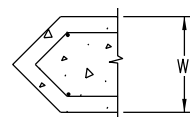


EXCAVATION & BACKFILL WILL BE MEASURED AND PAID FOR TO THIS LINE IN ACCORDANCE WITH SECTION 206.

■ GROUT OR FOAM SEALANT SHALL BE USED WHEN SPECIFIED ON THE PLANS.

**EXCAVATION & BACKFILL**

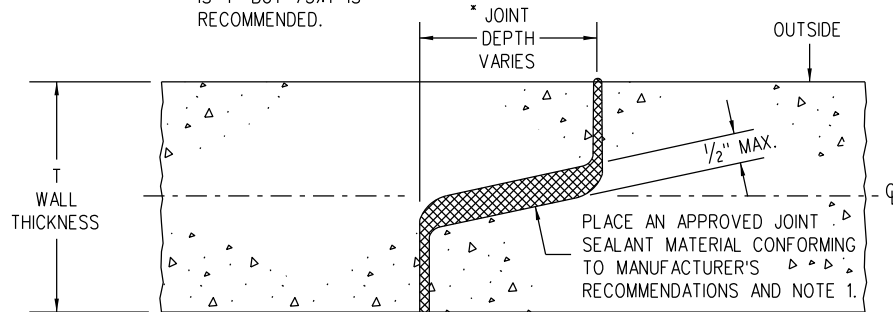
(DOUBLE PARALLEL PRECAST BOX CULVERT INSTALLATION SHOWN)



**NOSE ANGLE DETAIL**

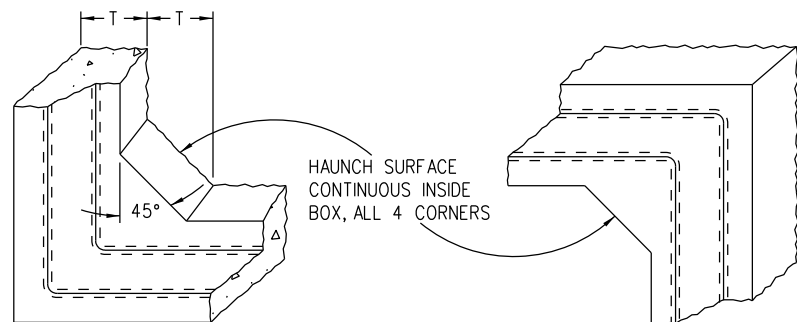
SEE STANDARD PLANS M-601-2, AND 3 TYPICAL AT ADJACENT BOXES DRILL AND GROUT REINFORCING BARS (TYP.)

\* MINIMUM JOINT DEPTH IS 4" BUT 75% IS RECOMMENDED.

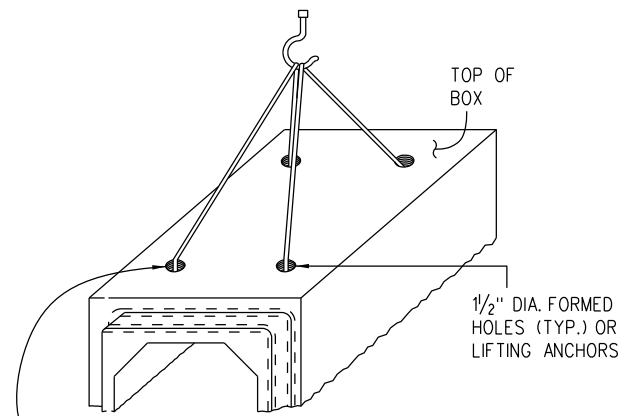


**TYPICAL JOINT**

INSIDE

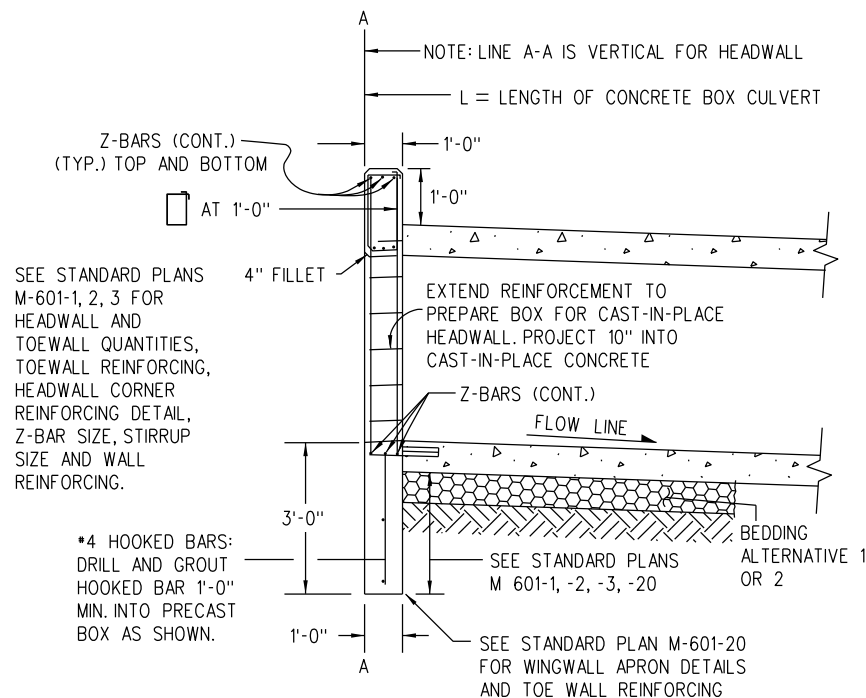


**CORNERS**



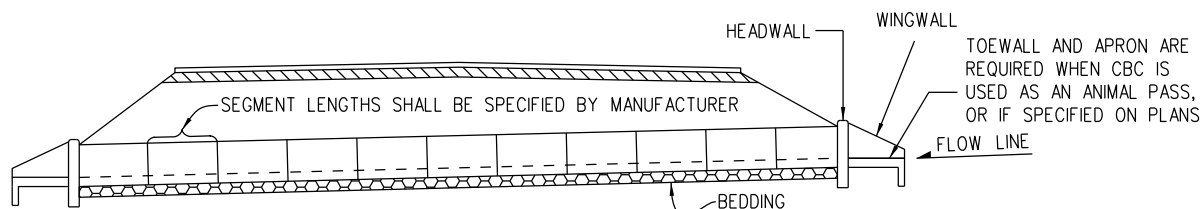
LIFTING HOLES (LOCATED BY MFR.) SHALL BE FILLED WITH GROUT BEFORE BACKFILLING IS STARTED. (2 HOLES PLACED DIAGONALLY MAY SUFFICE FOR SMALLER BOX SIZES). LIFTING ANCHOR RECESSES SHALL NOT BE FILLED.

**LIFTING**



**CULVERT END**

(WITH HEADWALL)



**TYPICAL CULVERT INSTALLATION**

**GENERAL NOTES**

1. ALL PRECAST CONCRETE BOX CULVERTS SHALL CONFORM TO THE LRFD DESIGN REQUIREMENTS OF ASTM C 1577, AND THE FOLLOWING SPECIFICATIONS:

ITEM OR CONDITION	AASHTO	EQUIV. ASTM	CDOT SPECIFICATION
PREFORMED JOINT MATERIAL	M 198, 6.1 OR 6.2	C 990, 6.1 OR 6.2	705.01

ELECTRONICALLY SEALED DESIGN CALCULATIONS, INDEPENDENT CHECK, AND RATING FOR A PRECAST CONCRETE BOX WITH SPANS NOT INCLUDED IN C 1577 SHALL BE PROVIDED BY THE MANUFACTURER IN ACCORDANCE WITH THE CURRENT CDOT BRIDGE DESIGN AND RATING MANUALS.

2. THE CONTRACTOR SHALL SUBMIT ELECTRONICALLY SEALED SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.

3. BEDDING ALTERNATIVE 1 OR 2 IS REQUIRED:

BEDDING ALTERNATIVE IS AT THE CONTRACTOR'S OPTION. BEDDING AND EXCAVATION FOR BEDDING WILL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.

BEDDING ALTERNATIVE 1 CONSISTS OF 6 IN. OF AGGREGATE BASE COURSE (CLASS 6) COMPACTED TO NOT LESS THAN 95% MAXIMUM DENSITY DETERMINED IN CONFORMANCE WITH AASHTO T 180.

BEDDING ALTERNATIVE 2 CONSISTS OF AN 3 IN. THICK, MINIMUM, LEAN CONCRETE BASE. CEMENT CONTENT = 250 LBS./CU. YD.

**AGGREGATE GRADATION FOR ALTERNATIVE 2 BEDDING:**

PASSING 2 IN. SIEVE	—	100%
PASSING NO. 4 SIEVE	—	20% TO 70%
PASSING NO. 200 SIEVE	—	5% TO 15%

4. CBC JOINTS USING RUBBER GASKETS SHALL MEET ASTM C1677.

5. CLASS 1 DRAINAGE GEOTEXTILE SHALL BE COMPLETELY WRAPPED AROUND ALL CBC JOINTS WHICH DO NOT HAVE RUBBER GASKETS. THE GEOTEXTILE SHALL EXTEND A MINIMUM OF 1 FT. ON EACH SIDE OF JOINTS AND SHALL OVERLAP AND BE SECURELY ATTACHED FOR AT LEAST 1 FT. AT ITS ENDS. THE WRAP SHALL BE A SMOOTH FIT (NOT LOOSE OR STRETCHED) JUST PRIOR TO BACKFILL. THE GEOTEXTILE MATERIAL SHALL MEET THE APPLICABLE REQUIREMENTS OF SECTION 420. COST FOR GEOTEXTILE WILL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.

6. FOR ANY CULVERT SPAN OR COMBINATION OF SPANS FOR MULTIPLE BOXES 20 FEET OR GREATER, A FOUNDATION INVESTIGATION AND REPORT ARE REQUIRED.

7. FOR FILL HEIGHTS LESS THAN 2 FEET, A WATERPROOFING MEMBRANE OR 30 MIL THICK GEOMEMBRANE SHALL BE PROVIDED FOR THE TOP OF THE TOP SLAB AND 18 INCHES DOWN ALONG THE TOPS OF THE EXTERIOR WALLS.

8. SEE M-601-1, 2, AND 3 FOR CAST-IN-PLACE CONCRETE BOX CULVERT DETAILS.

**LEGEND**

	STRUCTURE		EARTH
	EXCAVATION LIMITS		BEDDING
	STRUCTURE BACKFILL, (CLASS 1)		CONCRETE MATERIAL
	EMBANKMENT MATERIAL		

**Computer File Information**

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**Sheet Revisions**

Date:	Comments
09/10/20	Added the Waterproofing Membrane in the "Excavation and Backfill" detail and revised General Note 7. Added ASTM C 1577 design requirements in General Note 1, and revised the table. Added Electronically Sealed requirements in notes 1 and 2. Revised note 6.

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**PRECAST CONCRETE  
BOX CULVERT**

Issued by the Project Development Branch: July 31, 2019

**STANDARD PLAN NO.**

**M-603-3**

**Standard Sheet No. 1 of 1**

Project Sheet Number: