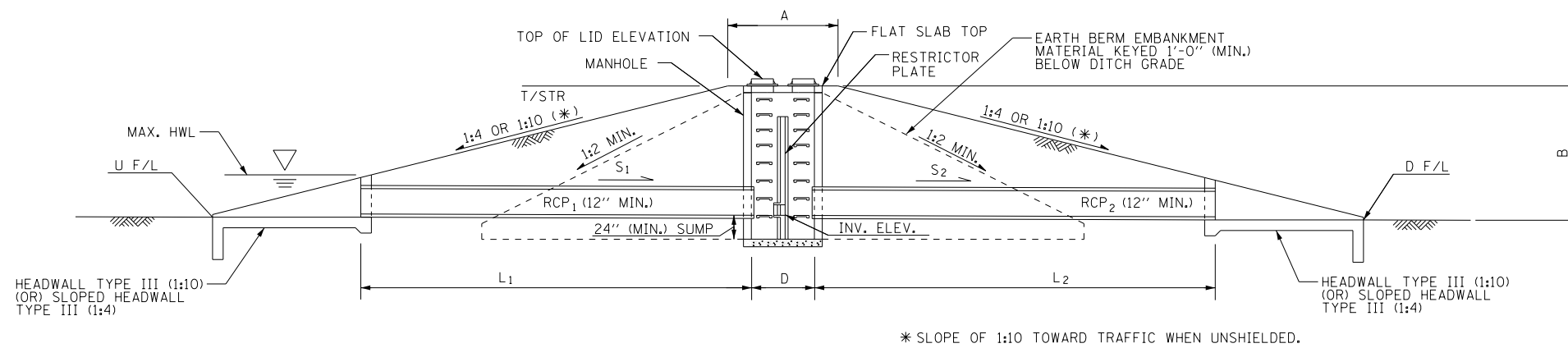


Illinois Tollway Base Sheet Revisions

Section M Base Sheet Drawings		
Drawing	Modification Summary	Effective: 03-01-2021
Drainage (DRN)-Series 600		
M-DRN-600	Outlet Control Structure Check Dam Details	
	Revised the callout for minimum sump from 18" to 24".	
M-DRN-601	Slope Drain	
	Added Note 6 and 'Notes to Designer' 1-2 for concrete collars.	
	Added angle bolting and angle fastener details and Notes 7-11.	
	Added air vent and 'Note to Designer' 3.	
M-DRN-604	Catch Basin Type G (Special) With Restrictor	

 New Sheet

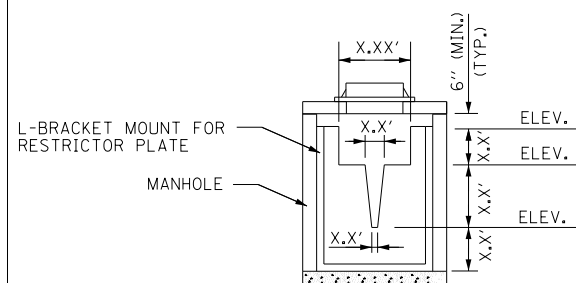
 Retired Standard



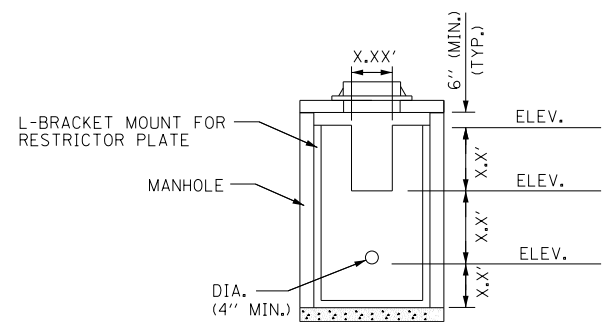
* SLOPE OF 1:10 TOWARD TRAFFIC WHEN UNSHIELDED.

PROFILE VIEW

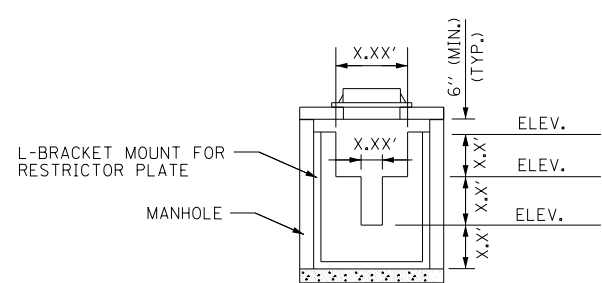
DESIGN ELEMENTS		VALUES
DRAINAGE AREA	X (ACRES)	
STORAGE VOLUME	V (CU. YD.)	
CHECK DAM TOP WIDTH	A (FEET)	
CHECK DAM HEIGHT	B (FEET)	
MANHOLE	D (DIAMETER)	
MANHOLE-GRATE	TYPE	
HORIZONTAL PIPE (RCP ₁)	P ₁ (DIAMETER)	
HORIZONTAL PIPE (RCP ₁)	L ₁ (FEET)	
HORIZONTAL PIPE (RCP ₁)	S ₁ (SLOPE)	
HORIZONTAL PIPE (RCP ₂)	P ₂ (DIAMETER)	
HORIZONTAL PIPE (RCP ₂)	L ₂ (FEET)	
HORIZONTAL PIPE (RCP ₂)	S ₂ (SLOPE) (%)	
RESTRICTOR PLATE-DETAIL	SHAPE	
2-YEAR RELEASE RATE	CFS	
100-YEAR RELEASE RATE	CFS	
HEADWALL TYPE III (1:10)	PIPE DIAMETER	
SLOPED HEADWALL TYPE III (1:4)	PIPE DIAMETER	
HIGH WATER ELEVATION	HWL (FEET)	
TOP OF STRUCTURE ELEVATION	T/STR (FEET)	
UPSTREAM FLOWLINE	U F/L (FEET)	
DOWNSTREAM FLOWLINE	D F/L (FEET)	



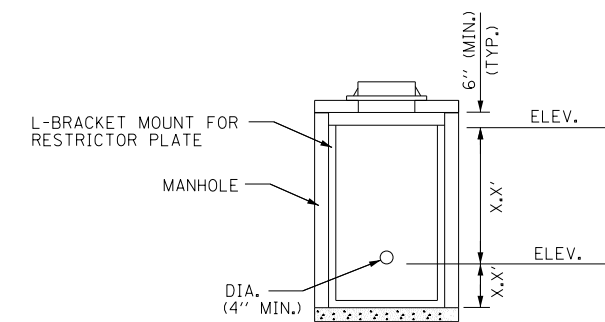
RESTRICTOR PLATE DETAIL



RESTRICTOR PLATE DETAIL



RESTRICTOR PLATE DETAIL



RESTRICTOR PLATE DETAIL

SAMPLE RESTRICTOR PLATE DETAILS

NOTE:

- ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT. (V:H).
- THE CONTRACTOR HAS THE OPTION TO USE A CONCRETE RESTRICTOR PLATE THAT IS PRECAST WITHIN THE DRAINAGE STRUCTURE.

NOTE TO DESIGNER

- DSE SHALL DESIGN STEEL ANGLE BOLTS AND FASTENERS FOR THE STEEL RESTRICTOR PLATES. DETAILS ARE TO BE PROVIDED ON THIS SHEET.

OUTLET CONTROL STRUCTURE (CHECK DAM)

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

M-DRN-600



OUTLET CONTROL STRUCTURE CHECK DAM DETAILS

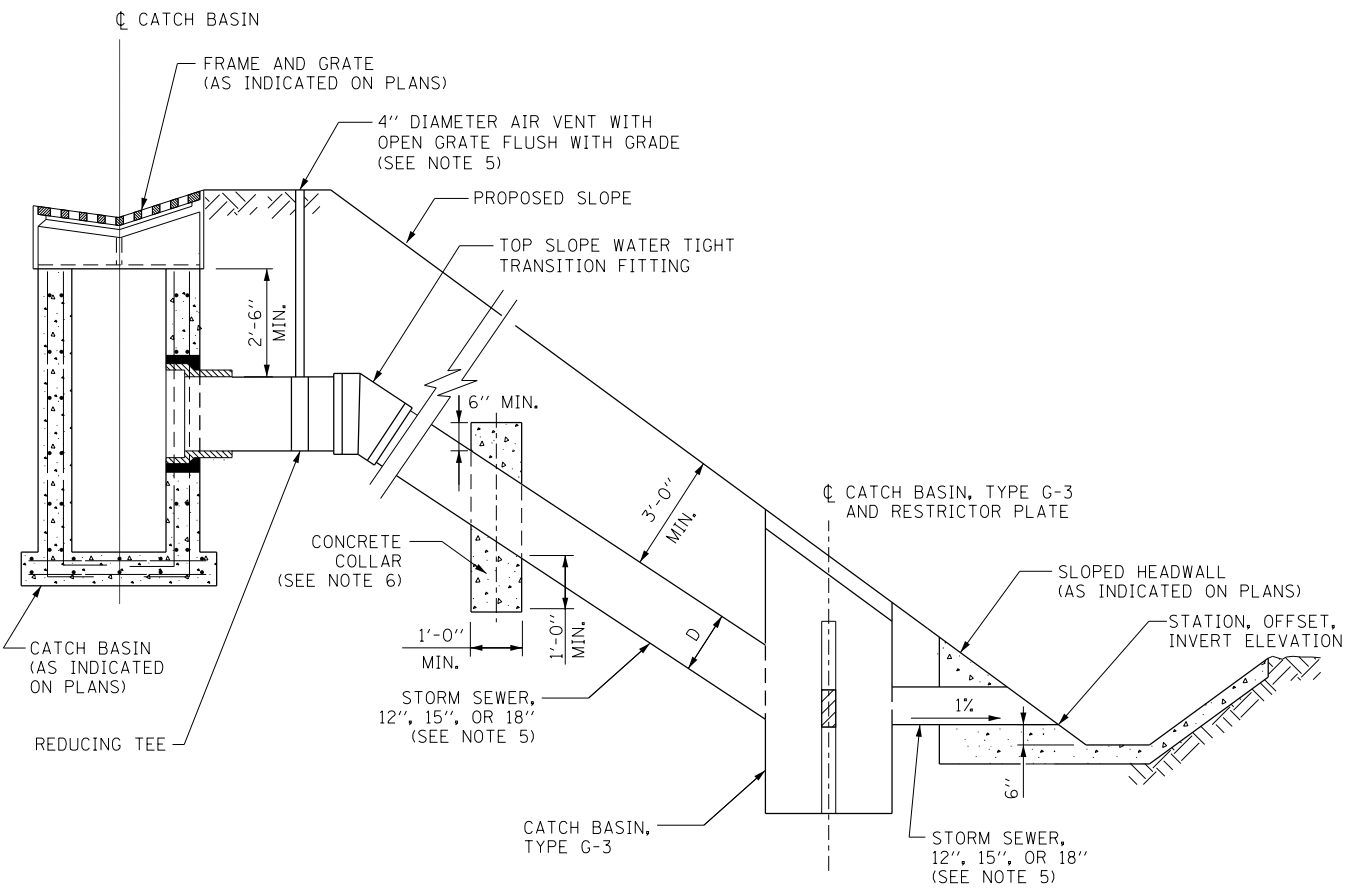
DATE
3-1-2021

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

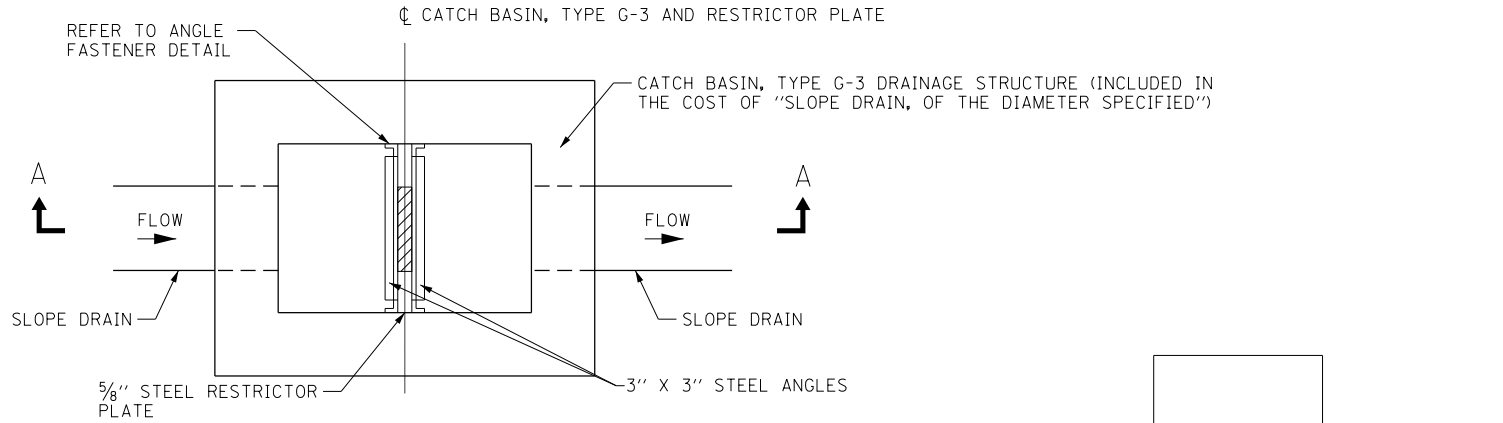
NOTES TO DESIGNER

1. FOR SLOPES 1:3 OR FLATTER, PLACE A MINIMUM OF ONE CONCRETE COLLAR AT THE MIDDLE PIPE JOINT IF SLOPE DRAIN LENGTH \leq 80 FEET. IF SLOPE DRAIN LENGTH $>$ 80 FEET, PLACE CONCRETE COLLARS AT A MAXIMUM 40 FOOT SPACING.
2. FOR SLOPES STEEPER THAN 1:3, PLACE CONCRETE COLLARS AT A MAXIMUM 20 FOOT SPACING.
3. THE AIR VENT IS REQUIRED WHEN HW/D \geq 0.8 TO PREVENT CAVITATION.

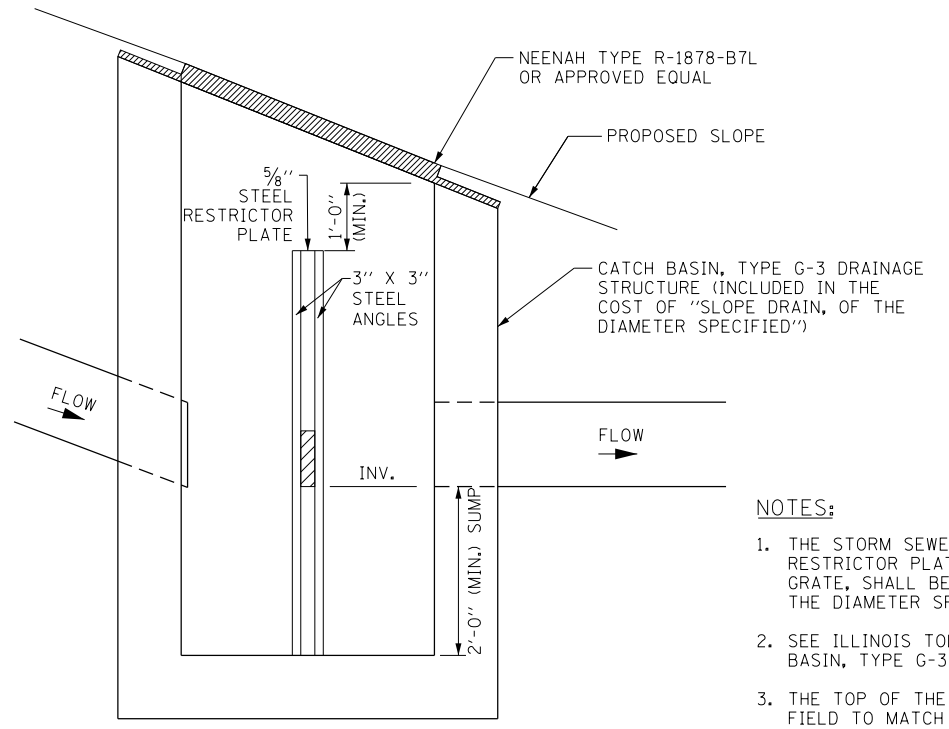


SLOPE DRAIN

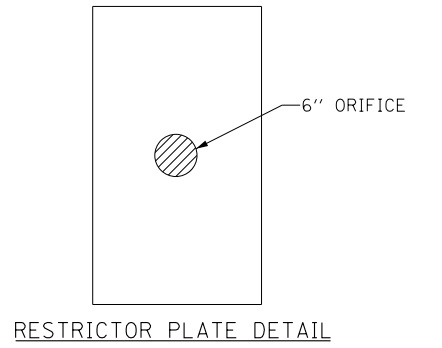
SLOPE DRAIN PIPE NO.	D (IN)	LENGTH (FT)	CONCRETE COLLAR			CATCH BASIN, TYPE G-3			INV.	TOP OF RESTRICTOR PLATE ELEVATION
			STATION	OFFSET (FT)	OFFSET (LT/RT)	STATION	OFFSET (FT)	OFFSET (LT/RT)		



CATCH BASIN, TYPE G-3 DRAINAGE STRUCTURE PLAN

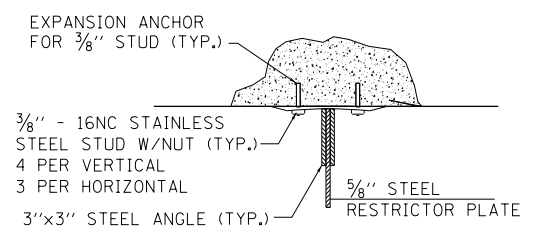


SECTION A-A

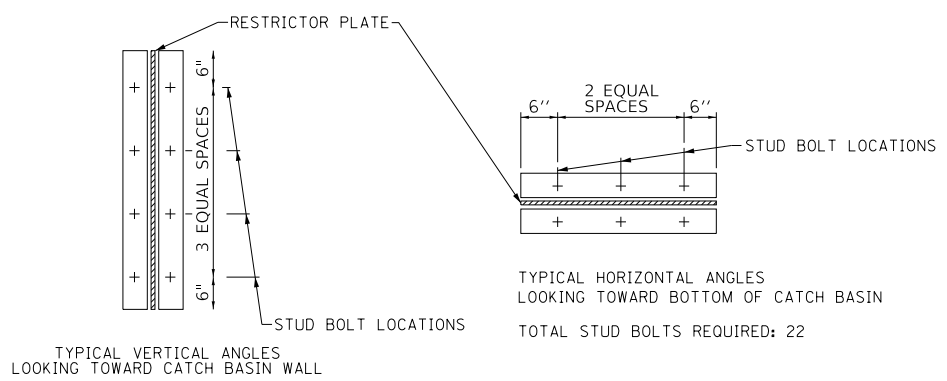


RESTRICTOR PLATE DETAIL

- NOTES:**
1. THE STORM SEWERS, CONCRETE COLLAR, CATCH BASIN, TYPE G-3, RESTRICTOR PLATE, ANGLES AND HARDWARE AND FRAME AND GRATE, SHALL BE INCLUDED IN THE COST OF SLOPE DRAIN OF THE DIAMETER SPECIFIED.
 2. SEE ILLINOIS TOLLWAY STANDARD B8 FOR DIMENSION OF CATCH BASIN, TYPE G-3 STRUCTURE.
 3. THE TOP OF THE CATCH BASIN, TYPE G-3 SHALL BE CUT IN THE FIELD TO MATCH THE PROPOSED EMBANKMENT SLOPE.
 4. THE CONTRACTOR HAS THE OPTION TO USE A CONCRETE RESTRICTOR PLATE THAT IS PRECAST WITHIN THE DRAINAGE STRUCTURE.
 5. PIPE MATERIAL SHALL BE HDPE WITH SMOOTH INTERIOR OR EPOXY COATED CORRUGATED GALVANIZED STEEL PIPE OF THE SIZE SPECIFIED.
 6. THE MINIMUM CONCRETE COLLAR WIDTH SHALL BE $D + 24"$.
 7. ALL STEEL ANGLES AND PLATES SHALL BE GALVANIZED AFTER FABRICATION.
 8. STEEL PLATE AND ANGLES SHALL BE IN ACCORDANCE WITH AASHTO M 270 GRADE 36.
 9. ANGLES SHALL BE $3" \times 3" \times 3/8"$.
 10. VERTICAL ANGLES SHALL EXTEND FROM THE BOTTOM OF THE CATCH BASIN TO THE TOP OF THE RESTRICTOR PLATE.
 11. HORIZONTAL ANGLES SHALL EXTEND FROM VERTICAL ANGLE TO RESTRICTOR PLATE.



ANGLE FASTENER DETAIL



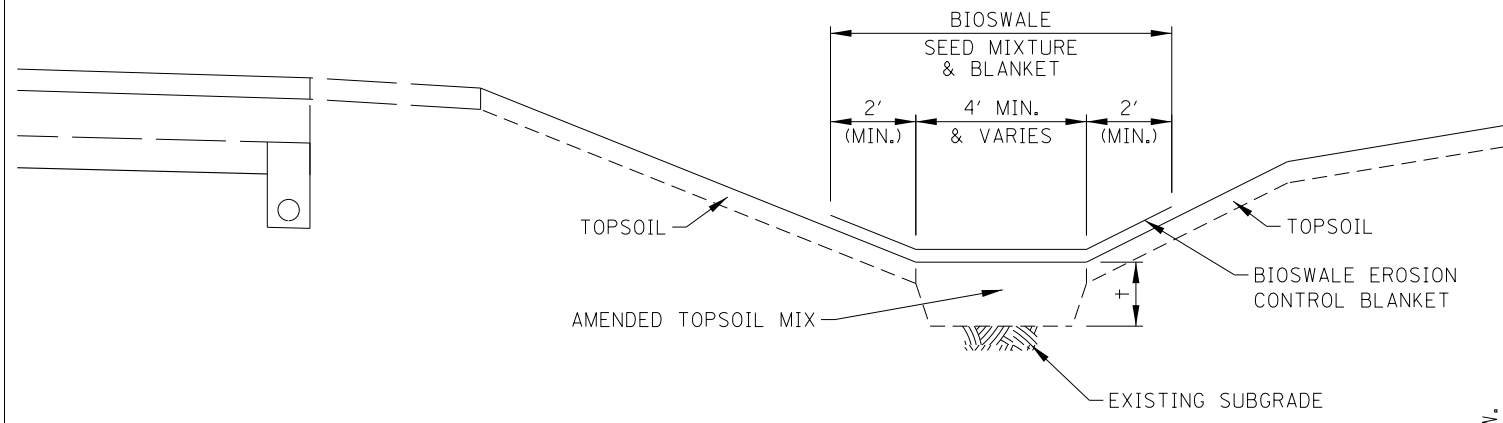
STEEL ANGLE BOLTING DETAILS

M-DRN-601



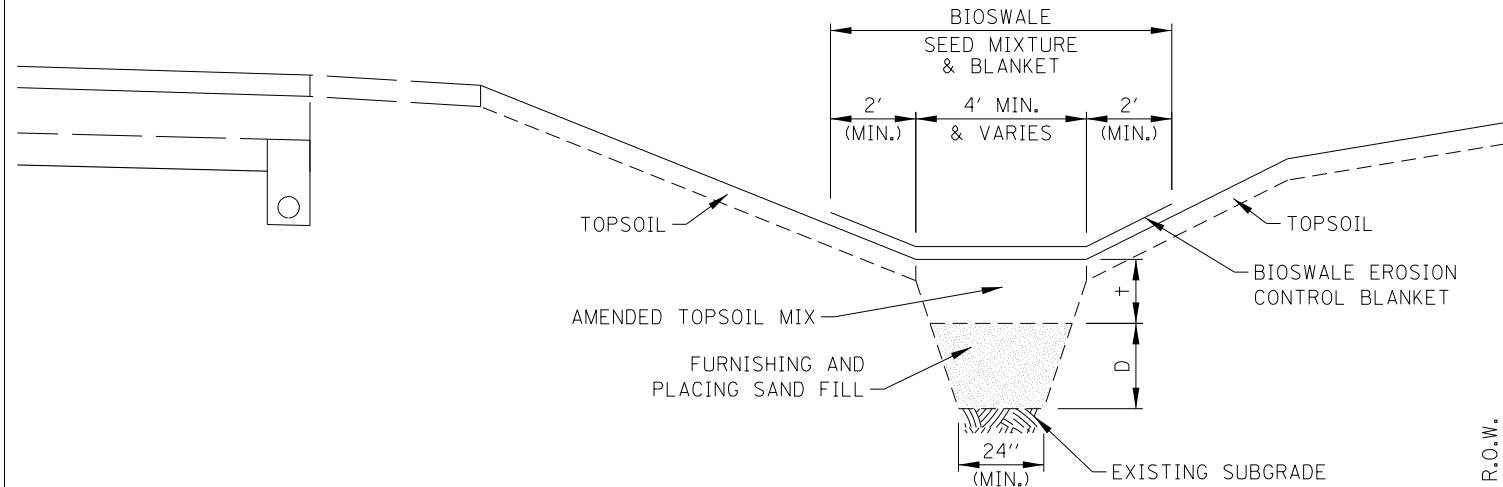
SLOPE DRAIN

DATE
3-1-2021



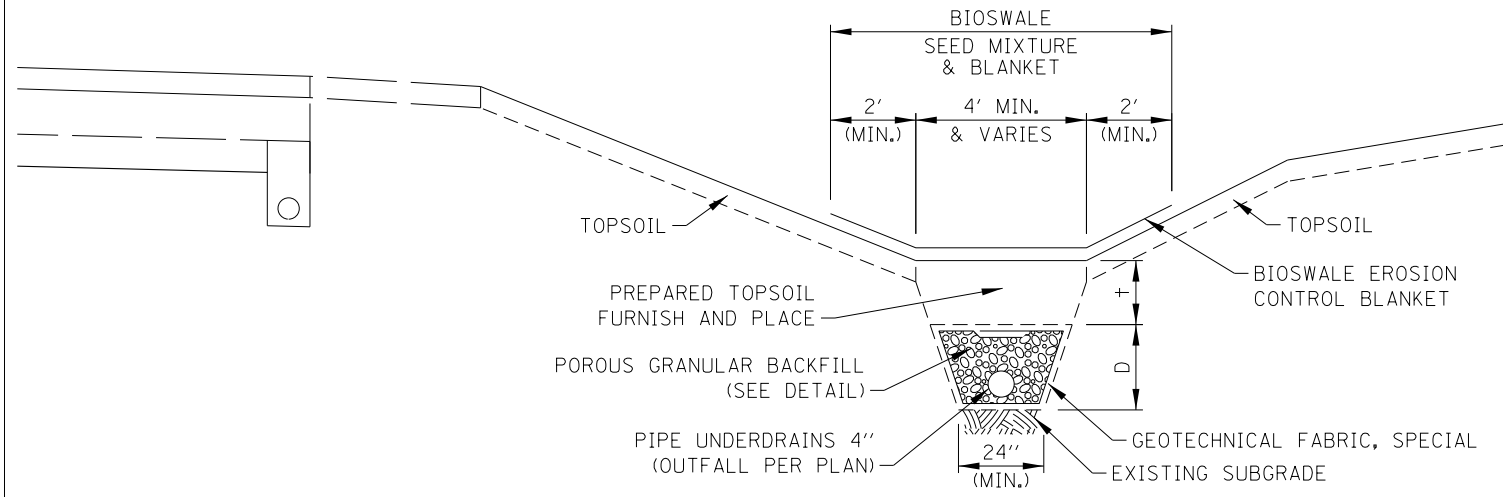
BIOSWALE, TYPE 1

R.O.W.



BIOSWALE, TYPE 2

R.O.W.



BIOSWALE, TYPE 3

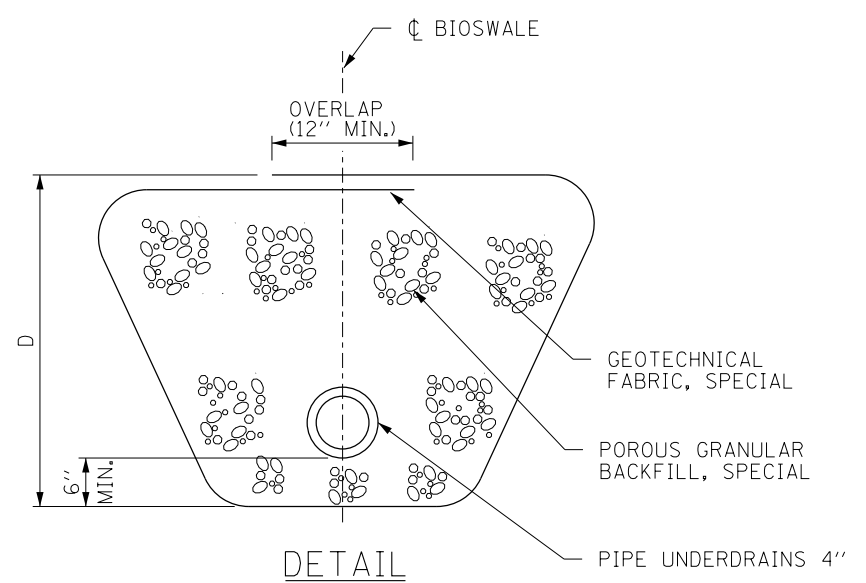
BIOSWALE NO.	BIOSWALE TYPE	BEGIN STATION	END STATION	PREP/AMENDED TOPSOIL THICKNESS (+)	BIOSWALE BASE (D)

NOTE TO DESIGNER

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NOTES TO DESIGNER

1. ALL UNDER DRAINS SHALL EITHER OUTLET AT GRADE OR TO A DRAINAGE STRUCTURE AND GRAVITY DRAIN.
2. ALL UNDER DRAINS SHALL HAVE AN INLET ON THE UPSTREAM END AND EVERY 500' MINIMUM TO SERVE AS A CLEAN OUT.



DETAIL

NOTES:

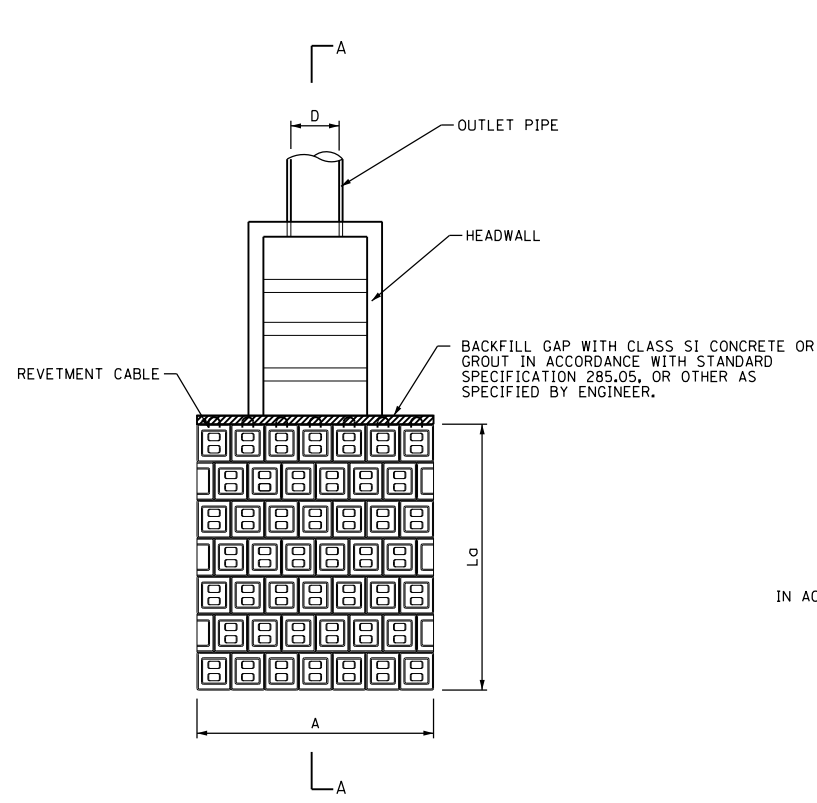
1. THE ENDS OF THE PIPE UNDERDRAIN OUTLET AT GRADE SHALL BE PROTECTED BY A PERMANENT RODENT SHIELD IN ACCORDANCE WITH STANDARD B24.

M-DRN-602

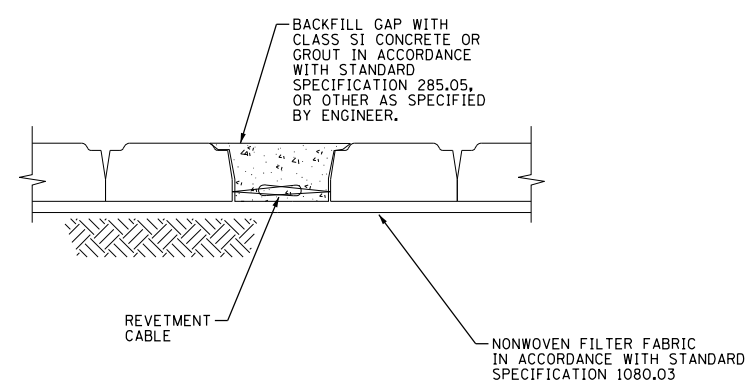


BIOSWALE

DATE
3-31-2016

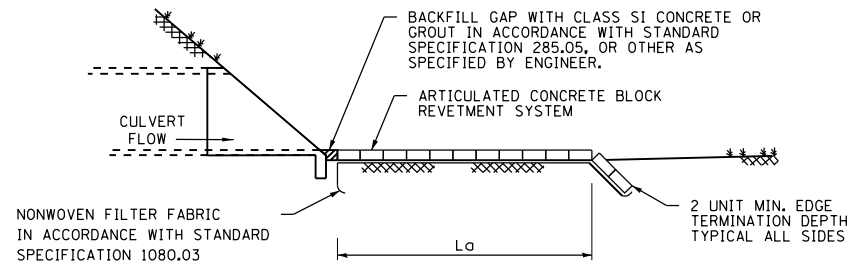


OUTLET PROTECTION DETAIL
(NOT TO SCALE)

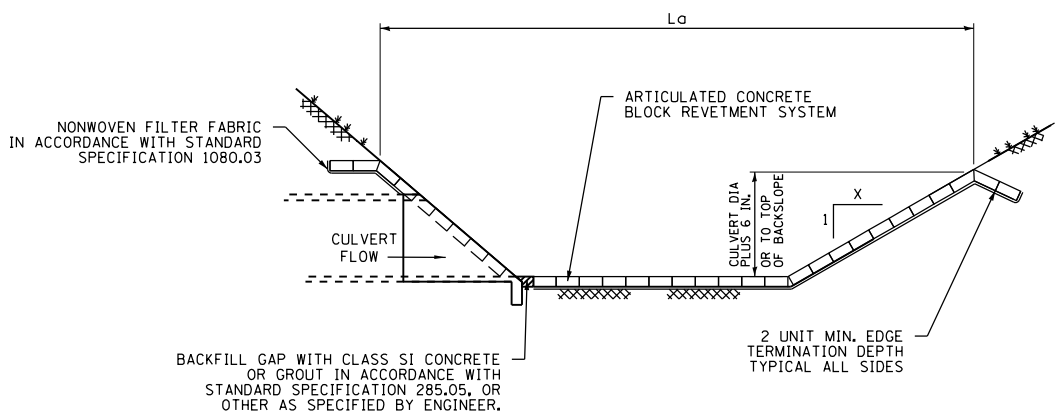


TYPICAL MAT TO MAT
(NOT TO SCALE)

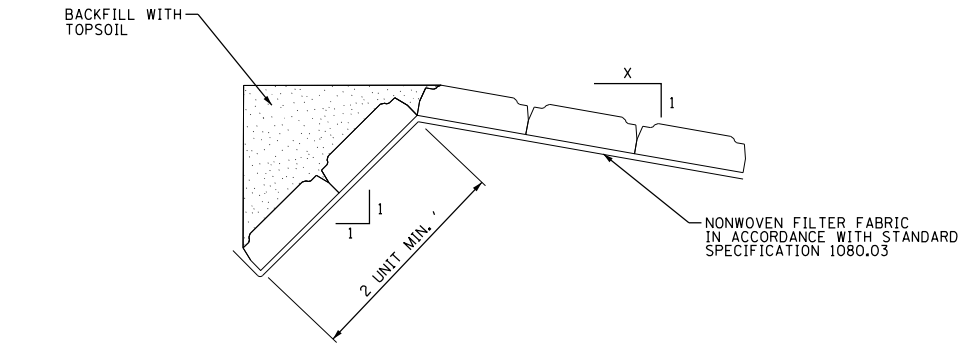
- NOTES:
- 1. EACH BLOCK SHALL INCORPORATE INTERLOCKING SURFACES THAT MINIMIZE LATERAL DISPLACEMENT OF THE BLOCKS WITHIN THE MATS WHEN THEY ARE LIFTED BY THE LONGITUDINAL REVTMENT CABLES. HAND PLACED INTERLOCKING BLOCKS ARE ALSO ACCEPTABLE.
 - 2. THE TOP OF BLOCK ELEVATION SHALL BE AT OR BELOW THE DITCH FLOW LINE, OR FINISHED SURFACE.
 - 3. PAY LENGTH IS EQUAL TO DIMENSION "L_o" PLUS THE TOTAL ESTIMATED LENGTH OF THE BURIED PORTION OF THE BLOCKS. PAY WIDTH IS EQUAL TO DIMENSION "A" PLUS THE TOTAL ESTIMATED WIDTH OF THE BURIED PORTION OF THE BLOCKS.



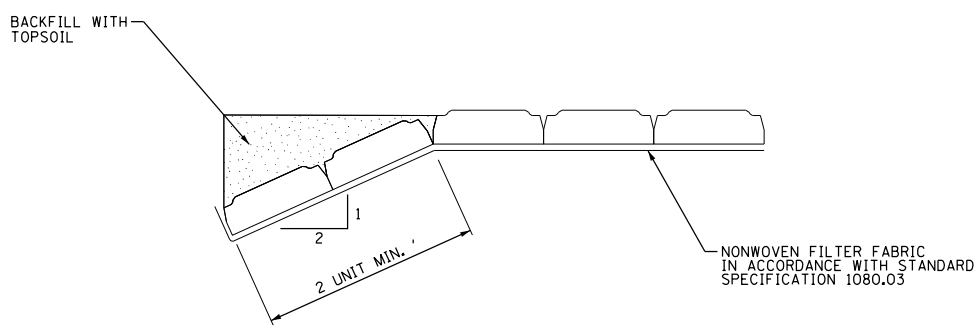
SECTION A-A (NO DEFINED CHANNEL)
(NOT TO SCALE)



SECTION A-A (DEFINED CHANNEL)
(NOT TO SCALE)



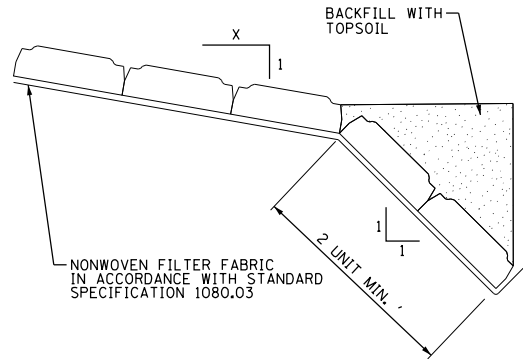
TOP OF SLOPE EDGE TERMINATION DETAIL
(NOT TO SCALE)



GROUND EGDE TERMINATION DETAIL
(NOT TO SCALE)

ARTICULATED CONCRETE BLOCK REVTMENT SYSTEM (ACBRS) SCHEDULE

STRUCTURE NO.	D (IN)	L _o (FT)	A (FT)	PAY LENGTH (FT) (SEE NOTE 3)	PAY WIDTH (FT) (SEE NOTE 3)	BLOCK TYPE	MAT CONFIGURATION	ACBRS (SQ YD)



TOE OF SLOPE EDGE TERMINATION DETAIL
(NOT TO SCALE)

NOTES TO DESIGNER

1. THE AREA OF MEASUREMENT WILL INCLUDE THE COMPLETE INSTALLED MATS, INCLUDING BOTH THE VISIBLE AREA AND THE BURIED EDGE PORTIONS OF THE INSTALLATION WHICH ARE NOT VISIBLE UPON PROJECT COMPLETION (EDGE TERMINATION).
2. THE NONWOVEN FILTER FABRIC SHALL BE INCLUDED IN THE COST OF THE ARTICULATED CONCRETE BLOCK REVTMENT SYSTEM OF THE TYPE SPECIFIED.

NOTE TO DESIGNER

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M-DRN-603



ARTICULATED CONCRETE BLOCK REVTMENT SYSTEM

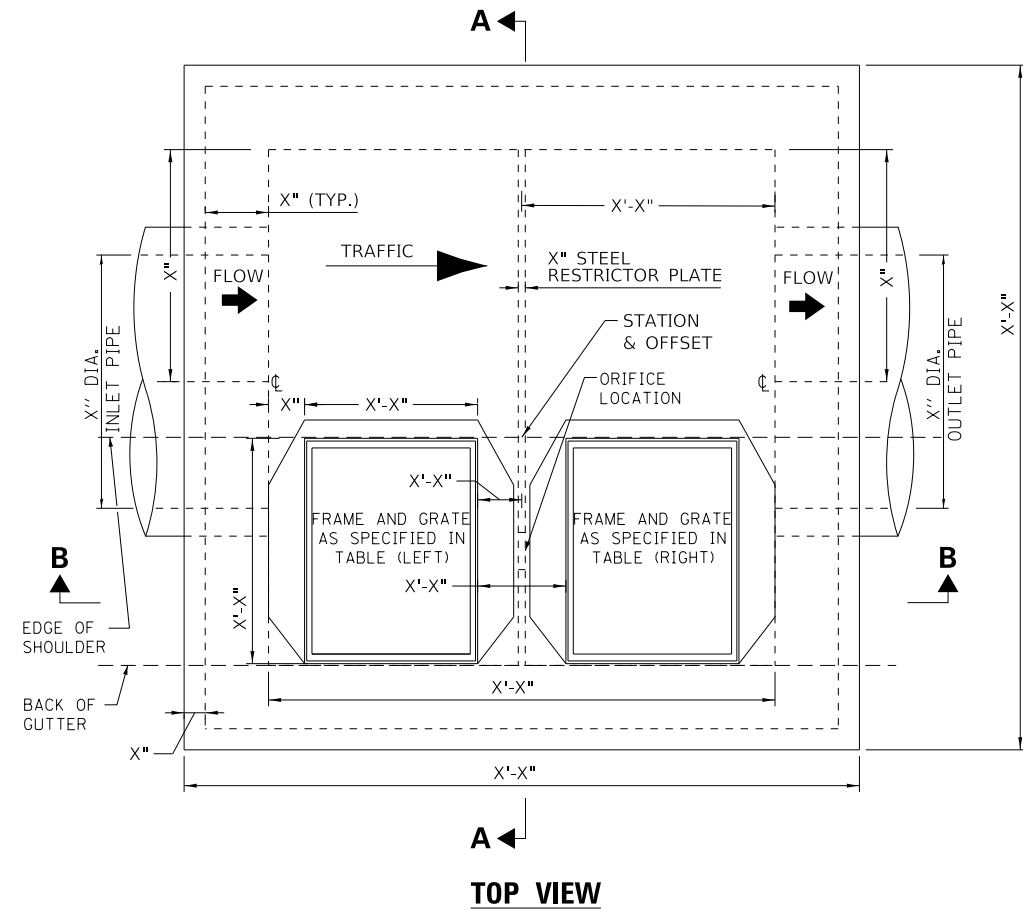
DATE
3-01-2019

NOTE TO DESIGNER

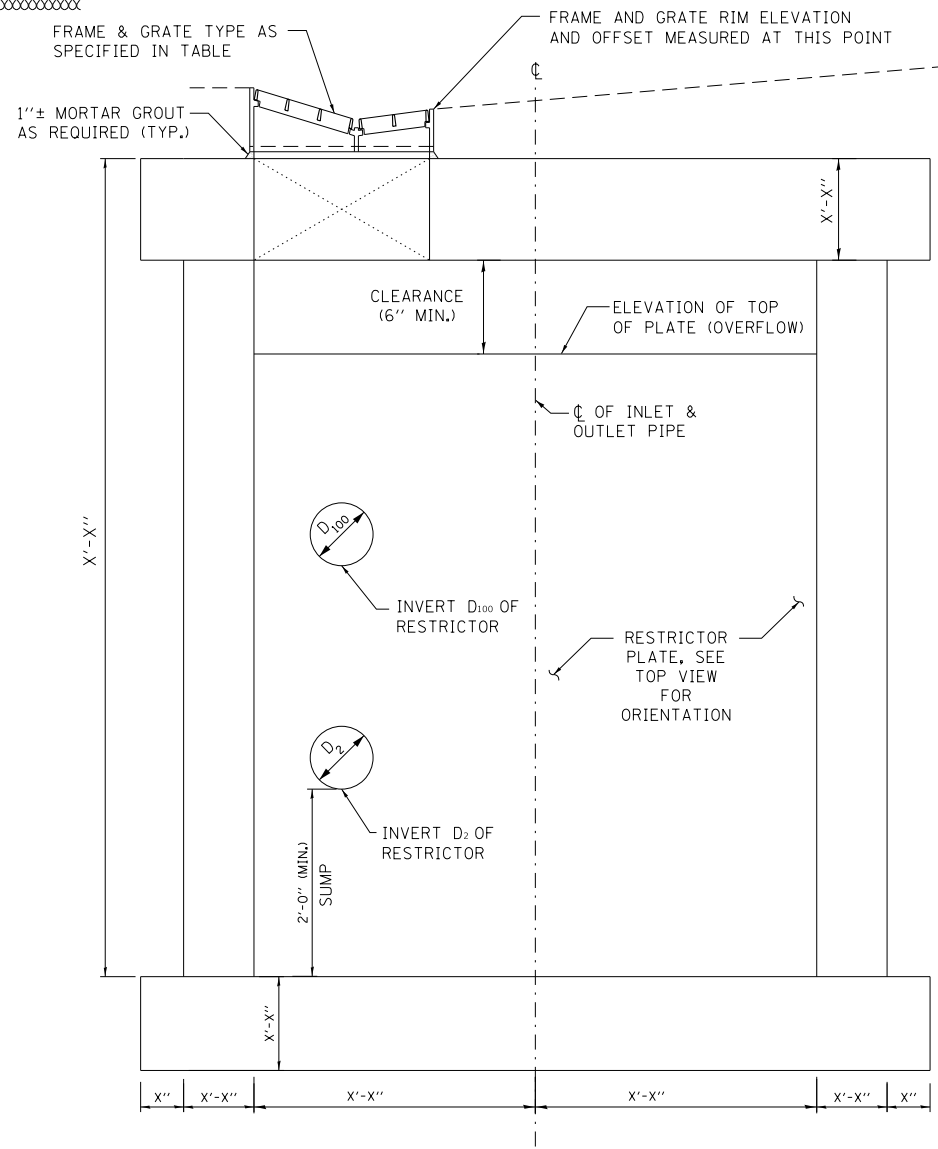
THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

NOTES TO DESIGNER

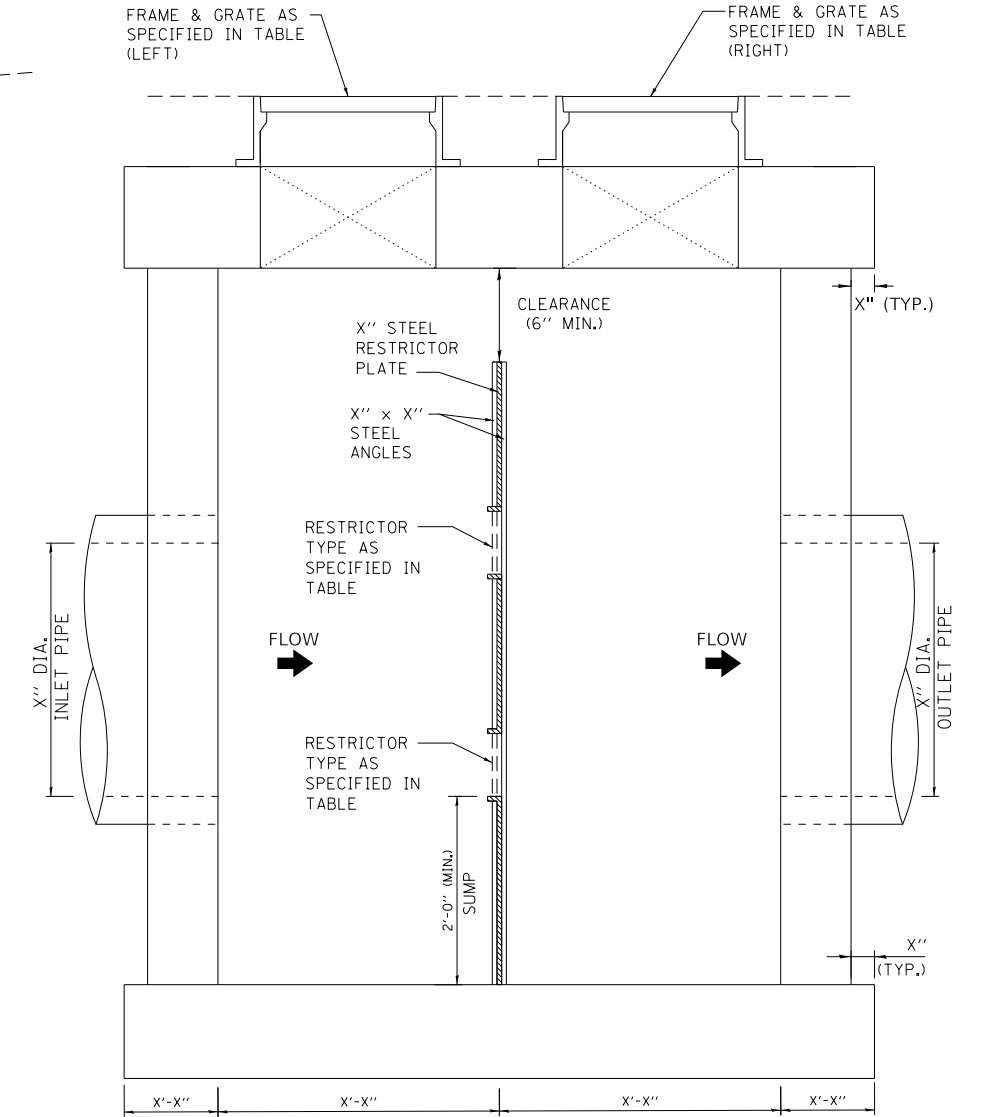
- DSE SHALL DESIGN STEEL ANGLE BOLTS AND FASTENERS FOR THE RESTRICTOR PLATES. DETAILS ARE TO BE PROVIDED ON THIS SHEET.
- DSE SHALL PROVIDE REINFORCEMENT DETAILS. DESIGN SHALL BE IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, LATEST EDITION, WITH IL-120 OR HL-93 LOADING REQUIREMENTS, WHICHEVER GOVERNS (REFER TO STRUCTURE DESIGN MANUAL).
- ALL DIMENSIONS DESIGNATED "X" ARE REQUIRED AND SHALL BE UPDATED BY THE DSE.



TOP VIEW



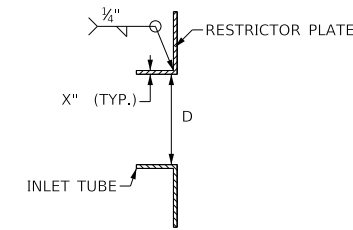
SECTION A-A



SECTION B-B

RESTRICTOR TYPE					
1	2	3	4	5	6
RE-ENTRANT TUBE	SHARP EDGES	SQUARE EDGED	RE-ENTRANT TUBE	SQUARE EDGED	ROUNDED
LENGTH 1/2 TO 1 DIA.		STREAM CLEARS SIDES	LENGTH: 2-1/2 DIA.	LENGTH: 2-1/2 DIA.	
C=.52	C=.61	C=.61	C=.73	C=.82	C=.98

RESTRICTOR TYPES
VALUES OF "C" FOR CIRCULAR AND SQUARE ORIFICES



INLET TUBE DETAIL

STRUCTURE NUMBER	*STATION	*OFFSET (FT)	OFFSET LT/RT	STRUCTURE TYPE	FRAME AND GRATE	F&G RIM ELEV		INV D ₁₀₀	D ₁₀₀ (IN)	INV D ₂	D ₂ (IN)	INLET PIPE DIAMETER (IN)	OUTLET PIPE DIAMETER (IN)	TOP OF RESTRICTOR PLATE ELEV	RESTRICTOR TYPE	CLEARANCE (FT)
						LT	RT									

*SEE TOP VIEW FOR STRUCTURE STATION AND OFFSET

M-DRN-604



CATCH BASIN TYPE G (SPECIAL) WITH RESTRICTOR

DATE
3-01-2021