ARTICLE 5
NOTES FOR STORM SEWER CONSTRUCTION

1. All construction and materials shall conform where applicable to the current Virginia Department of Transportation Road and Bridge Specifications.

2. All concrete shall be Class A3 if cast in place, Class A4 if precast.

3. Manholes and drop inlets shall be constructed from invert to top as follows:

   A. Manholes to eight feet deep.

      (1) Block construction – minimum eight inch walls.
      (2) Poured in place concrete – minimum eight inch walls and nonreinforced.
      (3) Precast – minimum eight inch walls in conjunction with precast throat and precast base slab.
      (4) Precast.

   B. Manholes over eight feet deep.

      (1) Precast.
      (2) Poured in place reinforced concrete.
      (3) Special design, i.e., bends, precast tees, precast boxes, wyes.

4. Drop inlets and curb inlets shall have steps. The maximum dimension from finish grade to the first step in the inlet shall not exceed three feet.

5. Unless stated on the approved plans, symmetrical channels shall be performed in the invert of all structures according to VDOT standards IS-1 to prevent standing or ponding of water.

6. If block construction is used, the inside and outside walls, as they are laid, shall be plastered with mortar a minimum of ½" thick.

7. All precast drop inlets, curb inlets and manholes shall conform to ASTM C-478.

8. VDOT inlets where pipe size is larger than 48 inches I.D. require a special design. In case of special design inlets that deviate from the standard, the precast manufacturer or design engineer must submit five copies of detail drawings to the Town of Leesburg for proper approval.

9. The opening in precast storm sewer structures for all size pipe shall be a minimum of four inches and a maximum of six inches larger than the outside diameter of the pipe.

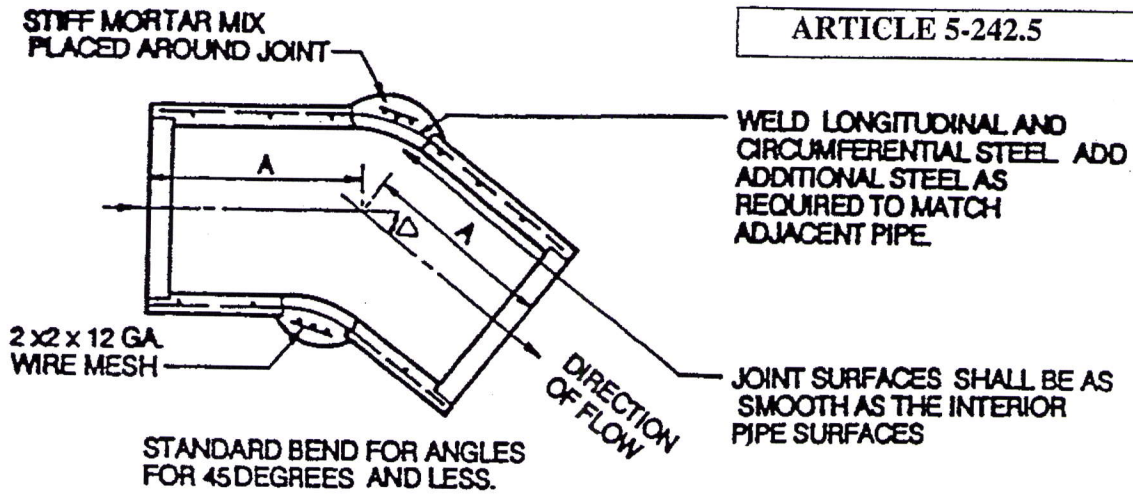
10. The "H" dimensions shown on the standards and specified on the plans will be measured from the invert of the outfall pipe to the top of the structure.

11. Two (2) inch weep holes shall be provided in endwalls where directed by the inspector.

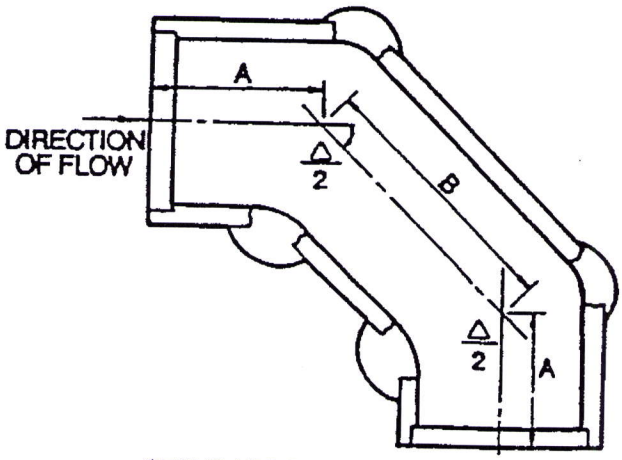
12. The contractor must notify the design engineer as to which will be precast so that the proper stakeout procedures can be followed.

REVISIONS				GENERAL NOTES	DRAWING GN-1 PAGE 65
NO.	DATE				

ARTICLE 5-242.5



STANDARD BEND FOR ANGLES FOR 45 DEGREES AND LESS.



STANDARD BEND FOR ANGLES BETWEEN 45 TO 90

PIPE SIZE	ANGLES 0°-45° A MIN	ANGLES 45°-90° B MIN
15"	1'-6"	-
18"	1'-6"	-
21"	2'-0"	-
24"	2'-0"	-
27"	2'-0"	-
30"	2'-0"	-
33"	2'-3"	2'-9"
36"	2'-3"	2'-9"
42"	2'-3"	3'-0"
48"	2'-6"	3'-3"
54"	2'-6"	3'-6"
60"	2'-9"	3'-6"

1. FOR PIPE SIZES 15" TO 30" IN DIA., BENDS NO GREATER THAN 30 DEGREES WILL BE ALLOWED UNLESS THERE ARE ACCESS OPENINGS WITHIN 50 FEET OF THE BEND.
2. FOR PIPE SIZES 33" TO 42" IN DIA., BENDS GREATER THAN 30 DEGREES BUT LESS THAN 90 DEGREES WILL BE ALLOWED PROVIDED THERE IS AN ACCESS OPENING WITHIN 50 FEET. BENDS UP TO 30 DEGREES HAVE NO RESTRICTION DISTANCE TO ACCESS OPENINGS.
3. THE USE OF THESE BENDS IS NOT ALLOWED WITHIN PUBLIC RIGHT-OF-WAYS.

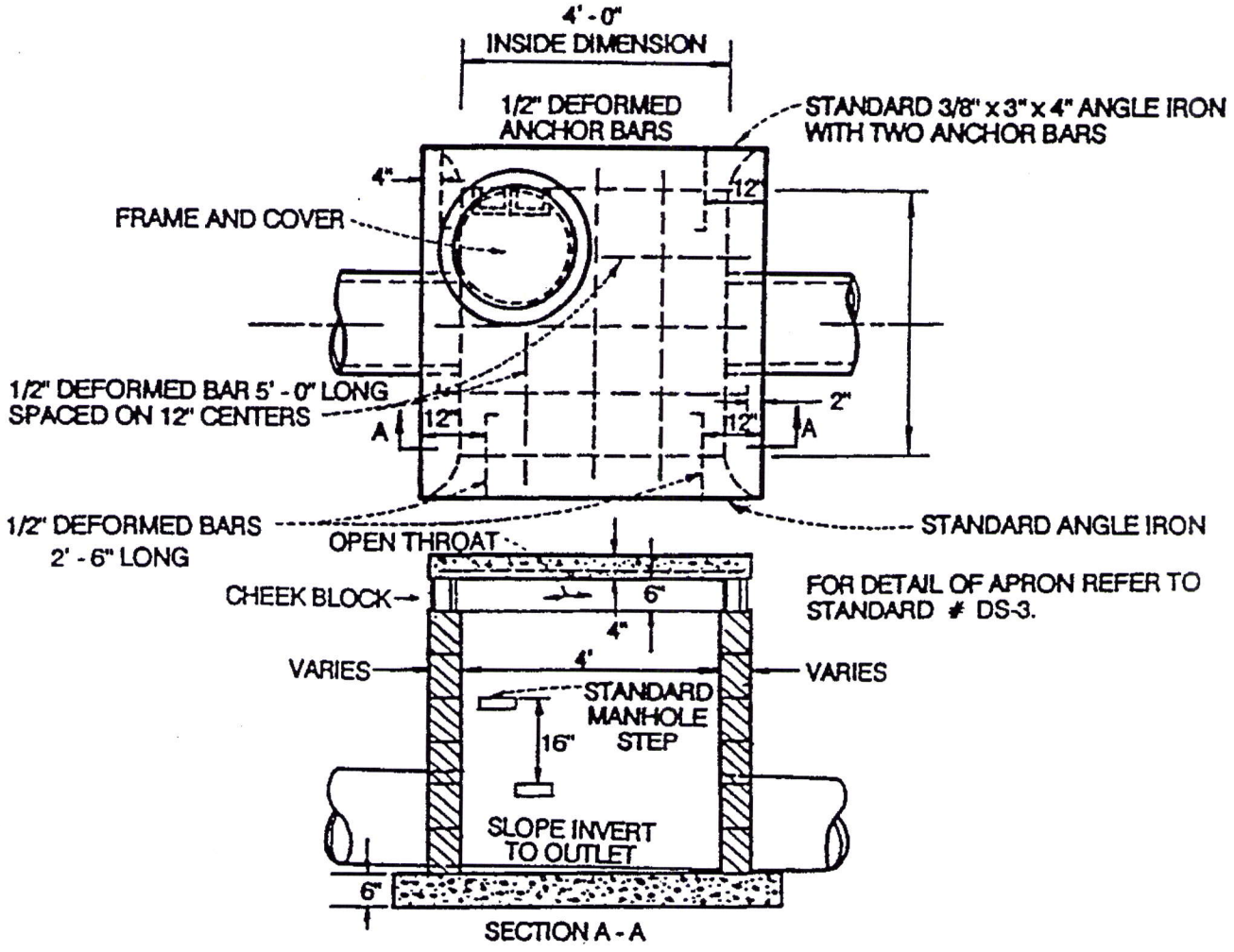
NOT TO SCALE

REVISIONS			
NO.	DATE		

REINFORCED CONCRETE PREFABRICATED BENDS

DRAWING
DS-1
PAGE
66

ARTICLE 5-245.1



A. YARD INLETS DEEPER THAN 4 FEET SHALL HAVE STEPS AS SHOWN.
B. DIMENSIONS OF YARD INLET SHOWN IS FOR PIPE SIZES UP TO AND INCLUDING 33 INCHES DIA. PIPE, WHILE PROVIDING A MINIMUM OF 6 INCHES OF CLEARANCE FROM THE INSIDE WALL OF THE STRUCTURE.
C. INLETS FOR SIZES LARGER THAN 36 INCHES (DIA.) WILL REQUIRE A SPECIAL DESIGN.
D. SYMMETRICAL CHANNELS SHALL BE FORMED IN THE INVERT OF THE BOX FROM THE INLET PIPE TO THE OUTLET PIPE PER V.D.O.T. IS–1 STANDARD.
E. ANGLE IRON SHALL BE ASPHALT COATED.
F. THE INSIDE AND OUTSIDE WALLS, AS THEY ARE LAID, SHALL BE PLASTERED WITH MORTAR A MINIMUM OF ½" THICK WHEN THE INLET IS CONSTRUCTED OF BLOCK.
G. ALL YARD INLETS MUST HAVE APRONS AT ALL THROATS UNLESS APPROVED BY THE DIRECTOR.

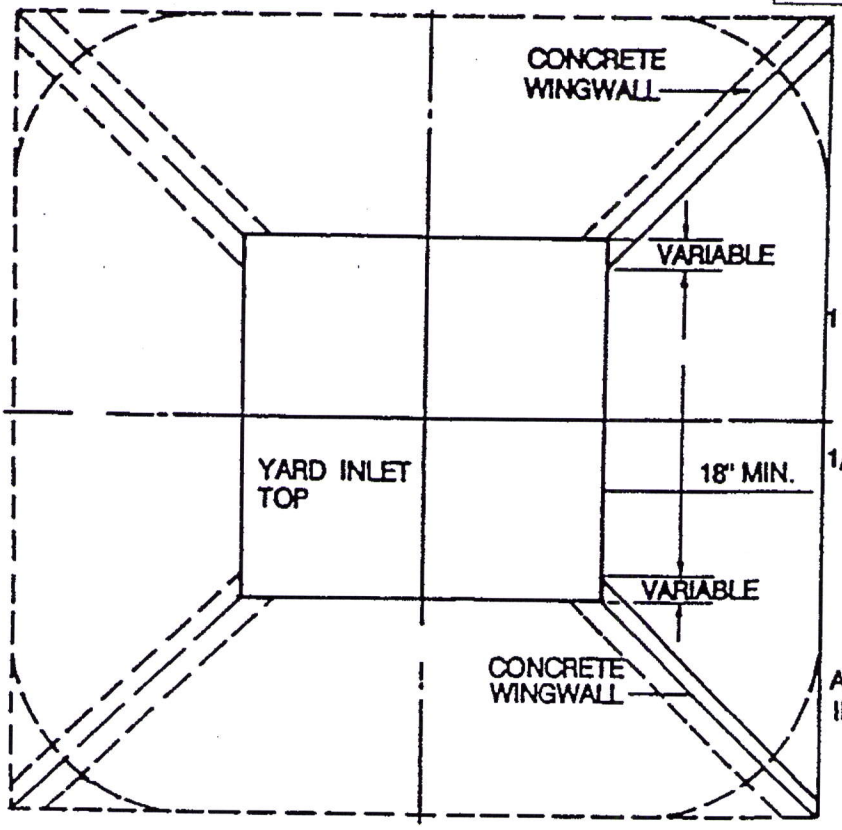
NOT TO SCALE

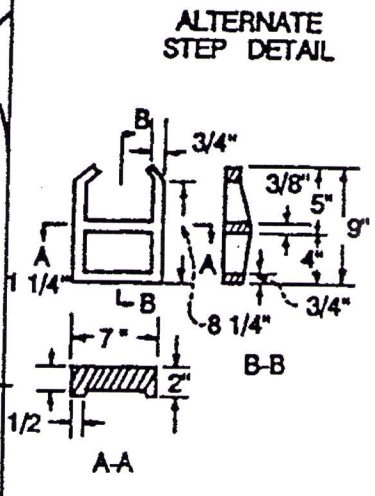
REVISIONS			
NO.	DATE		

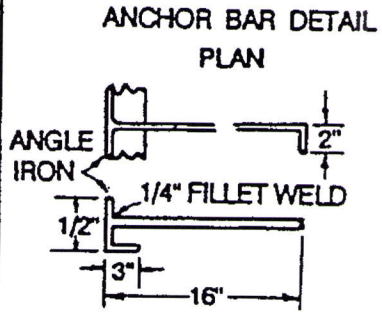
YARD INLET

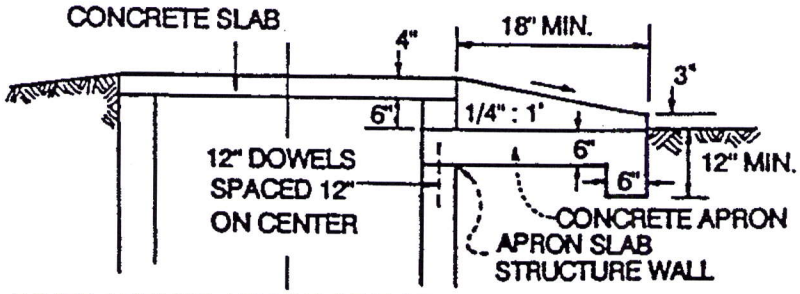
DRAWING
DS-2
PAGE
67

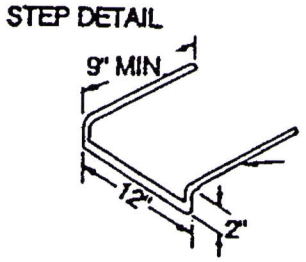
ARTICLE 5-245.1











A. WHEN APRONS ARE ON ADJACENT SIDES OF THE INLET, THE ADJOINING WINGWALLS SHALL BE OMITTED AND THE APRON SHALL HAVE A 1.5' RADIUS.
B. WHEN THE INLET IS LARGER THAN 5' X 5' OPPOSITE CONCRETE APRONS SHALL BE CONSTRUCTED ON THE CENTERLINE OF THE INLET; TWO ADJACENT APRONS SHALL BE BUILT ADJOINING THE COMMON CORNER; IF THERE ARE THREE OR OUR APRONS ON ONE INLET, THEN ALL SHALL BE BUILT ON CENTERLINE.
C. NO. 6 GALVANIZED STEEL BAR OR NO. 3 REINFORCING ROD COMPLETELY ENCASED IN CORROSION RESISTANT RUBBER, VINYL, OR EPOXY.
D. REINFORCING STELL SHALL BE 6" X 6" NO.6 WIRE MESH.

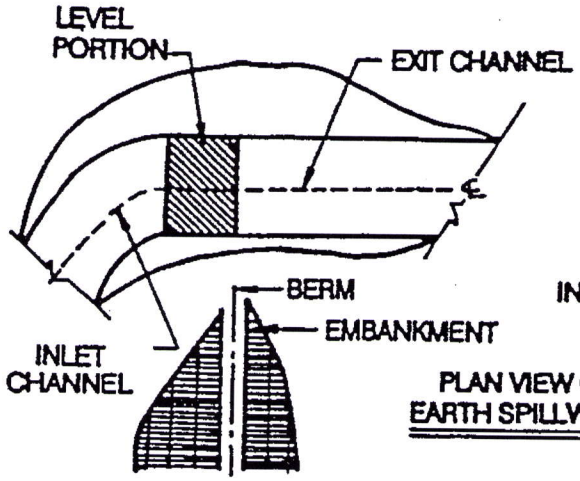
NOT TO SCALE

REVISIONS			
NO.	DATE		

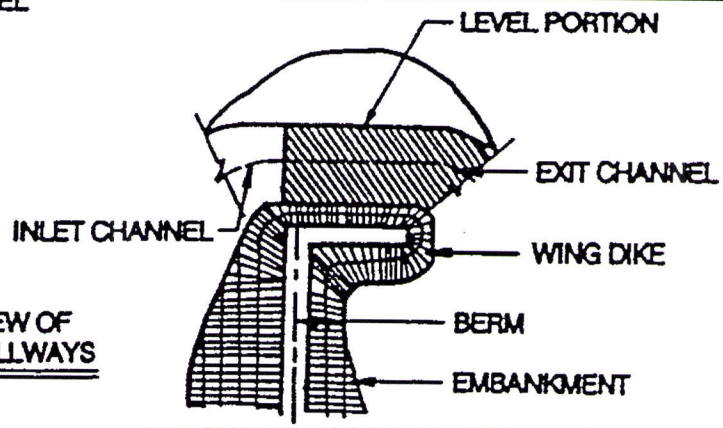
CONCRETE APRON FOR YARD INLETS

DRAWING
DS-3
PAGE
68

ARTICLE 5-324.9C(8)



PLAN VIEW OF EARTH SPILLWAYS

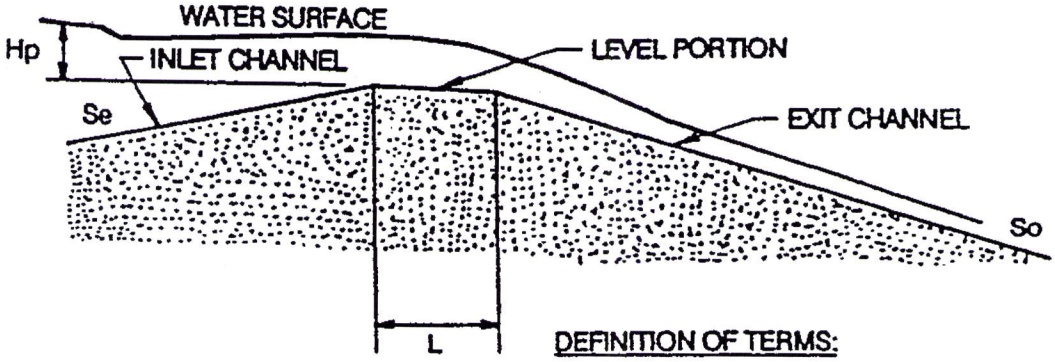


EXCAVATED EARTH SPILLWAY

NEITHER THE LOCATION NOR THE ALIGNMENT OF THE LEVEL PORTION NEEDS TO COINCIDE WITH THE CENTERLINE OF THE DAM EMBANKMENT.

OPTIONAL WITH SOD OR RIPRAP ON WING SIDE

CARE SHALL BE EXERCISED TO KEEP MACHINERY AND TRAFFIC OUT OF THE SPILLWAY DISCHARGE AREA TO PROTECT CHANNEL LINING.

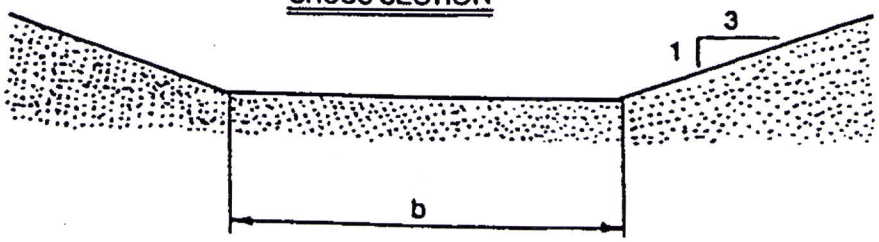


PROFILE ALONG CENTERLINE

DEFINITION OF TERMS:

Hp = DEPTH OF WATER IN POND ABOVE CREST
L = LENGTH OF LEVEL PORTION (25' MINIMUM)
b = BOTTOM WIDTH OF SPILLWAY
So = SLOPE FOR EXIT CHANNEL
Se = SLOPE OF INLET CHANNEL

CROSS SECTION



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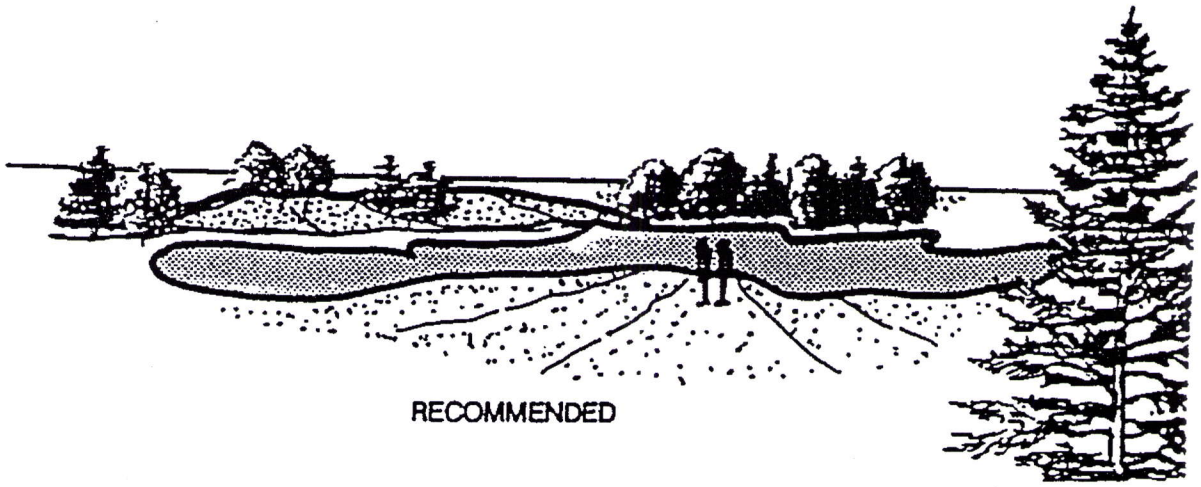
REVISIONS			
NO.	DATE		

EMBANKMENT AND SPILLWAYS

DRAWING
DS-4
PAGE
69

ARTICLE 5-325.4



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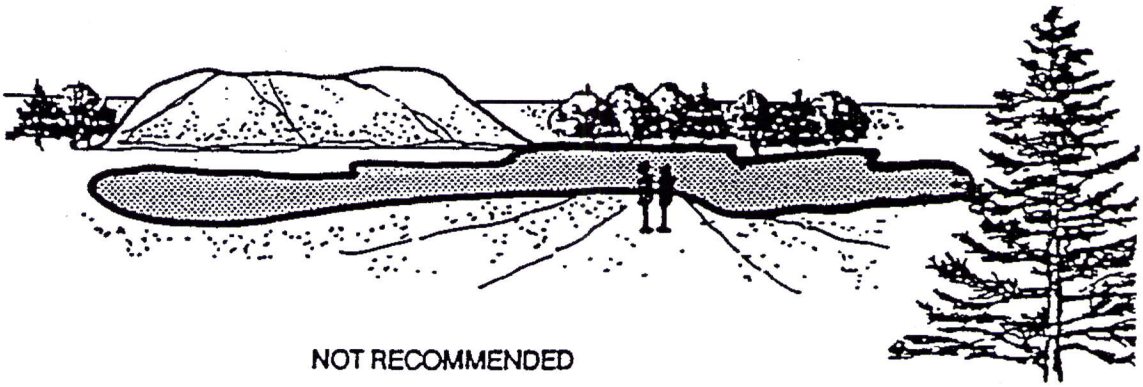

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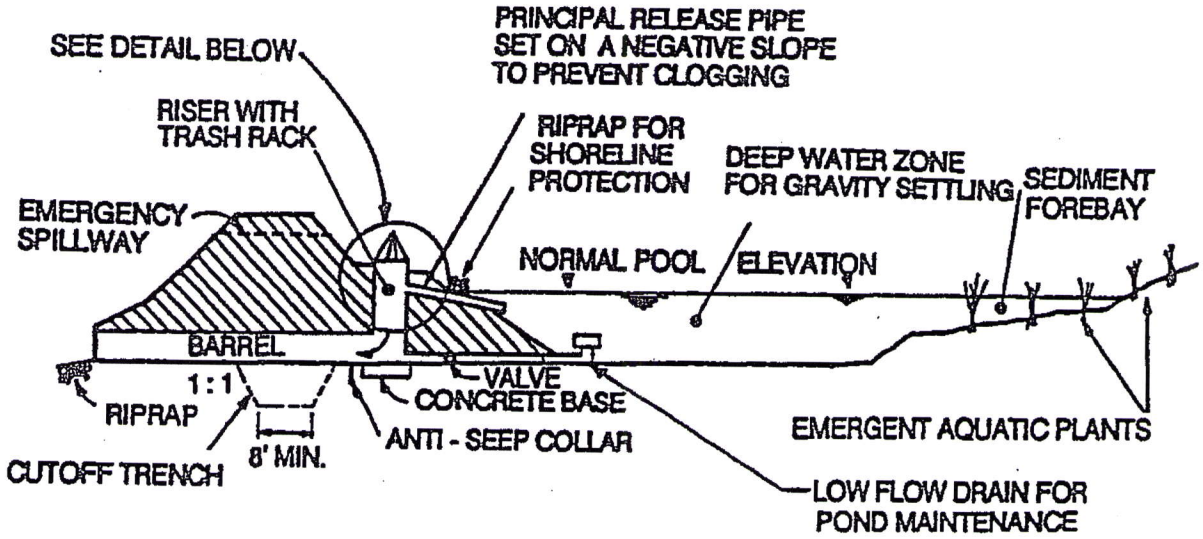
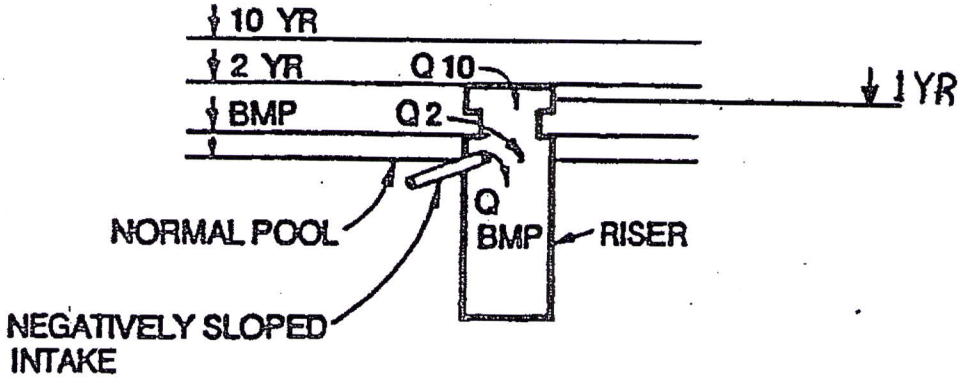
REVISIONS			
NO.	DATE		

EXCAVATED MATERIAL RESPREAD

DRAWING
DS-5
PAGE
70

ARTICLE 5-326.2A(2)





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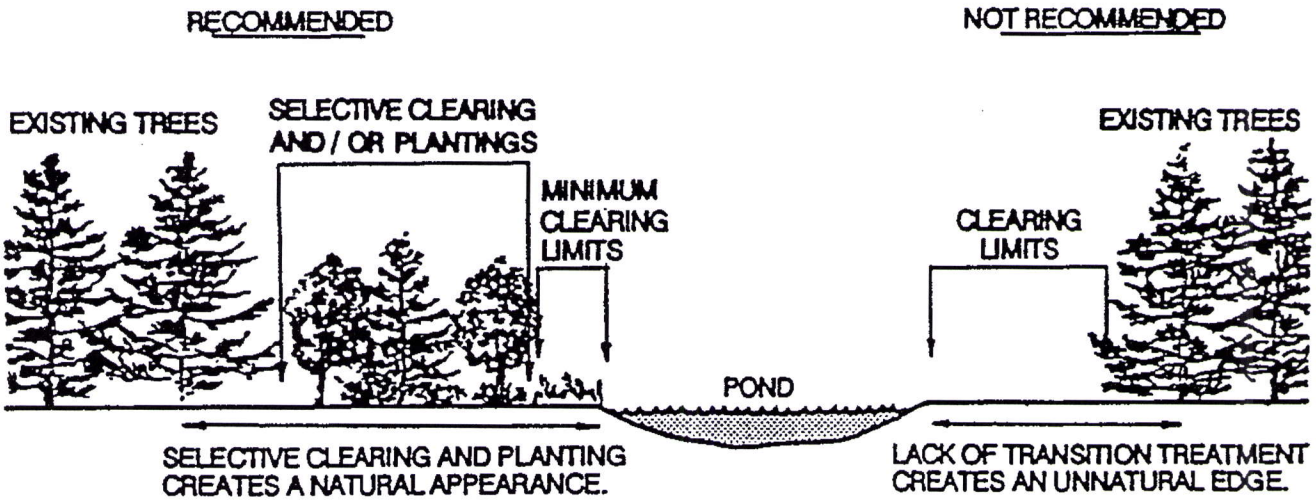
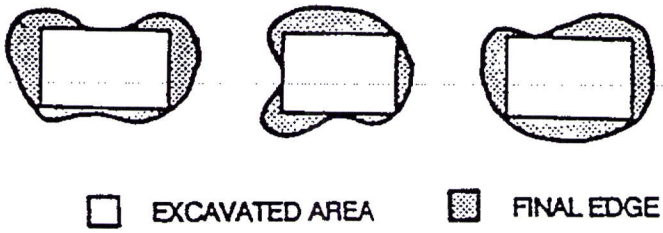
REVISIONS			
NO.	DATE		

TYPICAL WET POND

DRAWING
DS-6
PAGE
71

ARTICLE 5-327.2A

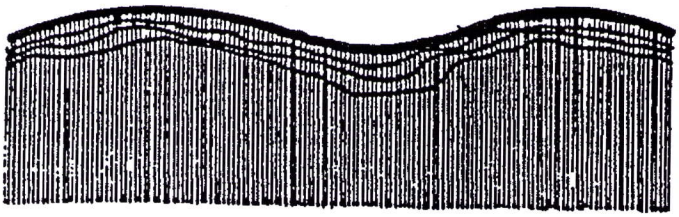




REVISIONS				WET POND EDGE TREATMENT	DRAWING DS-7 PAGE 72
NO.	DATE				

ARTICLE 5-327.2D

THE APPARENT SIZE OF A POND IS INFLUENCED BY ITS SURROUNDING VEGETATION.



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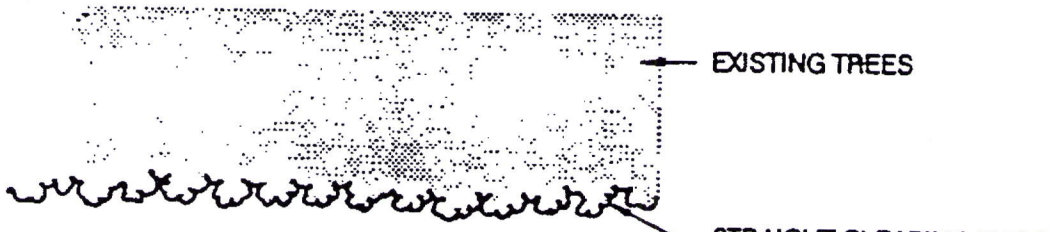

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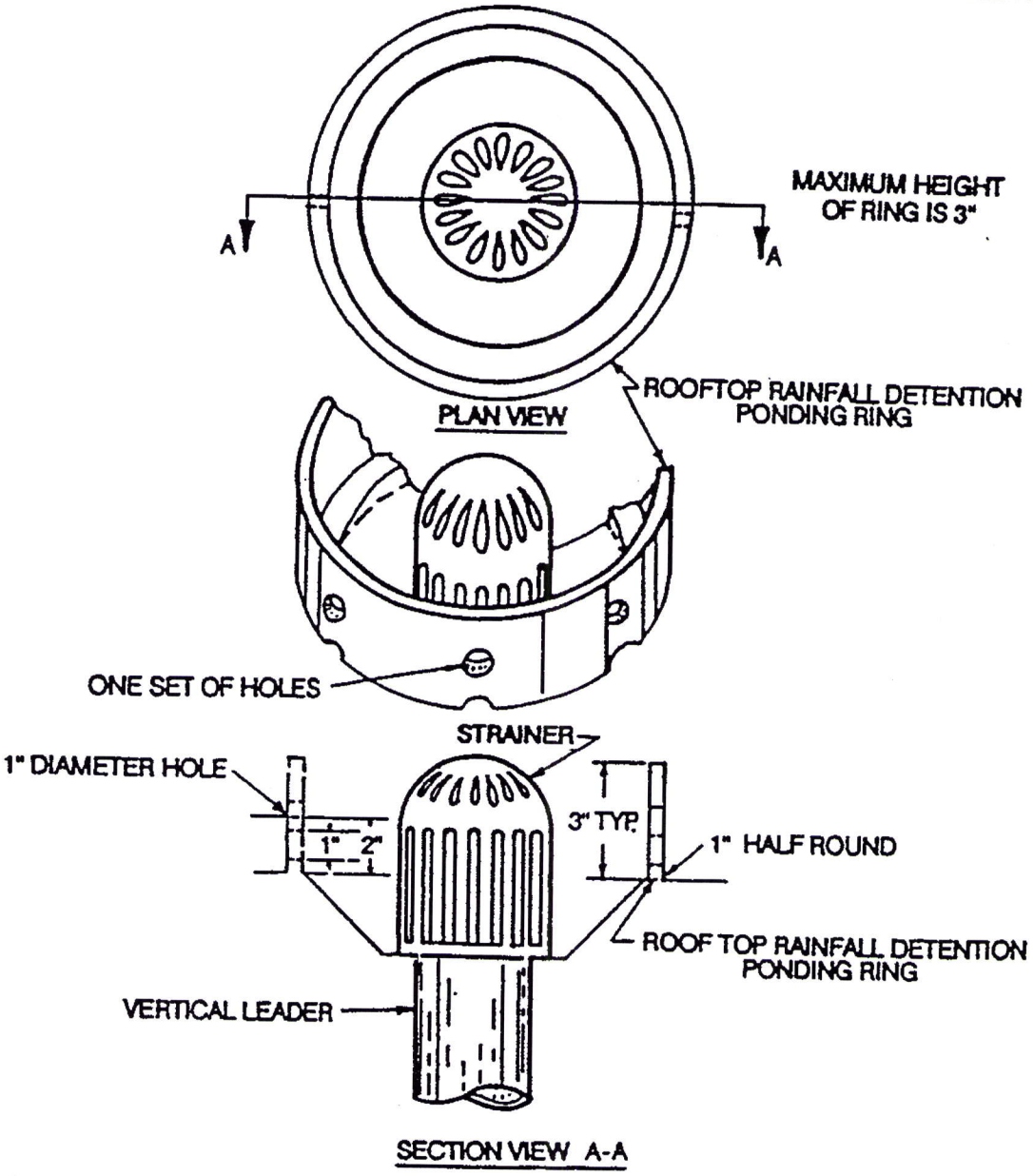
REVISIONS			
NO.	DATE		

EDGE TREATMENT OF PONDS

DRAWING
DS-8
PAGE
73

ARTICLE 5-327.2D



A. BRASS OR STAINLESS STEEL RING PLACED AROUND STANDARD ROOF DRAIN.
B. RING HEIGHT AND DIAMETER AND NUMBER AND SIZES OF HOLES ARE DETERMINED BY THE ROOF AREA DRAINED, THE NUMBER OF DRAINS, AND THE RAINFALL DESIGN CRITERIA.

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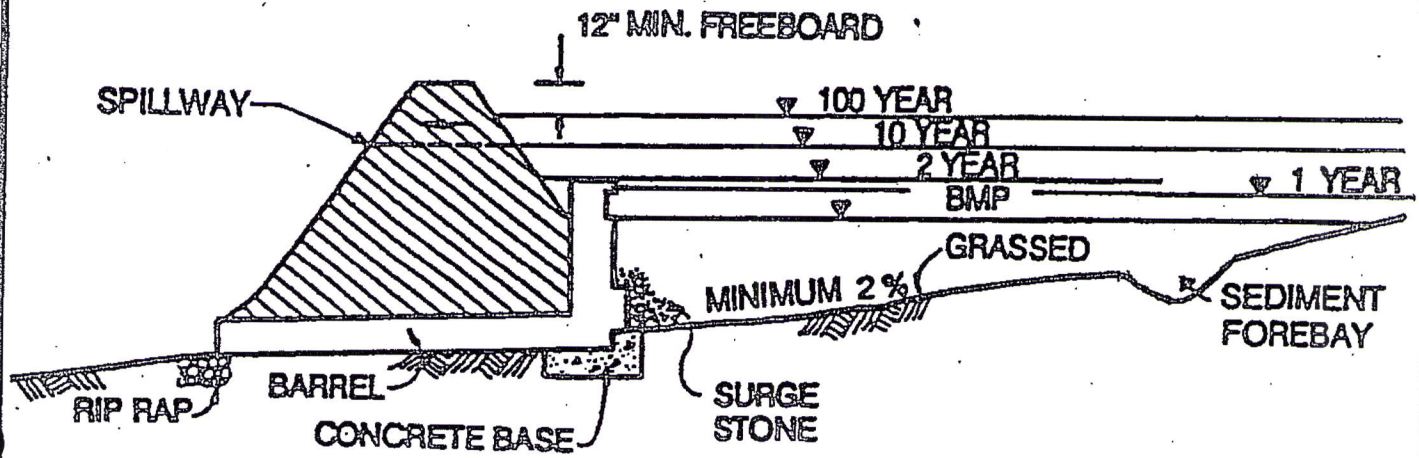
REVISIONS			
NO.	DATE		

ROOF TOP RAINFALL PONDING RING

DRAWING
DS-9
PAGE
74

ARTICLE 5-620.5



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REVISIONS			
NO.	DATE		

TYPICAL DRY POND

DRAWING
DS-10
PAGE
75