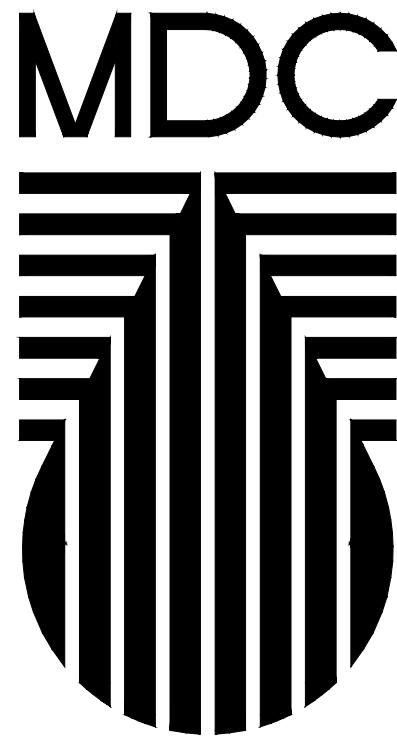


# **STANDARD DETAILS MANUAL**



**THE METROPOLITAN DISTRICT**

**555 MAIN STREET  
HARTFORD, CONNECTICUT**



# THE METROPOLITAN DISTRICT

## STANDARD DETAILS MANUAL



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# THE METROPOLITAN DISTRICT

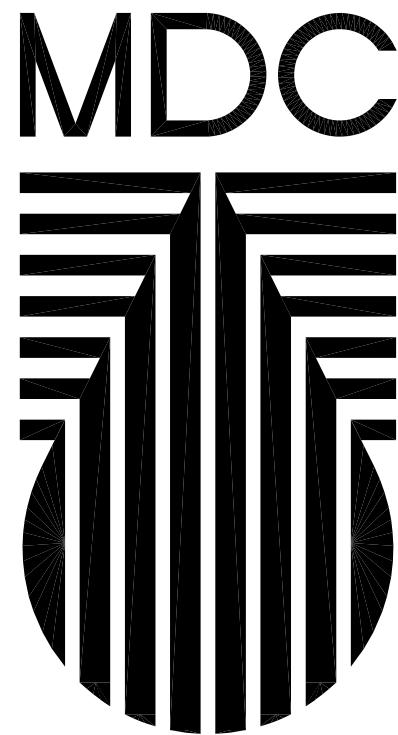
## STANDARD DETAILS MANUAL



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# **SEWER STANDARD DETAILS**



**THE METROPOLITAN DISTRICT**



# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



PIPE AND FITTINGS DESIGNATION	MINIMUM COVER
ASTM D3034 POLYVINYL CHLORIDE (PVC) (SDR-35) (TYPE PSM) 6" THROUGH 15"	
ASTM F679 PVC (LARGE DIAMETER) (TYPE PS-46) 18" THROUGH 27"	3.5'
ASTM F949 CORRUGATED PVC (SMOOTH INTERIOR) 6" THROUGH 36"	
ASTM F1803 CLOSED PROFILE PVC 30" THROUGH 48"	
ASTM F794 CLOSED PROFILE PVC (CONTROLLED I.D.) 30" THROUGH 48"	
ASTM F714, AWWA C906 HIGH DENSITY POLYETHYLENE (HDPE) (SOLID WALL)	3.0'
ASTM C76 REINFORCED CONCRETE PIPE (RCP) (CLASS IV) 12" AND LARGER	
ASTM C76 REINFORCED CONCRETE PIPE (RCP) (CLASS V) 12" AND LARGER	2.5'
ASTM A476, AWWA/ANSI DUCTILE IRON (DI) CLASS 52 8" THROUGH 24"	
ASTM D1794, AWWA C900 C900/C905 PVC (SDR-18) 6" THROUGH 12" (C900), 18" AND 24" (C905)	2.0'

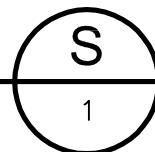
NOTE:

1. THE CONTRACTOR SHALL LOCATE PIPELINES SUBSTANTIALLY AT THE DEPTHS SHOWN ON THE CONTRACT DRAWINGS. THE ENGINEER RESERVES THE RIGHT TO MAKE MODIFICATIONS TO THE PIPELINE LOCATIONS OR DEPTHS TO AVOID INTERFERENCE WITH EXISTING STRUCTURES, UTILITIES OR FOR ANY OTHER APPROVED REASONS.

### MINIMUM DEPTH OF COVER OVER PIPE

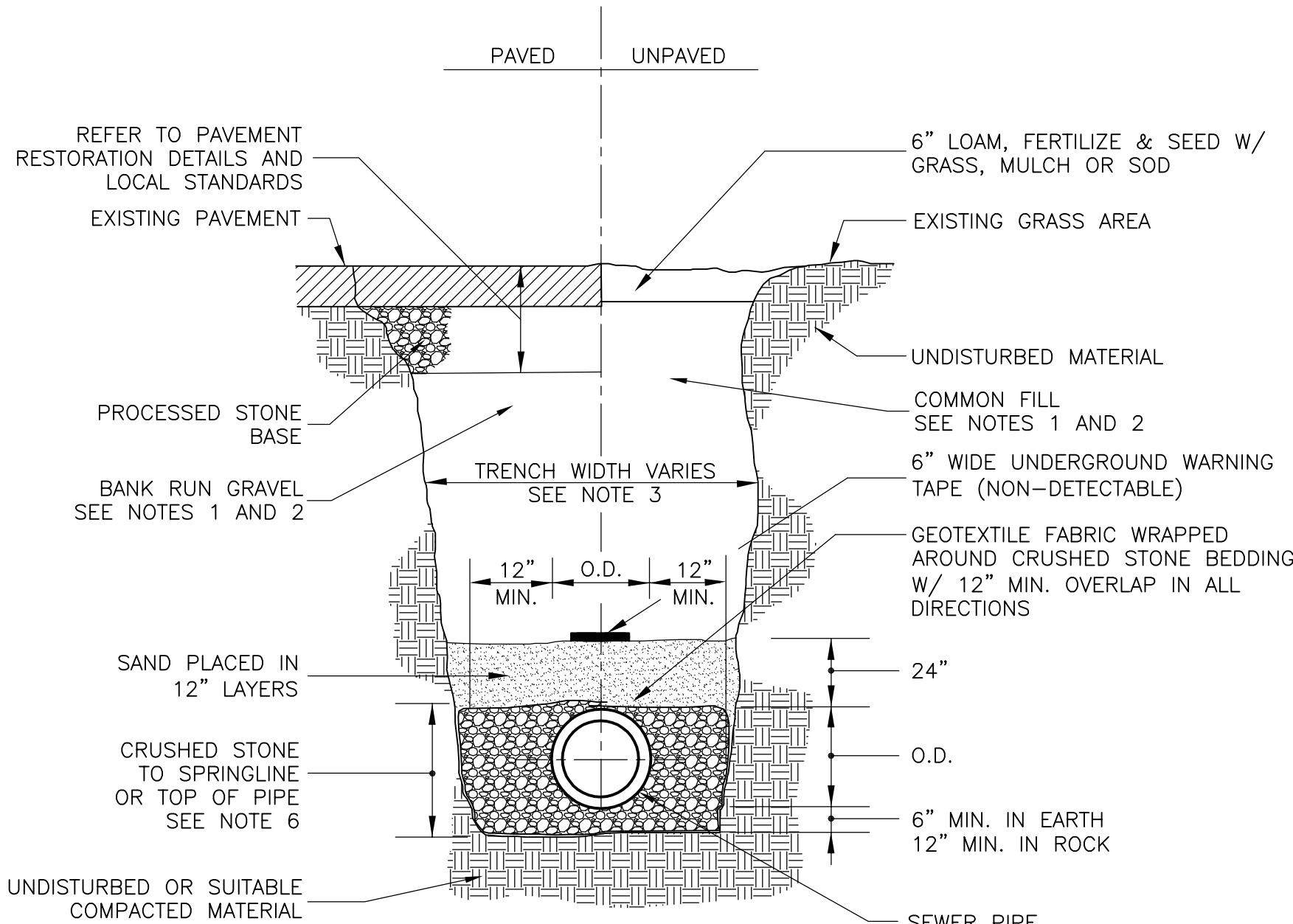
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# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



### NOTES:

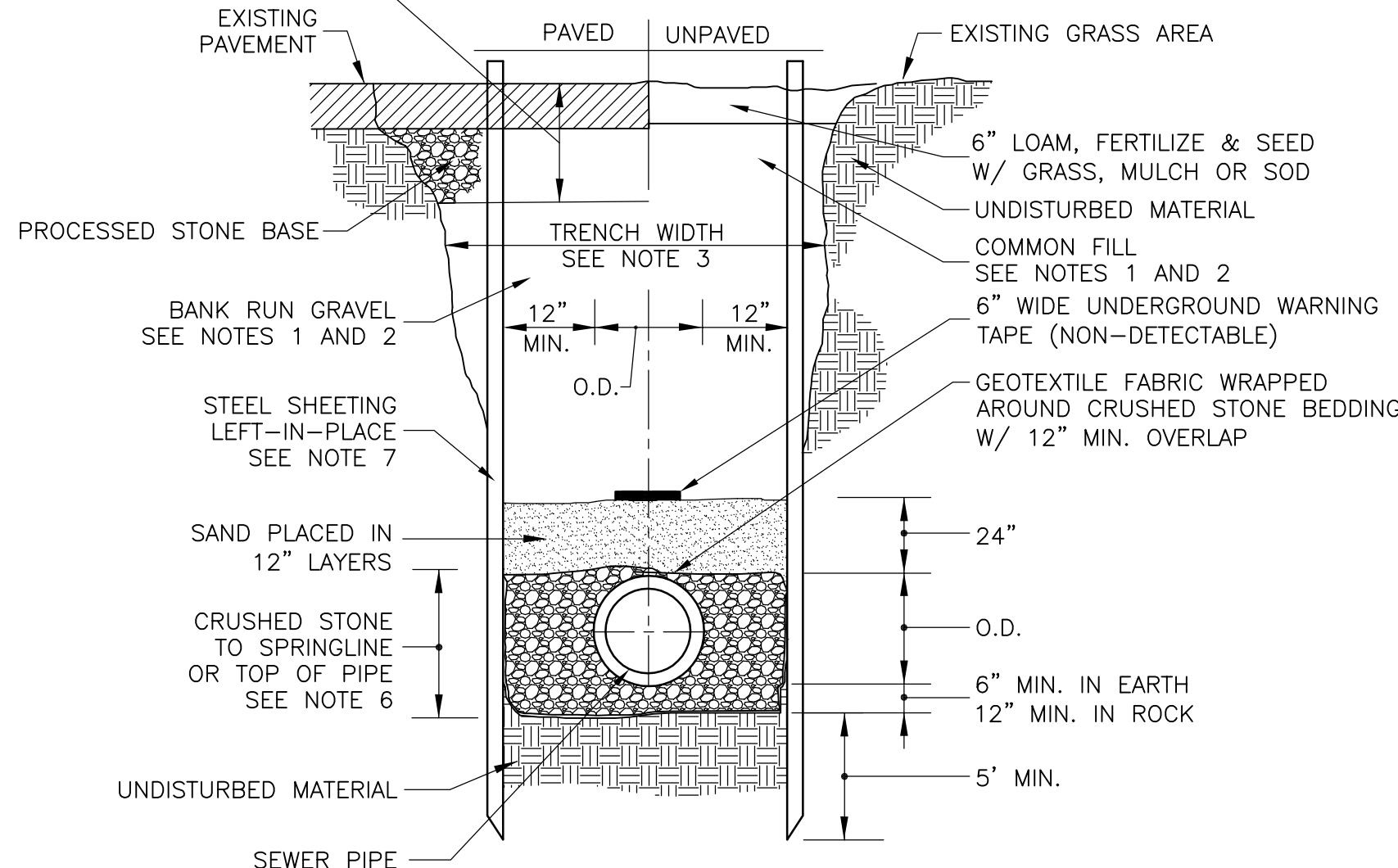
1. ALL EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED.
2. BACKFILL MATERIAL SHALL BE APPROVED BANK RUN GRAVEL IN PAVED AREAS (INCLUDING DRIVEWAYS AND SIDEWALKS) OR COMMON FILL IN UNPAVED AREAS.
3. TRENCH WIDTH VARIES BASED ON PIPE SIZE AND DEPTH.
4. TRENCHES LOCATED IN THE ROAD SHOULDER SHALL BE TREATED THE SAME AS TRENCHES IN THE PAVED ROADWAY EXCEPT FOR PAVEMENT AND SURFACE RESTORATION WORK.
5. PROVIDE IMPERVIOUS TRENCH DAM(S) IN STONE BEDDING AS DIRECTED BY THE ENGINEER. SEE PIPE TRENCH DAM DETAIL.
6. CRUSHED STONE SHALL BE INSTALLED TO TOP OF PIPE FOR PVC AND DI PIPE AND TO SPRINGLINE FOR RC PIPE.

SEWER TRENCH  
DETAIL

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REFER TO PAVEMENT  
RESTORATION DETAILS AND  
LOCAL STANDARDS



## NOTES

1. ALL EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED.
  2. BACKFILL MATERIAL SHALL BE APPROVED BANK RUN GRAVEL IN PAVED AREAS (INCLUDING DRIVEWAYS AND SIDEWALKS) OR COMMON FILL IN UNPAVED AREAS.
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  5. PROVIDE IMPERVIOUS TRENCH DAM(S) IN STONE BEDDING AS DIRECTED BY ENGINEER. SEE PIPE TRENCH DAM DETAIL.
  6. CRUSHED STONE SHALL BE INSTALLED TO TOP OF PIPE FOR PVC AND DI PIPE PIPE. CRUSHED STONE SHALL BE INSTALLED TO SPRINGLINE FOR RC PIPE.
  7. CUT OFF DEPTH FOR STEEL SHEETING LEFT-IN-PLACE SHALL BE 4 FFT BELOW FINISHED GRADE.

## SEWER TRENCH WITH STEEL SHEETING LEFT-IN-PLACE

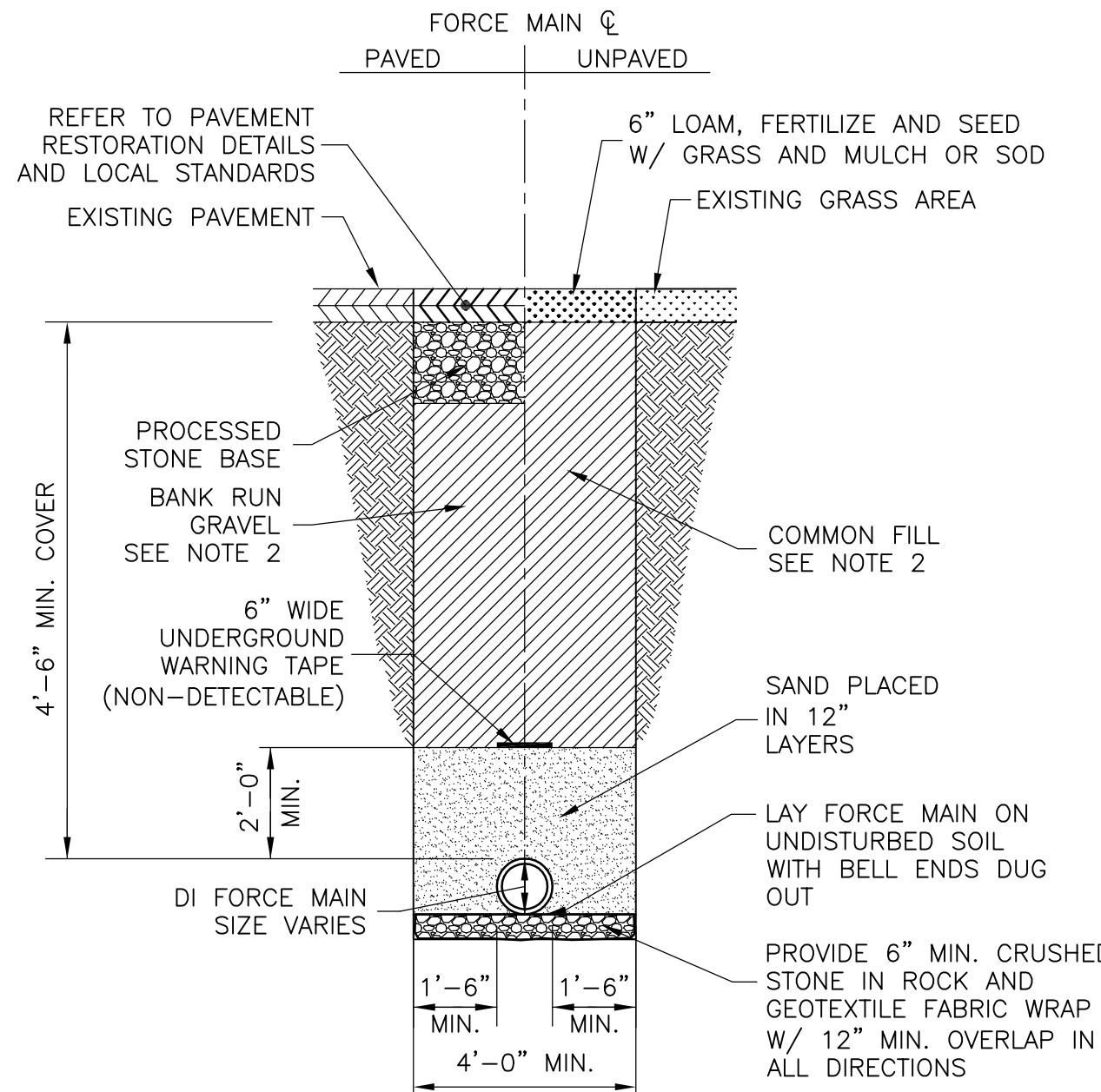
## DETAIL

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# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



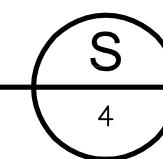
### NOTES:

1. ALL EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED.
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5. PROVIDE IMPERVIOUS TRENCH DAM(S) IN STONE BEDDING AS DIRECTED BY THE ENGINEER. SEE PIPE TRENCH DAM DETAIL.
6. MAINTAIN MIN. 18" HORIZONTAL SEPARATION BETWEEN FORCE MAIN AND EXISTING PARALLEL UTILITIES (OUTSIDE WALL TO OUTSIDE WALL).

### SEWER FORCE MAIN TRENCH

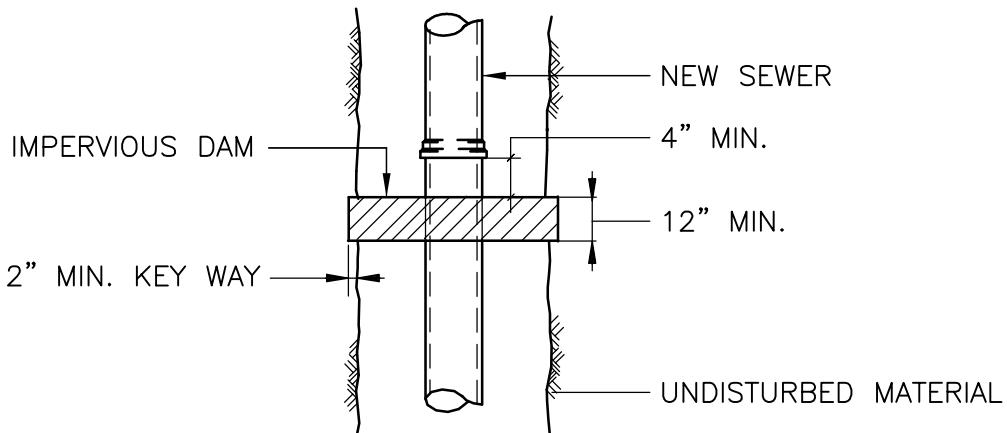
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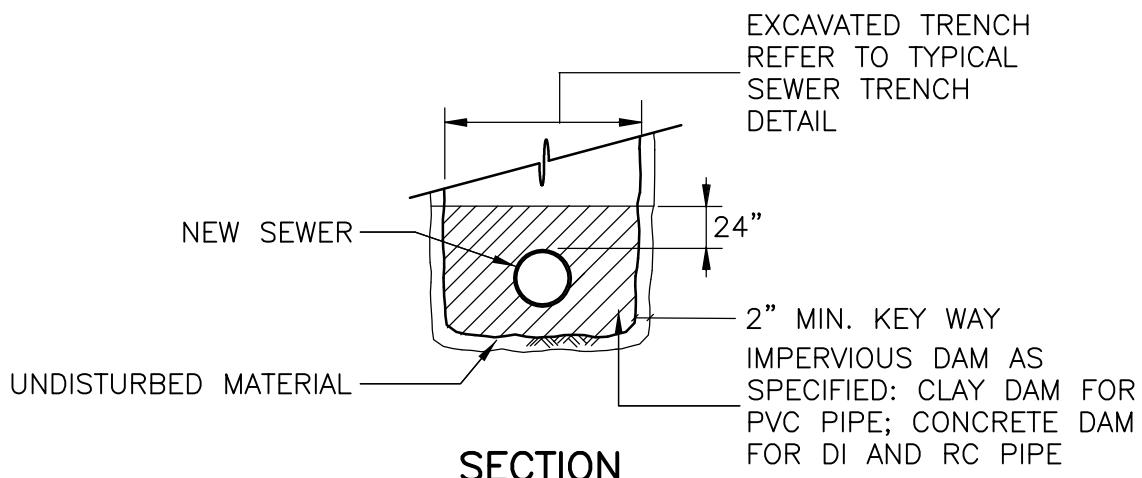


# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



PLAN

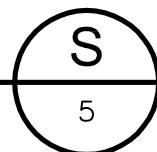


SECTION

### PIPE TRENCH DAM

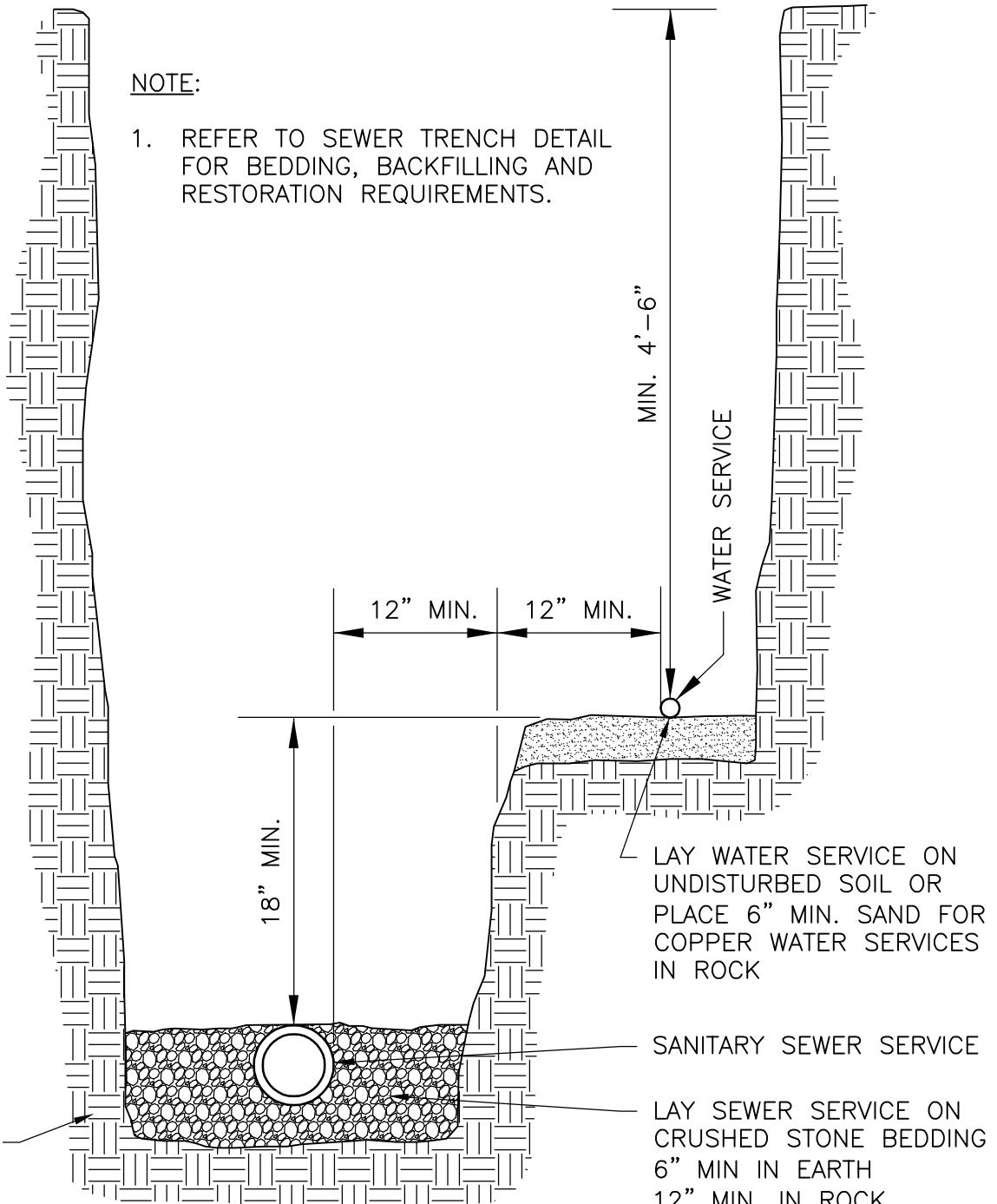
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# THE METROPOLITAN DISTRICT

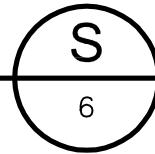
## SEWER STANDARD DETAILS



### SEWER SERVICE AND WATER SERVICE IN COMMON TRENCH

**DETAIL**

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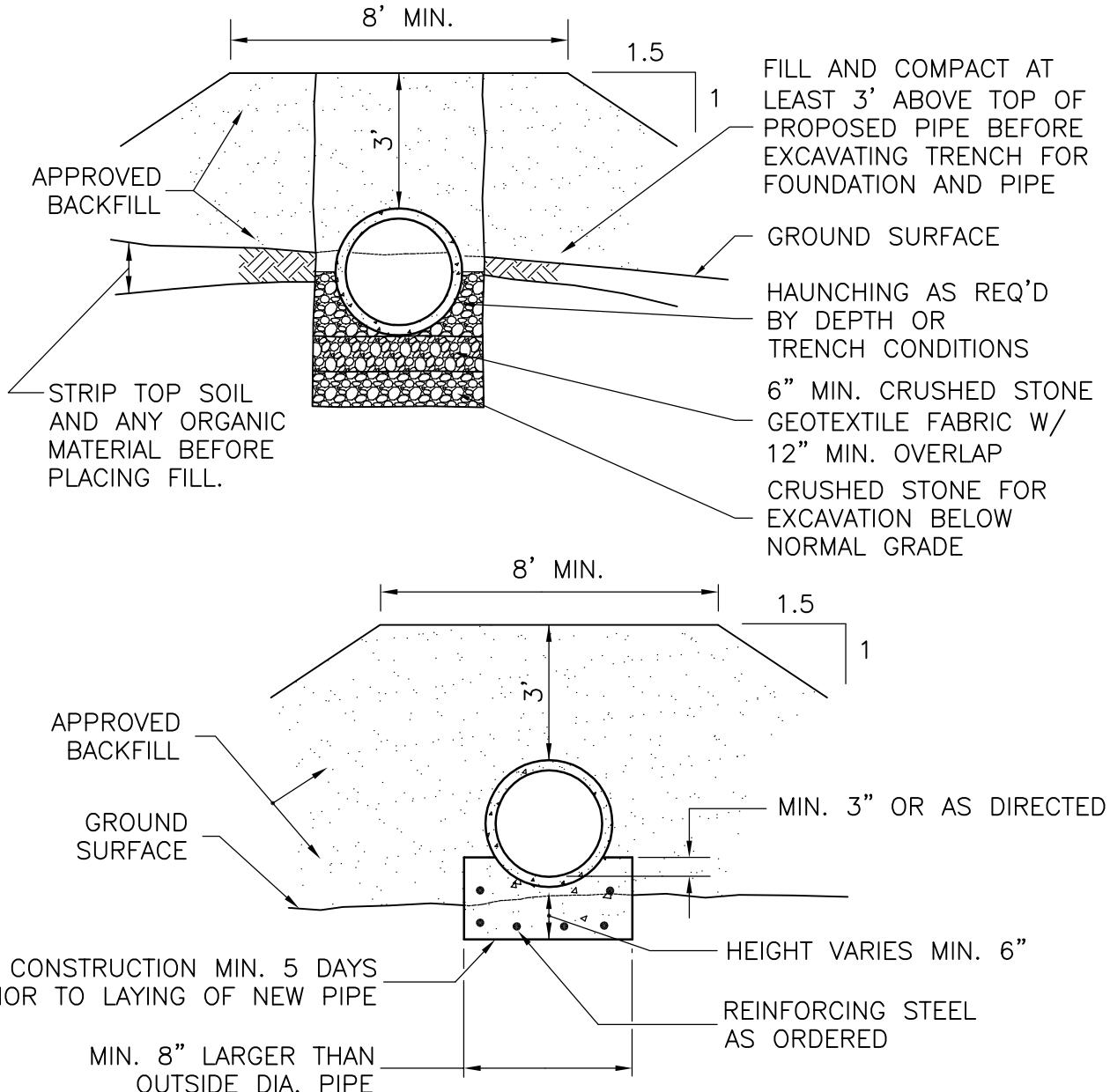
# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



### NOTE:

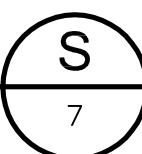
1. REFER TO SEWER TRENCH DETAIL FOR BACKFILLING AND RESTORATION REQUIREMENTS.



### FOUNDATION SECTIONS IN LOWLANDS

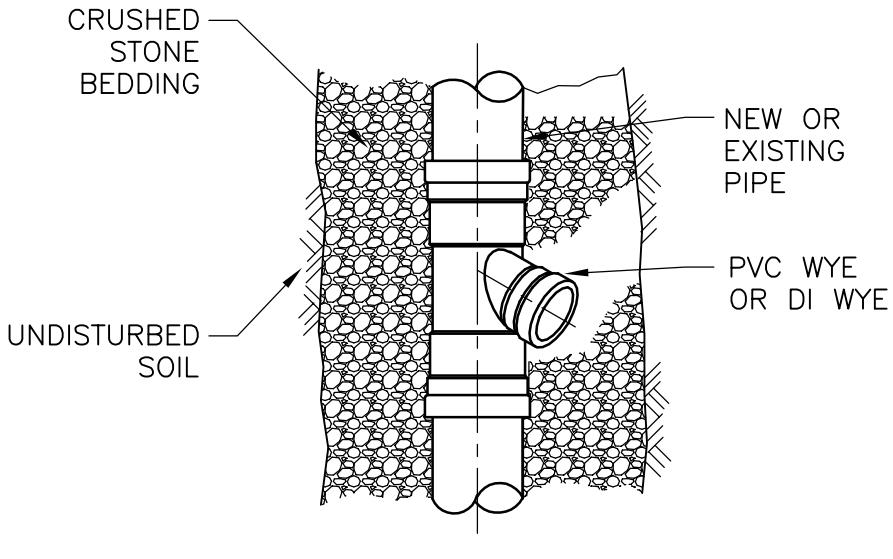
**DETAIL**

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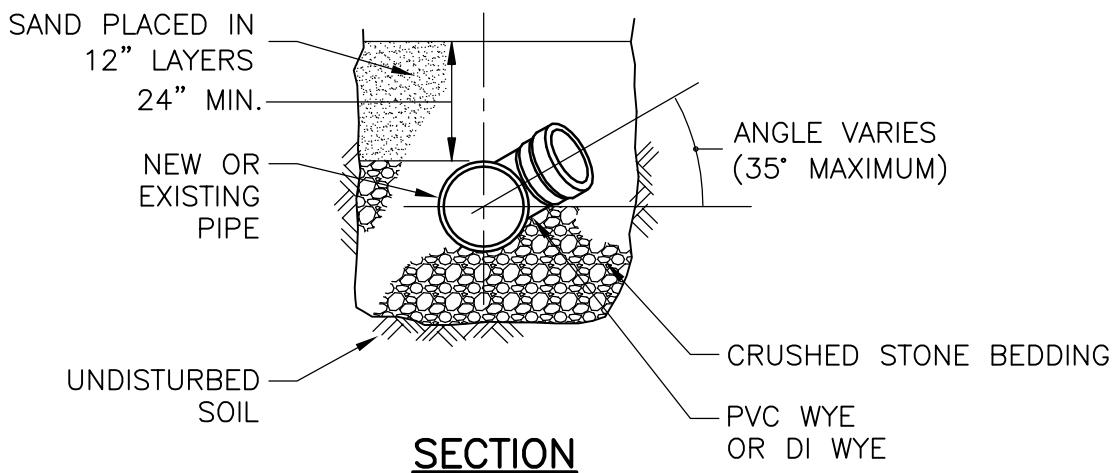


# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



PLAN



SECTION

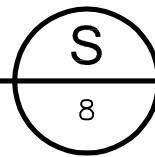
NOTE:

1. REFER TO SEWER TRENCH DETAIL FOR BEDDING, BACKFILLING AND RESTORATION REQUIREMENTS.

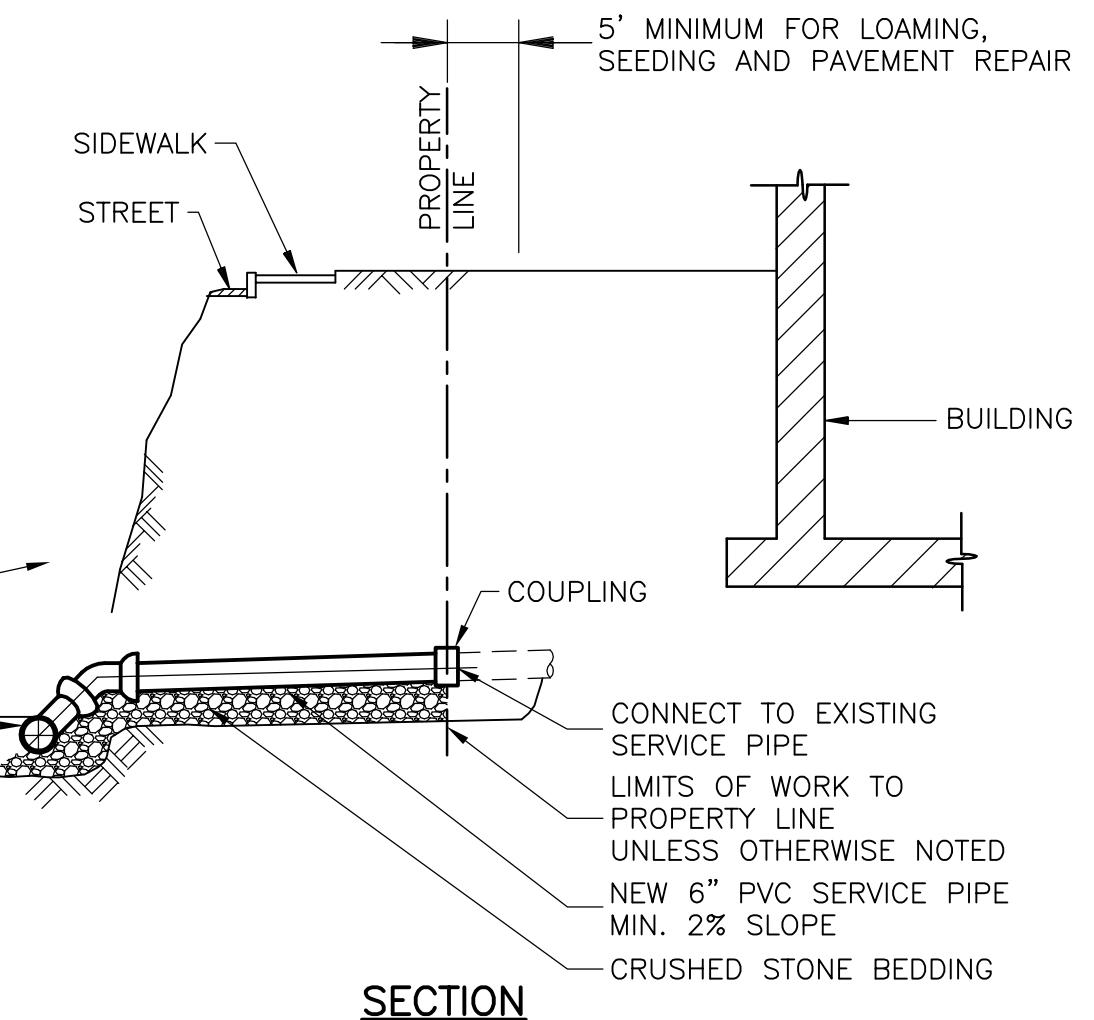
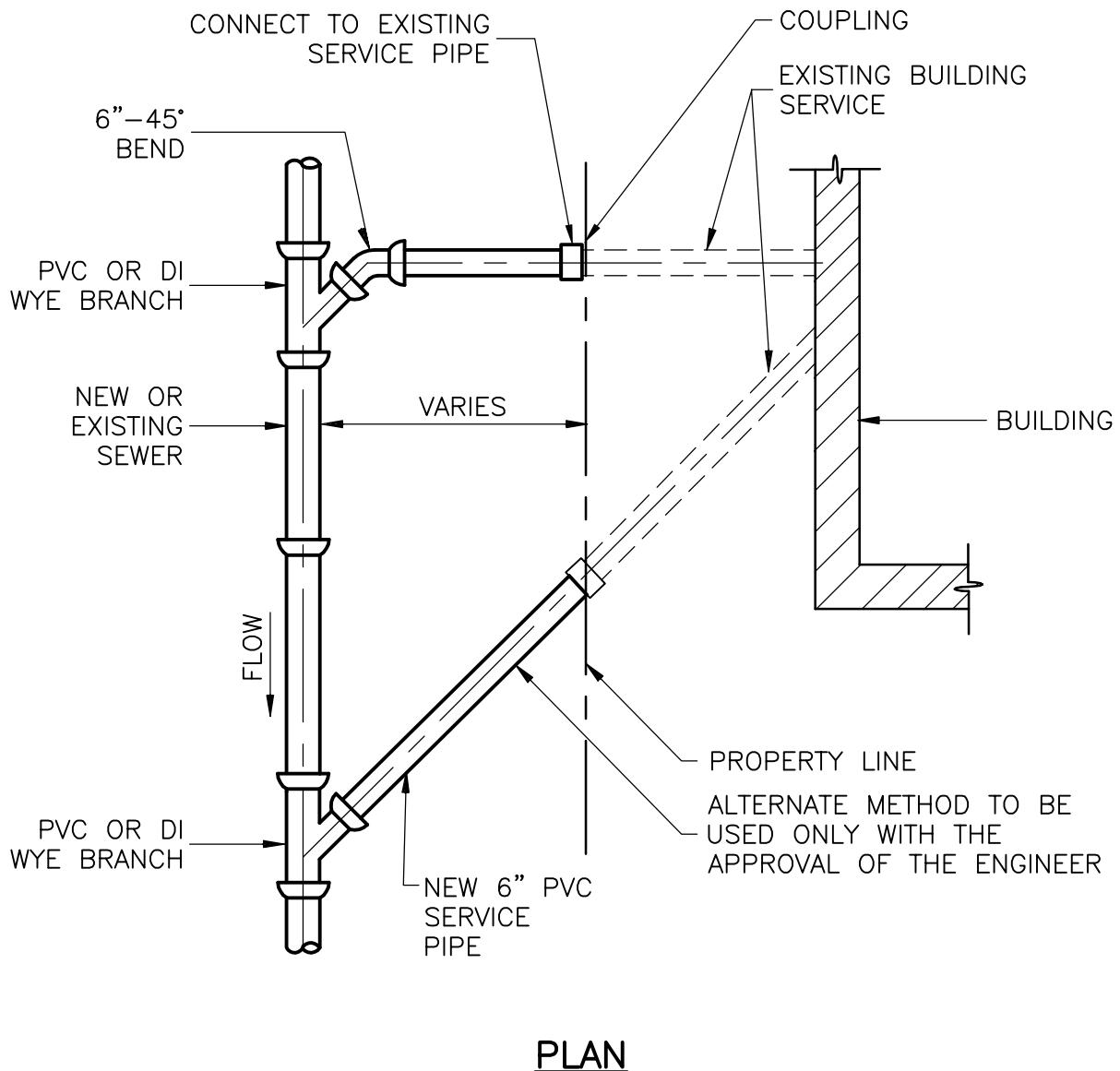
### PVC OR DI WYE BRANCH

#### DETAIL

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THE METROPOLITAN DISTRICT  
SEWER STANDARD DETAILS



SEWER SERVICE REPLACEMENT

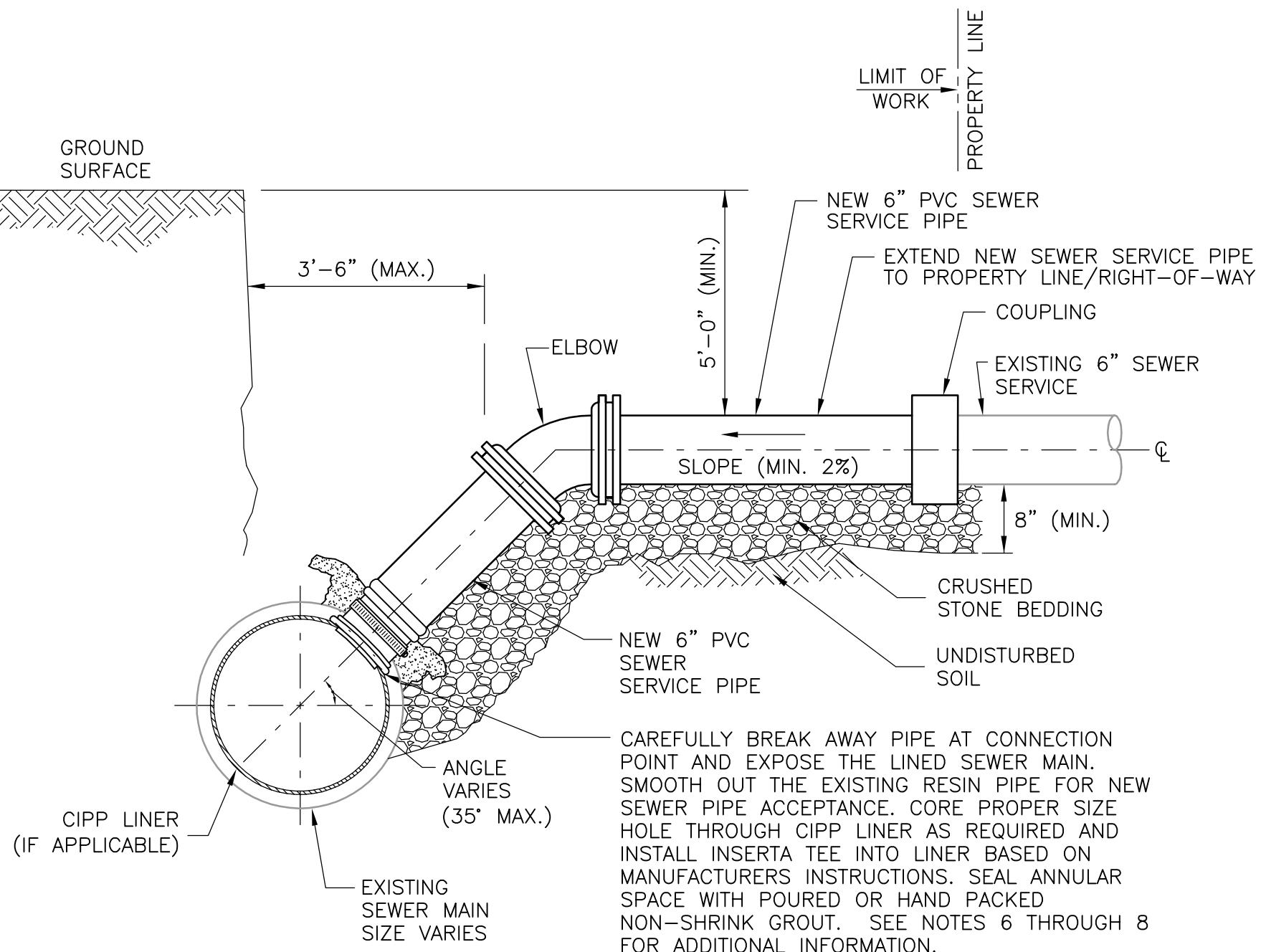
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# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



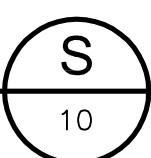
### NOTES:

1. THIS DETAIL SHALL APPLY TO EXISTING OR NEW SERVICE LATERALS THAT WILL BE CONNECTED TO A CIPP LINED SEWER MAIN AT THE EXISTING WYE OR AT A RELOCATED LOCATION AS SHOWN ON THE DRAWINGS. MAINLINE SEWER CIPP LINING WORK SHALL BE COMPLETED PRIOR TO SERVICE LATERAL REPLACEMENT.
2. CONNECTIONS FOR SERVICES THAT ARE SCHEDULED FOR RELOCATION SHALL BE MADE AT A 5' MIN. DISTANCE AWAY FROM THE EXISTING SERVICE CONNECTION. THE EXISTING SERVICE PIPE THAT REMAINS SHALL BE FILLED AND ABANDONED USING GROUT, SAND OR FLOWABLE FILL, OR ABANDONED IN PLACE AS DIRECTED BY THE ENGINEER. THE EXISTING CONNECTION TO THE MAIN SHALL BE PLUGGED, SEALED AND ABANDONED AS REQUIRED.
3. CONNECT NEW PVC SERVICE LATERAL PIPE DIRECTLY TO THE EXISTING SERVICE LATERAL PIPE AT THE PROPERTY LINE AS SHOWN ON THE PLANS.
4. WHEN BREAKING AWAY EXISTING PIPE, DO NOT ALLOW DEBRIS TO ENTER SEWER.
5. REFER TO SEWER TRENCH DETAIL FOR BACKFILLING AND RESTORATION REQUIREMENTS.
6. CONTRACTOR TO PROVIDE ALL FITTINGS FOR NEW SERVICE CONNECTIONS AS REQUIRED.
7. FOR CURED-IN-PLACE LINER, VERIFY THAT THE LINER IS COMPLETELY CURED AND ALLOW THE LINER TO NORMALIZE TO AMBIENT TEMPERATURE AND RECOVER FROM IMPOSED STRETCH PRIOR TO NEW SERVICE LATERAL CONNECTION WORK.
8. IMMEDIATELY FOLLOWING LINER INSTALLATION AND CURING, THE CONTRACTOR SHALL CUT A RELIEF HOLE AT EACH SERVICE LATERAL. THE RELIEF HOLE SHALL BE CUT AS REQUIRED TO ALLOW FOR A 6-INCH INSERTA TEE PER MANUFACTURER'S RECOMMENDATIONS.
9. THE CONTRACTOR SHALL PROVIDE SUFFICIENT WORKING SPACE TO INSTALL A 6-INCH INSERTA TEE PER MANUFACTURER'S RECOMMENDATIONS.
10. NOT TO BE USED FOR HOUSE CONNECTION PERMIT WORK.

## SERVICE LATERAL INSERTA TEE CONNECTION

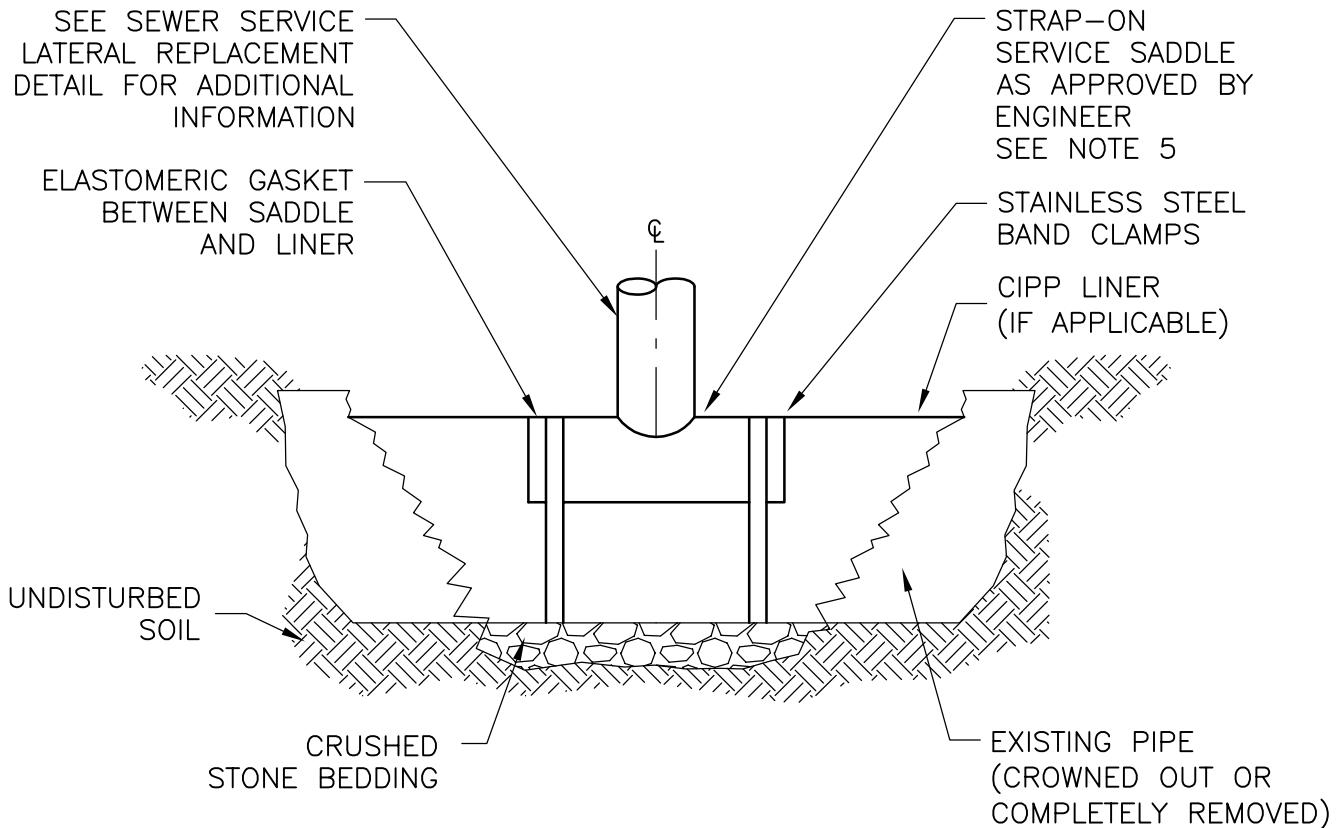
DETAIL

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# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



### NOTES:

1. THIS DETAIL APPLIES WHENEVER AN EXISTING SERVICE LATERAL MUST BE CONNECTED TO A CIPP LINED SEWER MAIN AND SERVICE LATERAL INSERTA TEE CONNECTION CANNOT BE INSTALLED.
2. WHEN BREAKING OUT EXISTING PIPE CROWN, DO NOT ALLOW DEBRIS TO ENTER SEWER. INSTALL AND COMPACT CRUSHED STONE TO 1-FOOT ABOVE TOP OF PIPE AND/OR SERVICE.
3. REFER TO SEWER TRENCH DETAIL FOR BEDDING, BACKFILLING AND RESTORATION REQUIREMENTS.
4. INSTALL FITTINGS, ADAPTERS, AND RUBBER SLEEVE COUPLINGS AS NECESSARY, TO MAKE CONNECTION BETWEEN NEW AND EXISTING SERVICE LATERAL PIPING.
5. NOT ALL LATERAL SIZES ARE KNOWN. CONTRACTOR TO FIELD VERIFY THE SIZE AND TYPE OF THE EXISTING SERVICE LATERAL. EXISTING LATERALS ARE ASSUMED TO BE 6" DIAMETER.

### SERVICE LATERAL SADDLE CONNECTION

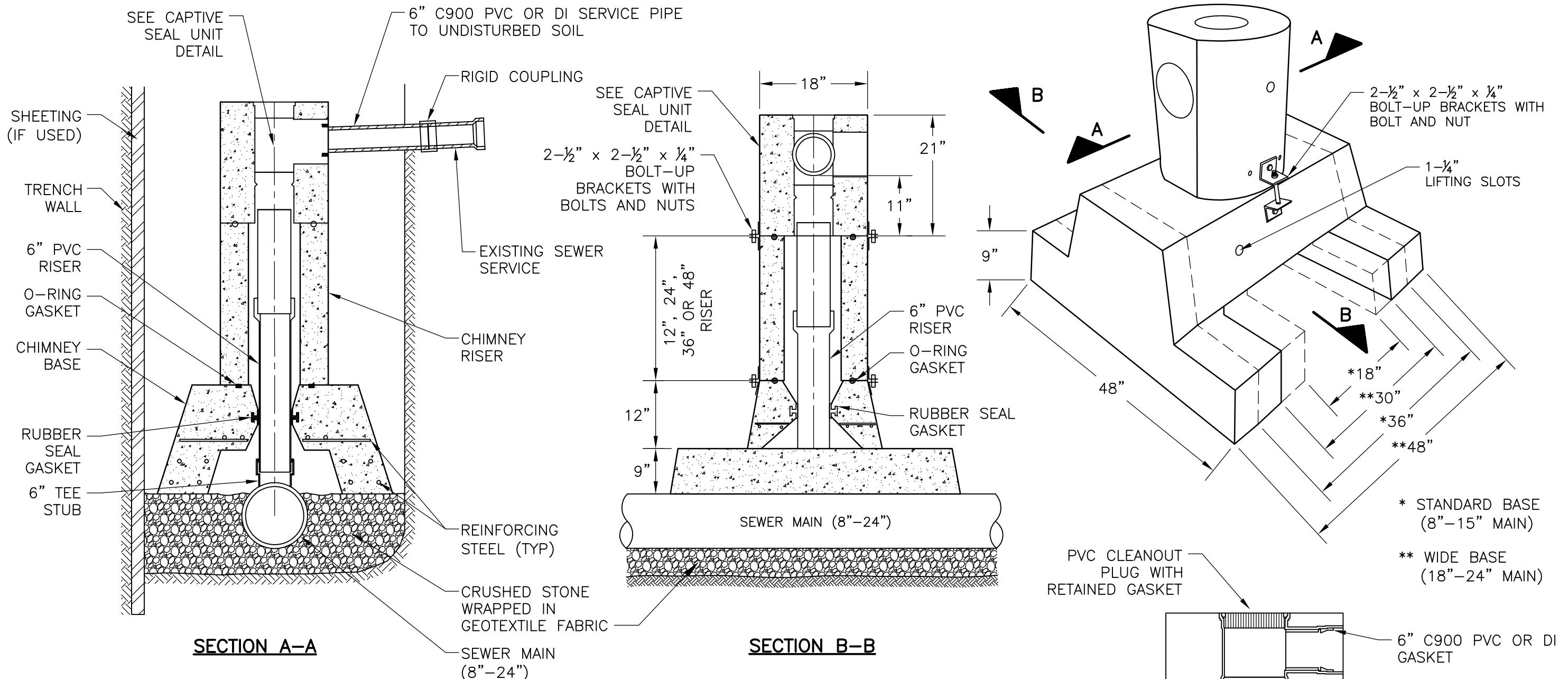
**DETAIL**

NTS

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THE METROPOLITAN DISTRICT  
SEWER STANDARD DETAILS



NOTE:

1. REFER TO SEWER TRENCH DETAIL FOR BACKFILL AND SURFACE RESTORATION REQUIREMENTS.

SEWER SERVICE PRECAST CONCRETE CHIMNEY

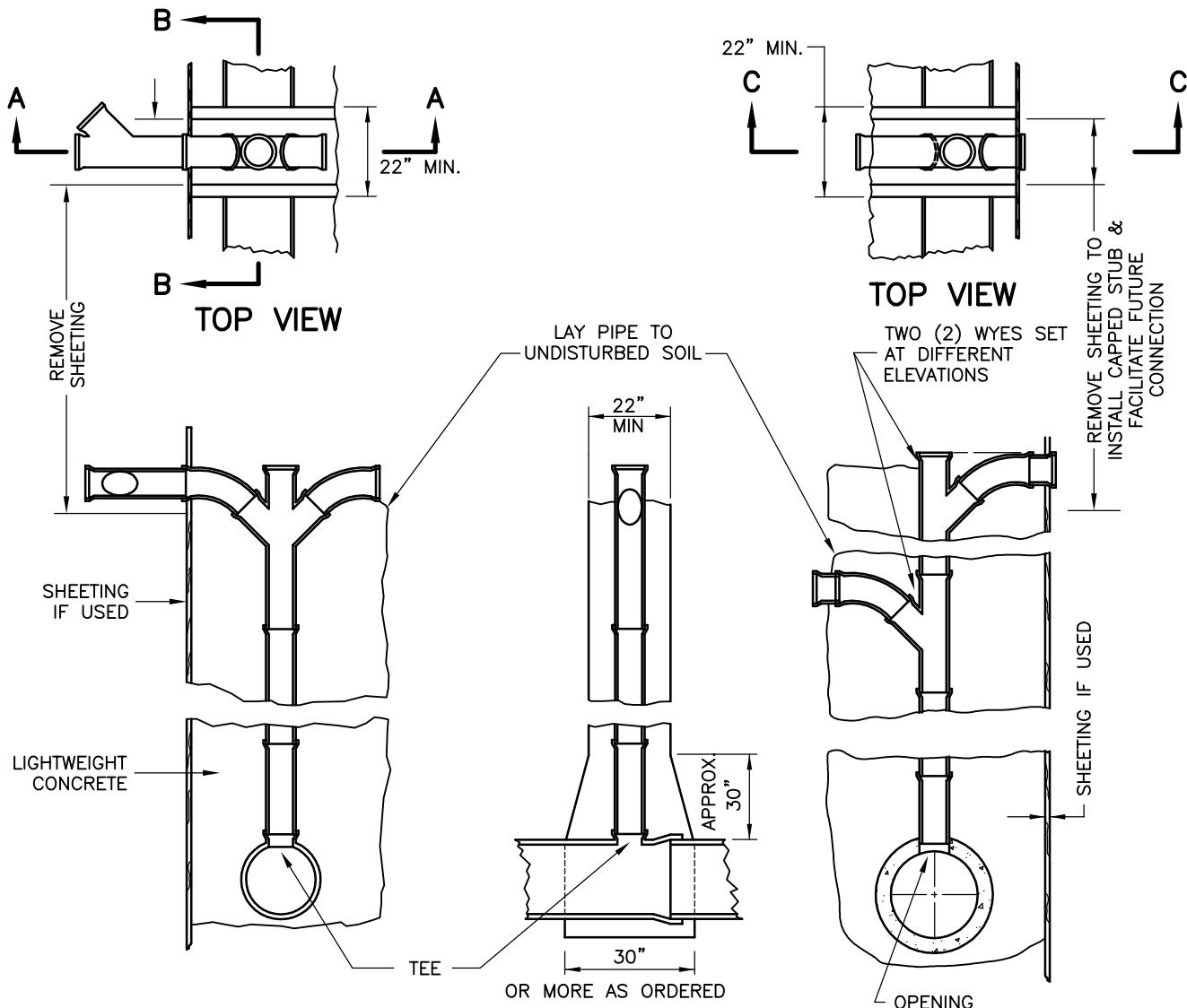
DETAIL

NTS

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12

# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



NOTES:

**SECTION A-A**

**SECTION B-B**

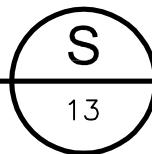
**SECTION C-C**

1. WHERE SHEETING IS NOT USED CONCRETE FULL WIDTH OF TRENCH TO SOLID GROUND. WHERE SO ORDERED OR INDICATED SET WYE HORIZONTALLY TO SERVE TWO CONNECTIONS.
2. ALL OPENINGS AT TOP OF CHIMNEYS TO BE CAPPED AT TIME OF CONSTRUCTION.
3. TO BE USED WHEN PRECAST CONCRETE CHIMNEYS ARE NOT APPLICABLE OR AS DIRECTED BY ENGINEER.

### SEWER SERVICE CHIMNEY CONNECTION

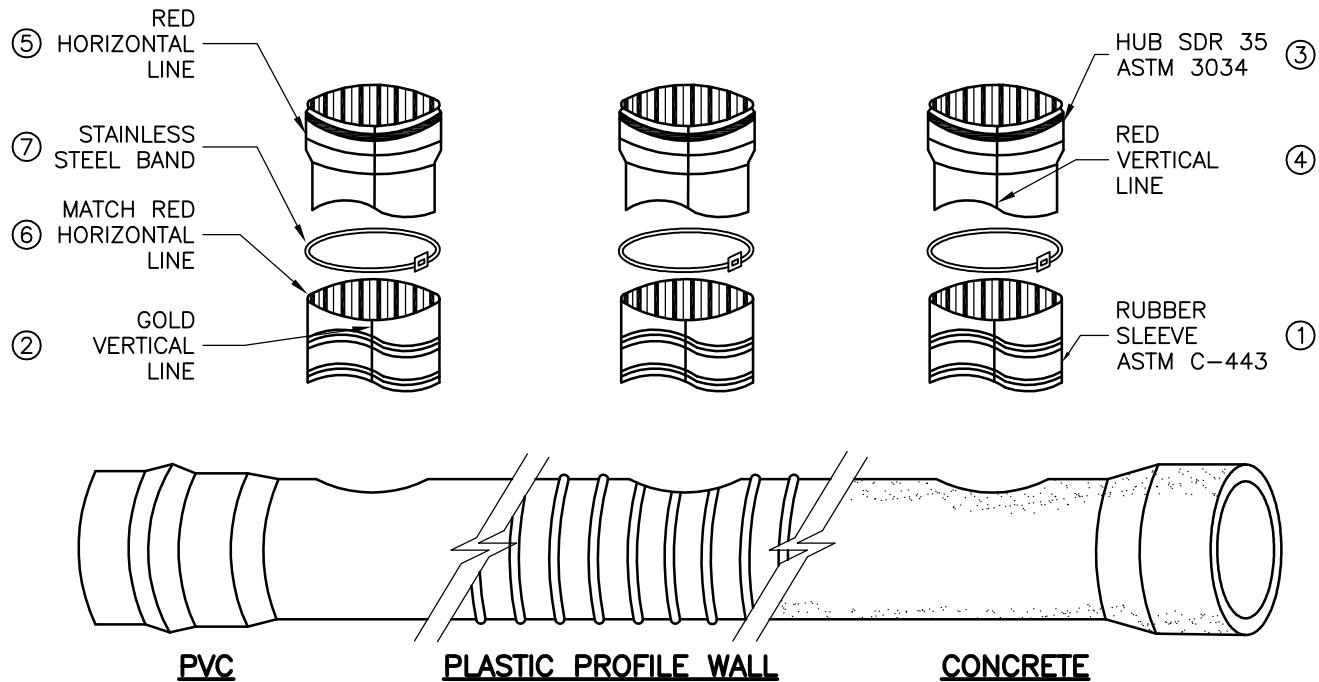
**DETAIL**

NTS



# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



TEE SIZE	4"	6"	8"	10"	12"	15"
BIT SIZE	4-1/2"	6-1/2"	8-3/4"	10-7/8"	12-7/8"	15-13/16"

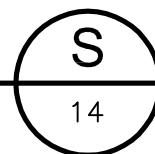
### INSTALLATION PROCEDURE:

- ① CORE THE PROPER SIZED HOLE.
- ② INSERT THE RUBBER SLEEVE IN THE CORED HOLE WITH THE GOLD VERTICAL LINE ON THE RUBBER SLEEVE FACING THE SIDE OF THE MAIN LINE. THE UPPER SEGMENT SHOULD BE ON TOP OF THE WALL/RIB AND THE LOWER SEGMENT SHOULD BE ON THE INSIDE OF THE PIPE (PLASTIC PIPE ONLY).
- ③ APPLY THE MANUFACTURER SPECIFIED TEE INSERT SOLUTION TO THE INSIDE OF THE RUBBER SLEEVE AND TO THE OUTSIDE OF THE PVC HUB ADAPTER. DO NOT USE AN OIL-BASED LUBRICANT.
- ④ PLACE THE PVC HUB ADAPTER INTO THE RUBBER SLEEVE. MAKE SURE THAT THE RED VERTICAL LINE ON THE PVC HUB ADAPTER IS IN LINE WITH THE GOLD VERTICAL LINE ON THE RUBBER SLEEVE.
- ⑤ PLACE A 2"x4" BOARD ONTO THE TOP OF THE PVC HUB ADAPTOR.
- ⑥ THE RED HORIZONTAL LINE AT THE TOP OF THE HUB ADAPTER IS A DEPTH MARK TO INDICATE HOW FAR TO DRIVE THE ADAPTER INTO THE RUBBER SLEEVE. DRIVE THE PVC HUB ADAPTER INTO THE RUBBER SLEEVE TO WHERE THE HORIZONTAL RED LINE ON THE PVC HUB ADAPTER MEETS THE TOP OF THE RUBBER SLEEVE.
- ⑦ PLACE THE STAINLESS STEEL BAND AROUND THE TOP OF THE RUBBER SLEEVE AND TIGHTEN DOWN. INSTALL PIPE IN NORMAL MANNER.

### TEE INSERT CONNECTIONS

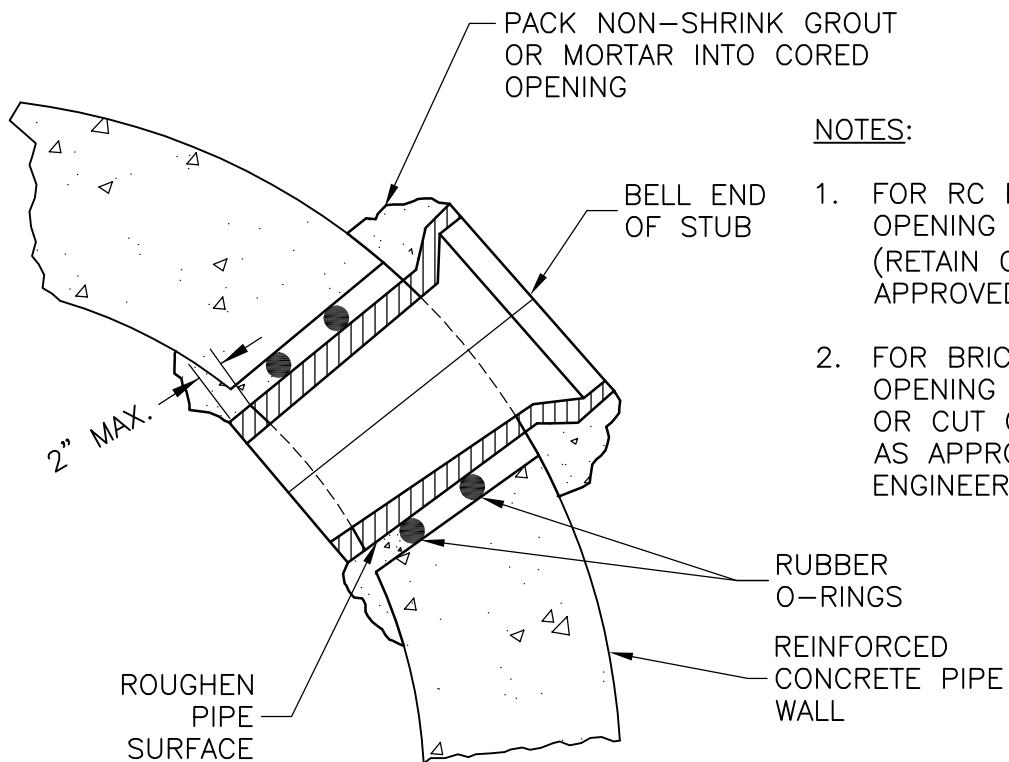
DETAIL

NTS



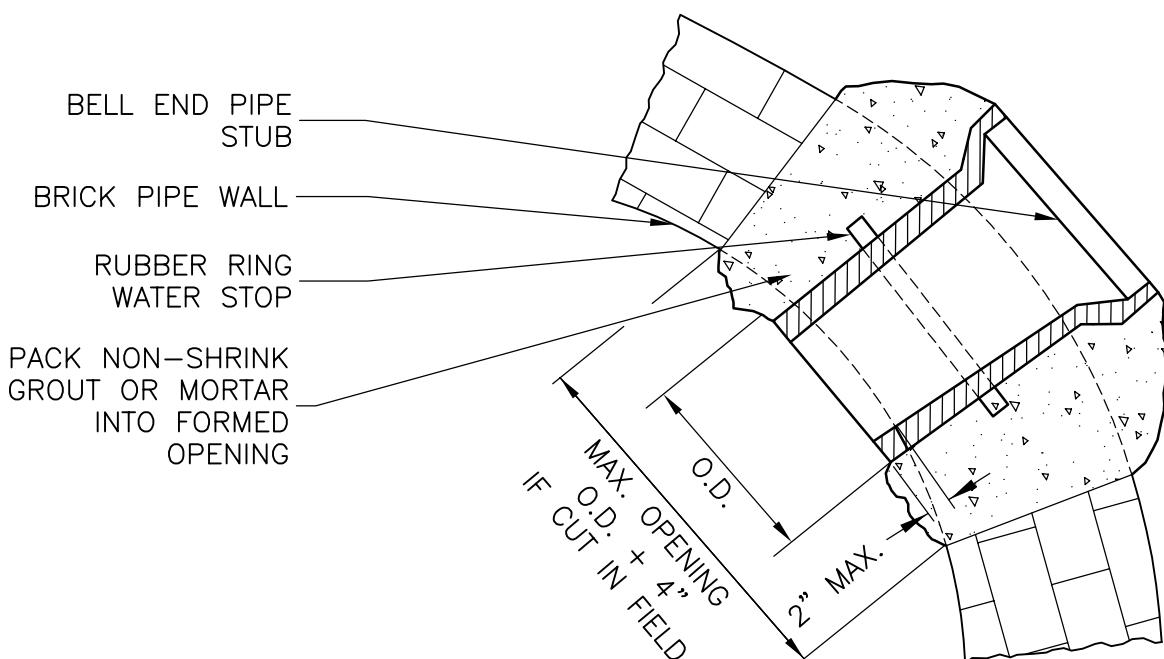
# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



NOTES:

1. FOR RC PIPE, FORM OPENING USING CORE DRILL (RETAIN CORE) OR OTHER APPROVED METHOD.
2. FOR BRICK PIPE, FORM OPENING USING CORE DRILL OR CUT OPENING IN FIELD AS APPROVED BY THE ENGINEER.



### STUB CONNECTION IN PIPE

DETAIL

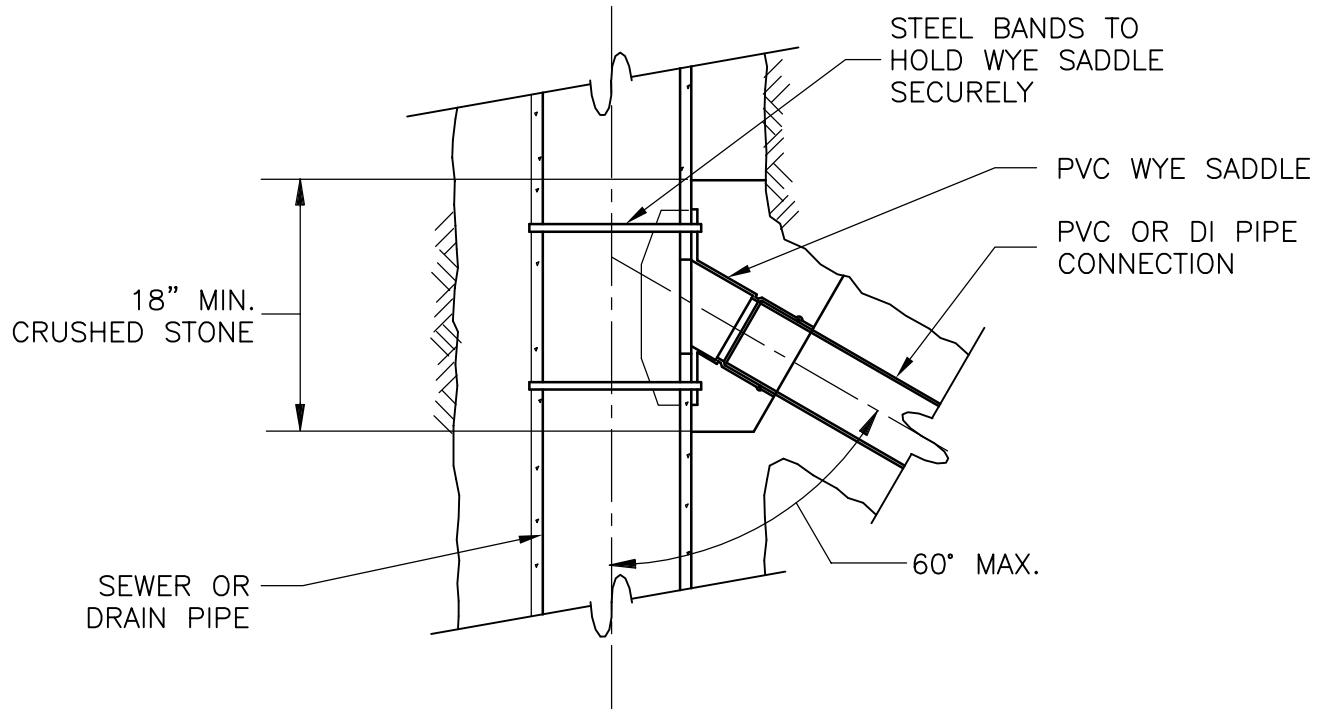
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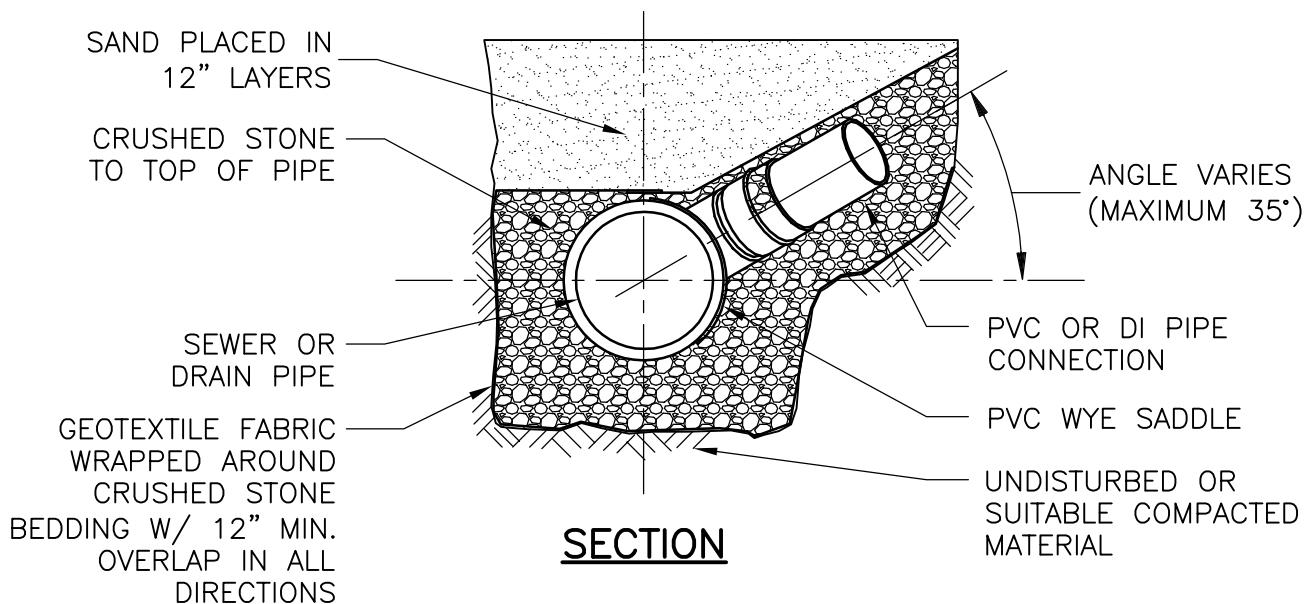
15

# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



PLAN



SECTION

WYE SADDLE CONNECTION TO EXISTING PIPE

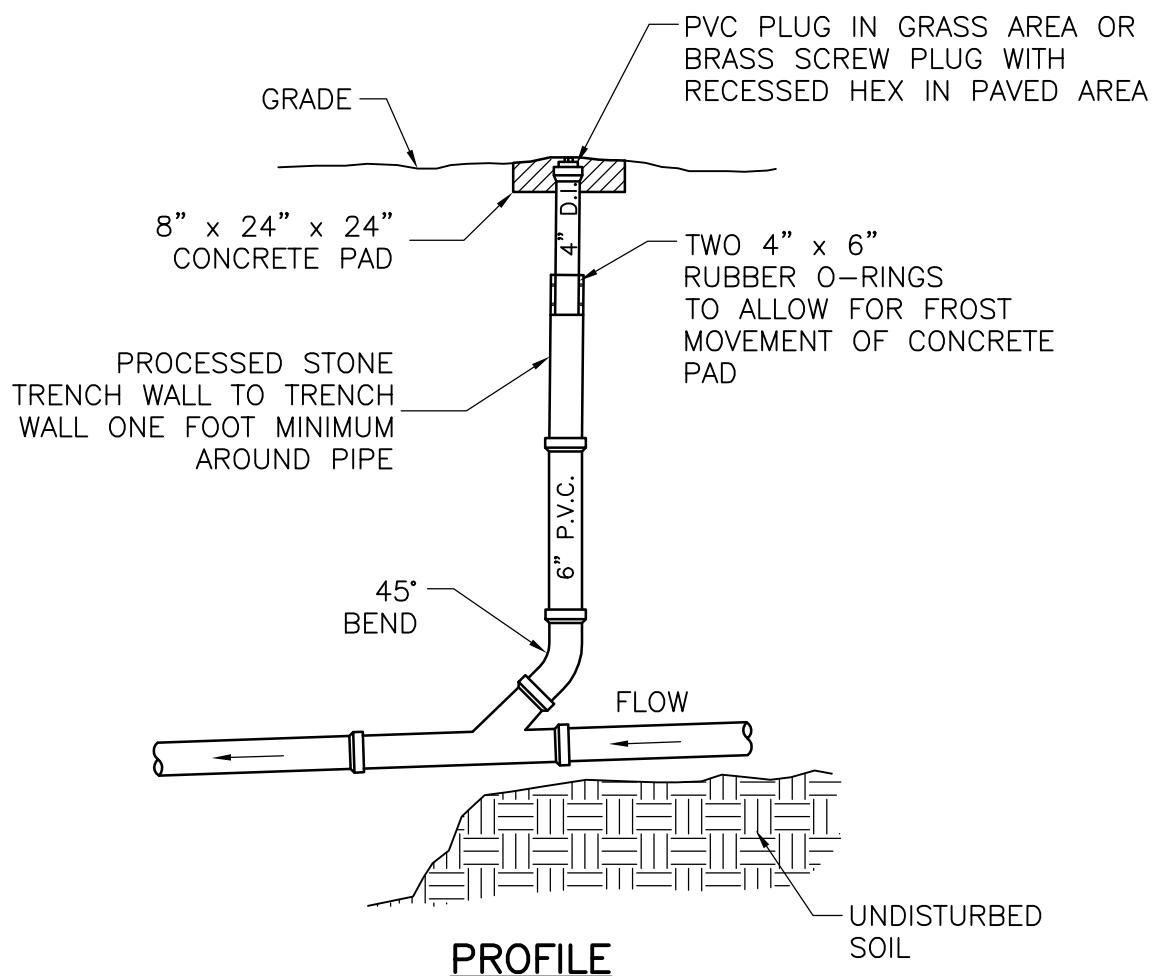
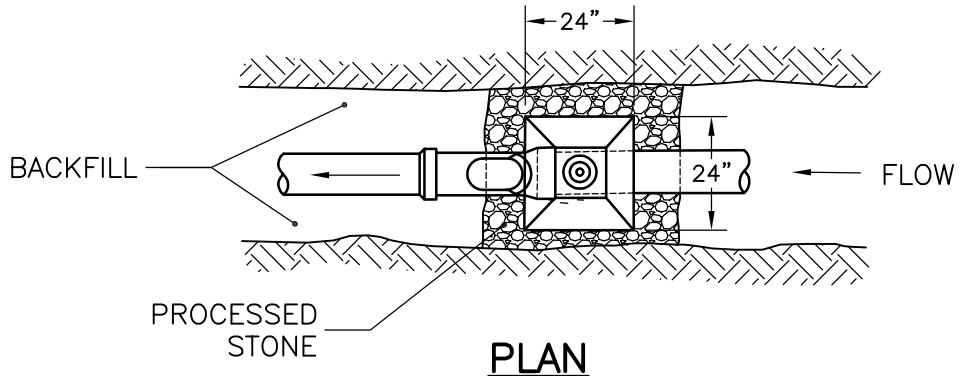
DETAIL

NTS

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# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



### CLEANOUT AT GRADE

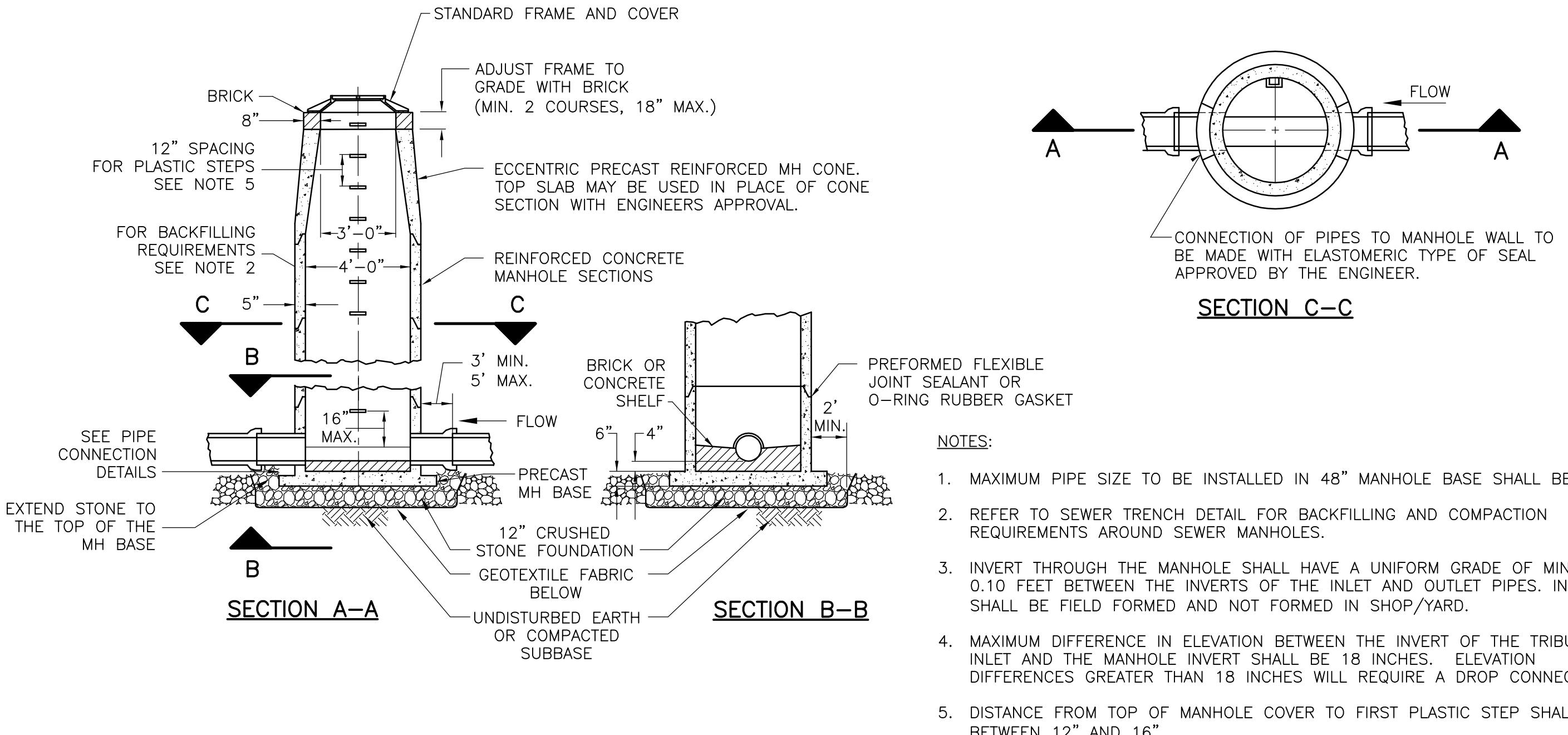
#### DETAIL

NTS

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THE METROPOLITAN DISTRICT  
SEWER STANDARD DETAILS



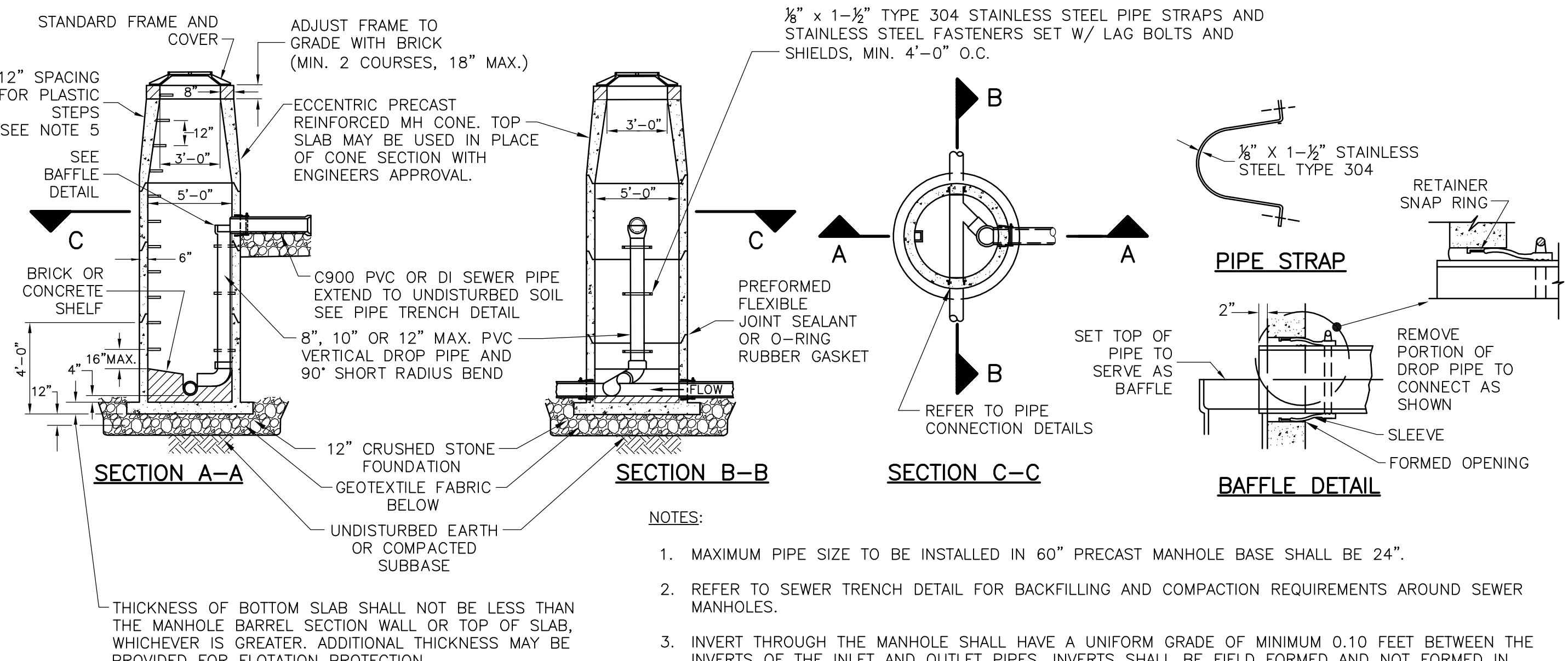
TYPE II PRECAST CONCRETE MANHOLE

DETAIL

NTS

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- NOTES:

  1. MAXIMUM PIPE SIZE TO BE INSTALLED IN 60" PRECAST MANHOLE BASE SHALL BE 24".
  2. REFER TO SEWER TRENCH DETAIL FOR BACKFILLING AND COMPACTION REQUIREMENTS AROUND SEWER MANHOLES.
  3. INVERT THROUGH THE MANHOLE SHALL HAVE A UNIFORM GRADE OF MINIMUM 0.10 FEET BETWEEN THE INVERTS OF THE INLET AND OUTLET PIPES. INVERTS SHALL BE FIELD FORMED AND NOT FORMED IN SHOP/YARD.
  4. MAXIMUM DIFFERENCE IN ELEVATION BETWEEN THE INVERT OF THE TRIBUTARY INLET AND THE MANHOLE INVERT SHALL BE 18 INCHES. ELEVATION DIFFERENCES GREATER THAN 18 INCHES WILL REQUIRE A DROP CONNECTION.
  5. DISTANCE FROM TOP OF MANHOLE COVER TO FIRST PLASTIC STEP SHALL BE BETWEEN 12" AND 16".

## TYPE IV PRECAST CONCRETE DROP MANHOLE

## DETAIL

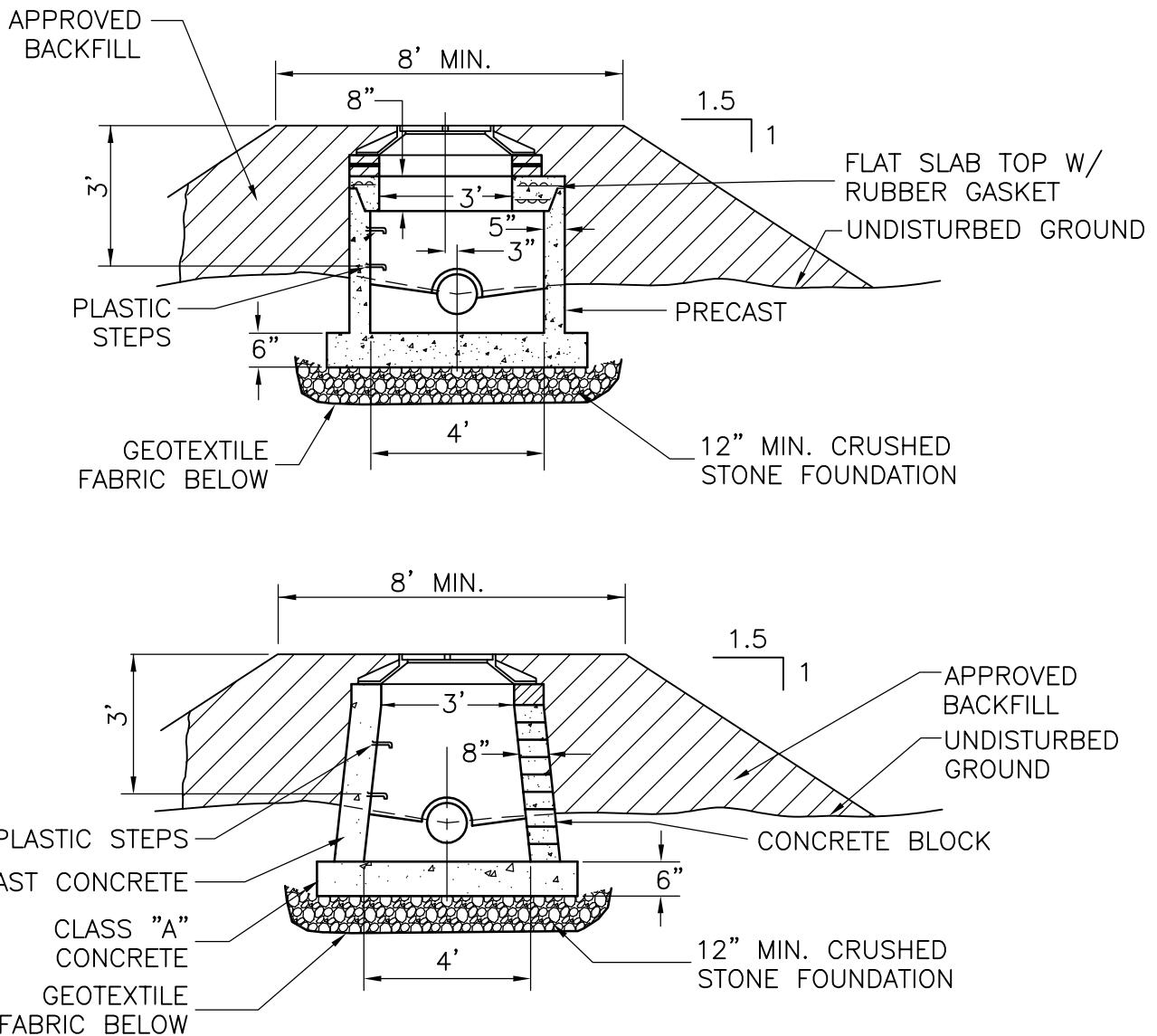
8

NTS

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# THE METROPOLITAN DISTRICT

SEWER STANDARD DETAILS



#### NOTES:

1. STANDARD FRAME AND COVER UNLESS OTHERWISE SPECIFIED.
2. MANHOLE SHELF TO BE CONCRETE OR BRICK MASONRY. OUTSIDE OF BLOCK MH TO BE PARGED WITH  $\frac{1}{4}$ " MORTAR. ADJUST FRAME TO GRADE WITH BRICK (MIN. 2 COURSES, 18" MAX.).

## TYPE V SHALLOW MANHOLE WITH OR WITHOUT EMBANKMENT

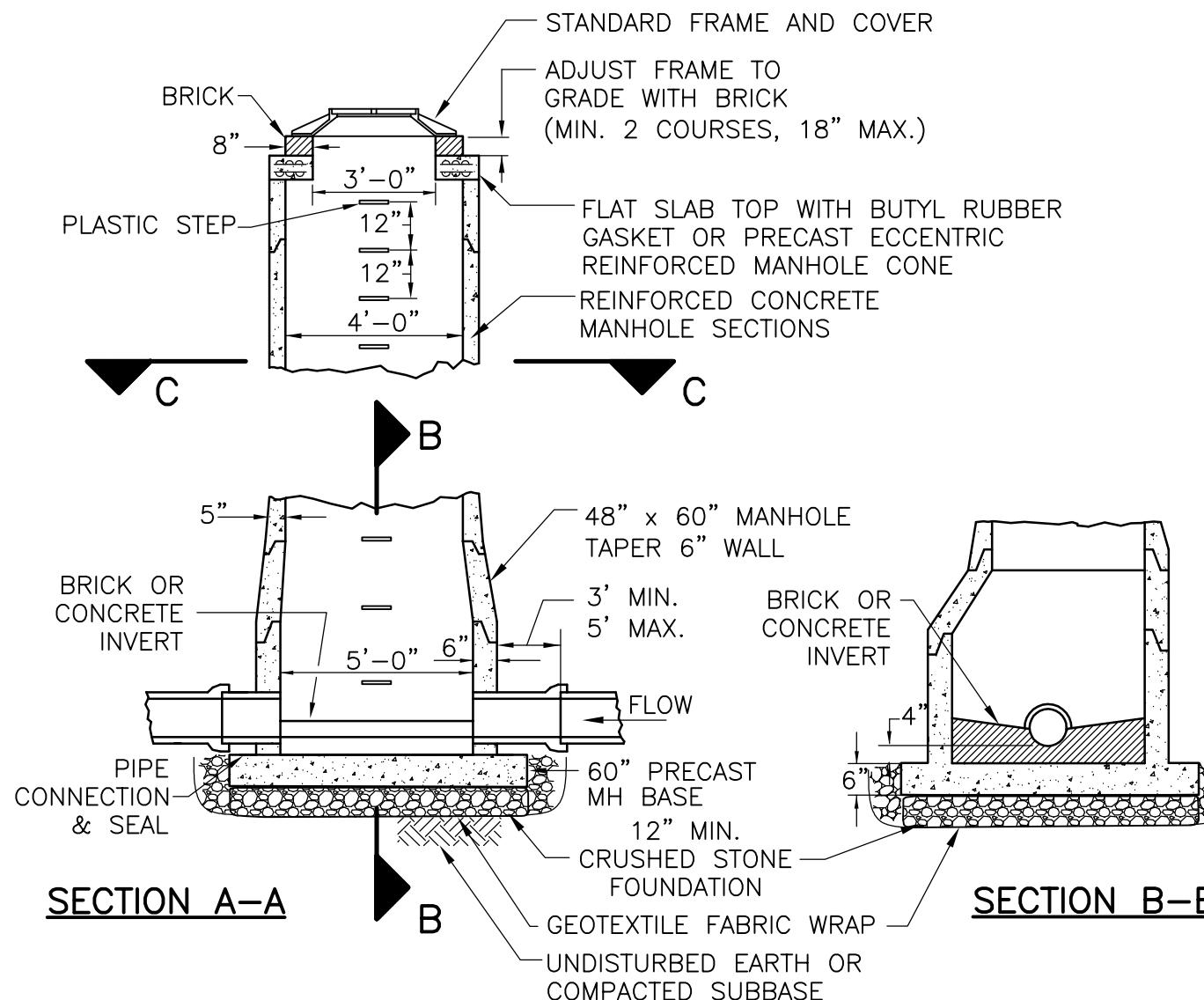
DETAIL

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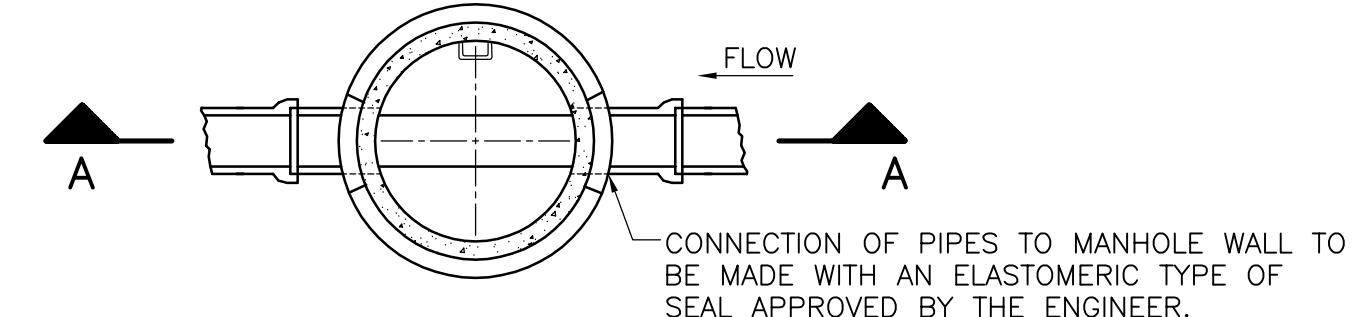
20

THE METROPOLITAN DISTRICT  
SEWER STANDARD DETAILS



NOTES:

1. MAXIMUM PIPE SIZE TO BE INSTALLED IN 60" PRECAST MANHOLE BASE SHALL BE 24".
2. REFER TO SEWER TRENCH DETAIL FOR BACKFILLING AND COMPACTION REQUIREMENTS AROUND SEWER MANHOLES.
3. INVERT THROUGH THE MANHOLE SHALL HAVE A UNIFORM GRADE OF MINIMUM 0.10 FEET BETWEEN THE INVERTS OF THE INLET AND OUTLET PIPES. INVERTS SHALL BE FIELD FORMED AND NOT FORMED IN SHOP/YARD.
4. MAXIMUM DIFFERENCE IN ELEVATION BETWEEN THE INVERT OF THE TRIBUTARY INLET AND THE MANHOLE INVERT SHALL BE 18 INCHES. ELEVATION DIFFERENCES GREATER THAN 18 INCHES WILL REQUIRE A DROP CONNECTION.
5. DISTANCE FROM TOP OF MANHOLE COVER TO FIRST PLASTIC STEP SHALL BE BETWEEN 12" AND 16".



TYPE VI PRECAST CONCRETE MANHOLE

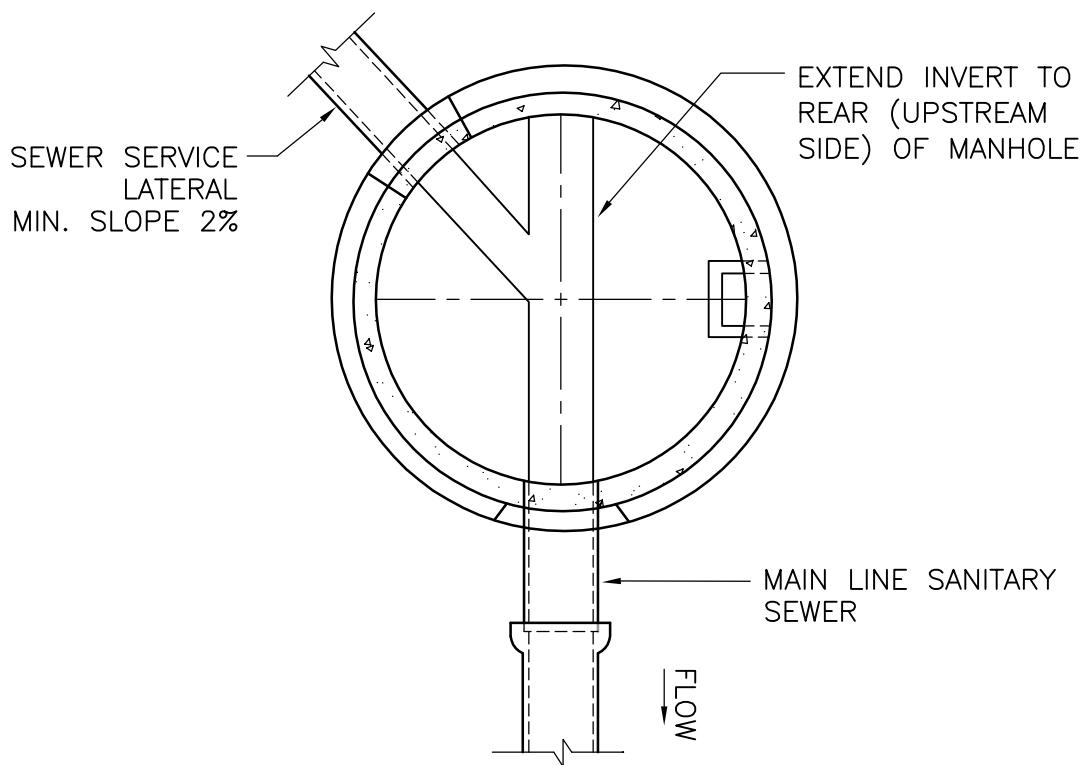
DETAIL

NTS

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# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



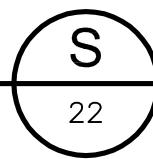
NOTE:

1. CONNECTION OF SEWER SERVICE LATERAL TO MANHOLE SHALL BE MADE WITH AN ELASTOMERIC TYPE OF SEAL.

END MANHOLE

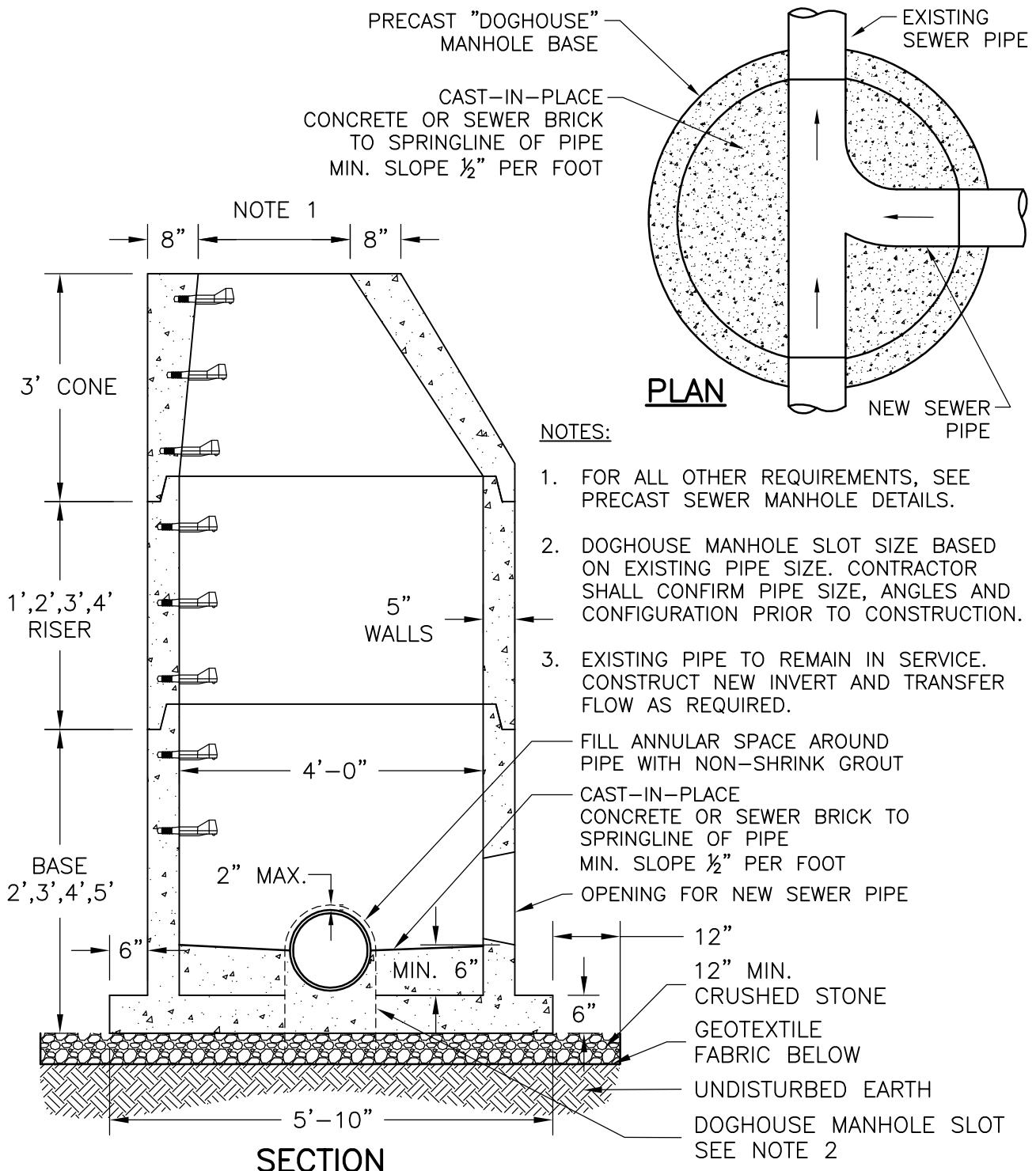
DETAIL

NTS



# THE METROPOLITAN DISTRICT

SEWER STANDARD DETAILS



PRECAST DOGHOUSE MANHOLE (48-INCH Ø EXTENDED BASE)

**DETAIL**

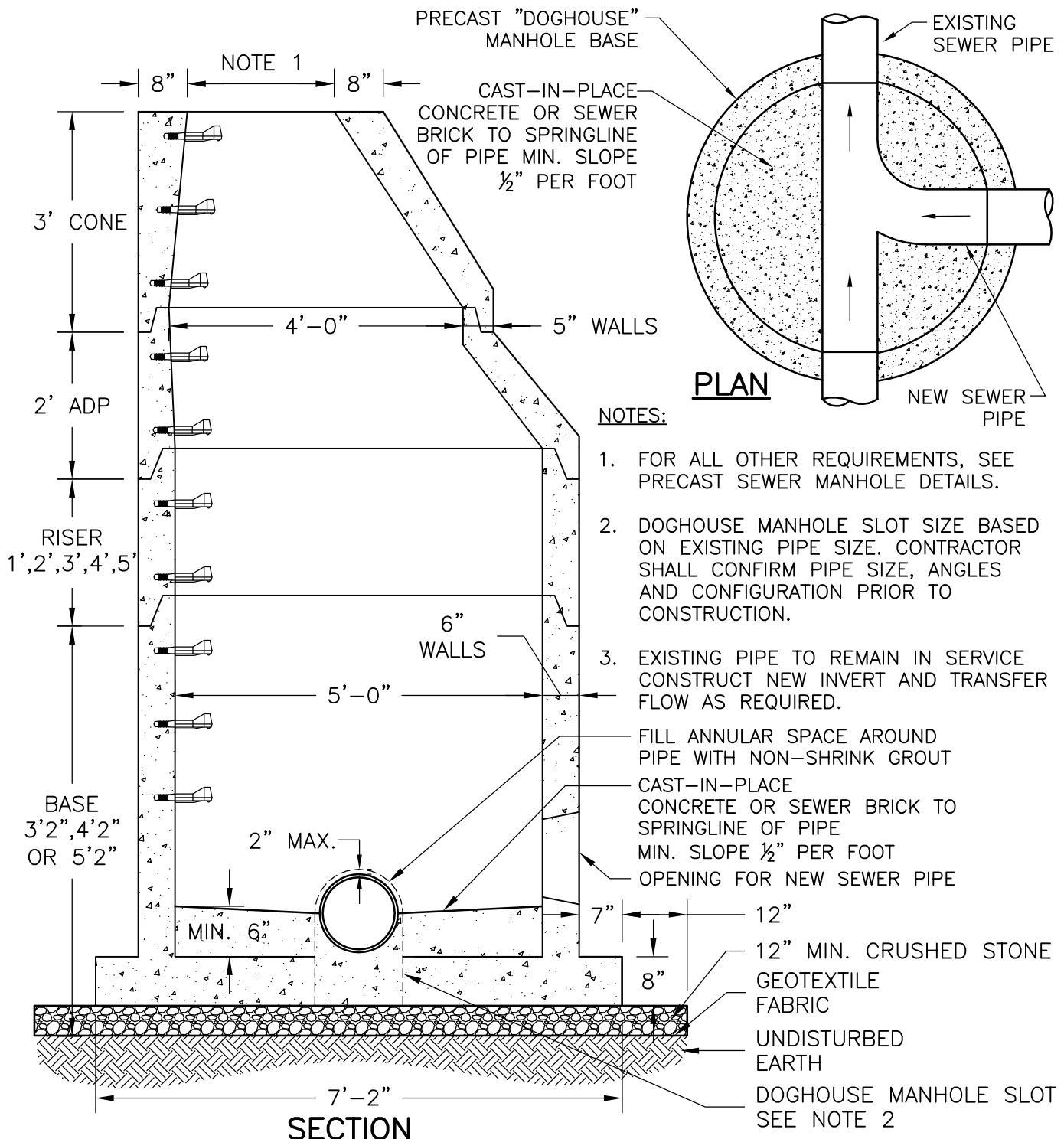
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# THE METROPOLITAN DISTRICT

SEWER STANDARD DETAILS



PRECAST DOGHOUSE MANHOLE (60-INCH Ø EXTENDED BASE)

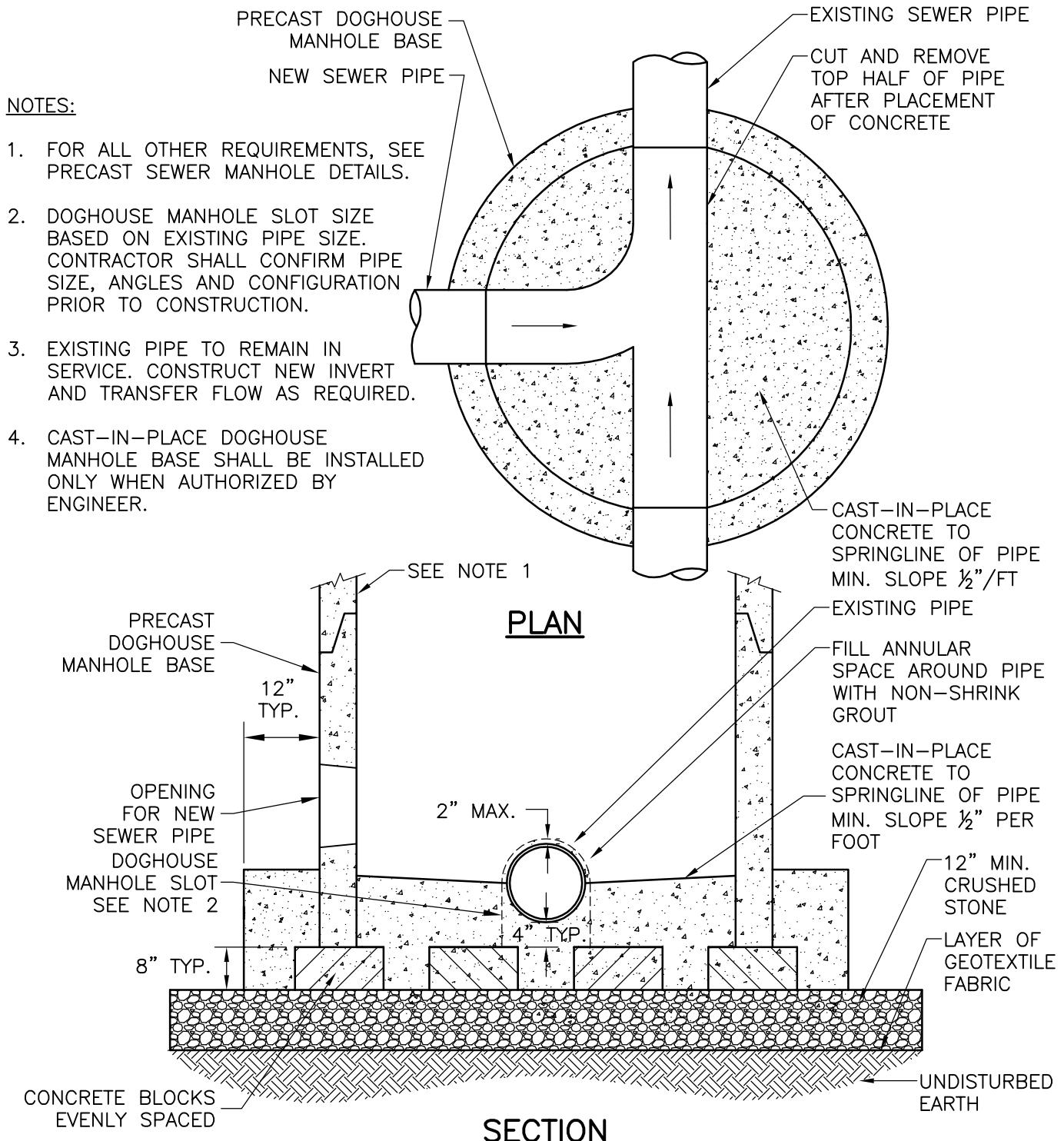
DETAIL

NTS

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# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



### DOGHOUSE MANHOLE WITH CAST-IN-PLACE BASE

**DETAIL**

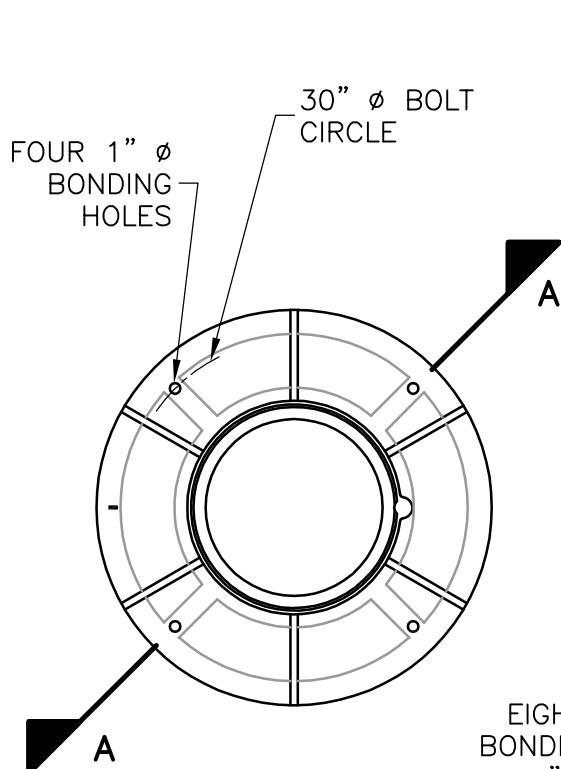
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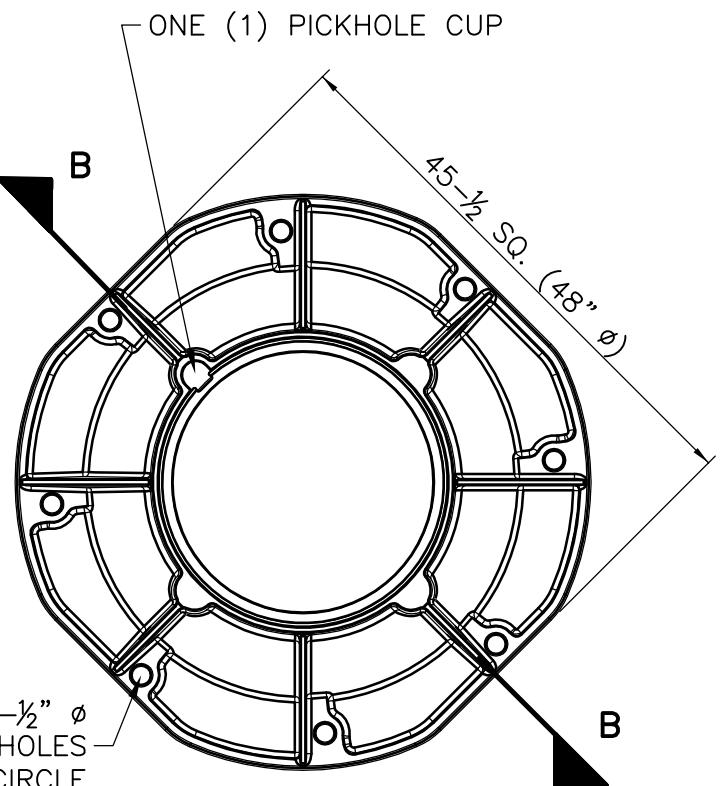
25

# THE METROPOLITAN DISTRICT

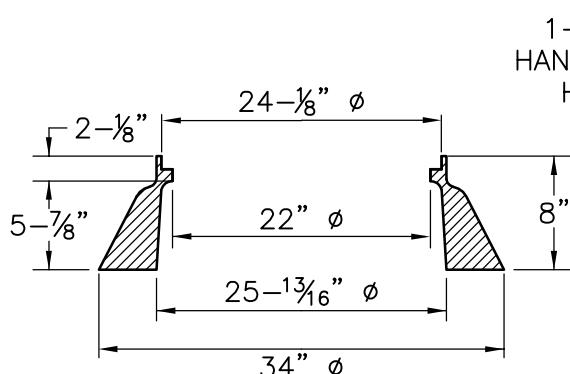
## SEWER STANDARD DETAILS



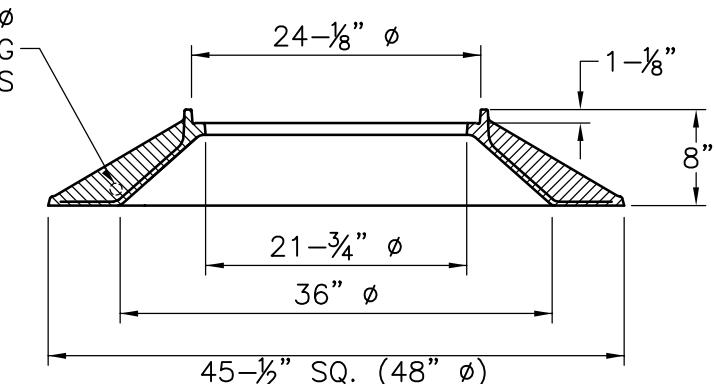
STANDARD FRAME FOR  
EXISTING MANHOLES



STANDARD FRAME  
FOR NEW MANHOLES



SECTION A-A



SECTION B-B

## STANDARD MANHOLE FRAMES

DETAIL

NTS

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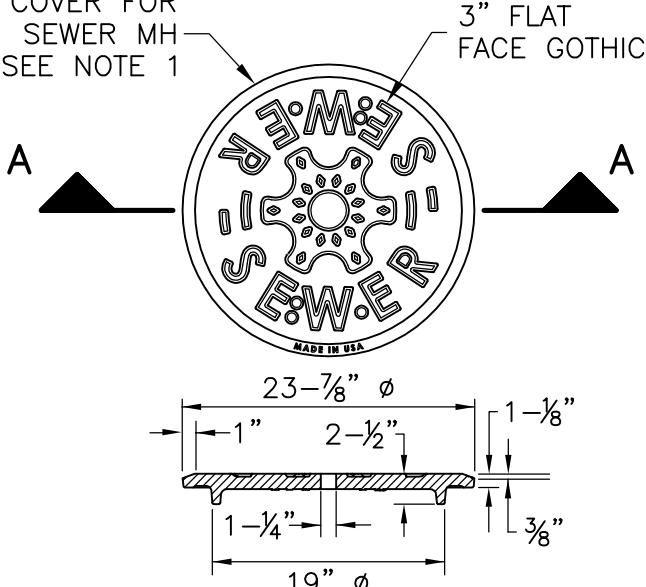
26

# THE METROPOLITAN DISTRICT

SEWER STANDARD DETAILS

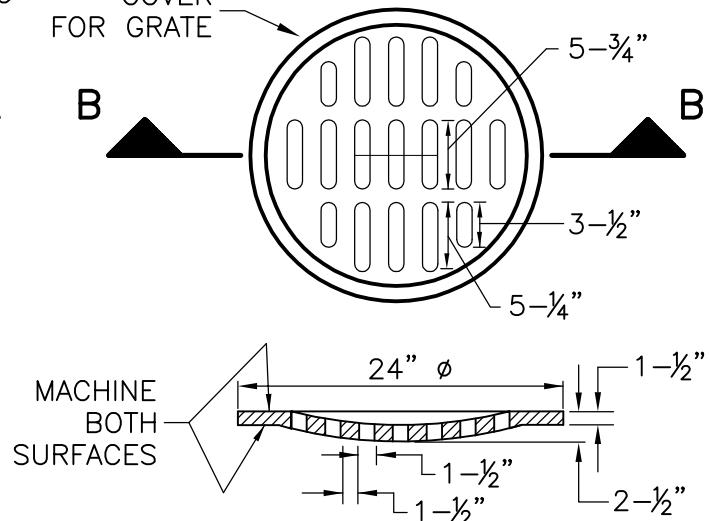


COVER FOR  
SEWER MH  
SEE NOTE 1

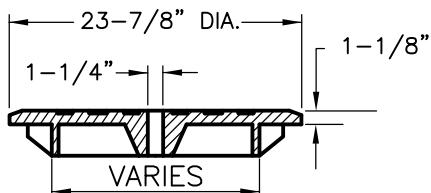


SECTION A-A  
(PLATEN COVER)

COVER  
FOR GRATE



SECTION B-B



SECTION A-A  
(RIBBED COVER)

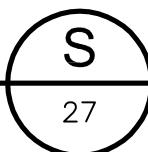
NOTES:

1. MANHOLES COVERS MAY BE DESIGN WITH OR WITHOUT RIBS. THE TOP SURFACE OF THE MANHOLE COVER SHALL BE FLAT. THE BOTTOM SURFACE MAY OR MAY NOT BE FLAT.
2. PROVIDE ALTERNATIVE INSCRIPTION 'STORM DRAIN' WHEN SPECIFIED.
3. THE LOWER SURFACE OF THE COVER AND THE CORRESPONDING UPPER SURFACE OF THE FRAME SHALL BE MACHINE FINISHED TO PROVIDE A SMOOTH FLAT CONTACT OR FIT WITHOUT ANY TENDENCY FOR THE COVER OR GRATE TO ROCK OR RATTLE. THE GAP BETWEEN THE COVER/GRATE AND FRAME SHALL BE NO MORE THAN  $1/8$ " ALL AROUND.

## STANDARD MANHOLE COVERS

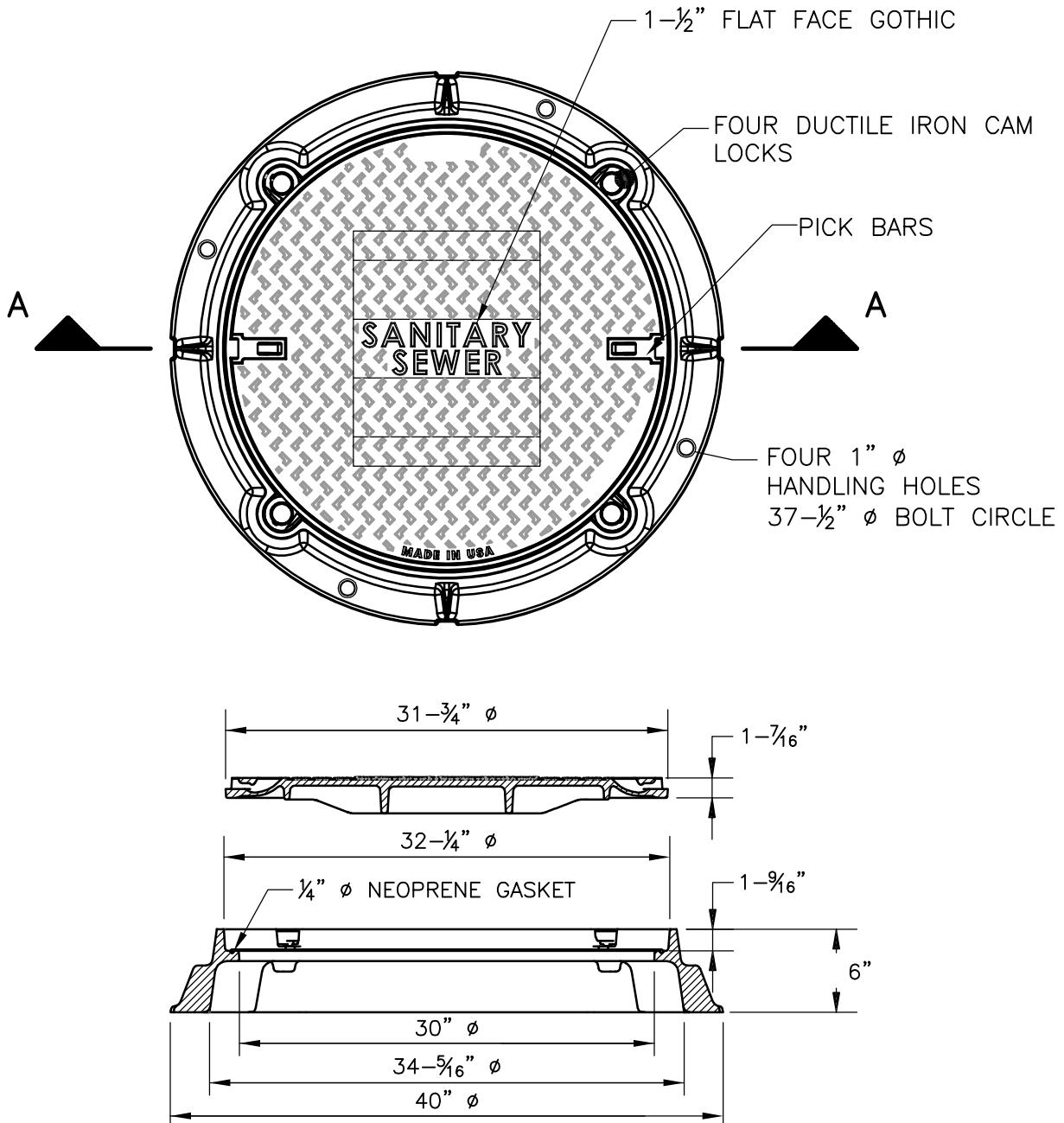
DETAIL

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# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



### SECTION A-A

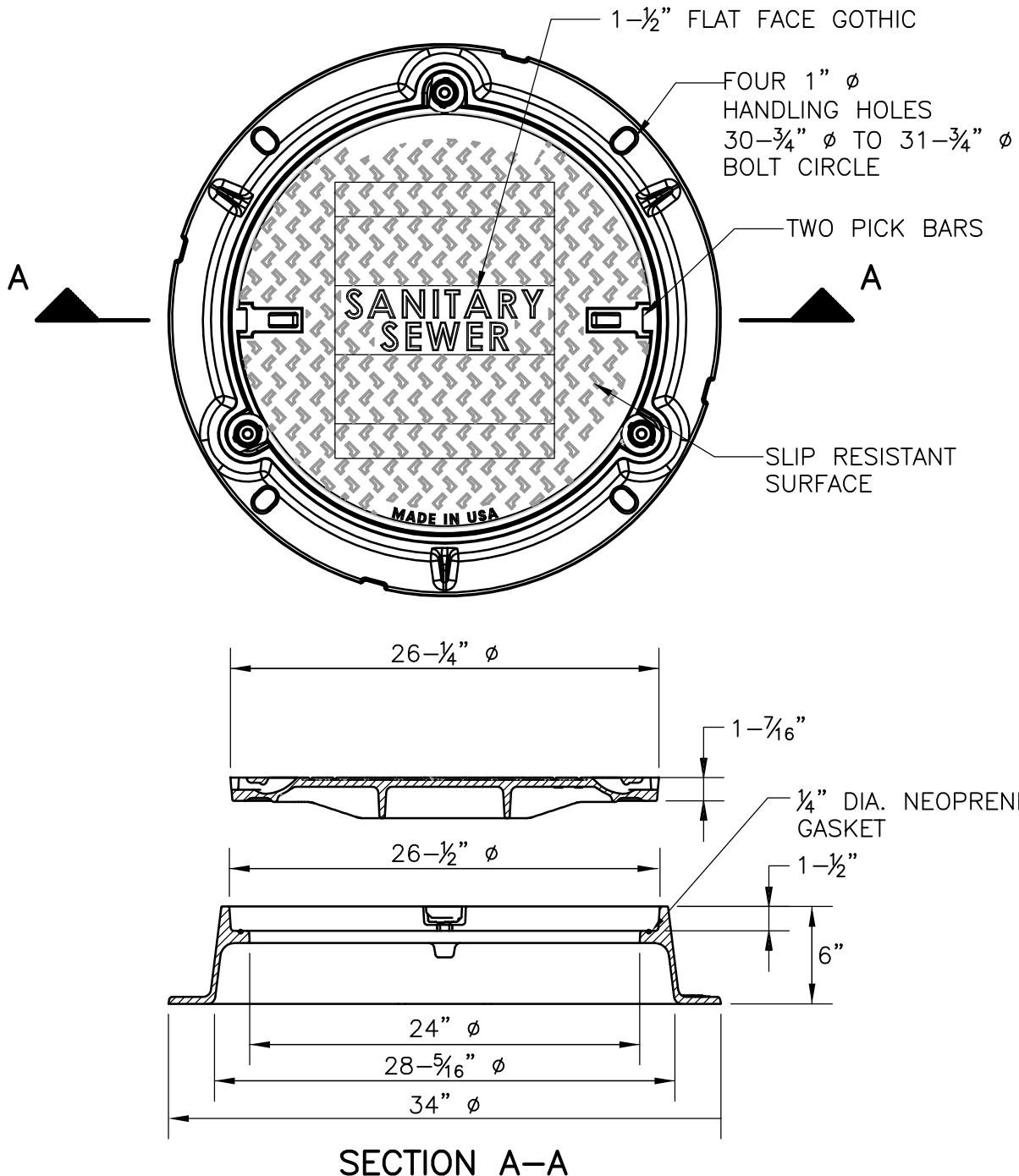
STANDARD 32-INCH WATERTIGHT MANHOLE FRAME AND COVER

DETAIL  
NTS

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# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



STANDARD 26-INCH WATERTIGHT MANHOLE FRAME AND COVER

DETAIL

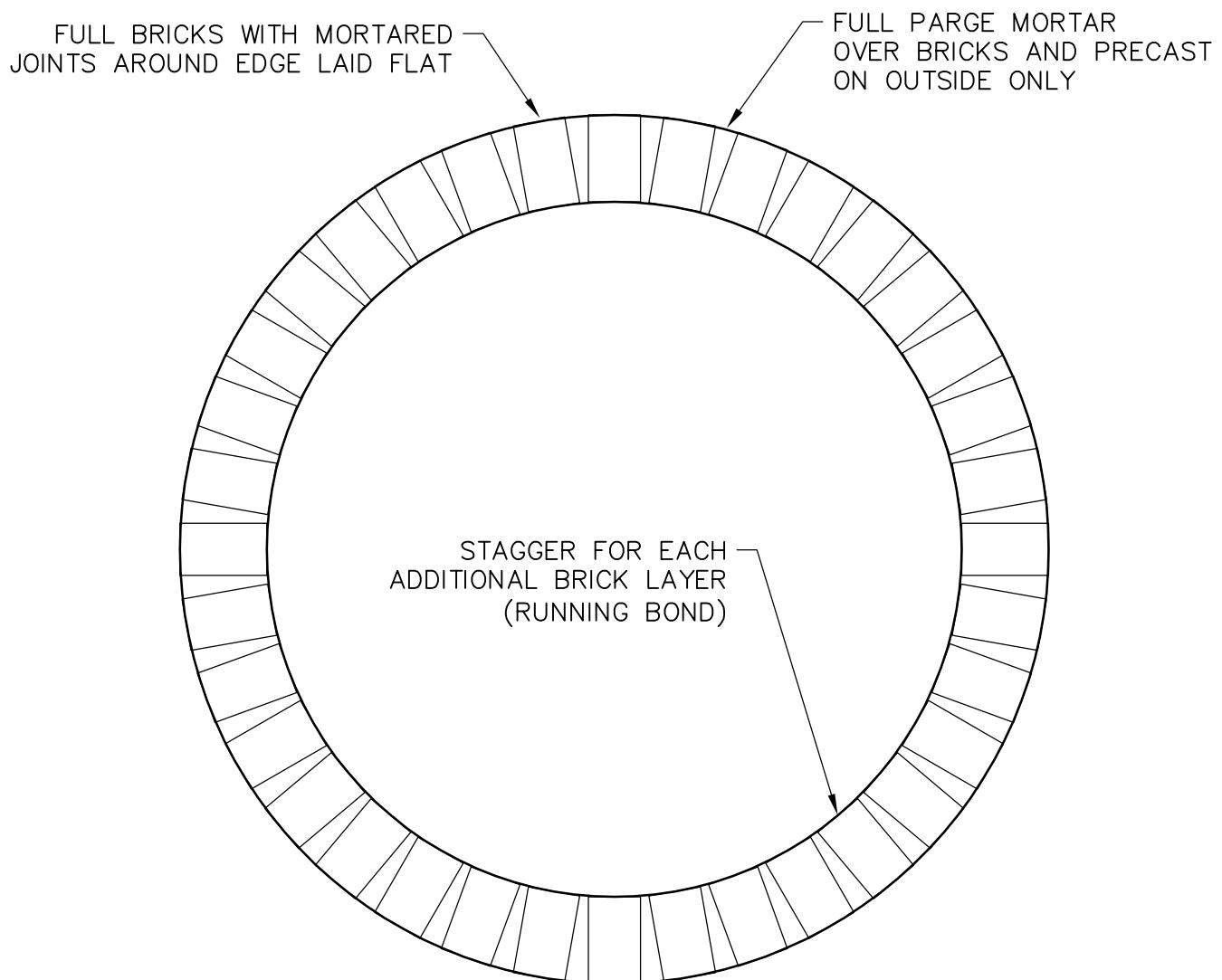
NTS

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# THE METROPOLITAN DISTRICT

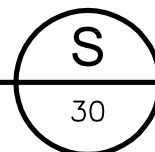
## SEWER STANDARD DETAILS



BRICK LEVELING COURSE FOR NEW MANHOLES

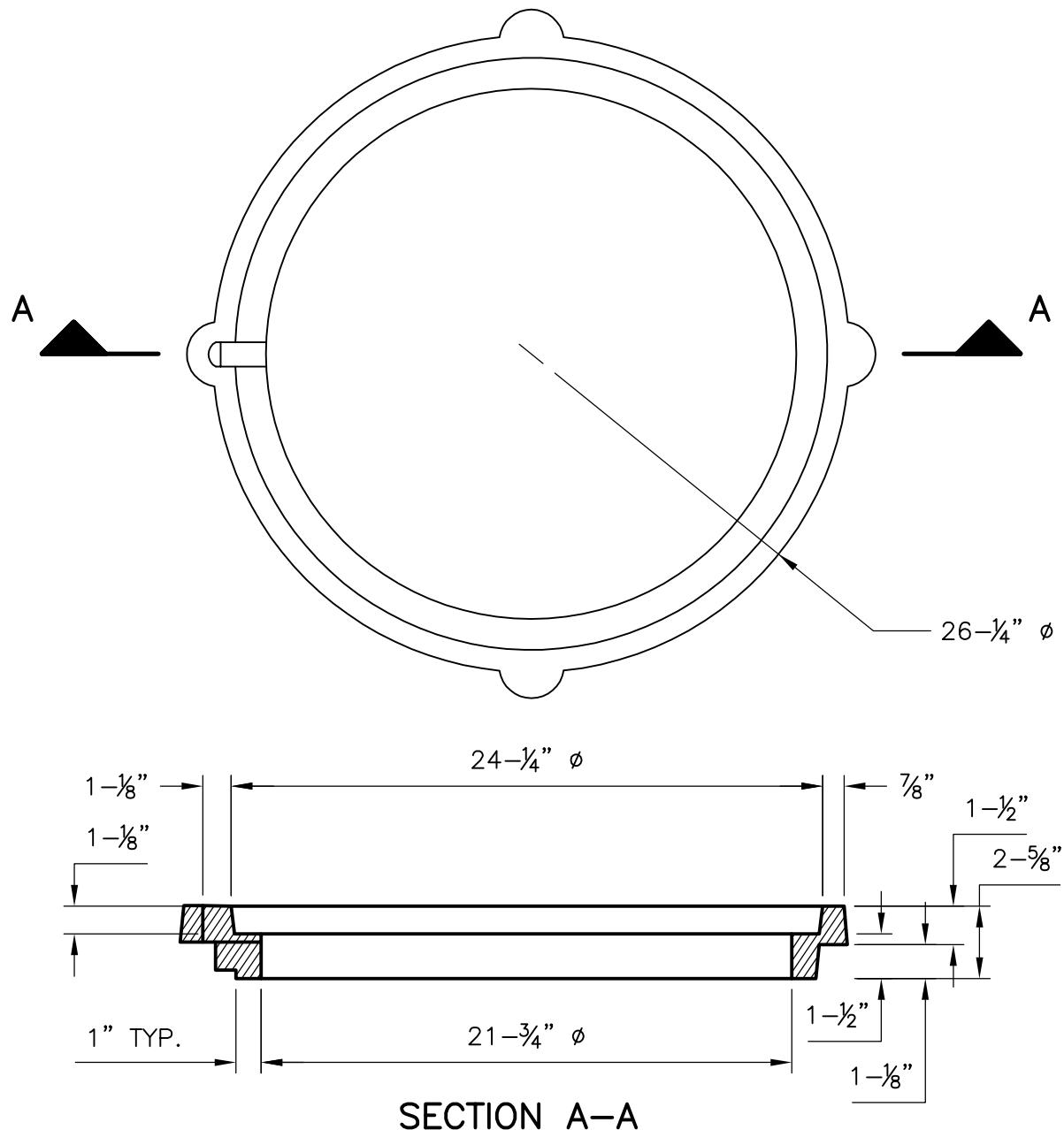
DETAIL

NTS



# THE METROPOLITAN DISTRICT

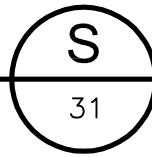
## SEWER STANDARD DETAILS



EXTENSION RING FOR SEWER MANHOLES (1-1/2 INCH)

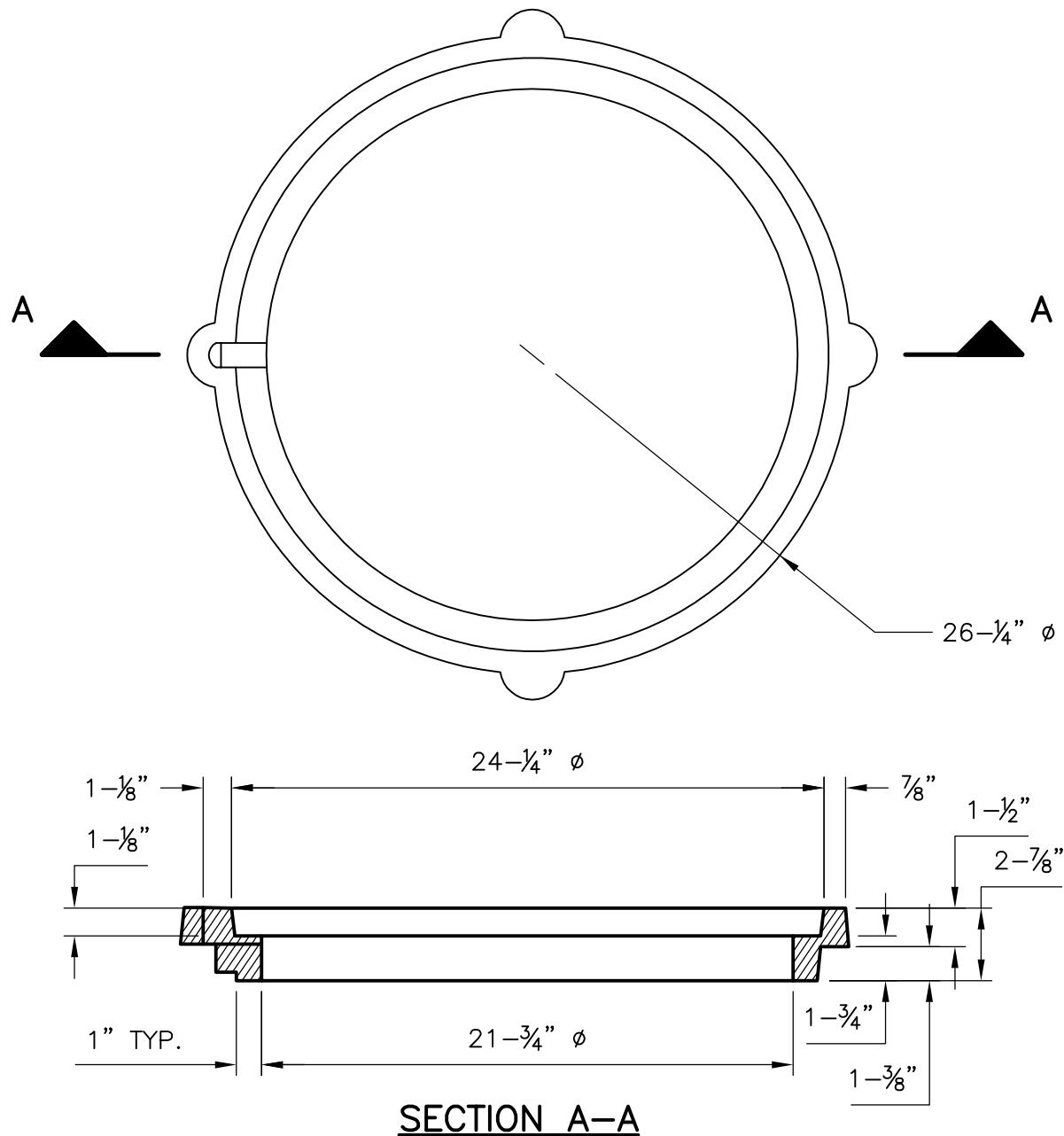
DETAIL

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# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS

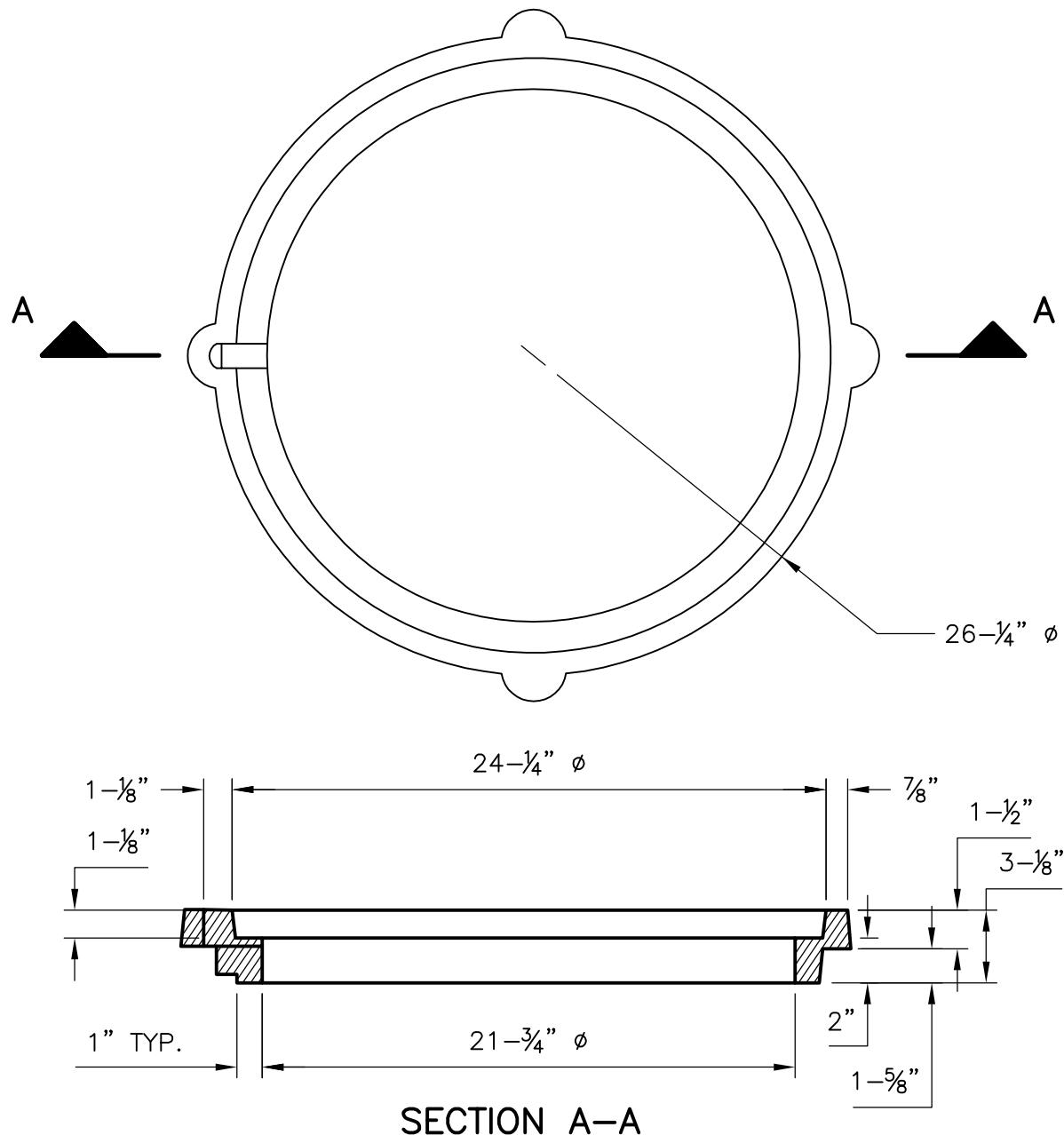


EXTENSION RING FOR SEWER MANHOLES (1-3/4 INCH)

DETAIL  
NTS

# THE METROPOLITAN DISTRICT

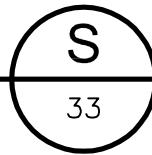
## SEWER STANDARD DETAILS



EXTENSION RING FOR SEWER MANHOLES (2 INCH)

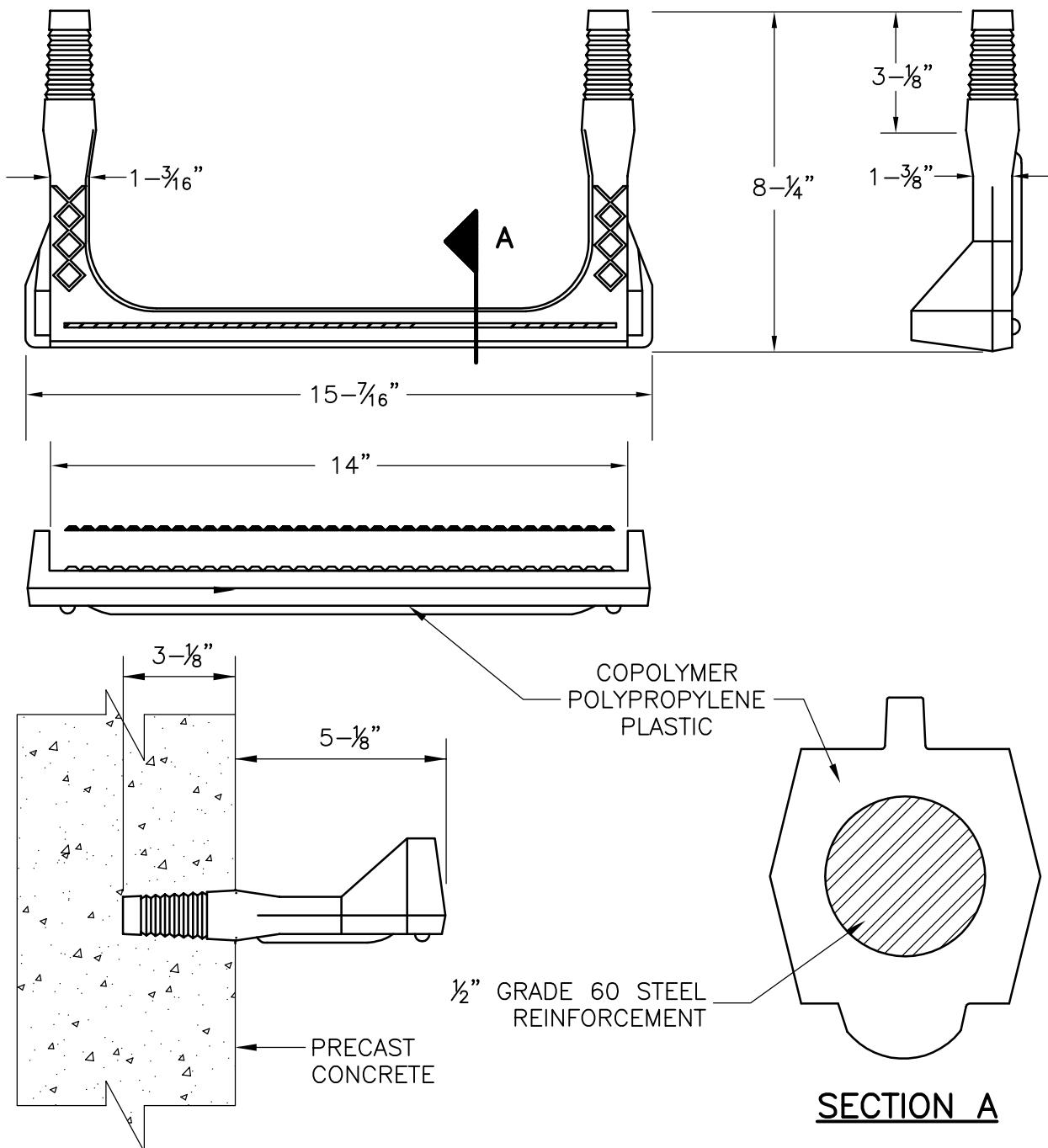
DETAIL

NTS



# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



PLASTIC STEP FOR PRECAST CONCRETE MANHOLE

DETAIL

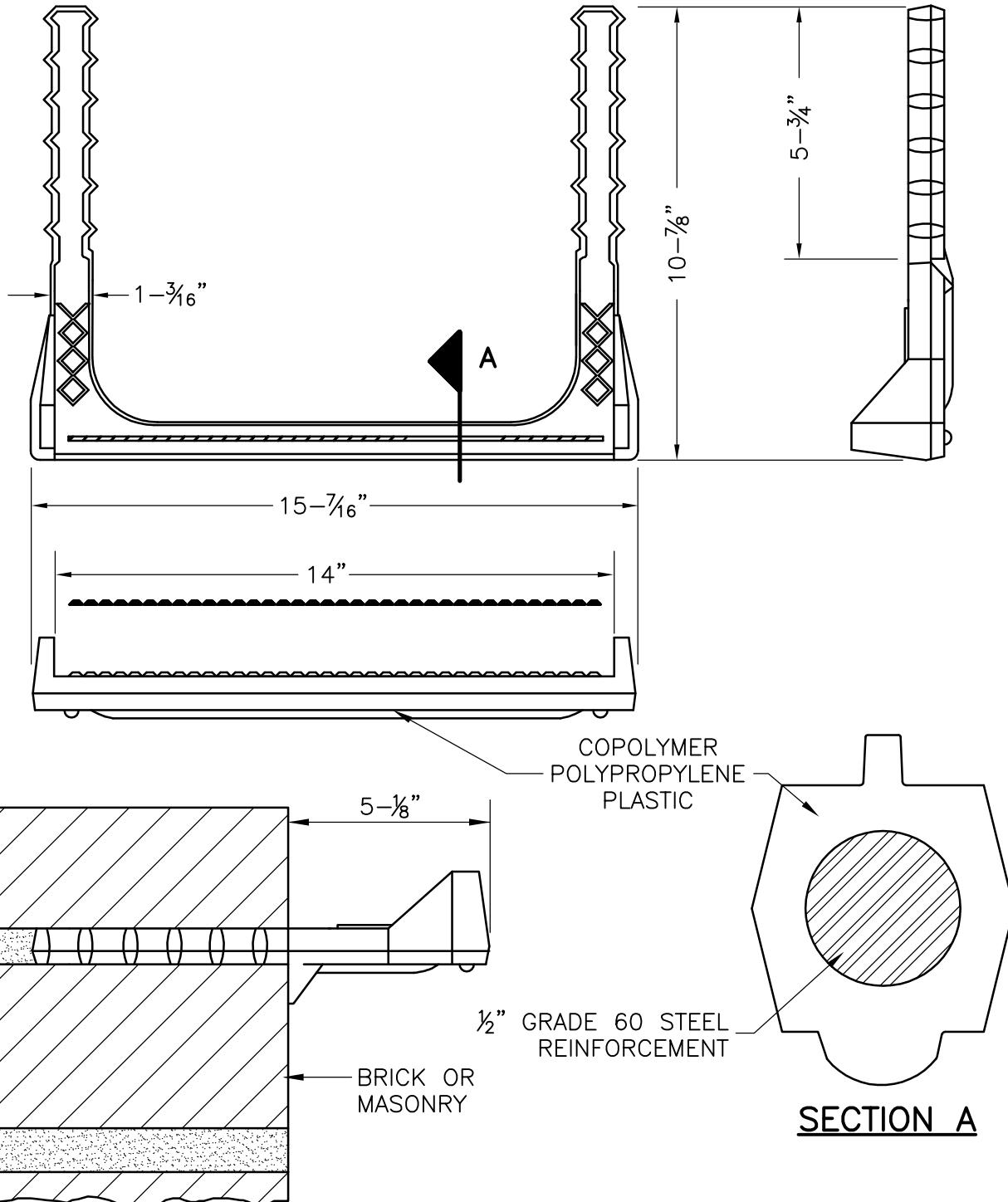
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# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



PLASTIC STEP FOR BRICK OR MASONRY MANHOLE

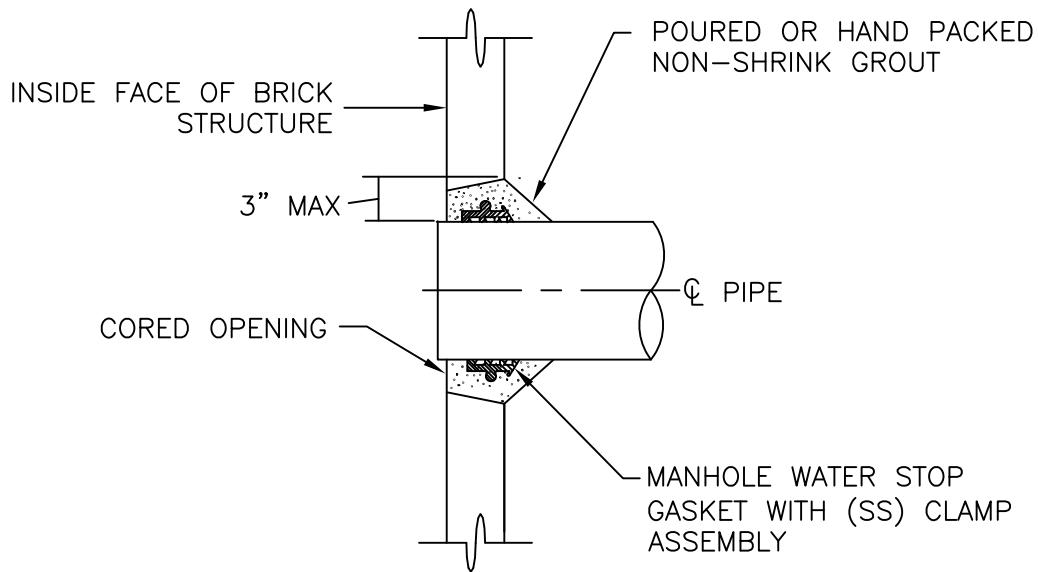
DETAIL

NTS

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# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



### NOTES:

1. REFER TO OTHER PIPE CONNECTION DETAILS FOR OTHER APPROVED CONNECTION METHODS.
2. PROVIDE WATER STOP WITH STAINLESS STEEL CLAMP AROUND NEW PIPE FOR SANITARY SEWER FLOWS.
3. REWORK EXISTING MANHOLE INVERT TO ACCOMMODATE NEW FLOWS, IF NECESSARY.

### PIPE CONNECTION TO EXISTING BRICK STRUCTURE

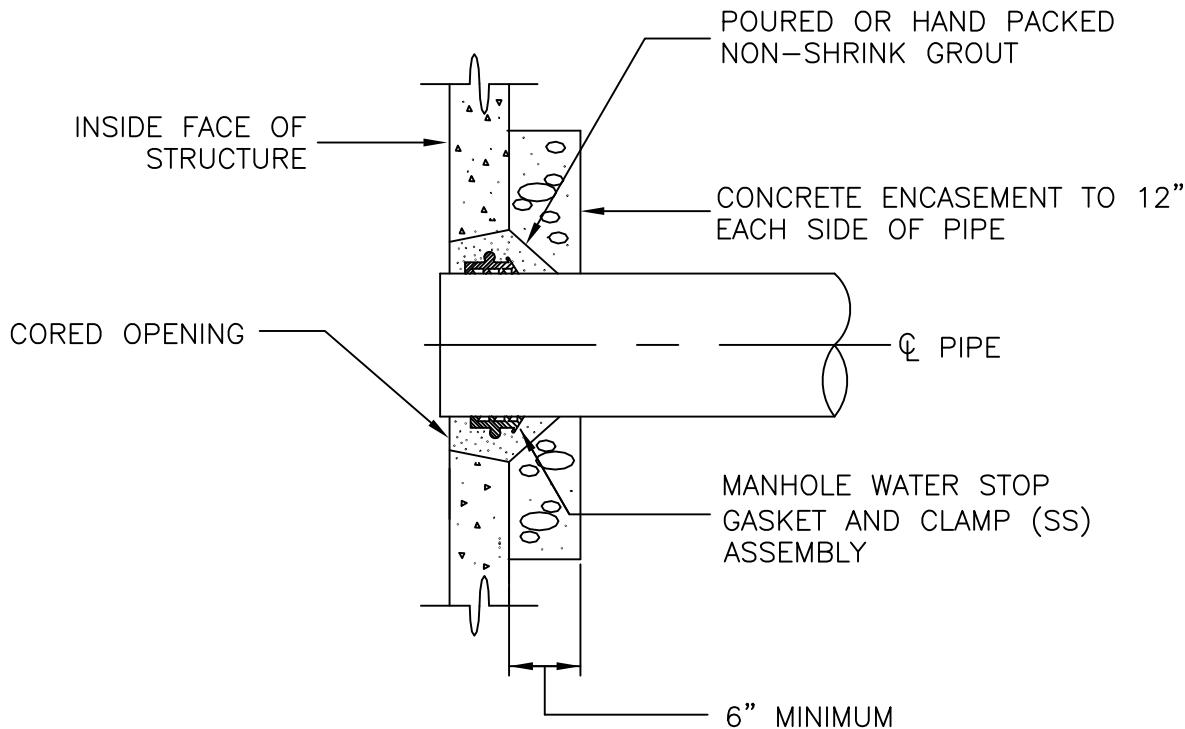
**DETAIL**

NTS

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# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



NOTE:

1. FORM CONCRETE ENCASEMENT ON UNDISTURBED MATERIAL OR STRUCTURALLY FIRM FOUNDATION.
2. PROVIDE WATER STOP WITH STAINLESS STEEL CLAMP AROUND NEW PIPE FOR SANITARY SEWER FLOWS.
3. REWORK EXISTING MANHOLE INVERT TO ACCOMMODATE NEW FLOWS, IF NECESSARY.

### PIPE CONNECTION TO EXISTING STRUCTURE WITH CONCRETE ENCASEMENT

DETAIL

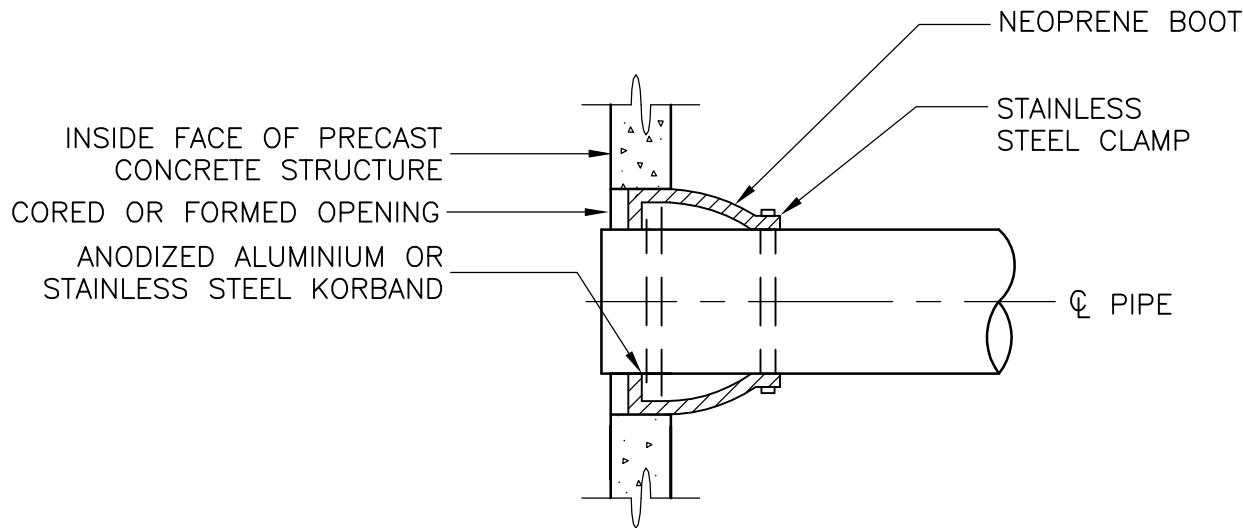
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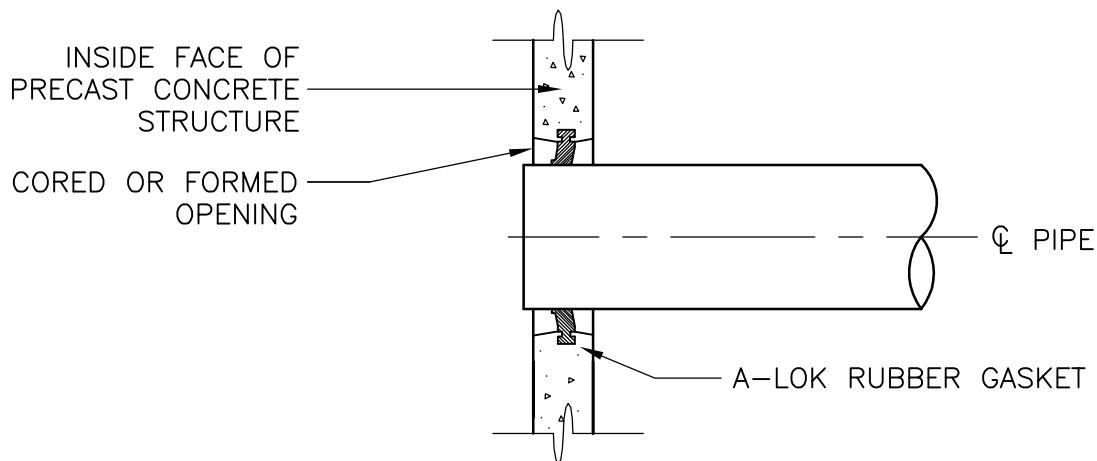
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# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



### KOR-N-SEAL BOOT



### A-LOK SYSTEM

#### NOTE:

1. PACK NON-SHRINK GROUT AROUND ANNULAR AREA OF PIPE ON OUTSIDE OF STRUCTURE PRIOR TO BACKFILLING.

## PIPE CONNECTIONS TO PRECAST CONCRETE STRUCTURES

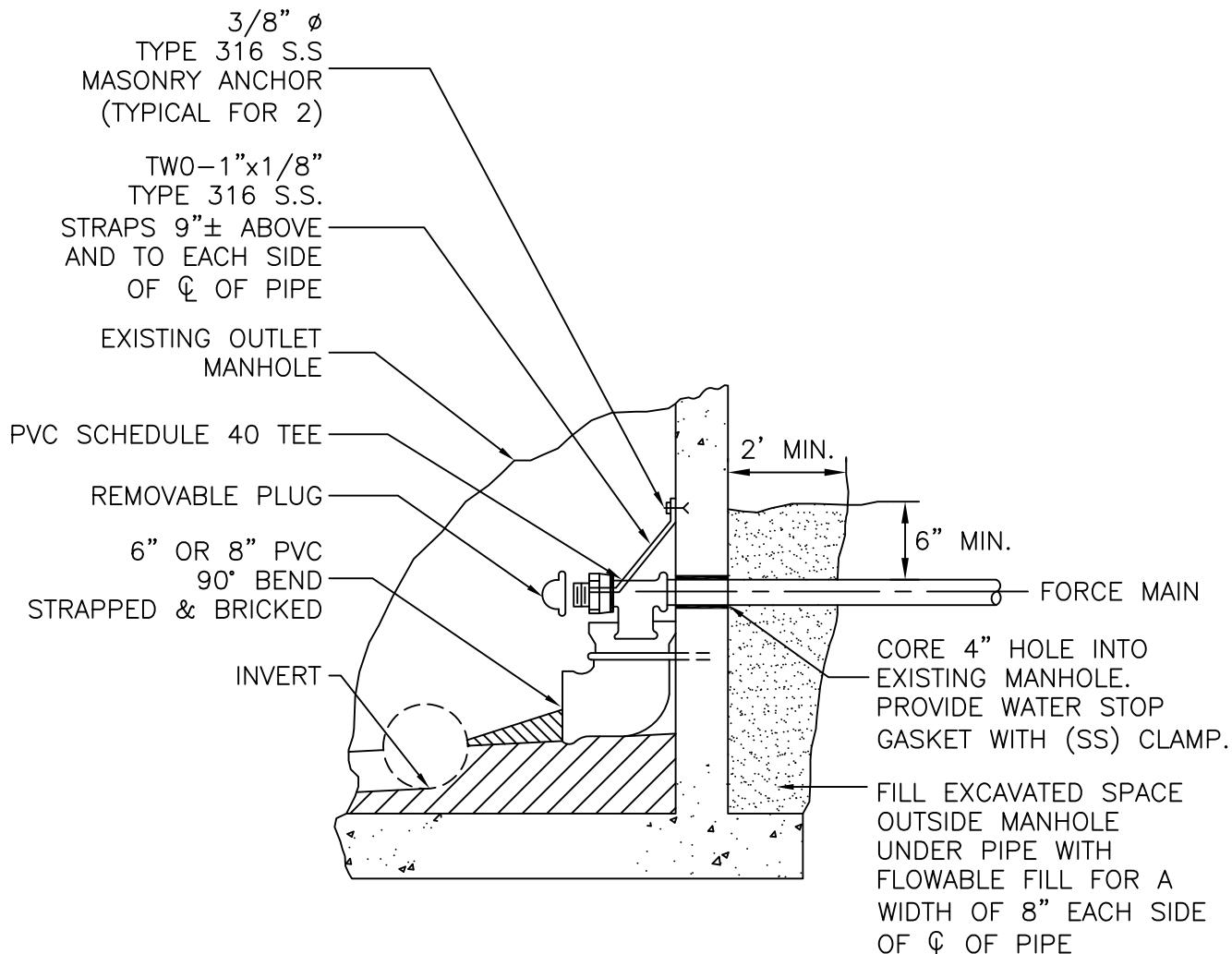
DETAIL

NTS

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# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



FORCE MAIN OUTLET CONNECTION AT MANHOLE

**DETAIL**

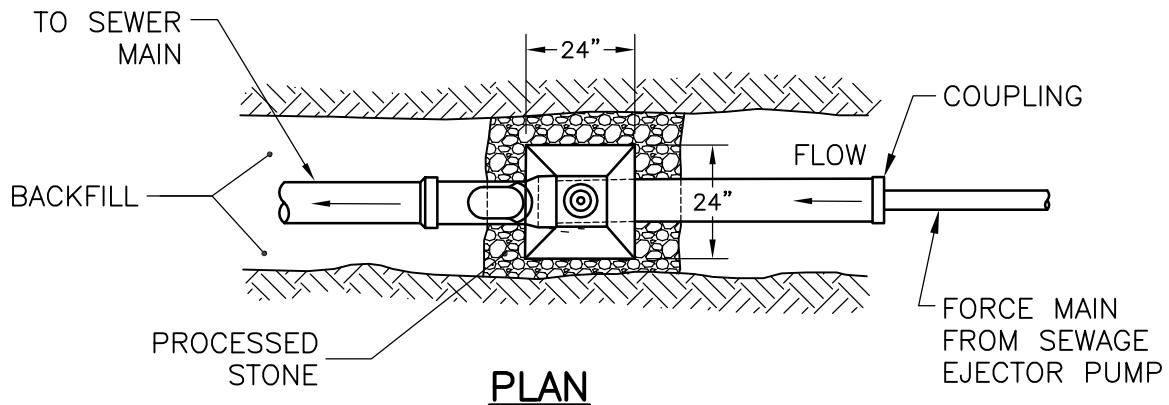
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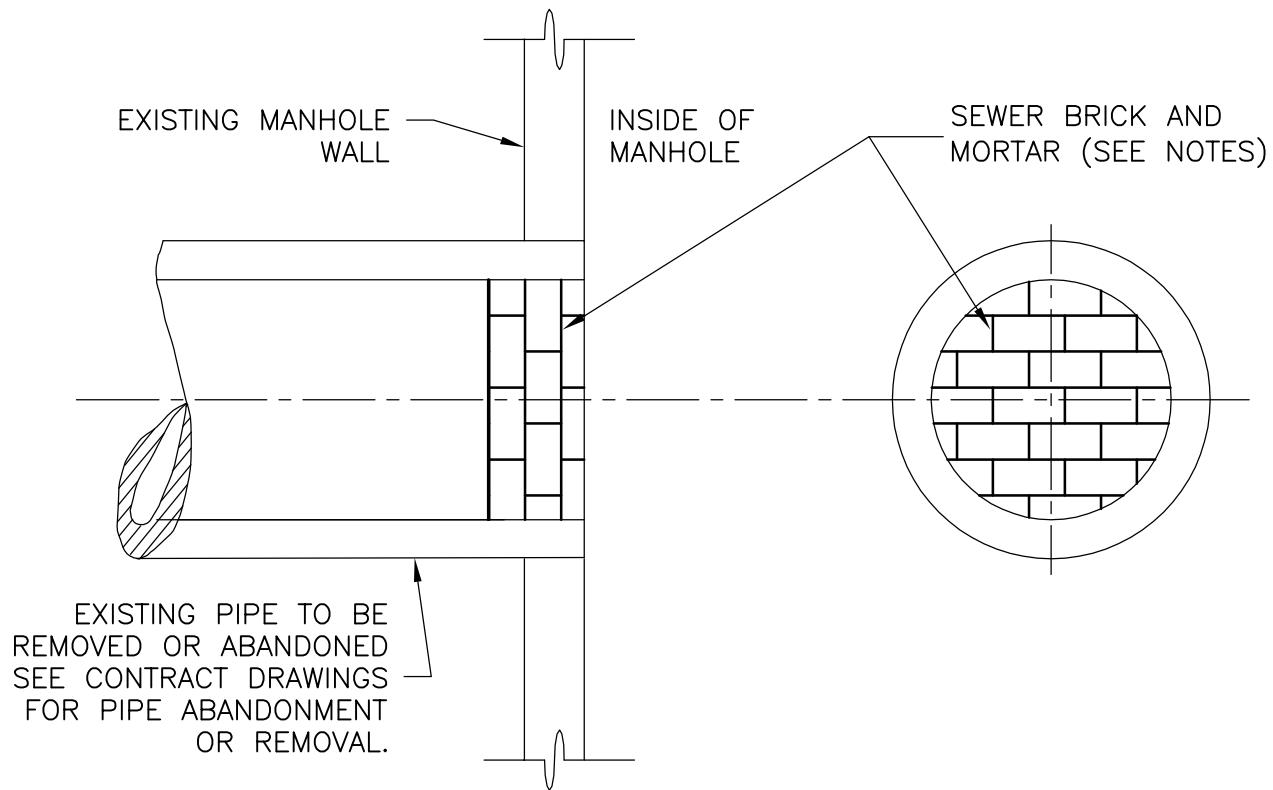
# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



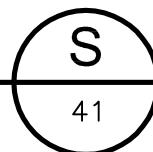
### NOTES:

1. MIN. 6" THICKNESS FOR PIPE SIZES 4" THROUGH 10".
2. MIN. 8" THICKNESS FOR PIPE SIZES 12" AND 15".
3. MIN. 12" THICKNESS FOR PIPE SIZES 15" AND GREATER.
4. SEWER PIPE 36" OR GREATER MAY UTILIZE CONCRETE BLOCK INSTEAD OF SEWER BRICK.

### PIPE PLUG AT MANHOLE

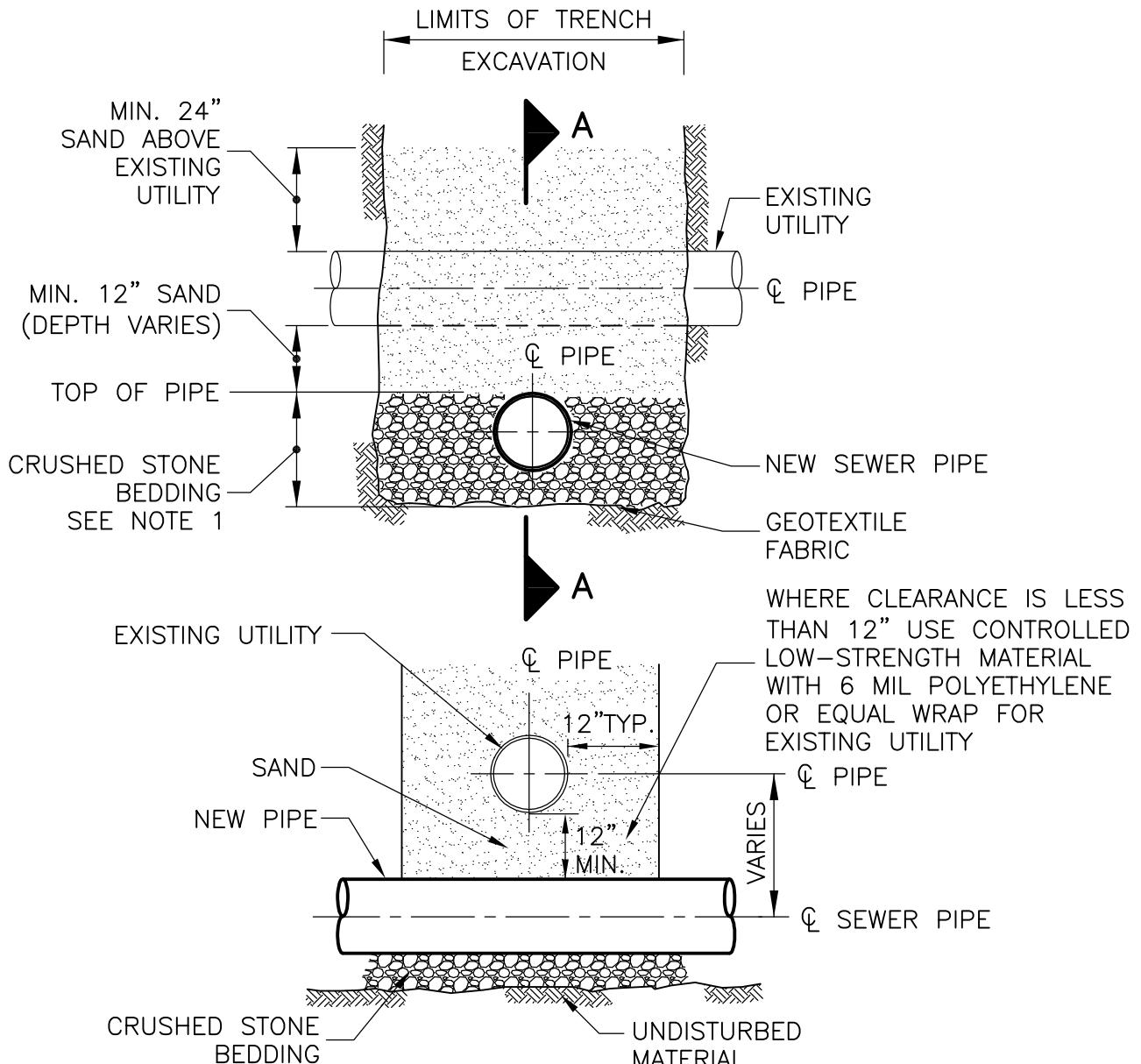
#### DETAIL

NTS



# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



NOTES:

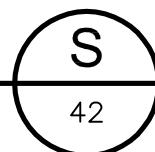
**SECTION A-A**

1. CRUSHED STONE SHALL BE INSTALLED TO TOP OF PIPE FOR PVC AND DI PIPE AND TO SPRINGLINE FOR RC PIPE.
2. REFER TO SEWER TRENCH DETAIL FOR BACKFILLING AND RESTORATION REQUIREMENTS.

**EXISTING GAS OR WATER UTILITY CROSSING**

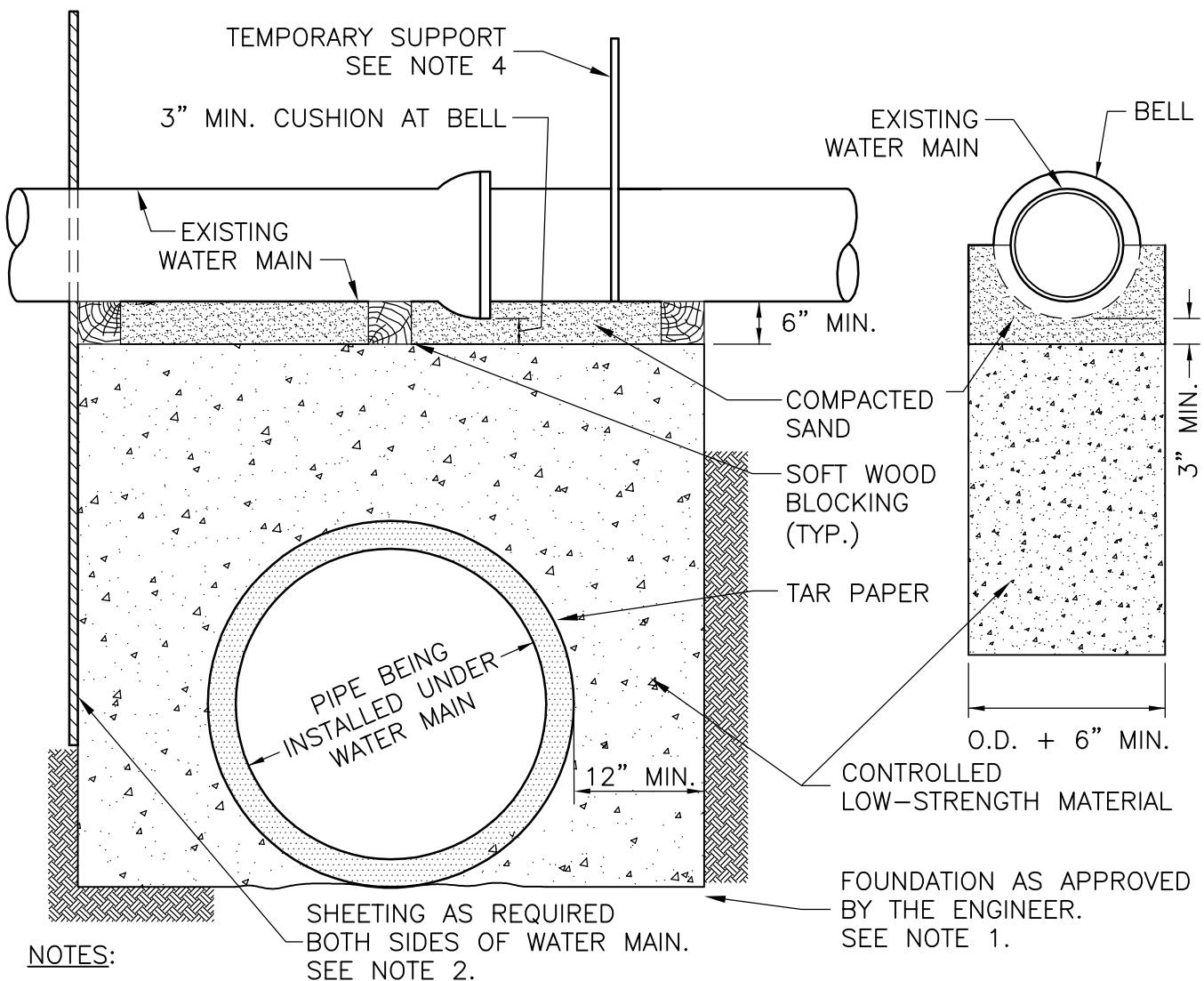
**DETAIL**

NTS



# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



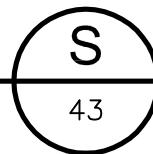
NOTES:

1. REFER TO SEWER TRENCH DETAIL FOR BEDDING OF PIPE BEING INSTALLED UNDER WATER MAIN.
2. CONTRACTOR TO SUBMIT DETAILS OF TRENCH SHORING AND PIPE SUPPORT TO THE ENGINEER FOR APPROVAL.
3. CONTRACTOR TO EXCAVATE TO HORIZONTAL CENTER OF EXISTING WATER PIPE PRIOR TO DRIVING SHEETING, SOLDIER PILES OR OTHER SHORING SUPPORTS.
4. PROVIDE TEMPORARY SUPPORT FOR THE EXISTING WATER MAIN WHILE EXCAVATING UNDER THE WATER MAIN. ALL DESIGNS MUST BE CERTIFIED BY A CT REGISTERED PROFESSIONAL ENGINEER.

### PERMANENT WATER PIPE SUPPORT

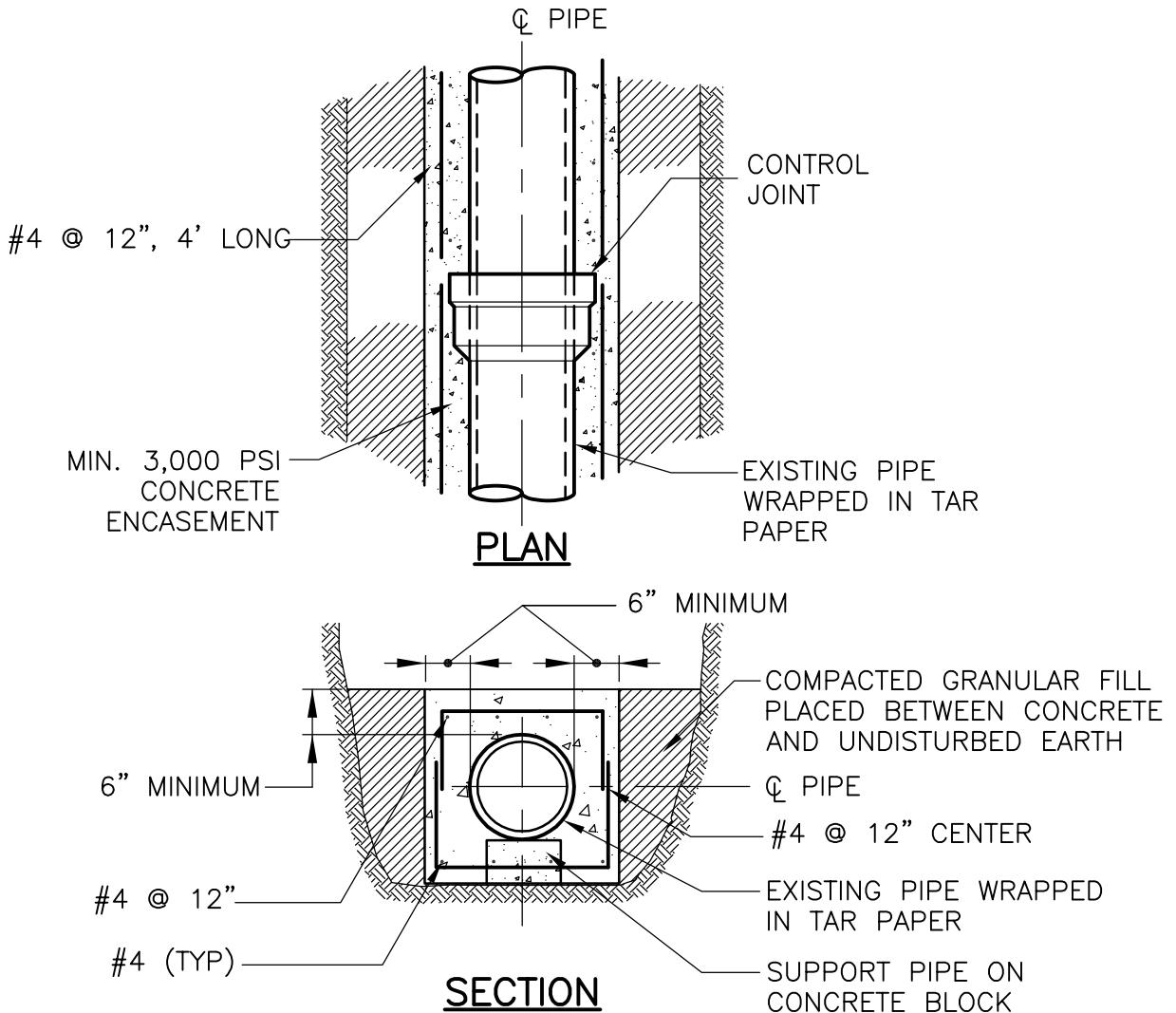
DETAIL

NTS



# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



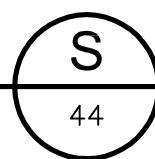
### NOTES:

1. CONTROL JOINTS AND PIPE JOINTS FOR ARCHES, AND ENCASEMENT SHALL COINCIDE FOR SPACING. MAXIMUM DISTANCE BETWEEN CONTROL JOINTS SHALL BE 24'±.
2. REINFORCING STEEL TO BE USED ONLY WHEN DEPTH OF COVER TO TOP OF SURFACE OF CONCRETE IS 5'-0" OR LESS.
3. REFER TO SEWER TRENCH DETAIL FOR BACKFILLING AND BEDDING REQUIREMENTS.
4. LIMITS OF CONCRETE ENCASEMENT SHALL BE SHOWN ON CONTRACT DRAWINGS OR AS DIRECTED BY ENGINEER.

### CONCRETE ENCASEMENT

#### DETAIL

NTS

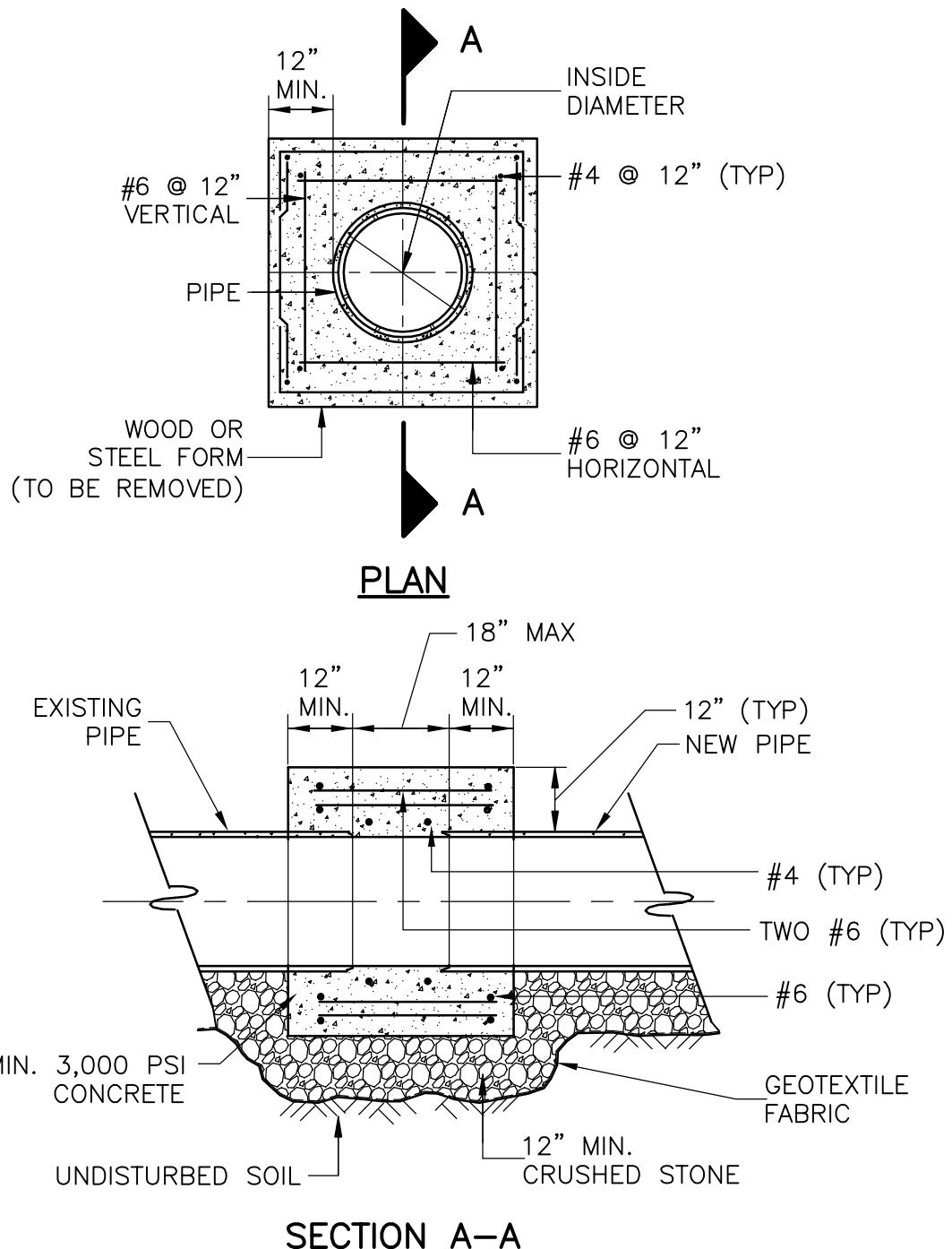


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# THE METROPOLITAN DISTRICT

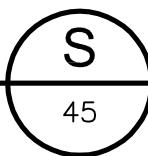
## SEWER STANDARD DETAILS



### REINFORCED CONCRETE PIPE COLLAR

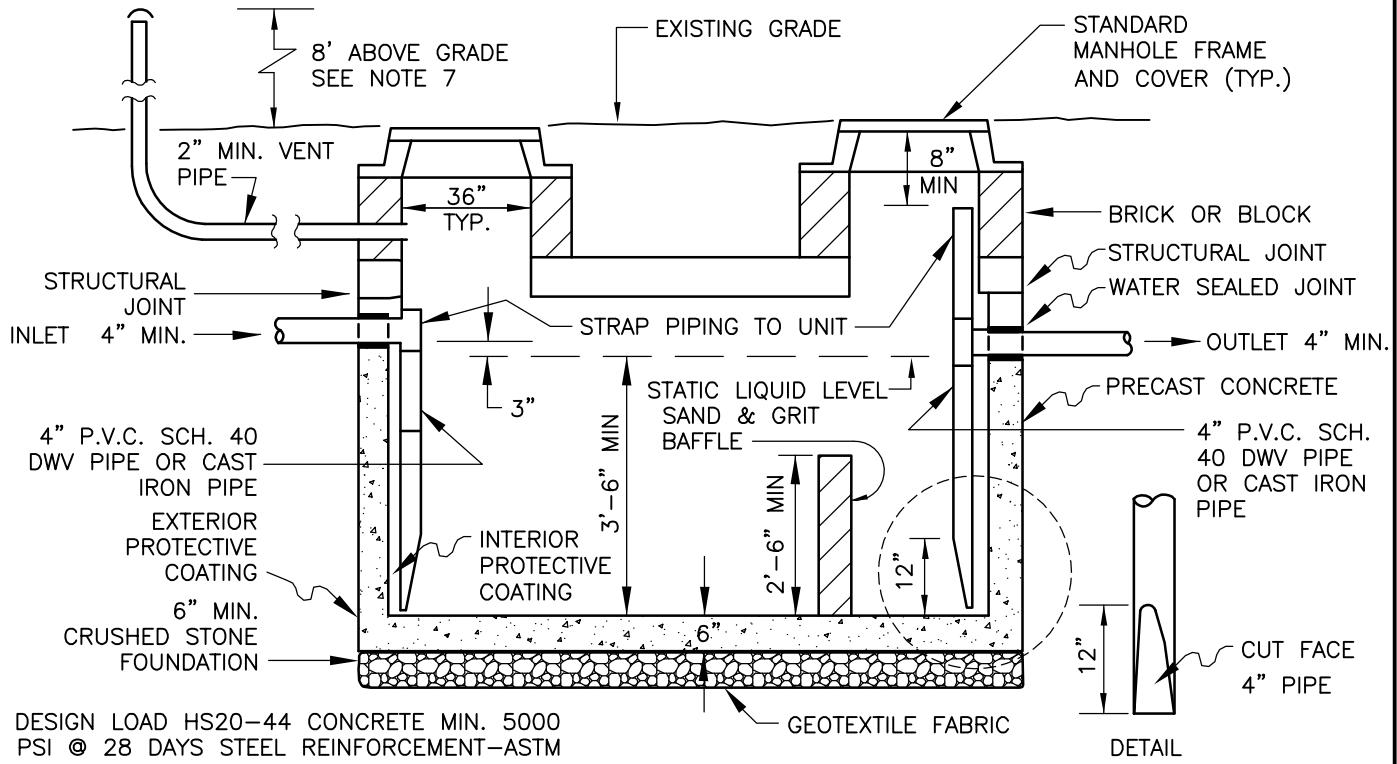
**DETAIL**

NTS



# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



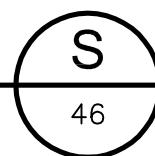
### OIL WATER SEPARATOR TANK SPECIFICATIONS

1. TANK SHALL HAVE A MINIMUM CAPACITY SUFFICIENT TO PRE-TREAT THE MAXIMUM DAILY FLOW PROPOSED AND NO LESS THAN 1000 GALLONS. TANK SHALL BE CONSTRUCTED OF PRECAST CONCRETE.
2. INTERIOR OF THE TANK AND EXTENSION TO GRADE MANHOLES SHALL BE COATED WITH AN EPOXY PETROLEUM RESISTANT SEALANT. EXTERIOR OF THE TANK AND EXTENSION GRADE MANHOLES SHALL BE COATED WITH A WATERPROOF FOUNDATION SEALANT. THIS INCLUDES THE TANK EXTERIORS TOP AND BOTTOM.
3. STRUCTURAL SEAM OF THE TANK SHALL BE FILLED IN WITH NON-SHRINKING GROUT OR WATER PLUG AND COATED WITH A WATERPROOF SEALANT.
4. VOIDS BETWEEN INLET AND OUTLET PIPING OF THE TANK SHALL BE FILLED WITH NON-SHRINKING GROUT AND COATED WITH A WATERPROOF SEALANT.
5. THE TANK SHALL HAVE EXTENSIONS TO GRADE ABOVE THE INLET AND OUTLET PIPING. THE EXTENSION SHALL HAVE FRAMES AND MANHOLE COVERS.
6. THE OUTLET PIPING SHALL UTILIZE A TEE-PIPE ON THE INTERIOR OF THE TANK. THE TEE-PIPE SHALL BE EQUIPPED WITH A STAND PIPE RISER EXTENDING UP THE EXTENSION TO GRADE BUT NO CLOSER THAN EIGHT (8) INCHES FROM THE MANHOLE COVER. THE TEE-PIPE SHALL EXTEND SIX (6) TO TWELVE (12) INCHES FROM THE BOTTOM OF THE TANK.
7. THE INLET EXTENSION TO GRADE SHALL BE PROVIDED WITH A VENT LINE WHICH EXTENDS EIGHT (8) FEET ABOVE FINISHED GRADE AND PROPERLY SECURED TO THE BUILDING. THE SIZE OF THE VENT SHALL BE HALF THE SIZE OF THE OUTLET DISCHARGE LINE.
8. THE HORIZONTAL STRUCTURAL SEAM OF THE TANK SHALL BE LOCATED ABOVE THE STATIC LIQUID LEVEL OF THE TANK.
9. THE INCOMING PIPE SHALL NOT INCLUDE ANY SOURCES OF DOMESTIC WASTEWATER OR STORMWATER.
10. THE OUTLET PIPE SHALL BE CONNECTED TO THE SANITARY SEWER.
11. THE OUTLET PIPE SHALL BE AT LEAST THE SIZE OF THE INLET PIPE OR GREATER AND AT A MINIMUM SHOULD BE 4.0 INCHES IN DIAMETER.
12. IF HEAVY PIPING, SUCH AS CAST IRON IS USED, ALL PIPING MUST BE STRUCTURALLY SECURED.
13. THE CONCRETE COVERS PROVIDED BY THE OIL SEPARATOR MANUFACTURES MUST BE REMOVED AND DISCARDED.

## OIL WATER SEPARATOR

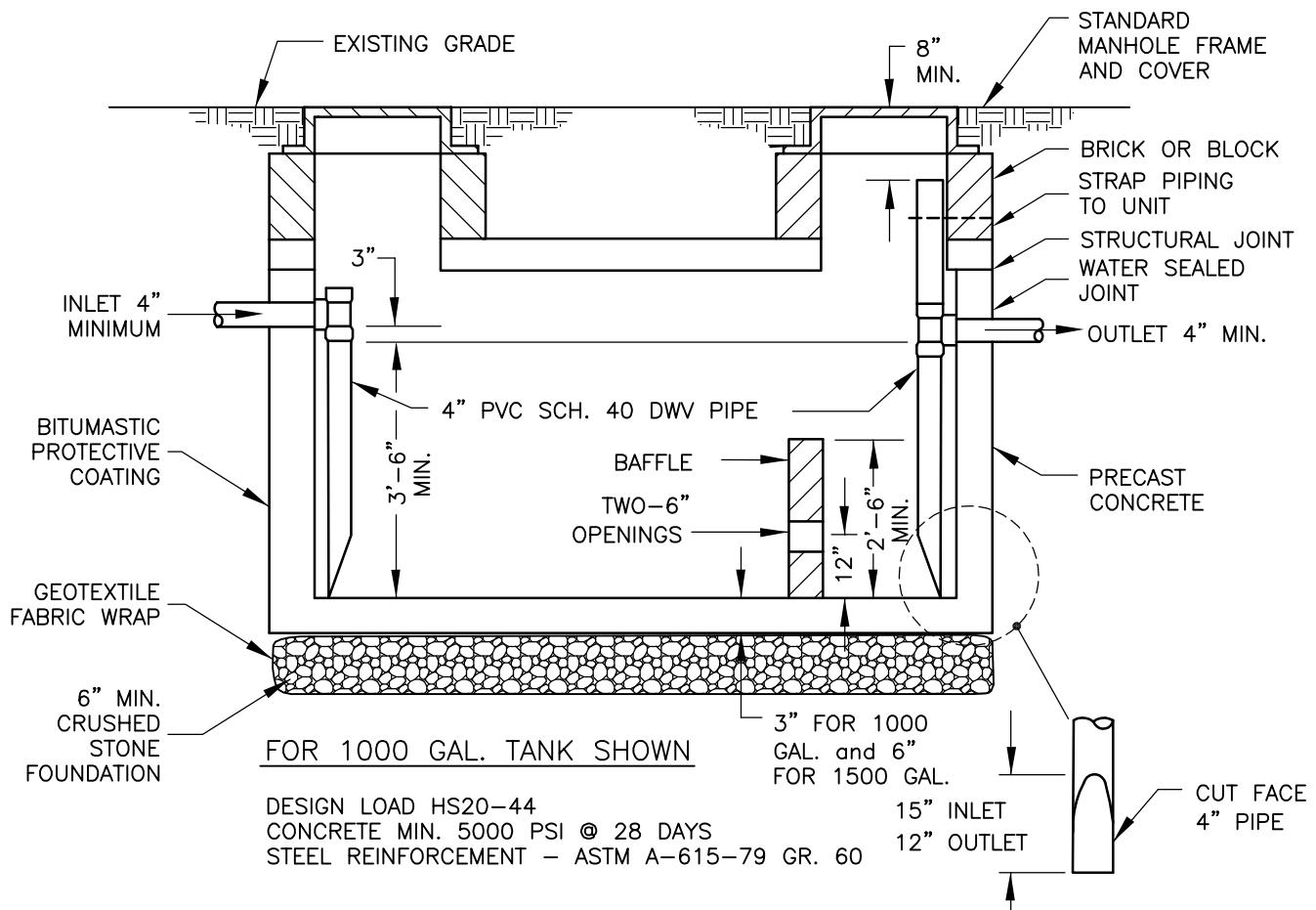
### DETAIL

NTS



# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



### OUTSIDE GREASE SEPARATOR SPECIFICATIONS

1. TANK SHALL HAVE A MINIMUM CAPACITY SUFFICIENT TO PRE-TREAT THE MAXIMUM DAILY FLOW PROPOSED AND NO LESS THAN 1,000 GALLONS. TANK SHALL BE CONSTRUCTED OF PRECAST CONCRETE.
2. EXTERIOR OF THE TANK AND EXTENSION GRADE MANHOLES SHALL BE COATED WITH A WATERPROOF FOUNDATION SEALANT. THIS INCLUDES THE TANK EXTERIOR'S TOP AND BOTTOM.
3. STRUCTURAL SEAM OF THE TANK SHALL BE FILLED IN WITH NON-SHRINKING GROUT OR WATER PLUG AND COATED WITH A WATERPROOF SEALANT.
4. VOIDS BETWEEN INLET AND OUTLET PIPING OF THE TANK SHALL BE FILLED WITH NON-SHRINKING GROUT AND COATED WITH A WATERPROOF SEALANT.
5. THE TANK SHALL HAVE EXTENSIONS TO GRADE ABOVE THE INLET AND OUTLET PIPING. THE EXTENSION SHALL HAVE FRAMES AND MANHOLE COVERS.
6. THE OUTLET PIPING SHALL UTILIZE A TEE-PIPE ON THE INTERIOR OF THE TANK. THE TEE-PIPE SHALL BE EQUIPPED WITH A STAND PIPE RISER EXTENDING UP THE EXTENSION TO GRADE BUT NO CLOSER THAN EIGHT (8) INCHES FROM THE MANHOLE COVER. THE TEE-PIPE SHALL EXTEND SIX (6) TO TWELVE (12) INCHES FROM THE BOTTOM OF THE TANK.
7. THE HORIZONTAL STRUCTURAL SEAM OF THE TANK SHALL BE LOCATED ABOVE THE STATIC LIQUID LEVEL OF THE TANK.
8. THE INCOMING PIPE SHALL NOT INCLUDE ANY SOURCES OF DOMESTIC WASTEWATER OR STORMWATER. THE OUTLET PIPE SHALL BE CONNECTED TO THE SANITARY SEWER. THE OUTLET PIPE SHALL BE AT LEAST THE SIZE OF THE INLET PIPE OR GREATER AND AT A MINIMUM SHOULD BE 4.0 INCHES IN DIAMETER.
9. IF HEAVY PIPING, SUCH AS CAST IRON IS USED, ALL PIPING MUST BE STRUCTURALLY SECURED.

## OUTSIDE GREASE SEPARATOR FOR KITCHEN WASTE LINES

**DETAIL**

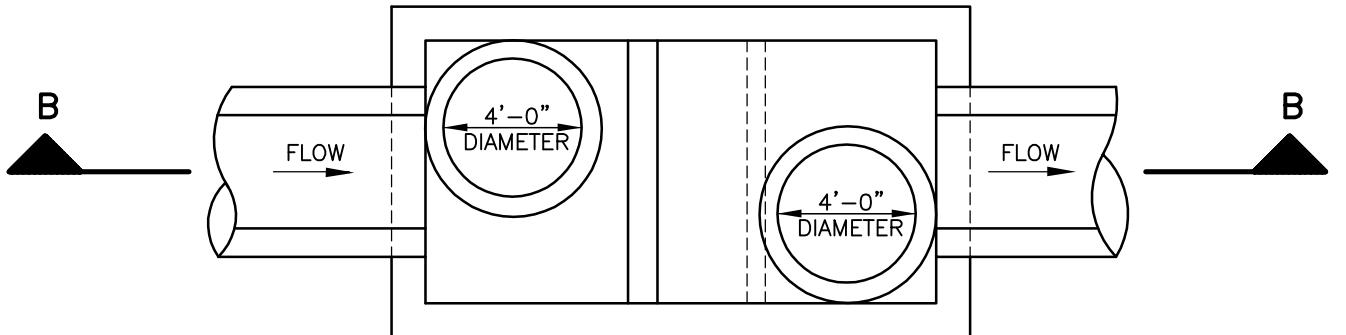
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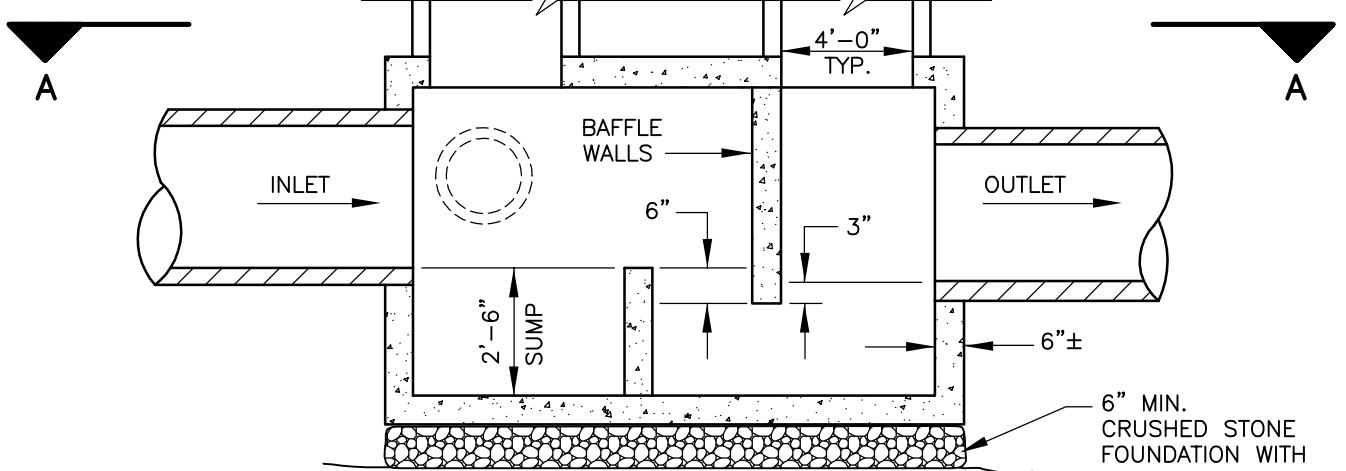
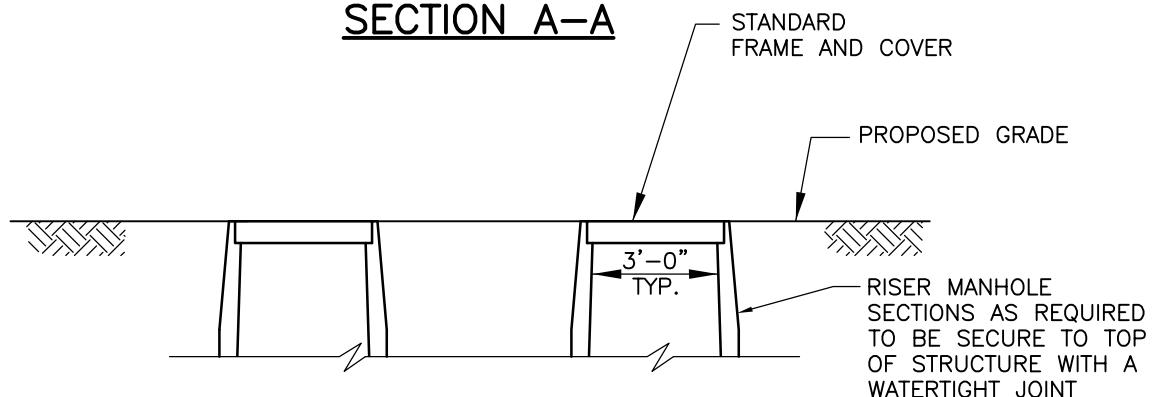
47

# THE METROPOLITAN DISTRICT

## SEWER STANDARD DETAILS



SECTION A-A



SECTION B-B

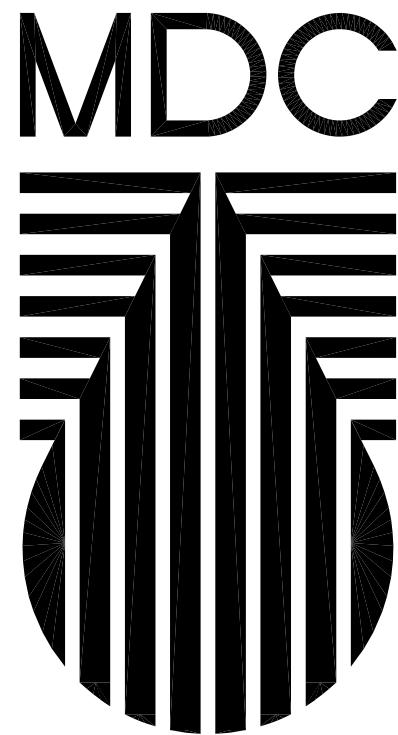
GRIT COLLECTOR

DETAIL

NTS

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48

# **WATER STANDARD DETAILS**

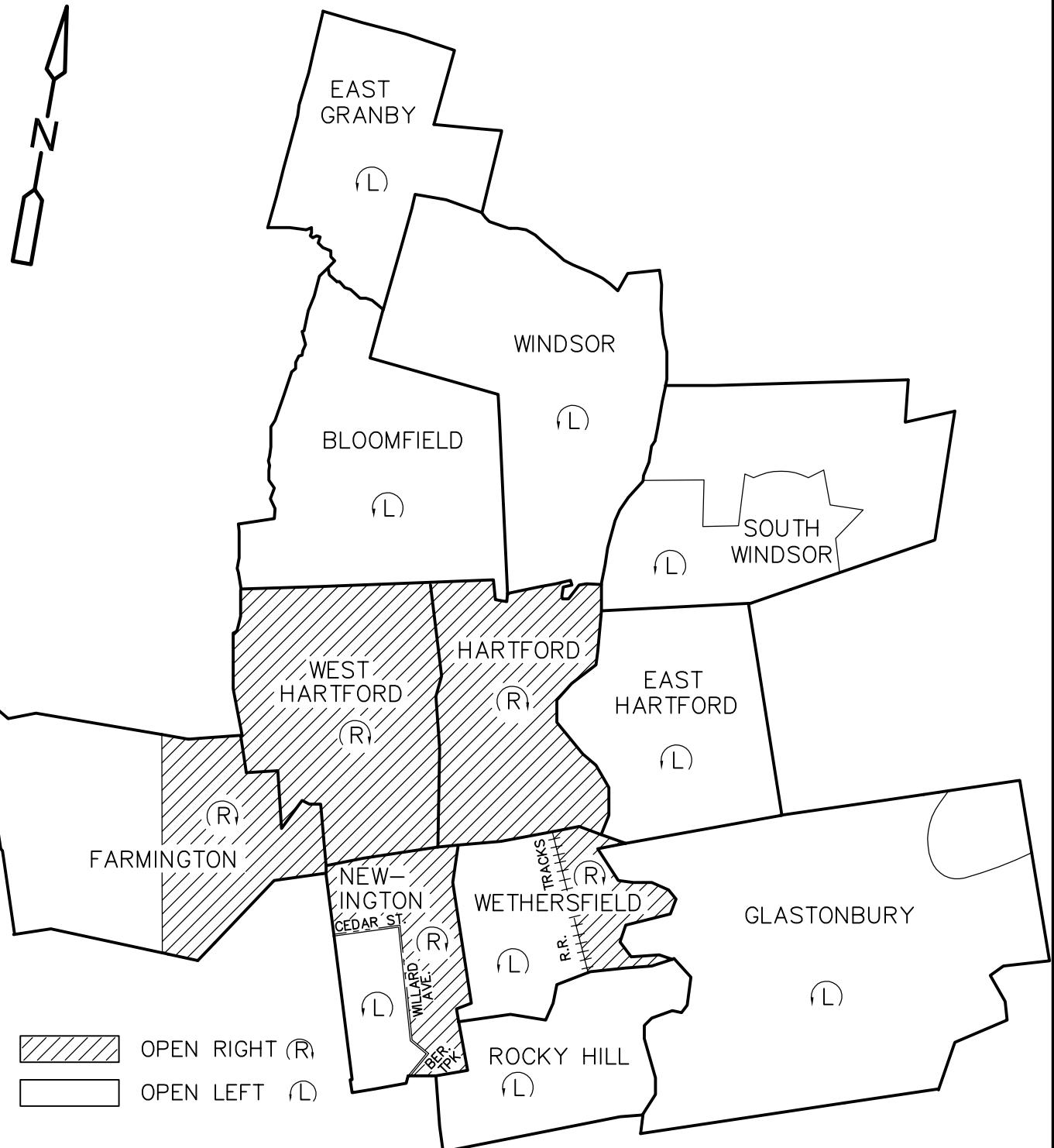


**THE METROPOLITAN DISTRICT**



# THE METROPOLITAN DISTRICT

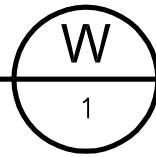
## WATER STANDARD DETAILS



### GATE OPERATION INDEX

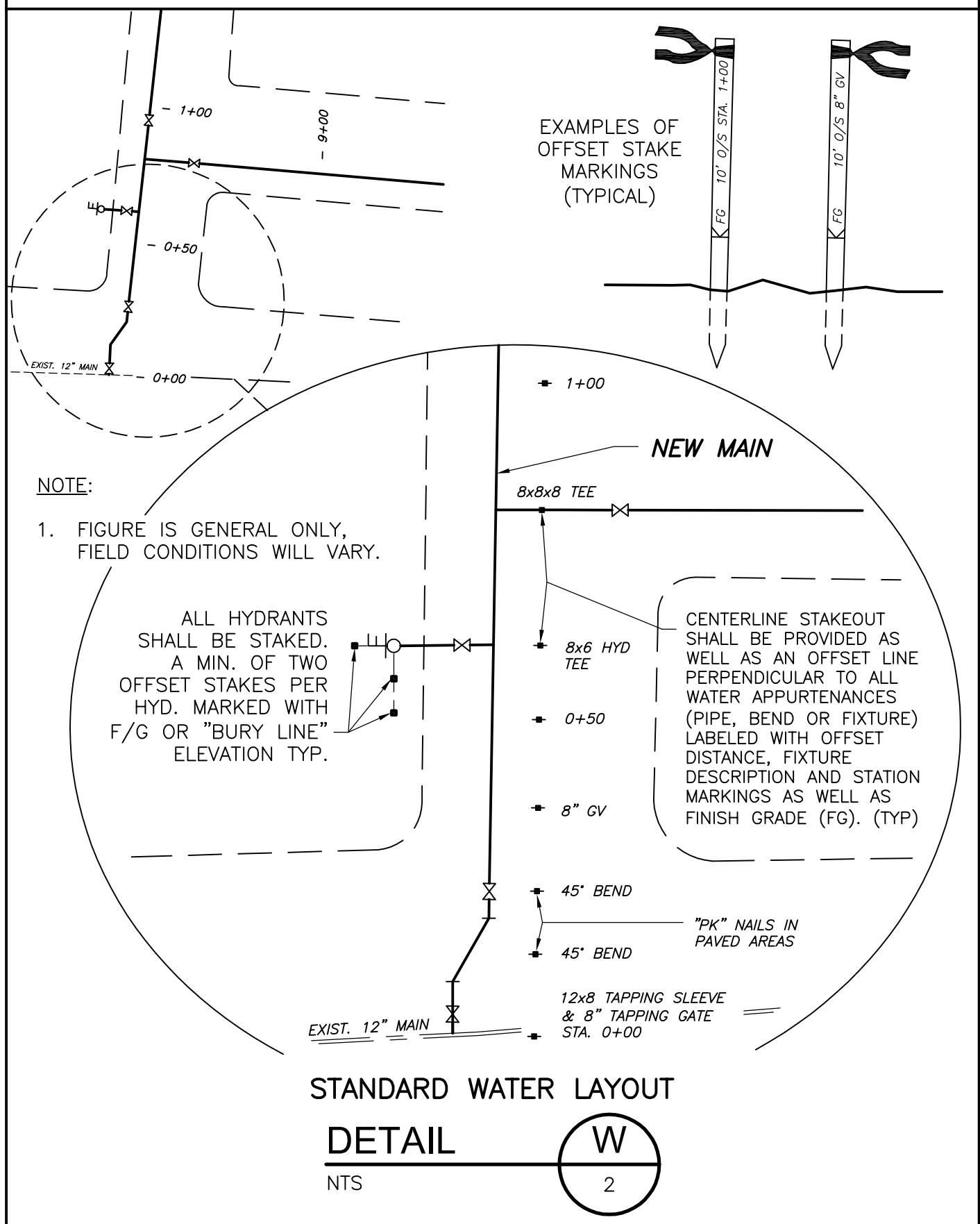
#### DETAIL

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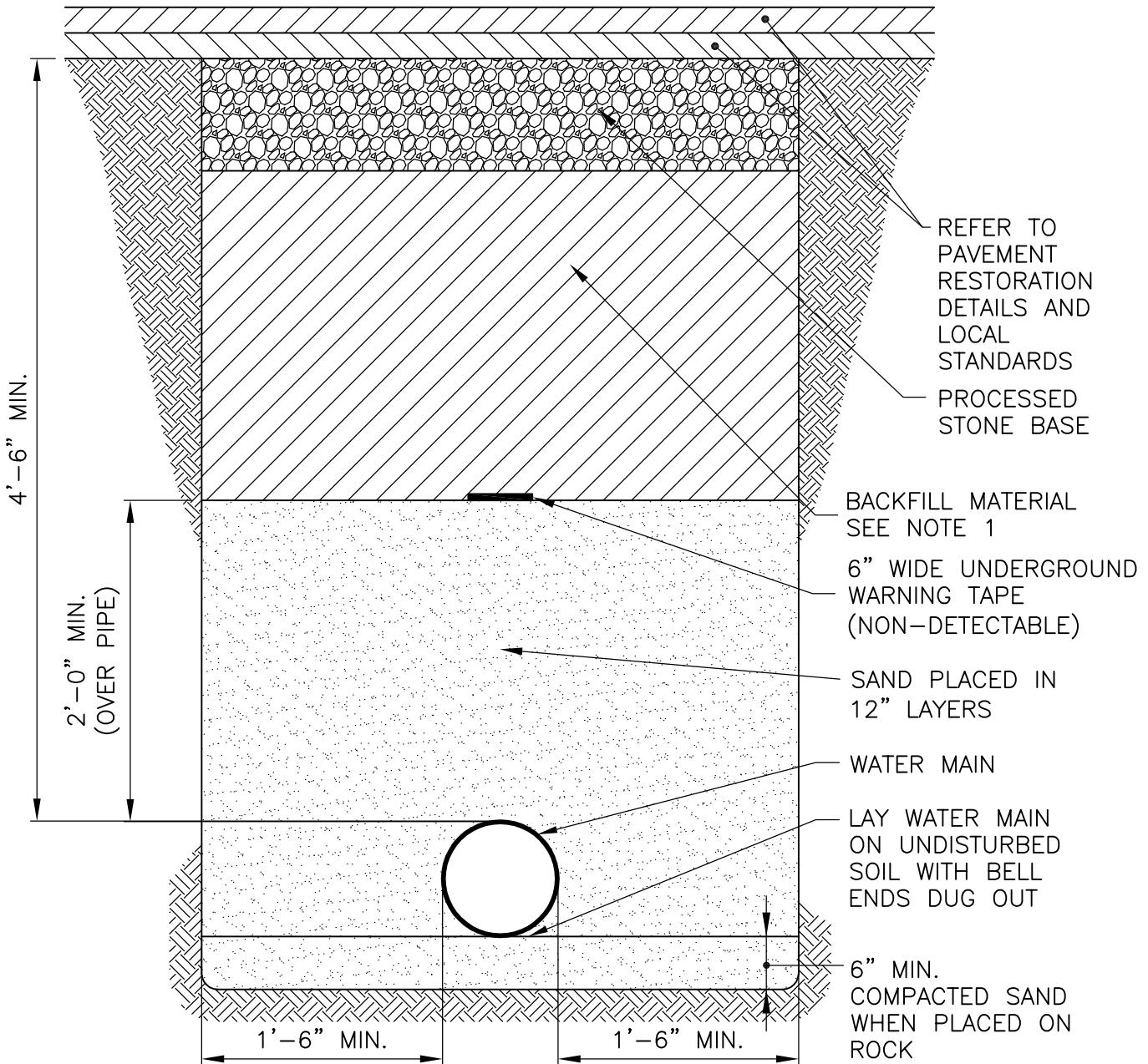
# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS

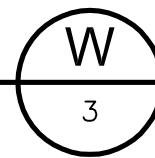


NOTE:

1. BACKFILL MATERIAL SHALL BE BANK-RUN GRAVEL IN PAVED AREAS (INCLUDING SIDEWALKS AND DRIVEWAYS) OR COMMON FILL IN NON-PAVED AREAS.

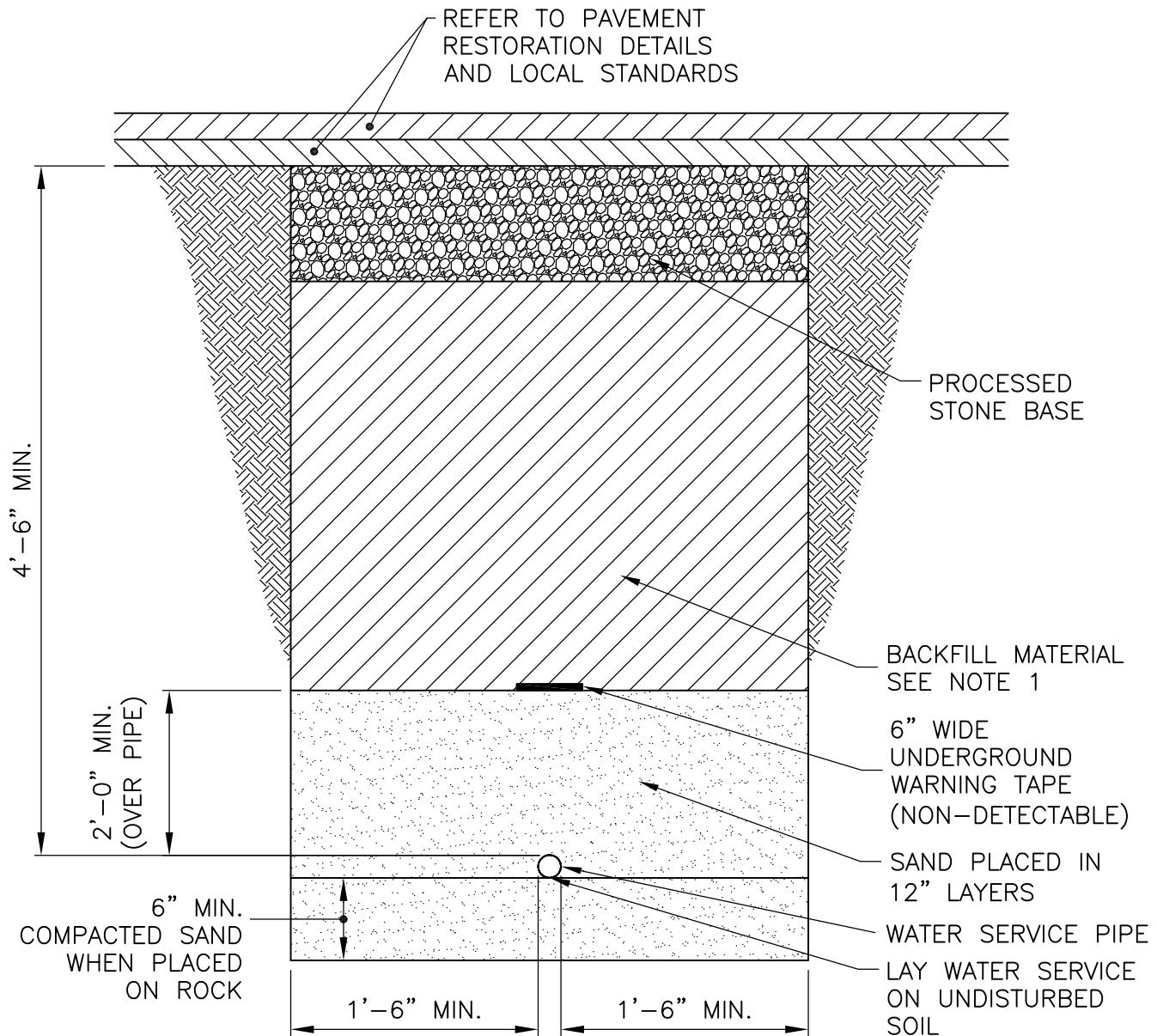
WATER MAIN TRENCH  
DETAIL

NTS



# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



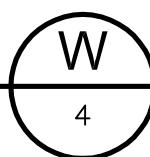
NOTE:

1. BACKFILL MATERIAL SHALL BE BANK-RUN GRAVEL IN PAVED AREAS (INCLUDING SIDEWALKS AND DRIVEWAYS) OR COMMON FILL IN NON-PAVED AREAS.

### WATER SERVICE TRENCH

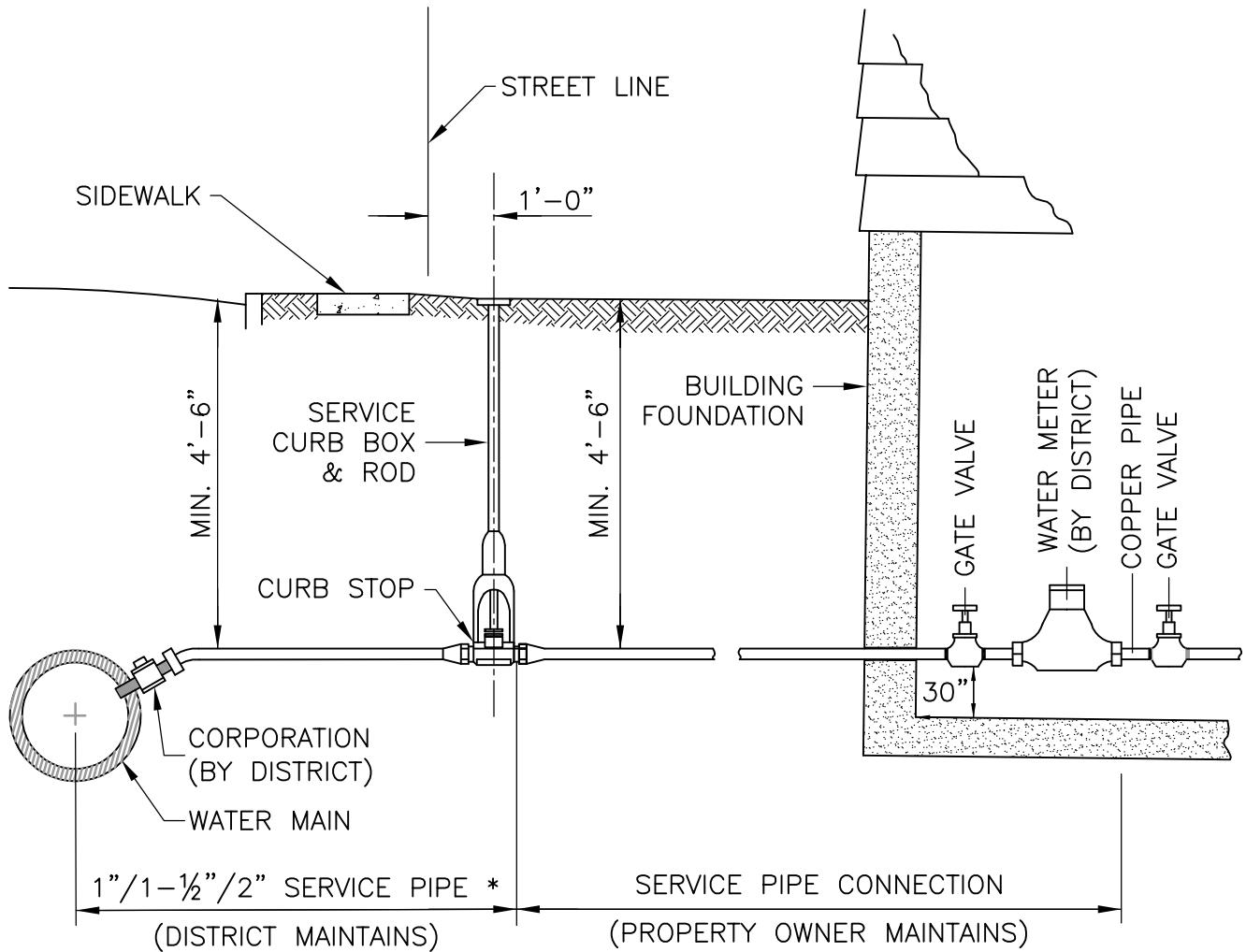
### DETAIL

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# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



\* 1  $\frac{1}{4}$ " PIPE IS NOT PERMITTED

### TYPE K COPPER WATER SERVICE

**DETAIL**

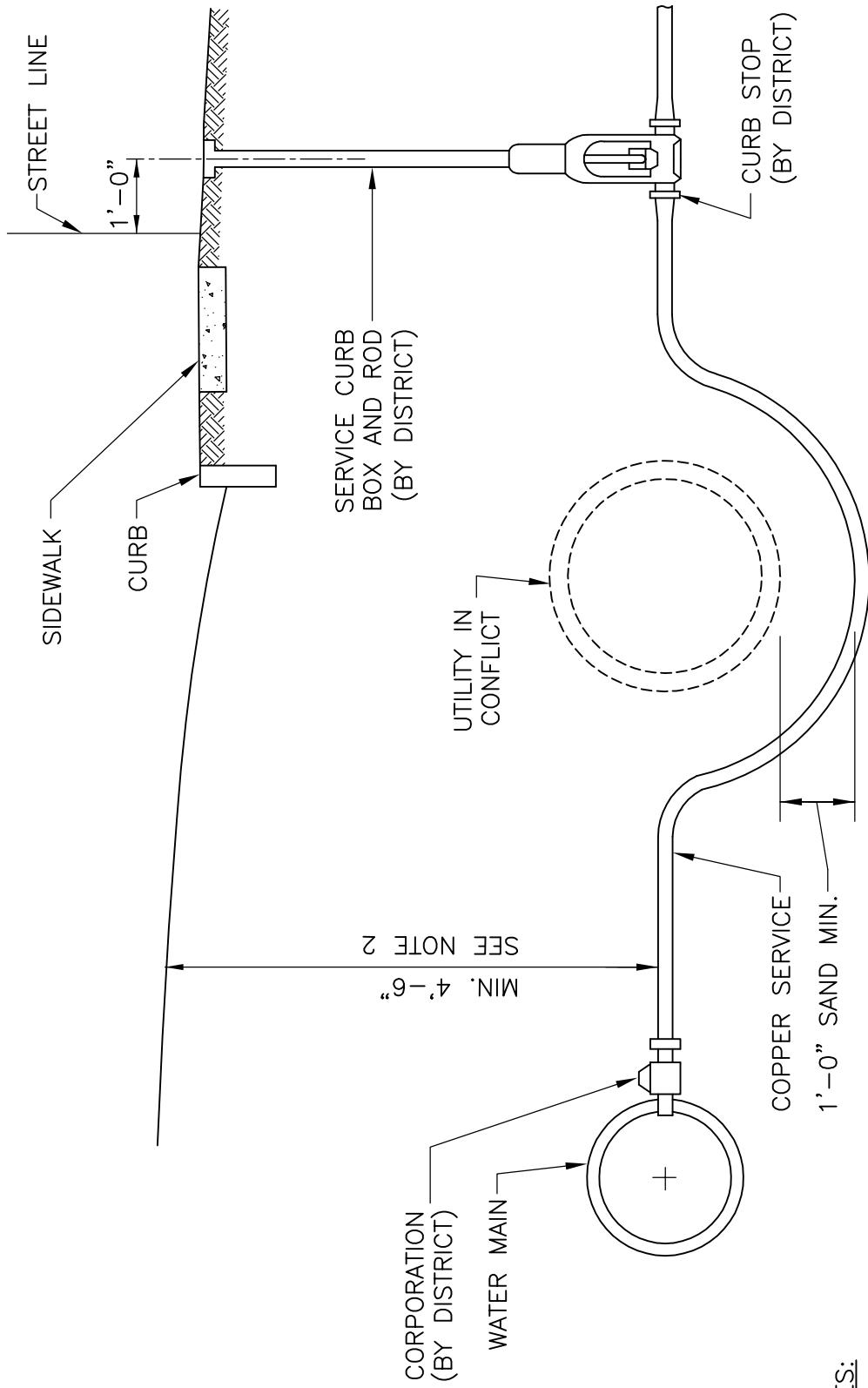
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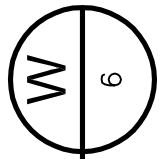
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# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



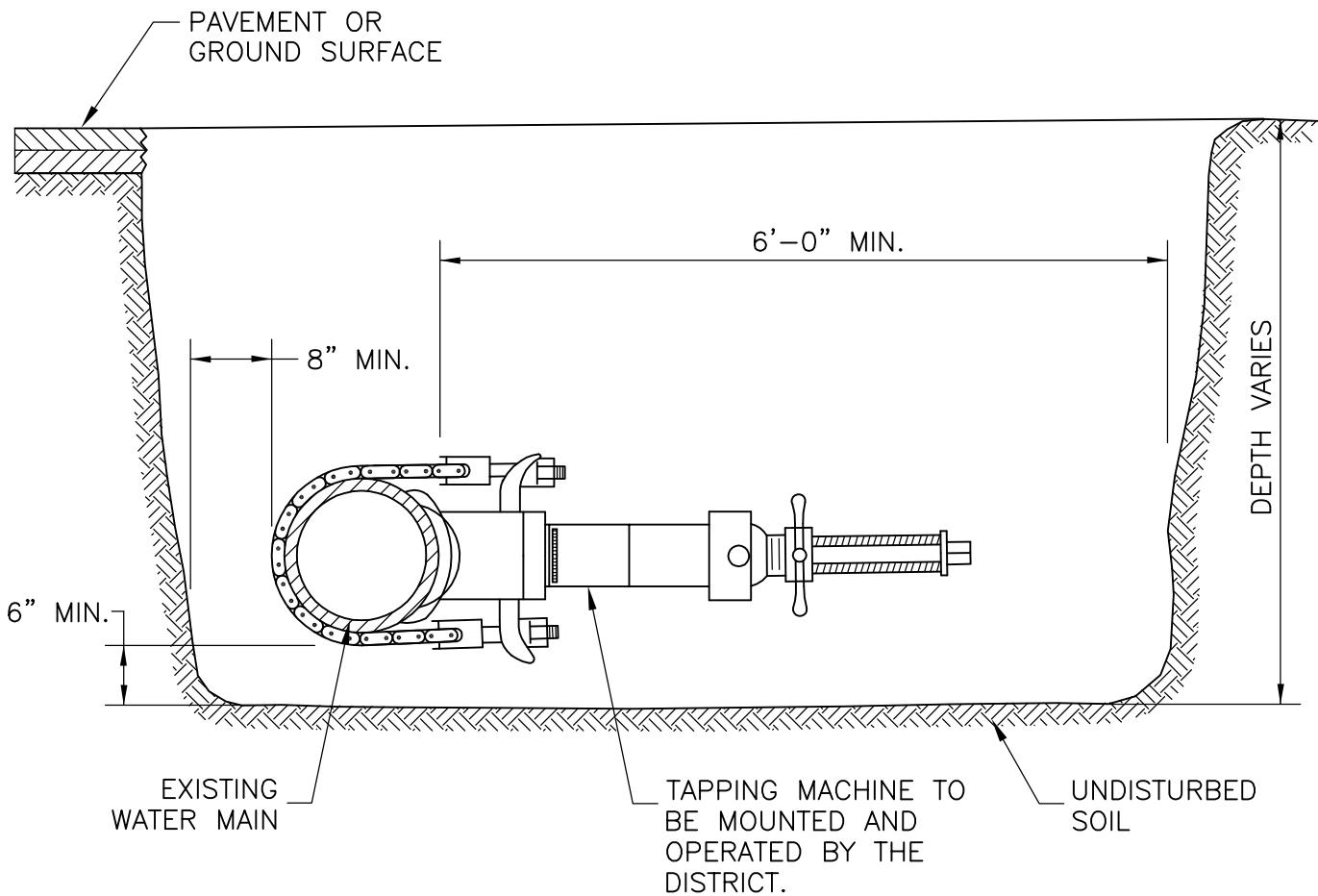
**COPPER WATER SERVICE OFFSET**  
**DETAIL**



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# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



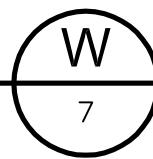
NOTE:

1. CONTRACTOR SHALL COORDINATE WITH THE DISTRICT AND THE PROPERTY OWNER PRIOR TO TRENCH EXCAVATION. THE TRENCH SHALL BE PROPERLY Dewatered, SUPPORTED AND SHALL COMPLY WITH OSHA REQUIREMENTS FOR TRENCH EXCAVATION.

### TRENCH REQUIREMENTS FOR 1-INCH TO 2-INCH SERVICE TAPS

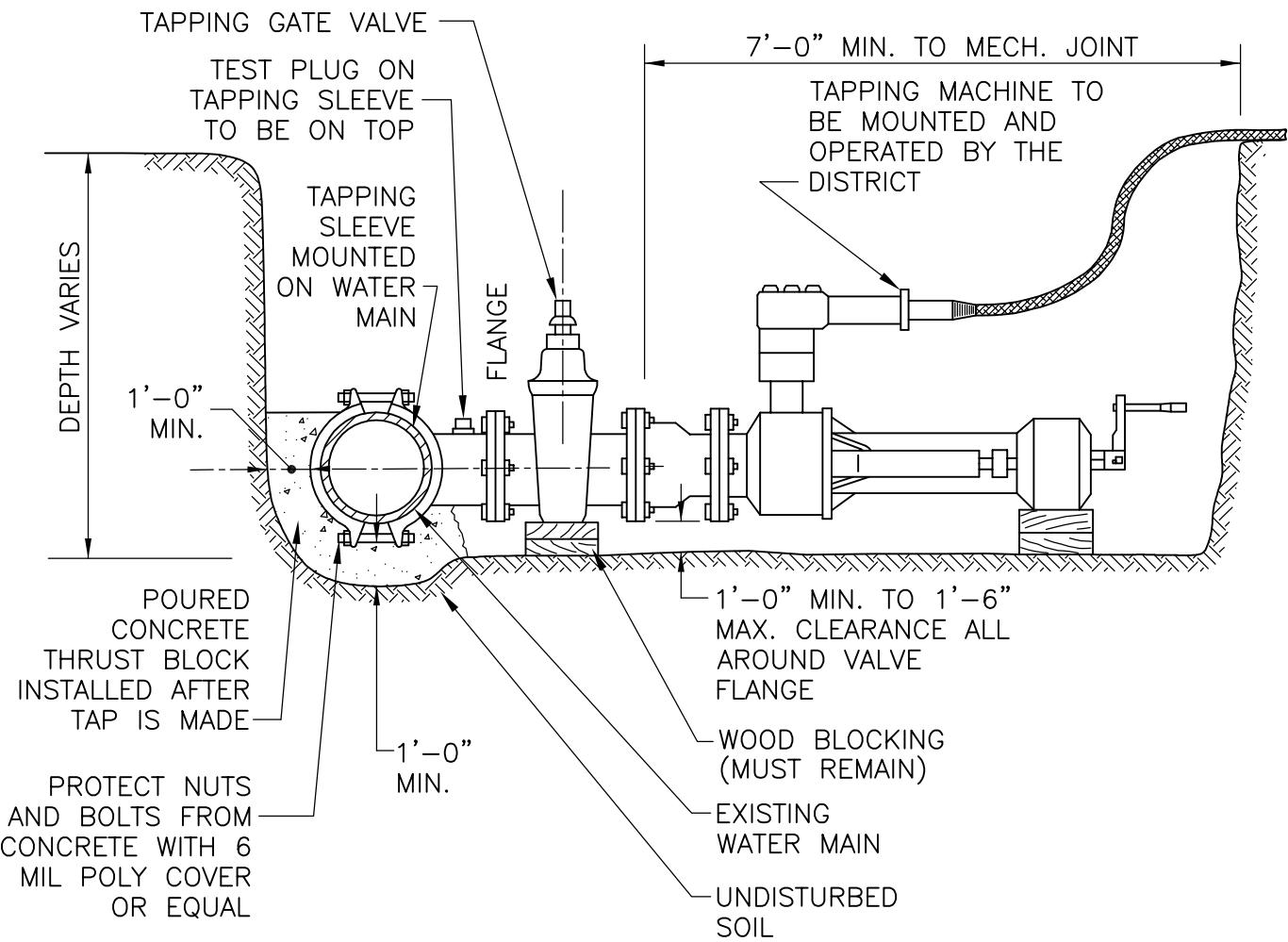
DETAIL

NTS



# THE METROPOLITAN DISTRICT

WATER STANDARD DETAILS



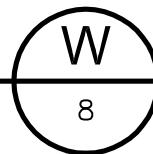
NOTES:

1. TAPPING SLEEVE & TAPPING GATE VALVE TO BE INSTALLED ON WATER MAIN BY THE CONTRACTOR. THE DISTRICT WILL TEST INSTALLATION PRIOR TO MAKING TAP. NO TAP WILL BE MADE IF THERE IS NO TEST PLUG.
2. TAPPING GATE VALVE TO HAVE HAND OF OPERATION AS DIRECTED BY THE DISTRICT. IF VALVE HAND OF OPERATION IS NOT CORRECT, NO TAP WILL BE MADE.
3. CONTRACTOR SHALL COORDINATE WITH THE DISTRICT AND THE PROPERTY OWNER PRIOR TO TRENCH EXCAVATION. THE TRENCH SHALL BE PROPERLY Dewatered, SUPPORTED AND SHALL COMPLY WITH OSHA REQUIREMENTS FOR TRENCH EXCAVATION.

## TRENCH REQUIREMENTS FOR 4-INCH TO 12-INCH TAP ON WATER MAIN

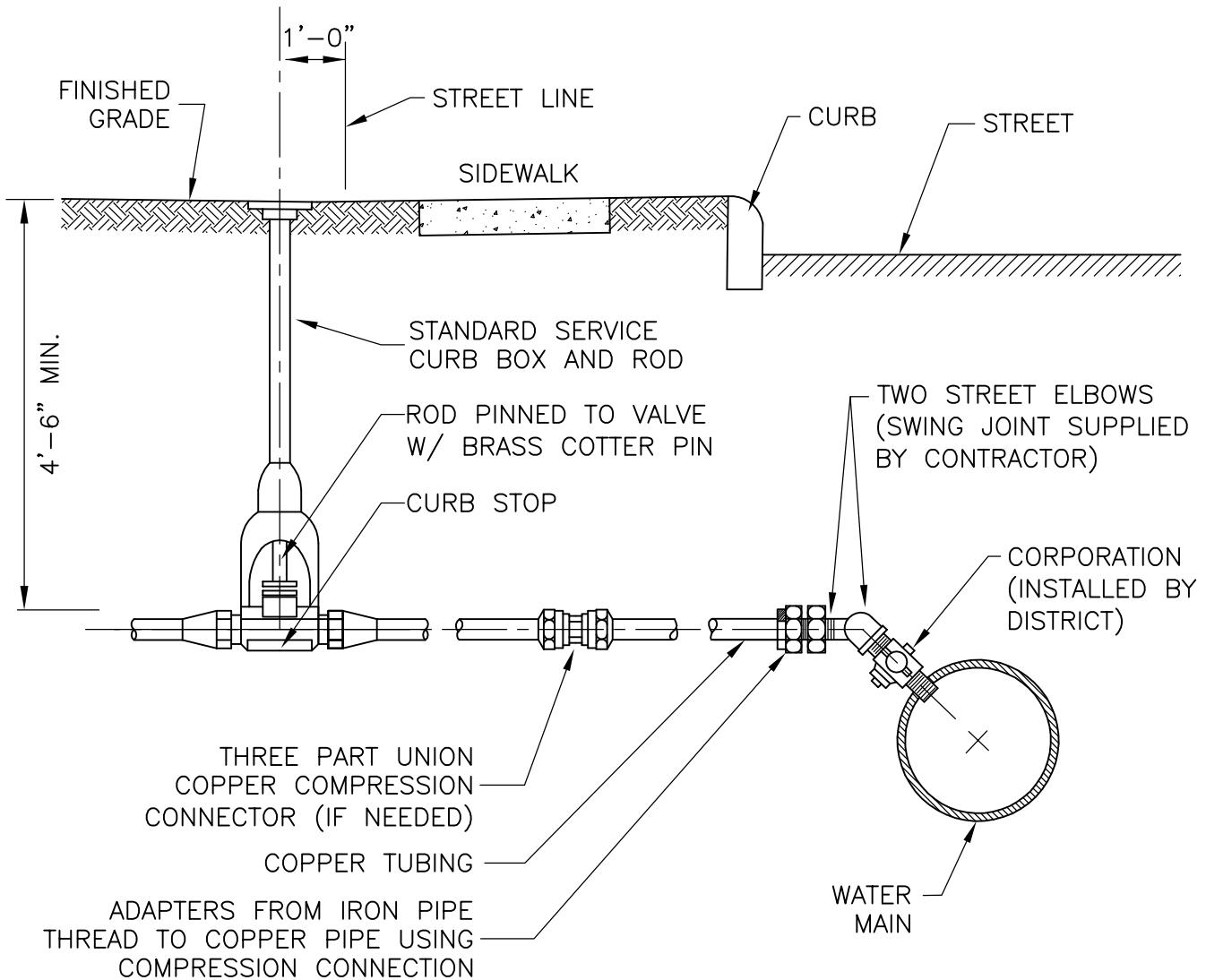
DETAIL

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# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS

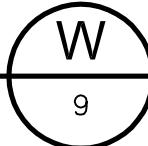


NOTE:

1. IF THE WATER SERVICE PIPE IS IRON OR BRASS ON THE PRIVATE PROPERTY SIDE, PROVIDE SHORT LENGTH OF COPPER PIPE AND PACK JOINT ADAPTER COUPLING OR EQUIVALENT.

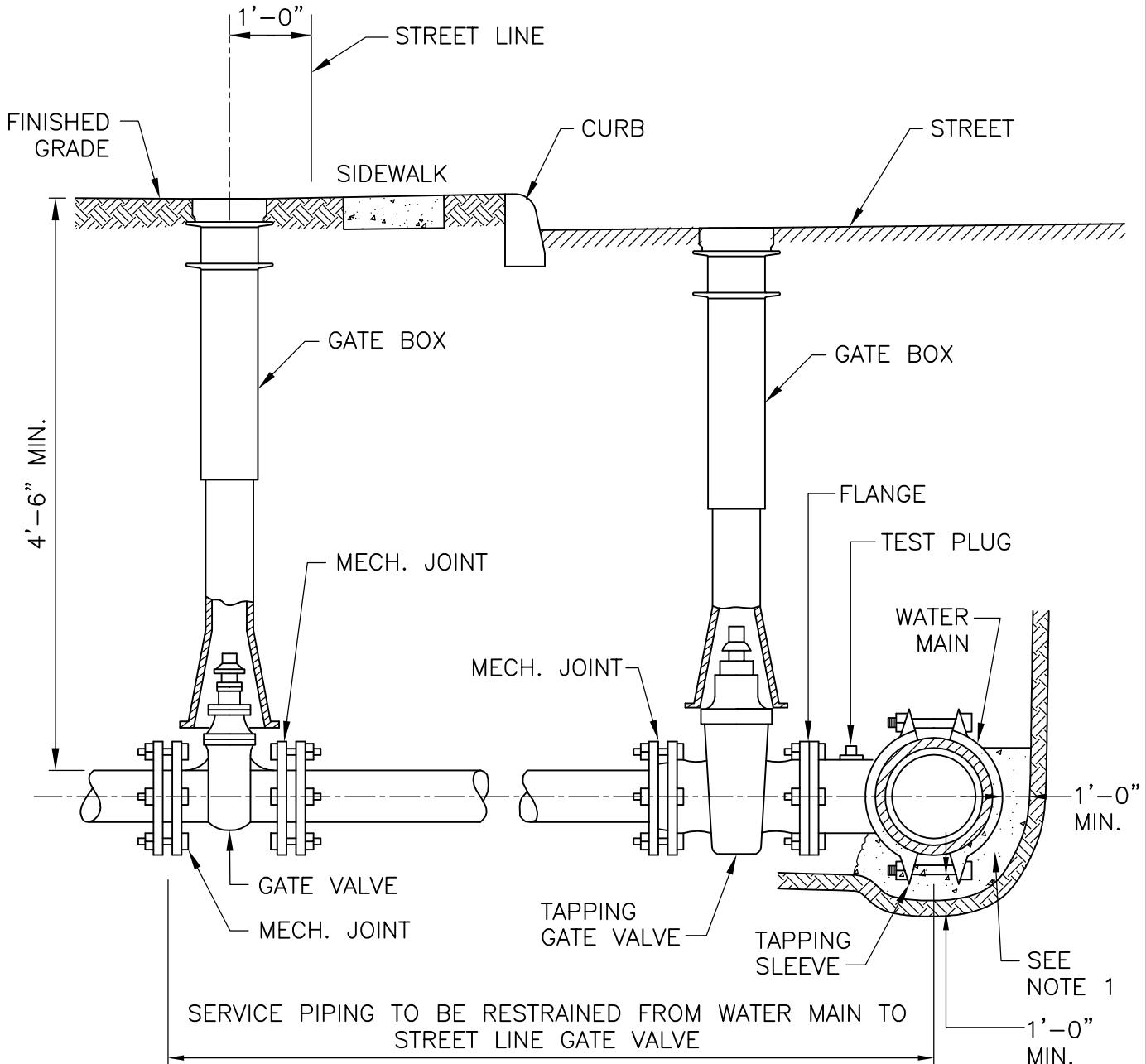
### 1-INCH SERVICE TAP OFF HORIZONTAL CENTER LINE

DETAIL  
NTS



# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



NOTES:

- POURED CONCRETE THRUST BLOCK TO BE INSTALLED AFTER TAP IS MADE. PROTECT NUTS FROM CONCRETE WITH 6 MIL POLY COVER OR EQUAL.

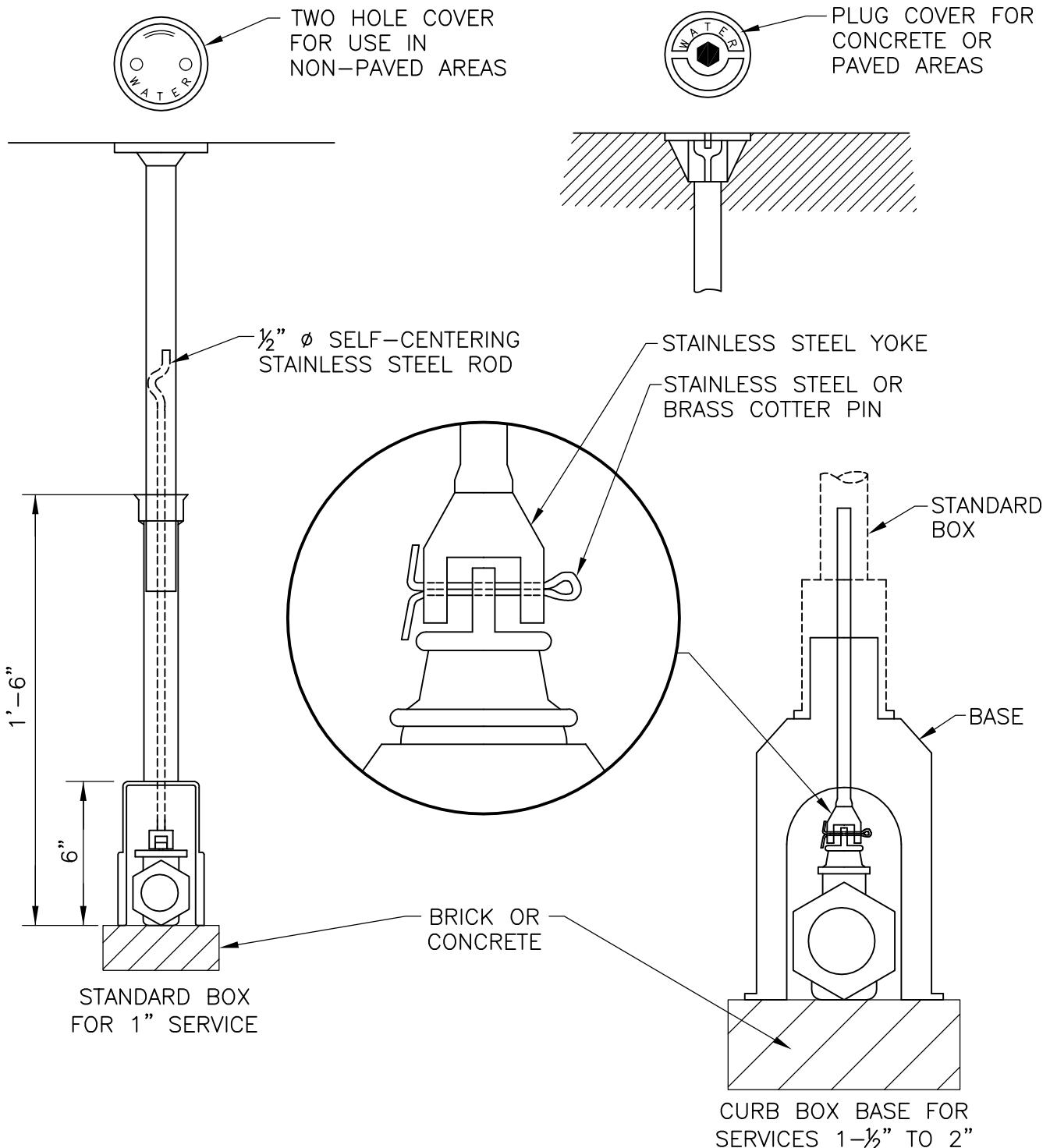
### SERVICES 4-INCH THROUGH 8-INCH

**DETAIL**  
NTS

W  
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# THE METROPOLITAN DISTRICT

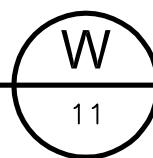
## WATER STANDARD DETAILS



STANDARD SERVICE CURB BOX

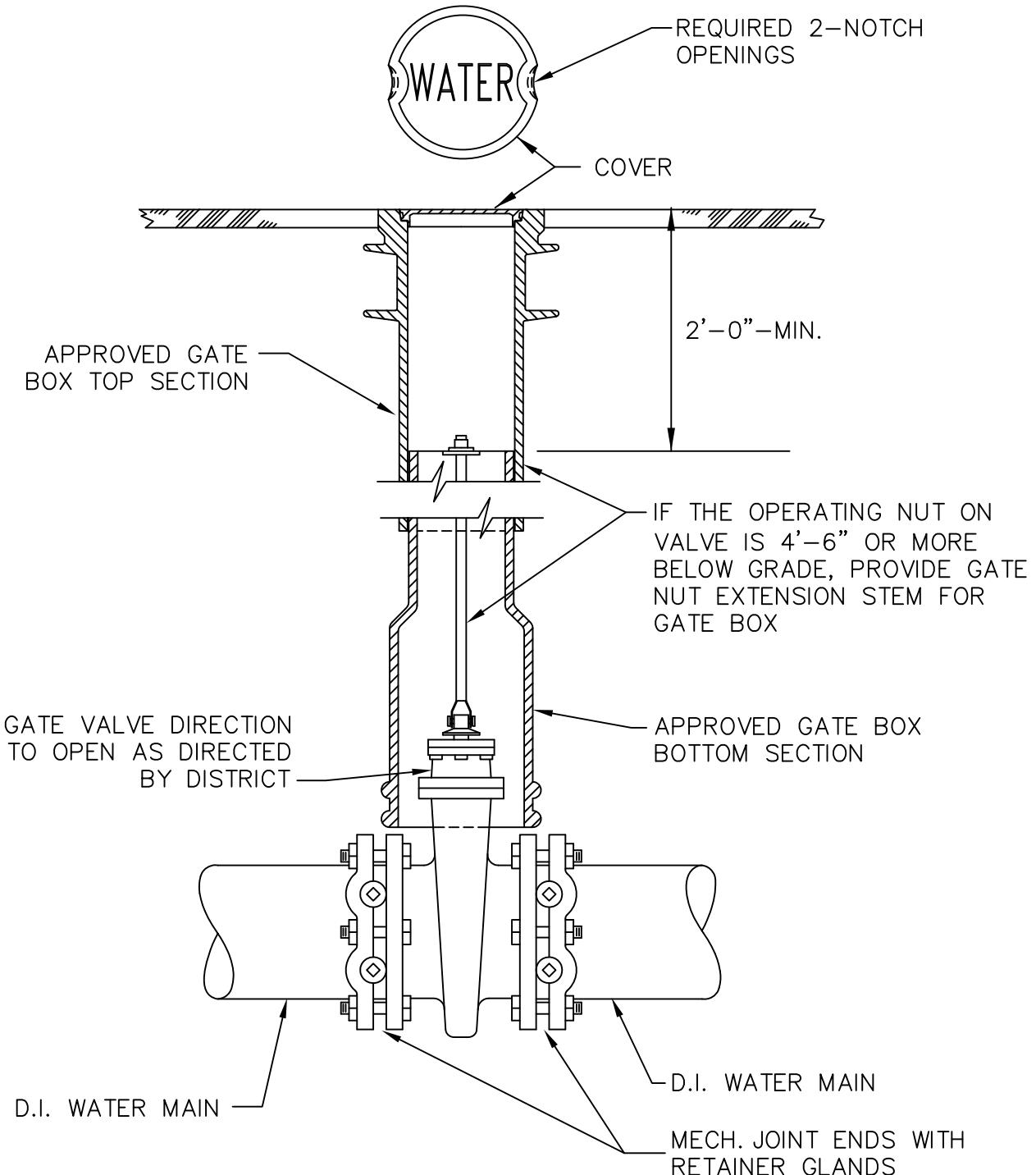
DETAIL

NTS



# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



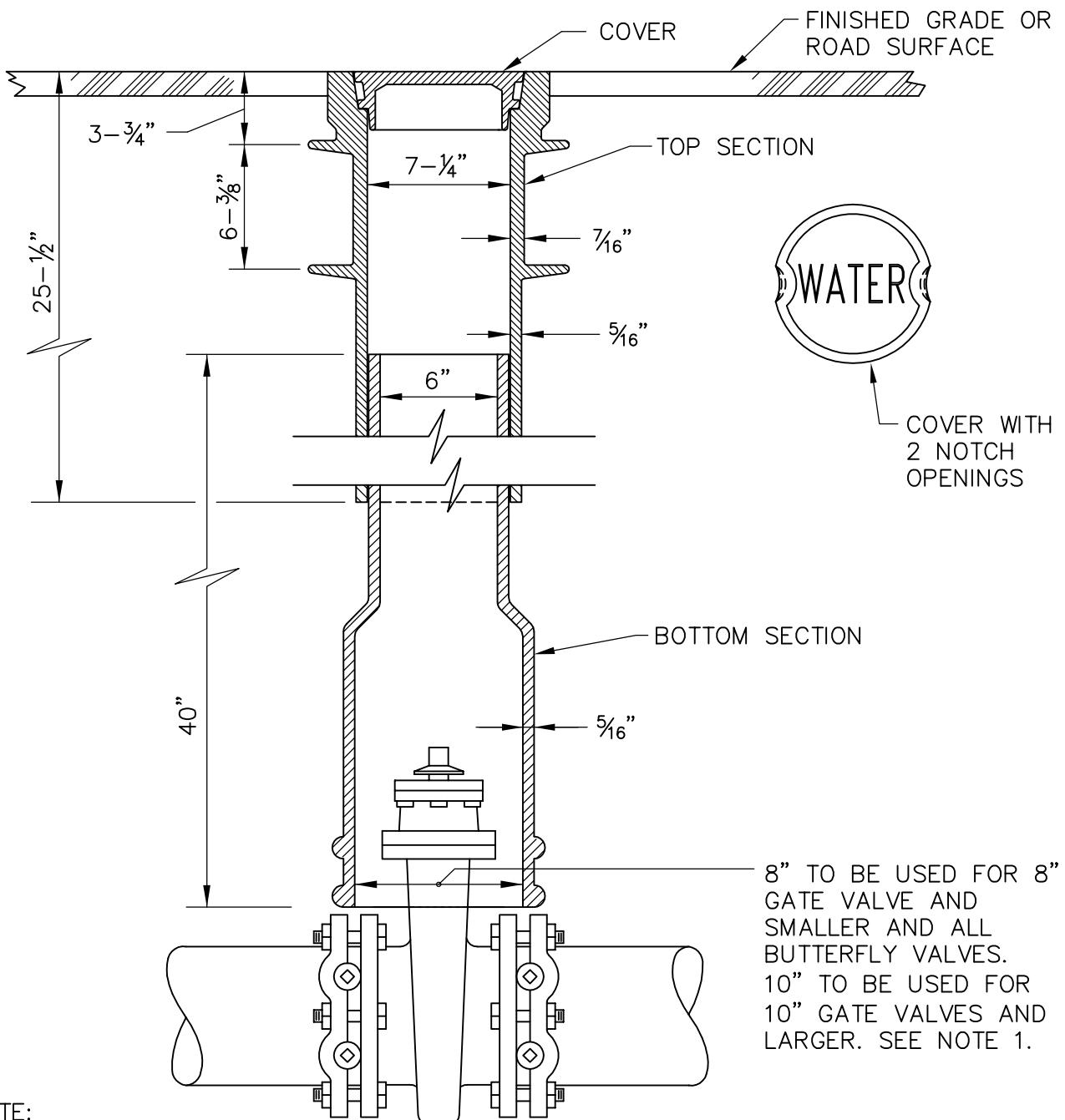
STANDARD GATE VALVE 12-INCH AND SMALLER

**DETAIL**  
NTS

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# THE METROPOLITAN DISTRICT

WATER STANDARD DETAILS



NOTE:

1. THE GATE BOX SHALL BE SET PLUMB AND CENTERED DIRECTLY OVER THE OPERATING NUT OF THE VALVE. THE CONTRACTOR SHALL USE A COMMERCIALLY AVAILABLE CENTERING DEVICE TO PREVENT DAMAGE TO THE TOP OF THE VALVE AND MAINTAIN ALIGNMENT.

## STANDARD GATE BOX ASSEMBLY (DWYER TYPE)

DETAIL

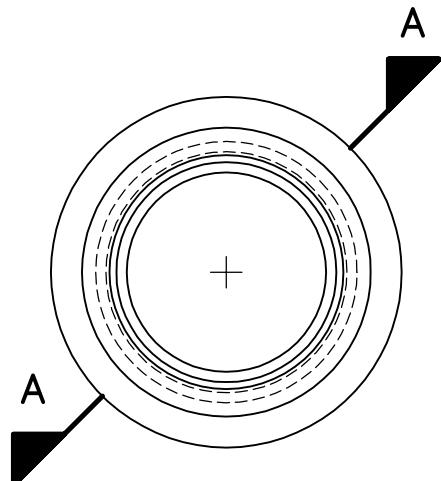
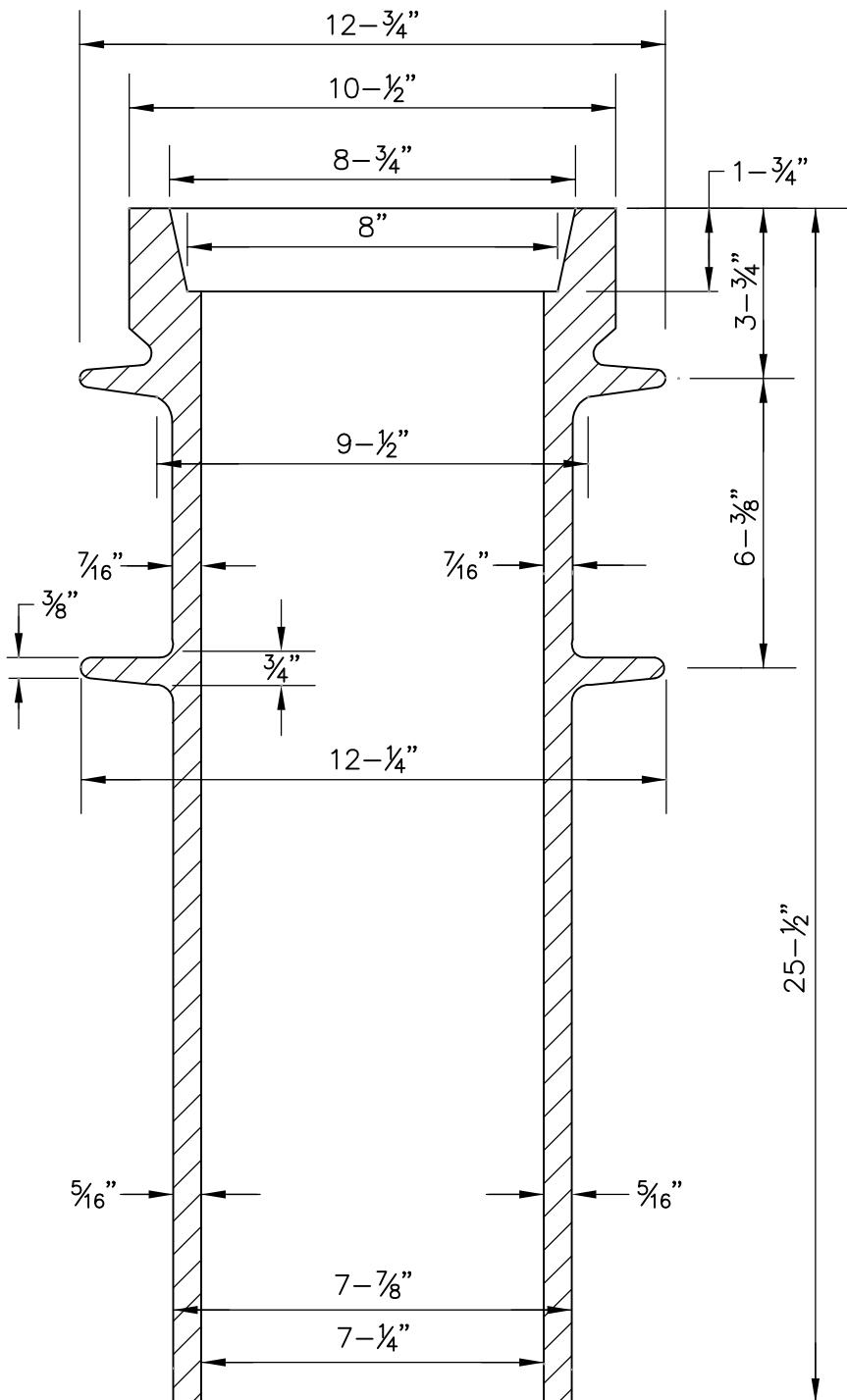
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# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



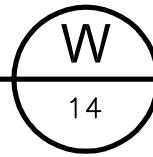
PLAN

SECTION A-A

CAST IRON GATE BOX TOP SECTION (DWYER TYPE)

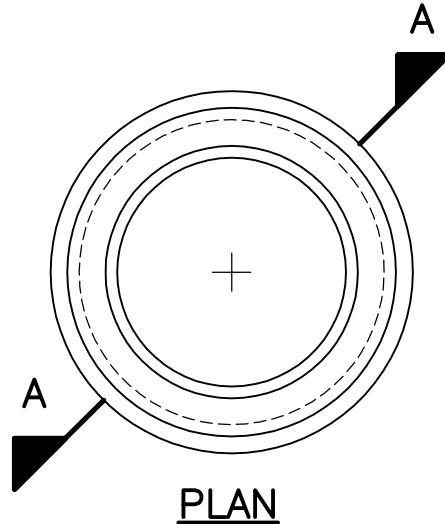
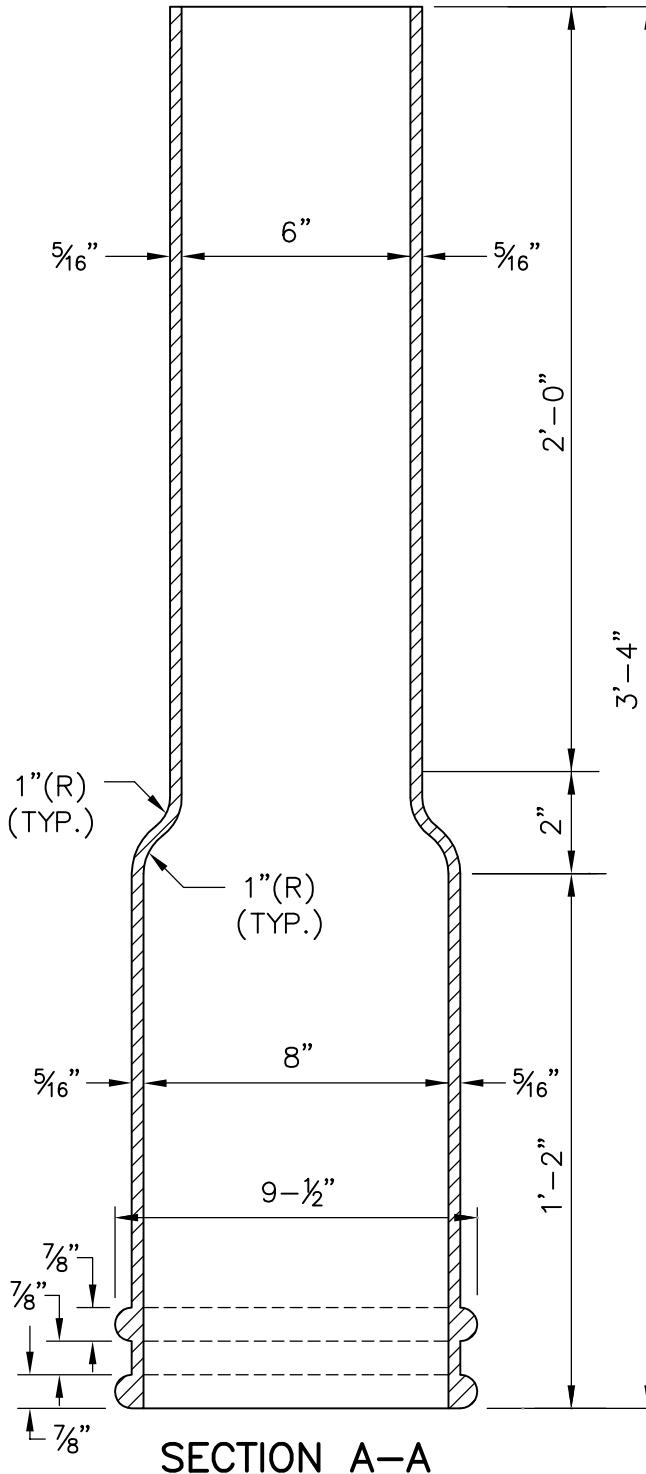
DETAIL

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# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



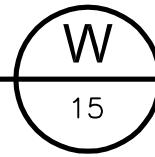
NOTE:

1. FOR USE ON 8" AND SMALLER GATE VALVES AND ALL BUTTERFLY VALVES.

CAST IRON GATE BOX BOTTOM SECTION 8-INCH (DWYER TYPE)

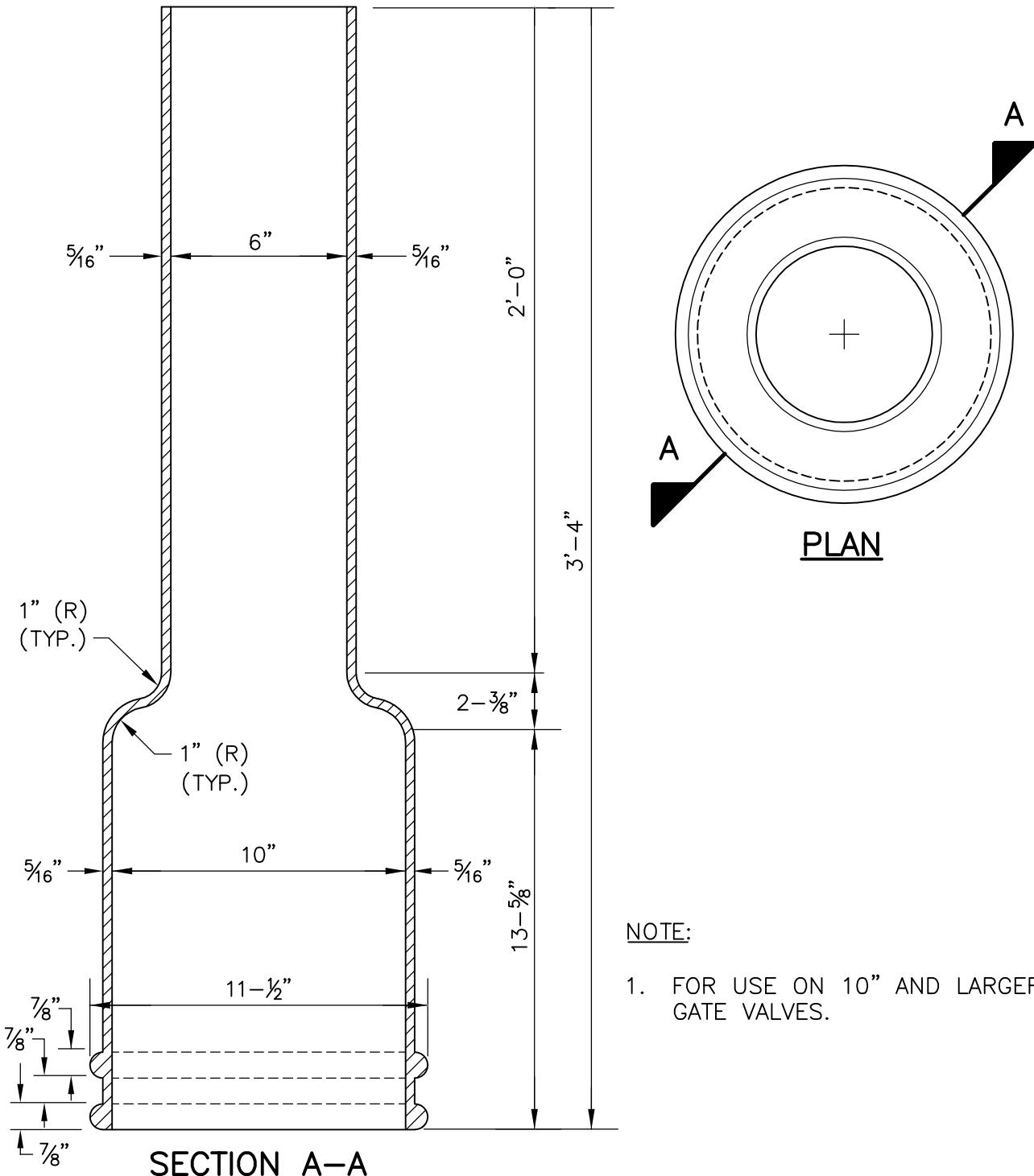
DETAIL

NTS



# THE METROPOLITAN DISTRICT

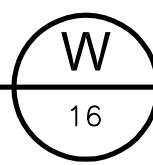
## WATER STANDARD DETAILS



CAST IRON GATE BOX BOTTOM SECTION 10-INCH (DWYER TYPE)

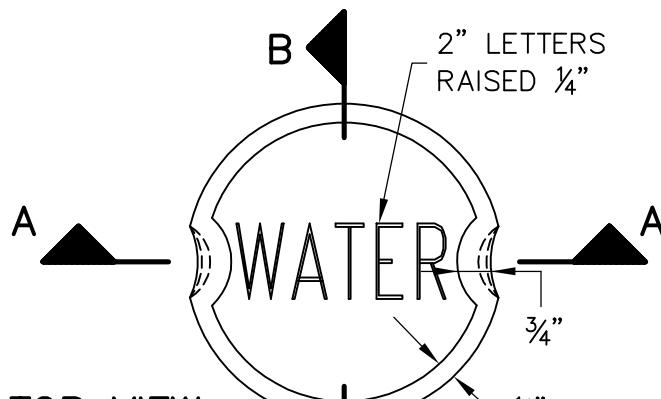
DETAIL

NTS

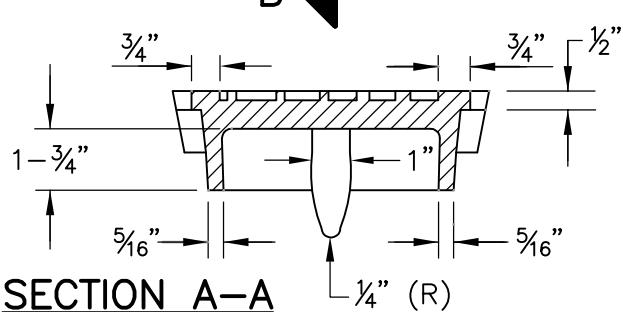


# THE METROPOLITAN DISTRICT

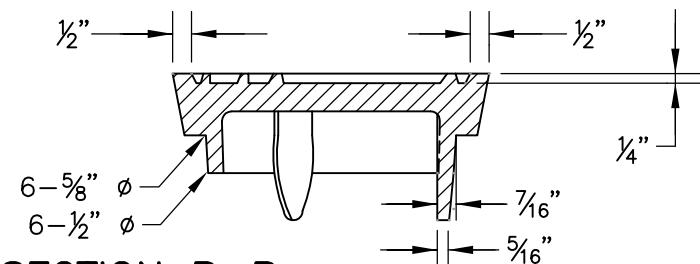
WATER STANDARD DETAILS



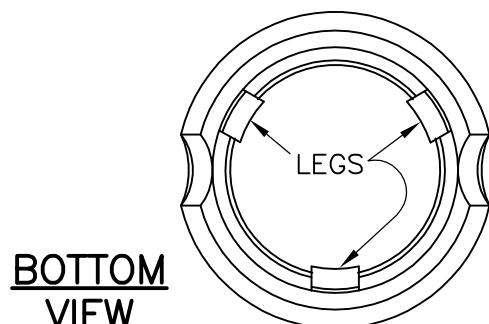
TOP VIEW



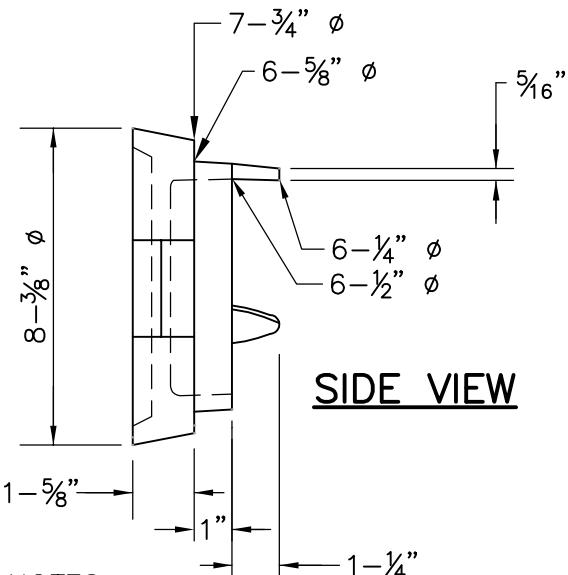
SECTION A-A



SECTION B-B

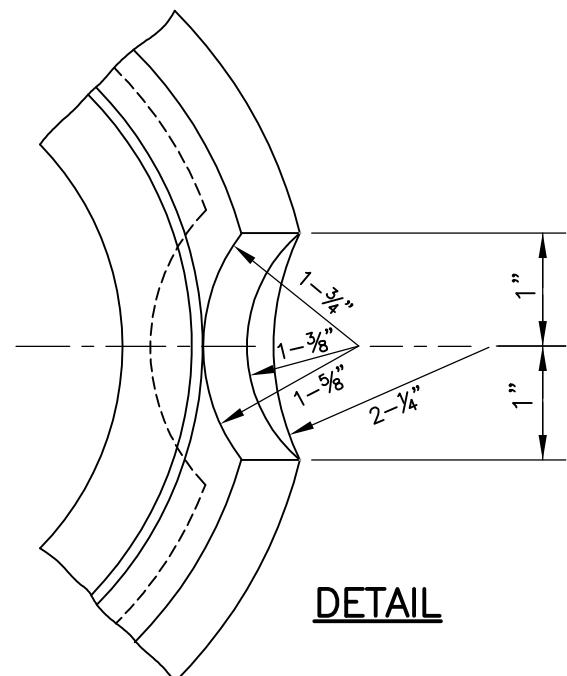


BOTTOM  
VIEW



NOTES:

1. APPROXIMATE WEIGHT 20 LBS.
2. FOR NEW CONSTRUCTION.

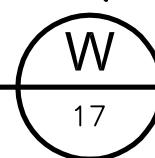


DETAIL

CAST IRON GATE BOX COVER (DWYER TYPE)

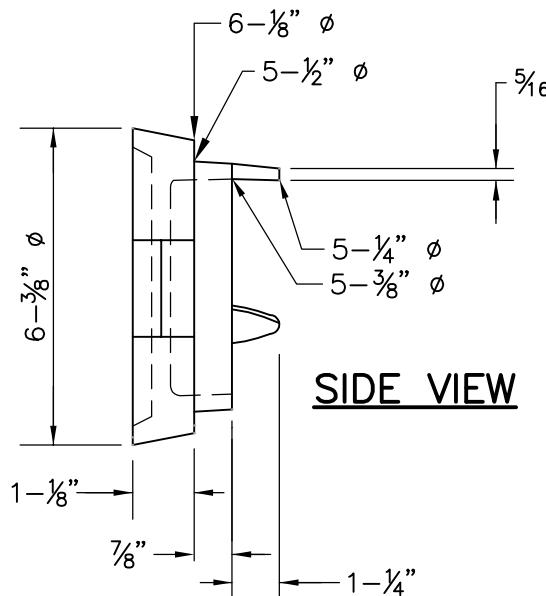
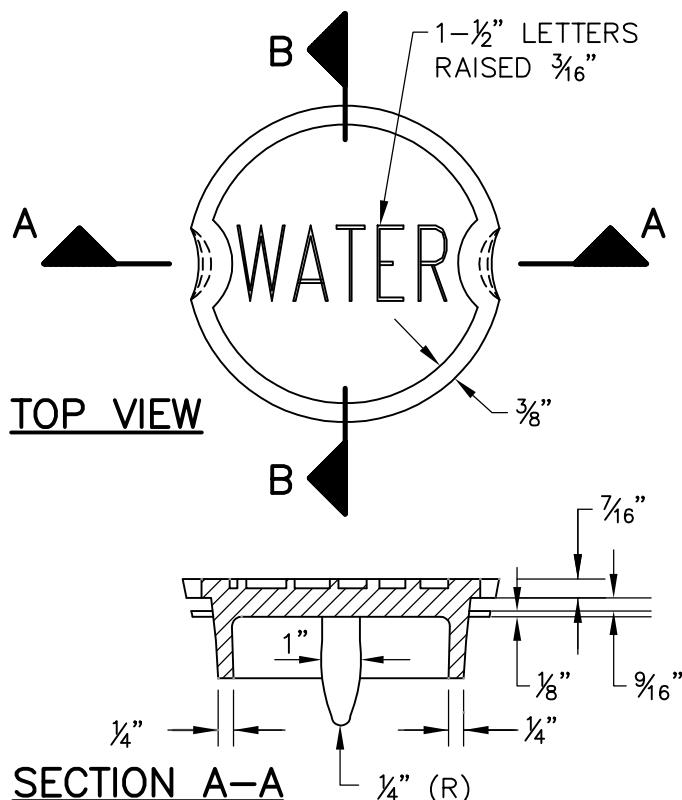
DETAIL

NTS



# THE METROPOLITAN DISTRICT

 MDC



SECTION B-B

3/8"

3/8"

1-1/8"

5-1/2" Ø

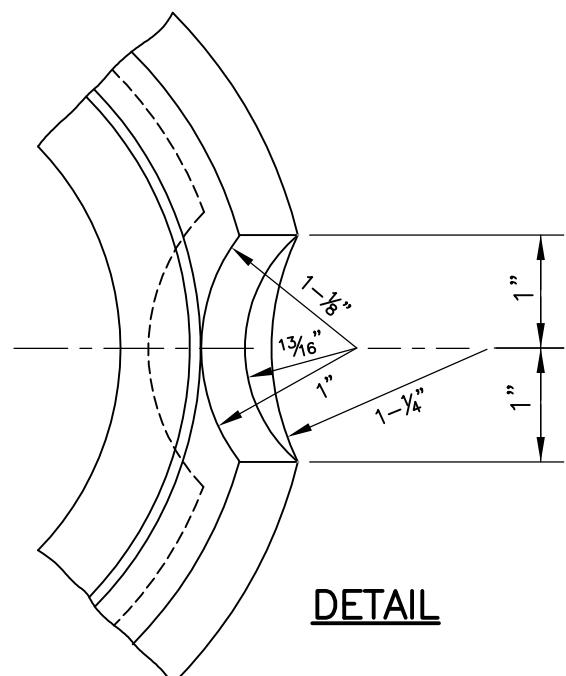
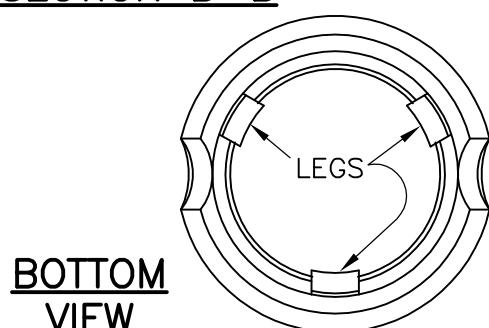
5-3/8" Ø

3/16"

7/16"

5-1/4" Ø

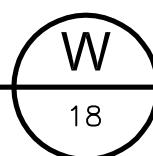
5/16"



## CAST IRON GATE BOX EXTENSION COVER 6-INCH (DWYER TYPE)

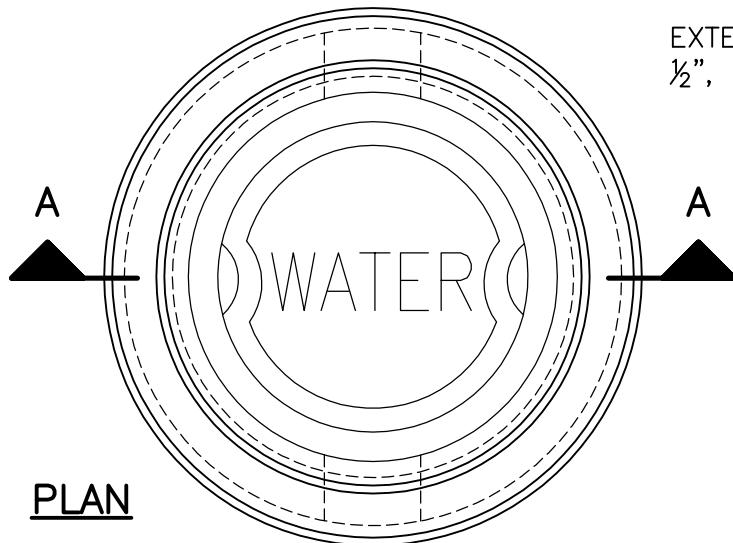
## DETAIL

NTS



# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



### EXTENSION RING HEIGHTS

NOTES:

1. A MAXIMUM OF THREE EXTENSION RINGS CAN BE USED PER GATE BOX.
  2. ALL DIMENSION AREA TO BE  $\pm \frac{1}{16}$ " UNLESS INDICATED OTHERWISE.
  3. NOT TO BE USED FOR NEW WATER MAIN INSTALLATIONS.

## GATE BOX EXTENSION (6-INCH DIAMETER)

THIS SURFACE IS  
CRITICAL AND MUST  
BE FLAT AND TRUE  
WITH THE AXIS OF  
THE CASTING

THIS SURFACE TO  
BE SMOOTH WITH  
MINIMUM TAPER TO  
BOTTOM OF SKIRT

—THIS SURFACE  
IS CRITICAL  
AND MUST BE  
FLAT AND  
TRUE WITH  
THE AXIS OF  
THE CASTING

THIS CRITICAL  
DIAMETER ON  
FINISHED CASTINGS  
SHALL NOT BE OVER  
 $6-1\frac{3}{16}$ "

---

**SECTION A-A**

## DETAIL

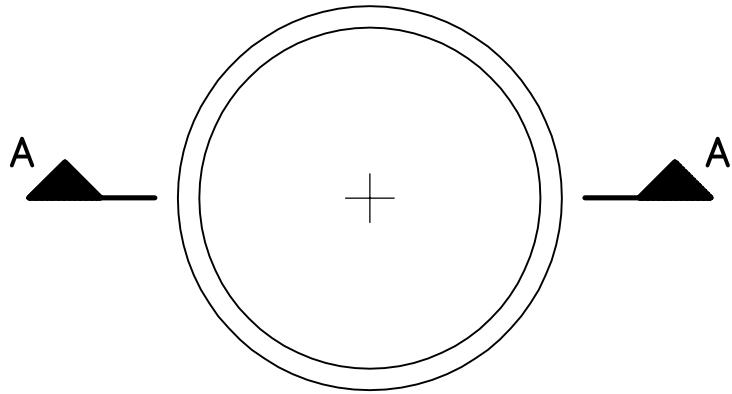
NTS

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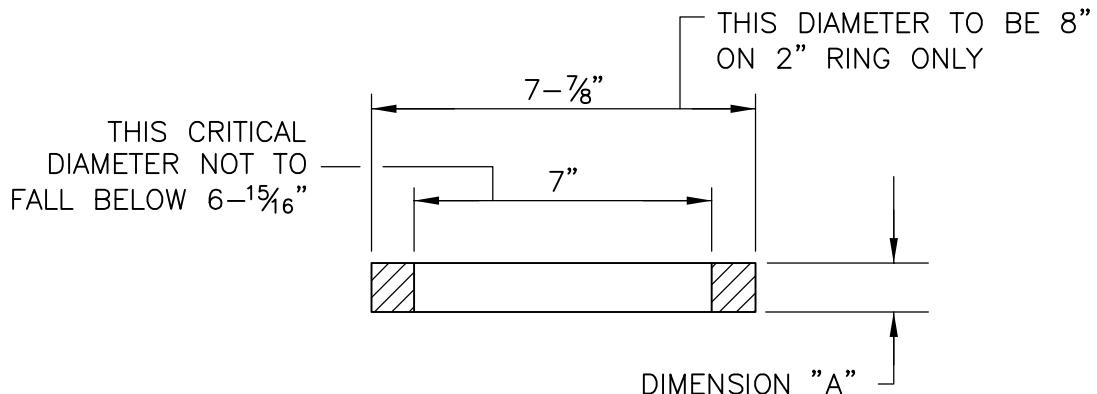
19

# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



PLAN



SECTION A-A

DIMENSION "A"	APPROXIMATE WEIGHT
1/2"	1.50 LBS
1"	2.75 LBS
1-1/2"	3.75 LBS
2"	6.00 LBS

NOTE:

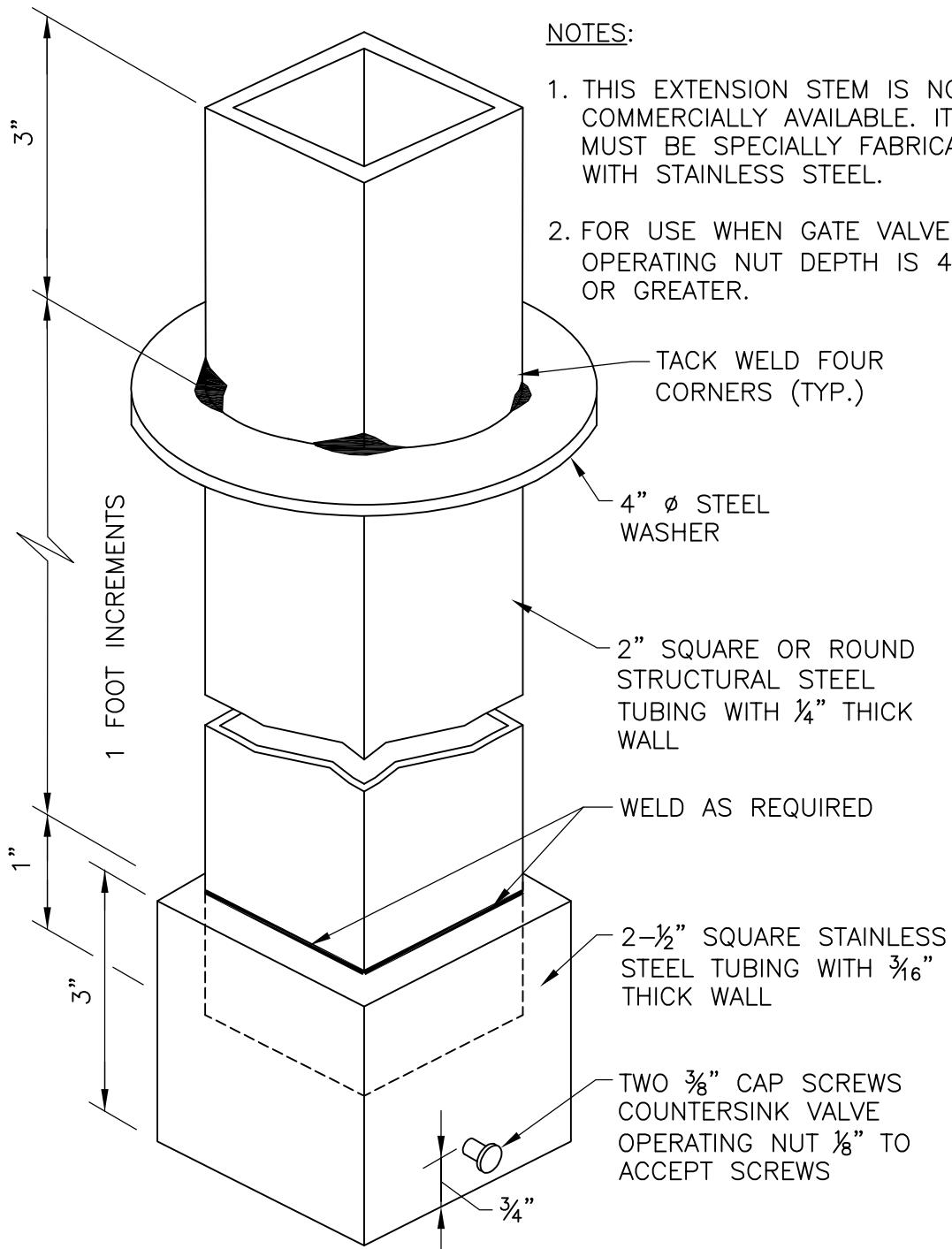
1. ALL DIMENSIONS ARE TO BE  $\pm\frac{1}{16}$ " UNLESS INDICATED OTHERWISE.

### GATE BOX EXTENSION SPACER RINGS



# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



GATE NUT EXTENSION STEM FOR GATE BOX

DETAIL

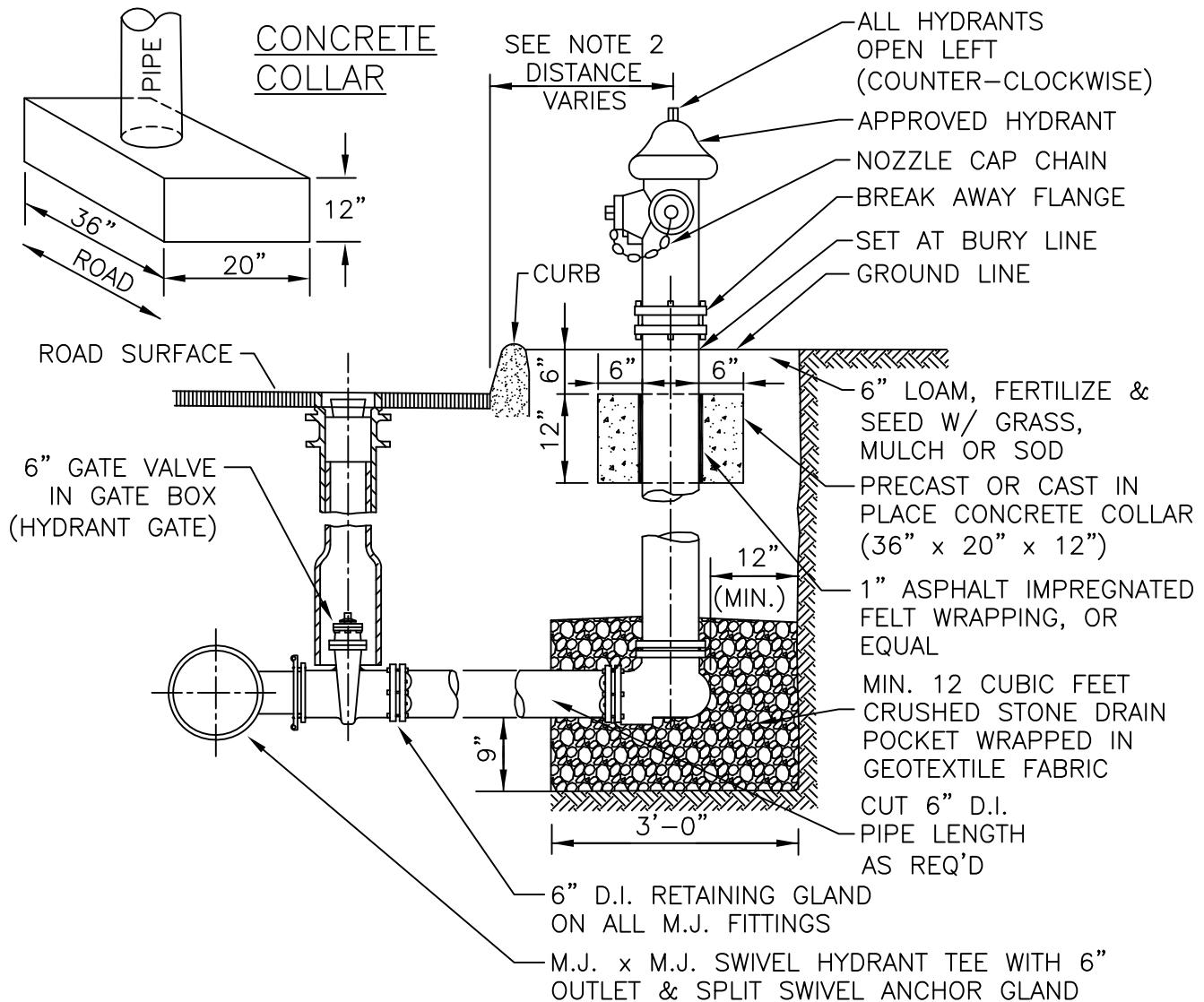
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# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



### NOTES:

1. INSTALL 6" WIDE UNDERGROUND WARNING TAPE (NON-DETECTABLE) 2-FT ABOVE LENGTH OF HYDRANT BRANCH.
2. DISTANCE SHALL BE 3'± IN BLOOMFIELD, FARMINGTON AND GLASTONBURY AND 2'± IN OTHER MEMBER TOWNS.
3. OFFSET HYDRANT LATERAL AS NECESSARY WHILE MAINTAINING MINIMUM 4.5 FEET OF COVER TO SET FIRE HYDRANT BURY LINE AT GRADE. FURNISH AND INSTALL EXTENSIONS AS NECESSARY ONLY IF A LATERAL OFFSET IS NOT POSSIBLE.

### STANDARD FIRE HYDRANT ASSEMBLY

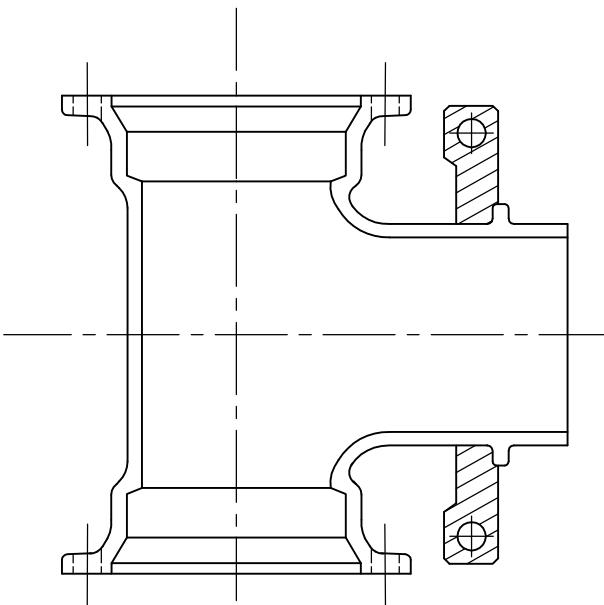
**DETAIL**

NTS

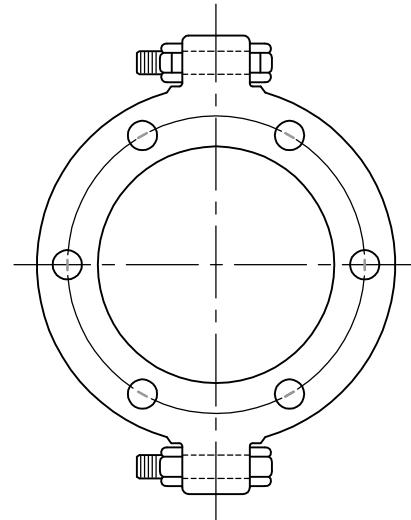
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22

# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



SECTION



SPLIT GLAND

NOTE:

1. THE SWIVEL HYDRANT TEE IS A COMPACT MECHANICAL JOINT TEE EXCEPT THE BRANCH IS PLAIN END WITH AN INTEGRAL RING AND A ROTATABLE SPLIT GLAND. THE SPLIT GLAND ANCHORS THE PLAIN END TO ANY MECHANICAL JOINT BELL AND ELIMINATES THE NEED FOR THE RODS AND BLOCKING. THIS TEE SHALL BE USED FOR HYDRANT LEADS AND FOR ANCHORING A VALVE TO THE TEE SHOULD A FUTURE BRANCH LINE BE ANTICIPATED.

### SWIVEL MECHANICAL JOINT HYDRANT TEE

DETAIL

NTS

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23

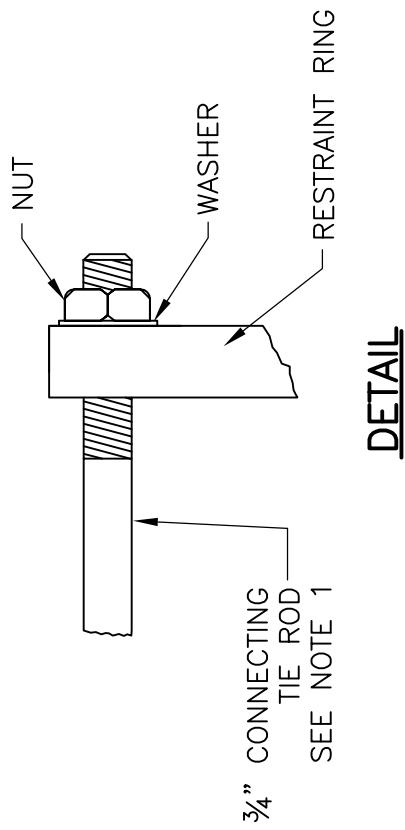
# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



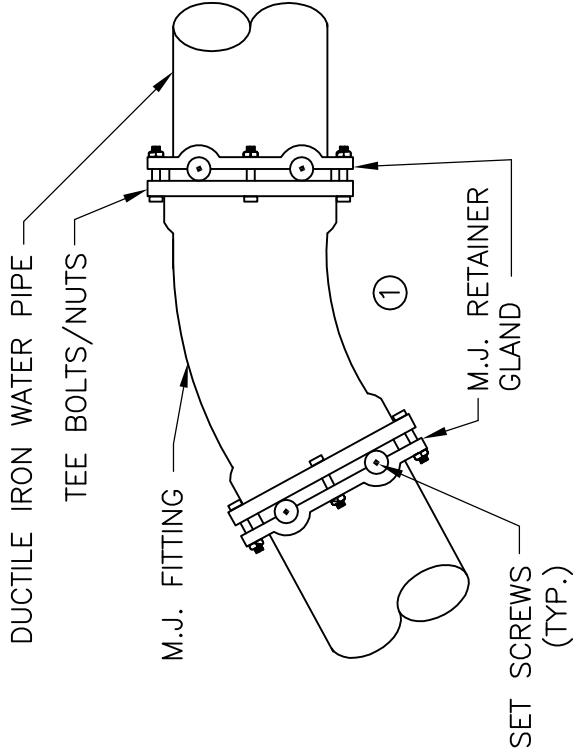
### JOINT METHOD NOTES:

- ① MECHANICAL JOINT RETAINER GLANDS
- ② PUSH-ON JOINT RESTRAINT USING  
MECHANICAL JOINT RETAINER GLANDS



### NOTE:

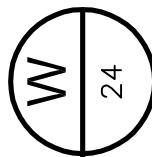
1. PROVIDE 12" MIN. LENGTH TIE RODS W/ NUTS AND WASHERS. TYPICAL TIE ROD LENGTH IS 24".



### STANDARD RESTRAINED JOINTS

### DETAIL

NTS

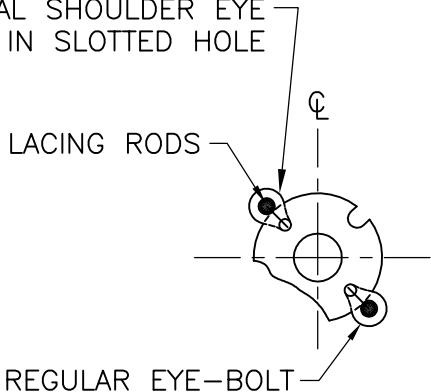


# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS

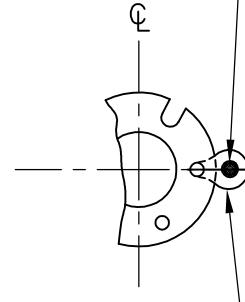


SPECIAL SHOULDER EYE  
BOLT IN SLOTTED HOLE



4" JOINTS

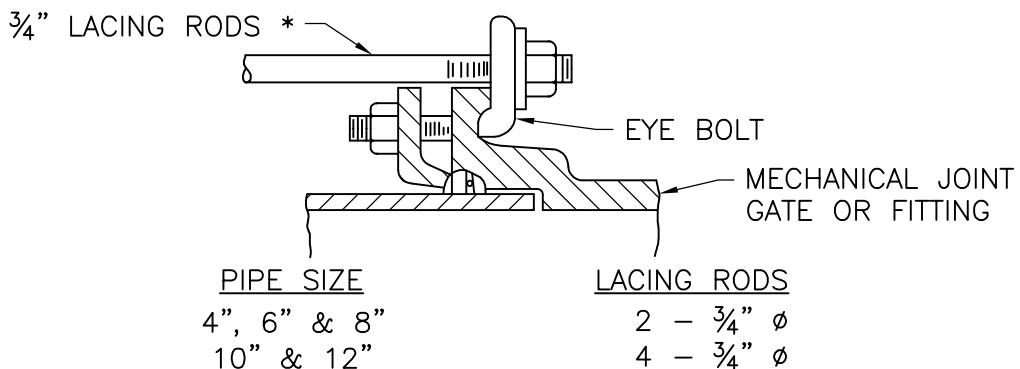
LACING RODS



6" & 8"  
JOINTS

REGULAR EYE-BOLT

10" & 12"  
JOINTS



\* STANDARD LENGTHS ARE 6' & 10'.  
COUPLINGS MAY BE USED FOR LONGER LENGTHS.

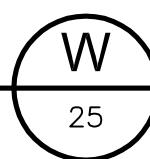
### NOTES:

1. NUMBER OF LACING RODS IS BASED ON MAXIMUM PRESSURE OF 150 P.S.I. IN MAIN.
2. STEEL LACING RODS SHALL HAVE A YIELD STRESS OF NOT LESS THAN 36,000 P.S.I.
3. EYE-BOLTS SHALL HAVE A MINIMUM TENSILE STRENGTH OF 7,000 LBS. EACH.
4.  $\frac{3}{4}$ " LACING RODS AND EYEBOLTS ARE UNSUITABLE FOR PIPELINES 16 INCHES IN DIAMETER AND LARGER. RESTRAINT FOR 16 INCHES AND LARGER PIPES MUST BE DESIGNED ON A CASE-BY-CASE BASIS AND APPROVED BY THE DISTRICT.
5. ALL COMPONENTS SHALL BE HOT-DIPPED GALVANIZED.

### MECHANICAL JOINT LACING METHOD

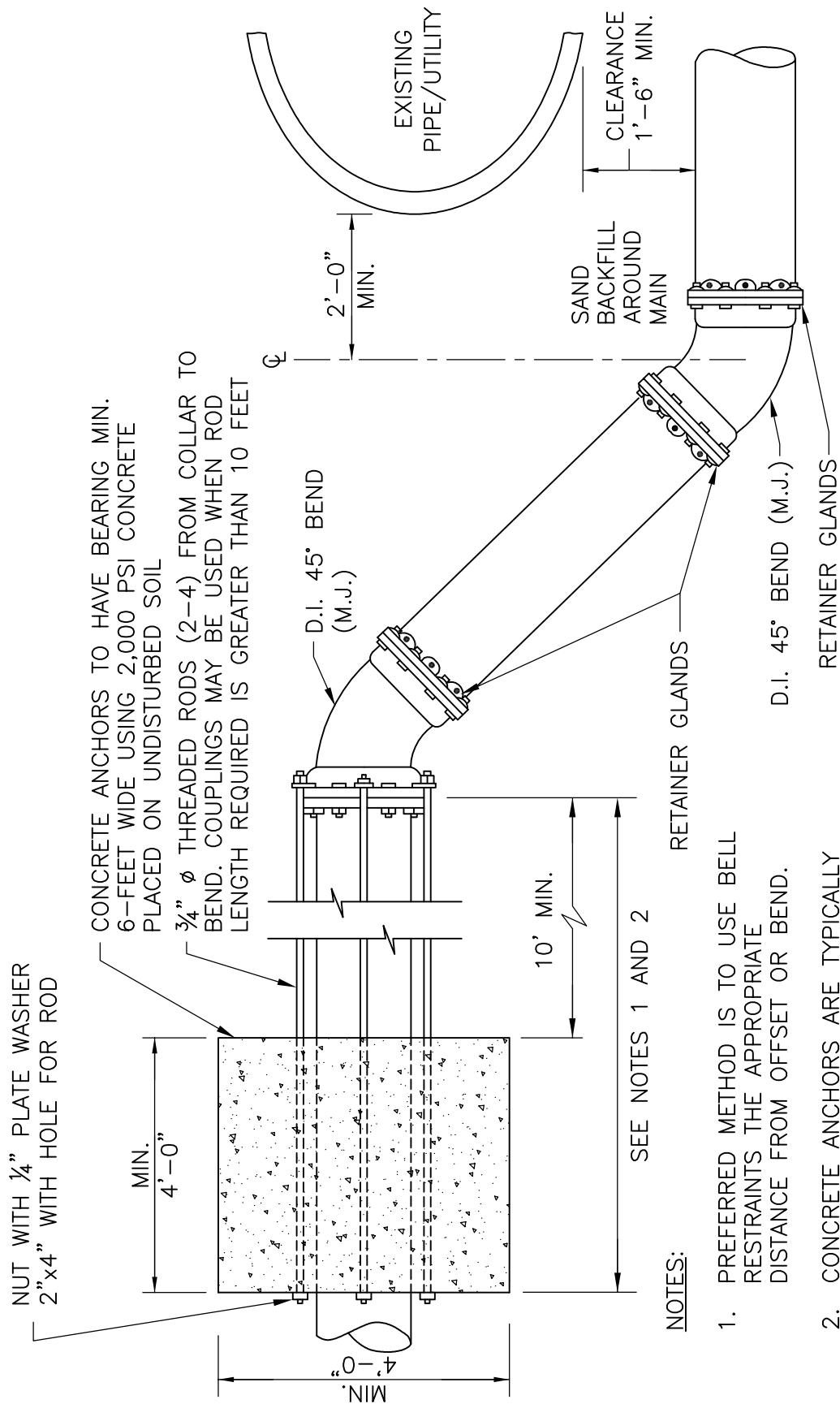
DETAIL

NTS



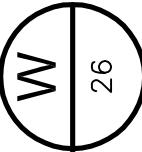
# THE METROPOLITAN DISTRICT

WATER STANDARD DETAILS



RESTRAINED OFFSET WITH CONCRETE ANCHOR

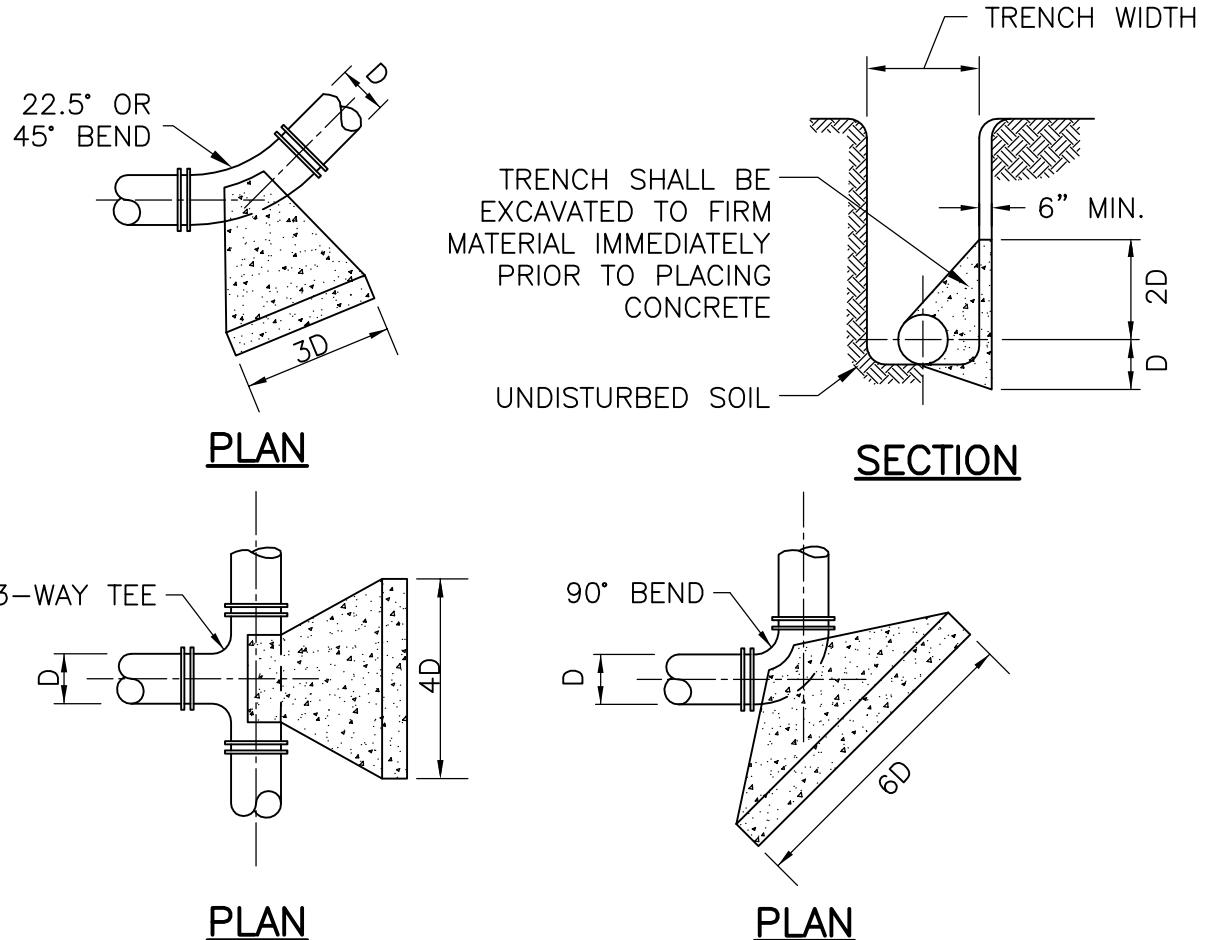
DETAIL



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# THE METROPOLITAN DISTRICT

WATER STANDARD DETAILS



NOTES:

1. THRUST RESTRAINTS SHALL BE EITHER RESTRAINED JOINTS FOR DUCTILE IRON PIPE OR THRUST BLOCKS. THRUST BLOCKS ARE NOT THE PREFERRED METHOD OF THRUST RESTRAINT AND WILL ONLY BE PERMITTED IN SPECIAL CASES AS DIRECTED BY THE ENGINEER OR BY THE DISTRICT.
2. THRUST BLOCKS SHOULD ONLY BE USED WHEN SOIL CONDITIONS ARE STABLE.
3. ANCHORS SHALL BE BASED ON MAXIMUM ALLOWABLE WATER PRESSURE OF 150 PSI.

## CONCRETE THRUST BLOCKS FOR 12-INCH AND SMALLER MAINS

DETAIL

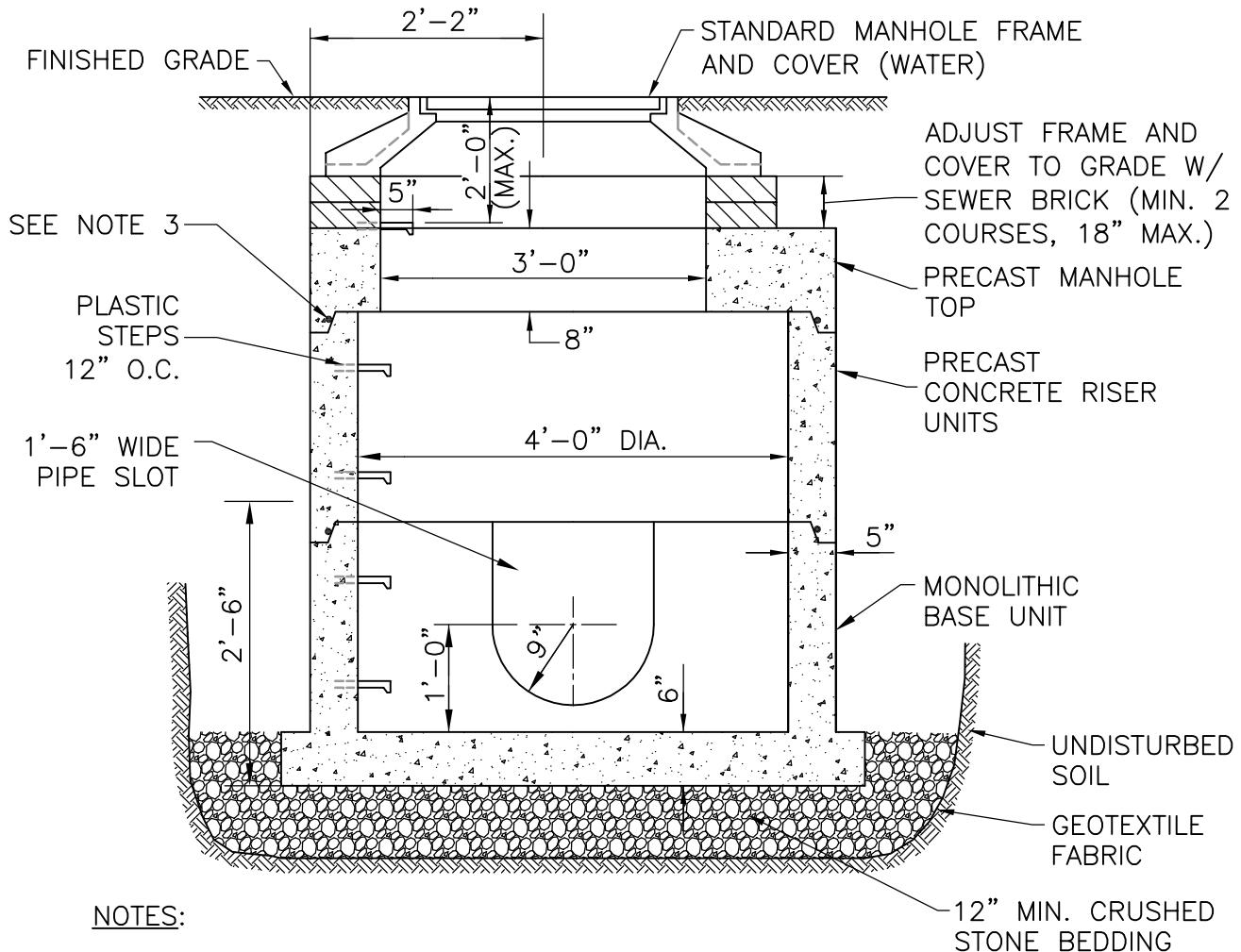
NTS

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# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



1. BACKFILL MATERIAL SHALL BE BANK-RUN GRAVEL IN PAVED AREAS OR COMMON FILL IN UNPAVED AREAS.
2. CONCRETE STRENGTH SHALL BE MIN. 4,000 P.S.I (28 DAYS). REINFORCING STEEL NOT SHOWN.
3. INSTALL REINFORCED CONCRETE MANHOLE SECTIONS WITH PREFORMED FLEXIBLE JOINT SEALANT OR O-RING RUBBER GASKET.

### STANDARD WATER MANHOLE

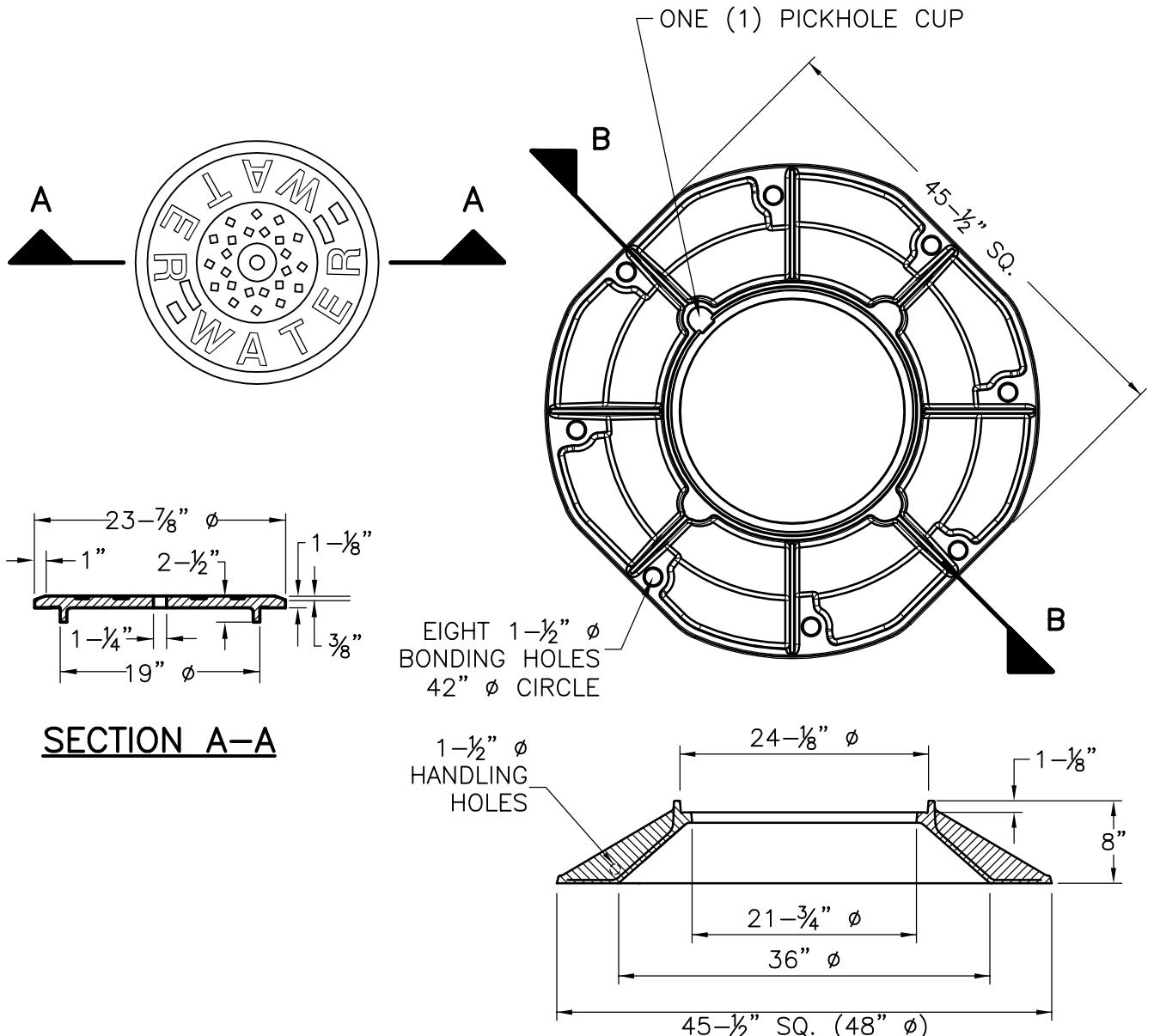
DETAIL

NTS

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# THE METROPOLITAN DISTRICT

WATER STANDARD DETAILS



## SECTION A-A

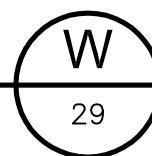
### NOTE:

1. THE LOWER SURFACE OF THE COVER AND THE CORRESPONDING UPPER SURFACE OF THE FRAME SHALL BE MACHINE FINISHED TO PROVIDE A SMOOTH FLAT CONTACT OR FIT WITHOUT ANY TENDENCY FOR THE COVER OR GRATE TO ROCK OR RATTLE.

## STANDARD WATER MANHOLE FRAME AND COVER

DETAIL

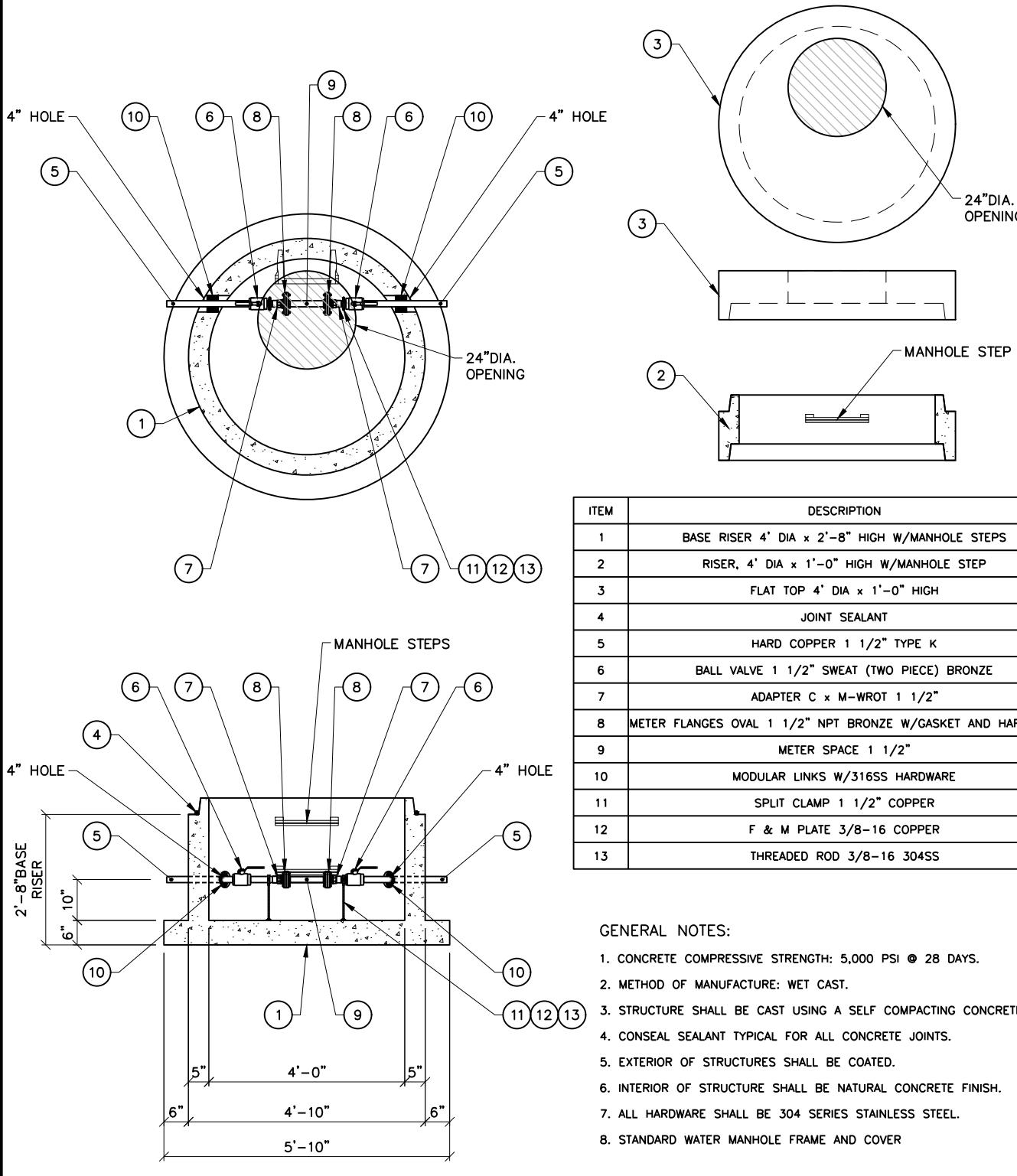
NTS



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# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



### GENERAL NOTES:

1. CONCRETE COMPRESSIVE STRENGTH: 5,000 PSI @ 28 DAYS.
2. METHOD OF MANUFACTURE: WET CAST.
3. STRUCTURE SHALL BE CAST USING A SELF COMPACTING CONCRETE MIX.
4. CONSEAL SEALANT TYPICAL FOR ALL CONCRETE JOINTS.
5. EXTERIOR OF STRUCTURES SHALL BE COATED.
6. INTERIOR OF STRUCTURE SHALL BE NATURAL CONCRETE FINISH.
7. ALL HARDWARE SHALL BE 304 SERIES STAINLESS STEEL.
8. STANDARD WATER MANHOLE FRAME AND COVER

MAIN PIPING TYPICAL SECTION

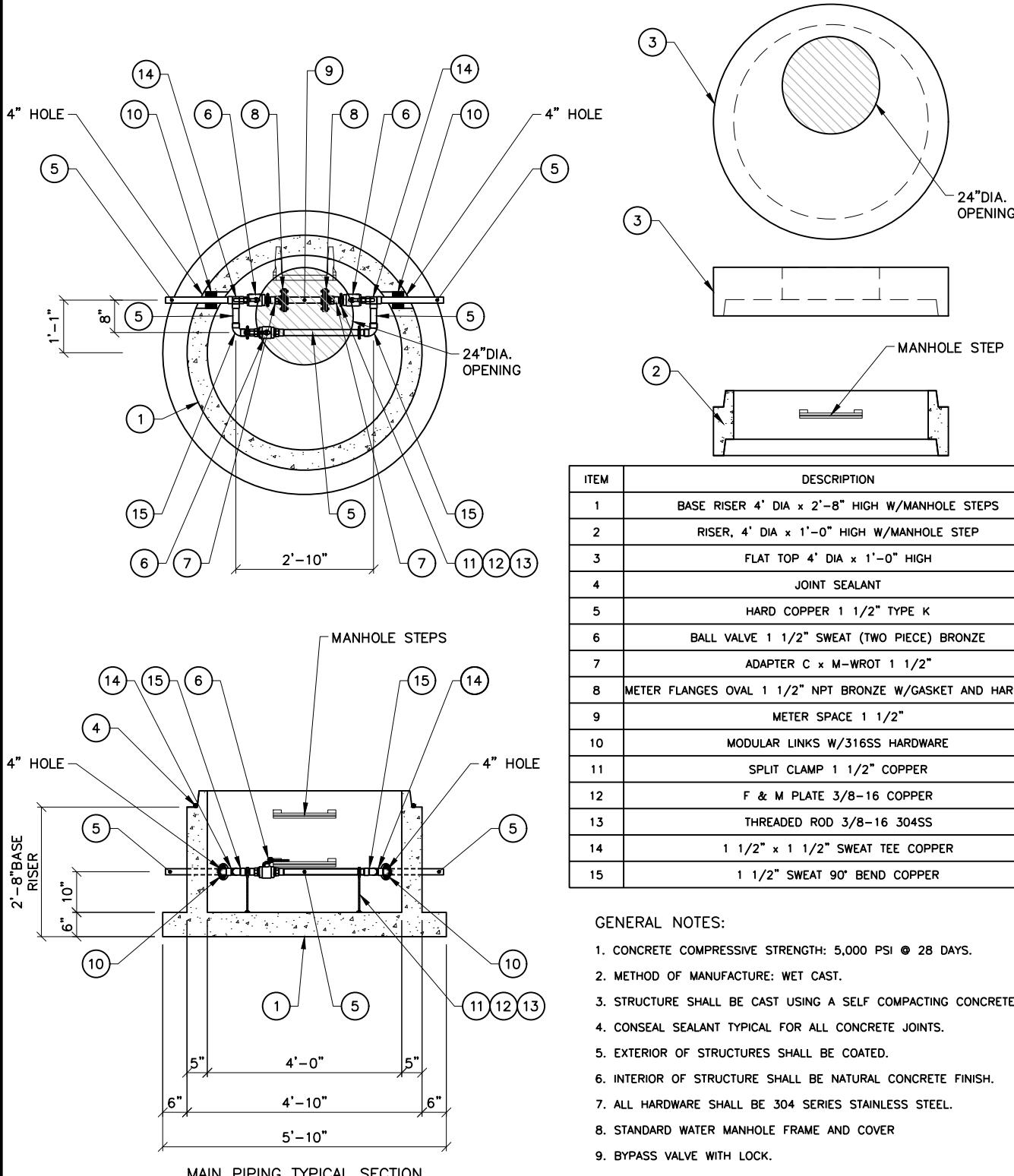
### PRECAST 1 1/2" METER PIT

DETAIL  
NTS

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30

# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS

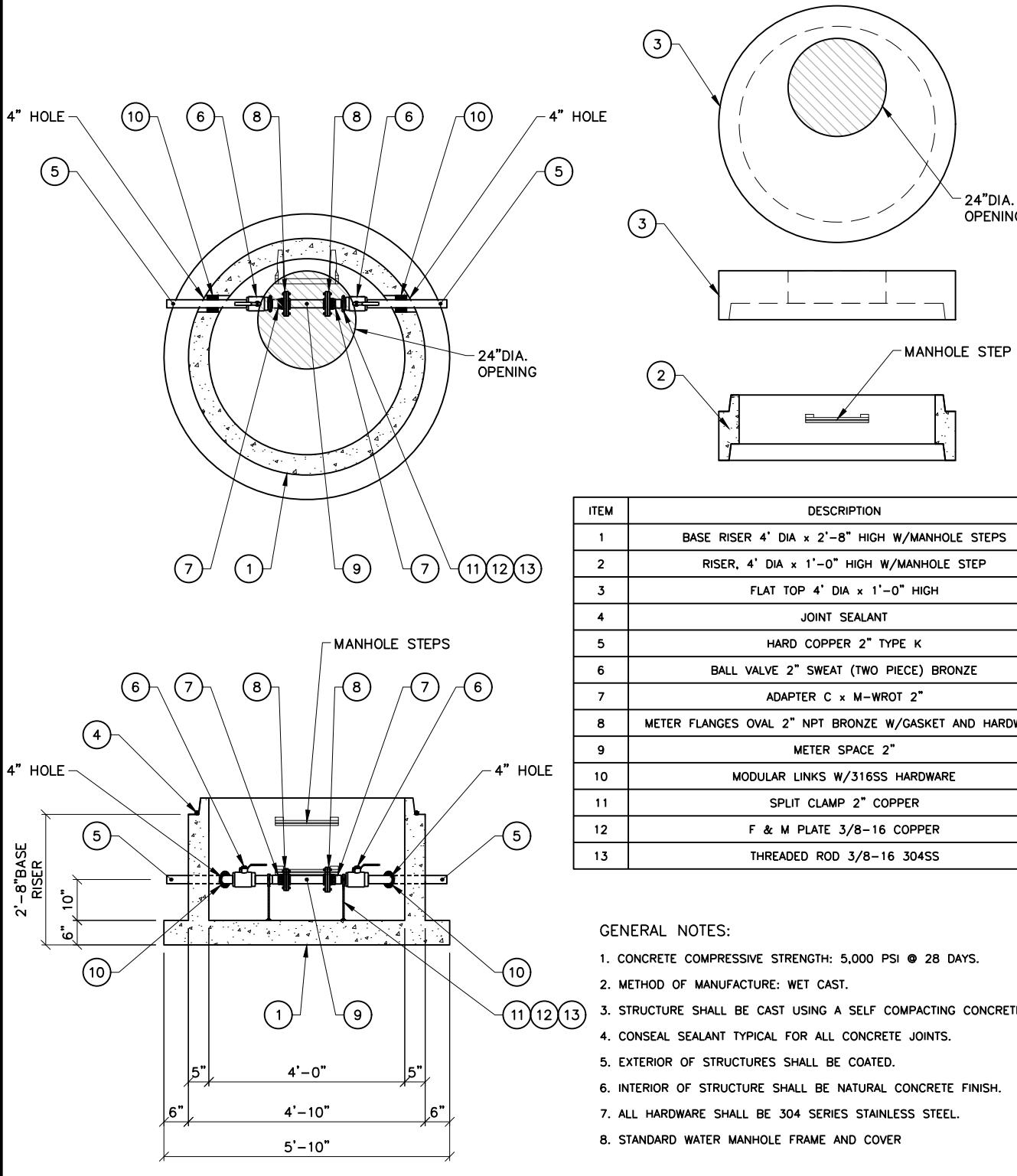


DETAIL  
NTS

W  
30B

# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



### GENERAL NOTES:

1. CONCRETE COMPRESSIVE STRENGTH: 5,000 PSI @ 28 DAYS.
2. METHOD OF MANUFACTURE: WET CAST.
3. STRUCTURE SHALL BE CAST USING A SELF COMPACTING CONCRETE MIX.
4. CONSEAL SEALANT TYPICAL FOR ALL CONCRETE JOINTS.
5. EXTERIOR OF STRUCTURES SHALL BE COATED.
6. INTERIOR OF STRUCTURE SHALL BE NATURAL CONCRETE FINISH.
7. ALL HARDWARE SHALL BE 304 SERIES STAINLESS STEEL.
8. STANDARD WATER MANHOLE FRAME AND COVER

MAIN PIPING TYPICAL SECTION

### PRECAST 2" METER PIT

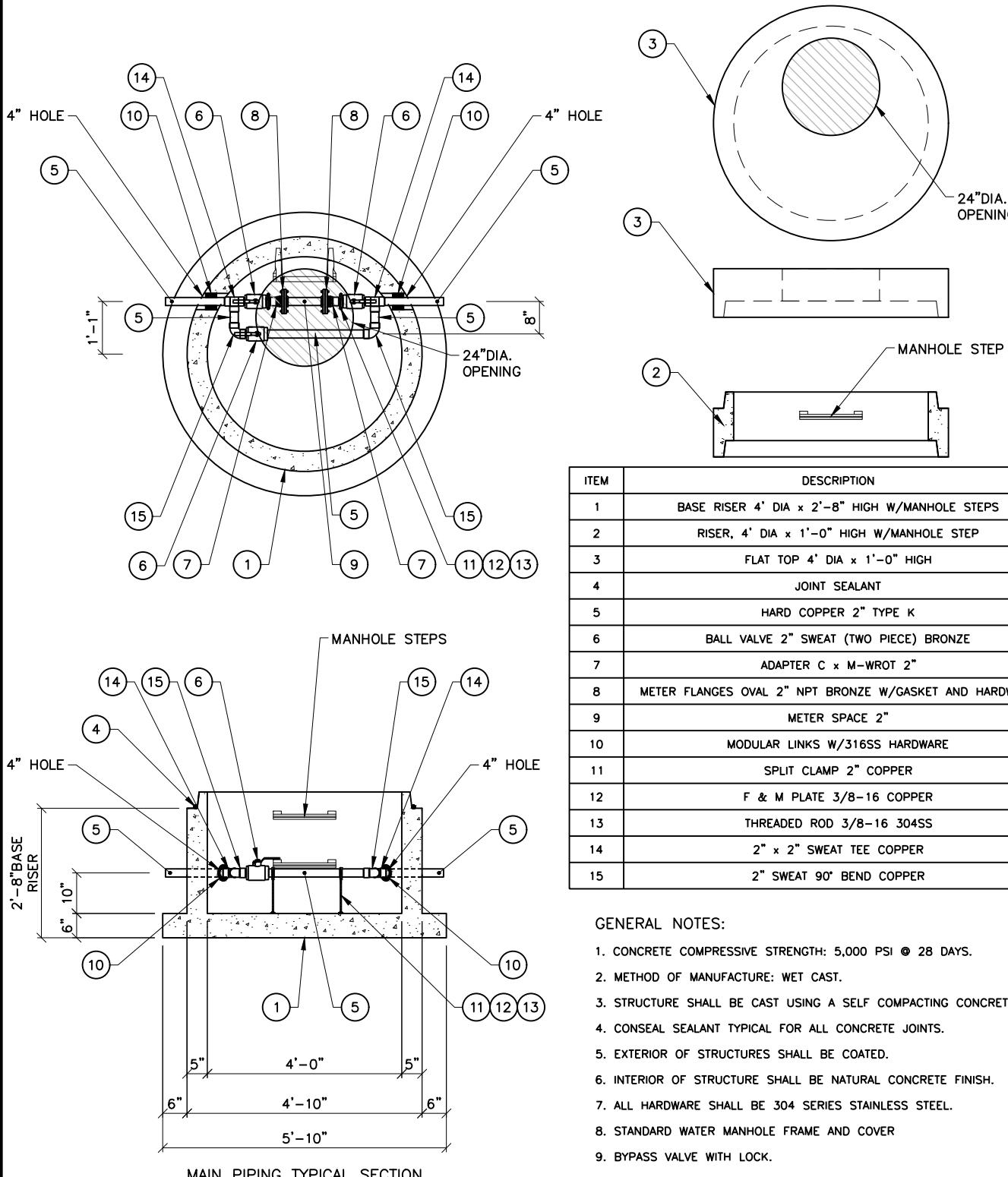
DETAIL

NTS

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31

# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



### GENERAL NOTES:

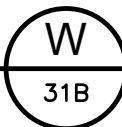
1. CONCRETE COMPRESSIVE STRENGTH: 5,000 PSI @ 28 DAYS.
2. METHOD OF MANUFACTURE: WET CAST.
3. STRUCTURE SHALL BE CAST USING A SELF COMPACTING CONCRETE MIX.
4. CONSEAL SEALANT TYPICAL FOR ALL CONCRETE JOINTS.
5. EXTERIOR OF STRUCTURES SHALL BE COATED.
6. INTERIOR OF STRUCTURE SHALL BE NATURAL CONCRETE FINISH.
7. ALL HARDWARE SHALL BE 304 SERIES STAINLESS STEEL.
8. STANDARD WATER MANHOLE FRAME AND COVER
9. BYPASS VALVE WITH LOCK.

MAIN PIPING TYPICAL SECTION

## PRECAST 2" METER PIT WITH BYPASS

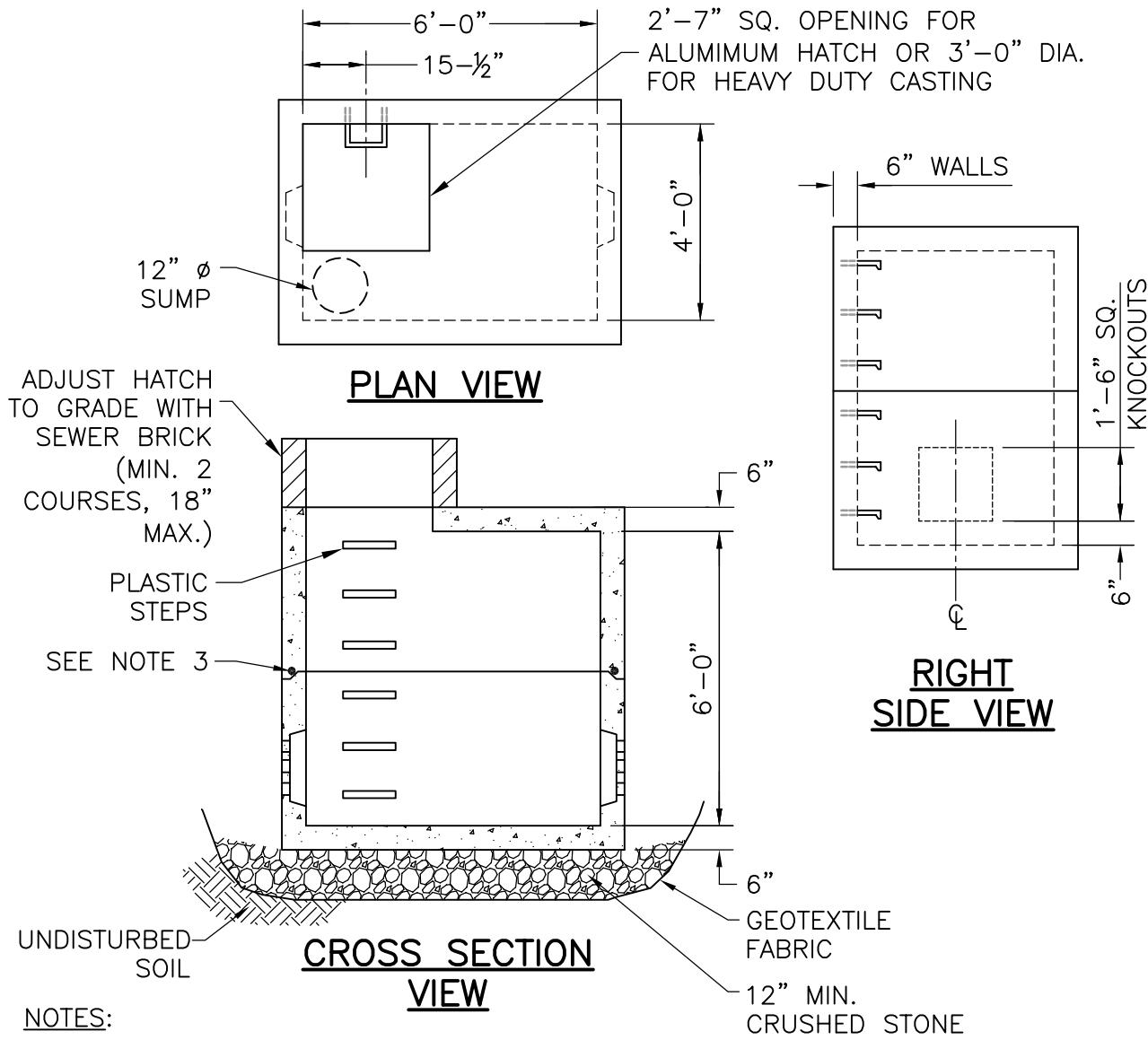
DETAIL

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# THE METROPOLITAN DISTRICT

WATER STANDARD DETAILS

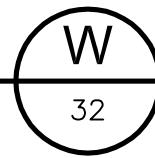


- NOTES:
1. BACKFILL MATERIAL SHALL BE BANK-RUN GRAVEL IN PAVED AREAS OR COMMON FILL IN UNPAVED AREAS.
  2. CONCRETE STRENGTH SHALL BE MIN. 4,000 P.S.I (28 DAYS). REINFORCING STEEL NOT SHOWN.
  3. INSTALL REINFORCED CONCRETE MANHOLE SECTIONS WITH PREFORMED FLEXIBLE JOINT SEALANT OR O-RING RUBBER GASKET.

**6' x 4' x 6' PRECAST METER PIT  
FOR 2-INCH THROUGH 4-INCH METERS**

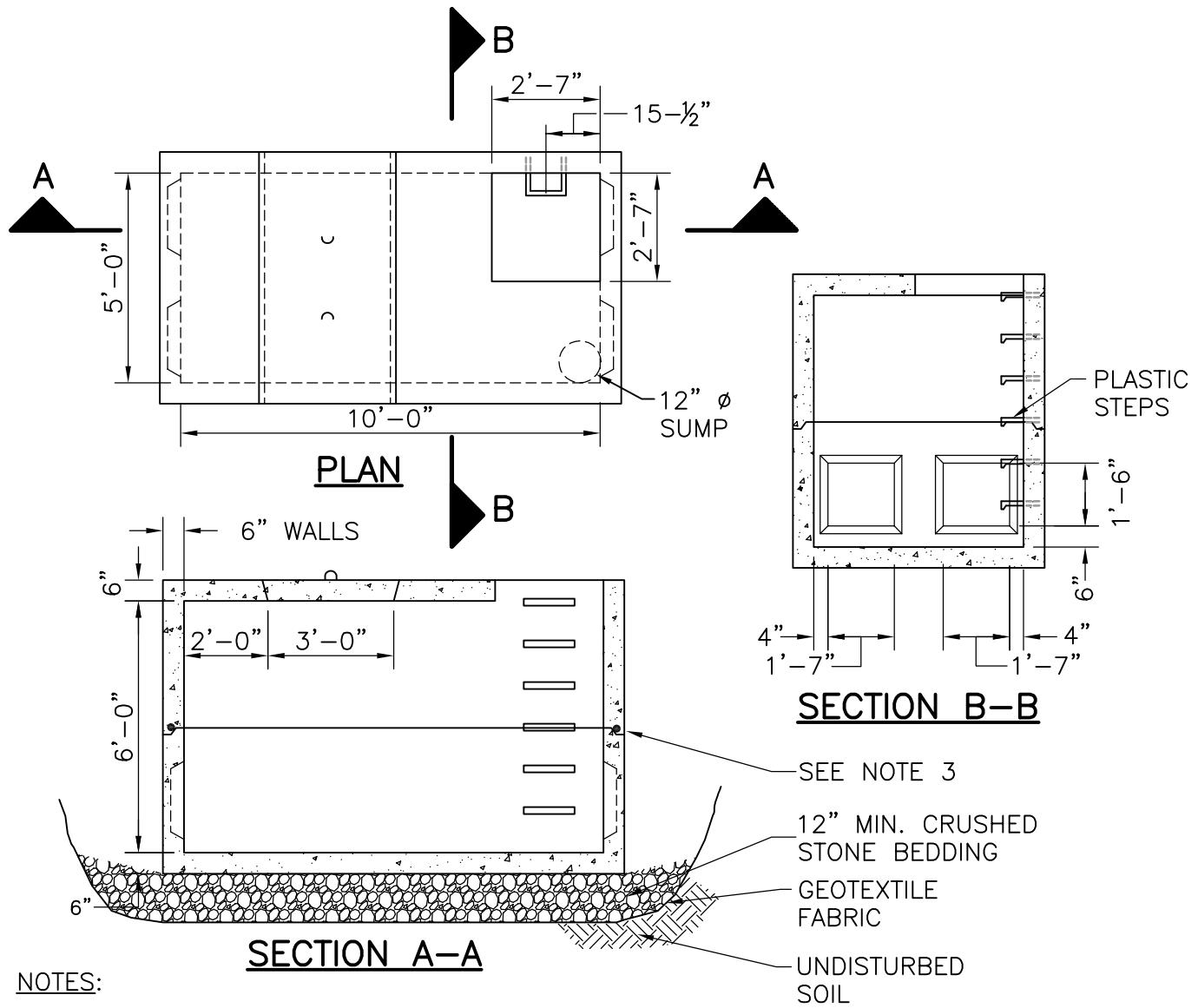
**DETAIL**

NTS



# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



### NOTES:

1. BACKFILL MATERIAL SHALL BE BANK-RUN GRAVEL IN PAVED AREAS OR COMMON FILL IN UNPAVED AREAS.
2. CONCRETE STRENGTH SHALL BE MIN. 4,000 P.S.I (28 DAYS). REINFORCING STEEL NOT SHOWN.
3. INSTALL REINFORCED CONCRETE MANHOLE SECTIONS WITH PREFORMED FLEXIBLE JOINT SEALANT OR O-RING RUBBER GASKET.

5' x 10' x 6' PRECAST METER PIT  
FOR 4-INCH AND LARGER METERS

DETAIL

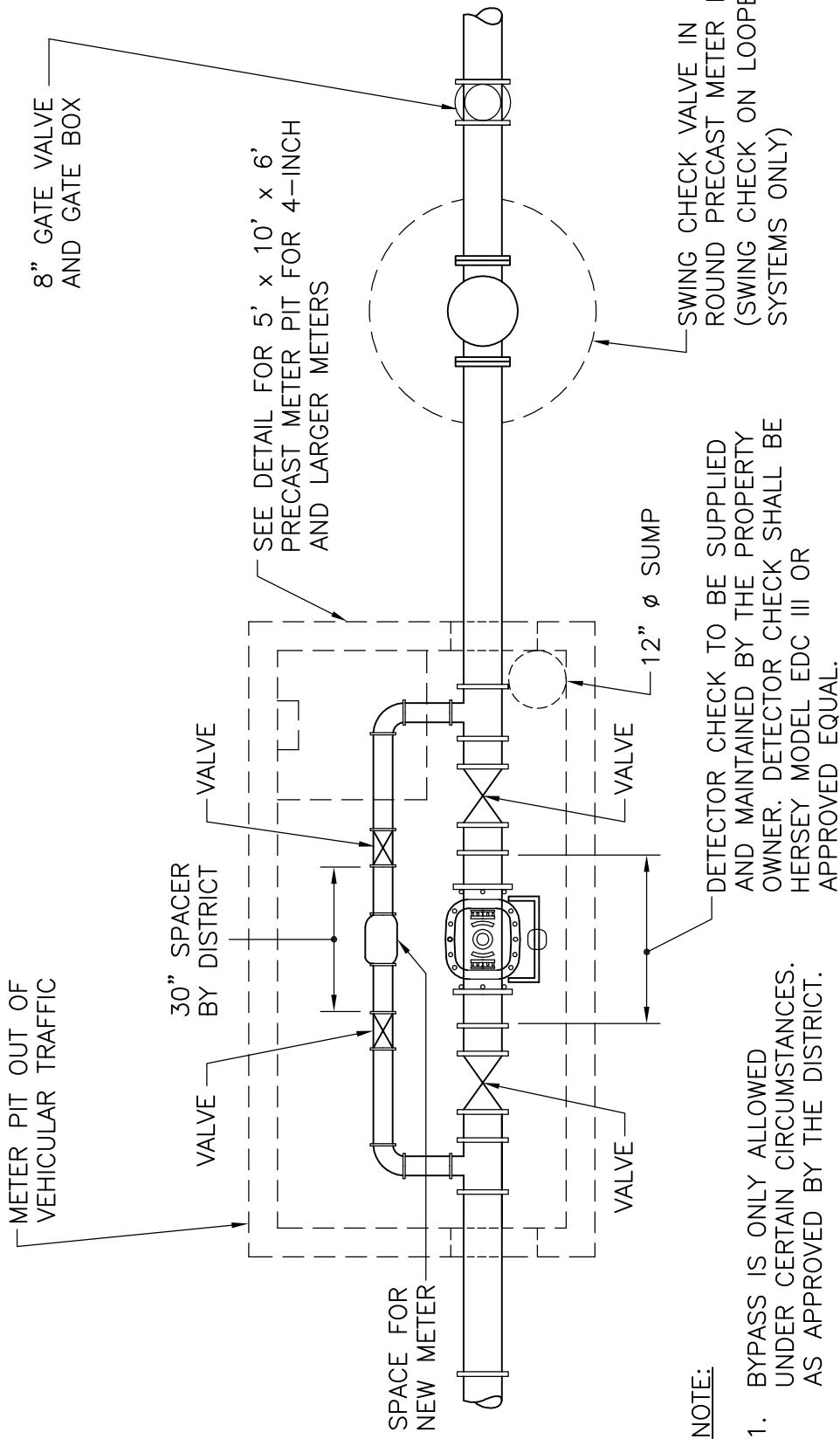
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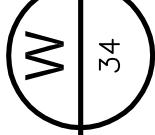
33

# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS

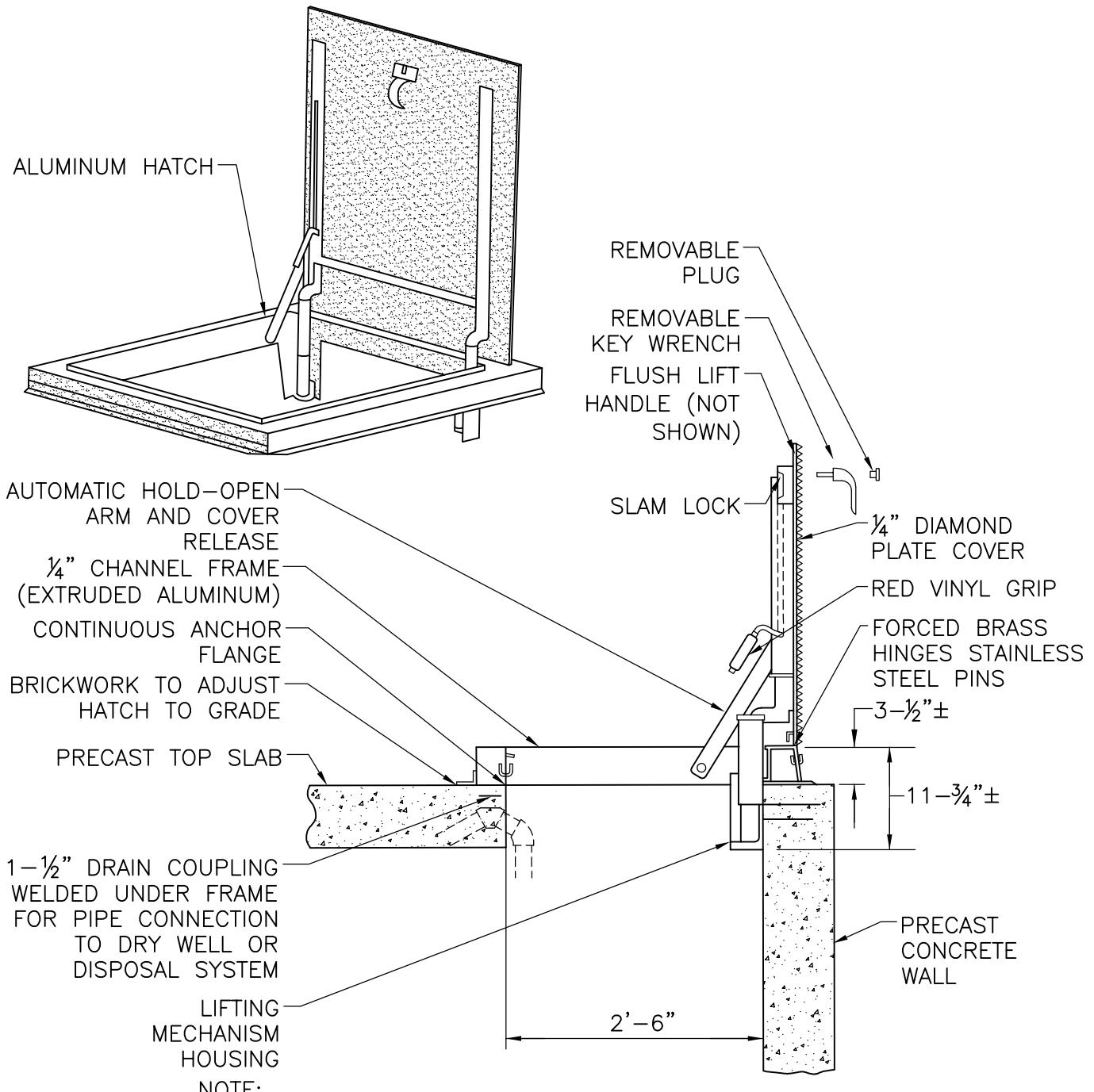


**5" x 10' x 6' COMBINED METER LAYOUT**  
**DETAIL**  
 NTS



# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



1. ALUMINUM HATCH SHALL BE 2'-6" x 2'-6" BILCO TYPE "J-ALH20" OR EQUAL.

### ALUMINUM HATCH FOR PRECAST METER PITS

**DETAIL**

NTS

**W**

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# THE METROPOLITAN DISTRICT

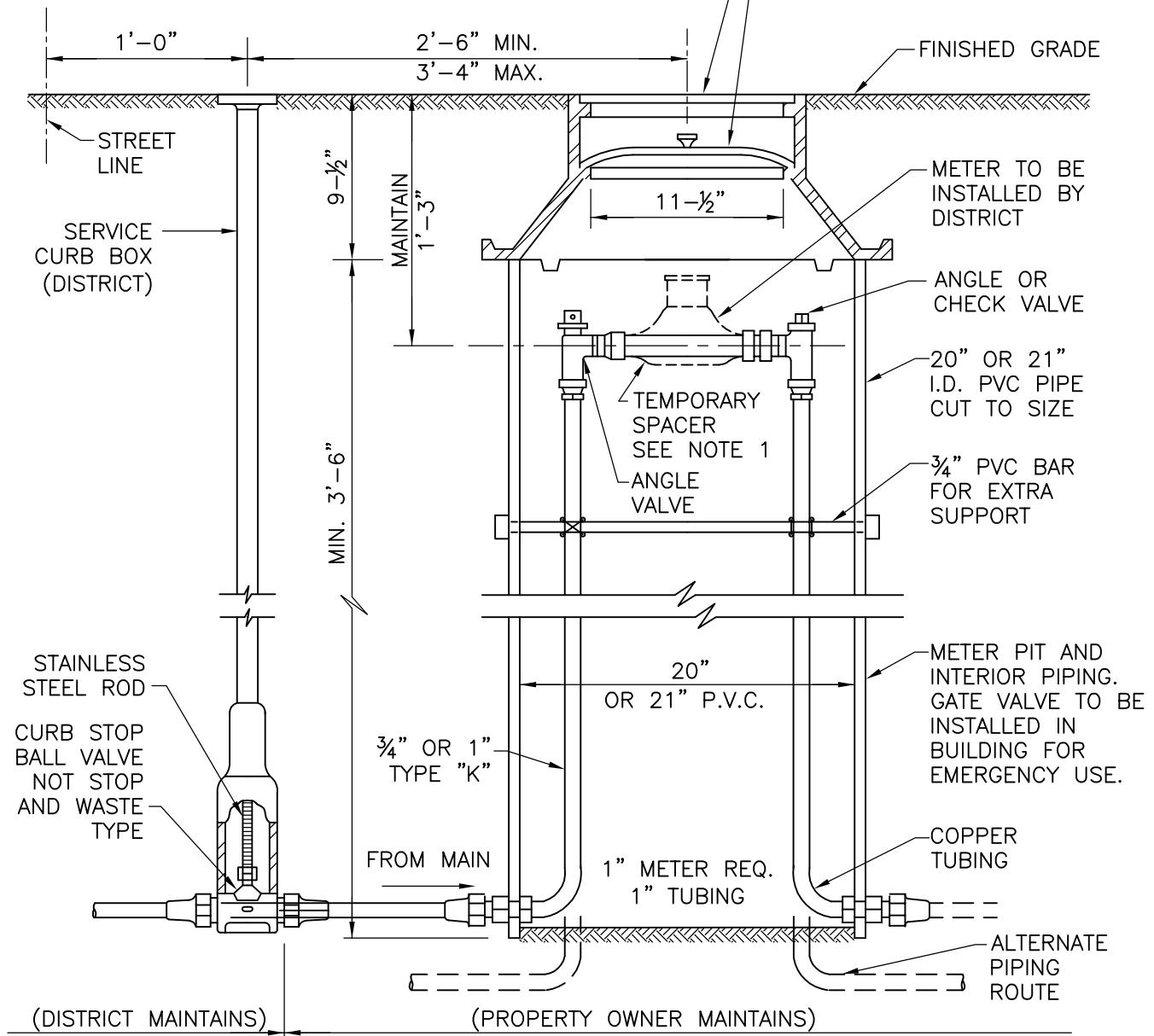
## WATER STANDARD DETAILS



NOTES:

1. METER SPACER SIZE FOR  $\frac{5}{8}$ " x  $\frac{3}{4}$ " METER SHALL BE 7- $\frac{1}{2}$ ".
  2. METER SPACER SIZE FOR 1" METER SHALL BE 10- $\frac{3}{4}$ ".

- STANDARD DOUBLE LID  
COVER (EXTRA HEAVY)  
SHALL BE ALUMINUM INNER  
LID. NO. W3 HAL WABASH  
FORD METER BOX OR  
EQUAL.



## METER BOX FOR 1" SERVICE AND $\frac{5}{8}$ " X $\frac{3}{4}$ " TO 1" METER

## DETAIL

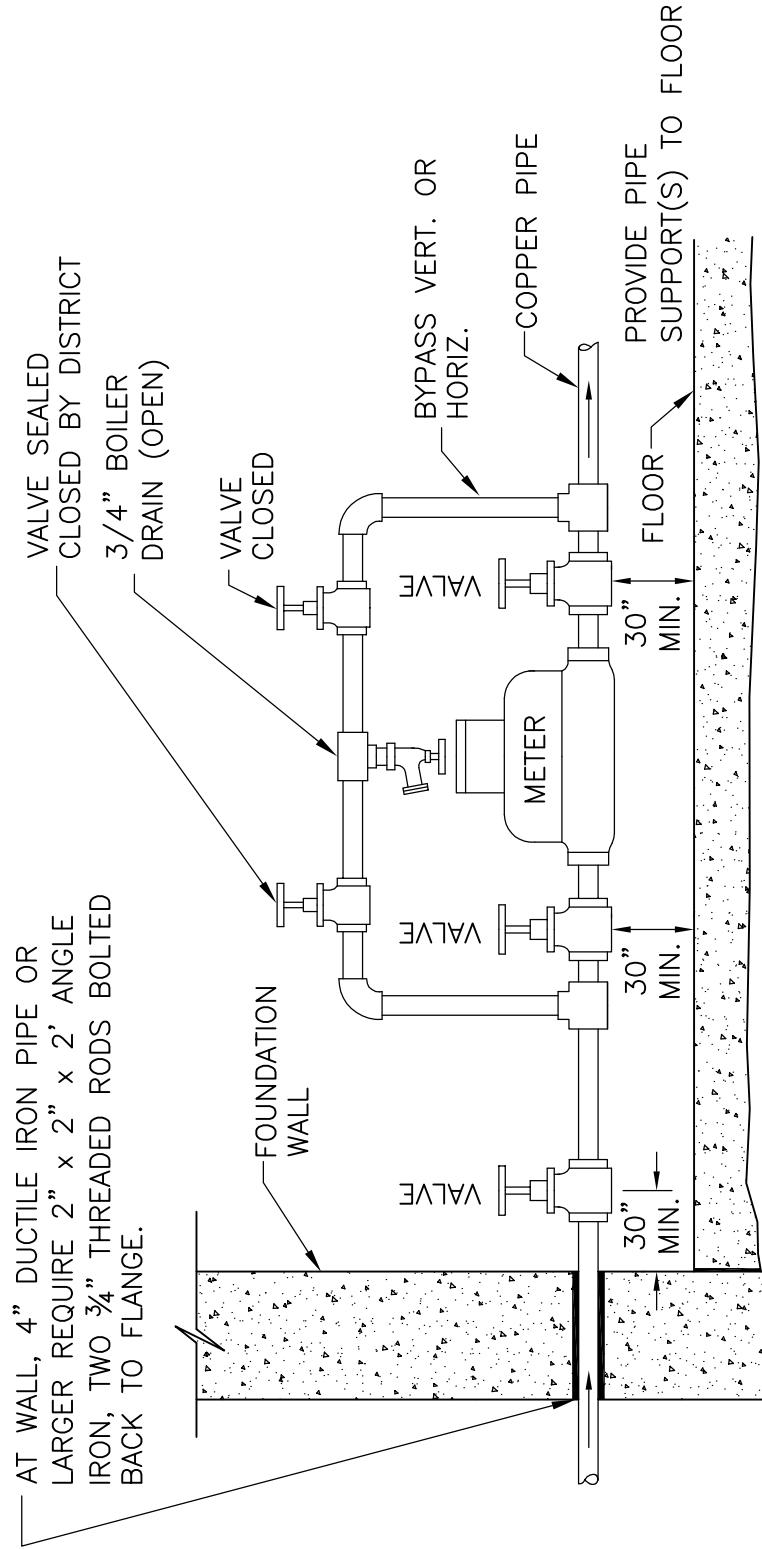
NTS

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# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



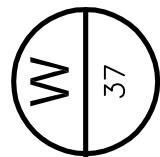
### NOTES:

1. ALL PIPING AND FITTINGS BY PROPERTY OWNER. COPPER SETTERS ARE ACCEPTABLE.
2. VALVES CAN BE EITHER GATE VALVES OR BALL VALVES.
3. BYPASS IS ONLY ALLOWED UNDER CERTAIN CIRCUMSTANCES. CONTACT DISTRICT TO DETERMINE IF A BYPASS IS NECESSARY. BYPASS SHOULD BE SAME SIZE AS METER.

STANDARD METER INSTALLATION WITH BYPASS  
ON 1½-INCH SERVICES AND LARGER WITHIN BUILDINGS

DETAIL

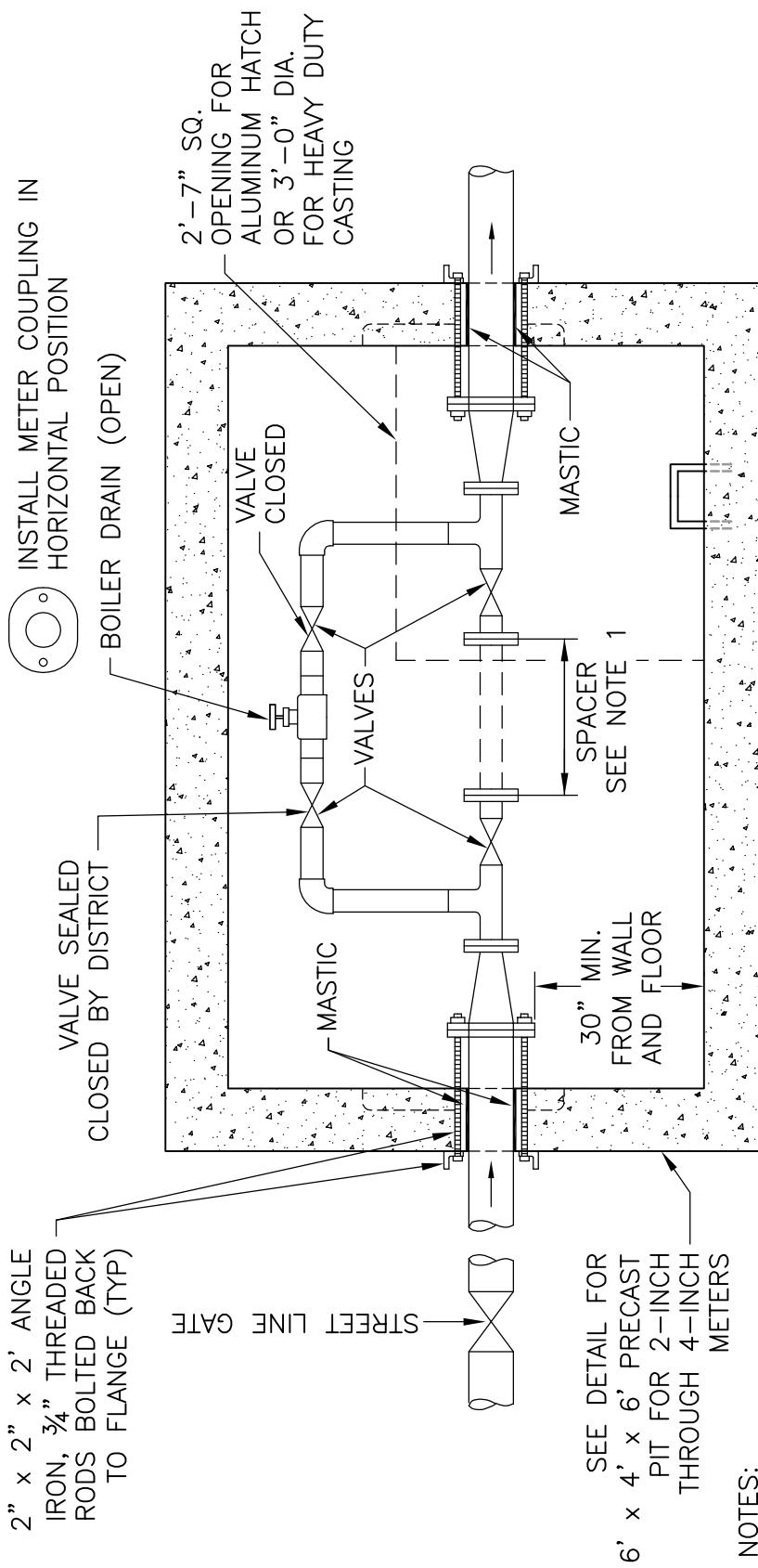
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# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS

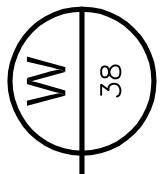


1. SPACER FURNISHED BY THE DISTRICT. SPACER FOR 1 $\frac{1}{2}$ " METER SHALL BE 13". SPACER FOR 2" METER SHALL BE 17". BYPASS SHOULD BE SAME SIZE AS METER.
2. VALVES CAN BE EITHER GATE OR BALL VALVE TYPE. GATE VALVES SHALL HAVE NON-RISING STEMS.
3. BYPASS IS ONLY ALLOWED UNDER CERTAIN CIRCUMSTANCES. CONTACT DISTRICT TO DETERMINE IF A BYPASS IS NECESSARY. BYPASS SHOULD BE SAME SIZE AS METER.

### STANDARD METER INSTALLATION WITH BYPASS FOR 1 $\frac{1}{2}$ -INCH AND 2-INCH METERS WITHIN PIT

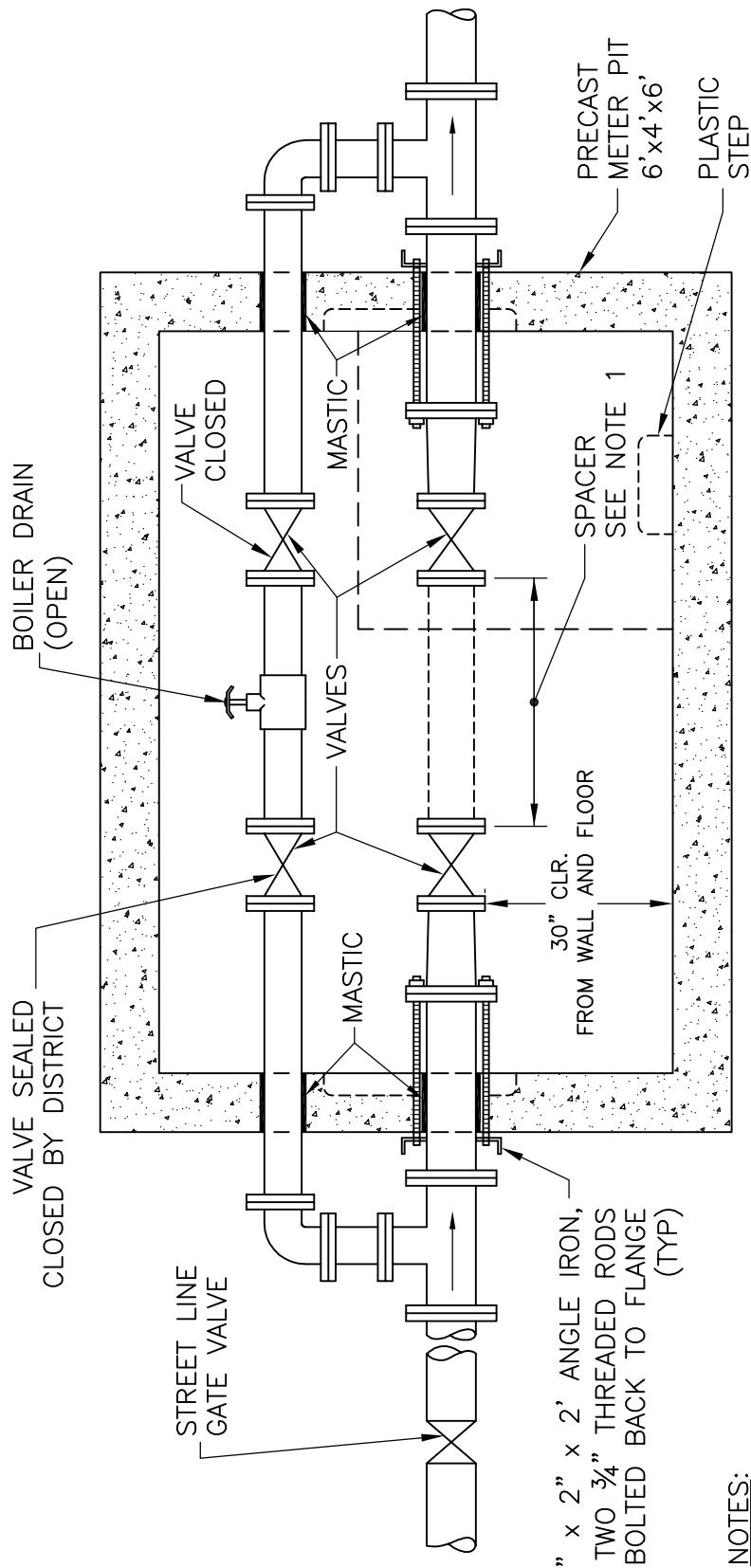
DETAIL

NTS



# THE METROPOLITAN DISTRICT

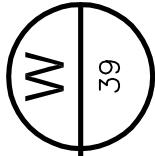
## WATER STANDARD DETAILS



### STANDARD METER INSTALLATION WITH BYPASS FOR 3-INCH AND 4-INCH METERS WITHIN PIT

DETAIL

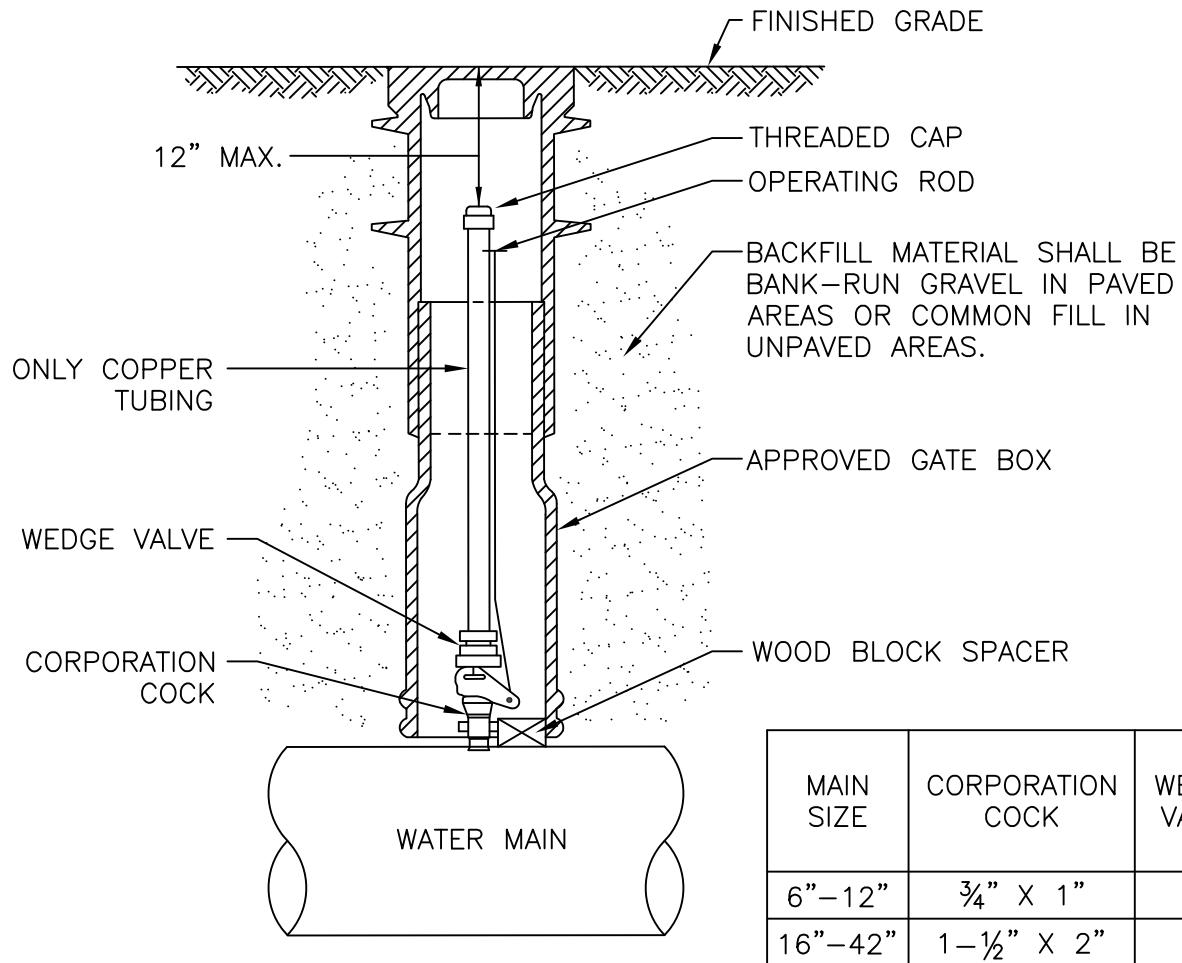
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# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



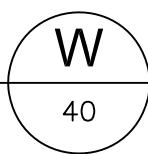
### NOTES:

1. CANNOT BE USED FOR FUTURE SERVICE.
2. A CHLORINATION/SAMPLING ASSEMBLY SHALL BE REMOVED ONCE WATER MAIN PASSES SAMPLING. CORPORATION SHALL EITHER BE CONVERTED TO AIR VALVE OR ABANDONED PRIOR TO FINAL PAVEMENT RESTORATION.

CHLORINATION INLET / BLOW-OFF

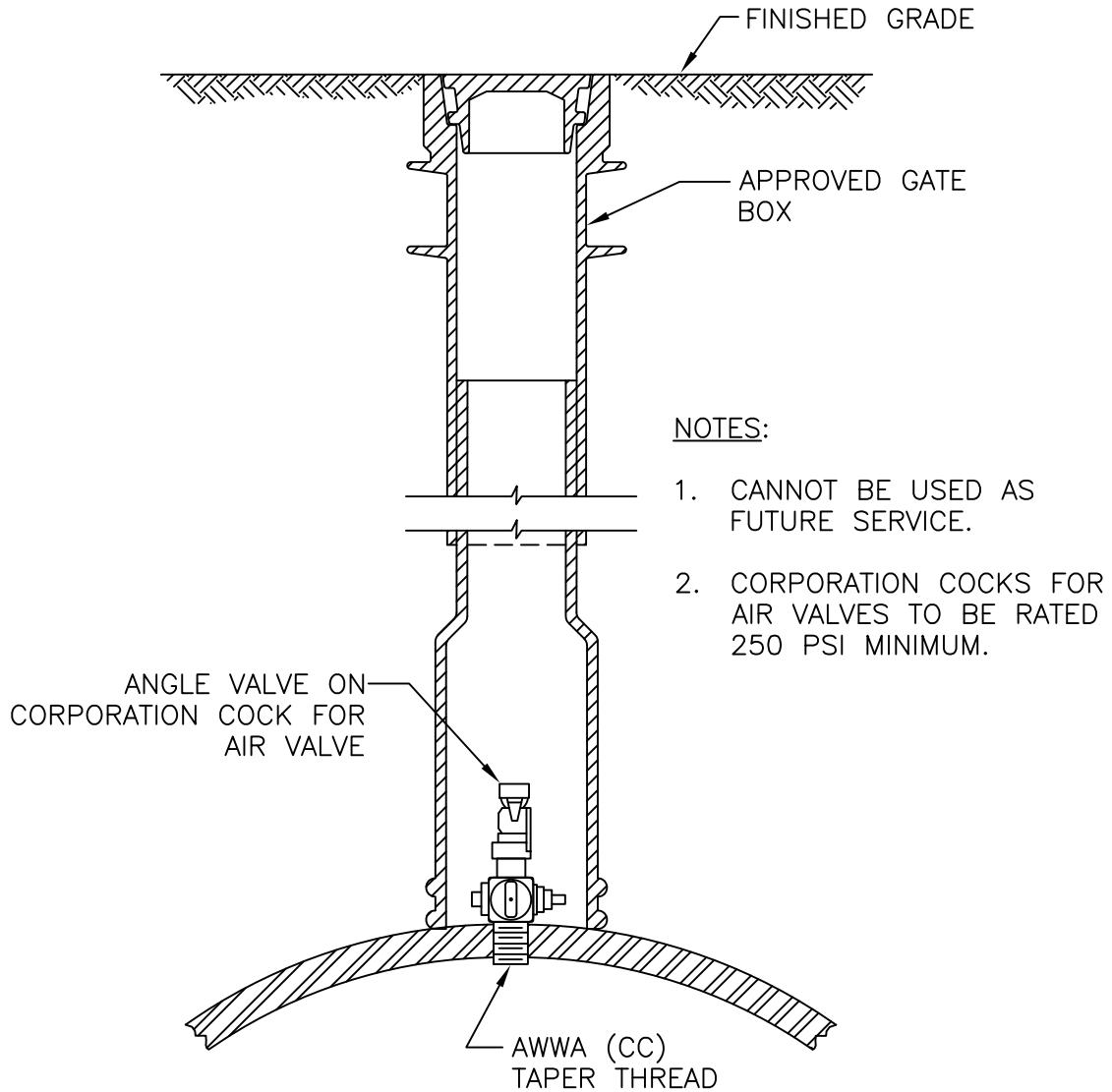
**DETAIL**

NTS



# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS

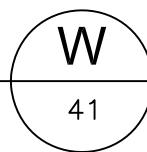


MAIN SIZE	MIN. SIZE AIR VALVE	CORPORATION COCK	ANGLE VALVE SIZE
6"-12"	3/4"	3/4" x 1"	1"
16" & 20"	1"	1" x 1"	1"
24" & 30"	1-1/4"	1-1/4" x 1-1/2"	1-1/2"
36" & 42"	1-1/2"	1-1/2" x 2"	2"
48" & 54"	2"	2" x 2"	2"

### STANDARD AIR VALVE

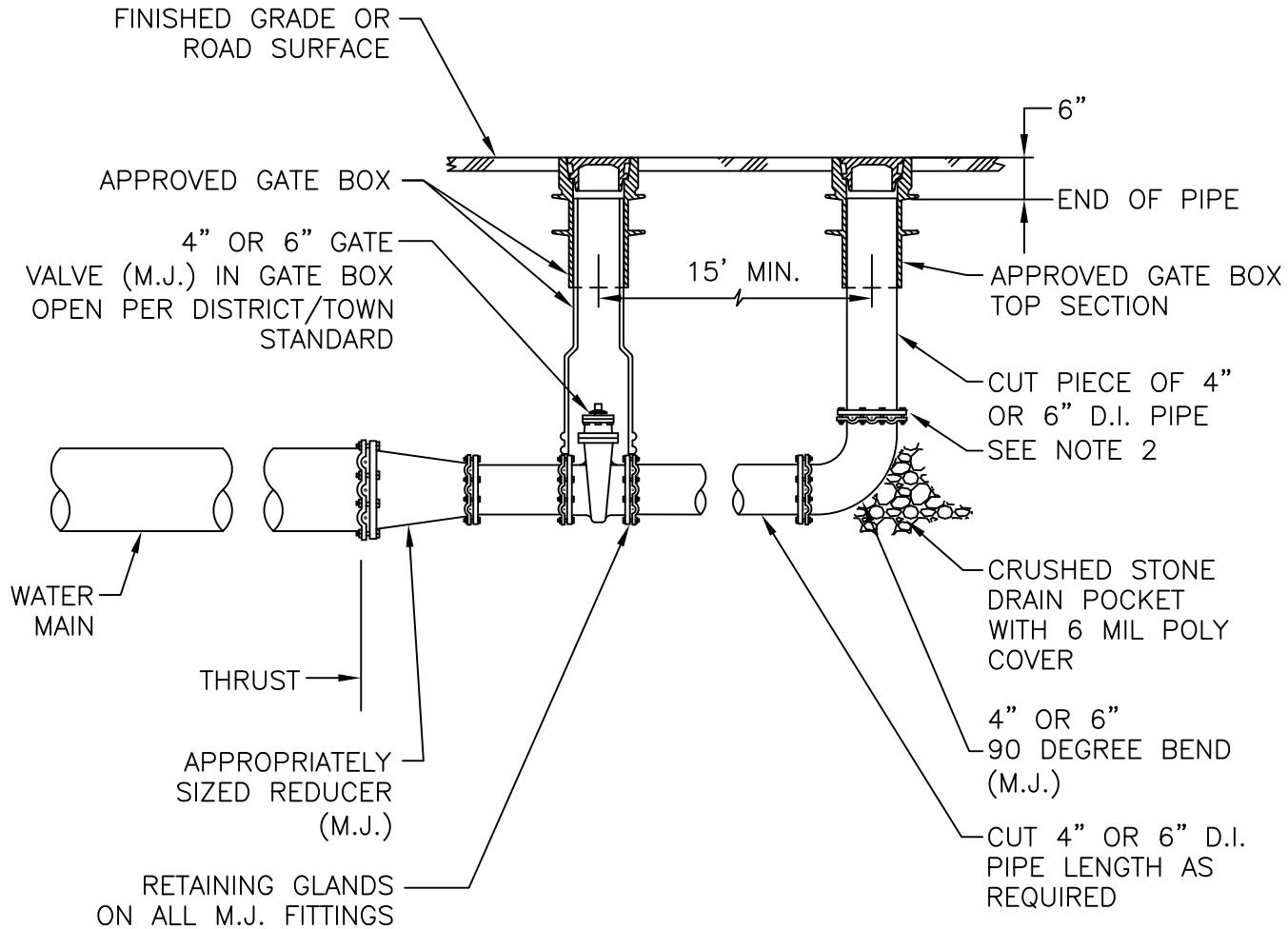
#### DETAIL

NTS



# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



NOTE:

1. TO BE USED AT END OF MAIN ONLY WHEN THERE IS NO PROBABILITY OF FUTURE MAIN EXTENSION.
2. CUT AND REMOVE  $\frac{1}{2}$ " OR  $\frac{3}{4}$ " SECTION OF GASKET SO WATER WILL DRAIN FROM STANDPIPE

4-INCH OR 6-INCH BLOW-OFF ASSEMBLY (END OF MAIN)

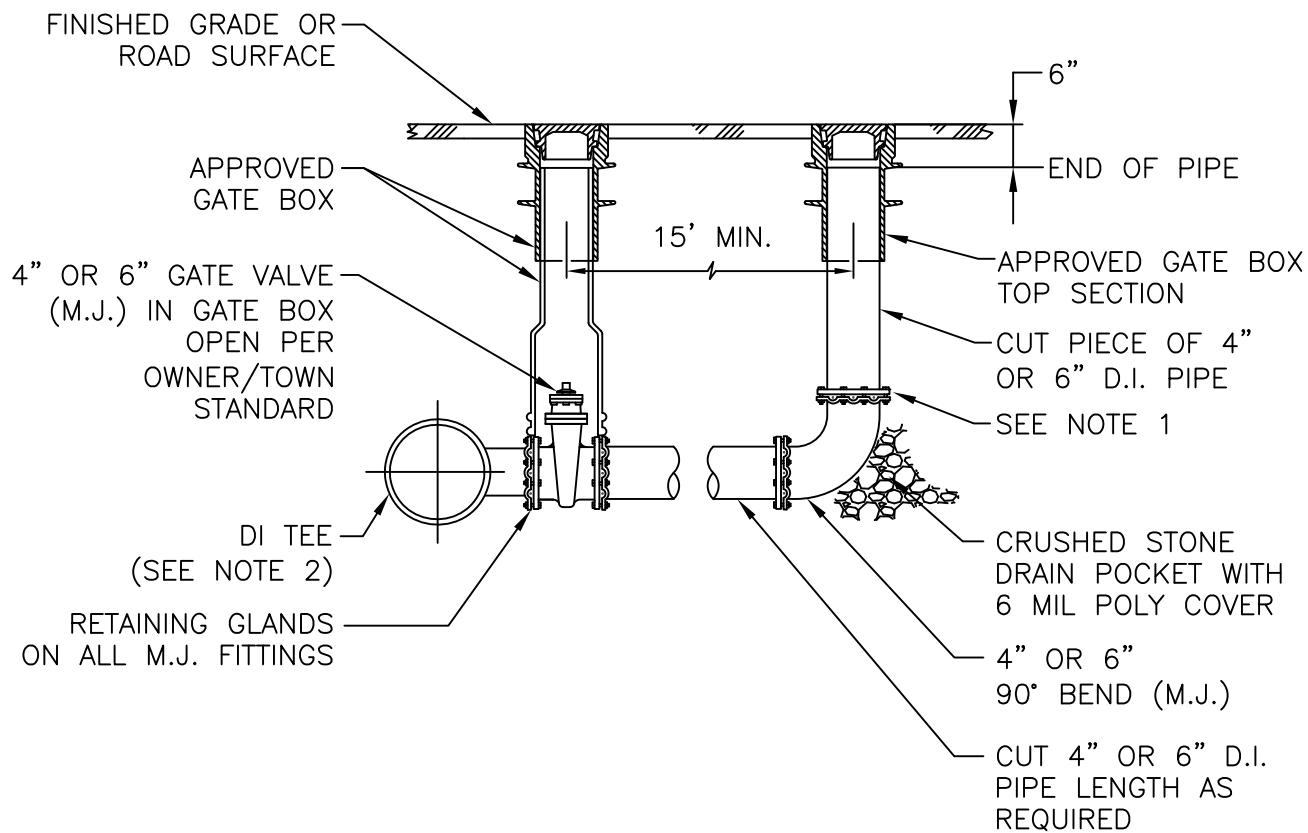
DETAIL

NTS

W  
42

# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



### NOTES:

1. CUT AND REMOVE  $\frac{1}{2}$ " OR  $\frac{3}{4}$ " SECTION OF GASKET SO WATER WILL DRAIN FROM STANDPIPE.
2. PROVIDE M.J. x M.J. SWIVEL HYDRANT TEE FOR 6" BLOW-OFF ASSEMBLY AS DIRECTED BY THE DISTRICT.

4-INCH OR 6-INCH BLOW-OFF ASSEMBLY (BRANCH TYPE)

DETAIL

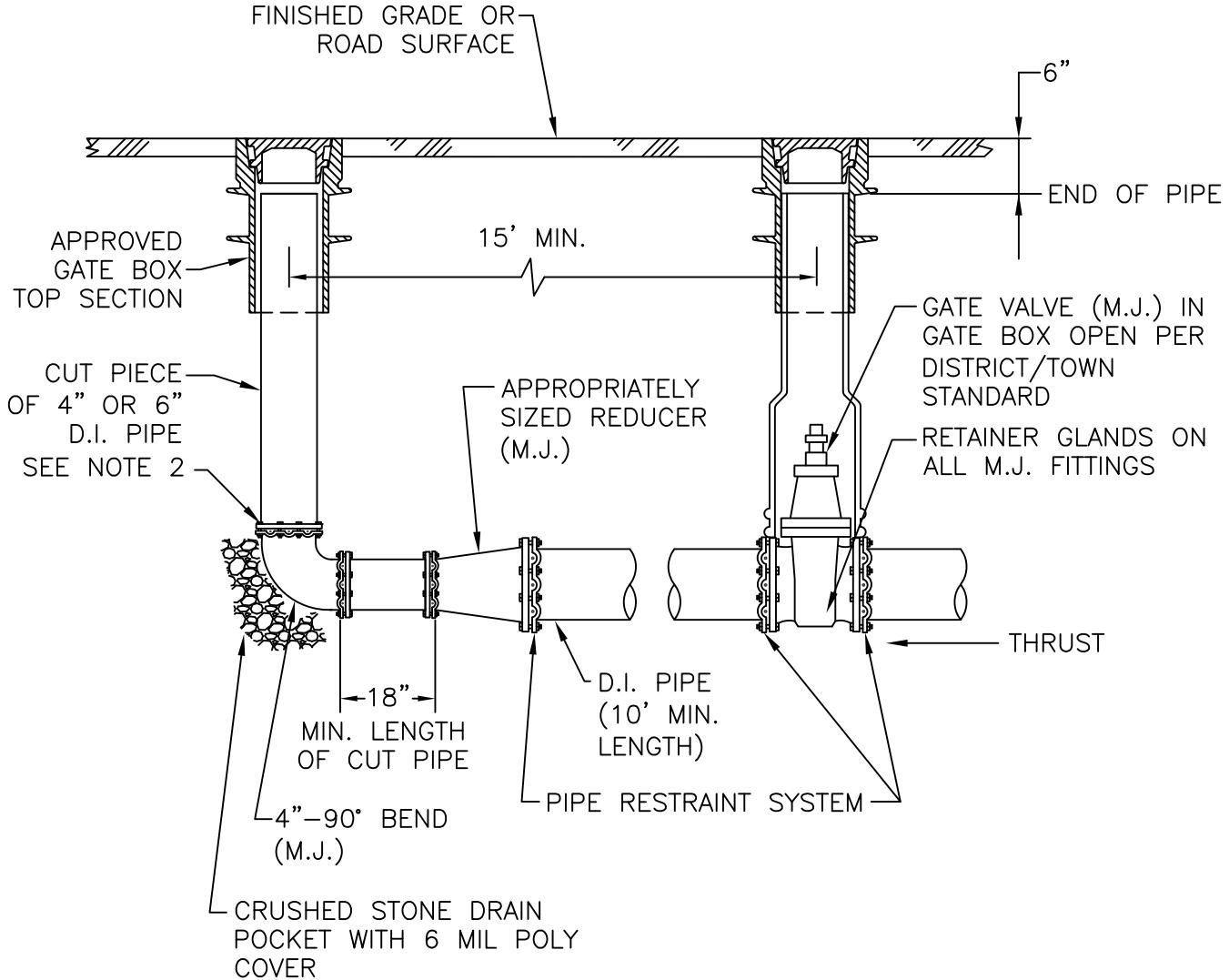
NTS

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43

# THE METROPOLITAN DISTRICT

WATER STANDARD DETAILS



NOTES:

1. THIS BLOW-OFF SHALL BE USED IF THE MAIN MAY BE EXTENDED IN THE FUTURE.
2. CUT AND REMOVE  $\frac{1}{2}$ " OR  $\frac{3}{4}$ " SECTION OF GASKET SO WATER WILL DRAIN FROM STANDPIPE.

4-INCH OR 6-INCH BLOW OFF ASSEMBLY  
W/ FULL SIZE MAIN GATE VALVE

**DETAIL**

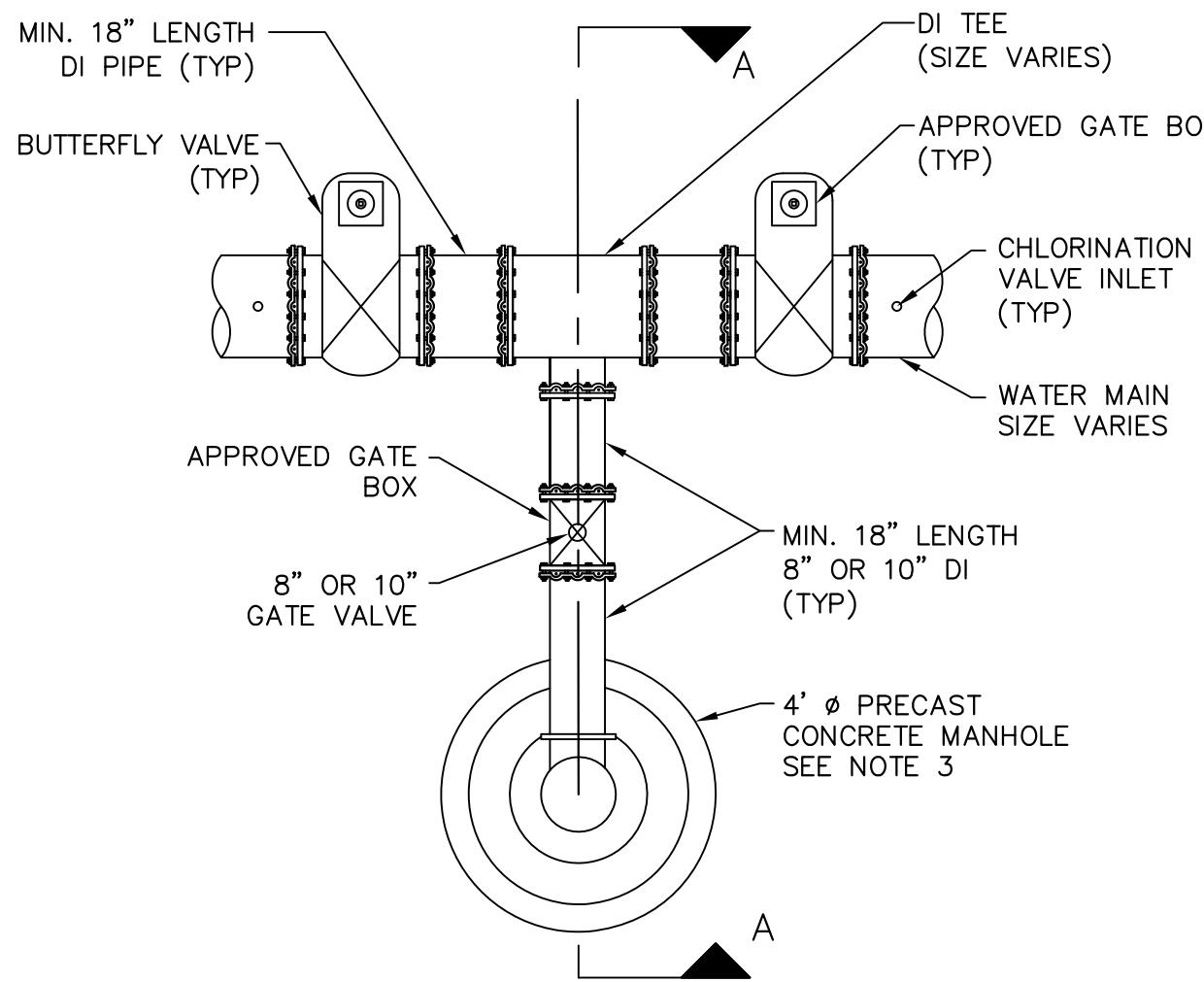
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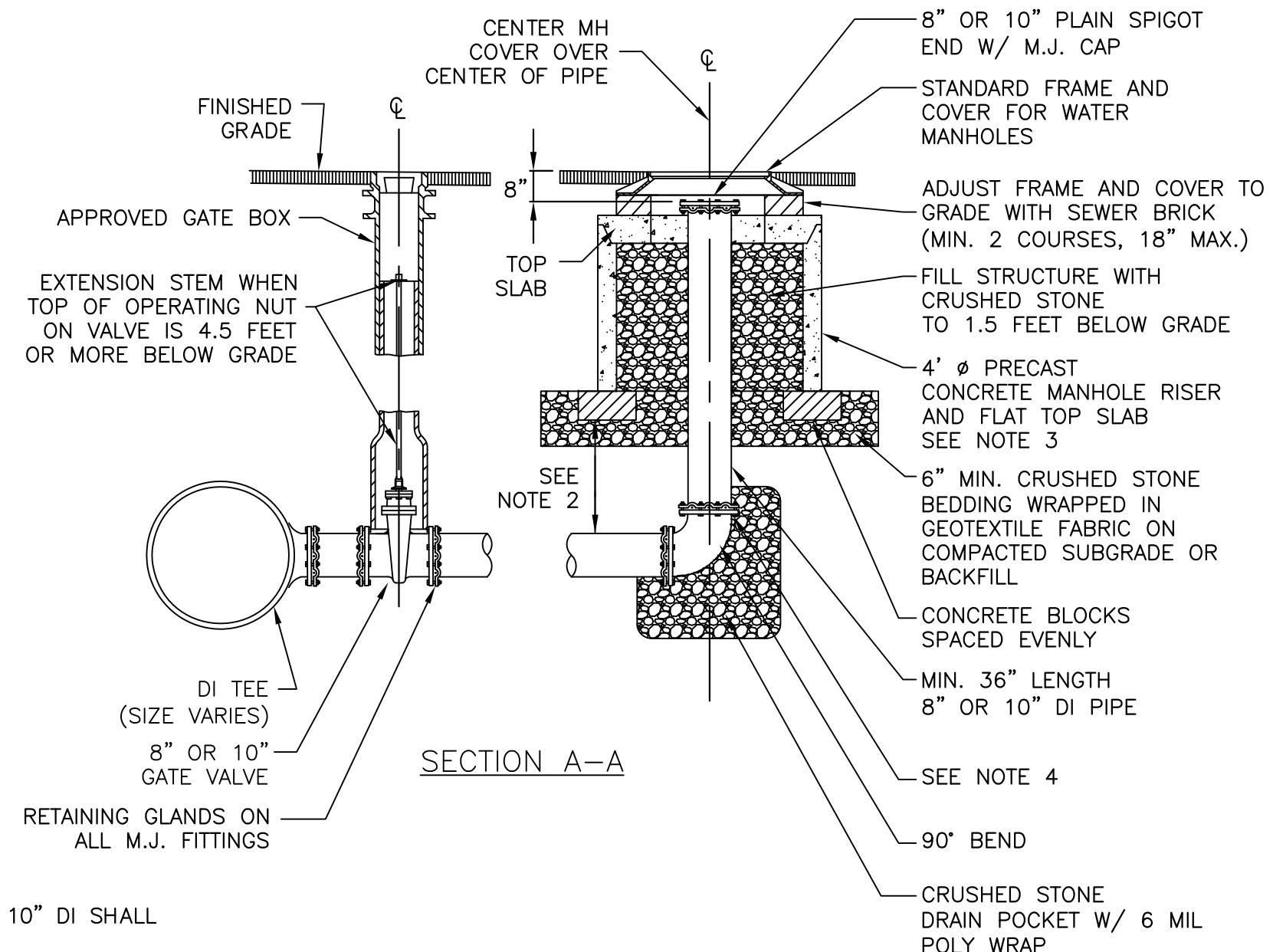
# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



NOTES:

1. ALL PIPING, FITTINGS AND VALVES SHALL BE RESTRAINED JOINTS.
2. MINIMUM DIMENSION FROM BOTTOM OF CONCRETE BLOCKS TO TOP OF 8" OR 10" DI SHALL BE 18 INCHES.
3. MANHOLE RISER SHALL MEET THE REQUIREMENTS OF TYPE II PRECAST CONCRETE RISER SECTIONS. MANHOLE STEPS ARE NOT REQUIRED.
4. CUT AND REMOVE  $\frac{1}{2}$ " OR  $\frac{3}{4}$ " SECTION OF GASKET SO WATER WILL DRAIN FROM STANDPIPE.



### 8-INCH OR 10-INCH BLOW-OFF ASSEMBLY

DETAIL

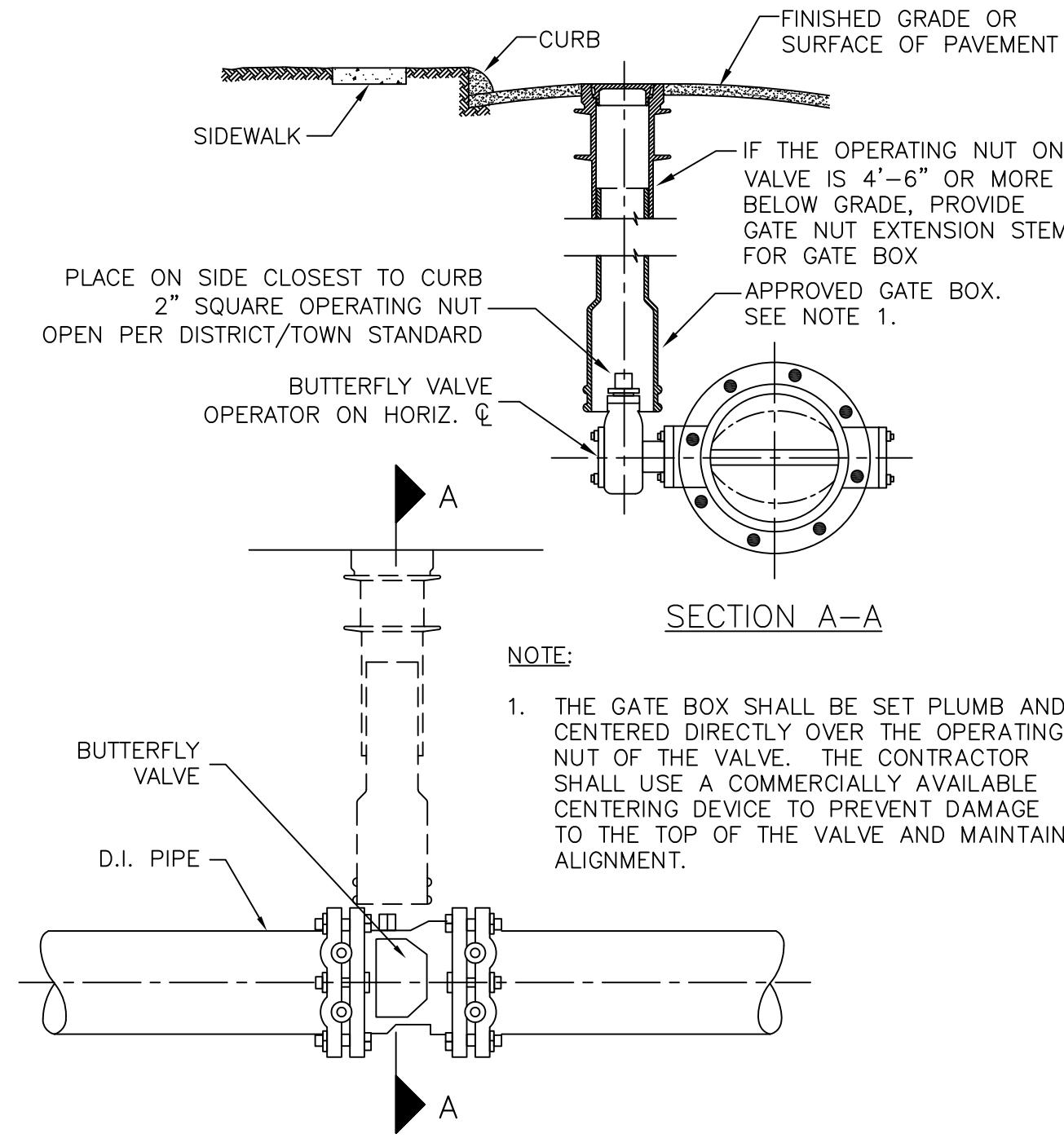
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45

# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



STANDARD BUTTERFLY VALVE

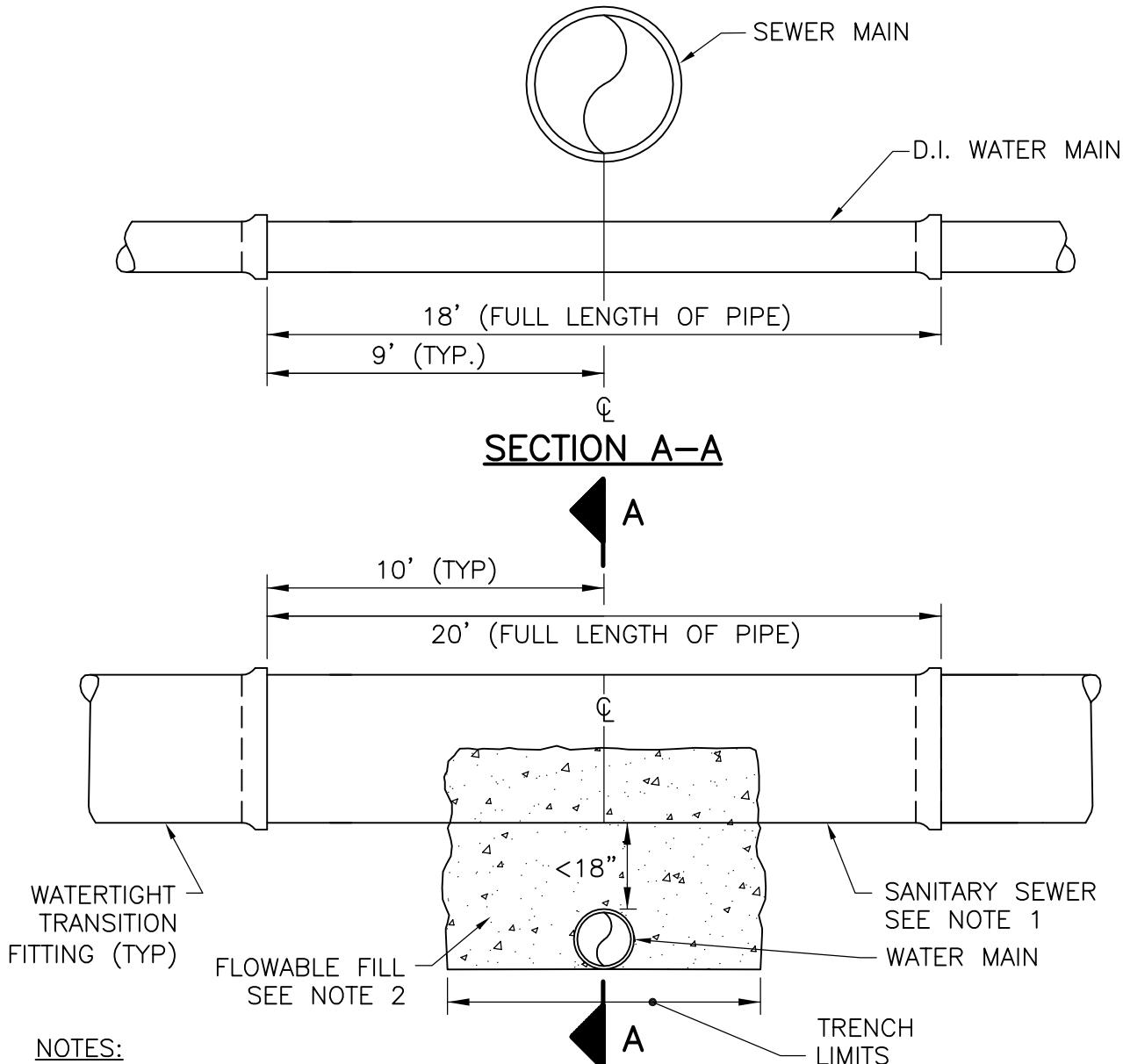
**DETAIL**

NTS

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46

# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



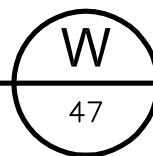
### NOTES:

1. SEWER PIPE WITHIN CROSSING LIMITS SHALL BE THE SAME MATERIALS AND WATERTIGHT JOINTS AS NEW WATER MAIN PIPE, CONSTRUCTED IN ACCORDANCE WITH WATER MAIN STANDARDS OF CONSTRUCTION AND PRESSURE TESTED TO ENSURE WATER TIGHTNESS.
2. IF A FULL LENGTH OF WATER PIPE OR SEWER PIPE IS NOT USED, ENCASE SEWER MAIN OR WATER MAIN WITH FLOWABLE FILL WITHIN THE TRENCH LIMITS.

### WATER CROSSING BELOW SEWER LESS THAN 18-INCH VERTICAL SEPARATION

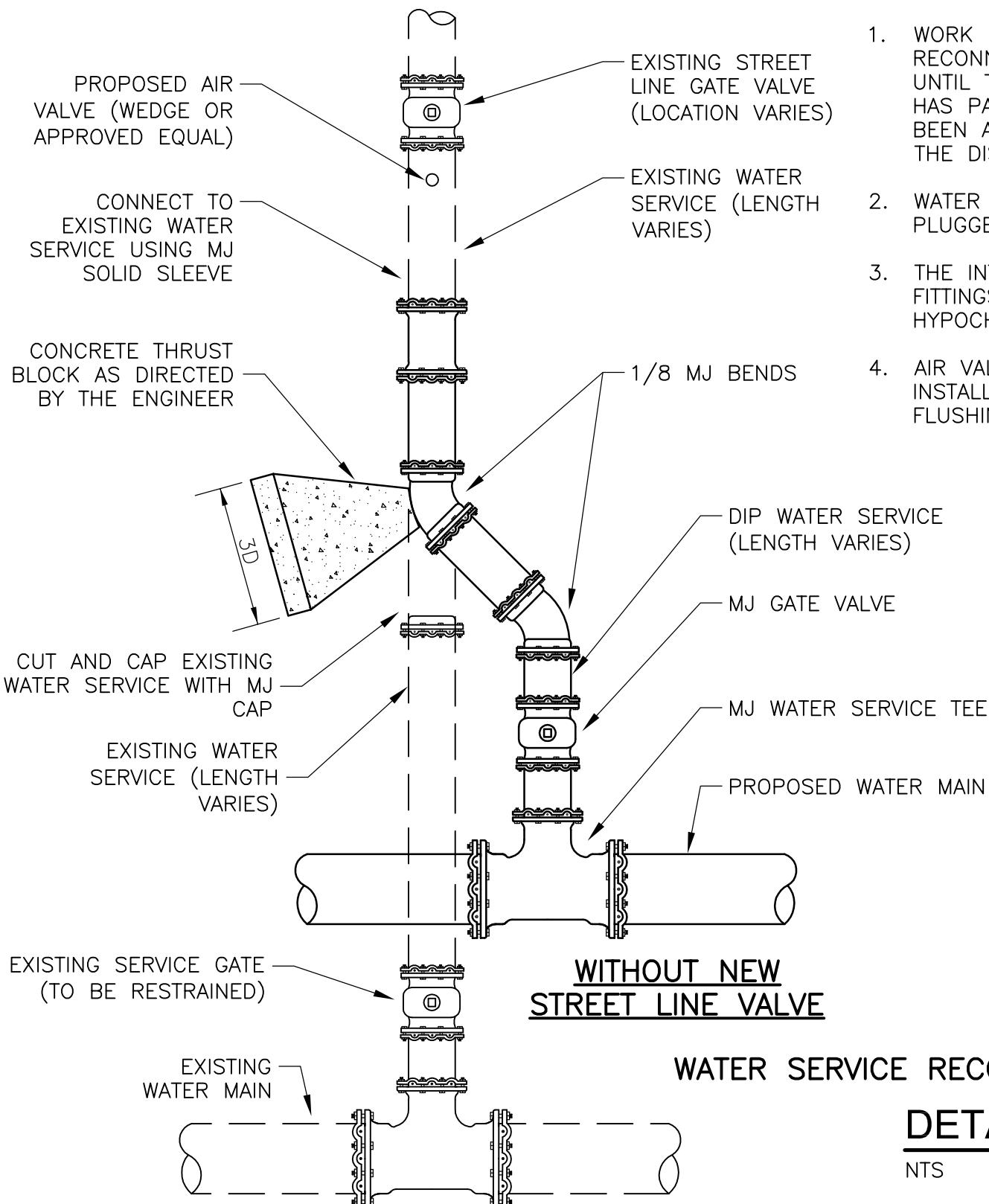
DETAIL

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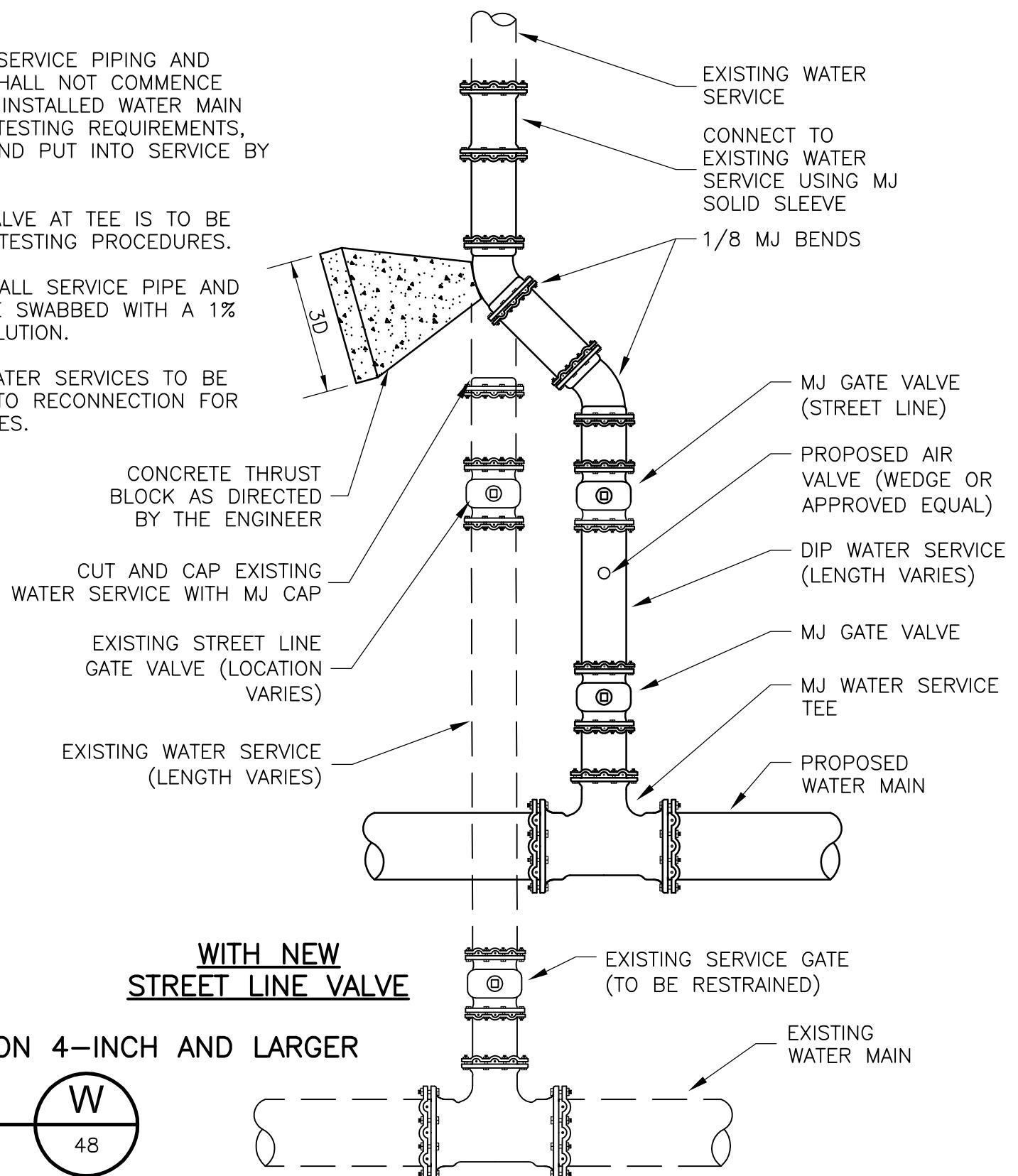
## THE METROPOLITAN DISTRICT

WATER STANDARD DETAILS



## NOTES:

1. WORK ON WATER SERVICE PIPING AND RECONNECTIONS SHALL NOT COMMENCE UNTIL THE NEWLY INSTALLED WATER MAIN HAS PASSED ALL TESTING REQUIREMENTS, BEEN ACCEPTED AND PUT INTO SERVICE BY THE DISTRICT.
2. WATER SERVICE VALVE AT TEE IS TO BE PLUGGED DURING TESTING PROCEDURES.
3. THE INTERIOR OF ALL SERVICE PIPE AND FITTINGS SHALL BE SWABBED WITH A 1% HYPOCHLORITE SOLUTION.
4. AIR VALVES ON WATER SERVICES TO BE INSTALLED PRIOR TO RECONNECTION FOR FLUSHING PURPOSES.



DETAIL

NTS

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48

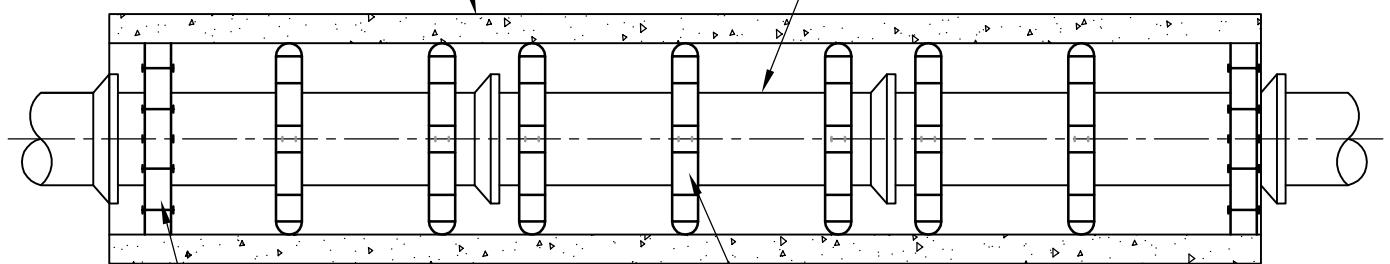
# THE METROPOLITAN DISTRICT

## WATER STANDARD DETAILS



CLASS IV RCP,  
CLASS 54 D.I. OR  
STEEL CASING PIPE  
PER CONTRACT  
DRAWINGS

RESTRAINED JOINT  
CLASS 54 D.I. WATER  
MAIN



LINK-SEAL®(2) OR  
APPROVED EQUAL AT EACH  
END OF CASING

APS CASING SPACERS MODEL  
SSI CENTERED AND  
RESTRAINED OR APPROVED  
EQUAL IN ACCORDANCE WITH  
MANUFACTURER  
SPECIFICATIONS AND  
INSTALLATION METHODS

### WATER MAIN IN CASING PIPE

#### DETAIL

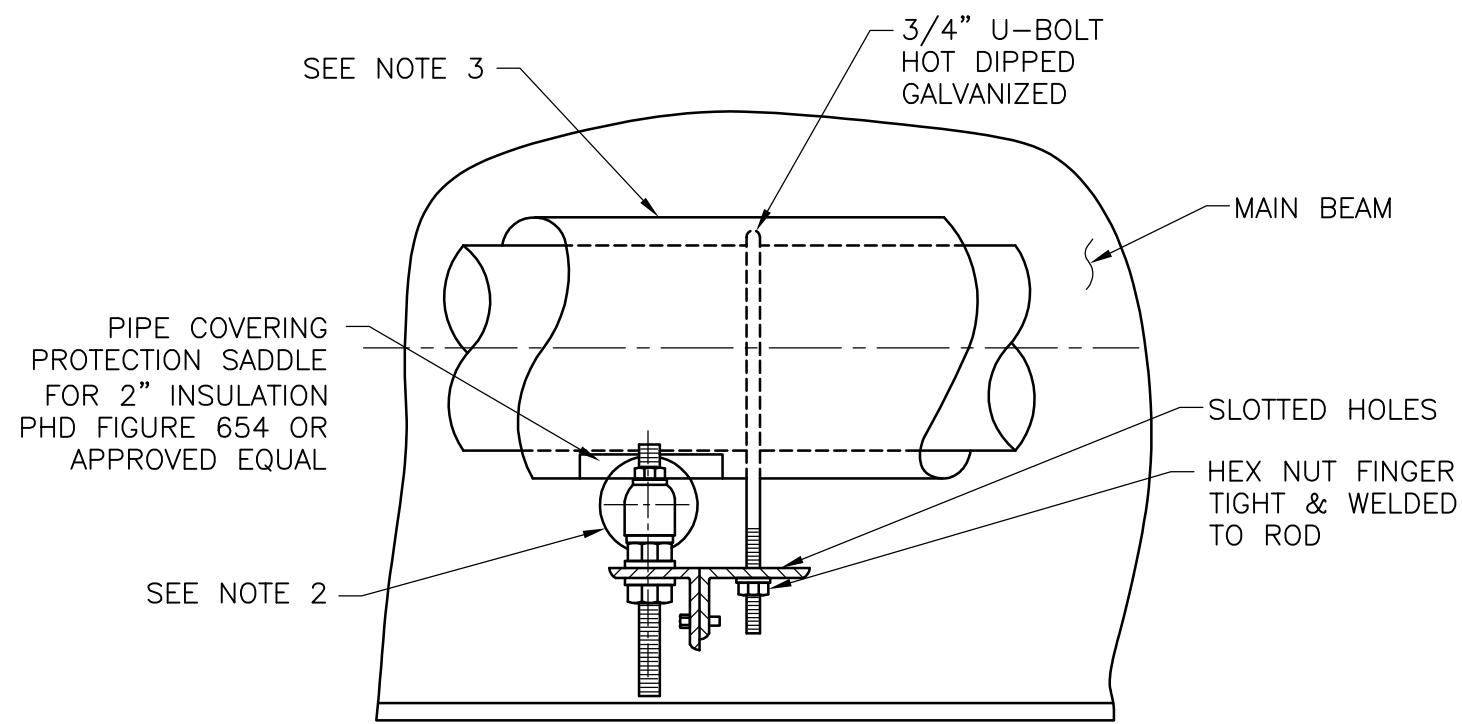
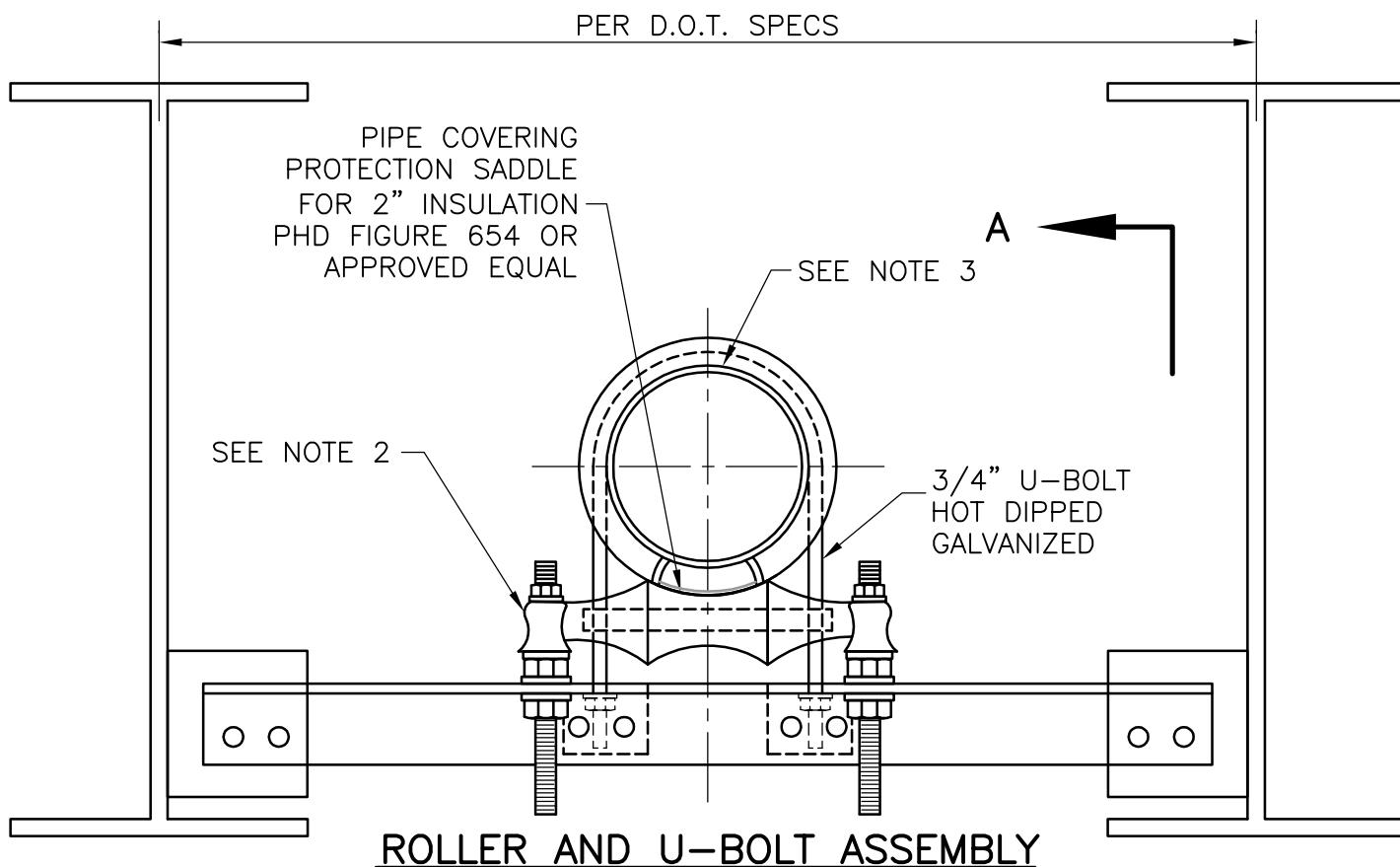
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# THE METROPOLITAN DISTRICT

WATER STANDARD DETAILS



NOTES:

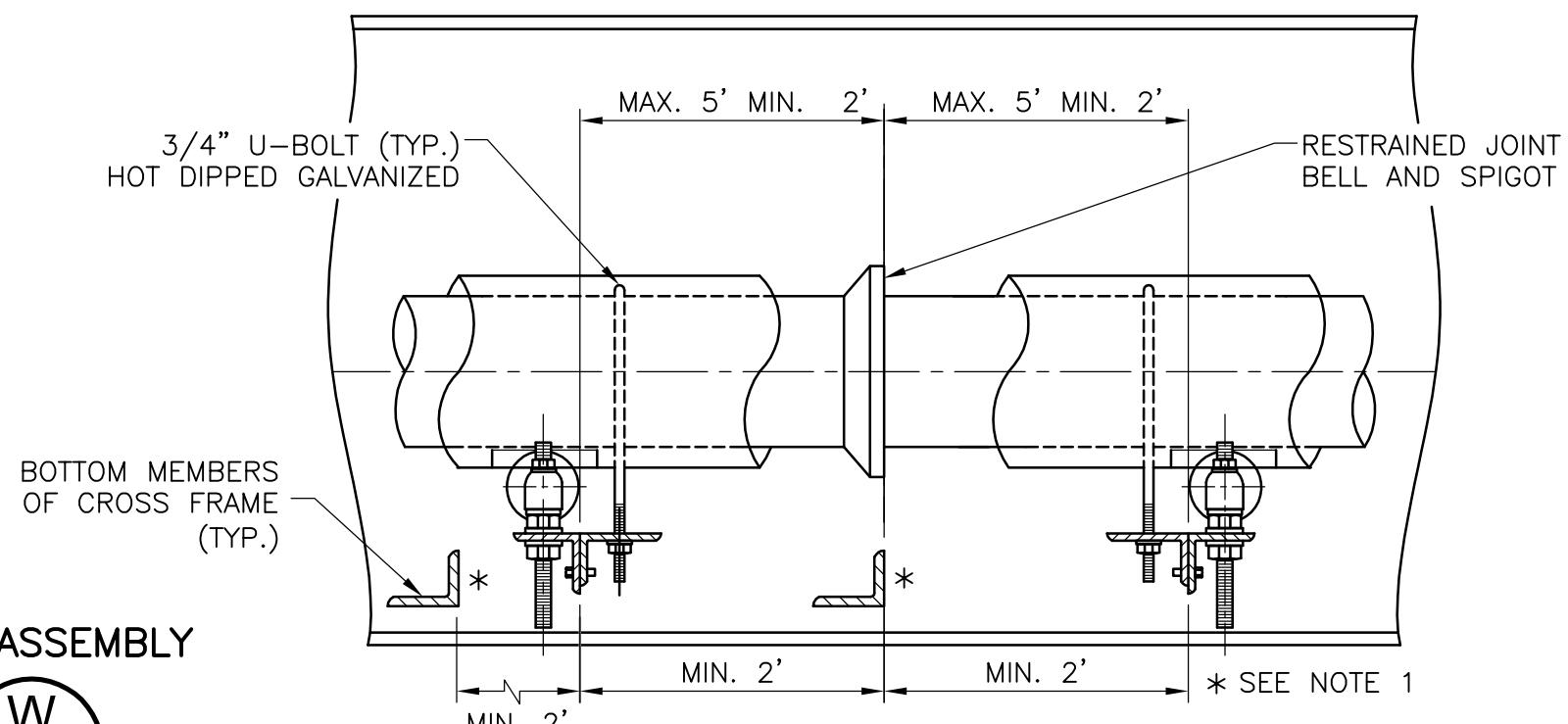
1. THE POSITION SHOWN IS GENERIC ONLY. THE NEW WATER MAIN SUPPORTS SHOULD BE PLACED AT A MIN. OF 2' FROM ANY ANGLES OF THE CROSS FRAME.
2. ADJUSTABLE UTILITY SUPPORT ROLLER SYSTEM PHD FIGURE 480 OR APPROVED EQUAL. ALL COMPONENTS TO BE HOT DIPPED GALVANIZED.
3. RESTRAINED JOINT CLASS 54 WATER MAIN WITH 2 INCH RIGID INERT FOAM INSULATION WITH METAL FIBER REINFORCED MASTIC OR NON-CORROSIVE METAL JACKET (TYP.)

ROLLER AND U-BOLT ASSEMBLY

DETAIL

NTS

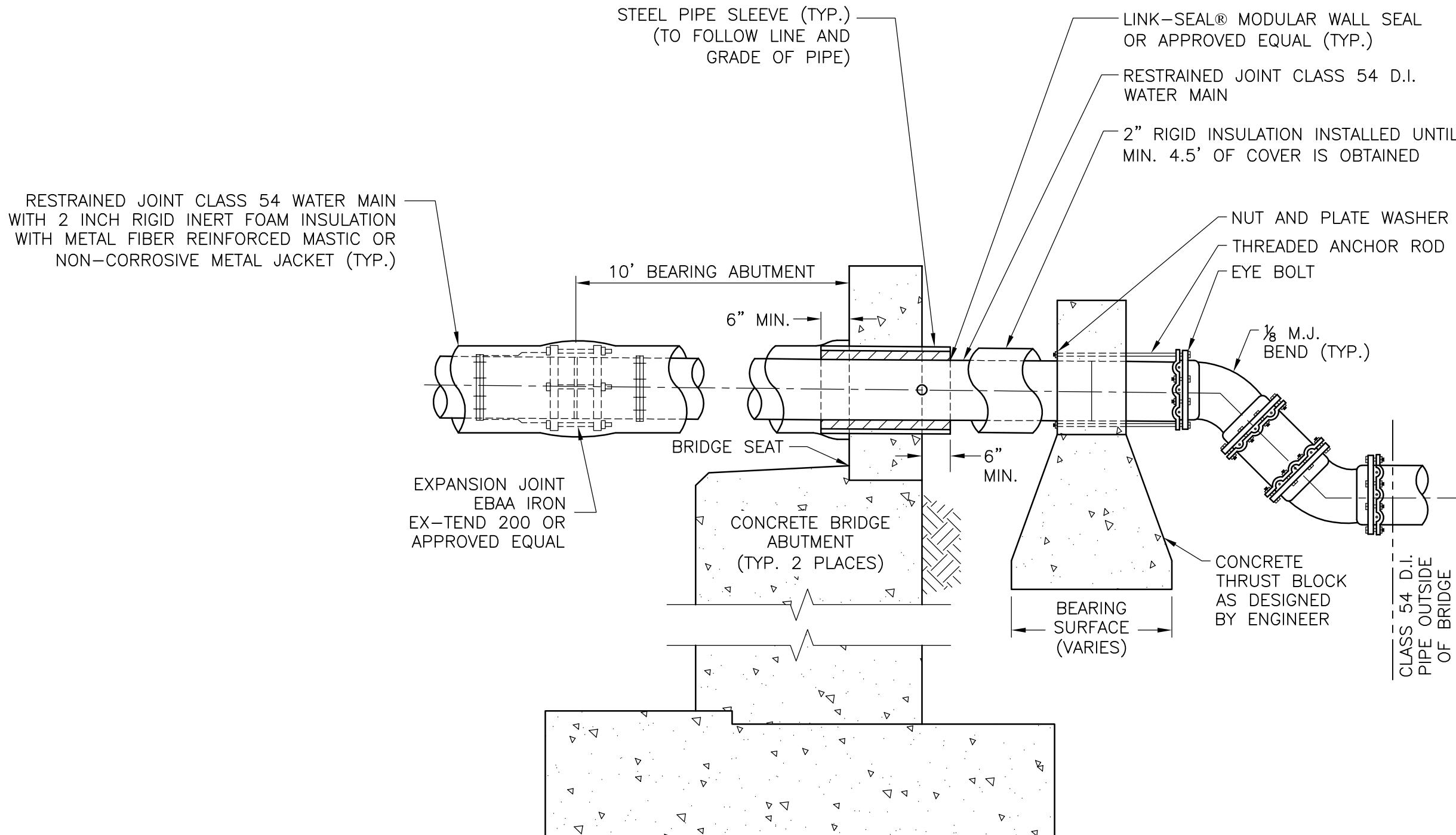
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50



NEW WATER MAIN SUPPORTS INSTALLATION (TYP.)

# THE METROPOLITAN DISTRICT

WATER STANDARD DETAILS



BRIDGE BEARING ABUTMENT PENETRATION

DETAIL

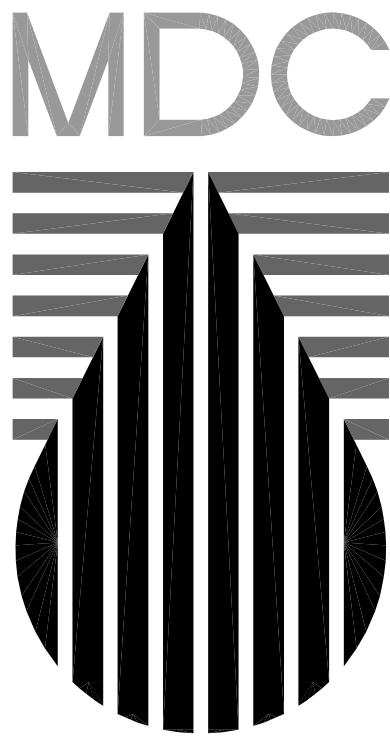
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# **EROSION AND SEDIMENTATION CONTROL STANDARD DETAILS**

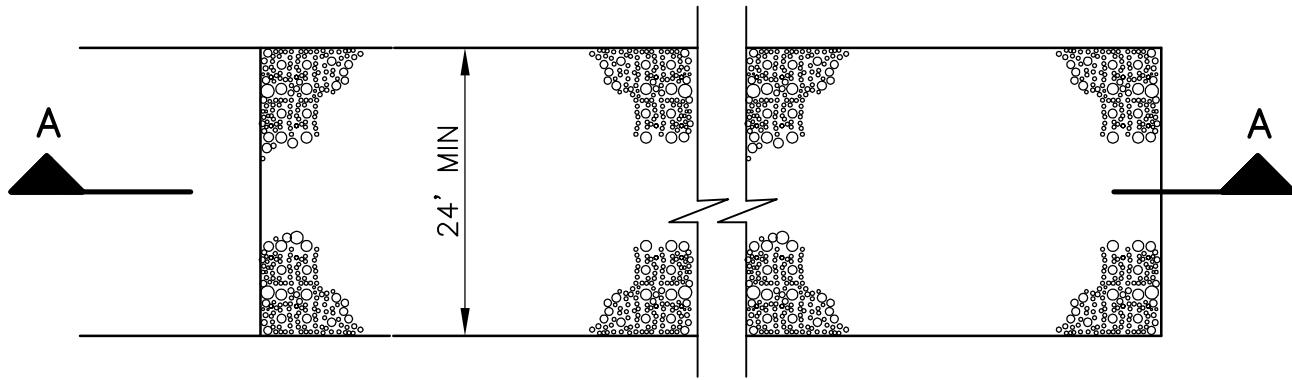


**THE METROPOLITAN DISTRICT**

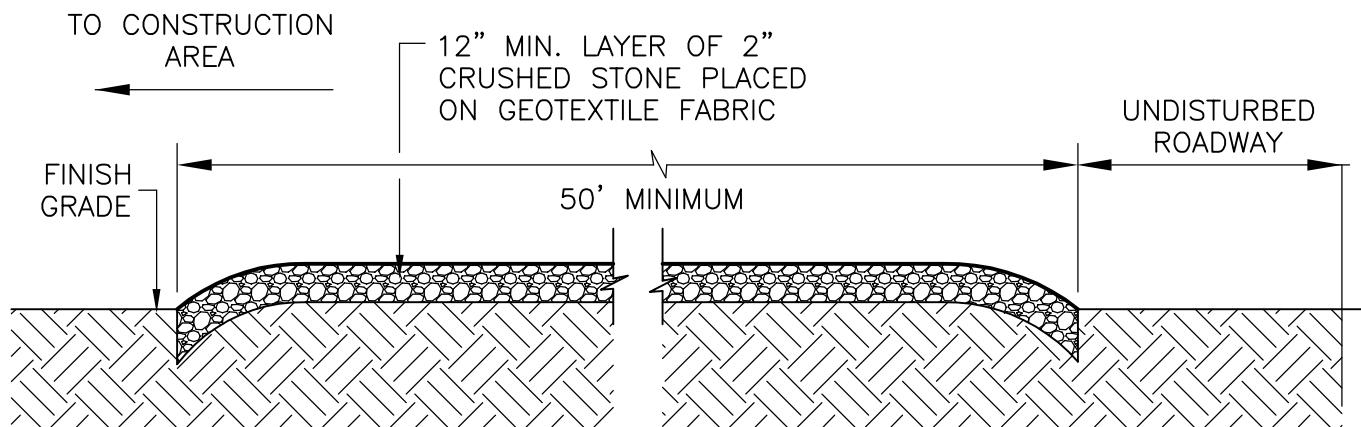


# THE METROPOLITAN DISTRICT

## EROSION AND SEDIMENTATION CONTROL STANDARD DETAILS



PLAN



SECTION A-A

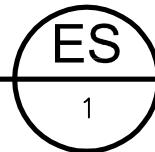
NOTES:

1. PROVIDE FOR SMOOTH, CONTINUOUS TRANSITION BETWEEN STABILIZED CONSTRUCTION ENTRANCE AND UNDISTURBED ROADWAY.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO UNDISTURBED ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDING STONE TO THE LENGTH OF THE ENTRANCE.
3. REPAIR AND CLEAN OUT ANY MEASURES USED TO TRAP SEDIMENT.
4. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO UNDISTURBED ROADWAY MUST BE REMOVED IMMEDIATELY.

### STABILIZED CONSTRUCTION ENTRANCE

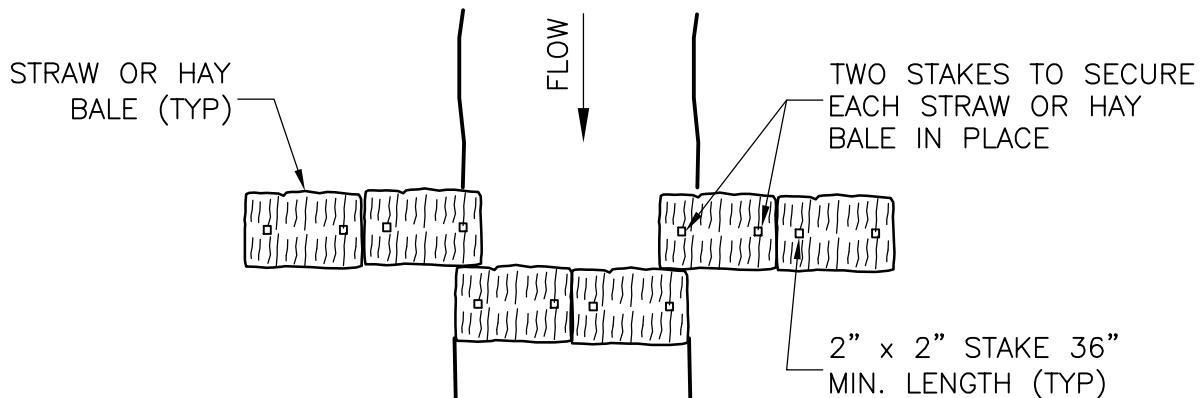
DETAIL

NTS



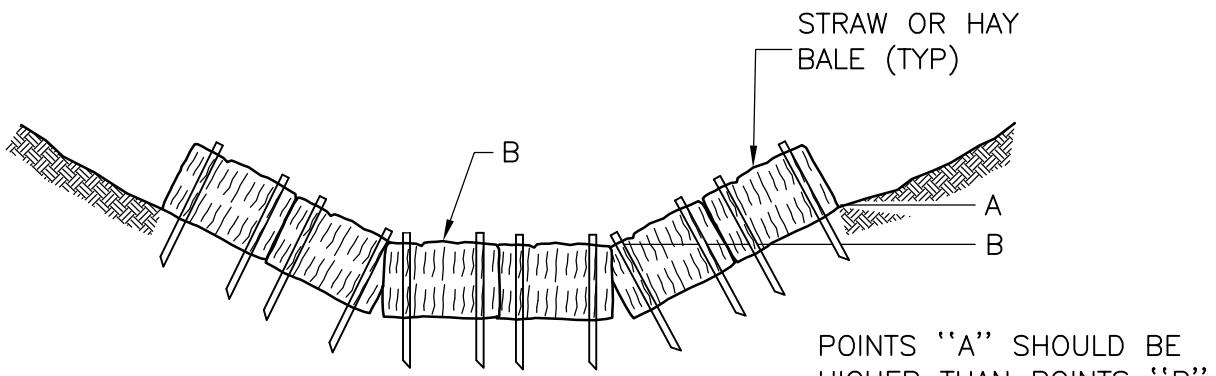
# THE METROPOLITAN DISTRICT

## EROSION AND SEDIMENTATION CONTROL STANDARD DETAILS



### PLAN

TO BE INSTALLED AT DRAINAGE DITCH



### ELEVATION

## STRAW OR HAY BALE SEDIMENTATION CHECK

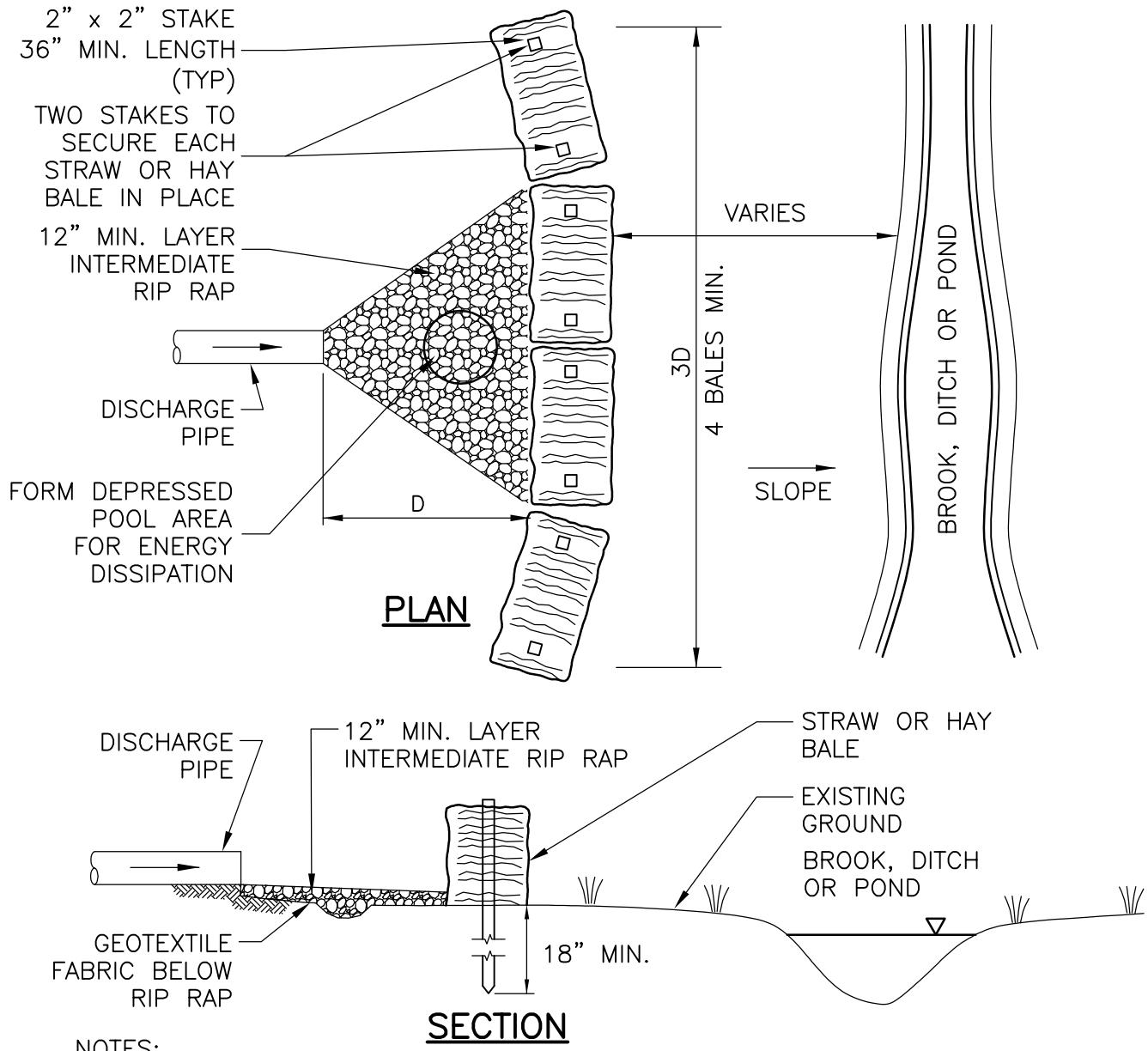
### DETAIL

NTS

ES  
2

# THE METROPOLITAN DISTRICT

## EROSION AND SEDIMENTATION CONTROL STANDARD DETAILS



### NOTES:

1. TO BE USED WHERE A DEWATERING DISCHARGE LINE IS LOCATED AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER. DESIGN OF RIP RAP AREA MUST BE CERTIFIED BY A CT REGISTERED PROFESSIONAL ENGINEER.
2. HOOK END BALES TO KEEP SEDIMENT FROM MIGRATING AROUND ENDS.

## STRAW OR HAY BAILE EROSION DAM

### DETAIL

NTS

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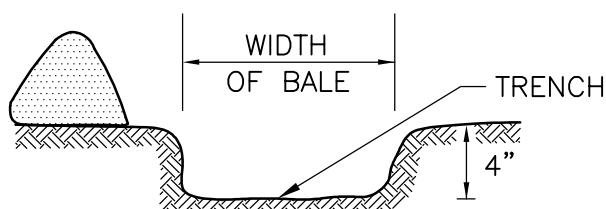
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# THE METROPOLITAN DISTRICT

## EROSION AND SEDIMENTATION CONTROL STANDARD DETAILS



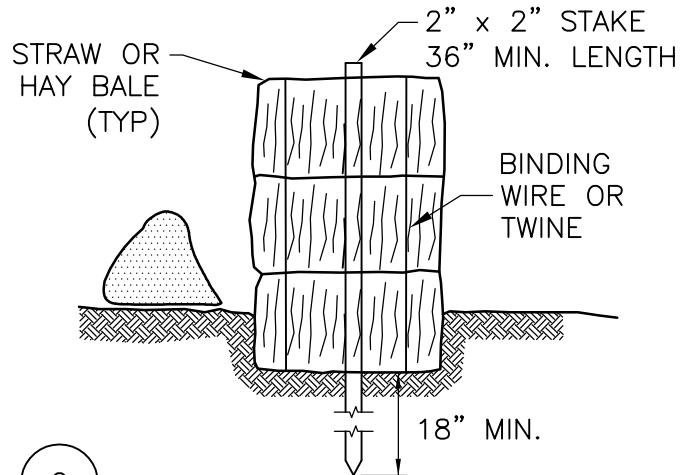
1. EXCAVATE A TRENCH 4" DEEP AND THE WIDTH OF A STRAW OR HAY BALE.



SECTION

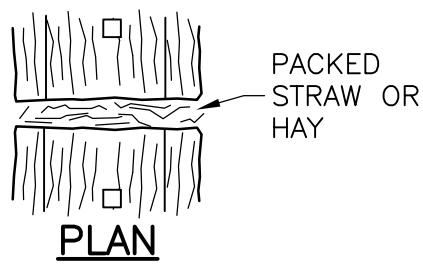
1

2. PLACE AND STAKE STRAW OR HAY BALES USING TWO STAKES TO SECURE EACH BALE.

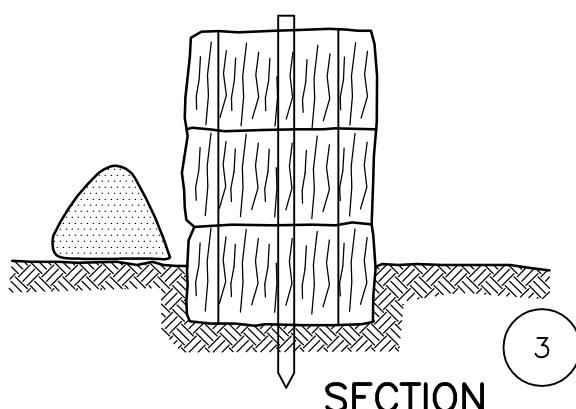


SECTION

3. WEDGE LOOSE STRAW OR HAY BETWEEN BALES TO CREATE A CONTINUOUS BARRIER.



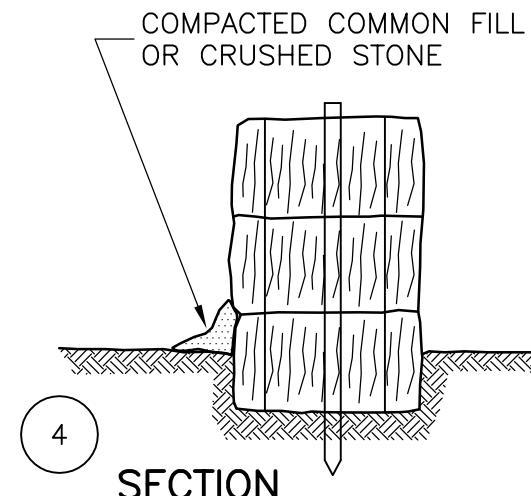
PLAN



SECTION

3

4. BACKFILL AND COMPACT THE EXCAVATED SOIL AS SHOWN ON THE UPHILL SIDE OF THE BARRIER TO PREVENT EROSION.



SECTION

4

## STRAW OR HAY BALE BARRIER INSTALLATION

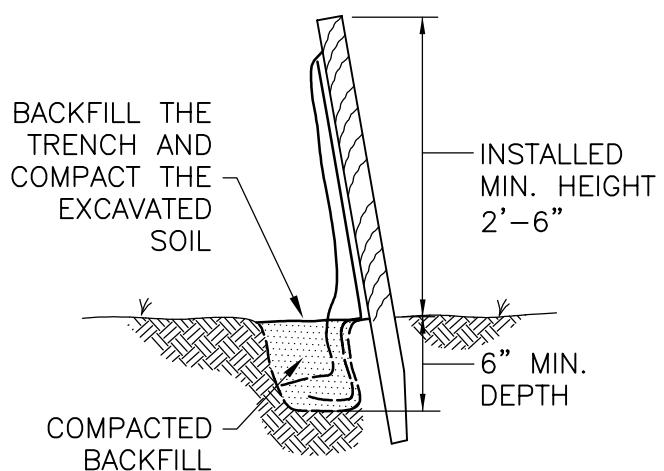
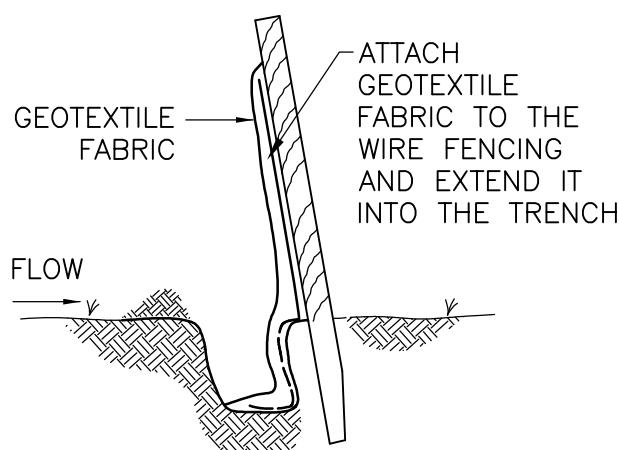
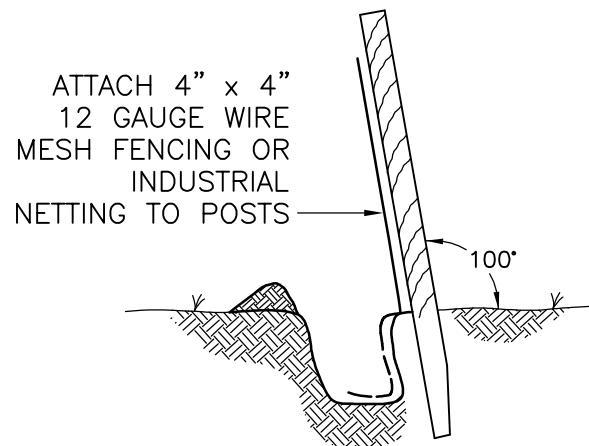
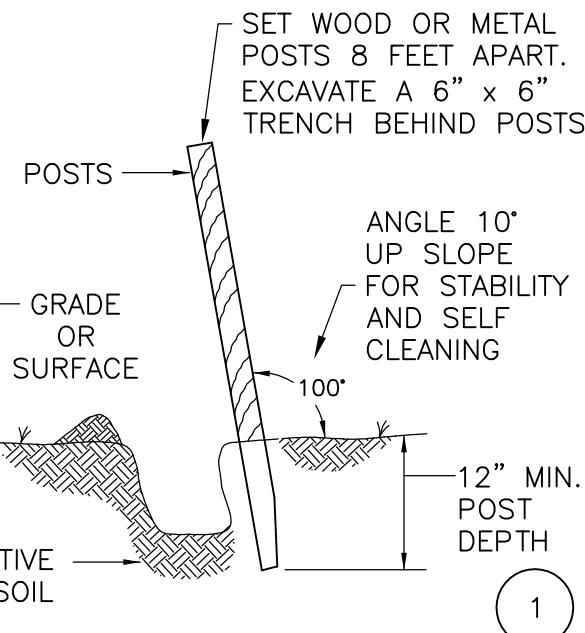
DETAIL

NTS

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4

# THE METROPOLITAN DISTRICT

## EROSION AND SEDIMENTATION CONTROL STANDARD DETAILS



NOTE:

1. FENCE TO BE INSTALLED PRIOR TO CONSTRUCTION. PRE-ASSEMBLED UNITS ALSO MAY BE USED AND INSTALLED AS INDICATED.

### SILT FENCE INSTALLATION

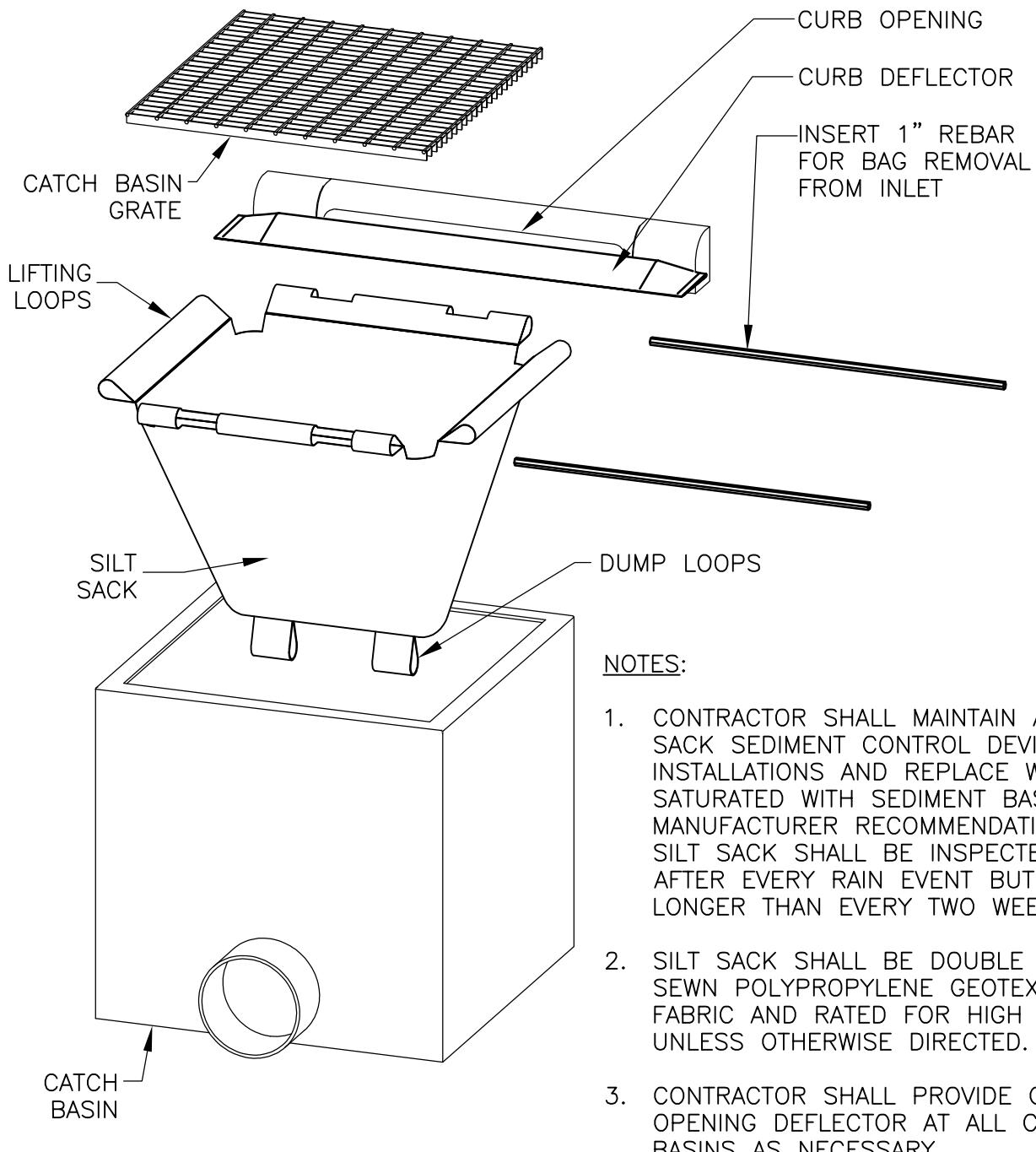
#### DETAIL

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5

# THE METROPOLITAN DISTRICT

## EROSION AND SEDIMENTATION CONTROL STANDARD DETAILS



### CATCH BASIN SILT SACK

**DETAIL**

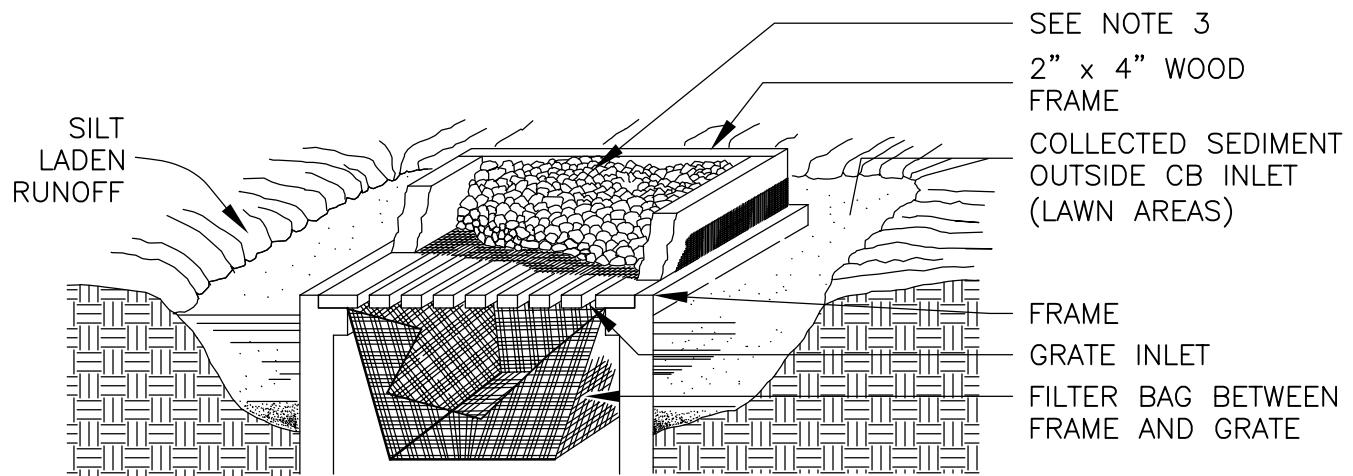
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# THE METROPOLITAN DISTRICT

## EROSION AND SEDIMENTATION CONTROL STANDARD DETAILS



### NOTES:

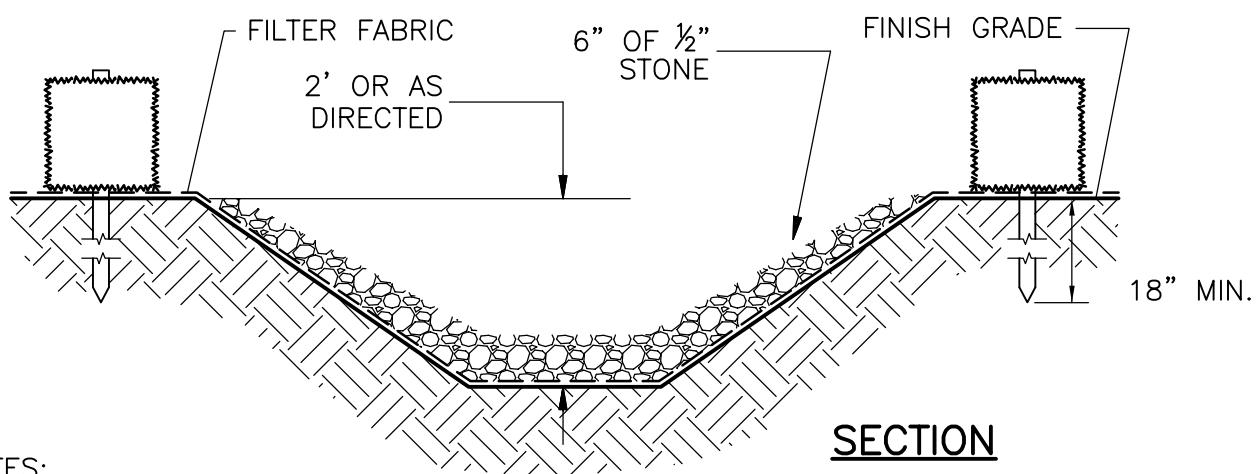
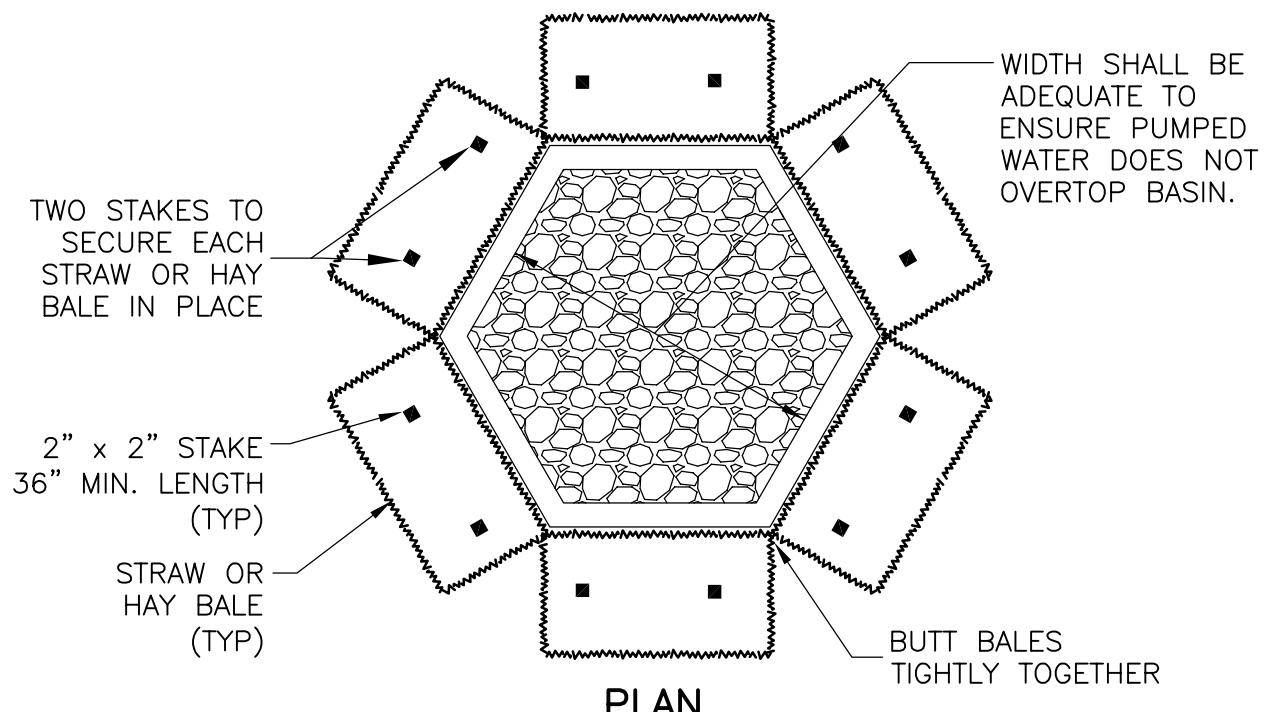
1. IN LAWN AREAS, USE MESH, WOOD FRAME BOX, AND STONE FOR INLET PROTECTION (NO BAG REQUIRED)
2. IN PAVED AREAS, USE FILTER BAG FOR INLET PROTECTION (NO MESH, BOX STONE REQUIRED)
3. WRAP  $\frac{1}{4}$ " WIRE MESH AROUND SIDES OF BOX AND ATTACH TO FRAME. FILL WITH  $\frac{1}{2}$ "-1" DIAMETER WASHED STONE. REPLACE WHEN SATURATED WITH SEDIMENT.

CATCH BASIN FILTER  
**DETAIL**  
NTS

ES  
7

# THE METROPOLITAN DISTRICT

## EROSION AND SEDIMENTATION CONTROL STANDARD DETAILS



NOTES:

1. DESIGN OF DEWATERING AND DRAINAGE SYSTEMS MUST BE CERTIFIED BY A CT REGISTERED PROFESSIONAL ENGINEER.
2. BASIN DIMENSIONS AND MATERIAL SPECIFICATIONS ARE SITE SPECIFIC FOR USE IN WORK WITHIN THE WETLAND. AFTER DEWATERING ACTIVITIES ARE COMPLETE, CONTRACTOR SHALL REMOVE AND RESTORE AREA WITH TOPSOIL AND SEED. LOCATION TO BE APPROVED BY ENGINEER.

### DEWATERING BASIN

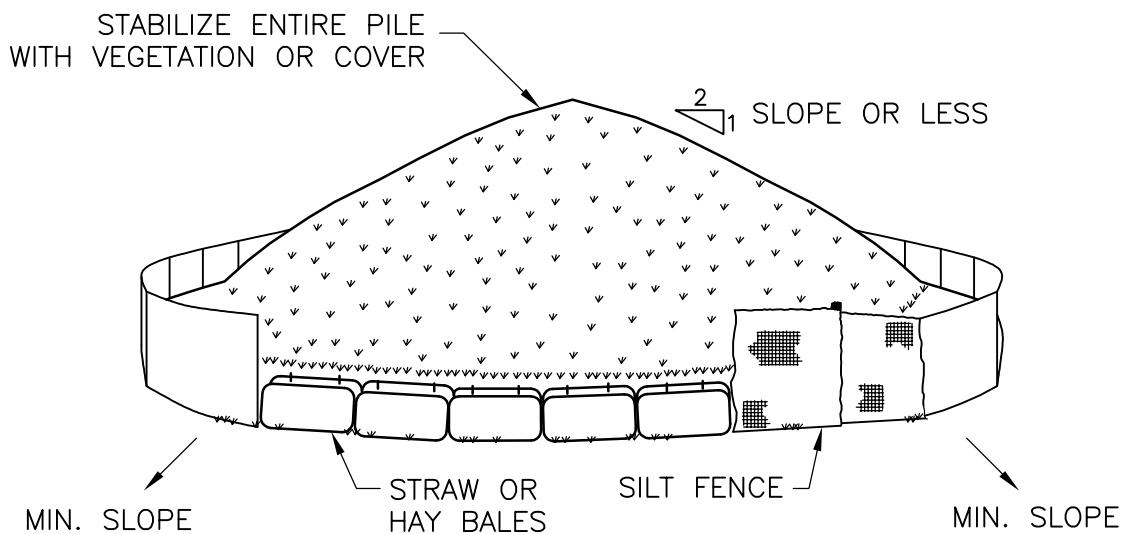
#### DETAIL

NTS

ES  
8

# THE METROPOLITAN DISTRICT

## EROSION AND SEDIMENTATION CONTROL STANDARD DETAILS



### NOTES:

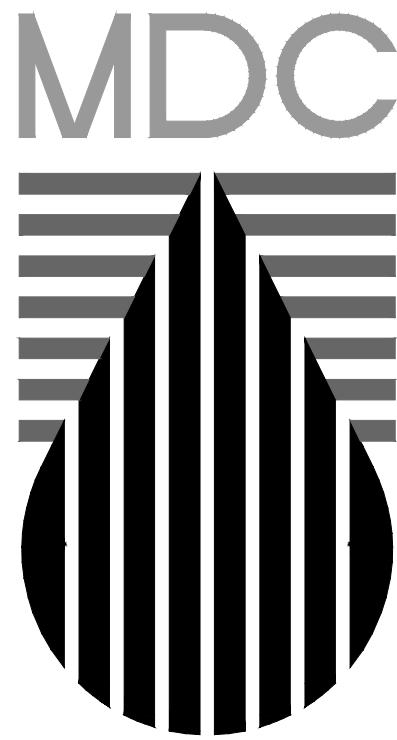
1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 2:1.
3. EACH PILE SHALL BE SURROUNDED WITH EITHER SILT FENCING, STRAW BALES OR HAY BALES, THEN STABILIZED WITH VEGETATION OR COVERED.
4. UPON COMPLETION OF SOIL STOCKPILING, RESTORE STOCKPILING AREA TO EXISTING CONDITIONS PRIOR TO CONSTRUCTION.

STOCKPILING AREA  
DETAIL  
NTS

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9



# **SURFACE RESTORATION STANDARD DETAILS**

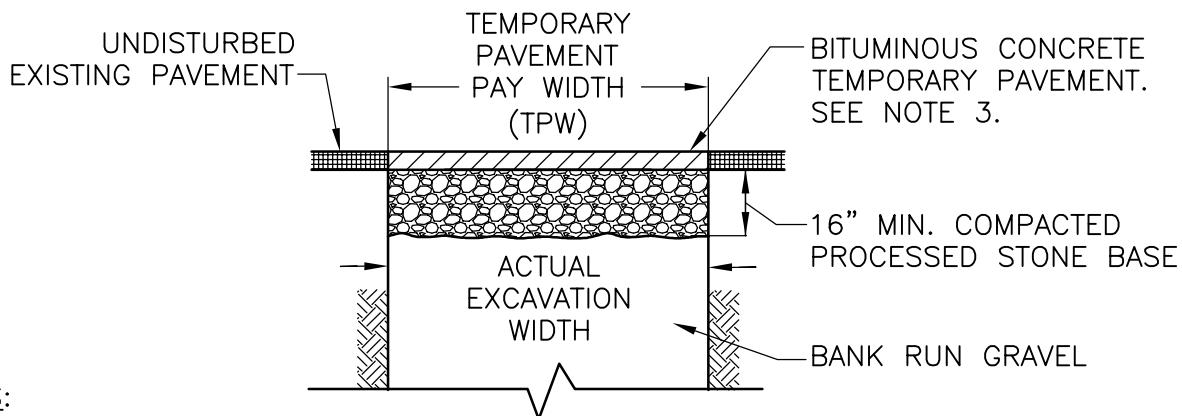


**THE METROPOLITAN DISTRICT**



# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS



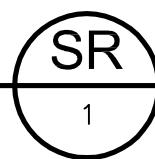
- NOTES:
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EMERGENCY AND GENERAL MAINTENANCE OF TEMPORARY TRENCH PAVEMENT.
  2. TEMPORARY TRENCH REPAIR SHALL BE COMPLETED AT THE END OF EACH WORK DAY. TEMPORARY PAVEMENT SHALL BE MAINTAINED IN A CONDITION SUITABLE FOR TRAFFIC UNTIL REPLACED OR OVERLAI'D BY FINAL PAVEMENT. DEFECTS SHALL BE REPAIRED WITHIN 1 DAY OF NOTIFICATION OF SUCH DEFECTS.
  3. MINIMUM THICKNESS FOR PERMANENT FINISH AND BINDER COURSES SHALL BE THICKNESS AND PAVEMENT CLASS AS STATED IN THE SPECIFICATIONS. IF THE THICKNESS OF TEMPORARY PAVEMENT ORDERED AND PLACED IS GREATER THAN SPECIFIED, PAYMENT SHALL BE PRORATED ON THE BASIS OF THE THICKNESS OF THE MATERIAL ACTUALLY ORDERED AND PLACED.
  4. THE PAY WIDTH DIMENSIONS SHOWN REPRESENT THE MAXIMUM PAY WIDTHS TO BE PAID. WHEN THE ACTUAL SURFACE REPAIR OR TRENCH WIDTH IS LESS, THE ACTUAL WIDTH SHALL BE PAID FOR AT THE APPLICABLE UNIT PRICE.
  5. THE MAXIMUM TEMPORARY PAVEMENT PAY WIDTH AT MANHOLES IS 12" OUTSIDE THE BASE.
  6. FOR WORK ON STATE HIGHWAYS, SEE CT DOT TRENCH DETAILS.

MAXIMUM TEMPORARY TRENCH PAVEMENT PAY WIDTHS (TPW)		
DEPTH TO PIPE INVERT (FT)	0-12" PIPE TPW (FT)	>12" PIPE TPW (FT)
0-8	6.0	PIPE I.D. + 5
8-12	7.0	PIPE I.D. + 6
12-16	8.0	PIPE I.D. + 7
>16	9.0	PIPE I.D. + 8

## TEMPORARY TRENCH PAVEMENT REPAIR

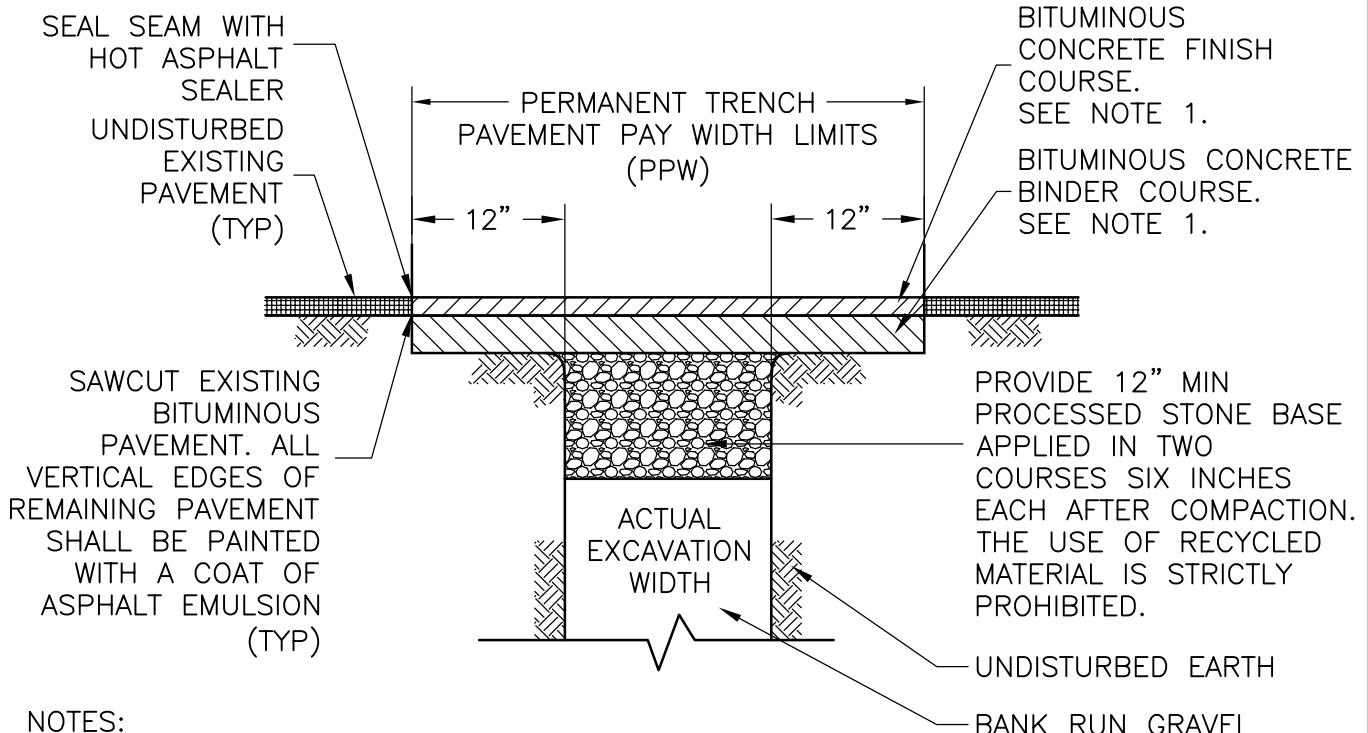
DETAIL

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# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS



### NOTES:

1. MINIMUM THICKNESS FOR PERMANENT FINISH AND BINDER COURSES SHALL BE THICKNESS AND PAVEMENT CLASS AS STATED IN THE SPECIFICATIONS.
2. THE PAY WIDTH DIMENSIONS SHOWN REPRESENT THE MAXIMUM PAY WIDTHS TO BE PAID. WHEN THE ACTUAL SURFACE REPAIR OR TRENCH WIDTH IS LESS, THE ACTUAL WIDTH SHALL BE PAID FOR AT THE APPLICABLE UNIT PRICE.
3. THE MAXIMUM PERMANENT PAVEMENT PAY WIDTH AT MANHOLES IS 24" OUTSIDE THE BASE.
4. FOR WORK ON STATE HIGHWAYS, SEE CT DOT TRENCH DETAILS.

MAXIMUM PERMANENT TRENCH PAVEMENT PAY WIDTH (PPW)		
DEPTH TO PIPE INVERT	0-12" PIPE PPW (FT)	>12" PIPE PPW (FT)
0-8	8.0	PIPE I.D. + 7
8-12	9.0	PIPE I.D. + 8
12-16	10.0	PIPE I.D. + 9
>16	11.0	PIPE I.D. + 10

## PERMANENT TRENCH PAVEMENT RESTORATION

**DETAIL**

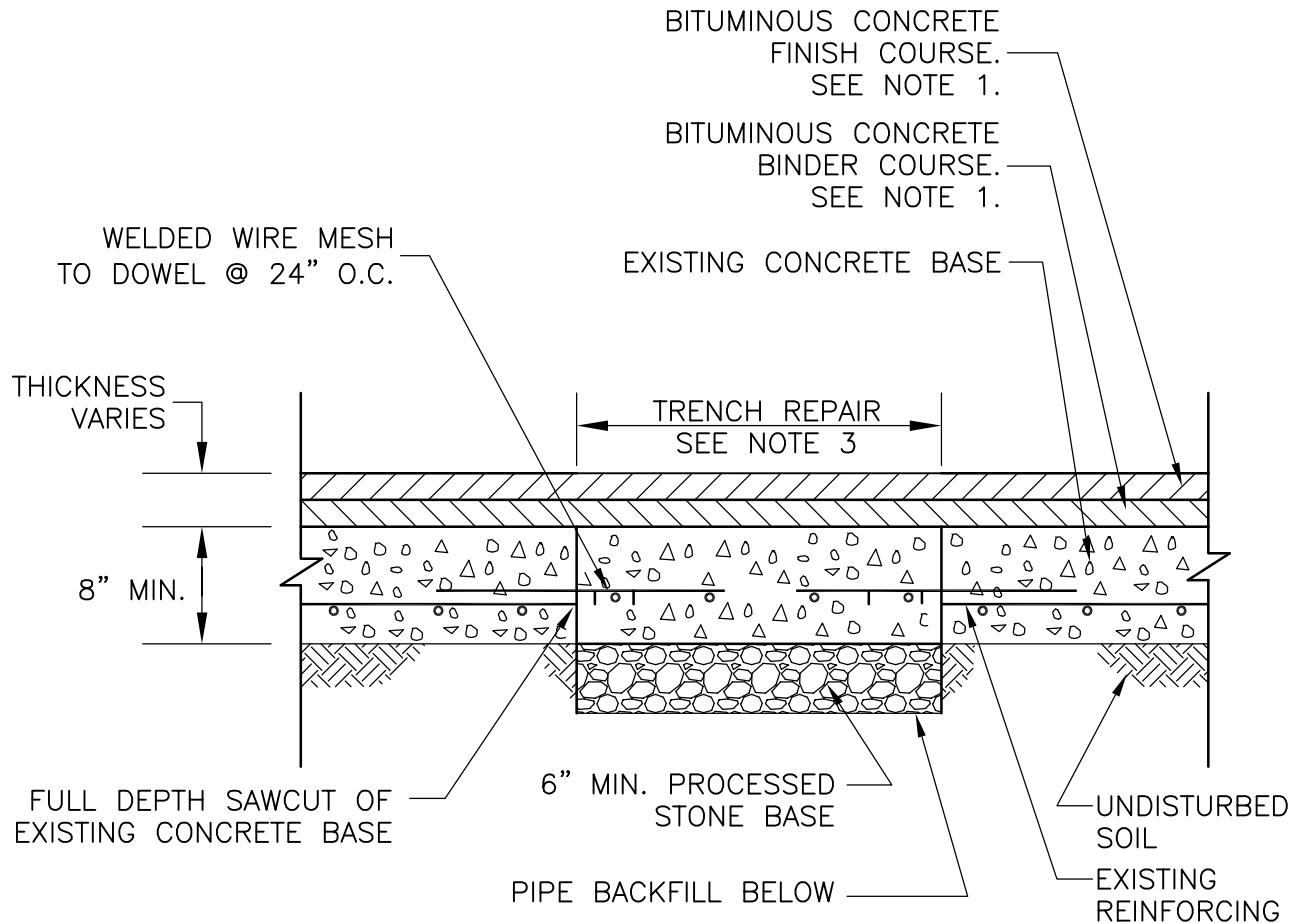
NTS

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2

# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS



### NOTES:

1. MINIMUM THICKNESS FOR PERMANENT FINISH AND BINDER COURSES SHALL BE THICKNESS AND PAVEMENT CLASS AS STATED IN THE SPECIFICATIONS.
2. PROVIDE 18" LONG SMOOTH DOWELS  $\frac{5}{8}$ " @ 24" O.C. DRILL HOLE SHALL BE OVERSIZED BY  $\frac{1}{8}$ ".
3. SEE TEMPORARY TRENCH PAVEMENT REPAIR DETAIL FOR PAY WIDTHS.

### REINFORCED CONCRETE BASE TRENCH REPAIR

DETAIL

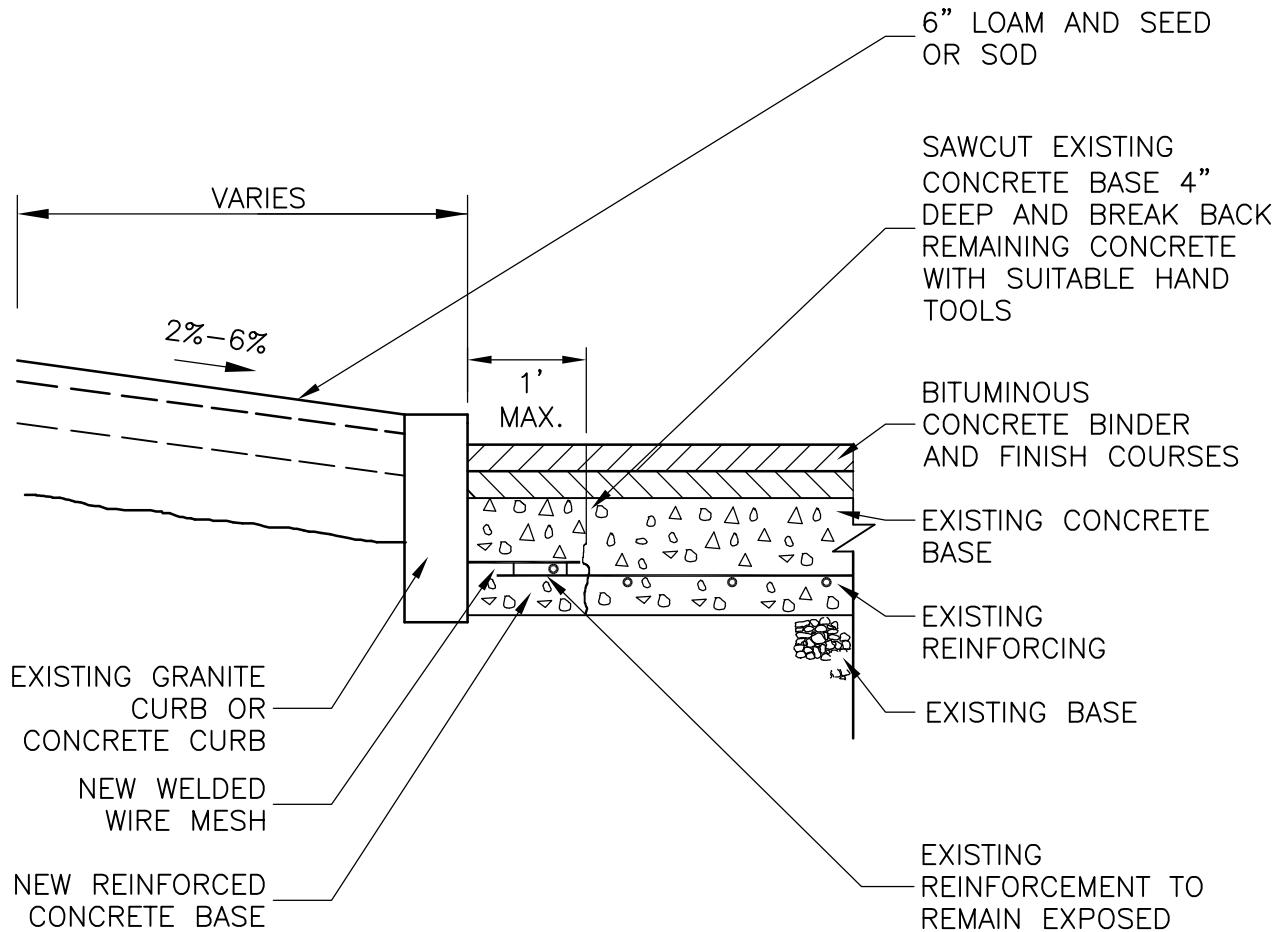
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# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS



### REINFORCED CONCRETE BASE REPAIR AT EXISTING CURB

DETAIL

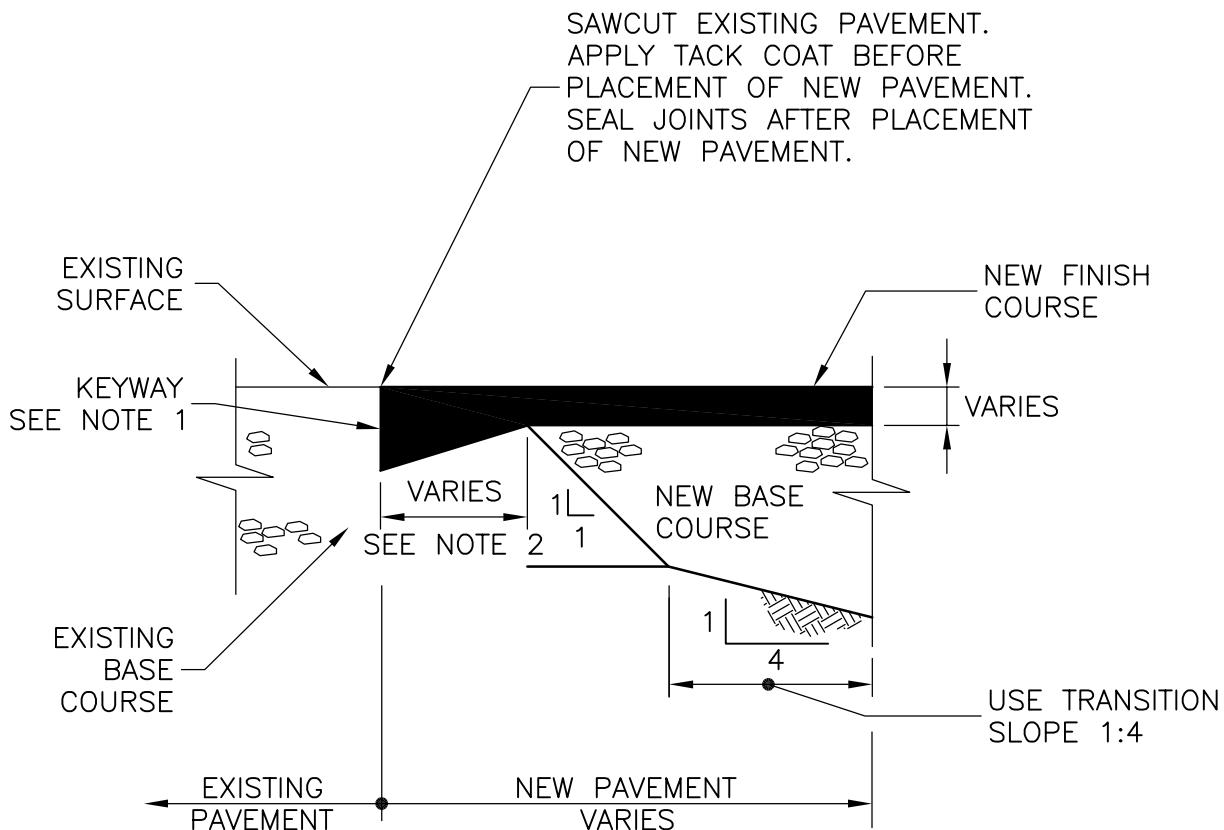
NTS

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# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS



### NOTES:

1. KEYWAYS MUST BE MILLED INTO EXISTING PAVEMENT FOR FINAL PAVEMENT COURSE TO PROVIDE A TIGHT, SMOOTH JOINT. THE DEPTH OF THE KEYWAY BELOW THE FINAL COURSE SHALL EQUAL THE THICKNESS OF THE FINAL COURSE.
2. ALL PERMANENT TRANSITIONS SHALL MEET CTDOT LENGTH REQUIREMENTS UNLESS OTHERWISE APPROVED.

## TRANSITION BETWEEN NEW AND EXISTING PAVEMENT



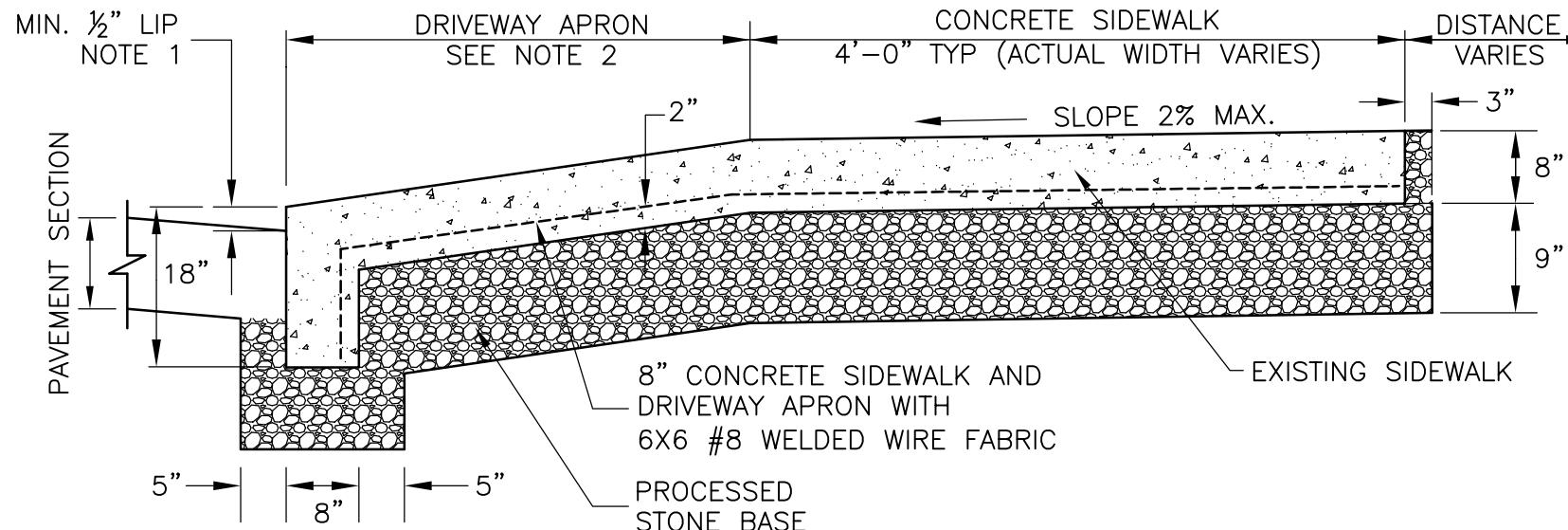
# THE METROPOLITAN DISTRICT

SURFACE RESTORATION STANDARD DETAILS



NOTES:

1. PROVIDE MIN.  $\frac{1}{2}$ " LIP OR GREATER, IF REQUIRED BY MUNICIPALITY OR CT DOT.
2. THE SPECIFICATION AND REGULATIONS OF THE LOCAL MUNICIPALITY HAVING CONTROL OVER THE DRIVEWAY APRON AND SIDEWALK SHALL SUPERSEDE THIS DETAIL.



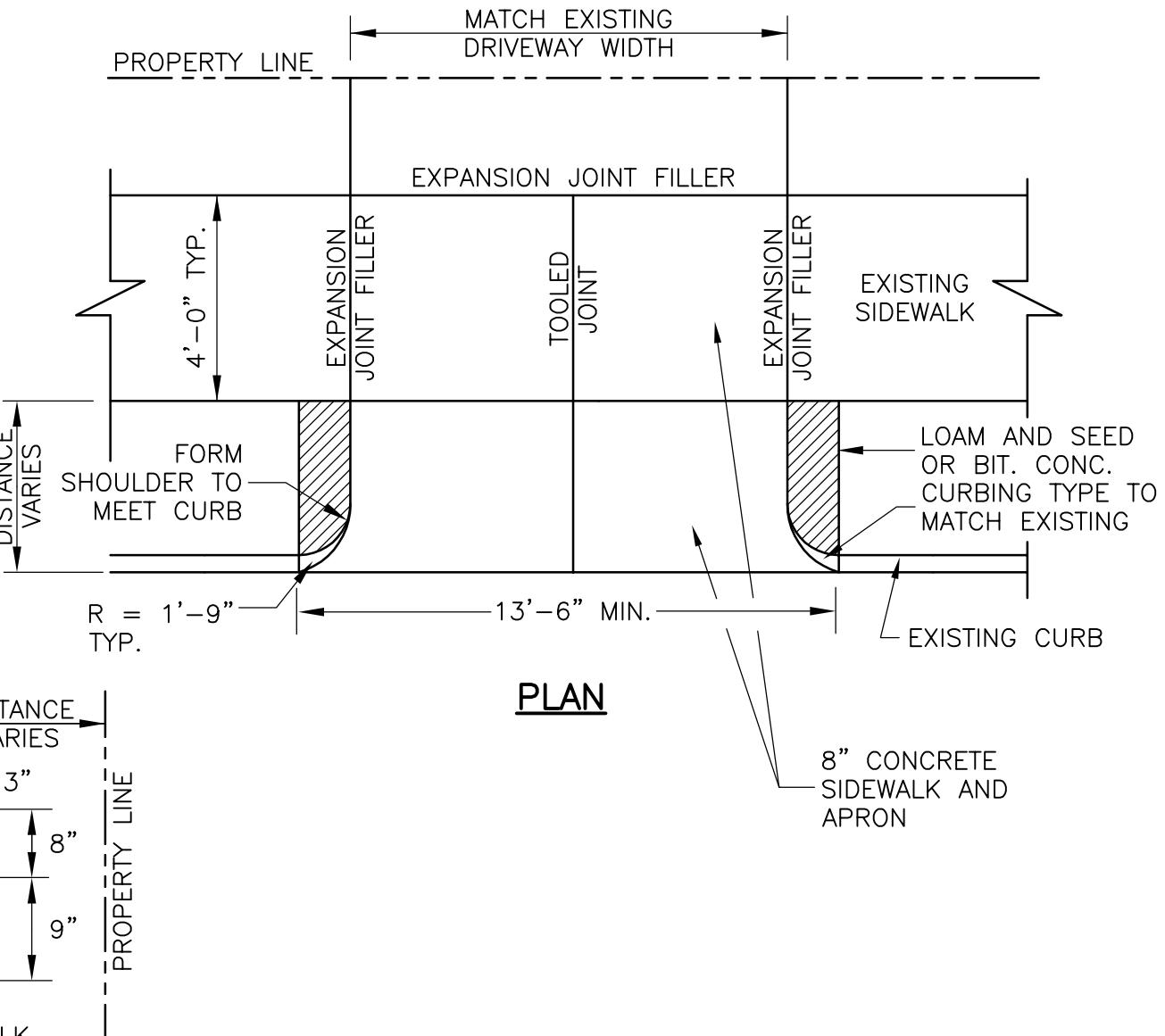
SECTION

## CONCRETE DRIVEWAY APRON RESTORATION

DETAIL

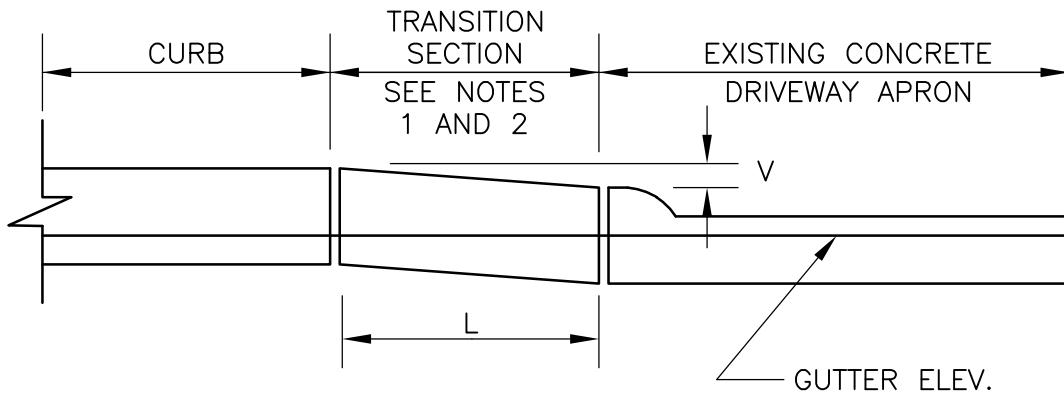
NTS

SR  
6



# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS



TRANSITION TABLE

VERTICAL (V)	CURB LENGTH (L)
1"	4 FEET MIN.
2"	5 FEET MIN.
3"	6 FEET MIN.

NOTES:

1. FOR GRANITE CURB SET THE LAST SECTION TO MATCH EXISTING DRIVE SHOULDER ELEVATION. MINIMUM CLOSURE SECTION SHALL BE 4 FEET.
2. FOR BITUMINOUS OR CONCRETE CURB, DEPRESS CURB TO MEET EXISTING DRIVE SHOULDER. MINIMUM SECTION SHALL BE 10 INCHES.

### CURBING TRANSITION AT EXISTING DRIVEWAY

DETAIL

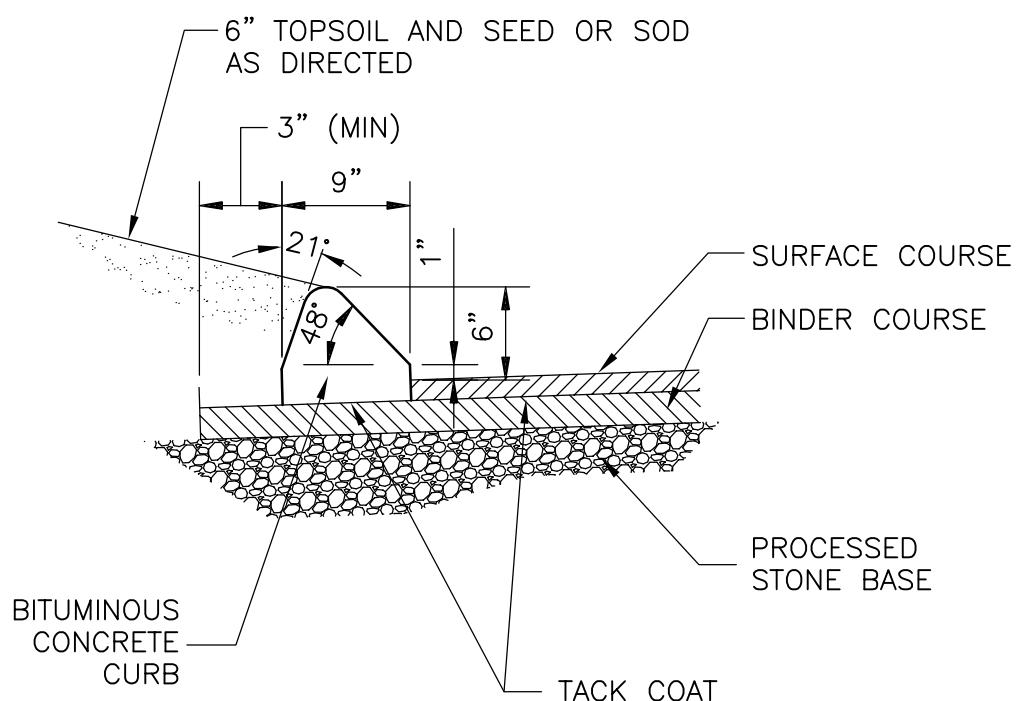
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# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS



BITUMINOUS CONCRETE CURB 6-INCH REVEAL (TYPE I)

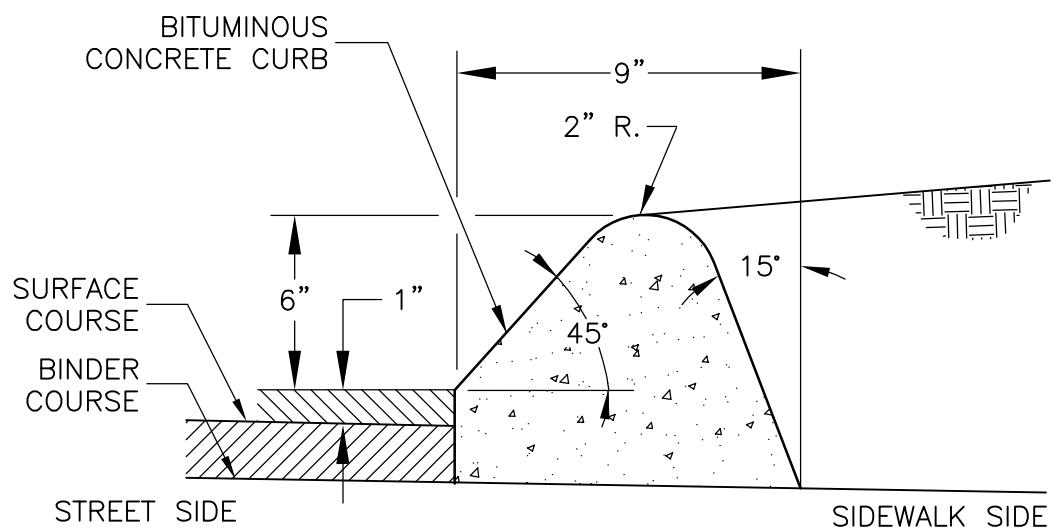
DETAIL

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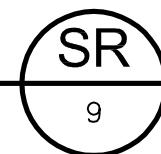
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THE METROPOLITAN DISTRICT  
SURFACE RESTORATION STANDARD DETAILS



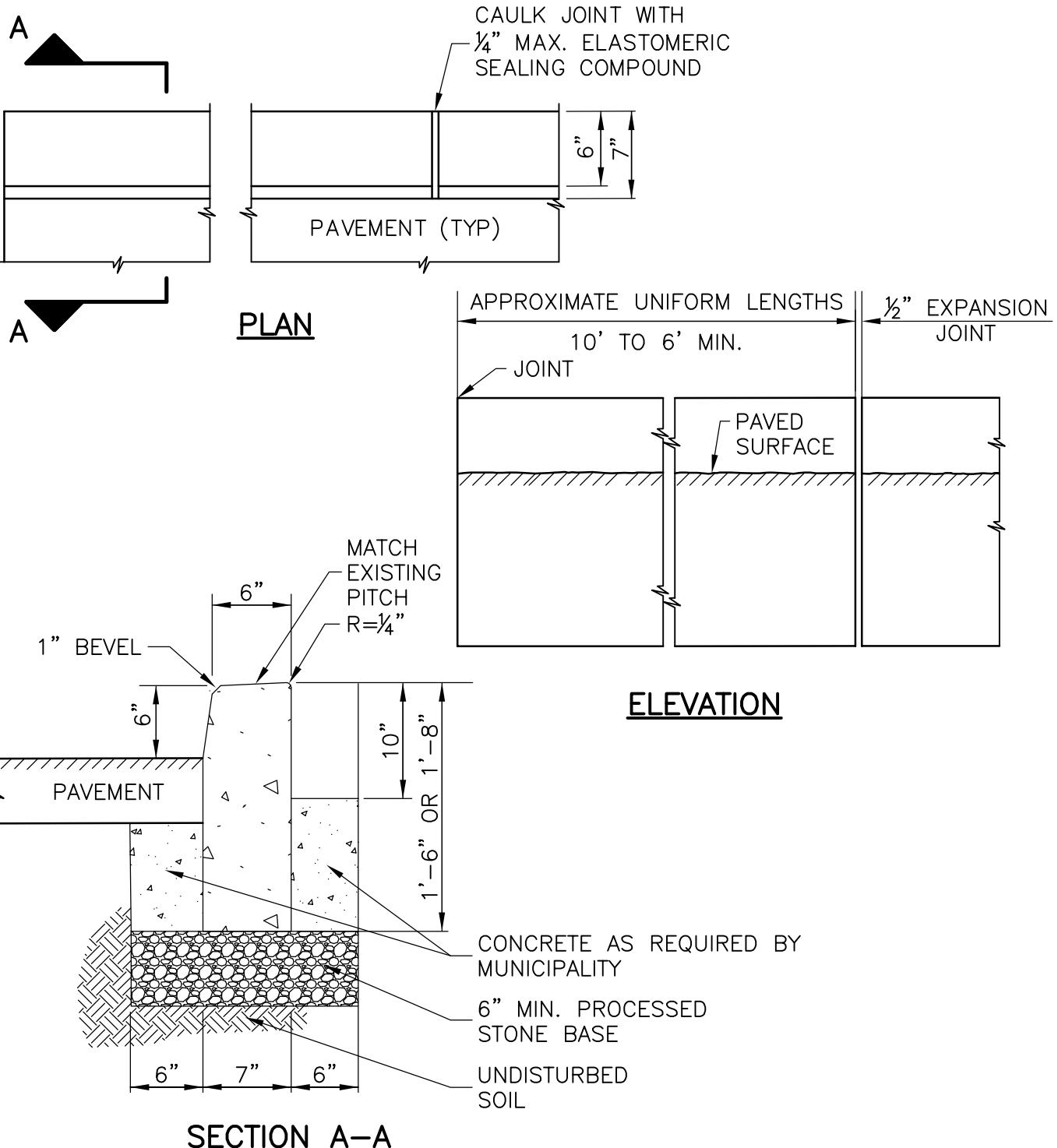
BITUMINOUS CONCRETE CURB 6-INCH REVEAL (TYPE II)

DETAIL  
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# THE METROPOLITAN DISTRICT

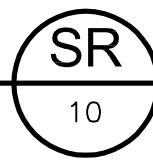
## SURFACE RESTORATION STANDARD DETAILS



### PRECAST CONCRETE CURB RESTORATION

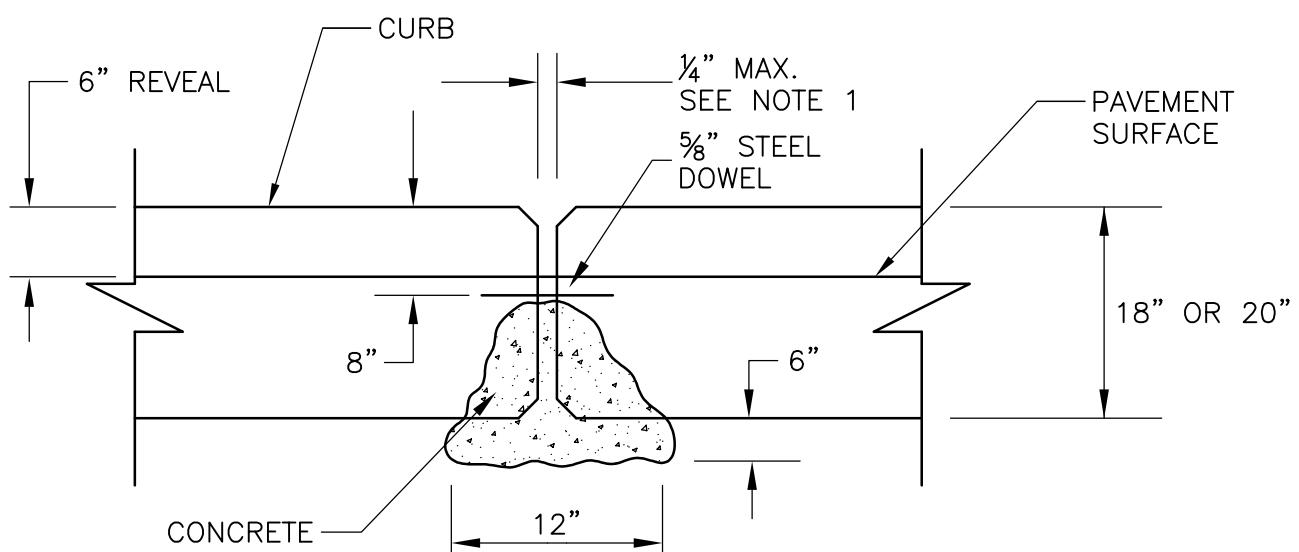
**DETAIL**

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# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS



NOTE:

1. CURB JOINT TO BE CAULKED WITH ELASTOMERIC SEALING COMPOUND.

### PRECAST CONCRETE CURB JOINT

DETAIL

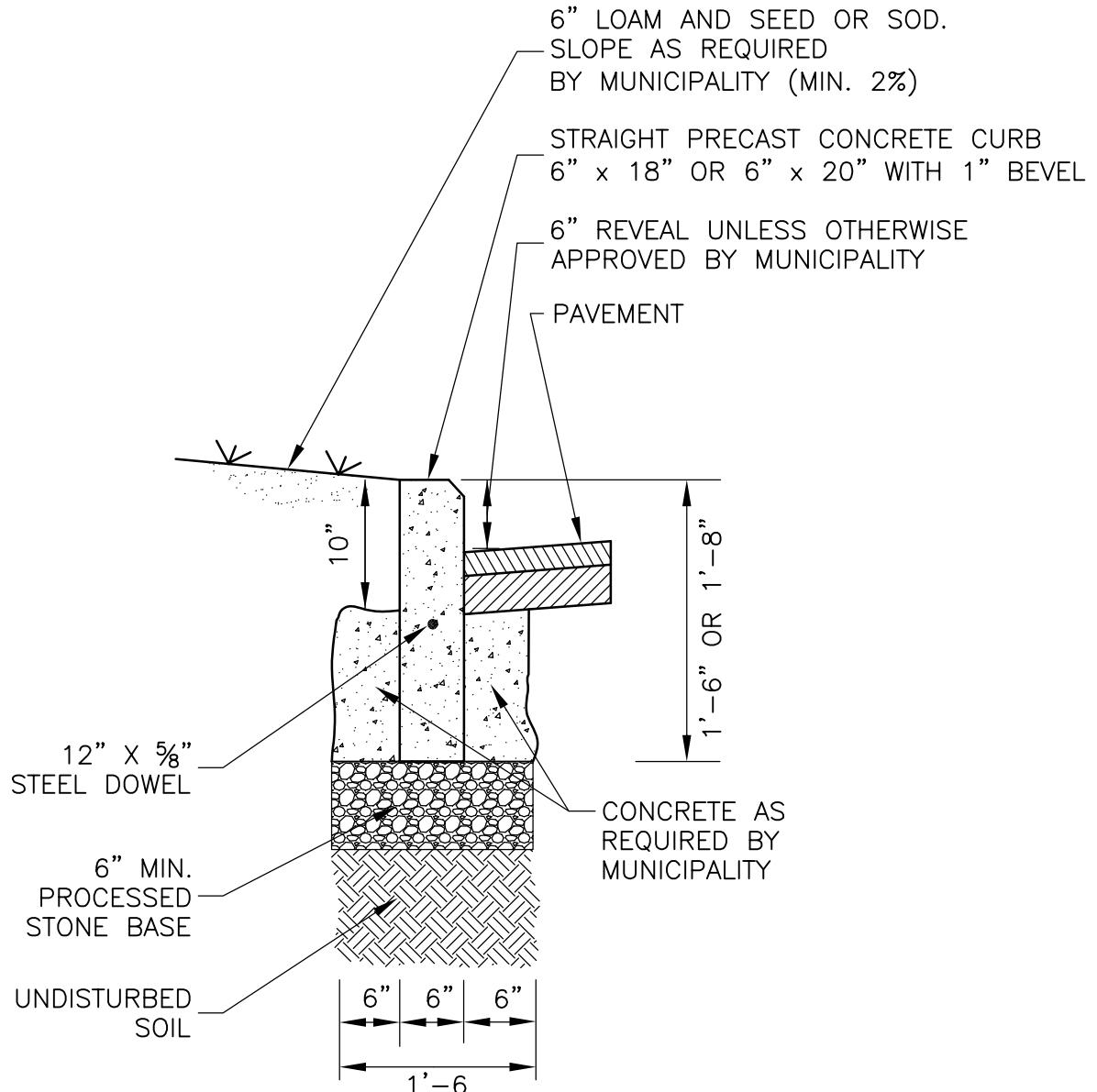
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# THE METROPOLITAN DISTRICT

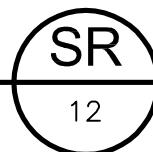
## SURFACE RESTORATION STANDARD DETAILS



### STRAIGHT CONCRETE CURB SECTION

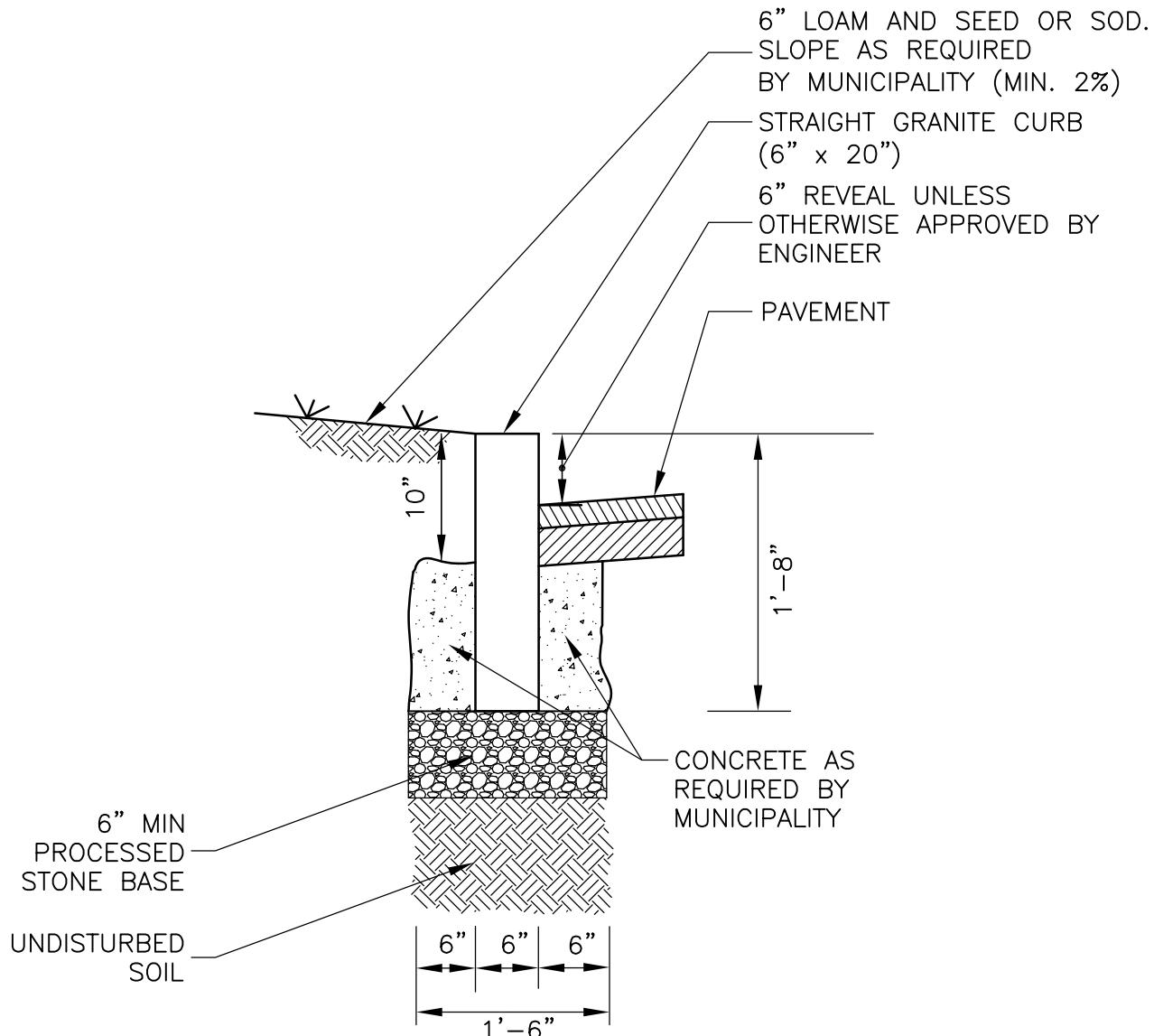
**DETAIL**

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# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS



### STRAIGHT GRANITE CURB SECTION

**DETAIL**

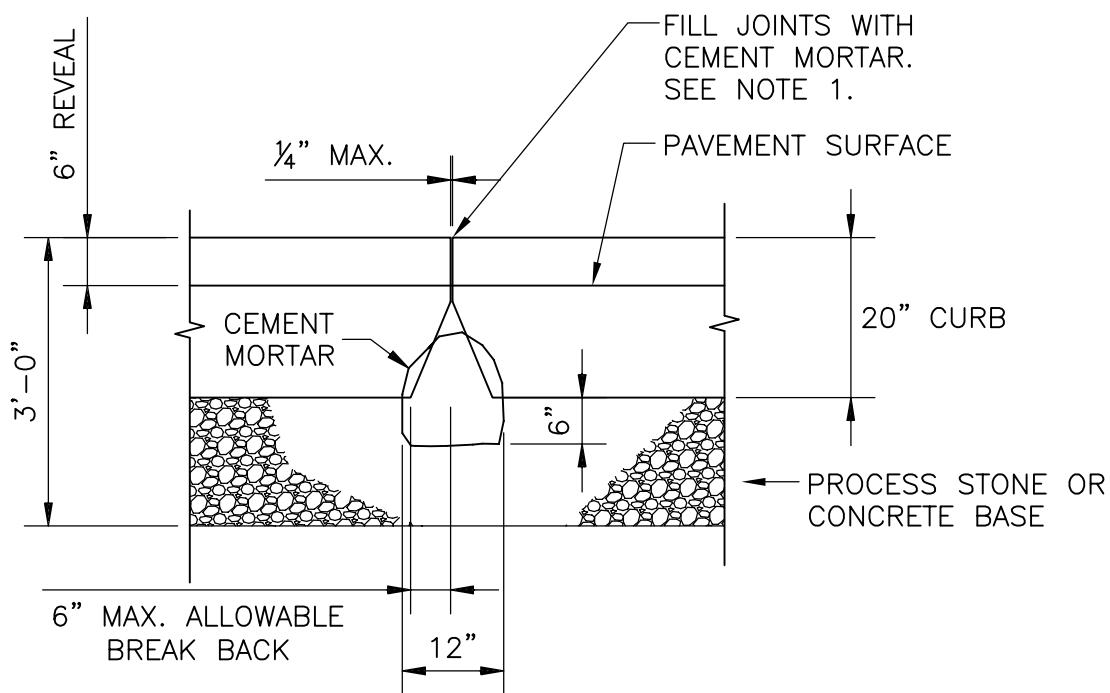
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# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS



NOTE:

1. AT APPROXIMATELY 50-FOOT INTERVALS, A  $\frac{1}{2}$ " JOINT SHALL NOT BE FILLED WITH MORTAR TO ALLOW FOR CURB EXPANSION. THE JOINTS OF ALL GRANITE CURBING SHALL BE FILLED WITH CEMENT MORTAR AND NEATLY POINTED ON EXPOSED SURFACES. EXCESS MORTAR SHALL BE SATISFACTORILY CLEANED FROM THE CURB.

### GRANITE CURB JOINT

**DETAIL**

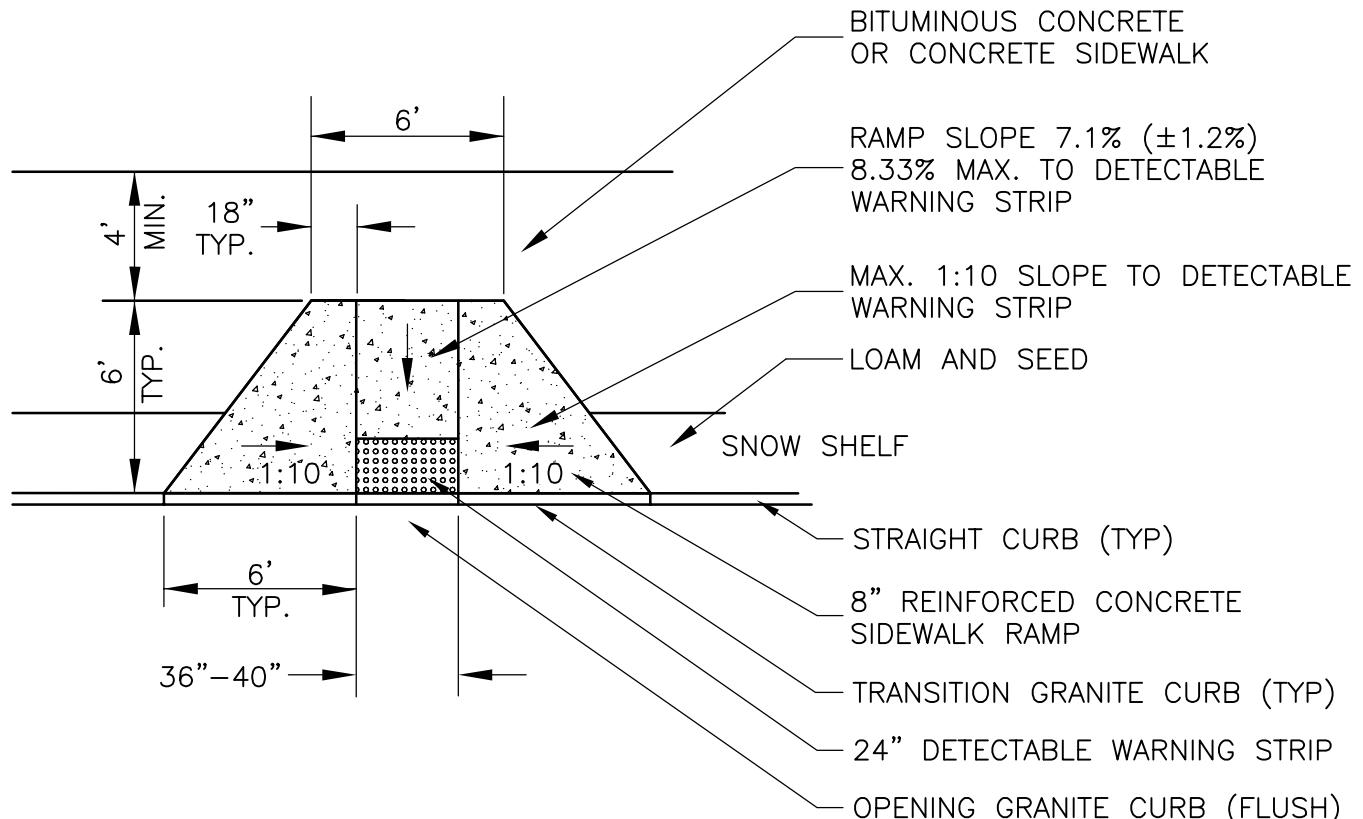
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# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS



### NOTES:

1. TRANSITION GRANITE CURB TO BE ONE CONTINUOUS 6' LENGTH.
2. OPENING GRANITE CURB TO ALSO BE ONE CONTINUOUS LENGTH.
3. SEE SIDEWALK RAMP SECTION DETAIL FOR ADDITIONAL INFORMATION.

### SIDEWALK RAMP (TYPE I)

### DETAIL

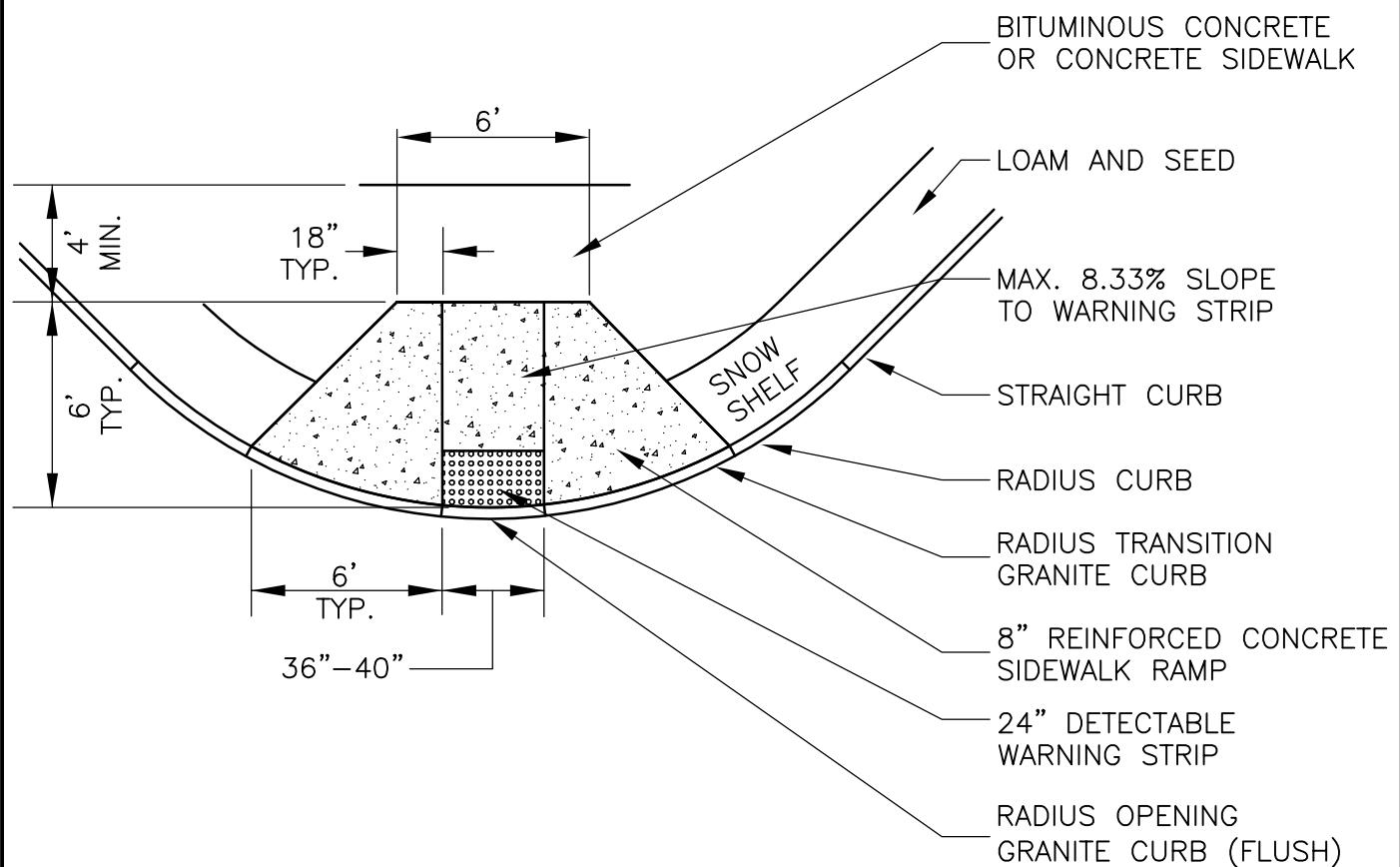
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# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS



### NOTES:

1. RADIUS TRANSITION CURB TO BE ONE CONTINUOUS 6' LENGTH.
2. RADIUS OPENING TO ALSO BE ONE CONTINUOUS LENGTH.
3. SEE SIDEWALK RAMP SECTION DETAIL FOR ADDITIONAL INFORMATION.

### SIDEWALK RAMP (TYPE II)

DETAIL

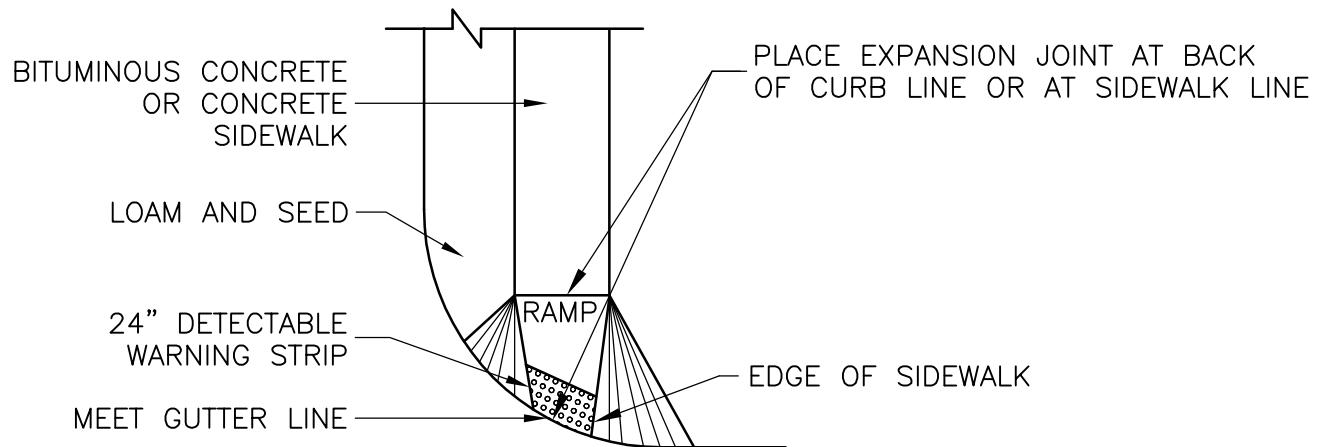
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# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS



NOTE:

1. SEE SIDEWALK RAMP SECTION DETAIL FOR ADDITIONAL INFORMATION.

### SIDEWALK RAMP (TYPE III)

**DETAIL**

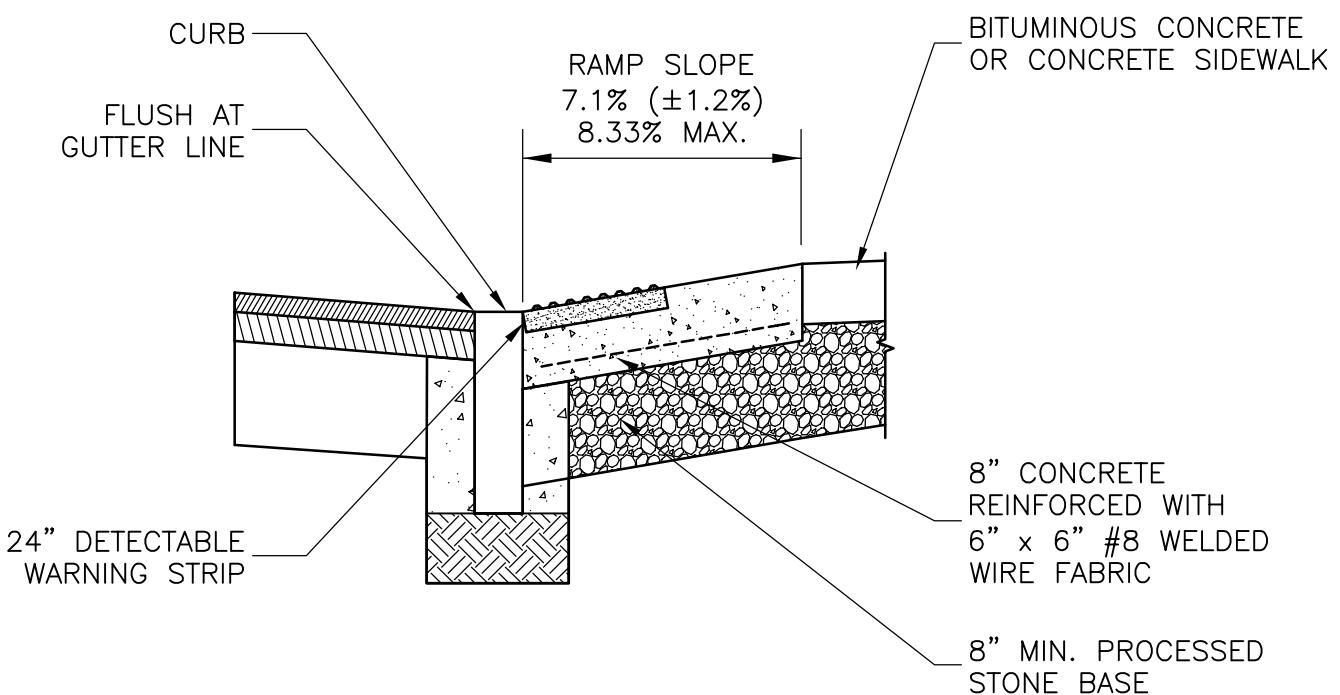
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# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS



SIDEWALK RAMP SECTION

DETAIL

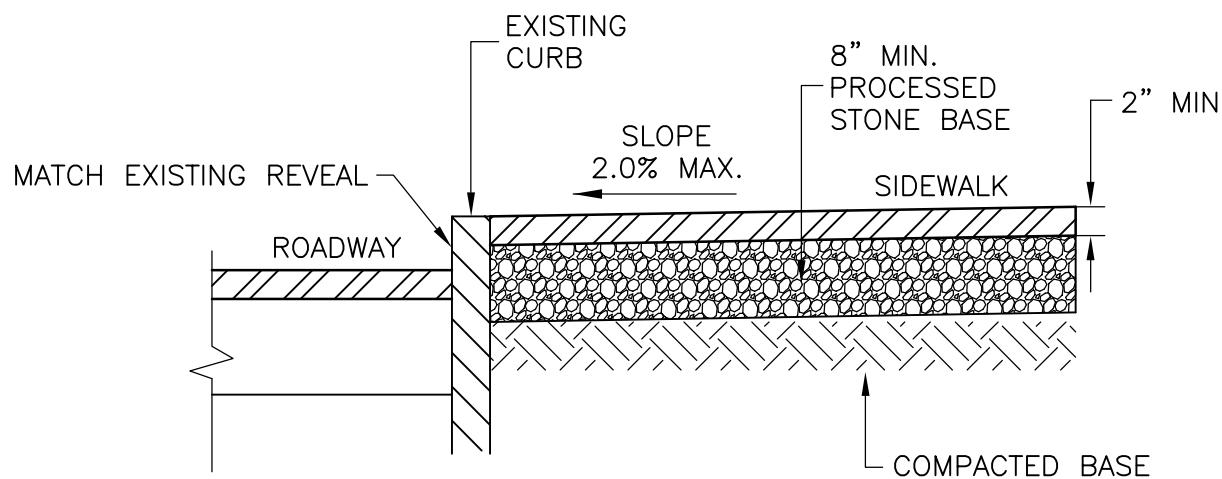
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# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS



### BITUMINOUS CONCRETE SIDEWALK RESTORATION

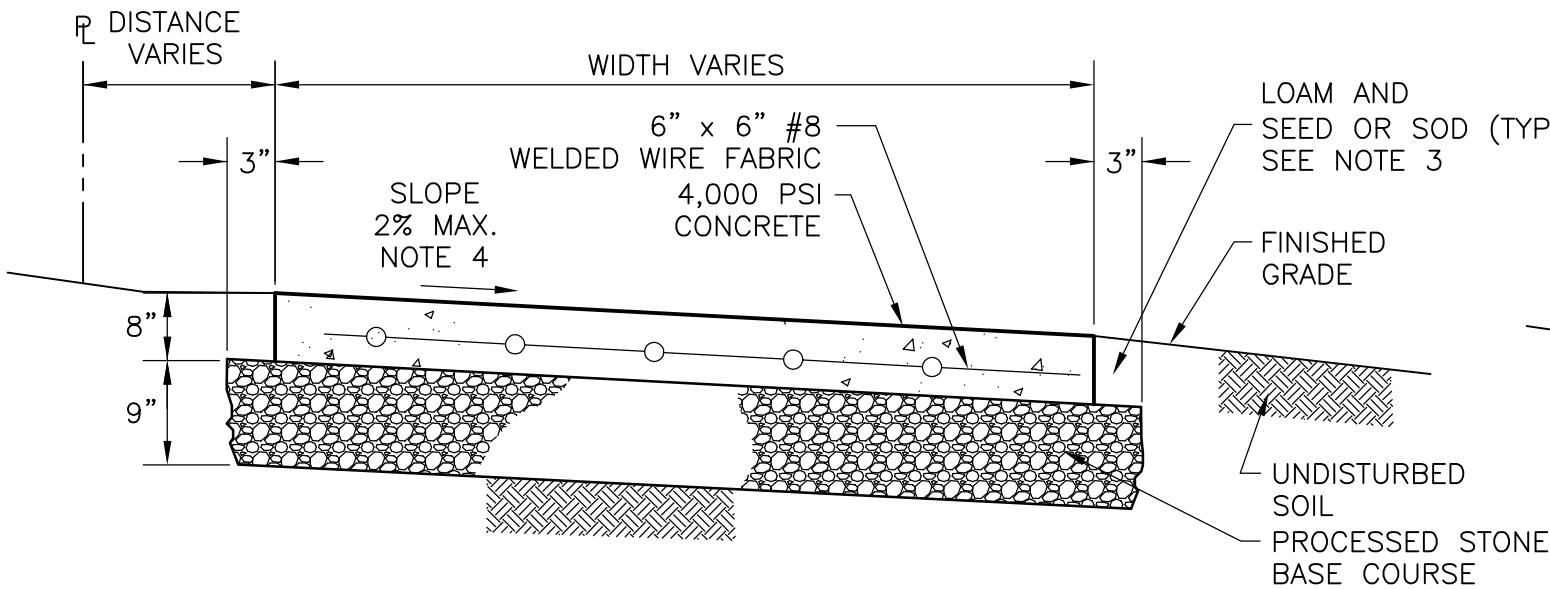
**DETAIL**

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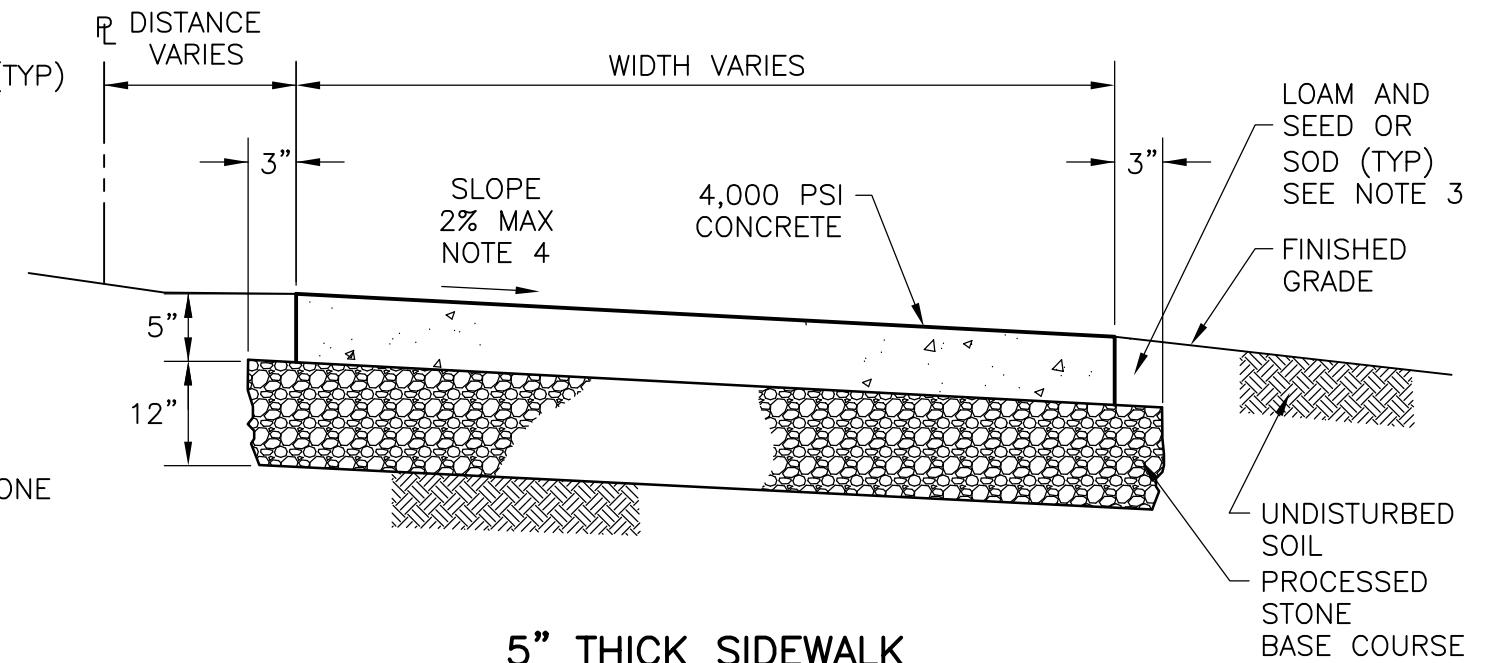
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THE METROPOLITAN DISTRICT  
SURFACE RESTORATION STANDARD DETAILS



8" THICK SIDEWALK



5" THICK SIDEWALK

NOTES:

1. 8" THICK REINFORCED SIDEWALK TO BE USED AT ALL DRIVEWAY CROSSINGS UNLESS OTHERWISE REQUIRED BY THE MUNICIPALITY.
2.  $\frac{1}{2}$ " PRE-MOLDED NON-EXTENABLE BITUMINOUS JOINT MATERIAL AND  $\frac{5}{8}$ " x 24" DOWELS TO BE INSTALLED ON EITHER SIDE OF ALL DRIVEWAY CROSSINGS. TOOLED JOINT PATTERN TO BE VARIED AS DIRECTED TO CONFORM TO ADJACENT MARKINGS.
3. ANY PEDESTRIAN RAMPS THAT ARE DISTURBED SHALL BE REPLACED IN-KIND. GRADE THEN 6" LOAM AND SEED OR SOD ALL AREAS NOT COVERED BY SIDEWALK OR PAVEMENT THAT ARE DISTURBED DURING SIDEWALK REMOVAL AND REPLACEMENT.
4. MATCH SLOPE OF EXISTING SIDEWALK OR PROVIDE MAXIMUM 2% SLOPE.
5. THE SPECIFICATION AND REGULATIONS OF THE LOCAL MUNICIPALITY HAVING CONTROL OVER THE SIDEWALK SHALL SUPERSEDE THIS DETAIL.

CONCRETE SIDEWALK RESTORATION

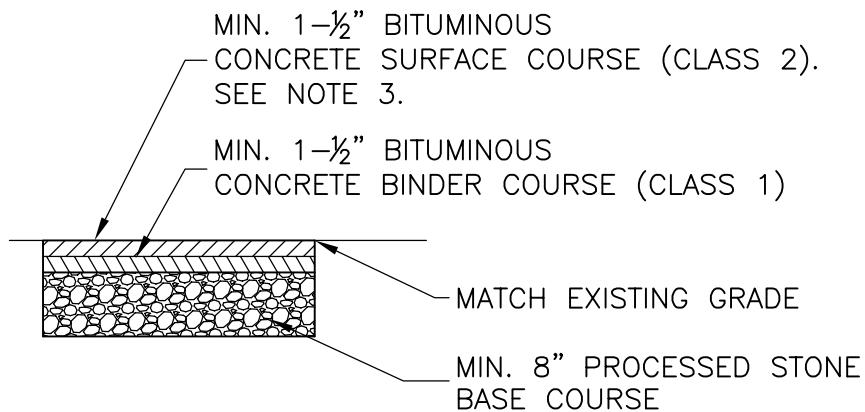
DETAIL

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# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS



### NOTES:

1. RESTORE SURFACE OF DISTURBED BITUMINOUS CONCRETE DRIVEWAYS OR DRIVEWAY APRONS TO MATCH EXISTING DEPTH AND DIMENSIONS.
2. SAW CUT EDGES OF EXISTING DRIVEWAY AND DISPOSE OF ALL CUTBACK MATERIALS.
3. PRIOR TO PLACEMENT OF THE OVERLAY, THE ENTIRE ROAD WIDTH WHERE OVERLAY IS TO BE PLACED SHALL BE BROOM CLEANED AND TACK COATED.
4. IMMEDIATELY AFTER PLACEMENT OF BITUMINOUS CONCRETE DRIVEWAY, ALL JOINTS BETWEEN THE EXISTING AND NEW DRIVEWAY AND SIDEWALK SHALL BE SEALED WITH HOT ASPHALT SEALER.

## BITUMINOUS CONCRETE DRIVEWAY

**DETAIL**

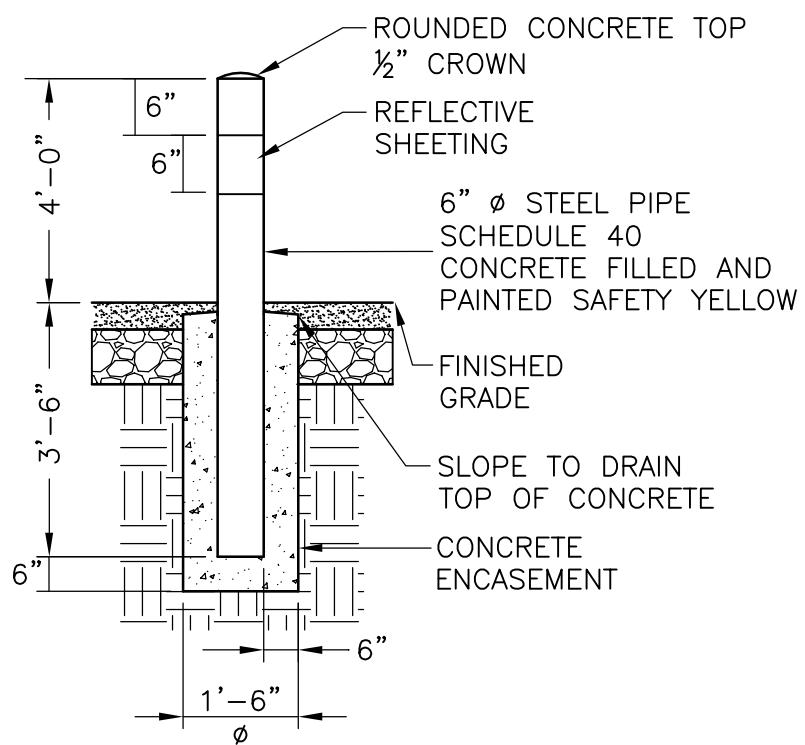
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# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS

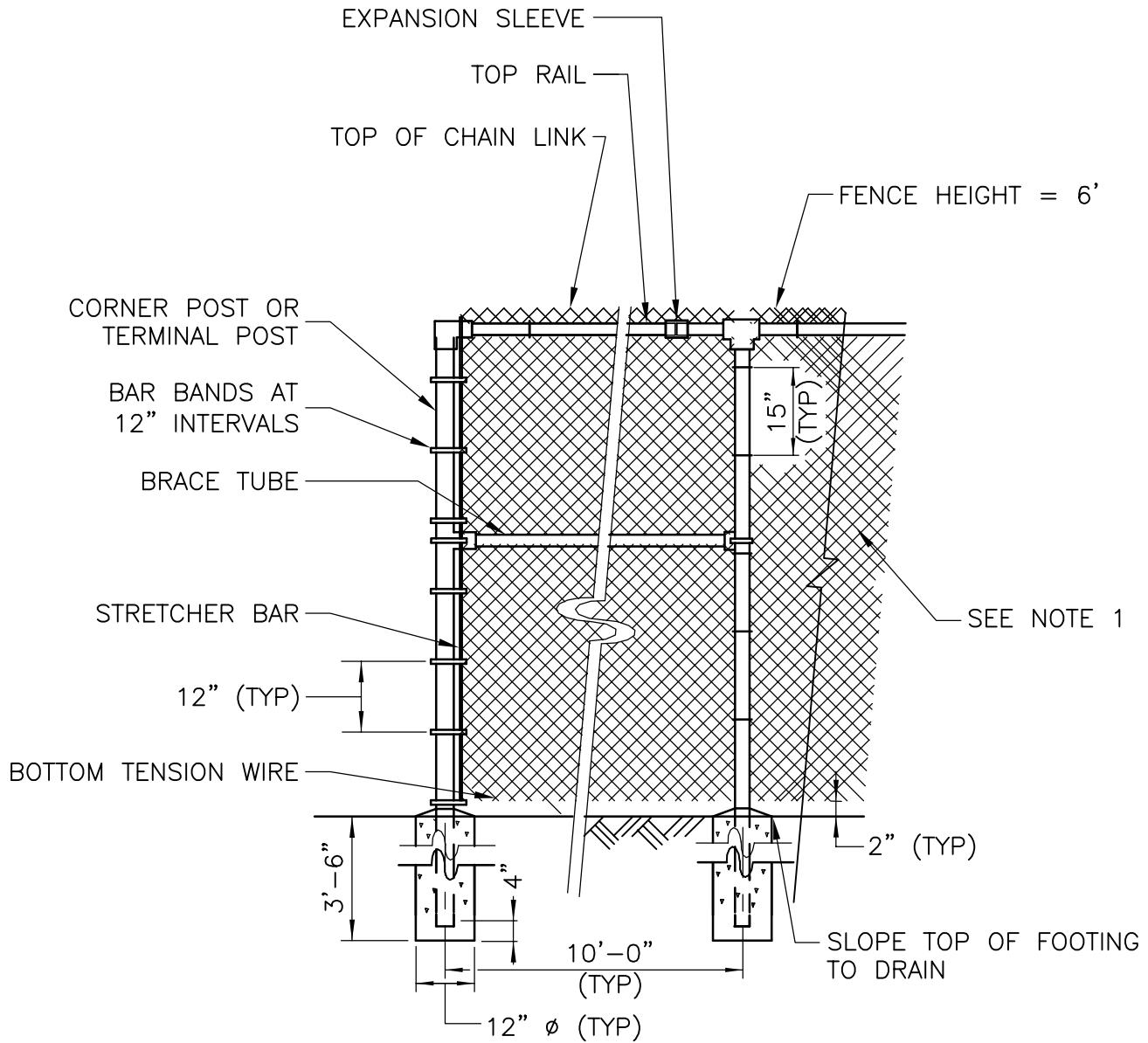


STEEL BOLLARD  
**DETAIL**  
NTS

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# THE METROPOLITAN DISTRICT

## SURFACE RESTORATION STANDARD DETAILS



NOTE:

1. PROVIDE SHIELDING PRIVACY STRIPS IN CHAIN LINK MESH IF REQUIRED.

### CHAIN LINK FENCE (6-FEET HIGH)

**DETAIL**

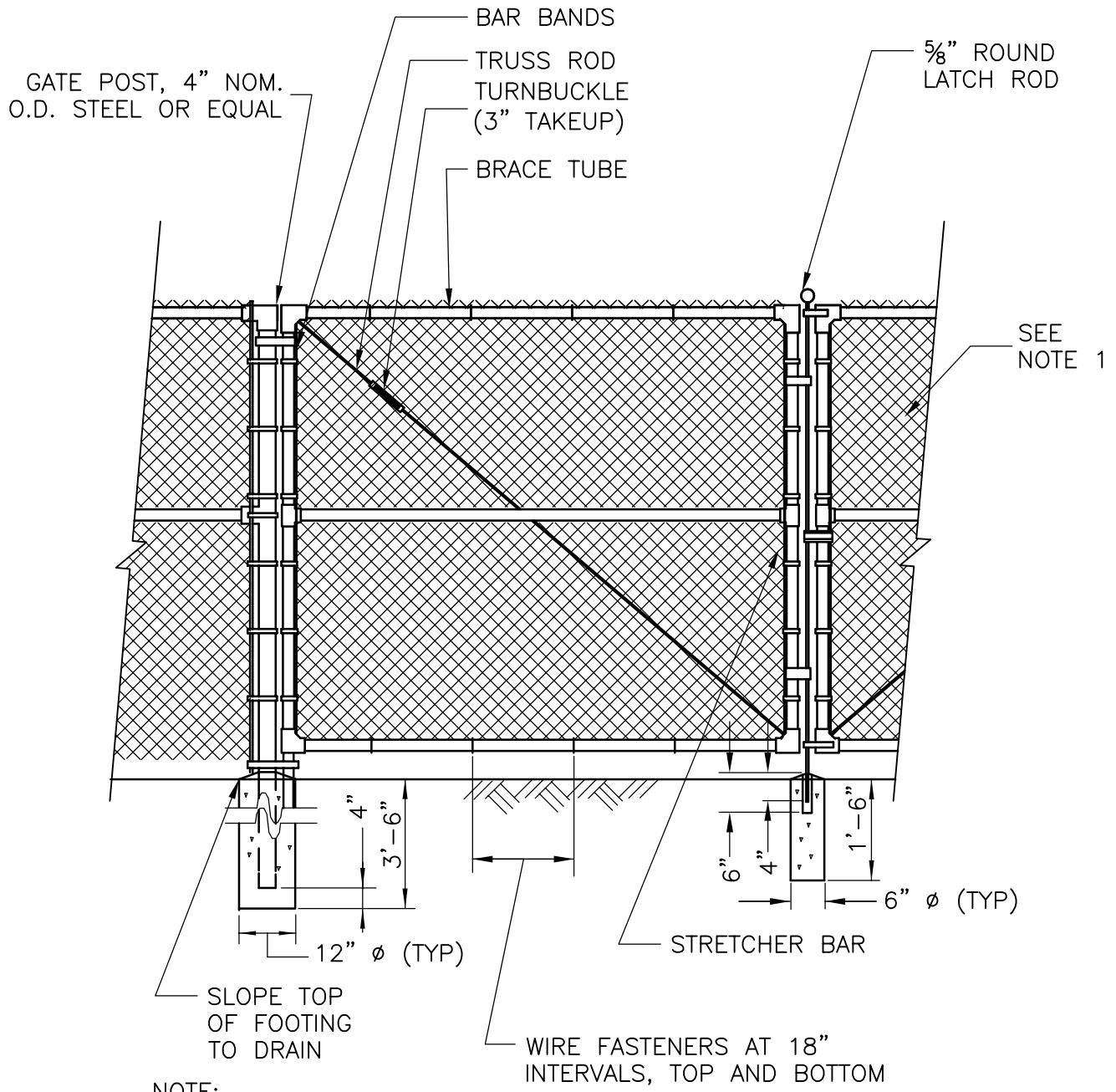
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# THE METROPOLITAN DISTRICT

SURFACE RESTORATION STANDARD DETAILS



NOTE:

1. PROVIDE SHIELDING PRIVACY STRIPS IN CHAIN LINK MESH IF REQUIRED.

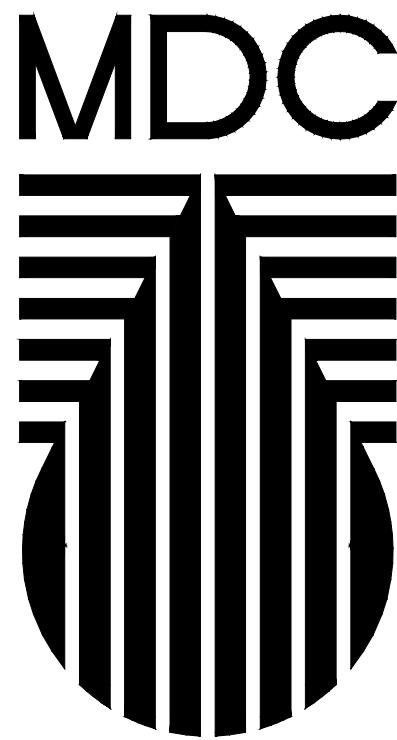
## CHAIN LINK FENCE GATE (6-FEET HIGH)

DETAIL

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# **STORM DRAIN STANDARD DETAILS**



**THE METROPOLITAN DISTRICT**

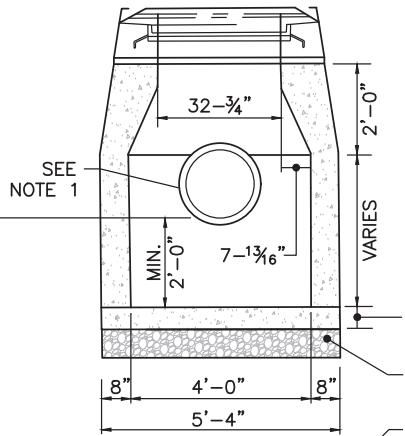


# THE METROPOLITAN DISTRICT

## STORM DRAIN STANDARD DETAILS



PERVIOUS BACKFILL  
ABOVE THIS ELEVATION  
MAX. DEPTH 3'-0"

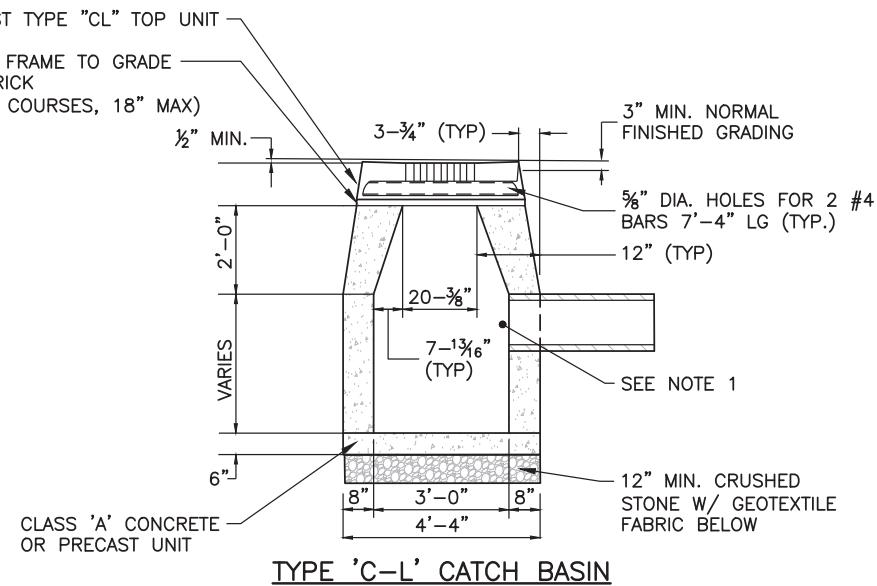
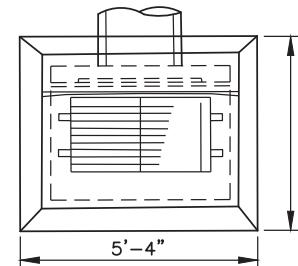


DRAINAGE OPENINGS  
IN 4 WALLS AT OR  
IMMEDIATELY ABOVE  
THIS ELEVATION

TYPE 'C' CATCH BASIN

### NOTES:

1. TRAP HOOD REQUIRED ON ALL CATCH BASINS EXCEPT THOSE USED ON MAIN LINE DRAIN (FLOW THROUGH). TRAP HOOD REQUIRED ON DOWNSTREAM CONNECTION BEFORE COMBINED SEWER. REFER TO CATCH BASIN TRAP AND TRAP HOOD DETAILS.
2. ALL CATCH BASINS SHALL BE PRECAST CONCRETE. USE OF CONCRETE BLOCK CATCH BASINS WILL BE BASED ON DISTRICT, MUNICIPALITY OR CT DOT APPROVAL.
3. THICKNESS OF ALL CATCH BASINS OVER 10 FEET SHALL BE INCREASED TO 12 INCHES STARTING AFTER THE FIRST 10 FEET. INSIDE DIMENSION SHALL REMAIN THE SAME.



CTDOT STANDARD CATCH BASIN WITH TRASH GUARD

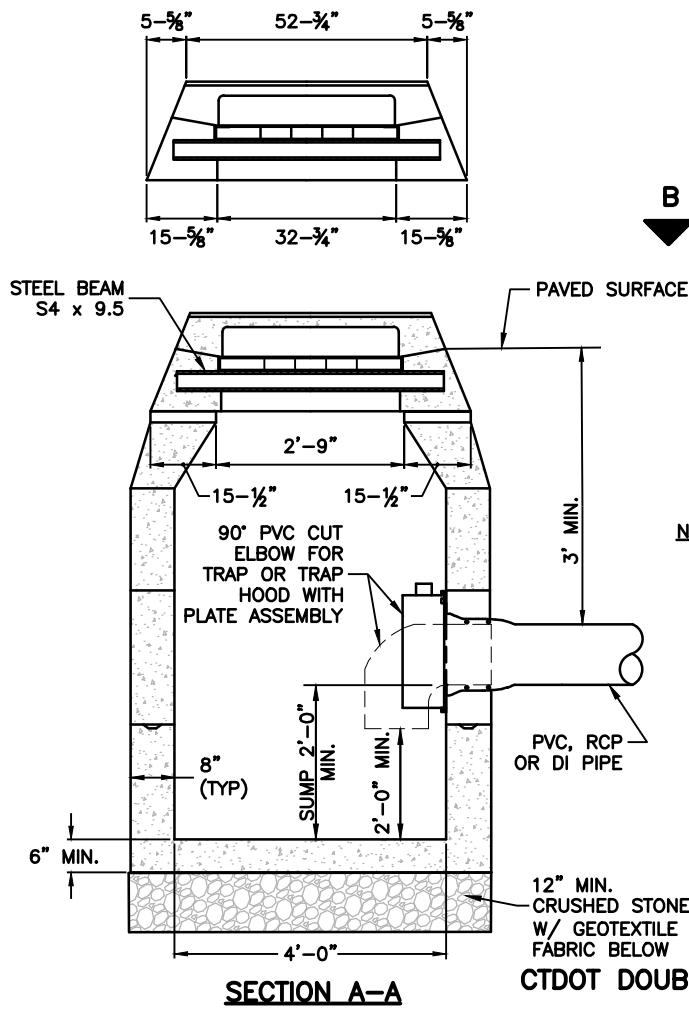
DETAIL

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# THE METROPOLITAN DISTRICT

## STORM DRAIN STANDARD DETAILS



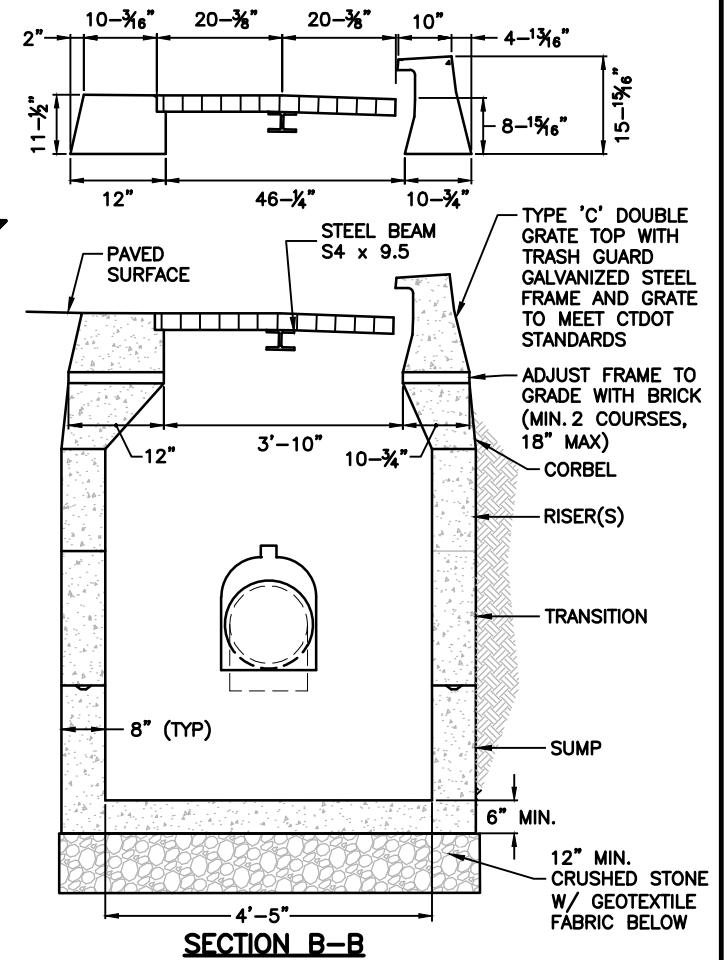
## CTDOT DOUBLE GRATE PRECAST CONCRETE CATCH BASIN (TYPE I) WITH TRASH GUARD

## DETAIL

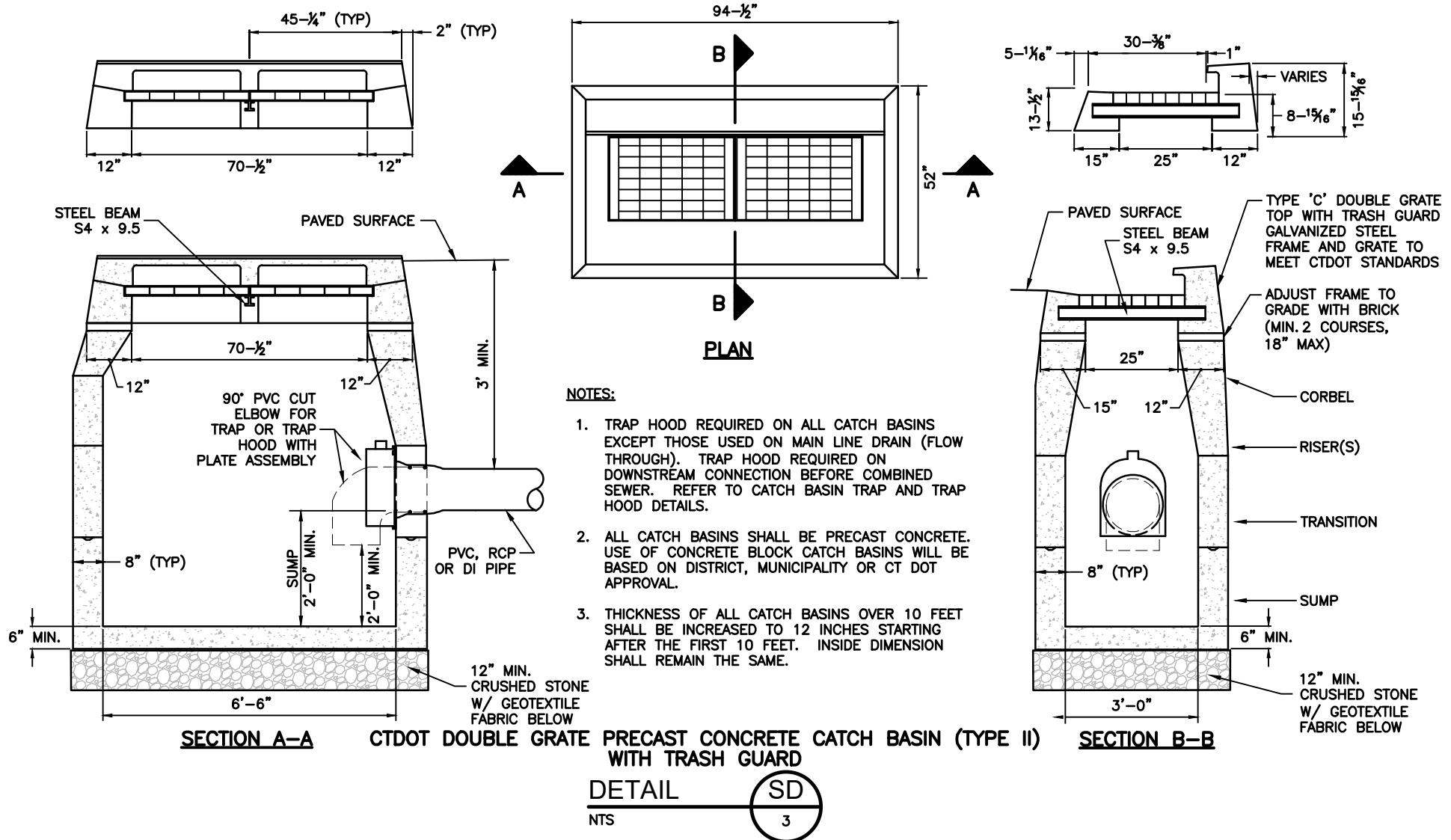
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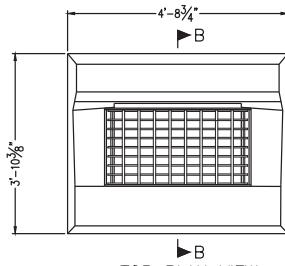
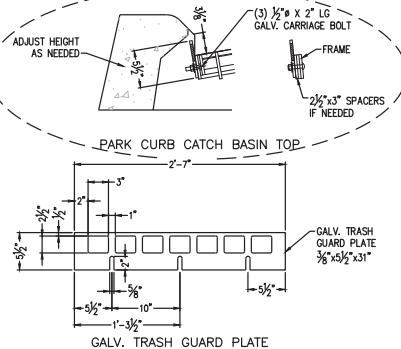


THE METROPOLITAN DISTRICT  
STORM DRAIN STANDARD DETAILS

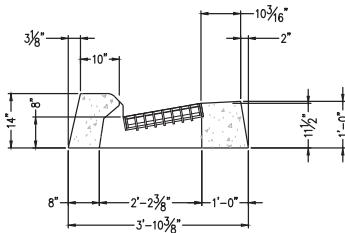


# THE METROPOLITAN DISTRICT

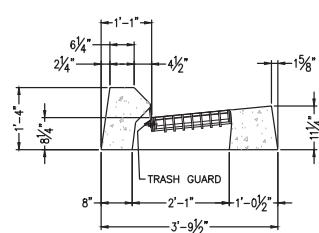
## STORM DRAIN STANDARD DETAILS



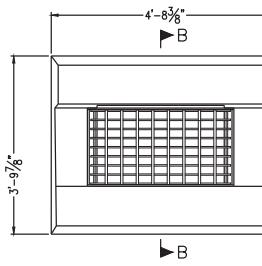
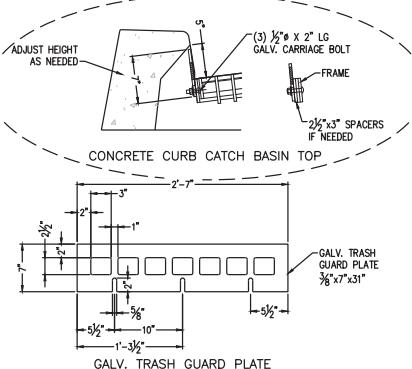
TOP PLAN VIEW



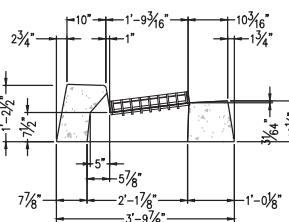
## SECTION B-B



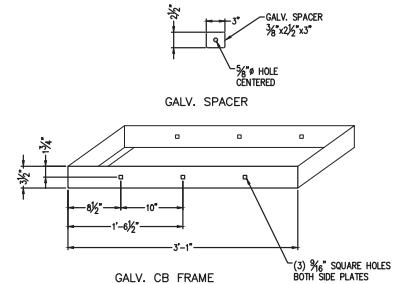
TYPE "C" BITUMINOUS CURB  
CATCH BASIN TOP



TOP PLAN VIEW



TYPE "C" CONCRETE CURB  
CATCH BASIN TOP



GALV. CB FRAM

## DESIGN NOTES

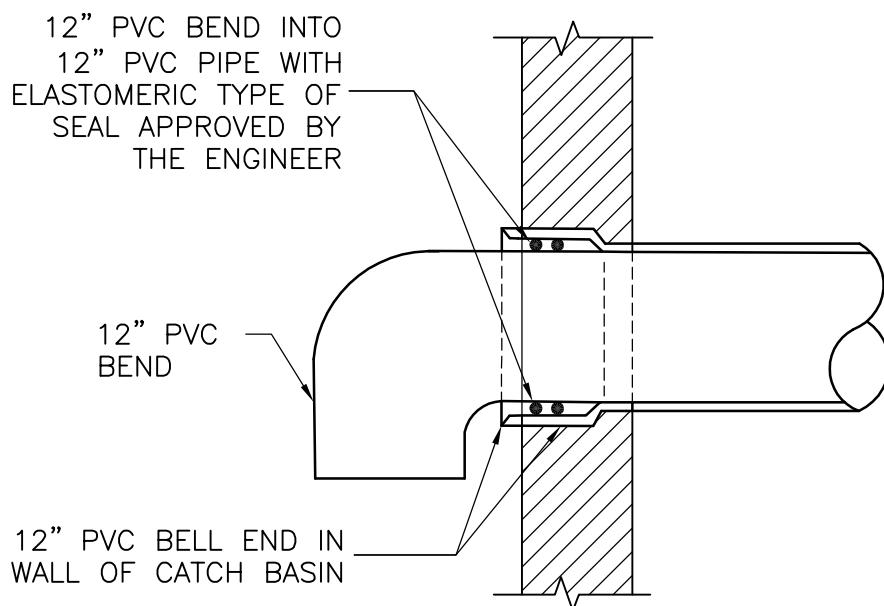
1. REINFORCING STEEL DEFORMED BARS CONFORM TO LATEST ASTM SPECIFICATION A706, GRADE 60, MIN. COVER 2" UNLESS NOTED. (ADD'L BARS ADDED FOR HANDLING NOT SHOWN).
  2. CONCRETE COMPRESSIVE STRENGTH - 4,000 PSI AT 28 DAYS SELF COMPACTING CONCRETE MIX.
  3. METHOD OF MANUFACTURE: WET CAST
  4. SECTION IS MONOLITHIC.
  5. GALVANIZED FRAME & GRATE, CONFORMS TO CTDOT STANDARD SHEET HW-586 08 & SHEET HW-507 08

## MDC CATCH BASIN TOP WITH TRASH GUARD

## DETAIL NTS



THE METROPOLITAN DISTRICT  
STORM DRAIN STANDARD DETAILS



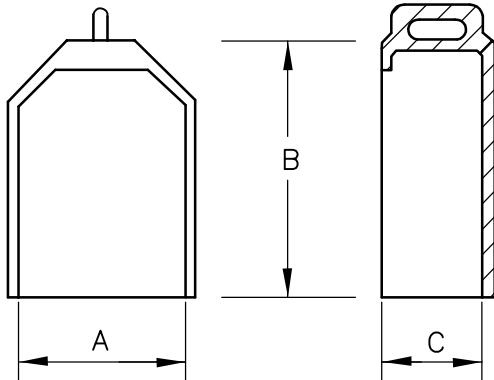
ELBOW TRAP FOR CATCH BASIN

DETAIL  
NTS

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5

# THE METROPOLITAN DISTRICT

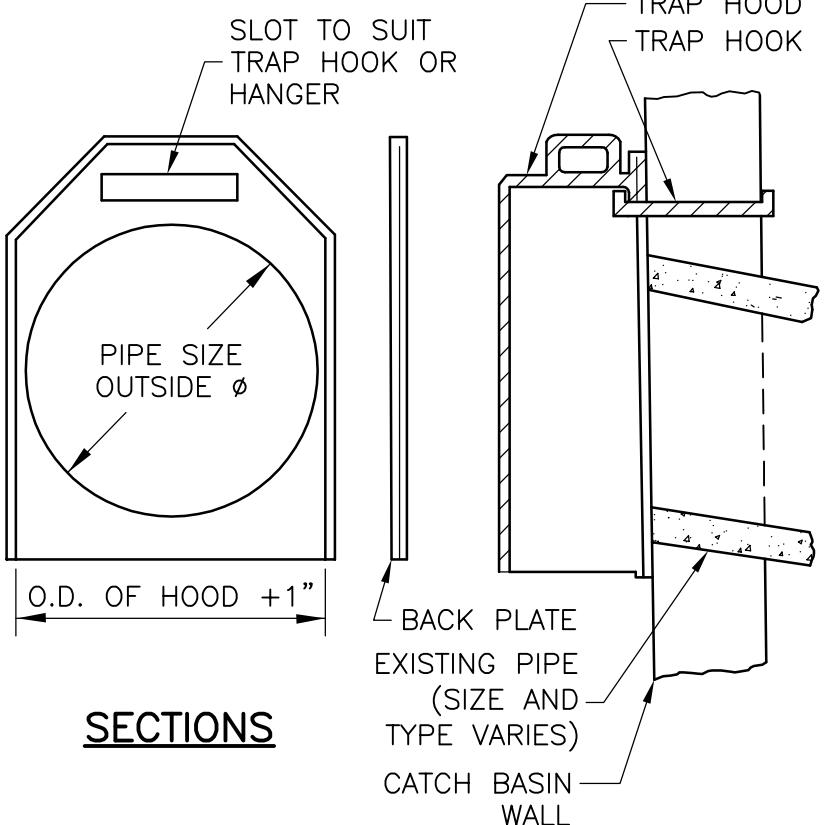
STORM DRAIN STANDARD DETAILS



## TRAP HOOD MINIMUM DIMENSIONS

PIPE SIZE	A	B	C
10	12	20	6-1/2
12	15-3/4	22	7-1/2
15	18	25	9
18	20	27	10

\* ALL VALUES IN INCHES



## SECTIONS

### NOTES:

1. TRAP HOODS SHALL BE CAST IRON FOR 10", 12", 15" AND 18" PIPE SIZES AND FABRICATED ALUMINUM FOR PIPES 21" AND GREATER.
2. ALL TRAP HOODS SHALL INCLUDE STAINLESS STEEL HOOKS OR HANGERS FOR MOUNTING TO THE CATCH BASIN WALL. BACK PLATES SHALL BE FURNISHED ONLY WHEN REQUESTED.
3. TRAP HOODS SHALL BE FROM CAMPBELL FOUNDRY, NEENAH FOUNDRY, EAST JORDAN IRON WORKS OR APPROVED EQUAL. DIMENSIONS AND MODEL NUMBERS VARY BASED ON DISCHARGE PIPE SIZE AND MANUFACTURER.
4. SEE MANUFACTURER FOR INSTALLATION INSTRUCTIONS.

## CATCH BASIN TRAP HOODS

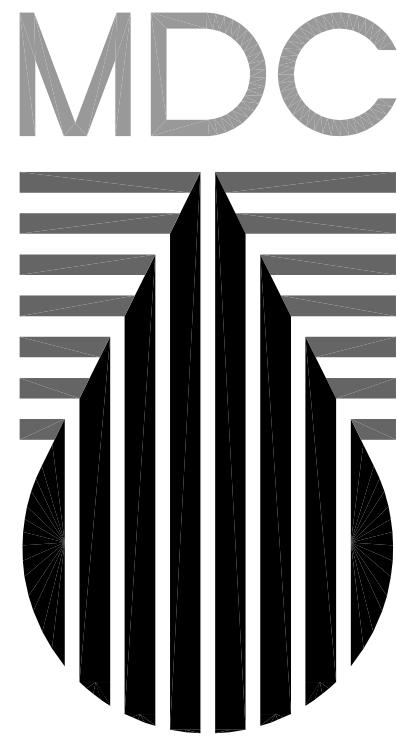
DETAIL

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# **REHABILITATION STANDARD DETAILS**

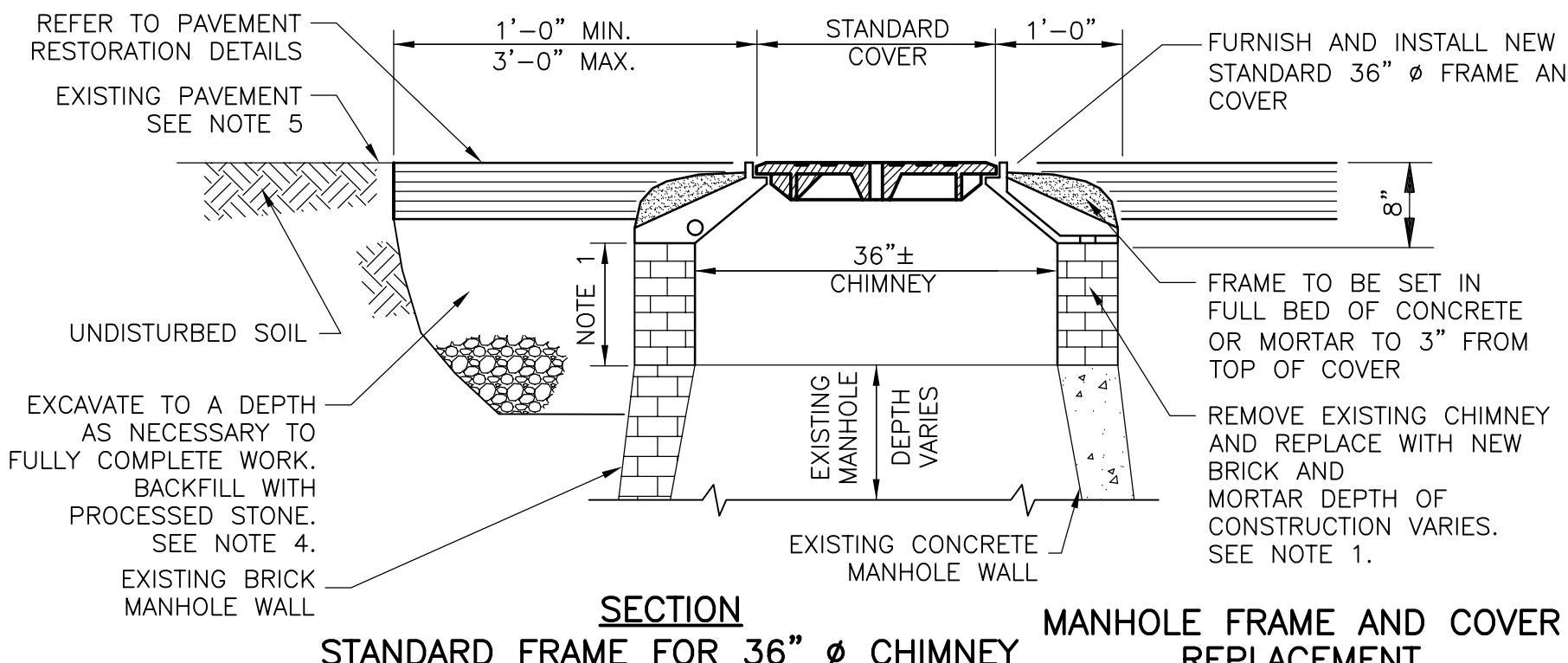
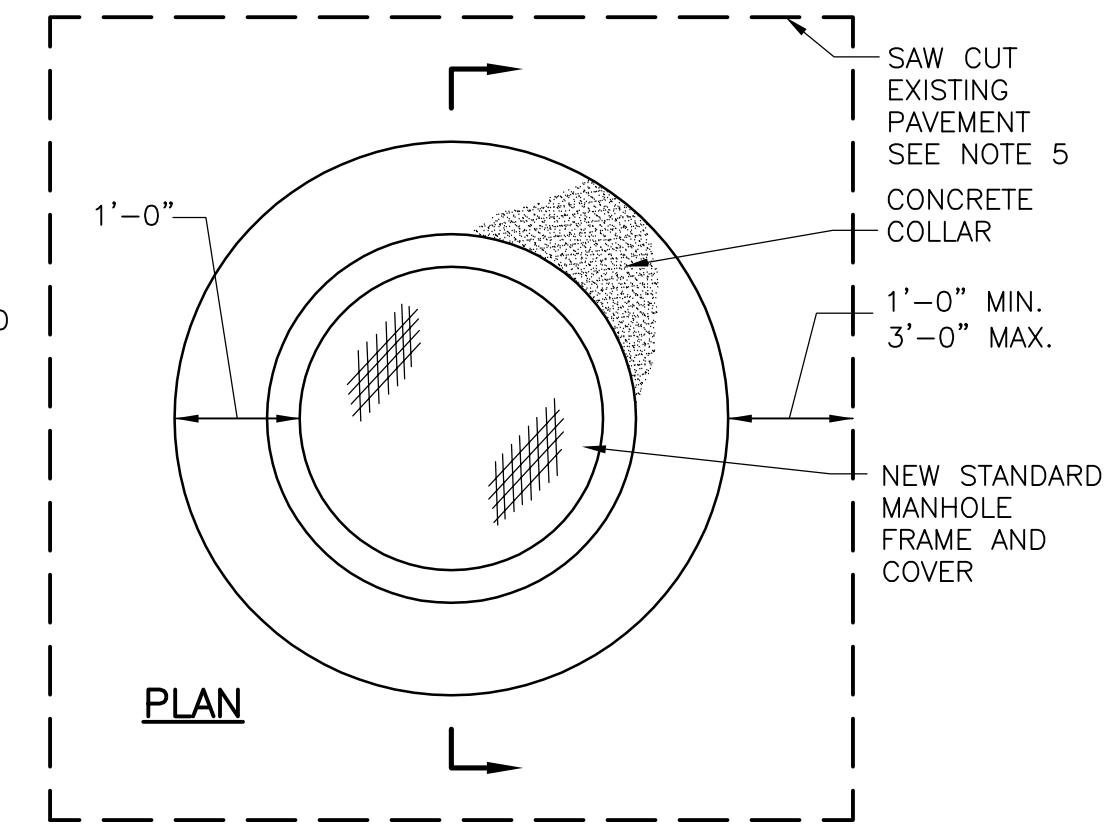
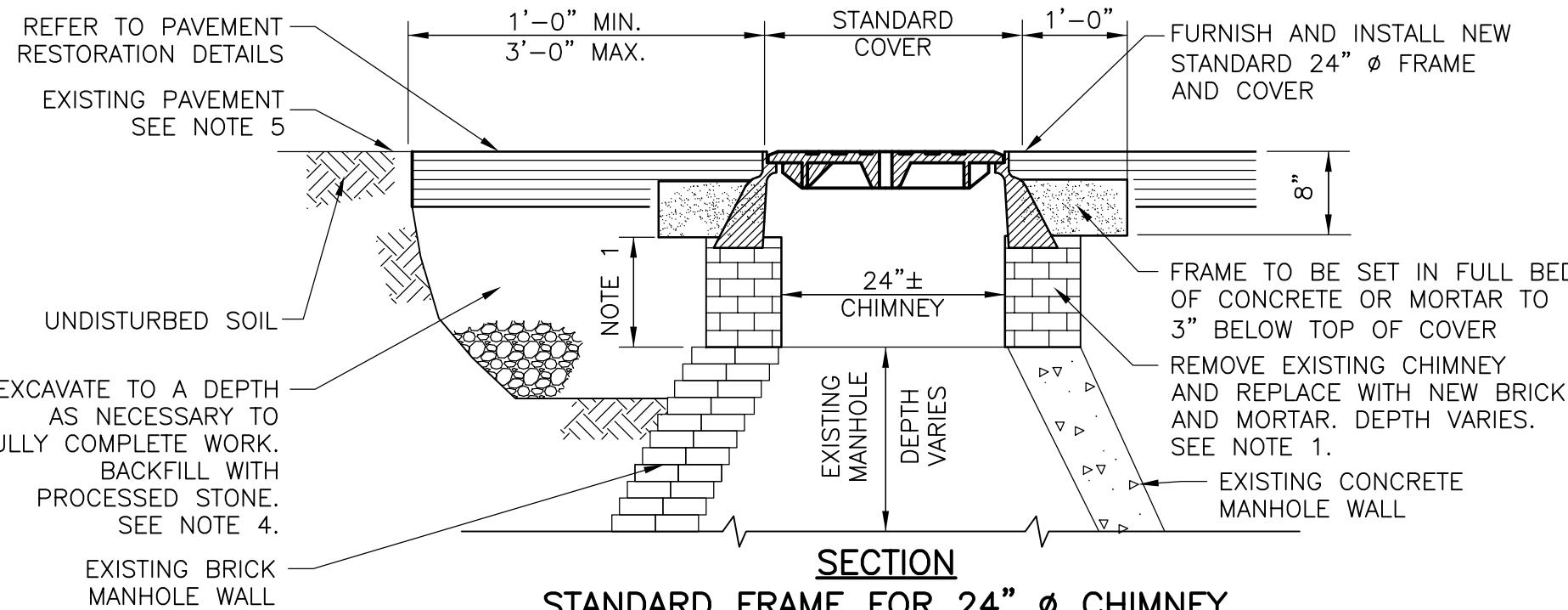


**THE METROPOLITAN DISTRICT**



## THE METROPOLITAN DISTRICT

REHABILITATION STANDARD DETAILS

MANHOLE FRAME AND COVER REPLACEMENTDETAIL

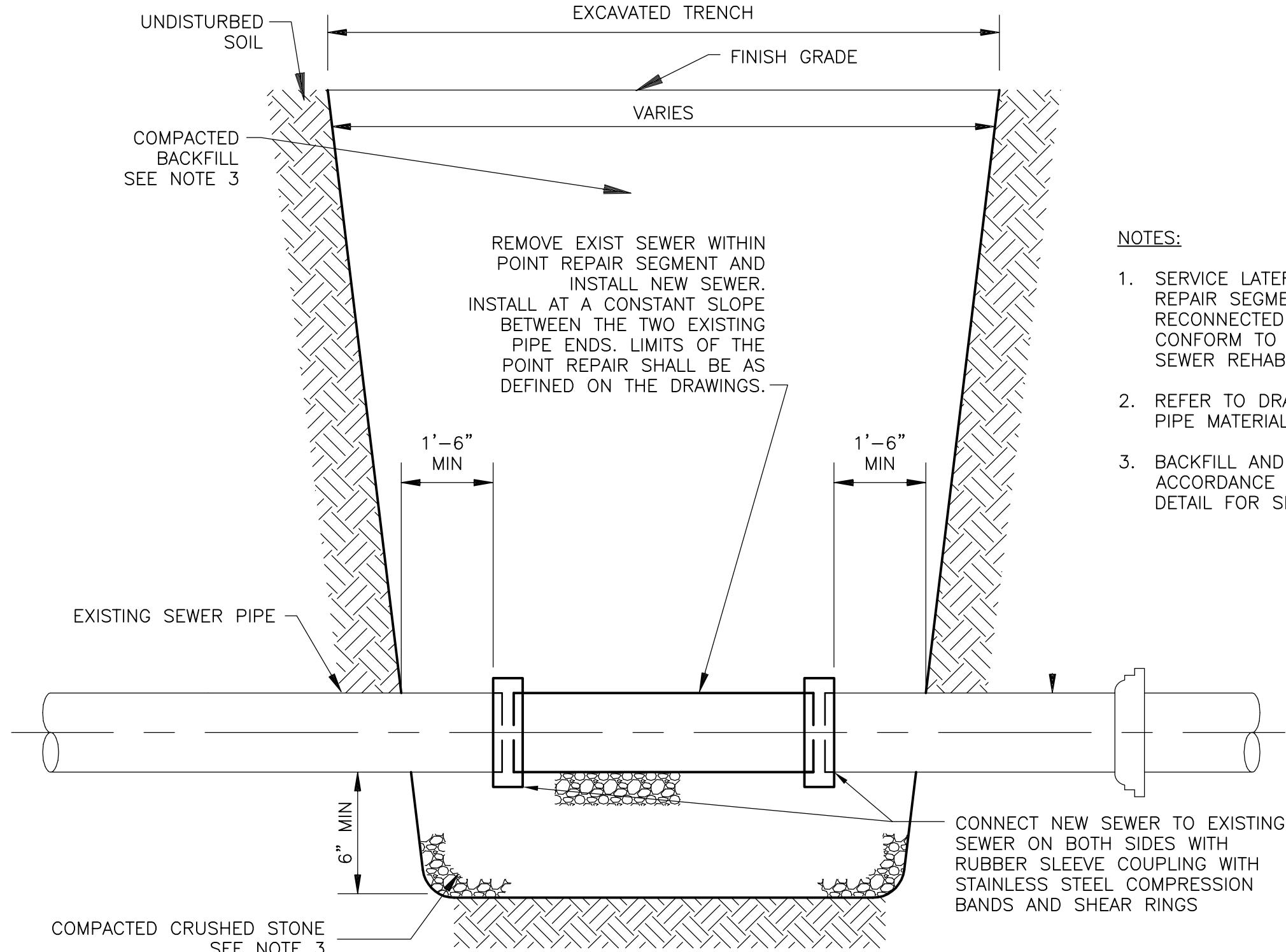
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- NOTES:
1. CONTRACTOR SHALL REMOVE EXISTING FRAME, COVER, AND CHIMNEY AND REBUILD CHIMNEY PRIOR TO PLACING NEW FRAME AND COVER. ADJUST NEW FRAME AND COVER TO GRADE WITH SEWER BRICK (MIN. 2 COURSES, 18" MAX).
  2. CONTRACTOR SHALL CONFIRM MANHOLE COVER DIMENSIONS IN THE FIELD PRIOR TO ORDERING NEW FRAME AND COVER. CLEAN AND INSPECT FOR LOOSE OR MISSING BRICKS, LOOSE MORTAR, HOLES, ETC. THESE DEFICIENCIES SHALL BE CORRECTED BEFORE ANY WORK IS CONDUCTED. THE CONTRACTOR SHALL PLACE COVERS OVER THE INVERT DURING CONSTRUCTION TO PREVENT EXTRANEous MATERIAL FROM ENTERING THE SEWER SYSTEM.
  3. PREPARE EXISTING SURFACE PRIOR TO INSTALLING NEW MASONRY OR MORTAR, INCLUDING REMOVING EXISTING MORTAR AND LOOSE MATERIAL, TO FORM A SMOOTH, LEVEL SURFACE.
  4. RESTORE SURFACE TO MATCH EXISTING GRADE. THIS DETAIL ILLUSTRATES RESTORATION OF PAVED SURFACES. FOR UNPAVED OR CROSS COUNTRY AREAS, BACKFILL WITH COMPAKTED COMMON FILL, THEN APPLY LOAM AND SEED OR SOD.
  5. PAVEMENT SHALL BE SAWCUT NEATLY IN A SQUARE OR CIRCLE AROUND MANHOLES TO RESET OR RAISE FRAMES AND COVERS. CIRCULAR CUTS MAY BE UTILIZED WHERE APPROVED BY DISTRICT OR ENGINEER.

# THE METROPOLITAN DISTRICT

## REHABILITATION STANDARD DETAILS



SEWER POINT REPAIR  
DETAIL

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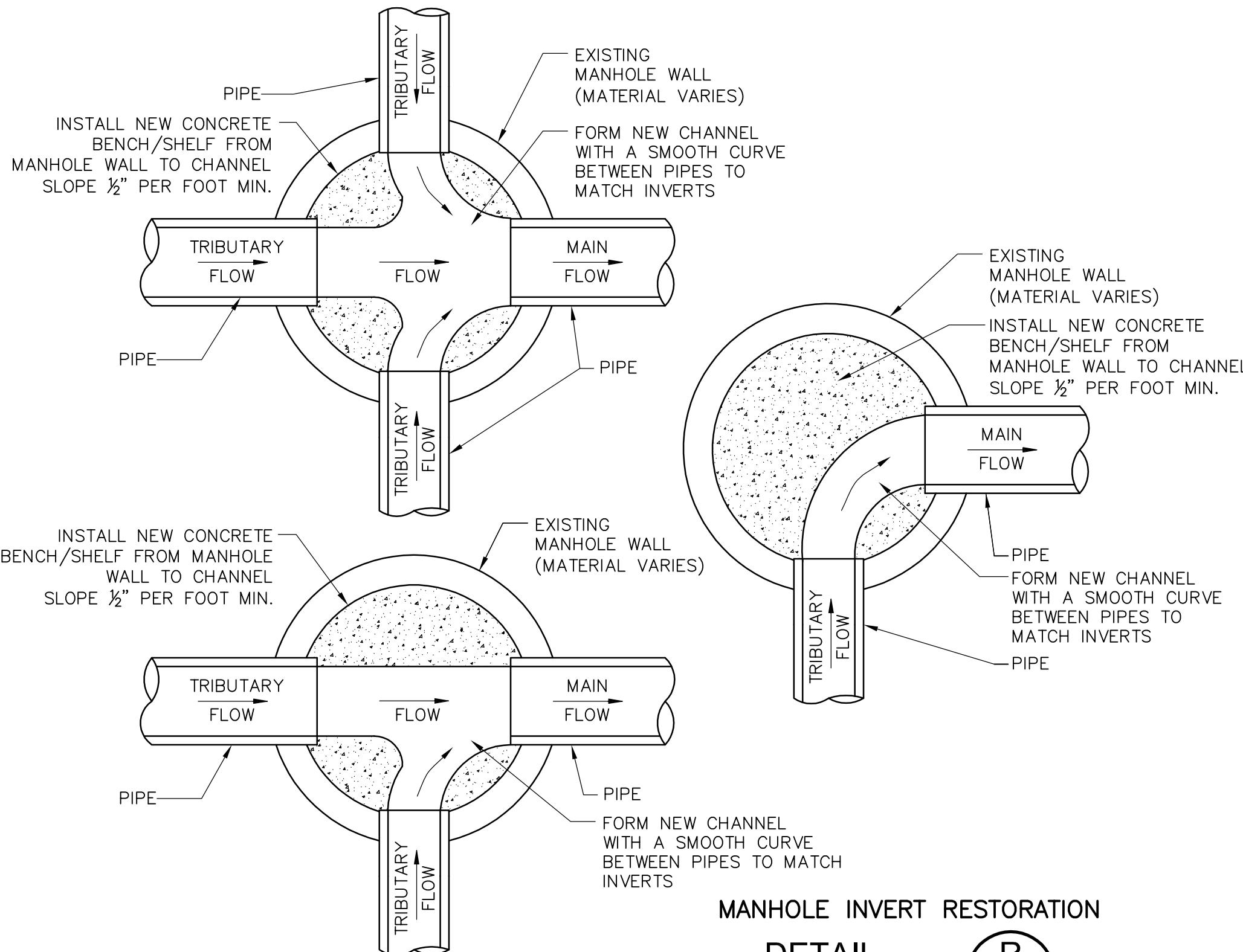
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NOTES:

1. SERVICE LATERALS LOCATED WITHIN POINT REPAIR SEGMENTS SHALL BE RECONNECTED AS REQUIRED TO CONFORM TO CHOSEN SERVICE AND MAIN SEWER REHABILITATION METHOD.
2. REFER TO DRAWINGS FOR NEW SEWER PIPE MATERIAL.
3. BACKFILL AND COMPACTION SHALL BE IN ACCORDANCE WITH TYPICAL TRENCH DETAIL FOR SEWER MAINS.

# THE METROPOLITAN DISTRICT

## REHABILITATION STANDARD DETAILS

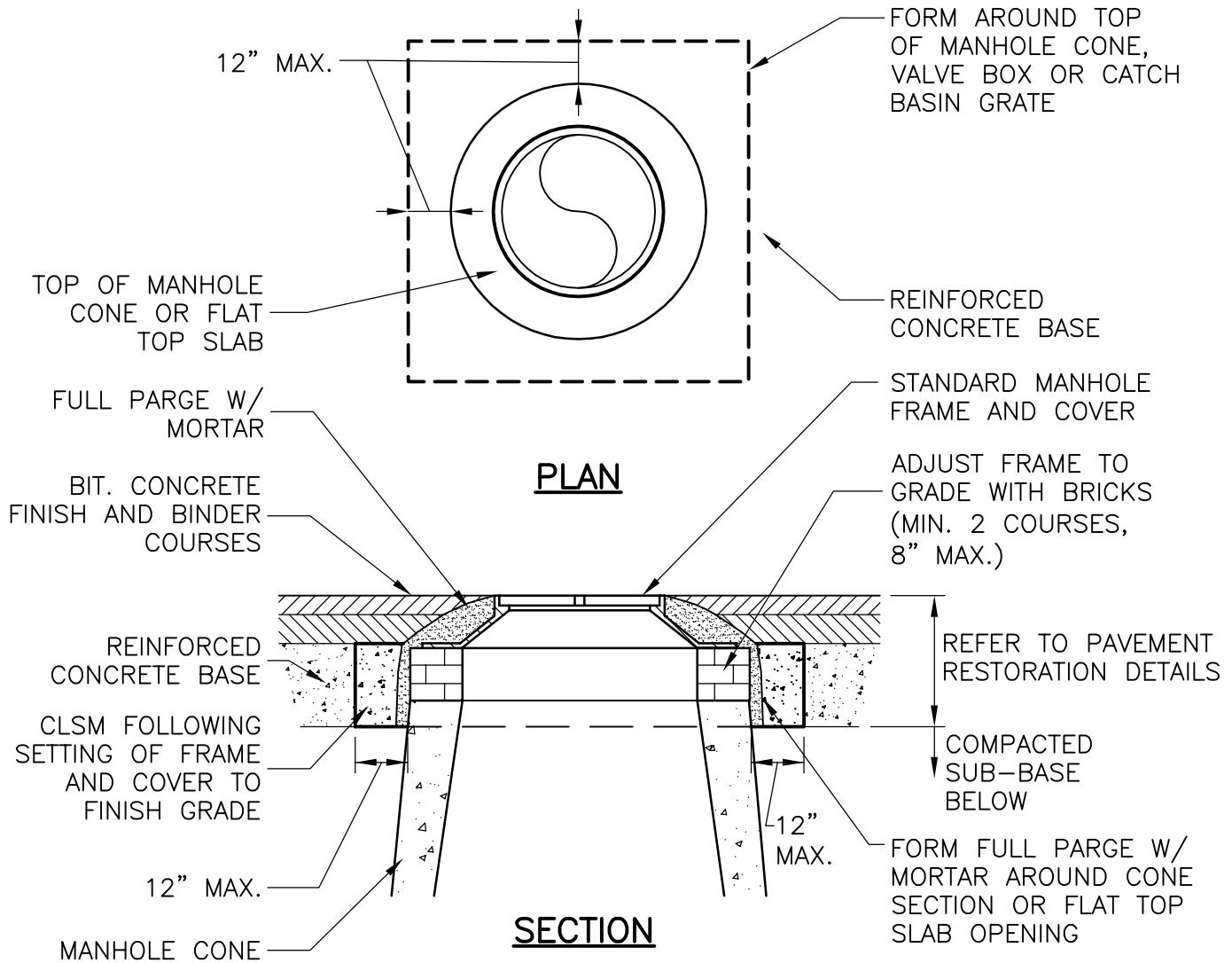


NOTES:

1. THE CONTRACTOR SHALL REPAIR OR REBUILD INVERT CHANNELS IN EXISTING SEWER MANHOLES WHERE NO DEFINED INVERT CHANNELS OR MANHOLE SHELF CURRENTLY EXIST, AS DIRECTED BY THE ENGINEER.
2. THE NEW INVERT CHANNEL SHALL CONFORM AS CLOSELY AS POSSIBLE TO THE SHAPE OF THE CONNECTING SEWERS AND SHALL FORM A SMOOTH TRANSITION BETWEEN THE INLET TRIBUTARY AND THE MAIN OUTLET PIPE.
3. THE INVERT OF THE PIPE SHALL BE EQUAL TO THE INVERT OF THE NEW CHANNEL AT THE CONNECTING SEWERS.
4. THE NEW CHANNEL WALLS SHALL BE FORMED OR SHAPED TO THE FULL HEIGHT OR CROWN OF THE MAIN OUTLET PIPE IN SUCH A MANNER TO NOT OBSTRUCT MAINTENANCE, INSPECTION OR FLOW IN THE SEWERS AND TO PREVENT SOLIDS DEPOSITION.
5. CURVED FLOW CHANNELS MAY REQUIRE INCREASED CHANNEL SLOPE TO MAINTAIN ACCEPTABLE FLOW VELOCITY.
6. MAXIMUM DIFFERENCE IN ELEVATION BETWEEN THE INVERT OF THE TRIBUTARY INLET AND THE MANHOLE INVERT SHALL BE 18 INCHES. ELEVATION DIFFERENCES GREATER THAN 18 INCHES WILL REQUIRE A DROP CONNECTION.
7. NO TRIBUTARY INLET, INCLUDING SERVICE CONNECTIONS OR MANHOLE DROP CONNECTIONS, SHALL DISCHARGE DIRECTLY TO THE SURFACE OF THE NEW MANHOLE BENCH OR SHELF.
8. NEW BENCH, SHELF AND CHANNELS SHALL BE FORMED USING CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI OR SEWER BRICK.
9. NEW CONCRETE SURFACES SHALL BE TROWELED TO A SMOOTH FINISH.

# THE METROPOLITAN DISTRICT

REHABILITATION STANDARD DETAILS



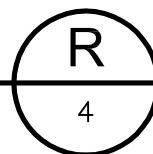
NOTE:

1. PAVEMENT SHALL BE SAWCUT NEATLY IN A SQUARE AROUND MANHOLES TO RESET OR RAISE FRAMES AND COVERS.

## MANHOLE FRAME AND COVER REPLACEMENT IN REINFORCED CONCRETE BASE

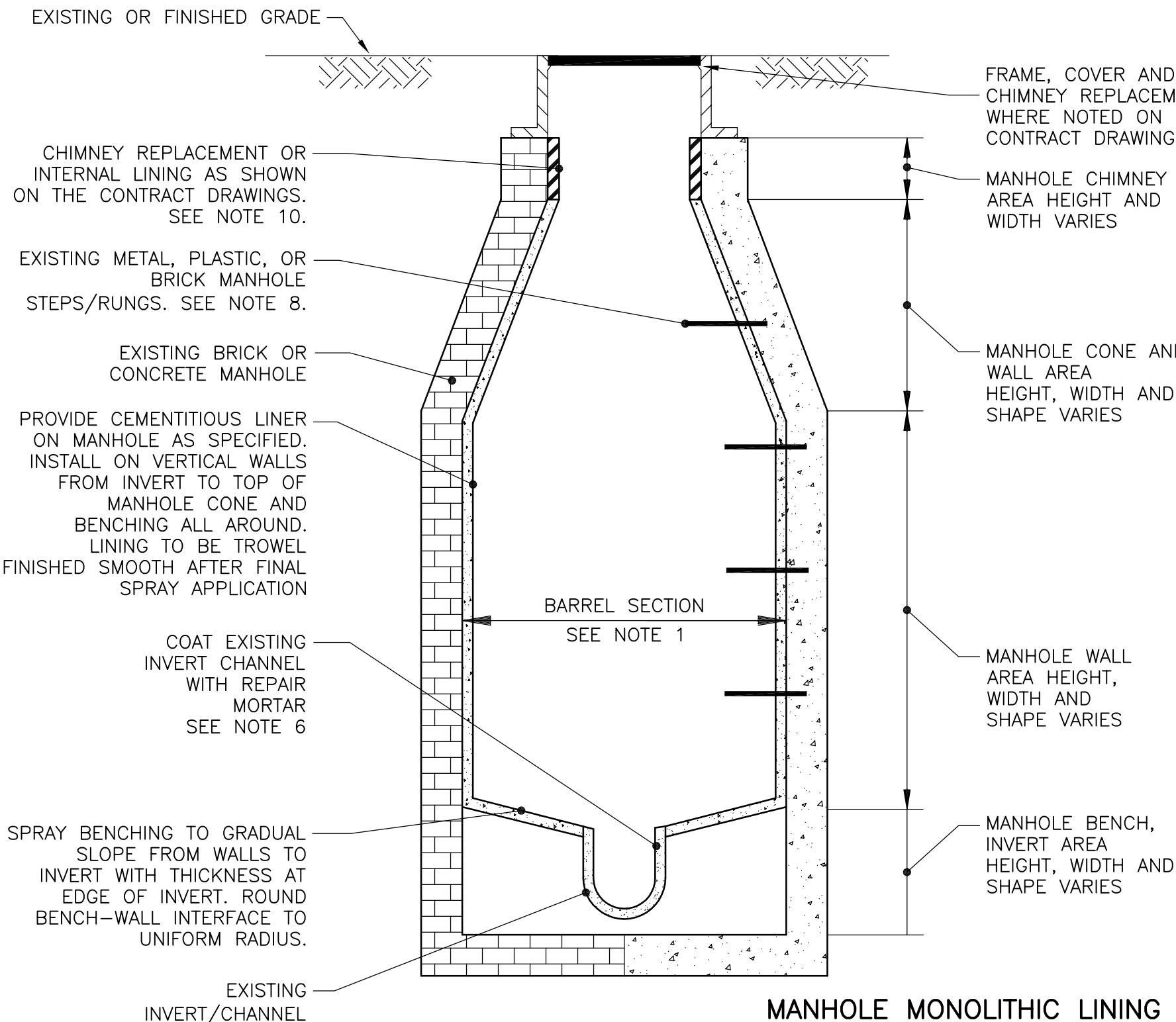
**DETAIL**

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# THE METROPOLITAN DISTRICT

## REHABILITATION STANDARD DETAILS



MANHOLE MONOLITHIC LINING

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NOTES:

1. MANHOLES ARE APPROXIMATELY 4' IN DIAMETER AT BARREL SECTION UNLESS NOTED OTHERWISE. INSIDE DIAMETERS OF FRAMES TYPICALLY RANGE FROM 24" TO 36". CORBEL, WALL, FLOOR AND INVERT MATERIALS ARE LISTED ON CONTRACT DRAWINGS, AND ARE BASED ON COMPLETED MANHOLE INSPECTIONS. CONTRACTOR SHALL FIELD MEASURE FOR ACTUAL DIMENSIONS AND VERIFY MANHOLE MATERIALS.
2. MANHOLE SHAPES WILL VARY FROM MANHOLE TO MANHOLE. CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL SHAPES.
3. CONTRACTOR SHALL PROPERLY PREPARE SURFACE PRIOR TO LINING IN STRICT ACCORDANCE WITH THE LINING MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR IS RESPONSIBLE FOR STOPPING ALL ACTIVE LEAKS PRIOR TO THE INSTALLATION OF THE MANHOLE OR CHIMNEY LINING SYSTEMS.
4. SLOPE BENCHING TO INVERT CHANNEL. PROVIDE CHANNEL IN BENCHING FOR SEWERS ENTERING MANHOLES ABOVE BENCHING.
5. FOR END MANHOLES OF SEWER LINE SEGMENTS WITH NO DEFINED INVERT CHANNELS, CREATE A DEFINED CHANNEL AS SHOWN IN "END MANHOLE" DETAIL.
6. REPAIR MORTAR SHALL BE USED TO COAT INVERT CHANNELS. THERE SHALL BE A CONSTANT SLOPE BETWEEN INLET AND OUTLET SEWERS. FINISHED INVERT SURFACES SHALL BE SMOOTH AND FREE OF EDGES.
7. MONOLITHIC LINER SHALL NOT BE INSTALLED UNTIL ALL SEWER MAIN, SERVICE LATERAL AND OTHER MANHOLE REHABILITATION WORK IS COMPLETED, UNLESS APPROVED BY THE ENGINEER.
8. REMOVE ALL EXISTING MANHOLE STEPS/RUNGS PRIOR TO LINING – DO NOT REPLACE. PATCH VOIDS WITH REPAIR MORTAR AS RECOMMENDED BY CEMENTITIOUS LINING MANUFACTURER.
9. CONTRACTOR SHALL PROVIDE BYPASS PUMPING AS REQUIRED WHILE REHABILITATING MANHOLES.
10. PERFORM FRAME, COVER AND CHIMNEY REPLACEMENT ON DESIGNATED MANHOLES AS SHOWN ON THE CONTRACT DRAWINGS PRIOR TO MANHOLE MONOLITHIC LINING WORK. PERFORM INTERNAL CHIMNEY LINING, AS SPECIFIED, ON DESIGNATED MANHOLES AS SHOWN ON THE DRAWINGS AFTER MANHOLE MONOLITHIC LINING WORK IS COMPLETED.