

three inches = one foot  
one and one half inches = one foot  
one inch = one foot  
three quarters inch = one foot  
one half inch = one foot  
three eighths inch = one foot  
one quarter inch = one foot  
one eighth inch = one foot

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR  
CONCRETE CATCH BASIN  
12" THRU 54" PIPE

SHEET 1 OF 2  
840.02

GENERAL NOTES:  
USE CLASS "B" CONCRETE THROUGHOUT.  
PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.  
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.  
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.  
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.  
USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.  
FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" TO 16'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.  
CONSTRUCT WITH PIPE CROWNS MATCHING.  
CHAMFER ALL EXPOSED CORNERS 1".  
DRAWING NOT TO SCALE.

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ENGLISH STANDARD DRAWING FOR  
CONCRETE CATCH BASIN  
12" THRU 54" PIPE

SHEET 1 OF 2  
840.02

CONCRETE FLARED END SECTION  
NOT TO SCALE

DIMENSIONS AND REINFORCING FOR CONCRETE FLARED END SECTIONS (+/- 1 DEG TOLERANCE)												OUTLET TOEWALL (IF REQ'D)	
PIPE DIA.	FRONT BAR	BACK RODS	SLOPE	A	B	C	L	E	F	R1	R2	K	CU. YDS. CONC
12"		NOT REQ'D	2.2:1	4"	2'0"	4'1"	6'1"	2'0"	1'8"	10"	9"	4'-0"	.148
15"		NOT REQ'D	2.2:1	6"	2'3"	3'10"	6'1"	2'6"	2'0"	1'0"	11"	4'-6"	.167
18"		NOT REQ'D	2.2:1	9"	2'3"	3'10"	6'1"	3'0"	2'3"	1'4"	1'0"	5'-0"	.185
24"		NOT REQ'D	2.4:1	10"	3'8"	2'6"	6'2"	4'0"	2'9"	1'5"	1'2"	6'-0"	.222
30"		NOT REQ'D	2.4:1	12"	4'6"	1'8"	6'2"	6'0"	3'1"	1'6"	1'3"	7'-0"	.259
36"		NOT REQ'D	2.4:1	15"	5'3"	2'11"	6'2"	6'0"	4'0"	2'0"	1'8"	8'-0"	.296
42"			2.4:1	21"	5'5"	2'11"	6'2"	6'6"	4'6"	2'4"	1'10"	8'-6"	.315

STATE OF NORTH CAROLINA  
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ENGLISH STANDARD DRAWING FOR  
DRAINAGE STRUCTURE STEPS

SHEET 1 OF 1  
840.66

NOTES:  
INSTALL ALL STEPS PROTRUDING 4" FROM INSIDE FACE OF STRUCTURE WALL.  
STEPS DIFFERING IN DIMENSIONS, CONFIGURATION, OR MATERIALS FROM THOSE SHOWN MAY ALSO BE USED PROVIDED THE CONTRACTOR HAS FURNISHED THE ENGINEER WITH DETAILS OF THE PROPOSED STEPS AND HAS RECEIVED WRITTEN APPROVAL FROM THE ENGINEER FOR THE USE OF SUCH STEPS.

CAST IRON  
POLYPROPYLENE PLASTIC  
REINFORCING STEEL

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ENGLISH STANDARD DRAWING FOR  
DRAINAGE STRUCTURE STEPS

SHEET 1 OF 1  
840.66

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
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RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR  
CONCRETE CATCH BASIN  
12" THRU 54" PIPE

SHEET 2 OF 2  
840.02

EXPANSION JOINTS  
CURB AND GUTTER WITH CATCH BASIN ON STEEP GRADES  
NORMAL CURB AND GUTTER ON LIGHT GRADES  
NORMAL CURB AND GUTTER ON STEEP GRADES

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H, WITH NO RISER) *																				
PIPE DIA.	DIMENSIONS OF BOX AND PIPE			SPAN	MIN. HEIGHT	COVER DIMENSION		BARS-U			BARS-V			BARS-W			TOTAL LBS.	REDUCTIONS		
	SPAN	WIDTH	DEPTH			E	F	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	TOP SLAB	BOTTOM SLAB	FOR MIN. HEIGHT, H		C.M.	R.C.	
12"	3'-0"	2'-2"	--	--	2'-9"	--	--	--	--	--	--	--	--	0.235	0.772	0.015	0.026			
15"	3'-0"	2'-2"	--	--	3'-0"	--	--	--	--	--	--	--	--	0.235	0.629	0.023	0.036			
18"	3'-0"	2'-2"	--	--	3'-3"	--	--	--	--	--	--	--	--	0.235	0.687	0.033	0.049			
24"	3'-0"	2'-2"	--	--	3'-6"	--	--	--	--	--	--	--	--	0.235	1.001	0.059	0.085			
30"	3'-0"	2'-2"	3'-4"	--	4'-3"	1'-2"	4'-0"	4	1'-5"	2	3'-9"	3	3'-9"	39	0.123	1.433	0.092	0.127		
36"	3'-0"	2'-2"	3'-10"	--	4'-9"	1'-8"	4'-0"	4	1'-11"	3	3'-9"	3	3'-9"	43	0.161	0.386	1.714	0.132	0.178	
42"	3'-0"	2'-2"	--	4'-5"	5'-3"	1'-6"	3'-2"	4	1'-8"	2	2'-11"	3	2'-11"	32	0.112	0.318	1.738	0.180	0.243	
48"	3'-0"	2'-2"	--	5'-0"	5'-9"	2'-0"	3'-2"	4	2'-3"	3	2'-11"	3	2'-11"	35	0.145	0.352	2.052	0.235	0.317	
54"	3'-0"	2'-2"	--	5'-7"	6'-3"	2'-7"	3'-2"	4	2'-10"	5	2'-11"	3	2'-11"	41	0.180	0.386	2.387	0.297	0.401	

\* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

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Drawing Title

STORM DRAIN DETAILS #1

Approved Project Director

Project Title

SALISBURY NATIONAL CEMETERY GRAVESITE EXPANSION

Location

SALISBURY NATIONAL CEMETERY  
SALISBURY, NC

Date

7/22/16

Checked

CZ

Drawn

JM

Project Number

876CM3021

Building Number

N/A

Drawing Number

C-507

Dwg. 29 of 63

NCA DESIGN AND CONSTRUCTION SERVICE

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