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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**

**DETAIL S**

NTS 1
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.
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 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 FEET BELOW FINISHED GRADE.
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. MAINTAIN MIN. 18" HORIZONTAL SEPARATION BETWEEN FORCE MAIN AND EXISTING PARALLEL UTILITIES (OUTSIDE WALL TO OUTSIDE WALL).
PIPE TRENCH DAM

NEW SEWER

EXCAVATED TRENCH
REFER TO TYPICAL SEWER TRENCH DETAIL

UNDISTURBED MATERIAL

2" MIN. KEY WAY

IMPERVIOUS DAM AS SPECIFIED: CLAY DAM FOR PVC PIPE; CONCRETE DAM FOR DI AND RC PIPE

NEW SEWER

UNDISTURBED MATERIAL
NOTE:

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

SEWER SERVICE AND WATER SERVICE IN COMMON TRENCH

DETAIL

NTS S

12" MIN. 12" MIN.

LAY WATER SERVICE ON UNDISTURBED SOIL OR PLACE 6" MIN. SAND FOR COPPER WATER SERVICES IN ROCK

SANITARY SEWER SERVICE

LAY SEWER SERVICE ON CRUSHED STONE BEDDING 6" MIN IN EARTH 12" MIN. IN ROCK
1. REFER TO SEWER TRENCH DETAIL FOR BACKFILLING AND RESTORATION REQUIREMENTS.

FILL AND COMPACT AT LEAST 3’ ABOVE TOP OF PROPOSED PIPE BEFORE EXCAVATING TRENCH FOR FOUNDATION AND PIPE

GROUND SURFACE

HAUNCHING AS REQ’D BY DEPTH OR TRENCH CONDITIONS

6” MIN. CRUSHED STONE GEOTEXTILE FABRIC W/ 12” MIN. OVERLAP CRUSHED STONE FOR EXCAVATION BELOW NORMAL GRADE

MIN. 3” OR AS DIRECTED

HEIGHT VARIES MIN. 6” REINFORCING STEEL AS ORDERED

CONSTRUCTION MIN. 5 DAYS PRIOR TO LAYING OF NEW PIPE

MIN. 8” LARGER THAN OUTSIDE DIA. PIPE

FOUNDATION SECTIONS IN LOWLANDS

DETAIL S

NTS 7
NOTE:

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

PVC OR DI WYE BRANCH DETAIL  

File: S-8 PVC or DI Wye Branch.dwg  
Latest Revision: JANUARY 2017
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 IMPROPER 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

NTS

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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.
THE METROPOLITAN DISTRICT
SEWER STANDARD DETAILS

SECTION A-A

SEE CAPTIVE SEAL UNIT DETAIL

6" C900 PVC OR DI SERVICE PIPE TO UNDISTURBED SOIL

RIGID COUPLING

2-1/2" x 2-1/2" x 3/4"
BOLT-UP BRACKETS WITH BOLTS AND NUTS

SEE CAPTIVE SEAL UNIT DETAIL

EXISTING SEWER SERVICE

CHIMNEY BASE

RUBBER SEAL GASKET

6" TEE STUB

SECTION B-B

12" 24" OR 48" RISER

12" 24" OR 48" RISER

6" PVC RISER

O-RING GASKET

RUBBER SEAL GASKET

SEWER MAIN (6"-24")

SEWER MAIN (6"-24")

PVC CLEANOUT PLUG WITH RETAINED GASKET

TOP PVC FITTING

6" C900 PVC OR DI GASKET

CAPTIVE SEAL UNIT

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

SEWER SERVICE PRECAST CONCRETE CHIMNEY

DETAIL

NTS

S

12

PAGE 12
NOTES:

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

FILE S-13 Sewer Service Chimney Connection.dwg PAGE 13

Latest Revision: JANUARY 2017
**INSTALLATION PROCEDURE:**

1. **CORE THE PROPER SIZED HOLE.**


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.**


7. **PLACE THE STAINLESS STEEL BAND AROUND THE TOP OF THE RUBBER SLEEVE AND TIGHTEN DOWN. INSTALL PIPE IN NORMAL MANNER.**

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**TEE INSERT CONNECTIONS**

**DETAIL**

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<td>15-⅜&quot;</td>
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FILE: S-14 Tee Insert Connections.dwg

LATEST REVISION: JANUARY 2017

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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.
THE METROPOLITAN DISTRICT
SEWER STANDARD DETAILS

PLAN

18" MIN. CRUSHED STONE

SEWER OR DRAIN PIPE

STEEL BANDS TO HOLD WYE SADDLE SECURELY

PVC WYE SADDLE

PVC OR DI PIPE CONNECTION

60° MAX.

SECTION

SAND PLACED IN 12" LAYERS

CRUSHED STONE TO TOP OF PIPE

SEWER OR DRAIN PIPE

GEOTEXTILE FABRIC WRAPPED AROUND CRUSHED STONE BEDDING W/ 12" MIN. OVERLAP IN ALL DIRECTIONS

ANGLE VARIES (MAXIMUM 35°)

PVC OR DI PIPE CONNECTION

PVC WYE SADDLE

UNDISTURBED OR SUITABLE COMPACTED MATERIAL

WYE SADDLE CONNECTION TO EXISTING PIPE

DETAIL S

NTS 16
BACKFILL

PROCESSED STONE

FLOW

24"

PVC PLUG IN GRASS AREA OR BRASS SCREW PLUG WITH RECESSED HEX IN PAVED AREA

GRADE

8" x 24" x 24" CONCRETE PAD

PROCESSED STONE TRENCH WALL TO TRENCH WALL ONE FOOT MINIMUM AROUND PIPE

TWO 4" x 6" RUBBER O-RINGS TO ALLOW FOR FROST MOVEMENT OF CONCRETE PAD

45° BEND

FLOW

UNDISTURBED SOIL

CLEANOUT AT GRADE

DETAIL

NTS

S

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PAGE 17
THE METROPOLITAN DISTRICT
SEWER STANDARD DETAILS

STANDARD FRAME AND COVER

ADJUST FRAME TO GRADE WITH BRICK (MIN. 2 COURSES, 18" MAX.)

ECCENTRIC PRECAST REINFORCED MH CONE. TOP SLAB MAY BE USED IN PLACE OF CONE SECTION WITH ENGINEER'S APPROVAL.

REINFORCED CONCRETE MANHOLE SECTIONS

PREFORMED FLEXIBLE JOINT SEALANT OR O-RING RUBBER GASKET

NOTES:
1. MAXIMUM PIPE SIZE TO BE INSTALLED IN 48" MANHOLE BASE SHALL BE 18".
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".

SECTION C-C

CONNECTION OF PIPES TO MANHOLE WALL TO BE MADE WITH ELASTOMERIC TYPE OF SEAL APPROVED BY THE ENGINEER.

SECTION A-A

SEE PIPE CONNECTION DETAILS
EXTEND STONE TO THE TOP OF THE MH BASE

SECTION B-B

12" CRUSHED STONE FOUNDATION GEOTEXTILE FABRIC BELOW UNDISTURBED EARTH OR COMPACTED SUBBASE

PRECAST MH BASE
FLOW
BRICK OR CONCRETE SHELF

SECTION II PRECAST CONCRETE MANHOLE

DETAIL

S

18
THE METROPOLITAN DISTRICT
SEWER STANDARD DETAILS

SECTION A-A
12" CRUSHED STONE FOUNDATION
- GEOTEXTILE FABRIC BELOW
- UNDISTURBED EARTH OR COMPACTED SUBBASE
THICKNESS OF BOTTOM SLAB SHALL NOT BE LESS THAN THE MANHOLE BARREL SECTION WALL OR TOP OF SLAB, WHICHER IS GREATER. ADDITIONAL THICKNESS MAY BE PROVIDED FOR FLOTAION PROTECTION.

SECTION B-B
C900 PVC OR DI SEWER PIPE EXTEND TO UNDISTURBED SOIL SEE PIPE TRENCH DETAIL
8" 10" OR 12" MAX PVC VERTICAL DROP PIPE AND 90° SHORT RADIUS BEND

SECTION C-C
NOTE:
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 S
NTS 19
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 ¼" MORTAR. ADJUST FRAME TO GRADE WITH BRICK (MIN. 2 COURSES, 18" MAX.).

TYPE V SHALLOW MANHOLE WITH OR WITHOUT EMBANKMENT

DETAIL

NTS

File: S-20 Type V Shallow Manhole With or Without Embankment.dwg

PAGE 20
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".

SECTION C–C

CONNECTION OF PIPES TO MANHOLE WALL TO BE MADE WITH AN ELASTOMERIC TYPE OF SEAL APPROVED BY THE ENGINEER.
NOTE:

1. CONNECTION OF SEWER SERVICE LATERAL TO MANHOLE SHALL BE MADE WITH AN ELASTOMERIC TYPE OF SEAL.
THE METROPOLITAN DISTRICT
SEWER STANDARD DETAILS

PRECAST "DOGHOUSE" MANHOLE BASE
CAST-IN-PLACE CONCRETE OR SEWER BRICK TO SPRINGLINE OF PIPE MIN. SLOPE 1/2" PER FOOT

NOTE 1

8" NOTE 1

3' CONE
1',2',3',4' RISER

1',2',3',4',5' WALLS
4'-0"

SECTION
PRECAST DOGHOUSE MANHOLE (48-INCH Ø EXTENDED BASE)

DETAIL

NOTES:
1. FOR ALL OTHER REQUIREMENTS, SEE PRECAST SEWER MANHOLE DETAILS.
2. DOGHOUSE MANHOLE SLOT SIZE BASED ON EXISTING PIPE SIZE. CONTRACTOR SHALL CONFIRM PIPE SIZE, ANGLES AND CONFIGURATION PRIOR TO CONSTRUCTION.
3. EXISTING PIPE TO REMAIN IN SERVICE. CONSTRUCT NEW INVERT AND TRANSFER FLOW AS REQUIRED.

FILL ANNULAR SPACE AROUND PIPE WITH NON-SHRINK GROUT
CAST-IN-PLACE CONCRETE OR SEWER BRICK TO SPRINGLINE OF PIPE MIN. SLOPE 1/2" PER FOOT
OPENING FOR NEW SEWER PIPE

12"
12" MIN. CRUSHED STONE
GEOTEXTILE FABRIC BELOW
UNDISTURBED EARTH
DOGHOUSE MANHOLE SLOT SEE NOTE 2
NOTES:

1. FOR ALL OTHER REQUIREMENTS, SEE PRECAST SEWER MANHOLE DETAILS.

2. DOGHOUSE MANHOLE SLOT SIZE BASED ON EXISTING PIPE SIZE. CONTRACTOR SHALL CONFIRM PIPE SIZE, ANGLES AND CONFIGURATION PRIOR TO CONSTRUCTION.

3. EXISTING PIPE TO REMAIN IN SERVICE. CONSTRUCT NEW INVERT AND TRANSFER FLOW AS REQUIRED.

4. CAST-IN-PLACE DOGHOUSE MANHOLE BASE SHALL BE INSTALLED ONLY WHEN AUTHORIZED BY ENGINEER.
THE METROPOLITAN DISTRICT
SEWER STANDARD DETAILS

FOUR 1” Ø BONDING HOLES

30” Ø BOLT CIRCLE

ONE (1) PICKHOLE CUP

45-½ SQ. (48” Ø)

EIGHT 1-½” Ø BONDING HOLES

42” Ø CIRCLE

STANDARD FRAME FOR EXISTING MANHOLES

STANDARD FRAME FOR NEW MANHOLES

SECTION A–A

SECTION B–B

STANDARD MANHOLE FRAMES

DETAIL

S

NTS

26
NOTES:

1. MANHOLE 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 3/8” ALL AROUND.

STANDARD MANHOLE COVERS

DETAIL S

NTS 27
SECTION A–A

STANDARD 32–INCH WATERTIGHT MANHOLE FRAME AND COVER

DETAIL

NTS S 28
SECTION A–A

STANDARD 26-INCH WATERTIGHT MANHOLE FRAME AND COVER

DETAIL

S

29
FULL BRICKS WITH MORTARED JOINTS AROUND EDGE LAID FLAT

FULL PARGE MORTAR OVER BRICKS AND PRECAST ON OUTSIDE ONLY

STAGGER FOR EACH ADDITIONAL BRICK LAYER (RUNNING BOND)

BRICK LEVELING COURSE FOR NEW MANHOLES

DETAIL S

NTS 30
EXTENSION RING FOR SEWER MANHOLES (1-1/2 INCH)

SECTION A-A

DETAIL

NTS

S

31
SECTION A–A

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

DETAIL S

NTS 32
PLASTIC STEP FOR BRICK OR MASONRY MANHOLE

SECTION A

COPOLYMER
POLYPROPYLENE
PLASTIC

1/2" GRADE 60 STEEL REINFORCEMENT

BRICK OR MASONRY

DETAIL

S

35
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

S 36
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 S

NTS 37
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

38
3/8" φ
TYPE 316 S.S
MASONRY ANCHOR
(TYPICAL FOR 2)

TWO 1"x1/8"
TYPE 316 S.S.
STRAPS 9"± ABOVE
AND TO EACH SIDE
OF ø OF PIPE

EXISTING OUTLET
MANHOLE

PVC SCHEDULE 40 TEE

REMOVABLE PLUG

6" OR 8" PVC
90° BEND
STRAPPED & BRICKED

INVERT

2' MIN.

6" MIN.

FORCE MAIN

CORE 4" HOLE INTO
EXISTING MANHOLE.
PROVIDE WATER STOP
GASKET WITH (SS) CLAMP.

FILL EXCAVATED SPACE
OUTSIDE MANHOLE
UNDER PIPE WITH
FLOWABLE FILL FOR A
WIDTH OF 8" EACH SIDE
OF ø OF PIPE

FORCE MAIN OUTLET CONNECTION AT MANHOLE

DETAIL S

NTS 39
CONNECTION TO SEWER FROM SEWAGE EJECTOR PUMP

DETAIL

NTS 40
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

41
NOTES:

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

S

NTS 42
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
NOTES:

1. CONTROL JOINTS AND PIPE JOINTS FOR ARCHES, AND ENCASEMNT 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

S

44
REINFORCED CONCRETE PIPE COLLAR

DETAIL

MIN. 3,000 PSI CONCRETE

UNDISTURBED SOIL

GEOTEXTILE FABRIC

12” MIN. CRUSHED STONE

NEW PIPE

EXISTING PIPE

#4 (TYP)

TWO #6 (TYP)

#6 (TYP)

12” (TYP)

18” MAX

12” MIN.

12” MIN.

#6 @ 12” VERTICAL

PIPE

#4 @ 12” (TYP)

#6 @ 12” HORIZONTAL

WOOD OR STEEL FORM
(TO BE REMOVED)

INSIDE DIAMETER

12” MIN.
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 SEAL OF THE TANK SHALL BE FILLED 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 SEAL 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.
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 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 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

NTS

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SECTION A–A

STANDARD FRAME AND COVER

PROPOSED GRADE

RISER MANHOLE SECTIONS AS REQUIRED TO BE SECURE TO TOP OF STRUCTURE WITH A WATERTIGHT JOINT

SECTION B–B

GRIT COLLECTOR

DETAIL

FILE: S-48 Grit Collector.dwg

PAGE 48

Latest Revision: JANUARY 2017
NOTE:
1. FIGURE IS GENERAL ONLY, FIELD CONDITIONS WILL VARY.

ALL HYDRANTS SHALL BE STAKED. A MIN. OF TWO OFFSET STAKES PER HYD. MARKED WITH F/G OR "BURY LINE" ELEVATION TYP.

CENTERLINE STAKEOUT SHALL BE PROVIDED AS WELL AS AN OFFSET LINE PERPENDICULAR TO ALL WATER APPURTENANCES (PIPE, BEND OR FIXTURE) LABELED WITH OFFSET DISTANCE, FIXTURE DESCRIPTION AND STATION MARKINGS AS WELL AS FINISH GRADE (FG). (TYP)

"PK" NAILS IN PAVED AREAS

EXIST. 12" MAIN

NEW MAIN

8 x 8 x 8 TEE

8 x 6 HYD TEE

0 + 50

8" GV

45° BEND

45° BEND

12 x 8 TAPPING SLEEVE & 8" TAPPING GATE STA. 0 + 00

STANDARD WATER LAYOUT DETAIL

NTS W 2
NOTE:

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

NTS

W

4
THE METROPOLITAN DISTRICT
WATER STANDARD DETAILS

SERVICE CURB BOX & ROD

MIN. 4'-6"

CURB STOP

1"/1½"/2" SERVICE PIPE *
(DISTRICT MAINTAINS)

STREET LINE

1'-0"

BUILDING FOUNDATION

MIN. 4'-6"

CORPORATION (BY DISTRICT)
WATER MAIN

SERVICE PIPE CONNECTION
(PROPERTY OWNER MAINTAINS)

* 1¾" PIPE IS NOT PERMITTED

TYPE K COPPER WATER SERVICE

DETAIL

NTS

W

5

File: W-5 Type K Copper Water Service.dwg
Latest Revision: JANUARY 2017
PAGE 53
NOTES:

1. MAINTAIN 18" MINIMUM CLEARANCE WITH SANITARY SEWER.

2. INSULATION OF COPPER WATER SERVICE REQUIRED WITH LESS THAN 4'-6" COVER.

COPPER WATER SERVICE OFFSET

DETAIL  W

NTS  6
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.
TAPPING GATE VALVE
TEST PLUG ON TAPPING SLEEVE TO BE ON TOP

7'-0" MIN. TO MECH. JOINT
TAPPING MACHINE TO BE MOUNTED AND OPERATED BY THE DISTRICT

DEPTH VARIES

1"-0" MIN.

POURED CONCRETE THRUST BLOCK INSTALLED AFTER TAP IS MADE

PROTECT NUTS AND BOLTS FROM CONCRETE WITH 6 MIL POLY COVER OR EQUAL

1"-0" MIN.

1"-0" MIN. TO 1'-6"
MAX. CLEARANCE ALL AROUND VALVE FLANGE
WOOD BLOCKING (MUST REMAIN)
EXISTING WATER MAIN
UNDISTURBED SOIL

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

W
8

File: W-8 Trench Requirements for 4-inch to 12-inch Tap on Water Main.dwg

PAGE 56

Latest Revision: JANUARY 2017
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
NOTES:

1. 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

FILE: W-10 Services 4-inch Through 8-inch.dwg

PAGE 58
STANDARD SERVICE CURB BOX

DETAIL

W

11
STANDARD GATE VALVE 12-INCH AND SMALLER

DETAIL

D.I. WATER MAIN
MECH. JOINT ENDS WITH RETAINER GLANDS

GATE VALVE DIRECTION TO OPEN AS DIRECTED BY DISTRICT

APPROVED GATE BOX BOTTOM SECTION

IF THE OPERATING NUT ON VALVE IS 4'-6" OR MORE BELOW GRADE, PROVIDE GATE NUT EXTENSION STEM FOR GATE BOX

REQUIRED 2-NOTCH OPENINGS

COVER

2'-0"-MIN.

APPROVED GATE BOX TOP SECTION

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

STANDARD GATE BOX ASSEMBLY (DWYER TYPE)
SECTION A–A

CAST IRON GATE BOX TOP SECTION (Dwyer Type)

DETAIL

NTS

14

File: W-14 Cast Iron Gate Box Top Section
(Dwyer Type).dwg

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Latest Revision: JANUARY 2017
NOTE:

1. FOR USE ON 8" AND SMALLER GATE VALVES AND ALL BUTTERFLY VALVES.
NOTE:
1. FOR USE ON 10" AND LARGER GATE VALVES.

SECTION A-A
CAST IRON GATE BOX BOTTOM SECTION 10-INCH (DWYER TYPE)
THE METROPOLITAN DISTRICT
WATER STANDARD DETAILS

TOP VIEW

SECTION A-A

SIDE VIEW

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

BOTTOM VIEW

CAST IRON GATE BOX COVER (DWYER TYPE)

DETAIL W

File: W-17 Standard Gate Box Cover (Dwyer Type).dwg
Latest Revision: JANUARY 2017
THE METROPOLITAN DISTRICT
WATER STANDARD DETAILS

TOP VIEW

SECTION A-A

BOTTOM VIEW

SIDE VIEW

NOTE:
1. APPROXIMATE WEIGHT 20 LBS.

CAST IRON GATE BOX EXTENSION COVER 6-INCH (Dwyer Type)
EXTENSION RING HEIGHTS
\( \frac{1}{2}'' \), 1'', 1\( \frac{1}{2}'' \) & 2''

NOTES:
1. A MAXIMUM OF THREE EXTENSION RINGS CAN BE USED PER GATE BOX.
2. ALL DIMENSION AREA TO BE \( \pm \frac{1}{4}'' \) UNLESS INDICATED OTHERWISE.
3. NOT TO BE USED FOR NEW WATER MAIN INSTALLATIONS.

GATE BOX EXTENSION (6-INCH DIAMETER)

\( \frac{1}{6}'' \) (R) (MAXIMUM)

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

\( \frac{3}{4}'' \)

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

\( 6\frac{1}{2}'' \)

\( 6\frac{3}{4}'' \)

\( 7\frac{3}{4}'' \)

\( 8\frac{3}{8}'' \)

\( 8\frac{7}{8}'' \)

\( 6\frac{3}{4}'' \)

\( 6\frac{7}{8}'' \)

\( 1\frac{1}{4}'' \)

\( 2\frac{1}{4}'' \)

\( 3\frac{1}{8}'' \)

\( 5\frac{3}{4}'' \)

\( 6\frac{1}{4}'' \)

\( 2'' \)

\( 5\frac{7}{8}'' \)

\( 6\frac{1}{2}'' \)

\( 1\frac{1}{2}'' \)

\( 1\frac{3}{8}'' \)

\( 3\frac{1}{8}'' \)

\( 6\frac{1}{4}'' \)

\( 6\frac{1}{2}'' \)

\( 1\frac{3}{8}'' \)

\( 3\frac{1}{8}'' \)

\( 6\frac{1}{4}'' \)

THIS CRITICAL DIAMETER ON FINISHED CASTINGS SHALL NOT BE OVER 6\( -\frac{1}{3}'' \)
**SECTION A–A**

<table>
<thead>
<tr>
<th>DIMENSION &quot;A&quot;</th>
<th>APPROXIMATE WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/8&quot;</td>
<td>1.50 LBS</td>
</tr>
<tr>
<td>1&quot;</td>
<td>2.75 LBS</td>
</tr>
<tr>
<td>1 1/2&quot;</td>
<td>3.75 LBS</td>
</tr>
<tr>
<td>2&quot;</td>
<td>6.00 LBS</td>
</tr>
</tbody>
</table>

**NOTE:**

1. ALL DIMENSIONS ARE TO BE $\pm \frac{1}{8}$" UNLESS INDICATED OTHERWISE.

**GATE BOX EXTENSION SPACER RINGS**

**DETAIL**

File: W-20 Gate Box Extension Spacer Rings.dwg

PAGE 68
NOTES:
1. THIS EXTENSION STEM IS NOT COMMERCIAL AVAILABLE. IT MUST BE SPECIALLY FABRICATED WITH STAINLESS STEEL.
2. FOR USE WHEN GATE VALVE OPERATING NUT DEPTH IS 4'-6" OR GREATER.

TACK WELD FOUR CORNERS (TYP.)

4" Ø STEEL WASHER

2" SQUARE OR ROUND STRUCTURAL STEEL TUBING WITH ¼" THICK WALL

WELD AS REQUIRED

2-½" SQUARE STAINLESS STEEL TUBING WITH ⅛" THICK WALL

TWO ⅛" CAP SCREWS COUNTERSINK VALVE OPERATING NUT ⅛" TO ACCEPT SCREWS

GATE NUT EXTENSION STEM FOR GATE BOX

DETAIL

W

21

NTS
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.
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.
DETAIL

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

J O I N T  M E T H O D  N O T E S:
① MECHANICAL JOINT RETAINER GLANDS
② PUSH-ON JOINT RETRAINT USING MECHANICAL JOINT RETAINER GLANDS

DUCTILE IRON WATER PIPE
TEE BOLTS/NUTS
M.J. FITTING
M.J. RETAINER GLAND
SET SCREWS (TYP.)

RESTRANT RING
NUT
WASHER
¾" CONNECTING TIE ROD
SEE NOTE 1

STANDARD RESTRAINED JOINTS

W
24

NTS

THE METROPOLITAN DISTRICT
WATER STANDARD DETAILS
SPECIAL SHOULDER EYE BOLT IN SLOTTED HOLE

LACING RODS

REGULAR EYE-BOLT

LACING RODS

REGULAR EYE-BOLT

4" JOINTS

6" & 8" JOINTS

10" & 12" JOINTS

¾" LACING RODS *

EYE BOLT

MECHANICAL JOINT GATE OR FITTING

PIPE SIZE

4", 6" & 8"

10" & 12"

LACING RODS

2 – ¾" ø

4 – ¾" ø

* 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. ¾” 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 W

NTS 25
NOTES:

1. PREFERRED METHOD IS TO USE BELL RESTRAINTS THE APPROPRIATE DISTANCE FROM OFFSET OR BEND.

2. CONCRETE ANCHORS ARE TYPICALLY USED ON CONNECTIONS TO EXISTING WATER MAINS ONLY.

RESTRAINED OFFSET WITH CONCRETE ANCHOR

DETAIL

NTS 26
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
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.
THE METROPOLITAN DISTRICT
WATER STANDARD DETAILS

SECTION A–A

ONE (1) PICKHOLE CUP

EIGHT 1–½" Ø BONDING HOLES
42" Ø CIRCLE

1–½" Ø HANDLING HOLES

SECTION B–B

45–½" SQ. (48" Ø)

24–½" Ø

21–¾" Ø

36" Ø

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

W

nts

29

PAGE 77
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.

4. ALL PRE-PLUMBED STRUCTURES SHALL BE APPROVED BY ENGINEER AND OWNER.

PRECAST METER PIT FOR 1½-INCH TO 2-INCH SERVICE

DETAIL

W

30
ALUMINUM HATCH FOR PRECAST PITS

ADJUST HATCH TO GRADE WITH SEWER BRICK (MIN. 2 COURSES, 18" MAX.)

6" TYP.

UNDISTURBED SOIL

6"
SEE NOTE 3
6" Ø
HOLE(S)

SECTION A–A

SECTION B–B

PRECAST RISER
PIPE

MASTIC
PRECAST BASE

12" MIN.
CRUSHED STONE BEDDING
GEOTEXTILE FABRIC

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.

4’ x 4’ PRECAST METER PIT FOR 1½–INCH TO 2–INCH SERVICE

DETAIL

W
31
THE METROPOLITAN DISTRICT
WATER STANDARD DETAILS

ADJUST HATCH TO GRADE WITH SEWER BRICK (MIN. 2 COURSES, 18" MAX.)

PLASTIC STEPS

SEE NOTE 3

UNDISTURBED SOIL

GEOTEXTILE FABRIC

12" MIN. CRUSHED STONE

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 

W 32
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
NTS
33

PLASTIC STEPS
SEE NOTE 3
12” MIN. CRUSHED STONE BEDDING
GEOTEXTILE FABRIC
UNDISTURBED SOIL

SECTION B–B

SECTION A–A

6” WALLS

15–½”

2′–7”
10′–0”

5′–0”

2′–0” 3′–0”

6′–0”

6”

6′

4”

1′–7”

1′–7”
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 35
NOTES:
1. METER SPACER SIZE FOR \( \frac{5}{6}'' \times \frac{3}{4}'' \) 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.

FINISHED GRADE

STREET LINE

SERVICE CURB BOX (DISTRICT)

STAINLESS STEEL ROD

CURB STOP BALL VALVE NOT STOP AND WASTE TYPE

METER TO BE INSTALLED BY DISTRICT

ANGLE OR CHECK VALVE

TEMPORARY SPACER SEE NOTE 1

ANGLE VALVE

\( \frac{3}{4}'' \) OR 1'' TYPE "K"

FROM MAIN

\( 1'' \) METER REQ. 1'' TUBING

MIN. 3' - 6''

9' - \( \frac{9}{2}'' \)

\( 2' - 6'' \) MIN.

3' - 4'' MAX.

1' - 0''

11' - \( \frac{1}{2}'' \)

\( \frac{3}{4}'' \) PVC BAR FOR EXTRA SUPPORT

20'' OR 21'' I.D. PVC PIPE CUT TO SIZE

METER PIT AND INTERIOR PIPING, GATE VALVE TO BE INSTALLED IN BUILDING FOR EMERGENCY USE.

COPPER TUBING

ALTERNATE PIPING ROUTE

(DISTRICT MAINTAINS)

(PROPERTY OWNER MAINTAINS)

METER BOX FOR 1'' SERVICE AND \( \frac{5}{8}'' \times \frac{3}{4}'' \) TO 1'' METER

DETAIL

NTS

W

36
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 W

NTS 37
NOTES:

1. SPACER FURNISHED BY THE DISTRICT. SPACER FOR 1½" 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 1½-INCH AND 2-INCH METERS WITHIN PIT
NOTES:

1. SPACER FURNISHED BY THE OWNER. SPACER SIZE FOR 3" METER SHALL BE 18". SPACER FOR 4" METER SHALL BE 20".

2. GATE VALVES SHALL HAVE NON-RISING STEMS.

3. BYPASS IS ONLY ALLOWED UNDER CERTAIN CIRCUMSTANCES. CONTACT OWNER TO DETERMINE IF A BYPASS IS NECESSARY. BYPASS SHOULD BE SAME SIZE AS METER.

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

DETAIL

NTS
39
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

W

40
## NOTES:

1. CANNOT BE USED AS FUTURE SERVICE.

2. CORPORATION COCKS FOR AIR VALVES TO BE RATED 250 PSI MINIMUM.

### Table: Standard Air Valve

<table>
<thead>
<tr>
<th>Main Size</th>
<th>Min. Size Air Valve</th>
<th>Corporation Cock</th>
<th>Angle Valve Size</th>
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</thead>
<tbody>
<tr>
<td>6”-12”</td>
<td>¾”</td>
<td>¾” x 1”</td>
<td>1”</td>
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<tr>
<td>16” &amp; 20”</td>
<td>1”</td>
<td>1” x 1”</td>
<td>1”</td>
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<tr>
<td>24” &amp; 30”</td>
<td>1-¼”</td>
<td>1-¼” x 1-½”</td>
<td>1-½”</td>
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<tr>
<td>36” &amp; 42”</td>
<td>1-½”</td>
<td>1-½” x 2”</td>
<td>2”</td>
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<tr>
<td>48” &amp; 54”</td>
<td>2”</td>
<td>2” x 2”</td>
<td>2”</td>
</tr>
</tbody>
</table>
NOTE:

1. TO BE USED AT END OF MAIN ONLY WHEN THERE IS NO PROBABILITY OF FUTURE MAIN EXTENSION.

2. CUT AND REMOVE \( \frac{3}{4} \)" OR \( \frac{3}{8} \)" SECTION OF GASKET SO WATER WILL DRAIN FROM STANDPIPE

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

FILE: W-42 4-Inch Blow-off Assembly (End of Main) revised 2-7-18.dwg
FINISHED GRADE OR ROAD SURFACE

APPROVED GATE BOX

4" OR 6" GATE VALVE (M.J.) IN GATE BOX OPEN PER OWNER/TOWN STANDARD

DI TEE (SEE NOTE 2)

RETAINING GLANDS ON ALL M.J. FITTINGS

15' MIN.

6"

END OF PIPE

APPROVED GATE BOX TOP SECTION

CUT PIECE OF 4" OR 6" D.I. PIPE

SEE NOTE 1

CRUSHED STONE DRAIN POCKET WITH 6 MIL POLY COVER

4" OR 6"

90° BEND (M.J.)

CUT 4" OR 6" D.I. PIPE LENGTH AS REQUIRED

NOTES:

1. CUT AND REMOVE ½" OR ¾" 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 W

NTS 43
FINISHED GRADE OR ROAD SURFACE

APPROVED GATE BOX TOP SECTION

CUT PIECE OF 4” OR 6” D.I. PIPE SEE NOTE 2

APPROPRIATELY SIZED REDUCER (M.J.)

GATE VALVE (M.J.) IN GATE BOX OPEN PER DISTRICT/TOWN STANDARD

RETAINER GLANDS ON ALL M.J. FITTINGS

THRUSt

15’ MIN.

6”

END OF PIPE

CRUSHED STONE DRAIN POCKET WITH 6 MIL POLY COVER

MIN. LENGTH OF CUT PIPE

18”

4”–90° BEND (M.J.)

D.I. PIPE (10’ MIN. LENGTH)

PIPE RESTRAINT SYSTEM

NOTES:

1. THIS BLOW-OFF SHALL BE USED IF THE MAIN MAY BE EXTENDED IN THE FUTURE.

2. CUT AND REMOVE ½” OR ¾” SECTION OF GASKET SO WATER WILL DRAIN FROM STANDPIPE.

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

DETAIl W

NTS

44
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 ½" OR ¾" SECTION OF GASKET SO WATER WILL DRAIN FROM STANDPIPE.

8-INCH OR 10-INCH BLOW-OFF ASSEMBLY

DETAIL

NTS 45
NOTE:

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

NTS

W

47
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.

---

WITHOUT NEW STREET LINE VALVE

WATER SERVICE RECONNECTION 4-INCH AND LARGER

DETAIL

W

48

---

WITH NEW STREET LINE VALVE

EXISTING SERVICE GATE (TO BE RESTRAINED)

EXISTING WATER MAIN

EXISTING STREET LINE GATE VALVE (LOCATION VARIES)

EXISTING WATER SERVICE (LENGTH VARIES)

DIP WATER SERVICE (LENGTH VARIES)

MJ GATE VALVE

MJ WATER SERVICE TEE

PROPOSED WATER MAIN

CONCRETE THRUST BLOCK AS DIRECTED BY THE ENGINEER

PROPOSED AIR VALVE (WEDGE OR APPROVED EQUAL)

CONNECT TO EXISTING WATER SERVICE USING MJ SOLID SLEEVE

1/8 MJ BENDS

MJ GATE VALVE

MJ WATER SERVICE TEE

PROPOSED WATER MAIN

CONCRETE THRUST BLOCK AS DIRECTED BY THE ENGINEER

PROPOSED AIR VALVE (WEDGE OR APPROVED EQUAL)

DIP WATER SERVICE (LENGTH VARIES)

MJ GATE VALVE

MJ WATER SERVICE TEE

PROPOSED WATER MAIN

EXISTING WATER SERVICE (LENGTH VARIES)

EXISTING WATER SERVICE GATE (TO BE RESTRAINED)

EXISTING WATER MAIN

EXISTING STREET LINE GATE VALVE (LOCATION VARIES)

EXISTING WATER SERVICE (LENGTH VARIES)

1/8 MJ BENDS

EXISTING WATER SERVICE CONNECT TO EXISTING WATER SERVICE USING MJ SOLID SLEEVE

1/8 MJ BENDS
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

NTS

W

49
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.)

ROLLE AND U-BOLT ASSEMBLY

DETAIL W

NTS 50

NEW WATER MAIN SUPPORTS INSTALLATION (TYP.)

SECTION A-A
THE METROPOLITAN DISTRICT
WATER STANDARD DETAILS

RESTRAINED JOINT CLASS 54 WATER MAIN
WITH 2 INCH RIGID INERT FOAM INSULATION
WITH METAL FIBER REINFORCED MASTIC OR
NON-CORROSIVE METAL JACKET (TYP.)

STEEL PIPE SLEEVE (TYP.)
(TO FOLLOW LINE AND
GRADE OF PIPE)

LINK-SEAL® MODULAR WALL SEAL
OR APPROVED EQUAL (TYP.)

RESTRAINED JOINT CLASS 54 D.I.
WATER MAIN

2" RIGID INSULATION INSTALLED UNTIL
MIN. 4.5' OF COVER IS OBTAINED

NUT AND PLATE WASHER
THREADED ANCHOR ROD
EYE BOLT

% M.J. BEND (TYP.)

CONCRETE BRIDGE
ABUTMENT
(TYP. 2 PLACES)

CONCRETE
THRUST BLOCK
AS DESIGNED
BY ENGINEER

BEARING
SURFACE
(VARIES)

BRIDGE BEARING ABUTMENT PENETRATION

DETAIL

NTS

W

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EROSION AND SEDIMENTATION CONTROL STANDARD DETAILS

THE METROPOLITAN DISTRICT

JANUARY 2017
THE METROPOLITAN DISTRICT
EROSION AND SEDIMENTATION CONTROL STANDARD DETAILS

PLAN

TO CONSTRUCTION AREA

12" MIN. LAYER OF 2" CRUSHED STONE PLACED ON GEOTEXTILE FABRIC

FINISH GRADE

50' MINIMUM

UNDISTURBED ROADWAY

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

ES

NTS

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Latest Revision: JANUARY 2017
straw or hay bale (typ)

flow

two stakes to secure each straw or hay bale in place

2" x 2" stake 36" min. length (typ)

plan

to be installed at drainage ditch

straw or hay bale (typ)

points "a" should be higher than points "b"

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 BALE TO KEEP SEDIMENT FROM MIGRATING AROUND ENDS.

STRAW OR HAY BALES EROSION DAM

DETAIL

File: ES-3 Straw or Hay Bale Erosion Dam.dwg

PAGE 102
1. Excavate a trench 4" deep and the width of a straw or hay bale.

2. Place and stake straw or hay bales using two stakes to secure each bale.

3. Wedge loose straw or hay between bales to create a continuous barrier.

4. Backfill and compact the excavated soil as shown on the uphill side of the barrier to prevent erosion.
SET WOOD OR METAL POSTS 8 FEET APART. EXCAVATE A 6" x 6" TRENCH BEHIND POSTS

ANGLE 10° UP SLOPE FOR STABILITY AND SELF CLEANING

12" MIN. POST DEPTH

ATTACH 4" x 4"
12 GAUGE WIRE MESH FENCING OR INDUSTRIAL NETTING TO POSTS

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

SILT FENCE INSTALLATION

DETAIL ES

5
CATCH BASIN SILT SACK

DETAIL

NOTES:

1. CONTRACTOR SHALL MAINTAIN ALL SILT SACK SEDIMENT CONTROL DEVICE INSTALLATIONS AND REPLACE WHEN SATURATED WITH SEDIMENT BASED ON MANUFACTURER RECOMMENDATIONS. SILT SACK SHALL BE INSPECTED AFTER EVERY RAIN EVENT BUT NO LONGER THAN EVERY TWO WEEKS.

2. SILT SACK SHALL BE DOUBLE NEEDLE SEWN POLYPROPYLENE GEOTEXTILE FABRIC AND RATED FOR HIGH FLOW UNLESS OTHERWISE DIRECTED.

3. CONTRACTOR SHALL PROVIDE CURB OPENING DEFLECTOR AT ALL CATCH BASINS AS NECESSARY.
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 ¼” WIRE MESH AROUND SIDES OF BOX AND ATTACH TO FRAME. FILL WITH ½”–1” DIAMETER WASHED STONE. REPLACE WHEN SATURATED WITH SEDIMENT.
WIDTH SHALL BE ADEQUATE TO ENSURE PUMPED WATER DOES NOT OVERTOP BASIN.

TWO STAKES TO SECURE EACH STRAW OR HAY BALE IN PLACE

2" x 2" STAKE 36" MIN. LENGTH (TYP)

STRAW OR HAY BALE (TYP)

BUTT BALES TIGHTLY TOGETHER

FILTER FABRIC 6" OF ½" STONE

2’ OR AS DIRECTED FINISH GRADE

18" MIN.

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
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.
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 OVERLAID 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 SR

NTS 1
SEAL SEAM WITH HOT ASPHALT SEALER UNDISTURBED EXISTING PAVEMENT (TYP)

BITUMINOUS CONCRETE FINISH COURSE. SEE NOTE 1.
BITUMINOUS CONCRETE BINDER COURSE. SEE NOTE 1.

PERMANENT TRENCH PAVEMENT PAY WIDTH LIMITS (PPW)

12”  12”

SAWCUT EXISTING BITUMINOUS PAVEMENT. ALL VERTICAL EDGES OF REMAINING PAVEMENT SHALL BE PAINTED WITH A COAT OF ASPHALT EMULSION (TYP)

PROVIDE 12” MIN PROCESSED STONE BASE APPLIED IN TWO COURSES SIX INCHES EACH AFTER COMPACTION. THE USE OF RECYCLED MATERIAL IS STRICTLY PROHIBITED.

ACTUAL EXCAVATION WIDTH

UNDISTURBED EARTH

BANK RUN GRAVEL

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 MANHOLE IS 24” OUTSIDE THE BASE.

4. FOR WORK ON STATE HIGHWAYS, SEE CT DOT TRENCH DETAILS.

<table>
<thead>
<tr>
<th>MAXIMUM PERMANENT TRENCH PAVEMENT PAY WIDTH (PPW)</th>
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<tbody>
<tr>
<td>DEPTH TO PIPE INVERT</td>
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<tr>
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<tr>
<td>0–8</td>
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<td>8–12</td>
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<td>12–16</td>
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PERMANENT TRENCH PAVEMENT RESTORATION

DETAIL NTS SR 2

PAGE 110
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 ⅝" @ 24" O.C. DRILL HOLE SHALL BE OVERSIZED BY ⅛".

3. SEE TEMPORARY TRENCH PAVEMENT REPAIR DETAIL FOR PAY WIDTHS.

REINFORCED CONCRETE BASE TRENCH REPAIR

DETAIL

NTS

3
REINFORCED CONCRETE BASE REPAIR AT EXISTING CURB

DETAIL

NTS

4

File: SR-4 Reinforced Concrete Base Repair at Existing Curb.dwg

Latest Revision: JANUARY 2017
SAWCUT EXISTING PAVEMENT. APPLY TACK COAT BEFORE PLACEMENT OF NEW PAVEMENT. SEAL JOINTS AFTER PLACEMENT OF NEW PAVEMENT.

EXISTING SURFACE

KEYWAY SEE NOTE 1

EXISTING BASE COURSE

NEW BASE COURSE

NEW FINISH COURSE

SEE NOTE 2

VARIERS

VARIERS

1

NEW BASE COURSE

1

USE TRANSITION SLOPE 1:4

1

EXISTING PAVEMENT

NEW PAVEMENT

VARIERS

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

DETAIL SR

NTS 5
NOTES:

1. PROVIDE MIN. 3/4" 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.
CURBING TRANSITION AT EXISTING DRIVEWAY

DETAIL

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.
BITUMINOUS CONCRETE CURB 6-INCH REVEAL (TYPE I)

DETAIL

NTS

SR

8
BITUMINOUS CONCRETE CURB 6-INCH REVEAL (TYPE II)

DETAIL

NTS

SR

9
THE METROPOLITAN DISTRICT
SURFACE RESTORATION STANDARD DETAILS

CAULK JOINT WITH
\( \frac{1}{4} \)" MAX. ELASTOMERIC
SEALING COMPOUND

PAVEMENT (TYP)

APPROXIMATE UNIFORM LENGTHS
10' TO 6' MIN.

\( \frac{1}{2} \)" EXPANSION
JOINT

MATCH EXISTING PITCH
R=\( \frac{1}{4} \)"

1" BEVEL

CONCRETE AS REQUIRED BY
MUNICIPALITY

6" MIN. PROCESSED
STONE BASE

UNDISTURBED
SOIL

SECTION A–A

PRECAST CONCRETE CURB RESTORATION

DETAIL

NTS

SR

10

PAGE 118
NOTE:

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

PRECAST CONCRETE CURB JOINT DETAIL

NTS  11
THE METROPOLITAN DISTRICT
SURFACE RESTORATION STANDARD DETAILS

6" LOAM AND SEED OR SOD.
SLOPE AS REQUIRED
BY MUNICIPALITY (MIN. 2%)

STRAIGHT PRECAST CONCRETE CURB
6" x 18" OR 6" x 20" WITH 1" BEVEL

6" REVEAL UNLESS OTHERWISE
APPROVED BY MUNICIPALITY

PAVEMENT

10"

1'-6" OR 1'-8"

12" X 5/8"
STEEL DOWEL

6" MIN.
PROCESSED
STONE BASE

UNDISTURBED
SOIL

1'-6"

CONCRETE AS
REQUIRED BY
MUNICIPALITY

STRAIGHT CONCRETE CURB SECTION

DETAIL

NTS

SR

12
6" LOAM AND SEED OR SOD. SLOPE AS REQUIRED BY MUNICIPALITY (MIN. 2%) 

STRAIGHT GRANITE CURB (6" x 20") 

6" REVEAL UNLESS OTHERWISE APPROVED BY ENGINEER 

PAVEMENT 

1'-8" 

CONCRETE AS REQUIRED BY MUNICIPALITY 

6" MIN PROCESSED STONE BASE 

UNDISTURBED SOIL 

6" 6" 6" 

1'-6"

STRAIGHT GRANITE CURB SECTION 

DETAIL SR 

NTS 13
NOTE:

1. AT APPROXIMATELY 50-FOOT INTERVALS, A 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 SATISFACTORY CLEANED FROM THE CURB.
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.
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

NTS

SR

16
NOTE:
1. SEE SIDEWALK RAMP SECTION DETAIL FOR ADDITIONAL INFORMATION.

SIDEWALK RAMP (TYPE III)

DETAIL

SR

NTS
17
CURB

FLUSH AT GUTTER LINE

RAMP SLOPE
7.1% (±1.2%)
8.33% MAX.

BITUMINOUS CONCRETE OR CONCRETE SIDEWALK

24" DETECTABLE WARNING STRIP

8" CONCRETE REINFORCED WITH
6" x 6" #8 WELDED WIRE FABRIC

8" MIN. PROCESSED STONE BASE

SIDEWALK RAMP SECTION

DETAIL

NTS

SR

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File: SR-18 Sidewalk Ramp Section.dwg

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BITUMINOUS CONCRETE SIDEWALK RESTORATION

DETAIL

NTS

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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. **3/16" PRE-MOLDED NON-EXTENABLE BITUMINOUS JOINT MATERIAL AND 3/16" 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 TO 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 SR**

**NTS 20**
MIN. 1½” BITUMINOUS CONCRETE SURFACE COURSE (CLASS 2).
SEE NOTE 3.

MIN. 1½” BITUMINOUS CONCRETE BINDER COURSE (CLASS 1)

MATCH EXISTING GRADE
MIN. 8” PROCESSED STONE BASE COURSE

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 SR
NTS 21
ROUNDING CONCRETE TOP
½" CROWN

REFLECTIVE SHEETING

6" Ø STEEL PIPE
SCHEDULE 40
CONCRETE FILLED AND PAINTED SAFETY YELLOW

FINISHED
GRADE

SLOPE TO DRAIN
TOP OF CONCRETE

CONCRETE ENCASEMENT

STEEL BOLLARD

DETAIL

NTS

SR

22
NOTE:

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

CHAIN LINK FENCE (6–FEET HIGH)

DETAIL

NTS

23
NOTE:

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

CHAIN LINK FENCE GATE (6–FEET HIGH)

FILE: SR-24 Chain Link Fence Gate – 6 Feet

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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.

SECTION

3-1/8" (Typ)

Adjust frame to grade with brick
(Min. 2 courses, 18" Max)

Unless specifically ordered otherwise, minimum depth under travelway is 19-1/2" and under untraveled areas is 0-3"

See Note 1

Brick, concrete, masonry concrete units, where brick or masonry concrete units are used, corbelling will be permitted. Maximum corbel to be 3", no projection shall extend inside of limits

12" min. crushed stone w/ geotextile fabric below

DRAINAGE OPENINGS IN 4 WALLS AT OR IMMEDIATELY ABOVE THIS ELEVATION

Type 'C' Catch Basin

PLAN

5'-4"

4'-4"

4'-4"

5'-4"

3'-0"

3'-0"

2'-1" (Typ)

28-1/4"

3-5/8" (Typ)

MIN. 1/2"

MIN. 1/2"

MIN. 1/2"

3-3/4" (Typ)

20-3/8"

7-3/8" (Typ)

See Note 1

1/2"

3" min. normal finishing grading

3/8" dia. holes for 2 #4 bars 7-4" lg (Typ.)

12" (Typ)

12" min. crushed stone w/ geotextile fabric below

Class 'A' concrete or precast unit

Type 'C-L' Catch Basin

CTDOT STANDARD CATCH BASIN DETAIL

SD 1

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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.

SECTION A-A

CTDOT DOUBLE GRATE PRECAST CONCRETE CATCH BASIN (TYPE I)

SECTION B-B

DETAIL

SD 2

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THE METROPOLITAN DISTRICT
STORM DRAIN STANDARD DETAILS

SECTION A-A
CTDOT DOUBLE GRATE PRECAST CONCRETE CATCH BASIN (TYPE II)

DETAIL
NTS
SD 3

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 CTDOT 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.

SECTION B-B

TYPE 'C' DOUBLE GRATE TOP GALVANIZED STEEL FRAME AND GRATE TO MEET CTDOT STANDARDS
ADJUST FRAME TO GRADE WITH BRICK (MIN. 2 COURSES, 18" MAX)

CORBEL
RISER(S)
TRANSITION
SUMP
12" MIN. CRUSHED STONE W/ GEOTEXTILE FABRIC BELOW
THE METROPOLITAN DISTRICT
STORM DRAIN STANDARD DETAILS

TYPE C-L

<table>
<thead>
<tr>
<th>TYPE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
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<tr>
<td>C</td>
<td>8&quot;</td>
<td>12&quot;</td>
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<td>C-L</td>
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<td>12&quot;</td>
<td>32 1/2&quot;</td>
<td>21 1/2&quot;</td>
<td>44 1/2&quot;</td>
<td>56 1/2&quot;</td>
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"V" GROOVE FOR MORTAR LOCK

"V" GROOVE FOR ACCOMMODATING SPECIAL LIFTING SLING

WALL HEIGHT

6" FLOOR

NOTE:
1. DIMENSIONS FOR TOP OF SUBSTRUCTURE BUILT OF BLOCKS, OR CAST IN PLACE.

CTDOT PRECAST CONCRETE CATCH BASIN TOPS AND SUMPS

DETAIL SD

NTS 4

PAGE 136
12" PVC BEND INTO 12" PVC PIPE WITH ELASTOMERIC TYPE OF SEAL APPROVED BY THE ENGINEER

12" PVC BEND

12" PVC BELL END IN WALL OF CATCH BASIN

ELBOW TRAP FOR CATCH BASIN

DETAIL

SD

NTS

5
THE METROPOLITAN DISTRICT
STORM DRAIN STANDARD DETAILS

TRAP HOOD MINIMUM DIMENSIONS

<table>
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<th>PIPE SIZE</th>
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<tr>
<td>10</td>
<td>12</td>
<td>20</td>
<td>6–½</td>
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<tr>
<td>12</td>
<td>15–¾</td>
<td>22</td>
<td>7–½</td>
</tr>
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<td>18</td>
<td>25</td>
<td>9</td>
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<tr>
<td>18</td>
<td>20</td>
<td>27</td>
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* ALL VALUES IN INCHES

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 SD

NTS 6
REHABILITATION
STANDARD DETAILS

THE METROPOLITAN DISTRICT

JANUARY 2017
THE METROPOLITAN DISTRICT
REHABILITATION STANDARD DETAILS

SECTION
STANDARD FRAME FOR 24" Ø CHIMNEY

FURNISH AND INSTALL NEW STANDARD 24" Ø FRAME AND COVER

FRAME TO BE SET IN FULL BED OF CONCRETE OR MORTAR TO 3" BELOW TOP OF COVER
REMOVE EXISTING CHIMNEY AND REPLACE WITH NEW BRICK AND MORTAR. DEPTH VARIES.
SEE NOTE 1.
EXISTING CONCRETE MANHOLE WALL

SECTION
STANDARD FRAME FOR 36" Ø CHIMNEY

FURNISH AND INSTALL NEW STANDARD 36" Ø FRAME AND COVER

FRAME TO BE SET IN FULL BED OF CONCRETE OR MORTAR TO 3" FROM TOP OF COVER
REMOVE EXISTING CHIMNEY AND REPLACE WITH NEW BRICK AND MORTAR DEPTH OF CONSTRUCTION VARIES.
SEE NOTE 1.
EXISTING CONCRETE MANHOLE WALL

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 COMPACTED COMMON FILL, THEN APPLY LOAM AND SEED AND 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

UNDISTURBED SOIL

EXCAVATED TRENCH

FINISH GRADE

VARIES

COMPACTED BACKFILL
SEE NOTE 3

REMOVE EXIST SEWER WITHIN POINT REPAIR SEGMENT AND INSTALL NEW SEWER. INSTALL AT A CONSTANT SLOPE BETWEEN THE TWO EXISTING PIPE ENDS. LIMITS OF THE POINT REPAIR SHALL BE AS DEFINED ON THE DRAWINGS.

EXISTING SEWER PIPE

1'-6" MIN

1'-6" MIN

8" MIN

COMPACTED CRUSHED STONE
SEE NOTE 3

CONNECT NEW SEWER TO EXISTING SEWER ON BOTH SIDES WITH RUBBER SLEEVE COUPLING WITH STAINLESS STEEL COMPRESSION BANDS AND SHEAR RINGS

SEWER POINT REPAIR
DETAIL

R

NTS

2

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 THE MAIN OUTLET PIPE.
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.

MANHOLE INVERT RESTORATION

DETAIL

R

3
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

NTS

R

4
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.