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

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**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.

- **NAVD 88** = 19.26 feet
- **NGVD 29** = 15.67 feet
- **King Co & Metro** = 115.67 feet
- **Obsolete COS Datum** = 9.54 feet
- **USACOE** = 22.51 feet
- **MLLW** = 21.59 feet

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.
CONVERSION INSTRUCTIONS
FROM ANOTHER DATUM TO NAVD88 CITY OF SEATTLE, ADD THE VALUE SHOWN.
FROM NAVD88 CITY OF SEATTLE TO ANOTHER DATUM, SUBTRACT THE VALUE SHOWN.

+12.14 HIGHEST TIDE OBSERVED WATER LEVEL BY NOAA 1/27/83

+9.74 OLD, OBSOLETE CITY OF SEATTLE DATUM - SEE NOTE 2
+5.92 MEAN HIGHER HIGH WATER - SEE NOTE 1
+8.15 MEAN HIGH WATER - SEE NOTE 1

+4.32 MEAN TIDE LEVEL - SEE NOTE 1
+4.30 MEAN SEA LEVEL - SEE NOTE 1
+3.58 NAVD29, KING COUNTY, METRO DATUMS
(METRO DATUM ALSO EXPRESSED AS +103.58)

+0.49 MEAN LOW WATER
0.00 NAVD88 = CURRENT CITY OF SEATTLE DATUM

-2.34 MEAN LOWER LOW WATER (83-01 EPOCH) - SEE NOTE 1
-3.25 LAKE WASHINGTON MEAN LOWER LOW WATER (USACE PERMITS)

-7.38 LOWEST OBSERVED WATER LEVEL BY NOAA 1/04/1916

NOTES
1. THESE ELEVATIONS VARY ACCORDING TO TIDAL OBSERVATIONS FOR STATION ID 9447130, SEATTLE PUGET SOUND, BY NOAA USING 1983-2001 EPOCH.
2. THE OLD OBSOLETE CITY OF SEATTLE DATUM VARIATES BETWEEN 9.2 AND 9.9 FROM NAVD88 (CURRENT APPROVED CITY OF SEATTLE DATUM), DEPENDING ON LOCATION IN THE CITY. THE DIFFERENCE BETWEEN THESE TWO DATUMS MUST BE ASCERTAINED FROM FIELD OBSERVATIONS IN EACH SPECIFIC AREA.

REF STD SPEC SEC 1-07.16(1)A, 1-07.28

City of Seattle


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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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REF STD SPEC SEC 1-01.2

City of Seattle

NOT TO SCALE

ABBREVIATIONS

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<th>THH</th>
<th>Telephone Handhole</th>
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<td>Ton</td>
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<tr>
<td>TRCB</td>
<td>Traffic Signal Cable</td>
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<tr>
<td>TRCD</td>
<td>Traffic Signal Conduit</td>
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<td>TRS CC</td>
<td>Traffic Signal Controller Cabinet</td>
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<td>UG</td>
<td>Underground</td>
</tr>
<tr>
<td>UIC</td>
<td>Underground Interconnect</td>
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<tr>
<td>UNC</td>
<td>Unified National Course</td>
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<td>UP</td>
<td>Utility Pole</td>
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<tr>
<td>V</td>
<td>Valve; Variable</td>
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<td>Vertical Curve</td>
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<tr>
<td>VAR</td>
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<td>VB</td>
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<td>VCH or VC</td>
<td>Valve Chamber</td>
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<td>Vitrified Clay Pipe</td>
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<td>VERT</td>
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<td>Warm Mix Asphalt</td>
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<td>WMR</td>
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<td>Electrical Vault</td>
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<td>$1&quot;$ECD $ = $</td>
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<td>Electrical Cable (direct burial)</td>
<td>$E CB$ $ = $</td>
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<td>Combined Electrical &amp; Telephone Duct</td>
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<td>Span Wire</td>
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<td>Aerial Interconnect Cable</td>
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<td>City Wood Pole</td>
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<tr>
<td>City Wood Pole w/ HPS</td>
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ITEM | EXISTING | PROPOSED
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Light Pole (metal) w/ HPS | ![LP] | ![Proposed Light Pole] 
Strain Pole (metal) | ![Strain Pole] | ![Proposed Strain Pole] 
Combined Lighting Strain Pole HPS | ![Combined Lighting Strain Pole] | ![Proposed Combined Lighting Strain Pole] 
Luminaire | ![Luminaire] | ![Proposed Luminaire] 
Mercury Vapor Luminaire | ![Mercury Vapor Luminaire] | ![Proposed Mercury Vapor Luminaire] 
Double Light Pole | ![Double Light Pole] | ![Proposed Double Light Pole] 
Utility Wood Pole | ![Utility Wood Pole] | ![Proposed Utility Wood Pole] 
Utility Guy Pole | ![Utility Guy Pole] | ![Proposed Utility Guy Pole] 
Anchor | ![Anchor] | ![Proposed Anchor] 
Ground | ![Ground] | ![Proposed Ground] 

ITEM | EXISTING | PROPOSED
--- | --- | ---
Traffic Signal Mast Arm Pole |  | |
Traffic Signal Mast Arm Pole w/ Luminaire |  | |
Traffic Signal on Span Wire |  | |
Multi-Directional Traffic Signal on Span Wire |  | |
Traffic Signal Conduit | 2” TRCD | 2” TRCD |
Traffic Signal Cable | TRCB | TRCB |
Detector Loop, Dipole (loop schedule) |  | |
Detector Loop, Quadrupole (loop schedule) | | |
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<td>○</td>
<td>●</td>
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<tr>
<td>Vehicle Signal</td>
<td>→</td>
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</tr>
<tr>
<td>Vehicle Signal w/ Backplate</td>
<td>→</td>
<td>→</td>
</tr>
<tr>
<td>Vehicle Signal (optically programmed)</td>
<td>→</td>
<td>→</td>
</tr>
<tr>
<td>Pedestrian Signal</td>
<td>#→</td>
<td>#→</td>
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<tr>
<td>Pedestrian Signal (optically programmed)</td>
<td>#→</td>
<td>#→</td>
</tr>
<tr>
<td>Pedestrian Push Button Post</td>
<td>□</td>
<td>●</td>
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<tr>
<td>Pedestrian Push Button</td>
<td>↓</td>
<td>↓PB</td>
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<tr>
<td>Illuminated Sign</td>
<td>□→</td>
<td>□→</td>
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<tr>
<td>Junction Box</td>
<td>✖</td>
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<tr>
<td>Handhole</td>
<td>□EHH</td>
<td>□HH</td>
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<tr>
<td>Traffic Control Handhole</td>
<td>□TCHH</td>
<td>□TCHH</td>
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<td>Street Light Handhole</td>
<td>□SLHH</td>
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<td>Ground Rod Handhole</td>
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<td>Fire Alarm Handhole</td>
<td>□FAHH</td>
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SIGNALIZATION

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

Illuminated Traffic Sign
(\(?=\)Identification Number)

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

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

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


CHANNELIZATION & SIGNAGE

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

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

Relocate Signage
(\(?=\)Signage Identified on Plan)
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<td>Asphalt Concrete Surfacing</td>
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City of Seattle

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<td>Pervious Concrete</td>
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<td>3&quot; CBW</td>
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<tr>
<td>Asphalt Concrete</td>
<td>3&quot; ABW</td>
<td>3&quot; ABW</td>
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<td>Bike Way</td>
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<td>Grading</td>
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**Ref Stan Spec Sec**

City of Seattle  | NOT TO SCALE  | STANDARD SYMBOLS  |
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<td>Inlet Type 268</td>
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<td>Catch Basin round inlet top</td>
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<td>Catch Basin Type 151 (pre 1985)</td>
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<td>Catch Basin Type 242A</td>
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<td>Catch Basin Type 242B</td>
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**City of Seattle**

**STANDARD SYMBOLS**

SEWER & DRAINAGE

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Trees: [Diagram] 16” TREE

PER DRAWINGS

REF STD SPEC SEC

City of Seattle

NOT TO SCALE

STANDARD SYMBOLS

TOPOGRAPHIC & MISC

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<td>M&lt;sup&gt;W&lt;/sup&gt;</td>
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<td>Street Name Sign</td>
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<tr>
<td>Traffic Sign</td>
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<td>US Mail Box</td>
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<td>Parking Meter &amp; Pay Station</td>
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<td>Rectangular Casting</td>
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<td>Jersey Barrier &amp; Eco Block</td>
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<td>North Arrow horizontal</td>
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<td>North Arrow vertical</td>
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<td>Telephone Cable (direct burial)</td>
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<td>Television Cable (direct Burial)</td>
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<td>Steam Vault</td>
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<td>Gas Main &lt;1'-0&quot;Dia</td>
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<td>Gas Main ≥1'-0&quot;Dia</td>
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REF STD SPEC SEC

City of Seattle NOT TO SCALE STANDARD SYMBOLS PRIVATE UTILITIES

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<th>ITEM</th>
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<td>Plug w/Conc Blocking</td>
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<td>Watermain &lt;1'-0&quot;Dia</td>
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<td>8&quot;W</td>
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<td>Watermain ≥1'-0&quot;Dia</td>
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<td>11 1/4° Bend</td>
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<td>8&quot;–111⁄4&quot;HB or VB</td>
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<tr>
<td>22 1/2° Bend</td>
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<td>8&quot;–221⁄4&quot;HB or VB</td>
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<td>Pipe Sleeve</td>
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<td>Plug</td>
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<td>or</td>
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<td>Hydrant</td>
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REF STD SPEC SEC

City of Seattle | NOT TO SCALE | STANDARD SYMBOLS
WATER

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<td>4&quot; &amp; Larger Fire Service</td>
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<td>Valve Box</td>
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<td>![Image]</td>
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<tr>
<td>Gate Valve w/ Chamber</td>
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<tr>
<td>Gate Valve w/ Vault Chamber</td>
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<tr>
<td>Reducer</td>
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<td>![Image]</td>
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<td>Air Valve</td>
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<td>Blowoff</td>
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<td>Fire Standpipe</td>
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<td>Sprinkler Head</td>
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<td>Resilient Seal Gate Valve</td>
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<tr>
<td>Vertical Bend</td>
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<tr>
<td>Concrete Blocking</td>
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<td>[Symbol]</td>
</tr>
</tbody>
</table>
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.
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-SEIZE 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>1½&quot;</th>
<th>2&quot;</th>
<th>3&quot;</th>
</tr>
</thead>
</table>

RISER RING SECTION

COVER SECTION

SECTION A—A

CASE SECTION
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.

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 WATERS BLOW OFF
- 5'-0" TO GSI, INLETS, OTHER DRAINAGE STRUCTURES, MANHOLES, SEWER, STORM DRAIN OR SERVICE CONNECTIONS.

FOR CLEARANCES, SEE STD PLAN NO 5414

TYPICAL TRAFFIC CONDUIT COVER
1'-6" (IF UNDER DRIVEWAY OR PAVING, 3'-0") SEE SOL CONSTRUCTION STANDARD 1716.07 FOR LIGHTING CONDUIT.

TABLE 1

<table>
<thead>
<tr>
<th>WATERMAIN SIZE</th>
<th>DEPTH OF COVER</th>
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<tbody>
<tr>
<td>2'-4&quot;-6'-8&quot;</td>
<td>3'-4&quot;</td>
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<tr>
<td>3'-0&quot;</td>
<td>1'-0&quot;</td>
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<tr>
<td>5'-0&quot;</td>
<td>6'-0&quot;</td>
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<td>12'-0&quot;</td>
<td>12'-0&quot;</td>
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<tr>
<td>14'-0&quot;</td>
<td>14'-0&quot;</td>
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</tbody>
</table>

NOTES:

1. SERVICE LATERALS OR APPURTENANCES:
   - 1'-6" TO 2'-6" DEPTH FROM CURB TO PROPERTY LINE RESERVED FOR SERVICE LATERALS AND APPURTENANCES.
   - SANITARY SIDE SEWER MINIMUM COVER IS 2'-6" AT PROPERTY LINE AND 5'-0" AT THE CURB.
   - SERVICE DRAIN MAY RUN UNDER THE SIDEWALK, THROUGH THE CURB OR THROUGH RESERVED SPACES IDENTIFIED IN NOTE 1.

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

3. LAYOUT IS APPURTENANCE 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 MUST BE PLANTED. THE TREE SHALL BE PLANTED SOIL FOR A MINIMUM DEPTH EQUAL TO THE DEPTH OF THE ROOTBALL (NO SOIL ALLOWED IN THIS ZONE).
NOTES:
1. STABILIZED ACCESS SHALL BE USED IN ALL AREAS OF THE SITE WITH VEHICLE TRAFFIC AND PARKING, INCLUDING PLANTING STRIPS.
2. SEE SECTION 5-37.2 (TABLE 3) FOR GEOTEXTILE REQUIREMENTS. GEOTEXTILE MODIFICATIONS BASED ON SPECIFIC PROJECT SITE CONDITIONS MAY BE APPROVED BY THE ENGINEER.
3. STABILIZED CONSTRUCTION ENTRANCES ON SEATTLE PARKS & RECREATION PROPERTY ARE LIMITED TO A MAXIMUM WIDTH OF 10 FEET UNLESS DIRECTED OTHERWISE.

REF STD SPEC SEC 8-01

City of Seattle

STABILIZED CONSTRUCTION ENTRANCE

NOTES:
1. REMOVE STAKES ONE YEAR AFTER INSTALLATION.
2. SHAPE SOIL SURFACE TO PROVIDE 4' OIA WATERING RING.
3. TREE CLEARANCE MUST BE PER STD PLAN NO 030.
4. SEE STD PLAN NO 424 FOR TREE FIT DETAIL.
5. ADJUST TREE TIES DURING ESTABLISHMENT TO ALLOW ROOM FOR GROWTH (2" SLACK).
6. ROOT BARRIER REQUIRED ALONG EDGE OF ROADWAY, CURB, DRIVEWAY, TRAIL, SIDEWALK, OR OTHER STRUCTURES WHERE FOOTBALL IS WITHIN TWO FEET. PLACE VERTICAL ROOTBARRIER 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 (6'-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"-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" ROOTBARRIER AT SIDEWALK.

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

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

SEE STD SPEC SECTION 8-02 3(6)B, OR AS APPROVED BY ENGINEER.

REMOVE ALL WIRE, STRINGS, AND OTHER NONBURLAP MATERIAL, AND REMOVE BURLAP FROM TOP 3/4 OF FOOTBALL MINIMUM. REMOVE ENTIRELY WHEN DIRECTED BY THE ENGINEER.

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

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

2" TO 2 ½" CAUPER UNLESS OTHERWISE SPECIFIED

SET TOP OF ROOT CROWN 2" ABOVE ADJACENT CURB & SIDEWALK GRADE.

3" TO 4" HIGH WATERING RING (SEE NOTE 2)

24" ROOTBARRIER AT CURB WHEN SHOWN ON THE DRAWINGS.

TREE CROWN DEPTH = FOOTBALL DEPTH (MEASURE BEFORE DIGGING TO AVOID OVEREXCAVATION).

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

DRIVE STAKE AT FOOTBALL EDGE (Typ)(See NOTE 1)

UNDISTURBED SUBGRADE (Provides firm base so that Football will not sink.)

REF STD SPEC SEC 8-02

City of Seattle

DECIDUOUS TREE PLANTING IN PLANTING STRIP

NOT TO SCALE

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
   - PREFAB CONCRETE BLOCKS
   - TIMBER WALL
   - MANUFACTURED SLOPE RETENTION UNITS
4. CHAINLINK TREE TIE LOOP EACH TIE AROUND TREE LOOSELY TO PROVIDE 1" SLACK FOR DIAMETER GROWTH.
5. SHAPE SOIL TO PROVIDE 3' DIAMETER OR ROOTBALL DIAMETER, WHICHERVER IS GREATER, WATERING RING.
6. REMOVE ALL WIRE, STRINGS AND OTHER NON-BURLAP MATERIAL; AND REMOVE BURLAP FROM TOP 1/5 OF ROOTBALL.

REF STD SPEC SEC 8-02

City of Seattle
NOT TO SCALE

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

2" x 6'0" LENGTH LODGEPOLE 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 1/3 OF ROOTBALL

SEE STD SPEC SECTION 8-02.3(6).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

6'-0"

See STD Plan No 100A FOR PLANTING ON SLOPES
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 VARI
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

AREA

FOR SPACING

ADJUSTMENT

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

X = RECOMMENDED SPACING (SEE LANDSCAPE DETAIL ON DRAWING)

= ACTUAL PLANT LOCATIONS

REF STD SPEC SEC 9-14
100 LANDSCAPE PLANTING

DETAIL AT TREE

QUANT PER
10'-0' LF MEDIAN

- GROUNDCOVER 30
- SHRUB 5

END CAP DETAIL

- PERENNIAL TYPE 1: 4
- PERENNIAL TYPE 2: 6
- PERENNIAL TYPE 3: 5
- EVERGREEN GROUNDCOVER TYPE 1: 13
- EVERGREEN GROUNDCOVER TYPE 2: 12

TYP STREET TREE
2"-2 1/2"CALPER
Ø 30'-0"OC

CHAINLOCK TREE TIE
LOOP EACH TIE AROUND
TREE LOOSELY TO
PROVIDE 1" SLACK FOR
DIAMETER GROWTH

(2) 2" LODEGPOLE
PINE DOWELED TREE
STAKES (8'-0" LENGTH)

SEE STD PLAN NO 100
FOR SUPPLEMENTAL TREE
PLANTING INFORMATION

PLACE 3" OF PLANTING
SOIL & MIX WITH
SUBSOIL BEFORE ADDING
SUBSEQUENT QUANTITIES
OF PLANTING SOIL (IN 6" LIFTS) COMPACTED TO 85%

NATIVE SUBGRADE TO BE
SCARIFIED TO A DEPTH OF
6" PRIOR TO PLACEMENT
OF FILL, CALL FOR
INSPECTION BEFORE FILLING

2"-3" ARBORIST WOOD
CHIP MULCH

SEE STD PLANS NO 110 &
111 FOR SUPPLEMENTAL
SHRUB AND GROUNDCOVER
PLANTING INFORMATION

MEDIAN WIDTH
10'-0" PREFERRED; 8'-0" MIN

SOIL PREPARATION DETAIL

REF STD SPEC SEC 8-02

City of Seattle

NOT TO SCALE

MEDIAN PLANTING

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

AUTOMATIC CONTROL VALVE

MANUAL DRAIN VALVE

SCH 80 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

SCH 80 90° PVC ELLS
W/ PVC NIPPLES IN
BETWEEN

SCH 40 PVC MAIN LINE

SCH 80 PVC ELL OR
TEE W/ REDUCER

EXTENSIONS (AS REQ'D)

VALVE BOX W/ LOCKING
LID (SEE Specs)

3/4" MANUAL DRAIN
VALVE W/ LONG KEY
FOR OPERATION

OUTFALL PIPE TO
DRAINAGE STRUCTURE
OR WATER COURSE

FINISH GRADE

JUMBO VALVE BOX W/
LOCKING Lid

EXTENTION (AS REQ'D)

WATERTIGHT WIRE
SPICES (Typ)

BRASS STOP VALVE FOR
ISOLATION

BVC ADAPTER

CONTROL WIRES (BUNDLED
UNDER MAINLINE)

AUTOMATIC CONTROL VALVE

3" OF MINERAL AGGREGATE
TYPE 4 OVER GEOTEXTILE
GATE VALVE – 2 1/2" & LARGER

NOTES:
USE TEFLOM TAPE ON ALL THREADED FITTINGS
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

POP UP Rotor HEAD
TURF AREAS

ASPHALT, CONCRETE, MASONRY, CRUSHED ROCK SURFACE, OR CURB

PLASTIC SPRAY NOZZLE (PER IRRIGATION DRAWINGS)

MULCH ½"-2" AT SHRUB SPRAY

FINISH GRADE

BARK MULCH

POP UP SHRUB SPRAY HEAD

CLASS 315 PVC PREFABRICATED TRIPLE SWING JOINT ASSEMBLY (OR APPROVED ALTERNATE FLEX ASSEMBLY)

DETECTABLE WARNING TAPE IN TRENCH, SEE NOTE 2

LATERAL LINE (SCH 40 PVC)

POP UP Rotor HEAD
(SHRUB BED AREAS)
AT EDGE OF PAVEMENT

NOZZLE WITH SCREEN
BRASS OR PLASTIC SHRUB SPRAY HEAD
SCH 80 PVC NIPPLE
STAINLESS STEEL CLAMPS
BARK MULCH
FINISH GRADE
PVC FEMALE ADAPTER
SCH 80 PVC NIPPLE
CLASS 315 PVC PREFABRICATED TRIPLE SWING JOINT ASSEMBLY
DETECTABLE WARNING TAPE IN TRENCH, SEE NOTE 2
LATERAL LINE (SCH 40 PVC)

#5 REBAR 3'-0" LONG W/ 2'-0" MIN BELOW GRADE

FIXED SHRUB RISER
SHRUB BED AREAS

REF STD SPEC SEC 8-03

City of Seattle
NOT TO SCALE

Pop up & Fixed Irrigation Heads

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

REF STD SPEC SEC 8-03

City of Seattle  NOT TO SCALE  IRRIGATION TRENCHES

NOTES:
1. NEMA 4R 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

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

8" MIN. SLOPE TO DRAIN TYP ALL SIDES

SLIDE BAR & LOCKING DEVICE FOR CONDUIT & WIRES

CLASS 3000 CONCRETE

REF STD SPEC SEC 8-03
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 protects entire planting strip

FACE OF CURB

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

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.
NO TRAFFIC SURCHARGE IN THIS AREA

MAX SLOPE OF SOIL SURCHARGE

3H

1V

MIN

1/2" SLOPE LINE OF ROCK FACING

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 CB WITH NO
ROADWAY DRAINAGE.

NON WOVEN UNDERGOUND GEOTEXTILE

UNDISTURBED SOIL

BACKFILL 2"-4" QUARRY SPALL

SECTION

ROCK FACING HEIGHT (h)

EXISTING OR PROPOSED GRADE

DEPTH OF BASE (d)

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

ELEVATION

MINIMUM ROCK

<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>

\[ \theta = 14^\circ \pm 1^\circ \]

REF STD SPEC SEC 2-13

City of Seattle
NOT TO SCALE
ROCK FACING

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 SCARRIFIED (LOOSENED) 4 INCHES BELOW AMENDED LAYER, TO PRODUCE 12-INCH DEPTH OF UN-COMPACTED SOIL, EXCEPT WHERE SCARRIFICATION 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 8 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 ARBORESTRING 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 90% PROCTOR TO ENSURE A FIRM SURFACE.

REF STD SPEC SEC 8-01, 8-02 & 9-14
REINFORCING STEEL "A"

<table>
<thead>
<tr>
<th>MIN. 50 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>0.25</td>
<td>0.17</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.31</td>
<td>0.22</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.36</td>
<td>0.25</td>
</tr>
</tbody>
</table>

NOTES:
1. MATERIALS: CONCRETE—CLASS 4000;
   REINFORCING STEEL—ASTM A615 GRADE 60 MIN.; CHANNEL AND SHELF MATERIAL
   — CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE
   COMPONENTS SHALL CONFORM TO ASTM
   C-478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER
   GASKETED CONFORMING TO ASTM C-443.
3. MINIMUM REQUIRED SOIL BEARING =
   2,000 LBS/SQ. FT
4. MAX HOLE SIZE MUST BE OD OF PIPE
   PLUS 5 IN. MIN HOLE SIZE MUST BE
   OD OF PIPE PLUS 3 IN. MIN CLEAR
   DISTANCE BETWEEN HOLES IS 8 IN.
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>0.25</td>
<td>0.17</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.31</td>
<td>0.22</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.36</td>
<td>0.25</td>
</tr>
</tbody>
</table>

NOTES:
1. MATERIALS: 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 476. 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 5 IN. MIN HOLE SIZE MUST BE
   OD OF PIPE PLUS 3 IN. MIN CLEAR
   DISTANCE BETWEEN HOLES IS 8 IN.

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

REINFORCING STEEL "A"
SEE TABLE

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

REF STD SPEC SEC 7-05
REINFORCING STEEL "A"
MIN. 50 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>0.29</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.36</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.42</td>
</tr>
</tbody>
</table>

NOTE:
1. MATERIALS: 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 6 IN. MIN HOLE SIZE MUST BE OD OF PIPE PLUS 3 IN. MIN CLEAR DISTANCE BETWEEN HOLES IS 8 IN.

SECTION B-B

SECTION A-A

REF STD SPEC SEC 7-05

City of Seattle

NOT TO SCALE

TYPE 204.5a MAINTENANCE HOLE

NOTES:
1. MATERIALS: CONCRETE—CLASS 4000; REINFORCING STEEL—ASTM A615 GRADE 60; CHANNEL AND SHELF MATERIAL – CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLES 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 8 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 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
   CASKETED 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.

STATISTICAL PLAN NO 205A
REV DATE: AUG 2015

"H" 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>0.33</td>
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<tr>
<td>30° MAX</td>
<td>0.41</td>
</tr>
<tr>
<td>40° MAX</td>
<td>0.49</td>
</tr>
</tbody>
</table>

REF STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE

TYPE 205A MAINTENANCE HOLE

REINFORCING STEEL "A"

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

4-#6@3½"BF
(CUT AS REQ'D)

3" 8-#6 BF

#4 HOOP TF

FAN #6 BARS @4 EQ SPA @8 BF (TYP)

#6 BF (TYP)

NOTES:
1. MATERIALS: 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/100 FT
4. MAX HOLE SIZE MUST BE 0" OF PIPE
   PLUS 3 IN. MIN HOLE SIZE MUST BE 0"
   OF PIPE PLUS 3 IN. MIN CLEAR DISTANCE
   BETWEEN HOLES IS 12 IN.

REF STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE
TYPE 207a MAINTENANCE HOLE

REINFORCING STEEL "A"

MIN. 50 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>0.34</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.43</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.52</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 8 IN. MIN HOLE SIZE MUST BE OD
   OF PIPE PLUS 3 IN. MIN CLEAR DISTANCE
   BETWEEN HOLES IS 12 IN.
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 208b 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>30' MAX</td>
<td>0.70</td>
<td>0.59</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.81</td>
<td>0.69</td>
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</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 476. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFIRMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT.
4. MAX HOLE SIZE MUST BE 0D OF PIPE PLUS 10". MIN HOLE SIZE MUST BE 0D 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>LENGTH (FT)</th>
<th>PRECAST BASE</th>
<th>CAST-IN-PLACE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.44</td>
<td>0.37</td>
</tr>
<tr>
<td>30' MAX</td>
<td>0.56</td>
<td>0.48</td>
</tr>
<tr>
<td>40' MAX</td>
<td>0.68</td>
<td>0.58</td>
</tr>
</tbody>
</table>

SLOPE: ¼"/1'-0" (TYP)

LEVELING BRICKS OR CONCRETE COLLAR

HANDHOLDS: SEE STD PLANS NO. 232a & 232b

HANDHOLDS: 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 HOLES 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 0" OD OF PIPE PLUS 10". MIN HOLE SIZE MUST BE 0" OD OF PIPE PLUS 3".
   MIN DISTANCE BETWEEN HOLES IS 12".

SECTION A-A

REFERENCES:
STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE
TYPE 209b 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>
</tr>
</thead>
<tbody>
<tr>
<td>20' MAX</td>
<td>0.85</td>
<td>0.74</td>
</tr>
<tr>
<td>30' MAX</td>
<td>1.02</td>
<td>0.89</td>
</tr>
<tr>
<td>40' MAX</td>
<td>1.20</td>
<td>1.05</td>
</tr>
</tbody>
</table>

4-#7 BF (CUT AS REQ'D)

3" 13-#7 BF

#7 BF

2"CLR

#7 BF

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".

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

HANDHOLDS, SEE STD
PLANS NO 232a & 232b

LEVELING BRICKS OR
CONCRETE COLLAR

4" TO 2" MIN
CONVEYOR SECTION

NO LADDER SEE STD PLANS
NO 232a & 232b

SEEN TO SLAB
REINFORCEMENT

NOT TO SCALE

SECTION A-A

TYPE 211A MAINTENANCE HOLE

**PLAN VIEW (TOP REMOVED)**

- **EXTENDED % OF SEWER INTERSECT AT % OF MH**
- **FLOW DIRECTION**
- **SLOPE: 1/4:11:0** (TYP)
- **LOCATION OF MH LADDER FOR TYPE B MAINTENANCE HOLE**
- **THE GREATER OF 3/8 INSIDE PIPE DIAMETER OR 1"-0" (TYP)**
- **LEVELING BRICKS OR CONCRETE COLLAR**
- **HANDHOLDS, SEE STD PLANS NO 232a & 232b**
- **MORTAR LINING**
- **3/8" SMOOTH**

**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>

**TOP SLAB REINFORCEMENT**

- **#4 HOOP TF**
- **#6 BF (CUT AS REQ'D)**
- **3'-0" CLR**
- **2'-0" CLR**
- **3'-0" BF**

**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/SD.
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".

**REF STD SPEC SEC 7-05**

*City of Seattle*

*Proposed 2020 Edition City of Seattle Standard Plans for Municipal Construction*
FLEXIBLE JOINT FOR VCP CONNECTION TO MAINTENANCE HOLES

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

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

REMOVE EXISTING 1'-6" DIAMETER FRAME & COVER

REBUILD MH WITH NEW RADIAL BRICKS IN A RUNNING BOND PATTERN WITH 3/4" MIN TO 1" 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

RUNNING BOND PATTERN
GROUT BETWEEN ALL BRICKS

REF STD SPEC SEC 7-05
NOTES:
1. DESIGNATE LOCKING COVER AS TYPE 230L FOR USE IN NON-VEHICULAR TRAFFIC AREAS.
2. COVER THICKNESS IS MEASURED FROM THE BOTTOM OF THE PATTERN.
3. FRAMES MUST BE MANUFACTURED FROM CAST IRON OR DUCTILE IRON.
4. COVERS MUST BE MANUFACTURED FROM DUCTILE IRON.
"SEWER" OR "DRAIN", AS APPLICABLE, 3" RAISED LETTERS TO BE ½" WIDE AND RAISED ¾" ABOVE SURFACE OF COVER

BOTTOM VIEW

1½" X 1½" LIFT HOLES 2 PLACES

TOP VIEW

TOP OF PATTERN AND LETTERS

¾" SQ ½" SQ

COVER
DETAIL PATTERN

SECTION A—A
f=MACHINED FINISH

1'-8¼"
1½"
½" 3/8" 3/8" 3/8"
¾"
1'/4" 1'/8" 1'/8" 1'/8"
1'/4"
1'/4" 6" 5'/8"
1'-7½"
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.

LADDER
**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.

**REF STD SPEC SEC 7-05**

City of Seattle | NOT TO SCALE | MAINTENANCE HOLE LADDER, STEP AND HANDHOLD

NOTES:
1. CONCRETE FOR DROP CONNECTION SUPPORT MUST BE CL 3000.
3. DROP CONNECTIONS MUST BE USED WHERE DROP IS NOT MORE THAN 20'-0".

DUCTILE IRON OUTSIDE DROP CONNECTION

CONCRETE CL 3000 BLOCK Poured In Place
MJ X MJ DP 90' BEND OR MJ X PE DP 90' BEND
POUR TO UNDISTURBED EARTH OR COMPACTED SUBGRADE
TYPICAL MH BASE CONSTRUCTION

STAINLESS STEEL BOLTS & NUTS MUST CONFORM TO ASTM F 593

% BUND FLANGE AS DAM FOR INCOMING PIPE SLOPE <5% FULL BUND FLANGE FOR INCOMING SLOPE >5%

COUPLING
MJ DIP CROSS
MJ DIP

REDUCER, IF REQD
8" MIN

TYPICAL VH

CLEAN-OUT PER STD PLAN 280

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. SIZING 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
(16" 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.
NOTES:
1. DI PIPE & FITTING MUST BE CEMENT LINED CL 50 (MIN). JOINTS MUST BE RUBBER GASKETED PUSH-ON OR MECHANICAL.
2. FABRICATED STEEL TAPPING SLEEVE MUST BE MANUFACTURED FOR USE WITH DI PIPE AND APPROVED BY SPU.
3. FABRICATED STEEL TAPPING SLEEVE USE IS RESTRICTED WITHIN THE RIGHT OF WAY. SPU AND SDOT APPROVAL IS REQUIRED.

DETAIL A
FOR VERTICAL CONNECTIONS TO NEW DI MAIN

DETAIL B
FOR VERTICAL CONNECTIONS TO EXISTING DI MAIN

REF STD SPEC SEC 7-08 & 7-17
TABLE 1

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<tr>
<th>Size</th>
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<tr>
<td>12&quot;</td>
<td>1'-0&quot; MIN 2'-0&quot; MAX</td>
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SECTION A-A

SECTION B-B

NOTES:
1. FRAME & GRATE OR FRAME & COVER MUST BE LOCATED OVER TRAP.
2. INVERT OF INLET PIPE MUST BE 2'-0" MIN ABOVE INVERT OF OUTLET PIPE.
3. SEE STD PLAN 261 FOR ALLOWABLE OUTLET LOCATIONS.

REF STD SPEC SEC 7-05

City of Seattle

NOT TO SCALE

TYPE 240 CATCH BASIN

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 261.
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 TO 1/2 GROUT IN BETWEEN BRICKS.

SECTION A-A

FRAME & GRATE PER STD PLAN NO 264
LEVELING BRICK OR PRECAST RISER

SECTION B-B

FLOW LINE
8" MAX PIPE CONNECTION TO APPROVED OUTLET

OUTLET TRAP SEE STD PLAN NO 267

TYPE 9 MINERAL AGGREGATE W/ PORTLAND CEMENT

REF STD SPEC SEC 7-05

City of Seattle  NOT TO SCALE  TYPE 241 CATCH BASIN

CB TYPE | CASTING
---|---
A | NO 262 NO 265 NONE
B | NO 263A NO 265 NO 263A
C | NO 263A NO 265 NO 263B

NOTES:
1. MATERIAL: CONCRETE: CLASS 4000
REINFORCING STEEL: ASTM A 615 GR 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 ⅔ TO ½ GROUT IN BETWEEN BRICKS.

PLAN VIEW
- CURB SIDE
- LEVELING BRICK OR PRECAST RISER
- PRECAST TOP
- FRAME & GRATE (TYPE 242A SHOWN) CENTER CASTING OVER OPENING ON TYPE A
- SET CASTING FLUSH W/ OPENING AT CURB SIDE ON TYPE B
- CIRCUMFERENCE RENF 0.12 SD IN JUICE
- VENT RENF IN ACCORDANCE WITH ASTM C-478

REF STD SPEC SEC 7-05

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

TYPE 240C CB

TYPE 240D CB

TYPE 242A CB
(TYPE 250A INLET SIMILAR)

TYPE 242B CB
(TYPE 250B INLET SIMILAR)

CURB DETAIL (PLAN VIEW) FOR TYPE 240D & 242B CB & TYPE 250B INLET

REF STD SPEC SEC 7-05

City of Seattle
NOT TO SCALE
CATCH BASIN & INLET INSTALLATION

200 SEWER-DRAINAGE APPURTENNANCES

TYPE 240C CB

TYPE 242A CB

CURB DETAIL (PLAN VIEW) FOR
TYPE 240D & 242C CB & TYPE 250B INLET

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 ¼° BEND. USE OF ¼° BEND REQUIRES APPROVAL BY SPU.
5. 1" DI SPOOL AND COUPLING REQUIRED WITH CUT-IN TEE.
SECTION A-A

SECTION B-B

CURB INLET

SECTION C-C

REF STD SPEC SEC 9-12

City of Seattle

NOT TO SCALE

TYPE 263 INLET FRAME AND 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 1½" X 3½" X ¾" THICK (8 OPTIONAL)
EMBOSS ON GRATE
1" OPENING (TYP)

SECTION B–B
2' x 0'
3/4" NORMAL TO BAR
7/6" (TYP)
13/32" (TYP)

SECTION C–C
3/6" NORMAL TO BAR
1/8" (TYP)
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
200 SEWER-DRAINAGE APPURTEANCES

STANDARD PLAN NO 267

REV DATE: DEC 2013

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

GRATE

SECTION B–B

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

SECTION A–A

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:
   a. DUCTILE IRON PIPE (DIP)
   b. REINFORCED CONCRETE PIPE (RCP)
   c. POLYPROPYLENE PIPE (PP DETENTION)
   d. STEEL REINFORCED POLYETHYLENE PIPE (STL REINF PIPE DETENTION). ONLY MANUFACTURERS SUPPLIED TEES MUST BE USED FOR CONNECTIONS.
2. BEDDING FOR DETENTION PIPE MUST BE CLASS 9. DIP AND RCP MUST BE BEDDED IN MINERAL AGGREGATE TYPE 9. FLEXIBLE PIPE MUST BE BEDDED IN MINERAL AGGREGATE TYPE 22.
3. INTERMEDIATE MH'S WILL BE REQUIRED FOR DETENTION PIPE LENGTHS GREATER THAN 300FT.
4. OUTLET PIPE MUST CONNECT TO MH ON MAINLINE.
5. STRUCTURE DESIGN MUST BE MODIFIED FOR PRIVATE SYSTEM WITH EXCLUSION OF SHEAR GATE.
6. ROTATE ELBOW RESTRICTOR CLEAR OF ACCESS OPENING.
7. FRAME LADDER AND STEPS OFFSET:
   7.1. CLEAN OUT IS VISIBLE FROM TOP
   7.2. CLIMB DOWN SPACE IS CLEAR OF RISER AND CLEAN OUT GATE
   7.3. MH OPENING MUST NOT BE PLACED DIRECTLY OVER THE TOP OF INLET PIPE

REFERENCE

DETENTION PIPE DIAMETER | FLOW CONTROL STRUCTURE* (MH SIZE) | UPSTREAM** (MH SIZE)
--- | --- | ---
18" | 204.5b | 204b
24" | 205b | 205b
30" | 205b | 205b
36" | 206b | 206b
48" | 207b | 207b
60" | 208b | 208b
72" | 210b | 210b

*SPECIFIC DESIGN INFORMATION AS INDICATED ON CONSTRUCTION DRAWINGS
**SIZE OF UPSTREAM MH MUST BE ADJUSTED FOR ALTERNATIVE PIPE MATERIAL

REFERENCES

CITY OF SEATTLE

FLOW CONTROL STRUCTURE WITH DETENTION PIPE

FLOW CONTROL STRUCTURE & DETENTION PIPE

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:
5.1. CLimb DOWN SPACE IS CLEAR OF RISER AND CLEAN OUT GATE
5.2. MH OPENING MUST NOT BE PLACED DIRECTLY OVER THE TOP OF INLET PIPE

REF STD SPEC SEC 7-16
SECTION A–A

SECTION B–B

TYPE A

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

SECTION A–A

SECTION B–B

TYPE B

CMP DETENTION STRUCTURE
END PLATE DETAILS
TYPES A & B

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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 6061-T6
3. DESIGNS MUST BE USED ONLY FOR ALUMINUM CMP.
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.

CONNECTION & CONTROL DEVICE FOR ROW USE

CONNECTION & CONTROL DEVICE FOR PRIVATE SYSTEM

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

REF STD SPEC SEC 7-05

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

REF STD SPEC SEC 7-17 & 7-16.2
LOCKING FRAME & COVER

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

12"DIA DIP, 12" LONG
FIBER JOINT PACKING

6" MINERAL AGGREGATE
TYPE 2

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

CAST IRON FRAME & COVER

1/8 BEND

PLUG SHALL BE SEALED
IN SAME MANNER AS
MAIN SEWER JOINTS

WYE OR 1/8 BEND

REF STD SPEC SEC 7-19

City of Seattle

**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.

---

**COVER PATTERN DETAIL**

**NOTE:**
MINIMUM DIAMETER = 6"
FOR PIPES LESS THAN 48" DIAMETER
(HELICAL OR ANNULAR)

REF STD SPEC SEC 7-16.2 & 9-05

CORRUGATED METAL PIPE COUPLING BANDS
200 SEWER-DRAINAGE APPURTEINANCES

TOP BAND

PIPE

GASKET

½" DIA BOLT

BOTTOM BAND

CORRUGATED METAL PIPE COUPLING BANDS

REF STD SPEC SEC 7-16.2 & 9-05

City of Seattle

NOT TO SCALE


STANDARD PLAN NO 282b

REVISION DATE: 2003
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" INCREASER.
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% (4%) 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.
EX SURFACE

NEAT LINE WIDTH FOR EXCAVATION & BACKFILL

VARIES

NEAT LINE

ACTUAL SIDE SLOPE BY CONTRACTOR

TRENCH

3'-4'
SMALLER THAN 18" ID

1.5D+1'-6" 18" ID & LARGER

EXTRA EXCAVATION AS REQUIRED

REF STD SPEC SEC 2-07 & 7-17

City of Seattle

NOT TO SCALE

TYPICAL TRENCH DETAIL FOR SEWER & STORM DRAIN

**SAND BEDDING AT TRENCH CROSSING OF METAL PIPE**

*At metallic pipe crossing of fluidized thermal backfill or CDF conduit crossings*

- **MINERAL AGGREGATE PER STD SPEC 9-03.14 TYPE 8** for ductile iron when applicable or concrete pipe Type 22 for vitrified clay and flexible pipe.
- **SELECTED NATIVE MATERIAL PER STD SPEC 2-10.2(1)**
- **SUITABLE BACKFILL**
- **FLUIDIZED THERMAL BACKFILL PER SCL MATERIAL STD 7150.00 OR CDF (SEE CONTRACT DRAWINGS)**
- **MINERAL AGGREGATE PER STD SPEC 9-03.14, TYPE 6 OR TYPE 7**

**NOTES:**
1. FOR TRENCH WIDTH SEE STD PLAN NO 284
2. A=4" WHEN ID IS LESS THAN 2'-6", A=6" WHEN ID IS 2'-6" OR MORE.
3. UNIFORMLY SUPPORT PIPE BARREL; EXCAVATE HOLES FOR BELLS AND COUPLING.
4. FOR FLUIDIZED THERMAL BACKFILL (FTB) OR CDF CROSSINGS OF METALLIC PIPE, WRAP METALLIC PIPE IN 8 MIL POLYETHYLENE ENCASEMENT FOR FULL TRENCH WIDTH.

---

**REFERENCE:**
REF STD SPEC SEC 2-10.2, 7-17

**City of Seattle**
NOT TO SCALE
**PIPE BEDDING**
SEWER/STORM DRAIN

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 ADEQUATE 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.

REF STD SPEC SEC 1-07.17 & 7-11

City of Seattle

NOT TO SCALE

SEWER & WATER SPACING & CLEARANCES

STRUCTURE
SIDE SEWER
WATER SERVICE
SHUT-OFF DRAIN
VALVE REPO'

PRIVATE PROPERTY

PUBLIC R/W

WATER METER
SEE STD PLAN NO 286a
WATER MAIN
CROSSING

SEE STD PLAN NO 286a

SANITARY SEWER OR COMBINED SEWER

SEE NOTES ON STD PLAN NO 286a

REFERENCES:

STD SPEC SEC 1-07.17 & DIV 7

City of Seattle | NOT TO SCALE | SEWER & WATER SPACING & CLEARANCES

200 SEWER-DRAINAGE APPURTEINANCES

PLAN VIEW - BRIDGE DRAIN

SECTION C-C

SECTION D-D

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.

REFERENCES:
STD SPEC SEC 6-01, 7-05

City of Seattle
NOT TO SCALE
BRIDGE DRAIN

NOTES:
1. ASTM D 2241 SDR 21 CLASS 200 PVC PIPE OR
   ASTM D 1785 SCH 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 IN. 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.
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 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

INfiltrating Bioretention with sloped sides & Under drain

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NOTES:
1. TYPICAL MAXIMUM SLOPE ALLOWED IS 2.5H=1V, 3H=1V MAX WHEN WITHIN 50 FEET OF INTERSECTIONS OR CURVELESS ROADWAY.
2. BIOTRETENTION OVERFLOW ELEVATIONS MUST BE SET BELOW SIDEWALK ELEVATION.
3. PROVIDE 1.5 MIN BIOTRETENTION 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. 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.
NOTES:
1. TYPICAL MAXIMUM SLOPE ALLOWED IS 2.5H:1V, 3H:1V MAX WHEN WITHIN 50-FOOT OF INTERSECTIONS OR CURBLESS ROADWAY.
2. CONVEYANCE 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 CAP 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.
NOTES:
1. DRAIN CURB CUTS MUST NOT BE LOCATED WITHIN CONCRETE ROAD PANEL TO DRAIN 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.

SECTION A-A

COMPACTED SUBGRADE OR MINERAL AGGREGATE TYPE 2

GUTTER DEPRESSION 1'-0" THRU 6'-0"

GRIND TO DROP 1" AT GUTTER/FACE OF CURB 1'-0"

SAW CUT AT FACE OF CURB. NO FILLER @ JOINT

INSTALL AS MONOLITHIC POUR FOR ENTIRE DRAIN CURB CUT

Bioretention Cell Bottom

Bioretention Soil

Geotextile For Separation

4" Scarified Native

Undisturbed Native

Stream Bed Aggregate Type 4

Conc Curb Per COS STD Plan No 410c Modified. Match Exist Curb And Pavement Line

Exist Curb

Grind To Form Grade Break

Exist Conc Pavement Or STD 410b Gutter

Stream Bed Aggregate, Type 4

Start Curb Height Transition (No Joint)
NOTES:
1. DRAIN CURB CUT MUST NOT BE LOCATED WITHIN CONCRETE ROAD PANEL JOINT.

SECTION A-A

SECTION B-B

ISOMETRIC VIEW

REF STD SPEC SEC 7-21, 9-03

City of Seattle

NOTES:
1. TAPER CURB HEIGHT FROM TOP OF EXISTING CURB TO TOP OF BAY.

REFERENCES:
1. SEE NOTE 1
NOTES:
1. ROUGHENED CONCRETE PAD MUST BE MIN 2' LONG & 2.5 SF OR 5.0SF PER SPU DIRECTOR'S RULE 203
2. ROUGHENED CONCRETE PAD MUST BE CONSTRUCTED WITH COMMERCIAL CONCRETE (STD SPEC 6-02) EMBED WELL MIXED 6"-8" STREAMBED AGGREGATE TO CREATE ROUGHNESS.
50% MIN OF THE SURFACE MUST HAVE PROTRUDING AGGREGATE.
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 VIA OTHER SIZES AND TYPES SEE PROJECT DRAWINGS
4. REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) MUST BE INSTALLED AS A UNIT (TWO SHUT-OFF VALVES, RELIEF PORT, TWO CHECK VALVES AND FOUR TEST COCKS), WHEN RPBA IS CONNECTED TO HYDRANT AND THE HOSE BIB FAUCET SAMPLE THEY MUST BE CAPPED WHEN NOT IN USE. ASSEMBLY MUST BE TESTED WHEN INSTALLED BY A WASHINGTON STATE CERTIFIED BACKFLOW ASSEMBLY TESTER (BAT) AND A CURRENT TEST REPORT MUST BE ON SITE. FOR INSTALLATION PROCEDURES CALL 684-3536.
5. ALL FITTINGS AND MATERIALS FURNISHED BY CONTRACTOR AND TO BE INSTALLED BY SPU MUST BE VERIFIED, INSPECTED AND ON THE JOB SITE PRIOR TO SHUTDOWN OF EXISTING MAIN. FAILURE TO MEET THIS REQUIREMENT COULD RESULT IN DELAYS.

LEGEND
△ CLEAN & DISINFECTED POTABLE WATER HOSE ONLY. SIZE FLUSHING RISER PER TABLE IN STD SPEC SEC 7-11.3(12)
△ HYDRANT PERMIT REQUIRED
△ CHECK WITH SEWER UTILITY BEFORE DISCHARGE TO SEWERS
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, COMPACT & 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
300 WATERMAIN APPURTENANCES

FINISH GRADE

EXISTING PLUGGED TEE OR CROSS

NEW PLUGGED TEE OR CROSS

CONTRACTOR MUST INSTALL CONCRETE BLOCKING, IF NONE EXIST, PER STD PLAN NO 331.

EXISTING TEE OR CROSS

NEW WATERMAIN SEE DETAIL 1 STD PLAN 300c

10'-0" MIN

14'-0" MAX

CONTRACTOR MUST VERIFY TYPE OF JOINT FOUND WITH DRAWINGS: WI, LEAD, ETC. IF FOUND DIFFERENT, NOTIFY THE ENGINEER.

CONNECTIONS TO EXISTING TEE OR CROSS - PLAN VIEW

NOTE:

X - SEE STD PLAN NO 300a FOR LEGEND

TABLE

<table>
<thead>
<tr>
<th>SIZE OF WATERMAIN</th>
<th>DISTURBANCE ZONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP TO &amp; INCLUDING 10&quot;</td>
<td>10'-0&quot;</td>
</tr>
<tr>
<td>OVER 10&quot;</td>
<td>12'-0&quot;</td>
</tr>
</tbody>
</table>

* SPU MAY INCREASE DISTURBANCE ZONE. SEE CONTRACT DOCUMENTS

CONTRACTOR MUST INSTALL CONCRETE BLOCKING, IF NONE EXIST, PER STD PLAN NO 331.

EXISTING MAIN, NO TEE OR CROSS - PLAN VIEW

(TAPPING SLEEVE & TAPPING VALVE)

NEW WATERMAIN SEE DETAIL 1 STD PLAN 300c

8'-0" MIN

14'-0" MAX

CONNECTIONS TO EXISTING WATERMAINS

REF STD SPEC SEC 7-11

City of Seattle

NOT TO SCALE

NOTES:
1. 6" HYDRANT CONNECTION PIPE MUST BE DIP CL52.
2. HYDRANT TEES MUST BE SET HORIZONTALLY.
3. THE THREADED NIPPLE ON THE 4" PUMPER NOZZLE MUST BE EQUIPPED WITH THE BLUNT START OR HIGHER CUT.
4. THE 2½" NIPPLES MUST BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION BULLETIN NO 194 DATED 1974.
5. AFTER INSTALLATION, ALL SHACKLE BOLTS, NUTS, MECHANICAL JOINT CLADS AND SHACKLE ROSS MUST BE CLEANED AND COATED WITH TWO COATS OF ROYSTON R26 MASTIC.
6. AFTER BACKFILLING, THE OUTSIDE OF THE HYDRANT (ABOVE THE GROUND LINE) MUST BE THOROUGHLY CLEANED AND PAINTED WITH TWO COATS OF KELLY-MOORE LUXLITE 43-516 CAT YELLOW.
7. PUMPER PORT MUST FACE CURB.
8. RESTRAINT MUST BE BY WEDGE RESTRAINT SYSTEM SUCH AS MESELUF OR UNIFLANGE SEE STD SPEC 9-30.4(5).

REF STD SPEC SEC 7-14

City of Seattle

NOT TO SCALE

TYPE 310 HYDRANT SETTING DETAIL

NOTES:
1. WHERE WATERMAINS ARE INSTALLED WITH POLYETHYLENE ENCASMENT OR TAP 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 310H

REF STD SPEC SEC 7-14

City of Seattle
NOT TO SCALE
TYPE 310 HYDRANT SETTING DETAIL

NOTES:

1. 6" HYDRANT CONNECTION PIPE MUST BE DIP CL52.
2. HYDRANT TEES MUST BE SET HORIZONTALLY.
3. THE THREADED NIPPLE ON THE 4" PUMPER NOZZLE MUST BE EQUIPPED WITH THE BLUNT START OR HIGSEE CUT.
4. THE 21/2" NIPPLES MUST BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION BULLETIN NO 194 DATED 1974.
5. AFTER INSTALLATION, ALL SHACKLE BOLTS, NUTS, AND SHACKLE RODS MUST BE CLEANED AND COATED WITH TWO COATS OF ASPHALT, ROYSTON ROSKOTE 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. RESTRAINT MUST BE BY WEDGE RESTRAINT SYSTEM SUCH AS MEGALUG OR UNIFLANGE, SEE STD SPEC SEC 9-30.4(5).
GENERAL NOTES:
1. WHERE WATERMAINS ARE INSTALLED WITH POLYETHYLENE ENCASCIMENT OR TAPE COATINGS, THE HYDRANT BARREL AND VALVE MUST BE SIMILARLY ENCASED, COATED AND/OR JOINTS BONDED. WHERE WATERMAIN IS THERMOPLASTIC COATED, THE HYDRANT BARREL MUST BE TAPE COATED.
2. WHERE 6" GATE VALVE IS TO BE LOCATED WITHIN A PARKING-PERMITTED AREA, A SECOND 6" GATE VALVE MUST BE INSTALLED AT THE HYDRANT ASSEMBLY PER STD PLAN NO 310a.

REF STD SPEC SEC 7-14

City of Seattle
NOT TO SCALE

TYPE 311 HYDRANT SETTING
DETAIL
Traffic Island Marker Post Layout for Fire Hydrants in Parking Areas

CONCRETE SHEAR BLOCK SEE
STD PLANS NO 310a & 311a

2" ISLAND SURFACE MATERIAL
OVER 4" COMPACTED MINERAL
AGGREGATE TYPE 2 TO MATCH
SURROUNDING PAVEMENT
MATERIAL AND BE FLUSH
WITH TOP OF CURB

FIXED BOLLARD, SEE STD
PLAN NO 465 (TYP)

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

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

Marker Post Layout for Fire Hydrants in Parking Areas

Ref Std Spec Sec 7-14
NOTE:
1. ROCK FOR ROCK FACING MUST COMPLY WITH STD PLAN NO 141

SECTION A-A

REF STD SPEC SEC 2-13

WALL REQUIREMENTS FOR HYDRANTS

City of Seattle

NOT TO SCALE

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

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

DETAIL A
HYDRANT NEAR CURB RAMP

REF STD SPEC SEC 7-14, 8-08

City of Seattle  NOT TO SCALE  FIRE HYDRANT
LOCATIONS & CLEARANCES

NOTES:

1. **Union Point 2' outside vault or 2' from property line.**
2. **5' clearance from new trees or clear of drip line for existing trees.**
3. **5' clear from poles.**
4. **2' clear from edge of driveway or ADA ramp.**
5. Water service not to be installed in driveway, behind ADA ramp, or street corner.
6. **Side sewer horizontal clearance 10' for cast iron water pipe or 5' for ductile iron water pipe.**
7. **Side sewer vertical clearance 1.5' min.**
8. **Vault horizontal clearance 12'' min from other utilities unless otherwise noted in std specs.**
9. **Vertical clearance 12'' min for all other utility crossings unless otherwise noted in std specs.**

See Std Plan No. 0034 for typical water service vaults.

*Exceptions to the standard locations require city review and approval.*

Ref Std Spec Sec 1-07.17(2)

City of Seattle | NOT TO SCALE | CLEARANCES FOR TYPICAL WATER SERVICE VAULTS

300 WATERMAIN APPURTEYNANCES

STANDARD PLAN NO 315a

REV DATE: 2003

LID, VALVE BOX

PAVEMENT

TOP SECTION, SEE SECTION A-A

OPERATING NUT EXTENSION

EXTENSION PIECE WHEN REQUIRED INSTALLED BETWEEN TOP & BASE

BASE SECTION, SEE SECTION A-A

PLASTIC FOAM RING

SEE STD PLAN NO 315b

GATE VALVE (BFV INSTALLATION SIMILAR)

WATERMAIN

VALVE BOX ASSEMBLY

TYPICAL SETTING DETAIL

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 ROBIE #612XM OR 2 COATS OF MASTIC ROYSTON INSIDE AND OUT.
3. VALVE BOXES MUST BE EAST JORDAN: COVER & TOP SECTION #3664, BOTTOM SECTION #6555; OR OLYMPIC FOUNDRY: LD #190B-33, TOP SECTION #1106-33, 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 EXTENSION

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" X 2" X 1"" WITH 1" CORP STOP FOR 2" COMBINATION VALVE. TEE MUST BE 2" X 2" X 3/4" 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.
### Table: Type "C" Blocking for 11\(\frac{3}{4}\)^\text{"}, 22\(\frac{1}{2}\)^\text{"}, 45^\circ\) and 90^\circ\) Vertical Bends

<table>
<thead>
<tr>
<th>SOIL</th>
<th>Firm Silt or Firm Silty Sand</th>
<th>Compact Sand</th>
<th>Compact Sand &amp; Gravel</th>
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<tr>
<td>Fitting</td>
<td>90° Bend</td>
<td>11(\frac{3}{4})^\text{&quot;} &amp; 22(\frac{1}{2})^\text{&quot;} Bend</td>
<td>90° Bend</td>
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<tr>
<td>PIPE SIZE</td>
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<td></td>
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</tr>
<tr>
<td>4&quot;</td>
<td>5.8</td>
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</tr>
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<tr>
<td>12&quot;</td>
<td>53.0</td>
<td>37.5</td>
<td>15.0</td>
</tr>
</tbody>
</table>

Areas calculated on 300 PSI test, pressure and 3'-0" min cover over watermain.

**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 be 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 must be concrete (L 3000).
5. After installation, shackle rods & turnbuckles must be cleaned and coated with 2 coats of asphaltic varnish, Royston Roykote 4612M 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 be 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.

---

**REFERENCES**

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>PIPE SIZE</th>
<th>SOIL</th>
<th>FIRM SILT OR FIRM SILTY SAND</th>
<th>COMPACT SAND</th>
<th>COMPACT SAND &amp; GRAVEL</th>
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<td>FITTING</td>
<td>90° BEND</td>
<td>TEE</td>
<td>45° BEND CAP OR PLUG</td>
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<tr>
<td>4&quot;</td>
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<td>53.0</td>
<td>37.5</td>
<td>37.5</td>
<td>15.0</td>
</tr>
</tbody>
</table>

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 FOUNDED-IN-PLACE BLOCKING FOR FITTINGS IN HEAVY OUTLINED PORTION OF TABLE. ECOLOGY BLOCKS USED FOR THRUST BLOCKING AT TEEs MUST TRANSFER LOAD TO THE PIPE BODY PER SPEC SECTION 7-11.3(13).

REF STD SPEC SEC 7-11

City of Seattle

NOT TO SCALE

WATERMAIN THRUST BLOCKING HORIZONTAL FITTINGS

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 72.
4. ALL BLOCKING TO BE CONCRETE C3000.
5. BLOCKING AGAINST FITTINGS MUST BEAR AGAINST THE GREATEST FITTING SURFACE AREA POSSIBLE, BUT MUST NOT COVER OR ENCLOUSE BELL ENDS, JOINT BOLTS OR GLANDS. ACCESS TO BOLTS AND GLANDS MUST BE PROVIDED.
6. ALL HORIZONTAL BLOCKING THRUST AREAS 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.
FOR 4" TO 8" WATERMains, INSTALL a Ductile IRON TEE with a
4" BRANCH and a Blind (FLG) OR Plug (M). FOR 12" WATERMains, INSTALL a Ductile IRON TEE with a 6" BRANCH and
A Blind (FLG) OR Plug (M), INSTALL a 1½" PT THREADED HOLE
DRILLED INTO THE 4" OR 6" Blind OR Plug.

STANDARD BOX AND LID
OLYMPIC FOUNDRY TYPE
SM25 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"-IRON BODY
GATE VALVE W/ 2" SQUARE
OPERATING NUT

VALVE BOX
SEE STD
PLAN NO 315

2" TYPE K COPPER

2" BRASS COUPLING
MPT X COMP

2" PIPE CAP

2" GALV STEEL PIPE

2" PLASTIC FOAM
MATERIAL SEE STD
PLAN NO 315

1 CU FT GRAVEL MNR
AGG TYPE 9

2" GALVANIZED ELBOW

2"X6" GALVANIZED NIPPLE

ELEVATION

REF STD SPEC SEC 7-11

City of Seattle NOT TO SCALE

2" BLOW OFF TYPE A
NON TRAFFIC INSTALLATION

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

NOTE:
1½"x2" CORP STOP, BALL TYPE BRASS BODY AWWA X CORP. WHERE COATED DUCTILE IRON PIPE IS USED, THE MECHANICAL JOINT CAP AND CORP MUST BE WAX TAPEd PER 7-11.3(6)A AND 9-30.1(4)F.
300 WATERMAIN APPURTENANCES

STANDARD PLAN NO 350

REV DATE: SEP 2019

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, wrap metallic pipe in 8 mil polyethylene encasement for full trench width.
3. Fluidized thermal bedding per SOL material standard 7150.00

REF STD SPEC SEC 7-11, 9-03.16

City of Seattle

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WATERMAIN TRENCH AND BEDDING

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

BOTTOM VIEW

BAR 3/4"

R=3/8"

2" SQ NUTS

RIVETED

6 3/4"

LIFTING HANDLE
(2 REQUIRED)

TOP VIEW

6 SPACE @ 3/4"

(LETTERING AS REQUIRED)

SECTION A-A

TYPE 361a VALVE CHAMBER
FRAME & COVER IN
VEHICULAR TRAVELWAYS

REFERENCES

REF STD SPEC SEC 7-12
13/4"x13/8" LIFT HOLES, 2 PLACES

LETTERS TO BE 1/2" WIDE AND RAISED 3/8" ABOVE SURFACE OF COVER

SECTION A--A
f=MAChINED FINISH

REF STD SPEC SEC 7-12, 7-20

City of Seattle
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TYPE 361d WATER VALVE REPLACEMENT COVER IN PEDESTRIAN PATHWAYS

**Slip Joint Bond Connection**

1. Thermite weld connection (Typ) with Thermite weld cap or mastic tape coating (Typ)

2. #2 AWG joint bond cable

3. Hold mold firmly with opening away from operator and ignite

4. Remove slag and allow to cool

5. 16 ounce hammer test per STD. SPEC SEC 7-11.3(19)

6. Final connection to be made water-tight with mastic coating or preformed Thermite weld cap

**Mechanical Joint Bond Connection**

1. Thermite weld connection (Typ) with Thermite weld cap or mastic tape coating (Typ)

2. #8 AWG joint bond cable

3. #2 AWG joint bond cable

4. Thermite weld cap or mastic mold to fit over Thermite weld & follower ring

**Thermite Weld Connection**

1. Thermite weld connection (Typ) with Thermite weld cap or mastic tape coating (Typ)

2. #2 AWG joint bond cable

**Valve Joint Bond Connection**

**Notes:**

1. Joint bonds for pipe 16" diameter and smaller.
2. For pipe larger than 16" diameter or impressed systems, see project drawings for joint bonding details.

---

**City of Seattle**

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**Joint Bonding for Dip Watermains & Joint Bonding Detail**

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

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

DI OR CI WATERMAIN

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

ANODES INSTALLED ON EXISTING PIPE MUST BE BY VACUUM EXCAVATION

TYPICAL SINGLE
VERTICAL ANODE INSTALLATION

NOTES:
1. SPU CORROSION PROTECTION MAY SPECIFY TYPE AND REQUIRED SPACING OF ANODE(S)
   LONGITUDINALLY 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(7), AROUND ALL
   SIDES OF ANODE.
3. ANODE SIZE MUST BE 17LB 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.

REF STD SPEC SEC 7-11, 9-30

City of Seattle

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SACRIFICIAL ANODE BONDED TO PIPE INSTALLATION DETAILS

TERMINAL BOARD, DETAIL A

NOTES:
1. REQUIRED SPACING OF ANODE(S) TO BE SHOWN IN DESIGN DRAWINGS.
2. FOR VERTICAL INSTALLATION, IF ANODE IS NOT PRE-PACKAGED, BARE ANODE MUST BE INSTALLED W/ MIN 6" SACRIFICIAL ANODE BACKFILL PER SPEC SECTION 9-30.9(2), AROUND ALL SIDES OF ANODE.
3. ANODE SIZE MUST BE 1/4" HIGH POTENTIAL MAGNESIUM ANODE, UNLESS OTHERWISE NOTED ON THE PLANS.
4. PLACE RED "CAUTION" OR "DANGER" TAPE 6" OVER ANODE WIRES AND CONDUIT. TAPE SHALL BE MIN. 3" WIDE.
5. BACKFILL OVER ANODE WITH SUITABLE NATIVE MATERIAL OR APPROVED EQUAL.

REF STD SPEC SEC 7-11, 9-30
* SEE RIGHT OF WAY IMPROVEMENT MANUAL FOR DIMENSIONS.
** UNLESS OTHERWISE APPROVED BY THE ENGINEER.
*** MAXIMUM 2%, 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 ESAL'S UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS
2. ASPHALT PC 58H–22 UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS
3. WARM MIX ASPHALT MAY BE USED IN PLACE OF HMA WHERE SHOWN ON THE DRAWINGS
4. PAVEMENT DEPTH MUST BE 3" HMA (CL 3") WHEN REPLACING BITUMINOUS SURFACE TREATED RESIDENTIAL STREETS OR 2" HMA (CL 3") OVER 6" HMA (CL 1") FOR ALL OTHER RESIDENTIAL STREETS.
5. PROTECT ADJACENT PANELS FROM DAMAGE DUE TO UNDERMINING DURING EXCAVATION & PLACEMENT OF SUBGRADE. SEE SPEC SECTION 1-07.13.
402A—ROADWAY CONCRETE PAVEMENT ON CRUSHED ROCK

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

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 58H-22 UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS.
3. WARM MIX ASPHALT MAY BE USED IN PLACE OF HMA WHERE SHOWN ON THE DRAWINGS.
4. PROTECT ADJACENT PANELS FROM DAMAGE DUE TO UNDERMINING DURING EXCAVATION & PLACEMENT OF SUBGRADE. SEE SPEC SECTION 1-07.13.

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

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 405 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 13. 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

1. Depth of restoration must meet the requirements of "right of way opening and restoration rules".
2. For rigid pavement (full depth), width of restoration must extend to full panel width, or as required in the "right of way opening and restoration rules" for oversized or non-standard panels.
3. For flexible pavement (full depth & overlay) restoration width must meet requirements of standard plan no 404a and the "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

MIN WIDTH FOR OVERLAY (SEE NOTE 2)

MIN WIDTH FOR RESTORATION (SEE NOTE 2)

HMA (CL 1" OR CL 3/4") THICKNESS AS SPECIFIED IN THE CONTRACT (SEE NOTE 1)

REMOVE ASPHALT OVERLAY

SAW ASPHALT CONC (REMOVE LOOSEN ASPHALT)

EXISTING ASPHALT PAVEMENT (≤3" TYP)

EXISTING BRICK OR BLOCK PAVING

EXISTING SAND CUSHION

EXISTING CEMENT CONCRETE PAVEMENT (TYP)

SAWCUT CONC FULL DEPTH

STEP EXCAVATION TO AVOID UNDERMINING EXIST PAVEMENT (TYP)

REMOVE ALL LOOSE BRICK OR BLOCK (TYP)

TRENCH WIDTH

HOT MIX ASPHALT OVER SHEET ASPHALT, BRICK, OR STONE BLOCK PAVEMENT
HALF SECTION

1. DEPTH OF RESTORATION MUST MEET THE REQUIREMENTS OF THE "RIGHT OF WAY OPENING AND RESTORATION RULES"
2. WIDTH OF RESTORATION MUST EXTEND TO FULL PANEL WIDTH, OR AS REQUIRED IN THE "RIGHT OF WAY OPENING AND RESTORATION RULES" FOR OVERTIZED OR NON-STANDARD PANELS.

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-OF-WAY OPENING AND RESTORATION RULES" FOR MORE INFORMATION ON PAVEMENT OPENINGS ZONE OF INFLUENCE.
HTTP://WWW.SEATTLE.GOV/TRANSPORTATION/STUSE_PAVEMENTOPEN.HTM
NOTES
1. INSTALL TIE BARS ALONG LONGITUDINAL JOINT BETWEEN FULL PANEL REPLACEMENT AND EXIST CONC PAVEMENT. TIE BARS ARE NOT INSTALLED BETWEEN CONC PAVEMENT AND HOT MIX ASPHALT SHOULDER.
2. TIE BARS AND DOWELS ARE NOT REQUIRED:
2.1. WHEN INDICATED ON THE DRAWINGS BY "NO TIE BARS" OR "NO DOWEL BARS".
2.2. WHEN EXISTING PAVEMENT IS 8" OR LESS OR WHEN THE ENGINEER DETERMINES THE EXISTING CONC NOT TO BE COMPETENT.
3. DO NOT PLACE LONGITUDINAL JOINTS OR SKEWED JOINTS WITHIN BIKE Lanes.
4. WHEN PAVING ADJACENT TO EXISTING PANELS, THE NEW TRANSVERSE JOINTS MUST BE PLACED TO MATCH JOINT LOCATIONS OF THE EXISTING ADJACENT PAVEMENT UNLESS OTHERWISE DIRECTED BY THE ENGINEER. SEE STD PLAN NO 405C FOR MAXIMUM TRANSVERSE JOINT SPACING.

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

REF STD SPEC SEC 5-05

City of Seattle

NOT TO SCALE
ROADWAY CONCRETE PAVEMENT REPAIR

SECTION A—A
DOWEL BAR DETAIL

SAWED GROOVE:
WIDTH 3/8" MIN. TO 3/4" MAX,
DEPTH 2" WITH JOINT SEALANT;
OR 3/8" PREMOLDED JOINT FILLER

NEW CEMENT CONCRETE PAVEMENT

EXIST CONCRETE PAVEMENT

NEW DOWEL BAR

1/2 CONC PAVEMENT DEPTH

SEE STANDARD PLAN NO 405c
FOR DOWEL BAR SIZE

1/2 CONC PAVEMENT DEPTH

NEW TIE BAR

3/8" DIA X 30"

SECTION B—B
TIE BAR DETAIL

SAWED GROOVE:
WIDTH 3/8" MIN. TO 3/4" MAX,
DEPTH 2" WITH JOINT SEALANT;
OR 3/8" PREMOLDED JOINT FILLER

NEW CEMENT CONCRETE PAVEMENT

EXIST CONCRETE PAVEMENT

NEW TIE BAR

3/8" DIA X 30"

1/2 CONC PAVEMENT DEPTH

DRILL 3/8" MIN TO 3/4" MAX DIAM HOLE
15" LONG IN EXIST CEMENT CONC
FOR NEW TIE BAR (TYP)

WITHOUT TIE BAR OR DOWEL

USE ONLY WHEN SHOWN IN
CONTRACT OR APPROVED BY
THE ENGINEER

REF STD SPEC SEC 5-05
1. Do not place longitudinal joints or skewed joints within bike lanes.
2. When a joint is within 18 inches of a casting joint, it 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.
5. Dowel bars not required for residential pavement sections. See STD PLAN NO 401.

<table>
<thead>
<tr>
<th>Depth (D) of Rdwy Cem. Conc</th>
<th>Dowel Bar Size (Dia #)</th>
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</thead>
<tbody>
<tr>
<td>6≤D &lt;9</td>
<td>1 x 18”</td>
</tr>
<tr>
<td>9≤D &lt;11”</td>
<td>1½ x 18”</td>
</tr>
<tr>
<td>11≤D</td>
<td>1½ x 19”</td>
</tr>
</tbody>
</table>

**NOTES:**

**PLAN VIEW PANEL REPLACEMENT**

**SECTION VIEW LONGITUDINAL CONTRACTION JOINT**

**SECTION VIEW TRANSVERSE CONTRACTION JOINT**

**SECTION VIEW LONGITUDINAL CONSTRUCTION JOINT**

**SECTION VIEW TRANSVERSE CONSTRUCTION JOINT**

**REF STD SPEC SEC 5-05**

City of Seattle

NOT TO SCALE

ROADWAY CONCRETE PAVEMENT JOINTS

THROUGH JOINTS
USE ONLY WHEN SHOWN IN CONTRACT OR APPROVED BY THE ENGINEER

EXPANSION CAP ON ALTERNATION FREE ENDS. OPPOSITE FIXED ENDS DO NOT TOP EXPANSION CAPS ONTO DOWELS

CORROSION RESISTANT EPOXY COATING

KEYWAY DETAIL
LONGITUDINAL JOINT WITH KEYWAY
(OPTIONAL FOR >9 INCHES ONLY)

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

REF STD SPEC SEC 5-05

City of Seattle
NOT TO SCALE

THROUGH JOINTS AND OPTIONAL KEYWAYS FOR CEMENT CONCRETE ROADWAY

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 ⅔ DEPTH OF CEMENT CONCRETE.
2. NO REINFORCING STEEL MUST BE WITHIN 2½ INCHES (3 INCHES DESIRED) OF ANY CEMENT CONCRETE SURFACE OR JOINT.

REF STD SPEC SEC 5-05

City of Seattle
NOT TO SCALE
FRAME & COVER CEMENT CONCRETE REINFORCEMENT DETAIL

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.
CONTRACTION JOINT FOR CURB OR CURB & GUTTER

SECTION A-A

THROUGH JOINT FOR CURB OR CURB & GUTTER

SECTION B-B

2" MIN DEPTH FOR D<8" OR LESS
1/4" FOR D>8" OR MORE

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

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

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

CURB DOWEL ON NEW PAVEMENT

TOP OF PROPOSED CURB

CURB DOWEL PINS ON EXISTING PAVEMENT

#3 EPOXY COATED REINFORCING BARS

DRILL 3/4" MIN DIA HOLES FILL WITH EPOXY GROUT (TYPE I OR IV EPOXY PER SEC 9-26)

COMPACTED SUBGRADE

1'-2"

5/16" HOLE

1'-0"

COLD JOINT

REF STD SPEC SEC 8-04

City of Seattle

NOT TO SCALE

CURB JOINTS & DOWELS

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

REFERENCE: STD SPEC SEC 8-06
Curb Plan

Section C-C

Section D-D

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.
8" STRAIGHT BLOCK CURB (SINGLE SLOPED)

RADIAL CURB

8" STRAIGHT BLOCK CURB (DUAL SLOPED)

8" BLOCK AND RADIAL TRAFFIC CURB
TYPICAL TRAFFIC CIRCLE

SPACING CHART

<table>
<thead>
<tr>
<th>DIAMETER OF CIRCLE</th>
<th>DEGREE OF SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤20'-0&quot;</td>
<td>EVERY 45'</td>
</tr>
<tr>
<td>≤20'-0&quot;</td>
<td>EVERY 30'</td>
</tr>
<tr>
<td>&gt;20'-0&quot;</td>
<td>EVERY 22 1/2&quot;</td>
</tr>
</tbody>
</table>

(OTHER VEHICLE APPROACHES)

TYPICAL SECTION

NOTES:
1. DIMENSIONS ABOVE PAVEMENT EXTENSION TO MATCH SECTION DETAILED ELSEWHERE ON THIS STD PLAN
2. EXTEND CURB DEPTH TO MATCH ADJACENT ASPHALT THICKNESS OR 7" WHICHEVER IS GREATER

TYPICAL SECTIONS

REF STD SPEC SEC 8-02, 8-04, 8-08

City of Seattle

NOT TO SCALE

TRAFFIC CIRCLE DETAILS

NOTES:
1. 3/8" THROUGH AND CONTRACTION JOINTS MUST BE LOCATED AS REQUIRED BY SECTION 8-14.3(6).
2. SAWCUT SCORING MUST MATCH PATTERN IN ADJACENT EXISTING SIDEWALK OR MUST BE A 2' SQUARE
   SCORING PATTERN UNLESS OTHERWISE APPROVED BY THE ENGINEER.
3. FOR CURB RAMPS, SEE STANDARD PLAN NO 422.
4. FOR TREE PITS, SEE STANDARD PLAN NO 424.
5. 12" MINIMUM BETWEEN EDGE OF RAMP WIND AND PLANTING STRIP IS DESIRABLE
6. ALL SIDEWALK MUST BE NON-ROADWAY CEM CONC W/ 25% POZZOLANS.
7. 6'-0" MINIMUM CONTINUOUS SIDEWALK MUST BE MAINTAINED AROUND CORNERS.

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

2% MAX = MAX SLOPE IN EITHER DIRECTION

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

2% MAX = MAX SLOPE IN EITHER DIRECTION

PARALLEL CURB RAMPS
(TYPE 422B)

REF STD SPEC SEC 8-14

City of Seattle
NOT TO SCALE
CURB RAMP DETAILS

NOTES:
1. Ramp centerline must be parallel to the alignment of the face of curb. The width of the ramp must be 6'-0" (5'-0" minimum).
2. Slope on the landing must be between 0.5% and 2% in any direction. Shared lower curb ramp landing must have a minimum width of 5'-0". A 5'-0" x 5'-0" (4'-0" x 4'-0" minimum) turning space must be provided within lower landing, behind the face of curb.
3. Radial tile must be used, cutting or altering detectable warning surfaces must be first approved by the Engineer.
4. Ramp surface must have a heavy broom brushed surface.
5. Refer to details 422k and 422l for general notes and typical sections.

PAY LIMITS

PARALLEL CURB RAMPS (CORNER)
(TYPE 422C)

422C CURB RAMP LOCATIONS

NOT TO SCALE
NOTES:
1. RAMP CENTERLINE MUST BE PARALLEL TO CROSSWALK AND/OR THE SIDEWALK.
2. SLOPE ON THE LANDING MUST BE BETWEEN 0.5% AND 2% IN ANY DIRECTION. UPPER LANDING AT THE TOP OF THE CURB RAMP MUST MATCH THE FULL WIDTH OF THE RAMP AND MUST HAVE A MINIMUM DEPTH OF 4'-0". IF THE LANDING IS LIMITED AT THE BACK OF SIDEWALK BY A PERMANENT VERTICAL BARRIER, THE DEPTH OF THE TURNING SPACE MUST BE 5'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP.
3. WINGS MUST HAVE A MAXIMUM SLOPE OF 10%. WINGS MUST HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB MUST CONTINUE THROUGH EACH WING.
4. WING ON THE OPEN SIDE OF THE CURB RAMP MUST HAVE A MINIMUM SLOPE OF 5% TO ASSIST PEDESTRIANS WITH VISUAL IMPAIRMENTS WHERE THE DETECTABLE WARNING SURFACE IS OFFSET FROM THE CURB LINE.
5. RAMP SURFACE MUST HAVE A HEAVY BROOM BRUSHED FINISH PERPENDICULAR TO THE PATH OF TRAVEL.
6. REFER TO DETAILS 422K AND 422I FOR GENERAL NOTES AND TYPICAL SECTIONS.

2% MAX = MAX SLOPE IN EITHER DIRECTION

PAY LIMITS

DIRECTIONAL CURB RAMPS
(TYPE 422D)

422D CURB RAMP LOCATIONS
NOTES:

1. Ramp centerline must be parallel to crosswalk and/or the sidewalk.
2. Slope on the landing must be between 0.5% and 2% in any direction. Upper landing at the top of the curb ramp must match the full width of the ramp and must have a minimum depth of 4'-0". If the landing is limited at the back-of-curbside by a permanent vertical barrier, the depth of the turning space must be 5'-0" minimum, measured parallel to the run of the curb ramp.
3. Wings must have a maximum slope of 10%. Wings must have a brushed finish parallel to the curb. The concrete walk thickened edge along the curb must continue through each wing.
4. Where the setback from the bottom of the curb ramp to the back of curb line exceeds 5'-0", the detectable warning surface must be installed at the back of curb (not at the bottom of ramp). Radial tile must be used. Cutting or altering detectable warning surface must be first approved by the engineer.
5. Directional curb ramps with large setback from back of curb to bottom of the curb ramp are not preferred. Designs but may be used if necessary due to existing site constraints.
6. Straight sections of detectable warning surface is permitted as an alternate. If used, there must be 2' maximum from the detectable warning surface to the back of curb at any point.
7. Ramp surface must have a heavy broom brushed finish perpendicular to the path of travel.
8. Refer to details 422K and 422L for general notes and typical sections.

\[ \text{2% max} = \text{max slope in either direction} \]

**Pay Limit**

**City of Seattle**

NOTES:

1. RAMP CENTERLINE MUST BE RACIAL/PERPENDICULAR TO THE ALIGNMENT OF THE FACE OF CURB.


3. CLEAR SPACE AT THE BOTTOM OF THE RAMP MUST BE 5'-0" MINIMUM IN WIDTH AND MUST EXTEND A MINIMUM OF 4'-0" BEYOND THE RAMP LOWER GRADE BREAK. THE CLEAR SPACE MUST FALL WHOLLY WITHIN THE LEGAL CROSSWALK, MARKED OR UNMARKED. THE CLEAR SPACE MUST FIT BEHIND LINES EXTENDING FROM THE FACE OF CURB RUNNING PARALLEL TO EACH ROADWAY. THERE IS NO ALLOWABLE EXEMPTION FOR MINIMUM CLEAR SPACE REQUIREMENTS AT SHARED DIAGONAL PERPENDICULAR CURB RAMPS.

4. WINGS MUST HAVE A MAXIMUM SLOPE OF 10%. WINGS MUST HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB MUST CONTINUE THROUGH EACH WING.

5. RAMP SURFACE MUST HAVE A HEAVY BROOM BRUSHED SURFACE PARALLEL TO THE CURB.

6. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.

2% MAX - MAX SLOPE IN EITHER DIRECTION

PAY LIMIT

SHARED DIAGONAL PERPENDICULAR CURB RAMP
(TYPE 422F)

PAY LIMITS

422H CURB RAMP LOCATIONS

REF STD SPEC SEC 8-14

City of Seattle NOT TO SCALE CURB RAMP DETAILS

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

2% MAX = MAX SLOPE IN EITHER DIRECTION

BLENDED TRANSITION (TYPE 422G)

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

5% MAX SLOPE

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

   2% MAX
   MAX SLOPE IN EITHER DIRECTION

   5'-0" MIN
   2% MAX SLOPE

   ROADWAY CURB
   STD PLAN 410 OR
   STD PLAN 421

   SECTION H-H

   ROADWAY CURB (TYP)
   DETECTABLE WARNING STD PLAN 422K

   3" RADIUS
   (TYP)

   ROADWAY CURB (TYP)

   ISLAND CUT-THROUGHS
   (TYPE 422H)

   2'-0" MIN
   SEE NOTE 3

   2" MAX
   (TYP)

   DETECTABLE WARNING STD PLAN 422K

   CLEAR SPACE
   SEE NOTE 4
   (TYP)

   5'-0" MIN
   (TYP)

   CITY OF SEATTLE

   NOT TO SCALE

   CURB RAMP DETAILS

   REF STD SPEC SEC 8-14

Curb Ramp General Notes:

1. Two curb ramps must be installed at each corner unless otherwise directed by engineer. Shared diagonal perpendicular ramps must not be installed unless all other design options are unable to be constructed due to existing site constraints.

2. Curb ramps must be as closely aligned with the sidewalk and the pedestrian street crossing as possible.

3. Curb ramp construction or ramp on opposite side of the roadway where no ramp is provided unless otherwise directed by engineer.

4. Ramps must typically have a maximum running slope of 8.3% and a minimum width of 4’-0” unless otherwise directed by engineer. The cross slope of ramps must be a maximum of 2%. Curb ramps are not required to exceed a length of 15 feet unless otherwise directed by engineer.

5. Grade breaks at the top and the bottom of curb ramp runs must be perpendicular to the path of travel. Curb ramp runs are defined by running slopes that exceed 5% but are not more than 8.3%. Surfaces abutting at curb ramp grade breaks must be flush.

6. Areas adjacent to curb ramps or curb ramp landings usable by pedestrians must comply with standard plan sidewalk slope limits or a curb ramp wing must be provided as shown in the applicable curb ramp details. The installation of surfaced edges is not required but may be used at the sides or backs of curb ramps or curb ramp landings where the adjacent surface is landscaped or otherwise not usable by pedestrians.

7. The counter slope of the gutter or the street at the bottom of curb ramp runs must be 5% maximum. If turning or change of orientation is required within the pedestrian crossing at the bottom of curb ramp runs, the slope must be 2% maximum in any direction for a minimum 4’-0” width x 4’-0” depth measured from the ramp bottom grade break.

8. Curb ramps with runs that terminate at the entrance to the pedestrian street crossing must have a clear space at the bottom of the ramp. “Clear space” is defined as a navigable 4’-0” x 4’-0” space extending from the ramp lower grade break, that falls wholly within the legal crosswalk, marked or unmarked, and outside the parallel vehicular traffic lane.

9. A 4’-0” minimum width unobstructed pedestrian access route must be provided from each curb ramp, blended transition, or flush transition to the legal crosswalk that is served, marked or unmarked, and located outside the parallel vertical traffic lane.

10. Detectable warning must be provided at curb ramps and at locations where the sidewalk and roadway are flush. The detectable warning surface must have a truncated dome pattern as shown, with a minimum depth of 2’-0” and must be placed at the back of curb but no more than 8” from the face of curb for monolithic curbs or a typal curb widths. Detectable warning must match the width of the ramp run or the opening where the sidewalk and roadway are flush. The truncated domes on the detectable warning surface should align with the curb ramp run or the direction of travel. Domes may be on a radial grid pattern where the detectable warning surface is placed at curb radius.

11. Detectable warning color must be “Federal Safety Yellow”, unless otherwise directed by engineer.

12. Detectable warning surfaces should generally not be cut or altered to fit unless there is no alternative available. If required, cut or alter the detectable warning surface per the manufacturer’s directions. Detectable warning surfaces placed at curb radius must match the curb radius without gaps or inconsistencies in placement.

13. Avoid locating handholes, utility castings, or any other surface obstructions in the curb ramp run(s) or landing(s). If necessary due to existing constraints, handholes, utility castings, or other surface obstructions may be located within the ramp run, landing, or turning space but must adhere to surface requirements. Level changes between surfaces must not exceed 1” or 1/2” with a 1:12 level. Gaps between surfaces or gratings may not exceed 1/8”. Surfaces must be firm, stable, and slip resistant.

14. Handholes, utility castings, or other surface obstructions must not reduce the required depth of detectable warning.

15. Poles, hydrants and other above ground obstructions must have a minimum lateral clearance of 1’-0” from ramp run(s) or landing(s).

16. All changes in level across joints must be flush. Any difference in elevation of 3/16 inch or greater must be repaired or replaced.

17. Curb ramps are designed to ensure that water does not accumulate on ramp surfaces. The contractor must check grade lines and gutter flow line prior to construction. If the check reveals that site conditions would result in ponding, or would conflict with obtaining the grades at the bottom of curb ramps or at curb ramp landing as shown on the drawings or plans, the contractor must notify the engineer immediately and stop work on the curb ramp until directed to continue by the engineer.

* It is recommended that curb ramps running slopes be designed to 7.5% max. and curb ramp landings be designed to 10% max. to allow for a limited margin of error during construction.

Detectable Warning Truncated Domes Pattern

Side Curb Detail

Back Curb Detail

Depressed Curb and Gutter Detail

City of Seattle

Detectable Warning Truncated Domes Pattern

NOTES:
1. SEE STD PLAN 420 FOR CW SCORING DETAILS.
2. INSTALL ROOT BARRIER PER STANDARD PLAN NO. 100a.
3. WHEN INSTALLING NEW TREE PITS IN EXISTING SIDEWALK, REMOVE SIDEWALK TO FULL PANEL WIDTH. INSTALL TREE PIT AS SHOWN ON THIS DETAIL.

REF STD SPEC SEC 8-02 & 8-14

City of Seattle
NOT TO SCALE
EXPANDABLE TREE PIT DETAIL

TYPE C

TREE PIT DIMENSIONAL REQUIREMENTS:
- 24 SQ FT MIN TREE PIT SIZE
- 3'-0" MIN REQ'D BETWEEN TREE & FACE OF CURB
- 2'-0" MIN REQ'D BETWEEN TREE & 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.
4. WHEN INSTALLING NEW TREE PITS IN EXISTING SIDEWALK, REMOVE SIDEWALK TO FULL PANE WIDTH, INSTALL TREE PIT AS SHOWN ON THIS DETAIL.

FOR ADDITIONAL SIDEWALK SCORING REQUIREMENTS
SEE STD PLAN NO 420

REF STD SPEC SEC 8-02 & 8-14
PERVIOUS CONC CEM SIDEWALK DEPTH
TRANSITION AT DRIVEWAYS PROFILE VIEW

5'-0" MIN.

PERVIOUS CONC SECTION A

HOT MIX ASPHALT PAVEMENT SIDEWALK SECTION

NOTES:
1. DEPTHS SHOWN FOR PAVEMENT SECTIONS ARE COMPACTED DEPTH.
2. SIDEWALK DEPTH AT DRIVEWAY TO MATCH DRIVEWAY PAVEMENT DEPTH.
3. DEPTH OF POROUS CEMENT CONCRETE FOR DRIVEWAYS MUST BE 8" MIN.
4. 6% MAX. POROUS CEMENT CONCRETE PROFILE GRADE.
5. WHERE PERVIOUS CONCRETE IS SHOWN ON PLANS FOR ALLEY, PERVIOUS CONCRETE MUST BE 8" WITH 3" AGGREGATE DISCHARGE SUBBASE.
6. APPLY SEPARATION GEOTEXTILE SEC. 9-37, ON BOTTOM AND SIDES. EXTEND GEOTEXTILE ABOVE PERVIOUS 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 PERVIOUS CONCRETE SIDEWALKS MUST BE PLACED AT A MAXIMUM OF 15 FT ON CENTER SPACING.

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'S APPROVAL.
2. DRIVEWAYS MUST BE NON-RoadWAY CEM. CONC. HIGH STRENGTH.
3. WING WIDTH EXCEPT FOR DRIVEWAY WHERE TRAVEL LANE IS NEXT TO THE CURB MUST BE 2'-8". OTHERWISE, WING WIDHT MUST BE 2'-6".
4. "V" GROOVE SCORING MUST MATCH PATTERN IN ADJACENT EXISTING SIDEWALK.
5. FOR CONCRETE DRIVEWAY CONSTRUCTED WITH CONCRETE SIDEWALK, SEE STANDARD PLAN NO 430.
6. CONCRETE DRIVEWAYS WITH A WIDTH GREATER THAN 15'-0" MUST HAVE A 3/8" TRANSVERSE CONTRACTATION JOINT NEAR THE CENTERLINE OF DRIVEWAY. SEE DETAIL SECTION C-C STANDARD PLAN NO 420.
7. FOR TYPE 430A CROSS-SLOPE IN THE 6'-0" MINIMUM WIDE AREA CONNECTING TO CW ON EACH SIDE OF THE DRIVEWAY MUST BE MAXIMUM 2% AND MINIMUM 0.5%. FOR TYPE 430B, CROSS-SLOPE OF THE DRIVEWAY BETWEEN THE TWO RAMP SECTIONS MUST BE MAXIMUM 2% AND MINIMUM 0.5%. DRIVEWAY ON THE PRIVATE SIDE OF THE CW MAY BE SLOPED AS NEEDED TO MATCH EXISTING SITE CONDITIONS.
8. RAMP MUST HAVE A MAXIMUM SLOPE OF 6.3% AND A MINIMUM WIDTH OF 6'-0". THE CROSS SLOPE OF THE RAMP MUST BE MAXIMUM OF 2.0%. RAMP SURFACE MUST HAVE A HEAVY BROOM BRUSHED SURFACE PERPENDICULAR TO THE CURB.
9. ALL CHANGES IN LEVEL ACROSS JOINTS MUST BE FLUSH WITH A MAXIMUM DIFFERENCE IN ELEVATION OF 3/16 INCH.
10. 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 ENGINEER APPROVAL.
11. CONCRETE SIDEWALK OUTSIDE OF THE DRIVEWAY CROSSING MAY BE PERVIOUS.
12. PROTECT ADJACENT PANELS FROM DAMAGE DUE TO UNDERMINING DURING EXCAVATION & PLACEMENT OF SUBGRADE. SEE SPEC SECTION 1-07.13.
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 SCORELINES PER STD PLAN NO 420 AND THE DRAWINGS.
4. THE SURFACE MUST BE BRUSHED IN THE TRANSVERSE DIRECTION IN RELATION TO THE CENTERLINE OF THE DRIVEWAY OR ALLEY WITH A FIBER HARE BRUSH OR OTHER APPROVED BRUSH TYPE.
5. PROTECT ADJACENT PANELS FROM DAMAGE DUE TO UNDERMINING DURING EXCAVATION & PLACEMENT OF SUBGRADE. SEE SPEC SECTION 1-07.13.

REF STD SPEC SEC 8-14 & 8-19

City of Seattle
NOT TO SCALE
CEMENT CONCRETE DRIVEWAY PLACED WITH CEMENT CONCRETE SIDEWALK

NOTES:
1. FOR CURB RAMP AND DETECTABLE WARNING DETAILS SEE STANDARD PLAN NO 422 (SERIES).
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 1/4 LEG.
8. ALL SLOPE GRADES MUST BE MEASURED OFF THE HORIZON-LINE. IF EXISTING SITE CONDITIONS CONFLICT WITH OBTAINING GRADES SHOWN, THE CONTRACTOR MUST MAKE MINIMUM ADJUSTMENTS TO THE GRADES TO ACCOMMODATE EXISTING SITE CONDITIONS. ADJUSTMENTS ARE SUBJECT TO APPROVAL BY THE ENGINEER.
9. ALL CEMENT CONCRETE WARNING PADS MUST BE BRUSHED FINISHED AND "V" GROOVED TO MATCH PATTERN IN ADJACENT OR NEARBY SIDEWALKS.

MULTI-PURPOSE TRAIL AT STREET CROSSING

PROPOSED 2020 EDITION CITY OF SEATTLE STANDARD PLANS FOR MUNICIPAL CONSTRUCTION
NOTE:
1. SPEED HUMP MUST BE HMA CL 3/8".
2. CHEVRON SYMBOL PER STD PLAN NO. 728A.

SECTION A-A
NTS
TOLERANCE AT CENTER IS ¾". PARABOLIC SHAPE MUST BE MAINTAINED.

SECTION B-B
NTS
SEE NOTE 2 (TYP).

PLAN
NTS
12'-0"
3-HUMP LAYOUT

4-HUMP LAYOUT

NOTE:
1. CUSHION MUST BE HMA CL 3/8''.
2. CHEVRON SYMBOL PER STD PLAN NO 728A.
3. TRIANGLE SYMBOL PER STD PLAN NO 728B.

SECTION A-A
TOLERANCE AT CENTER ± 3/8''.-
PARALLELS SHAPE MUST BE MAINTAINED.

SECTION B-B

SECTION C-C

REF STD SPEC SEC 5-04

City of Seattle
NOT TO SCALE
SPEED CUSHION

NOTES:
1. FLIGHTS OF STAIRS MUST HAVE MAX VERTICAL RISE OF 12" BEFORE A LANDING.
2. AVERT FEWER THAN 2 RISERS PER FLIGHT.
3. STEPS IN FLIGHT MUST HAVE UNIFORM TREAD RUNS AND UNIFORM RISER HEIGHTS WITH TOLERANCE OF ±3/8".
4. TREADS MUST BE 11" MIN, 12" MAX. RISERS MUST BE 5" MIN, 7" MAX.
5. LANDINGS BETWEEN FLIGHTS OF RISERS MUST HAVE SAME WIDTH AS STEPS AND A MIN LENGTH OF 4'-0".
6. STAIRWAYS WITH 1 OR MORE RISERS MUST HAVE HANDRAILS ON BOTH SIDES.
7. HANDRAILS MUST BE CONTINUOUS ACROSS LANDINGS BETWEEN FLIGHTS OF STEPS.
8. ALL STEEL MUST BE HOT DIPPED GALVANIZED.
10. REINFORCING STEEL MUST BE ASTM A615 OR A50.
11. FOR FORMAL DRAINAGE PICK-UP SEE DETAIL B ON STANDARD PLAN NO 440b (THIS IS OPTIONAL AND MUST BE CALLED OUT ON DRAWINGS).
12. PIPE DIAMETERS SHOWN CORRESPOND TO PIPE "SHAPE" AS DEFINED IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL.
13. CONCRETE CLASS CL3000.
14. LANDINGS MUST BE 0.53" MIN FOR A MIN. LENGTH OF 4', ADJACENT SIDEWALK MAY BE PART OF LANDSCAPE IF SLOPE CRITERIA AND SETBACKS FROM HANDRAILS ARE MET.
15. TREAD SURFACE MUST HAVE GROOVES AT THE NOSE FOR TRACTION.
16. IF LANDING IS ELEVATED, LANDING MUST HAVE VERTICAL RAILING PER RIGHT OF WAY IMPROVEMENT MANUAL.
17. STAIRWAYS DEVIATING FROM STANDARD PLAN TO ACCOMMODATE BICYCLE FEATURES MAY BE USED PER STANDARD PLAN NO 440C OR 440D.
18. DIMENSION FROM THE BOTTOM LANDING RAILING TO THE NOSE OF THE TREAD MUST BE 12" MIN + 1 TREAD LENGTH.
19. HANDRAIL CRIMPED SURFACE AND ADJACENT SURFACES MUST BE FREE FROM SHARP OR ABRASIVE ELEMENTS AND MUST HAVE ROUNDED EDGES.
20. BOTTOM HANDRAIL EXTENSION MUST EXTEND ONE TREAD LENGTH MINIMUM PARALLEL TO THE SLOPE OF THE STAIR BEYOND BOTTOM STAIR.
21. TOP HANDRAIL EXTENSION MUST EXTEND HORIZONTALLY ABOVE LANDING 12" MINIMUM BEYOND TOP STAIR.
22. RESIDETIAL AND SPACING MAY CHANGE FOR WIDER OR NARROWER STAIRWAYS.
24. VENT HOLES IN SIDEWALLS OR IN SIMILAR SECTIONS MUST BE 3/8" IN DIAMETER.
25. HOLES MUST BE LEFT COMPLETELY OPENED ANY DEVICE USED FOR FIELD-ERECTION THAT PREVENTS FULL OPENINGS ON ENDS OF HORIZONTAL RAILS AND VERTICAL LEGS MUST BE GALVANIZED SEPARATELY AND ATTACHED AFTER GALVANIZING.

REF STD SPEC SEC 8-18

City of Seattle
NOT TO SCALE
CEMENT CONCRETE
STAIRWAY & HANDRAIL

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 – 14" MAX
   - RISERS MUST BE 6" MIN – 7" MAX
3. STEP WIDTH MUST MATCH WIDTH OF EXISTING WALK, BUT MUST BE NO LESS THAN 2'–6" WIDE
4. STAIRWAYS WITH 1 OR MORE RISERS MUST INCLUDE A HANDRAIL ON BOTH SIDES. SEE STD PLAN NO 440
5. REINFORCING STEEL ASTM A 615 GR 60
6. TREAD SLOPES OUTWARD @1%

SECTION A–A

REF STD SPEC SEC 8-18
**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 WEAVER.
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 MOUNDED 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'-6"
   - 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 TO COMPLY 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 RECESS 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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<tr>
<td>10'-0&quot; OR LESS</td>
<td>2&quot;x12&quot;</td>
<td>20 PENNY</td>
</tr>
<tr>
<td>11'-0&quot; TO 14'-0&quot;</td>
<td>3&quot;x12&quot;</td>
<td>40 PENNY</td>
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<tr>
<td>15'-0&quot; TO 20'-0&quot;</td>
<td>4&quot;x12&quot;</td>
<td>60 PENNY</td>
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LUMBER: DOUGLAS FIR #2 OR BETTER
POST & NAILS 545

PLANKS - ROUGH
CONCRETE TONGUE & GROOVE BLOCK
STEEL PIPE, 6" NOM. SCH 80, FILLED WITH CL 3000 CONC. PAINT FEDERAL SAFETY YELLOW. SEE FEDERAL PAINT STANDARD.

CONC CL 3000

SLOPE CONCRETE FOR DRAINAGE

2"X3/4" JOINT MATERIAL

1'-9"

MNRL AGG TYPE 2

MIXTURE 1:2:4

1'-6"

MNRL AGG TYPE 2

MIXTURE 1:2:4

CHAMFER (TYP.)
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>
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<td>A</td>
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<tr>
<td>B</td>
<td>17&quot;</td>
<td>25 1/2&quot;</td>
<td>25 1/2&quot;</td>
</tr>
<tr>
<td>C</td>
<td>38&quot; TO 52&quot;</td>
<td>50&quot; TO 58&quot;</td>
<td>64 1/4&quot; TO 67 1/2&quot;</td>
</tr>
</tbody>
</table>

SIGNAL CONTROLLER CABINET—TYPES II, III, VI

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

REF STD SPEC SEC 8-31 & 8-32
CONDUIT LAYOUT – SIGNAL CONTROLLER FOUNDATION

REF STD SPEC SEC 8-31 & 8-32

City of Seattle

NOT TO SCALE

SIGNAL CONTROLLER FOUNDATION CONDUIT LAYOUT

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 SILICONE 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"x12" COPPER CLAD WITH GROUND ROD CLAMP. A SECOND GROUND MUST BE INSTALLED A MINIMUM 8' AWAY IN A GROUND ROD HANDBOLE AS PER CITY OF SEATTLE STANDARD PLAN NO 5500. COORDINATE WITH ELECTRICAL INSPECTOR FOR LOCATION. INSTALL #4 AWG COPPER GROUND WIRE BETWEEN CABINET FOUNDATION AND GROUND ROD HANDBOLE.

REF STD SPEC SEC 8-31,8-32

City of Seattle

SERVICE CABINET FOUNDATION DETAIL

JOINT SIGNAL CONTROLLER/SERVICE CABINET FOUNDATION DETAIL
NOT TO SCALE

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 SILICONE 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

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

MAST ARM MOUNTING
SEE NOTE 1

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

SIGNAL HANGER DETAIL

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

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

SPAN MOUNTING

PEDESTAL TOP MOUNTING
FOR PEDESTAL SEE STD PLAN NO 524

REF STD SPEC SEC 8-31
SUSPENDED SIGNAL MOUNTING DETAIL

- BRONZE WIRE ENTRANCE HANGER W/ INSULATING BUSHING
- 1 1/2" PIPE COUPLING
- DRILL & TAP ONE WALL OF THE PIPE & COUPLER FOR (2) 3/8" X 3/4" 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
- SPACED WASHER
- SIGNAL HOUSING
- NEOPRENE SEAL
- STAINLESS STEEL WASHER
- LOCK NUT
- COTTER KEY

WITHOUT EXTENSION
WITH EXTENSION

REF STD SPEC SEC 8-31

City of Seattle
NOT TO SCALE
VEHICULAR SIGNAL MOUNTING

NOTES:
1. 3/8"x1/2" BOLT, 3/8" LOCK WASHER, 3/4"x1/8" 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"x2" MIN STUD BOLT ANCHORS, SLEEVE TYPE.
   - ON WOOD POLES USE 1/2"x2" LAG BOLTS.

REF STD SPEC SEC 8-31
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 3/8" STAINLESS STEEL RIVNUTS
   - ON METAL POLES 7 GAUGE OR THICKER, DRILL AND TAP FOR 3/8" BOLT (STAINLESS STEEL RIVNUTS OPTIONAL)
3. FOR STREET NAME SIGN PEDESTAL INSTALLATION, SEE STD PLAN NO 623

REF STD SPEC SEC 8-31
NOTE:
WRAP TOP OF ANCHOR BOLTS WITH CORROSION PROTECTION TAPE

1" CHAMFER (TYP.)

(4) ¾"X8" ANCHOR BOLTS #4 ¾" BOLT CIRCLE W/2 NUTS AND 2 WASHERS PER EACH BOLT

TOP OF FOUNDATION

COLD JOINT

SIDEWALK REMOVAL & RESTORATION LIMITS

PEDESTRIAN PUSHBUTTON POST FOUNDATION CLASS 3000 CONCRETE

1" SCH 80 PVC

ROUND OR SQUARE

REF STD SPEC SEC 8-31 & 8-32
NOTES:
1. PUSHER BUTTON MUST HAVE DIRECTIONAL ARROW AS SPECIFIED ON THE PLANS.
2. INSTALLATION OF TWO PEDESTRIAN PUSHER BUTTON ASSEMBLIES MUST BE ON 4" OR LARGER POLE.
3. DETAIL SHOWS PUSHER BUTTON INSTALLED ON METAL POLE. PUSHER BUTTON INSTALLED ON OTHER MATERIALS MUST BE PER MANUFACTURER'S RECOMMENDATION.
4. PUSHER BUTTON PLACEMENT MUST MEET MUTCD AND MUTT REQUIREMENTS.

PUSH BUTTON FOR
MUTCD R10-3
5"X7" SIGN

1/4-20 X 3/8" LONG STAINLESS STEEL SCREW

PUSH BUTTON STATION

1/4-20 STAINLESS STEEL BOLT WITH WASHER & LOCK WASHER

MUTCD R10-3
5"X7" SIGN

1/4-20 X 3/8" LONG STAINLESS STEEL SCREW

FRONT VIEWS

DRILL POLE FOR 5/8" MIN WIRE GUIDE HOLE - ADD INSULINER

SIDE VIEW
NOTES:
1. PUSHBUTTON MUST HAVE DIRECTIONAL ARROW AS SPECIFIED ON THE PLANS.
2. INSTALLATION OF TWO PEDESTRIAN PUSHBUTTON ASSEMBLIES MUST BE ON A 4" OR LARGER POLE.
3. DETAIL SHOWS PUSHBUTTON INSTALLED ON METAL POLE. PUSHBUTTON INSTALLED ON OTHER MATERIALS MUST BE PER MANUFACTURER'S RECOMMENDATION.
4. THIS PUSHBUTTON ASSEMBLY MUST NOT BE INSTALLED FOR PEDESTRIAN USE UNLESS APPROVED BY THE ENGINEER.
NOTES:
1. RECTANGULAR RAPID FLASHING BEACON MUST BE HARDWIRED TO A SERVICE CABINET UNLESS OTHERWISE NOTED IN THE DRAWINGS.
2. RECTANGULAR RAPID FLASHING BEACON SHALL HAVE SIGNS AND LIGHT BAR ON BOTH SIDES OF PEDESTAL AND BE ORIENTED TO FACE ONCOMING VEHICULAR TRAFFIC UNLESS NOTED OTHERWISE IN DRAWINGS.
3. (1) PEDESTRIAN LED INDICATION, 1/2" (MIN) WIDE X 1-3/4" (MIN) HIGH, MUST BE PROVIDED MOUNTED ON SIDE OF THE LIGHT BAR. PEDESTRIAN LED INDICATION MUST BE DIRECTED TOWARDS CROSSWALK AND BE VISIBLE TO PEDESTRIANS IN THE CROSSWALK, WHERE RAPID FLASHING BEACON IS LOCATED IN A MEDIAN, OR SERVES MULTIPLE DIRECTIONS OF PEDESTRIAN TRAVEL. PEDESTRIAN LED INDICATION MUST BE PROVIDED ON BOTH SIDES OF LIGHT BAR.
4. IF A SOLAR PANEL IS INCLUDED ON THE POLE, USING THE STANDARD FOUNDATION SHOWN, THEN MOUNTING HEIGHT OF SOLAR PANEL MUST BE NO MORE THAN 17”-8”.
5. FOUNDATION SOILS MUST BE FREE OF LANDFILL OR OTHER SETTLEMENT-PROVING MATERIAL AND GROUNDWATER.
6. ALL REINFORCING BARS MUST BE DEFORMED BILLET STEEL CONFORMING TO ASTM CLASS A706, GRADE 60.
**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.
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 HANDHOLE.

**REF STD SPEC SEC 8-31**

City of Seattle  |  NOT TO SCALE  |  DETECTOR LOOP LEAD-IN
**DIPOLE LOOP DETECTOR**

**QUADROPIOLE 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 QUADROPIOLE**

**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**

**STANDARD LOOP SPACING**

**REFERENCE:** Standard Plan No. 530b, Rev. Date: Aug 2014

**REMARKS:**

- City of Seattle
- Not to Scale
- Detector Loop Details

DETECTOR LEAD-IN WIRE SPLICE DETAIL

NOTE:
SOLDER CONNECTION AFTER CRIMPING
**FOUNDATION SCHEDULE**

<table>
<thead>
<tr>
<th>POLE TYPE</th>
<th>PROJECTION</th>
<th>VERTICAL REINFORCING (# OF BARS PER PLAN)</th>
<th>ANCHOR BOLTS (TOTAL 4 PER POLE)</th>
<th>ANCHOR PLATE DIMENSIONS</th>
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<td>T</td>
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*FOUNDATION DEPTH PER PLAN, WHERE POLE TYPE OTHER THAN NOTED ABOVE IS REQUIRED, REFER TO DRAWINGS FOR FOUNDATION DEPTH, DIMENSIONS, REINFORCING, ANCHOR BOLTS, AND ANCHOR PLATE DIMENSIONS.*

**NOTES:**

1. CONCRETE MUST BE CLASS 4000P.
3. ANCHOR PLATE: ASTM A36, HOT DIP GALVANIZED PER ASTM A123.
4. ALL REINFORCING BARS MUST BE DEFORMED BILLET STEEL CONFORMING TO ASTM CLASS A706, GRADE 60.
5. ANCHOR BOLTS MUST BE HOT DIP GALVANIZED PER ASTM F2329 INCLUDING NUTS & WASHERS (FULL LENGTH) WITH 18" OF THREADS ON TOP & 12" ON BOTTOM.
6. TAPE THE TOP OF ANCHOR BOLTS WITH CORROSION PROTECTION TAPE PER STD SPEC SEC 8-32.3(2); PRIOR TO POURING CONCRETE.
7. FOUNDATION DEPTH, REINFORCEMENT AND ANCHOR BOLTS MUST BE IN CONFORMANCE WITH "AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" (6TH EDITION, 2013). DESIGN BASIC WIND SPEED IS 85 MPH AND REOCCURRENCE INTERVAL/DESIGN LIFE IS 50 YEARS.

**REF STD SPEC SEC 8-32**

**City of Seattle** NOT TO SCALE

**STRAIN POLE FOUNDATION SCHEDULE & NOTES (TYPE T, V, X & Z)**

NOTES:
1. BOLT CIRCLE: 113/4" 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
   F2329, FULL LENGTH AND FABRICATED FROM ASTM F1554 OR A576
   WITH 12" THREADS ON TOP

REF STD SPEC SEC 8-32
NOTES:
1. BOLT CIRCLE: 9" TYP
2. SEE SCL CONSTRUCTION STANDARD 1715.34 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 F1554 OR A576
   WITH 8" OF THREADS ON TOP
4. SEE SCL MATERIAL STANDARD 5756.09 FOR POLES
5. SEE SCL CONSTRUCTION STANDARD 1715.07 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 1/4" to 3/8" clearance on each edge within the frame after galvanizing.
2. The ground rod must extend 4" above the bottom of the handhole or mineral aggregate.
3. Type 1, 2, 3, 5 & 6 handhole covers must have "SOOT" or "SL" on them, as appropriate.
4. Type 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 to the top level of the finished pavement without embedding the bottom flange of the casting in the pavement.
6. A 4" length of #6 THHN or THWN copper wire must be secured from the handhole cover to the frame, bond from frame lid, and lid to ground rod.
7. All handhole covers and frames must have a non-slip surface (see std spec sec 9-34.6)
8. All handholes must have a load rating of H20.
9. Ground rod required in all streetlight handholes per SCL Constr STD 1710.50.
10. See SCL Construction Standard 1716.07 for streetlight handhole and conduit requirements.

HANDHOLE INSTALLATION DETAIL

HANDHOLE SCHEDULE

<table>
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<tr>
<th>HANDHOLE TYPE</th>
<th>TOP UNIT INSIDE DIMENSION</th>
<th>EXTENSION UNITS (E)</th>
<th>COVER DIMENSIONS</th>
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#3 BAR (Typ)

TYPE 1 & 2 HANDHOLE

Steel plate (Galv) anchored to top unit

TYPE 4 HANDHOLE

Traffic bearing

TYPE 3 HANDHOLE

(Cover same as Type 5)

Ref std spec sec 8-33

City of Seattle

Not to scale

Handholes

TYPE 6 HANDHOLE

NOTES:
1. ALL HANDHOLES MUST HAVE A H2O LOAD RATING.
2. ALL HANDHOLE COVERS AND FRAMES MUST HAVE A NON-SKID SURFACE (SEE STD SPEC Sec 9-34.6)

GROUND ROD HANDHOLE (GRHH)
NOTES:
1. ALL NON-DELIBERATE TRAFFIC PULL BOX COVERS MUST COMPLY WITH ALL TEST PROVISIONS OF ANSI/SCITEC 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-DELIBERATE TRAFFIC PULL BOXES MUST COMPLY WITH ALL TEST PROVISIONS OF ANSI/SCITEC 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-DELIBERATE TRAFFIC PULL BOXES & COVERS MUST BE MADE OF POLYMER CONCRETE WITH FIBERGLASS REINFORCEMENT. THE BOX MUST HAVE CONTINUOUS FIBERGLASS CLOTH REINFORCEMENT ON THE INSIDE & OUTSIDE PERIMETERS. THE COVER MUST HAVE A MINIMUM OF TWO LAYERS OF FIBERGLASS CLOTH REINFORCEMENT. MEETING ALL TEST PROVISIONS OF ANSI/SCITEC 77, TO THE 66WF, MEETING ALL TEST PROVISIONS OF THE LATEST REVISION OF ANSI/SCITEC 77.
4. ALL NON-DELIBERATE TRAFFIC PULL BOXES & COVERS MUST BE TESTED & CERTIFIED, MEETING ALL TEST PROVISIONS OF ANSI/SCITEC 77, TO THE 66WF, MEETING ALL TEST PROVISIONS OF THE LATEST REVISION OF ANSI/SCITEC 77.
5. PULL SLOTS MUST BE RATED FOR MINIMUM PULL OUT OF 3,000 POUNDS.
6. TYPE 4 HANDBOLES MUST BE INSTALLED IN ROADWAY'S PAVING LOTS, ETC. ALL COVERS MUST BE COMPLETE WITH A MOLDED LOGO, MANUFACTURES NAME & TIER RATING LOGO (NO GLUE IN LOGO). LOGO MUST READ "SLOT" OR "SL" UNLESS STATED OTHERWISE BY THE CITY OF SEATTLE.
7. THE GROUND ROD MUST EXTEND 4" ABOVE THE BOTTOM OF THE HANDBOLES OR MINERAL AGGREGATE.
8. FOR PAVEMENT DEPTH GREATER THAN 7" USE FRAME EXTENSIONS (SEE STD PLAN NO 231) TO BRING THE FRAME UP TO THE LEVEL OF THE FINISHED PAVEMENT WITHOUT EMBOSING THE BOTTOM FLANGE OF THE CASTING IN THE PAVEMENT.
9. A 4' LENGTH OF #6 THINNEN THINNEN COPPER WIRE MUST BE SECURED FROM THE HANDBOLES COVER TO THE FRAME. WITH A 4'-6" LENGTH FROM FRAME THAT CAN BE HOOKED TO A GROUND ROD.
10. ALL HANDBOLES COVERS AND FRAMES MUST HAVE A NON-SKID SURFACE (SCL MATERIAL STANDARD 7203.10)
11. SEE SCL CONSTRUCTION STANDARD 1716.07 FOR STREET HANDBOLES AND CONDUIT REQUIREMENTS.

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TYPE 3 HANDBOLES
(COVER SAME AS TYPE 5)

<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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TYPE 1 & 2 HANDBOLES

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TYPE 5 HANDBOLES

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POLYMER CONCRETE HANDBOLES

City of Seattle
NOT TO SCALE

TYPE 6 HANDHOLE

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

REF STD SPEC SEC 8-33

POLYMER CONCRETE HANDHOLES
NOTE:
POLE AND MAST ARM DESIGN MUST CONFORM TO "AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" (6TH EDITION, 2013). DESIGN BASIC WIND SPEED IS 85 MPH AND REOCURRENCE INTERVAL/DESIGN LIFE IS 50 YEARS.
SIGNAL COUPLING
COUPLING TO BE FABRICATED & INSTALLED BEFORE GALVANIZING

POLE FOUNDATION NOTES
1. CONCRETE MUST BE CLASS 4000P.
3. BOTTOM ANCHOR PLATE: ASTM A36, HOT DIP GALVANIZED PER ASTM A123.
4. ALL REINFORCING BARS MUST BE DEFORMED BILLET STEEL CONFORMING TO ASTM CLASS A706, GRADE 60.
5. ANCHOR BOLTS MUST BE HOT DIP GALVANIZED PER ASTM F2329 INCLUDING NUTS & WASHERS (FULL LENGTH) WITH 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 8-32.3(2)A PRIOR TO POURING CONCRETE.
7. SEE STD PLAN NO 541a AND 541b FOR FOUNDATION DETAILS.
8. FOUNDATION DEPTH, REINFORCEMENT AND ANCHOR BOLTS MUST BE IN CONFORMANCE WITH "ASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" (5TH EDITION, 2013). DESIGN BASIC WIND SPEED IS 85 MPH AND REOCURRENCE INTERVAL/DESIGN LIFE IS 50 YEARS.

FOUNDATION SCHEDULE

<table>
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<tr>
<th>MAST ARM LENGTH</th>
<th>ANCHOR BOLTS</th>
<th>PROJECTION (P&quot;&quot;)</th>
<th>BOLT CIRCLE DIAMETER (&quot;D&quot;)</th>
<th>SIZE</th>
<th># OF BARS PER PLAN</th>
<th>ANCHOR PLATE DIMENSIONS</th>
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<tr>
<td>15'-0&quot; TO 30'-0&quot;</td>
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</table>

FOUNDATION DEPTH, SPIRAL REINFORCING SPACING, AND NUMBER OF VERTICAL REINFORCING BARS MUST BE PER PLANS.

REF STD SPEC SEC 8-32

City of Seattle

NOT TO SCALE

STEEL MAST ARM POLE
FOUNDATION SCHEDULE & DETAIL
W/O METRO TROLLEY LOADS

NOTE:
GROUT MUST BE PREMIXED, NON-SHRINK AND NON-METALLIC

ANCHOR BOLT
3 THREAD
PROJECTION
ABOVE NUT

HEX NUT
LOCK WASHER
FLAT WASHER
LEVELING NUT
GROUT 60° SLOPE (TYP)

WRAP PERIPHERY OF BOLTS WITH TAPE TO PREVENT GROUT FROM BEING PLACED UNDER POLE

CUT DRAIN TUBE Flush WITH GROUT, BOTH ENDS

POLE MOUNTING & GROUT DETAIL
(EXCEPT FOR POLES W/CHIEF SEATTLE BASE)

REF STD SPEC SEC 8-32

City of Seattle  NOT TO SCALE  MISCELLANEOUS STEEL POLE DETAILS

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 3/8" max as shown.

REF STD SPEC SEC 8-30 & 8-32

City of Seattle
NOT TO SCALE
MISCELLANEOUS STEEL POLE DETAILS

1/2" X 4" NIPPLE
(UNLESS OTHERWISE
NOTED)

CHANNEL DRILLED 5/8"
OVERSIZE OF NIPPLE

1/2-13 NC X 2-1/2" SS
HEX HEAD BOLT

SEALING LOCKNUT

EXISTING POLE DRILLED 5/8"
BUSHING WILL PASS THROUGH

END BUSHING

NOTE:
NEW POLE 2-2¾" DIAM.
COUPLING
TO BE FABRICATED & INSTALLED
BEFORE GALVANIZING

WIREWAY ISOMETRIC DETAIL

METAL POLE

6X8.2 LB/FT CHANNEL

CABINET

H/A

H

H/A

1/8" DRAIN HOLE

A

A

SECTION A-A

REF STD SPEC SEC 8-32

NOT TO SCALE

TERMINAL CABINET
POLE MOUNTING

City of Seattle

## Pole Schedule

<table>
<thead>
<tr>
<th>Pole Type</th>
<th>Ground Line Dia. &quot;A&quot;</th>
<th>Pole Base Plate Size</th>
<th>Bolt Circle Dia. &quot;B&quot;</th>
<th>Bolt Hole</th>
<th>Anchor Bolts</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>12&quot;</td>
<td>1(\frac{3}{4})&quot; x 18&quot; x 18&quot;</td>
<td>1(\frac{3}{4})&quot; x 23&quot; x 23&quot;</td>
<td>18&quot;</td>
<td>2(\frac{3}{8})&quot;</td>
</tr>
<tr>
<td>X</td>
<td>14&quot;</td>
<td>12(\frac{1}{2})&quot;</td>
<td>2&quot; x 20&quot; x 20&quot;</td>
<td>2&quot; x 23&quot; x 23&quot;</td>
<td>20&quot;</td>
</tr>
<tr>
<td>Z</td>
<td>15&quot;</td>
<td>--</td>
<td>2(\frac{3}{8})&quot; x 23&quot; x 23&quot;</td>
<td>--</td>
<td>22&quot;</td>
</tr>
</tbody>
</table>

### Notes:
1. Pole shaft and reinforcing sleeve: ASTM A572 Grade 50, 60 or 65 (F_y=50, 60 or 65 KSI respectively) or ASTM A595 Grade A or B (F_y=55 or 60 KSI respectively).
2. Base plate and handhole reinforcing rim: ASTM A36 or ASTM A572 Grade 42. Base plate F_y=0.65 pole shaft F_y. The base plate thickness may be reduced by \(\frac{3}{4}"\) if ASTM A572 Grade 42 steel is used.
3. Reinforcing sleeve must be fabricated from the same material and yield strength as the pole shaft.
4. Pole shafts must have no more than two longitudinal welds in each ply.
5. Minimum shaft wall thickness of each ply must be 0.235" (3 gauge). Pole must have a maximum of two plies not including the \(\frac{3}{4}"\) reinforcing sleeve.
6. Maximum silicon content in steel must be 0.04%. See STD SPEC SECTION 9-33.1(3) for general galvanizing requirements.
7. Pole diameter for 12 or more sided poles must be measured from the point to point dimension.
8. Poles must meet deflection criteria stated in STD SPEC SECTION 9-33.2(2) with the dead load applied at 25" above ground line.

---

REF STD SPEC SEC 8-32, 9-33

City of Seattle  NOT TO SCALE

NOTES:
1. POLE STRENGTH MUST MEET REQUIREMENTS OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES AND TRAFFIC SIGNALS (6TH EDITION, 2013).
2. POLE SHAFT: ASTM A572 GRADE 50, 60 OR 65 (F_y=50, 60 OR 65 KSI RESPECTIVELY), OR ASTM A595 GRADE A OR B (F_y=55 OR 60 KSI RESPECTIVELY).
3. BASE PLATE AND HANDBOARD REINFORCING RIM: ASTM A36 OR ASTM A572 GRADE 42.
   BASE PLATE F_y=20.65 POLE SHAFT F_y= THE BASE PLATE THICKNESS MAY BE REDUCED BY ½" IF ASTM A572 GRADE 42 STEEL IS USED.
4. POLE SHAFTS MUST HAVE NO MORE THAN TWO LONGITUDINAL WELDS IN EACH PLY.
5. MINIMUM SHAFT WALL THICKNESS OF EACH PLY MUST BE 0.239" (3 GAUGE). POLE MUST HAVE A MAXIMUM OF TWO PLYS.
6. MAXIMUM SILICON CONTENT IN STEEL MUST BE 0.04%. SEE STD SPEC SECTION 9-33.1(3) FOR GENERAL GALVANIZING REQUIREMENTS.
7. POLE DIAMETER FOR 12 OR MORE SIDED POLES MUST BE MEASURED FROM THE POINT TO POINT DIMENSION.
8. POLES MUST MEET DEFLECTION CRITERIA STATED IN STD SPEC SECTION 9-33.2(2) WITH THE DEAD LOAD APPLIED AT 27" ABOVE GROUND LINE.
9. THE POLES MUST BE COMPACT AND MUST MEET THE REQUIREMENTS IN AASHTO SECTION 4, TABLE 1.4 1B(1).

ALTERNATE POLE BASE DETAIL

POLE BASE DETAIL

REF STD SPEC SEC 8-32, 9-33

NOT TO SCALE

Type T Strain Pole Details
Traffic Signal Only

City of Seattle

STEEL STREET LIGHT POLE

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

POLE BASE PLATE

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

2' THRU 10' BRACKET ARMS

<table>
<thead>
<tr>
<th>NOM SPAN</th>
<th>H&quot;</th>
<th>BEND RADIUS</th>
<th>TUBE REQUIREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2'</td>
<td>5/16&quot;</td>
<td>-</td>
<td>2&quot; STD PIPE</td>
</tr>
<tr>
<td>4'</td>
<td>1/2&quot;</td>
<td>6&quot;</td>
<td>11 GAUGE</td>
</tr>
<tr>
<td>6'</td>
<td>1&quot;</td>
<td>9&quot;</td>
<td>11 GAUGE</td>
</tr>
<tr>
<td>8'</td>
<td>1 1/4&quot;</td>
<td>13&quot;</td>
<td>11 GAUGE</td>
</tr>
<tr>
<td>10'</td>
<td>1 1/2&quot;</td>
<td>15&quot;</td>
<td>11 GAUGE</td>
</tr>
</tbody>
</table>

MATERIAL SPECIFICATION PLATE AND SHAPES:
ASTM A36
Pole Shafts:
ASTM A570 OR 40 MIN.
Anchor Bolts:
ASTM A307
Bracket Arm Flange Plate Bolt: ASTM A325

* 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.
CONDUIT RISER (WITH STAND-OFF BRACKET*)
*When there will be only one conduit (1/2" or smaller) on the pole, two hole malleable iron clamps with double headed nails must be used to secure the conduit to the pole in lieu of the stand-off brackets.

NOTES:
1. On poles with existing conduits, new conduits must be installed in accordance with this standard plan.
2. Rigid steel conduit must be grounded just below coupling, approximately 8'-0" to 10'-0" above ground, as shown.
3. All risers bonded in HH.
4. The ground wire must be one continuous length. Insert the ground wire from the bottom of the ground clamp & bend over the clamp before tightening.
5. All steel hardware must be hot dipped galvanized after fabrication per ASTM A123.
6. Conduit clamp spacing must be per the NEC with a minimum of two hole clamp per 10'-0" length of conduit.
7. Service and signal conductors must not be placed in the same conduit.
8. When possible, riser must be installed on downstream side of traffic.
9. See SCL construction standard 1714.50 for streetlight handhole and conduit requirements & 0224.34 for streetlight conduit risers.

REF STD SPEC SEC 8-33
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
NOTES:
1. EXCEPT AS NOTED OTHERWISE, ALL HARDWARE MUST BE STAINLESS STEEL.
2. MOUNTING OF TRAFFIC SIGNS MUST BE AS FOLLOWS: ON METAL POLES THINNER THAN 7 GAUGE, USE 3/8" STAINLESS STEEL RIVETS ON METAL POLES 7 GAUGE OR THICKER, FOR 3/8" BOLT (STAINLESS STEEL RIVET OPTIONAL) ON POLES FILLED WITH OR MADE FROM CONCRETE, USE 3/8"X21/2"WIN 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

\( \frac{3}{4} \)" DIA HOLE (TYP)
\( \frac{3}{16} - 18 \times \frac{1}{2} \) SET SCREWS
\( \frac{3}{8} \)" DIA HOLE (TYP)

SEE DETAIL A

REF STD SPEC SEC 8-21

City of Seattle
NOT TO SCALE
SNS BRACKET FOR STEEL POLES

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

REF STD SPEC SEC 8-21

TRAFFIC SIGN MOUNTING ON METAL POLES

City of Seattle
NOT TO SCALE

POST ANCHOR INSTALLATIONS

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

REF STD SPEC SEC 8-21
NOTES:
1. SIGN MUST BE ATTACHED WITH TOP EDGE OF SIGN FLUSH WITH TOP OF SQUARE SECTION OF POST.
2. TS-5 ASSEMBLIES MUST BE USED ONLY WITH APPROVAL OF ENGINEER, IN AREAS NOT SUBJECT TO PEDESTRIAN TRAVEL.
3. POST SLEEVE MAY BE FLUORESCENT YELLOW GREEN OR FHWA YELLOW WHERE SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER.
4. SEE STANDARD PLAN 620 FOR STOP & YIELD SIGN POST.

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

1'-0" MIN
1'-6" MIN

OPEN SIDE SLEEVE

CW OR FINISHED GRADE

CURB FACE

TS-10
(SEE STD PLAN NO 621b FOR POST ANCHOR DETAILS)

1'-0" MIN
1'-6"

CURB FACE

45° POST CONNECTION FITTING

TS-5
(SEE STD PLAN NO 621b FOR POST ANCHOR DETAILS)
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.

REF STD SPEC SEC 8-21

City of Seattle NOT TO SCALE WARNING AND REGULATORY SIGN POST ANCHOR INSTALLATIONS

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

REF STD SPEC SEC 8-21

STREET NAME SIGN INSTALLATION

City of Seattle
NOTES:
1. CAP MUST BE MADE OF THE SAME MATERIAL AS THE SURROUNDING PAVED SURFACE AND MUST BE MOUNTED 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

City of Seattle  NOT TO SCALE  POST CAP

**NOTES:**
1. SEE STD PLANS NO 620 & 521.
2. SUFFIXES ATTACHED TO TELESPAR NAME DESIGNATIONS INDICATE SLEEVE TYPES: RW—RED/WHITE, FYG—FLOURESCENT YELLOW GREEN, FY—FHWA YELLOW.

**O Wik Punch Telespar Standard Sign Post**
(TS—5, TS—10, TS—12) (SEE NOTE 2)
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

OBJECT MARKER INSTALLATION IN TRAFFIC CIRCLE
NOTEs:
1. Post anchor rivets shall be 1/8" above ground level.
2. Attachment brackets shall face away from street as when post is located 3'-0" from edge of curb.
3. Attachment brackets shall face towards street (TS) when post is located at back side of sidewalk.
4. For post relocations, old concrete shall be removed from post.
5. All signs, structures and hardware provided by metro except where noted otherwise on this STD PLAN.
6. Where surface mounted bus zone signs are required on sloped sidewalk, the contractor shall plum the post by building a non-shrink grout pad under pedestal assembly with smooth 1/4" 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.

DIRECT BURIAL INSTALLATION

SURFACE MOUNT INSTALLATION

REF STD SPEC SEC 8-21

City of Seattle
NOT TO SCALE

METRO BUS ZONE SIGN INSTALLATION

NOTES:
1. WAYFINDING BLADE MUST BE INSTALLED Pointing in the direction of the location on blade.
2. CITY OF SEATTLE WILL FABRICATE WAYFINDING SIGNS. CONTRACTOR MUST SUPPLY MOUNTING HARDWARE AND INSTALL SIGNS.
3. MAINTAIN 8 FEET MINIMUM OF VERTICAL CLEARANCE FROM CONCRETE WALK TO THE BOTTOM OF PEDESTRIAN WAYFINDING BLADES.

SURFACE MOUNT ON SIDEWALK OR USE HEAVY DUTY ANCHOR FOR NON-CONCRETE INSTALLATION PER STD PLAN NO 621b.
TYPICAL TURN LANE CHANNELIZATION

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

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

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

TYPICAL TWO WAY LEFT TURN LANES

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

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

NOTE:
LINE CALLOUTS ARE IDENTIFIED & DESCRIBED IN STD SPEC SEC 8-22.
NOTE:
LEGENDS, SYMBOLS & ARROWS MUST BE CENTERED WITHIN THE LANE TO WHICH THEY APPLY, AS SHOWN.

<table>
<thead>
<tr>
<th>TABLE A</th>
</tr>
</thead>
<tbody>
<tr>
<td>POSTED OR 85TH-PERCENTILE SPEED</td>
</tr>
<tr>
<td>20 MPH</td>
</tr>
<tr>
<td>25 MPH</td>
</tr>
<tr>
<td>30 MPH</td>
</tr>
<tr>
<td>35 MPH</td>
</tr>
<tr>
<td>40 MPH</td>
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<tr>
<td>45 MPH</td>
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</table>

TYPICAL LANE DROP INSTALLATION DETAILS

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

NOTE:
1. SEE MUTCD SECTION 2B.20 FOR GUIDANCE ON SIGNS.
2. MANDATORY MOVEMENT LANE CONTROL SIGNS MUST BE PAIRED WITH LEGENDS PLACED WITHIN THE APPROACH LINE.
(TYP) INSTALL TYPE 2A LANE MARKERS IN BETWEEN 4" YELLOW LINES

(L_/4YD)

(L_/4WS)

(L_/4W2)

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

L_/4YD

L_/4Y2

L_/4YD

REF STD SPEC SEC 8-22

City of Seattle

TYPICAL INTERSECTION GUIDELINE CHANNELIZATION

MIN 6" GAP BETWEEN BARRIER LINE AND EDGE OF CROWDLINE, TYP.

6"-8" DISTANCE TO CENTER OF PAINT LINES

(L_1_/8W5)
700 PAVEMENT MARKINGS

TYPICAL CROSSWALK WITH
UPSTREAM CHANNELIZATION
(SHOWING CURB RAMPS & STOP LINE PLACEMENT)

NOTES:
1. "LADDER STYLE" CROSSWALK MUST BE USED IN MOST APPLICATIONS. "TRANSVERSE LINE" CROSSWALK (L_/XWK, L_/XWK2) MAY ONLY BE USED WITH APPROVAL OF ENGINEER.
2. LOWER LANDING OF CURB RAMP MUST FALL WHOLLY WITHIN CROSSWALK LINES. SEE STANDARD PLAN NO 422k.
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 MUST BE APPROVED BY SDOT.
5. COLORED OR TEXTURED PAVEMENT CROSSWALKS MUST BE SUPPLEMENTED WITH EITHER "LADDER STYLE" OR "TRANSVERSE LINE" CROSSWALK MARKINGS.
6. EXISTING CROSSWALK MARKINGS THAT CONFLICT WITH NEW CROSSWALK MARKINGS MUST BE REMOVED BY GRINDING.
7. WHEN MARKED CROSSWALK ARE NOT PRESENT, STOP BAR MUST BE PLACED AT A MINIMUM DISTANCE OF 4'-0" UPSTREAM FROM THE EDGE OF THE DETECTABLE WARNING SURFACE.

TYPICAL CROSSWALK WITHOUT UPSTREAM
CHANNELIZATION
(SHOWING CURB RAMPS & STOP LINE PLACEMENT)

WHERE TRAFFIC LANE LINES ARE NOT USED, LADDER BARS MUST BE 5'-0"
CENTER TO CENTER, BEGINNING AT THE MARKED CENTERLINE OF THE ROADWAY

REF STD SPEC SEC 8-22

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

C-/W
PASSERGER LOAD ZONE, ETC
(white)

C-/R
TOW-AWAY ZONE
(red)

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

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

C-/BUSB
BUS ZONE (PARKING METERED AREAS)
BUS ZONES ARE PAIRED 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

REF STD SPEC SEC 8-22

City of Seattle
NOT TO SCALE
CURB MARKING DETAILS

NOTES:
1. THE WIDTH OF THE TRAVEL LANE NEXT TO ANGLED PARKING SPACES MUST BE A MINIMUM OF 12'-6" FOR 45-DEGREE STALLS AND 17'-0" FOR 60-DEGREE STALLS.
2. BARRIER CROSSHATCH LINES MUST BE ALIGNED AS SHOWN, INTERSECTING THE EDGE OF THE PARKING LANE AT 45-DEGREES AND ANGLED AGAINST THE ANGLED OF THE PARKING SPACES.
NOTE:
1. TAPER LENGTH AS SHOWN ON DRAWINGS.
2. SEE STD PLAN NO'S 432a & 432b FOR MULTI-PURPOSE TRAIL DESIGN PLANS.

REF STD SPEC SEC 8-22

City of Seattle
NOT TO SCALE
TRAIL OBSTRUCTION
CHANNELIZATION

700 PAVEMENT MARKINGS

STANDARD PLAN NO 722

REV DATE: JUL 2019

722A
LEFT & OBLIQUE LEFT ARROW

722B
RIGHT & OBLIQUE RIGHT ARROW

REF STD SPEC SEC 8-22

City of Seattle

NOT TO SCALE

OPTIONAL MOVEMENT ARROWS WITH OBLIQUE ARROWS

723A
LEFT MERGE/LANE REDUCTION ARROWS

723B
RIGHT MERGE/LANE REDUCTION ARROWS

REF STD SPEC SEC 8-22

City of Seattle
NOT TO SCALE
MERGE ARROWS
728A
CHEVRON WITH TRIANGLE

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

728B
CENTER CUSHION TRIANGLE
3” TO 12” PER DRAWINGS
OR AS REQUIRED BY SDOT (TYP)

DIRECTION
OF TRAVEL

YIELD LINE LAYOUT

729A
YIELD LINE WITH 18” TALL TRIANGLES

729B
YIELD LINE WITH 36” TALL TRIANGLES

REF STD SPEC SEC 8-22
City of Seattle
NOT TO SCALE
YIELD LINE LAYOUT &
YIELD LINE TRIANGLE SYMBOLS

740A
INTERNATIONAL SYMBOL OF ACCESSIBILITY

REF STD SPEC SEC 8-22

City of Seattle

NOT TO SCALE

INTERNATIONAL SYMBOL OF ACCESSIBILITY

770A
HELMETED BICYCLIST SYMBOL WITH ARROW

770B
BICYCLE LANE THROUGH ARROW

770C
HELMETED BICYCLIST SYMBOL WITH ARROW

REF STD SPEC SEC 8-22

City of Seattle

NOT TO SCALE

HELMETED BICYCLIST SYMBOL
WITH ARROW

772
BICYCLE DETECTOR SYMBOL

NOTE:
SEE STD PLAN NO 530b FOR PLACEMENT

REF STD SPEC SEC 8-22

City of Seattle

NOT TO SCALE

BICYCLE DETECTOR SYMBOL

773A
BIKE DOT SYMBOL WITH ARROW

773B
BIKE DOT ARROW

773C
BIKE DOT SYMBOL

MARKED IN WHITE
MARKED IN BLACK

MARKED IN WHITE
MARKED IN BLACK

REF STD SPEC SEC 8-22

City of Seattle
NOT TO SCALE
BIKE DOT SYMBOL
WITH ARROW

NOTE:
SEE STD PLAN NO 771 FOR SYMBOL DIMENSIONS.
NOTES:
1. WHERE STRIPED CROSSWALK DOES NOT EXIST, CROSS BIKE MUST BE PLACED AT LANE LINE AND 1/2 LANE WIDTH CONSISTENT WITH STANDARD PLAN 712. IF NO CROSSWALK OR LANE LINE EXISTS, CROSSBIKE MUST BE PLACED AT 6’ ON CENTERS.
2. CROSS BIKE MATERIAL MUST BE MMA OR PRE-FORMED THERMOPLASTIC.
DRIVEWAY CROSSING LAYOUT

NOTE:
DRIVEWAY CROSSING MATERIAL MUST BE MMA OR PRE-FORMED THERMOPLASTIC
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 3/8"
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
BAR LIST

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COLD JOINT FOR CONSTRUCTION IN TWO STAGES. SEE SHEAR KEY DETAIL BELOW.

3" WEEP HOLES @ 2% SLOPE 12'-0" OC

MINERAL AGGREGATE TYPE 17

NON-WOVEN GEOTEXILE TO 6" ABOVE AND COVERING WEEP HOLE

CURB WALL

NOTES:
1. MATCH WALL THROUGH JOINTS WITH PAVEMENT THROUGH JOINTS. DISCONTINUE HORIZONTAL REINFORCEMENT AT JOINTS AND MAINTAIN 1/2" CLEAR TO ALL REINFORCEMENT 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" OC MUST BE INSTALLED IN THE PAVEMENT SLAB
5. REINF STEEL ASTM A706 (AASHTO M 31 GRADE 60)
6. ANY SAILING ON TOP OF WALL PER RIGHT OF WAY IMPROVEMENT MANUAL
7. NON-WOVEN GEOTEXILE TO BE MODERATE SURVIVABILITY, ANY CLS. PER TABLES 1 AND 2
8. ALLEY THICKNESS PER STANDARD PLAN NO 403

REF STD SPEC SEC 8-17

City of Seattle

NOT TO SCALE

CURB WALL