

# 2009 Standard Construction Details

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DeIDOT – Quality Section

# General 2009 Standard Construction Detail changes

- New Sheets

- Detail B-2, Sheet 3 of 3 – Guardrail over Culverts, Type 3
- Detail B-3, Sheet 1 of 1 – Guardrail End Treatment, Type 4
- Detail B-14, Sheet 3 of 4 – 42” (1050) Concrete Safety Barrier (F Shape)
- Detail P-3, Sheet 1 of 1 – Butt Joint Detail
- Detail T-15, Sheet 1 of 1 – Breakaway Sign Post and Pin Assembly Detail

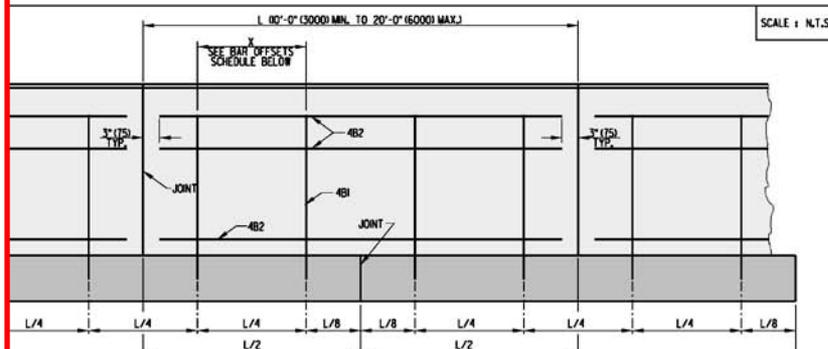
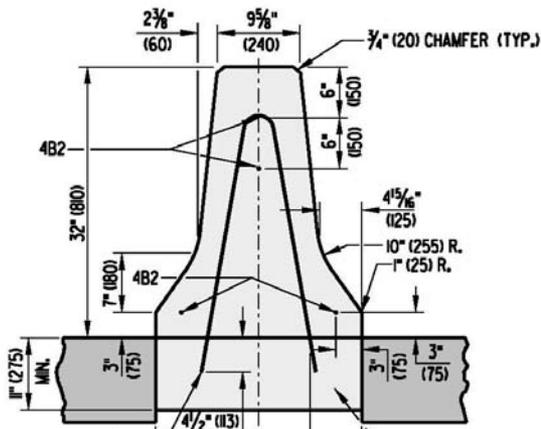
- Sheet # Changes

- Detail B-2, Sheet 1 of 1 is now Detail B-2, Sheet 1 of 3.
- Detail B-3, Sheet 1 of 1 is now Detail B-2, Sheet 2 of 3.
- Detail B-14, Sheet 1 of 3 is now Detail B-14, Sheet 1 of 4.
- Detail B-14, Sheet 2 of 3 is now Detail B-14, Sheet 2 of 4.
- Detail B-14, Sheet 3 of 3 is now Detail B-14, Sheet 4 of 4.

- Other

- You will notice that the sheets no longer contain signatures and instead now say “Signature on File” with the date Approved or Recommended in the appropriate spots.

# Detail B-14, Sheet 1 of 4 – 32" (960) Concrete Safety Barrier (F Shape)



BAR OFFSETS		
NOMINAL LENGTH OF BARRIER SECTION (L)	X	NO. REQ'D FOR EACH BARRIER SECTION
20' (6000)	5' - 0" (1500)	4
18' (5500)	4' - 6" (1350)	4
16' (5000)	4' - 0" (1200)	4
14' (4500)	3' - 6" (1050)	4
12' (4000)	3' - 0" (900)	4
10' (3000)	2' - 6" (750)	4

BAR LIST							
MARK	SIZE	NUMBER IN EACH SECTION	LENGTH	TYPE	A	B	C
4B1	4 (13)	**	5'-4" (1625)	I	7" (175)	30 1/2" (775)	2" (50)
4B2	4 (13)	4	*	STR.	N/A	N/A	N/A

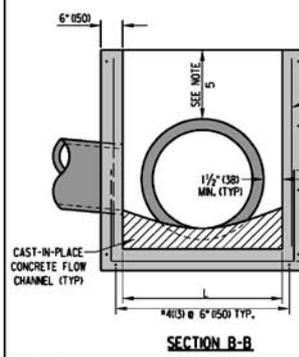
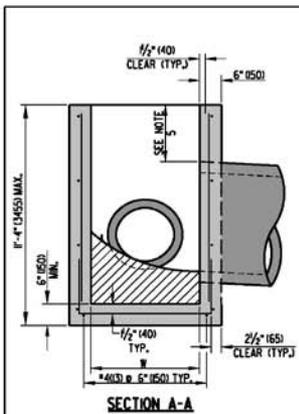
- \* THE LENGTH OF BAR 4B2 SHALL BE 6" (150) SHORTER IN LENGTH THAN THE NOMINAL SIZE OF THE BARRIER IN WHICH IT IS USED.
- \*\* SEE "BAR OFFSETS" CHART ON THIS SHEET FOR MORE INFORMATION.

NOTES: 1. CONCRETE CLEAR COVER FOR REINFORCING BARS SHALL BE 1/2" (40) MIN.  
2. BARS SHALL BE CUT AT EVERY JOINT IF MADE USING CONTINUOUS SLIP-FORM CONSTRUCTION.

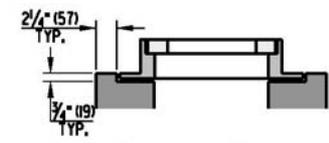
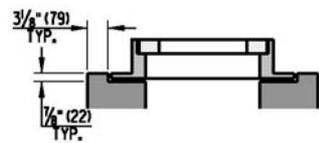
# Detail D-4, Sheet 1 of 1 – Inlet Box Details

INLET BOX SCHEDULE		
L	W	FABRICATION TOLERANCE
17 $\frac{1}{8}$ " (450)	11 $\frac{5}{8}$ " (295)	+1" (25)
24" (610)	24" (610)	+1" (25)
34" (865)	18" (455)	-1" (25)
34" (865)	24" (610)	-1" (25)
48" (1220)	30" (760)	+6" (150)
48" (1220)	48" (1220)	+6" (150)
66" (1675)	30" (760)	+6" (150)
66" (1675)	48" (1220)	+6" (150)
66" (1675)	66" (1675)	+6" (150)
72" (1830)	24" (610)	+6" (150)
72" (1830)	48" (1220)	+6" (150)
72" (1830)	72" (1830)	+6" (150)

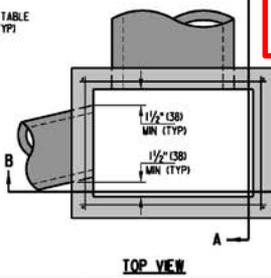
INLET BOX SCHEDULE		SCALE: N.T.S.
LESS	AREA OF VERTICAL REINFORCEMENT PER FOOT (mm <sup>2</sup> )	
4' (1220)	0.32 (85)	
4.5' (1370)	0.32 (85)	
5' (1520)	0.32 (85)	
5.5' (1680)	0.32 (85)	



\* - THESE BOXES ARE TO BE USED FOR THESE BOXES IS



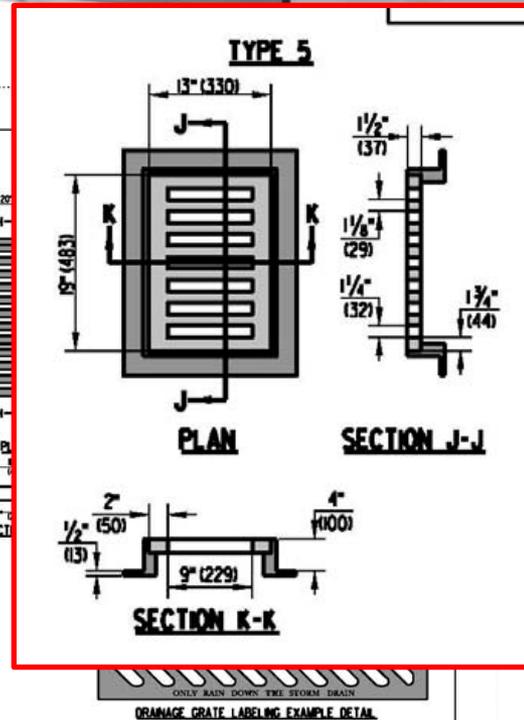
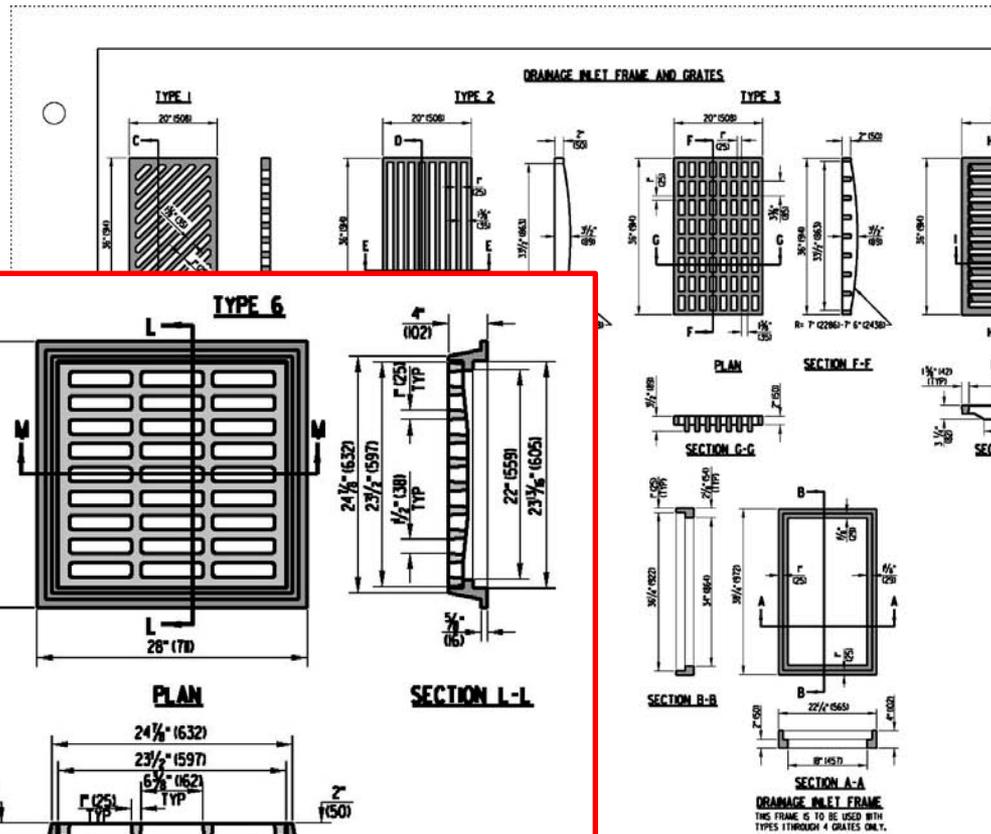
\* - THESE BOXES ARE TO BE USED FOR THESE BOXES IS



- NOTES:**
- INLET BOXES SHALL BE PRECAST OR CAST-IN-PLACE.
  - PIPES SHALL NOT BE INSTALLED THROUGH ANY CORNER OF THE INLET BOX.
  - RISER SECTIONS MAY BE USED FOR DEEP INLET BOXES.
  - PIPES MAY BE INSTALLED NEAR OR THROUGH JOINTS FOR RISER SECTIONS.
  - WHEN THE COVER ABOVE THE PIPE IS LESS THAN 4" (100) TO THE COVER SLAB OR TOP UNIT OPENING, THE PORTION OF BOX WALL ABOVE THE PIPE MAY BE REMOVED AS SHOWN IN THE OPTIONAL PIPE OPENING DETAIL. THE AREA ABOVE THE PIPE SHALL THEN BE FORMED AND FILLED WITH HIGH-STRENGTH, NON-SHRINK GROUT MIXED WITH COARSE AGGREGATE IN A 1:1 RATIO BY WEIGHT.
  - CONCRETE FLOW CHANNEL SHALL BE WARPED FOR POSITIVE DRAINAGE.
  - WHEN INLET BOX IS PRECAST, PIPE OPENING SHALL BE BETWEEN 3" (75) AND 4" (100) LARGER THAN OUTSIDE DIAMETER OF PIPE AND SHALL NOT ENCRDACH ON ADJACENT WALL.
  - REINFORCEMENT FOR LAWN INLET BOXES SHALL BE 4" (102) X 4" (102), #4 X #4 (126 X 126) WELDED WIRE.

	DELAWARE DEPARTMENT OF TRANSPORTATION	INLET BOX DETAILS	APPROVED	SIGNATURE ON FILE _____ DATE 01/19/2010
	STANDARD NO. D-4 (2009)	SHT. 1 OF 1	RECOMMENDED	SIGNATURE ON FILE _____ DATE 01/14/2010

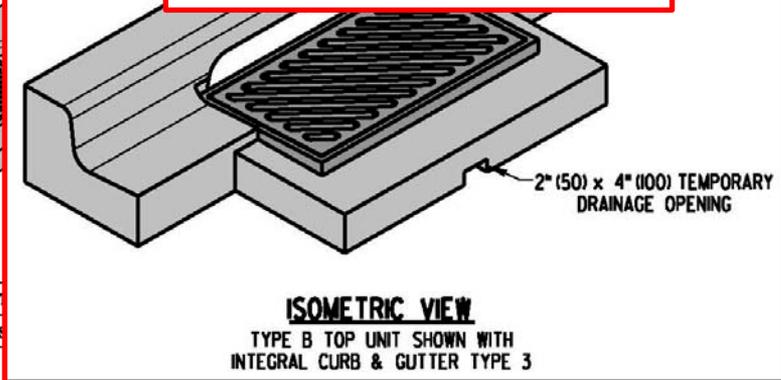
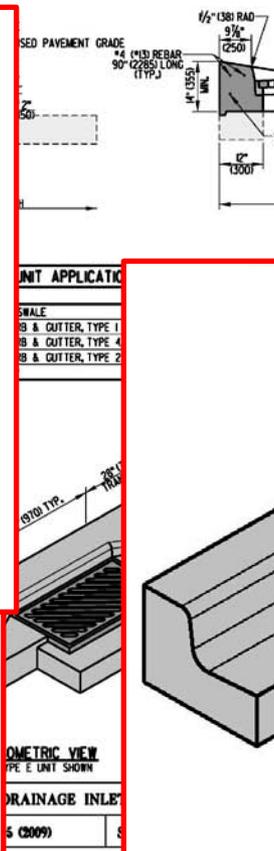
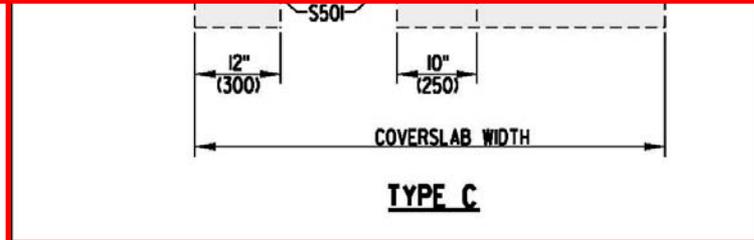
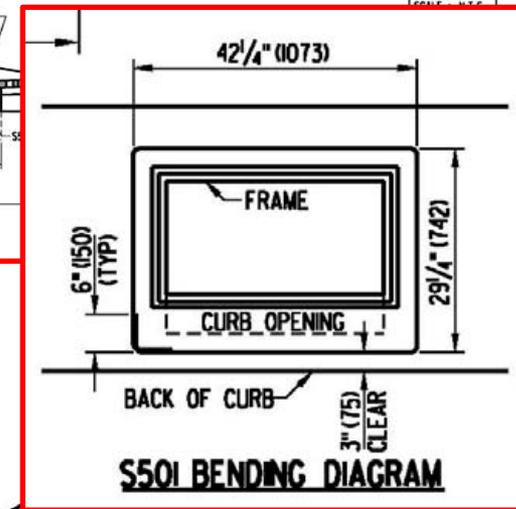
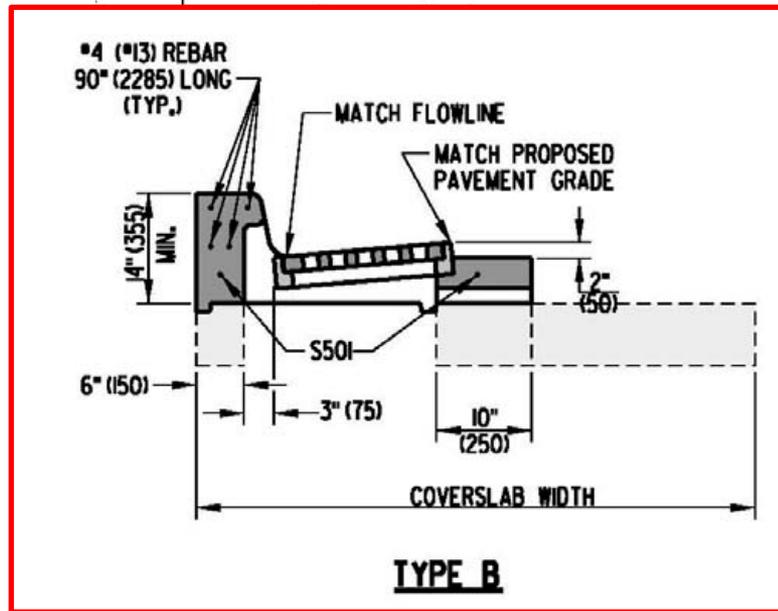
# Detail D-5, Sheet 2 of 8 – Drainage Inlet Frame and Grates



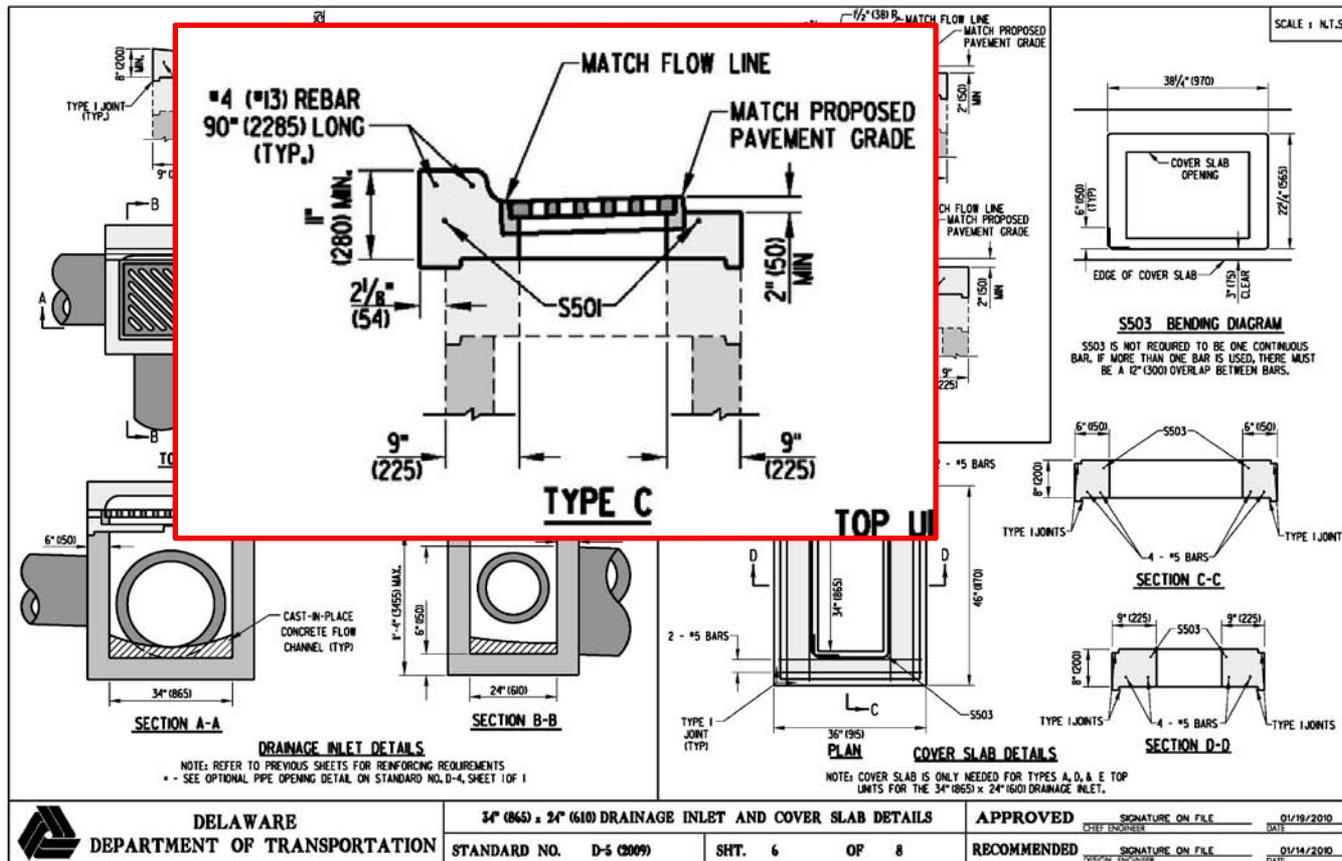
- NOTES:**
1. THE TYPE 2 DRAINAGE INLET GRATE SHALL NOT BE INSTALLED WHERE BICYCLE TRAFFIC MAY BE PRESENT.
  2. THE TOP OF ALL DRAINAGE INLET GRATES SHALL BE LABELED "ONLY RAIN DOWN THE STORM DRAIN". ALSO, DRAINAGE INLET GRATES TYPE 1 AND TYPE 4 SHALL BE LABELED WITH "WATER FLOW" AND AN ARROW INDICATING FLOW DIRECTION AS SHOWN IN THE EXAMPLE DETAIL.
  3. THE TYPE 1 DRAINAGE INLET GRATE SHALL BE LABELED WITH "CURBSIDE" AS SHOWN ON THE EXAMPLE DETAIL. ALL LABELING ON THE TYPE 1 SHALL BE ON BOTH TOP AND BOTTOM SIDES DUE TO THE TYPE 1 BEING REVERSIBLE.
  4. THE TYPE 5 & 6 FRAME AND GRATE COMBINATIONS ARE TO BE USED IN CONJUNCTION WITH LAWN INLET BOXES ONLY. SEE SCHEDULE ON DETAIL D-4, SHEET 1 OF 4, FOR WHICH BOX SIZES ARE CONSIDERED LAWN INLET BOXES.
  5. THE TYPE 6 FRAME AND GRATE COMBINATION SHOWN IS THE NESEAR FOUNDRY FRAME AND GRATE COMBINATION MODEL NF-878-ASG. AN ACCEPTABLE ALTERNATIVE IS THE EAST JORDAN IRON WORKS FRAME AND GRATE COMBINATION MODEL V-5622.

<b>DRAINAGE INLET FRAME AND GRATES</b>			<b>APPROVED</b>	SIGNATURE ON FILE _____	01/19/2010
				DATE	
<b>RD NO.</b>	<b>D-5 (0009)</b>	<b>SHT. 2</b>	<b>OF 8</b>	<b>RECOMMENDED</b>	SIGNATURE ON FILE _____
					01/14/2010
				DESIGN ENGINEER	DATE

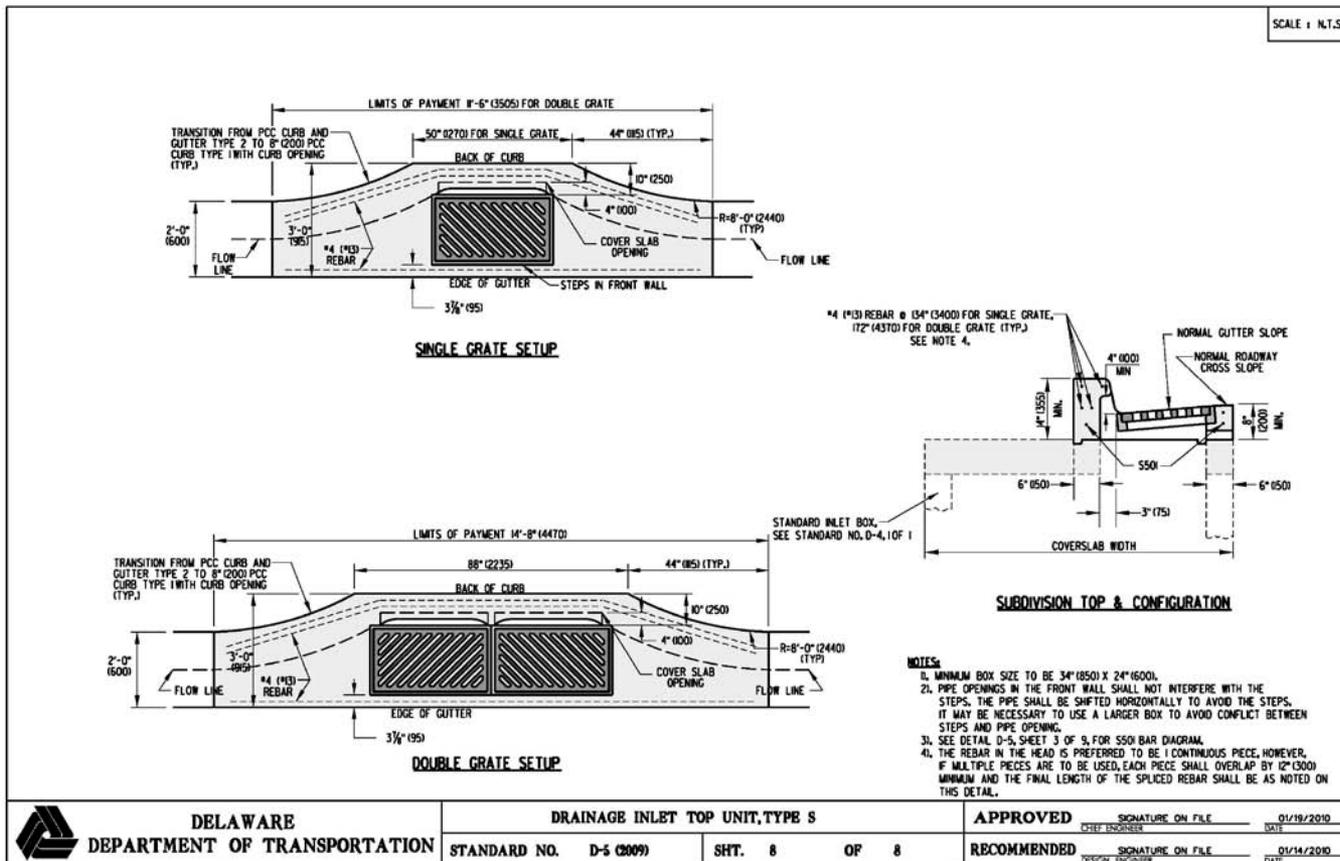
# Detail D-5, Sheet 3 of 8 – Drainage Inlet Top Units



# Detail D-5, Sheet 6 of 8 – 34" (865) x 24" (610) Drainage Inlet and Cover Slab Details



# Detail D-5, Sheet 8 of 8 – Drainage Inlet Top Unit, Type S





# Possible changes to the 2010 Standard Detail Revision and other things to expect

- Guardrail sheets - Match the new guardrail height guidelines
- Isometric renderings of some of our Curb Ramps to help better understand what we are expecting in the field.
- Erosion Sheets will be reviewed to make sure they match DNREC Guidelines
- Mailbox placement
- Doghouse Inlets
- Valley Gutters
- We will be including the DGN files of the latest Standard Construction Details on the DeIDOT website, alongside the PDFs. Previous detail revisions will be available upon request and approval, but will probably not be included on the website at this time.
- Any others?

Any questions or comments?

If you have any questions or comments in the future,  
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Or by telephone:

(302) 760-2350