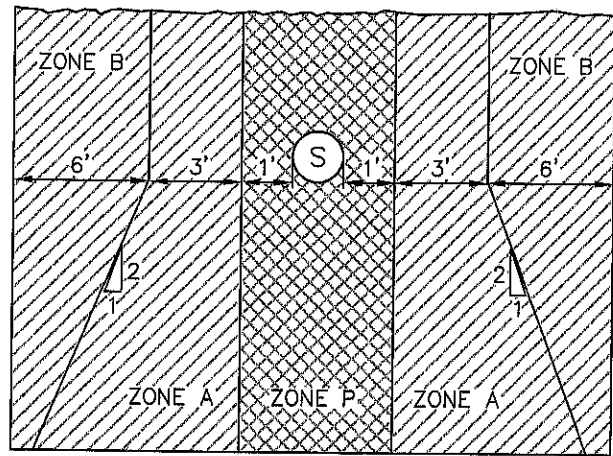


CROSSING
NEW WATER MAIN AND
EXISTING SANITARY SEWER



PARALLEL
NEW WATER MAIN AND
EXISTING SANITARY SEWER

| | |
|---|--|
| A | WATER MAINS WILL NOT BE PERMITTED IN THIS ZONE WITHOUT SPECIAL PERMISSION FROM THE DEPARTMENT OF HEALTH SERVICES, STATE OF CALIFORNIA. |
| B | THE WATER MAIN SHALL BE CONSTRUCTED OF: DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING; DIPPED AND WRAPPED 1/4" THICK WELDED STEEL PIPE; REINFORCED CONCRETE PIPE, STEEL CYLINDER TYPE (PER AWWA C300-74, C301-79 OR C303-70). |
| C | THE WATER MAIN SHALL HAVE NO JOINTS IN ZONE C AND BE CONSTRUCTED OF: DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING; DIPPED AND WRAPPED 1/4" THICK WELDED STEEL PIPE; REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE (PER AWWA C300-74, C301-79 OR C303-70). |
| D | THE WATER MAIN SHALL HAVE NO JOINTS WITHIN FOUR FEET FROM EITHER SIDE OF THE SEWER AND SHALL BE CONSTRUCTED OF: DUCTILE IRON PIPE WITH HOT BITUMINOUS COATING; DIPPED AND WRAPPED 1/4" THICK WELDED STEEL PIPE; REINFORCED CONCRETE PIPE, STEEL CYLINDER TYPE (PER AWWA C300-74, C301-79 OR C303-70) |
| P | ZONE P IS A PROHIBITED ZONE, SECTION 84630 (e) (2) CALIFORNIA ADMINISTRATION CODE, TITLE 22. |

NOTES:

1. (S) INDICATES SANITARY SEWER MAIN. DIMENSIONS ARE FROM OUTSIDE OF WATER PIPE TO OUTSIDE OF SEWER PIPE.
2. SEWER LINES SHALL BE INSTALLED AS FAR FROM WATER MAIN AS POSSIBLE. IF THE HORIZONTAL SEPARATION BETWEEN SEWER AND WATER MAIN MUST BE LESS THAN 10 FEET AND THE SEWER IS NOT MORE THAN 1 FEET BELOW THE WATER MAIN, SPECIAL CONSTRUCTION AS SHOWN ABOVE IS REQUIRED.
3. IN CASES WHERE THE SEWER LINE CROSSES A WATER MAIN, A FULL JOINT OF WATER PIPE SHALL BE CENTERED ON THE SEWER MAIN.
4. BUILDING LATERALS SHALL BE INSTALLED 4" OR MORE ABOVE SEWER MAIN. IF THIS CONDITION CANNOT BE MET, SPECIAL CONSTRUCTION WILL BE REQUIRED AS SHOWN ABOVE.
5. A LOW HEAD (5 PSI OR LESS) WATER MAIN SHALL NOT BE INSTALLED WITHIN 25 FEET OF SEWER MAINS WITHOUT PRIOR APPROVAL OF THE DEPARTMENT OF HEALTH SERVICES, STATE OF CALIFORNIA.
6. A NEW WATER MAIN CROSSING OVER AN EXISTING SEWER FORCE MAIN SHALL BE CONSTRUCTED OF MATERIALS WITH A MINIMUM RATING OF 200 PSI

SHEET 2 OF 2



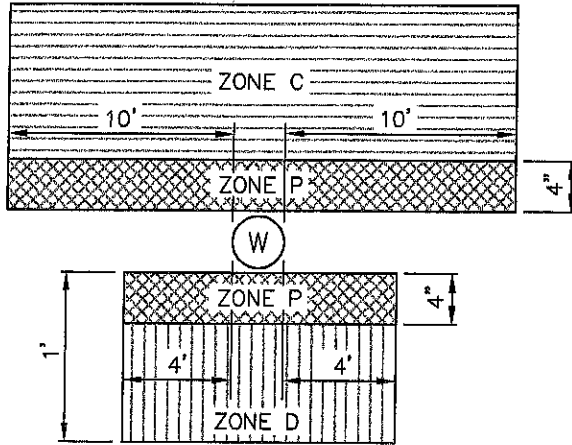
SEPARATION CRITERIA FOR NEW WATER MAINS AND EXISTING SANITARY SEWERS

APPROVED BY GENERAL MANAGER

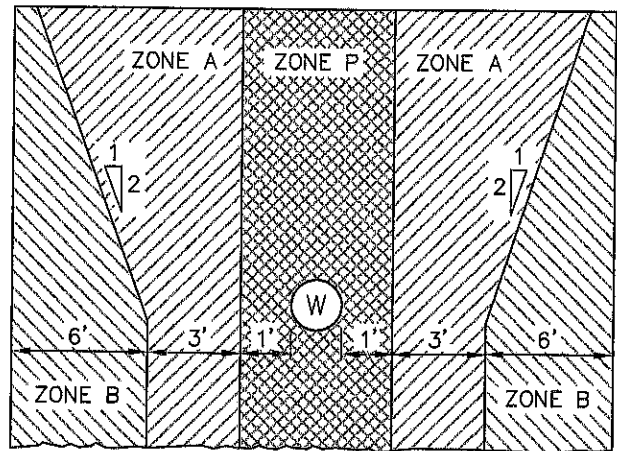
Ray Wellington
RAY WELLINGTON

STANDARD DRAWING No.
SAWCO-1 (2 of 2)

REVISED DATE: 06-00



CROSSING
NEW SANITARY SEWER AND
EXISTING WATER MAIN



PARALLEL
NEW SANITARY SEWER AND
EXISTING WATER MAIN

| | |
|---|--|
| A | SEWER LINES WILL NOT BE PERMITTED IN THIS ZONE WITHOUT SPECIAL PERMISSION FROM THE DEPARTMENT OF HEALTH SERVICES, STATE OF CALIFORNIA. |
| B | EXTRA STRENGTH VITRIFIED CLAY PIPE WITH COMPRESSION JOINTS; OR PLASTIC SEWER PIPE WITH RUBBER RING JOINTS (PER ASTM D3034) OR EQUIVALENT; OR CAST OR DUCTILE IRON PIPE WITH COMPRESSION JOINTS; OR REINFORCED CONCRETE PRESSURE PIPE WITH COMPRESSION JOINTS (PER AWWA C302-74). |
| C | DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING AND MECHANICAL JOINTS; OR A CONTINUOUS SECTION OF CLASS 200 (DR 14 PER AWWA C900) PLASTIC PIPE OR EQUIVALENT; OR A CONTINUOUS SECTION OF REINFORCED CONCRETE PIPE (PER AWWA C302-74); OR ANY SEWER PIPE WITHIN A CONTINUOUS SLEEVE. |
| D | A CONTINUOUS SECTION OF DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING; OR A CONTINUOUS SECTION OF CLASS 200 (DR 14 PER AWWA C900) PLASTIC PIPE OR EQUIVALENT; OR A CONTINUOUS SECTION OF REINFORCED CONCRETE PIPE (PER AWWA C302-74); OR ANY SEWER PIPE WITHIN A CONTINUOUS SLEEVE; OR ANY SEWER PIPE SEPARATED BY A 10 FOOT x 10 FOOT, 4 INCH THICK REINFORCED CONCRETE SLAB. |
| P | ZONE P IS A PROHIBITED ZONE, SECTION 64630 (e) (2) CALIFORNIA ADMINISTRATION CODE, TITLE 22. |

NOTES:

1. (W) INDICATES WATER MAIN. DIMENSIONS ARE FROM OUTSIDE OF WATER PIPE TO OUTSIDE OF SEWER PIPE.
2. SEWER MAINS SHALL BE INSTALLED AS FAR FROM WATER MAIN AS POSSIBLE. IF THE HORIZONTAL SEPARATION BETWEEN SEWER AND WATER MAIN MUST BE LESS THAN 10 FEET AND THE SEWER IS NOT MORE THAN 1 FEET BELOW THE WATER MAIN, SPECIAL CONSTRUCTION AS SHOWN ABOVE IS REQUIRED.
3. IN CASES WHERE THE SEWER MAIN CROSSES A WATER MAIN, A FULL JOINT OF SEWER PIPE SHALL BE CENTERED ON THE WATER MAIN.
4. BUILDING LATERALS SHALL BE INSTALLED BELOW WATER MAIN. IF THIS CONDITION CANNOT BE MET, SPECIAL CONSTRUCTION WILL BE REQUIRED AS SHOWN ABOVE.
5. SEWER MAINS SHALL NOT BE INSTALLED WITHIN 25 FEET OF A LOW HEAD (5 PSI OR LESS) WATER MAIN WITHOUT PRIOR APPROVAL OF THE DEPARTMENT OF HEALTH SERVICES, STATE OF CALIFORNIA.
6. SEWER MAINS SHALL BE PRESSURE TESTED WHEN SPECIAL CONSTRUCTION IS REQUIRED AS SHOWN ABOVE.

SHEET 1 OF 2



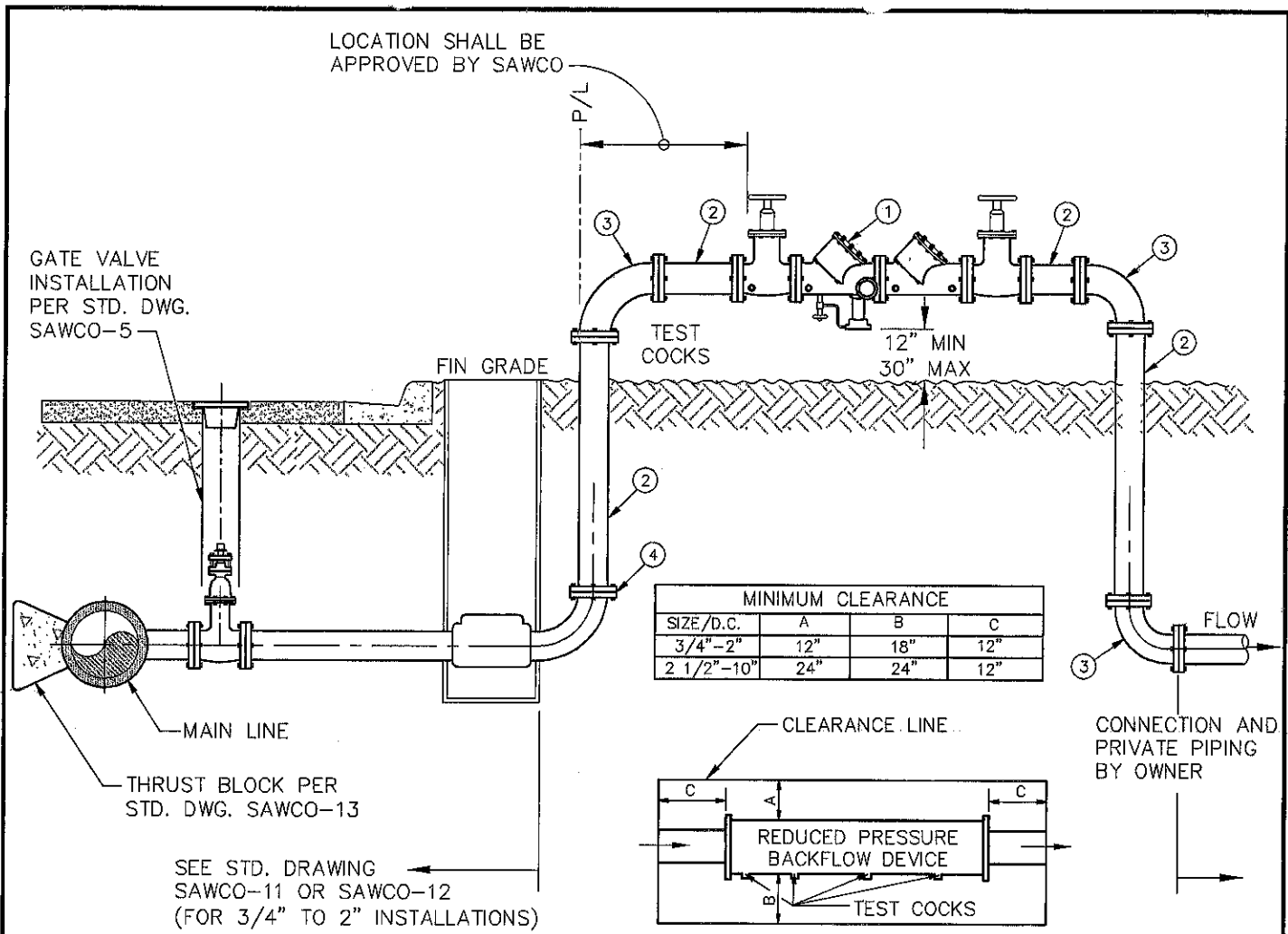
**SEPARATION CRITERIA FOR EXISTING
WATER MAINS AND NEW SANITARY SEWERS**

APPROVED BY GENERAL MANAGER

Ray Wellington
RAY WELLINGTON

STANDARD DRAWING No.
SAWCO-1 (1 of 2)

REVISED DATE: 06-00



Notes:

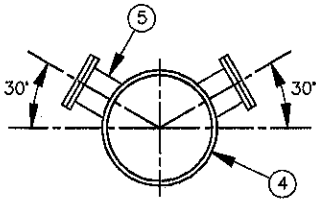
1. REDUCE PRESSURE BACKFLOW DEVICE SHALL BE IN COMPLIANCE WITH THE CONSTRUCTION DRAWINGS.
2. PLACE BOTTOM OF VALVE A MINIMUM OF 12" AND A MAXIMUM OF 30" ABOVE FINISH GRADE.
3. BOOSTER PUMPS ARE NOT PERMITTED DOWN STREAM OF THE REDUCED PRESSURE BACKFLOW DEVICE.
4. CUSTOMER SHALL PROTECT DEVICE FROM FREEZING AND MAINTAIN ACCESS FOR TESTING.

| ITEM | 3/4" - 2" DESCRIPTION | APPROVED MATERIAL LIST NO. |
|------|---|----------------------------|
| ① | REDUCED PRESSURE BACKFLOW DEVICE | 4-C |
| ② | PIPE | |
| ③ | 90° ELBOW | |
| ITEM | 2 1/2" - 10" DESCRIPTION | APPROVED MATERIAL LIST NO. |
| ① | REDUCED PRESSURE BACKFLOW DEVICE | 4-C |
| ② | PIPE, D.I.P. CLASS 350 OR CML & C STEEL, STANDARD WEIGHT | |
| ③ | 90° ELBOW, D.I.P. CLASS 350 OR CML & C STEEL, STANDARD WEIGHT | |
| ④ | FLANGE, D.I. CLASS 125 OR STEEL, CLASS 150 | |

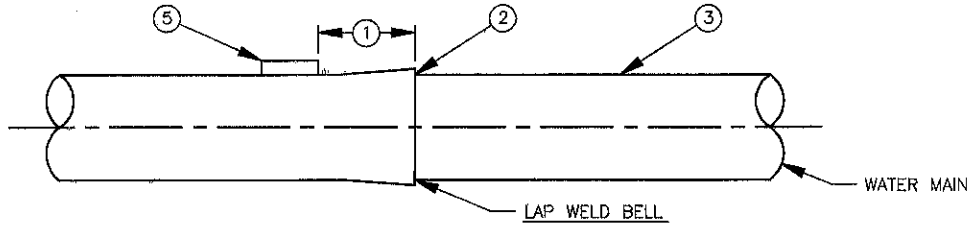


REDUCED PRESSURE BACKFLOW INSTALLATION

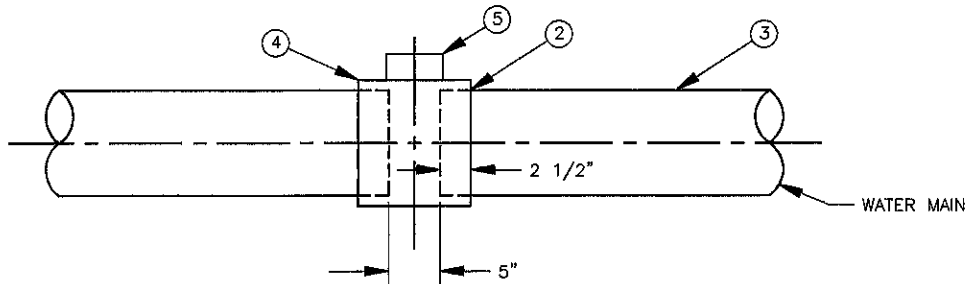
APPROVED BY GENERAL MANAGER
Ray Wellington
 RAY WELLINGTON
 STANDARD DRAWING No.
SAWCO-3
 REVISED DATE: 06-00



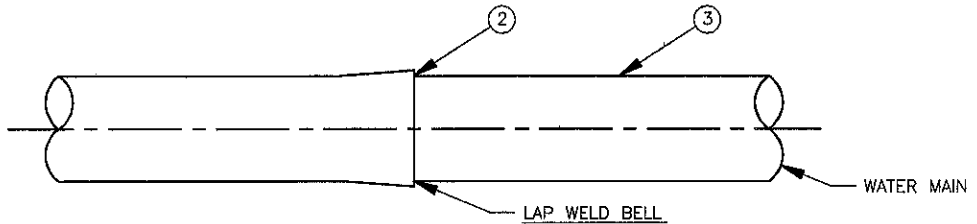
**LOCATION OF
2 - HAND HOLES**
NOT TO SCALE



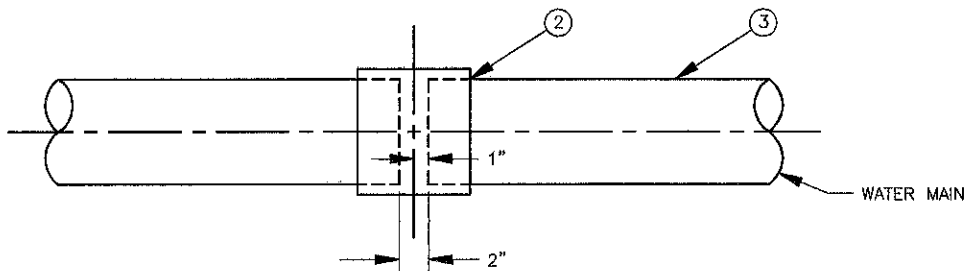
TYPE-I



TYPE-II



TYPE-III



TYPE-IV

Notes

- ① 1'-0" ϕ (12" THRU 30" ϕ) AND 6" (LESS THAN 12" ϕ).
- ② CUT-TO-FIT (C.T.F.) OPTIONAL TO THE CONTRACTOR, UNLESS OTHERWISE SPECIFIED ON THE PLANS. WELD IN COMPLIANCE WITH THE SPECIFICATIONS.
- ③ CUT-TO-FIT PIPE (LENGTH AS SHOWN ON PLANS). HOLD COATING 6" FROM C.T.F. FIELD APPLY COATING, ONCE JOINT IS FULLY WELDED.
- ④ SPLIT BUTT-STRAP WITH 1 OR 2 HAND HOLES.
- ⑤ 1-6" HAND HOLE FOR 6" - 18" WATER MAINS AND 2 - 6" DIAMETER HAND HOLES FOR 20" - 36" WATER MAINS. REINFORCE OUTLET IN COMPLIANCE WITH AWWA M-11.
- ⑥ FABRICATION DRAWINGS MUST BE APPROVED BY SAWCO PRIOR TO FABRICATION.



**TYPICAL CUT-TO-FIT DETAILS
FOR TYPES I, II, III, & IV**

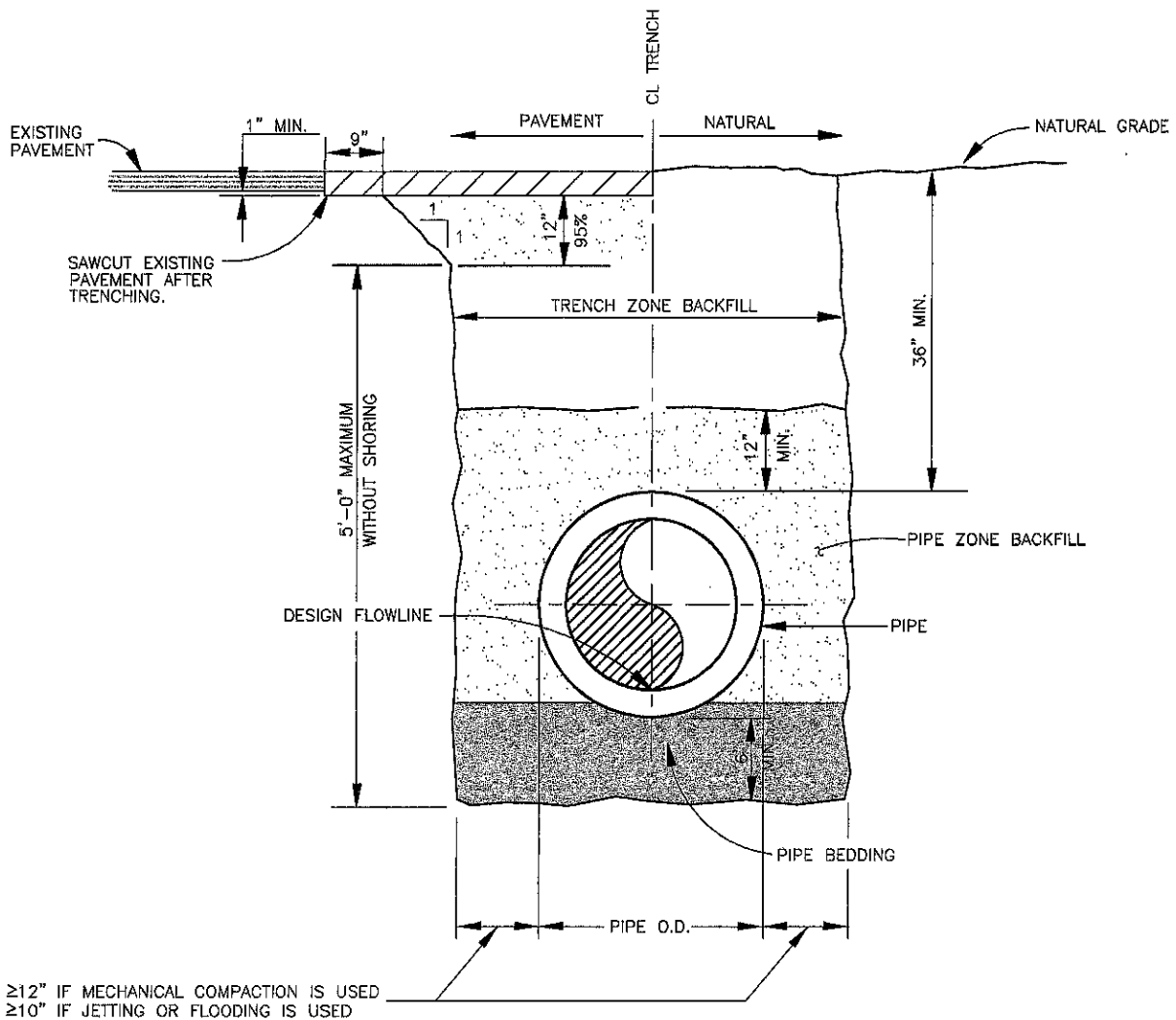
APPROVED BY GENERAL MANAGER

Ray Wellington
RAY WELLINGTON

STANDARD DRAWING No.

SAWCO-2

REVISED DATE: 06-00



Trench Zone Backfill Material:

COMPACTED TO 90% OF ASTM D-1557-91
 SELECT MATERIAL OR APPROVED IMPORT.

IF MECHANICAL COMPACTION IS USED, MATERIAL
 MAY NOT BE GREATER THAN 3 INCHES IN ANY
 DIMENSION.

IF FLOODING OR JETTING IS USED, MATERIAL MUST
 MEET THE FOLLOWING:

1/2" 100% PASSING
 #200 0% - 10% PASSING
 (SE ≥ 20)

**Pipe Bedding and Pipe Zone
 Backfill Material:**

COMPACTED TO 95% OF ASTM D-1557-91
 RECOMMENDED GRADATION - SEE SPEC.

1/2" 100% PASSING
 #200 0% - 10% PASSING

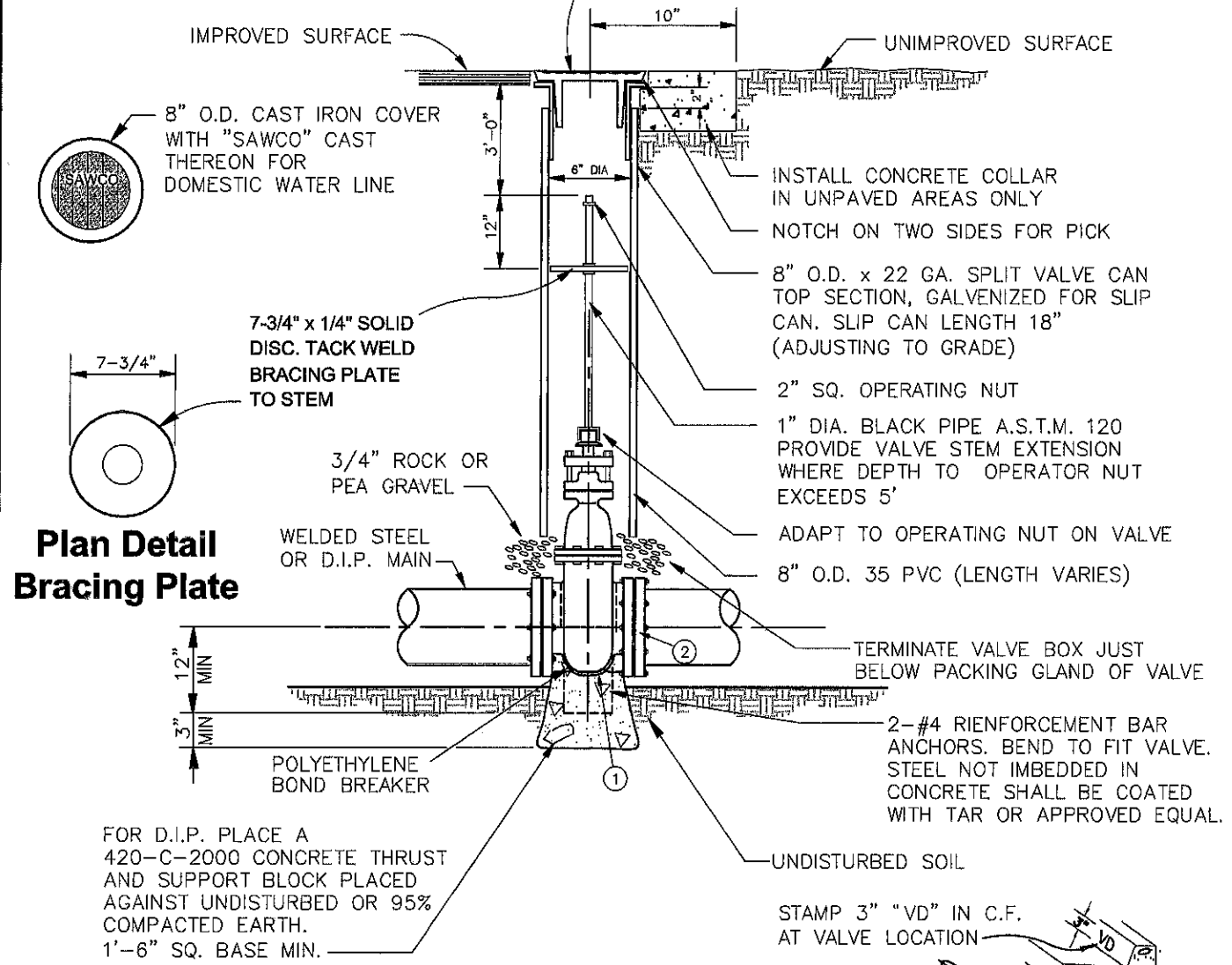
(SE ≥ 20 IF FLOODING OR JETTING IS USED)



**TYPICAL EXCAVATION
 BACKFILL SCHEMATIC**

APPROVED BY GENERAL MANAGER
Ray Wellington
 RAY WELLINGTON
 STANDARD DRAWING No.
SAWCO-4
 REVISED DATE: 06-00

8" GATE CAP, HEAVY DUTY ALHAMBRA FDRY. NO. A29606 OR APPROVED EQUAL: MARKED SAWCO WITH PRIMER AND TWO (2) COATS OF BLUE DUPONT TRAFFIC PAINT NO. 7001 OR APPROVED EQUAL.



Plan Detail Bracing Plate

Note

- CONTRACTOR SHALL STAMP A 3" TALL "V" AND THE DISTANCE "D" FROM THE CURB FACE TO THE CENTER OF THE VALVE CAN.

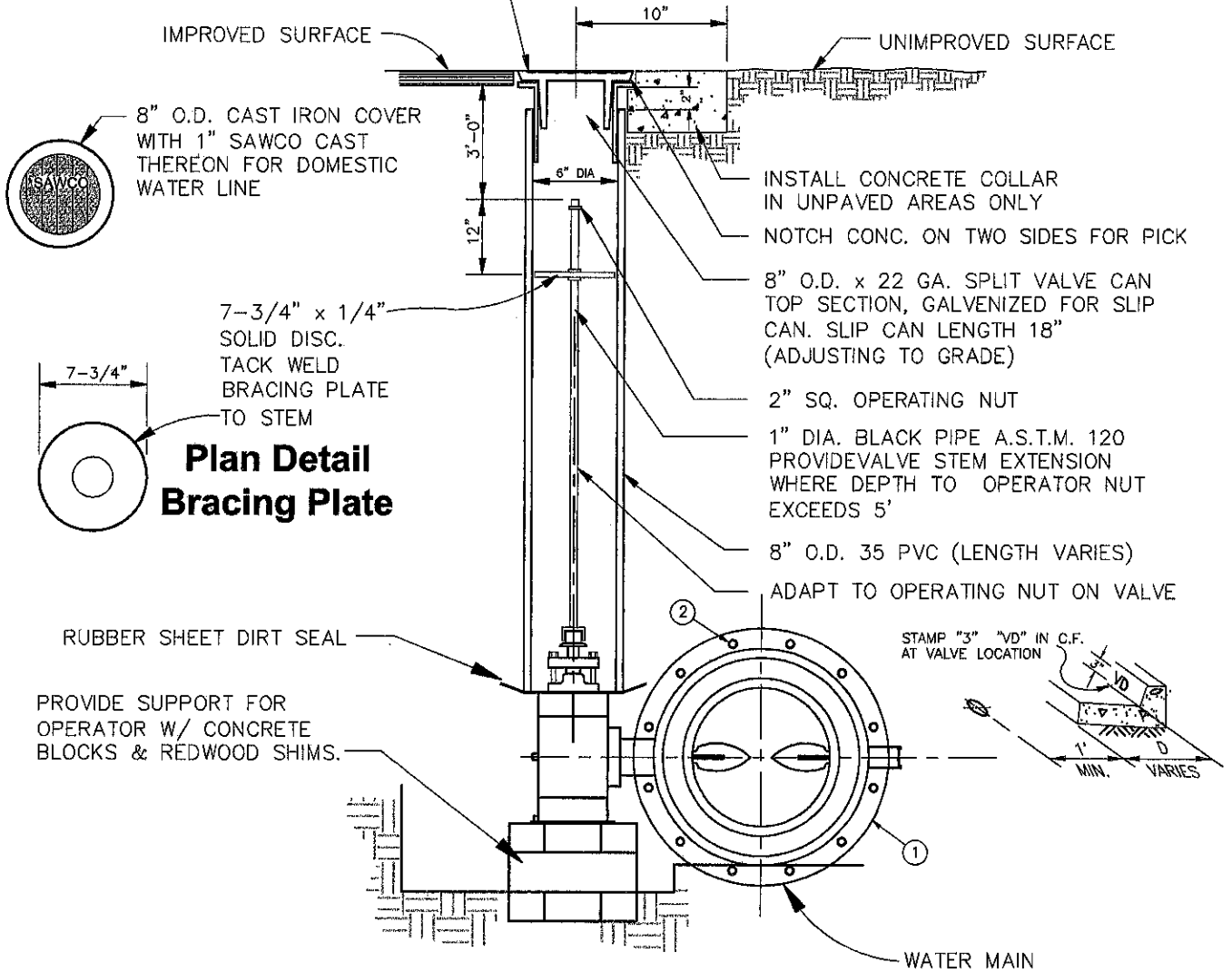
| ITEM | DESCRIPTION | APPROVED MATERIAL LIST NO. |
|------|--|----------------------------|
| ① | FLANGED OR MECHANICAL JOINT RESILIENT-SEATED GATE VALVE WITH 2" OPERATING NUT. | 2-G.1 |
| ② | HEX HEAD BOLTS. | 7-E.2 |
| | | |
| | | |
| | | |



GATE VALVE INSTALLATION

APPROVED BY GENERAL MANAGER
Ray Wellington
 RAY WELLINGTON
 STANDARD DRAWING No.
SAWCO-5
 REVISED DATE: 06-00

8" GATE CAP, HEAVY DUTY ALHAMBRA FDRY. NO. A29606 OR APPROVED EQUAL:
 MARKED SAWCO WATER WITH PRIMER AND TWO (2) COATS OF BLUE DUPONT TRAFFIC
 PAINT NO. 7001 OR APPROVED EQUAL.



Note

1. CONTRACTOR SHALL STAMP A 3" TALL "V" AND THE DISTANCE "D" FROM THE CURB FACE TO THE CENTER OF THE VALVE CAN.
2. BUTTERFLY VALVE ACTUATORS TO BE ON THE LEFT SIDE, WHEN VIEWED FROM THE FITTING THROUGH THE VALVE.

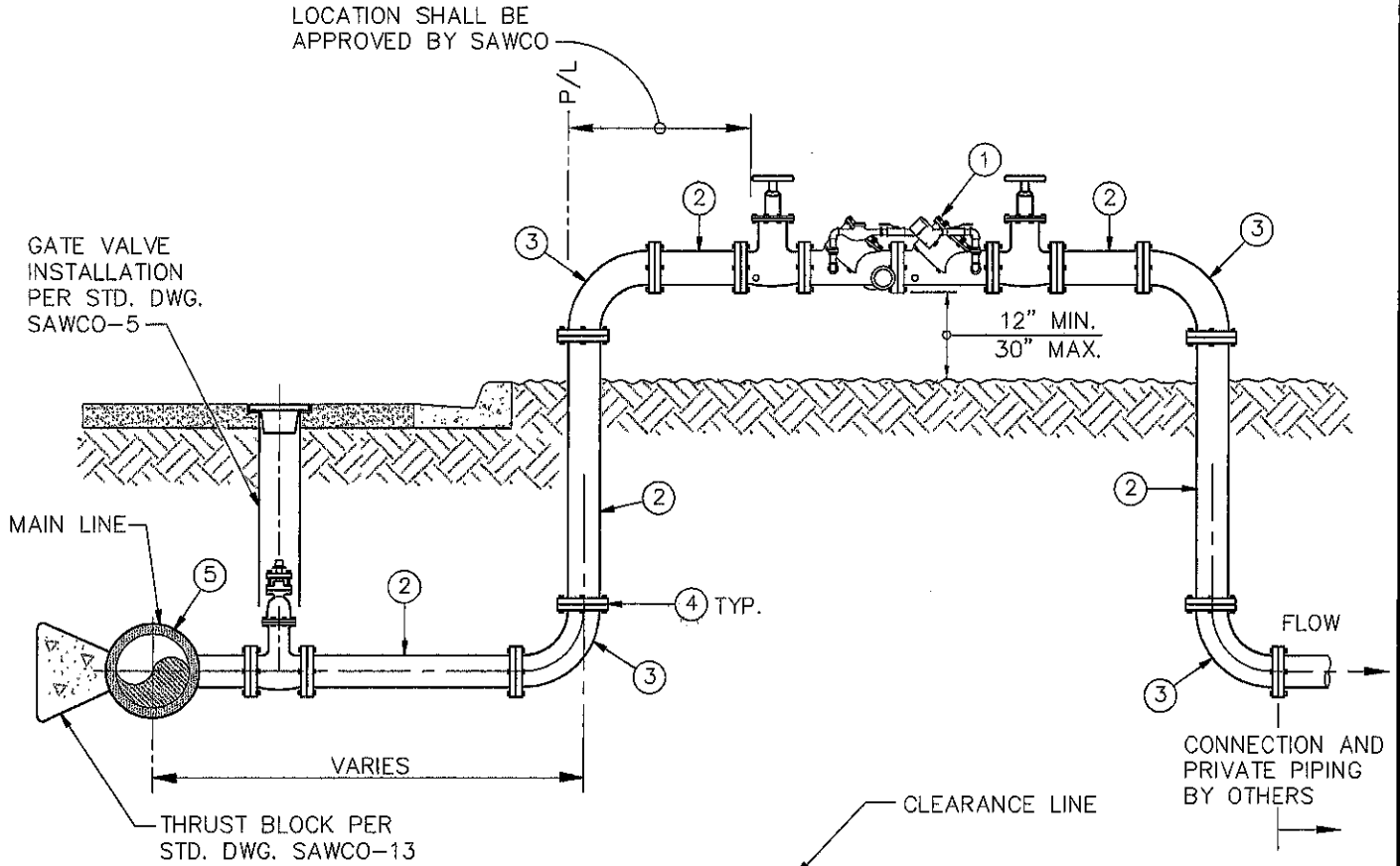
| ITEM | DESCRIPTION | APPROVED MATERIAL LIST NO. |
|------|--------------------------|----------------------------|
| ① | FLANGED BUTTERFLY VALVE. | 2-F |
| ② | HEX HEAD BOLTS | 7-E.2 |
| | | |



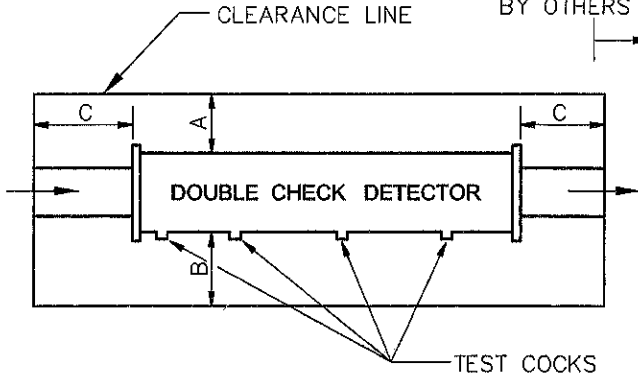
BUTTERFLY VALVE INSTALLATION

APPROVED BY GENERAL MANAGER
Ray Wellington
 RAY WELLINGTON
 STANDARD DRAWING No.
SAWCO-6
 REVISED DATE: 06-00

LOCATION SHALL BE APPROVED BY SAWCO



| MINIMUM CLEARANCE | | | |
|-------------------|-----|-----|-----|
| SIZE/D.C. | A | B | C |
| 3" - 10" | 24" | 24" | 12" |
| | | | |



Note:

1. DOUBLE CHECK DETECTOR ASSEMBLY SHALL BE SIZE IN COMPLIANCE WITH THE CONSTRUCTION DRAWINGS.
2. PLACE BOTTOM OF VALVE A MINIMUM OF 12" AND A MAXIMUM OF 30" ABOVE FINISH GRADE.
3. BOOSTER PUMPS ARE NOT PERMITTED DOWN STREAM OF THE DOUBLE CHECK DETECTOR ASSEMBLY.
4. CUSTOMER SHALL PROTECT DEVICE FROM FREEZING AND MAINTAIN ACCESS FOR TESTING.

| ITEM | DESCRIPTION | APPROVED MATERIAL LIST NO. |
|------|--|----------------------------|
| ① | 3" TO 10" DOUBLE CHECK DETECTOR ASSEMBLY | 4-B |
| ② | 3" TO 10" PIPE, DUCTILE IRON CLASS 350 OR CML & C STEEL, STANDARD WEIGHT | 1-B OR 1-D |
| ③ | 3" TO 10" 90° ELBOW, D.I.P. , CLASS 350 OR CML & C STEEL, STANDARD WEIGHT | 5-B OR 5-D |
| ④ | 3" TO 10" FLANGE, D.I., CLASS 125 OR STEEL, CLASS 150 | 7-C.1 OR 7-C.2 |
| ⑤ | MAIN SIZE x 3" TO 10" FLANGED, OR MECHANICAL JOINT x FLANGE, TEE, D.I., OR STEEL | 5-B OR 5-D |

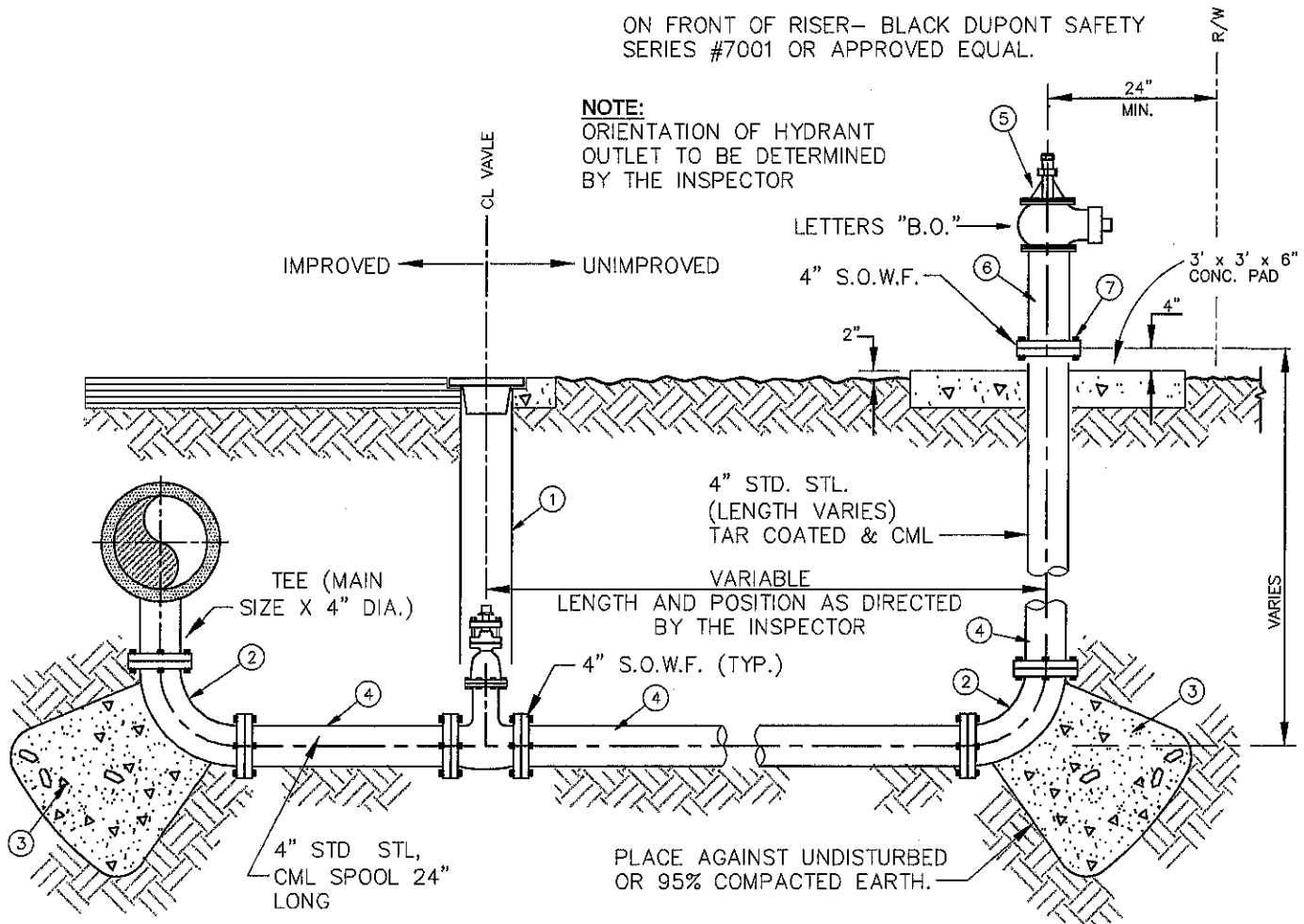


DOUBLE CHECK DETECTOR ASSY. INSTALLATION

APPROVED BY GENERAL MANAGER
Ray Wellington
 RAY WELLINGTON
 STANDARD DRAWING No.
SAWCO-7
 REVISED DATE: 06-00

ON FRONT OF RISER— BLACK DUPONT SAFETY SERIES #7001 OR APPROVED EQUAL.

NOTE:
ORIENTATION OF HYDRANT
OUTLET TO BE DETERMINED
BY THE INSPECTOR




Notes

1. ALL BLOW-OFFS SHALL HAVE GUARD POSTS, SIZE AND PLACEMENT DETERMINED BY SAWCO.
2. ALL EXPOSED COMPONENTS TO BE PAINTED WITH PRIMER AND TWO COATS OF YELLOW DUPONT SAFETY SERIES #7001 OR APPROVED EQUAL (NO PRIMER ON BRASS OR BRONZE).
3. ALL BURIED STEEL TO BE TAR COATED & CML
4. SEE STANDARD DRAWING SAWCO-15 FOR BLOW-OFF LOCATION WHEN SIDEWALK EXISTS.

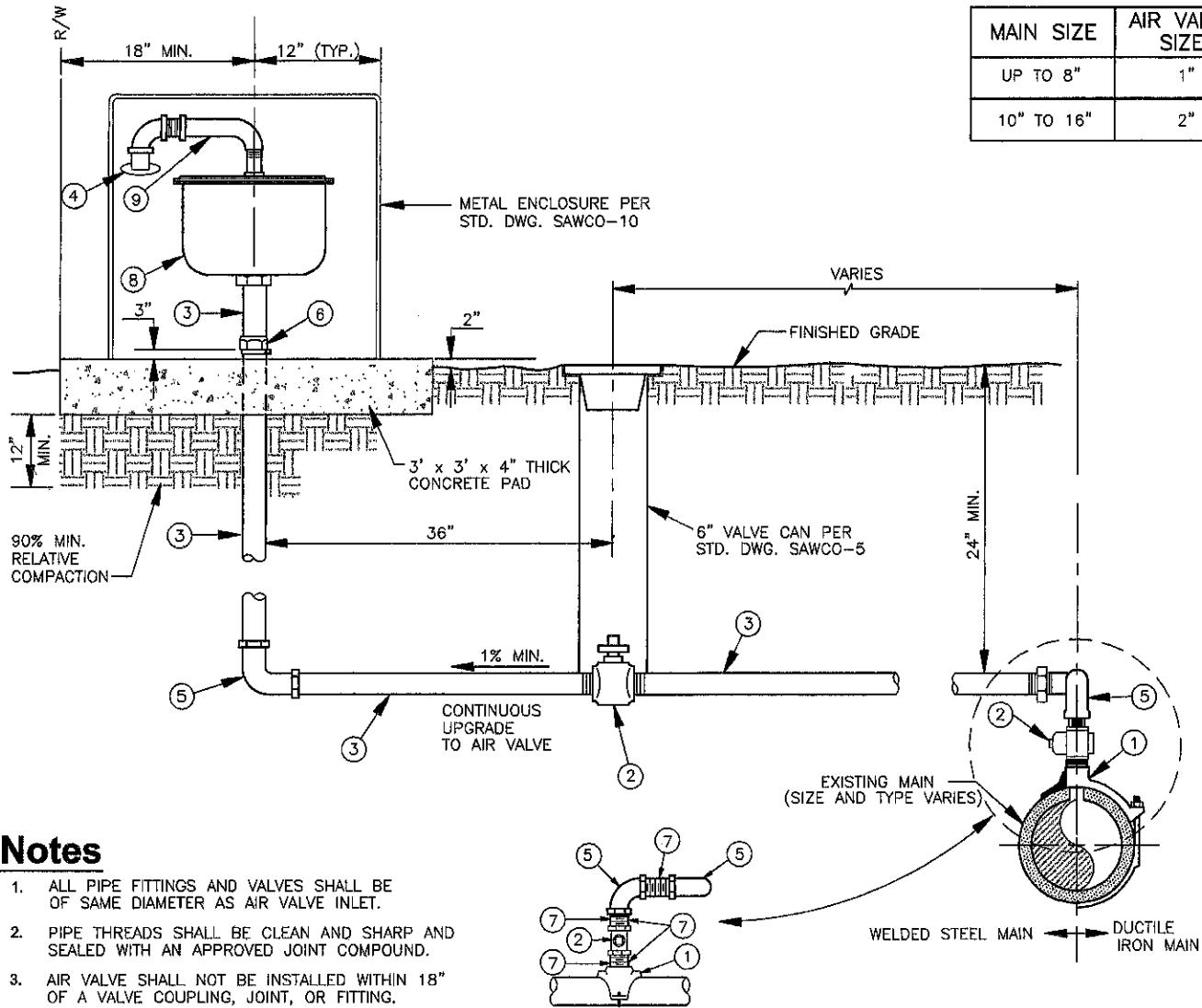
| ITEM | DESCRIPTION | APPROVED MATERIAL LIST NO. |
|------|--|----------------------------|
| 1 | 4" DIA. GATE VALVE INSTALLATION PER STD. DWG. SAWCO-5. | SEE SAWCO-5 |
| 2 | 4" STD. 90° FLANGED ELBOW, LINED AND COATED SAME AS MAIN. | 5-D |
| 3 | THRUST BLOCK PER STD. DWG. SAWCO-13. | SEE SAWCO-13 |
| 4 | 4" STEEL OR DIP PIPE, 10 GA. OR CLASS 350 | 1-B OR 1-D |
| 5 | 4" x 2-1/2" BRONZE WHARF HYDRANT | 3-B |
| 6 | 4" STD. STEEL PIPE, STL. CEMENT LINED AND PAINTED, STANDARD WEIGHT | 1-D |
| 7 | BREAKAWAY BOLTS | 7-E.1 |



**4" DIAMETER BLOW-OFF
INSTALLATION
FOR 12" OR LESS WATERMAIN**

APPROVED BY GENERAL MANAGER

 RAY WELLINGTON
 STANDARD DRAWING No.
SAWCO-8
 REVISED DATE: 06-00

| MAIN SIZE | AIR VALVE SIZE |
|------------|----------------|
| UP TO 8" | 1" |
| 10" TO 16" | 2" |



Notes

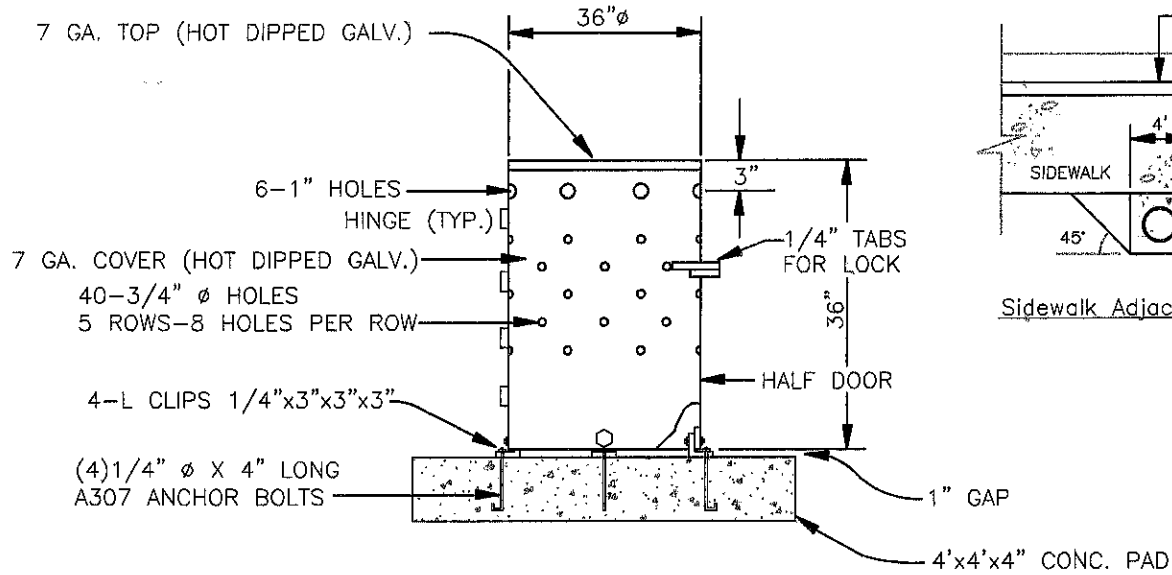
1. ALL PIPE FITTINGS AND VALVES SHALL BE OF SAME DIAMETER AS AIR VALVE INLET.
2. PIPE THREADS SHALL BE CLEAN AND SHARP AND SEALED WITH AN APPROVED JOINT COMPOUND.
3. AIR VALVE SHALL NOT BE INSTALLED WITHIN 18" OF A VALVE COUPLING, JOINT, OR FITTING.

| ITEM | DESCRIPTION | APPROVED MATERIAL LIST NO. |
|------|---|----------------------------|
| ① | DOUBLE STRAP BRASS SERVICE SADDLE 1" OR 2" 1" OR 2" STEEL COUPLING. STANDARD WEIGHT | 7-H 5-D |
| ② | 1" OR 2" GATE VALVE | 2-G.2 |
| ③ | 1" OR 2" G.I.P. | 1-C |
| ④ | AIR-VALVE SCREEN | 7-A.1 OR 7-A.2 |
| ⑤ | 1" G.I.P. 90° ELBOWS THREADED | 5-C |
| ⑥ | G.I.P. COUPLING | 5-C |
| ⑦ | 1" OR 2" G.I.P. THREADED NIPPLE | 5-C |
| ⑧ | 1" OR 2" AIR RELEASE VALVE | 2-A OR 2-B |
| ⑨ | STANDARD GALV. 90° ST. ELBOW; 3 INCH LONG GALV. NIPPLE; STANDARD GALV. 90° ELBOW; AND 3 INCH STANDARD GALV. NIPPLE. ORIENTED TO CLEAR AIR VALVE BODY. | 1-C |

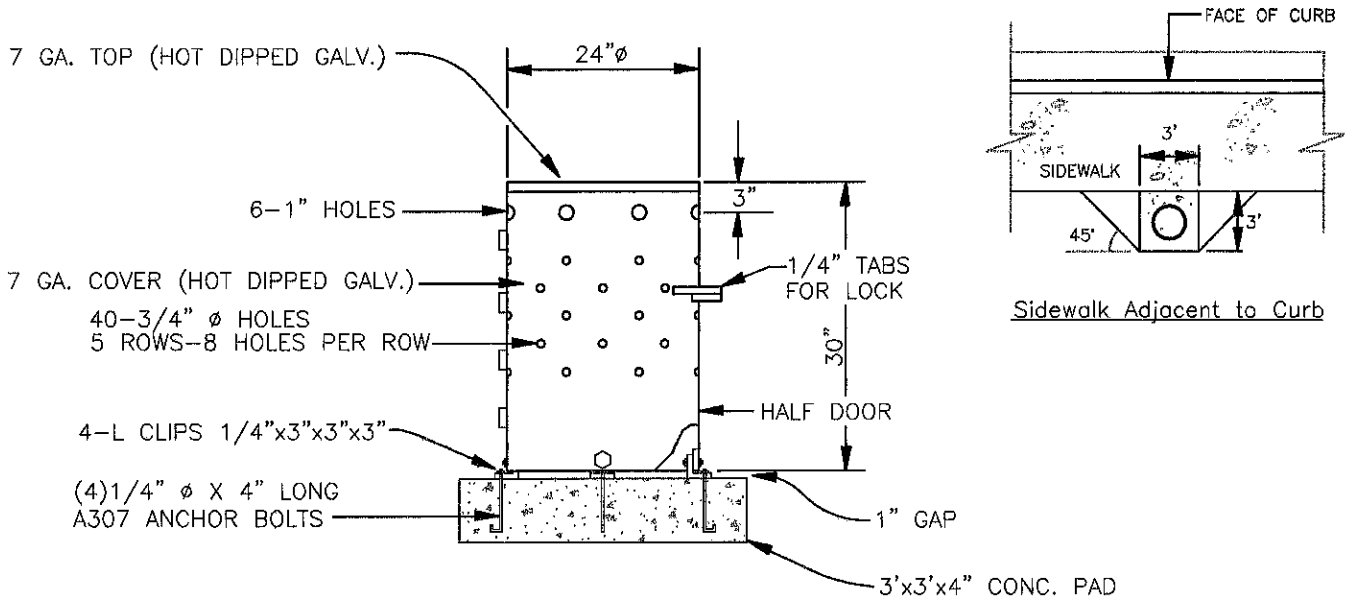


**AIR VALVE INSTALLATION
1" OR 2" DIAMETER**

APPROVED BY GENERAL MANAGER
Ray Wellington
 RAY WELLINGTON
 STANDARD DRAWING No.
SAWCO-9
 REVISED DATE: 06-00



4" Dia. Air Valve Enclosure
(Pipeline Products No. VC-330-D)



1" or 2" Dia. Air Valve Enclosure
(Pipeline Products No. VC-324-D)

Notes:

1. GUARD POST SHALL BE PLACED AS SPECIFIED ON THE CONSTRUCTION DRAWINGS IN COMPLIANCE WITH STANDARD DRAWING SAWCO-17.
2. ENCLOSURE INTERIOR & EXTERIOR SHALL BE PAINTED WITH PRIMER AND TWO (2) COATS OF YELLOW DUPONT PAINT #7001 OR APPROVE EQUAL. FINAL DRY FILM THICKNESS SHALL BE 8 MILS. MINIMUM.
3. ENCLOSURE SHALL BE MANUFACTURED BY PIPELINE PRODUCTS (800-998-1079) OR APPROVED EQUAL.
4. AIR VALVE MAY ENCROACH INTO SIDEWALK IF A FOUR FOOT MINIMUM WIDTH IS MAINTAINED.



AIR VALVE ENCLOSURES

APPROVED BY GENERAL MANAGER

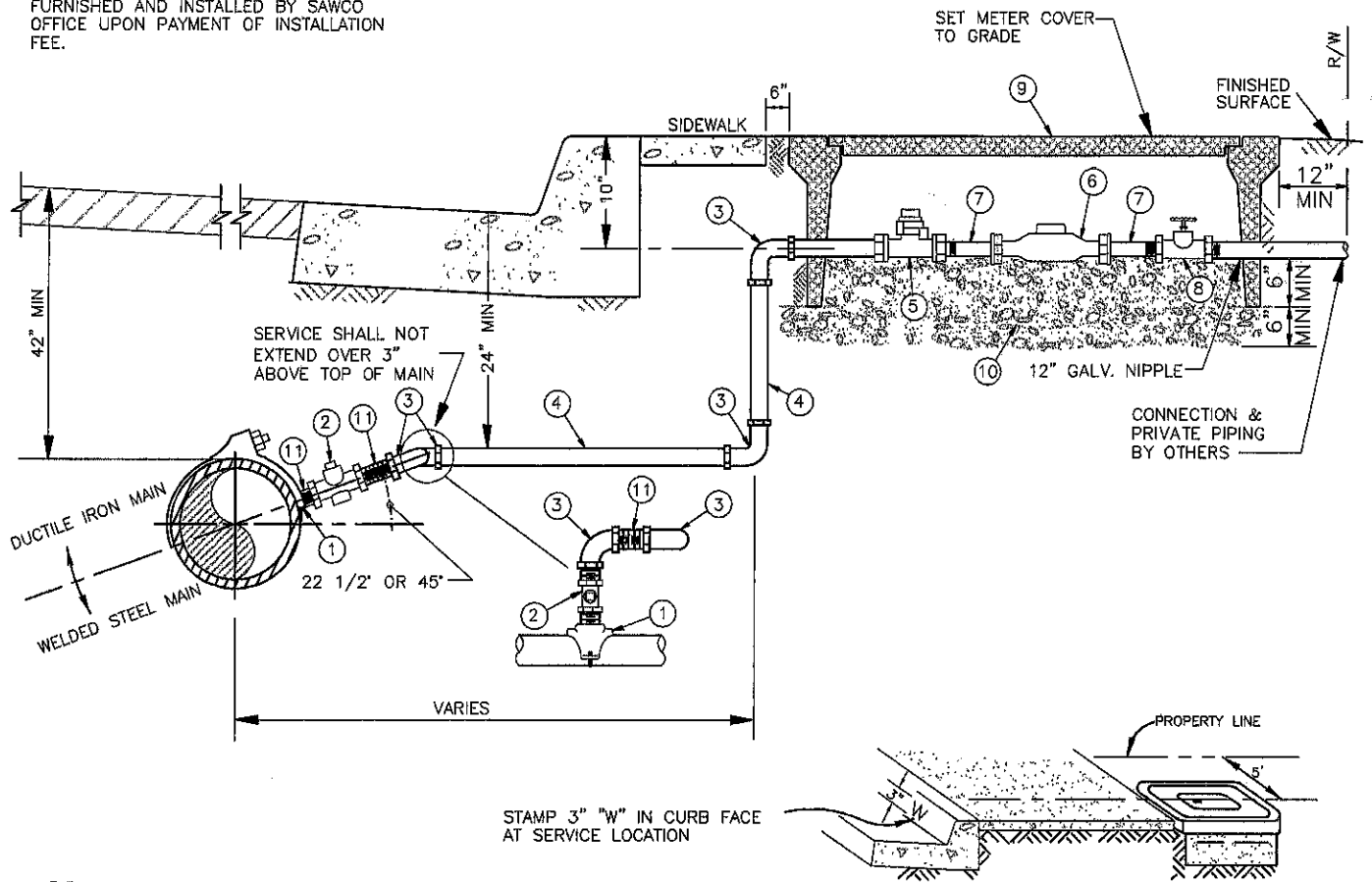
Ray Wellington
 RAY WELLINGTON

STANDARD DRAWING No.

SAWCO-10

REVISED DATE: 06-00

METER AND CUSTOMER SERVICE VALVE
FURNISHED AND INSTALLED BY SAWCO
OFFICE UPON PAYMENT OF INSTALLATION
FEE.



Notes

1. PIPE THREADS SHALL BE CLEAN, SHARP AND SEALED WITH AN APPROVED JOINT COMPOUND
2. WATER METER BOX AND COVER SHALL BE NEW FOR METER RELOCATION WORK.
3. PROVIDE BRASS BUSHINGS FOR 5/8" x 3/4" AND 3/4" METER INSTALLATIONS.

| ITEM | DESCRIPTION | APPROVED MATERIAL LIST NO. |
|------|--|----------------------------|
| ① | <i>MALLEABLE IRON</i> DOUBLE STRAP BRASS SERVICE 1" I.P. OUTLET OR 1" STEEL COUPLING, STANDARD WEIGHT | 7-H, 5-D |
| ② | 1" GATE VALVE | 2-G.2 |
| ③ | 1" 90° ELBOW, STANDARD WEIGHT | 5-C |
| ④ | 1" PIPE, STANDARD WEIGHT | 1-C |
| ⑤ | 1" CURB STOP, BRASS | 2-D |
| ⑥ | 5/8" x 3/4" METER, BRONZE, (FURNISHED BY SAWCO), 3/4" METER, BRONZE, (FURNISHED BY SAWCO), OR 1" METER, BRONZE, (FURNISHED BY SAWCO) | 7-D.1, 7-D.2, 7-D.3 |
| ⑦ | 3/4" OR 1" STRAIGHT METER COUPLING | 7-J |
| ⑧ | 1" GATE VALVE, BRONZE (FIPTxFIPT) | 2-G.4 |
| ⑨ | PLASTIC METER BOX WITH T-COVER | 6-B.1 |
| ⑩ | 3/4" ROCK BASE. 12" THICK | N/A |
| ⑪ | 1" THREADED NIPPLE, STANDARD WEIGHT | 5-C |



TYPICAL SERVICE INSTALLATION FOR
5/8" x 3/4", 3/4", & 1" METERS

APPROVED BY GENERAL MANAGER

Ray Wellington
RAY WELLINGTON

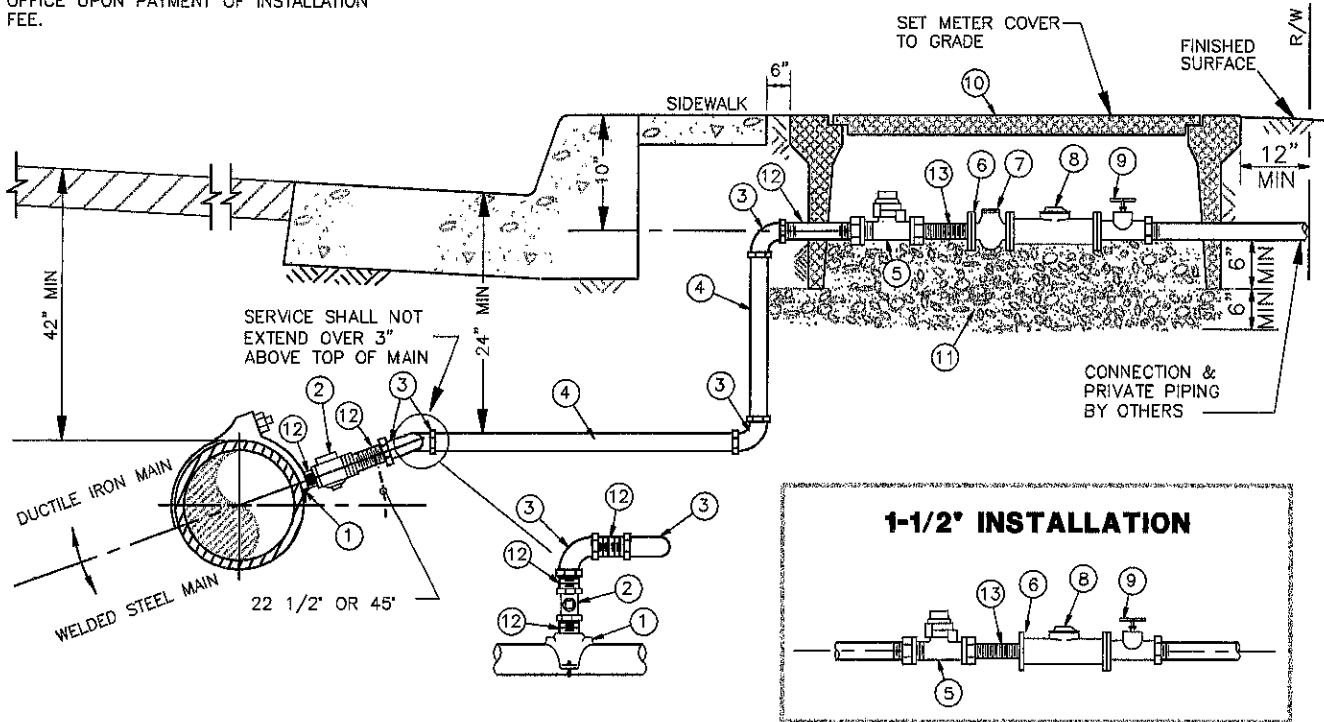
STANDARD DRAWING No.

SAWCO-11

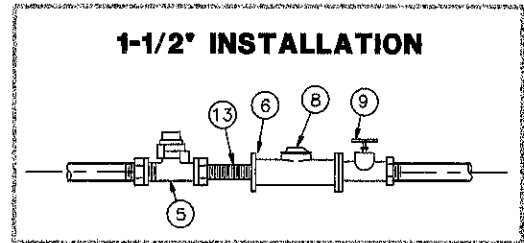
REVISED DATE: 06-00

METER AND CUSTOMER SERVICE VALVE
FURNISHED AND INSTALLED BY SAWCO
OFFICE UPON PAYMENT OF INSTALLATION
FEE.

2" INSTALLATION



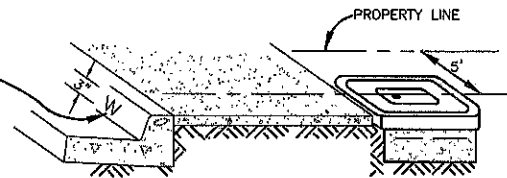
1-1/2" INSTALLATION



Notes

1. PIPE THREADS SHALL BE CLEAN, SHARP AND SEALED WITH AN APPROVED JOINT COMPOUND.
2. WATER METER BOX AND COVER SHALL BE NEW FOR METER RELOCATION WORK.
3. STRAINER ON 2" METER INSTALLATIONS ONLY.

STAMP 3" "W" IN CURB FACE
AT SERVICE LOCATION



| ITEM | DESCRIPTION | APPROVED MATERIAL LIST NO. |
|------|--|----------------------------|
| ① | DOUBLE STRAP BRASS SERVICE 1 1/2" OR 2" IRON PIPE OUTLET OR 1 1/2" OR 2" STEEL COUPLING, STANDARD WEIGHT | 7-H.1 OR 5-D |
| ② | 1 1/2" OR 2" GATE VALVE | 2-G.2 |
| ③ | 1 1/2" OR 2" 90° ELBOW, STANDARD WEIGHT | 5-C |
| ④ | 1 1/2" OR 2" PIPE, STANDARD WEIGHT | 1-C |
| ⑤ | 1 1/2" OR 2" CURB STOP, BRASS | 2-C OR 2-E |
| ⑥ | 1 1/2" OR 2" WATER METER FLANGE, BRONZE | 7-B |
| ⑦ | STRAINER, (NOT REQUIRED WITH 1 1/2" INSTALLATION) | 7-I |
| ⑧ | 1 1/2" OR 2" NEPTUNE TURBINE METER, FLANGED (FURNISHED BY SAWCO) | 7-D.4 OR 7-D.5 |
| ⑨ | 1 1/2" OR 2" GATE VALVE - BRONZE | 2-G.3 |
| ⑩ | PLASTIC METER BOX | 6-B.2 |
| ⑪ | 3/4" ROCK BASE. 12" THICK | N/A |
| ⑫ | 1 1/2" OR 2" NIPPLE, GALVANIZED | 5-C |
| ⑬ | 1 1/2" OR 2" CLOSE NIPPLE, BRASS | 5-A |



TYPICAL SERVICE INSTALLATION FOR 1 1/2 & 2" METERS

APPROVED BY GENERAL MANAGER

Ray Wellington
RAY WELLINGTON

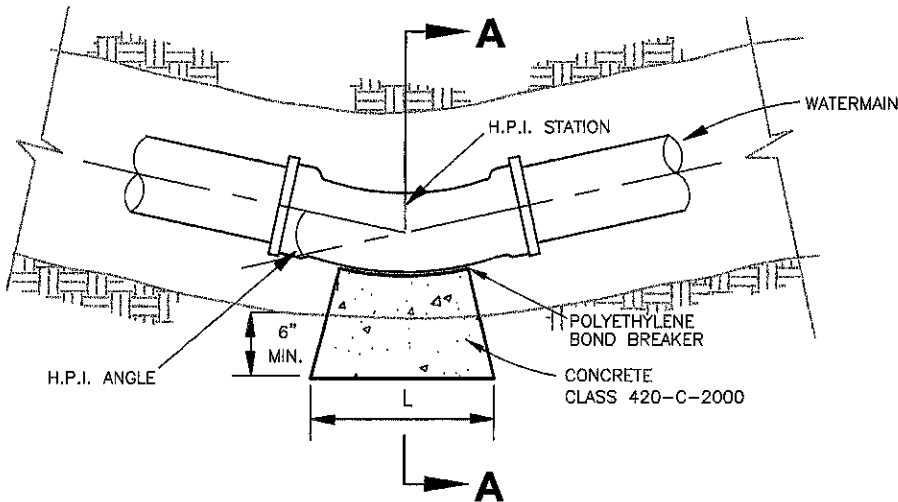
STANDARD DRAWING No.

SAWCO-12

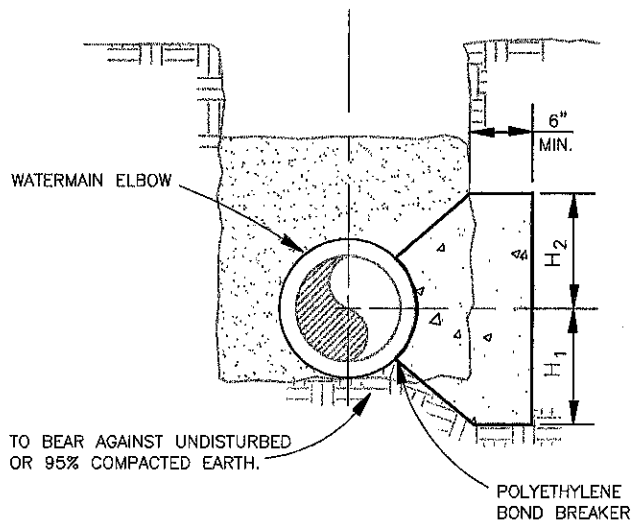
REVISED DATE:

06-00

HORIZONTAL BEND THRUST BLOCK



SECTIONAL PLAN



SECTION A-A

| PIPE DIA. | H ₁ | H ₂ | L | H.P.I. ANGLE |
|-----------|----------------|----------------|-------|--------------|
| 4" | 1/2 O.D. | 1/2 O.D. | 4'-0" | 5° TO 41° |
| 4" | 4" | 4" | 4'-0" | 42° TO 83° |
| 4" | 10" | 5" | 4'-0" | 84° TO 104° |
| 6" | 1/2 O.D. | 1/2 O.D. | 4'-0" | 5° TO 27° |
| 6" | 6" | 6" | 4'-0" | 28° TO 51° |
| 6" | 1'-5" | 9" | 4'-0" | 52° TO 90° |
| 8" | 1/2 O.D. | 1/2 O.D. | 4'-0" | 5° TO 20° |
| 8" | 8" | 8" | 4'-0" | 21° TO 36° |
| 8" | 1'-6" | 10" | 4'-0" | 37° TO 54° |
| 8" | 2'-2" | 1'-1" | 4'-0" | 55° TO 78° |
| 8" | 2'-8" | 1'-4" | 4'-0" | 79° TO 111° |
| 10" | 1/2 O.D. | 1/2 O.D. | 4'-0" | 5° TO 16° |
| 10" | 10" | 10" | 4'-0" | 17° TO 28° |
| 10" | 1'-10" | 11" | 4'-0" | 29° TO 39° |
| 10" | 2'-4" | 1'-2" | 4'-0" | 40° TO 53° |
| 10" | 2'-10" | 1'-6" | 4'-0" | 54° TO 70° |
| 10" | 2'-10" | 1'-6" | 6'-0" | 71° TO 120° |
| 12" | 1/2 O.D. | 1/2 O.D. | 4'-0" | 5° TO 13° |
| 12" | 12" | 12" | 4'-0" | 14° TO 22° |
| 12" | 2'-0" | 12" | 4'-0" | 23° TO 30° |
| 12" | 2'-6" | 1'-3" | 4'-0" | 31° TO 40° |
| 12" | 3'-0" | 1'-6" | 4'-0" | 41° TO 52° |
| 12" | 3'-0" | 1'-6" | 6'-0" | 53° TO 83° |

Notes

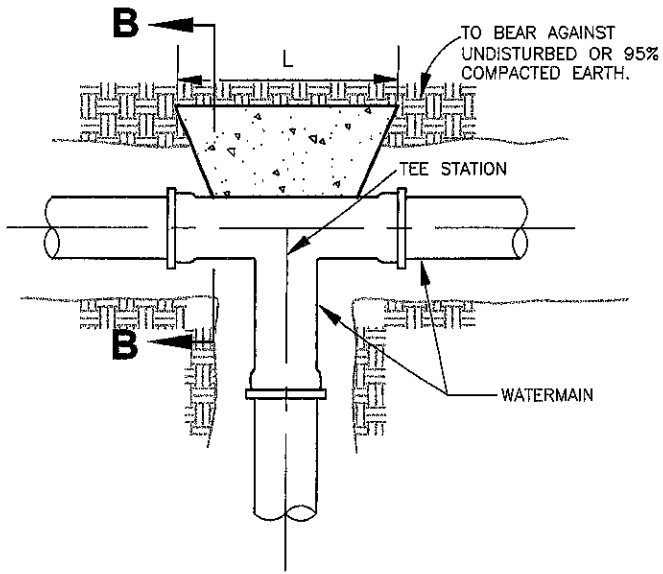
- PIPE INSTALLED UNDER CONDITIONS DIFFERENT FROM THOSE NORMALLY ENCOUNTERED SHALL REQUIRE THRUST BLOCKS DESIGNED FOR THOSE PARTICULAR CONDITIONS.
- ALL THRUST BLOCKS SHALL BE 420-C-2000 CONCRETE AND PLACE AGAINST UNDISTURBED OR 95% COMPACTED SOIL. SAWCO WILL DETERMINE SIZES NOT SHOWN.
- THRUST BLOCKS ON CROSSES SHALL BE USED WHENEVER PIPE SIZES DIFFER OR WHEN ONE OR MORE OPENINGS ARE PLUGGED.
- REINFORCING STEEL SHALL CONFORM TO A.S.T.M. SPECIFICATIONS A15 AND A305 INTERMEDIATE GRADE.
- ALL FITTINGS TO BE WRAPPED WITH POLYETHYLENE.
- VERTICAL THRUST BLOCKS SHALL BE IN COMPLIANCE WITH THE CONSTRUCTION DRAWINGS.



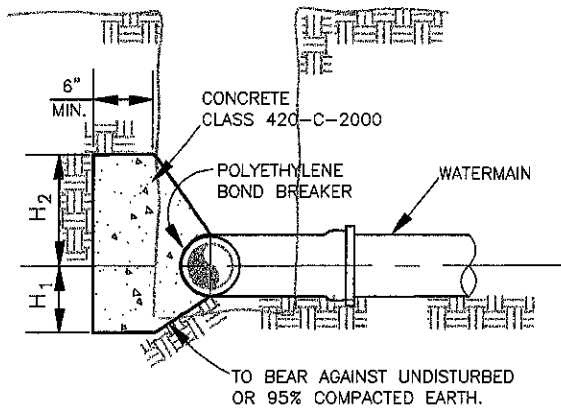
THRUST BLOCKS FOR STEEL AND D.I.P. PIPELINES, 225 P.S.I. MAX.

APPROVED BY GENERAL MANAGER
Ray Wellington
 RAY WELLINGTON
 STANDARD DRAWING No.
SAWCO-13 (1 OF 3)
 REVISED DATE: 06-00

TEE THRUST BLOCK

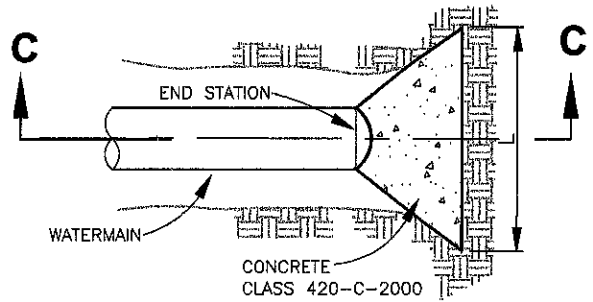


SECTIONAL PLAN

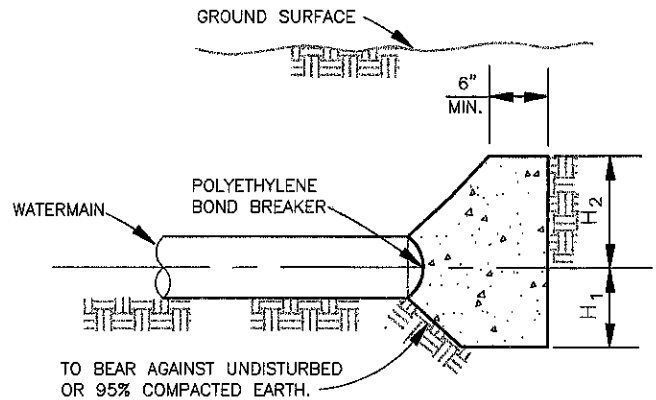


SECTION B-B

END THRUST BLOCK



SECTIONAL PLAN



SECTION C-C

Notes

1. PIPE INSTALLED UNDER CONDITIONS DIFFERENT FROM THOSE NORMALLY ENCOUNTERED SHALL REQUIRE THRUST BLOCKS DESIGNED FOR THOSE PARTICULAR CONDITIONS.
2. ALL THRUST BLOCKS SHALL BE 420-C-2000 CONCRETE AND PLACE AGAINST UNDISTURBED OR 95% COMPACTED SOIL. SAWCO WILL DETERMINE SIZES NOT SHOWN.
3. THRUST BLOCKS ON CROSSES SHALL BE USED WHENEVER PIPE SIZES DIFFER OR WHEN ONE OR MORE OPENINGS ARE PLUGGED.
4. REINFORCING STEEL SHALL CONFORM TO A.S.T.M. SPECIFICATIONS A15 AND A305 INTERMEDIATE GRADE.
5. ALL FITTINGS TO BE WRAPPED WITH POLYETHYLENE.
6. VERTICAL THRUST BLOCKS SHALL BE IN COMPLIANCE WITH THE CONSTRUCTION DRAWINGS.

| *PIPE DIA. | H ₁ | H ₂ | L |
|------------|----------------|----------------|-------|
| 4" | 9" | 6" | 3'-6" |
| 6" | 1'-6" | 9" | 4'-0" |
| 8" | 2'-2" | 1'-1" | 4'-0" |
| 10" | 2'-10" | 1'-5" | 4'-0" |
| 12" | 3'-0" | 1'-6" | 5'-0" |

* USE OUTLET PIPE DIAMETER



THRUST BLOCKS FOR STEEL AND D.I.P.
PIPELINES, 225 P.S.I. MAX.

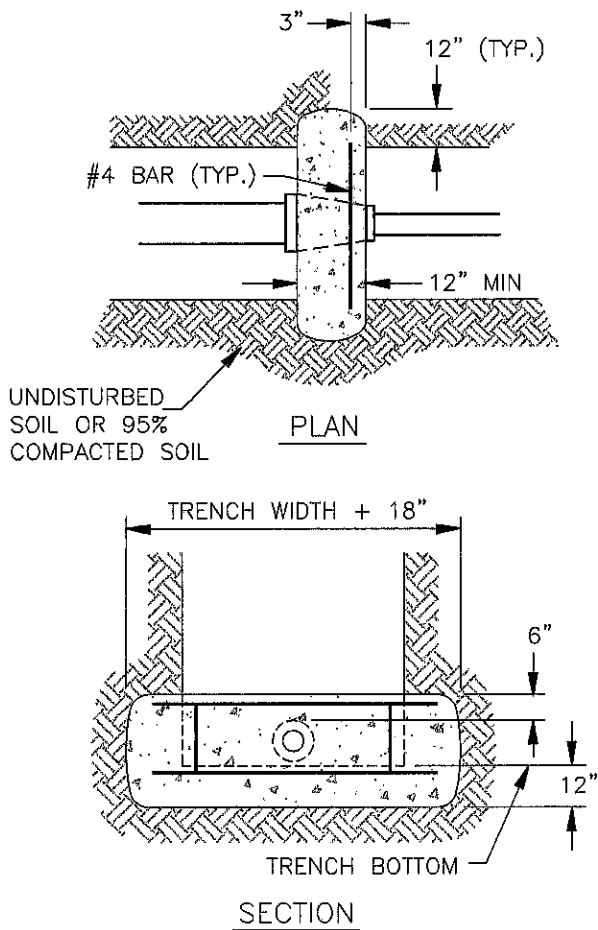
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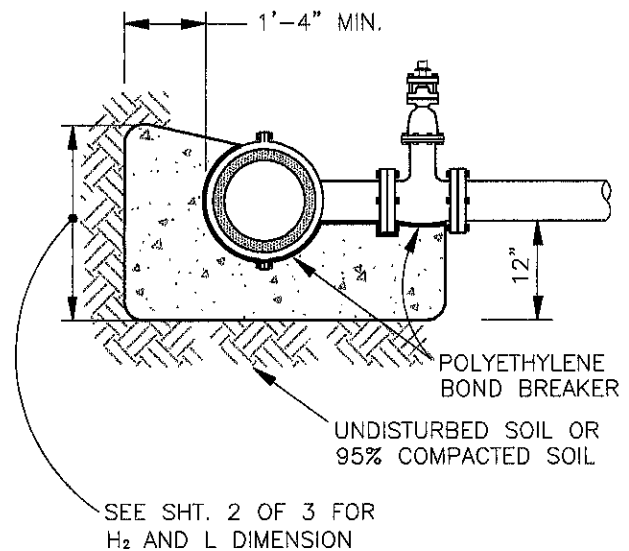
STANDARD DRAWING No.
SAWCO-13 (2 OF 3)

REVISED DATE: 06-00

REDUCER THRUST BLOCK



HOT TAP THRUST BLOCK



Notes

1. PIPE INSTALLED UNDER CONDITIONS DIFFERENT FROM THOSE NORMALLY ENCOUNTERED SHALL REQUIRE THRUST BLOCKS DESIGNED FOR THOSE PARTICULAR CONDITIONS.
2. ALL THRUST BLOCKS SHALL BE 420-C-2000 CONCRETE AND PLACE AGAINST UNDISTURBED OR 95% COMPACTED SOIL. SAWCO WILL DETERMINE SIZES NOT SHOWN.
3. THRUST BLOCKS ON CROSSES SHALL BE USED WHENEVER PIPE SIZES DIFFER OR WHEN ONE OR MORE OPENINGS ARE PLUGGED.
4. REINFORCING STEEL SHALL CONFORM TO A.S.T.M. SPECIFICATIONS A15 AND A305 INTERMEDIATE GRADE.
5. ALL FITTINGS TO BE WRAPPED WITH POLYETHYLENE.



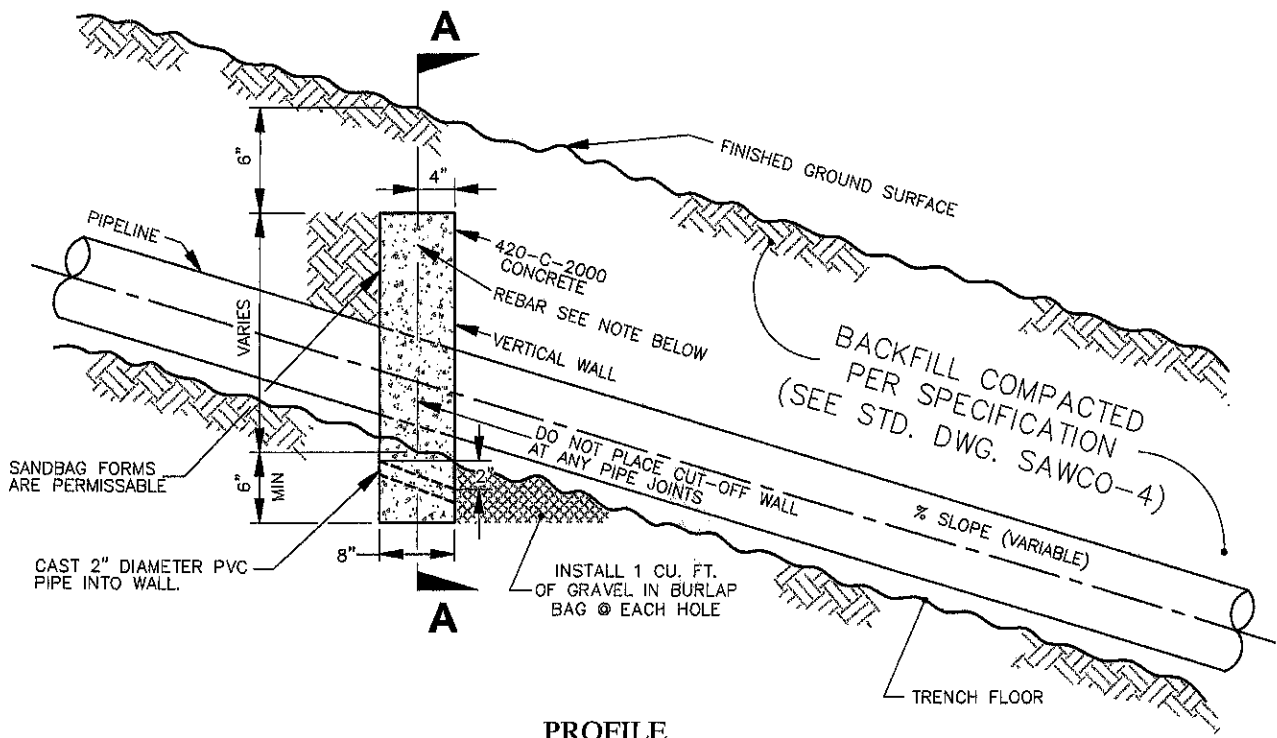
THRUST BLOCKS FOR STEEL AND D.I.P.
PIPELINES, 225 P.S.I. MAX.

APPROVED BY GENERAL MANAGER

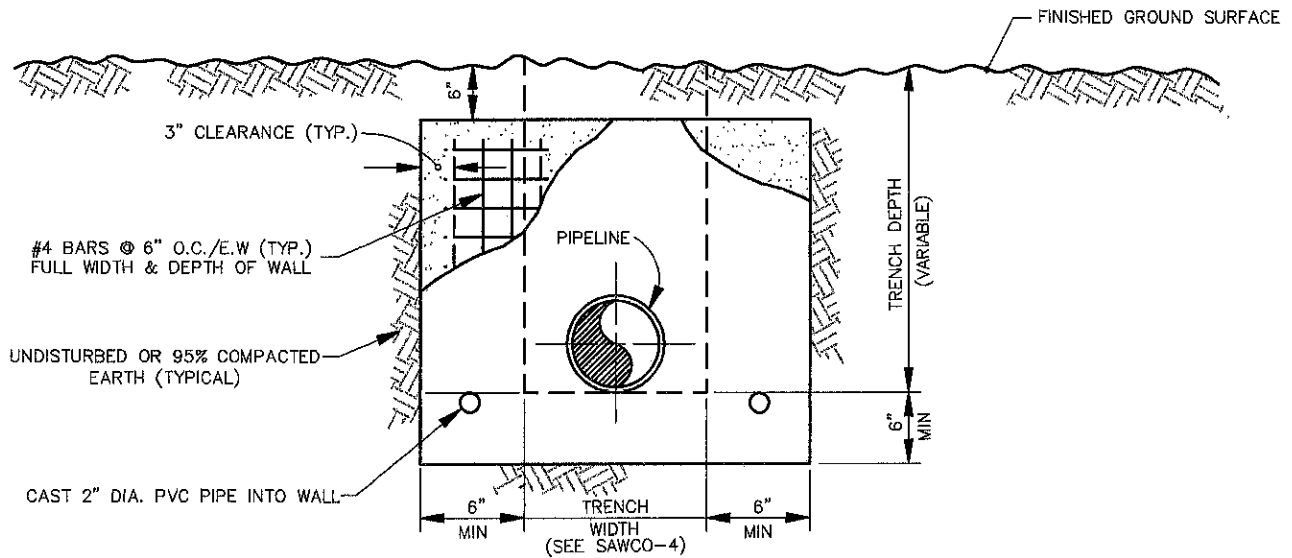
Ray Wellington
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STANDARD DRAWING No.
SAWCO-13 (3 OF 3)

REVISED DATE: 06-00



PROFILE



SECTION A-A

Notes

1. SLOPE PROTECTION CUT-OFF WALLS TO BE INSTALLED WHERE DIRECTED ON THE PLANS OR BY THE OWNER.
2. REINFORCING STEEL SHALL CONFORM TO A.S.T.M. SPECIFICATIONS A15 AND A305.



**SLOPE PROTECTION
CUT-OFF WALL**

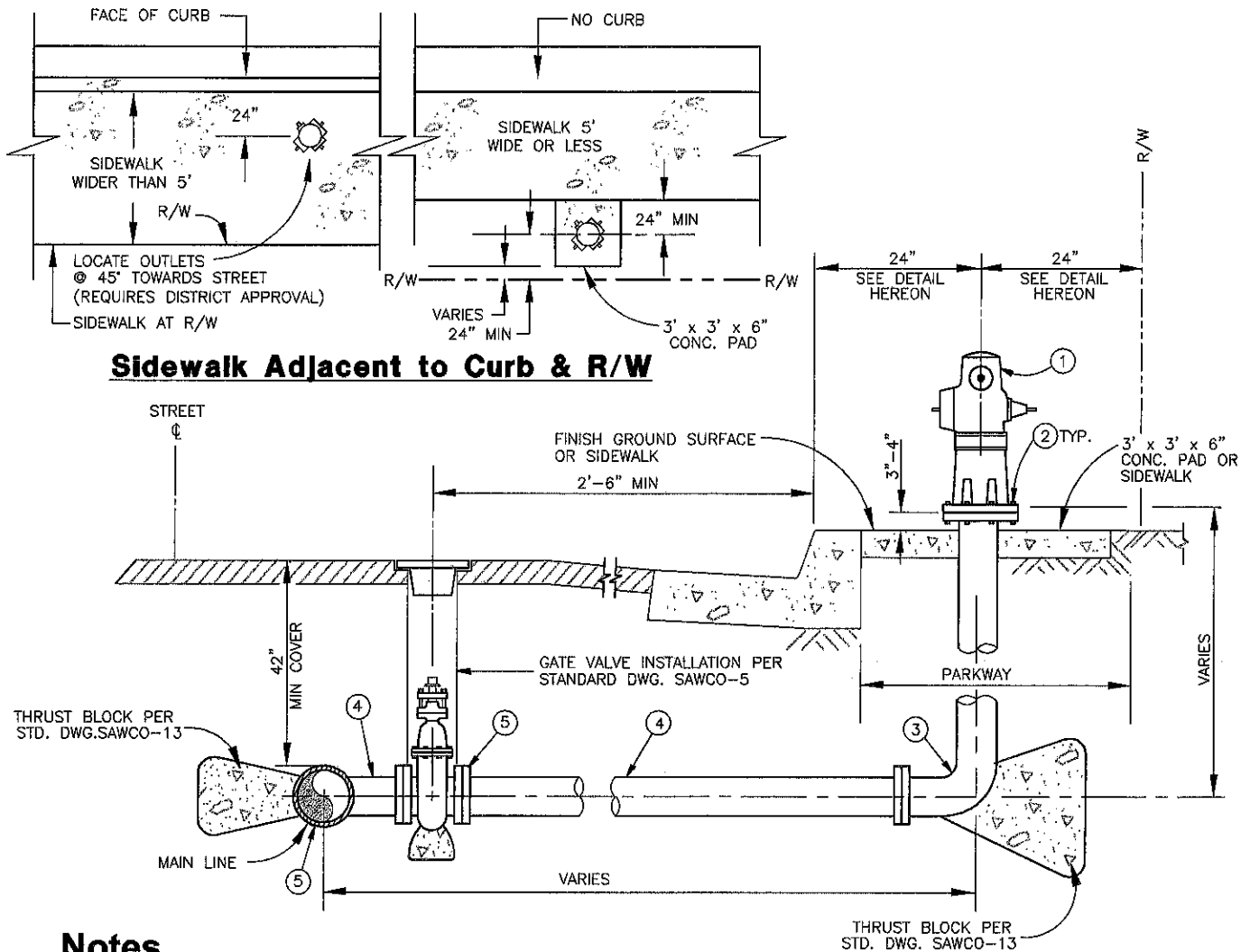
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STANDARD DRAWING No.

SAWCO-14

REVISED DATE: 06-00



Sidewalk Adjacent to Curb & R/W

Notes

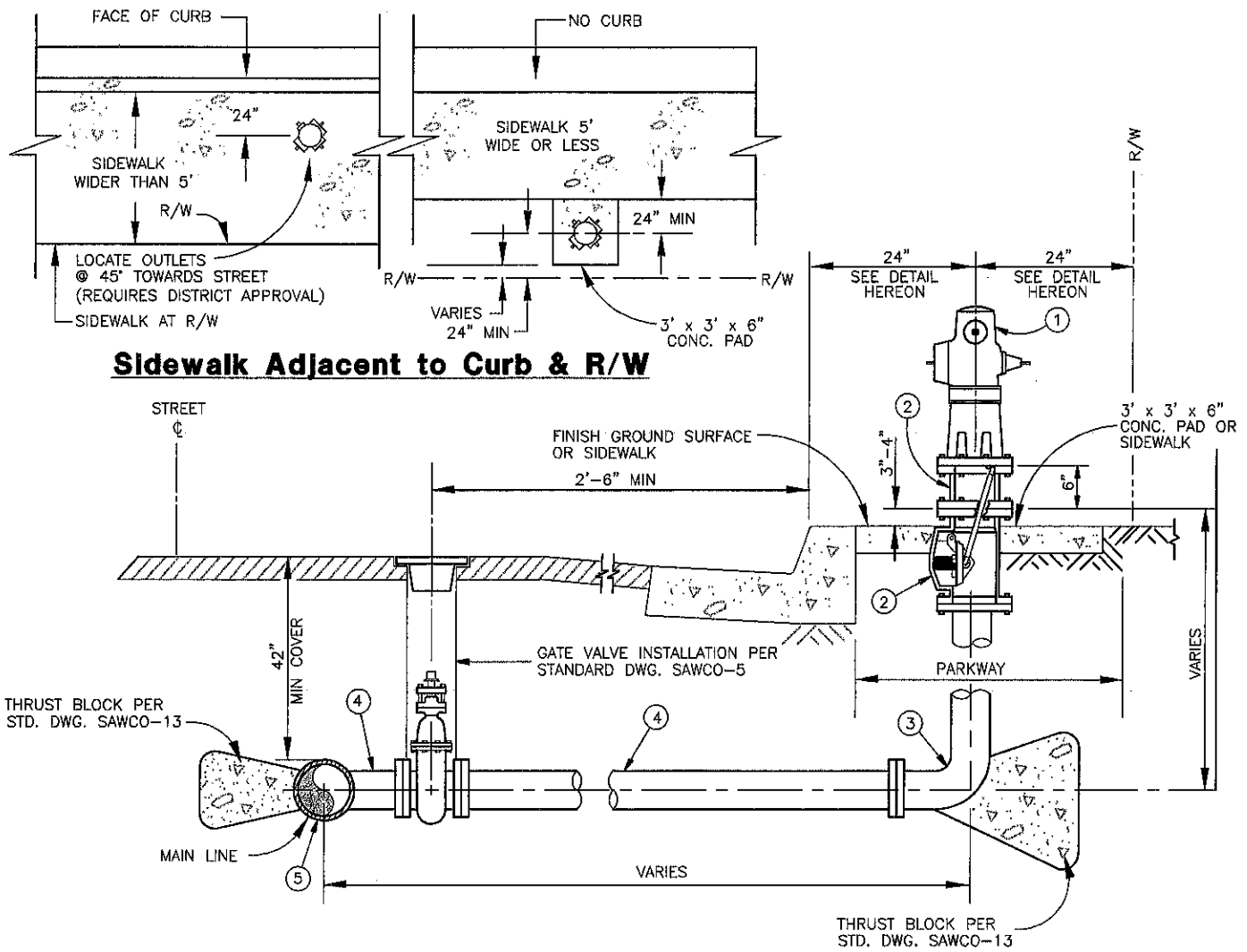
1. NORMAL LOCATION WATER HYDRANT IS 2'-0" AWAY FROM FACE OF CURB WHEN SIDEWALK IS AT PROPERTY LINE. IF THERE IS NO CURB LOCATE WATER HYDRANT 2'-0" FROM PROPERTY LINE.
2. WATER HYDRANTS IN UNPAVED ROAD SHALL HAVE GUARD POSTS, SIZE AND PLACEMENT DETERMINED BY SAWCO.
3. A CONCRETE PAD OF 3' x 3' x 6" MUST BE PROVIDED WHEN THE HYDRANT IS LOCATED OUTSIDE OF A SIDEWALK.
4. WRAP 8 MIL POLYETHYLENE AROUND PARTS REQUIRING THRUST BLOCKS.

| ITEM | QTY | DESCRIPTION | APPROVED MATERIAL LIST NO. |
|------|-----|---|----------------------------|
| ① | | 6" x 2- 1/2" x 4" FIRE HYDRANT HEAD, 6 HOLE BOLT PATTERN. | 3-A |
| ② | | BREAK-OFF BOLTS | 7-E.1 |
| ③ | | FLANGED x MECHANICAL JOINT BURY, DUCTILE IRON (CLASS 350) OR FLANGE x FLANGE BURY, CMC & C, STEEL (STANDARD WEIGHT) | 5-B OR 5-D |
| ④ | | DUCTILE IRON CLASS 350, CML & TAR COATED, OR CML & C STEEL, STANDARD WEIGHT. | 1-B OR 1-D |
| ⑤ | | MAIN SIZE x 6" FLANGED, OR MECHANICAL JOINT x FLANGE, DUCTILE IRON TEE | 5-B.1, 5-B.2 |



TYPICAL 6" WATER HYDRANT INSTALLATION

APPROVED BY GENERAL MANAGER
Ray Wellington
 RAY WELLINGTON
 STANDARD DRAWING No.
SAWCO-15 (2 OF 2)
 REVISED DATE: 06-00



Sidewalk Adjacent to Curb & R/W

Notes

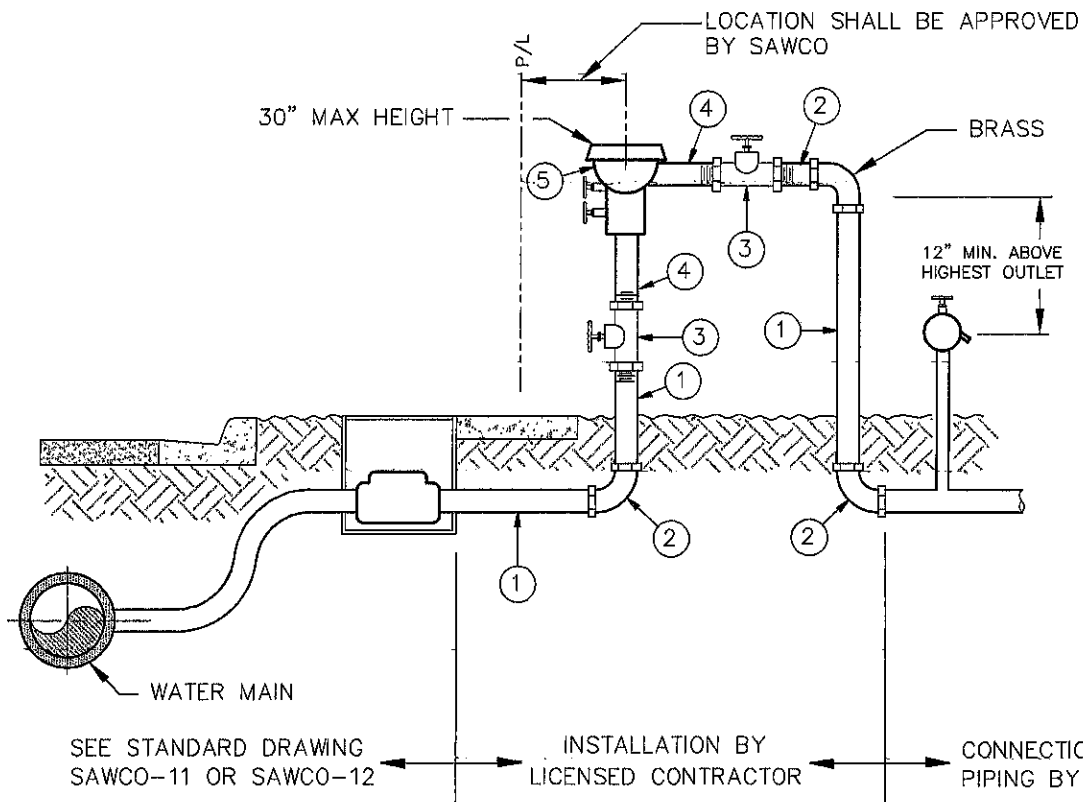
1. NORMAL LOCATION WATER HYDRANT IS 2'-0" AWAY FROM FACE OF CURB WHEN SIDEWALK IS AT PROPERTY LINE. IF THERE IS NO CURB LOCATE WATER HYDRANT 2'-0" FROM PROPERTY LINE.
2. WATER HYDRANTS IN UNPAVED ROAD SHALL HAVE GUARD POSTS, SIZE AND PLACEMENT DETERMINED BY SAWCO.
3. A CONCRETE PAD OF 3' x 3' x 6" MUST BE PROVIDED WHEN THE HYDRANT IS LOCATED OUTSIDE OF A SIDEWALK.
4. WRAP 8 MIL POLYETHYLENE AROUND PARTS REQUIRING THRUST BLOCKS.

| ITEM | QTY | DESCRIPTION | APPROVED MATERIAL LIST NO. |
|------|-----|---|----------------------------|
| ① | | 6" x 2- 1/2" x 4" FIRE HYDRANT HEAD, 6 HOLE BOLT PATTERN. | 3-A |
| ② | | BREAK-OFF CHECK VALVE , 6 HOLE BOLT PATTERN | 3-C & 7-E.2 |
| ③ | | FLANGED x MECHANICAL JOINT BURY, DUCTILE IRON (CLASS 350) OR FLANGE x FLANGE BURY, CMC & C, STEEL (STANDARD WEIGHT) | 5-B OR 5-D |
| ④ | | DUCTILE IRON CLASS 350, CML & TAR COATED, OR CML & C STEEL, STANDARD WEIGHT. | 1-B OR 1-D |
| ⑤ | | MAIN SIZE x 6" FLANGED, OR MECHANICAL JOINT x FLANGE, DUCTILE IRON TEE. | 5-B.1, 5-B.2 |



**TYPICAL 6" WATER HYDRANT
INSTALLATION
WITH BREAK-OFF CHECK VALVE ASSEMBLY**

APPROVED BY GENERAL MANAGER
Ray Wellington
 RAY WELLINGTON
 STANDARD DRAWING No.
SAWCO-15 (1 OF 2)
 REVISED DATE: 06-00

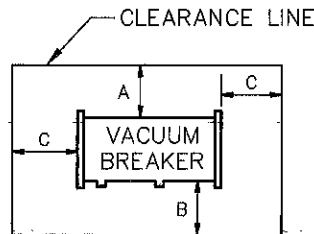


SEE STANDARD DRAWING
SAWCO-11 OR SAWCO-12

INSTALLATION BY
LICENSED CONTRACTOR

CONNECTION AND PRIVATE
PIPING BY OTHERS

| MINIMUM CLEARANCE | | | |
|-------------------|-----|-----|-----|
| SIZE | A | B | C |
| 3/4" - 2" | 12" | 12" | 12" |



Note:

- VACUUM BREAKER AND PIPING SHALL BE THE SAME DIAMETER AS THE METER.
- PLACE BOTTOM OF VALVE A MINIMUM OF 12" AND A MAXIMUM OF 30" ABOVE FINISH GRADE.
- BOOSTER PUMPS ARE NOT PERMITTED DOWN STREAM OF THE VACUUM BREAKER.
- CUSTOMER SHALL PROTECT DEVICE FROM FREEZING AND MAINTAIN ACCESS FOR TESTING.

| ITEM | DESCRIPTION | APPROVED MATERIAL LIST NO. |
|------|------------------------------------|----------------------------|
| ① | 3/4" TO 2" PIPE, BRASS | |
| ② | 3/4" TO 2" 90° ELBOW, BRASS | |
| ③ | 3/4" TO 2" GATE VALVE | |
| ④ | 3/4" TO 2" THREADED NIPPLE, BRASS | |
| ⑤ | 3/4" TO 2" PRESSURE VACUUM BREAKER | |



PRESSURE VACUUM BREAKER INSTALLATION

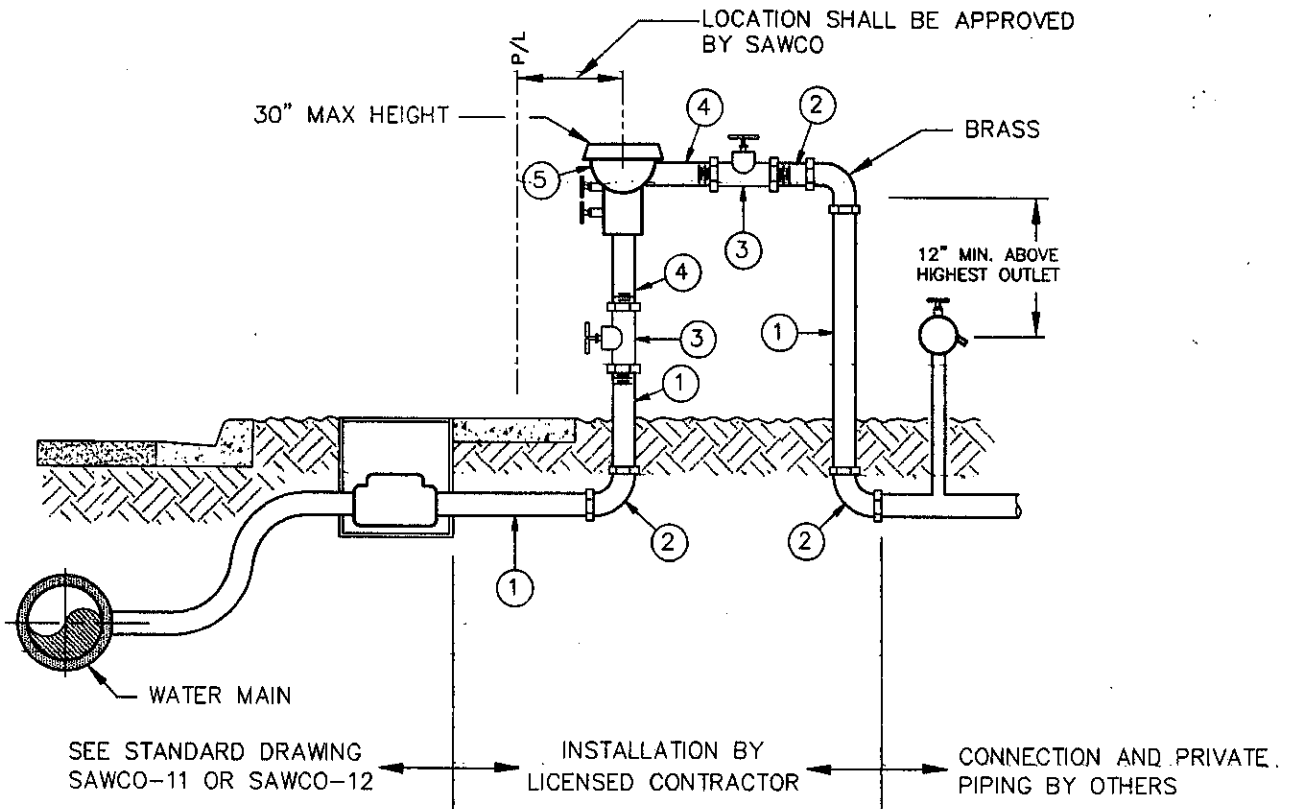
APPROVED BY GENERAL MANAGER

Ray Wellington
RAY WELLINGTON

STANDARD DRAWING No.

SAWCO-16

REVISED DATE: 08-00

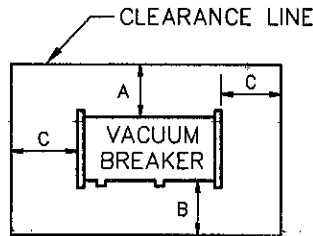


SEE STANDARD DRAWING
SAWCO-11 OR SAWCO-12

INSTALLATION BY
LICENSED CONTRACTOR

CONNECTION AND PRIVATE
PIPING BY OTHERS

| MINIMUM CLEARANCE | | | |
|-------------------|-----|-----|-----|
| SIZE | A | B | C |
| 3/4" - 2" | 12" | 12" | 12" |



Note:

1. VACUUM BREAKER AND PIPING SHALL BE THE SAME DIAMETER AS THE METER.
2. PLACE BOTTOM OF VALVE A MINIMUM OF 12" AND A MAXIMUM OF 30" ABOVE FINISH GRADE.
3. BOOSTER PUMPS ARE NOT PERMITTED DOWN STREAM OF THE VACUUM BREAKER.
4. CUSTOMER SHALL PROTECT DEVICE FROM FREEZING AND MAINTAIN ACCESS FOR TESTING.

| ITEM | DESCRIPTION | APPROVED MATERIAL LIST NO. |
|------|------------------------------------|----------------------------|
| ① | 3/4" TO 2" PIPE, BRASS | |
| ② | 3/4" TO 2" 90° ELBOW, BRASS | |
| ③ | 3/4" TO 2" GATE VALVE | |
| ④ | 3/4" TO 2" THREADED NIPPLE, BRASS | |
| ⑤ | 3/4" TO 2" PRESSURE VACUUM BREAKER | |
| | | |
| | | |



**PRESSURE VACUUM BREAKER
INSTALLATION**

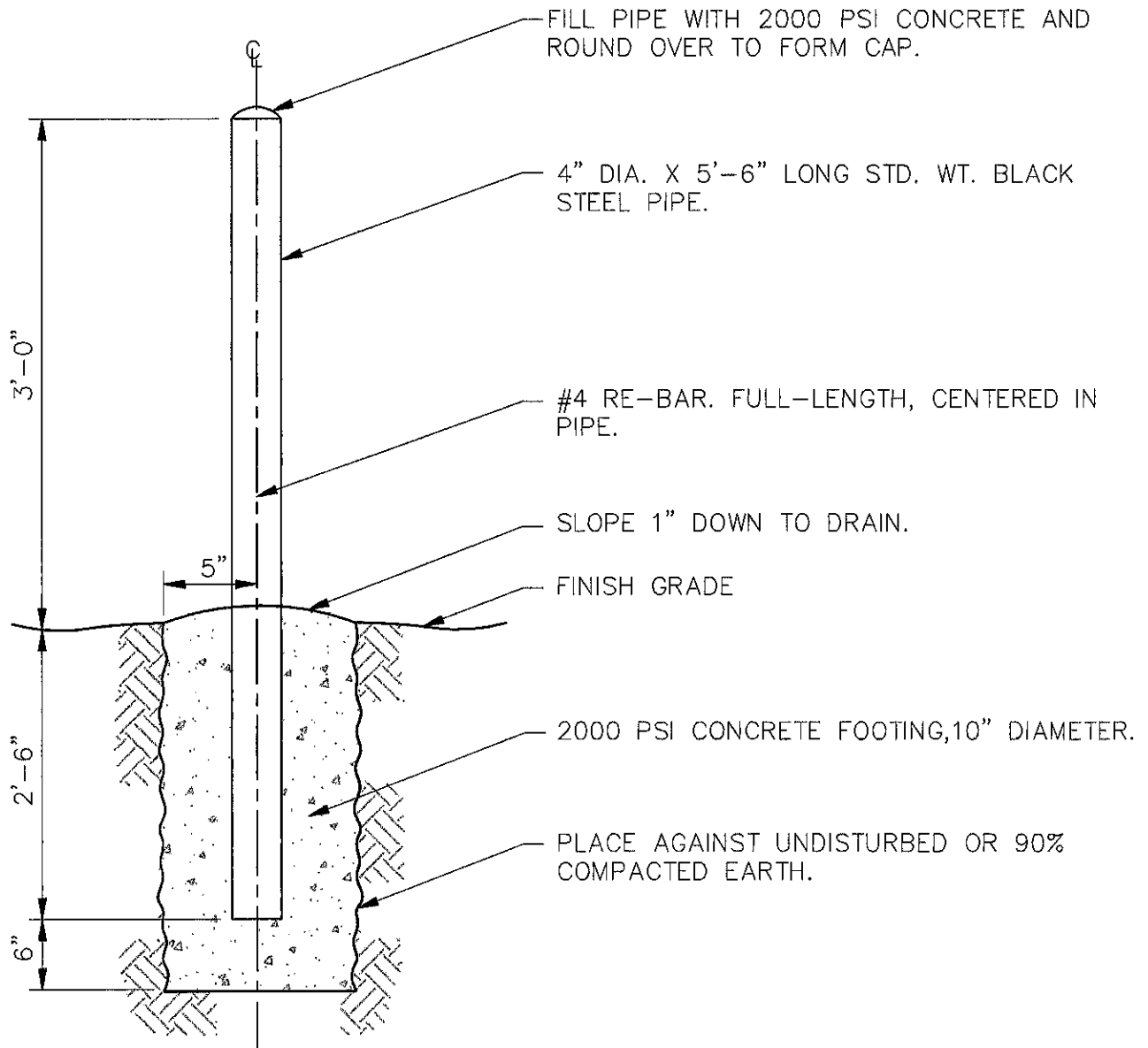
APPROVED BY GENERAL MANAGER

RAY WELLINGTON

STANDARD DRAWING No.

SAWCO-16

REVISED DATE: 08-00



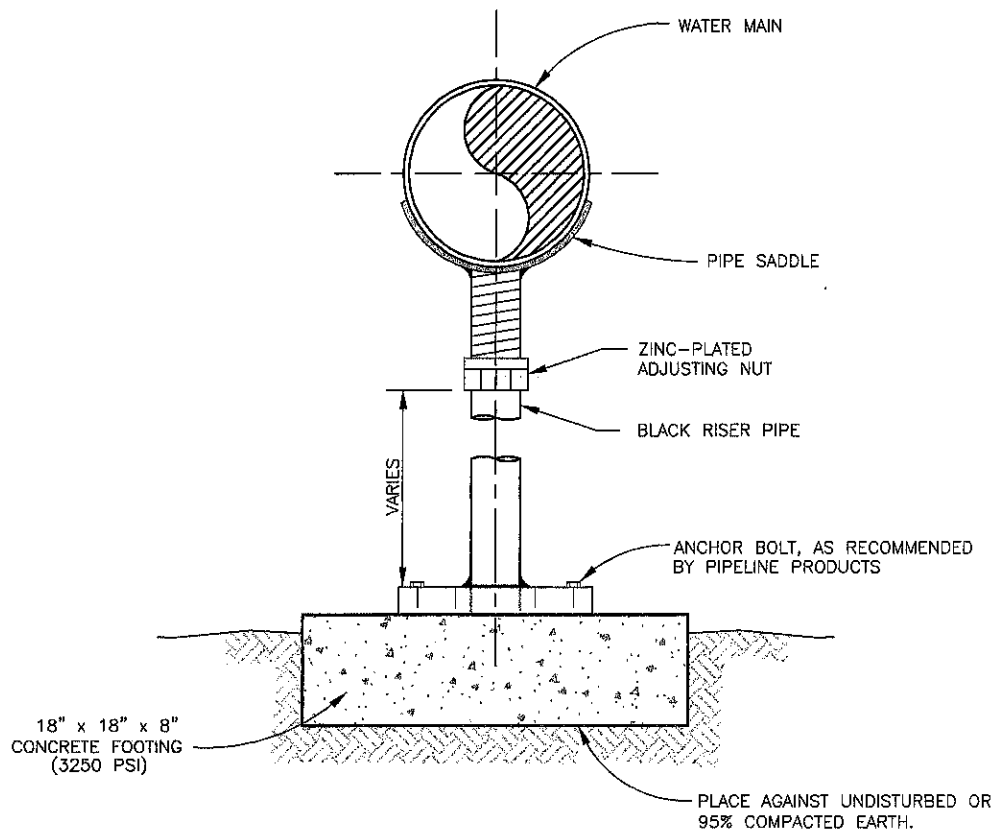
Note

1. LOCATION SHALL BE AS SHOWN ON PLAN VIEW, OR AS DIRECTED IN THE FIELD INSPECTOR OR ENGINEER.
2. GUARD POST SHALL BE PAINTED WITH PRIMER AND TWO (2) COATS OF YELLOW DUPONT PAINT # 7001. OR APPROVED EQUAL. FINAL DRY FILM THICKNESS SHALL BE 8 MILS. MINIMUM.



GUARD POST INSTALLATION DETAIL

| |
|--|
| APPROVED BY GENERAL MANAGER <i>Ray Wellington</i> RAY WELLINGTON |
| STANDARD DRAWING No. SAWCO-17 |
| REVISED DATE: 06-00 |



| DIA. | MAX SPACING |
|-----------|-------------|
| 2" & LESS | 8' |
| 4"-24" | 10' |

Notes

1. PIPE SUPPORT SHALL BE MANUFACTURED BY PIPELINE PRODUCTS.
2. RISER PIPE AND BASE FLANGE SHALL BE AS RECOMMENDED BY PIPELINE PRODUCTS.
3. PIPE SUPPORT LOCATIONS SHALL BE IN COMPLIANCE WITH THE CONSTRUCTION DRAWINGS BUT SHALL NOT EXCEED THE MAXIMUM SPACING REQUIREMENTS.



**PIPE SUPPORT DETAIL
PIPELINE PRODUCTS**

APPROVED BY GENERAL MANAGER
Ray Wellington
 RAY WELLINGTON
 STANDARD DRAWING No.
SAWCO-18
 REVISED DATE: 06-00