STANDARD PLANS
for
MUNICIPAL CONSTRUCTION
2017 EDITION
CITY OF SEATTLE

2017 edition

STANDARD PLANS

FOR

MUNICIPAL CONSTRUCTION

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PREFACE

The 2017 Edition City of Seattle Standard Plans for Municipal Construction ("2017 Standard Plans") have been prepared by Seattle Public Utilities in cooperation with the Department of Finance and Administrative Services, Seattle Department of Transportation, Seattle Parks and Recreation, Seattle City Light, and the Seattle Center. These Plans have been coordinated with the 2017 Edition City of Seattle Standard Specifications for Road, Bridge and Municipal Construction ("2017 Standard Specifications").

The 2017 Standard Plans apply whenever any public or private construction is performed within the Rights-of-Way of the City of Seattle including work performed by private parties at their own expense under authority granted by ordinance of the City Council or by permit of the SDOT Street Use section. The 2017 Standard Plans are designed to be used in conjunction with the 2017 Standard Specifications. Each individual 2017 Standard Plan has a reference located in the bottom left corner to the applicable 2017 Standard Specifications.

For the convenience of our users, 2017 Standard Plans that are new or have been revised from the 2014 Edition Standard Plans are identified in the Table of Contents with BOLD TEXT -and a vertical bar along the outside page margin. Also, a revision date is located in the upper right corner of each individual Standard Plan to alert the reader to a Standard Plan that is new or has been recently revised.

Our sincere thanks and appreciation to all the individuals who participated in the effort of producing this 2017 Edition of our Standard Plans, and to the many other City personnel who provided review and submitted comments.

In particular, thanks to the following stakeholders who shouldered most of the work in authoring and reviewing changes, coordinating among their departments’ subject matter experts, meeting deadlines, and cooperatively resolving inconsistencies within and between the Standard Specifications and the Standard Plans:

Department of Financial and Administrative Services: Nancy Locke, Aleanna Kondelis and City Contracting Staff.

Seattle Public Utilities: Adam Currie, Charles Oppelt, Andrew Behnke, Pat Lee, Vicki Marsten, Jeff Fowler, Steve Read, Steve Colony, Jason Miller, Teri Maringer-Franks, Monica Hall, Erin Walior, Liz Anderson, Aziz Alfi, Herman Wong, Fred Aigbe and Hanif Khan

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The hardcopy version of this document is available at the Department of Finance and Administrative Services Treasury Services cashier counter located in the Seattle Municipal Tower, 700 Fifth Avenue, Suite 4200, Seattle, Washington 98104, 206-684-5214. The 2017 Standard Plans may also be ordered on-line from the website listed below. Additional features on the website include; an archive of previous editions of our Standards dating back to 1910, CAD files of our Standard Plans and proposed amendments to this edition (including pdf redline markups showing what has changed).

http://www.seattle.gov/util/engineering/standardspecsplans/

Despite considerable efforts to produce a completely error-free document, some mistakes and inconsistencies seem to defy detection until after publication. If you discover errors in this document, please alert us by sending an email to the City’s Construction Standards Engineer at City_Standards_Engineer@Seattle.gov.

If conflicts are discovered between this copy of the 2017 Standard Plans and any version of the 2017 Standard Specifications, the current edition of the 2017 Standard Specifications takes precedence.

This preface is for informational purposes only and is not to be used to interpret or affect the terms of the Contract between the City of Seattle as the Owner and the Contractor.

Randy Earlywine, P.E.,
City Construction Standards Engineer

Dean Huber
CAD Technology Program Manager

Tanya Treat, P.E.,
Director

Project Services Division
Seattle Public Utilities

Eng. and Tech. Services Division
Seattle Public Utilities

Seattle Public Utilities
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Vertical Datums within the City of Seattle:

The National Geodetic Survey (NGS) Benchmark 944 7130 TIDAL 7 PID SY0289 is a disk set 3.0 feet above the concrete sidewalk in the SW granite cornerstone of the National Building located on the NE corner of the intersection of the Western Avenue and Madison Street, Seattle, Washington.

The following elevations are values for that benchmark in different datums.

<table>
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<td>USACOE</td>
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<td>MLLW</td>
<td>21.59 feet</td>
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NAVD88 = The North American Vertical Datum of 1988 (Official City of Seattle Datum per Ordinance #121291 of October 9, 2003)

NGVD 29 = The National Geodetic Vertical Datum of 1929

King Co & Metro = Add 100 feet to NGVD 29

Obsolete COS = The Old City of Seattle Elevation. Plans, profiles and records prior to 2004 use this datum. Add 9.7 feet to this datum to get to NAVD88.

USACOE = US Army Corps of Engineers Lake Washington & Lake Union Datum

MLLW = Mean Lower Low Water Datum (TIDAL EPOCH 1983 TO 2001)

NOTES

1. Tidal elevations vary according to tidal observations in 18 year epochs.
2. The Old (Obsolete) City of Seattle Datum varies between 9.1 and 9.9 feet below NAVD88 depending on the location in the City. The difference between these two datums must be ascertained from field observations in each specific area. Add approximately 9.7 feet to the old COS Datum to get to the NAVD elevation.
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**REF STD SPEC SEC 1-01.2**

City of Seattle | NOT TO SCALE | ABBREVIATIONS

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REF STD SPEC SEC 1-01.2

City of Seattle NOT TO SCALE ABBREVIATIONS

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REF STD SPEC SEC 1-01.2

City of Seattle | NOT TO SCALE | ABBREVIATIONS

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<td>Traffic Signal Mast Arm Pole w/ Luminaire</td>
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<td>Traffic Signal on Span Wire</td>
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<td>Multi-Directional Traffic Signal on Span Wire</td>
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<td>Traffic Signal Conduit</td>
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<td>Traffic Signal Cable</td>
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<td>Detector Loop, Dipole (loop schedule)</td>
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<tr>
<td>Detector Loop, Quadrapole (loop schedule)</td>
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<td>Vehicle Signal (optically programmed)</td>
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<tr>
<td>Pedestrian Signal</td>
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<td>Pedestrian Signal (optically programmed)</td>
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<td>Pedestrian Push Button Post</td>
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<td>Illuminated Sign</td>
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<tr>
<td>Junction Box</td>
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<tr>
<td>Handhole</td>
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<td>Ground Rod Handhole</td>
<td>GR</td>
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<tr>
<td>Fire Alarm Handhole</td>
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</table>
SIGNALIZATION

Vehicle & Pedestrian Signal Head
(\(?=\text{Identification Number}\))

Illuminated Traffic Sign
(\(?=\text{Identification Number}\))

Cable Runs
(\(?=\text{Run Number per Wiring Schedule}\))

Removal/Relocation Item
(\(?=\text{Identification Number per Removal/Relocation Plan}\))

Construction Item
(\(?=\text{Identification Number per Signalization Plan}\))


CHANNELIZATION & SIGNAGE

Install Channelization Signage
(\(?=\text{Channelization / Signage Identified on Plan}\))

Remove Channelization / Signage
(\(?=\text{Channelization / Signage Identified on Plan}\))

Relocate Signage
(\(?=\text{Signage Identified on Plan}\))
<table>
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<tr>
<th>ITEM</th>
<th>EXISTING</th>
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<tr>
<td>Cement Concrete Pavement</td>
<td>6”CONC</td>
<td>6”CONC PAV</td>
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<tr>
<td>Asphalt Concrete Pavement</td>
<td>2”ASPH/6”CONC</td>
<td>8”-402B PAV</td>
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<tr>
<td>Asphalt Concrete Surfacing</td>
<td>2”ASPH</td>
<td>2”ASPH</td>
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<td>Curb</td>
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<td>Cement Concrete Walk</td>
<td>CW</td>
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<td>Pervious Concrete Walk</td>
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<td>Cement Concrete Bike Way</td>
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<tr>
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<td>Inlet Type 268</td>
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<td>Catch Basin round inlet top</td>
<td>圆形</td>
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<td>Private CB &amp; Inlet</td>
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<td>Catch Basin Type 240D</td>
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<td>Catch Basin Type 241</td>
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<td>Catch Basin Type 242A</td>
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<tr>
<td>Catch Basin Type 242B</td>
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<tr>
<td>Junction Box Type 277A</td>
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<td>Junction Box Type 277B</td>
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<td>Area Drain</td>
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<td>Pipe Sewer Sanitary &lt;1'-0&quot;Dia</td>
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<td><img src="image" alt="6”SSS" /></td>
<td><img src="image" alt="6”SSS" /></td>
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<tr>
<td>Pipe Storm Drain &lt;1'-0&quot;Dia</td>
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<td>Bench Mark (found or set)</td>
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<td>Brass Plug/Cap (found or set)</td>
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<td>Monument in Case (found or set)</td>
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<td>Conc. Mon. (found or set)</td>
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<td>Section Corner (found or set)</td>
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<td>Quarter Corner (found or set)</td>
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<td>Section Corner (calculated)</td>
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<td>Quarter Corner (calculated)</td>
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<td>Rebar/Cap, Pipe/Cap Rebar, Iron Pipe (found or set)</td>
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<td>Tack/Lead, Tack PK Nail, Spike (found or set)</td>
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<td>Bench Mark (not found)</td>
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<td>Brass Plug/Cap (not found)</td>
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<td>MIC. (not found)</td>
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<td>Rebar/Cap, Pipe/Cap Rebar, Iron Pipe (not found)</td>
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<td>Survey Shot Point</td>
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ITEM | EXISTING | PROPOSED
--- | --- | ---
Shrub or Bush | ![Image](Shrub_or_Bush_Existing.png) | ![Image](Shrub_or_Bush_Proposed.png)
Ground, Grade Line | ![Image](Ground_Grade_Line_Existing.png) | ![Image](Ground_Grade_Line_Proposed.png)
Grade (arrow downhill) | ![Image](Grade_Arrow_Downhill_Existing.png) 5.6% | ![Image](Grade_Arrow_Downhill_Proposed.png) 5.6%
Rail Road Tracks | ![Image](Rail_Road_Tracks_Existing.png) | ![Image](Rail_Road_Tracks_Proposed.png)
City Limits | ![Image](City_Limits_Existing.png) CITY OF SEATTLE KING COUNTY | ![Image](City_Limits_Proposed.png) SLOPE LINE
Slope Line | ![Image](Slope_Line_Existing.png) SLOPE LINE | ![Image](Slope_Line_Proposed.png)
Contours | ![Image](Contours_Existing.png) 246 | ![Image](Contours_Proposed.png) 246
Slope Angle Horiz:Vert | ![Image](Slope_Angle_Horz_Vert_Existing.png) H:V | ![Image](Slope_Angle_Horz_Vert_Proposed.png)
Vertical Curve | ![Image](Vertical_Curve_Existing.png) V C | ![Image](Vertical_Curve_Proposed.png) V C
Depression | ![Image](Depression_Existing.png) | ![Image](Depression_Proposed.png)
Stump | ![Image](Stump_Existing.png) | ![Image](Stump_Proposed.png)
Top of Cut Toe of Fill | ![Image](Top_of_Cut_Toe_of_Fill_Existing.png) TOP OF CUT | ![Image](Top_of_Cut_Toe_of_Fill_Proposed.png) TOE OF FILL
Dimension Line | ![Image](Dimension_Line_Existing.png) | ![Image](Dimension_Line_Proposed.png)
Match Line | ![Image](Match_Line_Existing.png) | ![Image](Match_Line_Proposed.png)
Test Hole & Number (test boring) | ![Image](Test_Hole_Number_Test_Boring_Existing.png) (TB) TH-7 BM | ![Image](Test_Hole_Number_Test_Boring_Proposed.png) (TB) TH-7
Bench Mark | ![Image](Bench_Mark_Existing.png) | ![Image](Bench_Mark_Proposed.png)
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<tr>
<th>ITEM</th>
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<tbody>
<tr>
<td>Telephone Cable (direct burial)</td>
<td>☑️ TCB</td>
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<td>Telephone Conduit</td>
<td>☑️ 3&quot;TCD</td>
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<td>Telephone Duct</td>
<td>☑️ 12&quot;x12&quot;TD</td>
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<td>Telephone Enclosure</td>
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<td>Telephone Maintenance Hole</td>
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<td>Telephone Pole</td>
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<td>Telephone Handhole</td>
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<td>Television Cable (direct Burial)</td>
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<td>Television Handhole</td>
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<td>Telegraph Maintenance Hole</td>
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<td>Steam Log</td>
<td>☑️ 6&quot;STM 14&quot;x14&quot;LOG</td>
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<td>Steam Vault</td>
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<td>Gas Main</td>
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<td>Gas Valve</td>
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<td>Gas Meter</td>
<td>☑️ GM</td>
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<td>Abandon(ed)</td>
<td>☑️ 2&quot;ECD(ABAN)</td>
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<tr>
<td>Watermain &lt; 1&quot; Dia</td>
<td>8&quot;W</td>
<td>8&quot;W</td>
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<td>36&quot;W</td>
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<td>11 1/4° Bend w/ Conc Blocking</td>
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<td>8&quot; 11 1/4° HBorVB</td>
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<tr>
<td>22 1/2° Bend</td>
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<td>8&quot; 22 1/2° HBorVB</td>
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<td>45° Bend</td>
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<td>8&quot; x 8&quot; x 6&quot; x 6&quot; CR</td>
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<tr>
<td>Tee</td>
<td></td>
<td>+ 8&quot; x 8&quot; x 6&quot; T</td>
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<td>Plug w/ Conc Blocking</td>
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<td>Hydrant</td>
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<td>Gate Valve w/ Chamber</td>
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<td>4&quot; GV W/ VBOX</td>
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<td>Gate Valve w/ Vault Chamber</td>
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<td>Reducer</td>
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<td>8&quot; x 4&quot; RED</td>
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<td>Air Valve</td>
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<tr>
<td>Blowoff</td>
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<td>⊙ 1½”BO</td>
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<td>Fire Standpipe</td>
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<td>Water Test Station</td>
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<td>Sprinkler Head</td>
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<tr>
<td>Concrete Blocking</td>
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NOTES:
1. MEASUREMENT PER LINEAR FOOT. PIPE ENDING IN STRUCTURE
   MEASURED TO EITHER INSIDE FACE OR TO CENTERLINE OF
   STRUCTURE AS INDICATED, OR TO TEE OR WYE AS INDICATED.
2. TEE OR WYE INCLUDING PLUG — UNIT PRICE EACH
3. ALL PIPE SHALL BE MEASURED ON THE SLOPE ALONG THE
   CENTERLINE OF PIPE TO NEAREST 0.10 LF.

REF STD SPEC SEC 7
NOTES:
1. MONUMENT CASE TO BE INSTALLED BY CONTRACTOR.
2. BASE TO BE PLACED ON A WELL COMPACTED FOUNDATION.
3. FRAME AND COVER SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS FOR DELIVERY.
4. FRAME AND COVER SHALL BE CAST IRON AND HAVE COATING APPLIED TO ALL FACES.
5. CASTINGS IN RIGID PAVEMENT SHALL HAVE REINFORCING STEEL IN THE PAVEMENT.
6. USE LOCKING COVER IN R/W. DRILL AND TAP, APPLY ANTI-SEIZING COATING AND BOLT DOWN WITH 3/8" S.S. ALLEN-HEAD BOLTS — 2 PLACES.

RISER RING DIMENSIONS

<table>
<thead>
<tr>
<th>A (SIZE)</th>
<th>1/2&quot;</th>
<th>2&quot;</th>
<th>3&quot;</th>
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RISER RING SECTION

COVER SECTION

SECTION A–A

CASE SECTION

REF STD SPEC SEC 8-13

City of Seattle

NOT TO SCALE

MONUMENT FRAME & COVER

SECTION B-B

NOTES:
1. FRAME AND COVER SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS FOR DELIVERY.
2. FRAME AND COVER SHALL BE CAST IRON.
3. "F" = FINISH.
4. CASTINGS IN RIGID PAVEMENT SHALL HAVE REINFORCING STEEL IN THE PAVEMENT.

ELEVATION

SECTION C-C

BOTTOM VIEW

SECTION A-A

TOP VIEW

REF STD SPEC SEC 8-13

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 CY, INLETS, OTHER DRAINAGE STRUCTURES, MANHOLES, SEWER, STORM DRAIN OR SERVICE CONNECTIONS.

FOR CLEARANCES, SEE STD PLAN NO 349 FOR TYPICAL TRAFFIC CONDUIT COVER
1'-6". (IF UNDER DRIVEWAY OR PAVING, 3'-0" SEE SOL CONSTRUCTION STANDARD 1716.07 FOR LIGHTING CONDUIT.

NOTES:
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 1.
2. ELECTRIC POWER, GAS, TELEPHONE, TELEVISION AND TREES SHALL 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" 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 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 3'-0" OF CENTERLINE OF TREES SHALL BE PLANTING SOIL FOR A MINIMUM DEPTH EQUAL TO THE DEPTH OF THE ROOTBALL (NO CSB 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.

REF STD SPEC SEC 8-01

City of Seattle
STABILIZED CONSTRUCTION ENTRANCE

NOTES:
1. REMOVE STAKES ONE YEAR AFTER INSTALLATION.
2. SHAPE SOIL SURFACE TO PROVIDE 4' DIA. WATERING RING.
3. TREE CLEARANCE MUST BE PER STD PLAN NO 030.
4. SEE STD PLAN NO 424 FOR TREE PIT DETAIL.
5. ADJUST TREE TIES DURING ESTABLISHMENT TO ALLOW ROOM FOR GROWTH (1/4" SLACK).
6. ROOT BARRIER REQUIRED ALONG EDGE OF ROADWAY, CURB, DRIVEWAY, TRAIL, SIDEWALK, OR OTHER STRUCTURES WHERE ROOTBALL IS WITHIN TWO FEET. PLACE VERTICAL ROOT BARRIERS AS SHOWN IN STANDARD PLANS NO 424a OR 424b. INSTALL ROOT BARRIERS FOR NEWLY PLANTED TREES ONLY.

STAKE TREE WITH (2) TREATED 2" LODGEPOLE PINE DOWELED TREE STAKES (8'-0" LENGTH). LOOP EACH TIE AROUND HALF TREE LOOSELY TO PROVIDE 1" SLACK FOR TRUNK GROWTH.

"CHAINLOCK" OR EQUAL TREE TIE MATERIAL (1" SIZE) NAIL OR STAPLE TREE TIE MATERIAL TO STAKE TO HOLD VERTICALLY. LOOP EACH TIE AROUND HALF TREE LOOSELY TO PROVIDE 1" SLACK FOR TRUNK GROWTH.

2'-0" Min 3'-0" Min

2"-3" MULCH DEPTH (TAPERED AT TRUNK)

MULCH TREE PIT MIN 5'-0" LENGTH X FULL PLANTING STRIP WIDTH BETWEEN CURB AND SIDEWALK (FOR PLANTING STRIPS LESS THAN 6'-0" WIDE), OR PROVIDE 5'-0" DIA MULCH RING FOR PLANTING STRIPS WIDER THAN 6'-0".

SIDEWALK

18" Root Barrier at Sidewalk.

ROUCHEN SIDES OF PLANTING HOLE MAXIMIZE EXCAVATED AREA WITHOUT UNDERMINING ADJACENT PAVING/CURB.

ROOT BARRIER; PLACE AT EDGE OF PAVEMENT/SIDEWALK/ETC.; PLACE PRIOR TO PLACEMENT OF NEW SIDEWALK OR CURB TO PREVENT UNDERMINING.

SEE STD SPEC SECTION 6-02.6(6)b, OR AS APPROVED BY ENGINEER.

REMOVE ALL WIRE, STRINGS, AND OTHER NON-BURLAP MATERIAL AND REMOVE BURLAP FROM TOP 2/3 OF ROOTBALL MINIMUM. REMOVE ENTIRELY WHEN DIRECTED BY THE ENGINEER.

MIN WIDTH OF TREE PIT = 2 TIMES ROOTBALL DIAMETER OR 5'-0", WHICHEVER IS GREATER

MULCH AREA TO BE CLEAR OF GRASS, WEEDS, ETC. TO REDUCE COMPETITION WITH TREE ROOTS

24" Root Barrier at Curb when shown on the drawings.

TREE PIT DEPTH = ROOTBALL DEPTH (MEASURE BEFORE SIEVING TO AVOID OVEREXCAVATION).

DRIVE STAKES 6" TO 1'-0" INTO UNDISTURBED SOIL BELOW ROOTBALL.

UNDISTURBED SUBGRADE (PROVIDES FIRM BASE SO THAT ROOTBALL WILL NOT SINK.)
NOTES:
1. STAKE TREES PER STD PLAN NO 100a.
2. ONE STAKE PER TREE ON WINDWARD SIDE, SECOND STAKE ON LEeward SIDE.
3. SLOPES STEEPER THAN 2:1 MAY REQUIRE AN APPROVED EMBANKMENT STABILIZATION SYSTEM TO CREATE A LEVEL TREE PIT SUCH AS:
   - ROCK FACING
   - PRECAST CONCRETE WALL UNITS
   - TIMBER WALL
   - MANUFACTURED SLOPE RETENTION UNITS
4. CHAINLOCK TREE TIE. LOOP EACH TIE AROUND TREE LOOSELY TO PROVIDE 1/2 SLACK FOR DIAMETER GROWTH.
5. SHAPE SOIL TO PROVIDE 3 IN DIAMETER OR FOOTBALL DIAMETER, WHICHERVER IS GREATER, WATERING RING.
6. REMOVE ALL WIRE, STRINGS AND OTHER NON-BURLAP MATERIAL, AND REMOVE BURLAP FROM TOP 2/3 OF FOOTBALL.

REF STD SPEC SEC 8-02
City of Seattle
NOT TO SCALE
TREE & SHRUB PLANTING ON SLOPES

TREE SPACING PER PLAN & FILED APPROVAL BY THE ENGINEER

PLANTING STRIP GRASS OR PLANTED/MULCHED

5'-0" MIN MULCHED TREE PIT TYP

6" DEEP SCARIFIED SUBGRADE

TREE PLANTING ELEVATION VIEW

18" ROOT BARRIER TYP

SIDEWALK EDGE

PLANTING STRIP

FACE OF CURB

TREE PLANTING PLAN VIEW

REF STD SPEC SEC 8-02

City of Seattle

NOT TO SCALE

TREE PLANTING IN AMENDED TRENCH
PLASTIC LOCK-TIE OR RUBBER HOSE TREE TIE, SET LOOSE TO ALLOW FOR DIAMETER GROWTH

2" x 6'-0" LENGTH LODGEPINE PINE TREE STAKE

MIN 2"-3" OF MULCH

3"-4" HIGH WATERING RING

FINISH GRADE

REMOVE ALL WIRE, STRINGS, AND OTHER NON-BURLAP MATERIAL, AND REMOVE BURLAP FROM TOP ¾ OF ROOTBALL.

SEE STD SPEC SECTION 8-02.3(A)B.

UNDISTURBED SUBGRADE (PROVIDES FIRM BASE SO THAT ROOTBALL WILL NOT SINK)

6'-0" MIN OR 2 TIMES ROOTBALL

6'-0" DIA. MULCH AREA CLEAR OF GRASS, WEEDS, ETC. TO REDUCE COMPETITION DURING ESTABLISHMENT

SET ROOT CROWN AT OR 1" ABOVE FINISH GRADE

MIN 1/3 HEIGHT OF TREE (H)

SEE STD PLAN NO 100B FOR PLANTING ON SLOPES
B&B OR CONTAINERIZED SHRUB (TYP)

SET ALL PLANTS AT NURSERY LEVEL (TYP)

MIN 2"-3" OF MULCH

SHRUB PLANTING PIT PREPARATION = ROOTBALL DEPTH & WIDTH PLUS 1'-0" ADDITIONAL ALL SIDES

FINISH GRADE

SEE STD PLAN NO 142 - SOIL AMENDMENT & DEPTH

REMOVE ALL WIRE, STRINGS, AND OTHER NON-BURLAP MATERIAL AND REMOVE BURLAP FROM TOP 3/5 OF ROOTBALL

REUSED AND AMENDED SITE SOIL

UNDISTURBED SUBGRADE (PROVIDES FIRM BASE SO THAT ROOTBALL WILL NOT SINK)

ROOTBALL + 1'-0" MIN ALL SIDES

ROOTBALL DEPTH
TYPICAL GROUND COVER PLANTED AT NURSERY LEVEL

MIN 2" MULCH

FINISH GRADE

MIN 6" DEPTH

SCARIFIED SUBGRADE

SEE STD PLAN NO 142 - SOIL AMENDMENT & DEPTH

SPACING VARIES
SEE LANDSCAPE DRAWING

REF STD SPEC SEC 8-02

City of Seattle
NOT TO SCALE
GROUND COVER PLANTING

CONTINUOUS OUTER ROW AT X FEET ON CENTER. 2/3X FEET SETBACK FROM EDGE OF PLANTING BED WITH TRIANGULAR SPACING INSIDE BED (TYP)

EDGE OF PLANTING BED OR PAVEMENT

2/3X OR 8" MIN. WHICHEVER IS GREATER (TYP)

\( X = \text{RECOMMENDED SPACING (SEE LANDSCAPE DETAIL ON DRAWING)} \)

\( \oplus = \text{ACTUAL PLANT LOCATIONS} \)
100 LANDSCAPE PLANTING

STANDARD PLAN NO 121

REV DATE: JUN 2005

1"-6" MIN. COVER

6"

FINISH GRADE

#5 REBAR STAKING 1'-6" MIN

(2) STAINLESS STEEL CLAMPS AROUND REBAR & RISER

3/4" GALV STEEL RISER

PVC PIPE

TO GATE VALVE & METER

ABOVE GROUND HOSE BIB

3/4" LOOSE KEY STRAIGHT NOSED HOSE BIB W/ VACUUM BREAKER

METER BOX W/ LOCKING LID

FINISH GRADE

3/4" LOOSE KEY STRAIGHT NOSED HOSE BIB

#5 REBAR STAKING 1'-6" MIN

3/4" GALV STEEL RISER

PVC TRIPLE SWING JOINTS

TO GATE VALVE & METER

PVC PIPE

BELOW GROUND HOSE BIB

3/4" GALV THREADED U-BOLT W/ NUTS & WASHERS (TYP)

BRACE DETAIL - PLAN VIEW

FINISH GRADE

10" (MIN) VALVE BOX W/ LOCKING LID

BRASS QUICK COUPLER VALVE

1"-6" LONG 1" SCH 80 PVC

3" OF MINERAL AGGREGATE TYPE 4 OVER GEOTEXTILE

SCH 40 PVC GALVANIZED TRIPLE SWING JOINT ASSEMBLY W/ BRASS UNIONS

SCH 40 PVC MAINLINE

ELEVATION VIEW

QUICK COUPLER VALVE

TURF OR BED AREAS

REF STD SPEC SEC 8-03

City of Seattle

NOT TO SCALE

HOSE BIB ASSEMBLY AND QUICK COUPLER VALVE

NOTE:
"U" SHAPED CUT-OUT IN VALVE BOX THAT ALLOWS 2" CLEARANCE FROM TOP OF PIPE TO TOP OF "U"

AUTOMATIC CONTROL VALVE

FINISH GRADE

VALVE BOX W/ LOCKING LID (SEE SPECS)

EXTENSIONS (AS REQ'D)

3/8" MANUAL DRAIN VALVE W/ LONG KEY FOR OPERATION

OUTFALL PIPE TO DRAINAGE STRUCTURE OR WATER COURSE

MANUAL DRAIN VALVE

SCH 40 PVC MAIN LINE

SCH 80 PVC ELL OR TEE W/ REDUCER

(4) SCH 80 3/4" PVC ELLS W/ PVC NIPPLES IN BETWEEN

SCH 80 3/4" PVC STREET ELL W/ 6' LENGTH OF PVC PIPE W/ HOLES DRILLED FOR DRAIN LINE

1/2 CU YD OF MINERAL AGGREGATE TYPE 4 OVER GEOTEXTILE

REF STD SPEC SEC 8-03

City of Seattle

NOT TO SCALE

IRRIGATION VALVES

GATE VALVE – 2 1/2" & LARGER

NOTES:
USE TEFLOM TAPE ON ALL THREADED FITTINGS
CONCRETE VAULT W/LOCKING STEEL HATCHES OR (WHEN APPROVED BY THE ENGINEER) PLASTIC MOLDED VALVE BOX W/LID SIZED TO PROVIDE 6" MIN CLEARANCE BETWEEN UNIONS AND INSIDE FACE OF BOX

PITCOCKS TO BE UPRIGHT AND EASILY ACCESSIBLE (ORIENTATION APPROVED BY ENGINEER)

BRASS NIPPLES & UNIONS

PVC MAIN TO LATERALS

6" COMPACTED MINERAL AGGREGATE TYPE 4 BASE FOR OPEN BOTTOM VALVE BOX INSTALLATIONS

1/3 CU YD MINERAL AGGREGATE TYPE 4 AT BOTH ENDS OF VAULT UNDER WEEP HOLE/SLOT

DOUBLE CHECK VALVE/BACKFLOW PREVENTER

CONCRETE VAULT W/LOCKING STEEL HATCHES OR (WHEN APPROVED BY THE ENGINEER) PLASTIC MOLDED VALVE BOX W/LID SIZED TO PROVIDE 6" MIN CLEARANCE BETWEEN UNIONS AND INSIDE FACE OF BOX

PRESSURE GAUGE

COPPER SWEET TO THREADED ADAPTER

1" PVC WEEP HOLE SLOT DRAIN (TYP)

PRESSURE REDUCING VALVE ASSEMBLY W/ UNION

NON-SHRINKING GROUT OPENINGS (TYP)

1/2" PVC WEEP HOLE (TYP)

PRESSURE REDUCER STRAINER

(LOCATE DOWNSTREAM FROM BACKFLOW PREVENTION DEVICE)

REF STD SPEC SEC 8-03

City of Seattle

NOTE:
1. USE TEFLOM TAPE ON ALL THREADED FITTINGS
2. DETECTABLE MARKING TAPE COLOR PER STANDARD SPECIFICATIONS
SECTION 9-15.11 FOR POTABLE OR NON-POTABLE WATER

REF STD SPEC SEC 8-03

City of Seattle NOT TO SCALE POP UP & FIXED IRRIGATION HEADS

LEGEND
1. Controller
2. #10 AWG Solid Bare Copper Wire from Grounding Rod to Controller. Make wire as short as possible.
3. Cover Grounding Rod with 10" Round Valve Box.
4. 3/4" x 10' - 0" Copper Clad Grounding Rod. Install 3 Rods in soil in a triangular pattern, spaced 8' - 0" min apart. Grounding grid to have a resistance of 10 ohms or less.
5. #10 AWG Bare Copper Wire Between Grounding Rods.
7. Finish Grade.

GROUND ROD LAYOUT

REF STD SPEC SEC 8-03

GROUND ROD ASSEMBLY

IRRIGATION CONTROLLER PEDESTAL AND ENCLOSURE GROUNDING

City of Seattle
NOT TO SCALE

NOTES:
1. SLEEVE SIZE AS SHOWN ON DRAWINGS OR ID OF SLEEVE TO BE 1" GREATER THAN OD OF PIPE
2. SLEEVES REQUIRED UNDER ALL PAVED AREAS
3. DETECTABLE MARKING TAPE COLOR PER STANDARD SPECIFICATIONS SECTION 9-15.11 FOR POTABLE OR NON-POTABLE WATER
NOTES:
1. NEMA 3R RAINPROOF CABINET
2. NO 12 GA PREGALVANIZED STEEL WELDED SEAM CONSTRUCTION
3. TWO SCREENED, GASKETED LOUVERED VENTS
4. REMOVABLE EQUIPMENT MOUNTING PAN
5. VANDALPROOF LOCKABLE SLIDE BAR ACROSS FRONT DOOR
6. PADMOUNT DESIGN WITH 2" INSIDE FLANGE ON BOTTOM
7. DOOR:
   3 POINT LATCH
   CONCEALED HINGE
   LIFT-OFF TYPE (UPON OPENING)
   CLOSED CELL NEOPRENE GASKET
8. PAINT:
   OVEN BAKED ENAMEL
   DARK GREEN OUTSIDE
   WHITE INSIDE
   PREGALVANIZED METAL TREATED WITH COPPER SULFATE PRIOR TO PAINTING
9. ACTUAL CABINET DIMENSIONS ARE PROJECT SPECIFIC AND WILL BE SPECIFIED ON THE DRAWINGS.

SECTION A-A

SLIDE BAR & LOCKING DEVICE
FOR CONDUIT & WIRES
CLASS 3000 CONCRETE

GROUND ROD & WIRE (PER CODE) SEE STD PLAN NO 127

REF STD SPEC SEC 8-03

080108/09

City of Seattle
NOT TO SCALE
IRRIGATION CONTROLLER CABINET

NOTE:
Consider traffic turning visibility and pedestrian visibility when selecting fence height. Typically shorter fencing around tree pits between sidewalk and roadway is desired.

4'-6" to 6'-0" high chain link fence to enclose entire open tree pit (typ each tree pit)

Existing tree pit

Face of curb

Tree in tree pit

4'-6" to 6'-0" high chain link fence to enclose entire open tree pit (typ each tree pit)

Tree in planting strip—option 1

4'-6" to 6'-0" high chain link fence protects entire planting strip

Face of curb

Tree in planting strip—option 2

REF STD SPEC SEC 1-07.16(2), 8-01

City of Seattle
NOT TO SCALE
TREE PROTECTION DURING CONSTRUCTION

NOTES:
1. REUSABLE TEMPORARY PROTECTION FENCING USED TO PROTECT TREES IN TREE PITS MUST SURROUND THE ENTIRE UNPAVED TREE PIT AREA AND BE ANCHORED AND MAINTAINED IN A STABLE UPRIGHT CONDITION. SEE SECTION 8-01.3(2)(B).

REF STD SPEC SEC 1-07.16(2) & 8-01
TRENCHING/EXCAVATION

ZONE A (CRITICAL ROOT ZONE)
1. NO DISTURBANCE ALLOWED WITHOUT SITE-SPECIFIC INSPECTION AND APPROVAL OF METHODS TO MINIMIZE ROOT DAMAGE
2. SEVERANCE OF ROOTS LARGER THAN 2" DIA REQUIRES ENGINEER'S APPROVAL
3. TUNNELING REQUIRED TO INSTALL LINES 3'-0" BELOW GRADE OR DEEPER

ZONE B (DRIPLINE)
1. ZONE B FOR ASYMMETRICAL COLUMNAR AND NARROW CONICAL TREE FORMS. ZONE B = 1" RADIUS FOR EVERY 1" OF TRUNK DIAMETER.
2. TUNNELING MAY BE REQUIRED FOR TRENCHES DEEPER THAN 3'-0".

NOTE:
A TREE, VEGETATION, AND SOIL PROTECTION PLAN (TVSPP) IS REQUIRED FOR ALL PROJECTS.
APPROVAL OF PLAN REQUIRED PRIOR TO MOBILIZATION.
SEE SECTION 8-01.

REF STD SPEC SEC 1-07.16(2) & 8-01
6" subsurface drain pipe per STD PLAN NO 291. Bed in mineral aggregate type 22. Bedding must provide min 3" cover all around. Outlet to approved discharge point. Surface ditch: Curb above inlet. Separate C3 with no roadway drainage.

SECTION

EXISTING OR PROPOSED GRADE

DEPTH OF BASE (d)

FOUNDATION TO BE DESIGNED TO PROVIDE A MIN OF SOIL BEARING PRESSURE OF 2000 PSF

ELEVATION

<table>
<thead>
<tr>
<th>(h)</th>
<th>(d)</th>
<th>SIZE BASE</th>
<th>SIZE TOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 FEET</td>
<td>3 INCHES</td>
<td>2-MAN</td>
<td>1-MAN</td>
</tr>
<tr>
<td>4 FEET</td>
<td>6 INCHES</td>
<td>3-MAN</td>
<td>2-MAN</td>
</tr>
<tr>
<td>6 FEET</td>
<td>9 INCHES</td>
<td>4-MAN</td>
<td>2-MAN</td>
</tr>
<tr>
<td>8 FEET</td>
<td>12 INCHES</td>
<td>5-MAN</td>
<td>2-MAN</td>
</tr>
</tbody>
</table>

Θ = 14° ± 1°
NOTES:
1. ALL SOIL AREAS DISTURBED OR COMPACTED DURING CONSTRUCTION, AND NOT COVERED BY BUILDINGS OR PAVEMENT, MUST BE AMENDED WITH COMPOST AS DESCRIBED BELOW.

2. SUBSOIL SHOULD BE SCARIFIED (LOOSENED) 4 INCHES BELOW AMENDED LAYER TO PRODUCE 12-INCH DEPTH OF UN-COMPACTED SOIL EXCEPT WHERE SCARIFICATION WOULD DAMAGE TREE ROOTS OR AS DETERMINED BY THE ENGINEER.

3. COMPOST MUST BE TILLED IN TO 8 INCH DEPTH INTO EXISTING SOIL OR PLACE 6 INCHES OF COMPOST-AMENDED SOIL PER SOIL SPECIFICATION.

4. TURF AREAS MUST RECEIVE 1.75 INCHES OF COMPOST TILLED IN TO 8-INCH DEPTH, OR MAY SUBSTITUTE 8" OF IMPORTED SOIL CONTAINING 20-25% COMPOST BY VOLUME. THEN PLANT GRASS SEED OR SOD PER SPECIFICATION.

5. PLANTING BEDS MUST RECEIVE 3 INCHES OF COMPOST TILLED IN TO 8-INCH DEPTH, OR MAY SUBSTITUTE 8" OF IMPORTED SOIL CONTAINING 35-40% COMPOST BY VOLUME. MULCH AFTER PLANTING, WITH 2-3 INCHES OF ARBORETUM WOOD CHIP MULCH OR APPROVED EQUAL.

6. SETBACKS: TO PREVENT UNEVEN SETTLING, DO NOT COMPOST-AMEND SOILS WITHIN 3 FEET OF UTILITY INFRASTRUCTURES (POLES, VAULTS, METERS ETC.), WITHIN ONE FOOT OF PAVEMENT EDGE, CURBS AND SIDEWALKS SOIL SHOULD BE COMPACTED TO APPROXIMATELY 80% PROCTOR TO ENSURE A FIRM SURFACE.

REF STD SPEC SEC 8-01, 8-02 & 9-14

City of Seattle

REF STD SPEC SEC 7-05

City of Seattle

NOT TO SCALE

TYPE 204b MAINTENANCE HOLE

REINFORCING STEEL "A"  
MIN. SQ. IN./FT. TOP FACE, IN EACH DIRECTION  

<table>
<thead>
<tr>
<th></th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
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</thead>
<tbody>
<tr>
<td>20° MAX</td>
<td>0.33</td>
<td>0.25</td>
</tr>
<tr>
<td>30° MAX</td>
<td>0.41</td>
<td>0.31</td>
</tr>
<tr>
<td>40° MAX</td>
<td>0.49</td>
<td>0.37</td>
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</table>

NOTES:
1. MATERIALS: CONCRETE—CLASS 4000; REINFORCING STEEL—ASTM A615 GRADE 60 MINS CHANNEL AND SHELF MATERIAL—CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING — 3,000 LBS/SQ FT.
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 6 IN., MIN HOLE SIZE MUST BE OD OF PIPE PLUS 3 IN., MIN CLEAR DISTANCE BETWEEN HOLES IS 8 IN.
NOTES:
1. MATERIALS: CONCRETE - CLASS 4000; REINFORCING STEEL - ASTM A615 GRADE 60 WIRE; CHANNEL AND SHELF MATERIAL - CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT.
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 6 IN. MIN HOLE SIZE MUST BE OD OF PIPE PLUS 3 IN. MIN CLEAR DISTANCE BETWEEN HOLES IS 8 IN.

REF STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE
TYPE 205b MAINTENANCE HOLE

REINFORCING STEEL "A"

<table>
<thead>
<tr>
<th>MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION</th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
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<tbody>
<tr>
<td>20&quot; MAX</td>
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<td>30&quot; MAX</td>
<td>0.47</td>
<td>0.37</td>
</tr>
<tr>
<td>40&quot; MAX</td>
<td>0.56</td>
<td>0.46</td>
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NOTES:
1. MATERIALS: CONCRETE—CLASS 4000;
   REINFORCING STEEL—ASTM A615 GRADE 60;
   CHANNEL AND SHELF MATERIAL—CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST COMPLY WITH ASTM C 478;
   JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETS CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT.
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 7 IN. MIN HOLE SIZE MUST BE OD OF PIPE PLUS 3 IN. MIN CLEAR DISTANCE BETWEEN HOLES IS 12 IN.
**REINFORCING STEEL "A"**

<table>
<thead>
<tr>
<th>MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION</th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
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</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.34</td>
<td>0.27</td>
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<tr>
<td>30' MAX</td>
<td>0.43</td>
<td>0.35</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.52</td>
<td>0.42</td>
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</table>

**NOTES:**
1. MATERIAL: CONCRETE—CLASS 4000;
   REINFORCING STEEL—ASTM A615 GRADE 60
   CHANNEL AND SHELF MATERIAL—CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS
   MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS
   MUST BE RUBBER GASKETED CONFORMING TO ASTM C 445.
3. MINIMUM REQUIRED SOIL BEARING = 3,000
   LBS/SG FT
4. MAX HOLE SIZE MUST BE 0D OF PIPE PLUS 6 IN. MIN HOLE SIZE
   MUST BE 0D OF PIPE PLUS 3 IN. MIN CLEAR DISTANCE BETWEEN
   HOLES IS 12 IN.

**SECTION A—A**

**TOP SLAB REINFORCEMENT**
REINFORCING STEEL "A"

MIN. SQ. IN/FT, TOP FACE, IN EACH DIRECTION

<table>
<thead>
<tr>
<th></th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.54</td>
<td>0.45</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.66</td>
<td>0.56</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.78</td>
<td>0.64</td>
</tr>
</tbody>
</table>

NOTES:
1. MATERIAL: CONCRETE-CLASS 4000
   REINFORCING STEEL-ASTM A615 GRADE 60 MIN
   CHANNEL AND SHELF MATERIAL: CONCRETE
   CLASS 3000
2. PRECAST MAINTENANCE HOLE COMPONENTS
   MUST CONFORM TO ASTM C 478. JOINTS
   BETWEEN PRECAST COMPONENTS MUST BE
   RUBBER GASKETED CONFORMING TO ASTM C
   443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000
   LBS/SQ FT
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 9".
   MIN HOLE SIZE MUST BE OD OF PIPE PLUS 3".
   MIN DISTANCE BETWEEN HOLES IS 12".

REF STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE
TYPE 208a MAINTENANCE HOLE
REINFORCING STEEL "A"

<table>
<thead>
<tr>
<th>MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION</th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.42</td>
<td>0.35</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.53</td>
<td>0.45</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.65</td>
<td>0.54</td>
</tr>
</tbody>
</table>

NOTES:
1. MATERIAL: CONCRETE—CLASS 4000
   REINFORCING STEEL—ASTM A615 GRADE 60 MIN CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/50 FT
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 9". MIN HOLE SIZE MUST BE OD OF Pipe PLUS 3". MIN DISTANCE BETWEEN HOLES IS 12."
REINFORCING STEEL "A"
MIN. SQ. IN./FT., TOP FACE, IN EACH DIRECTION

<table>
<thead>
<tr>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.57</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.70</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.81</td>
</tr>
</tbody>
</table>

THE GREATER OF
¾" INSIDE PIPE DIAMETER OR
1"-0" (Typ)

FLOW DIRECTION

PLAN VIEW (TOP REMOVED)

MAINTENANCE HOLE FRAME & COVER
SEE STD PLAN NO 230

HANDHOLDS, SEE
STD PLANS NO 232a & 232b
½" SMOOTH MORTAR LINING
LEVELING BRICKS OR CONCRETE COLLAR
4'-0" TO 1'-0"
CONE SECTION
MH LADDER
SEE STD PLANS NO 232a & 232b
#6 BF

TOP SLAB REINFORCEMENT

NOTES:
1. MATERIAL: CONCRETE-CLASS 4000
   REINFORCING STEEL-ASTM A615 GRADE 60 MIN
   CHANNEL AND SHELF MATERIAL: CONCRETE
   CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS
   MUST CONFORM TO ASTM C 478. JOINTS
   BETWEEN PRECAST COMPONENTS MUST BE
   RUBBER GASKETED CONFORMING TO ASTM C
   443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000
   LBS/50 FT
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS
   10", MIN HOLE SIZE MUST BE OD OF PIPE
   PLUS 3", MIN DISTANCE BETWEEN HOLES IS
   12".

SECTION A-A

MORTAR FILLET
6'-0" MIN
CAST-IN-PLACE BASE

REINFORCING STEEL "A"
SEE TABLE

SHALLOW CHANNEL

MIN. CF

4#12"

TYPE I MINERAL AGGREGATE
W/ PORTLAND CEMENT FOR
PRECAST BASE OR PRECAST
BASE WITH INTEGRAL RISER

REINFORCING STEEL "A"

MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION

<table>
<thead>
<tr>
<th></th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.70</td>
<td>0.60</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.85</td>
<td>0.73</td>
</tr>
<tr>
<td>40' MAX</td>
<td>1.00</td>
<td>0.86</td>
</tr>
</tbody>
</table>

SLOPE: 1/4" 1'-0" (TYP)

PLAN VIEW
(TOP REMOVED)

LOCATION OF MH LADDER FOR TYPE A MAINTENANCE HOLE

EXTENDED % OF SEWER INTERSECT AT % OF MH

FLOW DIRECTION

REINFORCING STEEL "H"

MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION

<table>
<thead>
<tr>
<th></th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.70</td>
<td>0.60</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.85</td>
<td>0.73</td>
</tr>
<tr>
<td>40' MAX</td>
<td>1.00</td>
<td>0.86</td>
</tr>
</tbody>
</table>

HANDHOLDS, SEE STD PLANS NO 232a & 232b

LEVELING BRICKS OR CONCRETE COLLAR

1/2 SMOOTH MORTAR LINING

4'-0" TO 2'-0" CONE SECTION

MH LADDER SEE STD PLANS NO 232a & 232b

NOTES:

1. MATERIAL: CONCRETE-CLASS 4000
   REINFORCING STEEL-ASTM A615 GRADE 60 MIN
   CHANNEL AND SHELF MATERIAL: CONCRETE
   CLASS 3000.

2. PRECAST MAINTENANCE HOLE COMPONENTS
   MUST CONFORM TO ASTM C 478. JOINTS
   BETWEEN PRECAST COMPONENTS MUST BE
   RUBBER GASKETED CONFORMING TO ASTM C
   443.

3. MINIMUM REQUIRED SOIL BENDING = 3,000
   LBS/SQ. FT

4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS
   11". MIN HOLE SIZE MUST BE OD OF PIPE
   PLUS 3". MIN DISTANCE BETWEEN HOLES IS 12".

SECTION A-A

UNDISTURBED EARTH OR TYPE 2 MINERAL AGGREGATE. 4" MIN
THICKNESS FOR CAST-IN-PLACE BASE SECTION

MORTAR FILLET

CHANNEL

#4 HOOP TF

#7 BF

FAN 5 #7 BARS #4 EQUAL SPACES BF

4'-0" 2" CLR (TYP)

1'-0" LAP

1'-0" 2" CLR (TYP)

1'-0" LAP

1'-0" 2" CLR (TYP)

1'-0" LAP

1'-0" 2" CLR (TYP)

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1'-0" 2" CLR (TYP)

1'-0" LAP

1'-0" 2" CLR (TYP)

1'-0" LAP

1'-0" 2" CLR (TYP)
REINFORCING STEEL "A"

MIN. SQ IN/FT. TOP FACE, IN EACH DIRECTION

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Precast Base</th>
<th>Cast-in-Place Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.52</td>
<td>0.45</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.86</td>
<td>0.57</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.81</td>
<td>0.70</td>
</tr>
</tbody>
</table>

TOP SLAB REINFORCEMENT

NOTES:
1. MATERIAL: CONCRETE—CLASS 4000
   REINFORCING STEEL—ASTM A615 GRADE 60 MIN CHANNEL AND SHELF MATERIAL: CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 11". MIN HOLE SIZE MUST BE OD OF PIPE PLUS 3". MIN DISTANCE BETWEEN HOLES IS 12".

SECTION A-A

REF STD SPEC SEC 7-05

City of Seattle NOT TO SCALE TYPE 210b MAINTENANCE HOLE

**NOTES:**

1. MATERIAL: CONCRETE—CLASS 4000
   REINFORCING STEEL—ASTM A615 GRADE 60 MIN
   CHANNEL AND SHELF MATERIAL: CONCRETE
   CLASS 3000.

2. PRECAST MAINTENANCE HOLE COMPONENTS
   MUST CONFORM TO ASTM C 478. JOINTS
   BETWEEN PRECAST COMPONENTS MUST BE
   RUBBER GASKETED CONFORMING TO ASTM C
   443.

3. MINIMUM REQUIRED SOIL BEARING = 3,000
   LBS/50 FT.

4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS
   12”. MIN HOLE SIZE MUST BE OD OF PIPE
   PLUS 3”. MIN DISTANCE BETWEEN HOLES IS 12”.

**SECTION A—A**

- UNDISTURBED EARTH OR TYPE
  2 MINERAL AGGREGATE 4” MIN
  THICKNESS FOR
  CAST-IN-PLACE BASE SECTION

- MORTAR FILLET

- CAST-IN-PLACE BASE

- PRECAST BASE

- TYPE B MINERAL AGGREGATE
  W/ PORTLAND CEMENT FOR
  PRECAST BASE OR PRECAST
  BASE WITH INTEGRAL RISER

**REINFORCING STEEL “A”**

<table>
<thead>
<tr>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20” MAX</td>
<td>0.62</td>
</tr>
<tr>
<td>30” MAX</td>
<td>0.79</td>
</tr>
<tr>
<td>40” MAX</td>
<td>0.97</td>
</tr>
</tbody>
</table>
NOTES:
1. MATERIAL: CONCRETE—CLASS 4000
   REINFORCING STEEL—ASTM A615 GRADE 60 MIN
   CHANNEL AND SHELF MATERIAL: CONCRETE
   CLASS 3000
2. PRECAST MAINTENANCE HOLE COMPONENTS
   MUST CONFORM TO ASTM C 478. JOINTS
   BETWEEN PRECAST COMPONENTS MUST BE
   RUBBER GASKETED CONFORMING TO ASTM C
   443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000
   LBS/SQ FT
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS
   13". MIN HOLE SIZE MUST BE OD OF PIPE
   PLUS 3". MIN DISTANCE BETWEEN HOLES IS 12".
REINFORCING STEEL "A"
MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION

<table>
<thead>
<tr>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' VAX</td>
<td>0.81</td>
</tr>
<tr>
<td>30' VAX</td>
<td>1.09</td>
</tr>
<tr>
<td>40' VAX</td>
<td>1.36</td>
</tr>
</tbody>
</table>

NOTES:
1. MATERIAL: CONCRETE—CLASS 4000
   REINFORCING STEEL—ASTM A615 GRADE 60 MIN
   CHANNEL AND SHELF MATERIAL CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS
   MUST CONFORM TO ASTM C 478. JOINTS
   BETWEEN PRECAST COMPONENTS MUST BE
   RUBBER GASKETED CONFORMING TO ASTM C
   443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000
   LBS/SQ FT
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS
   1.5" MIN HOLE SIZE MUST BE OD OF PIPE
   PLUS 3" MIN DISTANCE BETWEEN HOLES IS 12".

SECTION A-A

Undisturbed Earth or type 2 mineral aggregate 4" min
Thickness for cast-in-place base section

REINFORCING STEEL "A"
See Table

TYPE 9 MINERAL AGGREGATE
W/ PORTLAND CEMENT FOR
PRECAST BASE OR PRECAST
BASE WITH INTEGRAL RISER

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 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

NEW 3/8" MORTAR LINING SEE NOTE 4

3" HANDHOLD

2'-6"DIA

1'-9" MIN CLR OPENING

26" DIA

RUNNING BOND PATTERN
GROUT BETWEEN ALL BRICKS

REF STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE

REBUILD EXISTING BRICK MAINTENANCE HOLE

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.

SECTION A-A

200 SEWER-DRAINAGE APPURTENANCES
STANDARD PLAN NO 230
REV DATE: DEC 2010

SEWER, WATER OR DRAIN AS APPLICABLE
3" RAISED LETTERS

1 3/4" X 1 3/4" LIFT
HOLDS 2 PLACES

TOP OF PATTERN
AND LETTERS

COVER
DETAILED PATTERN
NOTES:
1. MATERIAL – STEEL REINFORCED POLYPROPYLENE
2. DIMENSIONS FOR THE MH LADDER AND STEP ARE MINIMUM REQUIREMENTS ONLY.
3. WHEN THE DISTANCE FROM THE LAST (HIGHEST) STEP OR HANDHOLD TO THE TOP OF THE MH FRAME EXCEEDS 1'-6", A HANDHOLD MUST BE INSTALLED MID-WAY IN THE LEVELING BRICK OR COLLAR.
4. EITHER STEPS, LADDERS OR A COMBINATION OF THE TWO CAN BE USED. IF BOTH STEPS AND LADDERS ARE USED IN ANY MH, THEY MUST BE FROM THE SAME MANUFACTURER.
5. A VERTICAL HANDHOLD MUST BE INSTALLED 4'-0" ABOVE THE SHELF WHEN INDICATED IN MH PLAN VIEW.
24" HIGH CONCENTRIC CONE

18" HIGH CONCENTRIC CONE

NOTES:
1. MATERIAL - STEEL REINFORCED POLYPROPYLENE.
2. DIMENSIONS FOR THE MH LADDER AND STEP ARE MINIMUM REQUIREMENTS ONLY.
3. WHEN THE DISTANCE FROM THE LAST (HIGHEST) STEP OR HANDHOLD TO THE TOP OF THE MH FRAME EXCEEDS 1'-6" A HANDHOLD MUST BE INSTALLED MID-WAY IN THE LEVELING BRICK OR COLLAR.
4. EITHER STEPS, LADDERS OR A COMBINATION OF THE TWO CAN BE USED. IF BOTH STEPS AND LADDERS ARE USED IN ANY MH, THEY MUST BE FROM THE SAME MANUFACTURER.
5. STEP ON OPPOSITE SIDE OF MH MUST BE PLACED MID WAY BETWEEN STEPS ON OPPOSING SIDE.

MH WITH PRECAST TOP SLAB

REF STD SPEC SEC 7-05

City of Seattle | NOT TO SCALE | MAINTENANCE HOLE LADDER, STEP AND HANDHOLD
DUCTILE IRON OUTSIDE DROP CONNECTION

NOTES:
1. CONCRETE FOR DROP CONNECTION SUPPORT MUST BE CL 3000.
2. DUCTILE IRON PIPE MUST BE ANSI/AWWA C151/A21.51 CL 50. DUCTILE IRON FITTINGS MUST BE ANSI/AWWA C111/A21.11
3. DROP CONNECTIONS MUST BE USED WHERE DROP IS NOT MORE THAN 20'-0".

CONCRETE CL 3000 BLOCK POURED IN PLACE

MJ X MJ DIP 90° BEND OR MJ X PE DIP 90° BEND

POUR TO UNDISTURBED EARTH OR COMPACTED SUBGRADE

STAINLESS STEEL BOLTS & NUTS MUST CONFORM TO ASTM F 593

1/2 BLIND FLANGE AS DAW FOR INCOMING PIPE SLOPE <5%
FULL BLIND FLANGE FOR INCOMING SLOPE ≥5%

COUPLING
MJ DIP CROSS
MJ DIP
REDUCER, IF REQD
8" MIN
CLEAN-OUT PER STD PLAN 280

REF STD SPEC SEC 7-08

City of Seattle
NOT TO SCALE
OUTSIDE DROP CONNECTION

NOTES:
1. PROVIDE PIPE MANUFACTURER RECOMMENDATION FOR PIPE HANGER AND CONCRETE ANCHORAGE TO SPU FOR APPROVAL.
2. SIZE MH TO MEET MINIMUM INSIDE CLEARANCE.
4. PVC PIPE & ELBOW MUST BE ASTM D 2241 CL200 OR ASTM 1785 SCH 40.
5. CLEAN-OUT MUST BE LOCATED AS APPROVED BY SPU.

INSIDE DROP
(18" DIAMETER PIPE MAXIMUM)
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

REF STD SPEC SEC 7-08 & 7-17

City of Seattle

NOT TO SCALE

6" OR 8" VERTICAL CONNECTION

NOTES:
1. THIS CATCH BASIN IS FOR INSTALLATIONS IN ALLEYS AND UNPAVED AREAS IN THE RIGHT-OF-WAY. ANY OTHER USE IN THE R/W WILL REQUIRE THE APPROVAL OF SPU.
2. FOR CURB DISCHARGE INSTALLATION SEE STD PLAN NO 241b.
3. INSTALL PER STD PLAN NO 281.
4. MATERIAL CONCRETE CLASS 4000 REINFORCING STEEL ASTM A615 GR60.
5. INLET INVERT EL TO BE HIGHER THAN OUTLET INVERT EL.
6. USE OF LEVELING BRICKS MUST BE RUNNING BOND PATTERN WITH 3/4 X 3/4 IN BETWEEN BRICKS.

SECTION A-A

FRAME & GRATE
PER STD PLAN NO 264

LEVELING BRICK
OR PRECAST RISER

SECTION B-B

OUTLET TRAP
SEE STD PLAN NO 267

FLOW LINE
8" MAX PIPE CONNECTION TO APPROVED OUTLET

PRECAST BASE

TYPE 9 MINERAL AGGREGATE W/ PORTLAND CEMENT

REF STD SPEC SEC 7-05

City of Seattle | NOT TO SCALE | TYPE 241 CATCH BASIN

NOTES:
1. MATERIAL: CONCRETE, CLASS 4000
   REINFORCING STEEL: ASTM A 615 OR 60
2. INSTALL & LOCATE PER STD PLANS NO 260 & 261
3. OUTLET TRAP TO BE LOCATED DIRECTLY BELOW FRAME AND GRATE
4. USE OF LEVELING BRICKS MUST BE RUNNING BOND PATTERN WITH 3/4 TO 1/2 GROUT IN BETWEEN BRICKS.

REF STD SPEC SEC 7-05

NOTES:
1. CONCRETE: CLASS 4000
2. REINFORCING STEEL: ASTM A615 GR 60

REF STD SPEC SEC 7-05
SECTION A-A

SECTION B-B
TYPE A ONLY

INLET TYPE

<table>
<thead>
<tr>
<th>CASTING</th>
<th>FRAME</th>
<th>GRATE</th>
<th>HOOD</th>
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<tr>
<td>250A</td>
<td>NO 262</td>
<td>NO 265</td>
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<tr>
<td>250B</td>
<td>NO 263A</td>
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<td>250C</td>
<td>NO 263A</td>
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</tbody>
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PLAN VIEW

REF STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE
TYPE 250 INLET

200 SEWER-DRAINAGE APPURTEINANCES

STANDARD PLAN NO 252

REV DATE: DEC 2013

PLAN

ALTERNATE OUTLET LOCATION

FRAME & GRADE SEE STD PLAN NO 264

LEVELING BRICKS OR PRECAST RISER AS REQ'D 1'-0" MAX

6" OR 8" DIA OUTLET PIPE AS NOTED ON DRAWINGS

SLOPE TO DRAIN

GROUT BOTTOM AFTER INSTALLATION

TYPE B MINERAL AGGREGATE W/ PORTLAND CEMENT

SECTION A–A

REF STD SPEC SEC 7-05

City of Seattle

NOT TO SCALE

TYPE 252 INLET

NOTES:
1. CB INLET GRATES MUST NOT BE PLACED IN CROSSWALKS.
2. CB INLETS MUST NOT BE PLACED IN CURB RAMP LANDINGS.

REF STD SPEC SEC 7-05

City of Seattle

NOT TO SCALE

INLET / CATCH BASIN LOCATION & INSTALLATION

200 SEWER-DRAINAGE APPURTENNANCES

STANDARD PLAN NO 260c

REV DATE: DEC 2015

TYPE 240C CB

TYPE 242A CB

Curb Detail (Plan View) for Type 240D & 242C CB & Type 250B Inlet

REF STD SPEC SEC 7-05

City of Seattle

CATCH BASIN & INLET INSTALLATION WITH STANDARD PLAN 263B ALTERNATIVE HOOD

NOTES:
2. TYPE B CONNECTIONS MUST BE USED WITH CB TYPES 240C, 240D, 242A AND 242B.
3. CONNECTIONS MUST MAINTAIN A MINIMUM OF 2% AND A MAXIMUM OF 100% GRADE.
4. MAX BEND MUST BE 22½” OR ¾” BEND. USE OF ¾” BEND REQUIRES APPROVAL BY SPU.
5. 1” DI SPOOL AND COUPLING REQUIRED WITH CUT-IN TEE.
200 SEWER-DRAINAGE APPURTEANCES

STANDARD PLAN NO 263b

REV DATE: SEP 2015

Curb Inlet

1" dia slot for 3/4" dia std steel bolt with lockwasher and nut

Section A-A

Non-skid surface per std spec section 1-07.1(3)

City of Seattle

NOT TO SCALE

TYPE 263 ALTERNATIVE
INLET HOOD

NOTES:
1. OTHER GRATES ACCEPTABLE; SPECIFY VANE, SOLID COVER, BI-DIRECTIONAL VANE, ADA OR BEEHIVE ON PLANS.
2. GRATE MATERIAL: DUCTILE IRON

SECTION A--A

PAD 1\(\frac{1}{8}\)" X 3\(\frac{1}{4}\)" X 3\(\frac{1}{8}\)" THICK (8 OPTIONAL)
EMBOSSED ON GRATE
1" OPENING (TYP)

SECTION B--B

SECTION C--C

NOTES:
1. OPEN AREA = 100 SQUARE INCHES.
2. SEE STD PLAN NO 265 FOR VANE AND END DETAIL.
3. STD PLAN NO 266 DIMENSIONS GOVERN ON END DETAIL.
4. REPLACEMENT VANED GRATE FOR TYPE 164 INLET FRAMES.

REF STD SPEC SEC 7-20.3(7), 9-12
NOTES:
1. TRAP TO BE MADE OF 22 GA SHEET METAL OR 16 GA ALUMINUM.
2. ALL JOINTS TO BE SEAMED AND SOLDERED, OR WELDED.
3. ALL LONGITUDINAL JOINTS TO BE RIVETED OR WELDED.
4. DIAMETER "D" IS NOMINAL DIAMETER OF OUTLET PIPE.
5. LIFT HANDLE MUST BE WELDED TO OUTSIDE OF TRAP.
   (1" WIDE X 0.1" THICK)

SECTION A–A

REF STD SPEC SEC 9-12

City of Seattle

NOT TO SCALE

OUTLET TRAP

TOP OF RESURFACED PAVING

TOP OF EXISTING PAVING

SHEET ASPHALT OR A WORKABLE MIX OF SAND AND EMULSIFIED ASPHALT OR 1:1½ CEMENT MORTAR

SECTION B-B

SECTION A-A

THESE DIMENSIONS MAY BE CHANGED IF NECESSARY TO FIT EXISTING CASTINGS

PLAN

EXTENSION FOR INLET
200 SEWER-DRAINAGE APPURTEYNCES

STANDARD PLAN NO 269

REV DATE: MAY 2015

GRATE

SECTION A–A

SECTION B–B

NOTES:
1. GRATE MATERIAL: DUCTILE IRON
2. FRAME PER STD PLAN NO 264

REF STD SPEC SEC 9-12

City of Seattle

NOT TO SCALE

BEEHIVE GRATE FOR BIORETENTION

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 REINF PE DETENTION). ONLY MANUFACTURER SUPPLIED TEES MUST BE USED FOR CONNECTIONS.
2. BEDDING FOR DETENTION PIPE MUST BE CLASS B. DIP AND RCP MUST BE BENDED IN MINERAL AGGREGATE TYPE 9. FLEXIBLE PIPE MUST BE BENDED IN MINERAL AGGREGATE TYPE 22.
3. INTERMEDIATE MHS WILL BE REQUIRED FOR DETENTION PIPE LENGTHS GREATER THAN 350FT.
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. CLUMB 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

FLOW CONTROL STRUCTURE
WITH DETENTION PIPE

REF STD SPEC SEC 7-16

City of Seattle
NOT TO SCALE

NOTES:
1. INVERT OF DETENTION PIPE TO BE HIGHER THAN INVERT OF OUTLET PIPE
2. SPECIFIC DESIGN INFORMATION WILL BE INDICATED ON ACTUAL CONSTRUCTION DRAWINGS
3. ROTATE ELBOW RESTRICTOR CLEAR OF ACCESS OPENING
4. FOR ALTERNATIVE PIPE MATERIALS, REFER TO STD PLAN NO 270
5. FRAME LADDER AND STEPS OFFSET
6. CLIMB DOWN SPACE IS CLEAR OF RISER AND CLEAN OUT GATE
7. MH OPENING MUST NOT BE PLACED DIRECTLY OVER THE TOP OF INLET PIPE

FLOW CONTROL STRUCTURE & DETENTION PIPE

DETAIL C

END PLATE TYPE A OR B PER STD PLAN NO 271b

END CAP DETAIL
(WHEN REQUIRED)

FRAME & COVER PER STD PLAN NO 230

GRADE

OVERFLOW ELEV* V-NOTCH WHERE AS NEEDED

SUPPORT(2 REQ'D) SEE STD PLAN NO 272

ORIFICE AS NEEDED

CONTROL DEVICE SEE STD PLAN NO 272a

TYPE B MNRL AGG W/ PORTLAND CEMENT

MH AS INDICATED ON PLANS

DETENTION PIPE (LENGTH, DIAMETER, MATERIAL THICKNESS)

END PLATE TYPE A OR B PER STD PLAN NO 271b

6" AIR VENT

TYPE C END PLATE PER STD PLAN NO 271c

REF STD SPEC SEC 7-16

City of Seattle

NOT TO SCALE

CMP DETENTION PIPE
PRIVATE SYSTEM ONLY
SECTION A-A

SECTION B-B

NOTE:
FOR D1, D2, D3 t, S, S1, N & W VALUES AND GENERAL NOTES SEE STD PLAN NO 271d

REF STD SPEC SEC 7-16

City of Seattle | NOT TO SCALE | CMP DETENTION STRUCTURE
END PLATE DETAILS
TYPES A & B

<table>
<thead>
<tr>
<th>PIPE DIAMETER</th>
<th>END PLATE THICKNESS</th>
<th>STIFFENER TYPE &amp; SIZE</th>
<th>STIFFENER SPACING</th>
<th>SIZE</th>
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NOTES:
1. DESIGNS VALID FOR PIPE INSTALLED WITH 6"-0" OR LESS OF COVER FROM CROWN OF PIPE TO GRADE. MAXIMUM WATER SURCHARGE 3"-0" ABOVE CROWN OF PIPE
2. END PLATE MATERIAL: ALUMINUM 5056-56
3. DESIGNS MUST BE USED ONLY FOR ALUMINUM CMP

REF STD SPEC SEC 7-16
NOTES:
1. PVC PIPE MUST BE SCHEDULE 40, PER ASTM 1785.
2. CONSTRUCTION DRAWINGS MUST PROVIDE ELEVATION AND DIAMETER FOR ORIFICE 1 AND ORIFICE 2 AND DIMENSIONS AND ELEVATION FOR THE BOTTOM OF THE V-NOTCH WEIR AND ELEVATION FOR OVERFLOW.
3. FIELD CHANGES TO DETENTION PIPE INVERT AND SLOPE REQUIRE CONFIRMATION FROM THE ENGINEER OF RECORD THAT THE Construction DRAWING ELEVATIONS FOR THE FLOW CONTROL DEVICE ASSEMBLY STILL MEET THE DESIGN REQUIREMENTS.
NOTES:
1. CONCRETE: CLASS 4000
2. 4" MIN THICKNESS FOR CURVED BOTTOM STRUCTURE

REFER STD SPEC SEC 7-02 & 9-12.9

City of Seattle
NOT TO SCALE

TYPE 277 JUNCTION BOX & INSTALLATION

FRAME & COVER PER STD PLAN NO 280

GRADE

2'-6" x 2'-6" x 1'-0" CONC PAD

1'-0" DIA BIF, 12" LONG

FIBER JOINT PACKING

6" MINERAL AGGREGATE TYPE 2

8" PVC ASTM D3034 SDR 35

8" CMP TEE & FLEXIBLE COUPLING
SEE STD PLAN NO 279

END PLATE

1'-6"

CMP DETENTION PIPE

REF STD SPEC SEC 7-19 & 7-16.2

200 SEWER-DRAINAGE APPURTE NANCES

STANDARD PLAN NO 278

REV DATE: 2003

City of Seattle

VERTICAL CLEAN OUT/
CORRUGATED METAL PIPE

NOT TO SCALE

NOTES:
1. CORRUGATED FLANGE PLATE AND NON-CORRUGATED PIPE TO BE SAME MATERIAL AND HAVE SAME COATING AS CMP.
2. BOLTS TO BE STAINLESS STEEL MEETING ASTM A 307 OR STAINLESS STEEL MEETING ASTM A 193.

NOTE:
USE ALTERNATIVE NO 1 IF PIPE CONDITION PROHIBITS WELDING.

CORRUGATED FLANGE PLATE
0.105" THICK
NON-CORRUGATED PIPE

3/8" DIA BOLT HOLE

1/8" NEOPRENE SEAL

CLEAN & PREPARE WELD AREA

SECTION A-A

SECTION B-B

CORRUGATED FLANGE PLATE

NON-CORRUGATED 0.135" THICK TO SAME AS OD OF CONNECTION PIPE

CONNECTION PIPE
ROMAC STYLE LS51 LIGHTWEIGHT REPAIR CLAMP OR APPROVED EQUAL 12" LONG

HOLE DIA SAME AS OD OF NON-CORRUGATED PIPE

1" MAX PROJECTION INTO HOST PIPE

HOLE DIA SAME AS OD OF NON-CORRUGATED PIPE

1" CMP

1/8"
LOCKING FRAME & COVER

2'-6" X 2'-6" X 1'-0"
CONC PAD

1'-0" DIAM, 12" LONG
FIBER JOINT PACKING

6" MINERAL AGGREGATE
TYPE 2

NOTE:
LOCKING FRAME & COVER IS OPTIONAL ON PRIVATE PROPERTY.

CAST IRON FRAME & COVER

2" RAISED LETTERS
5/8" RAISE, 5/8" WIDE BORDER

10"
9"
8 1/4"
7"
6"
5"
4"
3"
2"
1"
1'-3"

WYE OR 1/8 BEND

PLUG SHALL BE SEALED IN SAME MANNER AS MAIN SEWER JOINTS

DRILL AND TAP FOR LOCKING AS REQUIRED, APPLY ANTI-SEIZE COATING AND BOLT DOWN WITH 3/8" S.S. ALLEN-HEAD BOLTS - 2 PLACES

COVER PATTERN

REF STD SPEC SEC 7-19

City of Seattle
NOT TO SCALE
8" CLEAN-OUT
200 SEWER-DRAINAGE APPURTENANCES

FRAME & COVER PER STD PLAN NO 281
GRADE
2' - 6" X 2' - 6" X 1' - 0"
CONC. PAD
12" DIA. DIP, 12" LONG
FIBER JOINT PACKING
5" MINERAL AGGREGATE TYPE 2

NOTE:
USE LOCKING CLEAN-OUT IN CONCRETE WALK AREAS.
DRILL AND TAP, APPLY ANTI-SEIZE COATING AND BOLT DOWN WITH 3/8" S.S. ALLEN-HEAD BOLTS - 2 PLACES.

LOCKING CAST IRON TOP

2" RAISED LETTERS

3/4" RAISE, 3/8" WIDE BORDER

CAST IRON FRAME & COVER

NOTE:
MINIMUM DIAMETER = 6"

MAX PONDING DEPTH PER DESIGN

PVC, SOLID

PVC TOP

BO GULLY BOTTOM, TYP

PVC SLOTTED PER STD PLAN NO 291

PVC TWO-WAY CLEAN-OUT

PVC SLOTTED PER STD PLAN NO 291

NOTE:
REF STD SPEC SEC 7-19

BIORETENTION UNDER DRAIN CLEAN-OUT AND OBSERVATION PORT

City of Seattle

NOT TO SCALE

FOR PIPES LESS THAN 48" DIAMETER
(HELICAL OR ANNULAR)

REF STD SPEC SEC 7-16.2 & 9-05

City of Seattle
NOT TO SCALE
CORRUGATED METAL PIPE COUPLING BANDS

NOTES:
1. ALL SANITARY PLUMBING OUTLETS MUST BE CONNECTED TO THE SANITARY SEWER OR COMBINED SEWER.
2. 2'-6"MIN DISTANCE FROM HOUSE, EXCEPT FOR SOIL PIPE CONNECTION.
3. 1'-6"MIN COVER OF PIPE.
4. 2'-6"MIN COVER AT PROPERTY LINE.
5. 6'-0"MIN COVER AT CURB LINE.
6. LAY PIPE IN STRAIGHT LINE BETWEEN BENDS. MAKE ALL CHANGES IN GRADE OR LINE WITH BENDS OR WYES.
7. STANDARD 4" TO 6" INCREASE.
8. 6" SEWER PIPE MIN SIZE IN STREET, AND ELSEWHERE AS DIRECTED. 2% MIN GRADE, 100% MAX.
9. 4" SEWER PIPE MIN SIZE ON PROPERTY. 2% MIN GRADE, 100% (45') MAX.
10. TEST "T" WITH PLUG.
11. CLEANOUT AT UPSTREAM END OF SIDE SEWER.

A. CONSTRUCTION IN STREET MUST BE DONE BY A REGISTERED SIDE SEWER CONTRACTOR.
B. ALL CONSTRUCTION MUST BE IN ACCORDANCE WITH THE CURRENT SIDE SEWER ORDINANCE.
CLASS B BEDDING

CLASS C BEDDING

CLASS D BEDDING

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 9-03.16
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 9-03.16, 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. UNIFORM SUPPORT PIPE BARREL, EXCAVATE HOLES FOR BELLS AND COUPLING.

REF STD SPEC SEC 2-10.2, 7-11, 7-17, 9-03.16
NOTES:
1. EXCEPTIONS TO STD PLAN NO 286 MUST BE APPROVED BY SEATTLE PUBLIC UTILITIES, WATER QUALITY DIVISION.
2. "SEWER" INCLUDES SANITARY SEWER, COMBINED SEWER AND SIDE SEWER.
3. WHERE MINIMUM CLEARANCES CANNOT BE MET, SEWER MUST BE CONSTRUCTED OF MATERIALS AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS INCLUDING WATER MAIN PRESSURE TESTING REQUIREMENTS.
4. NO VERTICAL CLEARANCE REQUIRED.
5. IF MINIMUM VERTICAL SEPARATION CANNOT BE MET, WATER MAIN MUST BE A STANDARD SINGLE 18'-0" NOMINAL LENGTH DUCTILE IRON WATER MAIN SECTION CENTERED AT THE POINT OF CROSSING.
6. SEWER MUST HAVE SUFFICIENT FOUNDATION SUPPORT TO PREVENT SETTLEMENT ON THE WATER MAIN AND TO PREVENT DEFLECTION OF WATER MAIN JOINTS.
7. CROSSINGS AT AN ANGLE BETWEEN 90° AND 45° MAY OCCUR BETWEEN 9'-0" AND 6'-0" OF WATER MAIN JOINT. FOR CROSSINGS LESS THAN 45°, SEE NOTE 1.
NOTES:
1. ALL 3/8" STEEL & L3" x 2" x 1/2" TO BE A-36.
2. 6" PIPE TO BE STANDARD WEIGHT STEEL.
3. AFTER FABRICATION, DRAIN ASSEMBLY TO BE HOT DIP GALVANIZED.
4. VANED GRATE TO BE PER STD PLAN NO 265.

REF STD SPEC SEC 6-01 & 6-02
NOTES:
1. ASTM D 2241 SDR 21 CLASS 200 PVC PIPE OR ASTM D 1785 SCIF 40.
2. SLOT DIMENSIONS ARE 0.064" WIDE X 1.00" LONG SPACED ALONG PIPE AT 0.3" ON CENTER.

REF STD SPEC SEC 9-05, 3(1)
NOTES:
1. TYPICAL MAXIMUM SLOPE ALLOWED IS 2.5H=1V, 3H=1V MAX WHEN WITHIN 50-FEET OF INTERSECTIONS OR CURBLESS ROADWAY.
2. BIORETENTION OVERFLOW ELEVATIONS MUST BE SET BELOW SIDEWALK ELEVATION.
3. SCARIFY SUBGRADE 4" MIN IN THE AREA SUBJECT TO TEMPORARY PONDING BEFORE BIORETENTION SOIL INSTALLATION.
4. PROVIDE 1.5" MIN BIORETENTION SOIL FOR WATER QUALITY TREATMENT PER STORMWATER CODE REQUIREMENT.
5. CELL MUST BE PLANTED PER APPROVED LANDSCAPE PLAN.
6. SOIL AT THE EDGE MUST BE UNDISTURBED NATIVE SOIL OR APPROVED SOIL COMPACTED TO 95% DENSITY.
7. FACE OF CURB TO TOP OF SLOPE MUST BE MIN 2'-0" FOR NON-MAJOR ARTERIAL STREET, MIN 4'-0" FOR MAJOR ARTERIAL STREET.
8. PROVIDE MIN ONE INCH GAP BETWEEN TOP OF WALKS, CURBS, PAVEMENTS AND DRIVEWAYS AND TOP OF ARBORIST WOODCHIP MULCH.

REF STD SPEC SEC 7-21

City of Seattle NOT TO SCALE INFILTRATING BIORETENTION WITH SLOPED SIDES

NOTES:
1. TYPICAL MAXIMUM SLOPE ALLOWED IS 2.5H:1V, 3H:1V MAX WHEN WITHIN 50- FEET OF INTERSECTIONS OR CURBLESS ROADWAY.
2. BIORETENTION OVERFLOW ELEVATIONS MUST BE SET BELOW SIDEWALK ELEVATION.
3. SCARIFY SUBGRADE 4" MIN IN THE AREA SUBJECT TO TEMPORARY PONDING BEFORE BIORETENTION SOIL INSTALLATION.
4. PROVIDE 1.5" MIN BIORETENTION SOIL FOR WATER QUALITY TREATMENT PER STORMWATER CODE REQUIREMENT.
5. CELL MUST BE PLANTED PER APPROVED LANDSCAPE PLAN.
6. SOIL AT THE EDGE MUST BE UNDISTURBED NATIVE SOIL OR APPROVED SOIL COMPACTED TO 95% DENSITY.
7. FACE OF CURB TO TOP OF SLOPE MUST BE MIN 2'-0" FOR NON-MAJOR ARTERIAL STREET, MIN 4'-0" FOR MAJOR ARTERIAL STREET.
8. PROVIDE MIN ONE INCH GAP BETWEEN TOP OF WALKS, CURBS, PAVEMENTS AND DRIVEWAYS AND TOP OF ARBORIST WOODCHIP MULCH.

REF STD SPEC SEC 7-21

City of Seattle | NOT TO SCALE | INFILTRATING BIORETENTION WITH SLOPED SIDES & UNDER DRAIN

NOTES:
1. TYPICAL MAXIMUM SLOPE ALLOWED IS 2.5H=1V, 3H=1V MAX WHEN WITHIN 50- FEET OF INTERSECTIONS OR CURBLESS ROADWAY.
2. BIORETENTION OVERFLOW INLETs MUST BE SET BELOW SIDEWALK ELEVATION.
3. PROVIDE 1.5" MIN BIORETENTION SOIL FOR WATER QUALITY TREATMENT PER STORMWATER CODE REQUIREMENT.
4. CELL MUST BE PLANTED PER APPROVED LANDSCAPE PLAN.
5. SOIL AT THE EDGE MUST BE UNDISTURBED NATIVE SOIL OR APPROVED SOIL COMPACTED TO 95% DENSITY.
6. FACE OF CURB TO TOP OF SLOPE MUST BE MIN 2'-0" FOR NON-MAJOR ARTERIAL STREET, MIN 4'-0" FOR MAJOR ARTERIAL STREET.
7. PROVIDE MIN ONE INCH GAP BETWEEN TOP OF WALKS, CURBS, PAVEMENTS AND DRIVEWAYS AND TOP OF ARBORIST WOODCHIP MULCH.

REF STD SPEC SEC 7-21

DETAIL A
CURBED ROADWAY
(ADJACENT TO PARKING ZONE)

DETAIL B
CURBLESS ROADWAY

NOTES:
1. TYPICAL MAXIMUM SLOPE ALLOWED IS 2.5H:1V, 3H:1V MAX WHEN WITHIN 50 FEET OF INTERSECTIONS OR CURBLESS ROADWAY.
2. SWALE OVERFLOW ELEVATIONS MUST BE SET BELOW SIDEWALK ELEVATION.
3. LONGITUDINAL SLOPE GREATER THAN OR EQUAL TO 4%, CHECK DAM REQUIRED.
4. UNDISTURBED NATIVE SOIL OR APPROVED SOIL COMPACTED TO 95% DENSITY.
5. PROVIDE MIN ONE INCH GAP BETWEEN TOP OF WALKS, CURBS, PAVEMENTS AND DRIVEWAYS AND TOP OF TREATMENT LAYER.
6. PLANTING PER APPROVED LANDSCAPE PLAN.
7. FACE OF CURB TO TOP OF SLOPE MUST BE MIN 2'-0" FOR NON-MAJOR ARTERIAL STREETS, MIN 4'-0" FOR MAJOR ARTERIAL STREETS.

REF STD SPEC SEC 7-21

City of Seattle
NOT TO SCALE
VEGETATED CONVEYANCE SWALE
(NOT FOR WATER QUALITY TREATMENT)

NOTES:
1. DRAIN CURB CUTS MUST NOT BE LOCATED WITHIN CONCRETE ROAD PANEL JOINT.
2. USE DRAIN CURB CUT TYPE 1 WHERE GUTTER LINE LONGITUDINAL SLOPE IS 0 TO 5%. WHERE LONGITUDINAL SLOPE IS GREATER THAN 5%, DRAIN CURB CUT OPENING WILL BE DESIGNED BY THE ENGINEER.

START CURB HEIGHT TRANSITION (NO JOINT)

MATCH EXIST CURB HEIGHT

EXIST CEMENT PAVEMENT OR STD 410B GUTTER

MODIFIED CONC CURB

STREAM BED AGGREGATE, TYPE 4

CONC CURB PER COS STD PLAN NO 410c, MODIFIED; MATCH EXIST CURB AND PAVEMENT LINE

EXIST CURB

EXIST CONC PAVEMENT OR STD 410B GUTTER

ISOMETRIC VIEW

REF STD SPEC SEC 7-21, 9-03

City of Seattle

NOTES:
1. DRAIN CURB CUT MUST NOT BE LOCATED WITHIN CONCRETE ROAD PANEL JOINT.

SECTION A-A

SECTION B-B

ISOMETRIC VIEW

EXISTING CONCRETE OR STD 4108 GUTTER

#4X14" DOWELS (TYP)
TOP OF EXIST CURB
GUTTER LINE OF EXIST CONC ROAD
#4X14" DOVEL
GUTTER SLOPE
INSTALL AS MONOLITHIC POUR FOR ENTIRE DRAIN CURB CUT

GUTTER DEPRESSION
GUTTER TO DROP 1" AT GUTTER/FACE OF CURB
GRIND EXISTING PANEL
6" 1'-0" 1'-0" 2'-0" 1'-0"

2-#4X9" DOWELS (TYP)
SAW CUT AT FACE OF CURB,
NO FILLER @ JOINT
INSTALL AS MONOLITHIC POUR FOR ENTIRE DRAIN CURB CUT
COMPACTED SUBGRADE OR MINERAL AGGREGATE TYPE 2

GUTTER DEPRESSION - GRIND PANEL TO DIRECT STORMWATER TO CURB CUT

STREAMBED AGGREGATE TYPE 4, 10" WIDE ON EACH SIDE OF PAD

MATCH EXIST

GRIND TO FORM GRADE BREAK

4" SCARIFIED NATIVE
UNDISTURBED NATIVE

EXIST CONC PAVEMENT OR STD 4108 GUTTER

REF STD SPEC SEC 7-21, 9-03
SECTION A–A

NOTES:
1. ATTACH THE HOOD TO THE FRAME WITH TWO 3/4" X 2" HEX HEAD BOLTS, NUTS, AND OVERSIZE WASHERS. THE WASHERS MUST HAVE DIAMETERS ADEQUATE TO ENSURE FULL BEARING ACROSS THE SLOTS.
2. ONLY DUCTILE IRON VANED GRATES MUST BE USED.

FRAME DETAIL

SECTION B–B

6" HOOD

9" HOOD

REF STD SPEC SEC 7-05

City of Seattle

NOT TO SCALE

CURB INLET FRAME

NOTES:
1. ROUGHENED CONCRETE PAD MUST BE MIN 2' LONG & 2.5 SF OR 5.0SF PER SPU DIRECTOR'S RULE 200
2. ROUGHENED CONCRETE PAD MUST BE CONSTRUCTED WITH COMMERCIAL CONCRETE (STD SPEC 6-02) EMBED WELL MIXED 6'-8' STREAMBED AGERATE TO CREATE ROUGHNESS
50% MIN OF THE SURFACE MUST HAVE PROTRUSING AGGREGATE

REF STD SPEC SEC 7-21, 9-03

City of Seattle
NOT TO SCALE
PRESETTLING ZONE

NOTES:
1. ALL FITTINGS MUST BE DUCTILE IRON
2. ALL EXCAVATION MUST PROVIDE A MINIMUM OF 1'-0" CLEAR AROUND PIPE AND FITTINGS.
3. THESE PLANS ARE FOR DIP AND CIP WATERMAINS 12" OR SMALLER DIA OTHER SIZES AND TYPES SEE PROJECT DRAWINGS
4. REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) MUST BE INSTALLED AS A UNIT (TWO SHUT-OFF VALVES, RELIEF PORT, TWO CHECK VALVES AND FOUR TEST COCKS). WHEN RPBA IS CONNECTED TO HYDRANT AND THE HOSE BIB FAUCET SAMPLE MUST BE CALLED 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

# 300 WATERMAIN APPURTEINANCES

## STANDARD PLAN NO 300b

**REV DATE: 2003**

### ELEVATION

**TABLE**

<table>
<thead>
<tr>
<th>SIZE WATERMAIN</th>
<th>L1</th>
<th>L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot; THRU 10&quot;</td>
<td>10'-0&quot;</td>
<td>14'-0&quot;</td>
</tr>
<tr>
<td>12&quot;</td>
<td>12'-0&quot;</td>
<td>16'-0&quot;</td>
</tr>
<tr>
<td>LARGER THAN 12&quot;</td>
<td>PER DRAWINGS</td>
<td></td>
</tr>
</tbody>
</table>

**NEW WATERMAIN SEE DETAIL 1 STD PLAN NO 300a**

**MAY REQUIRE ADDITIONAL SLEEVE IF PIPE IS OVERSICE**

**CONNECTIONS TO EXISTING MAIN, WITH A NEW TEE OR CROSS**

(OUT IN TEE)

**L2 MAX** SEE TABLE

**L1 MIN** SEE TABLE

**DO NOT DISTURB EX BLOCKING**

**EX CAP OR PLUG EX WATERMAIN**

**SPIGOT OR BELL END-Pipe Or TEE**

**SAME GRADE ALIGNMENT**

**FLUSHING RISER**

**CAP OR PLUG**

**TEMP BLOCKING**

**REMOVE AT TIME OF CONNECTION**

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

**SLEEVE MAY BE LOCATED AT EITHER PLACE, DEPENDING UPON PIPE END-SPIGOT OR BELL**

**REF STD SPEC SEC 7-11**

---

City of Seattle  NOT TO SCALE  CONNECTIONS TO EXISTING WATERMAINS

NOTES:
1. 6" HYDRANT CONNECTION PIPE MUST BE DIP CLS2.
2. HYDRANT TEES MUST BE SET HORIZONTALLY.
3. THE THREADED NIPPLE ON THE 4" PUMPER NOZZLE MUST BE EQUIPPED WITH THE BLUNT START OR HIGGEE 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 J OINT GLANDS AND SHACKLE RODS MUST BE CLEANED AND COATED WITH TWO COATS OF ROYSTON R26 MASTIC.
7. PUMPER PORT MUST FACE CURB.
8. REINFORCEMENT MUST BE BY WEDGE RESTRAINT SYSTEM SUCH AS MEgalug or Uniflange. See STD SPEC 9-30.5(5).
9. CONTRACTOR MUST REMOVE TEMPORARY PIPE PLUGS FROM THE DRAIN VALVE OUTLET BEFORE BACKFILLING THE EXCAVATION.
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 310a.
300 WATERMAIN APPURTEINANCES

STANDARD PLAN NO 311a

REV DATE: JUL 2013

DETAIL A

4" PUMPER NOZZLE

DETAIL B

1/4"

1/4"

3/8" MIN FROM CURB FACE OR EDGE OF TRAVELED ROADWAY

APPROXIMATE DISTANCE PER DRAWINGS

BREAKAWAY BOLTS AND BREAKAWAY OPERATING ROD COUPLING

CONCRETE SHEAR BLOCK 3'-6"x3'-6"x6' #6 BAR ALL AROUND

COMPLETELY SURROUND HYDRANT FULL DEPTH OF CONC WITH 3/4" JOINT MATERIAL BEFORE PLACING CONC

FACTORY SUPPLIED HYDRANT EXTENSION

2" CLR (TYP)

2" MIN

7" MAX

2'-6"

STEEL PLATE 3/8"x12"x12"

(2) 4"x8"x16" CONC BLOCK OR (1) 4"x16"x16" CONC BLOCK

1'-0" MIN

1'-0" MIN

2" SQ OPERATING NUT EXTENSION STD PLAN 315

VALVE BOX STD PLAN 315

2" PLASTIC FOAM MATERIAL STD PLAN 315

DUCTILE IRON-CEMENT LINED MJ X FLG TEE

WEDGE RETRACTOR CLAMP

6" GATE VALVE FLG X MJ

HYDRANT DETAIL

NOTES:
1. 6" HYDRANT CONNECTION PIPE MUST BE DIP CL 52.
2. HYDRANT TEE MUST BE SET HORIZONTALLY.
3. THE ThREADED NIPPLE ON THE 4" PUMPER NOZZLE MUST BE EQUIPPED WITH THE BLUNT START OR HIGBEE CUT.
4. THE 2" 1/2" 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 R2B.
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. PUMPER PORT TO BE FITTED WITH QUICK CONNECT ADAPTOR PER FIRE MARSHAL.
9. RESTRAINT MUST BE BY WEDGE RESTRAINT SYSTEM SUCH AS MEGALUG OR UNIFLANGE. SEE STD SPEC SEC 9-30.5(5).
10. CONTRACTOR MUST REMOVE TEMPORARY PIPE PLUGS FROM THE DRAIN VALVE OUTLET BEFORE BACKFILLING THE EXCAVATION.

REF STD SPEC SEC 7-14

City of Seattle

NOT TO SCALE

TYPE 311 HYDRANT SETTING DETAIL

GENERAL 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-LICENSED AREA, A SECOND 6" GATE VALVE MUST BE INSTALLED AT THE HYDRANT ASSEMBLY PER STD PLAN NO 310a

REF STD SPEC SEC 7-14
CONCRETE SHEAR BLOCK SEE
STD PLANS NO 310a & 311a

2" ISLAND SURFACE MATERIAL
OVER 1" COMPACTED MINERAL
AGGREGATE TYPE 2. TO MATCH
SURROUNDING PAVEMENT
MATERIAL AND BE FLUSH
WITH TOP OF CURB

MARKER POST (TYP.)

EXTRUDED CURB
MATERIAL TO MATCH EX.
PAVEMENT MATERIAL SEE
STD SPEC SEC 8-06

TRAFFIC ISLAND MARKER POST LAYOUT FOR
FIRE HYDRANTS IN PARKING AREAS

NOTES:
1. LAYOUT OF MARKER POST MUST BE VERIFIED
FIRST WITH SPU AND SDOT
2. MARKER POST WITH HIGH INTENSITY
REFLECTORIZED BANDS PROVIDED BY SPU

MARKER POST LAYOUT FOR
FIRE HYDRANTS IN PARKING AREAS

REF STD SPEC SEC 7-14

City of Seattle  NOT TO SCALE  FIRE HYDRANT MARKER LAYOUT

NOTE:
1. ROCK FOR ROCK FACING MUST COMPLY WITH STD PLAN NO 141
NOTES:

1. UNION POINT 2' OUTSIDE VAULT OR 2' FROM PROPERTY LINE.
2. 6' CLEARANCE FROM NEW TREES OR CLEAR OF DRAIN LINE FOR EXISTING TREES.
3. 3' 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.
10. ALLOWABLE LOCATION OF WATER SERVICE VAULT 2' CLEAR OF CURB AND 2' CLEAR OF PROPERTY LINE.

* EXCEPTIONS TO THE STANDARD LOCATIONS REQUIRE CITY REVIEW AND APPROVAL.

TYPES OF WATER SERVICES

- 6" & LARGER DOMESTIC SERVICE (DS) 6'x6' VAULT NCP#
- 3" & 4" DOMESTIC SERVICE (DS) 5'x5' VAULT NCP#
- 4" & LARGER FIRE SERVICES (DC DETECTOR CHECK) 4'x4' AREA (TYP DIRECT BURY) NCP#
- 2" & SMALLER WATER SERVICE INSTALLED IN 1.5'x2' METER BOX MB#
**Valve Box Assembly**

**Typical Setting Detail**

**Lid, Valve Box**

**Pavement**

**Top Section, See Section A-A**

**Operating Nut Extension**

**Extension Piece (2)**
When req'd installed between top & base section

**Base Section, See Section A-A**

**Plastic Foam Ring**
See Std Plan No 315b

**Gate Valve**
(BFV Installation Similar)

**Watermain**

**NOTE:**
Valve box for use on 12" or smaller valve installations

**REF STD SPEC SEC 7-12**

City of Seattle

Not to Scale

CAST IRON VALVE BOX & OPERATING NUT EXTENSION

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 RYKOTE #612XM OR 2 COATS OF MASTIC ROYSTON INSIDE AND OUT.
3. VALVE BOXES MUST BE RICH #645: TOP SECTION, LID AND BASE; OR OLYMPIC FOUNDRY: LID #1908-33, TOP SECTION #106-33, BASE SECTION #1301-33
4. ALL CASTINGS MUST BE DUCTILE OR GREY 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

PLASTIC FOAM RING DETAIL

REF STD SPEC SEC 7-12 & 9-30

City of Seattle  NOT TO SCALE  CAST IRON VALVE BOX & OPERATING NUT EXTENSIONS

NOTES:
1. COMBINATION AIR RELEASE AND VACUUM VALVE SHALL BE A 2" SIZE MINIMUM UNLESS OTHERWISE SHOWN IN THE PLANS.
2. FOR 1" COMBINATION VALVE, INSTALL 2" X 1" REDUCER BETWEEN GATE VALVE AND UNION.
3. TEE MUST BE 2"X2"X1" WITH 1" CORP STOP FOR 2" COMBINATION VALVE. TEE MUST BE 2"X2"X3/4" WITH 3/4" CORP STOP FOR 1" COMBINATION VALVE.
4. SET METER BOX WITHIN CITY ROW, FLUSH WITH SIDEWALK OR CURB ELEVATION IF LOCATED IN LAWN AREAS. SET METER BOX APPROXIMATELY 2" ABOVE FINISHED GRADE IF IN LANDSCAPED AREA.

### Type A Blocking for 11½° & 22½° Vertical Bends

<table>
<thead>
<tr>
<th>Pipe Size Nom Dia (Inches)</th>
<th>Test Pressure (PSI)</th>
<th>Vertical Bend Degrees</th>
<th>No. of CUFT of Concrete Blocking</th>
<th>Dia. of Shackles (2) Inches</th>
<th>Depth of Rods in Concrete Inches</th>
<th>Depth of Rods in Concrete Inches</th>
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</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>300</td>
<td>11½</td>
<td>8</td>
<td>2</td>
<td>¾</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>22½</td>
<td>12</td>
<td>24</td>
<td></td>
<td>18</td>
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<tr>
<td>6&quot;</td>
<td>300</td>
<td>11½</td>
<td>12</td>
<td>3</td>
<td>¾</td>
<td>24</td>
</tr>
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<td></td>
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<td>27</td>
<td>3</td>
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<td>24</td>
</tr>
<tr>
<td>8&quot;</td>
<td>300</td>
<td>11½</td>
<td>16</td>
<td>2</td>
<td>¾</td>
<td>24</td>
</tr>
<tr>
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<td></td>
<td>22½</td>
<td>43</td>
<td>3</td>
<td></td>
<td>24</td>
</tr>
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<td>5</td>
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<td>36</td>
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### Type B Blocking for 45° Vertical Bends

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<th>Pipe Size Nom Dia (Inches)</th>
<th>Test Pressure (PSI)</th>
<th>Vertical Bend Degrees</th>
<th>No. of CUFT of Concrete Blocking</th>
<th>Dia. of Shackles (2) Inches</th>
<th>Depth of Rods in Concrete Inches</th>
</tr>
</thead>
<tbody>
<tr>
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<td>300</td>
<td>45</td>
<td>27</td>
<td>3</td>
<td>¾</td>
</tr>
<tr>
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<td>300</td>
<td>45</td>
<td>64</td>
<td>4</td>
<td></td>
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<td>12&quot;</td>
<td>300</td>
<td>45</td>
<td>216</td>
<td>6</td>
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For notes see STD PLAN NO 330b

---

**City of Seattle**

NOT TO SCALE

WATERMAIN THRUST BLOCKING VERTICAL FITTINGS

**NOTES:**

1. LOCATION AND SIZE OF BLOCKING FOR PIPE LARGER THAN 12" DIAMETER AND FOR SOIL TYPES DIFFERENT THAN SHOWN MUST BE DETERMINED BY THE ENGINEER.
2. ALL BLOCKING FOR VERTICAL FITTINGS (POURED IN PLACE) MUST BEAR AGAINST UNDISTURBED NATIVE GROUND.
3. ALL Poured THRUST BLOCKS MUST BE BACKFILLED AFTER MIN. 1 DAY. PRESSURE TESTING MUST OCCUR AFTER CONCRETE HAS REACHED FG.
4. ALL BLOCKING MUST BE CONCRETE CL 3000.
5. AFTER INSTALLATION, SHACKLE RODS & TURNBUCKLES MUST BE CLEANED AND COATED WITH 2 COATS OF ASPHALTIC VARNISH, ROYSTON ROYKOTE #612M OR APPROVED EQUAL.
6. SHACKLE RODS MUST BE FUSION BONDED EPOXY COATED ROUND MILD STEEL, ASTM A 36, WITH THREADS ON ENDS ONLY.
7. BLOCKING AGAINST FITTINGS MUST BEAR AGAINST THE GREATEST FITTING SURFACE AREA POSSIBLE, BUT MUST NOT COVER OR ENCLOSE BELL ENDS, JOINT BOLTS OR GLANDS. REASONABLE ACCESS TO BOLTS AND GLANDS MUST BE PROVIDED.

---

**REF STD SPEC SEC 7-11**

**City of Seattle**

**NOT TO SCALE**

**WATERMAIN THRUST BLOCKING VERTICAL FITTINGS**

---

### Thrust Block Area in Square Feet (See Std Plan No 331B)

<table>
<thead>
<tr>
<th>Soil</th>
<th>Firm Silt or Firm Silty Sand</th>
<th>Compact Sand</th>
<th>Compact Sand &amp; Gravel</th>
</tr>
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<tbody>
<tr>
<td>Fitting</td>
<td>90° Bend</td>
<td>TEE</td>
<td>45° Bend Cap or Plug</td>
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<td>53.0</td>
<td>37.5</td>
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Areas calculated on 300 psi test pressure and 3'-0" min cover over watermain.

Ecology blocks, per Std Plan No 460, may be used, at the discretion of the engineer only, in lieu of poured-in-place blocking for fittings in heavy outlined portion of table.
NOTES:
1. LOCATION AND SIZE OF BLOCKING FOR PIPE LARGER THAN 12" DIAMETER AND FOR SOIL TYPES
   DIFFERENT THAN SHOWN MUST BE DETERMINED BY THE ENGINEER.
2. ALL BLOCKING FOR HORIZONTAL FITTINGS (POURED IN PLACE) MUST BEAR AGAINST UNDISTURBED
   NATIVE GROUND.
3. ALL Poured THRUST BLOCKS MUST BE BACKFILLED AFTER MIN. 1 DAY. PRESSURE TESTING MUST
   OCCUR AFTER CONCRETE HAS REACHED F_c.
4. ALL BLOCKING TO BE CONCRETE CL 3000.
5. BLOCKING AGAINST FITTINGS MUST BEAR AGAINST THE GREATEST FITTING SURFACE AREA POSSIBLE,
   BUT MUST NOT COVER OR ENCLOSE BELL ENDS, JOINT BOLTS OR GLANDS. ACCESS TO BOLTS
   AND GLANDS MUST BE PROVIDED.
6. ALL HORIZONTAL BLOCKING AREA MUST BE CENTERED ON PIPE.
7. WHERE POURED-IN-PLACE BLOCKING IS REQUIRED AT A POINT OF CONNECTION TO AN EXISTING
   WATERMAIN, THE BLOCKING MUST BE INSTALLED PRIOR TO CONNECTION.
8. TEMPORARY BLOCKING, IF USED, MUST BE APPROVED BY ENGINEER.

REF STD SPEC SEC 7-11

City of Seattle | NOT TO SCALE | WATERMAIN THRUST BLOCKING
HORIZONTAL FITTINGS

FOR 4" WATERMANS 4"X1½" FIPT DUCTILE IRON, DOUBLE STRAPPED SADDLE (SEE STD PLAN NO 340b) W/ ½"X2" CORP STOP, BALL TYPE BRASS BODY MIPT X COMP

FOR LARGER THAN 4" WATERMANS DIRECT TAP 1½"X2" CORP STOP, BALL TYPE BRASS BODY, AWWA X CORP

STANDARD BOX AND LID OLYMPIC FOUNDRY TYPE SM29 TO BE LOCATED IN THE FIELD BY THE ENGINEER

SEE NOTE ON STD PLAN NO 340b

MECHANICAL joint Cap or plug
1/4" steel plate
CONC BLOCKING PER STD PLAN NO 331

 UNDISTURBED GROUND

PLAN

2" PIPE CAP

2" IRON BODY GATE VALVE W/ 2" SQUARE OPERATING NUT

VALVE BOX SEE STD PLAN NO 315

2" GALV STEEL PIPE

2" PLASTIC FOAM MATERIAL SEE STD PLAN NO 313

1 CU FT GRAVEL MNRL AGG TYPE 9

2" GALVANIZED ELBOW

DRILL 1/8" DRAIN HOLE

2"X6" GALVANIZED NIPPLE

2" BRASS COUPLING MIPT X COMP

ELEVATION

REF STD SPEC SEC 7-11

City of Seattle

2" BLOW OFF TYPE A
NON TRAFFIC INSTALLATION

NOT TO SCALE

FOR 4" WATER MAINS
4"X1½" FIPT DUCTILE IRON,
DOUBLE STRAPPED SADDLE
W/ 1½"X2" CORP STOP, BALL TYPE
BRASS BODY MIPT X COMP

FOR LARGER THAN 4" WATER MAINS
DIRECT TAP (SEE STD PLAN NO 340a)
1½"X2" CORP STOP, BALL TYPE
BRASS BODY, AWWA X CORP

NOTE:
WHERE TAPE-WRAPPED DUCTILE IRON
PIPE IS USED, THE MECHANICAL JOINT
CAP, CORP AND SADDLE (IF REQUIRED)
MUST BE WRAPPED PER AWWA C214

ELEVATION

PLAN

REF STD SPEC SEC 7-11

City of Seattle
NOT TO SCALE
2" BLOW OFF DETAIL TYPE B
TRAFFIC INSTALLATION

300 WATERMAIN APPURtenances

STANDARD PLAN NO 350

REV DATE: AUG 2015

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 barrel
2. For fluidized thermal backfill (FTB) or CDF crossings of metallic pipe, increase Class B sand depth & cover to 12" min & encase metallic pipe in 8 mil polyethylene encasement for full trench width.
3. Fluidized thermal bedding per SCL material standard 7150.00

See Note 2 for FTB or CDF conduit crossings

PIECE SMALLER THAN 15"
15" & LARGER PIPE

TYPICAL BEDDING

BEDDING AT TRENCH CROSSING

REF STD SPEC SEC 7-11, 7-17, 9-03.16

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

BOTTOM VIEW

LIFTING HANDLE
(2 REQUIRED)

TOP VIEW

SECTION A-A

TYPE 361 VALVE CHAMBER
FRAME & COVER

REF STD SPEC SEC 7-12

City of Seattle
NOT TO SCALE

SLIP JOINT BOND CONNECTION

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(16)3f

6. FINAL CONNECTION TO BE MADE WATERTIGHT WITH MASTIC COATING OR PREFORMED THERMITE WELD CAP

MECHANICAL JOINT BOND CONNECTION

THERMITE WELD CONNECTION

REF STD SPEC SEC 7-11

**STANDARD 3–WIRE TEST STATION**

**INSULATING COUPLING 5–WIRE TEST STATION**

**INSULATING FLANGE 5–WIRE TEST STATION**

NOTE:
WIRE INSTALLATION PER STD SPEC SEC 9–30.12(3)

REF STD SPEC SEC 7-11.3(15) & 9-30.12
TYPICAL SINGLE HORIZONTAL ANODE INSTALLATION

THERMITE WELD CONNECTION. SEE STD PLAN NO 362

DI OR CI WATERMAIN

BARE OR PRE-PACKAGED ANODE PLACED MIN 12" BELOW PIPE, SEE NOTE 2.

#8 AWG, BLACK WIRE, OR APPROVED EQUAL LENGTH AS NECESSARY.

NOTES:
1. SPU CORROSION PROTECTION MAY SPECIFY TYPE AND REQUIRED SPACING OF ANODE(S) LONGITUDEALLY ALONG WATER MAIN TO BE SHOWN IN DESIGN DRAWINGS. MAXIMUM SPACING MUST BE 36" UNLESS OTHERWISE NOTED ON PLANS.
2. FOR VERTICAL ANODE INSTALLATION, IF ANODE IS NOT PRE-PACKAGED, BARE ANODE MUST BE INSTALLED W/ MIN 6" SACRIFICIAL ANODE BACKFILL PER SPEC SECTION 9-30(7), AROUND ALL SIDES OF ANODE.
3. ANODE SIZE MUST BE 1/2" HIGH POTENTIAL MAGNESIUM ANODE, UNLESS OTHERWISE NOTED ON THE PLANS.
4. PLACE RED "CAUTION" OR "DANGER" TAPE 6" OVER ANODE WIRES. TAPE MUST BE MIN 3" WIDE.
5. BACKFILL OVER ANODE WITH SUITABLE NATIVE MATERIAL OR APPROVED EQUAL.

TYPICAL SINGLE VERTICAL ANODE INSTALLATION

DI OR CI WATERMAIN

#8 AWG, BLACK WIRE, OR APPROVED EQUAL LENGTH AS NECESSARY.

ANODES INSTALLED ON EXISTING PIPE MUST BE BY VACUUM EXCAVATION

REF STD SPEC SEC 7-11, 9-30
NOTES:

1. REQUIRED SPACING OF ANODE(S) TO BE SHOWN IN DESIGN DRAWINGS. FOR VERTICAL INSTALLATION, IF ANODE IS NOT PRE-TAPPED, BOLTED ANODE MUST BE INSTALLED. SEE STD PLAN NO. 350 (1250) AND NOTE 2.

2. FOR VERTICAL INSTALLATION, IF ANODE IS NOT PRE-TAPPED, BOLTED ANODE MUST BE INSTALLED. SEE STD PLAN NO. 350 (1250) AND NOTE 2.

3. ANODE SIZE MUST BE INSIDE HOT PIPING AND CONDUIT. OTHERWISE NOTED ON THE PLANS.

4. PLACE RED CAUTION OR WARNING TAPE 6 INCHES AWAY FROM ANODE WERE AND CONDUIT.

5. BOLTED ANODE MUST BE 3/4 INCH NICKEL-PLATED BRASS NUT, 1/4 INCH NICKEL-PLATED BRASS BOLT, AND NICKEL-PLATED BRASS LOCKWASHER.

TERMINAL BOARD DETAIL A

SECTION A-A

ELEVATION VIEW

INSTALLATION DETAIL A

MULTIPLE ANODES CONNECTED AT TEST STATION

300 WATERMAIN APPURTENANCES

STANDARD PLAN NO 365

REV DATE: DEC 2016
* SEE RIGHT OF WAY IMPROVEMENT MANUAL FOR DIMENSIONS.
** UNLESS OTHERWISE APPROVED BY THE ENGINEER.
*** MAXIMUM 0%, MINIMUM 0.5%; USE 2% UNLESS OTHERWISE SHOWN IN CONTRACT OR APPROVED BY THE ENGINEER.
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:**
1. 3 MILLION ESALS UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS
2. ASPHALT PG 64-22 UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS
3. WARM MIX ASPHALT MAY BE USED IN PLACE OF HMA WHERE SHOWN ON THE DRAWINGS

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

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

SEEN PLN NO 405d
FOR KEYWAY DETAILS

LONGITUDINAL JOINT,
SEE STD PLN NO 405c

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

TIE BAR

402A—ROADWAY CONCRETE PAVEMENT ON CRUSHED ROCK

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

TIE BAR

LONGITUDINAL JOINT, SEE STD
PLAN NO 405c

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

2" HMA (CL 3")

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

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

SEE STD PLAN
TYPE 410e CURB & GUTTER

2" HMA(CL 3")

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. 10 MILLION ESAL'S UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS.
2. ASPHALT PG 64-22 UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS.
3. WARM MIX ASPHALT MAY BE USED IN PLACE OF HMA WHERE SHOWN ON THE DRAWINGS.

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

CEMENT CONCRETE ALLEY PAVEMENT 403B—FOR SHALLOW EMBANKMENT AREA

NOTES:
1. WHEN ALLEY PAVEMENT IS 16"-0" OR WIDER, PLACE CONSTRUCTION JOINT WITH TIE BAR PER STD PLAN NO 409 ALONG CENTERLINE OF ALLEY.
2. FOR ADA ACCESSIBLE ACCESS TO ENTRY IN ALLEY CONSIDER ALTERNATIVE DESIGN; SUBJECT TO APPROVAL BY THE ENGINEER.
3. 8" OR AS SHOWN IN CONTRACT OR APPROVAL BY THE ENGINEER.
4. MIN CROSS SLOPE IS 1%. MAX CROSS SLOPE IS 2%.
5. PERMEABLE BALLAST MUST BE MINERAL AGGREGATE TYPE 11, COS STD SPEC 9.03-13, UNLESS DETERMINED OTHERWISE BY ENGINEER.
6. FOR PERMEABLE CONCRETE ALLEYS, CONTRACTION JOINTS MUST NOT EXCEED 12 FT. FOR PAVEMENT THICKNESS OF 9 IN. OR LESS, FOR THICKER PAVEMENT, CONTRACTION JOINTS MAY BE 15 FT.

PERVIOUS CONCRETE PAVEMENT

REF STD SPEC SEC 5-06, 8-17, 8-19

City of Seattle
NOT TO SCALE
ROADWAY CEMENT CONCRETE ALLEY PAVEMENTS

HALF SECTION
RIGID PAVEMENT WITH ASPHALT CONCRETE SURFACE

REMOVE ASPHALT OVERLAY
SAW CUT ASPHALT CONC (REMOVE LOOSENED AREAS)
EXISTING ASPHALT CONCRETE PAVEMENT

TACK COAT

EXISTING RIGID BASE
SAW CUT CONCRETE FULL DEPTH
STEP EXCAVATION TO AVOID UNDERMINING EX PAVEMENT (TYP)

TRENCH WIDTH
COMPACT BACKFILL

MIN WIDTH FOR RESTORATION**

HMA (CL 3/4")**
CEM. CONC MUST BE THICKNESS GREATER OF "D" OR 9 INCHES

EXISTING CONCRETE PAVEMENT

HALF SECTION
CEMENT CONCRETE PAVEMENT

SAW CUT CONCRETE FULL DEPTH
EXISTING CONCRETE PAVEMENT

COMPACT MINERAL AGGREGATE TYPE 2

TYPICAL PATCH FOR RIGID PAVEMENT

HALF SECTION
FLEXIBLE PAVEMENT (3-3/3) TYP

PLANE ASPHALT PRIOR TO PLACING FINAL LIFT
EXISTING OIL MAT

TACK COAT

EXISTING EARTH OR GRANULAR BASE
COMPACT MINERAL AGGREGATE TYPE 2
STEP EXCAVATION TO AVOID UNDERMINING EX PAVEMENT (TYP)

COMPACT BACKFILL

MIN WIDTH FOR RESTORATION**

HMA (CL 3/4")**

EXISTING FLEXIBLE BASE
HMA (CL 3/4" OR 1")**
STEP EXCAVATION TO AVOID UNDERMINING EX PAVEMENT (TYP)

COMPACT MINERAL AGGREGATE TYPE 2

TRENCH WIDTH

TYPICAL PATCH FOR FLEXIBLE PAVEMENT

• ** DEPTH OF RESTORATION MUST MEET THE REQUIREMENTS OF "RIGHT-OF-WAY OPENING AND RESTORATION RULES".
• WIDTH OF RESTORATION MUST MEET REQUIREMENTS OF STANDARD PLAN 404c.

REF STD SPEC SEC 2-02, 5-04 & 5-05

City of Seattle
NOT TO SCALE
PAVEMENT PATCHING

ASPHALT OVER RIGID BASE OF BRICK OR STONE BLOCK PAVEMENT
HALF SECTION

- **WIDTH OF RESTORATION MUST MEET REQUIREMENTS OF STANDARD PLAN 404c.**
- **DEPTH OF RESTORATION MUST MEET THE REQUIREMENTS OF "RIGHT-OF-WAY OPENING AND RESTORATION RULES".**

REF STD SPEC SEC 2-02, 5-04 & 5-05

City of Seattle | NOT TO SCALE | PAVEMENT PATCHING

NOTES:
1. DUE TO POTENTIAL LOSS OF SOIL STRENGTH IN AREAS ADJACENT TO TRENCH OPENINGS, PAVEMENT REMOVAL MUST BE WIDENED TO INCLUDE THE ZONE OF INFLUENCE.
2. SEE "RIGHT-OFF-WAY OPENING AND RESTORATION RULES" FOR MORE INFORMATION ON PAVEMENT OPENINGS ZONE OF INFLUENCE.  
   HTTP://WWW.SEATTLE.GOV/TRANSPORTATION/STUSE_PAVEMENTOPEN.HTM

MINIMUM FULL DEPTH PAVEMENT REMOVAL LIMITS

ZONE OF INFLUENCE
TRENCH WIDTH
ZONE OF INFLUENCE

PAVEMENT DEPTH

DEPTH (D)

*TYPICALLY D/4

REF STD SPEC SEC 2-02, 2-04

City of Seattle  NOT TO SCALE  PAVEMENT OPENING ZONE OF INFLUENCE

1. INSTALL TIE BARS ALONG LONGITUDINAL JOINT BETWEEN FULL PANEL REPLACEMENT AND EXIST CONCRETE PAVEMENT. TIE BARS ARE NOT INSTALLED BETWEEN CEMENT CONCRETE 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 LESS THAN A THICKNESS OF 6" OR WHEN THE ENGINEER DETERMINES THE EXISTING CONC NOT TO BE COMPETENT.

3. DO NOT PLACE LONGITUDINAL JOINTS OR SKewed JOINTS WITHIN BIKE LANCES.

4. WHEN PAVING ADJOINING TO EXISTING PANELS, THE NEW TRANSVERSE JOINTS MUST BE PLACED TO MATCH JOINT LOCATIONS OF THE EXISTING ADJOINING PAVEMENT UNLESS OTHERWISE DIRECTED BY THE ENGINEER. SEE STD PLAN NO 405C FOR MAXIMUM TRANSVERSE JOINT SPACING.

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

REF STD SPEC SEC 5-05
NEW CEMENT CONC PAVEMENT | EXIST CONCRETE PAVEMENT

SAW GROOVE:
WIDTH \( \frac{3}{8} \)" MIN. TO \( \frac{3}{4} \)" MAX;
DEPTH 2", WITH JOINT SEALANT;
OR \( \frac{3}{8} \)" PREMOLDED JOINT FILLER

SEE STANDARD PLAN NO 405c
FOR DOWEL BAR SIZE

\( 9" \)

1/2 CONC PAVEMENT DEPTH

NEW DOWEL BAR

DRILL \( \frac{3}{4} \)"MIN TO \( \frac{3}{4} \)"MAX GREATER THAN DIA OF DOWEL X 9" LONG
HOLE IN EXIST CEMENT CONC
FOR NEW DOWEL BAR (TYP)

SECTION A-A
DOWEL BAR DETAIL

NEW CEMENT CONC PAVEMENT | EXIST CONCRETE PAVEMENT

SAW GROOVE:
WIDTH \( \frac{3}{8} \)" MIN. TO \( \frac{3}{4} \)" MAX;
DEPTH 2" WITH JOINT SEALANT;
OR \( \frac{3}{8} \)" PREMOLDED JOINT FILLER

1'-3"

1/2 CONC PAVEMENT DEPTH

NEW TIE BAR
\( \frac{3}{4} \)" DIAM X 30"

DRILL \( \frac{3}{4} \)"MIN TO 1\( \frac{1}{2} \)"MAX DIA HOLE
15" LONG IN EXIST CEMENT CONC
FOR NEW TIE BAR (TYP)

SECTION B-B
TIE BAR DETAIL

NEW CEMENT CONC PAVEMENT | EXIST CONCRETE PAVEMENT

SAW GROOVE:
WIDTH \( \frac{3}{8} \)" MIN. TO \( \frac{3}{4} \)" MAX;
DEPTH 2" WITH JOINT SEALANT;
OR \( \frac{3}{8} \)" PREMOLDED JOINT FILLER

SAW CUT FULL
DEPTH

WITHOUT TIE BAR OR DOWEL
USE ONLY WHEN SHOWN IN
CONTRACT OR APPROVED BY
THE ENGINEER

REF STD SPEC SEC 5-05

City of Seattle | NOT TO SCALE | PAVEMENT REPAIR
DOWEL BAR AND
TIE BAR DETAILS

NOTES:
1. DO NOT PLACE LONGITUDINAL JOINTS OR SKEWED JOINTS WITHIN BIKE LANES.
2. WHEN A JOINT IS WITHIN 18 INCHES OF A CASTING JOINTS 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 406 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.

<table>
<thead>
<tr>
<th>DEPTH (D) OF ROWY CEM. CONC</th>
<th>DOWEL BAR SIZE (Dia #)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6&quot;&lt;D&lt;9&quot;</td>
<td>1&quot;x18&quot;</td>
</tr>
<tr>
<td>9&quot;&lt;D&lt;11&quot;</td>
<td>1½&quot;x18&quot;</td>
</tr>
<tr>
<td>11&quot;&lt;D</td>
<td>1½&quot;x18&quot;</td>
</tr>
</tbody>
</table>

SAWED JOINT WIDTH ¾" MIN.
¾" MAX. WITH JOINT SEALANT OR ¾" PREMOLDED JOINT FILLER

TIE BAR ~ ¾" BARS X 30°
on 36" CENTERS.
TYPICAL ALL LANES.

DOWEL BARS, SEE TABLE FOR SIZES.
on 12" CENTERS.
TYPICAL ALL LANES UNLESS NOTED
IN THE Dwg.

LONGITUDINAL JOINTS
(SEE SECTION VIEWS)

PLAN VIEW
PANEL REPLACEMENT

SECTION VIEW
LONGITUDINAL CONTRACTION JOINT

SECTION VIEW
TRANSVERSE CONTRACTION JOINT

SECTION VIEW
TRANSVERSE CONTRACTION JOINT

SECTION VIEW
LONGITUDINAL CONSTRUCTION JOINT

DRILL AND GROUT
(WHEN APPLICABLE)

ROADWAY CONCRETE PAVEMENT JOINTS

**THROUGH JOINTS**

*USE ONLY WHEN SHOWN IN CONTRACT OR APPROVED BY THE ENGINEER*

**KEYWAY DETAIL**

**LONGITUDINAL JOINT WITH KEYWAY**

*(OPTIONAL FOR ≥ 30 INCHES ONLY)*

**NOTE:**

*USE OF OPTIONAL KEYWAY MAY BE REVOKED BY THE ENGINEER AT ANY TIME DUE TO QUALITY CONTROL ISSUES WITH MAINTAINING PLACEMENT REQUIREMENTS WITHIN ± 1/8 INCH VERTICALLY.*

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**REF STD SPEC SEC 5-05**

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**2017 Edition City of Seattle Standard Plans for Municipal Construction**
NOTES:
1. PLACE WIRE MESH AT ½ DEPTH OF CEMENT CONCRETE.
2. THE DIMENSIONS OF THE MESH MUST BE ADJUSTED WHERE PAVEMENT JOINTS ARE ENCOUNTERED.
3. NO REINFORCING STEEL MUST BE WITHIN 2½ INCHES OF ANY CEMENT CONCRETE SURFACE OR JOINT.

NOTES:
1. PLACE REBAR AT ½ DEPTH OF CEMENT CONCRETE.
2. NO REINFORCING STEEL MUST BE WITHIN 2¼ INCHES (3 INCHES DESIRED) OF ANY CEMENT CONCRETE SURFACE OR JOINT.
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

REF STD SPEC SEC 8-04
CONTRACTION JOINT FOR CURB OR CURB & GUTTER

SECTION A-A

NOTE:
JOIN AND JOINT FILLER FOR CURB OR FOR CURB & GUTTER, MATCHING PAVEMENT JOINT

THROUGH JOINT FOR CURB OR CURB & GUTTER

SECTION B-B

NOTE:
JOIN AND JOINT FILLER FOR CURB OR FOR CURB & GUTTER, MATCHING PAVEMENT JOINT

DOWELS FOR DOWELLED CURB CONSTRUCTION

#3 (2'-8") EPOXY COATED REINFORCING BARS @ 2'-4" O.C.

CURB DOWEL ON NEW PAVEMENT

CURB DOWEL PINS ON EXISTING PAVEMENT

TOP OF PROPOSED CURB

COLD JOINT

COMPACTED SUBGRADE

DRILL 3/16" MIN DIA HOLES FILL WITH EPOXY GROUT (TYPE I OR IV EPOXY PER SEC 9-26)

#3 EPOXY COATED REINFORCING BARS

REF STD SPEC SEC 8-04

City of Seattle
NOT TO SCALE
CURB JOINTS & DOWELS

EXTRUDED ASPHALT CONCRETE CURB

EXTRUDED CEMENT CONCRETE CURB

NOTE:
ALTERNATELY, THE USE OF EPOXY BONDING AGENT, IN PLACE OF #3 DEFORMED BARS, WILL BE ALLOWED.

REF STD SPEC SEC 8-06
Curb Plan

Section C-C

Section D-D

Nosing

Section B-B

Section A-A

Installation Detail for Straight Precast Traffic Curb

Note:
Install 8" #4 rebar in every hole and fill hole with grout

3' Precast Traffic Curb (Dual Sloped)

Section E-E
8" STRAIGHT BLOCK CURB
(SINGLE SLOPED)

RADIAL CURB

UNIT | RADIUS | CURB RETURN ANGLE (°)
-----|--------|-----------------------
R1   | 1'-3"  | 45°00'                
R2   | 1'-10" | 30°00'                
R3   | 2'-6"  | 22°30'                
R4   | 5'-6"  | 11°27.34'             
R5   | 10'-0" | 5°43.77'              

FOR RADIUS GREATER THAN 10'-0" USE SEGMENTS OF STRAIGHT BLOCK CURB

8" STRAIGHT BLOCK CURB
(DUAL SLOPED)

8" BLOCK AND RADIAL TRAFFIC CURB

City of Seattle
NOT TO SCALE

NOTES:
1. 3/8" THROUGH AND CONTRACTION JOINTS SHALL BE LOCATED AS REQUIRED BY SECTION 8-14.3(6).
2. "V" GROOVE SCORING SHALL MATCH PATTERN IN ADJACENT EXISTING SIDEWALK OR SHALL BE A 2" SQUARE SCORING PATTERN UNLESS OTHERWISE APPROVED BY THE ENGINEER.
3. FOR CURB RAMPS, SEE STANDARD PLAN NO 422.
4. FOR TREE critique, SEE STANDARD PLAN NO 424.
5. 1/2" MINIMUM BETWEEN EDGE OF RAMPS WING AND PLANTING STRIP IS DESIRABLE.
6. ALL SIDEWALK SHALL BE NON-ROADWAY CEM CONC W/ 25% POZZOLANS.

TYPICAL SIDEWALK & CURB RAMP DETAIL

REF STD SPEC SEC 8-14

City of Seattle NOT TO SCALE CONCRETE SIDEWALK DETAILS

NOTE:
"H" MUST BE 6" FROM FINISHED ROADWAY
GRADE UNLESS OTHERWISE SPECIFIED
NOTES:
1. RAMP CENTERLINE SHALL BE RADIAL/PERPENDICULAR TO THE ALIGNMENT OF THE FACE OF CURB.
2. UPPER LANDING AT THE TOP OF THE CURB RAMP SHALL MATCH THE FULL WIDTH OF THE RAMP AND SHALL 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 SHALL BE 5'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP. SLOPE ON THE LANDING SHALL BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
3. WINGS SHALL HAVE A MAXIMUM SLOPE OF 10%. WINGS SHALL HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB SHALL CONTINUE THROUGH EACH Wing.
4. RAMP SURFACE SHALL 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)

422A CURB RAMP LOCATIONS

2% MAX MAX SLOPE IN EITHER DIRECTION

12" MIN
(TYP)

CW

Landscape (TYP)

CW

SIDEWALK

UPPER LANDING SEE NOTE 2

THROUGH JOINT

UPPER LANDING SEE NOTE 2

THROUGH JOINT

PAY LIMIT

PAY LIMIT

CLEAR SPACE

10% MAX SLOPE

10% MAX SLOPE

4'-0" MIN

4'-0" MIN

2% MAX

2% MAX

DETECTABLE WARNING PER

DETECTABLE WARNING PER

3" RADIUS
(TYP)

SIDE CURB
STD PLAN 422K

SIDE CURB
STD PLAN 422K

REW STD SPEC SEC 8-14

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

PARALLEL CURB RAMPS
(TYPE 422B)

PAY LIMITS

REF STD SPEC SEC 8-14

City of Seattle  NOT TO SCALE  CURB RAMP DETAILS

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

PARALLEL CURB RAMPS (CORNER)
(TYPE 422C)

Pay Limits

Ref Std Spec Sec 8-14
NOTES:
1. RAMP CENTERLINE SHALL BE PARALLEL TO CROSSWALK AND/OR THE SIDEWALK.
2. UPPER LANDING AT THE TOP OF THE CURB RAMP SHALL MATCH THE FULL WIDTH OF THE RAMP AND SHALL HAVE A MINIMUM DEPTH OF 4'-0". IF THE LANDING IS LIMITED AT THE BACK-OF-SIDWALK BY A PERMANENT VERTICAL BARRIER, THE DEPTH OF THE TURNING SPACE SHALL BE 5'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP. SLOPE ON THE LANDING SHALL BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
3. WINGS SHALL HAVE A MAXIMUM SLOPE OF 10%. WINGS SHALL HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB SHALL CONTINUE THROUGH EACH WING.
4. WING ON THE OPEN SIDE OF THE CURB RAMP SHALL 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 SHALL 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

REFERENCES
STD SPEC SEC 8-14

City of Seattle | NOT TO SCALE | CURB RAMP DETAILS
NOTES:
1. RAMP CENTERLINE SHALL BE PARALLEL TO CROSSWALK AND/OR THE SIDEWALK.
2. UPPER LANDING AT THE TOP OF THE CURB RAMP SHALL MATCH THE FULL WIDTH OF THE RAMP AND SHALL 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 TURNDING SPACE SHALL BE 5'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP. SLOPE ON THE LANDING SHALL BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
3. WINGS SHALL HAVE A MAXIMUM SLOPE OF 10%. WINGS SHALL HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB SHALL CONTINUE THROUGH EACH WING.
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 SHALL BE 2" MAXIMUM FROM SLOPE ON THE DETECTABLE WARNING SURFACE TO THE BACK OF CURB AT ANY POINT.
7. RAMP SURFACE SHALL 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.

DIRECTIONAL CURB RAMPS
(TYPE 422E)

PAY LIMITS

422E CURB RAMP LOCATIONS

REF STD SPEC SEC 8-14

City of Seattle
NOT TO SCALE
CURB RAMP DETAILS
NOTES:
1. RAMP CENTERLINE(S) SHALL BE PARALLEL TO CROSSWALK AND/OR THE SIDEWALK.
2. UPPER LANDING AT THE TOP OF THE CURB RAMP SHALL MATCH THE FULL WIDTH OF THE RAMP AND SHALL 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 SHALL BE 5'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP. THE LANDING SHALL BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
3. WINGS SHALL HAVE A MAXIMUM SLOPE OF 10%. WINGS SHALL HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB SHALL CONTINUE THROUGH EACH WING.
4. WING ON THE OPEN SIDE OF THE CURB RAMP SHALL 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 SHALL HAVE A HEAVY BROOM BRUSHED FINISH PERPENDICULAR TO THE PATH OF TRAVEL.
6. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SKEW.
NOTES:
1. RAMP CENTERLINE(S) SHALL BE PARALLEL TO CROSSWALK AND/OR THE SIDEWALK.
2. UPPER LANDING AT THE TOP OF THE CURB RAMP SHALL MATCH THE FULL WIDTH OF THE RAMP AND SHALL 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 SHALL BE 5'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP. SLOPE ON THE LANDING SHALL BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
3. WINGS SHALL HAVE A MAXIMUM SLOPE OF 10%. WINGS SHALL HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB SHALL CONTINUE THROUGH EACH WING.
4. RAMP SURFACE SHALL HAVE A HEAVY BROOM BRUSHED SURFACE PARALLEL TO THE CURB.
5. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.

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

422G CURB RAMP LOCATIONS

NOTES:
1. SHARED DIAGONAL PERPENDICULAR Ramps shall not be installed unless all other design options are unable to be constructed due to existing site constraints.
2. RAMP CENTERLINE SHALL BE RADIAL/PERPENDICULAR TO THE ALIGNMENT OF THE FACE OF CURB.
3. UPPER LANDING AT THE TOP OF THE CURB RAMP SHALL MATCH THE FULL WIDTH OF THE RAMP AND SHALL 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 SHALL BE 5'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP. SLOPE ON THE LANDING SHALL BE BETWEEN 0.5% AND 2% IN ANY DIRECTION.
4. CLEAR SPACE AT THE BOTTOM OF THE RAMP SHALL BE 4'-0" MINIMUM IN WIDTH AND SHALL EXTEND A MINIMUM OF 4'-0" BEYOND THE RAMP LOWER GRADE BREAK. THE CLEAR SPACE SHALL FALL WHOLLY WITHIN THE LEGAL CROSSWALK. MARKED OR UNMARKED, THE CLEAR SPACE SHALL FIT BEHIND LINES EXTENDING FROM THE FACE OF CURB RUNNING PARALLEL TO EACH ROADWAY. THERE IS NO ALLOWABLE EXEMPTION FOR MINIMUM CLEAR SPACE REQUIREMENTS AT SHARED DIAGONAL PERPENDICULAR CURB RAMPS.
5. WINGS SHALL HAVE A MAXIMUM SLOPE OF 10%. WINGS SHALL HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB SHALL CONTINUE THROUGH EACH WING.
6. RAMP CURVATURE SHALL HAVE A HEAVY BROOM BRUSHED SURFACE PARALLEL TO THE CURB.
7. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.

SHARED DIAGONAL PERPENDICULAR CURB RAMP (TYPE 422H)

PAY LIMITS

422H CURB RAMP LOCATIONS

REF STD SPEC SEC 8-14

City of Seattle

NOTES:
1. THE SIDEWALK SHALL TRANSITION DOWN TO THE ROADWAY WITH A MAXIMUM RUNNING SLOPE OF 5%. THE CROSS SLOPE ON THE TRANSITION SHALL NOT EXCEED 2% AT ANY POINT.
2. A MINIMUM BYPASS ROUTE SHALL BE PROVIDED AT THE TOP OF THE BLENDED TRANSITION WITH A MINIMUM WIDTH OF 4'-0". THE CROSS SLOPE OF THE BYPASS ROUTE SHALL NOT EXCEED 2% IN ANY DIRECTION.
3. WINGS SHALL HAVE A MAXIMUM SLOPE OF 10%. WINGS SHALL HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB SHALL CONTINUE THROUGH EACH WING.
4. BLENDED TRANSITION SURFACE SHALL HAVE A HEAVY BROOM BRUSHED SURFACE RADIAL/PERPENDICULAR TO THE CURB.
5. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTION D.

3" RADIUS (Typ)

SAW Cut IF EXISTING PAVEMENT (Typ)
PROVIDE BOND BREAKER (UNLESS ASPHALT SURFACING)

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

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

NOTES:
1. SEE SHAPES 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 G-G
ROADWAY CURB (TYP)
2' - 0" MIN
SEE NOTE 3
ROADWAY CURB STAND PLAN 410 OR STD PLAN 421
SIDEWALK

3" RADIUS (TYP)
2' - 0" MIN
SEE NOTE 3
ROADWAY CURB (TYP)
DETECTABLE WARNING STD PLAN 422K
CLEAR SPACE SEE NOTE 4 (TYP)

5'-0" MIN (TYP)

ISLAND CUT-THRUOGHS
(TYPE 422J)

CURB RAMP GENERAL NOTES:
1. TWO CURB RAMPS SHALL BE INSTALLED AT EACH CORNER UNLESS OTHERWISE DIRECTED BY ENGINEER. SHARED (DUAL) RAMPS SHALL NOT BE INSTALLED UNLESS ALL OTHER DESIGN OPTIONS ARE UNABLE TO BE CONSTRUCTED DUE TO EXISTING SITE CONSTRAINTS.
2. CURB RAMP SHALL BE AS CLOSELY ALIGNED WITH THE SIDEWALK AND THE PEDESTRIAN STREET CROSSING AS POSSIBLE.
3. CURB RAMPS SHELL BE CONSTRUCTED WITH COMPASS RAMP ON OPPOSITE SIDE OF THE ROADWAY WHERE NO RAMP IS PROVIDED UNLESS OTHERWISE DIRECTED BY ENGINEER.
4. RAMPS SHALL 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 SHALL BE 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 SHALL BE FLUSH.
6. AREAS ADJACENT TO CURB RAMPS OR CURB RAMP LANDING ARE USEABLE BY PEDESTRIANS SHALL COMPLY WITH STANDARD PLAN SIDEWALK SLOPE LIMITS OR A CURB RAMP WING MUST BE PROVIDED AS SHOWN IN THE APPLICABLE CURB RAMP DETAILS. THE INSTALLATION OF CURBED EDGES ARE NOT REQUIRED BUT MAY BE USED AT THE SIDES OR BACKS OF CURB RAMPS OR CURB RAMP LANDING WHERE THE ADJACENT SURFACE IS LANDSCAPED OR OTHERWISE NOT USEABLE BY PEDESTRIANS.
7. THE COUNTER SLOPE OF THE CURB OR THE STREET AT THE BOTTOM OF CURB RAMP RUNS SHALL BE 2% MAXIMUM. IF TURNING OR CHANGE OF ORIENTATION IS REQUIRED WITHIN THE PEDESTRIAN CROSSING AT THE BOTTOM OF CURB RAMP RUNS, THE SLOPE SHALL BE 2% MAXIMUM IN ANY DIRECTION FOR A MINIMUM 4'-0" WIDTH X 4'-0" DEPTH MEASURED FROM THE RAMP BOTTOM GRADE BREAK.
8. CURB RAMPS WITH RAMPS RUNS THAT TERMINATE AT THE ENTRANCE TO THE PEDESTRIAN STREET CROSSING SHALL HAVE A CLEAR SPACE AT THE BOTTOM OF THE RAMP 4'-0" MINIMUM IN WIDTH AND SHALL EXTEND A MINIMUM 4'-0" BEYOND THE RAMP LOWER GRADE BREAK. THE CLEAR SPACE SHALL FALL WHOLLY WITHIN THE LEGAL CROSSWALK, MARKED OR UNMARKED.
9. DETECTABLE WARNING SHALL BE PROVIDED AT CURB RAMPS AND AT LOCATIONS WHERE THE SIDEWALK AND ROADWAY ARE FLUSH. THE DETECTABLE WARNING SURFACE SHALL HAVE A TRUNCATED DOME PATTERN AS SHOWN, WITH A MINIMUM DEPTH OF 2'-0", AND SHALL BE PLACED AT THE BACK OF CURB BUT NO MORE THAN 8" FROM THE FACE OF CURB OR NONLITHIC CURB OR ARTIFICIAL CURB WIDTHS. DETECTABLE WARNING SHALL 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 SHALL ALIGN WITH THE CURB RAMP OR THE DIRECTION OF TRAVEL. DOMES MAY BE ON A RADIAL GRID PATTERN WHERE THE DETECTABLE WARNING SURFACE IS PLACED AT CURB RADIO.
10. DETECTABLE WARNING COLOR SHALL BE "FEDERAL SAFETY YELLOW", UNLESS OTHERWISE DIRECTED BY ENGINEER. 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 RADIO SHALL MATCH THE CURB RADIO WITHOUT GAPS OR INCONSISTENCIES IN PLACEMENT.
11. AVOID LOCATED HANDHOLES, UTILITY CASTINGS, OR ANY OTHER OBSTRUCTIONS IN THE CURB RAMP RUN(S) OR LANDING(S). IF NECESSARY DUE TO EXISTING CONSTRAINTS, HANDHOLES, UTILITY CASTINGS, OR OTHER OBSTRUCTIONS MAY BE LOCATED WITHIN A CURB RAMP, LANDING, OR TURNING SPACE BUT MUST ADHERE TO SURFACE REQUIREMENTS. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED 1/4" OR 1/2" WITH A 1/2 BID. GAPS BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED 3/8". SURFACES MUST BE FIRM, STABLE, AND SLIP RESISTANT.
12. HANDHOLES, UTILITY CASTINGS, OR OTHER OBSTRUCTIONS SHALL NOT REDUCE THE REQUIRED DEPTH OF DETECTABLE WARNING.
13. POLES, HYDRANTS AND OTHER ABOVE GROUND OBSTRUCTIONS SHALL HAVE A MINIMUM LATERAL CLEARANCE OF 1'-0" FROM THE UPPER LANDING AND RAMP SURFACE.
14. ALL CHANGES IN LEVEL ACROSS JOINTS SHALL BE FLUSH. ANY DIFFERENCE IN ELEVATION OF 3/16 INCH OR GREATER SHALL BE REPAIRED OR REPLACED.
15. CURB RAMPS SHALL BE DESIGNED AND CONSTRUCTED SO THAT WATER WILL NOT ACCUMULATE ON RAMP SURFACES. GUTTER FLOW LINE SHALL BE SURVEYED BY THE CONTRACTOR PRIOR TO CONSTRUCTION TO ENSURE PONDOING OF WATER SHALL NOT OCCUR AT THE BOTTOM OF CURB RAMPS OR AT CURB RAMPS LOWER LANDINGS.
16. ALL SLOPE GRADES SHALL BE MEASURED OFF THE HORIZON-LINE. IF EXISTING SITE CONDITIONS CONFLICT WITH OBTAINING GRADES SHOWN, THE DESIGNER / CONTRACTOR SHALL MAKE MINIMUM ADJUSTMENTS TO THE GRADES SHOWN TO MEET EXISTING SITE CONDITIONS; ADJUSTMENTS ARE SUBJECT TO ENGINEER APPROVAL.

* IT IS GENERALLY PREFERRED THAT CURB RAMPS, CURB RAMP LANDINGS, AND ASSOCIATED FEATURES NOT BE DESIGNED TO THE MINIMUM OR MAXIMUM ALLOWABLE DIMENSION AND/OR SLOPE TO ALLOW FOR A LIMITED MARGIN OF ERROR DURING CONSTRUCTION.
NOTES:
1. SEE STD PLAN 420 FOR CW SCORING DETAILS.
2. INSTALL ROOT BARRIER PER STANDARD PLAN NO 100a.

REF STD SPEC SEC 8-02 & 8-14
FOR ADDITIONAL SIDEWALK SCORING REQUIREMENTS
SEE STD PLAN NO 420

**TYPE C**

TREE PIT DIMENSIONAL REQUIREMENTS:
- 24 SQ FT MIN TREE PIT SIZE
- 3'-0" MIN REC'D BETWEEN TREE C & FACE OF CURB
- 2'-0" MIN REC'D BETWEEN TREE C & CONC SIDEWALK
- 6'-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 BARRIER AS NOTED. SEE STANDARD PLAN NO 100a.
3. SEE STD PLAN NO 420 FOR CW SCORING DETAILS.
PERVIOUS CONC CEM SIDEWALK DEPTH TRANSITION AT DRIVEWAYS PROFILE VIEW

NOTES:
1. DEPTHS SHOWN FOR PAVEMENT SECTIONS ARE COMPACTED DEPTH.
2. SIDEWALK DEPTH AT DRIVEWAY TO MATCH DRIVEWAY PAVEMENT DEPTH.
3. DEPTH OF POUROUS CEMENT CONCRETE FOR DRIVEWAYS MUST BE 8" MIN.
4. 6% MAX. POUROUS CEMENT CONCRETE PROFILE GRADE.
5. WHERE POUROUS CONCRETE IS SHOWN ON PLANS FOR ALLEY, POUROUS CONCRETE MUST BE 8" WITH 3" AGGREGATE DISCHARGE SUBBASE.
6. APPLY SEPARATION GEOTEXTILE SEC. 9-37, ON BOTTOM AND SIDES. EXTEND GEOTEXTILE ABOVE POUROUS CONCRETE FOR SIDEWALK PAVEMENT. AFTER PAVEMENT HAS CURLED AND ADJACENT FINISHED GRADE HAS BEEN STABILIZED, CUT SEPARATION GEOTEXTILE AT FINISHED GRADE (TYP.)
7. CONTRACTION JOINTS FOR POUROUS CONCRETE SIDEWALKS MUST BE PLACED AT A MAXIMUM OF 15 FT ON CENTER SPACING.

HOT MIX ASPHALT PAVEMENT SIDEWALK SECTION

REF STD SPEC SEC 5-04, 5-06
NOTES:
1. TYPE 430A MUST BE USED UNLESS OTHERWISE DIRECTED BY ENGINEER. USE OF DRIVEWAY TYPE 430B IS SUBJECT TO ENGINEER APPROVAL.
2. DRIVEWAYS MUST BE NON-ROADWAY CEM. CONC. HIGH STRENGTH.
3. WING WIDTH ON ARTERIAL STREETS WHERE TRAFFIC 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 431.
6. CONCRETE DRIVEWAYS WITH A WIDTH GREATER THAN 15'-0" MUST HAVE A 2'-0" TRANSVERSE CONTRACTION JOINT NEAR THE CENTERLINE OF DRIVEWAY. SEE DETAIL SECTION C-C STANDARD PLAN NO 420.
7. FOR TYPE 430A 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%.
8. FOR TYPE 430B, 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 SLOPED AS NEEDED TO MATCH EXISTING SITE CONDITIONS.
9. RAMP MUST HAVE A MAXIMUM SLOPE 12H:1V AND A MINIMUM WIDTH OF 6'-0".
10. ALL CHANGES IN LEVEL ACROSS JOINTS MUST BE FLUSH WITH A MAXIMUM DIFFERENCE IN ELEVATION OF 3/8 INCH.
11. CONCRETE WALKWAYS OUTSIDE OF THE DRIVEWAY CROSSING MAY BE Pervious.

City of Seattle

NOT TO SCALE

TYPE 430A & 430B DRIVEWAYS

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 PLAN NO 420 AND THE DRAWINGS.

* UNLESS OTHERWISE APPROVED BY SDOT.
MULTI PURPOSE TRAIL AT ARTERIAL STREET W/BULB-OUT (TYP)

NOTES:
1. FOR CURB RAMP AND DETECTABLE WARNING DETAILS SEE STANDARD PLAN NO 422.
2. FOR CROSSWALK DETAILS SEE STANDARD PLAN NO 712.
3. FOR BOLLARD DETAIL SEE STANDARD PLAN NO 463.
4. ASPHALT TRAIL CROSS SLOPE MINIMUM 1%, MAXIMUM 2%.
5. CEMENT CONCRETE WARNING PAD THICKNESS TO MATCH ASPHALT THICKNESS OR MINIMUM 6" THICK WHICHEVER IS GREATER.
6. CRUSHED ROCK ON EDGE OF TRAIL AS NEEDED TO DISBURSE DRAINAGE FLOW.
7. ALL CHANGES IN LEVEL ACROSS JOINTS MUST BE FLUSH WITH A MAXIMUM DIFFERENCE IN ELEVATION OF 3/8 INCH.
8. ALL SLOPE GRADES MUST BE MEASURED OFF THE HORIZON-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 APPROVAL BY THE ENGINEER.
9. ALL CEMENT CONCRETE WARNING PADS MUST BE BRUSHED FINISHED AND "V" GROOVED TO MATCH PATTERN IN ADJACENT OR NEARBY SIDEWALKS.
NOTES:
1. REFER TO STANDARD PLAN NO. 440a AND 440b FOR ADDITIONAL NOTES, DETAILS & DIMENSIONS.
2. (BLANK)
3. FIELD WELDED AND GROUND SURFACES MUST BE CLEANED AND COATED WITH ZINC SPRAY TO A MIN. OF 3 MILS, DRY PAINT THICKNESS.
4. DIMENSIONS SHOWN ON ONE SIDE OF THE SECTION VIEW ARE TYPICAL TO THE OTHER SIDE, UNLESS NOTED OTHERWISE.
5. DISTANCE BETWEEN HANDGRIP SUPPORTS MUST NOT EXCEED 6'-0".
6. BIKE RUNNEL SLAB THICKNESS Varies WITH STEP RISER HEIGHT; MIN. 10.5", MAX. 12.5".
7. RUNNEL LIP HEIGHT 1.5" ABOVE STEP NOSING AND LANDING.
8. INTERMEDIATE STAIR LANDINGS THAT INTERSECT OTHER STAIRS OR WALKS MUST BE AT LEAST 6'-0" LONG TO ALLOW FOR A MIN. 4'-0" CLEAR AREA WITHOUT RUNNEL & RAIL.
9. STAMP CONCRETE AT TOP AND BOTTOM OF RUNNEL SEE CONCRETE STAMP DETAIL STD PLAN NO 440d.
10. LONG STAIRWAYS OR STAIRWAYS WITH SIGHT OBSTRUCTIONS TO CYCLISTS MUST HAVE SIDEWALK BREAKS TO ALLOW ONGOING CYCLISTS PASSAGE. LOCATIONS OF SIDEWALK BREAKS TO BE DETERMINED BY ENGINEER.
11. ANY CONSTRUCTION OUTSIDE OF RUNNEL MUST ALLOW ENOUGH CLEARANCE FOR BIKE PEDALS AND HANDLEBARS FROM INTERFERING WITH MOVEMENT.
NOTES:
1. REFER TO STANDARD PLAN NO. 440a AND 440b FOR ADDITIONAL NOTES, DETAILS & DIMENSIONS.
2. (BLANK)
3. FIELD WELDED AND GROUND SURFACES MUST BE CLEANED AND COATED WITH ZINC SPRAY TO A MIN. OF 3 MILS, DRY PAINT THICKNESS.
4. DIMENSIONS SHOWN ON ONE SIDE OF THE SECTION VIEW ARE TYPICAL TO THE OTHER SIDE, UNLESS NOTED OTHERWISE.
5. DISTANCE BETWEEN HANDGRIFF SUPPORTS MUST NOT EXCEED 6".
6. BIKE RUNNEL SLAB THICKNESS VARIES WITH STEP RISER HEIGHT MIN. 10.5", MAX. 12.5".
7. RUNNEL UP HEIGHT 1.5" ABOVE STEP NOISING AND LANDING.
8. LANDINGS THAT INTERSECT OTHER STAIRS OR WALKS MUST BE AT LEAST 6' LONG TO ALLOW FOR A MIN. 4' CLEAR AREA WITHOUT RUNNEL & RAIL.
9. STAMP CONCRETE AT TOP AND BOTTOM OF RUNNEL SEE CONCRETE STAMP DETAIL.
10. RUNNEL LOCATION MUST BE ON EITHER SIDE OF STAIRWAY AS DETERMINED BY ENGINEER.
11. LONG STAIRWAYS OR STAIRWAYS WITH SIDE OBSTRUCTIONS TO CYCLISTS MUST HAVE SIDEWALK BREAKS TO ALLOW ONCOMING CYCLISTS TO PASS. LOCATIONS OF SIDEWALK BREAKS TO BE DETERMINED BY ENGINEER.
12. ANY CONSTRUCTION OUTSIDE OF RUNNEL MUST ALLOW ENOUGH CLEARANCE FOR BIKE PEDALS AND HANDLEBARS FROM INTERFERING WITH MOVEMENT.
13. ¾ VENT AND DRAIN HOLES MUST BE MADE AT EACH POST AT 1" CLEAR BELOW THE TOP RAIL & 2" ABOVE THE CONCRETE BASE.

REVISION DATE: JAN 2017

SECTION A-A
CEMENT CONCRETE
STAIRWAY & SINGLE 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 5" MIN - 7" MAX
3. STEP WIDTH MUST MATCH WIDTH OF EXISTING WALK, BUT MUST BE NO LESS THAN 24" WIDE
4. ALL STAIRWAYS WITH 2 OR MORE STEPS MUST INCLUDE A HANDRAIL ON BOTH SIDES. SEE STD PLAN NO 440
5. REINFORCING STEEL ASTM A 615 OR 60
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 WALK SLOPE IS 5% OR GREATER A GRIPPING HANDRAIL IS REQUIRED. GRIPPING HANDRAILS ON RAMPS (SLOPE EXCEEDS 5%) MUST EXTEND HORIZONTALLY A MINIMUM OF 12" BEYOND TOP AND BOTTOM OF RAMP RUNS.
6. PIPE DIAMETERS SHOWN ARE "NOMINAL" DIAMETERS AS GIVEN IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL.

SECTION A--A

4' REINFORCING U BAR AT EACH POST SEE DETAIL BELOW
4" 16GA GALV STEEL SLEEVE (TYP)
NON-SHRINK GROUT

SECTION B--B

SECTION C--C

DETAIL A

DETAIL B

DETAIL C

DETAIL D

REF STD SPEC SEC 8-14 & 8-18

City of Seattle

NOT TO SCALE

STEEL PIPE HANDRAIL
DETAIL A
RAIL ENDS

DETAIL B
SLIP JOINT

DETAIL C
EXISTING CONC. STRUCTURE CONNECTION

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 GR 60.
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 12" BEYOND TOP AND BOTTOM OF RAMP RUNS.
6. PIPE DIAMETERS SHOWN ARE "NOMINAL" DIAMETERS AS GIVEN IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL.
7. PLACE EXPANSION GAP AT EVERY OTHER PANEL.
8. THIS DETAIL IS FOR EXISTING CONCRETE STRUCTURE CONNECTION ONLY. ANCHOR BOLTS MUST BE DESIGNED PER AASHTO CODE.

SECTION A-A

NOT TO SCALE

VERTICAL RAILING
CHAIN LINK FENCE TYPE 1

CHAIN LINK FENCE TYPE 3

CHAIN LINK FENCE TYPE 4

CHAIN LINK FENCE TYPE 6

REF STD SPEC SEC 8-12

City of Seattle

NOT TO SCALE

CHAIN LINK FENCE

### ROLL FORMED SECTIONS

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**NOTES:**
1. ALL CONCRETE POST BASES MUST BE 10" MINIMUM DIAMETER, CL3000
2. POSTS MUST BE SPACED AT 10'-0" MAXIMUM INTERVALS UNLESS OTHERWISE DIRECTED BY THE ENGINEER
3. TOP OR BOTTOM TENSION WIRES MUST BE PLACED WITHIN THE LIMITS OF THE FIRST FULL FABRIC WEAVE
4. THE ILLUSTRATIVE DETAIL SHOWN HEREIN MUST NOT BE CONSTRUED AS LIMITING TO HARDWARE DESIGN OR POST SELECTION FOR ANY PARTICULAR FENCE TYPE
5. CONCRETE OR GROUT AROUND POST AT GROUND LINE MUST BE MOUNTED FOR DRAINAGE

REF STD SPEC SEC 8-12

City of Seattle
NOT TO SCALE
CHAIN LINK FENCE

NOTES:
1. FENCE FABRIC MUST BE SECURED TO GATE FRAMES WITH KNUCKLED SELVAGE ALONG TOP EDGE FOR TYPES 4&6 CHAIN LINK FENCE INSTALLATIONS
2. MINIMUM POST LENGTH:
   TYPES 1&3: 8'-8" 
   TYPES 4&6: 6'-6"
3. CONCRETE OR GROUT AROUND POST AT GROUND LINE MUST BE MOUNDED FOR DRAINAGE
NOTES:
1. IF THE SLOPE OF THE TEMPORARY CROSSING IS 5% OR GREATER, A GRIPPING HANDRAIL MUST BE ADDED THAT COMPLIES WITH ADA STANDARDS.
2. ENDS OF THE TEMPORARY CROSSING MUST BE SLOPED TO ALLOW ADA ACCESS.
3. SURFACE OF WALKWAY MUST BE SKID RESISTANT.
4. THE RAMP MUST BE CONSTRUCTED OF TEMPORARY PAVEMENT OR COMPACTED GRAVEL EMBANKMENT OR AS APPROVED BY ENGINEER.
5. THE TEMPORARY WALKWAY COULD BE RECESSED FOR THE WALKING SURFACE TO BE FLUSH WITH ADJOINING GRADE.

SECTION A–A
* UNLESS APPROVED BY SEATTLE DEPARTMENT OF TRANSPORTATION

TABLE

<table>
<thead>
<tr>
<th>BRIDGE LENGTH</th>
<th>PLANK SIZE</th>
<th>NAIL SIZE</th>
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<tbody>
<tr>
<td>10'-0&quot; OR LESS</td>
<td>2&quot;X12&quot;</td>
<td>20 PENNY</td>
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<td>11'-0&quot; TO 14'-0&quot;</td>
<td>3&quot;X12&quot;</td>
<td>40 PENNY</td>
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<td>15'-0&quot; TO 20'-0&quot;</td>
<td>4&quot;X12&quot;</td>
<td>60 PENNY</td>
</tr>
</tbody>
</table>

LUMBER: DOUGLAS FIR #2 OR BETTER
POST & RAILS S4S

PLANKS - ROUGH
CONCRETE TONGUE & GROOVE BLOCK
GALVANIZED PIPE SLEEVE

NOTES:
1. ALL PIPE SECTIONS MUST BE CONSTRUCTED OF SCHEDULE 40 STEEL PIPE AND ALL COMPONENTS MUST BE HOT DIPPED GALVANIZED AFTER FABRICATION.
2. BOLLARD SHALL NOT EXCEED 50 LBS.

STEEL LID

STEEL LID, SEE DETAIL ABOVE

STEEL LID WITH CONNECTING CHAIN, PROVIDE 3/4" RECESS IN CONCRETE TO ACCOMMODATE CAP

5 1/2" x 3 1/2" THICK COLLAR, WELD TO 3" STEEL PIPE

BOLLARD ELEVATION

BOLLARD

SLEEVE IN CONCRETE SECTION VIEW

City of Seattle

NOTES:
1. UNLESS OTHERWISE SPECIFIED, TRAFFIC SIGNAL CONTROLLER CABINET MUST BE FURNISHED BY THE CITY
2. UNLESS OTHERWISE SPECIFIED, EXACT CABINET DIMENSIONS & ANCHOR BOLT LOCATIONS MUST BE PROVIDED BY THE TRAFFIC SIGNAL SHOPS
3. PLACE CABINET DOOR ON SIDEWALK SIDE OF FOUNDATION
4. SEAL CABINET TO FOUNDATION WITH GREY OR CLEAR SILICONE TO PREVENT MOISTURE FROM ENTERING THE CABINET

<table>
<thead>
<tr>
<th>DIMENSION</th>
<th>TYPE II</th>
<th>TYPE III</th>
<th>TYPE VI</th>
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<tbody>
<tr>
<td>A</td>
<td>30&quot;</td>
<td>44&quot;</td>
<td>44&quot;</td>
</tr>
<tr>
<td>B</td>
<td>17&quot;</td>
<td>25 ½&quot;</td>
<td>25 ½&quot;</td>
</tr>
<tr>
<td>C</td>
<td>.36&quot; TO .52&quot;</td>
<td>.50&quot; TO .58&quot;</td>
<td>.64½&quot; TO .67½&quot;</td>
</tr>
</tbody>
</table>

SIGNAL CONTROLLER CABINET—TYPES II, III, VI

LEVEL & FINISHED TOP OF FOUNDATION
1" CHAMFER (TYP)
3/4" PVC DRAIN TUBE TO LOW SIDE OF FINISHED GRADE
CLASS 3000 CONCRETE

CONDUIT PER DRAWINGS

SIGNAL CONTROLLER FOUNDATION
SEE STD PLANS NO 500b & 500c FOR CONDUIT LAYOUT

REF STD SPEC SEC 8-31 & 8-32

City of Seattle
NOT TO SCALE
SIGNAL CONTROLLER CABINET & FOUNDATION

NOTES:
1. 36" Minimum Clearance must be required in front of both front and back cabinet door.
2. Seal cabinet to foundation with grey or clear silicon to prevent moisture from entering the cabinet.
3. Exact service cabinet dimensions, anchor bolt locations and pedestal mounting holes must be provided by the manufacturer.
4. Ground rod 3/4"x120" copper clad with ground rod clamp. A second ground must be installed a minimum 8' away in a ground rod handhole as per City of Seattle standard plan No. 520D. Coordinate with electrical inspector for location. Install #1 4 AWG copper ground wire between cabinet foundation and ground rod handhole.

REF STD SPEC SEC 8-31,8-32

City of Seattle  NOT TO SCALE  SERVICE CABINET FOUNDATION DETAIL
NOTES:
1. FOR SIGNAL CONTROLLER DIMENSIONS AND OTHER REQUIREMENTS, SEE STD PLAN NO. 500a.
2. FOR SERVICE CABINET DIMENSIONS AND OTHER REQUIREMENTS, SEE STD PLAN NO. 501a.
3. SEAL CABINETS TO FOUNDATION WITH GREY OR CLEAR SILICON TO PREVENT MOISTURE FROM ENTERING THE CABINET.
4. THE SERVICE CABINET MUST BE PLACED ON THE OPPOSITE SIDE OF THE CONTROLLER CABINET FROM THE UPS.

REF STD SPEC SEC 8-31,8-32

City of Seattle

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

NOTE:
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

SIGNAL HANGER DETAIL

BRACKET MOUNTING
FOR SIGNAL HEAD BRACKET ASSEMBLY
SEE STD PLAN NO 511

PEDESTAL TOP MOUNTING
FOR PEDESTAL SEE STD PLAN NO 524

MOUNTING HEIGHT ABOVE FINISHED GRADE
12'-0" MIN
15'-0" MAX

BRONZE OFFSET SLIP FITTER COLLAR W/ STAINLESS STEEL SET SCREWS

ATTACH SIGNAL CABLE TO SPAN WIRE WITH FRICTION TAPE OR UV RATED CABLE TIE WRAPS AND TRIM ENDS

ENTRANCE HOLE MUST BE PLUGGED W/ APPROVED FITTING

REFERENCES:
REF STD SPEC SEC 8-31

City of Seattle
NOT TO SCALE
VEHICULAR SIGNAL MOUNTING

SUSPENDED SIGNAL MOUNTING DETAIL

WITHOUT EXTENSION

WITH EXTENSION

BRONZE WIRE ENTRANCE HANGER W/ INSULATING BUSHING

1 1/2" PIPE COUPLING

DRILL & TAP ONE WALL OF THE PIPE & COUPLER FOR (2) 1/8" X 3/16" STAINLESS STEEL BOLTS

1 1/2" PIPE NIPPLE SIZED TO GAIN MOUNTING HEIGHT AND TO LEVEL ALL RED HEAD SECTIONS

LOCK NUT WITH LOCKING SCREW

SERRATED WASHER

SIGNAL HOUSING

NEOPRENE SEAL

STAINLESS STEEL WASHER

LOCK NUT

COTTER KEY
NOTES:
1. 3/8" X 1/2" BOLT, 3/8" LOCK WASHER, 3/8" X 1 1/4" WASHER 4 OF EACH REQUIRED PER ASSEMBLY, ALL STAINLESS STEEL.
2. MOUNTING MUST BE AS FOLLOWS:
   - ON METAL POLES THINNER THAN 7 GAUGE, USE 3/8" STAINLESS STEEL RHNUTS.
   - ON METAL POLES 7 GAUGE OR THICKER, DRILL AND TAP FOR 3/8" BOLT (STAINLESS STEEL RHNUTS OPTIONAL).
   - ON POLES FILLED OR MADE WITH CONCRETE USE 3/8" X 2 1/2" MIN STUD BOLT ANCHORS, SLEEVE TYPE.
   - ON WOOD POLES USE 1 1/2" X 2 1/2" LAC BOLTS.

REF STD SPEC SEC 8-31

SIGNAL HEAD BRACKET ASSEMBLY

City of Seattle

NOT TO SCALE
500 SIGNALIZATION-LIGHTING

ELEVATION

SECTION A—A

METAL POLE MOUNT

WOOD POLE MOUNT

NOTES:
1. BOLT AND WASHERS MUST BE STAINLESS STEEL PER ASTM A 563 DH AND
   ASTM F 436
2. MOUNTING MUST BE AS FOLLOWS:
   - ON METAL POLES THINNER THAN 7 GAUGE, USE ¾" STAINLESS STEEL
     RIVNUTS
   - ON METAL POLES 7 GAUGE OR THICKER, DRILL AND TAP FOR ¾" BOLT
     (STAINLESS STEEL RIVNUTS OPTIONAL)
   - ON POLES FILLED WITH CONCRETE USE ¾"x2½" STUD BOLT
     ANCHORS WITH HEX NUT
3. FOR STREET NAME SIGN PEDESTAL INSTALLATION, SEE STD PLAN NO 623

REF STD SPEC SEC 8-31

City of Seattle


NOT TO SCALE

PEDESTRIAN SIGNAL
CLAMSHELL MOUNTING
NOTE:
WRAP TOP OF ANCHOR BOLTS WITH CORROSION PROTECTION TAPE

1" CHAMFER (TYP)

2" PIPE CAP GALV

PEDESTRIAN PUSHBUTTON & MOUNTING PER STD PLAN NO 522b

4'-6" LENGTH, 2" SCH 40 STL PIPE GALV

BOLT COVER

2" STANDARD IRON PIPE FLANGE W/4½" BOLT CIRCLE

(4) 3½"X8" ANCHOR BOLTS Ø4½" BOLT CIRCLE W/2 NUTS AND 2 WASHERS PER EACH BOLT

TOP OF SIDEWALK

TOP OF FOUNDATION

COLD JOINT

SIDEWALK REMOVAL & RESTORATION LIMITS

PEDESTRIAN PUSHBUTTON POST FOUNDATION CLASS 3000 CONCRETE

1" SCH 80 PVC

1'-6"

ROUND OR SQUARE

REF STD SPEC SEC 8-31 & 8-32

City of Seattle
NOT TO SCALE
PEDESTRIAN PUSHBUTTON POST & FOUNDATION

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.
NOTES:
1. PUSHBUTTON MUST HAVE DIRECTIONAL ARROW AS SPECIFIED ON THE PLANS.
2. INSTALLATION OF TWO PEDESTRIAN PUSHBUTTON ASSEMBLIES MUST BE ON A 4½" OR LARGER POLE.
3. DETAIL SHOWS PUSHBUTTON INSTALLED ON METAL POLE. PUSHBUTTON INSTALLED ON OTHER MATERIALS MUST BE PER MANUFACTURER'S RECOMMENDATION.

REF STD SPEC SEC 8-31

ACCESSIBLE PEDESTRIAN SIGNAL (APS)
PED. PUSHBUTTON ASSEM.
CURB/PAVEMENT ENTRANCE FOR DETECTOR LOOP WIRES

NOTES:
1. SHARP EDGE TOOLS MUST NOT BE USED IN PLACING CONDUCTORS IN SAW CUTS
2. EACH PAIR OF LOOP WIRES IN THE RETURN CUT MUST BE TWISTED A MINIMUM OF 3 TURNS PER FOOT AND MAY SHARE COMMON RETURN CUTS WITH OTHER TWISTED PAIRS
   MAX 3 LOOPS PER CUT.
3. TAPE LOOP WIRE A MINIMUM OF 2 TURNS AT EACH CORNER
4. REMOVE SHARP CORNER EDGES IN SAW CUTS WHERE LOOP WIRE WILL BE BENT AROUND
5. PERFORM RESISTANCE AND CONTINUITY TESTS PRIOR TO SEALING LOOP WIRES
6. COIL 5'-0" OF LOOP WIRE IN HANDBOHE

REF STD SPEC SEC 8-31
DIPOLE LOOP DETECTOR

QUADRIPOLE LOOP DETECTOR

NOTE:
OVERLAP CUT FOR FULL DEPTH AT CORNERS (TYP) CHIP 1" BACK THEN ROUND OFF CORNERS WHERE LOOP WIRE WILL BE BENT 90° OR LESS.

BICYCLE DIPOLE

BICYCLE QUADRIPOLE

NOTES:
1. SEE STD PLAN NO. 725 FOR BICYCLE DETECTOR PAVEMENT MARKER DETAIL
2. FILL CUT AFTER VERTICAL PLACEMENT AND TESTING WITH HOT PAVING GRADE LIQUID ASPHALT ASTM D 312 TYPE III OR QUICK SETTING HIGH STRENGTH GROUT

SECTION A-A

ADVANCE PLACEMENT FROM STOP BAR

SPEED LIMIT

6' DIAM LOOP (TYP)

REFERENCES:
STD SPEC SEC 8-31

City of Seattle
NOT TO SCALE
DETECTOR LOOP DETAILS

WRAP WITH 3M SUPER 88 ELECTRICIAN'S TAPE

TO LOOP IN STREET

NON-INSULATED SOLDERED BARREL CONNECTOR (OFFSET THESE CONNECTORS AS SHOWN)

DRAIN WIRE (CUT OFF)

LEAD-IN CABLE TO DETECTOR AMPLIFIER

1" MIN

FOIL SHIELD (CUT OFF)

3M 2210 VINYL MASTIC

DETECTOR LEAD-IN WIRE SPLICE DETAIL

NOTE:
SOLDER CONNECTION AFTER CRIMPING
COIL 4' OF #4 BARE STRANDED COPPER WIRE ABOVE FOUNDATION

FACE OF POLE OR EDGE OF CSB

FOR POLE MOUNTING & GROUT DETAIL SEE STD PLAN NO 553a

3'-0" CLR

TO TOP OF CONDUIT

1"

TOP OF CONDUIT

1/2" CLEAR

TOP OF VERTICAL BARS

2'-0" MIN

TOP OF FOUNDATION

TOP OF SIDEWALK

5' MIN

SECTION A-A

PRE-CAST CONCRETE BLOCK
SPACERS ATTACHED TO REBAR
(3 MIN) TO PROVIDE 3" CLEAR FROM VERTICAL BARS TO SOIL

NOTE:
FOR STEEL MAST ARM POLE
FOUNDATION SEE STD PLAN NO 562b

CLASS 4000 CONCRETE

ELECTRICALLY BOND GROUND WIRE TO REINFORCING STEEL
(CADWELD OR EQUAL)

ANCHOR PLATE
SEE FOUNDATION SCHEDULE ON STANDARD PLAN NO 541b

3" CLEAR

(TYP)

3'-0"

CONDUIT PER DRAWINGS

#3 SPIRAL @ 6" OC

#4 BARE STRANDED COPPER WIRE

CONDUIT PER DRAWINGS

ANCHOR BOLT CIRCLE
SEE FOUNDATION SCHEDULE
ON STD PLAN NO 541b

VERTICAL BARS
SEE FOUNDATION SCHEDULE ON STD PLAN NO 541b

PLAN VIEW

STRAIN POLE FOUNDATION IN SIDEWALK

#3 SPIRAL

Curb Line

A

REF STD SPEC SEC 8-32, 6-02

City of Seattle

NOT TO SCALE

STRAIN POLE FOUNDATION DETAIL
(TYPE T, V, X & Z)

### Foundation Schedule

<table>
<thead>
<tr>
<th>Pole Type</th>
<th>Projection</th>
<th>Vertical Reinforcing</th>
<th>Depth (Lateral Bearing)</th>
<th>Anchor Bolts (Total 4 Per Pole)</th>
<th>Anchor Plate Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>7 1/2&quot;</td>
<td>10 #8</td>
<td>5'-0&quot; 7'-6&quot;</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>
<td>V</td>
<td>9&quot;</td>
<td>10 #8</td>
<td>9'-6&quot; 8'-6&quot;</td>
<td>1 1/4&quot; Dia X 72&quot;</td>
<td>3/4&quot; X 16&quot; X 16&quot;</td>
</tr>
<tr>
<td>X</td>
<td>10&quot;</td>
<td>12 #8</td>
<td>12'-6&quot; 10'-6&quot;</td>
<td>2&quot; Dia X 72&quot;</td>
<td>3/4&quot; X 18&quot; X 18&quot;</td>
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<tr>
<td>Z</td>
<td>11 1/2&quot;</td>
<td>12 #8</td>
<td>15'-0&quot; 13'-0&quot;</td>
<td>2 1/2&quot; Dia X 72&quot;</td>
<td>3/4&quot; X 20&quot; X 20&quot;</td>
</tr>
</tbody>
</table>

**NOTES:**
1. Concrete strength must be Class 4000, 3/4" max size coarse aggregate.
4. All reinforcing bars must be deformed billet steel conforming to ASTM Class A706, Grade 60.
5. Anchor bolts must be hot dip galvanized ASTM A153 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 8-32.3(2)A prior to pouring concrete.

**REF STD SPEC SEC 8-32**

---

**City of Seattle**  NOT TO SCALE  STRAIN POLE FOUNDATION SCHEDULE & NOTES (TYPE T, V, X & Z)
NOTES:
1. BOLT CIRCLE: 11½" TYP
2. SEE SCL CONSTRUCTION STANDARD 1716.34 FOR POLE MOUNTING AND GROUT DETAIL
3. ANCHOR BOLTS MUST BE HOT DIP GALVANIZED ASTM A153 OR F2393, FULL LENGTH AND FABRICATED FROM ASTM F1554 OR A576 WITH 12" THREADS ON TOP

REF STD SPEC SEC 8-32

City of Seattle
NOT TO SCALE

STREET LIGHT POLE FOUNDATIONS

NOTES:
1. BOLT CIRCLE: 9" TYP
2. SEE SCL CONSTRUCTION STANDARD 1716.34 FOR POLE MOUNTING
   AND GROUT DETAIL
3. ANCHOR BOLTS MUST BE HOT DIP GALVANIZED TO ASTM A153 OR
   F2329, FULL LENGTH AND FABRICATED FROM ASTM F1594 OR A376
   WITH 8" OF THREADS ON TOP
4. SEE SCL MATERIAL STANDARD 5756.09 FOR POLES
5. SEE SCL CONSTRUCTION STANDARD 1716.07 FOR STREETLIGHT
   HANDHOLE AND CONDUIT REQUIREMENTS.

REF STD SPEC SEC 8-32

City of Seattle | NOT TO SCALE | PEDESTRIAN STREET LIGHT POLE FOUNDATIONS

NOTES:
1. THE COVER MUST HAVE 3/8" TO 1/2" 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 "TC" AND/OR "SL" ON THEM, AS APPROPRIATE.
4. TYPE 4 HANDHOLE MUST BE INSTALLED IN ROADWAYS, PARKING LOTS, ETC.
5. FOR PAVEMENT DEPTH GREATER THAN 7" USE FRAME EXTENSIONS (SEE STD PLAN NO 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 THIN OR THIN COPPER WIRE MUST BE SECURED FROM THE HANDHOLE COVER TO THE FRAME, BOND FROM FRAME TD, AND UD TO GROUND ROD.
7. ALL HANDHOLE COVERS AND FRAMES MUST HAVE A NON-SKID SURFACE (SEE STP SPEC 5.9-346).
8. ALL HANDHOLE MUST HAVE A LOAD RATING OF H2O.
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.

HANDHOLE INSTALLATION DETAIL

HANDHOLE SCHEDULE

<table>
<thead>
<tr>
<th>HANDHOLE TYPE</th>
<th>TOP UNIT INSIDE DIMENSION (L, W, H)</th>
<th>EXTENSION UNIT (L, W)</th>
<th>COVER DIMENSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15&quot; 14&quot; 12&quot;</td>
<td>12&quot; 18&quot; 15&quot;</td>
<td>L W</td>
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<tr>
<td>2</td>
<td>28&quot; 17&quot; 12&quot;</td>
<td>12&quot; 26&quot; 17&quot;</td>
<td>L W</td>
</tr>
<tr>
<td>3</td>
<td>36&quot; 24&quot; 12&quot;</td>
<td>12&quot; 35&quot; 24&quot;</td>
<td>L W</td>
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<td>NA 35&quot; 24&quot;</td>
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<tr>
<td>CRMH</td>
<td>8&quot; 9&quot; NA</td>
<td>NA 35&quot; 24&quot;</td>
<td>NA</td>
</tr>
</tbody>
</table>

TYPE 1 & 2 HANDHOLE

TYPE 3 HANDHOLE
(COVER SAME AS TYPE 5)

TYPE 4 HANDHOLE
TRAFFIC BEARING

TYPE 5 HANDHOLE

REFERENCE: STD SPEC 8-33

City of Seattle
NOT TO SCALE
HANDBOLES

TYPE 6 HANHOLE

NOTES:
1. ALL HANHOLE MUST HAVE A H20 LOAD RATING.
2. ALL HANHOLE COVERS AND FRAMES MUST HAVE A NON-SKID SURFACE (SEE STD SPEC SEC 9-34.6)

GROUND ROD HANHOLE (GRHH)

REF STD SPEC SEC 8-33

City of Seattle
NOT TO SCALE
HANDHOLES

NOTES:
1. ALL NON-DELIVERABLE TRAFFIC PULL BOX COVERS MUST COMPLY WITH ALL TEST PROVISIONS OF ANSI/SCTE 77-2010 "SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY", & MUST MEET THE TIER 15 APPLICATION. MARKING SHOWING THE TIER 15 RATING MUST BE EMBOSSED IN THE TOP SURFACE OF THE COVER.
2. ALL NON-DELIVERABLE TRAFFIC PULL BOXES MUST COMPLY WITH ALL TEST PROVISIONS OF ANSI/SCTE 77-2012 "SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY", & MUST MEET THE TIER 22 APPLICATION. MARKINGS SHOWING THE TIER 22 RATING MUST BE LABELED OR STENCILLED ON THE INSIDE & OUTSIDE OF THE BOX.
3. ALL NON-DELIVERABLE TRAFFIC PULL BOXES & COVERS MUST BE MADE OF POLYSTYRENE CONCRETE WITH FIBERGLASS REINFORCEMENT. THE BOX MUST HAVE TWO LAYERS OF POLYSTYRENE CONCRETE. THE COVER MUST HAVE A MINIMUM OF TWO LAYERS OF FIBERGLASS CLOTH REINFORCEMENT.
4. ALL NON-DELIVERABLE TRAFFIC PULL BOXES & COVERS MUST BE TESTED & CERTIFIED, MEETING ALL TEST PROVISIONS OF THE LATEST REVISION OF ANSI/SCTE 77.
5. PULL SLOTS MUST BE RATED FOR MINIMUM PULL OF 5,000 POUNDS.
6. TYPE 4 HANDHOLE MUST BE INSTALLED IN ROADSIDE 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 "TC" & "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 PAVERMENT.
9. A 4" LENGTH OF #6 THIN OR THIN COPPER WIRE MUST BE SECURED FROM THE HANDHOLE COVER TO THE FRAME. A 4" LENGTH FROM FRAME THAT CAN BE MOVED ROD 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 & CONDUIT REQUIREMENTS.

HANDHOLE SCHEDULE

<table>
<thead>
<tr>
<th>HANDHOLE TYPE</th>
<th>TOP UNIT INSIDE DIMENSION</th>
<th>EXTENSION UNIT(E)</th>
<th>COVER DIMENSIONS</th>
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<tbody>
<tr>
<td>L</td>
<td>W</td>
<td>H</td>
<td>L</td>
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<td>12&quot;</td>
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<td>3</td>
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</tbody>
</table>

POLYMER CONCRETE HANDHOLES

NOTES:
1. FOR DETAILS NOT SHOWN, SEE STD PLAN NO 550b
2. ALL HANDHOLE COVERS AND FRAMES MUST HAVE A NON-SKID SURFACE (SEE STD SPEC SEC 9-34.6)
### MAST ARM SCHEDULE

<table>
<thead>
<tr>
<th>MAST ARM LENGTH</th>
<th>FLANGE PLATE</th>
<th>POLE BASE PLATE</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>BOLT CIRCLE &quot;A&quot;</td>
<td>BOLT CIRCLE &quot;A&quot;</td>
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<tr>
<td>46'-0&quot; TO 60'-0&quot;</td>
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</table>

### POLE SCHEDULE

<table>
<thead>
<tr>
<th>MAST ARM LENGTH</th>
<th>THREAD Bender</th>
<th>THREAD Bender</th>
<th>BOLT CIRCLE &quot;A&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SQUARE</td>
<td>SQUARE</td>
<td>BOLT CIRCLE &quot;A&quot;</td>
</tr>
<tr>
<td>15'-0&quot; TO 30'-0&quot;</td>
<td>16&quot; X 16&quot;</td>
<td>16&quot; X 16&quot;</td>
<td>11/16&quot;</td>
</tr>
<tr>
<td>31'-0&quot; TO 40'-0&quot;</td>
<td>18&quot; X 18&quot;</td>
<td>18&quot; X 18&quot;</td>
<td>21/16&quot;</td>
</tr>
<tr>
<td>41'-0&quot; TO 45'-0&quot;</td>
<td>18&quot; X 18&quot;</td>
<td>18&quot; X 18&quot;</td>
<td>23/6&quot;</td>
</tr>
<tr>
<td>46'-0&quot; TO 60'-0&quot;</td>
<td>20&quot; X 20&quot;</td>
<td>20&quot; X 20&quot;</td>
<td>23/6&quot;</td>
</tr>
</tbody>
</table>

### POLE FOUNDATION NOTES

1. CONCRETE STRENGTH MUST BE CLASS 4000 AIR ENTRAINED.
3. BOTTOM ANCHOR PLATE: ASTM A36, HOT DIP GALVANIZED.
4. ALL REINFORCING BARS MUST BE DEFORMED BILLET STEEL CONFORMING TO ASTM CLASS A706, GRADE 60.
5. ANCHOR BOLTS MUST BE HOT DIP GALVANIZED ASTM A153 INCLUDING NUTS & WASHERS (FULL LENGTH) WITH A MINIMUM OF 18" OF THREADS ON TOP & 12" ON BOTTOM.
6. TAPE THE TOP OF ANCHOR BOLTS WITH CORROSION PROTECTION TAPE PER STD SPEC SEC 5-32.3(2)A PRIOR TO POURING CONCRETE.
7. SEE STD PLAN NO 541a FOR FOUNDATION DETAILS.

### FOUNDATION SCHEDULE

<table>
<thead>
<tr>
<th>MAST ARM LENGTH</th>
<th>FOUNDATION DEPTH (LATERAL BEARING)</th>
<th>ANCHOR BOLTS (FY=55 KSI MIN.)</th>
<th>VERTICAL REINFORCING</th>
<th>ANCHOR PLATE DIMENSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>150#/SF/FT</td>
<td>100#/SF/FT</td>
<td>PROJECTION</td>
<td>BOLT CIRCLE DIA (&quot; HOOK)</td>
</tr>
<tr>
<td>15'-0&quot; TO 30'-0&quot;</td>
<td>7'-6&quot;</td>
<td>8'-6&quot;</td>
<td>7/8&quot;</td>
<td>14/5&quot;</td>
</tr>
<tr>
<td>31'-0&quot; TO 40'-0&quot;</td>
<td>8'-6&quot;</td>
<td>9'-6&quot;</td>
<td>9&quot;</td>
<td>16/5&quot;</td>
</tr>
<tr>
<td>41'-0&quot; TO 45'-0&quot;</td>
<td>8'-6&quot;</td>
<td>9'-6&quot;</td>
<td>9&quot;</td>
<td>16/5&quot;</td>
</tr>
<tr>
<td>46'-0&quot; TO 60'-0&quot;</td>
<td>10'-6&quot;</td>
<td>12'-6&quot;</td>
<td>10&quot;</td>
<td>20&quot;</td>
</tr>
</tbody>
</table>

REF STD SPEC SEC 8-32

City of Seattle | NOT TO SCALE | STEEL MAST ARM POLE FOUNDATION SCHEDULE & DETAIL W/O METRO TROLLEY LOADS |

NOTES:
1. ALL OUTLETS MUST BE PLUGGED WITH THREADED INSERT PLUGS DURING SHIPMENT TO PREVENT DAMAGE TO PLUGS.
2. REMOVE BURRS AND SHARP EDGES TO PREVENT DAMAGE TO ELECTRICAL CABLE.
3. SPLIT COUPLING MUST EXTEND INTO THE POLE 3/4" MAX AS SHOWN.

REF STD SPEC SEC 8-30 & 8-32
NOTE:
NEW POLE: 2"-2"DIA COUPLING TO BE FABRICATED & INSTALLED BEFORE GALVANIZING

WIREWAY ISOMETRIC DETAIL

METAL POLE

6X8.2 LB/FT CHANNEL

CABINET

H/A

¼-13 NC X 2½" SS HEX HEAD BOLT, LOCK WASHERS, DRILL AND TAP POLE TO ACCEPT

WIREWAY EXISTING POLE-1½"DIA NEW POLE-2"DIA (PRE-INSTALLED) (SEE DETAIL THIS SHEET)

¼-13 NC X 2½" SS HEX HEAD BOLT, LOCK WASHERS, DRILL AND TAP POLE TO ACCEPT

SECTION A-A

TERMINAL CABINET POLE MOUNTING

**POLE SCHEDULE**

<table>
<thead>
<tr>
<th>POLE TYPE</th>
<th>DEAD LOAD MOMENT KIP-FT (AT GROUND LINE)</th>
<th>POLE SCHEDULE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GROUND LINE DIA &quot;A&quot;</td>
<td>POLE BASE PLATE SIZE</td>
</tr>
<tr>
<td></td>
<td>STD</td>
<td>CSB</td>
</tr>
<tr>
<td>V</td>
<td>51</td>
<td>12&quot;</td>
</tr>
<tr>
<td>X</td>
<td>93</td>
<td>14&quot;</td>
</tr>
<tr>
<td>Z</td>
<td>164</td>
<td>15&quot;</td>
</tr>
</tbody>
</table>

**NOTES:**

1. THE YIELD MOMENT MUST BE 2X THE DEAD LOAD MOMENT. THE ULTIMATE PLASTIC MOMENT MUST BE 2.5X THE DEAD LOAD MOMENT.
2. POLE SHAFT AND REINFORCING SLEEVE: ASTM A572 GRADE 50, 60 OR 65 (Fy=50, 60 OR 65 KSI RESPECTIVELY) OR ASTM A595 GRADE A OR B (Fy=95 OR 60 KSI RESPECTIVELY).
3. BASE PLATE AND HANDHOLE REINFORCING RPM: ASTM A36 OR ASTM A572 GRADE 42. BASE PLATE FY=20,65 POLE SHAFT FY THE BASE PLATE THICKNESS MAY BE REDUCED BY ¼" IF ASTM A572 GRADE 42 STEEL IS USED.
4. REINFORCING SLEEVE MUST BE FABRICATED FROM THE SAME MATERIAL AND YIELD STRENGTH AS THE POLE SHAFT.
5. POLE SHAFTS MUST HAVE NO MORE THAN TWO LONGITUDINAL WELDS IN EACH PLY.
6. MINIMUM SHAFT WALL THICKNESS OF EACH PLY MUST BE 0.239" (3 GAUGE). POLE MUST HAVE A MAXIMUM OF TWO PLYS NOT INCLUDING THE ¼" REINFORCING SLEEVE.
7. MAXIMUM SILICON CONTENT IN STEEL MUST BE 0.04%. SEE Std SPEC SECTION 9-33.1(3) FOR GENERAL GALVANIZING REQUIREMENTS.
8. POLE DIAMETER FOR 12 OR MORE SIDED POLES MUST BE MEASURED FROM THE POINT TO POINT DIMENSION.
9. POLES MUST MEET DEFLECTION CRITERIA STATED IN Std SPEC SECTION 9-33.2(2) WITH THE DEAD LOAD APPLIED AT 25' ABOVE GROUND LINE.
10. POLE STRENGTH MUST MEET REQUIREMENTS OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (2013 EDITION).

**REF Std SPEC SEC 8-32, 9-33**

City of Seattle  NOT TO SCALE  STRAIN POLE DETAILS (TYPE V, X, Z POLES)
NOTES:
1. THE DEAD LOAD MOMENT AT THE GROUNDLINE MUST BE 40kip·ft. THE YIELD MOMENT MUST BE 2X DEAD LOAD MOMENT.
2. POLE STRENGTH MUST MEET REQUIREMENTS OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (2013 EDITION).
3. 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).
4. BASE PLATE AND HANGHOLE REINFORCING RING: ASTM A36 OR ASTM A572 GRADE 42. BASE PLATE Fy=20.65 POLE SHAFT Fy. THE BASE PLATE THICKNESS MAY BE REDUCED BY 3/8" IF ASTM A572 GRADE 42 STEEL IS USED.
5. POLE SHAFTS MUST HAVE NO MORE THAN TWO LONGITUDINAL WELDS IN EACH PLY.
6. MINIMUM SHAFT WALL THICKNESS OF EACH PLY MUST BE 0.233" (3 GAUGE). POLE MUST HAVE A MAXIMUM OF TWO PLTS.
7. MAXIMUM SILICON CONTENT IN STEEL MUST BE 0.04%. SEE STD SPEC SECTION 9-33.1.3) FOR GENERAL GALVANIZING REQUIREMENTS.
8. POLE DIAMETER FOR 12 OR MORE SIDED POLES MUST BE MEASURED FROM THE POINT TO POINT DIMENSION.
9. POLES MUST MEET DEFLECTION CRITERIA STATED IN STD SPEC SECTION 9-33.2(2) WITH THE DEAD LOAD APPLIED AT 27" ABOVE GROUND LINE.
10. 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

TYPE T STRAIN POLE DETAILS
TRAFFIC SIGNAL ONLY

NOTE:
1. ALL OTHER ARM LENGTHS REQUIRE SCL REVIEW AND APPROVAL

* THESE DIMENSIONS ARE ONLY ILLUSTRATIVE OF THE GENERAL OUTLINE AND MATERIALS USED IN THE CONSTRUCTION OF THESE ARMS AND ARE NOT INTENDED TO EXCLUDE MANUFACTURER’S STANDARD PRODUCTS.

REF STD SPEC SEC 8-32

City of Seattle

NOT TO SCALE

STEEL STREET LIGHT POLE WITH BRACKET ARM

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'-0" ABOVE GROUND, AS SHOWN.
3. WHEN 2 OR MORE RIGID STEEL CONDUITS ARE INSTALLED ON ONE POLE, ONE CONDUIT MUST BE GROUNDED AS SHOWN. THE CONDUIT SUPPORTS & STRAPS MUST SERVE AS A BONDING DEVICE BETWEEN THE STEEL CONDUITS.
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. PLACE GROUND WIRE IN QUADRANT BETWEEN POLE FACE & SECONDARY NEUTRAL.

6. ALL STEEL HARDWARE MUST BE HOT DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123.
7. CONDUIT CLAMP SPACING MUST BE PER THE NEC WITH A MINIMUM OF TWO HOLE CLAMP PER 10'-0" LENGTH OF CONDUIT.
8. POWER AND SIGNAL CONDUCTORS MUST NOT BE PLACED IN THE SAME CONDUIT.
9. WHEN POSSIBLE, RISER MUST BE INSTALLED ON DOWNSTREAM SIDE OF TRAFFIC.
10. SEE SCL CONSTRUCTION STANDARD 1716.07 FOR STREETLIGHT HANDHOLE AND CONDUIT REQUIREMENTS & 0224.34 FOR STREETLIGHT CONDUIT RISERS.

REF STD SPEC SEC 8-33, SCL CONSTRUCTION GUIDELINES U 7-10
WOOD POLE INSTALLATION

METAL POLE INSTALLATION

BULL RING INSTALLATION

NOTES:
1. ALL STEEL HARDWARE TO BE HOT DIP GALVANIZED OR STAINLESS STEEL UNLESS OTHERWISE STIPULATED IN THE DRAWINGS.
2. SPAN WIRE MUST BE ALUMINUM COATED STEEL.
3. SPREAD THIMBLE TO FIT THE BAIL OF THE AUTOMATIC DEAD END.

REF STD SPEC SEC 8-21 & SCL MATERIAL STANDARD 6901.1

City of Seattle

NOT TO SCALE

SPAN WIRE INSTALLATION

STREET DESIGNATION SIGN

SPAN WIRE MOUNTED SIGN

NOTES:
1. ALL HARDWARE MUST BE STAINLESS STEEL. OTHER THAN HARDWARE MUST BE HOT DIP GALVANIZED.
2. NEOPRENE GASKETS MUST NOT BE USED FOR SPAN WIRE OR AERIAL CONNECTIONS.

REF STD SPEC SEC 8-21

City of Seattle  NOT TO SCALE  OVERHEAD SIGNS  SPANWIRE MOUNTED

NOTES:
1. EXCEPT AS NOTED OTHERWISE, ALL HARDWARE MUST BE STAINLESS STEEL
2. MOUNTING OF TRAFFIC SIGNS MUST BE AS FOLLOWS: ON METAL POLE THINNER THAN
   7 GAUGE, USE 3/8" STAINLESS STEEL RIVNUTS ON METAL POLES 7 GAUGE OR
   THICKER, FOR 3/8" BOLT (STAINLESS STEEL RIVNUT OPTIONAL) ON POLES FILLED
   WITH OR MADE FROM CONCRETE, USE 3/8"X21/2" MIN STUD BOLT ANCHORS WITH
   HEX NUT.
3. FOR SIGN FEATURE, CONTACT TRAFFIC ENGINEER.
NOTES:
1. STAGGER SNS BLADES WITH THE "AVENUE" DESIGNATION BLADE BELOW THE "STREET" DESIGNATION BLADE.
2. SNS SHALL BE INSTALLED PARALLEL TO CORRESPONDING STREET.
3. ALL NUTS, BOLTS & WASHERS TO BE STAINLESS STEEL EXCEPT ALUMINUM RIV NUTS ON ALUMINUM POLES.

DETAIL A
ALUMINUM MOUNTING BRACKET

REF STD SPEC SEC 8-21

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" USE STD PLAN NO 612. MOUNT SIGNS VERTICALLY ON STRAIN POLE WITH THREE (3) FASTENERS MIN
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

STOP AND YIELD SIGNS SHALL BE RED-BACKED WITH A RETROREFLECTIVE MATERIAL CONSISTENT WITH THAT ON THE SIGN FACE.

NOTE:
1. CONTACT SEATTLE DEPARTMENT OF TRANSPORTATION (684-5087) FOR DETAILS REGARDING SIGN MESSAGE AND FOUNDATION.
2. STEEL SELF-TAPPING #10 X ½" WITH HEX WASHER HEAD ZINC PLATED
3. RED AND WHITE SLEEVE
4. SEE STANDARD 621a FOR OTHER WARNING & REGULATORY SIGN POST

POST ANCHOR INSTALLATIONS

REF STD SPEC SEC 8-21
PER MUTCD, CLEARANCE FROM GROUND TO BOTTOM OF SIGN SHALL BE 7" (OR 6" TO THE LOWEST SIGN FOR MULTIPLE SIGN ASSEMBLIES WHERE APPROVED BY THE ENGINEER).

TS-10

(SEE STD PLAN NO 621b FOR POST ANCHOR DETAILS)

NOTES:
1. SIGN SHALL BE ATTACHED WITH TOP EDGE OF SIGN FLUSH WITH TOP OF SQUARE SECTION OF POST.
2. TS-5 ASSEMBLIES SHALL BE USED ONLY WITH APPROVAL OF ENGINEER, IN AREAS NOT SUBJECT TO PEDESTRIAN TRAVEL.
3. FLUORESCENT YELLOW GREEN OR FHWA YELLOW
4. SEE STANDARD PLAN 820 FOR STOP & YIELD SIGN POST

TS-5

(SEE STD PLAN NO 621b FOR POST ANCHOR DETAILS)

REF STD SPEC SEC 8-21
SURFACE MOUNT

HEAVY DUTY ANCHOR

NOTES:
1. FOR UNLEVEL SIDEWALKS INSERT WASHERS AS SPACERS BETWEEN PLATE AND SIDEWALK. IF BOLT CANNOT PENETRATE SIDEWALK AT LEAST 3", CONTACT THE ENGINEER.
2. USE CONCRETE FOOTINGS FOR ALL SIGNS LARGER THAN 96 SQUARE INCHES.
NOTES:
1. SNS BLADE SHALL BE INSTALLED PARALLEL TO CORRESPONDING STREET.
2. INSTALLATION OF SNS ON ANY OTHER METAL POLE SHALL REQUIRE REVIEW AND APPROVAL BY THE ENGINEER.
3. SNS/SP RELOCATION: OLD CONCRETE SHALL BE REMOVED AND NEW CONCRETE BASE SHALL BE CONSTRUCTED.
4. CITY OF SEATTLE SHALL FABRICATE SNS BLADES AND SUPPLY MOUNTING HARDWARE AT PROJECT OR CONTRACTOR EXPENSE.
5. FOR BILINGUAL SIGNS, CONTACT THE ENGINEER TO OBTAIN THE BILINGUAL STREET NAME SIGN INSTALLATION PRACTICES CURRENTLY IN USE BY SDOT CREWS.

REF STD SPEC SEC 8-21

City of Seattle
NOT TO SCALE
STREET NAME SIGN INSTALLATION

NOTES:
1. CAP MUST BE MADE OF THE SAME MATERIAL AS THE SURROUNDING PAVED SURFACE AND MUST BE MOUNDED FOR DRAINAGE AWAY FROM POST.
2. BLOCKOUTS MUST BE PROVIDED FOR POST LOCATIONS WHERE NEW CONCRETE PAVEMENT (SIDEWALK, ROADWAY, ETC) IS BEING INSTALLED.
3. WHERE POST IS BEING INSTALLED IN EXISTING PAVED AREAS, HOLE IN PAVED SURFACE MUST NOT EXCEED 1'-0" NOMINAL DIAMETER.

REF STD SPEC SEC 8-21
OWIK PUNCH TELESPAR STANDARD SIGN POST
(TS-5, TS-10, TS-12)

NOTES:
1. SEE STD PLANS NO 620 & 621
NOTES:
1. IN THE CASE WHERE ALL APPROACHES OF THE INTERSECTION ARE PRIMARILY AT THE SAME LEVEL WITH RESPECT TO GRADES (LESS THAN 3%) THE LOWER SET OF SIGNS MUST FACE THE HIGHER TRAFFIC VOLUME STREET
2. IN THE CASE WHERE AN APPROACH HAS A GRADE LARGER THAN 3% THE HIGHER SIGNS WILL FACE THE STEEPEST APPROACH TO ALLOW BETTER SIGHT DISTANCE
3. PLACE A MINIMUM OF THREE (3) REFLECTORS ON EACH AND EVERY SIDE OF POST OR PLACE THREE (3) HIGH INTENSITY REFLECTORIZED STRIPS COMPLETELY AROUND POST

REF STD SPEC SEC 8-21

NOT TO SCALE

OBJECT MARKER INSTALLATION IN TRAFFIC CIRCLE
METER POST CAP
(TO BE USED W/ SIGN INSTALLATION)

METER POST
PRIME WITH EPOXY ZINC PHOSPHATE PRIMER,
PAINT WITH TWO (2) COATS OF POLY URETHANE
PAINT, ALUMINUM COLOR

METER POST BASE CANOPY
MATERIAL: 0.062" 2-5-0 ALUM

SECTION A-A

REF STD SPEC SEC 8-21
GALV STEEL CAP - SEE STD PLAN NO 627

SIGN INSTALLATION: DRILL (2) 3/8" HOLES USE SELF TAPPING SCREW W/ 1" O.D. NYLON WASHER

2" NOM DIA ASTM A 53 SCHED 40 GALV STD STEEL PIPE

ALUMINUM BASE CANOPY
SEE STD PLAN NO 627

NON-SHRINK CEMENT GROUT

4½" DIA CONC EXPANSION ANCHORS

DRILL 1/2" HOLES IN CW (4 PLACES)

REF STD SPEC SEC 8-21

City of Seattle
NOT TO SCALE
SURFACE MOUNT METER POST INSTALLATION DETAIL
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
NOTES:
1. POST ANCHOR RIVETS SHALL BE 1/2" ABOVE GROUND LEVEL
2. ATTACHMENT BRACKETS SHALL FACE AWAY FROM STREET AS WHEN POST IS LOCATED 3'-0" FROM EDGE OF CURB. ATTACHMENT BRACKETS SHALL FACE TOWARDS STREET (TS) WHEN POST IS LOCATED AT BACK SIDE OF SIDEWALK
3. FOR POST RELOCATIONS, OLD CONCRETE SHALL BE REMOVED FROM POST
4. ALL SIGNS, STRUCTURES AND HARDWARE PROVIDED BY METRO EXCEPT WHERE NOTED OTHERWISE ON THIS STD PLAN
5. WHERE SURFACE MOUNTED BUS ZONE SIGNS ARE REQUIRED ON SLOPED SIDEWALK, THE CONTRACTOR SHALL PLUMB THE POST BY BUILDING A NON-SHRINK GROUT PAD UNDER PEDESTAL ASSEMBLY WITH SMOOTH 1/8 TO 1/4 TAPER ON THE GROUT EDGE. THE BOLT ANCHOR LENGTH SHALL BE ADJUSTED TO PROVIDE A MIN 3/8" EMBEDMENT THROUGH THE GROUT INTO THE EXISTING CONCRETE.
SURFACE MOUNT DETAIL

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 PROOF OR CONTRACTOR EXPENSE.
3. MAINTAIN 8 FEET MINIMUM OF VERTICAL CLEARANCE FROM CONCRETE WALK TO THE BOTTOM OF PEDESTRIAN WAYFINDING BLADES.

SURFACE MOUNT
**TYPICAL TYPE 2A LANE MARKER INSTALLATION DETAILS**

Lane markers shall be installed to conform with Type of pavement marking (designated as L-1, L-3, L-4, L-5A) and are to be arranged and spaced as shown on this drawing. Color of lane markers is to match color of pavement markings. Existing channelization in conflict with new or revised channelization shall be removed (see Std Spec Sec 2-02.3(3)(j)).

**REFERENCES**

Std Spec Sec 8-22
TYPICAL LEFT TURN CHANNELIZATION

Number of legend sets required based on the length of approach lines

<table>
<thead>
<tr>
<th>Approach Line Length</th>
<th>Legend Sets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 50 feet</td>
<td>1 set at x-walk end of pocket</td>
</tr>
<tr>
<td>50 feet–120 feet</td>
<td>2 sets</td>
</tr>
<tr>
<td>120 feet–300 feet</td>
<td>3 sets (second legend located midway between first and last legends)</td>
</tr>
<tr>
<td>Over 300 feet</td>
<td>Additional sets spaced at approx. 100 ft intervals between first and last sets</td>
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</table>

TYPICAL TWO WAY LEFT TURN LANE

Number of legend sets required based on the length of typical two way left turn lanes

<table>
<thead>
<tr>
<th>Lane Length</th>
<th>Legend Sets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 50 feet</td>
<td>1 set (centered between both ends of lane)</td>
</tr>
<tr>
<td>50 feet–300 feet</td>
<td>2 sets</td>
</tr>
<tr>
<td>Over 300 feet</td>
<td>3 sets (second legend located midway between first and last legends)</td>
</tr>
<tr>
<td>Additional sets spaced at approx. 300 ft intervals</td>
<td></td>
</tr>
</tbody>
</table>

Legend Combinations

Oblique Left & 90° Left
Legends and Oblique Right & 90° Right legends may be combined as shown

Legends shall be centered within the lane to which they apply, as shown

City of Seattle

TYPICAL "LADDER STYLE" PEDESTRIAN CROSSWALK

(ASSMOWING CURB RAMPS & STOP LINE PLACEMENT)
WHERE TRAFFIC LANE LINES ARE NOT USED,
LADDER BARS SHALL BE 5'-0" CENTER TO CENTER, BEGINNING AT THE MARKED CENTERLINE OF THE ROADWAY

STOP LINE: 1'-4" WIDE FOR NON-ARTERIAL,
2'-0" WIDE FOR ARTERIAL

SEE NOTE 2

TYPICAL TRANSVERSE LINE CROSSWALK

8" STRIPE
8" GAP
8" STRIPE

1'-0" MIN., 4'-0" TYP

NOTES:
1. "LADDER STYLE" CROSSWALK SHALL BE USED IN MOST APPLICATIONS. "TRANSVERSE LINE" CROSSWALK MAY ONLY BE USED WITH APPROVAL OF ENGINEER.
2. LOWER LANDING OF CURB RAMP SHALL FALL WHOLLY WITHIN CROSSWALK LINES.
3. WHERE EXISTING TRAFFIC LOOP LOCATIONS ARE BETWEEN 4'-0" AND 1'-0" FROM THE EDGE OF CROSSWALK, STOP LINE MAY BE PLACED UP TO 1'-0" FROM THE CROSSWALK.
4. EXACT LOCATION OF CROSSWALK AND STOP LINES SHALL BE APPROVED BY SOOT.
5. COLORED OR TEXTURED PAVEMENT CROSSWALKS SHALL BE SUPPLEMENTED WITH EITHER "LADDER STYLE" OR "TRANSVERSE LINE" CROSSWALK MARKINGS.
6. EXISTING CROSSWALK MARKINGS THAT CONFLICT WITH NEW CROSSWALK MARKINGS MUST BE REMOVED.

REF STD SPEC SEC 8-22

City of Seattle
NOT TO SCALE
TYPICAL CROSSWALK & STOP LINE INSTALLATION DETAILS

L-10
Passenger Load Zone, etc.
(White)

L-11
Tow-Away Zone
(RED)

L-12
Commercial Load, Truck Load, Load & Unload Zone, etc.
(YELLOW)

L-13
Bus Zone (Non Parking Metered Areas)
Bus Zones are Painted on Top & Face of Curb

Notes:
1. Total Length of Curb Markings Must Be as Shown on Drawings
2. Paint Must Be Applied Neatly on the Curb and All Paint Smears on Adjacent Surfaces Must Be Removed
700 PAVEMENT MARKINGS

STANDARD PLAN NO 720a

REF STD SPEC SEC 8-22

City of Seattle

NOT TO SCALE

PAVEMENT MARKINGS LEGENDS/SYMBOLS

NOTE:
"T" = THERMOPLASTIC

REF STD SPEC SEC 8-22

City of Seattle

NOT TO SCALE

PAVEMENT MARKINGS
LEGENDS/SYMBOLS

NOTES:
1. T = THERMOPLASTIC
2. L-28AT INCLUDES BICYCLE SYMBOL AND ARROW

---

L-27T
PEDESTRIAN STYLE

L-28T
BICYCLIST SYMBOL
(INCLUDES L-28A, LT-28AT)
(SEE NOTE 2)
3" to 12" per drawings or as required by SDOT (typ)

Direction of travel

B = base width (12" or 24" typically)
H = height (18" or 36" typically)

(1.5 x B) = H

L-9A, L-9AT
Yield line
NOTES:
ALL ROUNDED CORNERS MUST HAVE A 1" RADIUS

L-28BT
SHARROW

REF STD SPEC SEC 8-22

City of Seattle
NOT TO SCALE
SHARROW SYMBOL
NOTES:
SEE STD PLAN NO 5306 FOR PLACEMENT

BICYCLE DETECTOR LOOP SYMBOL

L—36T

2-3/8" 4-1/4" 2-1/4" 3/8" 2-1/8" 1-3/16" 2" 6" 10"
NOTES:
1. BASE OF SUPPORT WALL TO BE BEARING ON COMPACTED SUITABLE MATERIAL
2. BACK FORM FOR SUPPORT WALL MAY BE OMITTED AND CONCRETE PLACED AGAINST NATIVE EARTH WHEN GROUND CONDITIONS PERMIT. CLEARANCE TO REINF STEEL IN BACK FACE MUST BE 2".
3. WHEN CONSTRUCTION OF ALLEY PAVEMENT IS NOT PLACED INTEGRAL WITH SUPPORT WALL, SHEAR KEYS MUST BE INSTALLED 1'-6" ON CENTERS.
4. CONCRETE FOR SUPPORT WALL MUST BE CLASS 4000.
5. REINFORCING STEEL ASTM A706 (AASHTO M 31 GRADE 60).
6. VEHICULAR & PEDESTRIAN RAILING PER RIGHT OF WAY IMPROVEMENT MANUAL.

REF STD SPEC SEC 8-17, 8-19

City of Seattle
NOT TO SCALE
SUPPORT WALL

Curb Wall

**NOTES:**
1. Match wall through joints with pavement through joints. Discontinue horizontal reinforcement at joints and maintain 1/2" clear to all reinforcing at joints.
2. Conc. Class 4000 for curb wall.
3. Max height 4'-0" (min pavement width is 12'-0" for walls higher than 3'-0")
4. When construction of wall is not placed integral with alley pavement, shear key indentations spaced 1'-6" O.C. must be installed in the pavement slab.
5. Reinforced steel ASTM A706 (AASHTO M 31 Grade 60).
6. Any railing on top of wall per right of way improvement manual.
7. Non-woven geotextile to be moderate survivability, any class per tables 1 and 2 STD SPEC SEC 9-37.
8. Alley thickness per standard plan No 403.

REF STD SPEC SEC 8-17

City of Seattle