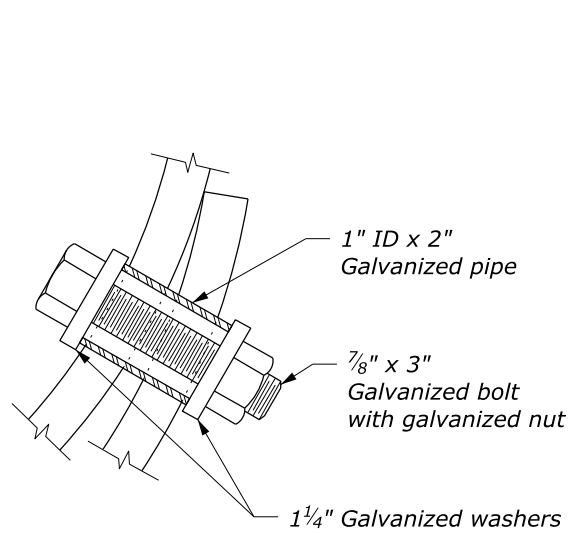


**SPILLWAY ASSEMBLY WITH DOWN DRAIN
OUTLET ON NON-ERODIBLE MATERIAL**

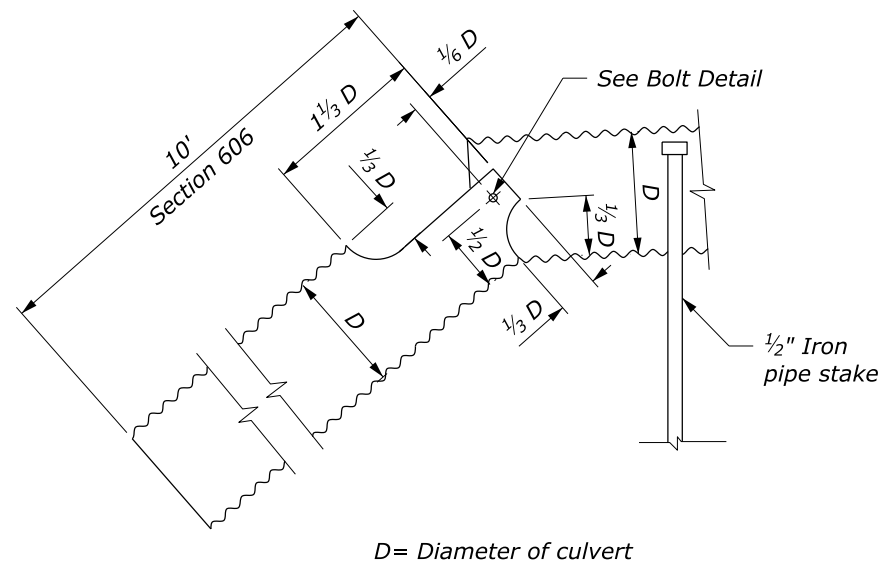
**SPILLWAY ASSEMBLY WITH DOWN DRAIN
OUTLET ON ERODIBLE MATERIAL**

NOTE:

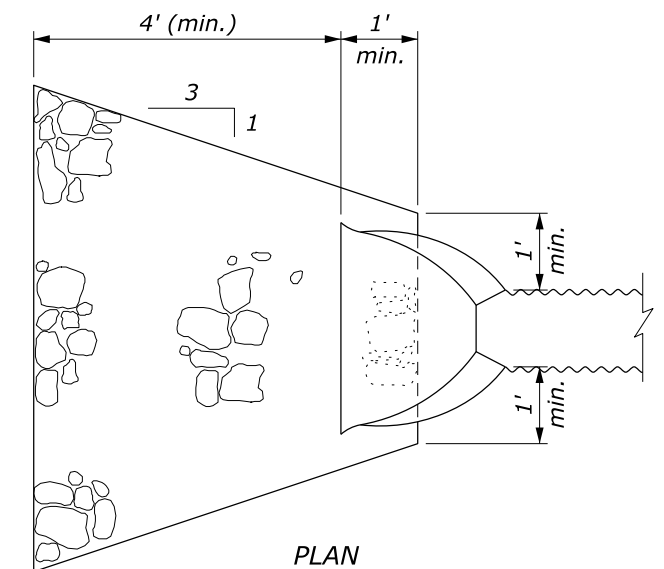
1. Fabricate spillway assembly from annular corrugated pipe, or from helically corrugated pipe with factory annular or reformed ends. Use 0.064-inch galvanized steel or 0.060-inch aluminum.
2. Make all banded connections water tight by placing $\frac{3}{16}$ -inch bead of approved caulking under each half of the band before tightening.
3. Payment for tee branch connection under Section 602 is included in the linear measurement for culvert pipe for the applicable sizes. Measure Tee Branch connections along the top of the Tee.
4. Place Class 2 riprap conforming to Section 251 for protective apron.
5. Approved alternate designs may be used.
6. See Detail W606-14 for Pipe Anchor Assembly Detail.



BOLT DETAIL



SPILLWAY ASSEMBLY



PROTECTIVE APRON

NO SCALE

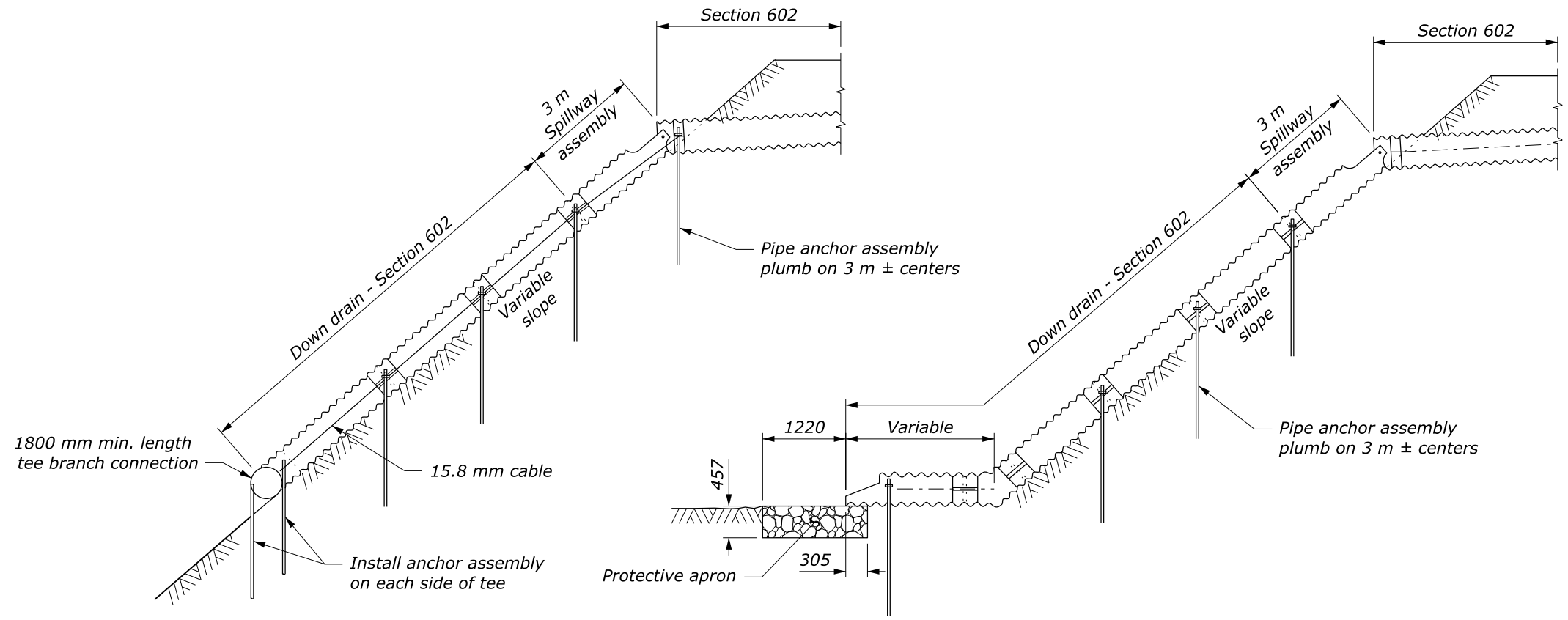
U.S. DEPARTMENT OF TRANSPORTATION, FHWA
OFFICE OF FEDERAL LANDS HIGHWAY

**SPILLWAY ASSEMBLY
WITH DOWN DRAIN**

WFLHD DETAIL
W606-10

SPECIFICATION
FP-24, FP-14

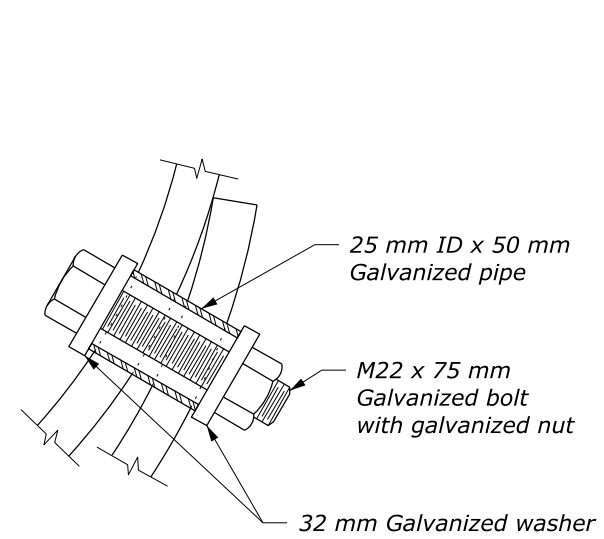
APPROVED FOR USE
4/2009



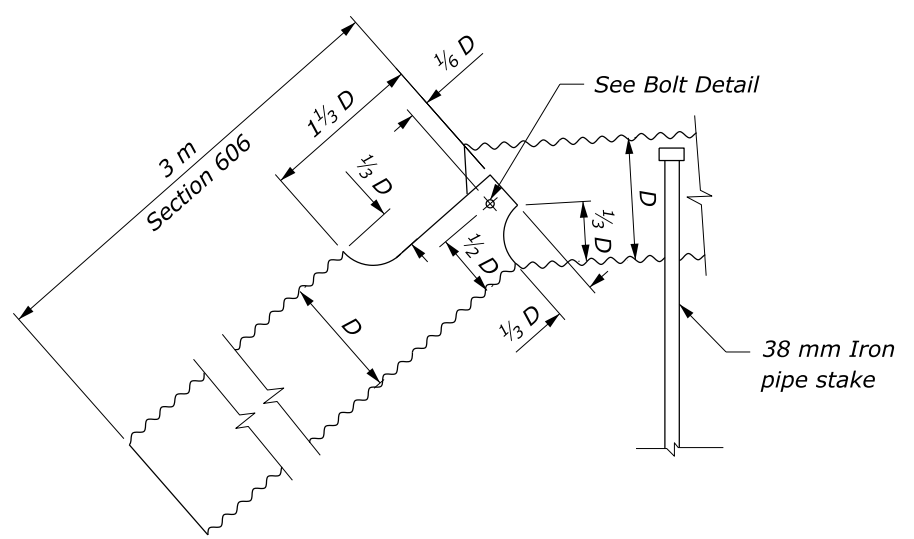
ELEVATION
**SPILLWAY ASSEMBLY WITH DOWN DRAIN
 OUTLET ON NON-ERODIBLE MATERIAL**

ELEVATION
**SPILLWAY ASSEMBLY WITH DOWN DRAIN
 OUTLET ON ERODIBLE MATERIAL**

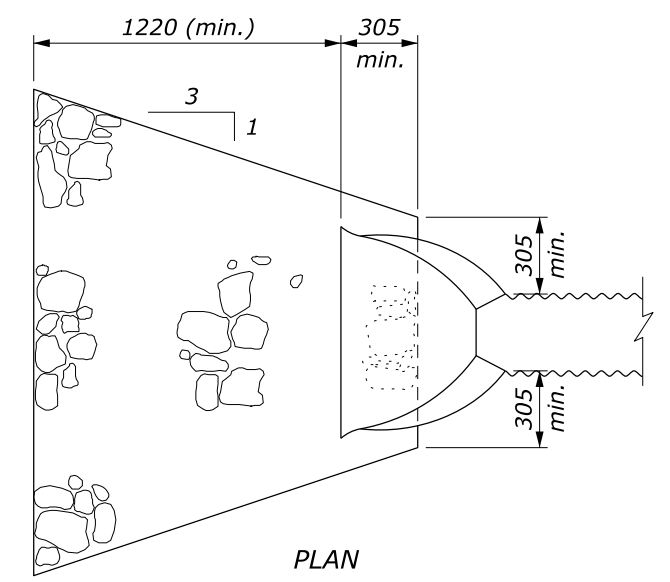
- NOTE:**
1. Fabricate spillway assembly from annular corrugated pipe, or from helically corrugated pipe with factory annular or reformed ends. Use 1.6 mm galvanized steel or 1.5 mm aluminum.
 2. Make all banded connections water tight by placing 5 mm bead of approved caulking under each half of the band before tightening.
 3. Payment for tee branch connection under Section 602 is included in the linear measurement for culvert pipe for the applicable sizes. Measure Tee Branch connections along the top of the Tee.
 4. Place Class 2 riprap conforming to Section 251 for protective apron.
 5. Approved alternate designs may be used.
 6. See Detail WM606-14 for Pipe Anchor Assembly Detail.
 7. Furnish hardware in the metric sizes shown. Equivalent US Customary sizes may be used when metric sizes are unavailable.



BOLT DETAIL



D = Diameter of culvert
SPILLWAY ASSEMBLY

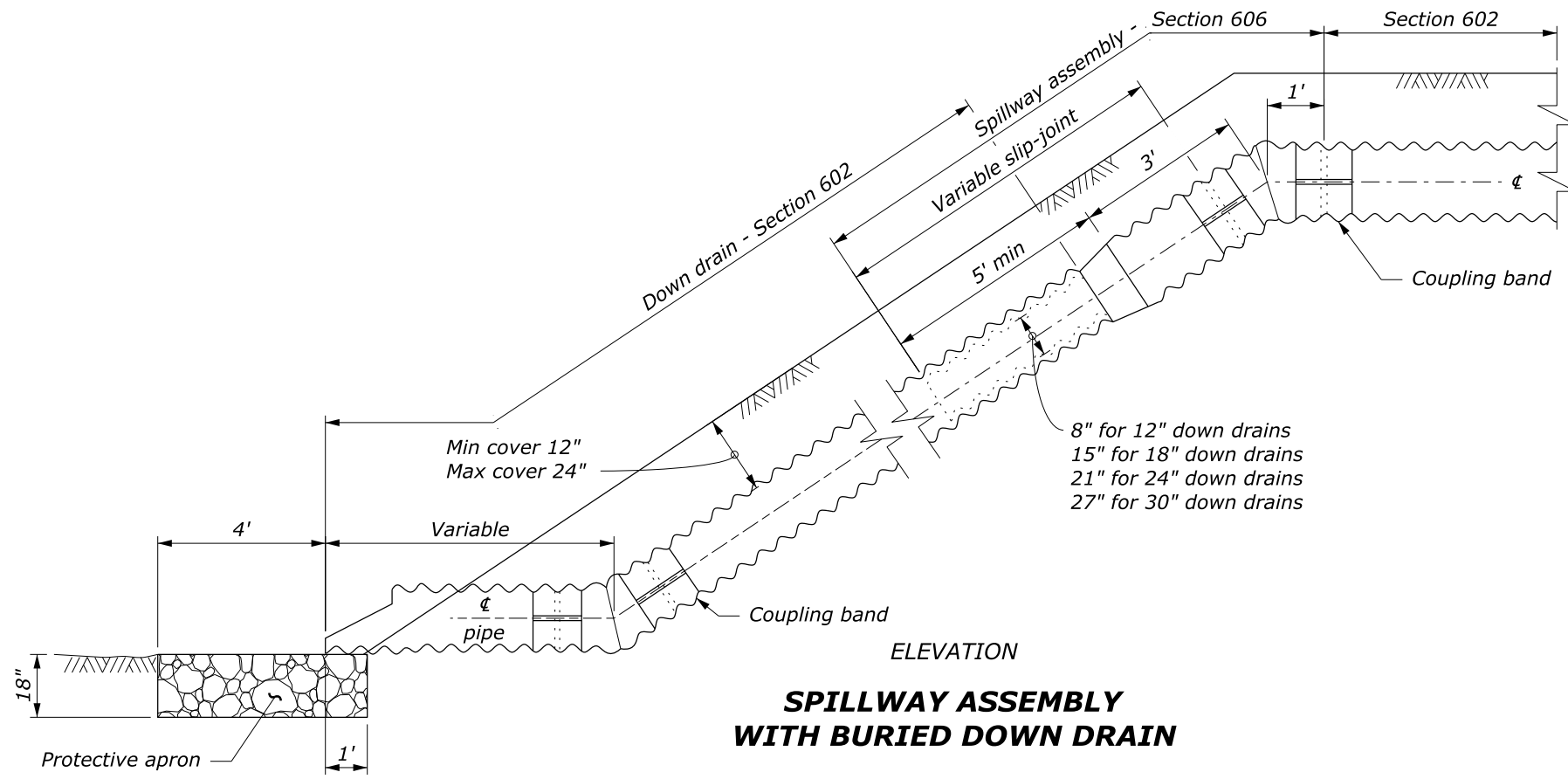


PROTECTIVE APRON

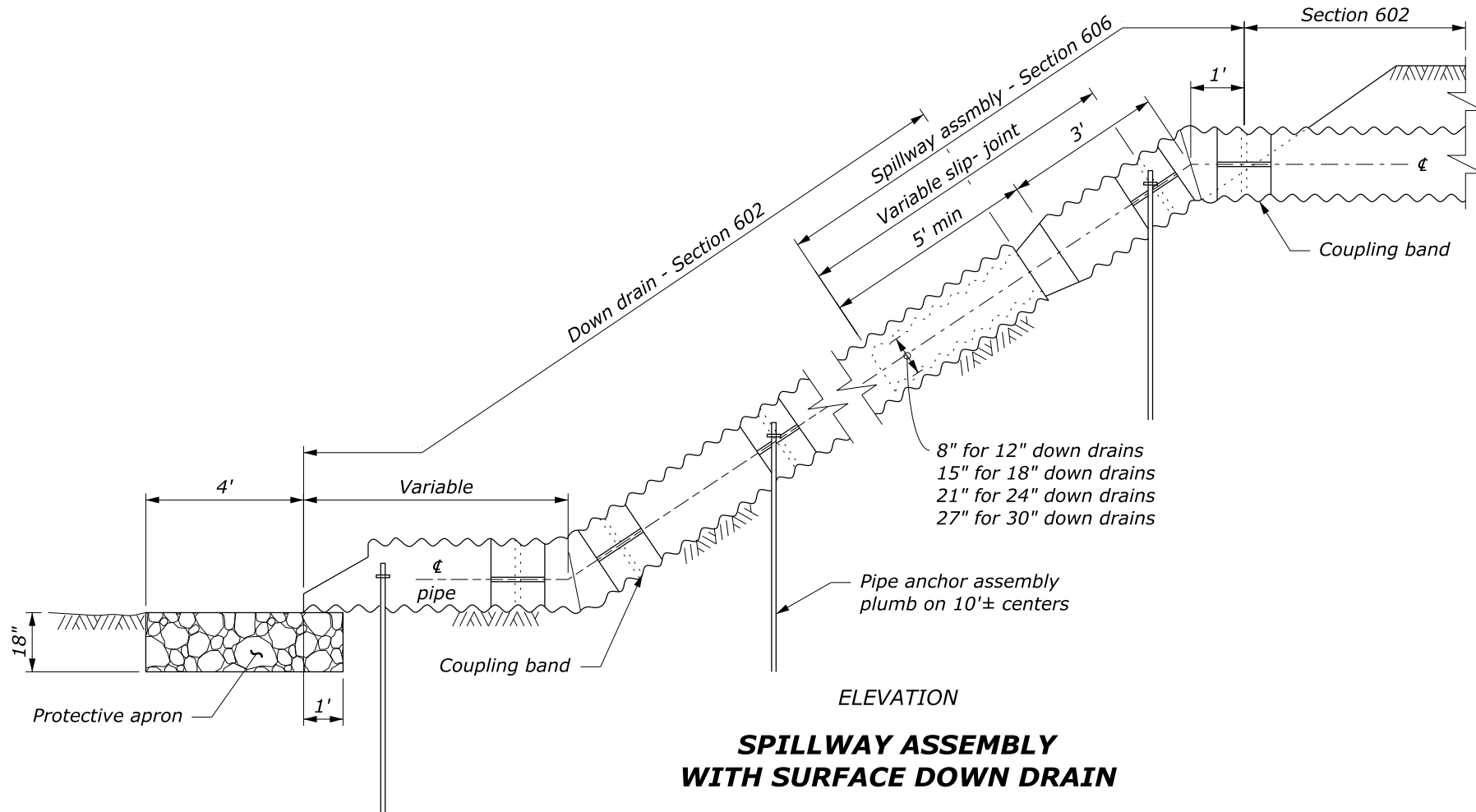
This drawing contains **Metric** units of measure. Dimensions without units are millimeters.

U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	WFLHD DETAIL WM606-10
SPILLWAY ASSEMBLY WITH DOWN DRAIN	SPECIFICATION FP-24, FP-14
	APPROVED FOR USE 4/2009

NO SCALE



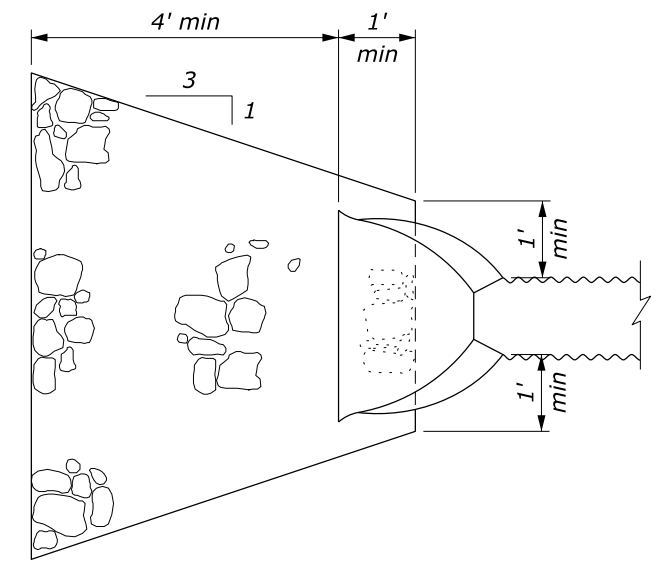
SPILLWAY ASSEMBLY WITH BURIED DOWN DRAIN



SPILLWAY ASSEMBLY WITH SURFACE DOWN DRAIN

NOTE:

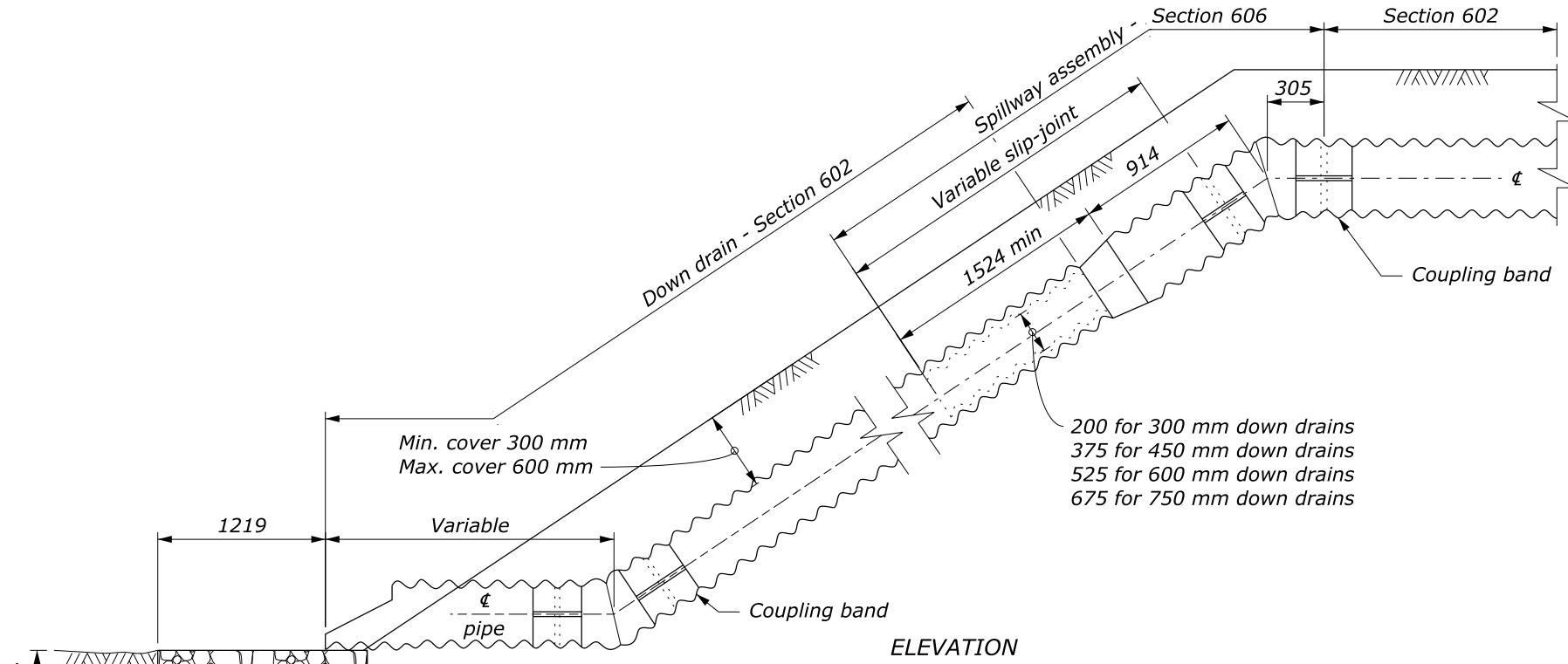
1. Fabricate spillway assembly from annular corrugated pipe, or from helically corrugated pipe with factory annular or reformed ends. Use 0.064-inch galvanized steel or 0.060-inch aluminum.
2. Make all coupling band connections water tight by placing $\frac{3}{16}$ inch bead of approved caulking under each half of the band before tightening.
3. Place class 2 riprap conforming to Section 251 for protective apron.
4. Approved alternate designs may be used.
5. See Detail W606-14 for Pipe Anchor Assembly Detail.



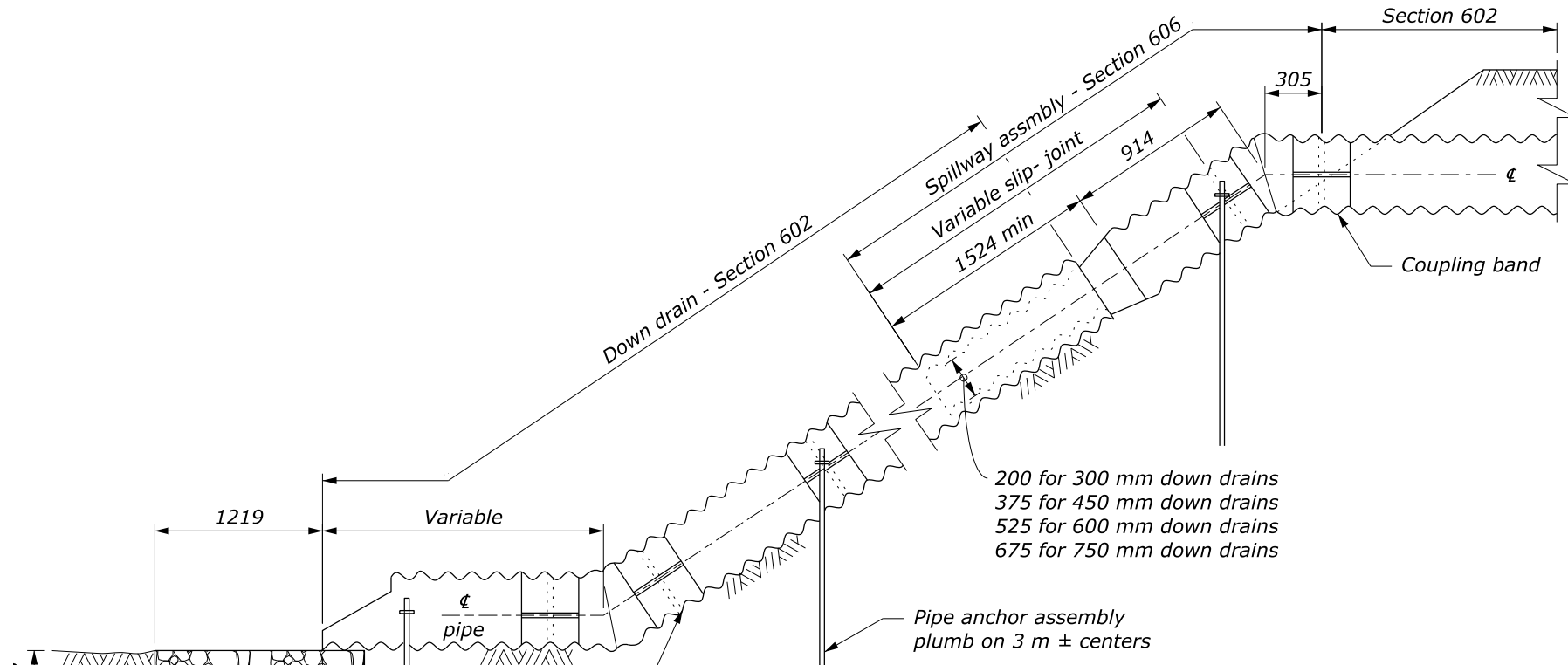
PROTECTIVE APRON

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	WFLHD DETAIL W606-11
SPILLWAY ASSEMBLY WITH DOWN DRAIN AND SLIP-JOINT	SPECIFICATION FP-24, FP-14
	APPROVED FOR USE 9/2009



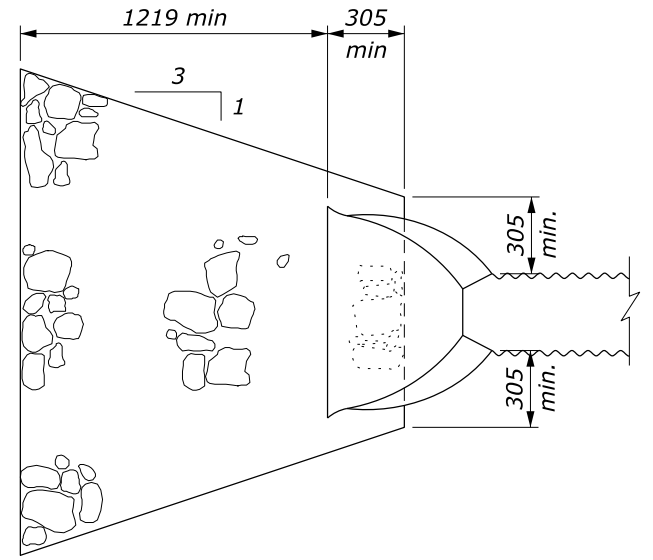
SPILLWAY ASSEMBLY WITH BURIED DOWN DRAIN



SPILLWAY ASSEMBLY WITH SURFACE DOWN DRAIN

NOTE:

1. Fabricate spillway assembly from annular corrugated pipe, or from helically corrugated pipe with factory annular or reformed ends. Use 1.6 mm galvanized steel or 1.5 mm aluminum.
2. Make all coupling band connections water tight by placing 5 mm bead of approved caulking under each half of the band before tightening.
3. Place class 2 riprap conforming to Section 251 for protective apron.
4. Approved alternate designs may be used.
5. See Detail WM606-14 for Pipe Anchor Assembly Detail.



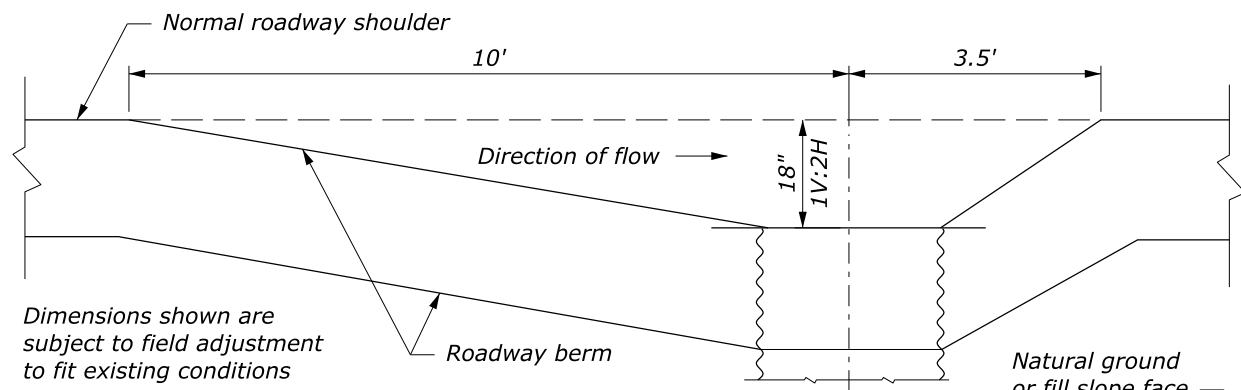
PROTECTIVE APRON

This drawing contains **Metric** units of measure. Dimensions without units are millimeters.

U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	WFLHD DETAIL WM606-11
SPILLWAY ASSEMBLY WITH DOWN DRAIN AND SLIP-JOINT	SPECIFICATION FP-24, FP-14
	APPROVED FOR USE 9/2009

NO SCALE

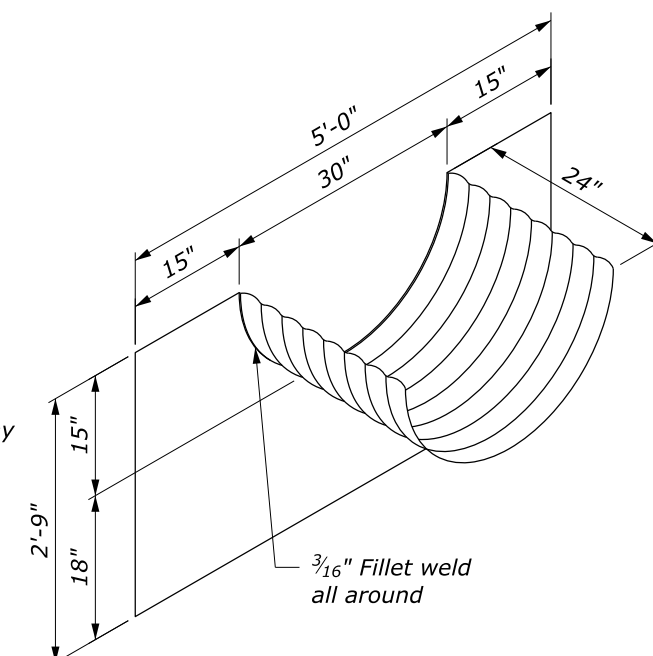
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Dimensions shown are subject to field adjustment to fit existing conditions

PLAN

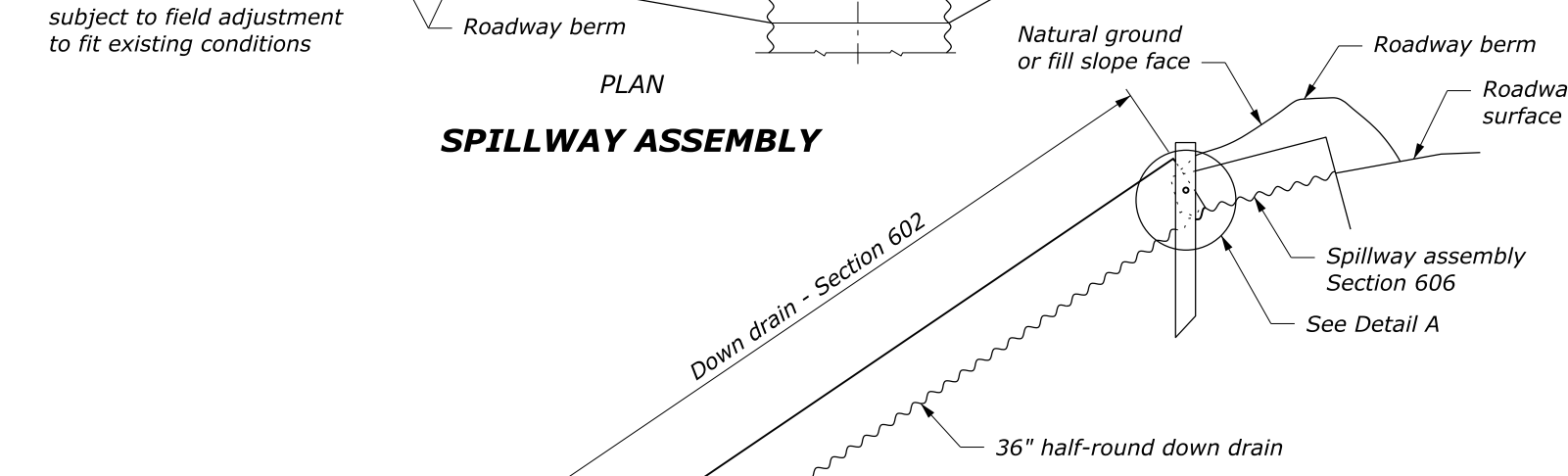
SPILLWAY ASSEMBLY



SPILLWAY ASSEMBLY

NOTE:

1. Fabricate spillway assembly from 0.064-inch thick galvanized steel or 0.060-inch aluminum.
2. Place Class 2 riprap conforming to Section 251 for protective apron.
3. Construct down drain from annular corrugated pipe, or from helically corrugated pipe with factory annular or flanged reformed ends.
4. Approved alternate designs may be used.

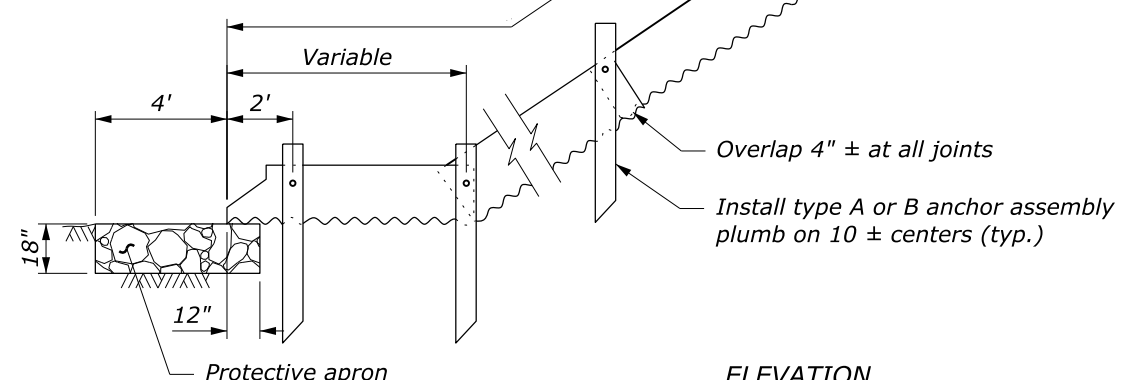


Down drain - Section 602

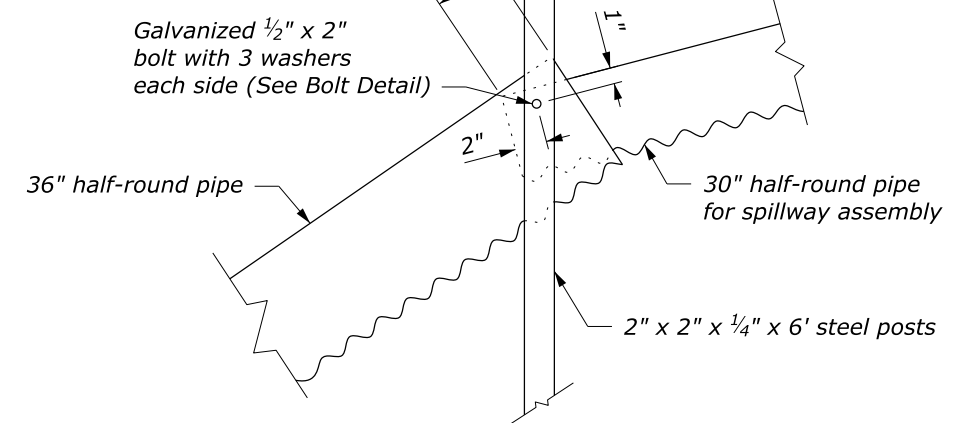
36" half-round down drain

ELEVATION

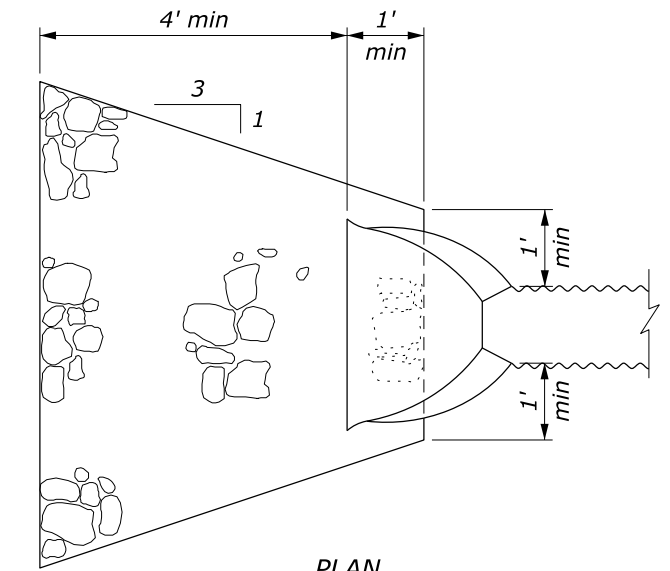
SPILLWAY ASSEMBLY AND DOWN DRAIN



ELEVATION

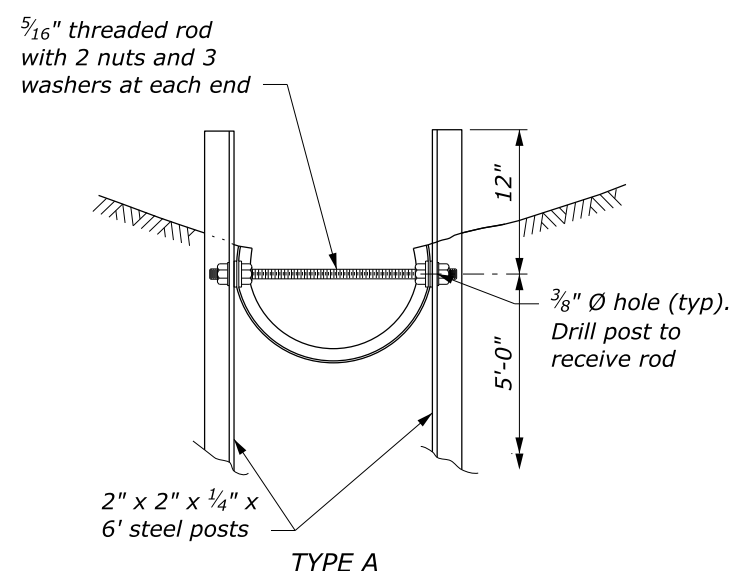


DETAIL A



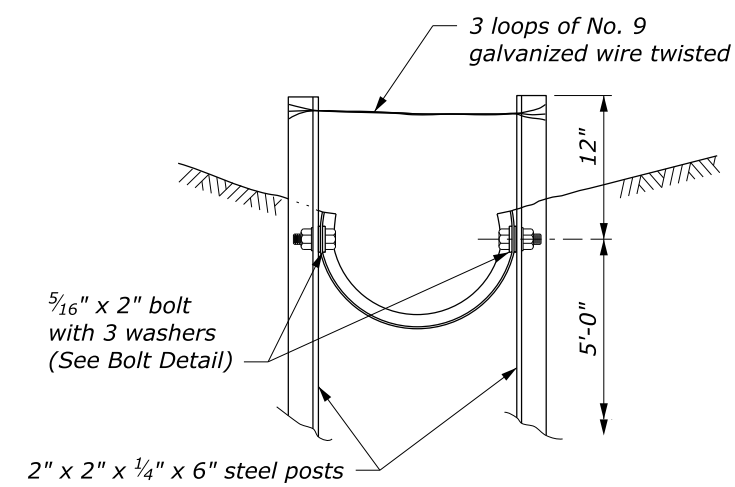
PLAN

PROTECTIVE APRON



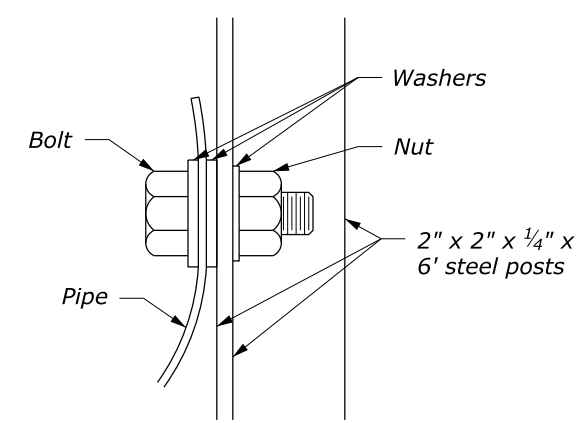
TYPE A

ANCHOR ASSEMBLY



TYPE B

ANCHOR ASSEMBLY

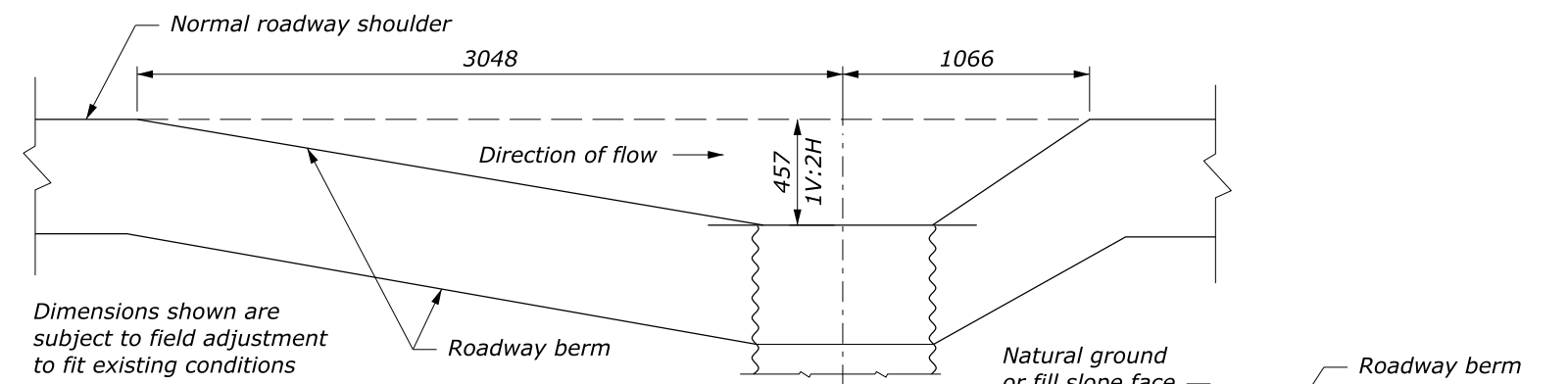


BOLT DETAIL

NO SCALE

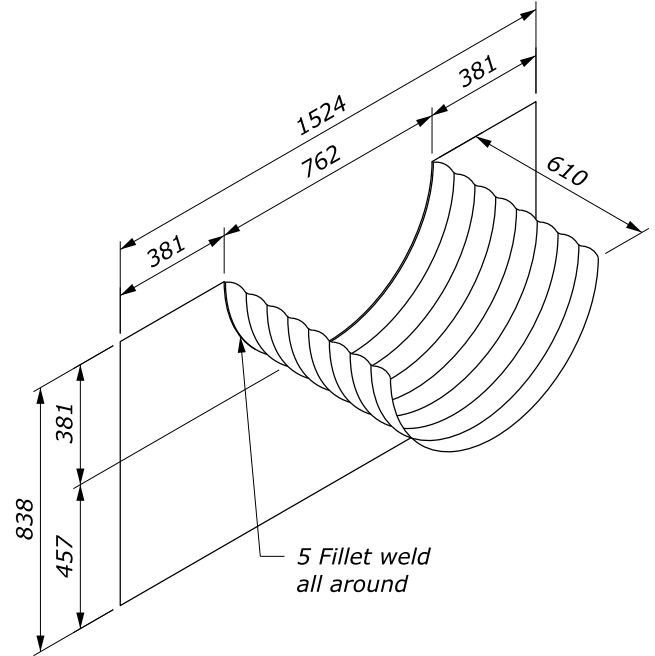
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U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	WFLHD DETAIL W606-12
SPILLWAY ASSEMBLY WITH HALF-ROUND DOWN DRAIN	SPECIFICATION FP-24, FP-14 APPROVED FOR USE 10/2009



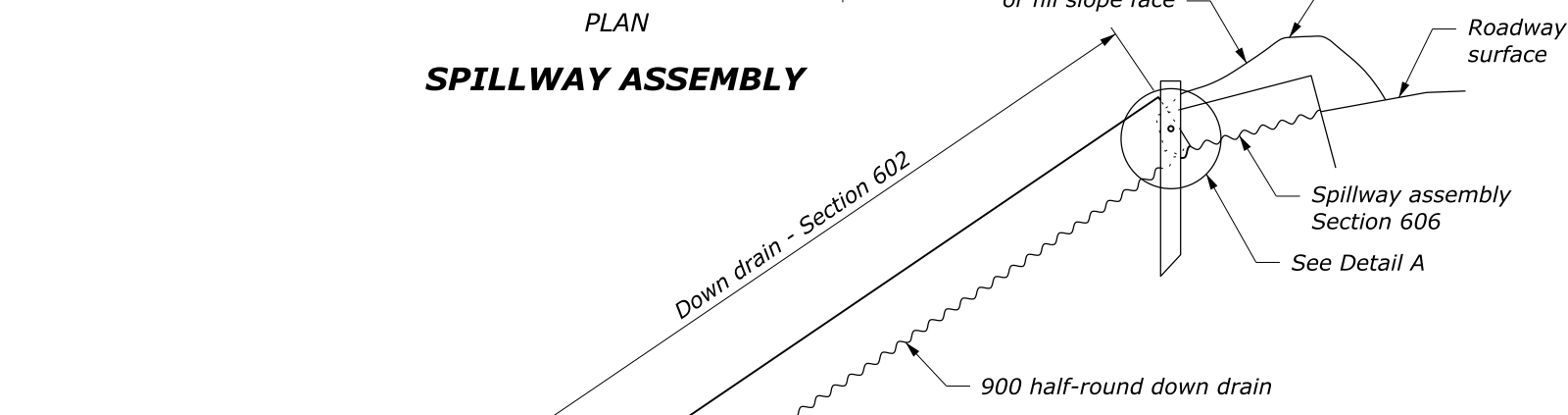
Dimensions shown are subject to field adjustment to fit existing conditions

PLAN
SPILLWAY ASSEMBLY

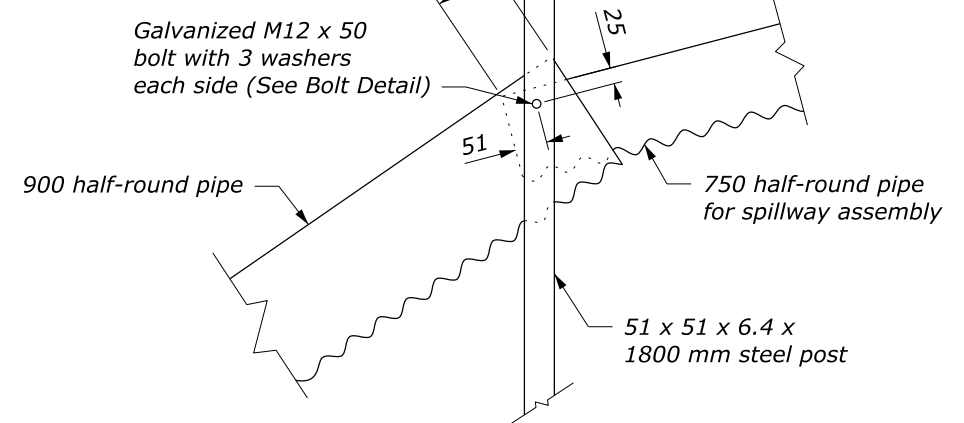
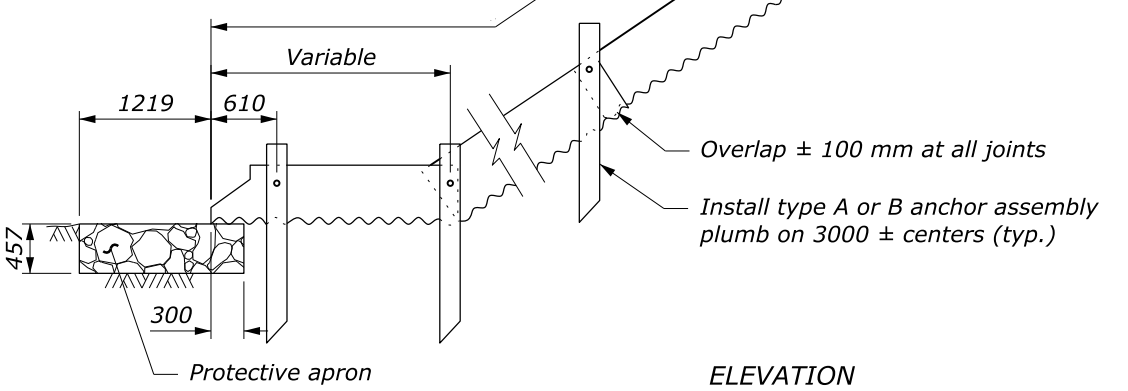


SPILLWAY ASSEMBLY

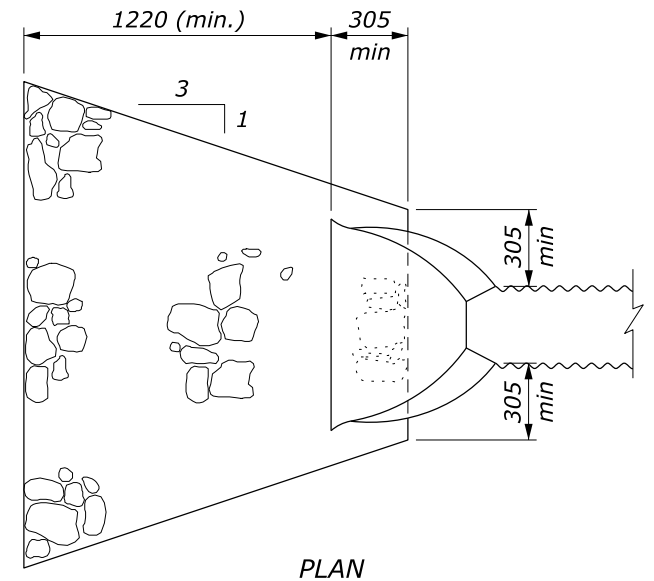
- NOTE:**
1. Fabricate spillway assembly from 1.6 mm thick galvanized steel or 1.5 mm aluminum.
 2. Place Class 2 riprap conforming to Section 251 for protective apron.
 3. Construct down drain from annular corrugated pipe, or from helically corrugated pipe with factory annular or flanged reformed ends.
 4. Approved alternate designs may be used.
 5. Furnish hardware in the metric sizes shown. Equivalent US Customary sizes may be used when metric sizes are unavailable.



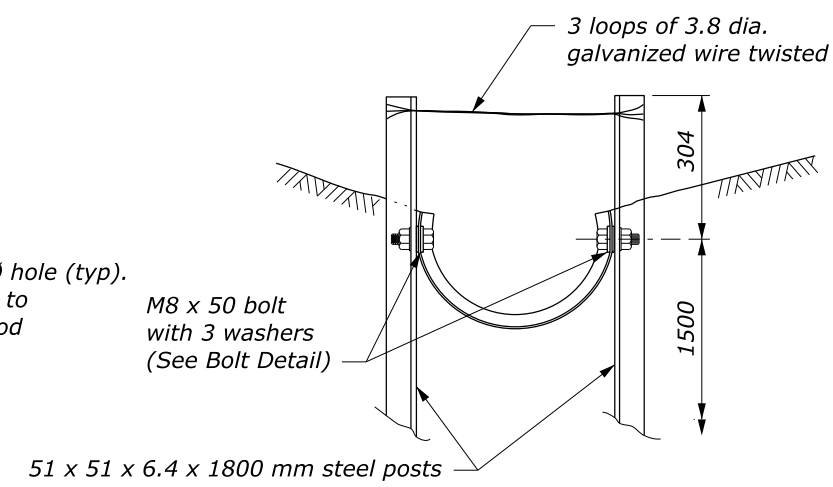
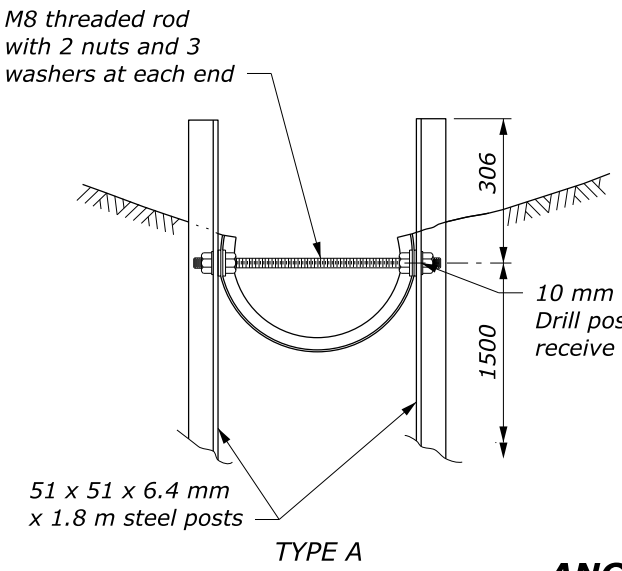
ELEVATION
SPILLWAY ASSEMBLY AND DOWN DRAIN



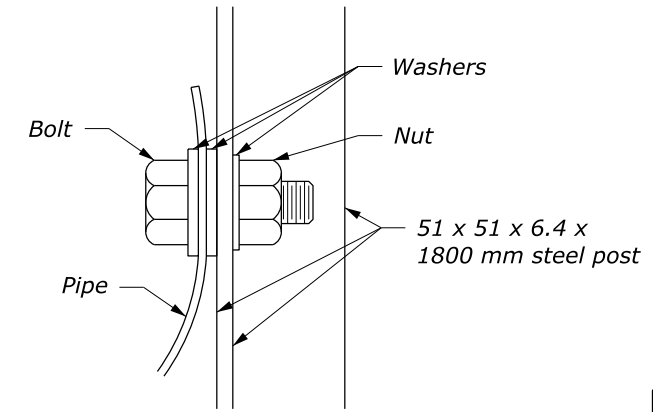
DETAIL A



PLAN
PROTECTIVE APRON



ANCHOR ASSEMBLY



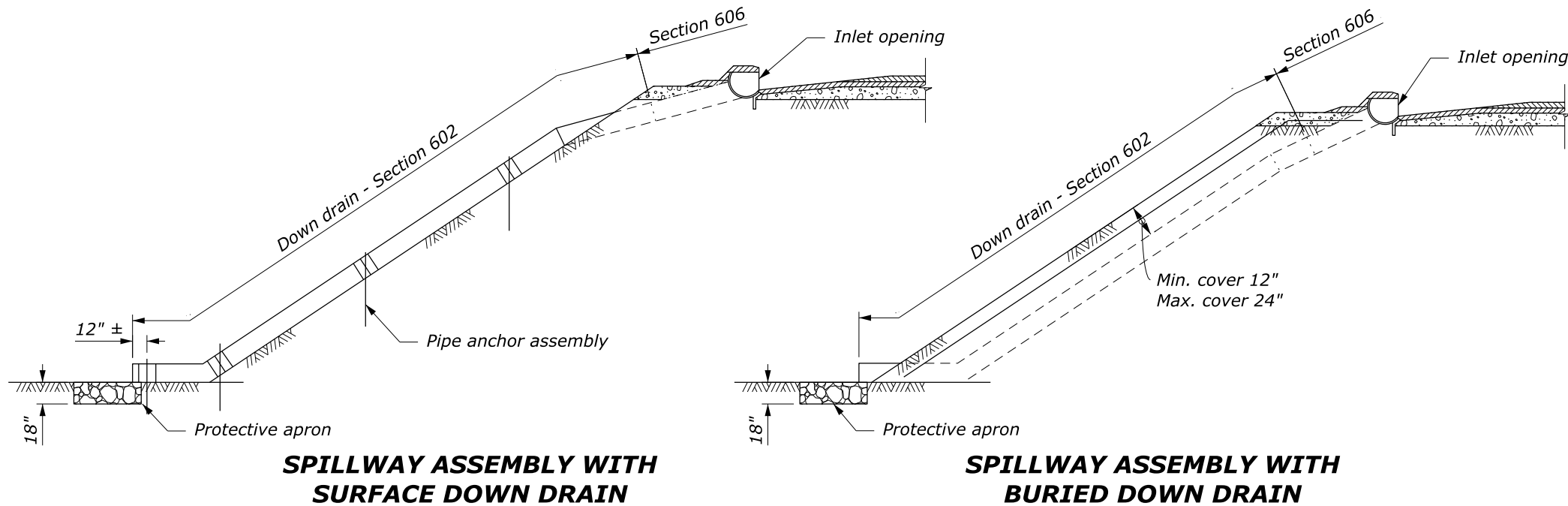
BOLT DETAIL

This drawing contains **Metric** units of measure. Dimensions without units are millimeters.

U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	WFLHD DETAIL WM606-12
SPILLWAY ASSEMBLY WITH HALF-ROUND DOWN DRAIN	SPECIFICATION FP-24, FP-14
	APPROVED FOR USE 10/2009

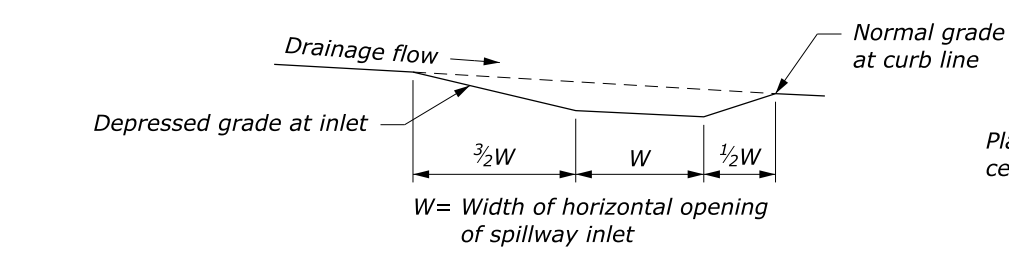
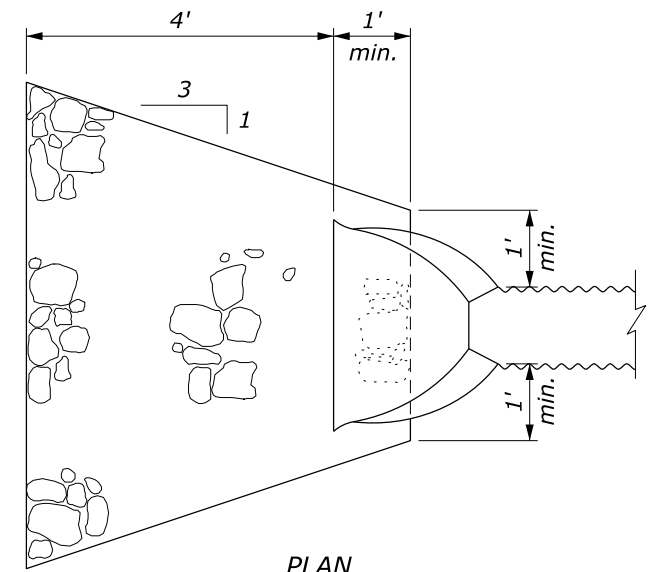
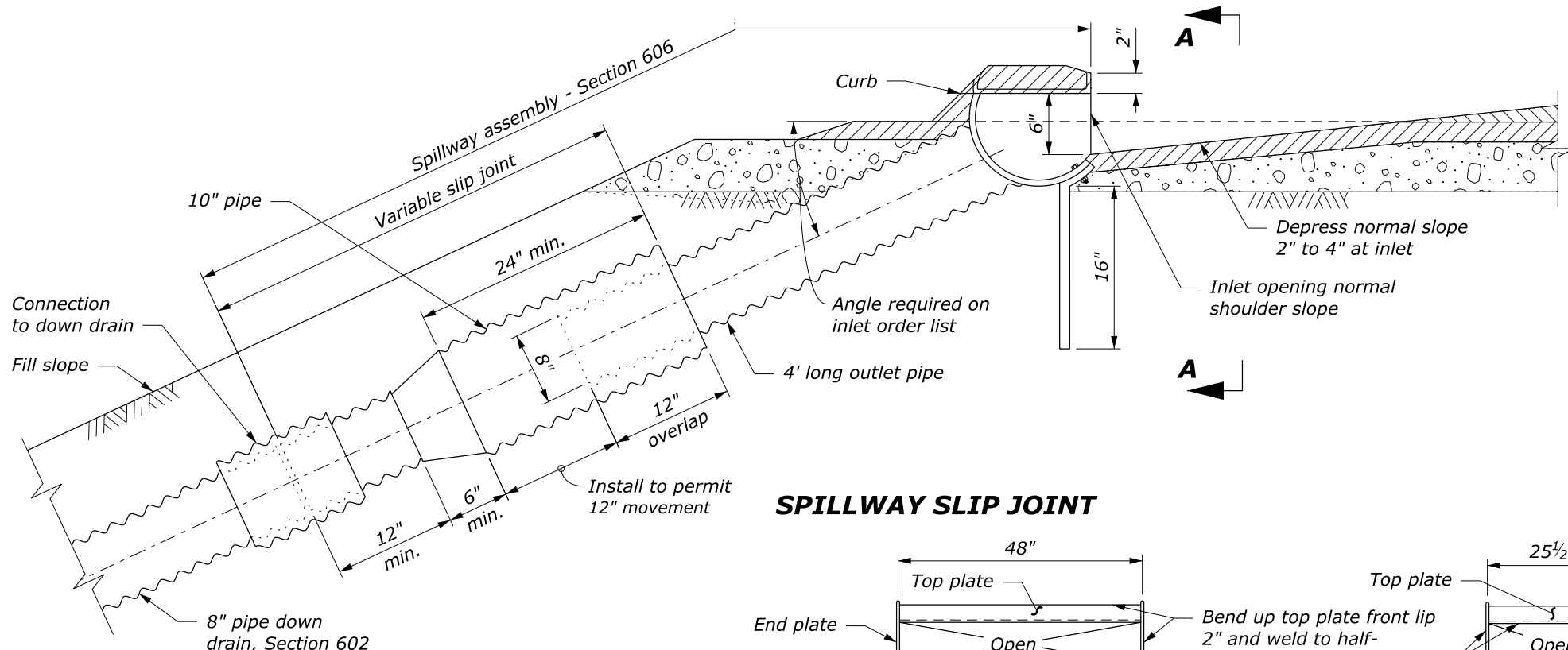
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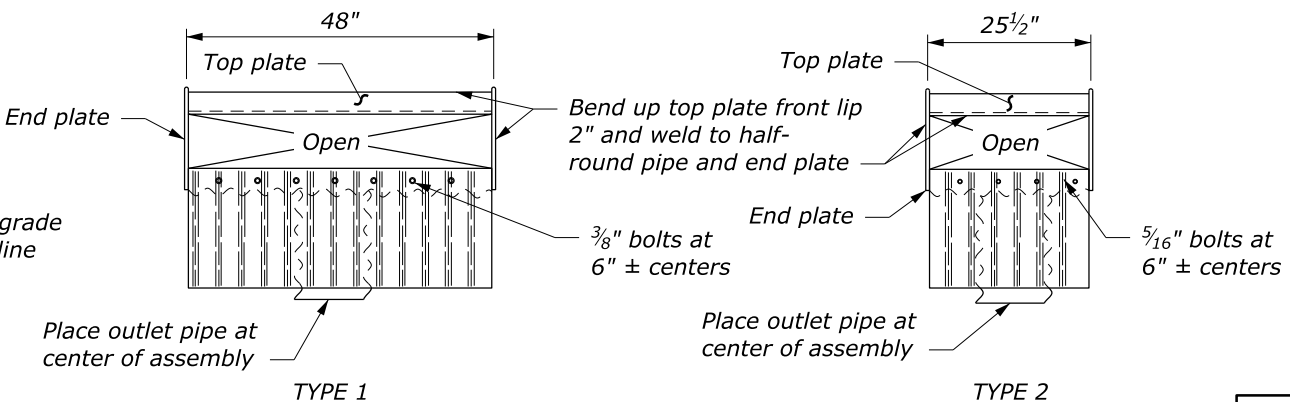


NOTE:

1. Fabricate half-round pipe, outlet pipe, and curtain wall for spillway assembly from 0.64-inch galvanized steel or 0.60-inch aluminum. Fabricate top plate and end plate from 0.18-inch flat steel or 0.20 inch aluminum plate.
2. Make all coupling band connections watertight by placing a $\frac{3}{16}$ - inch bead of approved caulking under each half of the band before tightening.
3. Install pipe anchor assemblies at 10 feet \pm spacing on down drain installed above ground.
4. Use type 2 spillway assembly inlets where profile grades are greater than 2%. Use type 1 on grades 2% or flatter.
5. Place class 2 riprap conforming to Section 251 for protective apron.
6. Approved alternate designs may be used.
7. See Detail W606-14 for Pipe Anchor Assembly Detail.



SPILLWAY SLIP JOINT

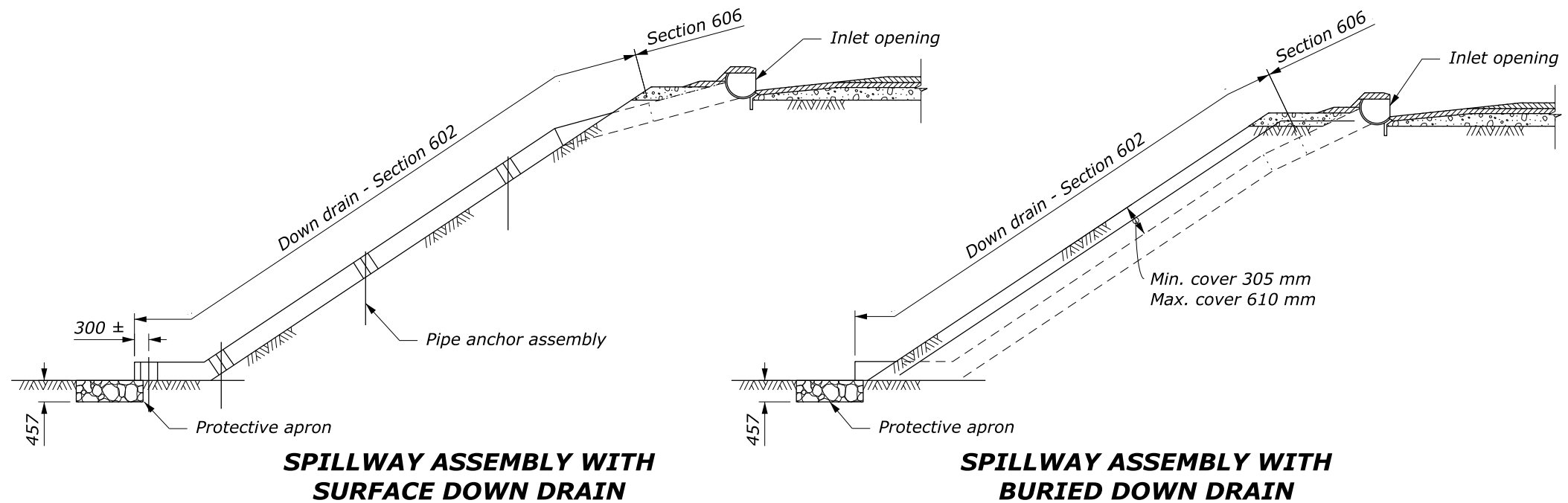


**SECTION A-A
SPILLWAY ASSEMBLY INLETS**

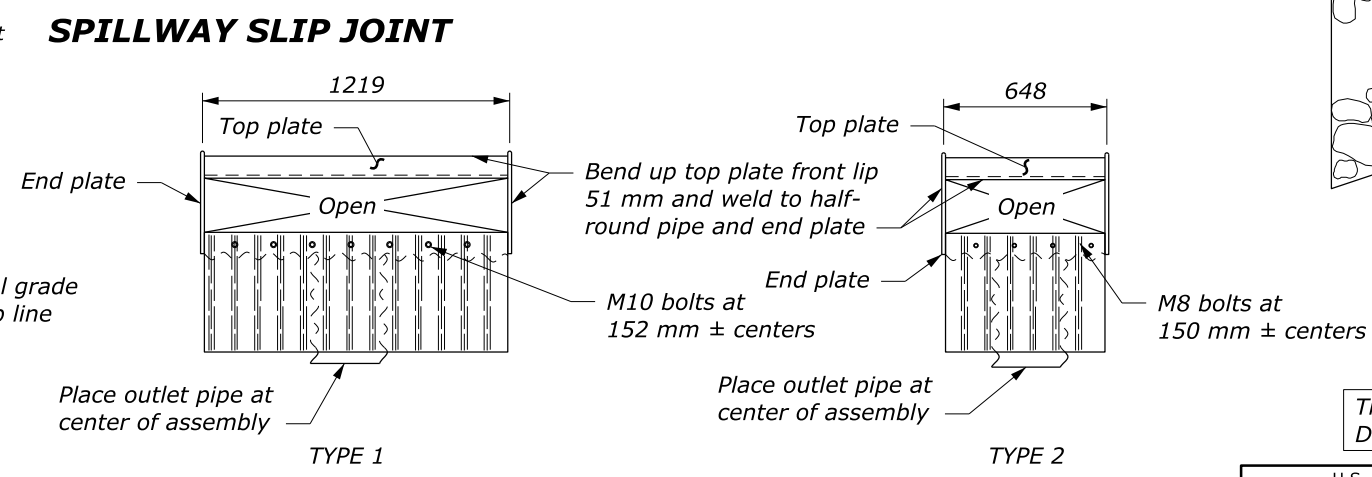
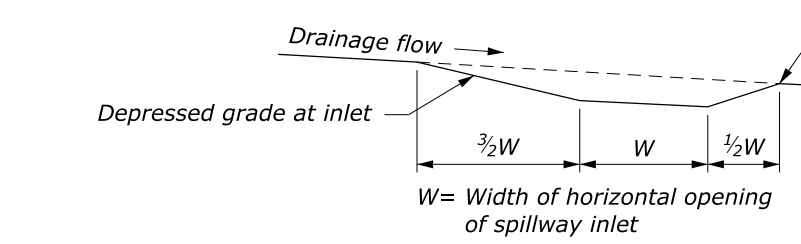
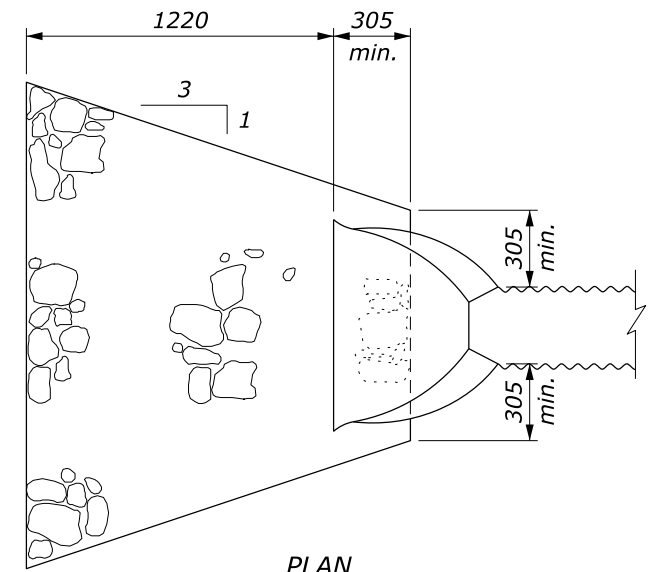
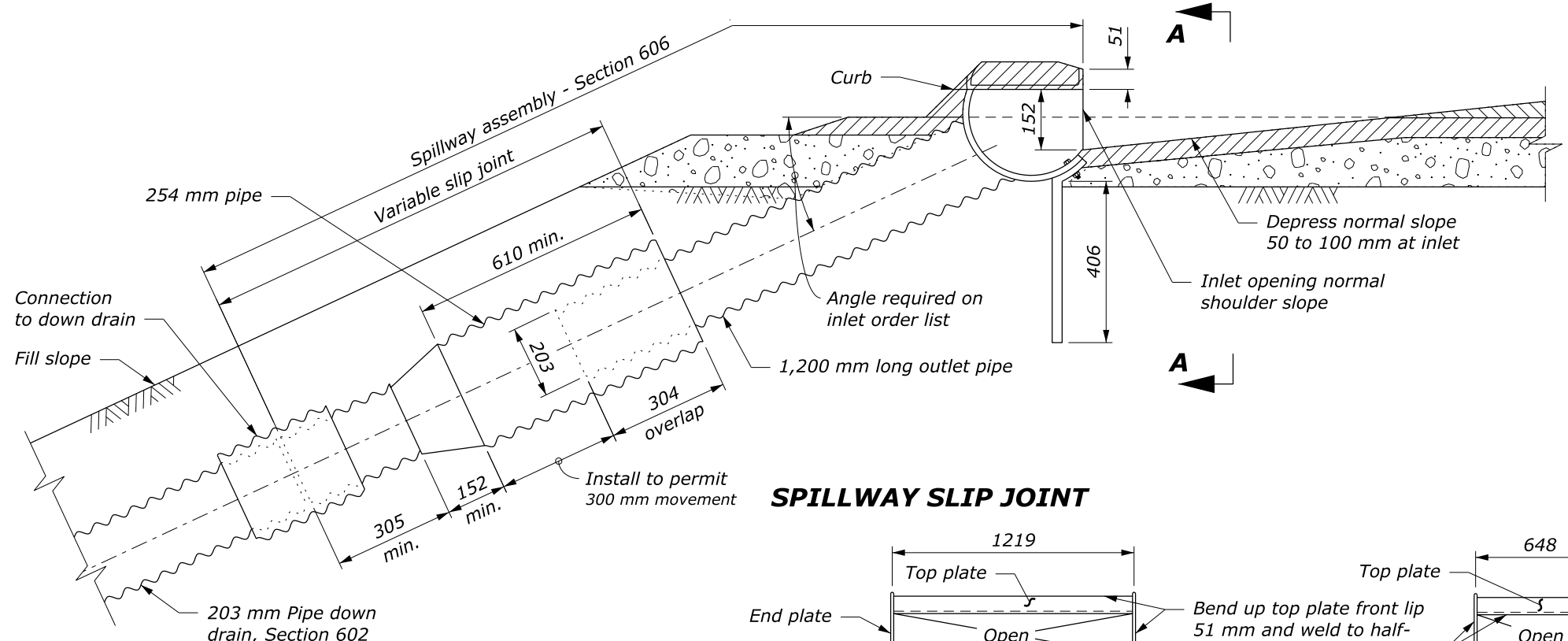
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	WFLHD DETAIL W606-13
CORRUGATED METAL SPILLWAYS AND INLETS	SPECIFICATION FP-24, FP-14 APPROVED FOR USE 10/2009

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- NOTE:**
1. Fabricate half-round pipe, outlet pipe, and curtain wall for spillway assembly from 1.6-mm galvanized steel or 1.5-mm aluminum. Fabricate top plate and end plate from 4.6-mm flat steel or 5.0-mm aluminum plate.
 2. Make all coupling band connections watertight by placing a 5-mm bead of approved caulking under each half of the band before tightening.
 3. Install pipe anchor assemblies at 3 meters ± spacing on down drain installed above ground.
 4. Use type 2 spillway assembly inlets where profile grades are greater than 2%. Use type 1 on grades 2% or flatter.
 5. Place class 2 riprap conforming to Section 251 for protective apron.
 6. Approved alternate designs may be used.
 7. See Detail WM606-14 for Pipe Anchor Assembly Detail.
 8. Furnish hardware in the metric sizes shown. Equivalent US Customary sizes may be used when metric sizes are unavailable.

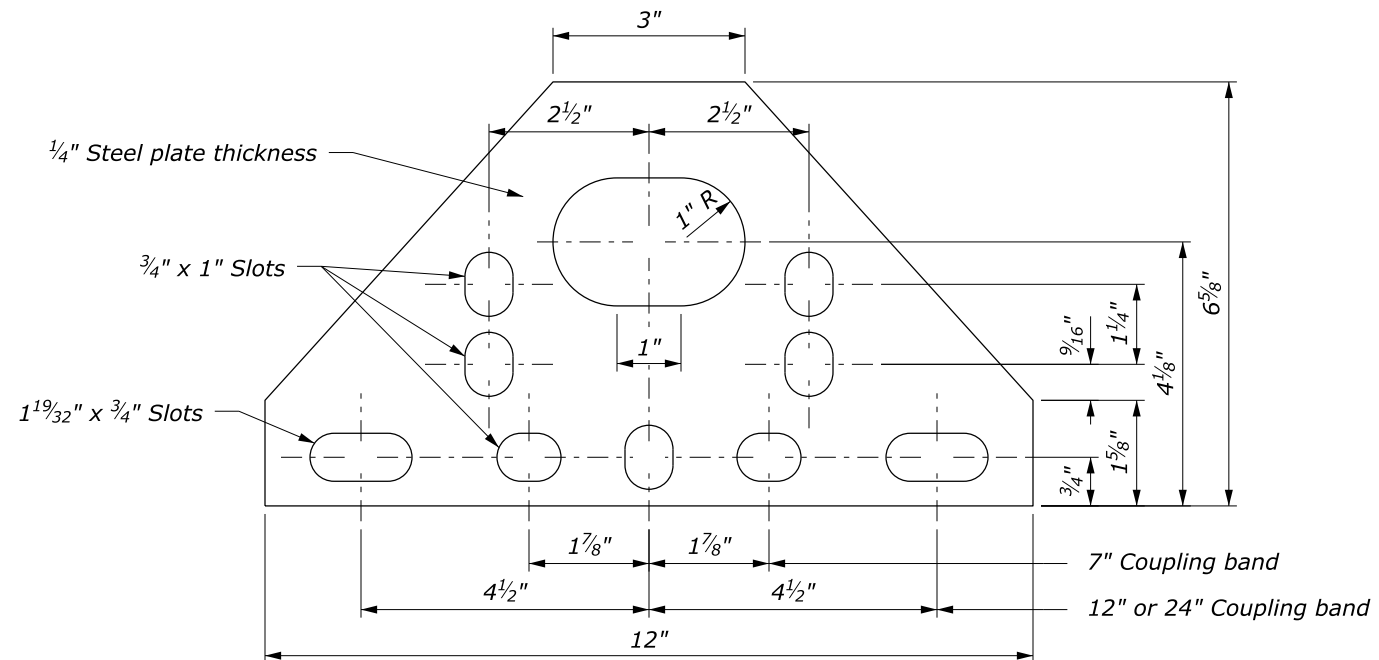


This drawing contains **Metric** units of measure. Dimensions without units are millimeters.

U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	WFLHD DETAIL WM606-13
CORRUGATED METAL SPILLWAYS AND INLETS	SPECIFICATION FP-24, FP-14
	APPROVED FOR USE 10/2009

NO SCALE

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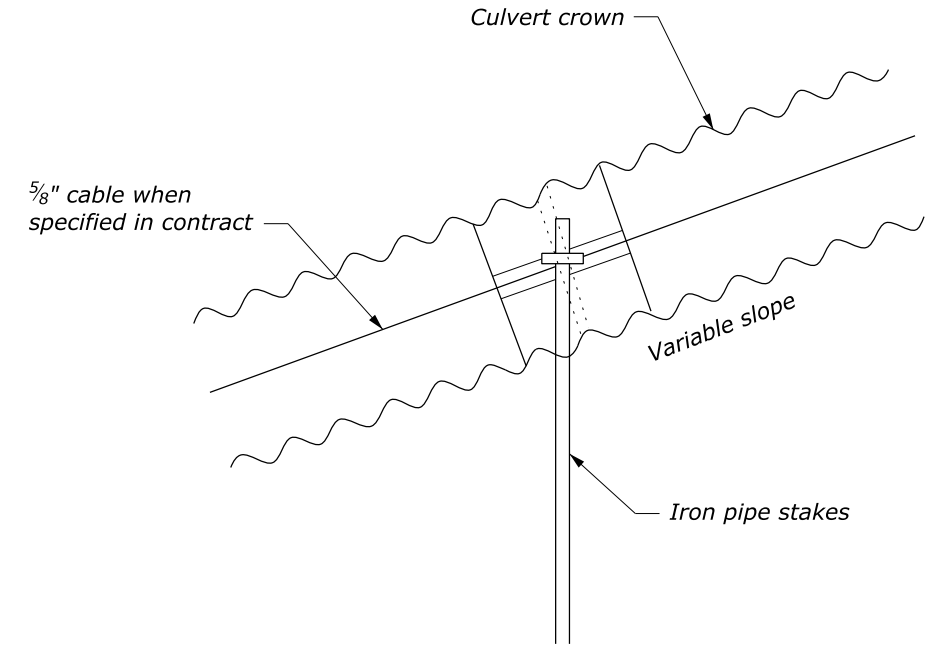


Measure length of coupling band parallel to the centerline of the pipe

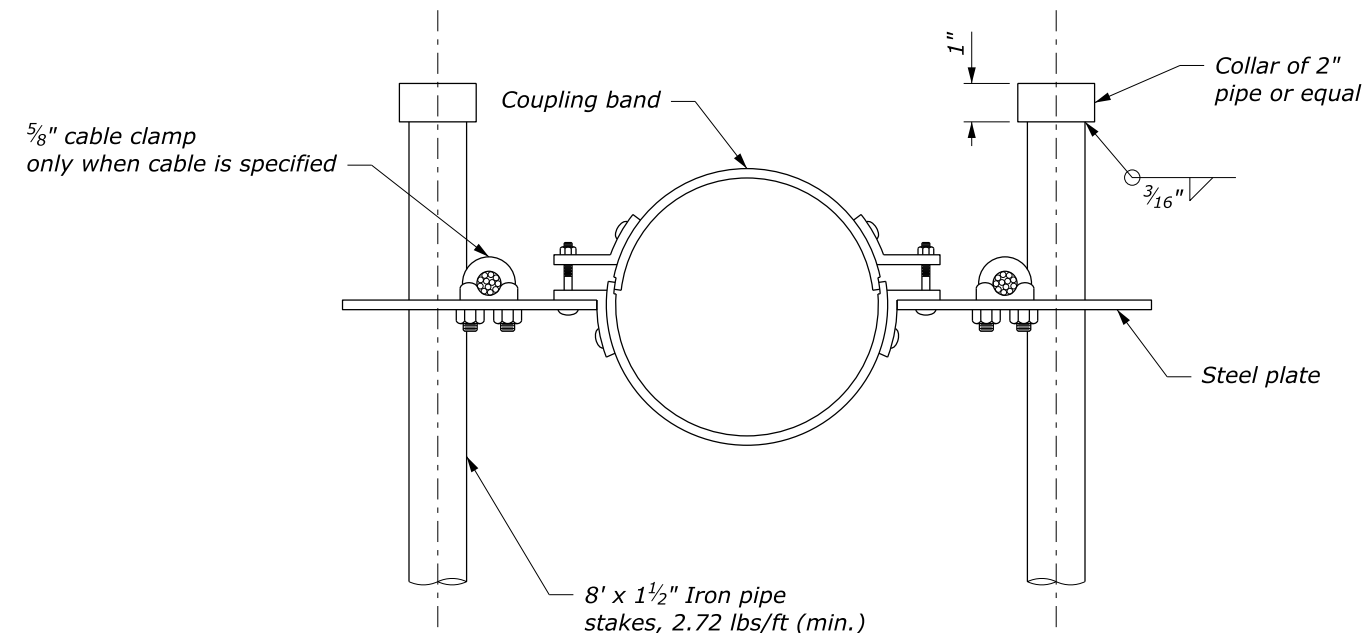
STEEL PLATE

NOTE:

1. Galvanize all pipe stakes and hardware after fabrication.
2. Approved alternative pipe anchor assemblies may be used.
3. Place slope anchor assemblies on 20' max. centers on slopes 20% or greater.
4. Plate material to be ASTM A36. Galvanize after fabrication.



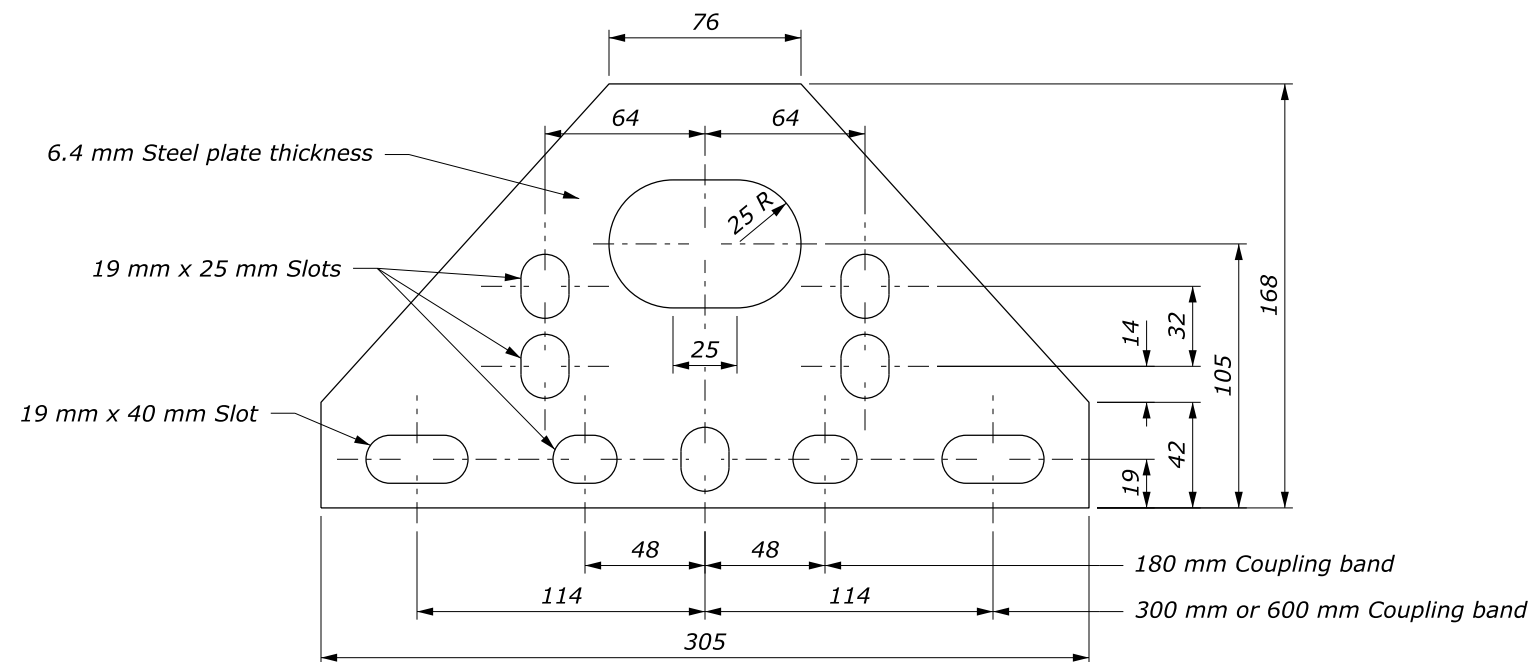
METAL PIPE ASSEMBLY



ANCHOR ASSEMBLY

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	WFLHD DETAIL W606-14
PIPE ANCHOR ASSEMBLY	SPECIFICATION FP-24, FP-14 APPROVED FOR USE 9/2009

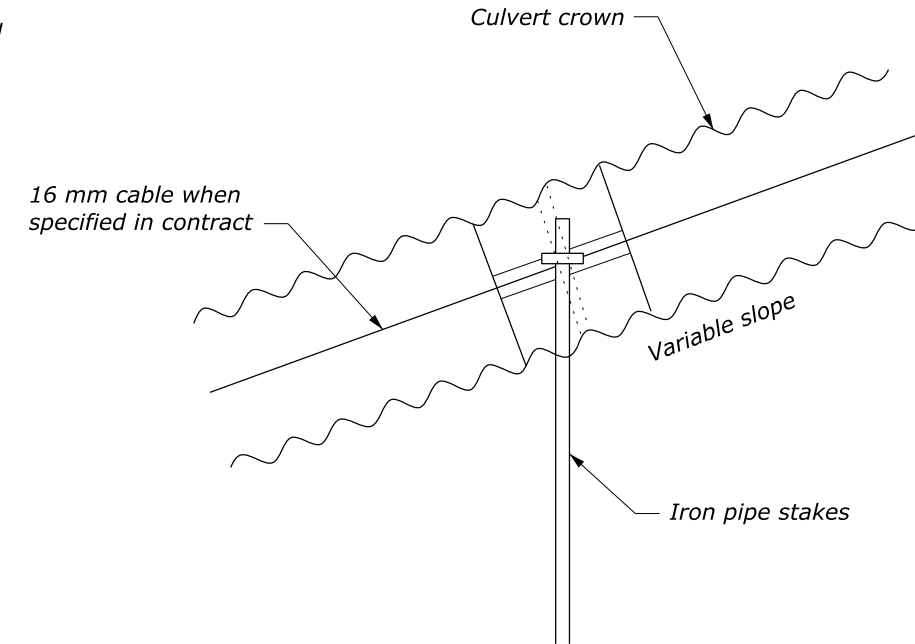


Measure length of coupling band parallel to the centerline of the pipe

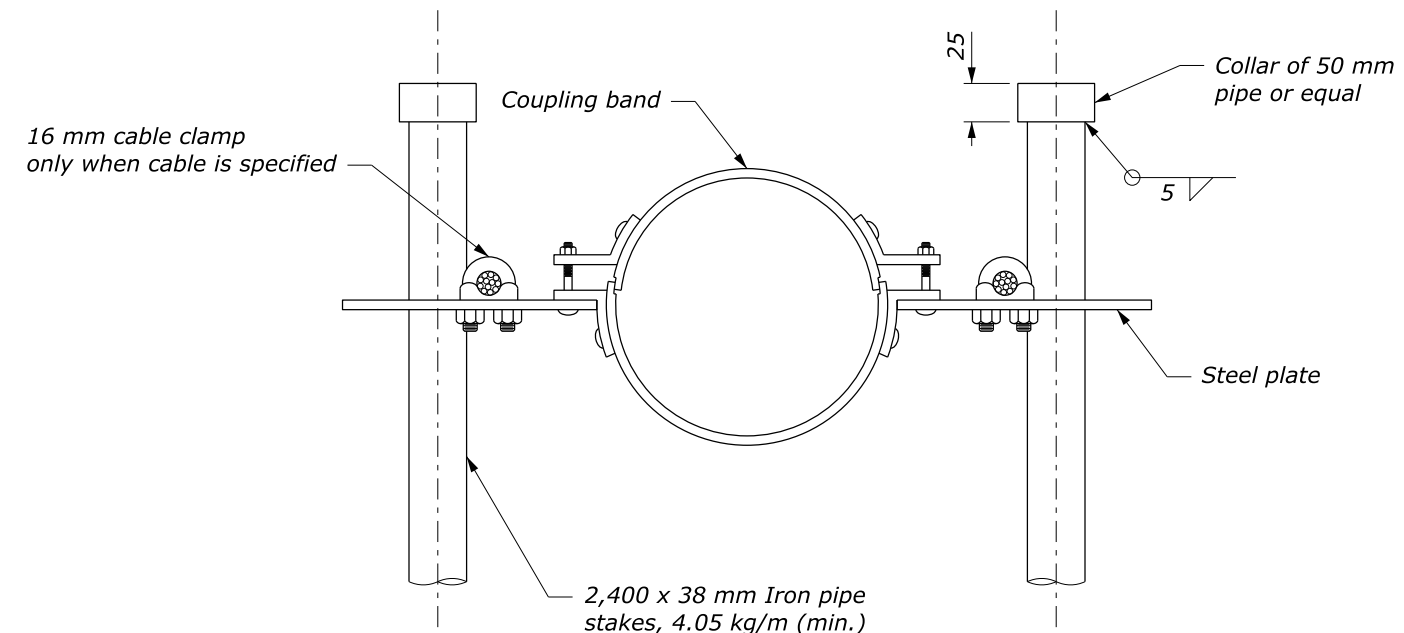
STEEL PLATE

NOTE:

1. Galvanize all pipe stakes and hardware after fabrication.
2. Approved alternative pipe anchor assemblies may be used.
3. Place slope anchor assemblies on 6 m max. centers on slopes 20% or greater.
4. Plate material to be ASTM A36. Galvanize after fabrication.



METAL PIPE ASSEMBLY



ANCHOR ASSEMBLY

This drawing contains **Metric** units of measure. Dimensions without units are millimeters.

U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	WFLHD DETAIL WM606-14
PIPE ANCHOR ASSEMBLY	SPECIFICATION FP-24, FP-14
	APPROVED FOR USE 9/2009

NO SCALE