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## ORIGINATION FORM

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Proposed Revisions to a Standard Plans Index  
(Please provide all information — Incomplete forms will be returned)

**Contact Information:**

Date: June 3, 2021  
Originator: Tim Holley  
Phone: (850) 414-4117  
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**Standard Plans:**

Index Number: 430-010  
Sheet Number (s): 1 and 2 of 3  
Index Title: U-Type Concrete Endwalls 15" to 30" Pipes with Grates +

**Summary of the changes:**

- Sheet 1: Changed GENERAL NOTE 1 from "Class I" to "Class II"
- Sheet 2: Changed "Class I" to "Class II" in TABLE 2.

**Commentary / Background:**

Changed to reflect Materials specification change that removes the designation for Class I Concrete..  
Please see the attached Standard Specification Section 346 DRAFT for the Class I revisions proposed by the State Materials Office

**Other Affected Offices / Documents:** (Provide name of person contacted)

- | Yes                                 | No                                  |   |
|-------------------------------------|-------------------------------------|---|
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Other Standard Plans –                      |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | FDOT Design Manual –                        |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Basis of Estimates Manual –                 |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Standard Specifications – Daniel Strickland |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Approved Product List –                     |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Construction –                              |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Maintenance –                               |

**Origination Package Includes:**

(Email or hand deliver package to Rick Jenkins)

- | Yes                                 | N/A                      |  |
|-------------------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Redline Mark-ups                         |
| <input type="checkbox"/>            | <input type="checkbox"/> | Proposed Standard Plan Instruction (SPI) |
| <input type="checkbox"/>            | <input type="checkbox"/> | Revised SPI                              |
| <input type="checkbox"/>            | <input type="checkbox"/> | Other Support Documents                  |

**Implementation:**

- Design Bulletin (Interim)
- DCE Memo
- Program Mgmt. Bulletin
- FY-Standard Plans (Next Release)

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Contact the Roadway Design Office for assistance in completing this form

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Email to: Rick Jenkins [rick.jenkins@dot.state.fl.us](mailto:rick.jenkins@dot.state.fl.us) and Darren Martin [darren.martin@dot.state.fl.us](mailto:darren.martin@dot.state.fl.us)

**STRUCTURAL PORTLAND CEMENT CONCRETE.****(REV 7-14-21)**

SUB ARTICLE 346-2.3 is deleted and the following substituted:

**346-2.3 Supplementary Cementitious Materials:** Supplementary cementitious materials are required to produce binary or ternary concrete mixes in all classes of concrete specified in Table 346-3, except for the following when used in slightly aggressive environments: ~~Class I~~, Class I (Pavement), and Class II.

The quantity of portland cement replaced with supplementary cementitious materials must be on an equal weight replacement basis of the total cementitious materials in accordance with Table 346-2.

**346-2.3.1 Highly Reactive Pozzolans:** Materials that have a very high degree of pozzolanic reactivity due to their very fine particle sizes, including silica fume, metakaolin and ultrafine fly ash.

**346-2.3.2 Binary Concrete Mixes:** Concrete mixes containing portland cement and one supplementary cementitious material.

**346-2.3.3 Ternary Concrete Mixes:** Concrete mixes containing portland cement and any two of supplementary cementitious materials, either fly ash, slag, or highly reactive pozzolans.

ARTICLE 346-3.1 is deleted and the following substituted:

**346-3.1 General:** The classifications of concrete are designated as ~~Class I~~, Class I (Pavement), Class II, Class II (Bridge Deck), Class III, Class III (Seal), Class IV, Class IV (Drilled Shaft), Class V, Class V (Special), Class VI, and Class VII. The 28-day specified minimum compressive strength, maximum water to cementitious materials ratio and target slump of each class are detailed in Table 346-3. The required air content for all classes of concrete is less than or equal to 6.0%.

For purposes of this Specification the concrete is further classified as follows:

1. Conventional Concrete: The target slump is described in Table 346-3 with a tolerance of  $\pm 1.5$  inches.
2. Increased Slump Concrete: The maximum target slump is 7 inches with a tolerance of  $\pm 1.5$  inches when a Type F, G, I or II admixture is used.
3. Slip-form Concrete: The target slump is 1.5 inches with a tolerance of  $\pm 1.5$  inches.
4. Flowing Concrete: Use flowing concrete only in the manufacturing of precast and prestressed products. Request Engineer's authorization to use flowing concrete for cast-in-place applications. The target slump is 9 inches with a tolerance of  $\pm 1.5$  inches. Meet the requirements of Section 8.6 Volume II of the Materials Manual.

5. Self-Consolidating Concrete (SCC): Use SCC only in the manufacturing of precast and prestressed products. The minimum target slump flow is 22.5 inches with a tolerance of  $\pm 2.5$  inches. Meet the requirements of Section 8.4 Volume II of the Materials Manual.

ARTICLE 346-3.3 is deleted and the following substituted:

**346-3.3 Master Proportion Table:** Proportion the materials to produce the classes of concrete in accordance with Table 346-3.

The calculation of the water to cementitious materials ratio (w/cm) is based on the total cementitious materials including portland cement and any supplementary cementitious materials used in the mix.

Class of Concrete	28-day Specified Minimum Compressive Strength (f'c) (psi)	Maximum Water to Cementitious Materials Ratio (pounds per pounds)	Target Slump Value (inches)
<del>I (1)</del>	<del>3,000</del>	<del>0.53</del>	<del>3 (2)</del>
I (Pavement)	3,000	0.50	1.5 or 3 (3)
II (1)	3,400	0.53	3 (2)
II (Bridge Deck)	4,500	0.44	3 (2)
III (4)	5,000	0.44	3 (2)
III (Seal)	3,000	0.53	8
IV	5,500	0.41(4)	3 (2)
IV (Drilled Shaft)	4,000	0.41	8.5
V (Special)	6,000	0.37(4)	3 (2)
V	6,500	0.37(4)	3 (2)
VI	8,500	0.37(4)	3 (2)
VII	10,000	0.37(4)	3 (2)

Notes:

(1) For precast three-sided culverts, box culverts, endwalls, inlets, manholes and junction boxes, the target slump value and air content will not apply. The maximum allowable slump is 6 inches, except as noted in (2). The Contractor is permitted to use concrete meeting the requirements of ASTM C478 (4,000 psi) in lieu of the specified ~~Class I or~~ Class II concrete for precast endwalls, inlets, manholes and junction boxes.

(2) Increased slump and slip form concrete as defined in 346-3.1

(3) Meet the requirements of Section 350.

(4) When silica fume or metakaolin is required, the maximum water to cementitious material ratio will be 0.35. When ultrafine fly ash is used, the maximum water to cementitious material ratio will be 0.30.

**GENERAL NOTES:**

**CHANGED TO: Class II**

1. Use Class I concrete.
2. Reinforcing steel: All bars are size #4. Spacing's shown are center to center. Laps to be 1'-5" minimum. Cover is 2" except as noted. Square welded wire fabric (two cages max.) having an equivalent cross sectional area (0.20 sq. in.) may be substituted for bar reinforcement.
3. Endwall may be cast in place or precast concrete. Construct precast units to dimensions shown, or as shown in approved shop drawings. Use Index 425-001 for opening and grouting details.
4. Quantities shown are for estimating purposes only.

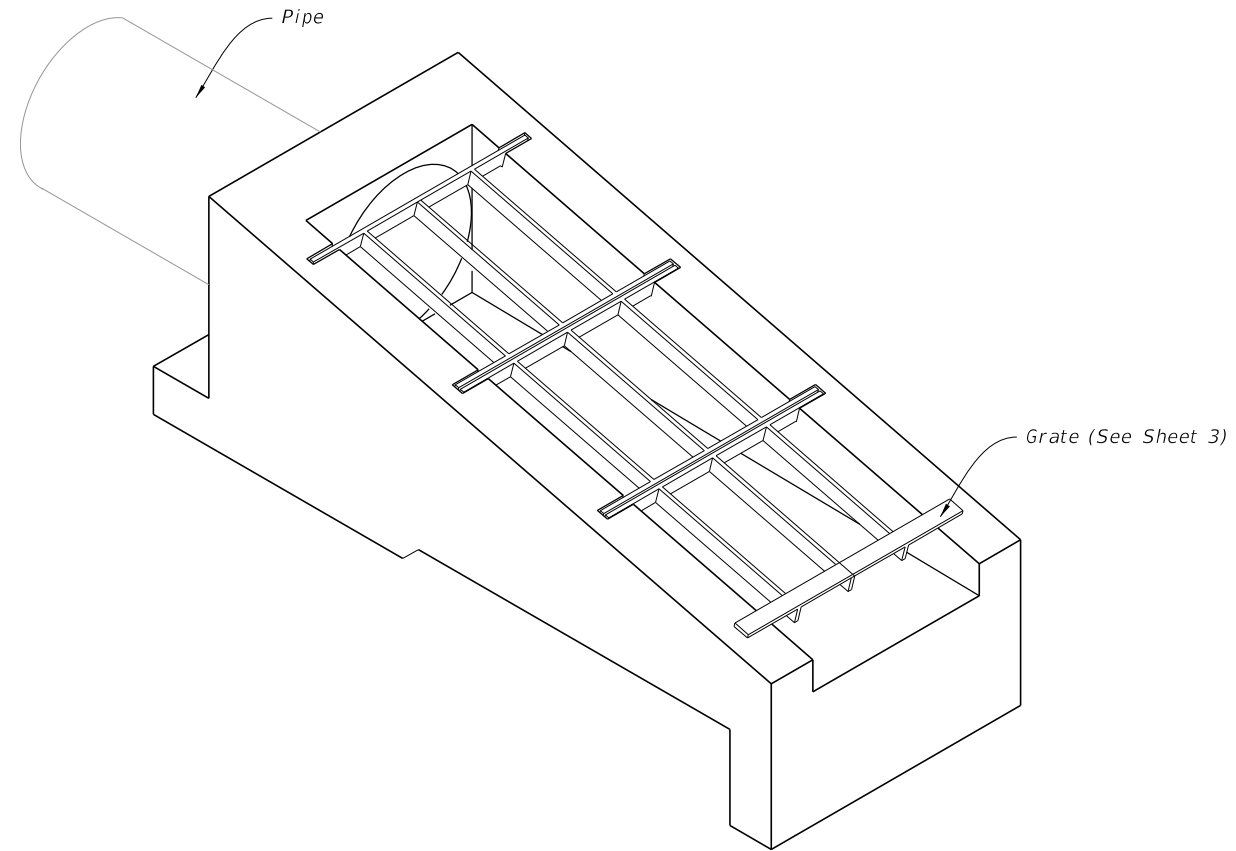
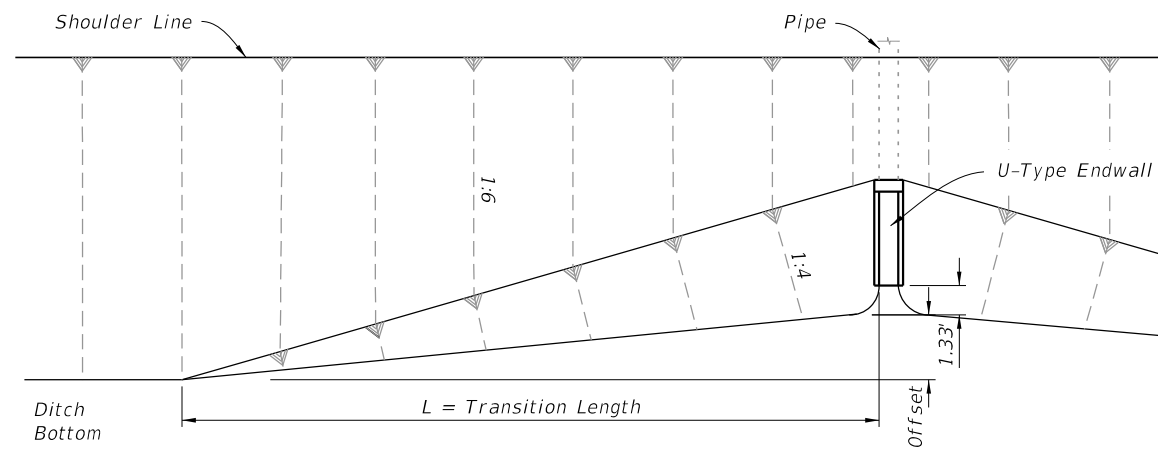


TABLE OF CONTENTS:	
Sheet	Description
1	General Notes and Contents
2	Dimensional and Reinforcing Details
3	Type 1 and Type 2 Grate Details

U-TYPE CONCRETE ENDWALLS 15" TO 30" PIPES WITH GRATES  
(24" Pipe Shown)



Slope	Pipe Dia.	Offset (Ft.)	L (Ft.)
1:4	15"	4.2	42
	18"	4.8	48
	24"	5.8	58
	30"	6.9	69

FRONT SLOPE TRANSITION AT ENDWALL

10/12/2020 7:13:45 AM

**11/01/21**

LAST REVISION	DESCRIPTION:
11/01/19	

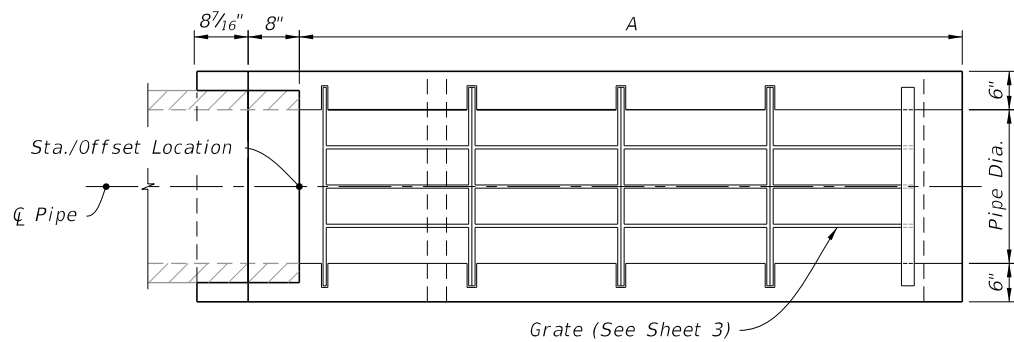


FY 2021-22  
STANDARD PLANS

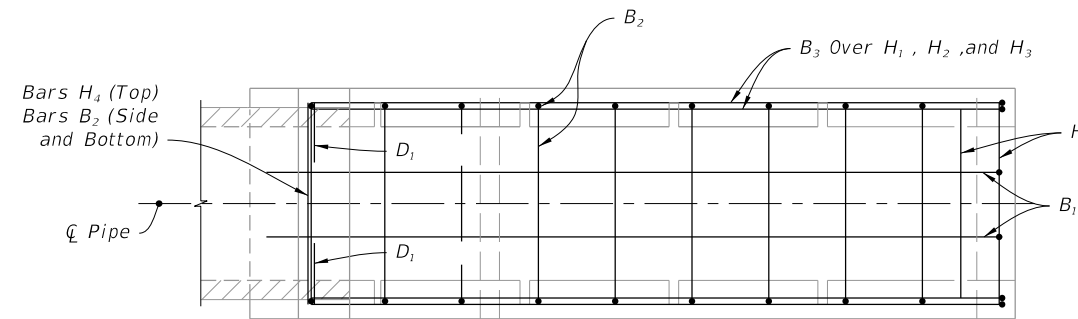
U-TYPE CONCRETE ENDWALLS  
15" TO 30" PIPES WITH GRATES

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430-010

SHEET  
1 of 3

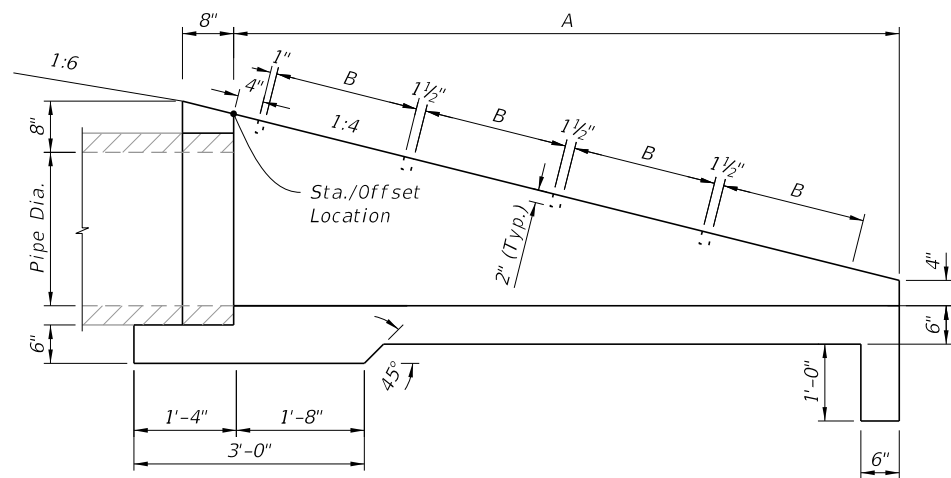


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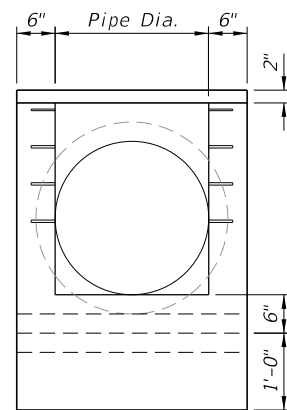


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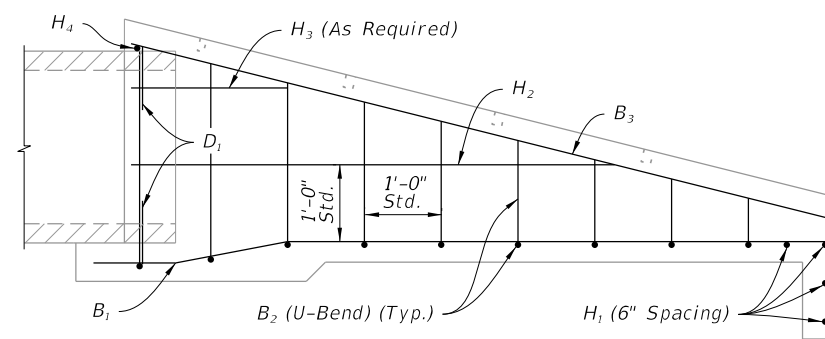
**LEGEND:**  
 H = Horizontal Bars  
 V = Vertical Bars  
 B = Bent Bars  
 D = Dowels or Diagonal Bars



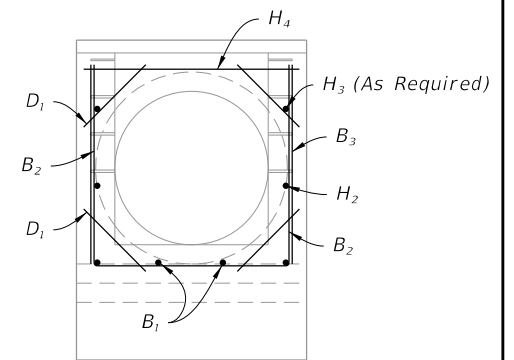
ELEVATION



END VIEW



ELEVATION



END VIEW

DIMENSIONAL DETAIL

REINFORCING DETAIL

**TABLE 2**  
**DIMENSIONS AND QUANTITIES**

	Pipe Dia.	A (Ft.)	B (Ft.)	Class I Conc. Reinf. (CY)	Steel (lbs.)
Slope 1:4	15"	5.67	2.38	0.85	56
	18"	6.67	1.875	1.01	73
	24"	8.67	1.875	1.65	97
	30"	10.67	1.875	2.33	129

CHANGED TO: Class II

10/12/2020 7:13:47 AM

11/01/21

LAST REVISION 11/01/19	REVISION	DESCRIPTION:
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FY 2021-22  
 STANDARD PLANS

U-TYPE CONCRETE ENDWALLS  
 15" TO 30" PIPES WITH GRATES

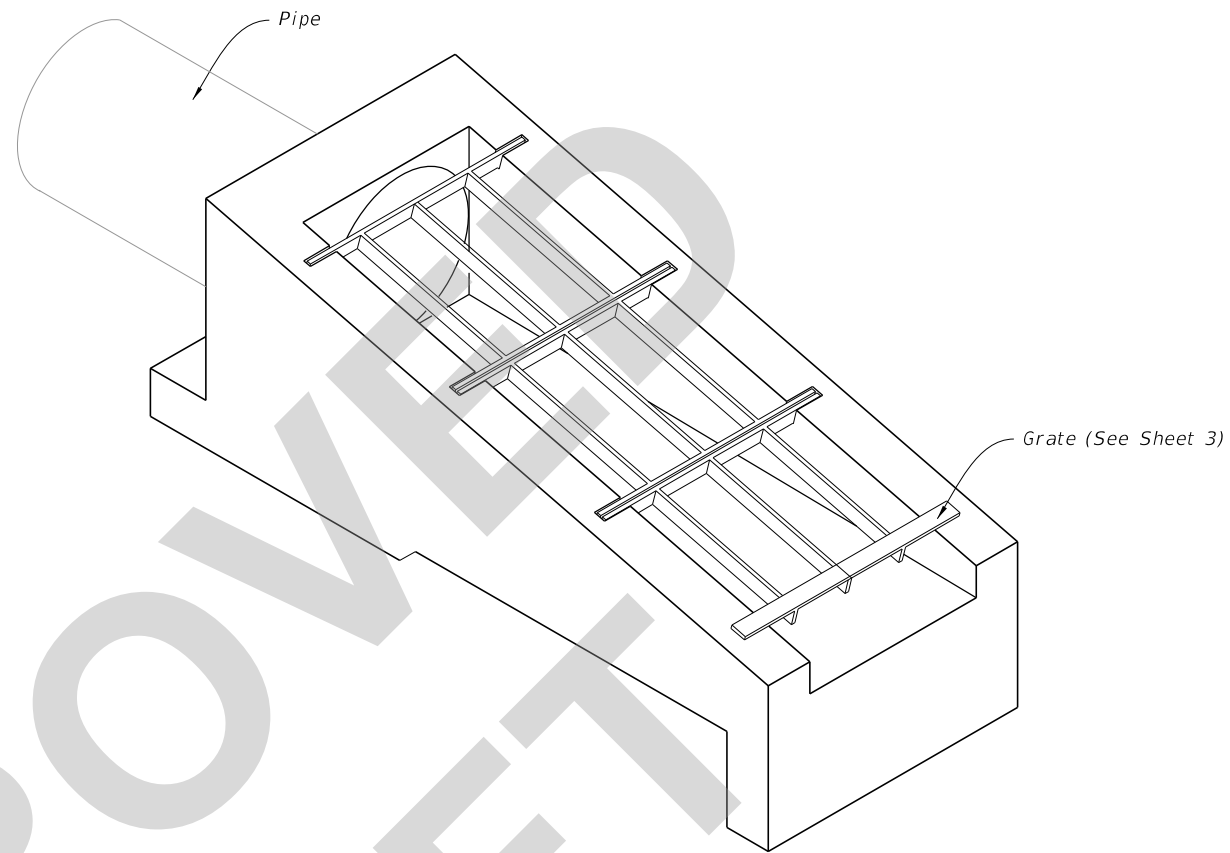
DIMENSIONAL AND REINFORCING DETAILS

INDEX SHEET  
 430-010 2 of 3

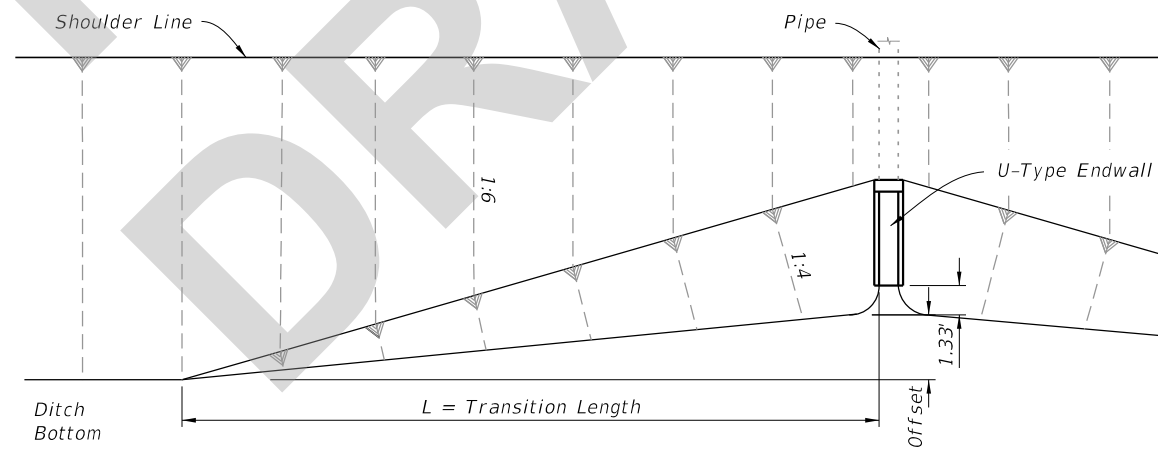
**GENERAL NOTES:**

1. Use Class II concrete.
2. Reinforcing steel: All bars are size #4. Spacings shown are center to center. Laps to be 1'-5" minimum. Cover is 2" except as noted. Square welded wire fabric (two cages max.) having an equivalent cross sectional area (0.20 sq. in.) may be substituted for bar reinforcement.
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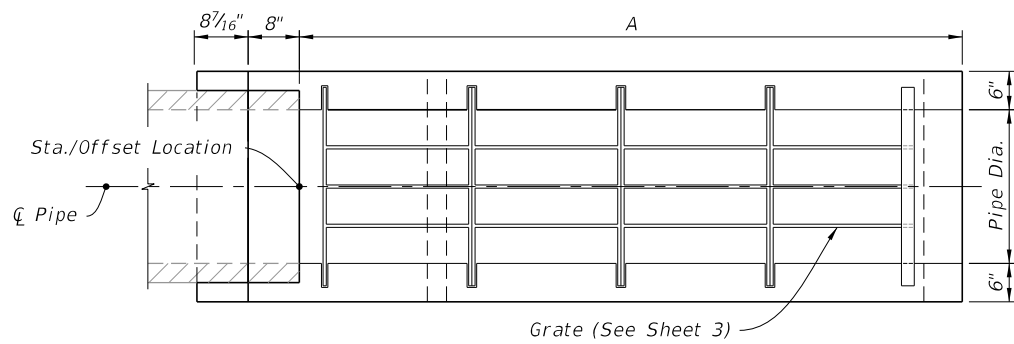


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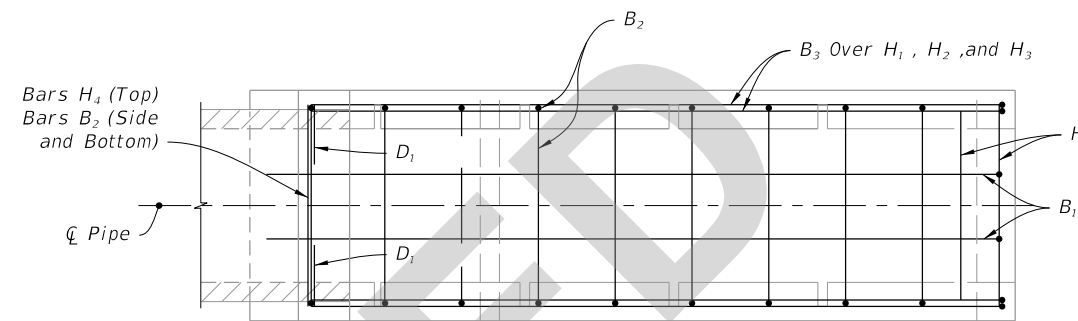
FRONT SLOPE TRANSITION AT ENDWALL

APPROVED DRAFT

6/15/2021 11:09:07 AM

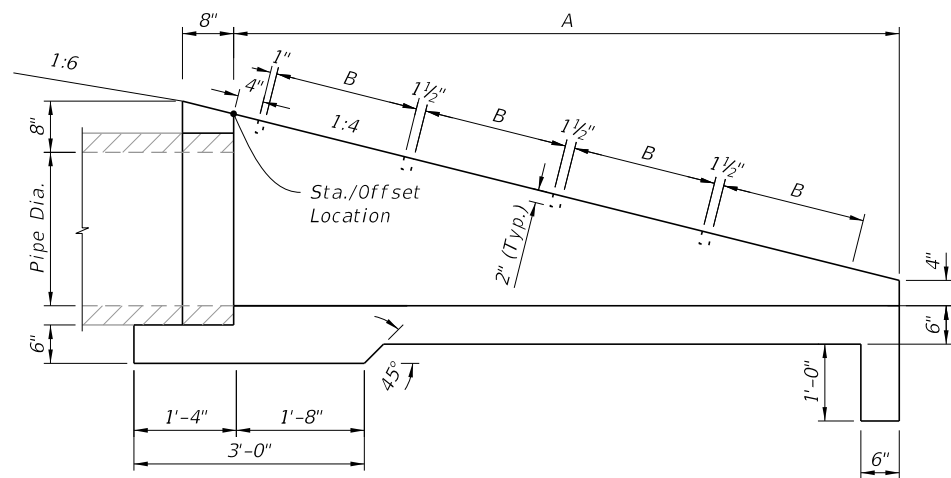


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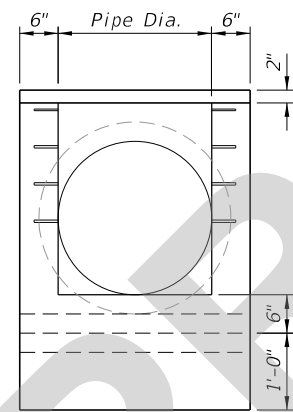


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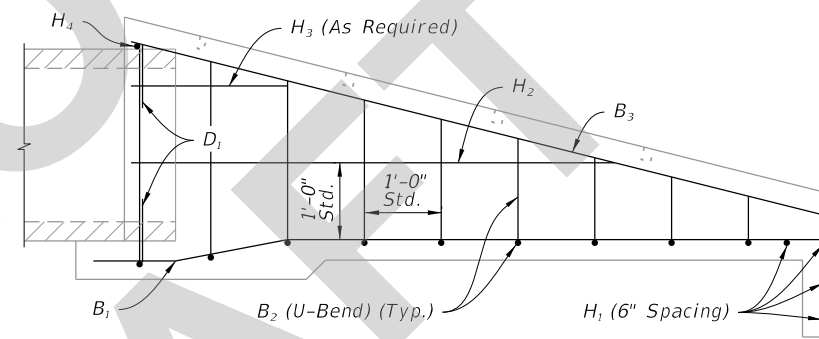
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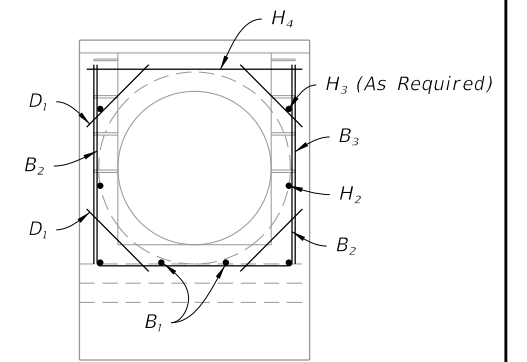
ELEVATION



END VIEW



ELEVATION



END VIEW

DIMENSIONAL DETAIL

REINFORCING DETAIL

**TABLE 2**  
**DIMENSIONS AND QUANTITIES**

	Pipe Dia.	A (Ft.)	B (Ft.)	Class II Conc. (CY)	Reinf. Steel (lbs.)
Slope 1:4	15"	5.67	2.38	0.85	56
	18"	6.67	1.875	1.01	73
	24"	8.67	1.875	1.65	97
	30"	10.67	1.875	2.33	129

6/15/2021 11:09:08 AM

LAST REVISION	11/01/21	DESCRIPTION:
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FY 2022-23  
STANDARD PLANS

U-TYPE CONCRETE ENDWALLS  
15" TO 30" PIPES WITH GRATES

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DIMENSIONAL AND REINFORCING DETAILS