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 FIRE HYDRANT, HYDRANT BRANCH, WATER METER, WATER SERVICE, WATER MAIN AND WATER BLOW OFF
5'-0" TO C/S INLETS, OTHER DRAINAGE STRUCTURES, MANHOLE, SEWER, STORM DRAIN, OR SERVICE CONNECTIONS

FOR CLEARANCES, SEE STD PLAN NO 5419

SOUTH OR WEST SIDE

10'-0"

2'-0" MIN

3'-6" MIN

2'-0"

SEE NOTE 4

3'-0"

12'-0"

SEE TABLE 1 FOR WATERMAIN DEPTHS

CONC. WALK

CONC. WALK

EITHER SIDE OF TREE

SEE NOTE 4

NOTE:
1. 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 4.
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 APPLICABLE TO 60'-0"B/W AND 25'-0" RESIDENTIAL PAVING.
4. Reducing Clearence between a new utility and existing tree/planting strip, reducing clearance between a new/replacement tree and existing utility, incorporating GSI (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 trees shall be planting soil for a minimum depth equal to the depth of the rootball (no C/S 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

NOT TO SCALE

STABILIZED CONSTRUCTION ENTRANCE

new standard plan

PLAN VIEW
(TOP REMOVED)

SECTION A–A

NOTES:
1. SEE STANDARD PLANS NO 2014a THROUGH 2126b FOR MAINTENANCE HOLE REQUIREMENTS.

REF STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE
FLEXIBLE JOINT FOR VCP CONNECTION TO MAINTENANCE HOLES

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 1/4" MIN TO 1/2" 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

3" HANDHOLD
2'-6" DIA

1'-9" MIN CLR OPENING

GALLOP-1

mortar lining callout removed

RUNNING BOND PATTERN
GROUT BETWEEN ALL BRICKS

REF STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE
REBUILD EXISTING BRICK MAINTENANCE HOLE

1. CONCRETE: CLASS 4000
2. 4" MIN THICKNESS FOR CURVED BOTTOM STRUCTURE
SEAL PERIMETER OF FLANGE WITH EPOXY. IF CORRUGATIONS DO NOT MATCH, INDICATED BY A GAP OF MORE THAN $\frac{1}{8}$" BETWEEN THE PLATE AND THE HOST PIPE. EPOXY APPLICATION MUST NOT EXCEED THE MAXIMUM THICKNESS RECOMMENDED BY THE MANUFACTURER.

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

200 SEWER-DRAINAGE APPURTENANCES

SAND BEDDING AT TRENCH CROSSING OF METAL PIPE
AT METALLIC PIPE CROSSING OF FLUIDIZED THERMAL BACKFILL OR CDF CONDUIT CROSSINGS

MINERAL AGGREGATE PER STD SPEC 9-03.14
TYPE B FOR DUCTILE IRON WHEN APPLICABLE OR CONCRETE PIPE TYPE 22 FOR VITRIFIED CLAY AND FLEXIBLE PIPE

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)

MINERAL AGGREGATE PER STD SPEC 9-03.14, TYPE 6 OR TYPE 7

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 BARREL, EXCAVATE HOLES FOR BELLS AND COUPLING.

REF STD SPEC SEC 2-10.2, 7-17

7-11 & 9-03.16 removed

9-03.16 changed to 9-03.14

City of Seattle

NOT TO SCALE

PIPE BEDDING
SEWER/STORM DRAIN

NOTES:
1. ALL ¾" STEEL & L3" x 2" x ½" 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

Delete this Standard Plan

NOTES:
1. ATTACH THE HOOD TO THE FRAME WITH TWO 3/4" 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

SECTION B–B

FRAME DETAIL

HOLE FOR SLOT FOR ATTACHING HOOD (TYP)

HOLE FOR SLOT FOR ATTACHING HOOD (TYP)

6" HOOD

9" HOOD

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 CIP WATERMAINS 12" OR SMALLER. FOR 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
① 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.
② 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.
③ INSTALLED BY CONTRACTOR
④ CONNECTION PIPE: CONTRACTOR FURNISHED, INSTALLED BY SPU
⑤ WATERMAIN WITH PLAIN ENDS
⑥ MECHANICAL JOINT SLEEVE WITH SPACER CUT TO FIT GAP, FURNISHED AND INSERTED AT TIME OF CONNECTION BY SPU
⑦ TAPPING SLEEVE & TAPPING VALVE FURNISHED AND INSTALLED BY SPU
⑧ APPLIES TO PIPES 4" THROUGH 12" ALL LARGER SIZES TO BE ADDRESSED ON DRAWINGS
⑨ MECHANICAL JOINT SLEEVE: FURNISHED BY CONTRACTOR AND INSTALLED BY SPU, SPACERS BY SPU WHERE REQUIRED.

REF STD SPEC SEC 7-11

City of Seattle
NOT TO SCALE
CONNECTIONS TO EXISTING WATERMAINS

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

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

REF STD SPEC SEC 7-11

City of Seattle
NOT TO SCALE
CONNECTIONS TO EXISTING WATERMAIN
HYDRANT DETAIL

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 HIGEE CUT.
5. AFTER INSTALLATION, ALL SHACKLE BOLTS, NUTS, MECHANICAL JOINT GLANDS AND SHACKLE RODS MUST BE CLEANED AND COATED WITH TWO COATS OF ROYSTON R28 MASTIC.
7. PUMPER PORT MUST FACE CURB.
8. RESTRAINT MUST BE IN WEDGE RESTRAINT SYSTEM SUCH AS METALLIC OR UNMETALLIC SEF STD SPEC 9-30.4(5).
9. STD SPEC CHANGED FROM 9-30.5(5) TO 9-30.4(5).

HYDRANT CONNECTOR

1/2 CU YO MINERAL AGGREGATE TYPE 4

DETAIL B

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

2" SQUARE OPERATING NUT EXTENSION STD PLAN NO 315

6" GATE VALVE FLO X MJ

2" PLASTIC FOAM MATERIAL STD PLAN NO 315

STL PLATE 3/8"X12"X12"

(2) 4"X6"X16" CONC BLOCK OR (2) 4"X16"X16" CONC BLOCK

VALVE BOX STD PLAN NO 315

WEDGE RESTRAINT GLAND

DUCTILE IRON-CEMENT LINED MJ X FLO TEE

HYDRANT CONNECTOR

1/2 CU YO MINERAL AGGREGATE TYPE 4

BLEEDER ADDED

DRAIN HOLE REMOVED

SPOOL ADDED

std spec changed from 9-30.5(5) to 9-30.4(5)

note 9 removed
NOTES:
1. WHERE WATERMAINS ARE INSTALLED WITH POLYETHYLENE ENCASMENT 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 IN A PARKING-PERMITTED AREA, A SECOND 6" GATE VALVE MUST BE INSTALLED AT THE HYDRANT ASSEMBLY PER STD PLAN NO 310a.
NOTES:
1. 6" HYDRANT CONNECTION PIPE MUST BE 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 HIGSEE CUT.
4. THE 21/2" NIPPLES MUST BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION BULLETIN NO 194 DATED 1974.
5. AFTER INSTALLATION, ALL SHACKLE BOLTS, NUTS, AND SHACKLE RODS MUST BE CLEANED AND COATED WITH TWO COATS OF ASPHALT, ROYSTON ROSKOTE R28.
6. AFTER BACKFILLING, THE OUTSIDE OF THE HYDRANT (ABOVE THE GROUND LINE) MUST BE THOROUGHLY CLEANED AND PAINTED WITH TWO COATS OF KELLY-MOORE 6130-516 CAT YELLOW.
7. PUMPER PORT MUST FACE CURB.
8. RESTRAINT MUST BE BY WEDGE RESTRAINT SYSTEM SUCH AS MEGALUG OR UNIFLANGE, SEE STD SPEC SEC 9-30.4(5).

std spec changed from 9-30.5(5) to 9-30.4(5)

Notes 8 & 10 removed, note 9 renumbered to 8
GENERAL NOTES:
1. WHERE WATERMains ARE INSTALLED WITH POLYETHYLENE ENCASMENT 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 311a.

REF STD SPEC SEC 7-14

Type 311 Hydrant Setting Detail
"SHALL" changed to "MUST"

NOTES:
1. RAMP CENTERLINE MUST BE RADIAL/PERPENDICULAR TO THE ALIGNMENT OF THE FACE OF CURB.
2. 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 SLOPE ON THE LANDING MUST BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
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.

PAY LIMITS

PERPENDICULAR CURB RAMPS (TYPE 422A)

MAX SLOPE IN EITHER DIRECTION

422A CURB RAMP LOCATIONS

12" MIN
(TYP)

CW

CW

Landscape
(TYP)
"SHALL" changed to "MUST"

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

PAY LIMITS

PARALLEL CURB RAMPS (TYPE 422B)

MAX SLOPE IN EITHER DIRECTION

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

"SHALL" changed to "MUST"
"SHALL" changed to "MUST"

1. RAMP CENTERLINE MUST BE PARALLEL TO CROSSWALK AND/OR THE SIDEWALK.
2. 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 SLOPE ON THE LANDING MUST BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
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 VISUAL 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 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.

PAY LIMITS

422D CURB RAMP LOCATIONS

DIRECTIONAL CURB RAMPS
(TYPE 422D)

MAX SLOPE IN EITHER DIRECTION

2% MAX

8.3% MAX SLOPE
15'-0" MAX

4'-0" MIN CLEAR SPACE

3" RADIUS (Typ)

SIDE CURB (Typ)
STD PLAN 422K

THROUGH JOINT (Typ)

PAY LIMIT

TYPICAL JOINT

LANDSCAPE

PAY LIMIT

DIRECTIONAL CURB RAMPS
(TYPE 422D)
"SHALL" changed to "MUST"

1. Ramp centerline must be parallel to crosswalk and/or sidewalk.
2. 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; slope on the landing must be between 0.5% and 2% in any direction.
3. Wings must have a maximum slope of 10%, wings must have a brushed finish parallel to the curb. The concrete walk thicknessed 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).
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. This design will likely require the cutting or altering a detectable warning surface to fit.
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.

Upper landing removed

Pay Limits
"SHALL" changed to "MUST"

NOTES:
1. RAMP CENTERLINE(S) MUST BE PARALLEL TO CROSSTRADE AND/OR THE SIDEWALK.
2. 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-SIDEWALK BY A PERMANENT VERTICAL BARRIER, THE DEPTH OF THE TURNING SPACE MUST BE 6'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP, SLOPE ON THE LANDING MUST BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
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 3% TO ASSIST PEDESTRIANS WITH VISUAL 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 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.
NOTES:
1. RAMP CENTERLINE(S) MUST BE PARALLEL TO CROSSWALK AND/OR THE SIDEWALK.
2. 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 6'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP SLOPE ON THE LANDING MUST BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
3. WINGS MUST HAVE A MAXIMUM SLOPE OF 10%. WINGS MUST HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE MUST BE 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.

"SHALL" changed to "MUST"

PAY LIMIT

PAY LIMIT

PAY LIMIT

PARALLEL AND PERPENDICULAR COMBINATION CURB RAMPS W/ SHARED LANDING (TYPE 422G)

REF STD SPEC SEC 8-14

City of Seattle NOT TO SCALE CURB RAMP DETAILS

1. Shared diagonal perpendicular ramps must not be installed unless all other design options are unable to be constructed due to existing site constraints.
2. Ramp centerline must be radial/perpendicular to the alignment of the face of curb.
3. 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 to the back-of-sidewalk by a permanent vertical barrier, the depth of the turning space must be 3'-0" minimum, measured parallel to the run of the curb ramp. Slope on the landing must be between 0.5% and 2% in any direction.
4. Clear space at the bottom of the ramp must be 4'-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 face of curb running parallel to each roadway. There is no allowable exception for minimum clear space requirements at shared diagonal perpendicular curb ramps.
5. 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.
6. Ramp surface must have a heavy broombrushed surface parallel to the curb.
7. Refer to details 422K and 422L for general notes and typical sections.

"SHALL" changed to "MUST"
changed to "NOTE 3"
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 MINIMUM BYPASS ROUTE MUST BE PROVIDED AT THE TOP OF THE BLENDED TRANSITION WITH A MINIMUM WIDTH OF 4'-0". THE CROSS SLOPE OF THE BYPASS ROUTE MUST NOT EXCEED 2% IN ANY DIRECTION.
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. BLENDED TRANSITION SURFACE MUST HAVE A HEAVY BROOM BRUSHED SURFACE RACIAL/PERPENDICULAR TO THE CURB.
5. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTION D.
CURB RAMP GENERAL NOTES:

1. TWO CURB RAMPS MUST BE INSTALLED AT EACH CORNER UNLESS OTHERWISE DIRECTED BY ENGINEER. 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 SERVED AS POSSIBLE.

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

4. RAMPS MUST TYPICALLY HAVE A MAXIMUM RUNNING 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 USABLE BY PEDESTRIANS MUST COMPLY WITH STANDARD PLAN SIDEWALK SLOPE LIMITS OR A CURB RAMP WING MUST BE PROVIDED AS SHOWN IN THE DETAILS. CURB RAMPS DETAILS. THE INSTALLATION OF CURVED EDGES IS NOT REQUIRED BUT MAY BE USED AT THE SIDES OR BACKS OF CURB RAMPS OR CURB RAMPS LANDINGS WHERE THE ADJACENT SURFACE IS LANDSCAPED OR OTHERWISE NOT USABLE BY PEDESTRIANS.

7. THE COUNTER SLOPE OF THE GUTTER OR THE STREET AT THE BOTTOM OF CURB RAMP RUNS MUST BE 5% MAXIMUM. IF TURFING OR CHANGE 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' DEPTH MEASURED FROM THE RAMP BOTTOM 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. 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 DOMES 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 ATYPICAL 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 RAMPS RUN OR THE DIRECTION OF TRAVEL. DOMES MAY BE ON A RADIAL GRID PATTERN WHERE THE DETECTABLE WARNING SURFACE IS PLACED AT CURB RAMP.

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

11. 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 RAMP MUST MATCH THE CURB RAMP WITHOUT GAPS OR INCONSISTENCIES.

12. AVOID LOCATING HANDHOLES, UTILITY CASTINGS, OR ANY OTHER SURFACE OBSTRUCTIONS IN THE CURB RAMP RUN(S) OR LANDINGS. IF NECESSARY DUE TO EXISTING CONSTRAINTS, HANDHOLES, UTILITY CASTINGS, OR OTHER SURFACE OBSTRUCTIONS MAY BE LOCATED WITHIN A RAMP RUN, LANDINGS, OR TRAVELING SPACE BUT MUST ADHERE TO SURFACE REQUIREMENTS. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED 1/4" OR 1/2" A T 1:2 BEVEL GAPS BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED 1/4". SURFACES MUST BE FIRM, STABLE, AND SLIP RESISTANT.

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

14. POLES, HYDRANTS, AND OTHER ABOVE GROUND OBSTRUCTIONS MUST HAVE A MINIMUM LATERAL CLEARANCE OF 1'-0" X 1'-0".

15. ALL CHANGES IN LEVEL ACROSS JOINTS MUST BE FLUSH. ANY DIFFERENCE IN ELEVATION OF 3/16 INCH OR GREATER MUST BE REPAIRED OR REPLACED.

16. CURB RAMPS ARE DESIGNED TO ENSURE THAT WATER DOES NOT ACCUMULATE ON RAMPS SURFACES. THE CONTRACTOR MUST CHECK GRADING LINES AND GUTTER FLOW LINE PRIOR TO CONSTRUCTION. IF THE CHECK REVEALS THAT SITE CONDITIONS WOULD RESULT IN PONDING, OR WOULD CONFLICT WITH OBTAINING THE GRADES AT THE BOTTOM OF CURB RAMPS OR AT CURB RAMPS LANDINGS AS SHOWN ON THE DRAWINGS OR PLANS, THE CONTRACTOR MUST NOTIFY THE ENGINEER IMMEDIATELY AND STOP WORK ON THE CURB RAMPS UNTIL DIRECTION TO CONTINUE BY THE ENGINEER.

17. IT IS GENERALLY PREFERRED THAT CURB RAMPS, CURB RAMP LANDINGS, AND ASSOCIATED FEATURES NOT BE DESIGNED TO THE MINIMUM OR MAXIMUM ALLOWABLE DIMENSIONS AND/OR SLOPE TO ALLOW FOR A LIMITED MARGIN OF ERROR DURING CONSTRUCTION.

NOT TO SCALE

City of Seattle

**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**
500 SIGNALIZATION-LIGHTING

NOTES:
1. THE COVER MUST HAVE 3/8" TO 3/4" 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 "SLOT" OR "SL" ON THEM, AS APPROPRIATE.
4. TYPE 1 HANDHOLE MUST BE INSTALLED IN ROADS, PARKING LOTS, ETC.
5. FOR PAVEMENT DEPTH GREATER THAN 7" USE FRAME EXTENSIONS (SEE STD PLAN NO 231) TO BRING THE COVER UP THE LEVEL OF THE FINISHED PAVEMENT WITHOUT EMBEDDING THE BOTTOM FLANGE OF THE CASTING IN THE PAVEMENT.
6. A 4" LENGTH OF #6 THICK OR THINNER COPPER WIRE MUST BE SECURED FROM THE HANDHOLE COVER TO THE FRAME, BOND FROM FRAME UP, AND UP 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 CONSTR STD 1710.50
10. SEE SCL CONSTRUCTION STANDARD 1716.07 FOR STREETLIGHT HANDHOLE AND CONDUIT REQUIREMENTS.

HANDHOLE INSTALLATION DETAIL

TYPE 1 & 2 HANDHOLE

TYPE 3 HANDHOLE
(COVER SAME AS TYPE 5)

TYPE 4 HANDHOLE
TRAFFIC BEARING

TYPE 5 HANDHOLE

HANDBOLES

NOTES:
1. All non-deliberate traffic pull box covers must comply with all test provisions of ANSI/ISEE 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/ISEE 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 two layers of fiberglass cloth reinforcement.
4. All non-deliberate traffic pull boxes & covers must be tested & certified, meeting all test provisions of the latest revision of ANSI/ISEE 77, to the 686W, meeting all test provision of the latest revision of ANSI/ISEE 77.
5. Pull slots must be installed for minimum pull unit of 600 pounds.
6. Type 4 handhole must be installed in roadways parking lots, etc. All covers must be complete with a molded logo, manufactures name & tier rating logo (no glue in logo). Logo must read "SLOT" or "SL" unless stated otherwise by the city of Seattle.
7. The ground box must extend 1" 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 casing in the pavement.
9. A 4" length of #6 thin or thin copper wire must be secured from the handhole cover to the frame. In frames that can be mobile, 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 1710.07 for street handhole and conduit requirements.

HANDHOLE SCHEDULE

<table>
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<tr>
<th>HANDHOLE TYPE</th>
<th>TOP UNIT INSIDE DIMENSION</th>
<th>EXTENSION UNIT(S)</th>
<th>COVER DIMENSIONS</th>
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GRHH 8" NA

HOLE SCHEDULE

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<th>HOLE SCHEDULE</th>
<th>COVER SAME AS TYPE A</th>
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<tr>
<td>6&quot; X 18&quot; KNOCKOUT 2 EACH END</td>
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<tr>
<td>GALV STRUT 18&quot; LONG ON ALL SIDES</td>
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TYPING 1 & 2 HANDHOLE

TYPING 3 HANDHOLE

TYPING 4 HANDHOLE

TYPING 5 HANDHOLE

POLYMER CONCRETE HANDHOLES

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.

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 6'-0" TO 10'-0" ABOVE GROUND, AS SHOWN.
3. ALL RISERS BONDED IN HH.
4. THE GROUND WIRE MUST BE ONE CONTINUOUS LENGTH. INSERT THE GROUND WIRE FROM 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.

REF STD SPEC SEQ 8-33

note 3 revised, previous note 5 removed and notes renumbered. notes 7 & 9 revised.
SURFACE MOUNT DETAIL

USE HEAVY DUTY ANCHOR FOR NON-CONCRETE INSTALLATION

SURFACE MOUNT

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

REF STD SPEC SEC 8-21

spec sec added