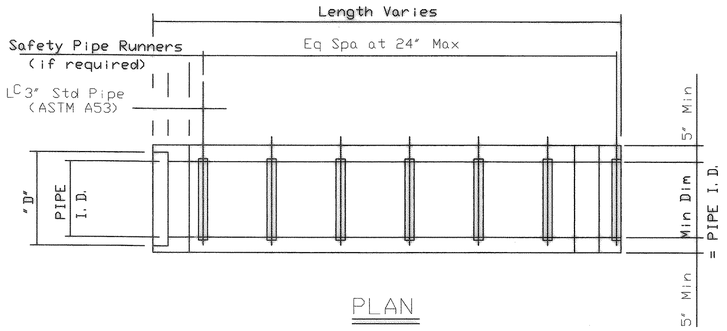
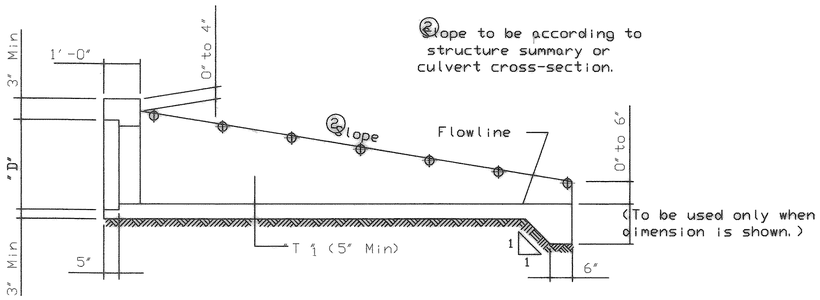
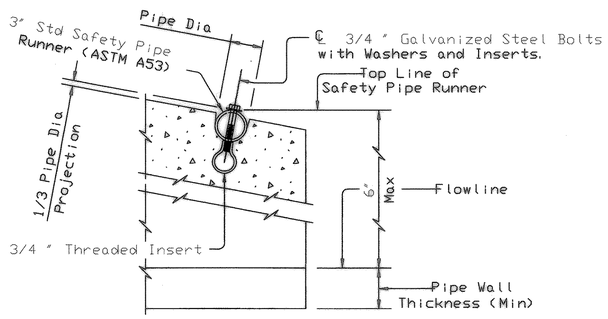
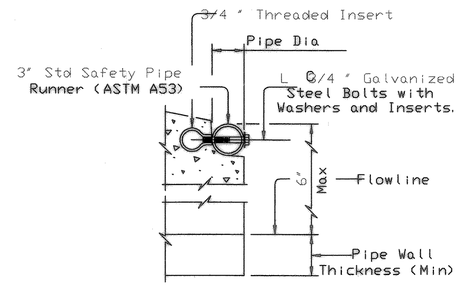


PLAN



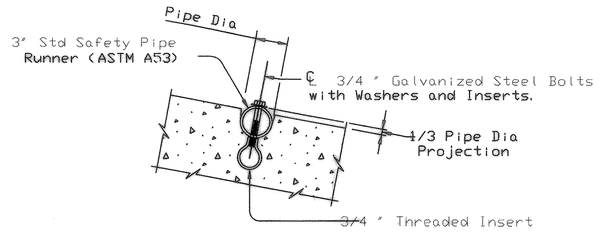
LONGITUDINAL ELEVATION





END DETAILS FOR INSTALLATION OF SAFETY PIPE RUNNERS

(If required)



INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

(If required)

PIPE I. D.	PIPE WALL "B" THICKNESS	"D" ①	MAXIMUM SLOPE	MINIMUM LENGTH	PIPE RUNNERS REQUIRED	
					SINGLE PIPE	MULTIPLE PIPE
12"	2"	17"	6:1	4'-9"	No	Yes, for >2 pipes
15"	2 1/4"	20 1/2"	6:1	6'-5"	No	Yes, for >2 pipes
18"	2 1/2"	24"	6:1	8'-0"	No	Yes, for >2 pipes
24"	3"	31"	6:1	11'-3"	No	Yes, for >2 pipes
30"	3 1/2"	38 1/2"	6:1	14'-8"	No	Yes
36"	4"	45 1/2"	6:1	17'-11"	Yes	Yes
42"	4 1/2"	52 1/2"	6:1	21'-2"	Yes	Yes

① Dimension "D" is based on wall thickness "B". If any other wall thickness is used, dimension "D" must be adjusted accordingly.

GENERAL NOTES :

Precast safety end treatment for reinforced concrete pipe may be used for TYPE II end treatment as specified in Item "Safety End Treatment".

The Safety End Treatment option shown on this sheet should only be utilized as indicated in the table above.

All exposed corners shall be chamfered 3/4 ".

Manufacture of this product shall conform to requirements of Item "Safety End Treatment" except as noted below :

A. Minimum reinforcing shall be #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6 x 6 - W12 x W12 or 5 x 5 - W10 x W10 welded wire fabric.

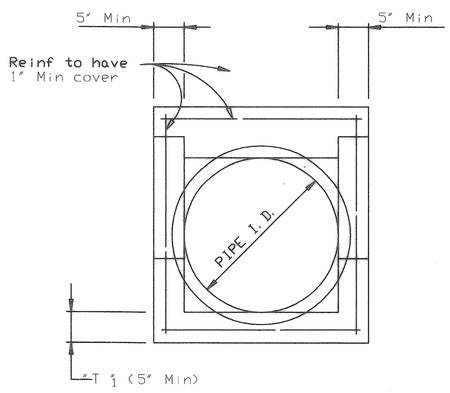
B. Concrete for precast (steel formed) sections shall be Cl. "A"

At the option and expense of the Contractor the next larger size of Safety End Treatment may be furnished; as long as the "D" dimension cast is that of the required size of pipe.

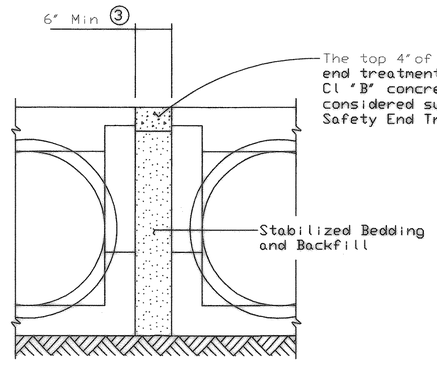
Design requirements for the treatment of culvert ends must conform to the "Highway Design Division Operations and Procedure Manual 1-86".

The details for safety pipe runners shown on this sheet conform to the "Highway Design Division Operations and Procedures Manual 1-86", which addresses the basic design requirements concerning culvert ends.

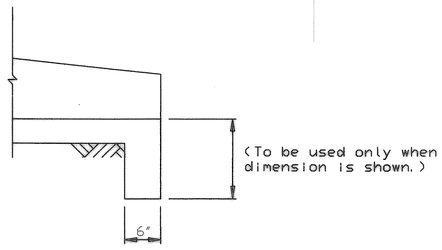
③ Clear distance between pipes shall be adjusted to provide for the minimum distance between safety end treatments.



END ELEVATION



MULTIPLE PIPE INSTALLATION



OPTIONAL TOEWALL DETAIL

NOTE: CONCRETE FOR STRUCTURE SHALL BE 4200 P. S. I. ⚠

⚠ ADDED NOTE

RECORD DRAWING
REVISED TO REFLECT KNOWN CHANGES MADE DURING CONSTRUCTION.
Robert L. Wright DATE 8-18-03

BENCHMARK:
TOP FLANGE BOLT ON FIRE HYDRANT BETWEEN "OPEN & ARROW" AT NORTHWEST CORNER OF I-30 AND GREENCREST BLVD.
ELEVATION 570.25

PATE ENGINEERS
8150 BROOKRIVER DRIVE
SUITE S-700
DALLAS, TEXAS 75247
PH (214) 357-9367
FAX (214) 357-2985

JOB NO. 076700400

TRAVEL CENTERS OF AMERICA – Protolite
Interstate 30 at State Highway 205
Rockwall, Texas 75087
TravelCenters of America

PROJECT NO: TAR2TX

STATE OF TEXAS
ROBERT L WRIGHT
35510
REGISTERED
PROFESSIONAL ENGINEER
10-18-02

REVISIONS: CONSTRUCTION SET DOCUMENTS; CONSTRUCTION BULLETIN #1 10/18/02
⚠ REVISIONS PER OWNER'S COMMENTS
⚠ REVISIONS PER CITY COMMENTS

CHECKED BY: JEM

Sheet:
HEADWALL DETAILS
C-12
Of:
Date: SEPTEMBER 25, 2002