



STANDARD DRAWINGS

**MISSION SPRINGS WATER DISTRICT
66575 2ND STREET
DESERT HOT SPRINGS, CA 92240
WWW.MSWD.ORG**

**UPDATED
FEBRUARY 2024**

SEWER PLAN VIEW

SEWER MAIN ————— 0.65 mm
MANHOLES ————— 0.45 mm
LATERALS, TEXT ————— 0.30 mm
OTHER UTILITIES ————— 0.20 mm

SEWER PROFILE VIEW

SEWER MAIN ————— 0.65 mm
MANHOLES ————— 0.45 mm
INTERSECTING
SEWER, TEXT ————— 0.30 mm
OTHER UTILITIES ————— 0.20 mm

WATER PLAN VIEW

WATER MAIN ————— 0.65 mm
FIRE HYDRANT ————— 0.45 mm
WATER SERVICE
VALVES, TEXT ————— 0.30 mm
OTHER UTILITIES ————— 0.20 mm

WATER PROFILE VIEW

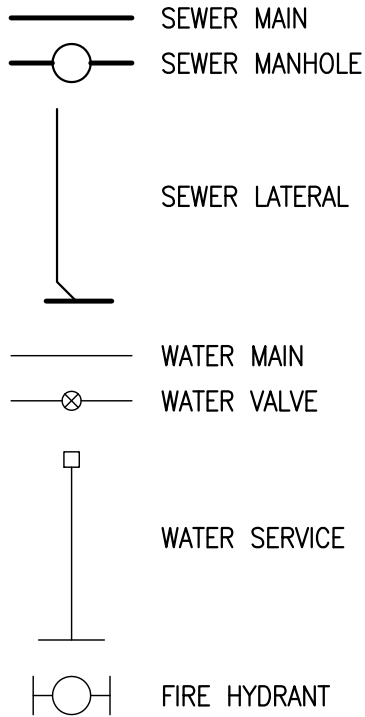
WATER MAIN ————— 0.65 mm
FIRE HYDRANTS ————— 0.30 mm
TEXT
OTHER UTILITIES ————— 0.20 mm



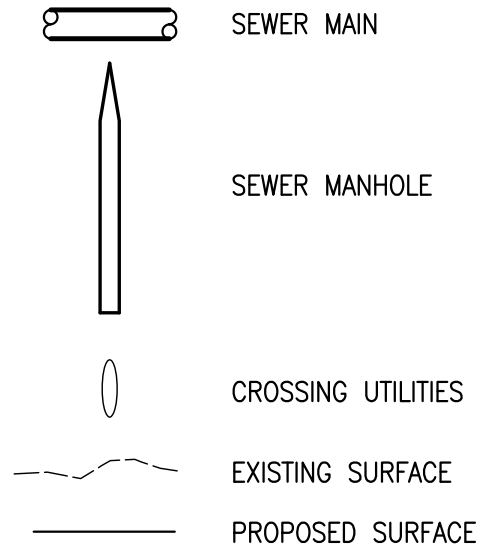
TYPICAL LINE TYPES
AND SIZES

Approved: _____
Brian Macy
General Manager/Chief Engineer
Drawn: MP Date: 1/31/2024
DRAWING No.
D-01

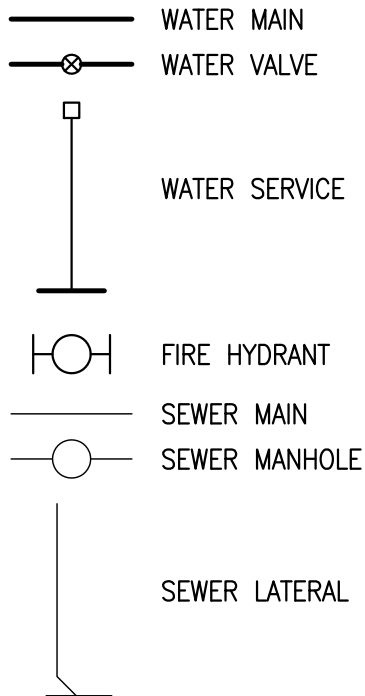
SEWER PLAN VIEW



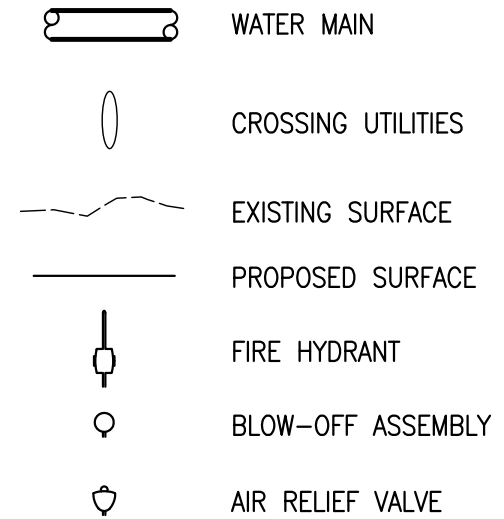
SEWER PROFILE VIEW



WATER PLAN VIEW



WATER PROFILE VIEW



TYPICAL LEGEND

Approved: _____
 Brian Macy
 General Manager/Chief Engineer
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 D-02

CURVE DATA TABLE				
C#	DELTA	RADIUS	LENGTH	TANGENT
C1	-	-	-	-
C2	-	-	-	-
C3	-	-	-	-
C4	-	-	-	-
C5	-	-	-	-
C6	-	-	-	-
C7	-	-	-	-

MANHOLE / CLEANOUT LEGEND								
NO.	STATION	RIM/C.O. ELEV.(FT)	INV. ELEV. (IN)	DIR.	INV. ELEV. (OUT)	DIR.	SHEET #	DEPTH (FT)
M.H. 1	-	-	-	-	-	-	-	-
M.H. 2	-	-	-	-	-	-	-	-
M.H. 3	-	-	-	-	-	-	-	-
M.H. 4	-	-	-	-	-	-	-	-
M.H. 5	-	-	-	-	-	-	-	-

QUANTITIES & UNITS ON TITLE SHEET ONLY

PLAN SHEETS SHOW ONLY NOTES PERTAINING TO SHEET


CONSTRUCTION NOTES & QUANTITY ESTIMATE			
NO.	ITEM	QUANTITY	UNIT
①	-	-	-
②	-	-	-
③	-	-	-
④	-	-	-
⑤	-	-	-
⑥	-	-	-
⑦	-	-	-
⑧	-	-	-
⑨	-	-	-
⑩	-	-	-
⑪	-	-	-
⑫	-	-	-
⑬	-	-	-
⑭	-	-	-



CURVE DATA TABLE,
MANHOLE / CLEANOUT LEGEND,
AND CONSTRUCTION NOTES &
QUANTITY ESTIMATE

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 D-03

8.9"



DIG ALERT
DIAL BEFORE YOU DIG
TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 811
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT


UNAUTHORIZED CHANGES & USES: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

ENGINEER'S NOTE TO CONTRACTOR: CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.

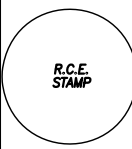
THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN IN THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT THOSE SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN AND IS RESPONSIBLE FOR THE PROTECTION OF, AND ANY DAMAGE TO THESE LINES OR STRUCTURES.

0.08"

#	REVISIONS	DATE	APP.



14.42"

BENCHMARK:	DESIGN ENGINEER		PREPARED UNDER THE DIRECT SUPERVISION OF:
BASIS OF BEARING:	DEVELOPER		_____ DATE _____ DATE
SCALE: PLOT DATE: DESIGN BY: DRAWN BY: CHECKED BY:			

10.8"

FOR WATER PLANS ONLY

	APPROVED BY: RIVERSIDE COUNTY FIRE DEPARTMENT FIRE MARSHAL _____ DATE _____		
APPROVED BY MISSION SPRINGS WATER DISTRICT: BRIAN MACY _____ DATE _____ GENERAL MANAGER / CHIEF ENGINEER "VOID AFTER ONE YEAR FROM THIS DATE"	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; text-align: center;"> MISSION SPRINGS WATER DISTRICT PROJECT NAME TYPE OF IMPROVEMENT PLAN SHEET NAME EXTRA SPACE </td> <td style="width: 30%; text-align: center;"> SHEET # OF # PRIVATE REFERENCE # MSWD REFERENCE # </td> </tr> </table>	MISSION SPRINGS WATER DISTRICT PROJECT NAME TYPE OF IMPROVEMENT PLAN SHEET NAME EXTRA SPACE	SHEET # OF # PRIVATE REFERENCE # MSWD REFERENCE #
MISSION SPRINGS WATER DISTRICT PROJECT NAME TYPE OF IMPROVEMENT PLAN SHEET NAME EXTRA SPACE	SHEET # OF # PRIVATE REFERENCE # MSWD REFERENCE #		

ALL TITLE BLOCK TEXT TO BE 0.10"
UNLESS OTHERWISE SPECIFIED

TITLE BLOCK AVAILABLE FOR
DOWNLOAD FROM MSWD'S WEB SITE



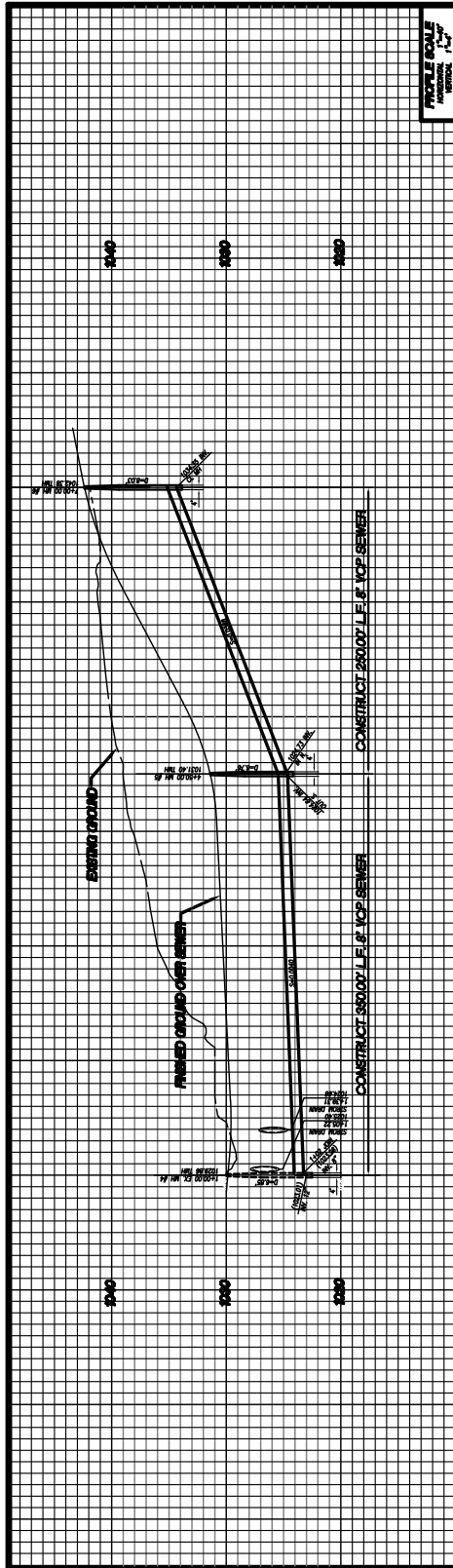
TYPICAL TITLE BLOCK

Approved: _____
 Brian Macy
 General Manager/Chief Engineer
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 D-04

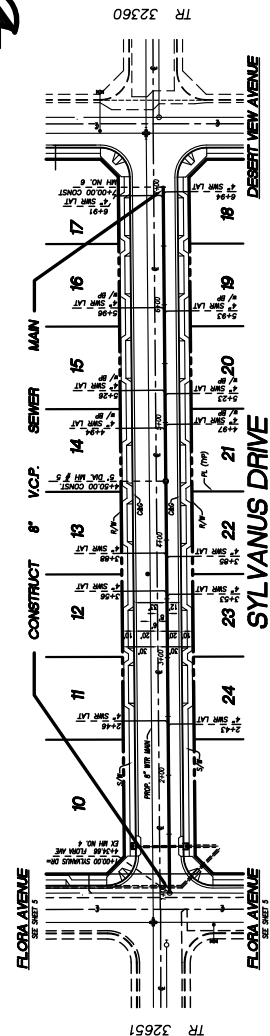


TYPICAL SEWER PLAN AND PROFILE

Approved: Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 D-06



VERTICAL SCALE 1"=4'



DISCLAIMER
 THE USER OF THIS DRAWING AGREES TO HOLD THE DESIGNER HARMLESS FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES, INCLUDING REASONABLE ATTORNEY'S FEES, THAT MAY BE ASSERTED AGAINST THE DESIGNER BY ANY THIRD PARTY AS A RESULT OF THE USER'S USE OF THIS DRAWING. THE USER'S USE OF THIS DRAWING IS LIMITED TO THE PROJECT AND SITE SPECIFICALLY IDENTIFIED ON THIS DRAWING. ANY OTHER USE OF THIS DRAWING IS STRICTLY PROHIBITED. THE DESIGNER MAKES NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, COMPLETENESS, OR SUITABILITY OF THIS DRAWING FOR ANY PURPOSE. THE DESIGNER'S LIABILITY IS LIMITED TO THE DESIGN OF THIS DRAWING AND DOES NOT INCLUDE CONSTRUCTION, MAINTENANCE, OR OPERATION OF THE PROJECT. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND REGULATORY APPROVALS FOR THE PROJECT. THE DESIGNER'S OBLIGATION IS LIMITED TO THE DESIGN OF THIS DRAWING AND DOES NOT INCLUDE CONSTRUCTION, MAINTENANCE, OR OPERATION OF THE PROJECT. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND REGULATORY APPROVALS FOR THE PROJECT.



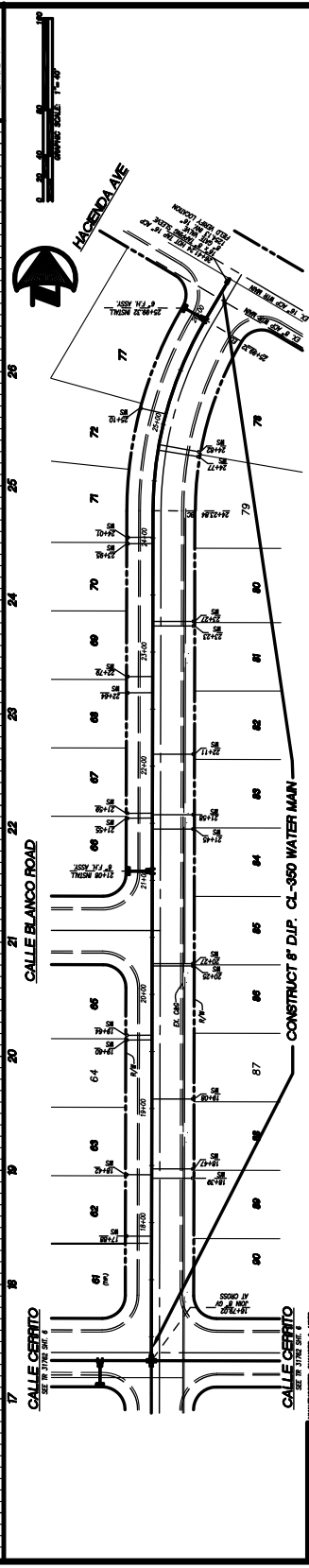
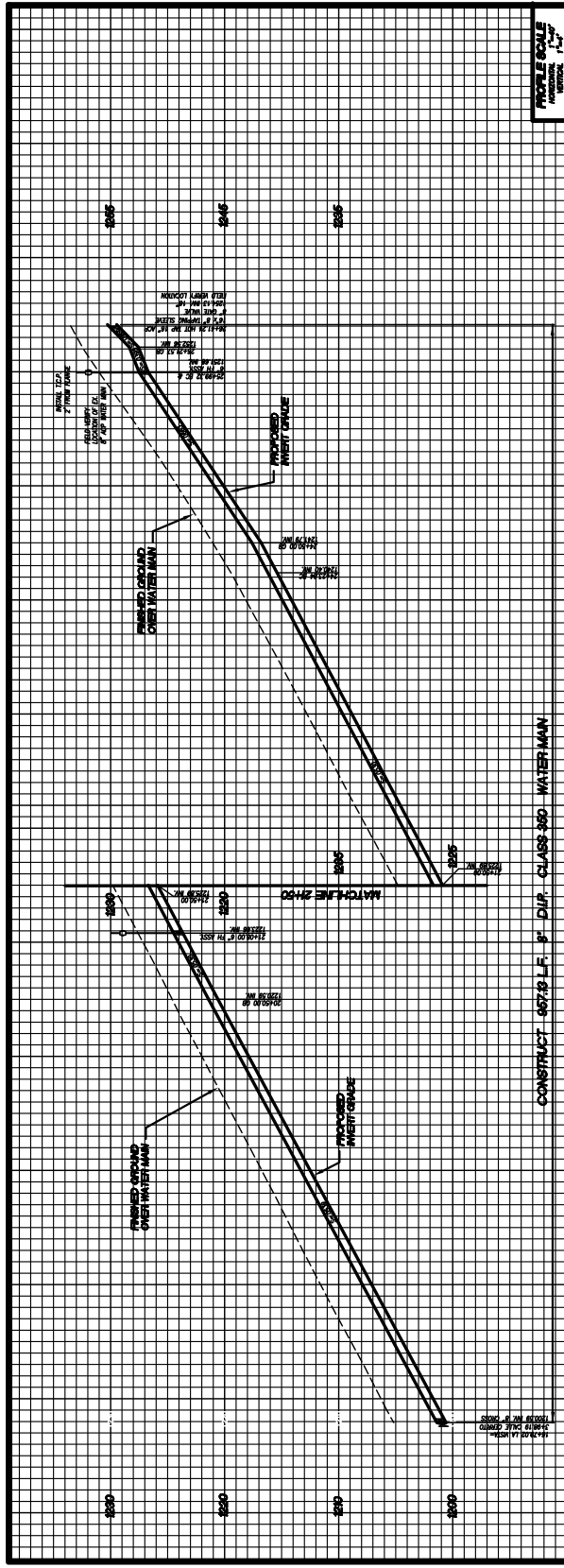
DESIGN ENGINEER



APPROVED BY MISSION SPRINGS WATER DISTRICT
 GENERAL MANAGER / CHIEF ENGINEER

PROJECT NAME
SEWER IMPROVEMENT PLAN
 SYLVANUS DRIVE
 MISSION SPRINGS WATER DISTRICT

SHEET 3
 OF 6
 DATE: 1/31/2024



MISSION SPRINGS WATER DISTRICT
PROJECT NAME
WATER PLAN AND PROFILE
AVENIDA LA VISTA
 STA. 16+79.02 TO STA. 26+41.24
 8500 - 8500, WITH SERVICE TO 8500-8510

DATE _____
SCALE _____
DESIGN ENGINEER _____
DATE _____

MSWD
 Mission Springs Water District



TYPICAL WATER PLAN AND PROFILE

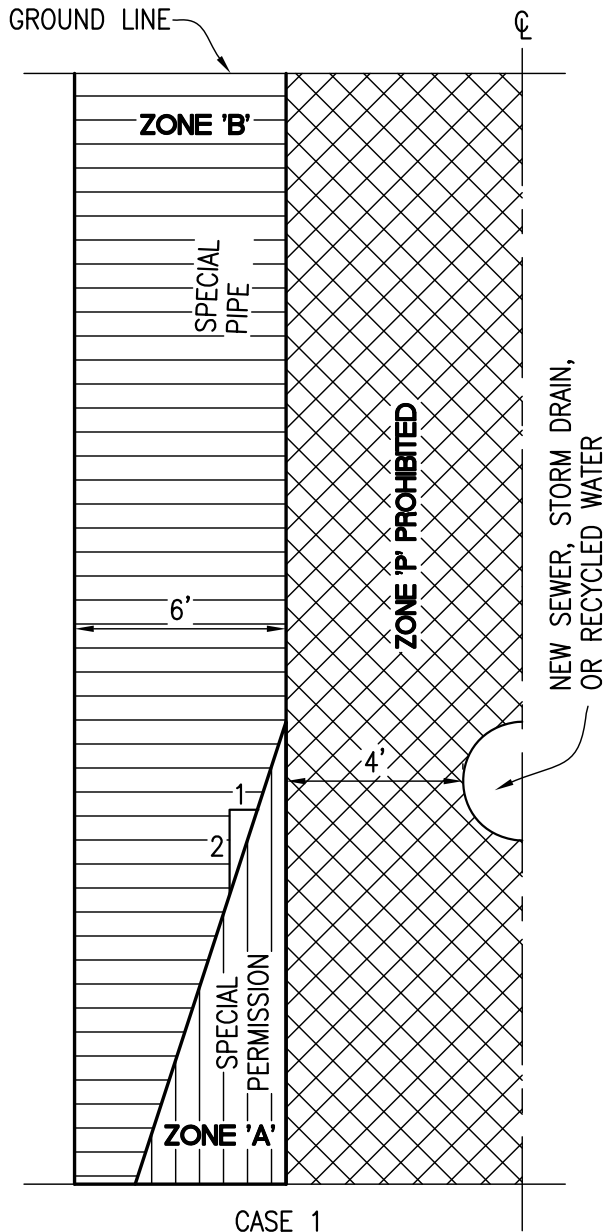
Approved: _____
 Brian Macy
 General Manager

Drawn: MP _____ Date: 1/31/2024

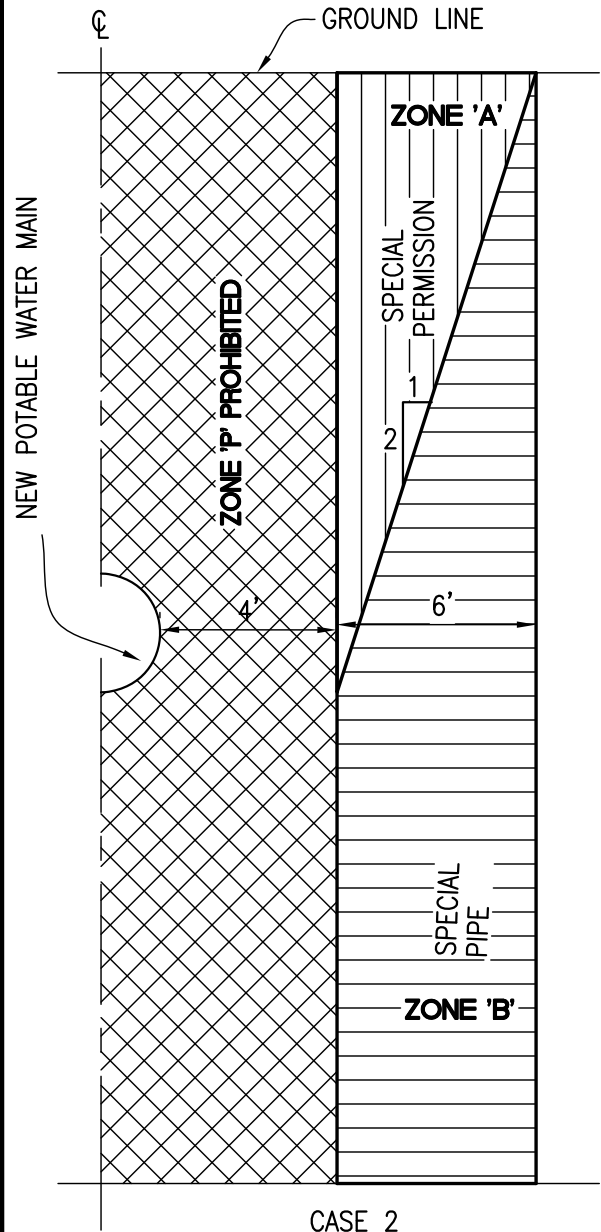
DRAWING No.
 D-08

NOTES:

1. ZONES ARE IDENTICAL ON EITHER SIDE OF CENTERLINE AS SHOWN BELOW AND REFERENCE ALLOWED DISTANCES TO POTABLE WATER MAINS.
2. REQUIREMENTS ARE PER THE CALIFORNIA WATERWORKS STANDARDS (CALIFORNIA CODE OF REGULATIONS, TITLE 22, DIVISION 4, CHAPTER 16, SECTION 64572) 12/14/2017.
3. SEE G-03 FOR NOTES ON WATER, RECYCLED WATER STORM DRAINS AND SEWER MAIN PARALLEL AND PERPENDICULAR SEPARATIONS.
4. NEW STORM DRAINS SHALL BE AT LEAST 4' AND 1' BELOW WATER LINES.
5. ZONE A REQUIRES SPECIAL PERMISSION FROM THE STATE. ZONE B REQUIRES SPECIAL PIPE APPROVED BY MSWD. ALL DIMENSIONS ARE FROM OUTSIDE OF PIPES.



CASE 1
NEW RECYCLED WATER,
STORM DRAIN, OR SEWER



CASE 2
NEW POTABLE WATER MAIN

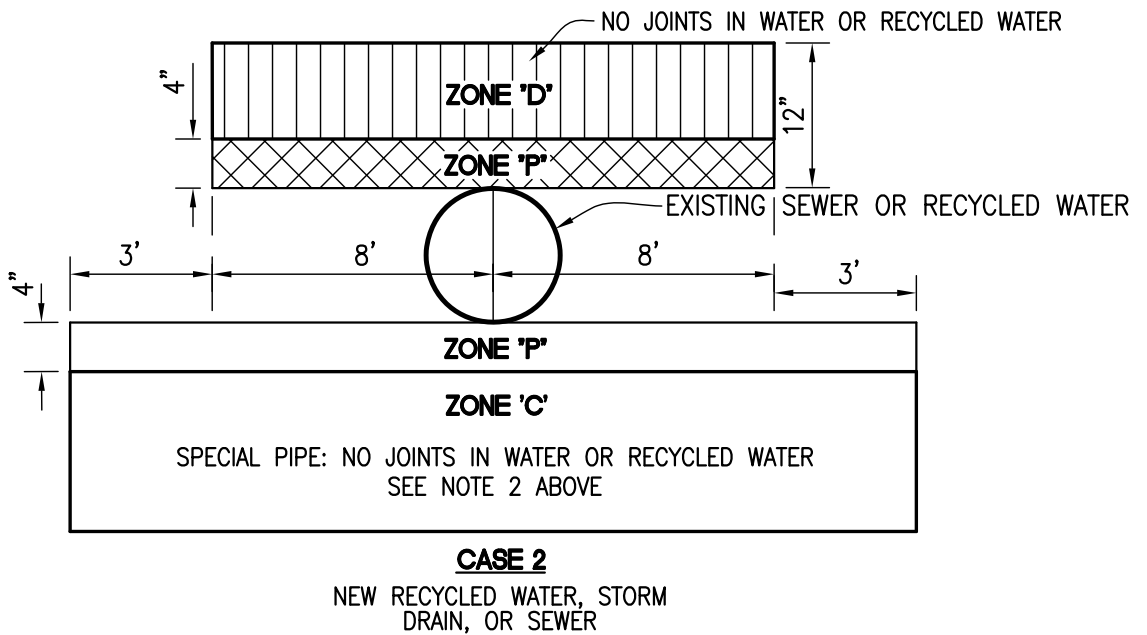
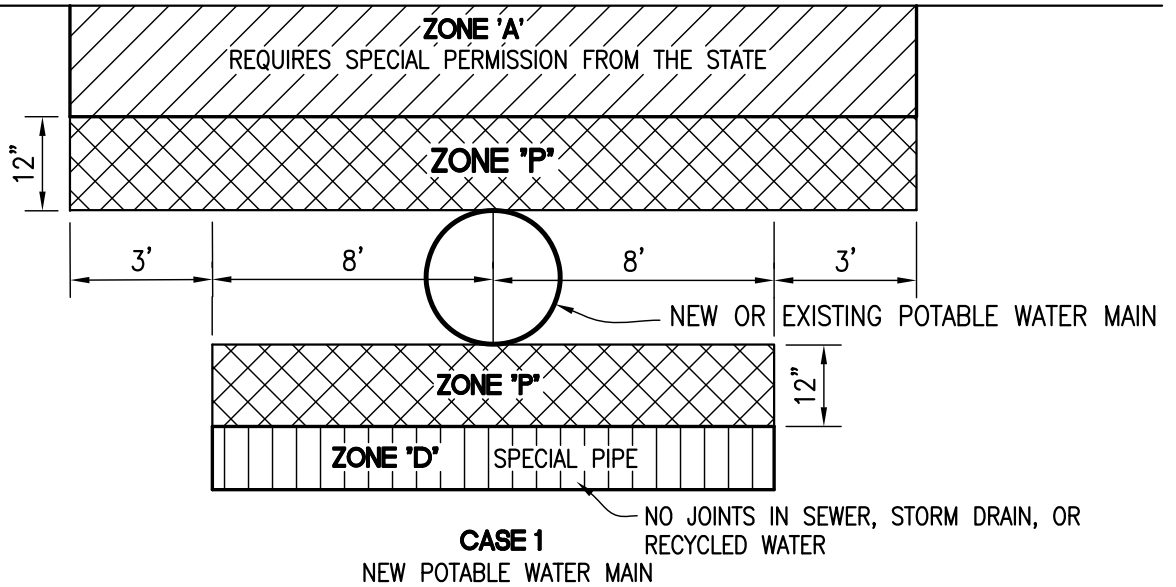


PARALLEL SEPARATIONS
NEW AND EXISTING WATER, SEWER,
STORM DRAIN, OR RECYCLED WATER

Approved: Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
G-01

NOTES:

1. REQUIREMENTS OF THE CALIFORNIA WATERWORKS STANDARDS (CALIFORNIA CODE OF REGULATIONS, SECTION 64572, TITLE 22, CHAPTER 16) 12/29/2017.
2. SEE G-03 FOR NOTES ON WATER, RECYCLED WATER, STORM DRAINS AND SEWER MAIN PARALLEL AND PERPENDICULAR SEPARATIONS.
3. MAINS SHALL CROSS OTHER UTILITIES AT A PERPENDICULAR ANGLE, UNLESS OTHERWISE APPROVED. IN ANY CASE, UTILITIES CROSSING AT A SKEW ANGLE OF SEVENTY-FIVE DEGREES (75°) OR LESS SHALL BE AVOIDED.
4. REFER TO THE MSWD STANDARD DESIGN GUIDELINES FOR NEW PIPE SEPARATION REQUIREMENTS. MINIMUM SEPARATION BETWEEN WATER, RECYCLED WATER, AND SEWER MAINS SHALL BE 10' FROM PIPE O.D. UNLESS SPECIAL PERMISSION IS ACQUIRED



PERPENDICULAR SEPARATIONS
NEW AND EXISTING WATER, SEWER,
STORM DRAIN OR RECYCLED WATER

Approved: _____
Brian Macy
General Manager
Drawn: _____ Date: 1/31/2024
DRAWING No.
G-02

CONSTRUCTION REQUIREMENTS FOR WATER, RECYCLED WATER AND SEWER MAINS

NOTES:

1. ALL CONSTRUCTION SHALL ADHERE TO THE MOST CURRENT REQUIREMENTS OF THE CALIFORNIA WATERWORKS STANDARDS (CALIFORNIA CODE OF REGULATIONS, SECTION 64572, TITLE 22, CHAPTER 16) 12/29/2017.
2. SEE STANDARD G-01 FOR GRAPHIC DIAGRAM OF PARALLEL INSTALLATIONS.
3. SEE STANDARD G-02 FOR GRAPHIC DIAGRAM OF PERPENDICULAR CROSSINGS.
4. CONSTRUCTION IN ZONE 'A', SPECIAL PERMISSION SHALL APPLY FOR SPECIAL PERMISSION FOR CONSTRUCTION WHEN LOCAL OR EXISTING CONDITIONS LEAVE NO FEASIBLE ALTERNATIVE.
5. CONSTRUCTION IN ZONE 'B', SPECIAL PIPE, SHALL REQUIRE APPROVAL FROM MSWD.
6. NEW WATER MAINS OR SUPPLY LINES SHALL BE INSTALLED AT LEAST 4' HORIZONTALLY AND 1' ABOVE ANY EXISTING STORM DRAIN.
7. FOR NEW CONSTRUCTION OF STORM DRAINS, THE REQUIRED CLEARANCES SHALL BE THE SIMILAR TO THE REQUIREMENTS FOR NEW WATER LINES AND SHALL PROVIDE 4' HORIZONTAL CLEARANCE AND 1' VERTICAL CLEARANCE BELOW EXISTING WATER LINE.

MSWD APPROVED SPECIAL PIPE:

1. FOR SEWER MAINS AND LATERALS MSWD SHALL CONSIDER EPOXY LINED (PROTECTO 401 OR EQUAL) CLASS 350 DUCTILE IRON PIPE WITH RUBBER SEALED JOINTS. NO JOINTS TO BE ALLOWED WITHIN 9' OF A WATER OR STORM DRAIN CROSSING.
2. FOR STORM DRAIN PIPES MSWD WILL ACCEPT HDPE PIPE WITH FUSED JOINTS, REINFORCED CONCRETE PIPE WITH FULLY GROUTED OR SEALED JOINTS.
3. FOR WATER MAINS, MSWD REQUIREMENTS FOR CEMENT MORTAR LINED CLASS 350 DUCTILE IRON PIPE WITH RUBBER SEALED JOINTS COMPLIES WITH SPECIAL PIPE REQUIREMENTS. NO JOINTS TO BE ALLOWED WITHIN 9' OF A SEWER OR STORM DRAIN UNDER-CROSSING.
4. FOR WATER SERVICES, MSWD REQUIRES CONTINUOUS COPPER SERVICES WITH NO JOINTS OR COUPLINGS WITHIN 10' OF A CROSSING.
5. NEW WATER MAINS OR SUPPLY LINES SHALL BE INSTALLED AT LEAST 4' HORIZONTALLY AND 1' ABOVE ANY EXISTING STORM DRAIN.
6. FOR NEW CONSTRUCTION OF STORM DRAINS, THE REQUIRED CLEARANCES SHALL BE THE SIMILAR TO THE REQUIREMENTS FOR NEW WATER LINES AND SHALL PROVIDE 4' HORIZONTAL CLEARANCE AND 1' VERTICAL CLEARANCE BELOW EXISTING WATER LINE.



WATER, RECYCLED WATER
AND SEWER MAIN
PARALLEL AND PERPENDICULAR
SEPARATION NOTES

Approved: _____

Brian Macy
General Manager

Drawn: MP

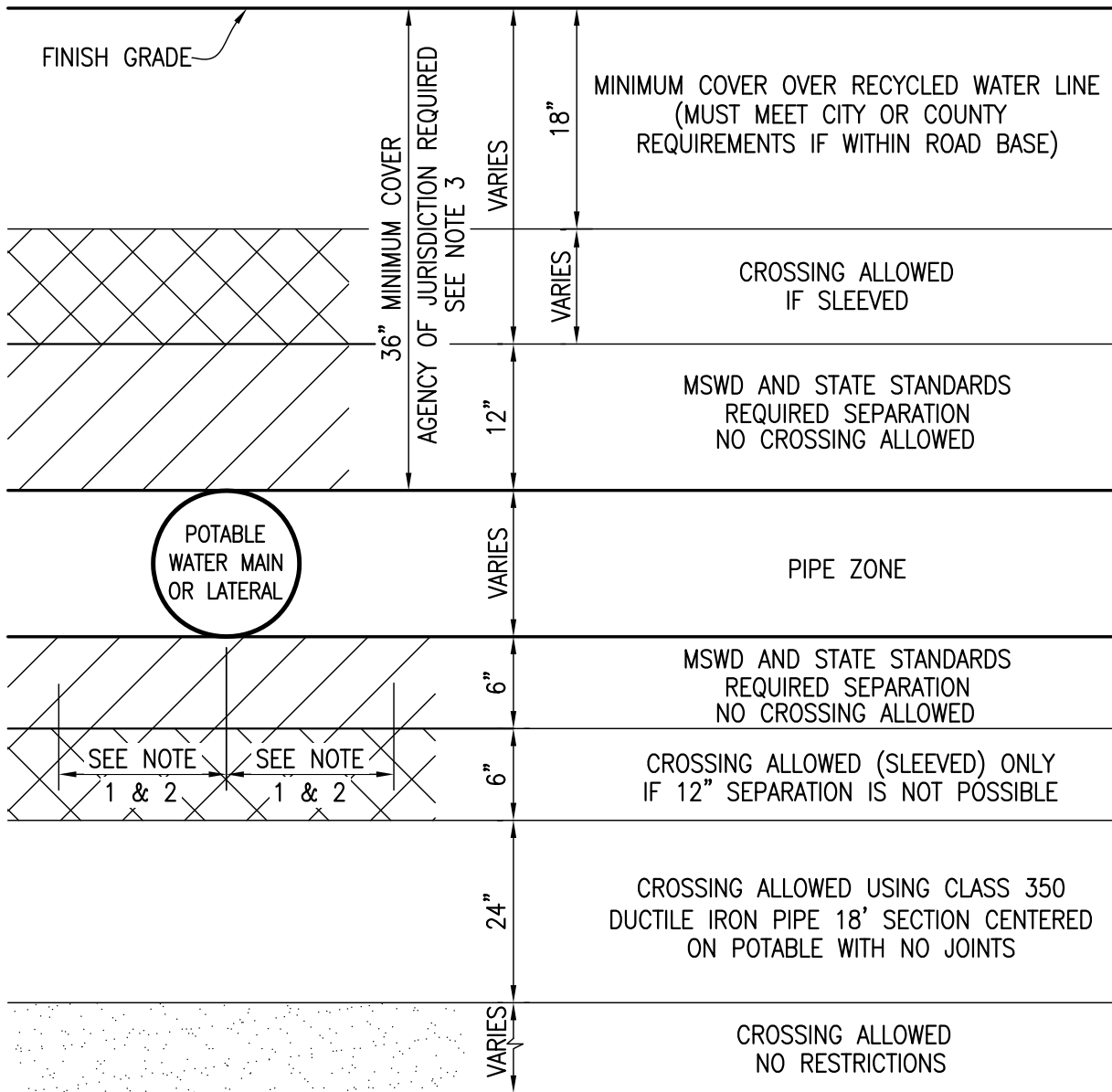
Date: 1/31/2024

DRAWING No.

G-03

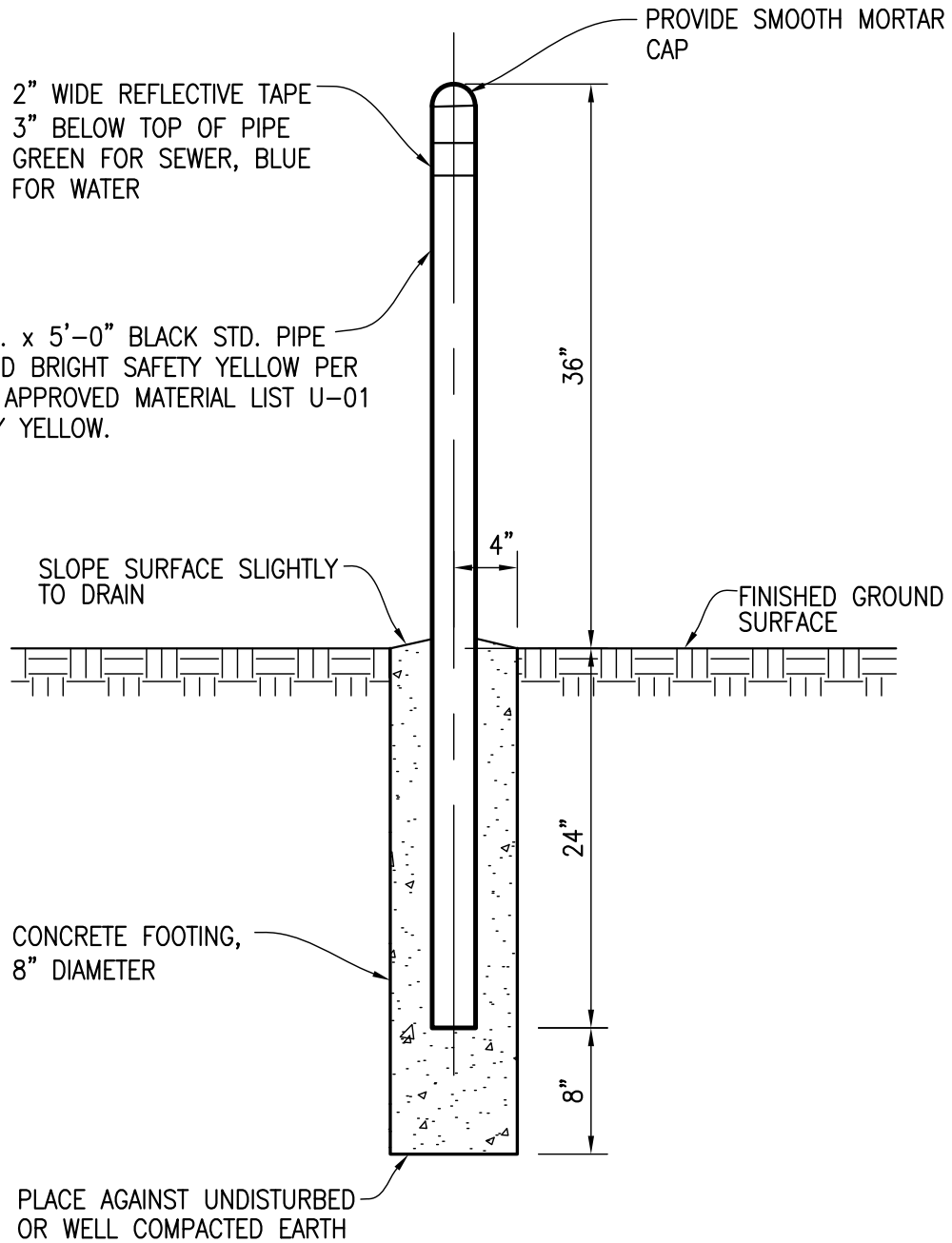
NOTES:

1. EXTEND SLEEVE 5' ON EITHER SIDE OF POTABLE WATER LATERALS 3" DIAMETER OR SMALLER.
2. EXTEND SLEEVE 10' ON EITHER SIDE OF POTABLE WATER LATERALS 4" DIAMETER OR LARGER (NO JOINTS IN SLEEVE OR PIPE).
3. IF POTABLE WATER LINE HAS LESS THAN 36" COVER, RECYCLED WATER LINE MUST CROSS BELOW POTABLE WATER.
4. ALL SEPARATION REQUIREMENTS MUST BE PER CALIFORNIA WATERWORKS STANDARDS (CALIFORNIA CODE OF REGULATIONS, TITLE 22, DIVISION 4, CHAPTER 16, SECTION 64572) 12/14/2017.



POST METER CONSTANT PRESSURE
 RECYCLED WATER LINE CROSSING
 POTABLE WATER MAIN OR LATERAL
 WITHIN PUBLIC RIGHT OF WAY

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 G-04

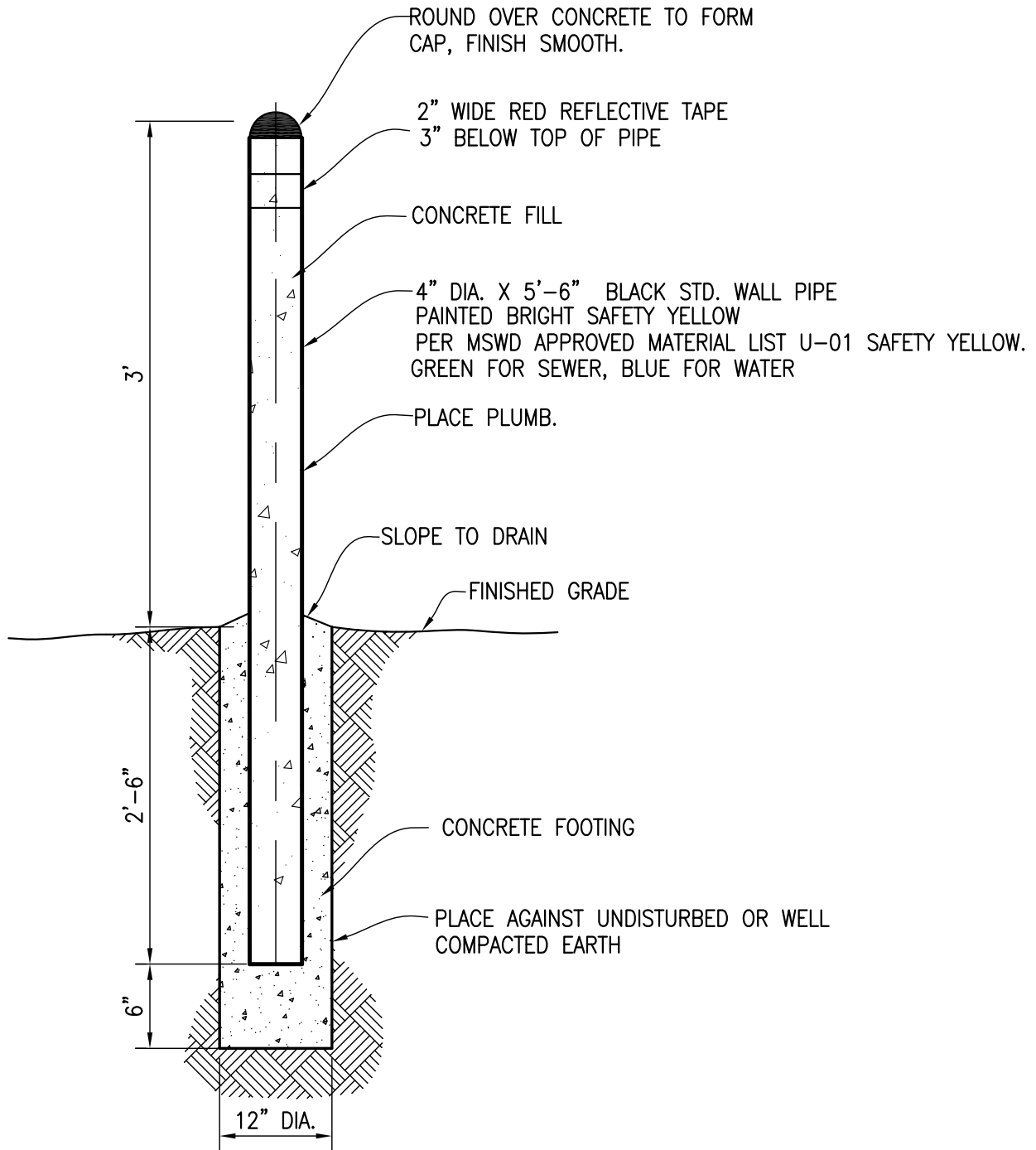


NOTE:
MARKERS TO BE INSTALLED AS
DIRECTED IN THE FIELD BY THE
DISTRICT TO INDICATE LOCATION OF
VALVES OR MANHOLES.



MARKER POST INSTALLATION

Approved: _____
Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
G-05

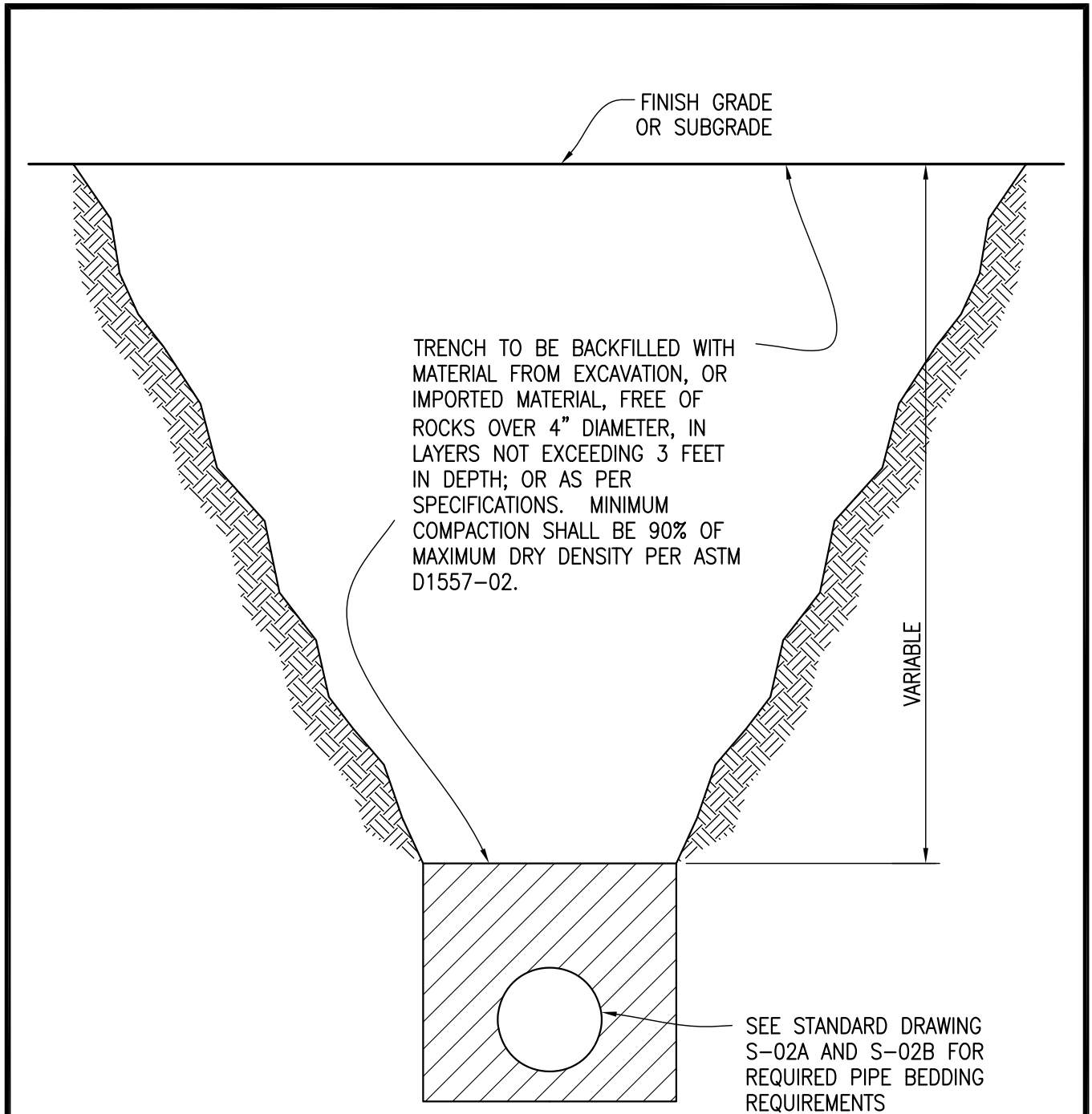


NOTE:
LOCATION SHALL BE AS SHOWN ON PLAN VIEW, OR AS DIRECTED IN THE
FIELD BY THE DISTRICT



GUARD POST
INSTALLATION

Approved: _____
Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
G-06



NOTES:

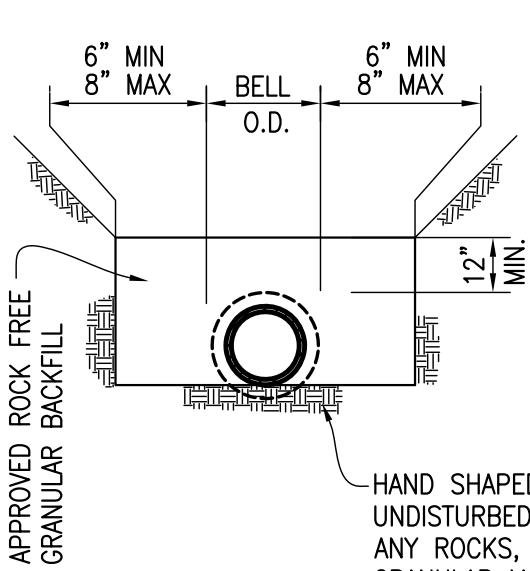
1. ALL TRENCHING SHALL CONFORM TO CAL-OSHA SAFETY STANDARDS.
2. ALL TRENCH SHALL BE BACKFILLED DAILY AFTER APPROVED INSPECTION BY THE MSWD INSPECTOR UNLESS SPECIFICALLY APPROVED AND SAFELY BARRICADED.



TYPICAL SEWER TRENCH
DETAIL

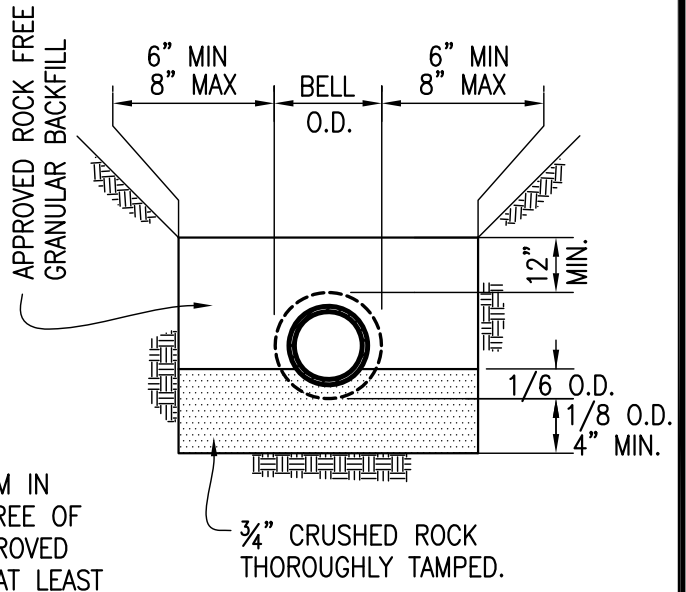
Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 S-01

NOTE: ALL DIMENSIONS REFERRING TO O.D. SHALL BE BASED ON THE MAXIMUM BELL OR COUPLING DIAMETER

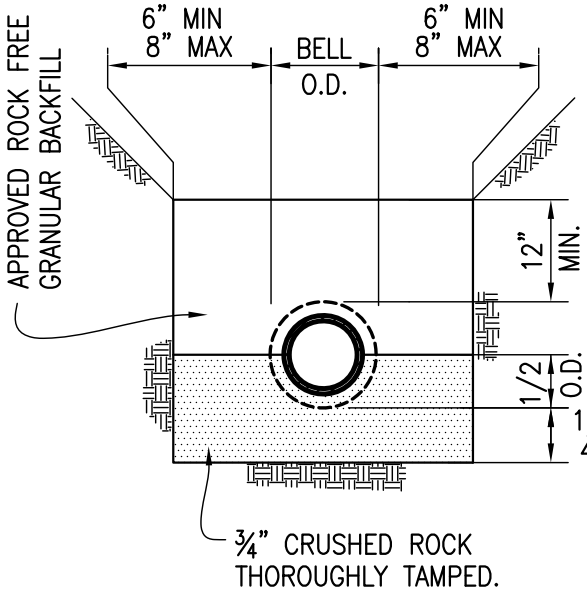


**CLASS D
NATIVE BEDDING**
(LOAD FACTOR = 1.1)

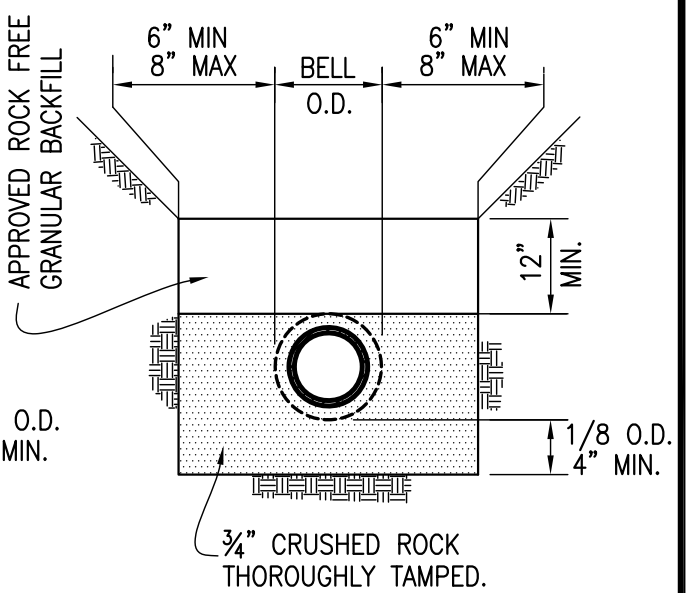
HAND SHAPED BOTTOM IN UNDISTURBED SOIL FREE OF ANY ROCKS, OR APPROVED GRANULAR MATERIAL AT LEAST 1" BELOW COLLAR



**CLASS C
SPECIAL BEDDING**
(LOAD FACTOR = 1.5)



**CLASS B
SPECIAL BEDDING**
(LOAD FACTOR = 1.9)



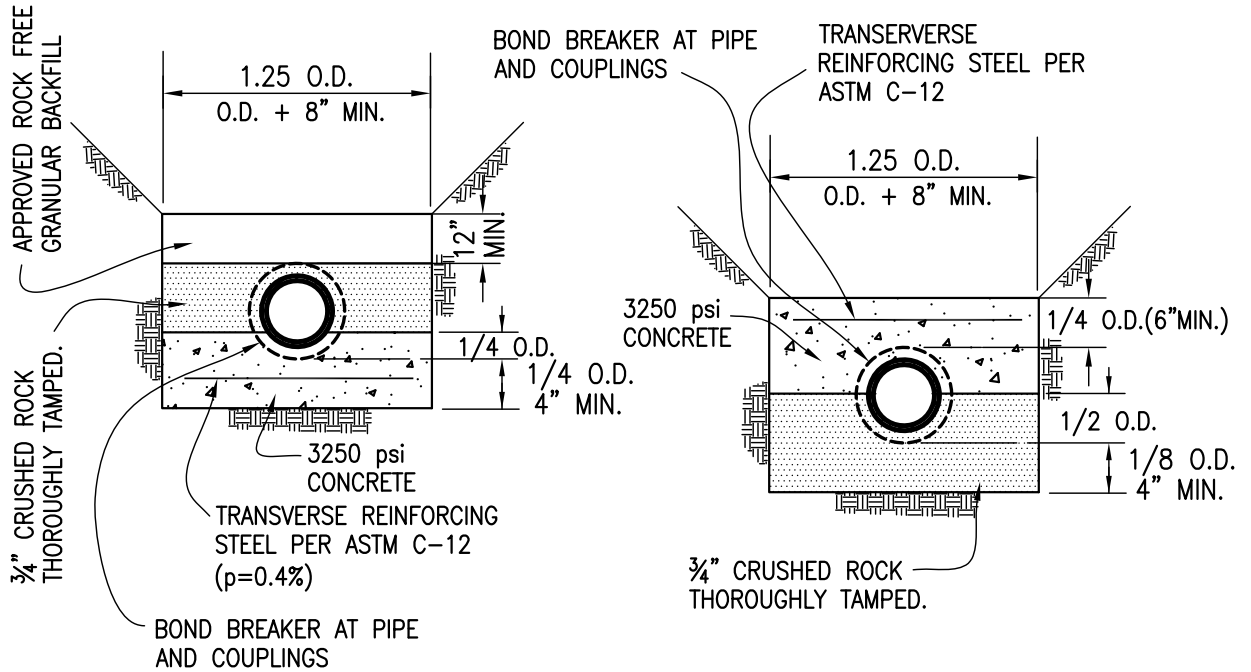
**CRUSHED STONE
ENCASEMENT**
(LOAD FACTOR = 2.2)



SEWER
PIPE BEDDING

Approved: _____
Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
S-02A

NOTE: ALL DIMENSIONS REFERRING TO O.D. SHALL BE BASED ON THE MAXIMUM BELL OR COUPLING DIAMETER

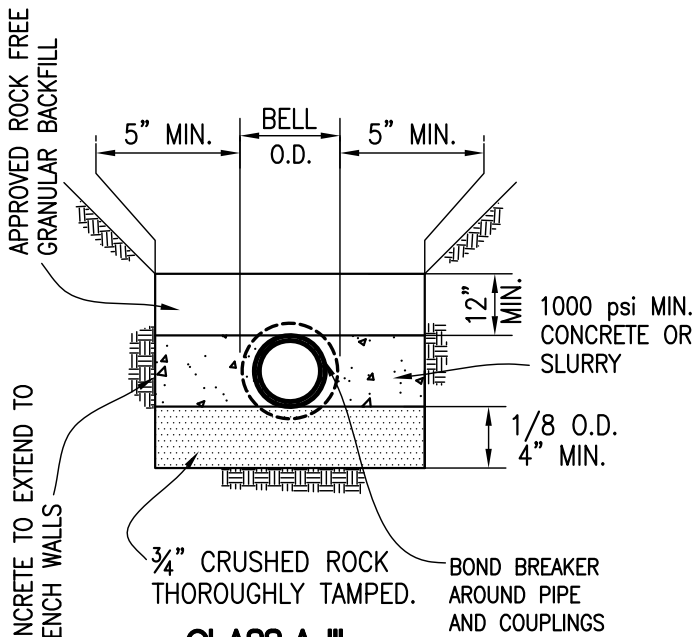


**CLASS A-I
CONCRETE CRADLE**

(NON-REINFORCED LOAD FACTOR = 2.8)
(REINFORCED LOAD FACTOR = 3.4)

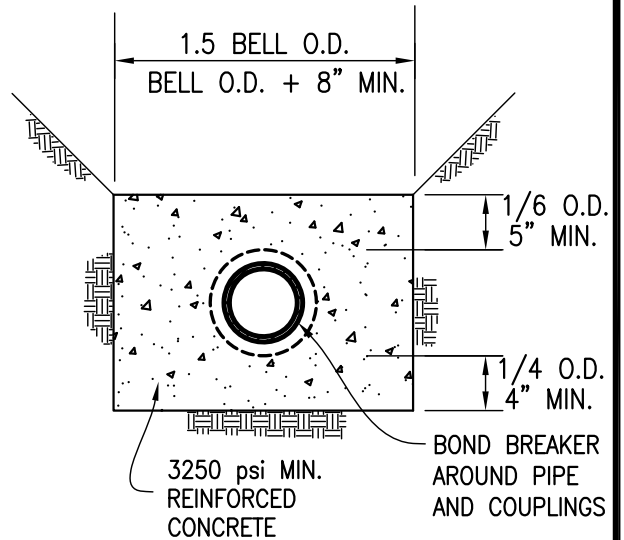
**CLASS A-II
CONCRETE ARCH**

(REINFORCED p=0.4% LOAD FACTOR = 3.4)
(REINFORCED p=1.0% LOAD FACTOR = 4.5)



**CLASS A-III
SIDE CRADLING**

(LOAD FACTOR = 2.7)
NOT RECOMMENDED FOR USE
IN EXPANSIVE SOILS



**CLASS A-IV
CONCRETE ENCASEMENT**

(LOAD FACTOR OVER 4.5)
SHALL BE DESIGNED BY A
REGISTERED ENGINEER

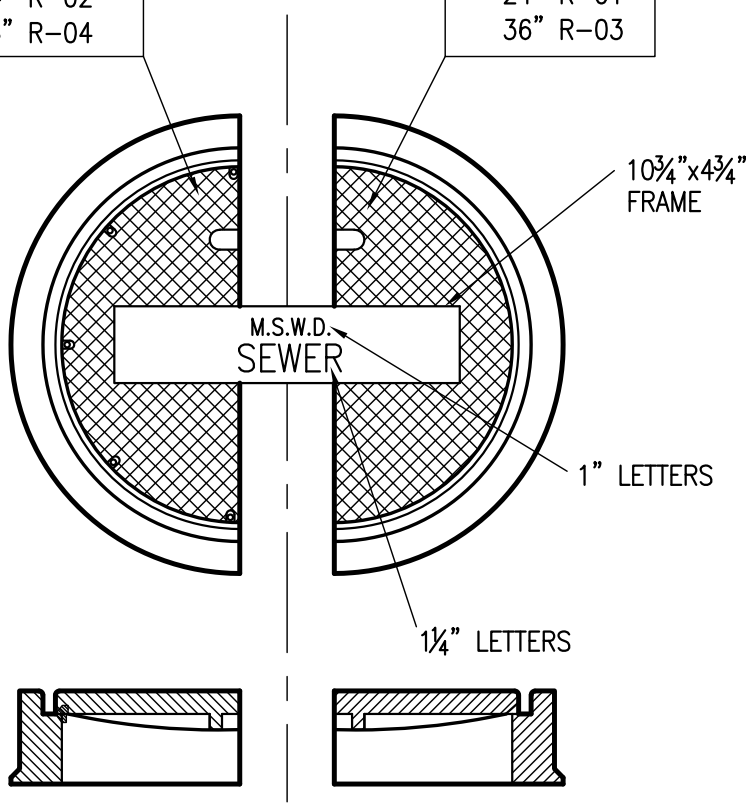


CONCRETE SEWER
PIPE BEDDING AND
ENCASEMENT

Approved: _____
Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
S-02B

BOLT DOWN
24" R-02
36" R-04

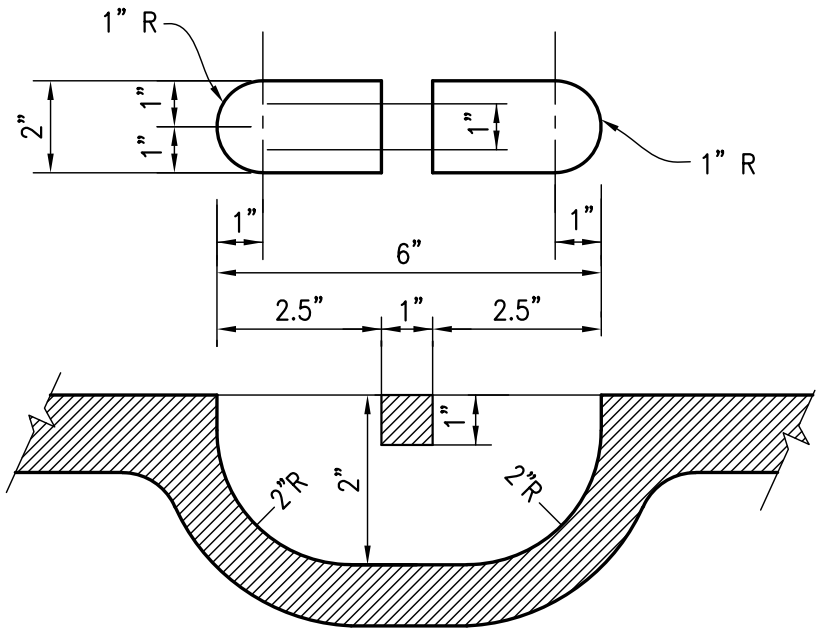
STANDARD
24" R-01
36" R-03



NOTES:

1. FRAME AND COVER SHALL BE PER APPROVED MATERIALS LIST WITH LIFTING DEVICE CAST COVER AS PER DETAIL SHOWN BELOW. COVER SHALL BE DIAMOND TREAD WITH NAME LETTERED AS SHOWN.
2. BOLT-DOWN COVERS ARE REQUIRED IN SOME LOCATIONS AS SPECIFIED ON THE PLANS. GENERALLY REQUIRED FOR EASEMENT LOCATIONS.
3. FOR 60" MANHOLE USE 36" DIA. FRAME AND COVER.

FRAME AND COVER DETAIL



LIFTING RECEPTACLE DETAIL



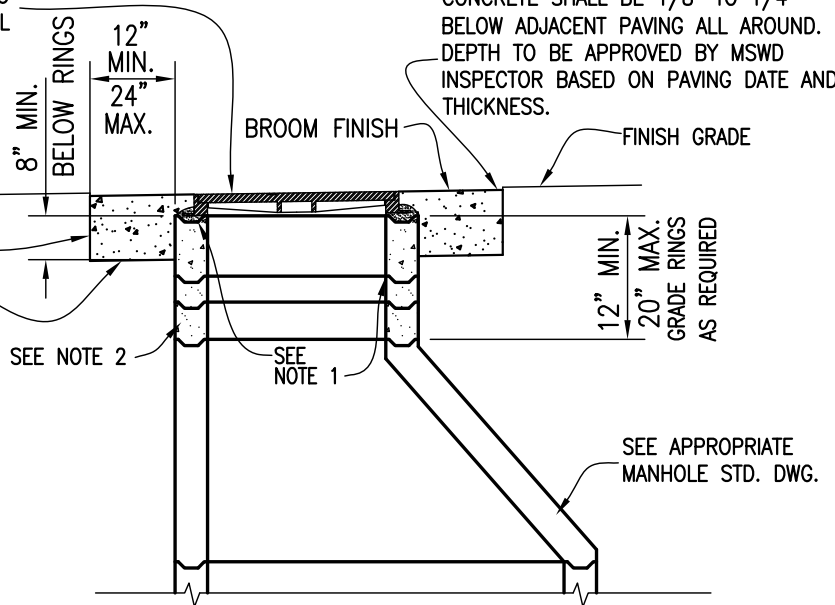
MANHOLE FRAME AND COVER

Approved: _____
Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
S-03

FRAME AND COVER PER STD. DWG. S-03
 PAINT GLOSS BLACK PER MSWD MATERIAL
 LIST U-04

CONCRETE SHALL BE 1/8" TO 1/4"
 BELOW ADJACENT PAVING ALL AROUND.
 DEPTH TO BE APPROVED BY MSWD
 INSPECTOR BASED ON PAVING DATE AND
 THICKNESS.

CONTRACTOR SHALL FORM AND POUR
 CONCRETE COLLAR WITH COVER
 ADJUSTED AS SHOWN AFTER FINAL
 PAVING OPERATION. ENTIRE ASPHALT AND
 DIRT EXCAVATION FOR FRAME
 ADJUSTMENT TO BE BACKFIELD WITH
 CONCRETE. COLLAR SHALL BE A UNIFORM
 WIDTH ALL AROUND.



**DETAIL FOR MANHOLE
 IN PAVED SURFACES**

NOTES:

1. ALL SECTIONS TO BE WASHED TO
 REMOVE ANY LOOSE MATERIAL AND WHILE
 STILL WET, THEY ARE TO BE SET IN 1:3
 MORTAR MIX TRIMMED SMOOTH INSIDE AND
 OUTSIDE, INCLUDING FRAME.

2. CONCRETE FOR GRADE RINGS SHALL BE
 3000 P.S.I. MIN.

3. CONCRETE COLLAR SHALL BE 3250 P.S.I.
 MIN. WITH FIBERMESH AND BROOM FINSH.

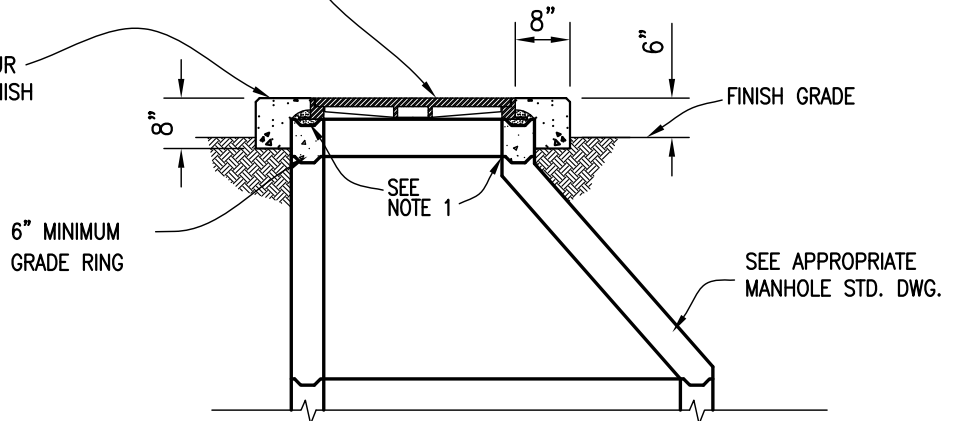
4. FOR 60" MANHOLES USE 36" DIA. FRAME
 AND COVER.

NOTE:

24" GRADE RINGS PER MATERIAL LIST # S-05
 36" GRADE RINGS PER MATERIAL LIST # S-06

CONTRACTOR SHALL FORM AND POUR
 CONCRETE COLLAR WITH BROOM FINISH
 AND 1" CHAMFER ALL AROUND.

FRAME AND COVER PER STD. DWG. S-03
 PAINT GLOSS BLACK PER MSWD MATERIAL
 LIST U-04



**DETAIL FOR MANHOLES
 IN EASEMENTS**



MANHOLE COLLAR
 AND GRADE RINGS
 DETAIL

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 S-04

NOTE: USE 60" DIAMETER MANHOLE FOR MANHOLE DEPTH GREATER THAN 12' OR WHERE ANY SEWER IS LARGER THAN 18" DIAMETER.

NOTES:

1. ALL SECTIONS TO BE WASHED TO REMOVE ANY LOOSE MATERIAL AND WHILE STILL WET, THEY ARE TO BE SET IN 1:3 MORTAR TRIMMED SMOOTH INSIDE AND OUTSIDE, INCLUDING FRAME.

2. CONCRETE FOR MANHOLE SECTIONS 3000 P.S.I. MIN.

3. PROVIDE FLEXIBLE JOINT IN ALL SEWER PIPES OUTSIDE OF MANHOLE, BUT WITHIN 18" OF CONCRETE BASE. USE 24" MAXIMUM PIPE JOINT.

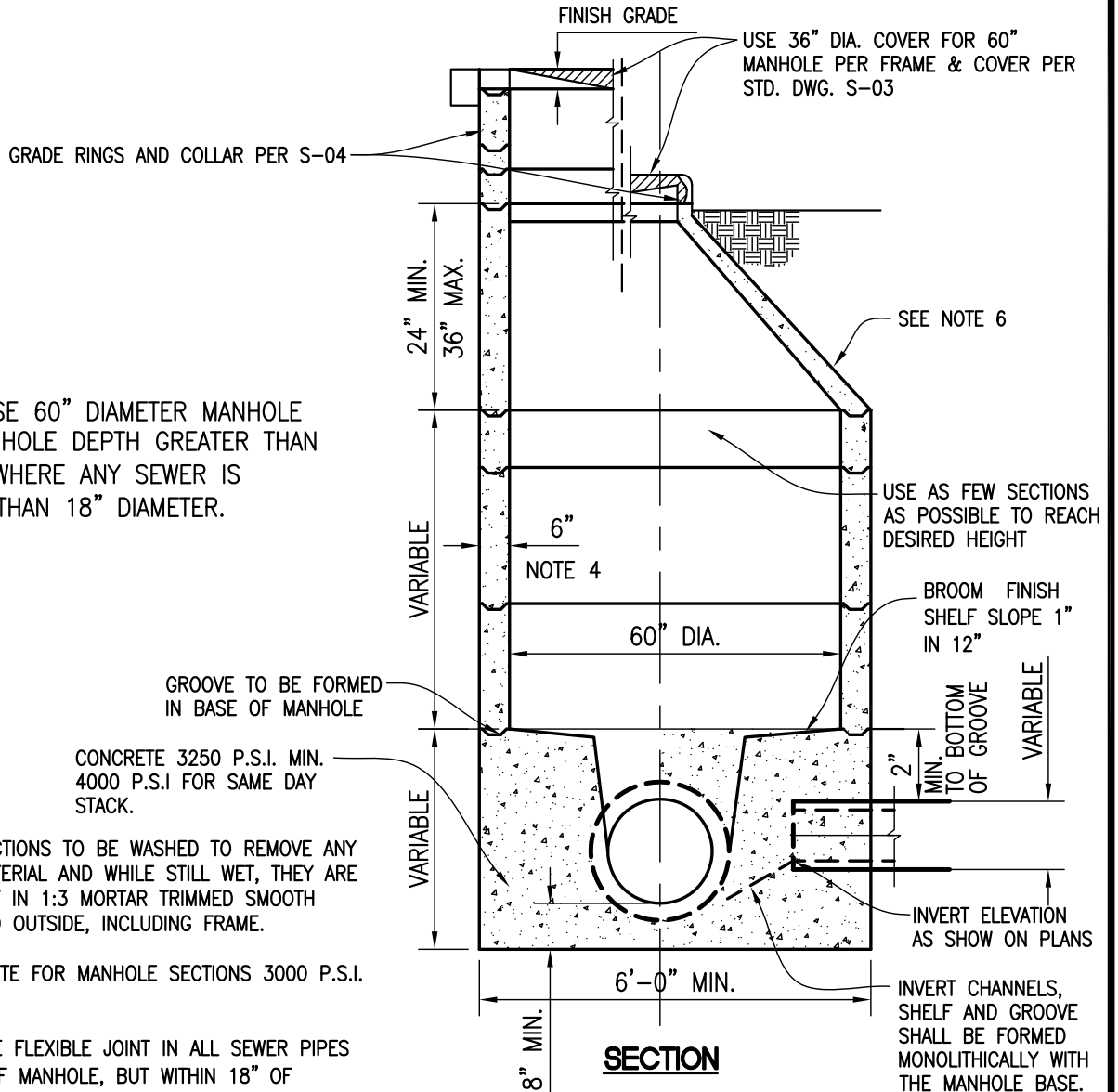
4. REINFORCED CONCRETE SECTIONS MAY BE USED WITH MSWD APPROVAL. THICKNESS MAY VARY PER MANUFACTURER.

5. THE TOP OF MANHOLE SHALL BE PLACED DIRECTLY OVER THE OUTLET OF THE STRUCTURE EXCEPT AS OTHERWISE NOTED ON PLANS.

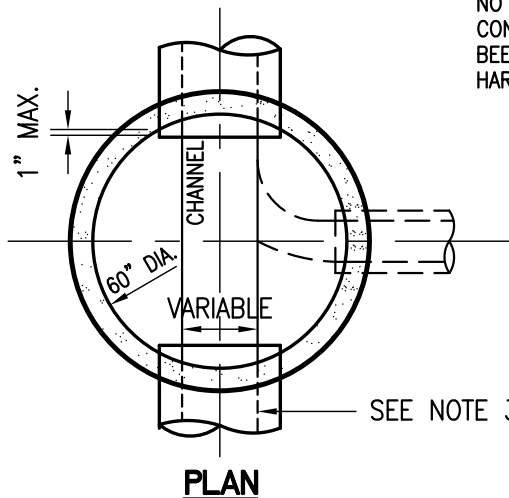
6. ECCENTRIC CONE SECTION SHALL BE INSTALLED WITH TAPERED SIDE FACING UPSTREAM.

NOTE:

60" MANHOLE SHAFT PER MATERIAL LIST # S-02
60"x 36" ECCENTRIC CONE PER MATERIAL LIST # S-04



SECTION

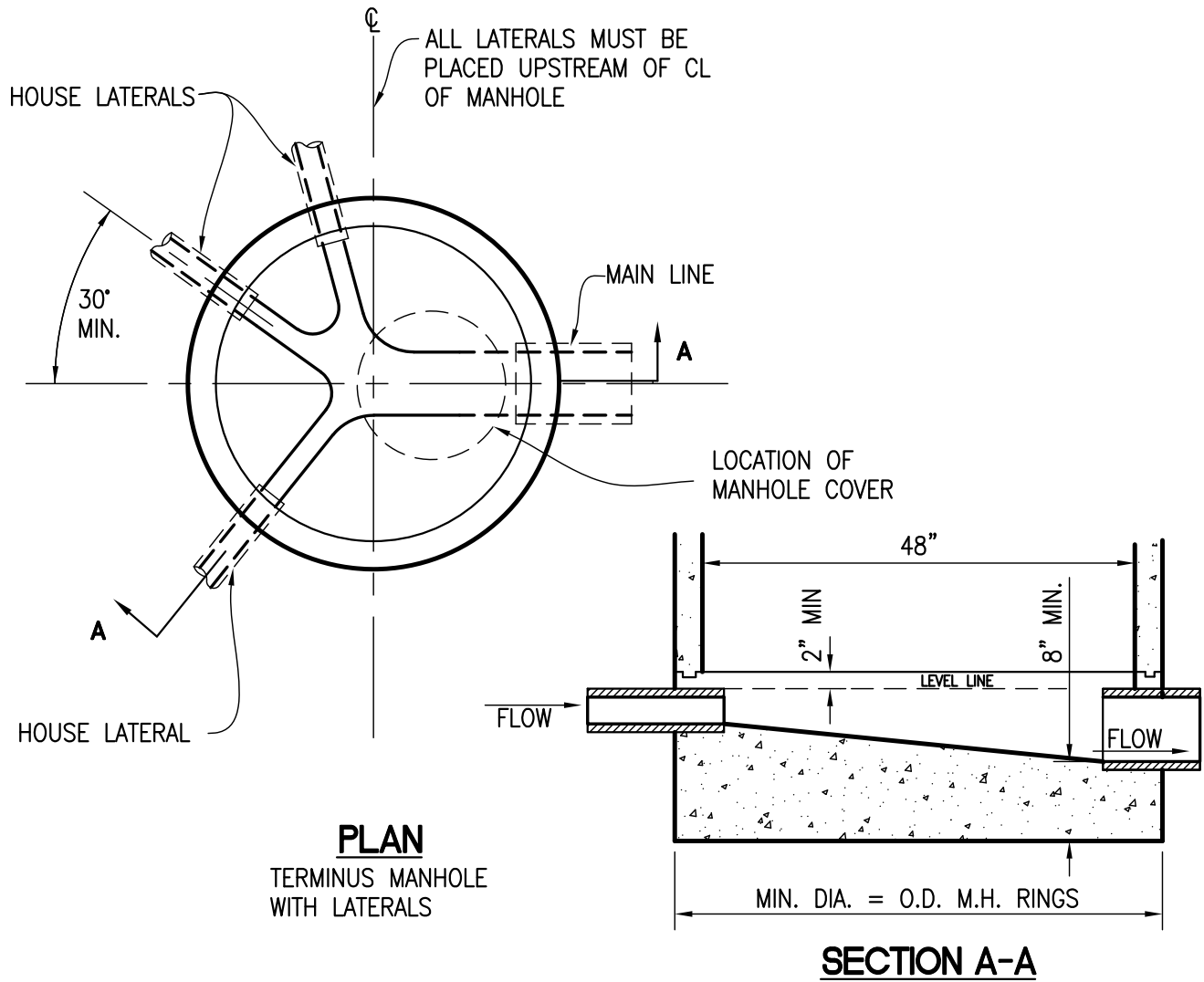


PLAN



5' DIAMETER
PRECAST MANHOLE

Approved: _____
Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
S-06



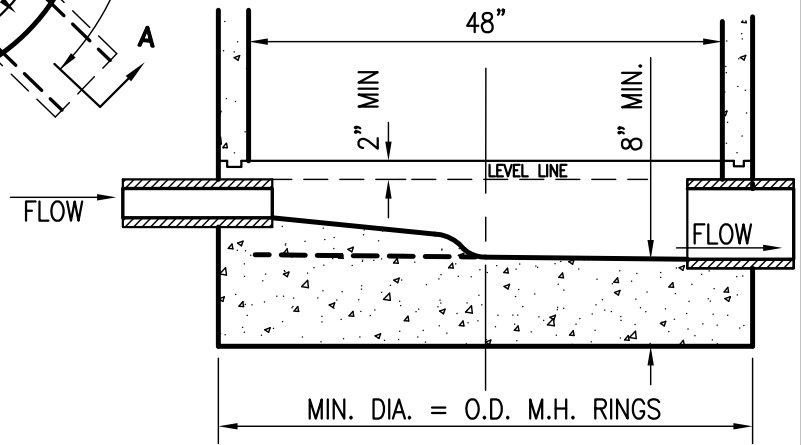
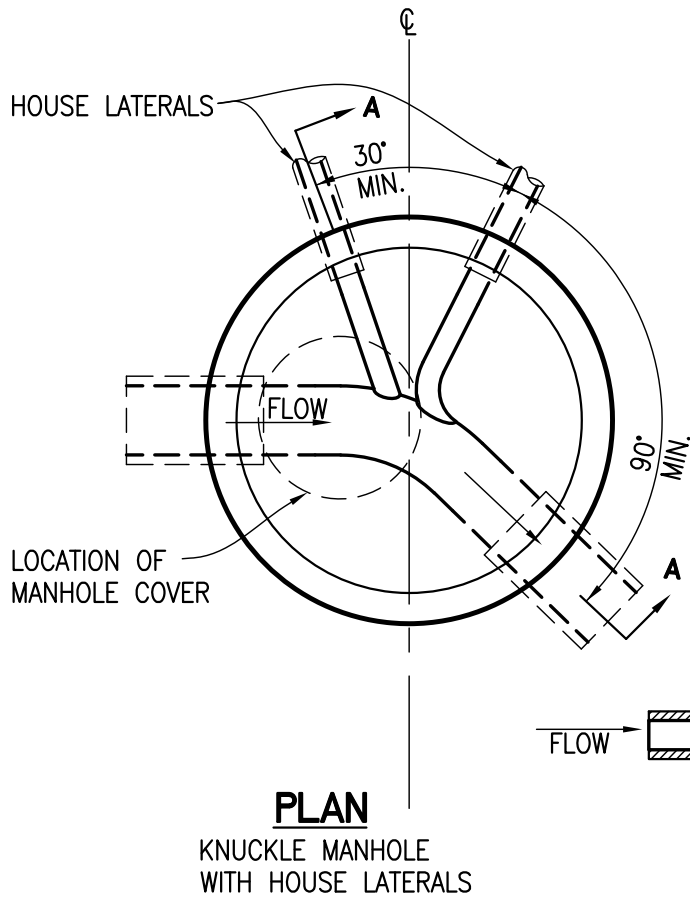
NOTES:

1. REFER TO STANDARD DRAWINGS S-03, S-04, AND S-05 FOR DETAILS PERTAINING TO MANHOLES.
2. THE MAXIMUM NUMBER OF LATERALS INTO A TERMINUS MANHOLE SHALL BE LIMITED TO THREE.
3. ALL LATERAL CONNECTIONS SHALL BE ORIENTED SO THAT NONE IS LESS THAN 30° TO THE CONNECTING SEWER MAIN.



TERMINUS MANHOLE
WITH LATERALS

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 S-07



SECTION A-A

NOTES:

1. REFER TO STANDARD DRAWINGS S-03, S-04, AND S-05 FOR DETAILS PERTAINING TO MANHOLES ONLY.
2. LATERAL TROUGHS SHALL BE INDEPENDENT AND SMOOTH FINISHED INTO THE MAIN SEWER CHANNEL AT 2" ABOVE THE INVERT AT THE JUNCTION.
3. THE MAXIMUM NUMBER OF LATERALS INTO A KNUCKLE MANHOLE SHALL BE LIMITED TO TWO.
4. ALL LATERAL CONNECTIONS SHALL BE ORIENTED SUCH THAT THEY WILL NOT BE IN LINE WITH ANY OF THE CONNECTING SEWER MAINS.
6. ALL LATERAL CONNECTIONS IN A KNUCKLE MANHOLE SHALL NOT CONNECT WITHIN 90° THE OUTLET DIRECTION OF FLOW IN THE MANHOLE.



NUCKLE MANHOLE WITH LATERALS

Approved: Brian Macy
General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No. S-08

**DETAIL FOR MANHOLE
IN PAVED SURFACES**

**DETAIL FOR MANHOLE
IN UN-PAVED SURFACES**

NOTE: FOR ANY SEWER LINE OVER 18" DIAMETER USE A 60" DIAMETER MANHOLE.

NOTES:

1. ALL SECTIONS ARE TO BE WASHED TO REMOVE ANY LOOSE MATERIAL AND, WHILE STILL WET, TO BE SET IN 1:3 MORTAR TRIMMED SMOOTH INSIDE AND OUTSIDE, INCLUDING FRAME, EXCEPT AS PROVIDED IN NOTE 4.

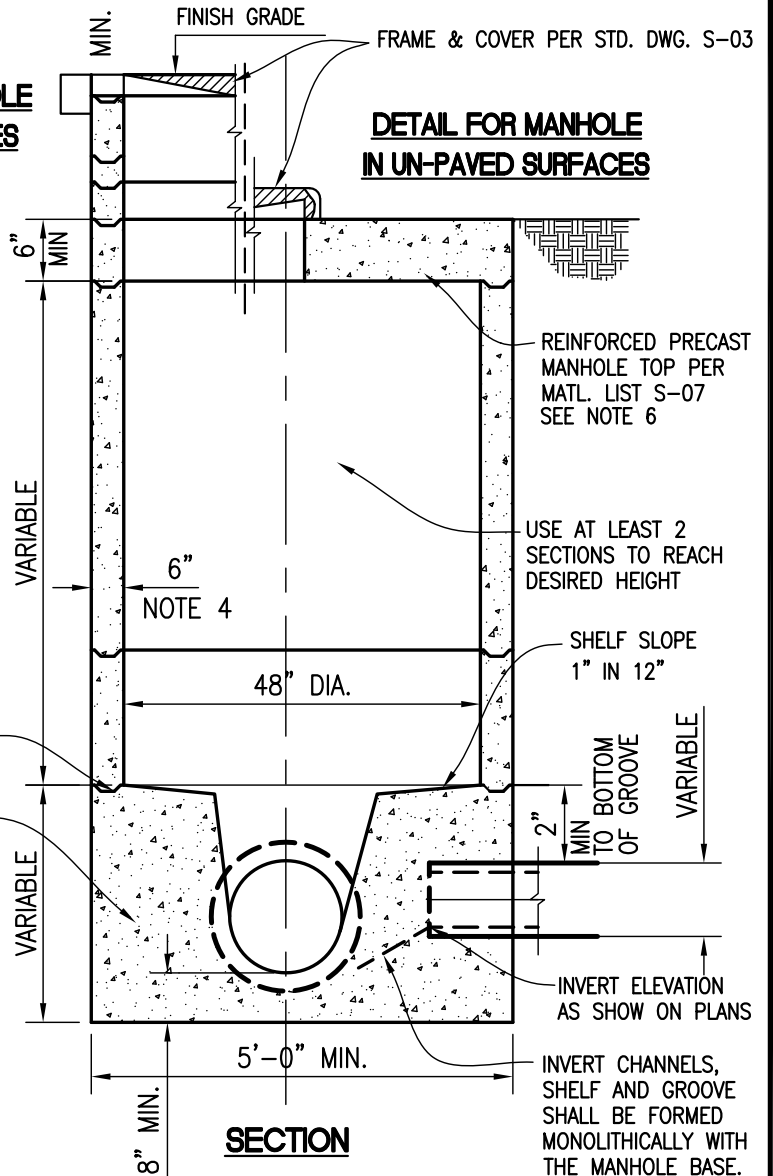
2. CONCRETE FOR MANHOLE SECTIONS TO BE 3000 P.S.I. MIN.

3. PROVIDE FLEXIBLE JOINT IN ALL SEWER PIPES OUTSIDE OF MANHOLE, BUT WITHIN 18" OF CONCRETE BASE. USE 24" MAXIMUM PIPE JOINT.

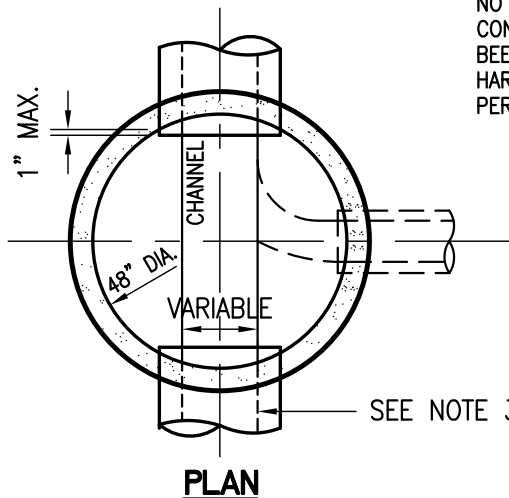
4. REINFORCED CONCRETE SECTIONS MAY BE USED WITH MSWD APPROVAL. THICKNESS MAY VARY PER MANUFACTURER.

5. THE TOP OF MANHOLE SHALL BE PLACED DIRECTLY OVER THE OUTLET OF THE STRUCTURE EXCEPT AS OTHERWISE NOTED ON PLANS.

6. PRECAST MANHOLE SLAB SHALL BE INSTALLED WITH MANHOLE FACING UPSTREAM.



SECTION

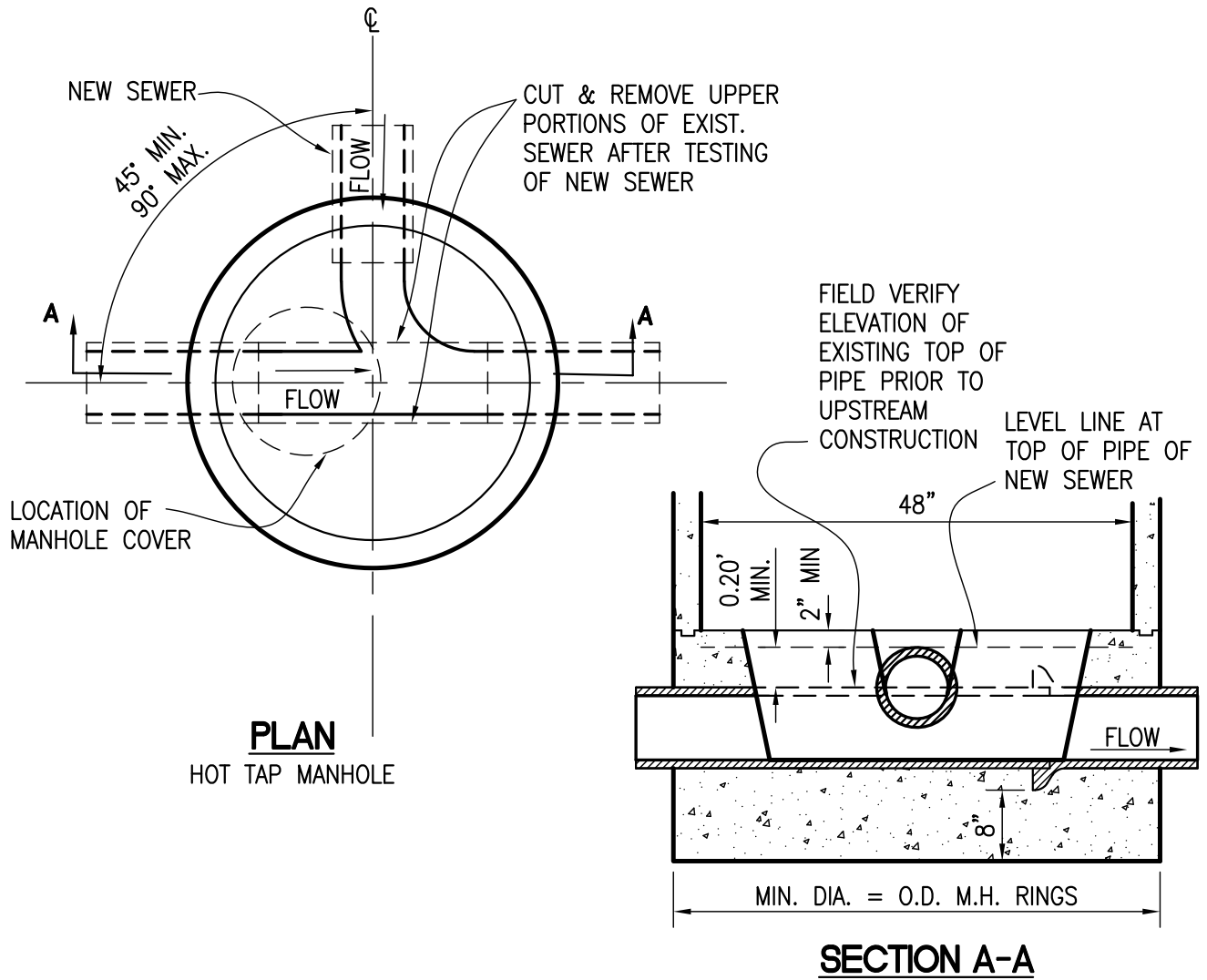


PLAN



PRECAST SHALLOW MANHOLE
DEPTH LESS THAN 6'

Approved: _____
Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
S-09



NOTES:

1. REFER TO STANDARD DRAWINGS S-03, S-04, AND S-05 FOR DETAILS PERTAINING TO MANHOLES.
2. EXISTING SEWER TO REMAIN INTACT UNTIL NEW SEWER HAS BEEN TESTED AND APPROVED BY THE MSWD INSPECTOR.
3. INTERFERING PORTIONS OF THE EXISTING PIPE SHALL BE CUT AND/OR BROKEN OUT TO A NEAT LINE. BROKEN EDGES SHALL BE PLASTERED SMOOTH WITH CEMENT MORTAR.
4. CARE SHALL BE TAKEN TO PREVENT BROKEN PIECES OF PIPE FROM ENTERING EXISTING SEWER. MSWD MAY REQUIRE TEMPORARY PLUG UPSTREAM OF CONNECTION DURING BREAKOUT OPERATIONS.
5. ANY EXISTING BELL JOINT WITHIN THE MANHOLE BASE SHALL BE SUPPORTED DURING EXCAVATION AND POUR TO PREVENT SETTLEMENT.
6. PROVIDE FLEXIBLE JOINT WITHIN 18" OF MANHOLE BASE ON NEW SEWER.



HOT TAP
MANHOLE

Approved:

Brian Macy
General Manager

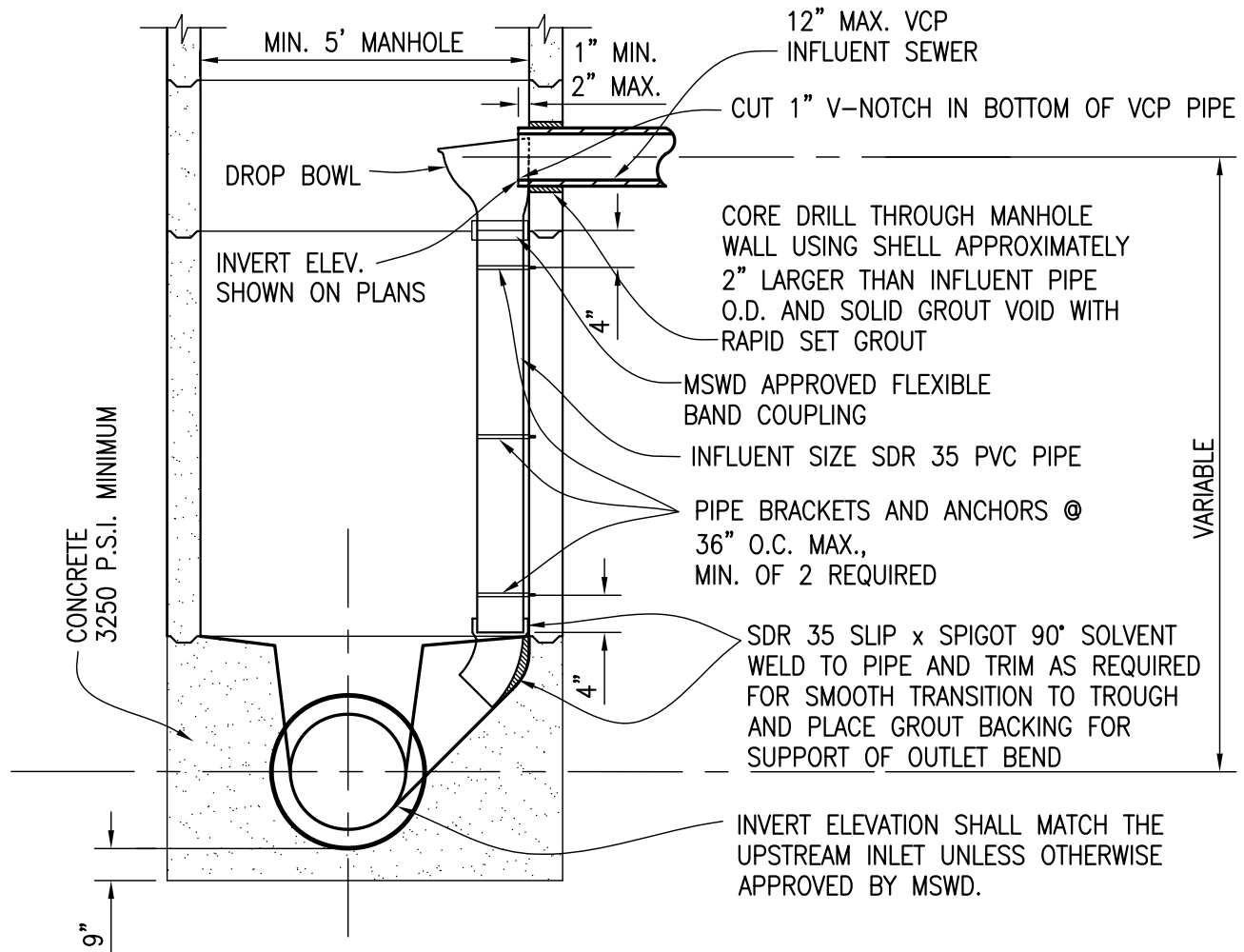
Drawn: MP

Date: 1/31/2024

DRAWING No.

S-10

SEE DRAWING NO. S-03
AND S-05 FOR
MANHOLE DETAIL



SECTION

NOTES:

1. DROP BOWL AND MOUNTING HARDWARE SHALL BE RELINER/DURAN "B" DROP BOWL SIZED INFLUENT SEWER SIZE AND MANHOLE DIAMETER, OR APPROVED EQUAL, INSTALLED PER MANUFACTURERS SPECIFICATIONS.
2. DROP BOWL SHALL BE CENTERED DIRECTLY BELOW INFLUENT PIPE WITH APPROXIMATELY 1" CLEARANCE BELOW PIPE AND SHALL BE ATTACHED USING 3/8" x 1" STAINLESS STEEL ANCHOR KITS SUPPLIED BY THE APPROVED MANUFACTURER.
3. PIPE BRACKETS SHALL BE 11 GAUGE 304 STAINLESS STEEL 1 1/2" WIDE WITH STAINLESS STEEL HARDWARE AS SUPPLIED BY THE APPROVED MANUFACTURER.
4. THE MANHOLE CONE SECTION SHALL BE PLACED TO ALLOW CLEAR ACCESS WITHOUT INTERFERENCE WITH THE DROP ASSEMBLY, LOCATION TO BE APPROVED BY THE MSWD INSPECTOR.
5. USE OF THE DROP MANHOLE SHALL REQUIRE PRIOR APPROVAL BY MSWD ENGINEERING STAFF.



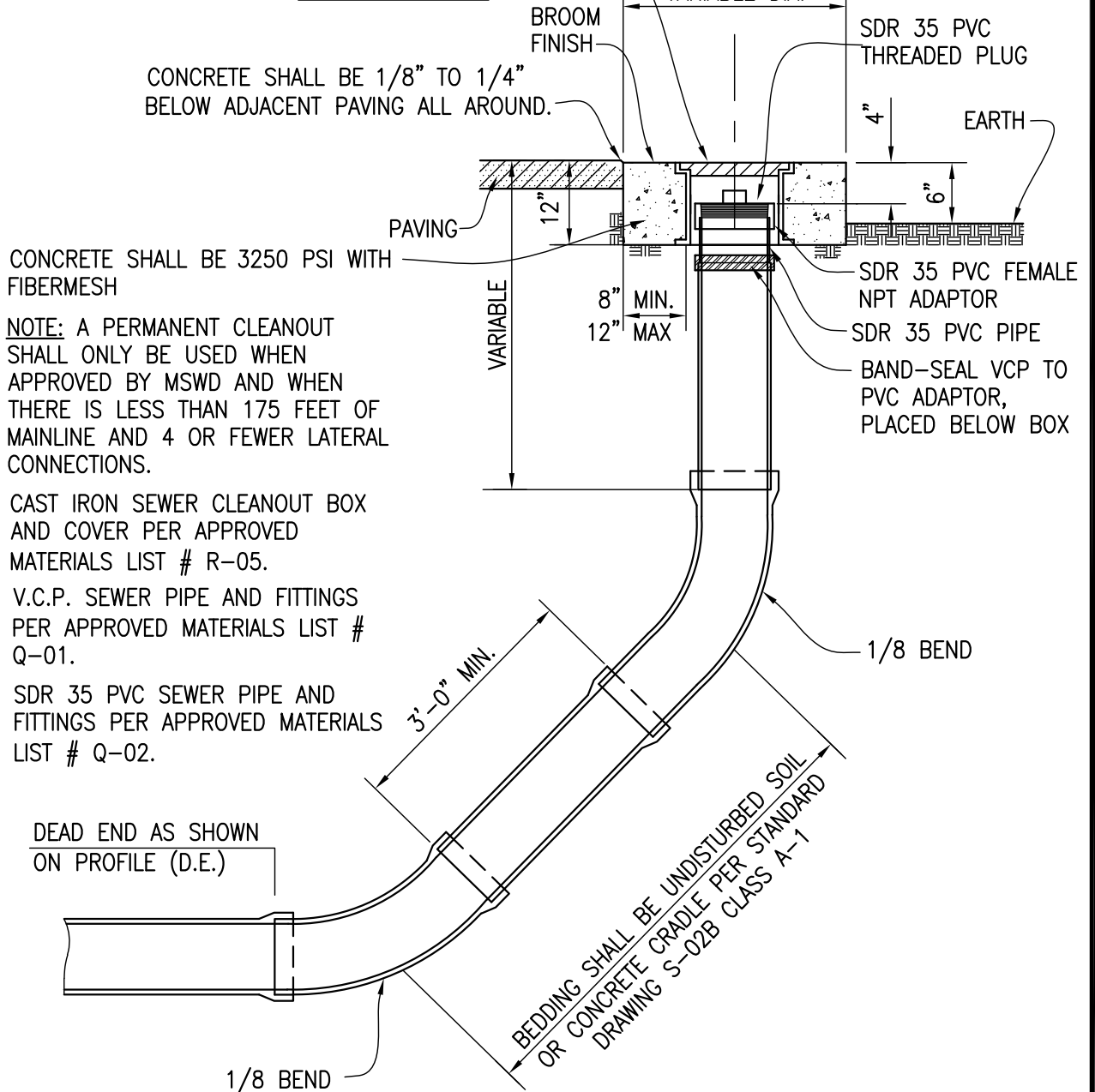
INSIDE DROP MANHOLE
REQUIRES MSWD APPROVAL

Approved: _____
Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
S-11

PAINT GLOSS BLACK PER MSWD MATERIAL LIST U-04

**DETAIL FOR CLEAN-OUTS
IN PAVED SURFACES**

**DETAIL FOR CLEAN-OUTS
IN EASEMENTS**

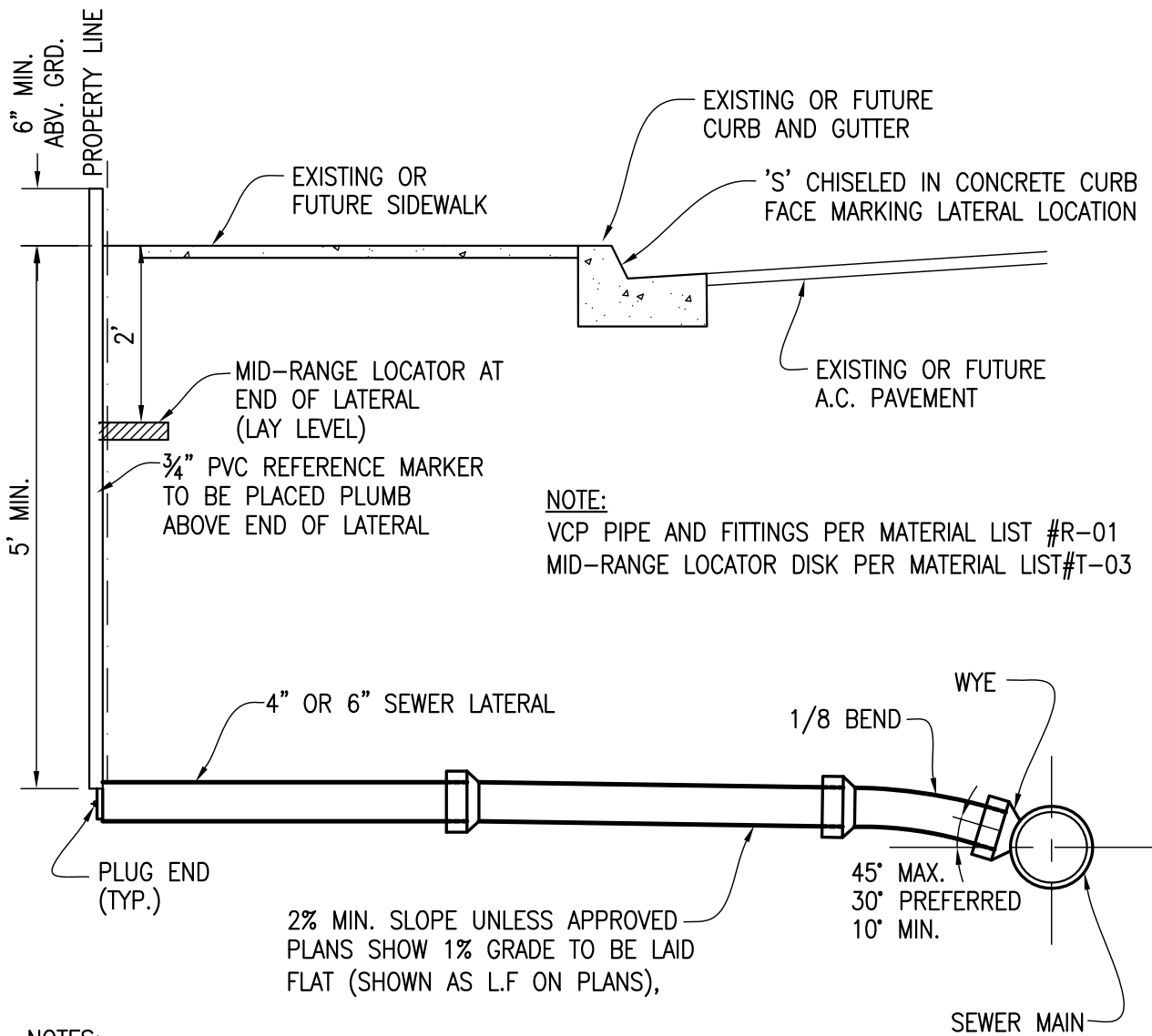


NOTE:
 CLEAN-OUT TO BE OF THE SAME MATERIAL & SIZE AS SEWER MAIN. THE SEWER MAIN SHALL BE LAID FOR THE FULL LENGTH & DEPTH SHOWN ON THE PLAN & PROFILE TO THE STATION MARKED DEAD END (D.E.). THE TRENCH FOR A DEAD END SHALL BE EXCAVATED ONLY TO SUBGRADE WHICH IS THE BOTTOM OF THE SLOPING PIPE AND FITTINGS. SHOULD THE EXCAVATION, FOR ANY REASON, BE CARRIED BELOW SUBGRADE, IT SHALL BE REFILLED TO SUBGRADE WITH ROCK OR GRAVEL, WHICH SHALL BE TAMPED UNTIL FIRM AND UNYIELDING. SHOULD A FIRM AND UNYIELDING FOUNDATION BE UNATTAINABLE BY THIS METHOD, A CONCRETE PIPE CRADLE SHALL BE USED.



MAINLINE CLEANOUT
 REQUIRES MSWD APPROVAL

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 S-12



NOTE:
 VCP PIPE AND FITTINGS PER MATERIAL LIST #R-01
 MID-RANGE LOCATOR DISK PER MATERIAL LIST#T-03

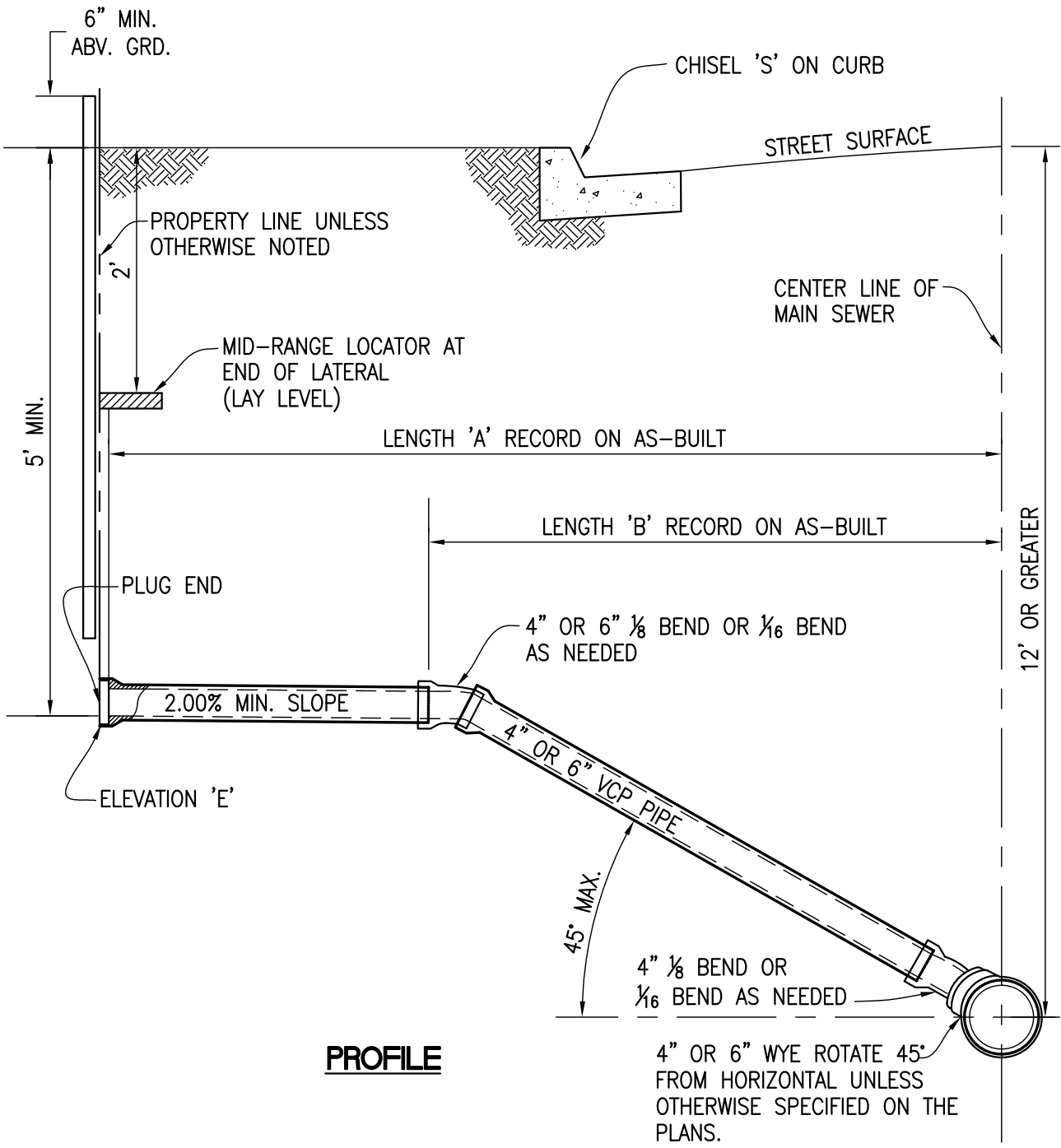
NOTES:

1. A VCP SEWER LATERAL SHALL PLACED FOR EVERY LOT. 4" V.C.P. SHALL BE PROVIDED FOR 4 OR LESS DWELLING UNITS. A 6" VCP LATERAL SHALL BE USED FOR ANY COMMERCIAL PROPERTY OR MULTIFAMILY UNIT WITH OVER 4 RESIDENTIAL UNITS.
2. LATERAL LOCATIONS, AS NOTED ON THE 'AS-BUILT' PLANS, SHALL BE MEASURED AT RIGHT ANGLES TO STREET CENTERLINE, FROM THE CENTERLINE OF THE NEAREST DOWNSTREAM MANHOLE COVER, DEPTH FROM FINISH GRADE AND LENGTH AT THE END OF LATERAL AT CUSTOMERS' PROPERTY LINE.
3. CONTRACTOR SHALL REFERENCE EACH LATERAL IN THE FIELD WITH A SURFACE MARKER. MARKER SHALL BE A SCH 40 PVC MARKER PLACED AT TIME OF BACKFILLING. MARKER SHALL BE INSTALLED VERTICAL, CUT OFF AT 6" MIN. ABOVE GRADE.
4. LATERAL SHALL BE INSTALLED AT A CONSTANT GRADE UNLESS SPECIFICALLY APPROVED BY THE MSWD INSPECTOR.



4" OR 6" STANDARD SEWER LATERAL

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 S-13



PROFILE

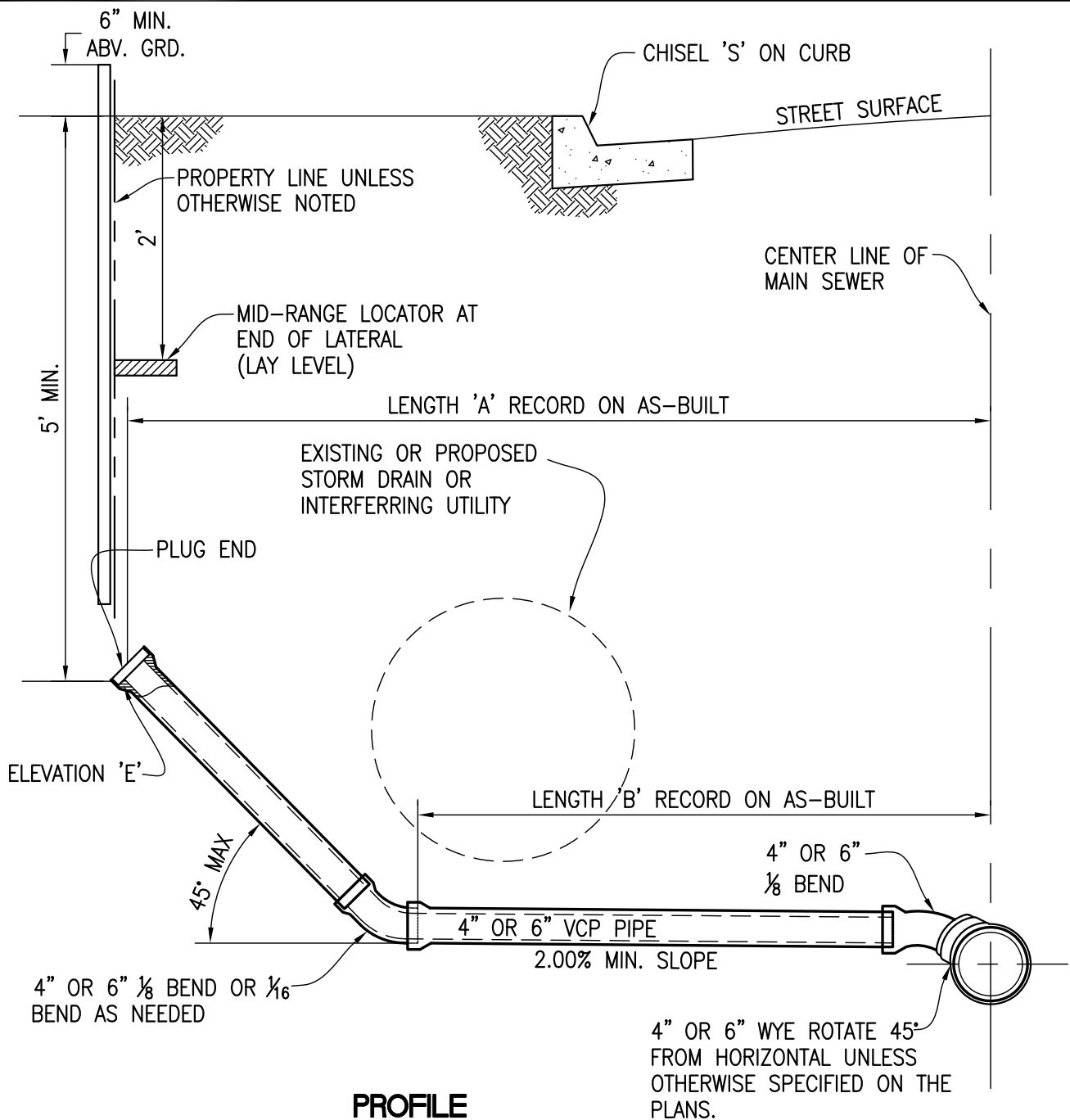
- NOTES:
1. RECORD LENGTH 'A', LENGTH 'B' AND ELEVATION 'E' ON CONTRACTOR RED LINE PLAN.
 2. PIPE SIZE FOR LATERAL SHALL BE SHOWN ON PLANS WITH MSWD STD. DWG S-14.

NOTE:
 VCP PIPE AND FITTINGS PER MATERIAL LIST #R-01
 MID-RANGE LOCATOR DISK PER MATERIAL LIST #T-03



LATERAL FOR DEEP SEWER
 WITHOUT UTILITY CROSSING

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 S-14



PROFILE

NOTES:

1. RECORD LENGTH 'A', LENGTH 'B' AND ELEVATION 'E' ON CONTRACTOR RED LINE PLAN.
2. PIPE SIZE FOR LATERAL SHALL BE SHOWN ON PLANS WITH MSWD STD. DWG S-15.
3. CLEARANCES FROM UTILITY SHALL BE IN ACCORDANCE WITH MSWD STD. DWG'S G-02, G-03, AND G-04 AS APPLICABLE.

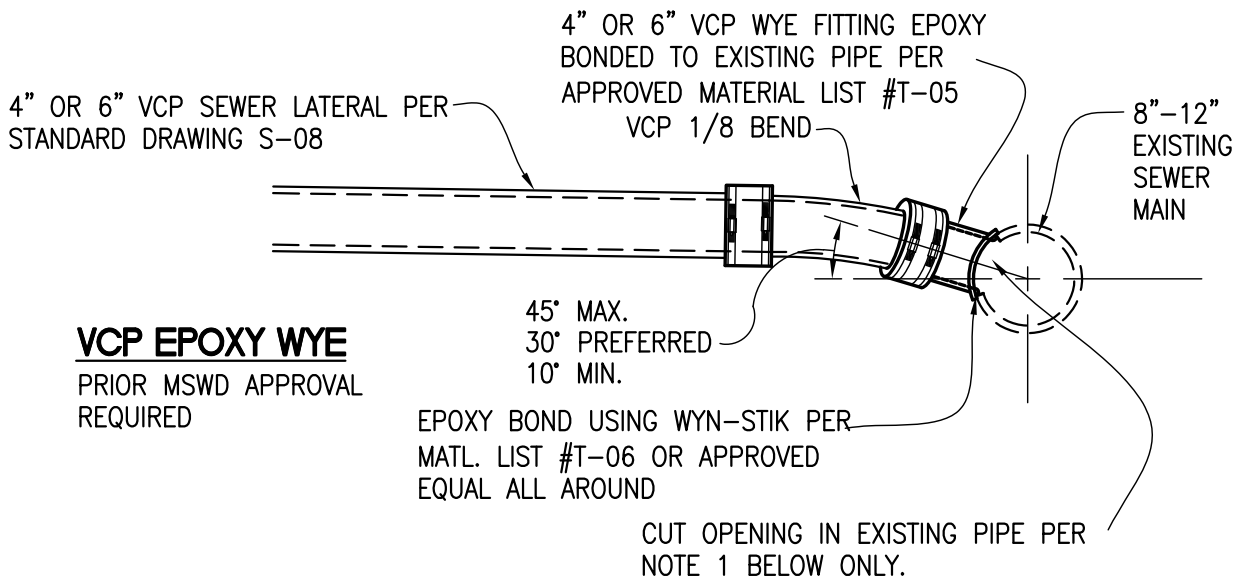
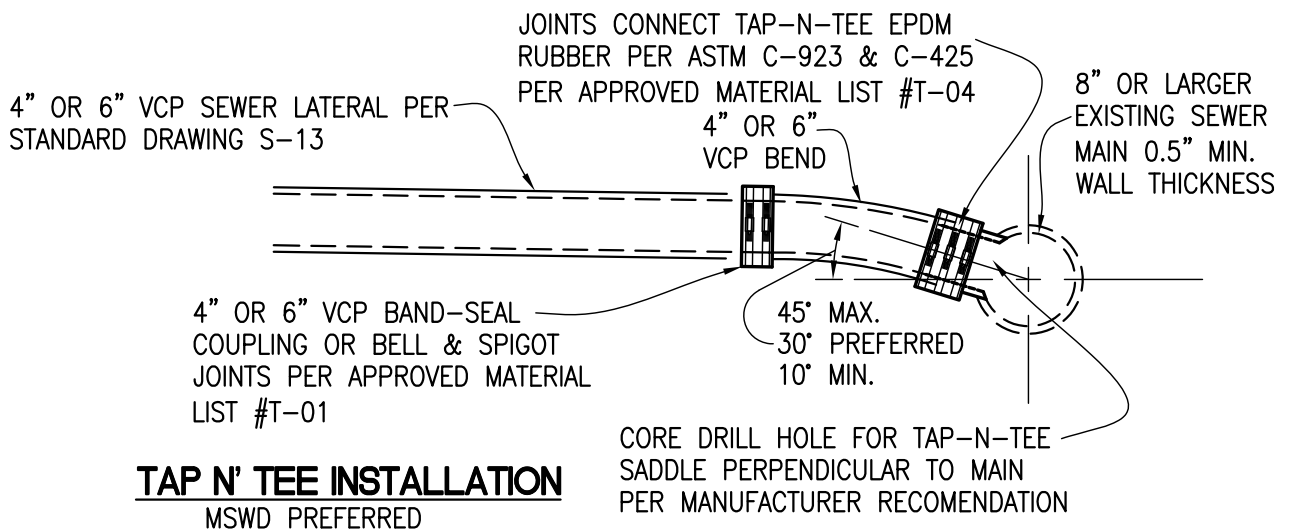
NOTE:

VCP PIPE AND FITTINGS PER MATERIAL LIST #R-01
 MID-RANGE LOCATOR DISK PER MATERIAL LIST#T-03



LATERAL FOR DEEP SEWER
 WITH UTILITY CROSSING

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31.2024
 DRAWING No.
 S-15



NOTES FOR EPOXY WYE:

1. OPENING IN EXISTING VCP PIPE SHALL BE CUT ON THE ANGLE OF THE WYE FITTING USING A STABILIZED SHELL CUTTER SIZED PER MANUFACTURERS SPECIFICATION OF SUFFICIENT DEPTH TO PERFORM A CLEAN ELLIPTICAL CUT COMPLETELY THROUGH THE EXISTING PIPE WALL.
2. ALL CUTTINGS SHALL BE REMOVED FROM PIPE AND WYE FITTING SHALL BE TESTED FOR FLUSH FIT TO EXISTING MAIN IN THE PRESENCE OF THE MSWD INSPECTOR PRIOR TO PERMANENT ATTACHMENT OF THE FITTING.
3. ALL MAINS WITH VCP EPOXY WYE TO BE VIDEO INSPECTED PER MSWD SPECIFICATIONS PRIOR TO ACCEPTANCE.

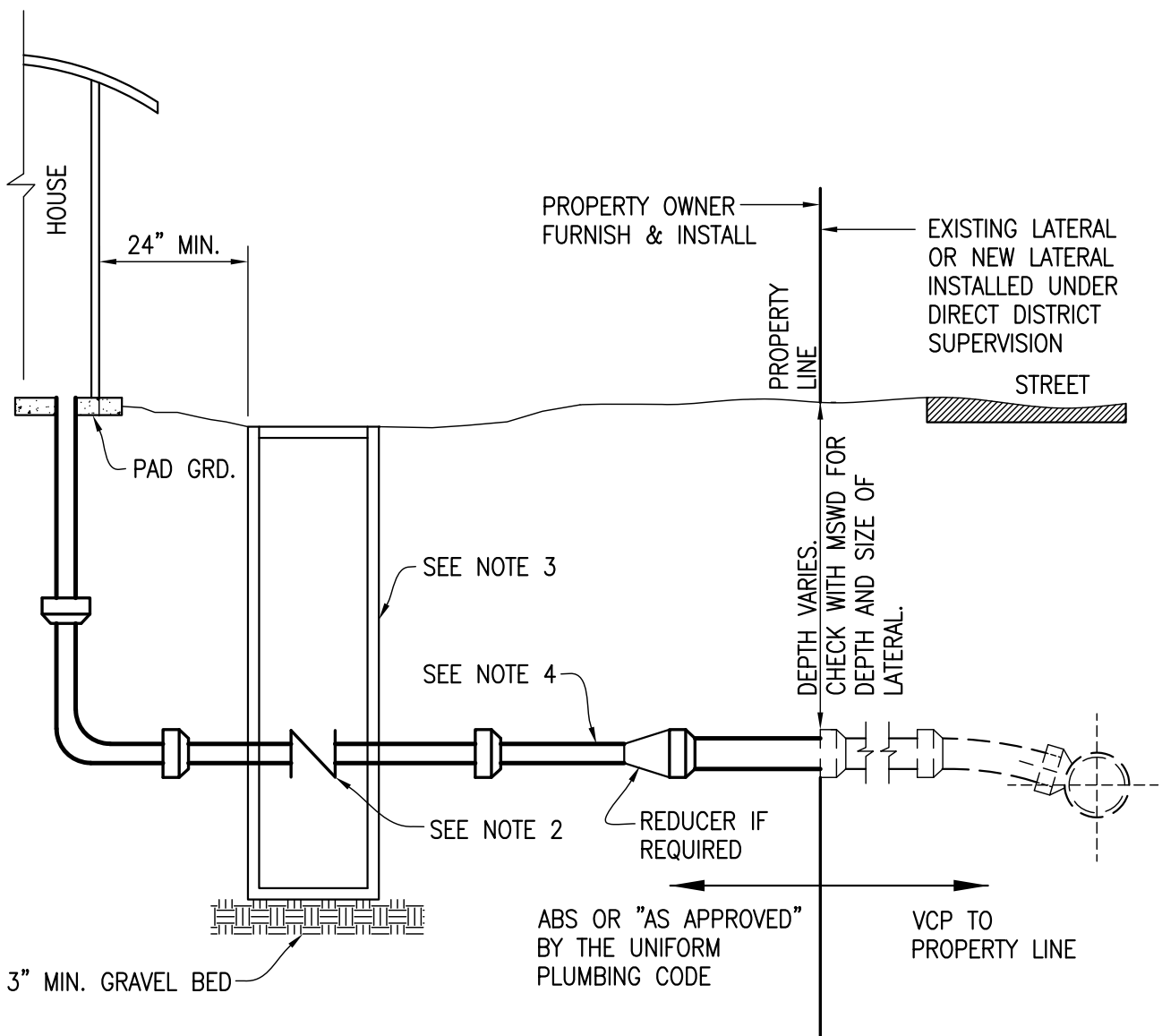
GENERAL NOTES:

1. ALL HOT TAPS SHALL BE PERFORMED UNDER DIRECT MSWD INSPECTION.
2. CONTRACTOR SHALL CHECK DEPTH OF FLOW IN THE UPSTREAM MANHOLE ON THE EXISTING SEWER AND VERIFY THAT CORE DRILL WILL BE ABOVE THE FLOW LEVEL IN THE PIPE.



HOT TAP
SEWER LATERAL

Approved: _____
Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
S-16



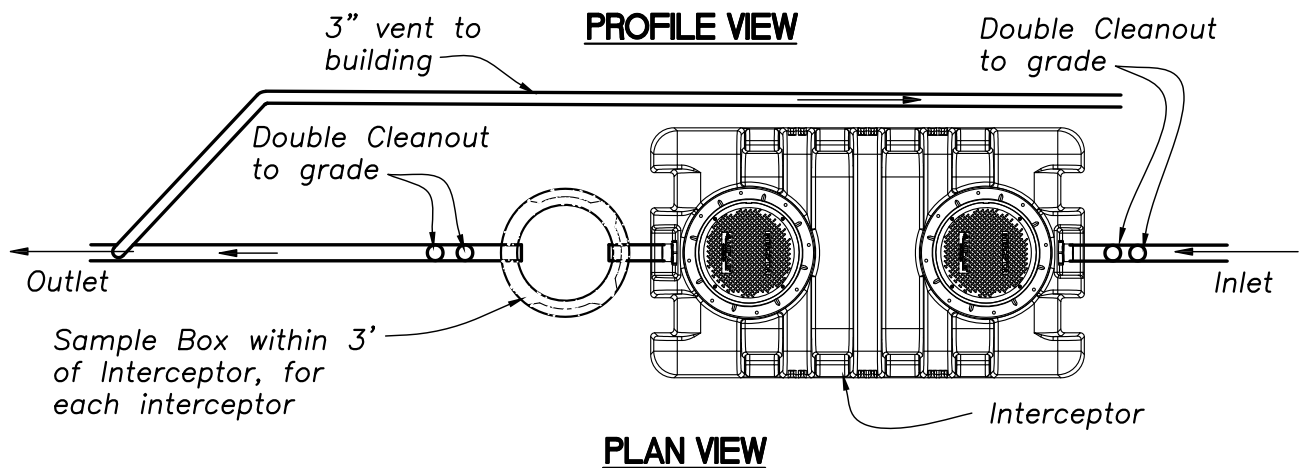
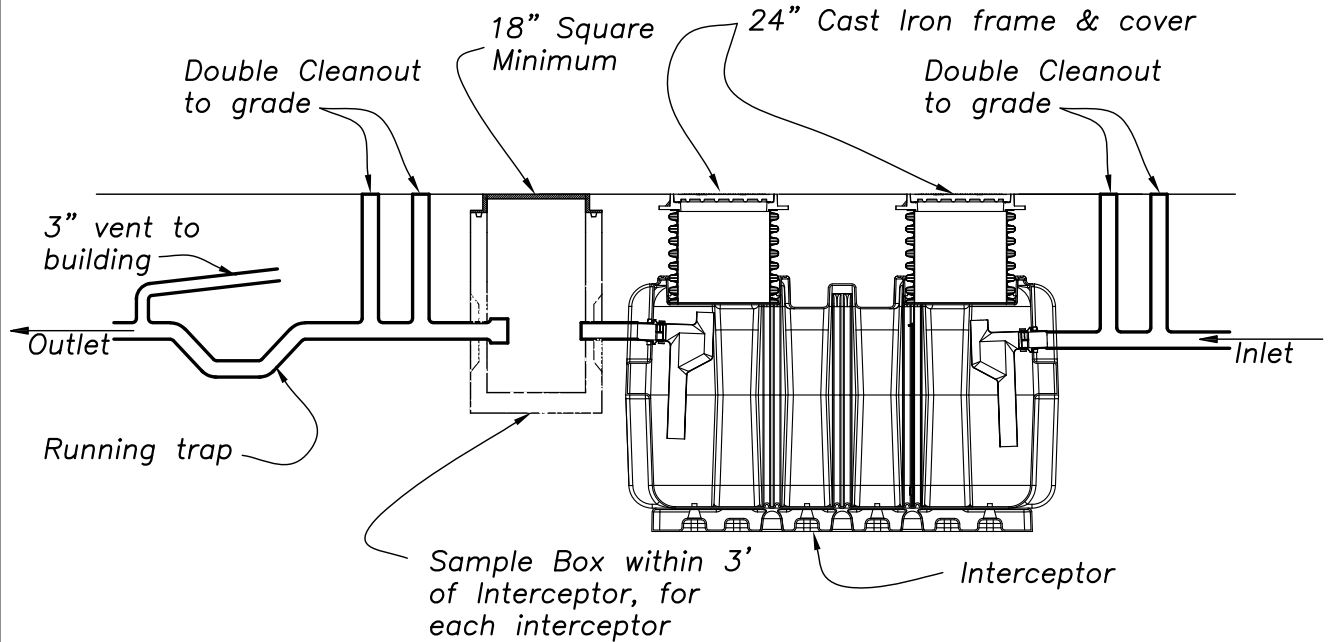
NOTES:

1. MAINTENANCE OF THE LATERAL TO THE SEWER MAIN IS THE RESPONSIBILITY OF THE PROPERTY OWNER.
2. A BACKWATER VALVE SHALL BE PROVIDED BY THE OWNER AS SPECIFIED IN THE UNIFORM PLUMBING CODE WHERE THE PAD ELEVATION OF THE PROPERTY IS LOCATED BELOW THE ELEVATION OF THE TOP OF THE NEXT UPSTREAM MANHOLE ON THE MAIN SEWER. THE BACKWATER VALVE SHALL BE PER LOCAL AGENCY STANDARDS.
3. THE BACKWATER VALVE, IF REQUIRED, SHALL BE ENCLOSED IN A VALVE BOX OR A VAULT IN ACCORDANCE WITH LOCAL AGENCY STANDARDS.
4. SEWER LATERAL SHALL BE AT A 2% MINIMUM SLOPE UNLESS OTHERWISE APPROVED.



BACKWATER VALVE ON PRIVATE PROPERTY

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 S-17



NOTES:

1. MINIMUM SIZE FOR ALL INTERCEPTORS SHALL BE 1,000 GALLONS.
2. INTERCEPTOR MATERIALS SHALL AS APPROVED BY U.P.C. AND GOVERNING LOCAL AGENCY.
3. A 24" DIAMETER SANITARY MANHOLE RING AND COVER SHALL BE INSTALLED TO GRADE OVER BOTH THE INLET AND OUTLET SANITARY TEES FOR INSPECTION.
4. INLET, OUTLET, AND CLEANOUT PIPES SHALL BE 4" OR LARGER SCHEDULE 40 ABS OR CAST IRON PIPE AND THE INLET PIPE SHALL BE 2" HIGHER THAN THE OUTLET.
5. A SANITARY TEE SHALL BE INSTALLED ON BOTH THE INLET AND OUTLET PIPES. THE INLET AND OUTLET PIPES SHALL BOTH EXTEND TO WITHIN 12" OF THE INTERCEPTOR FLOOR.
6. WHEN AN INTERCEPTOR AND SAMPLE BOX ARE INSTALLED IN A TRAFFIC AREA, THE TOPS SHALL BE TRAFFIC RATED.
7. A DOUBLE COMBINATION TEE MUST BE INSTALLED ON BOTH THE INLET AND OUTLET PIPES JUST OUTSIDE OF THE INTERCEPTOR AND SAMPLE BOX.
8. ALL MANHOLES, CLEANOUTS, AND SAMPLE BOX ACCESS SHALL BE ACCESSIBLE AT GRADE AND SHALL BE CAPPED OR GASKETED VAPOR TIGHT.

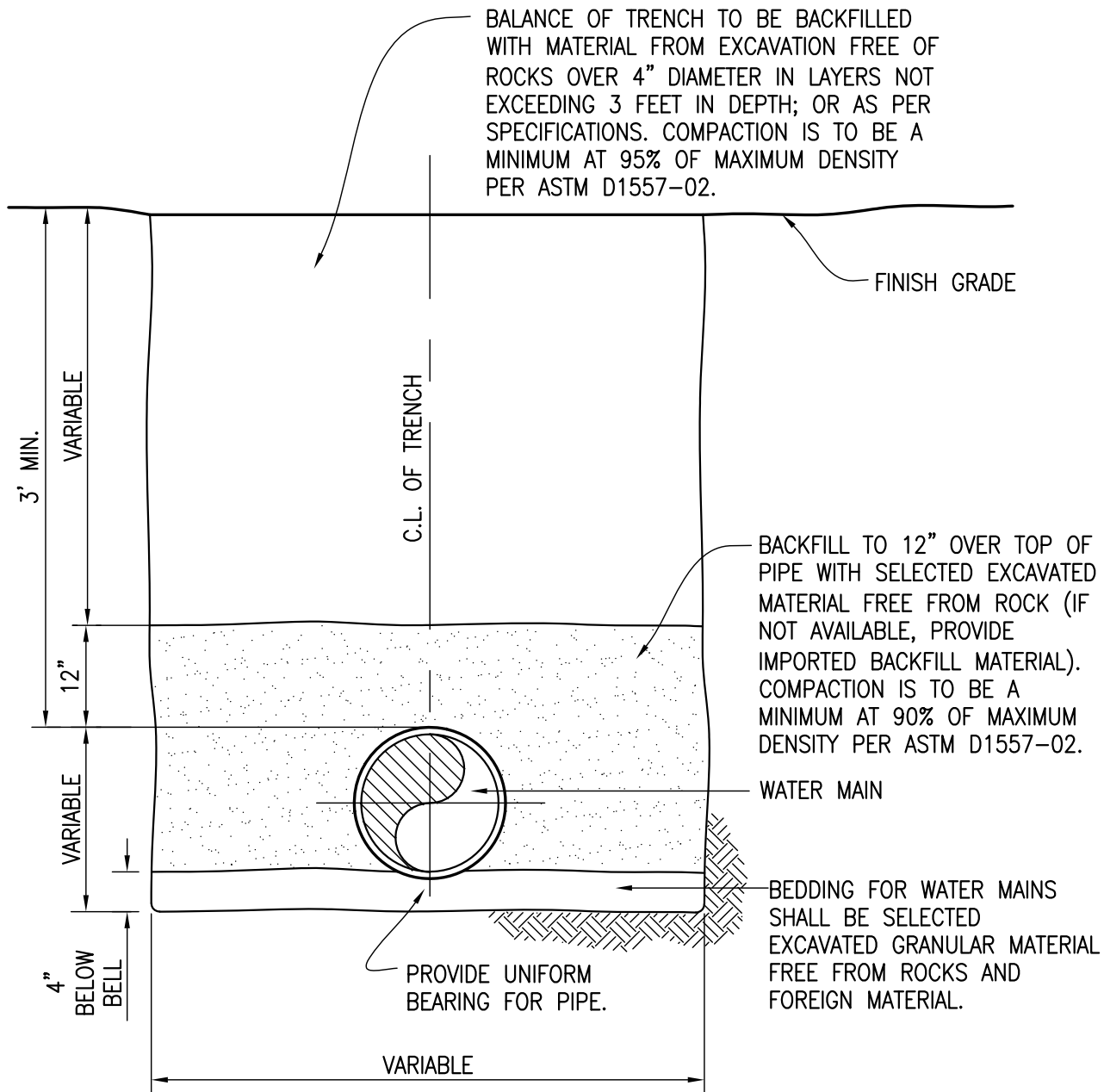


GREASE
INTERCEPTOR

Approved: _____
 Brian Macy
 General Manager

Drawn: MP Date: 1/31/2024

DRAWING No.
 S-18



MIN. WIDTH OF TRENCH FOR 4" TO 48" DIA. PIPE = O.D. PIPE + 12"

NOTES:

1. WHERE BOTTOM OF EXCAVATION IS IN ROCK WHICH CANNOT BE EXCAVATED TO PROVIDE UNIFORM BEARING FOR THE PIPE, OVEREXCAVATE 6" MINIMUM BELOW DESIGN GRADE AND REFILL IN 3" THICK COMPACTED LAYERS WITH SELECTED EXCAVATED MATERIAL OR PROVIDE IMPORTED BACKFILL MATERIAL PER SPECIFICATIONS
2. PIPE COVER SHALL BE 3' MINIMUM FOR 8" DIA. FOR 12" DIA. WATER MAINS AND LARGER, MINIMUM COVER SHALL BE 4'.



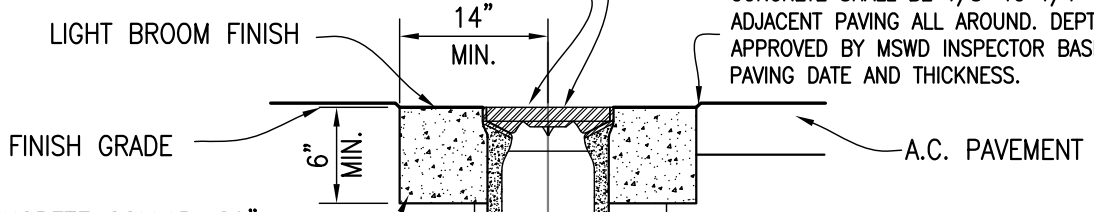
TYPICAL WATER TRENCH
DETAIL

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 W-01

VALVE BOX AND COVER SHALL BE PAINTED WITH GLOSS ENAMEL PER MSWD APPROVED MATERIAL LIST U-01 YELLOW OR U-03 RED.

① TRIANGULAR TRAFFIC RATED CAST IRON FRAME AND COVER MARKED "WATER MSWD"

CONCRETE SHALL BE 1/8" TO 1/4" BELOW ADJACENT PAVING ALL AROUND. DEPTH TO BE APPROVED BY MSWD INSPECTOR BASED ON PAVING DATE AND THICKNESS.



CONCRETE COLLAR. 20" ROUND. PLACE AGAINST COMPACTED EARTH, 95% MAXIMUM DRY DENSITY PER ASTM D1557-02.

2" SQ. OPERATING NUT
PER APPROVED MATERIAL LIST



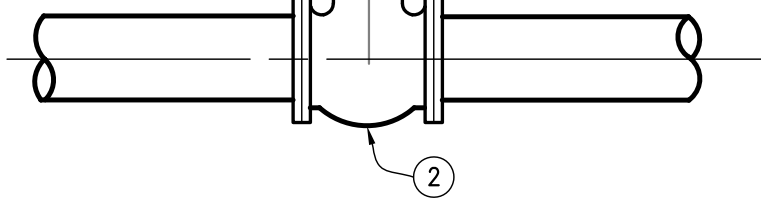
BRACING PLATE DETAIL

GATE VALVE PER APPD. MATL. LIST

④ FIBERGLASS STEM EXTENSION

PROVIDE VALVE STEM EXTENSION WHERE DEPTH TO OPERATOR NUT EXCEEDS 2'.

③ 8" DIA. SDR-35 PVC PIPE



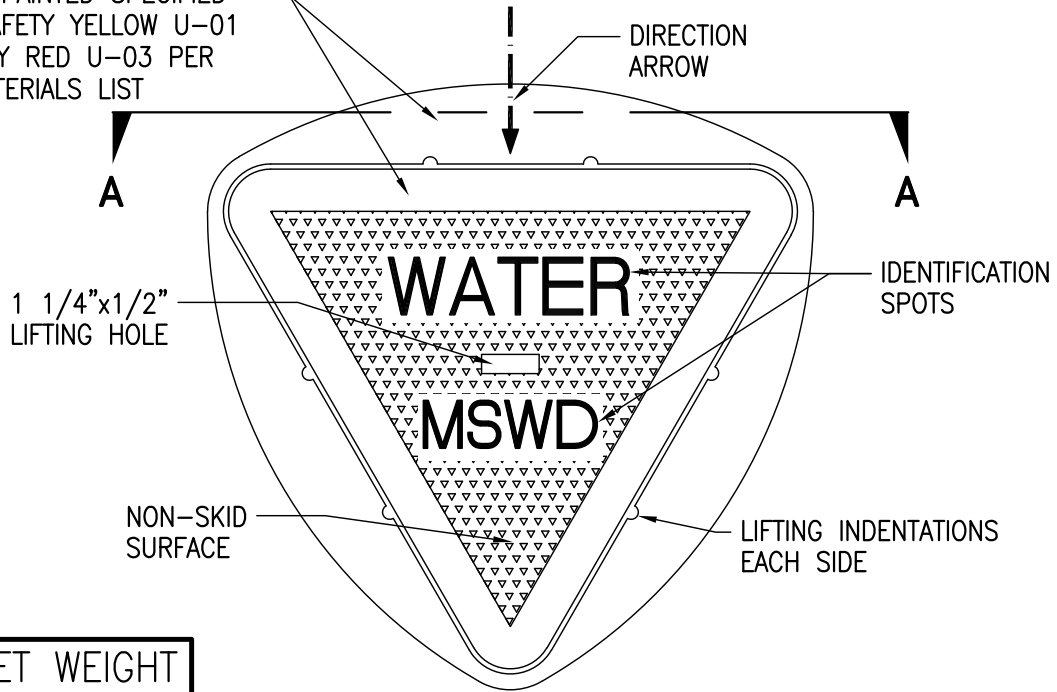
ITEM	No. Req'D.	DESCRIPTION	Matl. List#
①	1	TRIANGULAR TRAFFIC FRAME AND COVER MARKED "WATER"	G-04
②	1	FLANGED GATE VALVE 12" OR SMALLER OR BUTTERFLY VALVE (B-02)	B-01
③	VARIABLE	8" DIA. x REQUIRED LENGTH SDR-35 PVC	N-05-2
④	If Req'd.	FIBERGLASS VALVE STEM EXTENSION	N-07



GATE VALVE INSTALLATION

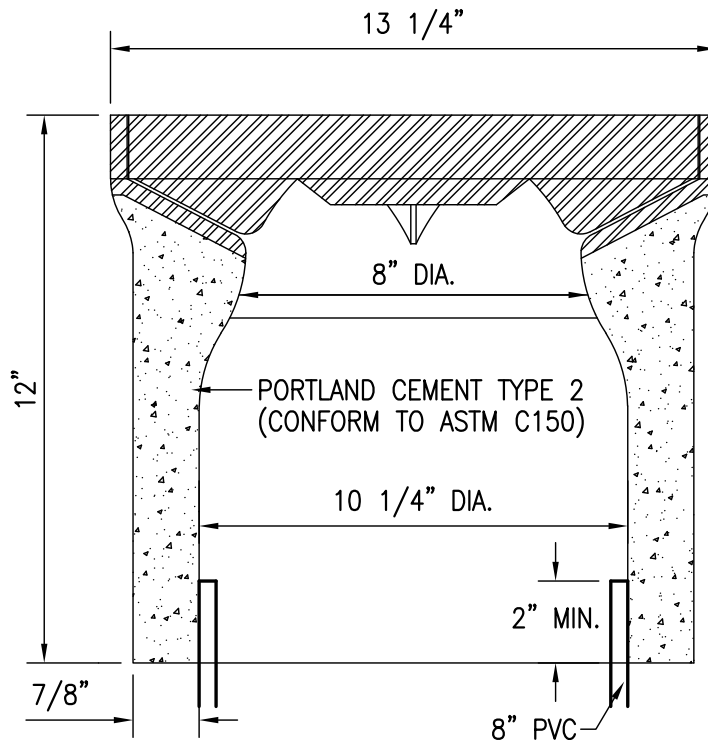
Approved: Brian Macy
General Manager
Date: 1/31/2024
Drawn: MP
DRAWING No. W-02

FRAME AND COVER SHALL
BOTH BE PAINTED SPECIFIED
COLOR SAFETY YELLOW U-01
OR SAFETY RED U-03 PER
MSWD MATERIALS LIST



SET WEIGHT	
FRAME	61 lbs.
LID	15 lbs.
TOTAL	76 lbs.

PLAN VIEW



SECTION A-A

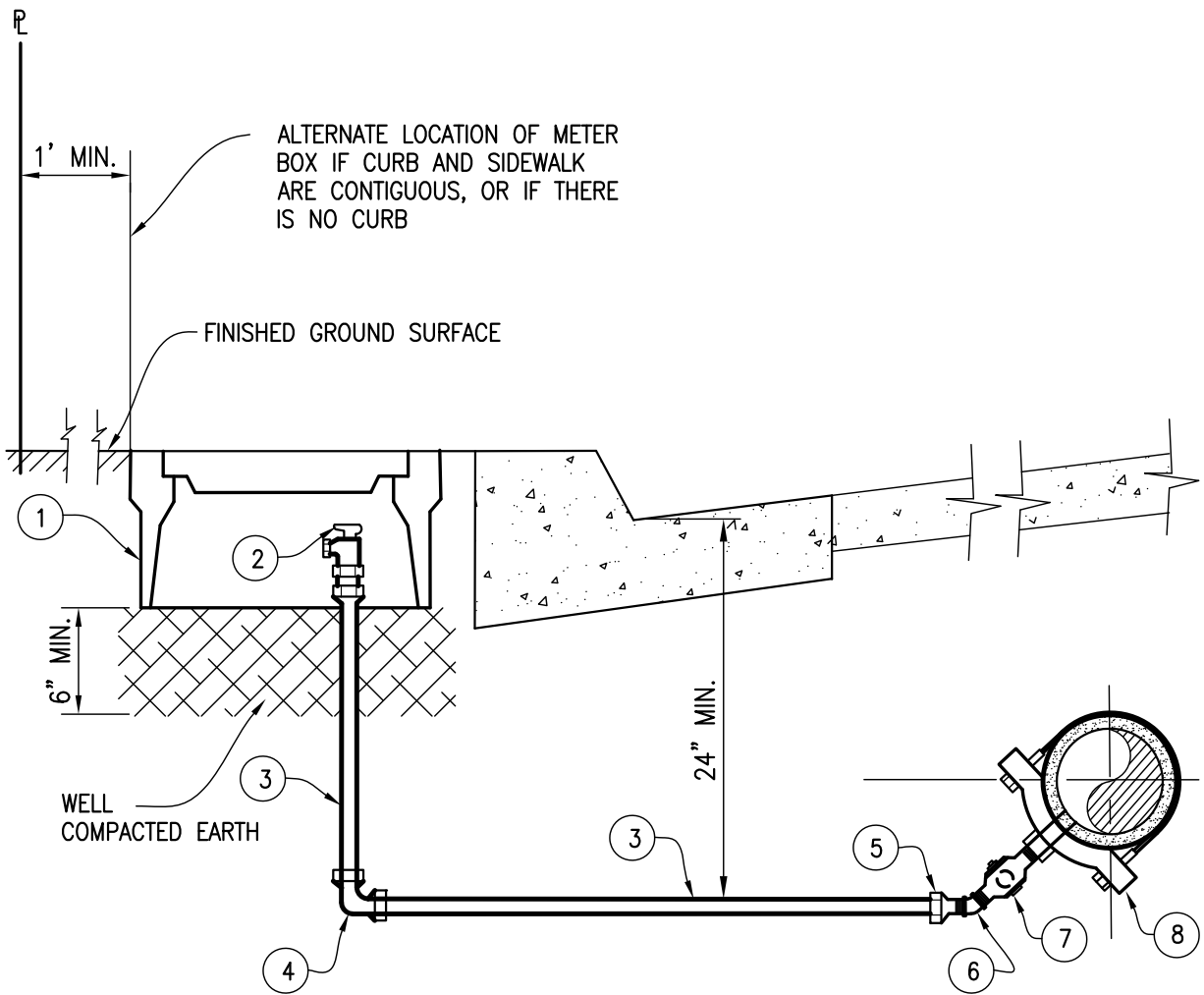
NOTES:

1. ALL METALLIC MATERIALS SHALL BE CAST IRON OR DUCTILE IRON.
2. FRAME AND LID SHALL HAVE CAST SEAT AND SIDE TO ASSURE CLOSE FIT.
3. CASTING SHALL BE DIPPED IN BLACK BITUMINOUS PAINT.
4. FOR INSTALLATION, SEE STANDARD DRAWING W-02.
5. FRAME AND LID SHALL EXCEED H-20 WHEEL LOADING.
6. SEE APPROVED MATERIALS LIST G-04.



TRIANGULAR WATER VALVE
CAP AND FRAME

Approved: _____
Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
W-02A



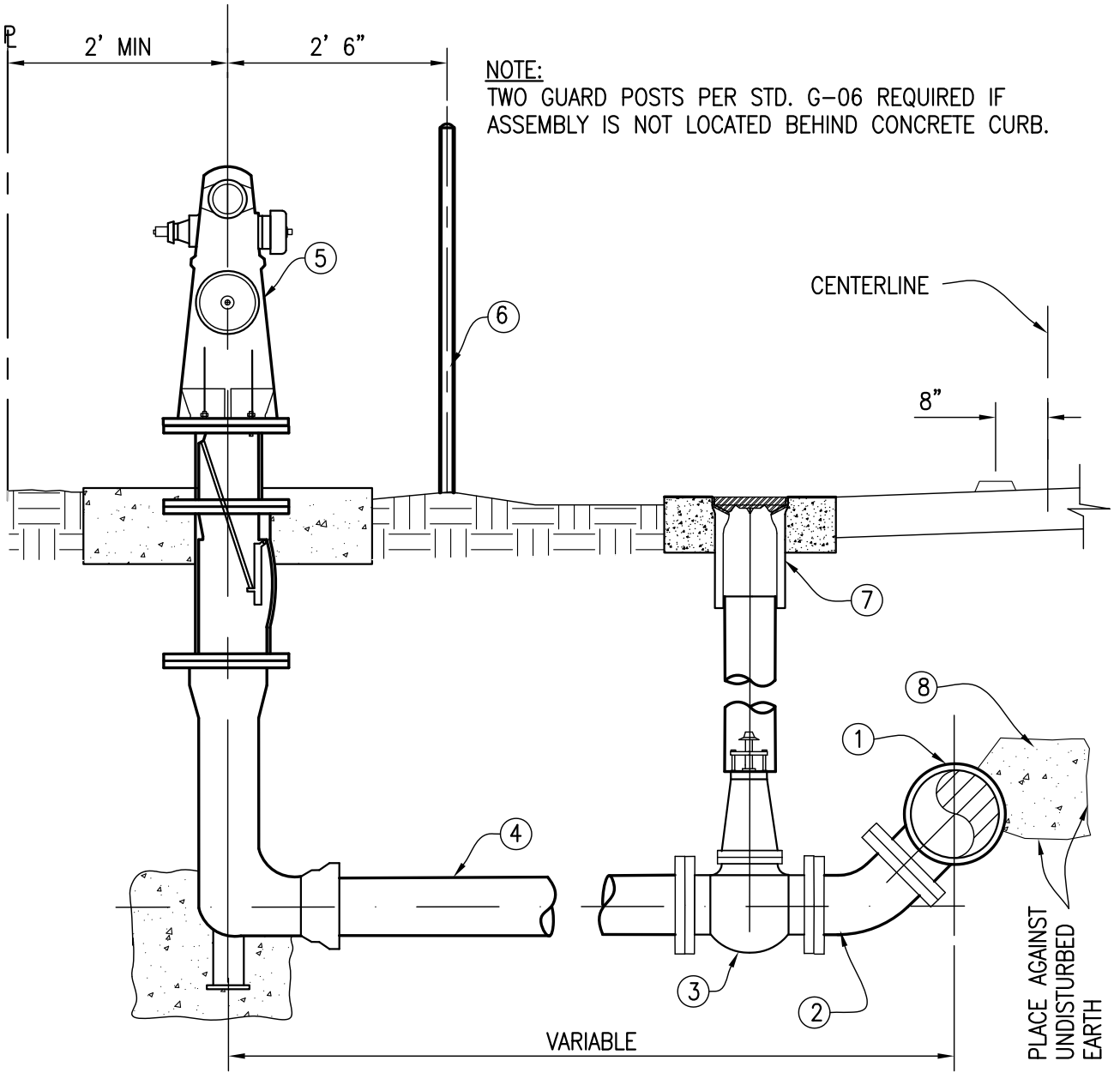
ITEM	No. Req'D.	DESCRIPTION	Matl. List#
①	1	D.F.W. GRAY POLYMER 6B METER BOX AND SOLID LID	G-02
②	1	2" BALL ANGLE METER STOP	C-06
③	VARIABLE	2" x REQUIRED LENGTH TYPE "K" SOFT TEMPER COPPER	A-04
④	1	2" CTS COMPRESSION 90° ELBOW	M-06
⑤	1	2" STRAIGHT COUPLING-CTS O.D. x M.I.P.	M-02-3
⑥	1	2" BRASS FIPT 45° ELBOW	E-04
⑦	1	2" BALL CORP STOP, I.P.T. INLET AND OUTLET	C-02-2
⑧	1	2" x MAIN SIZE DOUBLE STRAP BRONZE SERVICE SADDLE	L-01

NOTE:
PIPE THREADS SHALL BE CLEAN AND SHARP AND SEALED WITH AN APPROVED JOINT COMPOUND.



2" DIAMETER BLOW-OFF
ASSEMBLY
INSTALLATION

Approved: _____
Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
W-03



ITEM	No. REQUIRED	DESCRIPTION	MTL.#
①	1	MAIN SIZE x 6" FLANGED OUTLET DUCTILE IRON TEE	E-03-1
②	1	6" FLANGED 45° DUCTILE IRON BEND	E-03-1
③	1	6" GATE VALVE ASSEMBLY PER STD. W-2	B-01-2
④	VAR. AS REQUIRED	6" DIA. CLASS 350 DUCTILE IRON PIPE WITH RESTRAINED JOINTS	A-03
⑤	1	6" DUCTILE IRON FIRE HYDRANT ASSEMBLY PER STD. W-07	H-02
⑥	2	4" GUARD POST PER STD. G-06 (IF REQUIRED)	A-07
⑦	1	STANDARD VALVE BOX INSTALLATION PER STD. W-02 & W-02A	G-04
⑧	1	CONCRETE THRUST & SUPPORT BLOCK PER DETAIL DRAWING W-8 AND W-8A	N-02
⑨	1	BLUE RETRO-REFLECTIVE PAVEMENT MARKER	N-21

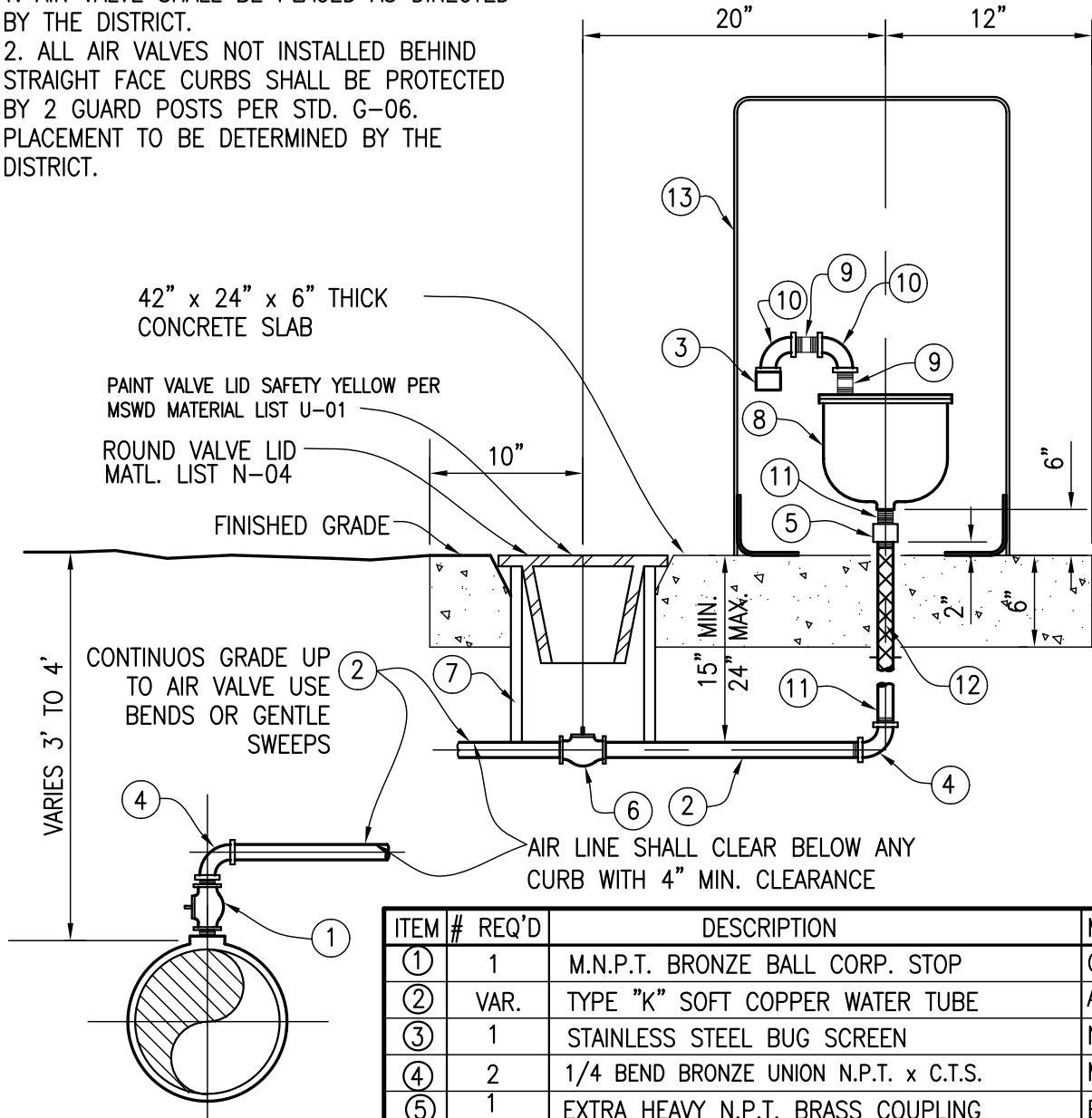


6" DIA. FIRE HYDRANT BLOWOFF ASSEMBLY

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 W-04

NOTE:

1. AIR VALVE SHALL BE PLACED AS DIRECTED BY THE DISTRICT.
2. ALL AIR VALVES NOT INSTALLED BEHIND STRAIGHT FACE CURBS SHALL BE PROTECTED BY 2 GUARD POSTS PER STD. G-06. PLACEMENT TO BE DETERMINED BY THE DISTRICT.



NOTES:

1. ALL PIPE, FITTINGS, AND VALVES SHALL BE SAME DIA. AS THE AIR VALVE INLET.
2. ALL PIPE THREADS SHALL BE CLEAN AND SHARP AND SEALED WITH AN APPROVED JOINT COMPOUND.

ITEM #	REQ'D	DESCRIPTION	MTL. #
①	1	M.N.P.T. BRONZE BALL CORP. STOP	C-01-2
②	VAR.	TYPE "K" SOFT COPPER WATER TUBE	A-04
③	1	STAINLESS STEEL BUG SCREEN	N-15
④	2	1/4 BEND BRONZE UNION N.P.T. x C.T.S.	M-07
⑤	1	EXTRA HEAVY N.P.T. BRASS COUPLING	E-04
⑥	1	COMP. BRONZE BALL CURB VALVE W/TEE HEAD	B-04
⑦	1	8" CIRC. VALVE BOX	N-05
⑧	1	HEAVY DUTY COMB. AIR RELEASE VALVE	B-03
⑨	2	3" LONG STD. BLK. N.P.T. NIPPLE	A-07
⑩	2	STD. BLK. 90° ELBOW	E-06
⑪	2	EXTRA HEAVY BRASS PIPE NIPPLE N.P.T.	A-05
⑫	1	PIPE WRAP	N-10
⑬	1	AIR VALVE ENCLOSURE	N-14



AIR VALVE INSTALLATION
1" OR 2" DIA.

Approved:

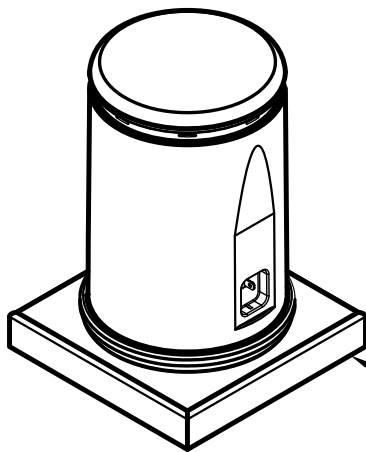
Brian Macy
General Manager

Drawn: MP

Date: 1/31/2024

DRAWING No.

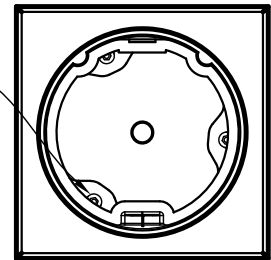
W-05



18" DIA. x 30" TALL VALVE ENCLOSURE. ENCLOSURE TO HAVE A BOLT DOWN BASE WITH REMOVABLE COVER. COVER & BASE TO BE MANUFACTURED FROM 3/16" WALL POLYETHYLENE WITH UV STABILIZERS. COVER SHALL LOCK TO BASE WITH AN INTEGRAL AUTO-LATCH AND PADLOCK HASP. MSWD TO PROVIDE PADLOCK.

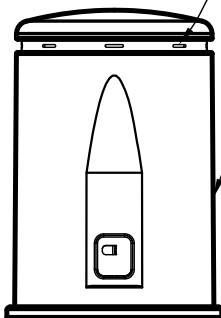
CONCRETE PAD

3 - 1/2" CONCRETE ANCHORS WITH STAINLESS FENDER WASHERS



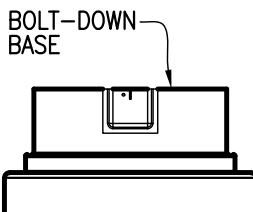
TOP VIEW

8 - 1/4" x 1 3/4" VENT SLOTS



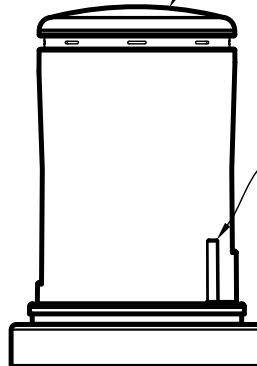
VALVE COVER
MTL. LIST N-14

DOMED TOP



BOLT-DOWN
BASE

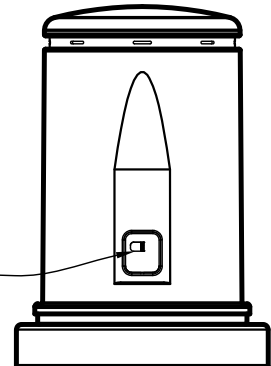
FRONT VIEW
(OPENED)



COVER
ALIGNMENT
TABS

SIDE VIEW

STAINLESS STEEL
PADLOCK BACKING
PLATE

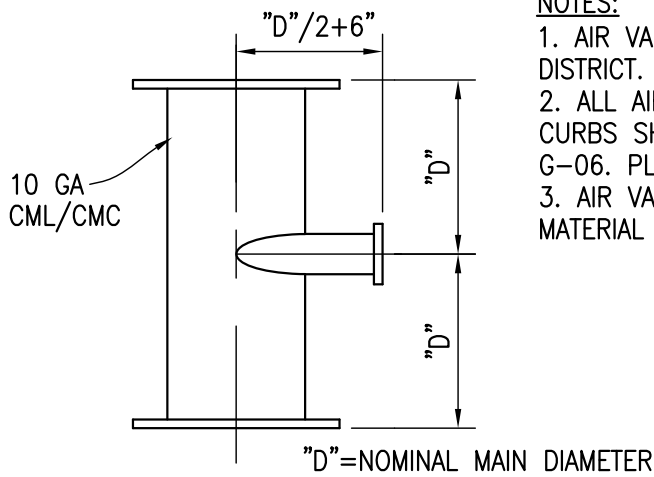


FRONT VIEW



1" OR 2" POLYETHYLENE
AIR VALVE ENCLOSURE

Approved: _____
Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
W-05A

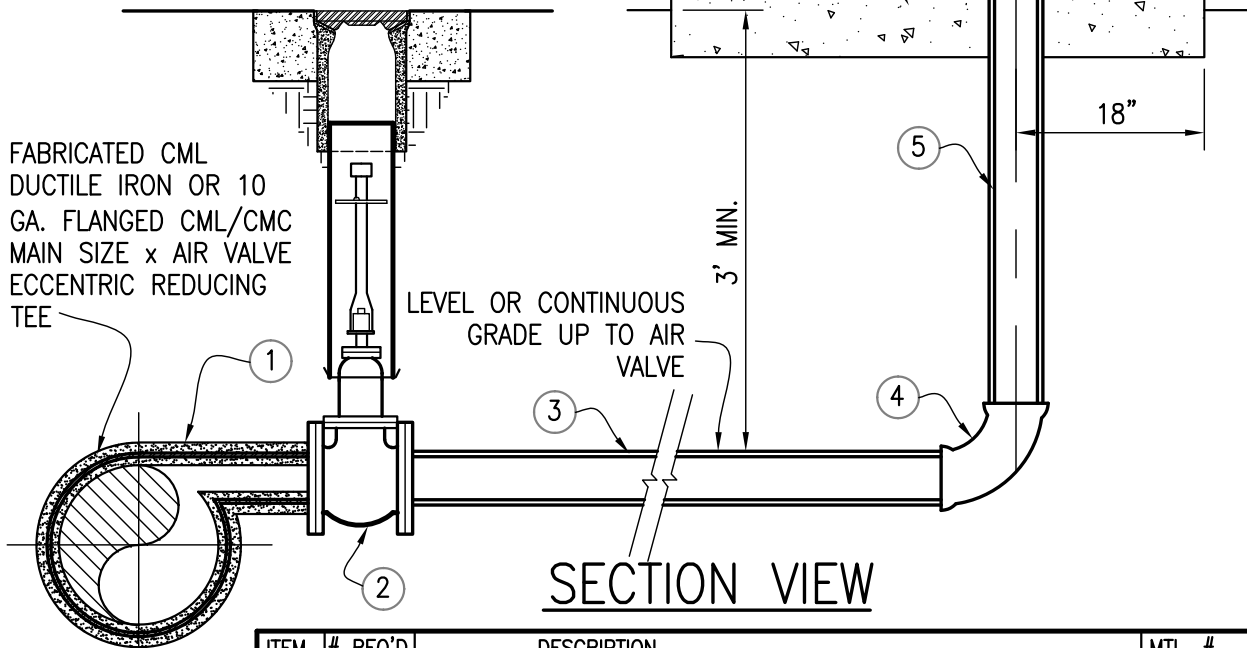


NOTES:

1. AIR VALVE SHALL BE PLACED AS DIRECTED BY THE DISTRICT.
2. ALL AIR VALVES NOT INSTALLED BEHIND STRAIGHT FACE CURBS SHALL BE PROTECTED BY 2 GUARD POSTS PER STD. G-06. PLACEMENT TO BE DETERMINED BY THE DISTRICT.
3. AIR VALVE SHALL BE PAINTED MSWD DESERT TAN PER MATERIAL LIST U-02.

FABRICATED FLANGED CML
DUCTILE IRON OR CML/CMC 60" x 36" x 6" THICK
CONCRETE SLAB

PLAN VIEW



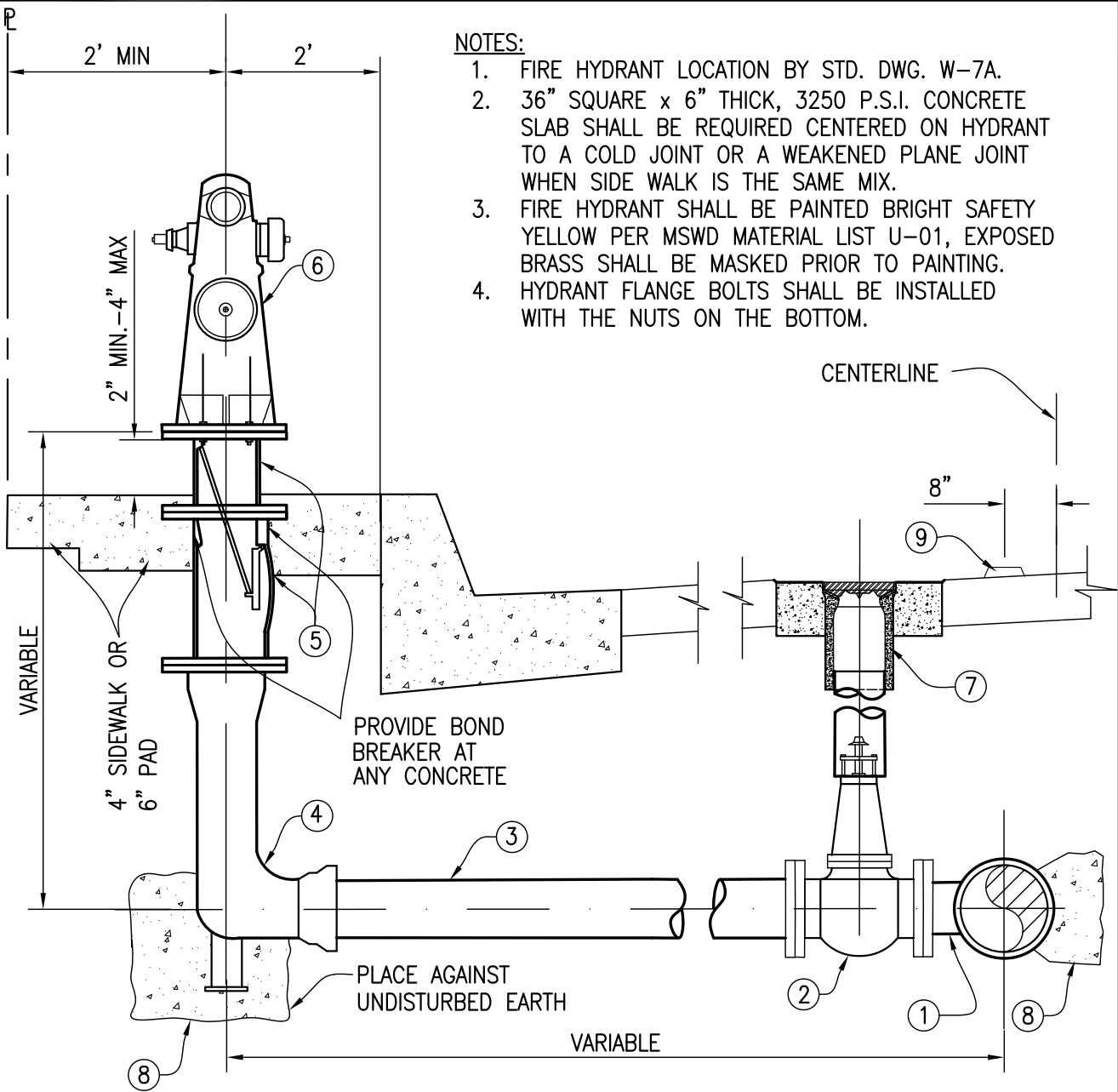
ITEM	# REQ'D	DESCRIPTION	MTL. #
①	1	MAIN SIZE x AIR VALVE SIZE FABRICATED CML DUCTILE IRON OR 10 GA. CML/CMC FLANGED ECCENTRIC REDUCING TEE	E-03-1 E-01-1
②	1	AIR VALVE SIZE FLANGED GATE VALVE ASSEMBLY PER STD. DWG. W-02	B-01-2
③	VARIABLES	AIR VALVE SIZE CLASS 350 DUCTILE IRON PIPE	A-03
④	1	AIR VALVE SIZE DUCTILE IRON 90° BEND, RESTRAINED JOINTS	E-03-2
⑤	1	AIR VALVE SIZE DUCTILE IRON FLANGED SPOOL	E-03-3
⑥	1	HEAVY DUTY COMB. AIR RELEASE VALVE, SIZE PER PLAN	B-03
⑦	2	AIR VALVE SIZE x 4" LONG STD. BLK. N.P.T. NIPPLE	A-07
⑧	2	AIR VALVE SIZE HEAVY DUTY 90° NPT ELBOW	E-06
⑨	1	STAINLESS STEEL BUG SCREEN	N-15



4" OR LARGER AIR VALVE
ASSEMBLY

Approved: _____
Brian Macy
General Manager
Drawn: MP Date: 1/31/2024

W-06



NOTES:

1. FIRE HYDRANT LOCATION BY STD. DWG. W-7A.
2. 36" SQUARE x 6" THICK, 3250 P.S.I. CONCRETE SLAB SHALL BE REQUIRED CENTERED ON HYDRANT TO A COLD JOINT OR A WEAKENED PLANE JOINT WHEN SIDE WALK IS THE SAME MIX.
3. FIRE HYDRANT SHALL BE PAINTED BRIGHT SAFETY YELLOW PER MSWD MATERIAL LIST U-01, EXPOSED BRASS SHALL BE MASKED PRIOR TO PAINTING.
4. HYDRANT FLANGE BOLTS SHALL BE INSTALLED WITH THE NUTS ON THE BOTTOM.

ITEM	No. REQUIRED	DESCRIPTION	MTL.#
①	1	MAIN SIZE x 6" FLANGED OUTLET DUCTILE IRON TEE	E-03-1
②	1	6" GATE VALVE ASSEMBLY PER STD. W-2	B-01-2
③	VAR. AS REQUIRED	6" DIA. CLASS 350 DUCTILE IRON PIPE WITH RESTRAINED JOINTS	A-03
④	1	6" DUCTILE IRON HYDRANT BURY	I-01
⑤	1	6" DIA. BREAK OFF CHECK VALVE ASSEMBLY	J-02
⑥	1	6" DIAMETER FIRE HYDRANT ASSEMBLY	H-02
⑦	1	STANDARD VALVE BOX INSTALLATION PER STD. W-2	G-04
⑧	2	CONCRETE THRUST & SUPPORT BLOCK PER DETAIL DRAWING W-8 AND W-8A	N-02
⑨	1	BLUE RETRO-REFLECTIVE PAVEMENT MARKER	N-21



**6" DIA. FIRE HYDRANT
INSTALLATION**

Approved:

Brian Macy
General Manager

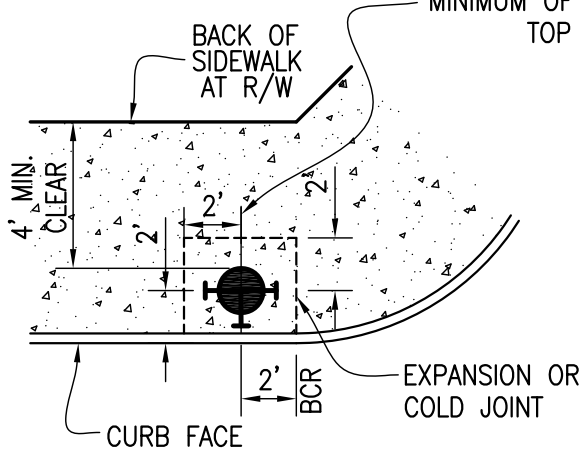
Drawn: MP

Date: 1/31/2024

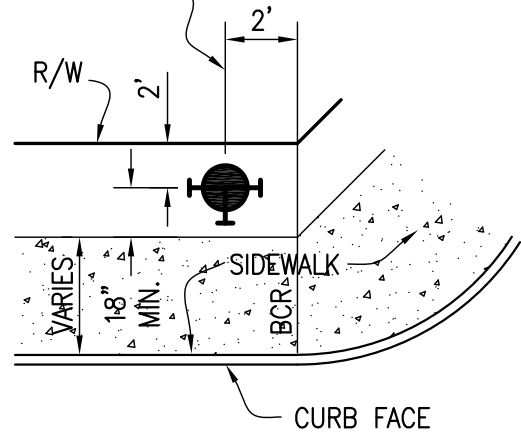
DRAWING No.

W-07

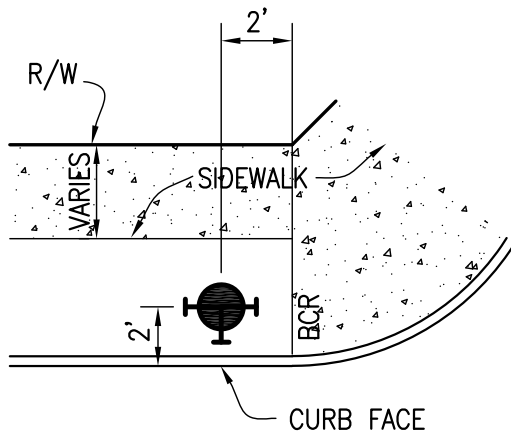
MID-BLOCK HYDRANT SHALL BE LOCATED AT A LOT LINE AND A MINIMUM OF 2' CLEAR OF THE TOP OF ANY DRIVEWAY



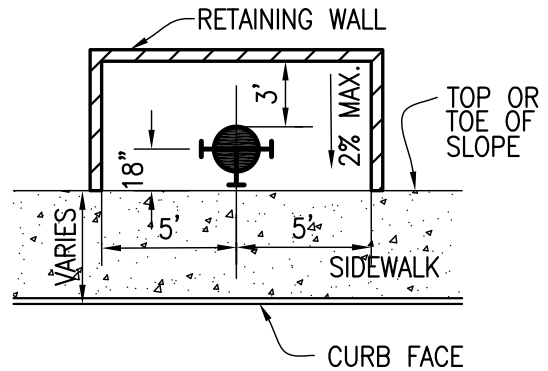
DETAIL 'A'
FULL COMMERCIAL SIDEWALK



DETAIL 'B'
RESIDENTIAL WITH ATTACHED SIDEWALK OR NO SIDEWALK



DETAIL 'C'
PARKWAY WITH DETACHED SIDEWALK



DETAIL 'D'
RETAINING WALL FOR SLOPE ADJACENT TO SIDEWALK

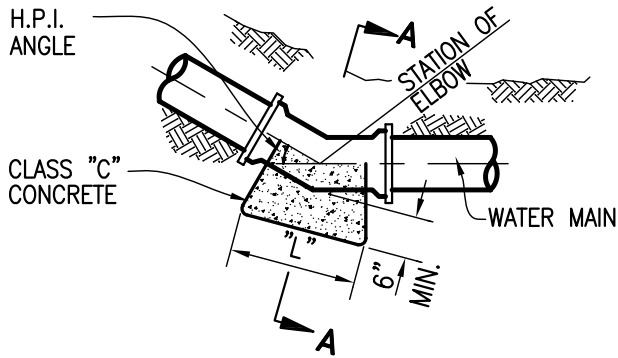
NOTES:

1. ALL FIRE HYDRANTS SHALL BE LOCATED WITHIN PUBLIC RIGHT-OF-WAY OR DEDICATED PUBLIC UTILITY EASEMENTS.
2. ALL FIRE HYDRANT LOCATIONS SHALL BE SUBJECT TO FIRE DEPARTMENT AND DISTRICT APPROVAL.

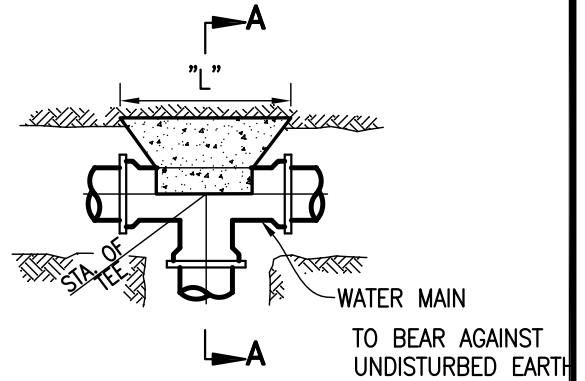


FIRE HYDRANT LOCATION

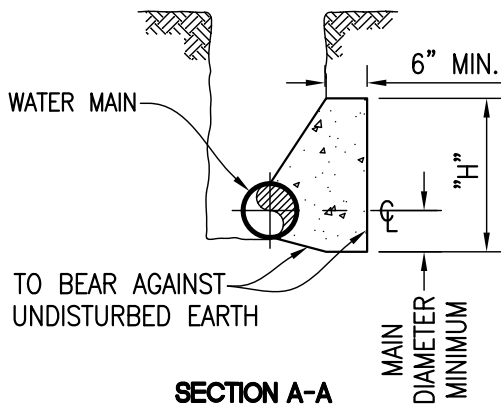
Approved: _____
Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
W-07A



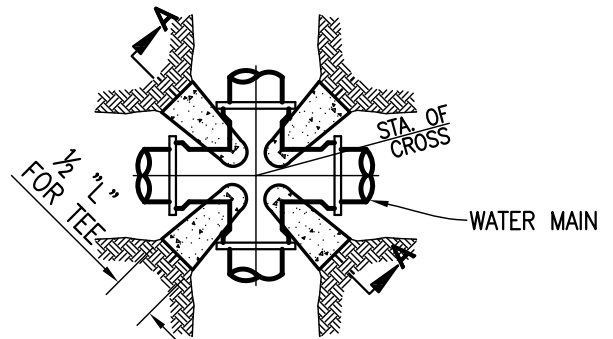
PLAN VIEW BEND



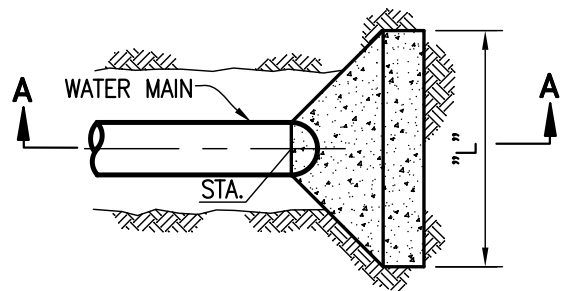
PLAN VIEW TEE



**SECTION A-A
HORIZONTAL THRUST BLOCK**



PLAN VIEW CROSS



PLAN VIEW END

NOTES:

1. CONCRETE SHALL BE 3250 PSI PER MATERIAL LIST N-02
2. TOTAL BEARING AREA, "A", SHALL BE BASED ON SOILS CONDITIONS AND MAIN SIZE FROM STD. DWG. W-8B.
3. "H" DIMENSION SHALL NORMALLY BE BETWEEN 3 AND 4 MAIN DIAMETERS.
4. "L" DIMENSION SHALL BE AS REQUIRED TO SATISFY THE EQUATION "L"x"H"="A".

SAMPLE CALCULATION

FOR 8" TEE OR END WITH SOILS PRESSURE OF 1500 LBS/SF FROM CHART REQUIRED "A"=12 S.F.

USE "H"=3 DIA.=2' THEN "L"="A"(12)/"H"(2)=6'.

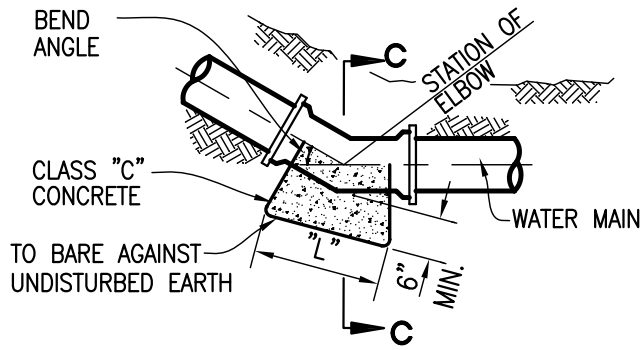
OR USE "H"= 4 DIA.=2.67' THEN "L"="A"(12)/"H"(2.67)=4.5'

"L" AND "H" MAY BE VARIED TO MEET FIELD CONDITIONS SO LONG AS "L"x"H"="A"

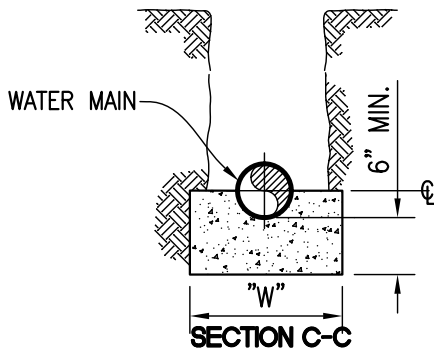


**HORIZONTAL
THRUST BLOCKS**

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 W-08



SECTIONAL ELEVATION



VERTICAL BEARER BLOCK

NOTES:

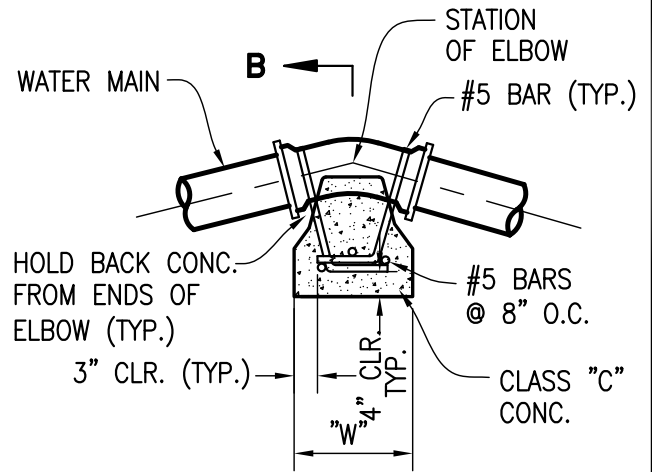
1. CONCRETE SHALL BE 3250 PSI PER MATERIAL LIST N-02.
2. TOTAL BEARING AREA, "A", SHALL BE BASED ON SOILS CONDITIONS AND MAIN SIZE FROM STD. DWG. W-8B.
3. "H" DIMENSION SHALL NORMALLY BE BETWEEN 3 AND 4 MAIN DIAMETERS.
4. "L" DIMENSION SHALL BE AS REQUIRED TO SATISFY THE EQUATION "L"x"H"="A".

SAMPLE CALCULATION

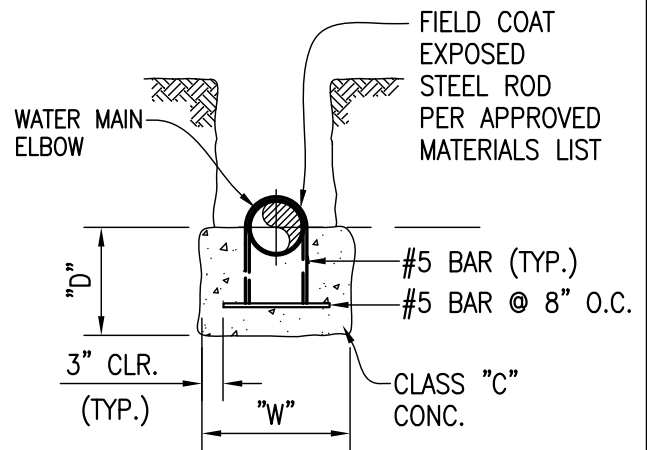
FOR 8" 45° BEND WITH SOILS PRESSURE OF 1500 LBS/SF

FROM CHART REQUIRED "A" = 12x0.8 = 9.6 S.F.

USE "W" = 3' THEN "L" = "A"/("W")(3') = 3.2'.
 "L" AND "W" MAY BE VARIED TO MEET FIELD CONDITIONS SO LONG AS "L"x"H"="A"



SECTIONAL ELEVATION



SECTION B-B

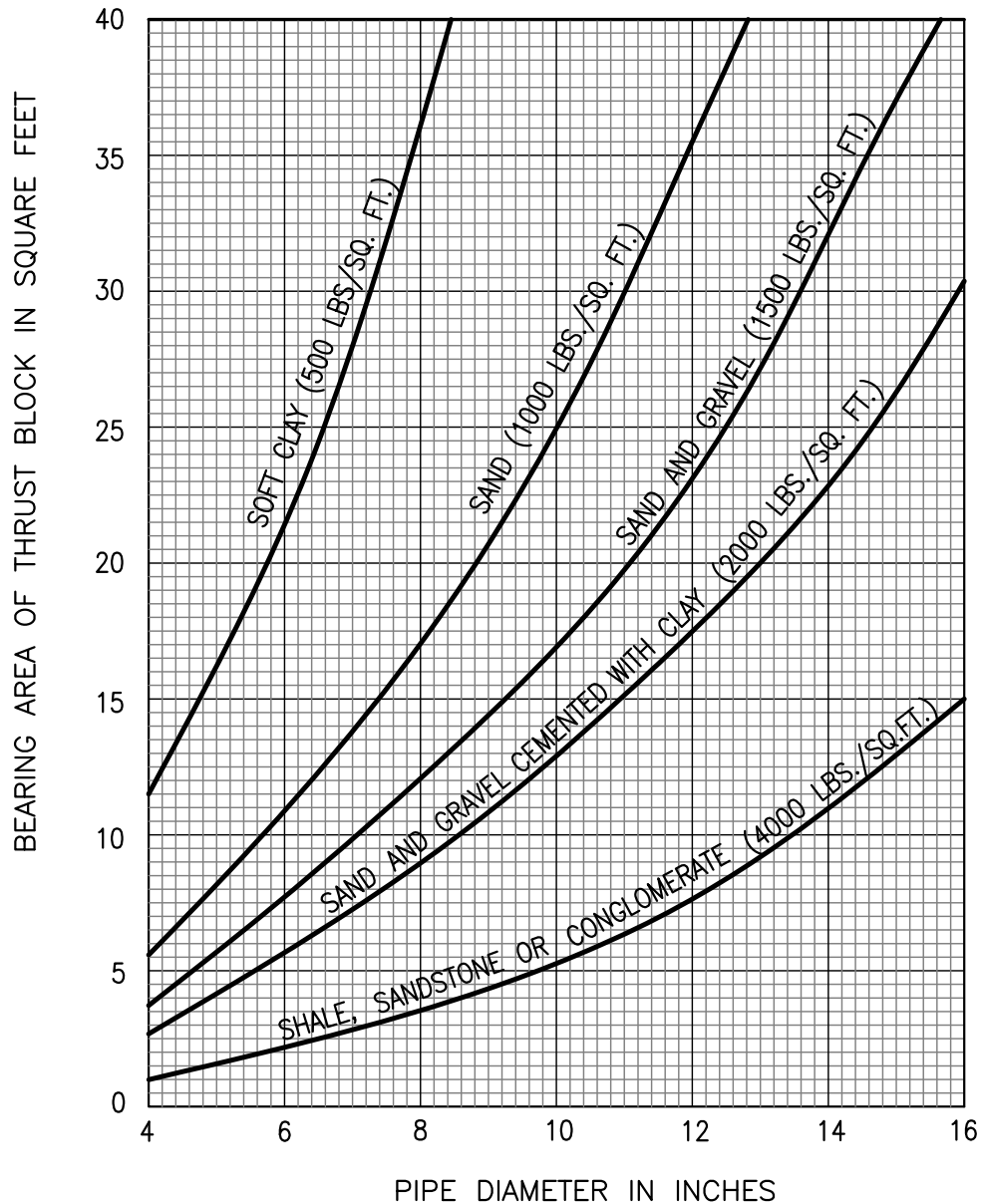
VERTICAL ANCHOR BLOCK

PIPE DIA.	BEND ANGLE	"W"	"D"
6"	11 1/4°	2'-0"	1'-0"
6"	22 1/2°	2'-0"	1'-3"
6"	45°	2'-0"	2'-6"
8"	11 1/4°	2'-8"	1'-2"
8"	22 1/2°	2'-8"	1'-4"
8"	45°	2'-8"	2'-8"
12"	11 1/4°	4'-0"	1'-2"
12"	22 1/2°	4'-0"	1'-4"
12"	45°	4'-0"	2'-8"
18"	11 1/4°	6'-0"	1'-2"
18"	22 1/2°	6'-0"	1'-4"
18"	45°	6'-0"	2'-8"



VERTICAL THRUST BLOCKS

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 W-08A



NOTES:

1. BASED ON A 225 PSI TEST PRESSURE AND BEARING VALUES OF DRY SOILS.
2. VALUES FROM CURVES ARE FOR TEES AND DEAD ENDS I.E. STRAIGHT LINE THRUST.
 FOR 90° BENDS: 1.4 x VALUE FROM CURVE
 FOR 45° BENDS: 0.8 x VALUE FROM CURVE
 FOR 22 ½° BENDS: 0.4 x VALUE FROM CURVE
3. FOR CONDITIONS NOT COVERED BY CURVES, THRUST DEVICES MUST BE APPROVED BY THE ENGINEER.
4. FOR LOCATION OF THRUST BLOCKS, SEE STANDARD DRAWING W-8 OR W-08A.
5. CONCRETE THRUST BLOCKS SHALL BE CONSTRUCTED OF CONCRETE PER APPROVED MATERIALS LIST.



THRUST BLOCK BEARING AREAS

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 W-08B

REQUIRED LENGTH OF RESTRAINED JOINTS

PIPE SIZE	END OR VALVE	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND
4"	18'	11'	5'	2'	1'
6"	27'	16'	7'	3'	2'
8"	35'	21'	9'	4'	2'
10"	42'	25'	10'	5'	3'
12"	48'	29'	12'	6'	3'
14"	45'	34'	14'	7'	3'
16"	63'	38'	16'	8'	4'
18"	70'	42'	17'	8'	4'
20"	77'	46'	19'	9'	5'
24"	90'	54'	22'	11'	5'
30"	109'	65'	27'	13'	6'
36"	125'	75'	31'	15'	7'

NOTES:

1. THE ABOVE REQUIREMENTS ARE FOR USE IN ADDITION TO REQUIRED THRUST BLOCKS.
2. RESTRAINED JOINTS WILL BE REQUIRED AT ALL FITTINGS, VALVES, AND ANY ADDITIONAL JOINT OCCURRING WITHIN THE GREATEST LENGTH SPECIFIED IN THE TABLE.
3. THE PIPE LENGTHS SHOWN ARE BASED ON A 100 PSI WORKING PRESSURE. FOR HIGHER PRESSURES, INCREASE THE PRESSURE RATIO TO 100.

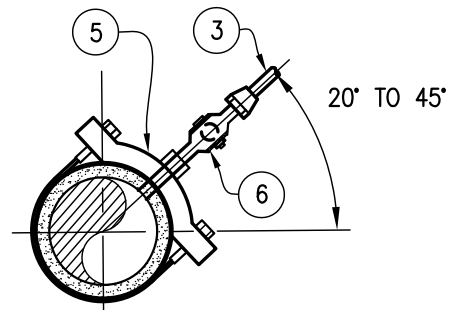


RESTRAINED JOINT REQUIREMENTS

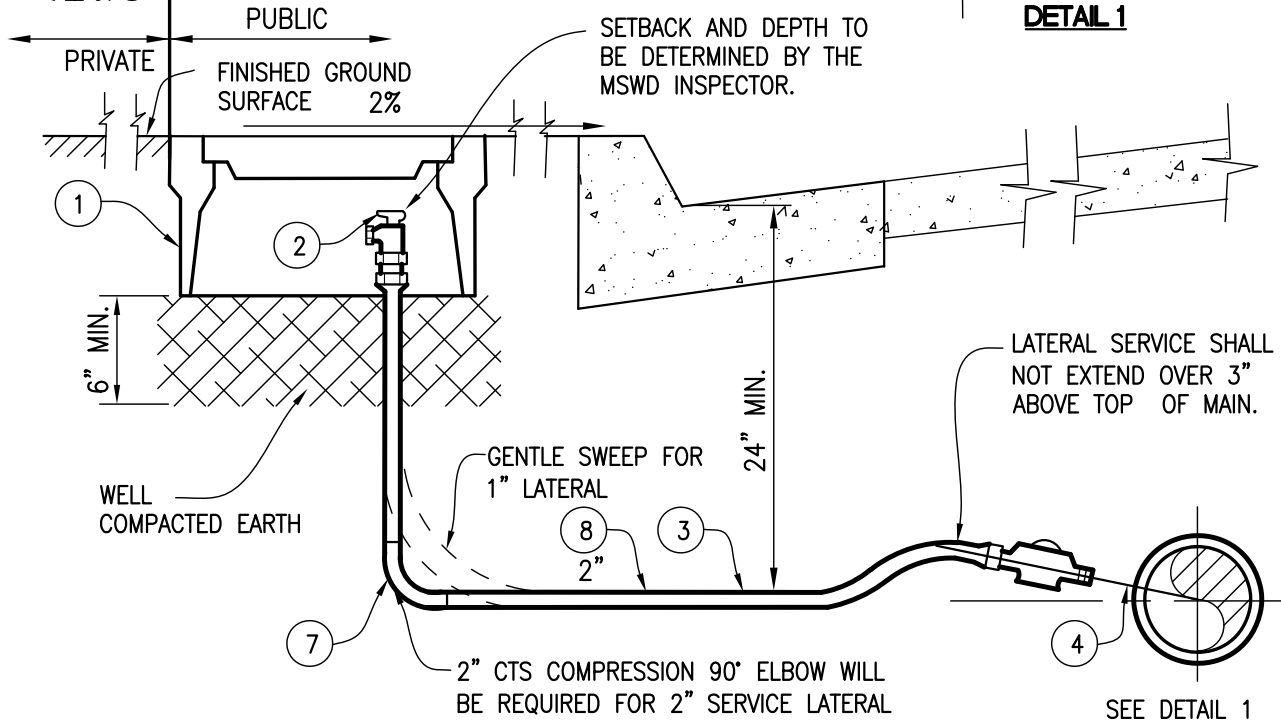
Approved:	_____	
	Brian Macy General Manager	
Drawn: MP	Date: 1/31/2024	
	DRAWING No. W-08C	

ALL IMPROVEMENTS ON THE PRIVATE SIDE OF THE METER SHALL BE THE RESPONSIBILITY OF THE OWNER, NOT MSWD.

PREFERRED LOCATION OF METER BOX, ALTERNATE LOCATION WILL REQUIRE PRIOR DISTRICT APPROVAL.



DETAIL 1



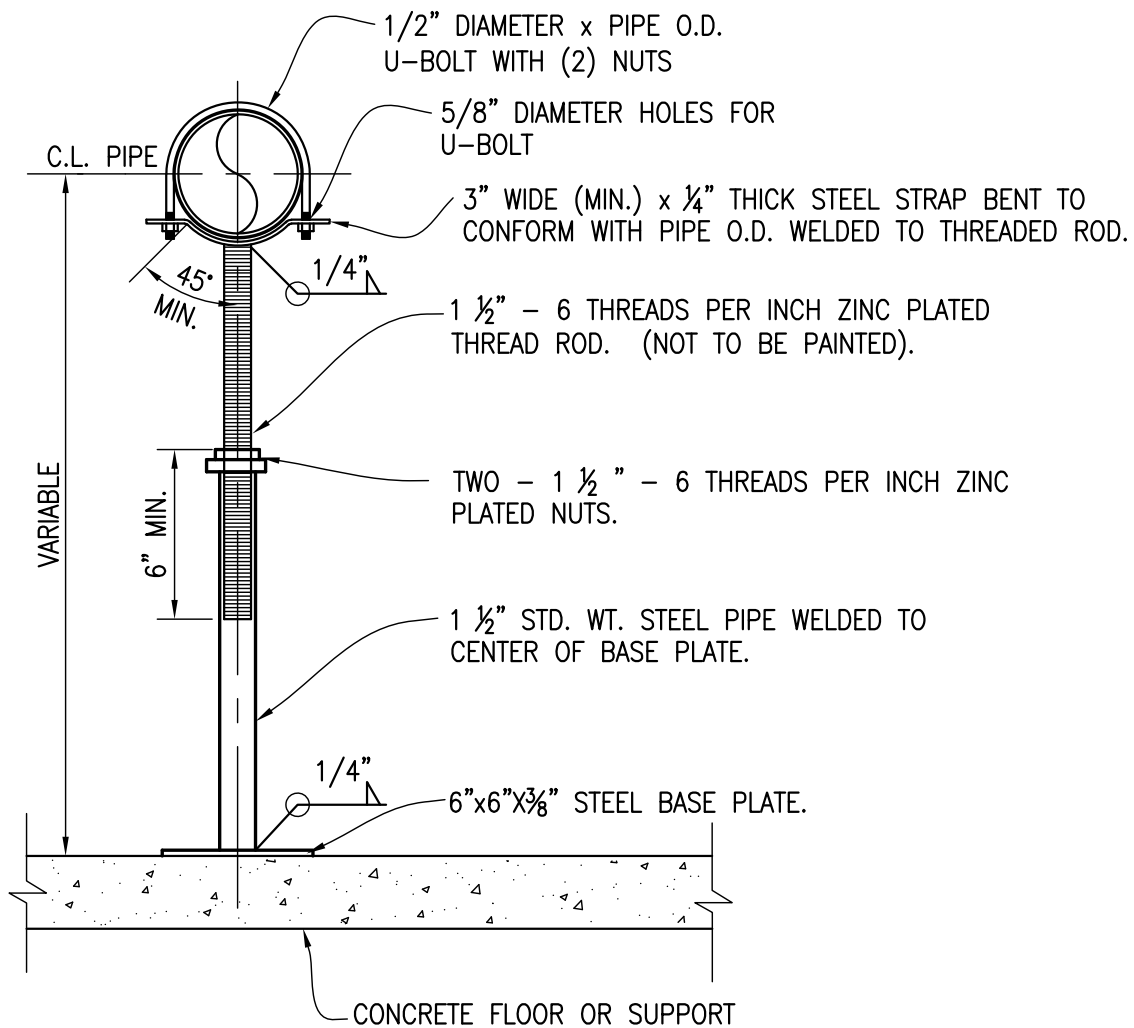
ITEM	No. Req'D.	DESCRIPTION	Mtl. #
①	1	D.F.W. GRAY POLYMER 5.25 OR 6B METER BOX AND READING LID	G-01 G-02
②	1	1" or 2" BALL ANGLE METER STOP	C-05-1 C-06-1
③	VARIABLE	1" or 2" x REQUIRED LENGTH TYPE "K" SOFT TEMPER COPPER	A-04-1 A-04-2
④	1	1" or 2" SERVICE CONNECTION. SEE DETAIL 1	N/A
⑤	1	BRONZE SERVICE SADDLE	L-01
⑥	1	1" OR 2" BALL CORP STOP, M.N.P.T. INLET x CTS OUTLET	C-01-1 C-02-2
⑦	1	2" CTS COMPRESSION ELBOW REQUIRED FOR 2" SERVICE	M-01-2
⑧	1	2" CTS x CTS COMPRESSION COUPLING REQUIRED FOR 2" SERVICE	M-02-2

NOTE:
PIPE THREADS SHALL BE CLEAN AND SHARP AND SEALED WITH AN APPROVED JOINT COMPOUND.



1" AND 2" DIAMETER
SERVICE LATERAL
INSTALLATION

Approved: _____
Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
W-09



NOTE:

1. 3"x 1/4" STEEL STRAP SHALL BE FORMED TO HAVE FULL & UNIFORM CONTACT FOR FULL 90°.
2. PAINT PER MSWD MATERIAL LIST U-02 UNLESS SPECIFIED OTHERWISE ON PLANS.

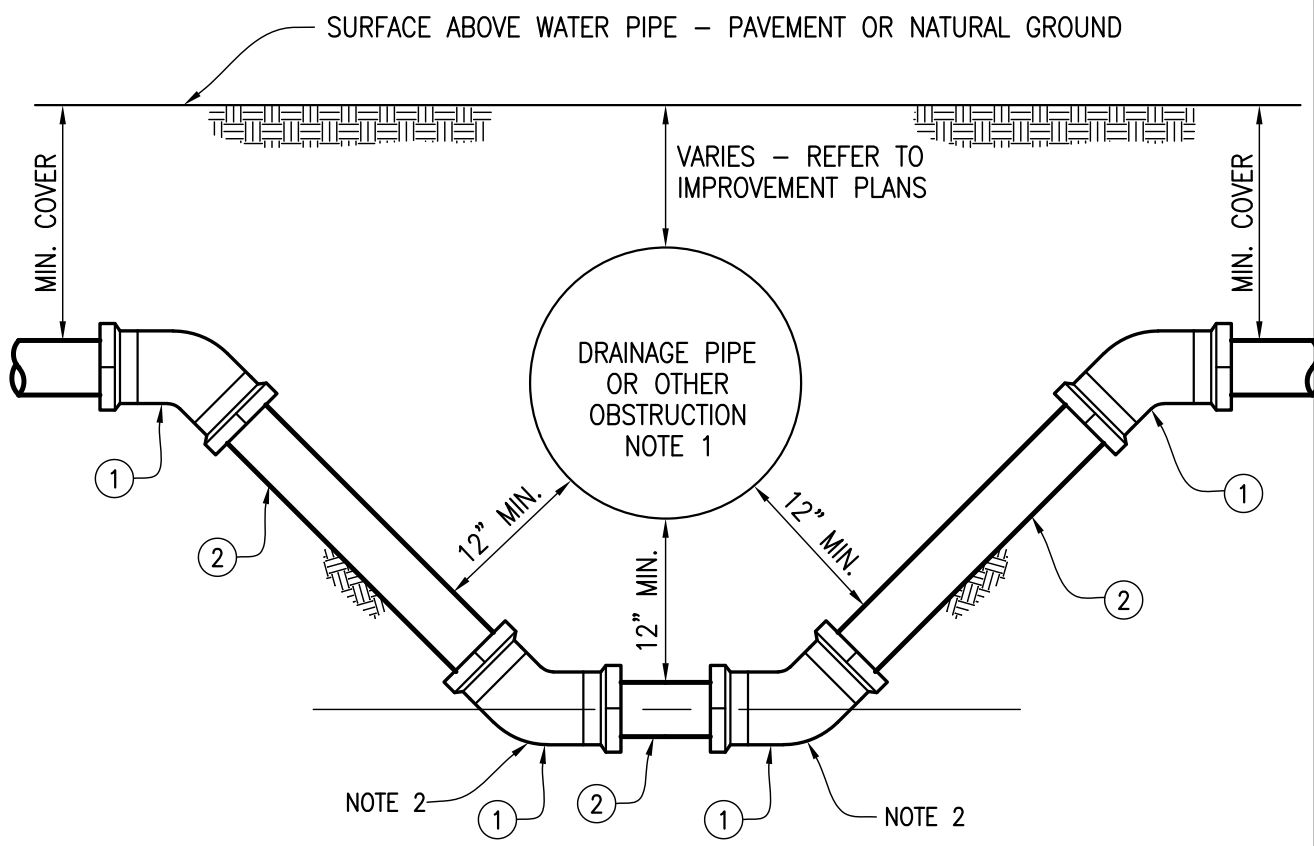


PIPE SUPPORT DETAIL

Approved: _____
 Brian Macy
 General Manager

Drawn: MP Date: 1/31/2024

DRAWING No.
 W-10



ITEM	No. Req'd.	SIZE & DESCRIPTION	MTL. LIST NO.
①	4	45° ELBOW - PIPE SIZE PER WATER PLAN	E-03-2
②	3	WATER PIPE - SIZE PER PLAN (LENGTH AS REQ'D)	A-03

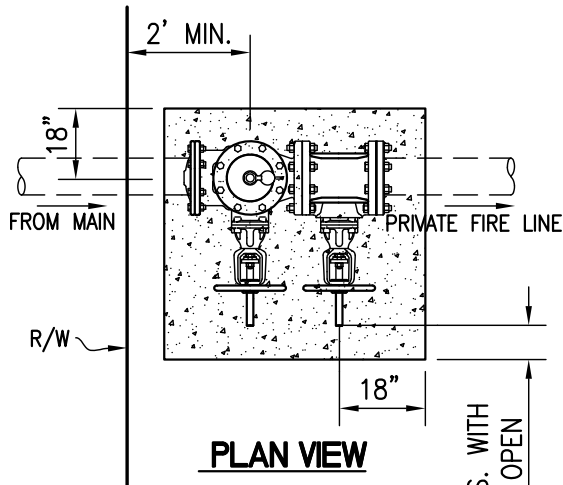
NOTES:

1. MINIMUM COVER SHALL BE 36" FOR 8" OR SMALLER PIPE, OR 48" FOR 12" OR LARGER PIPE OR FOR ANY PIPE IN UNPAVED AREAS.
2. DIMENSIONS AND DESCRIPTION AS SHOWN ON IMPROVEMENT PLANS AND/OR WATER PLANS. ALL FITTINGS SHOULD BE RESTRAINED JOINT M.J./PUSH-ON OR FLANGED.
3. PROVIDE THRUST BLOCKS PER STANDARD DWG NO. W-8 AND W-8A.
4. SPECIAL CROSSING AS SHOWN SHALL BE PROVIDED WHEREVER NOTED ON WATER PLANS OR WHERE CROSSING OVER OBSTRUCTION SHALL RESULT IN LESS THAN SPECIFIED MINIMUM COVER OVER WATER MAIN.
5. 2" BLOW-OFF SHALL BE PROVIDED PER STD. DWG. W-03 AT ALL UNDER-CROSSINGS.
6. AIR VALVE WILL BE REQUIRED IF UNDER-CROSSING CAUSES A HIGH POINT GREATER THAT ONE DIAMETER IN MAIN.



OBSTRUCTION UNDER CROSSING

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 W-11

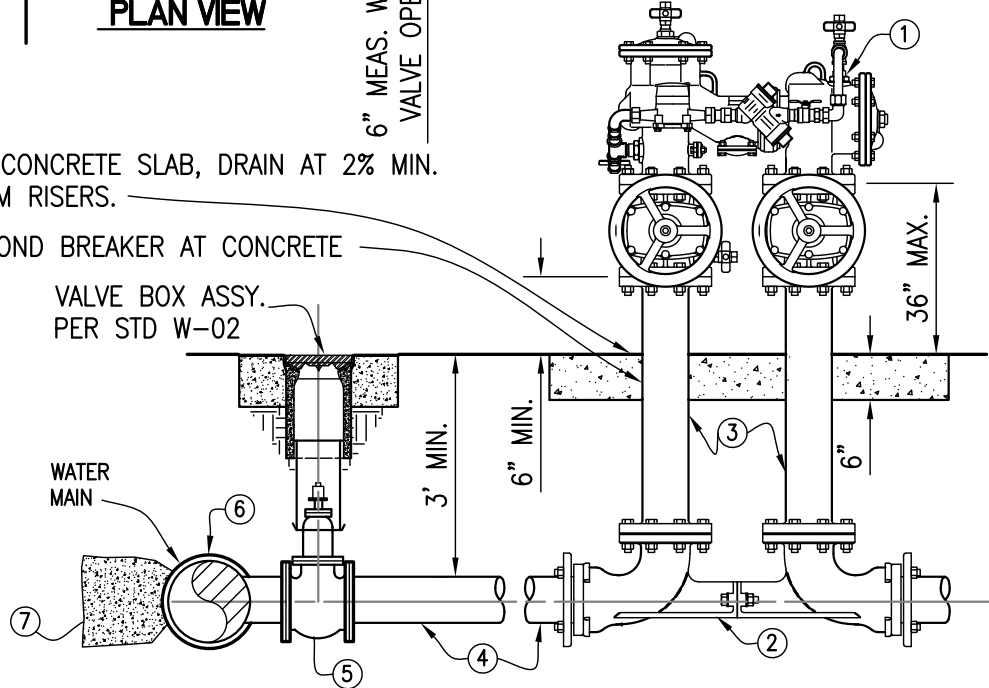


NOTES:

1. DETECTOR CHECK ASSEMBLY SHALL BE LOCATED ON PRIVATE PROPERTY OUTSIDE OF THE PUBLIC RIGHT-OF-WAY.
2. AREA WITHIN 2' OF VALVE ASSEMBLY SHALL BE MAINTAINED CLEAR OF ANY OBSTRUCTIONS TO ALLOW FOR INSPECTION AND MAINTENANCE.
3. DETECTOR CHECK ASSEMBLY BELONGS TO THE PRIVATE PROPERTY OWNER BUT WILL BE TESTED AND MAINTAINED BY THE DISTRICT AT THE OWNER'S EXPENSE.
4. MASK ALL COPPER, BRASS, NAME PLATES, AND METER ASSEMBLY AND PAINT DUCTILE IRON PER MSWD MATERIAL LIST U-02 DESERT TAN AND VALVE HANDLES U-03 SAFETY RED.

3250 PSI CONCRETE SLAB, DRAIN AT 2% MIN. AWAY FROM RISERS.

PROVIDE BOND BREAKER AT CONCRETE



DETAIL SECTION

ITEM	No. Req'D.	DESCRIPTION	Matl. List#
①	1	4", 6", 8", OR 10" DOUBLE CHECK DETECTOR VALVE ASSEMBLY INCLUDING O.S.&Y. GATE VALVES	K-02-1
②	1	D.C.D.A. SIZE & MFR VALVE SETTER ASSEMBLY	K-02-2
③	2	D.C.D.A. SIZE D.I.P. FLANGED SPOOL, LENGTH AS REQUIRED	E-03-3
④	VARIES	D.C.D.A. SIZE DUCTILE IRON PIPE, LENGTH AS REQUIRED	A-03-1
⑤	1	D.C.D.A. SIZE GATE VALVE	B-01-2
⑥	1	MAIN SIZE x D.C.D.A. SIZE TEE	E-03-1
⑦	1	CONCRETE THRUST BLOCK PER W-08	N-02



4", 6", 8", OR 10" DOUBLE CHECK
 DETECTOR
 VALVE ASSEMBLY
 FOR ALL NEW INSTALLATIONS

Approved:

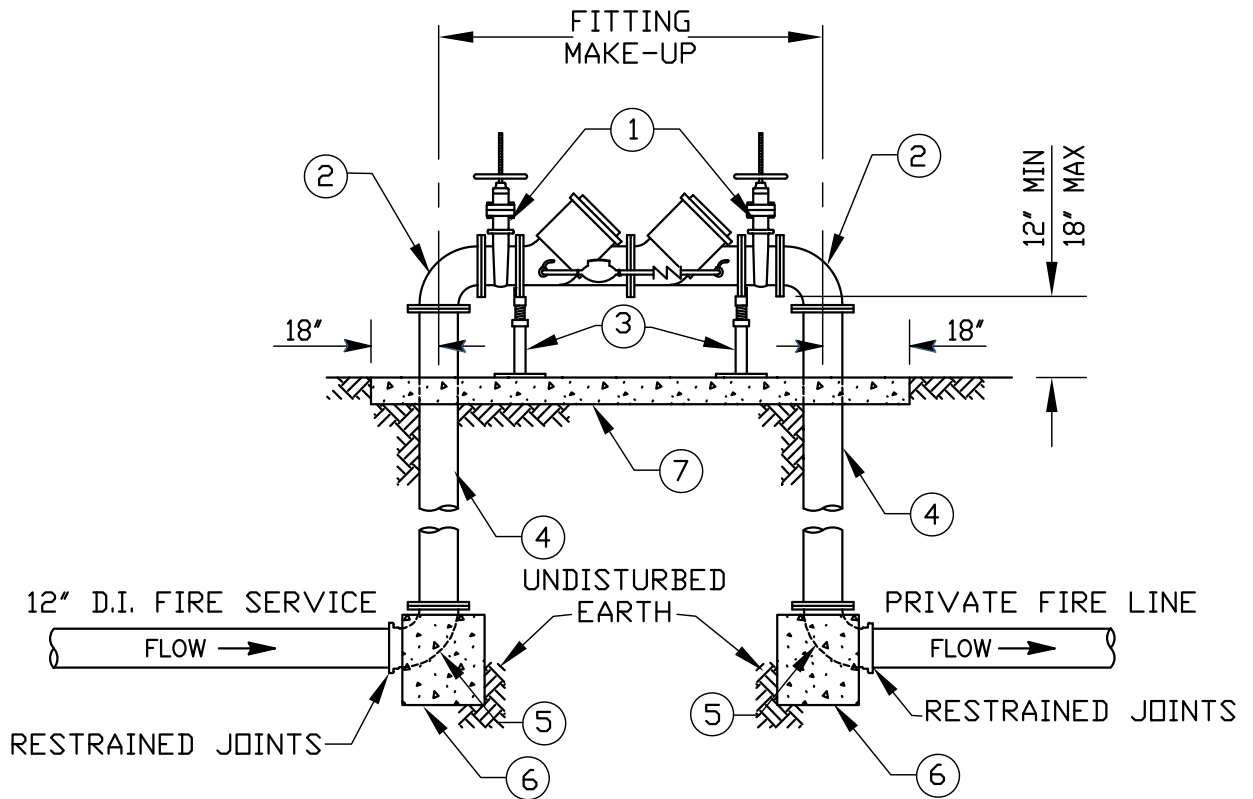
Brian Macy
 General Manager

Drawn: MP

Date: 1/31/2024

DRAWING No.

W-12



NOTES:

1. DETECTOR CHECK ASSEMBLY SHALL BE LOCATED ON PRIVATE PROPERTY 2' MIN. OUTSIDE OF THE PUBLIC RIGHT-OF-WAY.
2. AREA WITHIN 2' OF DCDA SLAB SHALL BE MAINTAINED CLEAR OF ANY OBSTRUCTIONS TO ALLOW FOR INSPECTION AND MAINTENANCE.
3. DETECTOR CHECK ASSEMBLY BELONGS TO THE PRIVATE PROPERTY OWNER BUT WILL BE TESTED AND MAINTAINED BY THE DISTRICT AT THE OWNERS EXPENSE.
4. ALL BRASS, METER AND NAME PLATES SHALL BE MASKED PRIOR TO PAINTING ALL DUCTILE IRON AND VALVES DESERT TAN PER MSWD MATERIAL LIST U-02 AND VALVE HANDLES SAFETY RED PER U-03.

ITEM	No. Req'D.	DESCRIPTION	Matl. List#
①	1	12" DOUBLE CHECK DETECTOR VALVE ASSEMBLY INCLUDING O.S.&Y. GATE VALVES	K-02-3
②	2	FLANGE x FLANGE DUCTILE IRON CEMENT MORTAR LINED 90° BEND	E-03-1
③	2	PIPE SUPPORTS PER MSWD STD. DWG. W-10, HEIGHT AS REQUIRED	N/A
④	2	FLANGE x FLANGE DUCTILE IRON CEMENT MORTAR LINED SPOOL	E-03-3
⑤	2	FLANGE x MJ RESTRAINED JOINT CEMENT MORTAR LINED 90° BEND	E-03-2
⑥	2	CONCRETE THRUST/ANCHOR BLOCK PER STD. DWG. W-08 & W-08A	N-02
⑦	1	4' WIDE x 6" THICK 3250 PSI CONCRETE SLAB 2% MIN. SLOPE	N-02



12" DOUBLE CHECK DETECTOR
ASSEMBLY INSTALLATION
MSWD PRIOR APPROVAL

Approved:

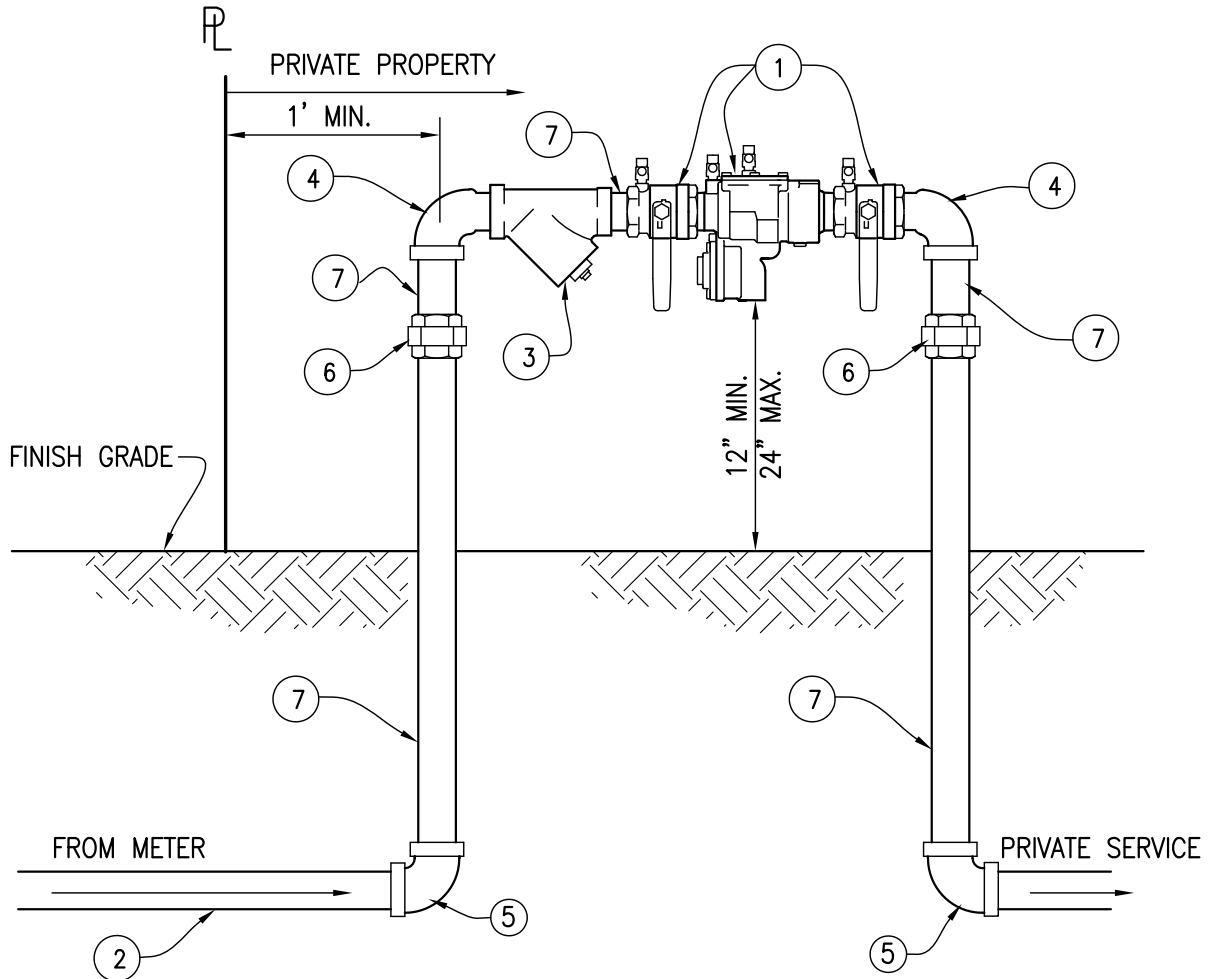
Brian Macy
General Manager

Drawn: MP

Date: 1/31/2024

DRAWING No.

W-13



NOTES:

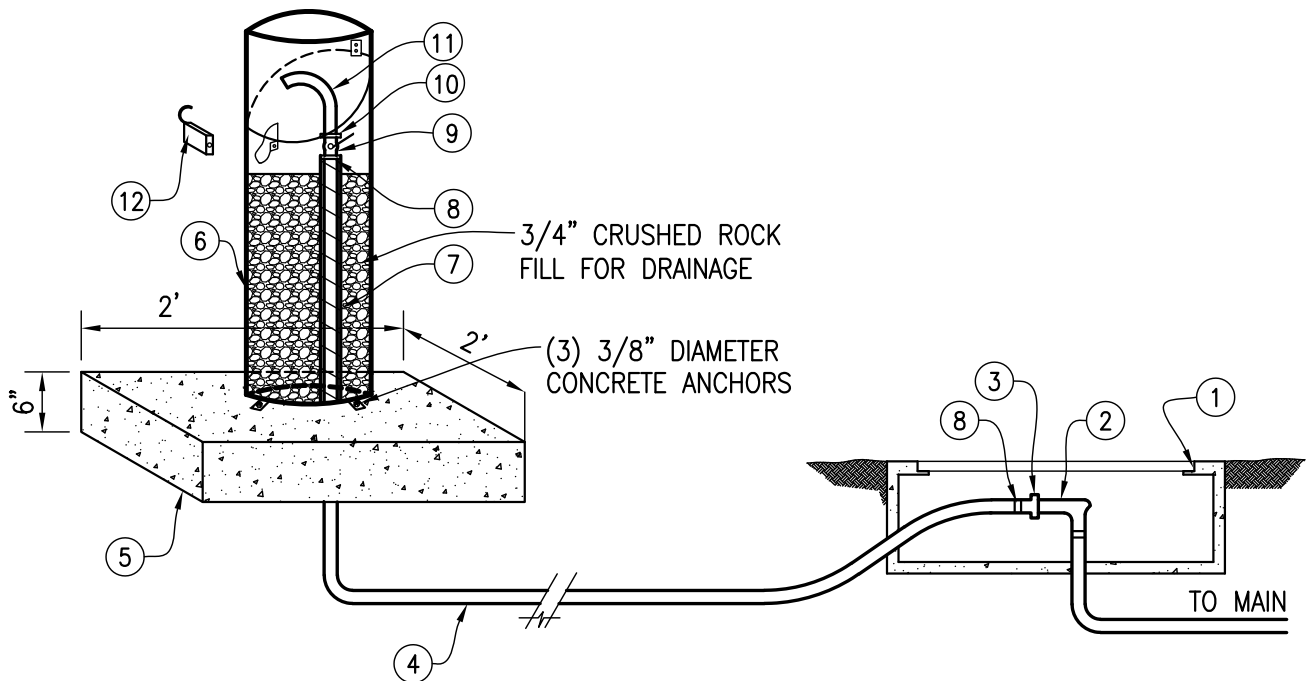
1. ALL PIPE AND FITTINGS TO BE THE SAME SIZE AS THE METER AND BACKFLOW PREVENTER ASSEMBLY.
2. DISTANCE FROM THE METER TO THE BACKFLOW DEVICE SHALL BE 3' MAXIMUM WITHOUT MSWD APPROVAL.
3. ASSEMBLY CAN BE PAINTED GRAY FOR DOMESTIC WATER SERVICE OR DARK GREEN OR TAN FOR LANDSCAPE SERVICE.
4. PROTECTIVE CAGE MAY BE INSTALLED AT THE OWNERS DISCRETION SO LONG AS MSWD HAS ACCESS FOR TESTING.

ITEM #	REQ'D	DESCRIPTION	MTL. #
①	1	REDUCED PRESSURE BACKFLOW PREVENTER ASSYMBLY	K-01-1
②	VAR.	HARD BRASS PIPE 3' MAXIMUM	A-05-1
③	1	BRONZE WYE STRAINER	M-08
④	2	EXTRA HEAVY BRASS 90° STREET ELBOW	M-10
⑤	2	EXTRA HEAVY N.P.T. BRASS 90° ELBOW	M-11
⑥	2	EXTRA HEAVY BRASS UNION	M-12
⑦	5	EXTRA HEAVY BRASS PIPE NIPPLE N.P.T. x. VARIES	A-05-1



3/4", 1", 1 1/2", OR 2" REDUCED PRESSURE BACKFLOW PREVENTER

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 W-14



ITEM	# REQ'D	DESCRIPTION	MTL. #
①	1	D.F.W. GRAY 5.25 POLYMER METER BOX AND LID	G-02
②	1	1" BALL ANGLE STOP	C-05-1
③	1	1" x 3/4" BRASS METER ADAPTER	P-04
④	VARIES	3/4" TYPE K COPPER TUBE	A-04-1
⑤	1	24" x 24" x 6" CEMENT PAD	N-02
⑥	1	SAMPLE STATION CANISTER, WTS 858 OR EQUAL	P-02
⑦	VARIES	PLUMBING INSULATION	N-20
⑧	2	3/4" M.P.T. x 3/4" CTS FERRULE FITTING	P-07
⑨	1	3/4" FULL PORT BRASS BALL VALVE	P-03
⑩	1	3/4" M.P.T. x 3/8" CTS FERRULE FITTING	P-01
⑪	1	3/8" COPPER GOOSE NECK	A-04-3
⑫	1	MASTER PADLOCK SUPPLIED BY MSWD	N/A
⑬	Varies	MSWD DESERT SAND PAINT FOR CANISTER ITEM *	U-02



BACTERIOLOGICAL SAMPLE
STATION DETAIL
M.S.W.D. APPROVAL

Approved:

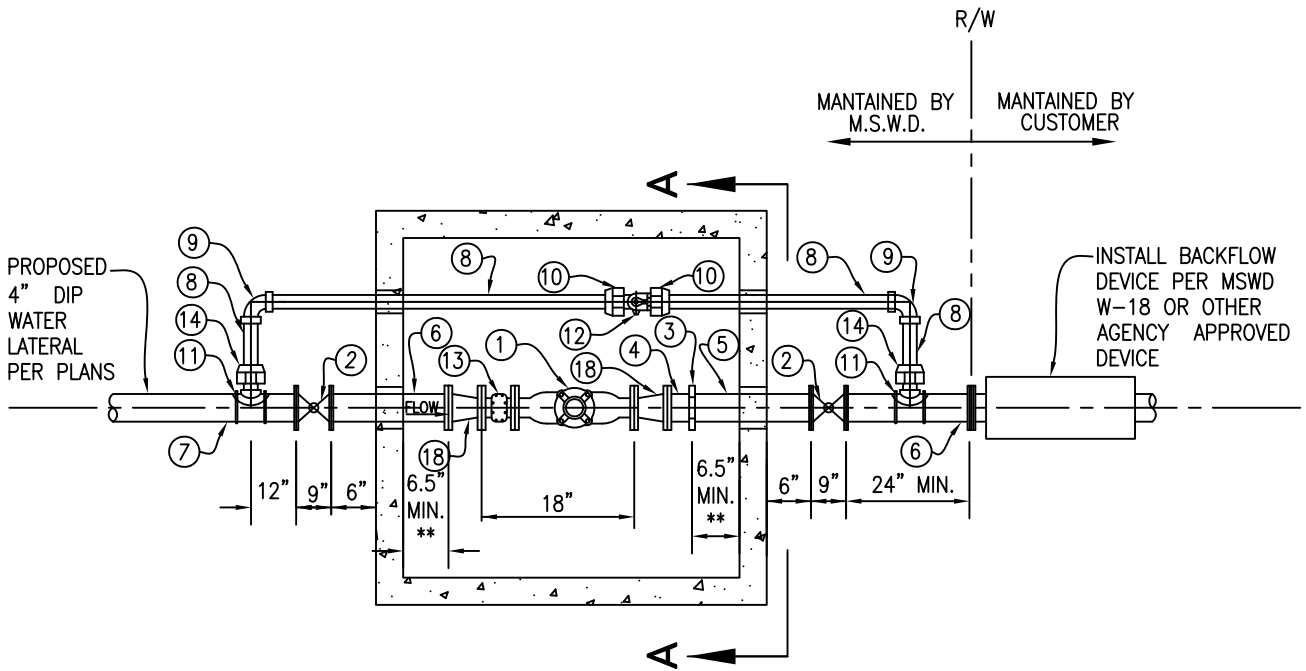
Brian Macy
General Manager

Drawn: MP

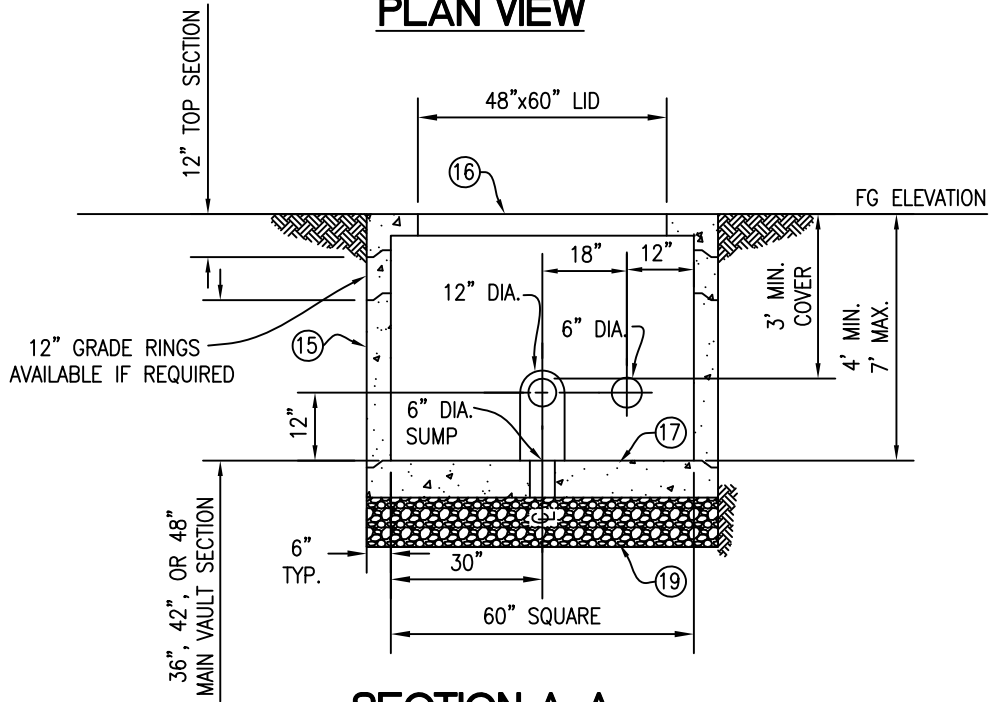
Date: 1/31/2024

DRAWING No.

W-15



PLAN VIEW



SECTION A-A

SEE W-16A FOR NOTES AND MATERIAL LIST



MSWD VAULT DETAIL
3" WATER METER INSTALLATION

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP date: 1/31/2024
 DRAWING No.
 W-16

MATERIAL LIST

ITEM	QTY.	DESCRIPTION	MATL. LIST #
①	1	M.S.W.D. TO PROVIDE METER AT CONTRACTOR EXPENSE	F-01
②	2	4" RESILIENT SEAT FLANGED GATE VALVE	B-01-2
③	1	4" STYLE 77 VICTAULIC COUPLING	N-19
④	1	4" DIP FLG. x VICTAULIC SPOOL x 6" LONG	E-03-3
⑤	1	4" DIP FLG X VICTAULIC SPOOL (LENGTH VARIES)	E-03-3
⑥	2	4" FLANGED DIP SPOOL (LENGTH VARIES)	E-03-3
⑦	LF	4" DIP PIPE (FLANGED END)	E-03-3
⑧	15±	2" COPPER TUBING TYPE K	A-04-2
⑨	2	2" x 90° BRONZE CTS COMPRESSION	M-02-2
⑩	2	2" BRONZE CTS COMPRESSION x 2" MALE IRON PIPE THREAD (MIPT) ADAPT.	M-07-1
⑪	2	4" x 2" BRONZE DOUBLE STRAP SERVICE SADDLE PER MSWD W-09	L-01
⑫	1	2" BRASS CURB BALL STOP - FIPTxFIPT	C-04-1
⑬	1	M.S.W.D. TO PROVIDE STRAINER AT CONTRACTOR EXPENSE	F-02
⑭	2	2" MIPT x 2" CTS COMPRESSION BALL CORP. STOP	C-01-2
⑮	1	60"x 60" ID UTILITY BOX/VAULT	G-05
⑯	1	TORSION SPRING 2-PC LID: PARKWAY OR TRAFFIC COVER (ALUMINUM). 2" DIAMETER READ HOLE TO BE HOLE SAW CUT PER LOCATED PER M.S.W.D. INSPECTORS DIRECTION	G-05
⑰	1	PRECAST CONCRETE BASE W/6" SUMP	G-05
⑱	2	4" x 3" ECCENTRIC DIP FLANGED REDUCER	E-03-1
⑲	36 CF	12" THICK CRUSHED ROCK BASE	N/A

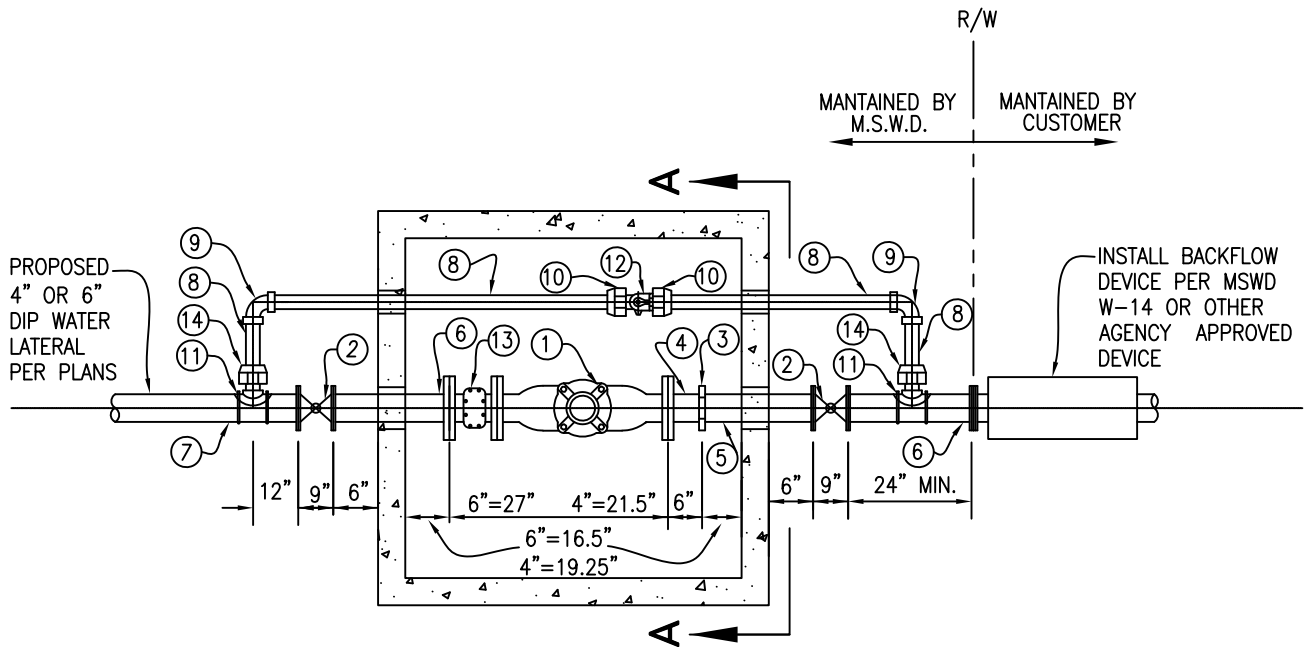
NOTES:

- **
1. PROVIDE METER SUPPORT AS REQUIRED.
 2. METER DIMENSIONS MAY VARY. CONTRACTOR SHALL VERIFY METER DIMENSIONS AND VARY CLEARANCE DIMENSIONS TO CENTER METER AND STRAINER IN UTILITY BOX WITH SPECIFIED CLEARANCES.
 3. CABLE FOR METER REGISTER SHALL BE 20' LENGTH.
 4. VAULT SHALL BE 60"x 60" J&R PRODUCTS NO. 1289 OR APPROVED EQUAL.
 5. READ HOLE SHALL BE CUT WITH A 2" DIAMETER HOLE SAW AT A LOCATION DIRECTED BY THE INSPECTOR.
 6. VAULT LID TO BE "U.S.F." 4' x 5' TPD, ALUMINUM DIAMOND PLATE, SPRING ASSIST PARKWAY COVER WITH S.S. STANDARD HARDWARE & OVERSIZED RECESSED PADLOCK HASP. OR APPROVED EQUAL.
 7. ALL MATERIALS PER MSWD APPROVED MATERIAL LIST.
 8. DEPTH OF METER SHALL BE 5 FT. MAX. FROM VAULT LID TO TOP OF METER AND STRAINER ASSEMBLY.
 9. PROVIDE A MINIMUM OF 4" CLEARANCE BETWEEN PIPE AND KNOCK OUT HOLE WITH A MINIMUM OF 6" CLEARANCE ABOVE THE VAULT FLOOR.

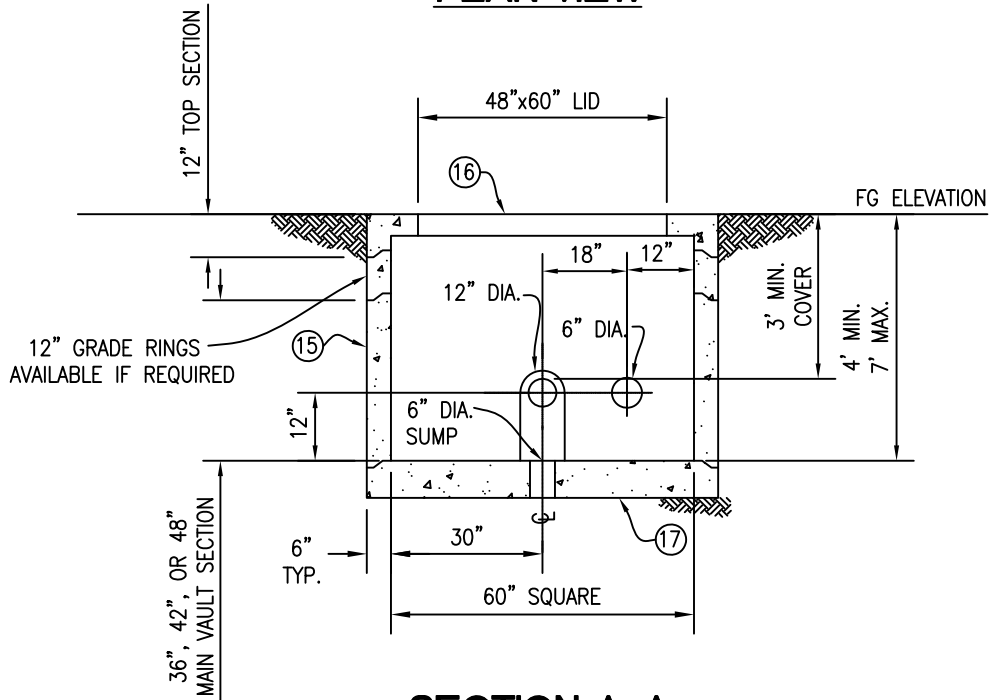


MSWD VAULT DETAIL
3" WATER METER INSTALLATION
NOTES AND MATERIAL LIST

Approved: _____
Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
W-16A



PLAN VIEW



SECTION A-A

SEE W-17A FOR NOTES AND MATERIAL LIST



MSWD VAULT DETAIL
4" OR 6" WATER METER
INSTALLATION

Approved: Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
W-17

MATERIAL LIST

ITEM	QTY.	DESCRIPTION	MATL. LIST #
①	1	M.S.W.D. TO PROVIDE METER AT CONTRACTOR EXPENSE	F-01-1
②	2	4" OR 6" RESILIENT SEAT FLANGED GATE VALVE	B-01.2
③	1	4" OR 6" VICTAULIC COUPLING	N-19
④	1	4" OR 6" x 6" LONG FLG. X VICTAULIC DIP SPOOL	E-03-3
⑤	1	4" OR 6" DIP FLG X VICTAULIC SPOOL (LENGTH VARIES)	E-03-3
⑥	2	4" OR 6" FLANGED DIP SPOOL (LENGTH VARIES)	E-03-3
⑦	LF	4" OR 6" DIP PIPE (FLANGED END)	E-03-3
⑧	15±	2" COPPER TUBING TYPE K	A-04-2
⑨	2	2" x 90° BRONZE CTS COMPRESSION	M-02-2
⑩	2	2" BRONZE CTS COMPRESSION x 2" MALE IRON PIPE THREAD (MIPT) ADAPT.	M-07-1
⑪	2	4" x 2" BRONZE DOUBLE STRAP SERVICE SADDLE PER MSWD W-09	L-01
⑫	1	2" BRASS CURB BALL STOP - FIPTxFIPT	C-04-1
⑬	1	M.S.W.D. TO PROVIDE STRAINER AT CONTRACTOR EXPENSE	F-02-1
⑭	2	2" MIPT x 2" CTS COMPRESSION BALL CORP. STOP	C-01-2
⑮	1	UTILITY BOX/VAULT **	G-05
⑯	1	TORSION SPRING 2-PC LID: PARKWAY OR TRAFFIC COVER (ALUMINUM). 2" DIAMETER READ HOLE TO BE HOLE SAW CUT PER LOCATED PER M.S.W.D. INSPECTORS DIRECTION	G-05
⑰	1	PRECAST CONCRETE BASE W/8" SUMP ****	G-05
⑱	36 CF	12" THICK 3/4" CRUSHED ROCK BASE	N/A

NOTES:

1. PROVIDE METER SUPPORT AS REQUIRED.
- ** 2. METER DIMENSIONS MAY VARY. CONTRACTOR SHALL VERIFY METER DIMENSIONS AND VARY CLEARANCE DIMENSIONS TO CENTER METER AND STRAINER IN UTILITY BOX WITH SPECIFIED CLEARANCES.
3. CABLE FOR METER REGISTER SHALL BE 20' LENGTH.
4. VAULT SHALL BE 60"x 60" J&R PRODUCTS NO. 1289 OR APPROVED EQUAL.
5. READ HOLE SHALL BE CUT WITH A 2" DIAMETER HOLE SAW AT A LOCATION DIRECTED BY THE INSPECTOR.
6. VAULT LID TO BE "U.S.F." 4' x 5' TPD, ALUMINUM DIAMOND PLATE, SPRING ASSIST PARKWAY COVER WITH S.S. STANDARD HARDWARE & OVERSIZED RECESSED PADLOCK HASP. OR APPROVED EQUAL.
7. ALL MATERIALS PER MSWD APPROVED MATERIAL LIST.
8. DEPTH OF METER SHALL BE 5 FT. MAX. FROM VAULT LID TO TOP OF METER AND STRAINER ASSEMBLY.
9. PROVIDE A MINIMUM OF 4" CLEARANCE BETWEEN PIPE AND KNOCK OUT HOLE WITH A MINIMUM OF 6" CLEARANCE ABOVE THE VAULT FLOOR.

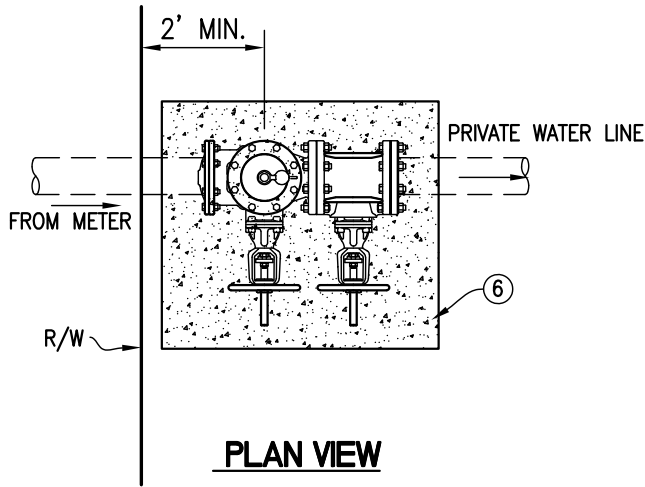


MSWD VAULT DETAIL
4" OR 6" WATER METER
INSTALLATION NOTES AND
MATERIAL LIST

Approved: _____
Brian Macy
General Manager

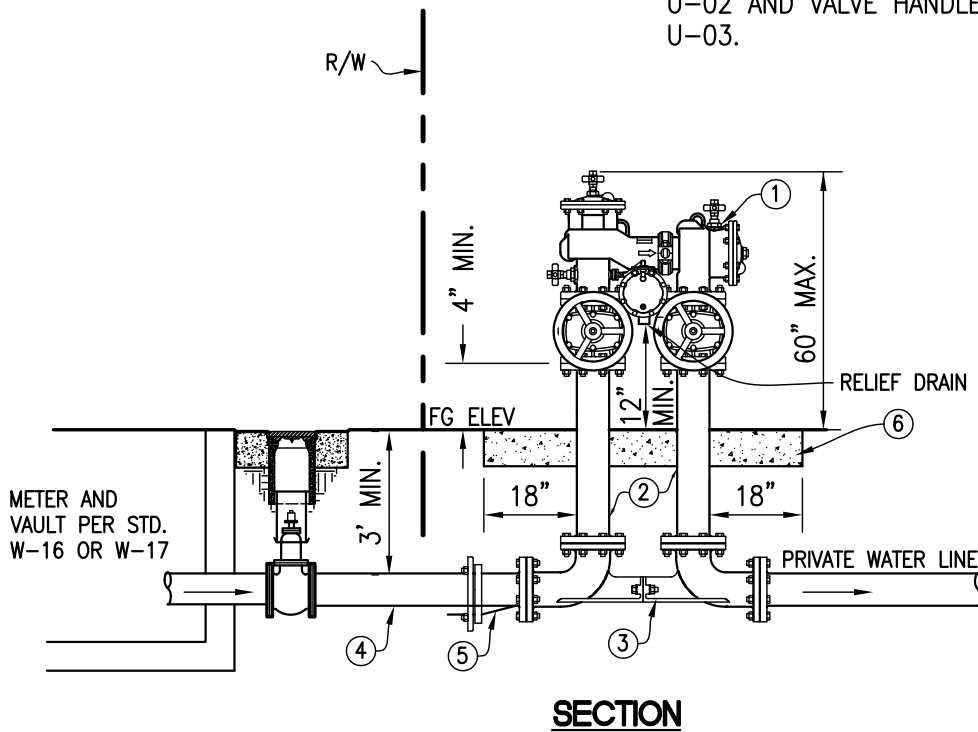
Drawn: MP _____ Date: 1/31/2024

DRAWING No.
W-17A



NOTES:

1. REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY SHALL BE LOCATED ON PRIVATE PROPERTY OUTSIDE OF THE PUBLIC RIGHT-OF-WAY.
2. 6" THICK CONCRETE HOUSE KEEPING PAD SHALL EXTEND 18" OUTSIDE OF ASSEMBLY ON ALL SIDES TO ALLOW FOR INSPECTION AND MAINTENANCE AND SHALL SLOPE 2% AWAY FROM RISERS.
3. R.P. ASSEMBLY BELONGS TO THE PRIVATE PROPERTY OWNER BUT WILL BE TESTED AND MAINTAINED BY THE DISTRICT AT THE OWNER'S EXPENSE.
4. ALL BRASS AND NAMEPLATES SHALL BE MASKED AND ALL DUCTILE IRON SHALL BE PAINTED MSWD DESERT TAN PER MATERIAL LIST U-02 AND VALVE HANDLES SAFETY RED PER U-03.

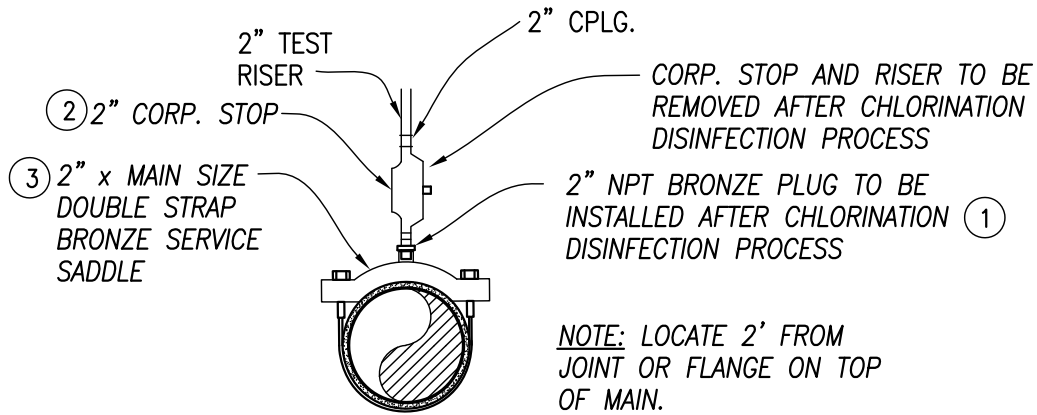


ITEM	No. Req'D.	DESCRIPTION	Matl. List#
①	1	METER SIZE REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY	K-01-2
②	2	METER SIZE DUCTILE IRON FLANGED SPOOL, LENGTH AS REQUIRED	E-03-3
③	1	METER SIZE FLG.xFLG. VALVE SETTER ASSEMBLY (BY R.P. MFR.)	K-01-3
④	VARIES	METER SIZE OR 4" MIN. D.I.P PIPE SPOOL, LENGTH AS REQUIRED	E-03-3
⑤	1*	4"x 3" D.I. ECCENTRIC REDUCER TOP FLAT, FOR 3" METER SIZE ONLY	E-03-1
⑥	VARIES	6" THICK 3250 PSI CONCRETE HOUSE KEEPING SLAB	N-02



3", 4", AND 6" REDUCED PRESSURE BACKFLOW PREVENTER

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 W-18



ELEVATION VIEW

ITEM	No. Req'D.	DESCRIPTION	Matl. List#
①	1	2" DOMESTIC M.N.P.T. BRONZE PLUG	M-09
②	1	2" BALL CORP STOP, M.N.P.T. INLET AND OUTLET	C-02-2
③	1	2" x MAIN SIZE DOUBLE STRAP BRONZE SERVICE SADDLE	L-01

NOTES:

1. PIPE THREADS SHALL BE CLEAN AND SHARP AND SEALED WITH AN APPROVED JOINT COMPOUND.
2. RISER SHALL INCLUDE SHUT-OFF VALVE AND FITTINGS AS NEEDED.
3. ASSEMBLY SHALL BE PROTECTED WITHIN PVC RISER CAPPED WITH A TRAFFIC COVER AS APPROVED BY THE MSWD INSPECTOR WHEN LOCATED WITHIN A STREET OR OTHER AREA SUBJECT TO TRAFFIC.



TEMPORARY CHLORINATION POINT
(T.C.P.)

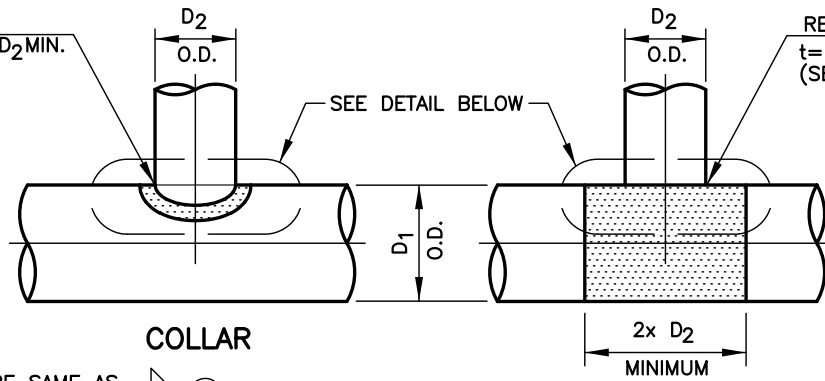
Approved: _____
 Brian Macy
 General Manager

Drawn: MP Date: 1/31/2024

DRAWING No.
 W-19

REINFORCING COLLAR
 I.D. = D_2 , O.D. = $2 \times D_2$ MIN.
 t = THICKNESS
 (SEE CHART BELOW)

REINFORCING WRAPPER
 t = THICKNESS
 (SEE CHART BELOW)



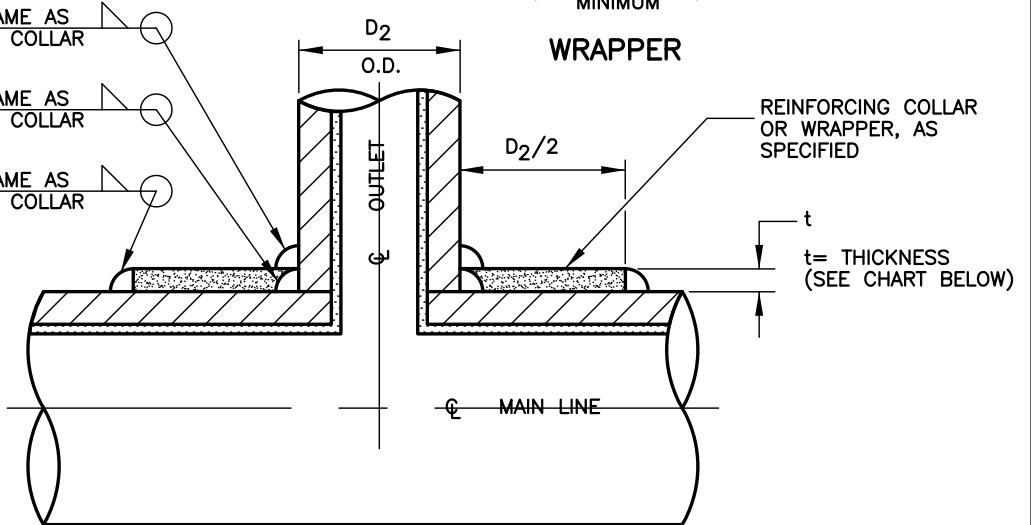
COLLAR

WRAPPER

SIZE OF WELD SHALL BE SAME AS THICKNESS OF REINFORCING COLLAR OR WRAPPER

SIZE OF WELD SHALL BE SAME AS THICKNESS OF REINFORCING COLLAR OR WRAPPER

SIZE OF WELD SHALL BE SAME AS THICKNESS OF REINFORCING COLLAR OR WRAPPER



DETAIL

REINFORCING COLLAR		
D_1 (INCHES MIN.)	D_2 (INCHES MIN.)	t (INCHES MIN.)
10	4	0.1345
12	4	0.1345
14	4-6	0.1345
16	4-6	0.1345
18	4-8	0.1345
20	4-8	0.1345
24	4-10	0.1875
30	4-14	0.2500
36	4-16	0.3125
42	4-20	0.3125

REINFORCING WRAPPER		
D_1 (INCHES MIN.)	D_2 (INCHES MIN.)	t (INCHES MIN.)
4-8	4-8	0.1345
10	6-10	0.1345
12	6-12	0.1345
14	8-14	0.1345
16	8-16	0.1345
18	10-18	0.1345
20	10-20	0.1345
24	12-24	0.1875
30	16-30	0.2500
36	18-36	0.3125
42	24-42	0.3125

SEE DWG W-20B FOR NOTES



CML/CMC STEEL OR STEEL PIPE
 TAP CONNECTION

Approved: _____
 Brian Macy
 General Manager
 Drawn: MP Date: 1/31/2024
 DRAWING No.
 W-20A

INSTALLATION NOTES FOR TAPS LARGER THAN 4"

1. ALL WORK SHALL BE PERFORMED UNDER DIRECT MSWD INSPECTION.
2. NO TAPS OR CONNECTIONS SHALL BE MADE WITHIN 2' OF A BELL OR CONNECTION.
3. ALL EXISTING MORTAR COATING SHALL BE REMOVED FROM THE PIPE IN AREAS TO BE WELDED, STEEL SHALL BE FREE OF ANT DIRT, OILS, AND RUST PRIOR TO WELDING.
4. THIS METHOD CAN BE USED FOR PERFORMING HOT TAPS BY USE OF A CML/CMC FLANGED FITTING.
5. ALL WELDING SHALL BE PERFORMED BY A CERTIFIED WELDER APPROVED FOR WORK ON PUBLIC WATER SYSTEMS.
6. AFTER COMPLETION OF ALL WELDING, PIPES AND WELDS SHALL BE CLEANED AND FREE OF ANY LOOSE SLAG, GREASE, OILS, DIRT, OR OTHER CONTAMINATION TO THE SATISFACTION OF THE INSPECTOR.
7. ALL EXPOSED STEEL SHALL THEN BE REPAIRED WITH REINFORCED MORTAR AS SPECIFIED BELOW.

INSTALLATION NOTES 1" AND 2" TAPS

1. ALL WORK SHALL BE PERFORMED UNDER DIRECT MSWD INSPECTION.
2. NO TAPS OR CONNECTIONS SHALL BE MADE WITHIN 2' OF A BELL OR CONNECTION.
3. ALL EXISTING MORTAR COATING SHALL BE REMOVED FROM THE PIPE IN AREAS TO BE WELDED, STEEL SHALL BE FREE OF ANY DIRT, OILS, AND RUST PRIOR TO WELDING.
4. STANDARD STEEL NPT THREADED HALF COUPLING SHALL BE WELDED IN THE POSITION SHOWN FOR THE APPLICABLE USE ON THE MSWD STANDARD DRAWING FOR THE SERVICE, BLOWOFF, AIR VAC, OR TCP.
5. ALL WELDING SHALL BE PERFORMED BY A CERTIFIED WELDER APPROVED FOR WORK ON PUBLIC WATER SYSTEMS.
6. AFTER COMPLETION OF ALL WELDING, PIPES AND WELDS SHALL BE CLEANED AND FREE OF ANY LOOSE SLAG, GREASE, OILS, DIRT, OR OTHER CONTAMINATION TO THE SATISFACTION OF THE INSPECTOR.
7. ALL EXPOSED STEEL SHALL THEN BE REPAIRED WITH MORTAR AS SPECIFIED BELOW.

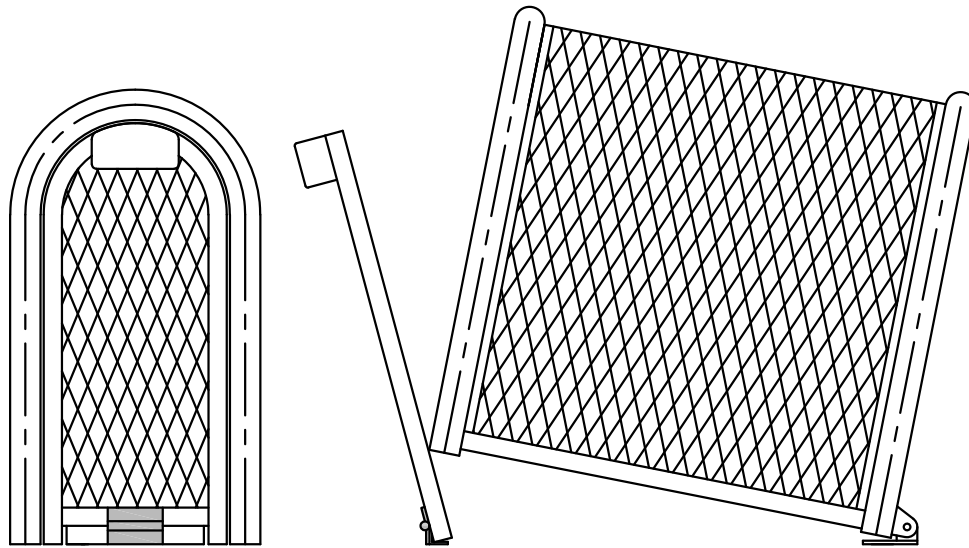
MORTAR COATING NOTES:

1. ALL WORK SHALL BE PERFORMED UNDER DIRECT MSWD INSPECTION.
2. REPAIR MORTAR SHALL BE COMMERCIAL GRADE, QUIKRETE FAST SET REPAIR MORTAR OR APPROVED EQUAL.
3. CONCRETE BONDING ADHESIVE, QUIKRETE OR APPROVED EQUAL SHALL BE ADDED TO THE MORTAR MIX FOR ADDED BONDING STRENGTH.
4. MORTAR SHALL BE REINFORCED WITH 1/4" x 1/4" GALVANIZED WELDED WIRE MESH. REINFORCING MAY BE OMITTED FOR SMALL AREAS WITH THE INSPECTORS APPROVAL.
5. FOR LARGE REPAIR AREAS, BONDING ADHESIVE SHALL BE BRUSHED ONTO THE PIPE IMMEDIATELY PRIOR TO MORTAR PLACEMENT.
6. ALL MORTAR SHALL BE CURED TO THE SATISFACTION OF THE INSPECTOR PRIOR TO BACKFILL.



CML/CMC TAPPING NOTES

Approved: _____
Brian Macy
General Manager
Drawn: MP Date: 1/31/2024
DRAWING No.
W-20B



FRONT VIEW

SIDE VIEW

INTERNAL DIMENSIONS 10" W X 24" H X 30" L

NOTES:

1. ENCLOSURE TO BE ANCHORED ON A MINIMUM OF 28" X 46" X 6" THICK CONCRETE PAD. USE 560-C-325 CONCRETE.
2. ENCLOSURE: GUARDSHACK MODEL HGS-2.
3. ALL CAGES IN GREENERY MUST BE POWDER COATED - FOREST GREEN.
4. ALL CAGES IN DESERT LANDSCAPE MUST BE POWDER COATED - WOODLANDS TAN.
5. THE USE OF ANY OTHER CAGE MUST BE APPROVED BY MSWD PRIOR TO INSTALLATION.
6. USE OF THIS IS OPTIONAL AND SHALL BE AT THE DEVELOPERS EXPENSE.
7. THE DEVELOPER SHALL VERIFY THAT THE STATED SIZE WILL ENCLOSE THE REQUIRED BACKFLOW DEVICE



OPTIONAL BACKFLOW CAGE

Approved: _____	
Brian Macy General Manager	
Drawn: MP	Date: 1/31/2024
DRAWING No.	
W-21	