

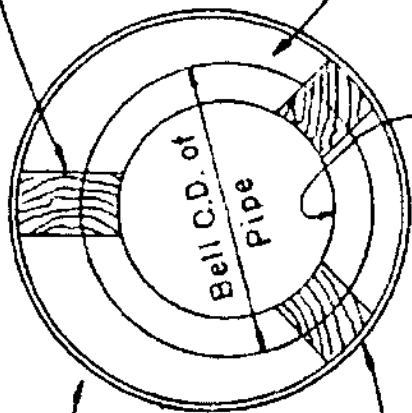
SECTION XI
TUNNELING

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Construct Brick or Concrete Bulkheads at sleeve ends after pipe has been tested and approved by the Engineer.

16" & 30" Steel Sleeve Bore and Jacked in place .



Hardwood Supports or other approved method of support strapped to pipe and set 1'-0" from pipe joint. Use type of support selected to set sewer pipe on exact grade specified on the contract drawings.

Grout area between sleeve and pipe after testing and approved by the Engineer.

Invert Elevation of the pipe shall not change from that shown on the drawings. Pipe Support shall govern the sleeve Invert.

APPROVED

CHIEF ENGINEER

DESIGN ENGINEER

DATE:

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS

REVISED

STANDARD TUNNELING DETAILS

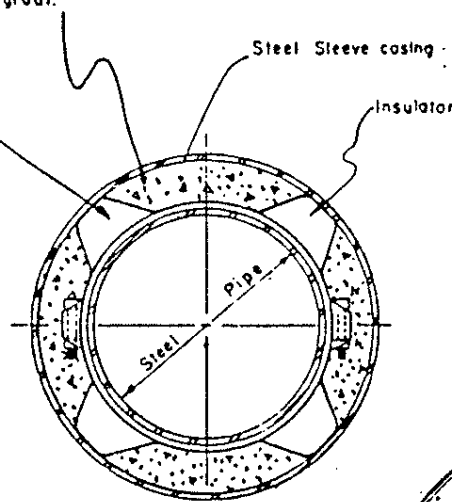
16" X 30" STEEL SLEEVE DETAIL

T/1

Annular space at each end of casing shall be sealed with 6" of cement grout.

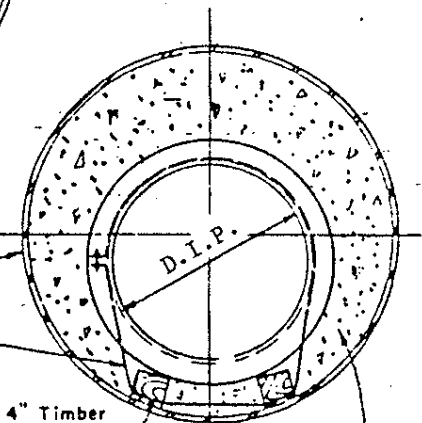
Insulators to be equally spaced as required.

TYPE I	
Pipe Size	Sleeve
6"	10"
8"	12"
10"	14"
12"	16"



TYPE III	
Pipe Size	Sleeve
6"	18"
8"	20"
10"	22"
12"	24"

TYPE I



TYPE III

Annular space at each end of casing shall be sealed with 6" of cement grout.

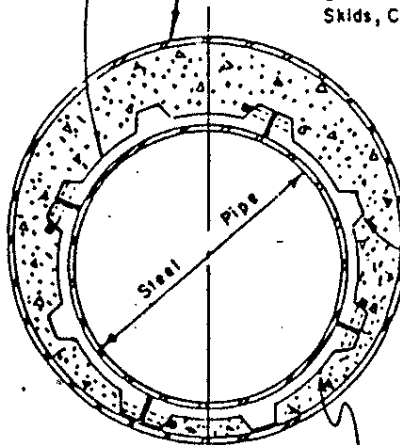
Steel sleeve casing

3" x 1/4" Steel Strap

Insulator

2" x 4" Timber Skids, Creosoted

TYPE II	
Pipe Size	Sleeve
6"	14"
8"	16"
10"	18"
12"	20"
14"	22"
16"	24"



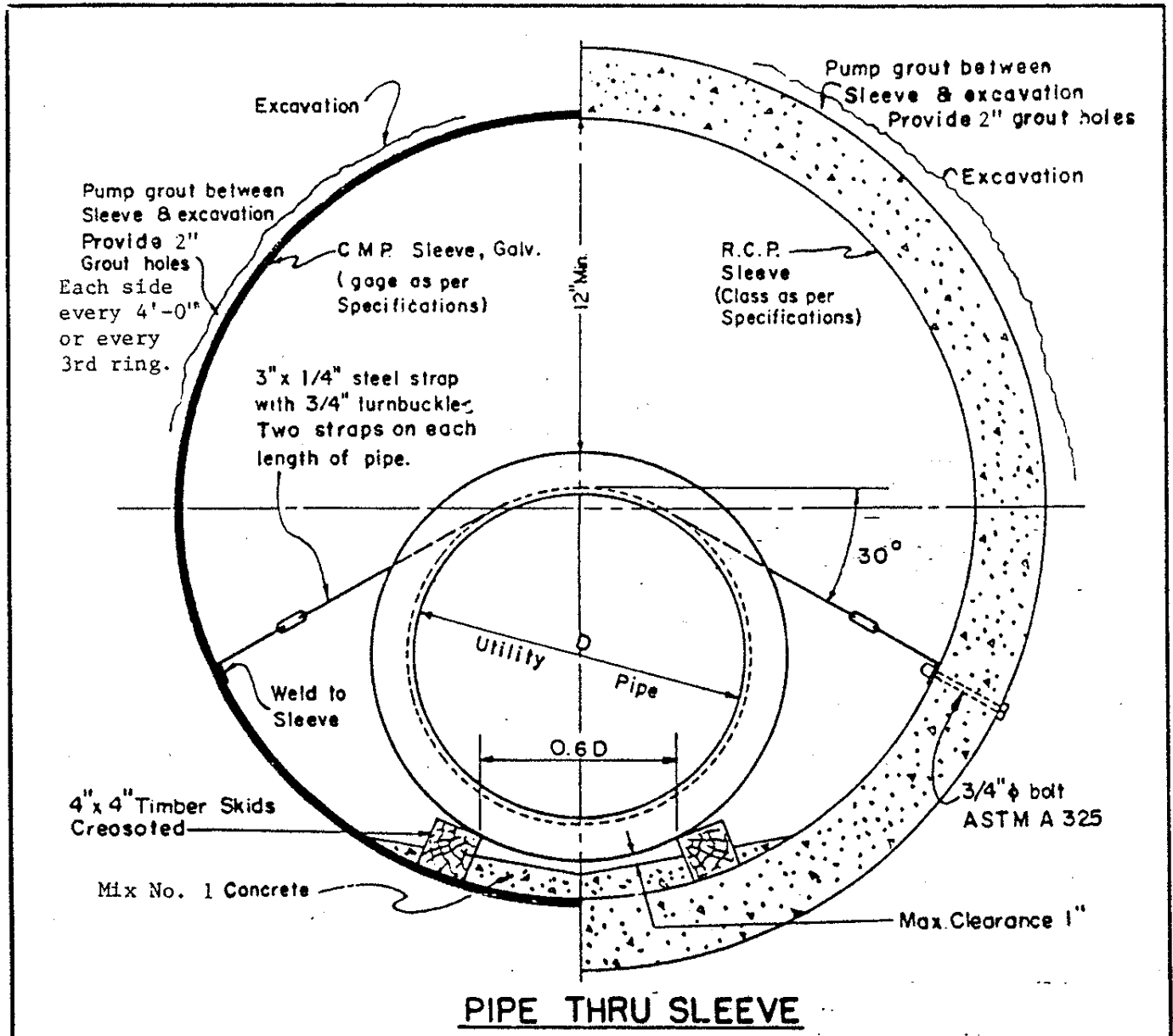
TYPE II

Annular space at each end of casing shall be sealed with 6" of cement grout.

Insulators to be equally spaced as required.

PIPES THRU SLEEVES

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED <i>[Signature]</i> CHIEF ENGINEER	STANDARD TUNNELING DETAILS JACKING OR BORING INSTALLATION TYPE I, II & III	REVISED	T 2
	DESIGN ENGINEER <i>[Signature]</i> 9/1/88			
	DATE 9/7/88			



PIPE THRU SLEEVE

NOTES

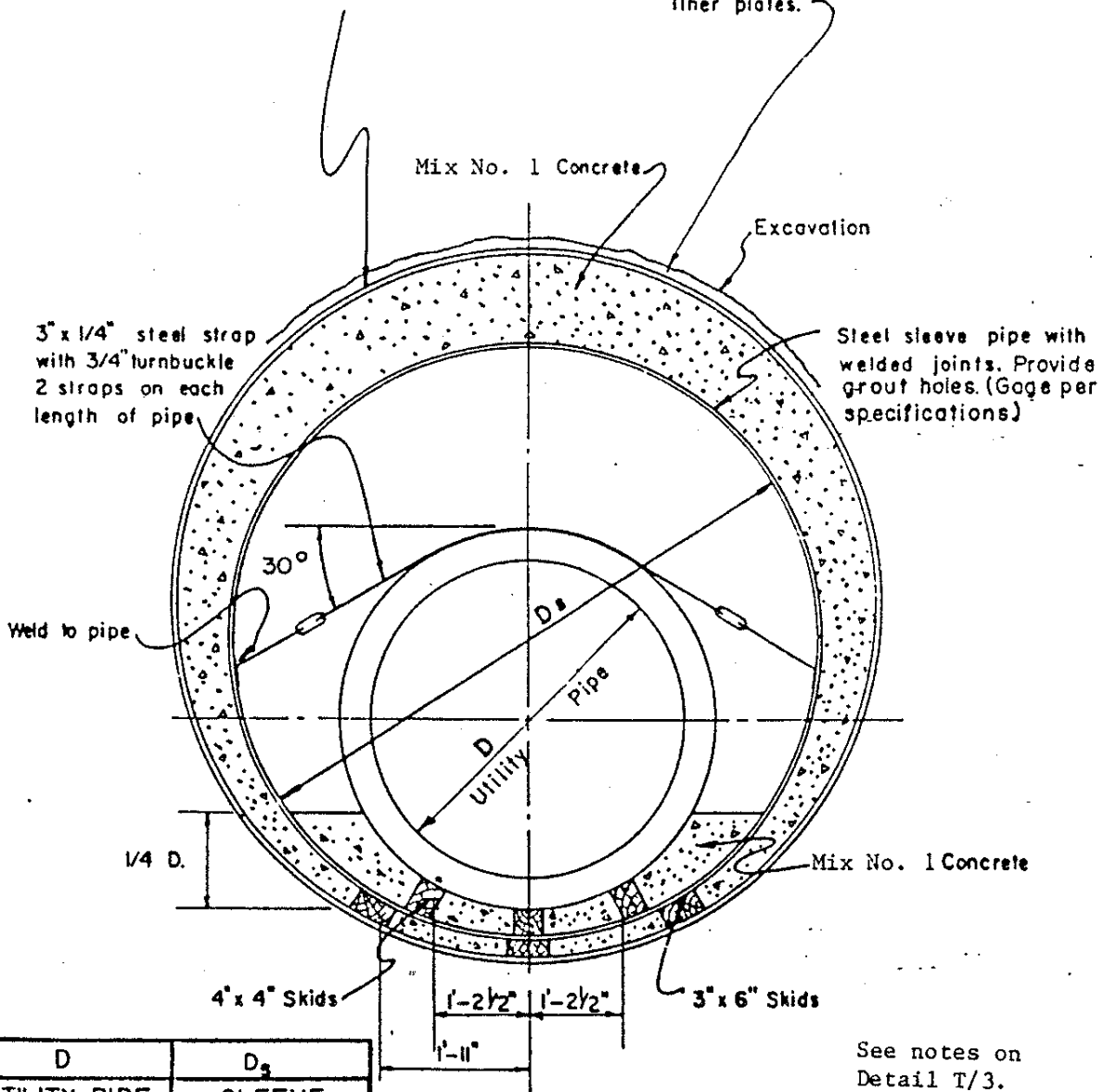
1. A joint in the main pipe to be provided within 2 feet of each outside end of the casing.
2. An 8" thick bulkhead to be provided at each end of casing. Two 2" diameter drain pipes through bulkhead to be provided at each side of main pipe at low end of casing.
3. Apply two coats of bitumastic coating to all straps and exposed steel.

PIPE SIZE, INCHES	SLEEVE MIN. SIZE, INCHES
8 - 10 - 12	36
14 - 16	42
18 - 21	48
24	54
30	60
36	72
48	90

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED <i>[Signature]</i> CHIEF ENGINEER	STANDARD TUNNELING DETAILS TUNNEL OR JACKING INSTALLATION TYPE I	REVISED	T 3
	DESIGN ENGINEER <i>[Signature]</i>			
	DATE 9/5/88			

TUNNEL - Standard steel liner plate.
 (Gage as per specifications)
 Min. Dia. = $D_s + 12"$

Liner plate to be provided
 with 2" grout holes. Pump
 grout between excavation &
 liner plates.



PIPE THRU SLEEVE AND LINER PLATE

D	D_s
UTILITY PIPE SIZE, INCHES	SLEEVE MIN. SIZE, INCHES
8 - 10 - 12	36
14 - 16	42
18 - 21	48
24	54
30	60
36	66

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 PUBLIC WORKS

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 CHIEF ENGINEER

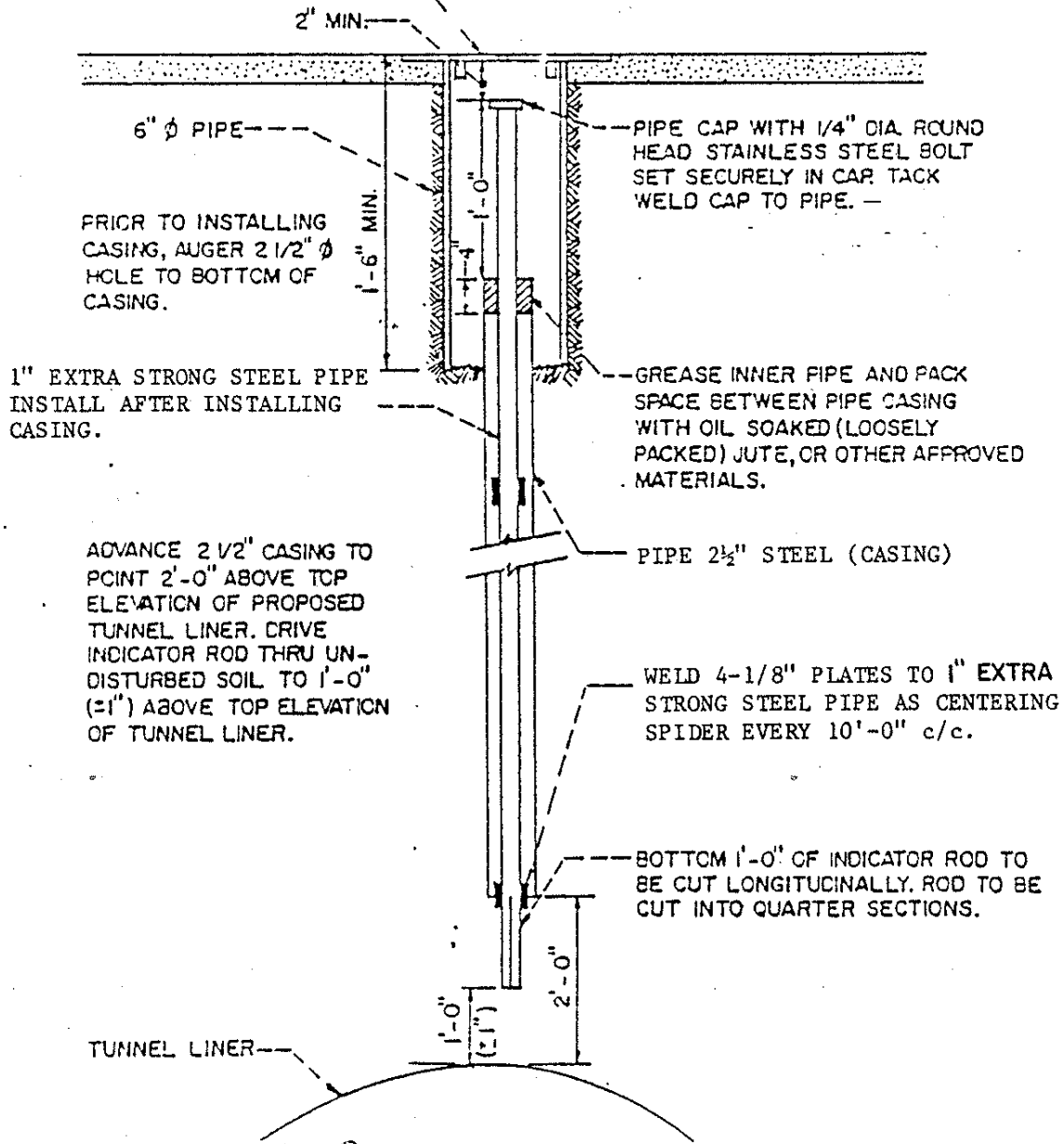
 DESIGN ENGINEER
 9/2/88
 DATE

STANDARD TUNNELING DETAILS
 TUNNEL INSTALLATION
 TYPE 2

REVISED	T
	4

8" DIA. x 1/4" THICK STEEL PLATE WITH 3/4" DIA. HOLE IN CENTER. WELD 3-2"x1"x1/2" LUGS TO PLATE AS CENTERING DEVICE SET COVER ASSEMBLY FLUSH WITH SURFACE.

IF THE DEPTH OF COVER OVER TUNNEL LINER IS LESS THAN 6'-0" THE LOCATION & DETAIL OF SETTLEMENT INDICATOR SHALL BE SHOWN ON THE CONTRACT DRAWINGS.



ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED <i>[Signature]</i> CHIEF ENGINEER	STANDARD TUNNELING DETAILS EARTH TUNNEL SUBSURFACE SETTLEMENT INDICATOR	REVISED	T 5
	DESIGN ENGINEER 9/5/88		_____	
	DATE 9/7/88		_____	
	_____		_____	
	_____		_____	