

PIMA COUNTY, ARIZONA
DEPARTMENT OF WASTEWATER MANAGEMENT

STANDARD DETAILS

JUNE 1983

REVISED: APRIL 1988

PIMA COUNTY WASTEWATER MANAGEMENT

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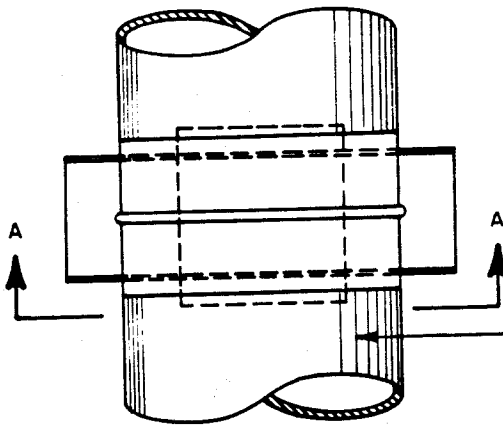
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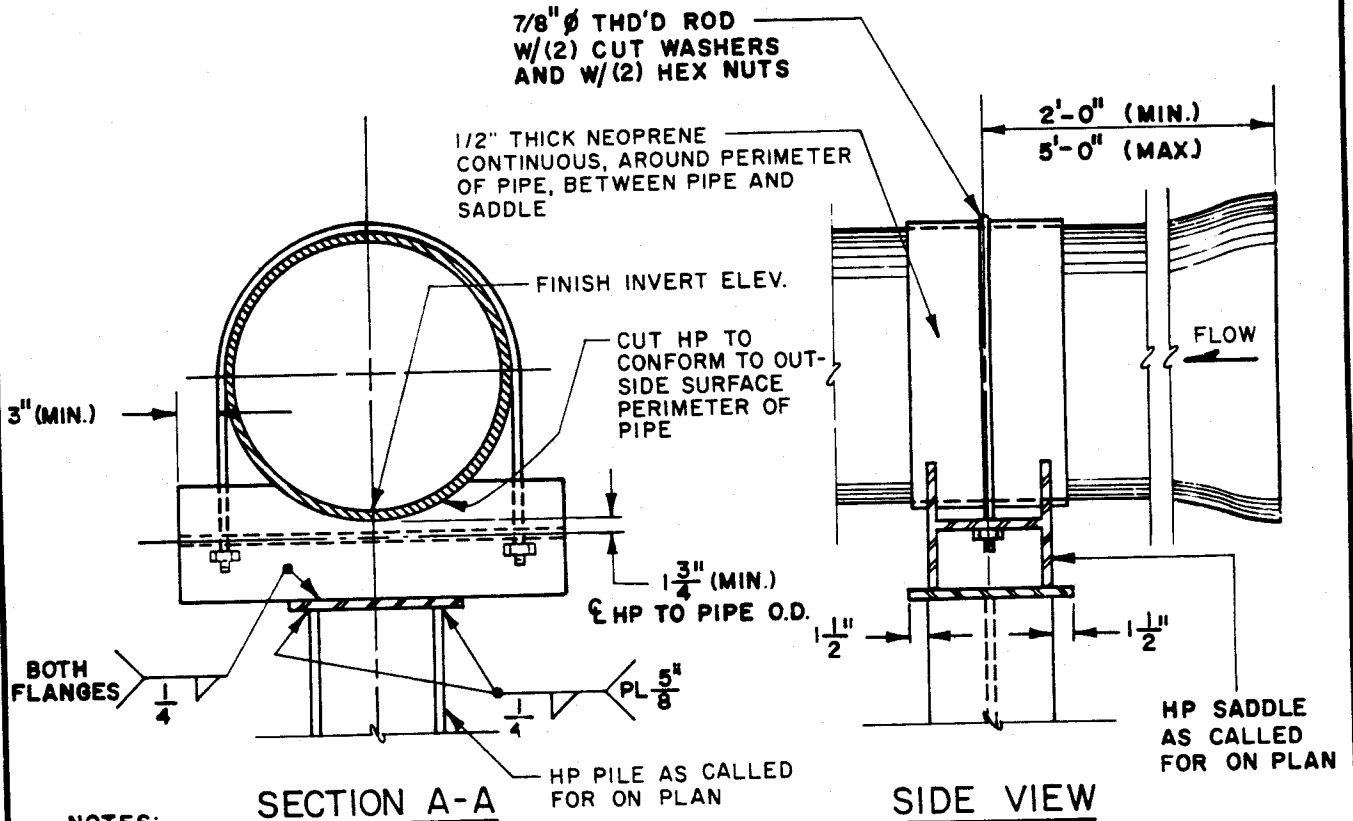
STANDARD PILE CAP

NOTE: SPECIAL CORROSION PROTECTION MEASURES MAY BE CALLED FOR ON THE PLANS.



PLAN VIEW

D.I.P. SIZE AS CALLED FOR ON PLANS.



NOTES:

1. ALL STEEL PLATES AND SADDLES TO BE ASTM A-36
2. ALL WELDING ELECTRODES SHALL CONFORM TO ASTM 233-62T AND AWS A5.1 GRADE E-70XX.
3. ALL BOLTS AND NUTS TO BE ASTM A-307.

George A. Bunch
 DIRECTOR P.C.W.M.D.
Don Schlar
 CHIEF ENGINEER P.C.W.M.D.

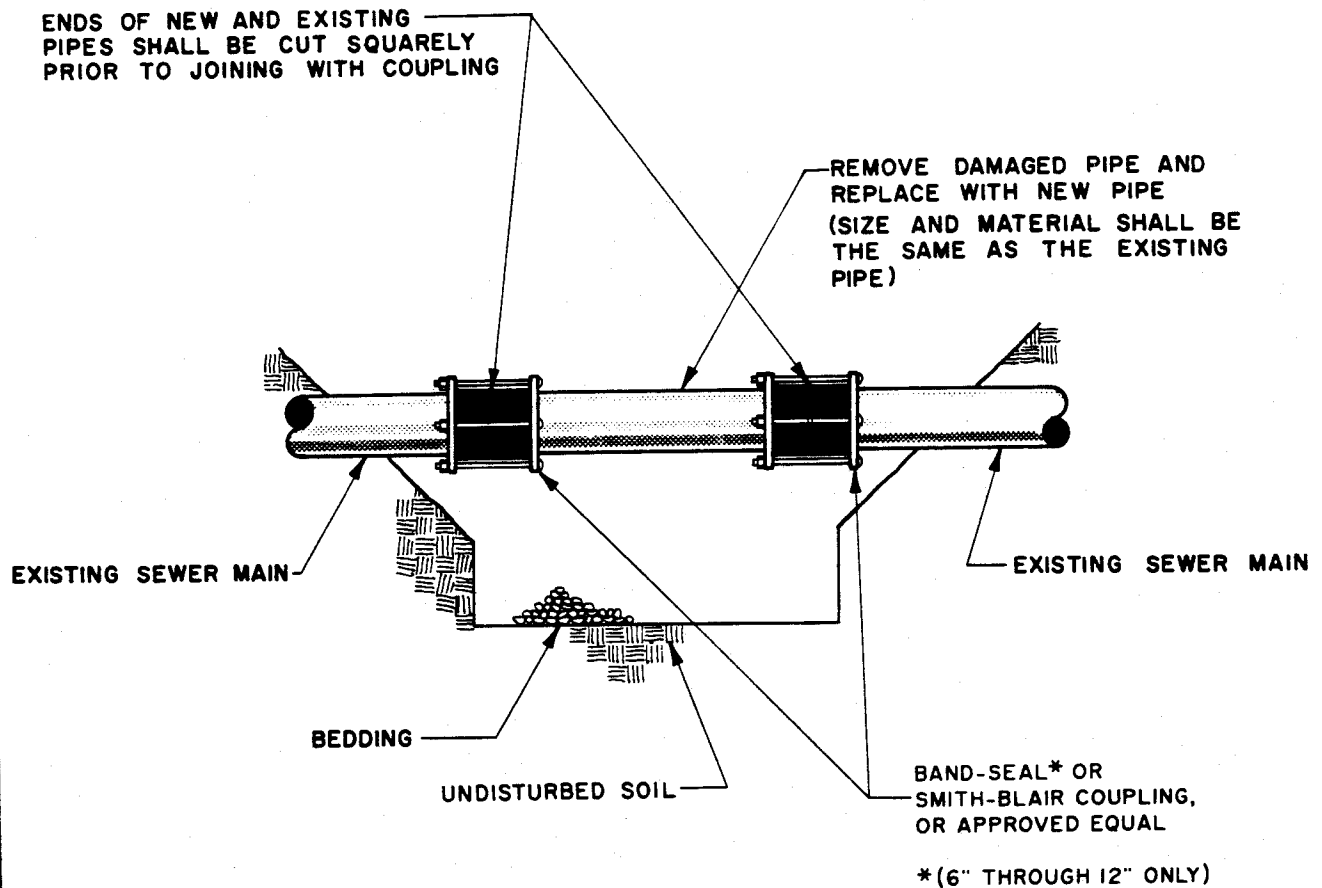
5-5-83
 DATE
 4 May 83
 DATE

PIMA COUNTY
 WASTEWATER MANAGEMENT

REVISED: APRIL 1988

STD. DET. NO. 101

SEWER MAIN REPAIR



NOTES:

1. IF, WHEN THE DAMAGED PORTION OF THE EXISTING MAIN IS REMOVED, SATURATED SOIL IS FOUND, THE SATURATED SOIL SHALL BE EXCAVATED, REMOVED FROM THE SITE AND REPLACED WITH IMPORTED BEDDING MATERIAL MEETING CURRENT PIMA COUNTY WASTEWATER MANAGEMENT STANDARDS.
2. ALL SEWER REPAIRS SHALL BE INSPECTED BY PIMA COUNTY DEPARTMENT OF WASTEWATER MANAGEMENT OR AUTHORIZED REPRESENTATIVE PRIOR TO BACKFILL.
3. COMPACTION OF BACKFILL SHALL BE 95 % UNDER PAVEMENT AND 90% IN UNPAVED AREAS, OR AS REQUIRED BY THE AGENCY WITH JURISDICTION OVER THE RIGHT-OF-WAY.

BRUNING 44-142

George A. Brunich
 DIRECTOR P.C.W.M.D.
Don Sullivan
 CHIEF ENGINEER P.C.W.M.D.

5-5-83
 DATE
 4 May 83
 DATE

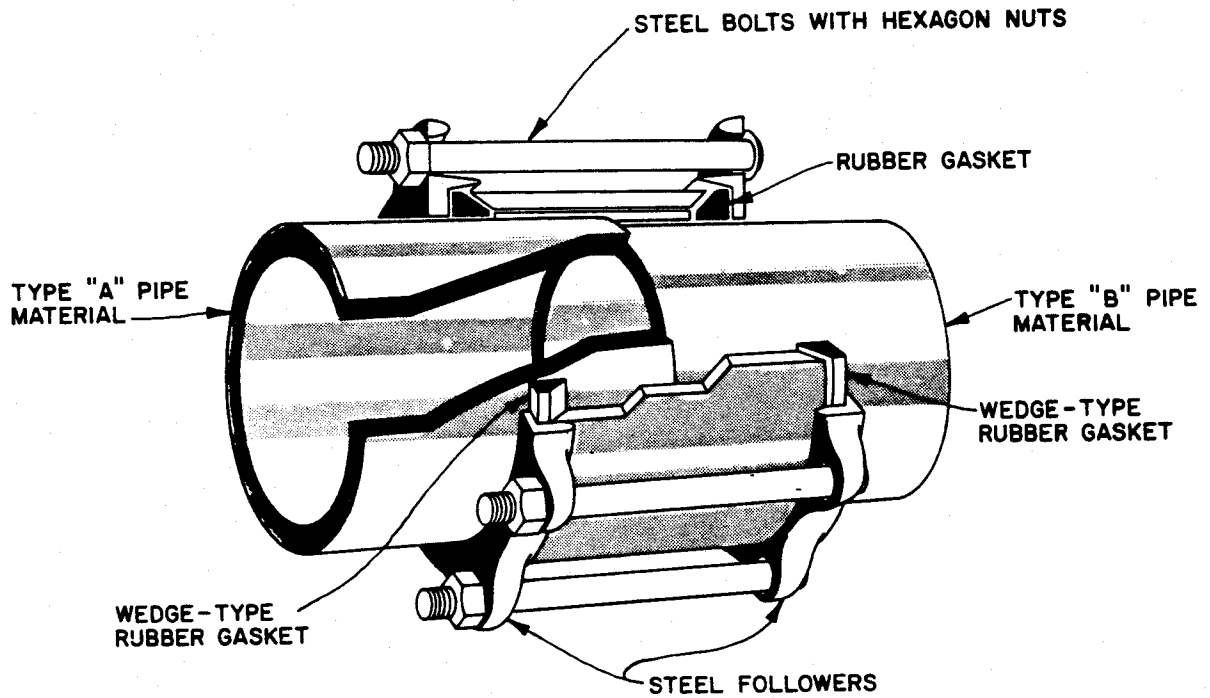
**PIMA COUNTY
 WASTEWATER MANAGEMENT**

REVISED: APRIL 1988

STD.
 DET.
 NO.

102

COUPLING UNLIKE PIPE MATERIALS TOGETHER



NOTE:

PIPES MADE FROM UNLIKE MATERIALS SHALL BE COUPLED TOGETHER USING AN APPROPRIATELY SIZED AND TYPED BAND-SEAL*, SMITH-BLAIR OR APPROVED EQUAL TRANSITION COUPLING.

* (6" THROUGH 12" ONLY)

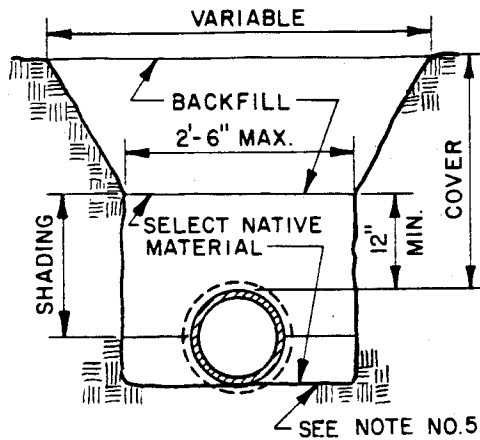
George A. Brunak
 DIRECTOR P.C.W.M.D.
[Signature]
 CHIEF ENGINEER P.C.W.M.D.

5-5-83
 DATE
 4 May '83
 DATE

**PIMA COUNTY
 WASTEWATER MANAGEMENT**

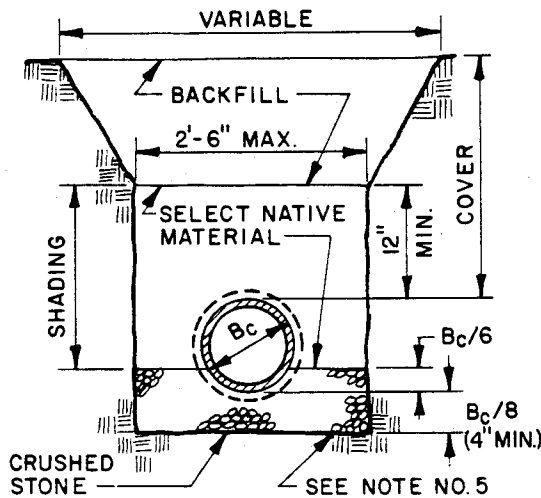
REVISED: STD. DET. NO. 103

RIGID PIPE BEDDING FOR SANITARY SEWERS



PIPE COVER LIMITATION TABLE (MAXIMUM TRENCH WIDTH 30" AT TOP OF PIPE)					
PIPE SPECIFICATION			MIN. - MAX. COVER (FT.)		
SIZE	MATERIAL	TYPE AND MIN. CLASS	TYPE 1	TYPE 2	TYPE 3
8"	V.C.	EXTRA STR.	4-10	4-26	4-30
10"	V.C.	EXTRA STR.	4-11	4-30	4-30
12"	V.C.	EXTRA STR.	4-14	4-30	4-30
15"	V.C.	EXTRA STR.	4-20	4-30	4-30
8"-16"	D.I.	50	2-17	2-24	2-30

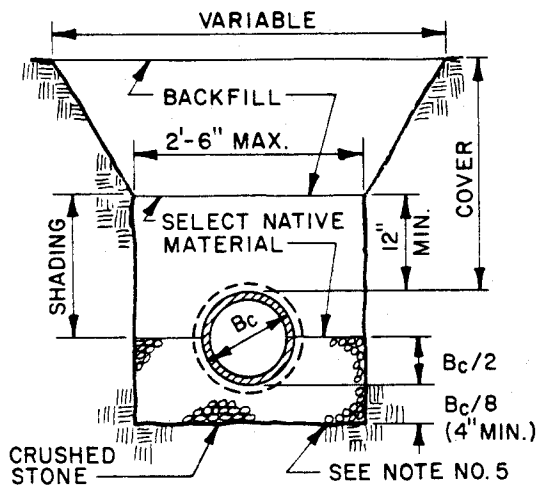
TYPE 1 BEDDING



SIEVE ANALYSIS CHART							
CRUSHED STONE ASTM D-448, GR.67		SAND		SELECT NATIVE MATERIAL		BACKFILL	
NOM. SIZE	% PASSING	NOM. SZ.	% PASS.	NOM. SZ.	% PASS.	NOM. SZ.	% PASS.
1"	100	1"	100	1"	100	6"	100
3/4"	90-100	#4	60-100	#4	40-100	1"	60-100
3/8"	20-55	#200	0-5	#200	0-50	#4	40-100
#4	0-10	MAX. P.I.= 5				#200	0-60
#8	0-5	MAX. L.L.= 30		MAX. P.I.= 12			

ALL SIEVE ANALYSES SHALL BE CERTIFIED AND SUBMITTED TO PCWMD PRIOR TO STARTING CONSTRUCTION.

TYPE 2 BEDDING



TYPE 3 BEDDING

NOTES:

1. COMPACTION OF BACKFILL SHALL MEET THE MOST STRINGENT REQUIREMENT OF THE P.C.W.M.D. STANDARD SPECIFICATIONS AND THE REQUIREMENTS OF THE AGENCY WITH JURISDICTION OVER THE RIGHT OF WAY.
2. SHADING SHALL BE CAREFULLY PLACED. MINIMUM DENSITY 90% OF STANDARD PROCTOR DENSITY
3. ALL 18" AND LARGER PIPE WILL REQUIRE SPECIAL APPROVAL OF THE DESIGN AND INSTALLATION BY P.C.W.M.D.
4. P.C.W.M.D. RESERVES THE RIGHT TO ADJUST, ON AN INDIVIDUAL CASE BASIS, THESE PIPE BEDDING REQUIREMENTS TO MEET UNEXPECTED FIELD / SOIL CONDITION.
5. UNDISTURBED EARTH OR SELECT MATERIAL COMPACTED TO 95% OF THE STANDARD PROCTOR DENSITY (T-99).

BRUNING 44-142

George A. Brinson
DIRECTOR P.C.W.M.D.
[Signature]
CHIEF ENGINEER P.C.W.M.D.

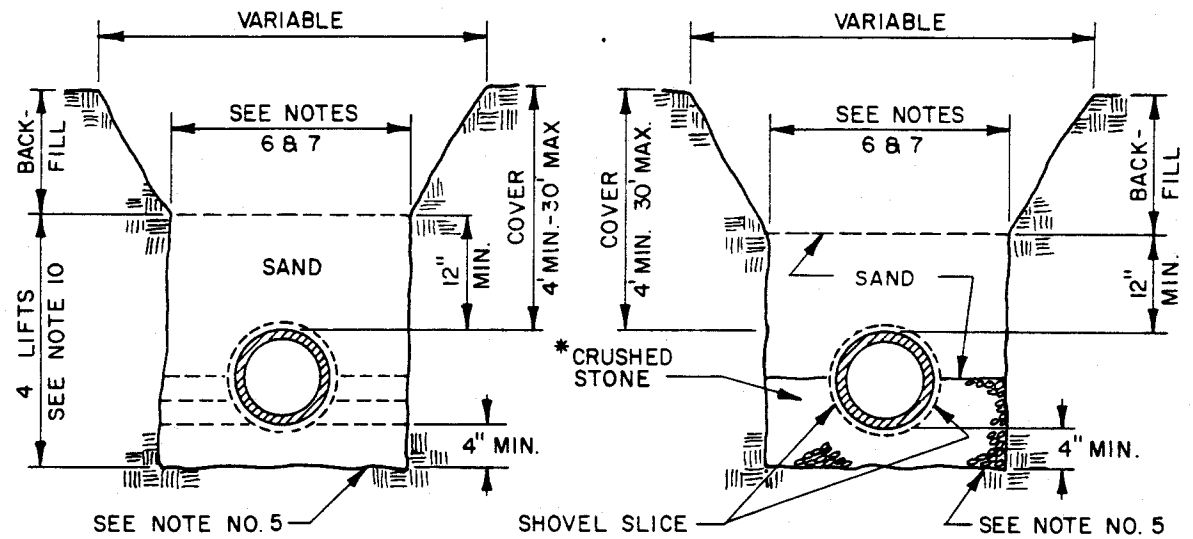
5-5-83
DATE
4 May '83
DATE

**PIMA COUNTY
WASTEWATER MANAGEMENT**

REVISED: APRIL 1988

STD. DET. NO. 104

FLEXIBLE PIPE BEDDING FOR SANITARY SEWERS



SAND BEDDING

CRUSHED STONE BEDDING

NOTES:

NOTES 1 THRU 5 ON STANDARD DETAIL NO. 104 (RIGID PIPE) ALSO APPLY TO FLEXIBLE PIPE.

6. MINIMUM TRENCH WIDTH SHALL BE AS FOLLOWS: *

RESISTANCE OF TRENCH WALLS COMPARED TO RESISTANCE OF COMPACTED SOIL BESIDE THE PIPE	TOTAL WIDTH OF TRENCH REQUIRED
TRENCH WALL < COMPACTED SOIL	FIVE PIPE DIAMETERS (O.D.)
TRENCH WALL = COMPACTED SOIL	THREE PIPE DIAMETERS
TRENCH WALL > COMPACTED SOIL	30 INCHES

7. WHEN USING A MOVABLE TRENCH BOX, THE INSIDE WALLS OF THE BOX MUST CLEAR THE SEWER PIPE SO AS NOT TO DISTURB THE BEDDING WITHIN TWO PIPE DIAMETERS (O.D.) ON EACH SIDE OF THE PIPE.

8. FOR CRUSHED STONE BEDDING SHOVEL SLICE BEDDING UNDER THE PIPE HAUNCHES TO ENSURE ADEQUATE SUPPORT. USE CARE SO AS NOT TO MOVE PIPE OFF LINE OR GRADE.

9. FOR SAND BEDDING, PLACE SAND FROM BOTTOM OF TRENCH TO 12" OVER THE PIPE IN FOUR LIFTS, WITH EACH LIFT COMPACTED TO 90% STANDARD PROCTOR DENSITY, USING HAND OR MECHANICAL TAMPING. WATER SETTLING OF FLEXIBLE PIPE WILL NOT BE PERMITTED. USE CARE SO AS NOT TO MOVE PIPE OFF LINE OR GRADE.

10. SEE SIEVE ANALYSIS CHART ON STANDARD DETAIL NO. 104 FOR CRUSHED STONE, SAND, SELECT NATIVE AND BACKFILL MATERIALS.

* IN ACCORDANCE WITH ASTM D-2321.

BRUNING 44-142

<p style="text-align: center;"><i>Genelle Bruner</i> DIRECTOR P.C.W.M.D.</p> <p style="text-align: center;"><i>Don Selby</i> CHIEF ENGINEER P.C.W.M.D.</p>	<p style="text-align: center;">5-5-83 DATE</p> <p style="text-align: center;">4 May '83 DATE</p>
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**PIMA COUNTY
WASTEWATER MANAGEMENT**

REVISED: APRIL 1988

STD. DET. NO.	105
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GENERAL NOTES - SEWER CONSTRUCTION

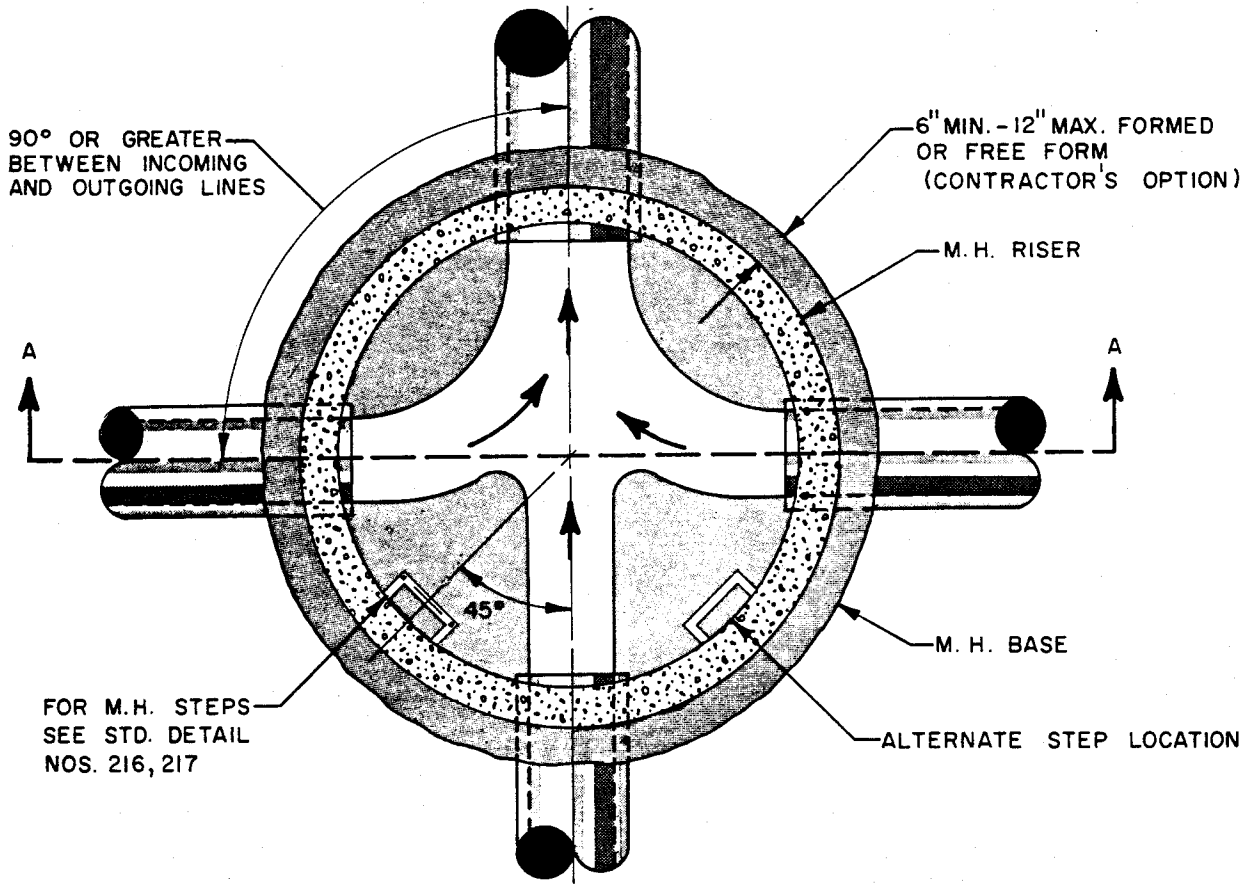
1. All design standard, materials and workmanship for sewers are to be in accordance with the latest adopted edition of the Pima County Wastewater Management Department MANUAL OF ENGINEERING STANDARDS AND PROCEDURES, said Manual is on file in that office.
2. The Contractor shall comply with all applicable Occupational Safety and Health Administration Regulations.
3. The Contractor shall verify locations and elevations of all existing utilities prior to any construction. Call "Blue Stake" 792-2211, two full working days prior to excavating.
4. All changes shall be approved by the Pima County Wastewater Management Department prior to construction.
5. The Contractor shall field verify existing sewer elevations and alignments prior to construction.
6. All rough grading shall be complete prior to the installation of sewers, including fill and compaction as indicated on the plans.
7. Where connections to existing manholes are to be made, the Contractor shall construct new inverts in the existing bench to direct the flow in the proper direction.
8. The Contractor shall furnish, operate and maintain all equipment necessary to provide sewer service to all parties tributary to a live sewer to which a connection is to be made. Notify the Pima County Wastewater Management Department's Operation's Division 48 hours prior to starting any construction that would effect live sewers.
9. Sewer construction shall start at the lowest downstream point and progress upstream, regardless of the stationing shown on the plans.
10. The Contractor shall notify Pima County Wastewater Management Department (Field Engineering, 792-8676) a minimum of three (3) full working days prior to starting any sewer construction.

BRUNING 44-142

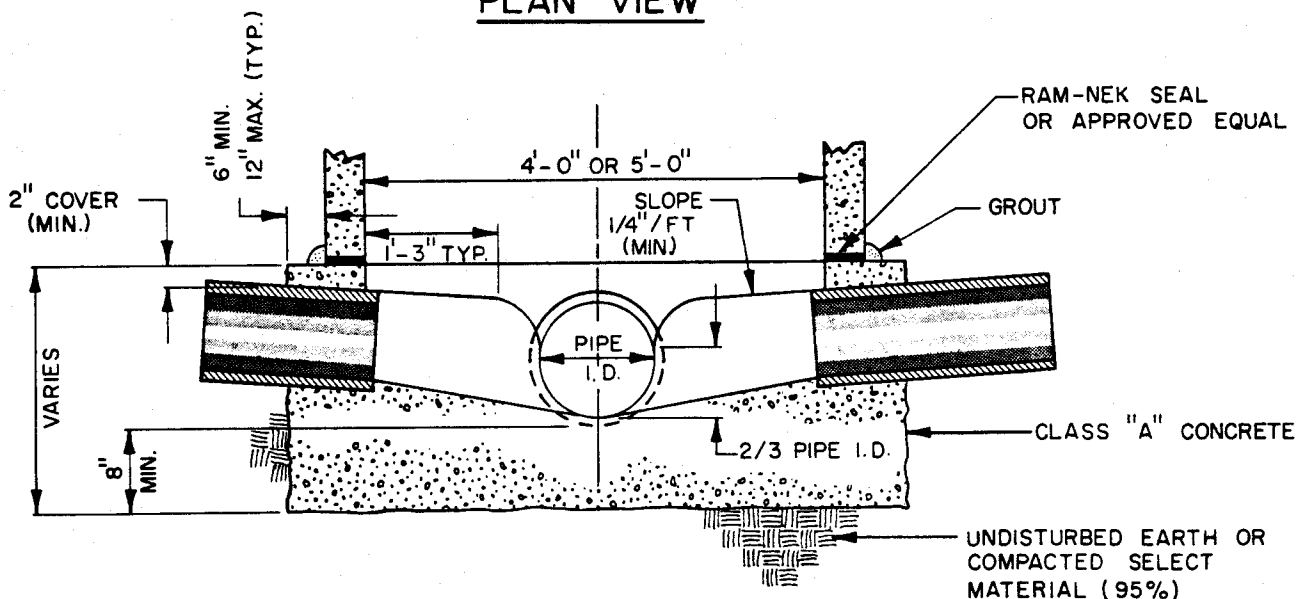
<p style="text-align: center;"><i>George A. Brunker</i> _____ DIRECTOR P.C.W.M.D.</p> <p style="text-align: center;"><i>Richard H. ...</i> _____ CHIEF ENGINEER P.C.W.M.D.</p>	<p style="text-align: center;">5/17/88 /DATE 5/11/88 DATE</p>	<p>PIMA COUNTY WASTEWATER MANAGEMENT</p>
<p>REVISED:</p>		<p>STD. DET. NO. 106</p>

STANDARD MANHOLE BASE

FOR 21" Ø AND SMALLER PIPES



PLAN VIEW



SECTION A - A

BRUNING 44-142

George A. Bruns
 DIRECTOR P.C.W.M.D. 5-5-83
[Signature]
 CHIEF ENGINEER P.C.W.M.D. 4 May '83

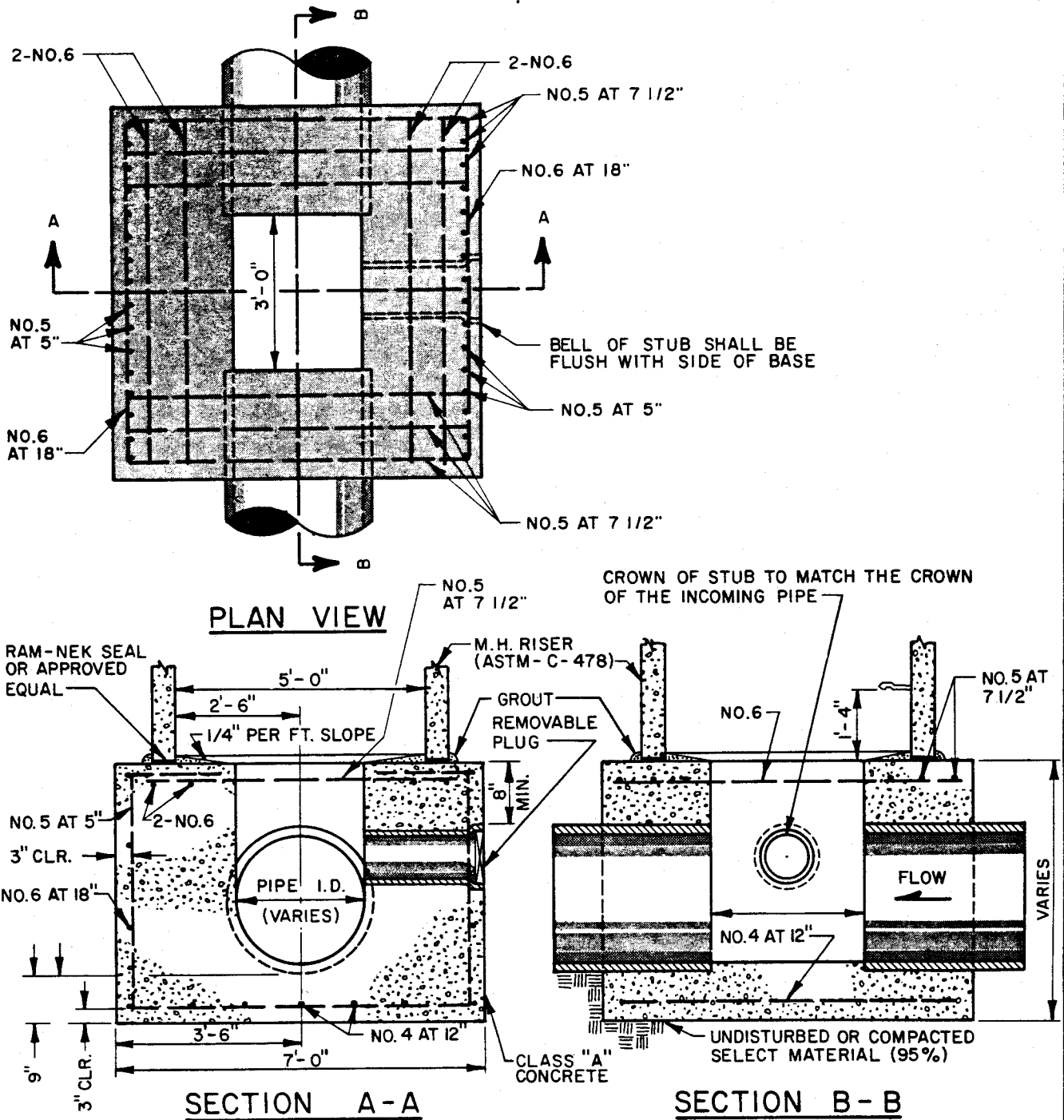
**PIMA COUNTY
 WASTEWATER MANAGEMENT**

REVISED: APRIL 1988

STD. DET. NO. 201

REINFORCED CONCRETE MANHOLE BASE

(FOR 24" Ø AND LARGER PIPE)



NOTES:

1. SPECIAL DETAILS SHALL BE REQUIRED IN THE FOLLOWING CASES:
 - A. IF P.V.C.-LINED PIPE IS USED.
 - B. AT DEFLECTION MANHOLES.
 - C. IF THE SEWER MAIN IS LARGER THAN 48" DIAMETER.
2. THESE SPECIAL DETAILS MUST BE APPROVED BY P.C.W.M.D.

BRUNING 44-142

George A. Brunk
DIRECTOR P.C.W.M.D.
John Schuler
CHIEF ENGINEER P.C.W.M.D.

5-5-83 DATE
4 May 83 DATE

**PIMA COUNTY
WASTEWATER MANAGEMENT**

REVISED: APRIL 1988

STD. DET. NO. 202