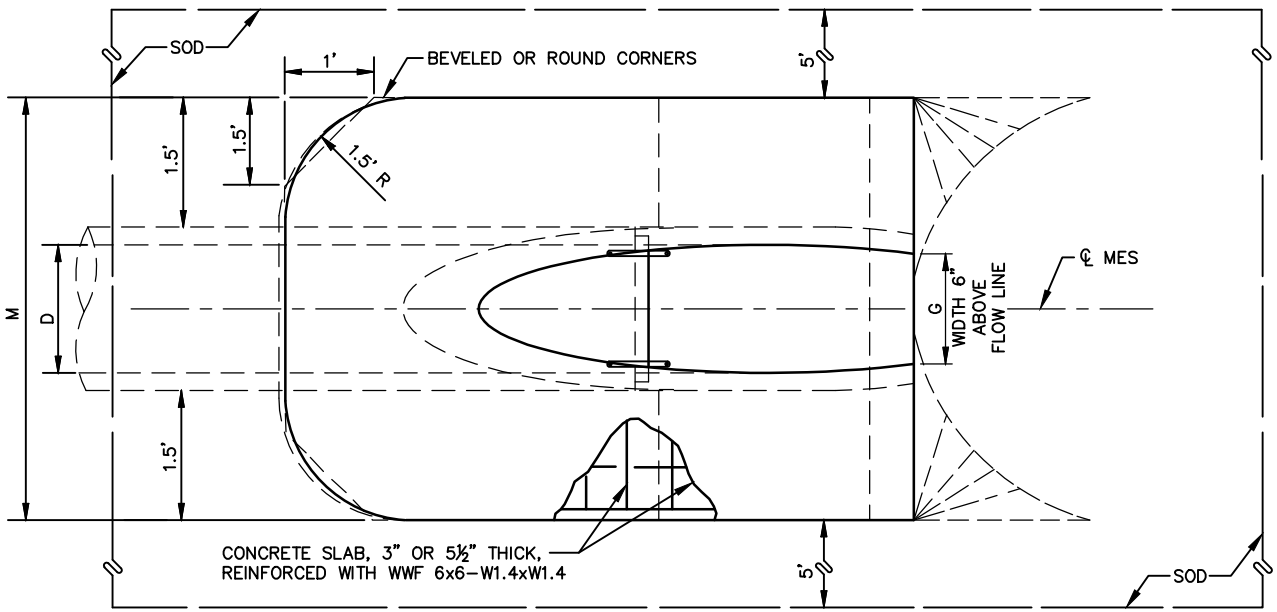

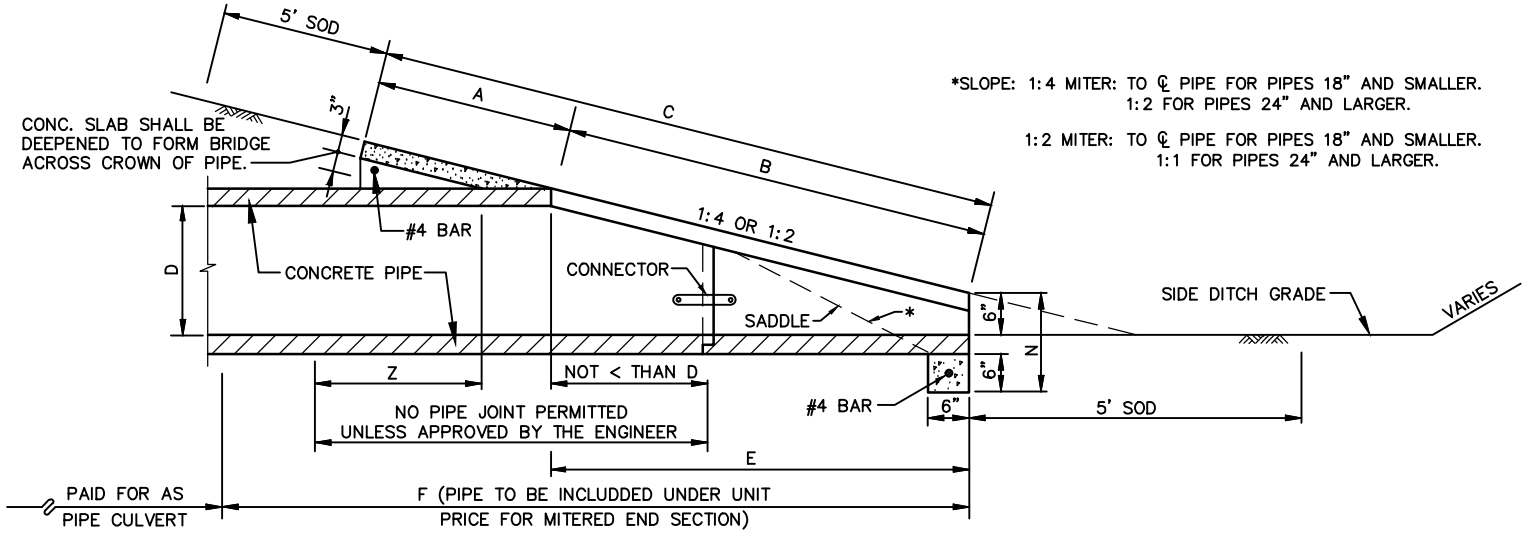

*SLOPE: 1:4 MITER: TO ℄ PIPE FOR PIPES 18" AND SMALLER.
1:2 FOR PIPES 24" AND LARGER.

1:2 MITER: TO ℄ PIPE FOR PIPES 18" AND SMALLER.
1:1 FOR PIPES 24" AND LARGER.

NOTE:
SEE SHEETS ST–9B & ST–9C FOR DIMENSION TABLE AND DETAILS.

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FEB 2018

CITY OF FLAGLER BEACH
FLORIDA

STANDARD CONSTRUCTION DETAIL

CONCRETE MITERED END SECTION DETAIL

NTS.

DIMENSIONS										
	D	X	A	B	C	E	F	G	M	N
1:2 Slope	15"	2'-7"	1.92'	2.18'	4.10'	2.06'	5'	1.22'	4.63'	1.19'
	18"	2'-10"	1.97'	2.74'	4.71'	2.56'	6'	1.41'	4.92'	1.21'
	24"	3'-5"	2.06'	3.85'	5.91'	3.56'	7'	1.73'	5.50'	1.25'
	30"	4'-3"	2.15'	4.95'	7.10'	4.56'	8'	2.00'	6.08'	1.29'
	36"	5'-1"	2.25'	6.08'	8.33'	5.56'	9'	2.24'	6.67'	1.33'
	42"	6'-0"	2.34'	7.21'	9.55'	6.56'	10'	2.45'	7.25'	1.38'
	48"	6'-9"	2.43'	8.33'	10.76'	7.56'	11'	2.65'	7.83'	1.42'
	54"	7'-8"	2.52'	9.44'	11.96'	8.56'	12'	2.83'	8.42'	1.46'
	60"	8'-6"	2.62'	10.56'	13.18'	9.56'	14'	3.00'	9.00'	1.50'
	66"	9'-2"	2.71'	11.68'	14.39'	10.56'	15'	3.18'	9.58'	1.54'
	72"	10'-0"	2.80'	12.80'	15.60'	11.56'	16'	3.30'	10.16'	1.58'
1:4 Slope	15"	2'-7"	2.27'	4.09'	6.36'	4.03'	8'	1.22'	4.63'	1.19'
	18"	2'-10"	2.36'	5.12'	7.48'	5.03'	9'	1.41'	4.92'	1.21'
	24"	3'-5"	2.53'	7.18'	9.71'	7.03'	11'	1.73'	5.50'	1.25'
	30"	4'-3"	2.70'	9.25'	11.95'	9.03'	13'	2.00'	6.08'	1.29'
	36"	5'-1"	2.87'	11.31'	14.18'	11.03'	15'	2.24'	6.67'	1.33'
	42"	6'-0"	3.05'	13.37'	16.42'	13.03'	17'	2.45'	7.25'	1.38'
	48"	6'-9"	3.22'	15.43'	18.65'	15.03'	19'	2.65'	7.83'	1.42'
	54"	7'-8"	3.39'	17.49'	20.88'	17.03'	21'	2.83'	8.42'	1.46'
	60"	8'-6"	3.56'	19.55'	23.11'	19.03'	23'	3.00'	9.00'	1.50'
	66"	9'-2"	3.73'	21.62'	25.35'	21.03'	25'	3.18'	9.58'	1.54'
	72"	10'-0"	3.91'	23.68'	27.59'	23.03'	27'	3.30'	10.16'	1.58'

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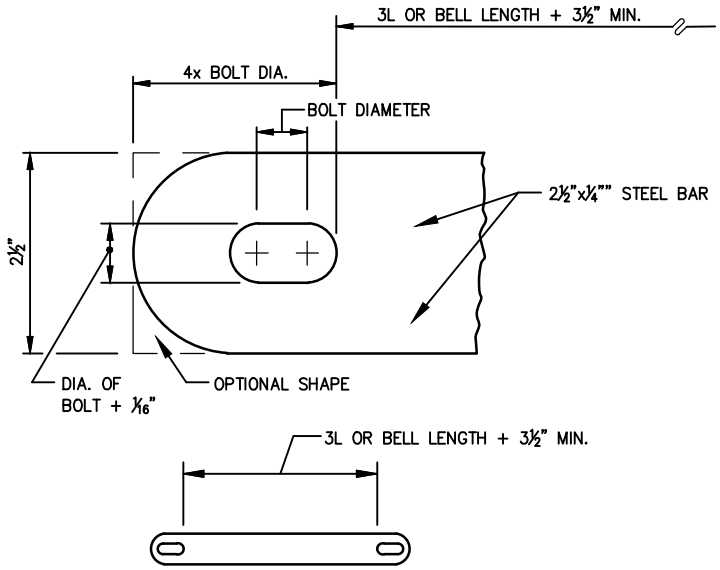
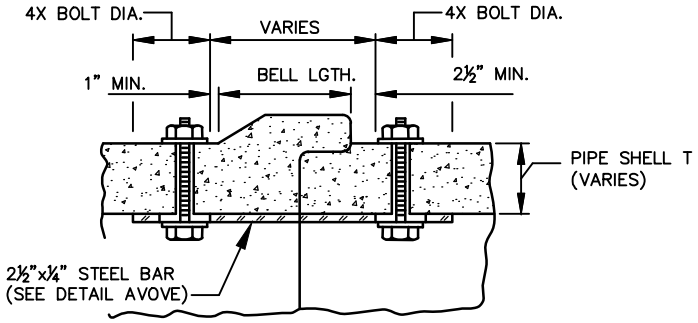
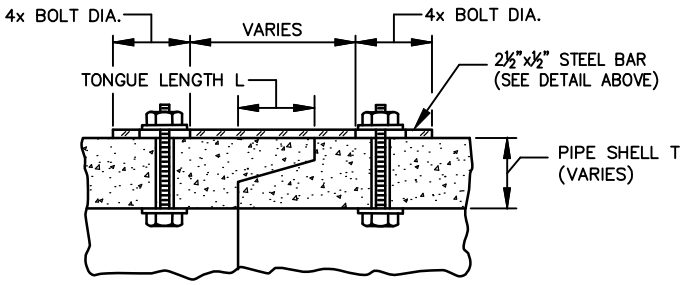
FEB 2018







ALL BARS, BOLTS, NUTS AND WASHERS ARE TO BE GALVANIZED STEEL. BOLT DIAMETERS SHALL BE 3/8" FOR 15" TO 36" PIPE AND 5/8" FOR 42" TO 72" PIPE. TWO CONNECTORS REQUIRED PER JOINT, LOCATED 60° RIGHT AND LEFT OF BOTTOM CENTER OF PIPE. BOLT HOLES IN PIPE SHELL ARE TO BE DRILLED.

CONCRETE PIPE CONNECTOR

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

CONCRETE MITERED END SECTION DETAIL

NTS.

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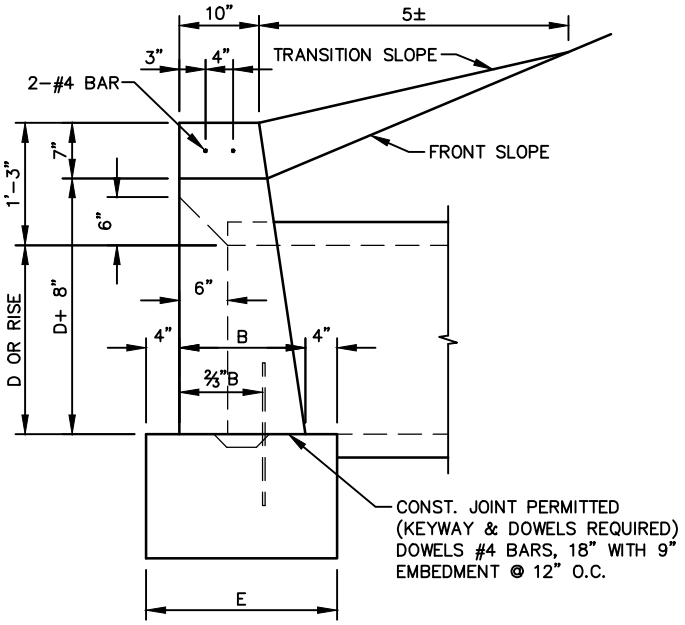
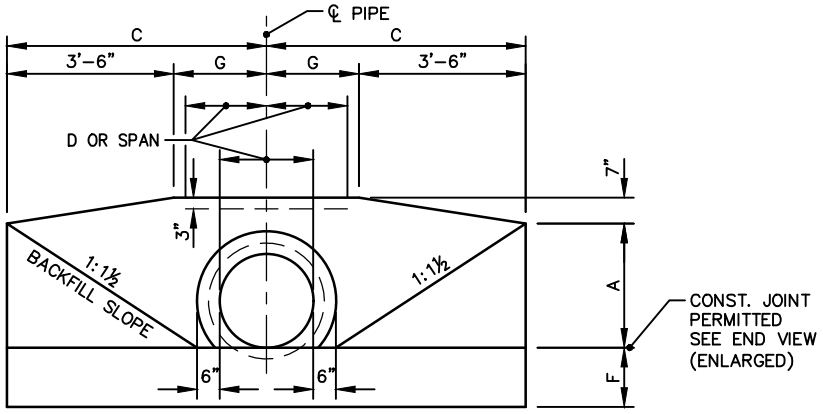
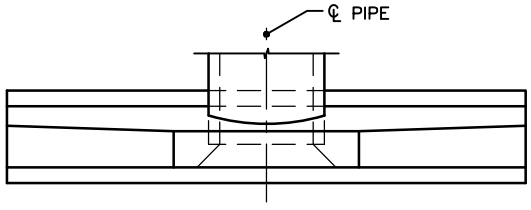
FEB 2018



END VIEW (ENLARGED)



FRONT VIEW



TOP VIEW

STANDARD CONSTRUCTION DETAIL

STRAIGHT CONCRETE ENDWALL DETAIL

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WATER SYSTEM DETAILS

GENERAL NOTES
WATER SYSTEM CONSTRUCTION

1. THE CITY SHALL BE NOTIFIED PRIOR TO BEGINNING ANY WATER SYSTEM CONSTRUCTION.
2. DEWATERING SHALL BE PROVIDED TO KEEP GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW WATER MAIN BEING LAID.
3. ALL WATER MAINS SHALL BE LAID ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
4. TRENCHES SHALL BE BACKFILLED WITH CLEAN GRANULAR MATERIAL IN MAX. 1' LIFTS WITH A MINIMUM COMPACTION OF 98 PERCENT (AASHTO–T180) IN PAVED AREAS AND 90 PERCENT IN UNPAVED AREAS.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TESTS BE PROVIDED AT POINTS 1 FOOT ABOVE THE PIPE AND AT 1 FOOT VERTICAL INTERVALS TO FINISH GRADE, AT A MINIMUM SPACING OF EVERY 300 FEET, AND TO FURNISH COPIES OF TEST REPORTS PROMPTLY TO THE CITY.
6. METALLIZED PIPE LOCATION TAPE SHALL BE LOCATED 15 INCHES BELOW FINISHED GRADE OR AS SPECIFIED BY MANUFACTURER FOR ALL PVC LINES. MARKER TAPE SHALL BE USED ON ALL DUCTILE IRON PIPE.
7. WATER SERVICES (SINGLE 1") SHALL BE POLYETHYLENE TUBING (BLUE IN COLOR) ; POLYBUTYLENE SHALL NOT BE ALLOWED.
8. ALL WATER SERVICE ENDINGS SHALL BE MARKED WITH 4" X 4" LUMBER (PRESSURE TREATED) EXTENDING 4 FEET ABOVE GRADE, WITH WATER SERVICES SECURED 24" ABOVE THE GROUND. WIRE TIES SHALL BE USED TO SECURE THE CURB STOPS TO SUPPORT POSTS.
9. WATER VALVES SHALL BE PLACED AT ALL STREET INTERSECTIONS AND AT MAXIMUM SPACING OF 500 FEET.
10. AT ALL WATER MAIN TEES AND CROSSES, VALVES SHALL BE INSTALLED ON ALL LEGS EXCEPT ONE.
11. APPROVED WATER VALVE TYPES ARE THE FOLLOWING:
    A. STANDARD GATE VALVES LESS THAN 48" DIAMETER RESILIENT SEAT GATE VALVES (AWWA C–509 OR C–515).
    B. MECHANICAL TAPPING SLEEVE SHALL BE STAINLESS STEEL. (AWWA C – 509)

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

GENERAL NOTES
WATER SYSTEM CONSTRUCTION

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W–1A

FEB 2018

GENERAL NOTES
WATER SYSTEM CONSTRUCTION

12. ALL WATER VALVE BOXES SHALL BE ADJUSTED TO FINISH GRADE AND THE LIDS PAINTED BLUE TO MAKE THEM PLAINLY VISIBLE.

13. WATER VALVES SHALL BE COMPLETELY OPENED BY THE CONTRACTOR UPON FINAL ACCEPTANCE OF NEW WATER SYSTEMS IN THE PRESENCE OF THE CITY.

14. HYDRANTS SHALL BE PLACED AT 500 FEET MAXIMUM SPACING IN RESIDENTIAL DEVELOPMENTS AND AT 300 FEET MAXIMUM SPACING IN BUSINESS AND INDUSTRIAL DEVELOPMENTS. ALL WATER MAIN TO WHICH HYDRANTS ARE CONNECTED SHALL BE 6 INCHES MINIMUM.

15. ALL FIRE HYDRANTS SHALL BE CONSTRUCTED TO MAKE THEM EASILY ACCESSIBLE TO FIRE PERSONNEL IN CASE OF FIRE. THE MAIN NOZZLE CONNECTION SHOULD ALWAYS FACE THE STREET AND BE 18–24" ABOVE GRADE.

16. AS STANDARD PRACTICE, WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF CURB OR AS APPROVED BY THE CITY.

17. ALL WATER MAINS SHALL BE NSF–APPROVED FOR POTABLE WATER USE, AND SHALL HAVE A MINIMUM COVER OF 36 INCHES. IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVER, DUCTILE IRON CLASS 350 MAY BE USED AS APPROVED BY THE CITY.

18. ALL NEWLY CONSTRUCTED WATER MAINS SHALL BE FLUSHED, CLEANED WITH A POLY PIG, PRESSURE TESTED, DISINFECTED AND BACTERIOLOGICALLY CLEARED FOR SERVICE IN ACCORDANCE WITH LATEST AWWA STANDARDS AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS.

19. WATER MAINS SHALL BE AWWA C–900 CL 150, OR D.I.P. CLASS 350 STANDARD CEMENT LINED.

20. UPON CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE SYSTEM, IT SHALL BE THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM IS PROPERLY CERTIFIED AND ACCEPTED BY THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, AND THAT CERTIFIED AS–BUILT DRAWINGS (24"x36") ARE PROVIDED TO THE CITY PRIOR TO PAVING AND ANY USE OF THE SYSTEM. PROVIDE THREE (3) BLUELINE COPIES, ONE (1) MYLAR OF AS–BUILT DRAWINGS AND A DIGITAL COPY.

21. MEGALUG OR EQUIVALENT, RESTRAINED JOINT SYSTEM MAY BE USED ON ALL RESTRAINED FITTINGS, VALVES, ETC. MINIMUM DEPTH OF BURY ON PIPES NOT MEETING REQUIRED COVER REQUIREMENTS SHALL FOLLOW THE MOST RECENT DIPRA THRUST RESTRAINT DESIGN GUIDELINES.

GENERAL NOTES
WATER SYSTEM CONSTRUCTION

22. WATER SYSTEMS SHALL BE PRESSURE TESTED AT 150 PSI STATIC PRESSURE FOR A PERIOD OF 2 HOURS PER AWWA STANDARDS. TESTS SHALL BE CONDUCTED BEFORE FINAL PAVING AND IN THE PRESENCE OF THE CITY.

23. ALL WATER SERVICES SHALL BE MARKED WITH A "Λ" SAW CUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT.

24. ALL WATER VALVES AND BLOW-OFFS SHALL BE MARKED WITH AN "✖" SAW CUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT. LOCATION OF METAL TABS IN INCHES FROM EDGE OF PAVEMENT SHALL EQUAL DISTANCE IN FEET FROM EDGE OF PAVEMENT TO VALVE.

25. UNIFLANGE 1300 SERIES PIPE RESTRAINTS AS MANUFACTURED BY FORD OR APPROVED EQUAL MAY BE USED AS APPROPRIATE FOR RESTRAINING IN-LINE PRESSURE PIPE EACH SIDE OF PIPE JOINT. AS REQUIRED BY RESTRAINT TABLE.

26. TRACING WIRE SHALL BE INSTALLED IN ACCORDANCE WITH UTILITY PIPE LOCATION MATERIALS DETAIL.

27. NO GALVANIZED PIPE, FITTINGS, ETC. ARE ACCEPTED.

28. UNLESS APPROVED BY THE CITY, ALL WATER METERS SHALL BE INSTALLED AT THE RIGHT OF WAY LINE ONLY REGARDLESS OF SIZE.

29. SUBMIT ASSEMBLY CERTIFICATION FOR ALL BACKFLOW PREVENTERS TO THE CITY BEFORE FINAL INSPECTION.

30. PIPING FOR RAW WATER SHALL BE OLIVE GREEN FOR ABOVE GROUND PIPING, BURIED PVC PIPING SHALL BE BLUE WITH WHITE COLOR BACKGROUND LOCATOR TAPE PLACED DIRECTLY ON TOP OF THE PIPE AND AT 12" TO 18" ABOVE THE PIPE. THE TAPE SHALL CONTINUOUSLY READ "CAUTION – RAW WATER MAIN BURIED BELOW" OR WHITE WITH LOCATOR TAPE PLACED 12" TO 18" ABOVE THE TOP OF THE PIPE.

31. SEE CHART BELOW FOR WATER MAIN SIZE AND MATERIALS.

M A T E R I A L S		
DIAMETER	MATERIAL	STANDARD
< 12"	DIP CLASS 350	AWWA C 150
> 12"	DIP CLASS 250	AWWA C 150
4"	PVC 1120 / SDR 21 (1)	ASTM D 2241
> 4" – 12"	PVC DR-18 (1)	AWWA C 900
> 4" – 12" DEDICATED FIRE LINE	PVC DR-14 (1)	AWWA C 900
14" – 36" (16"– 24" ⟶ DR – 18) (30"– 36" ⟶ DR – 21)	PVC 1120 (1)	AWWA C 905
ALL SIZES	HDPE DIPS DR 11 (2)	ASTM F 714

NOTE: (1) PVC PIPE COLOR SHALL BE BLUE FOR POTABLE WATER MAINS, BLUE WITH WHITE LOCATOR TAPE OR WHITE WHITE LOCATOR TAPE FOR RAW WATER MAIN.
(2) HDPE TO BE PROVIDED IN NEXT LARGER DIAMETER IN ORDER TO HAVE REQUIRED INSIDE DIAMETER.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

GENERAL NOTES
WATER SYSTEM CONSTRUCTION

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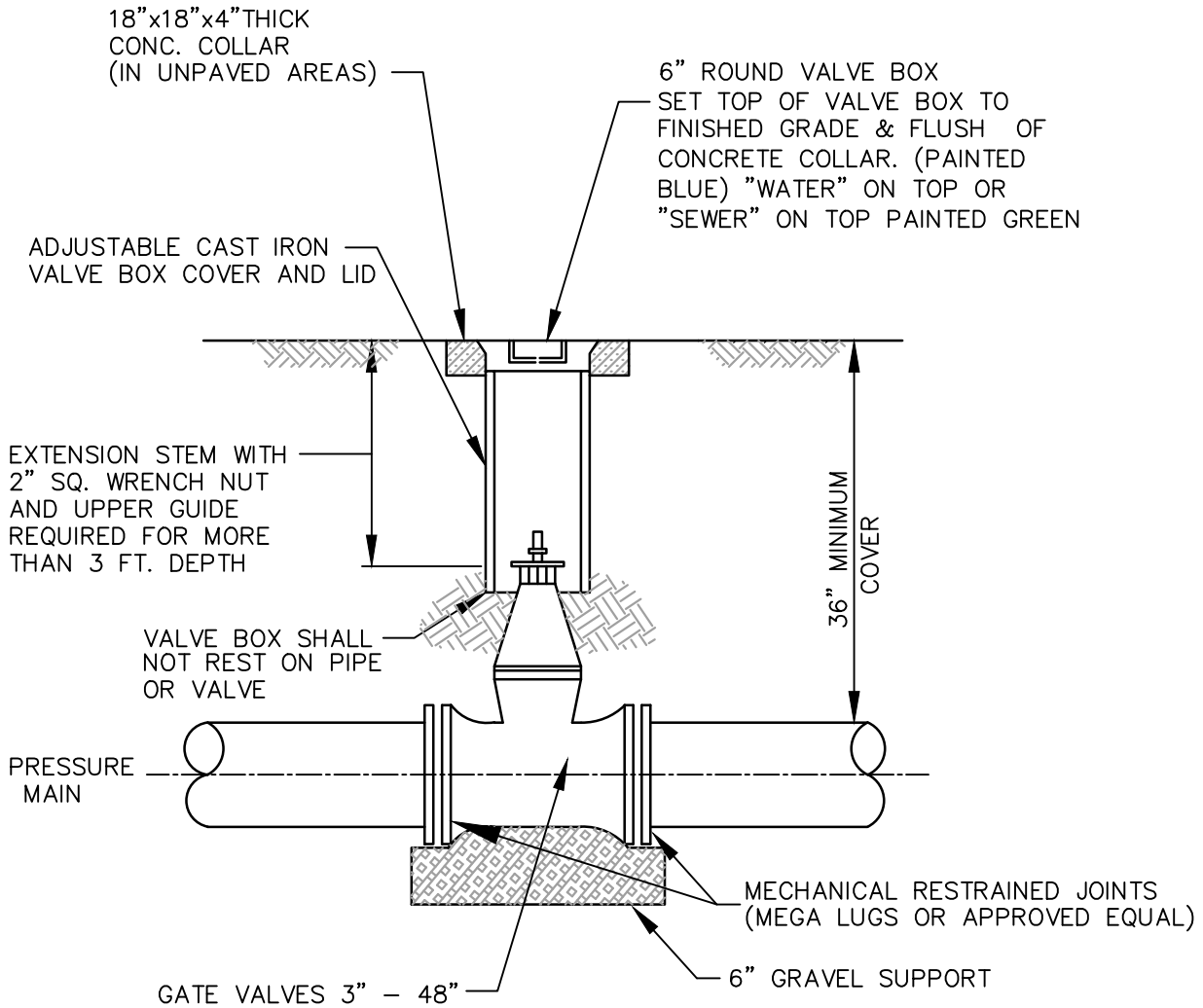
W–1C

FEB 2018



NOTE: USE RESTRAINED JOINT
WHERE APPLICABLE.

STANDARD CONSTRUCTION DETAIL

GATE VALVE AND VALVE BOX

NTS.

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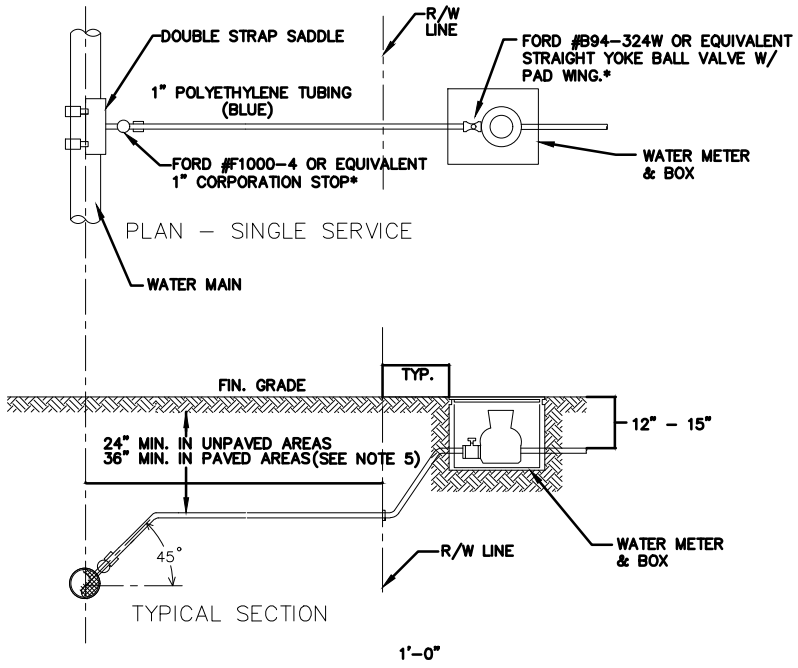
W–2

FEB 2018

VALVE SCHEDULE FORD OR EQUIVALENT	
WATER SERVICES	
VALVES AT MAIN	
1"	F1000–4
1 1/2" (REQ. C84–66 PACK JOINT COUPLING)	B81–666
2" (REQ. C84–77 PACK JOINT COUPLING)	B81–777
VALVES AT METER	
1"	B94–324W
1 1/2"–2"	BF43–777W



NOTES:

1. CUSTOMER POINT OF SERVICE IS TYPICALLY AT THE LOCATION WHERE CUSTOMER PLUMBING IS ATTACHED TO THE YOKE NUT.
2. HDPE SHALL BE 200 PSI, NSF APPROVED, SDR 9, MEETING ASTM D1248. TUBING SHALL BE ENDOT ENDOTRACE (OR APPROVED EQUAL).
3. REDUCED PRESSURE BACKFLOW PREVENTERS ARE REQUIRED FOR ALL COMMERCIAL SERVICES AND SHALL BE INSTALLED BY A CERTIFIED TECHNICIAN AT OWNERS EXPENSE
4. ALL SERVICE TAPS SHALL BE NO CLOSER THAN 2'–0" STAGGERED INTERVAL OR WITHIN 2'–0" OF BELL OR SPIGOT ENDS.
5. IN AREAS TO BE PAVED PROVIDE A 2" MIN. PVC SCHEDULE 40 SLEEVE FOR PE–TUBING. SLEEVE SHALL EXTEND A MIN. OF 2' BEHIND BACK OF CURB AT EACH SIDE OF ROAD.
6. ALL RESIDENTIAL WATER METERS SHALL BE EQUIPPED WITH A DOUBLE CHECK BACKFLOW PREVENTER.
7. CONTRACTOR TO PROVIDE SERVICE IN BOX WITH STAKE MARKING THE LOCATION.
8. CITY TO PROVIDE METER AND BACK FLOW PREVENTER.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

WATER LATERAL SERVICE
5/8", 3/4", 1", 1–1/2", 2" METERS

NTS

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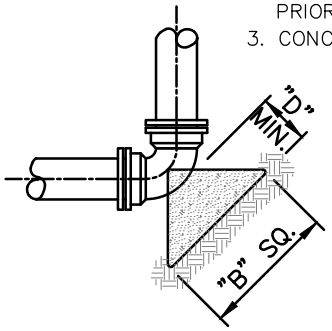
W–3

DEC 2015

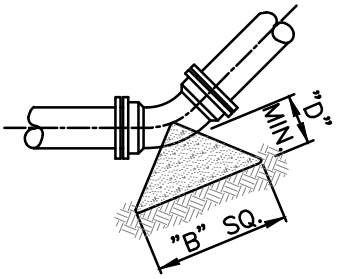
THRUST BLOCK DIMENSION (feet)												
PIPE SIZE	90°BEND		45°BEND		22.5°BEND		11.25°BEND		DEAD END		TEE/WYE	
(IN.)	B	D	B	D	B	D	B	D	B	D	B	D
4	1.5	0.5	1.0	0.5	1.0	0.5	0.5	0.5	1.0	0.5	1.0	0.5
6	2.0	0.5	1.5	0.5	1.0	0.5	1.0	0.5	2.0	0.5	2.0	0.5
8	2.5	0.5	2.0	0.5	1.5	0.5	1.0	0.5	2.0	1.0	2.0	0.5
10	3.0	0.5	2.5	1.0	2.0	0.5	1.0	0.5	3.0	1.0	3.0	0.5
12	4.0	1.0	3.0	1.0	2.0	0.5	1.5	0.5	3.0	1.0	3.0	0.5
14	4.5	1.0	3.0	1.0	2.5	0.5	2.0	0.5	4.0	1.5	4.0	1.0
16	5.0	1.5	4.0	1.0	3.0	1.0	2.0	0.5	4.5	1.5	4.5	1.0
18	5.7	1.7	4.2	1.4	3.1	1.4					6.9	1.7
24	7.7	1.7	5.6	1.4	4.1	1.4					9.1	2.1
30	9.5	2.1	7.0	1.7	5.1	1.4					11.3	2.4
36	11.5	2.4	8.4	1.8	6.0	1.7					13.6	2.5

REINFORCEMENT STEEL	SEE CHART	FOR "D"	REINFORCEMENT
	3" "D"	1.0' & UNDER	#3 BAR @ 6" EACH WAY
		1.0' TO 1.5'	#3 BAR @ 6" EACH WAY
		1.5' TO 2.5'	#3 BAR @ 6" EACH WAY

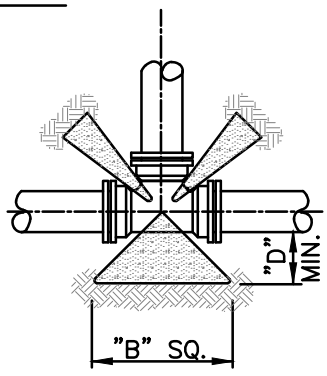
NOTES:
1. THRUST BLOCKS TO BE SET AGAINST FIRM UNDISTURBED SOIL
2. FITTINGS TO BE WRAPPED IN VISQUEEN OR POLYETHYLENE ENCASEMENT PRIOR TO POURING CONCRETE.
3. CONCRETE STRENGTH f = 3000 P.S.I.



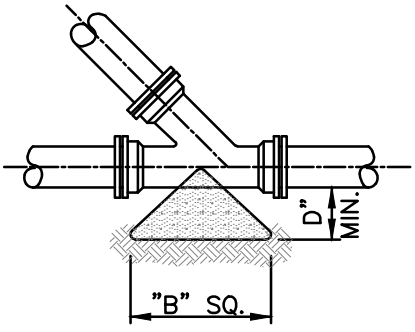
90° BEND



45° OR 22.5° BEND



TEE OR PLUGGED TEE



WYE

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

THRUST BLOCK DETAILS
(USE BY CITY SPECIAL APPROVAL ONLY)

NTS

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W–4

FEB 2018

TABLE APPLIES TO PVC PIPE
FOR THE FOLLOWING CONDITIONS:

- TEST PRESSURE: 150 PSIG
- SOIL TYPE: SP
- COVER DEPTH: 2.5 FEET
- SAFETY FACTOR: 1.5
- TRENCH TYPE: 3

SCHEDULE OF LENGTHS OF RESTRAINED PVC PIPE (FT.)					
FITTING	1/4 BEND	1/8 BEND	1/16 BEND	1/32 BEND	TEE OR DEAD END
PIPE SIZE (IN.) :					
4"	20	18	18	18	45
6"	28	18	18	18	63
8"	36	18	18	18	82
10"	44	28	18	18	98
12"	51	21	18	18	116
14"	57	24	18	18	132
16"	63	26	18	18	148
18"	69	29	18	18	163
20"	75	31	18	18	179
24"	87	36	18	18	208
30"	102	42	20	18	248

LENGTHS BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (18' MIN.) OF PIPE TO BE RESTRAINED.

TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.

TABLE APPLIES TO D.I.P.
FOR THE FOLLOWING CONDITIONS:

- TEST PRESSURE: 150 PSIG
- SOIL TYPE: SP
- COVER DEPTH: 2.5 FEET
- SAFETY FACTOR: 1.5
- TRENCH TYPE: 2

SCHEDULE OF LENGTHS OF RESTRAINED DIP (FT.)					
FITTING	1/4 BEND	1/8 BEND	1/16 BEND	1/32 BEND	TEE OR DEAD END
PIPE SIZE (IN.) :					
4"	21 (26)	18 (18)	18 (18)	18 (18)	37 (55)
6"	30 (36)	18 (18)	18 (18)	18 (18)	52 (78)
8"	38 (45)	18 (18)	18 (18)	18 (18)	67 (100)
10"	45 (54)	18 (22)	18 (18)	18 (18)	81 (122)
12"	52 (63)	22 (26)	18 (18)	18 (18)	94 (141)
14"	60 (72)	25 (30)	18 (18)	18 (18)	107 (160)
16"	66 (80)	27 (33)	18 (18)	18 (18)	120 (180)
18"	74 (87)	31 (36)	18 (18)	18 (18)	132 (198)
20"	80 (94)	33 (39)	18 (18)	18 (18)	144 (216)
24"	92 (108)	38 (45)	18 (22)	18 (18)	167 (250)
30"	106 (128)	44 (53)	21 (25)	18 (18)	199 (298)
36" *	69 (82)	28 (34)	18 (18)	18 (18)	170 (204)
42" *	76 (92)	31 (37)	18 (18)	18 (18)	191 (229)
48" *	90 (106)	40 (46)	18 (18)	18 (18)	212 (254)

LENGTHS BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (18' MIN.) OF PIPE TO BE RESTRAINED.

TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.

VALUES IN PARENTHESIS ARE FOR PIPE ENCASED IN POLYETHYLENE.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

PVC AND D.I.P. RESTRAINED JOINT TABLE

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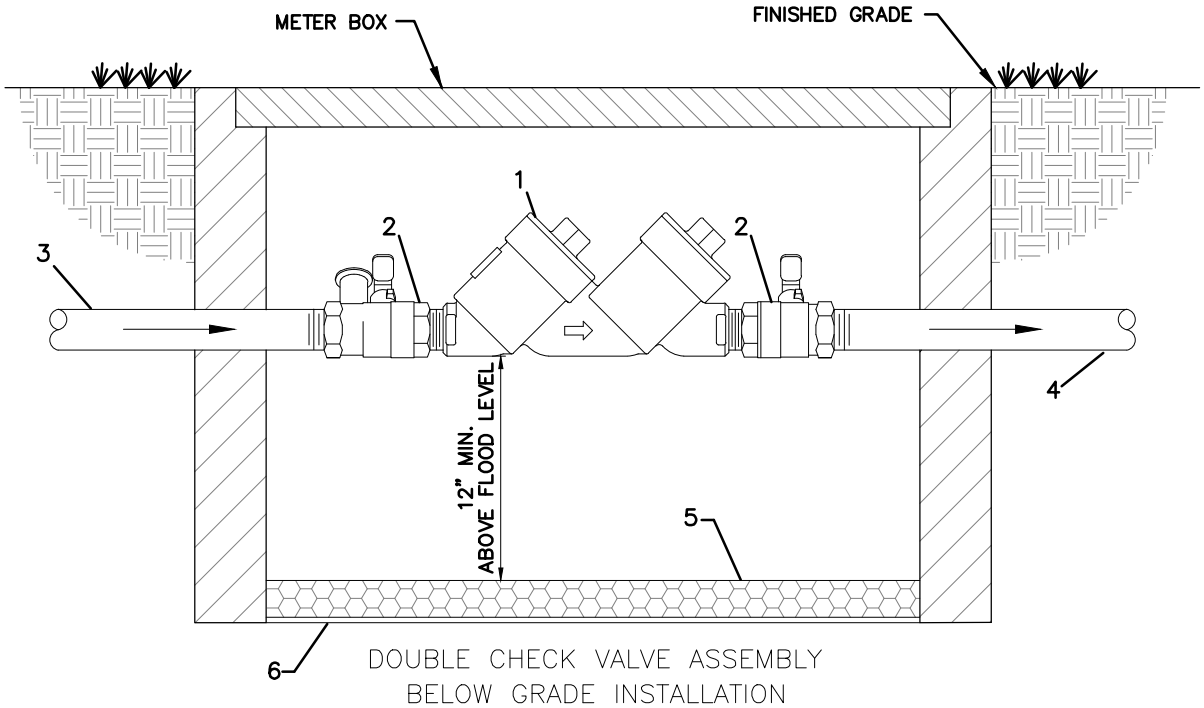
FEB 2018

ACCEPTABLE MANUFACTURERS: HERSEY MODEL FDC, WILKINS MODEL 950XLT, CONBRACO (APOLLO) MODEL 40–100–A2T



DOUBLE CHECK VALVE ASSEMBLY
BELOW GRADE INSTALLATION

M A T E R I A L S		
ITEM	QUANT.	D E S C R I P T I O N
1	1	3/4", 1", 1–1/2" OR 2" BACKFLOW PREVENTER ASSEMBLY
2	2	3/4", 1", 1–1/2" OR 2" BALL VALVE
3	1	3/4", 1", 1–1/2" OR 2" x VARIES INLET – PVC, BRASS OR COPPER
4	1	3/4", 1", 1–1/2" OR 2" x VARIES OUTLET – PVC, BRASS OR COPPER
5	*	PEA GRAVEL
6	*	FILTER FABRIC

NOTE: –FIELD ADJUST AND CUT ITEM 3 AND 4 TO THE PROPER LENGTH.
–NO GALVANIZED PIPE OR FITTINGS ALLOWED.
–A COPY OF THE ASSEMBLY CERTIFICATION SHALL BE SUBMITTED TO THE CITY BEFORE FINAL INSPECTION.
–WILKINS ASSEMBLIES ARE REQUIRED FOR CITY OWNED FACILITIES.
–MAY BE PLACED WITH METER IN ONE METER BOX.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL
DOUBLE CHECK BACKFLOW PREVENTER
3/4", 1", 1–1/2", OR 2"
NTS.

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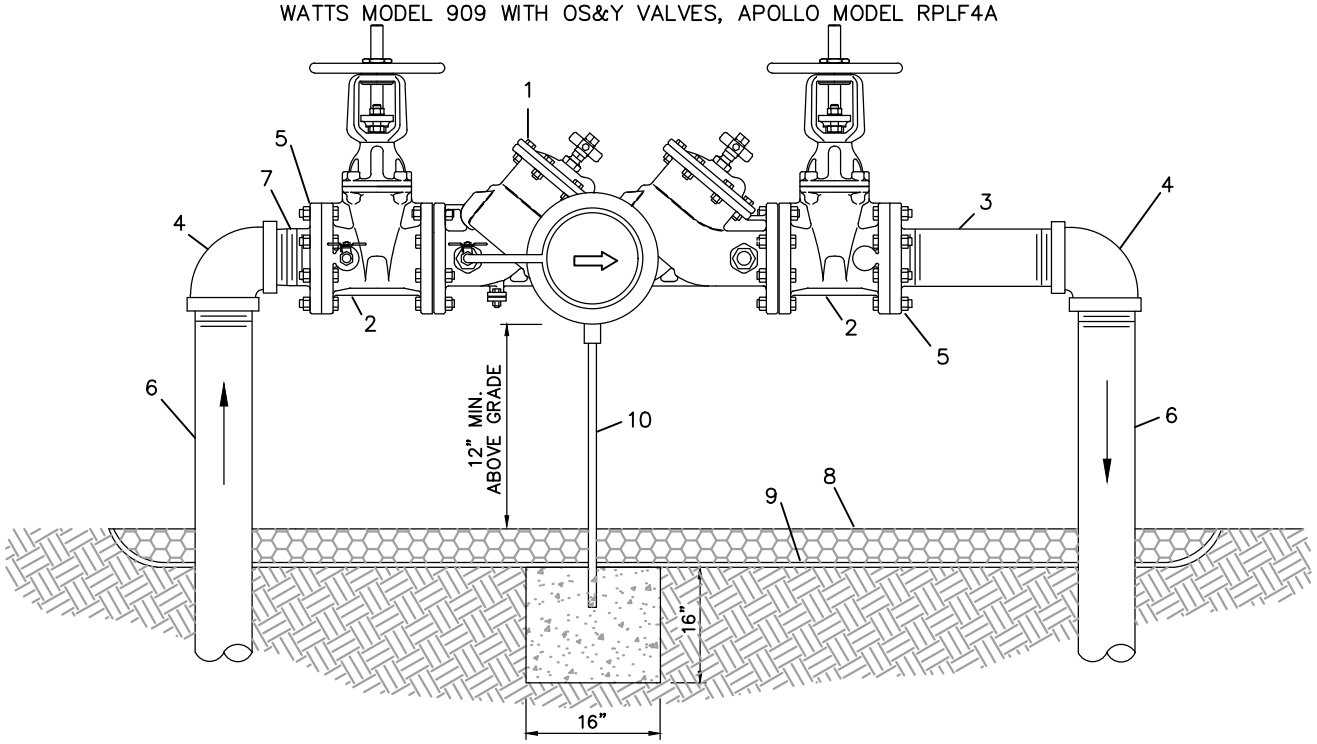
W–6A
FEB 2018

ACCEPTABLE MANUFACTURERS: HERSEY MODEL 6CM, WILKINS MODEL 375,
WATTS MODEL 909 WITH OS&Y VALVES, APOLLO MODEL RPLF4A



M A T E R I A L S		
ITEM	QUANT.	D E S C R I P T I O N
1	1	3", 4" VALVE, REDUCED PRESSURE BACKFLOW PREVENTER
2	2	3", 4" VALVE, GATE, C.I., F–F
3	1	3", 4" NIPPLE, PVC., D.I., BRASS, OR COPPER (12" LONG) (OPT.)
4	2	3", 4" ELBOW, PVC., D.I., BRASS, OR COPPER – 90°
5	2	3", 4" FLANGE
6	2	3", 4" PIPE, PVC, D.I., BRASS OR COPPER (42" LONG)
7	1	3", 4" NIPPLE, PVC., D.I., BRASS OR COPPER (6" LONG)
8	*	PEA GRAVEL
9	*	PLASTIC LINER
10	1	PIPE SUPPORT / CONCRETE FOUNDATION

NOTE:
- –FIELD ADJUST AND CUT ITEM 3 TO THE PROPER LENGTH.
- –ASSEMBLY SHALL BE PAINTED FOREST GREEN.
- –A COPY OF THE ASSEMBLY CERTIFICATION SHALL BE SUBMITTED TO THE CITY BEFORE FINAL INSPECTION.
- –ASSEMBLY SHOULD HAVE ADEQUATE LANDSCAPING AROUND IT TO OBSCURE VIEW.
- –WILKINS ASSEMBLIES ARE REQUIRED FOR CITY OWNED FACILITIES.

C–900 OR D.I. PIPE AND FITTINGS SHALL BE RESTRAINED. COPPER PIPE AND FITTINGS SHALL BE SWEATED. BRASS PIPE AND FITTINGS SHALL BE THREADED. NO GALVANIZED PIPE OR FITTINGS ALLOWED.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

REDUCED PRESSURE BACKFLOW PREVENTER (POTABLE WATER) 3" OR 4"

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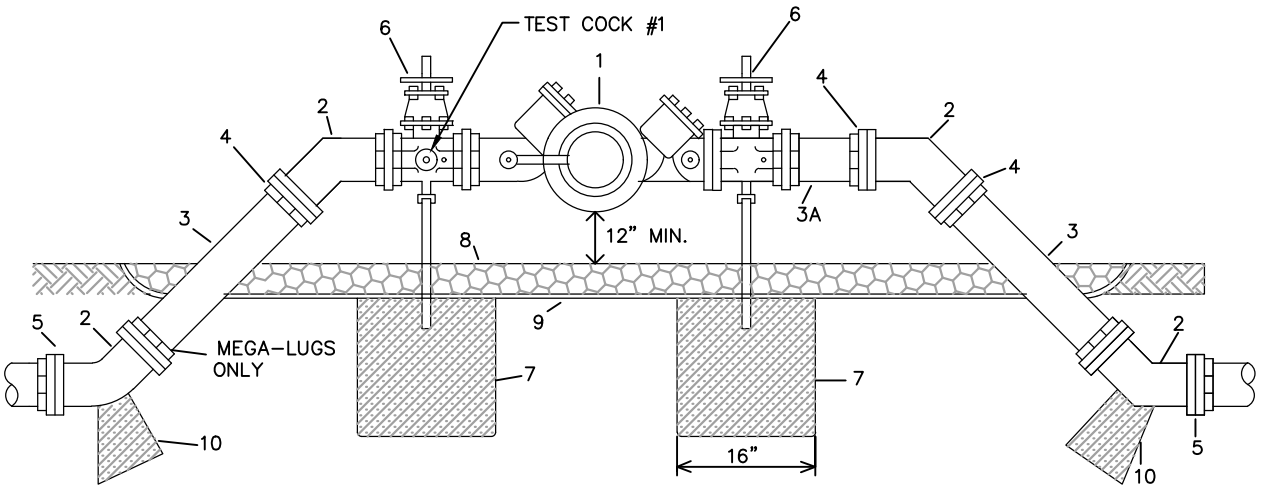
W–6B

FEB 2018

ACCEPTABLE MANUFACTURERS: HERSEY MODEL 6CM, WILKINS MODEL 375,
APOLLO MODEL RPLF4A, WATTS MODEL 909 WITH OS&Y VALVES (6" ONLY)



M A T E R I A L S		
ITEM	QUANT.	D E S C R I P T I O N
1	1	6", 8" VALVE, REDUCED PRESSURE BACKFLOW PREVENTER.
2	4	6", 8" BEND -45°
3	2	6", 8" ADAPTER, C.I. F - PE
3A	1	6", 8" ADAPTER, C.I. F - PE (OPT.)
4	3	6", 8" ADAPTER FLANGE D.I.P.
5	2	6", 8" ADAPTER FLANGE P.V.C. (DR - 18)
6	2	6", 8" VALVE, GATE, C.I., F-F (OS&Y STYLE ONLY)
7	1 or 2	2" IRON PIPE/CONCRETE FOUNDATION
8	*	PEA GRAVEL
9	*	PLASTIC LINER
10	2	REACTION BLOCK

NOTE:
- FIELD ADJUST AND CUT ITEM 3 TO THE PROPER LENGTH.
- DO NOT INTERCHANGE ITEMS 4 AND 5.
- ASSEMBLY SHALL BE PAINTED FOREST GREEN.
- NO GALVANIZED PIPE OR FITTINGS ALLOWED.
- A COPY OF THE ASSEMBLY CERTIFICATION SHALL BE SUBMITTED TO THE CITY BEFORE FINAL INSPECTION.
- ASSEMBLY SHOULD HAVE ADEQUATE LANDSCAPING AROUND IT TO OBSCURE VIEW.
- WILKINS ASSEMBLIES ARE REQUIRED FOR CITY OWNED FACILITIES.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

REDUCED PRESSURE BACKFLOW PREVENTER (POTABLE WATER) 6" OR 8"

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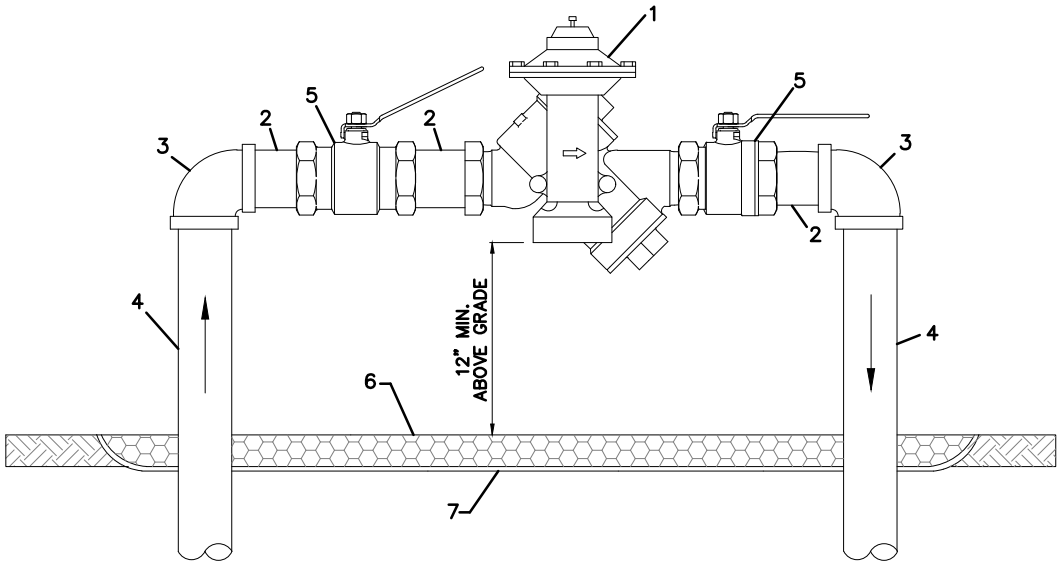
W-6C

FEB 2018

ACCEPTABLE MANUFACTURERS:
WILKINS MODEL 975XL, WATTS MODEL 009 QTS, APOLLO MODEL RPLF4A



M A T E R I A L S		
ITEM	QUANT.	D E S C R I P T I O N
1	1	3/4", 1", 1–1/2" OR 2" BACKFLOW PREVENTER ASSEMBLY
2	3	3/4", 1", 1–1/2" OR 2" x NOM. NIPPLES – BRASS
3	2	3/4", 1", 1–1/2" OR 2" x 90° ELBOWS – PVC., BRASS, OR COPPER
4	2	3/4", 1", 1–1/2" OR 2" x VARIES RISER – PVC., BRASS, OR COPPER
5	2	3/4", 1", 1–1/2" OR 2" BALL VALVE
6	*	PEA GRAVEL
7	*	PLASTIC LINER

NOTE:
- –FIELD ADJUST AND CUT ITEM 4 TO THE PROPER LENGTH.
- –NO GALVANIZED FITTINGS OR PIPE ALLOWED.
- –A COPY OF THE ASSEMBLY CERTIFICATION SHALL BE SUBMITTED TO THE CITY BEFORE FINAL INSPECTION.
- –ASSEMBLY SHOULD HAVE ADEQUATE LANDSCAPING AROUND IT TO OBSCURE VIEW.
- –ASSEMBLY SHALL BE PAINTED FOREST GREEN.
- –WILKINS ASSEMBLIES ARE REQUIRED FOR CITY OWNED FACILITIES.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

REDUCED PRESSURE BACKFLOW PREVENTER
(POTABLE WATER COMMERCIAL)
3/4", 1", 1 1/2", OR 2"

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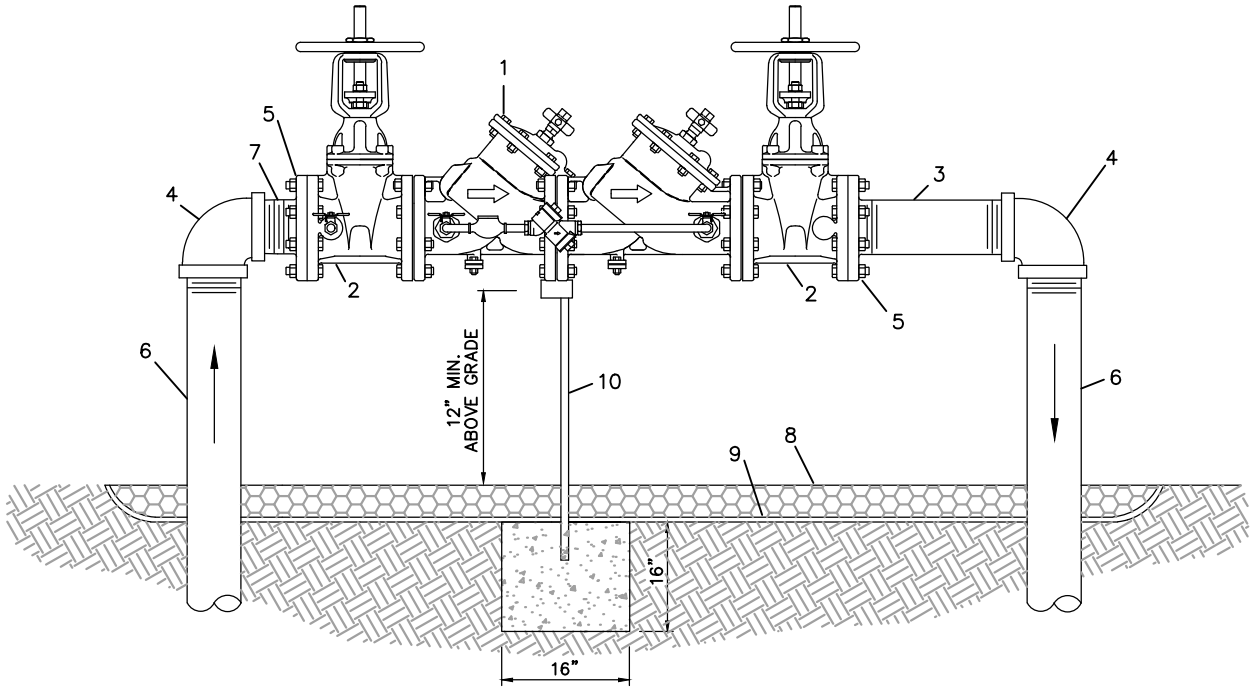
W–6D

FEB 2018

ACCEPTABLE MANUFACTURERS: WILKINS MODEL 350ADA, WATTS MODEL 757 DCDA OS&Y, AME'S COLT 300 (OS&Y), WATTS MODEL 709 DCDA, APOLLO MODEL DCDALF4A



M A T E R I A L S		
ITEM	QUANT.	D E S C R I P T I O N
1	1	4", 6", 8", 10" VALVE, DOUBLE CHECK BACKFLOW PREVENTER
2	2	4", 6", 8", 10" VALVE, GATE, C.I., F–F
3	1	4", 6", 8", 10" NIPPLE, PVC., BRASS, OR D.I., (12" LONG) (OPT.)
4	2	4", 6", 8", 10" ELBOW, PVC., BRASS, OR D.I., – 90°
5	2	4", 6", 8", 10" FLANGE, STEEL PIPE, SCREW–TYPE
6	2	4", 6", 8", 10" PIPE, PVC., BRASS, OR D.I. (42" LONG)
7	1	4", 6", 8", 10" NIPPLE, PVC., BRASS, OR D.I. (6" LONG)
8	*	PEA GRAVEL
9	*	PLASTIC LINER
10	1	PIPE SUPPORT / CONCRETE FOUNDATION

NOTE:
- –FIELD ADJUST AND CUT ITEM 6 TO THE PROPER LENGTH.
- –NO GALVANIZED FITTINGS OR PIPE ALLOWED.
- –A COPY OF THE ASSEMBLY CERTIFICATION SHALL BE SUBMITTED TO THE CITY BEFORE FINAL INSPECTION.
- –ASSEMBLY SHOULD HAVE ADEQUATE LANDSCAPING AROUND IT TO OBSCURE VIEW.
- –ASSEMBLY SHALL BE PAINTED FOREST GREEN.
- –WILKINS ASSEMBLIES ARE REQUIRED FOR CITY OWNED FACILITIES.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

DOUBLE CHECK DETECTOR BACKFLOW PREVENTER (DEDICATED FIRE LINE) 2 1/2" – 10"

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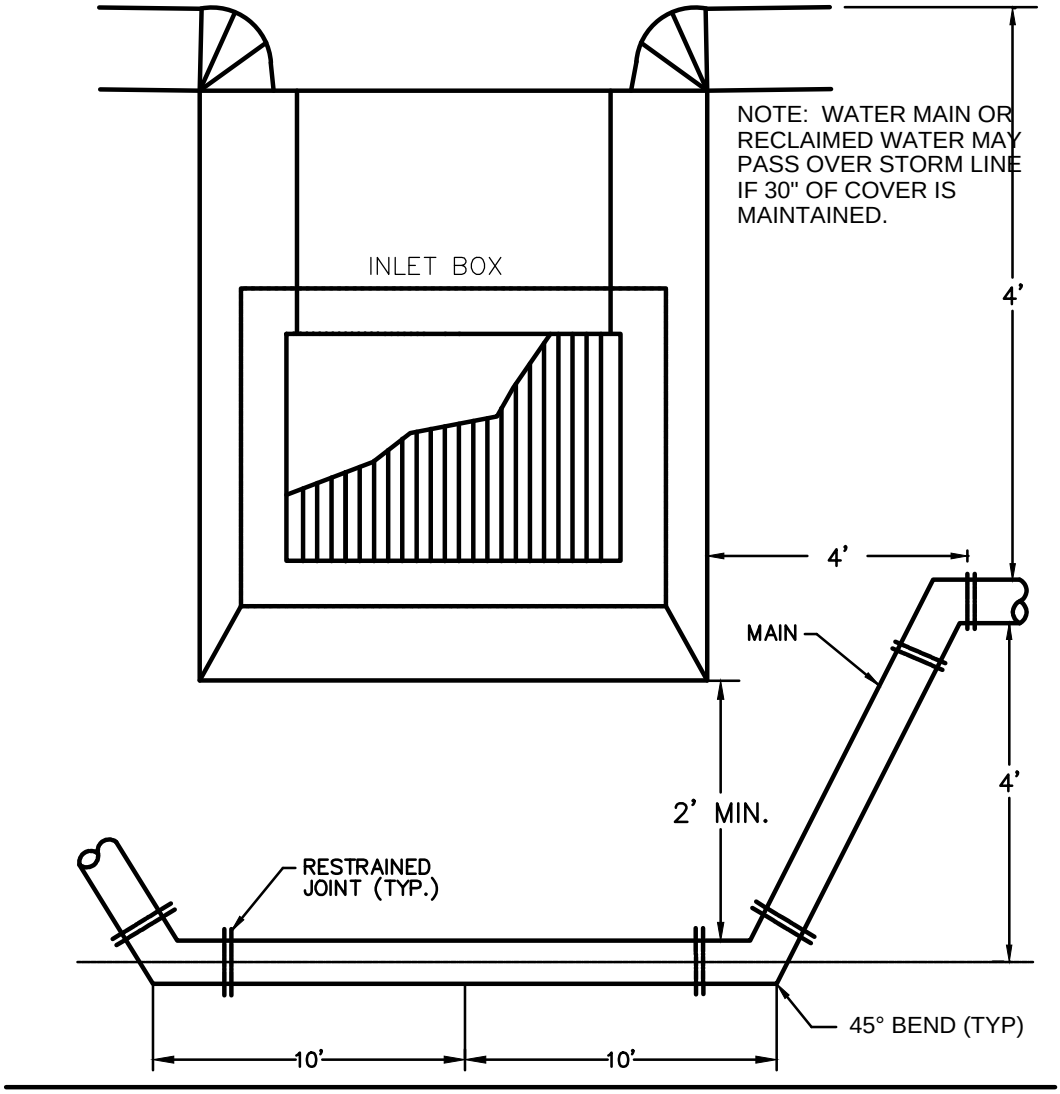

PLAN VIEW

STANDARD CONSTRUCTION DETAIL

WATER MAIN INSTALLATION BETWEEN DRAINAGE INLET AND SIDEWALK

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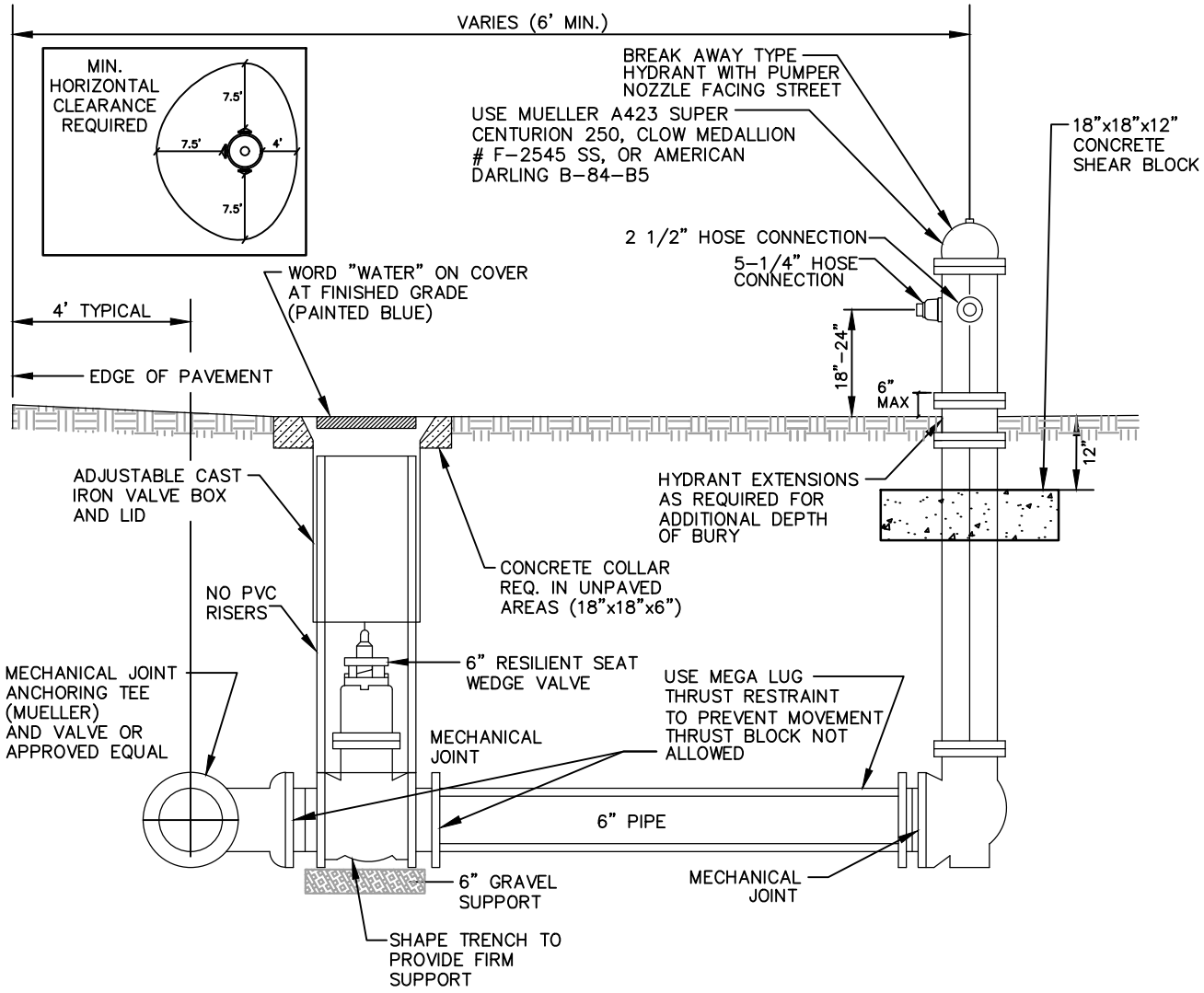
DEC 2015



NOTES:

1. ALL JOINTS SHALL BE RESTRAINED
2. HYDRANTS TO BE PAINTED SAFETY YELLOW (PUBLIC) OR RED (PRIVATE).
3. HYDRANT BONNET AND CAP TO BE PAINTED ACCORDING TO THE FOLLOWING SCHEME:
   - CLASS AA – 1500 GPM AND GREATER – LIGHT BLUE
   - CLASS A – 1000 GPM TO 1499 GPM – GREEN
   - CLASS B – 500 GPM TO 999 GPM – ORANGE
   - CLASS C – LESS THAN 500 GPM – RED
4. HYDRANTS SHALL BE PRIMED WITH A CATALYZED TWO PART PRIMER (DURAPLATE #235), ELECTRICALLY CHARGED AND A CATALYZED URETHANE TOP COAT (ACROLON 218), TWO COMPONENT POLYURETHANE PAINT.
5. HOSE CONNECTIONS TO BE AMERICAN STANDARD THREADS.
6. THE HYDRANT SHOE WILL BE COATED INSIDE WITH FUSION BONDED EPOXY. 6 MIL MINIMUM
7. ADJUSTMENTS OR REPAIRS TO THE HYDRANT AFTER INSTALLATION SHALL BE DONE BY AN UNDERGROUND UTILITY CONTRACTOR OR THE CITY AND ALL COST SHALL BE CHARGED TO THE DEVELOPER. PAYMENT SHALL BE MADE PRIOR TO CERTIFICATE OF OCCUPANCY OF PROPERTY.
8. RESTRAINED JOINTS REQUIRED. THRUST BLOCKS NOT PERMITTED.
9. BOLTS SHALL BE 316 STAINLESS STEEL.
10. INSTALL BLUE REFLECTIVE MARKER IN SUCH A MANNER THAT THE REFLECTIVE FACE OF THE MARKER IS PERPENDICULAR TO A LINE PARALLEL TO THE ROADWAY CENTERLINE. THE BLUE REFLECTIVE MARKERS SHALL BE PLACED IN THE CENTER OF THE TRAVEL LANE, DIRECTLY ACROSS FROM AND ADJACENT TO EACH FIRE HYDRANT.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

FIRE HYDRANT ASSEMBLY

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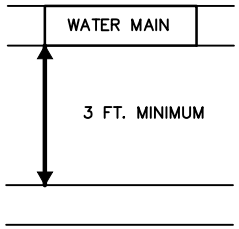
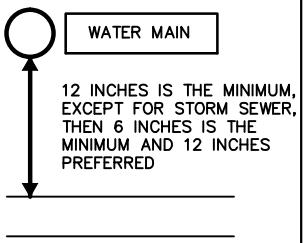
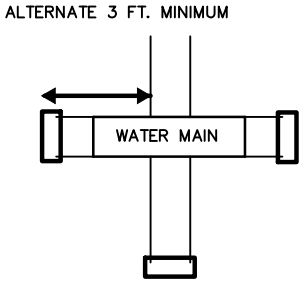
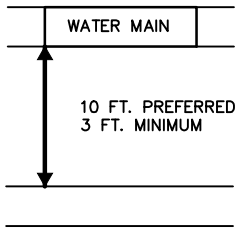
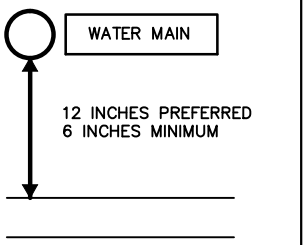
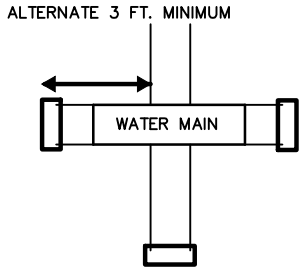
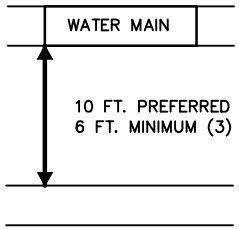
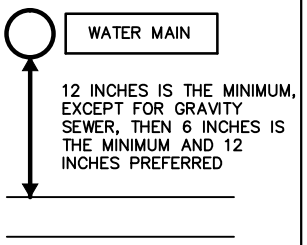
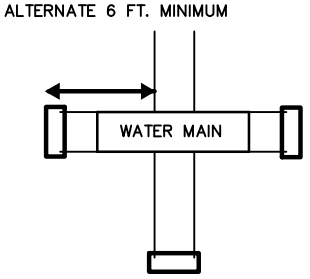
FEB 2018

OTHER PIPE	HORIZONTAL SEPARATION	CROSSINGS (1)	JOINT SPACING @ CROSSINGS (FULL JOINT CENTERED)
STORM SEWER, STORM WATER FORCE MAIN, RECLAIMED WATER (2)			
VACUUM SANITARY SEWER			
GRAVITY OR PRESSURE SANITARY SEWER, SANITARY FORCE MAIN, RECLAIMED WATER (4)			
ON–SITE SEWAGE TREATMENT & DISPOSAL SYSTEM	10 FT. MINIMUM	——	——

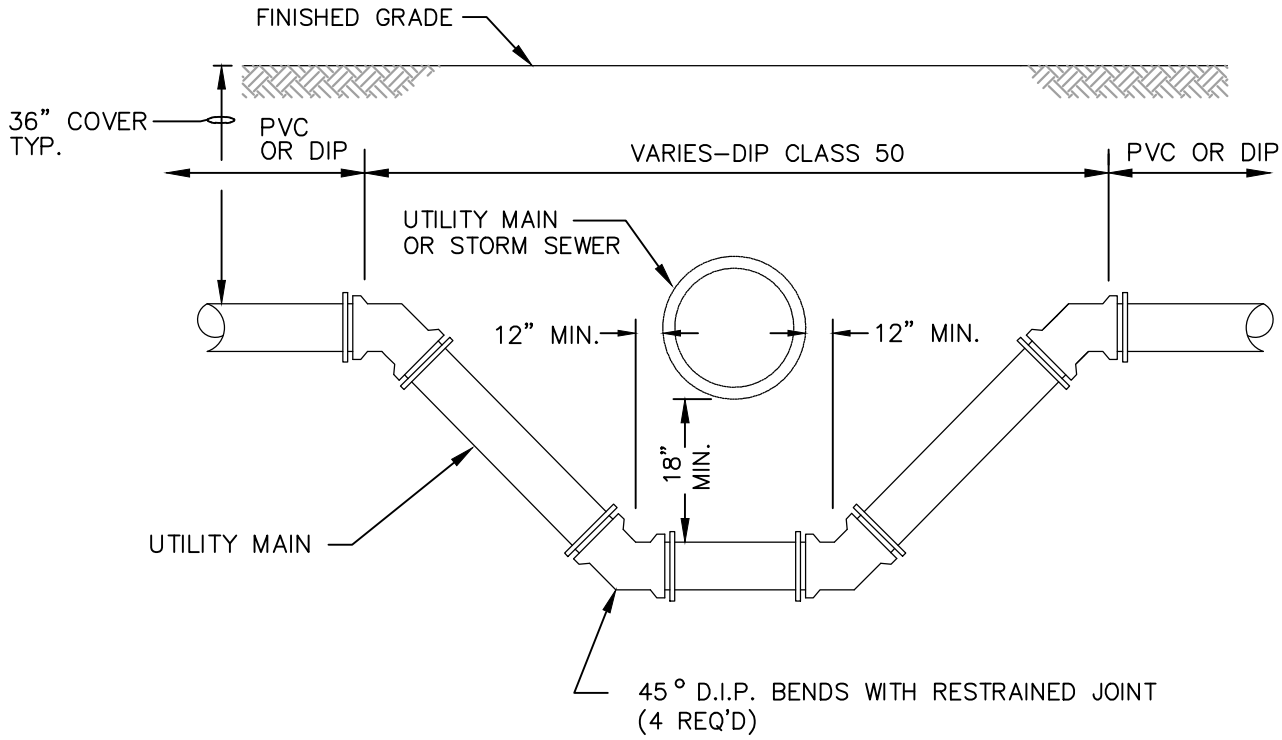
(1) WATER MAIN SHOULD CROSS ABOVE OTHER PIPE. WHEN WATER MAIN MUST BE BELOW OTHER PIPE, THE MINIMUM SEPARATION IS 18 INCHES.
(2) RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62–610, F.A.C.
(3) 3 FT. FOR GRAVITY SEWER WHERE BOTTOM OF THE WATER MAIN IS LAID AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY SANITARY SEWER.
(4) RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62–610, F.A.C.

STANDARD CONSTRUCTION DETAIL

WATER MAIN SEPARATION

NTS

CITY OF FLAGLER BEACH FLORIDA



NOTE: ABOVE DETAIL TO BE UTILIZED IF CONTRACTOR CANNOT MAINTAIN 18" CLEAR BETWEEN MAINS BY DEFLECTING PIPE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

STANDARD CONSTRUCTION DETAIL

PIPE CROSSING

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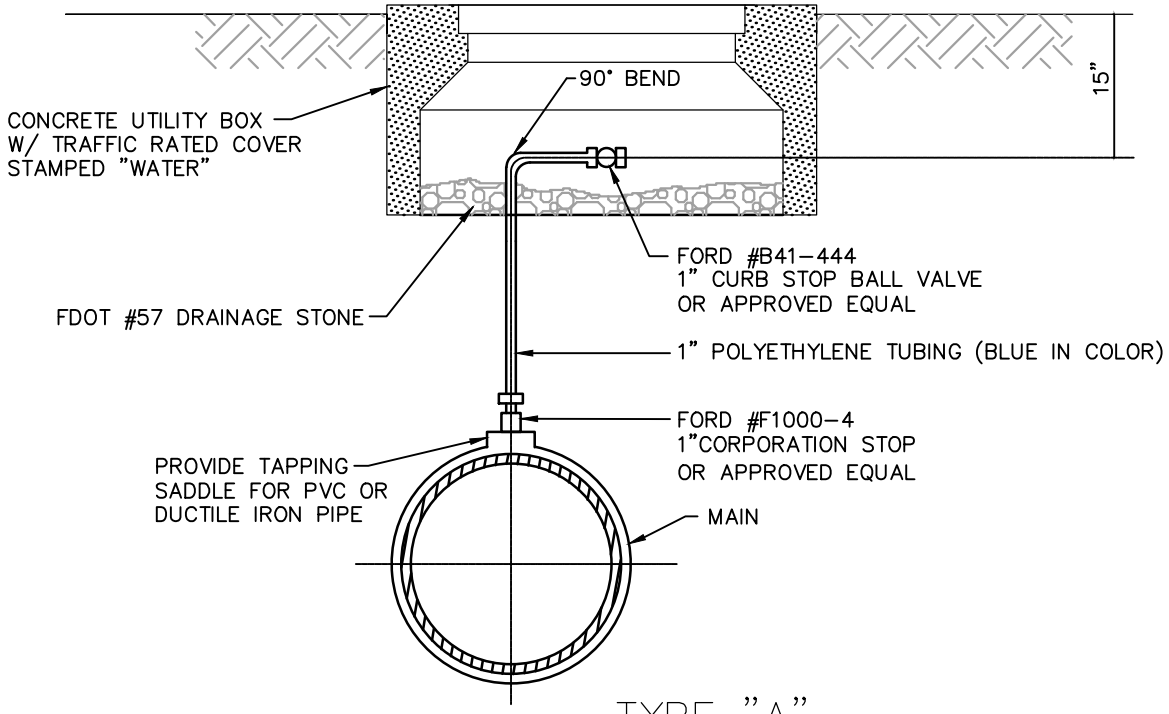
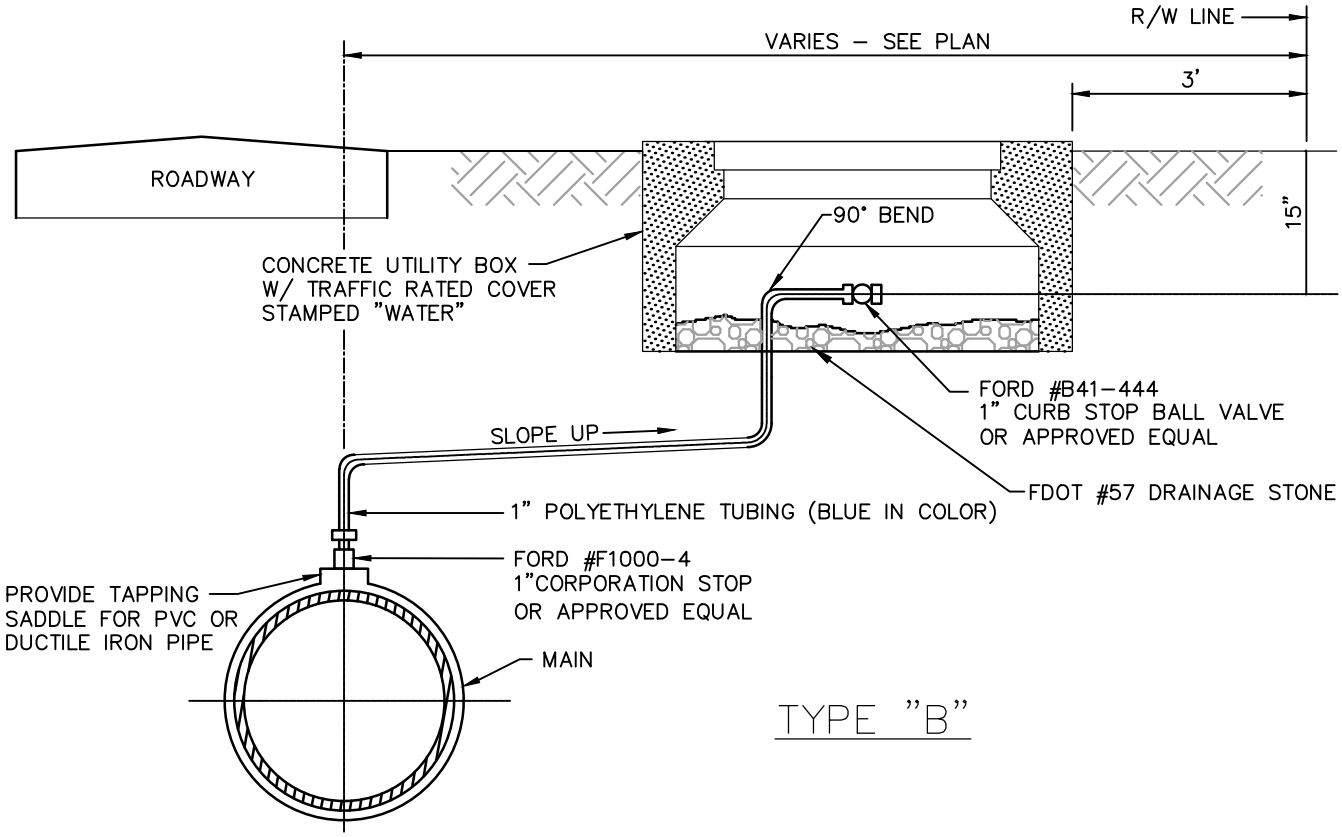
FEB 2018



TYPE "A"



TYPE "B"

NOTE– NO GALVANIZED PIPE OR FITTINGS ALLOWED.

STANDARD CONSTRUCTION DETAIL

MANUAL AIR RELEASE VALVE

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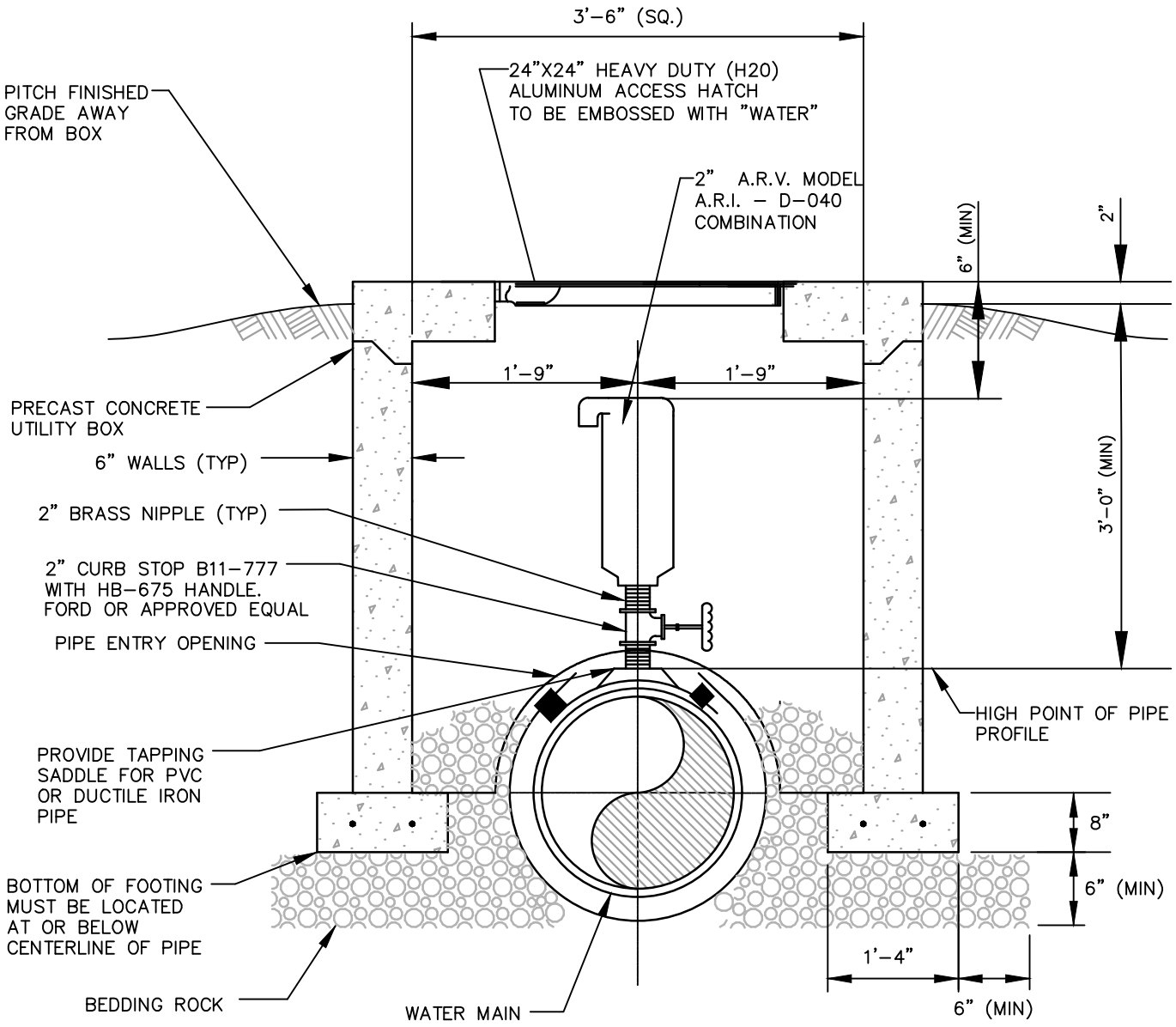

NOTE:

1. GALVANIZED PIPE AND FITTINGS NOT ACCEPTABLE FOR THIS INSTALLATION
2. STRUCTURE TO BE ADEQUATE FOR AASHTO H20 LOADING
3. DESIGNER IS RESPONSIBLE FOR PROVIDING CONSTRUCTION MATERIAL AND STEEL REINFORCING REQUIREMENTS
4. NO SURFACE COATING REQUIRED ON VAULT
5. ALUMINUM HATCH TO INCLUDE S.S. HINGE AND S.S. SLAM LOCKS WITH REMOVABLE KEYS
6. FITTINGS AND PIPE FOR A.R.V. SHALL BE BRASS

STANDARD CONSTRUCTION DETAIL
AUTOMATIC AIR RELEASE VALVE (WATER MAIN)

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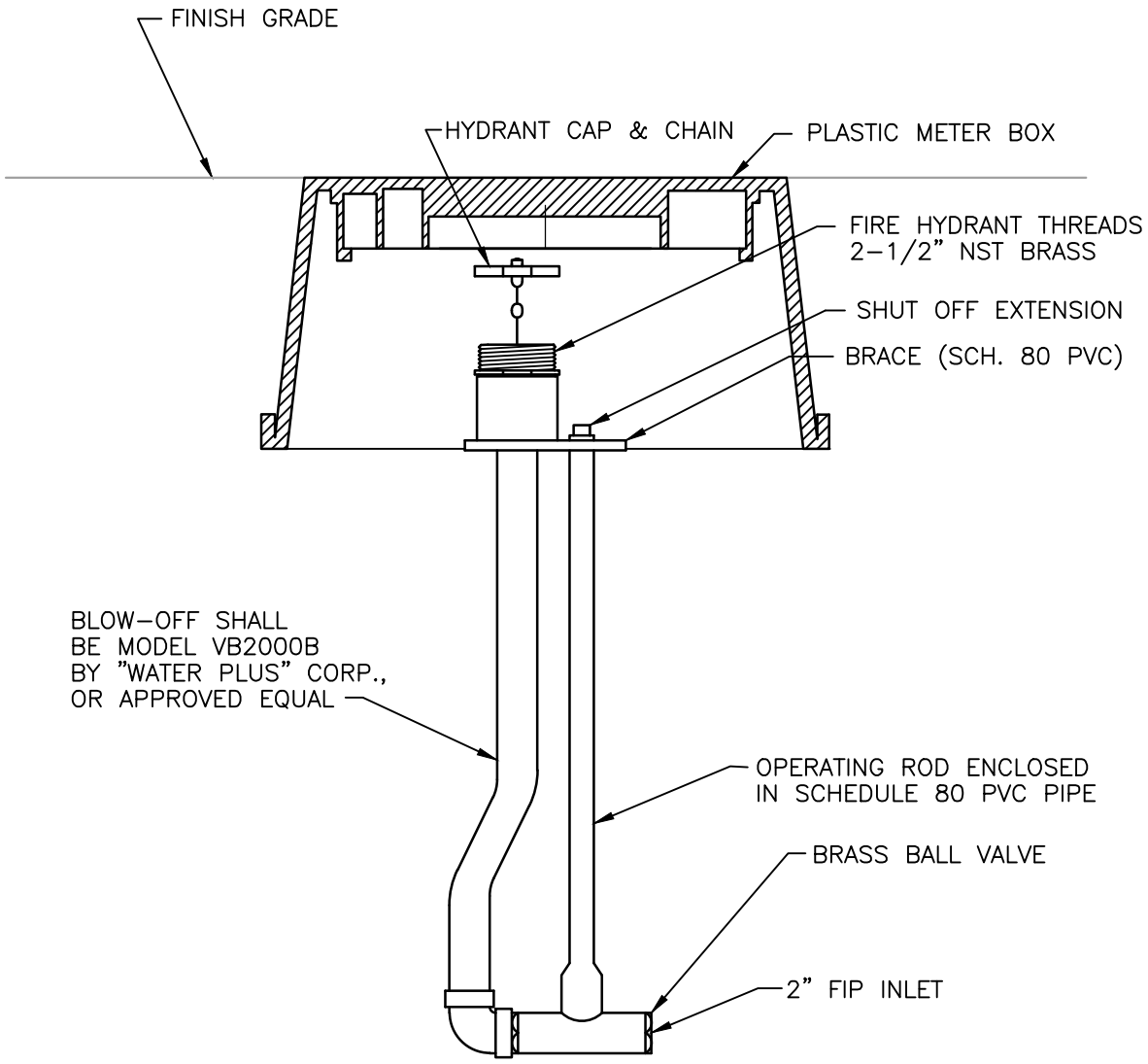
FEB 2018



1. WRENCH AND DISCHARGE SPOUT AS SUPPLIED BY MANUFACTURER SHALL BE TURNED OVER TO THE CITY DURING FINAL INSPECTION.

STANDARD CONSTRUCTION DETAIL

BLOW–OFF ASSEMBLY WITH METER BOX

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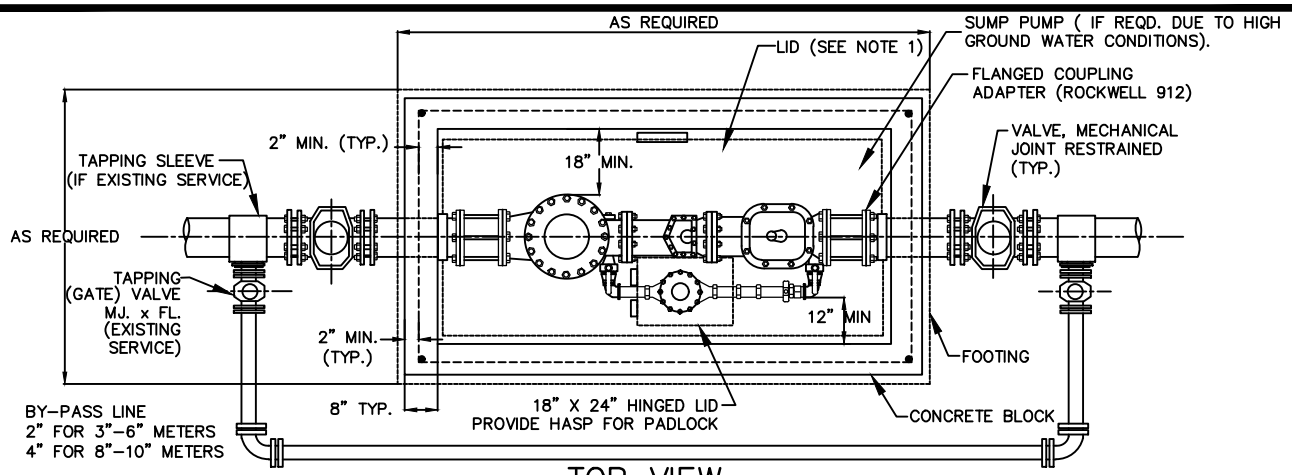
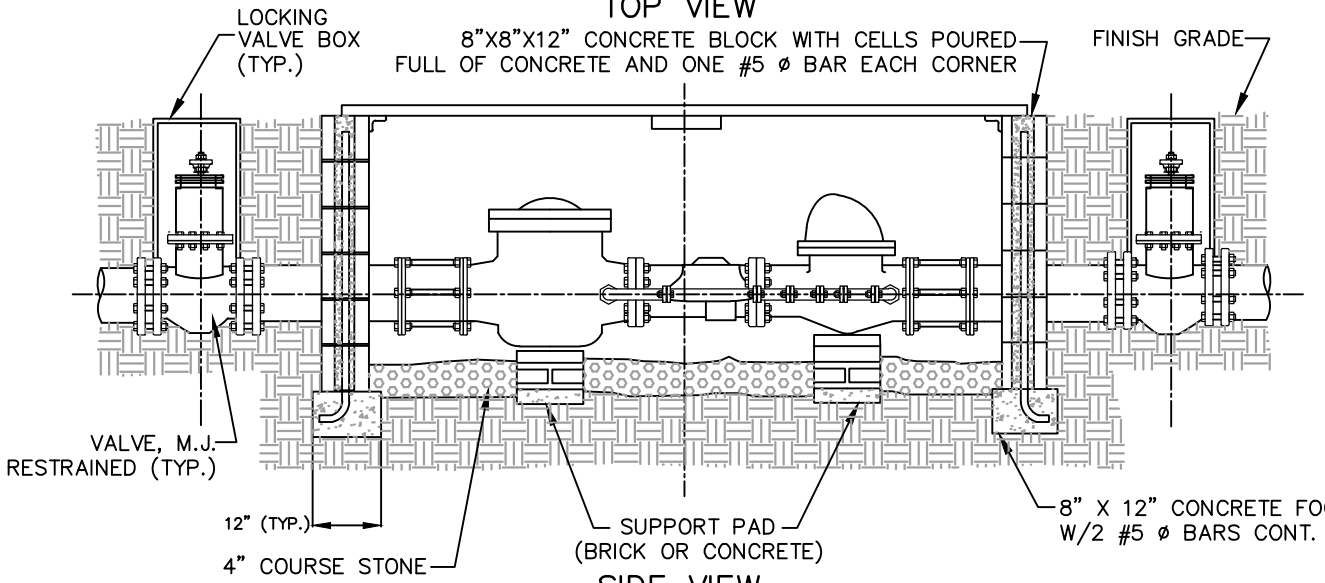
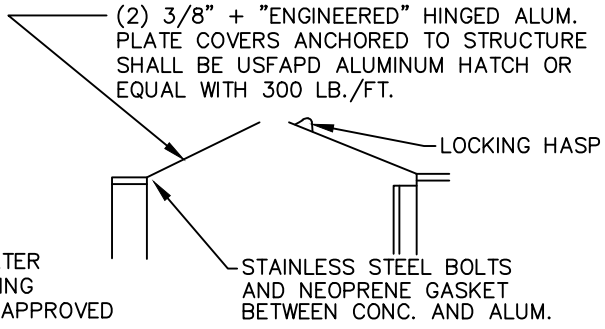


TOP VIEW



SIDE VIEW



WATER METER ASSEMBLY NOTES

1. LID SHALL BE ALUMINUM DIAMOND PATTERN PLATE AS MANUFACTURED BY HALLIDAY PRODUCTS.
2. AS AN ALTERNATIVE TO CONSTRUCTING THE VAULT ON SITE, A PRECAST VAULT AS MANUFACTURED BY BROOKS PRODUCTS OR AN APPROVED EQUAL IS AN OPTION.
3. UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, GATE VALVES SHALL BE INSTALLED ON MAINS LESS THAN 12" AND BUTTERFLY VALVES FOR MAINS 12" AND GREATER.
4. THE WATER SERVICE METER SHALL BE A NEPTUNE COMPOUND WATER METER. METERS SHALL REGISTER IN GALLONS, BE STRAIGHT READING AND CONFORM TO AWWA C-700 LATEST. METER TYPE SHALL BE APPROVED BY THE CITY.
5. WATER SERVICE METERS SERVICING A FIRE PROTECTION SYSTEM SHALL BE NEPTUNE HIGH PERFORMANCE PROTECTUS III FIRE SERVICE METER.
6. METERS 3" AND LARGER TO HAVE A 2" TEST PORT.
7. WATER METER REGISTER SHALL BE THE TOUCH READ ECR TYPE.
8. TOUCH READ DEVICE SHALL BE MOUNTED IN VAULT LID AS RECOMMENDED BY THE MANUFACTURER.
9. USE DIP OR PVC PIPE IN ACCORDANCE WITH LDC. NO GIP ALLOWED.
10. METER TO BE APPROVED BY THE CITY AND SUPPLIED AND INSTALLED BY CONTRACTOR.
11. ALL ITEMS EXCEPT METER TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.

INSIDE VAULT DIMENSIONS SHALL BE AS FOLLOWS:

3" METERS	4' X 5'
4" METERS	4' X 6'
6" METERS	5' X 8'
8" METERS	6' X 8'
10" METERS	7' X 8'

STANDARD CONSTRUCTION DETAIL

WATER METER ASSEMBLY 3" AND ABOVE

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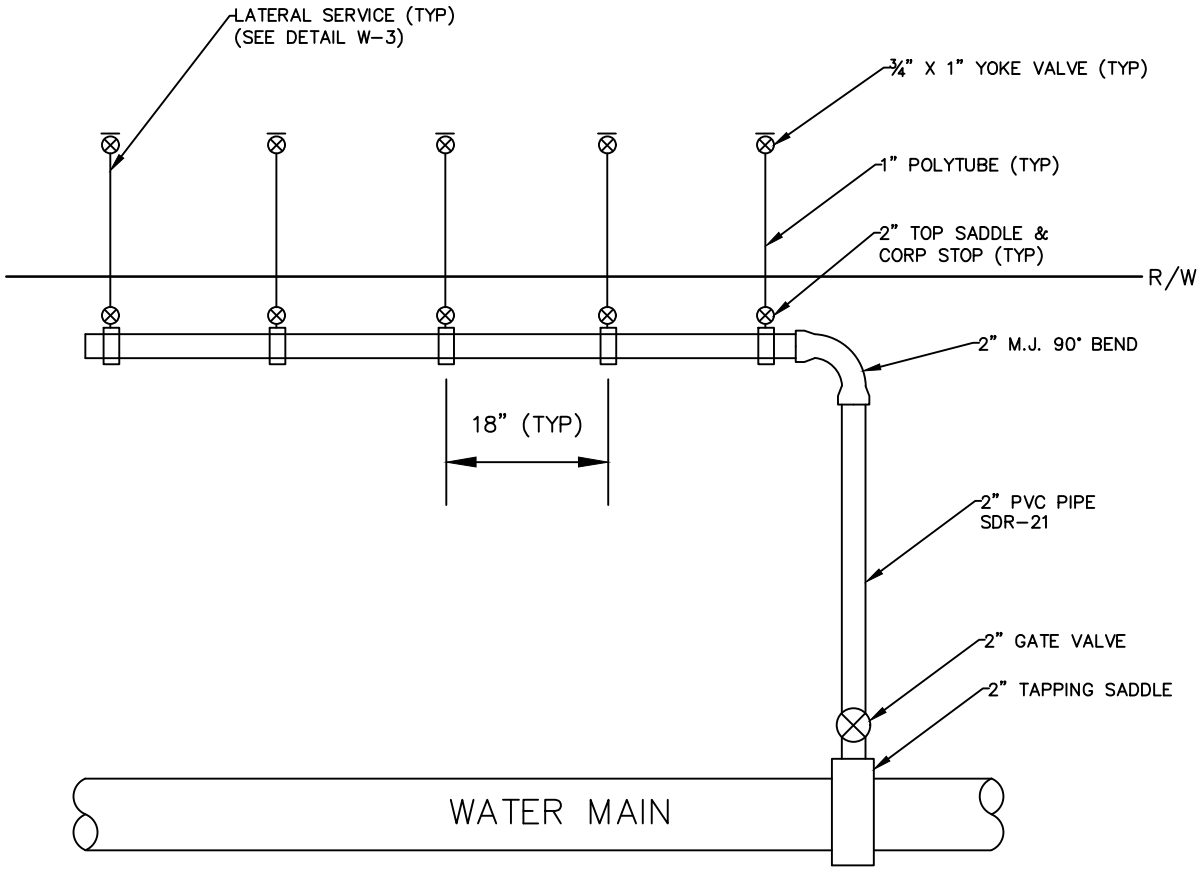

STANDARD CONSTRUCTION DETAIL

MANIFOLD SYSTEM FOR COMMERCIAL MULTI-METERS

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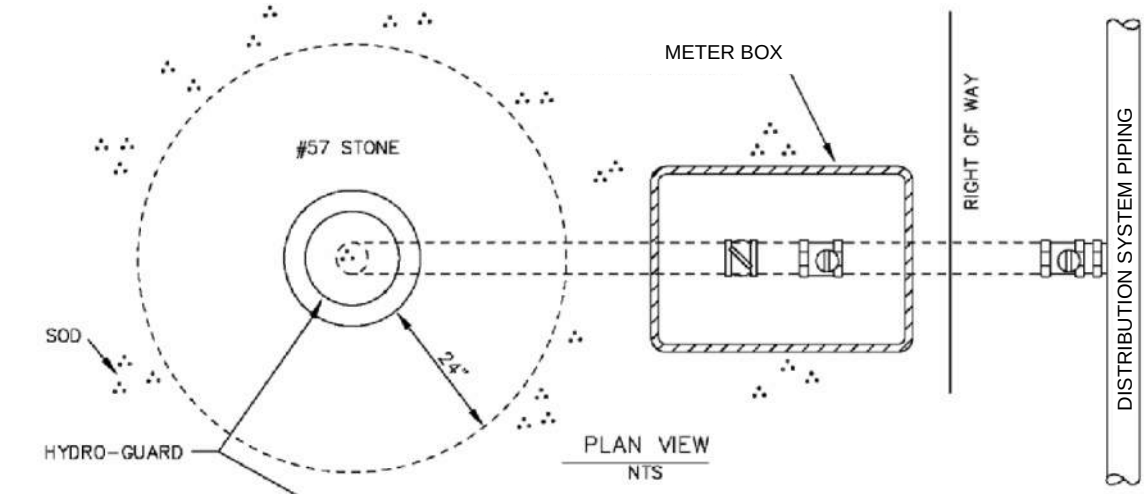

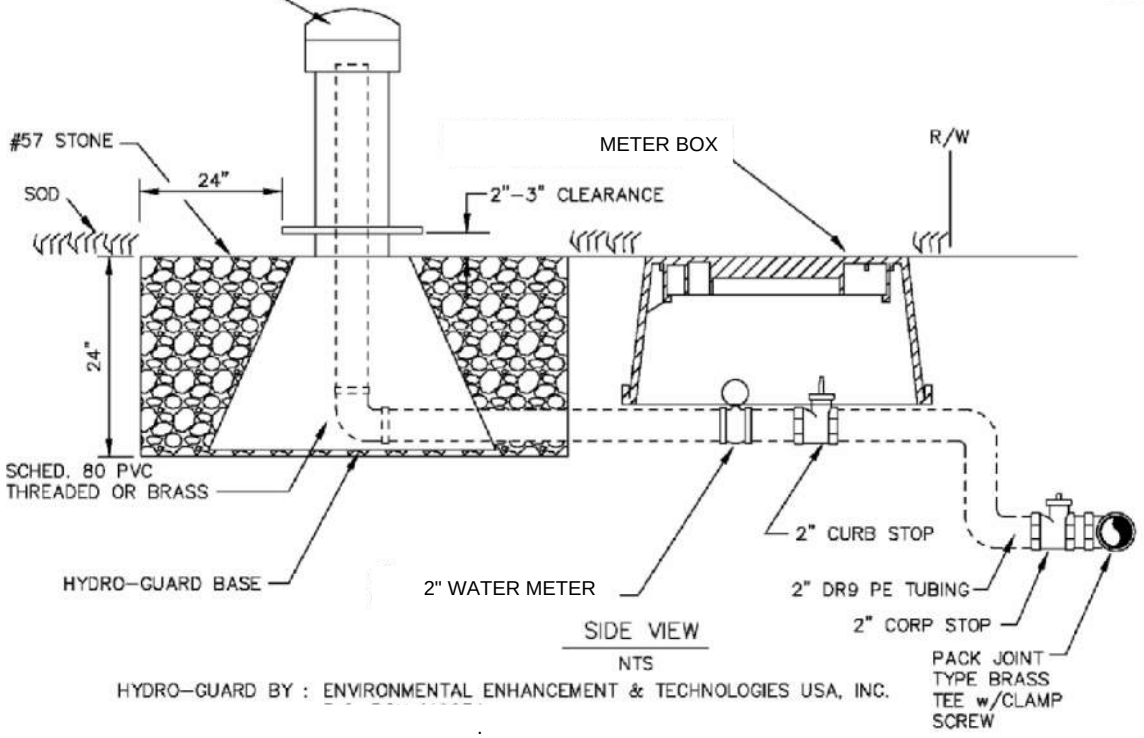

HYDRO-GUARD BY : ENVIRONMENTAL ENHANCEMENT & TECHNOLOGIES USA, INC.

NOTE:
1. MAINTAIN A MINIMUM OF 3' CLEARANCE FREE OF ALL PLANTINGS & STRUCTURES AROUND HYDRO-GUARD DEVICE.
2. BOLLARDS SHALL BE REQUIRED ON A CASE-BY-CASE BASIS HYDRO-GUARD DEVICE.
3. AUTOMATIC FLUSHING DEVICE SHALL BE INSTALLED ON ALL "DEAD END" LINES, CONSTRUCTION LINES, PHASE LINES AND CUL-DE-SAC LOOPS.
4. HYDROGUARD DEVICE SHALL BE SET BEHIND RIGHT OF WAY LINE AND ON PROPERTY LINE.
5. SODDING MUST BE INSTALLED BEFORE HYDRO-GUARD IS ACTIVATED.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

HYDRO-GUARD AUTOMATIC FLUSHING DEVICE

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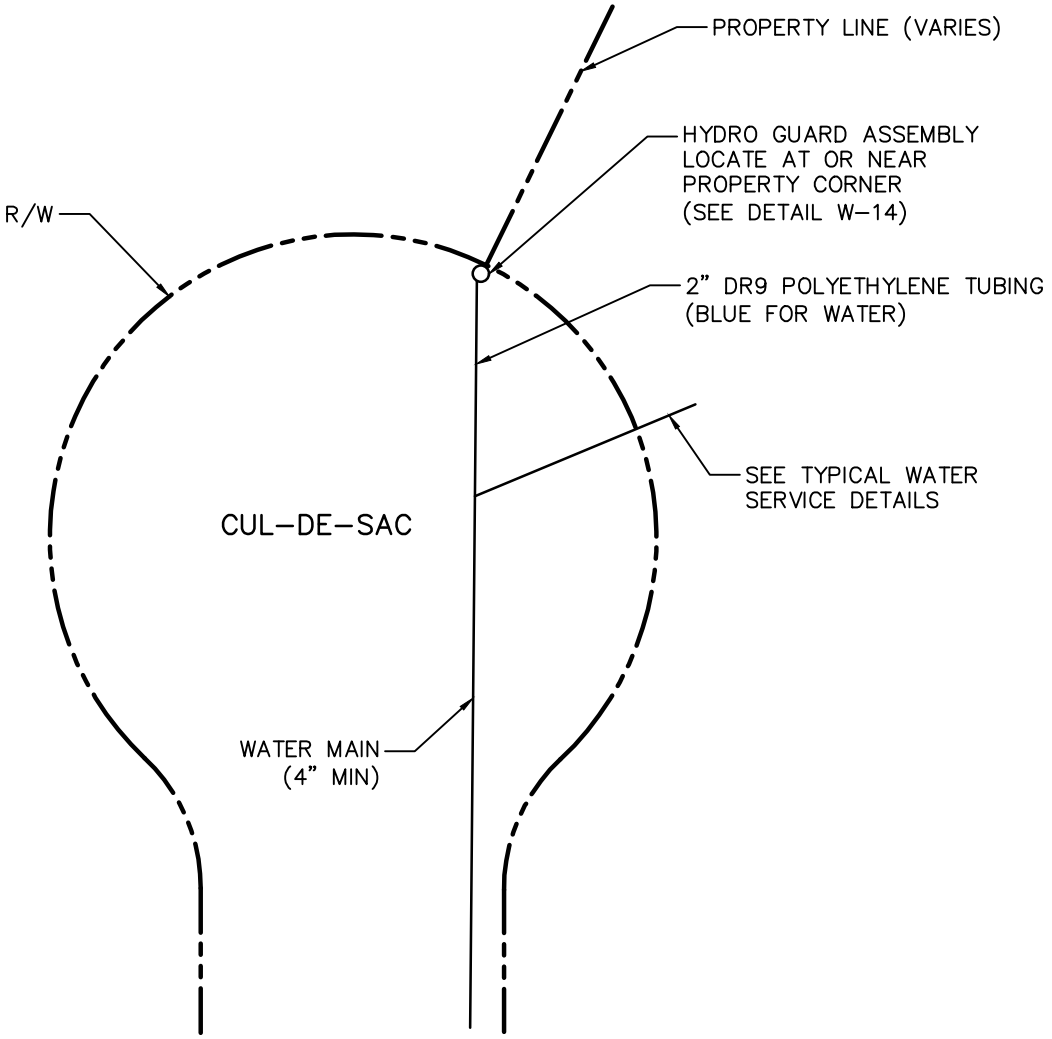

NOTE:

1. THIS DETAIL APPLIES ONLY WHEN THE WATER MAIN CANNOT BE LOOPED AND CONSIDERED ON A CASE-BY-CASE BASIS.

2. HYDRO GUARD SHALL BE SET 1' INSIDE RIGHT OF WAY LINE AND ON PROPERTY LINE.

STANDARD CONSTRUCTION DETAIL

TYPICAL CUL-DE-SAC WATER PIPING

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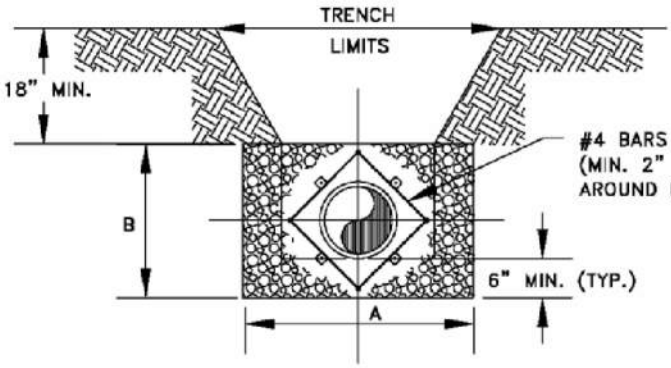

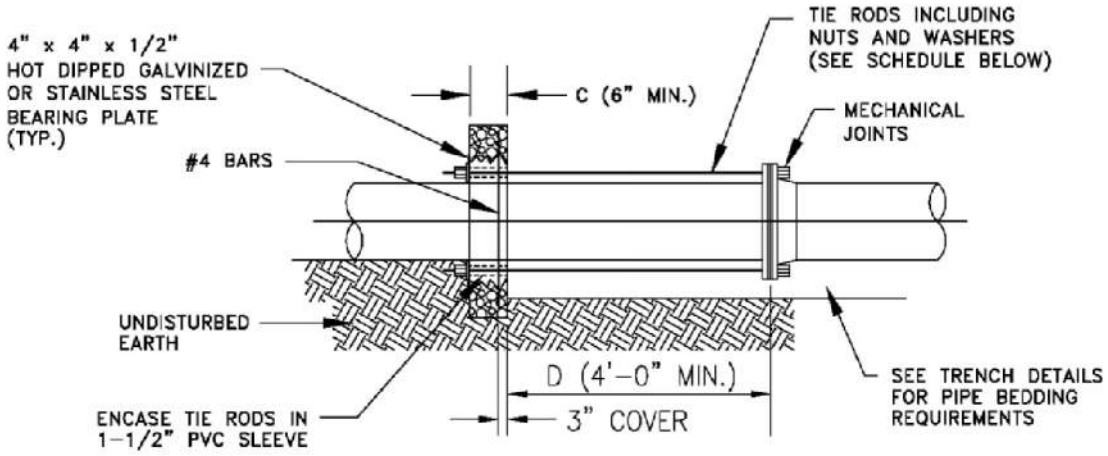

NOTES:

1. ADDITIONAL REINFORCEMENTS SHALL BE AS SPECIFIED BY THE ENGINEER.
2. MINIMUM COMPRESSIVE STRENGTH FOR CONCRETE SHALL BE 3000 P.S.I.
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.*

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 _____ (1,500 MIN) LBS. PER SQ. FT. SOIL RESTRAINT BEARING. SEE NOTE 5

* TO BE COMPLETED BY ENGINEER.

STANDARD CONSTRUCTION DETAIL

WATER MAIN THRUST COLLAR
(USE BY CITY SPECIAL APPROVAL ONLY)

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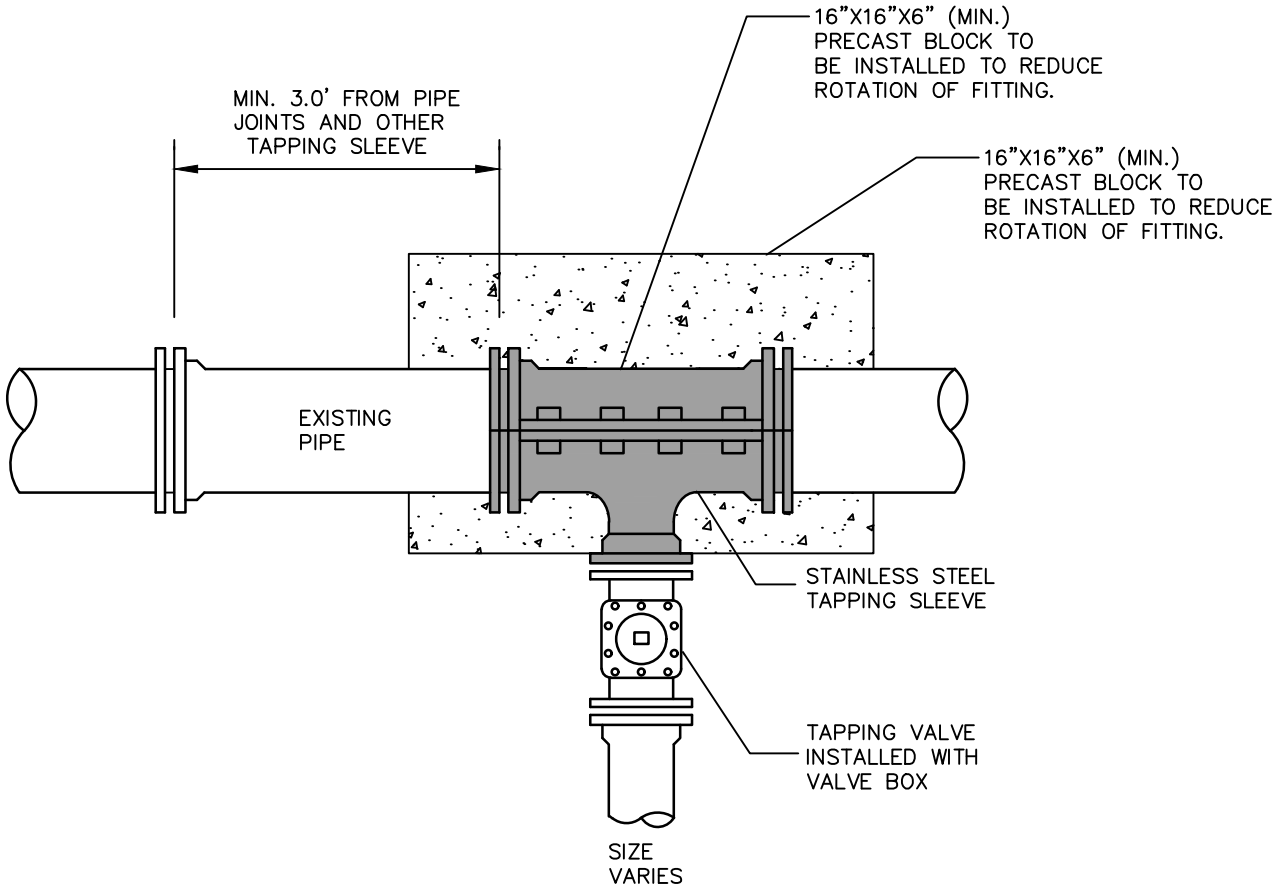

NOTES:

1. STAINLESS STEEL SLEEVES ONLY WITH 316 STAINLESS STEEL BOLTS ARE PERMITTED FOR ALL TYPES OF PIPE MATERIALS.
2. INSTALL REQUIRED RESTRAINED JOINTS. IN NO INSTANCE SHALL THRUST BLOCK BE PERMITTED.
3. ALL TAPPING OF MAINS SHALL BE PERFORMED BY THE CONTRACTOR UNDER SUPERVISION OF A CITY REPRESENTATIVE. ALL MATERIALS TO BE PROVIDED BY DEVELOPER / CONTRACTOR
4. ALL VALVES 2" OR GREATER SHALL BE GATE VALVES. CORPORATION STOPS ARE NOT ALLOWED ON VALVES 2" OR GREATER EXCEPT ON BLOW-OFFS.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

TAPPING VALVE AND SLEEVE

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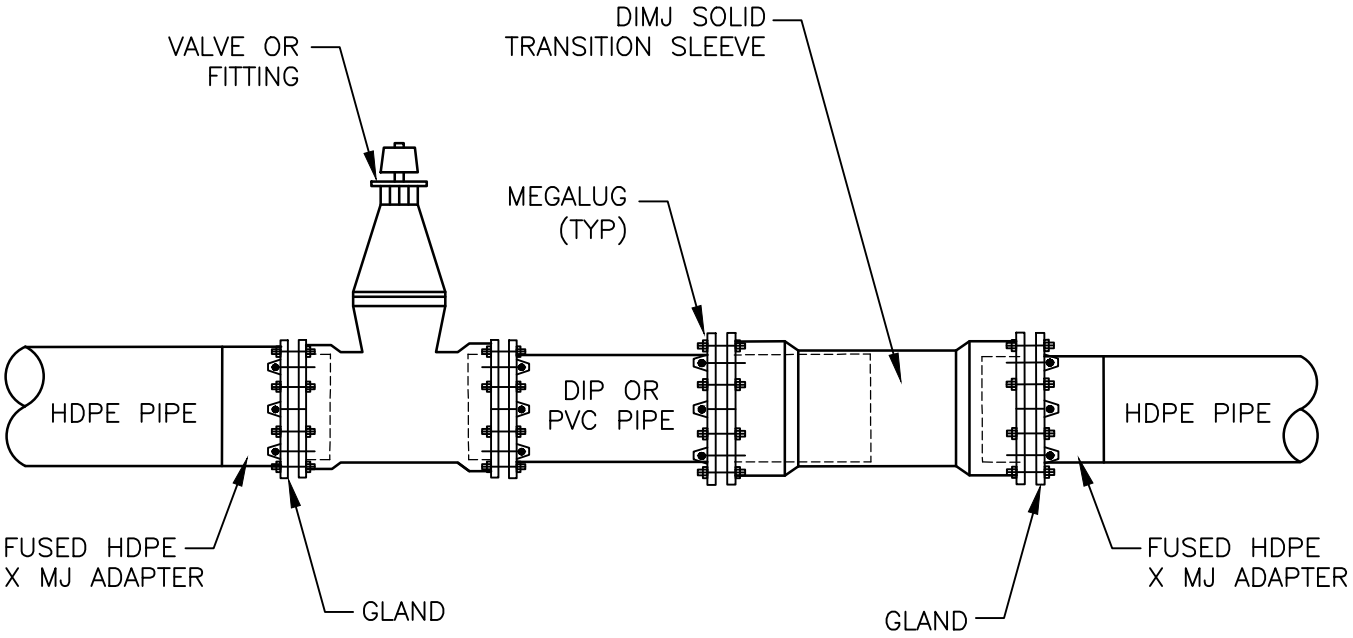

STANDARD CONSTRUCTION DETAIL

HDPE PIPE – VALVE/FITTING CONNECTION

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RECLAIMED WATER SYSTEM DETAILS

GENERAL NOTES
RECLAIMED WATER SYSTEM CONSTRUCTION

1. THE CITY SHALL BE NOTIFIED PRIOR TO BEGINNING ANY RECLAIMED WATER SYSTEM CONSTRUCTION.
2. DEWATERING SHALL BE PROVIDED TO KEEP GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW RECLAIMED WATER MAIN BEING LAID.
3. ALL RECLAIMED WATER MAINS SHALL BE LAID ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
4. TRENCHES SHALL BE BACKFILLED WITH CLEAN GRANULAR MATERIAL IN MAX. 1' LIFTS WITH A MINIMUM COMPACTION OF 98 PERCENT (AASHTO–T180) IN PAVED AREAS AND 90 PERCENT IN UNPAVED AREAS.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TESTS BE PROVIDED AT POINTS 1 FOOT ABOVE THE PIPE AND AT 1 FOOT VERTICAL INTERVALS TO FINISH GRADE, AT A MINIMUM SPACING OF EVERY 300 FEET, AND TO FURNISH COPIES OF TEST REPORTS PROMPTLY TO THE CITY.
6. METALLIZED PIPE LOCATION TAPE SHALL BE LOCATED 15 INCHES BELOW FINISHED GRADE OR AS SPECIFIED BY MANUFACTURER FOR ALL PVC LINES. MARKER TAPE SHALL BE USED ON ALL DUCTILE IRON PIPE.
7. RECLAIMED WATER SERVICES (SINGLE 1") SHALL BE POLYETHYLENE TUBING (PURPLE IN COLOR) ; POLYBUTYLENE SHALL NOT BE ALLOWED.
8. ALL RECLAIMED WATER SERVICE ENDINGS SHALL BE MARKED WITH 4" X 4" LUMBER (PRESSURE TREATED) EXTENDING 4 FEET ABOVE GRADE, WITH WATER SERVICES SECURED 24" ABOVE THE GROUND. WIRE TIES SHALL BE USED TO SECURE THE CURB STOPS TO SUPPORT POSTS.
9. RECLAIMED WATER VALVES SHALL BE PLACED AT ALL STREET INTERSECTIONS AND AT MAXIMUM SPACINGS OF 1000 FEET.
10. AT ALL RECLAIMED WATER MAIN TEES AND CROSSES, VALVES SHALL BE INSTALLED ON ALL LEGS EXCEPT ONE.
11. APPROVED RECLAIMED WATER VALVE TYPES ARE THE FOLLOWING:
    A. STANDARD GATE VALVES LESS THAN 48" DIAMETER RESILIENT SEAT GATE VALVES (AWWA C–509 OR C–515).
    B. TAPPING VALVES AND MECHANICAL TAPPING SLEEVE SHALL BE STAINLESS STEEL. (AWWA C – 509)

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

GENERAL NOTES RECLAIMED WATER SYSTEM CONSTRUCTION

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GENERAL NOTES
RECLAIMED WATER SYSTEM CONSTRUCTION

12. ALL RECLAIMED WATER VALVE BOXES SHALL BE ADJUSTED TO FINISH GRADE AND THE LIDS PAINTED PURPLE TO MAKE THEM PLAINLY VISIBLE.

13. RECLAIMED WATER VALVES SHALL BE COMPLETELY OPENED BY THE CONTRACTOR UPON FINAL ACCEPTANCE OF NEW RECLAIMED WATER SYSTEMS IN THE PRESENCE OF THE CITY.

14. A. HYDRANTS SHALL BE LOCATED AS REQUIRED TO OPTIMIZE FLUSHING
    B. ALL HYDRANTS SHALL BE CONSTRUCTED TO MAKE THEM EASILY ACCESSIBLE TO MAINTENANCE PERSONNEL. THE MAIN NOZZLE CONNECTION SHOULD ALWAYS FACE THE STREET AND BE 18"–24" ABOVE GRADE.
    C. ALL PROPOSED RECLAIMED WATER MAINS SHALL BE FLUSHED AND CLEANED WITH A POLY PIG IN ACCORDANCE WITH LATEST AWWA STANDARDS.

15. AS STANDARD PRACTICE, RECLAIMED WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF CURB ON OPPOSITE SIDE OF ROADWAY FROM WATER MAIN OR AS APPROVED BY THE CITY.

16. ALL RECLAIMED WATER MAINS AND SHALL HAVE A MINIMUM COVER OF 36 INCHES. IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVER, DUCTILE IRON CLASS 350 OR CONCRETE ENCASEMENT MAY BE USED AS APPROVED BY THE CITY.

17. RECLAIMED WATER MAINS SHALL BE AWWA C–900 CL 150, HDPE SDR–11, OR D.I.P. CLASS 350 STANDARD CEMENT LINED.

18. UPON CONSTRUCTION COMPLETION PRIOR TO ACCEPTANCE OF THE SYSTEM, IT SHALL BE THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM IS PROPERLY FLUSHED, PIGGED, AND PRESSURE TESTED BEFORE PAVING.

19. MEGALUG OR EQUIVALENT, RESTRAINED JOINT SYSTEM MAY BE USED ON ALL RESTRAINED FITTINGS, VALVES, ETC. MINIMUM DEPTH OF BURY ON PIPES NOT MEETING REQUIRED COVER REQUIREMENTS SHALL FOLLOW THE MOST RECENT DIPRA THRUST RESTRAINT DESIGN GUIDELINES.

20. CERTIFIED AS–BUILT DRAWINGS (24"x36") SHALL BE PROVIDED TO THE CITY PRIOR TO PAVING AND ANY USE OF THE SYSTEM. PROVIDE THREE (3) BLUELINED COPIES, ONE (1) MYLAR, AND ONE (1) DIGITAL COPY OF AS–BUILT DRAWINGS.

GENERAL NOTES
RECLAIMED WATER SYSTEM CONSTRUCTION

21. RECLAIMED WATER SYSTEMS SHALL BE PRESSURE TESTED AT 150 PSI STATIC PRESSURE FOR A PERIOD OF 2 HOURS PER AWWA STANDARDS. TESTS SHALL BE CONDUCTED BEFORE FINAL PAVING (IF APPLICABLE) IN THE PRESENCE OF THE CITY AND CERTIFIED BY THE ENGINEER.

22. ALL RECLAIMED WATER SERVICES SHALL BE MARKED WITH A "⊥" SAWCUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT.

23. ALL RECLAIMED WATER VALVES AND BLOW-OFFS SHALL BE MARKED WITH AN "✖" SAWCUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT. LOCATION OF METAL TABS IN INCHES FROM EDGE OF PAVEMENT SHALL EQUAL DISTANCE IN FEET FROM EDGE OF PAVEMENT TO VALVE.

24. UNIFLANGE 1300 SERIES PIPE RESTRAINTS AS MANUFACTURED BY FORD OR APPROVED EQUAL MAY BE USED AS APPROPRIATE FOR RESTRAINING IN-LINE PRESSURE PIPE EACH SIDE OF PIPE JOINT. AS REQUIRED BY RESTRAINT TABLE.

25. TRACING WIRE SHALL BE INSTALLED IN ACCORDANCE WITH UTILITY PIPE LOCATION MATERIALS DETAIL.

26. NO GALVANIZED PIPE, FITTINGS, ETC. ARE ACCEPTED.

27. ALL METER BOXES SHALL BE INSTALLED AT THE RIGHT OF WAY LINE ONLY, REGARDLESS OF SIZE.

28. SEE CHART BELOW FOR WATER MAIN SIZE AND MATERIALS.

M A T E R I A L S		
DIAMETER	MATERIAL	STANDARD
2" – 4"	PVC 1120 / SDR 21	ASTM D 2241
> 4" – 12"	PVC DR-18	AWWA C 900-07
> 4" – 12" DEDICATED FIRE LINE	PVC DR-14	AWWA C 900-07
14" – 36" (16"– 24" ⟶ DR – 18) (30"– 36" ⟶ DR – 21)	PVC 1120	AWWA C 905
ALL SIZES	HDPE DIPS DR 11	ASTM F 714

NOTE: PVC PIPE COLOR SHALL BE PURPLE, BLUE WITH PURPLE LOCATOR TAPE FOR RAW WATER MAIN.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

GENERAL NOTES RECLAIMED WATER SYSTEM CONSTRUCTION

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RW-1C

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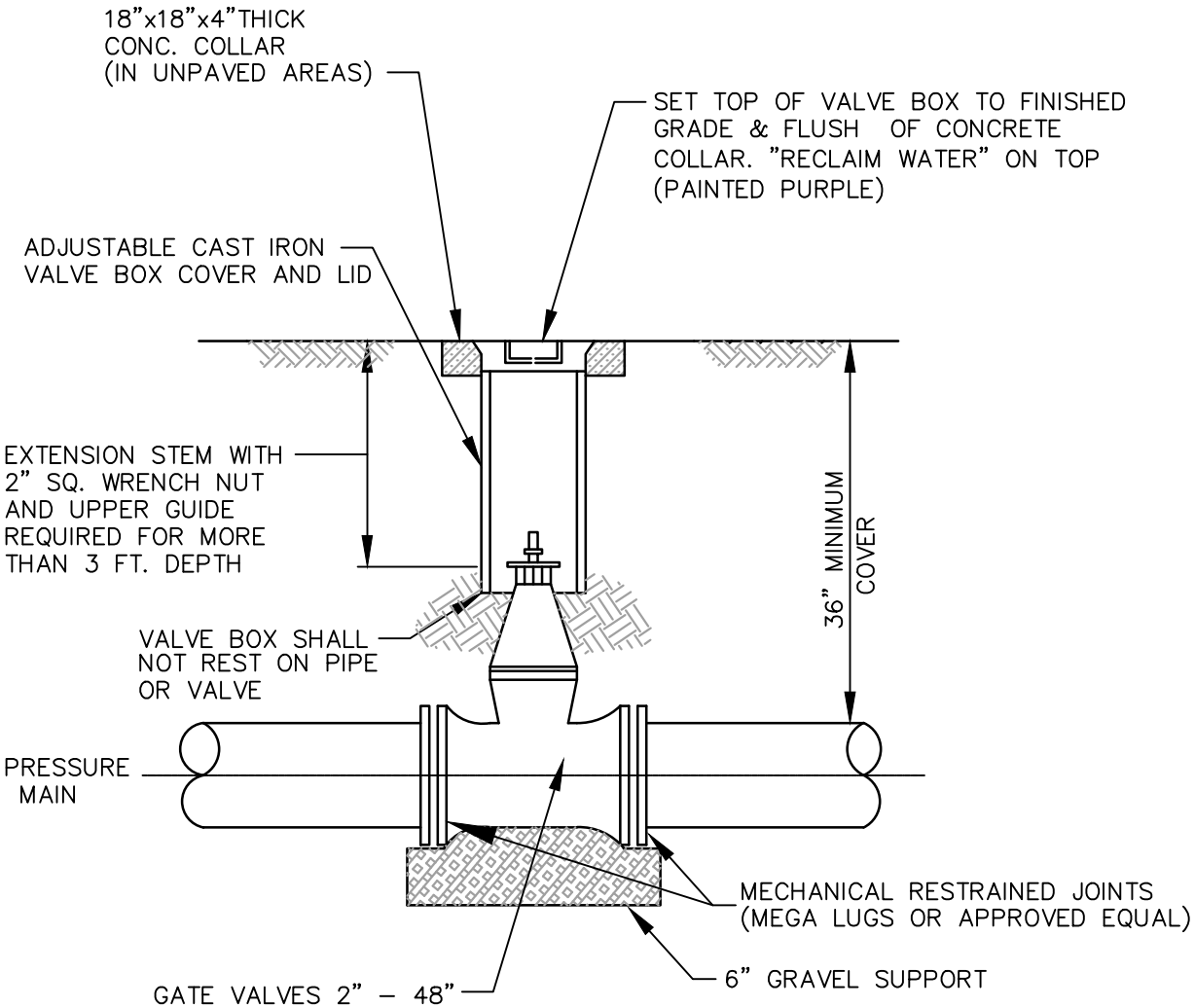

GATE VALVES 2" – 48" SHALL BE RESILIENT SEAT WEDGE VALVE (AWWA C–509 OR C–515). AS MANUFACTURED BY AMERICAN FLOW CONTROL, CLOW, M&H, KENNEDY, OR MUELLER. GATE VALVES LESS THAN 2" SHALL BE BRASS CONFORMING TO FED. SPEC. WW–V–54.

NOTE: USE RESTRAINED JOINT WHERE APPLICABLE.

STANDARD CONSTRUCTION DETAIL

GATE VALVE AND VALVE BOX

NTS.

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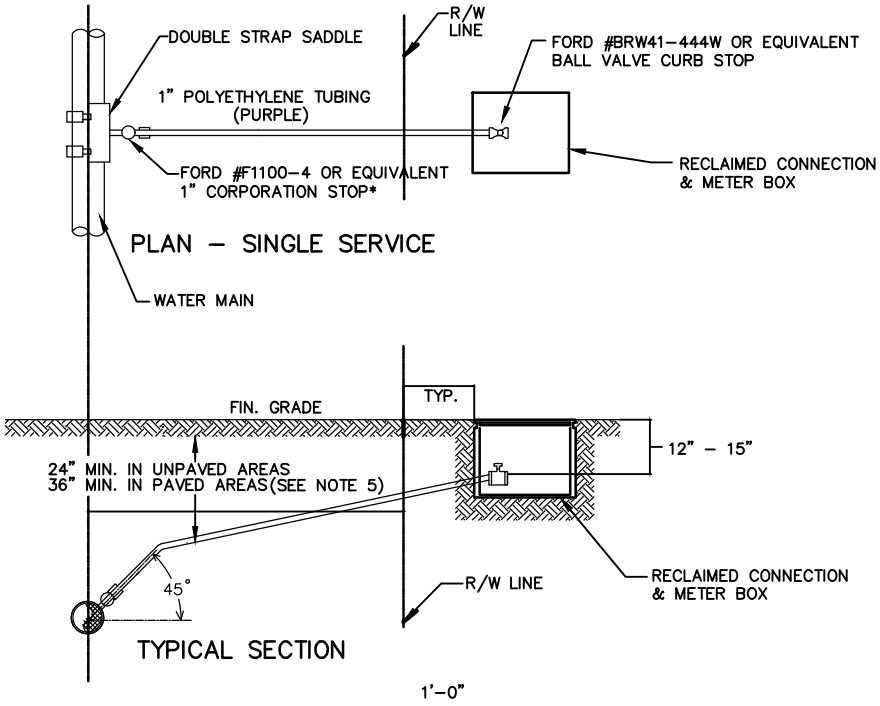
VALVE SCHEDULE FORD OR EQUIVALENT	
REUSE SERVICES	
VALVES AT MAIN	
1"	F1100–4
2"	FB1100–7
VALVES AT R/W LINE	
1"	BRW41–444W
2"	BRW41–777W



NOTES:

1. HDPE SHALL BE 200 PSI, NSF APPROVED, SDR 9, MEETING ASTM D1248. TUBING SHALL BE ENDOT ENDOTRACE (OR APPROVED EQUAL)
2. ALL SERVICE TAPS SHALL BE NO CLOSER THAN 2'–0" STAGGERED INTERVAL OR WITHIN 2'–0" OF BELL OR SPIGOT ENDS.
3. IN AREAS TO BE PAVED PROVIDE A 2" MIN. PVC SCHEDULE 40 SLEEVE FOR PE–TUBING. SLEEVE SHALL EXTEND A MIN. OF 2' BEHIND BACK OF CURB AT EACH SIDE OF ROAD.

STANDARD CONSTRUCTION DETAIL

RECLAIMED WATER LATERAL SERVICE 1" OR 2" SERVICES

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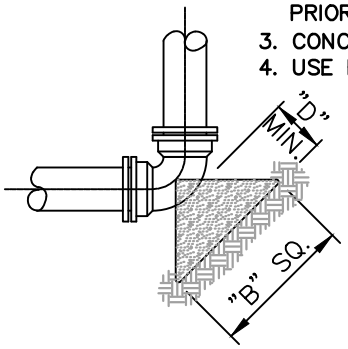
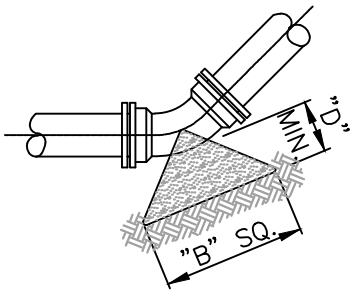
THRUST BLOCK DIMENSION (feet)												
PIPE SIZE	90°BEND		45°BEND		22.5°BEND		11.25°BEND		DEAD END		TEE/WYE	
(IN.)	B	D	B	D	B	D	B	D	B	D	B	D
4	1.5	0.5	1.0	0.5	1.0	0.5	0.5	0.5	1.0	0.5	1.0	0.5
6	2.0	0.5	1.5	0.5	1.0	0.5	1.0	0.5	2.0	0.5	2.0	0.5
8	2.5	0.5	2.0	0.5	1.5	0.5	1.0	0.5	2.0	1.0	2.0	0.5
10	3.0	0.5	2.5	1.0	2.0	0.5	1.0	0.5	3.0	1.0	3.0	0.5
12	4.0	1.0	3.0	1.0	2.0	0.5	1.5	0.5	3.0	1.0	3.0	0.5
14	4.5	1.0	3.0	1.0	2.5	0.5	2.0	0.5	4.0	1.5	4.0	1.0
16	5.0	1.5	4.0	1.0	3.0	1.0	2.0	0.5	4.5	1.5	4.5	1.0
18	5.7	1.7	4.2	1.4	3.1	1.4					6.9	1.7
24	7.7	1.7	5.6	1.4	4.1	1.4					9.1	2.1
30	9.5	2.1	7.0	1.7	5.1	1.4					11.3	2.4
36	11.5	2.4	8.4	1.8	6.0	1.7					13.6	2.5

REINFORCEMENT STEEL	SEE CHART	FOR "D"	REINFORCEMENT
		1.0' & UNDER	#3 BAR @ 6" EACH WAY
		1.0' TO 1.5'	#3 BAR @ 6" EACH WAY
		1.5' TO 2.5'	#3 BAR @ 6" EACH WAY

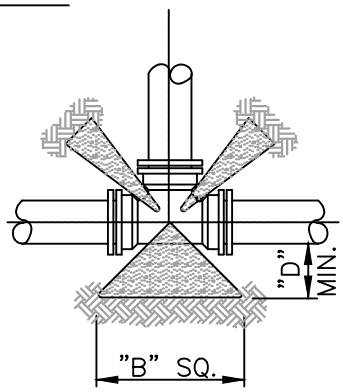


NOTES:
1. THRUST BLOCKS TO BE SET AGAINST FIRM UNDISTURBED SOIL
2. FITTINGS TO BE WRAPPED IN VISQUEEN OR POLYETHYLENE ENCASEMENT PRIOR TO POURING CONCRETE.
3. CONCRETE STRENGTH f = 3000 P.S.I.
4. USE FOR RESTRAINING EXISTING PIPE ONLY.

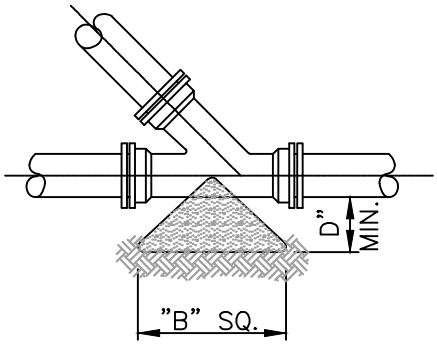
90° BEND



45° OR 22.5° BEND



TEE OR PLUGGED TEE



WYE

STANDARD CONSTRUCTION DETAIL

THRUST BLOCK DETAILS

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FEB 2018

TABLE APPLIES TO PVC PIPE
FOR THE FOLLOWING CONDITIONS:

TEST PRESSURE: 150 PSIG
SOIL TYPE: SP
COVER DEPTH: 2.5 FEET
SAFETY FACTOR: 1.5
TRENCH TYPE: 3

SCHEDULE OF LENGTHS OF RESTRAINED PVC PIPE (FT.)

FITTING	1/4 BEND	1/8 BEND	1/16 BEND	1/32 BEND	TEE OR DEAD END
PIPE SIZE (IN.) :					
4"	20	18	18	18	45
6"	28	18	18	18	63
8"	36	18	18	18	82
10"	44	28	18	18	98
12"	51	21	18	18	116
14"	57	24	18	18	132
16"	63	26	18	18	148
18"	69	29	18	18	163
20"	75	31	18	18	179
24"	87	36	18	18	208
30"	102	42	20	18	248

LENGTHS BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (18' MIN.) OF PIPE TO BE RESTRAINED.

TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.

TABLE APPLIES TO D.I.P.
FOR THE FOLLOWING CONDITIONS:

TEST PRESSURE: 150 PSIG
SOIL TYPE: SP
COVER DEPTH: 2.5 FEET
SAFETY FACTOR: 1.5
TRENCH TYPE: 2

SCHEDULE OF LENGTHS OF RESTRAINED DIP (FT.)

FITTING	1/4 BEND	1/8 BEND	1/16 BEND	1/32 BEND	TEE OR DEAD END
PIPE SIZE (IN.) :					
4"	21 (26)	18 (18)	18 (18)	18 (18)	37 (55)
6"	30 (36)	18 (18)	18 (18)	18 (18)	52 (78)
8"	38 (45)	18 (18)	18 (18)	18 (18)	67 (100)
10"	45 (54)	18 (22)	18 (18)	18 (18)	81 (122)
12"	52 (63)	22 (26)	18 (18)	18 (18)	94 (141)
14"	60 (72)	25 (30)	18 (18)	18 (18)	107 (160)
16"	66 (80)	27 (33)	18 (18)	18 (18)	120 (180)
18"	74 (87)	31 (36)	18 (18)	18 (18)	132 (198)
20"	80 (94)	33 (39)	18 (18)	18 (18)	144 (216)
24"	92 (108)	38 (45)	18 (22)	18 (18)	167 (250)
30"	106 (128)	44 (53)	21 (25)	18 (18)	199 (298)
36" *	69 (82)	28 (34)	18 (18)	18 (18)	170 (204)
42" *	76 (92)	31 (37)	18 (18)	18 (18)	191 (229)
48" *	90 (106)	40 (46)	18 (18)	18 (18)	212 (254)

LENGTHS BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (18' MIN.) OF PIPE TO BE RESTRAINED.

TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.

VALUES IN PARENTHESIS ARE FOR PIPE ENCASED IN POLYETHYLENE.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

PVC AND D.I.P. RESTRAINED JOINT TABLE

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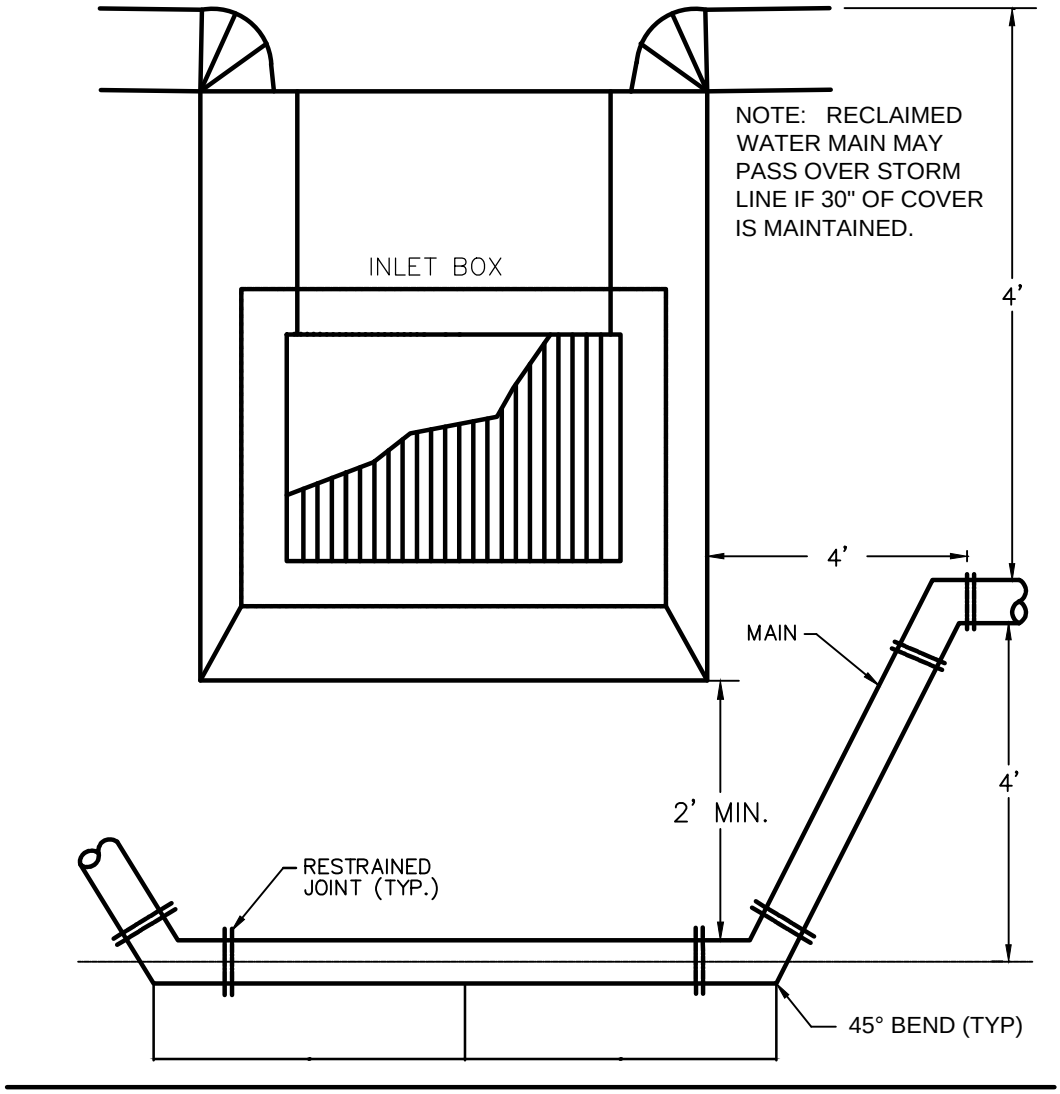

PLAN VIEW

STANDARD CONSTRUCTION DETAIL

RECLAIMED WATER MAIN INSTALLATION BETWEEN DRAINAGE INLET AND SIDEWALK

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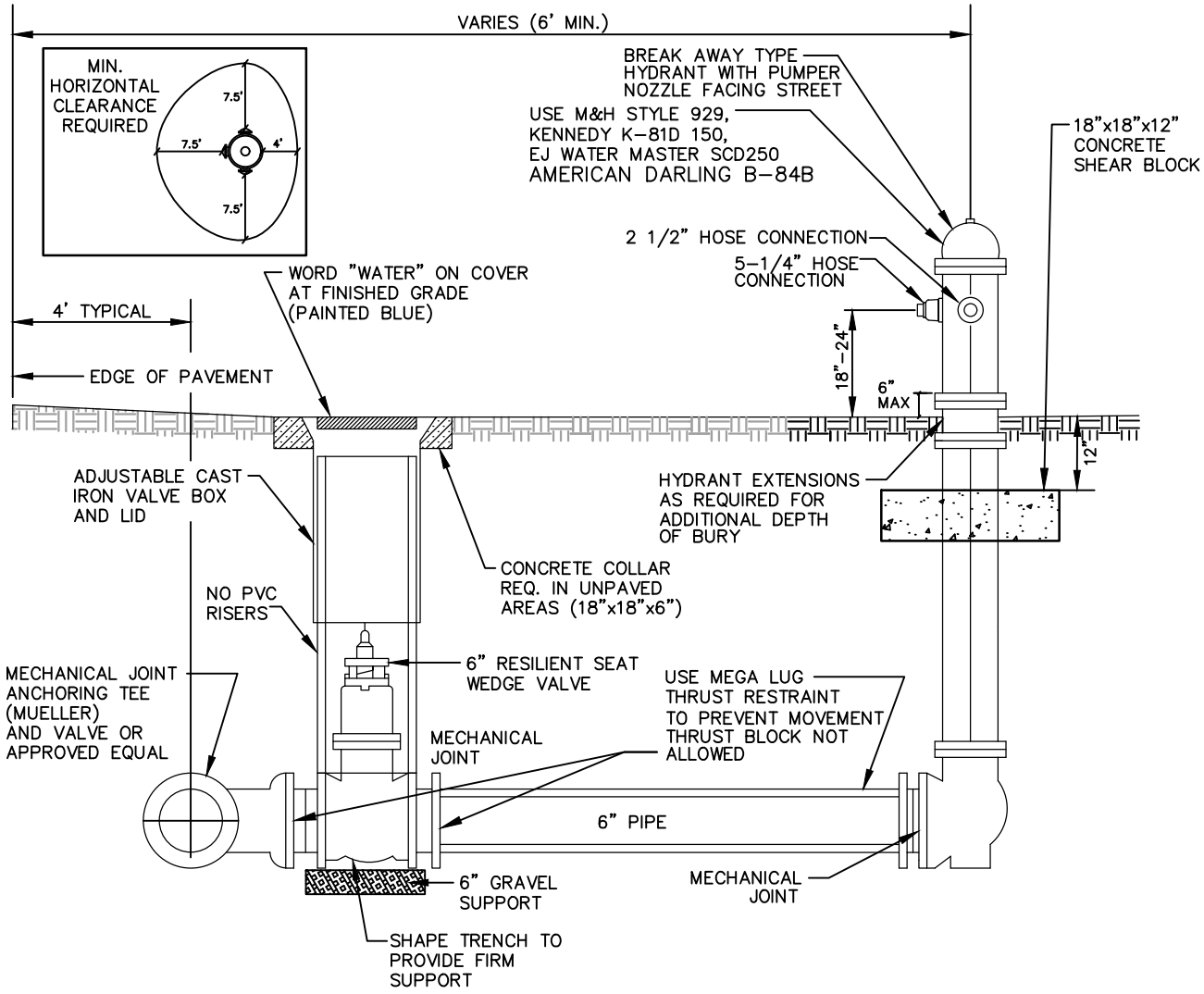

NOTES:

1. ALL JOINTS SHALL BE RESTRAINED
2. ENTIRE HYDRANT SHALL BE PAINTED PURPLE.
3. HYDRANTS SHALL BE PRIMED WITH A CATALYZED TWO PART PRIMER (DURAPLATE #235), ELECTRICALLY CHARGED AND A CATALYZED URETHANE TOP COAT (ACROLON 218), TWO COMPONENT POLYURETHANE PAINT.
4. HOSE CONNECTIONS TO BE AMERICAN STANDARD THREADS.
5. THE HYDRANT SHOE WILL BE COATED INSIDE WITH FUSION BONDED EPOXY. 6 MIL MINIMUM.
6. ADJUSTMENTS OR REPAIRS TO THE HYDRANT AFTER INSTALLATION SHALL BE DONE BY AN UNDERGROUND UTILITY CONTRACTOR OR THE CITY AND ALL COST SHALL BE CHARGED TO THE DEVELOPER. PAYMENT SHALL BE MADE PRIOR TO CERTIFICATE OF OCCUPANCY OF PROPERTY.
7. RESTRAINED JOINTS REQUIRED. THRUST BLOCKS NOT PERMITTED.
8. BOLTS SHALL BE 316 STAINLESS STEEL.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

HYDRANT ASSEMBLY

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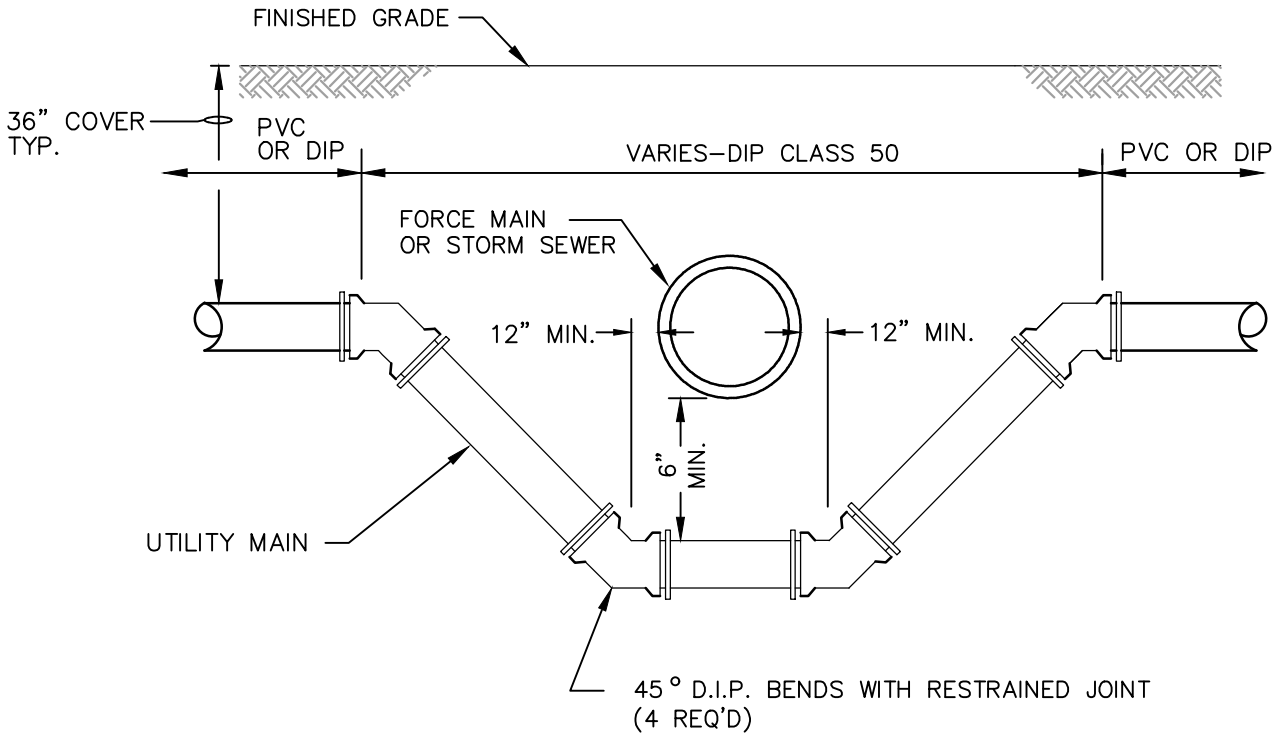

NOTES: 1. ABOVE DETAIL TO BE UTILIZED IF CONTRACTOR CANNOT MAINTAIN 6" CLEAR BETWEEN MAINS BY DEFLECTING PIPE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2. MAINTAIN 12" BELOW A WATER MAIN.

STANDARD CONSTRUCTION DETAIL

PIPE CROSSING

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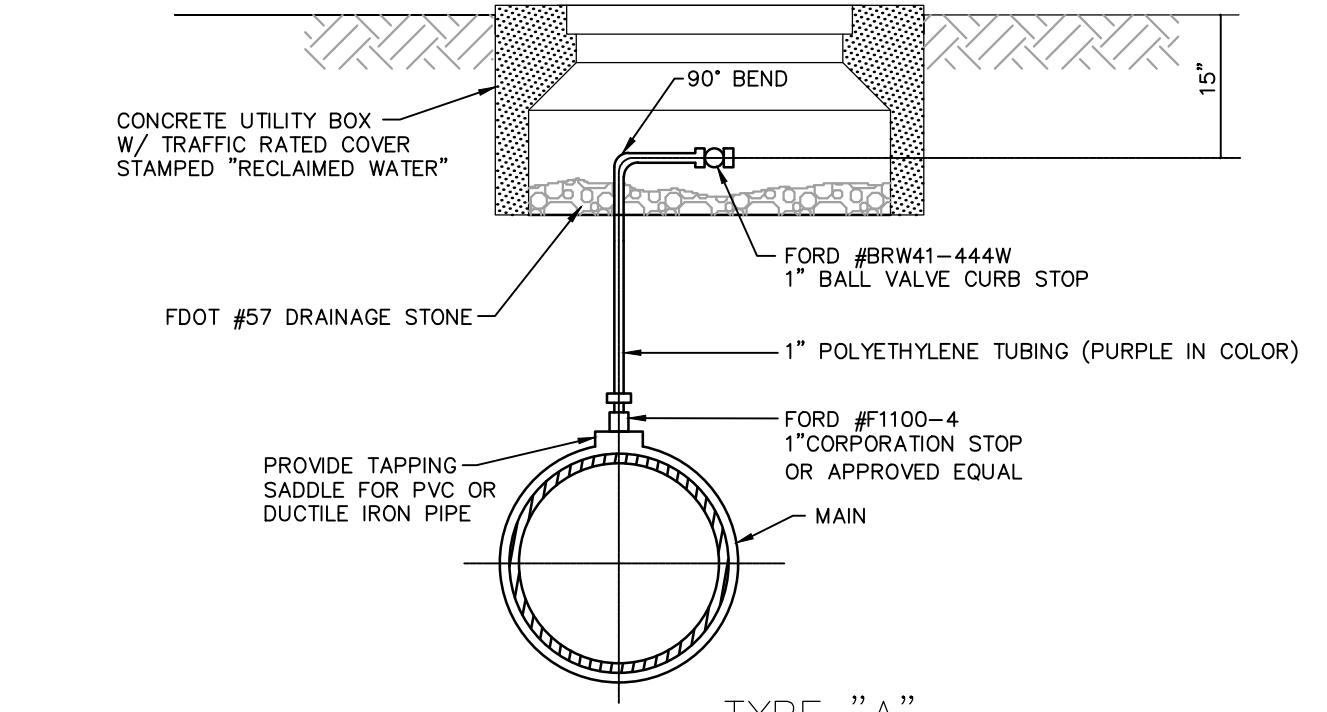
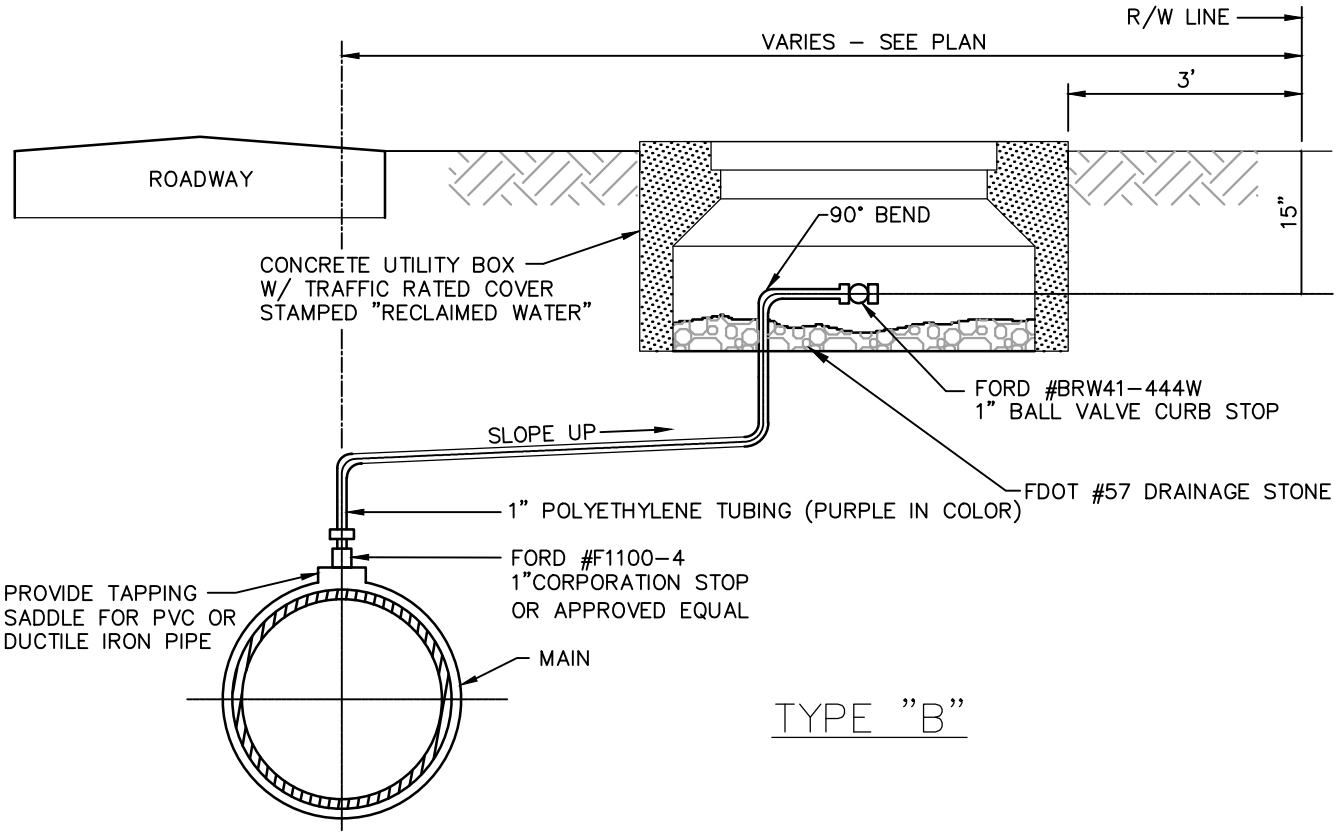


TYPE "A"



TYPE "B"

NOTE– NO GALVANIZED PIPE OR FITTINGS ALLOWED.

STANDARD CONSTRUCTION DETAIL

MANUAL AIR RELEASE VALVE

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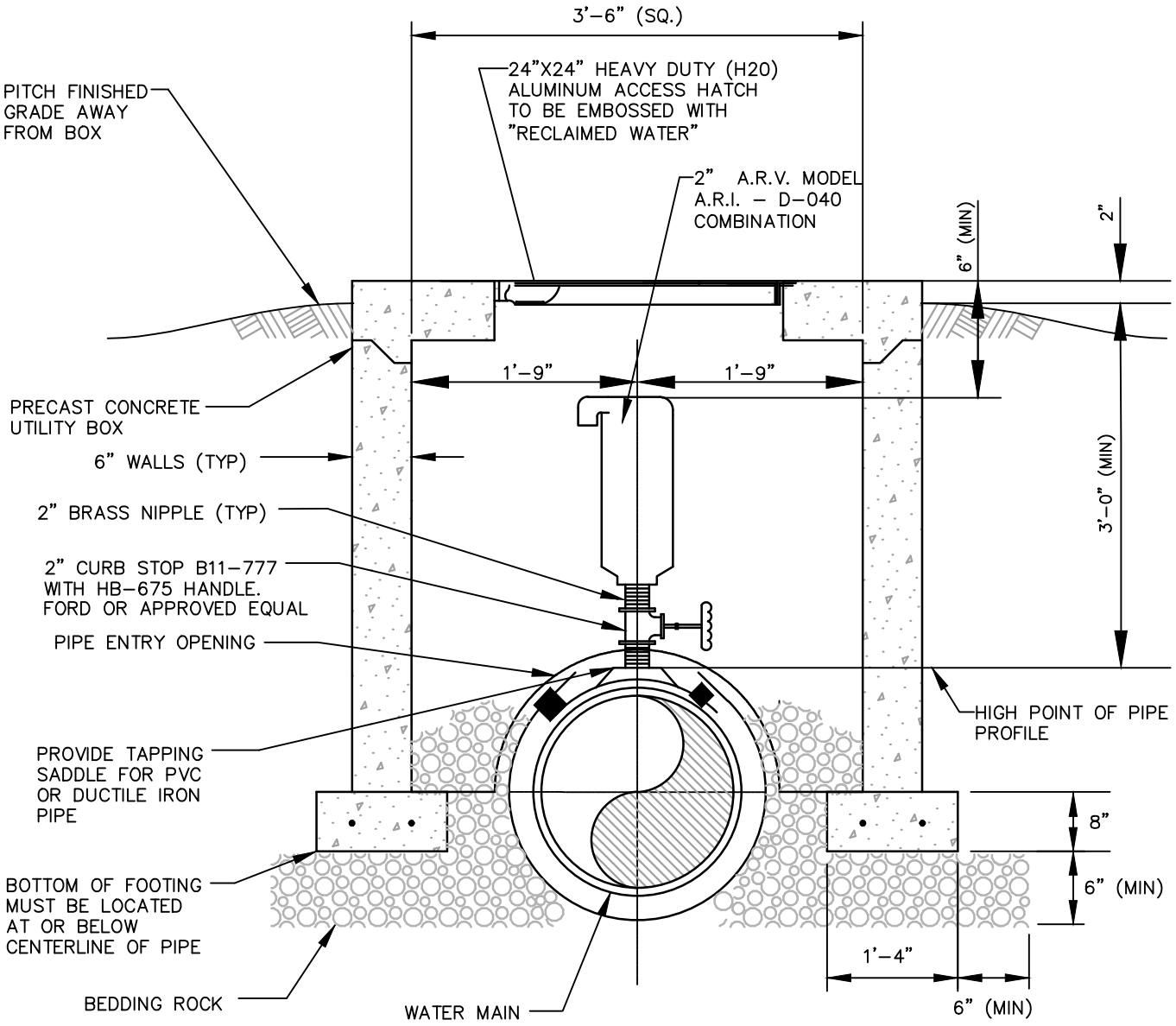

NOTE:

1. GALVANIZED PIPE AND FITTINGS NOT ACCEPTABLE FOR THIS INSTALLATION.
2. STRUCTURE TO BE ADEQUATE FOR AASHTO H20 LOADING.
3. DESIGNER IS RESPONSIBLE FOR PROVIDING CONSTRUCTION MATERIAL AND STEEL REINFORCING REQUIREMENTS.
4. NO SURFACE COATING REQUIRED ON VAULT.
5. ALUMINUM HATCH TO INCLUDE S.S. HINGE AND S.S. SLAM LOCKS WITH REMOVABLE KEYS.
6. FITTINGS AND PIPE FOR A.R.V. SHALL BE BRASS.

STANDARD CONSTRUCTION DETAIL
AUTOMATIC AIR RELEASE VALVE (RECLAIMED WATER MAIN)

NTS

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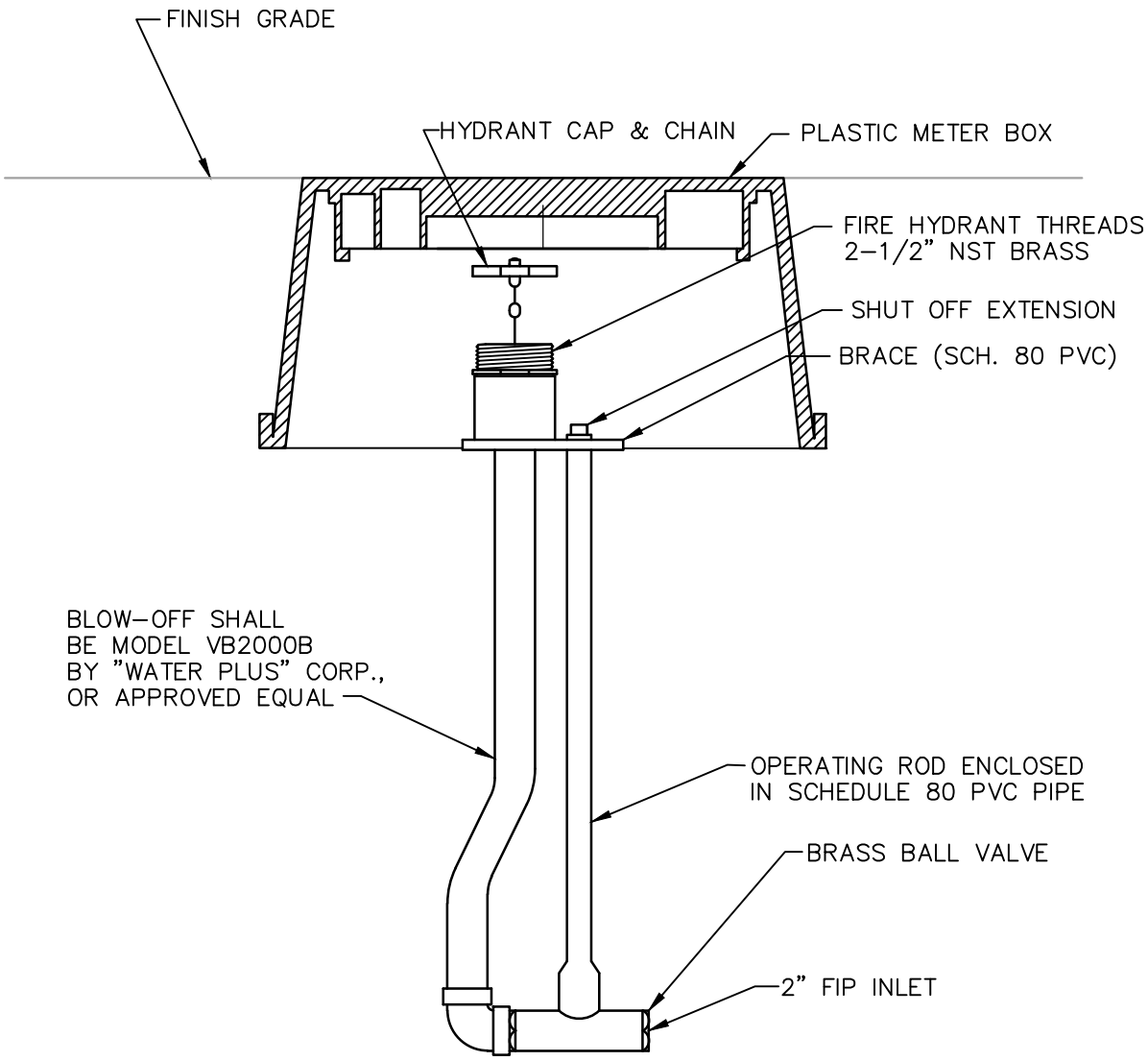

1. WRENCH AND DISCHARGE SPOUT AS SUPPLIED BY MANUFACTURER SHALL BE TURNED OVER TO THE CITY DURING FINAL INSPECTION.

STANDARD CONSTRUCTION DETAIL

BLOW–OFF ASSEMBLY

NTS.

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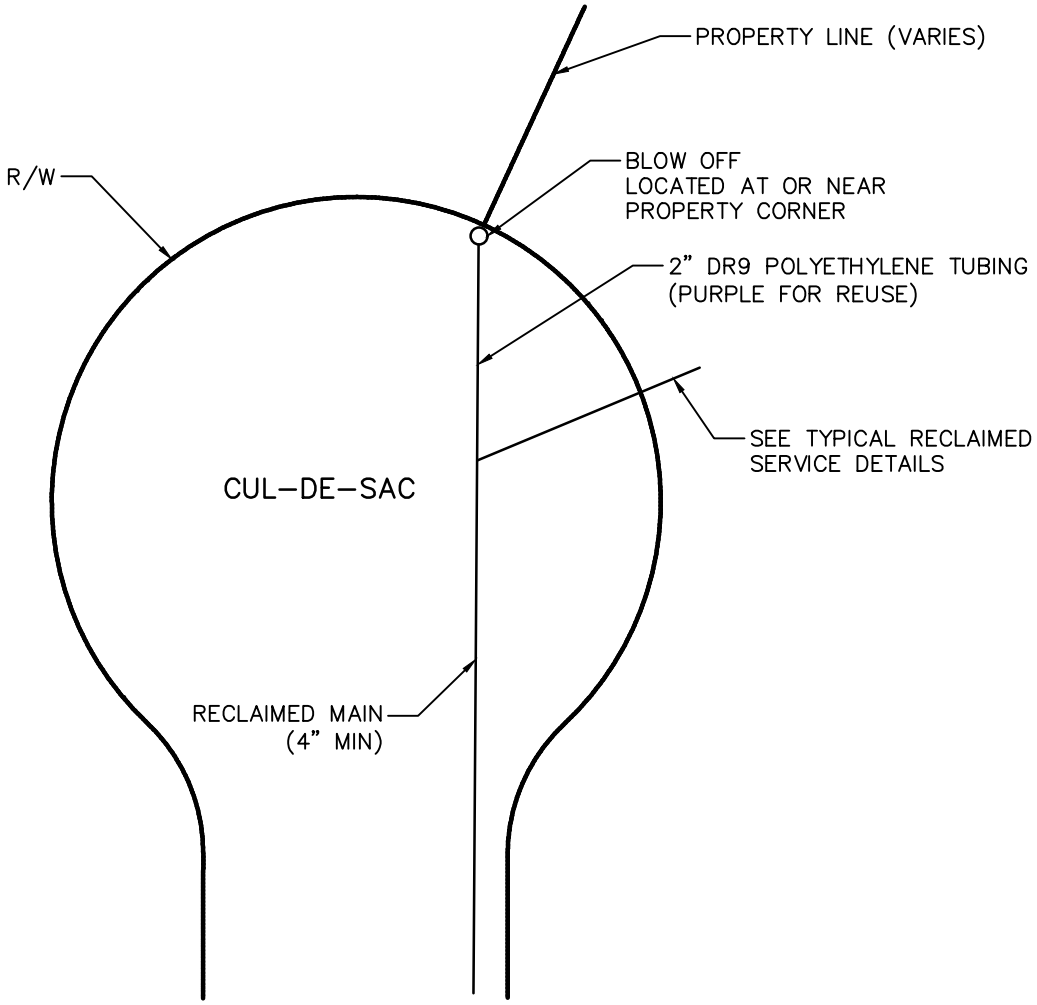

NOTE:

1. THIS DETAIL APPLIES ONLY WHEN THE RECLAIMED WATER MAIN CANNOT BE LOOPED AND CONSIDERED ON A CASE-BY-CASE BASIS.

2. BLOW OFF SHALL BE SET 1' INSIDE RIGHT OF WAY LINE AND ON PROPERTY LINE.

STANDARD CONSTRUCTION DETAIL

TYPICAL CUL-DE-SAC RECLAIMED WATER PIPING

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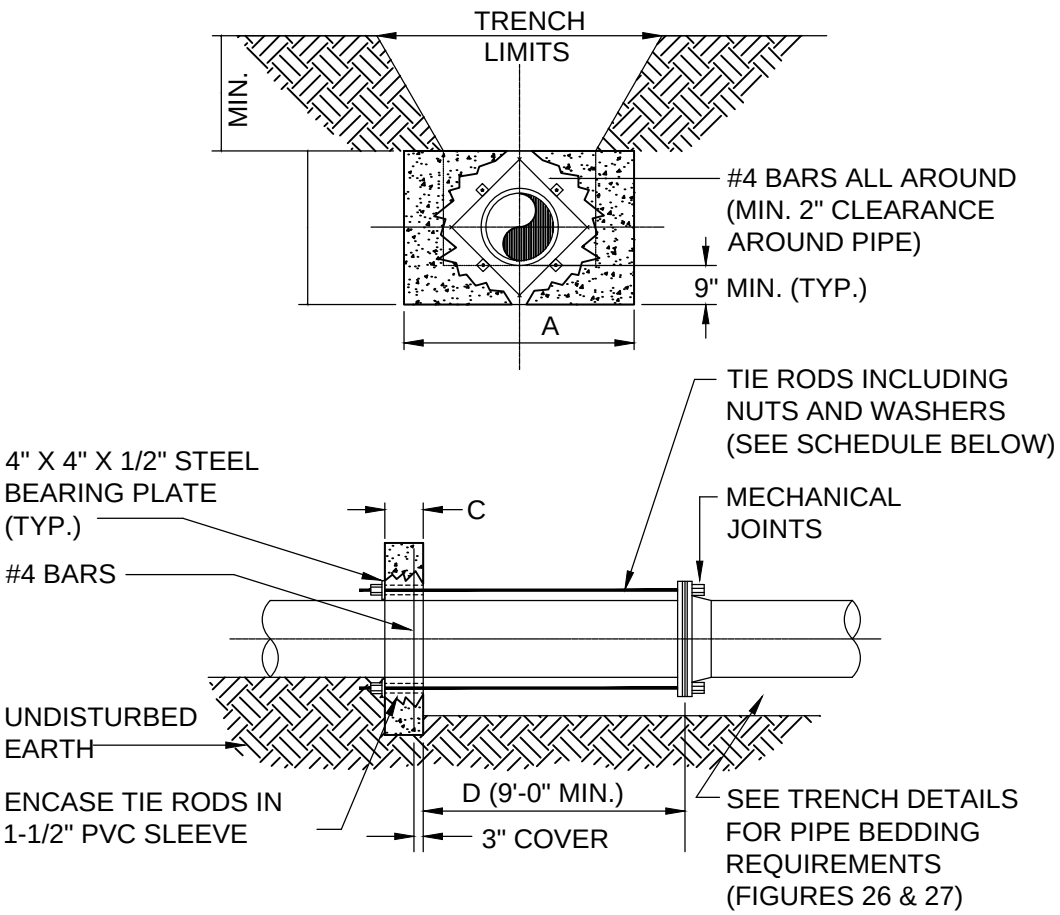

NOTES:

1. ADDITIONAL REINFORCEMENTS SHALL BE SPECIFIED BY THE ENGINEER.
2. MINIMUM COMPRESSIVE STRENGTH FOR CONCRETE SHALL BE 3000 PSI.
3. BEDDING, BACKFILL AND COMPACTION SHALL BE SPECIFIED IN THE STANDARD DRAWING.
4. ALL FORM BOARDS SHALL BE REMOVED PRIOR TO BACKFILLING.
5. NO ALLOWANCE SHALL BE MADE FOR FRICTION BETWEEN THE PIPE WALL.
6. DESIGN PRESSURE: 150 PSI.

SCHEDULE OF DIMENSIONS AND MATERIALS

PIPE SIZE (INCHES)	DIMENSIONS (FT.)				TIE RODS REQ'D	
	A	B	C	D	DIA.	NO.
6	2.0	2.0	1.0		3/4	2
8	2.5	2.5	1.0		3/4	2
10	3.5	3.0	1.0		3/4	2
12	5.0	3.0	1.0		3/4	2
16	6.0	4.0	1.5		3/4	4
20	8.0	5.0	1.5		3/4	6
24	9.0	6.0	1.5		3/4	8

NOTE: THRUST COLLAR AREAS TO BE COMPUTED ON BASIS OF 2000 LBS/SF SOIL RESTRAINT BEARING.

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STANDARD CONSTRUCTION DETAIL

WATER MAIN THRUST COLLAR

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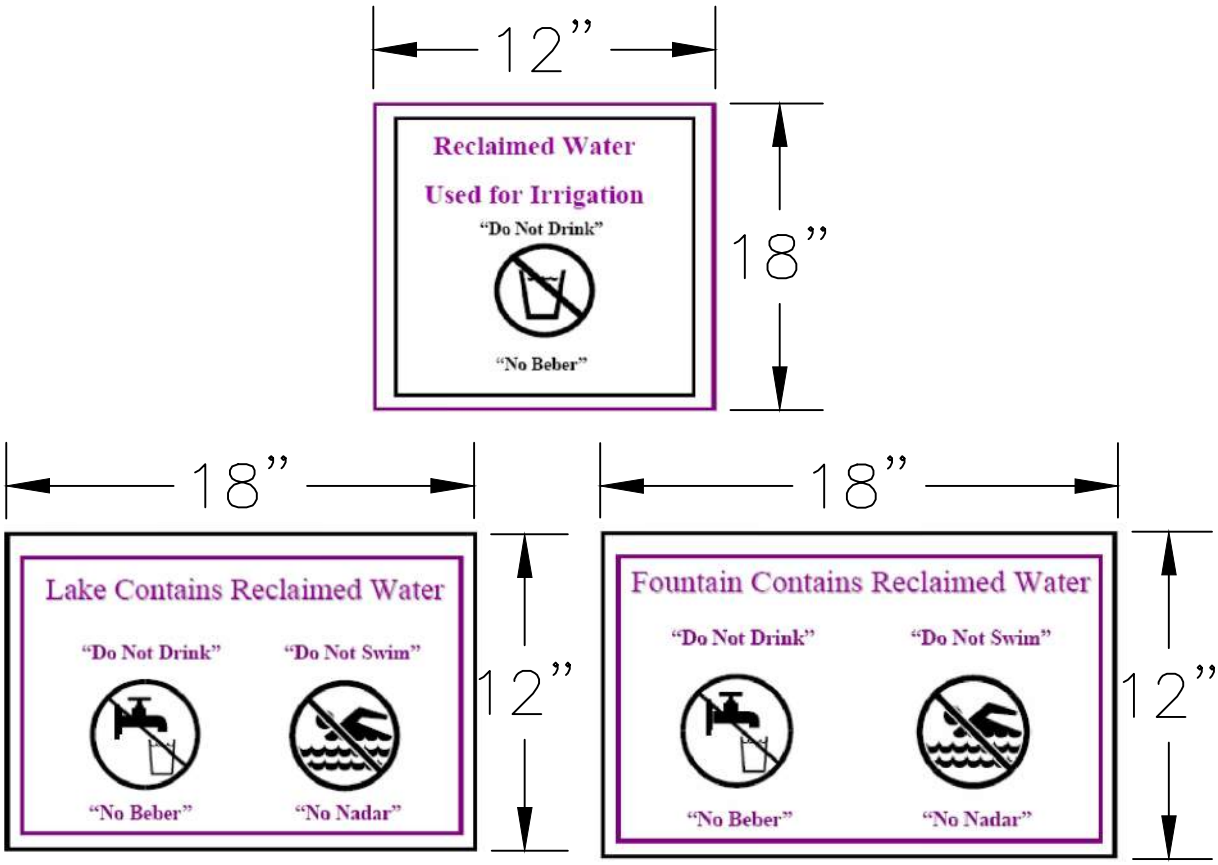

RECLAIMED WATER – ADVISORY SIGNS

NTS

NOTE:

1. AREAS IRRIGATED BY RECLAIMED WATER, SUCH AS RESIDENTIAL NEIGHBORHOODS AND GOLF COURSES, SHALL HAVE ADVISORY SIGNS POSTED AT THE ENTRANCES ALERTING THE PUBLIC. ADDITIONAL SIGNS SHALL BE POSTED AT THE FIRST AND TENTH TEES AT GOLF COURSES. SIGNS SHALL INCLUDE THE TEXT ”DO NOT DRINK” IN BOTH ENGLISH AND SPANISH TOGETHER WITH THE EQUIVALENT STANDARD INTERNATIONAL SYMBOL.

2. ADVISORY SIGNS SHALL BE POSTED ADJACENT TO LAKES OR PONDS USED TO STORE RECLAIMED WATER AND DECORATIVE WATER FEATURES THAT USE RECLAIMED WATER. SIGNS SHALL INCLUDE THE TEXT ”DO NOT DRINK” AND ”DO NOT SWIM” IN BOTH ENGLISH AND SPANISH TOGETHER WITH THE EQUIVALENT STANDARD INTERNATIONAL SYMBOL.

3. ALL SIGNAGE SHALL FOLLOW REQUIREMENTS OF FAC 62–610.468

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

RECLAIMED WATER ADVISORY SIGNS

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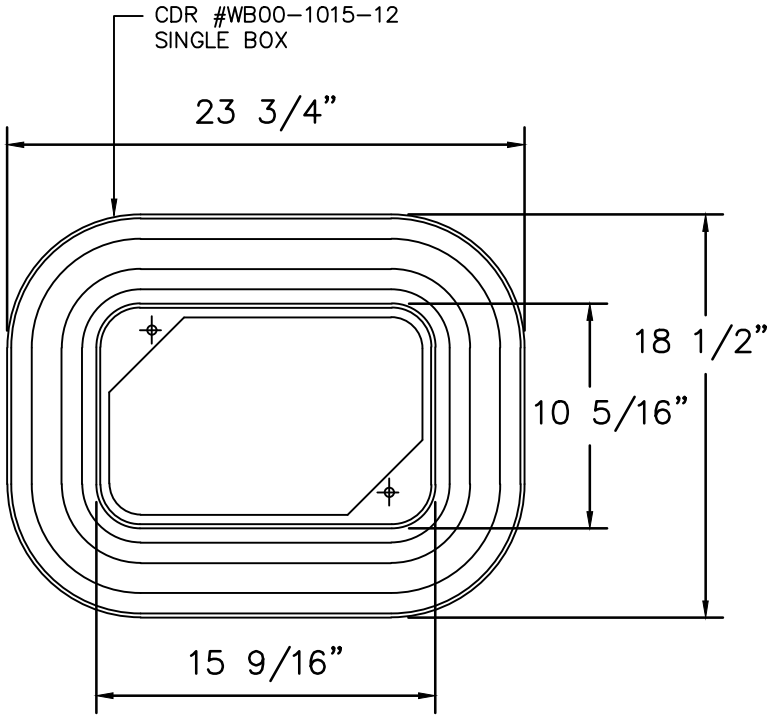
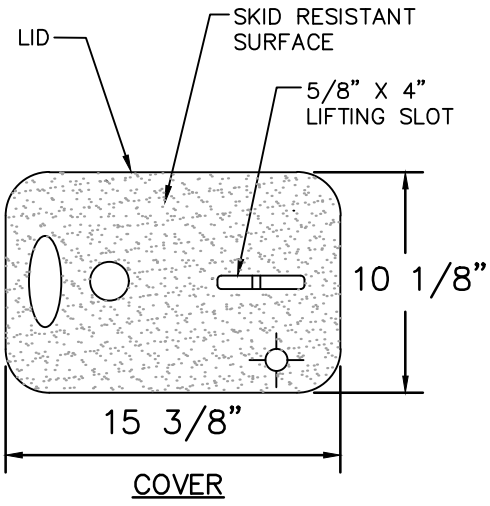
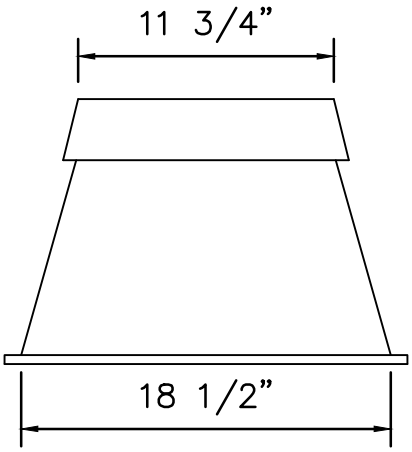


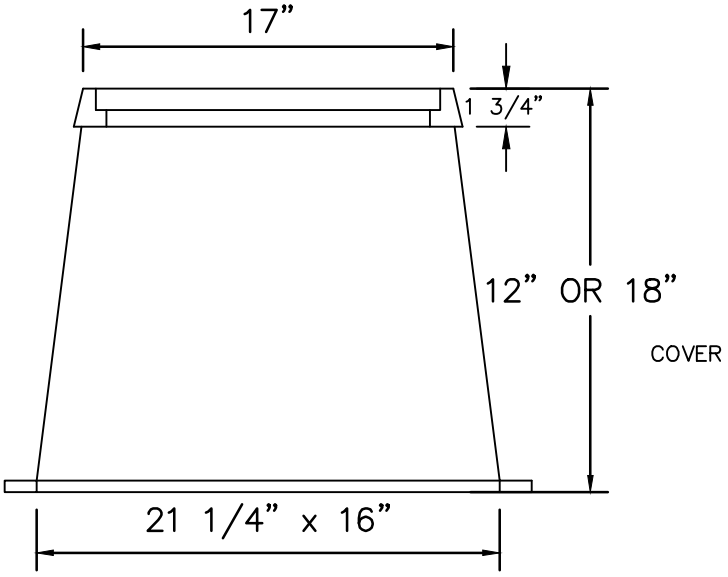
BOX PLAN VIEW



COVER



END VIEW



BOX AND COVER SECTION

STANDARD CONSTRUCTION DETAIL

RECLAIMED WATER SERVICE:
SINGLE SERVICE
C.D.R. METER BOX

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SANITARY SEWER DETAILS

SANITARY SEWER CONSTRUCTION GENERAL NOTES

1. THE CITY SHALL BE NOTIFIED PRIOR TO BEGINNING ANY SEWER CONSTRUCTION.

2. ALL GRAVITY SANITARY SEWER LINES SHALL BE A MINIMUM OF 8" IN DIAMETER. SERVICE LATERALS SHALL BE A MINIMUM OF 4" DIAMETER (RESIDENTIAL) OR A MINIMUM OF 6" DIAMETER (COMMERCIAL).

3. ALL SANITARY SEWER LINES SHALL BE PVC SDR 26. IN PLACES WHERE A MINIMUM COVER OF 4.0' CANNOT BE MAINTAINED, C-900 GREEN PVC DR-25, CLASS 100 OR CONCRETE ENCASEMENT SHALL BE USED.

4. MINIMUM ALLOWABLE SANITARY SEWER SLOPES ALLOWED ARE:
   8" PIPE 0.40%
   10" PIPE 0.30%
   12" PIPE 0.22%

5. SEWER LINE CONSTRUCTION SHALL BE ACCOMPLISHED BY THE USE OF A LASER INSTRUMENT.

6. THE CONTRACTOR SHALL AT ALL TIMES, DURING PIPE LAYING, DEWATER THE GROUND SUFFICIENTLY TO KEEP THE GROUNDWATER ELEVATION A MINIMUM OF 6" BELOW THE PIPE BEING LAID WITHIN THE AREA OF THE TRENCH.

7. ALL PIPES SHALL BE LAID ON A FIRM FOUNDATION. SOFT OR SPONGY BEDDING FOR PIPES WILL NOT BE ACCEPTED. ANY UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH A DRY, COMPACTED, GRANULAR MATERIAL SATISFACTORY TO THE CITY.

8. TRENCHES SHALL BE BACKFILLED WITH CLEAN GRANULAR MATERIAL IN MAX. 1' LIFTS WITH A MINIMUM COMPACTION OF 98 PERCENT (ASSHTO-T180) IN PAVED AREAS AND 90 PERCENT IN UNPAVED AREAS.

9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TEST BE PROVIDED AT POINTS 1 FOOT ABOVE THE PIPE AND AT 1 FOOT VERTICAL INTERVALS TO FINISH GRADE, AT A MINIMUM SPACING OF EVERY 300 FEET, AND TO FURNISH COPIES OF TEST REPORTS PROMPTLY TO THE CITY.

10. EXCAVATION AND BACKFILL: THE CONTRACTOR SHALL PROVIDE ADEQUATE SHEETING AND BRACING OF EXCAVATION WORK OR USE OF TRENCH BOX IN ORDER TO PROVIDE FOR THE SAFETY OF WORKMEN, AS WELL AS REPRESENTATIVES OF THE CITY, THE DESIGN ENGINEER, AND THE DEVELOPER.

11. THE CONTRACTOR SHALL INSTALL A METALLIZED FOIL LOCATER TAPE, OR SIMILAR DEVICE AS MAY BE APPROVED BY THE CITY FOR THE FULL LENGTH OF ALL PVC WATER, RECLAIMED WATER AND SEWAGE FORCE MAINS. THIS PIPE LOCATER AID SHALL BE INSTALLED (15) INCHES BELOW FINISHED GRADE OR AS DIRECTED BY THE MANUFACTURER AND IS IN ADDITION TO THE LOCATER WIRE REQUIRED IN THE UTILITY PIPE LOCATION MATERIALS DETAIL (MISCELLANEOUS DETAILS SECTION – M10).

12. MANHOLES SHALL BE LOCATED AT INTERVALS NOT EXCEEDING 400 FEET.

13. MANHOLE RIMS SHALL MATCH FLUSH WITH THE FINISH GRADE ELEVATION IN PAVED AREAS AND A MINIMUM OF 0.2 FEET ABOVE GRADE IN UNPAVED AREAS.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

GENERAL NOTES
SANITARY SEWER CONSTRUCTION

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SANITARY SEWER CONSTRUCTION GENERAL NOTES

14. THE CONTRACTOR SHALL CONSTRUCT SANITARY SEWER MANHOLES IN SUCH A WAY THAT SEWER LINES DO NOT INTERSECT SEALED JOINTS BETWEEN SECTIONS OF THE MANHOLE.

15. RUBBER BOOTS AND STAINLESS STEEL BANDS SHALL BE UTILIZED IN THE CONNECTION OF THE SEWER MAIN TO THE MANHOLES (SEE RUBBER BOOT AND PRECAST JOINT CONNECTION DETAIL).

16. DOGHOUSE TYPE MANHOLES ARE NOT PERMITTED WITHIN THE CITY.

17. INDIVIDUAL SANITARY SERVICE CONNECTORS ON NEW CONSTRUCTION SHALL NOT BE CONNECTED DIRECTLY INTO MANHOLES, BUT TO SEWER MAIN LINES BY USE OF WYE CONNECTIONS.

18. FOR SINGLE FAMILY HOMES, SINGLE FOUR INCH SEWER SERVICES SHALL BE CONSTRUCTED AT EACH LOT OR UNIT AND LOCATED ON THE DOWNSTREAM SIDE OF THE LOT CENTER LINE. THESE SERVICES SHALL BE EXTENDED 4 FEET ABOVE GROUND AT THE PROPERTY LINE WITH A PVC RISER AND PLUG BEING EASILY VISIBLE FROM THE ROAD. RUBBER SEAL FITTINGS TO BE USED ON ALL LINES, NO GLUED JOINTS.

19. FOR MULTI–FAMILY AND COMMERCIAL SITES, SIX INCH MINIMUM SEWER SERVICES AND CLEANOUTS SHALL BE PROVIDED AS APPROVED BY THE CITY.

20. SANITARY SEWER LATERALS LONGER THAN 70 FEET, MEASURED FROM THE SEWER MAIN TO THE RIGHT–OF–WAY LINE MAY BE APPROVED ON A CASE BY CASE BASIS. SUCH LATERALS SHALL BE D.I.P. EPOXY LINED OR C–900 PVC.

21. SANITARY SEWER MANHOLES WHICH HAVE SEWER FORCE MAINS DISCHARGING DIRECTLY INTO THEM, OR ANY MANHOLE WITHIN 200 FEET OF A LIFT STATION, SHALL BE FIBERGLASS OR PVC LINED. RETRO–FITTING OF MANHOLES WITH LINERS SHALL BE REQUIRED WHEN NEW CONNECTIONS SUCH AS THIS ARE MADE. LINING SHALL BE AGRU SURE–GRIP, RAVEN, SEWPERCOAT, GREEN MONSTER, OR PRE–APPROVED EQUAL.

22. SEE CHART ON DETAIL INDEX S–1C FOR FORCE MAIN AND REUSE PIPE SIZE AND MATERIALS.

23. THE CITY REQUIRES THE DEVELOPER TO TELEVISE ALL SANITARY SEWER MAIN LINES AND LATERALS PRIOR TO FINAL ACCEPTANCE, AND RESERVES THE RIGHT TO REQUEST WATER AND AIR TESTING.

24. ALL SEWER MAINS PRIOR TO ACCEPTANCE BY THE CITY SHALL BE TELEVISED BY A REPUTABLE COMPANY THAT ENGAGES IN THIS TYPE OF WORK. THE DVD SHALL BE NON–STOP WITH AUDIO DESCRIBING WHAT IS BEING REVIEWED. WRITTEN DVD LOGS DESCRIBING THE CONDITION OF THE LINES SHALL ACCOMPANY THE DVD SUBMISSION TO THE CITY.

25. CONTRACTORS SHALL BE REQUIRED TO TELEVISE ALL SEWER MAINS AND LATERAL LINES IN THE PRESENCE OF THE CITY AND PROVIDE TWO COPIES OF THE DVD ALONG WITH WRITTEN LOGS TO THE CITY. ANY DEFECTS NOTED SHALL BE CORRECTED PRIOR TO ACCEPTANCE BY THE CITY.

SANITARY SEWER CONSTRUCTION GENERAL NOTES

26. ALL MANHOLES CONSTRUCTED IN SIDE YARDS, BACKYARDS, AND EASEMENTS OFF THE RIGHT-OF-WAY SHALL BE OUTFITTED WITH FIBERGLASS LINERS OR OTHER TYPES OF LINERS OR COATINGS APPROVED BY THE CITY. IN ADDITION THE CITY MAY REQUIRE LINERS OR COATINGS TO BE INSTALLED IN OTHER AREAS WHERE THE PUBLIC UTILITY DEPARTMENTS BELIEVE THE NEED IS JUSTIFIED.
27. ALL SEWER LINES WHICH ARE CONSTRUCTED OFF PUBLIC RIGHTS-OF-WAY WITHIN SIDEYARDS, BACKYARDS, AND OTHER POORLY ACCESSIBLE AREAS SHALL BE CONSTRUCTED OF C-900 PVC, OR EPOXY LINED DUCTILE IRON PIPE. ABSOLUTELY NO USE OF PLASTIC STYRENE FITTINGS SHALL BE ALLOWED.
28. SEWER LATERAL LOCATIONS SHALL BE MARKED ALONG THE OUTSIDE OF THE CURB WITH A SAW CUT V, OR BY A METAL TAB SET INTO THE PAVEMENT.
29. EZ-WRAP PLASTIC, AS MANUFACTURED BY PRESS-SEAL GASKET CORPORATION OR APPROVED EQUAL, SHALL BE USED ON THE OUTSIDE OF ALL MANHOLE AND WET WELL JOINTS. APPLY ONE LAYER OF 9" WRAP CENTERED ON EACH JOINT. THE CITY SHALL PERSONALLY INSPECT ALL JOINT SEALS PRIOR TO BACKFILLING OPERATIONS .
30. ALL PROPOSED SEWER MAINS, 4" OR GREATER, SHALL BE FLUSHED AND CLEANED WITH A POLY PIG IN ACCORDANCE WITH LATEST AWWA STANDARDS AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS.
31. ALL SEWER MAINS SHALL HAVE A MINIMUM COVER OF 36 INCHES AND A MAXIMUM DEPTH OF 12' TO ANY MANHOLE OR WETWELL. IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVER. DUCTILE IRON CLASS 350 OR CONCRETE ENCASEMENT MAY BE USED AS APPROVED BY THE CITY.
32. SEWER SYSTEMS SHALL BE PRESSURE TESTED AT 100 PSI STATIC PRESSURE FOR A PERIOD OF 2 HOURS PER AWWA STANDARDS. TESTS SHALL BE CONDUCTED BEFORE FINAL PAVING AND IN THE PRESENCE OF THE CITY.
33. DURING CONSTRUCTION, CONTRACTOR SHALL ISOLATE NEW SANITARY SEWER CONSTRUCTION FROM EXISTING SANITARY SEWER MAINS. THIS ISOLATION MAY BE BY INSTALLATION OF A BLADDER/PLUG PLACED AT POINT OF CONNECTION OR BY OTHER METHODS. THE PURPOSE OF THIS ISOLATION IS TO ENSURE SURFACE WATER IS NOT RELEASED TO THE TREATMENT PLANT. SURFACE WATER SHALL BE REMOVED PRIOR TO THE BLADDER BEING REMOVED.

FORCE MAIN & REUSE MAIN STANDARDS		
DIAMETER	MATERIAL	STANDARD
2" – 4"	PVC 1120 / SDR 21	ASTM D 2241
> 4" – 12"	PVC 1120 / CLASS 100	AWWA C 900
14" – 36" (16"– 24" ⟶ DR – 18) (30"– 36" ⟶ DR – 21)	PVC 1120	AWWA C 905
ALL SIZES	HDPE (DIPS) DR 13.5	ASTM F 714

NOTE: PVC PIPE COLOR SHALL BE GREEN OR WHITE FOR SEWER FORCE MAIN, AND PURPLE FOR REUSE MAIN.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

GENERAL NOTES SANITARY SEWER CONSTRUCTION

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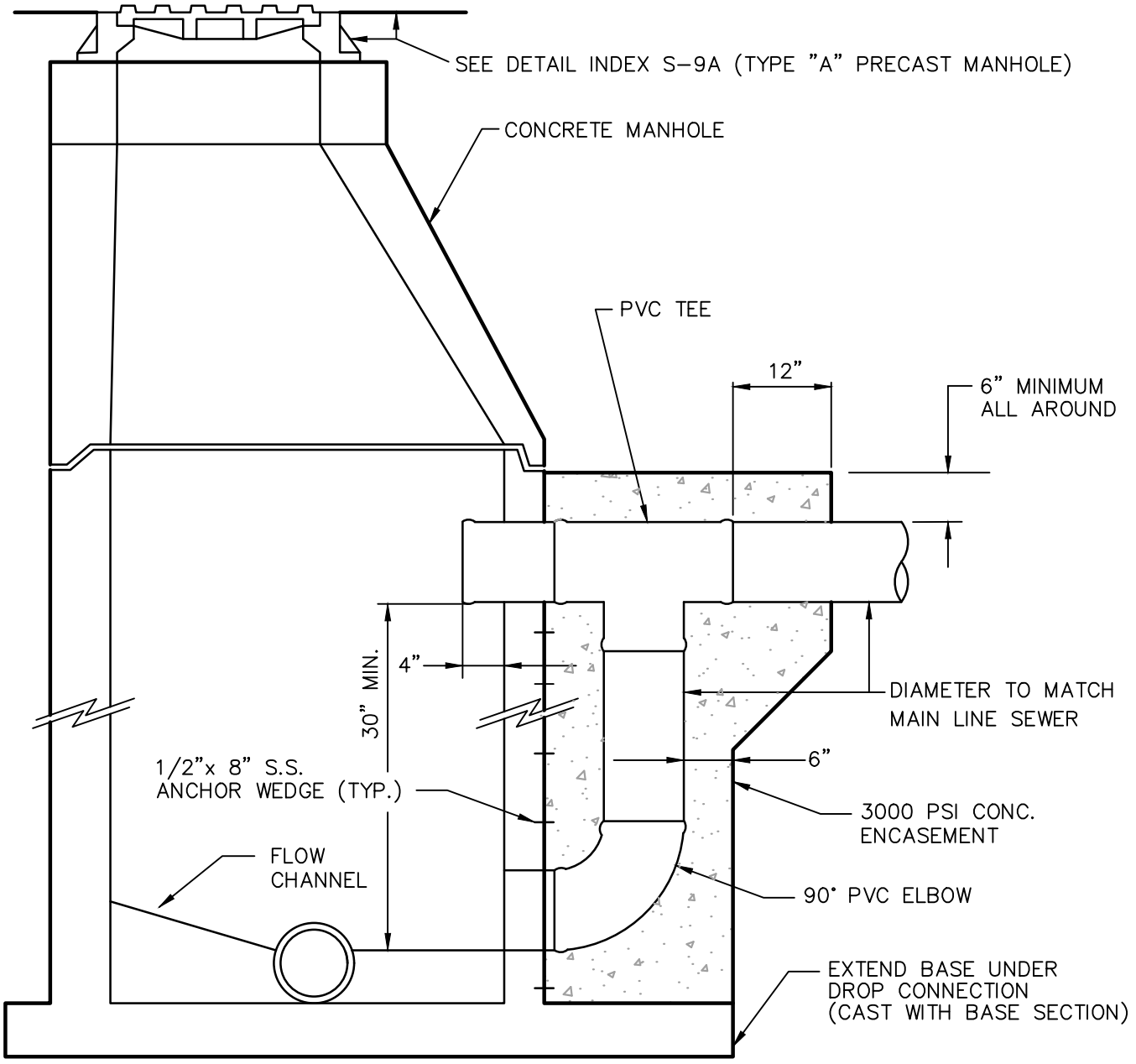

PROVIDE RUBBER GASKET PER
A.S.T.M. C-923, CAST INTEGRALLY
IN MANHOLE WALL AND LOCATED
AS REQUIRED FOR 8" SANITARY SEWER

NOTE: FOR USE WHERE FREE DROP IS GREATER THAN 30". FOR GRAVITY SEWER AND FORCE MAINS.

STANDARD CONSTRUCTION DETAIL

OUTSIDE DROP CONNECTION (FOR NEW MANHOLES)

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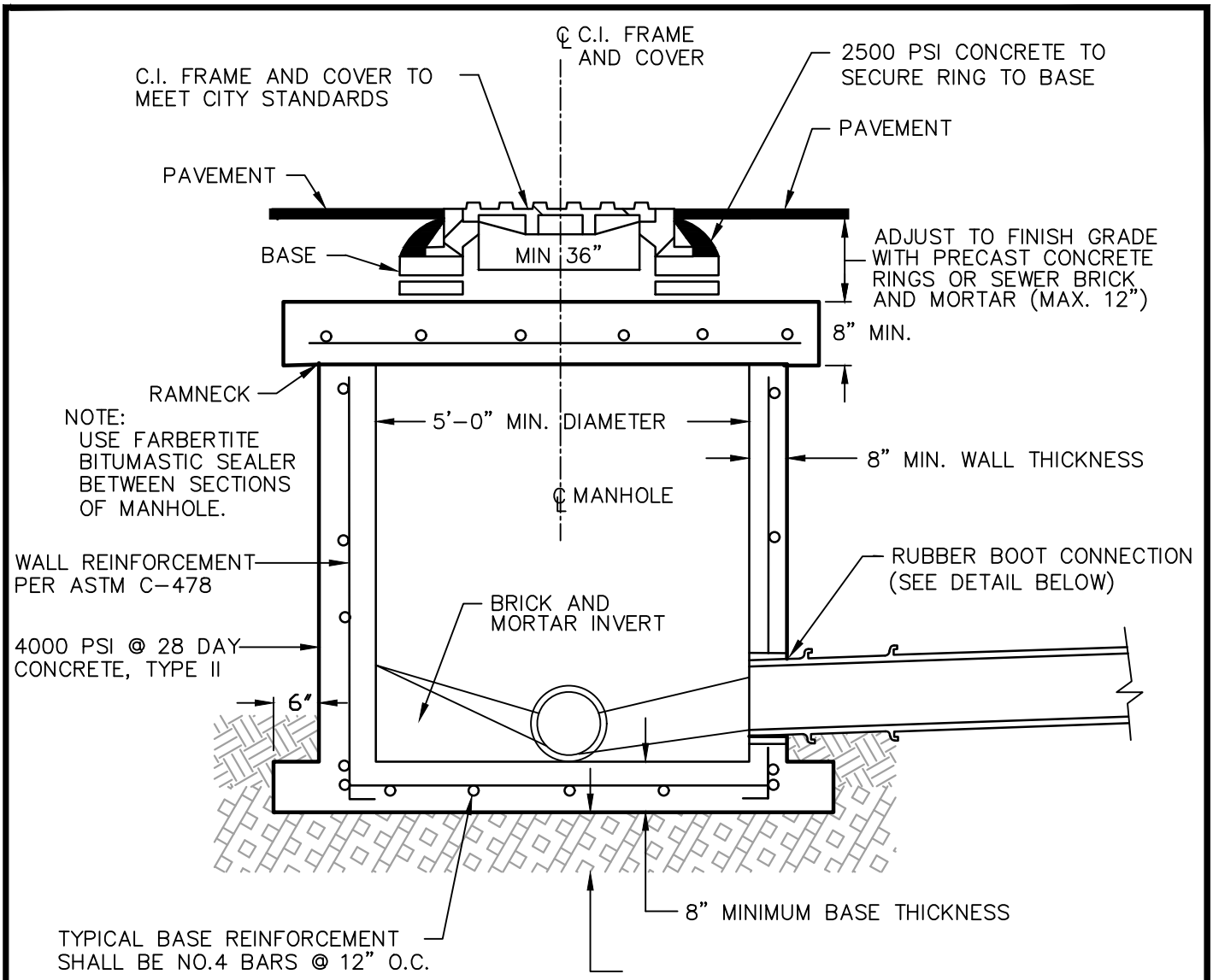

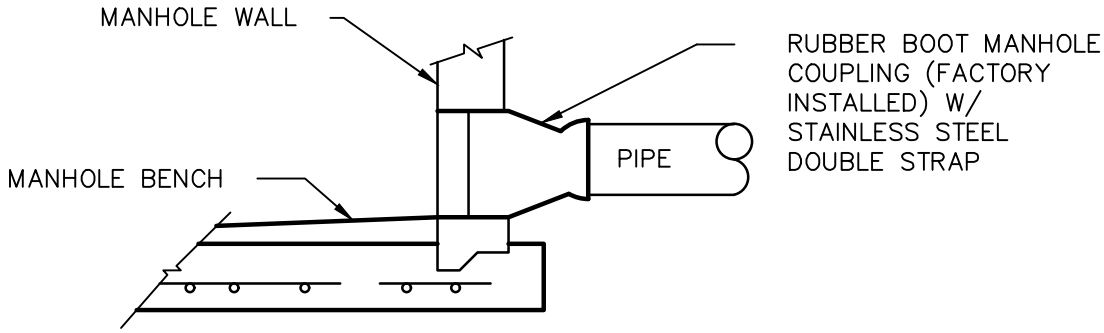

RUBBER BOOT CONNECTION DETAIL

USE FOR MANHOLES OF 5'-0" OR LESS IN DEPTH

STANDARD CONSTRUCTION DETAIL

SHALLOW MANHOLE

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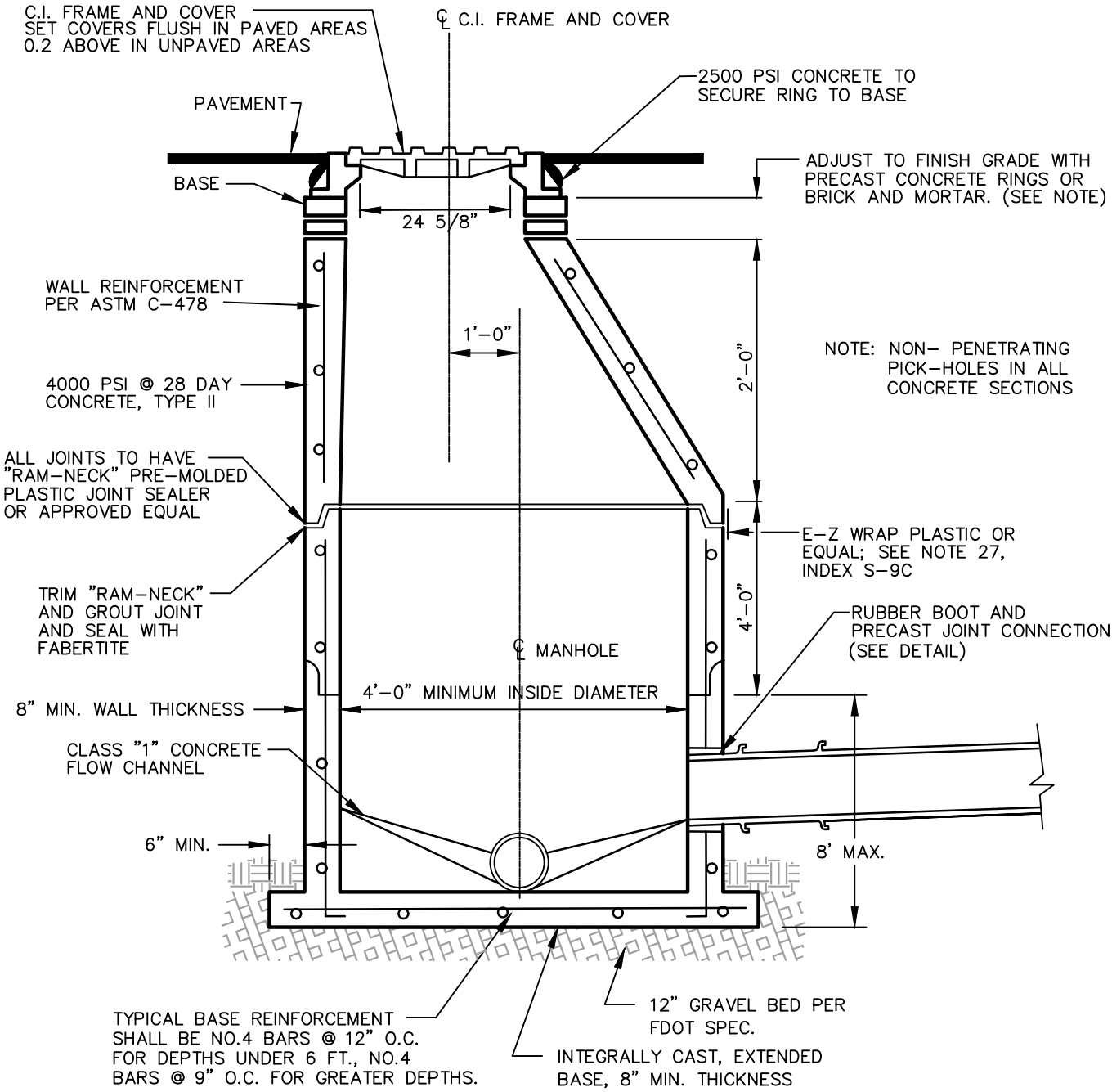

NOTES:
1. THE TOP OF THE CONE SHOULD BE SET 2 1/2" MIN. – 12" MAX. BELOW THE BOTTOM OF THE MANHOLE COVER FRAME TO ACCOMMODATE FUTURE GRADE CHANGES (USE BRICK AND MORTAR OR PRECAST CONCRETE RINGS).
2. MANHOLES WHICH RECEIVE DISCHARGE FROM A FORCE MAIN AND ANY MANHOLES LOCATED WITHIN 200' OF A LIFT STATION OR ANY MANHOLES OUTSIDE OF THE RIGHT-OF-WAY. A SULFIDE CORROSION-RESISTANT MATERIAL SHALL BE USED AS LINER FOR THOSE MANHOLES THAT MEET THE CONDITIONS STATED ABOVE. THE LINER SHALL BE EITHER FIBERGLASS OR PVC OR AS APPROVED BY THE CITY.
3. NO "DOGHOUSE" TYPE MANHOLES ARE ALLOWED.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

TYPE "A" PRECAST MANHOLE

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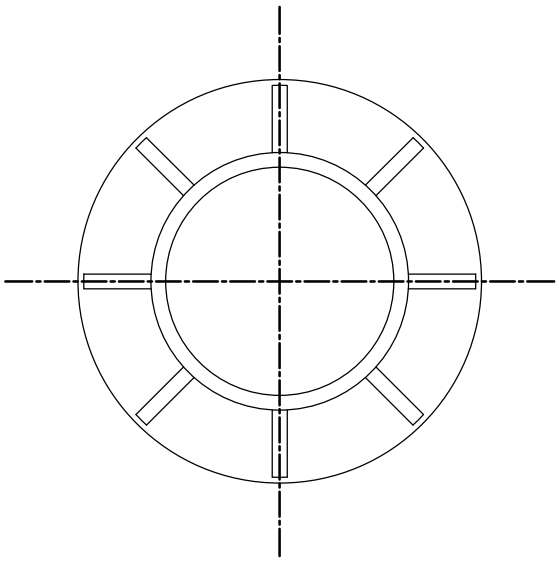
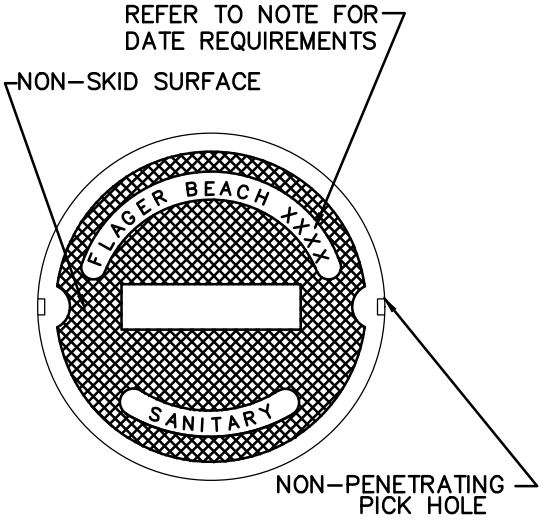
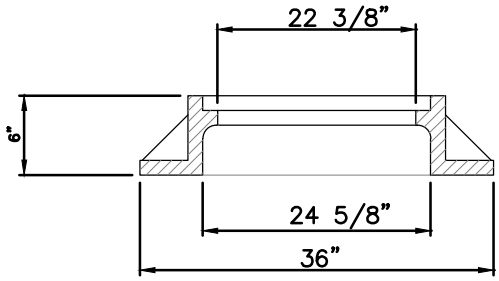


RING TOP VIEW

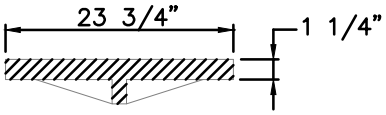


COVER DETAIL

N.T.S.



RING SECTION



COVER SECTION

COVER TYPE	LOAD RATING	COVER WEIGHT	TOTAL WEIGHT
BJ	HEAVY DUTY	200	350

NOTES:
1. MANHOLE RING AND COVER SHALL CONFORM TO FDOT STANDARD INDEX 201, SHEET 1 OF 6, AS SHOWN IN ROADWAY TRAFFIC DESIGN STANDARDS.
2. YEAR STAMP TO MATCH CASTING YEAR
3. U.S. FOUNDRY 195E-ORS ("O" RING SEAL) OR APPROVED EQUAL
4. FOR MANHOLES IN FL. D.O.T. R/W OR AS DETERMINED BY THE CITY, THE COVER TYPE SHALL BE - BJ HEAVY DUTY 200 LBS W/ ORS.
5. ALL MANHOLES TO BE EQUIPPED WITH HDPE MANHOLE INSERT/DISH.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

MANHOLE RING AND COVER DETAIL

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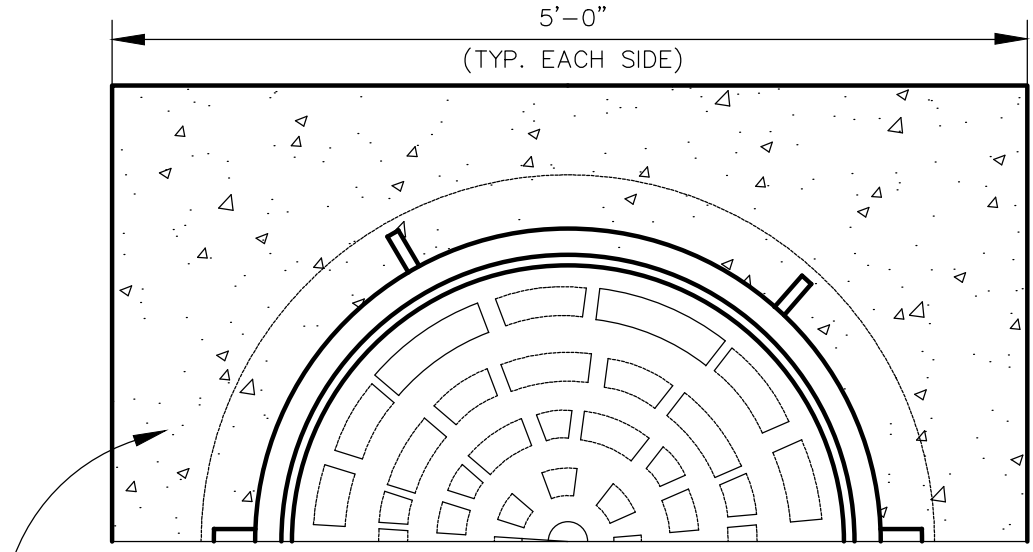
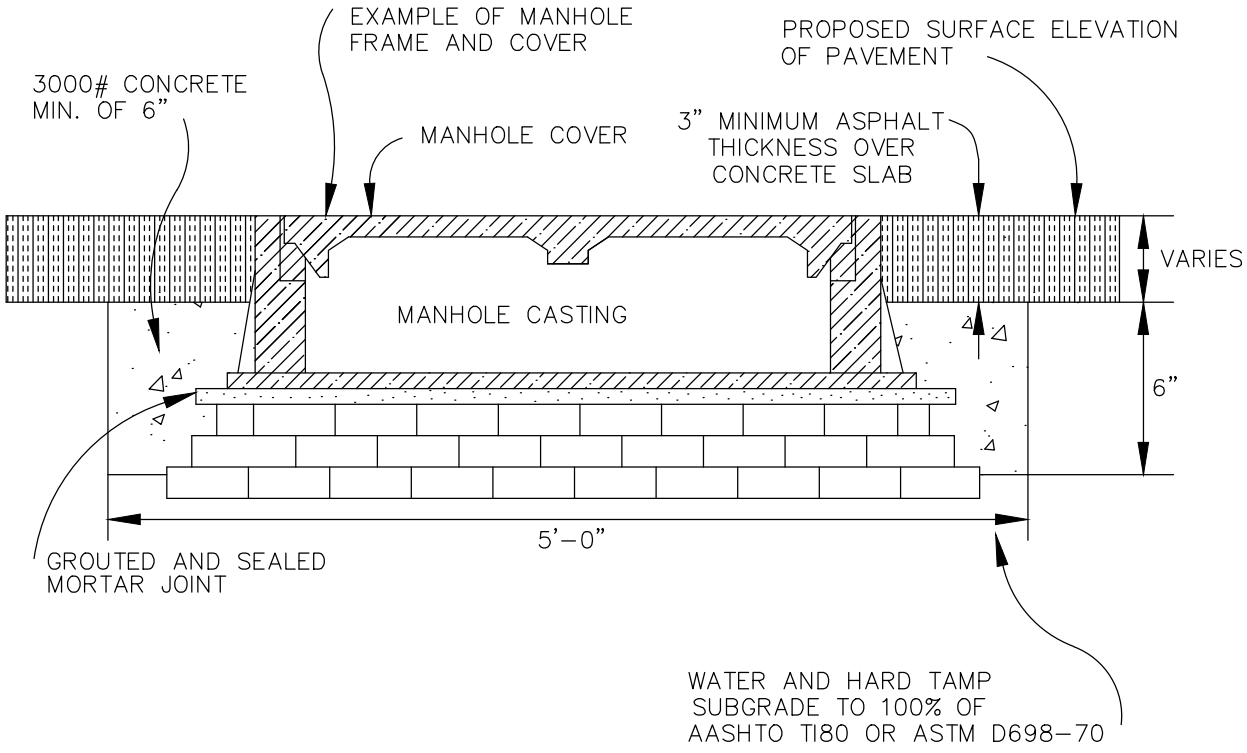


HALF SECTION



MANHOLE ADJUSTMENT DETAILS

STANDARD CONSTRUCTION DETAIL

MANHOLE ADJUSTMENT DETAILS

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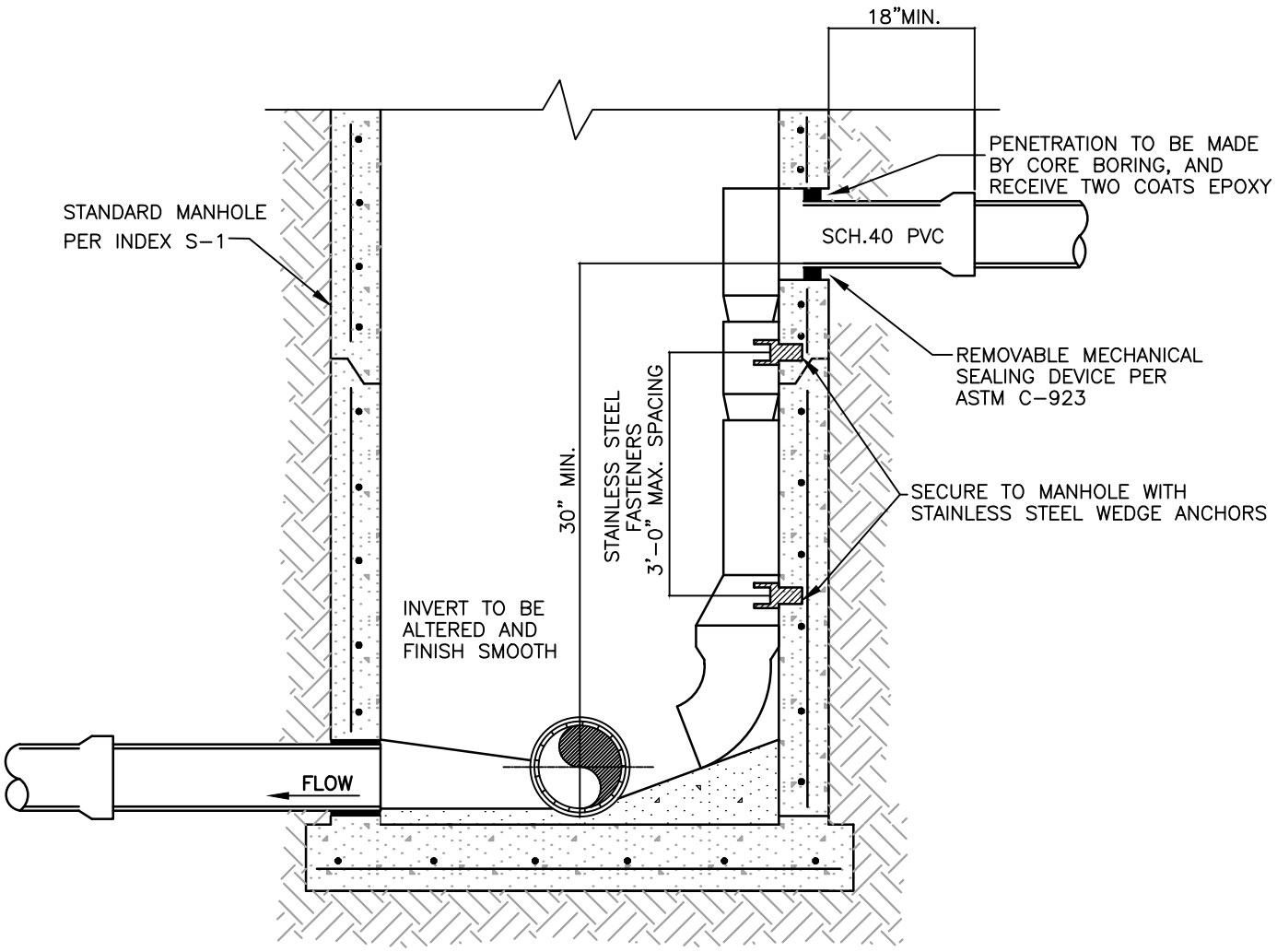

NOTES:

1. ALL PIPING ENTERING EXISTING STRUCTURES SHALL BE ACCOMPLISHED BY MECHANICAL ROTARY CORE BORING THE MANHOLE RISER. AFTER INSTALLATION OF PIPING, THE ANNULAR SPACE BETWEEN PIPING AND CONCRETE, SHALL BE SEALED WITH LINK-SEAL, THUNDERLINE SEALS, OR APPROVED EQUAL.
2. ALL FITTINGS SHALL BE SCH.40 PVC AS WELL AS DROP PIPE
3. FOR INSIDE DROPS UP TO 12" DIA USE INTRAFLOW LOW PROFILE INSIDE DROP SYSTEM AS MANUFACTURED BY ROYAL ENVIRONMENTAL SYSTEMS OR APPROVED EQUAL.
4. FOR INSIDE DROPS LARGER THAN 12" DIA ALL FERROUS MATERIALS SHALL BE FULLY COATED IN AND OUT WITH 2 COATS OF KOPPERS 300-M EPOXY 8 MILS DFT, TOGETHER WITH THE PENETRATION THROUGH THE STRUCTURE WALL STAINLESS STEEL SHALL NOT BE COATED.
5. ADAPTORS CONNECTING DIFFERENT PIPING MUST BE MANUFACTURED FOR THIS PURPOSE; SUBMIT DETAILS TO ENGINEER FOR APPROVAL.
6. FOR USE WHERE FREE DROP IS GREATER THAN 30". FOR GRAVITY SEWER AND FORCE MAINS.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

INSIDE DROP CONNECTION (FOR EXISTING MANHOLES)

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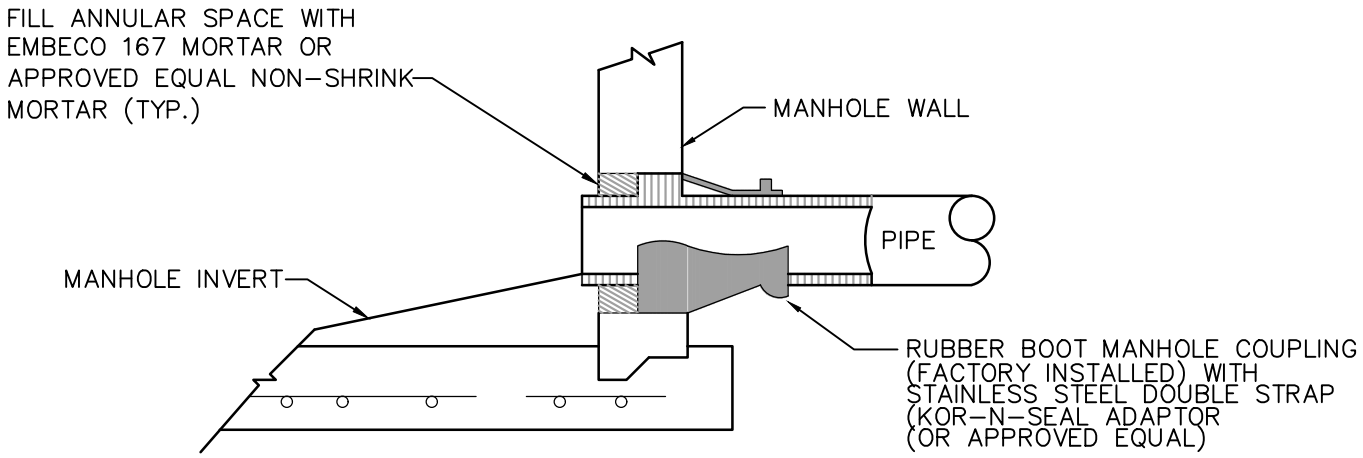
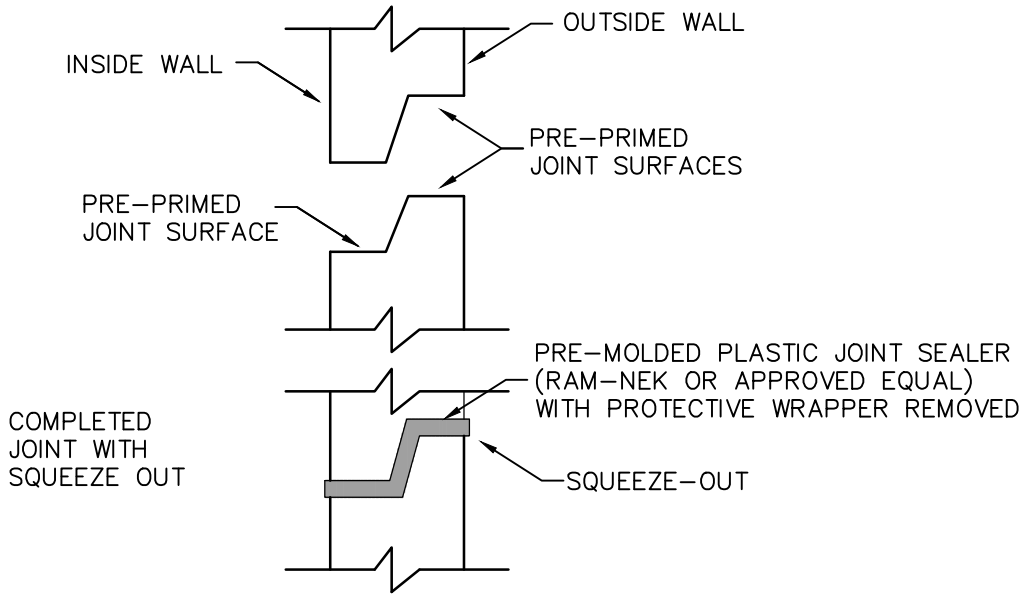


MANHOLE PIPE CONNECTION



NOTE: ALL CONNECTIONS TO EXISTING SANITARY SEWER MANHOLES SHALL UTILIZE A CORING METHOD AND THE IN-FIELD INSTALLATION OF A RUBBER BOOT INTO THE MANHOLE AND THEN SECURED WITH A STAINLESS STEEL DOUBLE STRAP.

PRECAST JOINT CONNECTION

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

RUBBER BOOT AND PRECAST JOINT CONNECTION DETAIL

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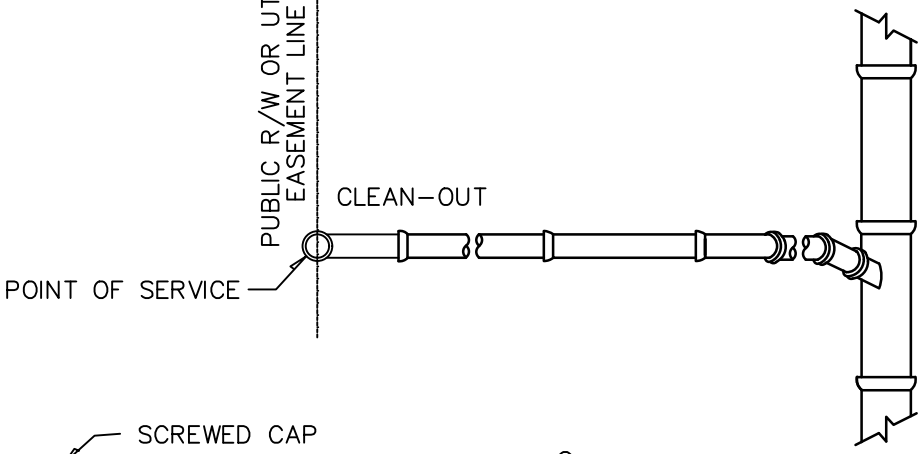
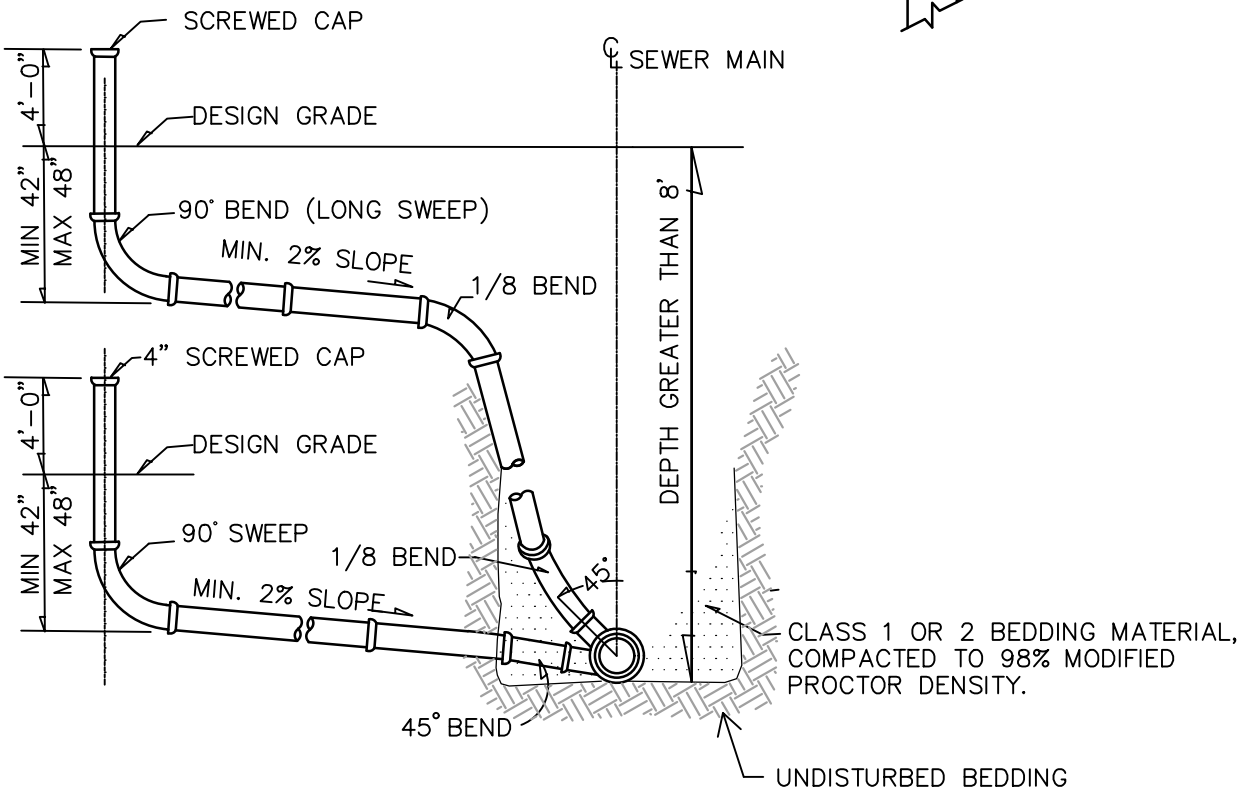
4" OR 6" SINGLE SERVICE – PLAN





4" – 6" SINGLE SERVICE – ELEVATION

NOTE

SINGLE SERVICES SHALL BE MIN:
- 4" DIA. RESIDENTIAL
- 6" DIA. COMMERCIAL

ALL JOINTS TO BE RUBBER GASKET (NO GLUED FITTINGS)

SEWER LATERAL

NOTE: USE OF STYRENE MATERIAL WILL NOT BE PERMITTED.

STANDARD CONSTRUCTION DETAIL

SEWER LATERAL DETAIL

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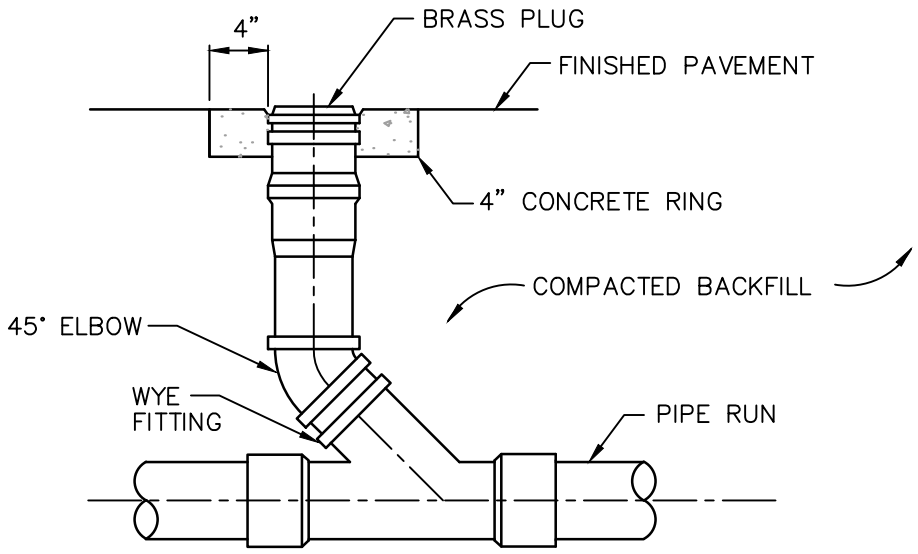
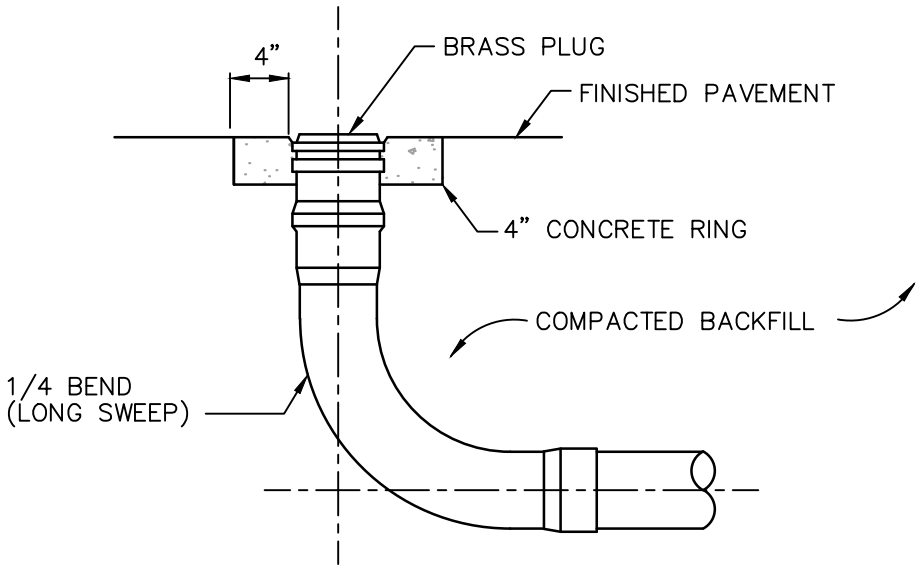


IN–LINE CLEANOUT



TERMINAL CLEANOUT

NOTE: CLEANOUT TO BE INSTALLED IN GREEN METER BOX (SOLID LID) IF IN GRASS/NON–PAVED AREAS.

STANDARD CONSTRUCTION DETAIL

CLEANOUT DETAIL

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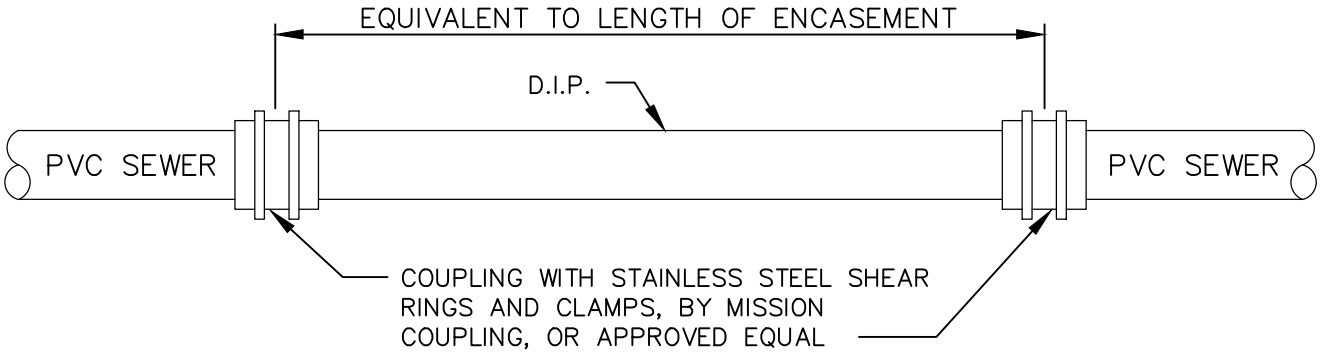
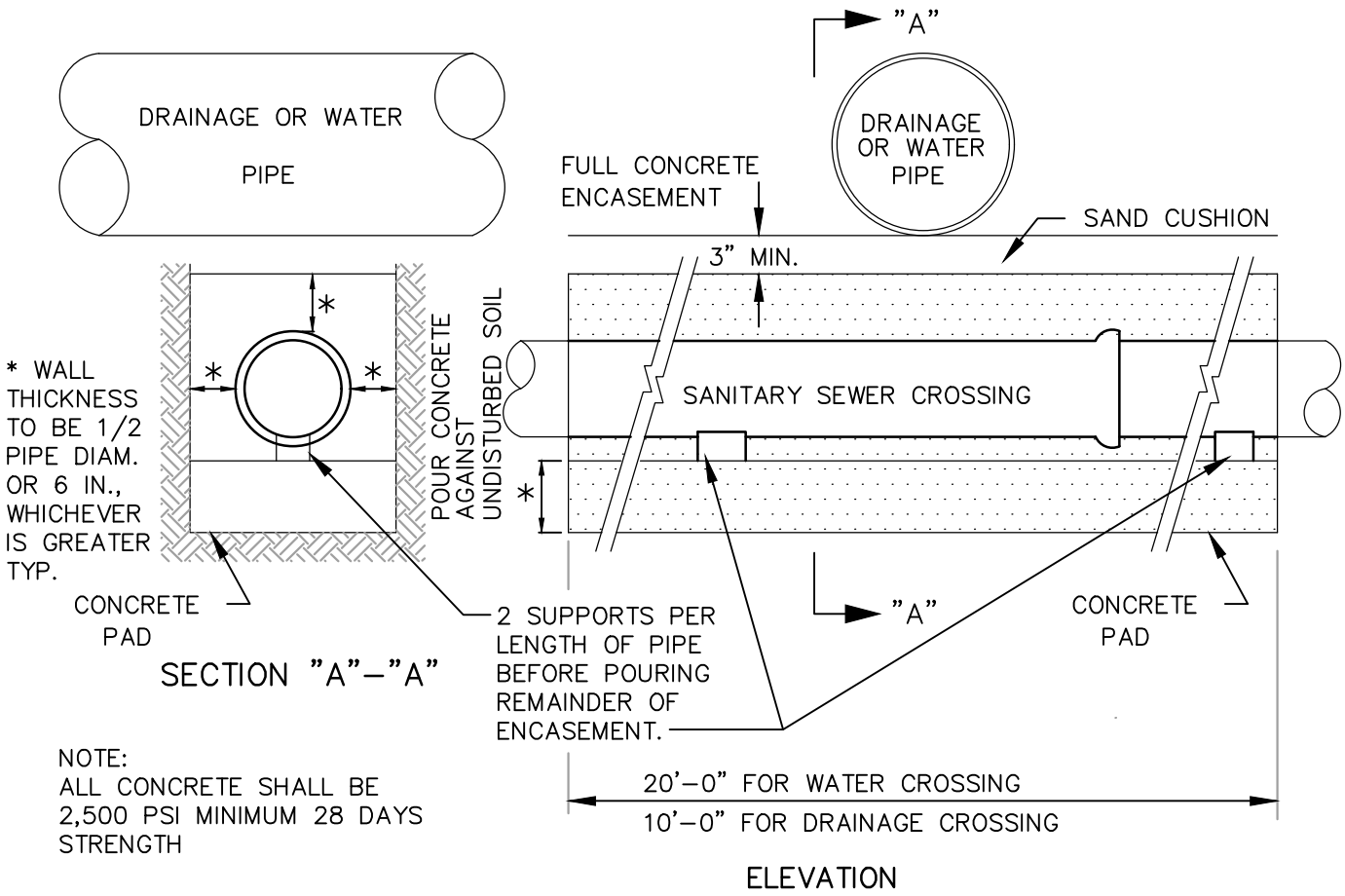


DUCTILE IRON ALTERNATE TO CONCRETE SEWER ENCASEMENT



NOTE:
ALL CONCRETE SHALL BE 2,500 PSI MINIMUM 28 DAYS STRENGTH

WATER MAIN SHALL BE LOCATED ABOVE ENCASEMENT AS SHOWN ON PLANS OR DETERMINED IN THE FIELD, USE ENCASEMENT WHERE VERTICAL CLEARANCE BETWEEN WATER MAIN AND SEWER IS LESS THAN 12 INCHES.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

SANITARY SEWER CROSSING

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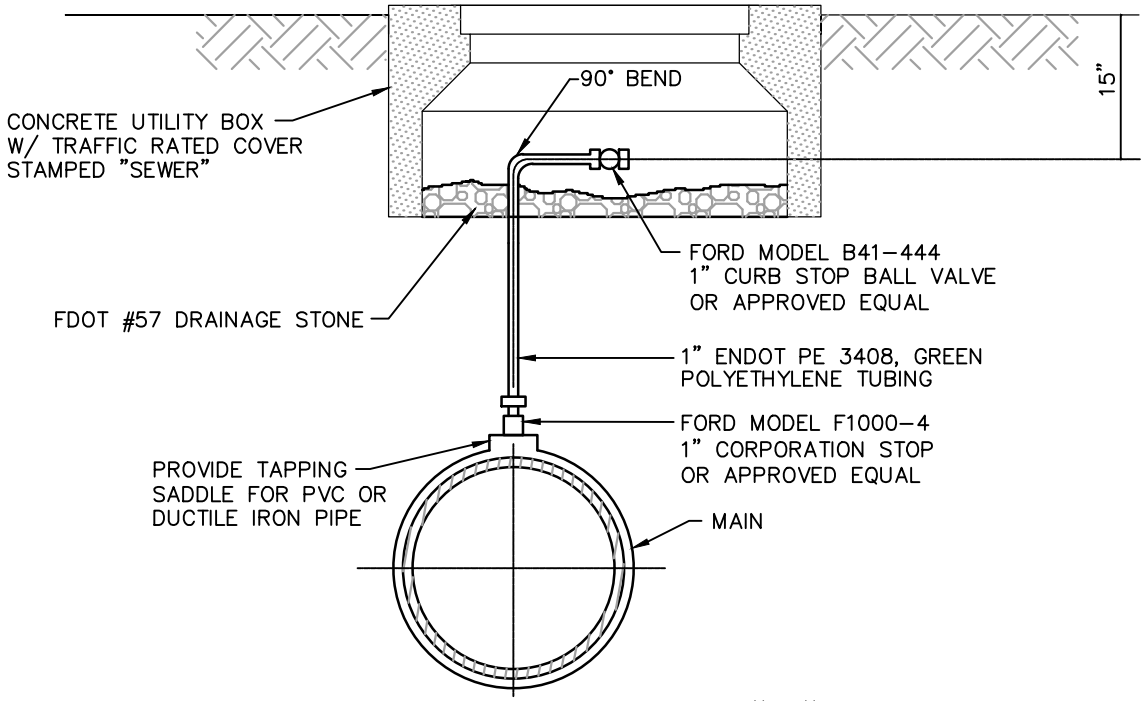

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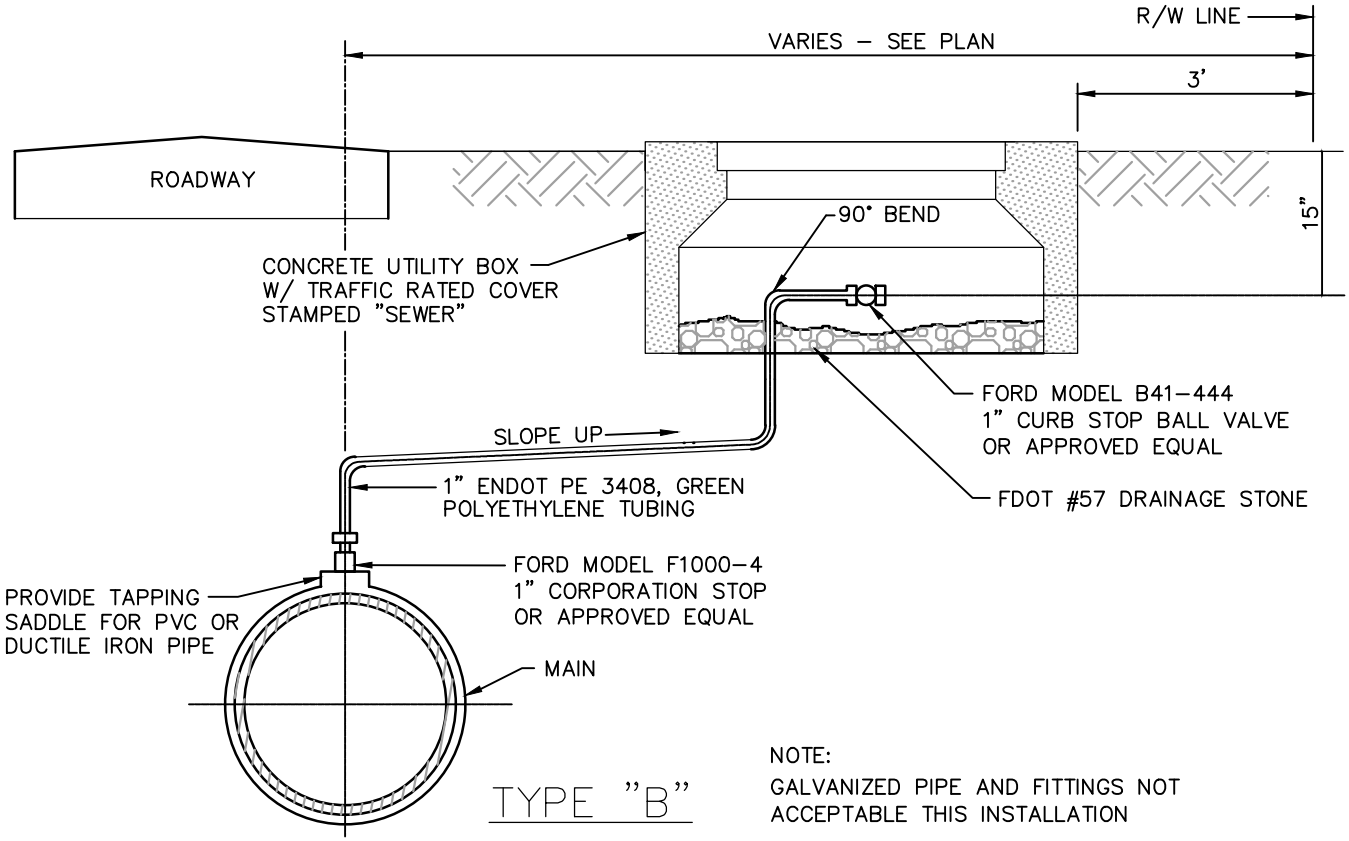

TYPE "B"

NOTE:
GALVANIZED PIPE AND FITTINGS NOT ACCEPTABLE THIS INSTALLATION

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

MANUAL AIR RELEASE VALVE

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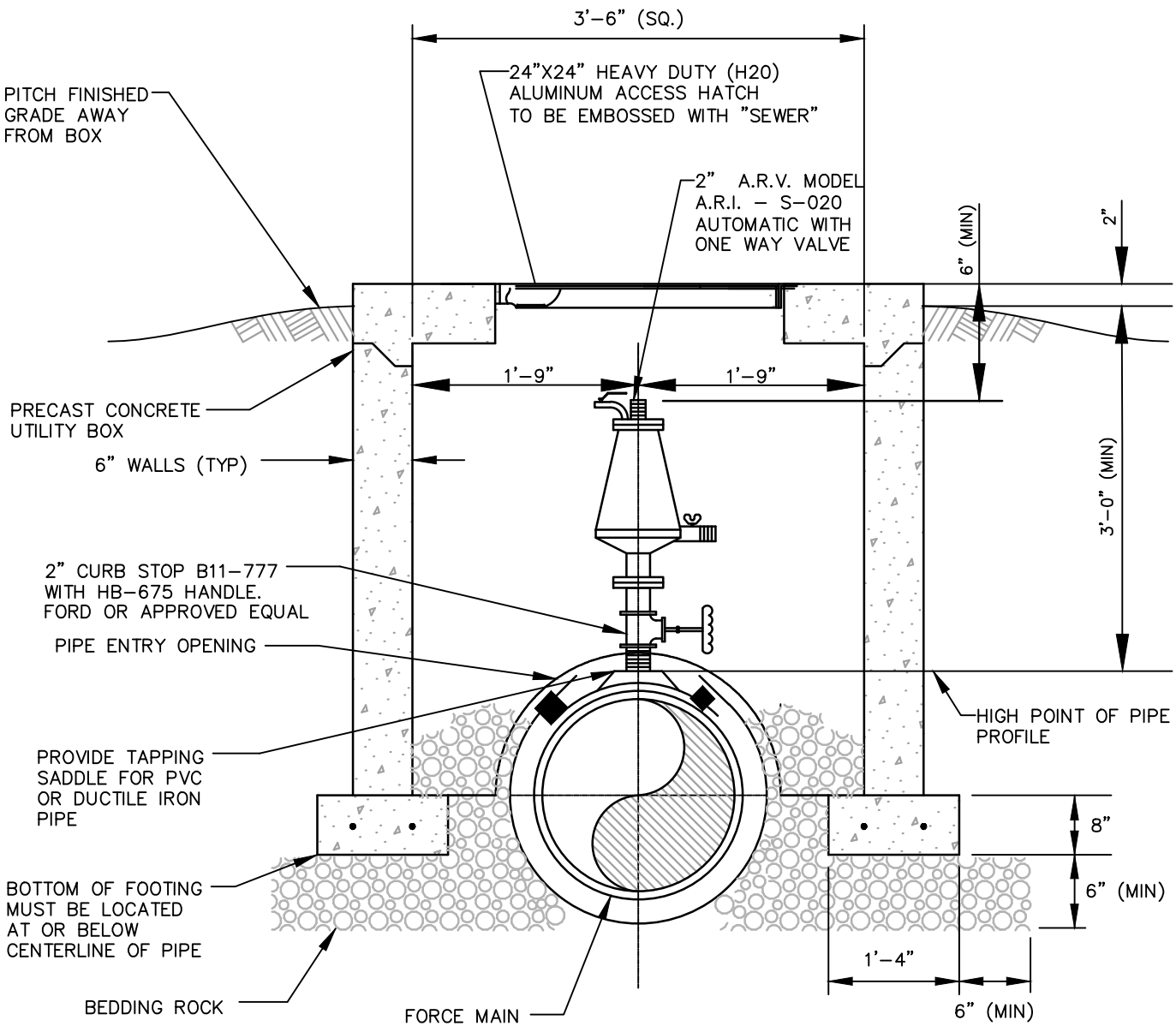

NOTE:

1. GALVANIZED PIPE AND FITTINGS NOT ACCEPTABLE FOR THIS INSTALLATION.
2. STRUCTURE TO BE ADEQUATE FOR AASHTO H20 LOADING.
3. DESIGNER IS RESPONSIBLE FOR PROVIDING CONSTRUCTION MATERIAL AND STEEL REINFORCING REQUIREMENTS.
4. NO SURFACE COATING REQUIRED ON VAULT.
5. ALUMINUM HATCH TO INCLUDE S.S. HINGE AND S.S. SLAM LOCKS WITH REMOVABLE KEYS.
6. FITTINGS AND PIPE FOR A.R.V. SHALL BE BRASS. BODY SHALL BE STAINLESS STEEL. USE S-025 WITH VACUUM GUARD AT ONLY ATTACHMENT.

STANDARD CONSTRUCTION DETAIL
AUTOMATIC AIR RELEASE VALVE (FORCE MAIN)

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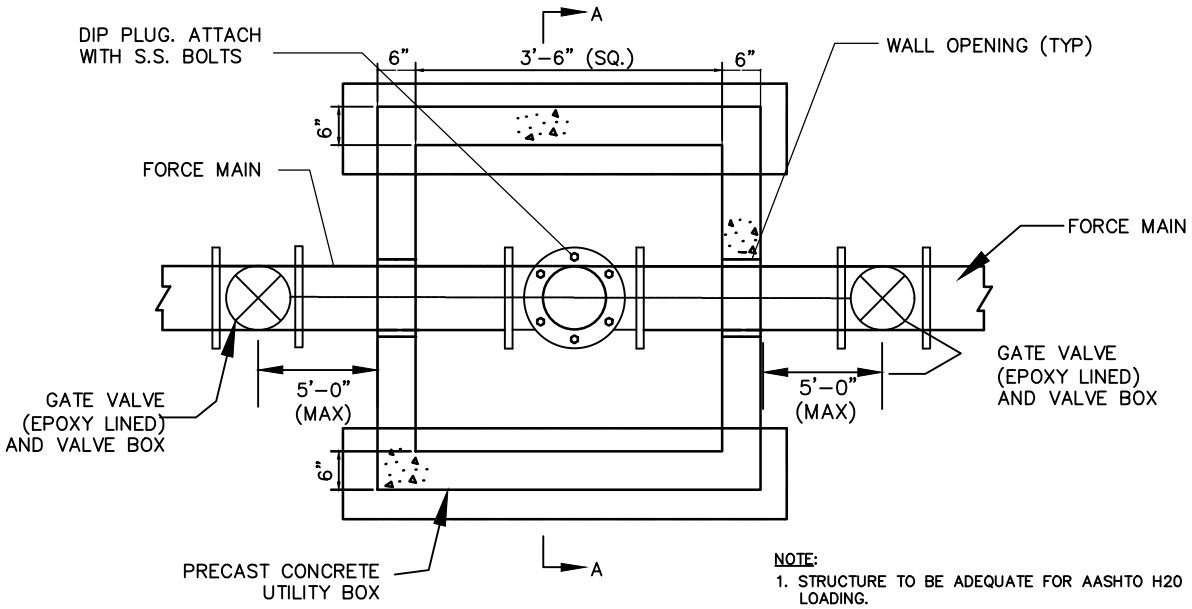
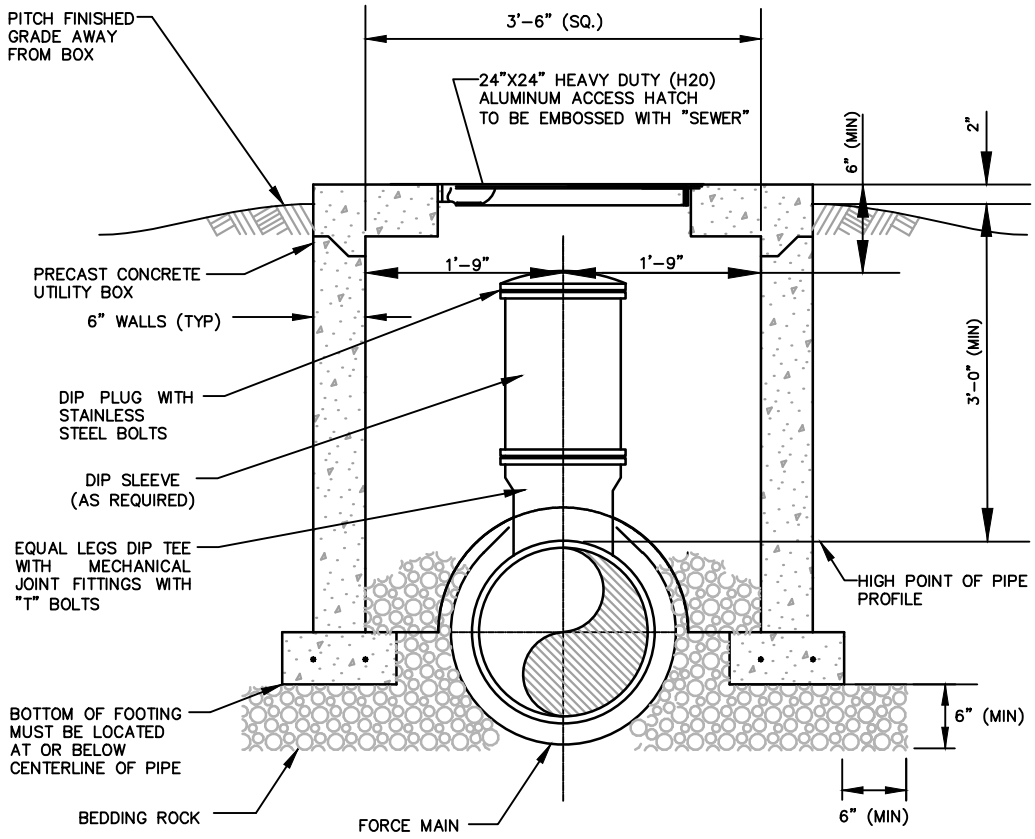


PLAN
NO SCALE

NOTE:
1. STRUCTURE TO BE ADEQUATE FOR AASHTO H20 LOADING.
2. NO SURFACE COATING REQUIRED ON VAULT.
3. ALUMINUM HATCH TO INCLUDE S.S. HINGE & SLAM LOCKS WITH REMOVABLE KEYS.
4. DESIGNER IS RESPONSIBLE FOR PROVIDING CONSTRUCTION MATERIAL AND STEEL REINFORCING REQUIREMENTS



SECTION A-A
NO SCALE

STANDARD CONSTRUCTION DETAIL

POLY PIG LAUNCHING VAULT

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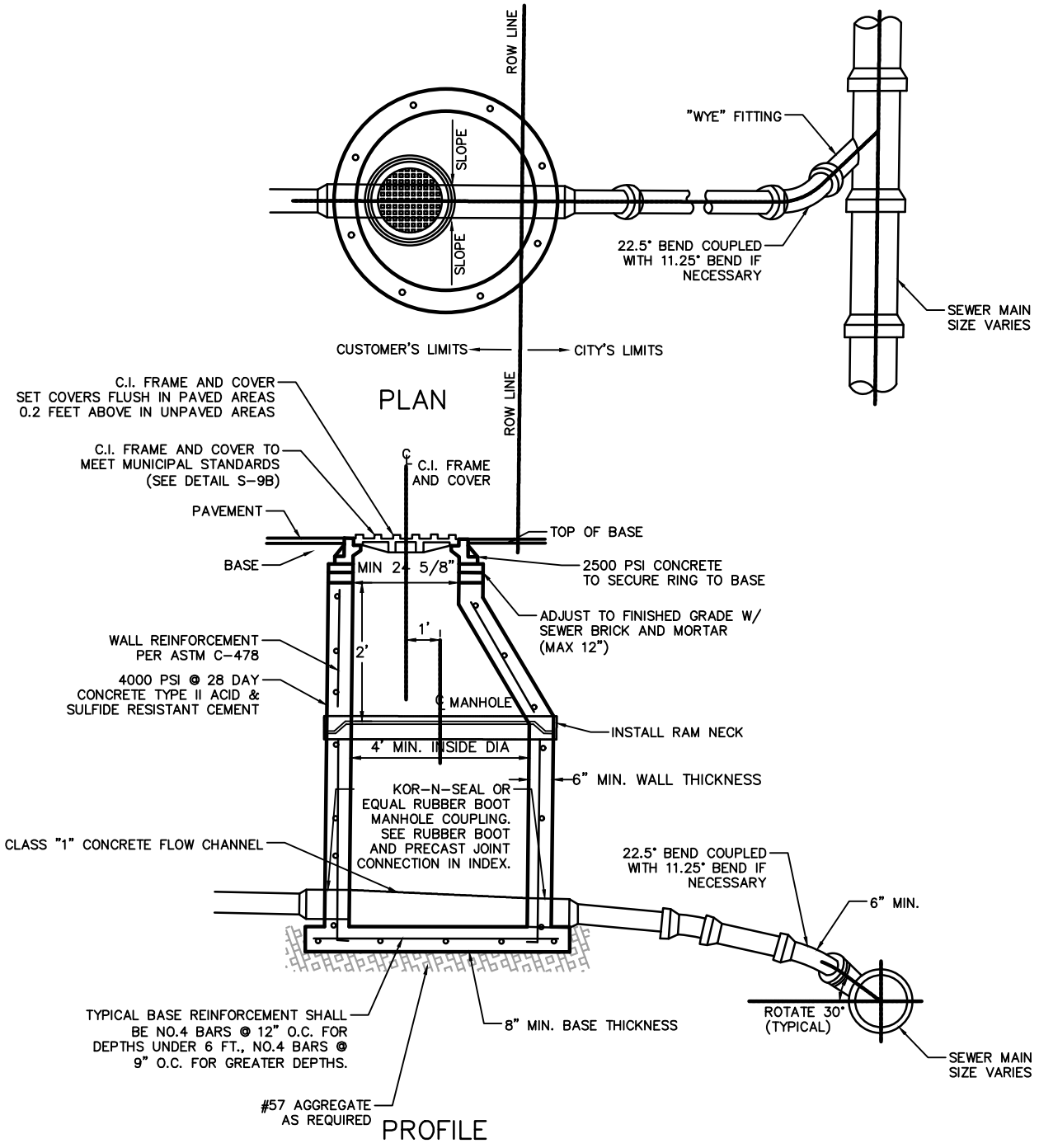

NOTES:
1. THE TOP OF THE CONE SHOULD BE SET 2 1/2" MIN. – 12" MAX. BELOW THE BOTTOM OF THE MANHOLE COVER FRAME TO ACCOMMODATE FUTURE GRADE CHANGES (USE BRICK AND MORTAR OR PRECAST CONCRETE RINGS).
2. MANHOLES WHICH RECEIVE DISCHARGE FROM A FORCE MAIN AND ANY MANHOLES LOCATED WITHIN 200' OF A LIFT STATION OR ANY MANHOLES OUTSIDE OF THE RIGHT-OF-WAY. A SULFIDE CORROSION-RESISTANT MATERIAL SHALL BE USED AS LINER FOR THOSE MANHOLES THAT MEET THE CONDITIONS STATED ABOVE. THE LINER SHALL BE EITHER FIBERGLASS OR PVC OR AS APPROVED BY THE CITY.
3. NO "DOGHOUSE" TYPE MANHOLES ARE ALLOWED.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

COMMERCIAL TRAFFIC BEARING SAMPLING MANHOLE DETAIL

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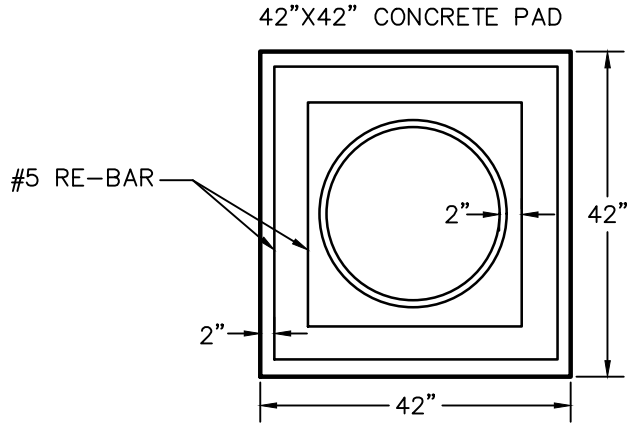
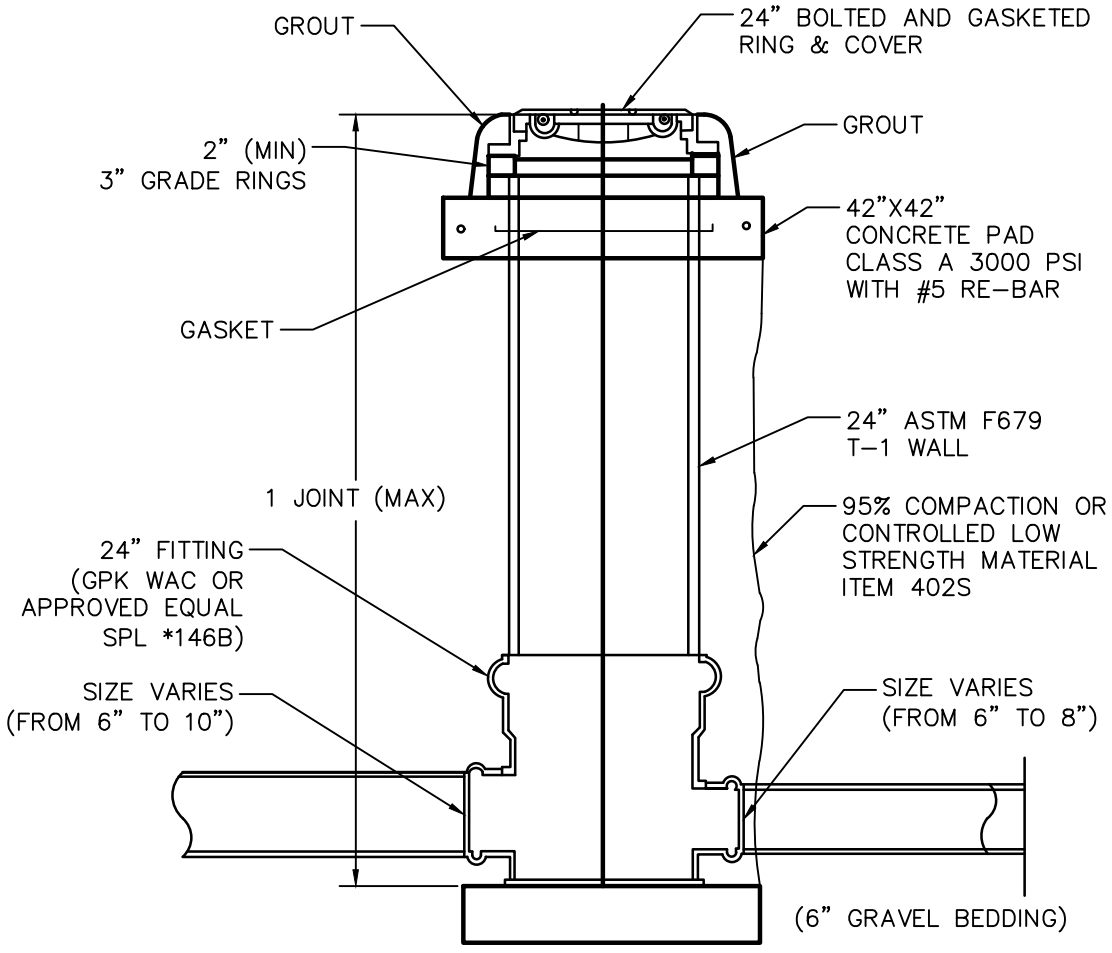


CITY SIDE OWNER SIDE



STANDARD CONSTRUCTION DETAIL

COMMERCIAL NON-TRAFFIC BEARING SAMPLING MANHOLE DETAIL

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MISCELLANEOUS DETAILS

IN ORDER TO ENSURE THAT NEW DEVELOPMENTS WITHIN THE CITY ARE CONSTRUCTED SUBSTANTIALLY IN ACCORDANCE WITH CITY REGULATIONS AND THE APPROVED DRAWINGS "AS-BUILT" DRAWINGS ARE REQUIRED:

THE FOLLOWING INFORMATION IS REQUIRED ON ALL PAVING AND DRAINAGE "AS-BUILT" DRAWINGS:

1. PAVEMENT AND CURB WIDTHS SHALL BE VERIFIED AND DIMENSIONED FOR EACH STREET AT EACH BLOCK. ALL RADII AT INTERSECTIONS SHALL BE VERIFIED AND DIMENSIONED. THIS INFORMATION TO CLEARLY INDICATE IT AS AS BEING "AS-BUILT" INFORMATION.

2. ROADWAY ELEVATIONS SHALL BE RECORDED AT ALL GRADE CHANGES OR OTHER INTERVALS AS NEEDED ALONG ALL STREETS. STREET CENTERLINE AND CURB INVERT ELEVATIONS SHALL BE RECORDED AS NOTED. THE "AS-BUILT" CENTERLINE PROFILE OF ALL STREETS SHALL ALSO BE SHOWN ON THE PLAN AND PROFILE SO IT MAY BE COMPARED TO THE EXISTING AND DESIGNED PROFILE GRADE LINES. ALL STREET CENTERLINES ON "AS-BUILTS" SHALL BE LABELED WITH STREET NAME AND RIGHT-OF-WAY WIDTH ON EVERY PAGE.

3. STORM DRAINAGE STRUCTURES SHALL BE LOCATED AND/OR DIMENSIONED FROM CENTERLINES OR LOT LINES AS APPROPRIATE.

4. STORM DRAINAGE PIPE INVERT AND STRUCTURE TOP AND BOTTOM ELEVATIONS SHALL BE RECORDED AND CLEARLY DENOTED AS "AS-BUILT" INFORMATION. DESIGN ELEVATIONS SHALL BE CROSSED OUT AND "AS-BUILT" INFORMATION WRITTEN NEXT TO IT.

5. STORM DRAINAGE PIPE MATERIAL, LENGTH, AND SIZE SHALL BE MEASURED AND/OR VERIFIED. THIS INFORMATION TO CLEARLY INDICATE IT AS BEING "AS-BUILT" INFORMATION.

6. ALL APPLICABLE TOPOGRAPHIC INFORMATION, PERTINENT TO THE ON SITE DRAINAGE SYSTEM SUCH AS DITCHES, LAKES, CANALS, ETC. THAT ARE DEEMED APPROPRIATE BY THE CITY SHALL BE NOTED. NORMALLY, RECORDING ELEVATIONS EVERY 100 FEET AT THE TOP OF BANK AND TOE OF SLOPE WILL BE REQUIRED. MEASUREMENTS SHALL BE TAKEN AND RECORDED IN ORDER TO ACCURATELY TIE DOWN THESE FEATURES TO THE ROADWAY CENTERLINES AND TO PLAT LINES. WHENEVER POSSIBLE, CONTOUR LINES SHALL BE UTILIZED TO GRAPHICALLY DESCRIBE THESE TOPOGRAPHIC FEATURES.

7. RETENTION AREAS SHALL HAVE THEIR TOP-OF-BANK AND BOTTOM ELEVATIONS RECORDED. ACTUAL MEASUREMENTS SHALL BE TAKEN AND DIMENSIONS RECORDED OF THE SIZE OF ALL RETENTION AREAS. MEASUREMENTS SHALL BE DONE FROM TOP-OF-BANK TO TOP-OF-BANK WITH SIDE SLOPES INDICATED. SEPARATE CALCULATIONS SHALL BE SUBMITTED TO INDICATE REQUIRED AND PROVIDED RETENTION VOLUMES.

8. STORM DRAINAGE SWALE CENTERLINES SHALL BE LOCATED AND ELEVATIONS OF FLOW LINE SHALL BE RECORDED EVERY 100 FEET.

9. ANY SPECIAL FEATURES SUCH AS CONCRETE FLUMES, LAKE BANKS, WALLS, FENCING, ETC., WHICH WERE A PART OF THE APPROVED CONSTRUCTION DRAWINGS SHOULD ALSO BE LOCATED AND DIMENSIONED.

10. ACTUAL MATERIALS USED AND ELEVATIONS AND DIMENSIONS OF OVERFLOW WEIR STRUCTURES AND SKIMMERS SHALL BE NOTED ON THE "AS-BUILT".

THE FOLLOWING INFORMATION IS REQUIRED ON ALL WATER AND SEWER "AS-BUILT" DRAWINGS:

11. SANITARY SEWER MANHOLES SHALL BE VERIFIED AND DIMENSIONED FROM STREET CENTERLINES OR LOT LINES AS APPROPRIATE. ALL RIM AND INVERT ELEVATIONS SHALL BE VERIFIED AND RECORDED. THIS INFORMATION TO CLEARLY INDICATE IT AS BEING "AS-BUILT" INFORMATION.

12. SANITARY SEWER LINE LENGTHS, SIZES, MATERIAL, SLOPE, ETC., SHALL BE VERIFIED AND RECORDED. THIS INFORMATION TO CLEARLY INDICATE IT AS BEING "AS-BUILT" INFORMATION.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

REQUIREMENTS FOR "AS-BUILT" DRAWINGS

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13. SEWER LATERALS SHALL BE VERIFIED AND RECORDED AT THEIR CLEAN–OUT LOCATIONS. STATIONING AND OFFSET DISTANCES SHALL BE MEASURED FROM DOWNSTREAM MANHOLES TOWARDS UPSTREAM MANHOLES.

14. LIFT STATIONS AND FORCE MAINS SHALL BE VERIFIED AND DIMENSIONED FROM STREET CENTERLINES OR LOT LINES AS APPROPRIATE. FORCE MAIN DEPTH AND LOCATION INCLUDING VALVES WILL BE PROVIDED AND TIED TO PERMANENT ABOVE GRADE FEATURES EVERY 500 FEET. DIMENSIONAL AND ELEVATION INFORMATION INDICATED ON THE APPROVED PLAN SHALL BE VERIFIED AND RECORDED. THIS INFORMATION TO CLEARLY INDICATE IT AS BEING "AS–BUILT" INFORMATION. BURIED ELECTRICAL SERVICE LINE SHALL BE CLEARLY DIMENSIONED, LOCATED AND LABELED.

15. CURB CUTS OR METAL TABS, USED TO MARK SEWER LATERALS, WATER SERVICES AND WATER VALVES, SHALL BE VERIFIED FOR PRESENCE AND ACCURACY OF LOCATION.

16. WATER MAIN LINES SHALL BE DIMENSIONED OFF THE BACK OF CURB OR EDGE OF PAVEMENT IF NO CURB IS PRESENT. WATER MAIN LINE MATERIAL, SIZE, LENGTH AND DEPTH PLACED SHALL ALSO BE NOTED. THIS INFORMATION TO CLEARLY INDICATE IT AS BEING "AS–BUILT" INFORMATION.

17. WATER VALVES, TEES, ALL SERVICES, BLOW – OFFS AND FIRE HYDRANTS SHALL BE LOCATED BY TYING THEM TO SANITARY SEWER MANHOLES. STATIONING AND OFFSET DISTANCES SHALL BE MEASURED FROM DOWNSTREAM MANHOLES TO UPSTREAM MANHOLES.

THE FOLLOWING INFORMATION IS GENERAL REQUIREMENTS OF ALL "AS–BUILT" DRAWINGS:

18. FOR PERPENDICULAR CROSSINGS OF STORM WATER, SANITARY SEWER, POTABLE WATER, OR RECLAIMED WATER, THE "AS–BUILT" PLANS SHALL CLEARLY INDICATE WHICH UTILITIES ARE LOCATED OVER OR UNDER OTHER UTILITIES, AS NECESSARY.

19. WHEN STORM WATER, POTABLE WATER, RECLAIMED WATER, OR SANITARY SEWER IMPROVEMENTS ARE LOCATED WITHIN AN EASEMENT, THE "AS–BUILT" SHALL ACCURATELY DEPICT THE LOCATION OF THE EASEMENT ITSELF AS WELL AS THE EXACT LOCATION OF THE IMPROVEMENTS WITHIN THE EASEMENT. THIS IS REQUIRED IN ORDER TO VERIFY THAT THE IMPROVEMENTS HAVE BEEN PROPERLY LOCATED AND TO ENSURE THAT FUTURE SUBSURFACE EXCAVATION TO PERFORM REMEDIAL REPAIR CAN BE ACCOMPLISHED WITHOUT DISTURBANCE BEYOND THE EASEMENT. SUCH DOCUMENTATION AND THE ASSOCIATED PROPOSED EASEMENT DOCUMENT WITH LEGAL DESCRIPTION SHALL BE SUBMITTED FOR CITY REVIEW AND APPROVAL PRIOR TO RECORDING OF SAID EASEMENT. UPON CITY APPROVAL, THE EASEMENT SHALL BE RECORDED VIA A SEPARATE LEGAL INSTRUMENT AND SHALL NOT BE INCLUDED AS PART OF HOMEOWNER COVENANTS AND RESTRICTIONS.

20. SUBMIT CERTIFIED PAPER PRELIMINARY "AS–BUILT" (24"x36") WITH REQUEST FOR FINAL INSPECTION. SUBMIT 3 SETS SHOWING WATER FACILITIES, 3 SETS WITH SEWER FACILITIES, AND 3 SETS WITH PAVING AND DRAINAGE FACILITIES. FOLLOWING FINAL INSPECTION AND COMMENTS, THE CONTRACTOR SHALL REVISE AS–BUILTS TO ADDRESS CITY COMMENTS AND SUBMIT 3 SETS CERTIFIED FINAL "AS–BUILTS" ALONG WITH 1 SET CERTIFIED MYLARS AND 1 CD–ROM CONTAINING AUTO–CAD FILES AND PDF VERSIONS SHOWING ALL "AS–BUILT" SHEETS. ALL "AS–BUILT" DRAWINGS SHALL BE CERTIFIED BY A REGISTERED LAND SURVEYOR AND ENGINEER OF RECORD.

21. INDICATE VERTICAL DATUM REFERENCE ON ALL SHEETS.

22. CAD FILE OF "AS–BUILTS" SHALL BE IN STATE PLANE COORDINATES; FILE SHOULD INCLUDE REFERENCE TO PROJECTION. (FLORIDA EAST, NAD83)

23. ALL "AS–BUILT" DRAWINGS SHALL BE PREPARED BY A FLORIDA REGISTERED LAND SURVEYOR USING THE FINAL APPROVED SITE DESIGN PREPARED BY THE ENGINEER OF RECORD. LINE WEIGHTS, LINETYPES, AND ANNOTATION SHALL BE MANAGED IN A MANNER THAT CLEARLY DISTINGUISHES DESIGN INFORMATION FROM "AS–BUILT" INFORMATION.

24. ALL "AS–BUILT" SHEETS SHALL INCLUDE A TITLE BLOCK AND CLEARLY STATE PROJECT NAME, PROJECT SURVEYOR, DATE OF FIELD WORK, AS WELL AS PROJECT CERTIFICATION BLOCK FROM THE ENGINEER OF RECORD.

NOTE: REFERENCES TO WATER SHALL MEAN BOTH POTABLE AND RECLAIMED WATER.

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY'S LAND DEVELOPMENT CODE REQUIREMENTS, AND THE STANDARD CONSTRUCTION DETAILS AND CONSTRUCTION SPECIFICATIONS (SCDCS). AN ENGINEERING PERMIT AND TREE REMOVAL PERMIT IS REQUIRED PRIOR TO STARTING CONSTRUCTION.
2. NO LAND SHALL BE CLEARED, EXCAVATED OR FILLED AND NO STRUCTURE SHALL BE ERECTED, REPAIRED OR DEMOLISHED WITHOUT PROPER PERMIT(S) AS REQUIRED BY THE CITY.
3. NOTIFY THE CITY 48 HOURS PRIOR TO THE START OF CONSTRUCTION.
4. ANY CONSTRUCTION CHANGES TO APPROVED PLANS SHALL BE SUBMITTED TO THE CITY FOR APPROVAL PRIOR TO PERFORMING THE WORK.
5. ROAD CONSTRUCTION AND PIPE INSTALLATION COMPACTION AND DENSITY TESTING SHALL CONFORM TO THE CITY'S MINIMUM REQUIREMENTS. CERTIFIED COPIES OF TEST REPORTS SHALL BE SUBMITTED TO THE CITY.
6. A PRE-PAVING UTILITY INSPECTION MUST BE REQUESTED AND COMPLETED PRIOR TO THE PAVING OF ALL ROADS, STREETS, AND PARKING AREAS.
7. A FINAL INSPECTION, TO BE CONDUCTED BY THE CITY, SHALL BE PERFORMED ON ALL CONSTRUCTION. THE DESIGN ENGINEER SHALL NOTIFY THE CITY WHEN REQUESTING A FINAL INSPECTION.
8. THREE (3) COMPLETE SETS OF AS-BUILT DRAWINGS (5 FOR SUBDIVISIONS) ARE REQUIRED TO BE SUBMITTED TO THE CITY PRIOR TO REQUESTING A FINAL INSPECTION.
9. THE CITY HAS A CONTRACTOR FOR ROLL OFF SERVICE. NO OTHER CONTRACTOR SHALL BE PERMITTED TO PROVIDE THIS SERVICE. VERIFY COMPANY UNDER CONTRACT WITH THE CITY.
10. CONSTRUCTION SITES THAT DISTURB ONE ACRE OR MORE WILL BE REQUIRED TO SEEK COVERAGE UNDER THE GENERIC PERMIT FOR STORM WATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES. IN ACCORDANCE WITH THIS REQUIREMENT, A STORM WATER POLLUTION PREVENTION PLAN (SWPP) MUST BE SUBMITTED TO THE CITY PRIOR TO CONSTRUCTION TO BE IN COMPLIANCE WITH THE PERMIT.
11. CONTRACTOR WILL FOLLOW REQUIRED WASTE MANAGEMENT PRACTICES
12. SEEDING OR SODDING SHALL BE INITIATED FOR EROSION AND SEDIMENT CONTROL ON DISTURBED AREAS AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED.
13. ANY FIELD MODIFICATIONS OR DEVIATIONS TO THIS CONSTRUCTION PLAN REQUIRES WRITTEN APPROVAL BY BOTH THE ENGINEER OF RECORD AND THE CITY.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL
GENERAL CONSTRUCTION NOTES

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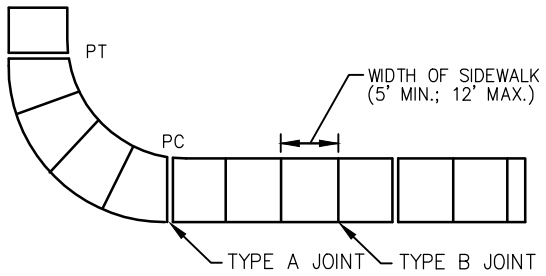

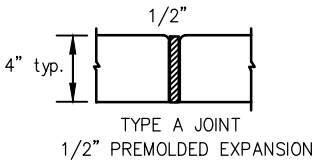

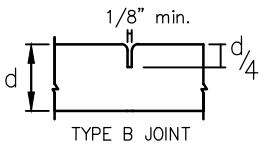

1. SIDEWALKS, BIKEPATHS, RAMPS, AND DRIVEWAY APRONS SHALL BE CONSTRUCTED OF PLAIN PORTLAND CEMENT CONCRETE WITH A MAXIMUM SLUMP OF 3 INCHES, A MINIMUM DEVELOPED COMPRESSIVE STRENGTH OF 2500 P.S.I. IN 28 DAYS, AND A MINIMUM UNIFORM THICKNESS OF 4 INCHES WHERE INTENDED SOLELY FOR PEDESTRIAN TRAFFIC, AND 6 INCHES THICK WHERE MOTOR VEHICLES ARE LIKELY TO CROSS. SIDEWALKS SHALL BE 5 FOOT WIDE UNLESS OTHERWISE SHOWN ON PLANS.
2. SIDEWALKS AND BIKE PATHS SHALL BE PLACED PARALLEL TO, AND ONE FOOT WITHIN THE RIGHT-OF-WAY LINE EXCEPT THAT THE CITY MAY APPROVE DEVIATIONS TO SAVE SPECIMEN TREES PROVIDED THAT THE PAVEMENT REMAINS WITHIN THE RIGHT-OF-WAY, IS NOT DIMINISHED IN WIDTH, AND REMAINS AT LEAST 4 FEET FROM THE EDGE OF THE STREET PAVEMENT, UNLESS OTHERWISE APPROVED BY THE CITY.
3. THE TOP OF THE CONCRETE SHALL BE AT AN ELEVATION NO LOWER THAN THE CROWN OF THE ADJACENT ROADWAY, AND NO HIGHER THAN 6 INCHES ABOVE THE CROWN UNLESS APPROVED BY THE CITY TO MAKE A MORE NATURAL TRANSITION WITH THE ADJACENT LAND.
4. ALL WALKS SHALL HAVE A CROSS SLOPE OF 1/4 INCH PER FOOT AND SHALL NOT EXCEED A LONGITUDINAL SLOPE OF 1:20, EXCEPT AT DESIGNATED RAMPS THAT SHALL NOT EXCEED 1:12. PROVIDE A TACTIBLE WARNING SURFACE AT ALL RAMPS PER A.D.A. THE CONTRACTOR SHALL INSURE THAT ALL PROVISIONS OF A.D.A AND FLORIDA ACCESSIBILITY CODE ARE MET.*
5. ISOLATION JOINTS (TYPE A JOINTS) SHALL BE PROVIDED BETWEEN EXISTING SLABS OR STRUCTURES AND FRESH CONCRETE, TO SEPARATE PEDESTRIAN SECTIONS FROM SECTIONS WHICH WILL ENCOUNTER VEHICLE TRAFFIC, TO SEPARATE FRESH PLACEMENT FROM CONCRETE WHICH HAS SET FOR MORE THAN 60 MINUTES, AND NO FARTHER APART THAN 100 FEET IN SIDEWALKS AND BIKEPATHS. JOINT MATERIAL SHALL BE SPECIFIED IN FDOT STANDARDS AND SPECIFICATIONS AND SHALL BE RUBBER, PLASTIC OR OTHER APPROVED NON-BIODEGRADABLE ELASTOMERIC MATERIAL. WOOD IS PROHIBITED.
6. CONTROL JOINTS (TYPE B JOINTS) SHALL BE TOOLED INTO THE FRESH CONCRETE TO A DEPTH EQUAL TO 1/4 THE SLAB THICKNESS AND SPACED APART A DISTANCE EQUAL TO THE WIDTH OF THE SLAB, AT MINIMUM SPACING OF 5', MAX SPACING OF 12'.
7. THE SLAB SURFACE SHALL BE BROOM FINISHED TO BE SLIP RESISTANT, AND SHALL MATCH AS CLOSELY AS POSSIBLE THE FINISH OF THE EXISTING ADJACENT SLABS AND ALL EDGES SHALL BE TOOLED TO ELIMINATE SHARP CORNERS.
8. THE BEARING SUBSURFACE SHALL HAVE ALL ORGANIC, LOOSE, AND DELETERIOUS MATTER REMOVED, AND THE REMAINING CLEAN SOIL SHALL BE SMOOTH, SOUND, AND SOLID. ANY FILL MATERIAL SHALL BE COMPACTED WITH A VIBRATORY OR IMPACT COMPACTION MACHINE IN MAXIMUM 12 INCH LIFTS OR COMPACTED WITH A HAND TAMPER IN MAXIMUM 4 INCH LIFTS. THE CITY SHALL REQUIRE A COMPACTION TEST FOR EACH LIFT IF THE TOTAL FILLED SECTION IS MORE THAN 12 INCHES DEEP OR IF THE SUBSURFACE HAS BEEN DISTURBED MORE THAN 12 INCHES DEEP. WHERE SUCH TEST IS REQUIRED, THE RESULTS SHALL SHOW A MINIMUM PROCTOR FIELD DENSITY OF 95 PERCENT.
9. ALL CONCRETE WORK IN THE RIGHT-OF-WAY SHALL BE INSPECTED BY THE CITY AFTER THE SUBSOIL IS PREPARED AND THE FORMS ARE SET BUT, BEFORE THE CONCRETE PLACEMENT BEGINS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE FINISHED SLAB FROM ALL DAMAGE AND VANDALISM UNTIL THE CITY ACCEPTS OR APPROVES THE SLAB, AFTER WHICH TIME THE OWNER OF THE ABUTTING LAND SHALL BE RESPONSIBLE FOR THE SLAB IN ACCORDANCE WITH THE CITY CODE. ANY SLAB SECTION DAMAGED OR VANDALIZED PRIOR TO ACCEPTANCE OR APPROVAL SHALL BE CUT OUT BETWEEN JOINTS AND REPLACED. REPAIRS ARE NOT ACCEPTABLE.
11. SIDEWALKS LOCATED WITHIN THE RIGHT-OF-WAY SHALL NOT BE TINTED, STAINED, COLORED, OR COATED.
12. ALL FORMS SHALL BE REMOVED PRIOR TO ACCEPTANCE OR APPROVAL AND THE DISTURBED GROUND SHALL BE BACKFILLED, REGRADED, AND SODDED SO THAT THE WEAR SURFACE OF THE CONCRETE IS REASONABLY FLUSH WITH THE ADJACENT GRADE.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

SIDEWALK, RAMP, AND DRIVEWAY APRON CONSTRUCTION REQUIREMENTS

NTS

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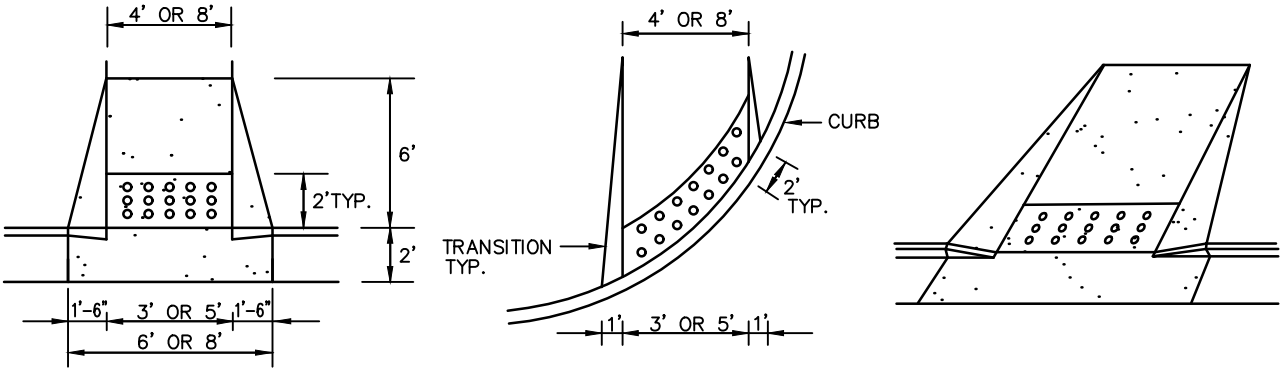
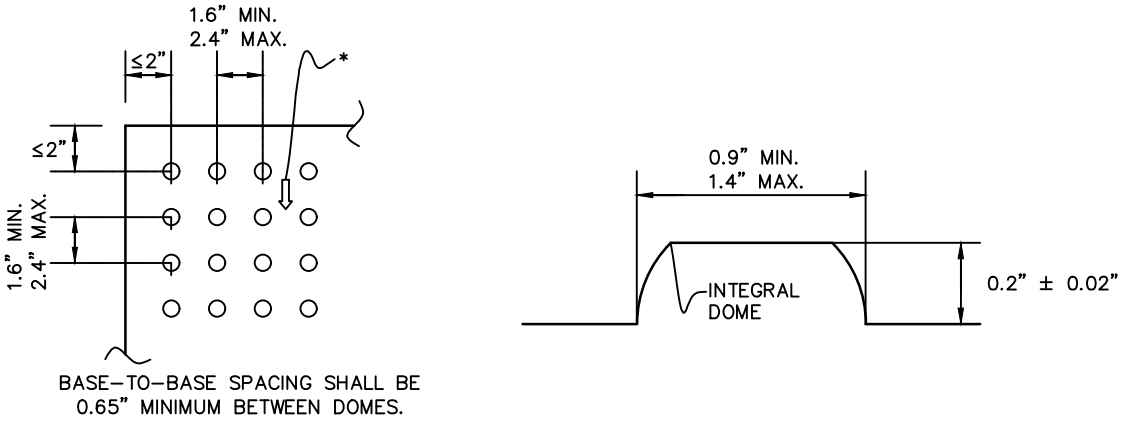


NOTES:

1. RAMP LOCATIONS ARE TO BE COORDINATED WITH AND IN CONFORMANCE WITH CROSSWALK MARKING DETAILS SHOWN IN THE PLANS.
2. CURBED RAMPS SHALL HAVE FLARED SIDES WITH A MAXIMUM SLOPE OF 12:1.
3. RAMPS SHALL HAVE A DETECTABLE WARNING SURFACE AS SHOWN.
4. RAMPS ARE TO BE CONSTRUCTED AT ALL LOCATIONS SHOWN IN THE PLANS EVEN WHEN A SIDEWALK IS NOT CONSTRUCTED CONCURRENTLY.
5 NO CURB TRANSITION IS NEEDED FOR MIAMI CURBS.
6. ALL RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FDOT INDEX NO. 304 AND HANDICAPPED ACCESSIBILITY REQUIREMENTS IN ACCORDANCE WITH THE AMERICAN DISABILITIES ACT.



NOTES:

* ON RAMPS THAT ARE PERPENDICULAR WITH THE CURB LINE, THE DOME PATTERN SHALL BE IN–LINE WITH THE DIRECTION OF TRAVEL. ON RAMPS INTERSECTING CURBS ON A RADIUS, THE DOME PATTERN SHALL BE IN–LINE WITH THE DIRECTION OF TRAVEL TO THE EXTENT PRACTICAL.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

SIDEWALK AND BIKE PATH RAMP

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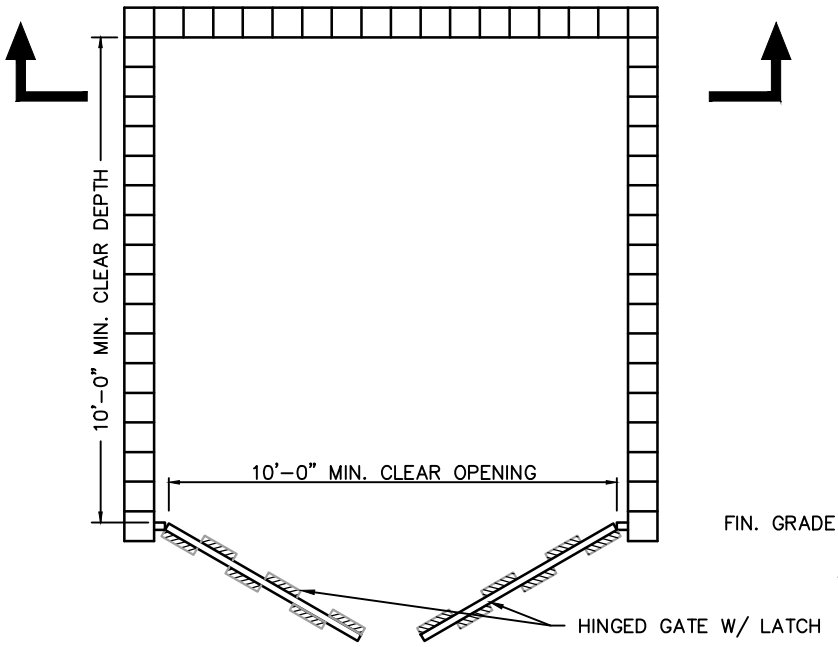
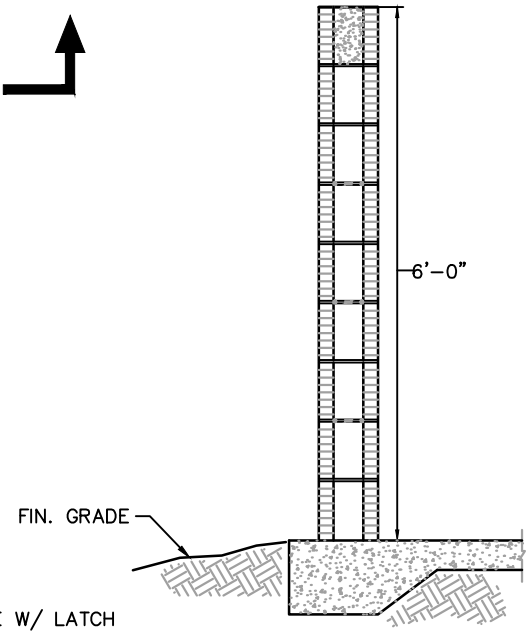
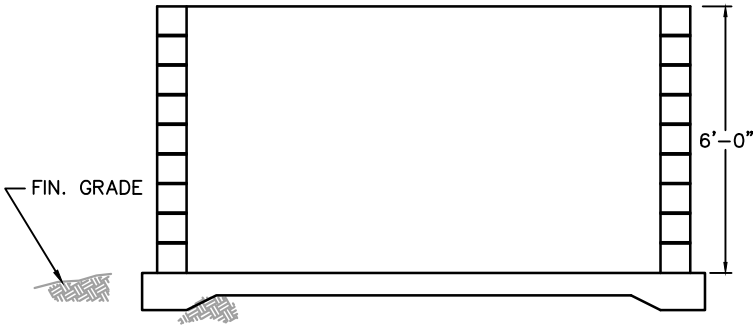


PLAN VIEW



WALL SECTION



SECTION

NOTE TO DESIGNER:

1. THIS DETAIL REFLECTS CITY DIMENSIONAL REQUIREMENTS FOR THE DUMPSTER ENCLOSURE ONLY.
2. PROVIDE PROPOSED WALL MATERIAL AND HORIZONTAL AND VERTICAL WALL REINFORCING REQUIREMENTS.
3. PROVIDE PROPOSED SLAB DESIGN REQUIREMENTS INCLUDING REINFORCING.
4. PROVIDE ANY OTHER CONSTRUCTION DETAILS THAT MAY BE REQUIRED.

NOTES:

1. BLOCK MUST BE FINISHED WITH STUCCO OR BRICK VENEER PAINTED TO MATCH BUILDING.
2. DUMPSTER STRUCTURE SHALL MEET THE REQUIREMENTS OF CHAPTER 2, ARTICLE 3, 2-50, J OF THE LAND DEVELOPMENT CODE (LDC).
3. SHRUB PLANTINGS REQUIRED (MIN. 3-FOOT WIDE PLANTING AREA) AROUND PERIMETER WALLS (EXCEPT OPENING).
4. GATES TO BE CONSTRUCTED OF PRESSURE-TREATED WOOD, OR APPROVED EQUAL.
5. THE CITY HAS A CONTRACTOR FOR ROLL OFF SERVICE. NO OTHER CONTRACTOR SHALL BE PERMITTED TO PROVIDE THIS SERVICE. VERIFY COMPANY UNDER CONTRACT WITH THE CITY.
6. DUMPSTER ENCLOSURE HEIGHT MAY BE INCREASED TO A MAXIMUM HEIGHT OF EIGHT (8) FEET.
7. IF BOLLARDS ARE INSTALLED CLEAR DEPTH MUST BE MEASURED FROM BOLLARDS TO GATES.

STANDARD CONSTRUCTION DETAIL

SINGLE USE DUMPSTER ENCLOSURE

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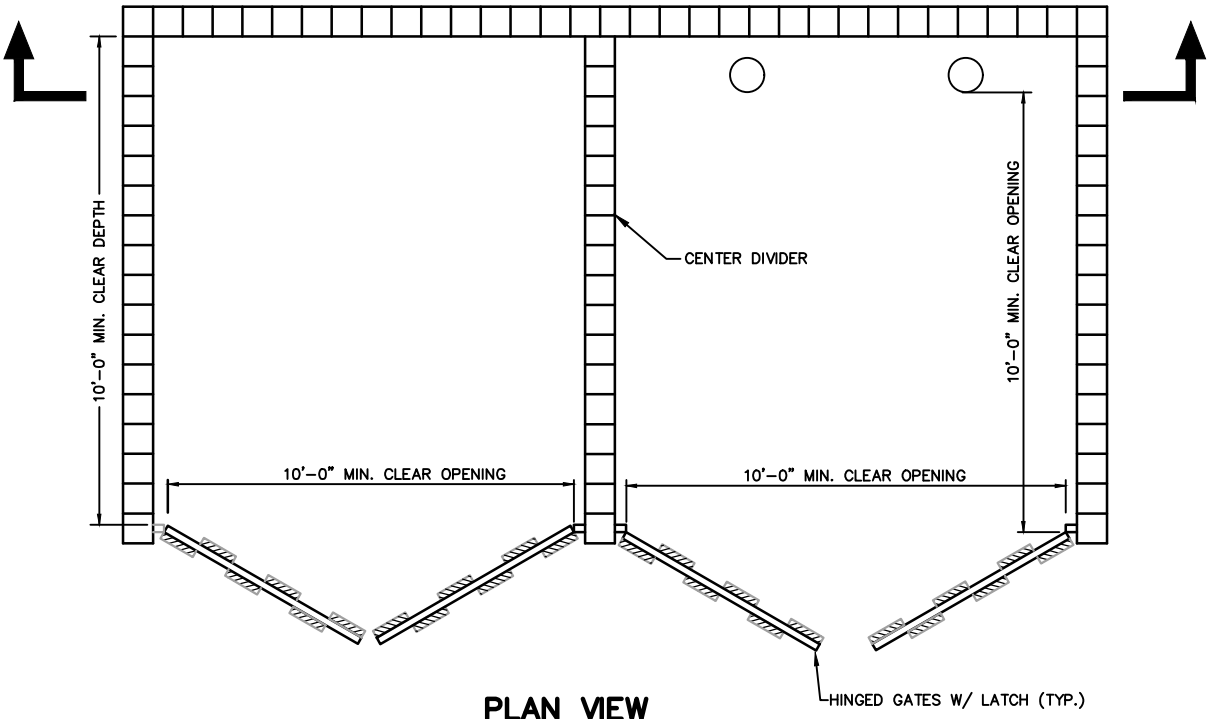
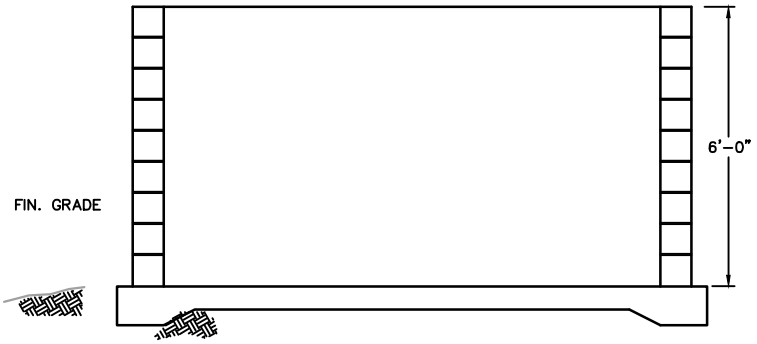
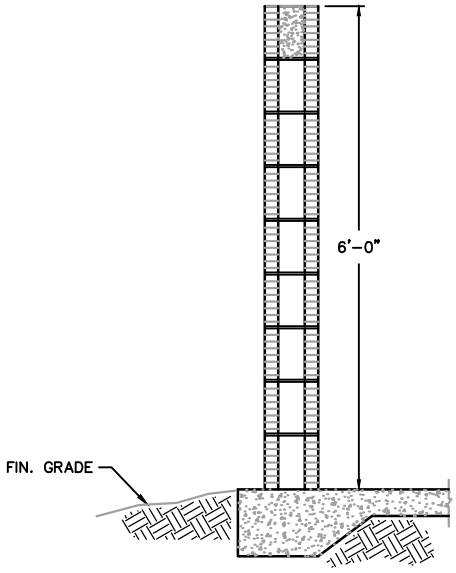


PLAN VIEW



SECTION



WALL SECTION

NOTES:
1. BLOCK MUST BE FINISHED WITH STUCCO OR BRICK VENEER PAINTED TO MATCH BUILDING.
2. DUMPSTER STRUCTURE SHALL MEET THE REQUIREMENTS OF CHAPTER 2, ARTICLE 3, 2-50, J OF THE LAND DEVELOPMENT CODE (LDC).
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NOTE TO DESIGNER:
1. THIS DETAIL REFLECTS CITY DIMENSIONAL REQUIREMENTS FOR THE DUMPSTER ENCLOSURE ONLY.
2. PROVIDE PROPOSED WALL MATERIAL AND HORIZONTAL AND VERTICAL WALL REINFORCING REQUIREMENTS.
3. PROVIDE PROPOSED SLAB DESIGN REQUIREMENTS INCLUDING REINFORCING.
4. PROVIDE ANY OTHER CONSTRUCTION DETAILS THAT MAY BE REQUIRED.

STANDARD CONSTRUCTION DETAIL

DUAL-USE DUMPSTER ENCLOSURE

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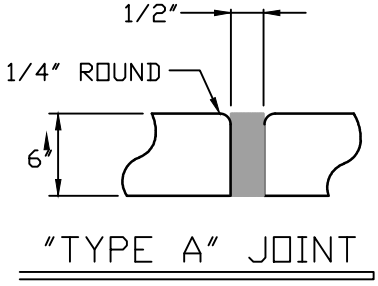
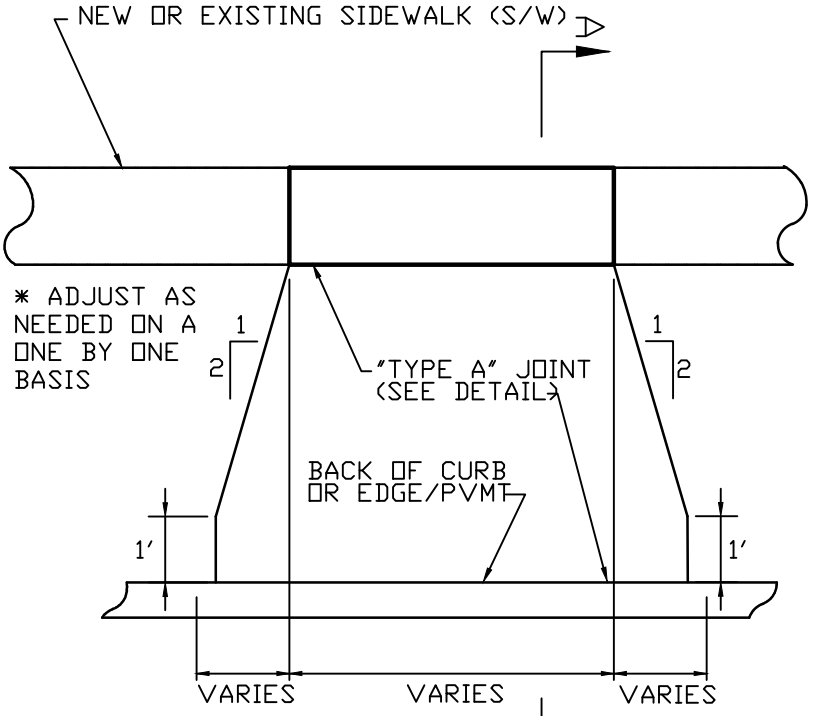
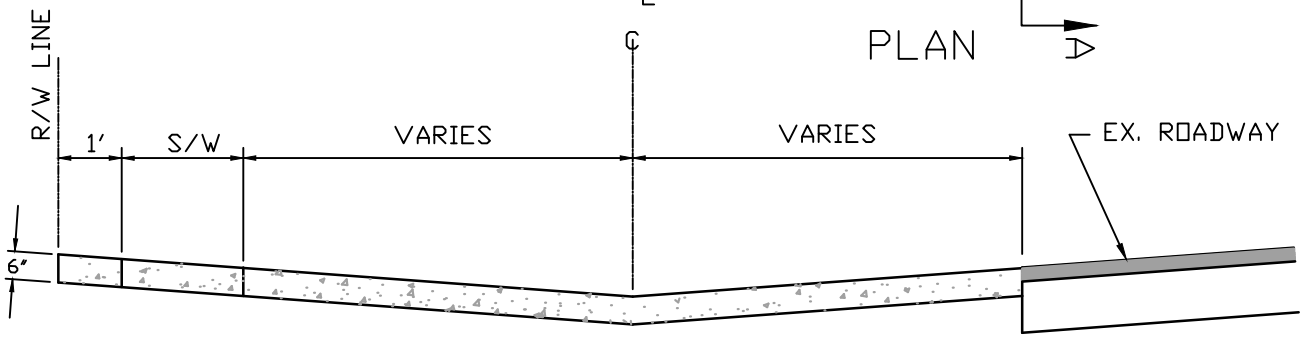


"TYPE A" JOINT

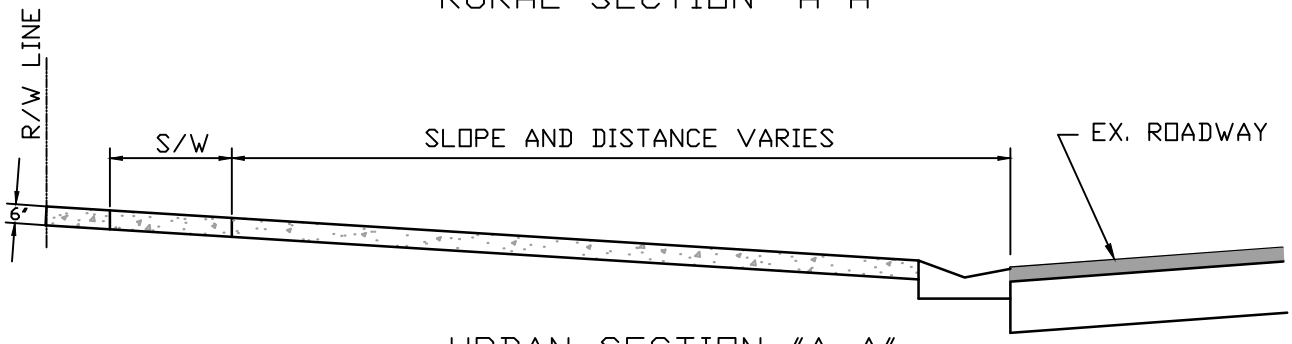
1/2" PREMOLDED EXPANSION JOINT



PLAN



RURAL SECTION "A-A"



URBAN SECTION "A-A"

DRIVEWAY APRON BASE TO BE COMPACTED AND TESTED TO 95% DENSITY WITH MINIMUM L.B.R. 40 BASED ON AASHTO MODIFIED PROCTOR TEST F.B.V.-75
CONCRETE DRIVEWAY APRON TO BE 28 DAY, 3000 PSI.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

RESIDENTIAL DRIVEWAY APRON DRAWINGS

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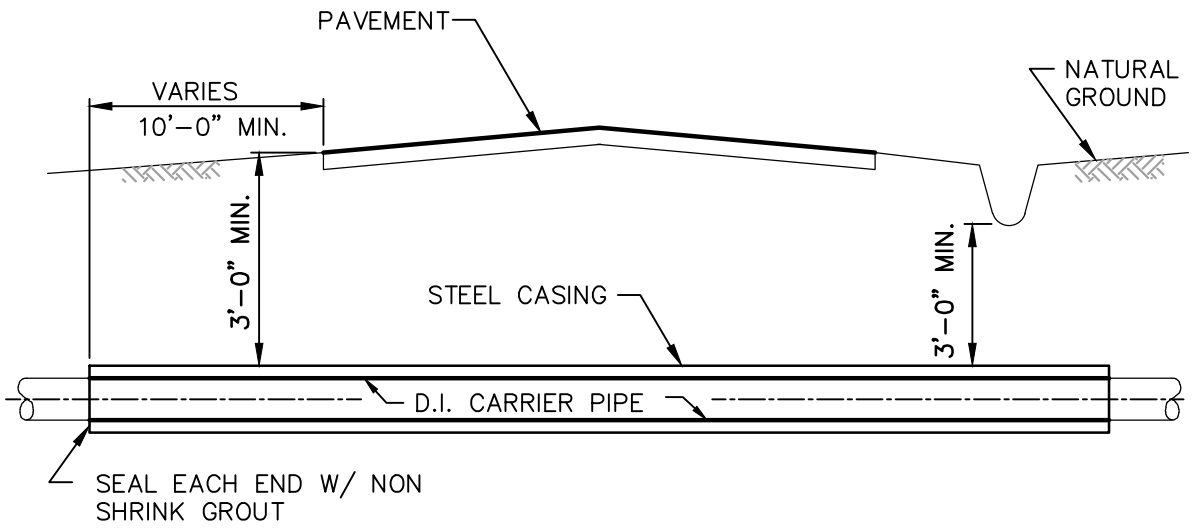

NOTE: BORING & JACKING TO BE IN ACCORDANCE W/ FDOT SPECS.

NOTES

1. MINIMUM COVER FOR TOP OF CASING ON ALL CITY STREETS SHALL BE 3.0'
2. ROTATION OF CARRIER PIPE INSIDE THE CASING PIPE WILL NOT BE PERMITTED. RESTRAINED MECHANICAL OR FLANGED JOINT PIPE SHALL BE USED TO HELP PREVENT SUCH ROTATION.
3. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF CASING AND CARRIER PIPE INSTALLATION FOR APPROVAL PRIOR TO FABRICATION OF PIPING, CASING, AND APPURTENANCES. CERTIFICATION OF CASING PIPE IS REQUIRED.
4. GROUTING OF SPACE BETWEEN CASING AND CARRIER PIPE NOT REQUIRED UNLESS NEGATIVE FLOTATION EXISTS.
5. WELDING OF CASING PIPE TO BE DONE BY CERTIFIED WELDER. ALL ENDS OF CASING PIPE SHALL BE CHAMFERED PRIOR TO ANY WELDING.
6. SEAL END OF CASING PIPE WITH CONCRETE.
7. THE CITY SHALL BE PRESENT THROUGHOUT ALL BORE AND JACK ACTIVITIES.

NOTE TO ENGINEER

CROSSING DETAIL SHALL BE TO SIZE AND SCALE. SHOW ALL EXISTING UTILITIES, CLEARANCES, CARRIER AND CASING SIZE AND LENGTH, LOCATION OF PAVED ROAD, LIMITS OF RIGHT OF WAY, EXISTING AND PROPOSED SPOT ELEVATIONS AND PROPOSED PIPE INVERT ELEVATIONS.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

BORE AND JACK

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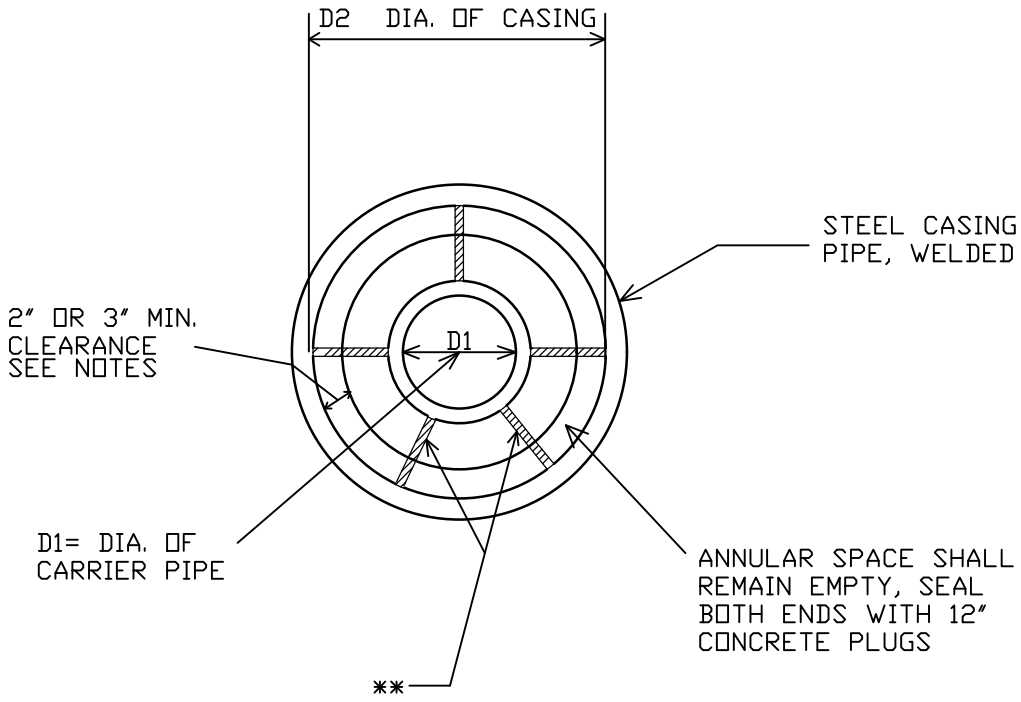

1. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF CASING INSTALLATION TO ENGINEER FOR REVIEW PRIOR TO INSTALLATION
2. SEAL BOTH ENDS OF CASING W/ 12" GROUT (MINIMUM)
3. ROTATION OF CARRIER PIPE INSIDE THE CASING WILL NOT BE PERMITTED
4. THE CARRIER PIPE MUST BE IN THE CENTERED AND RESTRAINED POSITION WITHIN THE CASING.

CARRIER PIPE AND CASING PIPE SIZES (MIN.)														
CARRIER PIPE NOM. DIA. (D1)	4	6	8	10	12	14	16	18	20	24	30	36	42	48
CASING PIPE NOM. DIA. (D2)	14	16	18	22	24	30	30	30	36	36	48	54	60	66
WALL THICKNESS-INCHES *	PER AUTHORITY HAVING JURISDICTION													

* WITHIN CITY'S RIGHT OF WAY, USE CURRENT FDOT STANDARDS

** SPECIALLY DESIGNED SPACERS SHALL BE USED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. USE CASCADE CASING SPACERS OR PRE-APPROVED EQUAL.

STANDARD CONSTRUCTION DETAIL

BORE AND JACK

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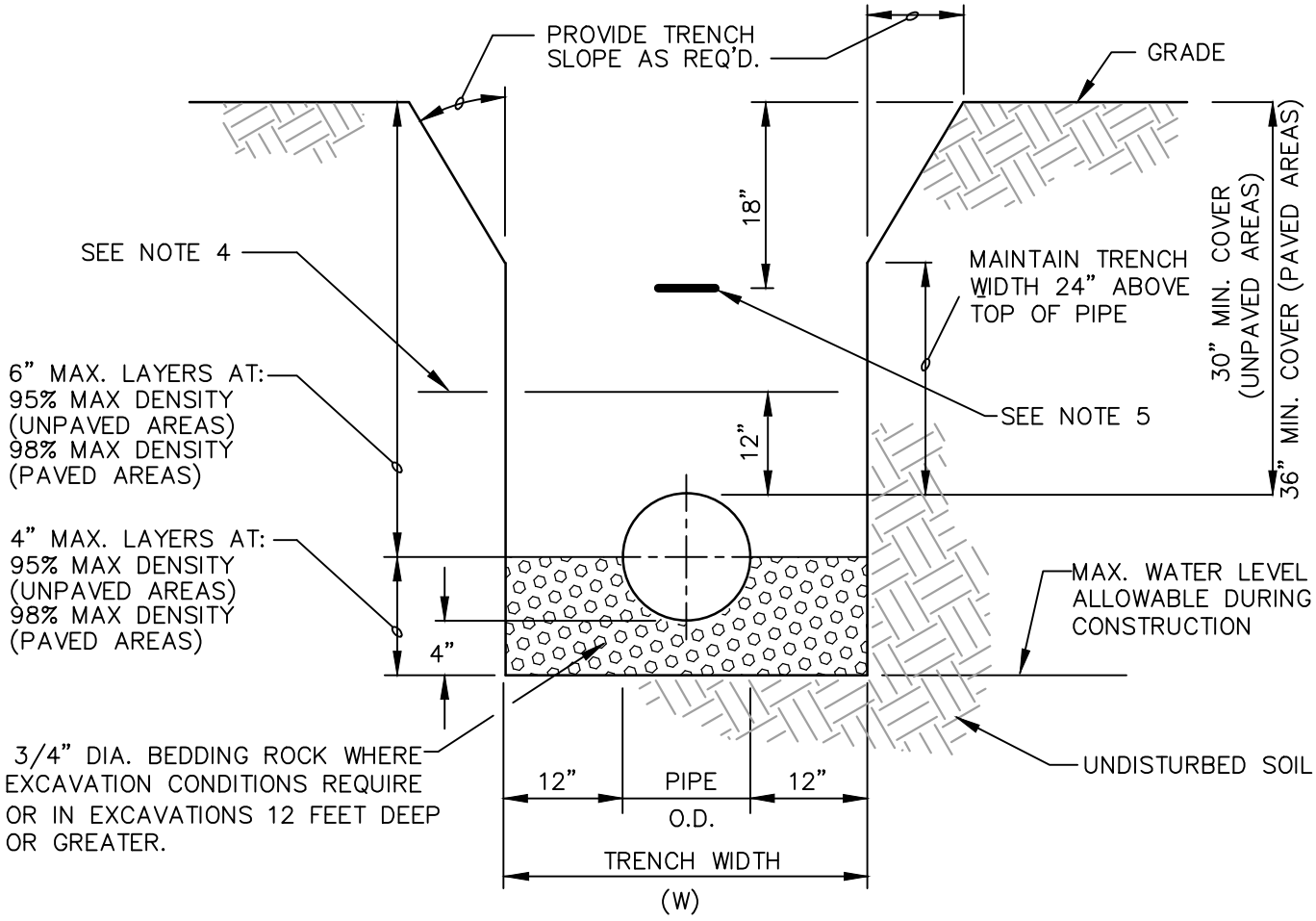

PIPE INSTALLATION DETAIL

NOTES:

1. WHERE SOIL CONDITIONS CAN NOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
2. SHEETING WILL BE REQUIRED AS DETERMINED IN THE FIELD.
3. COMPACTION PERCENTAGES SHOWN REFER TO A.A.S.H.T.O. T-180. PROVIDE COPIES OF CERTIFIED TEST REPORTS TO THE CITY.
4. MECHANICAL COMPACTION NOT ALLOWED BELOW THIS LEVEL.
5. INSTALL UTILITY COLOR CODED METALLIC TAPE OVER FULL LENGTH OF PIPE.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

PIPE INSTALLATION

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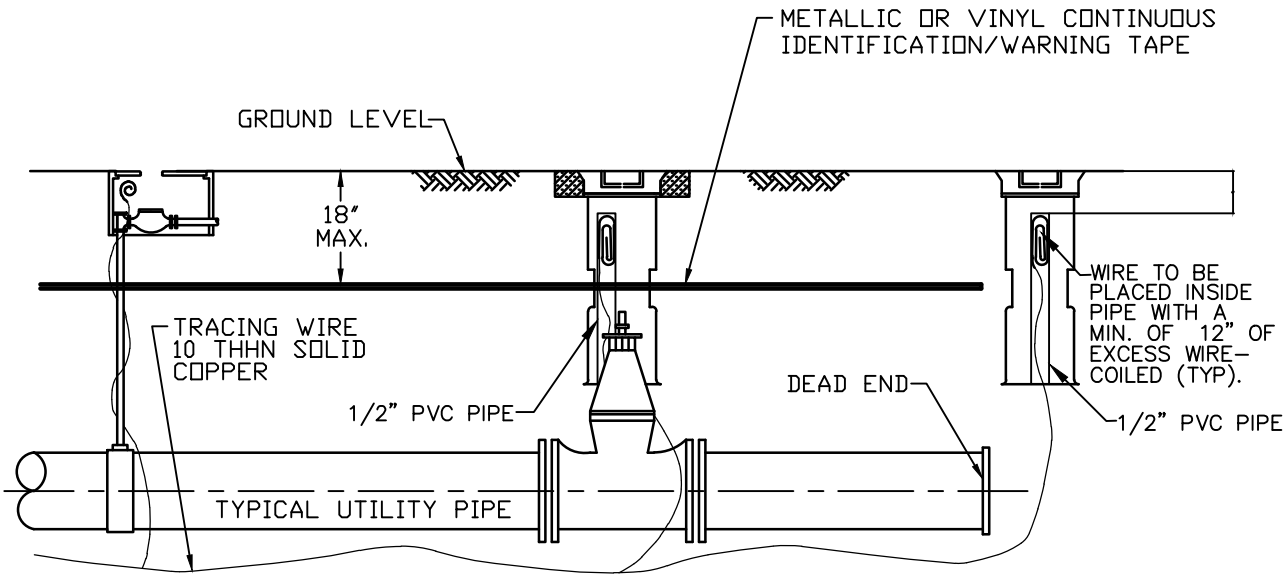

ALL PVC PIPE, OR OTHER CITY APPROVED NONMETALLIC PIPE INSTALLED WITHIN THE CITY'S WATER, SANITARY SEWER, OR RECLAIMED WATER SYSTEMS, SHALL BE INSTALLED WITH 10 THHN SOLID COPPER TRACING WIRE. IF PIPE IS INSTALLED BY DIRECTIONAL BORE, USE (2) 10 THHN SOLID COPPER TRACING WIRE.

THE TRACING WIRE MUST BE INSTALLED DIRECTLY BELOW THE PIPE AND BROUGHT TO THE SURFACE AT 500' MINIMUM INTERVALS. WIRE SHALL EXTEND A MINIMUM OF 12" ABOVE GRADE AT EACH INTERVAL AND BE COILED AND PLACED IN A VALVE BOX, METER BOX, MANHOLE, CLEANOUT OR OTHER APPLICABLE STRUCTURE.

TRACING WIRE BETWEEN INTERVALS SHALL BE INSTALLED SO AS TO PROVIDE CONTINUOUS CURRENT WHEN LINE LOCATION EQUIPMENT IS CONNECTED TO THE TRACING WIRE. WIRE BRANCHING FROM MAIN LINES SHALL BE LINKED BY A CITY APPROVED CONNECTOR SUCH AS KING # 2011 SAFETY SEALED CONNECTORS OR APPROVED EQUAL.

COLOR CODING:

POTABLE WATER SYSTEM:	BLUE
RECLAIMED WATER SYSTEM:	LAVENDER
SANITARY SEWER FORCE MAIN SYSTEM:	GREEN

1. POTABLE WATER AND RECLAIMED WATER SYSTEMS: WIRE SHALL BE INSTALLED BELOW ALL MAINS AND SERVICE LINES AND ATTACHED TO VALVES, HYDRANTS AND FITTINGS. WIRE INSTALLED WITH SERVICE LINES SHALL CONNECT TO THE WIRE INSTALLED BELOW THE MAIN AND EXTEND TO THE CURB STOP.
2. FIRE SPRINKLER LINES: WIRE SHALL CONNECT TO THE WIRE INSTALLED BELOW THE MAIN AND EXTEND TO THE RISER CONNECTION.
3. SANITARY SEWER FORCE MAINS: WIRE SHALL BE INSTALLED BELOW THE FORCE MAIN AND ATTACHED TO ALL VALVES AND FITTINGS AND BROUGHT TO THE SURFACE AND PLACED IN A METAL, CITY APPROVED, VALVE BOX.
4. DEAD END MAINS: WIRE SHALL BE PLACED IN A PROPERLY IDENTIFIED METAL VALVE BOX AT THE END OF THE RUN.
5. WIRE SHALL NOT BE FASTENED OR COILED TO VALVE OPERATING NUT.

STANDARD CONSTRUCTION DETAIL

UTILITY PIPE LOCATION MATERIALS

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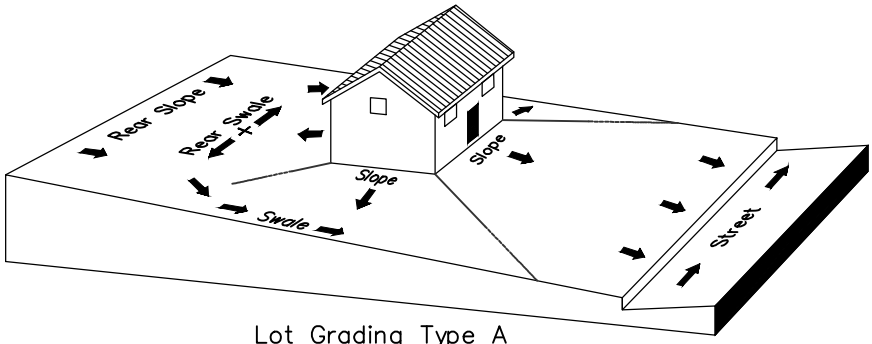
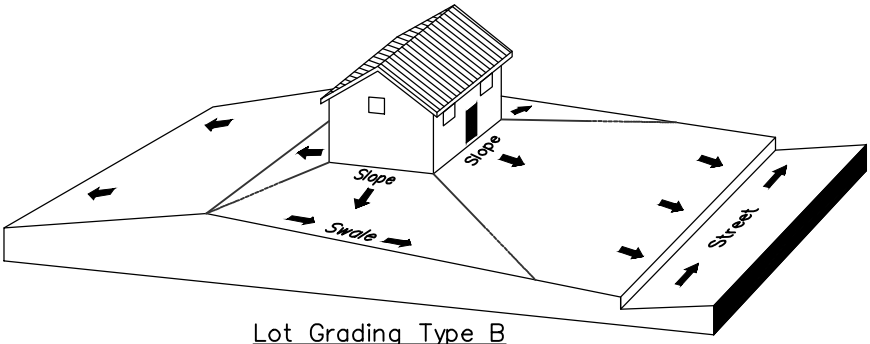
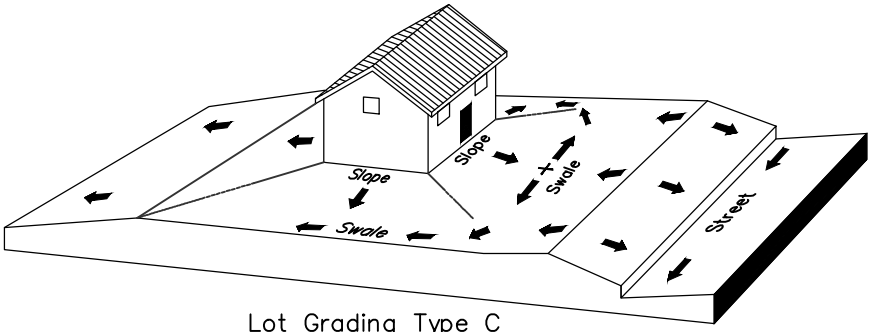


Lot Grading Type A
Drainage Directed Toward Front of Building



Lot Grading Type B
Drainage Directed Toward Front and Rear of Building



Lot Grading Type C
Drainage Directed Toward Rear of Building

Note:

1. Engineer shall provide table listing subdivision lot numbers associated with each Lot Grading Plan Type.
2. All graded lot surfaces and swales shall have minimum 0.5% slope.
3. All finished floor elevations to be set a minimum of 18" above centerline of adjacent roadway.
4. Finished floor to be set 1' above the elevation of 100 year flood for those sites located in special flood hazard area. And / or 1' above the design high water elevation of adjacent storm water retention / detention ponds

STANDARD CONSTRUCTION DETAIL

LOT GRADING PLAN

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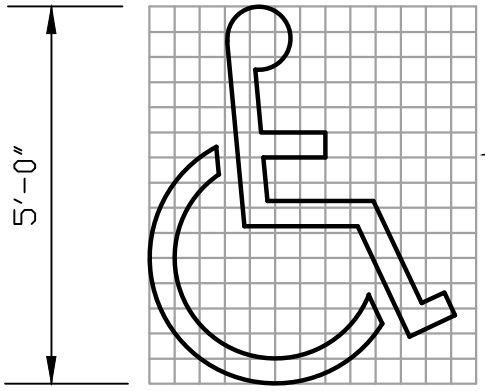
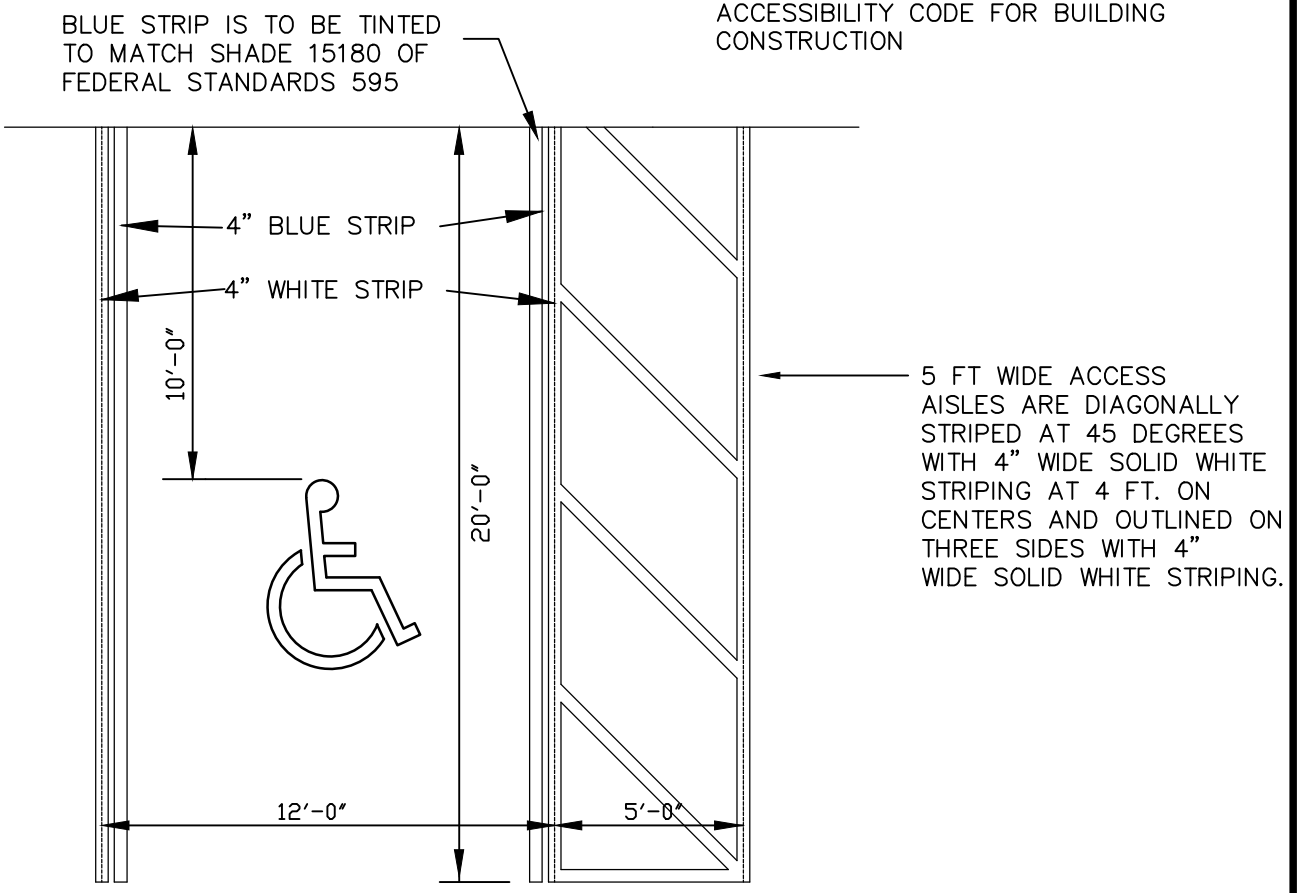


HANDICAPPED PAVEMENT SYMBOL

USE OF PAVEMENT SYMBOL IN HANDICAPPED PARKING SPACES IS REQUIRED. WHEN USED THE SYMBOL SHALL BE 5 FT. HIGH AND WHITE IN COLOR. TO BE INSTALLED IN ACCORDANCE WITH FDOT STANDARD INDEX #17346

NOTES:

1. ACCESSIBLE PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 2.0% IN ALL DIRECTIONS.
2. IF ACCESSIBLE AISLE CROSSES THE TOP OF THE HANDICAP SPACE, WHEEL STOP SHALL BE USED TO MAINTAIN MINIMUM 44 INCH CLEAR ACCESSIBLE ROUTE.
3. IF WHEEL STOP IS USED, PARKING SHALL HAVE 18' CLEAR SPACE.
4. ACCESSIBLE PARKING SIGN SHALL BE PLACED AS TO NOT ENCROACH INTO THE ACCESSIBLE AISLE MINIMUM 44 INCH CLEAR ACCESSIBLE ROUTE.
5. NUMBER OF ACCESSIBLE PARKING SPACES SHALL MEET REQUIREMENT OF THE LATEST ISSUE OF THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION



STANDARD CONSTRUCTION DETAIL

TYPICAL MARKINGS FOR HANDICAPPED PARKING

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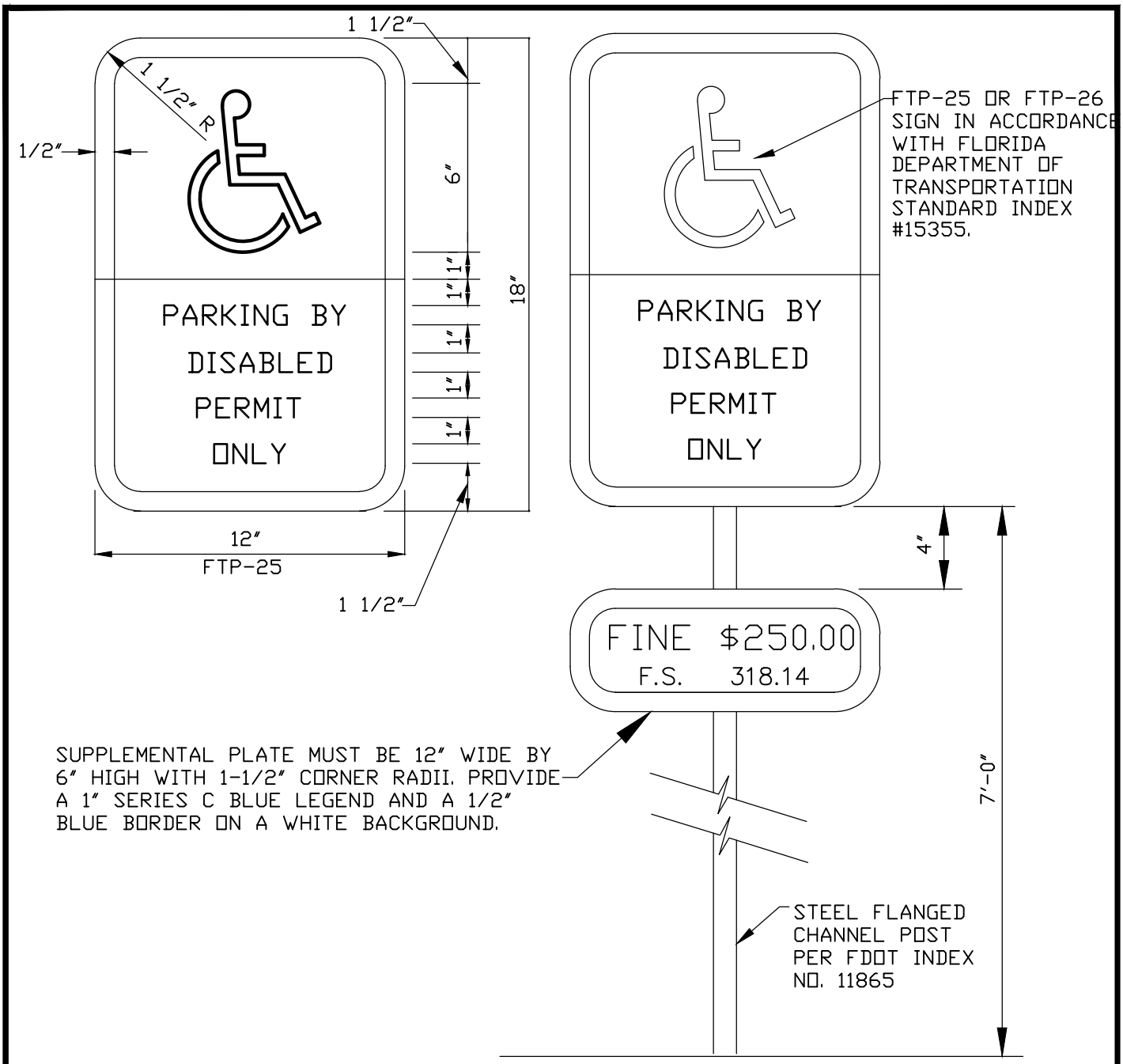

1.) TOP PORTION OF SIGN TO HAVE A REFLECTIVE BLUE BACKGROUND WITH WHITE REFLECTIVE SYMBOL AND BORDER.

2.) BOTTOM PORTION SHALL HAVE A REFLECTIVE WHITE BACKGROUND WITH BLACK OPAQUE LEGEND AND BORDER.

3.) SIGN MAY BE FABRICATED ON ONE PANEL OR TWO.

4.) SIGNS ARE TO BE MOUNTED AT STANDARD HEIGHT. (7' FROM PAVEMENT TO BOTTOM OF SIGN.)

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

HANDICAP PARKING SIGN DETAIL

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FEB 2018

ES BMP 1.01

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

DEFINITION

A STONE STABILIZED PAD LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON A CONSTRUCTION SITE.

PURPOSE

TO REDUCE THE AMOUNT OF SEDIMENT TRANSPORTED ONTO PUBLIC ROADS BY MOTOR VEHICLES OR RUNOFF.

CONDITIONS WHERE PRACTICE APPLIES

WHEREVER TRAFFIC WILL BE LEAVING A CONSTRUCTION SITE AND MOVES DIRECTLY ONTO A PUBLIC ROAD OR OTHER PAVED AREA.

PLANNING CONSIDERATIONS

CONSTRUCTION ENTRANCES PROVIDE AN AREA WHERE MUD CAN BE REMOVED FROM CONSTRUCTION VEHICLE TIRES BEFORE THE ENTER A PUBLIC ROAD. IF THE ACTION OF THE VEHICLE TRAVELING OVER THE GRAVEL PAD IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF THE MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLE ENTERS A PUBLIC ROAD. IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF-SITE. CONSTRUCTION ENTRANCES SHOULD BE USED IN CONJUNCTION WITH THE STABILIZATION OF CONSTRUCTION ROADS TO REDUCE THE AMOUNT OF MUD PICKED UP BY CONSTRUCTION VEHICLES.

DESIGN CRITERIA

AGGREGATE SIZE

FDOT AGGREGATE NO. 1 (1.5 – 3.5 INCH STONE) SHOULD BE USED.

ENTRANCE DIMENSIONS

AGGREGATE LAYER MUST BE AT LEAST 6 INCHES THICK. IT MUST EXTEND THE FULL WIDTH OF THE VEHICULAR INGRESS AND EGRESS AREA. THE LENGTH OF THE ENTRANCE MUST BE AT LEAST 50 FEET. (SEE DETAIL).

WASHING

IF CONDITIONS OF THE SITE ARE SUCH THAT THE MAJORITY OF THE MUD IS NOT REMOVED BY THE VEHICLES TRAVELING OVER THE GRAVEL, THEN THE TIRES OF THE VEHICLES MUST BE WASHED BEFORE ENTERING A PUBLIC ROAD. WASH WATER MUST BE CARRIED AWAY FROM THE ENTRANCE TO A SETTLING AREA TO REMOVE SEDIMENT. A WASH RACK MAY ALSO BE USED TO MAKE WASHING MORE CONVENIENT AND EFFECTIVE. SEE DETAIL.

LOCATION

THE ENTRANCE SHOULD BE LOCATED TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES.

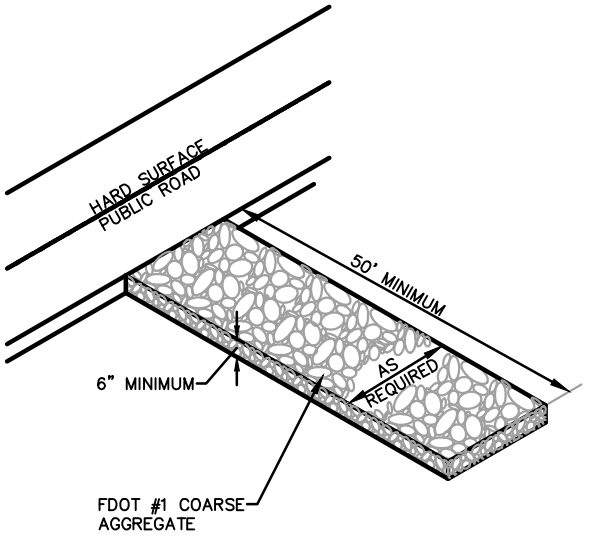
INDICATE PROPOSED LOCATION OF GRAVEL CONSTRUCTION ENTRANCE ON THE GRADING PLAN.

CONSTRUCTION SPECIFICATIONS

THE AREA OF THE ENTRANCE SHOULD BE CLEARED OF ALL VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL. THE GRAVEL SHALL BE PLACED TO THE SPECIFIED DIMENSIONS. ANY DRAINAGE FACILITIES REQUIRED BECAUSE OF WASHING SHOULD BE CONSTRUCTED ACCORDING TO SPECIFICATIONS. IF WASH RACKS ARE USED, THEY SHOULD BE CONSTRUCTED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.

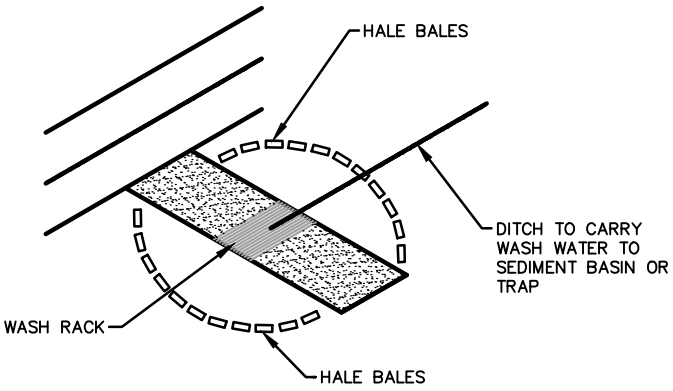
MAINTENANCE

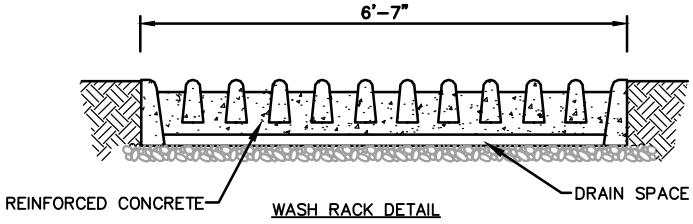
THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2-INCH STONE, AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.



GRAVEL CONSTRUCTION ENTRANCE

N.T.S.





WASH RACK DETAIL

GRAVEL CONSTRUCTION ENTRANCE
W/ WASH RACK (IF REQUIRED)

NOTE: COMPLY WITH FDOT REQUIREMENTS FOR SOIL TRACKING PREVENTION DEVICE IN FDOT ROADWAY ROW (INDEX NO. 106)

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

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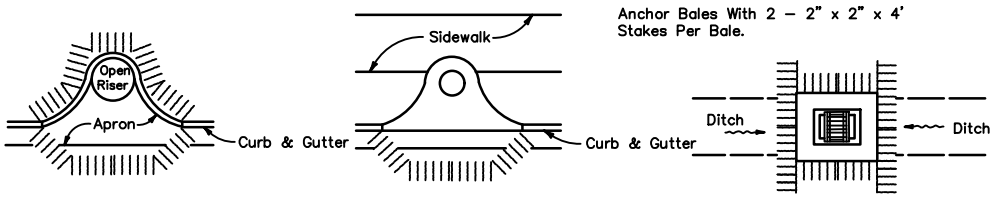
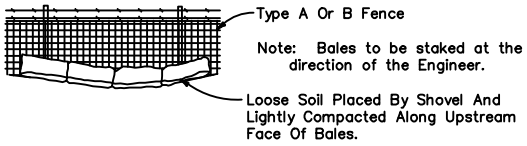


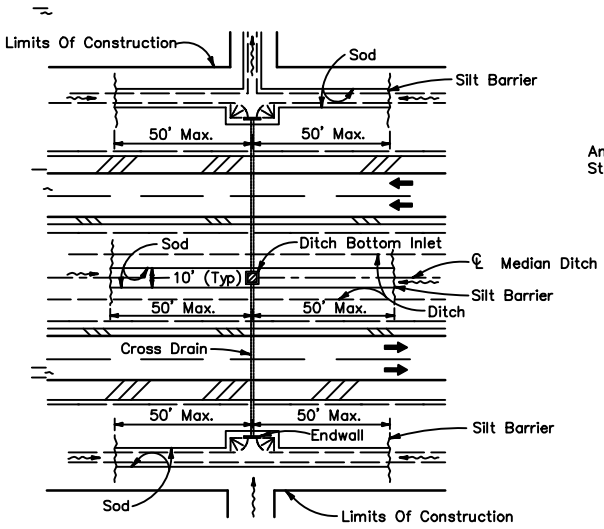
PARTIAL INLET | COMPLETED INLET | DITCH BOTTOM INLET

PROTECTION AROUND INLETS OR SIMILAR STRUCTURES

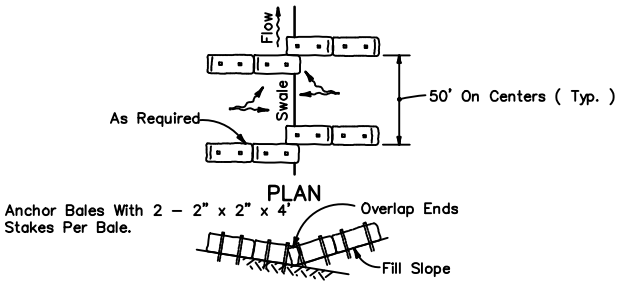
NOTE: SUBSTITUTE ROCK BAGS AT PAVED SURFACES



BALES BACKED BY FENCE

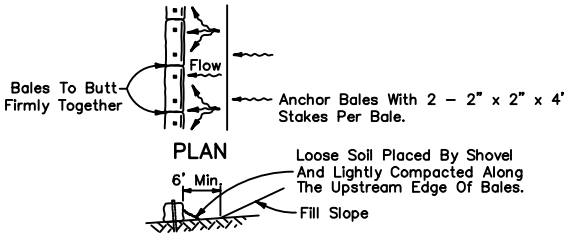


DITCH INSTALLATIONS AT DRAINAGE STRUCTURES



ELEVATION

TO BE USED AT SELECTED SITES WHERE THE NATURAL GROUND SLOPES TOWARD THE TOE OF SLOPE



ELEVATION

TO BE USED AT SELECTED SITES WHERE THE NATURAL GROUND SLOPES AWAY FROM THE TOE OF SLOPE

BARRIERS FOR FILL SLOPES

STANDARD CONSTRUCTION DETAIL

EROSION CONTROL – SYNTHETIC BALES

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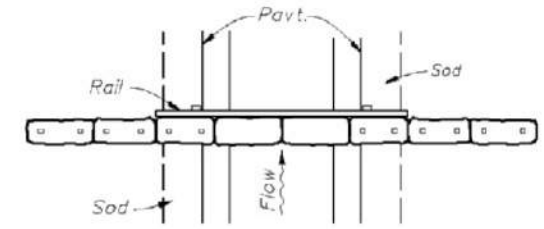
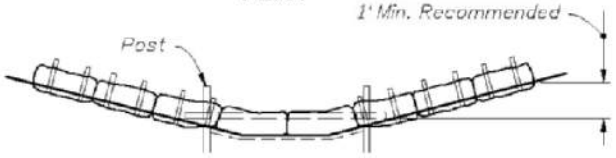
FEB 2018

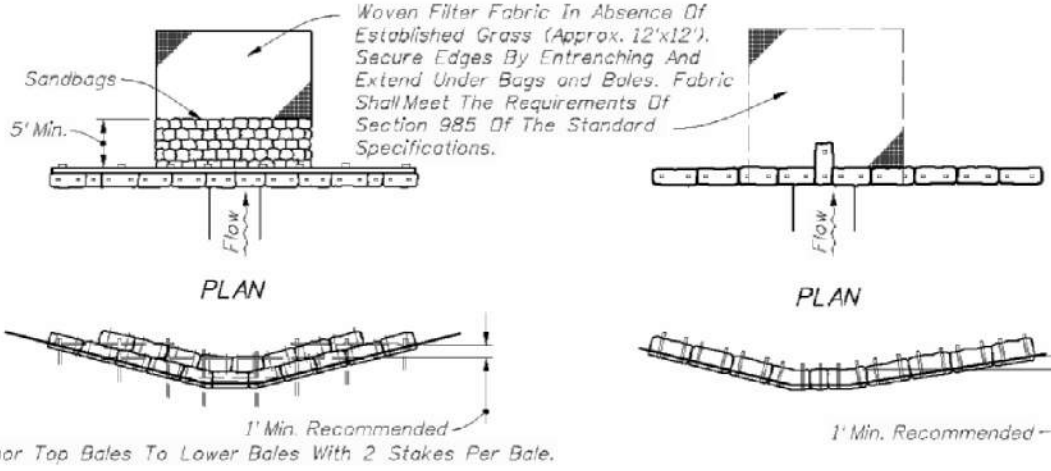


PLAN



ELEVATION

SYNTHETIC BALES OR BALE TYPE BARRIERS FOR PAVED DITCHES



PLAN

PLAN

ELEVATION
TYPE II

ELEVATION
TYPE I

SYNTHETIC BALES OR BALE TYPE BARRIERS FOR UNPAVED DITCHES

NOTES FOR SYNTHETIC BALES OR BALE TYPE BARRIERS

1. Type I and II Synthetic Barrier should be spaced in accordance with Chart 1, Sheet 1.
2. Bales shall be anchored with 2-1" x 2" (or 1" dia.) x 4' wood stakes. Stakes of other material or shape providing equivalent strength may be used if approved by the Engineer. Stakes other than wood shall be removed upon completion of the project.
3. Rails and posts shall be 2" x 4" wood. Other materials providing equivlalent strength may be used if approved by the Engineer.
4. Adjacent bales shall be butted firmly together.
5. Where used in conjunction with silt fence, bales shall be placed on the upstream side of the fence.
6. Bales to be paid for under the contract unit price for Synthetic Bales, LF. The unit price shall include the cost of filter fabric for Type I and II Barriers. Sandbags shall be paid for under the unit price for Sandbagging, CY. Rock bags to be paid for under the contract unit price for Rock Bags, EA.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

EROSION CONTROL – SYNTHETIC BALES

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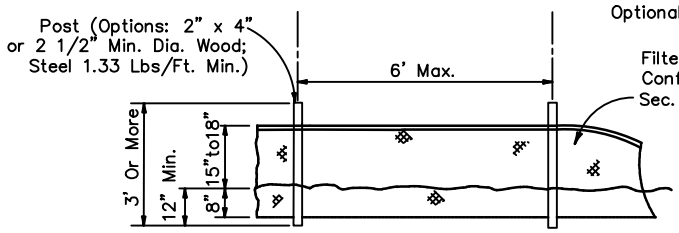
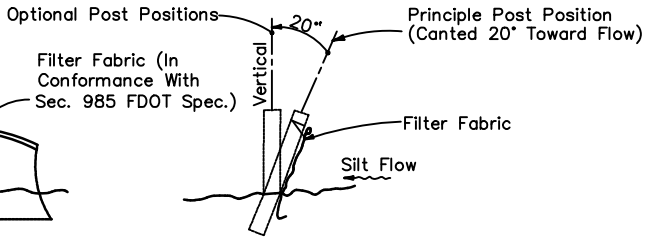


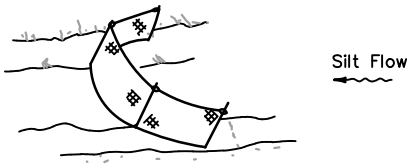
ELEVATION



SECTION

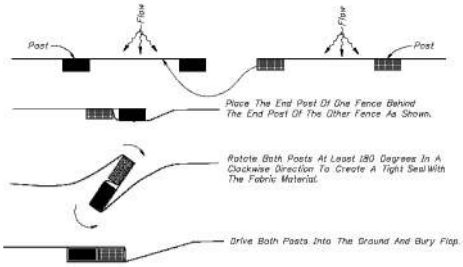
Note: Silt Fence to be paid for under the contract unit price for Staked Silt Fence (LF).

TYPE III SILT FENCE

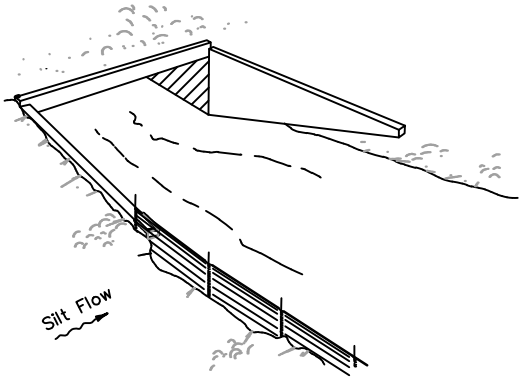


Note: Spacing for Type III Fence to be in accordance with FDOT Design Index No. 102, Chart I, Sheet 1 of 3 and ditch installations at drainage structures Sheet 2 of 3.

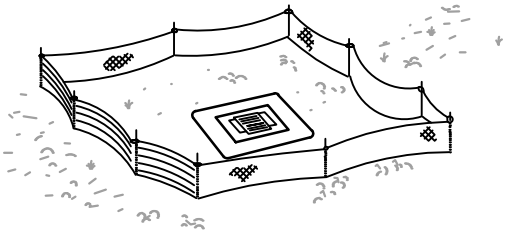
Type III Silt Fence



PLAN VIEW
JOINING TWO SILT FENCES



Type III Silt Fence



Type III Silt Fence Protection
Around Ditch Bottom Inlets.

Do not deploy in a manner that silt fences will act as a dam across permanent flowing watercourses. Silt fences are to be used at upland locations and turbidity barriers used at permanent bodies of water.

SILT FENCE APPLICATIONS

STANDARD CONSTRUCTION DETAIL

EROSION CONTROL – SILT FENCE

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CONTRACTOR REQUIREMENTS FOR SITE CLEARING, GRADING, AND EROSION CONTROL DESIGN AND CONSTRUCTION NOTES

THE FOLLOWING MEASURES REPRESENT MINIMUM STANDARDS TO BE ADHERED TO BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION OF A PROJECT. THE CITY RESERVES THE RIGHT TO REQUIRE ADDITIONAL MEASURES TO BE EMPLOYED WHEN WARRANTED BY EXTREME CONDITIONS AND/OR THE FAILURE OF THE CONTRACTOR TO EMPLOY THE APPROPRIATE EROSION CONTROL BEST MANAGEMENT PRACTICES. FAILURE TO COMPLY WITH THESE PROVISIONS SHALL RESULT IN THE ISSUANCE OF A "STOP WORK ORDER".

1. NO DISTURBANCE OF PROPOSED CONSERVATION EASEMENTS, NATURAL BUFFERS, OR WATER BODIES IS PERMITTED. THE CONTRACTOR SHALL LOCATE THESE AREAS ON SITE AND BARRICADE THEM TO AVOID ANY UNAUTHORIZED CLEARING. BARRICADES AND OTHER PROTECTIVE FENCING ARE TO BE LOCATED AT THE DRIP LINE OF EXISTING NATIVE TREES OR AT THE EDGE OF THE NATIVE UNDER–STORY HABITAT, WHICHEVER IS NEAREST TO THE CONSTRUCTION ACTIVITY.

2. SPECIMEN AND HISTORIC TREES, CONSERVATION EASEMENTS, NATURAL VEGETATION BUFFERS, AND SIMILAR AREAS MUST BE PROTECTED BY BARRICADES OR FENCING PRIOR TO CLEARING. BARRICADES ARE TO BE SET AT THE DRIP LINE OF THE TREES AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. BARBED WIRE IS NOT PERMITTED AS A PROTECTIVE BARRIER.

3. WHERE A CHANGE OF GRADE OCCURS AT THE DRIP LINE OF A SPECIMEN TREE, SILT FENCES WILL BE REQUIRED DURING CONSTRUCTION AND RETAINING WALLS MUST BE INSTALLED PRIOR TO FINAL ACCEPTANCE BY THE CITY.

4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL PROTECTIVE VEGETATION BARRICADES AND EROSION CONTROL STRUCTURES AND MEASURES IN PLACE PRIOR TO THE COMMENCEMENT OF ANY EARTHWORK, INCLUDING PRELIMINARY GRUBBING. THESE MEASURES INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY CONSTRUCTION FENCES, SYNTHETIC JUTE BALES, WATTLES, &/OR HAVE BEST MANAGEMENT PRACTICES (BMP'S) AS REQUIRED, SILT FENCES, AND FLOATING TURBIDITY BARRIERS. FURTHER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL EROSION CONTROL DEVICES THROUGHOUT THE DURATION OF THE ENTIRE PROJECT. MAINTENANCE SHALL INCLUDE PERIODIC INSPECTION AND REMOVAL OF DEBRIS ABUTTING EROSION CONTROL DEVICES.

5. PRIOR TO THE INSTALLATION OF ANY FILL MATERIALS ON SUBJECT SITE, SILT FENCES SHALL BE INSTALLED (1) ALONG SUBJECT SITE BOUNDARY AND PROPERTY LINES, (2) AT THE EDGE OF CONSERVATION EASEMENTS AND WETLANDS, (3) ADJACENT TO NATURAL LANDSCAPE BUFFERS, (4) AROUND THE PERIMETER OF EXISTING STORM WATER TREATMENT FACILITIES, AND (5) AT ANY ADDITIONAL AREAS THAT THE CITY DEEMS NECESSARY TO BE PROTECTED FROM POTENTIAL EROSION IMPACTS DURING CONSTRUCTION. THESE CONDITIONS SHALL APPLY IN ALL INSTANCES WHERE FILL MATERIAL IS BEING INSTALLED WITHIN 25 FEET OF ANY OF THE AFOREMENTIONED LOCATIONS. WHILE THESE ITEMS REPRESENT THE MINIMUM REQUIREMENTS, THE CITY RESERVES THE RIGHT TO IMPOSE ADDITIONAL PROTECTIVE MEASURES, AS DETERMINED DURING ACTUAL SITE VISITS CONDUCTED AS PART OF THE STANDARD REVIEW OF THE SITE THROUGHOUT PROJECT CONSTRUCTION.

6. AT A MINIMUM, THE CONTRACTOR SHALL SEED AND MULCH ALL DISTURBED AREAS. SUFFICIENT GRASS COVERAGE IS TO BE ESTABLISHED WITHIN TWO WEEKS.

7. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR THROUGH SCHEDULING, TO MINIMIZE THE DISTURBANCE OF SITE AREAS THAT HAVE BEEN BROUGHT TO THEIR PROPOSED FINAL GRADE. WITHIN SEVEN (7) DAYS OF BRINGING A SUBJECT AREA TO ITS FINAL GRADE OR INACTIVITY IN CONSTRUCTION, THE CONTRACTOR SHALL INSTALL SEED AND MULCH OR SOD, AS REQUIRED. ANY PROJECT THAT IS INACTIVE FOR A PERIOD OF 30 DAYS OR MORE SHALL BE STABILIZED TO THE SATISFACTION OF THE CITY.

8. ONCE AN AREA IS SEEDED OR SODDED, IT MUST BE MAINTAINED BY THE CONTRACTOR TO ALLOW THE GRASS TO BECOME ESTABLISHED. IF THE GRASS IS NOT ESTABLISHED WITHIN TWO WEEKS THE CITY MAY REQUIRE THE CONTRACTOR TO RE–SEED OR A NON–VEGETATIVE OPTION MAY BE EMPLOYED.

9. ABSOLUTELY NO BURYING OF CLEARED MATERIALS IS PERMITTED.

CONTRACTOR REQUIREMENTS FOR SITE CLEARING, GRADING, AND EROSION CONTROL DESIGN AND CONSTRUCTION NOTES

10. THE REMOVAL OF ALL VEGETATION AND TOPSOIL ON THE FUTURE ROADWAY, PARKING AND BUILDING LOT AREAS IS REQUIRED TO BE COMPLETED PRIOR TO THE PLACEMENT OF FILL ON THOSE AREAS. THE TOPSOIL MAY BE TEMPORARILY STOCKPILED AND USED AS TOPSOIL OVER OVER PROPOSED GREEN AREAS SUCH AS PLANT BEDS, SODDED AREAS, AND WHERE TREES ARE TO BE INSTALLED OR RELOCATED.

11. A SIGNED, DATED, AND SEALED LETTER FROM A SOILS ENGINEER OR THE ENGINEER OF RECORD CERTIFYING THAT THE AREAS TO BE FILLED HAVE BEEN STRIPPED OF ORGANIC MATERIALS, MUST BE SUBMITTED TO THE CITY PRIOR TO FILLING.

10. FILL MATERIAL IS TO BE PLACED IN ONE FOOT LIFTS AND COMPACTED TO THE APPROPRIATE DENSITY (98% FOR PAVED AREAS AND 95% FOR BUILDING PADS AND ALL OTHER AREAS AS PER AASHTO T–180).

11. DURING SUBDIVISION DEVELOPMENT WHEN FUTURE BUILDING LOTS ARE FILLED AS PART OF THE OVERALL SUBDIVISION IMPROVEMENTS, COMPACTION TEST REPORTS MUST BE PERFORMED ON THE BUILDING LOTS AT 300 FOOT INTERVALS. THESE TESTS ARE TO BE PERFORMED IN ONE–FOOT VERTICAL INCREMENTS. THE RESULTS OF THESE TESTS ARE TO BE SUBMITTED TO THE CITY UPON COMPLETION OF THE TESTS.

12. IF ANY MUCK MATERIAL IS DISCOVERED, IT SHALL BE REQUIRED TO BE REMOVED AND REPLACED WITH A SUITABLE MATERIAL THAT IS PROPERLY BACKFILLED, COMPACTED AND TESTED USING AASHTO T–180 MODIFIED PROCTOR METHOD.

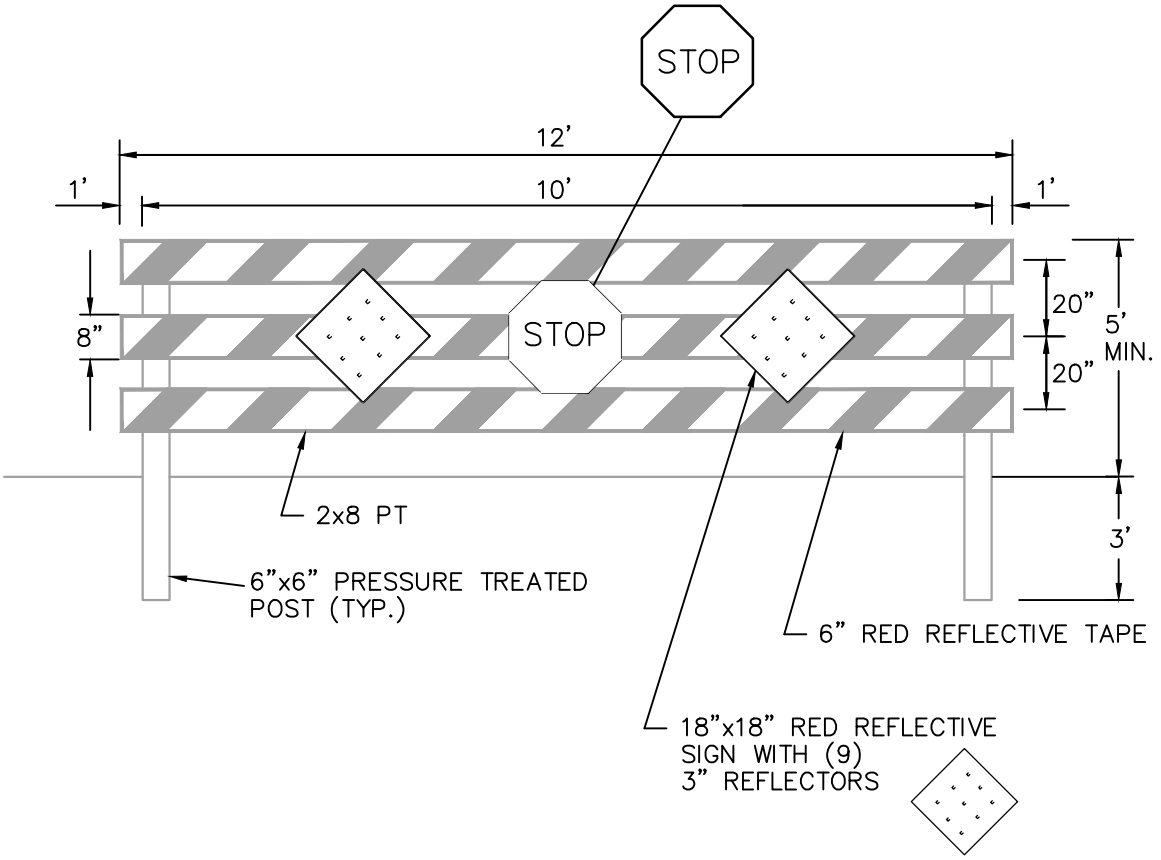
13. STOCKPILING IS NOT GENERALLY PERMITTED BY THE CITY. WHEN ALLOWED, STOCKPILES SHALL NOT EXCEED SIX FEET IN HEIGHT MEASURED FROM THE ORIGINAL GRADE. AT A MINIMUM, STOCK PILES THAT WILL REMAIN IN PLACE IN EXCESS OF TWENTY DAYS SHOULD BE SEEDED AND MULCHED IMMEDIATELY UPON PLACEMENT OF THE FINAL LIFT.

14. SOILS ARE TO BE STABILIZED BY WATER OR OTHER MEANS DURING CONSTRUCTION. THIS IS INTENDED TO REDUCE SOIL EROSION AND THE IMPACT TO NEIGHBORING COMMUNITIES. ADEQUATE WATERING METHODS SHOULD BE EMPLOYED TO ALLOW DAILY COVERAGE OF THE ENTIRE LIMITS OF ALL AREAS THAT DO NOT HAVE AN ESTABLISHED VEGETATIVE COVER. METHODS TO BE EMPLOYED INCLUDE, BUT ARE NOT LIMITED TO, WATER TRUCKS, PERMANENT IRRIGATION SYSTEMS, TEMPORARY SPRINKLER SYSTEMS OPERATED BY PUMPING UNITS CONNECTED TO WET RETENTION PONDS, WATER CANNONS, TEMPORARY IRRIGATION SYSTEMS MOUNTED ATOP STOCKPILE AREAS, AND OTHER METHODS AS DEEMED NECESSARY BY THE CITY.

15. ALL FILL MATERIALS LOCATED BENEATH STRUCTURES AND PAVEMENT SHALL CONSIST OF CLEAN GRANULAR SAND FREE FROM ORGANICS AND SIMILAR MATERIAL THAT COULD DECOMPOSE.

16. ALL FILL TO BE PLACED IN LANDSCAPED AREAS SHALL HAVE A Ph RANGE BETWEEN 5.5 AND 7.5, BE ORGANIC IN NATURE, FREE OF ROCKS AND DEBRIS, OR MATCH NATIVE EXISTING SOILS.

17. OWNER SHALL FILE A "NOTICE OF INTENT TO USE GENERIC PERMIT FOR STORM WATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES" WITH THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AS REQUIRED BY DEP. CONTRACTOR SHALL BE REQUIRED TO COMPLY WITH ALL PROVISIONS OF THE GENERIC PERMIT INCLUDING BUT NOT LIMITED TO:
    - A. PROVIDE SUCH EROSION AND SEDIMENT CONTROL MEASURES AS MAY BE NECESSARY TO PREVENT DISCHARGE OF POLLUTANTS FROM THE SITE FROM THE START OF CONSTRUCTION UNTIL THE FINAL GROUND COVER HAS BEEN ESTABLISHED.
    - B. EMPLOY A DEP CERTIFIED INSPECTOR TO MAKE WEEKLY INSPECTIONS / REPORTS OF THE CONDITION OF EROSION AND SEDIMENT CONTROL MEASURES.
    - C. EMPLOY A DEP CERTIFIED INSPECTOR TO MAKE INSPECTIONS / REPORTS OF THE CONDITION OF EROSION AND SEDIMENT CONTROL MEASURES WITHIN 24 HOURS OF EVERY RAINFALL EVENT EXCEEDING ONE–HALF INCH.
    - D. MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES THROUGHOUT CONSTRUCTION.
    - E. ADD EROSION AND SEDIMENT CONTROL MEASURES AS SITE CONDITIONS CHANGE.



STANDARD CONSTRUCTION DETAIL

ROAD BARRICADE

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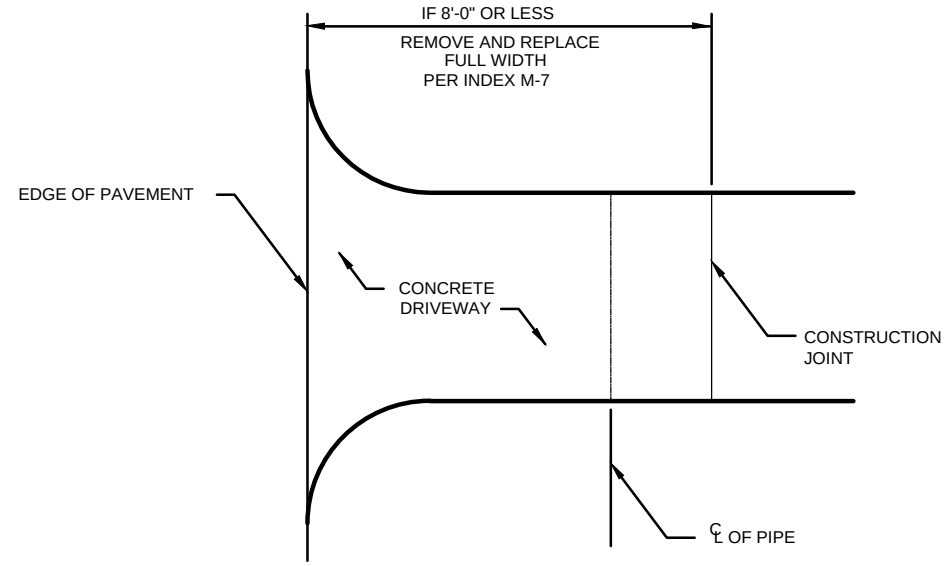

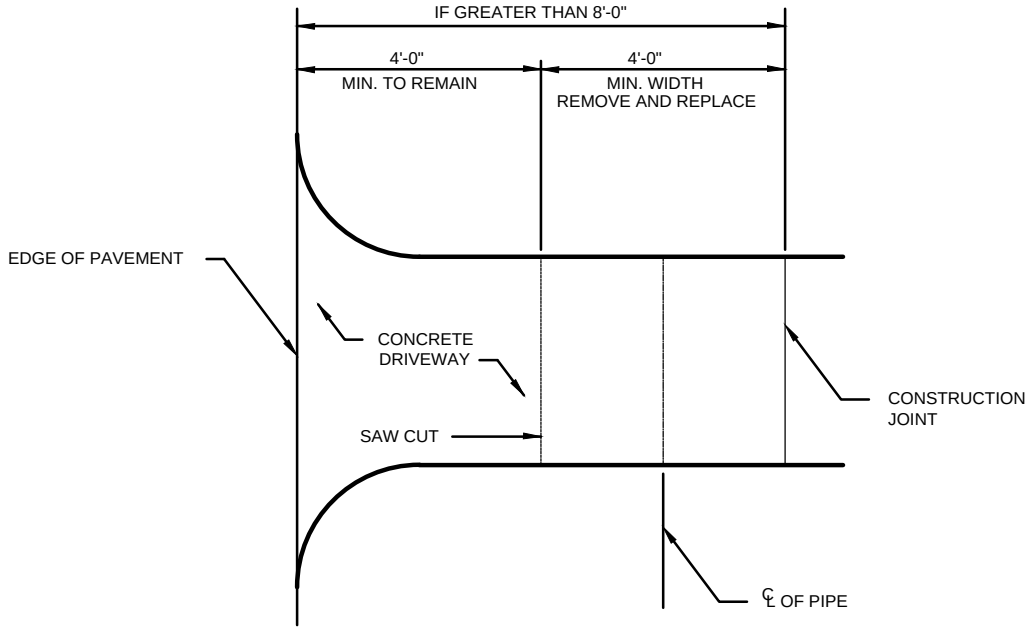

1) CONCRETE SHALL BE PLACED MINIMUM SIX (6) INCHES THICK AND BE 3000 PSI, 28 DAY STRENGTH.

2) SUBGRADE SHALL BE UNIFORM NON-ORGANIC SOIL OR BASE MATERIAL FREE OF DEBRIS AND COMPACTED TO 95% DENSITY, MINIMUM LBR40, AASHTO FBV-75

STANDARD CONSTRUCTION DETAIL

DRIVEWAY CUT REPAIR AT UTILITY CROSSING

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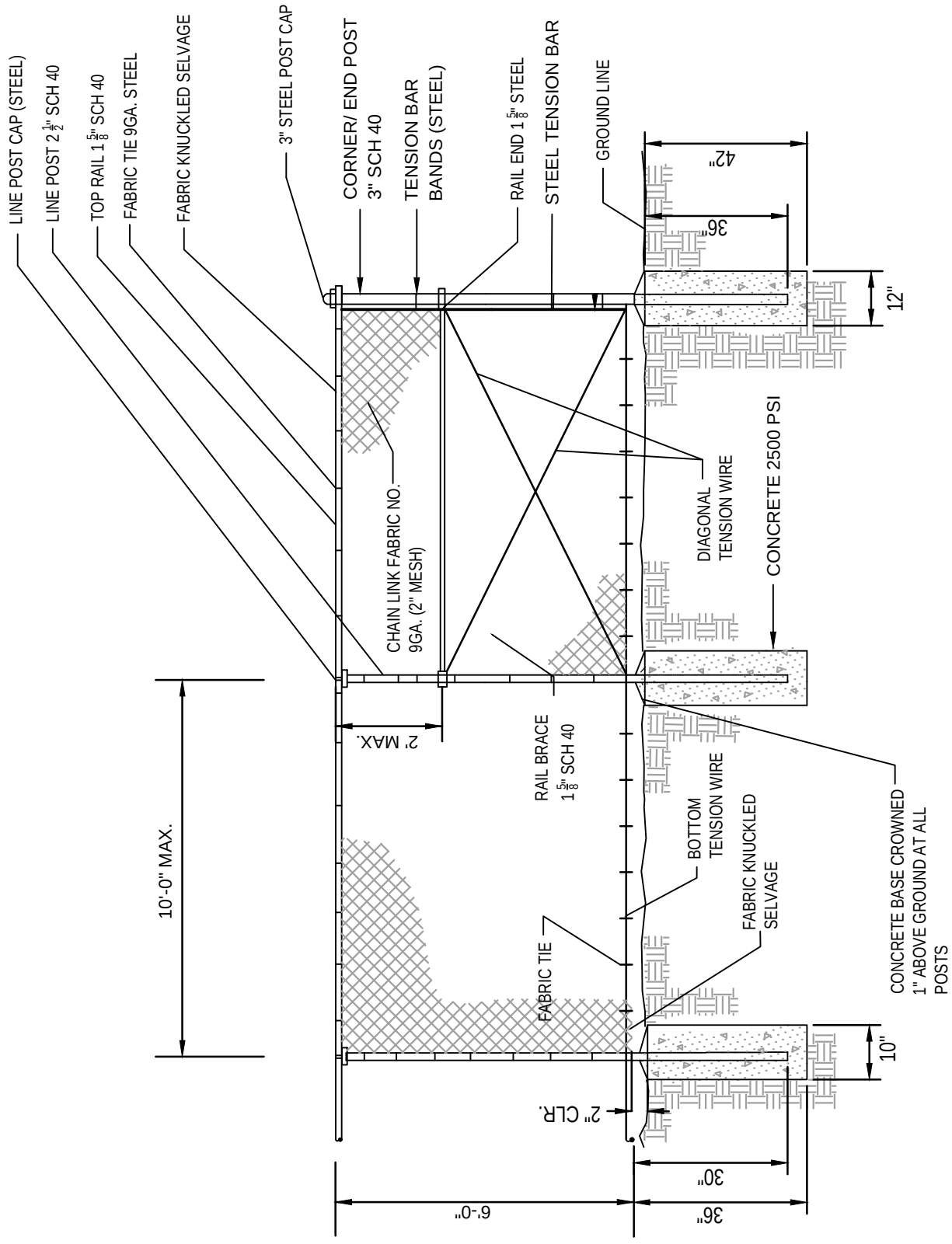

STANDARD CONSTRUCTION DETAIL

6' HIGH CHAIN LINK FENCE DETAIL

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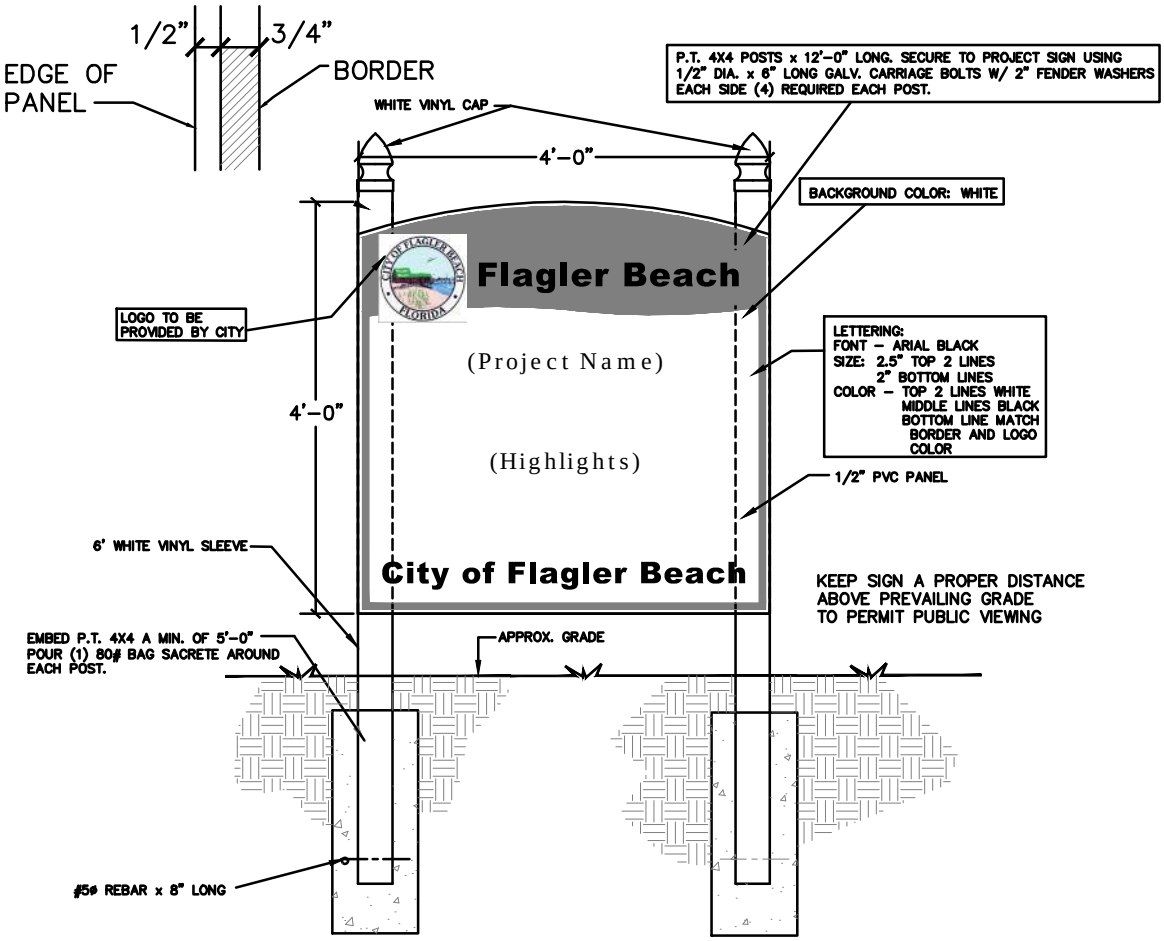


PROJECT NAME: _____

_____

HIGHLIGHTS: _____

_____

_____

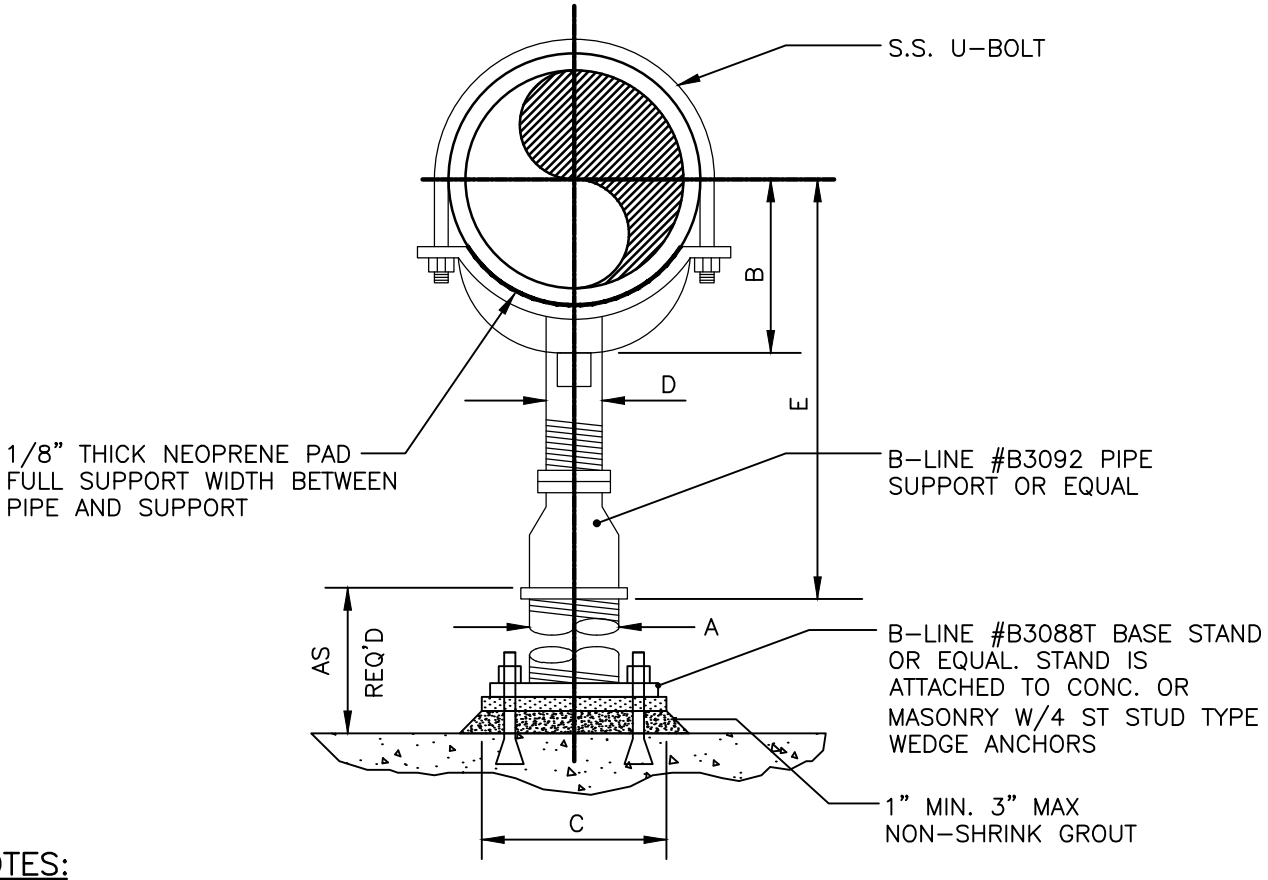
CITY OF FLAGLER BEACH FLORIDA	STANDARD CONSTRUCTION DETAIL CIP CONSTRUCTION SIGN NTS.	INDEX M-20 FEB 2018

OUTSIDE AGENCY PERMIT CHECK LIST

IN ORDER TO ENSURE THAT ALL WORK WITHIN THE CITY IS CONSTRUCTED IN ACCORDANCE WITH ALL RELEVANT FEDERAL, STATE AND COUNTY REGULATIONS, IN ADDITION TO THE CITY REGULATIONS, THE APPLICANT SHALL CHECK ALL OUTSIDE AGENCY PERMITS REQUIRED FOR THIS PROJECT ON THE LIST BELOW.

THIS LIST WILL ALSO BE USED BY THE CITY TO VERIFY THAT ONE HARD COPY AND ONE PDF OF ALL REQUIRED PERMITS ARE SUBMITTED.

1 [ ] SJRWMD ENVIRONMENTAL RESOURCE PERMIT (ERP)/FDEP 10-2 RULE PERMIT
2 [ ] DEP WASTEWATER CONSTRUCTION/CONNECTION PERMIT
3 [ ] DEP WATER CONSTRUCTION/CONNECTION PERMIT
4 [ ] FDOT UTILITY PERMIT
5 [ ] FDOT DRIVEWAY CONNECTION PERMIT
6 [ ] COUNTY USE PERMIT
7 [ ] FDOT DRAINAGE CONNECTION PERMIT
8 [ ] DEP NPDES NOI
9 [ ] OTHER (PLEASE SPECIFY)



NOTES:

1. PROVIDE HALF ROUND RIGID INSULATION & INSULATION PROTECTION SHIELD, SIMILAR TO GRINNED FIG.167 OR ELENA FIG.219 WHEN PIPING IS INSULATED.

2. FOR BASE, HEIGHT, & FLANGE DIMENSIONS, SEE TABLE TO RIGHT. ALL DIMENSIONS IN INCHES.

3. ALL COMPONENTS OF PIPE SUPPORT SHALL BE STAINLESS STEEL.

PIPE SIZE	A	B	C	D	E	
					MIN.	MAX.
2 1/2	2 1/2	3 1/2	9	1 1/2	8	13
3	2 1/2	3 3/4	9	1 1/2	8 1/4	13 1/4
3 1/2	2 1/2	4	9	1 1/2	8 1/2	13 1/2
4	3	4 1/4	9	2 1/2	9 1/4	14
5	3	4 7/8	9	2 1/2	10	14 3/4
6	3	5 1/2	9	2 1/2	10 1/2	15 1/4
8	3	6 7/8	9	2 1/2	11 3/4	16 1/2
10	3	8 1/2	9	2 1/2	13 1/2	18 1/4
12	3	9 15/16	9	2 1/2	15	19 3/4
14	4	10 15/16	11	3	16 1/4	20 3/4
16	4	12 3/8	11	3	17 3/4	22 1/4
18	6	13 7/8	13 1/2	3 1/2	19 1/2	24
20	6	15 3/8	13 1/2	3 1/2	21	25 1/2
24	6	17 15/16	13 1/2	4	23 3/4	28 1/4

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

ADJUSTABLE PIPE SUPPORT

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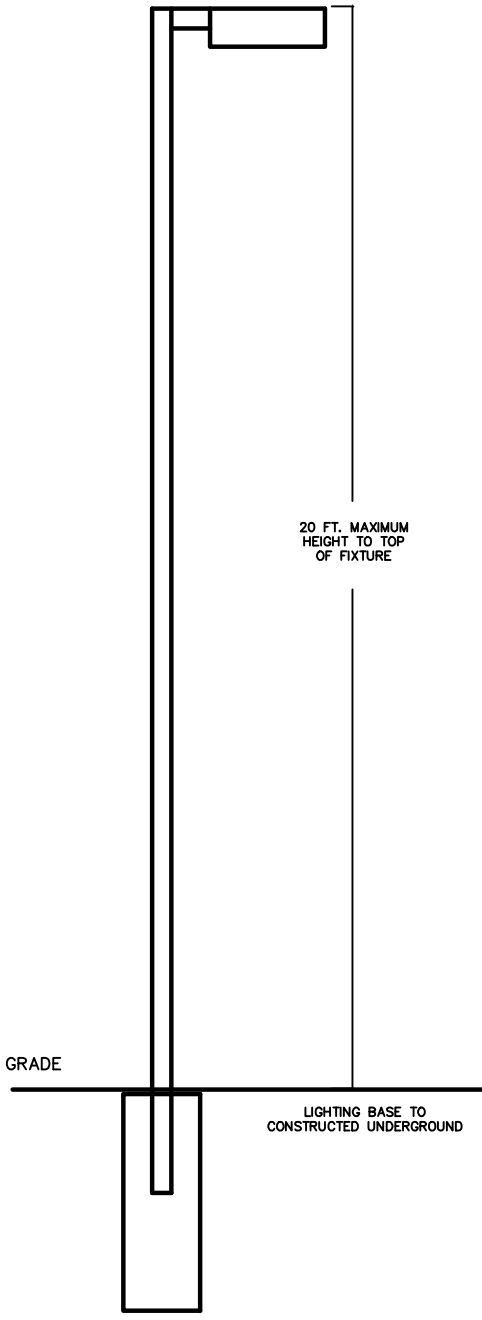

GENERAL NOTES

1. MASTER LIGHTING PLAN SHALL BE SUBMITTED WITH SITE PLAN, DETAILING ILLUMINATION, LIGHT FIXTURE STYLES, LIGHT SOURCE AND LIGHT LEVELS.
2. POLES AND FIXTURES SHALL BE DECORATIVE IN APPEARANCE IN A STYLE CONSISTENT WITH THE ARCHITECTURAL STYLE OF THE PRINCIPAL STRUCTURE, IDEALLY REFLECTING A SIMILAR ERA OR DESIGN THEME.
3. THE STANDARD SHOE BOX STYLE LIGHT SHALL BE THE MINIMUM ACCEPTABLE.
4. LIGHTING SHALL BE OF THE METAL HALIDE TYPE, INCANDESCENT OR CITY–APPROVED EQUIVALENT.
5. POLES AND FIXTURES SHALL NOT EXCEED TWENTY FEET (20') IN HEIGHT ABOVE GRADE.
6. PROPOSED LIGHT POLE LOCATION MUST BE COORDINATED WITH ALL EXISTING AND PROPOSED TREES,
7. LIGHT SOURCE HAS TO BE PROPERLY SHIELDED TO PREVENT MISDIRECTED OR OBTRUSIVE LIGHT POLLUTION.

STANDARD CONSTRUCTION DETAIL

SITE LIGHTING

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DIRECTIONAL DRILL DETAILS

IN ORDER TO ENSURE THAT NEW DEVELOPMENTS WITHIN THE CITY ARE DESIGNED AND CONSTRUCTED SUBSTANTIALLY IN ACCORDANCE WITH CITY REGULATIONS THE FOLLOWING INFORMATION IS REQUIRED:

FOR THE PURPOSE OF DESIGN THE FOLLOWING INFORMATION IS REQUIRED ON PLAN SHEET FOR DIRECTIONAL DRILLING.

1. PLAN SHEET SHALL INCLUDE PLAN VIEW WITH THE FOLLOWING INFORMATION: RIGHT OF WAY, PAVEMENT, CURBS AND UTILITIES SHALL BE VERIFIED AND DIMENSIONED FOR EACH STREET CROSSING.

2. DESIGN PLAN FOR DIRECTIONAL DRILL SHALL INCLUDE THE FOLLOWING INFORMATION: NOMINAL PIPE DIAMETER, PIPE DR, PIPE SIZE FITTING TYPE AND PIPE MATERIAL. LOCATION, PIPE MUST MEET THE DESIGN PRESSURE PIPE REQUIREMENTS EQUAL TO OR EXCEEDING DESIGN REQUIREMENTS OF CORRESPONDING UTILITIES. PROVIDE START AND ENDING LOCATIONS, ALIGNMENT, POINT OF SERVICE/LOCATION OF CITY MAINTENANCE.

3. PLAN SHEET SHOULD ALSO INCLUDE PROFILE OF PROPOSED DIRECTIONAL DRILL THAT DELINEATES DEPTH AND SEPARATION DISTANCES FROM EXISTING FACILITIES WITHIN THE BOUNDS OF THE STREET RIGHT OF WAY. MINIMUM PIPE DEPTH OF THE DIRECTIONAL BORE WHEN CROSSING BENEATH A ROADWAY, (TYPICALLY 10 TIMES THE BACK REAM DIAMETER AS MEASURED FROM THE EDGE OF ASPHALT, BUT TO BE NO LESS THAN 36 INCHES, UNLESS CERTIFIED BY DESIGN OF ENGINEER OF RECORD AND APPROVED BY THE CITY.

4. PIPE MATERIAL IS PART OF THE DESIGN PROCESS FOR DIRECTIONAL DRILLING, AND SHOULD BE PART OF THE ENGINEERING DESIGN. HOWEVER, THE PIPE MATERIAL SHALL MEET THE FOLLOWING MINIMAL STANDARDS:

MATERIAL STANDARDS FOR DIRECTIONAL DRILL INSTALLATION

MATERIAL TYPE	NON-PRESURE	PRESSURE
POLYETHYLENE (PE)	ASTM D 2447	ASTM 2513 ASTM D 2447
HIGH DENSITY POLYETHYLENE (HDPE)	ASTM D 2447 ASTM D 3350 ASTM D 3350 ASTM F 714	ASTM D 2447 ASTM F 714 ASTM 2513
POLYVINYL-CHLORIDA (PVC)	ASTM F 789	N/A
STEEL	ASTM A 139 GRADE B (1)	AWWA C200 API 2B (2)

(1) NO HYDROSTATIC TEST REQUIRED
(2) DIMENSIONAL TOLERANCES ONLY

5. PIPE SHALL BE COLOR CODED IN ACCORDANCE WITH OTHER STANDARD DETAILS FOR THE USE OF THE PIPE, WATER, WASTEWATER OR REUSE.

6. LOCATING WIRE, TWO LINES, SHALL BE ATTACHED TO THE PIPE. UPON COMPLETION OF DIRECTIONAL DRILL, TESTING OF THE CONTINUITY OF THE WIRE WILL BE PERFORMED. THIS TEST SHALL BE PERFORMED IN THE PRESENCE OF THE CITY.

7. UPON COMPLETION OF DIRECTIONAL DRILL, HYDROSTATIC TEST SHALL BE PERFORMED ON THE PIPE. THE TEST SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:
   PRESSURE PIPE – PIPE SHALL BE TESTED IN ACCORDANCE WITH UTILITY CARRIED.
   NON-PRESSURE PIPE – PIPE SHALL BE TESTED IN ACCORDANCE WITH UTILITY CARRIED.

8. PRIOR TO BEGINNING DIRECTIONAL DRILL, CONTRACTOR IS TO COMPLETE THE HORIZONTAL DIRECTIONAL DRILL PRE-LOG FORM, HDD STANDARD FORM NO. 101. COPY OF THIS FORM IS STANDARD DD-1B.

9. IF CONDITIONS WARRANT REMOVAL OF ANY MATERIALS INSTALLED IN A FAILED BORE PATH, AS DETERMINED BY ENGINEER, IT WILL BE AT NO COST TO THE CITY. THE VOID SHOULD BE FILLED WITH EXCAVATABLE FLOWABLE FILL.

10. IF THE HORIZONTAL DIRECTIONAL DRILL PATH ENCOUNTERS AN OBSTRUCTION WHICH PREVENTS THE COMPLETION IN ACCORDANCE WITH THE DESIGN LOCATION AND SPECIFICATIONS, THE PIPE IS TO BE TAKEN OUT OF SERVICE AND LEFT IN PLACE AT THE DISCRETION OF THE CITY. A NEW INSTALLATION PROCEDURE AND REVISED PLANS ARE TO BE SUBMITTED TO THE CITY FOR REVIEW. IF DURING THE PROCESS OF DIRECTIONAL DRILLING, DAMAGE IS OBSERVED TO EXISTING IMPROVEMENTS WITHIN THE RIGHT OF WAY, ALL WORK IS TO CEASE UNTIL A RESOLUTION TO MINIMIZE FURTHER DAMAGE AND A PLAN OF ACTION FOR RESTORATION IS APPROVED BY THE CITY.

HORIZONTAL DIRECTIONAL DRILL PRE-LOG

NOTE: This form must be completed by the Contractor intending to perform the actual construction operation for a Horizontal Directional Drill (HDD) on any City project or within City Right-of-Way and submitted to the City Engineering Department or its Designated Representative no less than 48 hours prior to commencement of work. This form shall be completed for each HDD bore run from entrance to exit.

NAME OF PROJECT: _____

PROJECT NUMBER: _____

NAME OF DRILLING CONTRACTOR: _____

NAME OF PRIME CONTRACTOR (IF APPLICABLE): _____

STARTING DATE OF INTENDED WORK: Month: _____ Day: _____ Year: _____

NOMINAL PIPE DIAMETER (Inches): _____

PIPE MATERIAL: _____ PIPE D.R.: _____ IPS or DIPS: _____

PROPOSED H.D.D. RUN

PROJECT STATIONING: FROM_____+_____ TO_____+_____

TYPICAL OFFSET AND DIRECTION FROM STATIONING CENTERLINE:_____

TOTAL LINEAR LENGTH, STATION TO STATION (FEET):_____

HAVE UTILITY LOCATES BEEN FIELD MARKED FOR THIS PROPOSED RUN?_____

HAVE SOFT DIGS FOR EXISTING UTILITIES BEEN PERFORMED ON THIS RUN?_____

HAS THE CITY UTILITY DEPARTMENT BEEN NOTIFIED OF THIS PROPOSED ACTIVITY?_____

HAVE REQUIRED ENVIRONMENTAL PROTECTION MEASURES BEEN IMPLEMENTED FOR THIS ACTIVITY?_____ WHAT TYPE OF MEASURES?_____

NAME OF AUTHORIZED H.D.D. CONTRACTOR EMPLOYEE COMPLETING THIS FORM-

PRINT:_____TITLE_____

SIGN:_____

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

HORIZONTAL DIRECTIONAL DRILL PRE-LOG FORM

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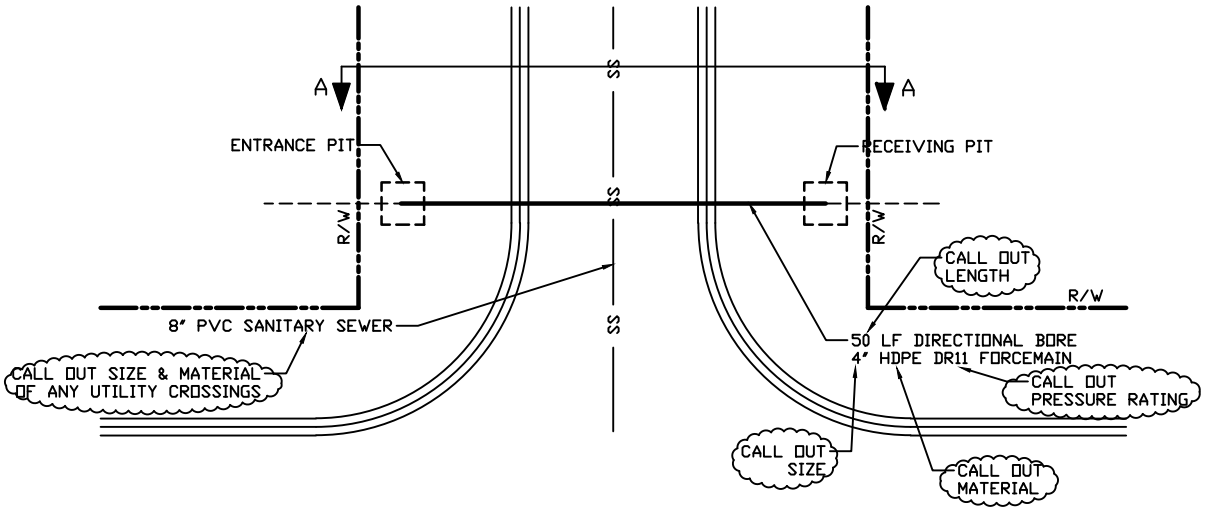
IN ORDER TO ENSURE THAT NEW DEVELOPMENTS WITHIN THE CITY ARE CONSTRUCTED SUBSTANTIALLY IN ACCORDANCE WITH CITY REGULATIONS AND THE APPROVED DRAWINGS "AS–BUILT" DRAWINGS ARE REQUIRED:

THE FOLLOWING INFORMATION IS REQUIRED ON ALL HORIZONTAL DIRECTIONAL DRILLING "AS–BUILT" DRAWINGS:

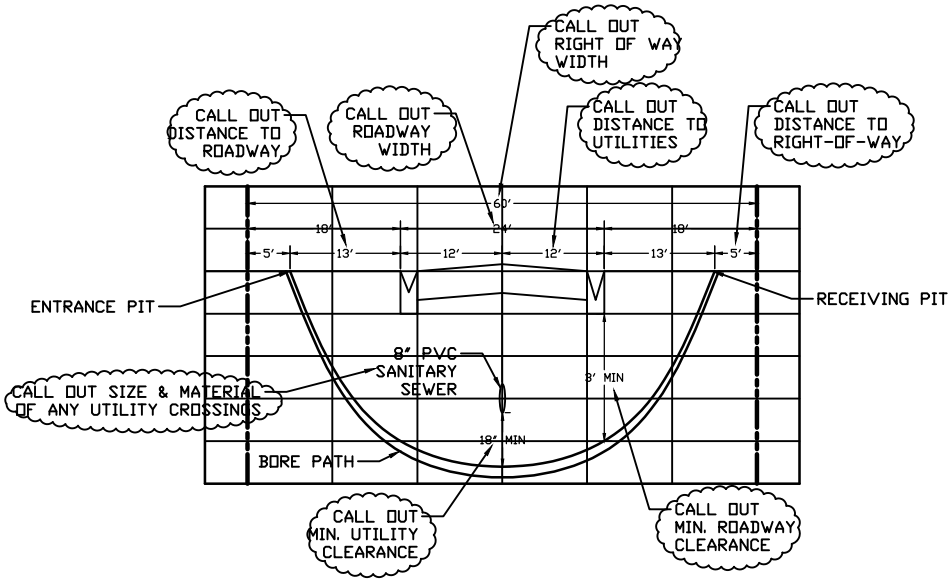
1. PROVIDE A BORE PATH REPORT TO THE CITY. INCLUDE THE FOLLOWING IN THE REPORT:

   A. LOCATION OF PROJECT– TO INCLUDE DETAIL REFERENCE TO A PERMANENT STRUCTURE WITHIN THE PROJECT BOUNDARIES FOR BOTH ENTRANCE AND EXIT.
   B. IDENTIFICATION OF THE DETECTION METHOD USED.
   C. NAME OF PERSON COLLECTING DATA, INCLUDING TITLE, POSITION AND COMPANY NAME.
   D. ELEVATIONS AND OFFSET DIMENSIONS FROM BEGINNING LOCATION AND ALIGNMENT SHOWN ON THE APPROVED PLANS.

2. PLAN SHEET SHALL INCLUDE PLAN VIEW WITH THE FOLLOWING INFORMATION: RIGHT OF WAY, VERTICAL AND HORIZONTAL LOCATION OF PAVEMENT, CURBS AND UTILITIES SHALL BE VERIFIED AND DIMENSIONED FOR EACH STREET CROSSING. THIS INFORMATION SHALL CLEARLY INDICATE IT AS BEING "AS–BUILT" INFORMATION.
3. PLAN SHEET SHALL INCLUDE PROFILE OF DIRECTIONAL DRILL ALIGNMENT. PROVIDE VERTICAL DATUM OF DRILL PATH, APPROXIMATE LOCATION OF VARIOUS UTILITY, STORMWATER AND OTHER UNDERGROUND SYSTEMS. THIS INFORMATION SHALL CLEARLY INDICATE IT AS BEING "AS–BUILT" INFORMATION. VERTICAL DATUM SHOULD BE SHOWN ON THE PROFILE.
4. SHOULD A DIRECTIONAL DRILL BE TERMINATED DUE TO AN OBSTRUCTION WHICH PREVENTS THE COMPLETION OF THE BORE, THE PIPE MAY BE TAKEN OUT OF SERVICE AND LEFT IN PLACE AT THE DISCRETION OF THE CITY. THE PIPE SHOULD BE FILLED WITH EXCAVATABLE FOLDABLE FILL. SHOW LOCATION OF FAILED BORE AND THIS INFORMATION SHALL CLEARLY INDICATE IT AS BEING "AS–BUILT" INFORMATION.



TYPICAL DIRECTIONAL DRILL PLAN



TYPICAL DIRECTIONAL DRILL PROFILE

NOTES:
1. MAXIMUM BACK REAMER SIZE = 6" — CALL OUT BACK REAM SIZE
2. BORE PATH = 50'+/- — CALL OUT BORE LENGTH
3. USE CONDUIT - 4" HDPE DR11 — CALL OUT SIZE, MATERIAL, & PRESSURE RATING
4. TRACING WIRE TO BE ADHERED TO DIRECTIONAL BORE
5. MINIMUM COVER SHALL BE 4.0' ON ALL CITY STREETS
6. CONTRACTOR SHALL OBTAIN CLEARANCE FROM THE CITY PRIOR TO PERFORMING THE DIRECTIONAL BORE

TYPICAL DIRECTIONAL DRILL NOTES

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

TYPICAL PLAN, PROFILE, & NOTES FOR HORIZONTAL DIRECTIONAL DRILL

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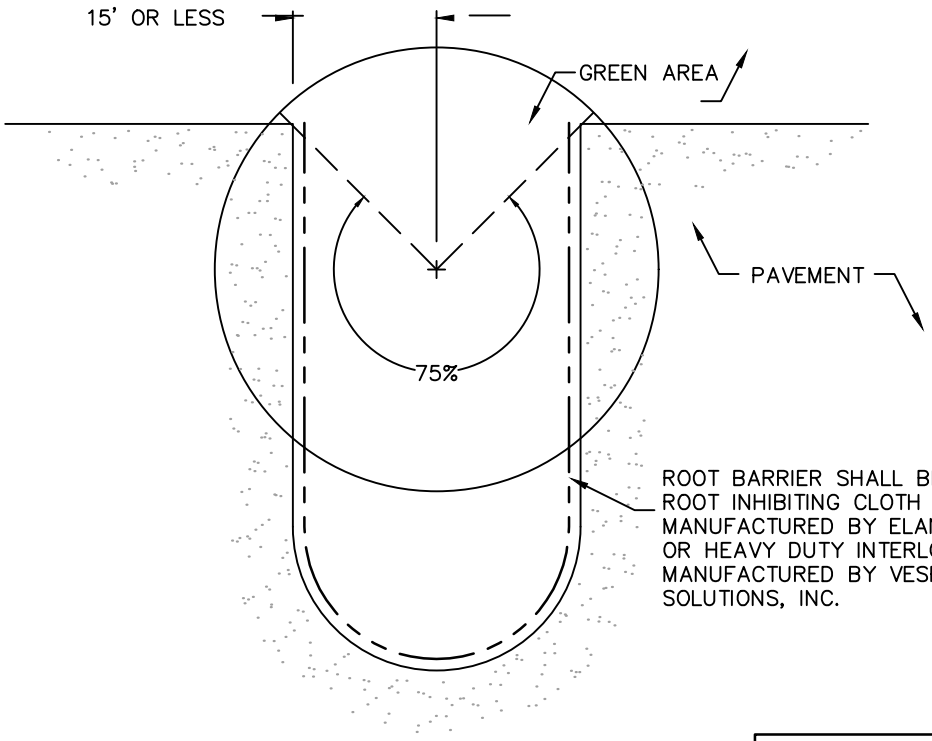
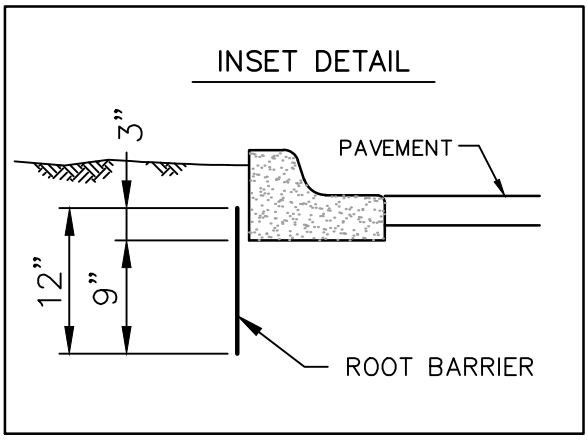
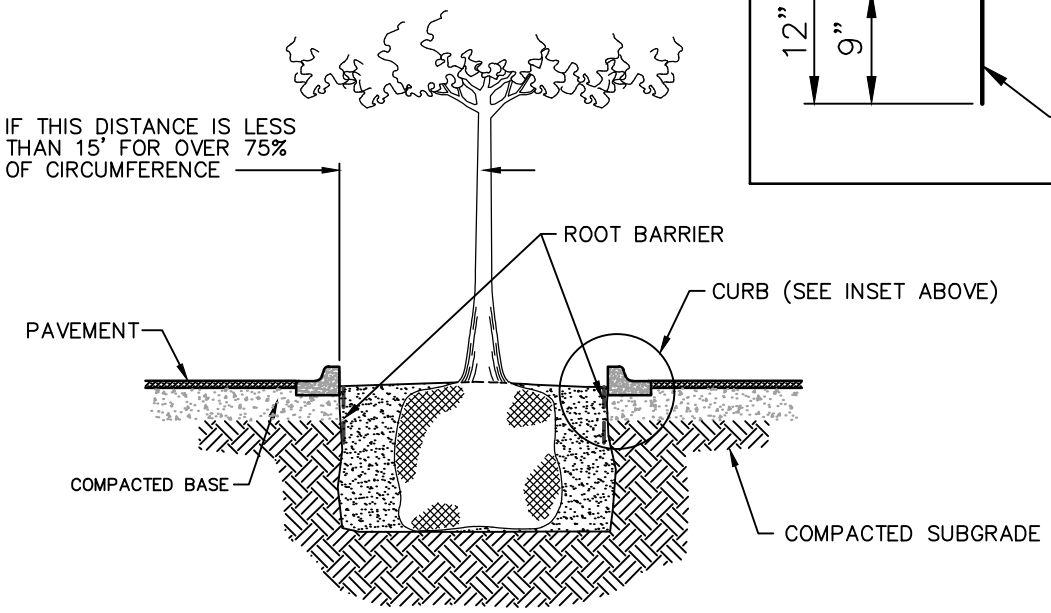
LANDSCAPING DETAILS



ROOT BARRIER SHALL BE ANY CHEMICALLY IMPREGNATED ROOT INHIBITING CLOTH SUCH AS BIO BARRIER AS MANUFACTURED BY ELANCO PRODUCTS, VENDOR: FIFE PIPE OR HEAVY DUTY INTERLOCKING PLASTIC BARRIER AS MANUFACTURED BY VESPRO, INC. AND DISTRIBUTED BY ROOT SOLUTIONS, INC.

PLAN VIEW





SECTION VIEW

STANDARD CONSTRUCTION DETAIL

ROOT BARRIER

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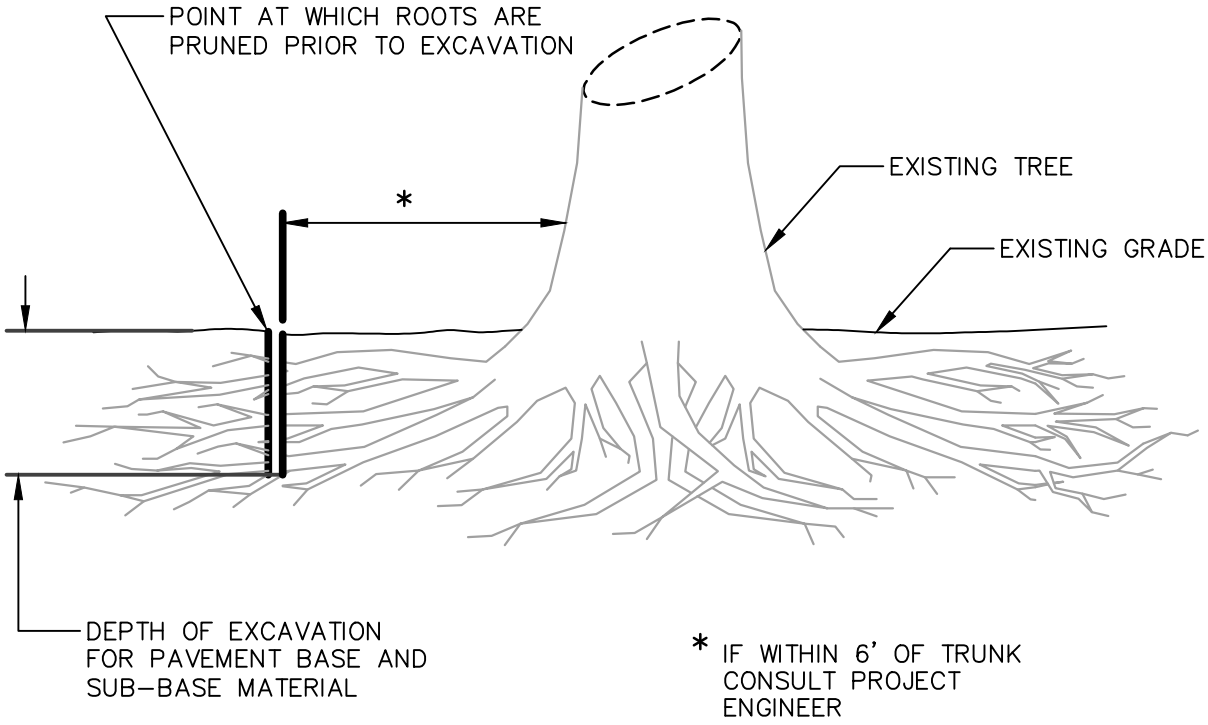

NOTES:

1) CUTS ARE TO BE MADE CLEANLY WITH A SHARP ROOT PRUNING TOOL (SUCH AS A DOSCO OR VERMEER ROOT PRUNER).

2) INSTALL ORANGE PLASTIC MESH TREE BARRIER, WITH REBAR SUPPORTS, AT POINT OF PRUNING AND CONTINUE COMPLETELY AROUND TREE, PROTECTING THE AREA WITHIN THE DRIP LINE (EXTENT OF OUTER BRANCHES).

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

ROOT PRUNING

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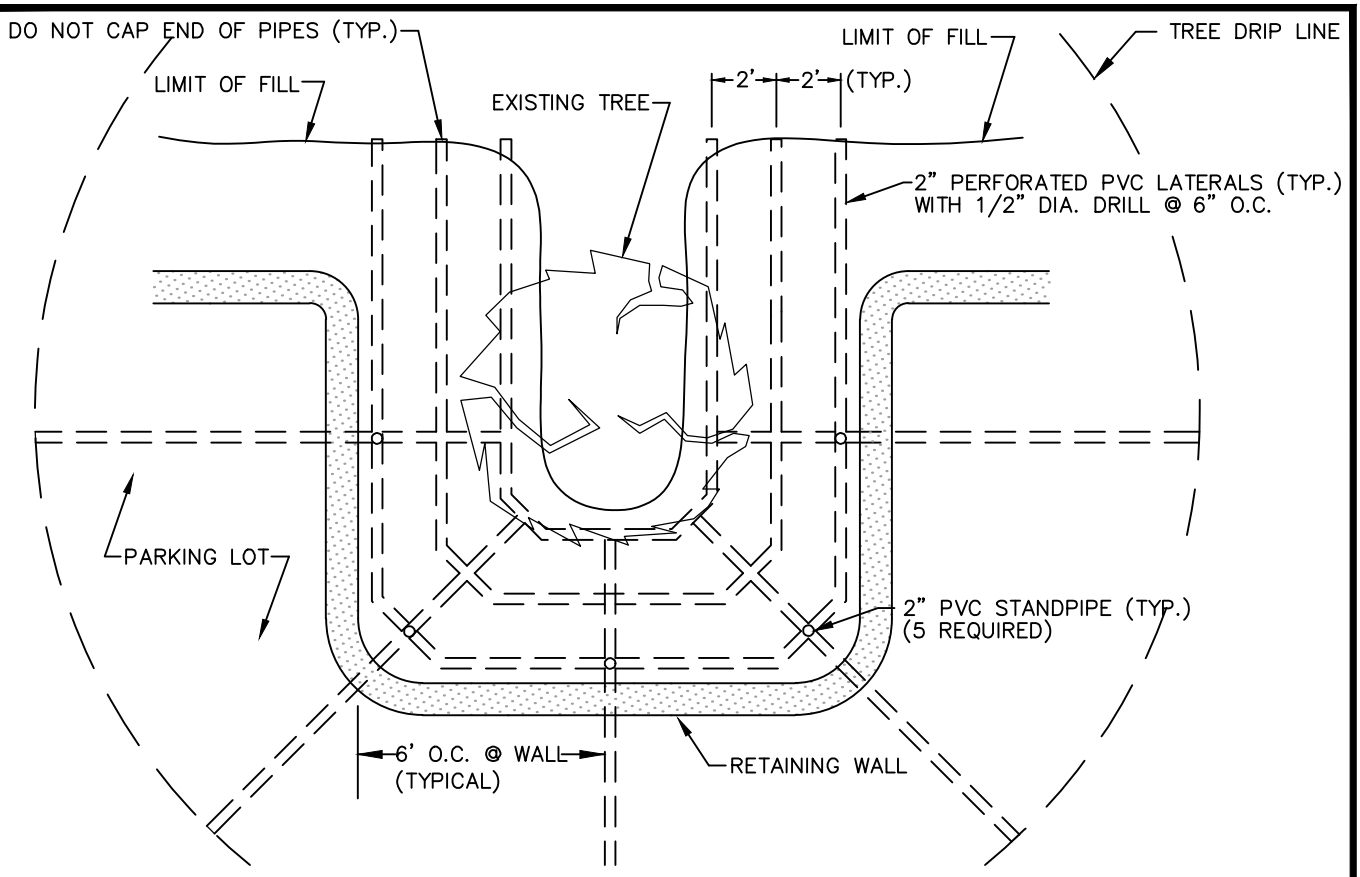
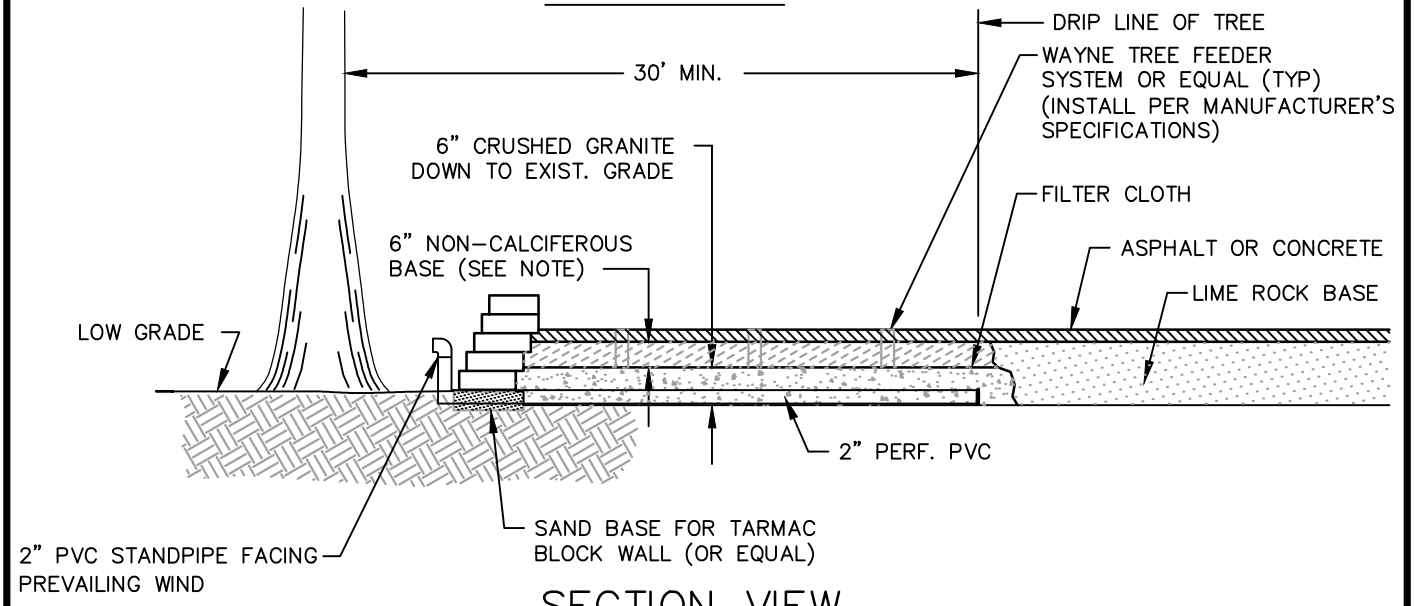


PLAN VIEW



SECTION VIEW

NOTE: NON-CALCIFEROUS BASE SHALL BE CRUSHED CONCRETE, RECYCLED ASPHALT PAVEMENT (RAP), ASPHALT, OR GRADED AGGREGATE, IN ACCORDANCE WITH FDOT STANDARD SPECIFICATIONS.

STANDARD CONSTRUCTION DETAIL

TREE PRESERVATION ON FILLED SITE WITH RETAINING WALL

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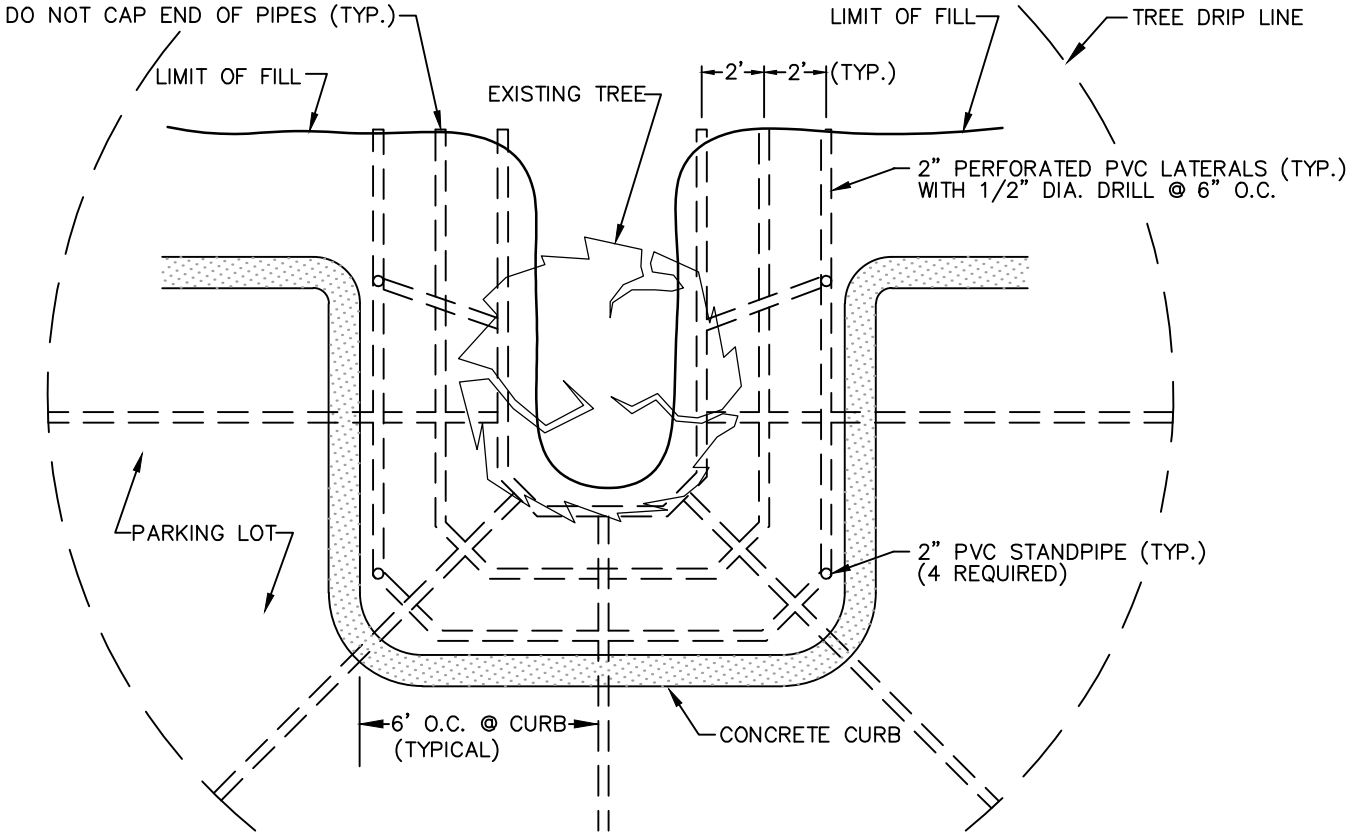
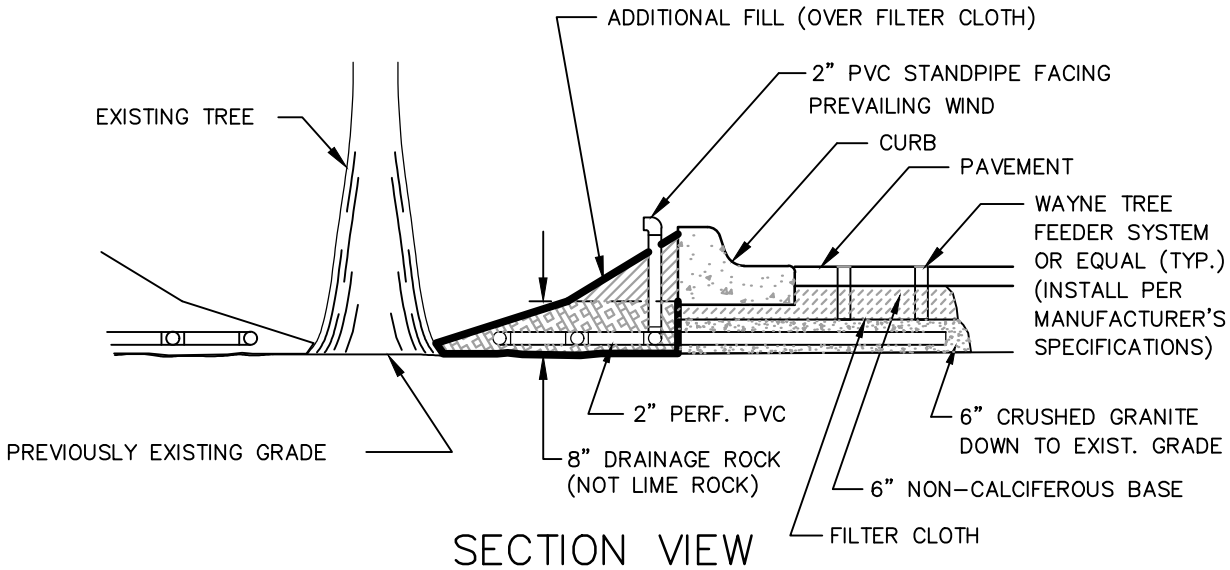


PLAN VIEW



SECTION VIEW

DETAILS SAME FOR BOTH SIDES OF TREE

NOTE: NON-CALCIFEROUS BASE SHALL BE CRUSHED CONCRETE, RECYCLED ASPHALT PAVEMENT (RAP), ASPHALT, OR GRADED AGGREGATE, IN ACCORDANCE WITH FDOT STANDARD SPECIFICATIONS.

STANDARD CONSTRUCTION DETAIL

TREE PRESERVATION ON FILLED SITE WITHOUT RETAINING WALL

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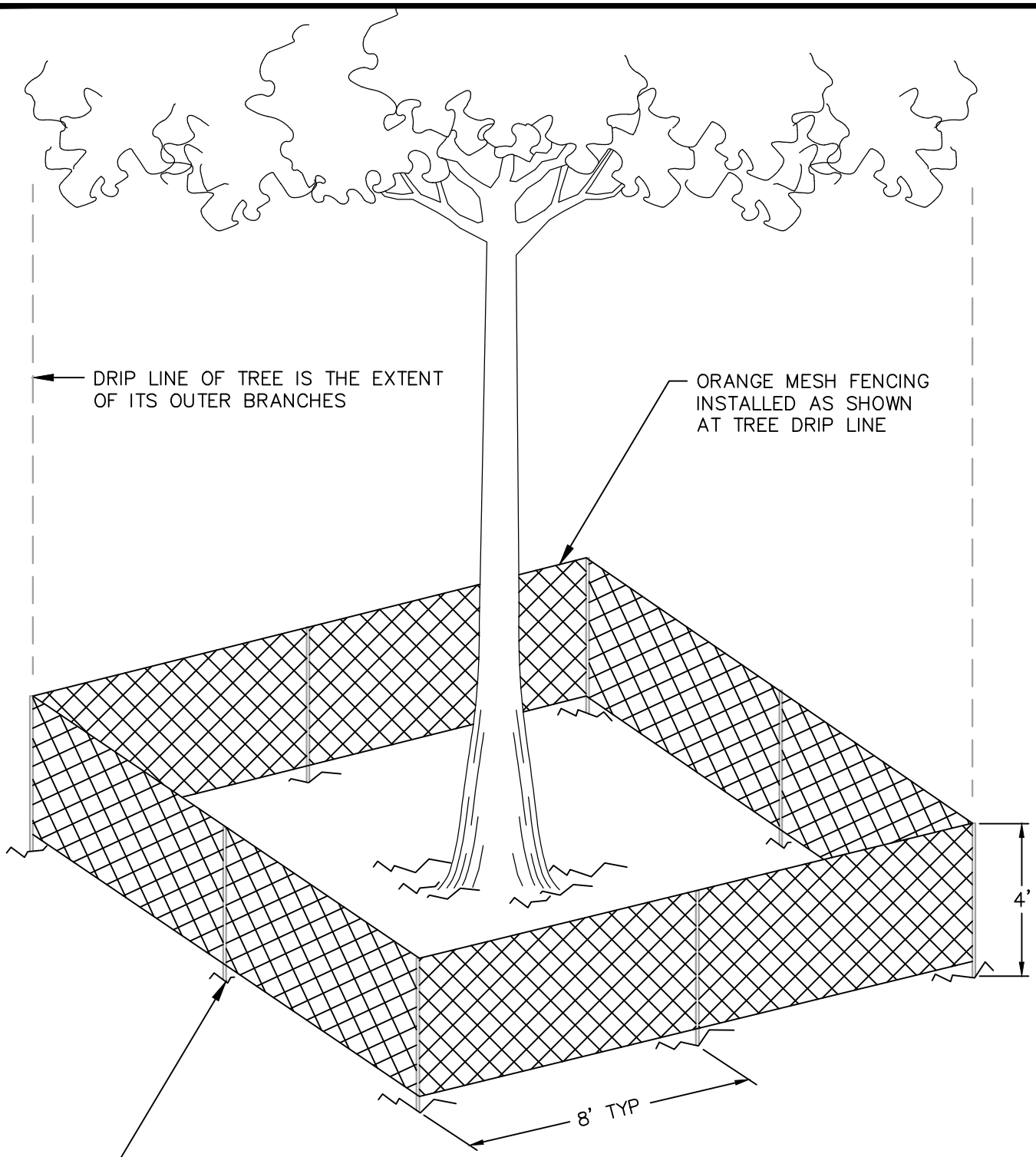

STANDARD CONSTRUCTION DETAIL

TREE BARRICADE

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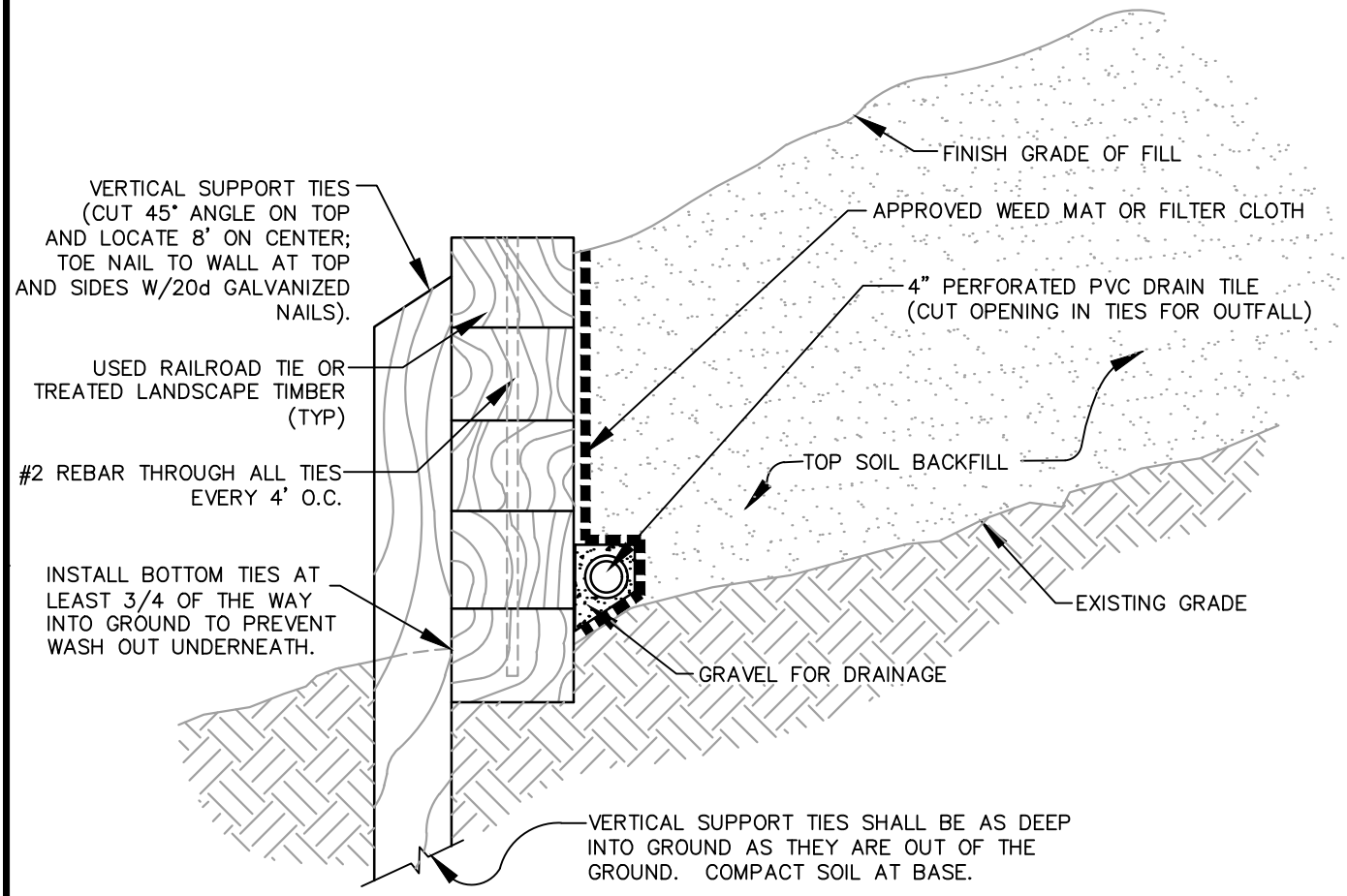

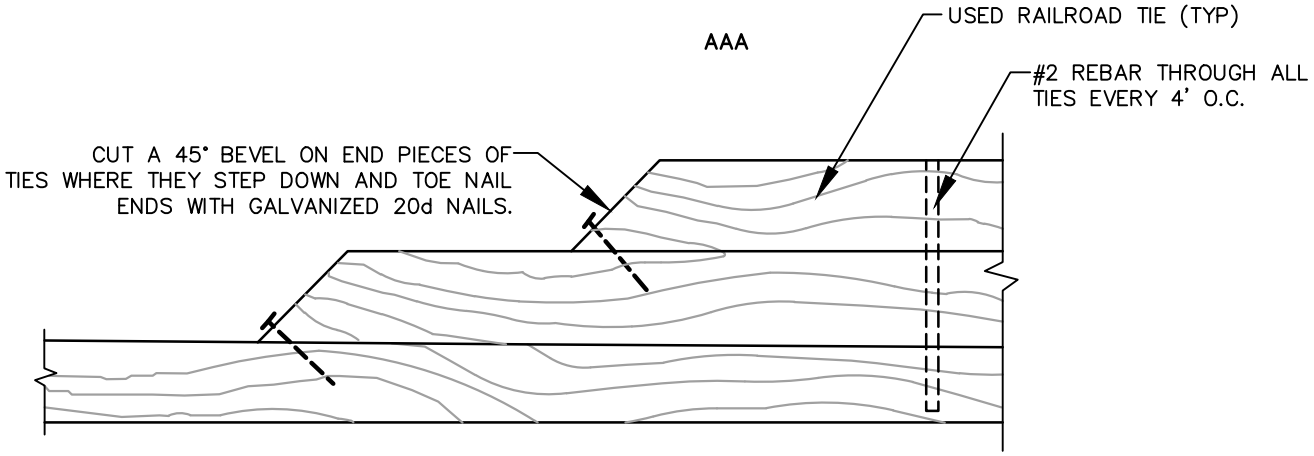

ADDITIONAL NOTES:

1. WHERE TIES MEET AT CORNERS, OVERLAP EDGES TO PREVENT WALL SEPARATION AND DRILL FOR A #2 REBAR TO LOCK CORNERS IN PLACE.
2. ALL TIES USED SHALL BE STRAIGHT AND FREE FROM ROTTED CENTERS ON SIDES.

STANDARD CONSTRUCTION DETAIL

RETAINING WALL DETAIL

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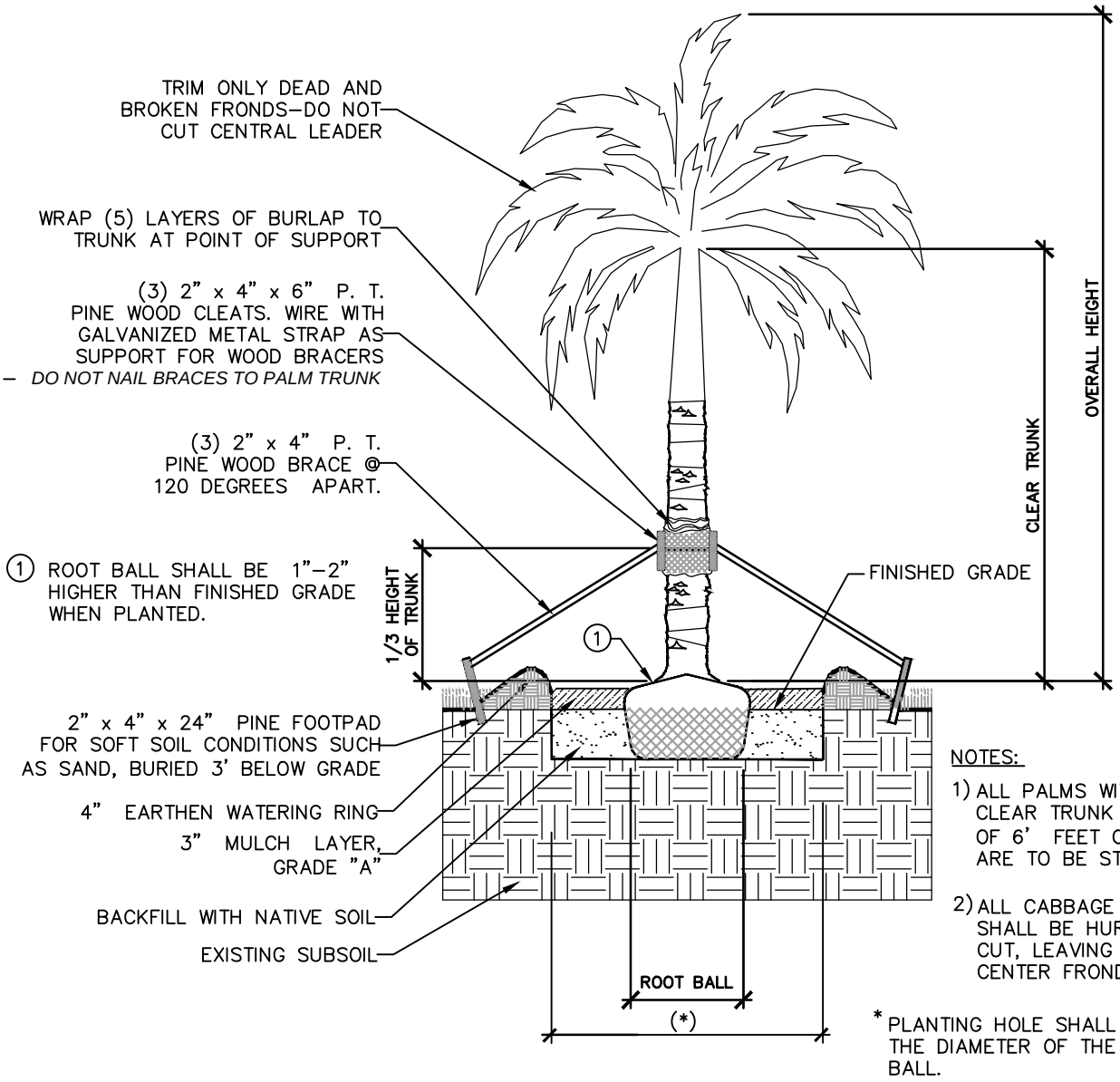

NOTES:

1) ALL PALMS WITH A CLEAR TRUNK HEIGHT OF 6' FEET OR MORE ARE TO BE STAKED.

2) ALL CABBAGE PALMS SHALL BE HURRICANE CUT, LEAVING THE CENTER FROND.

* PLANTING HOLE SHALL BE 2X THE DIAMETER OF THE ROOT BALL.

STANDARD CONSTRUCTION DETAIL

STRAIGHT TRUNK PALM PLANTING DETAIL

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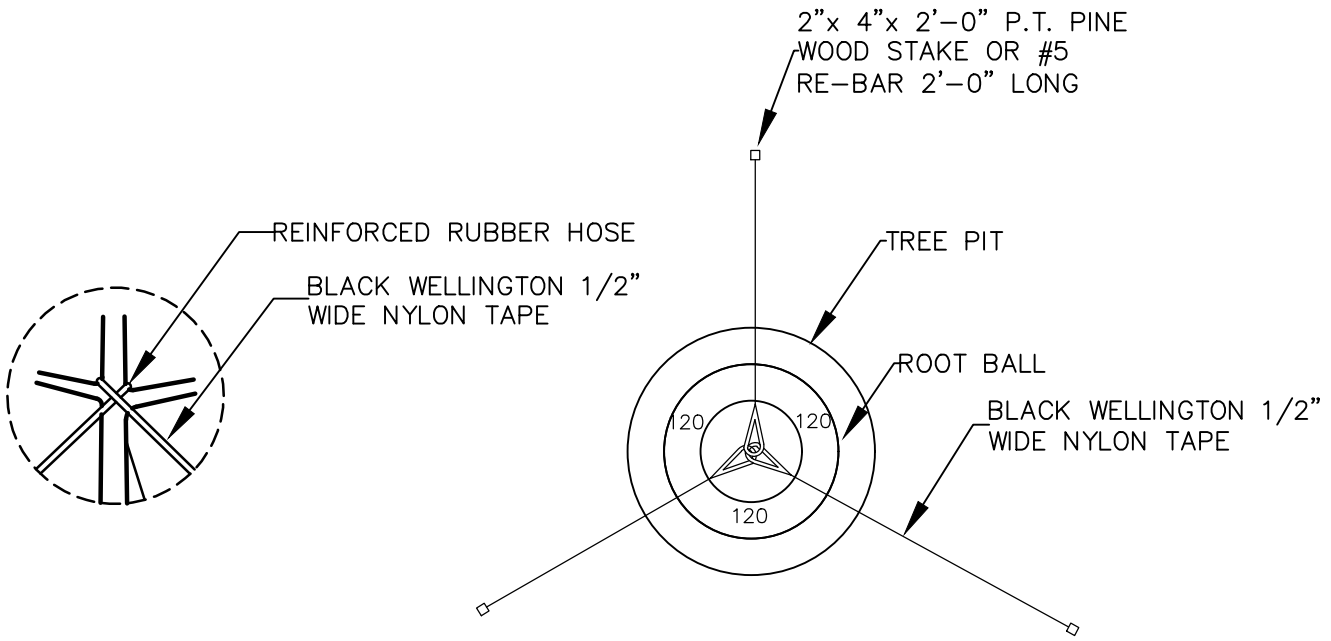
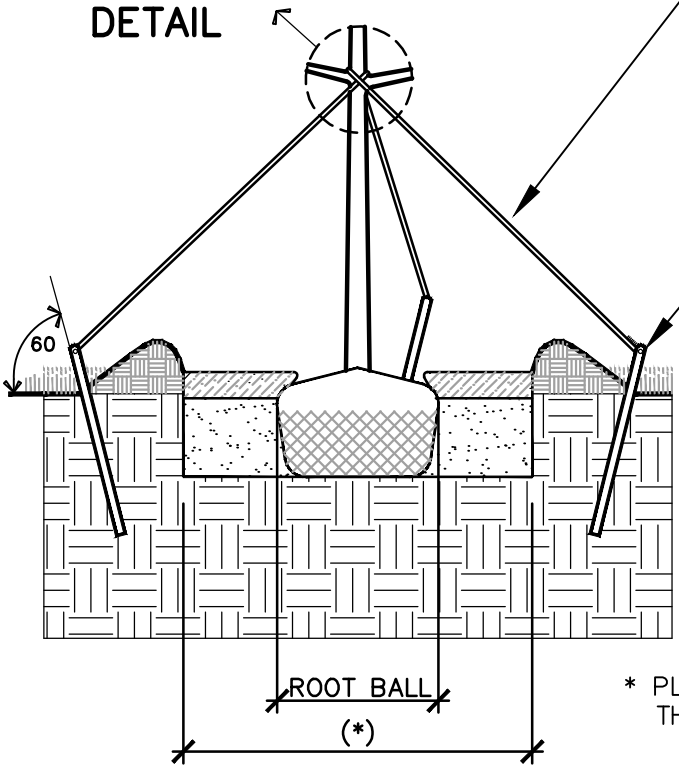


PLAN

DETAIL



* PLANTING HOLE SHALL BE 2X THE DIAMETER OF THE ROOT BALL

STANDARD CONSTRUCTION DETAIL

TYPICAL TREE GUYING DETAIL

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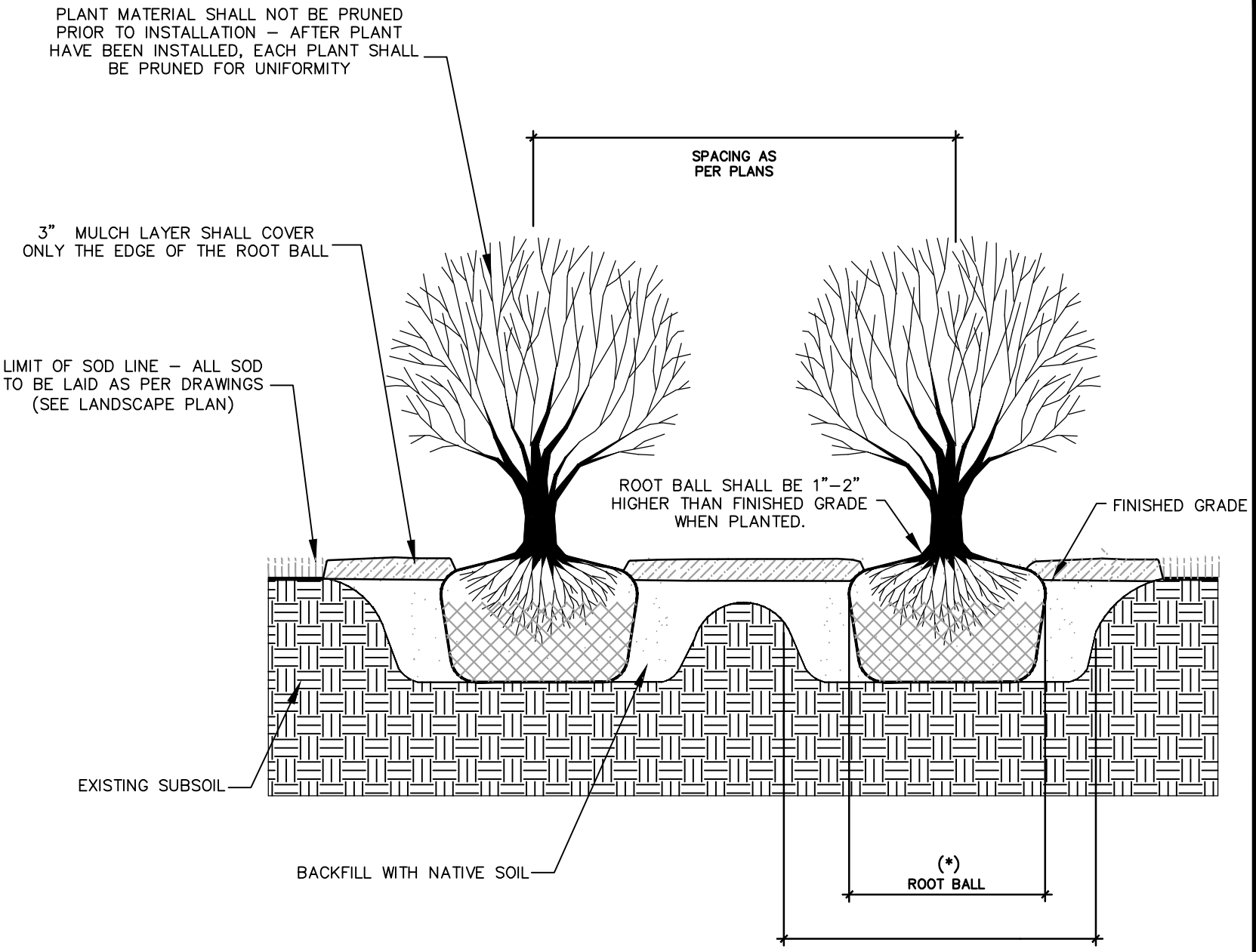

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STANDARD CONSTRUCTION DETAIL

TYPICAL SHRUB PLANTING DETAIL

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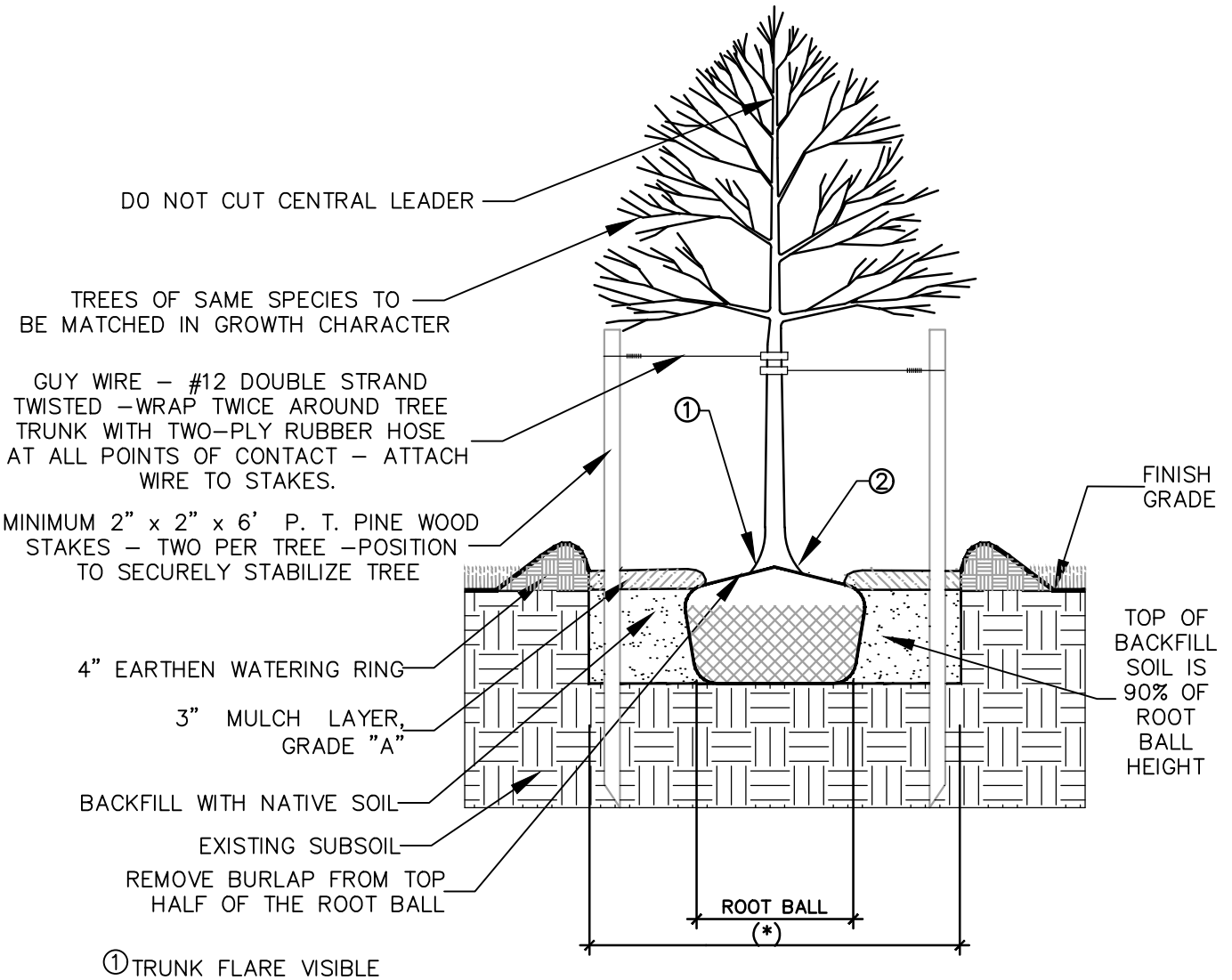

STANDARD CONSTRUCTION DETAIL

SMALL TREE PLANTING DETAIL

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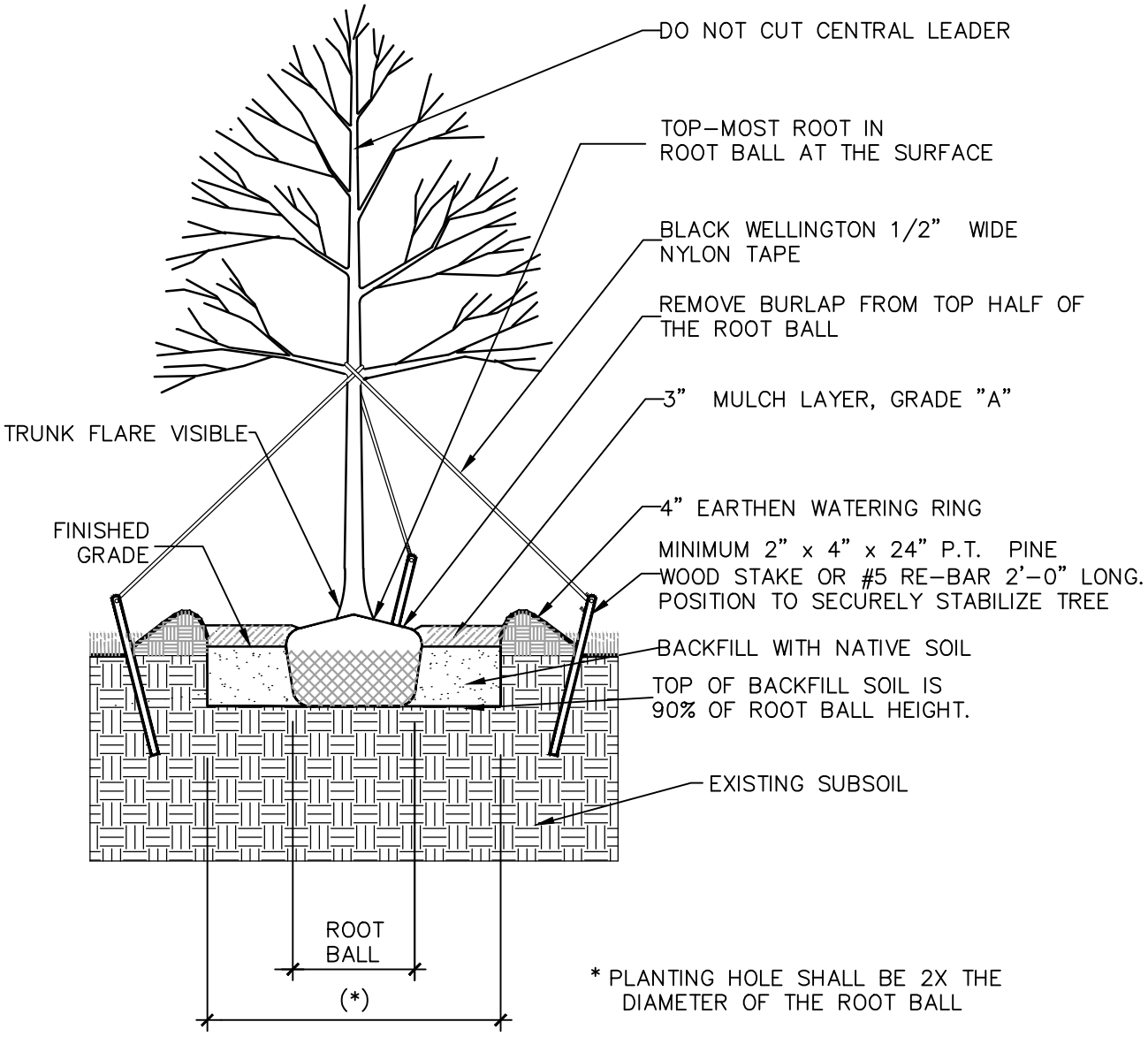

STANDARD CONSTRUCTION DETAIL

LARGE TREE PLANTING DETAILS

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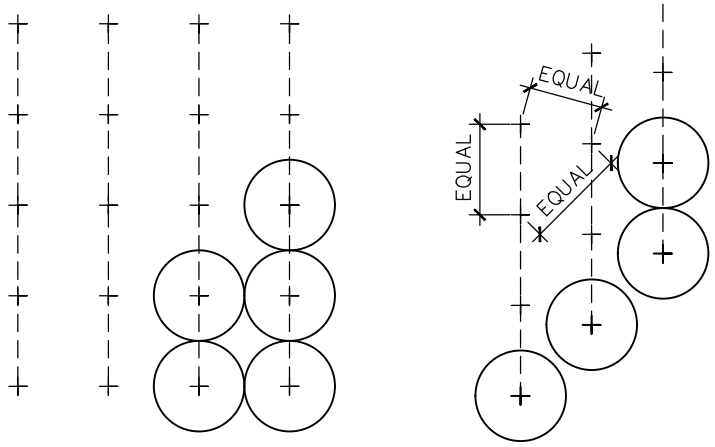
NOTE: IN MOST CASES, TRIANGULAR SPACING IS PREFERRED. USE SQUARE SPACING ONLY IN SMALL RECTILINEAR AREAS.

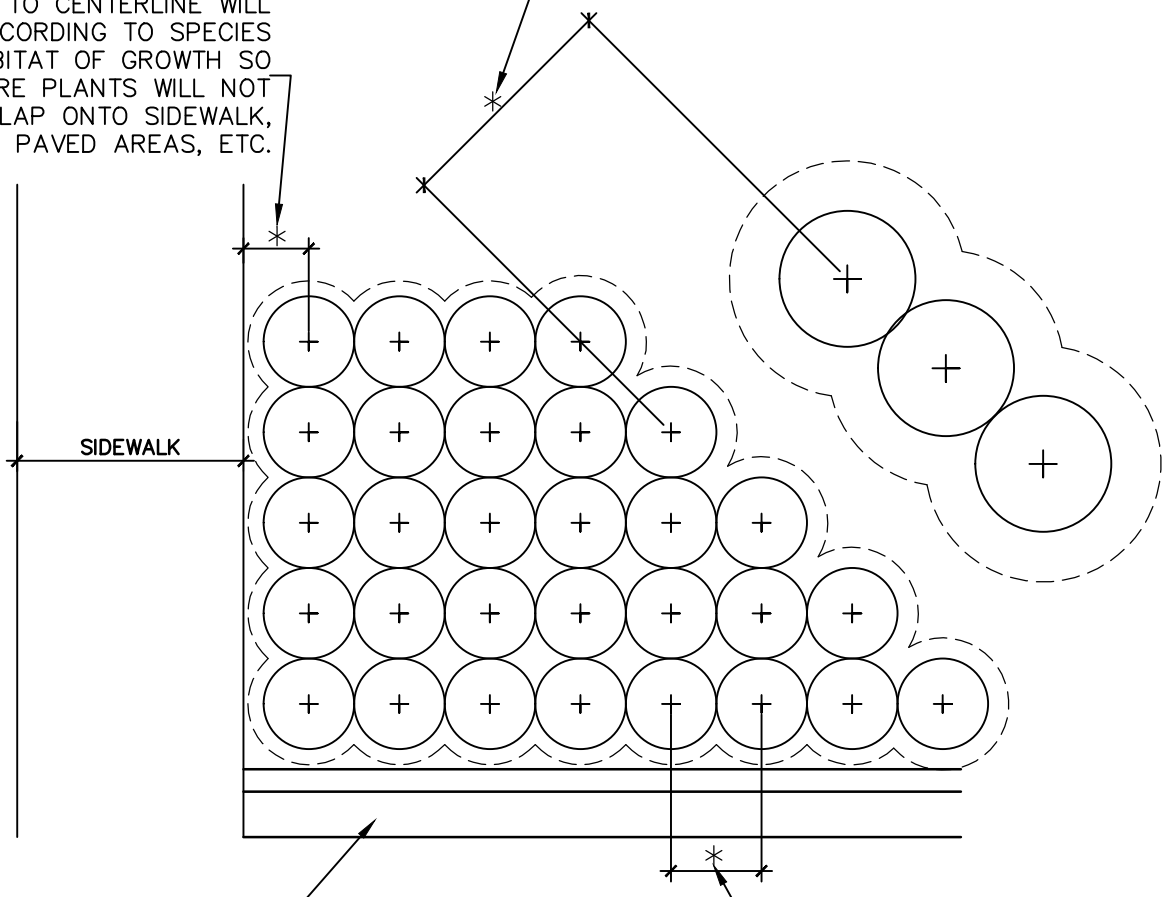


SQUARE SPACING

TRIANGULAR SPACING

DISTANCE BETWEEN PLANTS SHOULD BE FAR ENOUGH TO ALLOW PLANTS TO REACH MATURE SIZE WITHOUT INTERFERING WITH GROWTH OF ADJACENT PLANT MATERIALS

DISTANCE TO CENTERLINE WILL VARY ACCORDING TO SPECIES AND HABITAT OF GROWTH SO THAT MATURE PLANTS WILL NOT OVER LAP ONTO SIDEWALK, STRUCTURES, PAVED AREAS, ETC.



TYPICAL CURB AND GUTTER

SPACING OF PLANTS AS INDICATED ON PLANTING PLAN

STANDARD CONSTRUCTION DETAIL

TYPICAL CONTAINER SPACING

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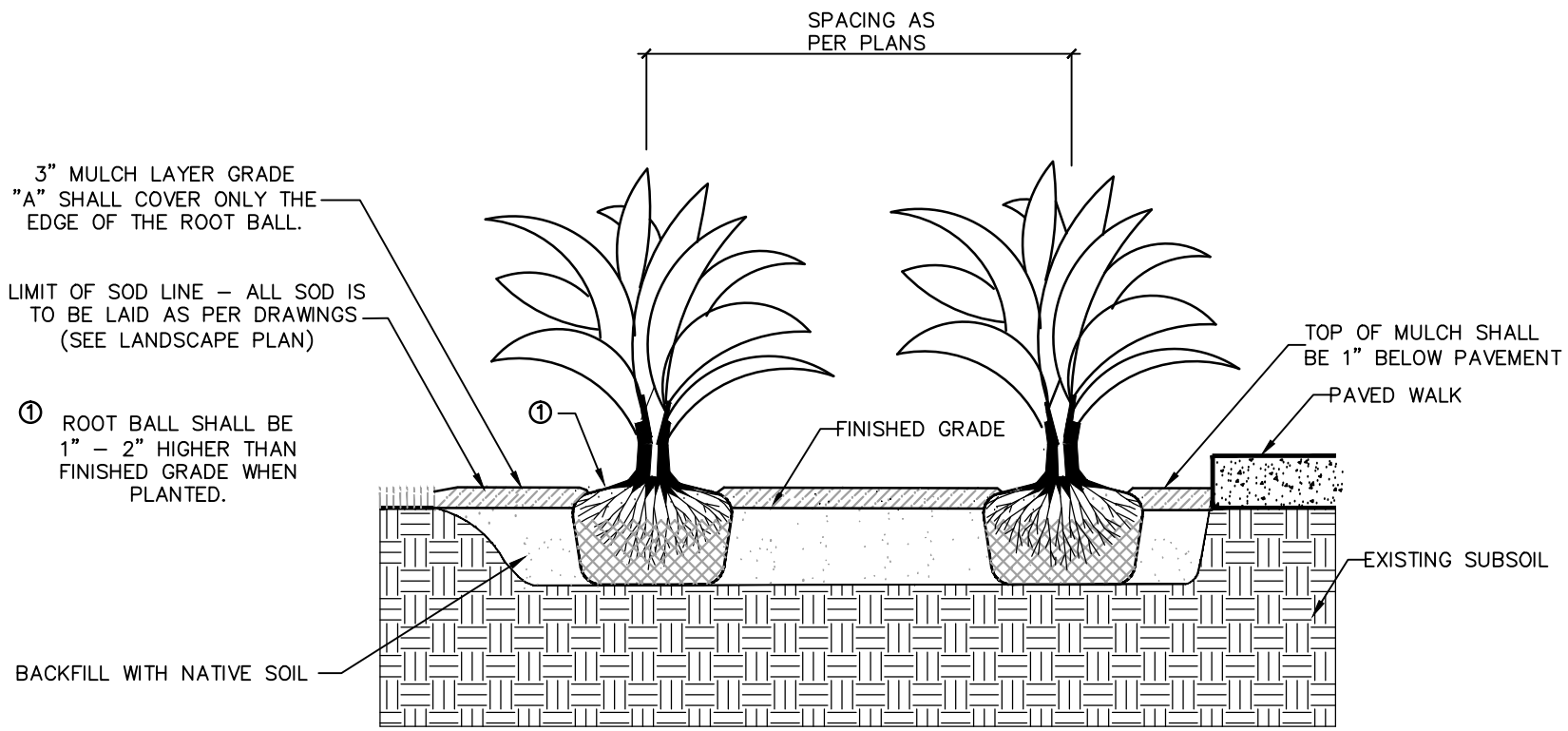

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STANDARD CONSTRUCTION DETAIL

TYPICAL GROUND COVER DETAIL

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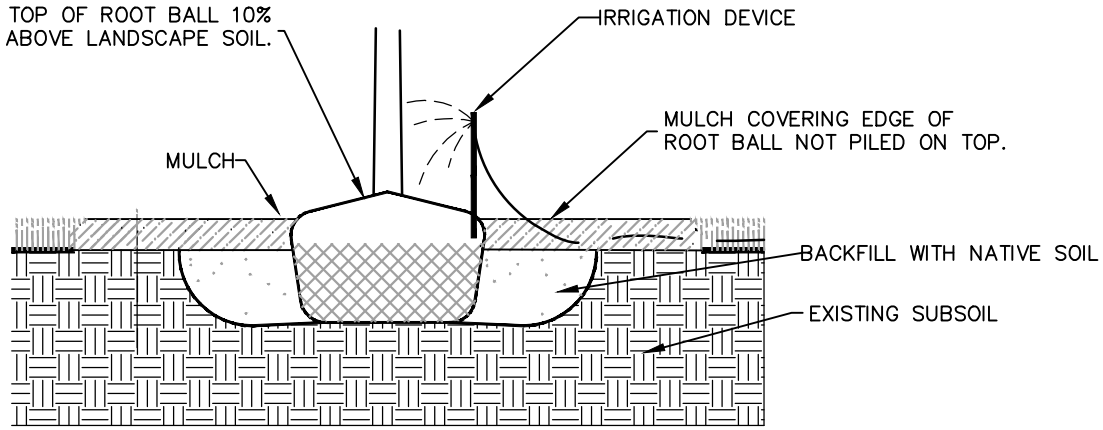

NEVER PLACE ANY SOIL OVER THE ROOT BALL. THE ROOT BALL SHOULD BE POSITIONED IN THE HOLE SHALLOW ENOUGH SO THE FINISHED GRADE OF THE BACKFILL SOIL DOES NOT REACH THE TOP. IN OTHER WORDS, LEAVE THE TOP FEW INCHES OF THE ROOT BALL SIDES EXPOSED TO THE AIR. MULCH WILL COVER THE REMAINING COUPLE INCHES. THE TOP OF THE ROOT BALL SHOULD BE SEVERAL INCHES HIGHER THAN THE SURROUNDING LANDSCAPE SOIL. BE SURE THAT WHEN YOU ARE FINISHED PLANTING, THERE IS **NO SOIL** OVER THE ROOT BALL. SOIL (AS WELL AS THICK MULCH LAYERS MORE THAN 3 INCHES DEEP) OVER THE ROOT BALL CAN PREVENT WATER AND AIR FROM ENTERING THE ROOT BALL. YOU SHOULD BE ABLE TO SEE THE TOP–MOST ROOT ORIGINATING FROM THE TRUNK AT THE SOIL SURFACE OR WITHIN THE TOP INCH OF SOIL IN THE ROOT BALL. THE TRUNK FLARE SHOULD BE VISIBLE.

MULCH SHOULD COVER ONLY THE EDGE OF THE ROOT BALL, SINCE THICK LAYERS OVER THE ROOT BALL CAN KEEP THE TRUNK TOO MOIST OR TOO DRY AND CAN CAUSE OTHER PROBLEMS. LOCATE THE IRRIGATION DEVICE SO IT DELIVERS WATER DIRECTLY TO THE ROOT BALL. THERE IS USUALLY NO NEED TO WATER AREAS OUTSIDE THE ROOT BALL. NO AMENDMENTS OF ANY KIND ARE NECESSARY IN THE BACKFILL SOIL, BECAUSE EXTENSIVE RESEARCH CLEARLY SHOWS THAT THEY TYPICALLY DO NOT NOT INCREASE THE SURVIVAL, NOR GROWTH AFTER PLANTING. NO SOIL BERM IS NEEDED IF TREES WILL BE IRRIGATED WITH A LOW–VOLUME DEVICE. PLACE THE BERM AT THE EDGE OF THE ROOT BALL IF THE ROOT BALL IS FINER TEXTURE THAN THE BACKFILL SOIL. THIS WILL HELP INSURE THAT WATER PERCOLATES INTO THE ROOT BALL.

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STREETSCAPE DETAILS

STANDARD CONSTRUCTION DETAIL

SIDEWALK DETAIL

PLAN VIEW & LONGITUDINAL SECTION

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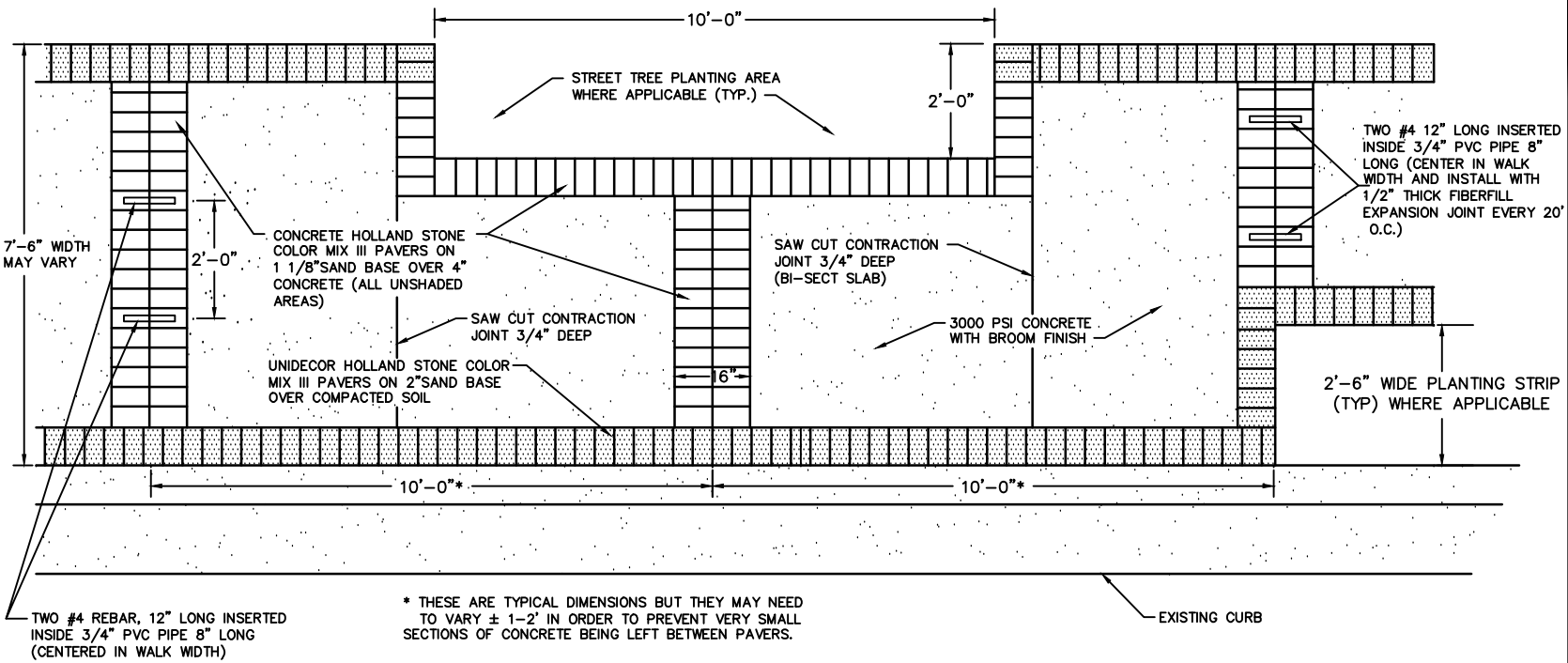

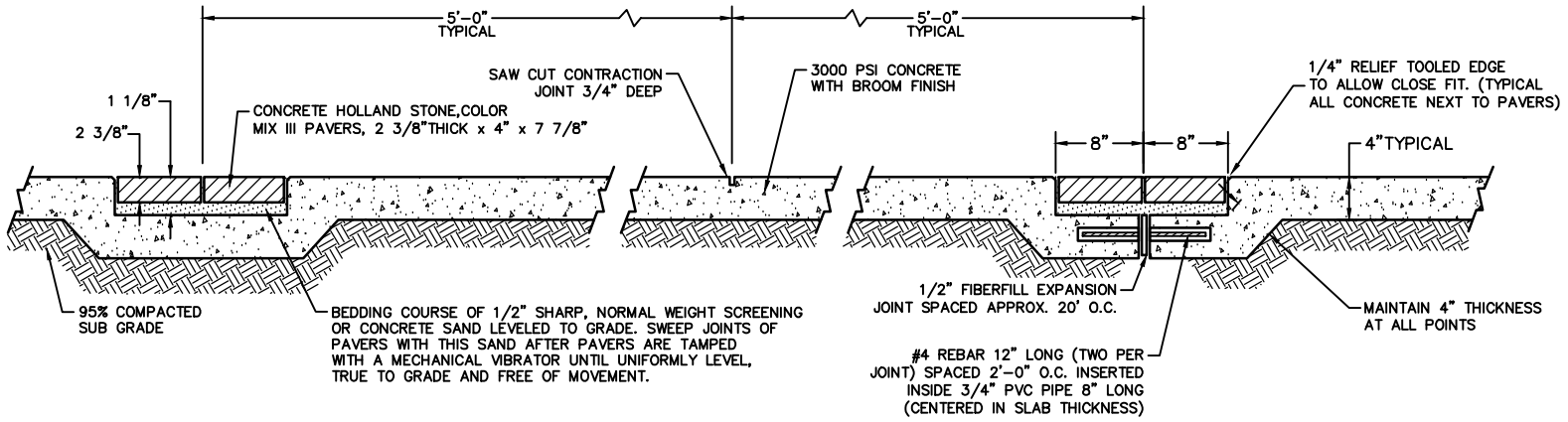

LONGITUDINAL SECTION

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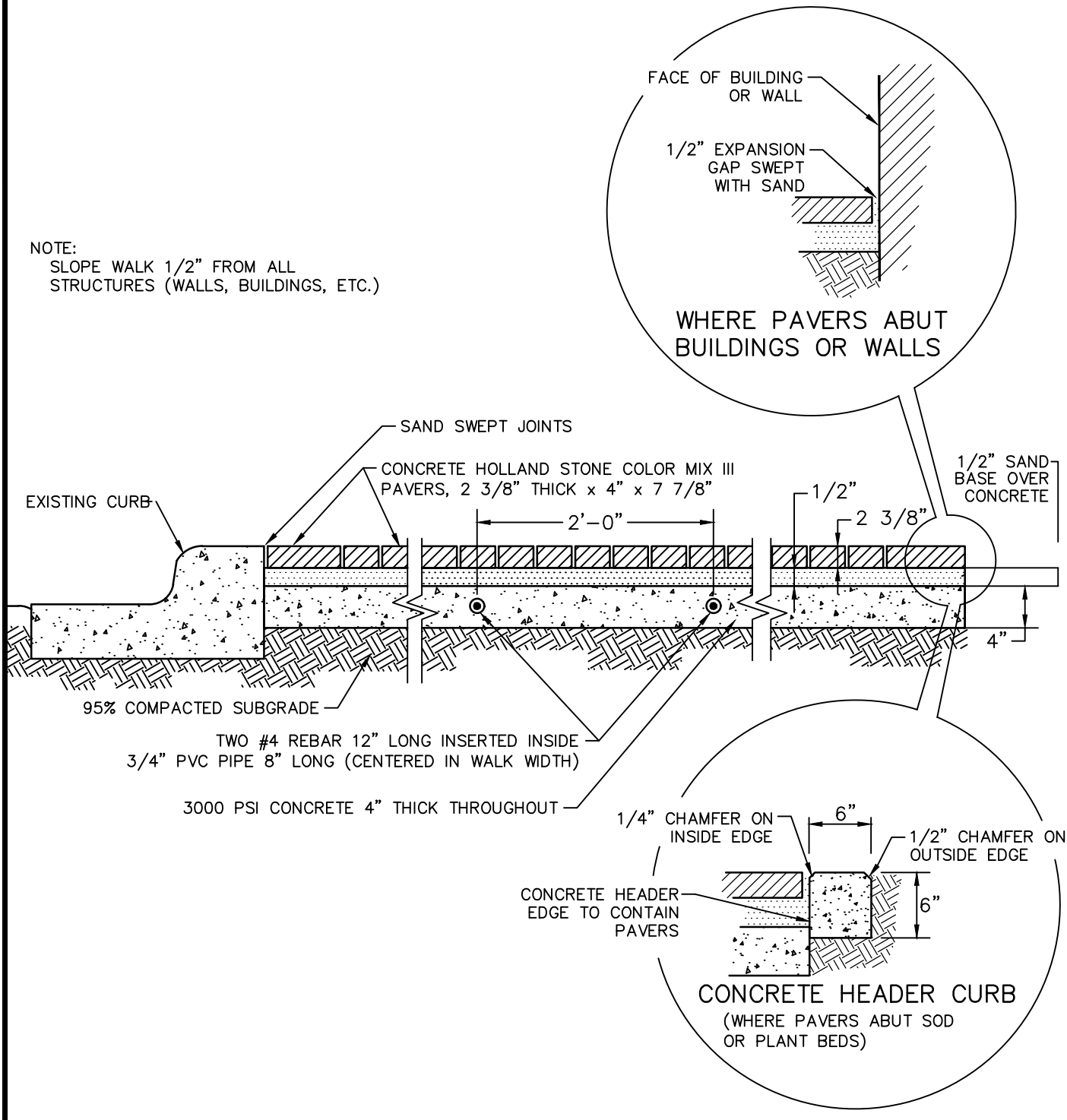
NOTE:
SLOPE WALK 1/2" FROM ALL
STRUCTURES (WALLS, BUILDINGS, ETC.)



STANDARD CONSTRUCTION DETAIL

SIDEWALK DETAIL – END SECTION AT EXPANSION JOINT

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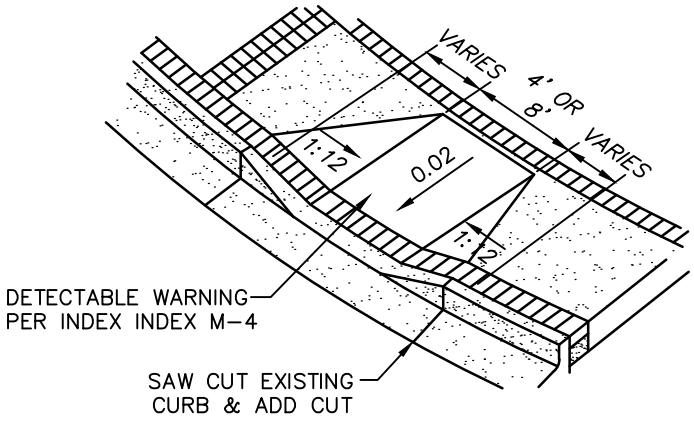
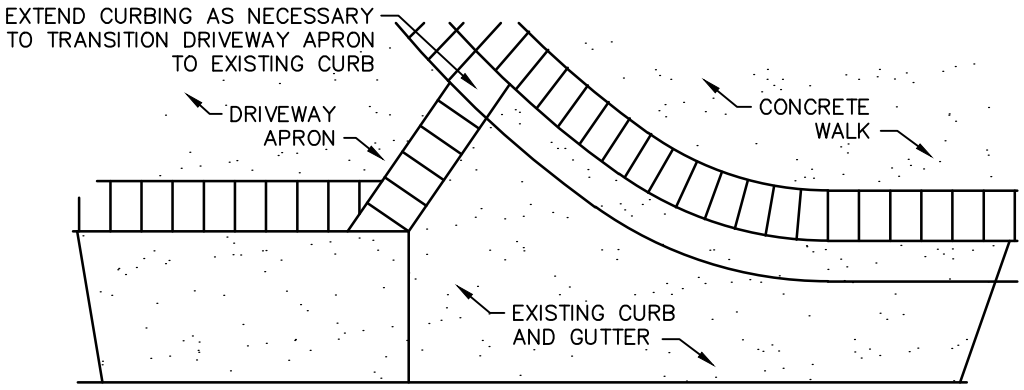
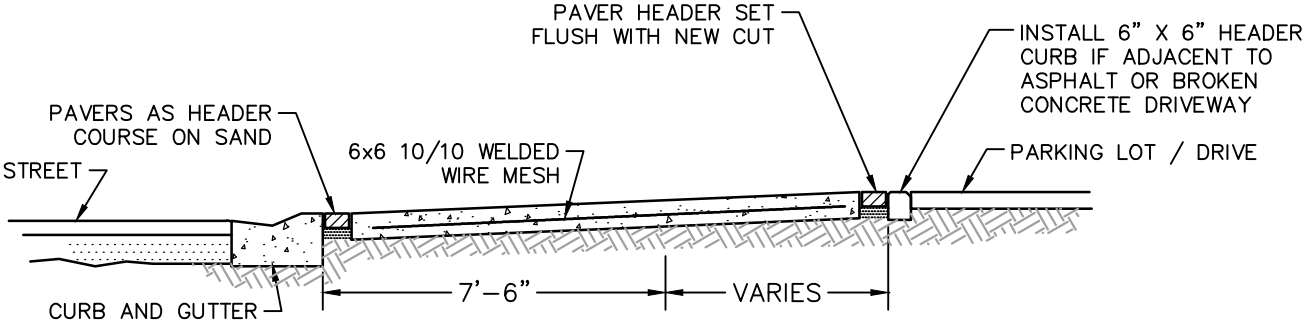


HANDICAP RAMP



PAVER PLAN WHERE CURB ENTERS DRIVEWAY



SECTION OF EXTENDED ENTRY APRON

STANDARD CONSTRUCTION DETAIL

SIDEWALK DETAILS – HANDICAP RAMP, PAVER PLAN WHERE CURB ENTERS DRIVEWAY & SECTION OF EXTENDED ENTRY APRON

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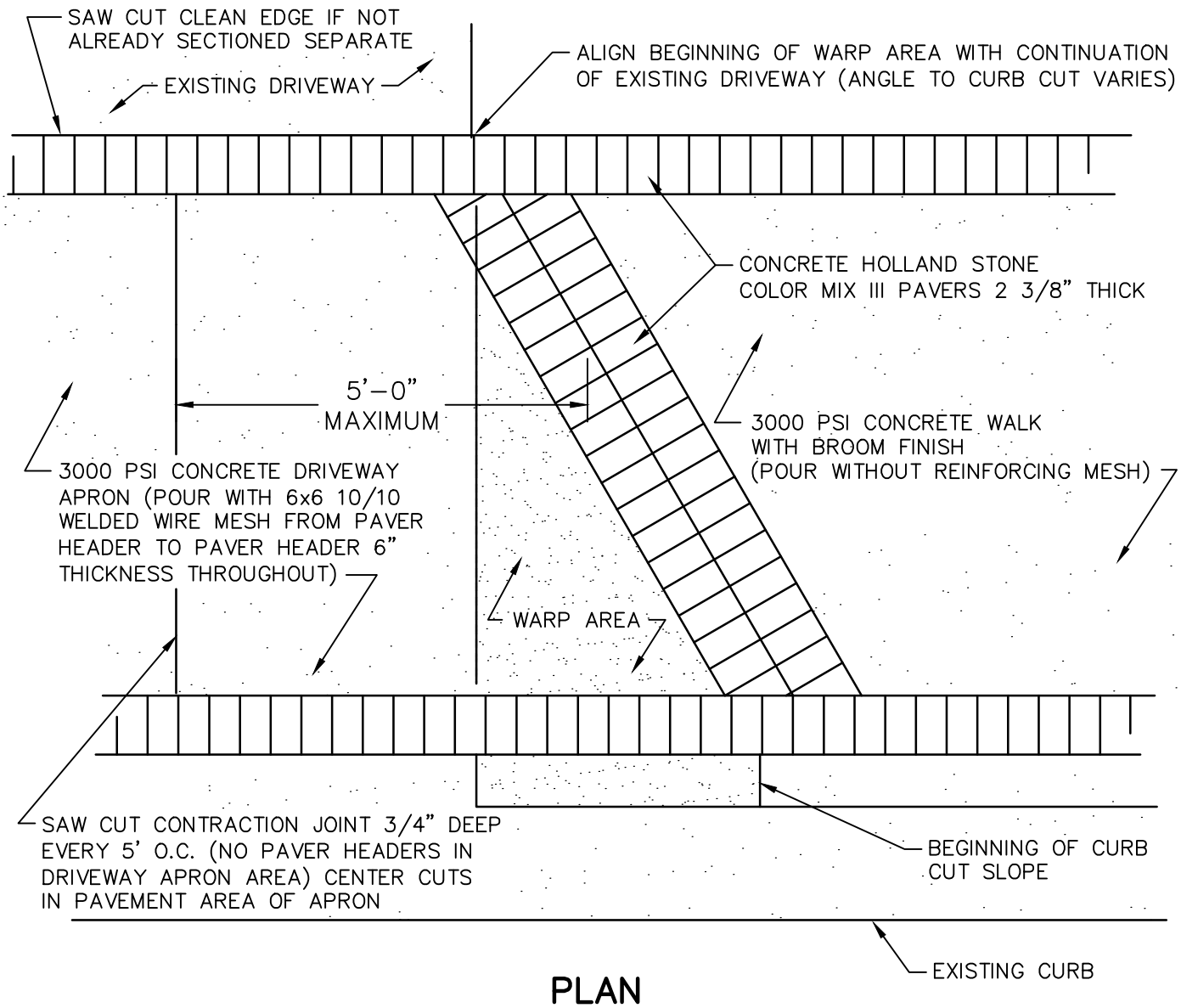

PLAN

STANDARD CONSTRUCTION DETAIL

SIDEWALK DETAILS AT DRIVEWAY

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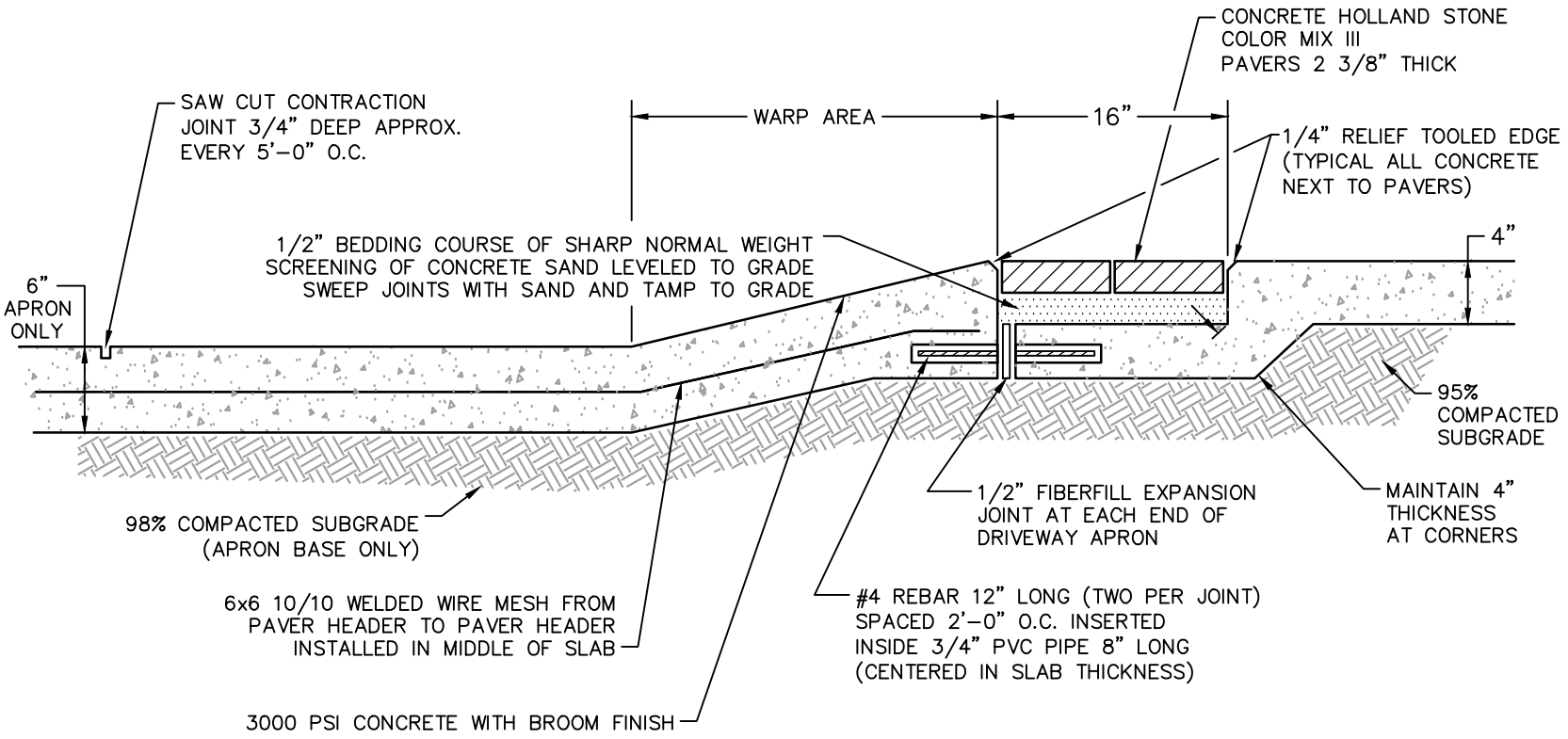

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STANDARD CONSTRUCTION DETAIL

SIDEWALK DETAILS AT DRIVEWAYS

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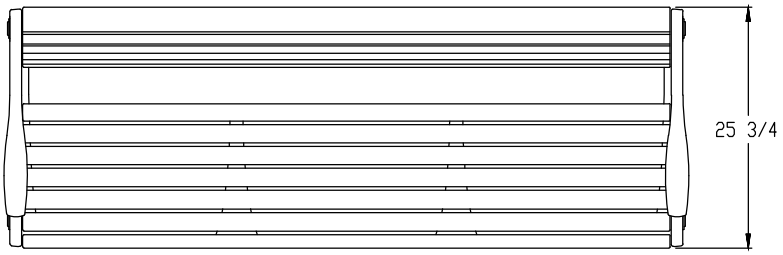
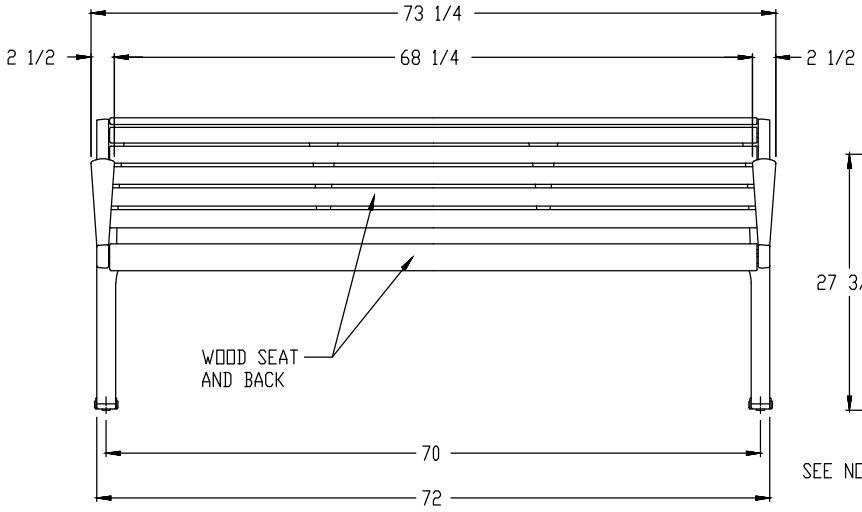
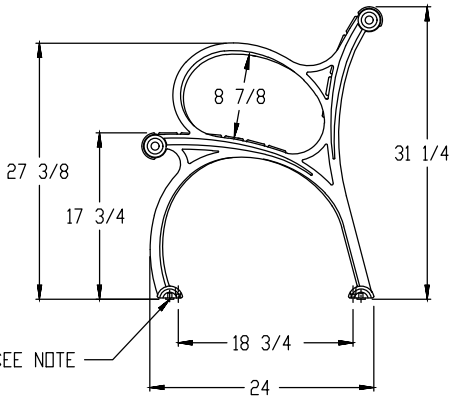


NOTE:
FREESTANDING OR SURFACE MOUNT OPTIONS. CORROSION-RESISTANT ANCHORING HARDWARE SUPPLIED BY OTHERS. 13/32" HOLES WITH COUNTERBORE PROVIDED FOR SOCKET HEAD CAP SCREWS.





DESIGN GROUP: PLAINWELL
DESCRIPTION: 70" WOOD SEAT ON ALUMINUM FRAME
WOOD SELECTION: IPE NO FINISH
POWDERCOAT COLOR: GLOSS BLACK FRAME
HARDWARE: STAINLESS STEEL
FEATURES: FREESTAND / SURFACE MOUNTABLE

l a n d s c a p e f o r m s

431 LAWNDALE AVE.
KALAMAZOO, MI 49048
PHONE: 800-521-2546
FAX: 269-381-3455

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

BENCH

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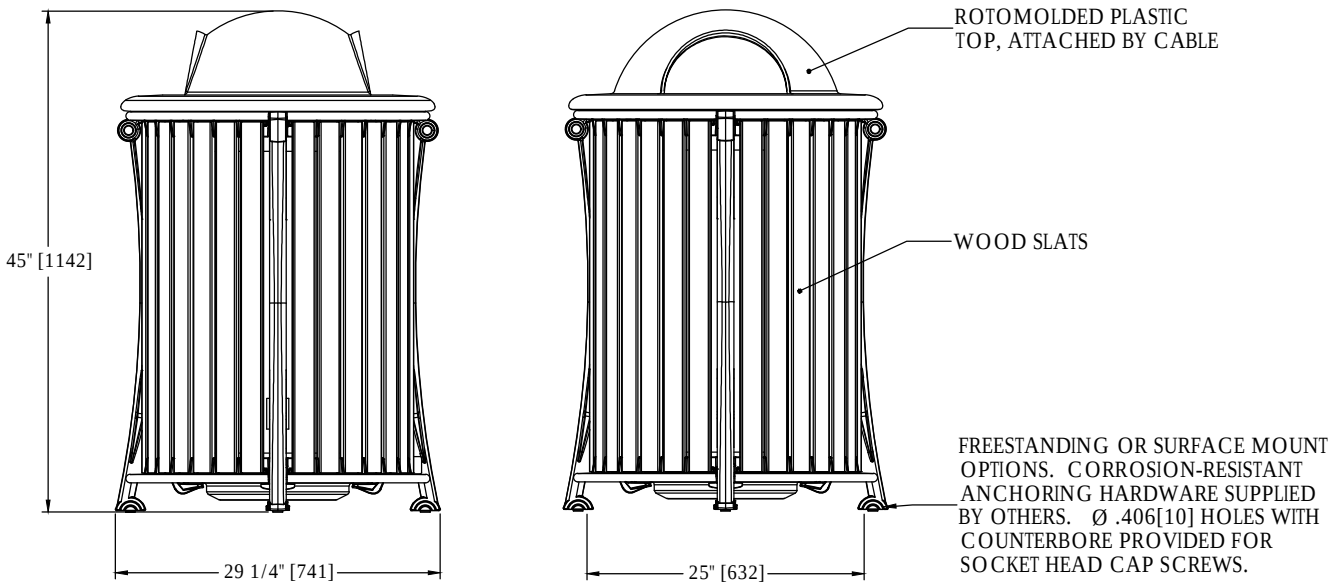

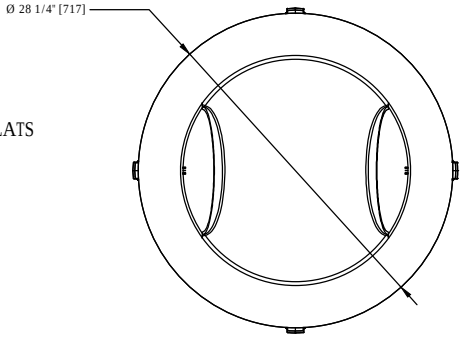

DESIGN GROUP: PLAINWELL
DESCRIPTION: 30" DIA / 35 GA. SIDE OPEN LITTER
WOOD SELECTION: IPE NO FINISH OR MATTE BLACK ALUMINUM SLATS
POWDERCOAT COLOR: GLOSS BLACK FRAME
HARDWARE: STAINLESS STEEL
LINER: BLACK POLYETHYLENE
TOP: BLACK ROTOMOLD POLYETHYLENE
FEATURES: FREE STAND / SURFACE MOUNTABLE

l a n d s c a p e f o r m s
431 LAWNDALE AVE.
KALAMAZOO, MI 49048
PHONE: 800-521-2546
FAX: 269-381-3455

STANDARD CONSTRUCTION DETAIL

TRASH RECEPTACLE

NTS

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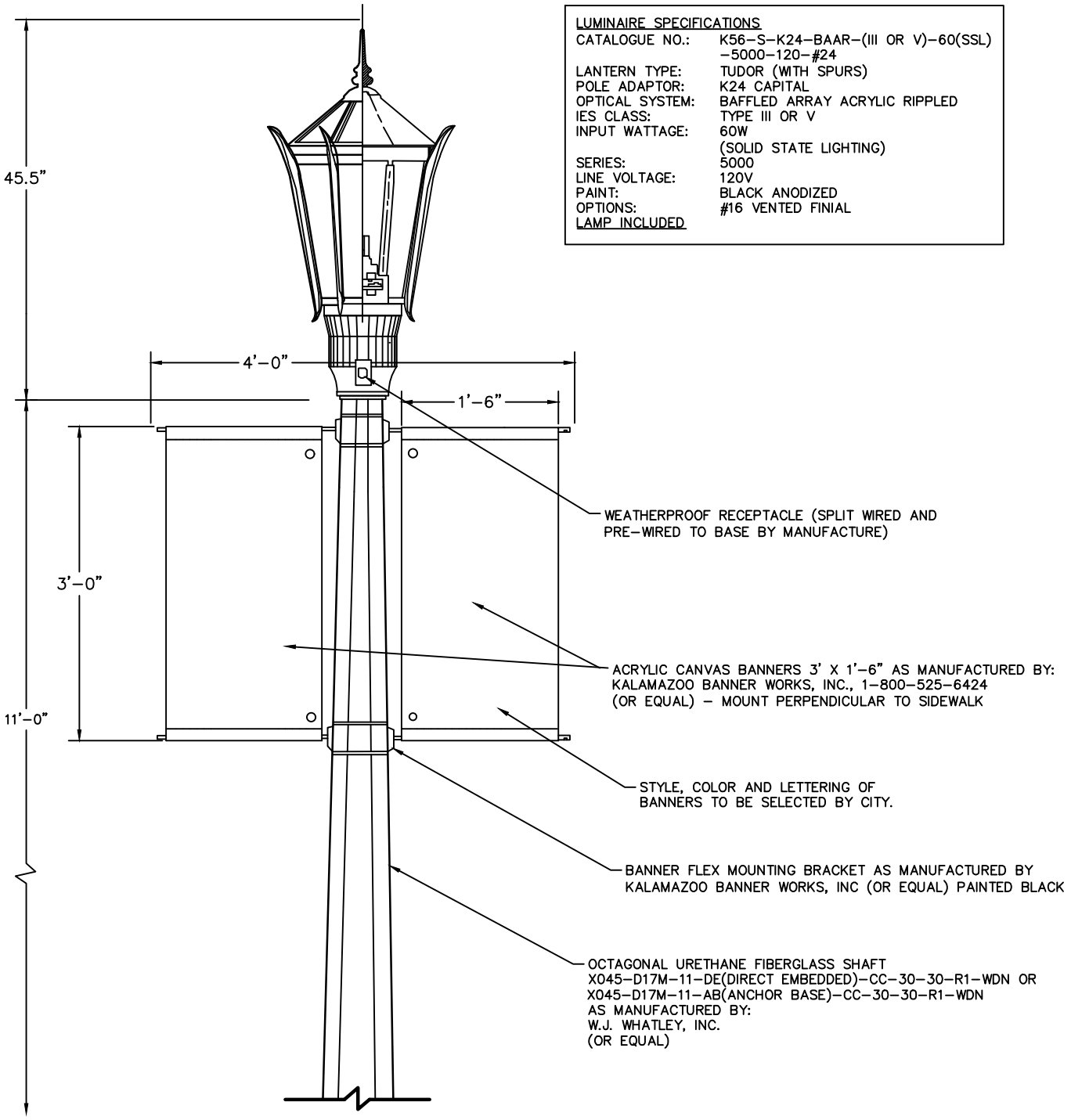
FEB 2018



LUMINAIRE SPECIFICATIONS

CATALOGUE NO.:	K56-S-K24-BAAR-(III OR V)-60(SSL) -5000-120-#24
LANTERN TYPE:	TUDOR (WITH SPURS)
POLE ADAPTOR:	K24 CAPITAL
OPTICAL SYSTEM:	BAFFLED ARRAY ACRYLIC RIPPLED
IES CLASS:	TYPE III OR V
INPUT WATTAGE:	60W (SOLID STATE LIGHTING)
SERIES:	5000
LINE VOLTAGE:	120V
PAINT:	BLACK ANODIZED
OPTIONS:	#16 VENTED FINIAL
LAMP INCLUDED	

STANDARD CONSTRUCTION DETAIL

LED LIGHT FIXTURE & DECORATIVE POLE

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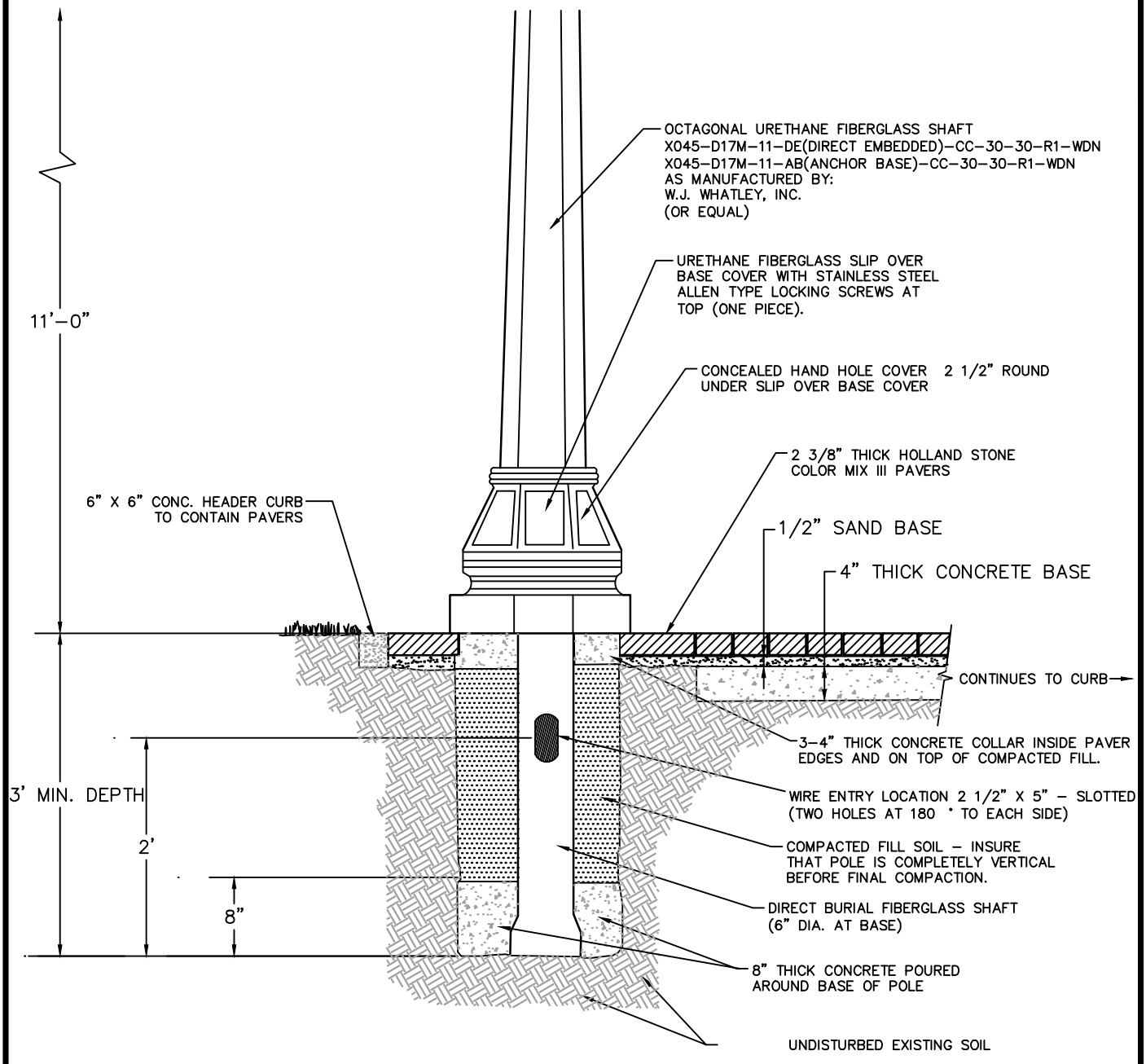
SC-7A

FEB 2018



STANDARD CONSTRUCTION DETAIL

DECORATIVE POLE INSTALLATION (DIRECT BURIAL)

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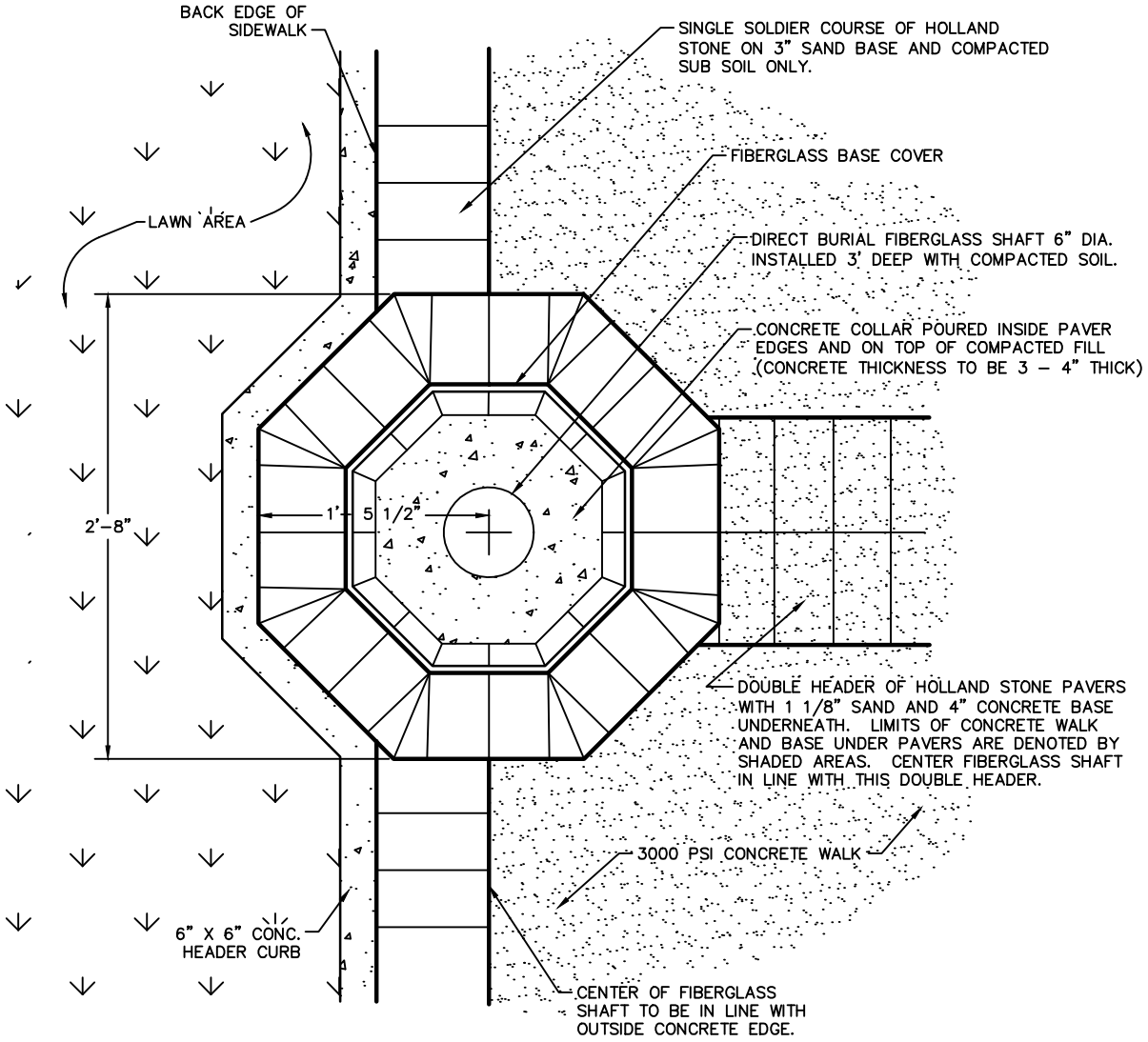
FEB 2018



STANDARD CONSTRUCTION DETAIL

PLAN VIEW OF LIGHT ON SIDEWALK EDGE

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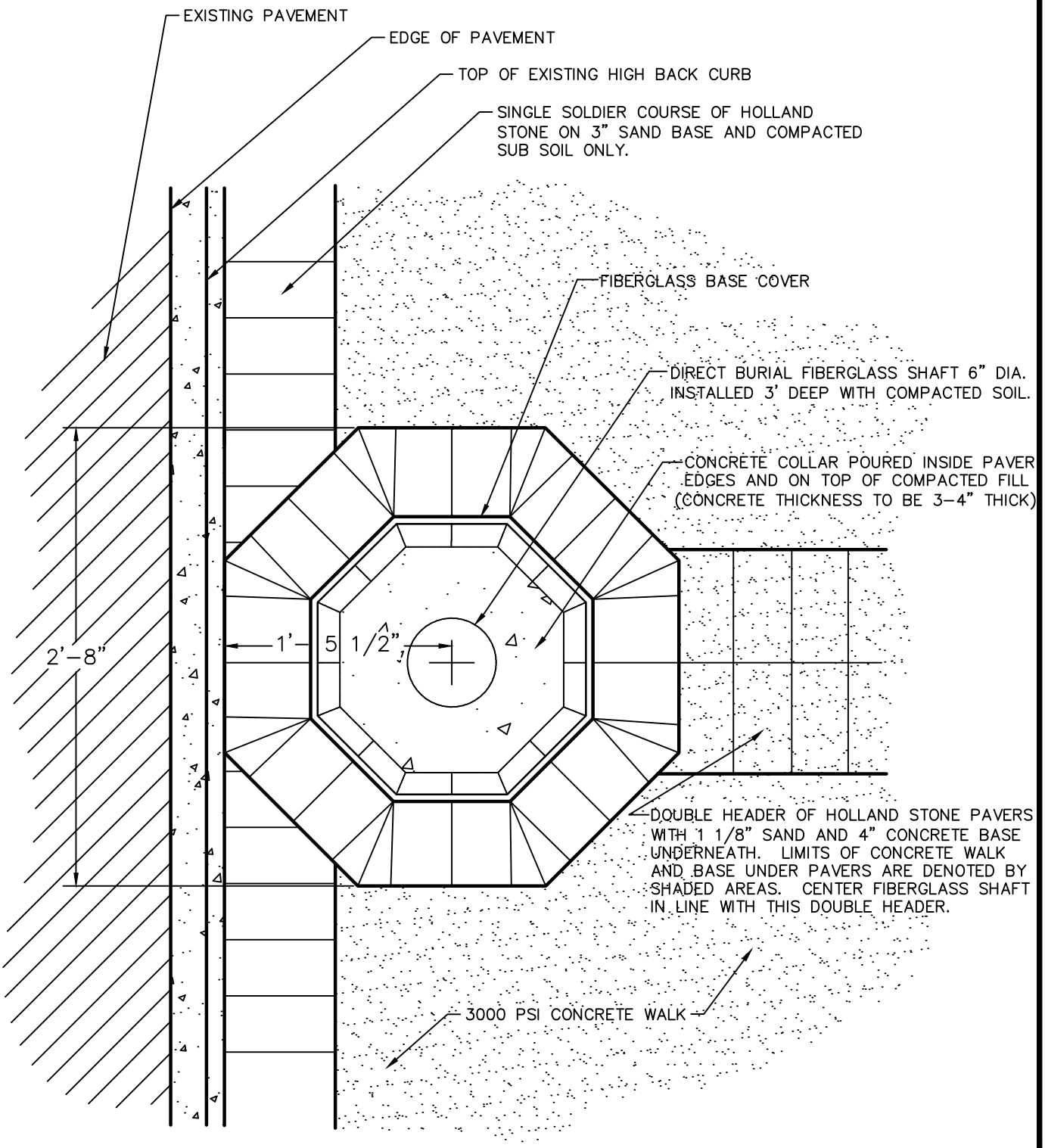
FEB 2018



STANDARD CONSTRUCTION DETAIL

PLAN VIEW OF LIGHT ADJACENT TO CURB

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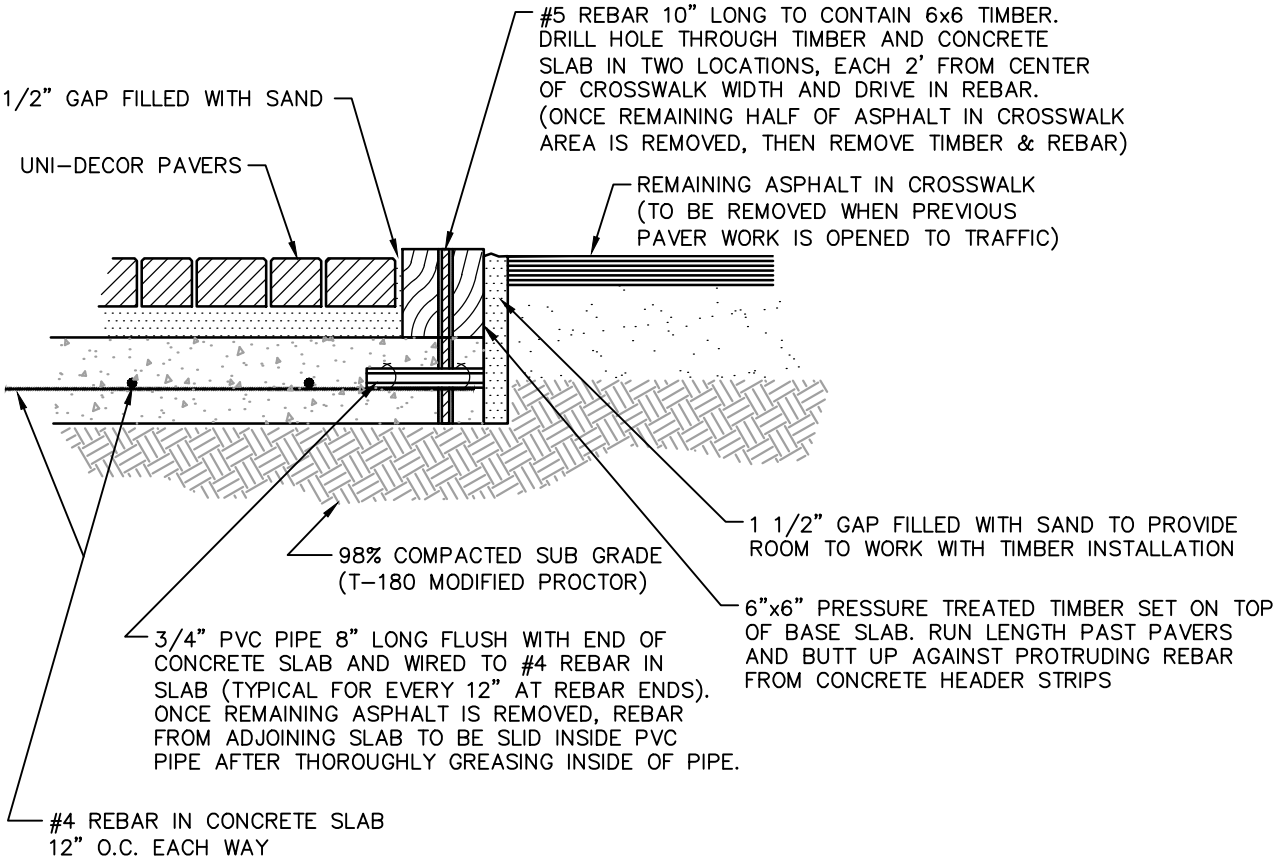
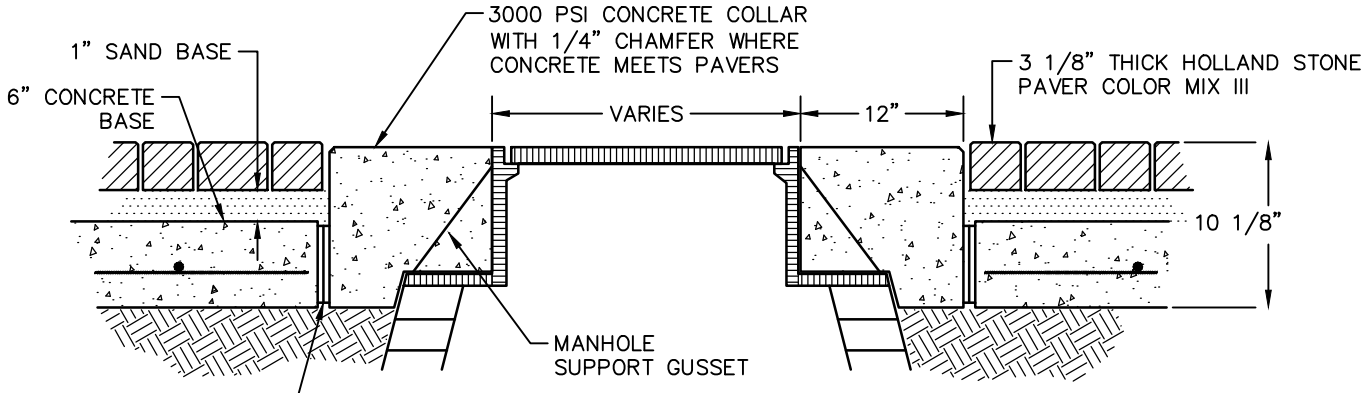
FEB 2018



TEMPORARY PAVER CONTAINMENT



UTILITIES IN CROSSWALK

STANDARD CONSTRUCTION DETAIL

TEMPORARY PAVER CONTAINMENT AND UTILITIES IN CROSSWALK

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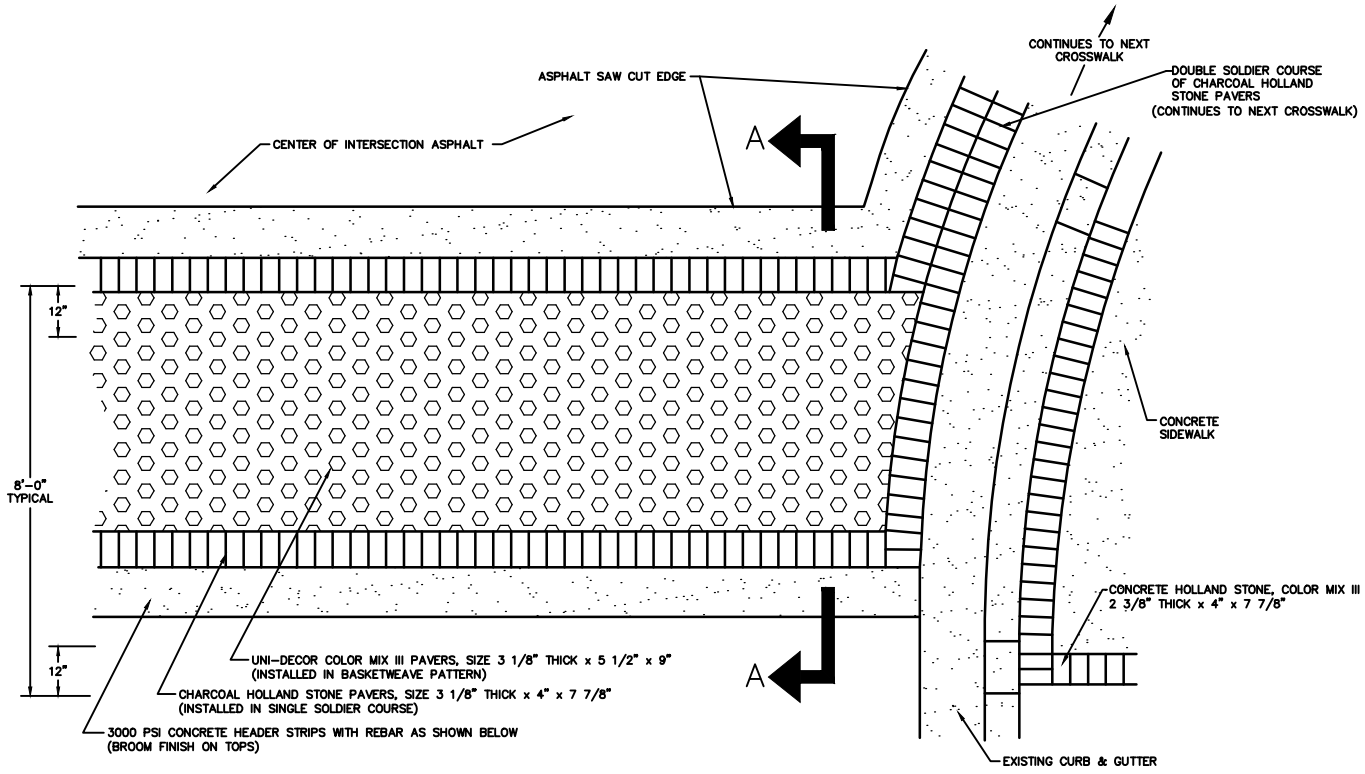
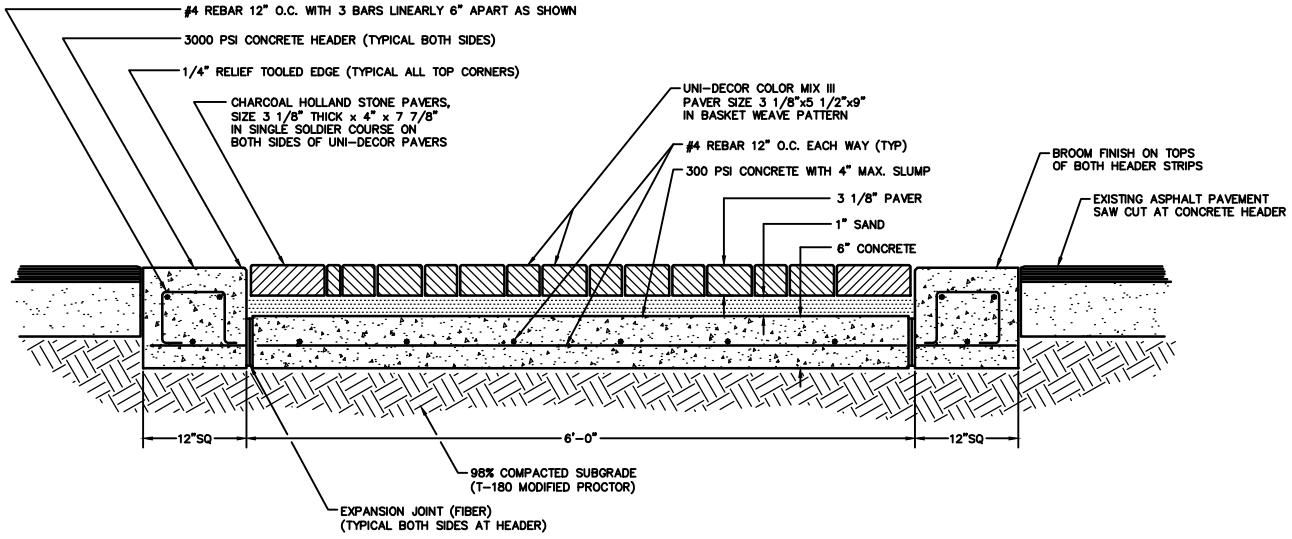
FEB 2018



TYPICAL CROSSWALK PAVER DETAIL – PLAN VIEW



TYPICAL CROSSWALK PAVER DETAIL – SECTION A–A

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

TYPICAL CROSSWALK PAVER DETAIL

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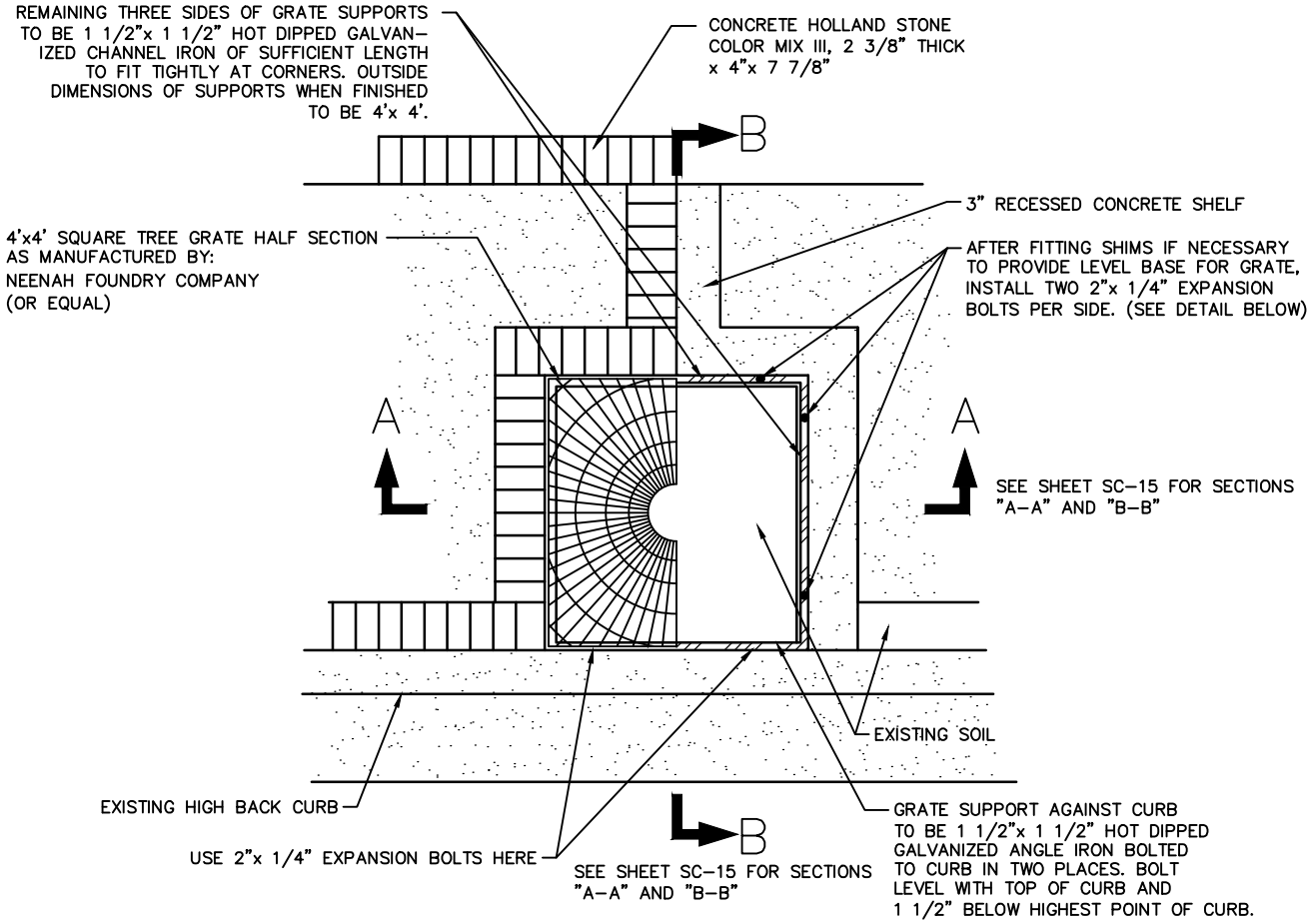
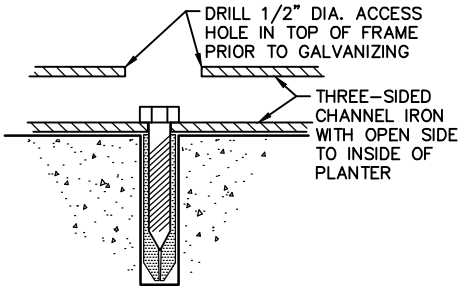
IMPORTANT NOTE: SIDEWALK IN VICINITY OF TREE GRATES TO BE WARPED DOWN AS NECESSARY TO FACILITATE GRATE BEING INSTALLED HORIZONTALLY. SLOPE NOT TO EXCEED 1:10 GRADIENT.



NOTE:
ALL HOLES IN GRATE SUPPORTS TO BE DRILLED PRIOR TO GALVANIZING!
ALL GRATE SUPPORT BRACKETS TO BE 1/8" MIN. THICKNESS.



STANDARD CONSTRUCTION DETAIL

CROSSWALK PAVER DETAIL W/TREE GRATE (PLAN VIEW)

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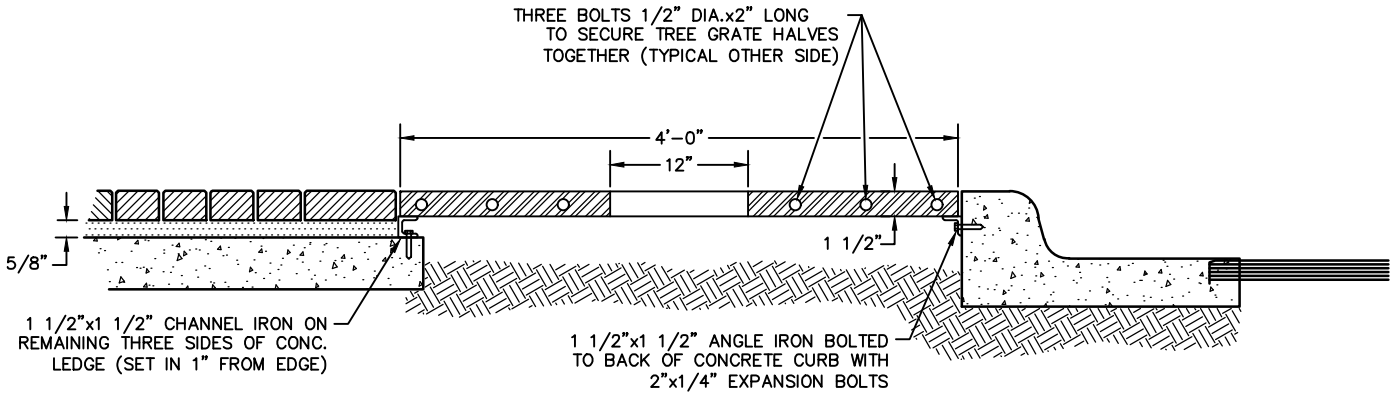
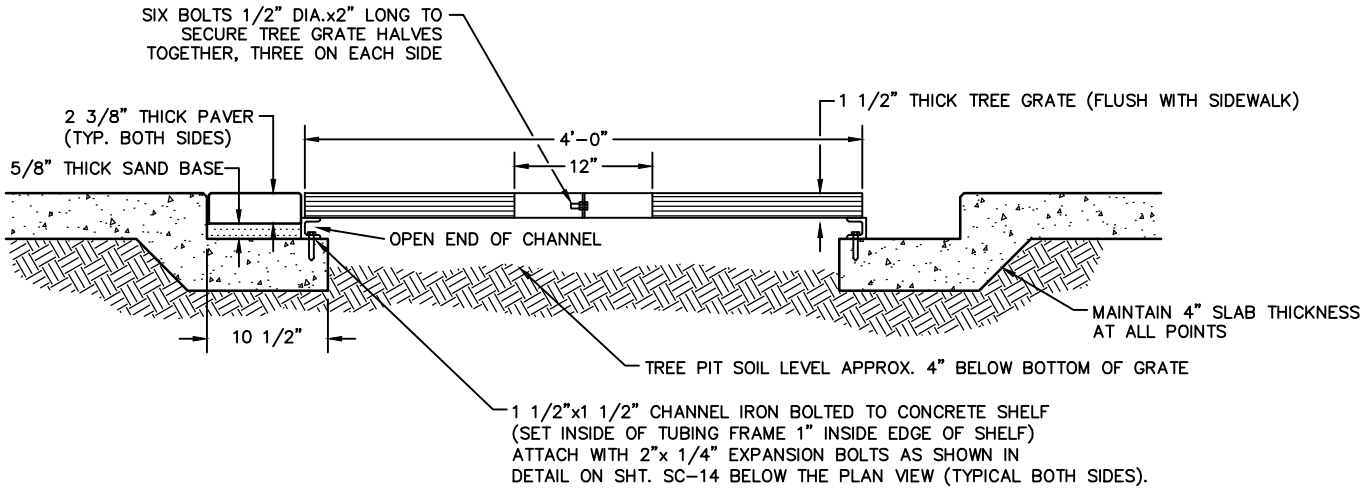
FEB 2018



CROSSWALK PAVER W/TREE GRATE DETAIL SECTION "B-B"



CROSSWALK PAVER W/TREE GRATE DETAIL SECTION "A-A"

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

CROSSWALK PAVER DETAIL W/TREE GRATE SECTIONS "A-A" AND "B-B"

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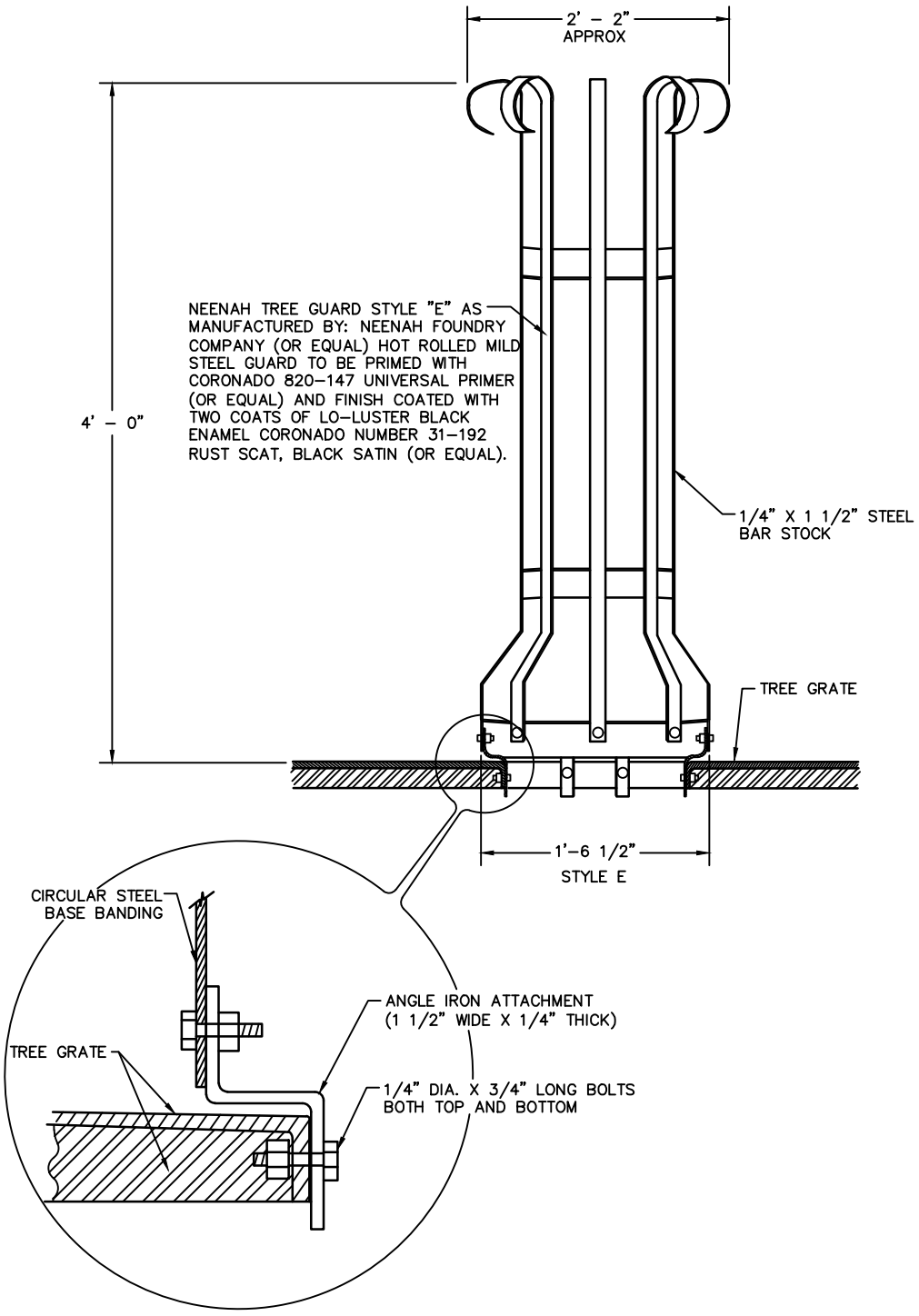
SC-12B

FEB 2018



STANDARD CONSTRUCTION DETAIL

TREE GUARD

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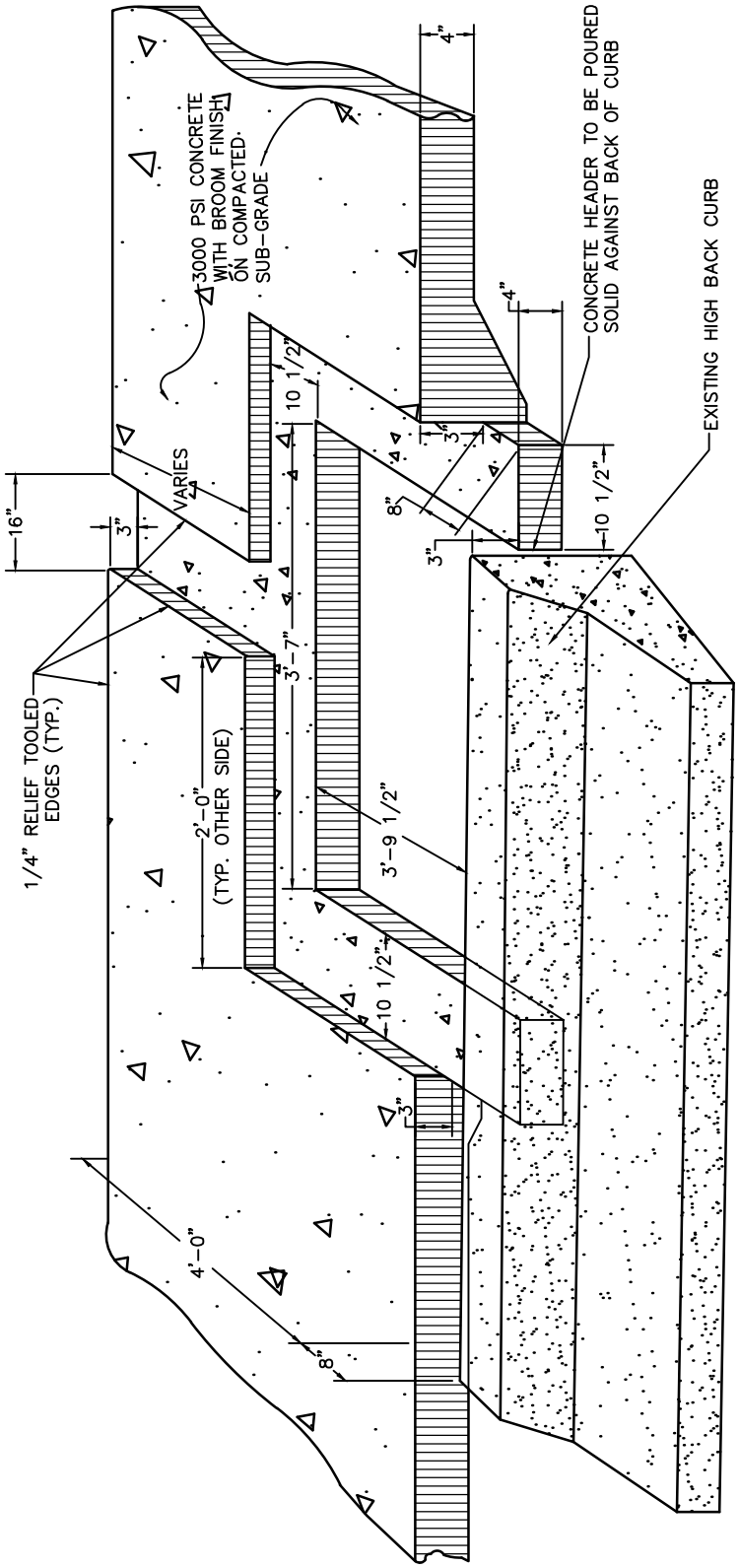
FEB 2018



STANDARD CONSTRUCTION DETAIL

TREE GRATE DETAIL
PERSPECTIVE VIEW AT WALK

NTS

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FEB 2018

APPENDIX A

SEWAGE LIFT STATION DETAILS

GENERAL NOTES
LIFT STATION CONSTRUCTION

1. WETWELL SHALL BE LINED WITH SPECTRA–SHIELD, SEWPERCOAT, GREEN MONSTER OR APPROVED EQUAL. WETWELL EXTERIOR SHALL BE COATED WITH COAL TAR EPOXY.

2. BASE AND FIRST RISER UNIT TO BE CAST MONOLITHIC.

3. VALVE VAULT AND ACCESS COVERS SHALL BE SIZED TO PERMIT EASY REMOVAL OF CHECK VALVE.

4. VALVE VAULT SHALL HAVE SEALED FLOOR W/DRAIN TO WETWELL – TRAP REQUIRED.

5. ALL LOCATIONS WHERE PIPES ENTER OR LEAVE THE WETWELL OR VALVE VAULT SHALL BE MADE WATERTIGHT WITH WALL SLEEVE OR NON–SHRINK GROUT.

6. PUMP LIFTING DEVICE SHALL BE 316 SS LIFTING CABLE.

7. THERE SHALL BE NO ELECTRICAL JUNCTION BOXES IN WETWELL OR VALVE VAULT.

8. CHECK VALVES SHALL BE OUTSIDE LEVER & SPRING.

9. WETWELL & VALVE VAULT COVERS SHALL BE ALUMINUM WITH 304 S.S HARDWARE, AS RECOMMENDED AND REQUIRED BY PUMP MANUFACTURER (LOADING 300 P.S.F.). WETWELL HATCH SHALL BE PROVIDED WITH SAFETY GATE FOR FALL–THROUGH PROTECTION.

10. CONTROL PANEL SHALL BE AS MANUFACTURED BY THE PUMP SUPPLIER OR APPROVED EQUAL.

11. WETWELL DIAMETER SHALL BE 8' MINIMUM.

12. ACCESS HATCH DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE PUMPING EQUIPMENT, PIPING AND CONCRETE STRUCTURES TO ENSURE ADEQUATE ACCESS OPENINGS FOR INSTALLATION, OPERATION AND MAINTENANCE OF ALL EQUIPMENT.

13. VALVE VAULT AND WETWELLS SHALL BE PRECAST CONCRETE. SUBMIT SHOP DRAWINGS WITH REINFORCING DETAILS FOR APPROVAL PRIOR TO FABRICATION.

14. IF CITY FORCEMAIN IS INSTALLED PRIOR TO LIFT STATION COMPLETION, PROVIDE NECESSARY WET TAP AND ALL MATERIAL AND LABOR FOR CONNECTION IN ACCORDANCE WITH CITY STANDARDS. IF FORCEMAIN HAS NOT BEEN INSTALLED PRIOR TO COMPLETION, CAP FORCEMAIN INSTALLED UNDER THIS PROJECT AT R.O.W. LINE AND PROVIDE 4x4 POST MARKER. ISSUE OWNER CREDIT FOR WET TAP AND CONNECTION.

15. PROVIDE LOCKS KEYED TO THE CITY'S MASTER KEY.

16. CHAIN LINK FENCE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:
   A. POSTS SHALL BE SCHEDULE 40, GALVANIZED STEEL (2" OUTSIDE DIAMETER MIN.), MAXIMUM 10 FOOT SPACING
   B. FABRIC FOR FENCING AND GATES SHALL BE 9 GAUGE 2" MESH, CLASS 1, CONFORMING TO A.S.T.M. A–3920, 1.2 OZ. GALVANIZED COATING.
   C. POSTS SHALL BE SET IN 2500 PSI CONCRETE IN AN 8" DIAMETER HOLE WITH A DEPTH OF 36 INCHES.
   D. FENCING SHALL BE SCREENED WITH PVC SLATS, WINGED–SLATS OR APPROVED EQUAL. COLOR SHALL BE GREEN.

18. PUMPS SHALL BE GRUNDFOS OR CITY APPROVED EQUAL.

19. AUTO–FLUSH VALVE SHALL BE INSTALLED ON ONE PUMP.

20. FURNISH & INSTALL E–Z WRAP FILTER FABRIC AROUND JOINTS OF WETWELL RISER RING & TOP SLAB.

21. COAL TAR EPOXY SHALL BE APPLIED TO THE CONCRETE, DUCTILE IRON PIPE, AND VALVES WITHIN THE VALVE VAULT

22. FURNISH AND INSTALL EMERGENCY GENERATOR CONNECTION WITH MALE END COMPATIBLE WITH CITY OF EQUIPMENT.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

GENERAL NOTES
LIFT STATION CONSTRUCTION

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SLS–1A

MAR 2018

GENERAL NOTES
LIFT STATION REQUIREMENTS

1. FOR ALL PUMPS, AUXILIARY POWER CONNECTION SHALL BE 100A RUSSELL STOLL JRS1044FR GENERATOR RECEPTACLE WITH JAAB10 ANGLE ADAPTER OR CITY APPROVED EQUAL. RECEPTACLE SHALL BE FITTED WITH MALE END.
2. PUMP STATION MUST HAVE ACCESS AT ALL TIMES FOR CITY MAINTENANCE VEHICLES.
3. HAND – (ON–OFF) – AUTOMATIC SWITCHES ON ALL PUMPS.
4. MANUAL – (ON–OFF) – SWITCH ON ALL ALTERNATORS.
5. ONE ELAPSED TIME METER FOR EACH PUMP.
6. 120 VOLT RECEPTACLE INSIDE CONTROL BOX.
7. 3 PHASE CURRENT (WILL NOT ACCEPT ADD A PHASE OR CAPACITOR PHASE CHANGERS).
8. POWER CABLE TO PUMPS RUN IN CONDUIT SEPARATE FROM FLOAT SWITCH CONDUIT.
9. LIQUID FILLED PRESSURE GAUGE ON FORCE MAIN.
10. AS–BUILTS ON UNDERGROUND POWER SERVICE IF NOT INSTALLED BY F.P.& L.
11. MUST HAVE APPROVED LIFT STATION MANUALS, SHOP DRAWINGS, ETC.
12. KNIFE SWITCH DISCONNECT BETWEEN F.P.& L. AND LIFT STATION CONTROL PANEL – 316 STAINLESS STEEL.
13. CONCRETE LIGHT POLE.
14. 25W LED ALUMINUM SIMKAR DTDLED25.
15. 304 SS, NEMA 4X JUNCTION BOX..
16. ALLEN BRADLEY SOFT STARTS OR CITY APPROVED EQUAL REQUIRED FOR PUMPS 30 HP AND LARGER
17. PUMPS SHALL BE PROVIDED WITH MOTOR OVER–TEMPERATURE PROTECTION AND SEAL LEAK SENSORS. THE CONTROL PANEL SHALL SHUT DOWN THE MOTOR IN THE EVENT OF AN OVER–TEMPERATURE CONDITION. THE CONTROL PANEL SHALL PROVIDE AN INDICATION ONLY OF SEAL FAILURE.
18. SEAL GRAVITY PIPE AT WETWELL WITH RUBBER BOOT SEAL.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

GENERAL NOTES
LIFT STATION REQUIREMENTS

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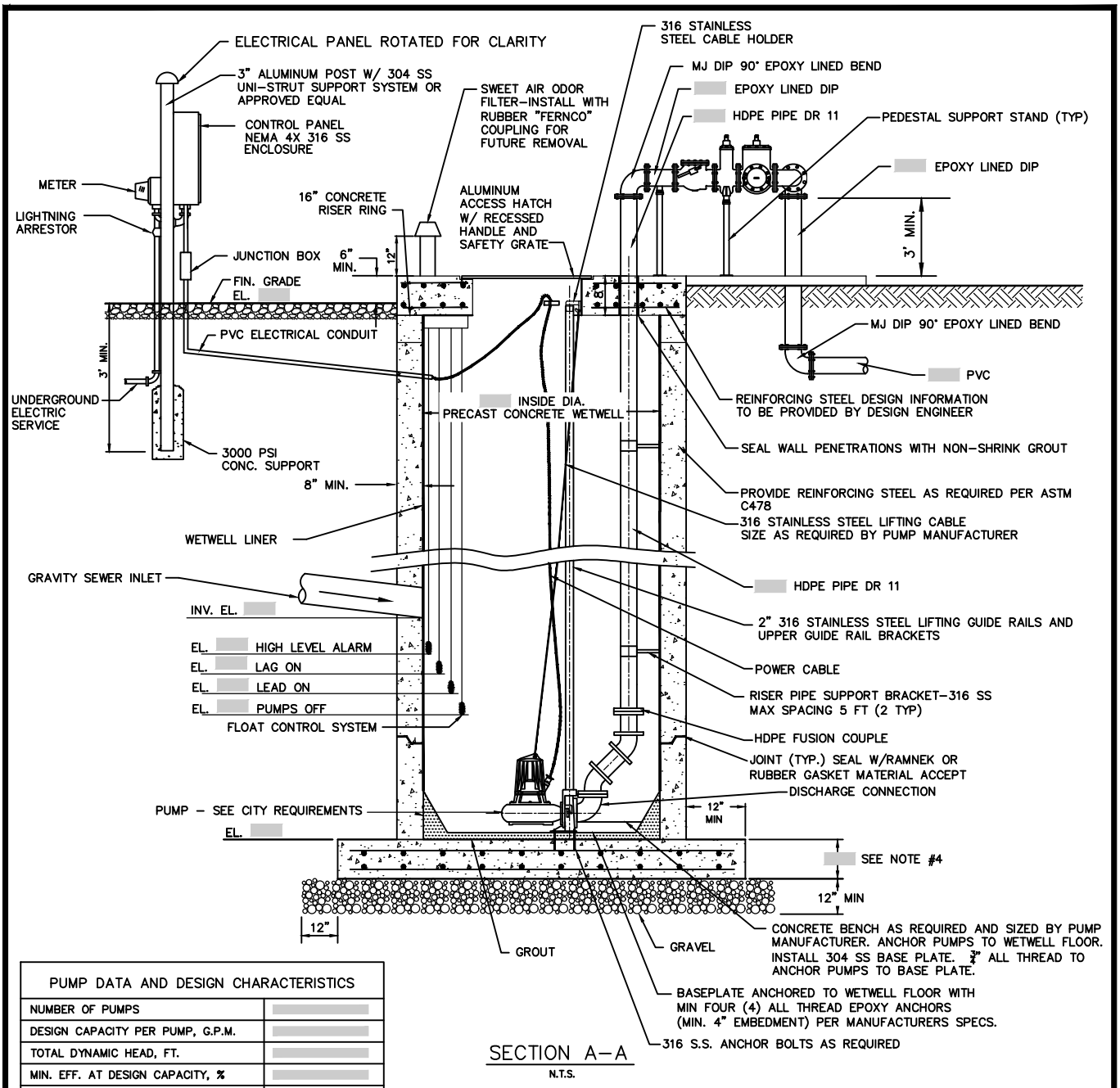
SLS–1B

MAR 2018



SECTION A-A
N.T.S.

PUMP DATA AND DESIGN CHARACTERISTICS	
NUMBER OF PUMPS	
DESIGN CAPACITY PER PUMP, G.P.M.	
TOTAL DYNAMIC HEAD, FT.	
MIN. EFF. AT DESIGN CAPACITY, %	
DESIGN SPEED, MAX R.P.M.	
MAX. HORSEPOWER PER PUMP, H.P.	
MIN. SHUTOFF HEAD, FT.	
MIN. SIZE SOLIDS, IN.	
MIN. DISCHARGE SIZE, IN.	
SECONDARY CAPACITY PER PUMP, G.P.M.	
SECONDARY HEAD, FT.	
PUMP MANUF. & MODEL NUMBER	
IMPELLER DIAMETER	
PUMP R.P.M.	
ELECT. SVC. - VOLTAGE & PHASE	

NOTE TO DESIGN ENGINEER:

1. SHADED BOXES ( ) INDICATE INFORMATION REQUIRED TO BE PROVIDED BY DESIGN ENGINEER (e.g., ELEVATIONS, DIMENSIONS OR PIPE SIZES).
2. ENGINEER IS REQUIRED TO SHOW UNDERGROUND PIPING ARRANGEMENT (SANITARY, F.M., WATER) IN THE SITE PLAN.
3. MINIMUM SITE DIMENSION IS 30' X 30' FOR FENCE AREA.
4. BOTTOM SLAB THICKNESS SHALL BE A MINIMUM OF 18" AND 7" FOR THE WETWELL AND VALVE VAULT, RESPECTIVELY. ENGINEER TO VERIFY IF ADDITIONAL THICKNESS IS REQUIRED.
5. STORAGE VOLUME BETWEEN "LEAD ON" AND "PUMPS OFF" ELEVATION SHALL EQUAL OR EXCEED THE VOLUME ONE PUMP CAN DISCHARGE IN THREE MINUTES WITH NO FLOW ENTERING THE WETWELL. LOW WATER LEVEL SHALL BE SET AS RECOMMENDED BY THE PUMP MANUFACTURER TO PROVIDE ADEQUATE COOLING OF THE MOTOR AND TO PREVENT VORTEXING AND CAVITATION FROM OCCURRING.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

SECTION VIEW
SEWAGE LIFT STATION

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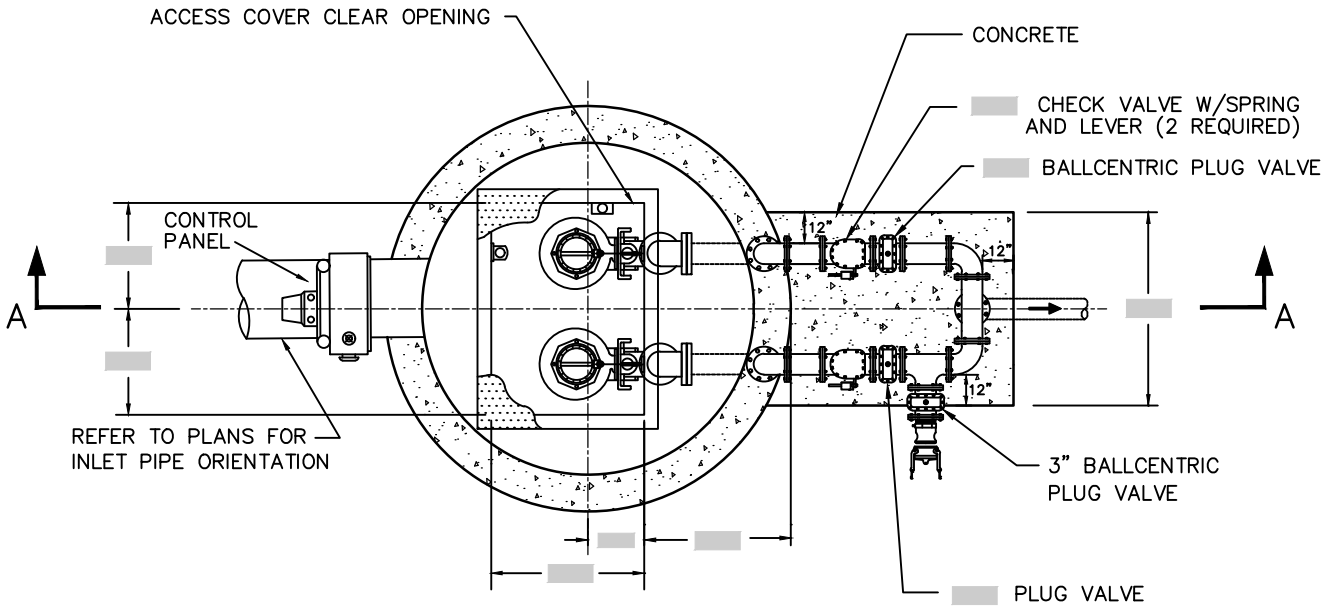
SLS-2A

MAR 2018



TYPICAL LIFT STATION PLAN VIEW

N.T.S.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

PLAN VIEW

SEWAGE LIFT STATION

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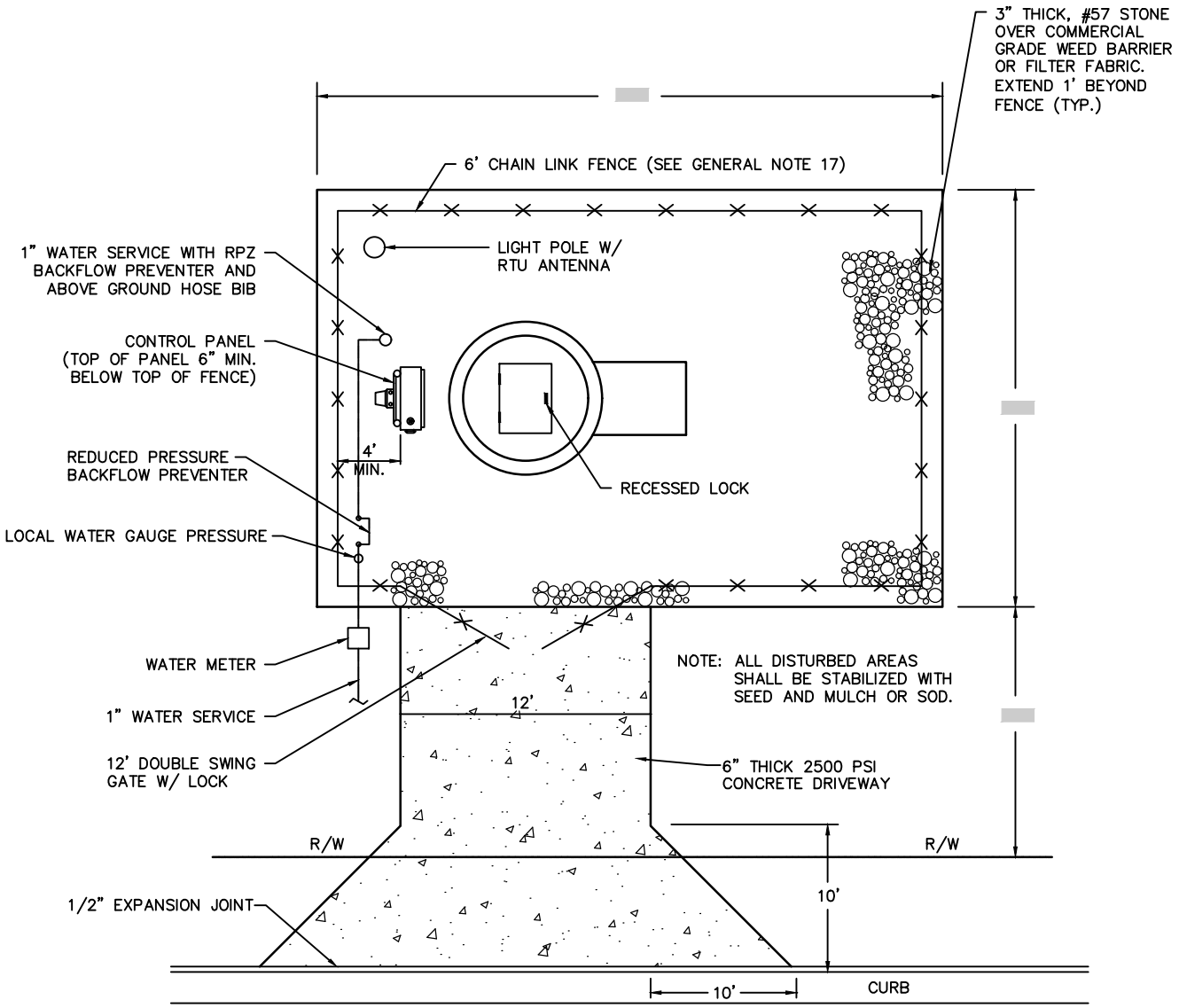

TYPICAL LIFT STATION SITE PLAN

N.T.S.

STANDARD CONSTRUCTION DETAIL

SITE PLAN
SEWAGE LIFT STATION

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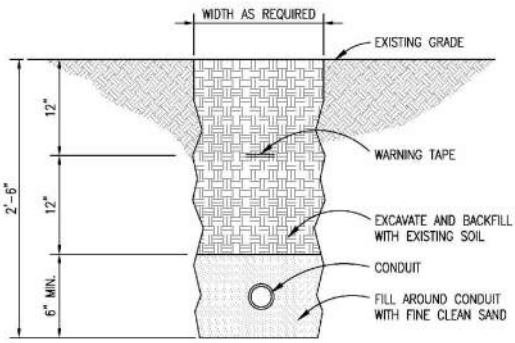
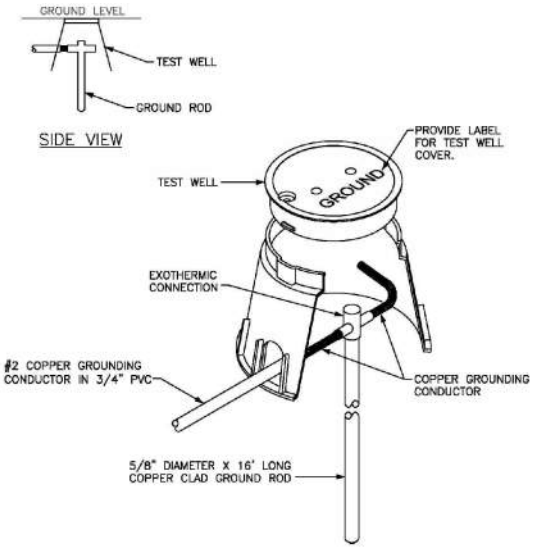
MAR 2018



THE CONTRACTOR SHALL, AT A MINIMUM, UTILIZE NPDES EROSION AND SEDIMENT CONTROL METHODS.

DIRECT BURIED CONDUIT DETAIL

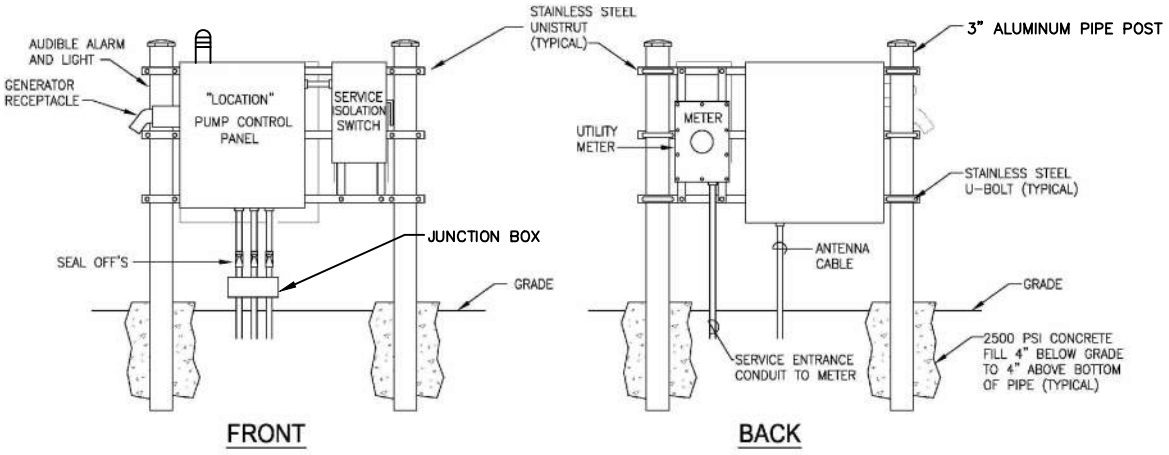
NOT TO SCALE



NOTES:
1. TEST GROUND PRIOR TO INSTALLATION OF GROUND ROD TO DETERMINE SOIL RESISTIVITY.
2. REFER TO GROUNDING NOTES FOR REQUIREMENTS.

GROUND ROD INSTALLATION DETAIL

NOT TO SCALE



TYPICAL ELECTRIC EQUIPMENT MOUNTING DETAIL

NOT TO SCALE

ELECTRICAL NOTES

1. CONTRACTOR SHALL APPLY FOR PERMIT FROM THE CITY FOR EACH PUMP STATION SITE.
2. ALARM LIGHT AND AUDIBLE ALARM SHALL BE INSTALLED ON THE PUMP CONTROL PANEL USING A WEATHER TIGHT CONNECTION.
3. REQUIREMENTS FOR PUMP CONTROL PANES ARE NOTED ON CITY STANDARD DETAILS AS INCLUDED IN THIS DRAWING SET.
4. SEAL-OFFS SHALL BE FILLED USING CHICO FIBER.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

ELECTRICAL EQUIPMENT
SEWAGE LIFT STATION

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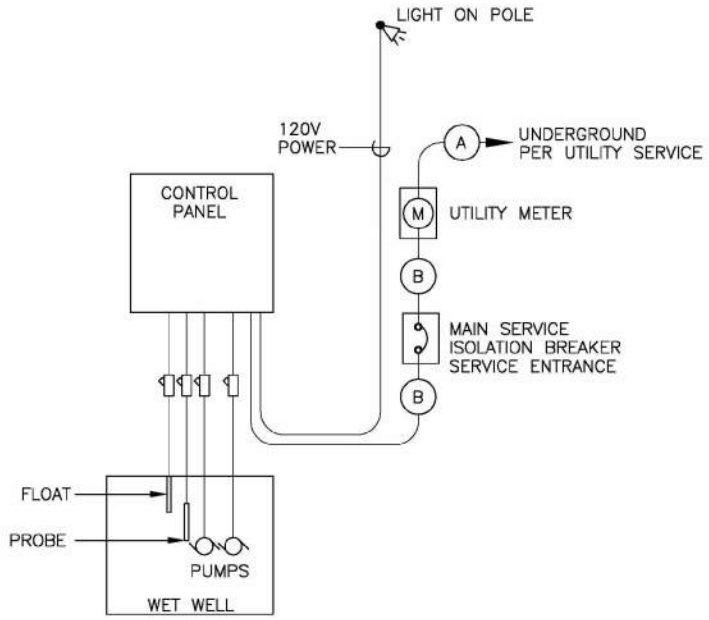

EQUIPMENT RISER DIAGRAM

NOT TO SCALE

MOTOR CIRCUIT PROTECTORS

CIRCUIT BREAKER TRIP SCHEDULE					
PUMP HORSEPOWER DUPLEX PUMP SYSTEM	5	7.5	10	15	20
AMPS @ 230 VOLTS (EACH PUMP)	15.2	22	28	42	54
PUMP BREAKER P1 CB	30	40	50	100	100
PUMP BREAKER P2 CB	30	40	50	100	100
SERVICE ISOLATION SWITCH	125	125	125	200	200
PANEL MAIN & GEN. BREAKER CPM & CPG	125	125	125	150	200
GENERATOR RECEPTACLE	100	100	200	200	200

GENERATOR RECEPTACLE:
100A RUSSELL STOLL JR1044FR GENERATOR RECEPTACLE WITH JAAB10 ANGLE ADAPTER OR CITY APPROVED EQUAL.

FEEDER SCHEDULE			
SYMBOL	DUPLEX PUMP HP	CONDUIT	CONDUCTOR
(A)	5 – 10	PER FPL	3 #1 & 1 #1 NEUTRAL
(B)	5 – 10	1–1/2"	3 #1 & 1 #1 NEUTRAL
(A)	15 – 20	PER FPL	3 #3/0 & 1 #3/0 NEUTRAL
(B)	15 – 20	2"	3 #3/0 & 1 #3/0 NEUTRAL

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

EQUIPMENT RISER
SEWAGE LIFT STATION

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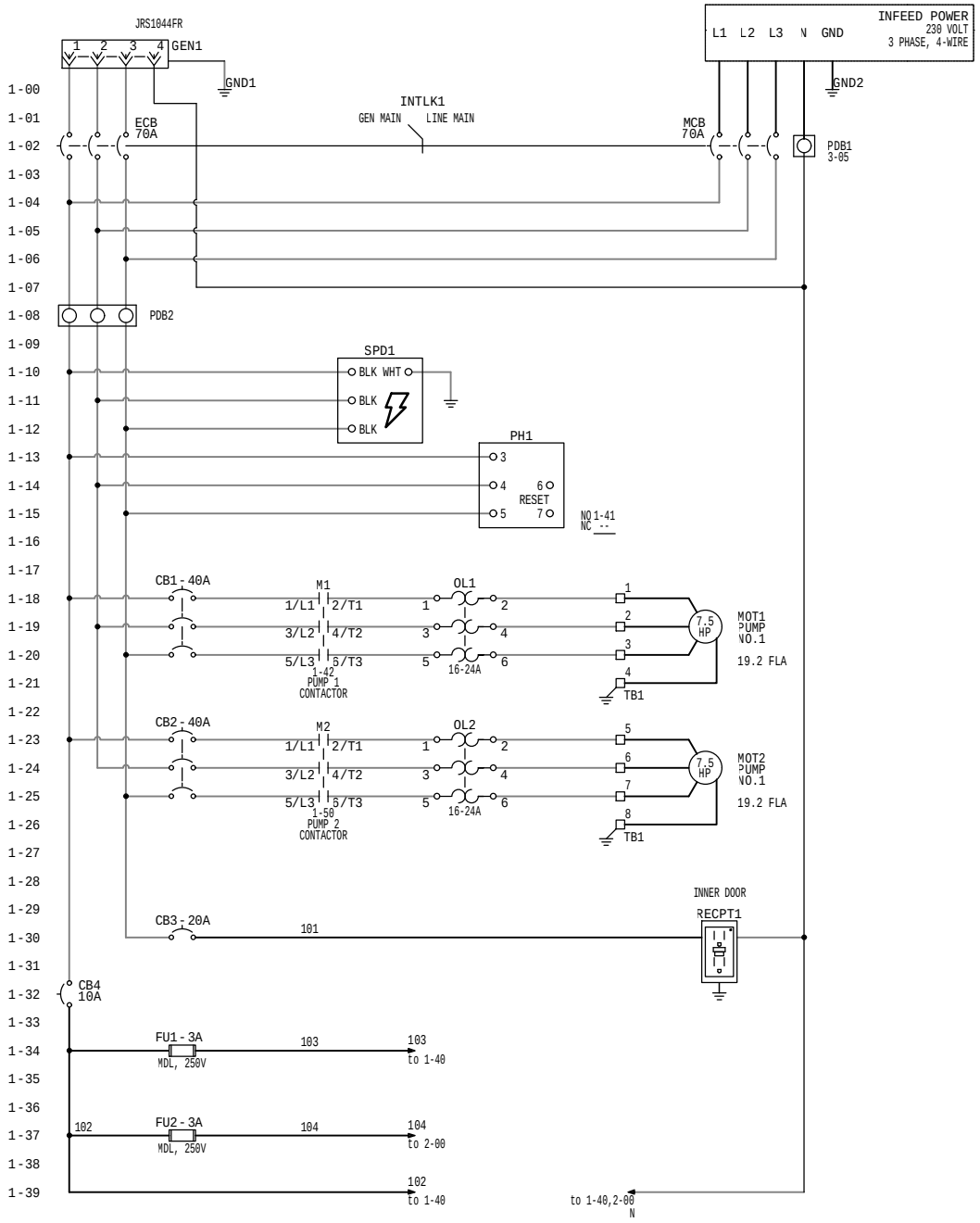

STANDARD CONSTRUCTION DETAIL

ELECTRICAL PANEL REQUIREMENTS
SEWAGE LIFT STATION

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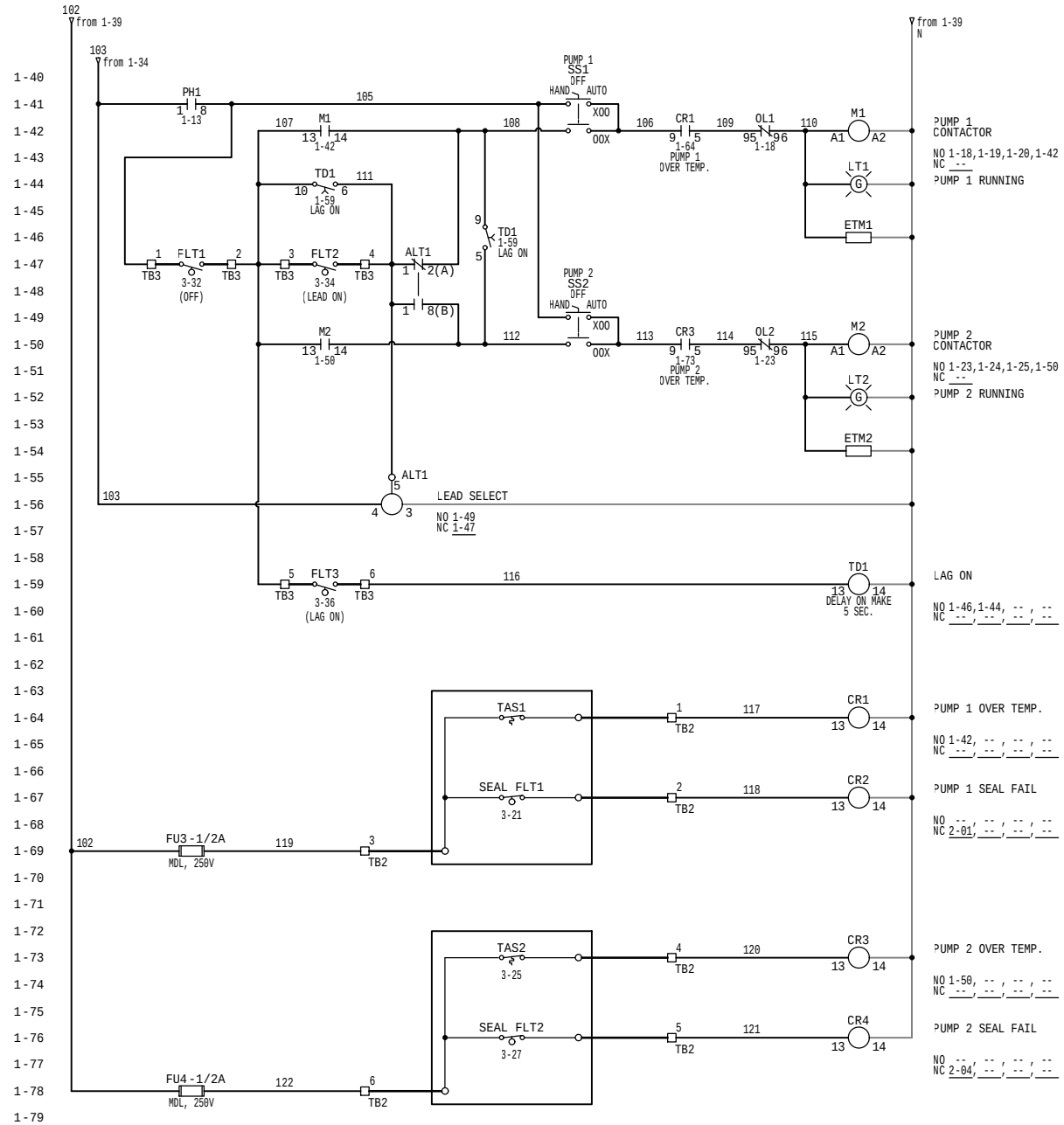
MAR 2018



CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

ELECTRICAL PANEL REQUIREMENTS
SEWAGE LIFT STATION

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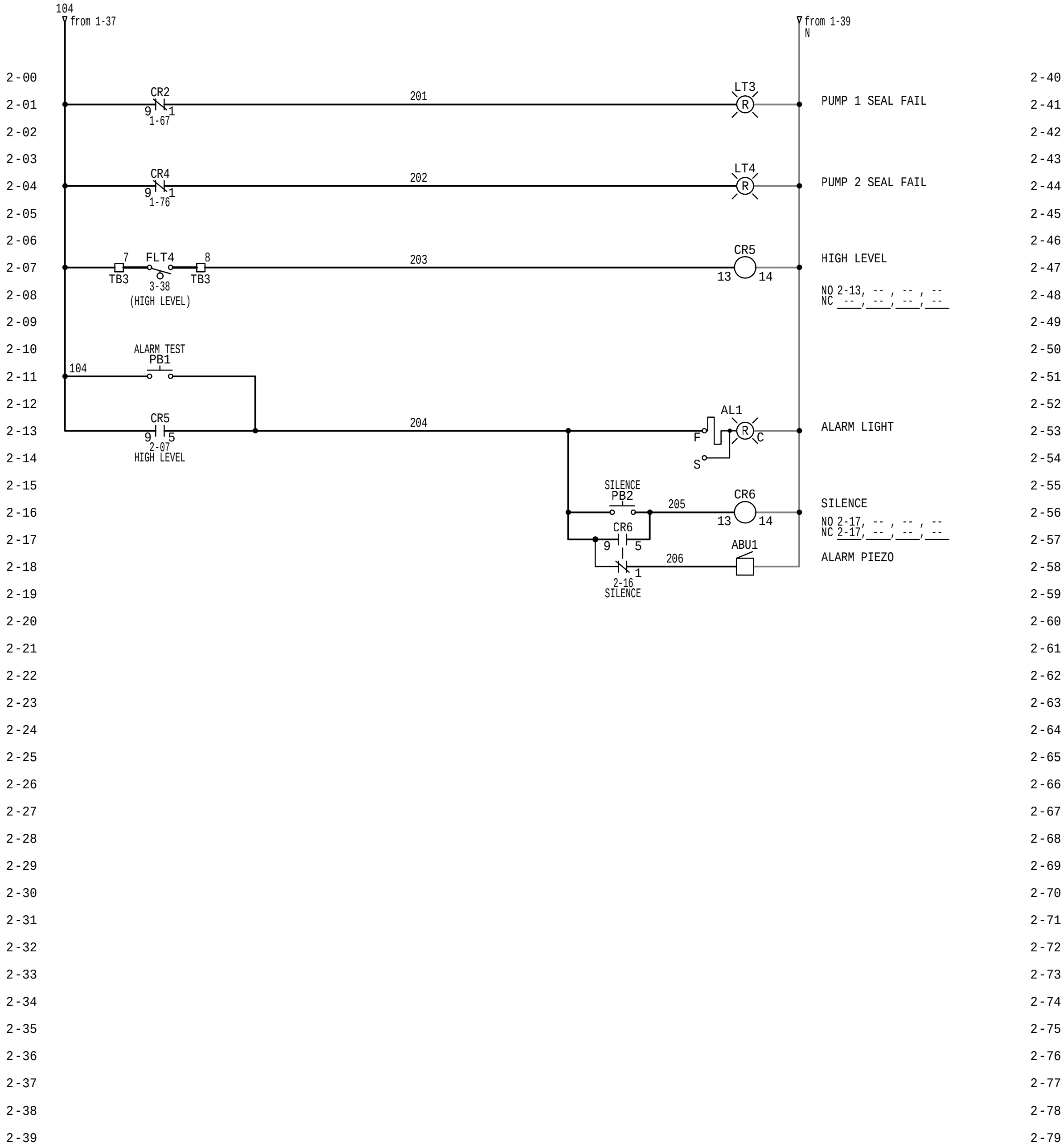

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

ELECTRICAL PANEL REQUIREMENTS
SEWAGE LIFT STATION

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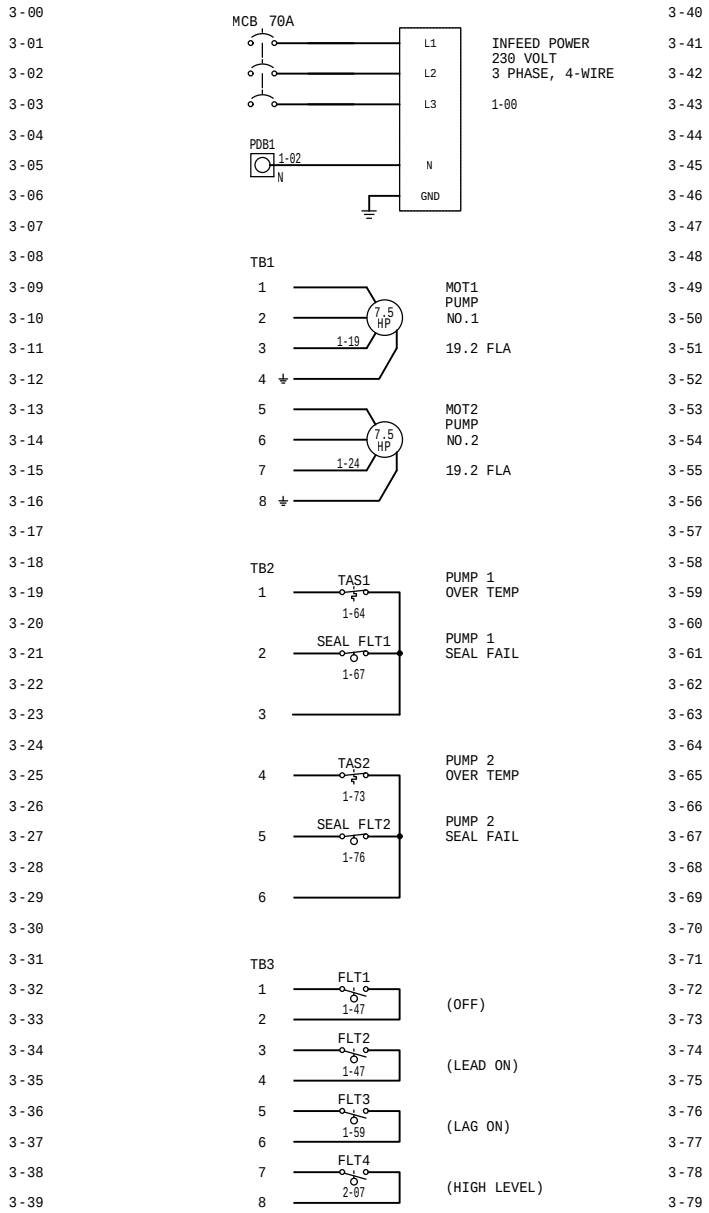
FIELD WIRING SECTION



NOTES:
1. FIELD WIRING IS SHOWN - - - - - - - - - - - -
2. TEMPERATURE RATING OF FIELD INSTALLED CONDUCTORS LESS THAN 100 AMPS MUST BE RATED 60DEG C OR ABOVE. FIELD INSTALLED CONDUCTORS GREATER THAN OR EQUAL TO 100 AMPS MUST BE RATED 75 DEG C OR ABOVE.
3. FIELD WIRING WILL ACCEPT COPPER CONDUCTORS ONLY.
4. FOR FIELD WIRING REFER TO COMPONENT, OR TORQUE RATING DATASHEET.
5. INSTALLER MUST PROVIDE SHORT CIRCUIT PROTECTION FOR THE CONDUCTORS FEEDING TO THIS ELECTRICAL ASSEMBLY.

FIELD WIRING TORQUE SPECIFICATIONS			
TERMINATION	WIRE SIZE	TORQUE	
INCOMING POWER (MCB)	#8 – 3/0 AWG #14 – 10 AWG	120 LB–IN 50 LB–IN	
INCOMING NEUTRAL (PB1)	#4 – 350KCM AWG	275 LB–IN	
PUMP POWER (TB1)	#20 – #6 AWG	13.3 – 15.9 LB–IN	
CONTROL & SENSORS (TB2, TB3)	#24 – #8 AWG	13.3 – 15.9 LB–IN	
GROUND LUG (GND1)	#2 – 1/0 AWG #8 – #4 AWG #14 – #10 AWG	50 LB–IN 45 LB–IN 35 LB–IN	

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL

ELECTRICAL PANEL REQUIREMENTS
SEWAGE LIFT STATION

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