

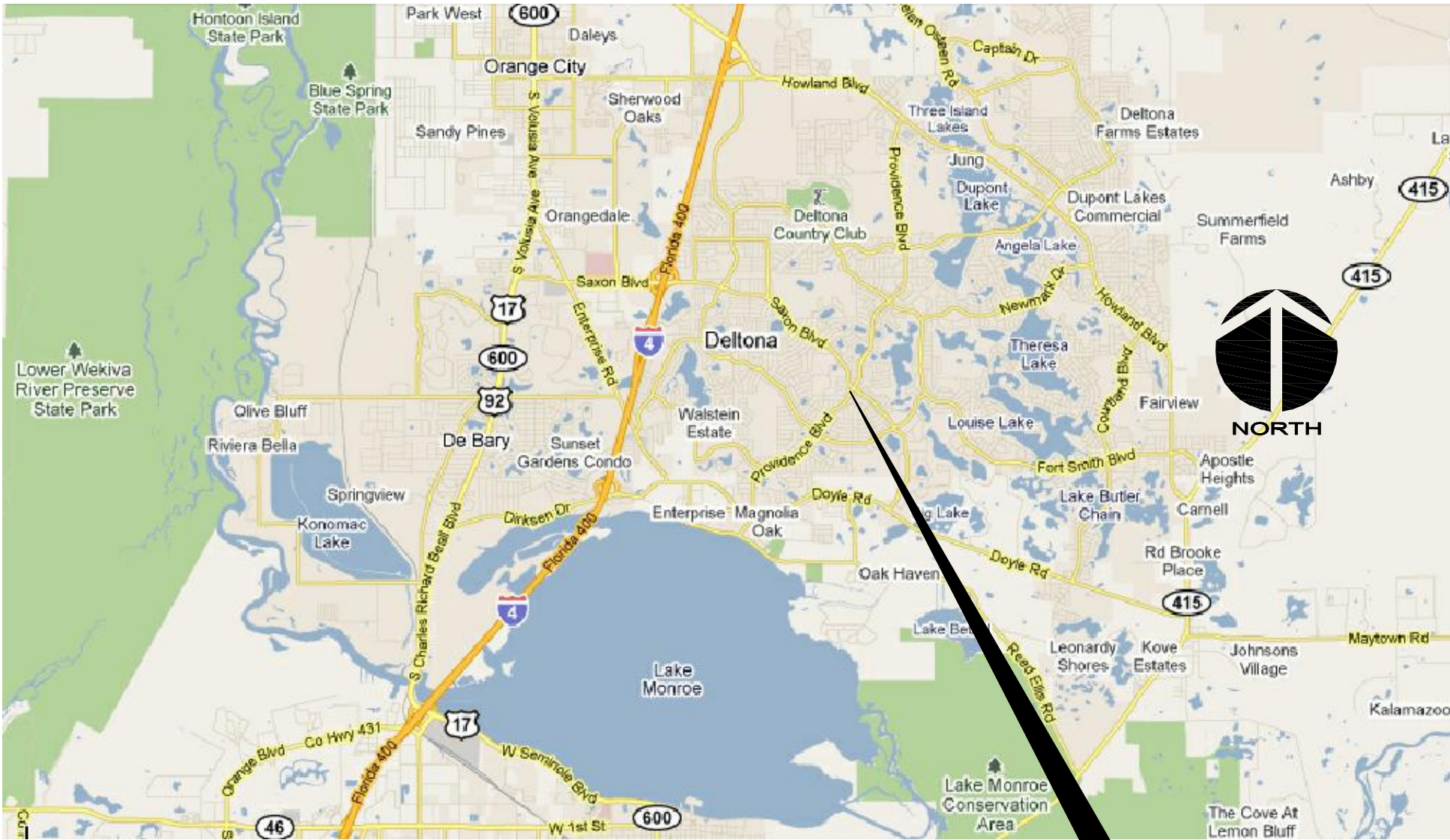
PROVIDENCE BLVD. DRAINAGE PIPE REPLACEMENT

FOR VOLUSIA COUNTY DELAND, FLORIDA

COUNTY COUNCIL

- FRANK T. BRUNO JR - COUNTY CHAIR**
- JOYCE M. CUSACK - VICE CHAIR AT - LARGE**
- ANDY KELLEY - DISTRICT #1**
- JOSHUA J. WAGNER - DISTRICT #2**
- JOIE ALEXANDER - DISTRICT #3**
- CARL G. PERSIS - DISTRICT #4**
- PATRICIA NORTHEY - DISTRICT #5**

**COUNTY MANAGER
JAMES DINNEEN**



PROJECT LOCATION

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
GENERAL	
G-1	COVER SHEET, PROJECT LOCATION MAP, INDEX OF SHEETS
G-2	LEGEND AND ABBREVIATIONS
CIVIL	
C-1	PROVIDENCE BOULEVARD-PLAN AND PROFILE
C-2	DETAILS
C-3	DETAILS
C-4	MAINTENANCE OF TRAFFIC



DAYTONA BEACH FLORIDA

SURVEY NOTES:

1. THE PURPOSE OF THIS SURVEY IS TO IDENTIFY THE EXISTING FEATURES WITHIN THE PROJECT AREA FOR THE ENGINEERING DESIGN OF STORM WATER UTILITY FEATURE UPGRADING AND/OR REPLACEMENT.
2. THE HORIZONTAL BASIS OF BEARINGS FOR THIS SURVEY ARE PER THE PLAT OF DELTONA LAKES UNIT FIFTY FIVE AS RECORDED IN MAP BOOK 28, PAGES 53 THROUGH 57 OF THE VOLUSIA COUNTY OFFICIAL RECORDS BEING N59°13'46"W ALONG THE CENTER LINE OF THE RIGHT OF WAY OF SAXON BOULEVARD (FORMERLY ST. JOHN'S BOULEVARD) ALSO BEING THE BASELINE OF SURVEY.
3. THE VERTICAL DATUM FOR THIS SURVEY IS BASED UPON NGVD 1929 AND IS REFERENCED TO THE NGS DATA POINT DESIGNATED AS H 620, PID D14543 WITH A PUBLISHED ELEVATION OF 70.03 FEET (68.98 FEET NAVD 1988).
4. ALL DIMENSIONS SHOWN HEREON ARE IN U.S. SURVEY FEET AND DECIMALS THEREOF.
5. THE PROJECT LIMITS FALL WITHIN FLOOD ZONE "X" PER THE FEMA NFIP MAP 12127C 0650G, HAVING AN EFFECTIVE DATE OF 04/15/2002.
6. TREES DEPICTED UPON THIS SURVEY MAP HAVE NOT BEEN CERTIFIED AS TO THE GENUS, SPECIE OR SIZE BY A LICENSED LANDSCAPE ARCHITECT OR CERTIFIED ARBORIST.
7. ABOVE GROUND UTILITY APPURTENANCES HAVE BEEN LOCATED DURING THE FIELD SURVEY. UNDERGROUND UTILITIES DEPICTED HEREON WERE LOCATED BASED UPON FIELD MARKS PLACED BY THE RESPECTIVE UTILITY OWNERS PER A SUNSHINE ONE UTILITY LOCATE CALL PLACED BY MCKIM AND CREED, PA.
8. DUE TO STORM WATER APPURTENANCE CONSTRUCTION, NOT ALL INVERTS IN THESE STRUCTURES WERE ABLE TO BE MEASURED.
9. NO "SOFT DIG" OF UNDERGROUND UTILITIES WAS PERFORMED. PRIOR TO RELYING UPON THE INFORMATION DEPICTED HEREON FOR UNDERGROUND UTILITY CONSTRUCTION, CONNECTION OR EXTENSION, THE UTILITY MUST BE EXPOSED AND THE INFORMATION VERIFIED.
10. NO UNDERGROUND FOUNDATIONS HAVE BEEN LOCATED AS PART OF THIS SURVEY.
11. THIS SURVEY WAS PERFORMED IN THE FIELD BETWEEN 5/17/2011 AND 5/26/2011.
12. THIS IS NOT A BOUNDARY OR RIGHT OF WAY SURVEY.
13. PROPERTY LINE INFORMATION SHOWN HEREON IS BASED UPON THE RECORD MAPS OF DELTONA LAKES UNIT FIFTY FIVE AS RECORDED IN MAP BOOK 28, PAGES 53 THROUGH 57, DELTONA LAKES UNIT ELEVEN AS RECORDED IN MAP BOOK 25, PAGES 193 THROUGH 206 AND DELTONA LAKES UNIT SEVEN AS RECORDED IN MAP BOOK 25 PAGES 149 THROUGH 162 OF THE VOLUSIA COUNTY OFFICIAL RECORDS.
14. ATS LAND SURVEYING, LLC MAKES NO CLAIM REGARDING THE OWNERSHIP OR RIGHTS OF POSSESSION OF ANY PROPERTY DEPICTED HEREON OR REGARDING ANY REPRESENTATION OF ROAD RIGHT OF WAY(S).
15. THERE MAY BE ADDITIONAL EASEMENTS, RESTRICTIONS AND/OR MATTERS OF SURVEY NOT SHOWN ON THIS MAP WHICH MAY BE FOUND IN THE CITY OR COUNTY REPOSITORY.
16. THIS SURVEY MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION. THE ORIGINAL SCALE OF THIS DRAWING IS 1 INCH EQUALS 20 FEET AS DISPLAYED ON MEDIA SIZED 24 INCHES BY 36 INCHES.
17. THIS SURVEY MAP IS NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL EMBOSSED SEAL OF A FLORIDA PROFESSIONAL SURVEYOR AND MAPPER.

LEGEND

	CONCRETE UTILITY POLE		PALM TREE (SIZE AS NOTED)
	ELECTRIC JUNCTION BOX		UTILITY POLE
	GAS VALVE		SANITARY SEWER FORCE MAIN VALVE
	GRATE INLET		SIGN
	GUY ANCHOR		SANITARY SEWER MANHOLE
	IRON ROD AND CAP (AS NOTED)		STORM SEWER MANHOLE
	LIGHT POLE		TELEPHONE MANHOLE
	LIGUSTRUM (SIZE AS NOTED)		TELEPHONE PEDESTAL
	MAILBOX		WATER METER
	METAL UTILITY POLE		HARD SURFACE SPOT ELEVATION
	OAK TREE (SIZE AS NOTED)		SOFT SURFACE SPOT ELEVATION

ABBREVIATIONS

CMP	CORRUGATED METAL PIPE
CPP	CORRUGATED PLASTIC PIPE
E:	EASTING
ECP	ELLIPTICAL REINFORCED CONCRETE PIPE
FND	FOUND
ID	IDENTIFICATION
INV	INVERT
LB	LICENSED SURVEY BUSINESS
MB	MAP BOOK
N:	NORTHING
NAVD 1988	NORTH AMERICAN VERTICAL DATUM OF 1988
NGVD 1929	NATIONAL GEODETIC VERTICAL DATUM OF 1929
O/S	OFFSET
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PG/PGS	PAGE/PAGES
PID	POINT IDENTIFICATION
PSM	PROFESSIONAL SURVEYOR AND MAPPER
RCP	REINFORCED CONCRETE PIPE
STA	STATION
TYP	TYPICAL
VCP	VITRIFIED CLAY PIPE
Z:	ELEVATION

LINE TYPES

—OHE—	OVERHEAD ELECTRIC LINE
—UGE—	UNDERGROUND ELECTRIC LINE
—GAS—	UNDERGROUND GAS LINE
— FM —	SANITARY SEWER FORCE MAIN
—□—	CHAIN LINK FENCE (AS NOTED)

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REVNO.	DESCRIPTIONS REVISIONS	DATE
A	RELEASED FOR BIDDING	FEB 2012


SEAL

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**VOLUSIA COUNTY,
FLORIDA**

**PROVIDENCE BLVD. DRAINAGE PIPE
REPLACEMENT**

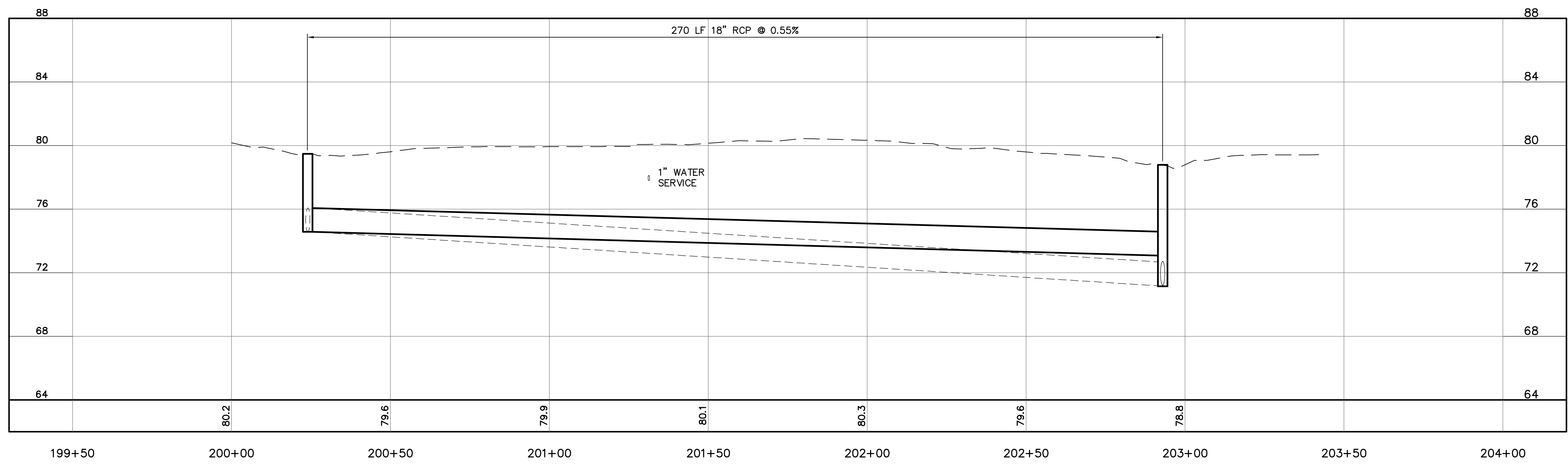
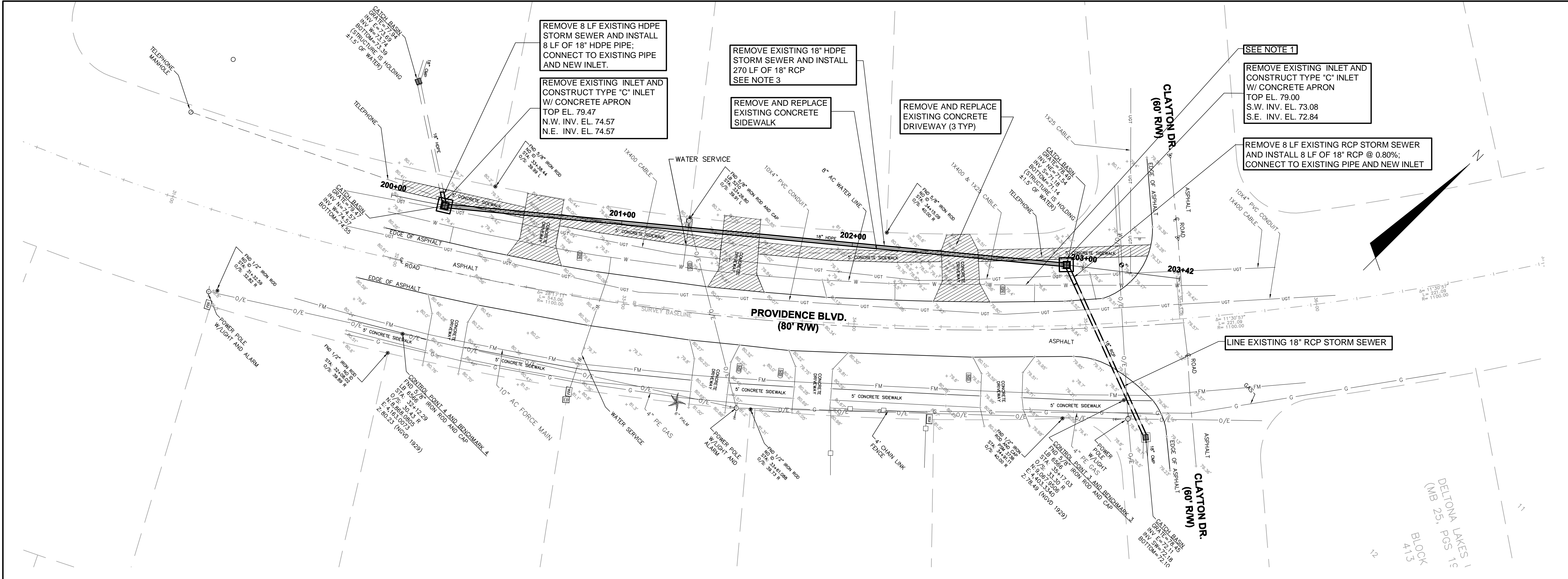
LEGEND AND ABBREVIATIONS

DATE:	FEBRUARY 2012
MCE PROJ. #	1041-0044
DRAWN	BFN
DESIGNED	SRS
CHECKED	SRS
PROJ. MGR.	SRS

SCALE	
HORIZONTAL:	NA
VERTICAL:	NA

M&E FILE NUMBER	GN002
DRAWING NUMBER	G-2

STATUS: **RELEASED FOR BIDDING**



LEGEND

[Hatched Box] EXTENT OF CONCRETE SIDEWALK AND DRIVEWAY REMOVAL AND REPLACEMENT

- NOTES:**
- THE CONTRACTOR IS REQUIRED TO CONTACT VOLUSIA COUNTY AND THE CITY DELTONA PRIOR TO STARTING CONSTRUCTION. CONTACT INFORMATION IS:
VOLUSIA COUNTY:
 MR. DAVID PADGETT (386) 561-0633
CITY OF DELTONA:
 MR. GERALD CHANCELLER, PE (386) 878-8998
 - REGRADE AREA BETWEEN DRIVEWAY AND CLAYTON DRIVE AND SLOPE TO NEW INLET.
 - SODDING LIMITS SHALL BE FROM THE EDGE OF PAVEMENT TO RIGHT-OF-WAY LINE ON PROVIDENCE BLVD.
 - COST TO REMOVE AND REPLACE STORM SEWER SHALL INCLUDE EFFORT TO RELOCATE OR SUPPORT EXISTING UTILITES AND STRUCTURES.

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VOLUSIA COUNTY,
 FLORIDA

PROVIDENCE BLVD. DRAINAGE PIPE REPLACEMENT

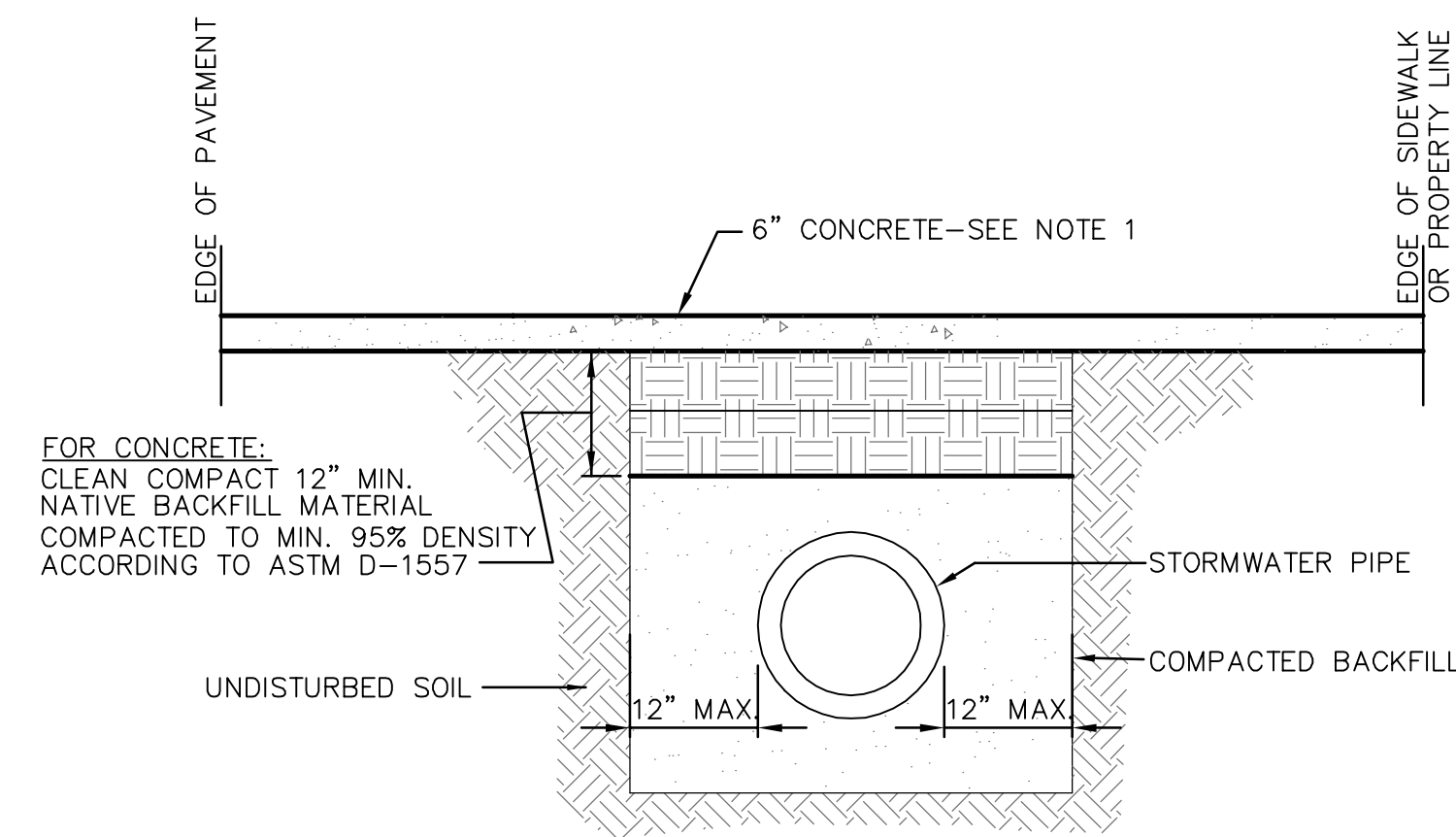
PROVIDENCE BOULEVARD
 PLAN AND PROFILE

DATE:	FEBRUARY 2012	SCALE:	1"=20'
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DRAWN:	DMP	VERTICAL:	
DESIGNED:	TNT		
CHECKED:	SRS		
PROJ. MGR.	SRS		

MAC FILE NUMBER: CU103
 DRAWING NUMBER: C-1

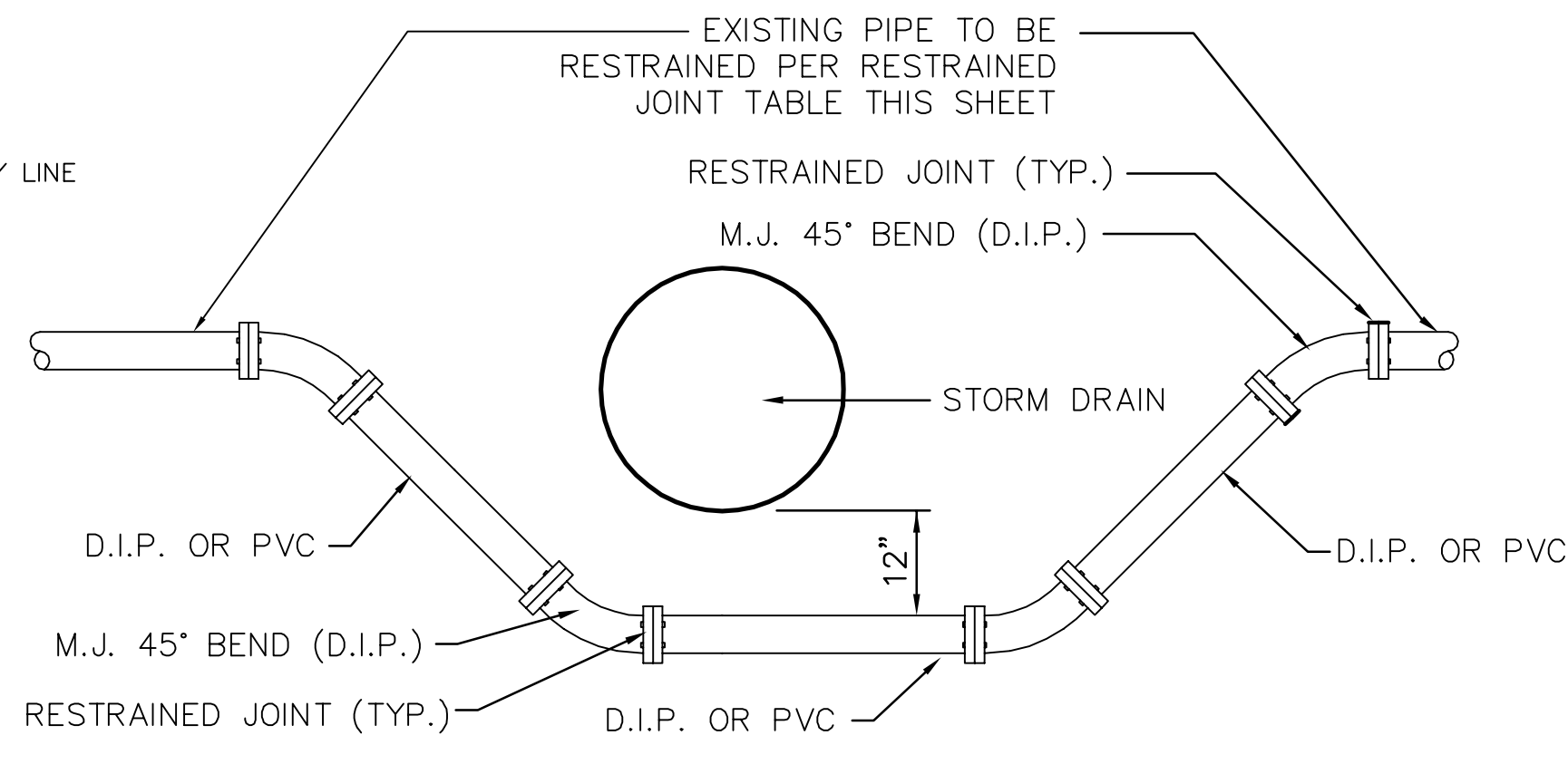
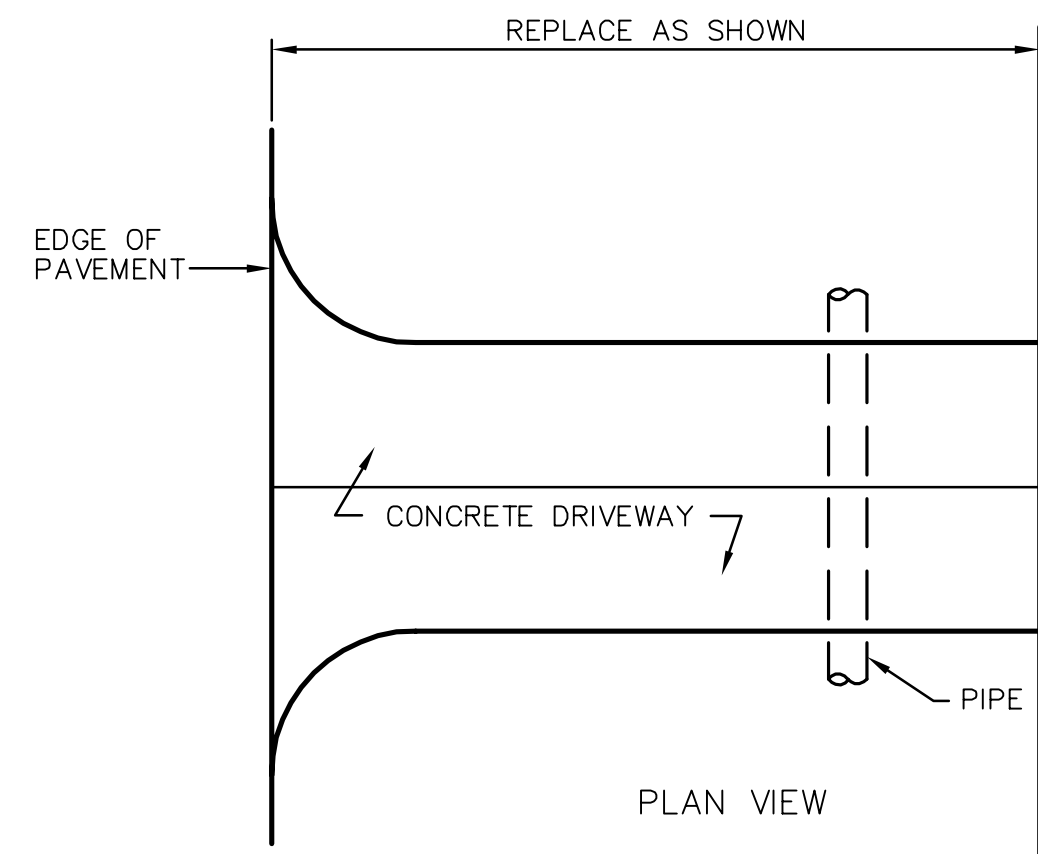
STATUS: RELEASED FOR BIDDING

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DRIVEWAY REPAIR DETAIL
NOT TO SCALE

NOTES:
1. CONCRETE SHALL BE 4000 PSI AND REINFORCED WITH FIBERMESH.
2. JOINTING SHALL MATCH EXISTING.



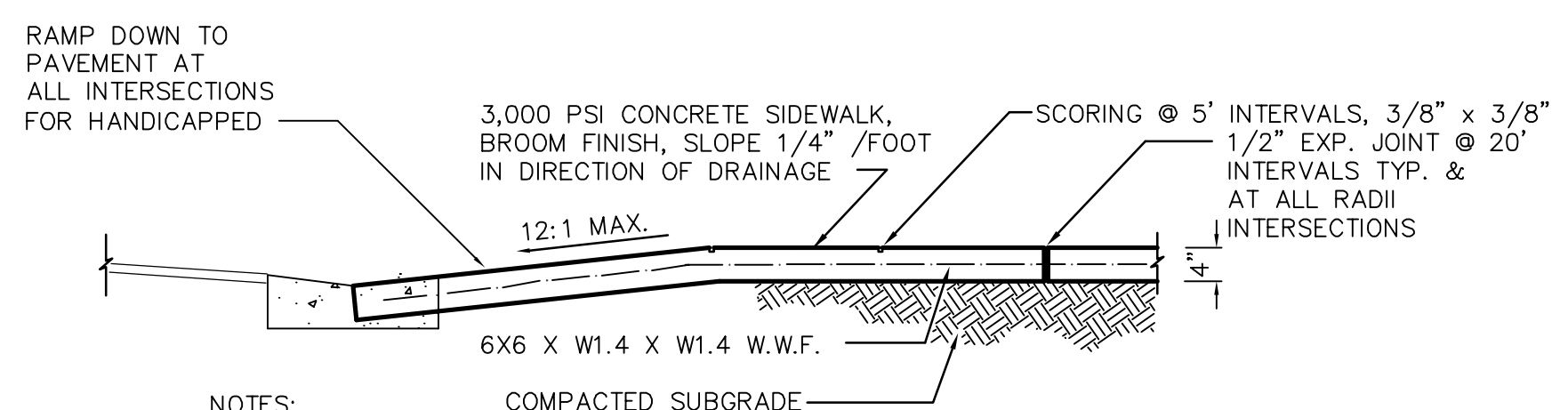
UTILITY LOWERING DETAIL
NOT TO SCALE

REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (NON-WRAPPED)

MAIN PIPE SIZE	HORIZ. BENDS			TEES		REDUCERS		PLUGS & VALVES
	90°	45°	22.5°	SIZE	LENGTH	SIZE	LENGTH	
36	100	42	20	X36	163	X30	130	188
30	88	37	18	X30	138	X24	104	162
24	75	31	15	X24	112	X18	87	135
20	65	27	13	X20	93	X16	67	116
16	54	22	11	X16	73	X12	44	96
12	43	18	8	X12	53	X10	37	75
10	37	15	7	X10	42	X8	28	63
8	30	13	6	X8	32	X6	21	53
6	24	10	5	X6	19	X4	11	41
4	17	7	3	X4	8	X3	4	29

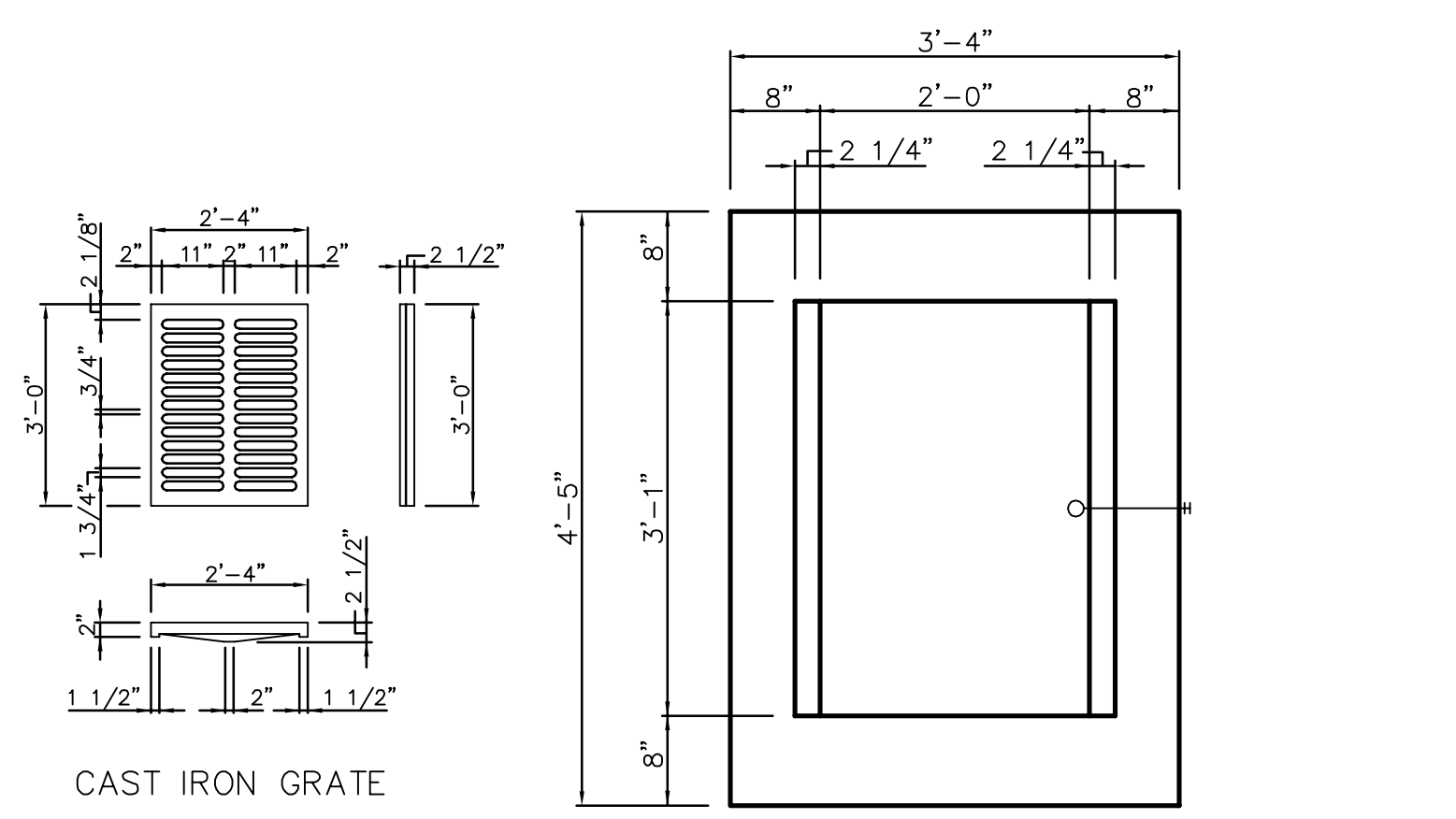
REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DR-18 PVC PIPE

MAIN PIPE SIZE	HORIZ. BENDS			TEES		REDUCERS		PLUGS & VALVES
	90°	45°	22.5°	SIZE	LENGTH	SIZE	LENGTH	
24	90	38	18	X24	169	X16	132	214
20	78	32	16	X20	141	X14	101	184
16	66	27	13	X16	111	X12	83	151
12	52	22	10	X12	80	X10	56	118
10	44	18	9	X10	63	X8	40	100
8	37	15	7	X8	49	X6	31	83
6	29	12	6	X6	32	X4	18	63
4	21	8	4	X4	12	X3	7	45

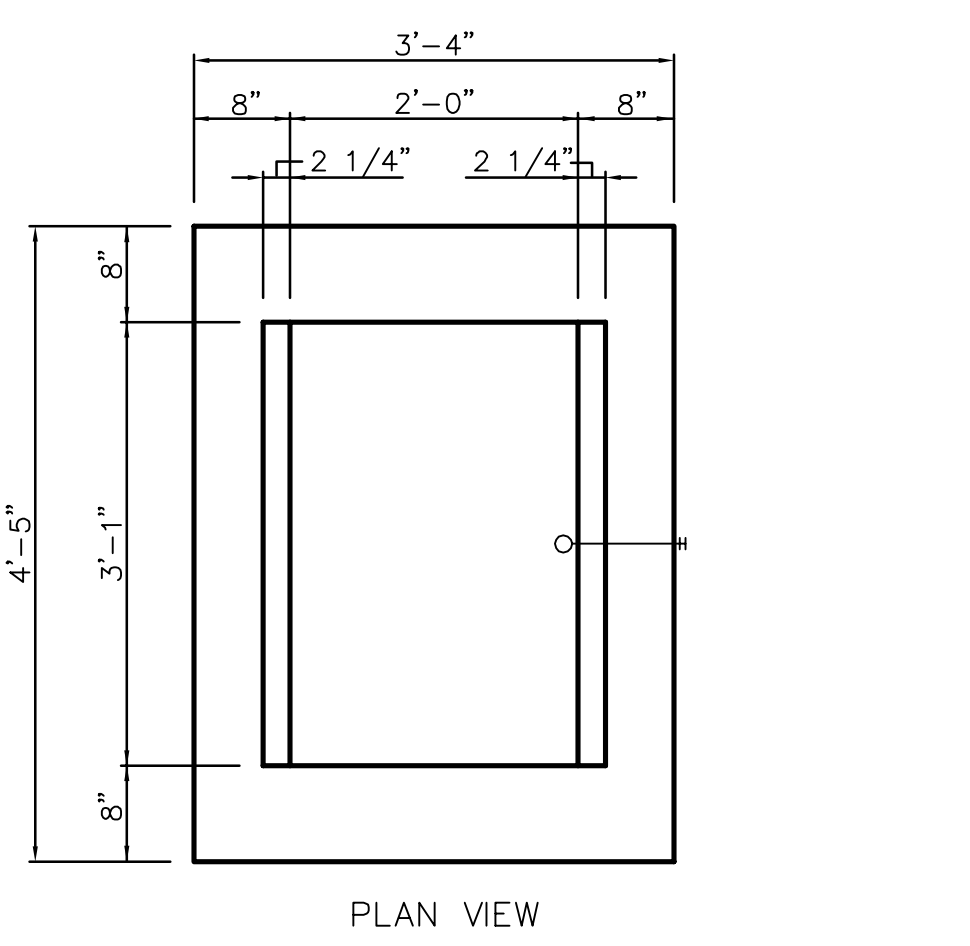


CONCRETE SIDEWALK DETAIL
NOT TO SCALE

NOTES:
1. A MINIMUM OF 1" OF SEPARATION IS REQUIRED BETWEEN THE SIDEWALK AND ALL STORM STRUCTURES. IN LOCATIONS WHERE SIDEWALK MUST JOG AROUND OBSTRUCTIONS PROVIDE 20" TRANSITION ON EACH SIDE.
2. ALL SIDEWALK SHALL MATCH THE EXISTING WIDTH OF SIDEWALK BEING REPLACED.

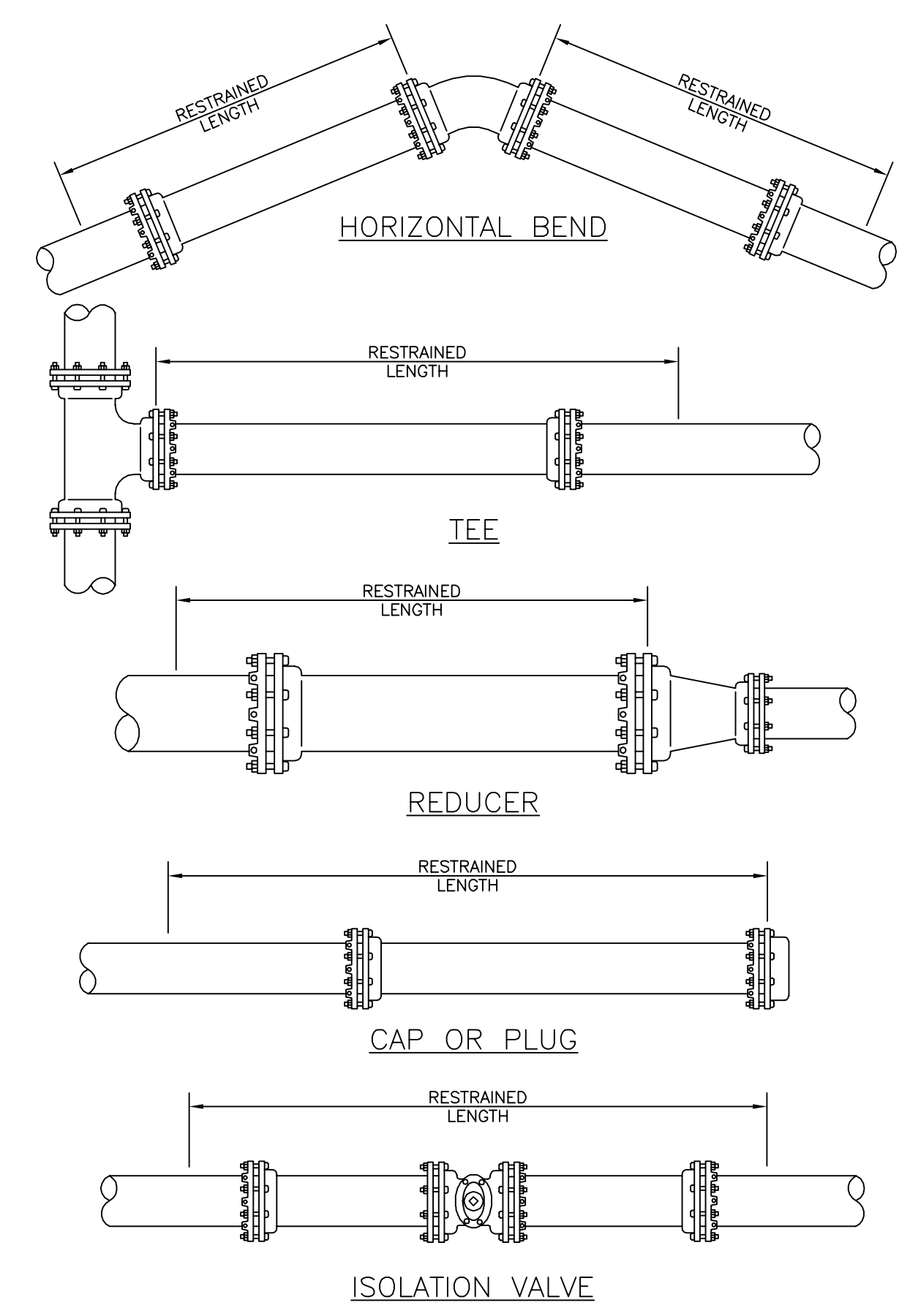


NOTE:
1. FOR ALL TYPES OF INLETS, AN 18" WIDE CONCRETE APRON SHALL BE PLACED AROUND THE PERIMETER OF THE STRUCTURE. USE COMMERCIAL GRADE FIBERMESH IN MIX.

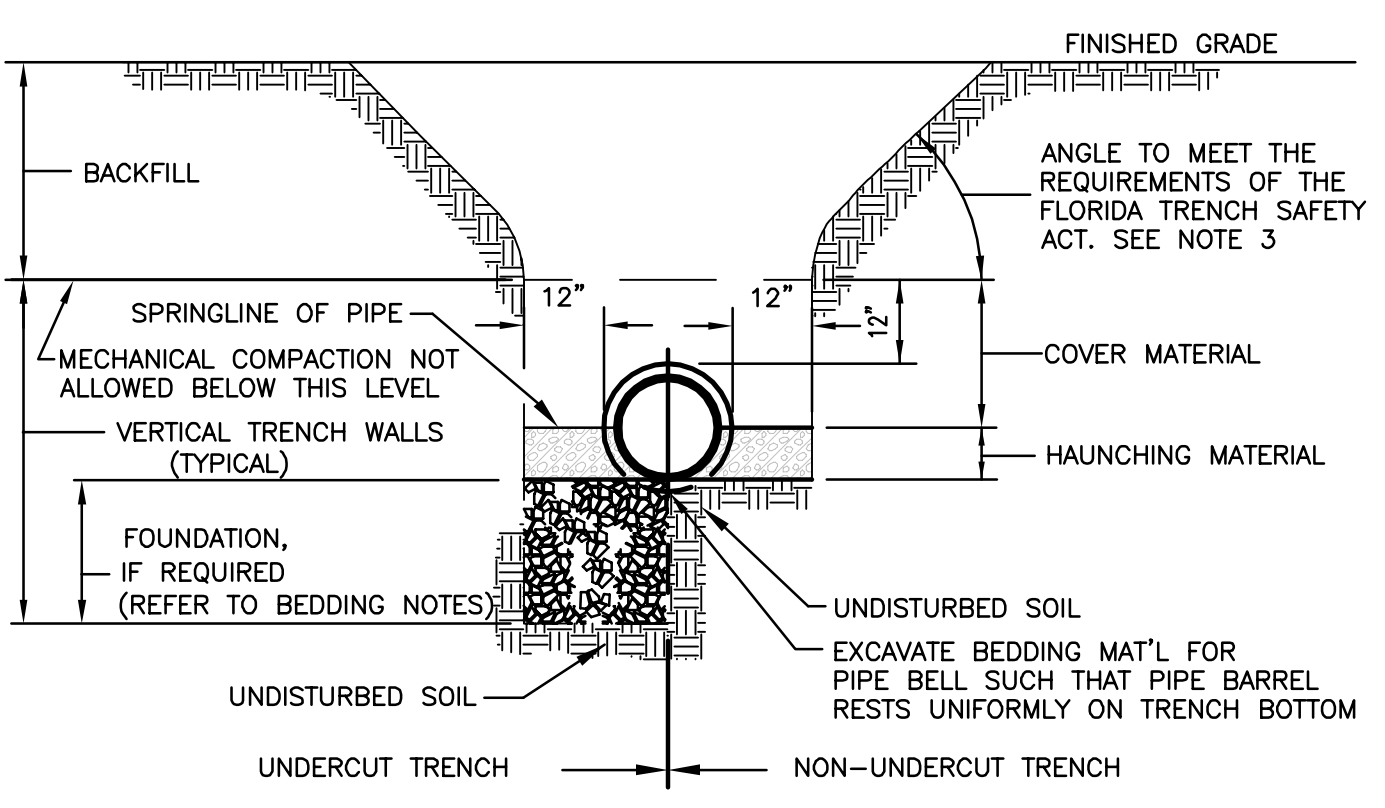


RECOMMENDED MAXIMUM PIPE SIZES:
2'-0" WALL - 18" PIPE
3'-1" WALL - 24" PIPE

TYPE "C" INLET
NOT TO SCALE



RESTRAINED LENGTHS FOR PIPE
NOT TO SCALE



TYPICAL DETAIL-OPEN CUT

1. BEDDING NOTES:
- A. NORMALLY APPROVED CLEAN BACKFILL MATERIAL WILL BE USED AS A 4-INCH TYPICAL BEDDING UNDER THE PIPE. HOWEVER, WHERE UNSTABLE OR UNSUITABLE MATERIAL EXISTS FOR BEDDING, AS DETERMINED BY THE UTILITY INSPECTOR AND / OR DESIGN ENGINEER, A SUFFICIENT DEPTH OF THE UNSTABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH NOT LESS THAN 6-INCHES NOR MORE THAN 24-INCHES OF ONE OF THE FOLLOWING MATERIALS:
 - (1) APPROVED CLEAN BACKFILL (FROM ADJACENT AREA)
 - (2) FDOT SIZE 6 AGGREGATE (3/8-INCH TO 3/4-INCH)
 - (3) CRUSHED SHELL AS REQUIRED TO IMPLEMENT A STABLE BEDDING FOR THE PIPE.
 - B. BEDDING COMPACTION OF 95 PERCENT IS REQUIRED WHERE CLEAN BACKFILL MATERIAL IS USED. WHEN USING CRUSHED SHELL OR GRAVEL AS BACKFILL, HAND TAMPING IS REQUIRED.
 - C. IF SOLID HARDPAN IS ENCOUNTERED AT THE TRENCH BOTTOM, AND NO UNDERCUT (EXCLUDING TEETH DEPTH) HAS BEEN MADE IN THE HARDPAN, NO COMPACTION IS REQUIRED ON THE MATERIAL USED TO BRING THE EXCAVATION TO THE TRENCH BOTTOM.
 - D. ALL ASPECTS OF THIS BEDDING WORK WILL BE DETERMINED BY THE COUNTY INSPECTOR.
2. PERCENT COMPACTION:
- COMPACTION REQUIREMENTS LISTED BELOW ARE IN PERCENTAGES OF MAXIMUM DENSITY AS DETERMINED BY THE MODIFIED PROCTOR AASHTO T-180 (ASTM D-1557) UNLESS OTHERWISE SPECIFICALLY APPROVED.
- A. 95 PERCENT FOR PIPE BEDDING, EXCEPT FOR THE VARIOUS EXCEPTIONS LISTED IN THE BEDDING NOTES IN WHICH NO FORMAL COMPACTION TEST IS REQUIRED.
 - B. BAR TAMP HAUNCHING MATERIAL.
 - C. 95 PERCENT FOR COVER MATERIAL. (6-INCH LIFTS)
 - D. 95 PERCENT FOR BACKFILL IN NON-ROADWAY AREAS. (6-INCH LIFTS)
 - E. 98 PERCENT FOR BACKFILL IN ROADWAY AREAS. (6-INCH LIFTS)
3. IF ANGLE CANNOT BE MET DUE TO TIGHT WORKING CONDITIONS, TRENCH SHALL BE SHEETED OR A TRENCH BOX UTILIZED. IN ADDITION, TRENCH WALLS SHALL BE SHEETED IN AREAS WHERE SIDESLOPES WOULD INTERFERE WITH EXISTING UTILITIES, OR EXTEND BEYOND THE EASEMENT OR RIGHT-OF-WAY LIMITS. REFER TO SPECIFICATION SECTION 02315.
4. ALL PIPE SHALL BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
5. WATER IS NOT PERMITTED IN THE TRENCH DURING CONSTRUCTION.

PIPE TRENCHING, BEDDING, BACKFILLING AND COMPACTION DETAIL
NOT TO SCALE

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Volusia County
FLORIDA
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PROVIDENCE BLVD. DRAINAGE PIPE REPLACEMENT

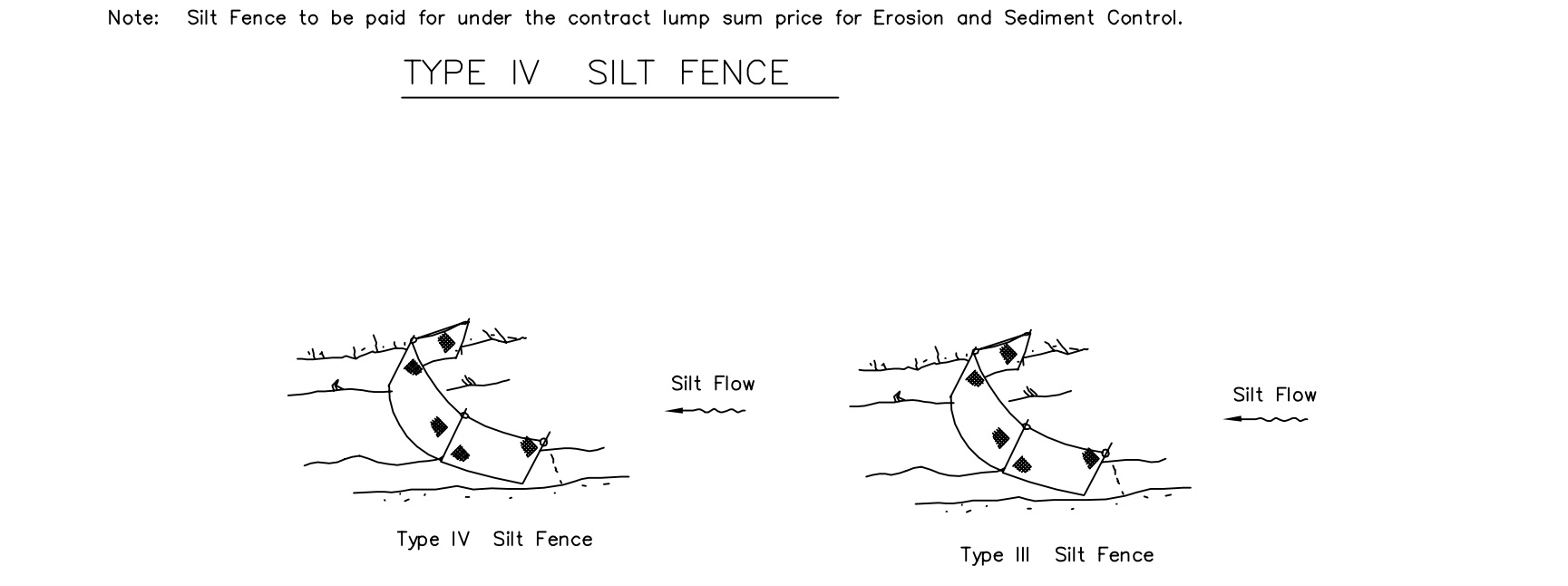
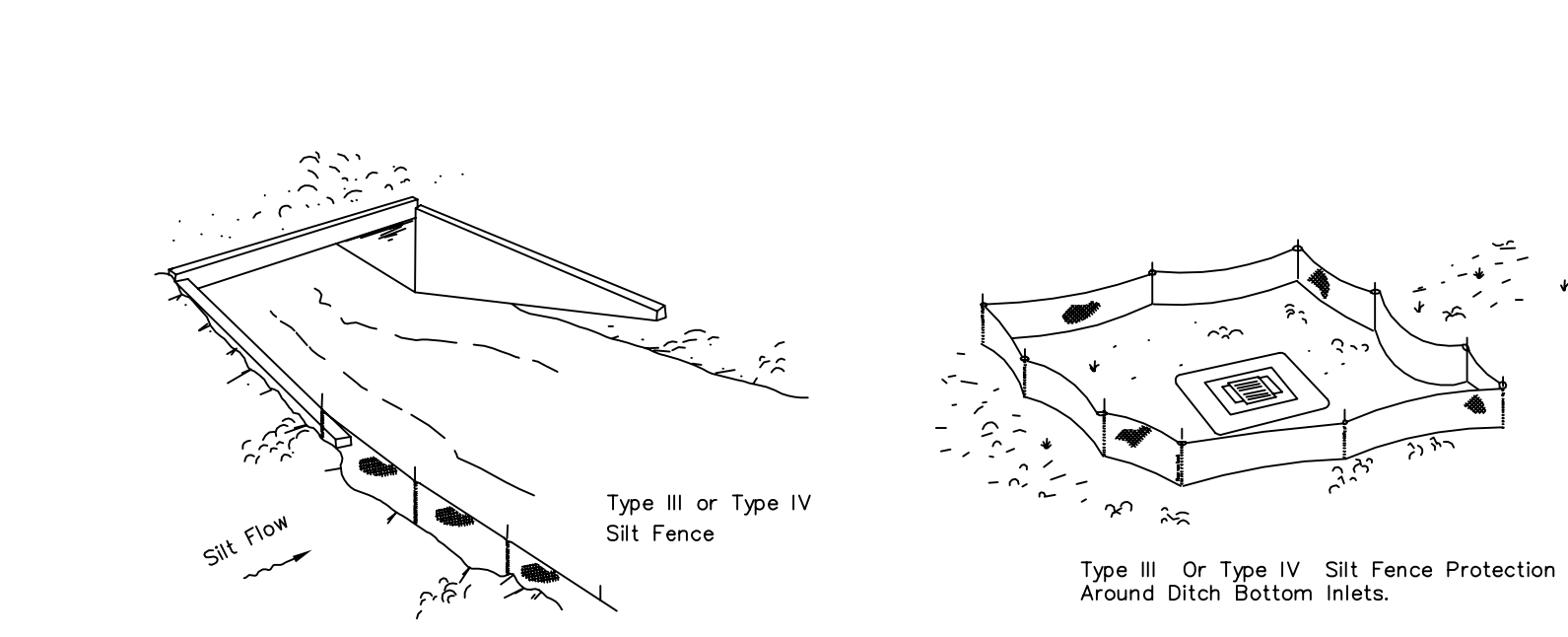
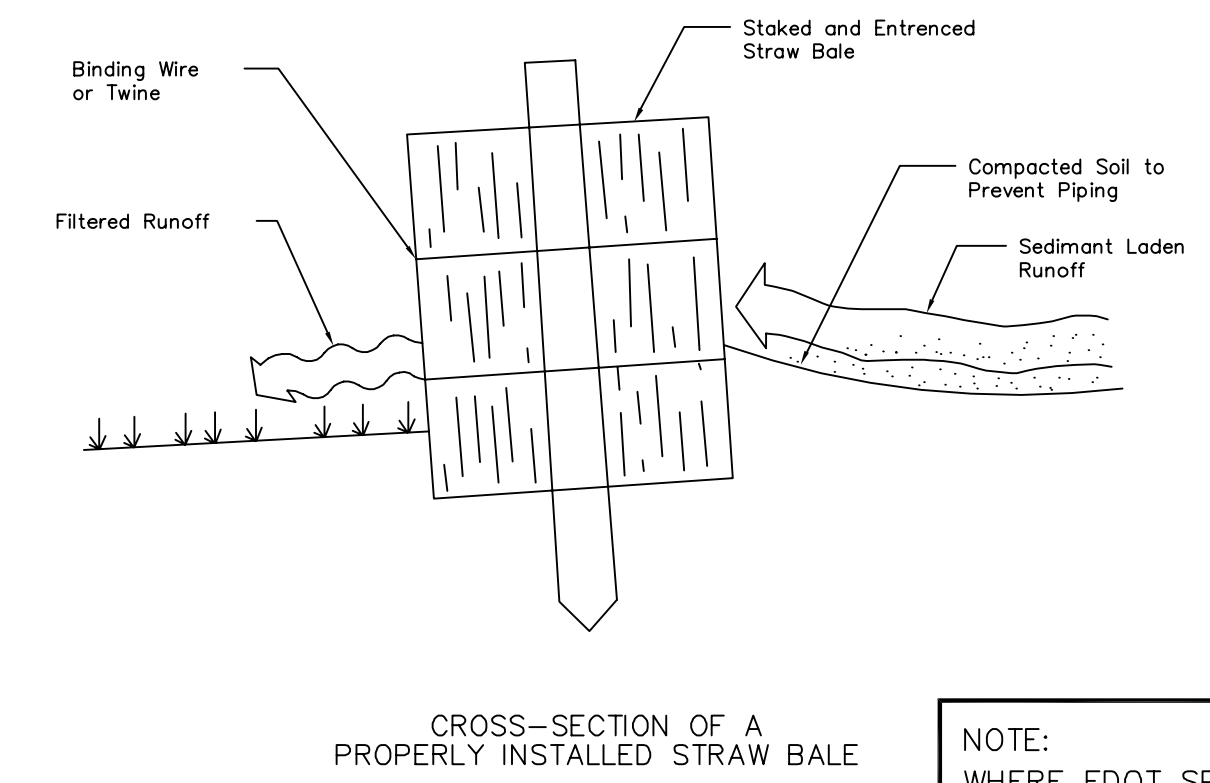
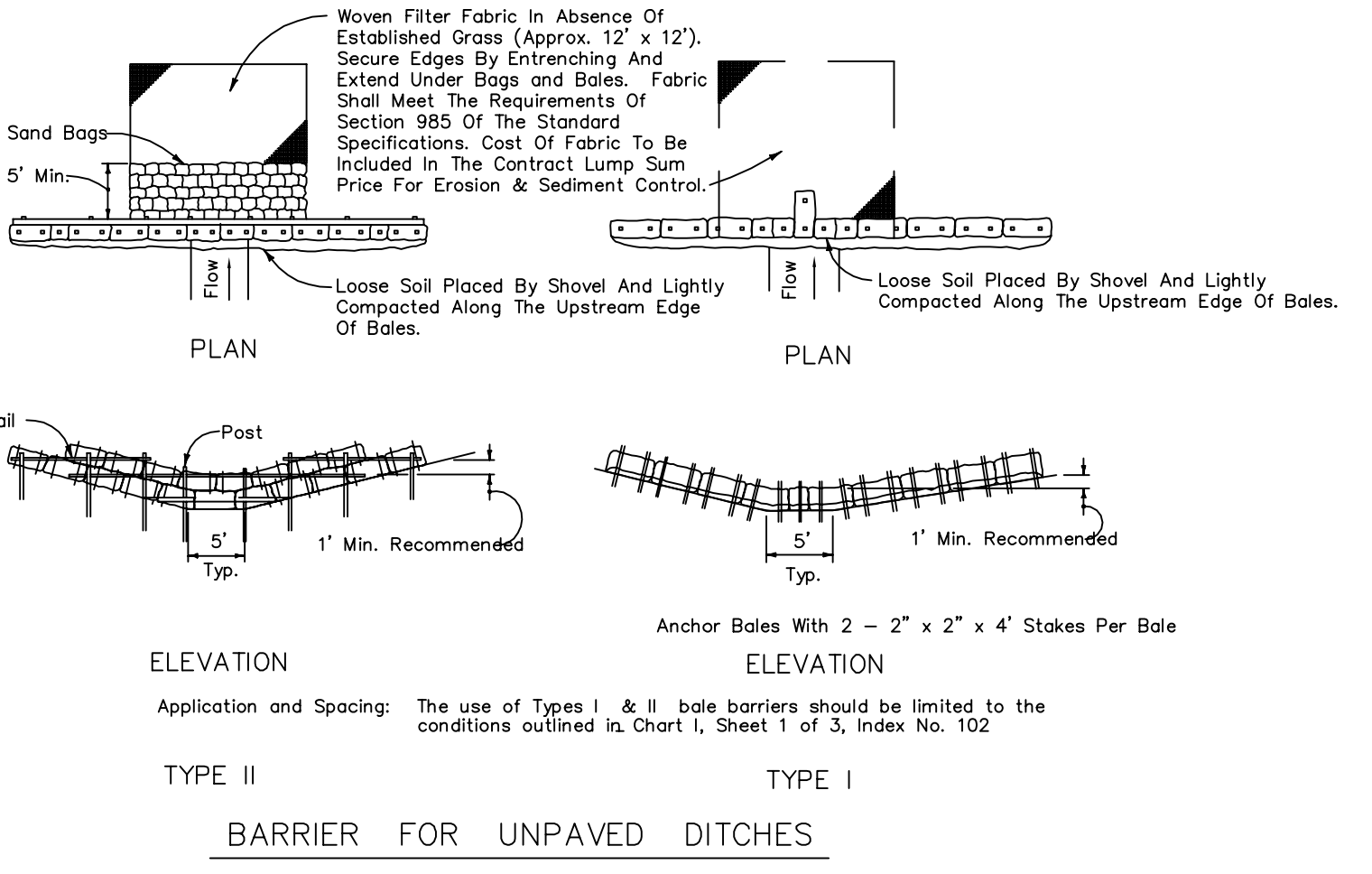
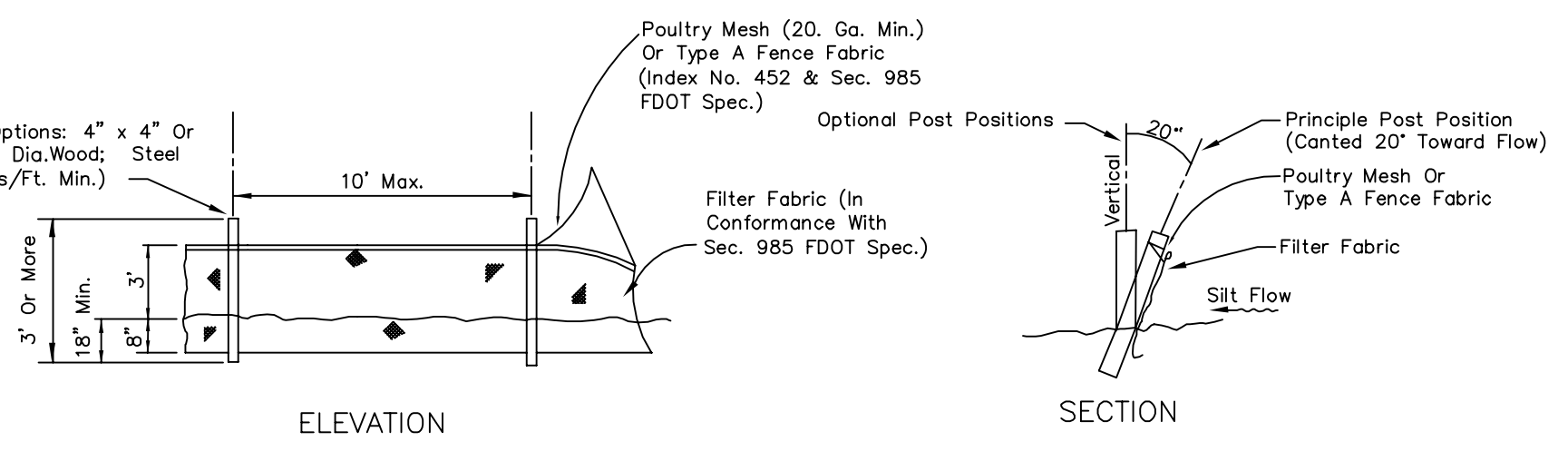
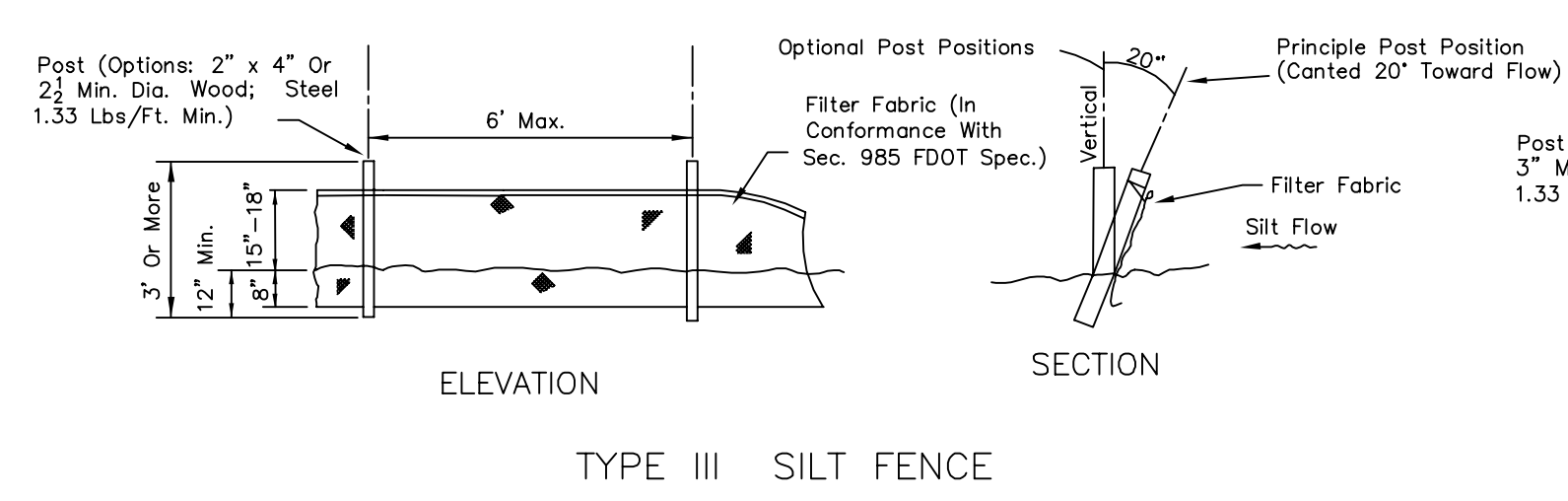
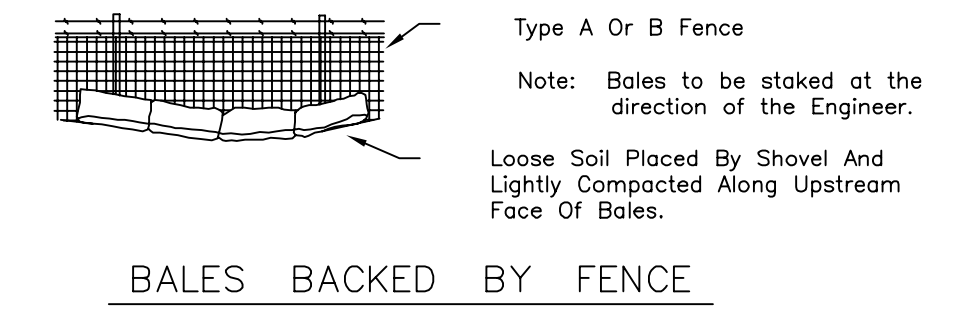
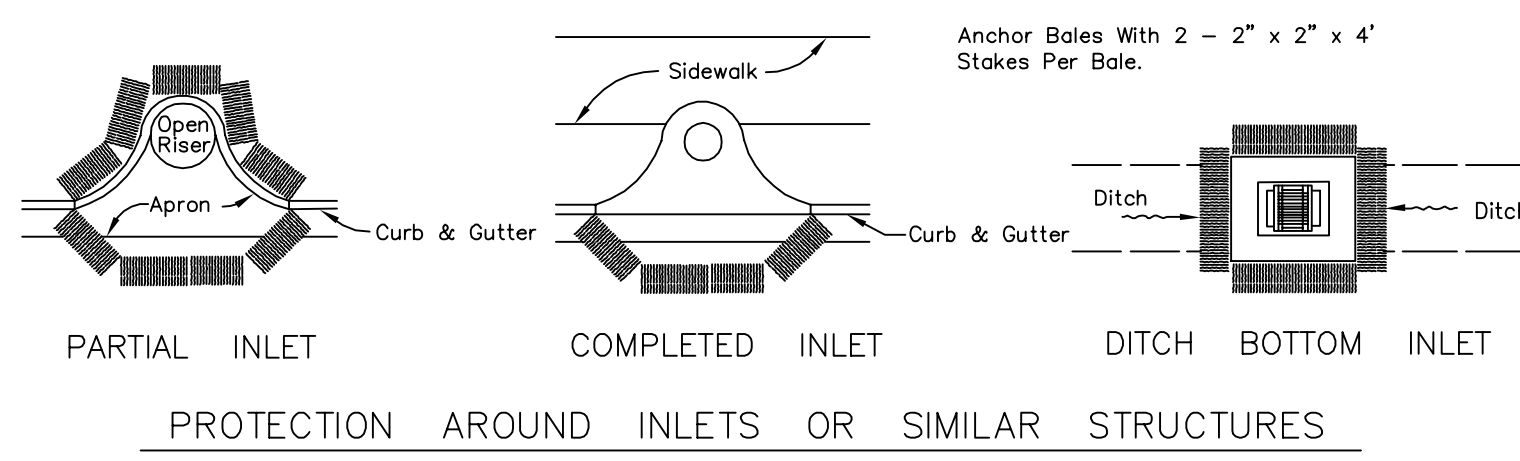
DETAILS

DATE: FEBRUARY 2012
MCE PROJ. # 1041-0044
DRAWN: DMP
DESIGNED: TNT
CHECKED: SRS
PROJ. MGR: SRS

SCALE: HORIZONTAL: 1"=20'
VERTICAL: C-2

STATUS: RELEASED FOR BIDDING

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NOTE:
WHERE FDOT SPECS AND INDEX ARE REFERENCED, PLEASE REFER TO FDOT ROADWAY & TRAFFIC DESIGN STANDARDS, AND FDOT STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION.

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.

Note: Silt Fence to be paid for under the contract lump sum price for Erosion and Sediment Control.

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

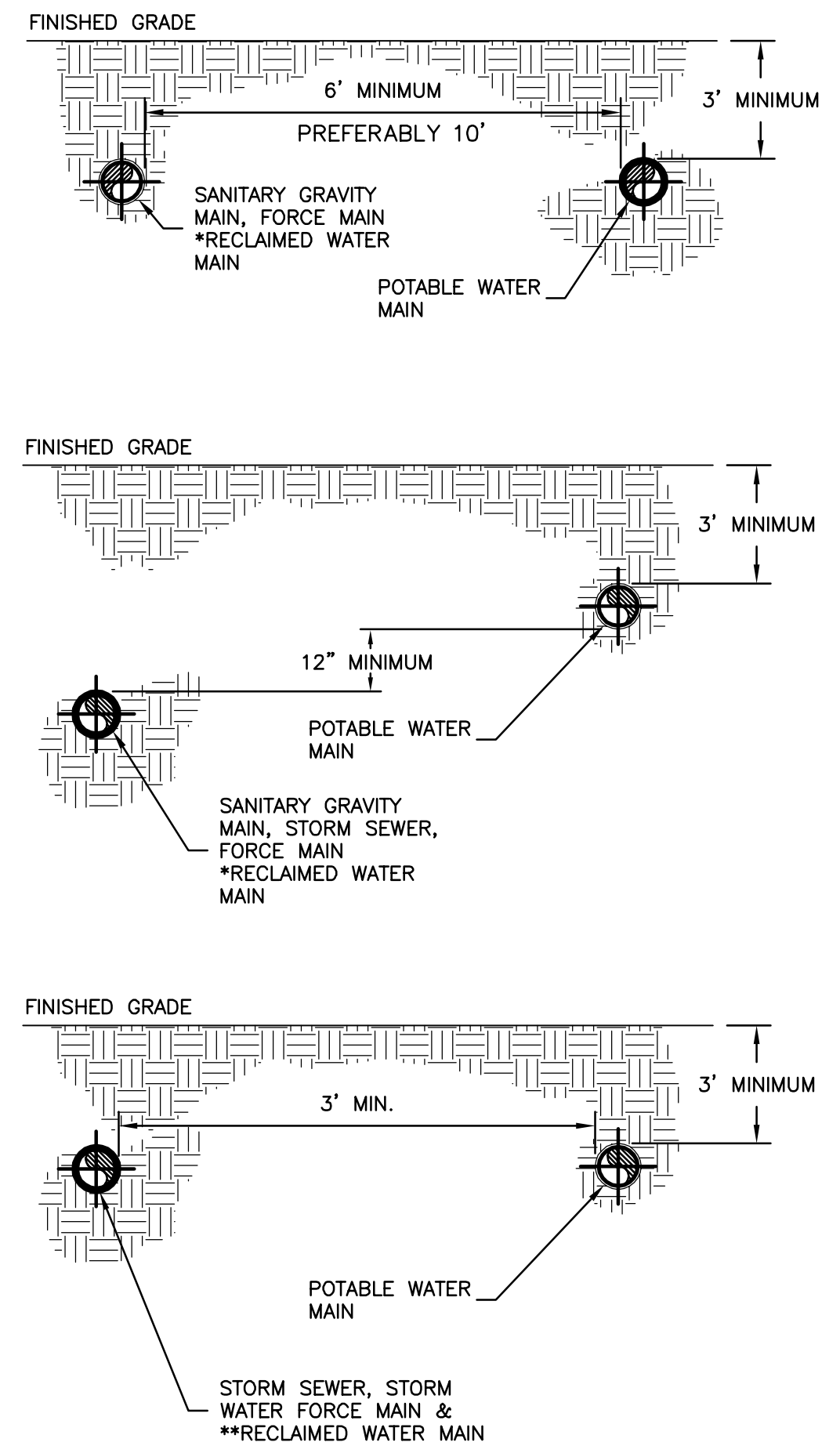
SILT FENCE APPLICATIONS

HAY BALE LOCATION

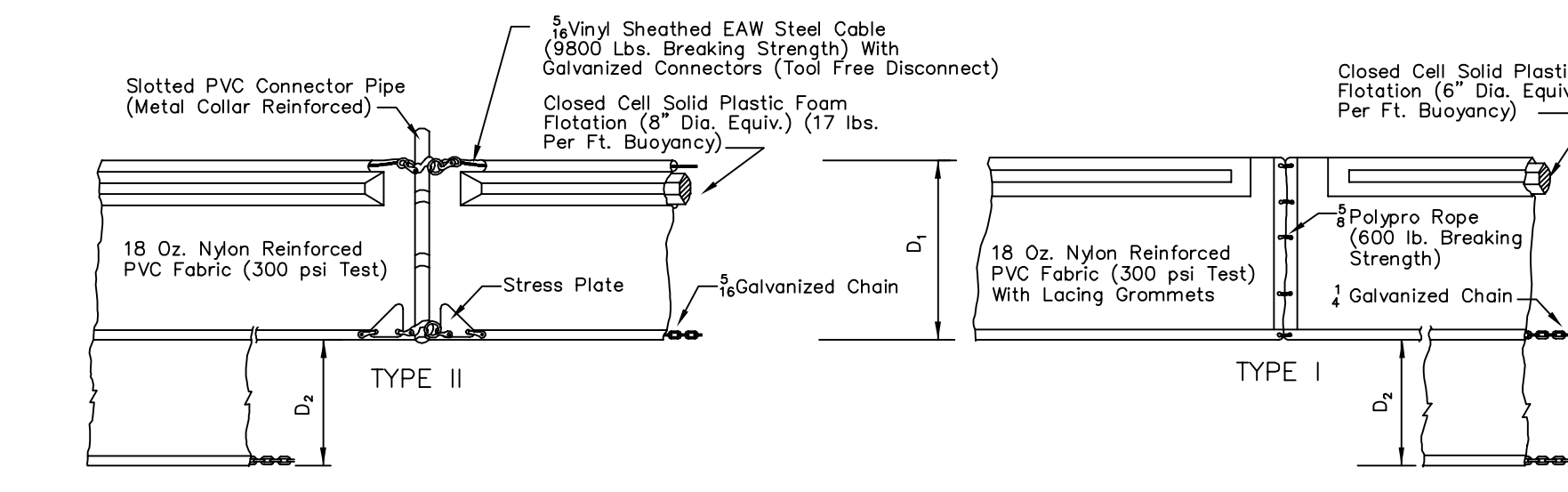
SANITARY GRAVITY, FORCE MAIN, REUSE MAIN, STORM SEWER, & POTABLE WATER MAIN SEPARATION NOTES & SOLUTIONS

- HORIZONTAL SEPARATION BETWEEN UNDERGROUND WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, RECLAIMED WATER PIPELINES, AND ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS.**
 - NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE INSTALLED TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
 - NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE INSTALLED TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER.
 - NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE INSTALLED TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS SHALL BE REDUCED TO THREE FEET WHERE THE BOTTOM OF THE WATER MAIN IS INSTALLED AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER.
 - NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE INSTALLED TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST TEN FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND ALL PARTS OF ANY EXISTING OR PROPOSED "ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM" AS DEFINED IN SECTION 381.0065(2), F.S., AND RULE 64E-6.002, F.A.C.
- VERTICAL SEPARATION BETWEEN UNDERGROUND WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, AND RECLAIMED WATER PIPELINES.**
 - NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED GRAVITY OR VACUUM-TYPE SANITARY SEWER OR STORM SEWER SHALL BE INSTALLED SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES, AND PREFERABLY 12 INCHES, ABOVE OR AT LEAST 12 INCHES BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO INSTALL THE WATER MAIN ABOVE THE OTHER PIPELINE.
 - NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER SHALL BE INSTALLED SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST 12 INCHES ABOVE OR BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO INSTALL THE WATER MAIN ABOVE THE OTHER PIPELINE.
 - AT THE UTILITY CROSSINGS DESCRIBED IN PARAGRAPHS A AND B ABOVE, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. ALTERNATIVELY, AT SUCH CROSSINGS, THE PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C., AND AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY OR PRESSURE-TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
- NEW OR RELOCATED FIRE HYDRANTS SHALL BE LOCATED SUCH THAT THE UNDERGROUND DRAIN (WEEP HOLE) IS AT LEAST:**
 - THREE FEET FROM ANY EXISTING OR PROPOSED STORM SEWER, STORM WATER FORCE MAIN, RECLAIMED WATER MAIN OR VACUUM TYPE SANITARY SEWER.
 - SIX FEET AWAY FROM ANY EXISTING OR PROPOSED GRAVITY SANITARY SEWER AND WASTEWATER FORCE MAIN
 - TEN FEET FROM ANY ON SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM SUCH AS SEPTIC TANKS, DRAINFIELDS, AND GREASE TRAPS. ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS DO NOT INCLUDE PACKAGE SEWAGE TREATMENT FACILITIES AND PUBLIC WASTEWATER TREATMENT FACILITIES.
- NO WATER MAIN SHALL PASS THROUGH, OR COME INTO CONTACT WITH, ANY PART OF A SANITARY SEWER MANHOLE.**
- WATER MAINS SHALL NOT BE CONSTRUCTED OR ALTERED TO PASS THROUGH, OR COME INTO CONTACT WITH, ANY PART OF A STORM SEWER MANHOLE OR INLET STRUCTURE.**

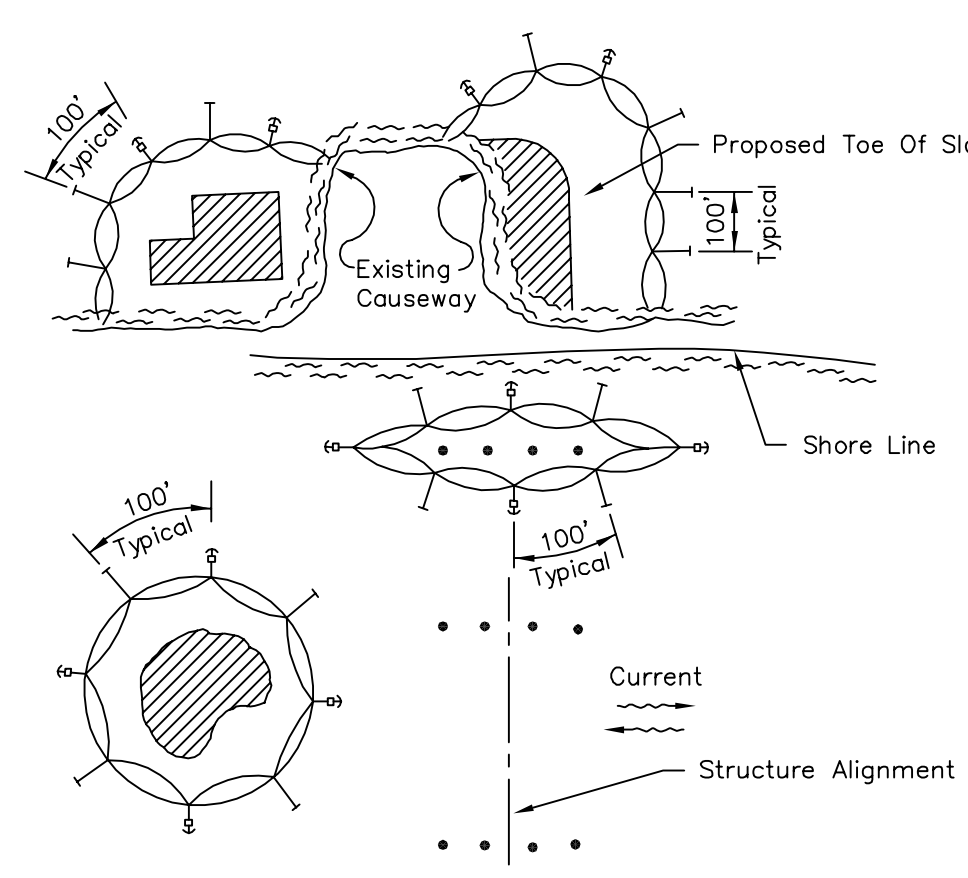
*RECLAIMED WATER MAIN NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
** RECLAIMED WATER MAIN REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C



UTILITY SEPARATION DETAIL
NOT TO SCALE



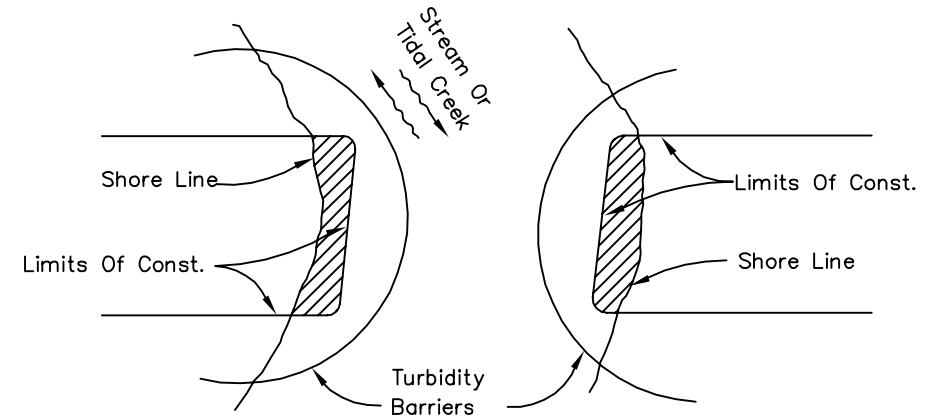
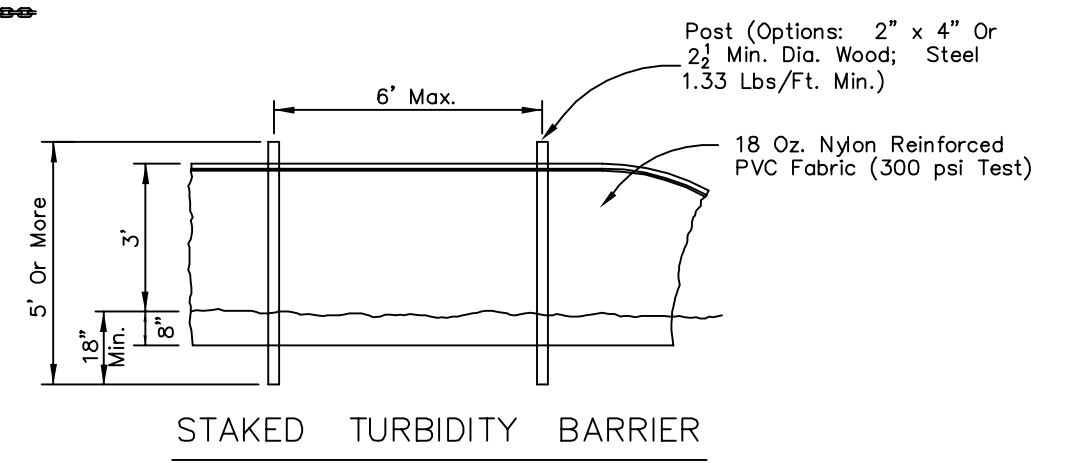
NOTICE:
COMPONENTS OF TYPES I & TYPE II MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES I AND II SHALL BE AS APPROVED BY THE ENGINEER.



LEGEND

- Pile Locations
- ▨ Dredge Or Fill Area
- Mooring Buoy w/Anchor
- Anchor
- Barrier Movement Due To Current Action

- NOTES:**
- Turbidity barriers are to be used in all permanent bodies of water regardless of water depth.
 - Number and spacing of anchors dependent on current velocities.
 - Deployment of barrier around pile locations may vary to accommodate construction operations.
 - Navigation may require segmenting barrier during construction operations.
 - For additional information see Section 104 of the FDOT Standard Specifications.



Note: Turbidity barriers for flowing streams and tidal creeks may be either floating, or staked types or any combinations of types that will suit site conditions and meet erosion control and water quality requirements. The barrier type(s) will be at the Contractors option unless otherwise specified in the plans, however payment will be under the contract lump sum price established in the bid proposal for Erosion & Sediment Control Posts in staked turbidity barriers to be installed in vertical position unless otherwise directed by the Engineer.

FLOATING TURBIDITY BARRIERS

REVNO.	DESCRIPTIONS REVISIONS	DATE
A	RELEASED FOR BIDDING	FEB 2012

SEAL
SCOTT R. SPOONER, P.E.
PROFESSIONAL ENGINEER NO. 23273
STATE OF FLORIDA

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1901 Mason Avenue, Suite 102
Daytona Beach, Florida 32117
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AA0002667 EB0006691
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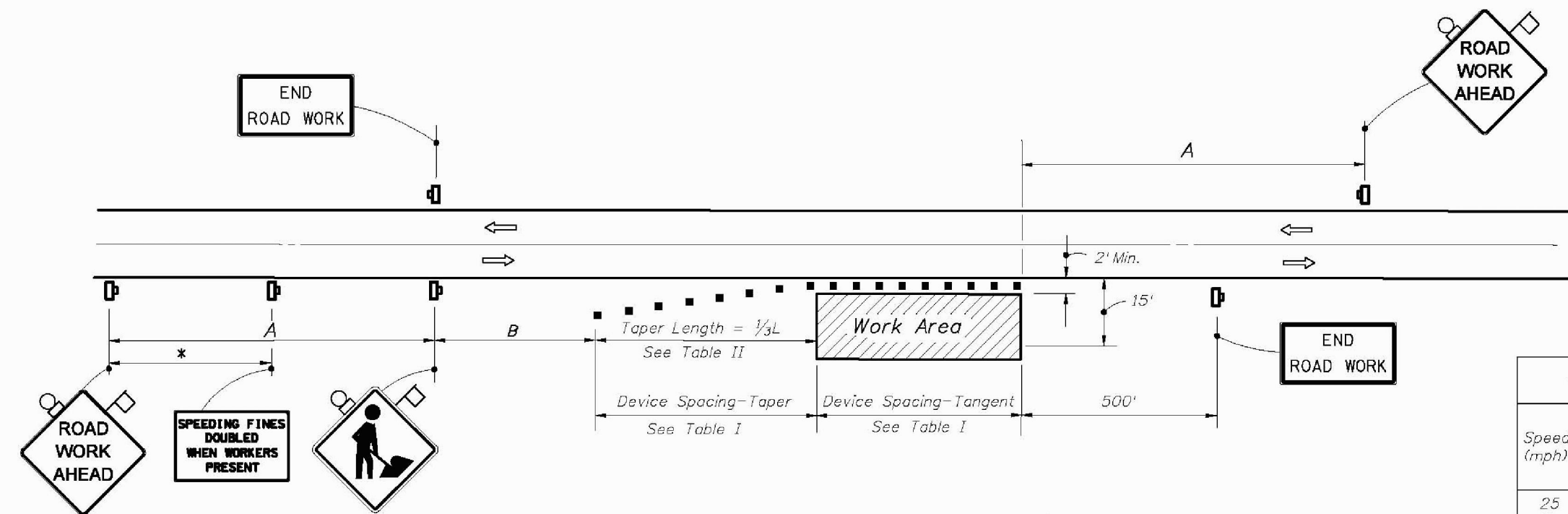
Volusia County FLORIDA
VOLUSIA COUNTY, FLORIDA

PROVIDENCE BLVD. DRAINAGE PIPE REPLACEMENT
DETAILS

DATE: FEBRUARY 2012
MCE PROJ. # 1041-0044
DRAWN: DMP
DESIGNED: TNT
CHECKED: SRS
PROJ. MGR: SRS

SCALE: HORIZONTAL: 1"=20'
VERTICAL: C-3

STATUS: RELEASED FOR BIDDING



Speed (mph)	Spacing (ft.)	
	A	B
40 mph or less	200	200
45 mph	350	350
50 mph or greater	500	500

* 500' beyond the ROAD WORK AHEAD sign or midway between signs whichever is less.

Speed (mph)	Max. Distance Between Devices (ft.)			
	Taper	Tangent	Type I or Type II Barricades or Vertical Panels or Drums	Type I or Type II Cones or Tubular Markers
25	25	50	25	50
30 to 45	25	50	30	50
50 to 70	25	50	50	100

GENERAL NOTES

- When four or more work vehicles enter the through traffic lanes in a one hour period or less (excluding establishing and terminating the work area), the advanced FLAGGER sign shall be substituted for the WORKERS sign. For location of flaggers and FLAGGER signs, see Index No. 603.
- WORKERS sign to be removed or fully covered when no work is being performed.
- SHOULDER WORK sign may be used as an alternate to the WORKER sign only on the side where the shoulder work is being performed.
- When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ indexes.
- For general TCZ requirements and additional information, refer to Index No. 600.

DURATION NOTES

- Signs and channelizing devices may be omitted if all of the following conditions are met:
 - Work operations are 60 minutes or less.
 - Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCRoACH THE AREA CLoSER THAN 15' BUT NOT CLoSER THAN 2' TO THE EDGE OF TRAVEL WAY.

Speed (mph)	1/2 SL (ft.)			Notes
	8" Shldr.	10" Shldr.	12" Shldr.	
25	28	35	42	L = WS ² / 80
30	40	50	60	
35	55	68	82	L = WS
40	72	90	107	
45	120	150	180	L = WS
50	133	167	200	
55	147	183	220	L = WS
60	160	200	240	
65	173	217	260	L = WS
70	187	233	280	

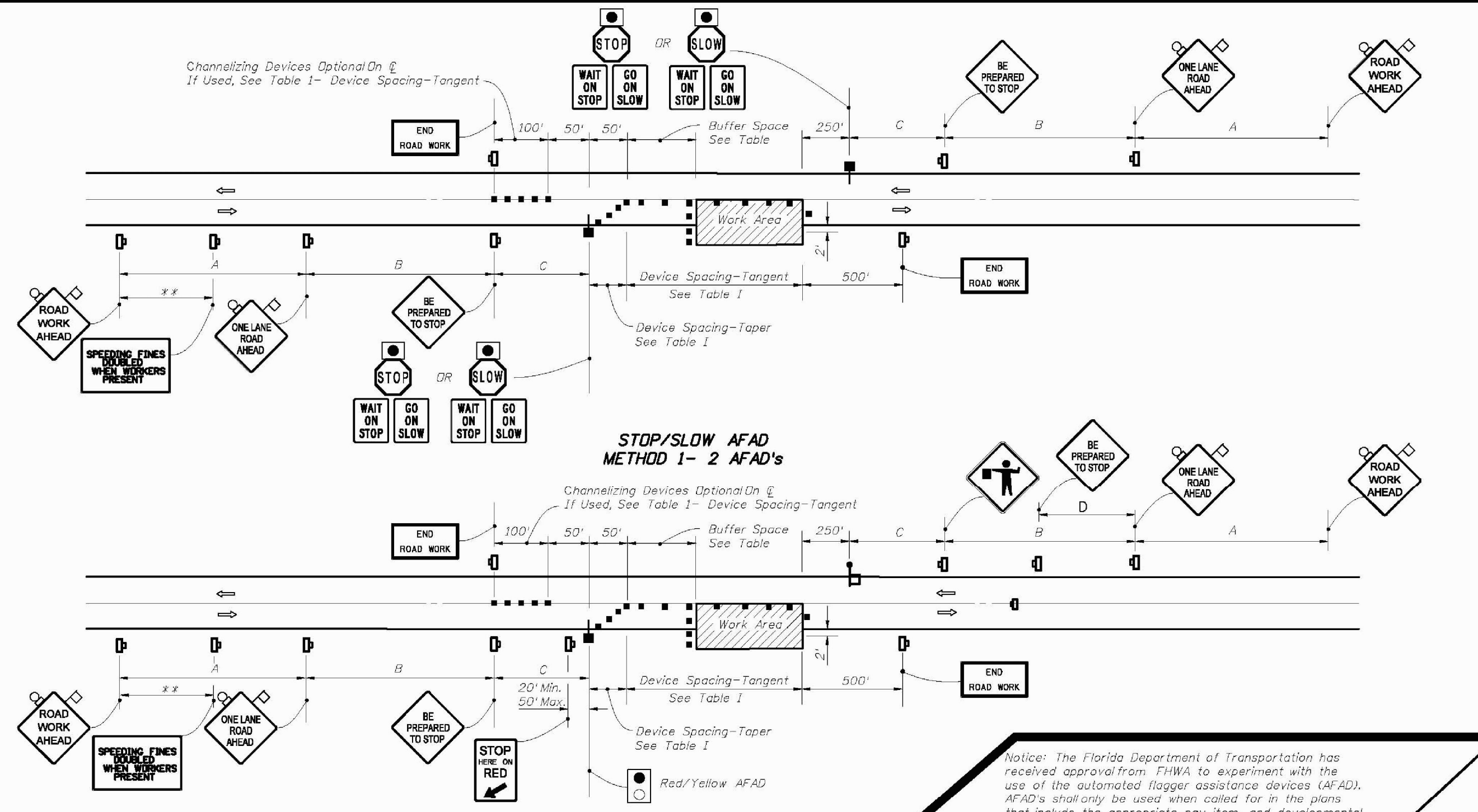
8" minimum shoulder width
 1/2 SL = Length of shoulder taper in feet
 W = Width of total shoulder in feet (combined paved and unpaved width)
 S = Posted speed limit (mph)



2010 FDOT Design Standards

TWO-LANE TWO-WAY, WORK ON SHOULDER

Last Revision: 07/01/07
 Sheet No. 1 of 1
 Index No. 602



Speed (mph)	Spacing (ft.)			
	A	B	C	D
40 or less	200	200	200	100
45	350	350	350	175
50	500	500	500	250
55 or greater	2500	1500	1000	500

* (See Sheet 1 Notes)
 ** (See Sheet 1 Notes)

RED/YELLOW AFAD METHOD 2- 1 AFAD AND A FLAGGER AUTOMATED FLAGGER ASSISTANCE DEVICES (AFAD)

- When used at nighttime, the AFAD flagging station shall be illuminated.
- When the AFAD is not in use, it shall be moved outside the clear zone or be shielded by a barrier or crash cushion and the signs associated with the AFAD shall be removed or covered.
- Duration Notes shown on sheet 1 of 2 do not apply when AFAD are used.

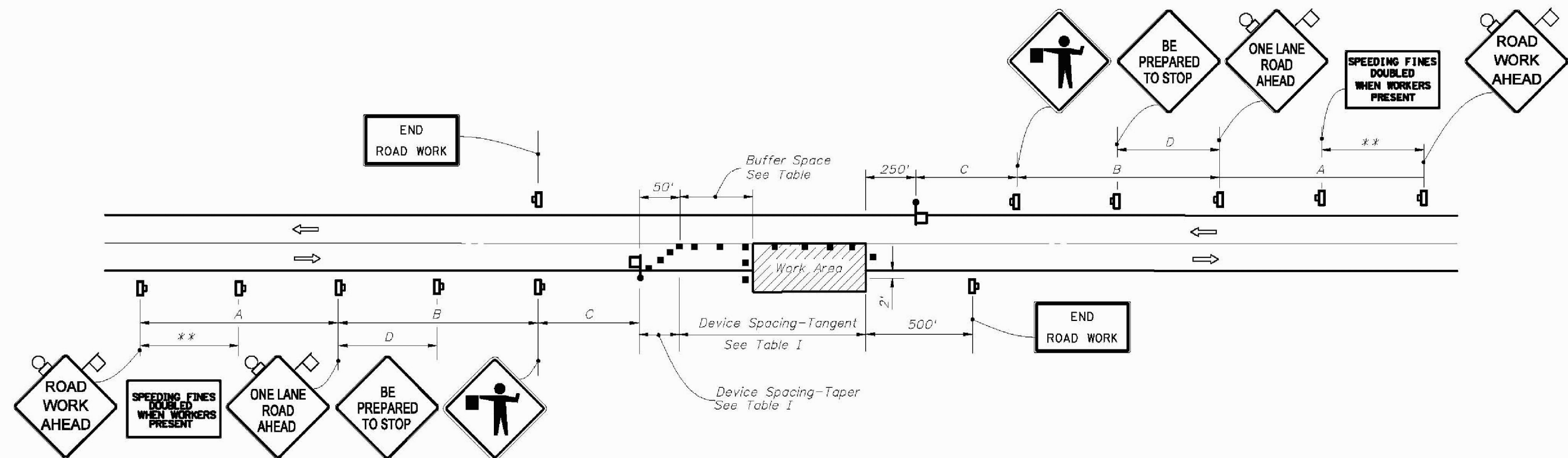
Notice: The Florida Department of Transportation has received approval from FHWA to experiment with the use of the automated flagger assistance devices (AFAD). AFADs shall only be used when called for in the plans that include the appropriate pay item and developmental specification or approved by the State Roadway Design Office.



2010 FDOT Design Standards

TWO-LANE TWO-WAY, WORK WITHIN THE TRAVEL WAY

Last Revision: 07/01/09
 Sheet No. 2 of 2
 Index No. 603



Speed (mph)	Spacing (ft.)			
	A	B	C	D
40 or less	200	200	200	100
45	350	350	350	175
50	500	500	500	250
55 or greater	2500	1500	1000	500

* The ROAD WORK 1 MILE sign may be used as an alternate to the ROAD WORK AHEAD sign.

** 500' beyond the ROAD WORK AHEAD sign or midway between signs whichever is less.

*** BE PREPARED TO STOP sign may be omitted for speeds of 45 MPH or less.

Speed (mph)	Max. Distance Between Devices (ft.)			
	Taper	Tangent	Type I or Type II Barricades or Vertical Panels or Drums	Type I or Type II Cones or Tubular Markers
25 to 45	20	50	20	50
50 to 70	20	50	20	100

GENERAL NOTES

- Work operations shall be confined to one traffic lane, leaving the opposite lane open to traffic.
- Additional one-way control may be effected by the following means:
 - Flag-carrying vehicles
 - Official vehicles
 - Pilot vehicles
 - Traffic signals.
 When flaggers are the sole means of one-way control, the flaggers shall be in sight of each other or in direct communication at all times.
- The ONE-LANE ROAD signs are to be fully covered and the FLAGGER signs either removed or fully covered when no work is being performed and the highway is open to two-way traffic.
- When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ indexes.

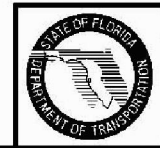
DURATION NOTES

- ROAD WORK AHEAD and the BE PREPARED TO STOP signs may be omitted if all of the following conditions are met:
 - Work operations are 60 minutes or less.
 - Speed limit is 45 mph or less.
 - No sight obstructions to vehicles approaching the work area for a distance equal to the buffer space.
 - Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.
 - Volume and complexity of the roadway has been considered.

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCRoACH THE AREA BETWEEN THE CENTERLINE AND A LINE 2' OUTSIDE THE EDGE OF TRAVEL WAY.

When Buffer Space cannot be attained due to geometric constraints, the greatest attainable length shall be used, but not less than 200 ft.



2010 FDOT Design Standards

TWO-LANE TWO-WAY, WORK WITHIN THE TRAVEL WAY

Last Revision: 07/01/08
 Sheet No. 1 of 2
 Index No. 603

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REVNO.	DESCRIPTIONS / REVISIONS	DATE
A	RELEASED FOR BIDDING	FEB 2012

SEAL
 SCOTT R. SPOONER, P.E.
 PROFESSIONAL ENGINEER NO. 23273
 STATE OF FLORIDA

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Volusia County
 FLORIDA
 VOLUSIA COUNTY,
 FLORIDA

PROVIDENCE BLVD. DRAINAGE PIPE REPLACEMENT
 MAINTENANCE OF TRAFFIC

DATE: FEBRUARY 2012
 MCE PROJ. # 1041-0044
 DRAWN: DMP
 DESIGNED: TNT
 CHECKED: SRS
 PROJ. MGR: SRS
 SCALE: HORIZONTAL: 1"=20'
 VERTICAL: C-4
 STATUS: RELEASED FOR BIDDING