STANDARD PLANS for
MUNICIPAL CONSTRUCTION

2020 EDITION
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For the convenience of some of our users, the Table of Contents shows revised Plans with a vertical bar as well as bold type.

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Telephone Conduit | | TCD
Telephone Duct | | TD
Telephone Enclosure | | TE
Telephone Maintenance Hole | TEL VAULT
Telephone Pole | TP
Telephone Handhole | THH
Television Cable (direct Burial) | | TVCB
Television Handhole | TVHH
Telegraph Maintenance Hole | TELEG
Steam Log | 6’STM, 14”X14”LOG
Steam Vault | STEMV
Gas Main <1'-0" Dia | 4”G
Gas Main ≥1'-0"Dia | 12”G
Gas Valve |
Gas Meter | GM
Gas Regulator | REG
Petroleum or Oil | OIL
Abandon(ed) | 2”ECD (ABAN)
ITEM | EXISTING | PROPOSED
---|---|---
90° Bend w/Conc Blocking | | details added
Plug w/Conc Blocking | | |
Tee w/Conc Blocking | | |
Watermain <1'-0" Dia | 8"W | 8"W
Watermain ≥1'-0" Dia | 24"W | 36"W
11 1/4° Bend | | 8"-11 3/8" HBorVB
22 1/2° Bend | | 8"-22 3/8" HBorVB
45° Bend | | 8"-45° HBorVB
90° Bend | | 8"-90° HBorVB
Cross | | 8"X8"X6"X6"CR
Tee | | 8"X8"X6"T
Pipe Sleeve | | |
Plug | | |
Hydrant | | |

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Valve Box

Gate Valve

Gate Valve w/ Chamber

Gate Valve w/ Vault Chamber

Reducer

Air Valve

Blowoff

Fire Standpipe

---

City of Seattle

NOT TO SCALE

STANDARD SYMBOLS

WATER

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**City of Seattle**

NOT TO SCALE

STANDARD SYMBOLS

WATER

MINIMUM TREE CLEARANCES
CENTERLINE OF TREE TO CENTERLINE OF:
- 30'-0" TO EXTENSION OF CROSS STREET CURB (AT INTERSECTION)
- 20'-0" TO UTILITY POLE (WITH OR WITHOUT LIGHT)
- 10'-0" TO PAVEMENT EDGE (NO EXISTING CURB)
- 5'-0" TO UNDERGROUND FACILITY (EXCEPT AS NOTED OTHERWISE)

CENTERLINE OF TREE TO EDGE OF:
- 7'-6" TO DRIVEWAY OR ALLEY
- 3'-6" TO FACE OF CURB
- 2'-0" TO EDGE OF SIDEWALK

EDGE OF TREE TO EDGE OF:
- 5'-0" TO FINE HYDRANT, HYDRANT BRANCH, WATER METER, WATER SERVICE, WATER MAIN AND WATER BLOW OFF
- 5'-0" TO GSB, INLETS, OTHER DRAINAGE STRUCTURES, MANHOLES, SEWER, STORM DRAIN OR SERVICE CONNECTIONS

NOTES:
1. SERVICE LATERALS OR APPURTENANCES:
   - 1'-6" 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.

2. ELECTRIC POWER, GAS, TELEPHONE, TELEVISION AND TREES MUST BE INSTALLED IN THE SAME RELATION TO THE CURB ON STREETS WITH PAVEMENT WIDTHS FROM 25'-0" TO 36'-0".

3. LAYOUT IS APPICABLE TO 60'-0" R/W AND 25'-0" RESIDENTIAL PAVING.

4. REDUCING CLEARANCE BETWEEN A NEW UTILITY AND EXISTING TREE/PLANTING STRIP, REDUCING CLEARANCE BETWEEN A NEW/REPLACEMENT TREE AND EXISTING UTILITY, INCORPORATING GSB (BIORETENTION) 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.

5. BACKFILL OVER ALL UTILITY INSTALLATIONS BETWEEN BACK OF CURB AND R/W AND WITHIN 5' OF CENTERLINE OF CURB SHALL BE PLANTING SOIL FOR A MINIMUM DEPTH EQUAL TO THE DEPTH OF THE ROOTBALL (NO COF ALLOWED IN THIS ZONE).
NOTES:

1. STABILIZED ACCESS SHALL BE USED IN ALL AREAS OF THE SITE WITH VEHICLE TRAFFIC AND PARKING, INCLUDING PLANTING STRIPS.

2. SEE SECTION 5-37.2 (TABLE 3) FOR GEOTEXTILE REQUIREMENTS. GEOTEXTILE MODIFICATIONS BASED ON SPECIFIC PROJECT SITE CONDITIONS MAY BE APPROVED BY THE ENGINEER.

3. STABILIZED CONSTRUCTION ENTRANCES ON SEATTLE PARKS & RECREATION PROPERTY ARE LIMITED TO A MAXIMUM WIDTH OF 10 FEET UNLESS DIRECTED OTHERWISE.

REF STD SPEC SEC 8-01

City of Seattle

STABILIZED CONSTRUCTION ENTRANCE

new standard plan

PLAN VIEW
(TOP REMOVED)

SECTION A–A

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

FLEXIBLE JOINT FOR VCP CONNECTION TO MAINTENANCE HOLES

REF STD SPEC SEC 7-05
NEW TYPE 230 FRAME & COVER
NEW PAVEMENT GRADE

REMOVE EXISTING 1'-6" DIAMETER FRAME & COVER

REBUILD MH WITH NEW RADIAL BRICKS IN A RUNNING BOND PATTERN WITH 3/4" MIN TO 3/4" MAX. GROUT SO THAT NEW FRAME AND COVER IS AT THE NEW PAVEMENT GRADE.

NEW MH HANDHOLD SEE STD PLANS NO 232a & 232b
NEW MH STEP SEE STD PLANS NO 232a & 232b

REMOVE EXISTING MH BRICKS SO THAT ID OF MH IS 2'-6"

REPLACE EXISTING STEPS OR LADDER TO SHELF

EXISTING BRICK MAINTENANCE HOLE

mortar lining callout removed

RUNNING BOND PATTERN
GROUT BETWEEN ALL BRICKS

REF STD SPEC SEC 7-05
NOTES:
1. DESIGNATE LOCKING COVER AS TYPE 230L FOR USE IN NON-VEHICULAR TRAFFIC AREAS.
2. COVER THICKNESS IS MEASURED FROM THE BOTTOM OF THE PATTERN.
3. FRAMES MUST BE MANUFACTURED FROM CAST IRON OR DUCTILE IRON.
4. COVERS MUST BE MANUFACTURED FROM DUCTILE IRON.

REF STD SPEC SEC 7-05, 9-12

City of Seattle	NOT TO SCALE	2'-0" DIAMETER FRAME & COVER

"SEWER" OR "DRAIN", AS APPLICABLE, 3" RAISED LETTERS TO BE ½" WIDE AND RAISED ¾" ABOVE SURFACE OF COVER.

1¾" X 1½" LIFT HOLES 2 PLACES

BOTTOM VIEW

TOP VIEW

SECTION A—A
f=MACHINED FINISH

REFERENCES
STD SPEC SEC 7-05, 7-20

City of Seattle
NOT TO SCALE
SEWER REPLACEMENT COVER

NOTES:
1. PIPE AND FITTINGS MUST BE PVC PER ASTM D 3034 SDR 35.
2. CONCRETE HAUNCHING IS TO BE CLASS 3000 CONCRETE.

DETAIL A
FOR MAIN 3"-6" DIA. OR SMALLER

DETAIL B
FOR MAIN 3"-6" DIA. OR LARGER

6" OR 8" VERTICAL CONNECTION TO CONCRETE OR CLAY PIPE

City of Seattle
NOT TO SCALE

NOTES:
1. DI PIPE & FITTING MUST BE CEMENT LINED CL 50 (MIN). JOINTS MUST BE RUBBER GASKETED PUSH-ON OR MECHANICAL.
2. FABRICATED STEEL TAPPING SLEEVE MUST BE MANUFACTURED FOR USE WITH DI PIPE AND APPROVED BY SPU.
3. FABRICATED STEEL TAPPING SLEEVE USE IS RESTRICTED WITHIN THE RIGHT OF WAY. SPU AND SDOT APPROVAL IS REQUIRED.

DETAIL A
FOR VERTICAL CONNECTIONS TO NEW DI MAIN

DETAIL B
FOR VERTICAL CONNECTIONS TO EXISTING DI MAIN
NOTES:
1. DETENTION PIPE MATERIAL MUST BE AS SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS. MATERIALS THAT MAY BE APPROVED FOR USE IN THE ROW INCLUDE:
   * DUCTILE IRON PIPE (DIP)
   * REINFORCED CONCRETE PIPE (RCP)
   * POLYPROPYLENE PIPE (PP DETENTION)
   * STEEL REINFORCED POLYETHYLENE PIPE (STL REINFORCED DETENTION). ONLY MANUFACTURERS SUPPLIED TEES MUST BE USED FOR CONNECTIONS.
2. BEDDING FOR DETENTION PIPE MUST BE CLASS B. DIP AND RCP MUST BE BEDDED IN MINERAL AGGREGATE TYPE 9. FLEXIBLE PIPE MUST BE BEDDED IN MINERAL AGGREGATE TYPE 22.
3. INTERMEDIATE MHS WILL BE REQUIRED FOR DETENTION PIPE LENGTHS GREATER THAN 150FT.
4. OUTLET PIPE MUST CONNECT TO MH ON MAINLINE.
5. STRUCTURE DESIGN MUST BE MODIFIED FOR PRIVATE SYSTEM WITH EXCLUSION OF SHEAR GATE.
6. ROTATE ELBOW RESTRICTOR CLEAR OF ACCESS OPENING.
7. FRAME LADDER AND STEPS OFFSET:
   7.1. CLEAN OUT IS VISIBLE FROM TOP
   7.2. CLIMB DOWN SPACE IS CLEAR OF RISER AND CLEAN OUT GATE
   7.3. MH OPENING MUST NOT BE PLACED DIRECTLY OVER THE TOP OF INLET PIPE

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<th>FLOW CONTROL STRUCTURE* (MH SIZE)</th>
<th>UPSTREAM*** (MH SIZE)</th>
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*SPECIFIC DESIGN INFORMATION AS INDICATED ON CONSTRUCTION DRAWINGS
**SIZE OF UPSTREAM MH MUST BE ADJUSTED FOR ALTERNATIVE PIPE MATERIAL

REF STD SPEC SEC 7-16

City of Seattle
NOTES:
1. CONCRETE: CLASS 4000
2. 4" MIN THICKNESS FOR CURVED BOTTOM STRUCTURE

SECTION A-A

REF STD SPEC SEC 7-05
7-02, 9-12.9 revised

City of Seattle
NOT TO SCALE

TYPE 277 JUNCTION BOX & INSTALLATION

200 SEWER-DRAINAGE APPURTENANCES

CLASS B BEDDING

CLASS C BEDDING

CLASS D BEDDING

SAND BEDDING AT TRENCH CROSSING OF METAL PIPE

NOTES:
1. FOR TRENCH WIDTH SEE STD PLAN NO 284
2. A-4" WHEN ID IS LESS THAN 2'-6", A-6" WHEN ID IS 2'-6" OR MORE
3. UNIFORMLY SUPPORT PIPE BARRELL EXCAVATE HOLES FOR BELLS AND CEMENTATE BACKFILL
4. FOR FLUIDIZED THERMAL BACKFILL (FTB) OR CDF CROSSINGS OF METALLIC PIPE, WRAP METALLIC PIPE IN 6 MIL POLYETHYLENE ENCASEMENT FOR FULL TRENCH WIDTH

MINERAL AGGREGATE PER STD SPEC 9-03.14 TYPE 9
SELECTED NATIVE MATERIAL PER STD SPEC 2-10.2(1)
SUITABLE BACKFILL
FLUIDIZED THERMAL BACKFILL PER SCL MATERIAL STD 7150.00 OR CDF (SEE CONTRACT DRAWINGS)

REV DATE: SEP 2019

PIECE BEDDING

SEWER/STORM DRAIN

City of Seattle

NOTES:
1. ALL 3/8" STEEL & L3" x 2" x 3/8" 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

6-02 removed
Delete this Standard Plan

**NOTES:**
1. ATTACH THE HOOD TO THE FRAME WITH TWO 3/8 X 2" HEX HEAD BOLTS, NUTS, AND OVERSIZED WASHERS. THE WASHERS MUST HAVE DIAMETERS ADEQUATE TO ENSURE FULL BEARING ACROSS THE SLOTS.
2. ONLY DUCTILE IRON VANED GRATES MUST BE USED.

**SECTION A-A**

**FRAME DETAIL**

**SECTION B-B**

**HOLE FOR SLOT FOR ATTACHING HOOD (TYP)**

**6" HOOD**

**9" HOOD**

**HOLE FOR SLOT FOR ATTACHING HOOD (TYP)**
Delete this Standard Plan
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 CI WATERMAINS 12" OR SMALLER VIA 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
- CLEAN & DISINFECTED POTABLE WATER HOSE ONLY. SIZE FLUSHING RISER PER TABLE IN STD SPEC SEC 7-11.3(12)
- HYDRANT PERMIT REQUIRED
- CHECK WITH SEWER UTILITY BEFORE DISCHARGE TO SEWERS
- 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.
- ALL EXCAVATION, PIPE, FITTINGS (EXCEPT AS NOTED BELOW), OTHER MATERIAL, BEDDING, BACKFILL, COMPACTION & STREET RESTORATION TO BE INSTALLED BY CONTRACTOR. ALL MATERIALS MUST BE ON JOB SITE PRIOR TO SHUTDOWN OF EXISTING MAIN.
- INSTALLED BY CONTRACTOR
- CONNECTION PIPE: CONTRACTOR FURNISHED, INSTALLED BY SPU
- WATERMAIN WITH PLAIN ENDS
- MECHANICAL JOINT SLEEVE WITH SPACER CUT TO FIT GAP, FURNISHED AND INSTALLED AT TIME OF CONNECTION BY SPU
- TAPPING SLEEVE & TAPPING VALVE FURNISHED AND INSTALLED BY SPU
- APPLIES TO PIPES 4" THROUGH 12" ALL LARGER SIZES TO BE ADDRESSED ON DRAWINGS
- MECHANICAL JOINT SLEEVE, FURNISHED BY CONTRACTOR AND INSTALLED BY SPU, SPACERS BY SPU WHERE REQUIRED.

REF STD SPEC SEC 7-11
HYDRANT DETAIL

3" GATE VALVE FLG X MJ
6" GATE VALVE FLG X MJ

STL PLATE 3/8"X12"X12"
(2) 4"X8"X16" CONC BLOCK OR (1) 4"X16"X16" CONC BLOCK

1/2 CU YD MINERAL AGGREGATE TYPE 4

NOTES:
1. 6" HYDRANT CONNECTION PIPE MUST BE DIP CL52.
2. HYDRANT TEES MUST BE SET HORIZONTALLY.
3. THE THREADED NIPPLE ON THE 4" PUMPER NOZZLE MUST BE EQUIPPED WITH THE BLUNT START OR HIGREE CUT.
4. THE 2½" NIPPLES MUST BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION BULLETIN NO 194 DATED 1974.
5. AFTER INSTALLATION, ALL SHACKLE BOLTS, NUTS, MECHANICAL JOINT CLINCHES AND SHACKLE ROSES MUST BE CLEANED AND COATED WITH TWO COATS OF ROYSTON R26 MASTIC.
6. AFTER BACKFILLING, THE OUTSIDE OF THE HYDRANT (ABOVE THE GROUND LINE) MUST BE THOROUGHLY CLEANED AND PAINTED WITH TWO COATS OF KELLY-MOORE LUXILITE 43-516 CAT "YELLOW.
7. PUMPER BORE MUST FACE CURB.
8. RESTRAINT MUST BE IN WEDGE RESISTANT SYSTEM SUCH AS METALIC OR UPLAND SEE STD SPEC 9-30.4.18.

HYDRANT BLEEDER ASSEMBLY, ¾" COPPER TUBING, TYPE K. SEE STD SPEC SEC 9-30.5(11)

TAR PAPER

MOUNT HYDRANT PLUMB

BREAKAWAY BOLTS AND BREAKAWAY OPERATING ROD COUPLING

COMPLETELY SURROUND HYDRANT FULL DEPTH OF CONCRETE WITH ¾" JOINT MATERIAL BEFORE PLACING CONCRETE

CONCRETE SHEAR BLOCK 3'-6"X3'-6"X6'
#5 BAR ALL AROUND

DETAILED B

DETAILED A

APPROXIMATE DISTANCE PER PLAN DRAWINGS

4" PUMPER NOZZLE

3'-0" MIN FROM CURB FACE OR EDGE OF TRAVELED ROADWAY

2" MIN, 7" MAX

2" CLR (TYP)

5 THREADS/IN-60° FLATTEN TOP

DETAIL A

DETAIL B

WITH HIGREE CUT

HYDRANT PLUMB

BLEEDER

ADDED

DRAIN HOLE REMOVED

SPOOL ADDED

STD SPEC CHANGED FROM 9-30.5(5) TO 9-30.4(5)

NOTE 9 REMOVED

REF STD SPEC SEC 7-14

TYPE 310 HYDRANT SETTING DETAIL

City of Seattle

NOT TO SCALE

NOTES:
1. WHERE WATERMAINS ARE INSTALLED WITH POLYETHYLENE ENCASEMENT OR
   TAPE COATINGS, THE HYDRANT BARREL AND VALVE MUST BE SIMILARLY
   ENCASED, COATED AND/OR JOINTS BONDED. WHERE WATERMAIN IS
   THERMOPLASTIC COATED, THE HYDRANT BARREL MUST BE TAPE COATED
2. WHERE 6" GATE VALVE IS TO BE LOCATED WITHIN A PARKING-PERMITTED
   AREA, A SECOND 6" GATE VALVE MUST BE INSTALLED AT THE HYDRANT
   ASSEMBLY PER STD PLAN NO 310b

REF STD SPEC SEC 7-14

City of Seattle
GENERAL NOTES:
1. WHERE WATERMAINS ARE INSTALLED WITH POLYETHYLENE ENCASEMNT OR TAPE COATINGS, THE HYDRANT BARREL AND VALVE MUST BE SIMILARLY ENCASED, COATED AND/OR JOINTS BONDED. WHERE WATERMAIN IS THERMOPLASTIC COATED, THE HYDRANT BARREL MUST BE TAPE COATED.
2. WHERE 6" GATE VALVE IS TO BE LOCATED WITHIN A PARKING-PERMITTED AREA, A SECOND 6" GATE VALVE MUST BE INSTALLED AT THE HYDRANT ASSEMBLY PER STD PLAN NO 310a.

REF STD SPEC SEC 7-14

City of Seattle

NOT TO SCALE

TYPE 311 HYDRANT SETTING

DETAIL
NOTE:
1. LAYOUT OF MARKER POST MUST BE VERIFIED FIRST WITH SPU AND SDOT

TRAFFIC ISLAND MARKER POST LAYOUT FOR FIRE HYDRANTS IN PARKING AREAS

MARKER POST LAYOUT FOR FIRE HYDRANTS IN PARKING AREAS

REF STD SPEC SEC 7-14
NOTE:
1. ROCK FOR ROCK FACING MUST COMPLY WITH STD PLAN NO 141

WALL REQUIREMENTS FOR HYDRANTS

300 WATERMAIN APPURTEANCES

STANDARD PLAN NO 313

REV DATE: MAR 2019

REF STD SPEC SEC 2-13

City of Seattle

NOTES:
1. NO PARKING ZONE WITHIN 15'-0" RADIUS OF FIRE HYDRANT.
2. MIN DISTANCE FROM BACK FACE OF HYDRANT TO FRONT EDGE OF CONCRETE WALK MUST BE 2'-0".
3. MARKER MUST BE 6" OFFSET FROM CENTER OF ROADWAY IF CENTERLINE IS NOT STRIPED, OR 6" OFF STRIPED CENTERLINE WHERE MEDIAN OR TWO-WAY LEFT TURN LANES EXIST, MARKER MUST BE INSTALLED WITH 6" OFFSET FROM THE LANE LINE CLOSEST TO THE HYDRANT.

INSTALL BLUE TYPE 2A LANE MARKER ADJACENT TO FIRE HYDRANTS. SEE NOTE 3 (TYP).

DETAIL A
HYDRANT NEAR CURB RAMP

REF STD SPEC SEC 7-14 8-08

added

note 3 added

added

added

added
NOTES:

1. UNION POINT 2" OUTSIDE VAULT OR 2' FROM PROPERTY LINE.
2. 5' CLEARANCE FROM NEW TREES OR CLEAR OF DRIPLINE FOR EXISTING TREES.
3. 5' CLEAR FROM POLES.
4. 2' CLEAR FROM EDGE OF DRIVEWAY OR ADA RAMP.
5. WATER SERVICE NOT TO BE INSTALLED IN DRIVEWAY, BEHIND ADA RAMP, OR STREET CORNER.
6. SIDE SEWER HORIZONTAL CLEARANCE 10" FOR CAST IRON WATER PIPE OR 5" FOR DUCTILE IRON WATER PIPE.
7. SIDE SEWER VERTICAL CLEARANCE 1.5' MIN.
8. VAULT HORIZONTAL CLEARANCE 12" MIN FROM OTHER UTILITIES UNLESS OTHERWISE NOTED IN STD SPECS.
9. VERTICAL CLEARANCE 12" MIN FOR ALL OTHER UTILITY CROSSINGS UNLESS OTHERWISE NOTED IN STD SPECS.

SEE STD PLAN NO 003q FOR TYPICAL WATER SERVICE VAULTS

NOTE 10 REMOVED, STD PLAN NO 003q NOTE ADDED

DETAILS MOVED TO STD PLAN NO 003q

TITLE CHANGED

CLEARANCES FOR TYPICAL WATER SERVICE VAULTS

REF STD SPEC SEC 1-07.17(2)
NOTES:
1. FRAME AND COVER MUST BE TESTED FOR ACCURACY OF FIT AND MUST BE MARKED IN SETS FOR DELIVERY.
2. CASTINGS AND EXTENSIONS MUST BE HOT-DIPPED IN ASPHALTIC VARnish. ROYSTON ROCKOTE #612MX OR 2 COATS OF MASTIC ROYSTON INSIDE AND OUT.
3. VALVE BOXES MUST BE CAST JORDAN, COVER & TOP SECTION #6664, BOTTOM SECTION #4555, OR OLYMPIC FOUNDRY: #1106-33, TOP SECTION #1106-33, BASE SECTION #1301-33.
4. ALL CASTINGS MUST BE DUTCHED OR ONLY CAST IRON.

LEGEND:
1) AN OPERATING NUT EXTENSION MUST BE INSTALLED WHEN THE GROUND SURFACE IS MORE THAN 2’-6” ABOVE THE VALVE. OPERATING NUT. THE OPERATING NUT EXTENSION MUST EXTEND INTO THE TOP SECTION OF THE STANDARD VALVE BOX AND MUST CLEAR THE BOTTOM OF THE LID BY 6” MIN.
2) EXTENSION PIECES (WHEN USED) MUST CONFORM TO MINIMUM THICKNESS REQUIREMENTS AND MUST FIT INTO THE TOP SECTION AND OVER THE BOTTOM SECTION.

note 3 revised

PLASTIC FOAM RING DETAIL

REF STD SPEC SEC 7-12 & 9-30

City of Seattle

CAST IRON VALVE BOX & OPERATING NUT EXTENSION

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

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<tr>
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<td>TEE</td>
<td>45° BEND CAP OR PLUG</td>
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<td>PIPE SIZE</td>
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Areas calculated on 300 PSI test pressure and 24" min. cover over watermain.

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

**Note Revised**

**City of Seattle**

FOR 4" TO 6" WATERMAINS, INSTALL A DUCTILE IRON TEE WITH A 4" BRANCH AND A BLIND (FLG) OR PLUG (MJ). FOR 12" WATERMAINS, INSTALL A DUCTILE IRON TEE WITH A 6" BRANCH AND A BLIND (FLG) OR PLUG (MJ). INSTALL A 1½" PT THREADED HOLE DRILLED INTO THE 4" OR 6" BLIND OR PLUG.
FOR 4" TO 8" WATERMAINS, INSTALL A DUCTILE IRON TEE WITH A 4" BRANCH AND A BLIND (FLG) OR PLUG (MJ). FOR 12" WATERMAINS, INSTALL A DUCTILE IRON TEE WITH A 6" BRANCH AND A BLIND (FLG) OR PLUG (MJ). INSTALL A 1½" IPT THREADED HOLE DRILLED INTO THE 4" OR 6" BLIND OR PLUG.

300 WATERMAIN APPURTEINANCES

STANDARD PLAN NO 350

TYPICAL BEDDING

BEDDING MATERIAL
CLASS B:
- FOR DISTRIBUTION WATERMAIN, MINERAL AGGREGATE PER STD SPEC 9-03.16 TYPE 6 OR TYPE 7
- FOR TRANSMISSION WATERMAIN, MINERAL AGGREGATE PER STD SPEC 9-03.16 TYPE 9
- SPECIAL BEDDING TO BE INDICATED ON DRAWINGS

NOTES:
1. EXCAVATE FOR THE BELL TO ENSURE UNIFORM SUPPORT FOR THE PIPE BELL.
2. FOR FLUIDIZED THERMAL BACKFILL (FTB) OR CDF CROSSINGS OF METALLIC PIPE, WRAP METALLIC PIPE IN 8 MIL POLYETHYLENE ENCASEMENT FOR FULL TRENCH WIDTH.
3. FLUIDIZED THERMAL BEDDING PER SCL MATERIAL STANDARD 7150.00

REF STD SPEC SEC 7-11, 9-03.16

WATERMAIN TRENCH AND BEDDING

City of Seattle
NOT TO SCALE
BOTTOM VIEW

TOP VIEW

SECTION A-A

LIFTING HANDLE
(2 REQUIRED)

REF STD SPEC SEC 7-12

City of Seattle

NOT TO SCALE

TYPE 361a VALVE CHAMBER
FRAME & COVER IN
VEHICULAR TRAVELWAYS

FRAME & COVER MUST BE TESTED FOR ACCURACY OF FIT AND MUST BE MARKED IN SETS FOR DELIVERY

BOTTOM VIEW

TOP VIEW

SECTION A-A

TYPE 361b VALVE CHAMBER FRAME & COVER IN PEDESTRIAN PATHWAYS

City of Seattle

NEW STD PLAN

BOTTOM VIEW

4-1" DIA HOLES

7¼'

3¼'

LETTERS TO BE ½" WIDE AND RAISED 3/8" ABOVE SURFACE OF COVER

TOP VIEW

6 SPACES @ 2½/16"

3¾'

3¼'

WATER

SECTION A--A

f=MACHINED FINISH

LIFTING HANDLE
(2 REQUIRED)

BAR ¾"Ø

R=7¼"

2" SQ NUTS

RIVETED

5¼"

1"-8¼"

1½"
**300 WATERMAIN APPURTEYNANCES**

**STANDARD PLAN NO 361d**

**REV DATE: SEP 2019**

**BOTTOM VIEW**

- 13/4" x 1/2" Lift Holes, 2 Places

**TOP VIEW**

- Letters to be 3/4" Wide and Raised 3/8" Above Surface of Cover

**SECTION A-A**

f = MACHINED FINISH

REF STD SPEC SEC 7-12, 7-20

City of Seattle NOT TO SCALE

TYPE 361d WATER VALVE REPLACEMENT COVER IN PEDESTRIAN PATHWAYS

SLIP JOINT BOND CONNECTION

THERMITE WELD CONNECTION (Typ) with THERMITE WELD CAP OR MASTIC TAPE COATING (Typ)

#2 AWG JOINT BOND CABLE

MECHANICAL JOINT BOND CONNECTION

THERMITE WELD CAP OR MASTIC MOLD TO FIT OVER THERMITE WELD & FOLLOWER RING

#8 AWG JOINT BOND CABLE

THERMITE WELD CONNECTION (Typ) with THERMITE WELD CAP OR MASTIC TAPE COATING (Typ)

#2 AWG JOINT BOND CABLE

Valve Joint Bond Connection

THERMITE WELD CAP OR MASTIC MOLD TO FIT OVER THERMITE WELD & FOLLOWER RING

#8 AWG JOINT BOND CABLE

THERMITE WELD CONNECTION (Typ) with THERMITE WELD CAP OR MASTIC TAPE COATING (Typ)

#2 AWG JOINT BOND CABLE

NOTES:
1. JOINT BONDS FOR PIPE 16" DIAMETER AND SMALLER.
2. FOR PIPE LARGER THAN 16" DIAMETER OR IMPRESSED SYSTEMS, SEE PROJECT DRAWINGS FOR JOINT BONDING DETAILS.

Connection Sequence:
1. REMOVE PIPE COATING TO BRIGHT & CLEAN METAL
2. STRIP INSULATION FROM TEST STION WIRE, INSTALL ADAPTER SLEEVE
3. HOLD MOLD Firmly WITH OPENING AWAY FROM OPERATOR AND IGNITE
4. REMOVE SLAG AND ALLOW TO COOL
5. 16 OUNCE HAMMER TEST PER STD. SPEC SEC 7-11.3(19)D1
6. FINAL CONNECTION TO BE MADE WATER-TIGHT WITH MASTIC COATING OR PREFORMED THERMITE WELD CAP

REF STD SPEC SEC 7-11

City of Seattle
NOT TO SCALE

JOINT BONDING FOR DIP WATERMAINS & JOINT BONDING DETAIL

401A—CEMENT CONCRETE PAVEMENT WITH INTEGRAL CURB

401B—CEMENT CONCRETE PAVEMENT WITH EXISTING CURB & GUTTER

401C—HOT MIX ASPHALT ON CEMENT CONCRETE BASE

401D—HOT MIX ASPHALT OVER CRUSHED ROCK BASE

HMA DESIGN CRITERIA:
3. VOLUME FILLER UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS.
2. ASPHALT PG 58H-22 UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS.
1. ADD 1" CRUSHED ROCK BASE UNDER HMA, UNLESS OTHERWISE SPECIFIED IN THE DRAWINGS.
4. PAVEMENT DEPTH MUST BE 3" HMA (CL 1") WHEN REPLACING BITUMINOUS SURFACE TREATED RESIDENTIAL STREETS OR 2" HMA (CL 1") OVER 6" HMA (CL 1") FOR ALL OTHER RESIDENTIAL STREETS.
5. PROTECT ADJACENT PANELS FROM DAMAGE DUE TO UNDERMINING DURING EXCAVATION & PLACEMENT OF SUBGRADE. SEE SPEC SECTION 1-07.13.

REF STD SPEC SEC 4-04, 5-04, 5-05, 8-04

City of Seattle
NOT TO SCALE
RESIDENTIAL PAVEMENT SECTIONS

NOTES:
IF CONC THICKNESS IS 9 INCH OR GREATER
OPTIONAL KEYWAY MAY BE USED SEE STD PLANS NO 405c & 405d FOR DETAILS

OPTIONAL KEYWAY
FOR LONGITUDINAL JOINT

TIE BAR
LONGITUDINAL JOINT, SEE STD PLAN NO 405c
ROADWAY CEMENT CONCRETE PAVEMENT (THICKNESS AS SPECIFIED IN CONTRACT DOCUMENTS)
SEE STD PLAN TYPE 410c CURB

COMPACTED SUBGRADE
6" MNRL AGG TYPE 2 (COMPACTED AS SPECIFIED IN CONTRACT DOCUMENTS)

402A—ROADWAY CONCRETE PAVEMENT ON CRUSHED ROCK

TIE BAR
ROADWAY CEMENT CONCRETE PAVEMENT (THICKNESS AS SPECIFIED IN CONTRACT DOCUMENTS)
SEE STD PLAN TYPE 410c CURB

COMPACTED SUBGRADE
6" MNRL AGG TYPE 2 (COMPACTED AS SPECIFIED IN CONTRACT DOCUMENTS)

HMA (CL 1") THICKNESS AS SPECIFIED IN CONTRACT DOCUMENTS
2" HMA (CL 2")

402B—HOT MIX ASPHALT ON CEMENT CONCRETE ON CRUSHED ROCK

SEE STD PLAN TYPE 410b CURB & GUTTER

COMPACTED SUBGRADE
6" MNRL AGG TYPE 2 (COMPACTED AS SPECIFIED IN CONTRACT DOCUMENTS)

402C—HOT MIX ASPHALT ON CRUSHED ROCK BASE

HMA DESIGN CRITERIA:
1. MILLION FEET UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS
2. ASPHALT PG 58H—22 UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS
3. NUMBER OF LAYERS MAY BE ADJUSTED TO MEET ENGINEER SPECIFIED CRITERIA IN THE DRAWINGS
4. PROTECT ADJACENT PANELS FROM DAMAGE DUE TO UNDERMINING DURING EXCAVATION & PLACEMENT OF SUBGRADE, SEE SPEC SECTION 1-07.13.

REF STD SPEC SEC 4-04, 5-04, 5-05 & 8-04

PG 64—22 changed to 58H—22

note added

City of Seattle
NOT TO SCALE
COMMERCIAL AND ARTERIAL PAVEMENT SECTIONS

1. DEPTH OF RESTORATION MUST MEET THE REQUIREMENTS OF "RIGHT OF WAY OPENING AND RESTORATION RULES".
2. FOR RIGID PAVEMENT (FULL DEPTH), WIDTH OF RESTORATION MUST EXTEND TO FULL PANEL WIDTH, OR AS REQUIRED IN THE "RIGHT OF WAY OPENING AND RESTORATION RULES" FOR OVERSIZED OR NON-STANDARD PANELS.
3. FOR FLEXIBLE PAVEMENT (FULL DEPTH & OVERLAY) RESTORATION WIDTH MUST MEET REQUIREMENTS OF STANDARD PLAN NO 404c AND THE "RIGHT OF WAY OPENING AND RESTORATION RULES".
HOT MIX ASPHALT OVER SHEET ASPHALT, BRICK, OR STONE BLOCK PAVEMENT

1. DEPTH OF RESTORATION MUST MEET THE REQUIREMENTS OF THE “RIGHT OF WAY OPENING AND RESTORATION RULES”
2. WIDTH OF RESTORATION MUST EXTEND TO FULL PANEL WIDTH, OR AS REQUIRED IN THE “RIGHT OF WAY OPENING AND RESTORATION RULES” FOR OVERSIZED OR NON-STANDARD PANELS.
NOTES
1. INSTALL TIE BARS ALONG LONGITUDINAL JOINT BETWEEN FULL PANEL REPLACEMENT AND EXIST CEMENT CONC PAVEMENT. TIE BARS ARE NOT INSTALLED BETWEEN CEMENT CONC PAVEMENT AND HOT MIX ASPHALT SHOULDERS.
2. TIE BARS AND DOWELS ARE NOT REQUIRED:
   2.1. WHEN INDICATED ON THE DRAWINGS BY "NO TIE BARS" OR "NO DOWEL BARS".
   2.2. WHEN EXISTING PAVEMENT IS 8" OR LESS OR WHEN THE ENGINEER DETERMINES THE EXISTING CONC NOT TO BE COMPETENT.
3. DO NOT PLACE LONGITUDINAL JOINTS OR SKEewed JOINTS WITHIN BIKE LANES.
4. WHEN PAYING ADJACENT TO EXISTING PANELS, THE NEW TRANSVERSE JOINTS MUST BE PLACED TO MATCH JOINT LOCATIONS OF THE EXISTING ADJACENT PAVEMENT UNLESS OTHERWISE DIRECTED BY THE ENGINEER. SEE STD PLAN NO 405C FOR MAXIMUM TRANSVERSE JOINT SPACING.

A* SEE SECTION A-A STANDARD PLAN 405b
B* SEE SECTION B-B STANDARD PLAN 405b

Thickened Edge Detail
(REQUIRED ONLY WHERE SHOWN ON THE DRAWINGS)
NOTES:
1. DO NOT PLACE LONGITUDINAL JOINTS OR SKewed JOINTS WITHIN BIKE LANES.
2. WHEN A JOINT IS WITHIN 18 INCHES OF A CASTING JOINT SHOULD BE SKewed TO MEET THE CASTING AT 90 DEGREES UNLESS OTHERWISE DIRECTED BY THE ENGINEER OR SHOWN ON THE DRAWINGS.
3. SEE STD PLAN NO 416 OR DRAWINGS FOR REbar DETAIL AROUND CASTING 18 INCHES OR GREATER FROM JOINTS.
4. DOWEL BARS MUST NOT BE PLACED WITHIN 15 INCHES OF THE EDGE OF PAVEMENT OR A PARALLEL JOINT.
5. DOWEL BARS NOT REQUIRED FOR RESIDENTIAL PAVEMENT SECTIONS. SEE STD PLAN NO 401.

<table>
<thead>
<tr>
<th>DEPTH (D) OF RDwy CEM. Conc.</th>
<th>DOWEL BAR SIZE (Dia #)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6&quot;≤D ≤&lt;9&quot;</td>
<td>1&quot;X18&quot;</td>
</tr>
<tr>
<td>9&quot;≤D ≤&lt;11&quot;</td>
<td>1½&quot;X18&quot;</td>
</tr>
<tr>
<td>11&quot;≤D</td>
<td>1½&quot;X19&quot;</td>
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</tbody>
</table>

REF STD SPEC SEC 5-05
NOTES:
1. "H" MUST BE 6" FROM FINISHED ROADWAY GRADE UNLESS OTHERWISE SHOWN ON DRAWINGS.
2. GUTTER MUST BE SLOPED THE SAME AS ADJACENT PAVEMENT OR 2% MIN, WHICHEVER IS GREATER.
3. SEE STD PLAN NO 411 FOR CURB DOWELS.
EXTRUDED ASPHALT CONCRETE CURB

EXTRUDED CEMENT CONCRETE CURB

NOTE:
1. ALTERNATELY, THE USE OF EPOXY BONDING AGENT, IN PLACE OF #3 DEFORMED BARS, WILL BE ALLOWED.
2. EXTRUDED CURB MUST NOT BE USED IN SDOT MANAGED PUBLIC RIGHT OF WAY.

REF STD SPEC SEC 8-06
curb ramp layout revised

callout revised

2% changed to 2% MAX

note 2 revised, note 7 added

NOTES:
1. 1/4" through and contraction joints must be located as required by Section 8-14.3(6).
2. Sawcut scoring must match pattern in adjacent existing sidewalk or must be a 2' square scoring pattern unless otherwise approved by the engineer.
3. For curb ramps, see Standard Plan No 422.
4. For tree pits, see Standard Plan No 424.
5. 12" minimum between edge of ramp wing and planting strip is desirable.
6. All sidewalk must be non-roadway CEM Conc w/ 25% Pozzolans.
7. 6"-0" minimum continuous sidewalk must be maintained around corners.

REF STD SPEC SEC 8-14
NOTES:
1. RAMP CENTERLINE MUST BE
   RADIAL/PERPENDICULAR TO THE ALIGNMENT OF
   THE FACE OF CURB.
2. SLOPE ON THE LANDING MUST BE BETWEEN 0.5%
   AND 2% IN ANY DIRECTION. UPPER LANDING AT
   THE TOP OF THE CURB RAMP MUST MATCH THE
   FULL WIDTH OF THE RAMP AND MUST HAVE A
   MINIMUM DEPTH OF 4'-0". IF THE LANDING IS
   LIMITED AT THE BACK-OF-SIDEWALK BY A
   PERMANENT VERTICAL BARRIER, THE DEPTH OF
   THE TURNING SPACE MUST BE 5'-0" MINIMUM;
   MEASURED PARALLEL TO THE RUN OF THE CURB
   RAMP.
3. WINGS MUST HAVE A MAXIMUM SLOPE OF 10%.
   WINGS MUST HAVE A BRUSHED FINISH PARALLEL
   TO THE CURB. THE CONCRETE WALK THICKENED
   EDGE ALONG THE CURB MUST CONTINUE THROUGH
   EACH WING.
4. RAMP SURFACE MUST HAVE A HEAVY BROOM
   BRUSHED SURFACE PARALLEL TO THE CURB.
5. REFER TO DETAILS 422K AND 422L FOR GENERAL
   NOTES AND TYPICAL SECTIONS.
6. RAMP WIDTH MUST BE 5'-0" MINIMUM WHEN
   SIDE CURB IS USED ON BOTH SIDES INSTEAD OF
   WINGS.

"SHALL" changed to "MUST". note 2 revised, note 6 added callout revised
2% Max = Max Slope in Either Direction
PAY LIMITS

PERPENDICULAR CURB RAMPS
(TYPE 422A)

422A CURB RAMP LOCATIONS

REF STD SPEC SEC 8-14

City of Seattle | NOT TO SCALE | CURB RAMP DETAILS

NOTES:
1. RAMP CENTERLINE(S) MUST BE PARALLEL TO THE ALIGNMENT OF THE FACE OF CURB. THE WIDTH OF THE RAMP MUST BE 6'-0" (5'-0" MINIMUM).
2. RAMP CENTERLINE MUST BE RADIAL/PERPENDICULAR TO THE ALIGNMENT OF THE FACE OF CURB.
3. SLOPE OF THE LANDING MUST BE BETWEEN 0.5% AND 2% IN ANY DIRECTION. SHARED LOWER CURB RAMP LANDING MUST HAVE A MINIMUM WIDTH OF 5'-0".
4. RAMP SURFACE MUST HAVE A HEAVY BROOM BRUSHED SURFACE RADIAL/PERPENDICULAR TO THE CURB.
5. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.

2% MAX = MAX SLOPE IN EITHER DIRECTION

PARALLEL CURB RAMPS
(TYPE 422B)

REFERENCE:
STD SPEC SEC 8-14
NOTES:

1. RAMP CATAVME MUST BE PARALLEL TO CROSSWALK AND/OR THE SIDEWALK.
2. SLOPE ON THE LANDING MUST BE BETWEEN 0.5% AND 2% IN ANY DIRECTION. UPPER LANDING AT THE TOP OF THE CURB RAMP MUST MATCH THE FULL WIDTH OF THE RAMP AND MUST HAVE A MINIMUM DEPTH OF 4'-0". IF THE LANDING IS LIMITED AT THE BACK-OFF OF SIDEWALK BY A PERMANENT VERTICAL BARRIER, THE DEPTH OF THE TURNING SPACE MUST BE 5'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP.
3. WINGS MUST HAVE A MAXIMUM SLOPE OF 10%. WINGS MUST HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB MUST CONTINUE THROUGH EACH WING.
4. WING ON THE OPEN SIDE OF THE CURB RAMP MUST HAVE A MINIMUM SLOPE OF 5% TO ASSIST PEDESTRIANS WITH VISION IMPAIRMENTS WHERE THE DETECTABLE WARNING SURFACE IS OFFSET FROM THE CURB LINE.
5. RAMP SURFACE MUST HAVE A HEAVY BROOM BRUSHED FINISH PERPENDICULAR TO THE PATH OF TRAVEL.
6. REFER TO DETAILS 422K AND 4221 FOR GENERAL NOTES AND TYPICAL SECTIONS.

2% MAX
= MAX SLOPE IN EITHER DIRECTION

note 2 revised & "SHALL" changed to "MUST"

upper landing removed

added

callout added

added

RAMPS SEE NOTE 1

DIRECTIONAL CURB RAMPS
type 4220

422D CURB RAMP LOCATIONS

City of Seattle

NOT TO SCALE
CURB RAMP DETAILS

NOTES:
1. RAMP CENTERLINE MUST BE PARALLEL TO CROSSWALK AND/OR THE SIDEWALK.
2. SLOPE ON THE LANDING MUST BE BETWEEN 0.5% AND 2% IN ANY DIRECTION. UPPER
   LANDING AT THE TOP OF THE CURB RAMP MUST MATCH THE FULL WIDTH OF THE RAMP
   AND MUST HAVE A MINIMUM DEPTH OF 4'-0". IF THE LANDING IS LIMITED AT THE
   BACK-OF-SIDEWALK BY A PERMANENT VERTICAL BARRIER, THE DEPTH OF THE
   TURNING SPACE MUST BE 5'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP.
3. WINGS MUST HAVE A MAXIMUM SLOPE OF 10%. WINGS MUST HAVE A BRUSHED FINISH
   PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB
   MUST CONTINUE THROUGH EACH WING.
4. WHERE THE SETBACK FROM THE BOTTOM OF THE CURB RAMP TO THE BACK OF CURB
   LINE EXCEEDS 5'-0", THE DETECTABLE WARNING SURFACE MUST BE INSTALLED AT
   THE BACK OF CURB (NOT AT THE BOTTOM OF RAMP). RADIAL TILE MUST BE USED.
   CUTTING OR ALTERING DETECTABLE WARNING SURFACE MUST BE FIRST APPROVED BY THE
   ENGINEER.
5. DIRECTIONAL CURB RAMPS WITH LARGE SETBACK FROM BACK OF CURB TO BOTTOM
   OF THE CURB RAMP ARE NOT PREFERRED. DESIGNS BUT MAY BE USED IF NECESSARY
   DUE TO EXISTING SITE CONSTRAINTS.
6. STRAIGHT SECTIONS OF DETECTABLE WARNING SURFACE IS PERMITTED AS AN ALTERNATE.
   IF USED, THERE MUST BE 2" MAXIMUM FROM THE DETECTABLE WARNING SURFACE TO THE
   BACK OF CURB AT ANY POINT.
7. RAMP SURFACE MUST HAVE A HEAVY BROOM BRUSHED FINISH PERPENDICULAR TO THE
   PATH OF TRAVEL.
8. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.

= MAX SLOPE IN EITHER DIRECTION

upper landing removed

= 3'-0" RADIUS (TYP)
NOTES:
1. **RAMP CENTERLINE MUST BE RADIAL/PERPENDICULAR TO THE ALIGNMENT OF THE FACE OF CURB.**
2. **SLOPE ON THE LANDING MUST BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.**
   **UPPER LANDING AT THE TOP OF THE CURB RAMP MUST MATCH THE FULL WIDTH OF THE RAMP AND MUST HAVE A MINIMUM DEPTH OF 4'-0" IF THE LANDING IS LIMITED AT THE BACK-OF-SIDEWALK BY A PERMANENT VERTICAL BARRIER.**
   **THE DEPTH OF THE TURNING SPACE MUST BE 5'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP.**
3. **CLEAR SPACE AT THE BOTTOM OF THE RAMP MUST BE 5'-0" MINIMUM IN WIDTH AND MUST EXTEND A MINIMUM OF 4'-0" BEYOND THE RAMP LOWER Grade Break.**
   **THE CLEAR SPACE MUST FALL WHOLLY WITHIN THE LEGAL CROSSWALK. MARKED OR UNMARKED, THE CLEAR SPACE MUST FIT BEHIND LINES EXTENDING FROM THE EDGE OF CURB RUNNING PARALLEL TO EACH ROADWAY.**
   **THERE IS NO ALLOWABLE EXEMPTION FOR MINIMUM CLEAR SPACE REQUIREMENTS AT SHARED DIAGONAL PERPENDICULAR CURB RAMPS.**
4. **WINGS MUST HAVE A MAXIMUM SLOPE OF 10%. WINGS MUST HAVE A BRUSHED FINISH PARALLEL TO THE CURB.**
   **THE CONCRETE WALK THICKENED EDGE ALONG THE CURB MUST CONTINUE THROUGH EACH WING.**
5. **RAMP SURFACE MUST HAVE A HEAVY BROOM BRUSHED SURFACE PARALLEL TO THE CURB.**
6. **REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.**

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**SHARED DIAGONAL PERPENDICULAR CURB RAMP**

**TYPE 422F**

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**PAY LIMITS**

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**422H CURB RAMP LOCATIONS**

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**NOT TO SCALE**

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**CURB RAMP DETAILS**

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NOTES:
1. THE SIDEWALK MUST TRANSITION DOWN TO THE ROADWAY WITH A MAXIMUM RUNNING SLOPE OF 5%. THE CROSS SLOPE ON THE TRANSITION MUST NOT EXCEED 2% AT ANY POINT.
2. A BYPASS ROUTE MUST BE PROVIDED AT THE TOP OF THE BLENDED TRANSITION WITH A MINIMUM WIDTH OF 6'-0" (3'-0" MIN). THE CROSS SLOPE OF THE BYPASS ROUTE MUST NOT EXCEED 2% IN ANY DIRECTION.
3. RADIALLY TILED BUMPOUTS MUST BE USED, CUTTING OR ALTERING DETECTABLE WARNING SURFACES MUST BE FIRST APPROVED BY THE ENGINEER.
4. WINGS MUST HAVE A MAXIMUM SLOPE OF 10%. WINGS MUST HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB MUST CONTINUE THROUGH EACH WING.
5. BLENDED TRANSITION SURFACE MUST HAVE A HEAVY BROOM BRUSHED SURFACE RADIAL/PERPENDICULAR TO THE CURB.
6. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTION B.

2% MAX = MAX SLOPE IN EITHER DIRECTION

layout revised

notes revised & "SHALL" changed to "MUST"

SECTION G-G
CURB MONOLITHIC WITH RAMP, NEW PAVEMENT BLOCKED OUT FULL DEPTH. EXISTING PAVEMENT REMOVED AT FACE OF CURB

5% MAX SLOPE

PROVIDE BOND BREAKER (UNLESS ASPHALT SURFACING)

SCORELINE (TYP)

TO

PAVEMENT

5% MAX SLOPE

THROUGH JOINT

DETECTABLE WARNING

SIdeWALK

BYPASS ROUTE

SECTION G-G
DEPRESSED CURB & GUTTER SEPARATE FROM RAMP.

422G CURB RAMP LOCATIONS

Landscape

Ref Std Spec Sec 8-14

City of Seattle

NOT TO SCALE

CURB RAMP DETAILS

NOTES:
1. SIZE, SHAPE, AND/OR DIMENSIONS OF CHANNELIZING ISLANDS OR PEDESTRIAN REFUGE ISLANDS MAY VARY. DETAILS SHOWN ARE INTENDED TO SHOW MINIMUM REQUIRED CLEARANCES AND DETECTABLE WARNING SURFACE PLACEMENT LOCATIONS.
2. ACCESS THROUGH CHANNELIZING ISLANDS OR PEDESTRIAN REFUGE ISLANDS MAY BE CUT-THROUGH OR ACCESS MAY BE PROVIDED USING STANDARD CURB RAMP DETAILS.
3. AT PEDESTRIAN REFUGE ISLANDS, DETECTABLE WARNING IS NOT TO BE INSTALLED IF THE REFUGE AREA IS LESS THAN 6'-0" IN DEPTH (IN THE DIRECTION OF TRAVEL).
4. PROVIDE A MINIMUM 4'-0" WIDTH X 4'-0" DEPTH CLEAR SPACE FOR ACCESS FROM THE CHANNELIZING ISLAND OR PEDESTRIAN REFUGE ISLAND FOR EACH CROSSWALK.

SECTION H-H

5'-0" MIN
2% MAX SLOPE

ROADWAY CURB (TYP)

SIDEWALK

2% MAX SLOPE IN EITHER DIRECTION

ROADWAY CURB (TYP)

Detachable Warning
STD PLAN 422K

ISLAND CUT-THROUGHS
(TYPE 422H)

REF STD SPEC SEC 8-14

City of Seattle | NOT TO SCALE | CURB RAMP DETAILS

CURB RAMP GENERAL NOTES:

1. TWO CURB RAMPS MUST BE INSTALLED AT EACH CORNER UNLESS OTHERWISE DIRECTED BY ENGINEER. A SNAKE DIAGONAL PERPENDICULAR RAMPS MUST NOT BE INSTALLED UNLESS ALL OTHER DESIGN OPTIONS ARE UNABLE TO BE CONSTRUCTED DUE TO EXISTING SITE CONSTRAINTS.

2. CURB RAMPS MUST BE AS CLOSELY ALIGNED WITH THE SIDEWALK AND THE PEDESTRIAN STREET CROSSING AS POSSIBLE.

3. CURB RAMPS MUST BE CONSTRUCTION RAMP ON OPPOSITE SIDE OF THE ROADWAY WHERE NO RAMP IS PROVIDED UNLESS OTHERWISE DIRECTED BY ENGINEER.

4. RAMPS MUST TYPICALLY HAVE A MAXIMUM RAMP SLOPE OF 8.3% AND A MINIMUM WIDTH OF 4'-0" UNLESS OTHERWISE DIRECTED BY ENGINEER. THE CROSS SLOPE OF RAMPS MUST BE A MAXIMUM OF 2%. CURB RAMPS ARE NOT REQUIRED TO EXCEED A LENGTH OF 15 FEET UNLESS OTHERWISE DIRECTED BY ENGINEER.

5. GRADE BREAKS AT THE TOP AND THE BOTTOM OF CURB RAMP RUNS MUST BE PERPENDICULAR TO THE PATH OF TRAVEL. CURB RAMP RUNS ARE DEFINED BY RUNNING SLOPES THAT EXCEED 5% BUT ARE NO MORE THAN 8.3%. SURFACES ABUTTING AT CURB RAMP GRADE BREAKS MUST BE FLUSH.

6. AREAS ADJACENT TO CURB RAMPS OR CURB RAMP LANDINGS USEABLE BY PEDESTRIANS MUST COMPLY WITH STANDARD PLAN SIDEWALK SLOPE LIMITS OR A CURB RAMP WING MUST BE PROVIDED AS SHOWN IN THE APPROPRIATE CURB RAMP DETAILS. THE INSTALLATION OF CURVED EDGES IS NOT REQUIRED BUT MAY BE USED AT THE SIDES OR BACKS OF CURB RAMPS OR CURB RAMP LANDINGS WHERE THE ADJACENT SURFACE IS LANDSCAPED OR OTHERWISE NOT USEABLE BY PEDESTRIANS.

7. THE MIDDLE SLOPE OF THE CURB OR THE STREET AT THE BOTTOM OF CURB RAMP RUNS MUST BE 5% MAXIMUM. IF TURNING OR CHANCE OF ORIENTATION IS REQUIRED WITHIN THE PEDESTRIAN CROSSING AT THE BOTTOM OF CURB RAMP RUNS, THE SLOPE MUST BE 2% MAXIMUM IN ANY DIRECTION FOR A MINIMUM 4'-0" WIDTH X 4'-0" DEPTH MEASURED FROM THE BOTTOM CURB GRADE BREAK.

8. CURB RAMPS WITH RUNS THAT TERMINATE AT THE ENTRANCE TO THE PEDESTRIAN STREET CROSSING MUST HAVE A CLEAR SPACE AT THE BOTTOM OF THE RAMP. CLEAR SPACE IS DEFINED AS A NAVIGABLE 4'-0" X 4'-0" SPACE, EXTENDING FROM THE RAMP LOWER GRADE BREAK, THAT FALLS WHOLLY WITHIN THE LEGAL CROSSWALK, MARKED OR UNMARKED, AND OUTSIDE THE PARALLEL VEHICULAR TRAFFIC LANE.

9. A 4'-0" MINIMUM WIDTH UNOBSERVED PEDESTRIAN ACCESS ROUTE MUST BE PROVIDED FROM EACH CURB RAMP, BLENDED TRANSITION, OR FLUSH TRANSITION TO THE LEGAL CROSSWALK THAT IS SERVED, MARKED OR UNMARKED, AND LOCATED OUTSIDE THE PARALLEL VERTICAL TRAFFIC LANE.

10. DETECTABLE WARNING MUST BE PROVIDED AT CURB RAMPS AND AT LOCATIONS WHERE THE SIDEWALK AND ROADWAY ARE FLUSH. THE DETECTABLE WARNING SURFACE MUST HAVE A TRUNCATED DOME PATTERN AS SHOWN, WITH A MINIMUM DEPTH OF 2'-0", AND MUST BE PLACED AT THE BACK OF CURB BUT NO MORE THAN 8" FROM THE FACE OF CURB FOR MONOLITHIC CURBS OR A TYPICAL CURB WIDTHS. DETECTABLE WARNING MUST MATCH THE WIDTH OF THE RAMP RUN OR THE OPENING WHERE THE SIDEWALK AND ROADWAY ARE FLUSH. THE TRUNCATED DOMES ON THE DETECTABLE WARNING SURFACE SHOULD ALIGN WITH THE CURB RAMP RUN OR THE DIRECTION OF TRAVEL. DOMES MAY BE ON A RADIAL GRID PATTERN WHERE THE DETECTABLE WARNING SURFACE IS PLACED AT CURB RADIUS.

11. DETECTABLE WARNING COLOR MUST BE "FEDERAL SAFETY YELLOW", UNLESS OTHERWISE DIRECTED BY ENGINEER.

12. DETECTABLE WARNING SURFACES SHOULD GENERALLY NOT BE CUT OR ALTERED TO FIT UNLESS THERE IS NO ALTERNATIVE AVAILABLE. IF REQUIRED, CUT OR ALTER THE DETECTABLE WARNING SURFACE PER THE MANUFACTURER’S DIRECTIONS. DETECTABLE WARNING SURFACES PLACED AT CURB RADIUS MUST MATCH THE CURB RADIUS WITHOUT GAPS OR INCONSISTENCIES IN PLACEMENT.

13. AVOID LOCATING HANDHOLES, UTILITY CASTINGS, OR OTHER SURFACE OBSTRUCTIONS IN THE CURB RAMP RUNS(S) OR LANDINGS(S). IF NECESSARY DUE TO EXISTING CONSTRAINTS, HANDHOLES, UTILITY CASTINGS, OR OTHER SURFACE OBSTRUCTIONS MAY BE LOCATED WITHIN A RAMP RUN, LAND, OR TURNING SPACE BUT MUST ADHERE TO SURFACE REQUIREMENTS. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED 1/8" OR 1/2" WITH A 1:2 SLOPE. GAPS BETWEEN SURFACES OR GRAINING MAY NOT EXCEED 1/8". SURFACES MUST BE Firm, STABLE, AND Slip Resistant.

14. HANDHOLES, UTILITY CASTINGS, OR OTHER SURFACE OBSTRUCTIONS MUST NOT REDUCE THE REQUIRED DEPTH OF DETECTABLE WARNING.

15. POLES, HYDRANTS AND OTHER ABOVE GROUND OBSTRUCTIONS MUST HAVE A MINIMUM LATERAL CLEARANCE OF 1'-0" FROM RAMP RUN(S) OR LANDING(S).

16. ALL CHANGES IN LEVEL ACROSS JOINTS MUST BE FLUSH, ANY difference IN ELEVATION OF 3/16" OR GREATER MUST BE REPAIRED OR REPLACED.

17. CURB RAMPS ARE DESIGNED TO ENSURE THAT WATER DOES NOT ACCUMULATE ON RAMP SURFACES. THE CONTRACTOR MUST CHECK GRADE LINES AND OUTER FLOW LINE PRIOR TO CONSTRUCTION. IF THE CHECK REVEALS THAT SITE CONDITIONS WOULD RESULT IN FLOODING, THE WORKER MUST FIRST INSTALL THE DOMES AT THE BOTTOM OF CURB RAMPS OR AT CURB RAMP LOWER LANDINGS AS SHOWN ON THE DRAWINGS OR PLANS, THE CONTRACTOR MUST NOTIFY THE ENGINEER IMMEDIATELY AND STOP WORK ON THE CURB RAMP UNTIL DIRECTED TO CONTINUE BY THE ENGINEER.

18. IT IS RECOMMENDED THAT CURB RAMPS RUNNING SLOPES BE DESIGNED TO 7.5% MAX. AND CURB RAMP LANDINGS BE DESIGNED TO 10.5% MAX TO ALLOW FOR A LIMITED MARGIN OF ERROR DURING CONSTRUCTION.

"SHALL" changed to "MUST", minor other text revisions

notes 8 & 16 revised, note 9 added, note 17 removed

DETECTABLE WARNING TRUNCATED DOMES PATTERN

REF STD SPEC SEC 8-14

City of Seattle

NOT TO SCALE

Curb Ramp Details

NOTES:
1. SEE STD PLAN 420 FOR CW SCORING DETAILS.
2. INSTALL ROOT BARRIER PER STANDARD PLAN NO 120a.
3. WHEN INSTALLING NEW TREE PITS IN EXISTING SIDEWALK, REMOVE SIDEWALK TO FULL PANEL WIDTH. INSTALL TREE PIT AS SHOWN ON THIS DETAIL.
TYPE C

TREE PIT DIMENSIONAL REQUIREMENTS:
- 24 SQ FT MIN TREE PIT SIZE
- 6'-0" MIN RECOG BETWEEN TREE C & FACE OF CURB
- 3'-0" MIN RECOG BETWEEN TREE C & CONC SIDEWALK
- 8'-0" MIN CONC WALKING SURFACE

NOTES:
1. INSTALLATIONS REQUIRING LESS THAN STANDARD MIN CLEARANCES MUST BE ALLOWED ONLY WITH APPROVAL BY THE ENGINEER.
2. INSTALL ROOT BARRIERS AS NOTED. SEE STANDARD PLAN NO. 100a.
3. SEE STD PLAN NO. 420 FOR CURB SCORING DETAILS.
4. WHEN INSTALLING NEW TREE PITS IN EXISTING SIDEWALK, REMOVE SIDEWALK TO FULL PANE WIDTH, INSTALL TREE PIT AS SHOWN ON THIS DETAIL.

FOR ADDITIONAL SIDEWALK SCORING REQUIREMENTS
SEE STD PLAN NO. 420
NOTES:
1. TYPE 430A MUST BE USED UNLESS OTHERWISE DIRECTED BY ENGINEER. USE OF DRIVEWAY TYPE 430B IS SUBJECT TO ENGINEER'S APPROVAL.
2. DRIVEWAYS MUST BE NON-ROADWAY CEM. CONC. HIGH STRENGTH.
3. WING Width ON ARTERIAL STREETS WHERE TRAVEL LANE IS NEXT TO THE CURB MUST BE 5'-0". OTHERWISE, WING WIDTH MUST BE 2'-0".
4. "V" GROOVE SCORING MUST MATCH PATTERN IN ADJACENT EXISTING SIDEWALK.
5. FOR CONCRETE DRIVEWAY CONSTRUCTED WITH CONCRETE SIDEWALK, SEE STANDARD PLAN NO 430.
6. CONCRETE DRIVEWAYS WITH A WIDTH GREATER THAN 15'-0" MUST HAVE A 1/2" TRANSVERSE CONTRACTION JOINT NEAR THE CENTERLINE OF DRIVEWAY. SEE SECTION 8-19 STANDARD PLAN NO 430.
7. FOR TYPE 430A CROSS-SLOPE IN THE 6'-0" Minimum Wide Area connecting to CW on each side of the Driveway must be maximum 2% and minimum 0.5%. FOR TYPE 430B, CROSS-SLOPE OF THE DRIVEWAY BETWEEN THE TWO RAMP SECTIONS MUST BE MAXIMUM 2% AND MINIMUM 0.5%. DRIVEWAY ON THE PRIVATE SIDE OF THE CW MAY BE SLOPES AS NEEDED TO MATCH EXISTING SITE CONDITIONS.
8. RAMP MUST HAVE A MAXIMUM SLOPE OF 8.3% AND A MINIMUM WIDTH OF 6'-0". THE CROSS-SLOPE OF THE RAMP MUST BE MAXIMUM 2.0%. RAMP SURFACE MUST HAVE A HEAVY BROOM BRUSHED SURFACE PERPENDICULAR TO THE CURB. THESE RAMP CHANGES IN LEVEL ACROSS JOINTS MUST BE PLACED WITH A MAXIMUM DIFFERENCE IN ELEVATION OF 1/2".
9. ALL SLOPE GRADES MUST BE MEASURED OFF THE HORIZ-ON LINE. IF EXISTING SITE CONDITIONS CONFLICT WITH OBTAINED GRADES SHOWN, THE CONTRACTOR MUST MAKE MINIMUM ADJUSTMENTS TO THE GRADES TO ACCOMMODATE EXISTING SITE CONDITIONS. ADJUSTMENTS ARE SUBJECT TO ENGINEER APPROVAL.
10. CURB ADJUSTMENTS OUTSIDE OF THE DRIVEWAY CROSSING MAY BE PERMITS.
11. PROTECT ADJACENT PANELS FROM DAMAGE DUE TO UNDERMINING DURING EXCAVATION & PLACEMENT OF SUBGRADE. SEE SPEC SECTION 1-07.13.
12. NOTE 12 ADDED.

REF STD SPEC SEC 8-19

City of Seattle
NOT TO SCALE
TYPE 430A & 430B DRIVEWAYS

score lines redrawn at 2'x2' grid

ALLEY OR PRIVATE DRIVEWAY WIDTH AS SPECIFIED

\( \frac{1}{2} \) THROUGH JOINT

SCORE LINES

SEE NOTE 4

ADDED

FUTURE ALLEY OR PRIVATE CONCRETE DRIVEWAY

CEM CONC SIDEWALK, STD PLAN NO 420

CEM CONC DRIVEWAY, STD PLAN NO 430

COMPACTED SUBGRADE

6" RESIDENTIAL, 8" COMMERCIAL AND ALLEY

6" MNRL AGRG TYPE 2 (COMPACTED DEPTH)

\( \frac{1}{2}\) THROUGH JOINT MATERIAL FOR FULL DEPTH OF DRIVEWAY SLAB

MNRG AGRG ADDED

NOTES:
1. DRIVEWAY WIDTH GREATER THAN 15'-0" AND LESS THAN OR EQUAL TO 30' MUST HAVE TRANSVERSE CONSTRUCTION JOINTS AT IT'S CENTER.
2. DRIVEWAY GREATER THAN 30'-0" REQUIRES SDOT APPROVAL AND MUST HAVE TRANSVERSE CONTRACTION JOINTS EVENLY PLACED SO THE DISTANCE BETWEEN CONTRACTION JOINTS, OR BETWEEN THE EDGE THROUGH JOINTS AND CONTRACTION JOINTS IS NOT GREATER THAN 15'-0".
3. PROVIDE SCORE LINES PER STD 400 #8282; AND THE DRAWINGS.
4. THE SURFACE MUST BE BRUSHED IN THE TRANSVERSE DIRECTION IN RELATION TO THE CENTERLINE OF THE DRIVEWAY OR ALLEY WITH A FIBER HAIR BRUSH OR OTHER APPROVED BRUSH TYPE.
5. PROTECT ADJACENT PANELS FROM DAMAGE DUE TO UNDERMINING DURING EXCAVATION & PLACEMENT OF SUBGRADE. SEE SPEC SECTION 1-07.13.

NOTES 4 & 5 ADDED

REF STD SPEC SEC 8-14 & 8-19

City of Seattle

CEMENT CONCRETE DRIVEWAY PLACED WITH CEMENT CONCRETE SIDEWALK

NOT TO SCALE

MULTI PURPOSE TRAIL AT ARTERIAL STREET W/BULB-OUT (TYP)

NOTES:
1. FOR CURB RAMP AND DETECTABLE WARNING DETAILS SEE STANDARD PLAN NO 422 (SERIES).
2. FOR BOLLARD DETAIL SEE STANDARD PLAN NO 463.
3. ASPHALT TRAIL CROSS SLOPE MINIMUM 1%, MAXIMUM 2%.
4. CEMENT CONCRETE WARNING PAD THICKNESS TO MATCH ASPHALT THICKNESS OR MINIMUM 6" THICK WHICHEVER IS GREATER.
5. CRUSHED ROCK ON EDGE OF TRAIL AS NEEDED TO DISBURSE DRAINAGE FLOW.
6. ALL CHANGES IN LEVEL ACROSS JOINTS MUST BE FLUSH WITH A MAXIMUM DIFFERENCE IN ELEVATION OF 1/8 INCH.
7. ALL SLOPE GRADES MUST BE MEASURED OFF THE HORIZON-LINE. IF EXISTING SITE CONDITIONS CONFLICT WITH OBTAINING GRADES SHOWN, THE CONTRACTOR MUST MAKE MINIMUM ADJUSTMENTS TO THE GRADES TO ACCOMMODATE EXISTING SITE CONDITIONS. ADJUSTMENTS ARE SUBJECT TO APPROVAL BY THE ENGINEER.
8. ALL CEMENT CONCRETE WARNING PADS MUST BE BRUSHED FINISHED AND "V" GROOVED TO MATCH PATTERN IN ADJACENT OR NEARBY SIDEWALKS.
NOTE:
1. SPEED HUMP MUST BE HMA CL 3/8"
2. CHEVRON SYMBOL PER STD PLAN NO 72BA.

SECTION B-B

SEE NOTE 2 (TYP)

NOTE:

PLAN

SECTION A-A

TOLERANCE AT CENTER IS 3/8".
PARABOLIC SHAPE MUST BE MAINTAINED.

REF STD SPEC SEC 5-04

City of Seattle
NOT TO SCALE
SPEED HUMP

NOTE:
1. CUSHION MUST BE HMA CL 3/4".
2. CHEVRON SYMBOL PER STD PLAN NO 728A.
3. TRIANGLE SYMBOL PER STD PLAN NO 728B.
NOTES:
1. FLIGHTS OF STAIRS MUST HAVE MAX VERTICAL RISE OF 12″ BEFORE A LANDING.
2. AVOID FEWER THAN 2 RISERS PER FLIGHT.
3. STEPS IN FLIGHT MUST HAVE UNIFORM TREAD RUNS AND UNIFORM RISER HEIGHTS WITH TOLERANCE OF ±3/8".
4. TREADS MUST BE 11″MIN. 12″MAX. RISERS MUST BE 5½″MIN. 6⅛″MAX.
5. LANDINGS BETWEEN FLIGHTS OF STAIRS MUST HAVE SAME WIDTH AS STEPS AND A MIN LENGTH OF 4′-0″.
6. STAIRWAYS WITH 1 OR MORE RISERS MUST HAVE HANDRAILS ON BOTH SIDES.
7. HANDRAILS MUST BE CONTINUOUS ACROSS LANDING BETWEEN FLIGHTS OF STEPS.
8. ALL STEEL MUST BE HOT GALLANIZED.
10. REFER TO STANDARD ANSI A117-101, NO. 440b.

SIDE VIEW

2″ CLR (Typ)

SEE NOTES ON VENTING

notes 6, 9 & 12 revised

new note

notes added
DETAIL A

2" STD STEEL PIPE POST

18 CA GALV STEEL SLEEVE

#4 REINFORCING U BAR AT EACH POST SEE DETAIL E

NON-SHRINK GROUT

MOUND FOR DRAINAGE (TYP)

STAIRWAY

1'-0"

1'-0" SHOULDER

1 1/2" GRIFFING HANDRAIL (STD STEEL PIPE)

2" STD STEEL PIPE POST

SECTION C-C

HAND GRIP TERMINATION

DETAIL C

DETAIL D

SECTION D-D

NOTE:
PIPE DIAMETERS SHOWN CORRESPOND TO PIPE "SHAPE" AS DEFINED IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL

DETAIL F

#4 REINFORCING U BAR

CONTINUOUS WELD, ONE SIDE, DOWN-SLOPE EDGE (TYP)

EXPANSION GAP

SLIP JOINT

DETAIL G

2" STD STEEL PIPE

1 1/2" STEEL PIPE INSERT

2 1/2" - 3/4" EXPANSION GAP

2" MIN 2" MIN

REF STD SPEC SEC 8-18

City of Seattle
NOT TO SCALE
CEMENT CONCRETE STAIRWAY & HANDRAIL

NOTES:
1. REFER TO STANDARD PLAN NO. 440a AND 440b FOR ADDITIONAL NOTES, DETAILS & DIMENSIONS.
2. PIPE DIAMETERS SHOWN CORRESPOND TO PIPE "SHOE" AS DEFINED IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL. TIPS, VENTS, AND END CAPS MUST BE RECOATED WITH ZINC SPRAY TO A MIN. OF 3 MILS, DRY PAINT THICKNESS.
3. DIMENSIONS SHOWN ON ONE SIDE OF THE SECTION VIEW ARE TYPICAL TO THE OTHER SIDE, UNLESS NOTED OTHERWISE.
4. DISTANCE BETWEEN HANDRราP SUPPORTS MUST NOT EXCEED 8'-0".
5. STAMP CONCRETE AT TOP AND BOTTOM OF RAIL. SEE CONCRETE STAMP DETAIL STD PLAN NO. 440d.
6. LONG STAIRWAYS OR STAIRWAYS WITH SIDEWALKS TO CYCLISTS MUST HAVE SIDEWALK BREAKS TO ALLOW ONGOING CYCLISTS PASSAGE. LOCATIONS OF SIDEWALK BREAKS TO BE DETERMINED BY ENGINEER.
7. ANY CONSTRUCTION OUTSIDE OF RAIL MUST ALLOW ENOUGH CLEARANCE FOR RAILHEADS AND HANDGRIPS FROM INTERFERENCE WITH NON-CyclISTS.
9. VENT HOLES IN END SECTIONS OR IN SIMILAR SECTIONS MUST BE 3/8 IN. DIA.
10. ENDS MUST BE LEFT COMPLETELY OPEN. ANY DEVICES USED TO PREVENT OPENINGS ON ENDS OF HORIZONTAL RAILS AND VERTICAL LEGS MUST BE GALVANIZED SEPARATELY AND ATTACHED AFTER GALVANIZING.

REF STD SPEC SEC 8-18

City of Seattle
NOT TO SCALE
CEMENT CONCRETE STAIRWAY & BIKE RUNNEL

ELEVATION

SECTION A-A

NOTES:
1. CEMENT CONCRETE MUST BE CL 3000 TROWEL FINISH

2. NUMBER OF STEPS MUST SUIT INDIVIDUAL CONDITIONS WITH UNIFORM TREAD AND RISER DIMENSIONS AS FOLLOWS:
   TREADS MUST BE 11" MIN - 11" MAX
   RISERS MUST BE 6" MIN - 7" MAX

3. STEP WIDTH MUST MATCH WIDTH OF EXISTING WALK, BUT MUST BE NO LESS THAN 36" OR MORE THAN 42"

4. STAIRWAYS WITH 1 OR MORE RISERS MUST INCLUDE A HANDRAIL ON BOTH SIDES. SEE STD PLAN NO 440

5. REINFORCING STEEL 6" C enfer 4 in 3000

6. TREAD SLOPES OUTWARD @1%

REF STD SPEC SEC 8-18

City of Seattle
NOT TO SCALE
CEMENT CONCRETE STEPS

NOTES:
1. RAILING MUST BE HOT DIP GALVANIZED AFTER FABRICATION.
2. ALL POSTS MUST BE PLUMB AND RAILS PARALLEL TO THE GROUND.
3. PIPE MATERIAL MUST CONFORM TO ASTM A 53.
4. REINFORCING STEEL ASTM A 706 OR 60.
5. IF THE CONCRETE SLOPE IS 5% OR GREATER AND A GRIPPING HANDRAIL IS REQUIRED, GRIPPING HANDRAILS ON RAMPS (SLOPE EXCEEDS 5%) MUST EXTEND HORIZONTALLY A MINIMUM OF 12" BEYOND TOP AND BOTTOM OF RAMPS RUNS.
6. PIPE DIAMETERS SHOWN CORRESPOND TO PIPE "SHAPE" AS DEFINED IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL.
NOTES:
1. RAILING MUST BE HOT DIP GALVANIZED AFTER FABRICATION.
2. ALL POSTS AND BALUSTERS MUST BE PLUMB AND RAILS PARALLEL TO GRADE.
3. PIPE MATERIAL MUST CONFORM TO ASTM A53.
4. REINFORCING STEEL ASTM A706 CR B.
5. IF THE CONCRETE WALK SLOPE IS 5% OR GREATER A GRIPPING HANDRAIL IS REQUIRED. GRIPPING HANDRAILS ON RAMPS (SLOPE EXCEEDS 5%) MUST EXTEND HORIZONTALLY A MINIMUM OF 1/2" BEYOND TOP AND BOTTOM OF RAMPS.
6. PIPE DIAMETERS SHOWN CORRESPOND TO PIPE "SHAPE" AS DEFINED IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL. PLACE EXPANSION GAP AT EVERY 8'-0" PANEL.
7. THIS DETAIL IS FOR EXISTING CONCRETE STRUCTURE CONNECTION ONLY. ANCHOR BOLTS MUST BE DESIGNED PER AASHTO CODE.

REF STD SPEC SEC 8-18
STEEL PIPE, 6" NOM, SCH 80,
FILLED WITH CL 3000 CONC.
PAINT FEDERAL SAFETY
YELLOW, SEE FEDERAL PAINT
STANDARD.

CONC CL 3000

SLOPE CONCRETE FOR DRAINAGE

2"X3/4" JOINT MATERIAL

1/2" CHAMFER (TYP)

ASPH
MNRL AGG
TYPE 2

MNRL AGG TYPE 2

CW

1'-8"

1'-6"
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

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

City of Seattle
1. Pushbutton must have directional arrow as specified on the plans.
2. Installation of two pedestrian pushbutton assemblies must be on a 4" or larger pole.
3. Detail shows pushbutton installed on metal pole. Pushbutton installed on other materials must be per manufacturer's recommendation.
4. Pushbutton placement must meet MUTCD and state requirements.

Note 4 added

Ref: STD SPEC SEC 8-31

City of Seattle  NOT TO SCALE ACCESSIBLE PEDESTRIAN SIGNAL (APS) PED. PUSHBUTTON ASSEM.

NOTES:
1. PUSHBUTTON MUST HAVE DIRECTIONAL ARROW AS SPECIFIED ON THE PLANS.
2. INSTALLATION OF TWO PEDESTRIAN PUSHBUTTON ASSEMBLIES MUST BE ON A 4" OR LARGER POLE.
3. DETAIL SHOWS PUSHBUTTON INSTALLED ON METAL POLE. PUSHBUTTON INSTALLED ON OTHER MATERIALS MUST BE PER MANUFACTURER'S RECOMMENDATION.
4. THIS PUSHBUTTON ASSEMBLY MUST NOT BE INSTALLED FOR PEDESTRIAN USE UNLESS APPROVED BY THE ENGINEER.

note 4 added
TYPICAL SOLAR PANEL LOCATION
WHERE SOLAR PANEL IS NOTED IN THE DRAWINGS. SIZE, MOUNTING AND HARDWARE MUST BE PER MANUFACTURER, SEE NOTES 1 & 4.

SIGN MUST BE MOUNTED WITH STAINLESS STEEL BRACKET PER STD PLAN 816, PROVIDE MINIMUM CLEARANCE BETWEEN SIGN AND CURB OR ROADWAY EDGE PER STD PLAN 821A.

4" ON HIGH SIDE OF FINISH GRADE
TOP OF FOUNDATION
CONC WALK
6"
COLD JOINT FOR BLOCKOUT
3-1/2" C-C

RRFB FOUNDATION
- Cold joint at sidewalk or overlay
- 4 J-BOLTS 3/8"X20"X4" HOT DIP GALV, FULL LENGTH, ASTM A307, TOP 6" MUST BE THREADED
- Center conduit per drawing
- 3" CLR
- CLASS 3000 CONCRETE
- ROUND OR SQUARE

NOTES:
1. RECTANGULAR RAPID FLASHING BEACON MUST BE HARDWIRED TO A SERVICE CABINET UNLESS OTHERWISE NOTED IN THE DRAWINGS.
2. RECTANGULAR RAPID FLASHING BEACON SHALL HAVE SIGNS AND LIGHT BAR ON BOTH SIDES OF PEDESTAL AND BE ORIENTED TO FACING ONGOING VEHICULAR TRAFFIC UNLESS NOTED OTHERWISE IN DRAWINGS.
3. (1) PEDESTRIAN LED INDICATION, 1/2” (MIN) WIDE X 1-3/4” (MIN) HIGH, MUST BE PROVIDED MOUNTED ON SIDE OF THE LIGHT BAR. PEDESTRIAN LED INDICATION MUST BE DIRECTED TOWARDS CROSSWALK AND BE VISIBLE TO PEDESTRIANS IN THE CROSSWALK. WHETHER RAPID FLASHING BEACON IS LOCATED IN A MEDIAN, OR SERVES MULTIPLE DIRECTIONS OF PEDESTRIAN TRAVEL PEDESTRIAN LED INDICATION MUST BE PROVIDED ON BOTH SIDES OF LIGHT BAR.
4. IF A SOLAR PANEL IS INCLUDED ON THE POLE, USING THE STANDARD FOUNDATION SHOWN, THEN MOUNTING HEIGHT OF SOLAR PANEL MUST BE NO MORE THAN 17”-6”.
5. FOUNDATION SOILS MUST BE FREE OF LANDFILL OR OTHER SETTLEMENT-PRONE MATERIAL AND GROUNDWATER
6. ALL REINFORCING BARS MUST BE DEFORMED BILLET STEEL CONFORMING TO ASTM CLASS A706, GRADE 60.
### Foundation Schedule

<table>
<thead>
<tr>
<th>Pole Type</th>
<th>Projection</th>
<th>Vertical Reinforcing (# of Bars Per Plan)</th>
<th>Anchor Bolts (Total 4 Per Pole)</th>
<th>Anchor Plate Dimensions</th>
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<tbody>
<tr>
<td>T</td>
<td>1/4&quot;</td>
<td>#8</td>
<td>1/2&quot; Dia x 60&quot;</td>
<td>3/4&quot; x 16&quot; x 16&quot;</td>
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<tr>
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<td>1 1/6&quot;</td>
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<td>3/4&quot; Dia x 72&quot;</td>
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</table>

Foundation depth per plan, where pole type other than noted above is required, refer to drawings for foundation depth, dimensions, reinforcing, anchor bolts, and anchor plate dimensions.

**Notes:**

1. Concrete must be class 4000P.
2. Anchor bolts for type T, V, X and Z must conform to ASTM F1554 Grade 105 Class 2A threads including supplementary requirements S2 through S4. Provide nuts according to ASTM A536 Heavy Hex Grade DH and nuts per ASTM F436.
4. All reinforcing bars must be deformed billet steel conforming to ASTM Class A706, Grade 60.
5. Anchor bolts must be hot dip galvanized per ASTM F2329 including nuts & washers (full length) with 18" of threads on top & 12" on bottom.
6. Tape the top of anchor bolts with corrosion protection tape per Std Spec Sec 8–323.3(2)A prior to pouring concrete.

---

**Ref Std Spec Sec 8-32**

City of Seattle

**Strain Pole Foundation Schedule & Notes**

*Type T, V, X & Z*

500 SIGNALIZATION-LIGHTING

NOTES:
1. THE COVER MUST HAVE ¾" TO ⅝" CLEARANCE ON EACH EDGE WITHIN THE FRAME AFTER GALVANIZING.
2. THE GROUND ROD MUST EXTEND 4" ABOVE THE BOTTOM OF THE HANDHOLE OR MINERAL AGGREGATE.
3. TYPE 1, 2, 3, 5 & 6 HANDHOLE COVERS MUST HAVE "SOOT" OR "SL" ON THEM, AS APPROPRIATE.
4. TYPE 5 HANDHOLE MUST BE INSTALLED IN HIGHWAYS, PARKING LOTS, ETC.
5. FOR PAVEMENT DEPTH GREATER THAN 7" USE FRAME EXTENSIONS (SEE STD PLAN ND 231) TO BRING THE COVER UP THE THE LEVEL OF THE FINISHED PAVEMENT WITHOUT EMBEDDING THE BOTTOM FLANGE OF THE CASTING IN THE PAVEMENT.
6. A 4" LENGTH OF #6 THINN OR THHN COPPER WIRE MUST BE SECURED FROM THE HANDHOLE COVER TO THE FRAME, BOND FROM FRAME LID, AND LID TO GROUND ROD.
7. ALL HANDHOLE COVERS AND FRAMES MUST HAVE A NON-SKID SURFACE (SEE STD SPEC SEC 9-34.6).
8. ALL HANDHOLES MUST HAVE A LOAD RATING OF H20.
9. GROUND ROD REQUIRED IN ALL STREETLIGHT HANDHOLES PER SCL CONST STD 1710.50
10. SEE SCL CONSTRUCTION STANDARD 1716.07 FOR STREETLIGHT HANDHOLE AND CONDUIT REQUIREMENTS.

HANDBOLE INSTALLATION DETAIL

HANDHOLE SCHEDULE

<table>
<thead>
<tr>
<th>HANDHOLE TYPE</th>
<th>TOP UNIT INSIDE DIMENSION</th>
<th>EXTENSION UNIT(S)</th>
<th>COVER DIMENSIONS</th>
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<tbody>
<tr>
<td></td>
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<td>W</td>
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</table>

#3 BAR (Typ)

6" MIN THICKNESS MNRL AGG TYPE 9

TYPE 1 & 2 HANDHOLE

FULL 180° OPEN

STEEL PLATE COVER (GALV) W/LOCKING LATCH

(4) ⅜" LIFT INSERTS

RECESSED LIFT HANDLE

COVER

BASE

(2) 1½" LIFT HOLES

18" X 18" KNOCKOUT 1 EACH END

OPTIONAL GALV PULLING IRON 1 EACH END

#3 BAR (Typ)

6" DRAIN HOLE (OPENED)

TYPE 5 HANDHOLE

12" X 12" KNOCKOUT 2 EACH SIDE

RISER

GALV "C" CHANNELS 18" LONG ON ALL SIDES

TYPE 3 HANDHOLE

(COVER SAME AS TYPE 5)

TYPE 4 HANDHOLE

TRAFFIC BEARING

REF STD SPEC SEC 8-33

City of Seattle

NOT TO SCALE

HANDHOLES
NOTES:
1. All non-deliberate traffic pull box covers must comply with all test provisions of ANSI/SCITE 77-2012 "Specification for Underground Enclosure Integrity", and must meet the Tier 15 application. Markings showing the Tier 15 rating must be embossed in the top surface of the cover.
2. All non-deliberate traffic pull box covers must comply with all test provisions of ANSI/SCITE 77-2012 "Specification for Underground Enclosure Integrity", and must meet the Tier 22 application. Markings showing the Tier 22 rating must be labeled or stenciled on the inside & outside of the box.
3. All non-deliberate traffic pull boxes & covers must be made of polymer concrete with fiberglass reinforcement. The box must have continuous fiberglass cloth reinforcement on the inside & outside perimeters. The cover must have a minimum of 2 layers of fiberglass cloth reinforcement.
4. All non-deliberate traffic pull boxes & covers must be tested & certified, meeting all test provisions of the ANSI/SCITE 77, to the 68WF, meeting all test provision of the latest revision of ANSI/SCITE 77.
5. All covers must be labeled for maximum wall height of 100 pounds.
6. Type 4 handhole must be installed in roadways, parking lots, etc. All covers must be complete with a molded logo, manufacturer's name & tier rating logo (no glue in logo). Logo must read “SDOT” or “SL” unless stated otherwise by the city of Seattle.
7. The ground rod must extend 4" above the bottom of the handhole or mineral aggregate.
8. For pavement depth greater than 7" use frame extensions (see STD PLAN NO. 231) to bring the cover up to the level of the finished pavement without embedding the bottom flange of the casting in the pavement.
9. A 4' length of #6 thin or thin copper wire must be secured from the handhole cover to the frame, with a 4-0 length from frame that can be hooked to a ground rod.
10. All handhole covers and frames must have a non-skid surface (SCL Material Standard 7203.10)
11. See SCL Construction Standard 1716.07 for street handhole and conduit requirements.

HANDHOLE INSTALLATION DETAIL

TYPE 1 & 2 HANDHOLE

TYPE 3 HANDHOLE
(COVER SAME AS TYPE 2)

TYPE 5 HANDHOLE

POLYMER CONCRETE HANDHOLES

NOTE:
POLE AND MAST ARM DESIGN MUST CONFORM TO "AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" (6TH EDITION, 2013) DESIGN BASIC WIND SPEED IS 85 MPH AND REOCCURRENCE INTERVAL/DESIGN LIFE IS 50 YEARS.

REF STD SPEC SEC 8-32

City of Seattle
NOT TO SCALE
STEEL MAST ARM POLE

## POLE SCHEDULE

<table>
<thead>
<tr>
<th>POLE TYPE</th>
<th>GROUND LINE DIA &quot;A&quot;</th>
<th>POLE BASE PLATE SIZE</th>
<th>BOLT CIRCLE DIA &quot;B&quot;</th>
<th>BOLT HOLE</th>
<th>ANCHOR BOLTS</th>
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</tr>
</tbody>
</table>

### NOTES

1. POLE SHAFT AND REINFORCING SLEEVE: ASTM A572 GRADE 50, 60 OR 65 ($f_y$=50, 60 OR 65 KSI RESPECTIVELY) OR ASTM A595 GRADE A OR B ($f_y$=55 OR 60 KSI RESPECTIVELY).
2. BASE PLATE AND HANGER REINFORCING RIB: ASTM A572 OR ASTM A572 GRADE 42. BASE PLATE $f_y$=0.65 POLE SHAFT $f_y$ THE BASE PLATE THICKNESS MAY BE REDUCED BY $\frac{3}{8}"$ IF ASTM A572 GRADE 42 STEEL IS USED.
3. REINFORCING SLEEVE MUST BE FABRICATED FROM THE SAME MATERIAL AND YIELD STRENGTH AS THE POLE SHAFT.
4. POLE SHAFTS MUST HAVE NO MORE THAN TWO LONGITUDINAL WELDS IN EACH PLY.
5. MINIMUM SHAFT WALL THICKNESS OF EACH PLY MUST BE 0.239" (3 GAUGE). POLE MUST HAVE A MAXIMUM OF TWO PLYS NOT INCLUDING THE ¾" REINFORCING SLEEVE.
6. MAXIMUM SILICON CONTENT IN STEEL MUST BE 0.04%. SEE STD SPEC SECTION 9-33.1(3) FOR GENERAL GALVANIZING REQUIREMENTS.
7. POLE DIAMETER FOR 12 OR MORE SIZED POLES MUST BE MEASURED FROM THE POINT TO POINT DIMENSION.
8. POLES MUST MEET DEFORMATION CRITERIA STATED IN STD SPEC SECTION 9-33.2(2) WITH THE DESIGN LOAD APPLIED AT 25" ABOVE GROUND LINE.
9. POLE STRENGTH MUST MEET REQUIREMENTS OF AASHO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES AND TRAFFIC SIGNALS (6TH EDITION, 2013).

---

REF STD SPEC SEC 8-32, 9-33

City of Seattle  | NOT TO SCALE  | STRAIN POLE DETAILS (TYPE V, X, & Z POLES)
NOTES:
1. POLE STRENGTH MUST MEET REQUIREMENTS OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES AND TRAFFIC SIGNALS (6TH EDITION, 2013).
2. POLE SHAFT: ASTM A572 GRADE 50, 60 OR 65 (Fy=50, 60 OR 65 KSI RESPECTIVELY), OR ASTM A595 GRADE A OR B (Fy=55 OR 60 KSI RESPECTIVELY)
3. BASE PLATE AND HANDBORE REINFORCING RIM: ASTM A36 OR ASTM A572 GRADE 42. BASE PLATE Fyx20.65 POLE SHAFT Fy THE BASE PLATE THICKNESS MAY BE REDUCED BY \( \frac{h}{2} \) IF ASTM A572 GRADE 42 STEEL IS USED.
4. POLE SHAFTS MUST HAVE NO MORE THAN TWO LONGITUDINAL WELDS IN EACH PLY.
5. MINIMUM SHAFT WALL THICKNESS OF EACH PLY MUST BE 0.239” (3 GAUGE). POLE MUST HAVE A MAXIMUM OF TWO PLYS.
6. MAXIMUM SILICON CONTENT IN STEEL MUST BE 0.04%. SEE STD SPEC SECTION 9-33.1(3) FOR GENERAL GALVANIZING REQUIREMENTS.
7. POLE DIAMETER FOR 12 OR MORE SIDED POLES MUST BE MEASURED FROM THE POINT TO POINT DIMENSION.
8. POLES MUST MEET DEFLECTION CRITERIA STATED IN STD SPEC SECTION 9-33.2(2) WITH THE DEAD LOAD APPLIED AT 27” ABOVE GROUND LINE.
9. THE POLES MUST BE COMPACT AND MUST MEET THE REQUIREMENTS IN AASHTO SECTION 4, TABLE 1.4 1B(1).

ALTERNATE POLE BASE DETAIL

POLE BASE DETAIL

REF STD SPEC SEC 8-32, 9-33

City of Seattle

NOT TO SCALE

TYPE T STRAIN POLE DETAILS
TRAFFIC SIGNAL ONLY

NOTES:

1. ON POLES WITH EXISTING CONDUITS, NEW CONDUITS MUST BE INSTALLED IN ACCORDANCE WITH THIS STANDARD PLAN.
2. RIGID STEEL CONDUIT MUST BE GROUNDED JUST BELOW COUPLING, APPROXIMATELY 8'-0" TO 10'-6" ABOVE GROUND, AS SHOWN.
3. ALL RISERS BONDED IN HH.
4. THE GROUND WIRE MUST BE ONE CONTINUOUS LENGTH. INSERT THE GROUND WIRE FORM THE BOTTOM OF THE GROUND CLAMP & BEND OVER THE CLAMP BEFORE TIGHTENING.
5. ALL STEEL HARDWARE MUST BE HOT DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123.
6. CONDUIT CLAMP SPACING MUST BE PER THE NEC WITH A MINIMUM OF TWO HOLE CLAMP PER 10'-0" LENGTH OF CONDUIT.
7. SERVICE AND SIGNAL CONDUCTORS MUST NOT BE PLACED IN THE SAME CONDUIT.
8. WHEN POSSIBLE, RISER MUST BE INSTALLED ON DOWNSTREAM SIDE OF TRAFFIC.
9. SEE SCL CONSTRUCTION STANDARD 1714.50 FOR STREETLIGHT HANDHOLE AND CONDUIT REQUIREMENTS & 0224.34 FOR STREETLIGHT CONDUIT RISERS.

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NOTE 3 REVISED, PREVIOUS NOTE 5 REMOVED AND NOTES RENUMBERED. NOTES 7 & 9 REVISED.
NOTES:
1. ON POLES FILLED WITH OR MADE FROM CONCRETE USE 5/16"X2½"MIN STUD BOLT ANCHORS WITH HEX NUT
2. FOR SIGNS OVER 2'-6"X3'-6" MOUNT SIGNS USING SIGN BRACKETS AS SPECIFIED IN SECTION 8-21.3(1)B3 FOR STREET DESIGNATION SIGNS.
3. FOR DARK COLORED POLES PAINT BAND TO MATCH POLE
4. ALL HARDWARE TO BE STAINLESS STEEL

REF STD SPEC SEC 8-21

City of Seattle
NOT TO SCALE
TRAFFIC SIGN MOUNTING ON METAL POLES

POST ANCHOR INSTALLATIONS

NOTE:

1. CONTACT SEATTLE DEPARTMENT OF TRANSPORTATION (684-5087) FOR DETAILS REGARDING SIGN MESSAGE AND FOUNDATION.
2. STEEL SELF-TAPPING #10 X 3/4" WITH HEX WASHER HEAD ZINC PLATED
3. RED AND WHITE SLEEVE
4. SEE STANDARD 621a FOR OTHER WARNING & REGULATORY SIGN POST

REF STD SPEC SEC 8-21

City of Seattle  NOT TO SCALE  STOP AND YIELD SIGN POST AND ANCHOR INSTALLATION

NOTES:
1. SIGN MUST BE ATTACHED WITH TOP EDGE OF SIGN FLUSH WITH TOP OF SQUARE SECTION OF POST.
2. TS-5 ASSEMBLIES MUST BE USED ONLY WITH APPROVAL OF ENGINEER, IN AREAS NOT SUBJECT TO DEERLINES.
3. POST SLEEVE MAY BE FLUORESCENT YELLOW GREEN OR FHWA YELLOW WHERE SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER. SEE STANDARD PLAN NO 621B FOR TS-10, TS-5, TS-10 POST.

PER MUTCD, CLEARANCE FROM GROUND TO BOTTOM OF SIGN MUST BE 3" (OR 6" TO THE LOWEST SIGN FOR MULTIPLE SIGN ASSEMBLIES WHERE APPROVED BY THE ENGINEER).

"SHALL" changed to "MUST"

new detail added

note 3 revised
"STREET" SIGN BLADE IN TOP LOCATION

"AVENUE" SIGN BLADE IN BOTTOM LOCATION

"B" St
TRANSLATION

"A" Ave
TRANSLATION

"B" St
TRANSLATION

"C" Way

BILINGUAL INSTALLATION

STANDARD INSTALLATION

#B-2403" PIAN HEAD MACHINE SCREW & NUT (STAINLESS STEEL)

TS-10 TELESPAR, SEE
STD PLAN NO 621a

TS-12 TELESPAR, SEE
STD PLAN NO 621a

SEE HEAVY DUTY ANCHOR,
STD PLAN NO 621b

5' MIN.

bilingual installation added

note 5 removed

NOTES:
1. SNS BLADE MUST BE INSTALLED PARALLEL TO CORRESPONDING STREET
2. INSTALLATION OF SNS ON ANY OTHER METAL POLE MUST REQUIRE REVIEW AND APPROVAL BY THE ENGINEER
3. SNS/SP RELOCATION: OLD CONCRETE MUST BE REMOVED AND NEW CONCRETE BASE SHALL BE CONSTRUCTED
4. CITY OF SEATTLE MUST FABRICATE SNS BLADES AND SUPPLY MOUNTING HARDWARE AT PROJECT OR CONTRACTOR EXPENSE

REF STD SPEC SEC 8-21
QWIK PUNCH TELESPAR STANDARD SIGN POST
(TS-5, TS-10, TS-12) (SEE NOTE 2)

NOTES:
1. SEE STD. SPEC. SEC. 8-21
2. SUFFIXES ATTACHED TO TELESPAR NAME DESIGNATIONS INDICATE SLEEVE TYPES: RW—RED/WHITE, FYC—FLUORESCENT YELLOW GREEN, FY—FHWA YELLOW

REF STD SPEC SEC 8-21
Notes:

1. Post to be plumb
2. Notify Seattle Department of Transportation (684-5087) for removal of existing posts
3. When new posts have been set, notify SDOT to reinstall meters
4. A 2½" Nom Dia ASTM A 53 Galv Std Steel Pipe must be fitted over the 2" Pipe full length. Ends of sleeve pipe to be ground smooth and free of burrs

Ref: STD Spec Sec 8-21

City of Seattle  NOT TO SCALE  DIRECT BURIAL METER POST INSTALLATION DETAIL

NOTES:
1. WAYFINDING BLADE MUST BE INSTALLED POINTING IN THE DIRECTION OF THE LOCATION ON BLADE.
2. CITY OF SEATTLE WILL FABRICATE WAYFINDING SIGNS. CONTRACTOR MUST SUPPLY MOUNTING HARDWARE AND INSTALL SIGNS.
3. MAINTAIN 8 FEET MINIMUM OF VERTICAL CLEARANCE FROM CONCRETE WALK TO THE BOTTOM OF PEDESTRIAN WAYFINDING BLADES.

REF STD SPEC SEC 8-21
TYPICAL TURN LANE CHANNELIZATION

NUMBER OF LEGEND SETS REQUIRED BASED ON THE LENGTH OF APPROACH LINES

APPROACH LINE LENGTH	LEGEND SETS
LESS THAN 50 FEET	1 SET AT X-WALK END OF POCKET
50 FEET-120 FEET	2 SETS
125 FEET-300 FEET	3 SETS (SECOND LEGEND LOCATED MIDWAY BETWEEN FIRST AND LAST LEGENDS)
OVER 300 FEET	ADDITIONAL SETS SPACED AT APPROX 100 FT INTERVALS BETWEEN FIRST AND LAST SETS

NOTES:
LEFT TURN LANE LAYOUT SHOWN ABOVE. SAME LAYOUT APPLIES FOR OTHER TURN LANES.

TYPICAL TWO WAY LEFT TURN LANE

NUMBER OF LEGEND SETS REQUIRED BASED ON THE LENGTH OF TYPICAL TWO WAY LEFT TURN LANES

LANE LENGTH	LEGEND SETS
LESS THAN 50 FEET	1 SET (CENTERED BETWEEN BOTH ENDS OF LANE)
0 FEET-300 FEET	2 SETS
OVER 300 FEET	3 SETS (SECOND LEGEND LOCATED MIDWAY BETWEEN FIRST AND LAST LEGENDS)
ADDITIONAL SETS SPACED AT APPROX 300 FT INTERVALS

NOTE:
LINE CALLOUTS ARE IDENTIFIED & DESCRIBED IN STD SPEC SEC 8-22.

REF STD SPEC SEC 8-22
ALIGN TAILS OF APPROACH LANE ARROWS. NOTE: THE 10" OFFSET FROM THE END OF THE LANE OR THE STOP BAR SHOULD BE ESTABLISHED BY THE SHORTEST ARROW ON THE APPROACH AND LONGER ARROWS MAY END ORCHAP ON THE 10" OFFSET FROM THE END OF THE LANE TO OBTAIN ALIGNMENT WITH THE TAIL END OF SHORTER ARROWS WHEN PRESENT.

NOTE:
LEGENDS, SYMBOLS & ARROWS MUST BE CENTERED WITHIN THE LANE TO WHICH THEY APPLY, AS SHOWN.

TABLE A

<table>
<thead>
<tr>
<th>POSTED OR 85TH-PERCENTILE SPEED</th>
<th>X</th>
<th>MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 MPH</td>
<td>225 FT</td>
<td>75 FT</td>
</tr>
<tr>
<td>25 MPH</td>
<td>325 FT</td>
<td>115 FT</td>
</tr>
<tr>
<td>30 MPH</td>
<td>420 FT</td>
<td>165 FT</td>
</tr>
<tr>
<td>35 MPH</td>
<td>565 FT</td>
<td>225 FT</td>
</tr>
<tr>
<td>40 MPH</td>
<td>670 FT</td>
<td>295 FT</td>
</tr>
<tr>
<td>45 MPH</td>
<td>775 FT</td>
<td>375 FT</td>
</tr>
</tbody>
</table>

TYPICAL LANE DROP INSTALLATION DETAILS

<table>
<thead>
<tr>
<th>LINE LENGTH</th>
<th>LEGEND SETS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LESS THAN 50 FEET</td>
<td>APPROACH LINE (1 TOTAL)</td>
</tr>
<tr>
<td>50 FEET TO 120 FEET</td>
<td>ADD 1 SET AT BEGINNING OF APPROACH LINE (2 TOTAL)</td>
</tr>
<tr>
<td>125 FEET TO 300 FEET</td>
<td>ADD 1 SET LOCATED MIDWAY BETWEEN FIRST AND LAST SETS (3 TOTAL)</td>
</tr>
<tr>
<td>OVER 300 FEET</td>
<td>ADD SETS SPACED AT APPROX. 100 FEET INTERVALS BETWEEN FIRST AND LAST SETS</td>
</tr>
</tbody>
</table>

NOTE:
1. SEE MUTCD SECTION 28.20 FOR GUIDANCE ON SIGNS.
2. MANDATORY MOVEMENT LANE CONTROL SIGNS MUST BE PAIRED WITH LEGENDS PLACED WITHIN THE APPROACH LINE.
new standard plan

(TYP) INSTALL TYPE 2A LANE MARKERS IN BETWEEN 4" YELLOW LINES

(L=__/4YD)

(L=__/4WS)

(L=__/4W2)

DO NOT INSTALL LANE MARKERS WITHIN PEDESTRIAN CROSSWALK AREA (SEE STD PLAN NO 712)

REF STD SPEC SEC 8-22

City of Seattle

NOT TO SCALE

TYPICAL INTERSECTION GUIDELINE CHANNELIZATION

C- /W
PASSENGER LOAD ZONE, ETC
(WHITE)

C- /R
TOW-AWAY ZONE
(RED)

C- /Y
COMMERCIAL LOAD, TRUCK LOAD, LOAD & UNLOAD ZONE, ETC
(YELLOW)

3'-0"  4'-0"  3'-0"
RED  YELLOW  RED
(10'-0" MAX)
3'-0"  4'-0"  3'-0"
RED  YELLOW  RED

C- /BUS
BUS ZONE (NON-PARKING METERED AREAS)
BUS ZONES ARE PAINTED ON TOP & FACE OF CURB

3'-0"  4'-0"  3'-0"  4'-0"
RED  YELLOW  RED  YELLOW
3'-0"  4'-0"  3'-0"  4'-0"
RED  YELLOW  RED  YELLOW

C- /USB
BUS ZONE (PARKING METERED AREAS)
BUS ZONES ARE PAINTED ON TOP & FACE OF CURB

NOTES:
1. TOTAL LENGTH OF CURB MARKINGS MUST BE AS SHOWN ON DRAWING
2. PAINT MUST BE APPLIED NEATLY ON THE CURB AND ALL PAINT SMEARS
   ON ADJACENT SURFACES MUST BE REMOVED

REF STD SPEC SEC 8-22

City of Seattle
NOT TO SCALE
CURB MARKING DETAILS

### New Standard Plan

<table>
<thead>
<tr>
<th>A</th>
<th>S</th>
<th>X</th>
<th>L</th>
<th>W</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>15'</td>
<td>15'</td>
<td>20.21'</td>
<td>8.5'</td>
<td>12.02'</td>
<td></td>
</tr>
<tr>
<td>15'</td>
<td>15'</td>
<td>21.30'</td>
<td>9.0'</td>
<td>12.75'</td>
<td></td>
</tr>
<tr>
<td>16'</td>
<td>16'</td>
<td>22.63'</td>
<td>9.0'</td>
<td>12.73'</td>
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</tr>
<tr>
<td>17'</td>
<td>17'</td>
<td>24.64'</td>
<td>9.5'</td>
<td>13.44'</td>
<td></td>
</tr>
<tr>
<td>18'</td>
<td>18'</td>
<td>25.46'</td>
<td>10.0'</td>
<td>14.14'</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A</th>
<th>S</th>
<th>X</th>
<th>L</th>
<th>W</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>15'</td>
<td>8.66'</td>
<td>17.32'</td>
<td>8.5'</td>
<td>9.81'</td>
<td></td>
</tr>
<tr>
<td>15'</td>
<td>8.5'</td>
<td>17.2'</td>
<td>9.0'</td>
<td>10.5'</td>
<td></td>
</tr>
<tr>
<td>16'</td>
<td>9.24'</td>
<td>18.48'</td>
<td>9.0'</td>
<td>10.39'</td>
<td></td>
</tr>
<tr>
<td>17'</td>
<td>9.81'</td>
<td>19.63'</td>
<td>9.5'</td>
<td>10.92'</td>
<td></td>
</tr>
<tr>
<td>18'</td>
<td>10.39'</td>
<td>20.78'</td>
<td>10.0'</td>
<td>11.55'</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. The width of the travel lane next to angled parking spaces must be a minimum of 12’-6” for 45-degree stalls and 17’-0” for 60-degree stalls.
2. Barrier crosshatch lines must be aligned as shown, intersecting the edge of the parking lane at 45-degrees and angled against the angling of the parking spaces.

---

**Reference:**

Ref Std Spec Sec 8-22

City of Seattle

Teddy Co. Engineering

NOTE:
1. TAPER LENGTH AS SHOWN ON DRAWINGS.
2. SEE STD PLAN NO'S 432a & 432b FOR MULTI-PURPOSE TRAIL DESIGN PLANS.

REF STD SPEC SEC 8-22

City of Seattle  NOT TO SCALE  TRAIL OBSTRUCTION CHANNELIZATION

SIGN REGULATING LANE TO BE USED BY BUSES ONLY (TYP).

S = 750 (TYP)

IF MORE THAN 200 FT ADD ONE MORE CENTRED LEGEND TO BLOCK

(L = /6WS)

THERE IS NO CHANNELIZATION FOR RIGHT TURNS BECAUSE THE ONE-WAY STREET DOES NOT ALLOW FOR IT.

BACK OF SIDEWALK

ONE WAY

UNMARKED PED CROSSING

MANDATORY MOVEMENT SIGN REGULATING LANE USE AS RIGHT TURN ONLY EXCEPT BUSES

(L = /6WS)

PLACE AT OR NEAR ALLEY OR MAJOR DRIVEWAY

ALLEY

S = 720C (TYP)

S = 730A (TYP)

(L = /6WS)

SIGN REGULATING LANE TO BE USED BY BUSES ONLY (TYP). INCLUDE "RIGHT TURNS PERMITTED" SIGN IF RIGHT TURNS EXIST INTO DRIVEWAYS OR AN ALLEY ALONG THE BLOKFACE BEFORE THE RIGHT TURN SIGNING AT THE END OF THE BLOCK BEGINS.

REF STD SPEC SEC 8-22

City of Seattle

NOT TO SCALE

TYPICAL CURBSIDE RED BUS LANE LAYOUT
new standard plan

723A
LEFT MERGE/LANE REDUCTION ARROWS

723B
RIGHT MERGE/LANE REDUCTION ARROWS

REF STD SPEC SEC 8-22

City of Seattle
NOT TO SCALE
MERGE ARROWS

new standard plan

728A
CHEVRON WITH TRIANGLE

NOTE:
THIS SYMBOL MAY BE SCALED DOWN AND RESIZED FOR BIKE FACILITIES TO FIT BIKE FACILITIES WIDTH DIMENSIONS. IN THOSE INSTANCES MUST BE SHOWN ON DESIGN DRAWINGS.

728B
CENTER CUSHION TRIANGLE

REF STD SPEC SEC 8-22
3" to 12" per drawings or as required by SDOT (Typ)

3.0"

1.0"

YIELD LINE LAYOUT

2'-0"

3'-0"

729A
YIELD LINE WITH 18" TALL TRIANGLES

729B
YIELD LINE WITH 36" TALL TRIANGLES

DIRECTION OF TRAVEL

new standard plan

City of Seattle

NOT TO SCALE

YIELD LINE LAYOUT & YIELD LINE TRIANGLE SYMBOLS

RENUMBERED

TITLES REVISED

NEW LEGEND

ACCESSIBILITY SYMBOL MOVED TO NEW STD PLAN 740
new standard plan symbol moved from previous std plan 721a

740A
INTERNATIONAL SYMBOL OF ACCESSIBILITY

title revised

REF STD SPEC SEC 8-22
new standard plan symbol moved from previous std plan 722

741A
PEDESTRIAN SYMBOL

title revised

REF STD SPEC SEC 8-22

City of Seattle
NOT TO SCALE
PEDESTRIAN SYMBOL

new standard plan
symbols moved from previous std plan 722

titles revised
new standard plan, symbols moved from previous std plan 724

titles revised

771A
SHARROW

3'-4"

6.75"

6.25"

771B
CHEVRON FOR SHARROW

3'-4"

6.5"

771C
BIKE SYMBOL

3'-4"

6.5"

6.25"
new standard plan, symbol moved from previous std plan 725

NOTE:
SEE STD PLAN NO 530b FOR PLACEMENT

772
BICYCLE DETECTOR SYMBOL

title revised

REF STD SPEC SEC 8-22

City of Seattle
NOT TO SCALE
BICYCLE DETECTOR SYMBOL
773A
BIKE DOT SYMBOL WITH ARROW

773B
BIKE DOT ARROW

773C
BIKE DOT SYMBOL

New standard plan

Ref: Std Spec Sec 8-22

City of Seattle
Not to scale

NOTE:
SEE STD PLAN NO 771 FOR SYMBOL DIMENSIONS.

774A
GREENWAY THROUGH SYMBOL

774B
GREENWAY ROUTE TURNS SYMBOL

774C
GREENWAY THREE-ROUTE SYMBOL

774D
GREENWAY FOUR-ROUTE SYMBOL

REF STD SPEC SEC 8-22

City of Seattle  NOT TO SCALE  GREENWAY MARKINGS

NOTES:

1. WHERE STRIPED CROSSWALK DOES NOT EXIST, CROSS BIKE MUST BE PLACED AT LANE LINE AND 1/2 LANE WIDTH CONSISTENT WITH STANDARD PLAN 712. IF NO CROSSWALK OR LANE LINE EXISTS, CROSSBIKE MUST BE PLACED AT 6 IN ON CENTERS.

2. CROSS BIKE MATERIAL MUST BE MMA OR PRE-FORMED THERMOPLASTIC.
DRIVEWAY CROSSING LAYOUT

NOTE:
DRIVEWAY CROSSING MATERIAL MUST BE MMA OR PREFORMED THERMOPLASTIC