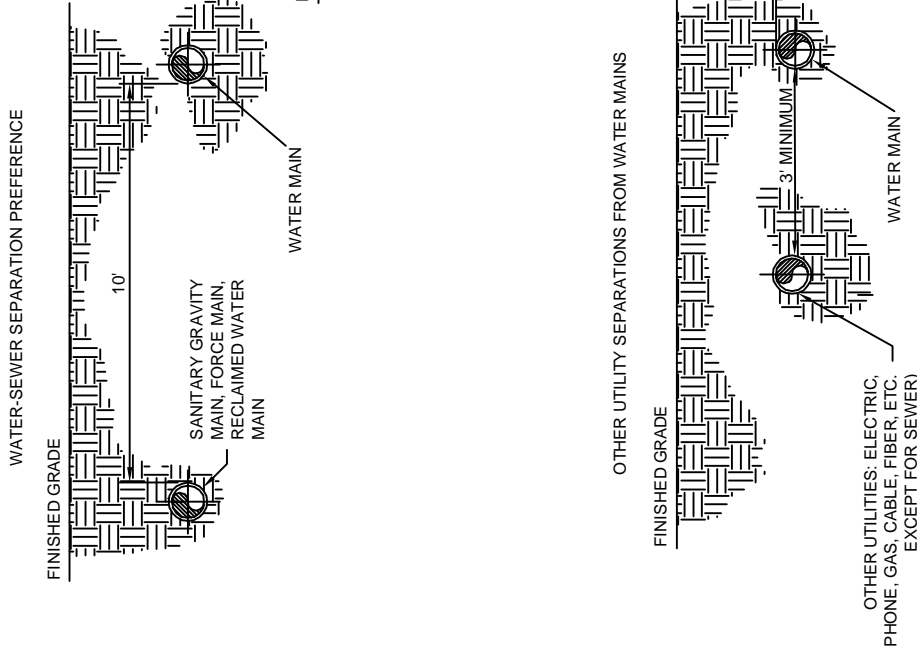


NOTES:

THE FOLLOWING MINIMUM SEPARATIONS SHALL BE PROVIDED FOR UTILITIES:

1. STORM SEWERS AND OTHER UTILITIES SHALL HAVE A MINIMUM VERTICAL SEPARATION OF 24 INCHES. IN THE EVENT THIS MINIMUM SEPARATION CANNOT BE MET, STRUCTURAL BRIDGING OR DUCTILE IRON PIPE SHALL BE USED TO PREVENT CRUSHING OF THE UNDERLYING PIPE
2. WATER MAINS (WATER OVER SEWER INCLUDING IN BENCHED TRENCHES) SHALL HAVE A MINIMUM VERTICAL SEPARATION OF 18 INCHES OR A MINIMUM HORIZONTAL SEPARATION OF 10 FEET. IN THE EVENT THIS MINIMUM SEPARATION CANNOT BE MET, FOLLOW THE ALTERNATIVES LISTED IN 75A NCAC 18C.0906 (b) AND (c)
3. FINAL GRADE SHALL PROVIDE 36 INCHES OF COVER OVER TOP OF SEWERS AND WATER MAINS. FOR LESS THAN 36-INCHES COVER FROM FINAL GRADE FOR SEWER, DUCTILE IRON PIPE SHALL BE SPECIFIED. DUCTILE IRON PIPE BEDDING TO DEVELOP DESIGN SUPPORTING STRENGTH SHALL BE PROVIDED WHERE SEWERS ARE SUBJECT TO TRAFFIC BEARING LOADS
4. ALL OTHER UTILITIES (ELECTRIC, GAS, COMMUNICATIONS, ETC.) SHALL BE A MINIMUM OF 3 FEET HORIZONTALLY FROM ALL WATER MAINS
5. THESE SEPARATIONS MIRROR STATE AND TOWN REQUIREMENTS AT THE DATE DEVELOPED. IF AT ANY TIME STATE OR TOWN REQUIREMENTS ARE REVISED TO BE MORE STRINGENT, THEY WILL TAKE PRECEDENCE OVER THIS DETAIL



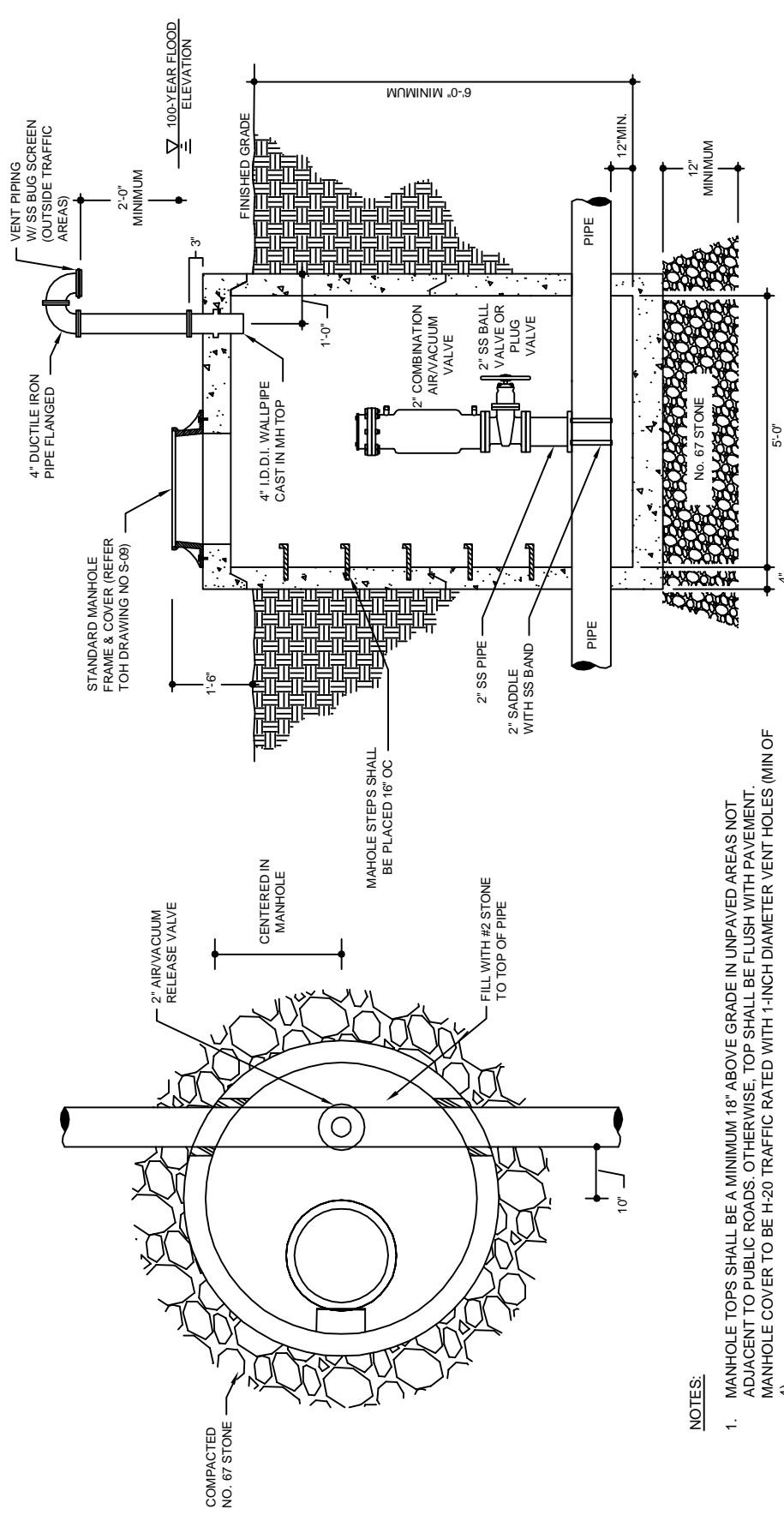
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UTILITY SEPARATION

scale NTS drawing no. | **G-01**
 date JUNE 2012
 approved *[Signature]*
 Kenneth P. Keel, P.E., Town Engineer



NOTES:

1. MANHOLE TOPS SHALL BE A MINIMUM 18" ABOVE GRADE IN UNPAVED AREAS NOT ADJACENT TO PUBLIC ROADS. OTHERWISE, TOP SHALL BE FLUSH WITH PAVEMENT. MANHOLE COVER TO BE H-20 TRAFFIC RATED WITH 1-INCH DIAMETER VENT HOLES (MIN OF 4)
2. CONSEAL CS-212 POLYURETHAN BACKED EXTERIOR JOINT WRAP OR APPROVED EQUAL SHALL BE USED ON ALL MANHOLE JOINTS, INCLUDING GRADE RINGS
3. AIR RELEASE/VACUUM RELIEF VALVE TO BE 2" A.R.I D-020 VENT-O-MAT SERIES RGX, OR EQUAL ON FORCE MAINS 10-INCH DIAMETER OR LESS. MINIMUM TEST PRESSURE RATING OF 350 PSI. STAINLESS STEEL OR REINFORCED NYLON BODY WITH DRAINAGE OUTLET

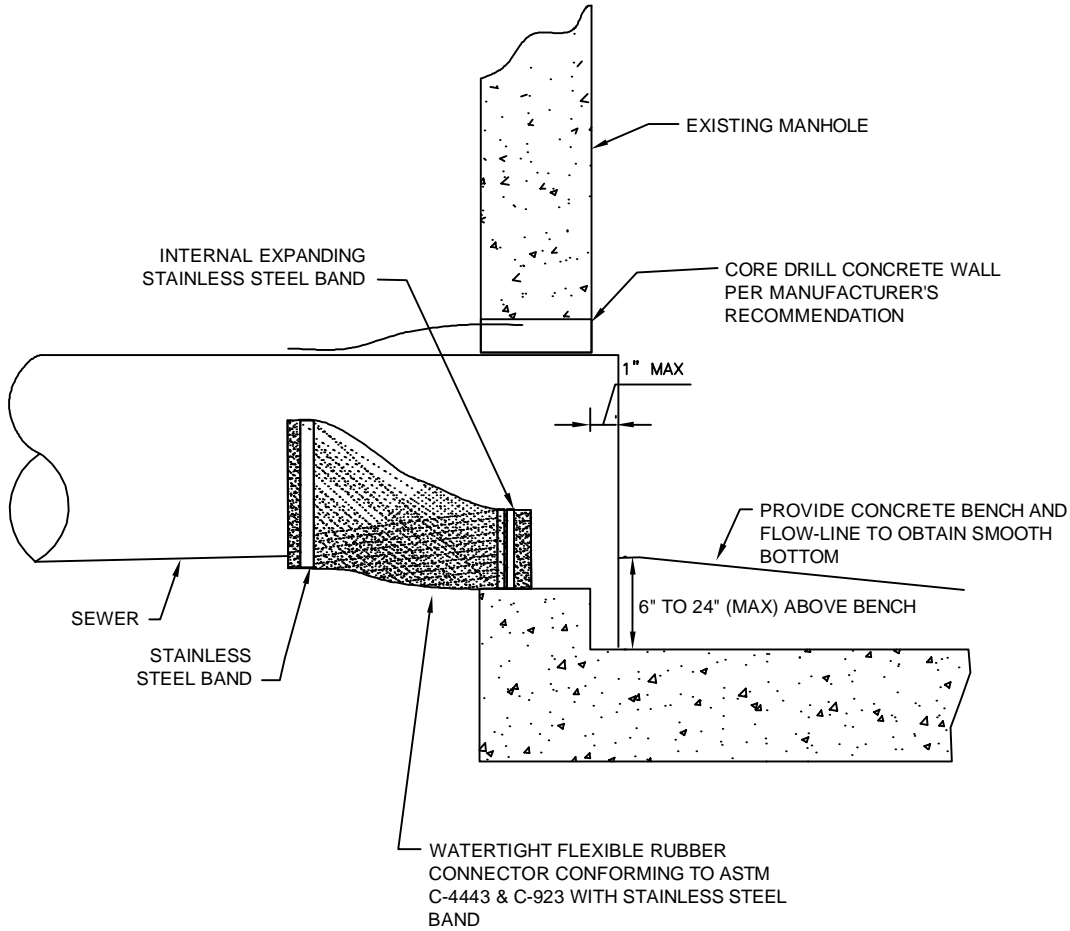
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AIR/VACUUM RELEASE VALVE SEWER FORCE MAIN

scale NTS drawing no. | **S-01**
 date JUNE 2012
 approved [Signature] Kenneth P. Keel, P.E., Town Engineer



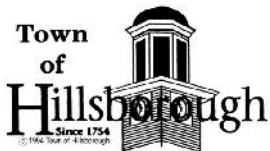
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NOTES:

- 1. ALL CONNECTIONS TO EXISTING MANHOLES OR WETWELLS SHALL UTILIZE A CORING METHOD AND IN-FIELD INSTALLATION OF A RUBBER BOOT CONNECTION

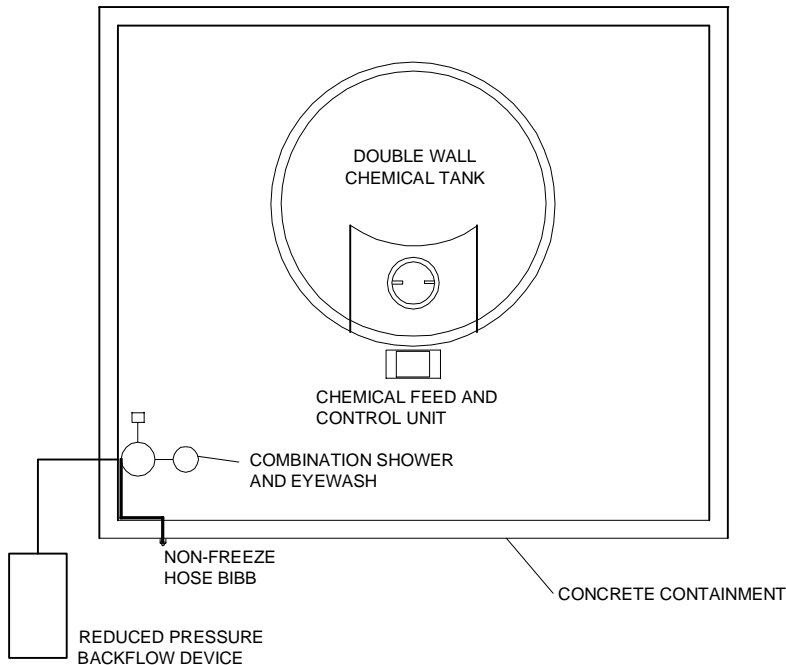
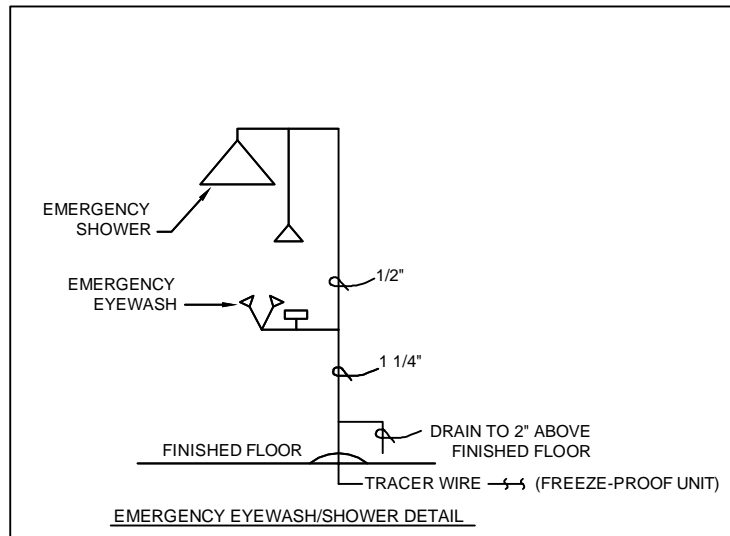
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rev	description	app'd	date



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CORED CONNECTIONS SEWER WETWELL OR MANHOLE

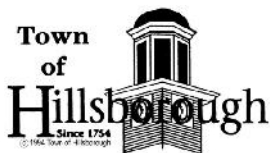
scale | NTS drawing no. | **S-02**
 date | JUNE 2012
 approved | *Kenneth P. Keel*
 Kenneth P. Keel, P.E., Town Engineer



NOTES:

1. THE ODOR CONTROL SYSTEM SHALL INCLUDE A 1,000 GALLON CHEMICAL TANK AND A CHEMICAL FEED METERING PUMP (LMI)
2. THE CHEMICAL TANK SHALL BE FILLED WITH CALCIUM NITRATE TETRAHYDRATE OR CHEMICAL SPECIFIED BY THE TOWN ENGINEER PRIOR TO OPERATION
3. ODOR CONTROL SYSTEM SHALL BE PIPED TO JUST BELOW THE WET WELL HATCH
4. TIMER IS OPTIONAL
5. TANK AND SLAB SHALL BE DESIGNED IN ACCORDANCE WITH APPLICABLE FEDERAL OR STATE SECONDARY CONTAINMENT STANDARDS
6. SLAB SHALL BE DESIGNED FOR THE PROPOSED TANK DIMENSIONS AND WEIGHT AND FOR THE SITE SPECIFIC SOIL CONDITIONS

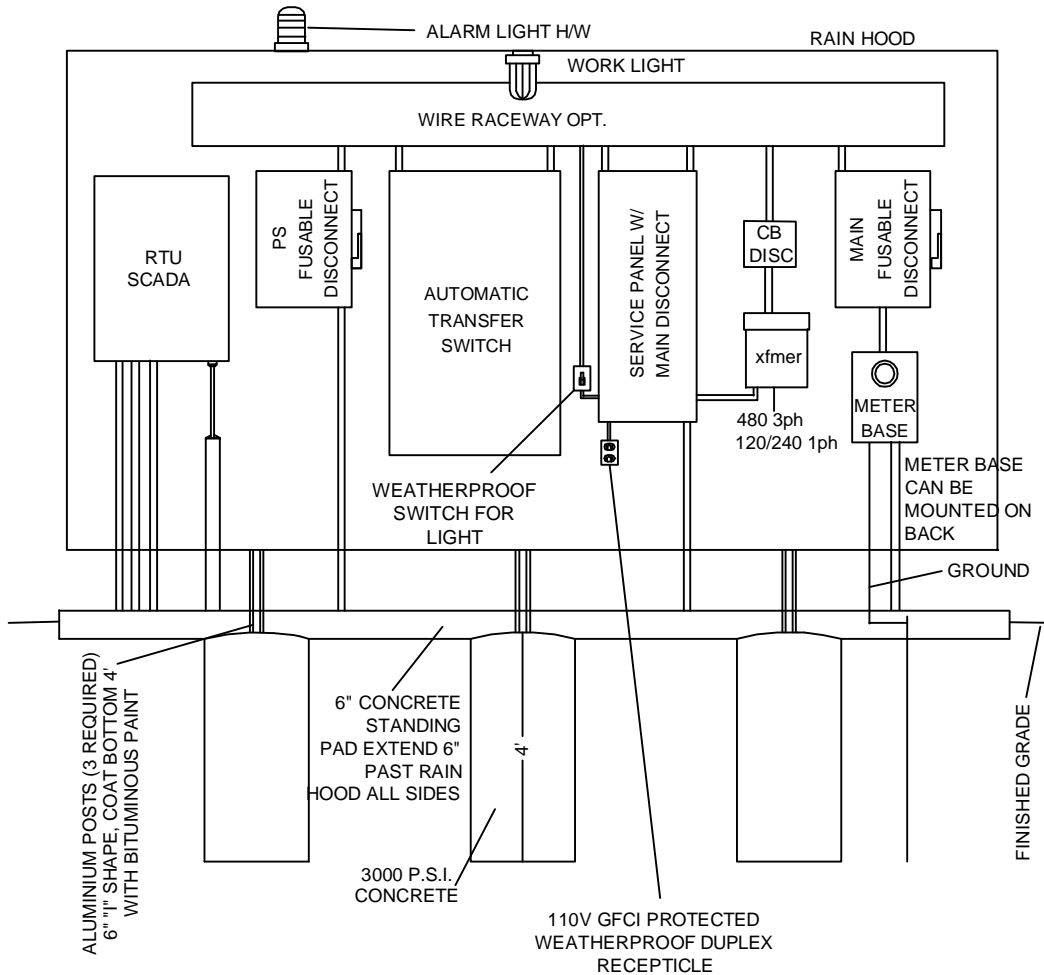
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rev	description	app'd	date



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ODOR CONTROL FOR SEWER PUMPING STATION

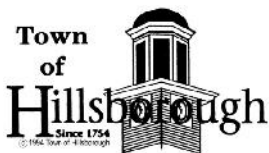
scale | NTS drawing no. **S-04**
 date | JUNE 2012
 approved | *Kenneth P. Keel*
 Kenneth P. Keel, P.E., Town Engineer



NOTES

1. BACKING PLATE TO BE 1/4" ALUMINUM. MOUNT TO "1" BEAM POSTS WITH STAINLESS STEEL NUT, BOLTS, AND WASHERS
2. ALL ELECTRICAL WORK SHALL CONFORM TO LATEST NATIONAL, STATE AND LOCAL CODES AND REQUIREMENTS
3. PANEL LAYOUT IS SCHEMATIC ONLY. ADJUST AS NEEDED TO ACCOMMODATE EQUIPMENT AND TOH SPECIFICATIONS. MAINTAIN 4" MIN. CLEARANCE BETWEEN PANELS AND SIDE SHIELDS
4. ALL ENCLOSURES SHALL BE NEMA 4X RATED AND LOCKABLE
5. ENCLOSURES SHALL BE MOUNTED TO ALUMINUM BACKING PLATE WITH NYLON SPACERS & STAINLESS STEEL NUTS, BOLTS & WASHERS
6. CONDUIT SHALL BE RIGID ALUMINUM OR GALVANIZED. MEYERS HUBS SHALL BE USED AT ALL PANEL CONNECTIONS
7. NO EQUIPMENT SHALL BE MOUNTED LESS THAN 36" ABOVE FINISHED GRADE AND AT LEAST TWO FEET ABOVE THE 100 YEAR FLOOD ELEVATION
8. MIN. CLEARANCE FROM WORK LIGHT TO STANDING PAD SHALL BE 6'-6"
9. PROVIDE WEATHER HOOD OF 12 GA. MILL FINISH ALUMINUM STITCH WELDED TO BACKING PLATE. HOOD TO BE SAME WIDTH AS BACKING BOARD
10. ALARM LIGHT SHALL BE RED STROBE. HORN SHALL BE A MIN OF 90DB

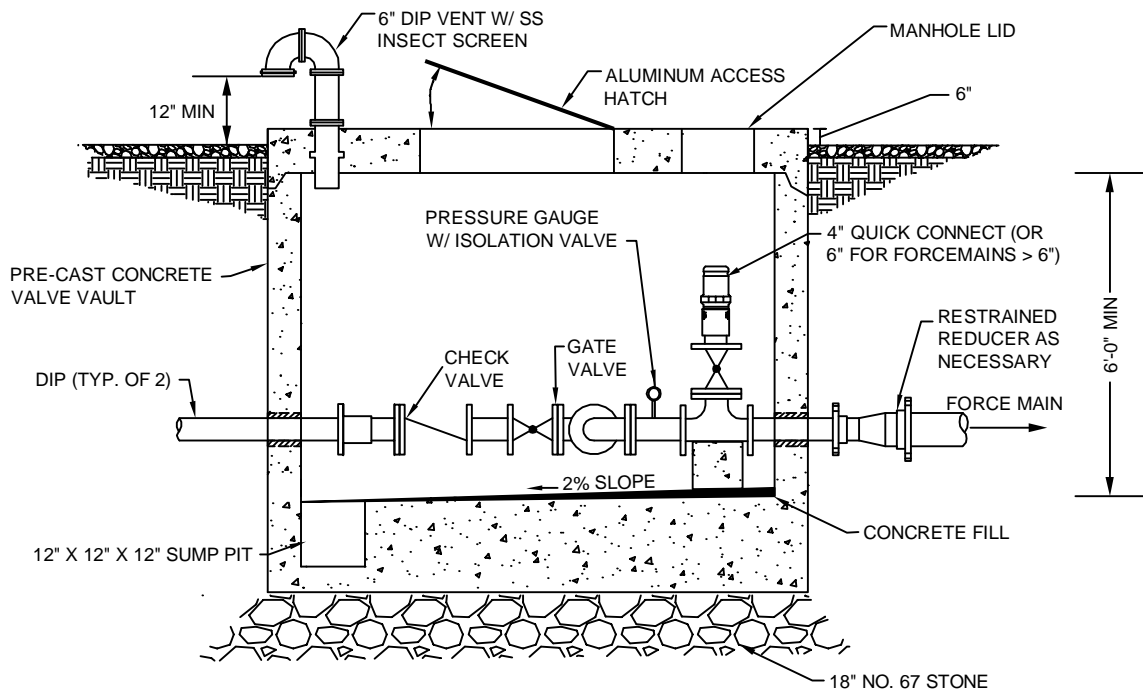
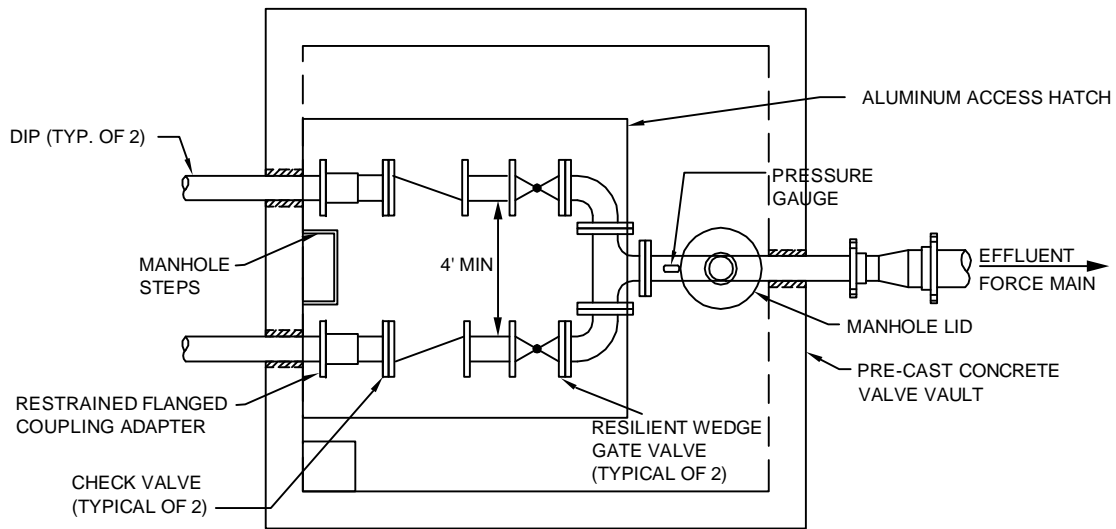
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rev	description	app'd	date



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ELECTRICAL PANEL RISER DIAGRAM (TYP)

scale | NTS
 date | JUNE 2012
 approved | *Kenneth P. Keel*
 drawing no. | **S-05**
 Kenneth P. Keel, P.E., Town Engineer

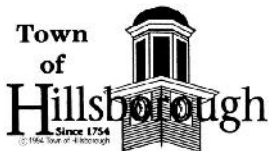


NOTES:

1. ALL PIPE AND VALVE SIZES SHALL BE 4" DIAMETER OR GREATER AS DETERMINED BY THE DESIGN ENGINEER
2. VALVE VAULT BUOYANCY SHALL BE CALCULATED BY THE DESIGN ENGINEER. APPROPRIATE ANTI-FLOTATION MEASURE SHALL BE PROVIDED
3. ACCESS HATCH: HINGES AND OTHER HARDWARE SHALL BE STAINLESS STEEL WITH TAMPER PROOF FASTENERS. ALUMINUM SURFACES IN CONTACT WITH CONCRETE OR GROUT SHALL BE COATED WITH BITUMINOUS MATERIAL FOR PROTECTION. HATCHES SHALL BE SINGLE OR DOUBLE LEAF DEPENDING ON OPENING AND MANUFACTURER'S RECOMMENDATIONS.
4. DOORS SHALL BE RATED FOR 300 PSF LIVE LOADINGS OR H-20 TRAFFIC RATED

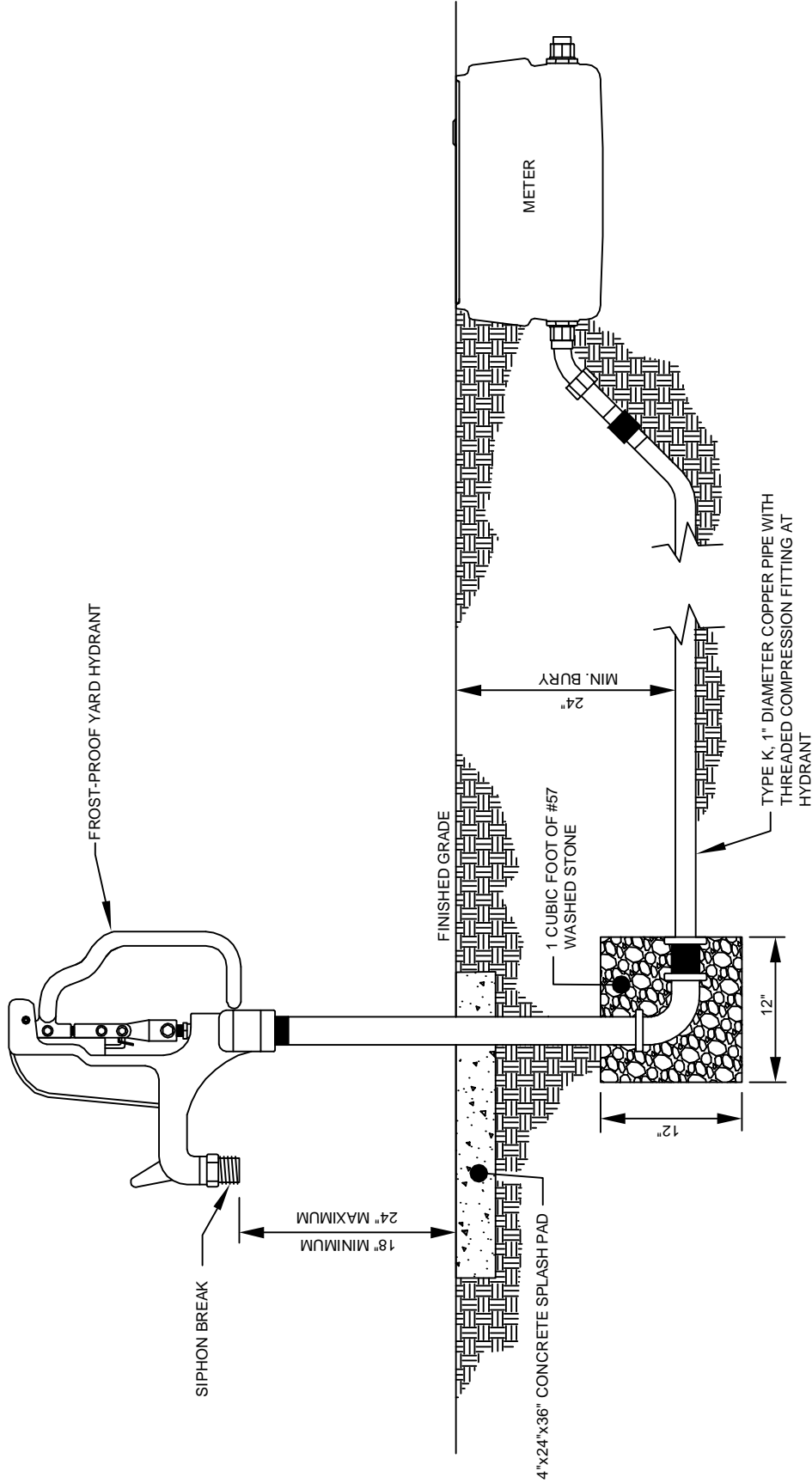
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rev	description	app'd	date

PUMPING STATION VALVE VAULT



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scale | NTS
date | JUNE 2012
approved | *Kenneth P. Keel*
drawing no. | **S-06**
Kenneth P. Keel, P.E., Town Engineer



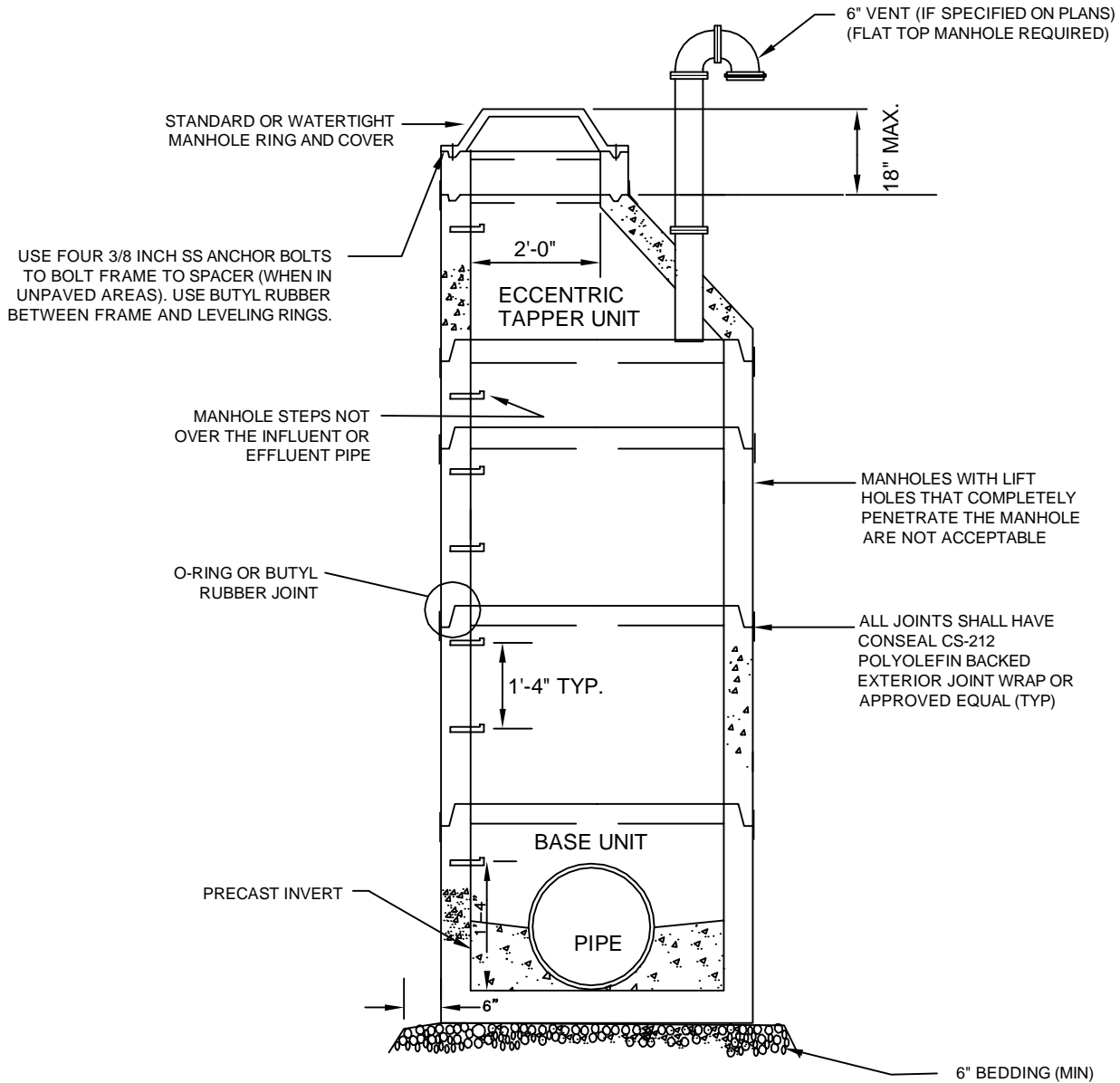
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NOTES:
 1. HOSE BIB SHALL ACCOMMODATE STANDARD 3/4" GARDEN HOSE

PUMPING STATION YARD HYDRANT AND METER

scale | NTS | drawing no. | **S-07**
 date | JUNE 2012
 approved | *Kenneth P. Keel*
 Kenneth P. Keel, P.E., Town Engineer

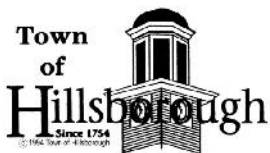
Town of Hillsborough
Since 1754
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 919.732.1270



NOTES:

1. ALL VENT OPENINGS SHALL BE TWO FEET ABOVE HUNDRED YEAR FLOOD ELEVATION
2. VENT SHALL BE DIP WITH SS INSECT SCREEN
3. VENT SHALL BE ANGLED OR GOOSE-NECKED.
4. PIPING DEEPER THAN 16 FT SHALL REQUIRE A 5 FOOT DIAMETER MANHOLE WHILE MANHOLES 20 FOOT OR DEEPER SHALL BE 6 FOOT IN DIAMETER

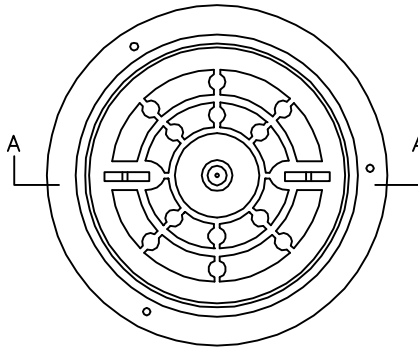
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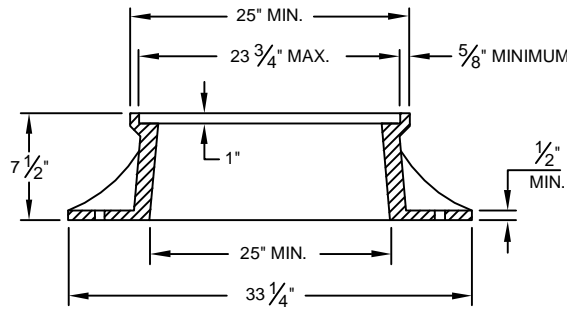
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PRECAST CONCRETE MANHOLE

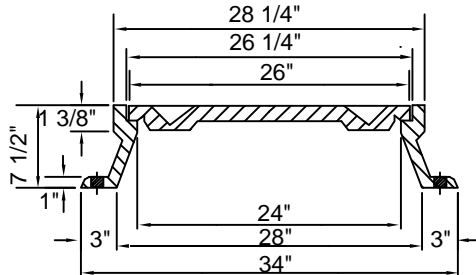
scale | NTS drawing no. | **S-08**
 date | JUNE 2012
 approved | *Kenneth P. Keel*
 Kenneth P. Keel, P.E., Town Engineer



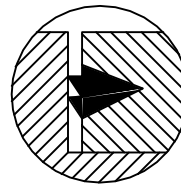
PLAN



SECTION A-A
STANDARD MANHOLE COVER & FRAME



SECTION A-A
WATERTIGHT MANHOLE COVER & FRAME

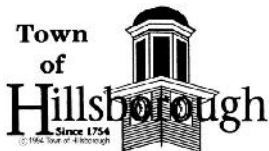


GASKET IN VERTICAL
FACE OF COVER

NOTES:

1. CASTINGS SHALL BE MADE-IN-USA CONFORMING TO ASTM A48, CLASS 35B GRAY CAST IRON
2. MANHOLE FRAME & COVER TO BE H-20 LOAD RATED IN PAVED AREAS

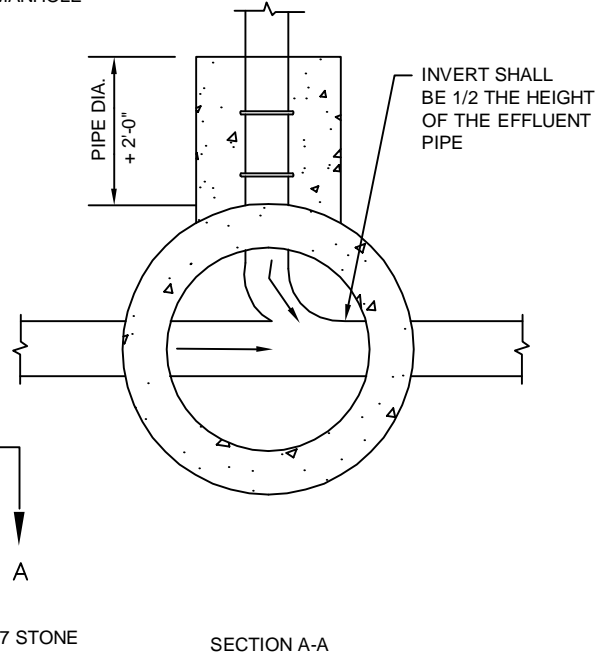
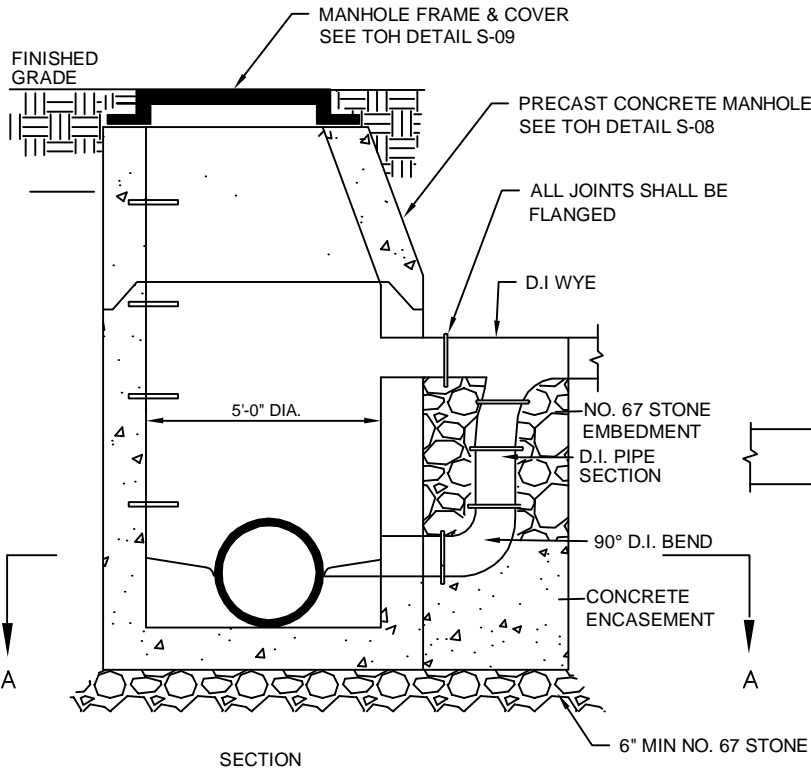
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rev	description	app'd	date



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FRAMES AND COVER

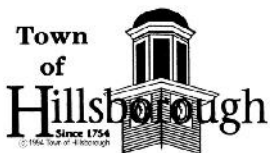
scale | NTS
date | JUNE 2012
approved | *Kenneth P. Keel*
drawing no. | **S-09**
Kenneth P. Keel, P.E., Town Engineer



NOTES:

1. DROP CONNECTIONS SHALL BE REQUIRED WHENEVER AN INFLUENT SEWER IS LOCATED TWO (2) FEET OR MORE ABOVE THE MAIN INVERT CHANNEL
2. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE THE MANHOLE TO DIRECT THE INFLUENT INTO FLOW STREAM

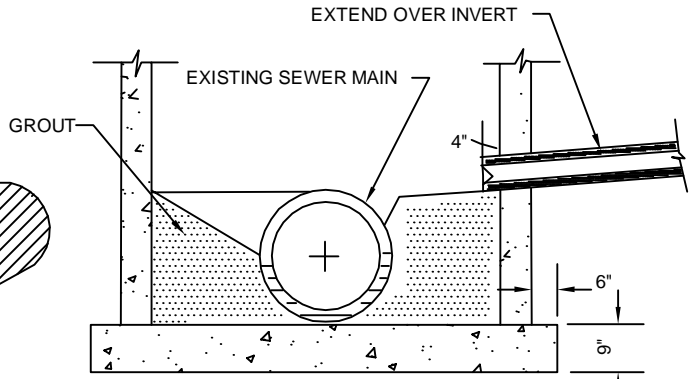
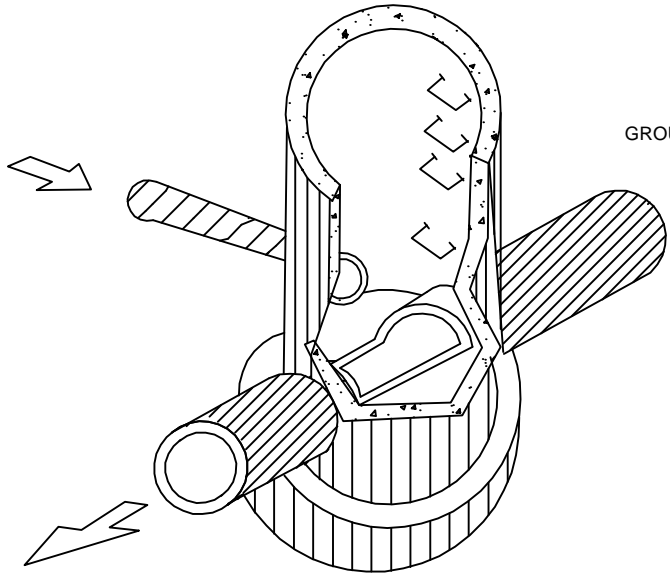
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rev	description	app'd	date



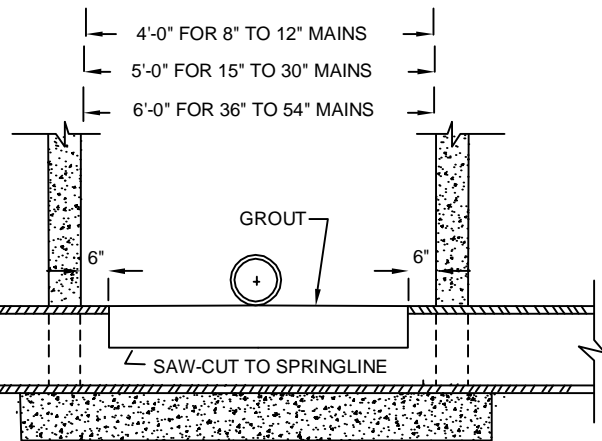
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OUTSIDE DROP MANHOLE

scale | NTS drawing no. | **S-10**
 date | JUNE 2012
 approved | *Kenneth P. Keel*
 Kenneth P. Keel, P.E., Town Engineer



SECTION AT RIGHT ANGLE TO EXISTING MAIN

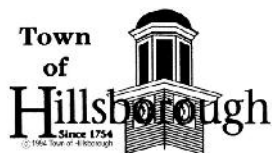


SECTION ALONG CENTERLINE OF EXISTING MAIN

NOTES:

1. FLOW SHALL BE MAINTAINED DURING CONSTRUCTION
2. THIS DETAIL TO BE USED WHEN A 6" OR LARGER SEWER NECESSITATES CONSTRUCTION OF A NEW MANHOLE
3. SEE STANDARD DETAIL S-08 FOR PRECAST CONCRETE MANHOLE AND S-09 FOR FRAMES AND COVERS
4. THE CONTRACTOR SHALL PROVIDE A MINIMUM 6" COMPACTED #67 STONE BASE
5. NEW PIPE SHALL HAVE INVERT SHAPED INTO THE EXISTING SEWER MAIN, OR PIPE TO BE EXTENDED AND TOP SECTION CUT OUT AND GROUTED AROUND TO FORM NEW INVERT INTO EXISTING SEWER MAIN

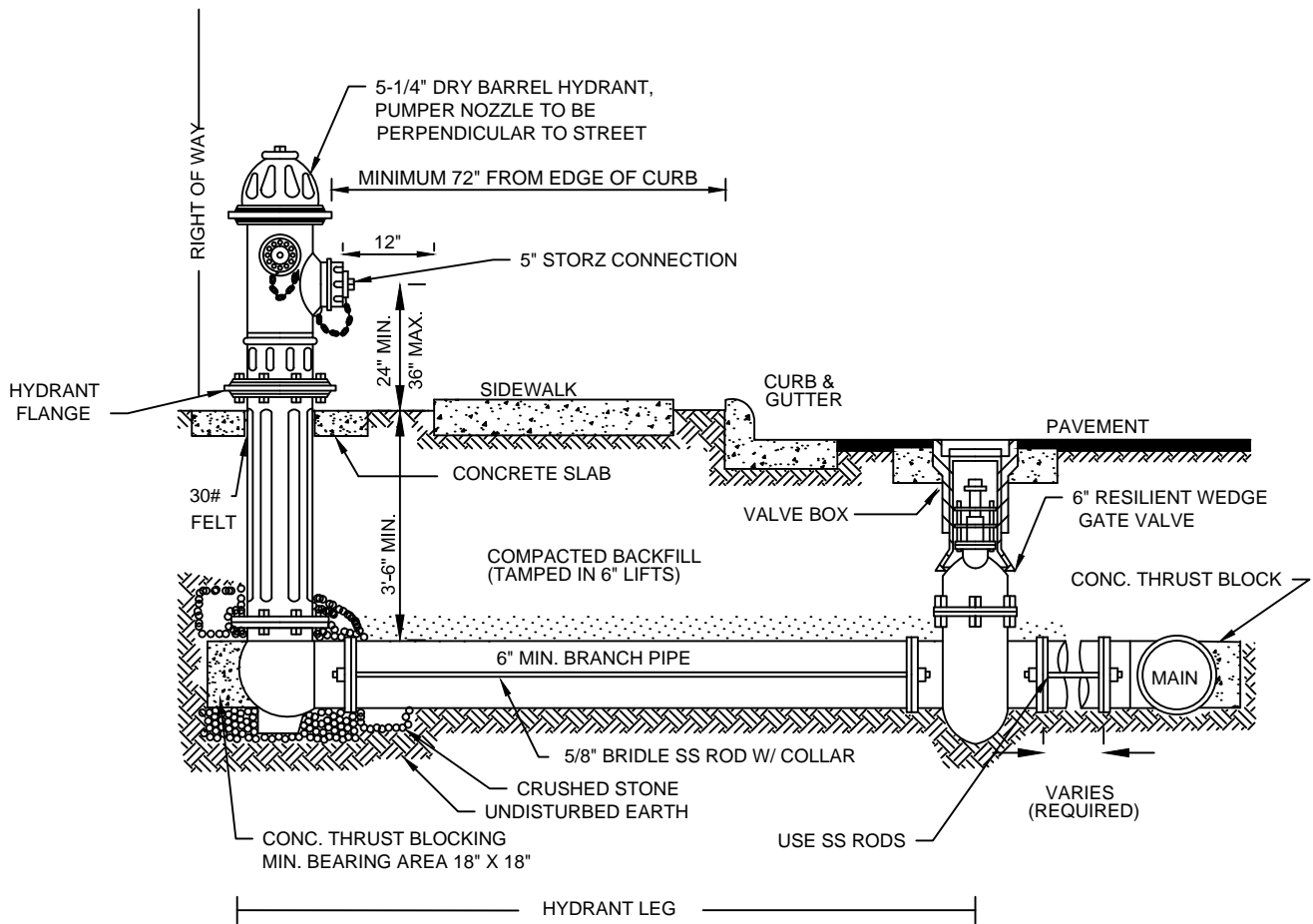
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DOGHOUSE MANHOLE

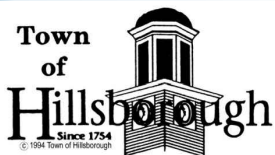
scale | NTS drawing no. | **S-11**
 date | JUNE 2012
 approved | *Kenneth P. Keel*
 Kenneth P. Keel, P.E., Town Engineer



NOTES:

1. ALL CONCRETE SHALL BE 3000 PSI MIN
2. HYDRANTS SHALL BE MANUFACTURED BY CLOW (MEDALLION) OR AVK (SERIES 27 NOSTALGIC) AND MEET AWWA 502 STANDARDS ALL HYDRANT VALVES SHALL BE SECURED TO MAIN LINE BY S.S RODS AND BOLTS AND RESTRAINED JOINTS
3. CONCRETE PAD REQUIRED ON ALL VALVES OUTSIDE OF PAVED AREA
4. HYDRANT FLANGE SHALL BE INSTALLED BETWEEN 2" AND 6" ABOVE SURROUNDING FINAL GRADE
5. SEE TOH SPECIFICATIONS FOR HYDRANT SPACING AND COLOR
6. ALL CASTINGS SHALL BE MADE-IN-USA CONFORMING TO ASTM A48 CLASS 35B GRAY CAST IRON
7. HYDRANTS SHALL BE ORDERED FOR SPECIFIC BURY DEPTHS OF INTENDED LOCATION, WITH A MINIMUM BURY DEPTH OF 3' - 6"
8. NO MORE THAN ONE HYDRANT EXTENSION SHALL BE ALLOWED AND SHALL NOT EXCEED 1 FT. ALL EXTENSIONS MUST BE FROM THE SAME MAKE AND MODEL OF THE MANUFACTURER OF THE HYDRANT INSTALLED

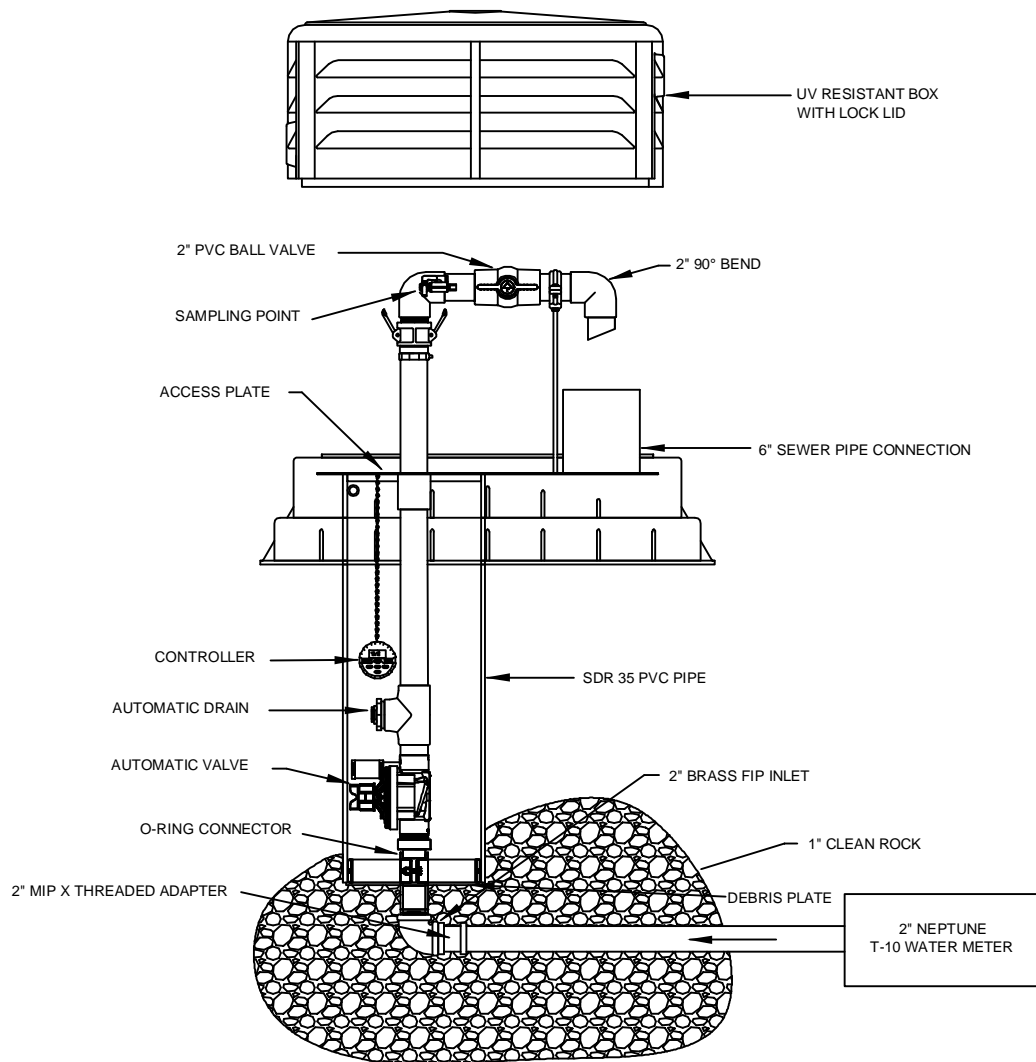
1	Min. curb distance & Storz conn.	KPK	1/10/17
		KPK	
rev	description	app'd	date



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HYDRANTS

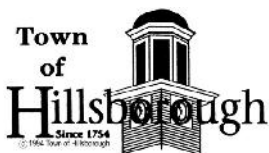
scale | NTS drawing no. | **W-01**
 date | JANUARY 2017
 approved | *Kenneth P. Keel*
 Kenneth P. Keel, P.E., Town Engineer



NOTES:

1. AUTOMATIC FLUSHING DEVICE TO BE #9800 ECLIPSE BY KUPFERLE FOUNDRY COMPANY
2. PIPING SHALL BE INSTALLED UP TO 2" CURB STOP WITH VALVE BOX AND COVER AT TIME OF MAIN INSTALLATION
3. AUTOMATIC FLUSHING DEVICE SHALL BE SHUT OFF UNTIL MAIN LINE HAS BEEN BACTERIOLOGICALLY TESTED
4. ALL THREAD HARD PIPING SHALL BE STAINLESS STEEL
5. SEE TOH DETAIL WS-01 FOR GATE VALVE AND VALVE BOX REQUIREMENTS
6. A NEPTUNE 2" T-10 WATER METER SHALL BE INSTALLED FOR EACH INSTALLED FLUSHING DEVICE
7. ALL COMPONENTS THAT COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NSF STANDARD 61
8. SPACE 2,500 FEET APART

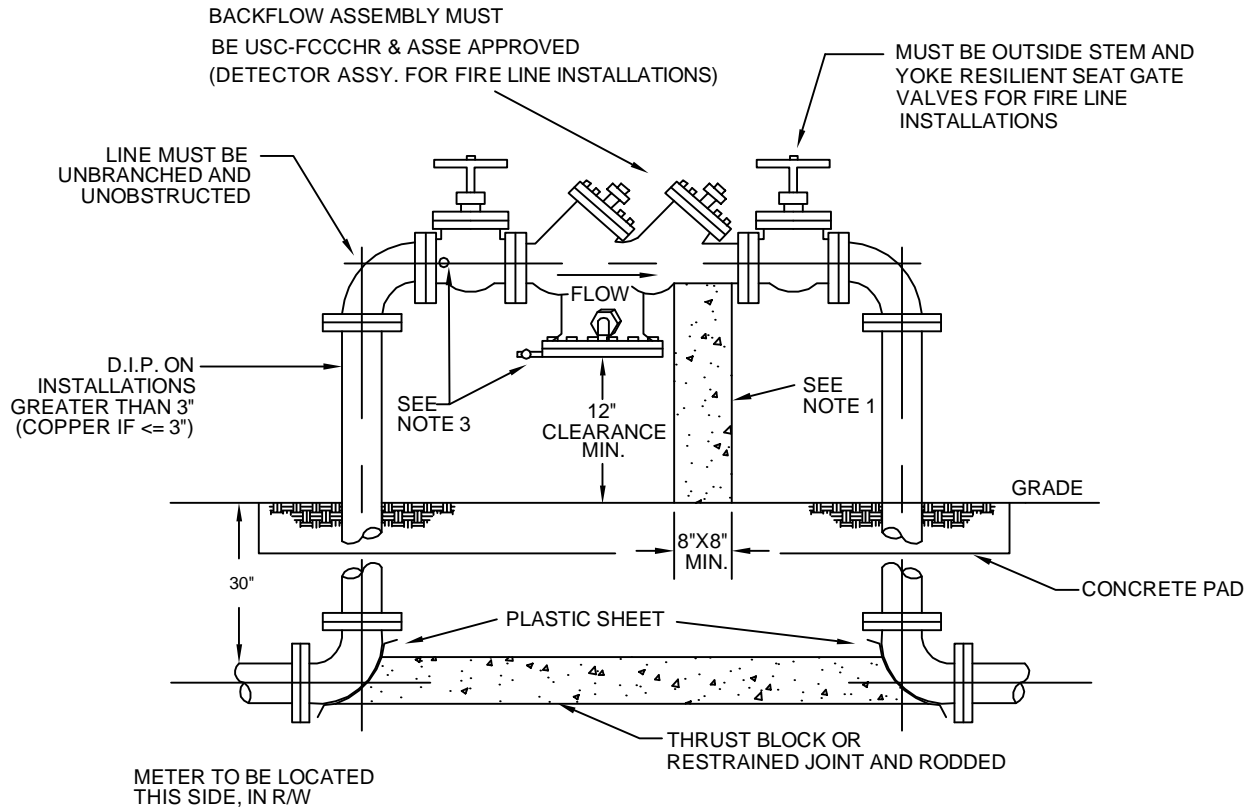
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rev	description	app'd	date



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FLUSHING DEVICE FOR NEW WATER MAIN EXTENSIONS

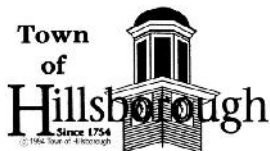
scale | NTS drawing no. | **W-02**
 date | JUNE 2012
 approved | *Kenneth P. Keel*
 Kenneth P. Keel, P.E., Town Engineer



NOTES:

1. CONCRETE SUPPORT BLOCK REQUIRED ON 2 1/2" & LARGER BACKFLOW PREVENTERS
2. THE DEVICE MUST BE INSTALLED WITH MINIMUM HORIZONTAL CLEARANCES OF 30" FOR SIDE WITH TEST COCKS AND 8" FOR BACK SIDE (N/A WITH REMOVABLE BOX OR PANELS)
3. ASSEMBLY IS NOT COMPLETE UNLESS ALL TEST COCKS ARE INSTALLED PER MANUFACTURERS SPECIFICATIONS
4. ASSE 1060 ENCLOSURE REQUIRED FOR ALL BACKFLOW ASSEMBLIES

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rev	description	app'd	date

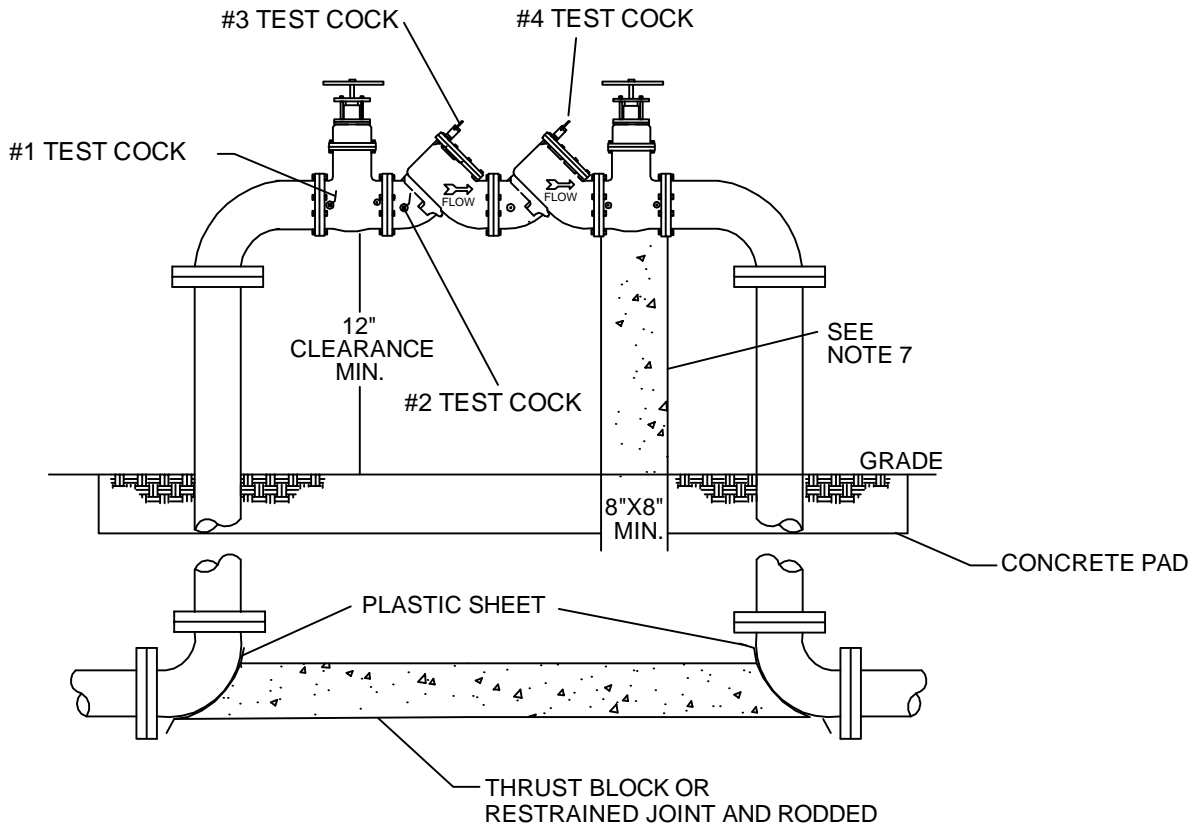


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REDUCED PRESSURE BACKFLOW PREVENTER (RP)

scale | NTS drawing no. | **W-03**
 date | JUNE 2012
 approved | *Kenneth P. Keel*

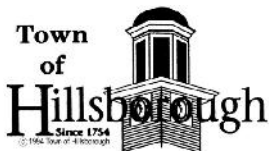
Kenneth P. Keel, P.E., Town Engineer



NOTES:

1. SHUT OFF VALVES, CHECK VALVES, AND TEST COCKS SHALL BE STANDARD TO THE APPROVED BACKFLOW ASSEMBLY
2. ALL LARGE (2-1/2" - 10") ASSEMBLIES TO BE SUPPORTED BY A CRADLE
3. ENCLOSURE FOUNDATIONS SHALL BE CONSTRUCTED OF 4" OF CONCRETE
4. 2-1/2" AND LARGER ASSEMBLIES SHALL BE FUSION BONDED EPOXY COATED INCLUDING SHUTOFF VALVES
5. ASSEMBLY SHALL BE APPROVED BY USC-FCCCHR AND ASSE. A CERTIFIED TESTER SHALL PRESENT TEST RESULTS TO TOH
6. ASSE 1060 ENCLOSURE REQUIRED FOR ALL BACKFLOW ASSEMBLIES
7. CONCRETE SUPPORT BLOCK REQUIRED ON 2 1/2" & LARGER BACKFLOW PREVENTERS

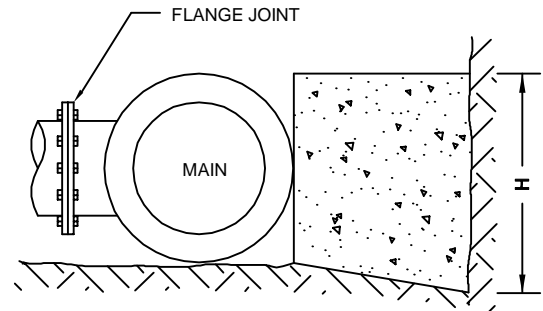
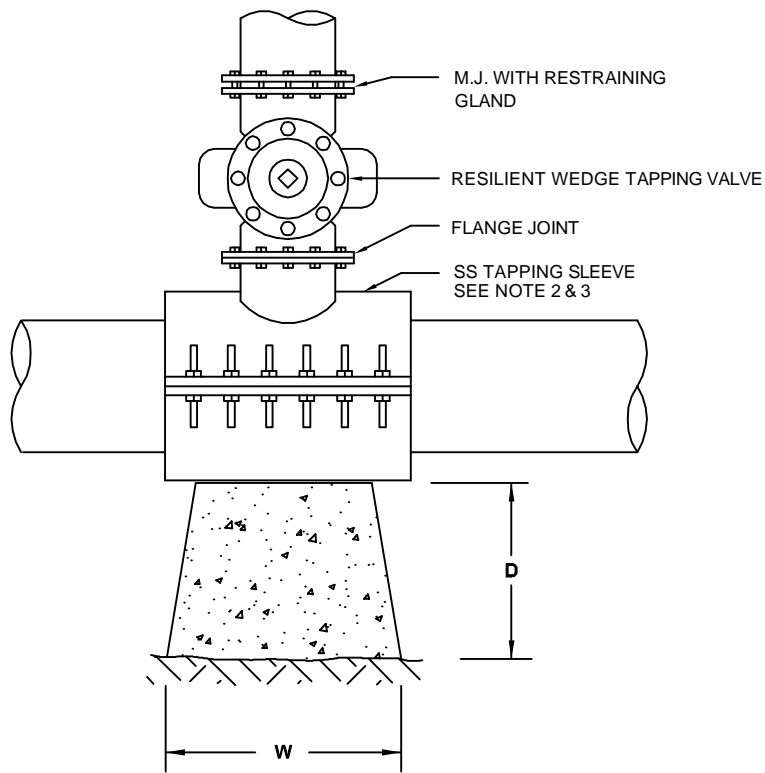
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rev	description	app'd	date



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DOUBLE CHECK VALVE ASSEMBLY (DCVA)

scale | NTS drawing no. | **W-04**
 date | JUNE 2012
 approved | *Kenneth P. Keel*
 Kenneth P. Keel, P.E., Town Engineer



MINIMUM CONCRETE STRENGTH = 3000 PSI.

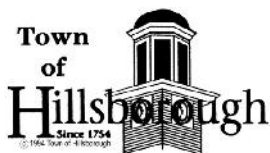
TAP SIZE	DIMENSIONS IN FEET		
	W	H	D
4" & 6"	2.0	1.4	1.0
8"	3.5	2.0	1.4
10"	4.0	2.5	1.8
12"	5.0	3.0	2.5

NOTES:

1. TAPS ONTO EQUAL SIZED MAINS MUST BE CUT AND SLEEVED WITH A TEE AND MAIN LINE VALVE INSTALLED
2. BOLTS AND NUTS FOR TAPPING SLEEVE SHALL BE STAINLESS STEEL
3. ALL TAPS 4" AND GREATER REQUIRE A STAINLESS STEEL TAPPING SLEEVE WITH FULL CIRCUMFERENTIAL SEAL, MECHANICAL JOINT OUTLET AND STAINLESS STEEL BOLTS
4. USE THRUST BLOCKING FOR ALL TAPS
5. DEPTH FROM GROUND SURFACE TO TOP OF BLOCKING SHALL BE GREATER THAN HEIGHT OF BLOCKING
6. THE END OF THE TAPPING SLEEVE SHALL BE NO CLOSER THAN 4 FEET TO A JOINT
7. TAPS ONTO ASBESTOS-CEMENT (AC) OR PVC MAINS REQUIRE AN EXTENDED LENGTH SLEEVE ON THE MAIN BEING TAPPED
8. A 3/4" TEST PLUG OR SLEEVE SHALL BE INSTALLED

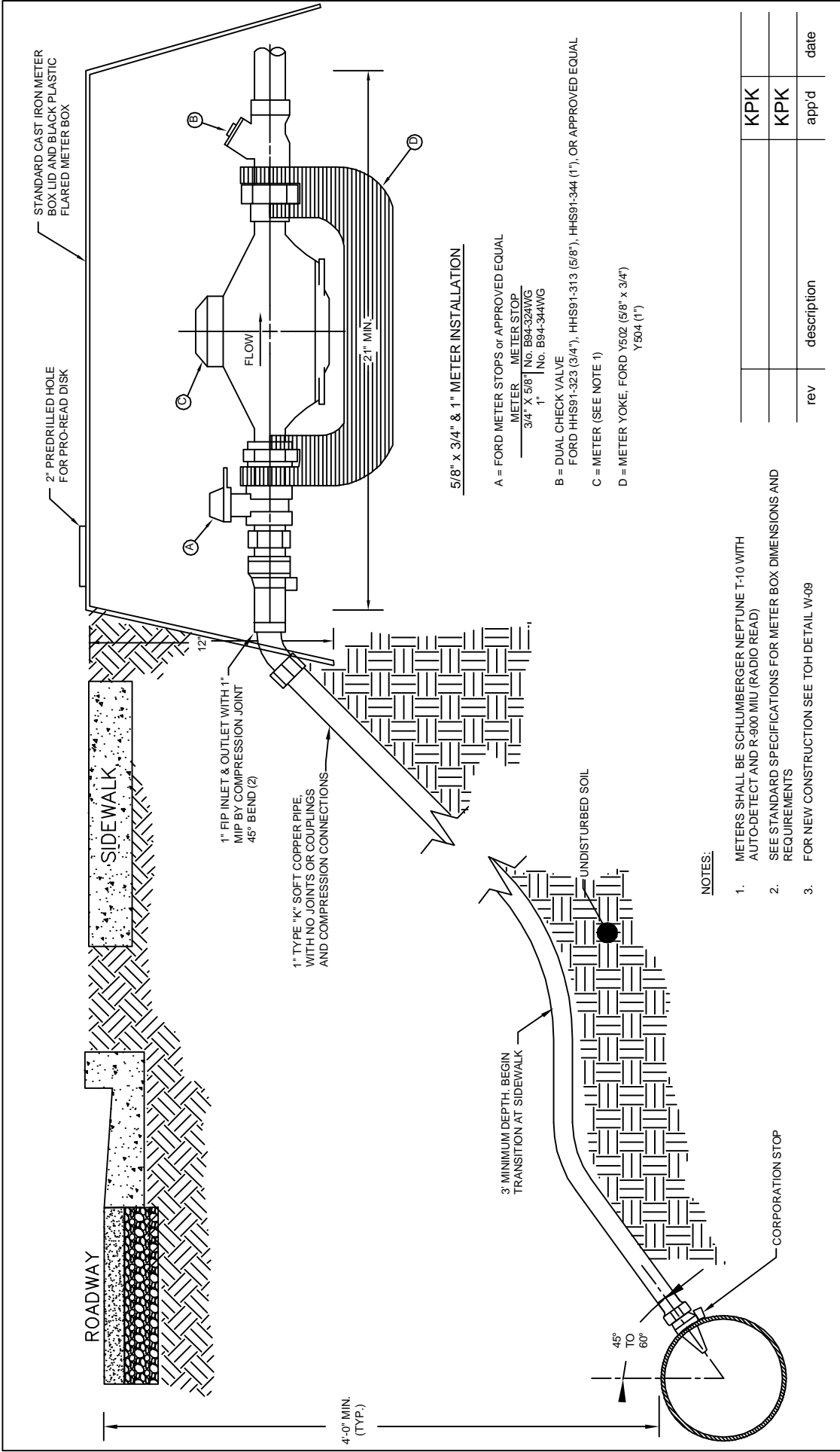
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rev	description	app'd	date

WATER MAIN TAPS



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scale | NTS
 date | JUNE 2012
 approved | *Kenneth P. Keel*
 drawing no. | **W-05**
 Kenneth P. Keel, P.E., Town Engineer



Town of Hillsborough
Since 1754
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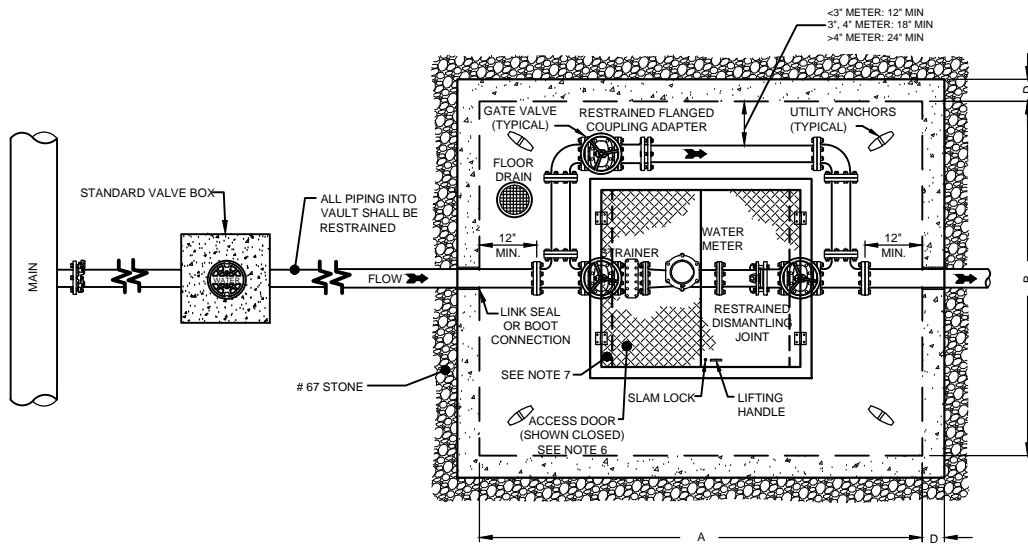
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RESIDENTIAL WATER METER AND BOX

scale NTS drawing no. | **W-06**

date JUNE 2012

approved *[Signature]*
 Kenneth P. Keel, P.E., Town Engineer

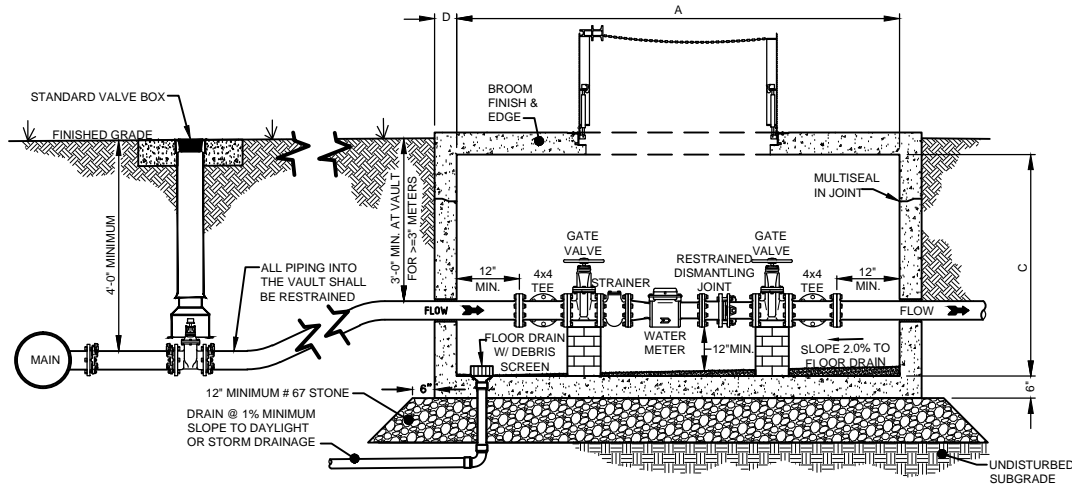


DIMENSION	"A"	"B"	"C"*	"D"	WATER METER TYPE
1½" METER	48"	36"	30"	4"	NEPTUNE T-10
2" METER	54"	42"	30"	4"	TRU/FLO COMPOUND
3" METER	96"	60"	48"	6"	
4" METER	108"	66"	48"	6"	
6" METER	126"	72"	54"	6"	NEPTUNE HP TURBINE
8" METER	138"	78"	60"	6"	
10" METER	168"	84"	60"	6"	

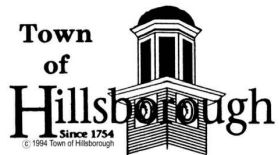
*MAXIMUM DEPTH IS 60"; MIN. WALL THICKNESS 6" IN H-20 AREAS.

NOTES:

1. FLANGED BRONZE STRAINERS BY NEPTUNE SHALL BE INSTALLED IMMEDIATELY BEFORE ALL 2" AND LARGER METERS WITH APPROPRIATELY SIZED SPACER BETWEEN THE STRAINER AND METER
2. A SEPARATE ABOVE GROUND BACKFLOW PREVENTION DEVICE IS REQUIRED PER TOH SPECIFICATIONS
3. PIPING > 1" THROUGH VAULTS SHALL BE FLANGED OR RESTRAINED DUCTILE IRON OR COPPER (COMPRESSION JOINTS/FITTINGS)
4. METERS SHALL BE PURCHASED THROUGH THE TOH
5. 1-1/2" - 2" METER INSTALLATIONS SHALL USE A FORD 70 SERIES COPPERSETTER WITH BALL VALVE INLET AND OUTLET (OR EQUAL)
6. HATCHES SHALL BE DOUBLE LEAF ALUMINUM DIAMOND PLATE H-20 RATED IN TRAFFIC AREAS (300 PSF NON-TRAFFIC AREAS) DESIGN WITH HINGED LOCKING SPRING LOADED DOORS WITH OPEN POSITION LOCK. HARDWARE TO BE STAINLESS STEEL. HATCH SIZES (TO BE CENTERED OVER METER) ARE AS FOLLOWS:
 - 6.1. 1.5" METERS: 36" X 48"
 - 6.2. 2" METERS: 42" X 54"
 - 6.3. 3" AND 4" METERS: 60" X 60"
 - 6.4. 6", 8" AND 10" METERS: 48" X 72" UNLESS CUSTOM SIZE MANDATED BY TOH
7. TWO (2) 2" HOLES SHALL BE CUT NEAR HINGE AREA FOR RADIO READ DEVICES
8. VAULTS SHOULD BE PROVIDED WITH STEPS OR A LADDER ACCESSIBLE FROM THE HATCH WITH THE HATCH PLACEMENT ALLOWING VIEWING AND REMOVAL OF THE METER..



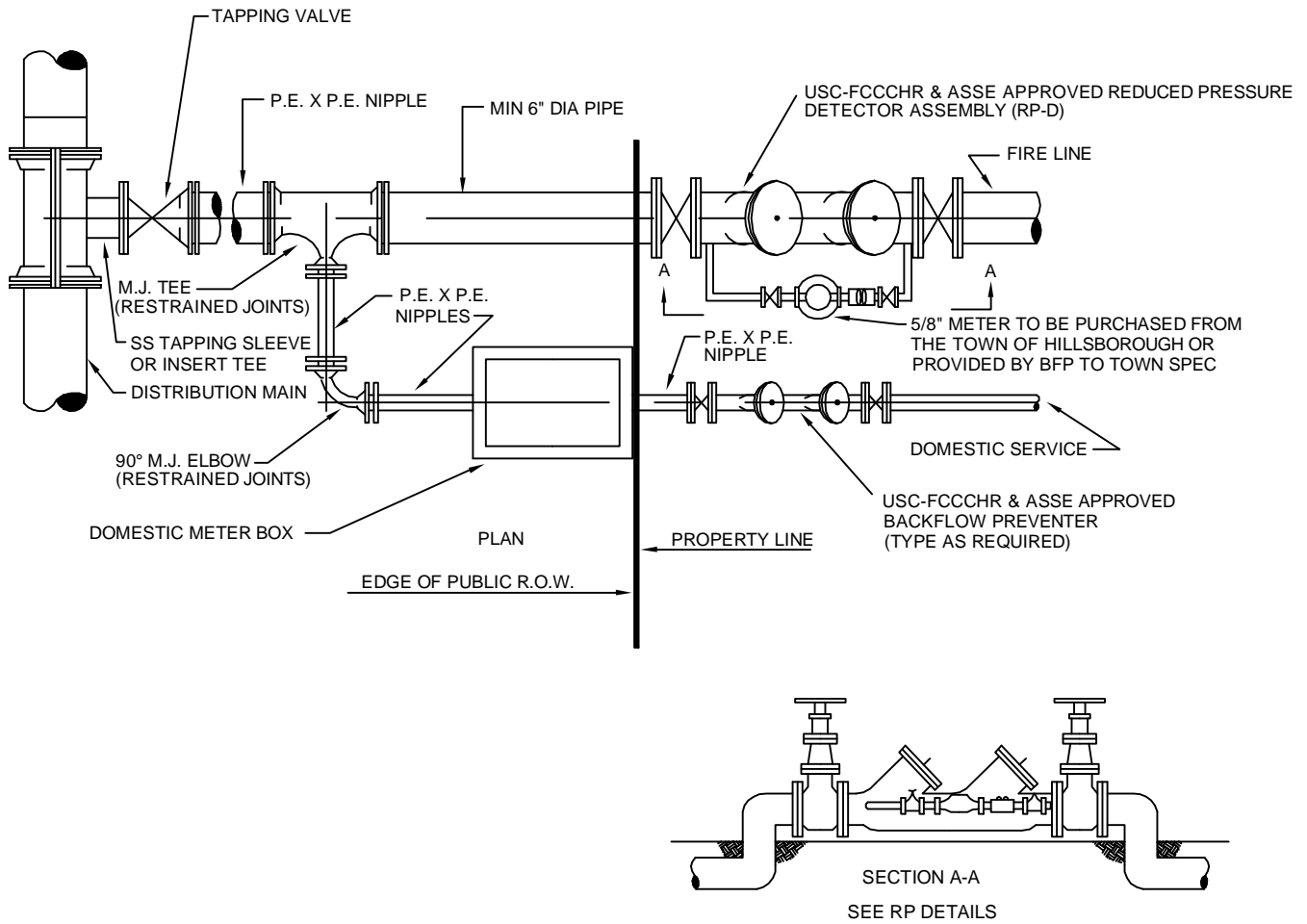
1	2" hatch size & misc. dimensioning	KPK	1/10/17
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COMMERCIAL WATER METER AND VAULT

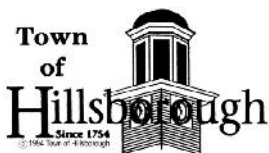
scale | NTS drawing no. | **W-07**
 date | JANUARY 2017
 approved | *Kenneth P. Keel*
 Kenneth P. Keel, P.E., Town Engineer



NOTES:

1. 12" CLEARANCE REQUIRED UNDER BFP ASSEMBLIES
2. ASSE 1060 ENCLOSURE REQUIRED FOR BFV ASSEMBLIES
3. ONLY APPLICABLE TO MAINS > 6 INCHES

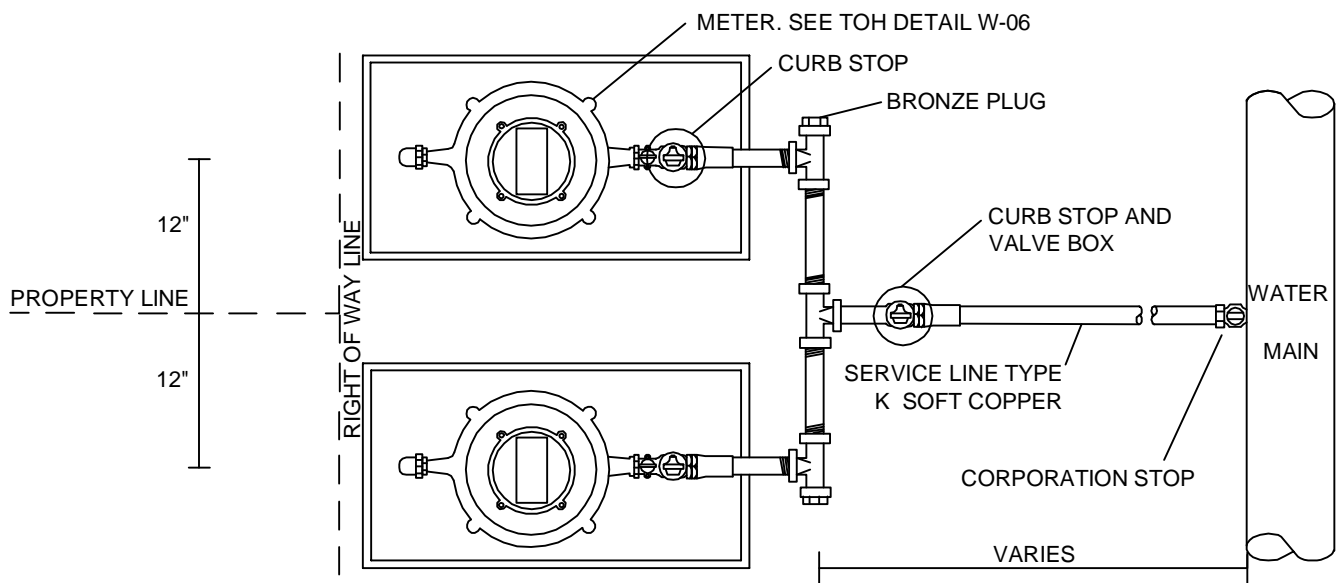
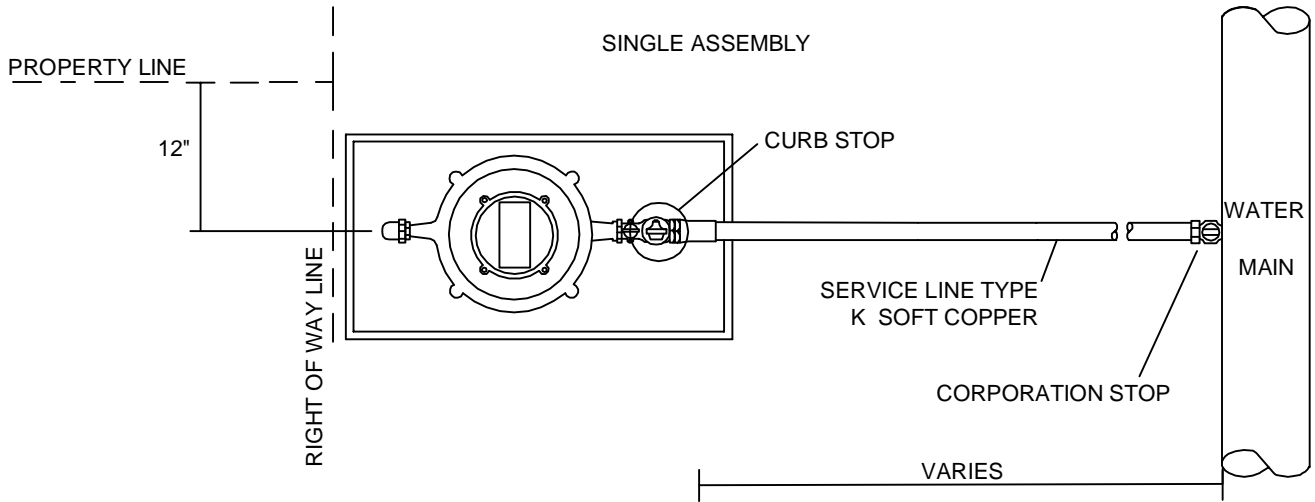
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BACKFLOW FOR FIRE LINE

scale | NTS drawing no. | **W-08**
 date | JUNE 2012
 approved | *Kenneth P. Keel*
 Kenneth P. Keel, P.E., Town Engineer

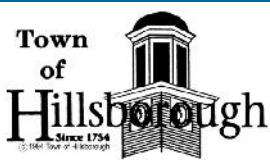


NOTES:

1. ALL WATER METER LOCATIONS SHALL BE COORDINATED WITH THE METER READER SUPERVISOR
2. METERS WILL BE GROUPED IN PAIRS AT ADJOINING PROPERTY LINES
3. EACH SERVICE SHALL HAVE ITS OWN CURBSTOP/BALLSTOP IN ITS OWN METER BOX
4. MINIMUM SERVICE LINE IS 1"
5. FOR DUAL ASSEMBLY INSTALLATION, USE FORD BALL VALVE CURB STOP (B44-444-G) ON SERVICE PRIOR TO TEE AND STANDARD VALVE BOX

SIZE (I.D.) (SERVICE TAP SIZE FROM MAIN)	NUMBER OF METERED SERVICES ALLOWED	
	3/4"	1"
2"	9-16	5-8
1 1/2"	5-8	4
1"	4	2

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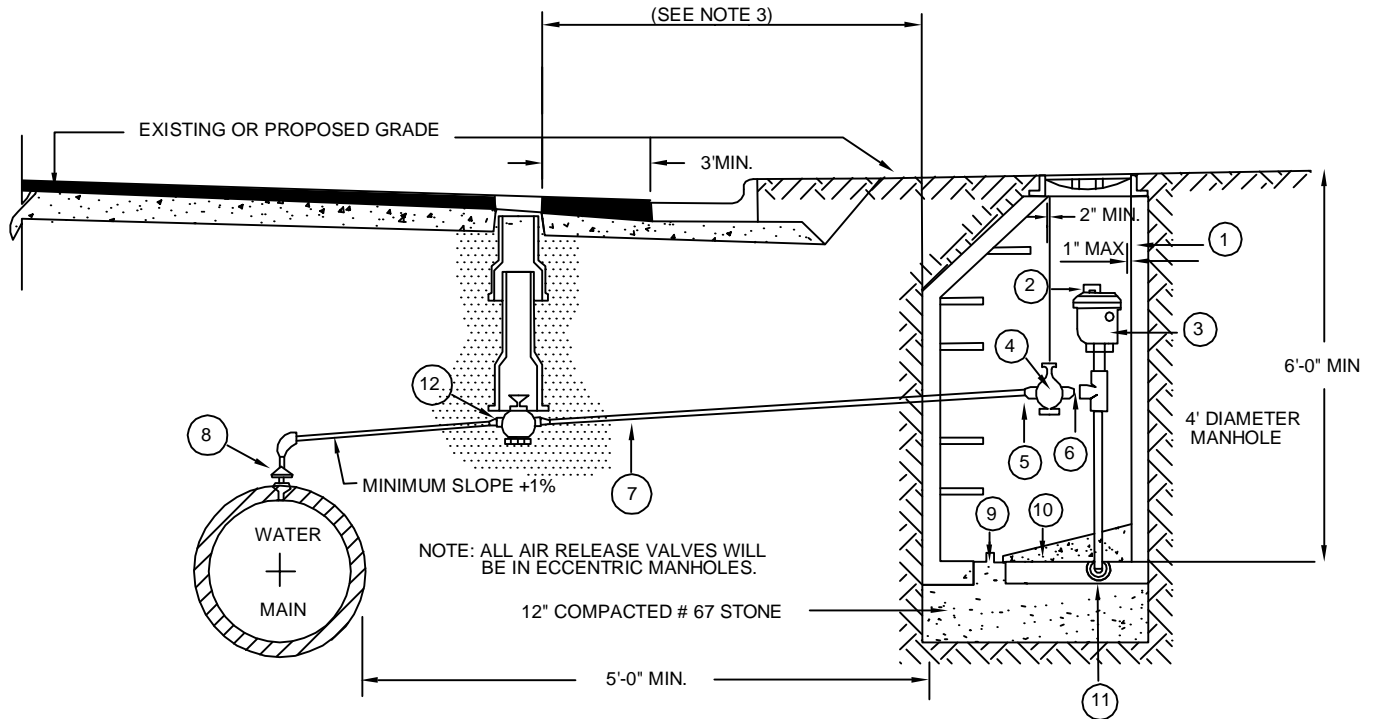
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WATER METER LOCATION

scale | NTS drawing no. | **W-09**

date | JUNE 2012

approved | *Kenneth P. Keel*
Kenneth P. Keel, P.E., Town Engineer



NOTE: ALL AIR RELEASE VALVES WILL BE IN ECCENTRIC MANHOLES.

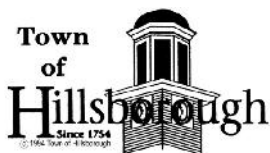
BILL OF MATERIALS

1	PRECAST MANHOLE
2	TRASH HOOD
3	2" AIR RELEASE VALVE
4	2"-INCH GATE VALVE
5	ADAPTER
6	2" MECHANICAL JOINT BRASS PIPE AND FITTINGS.
7	2" TYPE "K", SOFT COPPER WITH FLARED ELBOW.
8	CORPORATION STOP
9	6" DIAMETER DRAIN TO STONE BASE
10	GROUT, 1/8" TO 1'-0" MIN. SLOPE TO DRAIN
11	PIPE CAP
12	2"-INCH GATE VALVE

NOTES:

- AIR VALVE TO BE A.R.I D-020 VENT-O-MAT SERIES RBX OR EQUAL
- THE AIR RELEASE MANHOLE SHALL BE INSTALLED IN THE SHOULDER OR AS DIRECTED BY THE ENGINEER
- FOR MAINS LOCATED OUTSIDE OF STREET RIGHT-OF-WAYS THE MAXIMUM DISTANCE BETWEEN THE MANHOLE AND THE VALVE BOX SHOULD BE THREE (3) FEET

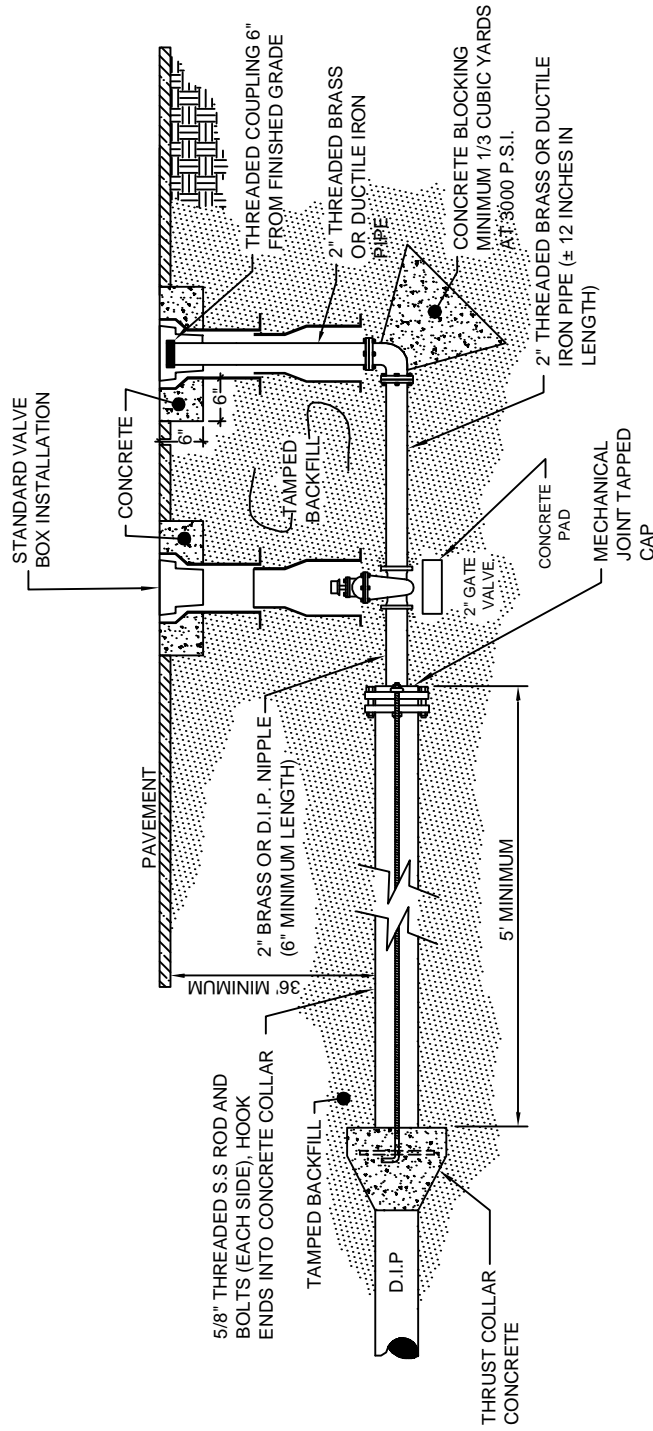
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AIR RELEASE VALVE-WATER

scale | NTS drawing no. | **W-10**
 date | JUNE 2012
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 Kenneth P. Keel, P.E., Town Engineer

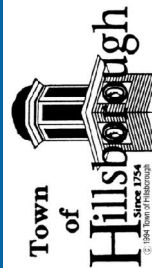


MAIN SIZE	END PIPE SIZE
4" - 12"	2" BLOW-OFF
16" & GREATER	AS APPROVED BY TOWN ENGINEER

NOTES:

- FOR MAINS THAT ARE TO BE EXTENDED, USE A VALVE EQUAL TO THE MAIN SIZE AS THE BLOW-OFF VALVE AND THEN REDUCE TO THE 2" STANDPIPE
- RODS SHALL BE "HOOKED" INTO THRUST COLLAR

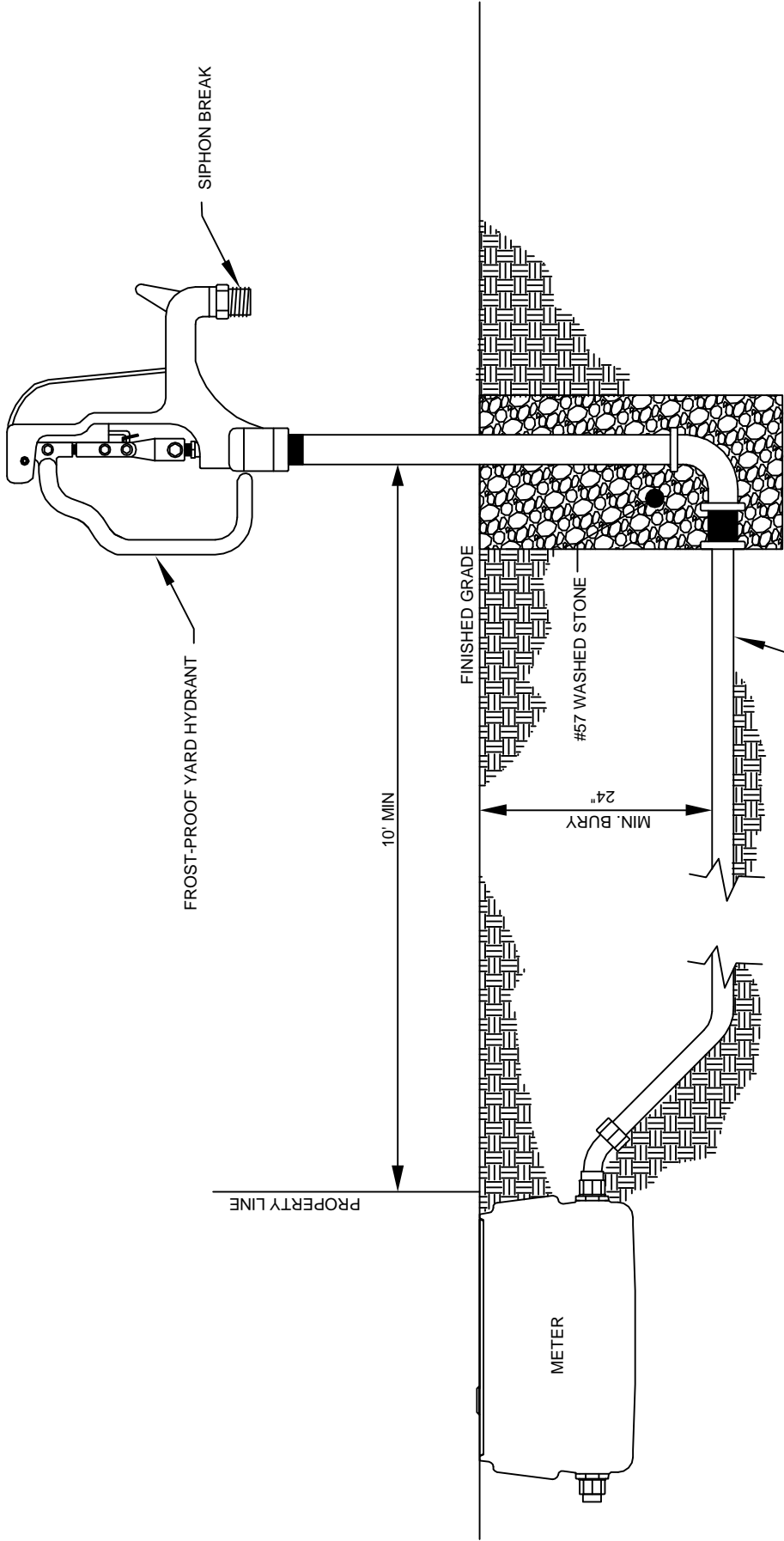
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BLOW-OFF DETAIL

scale NTS drawing no. | **W-11**
 date JUNE 2012
 approved *[Signature]*
 Kenneth P. Keel, P.E., Town Engineer



NOTES:

- 1. HOSE BIB SHALL ACCOMMODATE STANDARD 3/4" GARDEN HOSE
- 2. A BACKFLOW PREVENTER WITH ENCLOSURE SHALL BE INCLUDED ON ALL TEMPORARY FAUCETS

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		KPK	



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TEMPORARY FAUCET

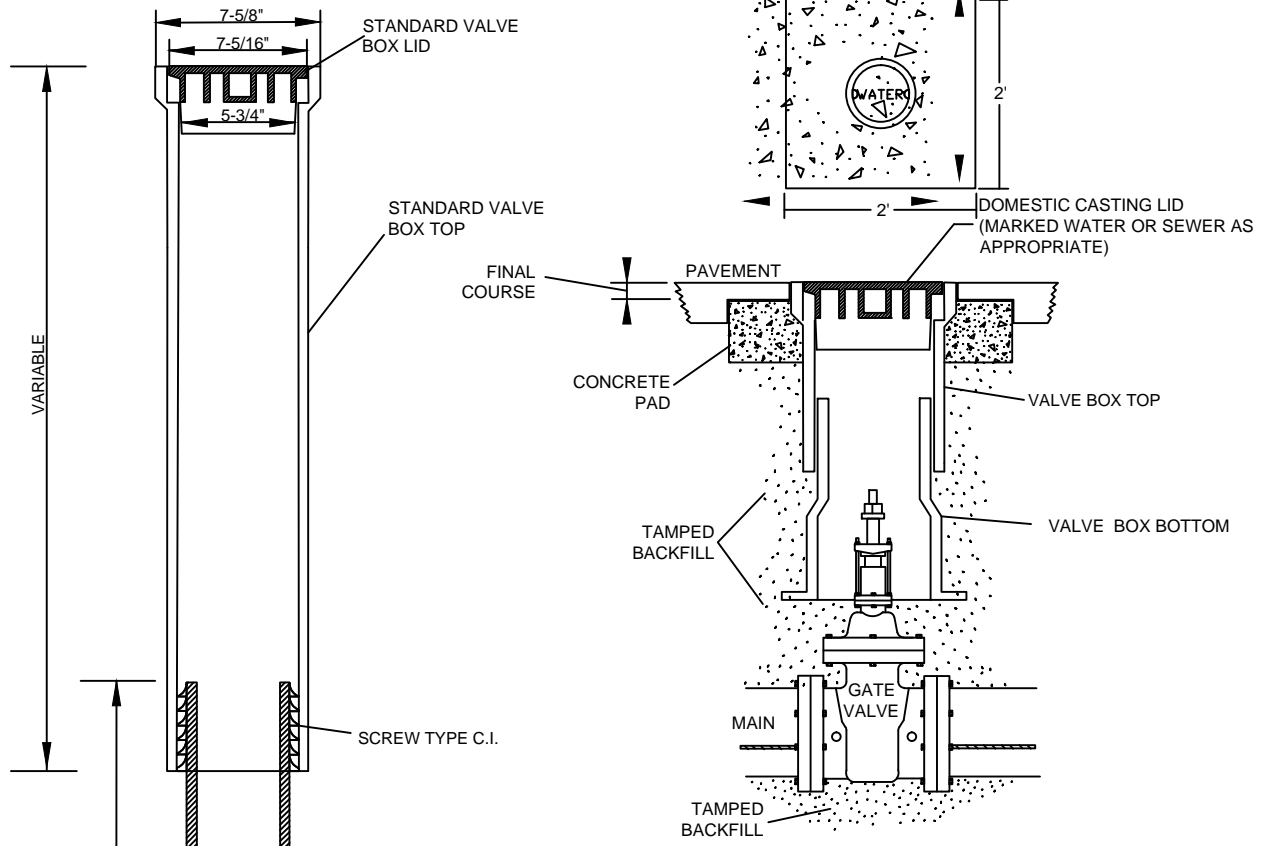
scale | NTS | drawing no. | **W-12**

date | JUNE 2012

approved | *[Signature]*

Kenneth P. Keel, P.E., Town Engineer

NOTE: 2'x 2'x 6" CONCRETE PAD (OR PRECAST CONCRETE RING IN UNPAVED AREAS) REQUIRED ON ALL VALVES.

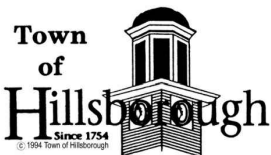


TYPICAL TWO-PIECE VALVE BOX

NOTES:

1. PREFERRED VALVE BOX IS MODEL 32562-S, A SCREW-TYPE TWO PIECE ADJUSTABLE HEIGHT BOX MANUFACTURED BY GENERAL FOUNDRIES. OTHER SIMILAR MODELS ARE AVAILABLE WITH VARIABLE HEIGHT RANGES AS NECESSARY.
2. VALVE BOX NOT TO CONTACT WATER MAIN OR SEWER FORCE MAIN
3. CAST IRON TO CONFORM TO ASTM A-48 CLASS 35B
4. TRAFFIC CASTINGS MUST BE H-20 WHEEL LOADING RATED
5. FOR ANY VALVES OVER 10' DEEP, A VALVE STEM EXTENSION MUST BE USED TO BRING TO A DEPTH OF NO MORE THAN 5', EXTENSION MUST BE A MINIMUM OF 1' FOR MAINS 12" AND LARGER.
6. TOTAL VALVE BOX WEIGHT: MINIMUM OF 85 LBS.

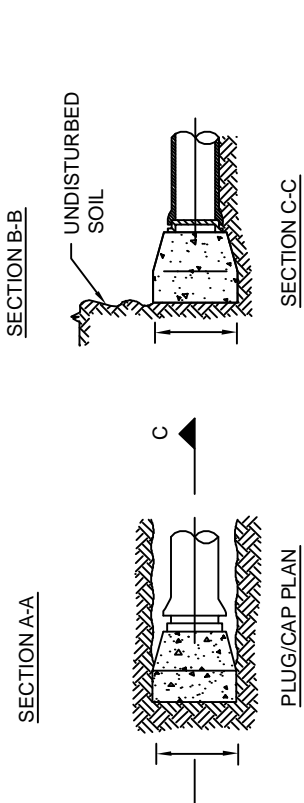
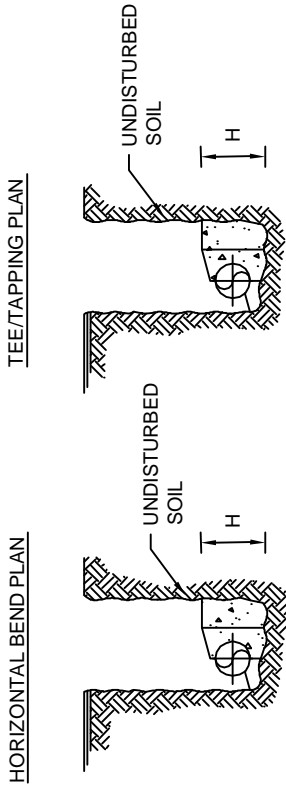
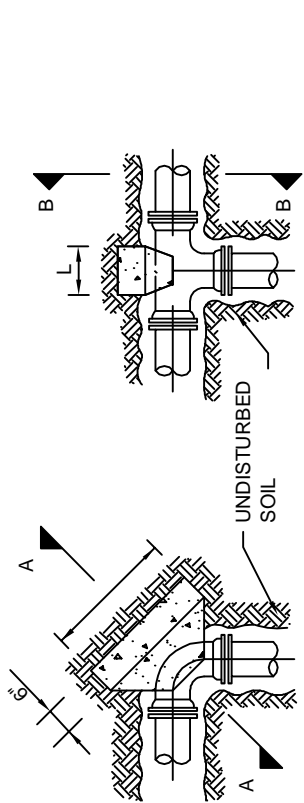
1	Added ref. to sewer applications	KPK	1/10/17
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VALVE BOX ASSEMBLY AND GATE VALVE

scale | NTS | drawing no. | **WS-01**
 date | JANUARY 2017
 approved | *Kenneth P. Keel*
 Kenneth P. Keel, P.E., Town Engineer



NOTES:

- SEE CHART "HORIZONTAL ANCHOR DIMENSIONS", USE WITH CHART UP TO 150 PSI WORKING PRESSURE.

HORIZONTAL ANCHOR DIMENSIONS FOR AVERAGE SOIL CONDITIONS											
UP TO 150 P.S.I. WORKING PRESSURE											
PIPE SIZE	PLUG, CAP, TEE OR TAP SLEEVE		90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		
	H	L	H	L	H	L	H	L	H	L	
4"	1'-0"	2'-0"	1'-0"	2'-0"	1'-0"	1'-4"	0'-9"	1'-0"	0'-6"	1'-0"	
6"	1'-0"	2'-0"	1'-0"	2'-0"	1'-0"	1'-4"	0'-9"	1'-0"	0'-6"	1'-0"	
8"	1'-4"	2'-8"	1'-4"	2'-8"	1'-4"	1'-6"	1'-0"	1'-0"	0'-9"	1'-0"	
10"	1'-8"	3'-4"	1'-8"	3'-4"	1'-8"	2'-0"	1'-3"	1'-3"	1'-0"	1'-0"	
12"	2'-0"	4'-0"	2'-0"	4'-0"	2'-0"	2'-2"	1'-6"	1'-6"	1'-3"	1'-3"	
14"	2'-4"	4'-8"	2'-4"	4'-8"	2'-4"	2'-6"	1'-9"	1'-9"	1'-4"	1'-4"	
16"	2'-8"	5'-4"	2'-8"	5'-4"	2'-8"	3'-0"	2'-0"	2'-0"	1'-6"	1'-6"	
18"	3'-0"	6'-0"	3'-0"	6'-0"	3'-0"	3'-4"	2'-3"	2'-3"	1'-8"	1'-8"	
20"	3'-4"	6'-8"	3'-4"	6'-8"	3'-4"	3'-8"	2'-6"	2'-6"	2'-0"	2'-0"	
24"	4'-0"	8'-0"	4'-0"	8'-0"	4'-0"	4'-4"	3'-0"	3'-0"	2'-3"	2'-3"	
30"	5'-0"	10'-0"	5'-0"	10'-0"	5'-0"	5'-6"	3'-9"	3'-9"	2'-9"	2'-9"	
36"	6'-0"	12'-0"	6'-0"	12'-0"	6'-0"	6'-6"	4'-6"	4'-6"	-	-	
42"	7'-0"	14'-0"	7'-0"	14'-0"	7'-0"	7'-9"	5'-0"	5'-3"	-	-	
48"	8'-0"	16'-0"	8'-0"	16'-0"	8'-0"	8'-9"	6'-0"	6'-0"	-	-	

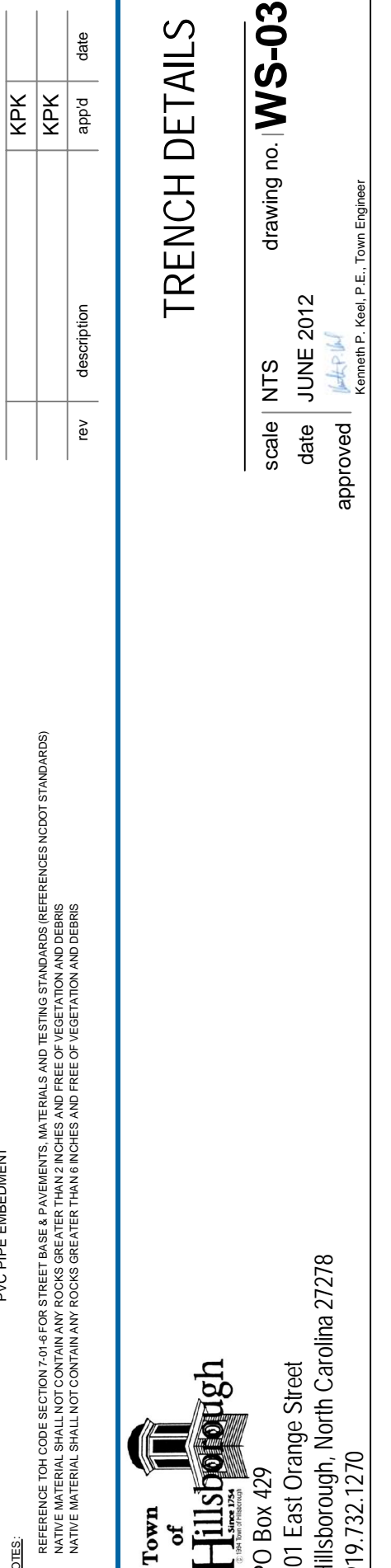
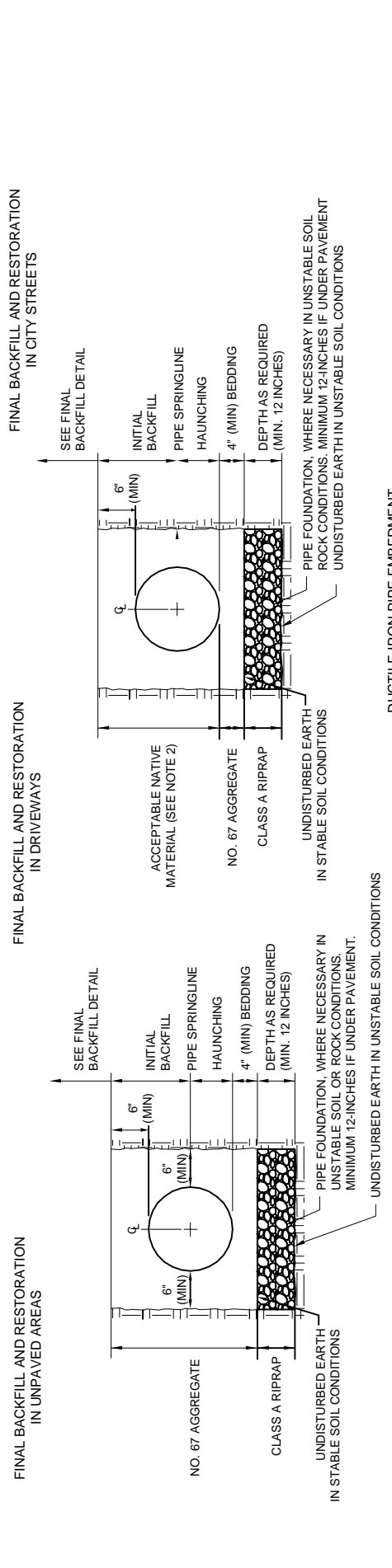
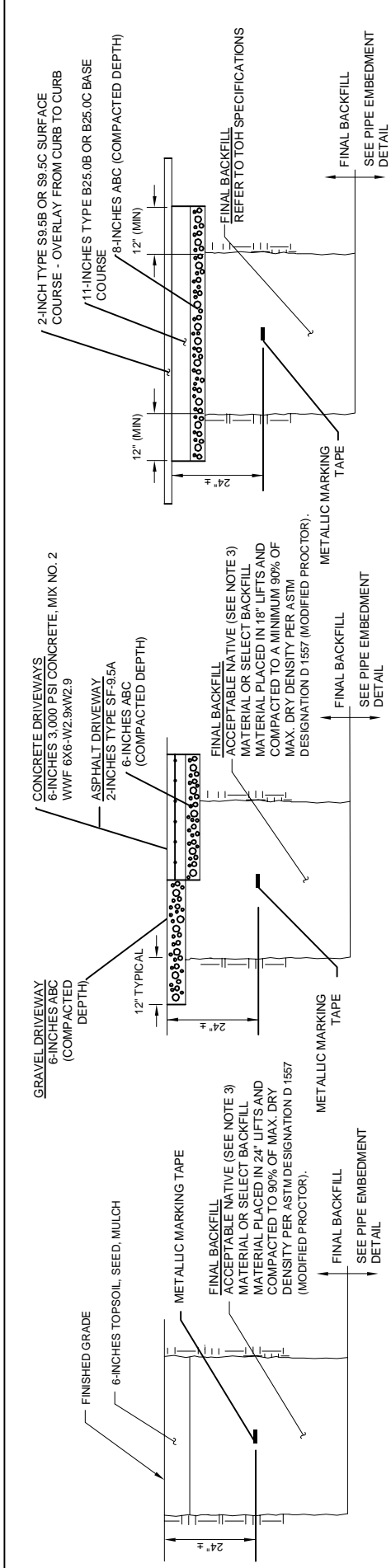
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THRUST BLOCKING

scale NTS drawing no. | **WS-02**
 date JUNE 2012
 approved *[Signature]*
 Kenneth P. Keel, P.E., Town Engineer



NOTES:

- REFERENCE TOH CODE SECTION 7-01-16 FOR STREET BASE & PAVEMENTS, MATERIALS AND TESTING STANDARDS (REFERENCES NCDOT STANDARDS)
- NATIVE MATERIAL SHALL NOT CONTAIN ANY ROCKS GREATER THAN 2 INCHES AND FREE OF VEGETATION AND DEBRIS
- NATIVE MATERIAL SHALL NOT CONTAIN ANY ROCKS GREATER THAN 6 INCHES AND FREE OF VEGETATION AND DEBRIS

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TRENCH DETAILS

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