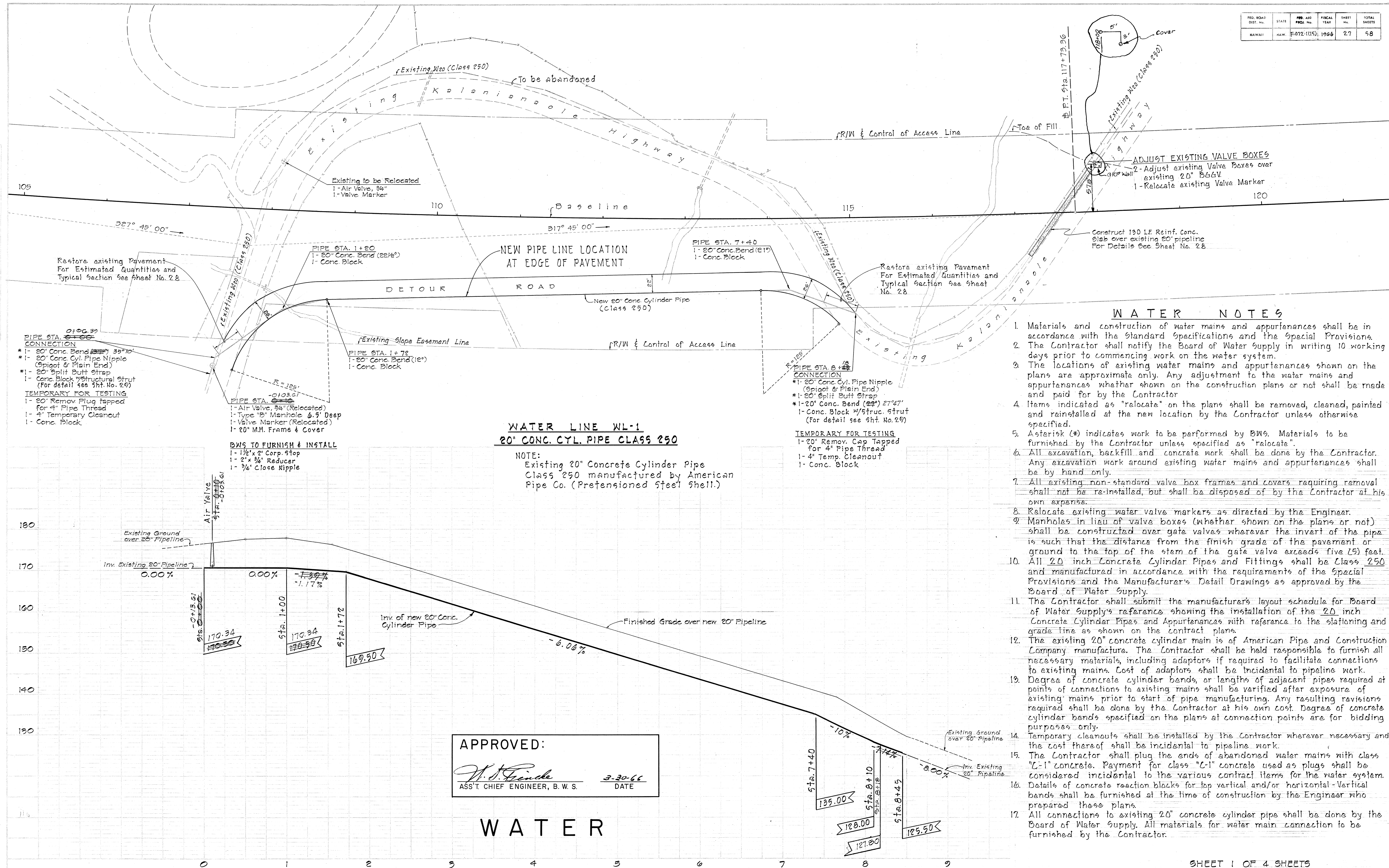




WATER NOTES

- Materials and construction of water mains and appurtenances shall be in accordance with the Standard Specifications and the Special Provisions.
- The Contractor shall notify the Board of Water Supply in writing 10 working days prior to commencing work on the water system.
- The locations of existing water mains and appurtenances shown on the plans are approximate only. Any adjustment to the water mains and appurtenances whether shown on the construction plans or not shall be made and paid for by the Contractor.
- Items indicated as "relocate" on the plans shall be removed, cleaned, painted and reinstalled at the new location by the Contractor unless otherwise specified.
- Asterisk (*) indicates work to be performed by BWS. Materials to be furnished by the Contractor unless specified as "relocate".
- All excavation, backfill and concrete work shall be done by the Contractor. Any excavation work around existing water mains and appurtenances shall be by hand only.
- All existing non-standard valve box frames and covers requiring removal shall not be re-installed, but shall be disposed of by the Contractor at his own expense.
- Relocate existing water valve markers as directed by the Engineer.
- Manholes in lieu of valve boxes (whether shown on the plans or not) shall be constructed over valves wherever the invert of the pipe is such that the distance from the finish grade of the pavement or ground to the top of the stem of the gate valve exceeds five (5) feet.
- All 20 inch Concrete Cylinder Pipes and Fittings shall be Class 250 and manufactured in accordance with the requirements of the Special Provisions and the Manufacturer's Detail Drawings as approved by the Board of Water Supply.
- The Contractor shall submit the manufacturer's layout schedule for Board of Water Supply's reference showing the installation of the 20 inch Concrete Cylinder Pipes and Appurtenances with reference to the stationing and grade line as shown on the contract plans.
- The existing 20" concrete cylinder main is of American Pipe and Construction Company manufacture. The Contractor shall be held responsible to furnish all necessary materials, including adaptors if required to facilitate connections to existing mains. Cost of adaptors shall be incidental to pipeline work.
- Degree of concrete cylinder bends, or lengths of adjacent pipes required at points of connections to existing mains shall be verified after exposure of existing mains prior to start of pipe manufacturing. Any resulting revisions required shall be done by the Contractor at his own cost. Degree of concrete cylinder bends specified on the plans at connection points are for bidding purposes only.
- Temporary cleanouts shall be installed by the Contractor wherever necessary and the cost thereof shall be incidental to pipeline work.
- The Contractor shall plug the ends of abandoned water mains with class "C-1" concrete. Payment for class "C-1" concrete used as plugs shall be considered incidental to the various contract items for the water system.
- Details of concrete reaction blocks for top vertical and/or horizontal-Vertical bands shall be furnished at the time of construction by the Engineer who prepared these plans.
- All connections to existing 20" concrete cylinder pipe shall be done by the Board of Water Supply. All materials for water main connection to be furnished by the Contractor.

PIPE STA. 0+00-CONNECTION
* 1-20" Conc. Band (45) 17'55"
* 1-20" Conc. Cyl. Pipe Nipple (Spigot & Plain End)
* 1-20" Split Butt Strap
1- Conc. Block w/ struc. strut

TEMPORARY FOR TESTING
1-20" Remov. Plug Tapped for 4" Pipe Thread
1-4" Temporary Cleanout
1- Conc. Block

PIPE STA. 2+36
1-20" Conc. Band (7 1/2")
1- Conc. Block

PIPE STA. 3+75
1-20" Conc. Band (28")
1- Conc. Block

PIPE STA. 3+80
RELOCATE EXISTING AIR VALVE
1- Air Valve, 3/4" (Relocated)
1- Type "B" Manhole (6.5' Deep)
1- Valve Marker (Relocated)
1- 20" Manhole Frame & Cover

BWS TO FURNISH & INSTALL
1- 1 1/2" x 2" Corp. Stop
1- 2" x 3/4" Reducer
1- 3/4" Close Nipple

Restore existing Pavement For Estimated Quantities and Typical Section, see Detail This Sheet

PIPE STA. 4+62
CONNECTION
* 1-20" Conc. Band (45) 27'05"
* 1-20" Conc. Cyl. Pipe Nipple (Spigot & Plain End)
* 1-20" Split Butt Strap
1- Conc. Block w/ struc. strut

TEMPORARY FOR TESTING
1-20" Remov. Plug Tapped for 4" Pipe Thread
1-4" Temporary Cleanout
1- Conc. Block

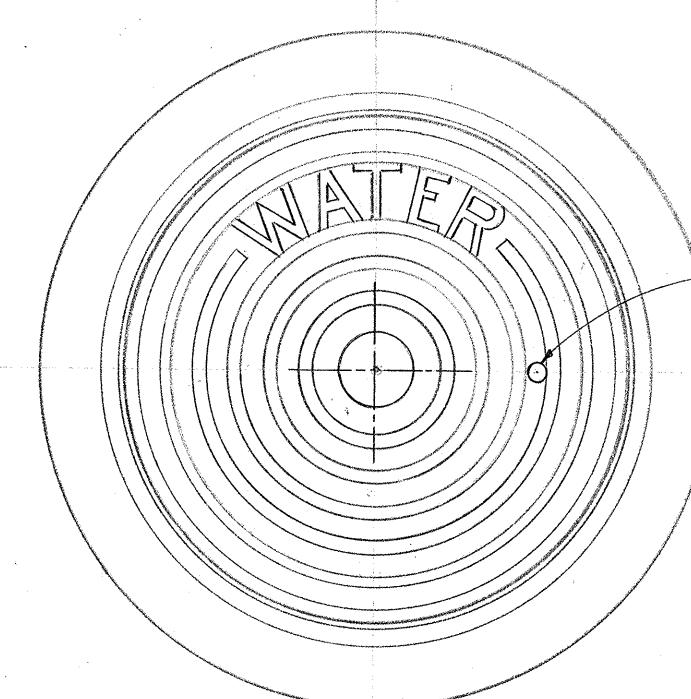
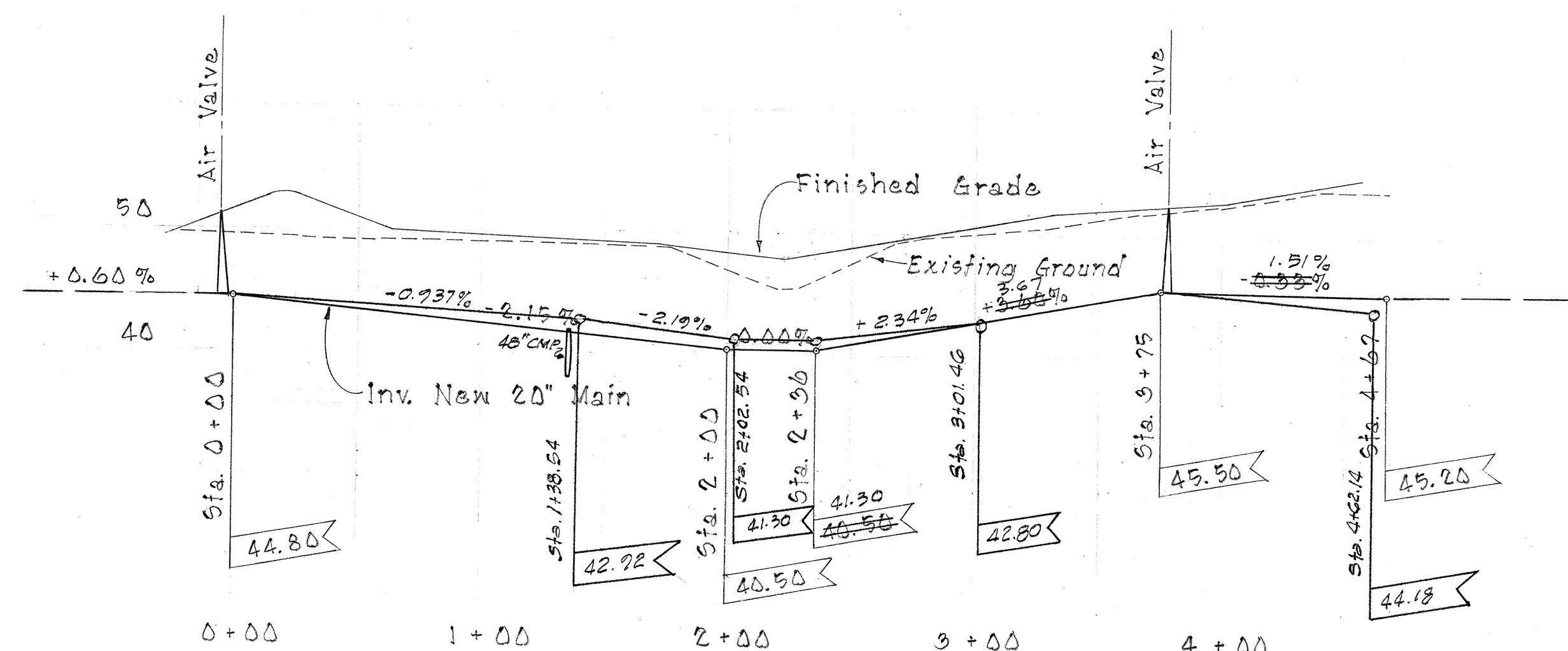
Restore existing Pavement For Estimated Quantities and Typical Section, see Detail This Sheet

EXISTING 20" CONC. CYL. PIPE TO BE ABANDONED

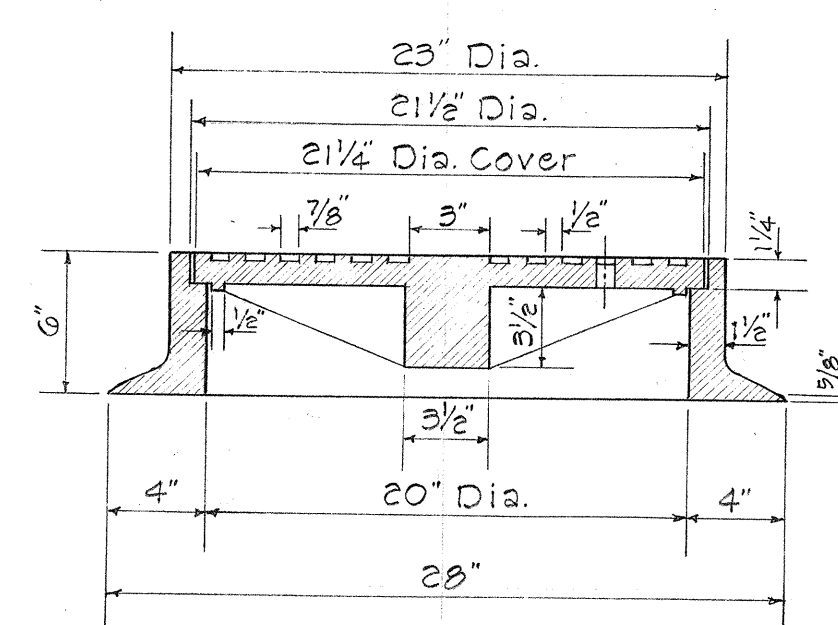
EXISTING TO BE RELOCATED
1- Air Valve, 3/4"
1- Valve Marker

PIPE STA. (-) 0+05
INSTALL AIR RELIEF VALVE
1- Air Valve, 2" (Min. Working Pressure, 155 p.s.i.)
1- Type "B" Manhole (7.0' Deep)
1- Valve Marker
1- 20" Manhole Frame & Cover
BWS TO INSTALL 1- 1 1/2" x 2" CORP STOP FURNISHED BY CONTRACTOR

WATER LINE WL-2
20" CONC. CYL. PIPE CLASS 250



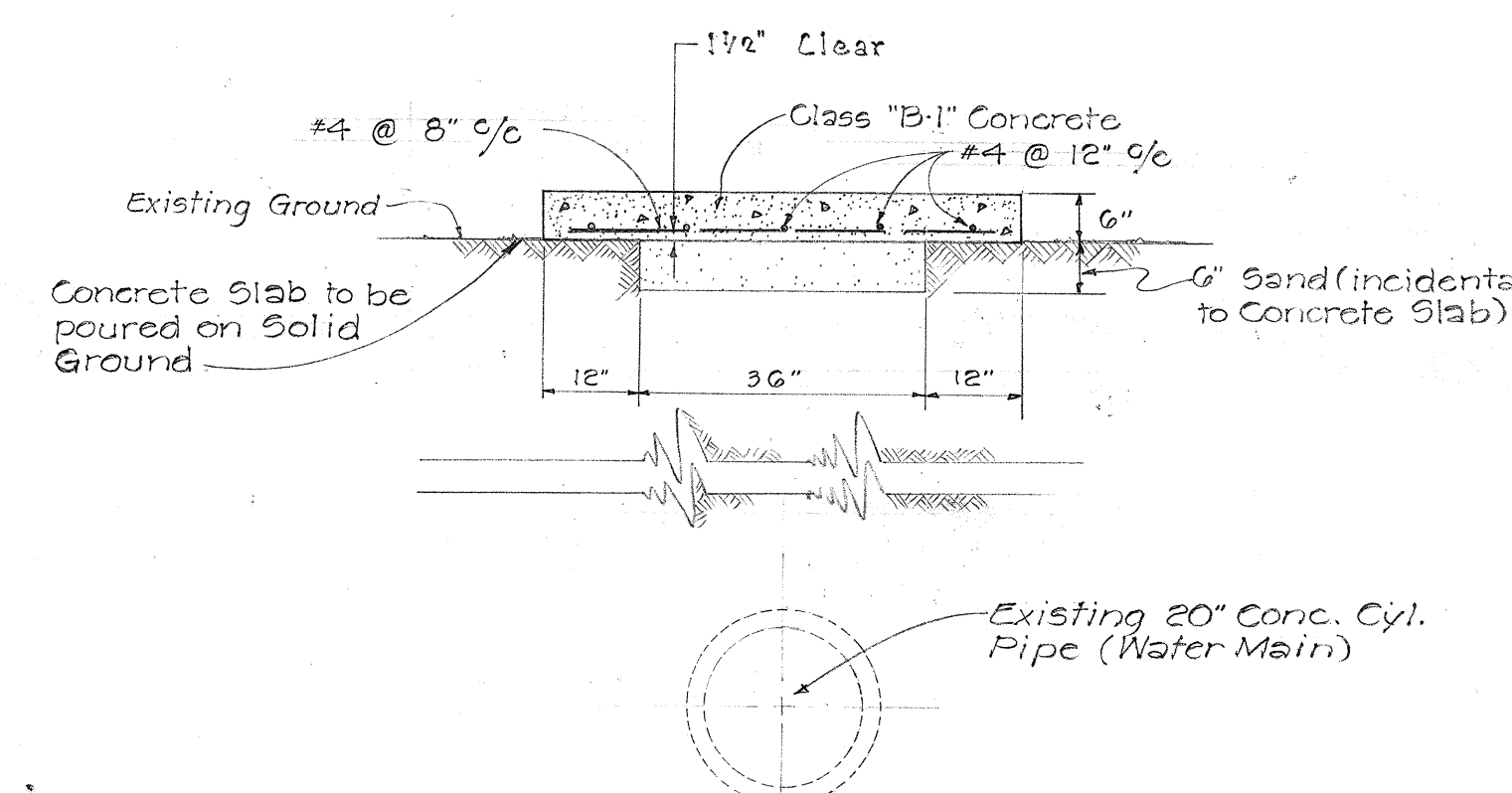
PLAN OF FRAME AND COVER



SECTION

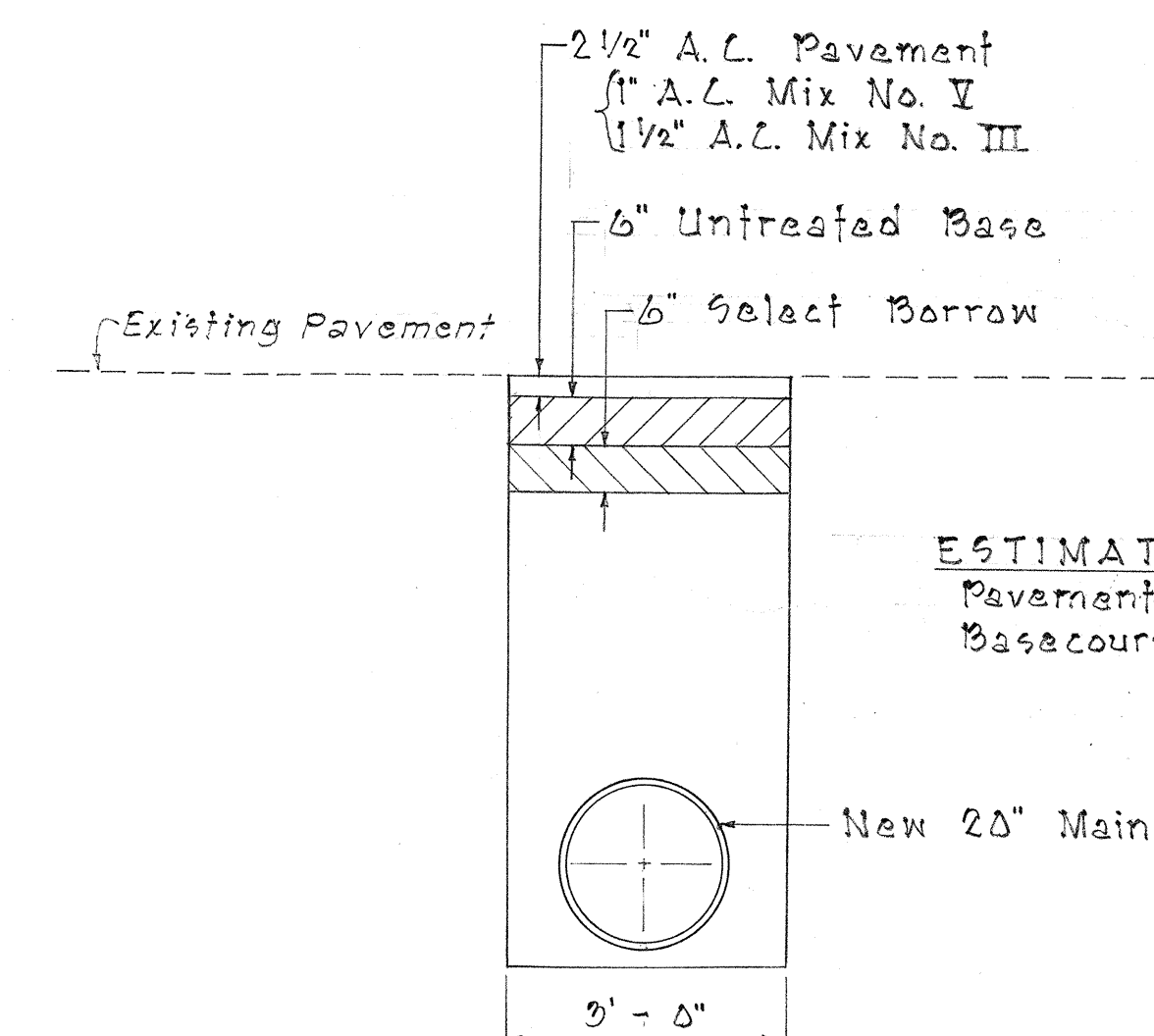
DETAIL OF 20" CAST IRON FRAME AND COVER

Scale: 1 1/2" = 1'-0"



TYPICAL SECTION - REINF. CONC. SLAB

No Scale



TYPICAL SECTION - RESTORATION OF EXISTING PAVEMENT

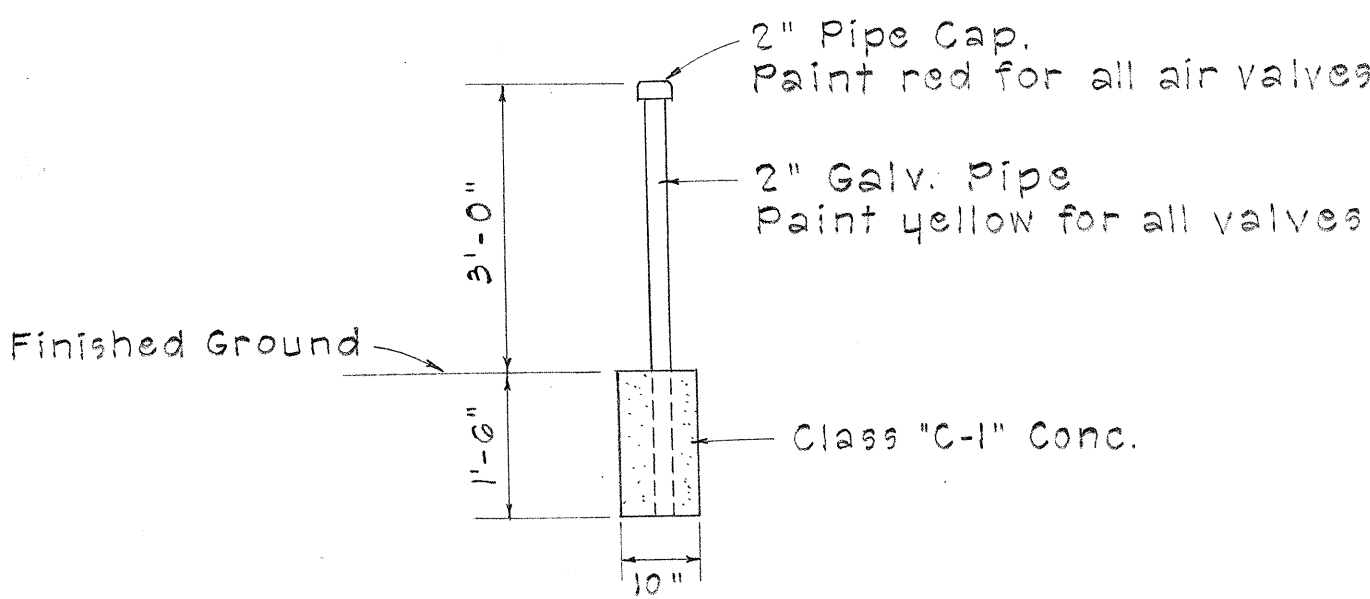
Scale: 1/2" = 1'-0"

ESTIMATED QUANTITIES
Pavement Area = 67 s.y.
Basecourse Area = 67 s.y.

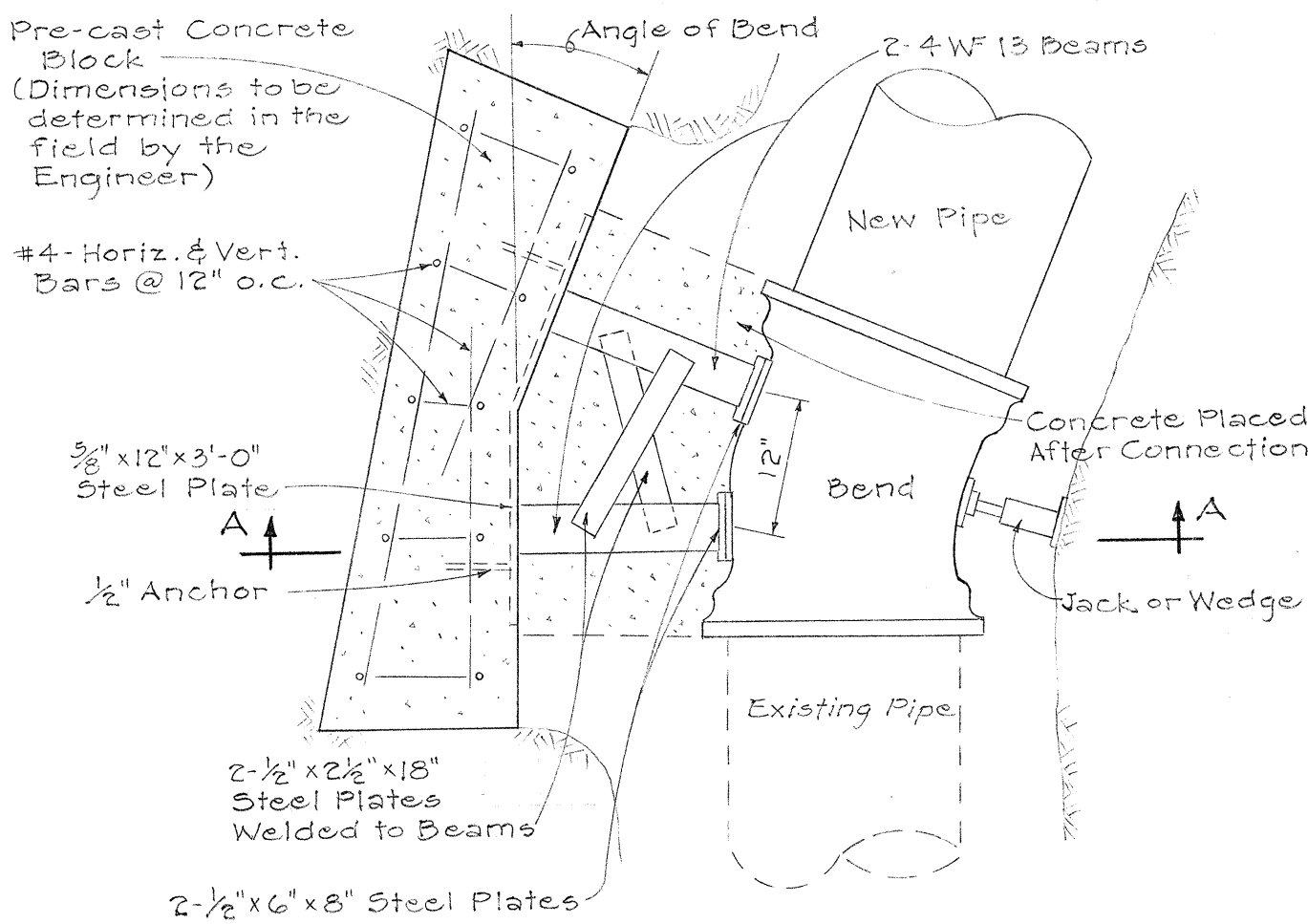
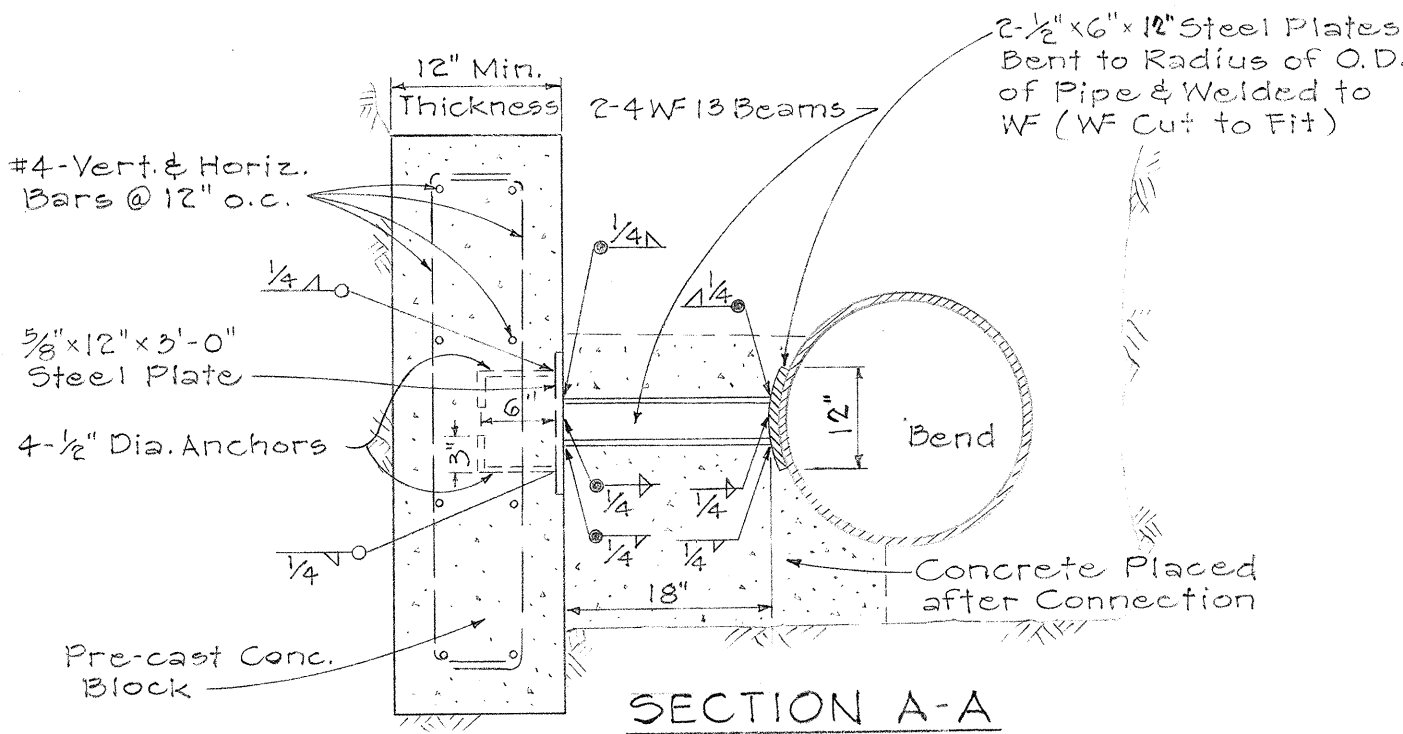
APPROVED:

H. H. Smith
ASST. CHIEF ENGINEER, BWS.

5-30-66
DATE



DETAIL OF VALVE MARKER
Scale: 1/2" = 1'-0"

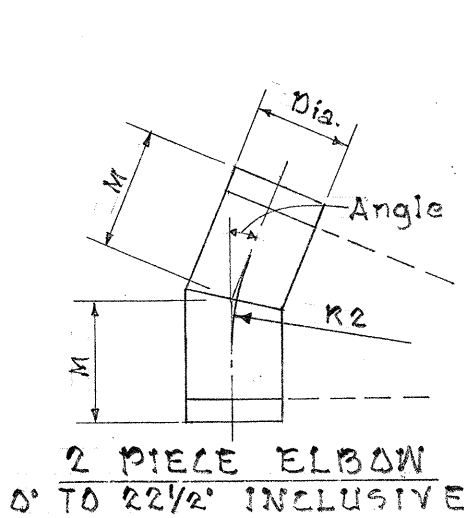


PLAN

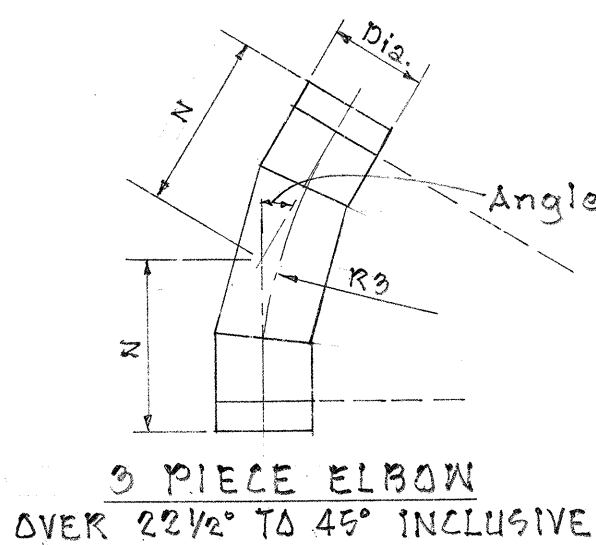
TYPICAL DETAILS - PRE-CAST CONCRETE
BLOCK WITH STRUCTURAL STEEL

Not to Scale

NOTE:
Payment for structural steel plates, anchors and other misc. items shall be considered incidental to class "B-1" concrete.



2 PIECE ELBOW
0° TO 22 1/2° INCLUSIVE



3 PIECE ELBOW
OVER 22 1/2° TO 45° INCLUSIVE

STANDARD FITTING DIMENSIONS											
DIAMETER	TEE		CROSS 180°	LATERAL (90° to 75°)	ELBOWS (Center to End)						
	Run J+J	Outlet J	Run J+J	Outlet Y	2 Piece (up to 22 1/2°)	3 Piece (22 1/2° to 45°)	4 Piece (45° to 67 1/2°)	5 Piece (67 1/2° to 90°)	6 Piece (90° to 112 1/2°)	7 Piece (112 1/2° to 135°)	8 Piece (135° to 157 1/2°)
16"	34"	17"	34"	52"	12"	60"	18"	44"	26"	39"	34"
18"	36"	18"	36"	56"	12"	64"	19"	47"	27"	41"	36"
20"	38"	19"	38"	60"	13"	68"	20"	49"	28"	42"	37"
22"	40"	20"	40"	64"	13"	72"	21"	51"	30"	45"	41"
24"	42"	21"	42"	68"	14"	76"	22"	54"	32"	48"	44"
30"	50"	25"	50"	84"	15"	92"	25"	61"	37"	51"	51"
36"	60"	30"	60"	100"	16"	108"	27"	66"	40"	60"	56"

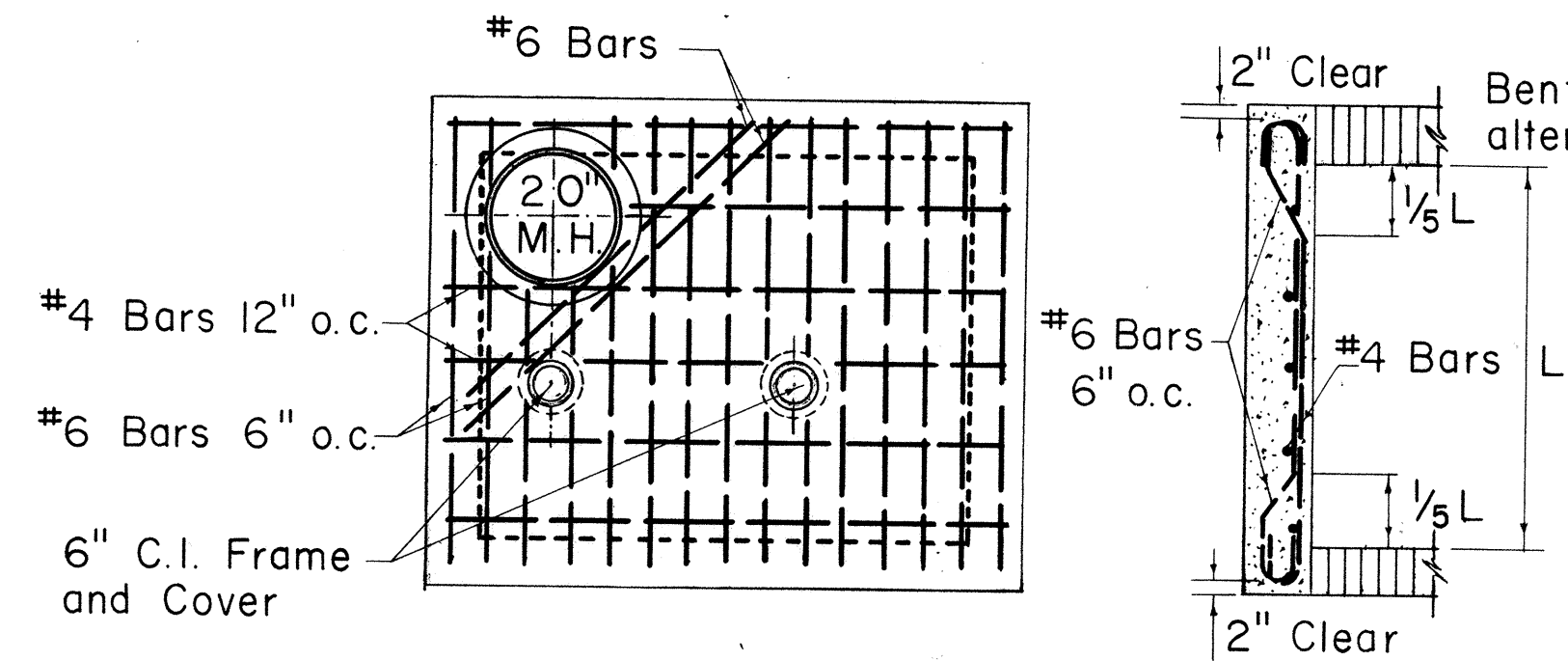
- NOTES:
- All dimensions shown are laying lengths.
 - All fittings and specials shall be fabricated independent from pipe sections and in accordance with the dimensions shown.
 - All fittings and specials shall be all bell unless otherwise noted.
 - All tees, wyes, crosses and reducers 16-inch in diameter and larger shall be reinforced with steel ribs or steel crotch plates welded continuously to the cylinder or by other methods to withstand the longitudinal crushing effect caused by the test pressure as called for in the plans.

Mueller Tap for
Corporation Stop

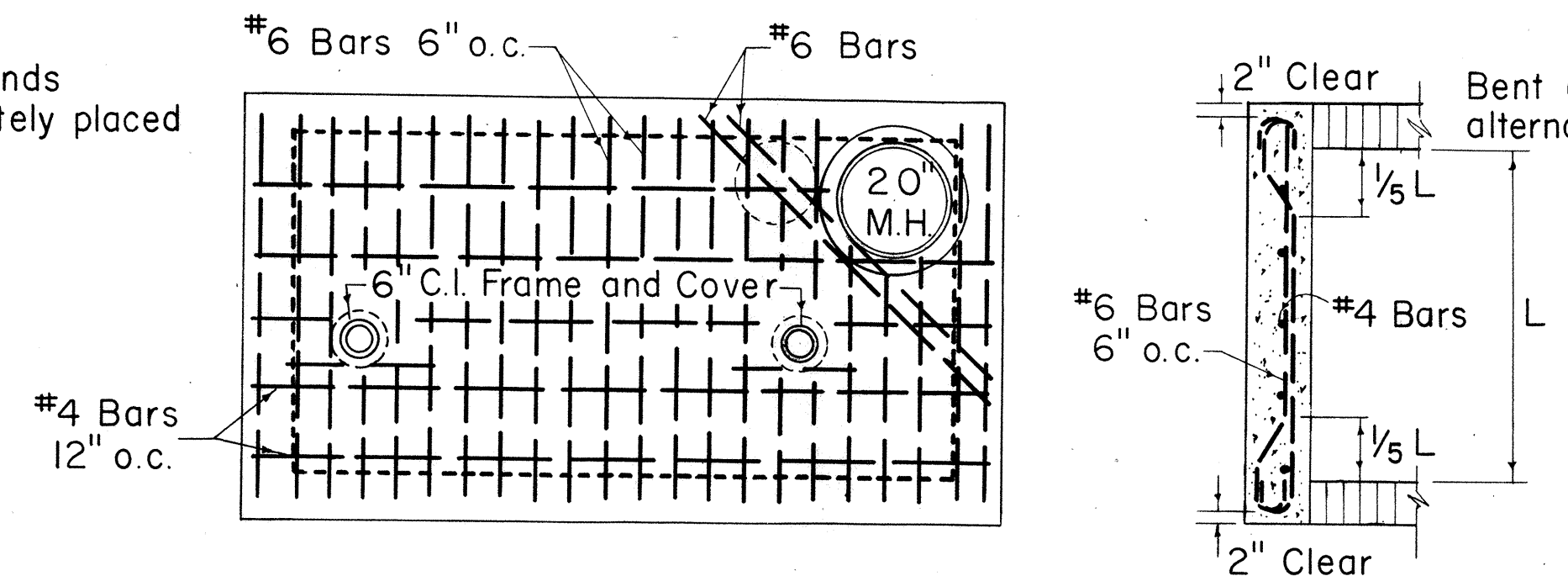
APPROVED:

W. H. Smith
ASS'T. CHIEF ENGINEER, B.W.S.

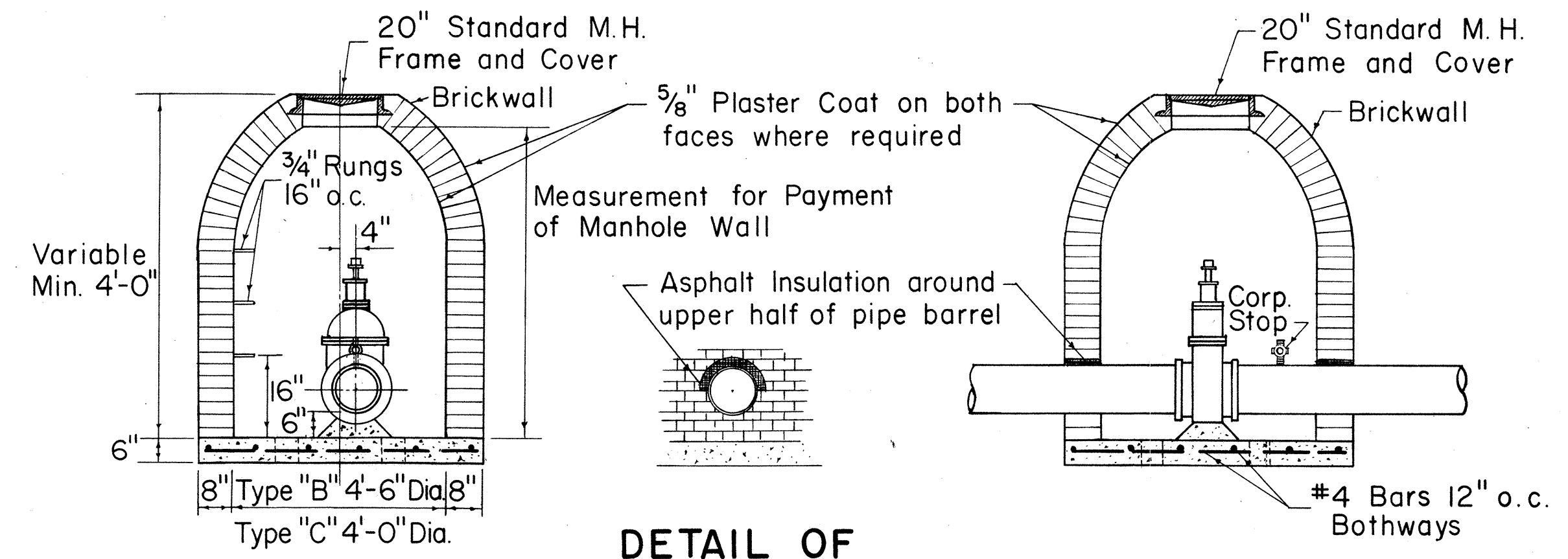
5-30-66
DATE



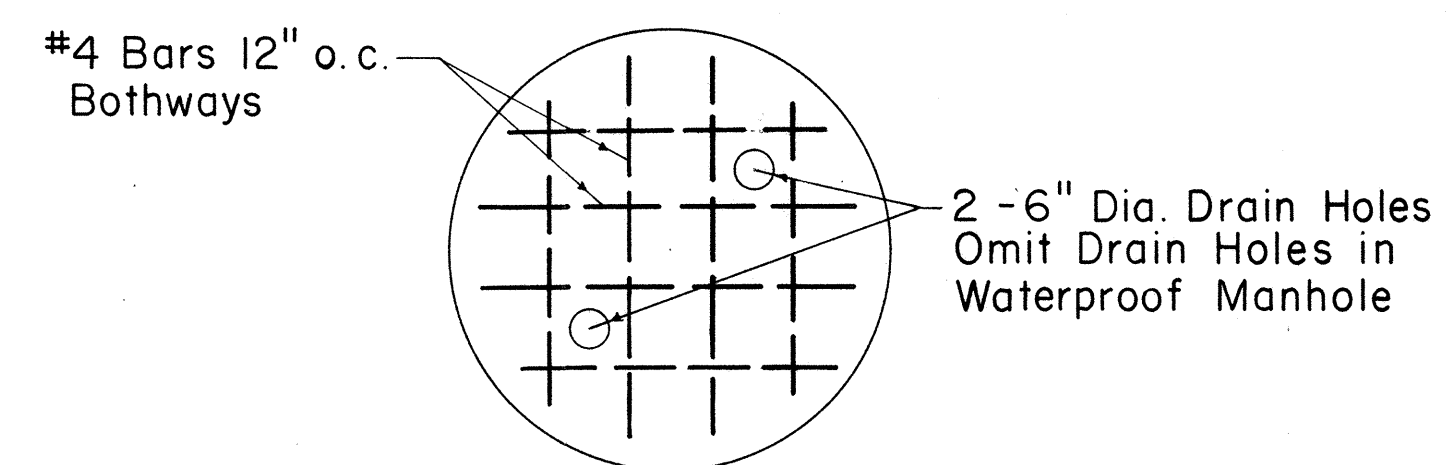
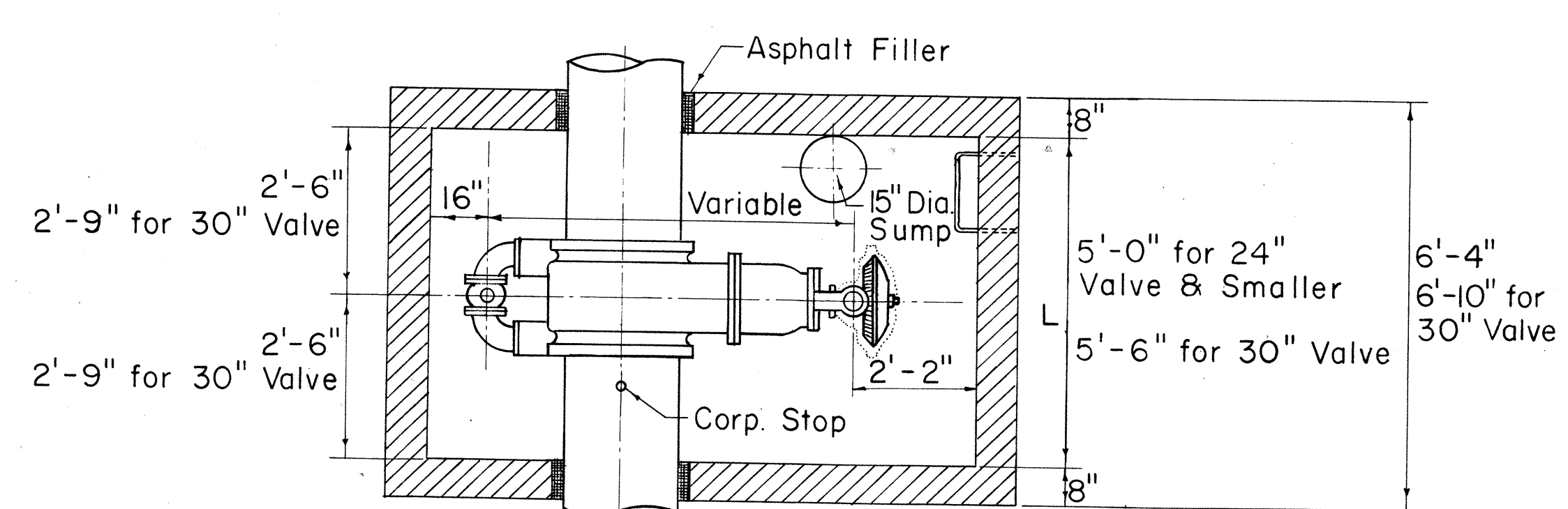
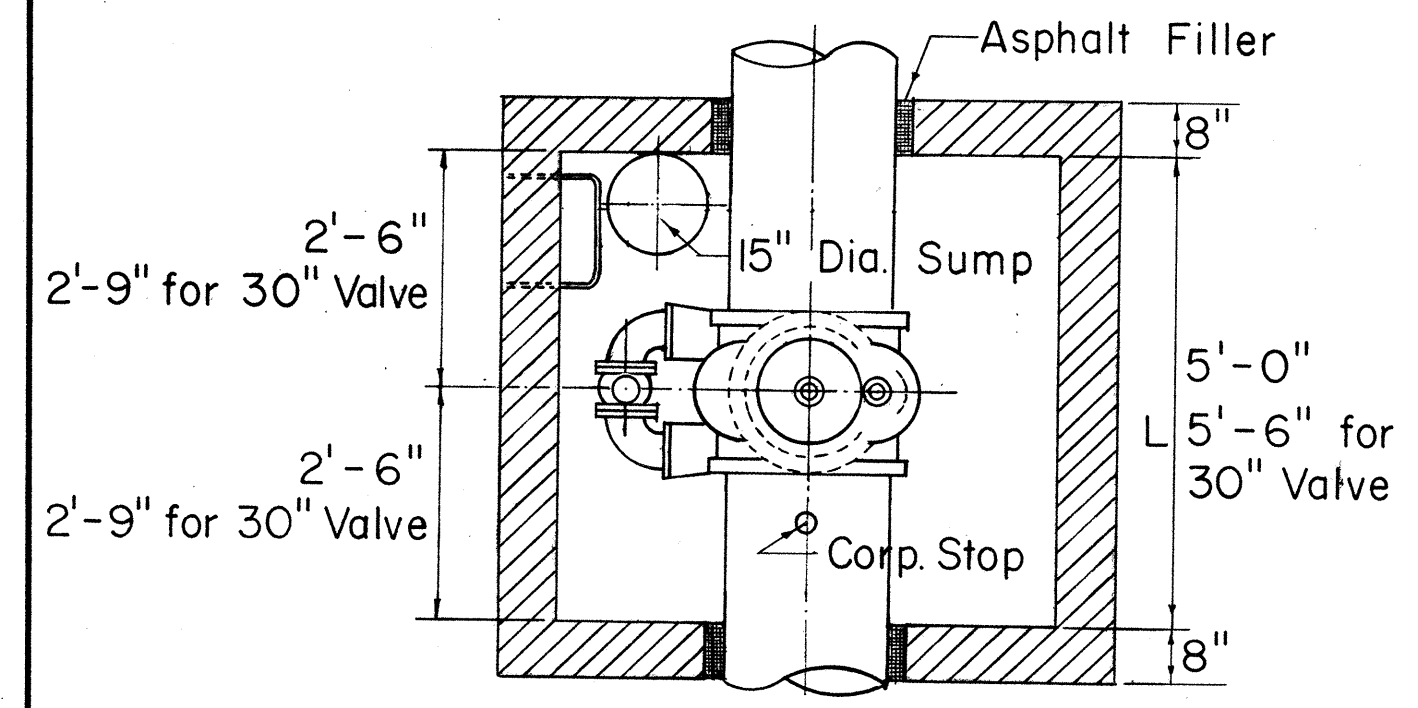
PLAN OF TOP SLAB



PLAN OF TOP SLAB



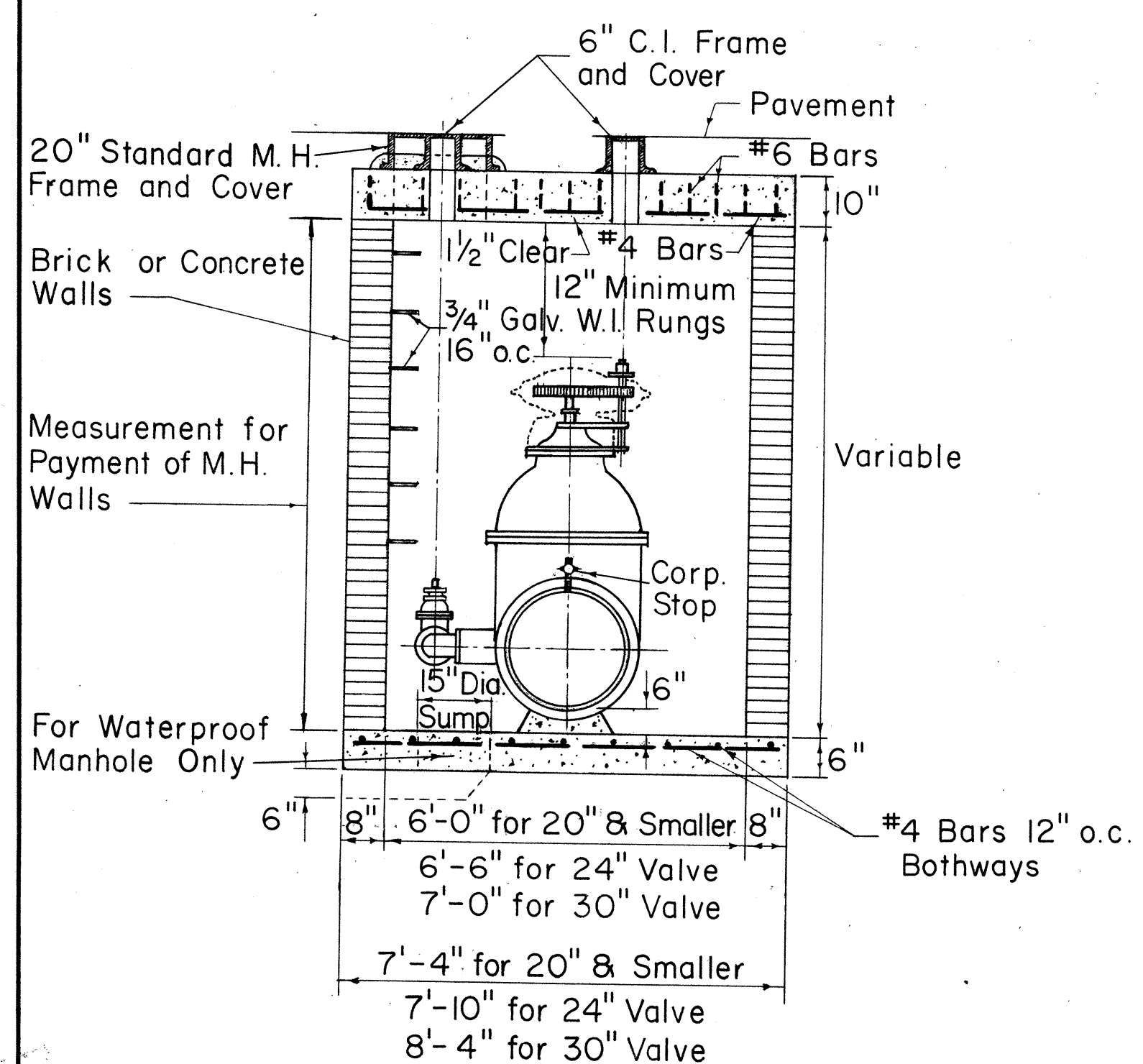
DETAIL OF ASPHALT FILLER



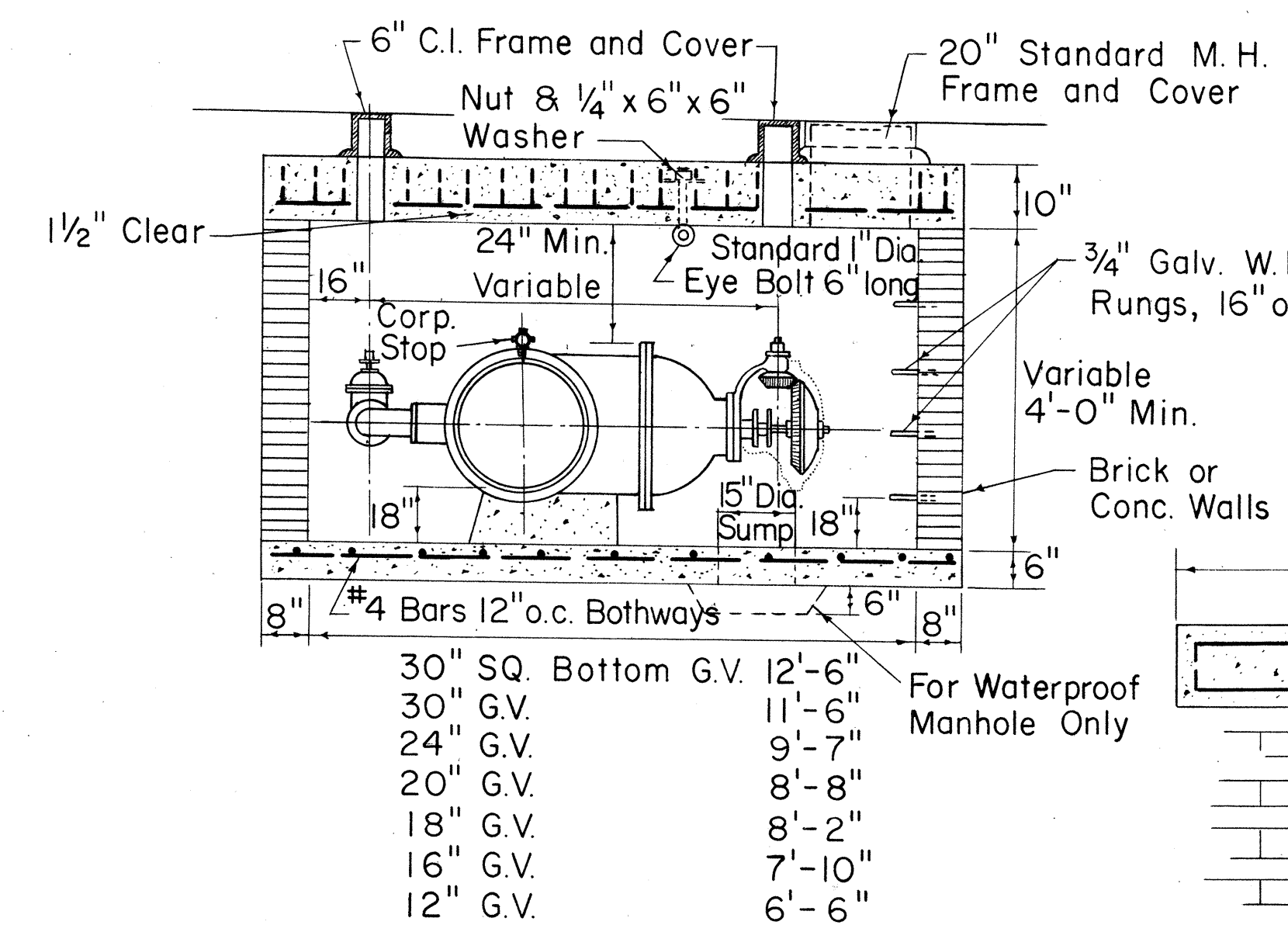
STEEL DETAIL IN BOTTOM SLAB

TABLE "A"
REQUIRED CORPORATION STOP SIZES
AT GATE VALVE

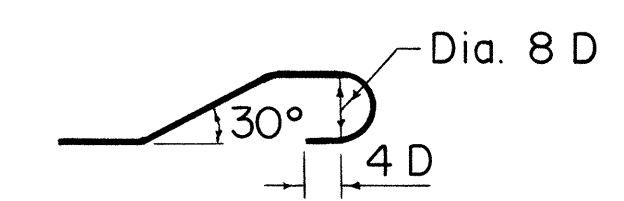
DIA. OF MAIN INCHES	SIZE OF CORP. STOP
4	1" x 1 1/4"
6	1" x 1 1/4"
8	1" x 1 1/4"
12	1" x 1 1/4"
16	1" x 1 1/4"
20	1" x 1 1/4"
24	1 1/2" x 2"
36	1 1/2" x 2"
42	1 1/2" x 2"



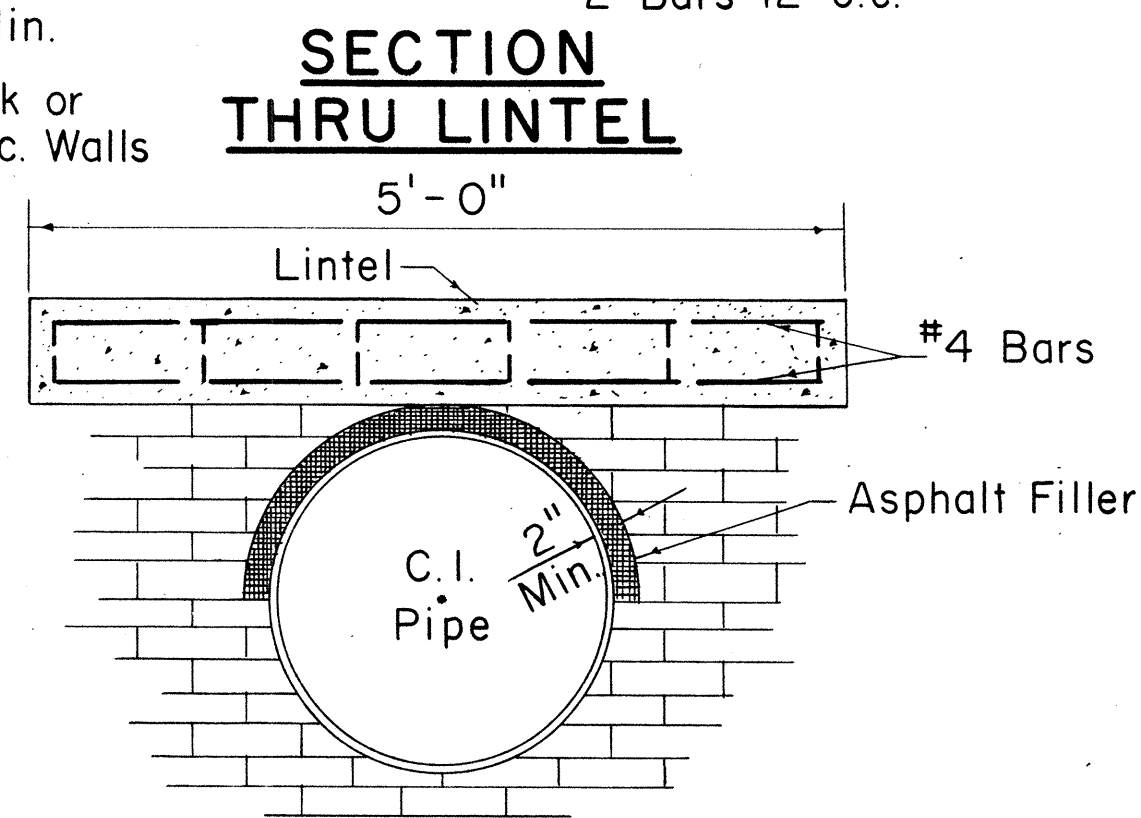
SECTION
TYPE "A" MANHOLE
FOR SPUR GEARED GATE VALVES



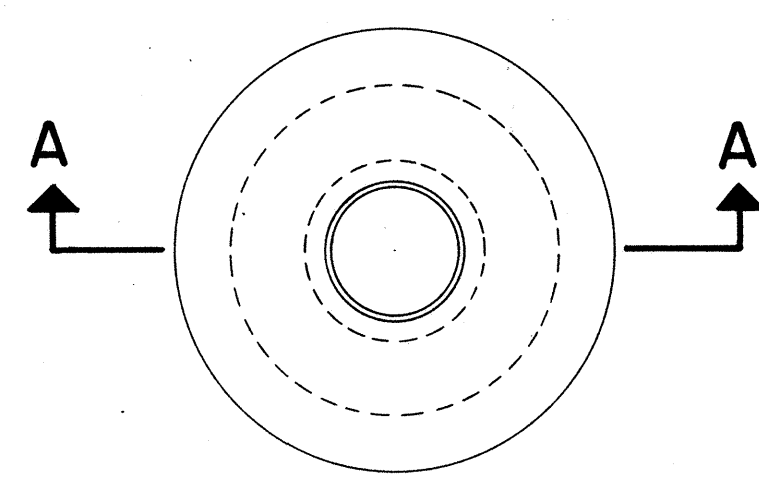
SECTION
TYPE "A" MANHOLE
FOR BEVEL GEARED GATE VALVES



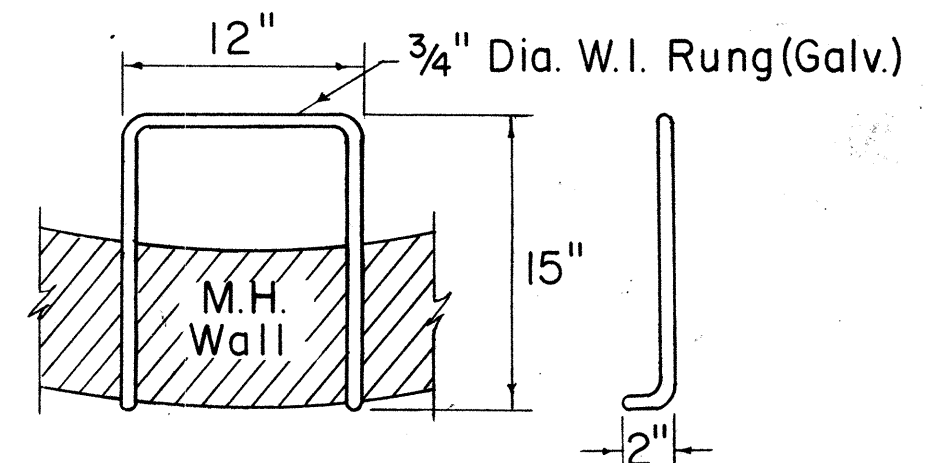
BAR BENDING
DETAIL



DETAIL OF LINTEL
AND ASPHALT FILLER



PLAN



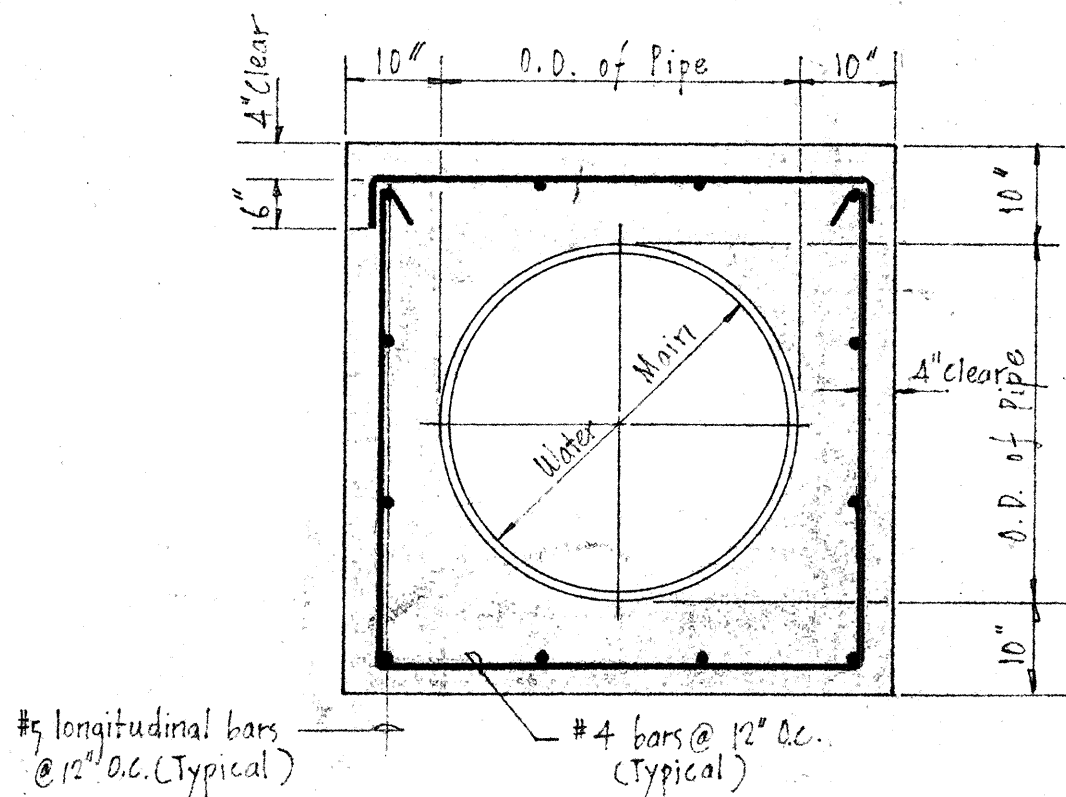
DETAIL OF RUNG

TYPE "B" AND "C" MANHOLES
TYPE "B" 4'-6" DIA. (FOR 12" G.V.)
TYPE "C" 4'-0" DIA. (FOR 6" & 8" G.V.)

APPROVED:

ASSISTANT CHIEF ENGINEER
BOARD OF WATER SUPPLY
DATE 3-30-66

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BOARD OF WATER SUPPLY
CITY & COUNTY OF HONOLULU
Not to Scale
Date

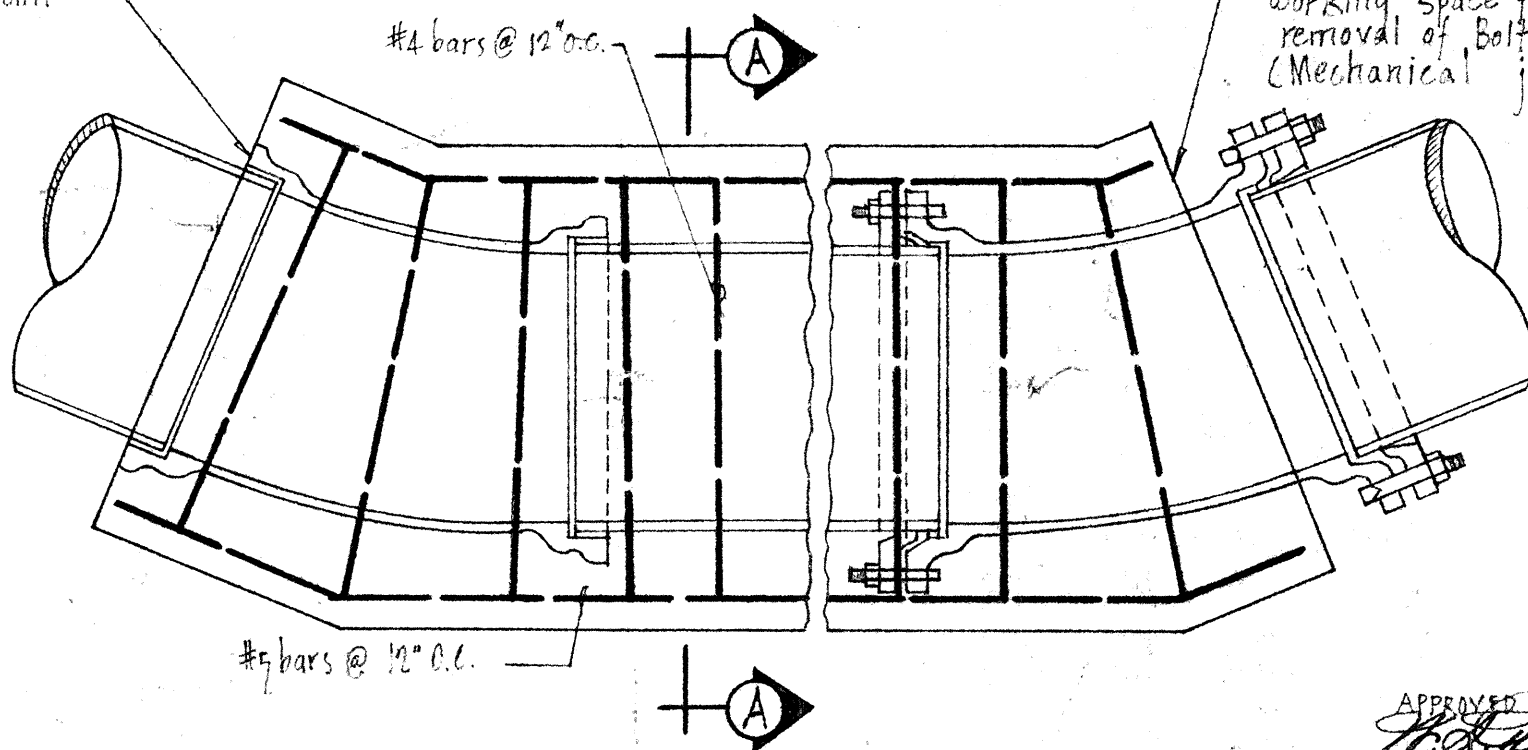


SECTION "A-A"

NOTE:

2 1/2" depth of lead for lead joint pipe required at all embedded joints. Wherever construction joints are required 6" rubber or neoprene waterstops shall be installed. Waterstop shall be of the type specified and manufactured by the Servicized Products Corp., Gate Rubber Co. or approved equal.

Bell flush with face of jacket. (Lead joint & slip joint.)



Face of jacket shall be set back from joint to provide sufficient working space for removal of Bolts. (Mechanical joint.)

APPROVED
H. A. Henrich 9-7-66
 ASST CHIEF ENGINEER, BWS

DETAIL OF REINFORCED CONCRETE JACKET
 NOT TO SCALE