

ITEM	EXISTING	PROPOSED
Telephone Cable (direct burial)		
Telephone Conduit		
Telephone Duct		
Telephone Enclosure		
Telephone Maintenance Hole		
Telephone Pole		
Telephone Handhole		
Television Cable (direct Burial)		
Television Handhole		
Telegraph Maintenance Hole		
Steam Log		
Steam Vault		
Gas Main <1'-0\"/>		
Gas Main ≥1'-0\"/>		
Gas Valve		
Gas Meter		
Gas Regulator		
Petroleum or Oil		
Abandon(ed)		

REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS
PRIVATE UTILITIES

ITEM

EXISTING

PROPOSED

90° Bend w/Conc Blocking

Plug w/Conc Blocking

Tee w/Conc Blocking

Watermain
<1'-0"Dia

Watermain
≥1'-0"Dia

11 1/4° Bend

22 1/2° Bend

45° Bend

90° Bend

Cross

Tee

Pipe Sleeve

Plug

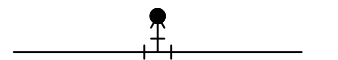
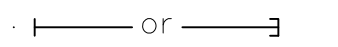
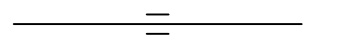
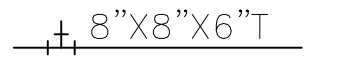
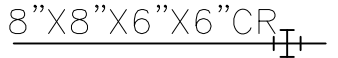
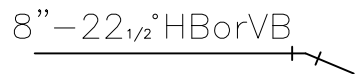
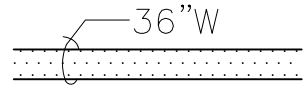
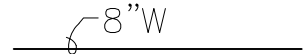
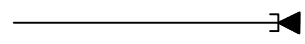
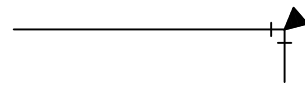
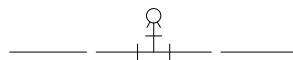
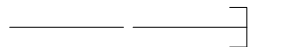
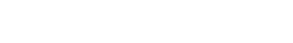
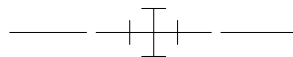
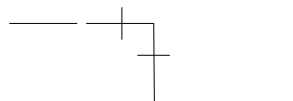
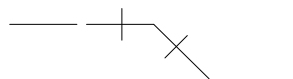
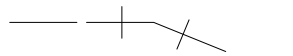
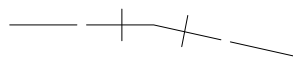
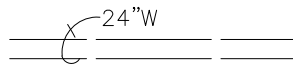
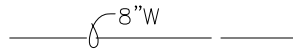
Hydrant

Water Meter

Valve Box

Gate Valve

Gate Valve
w/ Chamber



REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS
WATER

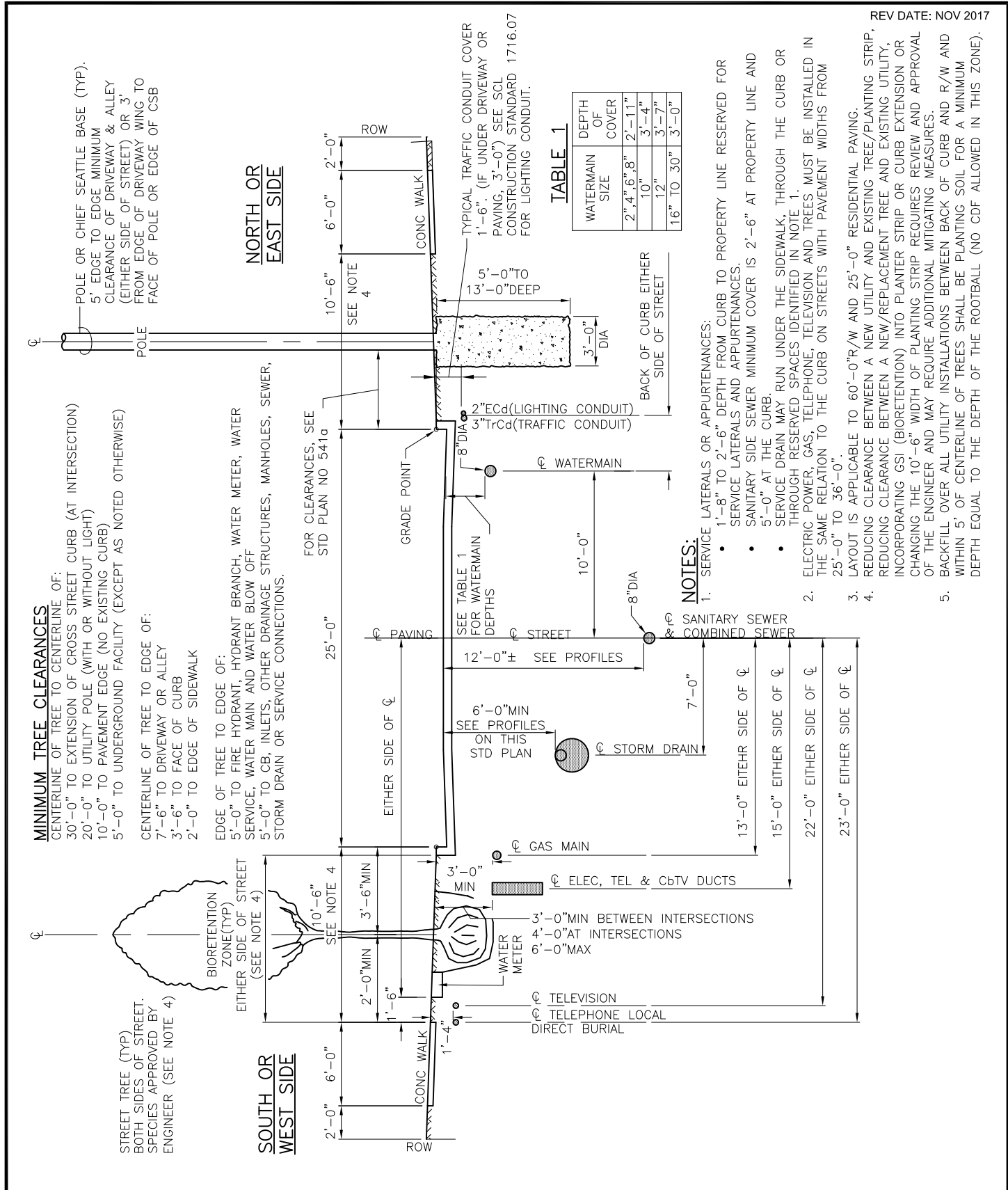


TABLE 1

WATERMAIN SIZE	DEPTH OF COVER
2" 4" 6" 8"	2'-11"
10"	3'-4"
12"	3'-7"
16" TO 30"	3'-0"

- NOTES:**
- SERVICE LATERALS OR APPURTENANCES:
 - 1'-8" TO 2'-6" DEPTH FROM CURB TO PROPERTY LINE RESERVED FOR SERVICE LATERALS AND APPURTENANCES.
 - SANITARY SIDE SEWER MINIMUM COVER IS 2'-6" AT PROPERTY LINE AND 5'-0" AT THE CURB.
 - SERVICE DRAIN MAY RUN UNDER THE SIDEWALK, THROUGH THE CURB OR THROUGH RESERVED SPACES IDENTIFIED IN NOTE 1.
 - ELECTRIC, POWER, GAS, TELEPHONE AND TREES MUST BE INSTALLED IN THE SAME RELATION TO THE CURB ON STREETS WITH PAVEMENT WIDTHS FROM 25'-0" TO 36'-0".
 - LAYOUT IS APPLICABLE TO 60'-0" R/W AND 25'-0" RESIDENTIAL PAVING.
 - REDUCING CLEARANCE BETWEEN A NEW UTILITY AND EXISTING TREE/PLANTING STRIP, REDUCING CLEARANCE BETWEEN A NEW/REPLACEMENT TREE AND EXISTING UTILITY, INCORPORATING CSI (BIOTRETION) INTO PLANTER STRIP OR CURB EXTENSION OR CHANGING THE 10'-6" WIDTH OF PLANTING STRIP REQUIRES REVIEW AND APPROVAL OF THE ENGINEER AND MAY REQUIRE ADDITIONAL MITIGATING MEASURES.
 - BACKFILL OVER ALL UTILITY INSTALLATIONS BETWEEN BACK OF CURB AND R/W AND WITHIN 5' OF CENTERLINE OF TREES SHALL BE PLANTING SOIL FOR A MINIMUM DEPTH EQUAL TO THE DEPTH OF THE ROOTBALL (NO CDF ALLOWED IN THIS ZONE).

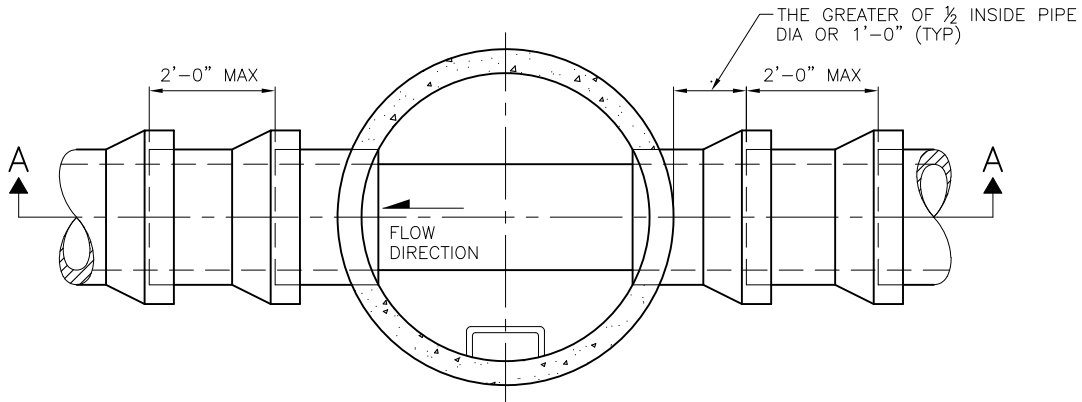
REF STD SPEC SEC 1-07.16, 1-07.17 & 1-07.28



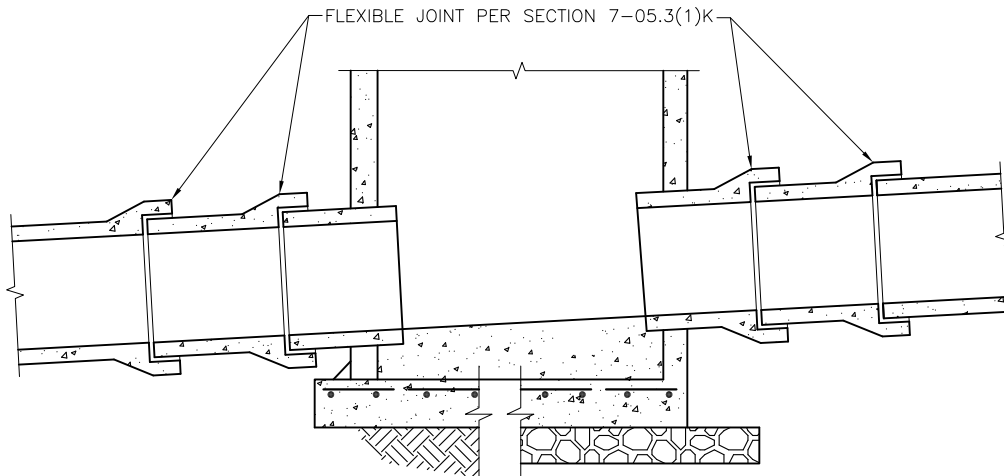
City of Seattle

NOT TO SCALE

DESIRABLE LOCATIONS FOR UTILITIES (RESIDENTIAL STREET)



PLAN VIEW
(TOP REMOVED)



SECTION A-A

NOTES:

1. SEE STANDARD PLANS NO 204a THROUGH 212b FOR MAINTENANCE HOLE REQUIREMENTS.

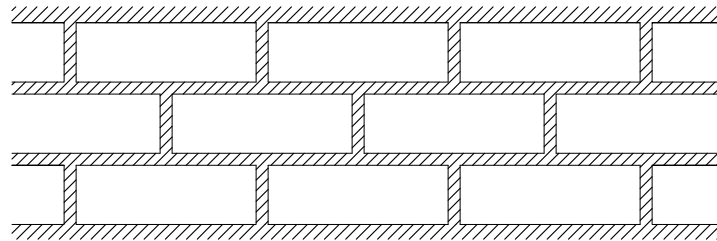
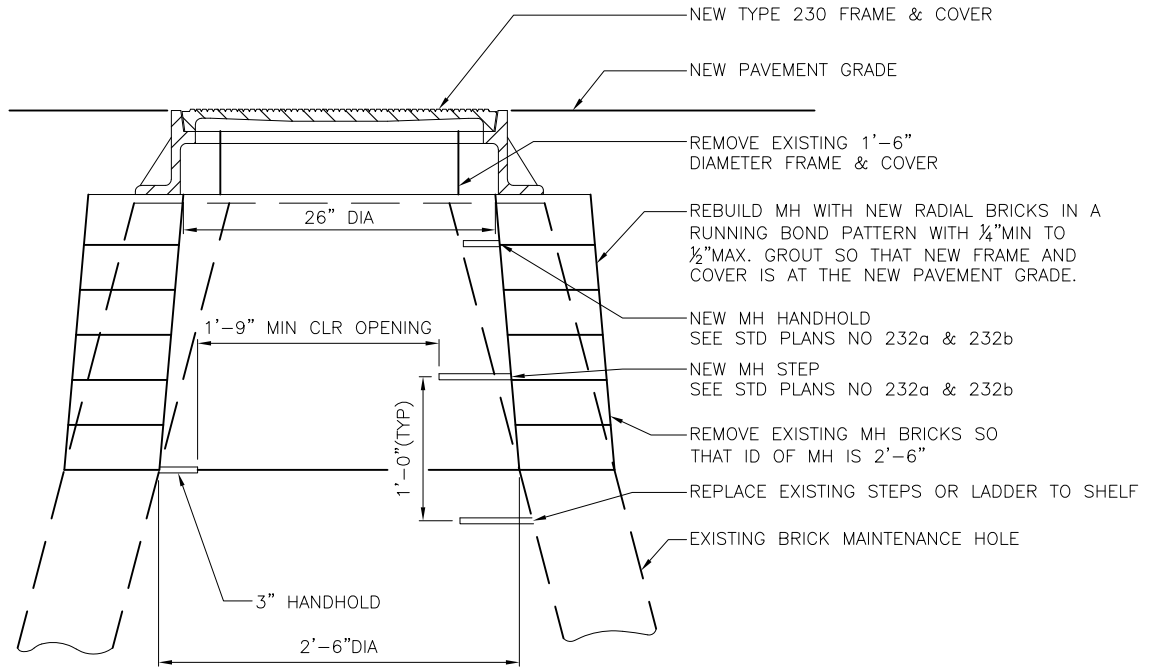
REF STD SPEC SEC 7-05



City of Seattle

NOT TO SCALE

**FLEXIBLE JOINT FOR VCP
CONNECTION TO
MAINTENANCE HOLES**



RUNNING BOND PATTERN
GROUT BETWEEN ALL BRICKS

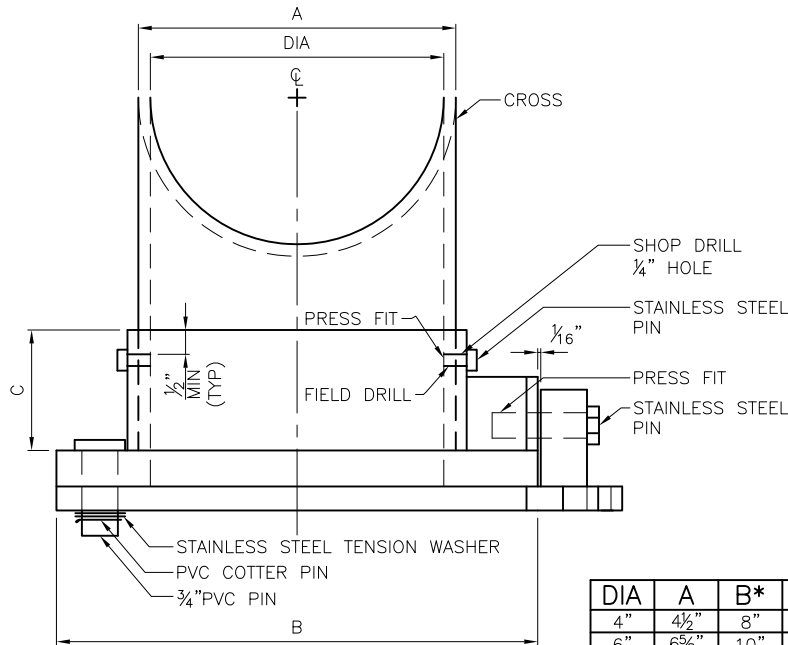
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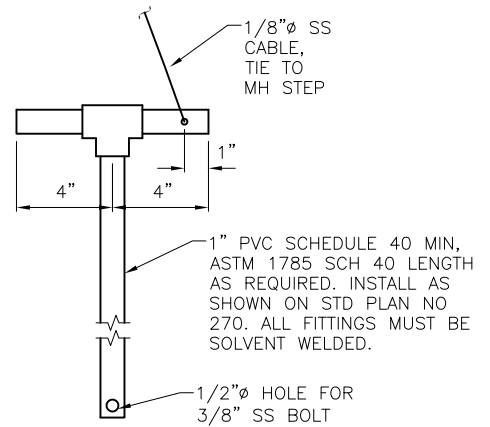
City of Seattle

NOT TO SCALE

**REBUILD EXISTING
BRICK MAINTENANCE HOLE**



TOP VIEW

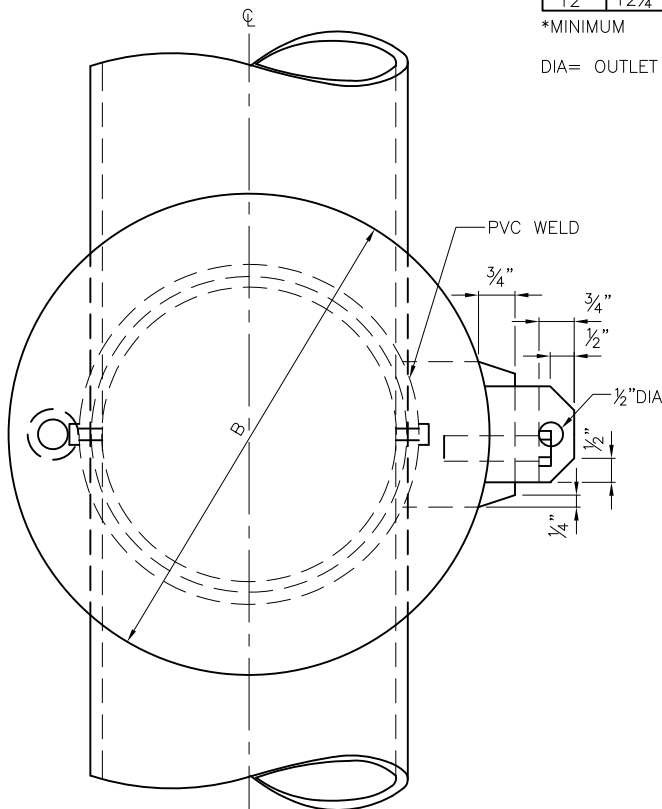


LIFT HANDLE

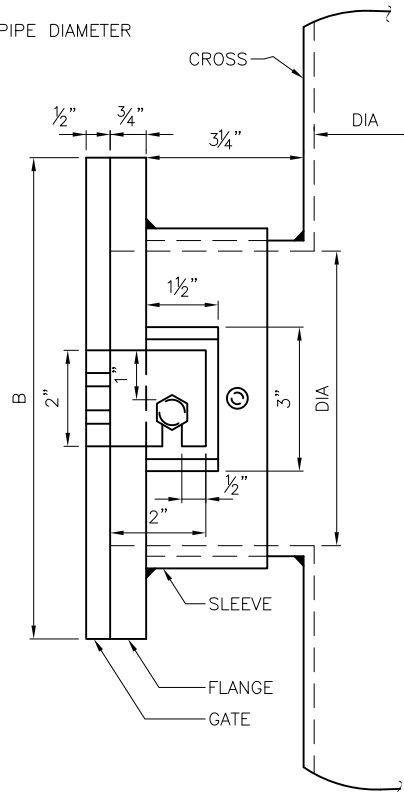
DIA	A	B*	C*
4"	4 1/2"	8"	2"
6"	6 5/8"	10"	2 1/2"
8"	8 3/8"	12"	3"
10"	10 3/4"	14"	3"
12"	12 3/4"	16"	3"

*MINIMUM

DIA= OUTLET PIPE DIAMETER



FRONT VIEW



SIDE VIEW

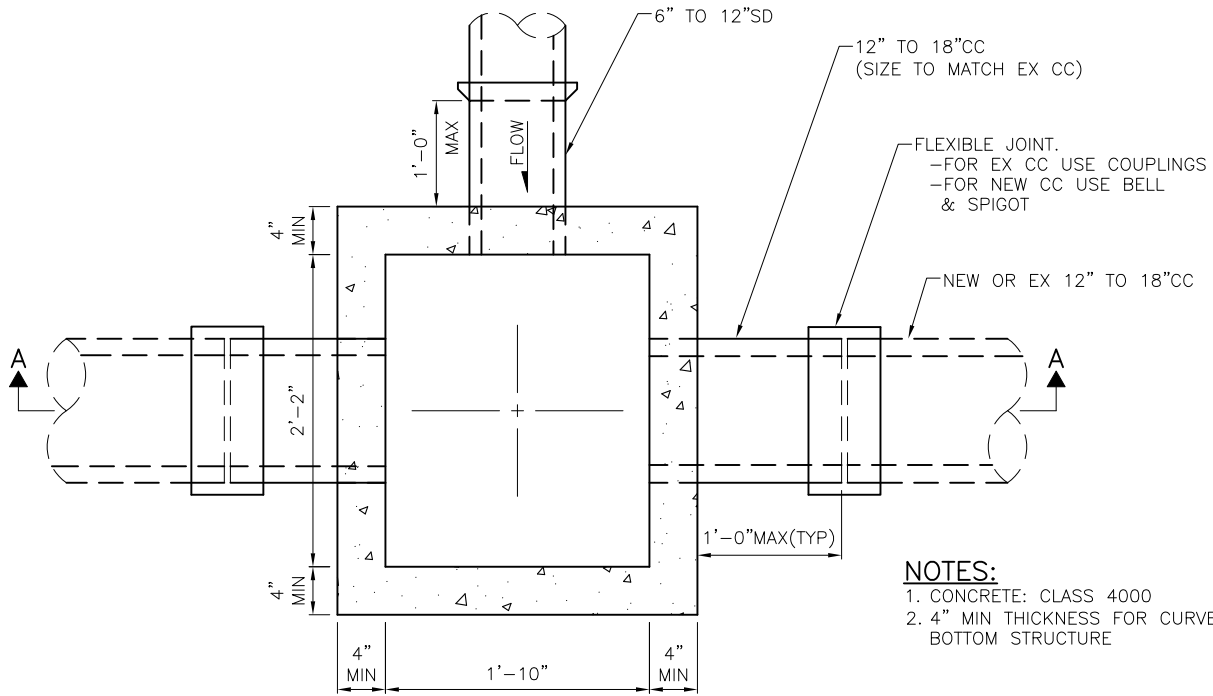
REF STD SPEC SEC 7-16



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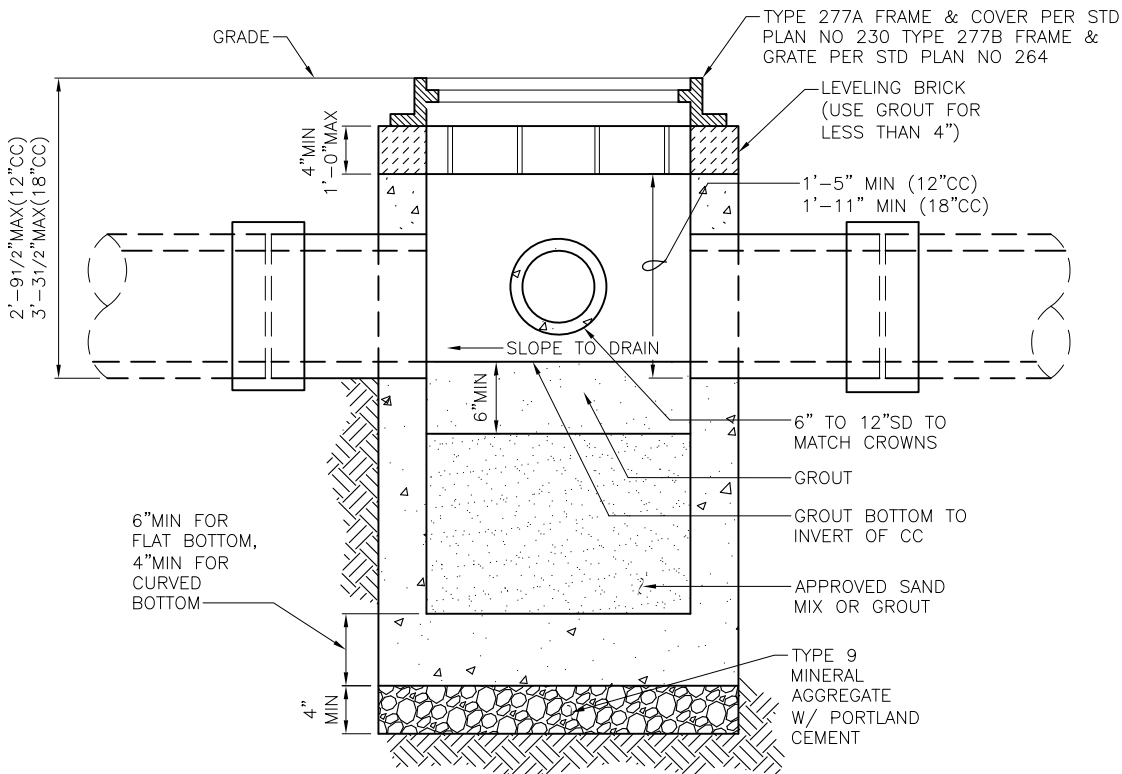
NOT TO SCALE

PVC SHEAR GATE
FOR USE IN ROW ONLY



- NOTES:**
1. CONCRETE: CLASS 4000
 2. 4" MIN THICKNESS FOR CURVED BOTTOM STRUCTURE

PLAN



SECTION A-A

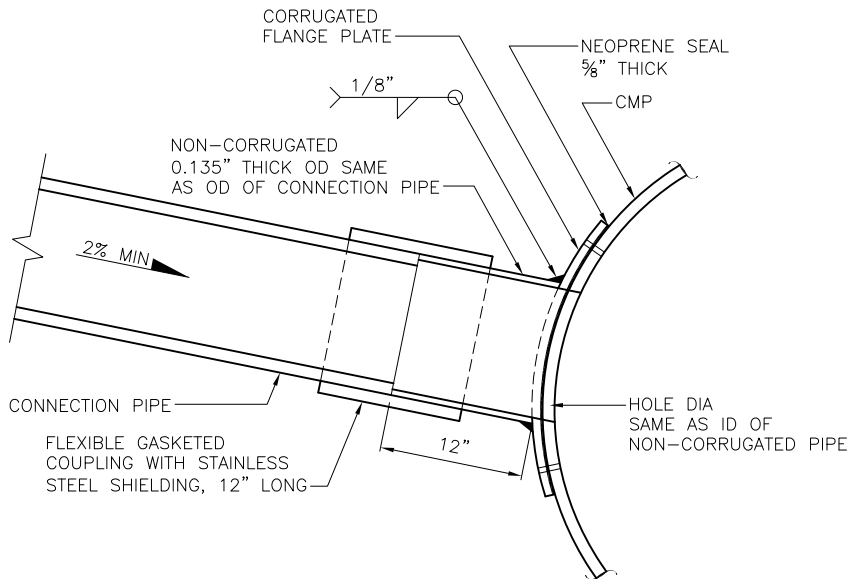
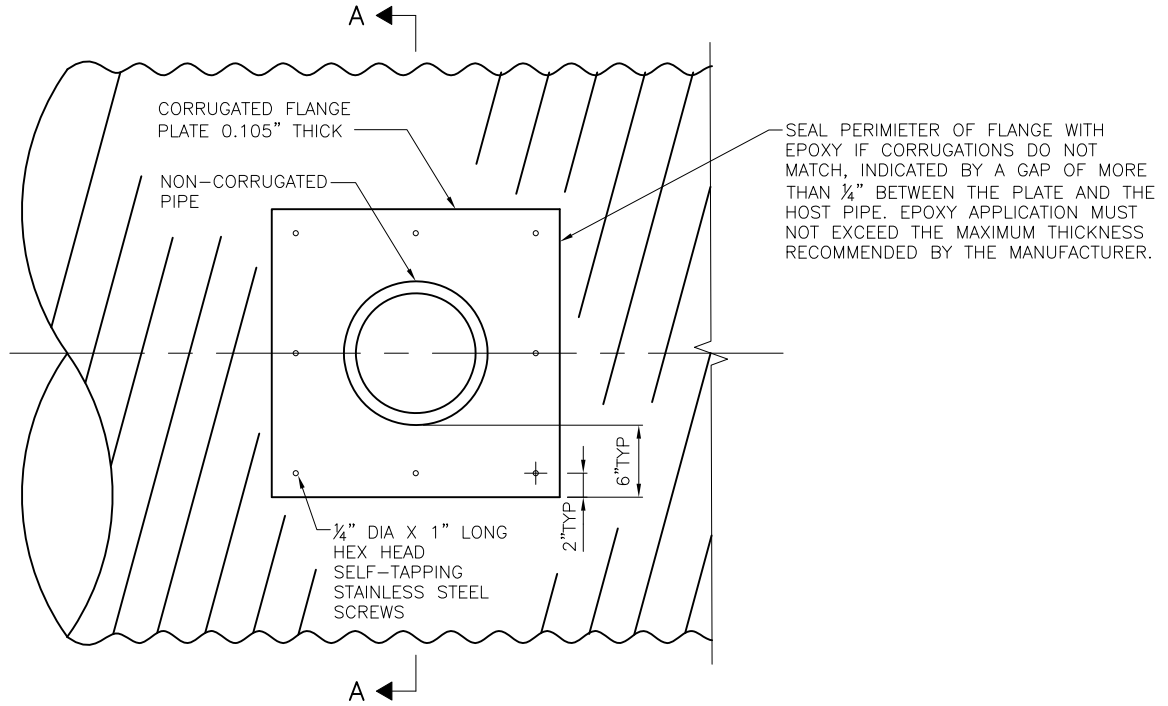
REF STD SPEC SEC 7-05



City of Seattle

NOT TO SCALE

**TYPE 277 JUNCTION
BOX & INSTALLATION**



SECTION A-A

NOTES:

1. CORRUGATED FLANGE PLATE AND NON-CORRUGATED PIPE MUST BE ALUMINUM.
2. SELF-TAPPING SCREWS TO BE STAINLESS STEEL MEETING ASTM A 307.

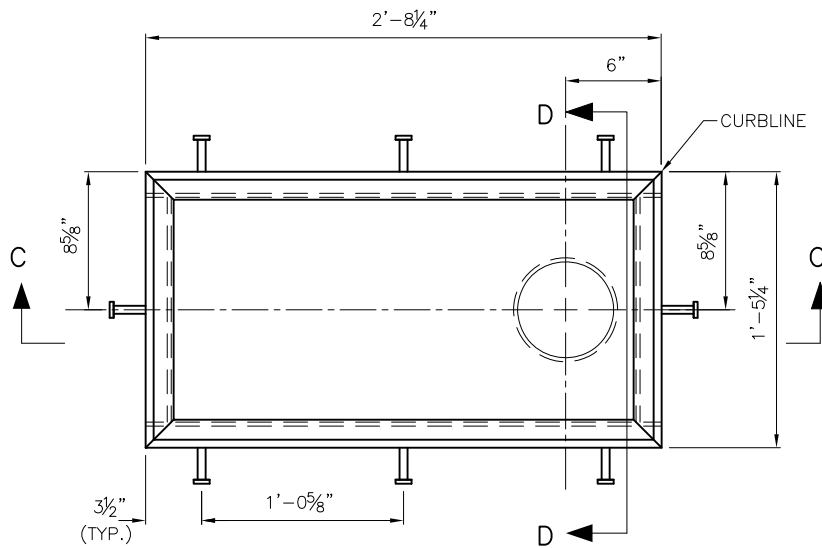
REF STD SPEC SEC 7-17 & 7-16.2



City of Seattle

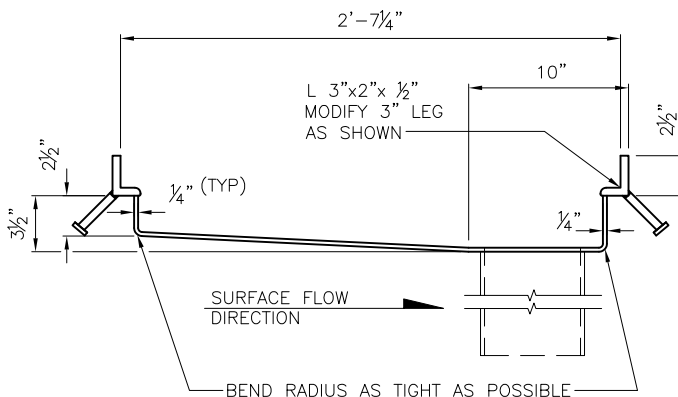
NOT TO SCALE

TEE INSTALLATION
CORRUGATED METAL PIPE

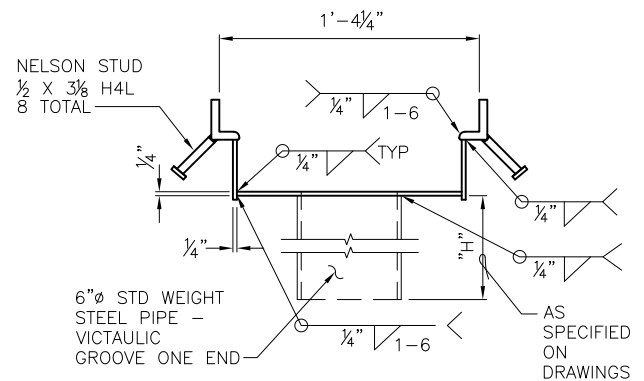


PLAN VIEW — BRIDGE DRAIN

SURFACE FLOW DIRECTION →



SECTION C-C



SECTION D-D

NOTES:

1. ALL 1/4" STEEL & L3"x 2"x 1/2" TO BE A-36.
2. 6" PIPE TO BE STANDARD WEIGHT STEEL.
3. AFTER FABRICATION, DRAIN ASSEMBLY TO BE HOT DIP GALVANIZED.
4. VANED GRATE TO BE PER STD PLAN NO 265.

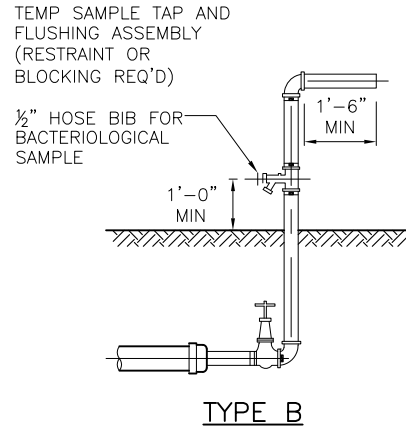
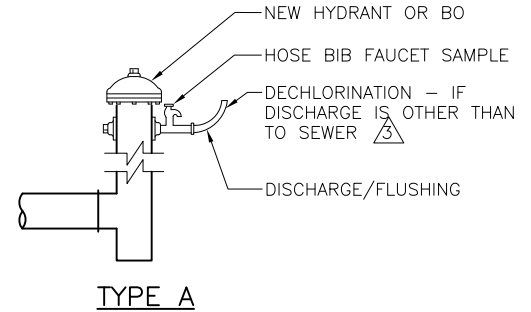
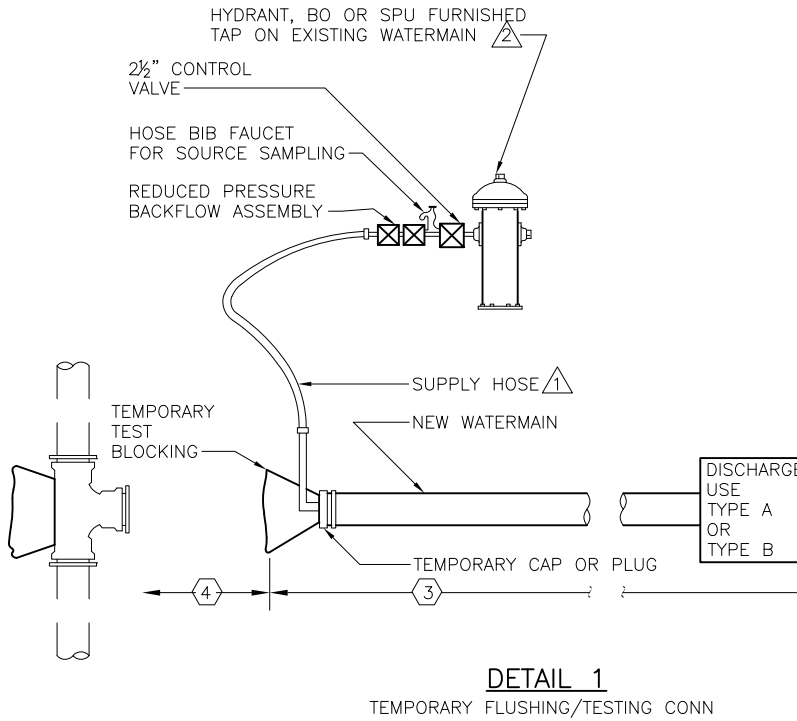
REF STD SPEC SEC 6-01, 7-05



City of Seattle

NOT TO SCALE

BRIDGE DRAIN



NOTES:

1. ALL FITTINGS MUST BE DUCTILE IRON
2. ALL EXCAVATION MUST PROVIDE A MINIMUM OF 1'-0" CLEAR AROUND PIPE AND FITTINGS.
3. THESE PLANS ARE FOR DIP AND CIP WATERMAINS 12" OR SMALLER DIA OTHER SIZES AND TYPES SEE PROJECT DRAWINGS
4. REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) MUST BE INSTALLED AS A UNIT (TWO SHUT-OFF VALVES, RELIEF PORT, TWO CHECK VALVES AND FOUR TEST COCKS). WHEN RPBA IS CONNECTED TO HYDRANT AND THE HOSE BIB FAUCET SAMPLE THEY MUST BE CAPPED WHEN NOT IN USE. ASSEMBLY MUST BE TESTED WHEN INSTALLED BY A WASHINGTON STATE CERTIFIED BACKFLOW ASSEMBLY TESTER (BAT) AND A CURRENT TEST REPORT MUST BE ON SITE. FOR INSTALLATION PROCEDURES CALL 684-3536.
5. ALL FITTINGS AND MATERIALS FURNISHED BY CONTRACTOR AND TO BE INSTALLED BY SPU MUST BE VERIFIED, INSPECTED AND ON THE JOB SITE PRIOR TO SHUTDOWN OF EXISTING MAIN. FAILURE TO MEET THIS REQUIREMENT COULD RESULT IN DELAYS.

LEGEND

- ① CLEAN & DISINFECTED POTABLE WATER HOSE ONLY. SIZE FLUSHING RISER PER TABLE IN STD SPEC SEC 7-11.3(12)
- ② HYDRANT PERMIT REQUIRED
- ③ CHECK WITH SEWER UTILITY BEFORE DISCHARGE TO SEWERS
- ④ CONTRACTOR TO DETERMINE ALIGNMENT, GRADE AND OUTSIDE DIAMETER OF EXISTING PIPE PRIOR TO INSTALLING NEW WATERMAIN. ENGINEER TO DETERMINE OUTSIDE DIAMETER OF EXISTING PIPE WHEN CONTRACTOR EXCAVATES TO DETERMINE ALIGNMENT & GRADE.
- ⑤ ALL EXCAVATION, PIPE, FITTINGS (EXCEPT AS NOTED BELOW), OTHER MATERIAL, BEDDING, BACKFILL, COMPACTION & STREET RESTORATION BY CONTRACTOR. ALL MATERIALS MUST BE ON JOB SITE PRIOR TO SHUTDOWN OF EXISTING MAIN.
- ⑥ INSTALLED BY CONTRACTOR
- ⑦ CONNECTION PIPE: CONTRACTOR FURNISHED, INSTALLED BY SPU
- ⑧ WATERMAIN WITH PLAIN ENDS
- ⑨ MECHANICAL JOINT SLEEVE WITH SPACER CUT TO FIT GAP, FURNISHED AND INSERTED AT TIME OF CONNECTION BY SPU
- ⑩ TAPPING SLEEVE & TAPPING VALVE FURNISHED AND INSTALLED BY SPU
- ⑪ APPLIES TO PIPES 4" THROUGH 12". ALL LARGER SIZES TO BE ADDRESSED ON DRAWINGS
- ⑫ MECHANICAL JOINT SLEEVE, FURNISHED BY CONTRACTOR AND INSTALLED BY SPU, SPACERS BY SPU WHERE REQUIRED.

REF STD SPEC SEC 7-11



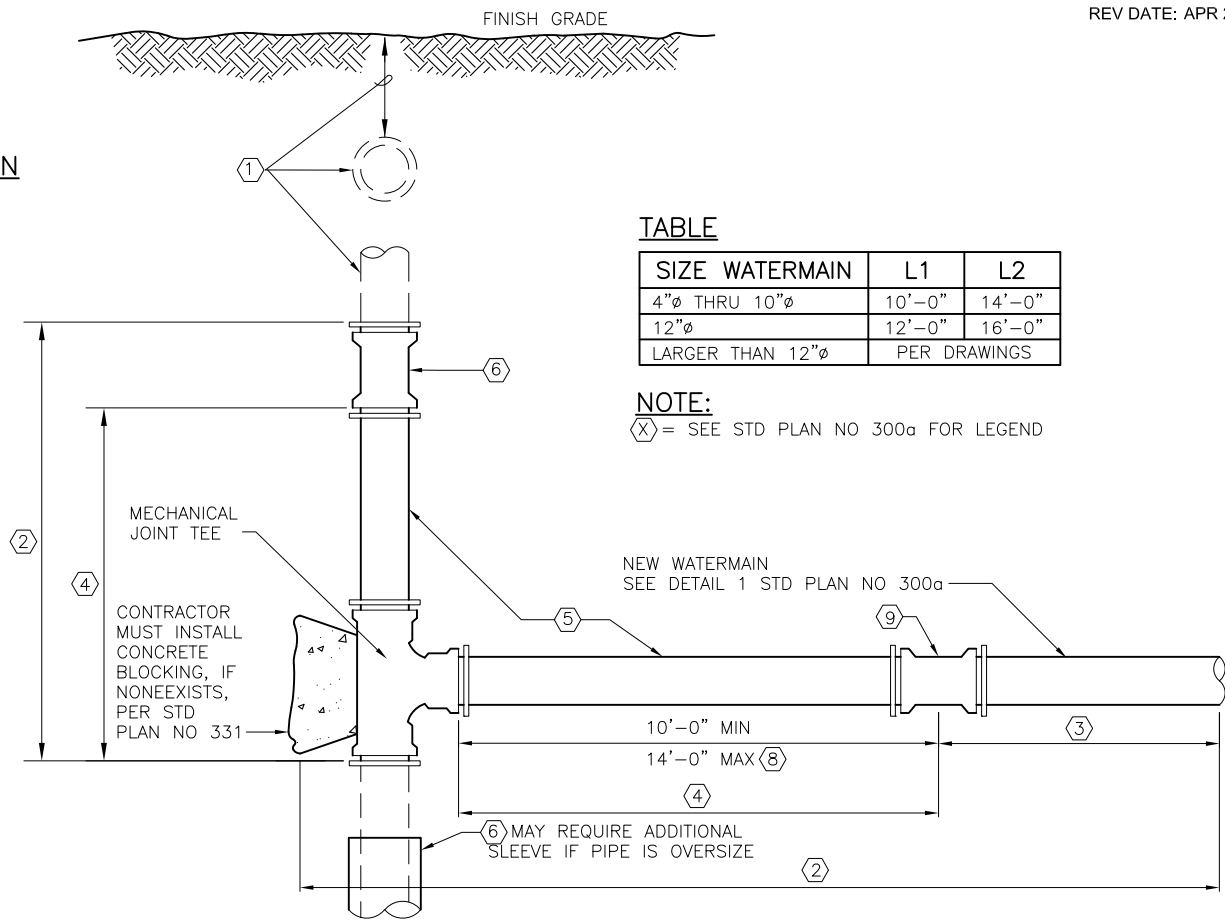
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NOT TO SCALE

CONNECTIONS TO EXISTING WATERMAINS

ELEVATION

PLAN



TABLE

SIZE WATERMAIN	L1	L2
4"φ THRU 10"φ	10'-0"	14'-0"
12"φ	12'-0"	16'-0"
LARGER THAN 12"φ	PER DRAWINGS	

NOTE:

(X) = SEE STD PLAN NO 300a FOR LEGEND

MECHANICAL JOINT TEE
 CONTRACTOR MUST INSTALL CONCRETE BLOCKING, IF NONE EXISTS, PER STD PLAN NO 331

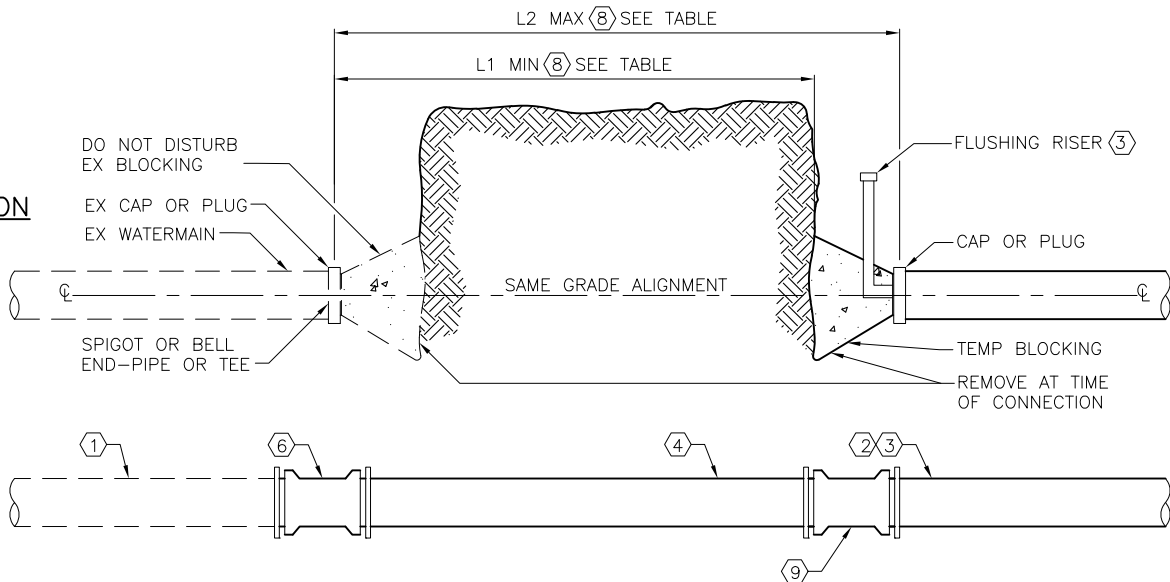
NEW WATERMAIN
 SEE DETAIL 1 STD PLAN NO 300g

(6) MAY REQUIRE ADDITIONAL SLEEVE IF PIPE IS OVERSIZE

CONNECTIONS TO EXISTING MAIN, WITH A NEW TEE OR CROSS
 (CUT IN NEW TEE)

ELEVATION

PLAN



CONNECTIONS TO EXISTING MAIN, STUB
 OR END OUTLET OF TEE OR CROSS

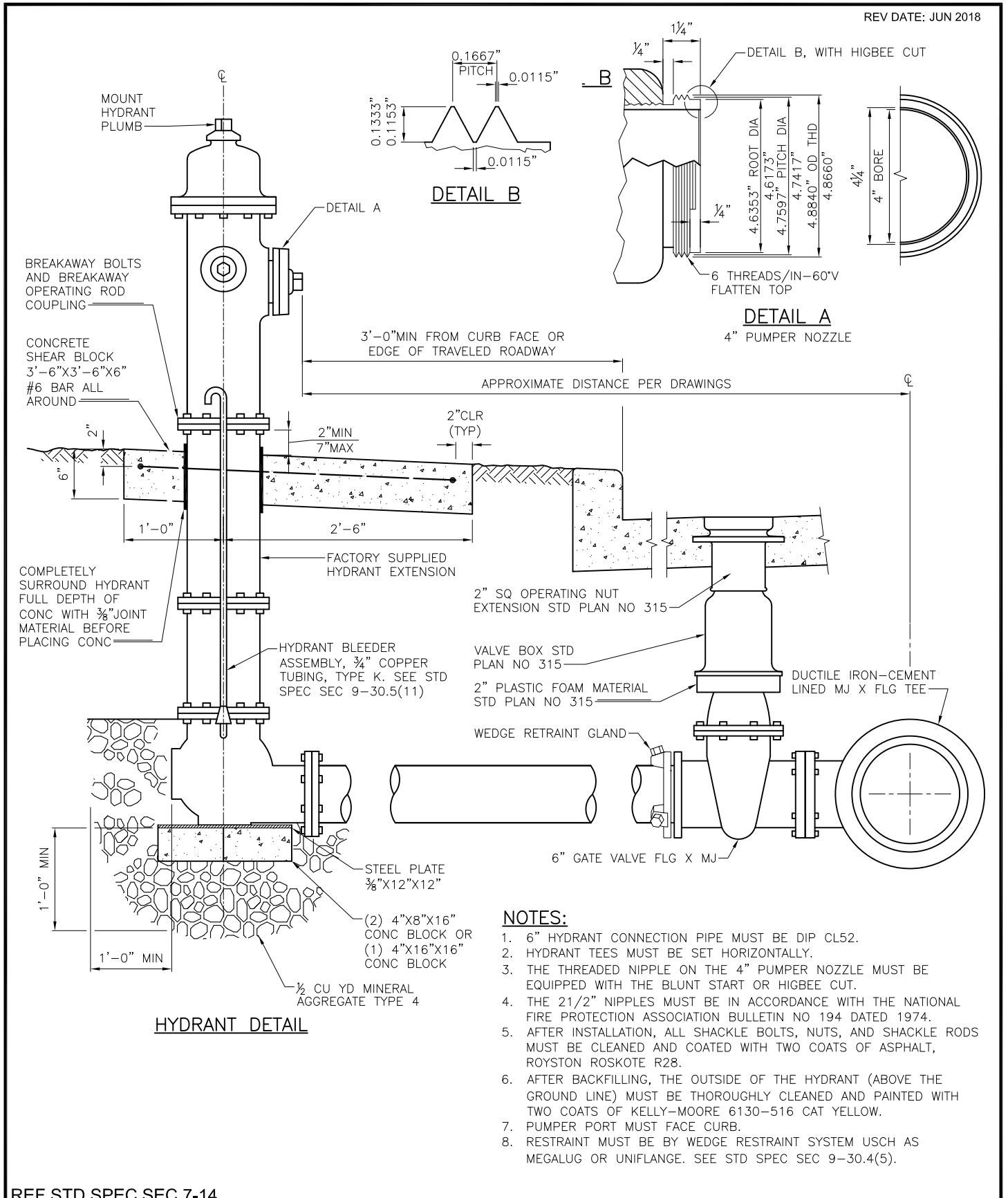
REF STD SPEC SEC 7-11



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NOT TO SCALE

CONNECTIONS TO EXISTING WATERMANS



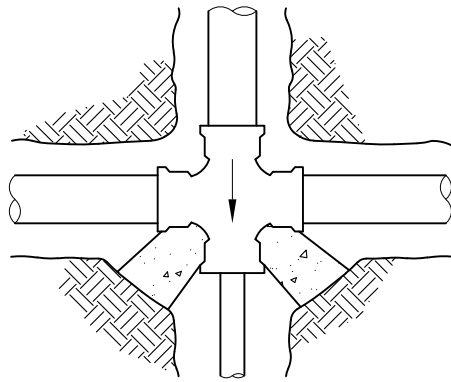
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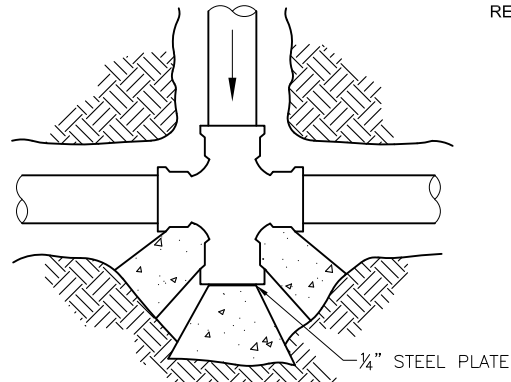
City of Seattle

NOT TO SCALE

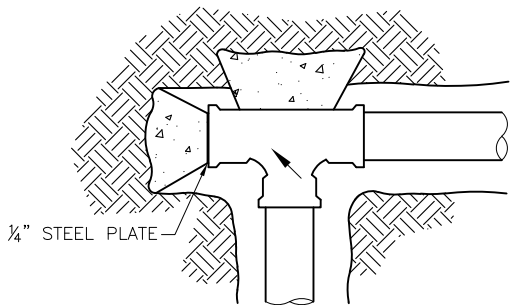
TYPE 311 HYDRANT SETTING
DETAIL



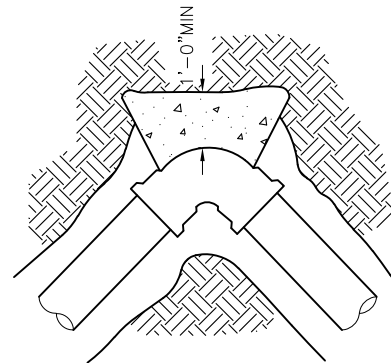
UNBALANCED CROSS



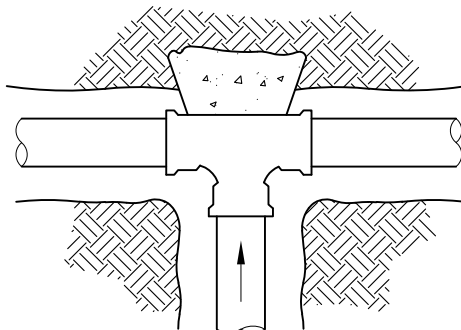
CROSS WITH PLUG



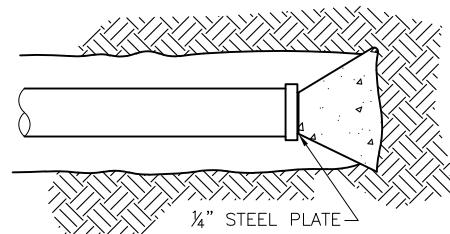
PLUGGED TEE



HORIZONTAL BEND



TEE



PIPE & CAP

THRUST BLOCK AREA IN SQUARE FEET (SEE STD PLAN NO 331B)

PIPE SIZE	FIRM SILT OR FIRM SILTY SAND				COMPACT SAND				COMPACT SAND & GRAVEL			
	90° BEND	TEE	45° BEND CAP OR PLUG	11¼° & 22½° BEND	90° BEND	TEE	45° BEND CAP OR PLUG	11¼° & 22½° BEND	90° BEND	TEE	45° BEND CAP OR PLUG	11¼° & 22½° BEND
4"	7.0	4.2	4.2	1.7	2.9	2.1	2.1	1.0	2.2	1.6	1.6	1.0
6"	13.3	9.4	9.4	3.8	6.7	4.7	4.7	1.9	5.0	3.5	3.5	1.4
8"	23.3	16.7	16.7	6.7	11.7	8.4	8.4	3.4	8.8	6.3	6.3	2.5
12"	53.0	37.5	37.5	15.0	26.5	18.8	18.8	7.5	20.0	14.0	14.0	5.6

AREAS CALCULATED ON 300 PSI TEST PRESSURE AND 3'-0" MIN COVER OVER WATERMAIN

ECOLOGY BLOCKS, PER STD PLAN NO 460, MAY BE USED, AT THE DISCRETION OF THE ENGINEER ONLY, IN LIEU OF POURED-IN-PLACE BLOCKING FOR FITTINGS IN HEAVY OUTLINED PORTION OF TABLE. ECOLOGY BLOCKS USED FOR THRUST BLOCKING AT TEES MUST TRANSFER LOAD TO THE PIPE BODY PER SPEC SECTION 7-11.3(13).

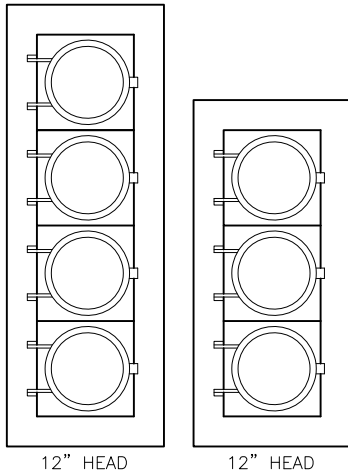
REF STD SPEC SEC 7-11



City of Seattle

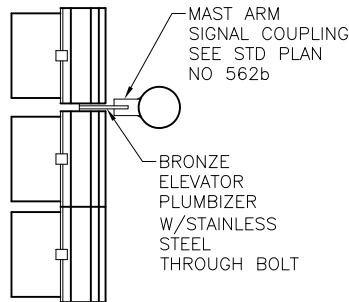
NOT TO SCALE

**WATERMAIN THRUST BLOCKING
HORIZONTAL FITTINGS**



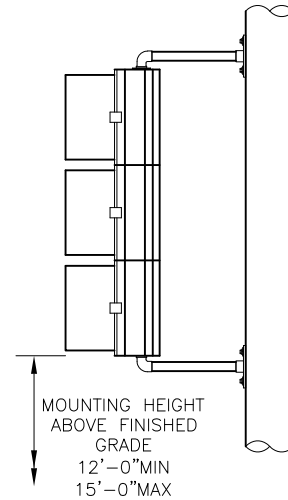
TYPICAL SIGNAL FACES

W/ TUNNEL VISORS &
5" BACKPLATE (LOUVERED)
1" YELLOW, DIAMOND GRADE RETRO
REFLECTIVE TAPE



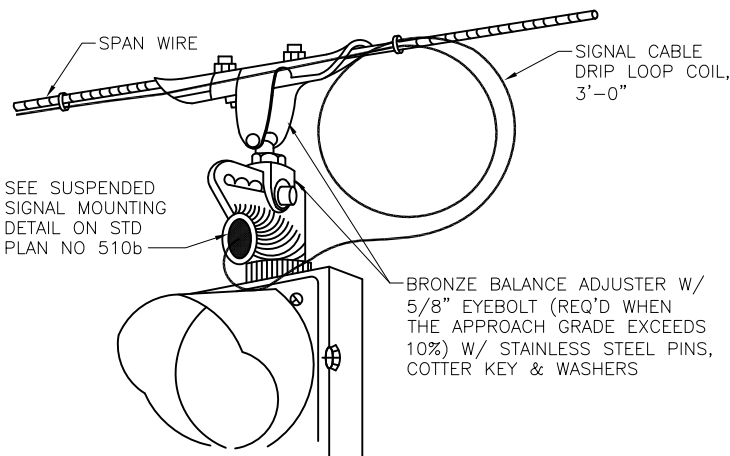
MAST ARM MOUNTING

SEE NOTE 1



BRACKET MOUNTING

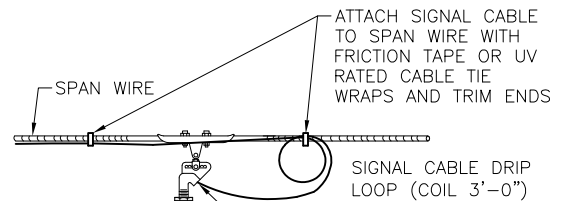
FOR SIGNAL HEAD BRACKET ASSEMBLY
SEE STD PLAN NO 511



SIGNAL HANGER DETAIL

SEE SUSPENDED
SIGNAL MOUNTING
DETAIL ON STD
PLAN NO 510b

BRONZE BALANCE ADJUSTER W/
5/8" EYEBOLT (REQ'D WHEN
THE APPROACH GRADE EXCEEDS
10%) W/ STAINLESS STEEL PINS,
COTTER KEY & WASHERS

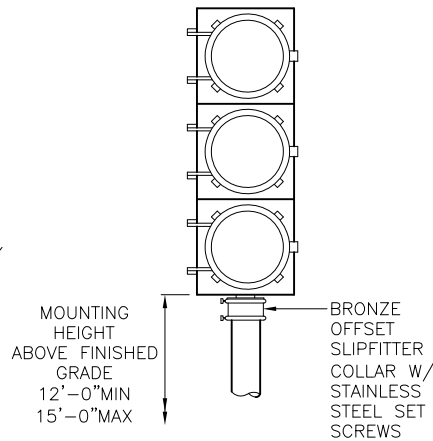


SEE SIGNAL
HANGER DETAIL
ABOVE LEFT

ENTRANCE HOLE MUST
BE PLUGGED W/
APPROVED FITTING

NOTES:

1. VERTICAL CLEARANCE: 17' MIN TO ROADWAY 19'-0" MAX (ON TRUCK ROUTES USE 18' TO 19')
2. BACKPLATES HAVE BEEN OMITTED FROM VARIOUS VIEWS FOR CLARITY



PEDESTAL TOP MOUNTING

FOR PEDESTAL SEE STD PLAN NO 524

SPAN MOUNTING

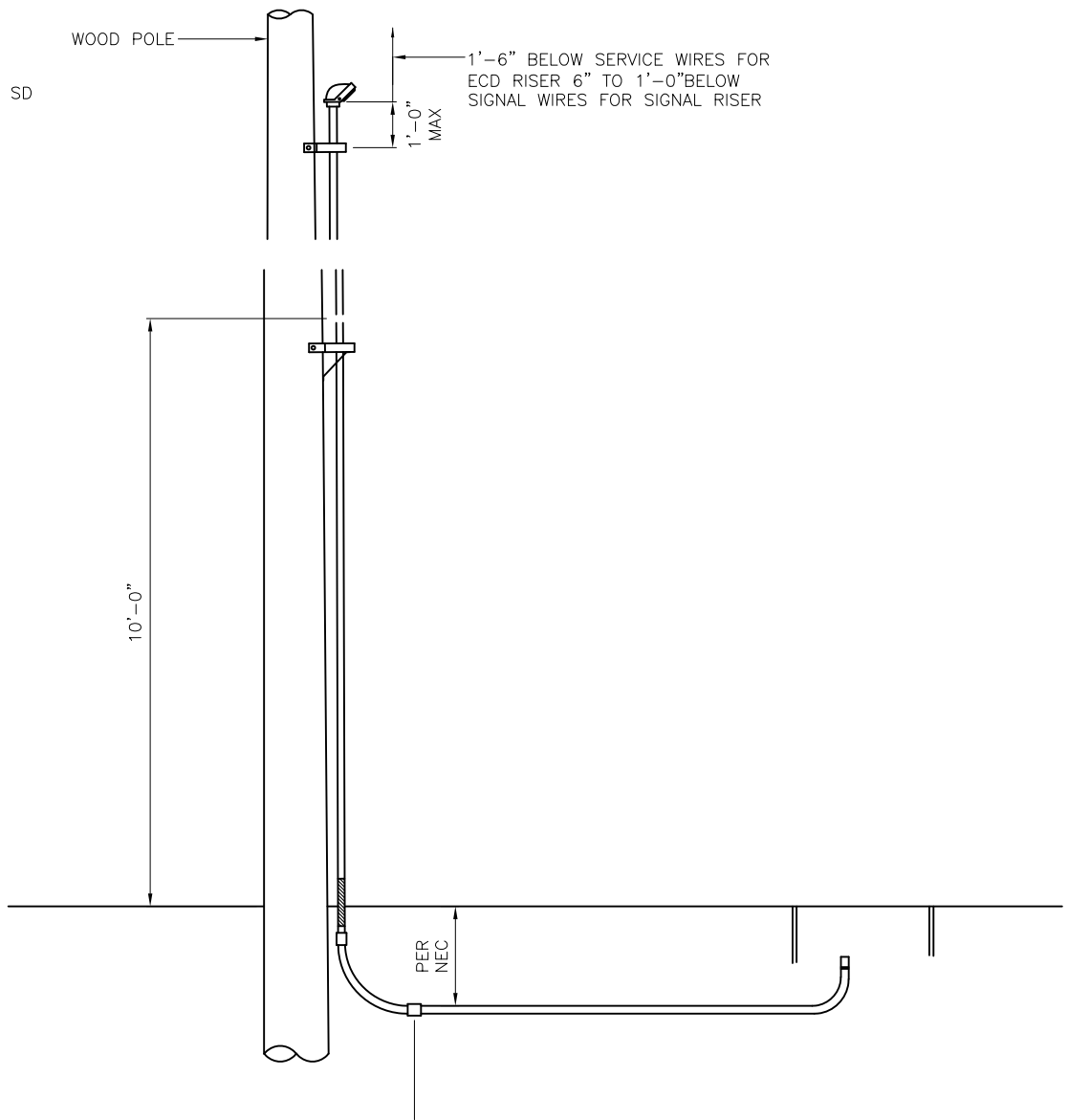
REF STD SPEC SEC 8-31



City of Seattle

NOT TO SCALE

VEHICULAR SIGNAL MOUNTING



CONDUIT RISER (WITH STAND-OFF BRACKET*)

*WHEN THERE WILL BE ONLY ONE CONDUIT (1/2" OR SMALLER) ON THE POLE, TWO HOLE MALLEABLE IRON CLAMPS WITH DOUBLE HEADED NAILS MUST BE USED TO SECURE THE CONDUIT TO THE POLE IN LIEU OF THE STAND-OFF BRACKETS