CONSTRUCTION JOINT DETAIL

KEYED CONSTRUCTION JOINT

ALTERNATE SHIP-LAP CONSTRUCTION JOINT

DETAIL D

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.
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SECTION A-A

W

TOP OF WEIR
SECONDARY
PRIMARY
CELL
CELL

EXISTING STREAMBED ELEV.
ELEVATION
FILL
WING WALL
NORMAL WATERSURFACE
ROADWAY CROSS SLOPE
ROADWAY PROFILE GRADE

TWIN CELL BOX CULVERTS WITH
STREAM GRADES ≤ 4%

• Baffle opening: stream top width
• Baffle spacing: stream top width or 2438 (8 ft), whichever is greater.

PROFILE TYPICAL BAFFLE

CAST IN PLACE
BAMER DETAIL (TYP.)

PRECAST BOX CULVERT
TYPICAL BAFFLE DETAIL

CAST-IN-PLACE BOX CULVERT
ALTERNATE BAFFLE DETAIL

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES
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ENGLISH VALUES SHOWN MAY NOT BE MIXED.
SECTION C-C

TWIN CELL BOX CULVERTS WITH STREAM GRADES > 4%

PLAN VIEW

- ALTERNATING 300 (1'-0") x 150 (6") H BAFFLES, HT = 1/2 DEPRESSION
- ALTERNATING 300 (1'-0") x 150 (6") H BAFFLES, HT = 1/3 DEPRESSION

ELEVATION

ROADWAY CROSS SLOPE

EXISTING STREAMBED ELEV.

NORMAL WATERSURFACE

FILL

ROADWAY PROFILE GRADE

DEPRESS

WING WALL

DEPRESS

WING WALL

MIN. 300 (1'-0") BELOW NATURAL STREAM BED ELEVATION

MIN. 300 (1'-0") MIN.

MIN. 300 (1'-0") MIN.

300 (1'-0") x 200 (8") H BAFFLES

300 (1'-0") x 150 (6") H x 1/3 W

ALTERNATING BAFFLES HT. = DEPRESSION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

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SECTION B-B

BOX CULVERTS WITH STREAM GRADES > 4%

ELEVATION

ROADWAY CROSS SLOPE

EXISTING STREAMBED ELEV.

NORMAL WATERSURFACE

ROADWAY PROFILE GRADE

DEPRESS

WING WALL

DEPRESS

WING WALL

MIN. 300 (1'-0") BELOW NATURAL STREAM BED ELEVATION

MIN. 300 (1'-0") MIN.

MIN. 300 (1'-0") MIN.

300 (1'-0") x 300 (1'-0") H

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

STANDARD
R.C. BOX CULVERT
MISCELLANEOUS DETAILS
STREAM GRADES > 4%

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.
DO NOT PLACE R.C. BOX CULVERTS < 6" APART.

NOTES:

- DO NOT PLACE R.C. BOX CULVERTS < 6" APART.

STANDARD BODY DESIGN

CHIEF ENG., HWY. ADMIN.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

SECONDARY CELL
WEIR

PLAN VIEW

CAST-IN-PLACE BOX CULVERT
ALTERNATE WEIR DETAIL

ALL STREAM GRADES

PLAN VIEW

300 11'-0" x 200 16'-0" MAX. SADDLES Δ

NOTE: THREADED INSERTS MAY BE USED IN PLACE OF BAR LAPS FOR #16 (#5) REINFORCEMENT.

SECTION C-C

TYP. PRECAST SECTION (NORMAL)

UNSYMMETRICAL - OPTION TO WEIR

BAFFLE OPENING = STREAM TOP WIDTH/3

PROFILE - TYPICAL WEIR

CAST-IN-PLACE BOX CULVERT

PRECAST BOX CULVERT

TYPICAL WEIR DETAIL

CAST-IN-PLACE BOX CULVERT

ALTERNATE WEIR DETAIL

A

A

B

C

B

C

FLOW

FLOW

300 11'-0" x 200 16'-0" MAX. SADDLES Δ

FLOW

300 11'-0" x 200 16'-0" MAX. SADDLES Δ

1 ROW #16 @ 150 (#5 @ 6")

AS REQ'D.

TYP.

(TYP.)

AS REQ'D.

(1'-0"

(1'-0"

100 (4")

150 (6")

90° HOOKS

#16 (#5)

2-#16 (#5)

3-#16 (#5)

300 (1'-0") x 200 (8")H BAFFLES

300 (1'-0") x 200 (8")H BAFFLES

300 (1'-0") MIN. BEDDING

300 (1'-0") MIN. BEDDING

BONDED 12 (1"

INSERT (TYP.)

12 (1"

INSERT (TYP.)

TYP. PRECAST SECTION (NORMAL)

SYMMETRICAL

SYMMETRICAL

NOTE: THERE MAY BE UNUSUAL CIRCUMSTANCES IN WHICH THE STANDARD LAYOUT FOR BAFFLES WILL NOT ADEQUATELY ACCOMMODATE FISH PASSAGE. IN THESE CASES, THE PENNSYLVANIA FISH AND BOAT COMMISSION MUST PROVIDE SPECIFIC DESIGN GUIDANCE DURING PRELIMINARY DESIGN.

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

R.C. BOX CULVERT
MISCELLANEOUS TWIN CELL DETAILS

JUL. 24, 2006

CHIEF BRIDGE ENGINEER

SEE NOTE 20 SHEET 4

SEE NOTE 20 SHEET 4