Forsyth County

Department of Engineering

CONSTRUCTION STANDARDS And SPECIFICATIONS

Revised: November 6, 2020

FORSYTH COUNTY DEPARTMENT OF ENGINEERING
STANDARD DETAILS

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Std. No. 230 - Standard Double Wing Brick Catch Basin (1 of3)
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Std. No. 305 - Pipe Culvert Material Alternates
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Std. No. 311 - Metal and Concrete Circular Pipe (2 of 3)
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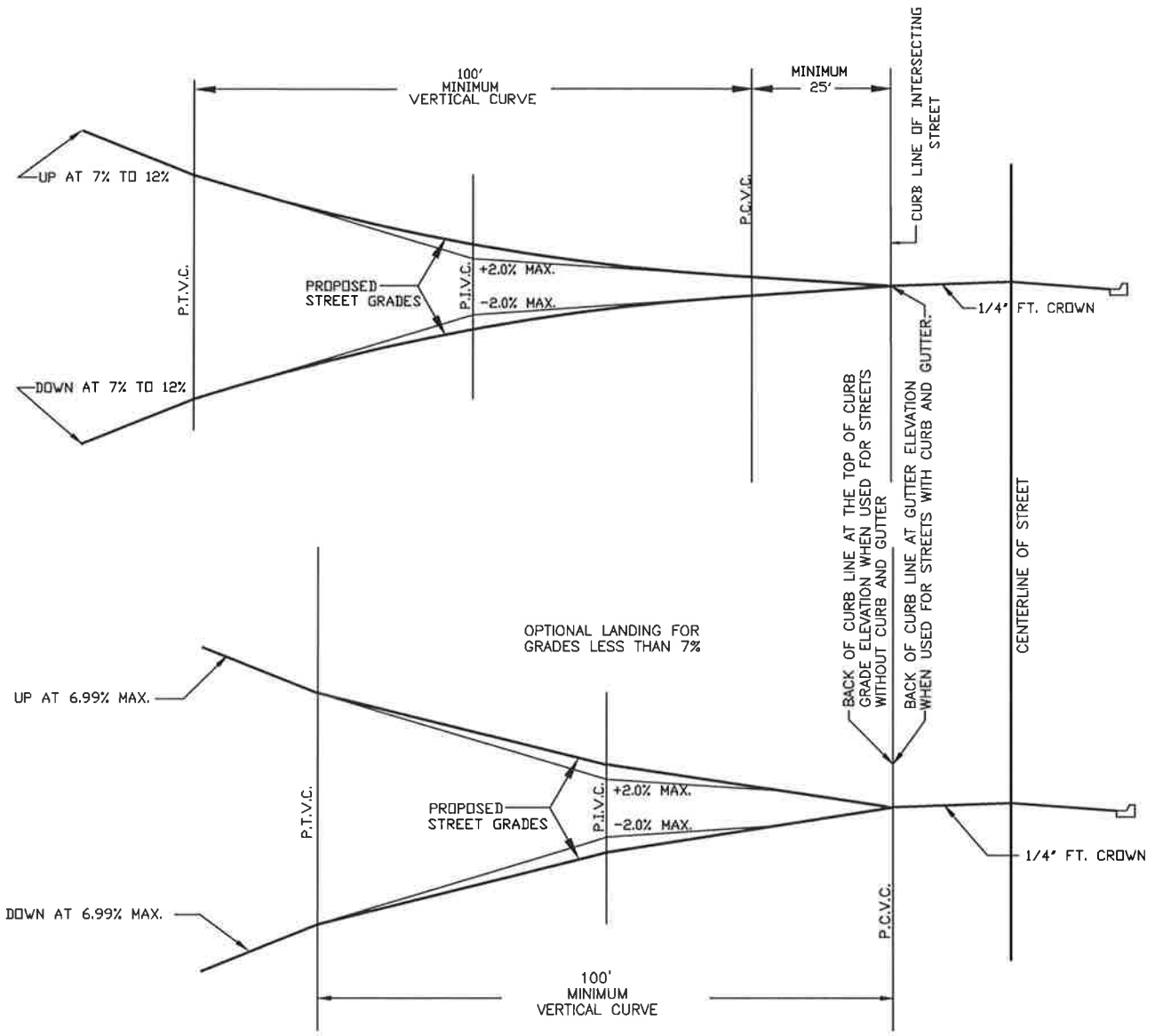


NOTES:

THIS STANDARD IS INTENDED TO BE A MINIMUM DESIGN STANDARD FOR CONTROL OF GRADES AT INTERSECTIONS. ON COLLECTOR STREETS OR ON STREETS EXPECTED TO CARRY HIGH TRAFFIC VOLUMES, OR ON STREETS ENTERING A MAJOR OR MINOR COUNTY THOROUGHFARE, THE VERTICAL CURVE MAY BE LENGTHENED AND THE GRADES ALTERED AT THE DISCRETION OF THE PUBLIC WORKS ENGINEER.

DESIGN GRADES FOR CURB AND GUTTER SHALL BE AT TOP OF PROPOSED FINISHED CURB.
MAXIMUM STREET GRADE ANY STREET SHALL BE 14%
MINIMUM STREET GRADE ANY STREET SHALL BE 1.0%.

AT STREET INTERSECTIONS, A MINIMUM OF 150 FEET CLEAR SIGHT DISTANCE (HORIZONTAL) IN EACH DIRECTION FROM THE INTERSECTION WILL BE PROVIDED FOR INTERNAL SUBDIVISION STREETS. ALL OTHER INTERSECTIONS WILL PROVIDE A CLEAR SIGHT DISTANCE (HORIZONTAL) BASED ON CURRENT AASHTO DESIGN CRITERIA.

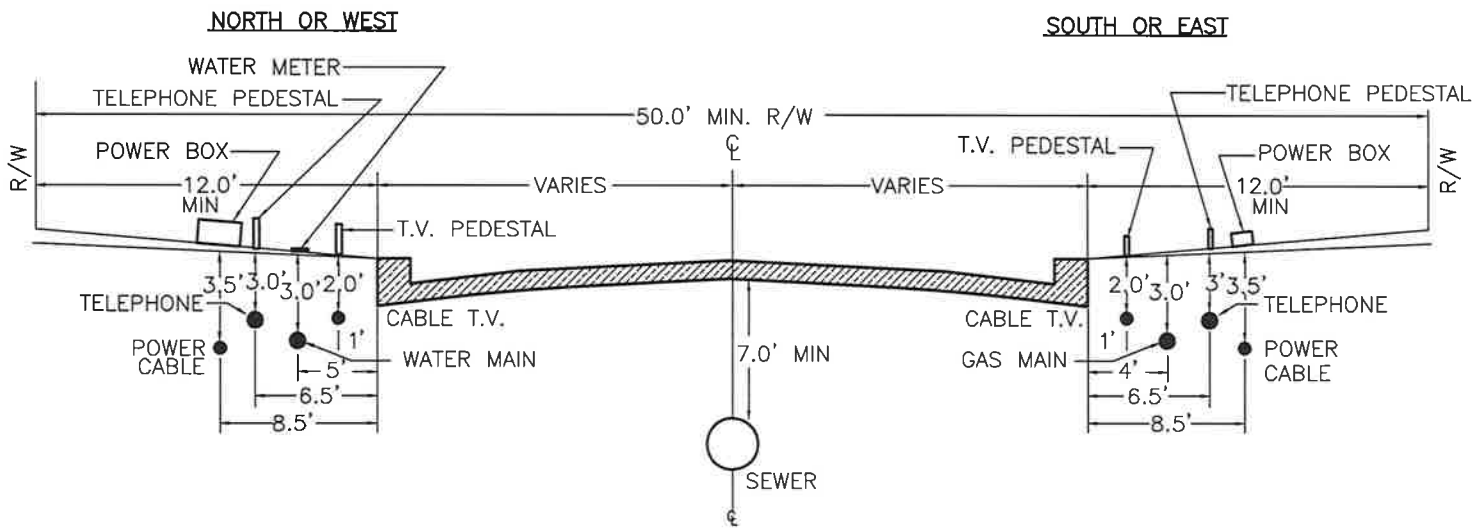
NOT TO SCALE

STANDARD LANDING REQUIREMENTS

REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 100

UNDERGROUND UTILITIES PLACEMENT FOR SUBDIVISIONS

NOT TO SCALE



1. BEFORE ANY UTILITIES ARE INSTALLED, REQUIRED WIDTH OF THE ROADWAY SHALL BE ROUGH GRADED AND ALL CONCRETE CURBING SET AT FINAL GRADES. FOR UNDERGROUND POWER THE MIN. SHOULDER SHALL BE 12'.
2. IN GENERAL THE WATER MAINS SHOULD BE INSTALLED FIRST. FOLLOWING INSTALLATION, UTILITIES ARE TO BE INSTALLED IN THIS ORDER: 1) ELECTRIC POWER 2) GAS 3) TELEPHONE 4) CABLE T.V.
3. ON THOSE SUBDIVISION STREETS WHERE NO CURB IS CALLED FOR ON THE PLANS, MEASUREMENTS SHALL BE FROM THE EDGE OF PAVEMENT.
4. AT CUL-DE-SAC, ALL DIMENSIONS SHALL REMAIN IDENTICAL TO STANDARD STREET SPACING, EXCEPT THAT GAS WILL BE 3'-0".
5. EACH UTILITY SHALL BE RESPONSIBLE FOR REPAIRS OF ANY DAMAGE THEY CREATE TO OTHER UTILITIES, OR TO STREET IMPROVEMENTS WITHIN THE R/W.
6. MINIMUM COVER SHALL BE 3'-0" FOR ALL WATER MAINS. 6" THRU 10" DIAMETER, 4'-0" COVER FOR 12" AND LARGER.
7. ALL ABOVE GROUND INSTALLATIONS WILL BE INSTALLED IN ACCORDANCE WITH THE CURRENT FORSYTH COUNTY UTILITY MANUAL.
8. ELECRTRICAL UTILITIES DESIGN AND LAYOUT ARE TO BE ENGINEERED PRIOR TO WATER SYSTEM DESIGN. ENGINEER WITH THE ELECTRICAL UTILITIES LAYOUT TO INSURE THAT TRANSFORMER PADS AND WATER METERS ARE NOT TO BE INSTALLED ON THE SAME PROPERTY LINE.
9. WATER METERS ARE TO BE LOCATED ON CENTERLINE OF MAIN, 5'-0" +- (FIVE FEET) FROM BACK OF CURB, AND AT SIMILAR LOCATION ON LONG SIDE SERVICE. IF SIDEWALKS ARE PRESENT, METER IS TO BE INSTALLED BETWEEN SIDEWALK AND CURB. (CR-1 ZONING REQUIRES SIDEWALKS)
10. CABLE TELEVISION LINES SHALL BE INSTALLED AT A MINIMUM DEPTH OF 24" (TWO FT.) IN THE CORRIDOR LOCATION OF 1'-0", (ONE FT.), FROM BACK OF CURB.
11. ELECTRICAL MAINLINES ARE TO BE INSTALLED AT MINIMUM DEPTH OF 3'-6" (THREE FEET AND SIX INCHES).
12. HORIZONTAL TOLERANCES ARE +/- 6 INCHES.
13. UTILITY INSTALLATION ALONG ANY MULTI LANE FACILITY OR NON-SURBDIVISION STREET WILL BE PLACED IN THE BACK 5' OF THE RIGHT OF WAY.

REV: 11-01-19 | FORSYTH COUNTY DEPARTMENT OF ENGINEERING | STD. NO. 110

REV: 11-01-19

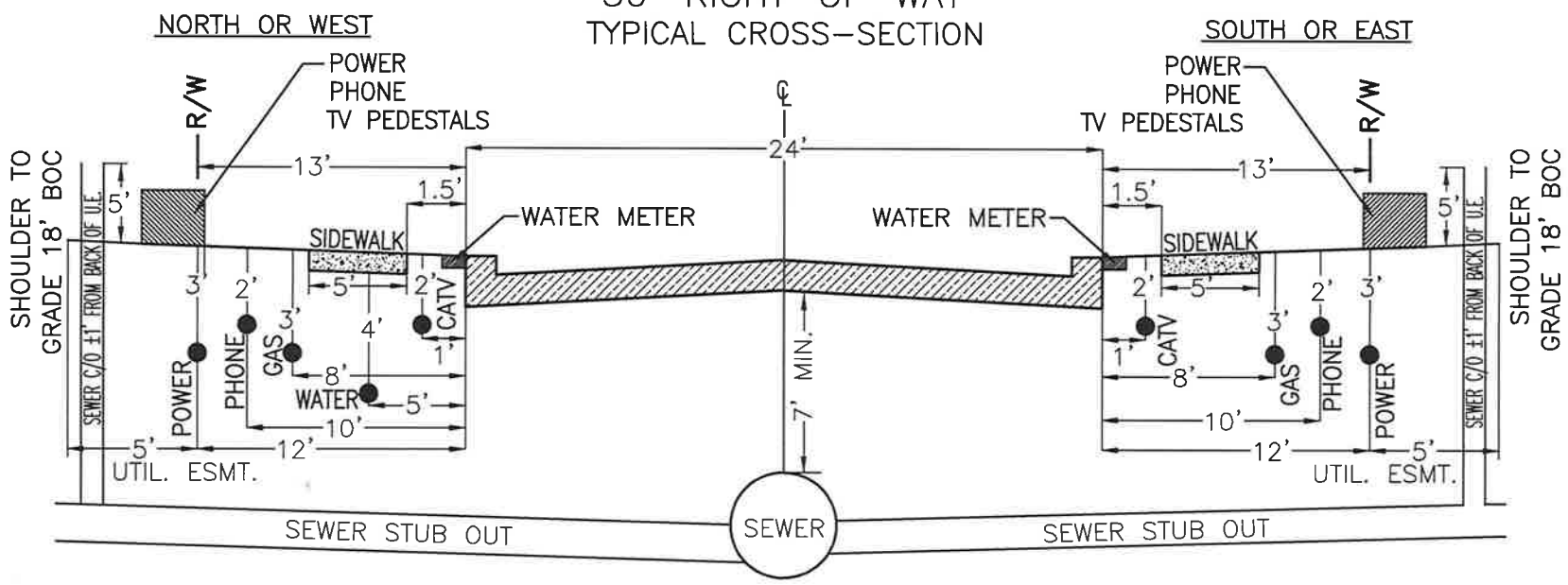
FORSYTH COUNTY DEPARTMENT OF ENGINEERING

STD. NO. 115

UNDERGROUND UTILITIES PLACEMENT FOR 50' R/W WITH 5' UTILITY EASEMENT

NOT TO SCALE

50' RIGHT-OF-WAY
TYPICAL CROSS-SECTION



1. BEFORE ANY UTILITIES ARE INSTALLED, REQUIRED WIDTH OF THE ROADWAY SHALL BE ROUGH GRADED AND ALL CONCRETE CURBING SET AT FINAL GRADES. FOR UNDERGROUND POWER THE MINIMUM SHOULDER SHALL BE 18'.

2. IN GENERAL THE WATER MAINS SHOULD BE INSTALLED FIRST. FOLLOWING INSTALLATION, UTILITIES ARE TO BE INSTALLED IN THIS ORDER:
   1) ELECTRIC POWER
   2) GAS
   3) TELEPHONE
   4) CABLE T.V.

3. ON THOSE SUBDIVISION STREETS WHERE NO CURB IS CALLED FOR ON THE PLANS, MEASUREMENTS SHALL BE FROM THE EDGE OF PAVEMENT.

4. EACH UTILITY SHALL BE RESPONSIBLE FOR REPAIRS OF ANY DAMAGE THEY CREATE TO OTHER UTILITIES, OR TO STREET IMPROVEMENTS WITHIN THE R/W.

5. MINIMUM COVER SHALL BE 4'-0" FOR ALL WATER MAINS.

6. HORIZONTAL TOLERANCES ARE ±6".

7. ALL ABOVE GROUND INSTALLATIONS WILL BE INSTALLED MOSTLY IN THE 5' UTILITY EASEMENT SHOWN IN THIS STANDARD. COORDINATION BETWEEN POWER, PHONE AND CATV WILL BE REQUIRED TO COLLOCATE ABOVE GROUND EQUIPMENT ON COMMON PROPERTY LINES. INDIVIDUAL UTILITY DESIGN SPECIFICATIONS MAY BE CONSIDERED IF COLLOCATION CANNOT BE ACHIEVED IN ISOLATED INSTANCES. (BONDING AGREEMENT REQUIRED BETWEEN UTILITIES.
   **IF NO BONDING AGREEMENT EXISTS: THEN ABOVE GROUND POWER EQUIPMENT SHOULD BE LOCATED MOSTLY IN THE UTILITY EASEMENT AND PHONE AND CATV ABOVE GROUND EQUIPMENT SHOULD BE INSTALLED DIRECTLY OVER THE UNDERGROUND INSTALLATIONS. SEPARATION BETWEEN ABOVE GROUND UTILITIES MUST MEET NESC STANDARDS.

8. WATER METERS ARE TO BE LOCATED WITHIN ±1'0" (ONE FOOT) FROM THE BACK OF CURB.

9. ELECTRICAL MAINLINES ARE TO BE INSTALLED AT MINIMUM DEPTH OF 3' (THREE FEET).

10. JOINT TRENCH APPLICATIONS BETWEEN POWER, PHONE, AND CATV SHOULD BE PLACED IN POWER'S CORRIDOR AS SHOWN ON THE DRAWING.

FORSYTH COUNTY DEPARTMENT OF ENGINEERING

REV: 11-01-19

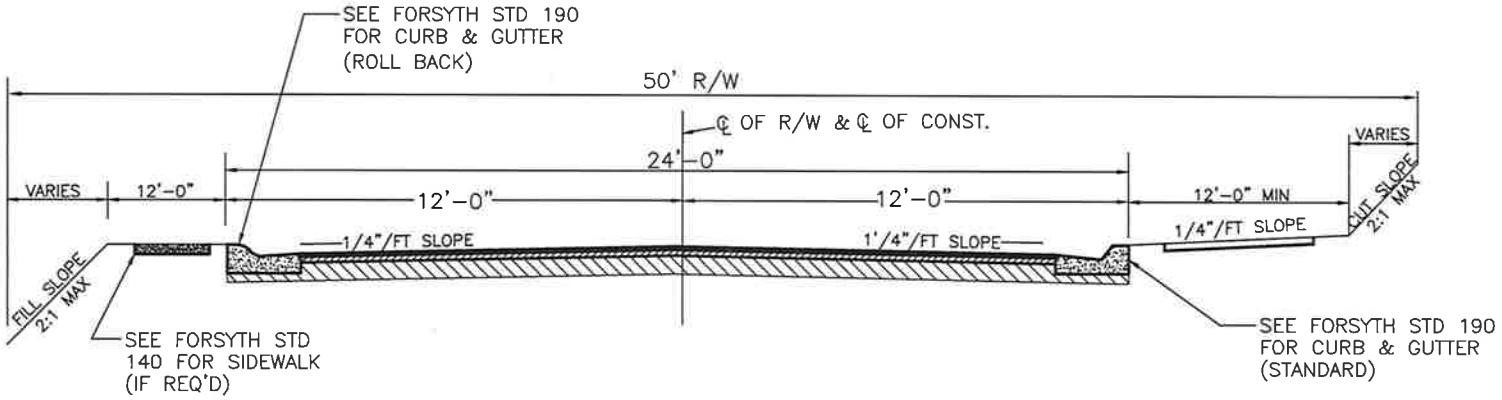
STD. NO. 120

TYPICAL ROADWAY SPECIFICATIONS

NOT TO SCALE

SHEET 1 OF 5

MINIMUM SPECIFICATIONS REQUIRED



24' RESIDENTIAL STREET

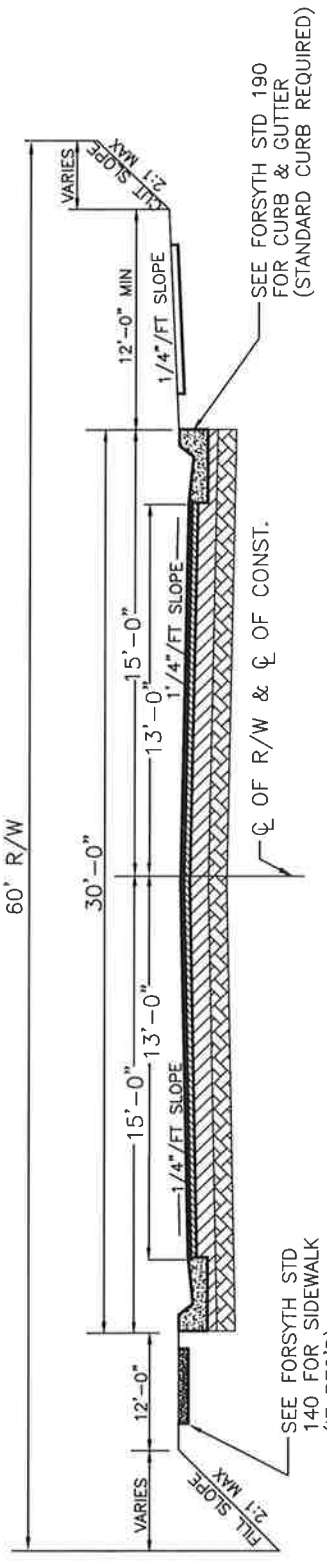
1.25" ASPHALTIC CONCRETE TYPE "F" (9.5 mm)

TACK COAT REQUIRED ON ALL PAVING

2" ASPHALTIC CONCRETE TYPE "E" (12.5 mm)

8" GRADED AGGREGATE BASE COURSE

* 12 FT. SHOULDER IF UNDERGROUND POWER IS TO BE INSTALLED.
* ALL ASPHALT MIX MUST HAVE A MINIMUM 5% ASPHALT CEMENT CONTENT.
* 44' U.E./INGRESS/EGRESS MAY BE USED WHEN PRIVATE STREETS ARE APPROVED.



30' COMMERCIAL STREET

1.25" ASPHALTIC CONCRETE "F" (9.5 mm)

TACK COAT REQUIRED ON ALL PAVING

2" ASPHALTIC CONCRETE "B" OR "E" (19mm OR 12.5mm)

8" GRADED AGGREGATE BASE COURSE

6" SUBGRADE STABILIZED WITH 150 LBS. OF STONE PER SQ. YD. (UNLESS MATERIAL IN PLACE WEIGHS 95 LBS. PER CU. FT.)

* 12 FT. SHOULDER IF UNDERGROUND POWER IS TO BE INSTALLED.
* STANDARD CURB AND GUTTER REQUIRED
* ALL ASPHALT MIX MUST HAVE A MINIMUM 5% ASPHALT CEMENT CONTENT.

MINIMUM SPECIFICATIONS REQUIRED

NOT TO SCALE

TYPICAL ROADWAY SPECIFICATIONS

REV: 11-01-19 | FORSYTH COUNTY DEPARTMENT OF ENGINEERING | STD. NO. 121

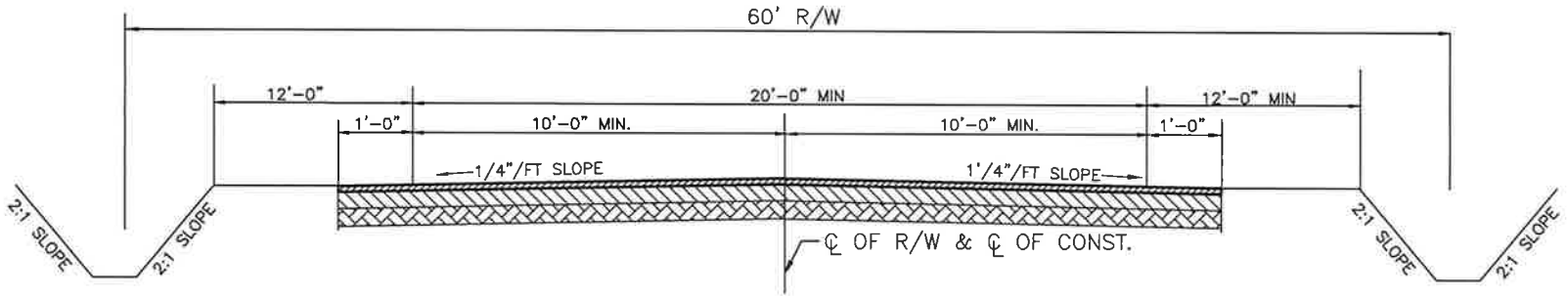
REV: 11-01-19

FORSYTH COUNTY DEPARTMENT OF ENGINEERING

TYPICAL ROADWAY SECTIONS

STD. NO. 122

NOT TO SCALE



RESIDENTIAL (LOTS 2 ACRES AND LARGER)

1.25" ASPHALTIC CONCRETE "F" (9.5 mm)

2" ASPHALTIC CONCRETE "E" (12.5 mm)

TACK COAT REQUIRED ON ALL PAVING

6" GRADED AGGREGATE BASE COURSE, SHALL EXTEND 1' BEYOND PAVEMENT.

6" SUBGRADE STABILIZED WITH 150 LBS. OF STONE PER SQ. YD. (UNLESS MATERIAL IN PLACE WEIGHS 95 LBS. PER CU. FT.)

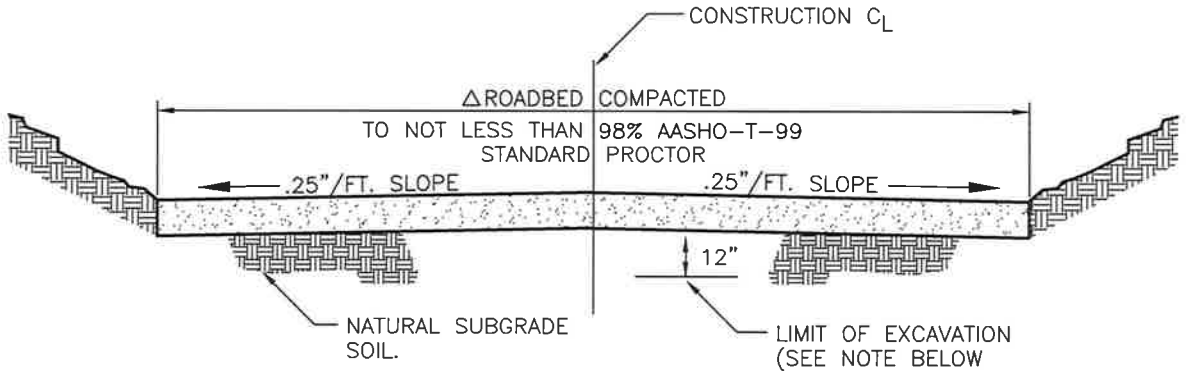
* 12 FT. SHOULDER IF UNDERGROUND POWER IS TO BE INSTALLED.
* 10 FT. DRAINAGE EASEMENT OUTSIDE R/W MAY BE REQUIRED
* ALL ASPHALT MIX MUST HAVE A MINIMUM 5% ASPHALT CEMENT CONTENT.

REV: 11-01-19

FORSYTH COUNTY DEPARTMENT OF ENGINEERING

TYPICAL ROADWAY SECTIONS

NOT TO SCALE



FIELD DENSITY TEST REQUIRED ON ALL SUBGRADE PRIOR TO SETTING CURB.

NOTE:
LIMIT OF EXCAVATION – WHERE UNSATISFACTORY MATERIAL IS ENCOUNTERED, INCLUDING ROCK, EXCAVATE AN ADDITIONAL 12" BELOW THE SUBGRADE AND BACKFILL WITH A SELECT MATERIAL APPROVED BY THE DEPARTMENT OF ENGINEERING.

STD. NO. 120: △ = 28'-0"
STD. NO. 121: △ = 33'-0"
STD. NO. 122: △ = 22'-0"

SUBGRADE SHALL BE COMPACTED TO 98% WITHIN THE TOP 12", AND 95% TO ALL DEPTHS GREATER THAN 12". COMPACTION AROUND MAJOR DRAINAGE STRUCTURES SHALL BE 100% WITHIN 10' OF THAT STRUCTURE, IE. BRIDGE CULVERTS AND ANY STORM DRAINS OVER 36" IN DIAMETER.

STD. NO. 123

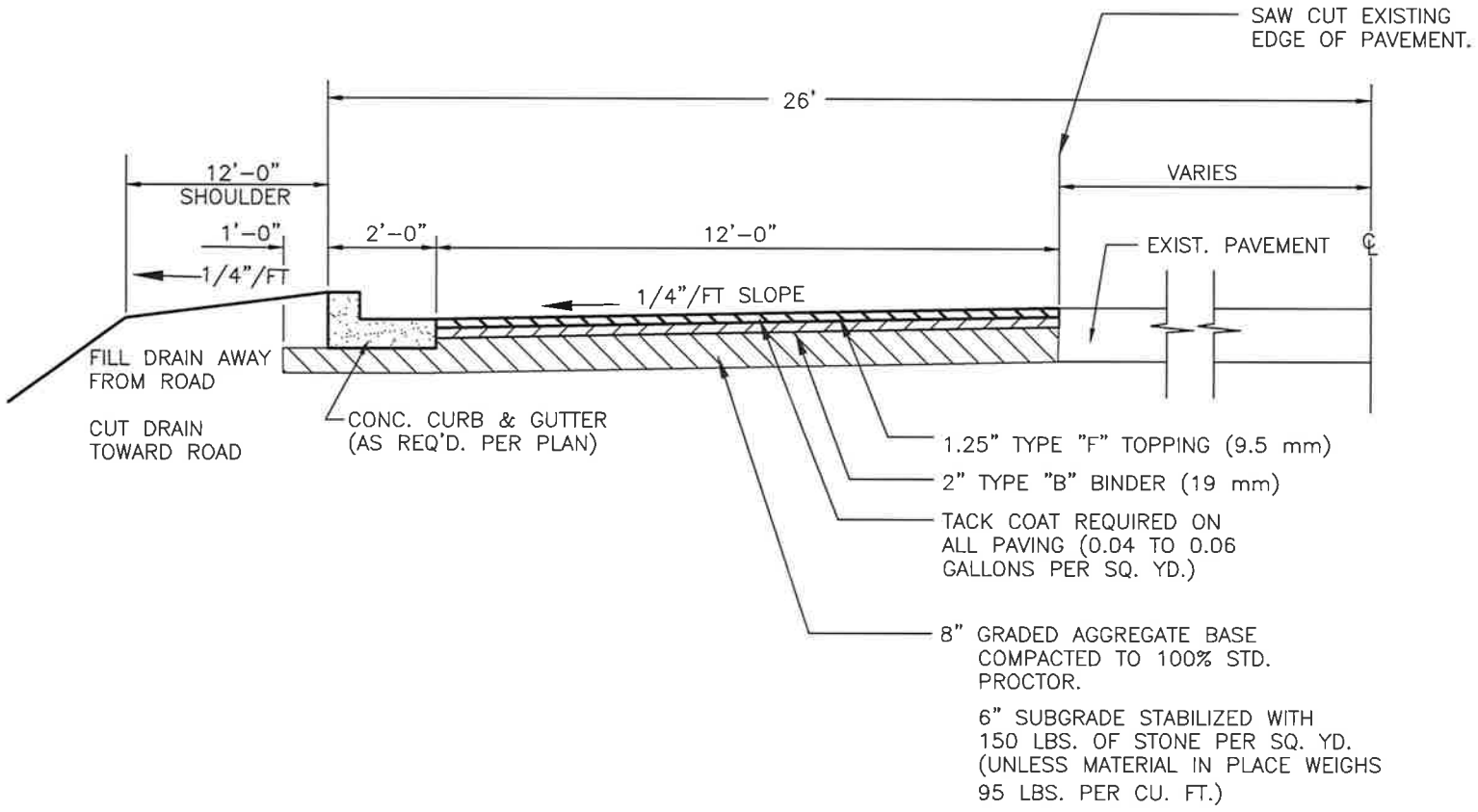
REV: 11-01-19

FORSYTH COUNTY DEPARTMENT OF ENGINEERING

STD. NO. 124

TYPICAL ROADWAY SECTIONS

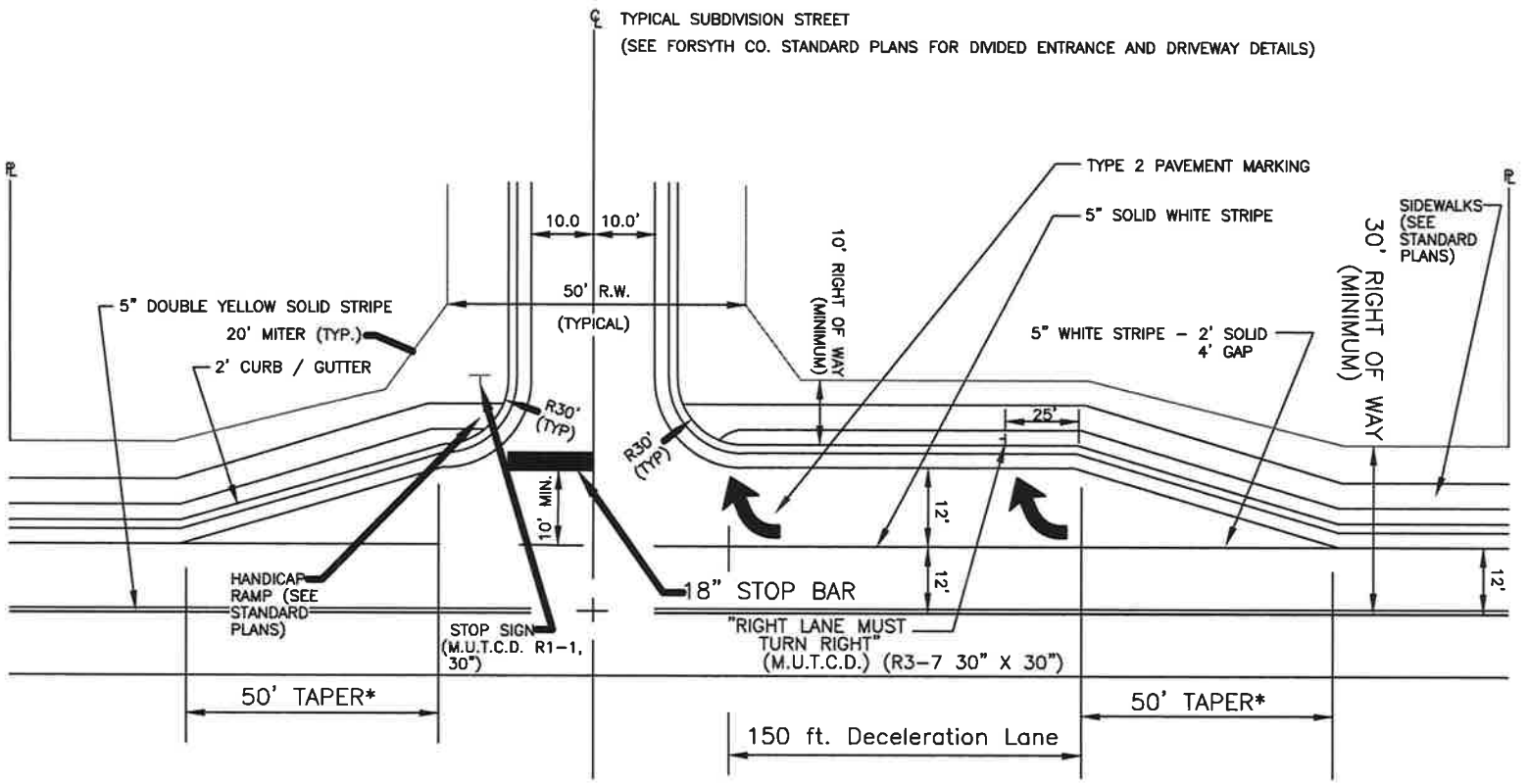
NOT TO SCALE



DECELERATION LANE TYPICAL SECTION

NOTE: ALL ASPHALT MIX MUST HAVE A MINIMUM 5% ASPHALT CEMENT CONTENT.
NOTE: DIVIDED HIGHWAYS OR MAJOR COLLECTOR ROADS WILL REQUIRE MATCHING MAIN LINE TYPICAL SECTION OF 10" GAB, 4" ASPHALT BASE, 2" ASPHALT BINDER, 1.5" (12.5 mm) TOPPING.

NOT TO SCALE



*NOTE: TAPERS ARE NOT CURBED WHEN JOINING AN UNCURBED ROAD

SHOW THE FOLLOWING NOTES ON THE APPROVED PLAN:

A) SIGNING, STRIPING, MARKING, AND HIGH LEVEL WARNING DEVICES TO BE PLACED AS SHOWN AND/OR AS DIRECTED BY THE FORSYTH COUNTY TRAFFIC ENGINEER AND/OR FORSYTH COUNTY INSPECTOR. THIS TRAFFIC CONTROL PLAN IS SUBJECT TO CHANGE BY THE FORSYTH COUNTY TRAFFIC ENGINEER.

B) WARNING DEVICES SHALL BE PLACED PRIOR TO THE COMMENCEMENT OF ANY ROAD IMPROVEMENT WORK ON COUNTY ROADS AND SHALL REMAIN IN PLACE UNTIL THE CONCLUSION OF ALL SIGNING AND STRIPING WORK.

C) ALL WARNING DEVICES SHALL BE EITHER TYPE I BARRICADES OR DRUMS WITH WARNING LIGHTS ON EVERY OTHER DEVICE, AND SHALL CONFORM WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS AND FORSYTH COUNTY FOR COLOR, SIZE, REFLECTIVITY, HEIGHT, AND PLACEMENT.

D) MAXIMUM SPACING OF WARNING DEVICES SHALL BE EQUAL TO THE POSTED SPEED OF THE ROAD IN M.P.H. (i.e., 30 FOOT SPACING FOR 30 M.P.H. SPEED LIMIT)

E) ALL SIGNS SHALL CONFORM WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS FOR COLOR, SIZE, REFLECTIVITY, HEIGHT AND PLACEMENT.

F) STRIPING (WHITE AND YELLOW) AND ARROW MARKING SHALL BE APPLIED USING FORSYTH COUNTY OR GEORGIA D.O.T. STANDARD THERMOPLASTIC.

G) CONFLICTING STRIPING SHALL BE REMOVED BY GRINDING, OR OVERLAY AS SPECIFIED BY THE FORSYTH COUNTY TRAFFIC ENGINEER.

H) ALL SIGNS MUST BE INSTALLED CONCURRENTLY WITH THE PERFORMANCE OF THE STRIPING WORK.

REV:11-06-20

FORSYTH COUNTY DEPARTMENT OF ENGINEERING

DECELERATION LANE

STD. NO. 125

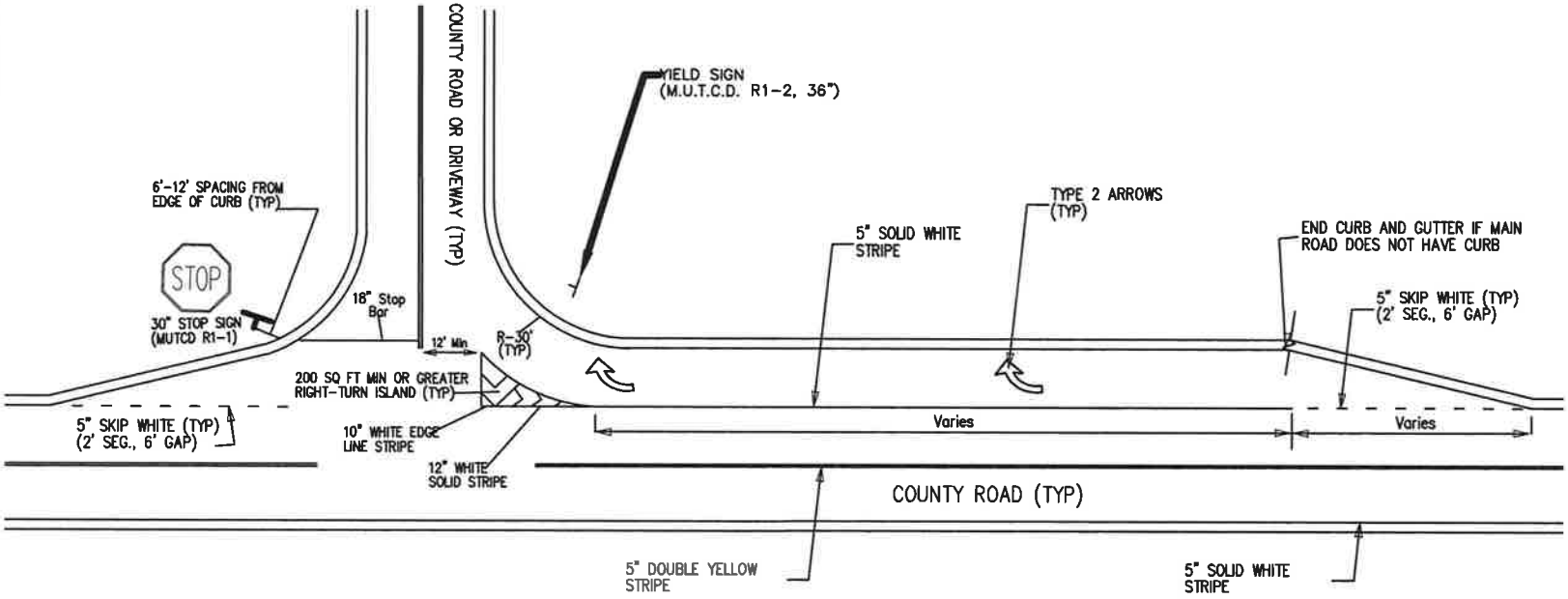
REV:11-06-20

FORSYTH COUNTY DEPARTMENT OF ENGINEERING

STD. NO. 125-A

DECELERATION LANE

NOT TO SCALE



General Notes (Yield Sign with Right-Turn Island)

- Right-turn island should be 200' square feet minimum.

- This treatment type should only be used in accordance with section 2B-08 which states "at an intersection where a special problem exists and where engineering judgment indicates the problem to be susceptible to correction by the use of the YIELD sign." (For example, a yield sign and associated right-turn island at 200 sq ft min may be needed if left-turn volumes are high into driveway).

- Based on traffic engineering experience and field observations, it is recommended that a yield sign may be considered if the oncoming left-turn traffic is in excess of 75 left-turning vehicles per hour with a minimum of 300 left-turning vehicles per day over 24 hours.

- A final engineering decision should be based on a field observation that documents a traffic operations issue, where the left-turning vehicles impact the operation of the mainline and opposing movements.

Show the following notes on the approved plan:
(Per Forsyth County Standard Deceleration Lane Detail)

A. Signing, striping, marking, and high-level warning devices to be placed as shown and/or as directed by the Forsyth County traffic engineer and/or Forsyth County Inspector. This traffic control plan is subject to change by the Forsyth County traffic engineer.

B. Warning devices shall be placed prior to the commencement of any road improvement work on county roads and shall remain in place until the conclusion of all signing and striping work.

C. All warning devices shall be either type 1 barricades or drums with warning lights on every other device, and shall conform with the manual on uniform traffic control devices (MUTCD). MUTCD standards and Forsyth County for color, size, reflectivity, height, and placement.

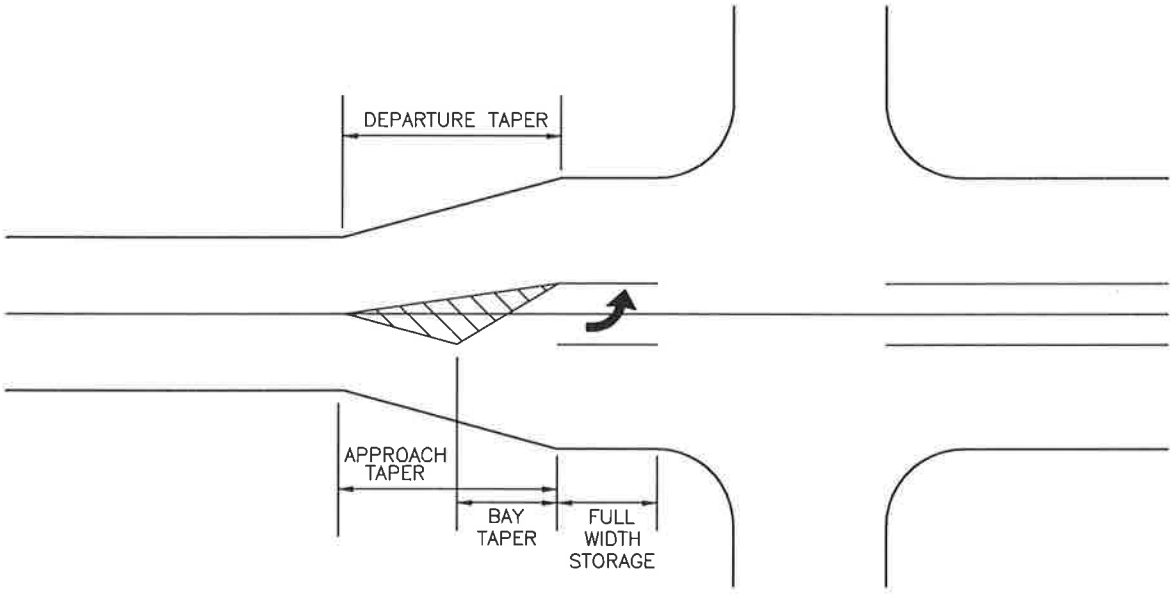
D. Maximum spacing of warning devices shall be equal to the posted speed of the road in m.p.h (i.e. 30 foot spacing for 30 m.p.h speed limit).

E. All signs shall conform with the manual on uniform traffic control devices (MUTCD) standards for color, size, reflectivity, height, and placement.

F. Striping (white and yellow) and arrow markings shall be applied using Forsyth County or Georgia D.O.T standard thermoplastic.

G. Conflicting striping shall be removed by grinding, or overlay as specified by the Forsyth County traffic engineer.

H. All signs must be installed concurrently with the performance of the striping work.



N.T.S.

POSTED SPEED LIMIT, MPH	APPROACH TAPER, Ft		BAY TAPER, Ft	FULL WIDTH STORAGE * MINIMUM
	6' Shift	12' Shift		
30	90	180	50	135
35	125	250	50	160
40	160	320	50	210
45	270	540	100	235
50	300	600	100	285
55	330	660	100	310
60	360	720	100	360
65	390	780	100	410

TAPER FORMULAS:

45 MPH AND UP: $W \times S$

40 MPH AND LESS: $\frac{W \times S^2}{60}$

WHERE W = WIDTH OF SHIFT AND S = SPEED LIMIT

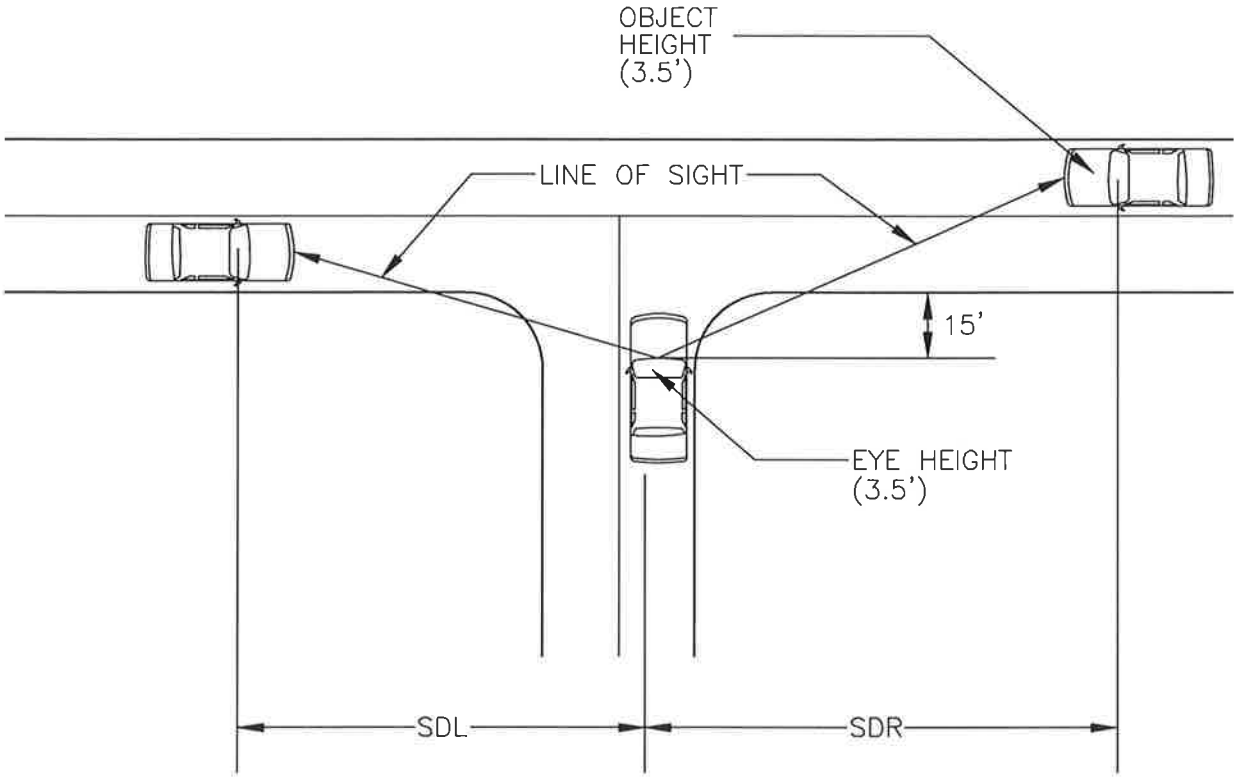
* SIZE BASED ON ACTUAL NUMBER OF LOTS AND LEFT TURN MOVEMENT USING I.T.E. AND A.A.S.H.T.O. REQUIREMENTS

NOTE:
TYPICAL SECTIONS MINIMUM:
10" GAB, 4" ASPHALT BASE (25MM), 2" ASPHALT BINDER (19MM),
1.5" ASPHALT TOPPING (9.5MM), OR MATCH TYPICAL SECTION WHICHEVER IS GREATER.

NOT TO SCALE

LEFT TURN LANE DESIGN

REV: 11-01-19 | FORSYTH COUNTY DEPARTMENT OF ENGINEERING | STD. NO. 126



ARTERIAL SPEED, MPH	SIGHT DISTANCE, Ft				
	2 LANE	3 AND 4 LANES		5 AND 6 LANES	
	SDL=SDR	SDL	SDR	SDL	SDR
30	335	350	375	400	420
35	390	410	440	465	490
40	445	470	500	530	560
45	500	530	560	595	630
50	555	590	625	660	700
55	610	650	685	730	770
60	665	705	750	795	840
65	720	765	810	860	910

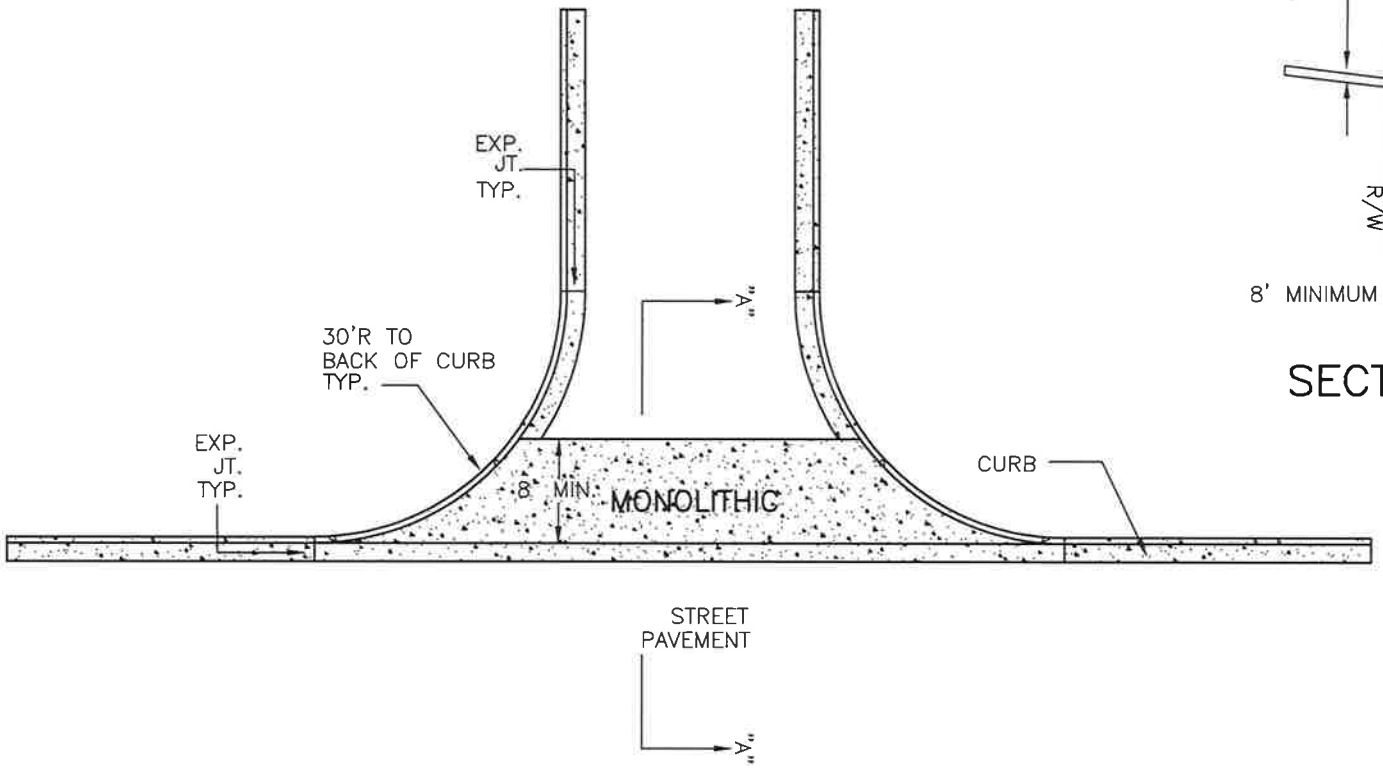
NOT TO SCALE

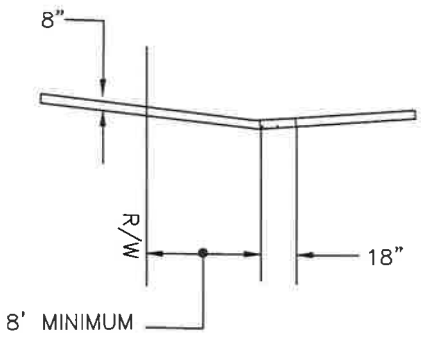
INTERSECTION SIGHT DISTANCE REQUIREMENTS

REV: 11-01-19 | FORSYTH COUNTY DEPARTMENT OF ENGINEERING | STD. NO. 127

NOT TO SCALE

CONCRETE VALLEY GUTTER





SECTION "A–A"

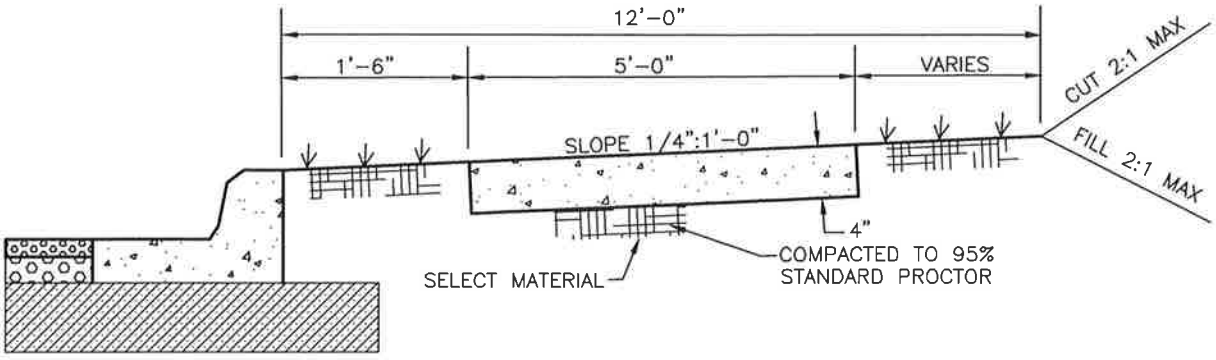
- .5" EXPANSION JOINT REQUIRED AT THE END OF EACH CURB RADIUS.
- REVERSE SLOPE ON HIGH SIDE TO PREVENT PONDING OF WATER.
- REINFORCE WITH 6" X 6" WIRE MESH, NO. 4 GAUGE.
- ALL CONCRETE SHALL BE CLASS "A", 3000 P.S.I. VALLEY GUTTER TO BROOM FINISHED. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE CURRENT G.D.O.T.
- ALL CONCRETE SHALL BE CURED IN ACCORDANCE WITH THE CURRENT SPECIFICATIONS OF G.D.O.T.

ALL CONCRETE TO BE 8" WITH 6" X 6" WWM (NO. 4 GAUGE)

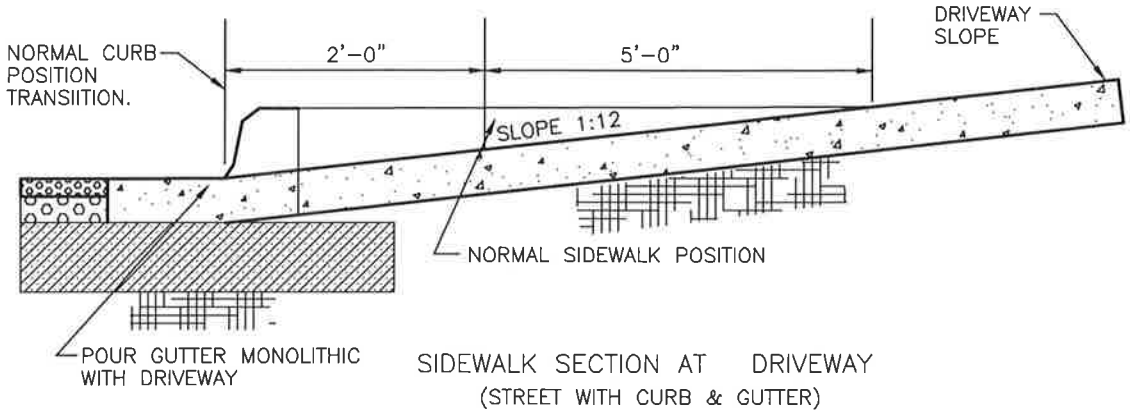
REV: 11-01-19

FORSYTH COUNTY DEPARTMENT OF ENGINEERING

STD. NO. 130



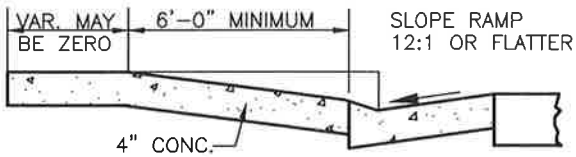
TYPICAL SECTION OF 5'-0" SIDEWALK



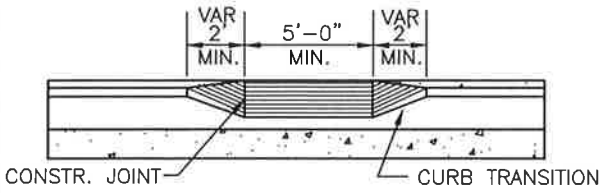
SIDEWALK SECTION AT DRIVEWAY
(STREET WITH CURB & GUTTER)

NOTES:

1. 1/2" PREMOULDED EXPANSION JOINT AT DRIVEWAYS, CURBS AND AT MIN. 40'-0" O.C. HORIZONTALLY.
2. MATERIAL OF 95#/CU. FT. OR BETTER OF SELECT MATERIAL.
3. ALL EXPOSED UNPAVED AREAS TO BE COVERED WITH A STAND OF GRASS.
4. SIDEWALK TO BE CONSTRUCTED OF CLASS "A" 3000 P.S.I. CONCRETE.
5. ALL CURB CUTS AREA TO BE SAW CUT PERPENDICULAR TO CURB LINE.

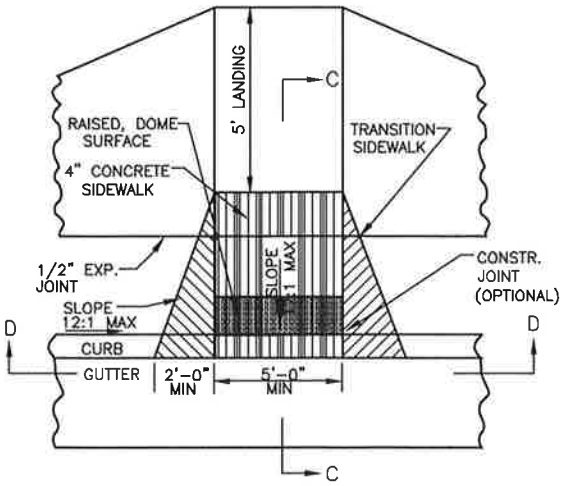


SECTION C-C



SECTION D-D

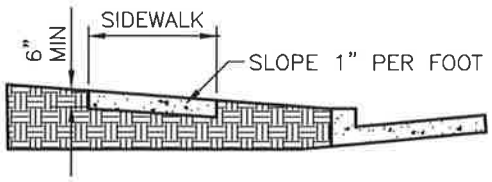
TYPICAL SIDEWALK TO CURB TRANSITION DETAILS
(MODIFY AS NECESSARY FOR CURVE)

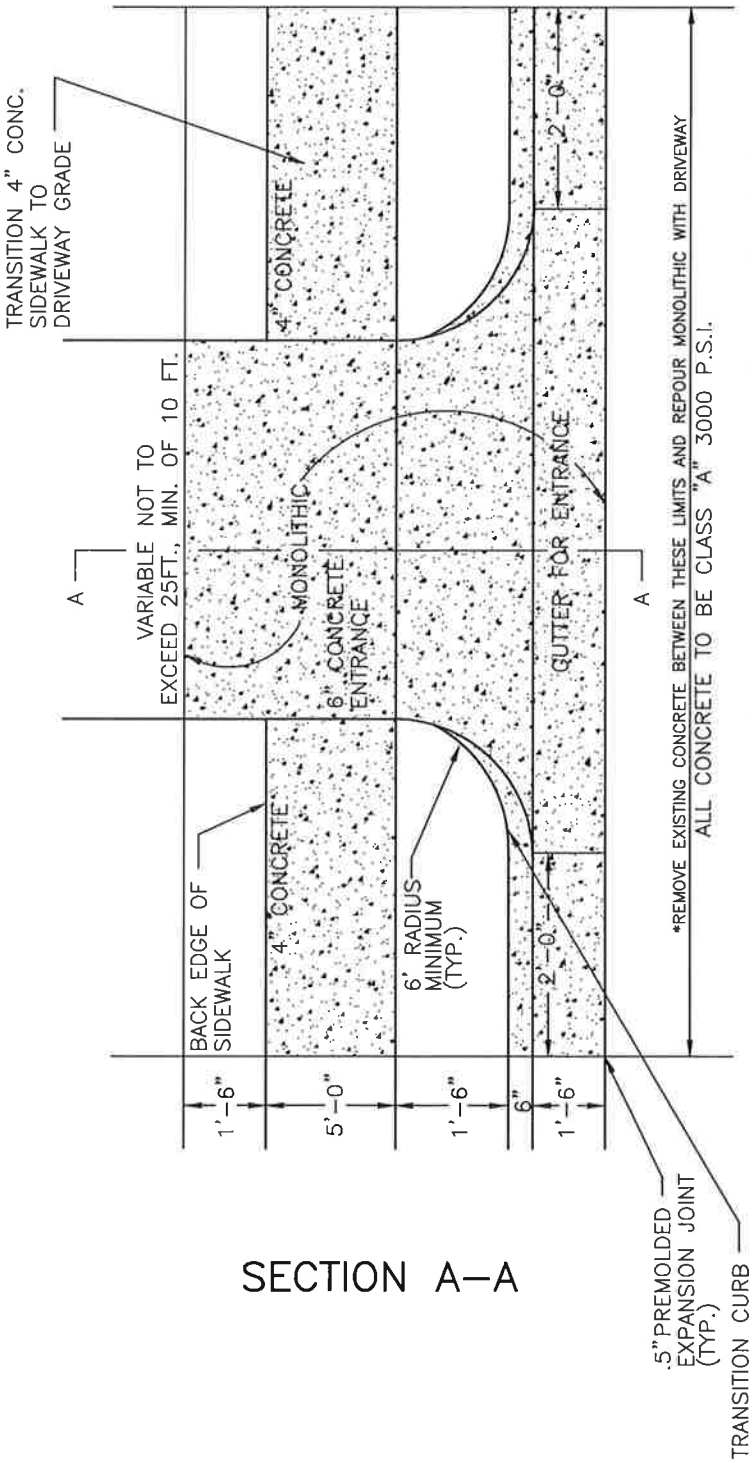


NOT TO SCALE: SEE GDOT SPECIAL DETAIL A3 FOR OTHER ACCEPTABLE RAMPS

TYPICAL SECTION OF A 5'-0" SIDEWALK

REV:03-12-20	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 140





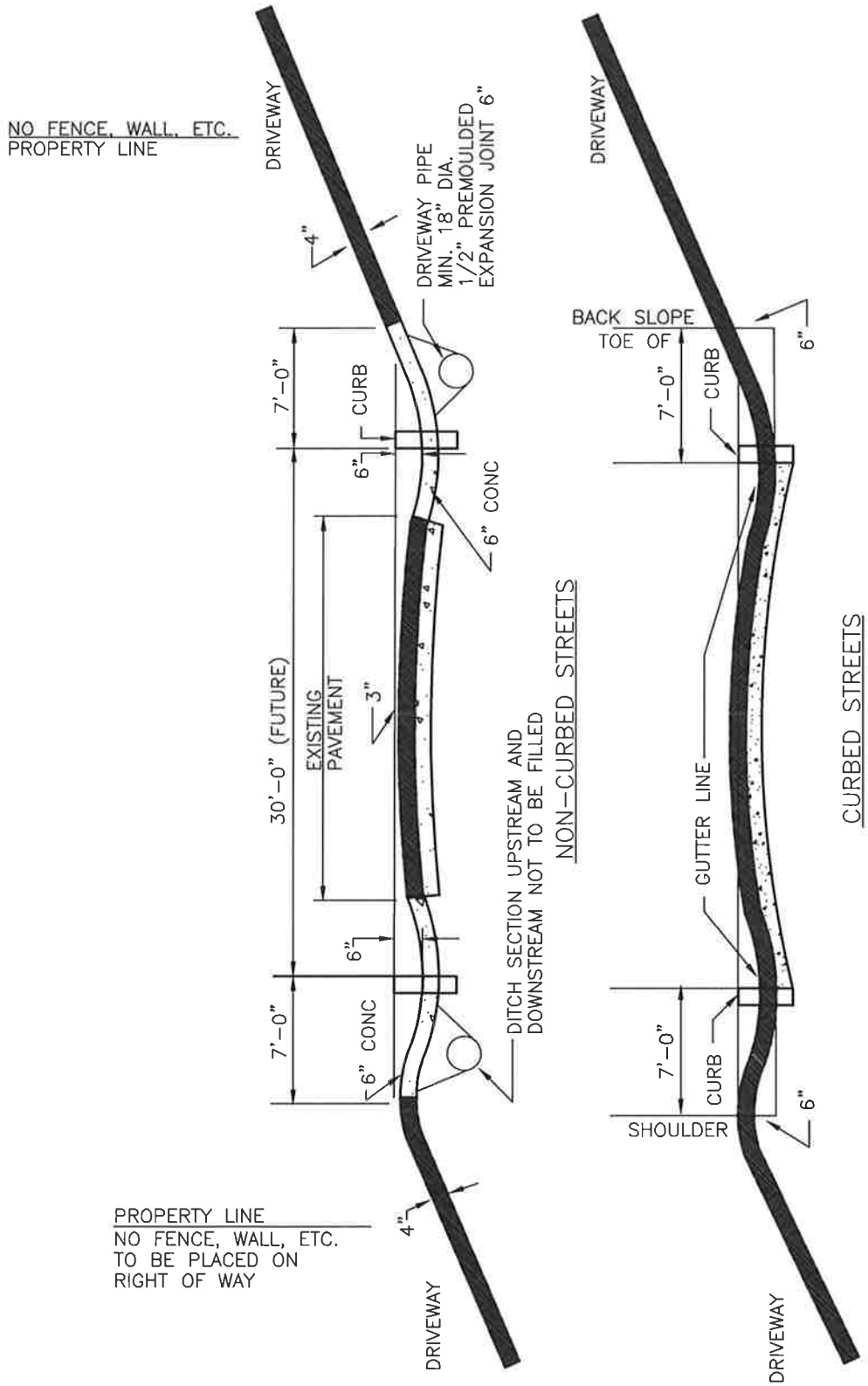
*GUTTER CAN REMAIN IF CURB IS REMOVED WITH A FORSYTH COUNTY ENGINEERING APPROVED SAW CUTTING METHOD THAT PRODUCES AN ACCEPTABLE FINISHED SURFACE.

SECTION A–A

NOT TO SCALE

PRIVATE DRIVEWAY ENTRANCE WITH SIDEWALK

REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 150

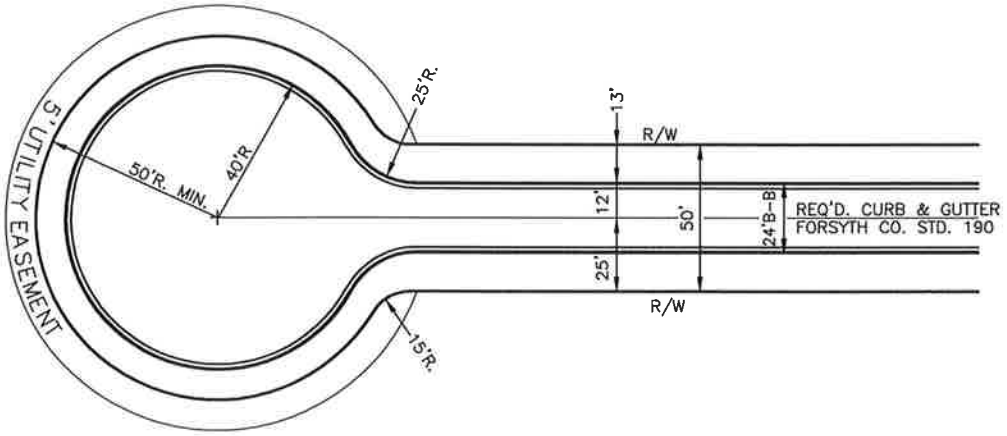


DRIVEWAYS FOR LOTS ABOVE OR BELOW STREET LEVEL. WHEN STREETS HAVE CURB, DRIVEWAYS SHALL BE CONSTRUCTED TO AN ELEVATION 6" ABOVE THE GUTTER LINE AT THE NORMAL SHOULDER LINE, OR TOE OF BACK SLOPE AS INDICATED.

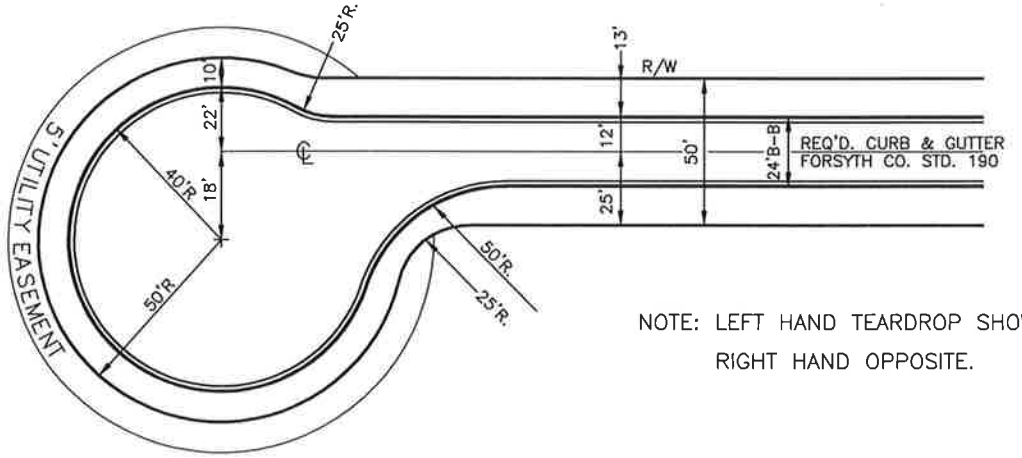
NOT TO SCALE

STANDARD PRIVATE ENTRANCE

REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 151



STANDARD OR REGULAR
(SYMMETRICAL)



NOTE: LEFT HAND TEARDROP SHOWN.
RIGHT HAND OPPOSITE.

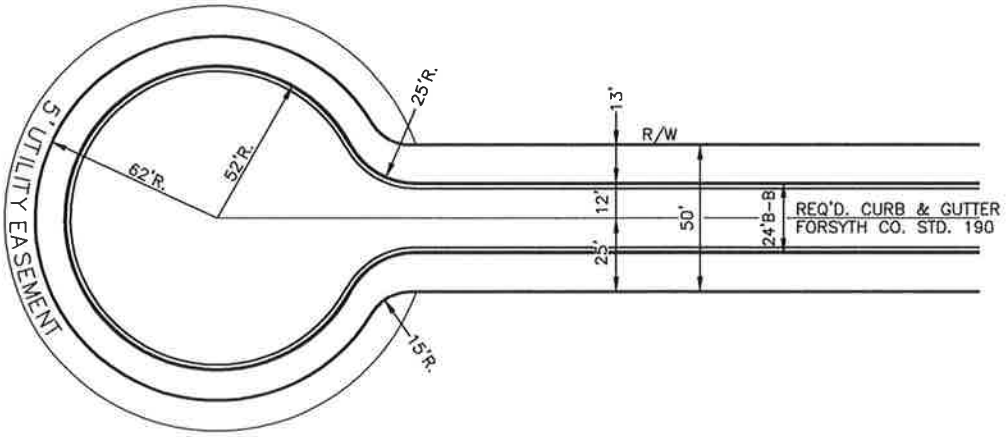
TEARDROP

IN ALL CASES WHERE UNDERGROUND UTILITIES ARE TO BE INSTALLED, ADEQUATE RIGHT OF WAY AND /OR UTILITY EASEMENTS SHALL BE PROVIDED. A UTILITY EASEMENT SHOULD BE A MIN. OF 10' FOOT WIDE.

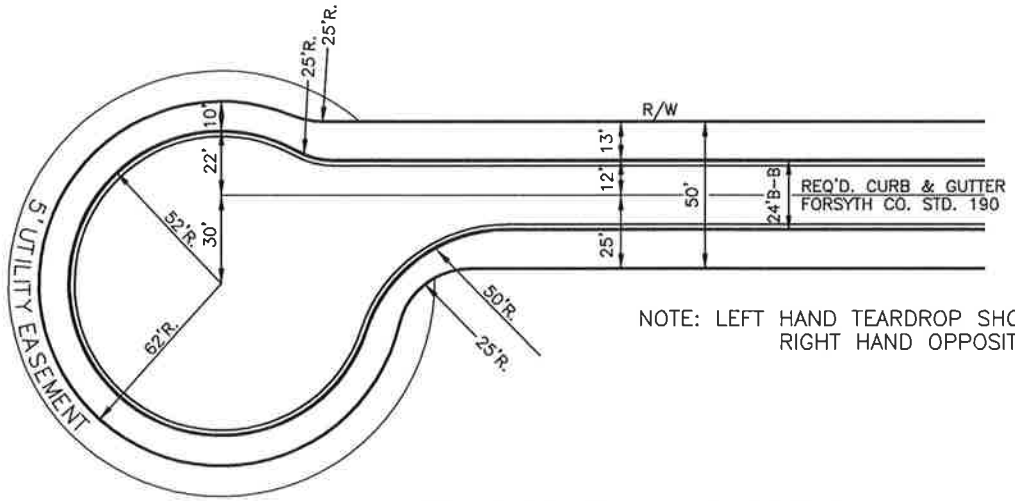
NOT TO SCALE

MINIMUM REQUIREMENTS FOR STANDARD CUL-DE-SACS

REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 160



OVERSIZE (SYMMETRICAL)



NOTE: LEFT HAND TEARDROP SHOWN.
RIGHT HAND OPPOSITE.

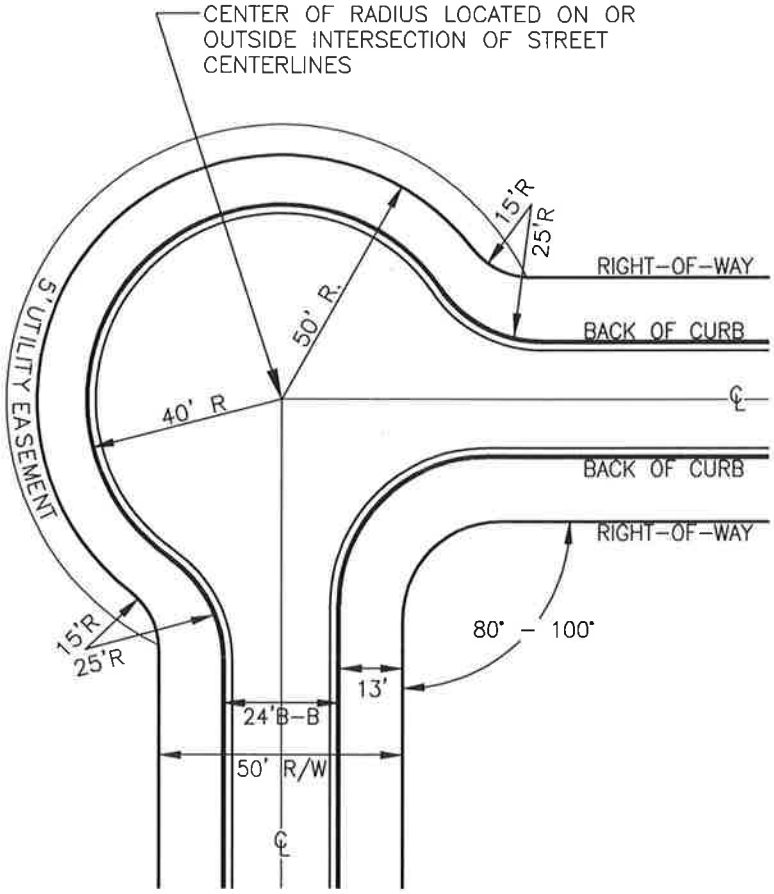
OVERSIZE TEARDOP

NOTE:
OVERSIZED CUL-DE-SACS SHALL BE INSTALLED ON ALL DEAD END STREETS THAT ARE OVER 800 FT. IN LENGTH IN RESIDENTIAL SUBDIVISIONS, AND ALL DEAD END INDUSTRIAL STREETS THAT ARE OVER 500 FT. IN LENGTH OR WHERE REQUIRED.

NOT TO SCALE

MINIMUM REQUIREMENTS FOR OVERSIZED CUL-DE-SACS

REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 161



EYEBROW

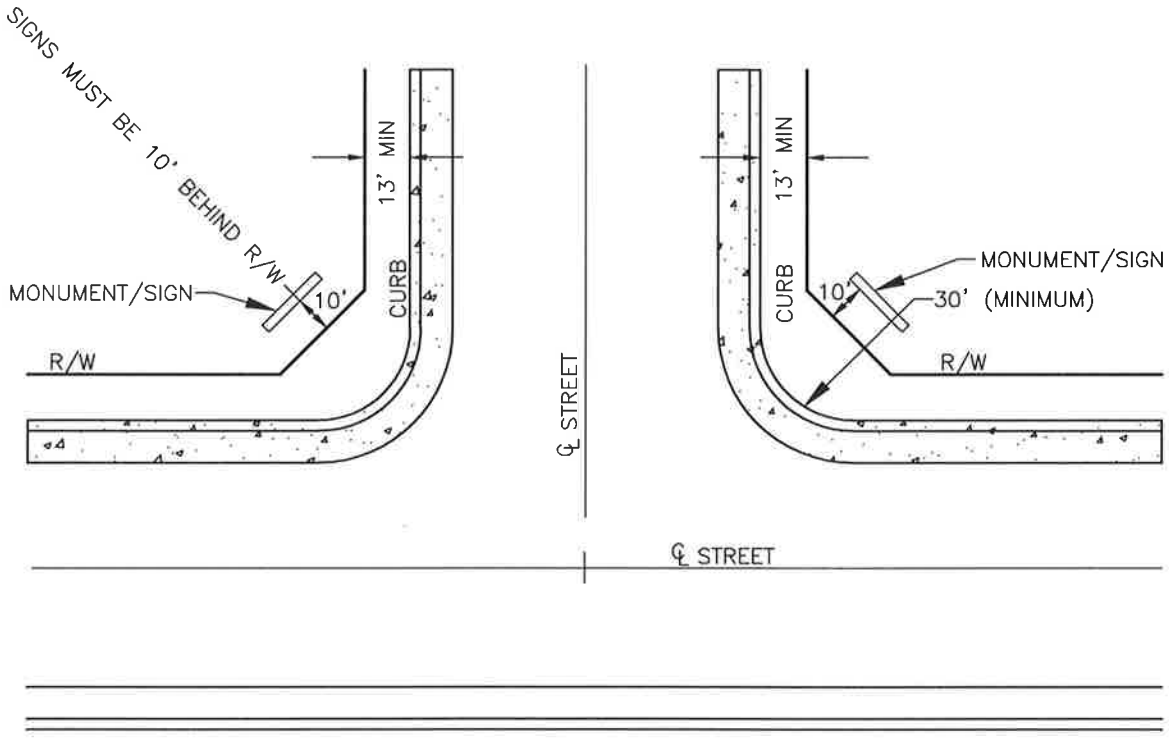
LOCAL RESIDENTIAL STREETS ONLY

NOTE:
OVERSIZED CUL-DE-SACS SHALL BE INSTALLED ON ALL DEAD END STREETS THAT ARE OVER 800 FT. IN LENGTH IN RESIDENTIAL SUBDIVISIONS.

NOT TO SCALE

MINIMUM REQUIREMENTS FOR STANDARD EYEBROWS

REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 162



1. PREPARE A SKETCH OF THE MONUMENT OR SIGN SHOWING THE PROPOSED DESIGN AND LOCATION.
2. OBTAIN AND SUBMIT WRITTEN PERMISSION FROM ADJOINING PROPERTY OWNERS.
3. NO STRUCTURE OR SHRUB IN EXCESS OF 30 INCHES HIGH SHALL BE PLACED WITHIN THIRTEEN (13) FEET OF THE CURB LINE AT THE CORNER OR LINE OF SIGHT, WHICH EVER IS GREATER, NOR SHALL CREATE ANY SIGHT DISTANCE OR TRAFFIC HAZARD. NO STRUCTURE OF ANY SIZE SHALL BE PLACED WITHIN EIGHT (8) FEET OF THE CURB.
4. FORSYTH COUNTY ASSUMES NO LIABILITY FOR PLANTER OR MAINTENANCE OF SAME.
5. IN THE EVENT OF ROAD WIDENING OR OTHER COUNTY PROJECTS, FORSYTH COUNTY MAY REQUIRE REMOVAL OF ANY OBSTRUCTIONS.
6. 150' MINIMUM HORIZONTAL SIGHT DISTANCE WILL BE PROVIDED AT ALL TIMES
7. COMPLETED SKETCHES AND LETTERS OF PERMISSION SHOULD BE SENT TO:

FORSYTH COUNTY
DEPARTMENT OF ENGINEERING

*SIGNS MUST BE PERMITTED THROUGH THE FORSYTH COUNTY PLANNING DEPARTMENT

* STREET/ROAD NAME AND TRAFFIC CONTROL SIGNS WILL BE PAID FOR AND INSTALLED BY THE DEVELOPER AND IN ACCORDANCE WITH THE CURRENT EDITION OF THE MANUAL FOR TRAFFIC CONTROL DEVICES.

NOT TO SCALE

MONUMENTS OR STREET NAME SIGNS

REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 170

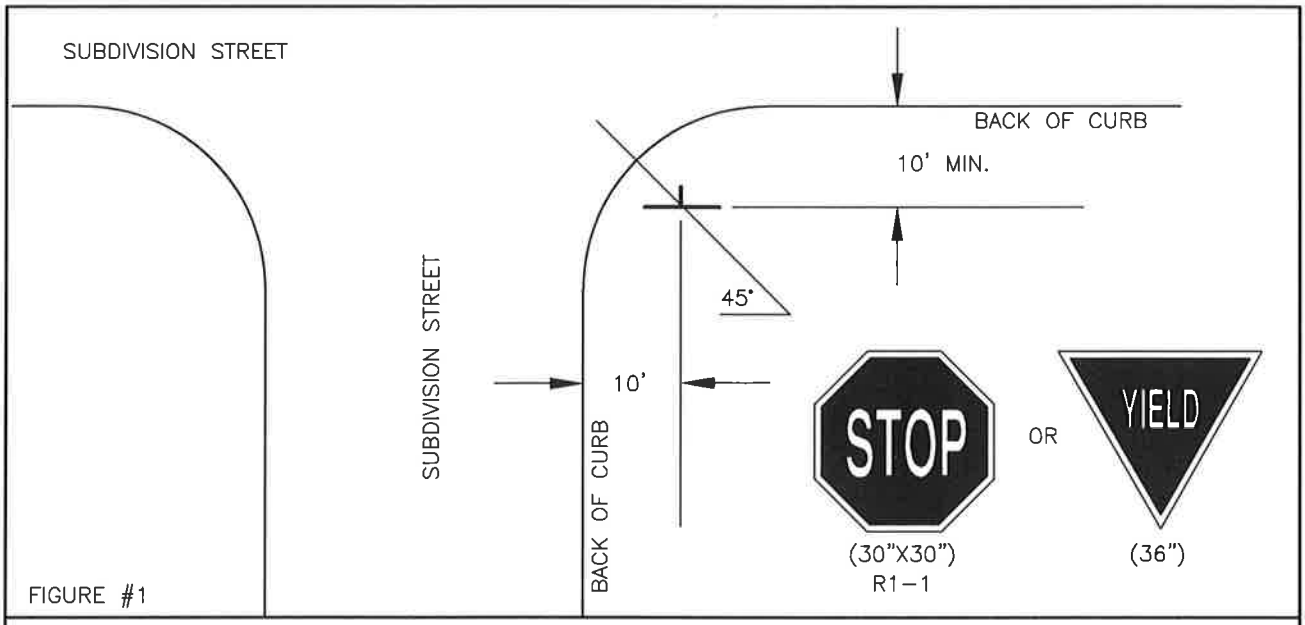


FIGURE #1

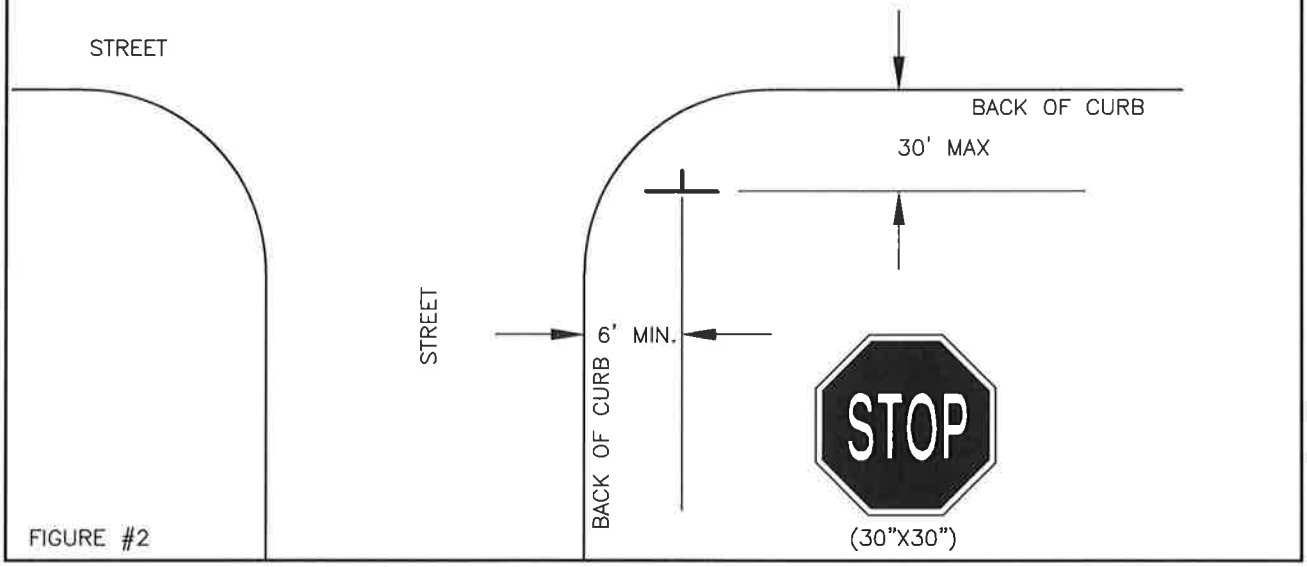
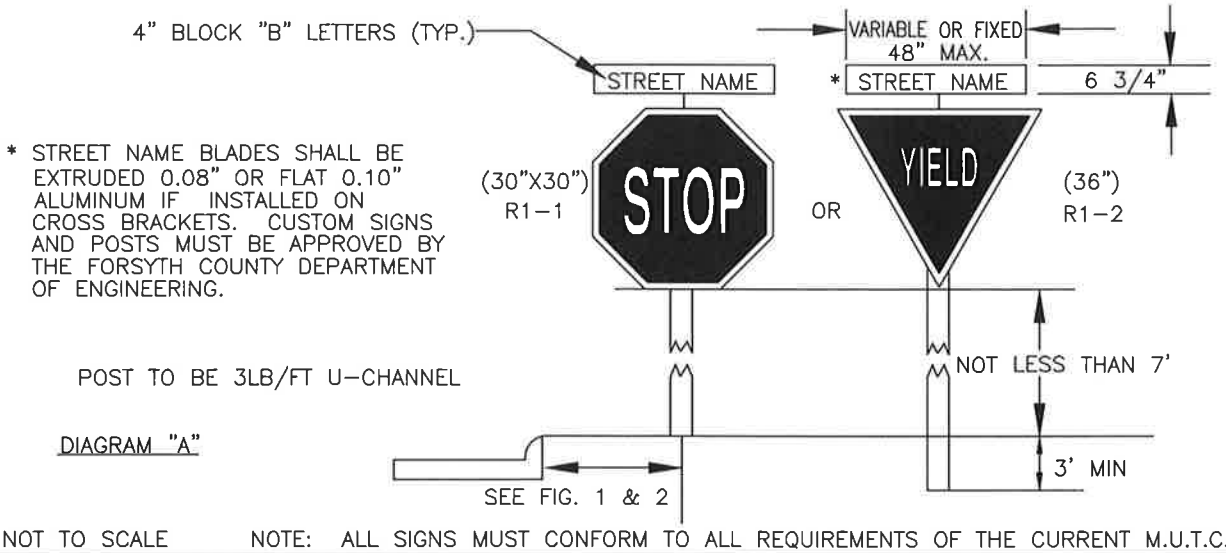


FIGURE #2



* STREET NAME BLADES SHALL BE EXTRUDED 0.08" OR FLAT 0.10" ALUMINUM IF INSTALLED ON CROSS BRACKETS. CUSTOM SIGNS AND POSTS MUST BE APPROVED BY THE FORSYTH COUNTY DEPARTMENT OF ENGINEERING.

POST TO BE 3LB/FT U-CHANNEL

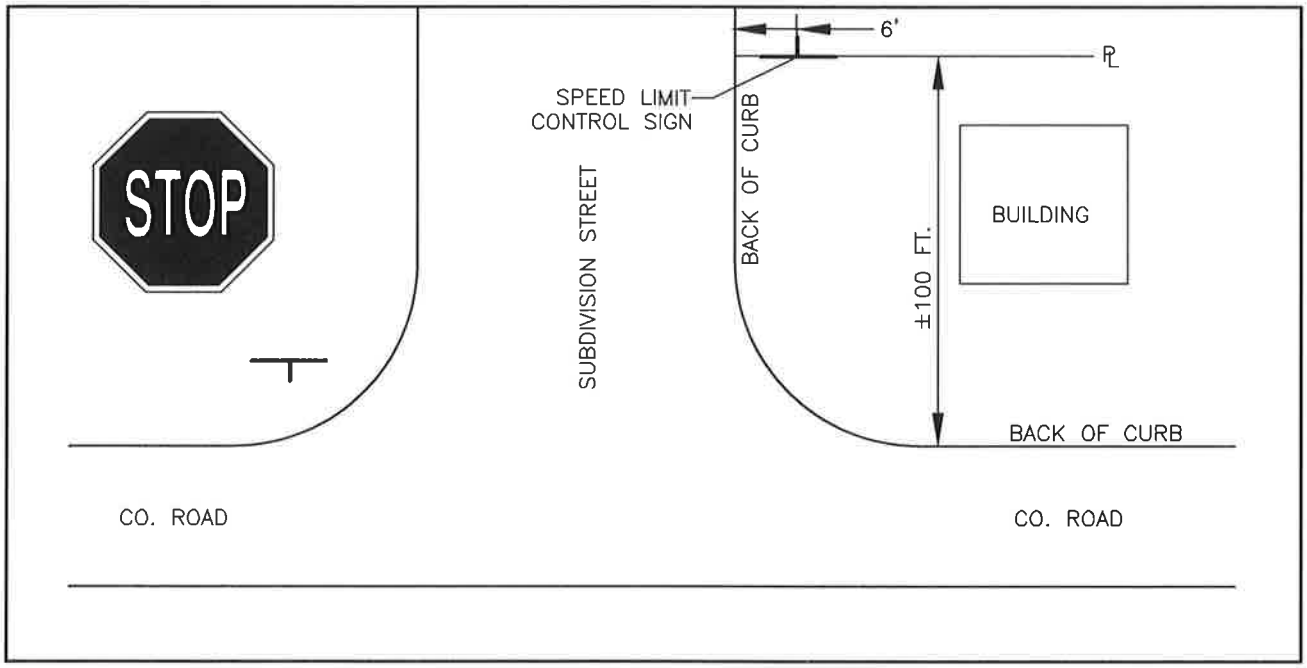
DIAGRAM "A"

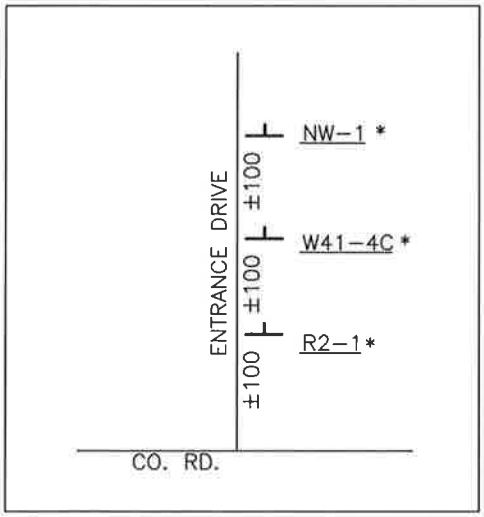
NOT TO SCALE

NOTE: ALL SIGNS MUST CONFORM TO ALL REQUIREMENTS OF THE CURRENT M.U.T.C.D.

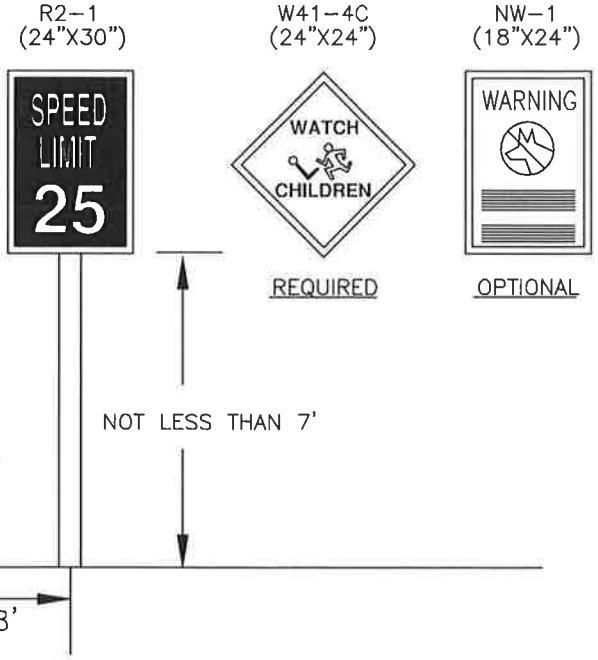
STREET SIGN LOCATION & SPECIFICATION

REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 171





* PLACE AT OR NEAR LOT LINES IF POSSIBLE.



NOTE: ADDITIONAL SIGNS SHALL BE PLACED A MINIMUM OF 100 FT. APART.

NOT TO SCALE

NOTE: ALL SIGNS MUST CONFORM TO ALL REQUIREMENTS OF THE CURRENT M.U.T.C.D.

STREET SIGN LOCATION & SPECIFICATION

REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 172

REV: 11-01-19

FORSYTH COUNTY DEPARTMENT OF ENGINEERING

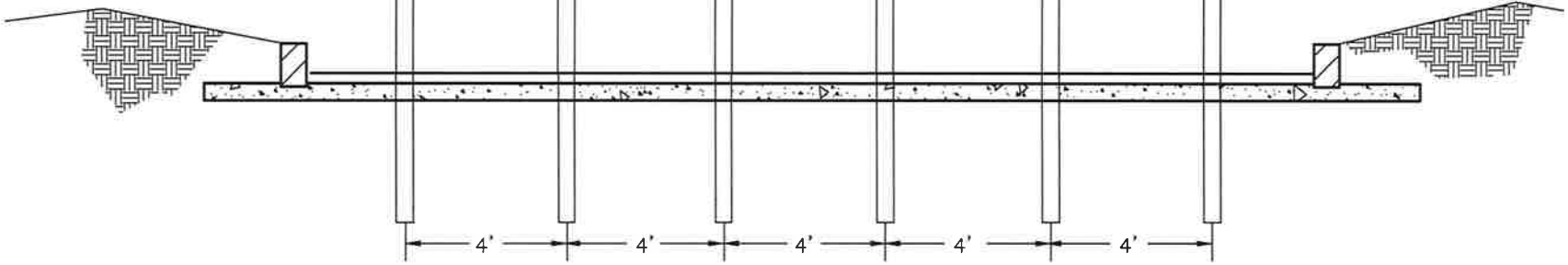
STANDARD ROAD BARRICADE

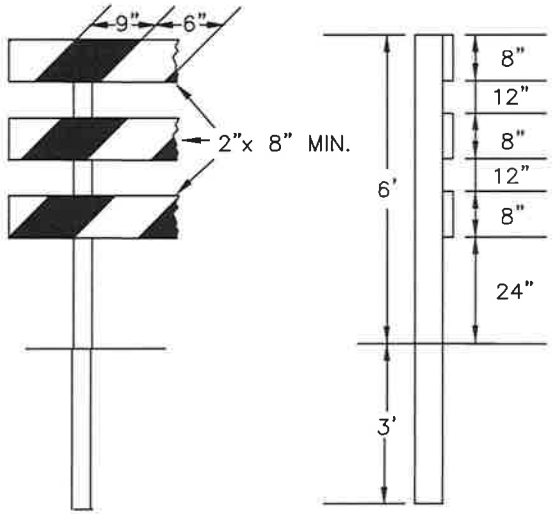
STD. NO. 173

NOT TO SCALE

POSTS AND PLANKS SHALL BE OF LONG LEAF SOUTHERN YELLOW PINE, FREE FROM KNOTS AND SHAKES.

FOR BOARD SPACING SEE ILLUSTRATION BELOW.





NOTE:

1. BARRICADES MAY BE VARIABLE LENGTH AS DETERMINED BY STREET WIDTH. THE CLASS "A" BARRICADE IS THE TYPE NORMALLY REQUIRED FOR MAJOR OPERATIONS, WHERE THE BARRICADE MUST REMAIN IN PLACE FOR EXTENDED PERIODS.

2. HOWEVER, IN ANY LENGTH BARRICADE 10 FT OR LONGER, VERTICAL UPRIGHTS SHOULD NOT EXCEED A CENTER DIMENSION OF 4 FT., WITH A ONE FOOT OVERHANG ON EACH END.

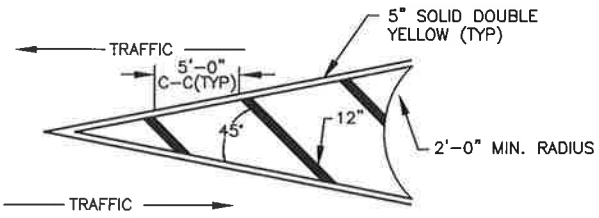
3. THE DIRECTION OF SLOPE OF THE STRIPES CANNOT ALWAYS SLANT DOWN-WARD TOWARD THE SIDE ON WHICH TRAFFIC IS TO PASS, AS MANY BARRICADES MUST NOT BE PASSED ON EITHER SIDE. WHERE A BARRICADE EXTENDS ENTIRELY ACROSS A ROADWAY, IT IS SUGGESTED THAT THE STRIPES SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH THE TRAFFIC MUST TURN IN DETOURING. WHERE BOTH RIGHT AND LEFT TURNS ARE PROVIDED FOR, THE STRIPES SHOULD SLOPE DOWNWARD IN BOTH DIRECTIONS FROM THE CENTER. SLOPE ANGLE OF THE STRIPES SHOULD ALWAYS BE 45°.

4. COLORS:
   PERMANENT BARRICADE: SHALL BE TYPE 1, LEVEL "A" REFLECTIVE SHEETING RED AND WHITE.
   TEMPORARY BARRICADE: SHALL BE ORANGE AND WHITE, REFLECTORIZED IN ACCORDANCE WITH THE CURRENT EDITION OF M.U.T.C.D.

5. ALL LUMBER (PLANKS & BOARDS) TO BE TREATED MATERIAL I.E. CHROMATED ZINC CHLORIDE (C.Z.C.) OR WOLMAN SALTS. "TREATED MATERIAL" TO BE CONSTRUED AS "PRESSURE TREATED".

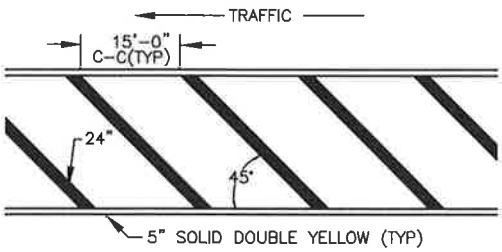
*FOR OTHER TRAFFIC CONTROL DEVICES, REFER TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

DETAIL "A" (YELLOW)



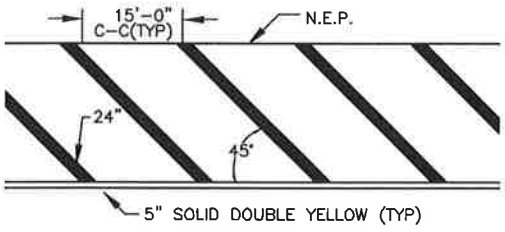
NOTE:
SQUARE YARDS OF STRIPING SHOWN ON PLAN, SUMMARY AND DETAILED ESTIMATE SHEETS INCLUDES THE AREA WITHIN THE BORDERS. THE 5" SOLID DOUBLE YELLOW BORDERS SHALL BE PAID FOR SEPARATELY.

DETAIL "B" (YELLOW)



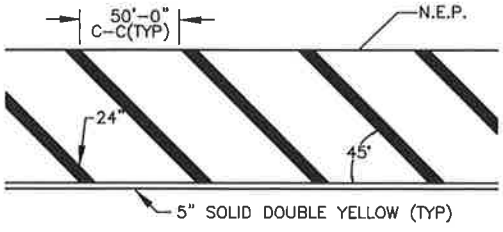
SEE NOTE FOR DETAIL "A" (YELLOW)

DETAIL "C" (YELLOW)



SEE NOTE FOR DETAIL "A" (YELLOW)

DETAIL "D" (YELLOW)



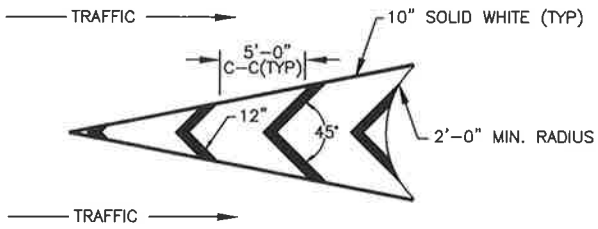
SEE NOTE FOR DETAIL "A" (YELLOW)

NOT TO SCALE

PAVEMENT MARKING HATCHING DETAILS

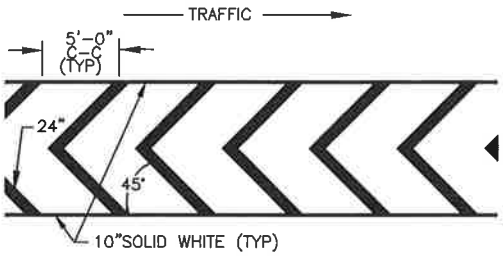
REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 174

DETAIL "A" (WHITE)



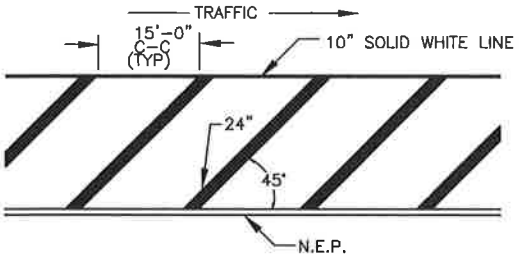
NOTE:
SQUARE YARDS OF STRIPING SHOWN ON PLAN, SUMMARY AND DETAILED ESTIMATE SHEETS INCLUDES THE AREA WITHIN THE BORDERS. AS WELL AS THE 10" SOLID WHITE BORDER.

DETAIL "B" (WHITE)



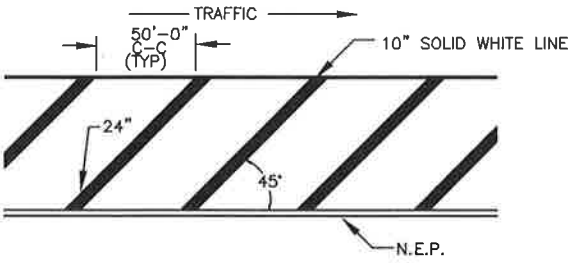
SEE NOTE FOR DETAIL "A" (WHITE)

DETAIL "C" (WHITE)



SEE NOTE FOR DETAIL "A" (WHITE)

DETAIL "D" (WHITE)



SEE NOTE FOR DETAIL "A" (WHITE)

NOT TO SCALE

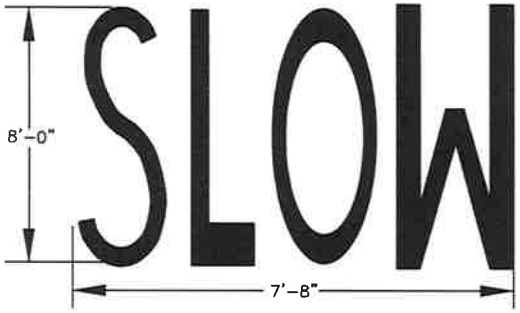
PAVEMENT MARKING HATCHING DETAILS

REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 175

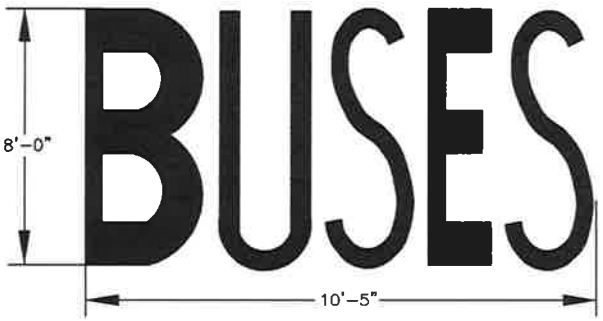
NOT TO SCALE

TYPE 1, WORD 20.75 sq. ft.

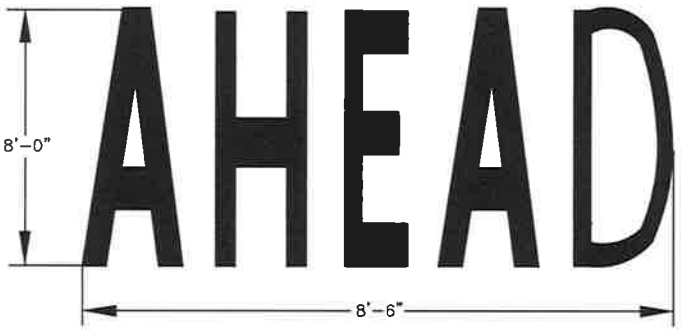
TYPE 2, WORD 25.433 sq. ft.



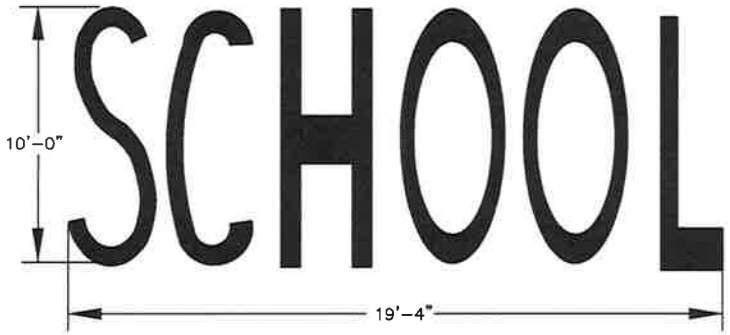
TYPE 5, WORD 25.396 sq. ft.



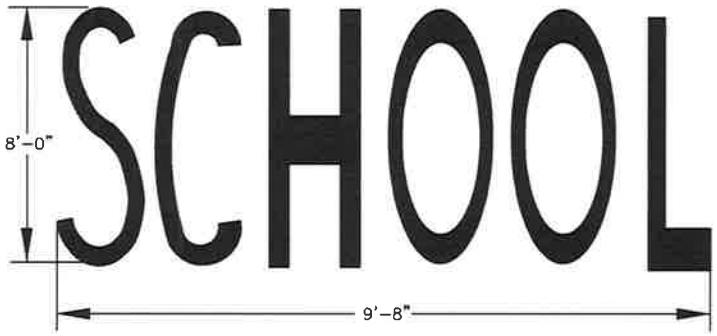
TYPE 6, WORD 38.146 sq. ft.



TYPE 4, WORD 29.053 sq. ft.



TYPE 3B, WORD 84.98 sq. ft.
(TWO LANE)



TYPE 3, WORD 33.49 sq. ft.

PAVEMENT MARKING DETAILS (WORDS)

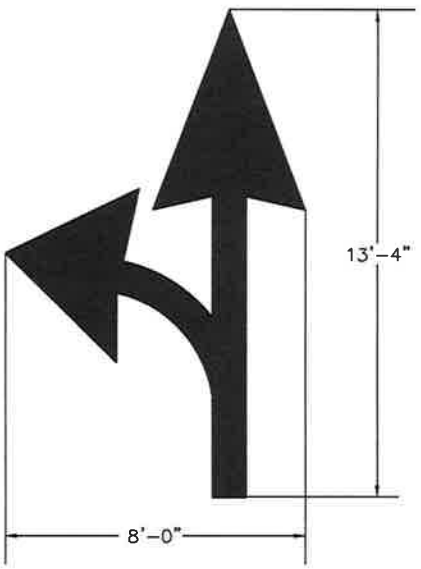
FORSYTH COUNTY DEPARTMENT OF ENGINEERING

REV: 11-01-19

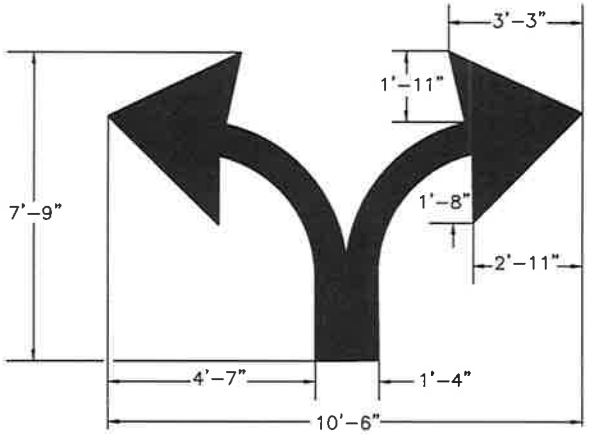
STD. NO. 176

DETAIL OF PAVEMENT MARKING ARROWS

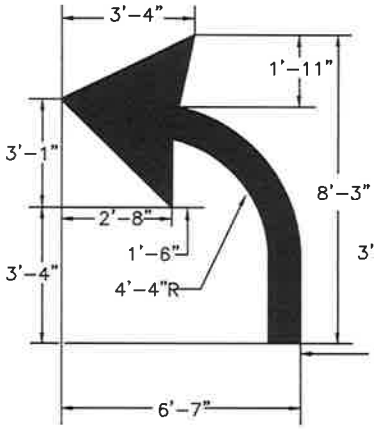
NOT TO SCALE



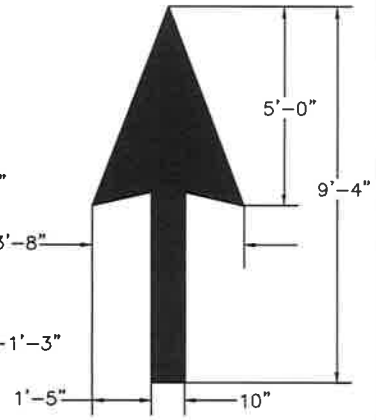
TYPE 3, ARROW
28.5 sq. ft.



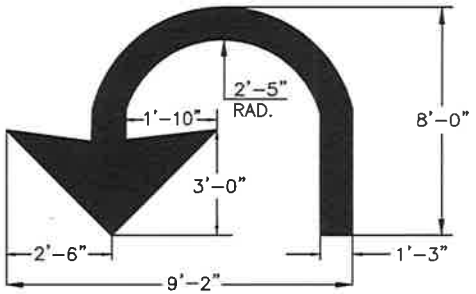
TYPE 5, ARROW
25.5 sq. ft.



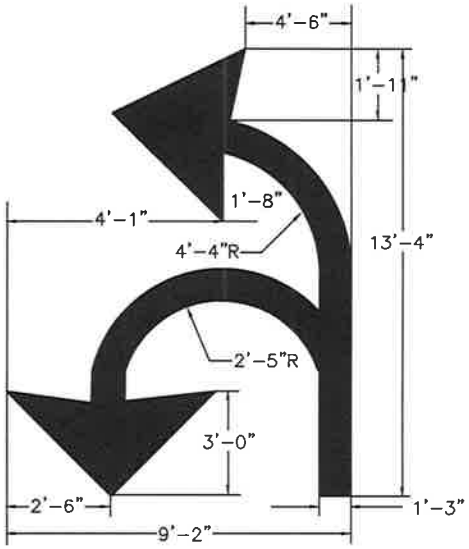
TYPE 2, ARROW
16.0 sq. ft.



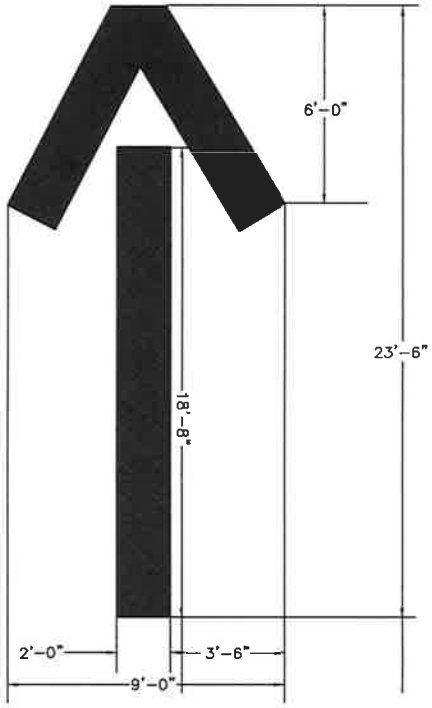
TYPE 1, ARROW
12 sq. ft.



TYPE 7, ARROW



TYPE 6, ARROW

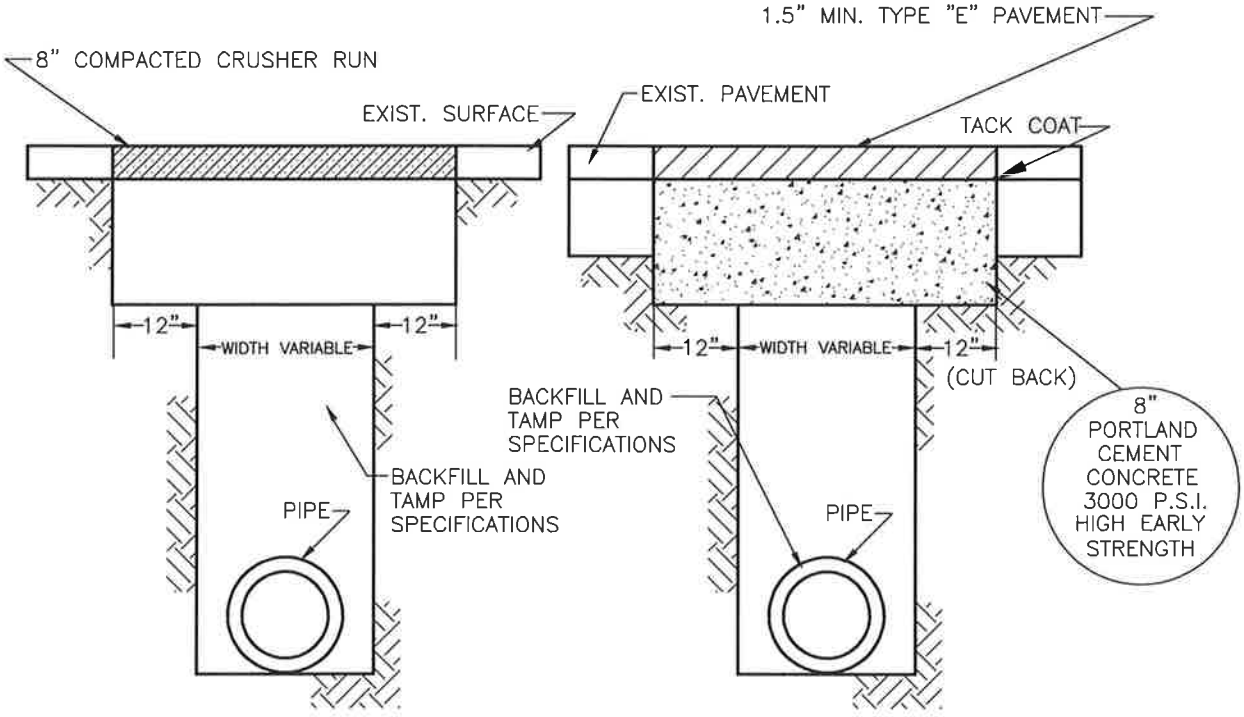


TYPE 4, ARROW

REV: 11-01-19

FORSYTH COUNTY DEPARTMENT OF ENGINEERING

STD. NO. 177



TYPE "A" CUT REPAIR DETAIL
DIRT OR GRAVEL RDS.

TYPE "B" PAVEMENT CUT
GEORGIA D.O.T. AND FORSYTH CO.

TYPE "B"

TYPE "C"

NOTES:

1. ALL MATERIALS AND METHODS OF INSTALLATION SHALL COMPLY WITH THE GA. D.O.T.'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2001 EDITION OR LATEST REVISION THERETO.

2. FOR TYPE "C", THE CONTRACTOR SHALL COVER THE POURED CONCRETE WITH STEEL PLATES A MINIMUM OF 24 HOURS TO ALLOW ADEQUATE SET-UP.

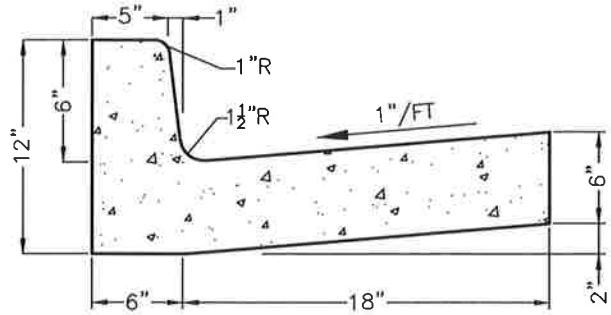
3. CONTRACTOR'S TRAFFIC CONTROL PLAN MUST BE APPROVED BY THE AUTHORITY HAVING JURISDICTION BEFORE WORK BEGINS.

4. FINAL APPROVAL OF CONTRACTOR'S PAVEMENT CUT REPAIRS RESIDES WITH THE AUTHORITY HAVING JURISDICTION. CONTRACTOR SHALL MEET ALL REQUIREMENTS OF SAID AUTHORITY.

NOT TO SCALE

STANDARD FOR BACKFILLING & PAVEMENT CUT REPAIRS - TYPE B & C

REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 180



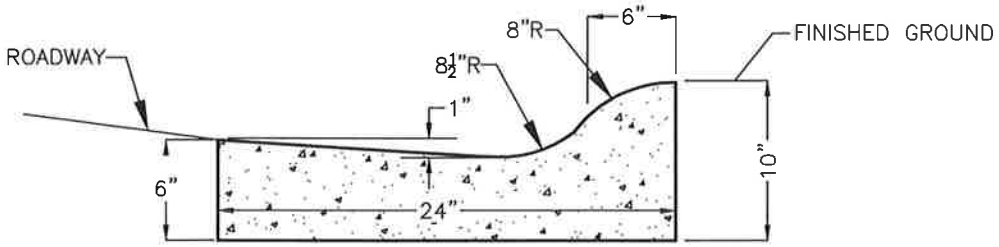
24" STANDARD CURB

6" x 24" x 12"
3000 P.S.I. CONC. @ 28 DAYS

1/2" EXPANSION JOINTS OR PREMOLDED BITUMINOUS EXPANSION JOINT MATERIAL SHALL BE PROVIDED AT ALL STRUCTURES AND RADIUS POINTS & AT INTERVALS NOT TO EXCEED 200' IN THE REMAINDER OF THE CURB & GUTTER.

*REQUIRED FOR COMMERCIAL USE AND NEGATIVE GRADE CUL-DE-SACS.

NOTE: CONTRACTION JOINTS SHALL BE INSTALLED 1/2" DEEP AT 10' INTERVALS.



TYPICAL ROLL CURB

3000 P.S.I. CONC. @ 28 DAYS

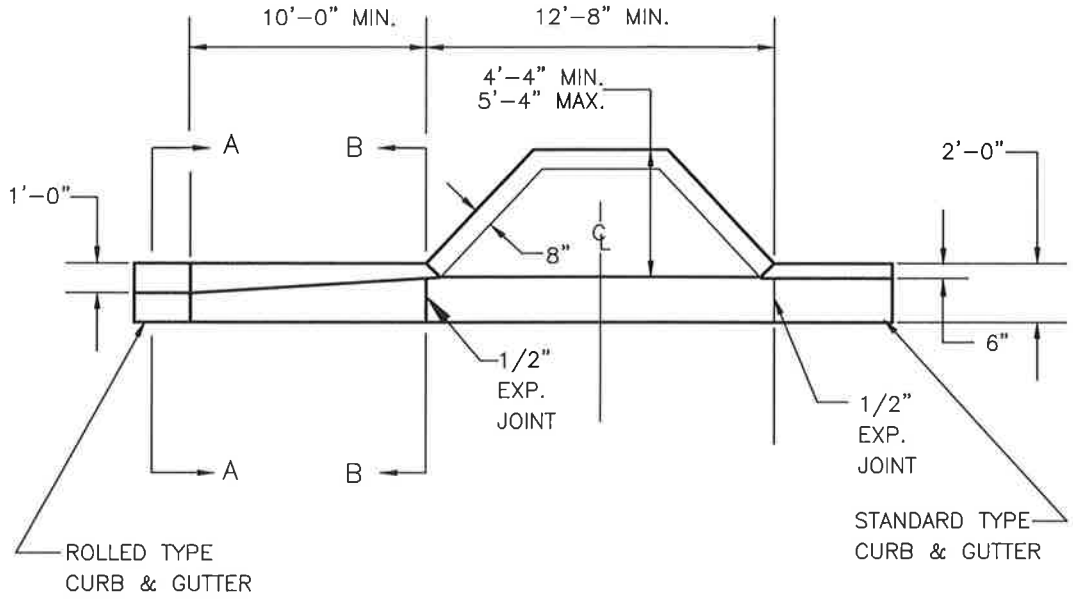
1/2" EXPANSION JOINTS OR PREMOLDED BITUMINOUS EXPANSION JOINT MATERIAL SHALL BE PROVIDED AT ALL STRUCTURES AND RADIUS POINTS & AT INTERVALS NOT TO EXCEED 200' IN THE REMAINDER OF THE CURB & GUTTER.

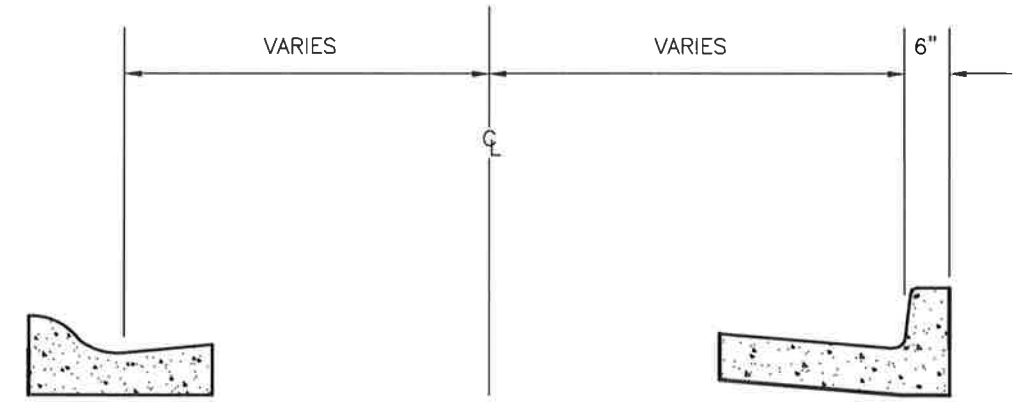
NOTE: CONTRACTION JOINTS SHALL BE INSTALLED 1/2" DEEP AT 10' INTERVALS.

NOT TO SCALE

STANDARD CONSTRUCTION DETAILS – CURBING

REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 190





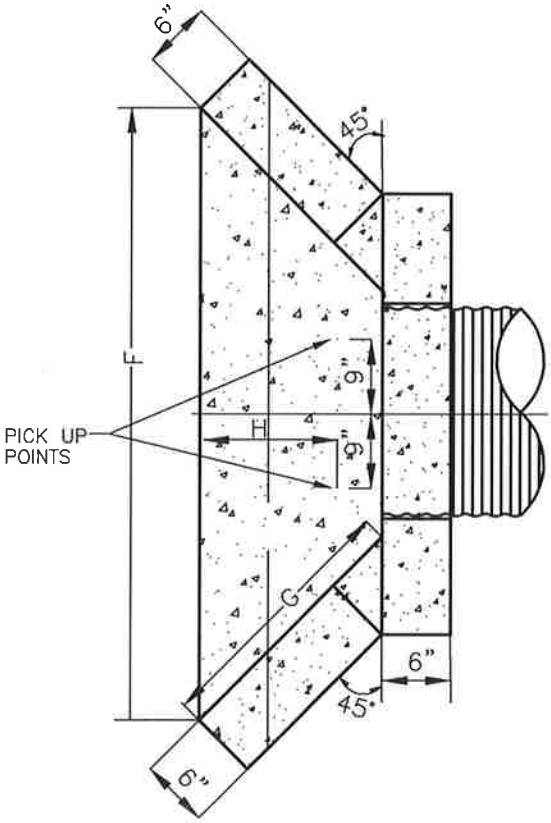
SECTION A–A
ROLLED TYPE
CURB & GUTTER

SECTION B–B
STANDARD TYPE
CURB & GUTTER
THROUGH CATCH BASIN

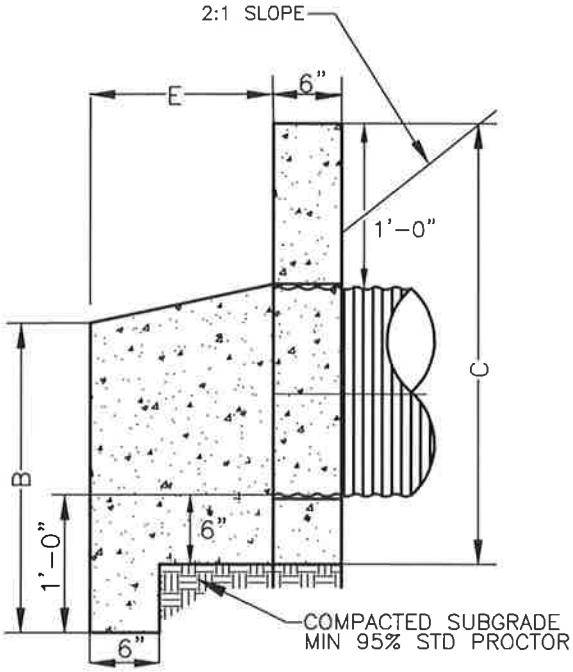
NOT TO SCALE

CURB TRANSITION AT CATCH BASIN

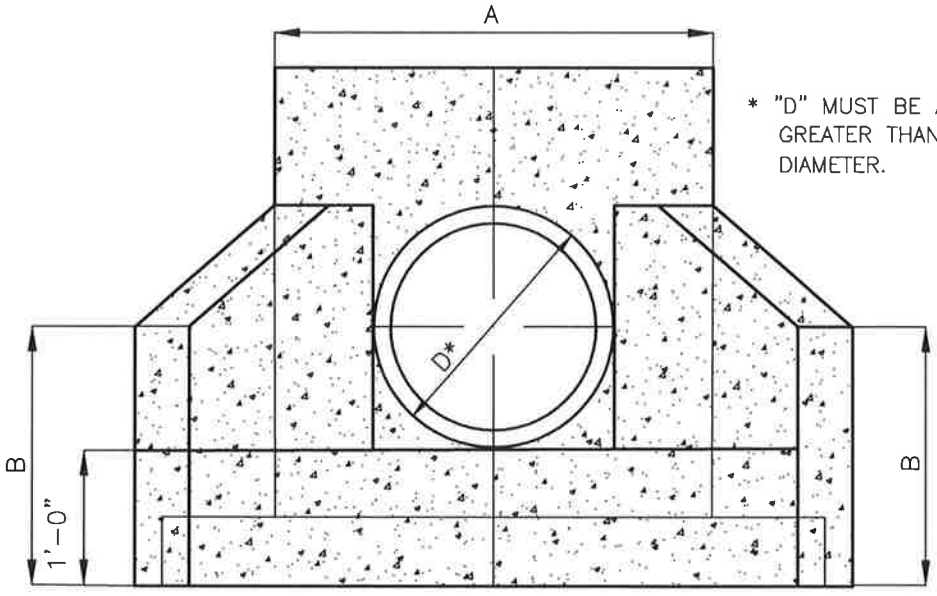
REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 191



PLAN VIEW



SIDE ELEVATION



* "D" MUST BE AT LEAST 2" GREATER THAN OUTSIDE PIPE DIAMETER.

FRONT ELEVATION

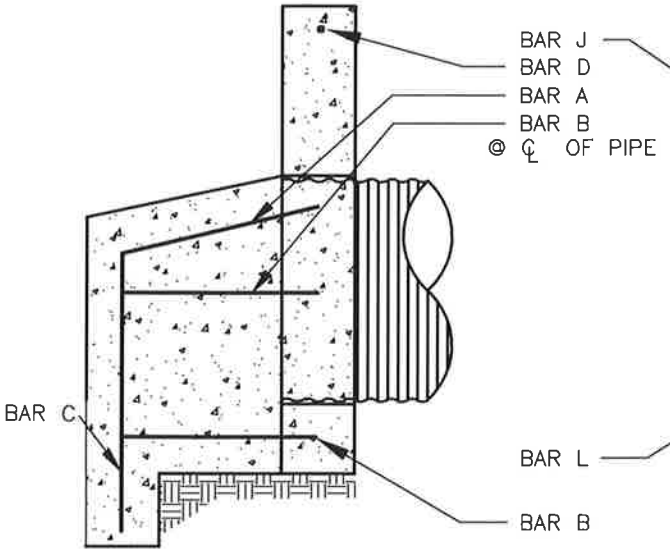
TABLE OF DIMENSIONS
A–H

NOT TO SCALE

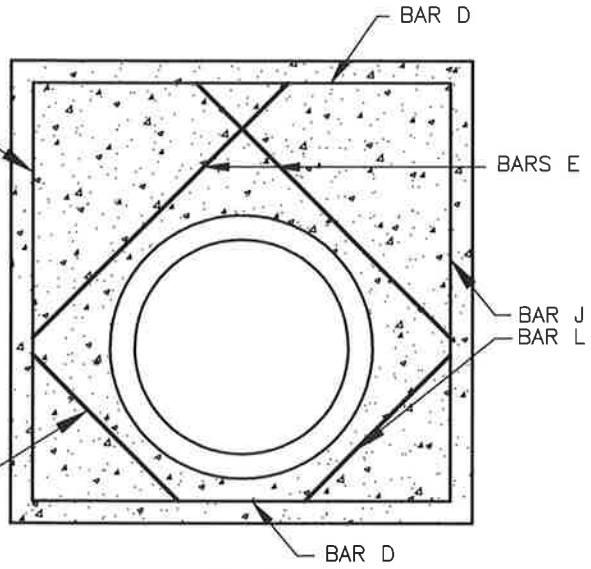
SHEET 1 OF 3

CAST CONCRETE HEADWALL

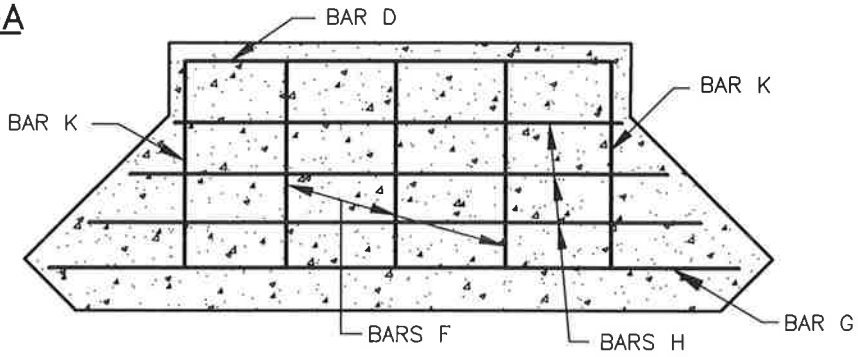
REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 200



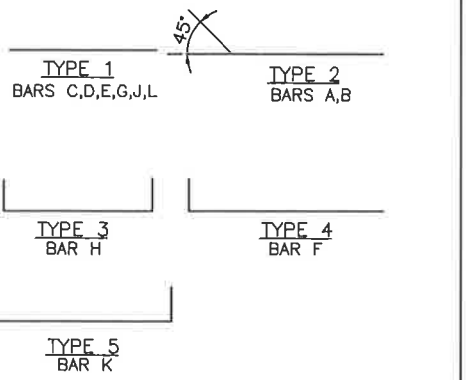
A–A



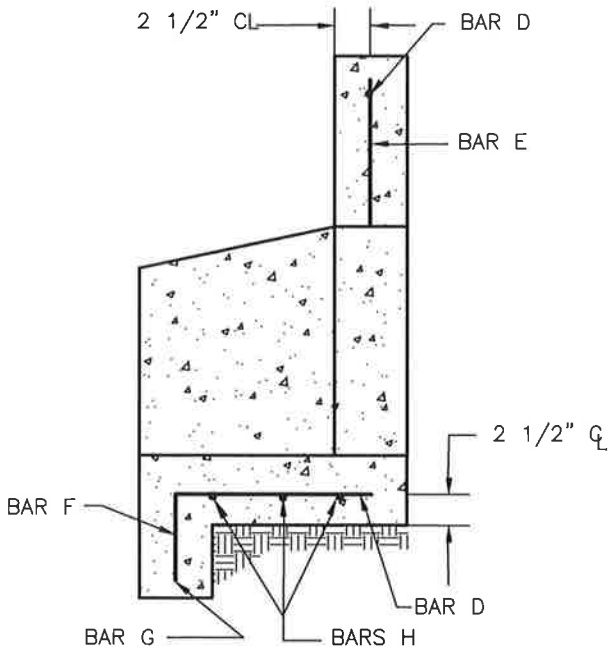
C–C



D–D



NOTE:
ALL CONCRETE SHALL BE 4000 PSI
REINF. STEEL SHALL BE INTERMEDIATE
GRADE NO. 4 PLACE REINF. 2" MIN. CL.
CHAMFER ALL EXPOSED EDGES 3/4"



B–B

NOT TO SCALE

SHEET 2 OF 3

CAST CONCRETE HEADWALL

REV: 11–01–19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 201

REV: 11-01-19

FORSYTH COUNTY DEPARTMENT OF ENGINEERING

CAST CONCRETE HEADWALL

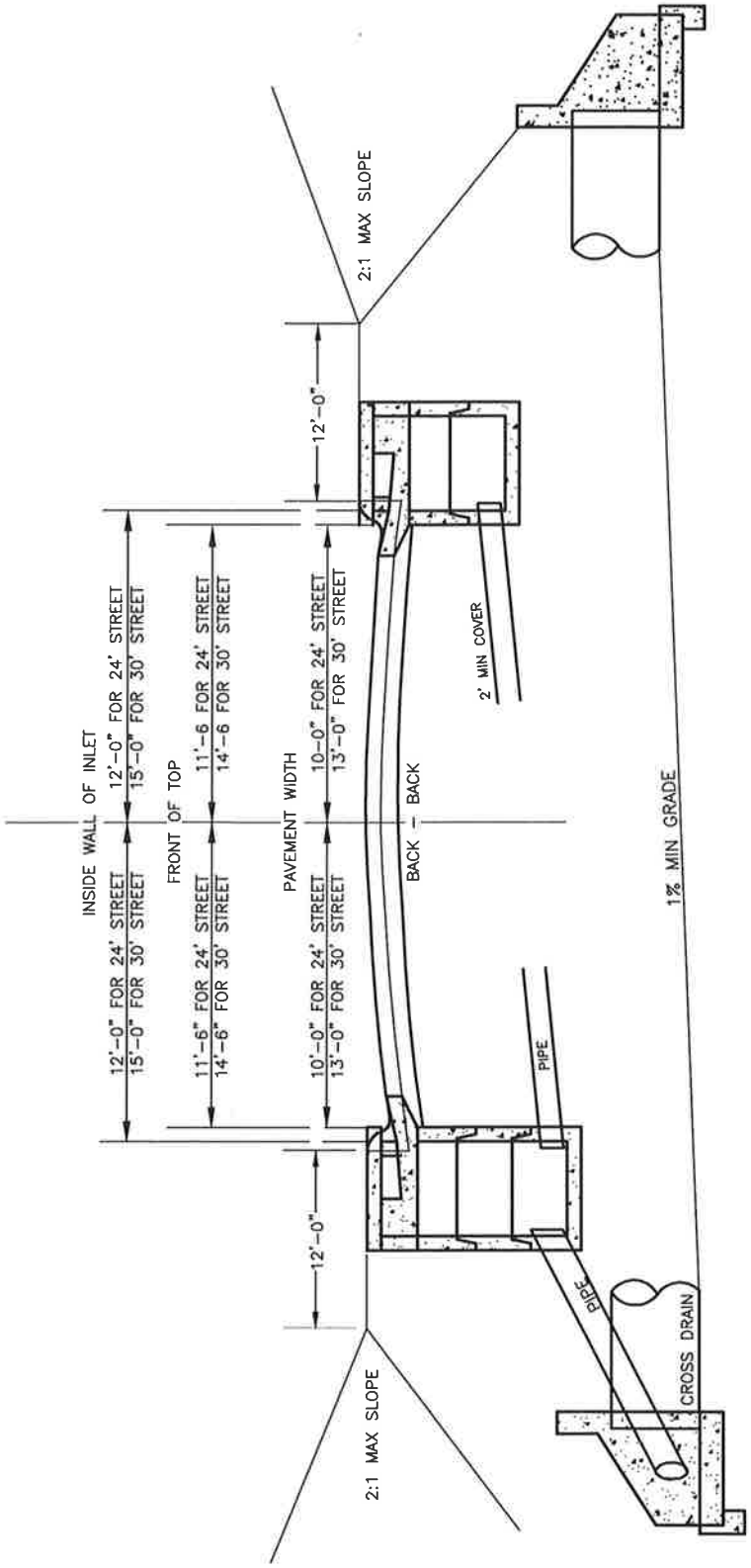
NOT TO SCALE

STD. NO. 202

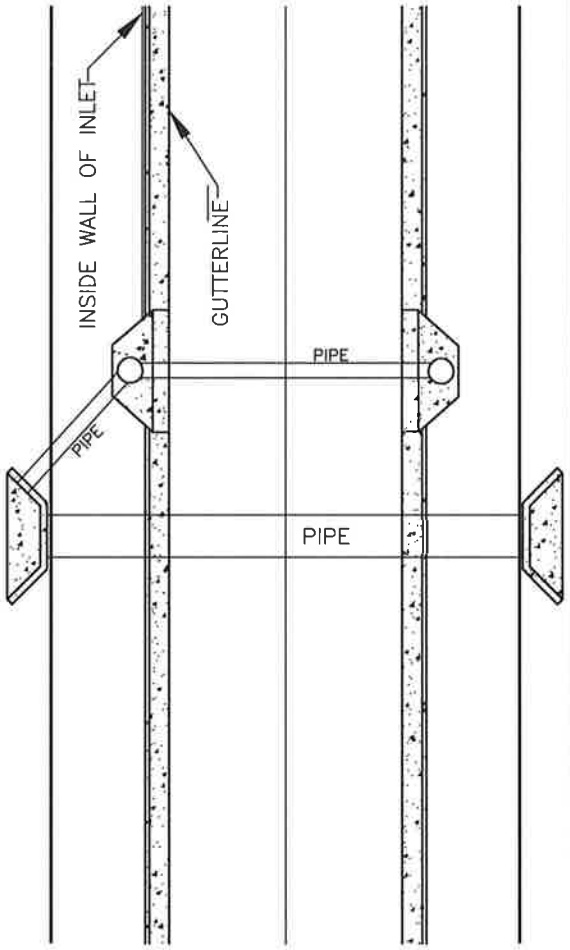
SHEET 3 OF 3

VARIABLE DIMENSIONS (CONCRETE PIPE)												
CU. YDS. CONC.	INSIDE DIA. PIPE	AREA PIPE OPENING	A	B	C	D	E	F	G	H	WT.	BASE AREA
.43	18"	1.76	3'-5"	2'-4"	3'-4.5"	2'-0"	1'-5"	4'-10"	2'-0"	1'-.25"	1753	8.3
.50	21"	2.40	3'-8.5"	2'-6"	3'-8"	2'-3.5"	1'-6"	5'-3.5"	2'-1.5"	1'-.88"	2020	9.4
.51	24"	3.14	4'-0"	2'-9"	3'-11"	2'-7"	1'-8"	5'-11"	2'-4.5"	1'-1.75"	2083	11.8
.79	30"	4.91	4'-6.5"	3'-1"	4'-5.5"	3'-1.5"	2'-0"	7'-1.5"	2'-10"	1'-3.875"	3182	15.1
1.0	36"	7.07	5'-1"	3'-5"	5'-0"	3'-8"	2'-4"	8'-0"	3'-3.5"	1'-6"	4089	19.6

VARIABLE DIMENSIONS (METAL PIPE)												
CU. YDS. CONC.	INSIDE DIA. PIPE	AREA PIPE OPENING	A	B	C	D	E	F	G	H	WT.	BASE AREA
.38	18"	1.76	3'-2"	2'-3"	3'-2"	1'-9"	1'-5"	1'-4"	4'-5"	1'-10.5"	1549	7.34
.44	21"	2.40	3'-5"	2'-5"	3'-5"	2'-0"	1'-5"	4'-10"	2'-0"	1'-.25"	1778	8.32
.52	24"	3.14	3'-8"	2'-7"	3'-8"	2'-3"	1'-7"	5'-5"	2'-3"	1'-1.25"	2108	9.90
.70	30"	4.91	4'-2"	2'-11"	4'-2"	2'-9"	1'-11"	6'-7"	2'-8.5"	1'-3.25"	2834	13.5
.91	36"	7.07	4'-8"	3'-3"	4'-8"	3'-3"	2'-3"	7'-9"	3'-2.25"	1'-5.375"	3678	17.65



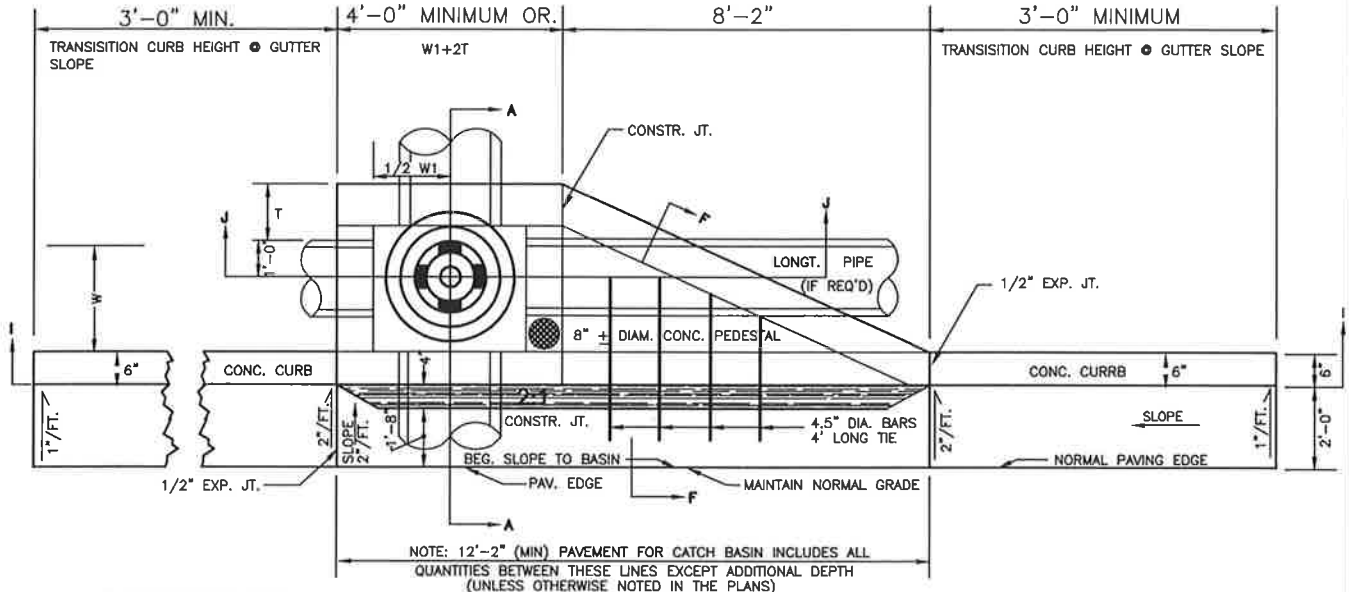
NOTE
1. SUGGESTION: OFFSET CONSTRUCTION STAKES SHOULD BE SET TO INSIDE FRONT INLET WALL TO AVOID CONFUSION RESULTING FROM DIFFERENT THICKNESS OF WALLS ON ALTERNATE INLETS. SEE ABOVE DIMENSIONS.



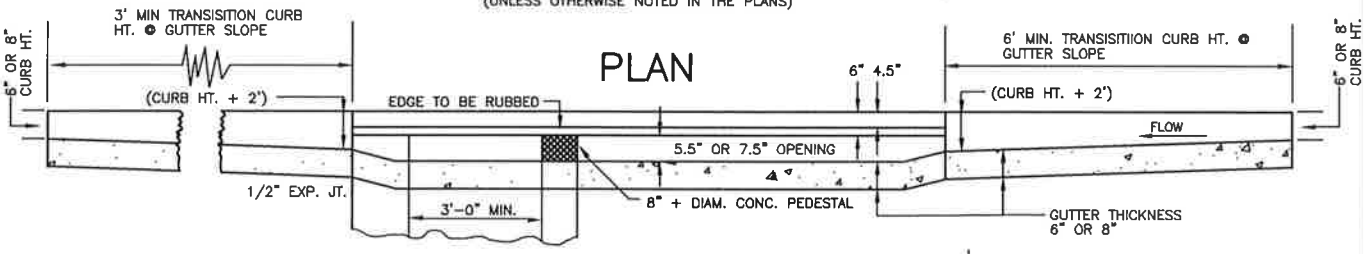
NOT TO SCALE

LOCATION OF CATCH BASINS

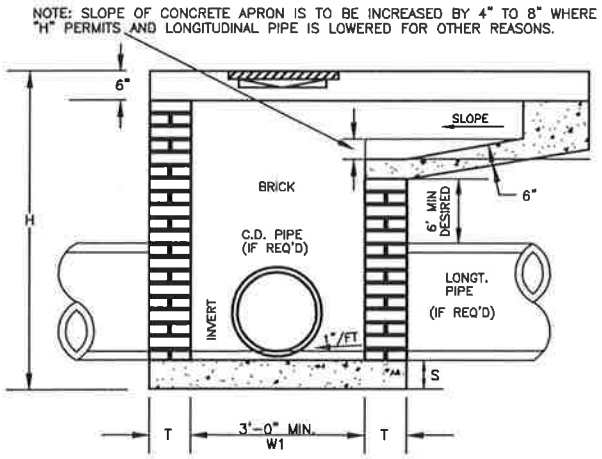
REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 210



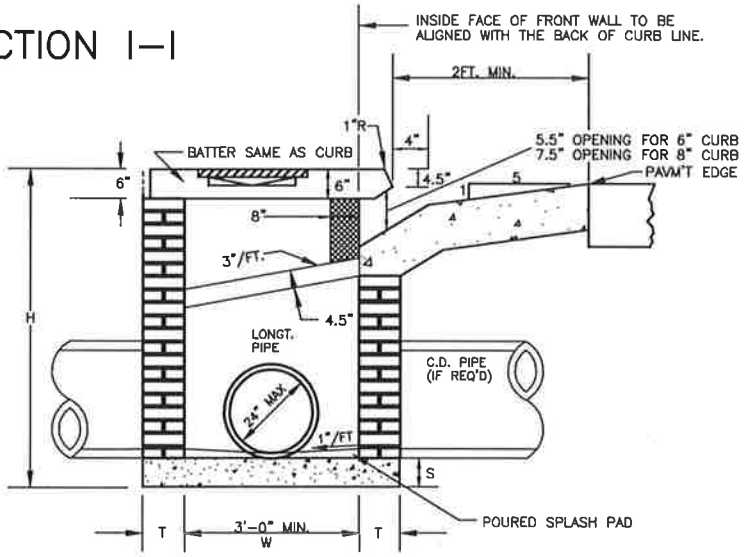
PLAN



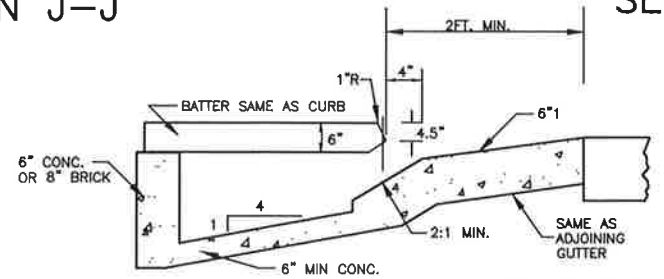
SECTION I–I



SECTION J–J



SECTION A–A



SECTION F–F

NOT TO SCALE

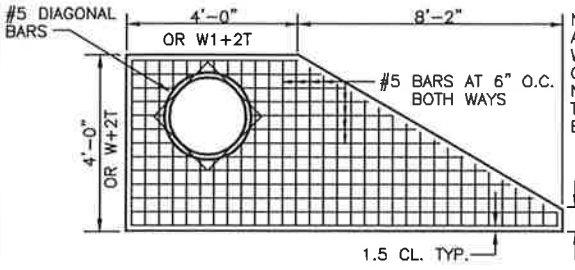
SHEET 1 OF 4

BRICK CATCH BASIN

REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 220

* YARD INLET MUST HAVE PROPER CORNER SUPPORTS.

DETAIL OF TOP REINFORCED CONCRETE SLAB



NOTE: ALL CATCH BASINS WILL HAVE STEPS OR LADDER BARS, NUMBER AND LOCATION TO BE AS DIRECTED BY THE ENGINEER.

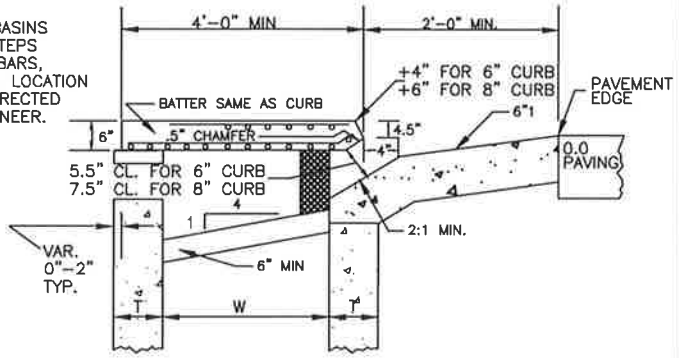
NOTE: ALL BARS IN PLAN VIEW ARE SPACED AT 6" O.C.

NOTE: FOR PLAN DETAIL OF REINFORCING STEEL IN TOP PORTION OF SLAB. SEE PART PLAN AT RIGHT.

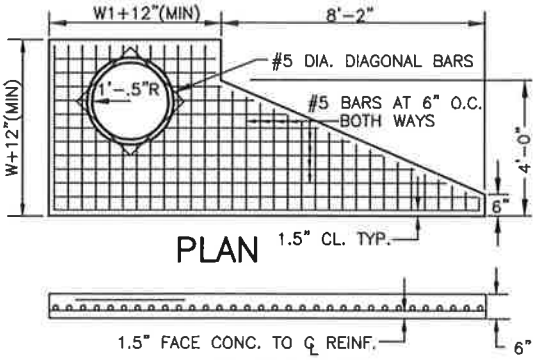
PLAN

ELEVATION

DETAIL OF TOP SLAB, REINF. STEEL @ CLEARANCES REQ'D.



DETAIL OF TOP REINFORCED CONCRETE SLAB

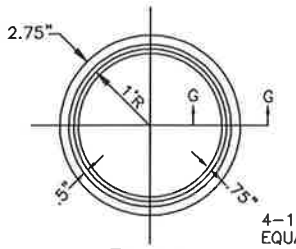


PLAN

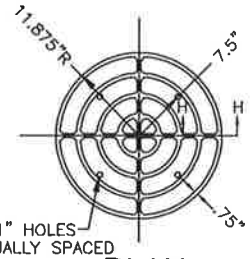
ELEVATION

NOTE: PIPE SIZES, NUMBER, ALIGNMENT, AND INVERT SHOWN ARE ILLUSTRATIVE, SEE PLANS FOR SPECIFICS. INVERTS TO BE FORMED WITH GROUT OR CONCRETE AS DIRECTED BY THE ENGINEER OR AS SHOWN IN THE PLANS.

CASTING DETAILS



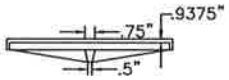
PLAN



PLAN

C.I. RING
APPROX. WT.
= 78 LBS.

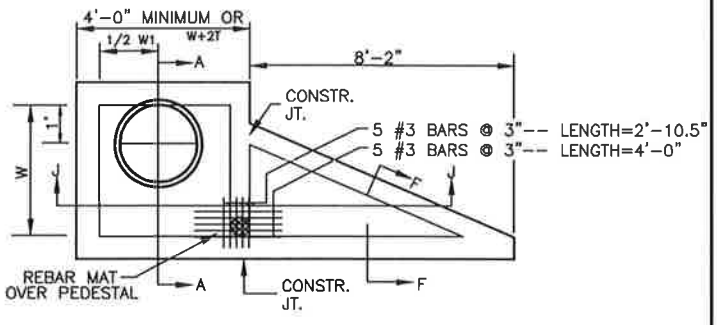
ELEVATION



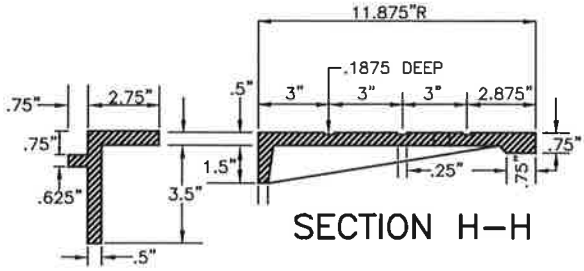
C.I. COVER
APPROX. WT.
= 63 LBS.

ELEVATION

CATCH BASIN (WITH PROTRUDED BACK)



PART PLAN



SECTION H-H

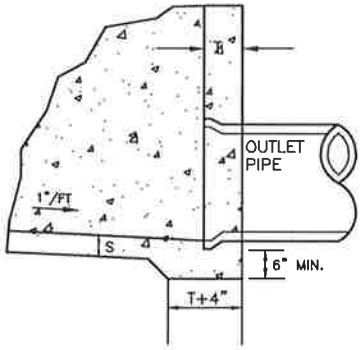
SECTION G-G

* THE USE OF NO.1 CHAIRS (12) IS REQUIRED TO HOLD REBAR MAT EVENLY.

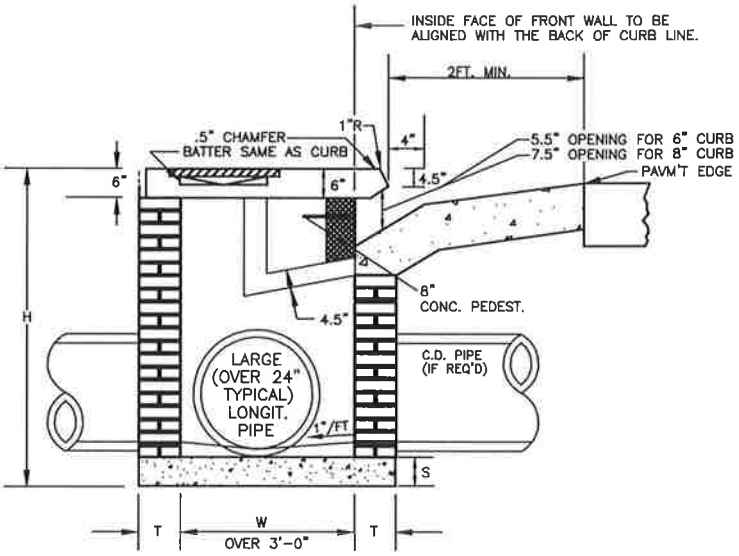
NOT TO SCALE

STANDARD CATCH BASIN

REV: 11-01-19 | FORSYTH COUNTY DEPARTMENT OF ENGINEERING | STD. NO. 221



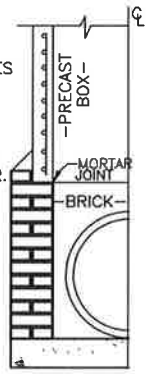
ALTERNATE TO INVERT



SECTION A–A

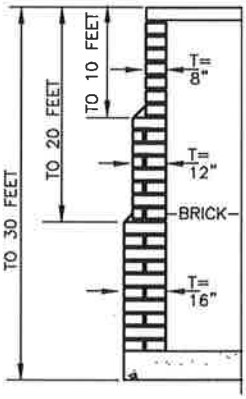
(WITH LONG LONGITUDINAL PIPE)

NOTE:
SEE SEPARATE STDS. FOR PRECAST ALTERNATES ADAPTORS (STD. 1040) WILL BE REQUIRED WITH CIRCULAR PRE–CAST UNITS. PRECAST BOX, CIRCULAR, AND/OR BUILT–IN–PLACE CONSTR. MAY BE USED IN COMBINATIONS.



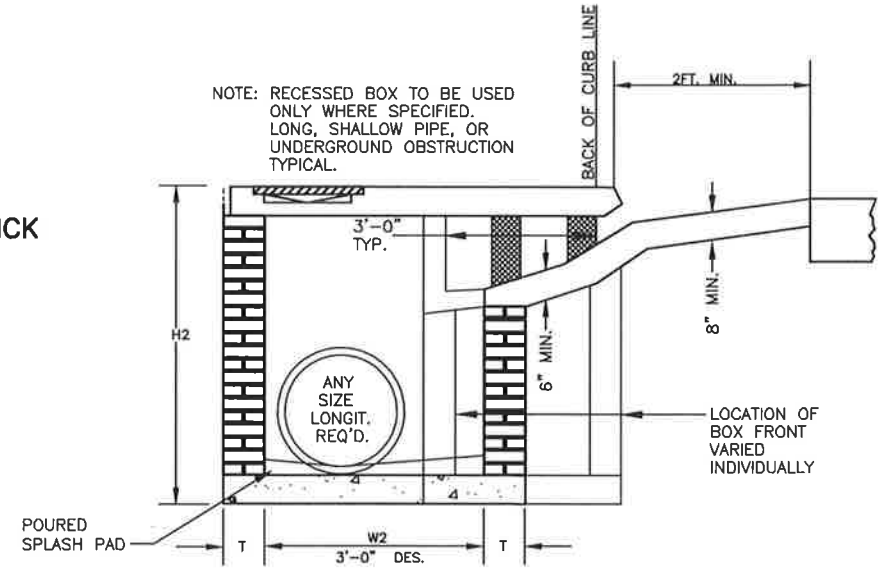
PRECAST BOX ON BRICK

(HALF–SECTION)



DEPTH LIMITS FOR INCREASING "T"

NOTE: RECESSED BOX TO BE USED ONLY WHERE SPECIFIED. LONG, SHALLOW PIPE, OR UNDERGROUND OBSTRUCTION TYPICAL.



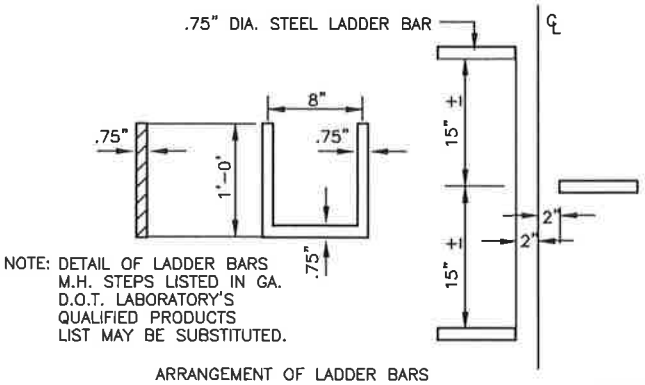
NOTE: H2 @ W2 TO BE SHOWN IN THE PLANS

SECTION A–A

(WITH RECESSED BOX)

NOTE:
TYPICAL TREATMENTS FOR SKEWED PIPES ARE: CIRCULAR PRECAST SWIVEL SECTIONS; PIPE ELBOWS OR INCREASED BOW SIZE.

* ENSURE ALL STEPS ARE ALIGNED AND SET AT THE REAR OF CATCH BASIN.
* PROVIDED SQUARES ARE REQUIRED FOR ALL DROP INLET STRUCTURES.



NOTE: DETAIL OF LADDER BARS M.H. STEPS LISTED IN GA. D.O.T. LABORATORY'S QUALIFIED PRODUCTS LIST MAY BE SUBSTITUTED.

ARRANGEMENT OF LADDER BARS

NOT TO SCALE

BRICK CATCH BASIN

REV: 11–01–19 | FORSYTH COUNTY DEPARTMENT OF ENGINEERING | STD. NO. 222

TYPICAL MIN. DIMENSIONS			
PIPE DIA.	H (MIN)	W OR W1	ΔE (MIN)
12	4'–4"	3'–0"	3'–3"
15	4'–7"	3'–0"	3'–6"
18	4'–10"	3'–0"	3'–9"
24	5'–6"	3'–0"	4'–4"
30	6'–2"	3'–7'	5'–0"
36	6'–10"	4'–6"	5'–7"
42	7'–4"	5'–3"	5'–11"
48	8'–0"	6'–0"	6'–6"
54	8'–6"	6'–8"	7'–0"
60	9'–2"	7'–4"	7'–7"

ΔE= MINIMUM DIFFERENCE IN ELEVATION FROM PAVEMENT EDGE TO FLOW LINE OF OUTLET PIPE.

W OR W1 (MAX.)	BOTTOM SLAB	
	MATERIALS	S
TO 4'–6"	NON–REINF. CONCRETE	6"
	OR BRICK	8"
OVER 4'–6"	CONC. REINF. W1 #4 BARS 12" O.C. BOTH WAYS 2"CL FROM SLAB TOP	8"

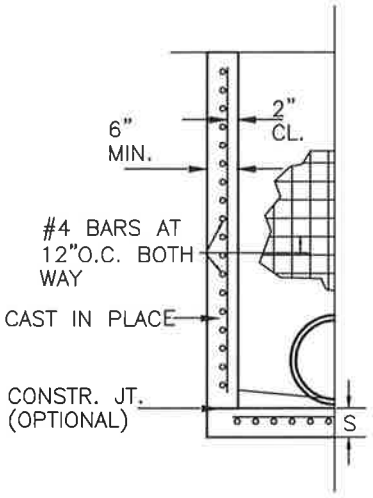
NOTE:
THE MIN. H @ MIN. E GIVEN IN ABOVE TABLE ARE BASED UPON THE TYPICAL OUTSIDE DIMENSIONS OF CONC. PIPE AND MAY BE VARIED IF CONDITIONS PERMIT WITH VARIED DIMENSIONS SPECIFIED IN THE PLANS OR DIRECTED BY THE ENGINEER. W. @ W. DIMENSIONS DO NOT HAVE TO BE EQUAL.

ALL RISER SEAMS, PIPE SEAMS, AND OPENINGS SHALL BE SEALED WITH NON–SHRINK HYDRAULIC CEMENT.

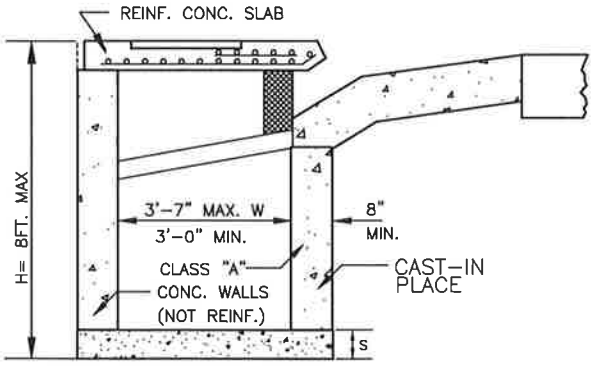
CONSTRUCTION ALTERNATES

NOTE: DETAILS NOT SHOWN ABOVE FOR CONSTRUCTION ALTERNATES WILL BE SIMILAR TO BRICK CATCH BASIN DETAILS.

SEE SEPARATE STANDARDS FOR PRECAST ALTERNATES.



REINFORCED CONCRETE (HALF SECTION)



NON–REINFORCED SMALL BASIN (W. NOT OVER 3'–7")

* THE USE OF BROKEN OR FRACTURED STRUCTURES IS PROHIBITED.
* ALL PIPE ENTERING STRUCTURES MUST BE DOUBLE GROUTED. (INSIDE & OUT)

NOT TO SCALE

STANDARD CATCH BASIN

REV: 11–01–19 | FORSYTH COUNTY DEPARTMENT OF ENGINEERING | STD. NO. 223

REV: 11-01-19

FORSYTH COUNTY DEPARTMENT OF ENGINEERING

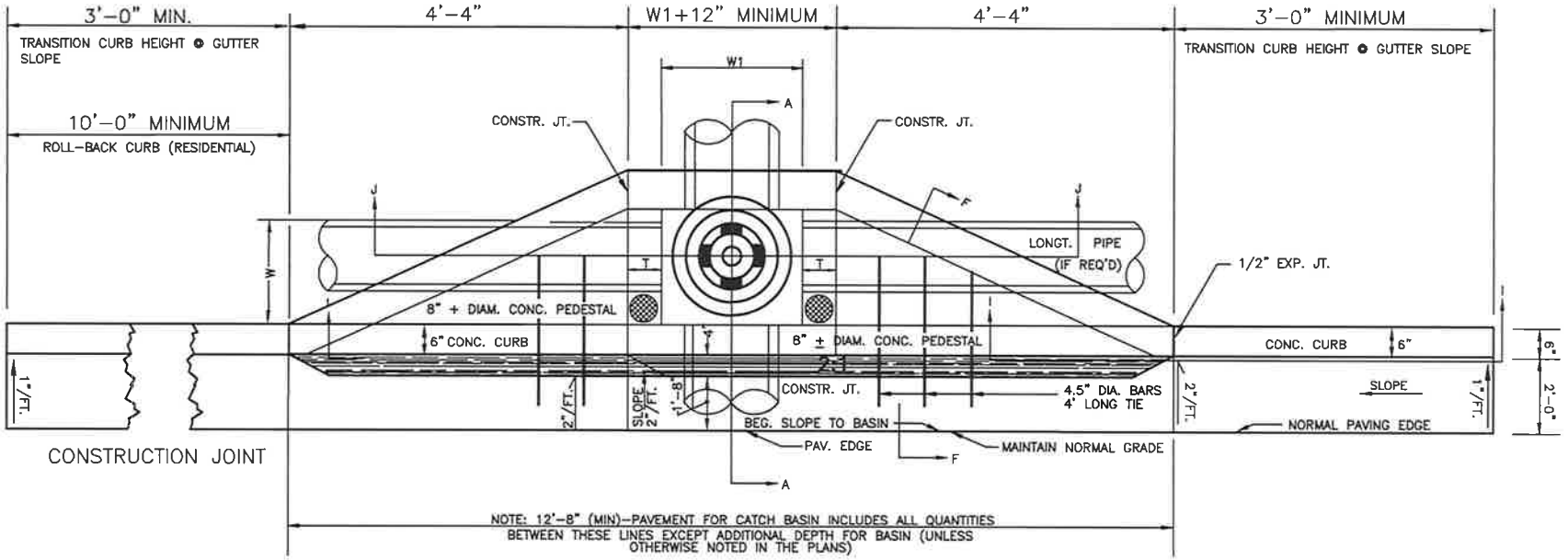
STANDARD DOUBLE WING BRICK CATCH BASIN

STD. NO. 230

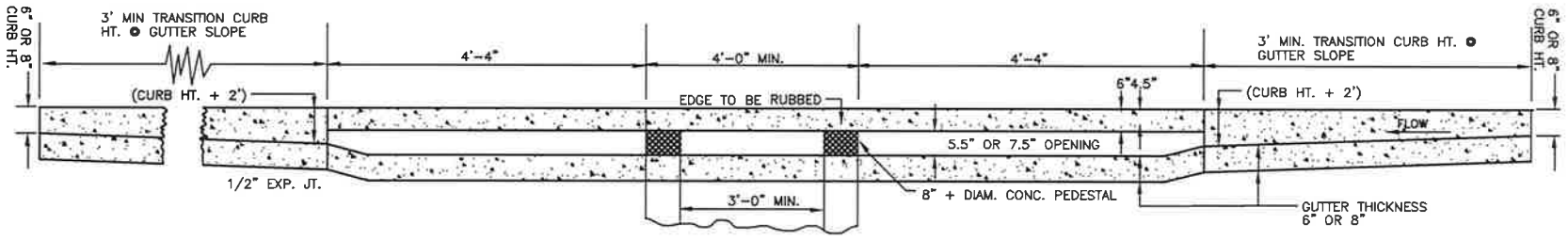
NOT TO SCALE

SHEET 1 OF 3

CATCH BASIN



PLAN



ELEVATION

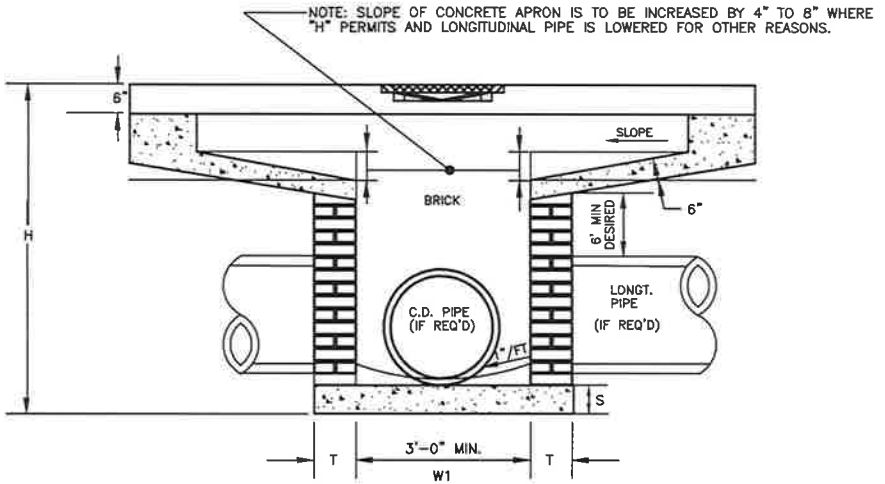
NOT TO SCALE

STANDARD DOUBLE WING BRICK CATCH BASIN

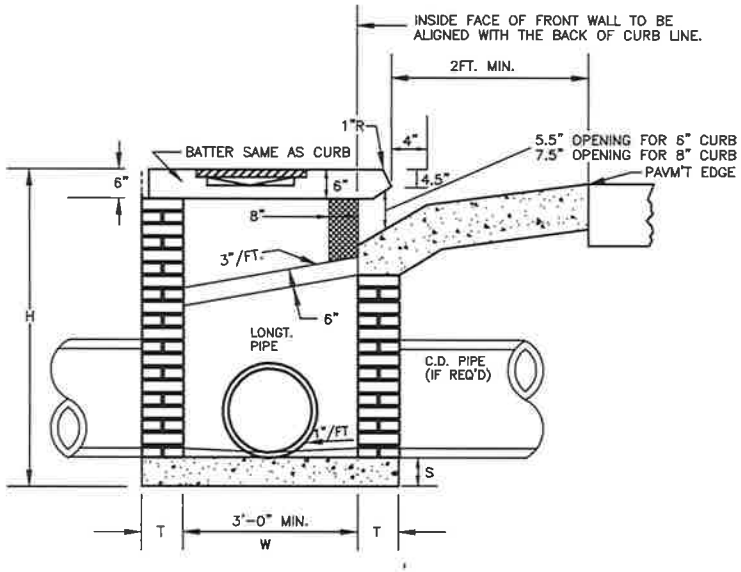
FORSYTH COUNTY DEPARTMENT OF ENGINEERING

REV: 11-01-19

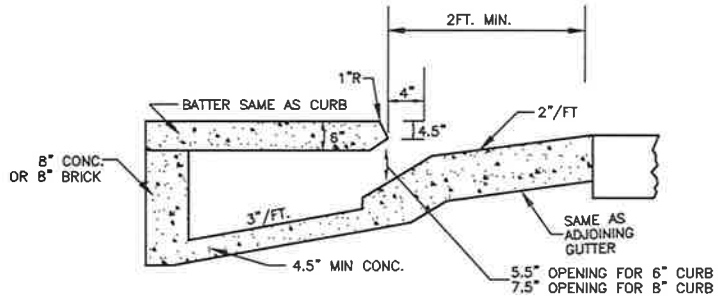
STD. NO. 231



SECTION J–J



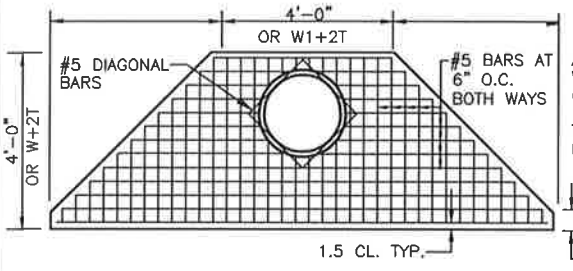
SECTION A–A



SECTION F–F

SHEET 2 OF 3

DETAIL OF TOP–REINFORCED CONCRETE SLAB FOR SMALL CATCH BASIN

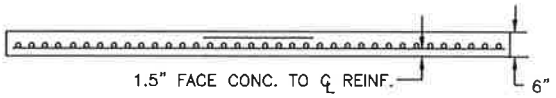


NOTE: ALL CATCH BASINS WILL HAVE STEPS OR LADDER BARS, NUMBER AND LOCATION TO BE AS DIRECTED BY THE ENGINEER.

NOTE: ALL BARS IN PLAN VIEW ARE SPACED AT 6" O.C.

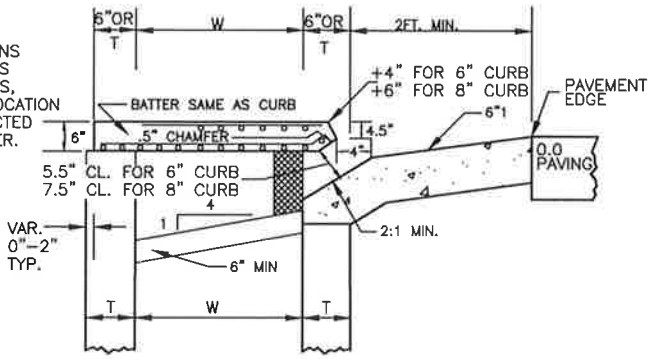
NOTE: FOR PLAN DETAIL OF REINFORCING STEEL IN TOP PORTION OF SLAB. SEE PART PLAN AT RIGHT.

PLAN

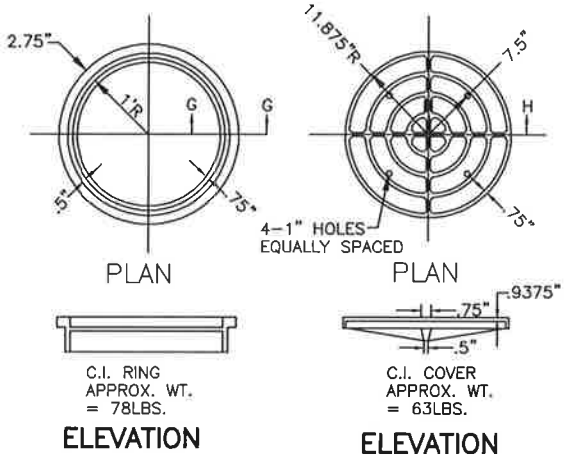


ELEVATION

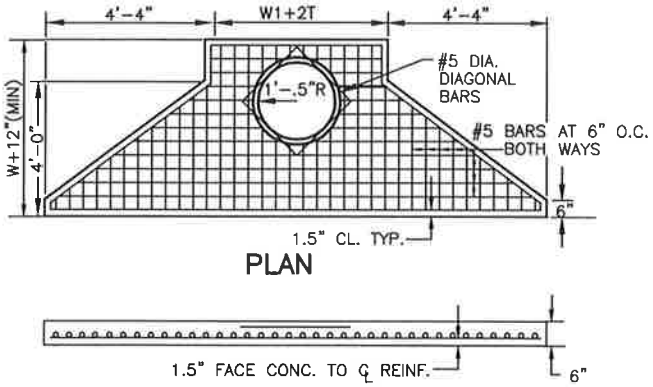
DETAIL OF TOP SLAB, REINF. STEEL ● CLEARANCES REQ'D.



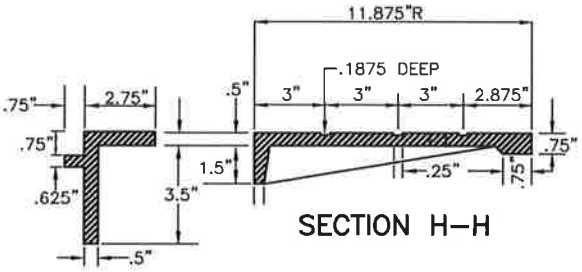
CASTING DETAILS



DETAIL OF TOP–REINFORCED CONCRETE SLAB FOR LARGE CATCH BASIN

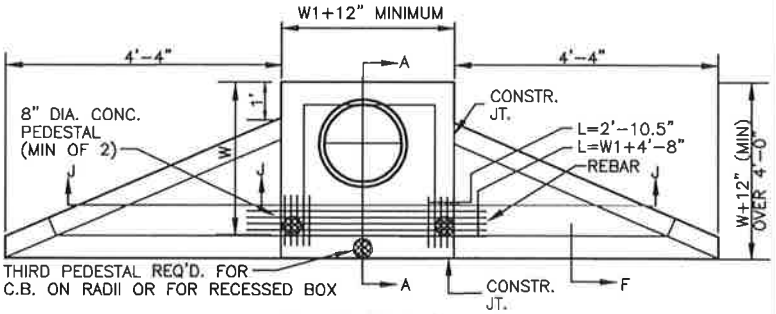


NOTE: PIPE SIZES, NUMBER, ALIGNMENT, AND INVERT SHOWN ARE ILLUSTRATIVE, SEE PLANS FOR SPECIFICS. INVERTS TO BE FORMED WITH GROUT OR CONCRETE AS DIRECTED BY THE ENGINEER OR AS SHOWN IN THE PLANS.



CATCH BASIN – (WITH PROTRUDED BACK)

FOR USE WITH LONGITUDINAL PIPE OVER 24" OR FOR USE WITH RECESSED BOX



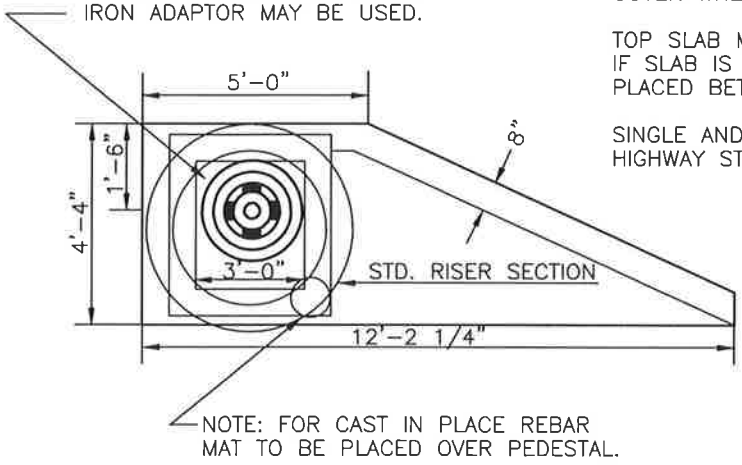
* USE NO.1 CHAIRS (SEE 402A)

NOT TO SCALE

SHEET 3 OF 3

STANDARD DOUBLE WING BRICK CATCH BASIN

REV: 11–01–19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 232

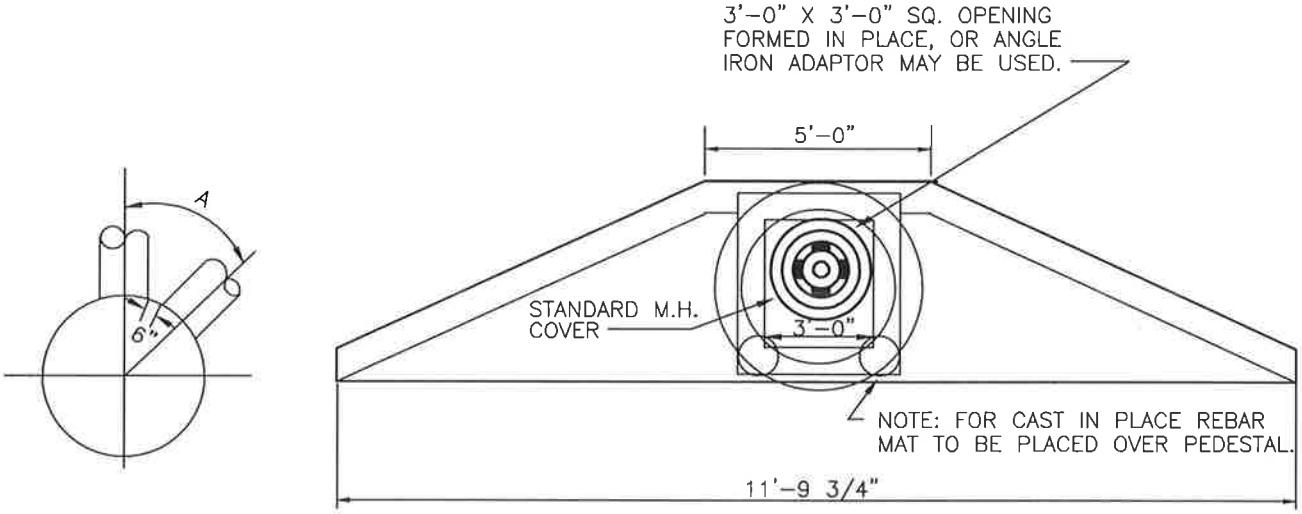


NOTES:

1/2" EXPANSION MATERIAL SHALL BE PLACED AROUND COVER WHERE SIDEWALK IS PLACED ADJACENT TO C.B.

TOP SLAB MAY BE CAST IN PLACE OR PRECAST IF SLAB IS CAST IN PLACE BUILDERS PAPER IS TO BE PLACED BETWEEN THE CATCH BASIN AND TOP SLAB

SINGLE AND DOUBLE WING TOPS CONFORM TO STATE HIGHWAY STANDARDS 1033 & 1034 C.



MINIMUM ANGLE-A					
4'-0" BASE		5'-0" BASE		6'-0" BASE	
PIPE SIZE	A	PIPE SIZE	A	PIPE SIZE	A
12	43°	12	40°		
15	52°	15	47°		
18	60°	18	55°		
21	67°	21	69°		
24	75°	24	70°		
		27	79°		
		30	86°		
		36	115°		
		42	140°	42	90°
				48	115°

NOTES:

SUBGRADE TO BE COMPACTED TO 95% STANDARD PROCTOR.

REINFORCEMENT STEEL TO BE PLACED TO ALLOW A MINIMUM OF 2" CLEARANCE, EXCEPT WHERE NOTED.

REINFORCEMENT STEEL SHALL BE OF INTERMEDIATE GRADE AND SHALL BE 0.12 SQ. IN. PER. FT. IN BOTH DIRECTIONS IN ACCORDANCE WITH A.S.T.M. C 478-67 MANHOLE SPECIFICATIONS.

ALL CONCRETE SHALL BE 4,000 P.S.I.

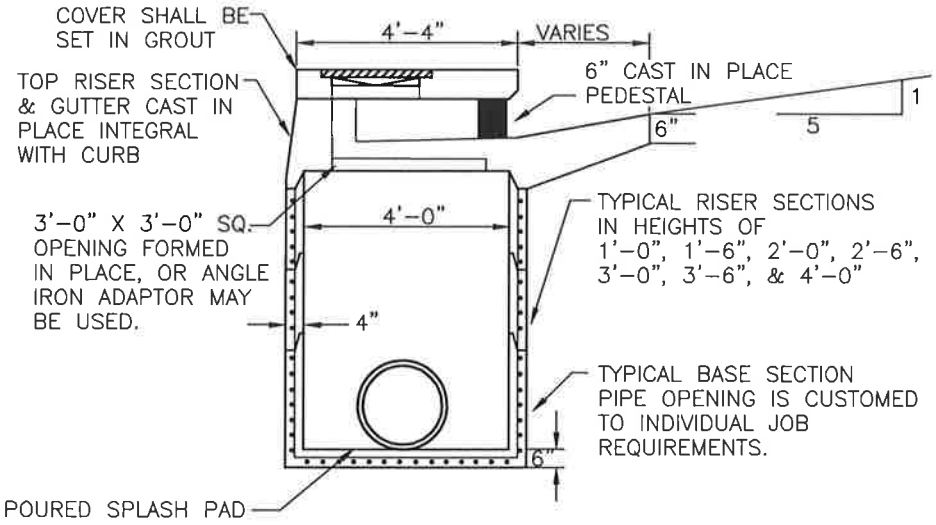
CHAMFER ALL EXPOSED EDGES 3/4"

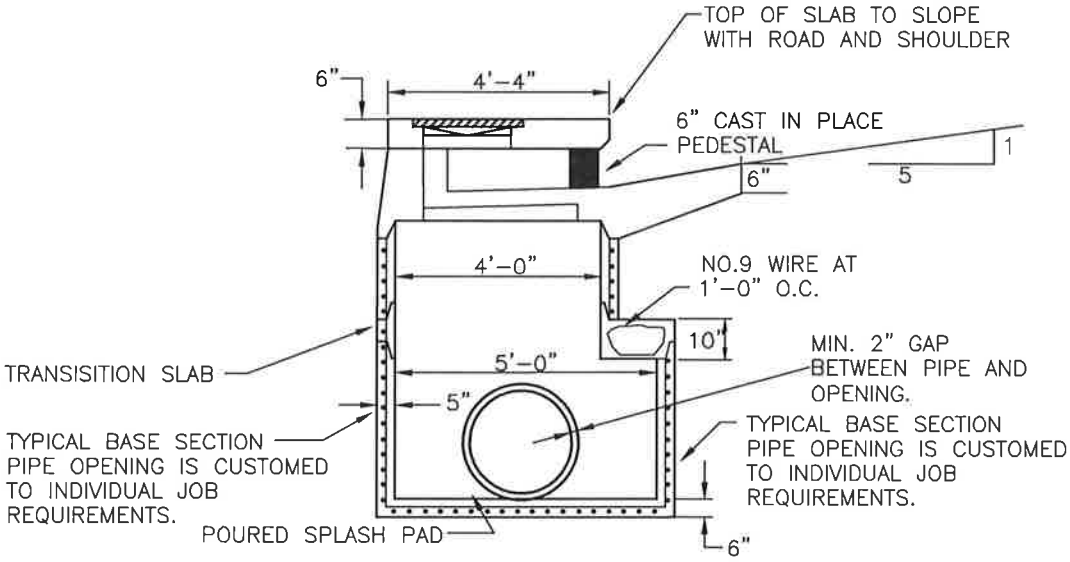
* THE USE OF NO.1 CHAIRS (12) IS REQUIRED TO HOLD REBAR MAT EVENLY.

NOT TO SCALE

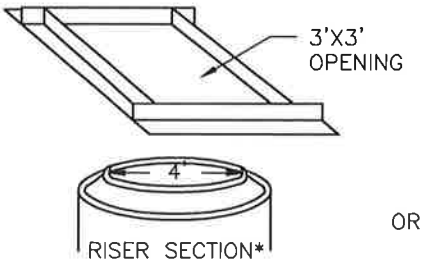
ROUND PRECAST CONCRETE CATCH BASINS 1033 & 1034

REV: 11-01-19 | FORSYTH COUNTY DEPARTMENT OF ENGINEERING | STD. NO. 240



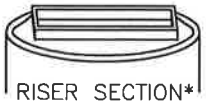


(WHERE PIPE DIA. REQUIRES 5' DIA. BASE)



ANGLE IRON ADAPTOR

OR



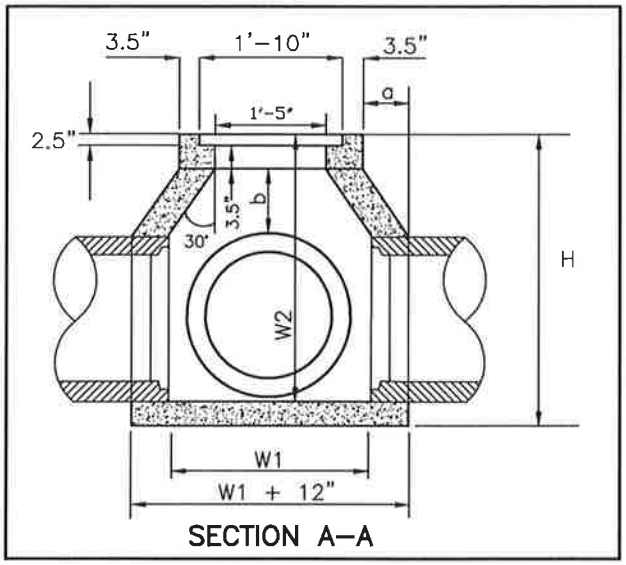
ROUND TO SQUARE ADAPTOR

* RISERS SHALL BE MADE WATER TIGHT WITH RAM NECK TAR STRIPS, HYDRAULIC GROUT, AND/OR O-RINGS.

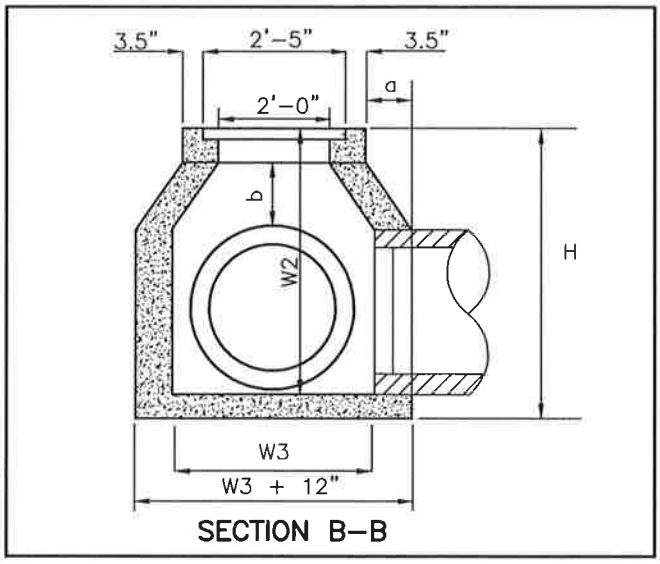
NOT TO SCALE

ROUND PRECAST CONCRETE CATCH BASINS 1033 & 1034

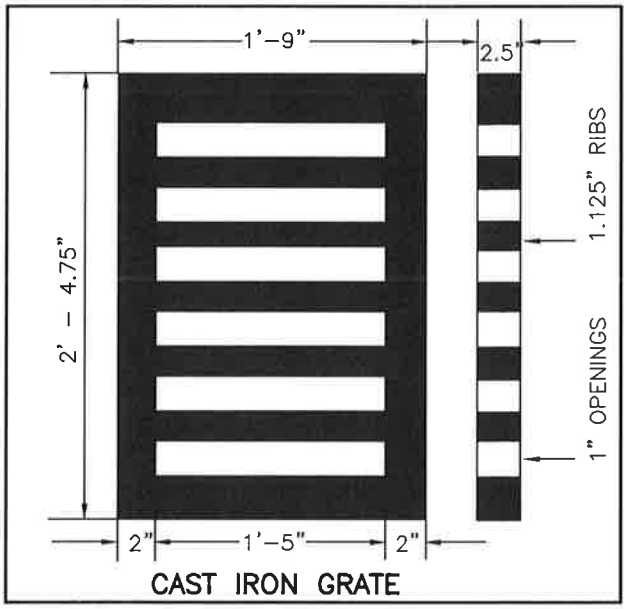
REV: 11-01-19 | FORSYTH COUNTY DEPARTMENT OF ENGINEERING | STD. NO. 241



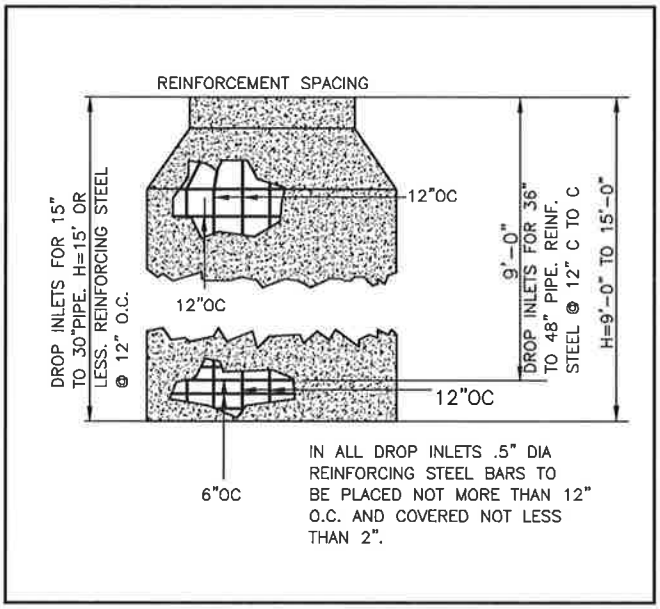
SECTION A–A

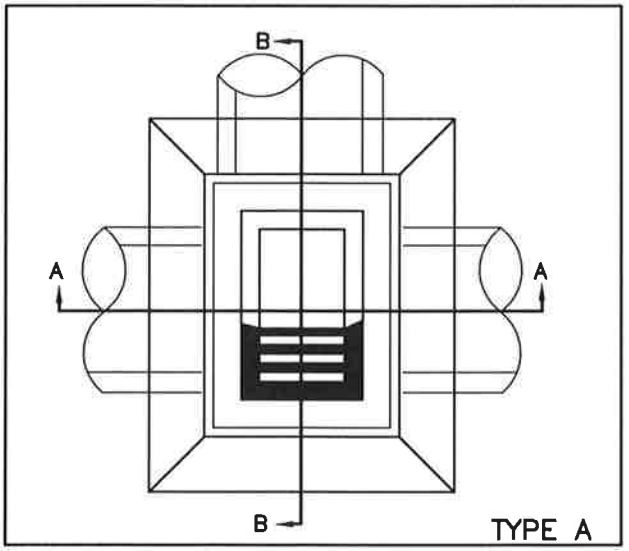


SECTION B–B

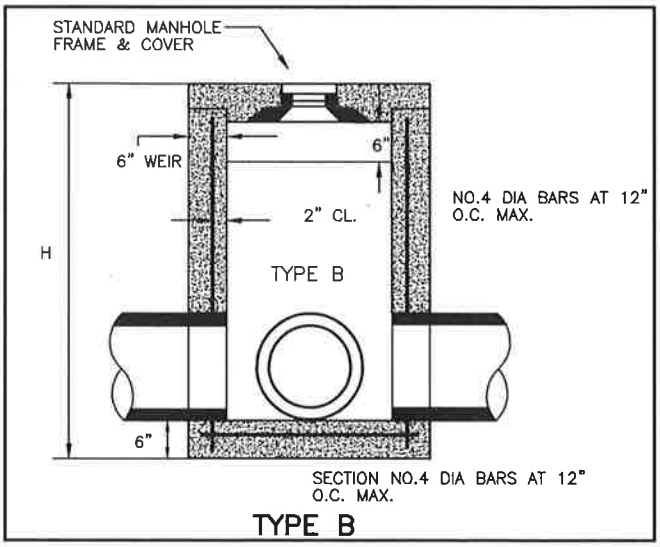


CAST IRON GRATE





TYPE A



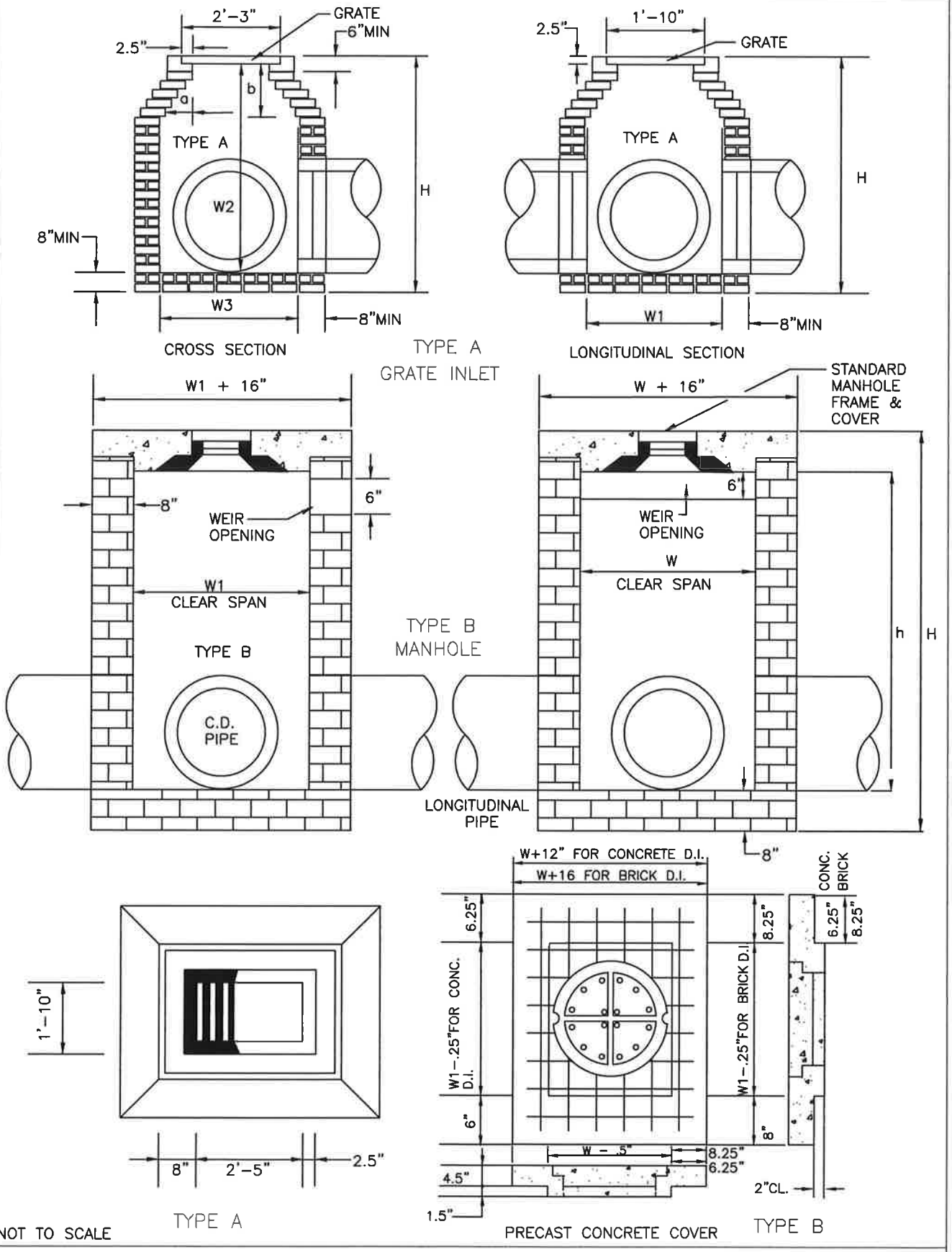
SECTION NO.4 DIA BARS AT 12" O.C. MAX.

TYPE B

NOT TO SCALE

STANDARD CONCRETE DROP INLET

REV: 11-01-19 | FORSYTH COUNTY DEPARTMENT OF ENGINEERING | STD. NO. 250



STANDARD BRICK DROP INLET

REV:11-06-20	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 251

CONCRETE DROP INLET

TYPE A

D	W1	MIN. W2	W3	a	b	MIN. H
15"	2'-0"	2'-6 1/2"	2'-7"	0'-3 1/2"	0'-6"	3'-3"
18"	2'-0"	2'-9 1/2"	2'-7"	0'-3 1/2"	0'-6"	3'-6"
24"	2'-8"	4'-0 1/2"	3'-3"	0'-7 1/2"	1'-1"	4'-9"
30"	3'-4"	5'-1 1/2"	3'-11"	0'-11 1/2"	1'-8"	5'-10"
36"	3'-10"	6'-1 1/2"	4'-5"	1'-2 1/2"	2'-1 1/4"	6'-10"
42"	4'-5"	7'-2 1/2"	5'-0"	1'-6"	2'-7 1/4"	7'-11"
48"	5'-0"	8'-3 1/2"	5'-7"	1'-9 1/2"	3'-1 1/4"	9'-0"
54"	5'-7"	9'-4 1/2"	6'-2"	2'-1"	3'-7 1/4"	10'-1"
60"	6'-2"	10'-5 1/2"	6'-9"	2'-4 1/2"	4'-1 1/2"	11'-2"
66"	6'-9"	11'-6 1/2"	7'-4"	2'-8"	4'-7 1/2"	12'-3"
72"	7'-4"	12'-7 1/2"	7'-11"	2'-11 1/2"	5'-1 1/2"	13'-4"

TYPE B

NORMAL W OR W1	MIN h	MIN H
2'-0"	2'-7 1/2"	3'-9 1/2"
2'-3"	2'-10"	4'-0"
3'-0"	3'-8"	4'-10"
3'-6 1/2"	4'-2 1/2"	5'-4 1/2"
4'-2"	4'-10"	6'-0"
4'-8 1/2"	5'-4 1/2"	6'-6 1/2"
5'-3 1/2"	5'-11 1/2"	7'-1 1/2"
5'-10"	6'-6"	7'-8"
6'-4 1/2"	7'-0 1/2"	8'-2 1/2"
6'-11"	7'-7"	8'-9"
7'-5 1/2"	8'-1 1/2"	9'-3 1/2"

BRICK DROP INLET

TYPE A

D	W1	MIN. W2	W3	a	b	MIN. H
15"	2'-2"	2'-11"	2'-9"	0'-4 1/2"	0'-8"	3'-9 1/2"
18"	2'-2"	3'-2 1/2"	2'-9"	0'-4 1/2"	0'-8"	4'-1"
24"	2'-8"	3'-3"	3'-3"	0'-7 1/2"	1'-1 1/4"	4'-9"
30"	3'-7 1/4"	4'-0"	3'-10"	1'-0"	1'-9"	5'-10"
36"	4'-2"	6'-0 1/2"	4'-9"	1'-4 1/2"	2'-2 1/4"	6'-11"
42"	4'-5"	7'-1 3/4"	5'-0"	1'-6"	2'-7 1/4"	8'-0 1/4"
48"	5'-0"	8'-2 3/4"	5'-7"	1'-9 1/2"	3'-1 1/4"	9'-1 1/4"
54"	5'-7"	9'-4"	6'-2"	2'-1"	3'-7 1/4"	10'-2 1/2"
60"	6'-2"	10'-5"	6'-9"	2'-4 1/2"	4'-1 1/2"	11'-3 1/4"
66"	6'-9"	11'-6"	7'-4"	2'-8"	4'-7 1/2"	12'-4 1/2"
72"	7'-4"	12'-7"	7'-11"	2'-11 1/2"	5'-2"	13'-5 1/2"

TYPE B

NORMAL W OR W1	MIN h	MIN H
2'-0"	2'-7 1/2"	3'-7 1/2"
2'-3"	2'-10"	3'-10"
3'-0"	3'-8"	4'-8"
3'-6 1/2"	4'-2 1/2"	5'-2 1/2"
4'-2"	4'-10"	5'-10"
4'-8 1/2"	5'-4 1/2"	6'-4 1/2"
5'-3 1/2"	5'-11 1/2"	6'-11 1/2"
5'-10"	6'-6"	7'-6"
6'-4 1/2"	7'-0 1/2"	8'-0 1/2"
6'-11"	7'-7"	8'-7"
7'-5 1/2"	8'-1 1/2"	9'-1 1/2"

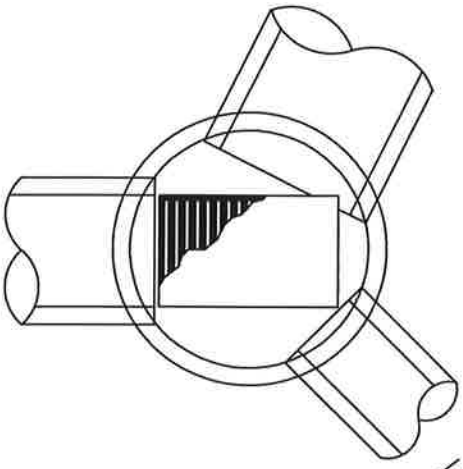
DROP INLET DIMENSIONS

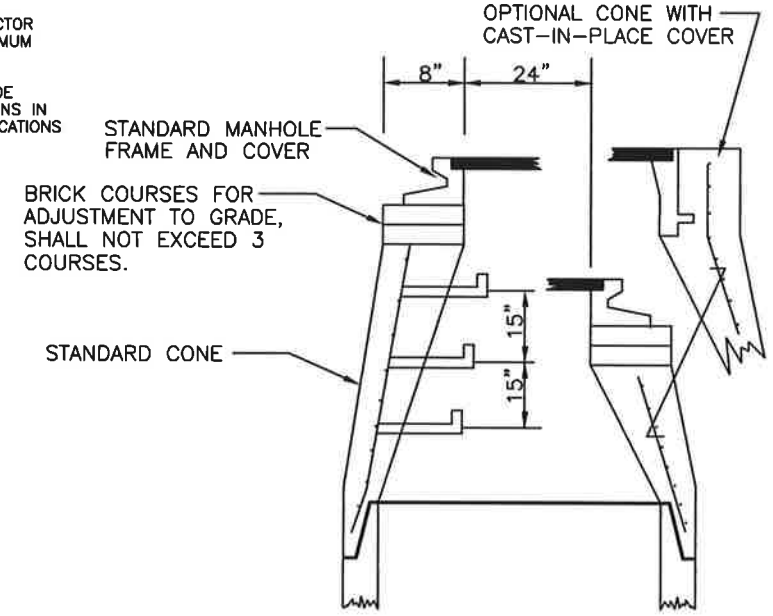
REV: 11-01-19 | FORSYTH COUNTY DEPARTMENT OF ENGINEERING | STD. NO. 252

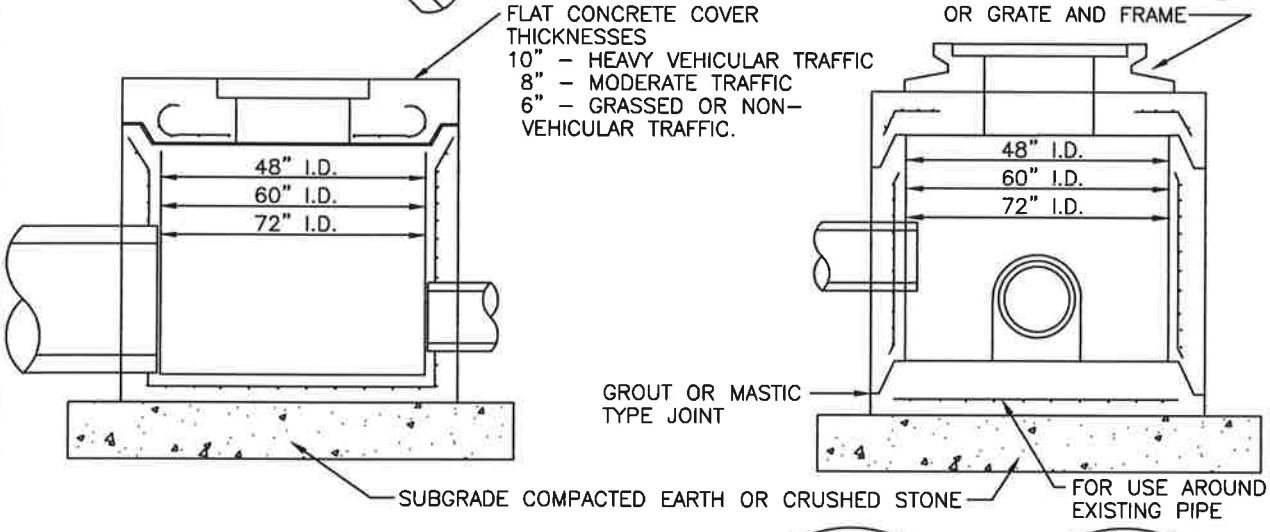
NOTES:
SUBGRADRE TO BE COMPACTED TO 95% STANDARD PROCTOR
REINFORCEMENT STEEL TO BE PLACED TO ALLOW A MINIMUM OF 2" CLEARANCE, EXCEPT WHERE NOTED.

REINFORCEMENT STEEL SHALL BE OF INTERMEDIATE GRADE AND SHALL BE 0.12 SQ. IN. PER. FT. IN BOTH DIRECTIONS IN ACCORDANCE WITH A.S.T.M. C 487-67 MANHOLE SPECIFICATIONS

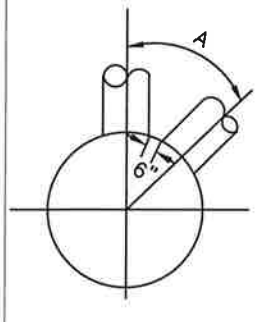
ALL CONCRETE SHALL BE 4,000 P.S.I.



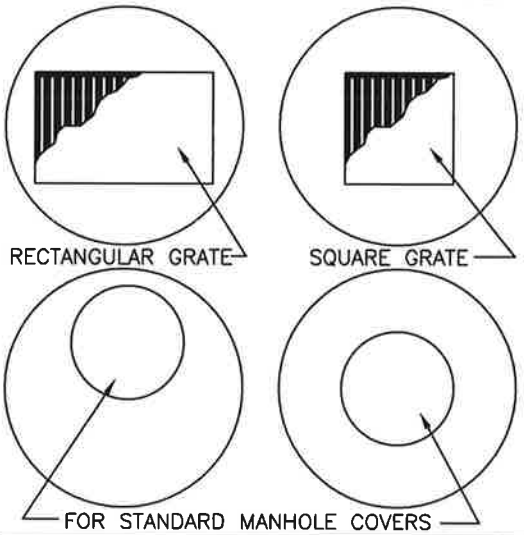




MINIMUM ANGLE-A					
4'-0" BASE		5'-0" BASE		6'-0" BASE	
PIPE SIZE	A	PIPE SIZE	A	PIPE SIZE	A
12	43°	12	40°		
15	52°	15	47°		
18	60°	18	55°		
21	67°	21	69°		
24	75°	24	70°		
		27	79°		
		30	86°		
		36	115°		
		42	140°	42	90°
				48	115°

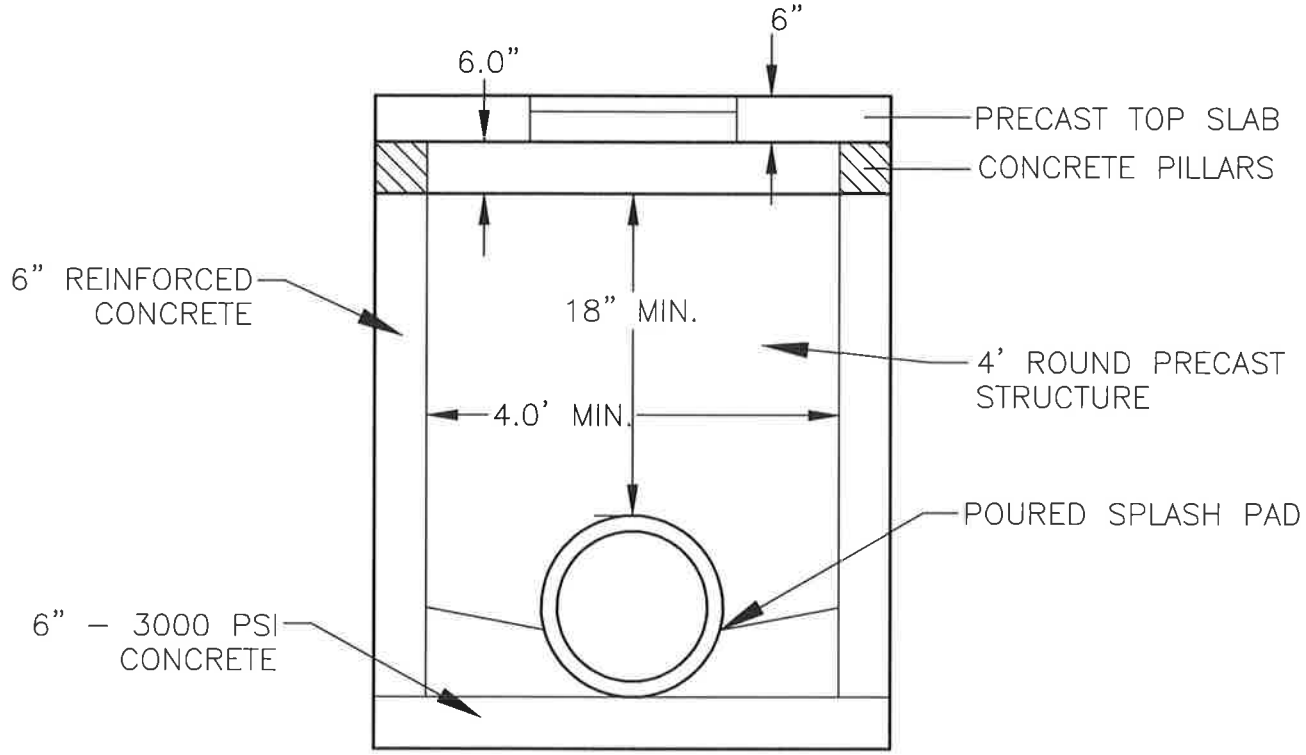


NOT TO SCALE

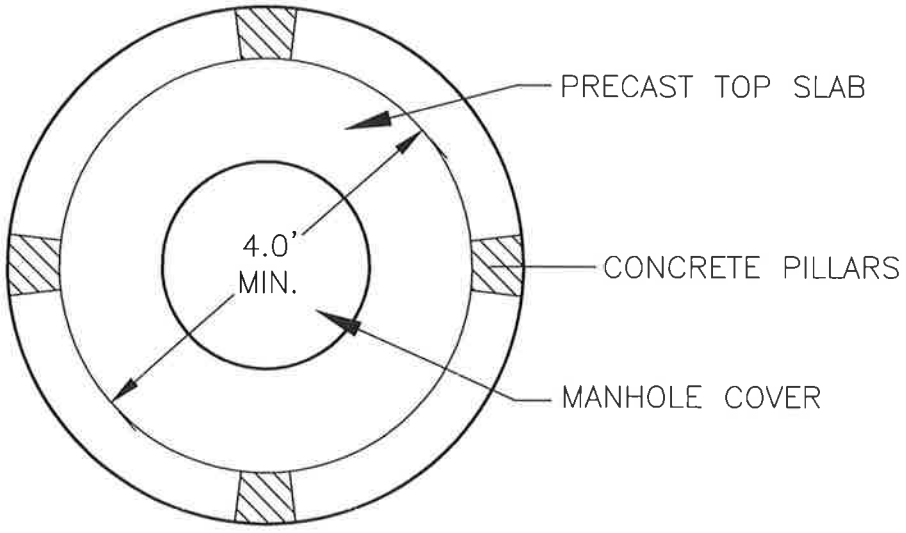


STANDARD ROUND PRECAST DROP INLET & JUNCTION BOX SYSTEMS

REV:11-06-20 | FORSYTH COUNTY DEPARTMENT OF ENGINEERING | STD. NO. 253



FRONT VIEW



TOP VIEW

NOT TO SCALE

WEIR INLET DETAIL (PEDESTAL INLET)

REV: 11-01-19	FORSYTH COUNTY DEPARTMENT OF ENGINEERING	STD. NO. 254

TABLE NO. 1 (PIPE-ARCH)
TABLE SHOWING MINIMUM THICKNESS IN INCHES OF CORRUGATED STEEL AND CORRUGATED ALUMINUM PIPE-ARCH AND MAXIMUM HEIGHTS OF FILL ABOVE THE TOP OF THE PIPE ARCH.

DIAMETER OF PIPE OF EQUAL PERIPHERY INCH	SPAN INCH	RISE INCH	MINIMUM THICKNESS (INCHES)			MIN. COVER INCHES	MAX. HT. FILL FEET
			COR. STEEL		CORRUGATED ALUMNIUM		
			1	2			
15	17	13	0.064			18	13
					0.06	18	15
18	21	15	0.064			18	12
					0.06	18	14
21	24	18	0.064			18	10
					0.06	18	13
24	28	20	0.064			18	9
					0.06	18	11
30	35	24	0.064			18	9
					0.06	18	9
36	42	29	0.064			18	7
					0.075	18	7
	40	31		0.079		18	12
42	49	33	0.079			18	7
					0.105	18	7
	46	36	0.079	0.079		18	12
48	57	38	0.109			18	7
					0.135	18	7
	53	41		0.079		18	12
54	64	43	0.109			18	7
					0.135	18	7
	60	46		0.079		18	12
60	71	47	0.138			18	7
					0.164	18	7
	66	51		0.079		18	12
66	77	52	0.168			18	7
	73	55		0.079		18	15
72	83	57	0.168			24	8
	81	59		0.079		24	15
78	87	63		0.079		24	14
84	95	67		0.109		24	12
90	103	71		0.109		24	11

① DENOTES 2 2/3" X 1/2" CORRUGATION
② DENOTES 3" X 1" CORRUGATION -- OR 125MM X 25MM CORRUGATION.

* ALL CORRUGATED METAL PIPE MUST HAVE A BITUMINOUS OR ALUMINIZED COATING.

CORRUGATED METAL PIPE ARCH

REV: 11-01-19 | FORSYTH COUNTY DEPARTMENT OF ENGINEERING | STD. NO. 300

PIPE CULVERT MATERIAL ALTERNATES

TYPE OF PIPE INSTALLATION				CONCRETE	CORRUGATED STEEL AASHTO M-36		PLASTIC				
					ALUM. COATED (TYPE 2) CORR. STEEL	PLAIN ZINC COATED	PLAIN UNCOATED ALUM.	CORR. POLY-ETHYLENE AASHTO M-252	CORR. POLY-ETHYLENE SMOOTHED LINED AASHTO M-S94 TYPE "S"	POLY VINYL CHLORIDE (PVC) PROFILE WALL AASHTO M-304	POLY VINYL CHLORIDE (PVC) CORRUGATED SMOOTH INTERIOR ASTM F949
STORM DRAIN	LONGITUDINAL INTERSATE AND TRAVEL BEARING			X							
	LONGITUDINAL NON-INTERSATE AND NON-TRAVEL BEARING			X					X	X	X
	CROSS DRAIN	GRADE ≤10%	ADT<250	X					X	X	X
			250<ADT <1,500	X					X	X	X
			1,500<ADT <15,000	X					X	X	X
			ADT>15,000	X							
		GRADE >10%	ADT<250						X	X	X
			ADT>250						X	X	X
SIDE DRAIN				X					X	X	X
PERMANENT SLOPE DRAIN					X	X	X		X	X	X
PERFORATED UNDERDRAIN					X	X	X	X	X		X

THIS TYPE PIPE CAN BE USED IF THE ADDITION OF TYPE "B" COATING (AASHTO M-190, HALF BITUMINOUS COATED WITH PAVED INVER) IS UTILIZED.

NOTE:
1) ALLOWABLE MATERIALS ARE INDICATED BY AN "X"
2) STRUCTURAL REQUIREMENTS OF STORM DRAIN PIPE WILL BE IN ACCORDANCE WITH GEORGIA STANDARD 1030-D OR 1030-P, WHICHEVER IS APPLICABLE, AND THE STANDARD SPECIFICATIONS.
3) GRADED AGGREGATE BACKFILL SHALL BE USED IN CROSS DRAIN APPLICATIONS FOR ALL PLASTIC PIPES (AASHTO M-294, HDPE PIPE; AASHTO M-304, PVC PIPE; ASTM F-949, PVC PIPE).

REV: 11-01-19

FORSYTH COUNTY DEPARTMENT OF ENGINEERING

METAL AND CONCRETE CIRCULAR PIPE

STD. NO. 310

SHEET 1 OF 3

TABLE NO. 2

TABLE SHOWING MINIMUM CLASSES OF CONCRETE PIPE AND THICKNESS IN INCHES OF CORRUGATED STEEL PIPE AND CORRUGATED ALUMINUM PIPE FOR VARIOUS HEIGHTS OF FILL ABOVE TOP OF PIPE.

PIPE DIAMETER (INCHES)	PIPE CHARACTERISTIC				**HEIGHT (OF FILL IN FEET ABOVE TOP OF PIPE)											
	CONCRETE	COR. ST. ①	COR. ST. ②	COR AL.	1'–10'	10'–15'	15'–20'	20'–25'	25'–30'	30'–35'	35'–40'	40'–50'	50'–60'	60'–70'	70'–80'	80'–90'
12	●				III	III	IV	V	V	V	V	V	V	V	V	
		●			0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.079
				●	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.105	0.105	0.105		
15	●				III	III	IV	V	V	V	V	V	V	V	V	
		●			0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.079	0.109	0.109
				●	0.06	0.06	0.06	0.06	0.06	0.075	0.105	0.135	0.164			
18	●				III	III	IV	V	V	V	V	V	V	V	V	
		●			0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.079	0.109	0.109	0.138	
				●	0.06	0.06	0.06	0.06	0.075	0.105	0.135	0.164				
24	●				III	III	IV	V	V	V	V	V	V	V	V	
		●			0.064	0.064	0.064	0.064	0.064	0.109	0.109	0.138				
				●	0.06	0.06	0.06	0.105	0.164							
30	●				III	III	IV	V	V	V	V	V	V	V	V	
		●			0.064	0.064	0.064	.079–.064*	.138–.064*	.168–.079*	0.109*	0.168*				
				●	0.06	0.06	0.075	0.135*	0.135*							
36	●				III	III	IV	V	V	V	V	V	V	V	V	
		●			0.064	0.064	0.064	.138–.064*	0.079*	0.109*	0.138*					
			●		0.064	0.064	0.064	0.064	0.064	0.079	.109–.079*	.138–.109*	.168–.109*	0.138*		
				●	0.06	0.06	.135–.105*	0.105*								
42	●				III	III	IV	V	V	V	V	V	V	V	V	
		●			0.064	0.064	.079–.064*	0.064*	0.064*	0.079*	0.109*	0.168*				
			●		0.064	0.064	0.064	0.064	0.079	.109–.079*	.138–.109*	0.109*	0.109*			
				●	0.075	0.075	.164–.075*	0.075*	0.105*	0.105*	0.164*					
48	●				III	III	IV	V	V	V	V	V	V	V	V	
		●			0.064	0.064	.109–.064*	0.064*	0.079*	0.079*	0.109*					
			●		0.064	0.064	0.064	0.079	.109–.079*	.168–.109*	0.109*	0.109*				
				●	0.105	0.105	0.105*	0.135*	0.135*	0.164*						
54	●				III	III	IV	V	V	V	V	V	V	V	V	
		●			0.079	0.079	.138–.079*	0.079*	0.079*	0.109*	0.168*					
			●		0.064	0.064	0.064	.109–.079*	.168–.109*	0.109*	0.109*	0.168*				
				●	0.105	0.105	0.135*	0.164*								
60	●				III	III	IV	V	V	V	V	V	V	V	V	
		●			0.109	0.109	.168–.109*	0.109*	0.109*	0.138*	0.168*					
			●		0.064	0.064	0.079	.138–.079*	0.109*	0.109*	0.109*					
				●	0.135	0.135	0.164*									

TABLE NO. 2

TABLE SHOWING MINIMUM CLASSES OF CONCRETE PIPE AND THICKNESS IN INCHES OF CORRUGATED STEEL PIPE AND CORRUGATED ALUMNIUM PIPE FOR VARIOUS HEIGHTS OF FILL ABOVE TOP OF PIPE.

PIPE DIAMETER (INCHES)	PIPE CHARACTERISTIC				**HEIGHT (OF FILL IN FEET ABOVE TOP OF PIPE)											
	CONCRETE	COR. ST. ①	COR. ST. ②	COR AL.	1'–10'	10'–15'	15'–20'	20'–25'	25'–30'	30'–35'	35'–40'	40'–50'	50'–60'	60'–70'	70'–80'	80'–90'
66	●				III	III	IV	V	V	V	V	V	V	V	V	
		●			0.109	0.109	0.109*	0.109*	0.138*	0.138*						
			●		0.064	0.064	0.079	.168-.109*	0.109*	0.109*	0.168*					
				●	0.135	0.164										
72	●				III	III	IV	V	V	V	V	V	V	V	V	
		●			0.138	0.138	0.138*	0.138*	0.168*							
			●		0.079	0.079	0.079	0.109*	0.109*	0.109*						
				●	0.164											
78	●				III	III	IV	V	V	V	V	V	V			
		●			0.168	0.168	0.168*	0.168*								
			●		0.079	0.079	.109-.079*	0.109*	0.109*	0.168*						
84	●				III	III	IV	V	V	V	V	V	V			
		●			0.168	0.168	0.168*									
			●		0.079	0.079	.168-.109*	0.109*	0.138*							
90	●				III	III										
			●		0.079	0.079	.168-.109*	0.109*	0.168*							
96	●				III	III										
			●		0.109	0.109	.168-.109*	0.109*								
102	●				III	III										
			●		0.109	0.109	0.109*	0.138*								
108	●				III	III										
			●		0.109	0.109	0.109*	0.168*								
114			●		0.138	0.138	0.138*									
120			●		0.138	0.138	0.138*									

METAL AND CONCRETE CIRCULAR PIPE

FORSYTH COUNTY DEPARTMENT OF ENGINEERING

REV: 11-01-19

STD. NO. 311

① DENOTES 2 3/4" (MAX.) X 7/16" (MIN.) CORRUGATION

② DENOTES 3" (MAX.) X 1" (MIN.) CORRUGATION

* DENOTES CIRCULAR CROSS SECTION FACTORY ENLONGATED ON VERTICAL AXIS 5% + NORMAL DIAMETER

**1. ALL CONCRETE SIDE DRAIN PIPE SHALL BE CLASS II FOR FILL UP TO 10 FT. CLASS II PIPE FOR SIDE DRAINS MAY BE NON-REINFORCED FOR DIAMETERS OF 12" THROUGH 24". FOR FILLS GREATER THAN 10' USE CLASS OF PIPE SHOWN IN TABLE NO. 1 ON DWG NO. 310.

2. ONLY ONE CLASS OR THICKNESS OF PIPE WILL BE SPECIFIED FOR INDIVIDUAL LOCATION. THE CLASS OR THICKNESS WILL BE DETERMINED BY THE MAXIMUM HEIGHT OF FILL.

3. WHERE CONCRETE PIPE IS SPECIFIED SEE STD. 310 & 311

4. TABLE 1 APPLIES TO SLOPE DRAIN AND STORM DRAIN PIPE.

5. FORSYTH COUNTY STANDARDS PROHIBITS FILL GREATER THAN 15' ABOVE CMP.

TABLE

CONVERSION OF NORMAL GAUGE
TO THICKNESS (INCHES)

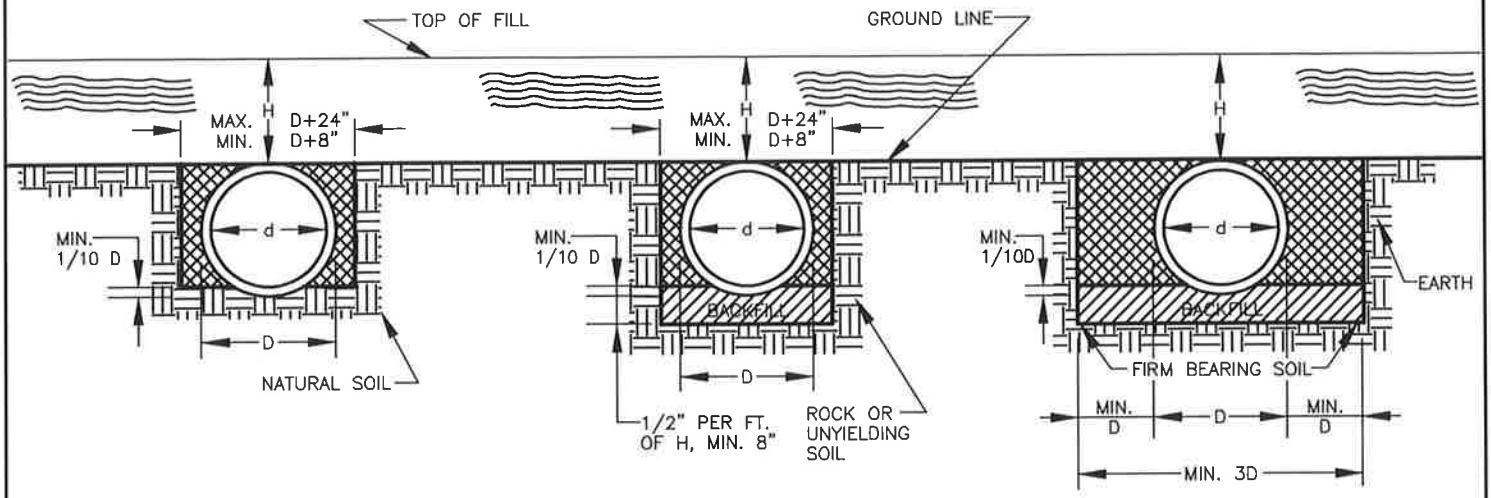
GAGE NO.	16	14	12	10	8
GALVANIZED THICKNESS*	0.064	0.079	0.109	0.138	0.168

*ALSO KNOWN AS SPECIFIED THICKNESS.

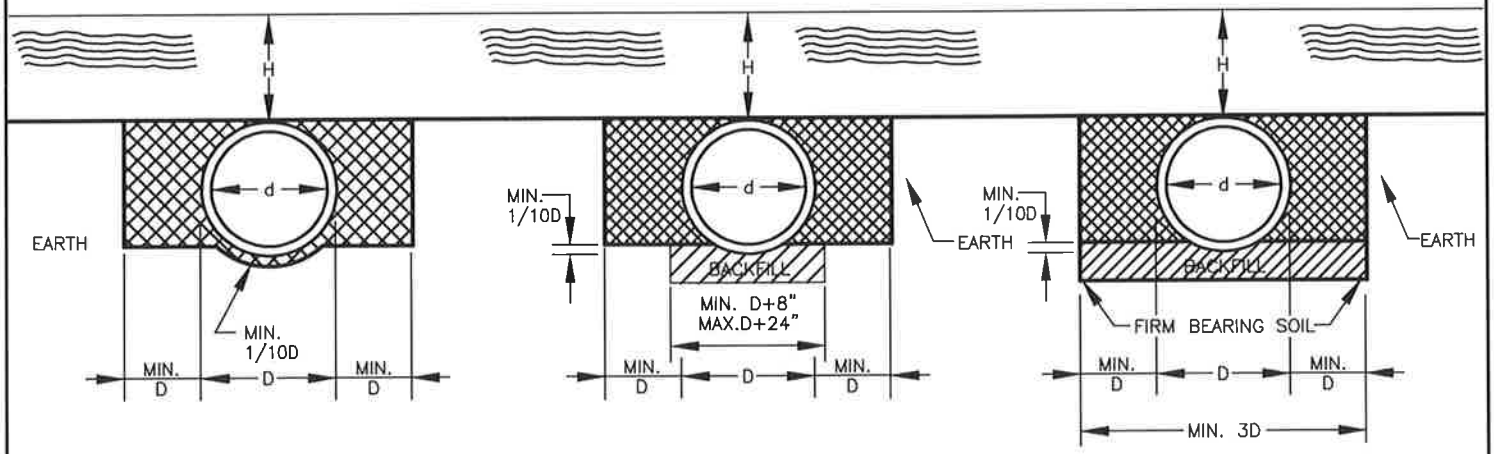
NOTE: PIPE THINNER THAN 16 GAGE IS NOT ACCEPTABLE TO FORSYTH CO. OR GA. D.O.T.

METAL AND CONCRETE CIRCULAR PIPE

REV:11-06-20 | FORSYTH COUNTY DEPARTMENT OF ENGINEERING | STD. NO. 312



NO PROJECTION OF PIPE ABOVE GROUND LINE



PIPE PROJECTION ABOVE GROUND LINE

NOT TO SCALE

PIPE BEDDING METHODS

REV: 11-01-19 | FORSYTH COUNTY DEPARTMENT OF ENGINEERING | STD. NO. 320