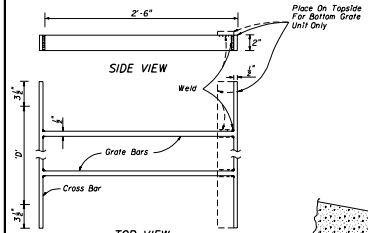
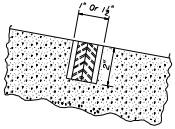
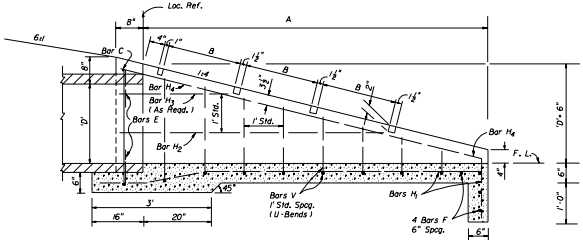


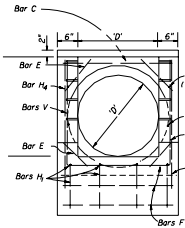
GRATE TYPE NO. 1

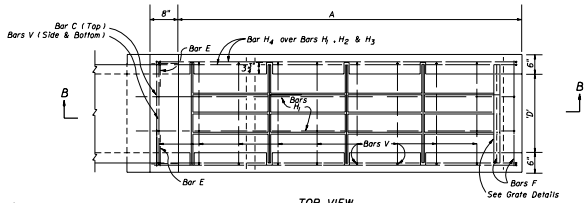
Pipe Size	Grate Bars Reqd.	Grate LB.
15"	2	28.93

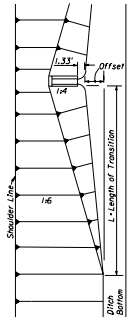
Bars to be evenly spaced across dimension 'D'.
All bars $\frac{3}{8}$" x 2".



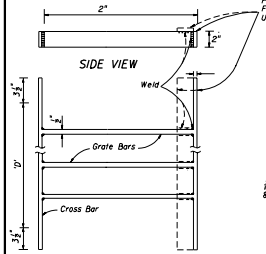








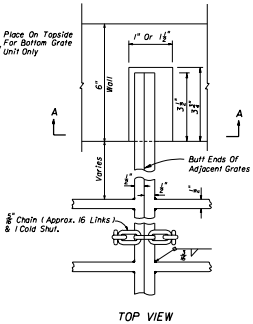
FRONT SLOPE TRANSITION AT ENDWALL



GRATE TYPE NO. 2

Pipe Size	Grate Bars Reqd.	Grate LB.
18"	3	33.69
24"	4	43.63
30"	5	53.55

Bars to be evenly spaced across dimension 'D'.
All bars $\frac{3}{8}$" x 2".



GRATE, SEAT, WELD & CHAIN DETAIL

TABLE OF DIMENSIONS AND QUANTITIES

Slope	Pipe Size D	A	B	Conc. Class I (C.Y.)	Reinf. Steel (Lbs.)	Number Of Grates Req'd Type No. 1	Type No. 2	Total Grate Wt. (Lbs.)	Sodding (S.Y.)	Slope Transition Offset	L
4:1	15"	5.67'	2.38'	0.85	56	2	0	57.86	15	4.2'	42'
	18"	6.67'	1.875'	1.01	73	0	3	101.08	16	4.8'	48'
	24"	8.67'	1.875'	1.65	97	0	4	174.52	19	5.8'	58'
	30"	10.67'	1.875'	2.33	129	0	5	267.75	21	6.9'	69'

GENERAL NOTES

1. This endwall is to be used only in the clear zone for the drainage of medians and other areas having low design velocities and negligible debris. Grates exposed to salt water shall be designated in the plan as Alternate G.
2. Reinforcing steel : All bars are size #4. Spacings shown are center to center. Laps to be 12" minimum. Clearance 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. Grates shall be ASTM A242/A242M,A572/A572M or ASTM A588/A588M, Grade 50 steel, and galvanized in accordance with Section 962-7 of the Standard Specifications.
4. Endwall to be paid for under the contract unit price for U-Endwall With Grate, Each. Payment shall include cost of concrete, reinforcing steel, grate, and accessories. Quantities shown are for estimating purposes only.
5. Sod slopes 5' each side and above endwall. Sodding to be paid for under contract unit price for sodding.
6. Precasting of this endwall will be permitted. Precast units shall conform to the dimensions shown or in accordance with approved shop drawings. Request for shop drawing approval shall be directed to the State Drainage Engineer. Use Index No. 20 for opening and grouting details.
7. Concrete meeting the requirements of A.S.T.M. C 478 (4,000 P.S.I.) may be used in lieu of Class I concrete for precast units manufactured in plants which are under the Standard Operating Procedures for the inspection of precast drainage products.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
ROAD DESIGN

U-TYPE CONCRETE ENDWALLS WITH GRATES

15" TO 30" PIPE

	Names	Dates	Approved By: A. M. McInnes
Designed By	EGR	06/77	State Drainage Engineer
Drawn By	MKH	06/77	Revision: 00 / Sheet No.: 1 of 1 / Index No.: 260
Checked By	JVG	06/77	

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