# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Drawing Number</th>
<th>Sanitary Sewer Drawings</th>
</tr>
</thead>
<tbody>
<tr>
<td>301</td>
<td>Concrete Pipe Allowable Installation Depth</td>
</tr>
<tr>
<td>302</td>
<td>Industrial Manhole Frame – 7” Depth</td>
</tr>
<tr>
<td>303</td>
<td>Manhole Adapter (Sand Collar)</td>
</tr>
<tr>
<td>304</td>
<td>Not used</td>
</tr>
<tr>
<td>305</td>
<td>Sanitary and Storm Manhole Cover</td>
</tr>
<tr>
<td>306</td>
<td>Sanitary and Storm Manhole Tamperproof Cover</td>
</tr>
<tr>
<td>307</td>
<td>Sanitary and Storm Tamperproof Manhole Frame</td>
</tr>
<tr>
<td>308</td>
<td>Sanitary and Storm Manhole Waterproof Cover</td>
</tr>
<tr>
<td>309</td>
<td>Sanitary and Storm Waterproof Manhole Frame</td>
</tr>
<tr>
<td>310</td>
<td>Sanitary Sewer Connection, 3 or 4 Lots w/ Private Easement</td>
</tr>
<tr>
<td>311</td>
<td>Sanitary Sewer Connection, 5 or more Lots w/ Public Easement</td>
</tr>
<tr>
<td>312</td>
<td>Sanitary Sewer Connection, Two Single Family Lots</td>
</tr>
<tr>
<td>313</td>
<td>Sanitary Sewer Connection, Single Family</td>
</tr>
<tr>
<td>314</td>
<td>Service Branch</td>
</tr>
<tr>
<td>315</td>
<td>Sanitary and Storm Pipe Zone Bedding and Backfill</td>
</tr>
<tr>
<td>316</td>
<td>Sewer Pipe Anchor Wall</td>
</tr>
<tr>
<td>317</td>
<td>Sewer Pipe Concrete Encasement</td>
</tr>
<tr>
<td>318</td>
<td>Shallow Inside Drop Manhole</td>
</tr>
<tr>
<td>319</td>
<td>Shallow Manhole For 27” and Lesser Diameter Pipes</td>
</tr>
<tr>
<td>320</td>
<td>Siamese Service Branch</td>
</tr>
<tr>
<td>321</td>
<td>Standard Cleanout</td>
</tr>
<tr>
<td>322</td>
<td>Standard Inside Drop Manhole</td>
</tr>
<tr>
<td>323</td>
<td>Standard Manhole for 27” and Lesser Diameter Pipes</td>
</tr>
<tr>
<td>324</td>
<td>Standard Manhole for 30” and Larger Diameter Pipes</td>
</tr>
<tr>
<td>325</td>
<td>Standard Sampling Manhole</td>
</tr>
<tr>
<td>326</td>
<td>Suburban Manhole Frame 3” Depth</td>
</tr>
<tr>
<td>327</td>
<td>Tap in Existing Sewer Main For Service Branch</td>
</tr>
<tr>
<td>328</td>
<td>Typical Trench Section Backfill and Surfacing</td>
</tr>
<tr>
<td>329</td>
<td>Typical Trench Section Backfill and Surfacing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drawing Number</th>
<th>Water Works Drawings</th>
</tr>
</thead>
<tbody>
<tr>
<td>401</td>
<td>Standard Fire Hydrant Assembly</td>
</tr>
<tr>
<td>402</td>
<td>Standard Trench Section</td>
</tr>
<tr>
<td>403</td>
<td>Standard 1&quot; Water Service</td>
</tr>
<tr>
<td>404A</td>
<td>Standard 2&quot; Service – Irrigation (1 ½” – 2” Meter)</td>
</tr>
<tr>
<td>404B</td>
<td>Standard 2&quot; Service – Domestic with or w/o Irrigation (1 ½” – 2” Meter)</td>
</tr>
<tr>
<td>404C</td>
<td>Standard 2&quot; Service – Domestic with or w/o Irrigation (1 ½” – 2” Meter)</td>
</tr>
</tbody>
</table>
405 Standard Water Sampling Station
406 Standard Combination Air Valve Unit
407A Standard 2” Blow-Off Assembly for 4” and 6” Waterlines
407B Permanent or Temporary 4” and 6” Blow-Off
407C Standard 4” and 6” Temporary Fill Point
408 Horizontal Thrust Blocking
409 Vertical Thrust Blocking
410 Standard Straddle Block
411 Standard Gravity Sanitary Sewer Separation
412 Water Project Symbols
413 Standard Valve Box Detail
414 Standard Valve Box Detail for Blow-Off Standpipe
415A Standard Hersey MCT2 Compound Meter Installation - 3”
415B Standard Hersey MCT2 Compound Meter Installation - 4” & 6”
415C Standard Hersey MFM/MCT2 Compound Meter Installation – 4”x2”, 6”x3” & 8”x4”
415D Standard Hersey Compound Meter Installation Notes
416A Backflow Assembly
416B Double Check Valve (Detector) Backflow Assembly
416C Backflow Assembly
416D Double Check Valve (Detector) Backflow Assembly
416E Reduced Pressure Backflow Assembly
416F Backflow Assembly
416G Reduced Pressure Principle Assembly 3” and Larger
416H Reduced Pressure Principle Small Assembly 2 ½” and Smaller
417 Example Sump with Sump Pump
418 Tracer Wire Installation
419 Protective Casing for Crossing Cathodically Protected Structures
420 Protective Geomembrane for Crossing Cathodically Protected Structures
421 Standard Wire Connection for Steel and Ductile Iron Pipe
422 Standard Post Type Test Station Detail
423 Standard Post Type Test Station Detail for Casings
424 Standard Post Type Test Station Detail for Insulating Joint
425 Standard Post Type Test Station Detail for Crossings
426 Standard Flush Mounted Test Station
427 Standard Insulating Flange
428 Standard Joint Bond Detail – Push-on and Mechanical Joint
429 Standard Joint Bond Detail – Valve

<table>
<thead>
<tr>
<th>Drawing Number</th>
<th>Street Work Drawings</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>Local Transitional Street Section</td>
</tr>
<tr>
<td>501</td>
<td>Collector Street Section</td>
</tr>
<tr>
<td>502</td>
<td>Arterial Street Section</td>
</tr>
<tr>
<td>Drawing Number</td>
<td>Storm Drain Drawings</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>601-A</td>
<td>Catch Basin</td>
</tr>
<tr>
<td>601-B</td>
<td>Catch Basin Section and Curb Detail</td>
</tr>
<tr>
<td>601-C</td>
<td>Curb Detail at Catch Basin</td>
</tr>
<tr>
<td>602</td>
<td>(not used)</td>
</tr>
</tbody>
</table>
603  Frame and Grate
604  Storm Sump System
605  Storm Sump System and Sedimentation Manhole (Typical Retrofit Installation)
605-A Polypropylene Hanging Ladder
606-A Inlet-Manhole Standard
606-B Inlet-Manhole Combination Curb Inlet
606-C Inlet-Manhole Alternate Top
607  Flow Control Manhole
608  Detention Pipe Typical Closed
609  Ditch Inlet Type D
609-A Ditch Inlet Frame & Grate
610  CG-2 Double Catch Basin
610-A CG-2 Double Catch Basin Curb Section
611  CG-2 Frame and Grate
## AASHTO HS-20 Loading Areas

<table>
<thead>
<tr>
<th>Size Inches</th>
<th>Non-Reinforced</th>
<th>Reinforced</th>
<th>Earth Load Only</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C 14 Class 2</td>
<td>C 14 Class 3</td>
<td>C 76 Class III</td>
</tr>
<tr>
<td>6</td>
<td>20.5</td>
<td>24.5</td>
<td>-----</td>
</tr>
<tr>
<td>8</td>
<td>16.0</td>
<td>19.5</td>
<td>-----</td>
</tr>
<tr>
<td>10</td>
<td>13.5</td>
<td>16.0</td>
<td>-----</td>
</tr>
<tr>
<td>12</td>
<td>11.5</td>
<td>13.5</td>
<td>11.0</td>
</tr>
<tr>
<td>15</td>
<td>11.5</td>
<td>12.5</td>
<td>11.5</td>
</tr>
<tr>
<td>18</td>
<td>11.5</td>
<td>12.5</td>
<td>12.0</td>
</tr>
<tr>
<td>21</td>
<td>10.5</td>
<td>13.0</td>
<td>12.0</td>
</tr>
<tr>
<td>24</td>
<td>10.5</td>
<td>13.5</td>
<td>12.5</td>
</tr>
<tr>
<td>27</td>
<td>-----</td>
<td>-----</td>
<td>13.0</td>
</tr>
<tr>
<td>30</td>
<td>-----</td>
<td>-----</td>
<td>13.0</td>
</tr>
<tr>
<td>36</td>
<td>-----</td>
<td>-----</td>
<td>14.0</td>
</tr>
<tr>
<td>42</td>
<td>-----</td>
<td>-----</td>
<td>14.5</td>
</tr>
<tr>
<td>48</td>
<td>-----</td>
<td>-----</td>
<td>15.0</td>
</tr>
<tr>
<td>54</td>
<td>-----</td>
<td>-----</td>
<td>15.5</td>
</tr>
<tr>
<td>60</td>
<td>-----</td>
<td>-----</td>
<td>16.5</td>
</tr>
<tr>
<td>66</td>
<td>-----</td>
<td>-----</td>
<td>17.0</td>
</tr>
<tr>
<td>72</td>
<td>-----</td>
<td>-----</td>
<td>18.0</td>
</tr>
<tr>
<td>78</td>
<td>-----</td>
<td>-----</td>
<td>19.0</td>
</tr>
<tr>
<td>84</td>
<td>-----</td>
<td>-----</td>
<td>19.5</td>
</tr>
<tr>
<td>90</td>
<td>-----</td>
<td>-----</td>
<td>20.5</td>
</tr>
<tr>
<td>96</td>
<td>-----</td>
<td>-----</td>
<td>21.0</td>
</tr>
<tr>
<td>102</td>
<td>-----</td>
<td>-----</td>
<td>22.0</td>
</tr>
<tr>
<td>108</td>
<td>-----</td>
<td>-----</td>
<td>22.5</td>
</tr>
<tr>
<td>114</td>
<td>-----</td>
<td>-----</td>
<td>23.0</td>
</tr>
<tr>
<td>120</td>
<td>-----</td>
<td>-----</td>
<td>24.0</td>
</tr>
</tbody>
</table>

**NOTES:**
- Depths are for pipes with Class "B" pipe zone.
- Depths are based upon a trench width of TRANSITION width or greater.
- Depths are in feet to the invert of the pipe.
- Pipe must conform to ASTM requirements.
- Loads can be only backfill and AASHTO HS-20.
- Minimum cover over pipe is 3.0 feet.
- Compacted weight of backfill over pipe does not exceed 120 pcf.
PLAN

MATERIAL TO BE GRAY CAST IRON ASTM A-48, CLASS 30.
WEIGHT = 237 LBS.

SECTION "A"-"A"

MACHINE TO TRUE 25"

1/2"

10"

1/2"

MACHINE TO A TRUE BEARING ALL AROUND

23"

24 1/2"

31"

7/8"

3"

7/8"

COMMUNITY DEVELOPMENT
CITY OF SCAPPOOSE

34485 E. COLUMBIA AVENUE, PO BOX "P", CITY OF SCAPPOOSE, OR. 97056

INDUSTRIAL MANHOLE FRAME
7" DEPTH

SCALE N.T.S.
DATE 2002
APPR. 302
MANHOLE INSTALLATION

ALL MATERIAL AND WORK SHALL COMPLY WITH CITY OF SCAPPOOSE STANDARD SPECIFICATIONS.

THE SAND COLLAR SHALL BE FABRICATED BY AN APPROVED MANUFACTURER AND NOT FIELD MADE.

THE NOMINAL PIPE SECTION (DIM. "G") SHALL BE COATED WITH AN EPOXY ADHESIVE COMPATIBLE WITH BOTH PVC AND CONCRETE GROUT AND COARSE AGGREGATE APPLIED.

SECTION THROUGH ADAPTER

<table>
<thead>
<tr>
<th>SIZE</th>
<th>&quot;A&quot;</th>
<th>&quot;B&quot;</th>
<th>&quot;C&quot;</th>
<th>&quot;D&quot;</th>
<th>&quot;E&quot; *</th>
<th>&quot;F&quot; *</th>
<th>&quot;G&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>4.22&quot;</td>
<td>3.97&quot;</td>
<td>4.25&quot;</td>
<td>4.50&quot;</td>
<td>5.20&quot;</td>
<td>2.90&quot;</td>
<td>7.00&quot;</td>
</tr>
<tr>
<td>6&quot;</td>
<td>6.28&quot;</td>
<td>5.92&quot;</td>
<td>6.32&quot;</td>
<td>6.68&quot;</td>
<td>7.50&quot;</td>
<td>6.25&quot;</td>
<td>7.00&quot;</td>
</tr>
<tr>
<td>8&quot;</td>
<td>8.40&quot;</td>
<td>7.92&quot;</td>
<td>8.46&quot;</td>
<td>8.94&quot;</td>
<td>10.10&quot;</td>
<td>4.10&quot;</td>
<td>7.00&quot;</td>
</tr>
<tr>
<td>10&quot;</td>
<td>10.50&quot;</td>
<td>9.90&quot;</td>
<td>10.57&quot;</td>
<td>11.17&quot;</td>
<td>12.40&quot;</td>
<td>4.70&quot;</td>
<td>7.00&quot;</td>
</tr>
<tr>
<td>12&quot;</td>
<td>12.50&quot;</td>
<td>11.78&quot;</td>
<td>12.58&quot;</td>
<td>13.30&quot;</td>
<td>14.50&quot;</td>
<td>5.15&quot;</td>
<td>7.00&quot;</td>
</tr>
<tr>
<td>15&quot;</td>
<td>15.30&quot;</td>
<td>14.43&quot;</td>
<td>15.36&quot;</td>
<td>14.49&quot;</td>
<td>18.00&quot;</td>
<td>5.95&quot;</td>
<td>7.00&quot;</td>
</tr>
<tr>
<td>18&quot;</td>
<td>18.70&quot;</td>
<td>17.63&quot;</td>
<td>18.76&quot;</td>
<td>19.83&quot;</td>
<td>21.98&quot;</td>
<td>5.90&quot;</td>
<td>7.00&quot;</td>
</tr>
<tr>
<td>21&quot;</td>
<td>22.05&quot;</td>
<td>20.79&quot;</td>
<td>22.11&quot;</td>
<td>23.37&quot;</td>
<td>25.63&quot;</td>
<td>6.40&quot;</td>
<td>7.00&quot;</td>
</tr>
<tr>
<td>24&quot;</td>
<td>24.80&quot;</td>
<td>23.38&quot;</td>
<td>25.04&quot;</td>
<td>26.46&quot;</td>
<td>28.80&quot;</td>
<td>15.75&quot;</td>
<td>7.00&quot;</td>
</tr>
</tbody>
</table>
| 27"  | 27.95"| 26.35"| 28.27"| 29.87"| 32.50"| 18.30"| 7.00"
| 30"  |       |       |       |       | 35.00"|       | 7.00"|
| 36"  |       |       |       |       | 41.50"|       | 7.00"

* APPROXIMATE DIMENSION

ALL MATERIAL AND WORK SHALL COMPLY WITH CITY OF SCAPPOOSE STANDARD SPECIFICATIONS

COMMUNITY DEVELOPMENT
CITY OF SCAPPOOSE
34485 E. COLUMBIA AVENUE, PO BOX "P", CITY OF SCAPPOOSE, OR. 97056
MANHOLE ADAPTER
(SAND COLLAR)
NOTES:
1. COVER AND FRAME TO BE MACHINED FOR TRUE BEARING.
2. MATERIAL SHALL BE GRAY CAST IRON, ASTM A-48, CLASS 30. Wt. = 139 lbs. +/-
3. TWO HOLE LID FOR SANITARY SEWERS.
4. 16 HOLE LID FOR STORM SEWERS.

FOR SANITARY SEWERS ONLY (2) HOLES ARE USED AND SHOWN SHADED.
FOR STORM SEWERS ONLY (16) HOLES ARE USED AND SHOWN OPEN & SHADED.

THESE COVERS TO BE USED FOR IN-ROAD LOCATIONS ONLY.

MACHINE TO A TRUE BEARING ALL AROUND.

SECTION "A"—"A"
NOTES:
1. COVER AND FRAME TO BE MACHINED FOR TRUE BEARING.
2. MATERIAL SHALL BE GRAY CAST IRON, ASTM A-48, CLASS 30. Wt. = 139 lbs. +/-
3. TWO HOLE LID FOR SANITARY SEWERS.
4. 16 HOLE LID FOR STORM SEWERS.

DRILL 5/8" Ø HOLE,
SLOT 5/8" THRU.
TYP. (4) PLACES.

COUNTERBORE 1 7/16" Ø
1/2" DEEP.
TYP. (3) PLACES.

3/4" Ø TOP x
1" BOTTOM HOLES.

PLAN
SANITARY MANHOLE HOLES SHOWN SHADED.
SEE DWG. 305 FOR ADDITIONAL NOTES

LOCKDOWN DETAIL

1/2"-13 NC x 1" STAINLESS STEEL
HEX HEAD CAP SCREW W/ 1 1/4" Ø OD
x 3/32" THK. 8-18 STAINLESS STEEL
WASHER. (3) EA. REQUIRED.

SECTION "A"-"A"

MACHINE TO A TRUE BEARING ALL AROUND.

COMMUNITY DEVELOPMENT
CITY OF SCAPOOSE
34485 E. COLUMBIA AVENUE, PO BOX "P", CITY OF SCAPOOSE, OR. 97056
SANITARY and STORM MANHOLE
TAMPERPROOF COVER

SCALE N.T.S.
DATE 2002
APPR.
DWG. NO. 306
DRILL 0.434" Ø +/- 0.004" 1.125" DEEP, TAP 1/2"-13 NC, COUNTERBORE 1 7/16" Ø 1/2" DEEP, TYPICAL (3) PLACES.

"A"

120° TYP.

"A"

DRILL 0.457" Ø +/- 0.003" 1" DEEP, TAP 1/2"-20 NF, INSTALL LOCATING STUD.

3/32" WIDE x 5/32" DEEP SLOT

1/2" Ø 18-8 STAINLESS STEEL STOCK THREADED 1/2"-20 NF.

LOCATING STUD

PLAN

MATERIAL TO BE GRAY CAST IRON ASTM A-48, CLASS 30.
WEIGHT = 237 LBS.

SECTION "A"-"A"

COMMUNITY DEVELOPMENT
CITY OF SCAPPOOSE
34485 E. COLUMBIA AVENUE, PO BOX "P", CITY OF SCAPPOOSE, OR. 97056
SANITARY and STORM TAMPERPROOF MANHOLE FRAME

DRAWN
A/JB

DIV.

REV. DATE APPR.

SCALE
N.T.S.

DATE 2002

APPR.

DWG. NO. 307
NOTES:
1. COVER AND FRAME TO BE MACHINED FOR TRUE BEARING.
2. MATERIAL SHALL BE GRAY CAST IRON, ASTM A-48, CLASS 30. Wt. = 139 lbs. +/-

DRILL 5/8"Ø HOLE, COUNTERBORE 1 7/16" Ø, 1/2" DEEP.
TYP. (3) PLACES.

"A" 30'

120° TYP.

install 23 3/4" id, 1/4" w. x 1/4" dp neoprene gasket.

1/2"-13 NC x 1 1/4" stainless steel hex head cap screw w/ 1 1/4"ø od x 3/32" thk. 8-18 stainless steel washer & 3/32" neoprene washer. (3) ea. required.

PLAN

LOCKDOWN DETAIL

24 3/4"

6 1/8"

1 3/4" 7/16" 4 1/4" 3/8"

3/4"

1 1/4" r.

MACHINE TO A TRUE BEARING ALL AROUND.

SECTION "A"—"A"

7/16" 3/4" 6 3/8"

3/4" 7/8" 2"
DRILL 0.434"Ø +/- 0.004"
TAP 1/2"-13 NC, TYPICAL (3) PLACES.

MACHINE 9/32"Ø WIDE x 3/16" DEEP GROOVE ON 23 3/4" ID CIRCLE.

MATERIAL TO BE GRAY CAST IRON ASTM A-48, CLASS 30.
WEIGHT = 237 LBS. +/-
Property Line Typical

Typical Lot Number

Lot 2

Property Line Typical

Cleanouts - Typical Per Plumbing Code.

Lot 3

House Lateral in Private Easement Per Plumbing Code. Easements to be Recorded & a Copy Thereof Submitted to City Prior to Construction.

Lot 1

Private Easement, 15' Minimum

Private Easement, 15' Minimum

Lot 4

Install Std. 4' Dia. Precast Manhole in 10' x 10' Public Sewer Easement. Easement to Be Approved by City Before Recording & Recorded Document Given to City Prior to Any Construction.

Property Line

Existing 6" Min. Dia. Sewer Service Branch or install a 6" "Integra-Tee", or Equal, in Existing Sewer Main and a 6" Service Branch. 6" Service Branch Can Serve No More Than 7 Living Units.

Public Sanitary Sewer Main Line

Typical Connection Plan for 3 or 4 Lot Common Lateral. 4 Lot Plan Shown, 3 Lot Similar. Private Easement Arrangement Shown to Be Used Only When Sewer in Public Road Right-of-Way Cannot Be Used.

COMMUNITY DEVELOPMENT
CITY OF SCAPPOOSE

34485 E. COLUMBIA AVENUE, PO BOX "P", CITY OF SCAPPOOSE, OR. 97056

SANITARY SEWER CONNECTION, 3 or 4 LOTS w/ PRIVATE EASEMENTS
TYPICAL LOT NUMBER

LOT 3
PUBLIC EASEMENT. 7.50' MINIMUM.

LOT 2
HOUSE LATERALS - TYPICAL PER PLUMBING CODE.

LOT 4
INSTALL 6" OR 8" DIA. PUBLIC SEWER MAIN PER CITY STANDARD SPECIFICATIONS.

LOT 5
PUBLIC EASEMENT. 7.50' MINIMUM.
PUBLIC EASEMENT. 7.50' MINIMUM.

1.5' EITHER SIDE OF PROPERTY LINE.
PROPERTY LINE

STREET

INSTALL STD. 4' DIA. PRECAST MANHOLE OVER EXISTING SEWER LINE IN STREET.

8" MIN. DIA. PUBLIC SANITARY SEWER MAIN LINE
PROPERTY LINE

TYPICAL CONNECTION PLAN FOR 5 OR MORE LOTS.
5 LOT PLAN SHOWN, 6 OR MORE LOTS SIMILAR.

PUBLIC EASEMENT ARRANGEMENT SHOWN TO BE USED ONLY WHEN PUBLIC ROAD RIGHT-OF-WAY ALIGNMENT CANNOT BE USED.
PROPERTY LINE

CLEANOUTS – TYPICAL PER PLUMBING CODE.

HOUSE LATERAL (MAY BE) IN COMMON DITCH PER PLUMBING CODE.

LOT 138

LOT 139

TYPICAL LOT NUMBER

5' x 5' EASEMENT ON EACH LOT.

PROPERTY LINE

EXISTING 6“ MIN. DIA. SEWER SERVICE BRANCH OR INSTALL A 6” "INSERTA–TEE”, OR EQUAL, IN EXISTING PUBLIC SEWER AND INSTALL A 6” SERVICE BRANCH TO THE SIAMESE & 4” HOUSE LATERALS AT THE PROPERTY LINE.

SEE STANDARD DRAWING NO. 320.

STREET

PUBLIC SANITARY SEWER MAIN LINE

PROPERTY LINE

TYPICAL CONNECTION FOR A 2 LOTS W/ COMMON (SIAMESE) SERVICE BRANCH
TYPICAL CONNECTION FOR SINGLE FAMILY RESIDENCE.
NOTE:

1. WHERE APPROVED BY THE ENGINEER, GRANULAR TRENCH STABILIZATION SHALL BE PLACED PRIOR TO THE PIPE ZONE MATERIAL. SIZE AND DEPTH OF TRENCH STABILIZATION PER SOIL CONDITIONS.

2. PIPE ZONE MATERIAL SHALL BE COMPACTED TO 90% OF ASTM D1557/ AASHTO T-180.

3. PIPE ZONE MATERIAL SHALL BE COMPACTED AS SPECIFIED PRIOR TO BACKFILLING THE REMAINDER OF THE TRENCH.
FOR 6", 8", & 10" SEWER PIPE
0.29 Cu. Yd. Concrete Min.

FOR 12", & 15" SEWER PIPE
0.37 Cu. Yd. Concrete Min.

NOTES:
ALL MATERIAL AND WORK TO BE IN ACCORDANCE WITH CITY OF SCAPPOOSE PUBLIC WORKS DESIGN STANDARDS.

ALL CONCRETE SHALL BE 3,000 psi 28 DAY COMPRESSIVE STRENGTH, WITH 2" TO 4" SLUMP.

ANCHOR WALLS MUST BE USED WITH PIPES WITH SLOPES OVER 20%.

ANCHOR WALLS TO BE EQUALLY SPACED

<table>
<thead>
<tr>
<th>PIPE SLOPE</th>
<th>WALL SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>20%</td>
<td>21&quot;</td>
</tr>
<tr>
<td>100%</td>
<td>12&quot;</td>
</tr>
</tbody>
</table>

PROPORTION SPACING WITH SLOPE. PLACE WALL IMMEDIATELY BELOW BELL OF PIPE WHERE POSSIBLE.

ANCHORS FOR PIPES LARGER THAN 24" TO BE DESIGNED BY GEOTECH. ENG' R.
VERTICAL SECTION

NOTES:
ALL MATERIAL AND WORK TO BE IN ACCORDANCE WITH CITY OF SCAPPOOSE STANDARD SPECIFICATIONS AND REQUIREMENTS.

ALL CONCRETE SHALL BE 3,000 PSI, 3" TO 5" SLUMP.

STEEL REINFORCING SHALL BE NO. 5Ø IN CONFORMANCE WITH ASTM A 615, GRADE 60, WITH DEFORMATIONS PER ASTM A 305.
NOTES:
ALL MATERIAL AND WORK SHALL BE IN COMPLIANCE WITH CITY OF SACCPOOSE STANDARD SPECIFICATIONS.
SEE STD. DWG. NOS. 319, 323, OR 324 FOR OTHER DIMENSIONS AND NOTES.
THIS DESIGN TO BE USED FOR ALL DROPS 2 FEET AND LESS.

PIPE SPANNING SELECT BACKFILL TO BE D.I.P.
FORM CHANNEL WITH GROUT. SMOOTH TO CONCRETE PIPE INTERNAL SURFACE FINISH.
CLASS "B" PIPE ZONE.
IMPORTED SELECT BACKFILL COMPACTED TO 95% M.D.D. PER AASHTO T-180.
MINIMUM OF 9" WALL BETWEEN PIPES.
SEE STANDARD DRAWING 324 FOR ALTERNATIVE.
SLOPE SHELVES 1:12 TYP. MIN.

SECTION "A"—"A"
PARTIAL PLAN

COMMUNITY DEVELOPMENT
CITY OF SACCPOOSE
34485 E. COLUMBIA AVENUE, PO BOX "P", CITY OF SACCPOOSE, OR. 97056
SHALLOW INSIDE DROP MANHOLE

DRAWN AJH
DIV.
REV. DATE APPR.
SCALE N.T.S.
DATE 2002
APPR. DWG. NO. 318
MANHOLE FRAME AND COVER
PER PLANS AND SPECIFICATIONS.
GRADE RINGS – 3” MINIMUM
AND 12” MAXIMUM HEIGHT.
REDUCING TOP SLAB TO BE
DESIGNED AND CONTRACTED
FOR DEPTH AND TRAFFIC
CONDITIONS BY MANUFACTURER.

STEPS SHALL BE 180° OPPOSITE OUTLET PIPE
UNLESS IN CONFLICT WITH DROP ENTRY.

POURED-IN-PLACE BASE
SHOWN. USE PRECAST
BASE IN TRAVELED STREETS.

SECTION "A"–"A"

MINIMUM OF 9” PRECAST
WALL BETWEEN PIPE CORES.
SEE DWG. NO. 324 FOR
ALTERNATIVE.

NOTES:
ALL MATERIAL AND WORK TO BE IN
COMPLIANCE WITH CITY OF SCAPPOOSE
STANDARD SPECIFICATIONS.

JOINTS SHALL BE WATER TIGHT AND
COATED WITH WATERPROOF RUBBERIZED
MASTIC MATERIAL BEFORE SETTING
RISERS AND TOP. INSIDE JOINTS
SHALL BE GROUTED.

MANHOLES SHALL HAVE A 12” MIN.
24” MAX. BOTTOM RISER. RISER TO
BE BEDDED IN THE CAST-IN-PLACE
CONCRETE AS THE BASE TAKES ITS’
INITIAL SET.

SEE STD. DWG. 303 FOR PVC PIPE
MANHOLE CONNECTION DETAILS.
5’ x 5’ EASEMENT ON EACH LOT.

LOT 7 (TYP.)

4” LATERAL FOR EACH LOT.

LOT 8 (TYP.)

6” SERVICE BRANCH FOR SIAMESE CONNECTION.

PROPERTY LINE

SEE STD. DWG. 321 FOR CLEANOUT INFORMATION AND NOTES.

STAMP “S” ON TOP OR ON FACE OF CURB.

SEE STD. DWG. 312 & 314 FOR ADDITIONAL INFORMATION.

PROPERTY LINE

VERTICAL SECTION

NOTES:
1. SCHEME AND DEPTH FOR HOUSE SERVICE TO BE DETERMINED IN THE FIELD BY ENGINEER.
2. SERVICE SHALL NOT BE BACKFILLED PRIOR TO INSPECTION.
FRAME & COVER
SALEM IRON WKS.
#4233 & 4234 OR EQUAL.

CAST IRON CLEANOUT FRAME AND COVER.
INSTALL MECHANICAL SEAL.

IF IN GRAVEL STREET, PLACE A 2" THICKNESS OF CLASS "C", A.C. PAVEMENT IN A 4' DIAMETER CIRCLE AROUND THE CLEANOUT SLOPING AWAY.

GRANULAR TRENCH BACKFILL

45° SHORT BEND.

4" x 18" x 24" Poured-In-Place 3,000 PSI Concrete Pad.

1/2" x 6" S.S. HEX HD. BOLT & S.S. HEX NUT.
FRAME SHALL BE ON 1/2" MIN. GROUT SEAL.

1" CL.

6" THICKNESS 3,000 PSI CONCRETE CONCRETE CRADLE FULL WIDTH OF TRENCH.

UNDISTURBED EARTH BASE.

ELEVATION
PARTITION MATERIAL SHALL BE 1/2" H.D.P.E. (TYP. PER ASSOCIATED PIPE), OR 1/8" FIBERGLASS (TYP. PER PIPE INC.) OR 16 GA. ALUMINUM OR 18 GA. STAINLESS STEEL. FIBERGLASS SHALL BE 3 OR 4 MAT LAYUP PER MANUFACTURERS’ RECOMMENDATIONS.

MAXIMUM FLOW IS 3 C.F.S. FOR INSIDE DROP MANHOLE. IF GREATER THAN 3 C.F.S. FLOW USE AN OUTSIDE DROP MANHOLE DESIGN.

FOR A 48" DIA. MANHOLE THE MAXIMUM INCOMING PIPE DIAMETER IS 15". A LARGER DIAMETER INCOMING PIPE WILL REQUIRE A SPECIAL DESIGN.

STANDARD TYPE MANHOLE SHOWN. FLAT TOP MANHOLE SIMILAR.

1/2" SELF TAPPING CONCRETE ANCHORS, PHILLIPS S-12 OR APPROVED EQUAL 3/4" DIA. 1 1/2" Lg. STAINLESS STEEL BOLT & STAINLESS STEEL LOCK WASHER.

DEFLECTION PLATE HEIGHT + 2" CLEAR

15” MAX. DIA., DUCTILE IRON, CL 52 PIPE. EXTEND TO UNDISTURBED GROUND. USE FOWLER OR FERNCO COUPLING TO CONNECT TO PVC OR CONCRETE SEWER PIPE.

IMPORTED SELECT BACKFILL COMPACTED TO 95% M.D.D. PER AASHTO T-180.

MINIMUM OF 9” PRECAST
WALL BETWEEN PIPE CORES.
SEE DWG. NO. 324 FOR
ALTERNATIVE.

STEPS TO BE
180° OPPOSITE
OUTLET PIPE
UNLESS IN
CONFLICT W/ DRAIN ENTRY.

SET IN NON-SHRINK MORTAR
24” MAX.
GRADE RINGS – 3” MINIMUM AND 12” MAXIMUM HEIGHT.
SLOPE OF PRECAST ECCENTRIC CONE SHALL FACE DOWN GRADE.

12” TYP.
INSIDE DIA.

4" MIN.
12” MAX.
3” MIN.

6” MINIMUM THICKNESS OF 3/4”-0” COMPACTED CRUSHED ROCK UNDER POURED-IN-PLACE OR PRECAST BASE.

POURED-IN-PLACE BASE SHOWN.
USE PRECAST BASE IN TRAVELED STREETS.

SECTION "A"-"A"

NOTES:
ALL MATERIAL AND WORK SHALL BE IN COMPLIANCE WITH CITY OF GRESHAM STANDARD SPECIFICATIONS.

JOINTS SHALL BE WATER TIGHT AND COATED WITH WATERPROOF RUBBERIZED MASTIC MATERIAL BEFORE SETTING RISERS AND TOP. INSIDE JOINTS SHALL BE GROUTED.

MANHOLES SHALL HAVE A 12” MIN., 24” MAX. BOTTOM RISER. RISER TO BE BEDDED IN THE CAST-IN-PLACE CONCRETE AS THE BASE TAKES ITS’ INITIAL SET.

SEE STD. DWG. 303 FOR PVC PIPE MANHOLE CONNECTION DETAILS.

COMMUNITY DEVELOPMENT
CITY OF SCAPPOOSE
34485 E. COLUMBIA AVENUE, PO BOX "P", CITY OF SCAPPOOSE, OR. 97056
STANDARD MANHOLE FOR 27” AND LESSER DIA. PIPE

DRAWN: AJB
DIV.
REV. DATE APPR.

SCALE N.T.S.
DATE 2002
APPR.

DWG. NO. 323
REDDUCING TOP SLAB TO BE DESIGNED & CONSTRUCTED FOR DEPTH AND TRAFFIC CONDITIONS BY MANUFACTURER. FOR SLABS WITHIN 1'7" OF STREET, OPENING TO BE 25".

MINIMUMS

<table>
<thead>
<tr>
<th>PIPE DIA.</th>
<th>BARREL DIA.*</th>
<th>&quot;A&quot; DIM.</th>
<th>&quot;B&quot; DIM.</th>
<th>&quot;C&quot; DIM.</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN.</td>
<td>IN.</td>
<td>IN.</td>
<td>IN.</td>
<td>IN.</td>
</tr>
<tr>
<td>30&quot;</td>
<td>66&quot;</td>
<td>6&quot;</td>
<td>8&quot;</td>
<td>8&quot;</td>
</tr>
<tr>
<td>33&quot;</td>
<td>72&quot;</td>
<td>7&quot;</td>
<td>8&quot;</td>
<td>8&quot;</td>
</tr>
<tr>
<td>36&quot;</td>
<td>72&quot;</td>
<td>7&quot;</td>
<td>8&quot;</td>
<td>8&quot;</td>
</tr>
<tr>
<td>42&quot;</td>
<td>78&quot;</td>
<td>7&quot;</td>
<td>8&quot;</td>
<td>8&quot;</td>
</tr>
<tr>
<td>48&quot;</td>
<td>84&quot;</td>
<td>8&quot;</td>
<td>8&quot;</td>
<td>8&quot;</td>
</tr>
<tr>
<td>54&quot;</td>
<td>90&quot;</td>
<td>8&quot;</td>
<td>8&quot;</td>
<td>8&quot;</td>
</tr>
<tr>
<td>60&quot;</td>
<td>96&quot;</td>
<td>9&quot;</td>
<td>12&quot;</td>
<td>12&quot;</td>
</tr>
<tr>
<td>66&quot;</td>
<td>102&quot;</td>
<td>10&quot;</td>
<td>12&quot;</td>
<td>12&quot;</td>
</tr>
<tr>
<td>72&quot;</td>
<td>108&quot;</td>
<td>10&quot;</td>
<td>12&quot;</td>
<td>12&quot;</td>
</tr>
<tr>
<td>78&quot;</td>
<td>114&quot;</td>
<td>10&quot;</td>
<td>12&quot;</td>
<td>12&quot;</td>
</tr>
<tr>
<td>84&quot;</td>
<td>120&quot;</td>
<td>11&quot;</td>
<td>12&quot;</td>
<td>12&quot;</td>
</tr>
<tr>
<td>90&quot;</td>
<td>126&quot;</td>
<td>11&quot;</td>
<td>12&quot;</td>
<td>12&quot;</td>
</tr>
<tr>
<td>96&quot;</td>
<td>132&quot;</td>
<td>12&quot;</td>
<td>12&quot;</td>
<td>12&quot;</td>
</tr>
</tbody>
</table>

* APPLIES TO (2) PIPE MANHOLES WITH 0" DEFLECTION. OTHER NUMBERS OF PIPES OR DEFLECTION WILL REQUIRE LARGER SIZE.

NOTES:
ALL MATERIAL & WORK SHALL BE AS REQUIRED BY CITY OF SCAPPOOSE STANDARD PLANS & SPECIFICATIONS.
STEPS TO BE AS DETAILED IN STANDARD SPECIFICATIONS.

VERTICAL SECTION

DESIGN BARREL REINFORCING FOR CONDITIONS.
SLOPE SHELVES 1:12, 18" MINIMUM WIDTH.
CORE MANHOLE WALL 2" MIN., 4" MAX.
CLEAR OF PIPE WALL. GROUT WITH NON-SHRINK GROUT & POUR 4"x4" CONCRETE COLLAR AROUND PIPE CONNECTION.
2" MIN. FOR CAST-IN-PLACE BASE
FORM GROUT CHANNEL TO 2/3 DIA. HEIGHT.
REINFORCED PRE-CAST OR CAST-IN-PLACE BOTTOM SLAB. SUBMIT CALCULATIONS & DESIGN FOR PRIOR APPROVAL.
12" MINIMUM THICKNESS OF 3/4"-0" COMPACTED CRUSHED ROCK.

COMMUNITY DEVELOPMENT
CITY OF SCAPPOOSE
34485 E. COLUMBIA AVENUE, PO BOX "P", CITY OF SCAPPOOSE, OR. 97056
STANDARD MANHOLE
FOR 30" AND LARGER DIA.PIPES

DRAWN: AJH
DIV.
REV. DATE APPR.
SCALE: N.T.S.
DATE: 2002
APPR.
DWG. NO. 324
NOTES:

ALL MATERIAL AND WORK SHALL BE IN COMPLIANCE WITH CITY OF SCAPPOOSE STANDARD SPECIFICATIONS.

JOINTS SHALL BE WATER TIGHT AND COATED WITH WATERPROOF RUBBERIZED MASTIC MATERIAL BEFORE SETTING RISERS AND TOP. INSIDE JOINTS SHALL BE GROUTED.

MANHOLES SHALL HAVE A 12" MIN., 24" MAX. BOTTOM RISER. RISER TO BE BEDDED IN THE CAST-IN-PLACE CONCRETE AS THE BASE TAKES ITS' INITIAL SET.
THIS MANHOLE FRAME MAY BE USED ONLY FOR LOCAL ROAD LOCATIONS.

MATERIAL TO BE GRAY CAST IRON ASTM A-48, CLASS 30.
WEIGHT = 172 LBS.

SECTION "A"—"A"
NOTES:
1. THE TAP SHALL NOT BE MADE EXCEPT IN THE PRESENCE OF A CITY INSPECTOR; NOR SHALL ANY CONNECTION BE MADE WITHOUT CITY APPROVAL.

2. A "INSERTA-TEE" OR "FERNCO" TYPE TAPPING SADDLE SHALL BE USED.

3. THE HOLE MADE IN MAIN TO BE CORED.

4. C. OF TAP TO BE ABOVE SPRINGLINE.

5. 4" MAXIMUM HOLE FOR 8" MAIN (CUT-IN TEE TO BE USED FOR 6" SERVICE BRANCH ON 8" MAIN).

6. 4" SERVICE BRANCH MAY BE USED FOR SINGLE FAMILY LOTS ONLY.
UNLESS OTHERWISE SPECIFIED, SURFACE RECONSTRUCTION SHALL CONSIST OF A 6" THICKNESS OF 1"-0" CRUSHED AGGREGATE.

TRAVELED UNIMPROVED STREET

Saw Cut

6" Min.

Concrete Surface Street


Saw Cut

10" Thickness of Cement Treated Base.

CTB STREET

Notes:
1. Backfill shall be imported granular or native backfill as approved.
2. Compaction Standard shall be ASTM D1557/AASHTO T-180 when not otherwise specified.
3. Prior to surface restoration sawcut existing surfacing 6" outside extent of disturbed soils.

* M.D.D. = Max. dry density
12" THICKNESS OF NATIVE TOP SOIL.
(IF TOP SOIL EXISTED PRIOR TO TRENCH
EXCAVATION.)

90% M.D.D.*

SPECIFIED PIPE ZONE

BACKFILL

IN OFF-ROAD AREAS

SURFACE RESTORATION SHALL BE A
3 1/2" THICKNESS OF CLASS "C"
A.C. PAVEMENT PLACED IN 2 LIFTS
OR THE DEPTH OF THE EXISTING A.C.
PAVEMENT PLACED IN 2" LIFTS,
WHICHEVER IS GREATER, PLACED ON
A 12" THICKNESS OF 1"-0" CRUSHED
AGGREGATE.

36"

95% M.D.D.*

SAW CUT

6"

90% M.D.D.*

SPECIFIED PIPE ZONE

BACKFILL

SURFACE RESTORATION SHALL BE A
3 1/2" THICKNESS OF CLASS "C"
A.C. PAVEMENT PLACED IN 2 LIFTS
OR THE DEPTH OF THE EXISTING A.C.
PAVEMENT PLACED IN 2" LIFTS,
WHICHEVER IS GREATER, PLACED ON
A 12" THICKNESS OF 1"-0" CRUSHED
AGGREGATE PLACED ON A SUBGRADE
GEOTEXTILE. LAP FABRIC JOINTS 6".

SAW CUT

6"

90% M.D.D.*

SPECIFIED PIPE ZONE

BACKFILL

NOTES:

1. BACKFILL SHALL BE IMPORTED
GRANULAR OR NATIVE BACKFILL
AS APPROVED.

2. COMPACTION STANDARD SHALL BE
ASTM D1557/AASHTO T-180 WHEN
NOT OTHERWISE SPECIFIED.

3. PRIOR TO SURFACE RESTORATION
SAW CUT EXISTING SURFACING 6"
OUTSIDE EXTENT OF DISTURBED SOILS.

* M.D.D. = MAX. DRY DENSITY
1. HYDRANTS TO BE APPROVED BY CITY ENGINEER.

2. HYDRANT COLOR TO BE SHERWIN WILLIAMS GCC-5006.

3. ALL MJ’S ON TEE, VALVE & F.H. TO BE RESTRAINED WITH “MEGALUG” FOLLOWER GLANDS. RESTRAIN MIN 10’ OF PIPE EACH SIDE OF TEE ON MAIN LINE. NO JOINTS BETWEEN VALVE AND SHOE UNLESS OVER 18’.

4. HYDRANT DRAIN HOLES TO REMAIN OPEN TO DRAIN ROCK AND OPERATIONAL

5. MIN. 4 CU. FT. OF 1 1/2”-3/4” CLEAN DRAIN ROCK SHALL BE PLACED AROUND SHOE UP TO A MIN. OF 6” ABOVE DRAIN OUTLETS.

6. WHERE PLANTER STRIP EXISTS. HYDRANT SHALL BE PLACED SO FRONT PORT IS A MIN. OF 24” BEHIND FACE OF CURB.

7. WHERE INTEGRAL S/W & CURB EXIST, HYD. PUMPER PORT SHALL BE PLACED AT BACK OF SIDEWALK, OR AS DIRECTED BY ENGINEER.

8. BURY OF HYDRANT SHALL BE MEASURED FROM FINISHED GRADE TO BOTTOM OF CONNECTING PIPE. HYDRANT SHALL HAVE A MAX. OF A 6’ BURY.

9. HYDRANT VALVE SHALL BE MUELLER RESILIENT WEDGE GATE VALVE #A–2360–16 OR APPROVED EQUAL.

10. WHERE NO SIDEWALK EXISTS AROUND A HYDRANT, INCLUDING PLANTER STRIPS, PLACE A 5’x 5’x 4” THICK CONC. PAD AROUND HYDRANT.

"VANCOUVER" VALVE BOX, LID, & 6” P.V.C. EXTENSION (SEE STND. DTL. NO.413) CURB AND GUTTER

3/4” MINUS CRUSHED ROCK

UNDISTURBED EARTH

MAINLINE TEE 6” SIDE OUTLET FLANGED

CONC. BLOCK HAVING MIN. 1.75 SQ. FT. BEARING AREA, AND MIN. 6” THICKNESS

"MEGALUG"

6” FLG. x MJ SHOE

DRAIN ROCK VARIES

6” D.I. PIPE

UNDISTURBED EARTH

CONC. PAD

DEPT 6” MAX.

DRAIN

DEPTH OF BURY 2” MAX.

0”MIN.

24” MIN.

PLANTER STRIP AREA

PLANTER STRIP AREA

CONC. SIDEWALK

1-4 1/2” PUMPER NOZZLE

2-2 1/2” HOSE NOZZLES
IF NATIVE MATERIAL IS UNSUITABLE FOR BACKFILL, APPROVED GRANULAR MATERIAL WILL BE REQ'D

NATIVE MATERIAL OR 4" OF 1" MINUS AS REQUIRED.

SAW CUT EXISTING A.C. TO NEAT, STRAIGHT LINES.

PAY WIDTH PIPE I.D. + 1'−6"

12"

6"

12"

PIPE ZONE & BEDDING (3/4" MINUS)

6"

6"

6"

Paying Width PIPE I.D. + 2'−6"

3" A.C. PAVEMENT OR SAME AS EXIST. DEPTH, WHICHEVER IS GREATER, OR AS REQ'D BY PERMIT.

T−CUT 1 1/2" THICK OR DEPTH OF EXIST. TOP LIFT, WHICHEVER IS GREATER

EXIST. BASE ROCK

3/4" MINUS CRUSHED AGG. PER CITY SPECS.

SHOULDER OR LANDSCAPED SECTION

PAYING SECTION

NOTES.

1. ALL WATER MAINS SHALL HAVE A MIN. COVER OF 36" IN RIGHT−OF−WAY AND 48" IN EASEMENTS

2. ALL TRENCH BACKFILL SHALL BE COMPACTED TO 95% OF MAX. DENSITY PER AASHTO T−180 OR AS SPECIFIED IN THE CONTRACT DOCUMENTS.

3. ALL TRENCH BACKFILL AND PATCHING SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE GOVERNING AGENCY.

4. PAYMENT FOR PAVEMENT CUT AND REPAIR SHALL INCLUDE ALL A.C. AND CRUSHED AGGREGATE TO 12" BELOW FINISH GRADE.

5. SAND BACKFILL WILL BE REQ'D IN PIPE ZONE WHEN PIPE LINE IS TO BE POLYBAGGED.

6. BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS, OR AS DETERMINED IN FIELD BY THE CITY ENGINEER.
MATERIALS:
1. OLDCASTLE METER BOX, BODY NO. 37, LID AND COVER NO. 37-S.
2. MUELLER CORP. STOP NO. H-15000 (FLARE), H-15008 (110 COMPRESSION), OR FORD F600 (FLARE).
3. 1” SOFT TEMPER, TYPE “K” COPPER TUBING COMPLYING WITH ASTM B-88.
4. MUELLER ANGLE METER STOP NO. H-14255 (FLARE), H-14258 (110 COMPRESSION), OR FORD NO.
   KV23-444W (FLARE).

NOTES:
1. SUBSTITUTES FOR ANY MATERIALS SHOWN SHALL BE APPROVED BY THE CITY ENGINEER.
2. ALL PIPE AND STRUCTURE ZONES SHALL BE BACKFILLED USING 3/4” MINUS CRUSHED AGG. AND COMPACTED
   TO 95% MAX. DENS. AS DETERMINED BY AASHTO T-180.
3. WHEN AN ACTIVE CATHODIC PROTECTED SYSTEM IS ENCOUNTERED, SCH. 40 PVC SHALL BE INSTALLED WITH
   IMPERVIOUS PLUG AS SHOWN ABOVE.
4. METER BOX SHALL BE CENTERED OVER THE COMPLETED METER ASSEMBLY.
5. FOR VACANT RESIDENTIAL LOTS, LOCATE SERVICE 18” INSIDE SIDE LOT LINE. LOT LINE TO BE PROJECTED
   PERPENDICULAR TO CURB.
6. ANGLE METER STOP SHALL BE PERPENDICULAR TO CURB LINE.
7. SET CORP. STOP WITH OPERATING NUT AT 3 OR 9 O’CLOCK.
8. TRAFFIC BEARING METER BOX LIDS SHALL BE USED WHERE METERS ARE LOCATED WITHIN ANY PORTION OF
   DRIVeway OR APRON AND OTHER TRAFFIC AREAS.
9. ONLY APPROVED BIT AND TAPPING MACHINE ALLOWED FOR INSTALLATION OF CORP. STOP.
10. COPPER SERVICE SHALL BE INSTALLED IN A DIRECT LINE BETWEEN TAP AND METER.
MATERIALS:

1. "VANCOUVER" VALVE BOX, LID & 6" PVC EXTENSION (SEE STANDARD DETAIL. NO. 413)
2. PIPE O.D. x 2" TEE OR 2" F.I.P. SERVICE SADDLE (A.Y. Mcdonald Mfg. Co. model 3826 OR APPROVED EQUAL)
3. 2" BRASS M.I.P. NIPPLE
4. 2" F.I.P. GATE VALVE (MUELLER NO. A-2369-8 OR APPROVED EQUAL)
5. 2" M.I.P. x COP. FLARE (MUELLER NO. H-15425, FORD NO. C28-77) OR MUELLER 110 COMPRESSION COUPLING (NO. H-15428)
6. 2" ASTM B-88 TYPE "K" RIGID COPPER TUBING. SOFT TEMPER REQ'D WITH FLARE FITTINGS.
7. 2" 90° BEND, COP. FLARE (MUELLER NO. H-15525 OR FORD NO. L22-77) OR MUELLER 110 COMPRESSION (NO. H-15526)
8. 1 1/2" - 2" ANGLE METER STOP, MUELLER NO. H-14276 (FLARE) OR H-14277 (110 COMPRESSION) OR FORD NO. FV23-777W (FLARE)
9. OLDCASTLE METER BOX, BODY NO. 38 (1 1/2"), OR 65 (2"), LID & COVER NO. 38-S (1 1/2"), OR 65-DPRL (2"

NOTES:

1. SUBSTITUTES FOR ANY MATERIALS SHOWN SHALL BE APPROVED BY THE CITY ENGINEER.
2. ALL PIPE AND STRUCTURE ZONES SHALL BE BACKFILLED USING 3/4" MINUS CRUSHED AGG. AND COMPACTED TO 95% MAX. DENSITY AS DETERMINED BY AASHSTO T-180.
3. WHEN AN ACTIVE CATHODIC PROTECTION SYSTEM IS ENCOUNTERED, SCH. 40 PVC SHALL BE INSTALLED WITH AN IMPERVIOUS PLUG, AS SHOWN.
4. METER BOX SHALL BE CENTERED OVER THE COMPLETED METER AND FITTING ASSEMBLY.
5. CUSTOMER SHALL INSTALL AN APPROVED BACKFLOW PREVENTION ASSEMBLY AT RIGHT-OF-WAY.
6. ANGLE METER STOP SHALL BE PERPENDICULAR TO CURB LINE.
STANDARD 2" SERVICE -- DOMESTIC
WITH OR W/O IRRIGATION (1-1/2" - 2" METER)
MATERIALS:

1. "VANCOUVER" VALVE BOX, LID & 6" PVC EXTENSION (SEE STANDARD DETAIL NO. 413)

2. PIPE O.D. x 2” TEE OR 2” F.I.P. SERVICE SADDLE (A.Y. MCDONALD MFG. CO. MODEL3826 OR APPROVED EQUAL)

3. 2” BRASS M.I.P. NIPPLE

4. 2” F.I.P. GATE VALVE (MUELLER NO. A–2369–8 OR APPROVED EQUAL)

5. 2” M.I.P. x COP. FLARE (MUELLER NO. H–15425, FORD NO. C28–77) OR MUELLER 110 COMPRESSION COUPLING (NO. H–15428)

6. 2” ASTM B–88 TYPE "K" RIGID COPPER TUBING. SOFT TEMPER REQ’D WITH FLARE FITTINGS.

7. 2” 90Ø BEND, COP. FLARE (MUELLER NO. 525 OR FORD NO. L22–77) OR MUELLER 110 COMPRESSION (NO. H–15526)

8. OLDCASTLE METER BOX, BODY NO. 38 (1 1/2”), OR 65 (2”), LID & COVER NO. 38–S (1 1/2”), OR 65–DPRL (2”)

9. 2” 90Ø BEND, COMP. x M.I.P. (MUELLER H–15531)

10. 2” METER YOKE (SETTER) (MUELLER NO. B–2423–99000)

11. 2” COMP. x F.I.P. (MUELLER H–15451) W/PVC PLUG

NOTES:

1. SUBSTITUTES FOR ANY MATERIALS SHOWN SHALL BE APPROVED BY THE CITY ENGINEER.

2. ALL PIPE AND STRUCTURE ZONES SHALL BE BACKFILLED USING 3/4” MINUS CRUSHED AGG. AND COMPACTED TO 95% MAX. DENSITY AS DETERMINED BY AASHTO T–180.

3. WHEN AN ACTIVE CATHODIC PROTECTION SYSTEM IS ENCOUNTERED, SCH. 40 PVC SHALL BE INSTALLED WITH AN IMPERVIOUS PLUG, AS SHOWN.

4. METER BOX SHALL BE CENTERED OVER THE COMPLETED METER AND FITTING ASSEMBLY.

5. CUSTOMER SHALL INSTALL AN APPROVED BACKFLOW PREVENTION ASSEMBLY AT RIGHT–OF–WAY.

6. METER SETTER SHALL BE PERPENDICULAR TO CURB LINE.
MATERIALS
1. ECLIPSE NO. 88 SAMPLING STATION WITH THREADED OUTLET NOZZLE AND BRASS STANDPIPE (KUPFERLE FOUNDRY).
2. 3/4" TYPE 'K' SOFT TEMPER COPPER TUBING.
3. 3/4" MIP x COP. FLARE 1/4 BEND, MUELLER H–15530 (FLARE), H–15531 (110 COMPRESSION), OR FORD L28–33 (FLARE).
4. 3/4" FIP BALL VALVE, MUELLER (110 COMPRESSION) B–25209, OR FORD B22–333W (FLARE).
5. 3/4" CORP. STOP, MUELLER H–15000 (FLARE), H–15008 (110 COMPRESSION), OR FORD F600 (FLARE).
6. STD. 'VANCOUVER' VALVE BOX.
7. CONCRETE PAD 4" THK., 46" LG BY 31" WIDE
8. PAINT TOP WITH SHERWIN WILLIAMS GCC–5033 (BLUE).
9. PAINT BASE WITH SHERWIN WILLIAMS INDUSTRIAL ENAMEL PURE WHITE.

NOTES
1. ALL PIPE AND STRUCTURES SHALL BE BACKFILLED WITH 3/4"–0" CRUSHED ROCK COMPACTED TO MIN. 95% OF MAX. DENSITY PER AASHTO T–180.
2. SET STATION AT LOT LINE.
3. WHEN CROSSING CATHODICALLY PROTECTED SYSTEM, INSTALL PVC SLEEVE PER STD. DETAIL 403.
CONCRETE ENCASEMENT

4" MIN
10" MAX

2" PVC PLUG
W/SQUARE NUT

2" GALV. COUPLING

UNDISTURBED
SOIL

2" GALV. 90
BEND

3/4"-0" CRUSHED ROCK

2" MUELLER RESIL. WEDGE GATE
VALVE NO. A-2360-8, OR APPROVED
EQUAL W/THREADED ENDS, C.I. OR D.I.
BODY, 2" NUT

MJ CAP TAPPED
2" I.P.T. AND
THRUST
RESTRANDED

2" x 6" BRASS
NIPPLE

4" OR
6" D.I.

FINISHED GRADE
12"

6" PVC
2-5 FT.

2" GALV. PIPE

NOTES:

1. USE "VANCOUVER" STYLE VALVE BOXES, LIDS, & 6" PVC EXTENSION
   (SEE STANDARD DETAIL 413)

2. VALVE BOXES TO BE CONCRETE ENCASED AS SHOWN, IF NOT IN
   PAVED AREA.

3. BLOW-OFF UNIT SHALL BE BACKFILLED WITH 3/4"-0" CRUSHED ROCK AND
   COMPACTED TO 95% OF MAX. DENSITY AS DETERMINED BY AASHTO T-180.

4. PLACE BLOW-OFF STANDPIPE 3 FT. INSIDE R.O.W. LINE AT THE END OF
   STREET (2 FT. FROM BARRICADE).

5. 2" GALVANIZED TO BE ONE CONTINUOUS PIECE.

6. USE EBAA IRON "MEGALUG" ON MJ CAP. RESTRAIN A MIN. OF 70 L.F. OF
   PIPE PRIOR TO BLOW-OFF OR INSTALL A STRADDLE BLOCK.
NOTES:

1. BACKFILL WITH SELECT CRUSHED AGGREGATE A MINIMUM OF 6" ON ALL SIDES.

2. ON TEMPORARY BLOW-OFFS ONLY, AN MJ CAP TAPPED 4" OR 6" MAY BE SUBSTITUTED FOR REDUCER.

3. TEMPORARY BLOW-OFF IS ONE REMOVED AT THE END OF PROJECT CONSTRUCTION. A PERMANENT BLOW-OFF REMAINS ON THE PROJECT AFTER ACCEPTANCE.

4. PLACE BLOW-OFF STANDPIPE 3 FT. INSIDE P/L LINE AT END OF STREET (2 FT. FROM BARRICADE).

5. USE "VANCOUVER" STYLE VALVE BOX, LID, AND 6" PVC EXTENSION FOR BLOW-OFF VALVE. USE "PORTLAND" STYLE VALVE BOX, LID, AND 8" PVC EXTENSION FOR BLOW-OFF STAND PIPE (SEE DETAILS 413 & 414)
NOTES:

1. ALL FILLING, FLUSHING, AND TESTING OF NEW WATERLINE FACILITIES SHALL BE DONE THROUGH A 6" DOUBLE CHECK ASSEMBLY WITH A METERING DEVICE.

2. PROVIDE TEMPORARY BLOCKING AS REQUIRED.

3. ALL PIPING AND FITTINGS SHALL BE GALVANIZED IRON.

4. FOR 8"-12" WATERLINES: FILL POINT SHALL BE 4" PIPING AND FITTINGS. FOR 14"-18" WATERLINES: FILL POINT SHALL BE 6" PIPING AND FITTINGS. FOR 20" AND LARGER: FILL POINT SHALL SIZED AS DETERMINED BY THE ENGINEER.
1. ALL VALUES ARE BASED ON THE FOLLOWING ASSUMPTIONS:
   AVG. PRESSURE = 100 PSI x 2 (safety factor); 1500 PSF SOIL BEARING CAPACITY; NORMAL DISTRIBUTION DESIGN VELOCITY NOT TO EXCEED 5 F/S.
2. ALL FITTINGS SHALL BE WRAPPED IN PLASTIC PRIOR TO PLACEMENT OF CONCRETE.
3. ALL THRUST BLOCKS SHALL BE FORMED TO ELIMINATE ANY CONCRETE AROUND FITTING BOLTS.
4. BEARING SURFACE OF THRUST BLOCKING SHALL BE AGAINST UNDISTURBED SOIL.
5. ALL CONCRETE MIX SHALL HAVE A MIN. 28 DAY STRENGTH OF 3000 PSI.
6. ALL PIPE ZONES SHALL BE GRAVEL FILLED AND COMPACTED.
7. THRUST BLOCKS FOR PLUGGED CROSS AND PLUGGED TEE SHALL HAVE #4 REBAR LIFTING LOOPS INSTALLED AS SHOWN.
8. VERTICAL THRUST DETAILS – SEE DWG. #409
9. STRADDLE BLOCK DETAILS – SEE DWG. #410.

   * BLOCK TO UNDISTURBED TRENCH WALLS

   ** THRUST BLOCKS FOR PIPES LARGER THAN 18” WILL BE INDIVIDUALLY DESIGNED BY THE ENGINEER.
NOTES:

1. GRAVITY VERTICAL THRUST BLOCKS VALUES SHALL BE REVIEWED BY THE ENGINEER.
2. KEEP CONCRETE CLEAR OF JOINT AND JOINT ACCESSORIES. FITTINGS SHALL BE WRAPPED IN PLASTIC PRIOR TO PLACEMENT OF CONCRETE.
3. CONCRETE THRUST BLOCKING SHALL BE POURED AGAINST UNDISTURBED EARTH.
4. CONCRETE MIX SHALL HAVE A MIN. 28 DAY STRENGTH OF 3000 P.S.I.
5. GRAVITY THRUST BLOCK VOLUMES FOR VERTICAL BENDS HAVING UPWARD RESULTANT THRUSTS ARE BASED ON TEST PRESSURE OF 150 P.S.I.G. AND THE WEIGHT OF CONCRETE = 4050 LBS./CU.YD.
6. VERTICAL BENDS THAT REQUIRE A GRAVITY THRUST BLOCK VOLUME EXCEEDING 5 CUBIC YARDS REQUIRE SPECIAL BLOCKING DETAILS DESIGNED BY THE ENGINEER. NOTE VOLUMES SHOWN INSIDE HEAVY LINE IN TABLE.
7. PAYMENT SHALL BE THE SAME AS FOR HORIZONTAL THRUST BLOCKS.
8. ALL REBAR SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM-123 (MIN. 3.4 MIL). REBAR SHALL BE BENT BEFORE GALVANIZATION, AND LAST 4" OF BAR SHALL BE BENT 90 DEGREES WITH A 1/2" RADIUS BEND. REBAR SHALL BE TIGHTLY FIT TO RESTRAINED FITTING.
9. FOR HORIZONTAL THRUST BLOCK DETAILS SEE DETAIL NO. 408.
MATERIALS:

1. CONCRETE STRADDLE BLOCK.
2. 2-EBAA IRON "MEGALUG" FOLLOWER GLANDS
3. #4 REBAR EACH WAY, 12" O/C.
4. NO JOINTS ALLOWED BETWEEN STRADDLE BLOCK AND FITTING/BLOW-OFF ASSEMBLY.
5. FITTING/BLOW-OFF ASSEMBLY

NOTES:

1. STRADDLE BLOCKS HEIGHT AND WIDTH SHALL BE DESIGNED INDIVIDUALLY BY THE ENGINEER AND SHALL BE BASED ON THE FOLLOWING:
   a.) 200 PSI WATER PRESSURE
   b.) SOIL BRG. CAPACITY
   c.) STEEL SIZE AND SPACING
2. BEARING AREA OF BLOCK SHALL BE AGAINST UNDISTURBED SOIL.
3. STRADDLE BLOCK SHALL HAVE A MINIMUM OF 18" COVER.
4. CONCRETE SHALL HAVE A MIN. 28-DAY STRENGTH OF 3000 PSI
5. ALL FITTINGS, & PIPE WITHIN THE CONC. SHALL BE WRAPPED IN 8 MIL. PLASTIC
6. STRADDLE BLOCK HEIGHT (H) & WIDTH (W) SHALL BE DETERMINED BY THE ENGINEER.
ZONE 1: ONLY CROSSING RESTRICTIONS APPLY
ZONE 2: CASE-BY-CASE DETERMINATION
ZONE 3: PARALLEL WATERLINE PROHIBITED
ZONE 4: PARALLEL WATERLINE PROHIBITED

NOTES:

1. WHERE THE PROPOSED WATERLINE WILL BE INSTALLED PARALLEL TO AN EXISTING GRAVITY SANITARY SEWER MAIN OR LATERAL LINE, THE SEPARATION BETWEEN THE TWO SHALL BE AS INDICATED ABOVE.

2. CROSSING:
   a. WHENEVER POSSIBLE, THE BOTTOM OF THE WATERLINE SHALL BE 1.5 FEET ABOVE THE TOP OF THE SEWER LINE. ONE FULL LENGTH OF WATERLINE SHALL BE CENTERED AT THE CROSSING, REGARDLESS OF VERTICAL SEPARATION.
   b. WHERE IT IS NOT POSSIBLE FOR THE WATER LINE TO BE 1.5 FEET ABOVE THE SEWER LINE, OR THE WATERLINE PASSES UNDER THE SEWER LINE, THE EXISTING SEWER LINE SHALL BE EXPOSED FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING, AND SHALL BE REPLACED WITH C-900 PVC, DR-18, DR-25 OR CLASS 50 DUCTILE IRON PIPE AS APPROVED BY THE ENGINEER, AND A LENGTH OF WATER PIPE SHALL BE CENTERED AT THE CROSSING, OR AS APPROVED BY THE ENGINEER.

3. SEPARATION FROM FORCE MAIN SANITARY SEWER SHALL BE REVIEWED ON A CASE-BY-CASE BASIS.
NOTES:

1. VALVE BOXES SHALL BE CENTERED DIRECTLY OVER THE VALVE NUT IN A VERTICAL POSITION.

2. VALVE BOX TOP SHALL BE ADJUSTED TO MEET FINISHED GRADE.

3. PVC SHALL BE ON CONTINUOUS PIECE – NO BELLS OR COUPLERS.

4. USE FOR ALL VALVES AND 2” BLOW-OFF STANDPIPES
NOTES:

1. VALVE BOXES SHALL BE CENTERED DIRECTLY OVER THE STANDBPIPE IN A VERTICAL POSITION.

2. VALVE BOX TOP SHALL BE ADJUSTED TO MEET FINISHED GRADE.

3. PVC SHALL BE ON CONTINUOUS PIECE-NO BELLS OR COUPLERS.

4. USE FOR 4" & 6" BLOW-OFF STANDBPIPES AND FLUSH MOUNTED CATHODIC PROTECTION TEST STATIONS ONLY.
Fittings & Valves by Contractor

A  4” FLG TEE
B  4” MJ x FLG ADAPTER
C  4” MJ 90° BEND
D  4” MJ x FLG R.W. GATE VALVE
E  4” FLG. R.W. GATE VALVE
F  4” FLG. x P.E. CONTINUOUS D.I. PIPE

Fittings, Valves & Meter by City

1  4” x 3” FLG. REDUCER
2  4” x 3” MJ x FLG R.W. GATE VALVE
3  3” HERSEY/MCT 2 COMPOUND METER

Mechanical joint with megalug retainer gland
Pipe bell with "field-loc" type gasket
All fittings, valves and piping shall be installed level
MECHANICAL JOINT WITH "MEGALUG" RETAINER GLAND
PIPE BELL WITH "FIELD-LOK" TYPE GASKET
ALL FITTINGS, VALVES AND PIPING SHALL BE INSTALLED LEVEL

<table>
<thead>
<tr>
<th>METER</th>
<th>4&quot;</th>
<th>6&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>INCOMING LINE SIZE</td>
<td>4&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>BY-PASS LINE SIZE</td>
<td>4&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>UTILITY VAULT NO./LID NO.</td>
<td>687-LA/687-TL2-332P</td>
<td>5106-LA/5106-TL2-332P</td>
</tr>
<tr>
<td>A</td>
<td>24” MIN</td>
<td>24” MIN</td>
</tr>
<tr>
<td>B</td>
<td>36” MIN</td>
<td>36” MIN</td>
</tr>
<tr>
<td>C</td>
<td>6” MIN</td>
<td>6” MIN</td>
</tr>
<tr>
<td></td>
<td>12” MAX</td>
<td>12” MAX</td>
</tr>
<tr>
<td>D</td>
<td>24” MIN</td>
<td>24” MIN</td>
</tr>
<tr>
<td>E</td>
<td>24” MIN</td>
<td>24” MIN</td>
</tr>
</tbody>
</table>

FITTING & VALVES BY CONTRACTOR

A  4” OR 6” FLG TEE
B  4” OR 6” MJ x FLG ADAPTER
C  4” OR 6” 90° BEND
D  4” OR 6” MJ x FLG RW GATE VALVE
E  4” OR 6” FLG RW GATE VALVE
F  4” OR 6” FLG x P.E. CONTINUOUS D.I. PIPE

FITTING, VALVE, & METER BY CITY

1  4” OR 6” MJ x FLG RW GATE VALVE
2  4” OR 6” HERSEY MCT2 COMPOUND METER

COMMUNITY DEVELOPMENT
CITY OF SCAPPOOSE
34485 E. COLUMBIA AVENUE, PO BOX "P", CITY OF SCAPPOOSE, OR. 97056
STANDARD HERSEY MCT2
COMPOUND METER INSTALLATION – 4” & 6”
### METER

<table>
<thead>
<tr>
<th></th>
<th>4&quot; x 2&quot;</th>
<th>6&quot; x 3&quot;</th>
<th>8&quot; x 4&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>INCOMING</td>
<td>6&quot;</td>
<td>8&quot;</td>
<td>10&quot;</td>
</tr>
<tr>
<td>LINE SIZE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BY-PASS</td>
<td>4&quot;</td>
<td>4&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>LINE SIZE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>24&quot; MIN</td>
<td>24&quot; MIN</td>
<td>24&quot; MIN</td>
</tr>
<tr>
<td>B</td>
<td>36&quot; MIN</td>
<td>36&quot; MIN</td>
<td>36&quot; MIN</td>
</tr>
<tr>
<td>C</td>
<td>6&quot; MIN</td>
<td>6&quot; MIN</td>
<td>6&quot; MIN</td>
</tr>
<tr>
<td>D</td>
<td>12&quot; MAX</td>
<td>12&quot; MAX</td>
<td>12&quot; MAX</td>
</tr>
<tr>
<td>E</td>
<td>24&quot; MIN</td>
<td>28&quot; MIN</td>
<td>30&quot; MIN</td>
</tr>
</tbody>
</table>

### FITTINGS & VALVES BY CONTRACTOR

<table>
<thead>
<tr>
<th></th>
<th>4&quot; x 2&quot;</th>
<th>6&quot; x 3&quot;</th>
<th>8&quot; x 4&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6&quot; x 4&quot; FLG TEE</td>
<td>8&quot; x 4&quot; FLG TEE</td>
<td>10&quot; x 6&quot; FLG TEE</td>
</tr>
<tr>
<td>B</td>
<td>6&quot; MJxFLG ADAPTER</td>
<td>8&quot; MJxFLG ADAPTER</td>
<td>10&quot; MJ x FLG ADAPTER</td>
</tr>
<tr>
<td>C</td>
<td>4&quot; MJ 90' BEND</td>
<td>4&quot; MJ 90' BEND</td>
<td>6&quot; MJ 90' BEND</td>
</tr>
<tr>
<td>D</td>
<td>6&quot; MJxFLG RW GATE VALVE</td>
<td>8&quot; MJxFLG RW GATE VALVE</td>
<td>10&quot; MJxFLG RW GATE VALVE</td>
</tr>
<tr>
<td>E</td>
<td>6&quot; FLG RW GATE VALVE</td>
<td>8&quot; FLG RW GATE VALVE</td>
<td>10&quot; FLG RW GATE VALVE</td>
</tr>
<tr>
<td>F</td>
<td>4&quot; MJxFLG RW GATE VALVE</td>
<td>6&quot; MJxFLG RW GATE VALVE</td>
<td>6&quot; MJxFLG RW GATE VALVE</td>
</tr>
<tr>
<td>G</td>
<td>6&quot; FLG x PE CONTINUOUS D.I. PIPE</td>
<td>8&quot; FLG x PE CONTINUOUS D.I. PIPE</td>
<td>10&quot; FLG x PE CONTINUOUS D.I. PIPE</td>
</tr>
</tbody>
</table>

### FITTINGS, VALVES, & METER BY CITY

<table>
<thead>
<tr>
<th></th>
<th>4&quot; x 2&quot;</th>
<th>6&quot; x 3&quot;</th>
<th>8&quot; x 4&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6&quot; x 4&quot; FLG REDUCER</td>
<td>8&quot; x 6&quot; FLG REDUCER</td>
<td>10&quot; x 8&quot; FLG REDUCER</td>
</tr>
<tr>
<td>2</td>
<td>6&quot; MJxFLG RW GATE VALVE</td>
<td>8&quot; MJxFLG RW GATE VALVE</td>
<td>10&quot; MJxFLG RW GATE VALVE</td>
</tr>
<tr>
<td>3</td>
<td>4&quot; x 2&quot; HERSEY MFM/MCT2</td>
<td>6&quot; x 3&quot; HERSEY MFM/MCT2</td>
<td>8&quot; x 4&quot; HERSEY MFM/MCT2</td>
</tr>
</tbody>
</table>

---

**COMMUNITY DEVELOPMENT**  
**CITY OF SCAPPOOSE**  
34485 E. COLUMBIA AVENUE, PO BOX "P", CITY OF SCAPPOOSE, OR. 97056  
**STANDARD HERSEY MFM/MCT2**  
**COMPUND METER INSTALLATION- 4" x 2", 6" x 3", & 8" x 4"**
NOTES:

1. METER AND DOWNSTREAM VALVE TO BE INSTALLED BY THE CITY ONCE NEW PIPING AND FITTINGS HAVE BEEN TESTED AND ACCEPTED.

2. ALL VAULT WALL OPENINGS SHALL BE CORE DRILLED AND SEALED WITH LINK-SEAL BRAND PIPE SEAL OR APPROVED EQUAL.

3. TOP OF VAULT SHALL BE A MINIMUM OF 12” ABOVE FINISHED GRADE.

4. INSTALL 4” DRAIN FROM BOTTOM OF VAULT FLOOR TO DAYLIGHT, TO BACKFLOW ASSEMBLY VAULT, TO STORM DRAIN SYSTEM OR TO APPROVED SUMP WITH SUMP PUMP. IN NO CASE SHALL BACKFLOW ASSEMBLY VAULT DRAIN INTO METER VAULT.

5. INSTALL 4” BACKWATER VALVE, MDL. NO. 7022 AND SMITH 4” FLOOR DRAIN MDL. NO. 2210 OR APPROVED EQUAL ON FLOOR DRAIN.

6. VAULT SHALL BE CLEAN, DRY AND FREE OF DEBRIS PRIOR TO METER INSTALLATION.

7. ALL MECHANICAL JOINTS SHALL BE RESTRAINED WITH “MEGALUG” RETAINER GLANDS.

8. SERVICE LINE INTO VAULT SHALL BE MECHANICALLY RESTRAINED FROM MAINLINE THROUGH VAULT.

9. ALL PIPING TO BE BACKFILL AS DESCRIBED & SHOWN IN STANDARD DETAIL DRAWING 402.

10. INSTALL A MIN. OF 3 PIPE SUPPORTS IN VAULT (GRINNELL NO. 264, ELCEN NO. 50 OR APPROVED EQUAL).

11. ALL PIPING AND FITTINGS IN VAULT SHALL BE LEVEL AND A MINIMUM OF 12” AND A MAX. OF 48” ABOVE THE FLOOR OF VAULT.

12. ONLY APPROVED RESILIENT WEDGE VALVES ARE ALLOWED.

13. ALL VAULT LIDS SHALL BE EQUIPPED WITH 2 CAST IRON METER LID OPENINGS. ALL DOORS SHALL BE TL2-332P.

14. VAULT SHALL BE EQUIPPED WITH AN OSHA APPROVED LADDER. IF VAULT DEPTH IS GREATER THAN 6’, AN OSHA APPROVED EXTENSION LADDER SHALL BE INSTALLED.

15. PIPE BETWEEN THE TWO TEES SHALL BE ONE LEVEL CONTINUOUS PIECE.

16. ALL FITTINGS, VALVES AND PIPING THROUGH ENTIRE VAULT SHALL BE LEVEL AT COMPLETION OF INSTALLATION.

17. VAULT SHALL BE SEALED WITH “CRYSTAL SEAL” AT MANUFACTURER.
CITY OF SCAPPOOSE
CROSS CONNECTION PROGRAM

BACKFLOW ASSEMBLY AND VAULT
INSTALLATION STANDARDS

* DOUBLE CHECK VALVE ASSEMBLY
* DOUBLE CHECK DETECTOR ASSEMBLY
* REDUCED PRESSURE (R.P.) ASSEMBLY

CONTACTS

DEPARTMENT          NAME                PHONE NO.
CITY ENGINEER       EUGENE SMITH       503-543-7184
FIELD SERVICES      TERRY ANDREWS      503-543-7184
BUILDING OFFICIAL   DON SALLEE         503-543-7184
FIRE DEPARTMENT     MIKE GREISEN        503-543-5026
NO OTHER DEVICES SHALL BE CONNECTED TO THE DCVA OR DCDA. LOCAL FIRE DEPT. AND PLUMBING CODE REQUIREMENTS APPLY TO ALL WATER FACILITIES PAST THE BACKFLOW VAULT.

TOP VIEW

3 GALVANIZED OR EPOXY COATED "STAND-ON" PIPE SUPPORTS

SIDE VIEW

4" DRAIN TO DAYLIGHT OR SUMP PUMP & HIGH WATER ALARM TO DAYLIGHT AS APPROVED BY CITY
CITY OF SCAPPOOSE
REQUIREMENTS FOR BACKFLOW PREVENTION ASSEMBLY
INSTALLATIONS ON 1 1/2” AND LARGER DOMESTIC SERVICES,
IRRIGATION SERVICES AND FIRELINE SERVICES

AN APPROVED BACKFLOW PREVENTION ASSEMBLY IS REQUIRED ON ALL 1 1/2” AND
LARGER DOMESTIC METER SIZE SERVICES, PLUS ALL DEDICATED IRRIGATION AND ALL FIRELINE
SYSTEMS. AN ASSEMBLY WILL BE APPROVED BY THE CITY OF SCAPPOOSE ONLY IF THE
STATE OF OREGON HEALTH DIVISION HAS APPROVED ITS USE AS A BLACKFLOW ASSEMBLY,
AND THE ASSEMBLY IS TESTABLE. THE ASSEMBLY SHALL BE INSTALLED AT THE PROPERTY
LINE. WHEN IT IS NOT POSSIBLE TO LOCATE THE ASSEMBLY AT THE PROPERTY LINE,
The proposed location must be approved by the Field Services Supervisor before
installation. A water service shall not be turned on until all required backflow
prevention assemblies are installed, inspected, tested, and registered with the
City of Scappoose (see note 8 below). Cost of all installations, including all
cost of initial inspection and testing fees, shall be the responsibility of the
customer. The customer will be responsible for all maintenance and testing
of the assembly and vault when used.

CONSTRUCTION AND DESIGN STANDARDS FOR WATER FACILITIES

1. ALL PIPE WILL BE INSTALLED TO THE CITY OF SCAPPOOSE PUBLIC WORKS STANDARDS.

2. THE CITY OF SCAPPOOSE WILL BE FURNISHED WITH THREE SETS OF PLANS AND
   SPECIFICATIONS. THE PLANS WILL BE DRAWN AT A SCALE OF 1”=20’ FOR PLAN
   CHECK. ONE SET OF REVISED PLANS WILL BE RETURNED TO THE ENGINEER FOR
   REVISIONS.

3. THE CONTRACTOR WILL KEEP ONE SET OF APPROVED PLANS AT THE CONSTRUCTION
   SITE.

4. THE ENGINEER WILL FURNISH THE CITY OF SCAPPOOSE 48-HOUR NOTICE PRIOR TO
   CONSTRUCTION.

5. WATER FACILITIES WILL BE INSTALLED IN THE PRESENCE OF THE CITY OF SCAPPOOSE
   INSPECTOR. THE INSPECTOR SHALL HAVE ACCESS TO THE CONSTRUCTION SITE AT
   ALL TIMES.

6. NEW MAINS ARE TO BE PRESSURE TESTED AND DISINFECTED BY THE CONTRACTOR
   AND PROVEN TO BE BACTERIOLOGICALLY SAFE PRIOR TO PLACING NEW MAINS IN
   SERVICE AND PRIOR TO CONNECTION TO CITY FACILITIES.

7. UPON COMPLETION OF THE WATER FACILITY, THE ENGINEER WILL NOTIFY THE CITY
   OF SCAPPOOSE 48 HOURS IN ADVANCE OF DESIRED, FINAL INSPECTION.

8. CONTRACTOR MUST COORDINATE BACKFLOW ASSEMBLY TEST WITH THE FIELD SERVICES
   SUPERVISOR. (TELEPHONE NO. 503–543–7184) TO RECEIVE SERVICE TO PROPERTY.
   METER STOPS AND VALVES TO REMAIN LOCKED & OFF UNTIL THAT TIME OF COORD–
   INATION AND APPROVED TEST.
DOUBLE CHECK VALVE (DETECTOR) ASSEMBLY
BACKFLOW ASSEMBLY INSTALLATION STANDARD

TO ENSURE PROPER OPERATION AND ACCESSIBILITY OF ALL BACKFLOW PREVENTION ASSEMBLIES, THE FOLLOWING REQUIREMENTS SHALL APPLY TO INSTALLATION OF THESE ASSEMBLIES UNLESS SPECIFICALLY APPROVED BY THE FIELD SERVICES SUPERVISOR. THE CITY OF SCAPPOOSE PUBLIC WORKS STANDARDS AND CHAPTER 5 OF THE CITY CODE WILL TAKE PRECEDENCE IN DESIGN AND INSTALLATION.

1. NO PART OF THE BACKFLOW PREVENTION ASSEMBLY SHALL BE SUBMERGED IN WATER OR INSTALLED IN A LOCATION SUBJECT TO FLOODING. IF INSTALLED IN A VAULT OR CHAMBER, ADEQUATE DRAINAGE SHALL BE PROVIDED ONTO OWNER’S PROPERTY BY EITHER DRAINAGE TO DAYLIGHT OR BY SUMP PUMP TO DAYLIGHT WITH HIGH WATER ALARM SYSTEM. TEST COCKS SHALL BE PLUGGED. THE PLUGS SHALL NOT BE OF DISSIMILAR METALS.

2. THE ASSEMBLY MUST BE PROTECTED FROM FREEZING AND OTHER SEVERE WEATHER CONDITIONS.

3. ONLY ASSEMBLIES APPROVED FOR VERTICAL INSTALLATION MAY BE INSTALLED VERTICALLY.

4. THE ASSEMBLY SHALL BE READILY ACCESSIBLE WITH ADEQUATE ROOM FOR MAINTENANCE AND TESTING. ASSEMBLIES 2 INCHES AND SMALLER SHALL HAVE AT LEAST A 12-INCH CLEARANCE BELOW AND ON BOTH SIDES OF THE ASSEMBLY; AND IF LOCATED IN A VAULT, THE TOP OF THE ASSEMBLY SHALL BE BETWEEN 18 AND 24 INCHES BELOW GRADE.

ALL ASSEMBLIES LARGER THAN 2 INCHES SHALL HAVE A 12-INCH CLEARANCE ON THE BACKSIDE, A 24-INCH CLEARANCE ON THE TEST–COCK SIDE, AND 12 INCH BELOW THE ASSEMBLY. ADEQUATE CLEARANCE (3 INCHES MIN.) MUST BE MAINTAINED ABOVE O.S. & Y. GATE–VALVE STEM. HEADROOM OF 6'–0" IS REQ'D IN VAULTS. ACCESS TO THE ASSEMBLIES AND TO ANY VAULT OR CHAMBER SHALL REMAIN CLEAR AT ALL TIMES. AN OR/OSHA APPROVED CHAMBER LADDER THAT EXTENDS 3 FT. ABOVE SURFACE OF VAULT SHALL BE INSTALLED.

5. NO POST INDICATING VALVES ARE ALLOWED TO BE INSTALLED DIRECTLY ON DOUBLE CHECK DETECTOR ASSEMBLIES.

6. ONLY APPROVED DOUBLE CHECK DETECTOR ASSEMBLIES ARE TO BE USED FOR SYSTEM CONTAINMENT ON FIRE LINE SERVICES IN THE CITY OF SCAPPOOSE THE METER ON BYPASS ASSEMBLY SHALL READ IN CUBIC FEET.

7. IF A FIRE LINE FLOW, OR TAMPER SWITCH IS INSTALLED, IT MUST BE CONNECTED TO A MONITORED FIRE DETECTION SYSTEM APPROVED BY THE FIRE MARSHAL. NO INSTALLATION WILL MODIFY THE BACKFLOW ASSEMBLY OR INTERFERE WITH ITS OPERATION OR MAINTENANCE.

8. ALL BACKFLOW ASSEMBLIES SHALL BE INSTALLED AT THE SERVICE CONNECTION TO THE PREMISES PER OREGON ADMINISTRATIVE RULES 333–61–070, CROSS CONNECTION CONTROL REQUIREMENTS, UNLESS SPECIFICALLY APPROVED BY THE FIELD SERVICES SUPERVISOR. (SERVICE CONNECTION – A LOCATION WHERE THE PUBLIC WATER FACILITIES END AT OR NEAR THE PROPERTY LINE)

9. ALL PIPE BETWEEN MAIN AND ASSEMBLY SHALL BE RESTRAINED. USE "MEGALUG" RETAINER GLANDS ON MJ FITTINGS AND "FIELD–LOK" TYPE GASKETS ON BELL JOINTS. UNI–FLANGE ADAPTERS MAY BE USED IN VAULTS.

10. APPROVED BACKFLOW ASSEMBLY MAY NOT BE MODIFIED IN ANY WAY FROM WHICH IT WAS MANUFACTURED, TESTED AND APPROVED.
REDUCED PRESSURE (R.P.) PRINCIPLE BACKFLOW PREVENTION ASSEMBLY (R.P.)

INSTALLATION STANDARD

AS WELL AS IN THE PREVIOUSLY STATED INSTALLATION STANDARDS, THESE INSTALLATION
STANDARDS SHALL APPLY TO THE INSTALLATION OF R.P. ASSEMBLIES:

R.P.'S SHALL BE UTILIZED AT PREMISES WHERE A SUBSTANCE IS HANDLED THAT WOULD BE
HAZARDOUS TO HEALTH IF INTRODUCED INTO THE POTABLE WATER SYSTEM. THE R.P. IS
NORMALLY USED IN LOCATIONS WHERE AN AIR GAP IS IMPractical. THE R.P. IS
EFFECTIVE AGAINST BOTH BACKSPHONAGE AND BACKPRESSURE.

1. R.P.’S MUST BE SIZED TO PROVIDE AN ADEQUATE SUPPLY OF WATER AND PRESSURE
FOR THE PREMISES BEING SERVED. FLOW CHARACTERISTICS ARE NOT STANDARD.
CONSULT MANUFACTURER’S SPECIFICATIONS FOR SPECIFIC PERFORMANCE DATA.

2. PREMISES WHERE INTERRUPTION OF WATER SUPPLY IS CRITICAL SHOULD BE
PROVIDED WITH TWO ASSEMBLIES INSTALLED IN PARALLEL. THEY SHOULD BE SIZED
IN SUCH A MANNER THAT EITHER ASSEMBLY WILL PROVIDE THE MINIMUM WATER
REQUIREMENTS WHILE THE TWO TOGETHER WILL PROVIDE THE MAXIMUM FLOW
REQUIRED.

3. BYPASS LINES ARE PROHIBITED. PIPE FITTINGS WHICH COULD BE USED FOR
CONNECTING A BYPASS LINE SHALL NOT BE INSTALLED.

4. THE ASSEMBLY SHALL BE READY ACCESSIBLE FOR TESTING AND MAINTENANCE
AND SHALL BE LOCATED IN AN AREA WHERE WATER DAMAGE TO BUILDING OR
FURNISHINGS WOULD NOT OCCUR FROM RELIEF VALVE DISCHARGE. AN APPROVED
AIR GAP FUNNEL ASSEMBLY MAY BE USED TO DIRECT MINOR DISCHARGES AWAY
FROM THE ASSEMBLY; THIS ASSEMBLY WILL NOT CONTROL FLOW IN A CONTINUOUS
RELIEF SITUATION. DRAIN LINES TO ACCOMMODATE FULL RELIEF VALVE DISCHARGE
FLOW SHALL BE REQUIRED.

R.P.’S SHALL BE INSTALLED ABOVE GRADE IN WELL DRAINED AREA, BUT MAY BE
INSTALLED BELOW GRADE BY APPROVAL OF FIELD SERVICES SUPERVISOR BEFORE
INSTALLATION, IF AN ADEQUATE DRAIN BY GRAVITY THROUGH A "BORSIGHT” DRAIN TO
DAYLIGHT IS PROVIDED.

ENCLOSURES SHALL BE DESIGNED FOR READY ACCESS AND SIZED TO ALLOW FOR
THE MINIMUM CLEARANCES ESTABLISHED BELOW. REMOVABLE PROTECTIVE
ENCLOSURES ARE TYPICALLY INSTALLED ON THE SMALLER ASSEMBLIES. BORE
SIGHTED DAYLIGHT DRAIN PORTS MUST BE PROVIDED TO ACCOMODATE FULL
PRESSURE DISCHARGE FROM THE ASSEMBLY.

ALL ASSEMBLIES LARGER THAN 2 INCHES SHALL HAVE A MINIMUM OF 12 INCHES
CLEARANCE ON THE BACK SIDE, 24 INCHES CLEARANCE ON THE TEST COCK SIDE,
AND RELIEF VALVE OPENING SHALL BE AT LEAST 12 INCHES PLUS NOMINAL SIZE OF
ASSEMBLY ABOVE THE FLOOR OR HIGH TEST POSSIBLE WATER LEVEL WHICHEVER IS
HIGHER. HEADROOM OF 6 FEET IS REQUIRED IN VAULTS. A MINIMUM ACCESS
OPENING OF 36”X72” INCHES SQUARE IS REQUIRED ON ALL VAULT LIDS. A
LADDER MEETING OSHA REQUIREMENTS SHALL BE PERMANENTLY INSTALLED IN THE
VAULT, UNLESS A SIDE ENTRY ENCLOSURE IS USED.
REDUCED PRESSURE (R.P.) PRINCIPLE BACKFLOW PREVENTION ASSEMBLY (R.P.)

INSTALLATION STANDARD

ASSEMBLIES INSTALLED MORE THAN 5 FEET ABOVE FLOOR LEVEL MUST HAVE A
SUITABLE PLATFORM FOR USE BY TESTING OR MAINTENANCE PERSONNEL.

5. THE ASSEMBLY MUST BE PROTECTED FROM FREEZING AND OTHER SEVERE WEATHER
CONDITIONS.

6. VERTICAL INSTALLATION IS PROHIBITED.

7. THE PROPERTY OWNER ASSUMES ALL RESPONSIBILITY FOR LEAKS AND DAMAGE. THE
OWNER SHALL ALSO KEEP THE VAULT REASONABLY FREE OF SILT AND DEBRIS.

8. VARIANCES FROM THESE REGULATIONS WILL BE EVALUATED ON A CASE-BY-CASE
BASIS. ANY DEVIATIONS MUST HAVE PRIOR WRITTEN APPROVAL OF THE WATER
DIVISION MANAGER PRIOR TO INSTALLATION.

VAULT SIZING CHART FOR
DOUBLE CHECK & R.P. BACKFLOW ASSEMBLIES

<table>
<thead>
<tr>
<th>SIZE</th>
<th>UTILITY VAULT FOR BACKFLOW ASSEMBLY</th>
<th>LID</th>
</tr>
</thead>
<tbody>
<tr>
<td>3”</td>
<td>577-LA</td>
<td>LID 577-TL2-332P</td>
</tr>
<tr>
<td>4”</td>
<td>577-LA</td>
<td>LID 577-TL2-332P</td>
</tr>
<tr>
<td>6”</td>
<td>676-LA</td>
<td>LID 676-TL2-332P</td>
</tr>
<tr>
<td>8”</td>
<td>687-LA</td>
<td>LID 687-TL2-332P</td>
</tr>
<tr>
<td>10”</td>
<td>5106-LA</td>
<td>LID 5106-TL2-332P</td>
</tr>
</tbody>
</table>
NOTES:

1. THIS DETAIL TO BE USED AS A GUIDELINE. SITE SPECIFIC DESIGN SHALL BE COMPLETED BY ENGINEER.

2. SUMP AND SUMP PUMP ASSEMBLY SHALL BE OWNED & MAINTAINED BY THE PROPERTY OWNER BEING SERVED.

3. HIGH WATER ALARM SYSTEM REQUIRED TO MONITOR OPERATION OF SUMP PUMP.
MATERIALS:

1. 12-GAUGE STRANDED COPPER WIRE WITH BLUE PLASTIC INSULATION
2. 2" PVC CONDUIT WITH COPPER WIRE INSIDE
3. Oldcastle NO. 37 BOX & LID
4. CARSONITE BLUE PLASTIC MODEL CUM-375 WITH LABEL CW-112

NOTES:

1. CONDUIT WITH 1 FT RADIUS SWEEPS AT BENDS + 30" OF COVER
2. COIL ENDS OF WIRES IN BOX, ALLOWING 2 FT. FREE WIRE AT END
3. EVERY 400 FEET BRING WIRE TO SURFACE. SEE PARAGRAPH 403.18 OF WATER TECHNICAL REQUIREMENTS SPECS.
PIPE O.D. PLUS 18"
BACKFILL ABOVE PIPE ZONE
SEE DETAIL 402 FOR TRENCH BACKFILL REQUIREMENTS
DUCtile IRON PIPE OR COPPER WATER SERVICE ENCASED IN SCHEDULE 40 PVC PIPE, CENTER 18’ OF D.I. PIPE AT CROSSING

TRENCH SECTION
N.T.S.
18’ TYP (FULL LENGTH CENTERED)
CASING FULL LENGTH OF BARREL

WRAP-AROUND NITRILE CASING SEALS W/2-SS BANDS (TYP. EACH END)
SCHEDULE 40 PVC PIPE OR ANNULAR CORRUGATED POLYETHYLENE CASING
DUCTILE IRON PIPE (SHOWN) OR COPPER WATER SERVICE

6” MIN. (OR AS DIRECTED BY ENGINEER)
CATHODICALLY PROTECTED FOREIGN STRUCTURE

ELEVATION
N.T.S.

COMMUNITY DEVELOPMENT
CITY OF SCAPPoose
34485 E. COLUMBIA AVE., PO BOX "P", SCAPPoose, OREGOON
PROTECTIVE CASING FOR CROSSING CATHODICALLY PROTECTED STRUCTURES

DRAWN DRAWN
DIV. DEPT
REV. DATE APPR.
SCALE N.T.S.
DATE 2002
APPR.
DWG. NO. 419
Trench Section
N.T.S.

2 layers 40 mil PVC geomembrane sheeting secured with polyethylene tape along its length, max. 24” O.C.

Provide 3/8” thick polyethylene foam sheet protective wrap at joints

Minimum 12” longitudinal overlap at seam

Ductile iron pipe with retainer gland @ joint (shown)

(Or as directed by engineer)

Elevation
N.T.S.

Pipe zone bedding

Cathodically protected foreign structure

Pipe zone backfill

SEE DETAIL 402 FOR TRENCH BACKFILL REQUIREMENTS

Ductile iron pipe sheathed in two layers of 40 mil PVC geomembrane, min. 6” overlap at seams & position the layers with the seams 180° apart

Pipe O.D. plus 18”

Backfill above pipe zone

(Or as directed by engineer)

6” min.

Cathodically protected foreign structure

10’ min
NOTES:

1. COPPER SLEEVE REQUIRED FOR EXOTHERMIC WELDING OF #10 AWG AND SMALLER WIRE.

2. USE COPPER SLEEVE ON #2 AWG JOINT BONDING WIRES

3. WELDER AND CARTRIDGE SIZE VARIES ACCORDING TO WIRE SIZE AND PIPE MATERIAL. CONSULT WELDER MANUFACTURER FOR RECOMMENDED WELDER AND CARTRIDGE.

4. APPLY WELD CAP DIRECTLY TO PIPE—NOT TO PIPE WRAP. USE PRIMER IF REQ’D BY MFR. COMPLETELY ENCIRCLE WIRE WITHIN ELASTOMER.

5. REPLAIR ANY DAMAGED COATING NOT COVERED BY WELD CAP ACCORDING TO COATING MFR’S. RECOMMENDATIONS.

6. COVER EXOTHERMIC WELD WITH “GRAY PAD” AS MANUFACTURED BY TAPECOAT.
REFERENCE ELECTRODE TERMINAL

NEW OR PROTECTED PIPELINE TERMINALS

FINISH GRADE

ANCHOR

COTT pipe

1-#8 AND 1-#12 AWG COPPER WIRE WITH ORANGE THWN INSULATION

1-#8 AND 1-#12 AWG COPPER WIRE WITH WHITE THWN INSULATION

#12 AWG COPPER WIRE WITH YELLOW THWN INSULATION

REFERENCE ELECTRODE LOCATE 6” FROM OUTER EDGE OF PIPE AND 6” FROM END OF CASING

CARRIER PIPE

TEST STATION CAP

BIG FINK TEST STATION DOUBLE (8 LEAD)

CASING TERMINALS

WIRE CONNECTION, TYP. SEE STANDARD DETAIL 421

TYPE C
REFERENCE ELECTRODE TERMINAL

OWNER'S PIPELINE PIPELINE TERMINALS

FINISH GRADE

3'

ANCHOR

COTT pipe

1-#8 AND 1-#12 AWG COPPER WIRE WITH BLUE THWN INSULATION

#12 AWG COPPER WIRE WITH YELLOW THWN INSULATION

EXISTING OR UNPROTECTED PIPELINE

WIRE CONNECTION, TYP. SEE STANDARD DETAIL 421

FOREIGN PIPELINE

REFERENCE ELECTRODE LOCATE 6" FROM OUTER EDGE OF EACH PIPELINE

FOREIGN PIPELINE

TEST STATION CAP

BIG FINK TEST STATION DOUBLE (8 LEAD) FOREIGN PIPELINE TERMINALS

1-#8 AND 1-#12 AWG COPPER WIRE WITH WHITE THWN INSULATION

TYPE F

COMMUNITY DEVELOPMENT
CITY OF SCAPPOOSE
34485 E. COLUMBIA AVE., PO BOX "P", SCAPPOOSE, OREGON
STANDARD POST TYPE TEST STATION DETAIL FOR CROSSINGS
REFERENCE ELECTRODE TERMINAL
NEW OR PROTECTED PIPELINE TERMINALS
EXISTING OR UNPROTECTED PIPELINE TERMINALS
FINISH GRADE
3"
12"
12"
CAST IRON VALVE BOX "PORTLAND" STYLE
1-#8 AND 1-#12 AWG COPPER WIRE WITH BLUE THWN INSULATION
#12 AWG COPPER WIRE WITH YELLOW THWN INSULATION
REFERENCE ELECTRODE LOCATE 6" FROM OUTER EDGE OF FLANGE
NEW OR PROTECTED PIPELINE
EXISTING OR UNPROTECTED PIPELINE
WIRE CONNECTION, TYP. SEE STANDARD DETAIL 421
INSULATING FLANGE SEE STANDARD DETAIL 427

TYPE I
NOTES:

1. ABOVE GRADE INSULATING FLANGE INSTALLATION AS SHOWN.

2. FOR BURIED OR SUBMERGED INSULATION FLANGE INSTALLATION DO NOT INSTALL INSULATING WASHER ON PROTECTED OR NEW SIDE OF FLANGE.

3. COAT BURIED OR SUBMERGED INSULATED FLANGES WITH SPRAY ON UNDERCOATING AFTER ASSEMBLING JOINT AND WRAP WITH A BUTYL RUBBER ADHESIVE, POLYETHYLENE BACKED TAPE.
PIECE JOINT

#2 AWG STRANDED COPPER WIRE WITH HMWPE INSULATION 2 BONDS PER JOINT
WIRE CONNECTION, TYP SEE STANDARD DETAIL 421. 4 PER JOINT

PUSH-ON JOINT BOND

MECHANICAL JOINT BOND
NO. 2 A.W.G. STANDED CABLE, 2 BONDS PER VALVE

NO. 4 A.W.G. STRANDED CABLE, 1 BOND PER VALVE

EXOTHERMIC WELD WIRE CONN. (TYP) SEE STANDARD DETAIL 421

D.I. PIPE

MJ JOINT

D.I. PIPE OR FITTING

FLG OR MJ JOINT

NOTES:

1. ALL WIRE INSULATION IS HMWPE


JOINT BOND—VALVE AND SOLID SLEEVE
1. ASPHALTIC CONCRETE 1 STAGE CONST. (2 LIFTS) 1 1/2” CLASS "C" ON 1 1/2” CLASS "B". 2 STAGE CONST. (2 LIFTS) 1 1/2” CLASS "C" ON 2 1/2” CLASS "B".

2. AGGREGATE BASE – 1”–0” CRUSHED ROCK, 8” DEPTH.

3. SUBGRADE AND BASEROCK SHALL BE COMPACTED TO 95% RELATIVE DENSITY PER AASHTO T–180.

4. ALTERNATIVE PAVEMENT MATERIALS WILL BE CONSIDERED FOR APPROVAL BY MANAGER.

5. SIDEWALKS IN COMMERCIAL, INDUSTRIAL, AND HILLSIDE CONSTRAINT DISTRICT SHALL ABUT THE CURB. * SIDEWALK WIDTH IN COMMERCIAL/INDUSTRIAL AREA SHALL BE 6’ IN WIDTH.

6. WHERE NO PLANTER STRIP IS REQUIRED, THE SIDEWALK SHALL HAVE A MINIMUM 5’ CLEAR OF ALL OBSTACLES, UNLESS APPROVED BY CITY ENGINEER.

7. LOCAL STREETS PROJECTED TO HAVE AN AVERAGE DAILY TRAFFIC (ADT) OVER 1000 VEHICLES PER DAY SHALL BE CONSTRUCTED TO A NEIGHBORHOOD COLLECTOR STANDARD.

8. FIRE HYDRANTS BEHIND THE WALK ON HILLSIDE CONSTRAINT DISTRICT AND COMMERCIAL/INDUSTRIAL DISTRICTS REQUIRE A 5FT. BY 5FT. EASEMENT.

### STREET AND RIGHT–OF–WAY WIDTHS

<table>
<thead>
<tr>
<th>FUNCTIONAL CLASSIFICATION</th>
<th>RIGHT–OF–WAY</th>
<th>A PAVEMENT WIDTH</th>
<th>B SIDEWALK WIDTH</th>
<th>C PLANTER STRIP WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCAL STREET</td>
<td>54’</td>
<td>16’</td>
<td>5’</td>
<td>N/A</td>
</tr>
<tr>
<td>LS SLOPE HAZARD AREA</td>
<td>40’</td>
<td>14’</td>
<td>5’ *</td>
<td>N/A</td>
</tr>
<tr>
<td>LS COMMERCIAL INDUSTRIAL DISTRICT</td>
<td>54’</td>
<td>20’</td>
<td>6’ *</td>
<td>N/A</td>
</tr>
</tbody>
</table>

COMMUNITY DEVELOPMENT
CITY OF SCAPPOOSE
34485 E. COLUMBIA AVE., PO BOX "P", SCAPPOOSE, OREGON
LOCAL TRANSITIONAL STREET SECTION

DRAWN
MRM
DIV. TRANSPORTATION
REV.
DATE
APPR.

SCALE N.T.S.
DATE 2002
APPR.
DWG. NO. 500
1. A PAVEMENT DESIGN TO ACCOMMODATE ANTICIPATED TRAFFIC LOADINGS AND EXISTING SOIL CONDITIONS SHALL BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL.

2. SUBGRADE AND BASEROCK SHALL BE COMPACTED TO 95% RELATIVE DENSITY PER AASHTO T–180.

3. TYPICAL STRUCTURAL SECTION SHALL CONSIST OF ASPHALTIC CONCRETE ON CRUSHED ROCK. BASE ALTERNATIVE MATERIALS WILL BE CONSIDERED FOR APPROVAL BY CITY ENGINEER.

4. SIDEWALK IN RESIDENTIAL AREAS SHALL BE 5’ IN WIDTH AND LOCATED SIX INCHES OFF RIGHT–OF–WAY LINE WITH A PLANTER STRIP.

5. SIDEWALK IN COMMERCIAL AND INDUSTRIAL AREAS SHALL BE 6’ IN WIDTH AND SHALL ABUT THE CURB.

6. THE SIDEWALK SHALL HAVE A MINIMUM 5’ CLEAR OF ALL OBSTACLES, UNLESS APPROVED BY CITY ENGINEER.

7. COLLECTORS IN COMMERCIAL AND INDUSTRIAL AREAS SHALL HAVE A PAVEMENT WIDTH OF 44’.

8. NEIGHBORHOOD COLLECTORS IN COMMERCIAL AND INDUSTRIAL AREAS SHALL HAVE A RIGHT–OF–WAY WIDTH OF 60’ AND A PAVEMENT WIDTH OF 40’.

### STREET AND RIGHT–OF–WAY WIDTHS

<table>
<thead>
<tr>
<th>FUNCTIONAL CLASSIFICATION</th>
<th>RIGHT–OF–WAY</th>
<th>A PAVEMENT WIDTH</th>
<th>B SIDEWALK WIDTH</th>
<th>C PLANTER STRIP WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAJOR COLLECTOR</td>
<td>66’</td>
<td>22’</td>
<td>6’</td>
<td>N/A</td>
</tr>
<tr>
<td>NEIGHBORHOOD COLLECTOR IN COMMERCIAL OR INDUSTRIAL AREA</td>
<td>60’</td>
<td>18’</td>
<td>6’</td>
<td>NA</td>
</tr>
</tbody>
</table>
1. A PAVEMENT DESIGN TO ACCOMMODATE ANTICIPATED TRAFFIC LOADINGS AND EXISTING SOIL CONDITIONS SHALL BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL.

2. SUBGRADE AND BASEROCK SHALL BE COMPACTED TO 95% RELATIVE DENSITY PER AASHTO T-180.

3. ALTERNATIVE PAVEMENT MATERIALS WILL BE CONSIDERED FOR APPROVAL BY CITY ENGINEER.

4. SIDEWALKS SHALL ABUT THE CURB.

5. THE SIDEWALK SHALL HAVE A MINIMUM 5’ CLEAR OF ALL OBSTACLES, UNLESS APPROVED BY CITY ENGINEER.

### STREET AND RIGHT–OF–WAY WIDTHS

<table>
<thead>
<tr>
<th>FUNCTIONAL CLASSIFICATION</th>
<th>RIGHT–OF–WAY</th>
<th>A PAVEMENT WIDTH</th>
<th>B SIDEWALK WIDTH</th>
<th>C PLANTER STRIP WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAJOR ARTERIAL</td>
<td>100’</td>
<td>37’</td>
<td>6’</td>
<td>6’</td>
</tr>
<tr>
<td>MINOR ARTERIAL</td>
<td>72’</td>
<td>22’</td>
<td>6’</td>
<td>6’</td>
</tr>
</tbody>
</table>

COMMUNITY DEVELOPMENT
CITY OF SCAPPOOSE
34485 E. COLUMBIA AVE., PO BOX “P”, SCAPPOOSE, OREGON

ARTERIAL STREET SECTION
1. ASPHALTIC CONCRETE 1 STAGE CONST. (2 LIFTS) 1 1/2" CLASS "C" ON 1 1/2" CLASS "B".
   2 STAGE CONST. (2 LIFTS) 1 1/2" CLASS "C" ON 2 1/2" CLASS "B".

2. AGGREGATE BASE – 1”-0” CRUSHED ROCK, 8” DEPTH.

3. SUBGRADE AND BASEROCK SHALL BE COMPACTED TO 95% RELATIVE DENSITY PER AASHTO T-180.

4. ALTERNATIVE PAVEMENT MATERIALS WILL BE CONSIDERED FOR APPROVAL BY MANAGER.

5. THE MAXIMUM LENGTH OF A MINOR ACCESS STREET SHALL BE 150’.

6. PUBLIC PARKING FOR VISITORS (3-4 SPACES) AND A BRANCH TYPE TURNAROUND SHALL BE PROVIDED AT THE END OF THE MINOR ACCESS STREET. (SEE DETAIL # 509)

7. A "DEAD END" SIGN SHALL BE POSTED AT THE ENTRANCE TO THE MINOR ACCESS STREET.

8. "NO PARKING" SHALL BE POSTED FOR THE ENTIRE LENGTH OF THE MINOR ACCESS STREET.

9. THERE IS NO REQUIREMENT FOR A SIDEWALK OR PLANTER STRIP.
TYPICAL STREET SECTION

RIGHT-OF-WAY

A

A

6"

SLOPE=2.5%

AGGREGATE BASE

CONCRETE VALLEY CURB

AGGREGATE CONCRETE

VALLEY CURB DETAIL

1-1/2"

NONREINFORCED CONCRETE

7"

2'-0"

1-0"

1. ASPHALTIC CONCRETE 1 STAGE CONST.(2 LIFTS) 1 1/2" CLASS "C" ON 1 1/2" CLASS "B".

2 STAGE CONST.(2 LIFTS) 1 1/2" CLASS "C" ON 2 1/2" CLASS "B".

2. AGGREGATE BASE – 1”–0” CRUSHED ROCK, 8” DEPTH.

3. SUBGRADE AND BASEROCK SHALL BE COMPACTED TO 95% RELATIVE DENSITY PER AASHTO T-180.

4. ALTERNATIVE PAVEMENT MATERIALS WILL BE CONSIDERED FOR APPROVAL BY MANAGER.

5. PCC CURB OR VALLEY GUTTER SHALL BE 3000 PSI AT 28 DAYS.

6. "NO PARKING" SHALL BE POSTED THE ENTIRE LENGTH OF ALLEY IN RESIDENTIAL AND COMMERCIAL/INDUSTRIAL DISTRICTS.

7. FIRE HYDRANTS WHEN REQUIRED ARE TO BE LOCATED OUTSIDE THE R–O–W IN A 5’ BY 5’ EASEMENT.

STREET AND RIGHT-OF-WAY WIDTHS

<table>
<thead>
<tr>
<th>FUNCTIONAL CLASSIFICATION</th>
<th>RIGHT-OF-WAY</th>
<th>A PAVEMENT WIDTH</th>
<th>SIDEWALK WIDTH</th>
<th>PLANTER STRIP WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALLEY RESIDENTIAL DISTRICT</td>
<td>20’</td>
<td>10’</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>ALLEY–COMM. INDUSTRIAL DISTRICT</td>
<td>20’</td>
<td>10’</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
PAVEMENT WIDTH EXCEPTIONS:

1. A 28’ WIDTH MAY BE ALLOWED WITHIN THE SLOPE HAZARD AREA WITH CITY ENGINEER’S APPROVAL.

2. THE SIDEWALK IS TO BE LOCATED NEXT TO THE CURB ON ALL CUL-DE-SAC BULBS AND THE ENTIRE LENGTH OF THE CUL-DE-SAC IN THE SLOPE HAZARD AREA.

3. THE SIDEWALK SHALL HAVE A MINIMUM 5’ CLEAR OF ALL OBSTACLES, UNLESS APPROVED BY THE CITY ENGINEER.

4. NO FIRE HYDRANTS ARE TO BE LOCATED IN THE CUL-DE-SAC AREA.
1. BRANCH TURNAROUND TO BE USED AT THE END OF A MINOR ACCESS STREET.
2. A "DEAD-END" SIGN SHALL BE POSTED AT ENTRANCE TO THE MINOR ACCESS STREET.
3. "NO PARKING" SHALL BE POSTED FOR THE ENTIRE MINOR ACCESS STREET.
4. THE MAXIMUM LENGTH OF THE MINOR ACCESS STREET SHALL BE 150 FT. TO THE END OF THE TURNAROUND.
5. NO FIRE HYDRANTS ARE TO BE LOCATED ON A MINOR ACCESS STREET WITH A BRANCH TURNAROUND.
SECTION A — A

1. DISTANCE "A" VARIES WITH STREET FUNCTIONAL CLASSIFICATION. SLOPE WILL VARY WITH DISTANCE "A".

2. CONSTRUCTION JOINTS SHALL BE 1/8" TO 1/4" WIDE. DEPTH OF THE JOINT SHALL BE A MINIMUM OF 1/3 THE THICKNESS OF THE CONCRETE.

3. ALL SURFACES SHALL BE LIGHTLY BROOMED AND EDGED IN A WORKMANLIKE MANNER.

4. SAW CUT EXISTING CURBS WHERE THEY ARE TO BE REMOVED — IF LESS THAN 3’ TO EXISTING JOINT REMOVE TO JOINT. EXISTING A/C IN FRONT OF THE APPROACH SHALL BE SAW CUT AND REPLACED WITH HOT MIX.

5. CONCRETE SHALL BE 3000 PSI AT 28 DAYS.

6. SEE STANDARD DRAWING NUMBERS 518 AND 519 FOR CURB EXPOSURE DIMENSION 'e'.

COMMUNITY DEVELOPMENT
CITY OF SCAPPOOSE
34485 E. COLUMBIA AVE., PO BOX "P", SCAPPOOSE, OREGON

RESIDENTIAL DRIVEWAY APPROACH

DRAWN M.R.M.
DIV. TRANSPORTATION
REV. DATE APPR.

SCALE N.T.S.
DATE 2002
APPR.

DWG. NO. 510
1. DISTANCE "A" Varies with street functional classification.
2. Expansion joints shall be 1/2" wide and consist of approved pre-formed filler.
3. Contraction joints shall be 1/8" to 1/4" wide. Depth of the joint shall be a minimum of 1/3 the thickness of the concrete.
4. All surfaces shall be lightly broomed and edged in a workmanlike manner.
5. Saw cut existing curbs where they are to be removed, if less than 3' to existing joint remove to joint. Existing A/C in front of the approach shall be saw cut and replaced with hot mix.
6. Concrete shall be 3000 PSI at 28 days.
7. See standard drawing numbers 518 and 519 for curb exposure dimension 'e'.
25' MIN. RADIUS

SECTION A–A

2% SLOPE

PCC CONC. APRON
STRUCTURAL SECTION TO CONFORM TO
STD. DWG.- 511

PRIVATE DRIVEWAY

VARIES

1" EXPOSURE

CUT JOINT

INSTALL STANDARD SIDEWALK RAMP STD. DWG.514

25' MIN. RADIUS

INSTALL STANDARD SIDEWALK

THIS TYPE OF APPROACH TO BE USED FOR HIGH VOLUME TRAFFIC GENERATORS WITH APPROVAL OF CITY ENGINEER.

2. PCC SHALL BE 3300 PSI STRENGTH AT 28 DAYS.

3. EXPANSION JOINTS SHALL BE PLACED AT DRIVEWAY APPROACHES, CURB RETURNS AND AT ANY FIXED OBJECT WITHIN THE SIDEWALK AREA. JOINTING MATERIAL AT DRIVEWAYS SHALL CONSIST OF APPROVED FILLER AND SHALL NOT BE LESS THAN 1/2" WIDE.

4. CONTRACTION JOINTS SHALL BE PLACED AT ALL CHANGES OF DIRECTION, POINTS OF CURVATURE AND AT 15’ (MAX) INTERVALS. JOINTS SHALL BE 1/8" TO 1/4" WIDE AND A MINIMUM DEPTH OF 1/3 THE THICKNESS OF THE CONCRETE.

5. ALL SURFACES SHALL BE TROWELED AND BROOMED IN A WORKMANLIKE MANNER. ALL CONTRACTION JOINTS SHALL BE STEEL TROWELED (3 IN. TYP.).
1. PCC SHALL BE 3000 PSI STRENGTH AT 28 DAYS.
2. TWO SIDEWALK RAMPS PER CORNER ARE REQUIRED AT ALL NEW INTERSECTIONS.
3. A SINGLE DIAGONAL RAMP MAY BE USED AT ALTERATIONS ONLY, WHEN SITE CONSTRAINTS PROHIBIT INSTALLING TWO RAMPS AND APPROVED BY CITY ENGINEER.
4. REPLACEMENT CURBS MUST BE POURED AGAINST A VERTICAL EDGE OF REMAINING CURB.
5. CONCRETE IN A REPLACEMENT CURB SHALL NOT PROTRUDE PAST THE FACE OF THE CURB IN THE ASPHALT REPLACEMENT AREA.
6. HORIZONTAL AND VERTICAL ALIGNMENT SHALL BE WITHIN 1/8” IN 10 FEET.
7. USE DIAMOND PATTERN IN CENTER RAMP.
8. SEE STANDARD DRAWING NUMBERS 518 AND 519 FOR CURB EXPOSURE DIMENSION ’e’.
1. ASPHALTIC CONCRETE (2 LIFTS) – 1 1/2” CLASS "C" ON 1 1/2” CLASS "B".
2. AGGREGATE BASE – 1”–0 CRUSHED ROCK, 8” DEPTH.
3. SUBGRADE AND BASEROCK SHALL BE COMPACTED TO 95% RELATIVE DENSITY PER AASHTO T-180.

<table>
<thead>
<tr>
<th>ACCESSWAY TYPE</th>
<th>PAVEMENT WIDTH MAXIMUM LENGTH 200’</th>
<th>SURFACE TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEIGHBORHOOD ACCESSWAY</td>
<td>5’ – 12’</td>
<td>PCC OR A/C</td>
</tr>
<tr>
<td>PUBLIC / PRIVATE INTEGRATED ACCESSWAY</td>
<td>7’ – 12’</td>
<td>PCC OR A/C</td>
</tr>
<tr>
<td>PARK / NATURAL AREA ACCESSWAY</td>
<td>8’ – 12’</td>
<td>PCC, A/C, OR SOFT SURFACE</td>
</tr>
</tbody>
</table>

*NOTE: WHERE ACCESSWAYS CONTINUE ACROSS STREETS, ADA RAMPS SHALL BE REQUIRED*
NOTES:

1. STRIPING SHALL BE ALTERNATING RED (RODDA #1249 OR EQUAL) AND WHITE STRIPES 6" IN WIDTH AT A 45 DEGREE ANGLE AND SHALL BE EITHER RETRO-REFLECTIVE TAPE OR PAINTED WITH A SEALED RETRO-REFLECTIVE SURFACE.

2. THIS BARRICADE SHALL CONFORM TO SECTION 3F-1, UNIFORM MANUAL ON TRAFFIC CONTROL DEVICES—FHWA.

COMMUNITY DEVELOPMENT
CITY OF SCAPOOSE
34485 E. COLUMBIA AVE., PO BOX "P", SCAPOOSE, OREGON
STREET BARRICADE

SCALE N.T.S.
DATE 2002
APPR.
DWG. NO. 517
1. PCC SHALL BE 3000 PSI STRENGTH AT 28 DAYS.
2. CONTRACTION JOINTS SHALL BE PLACED AT 15’ MAX. SPACING.
3. EXPANSION JOINTS SHALL BE PLACED AT 45’ MAX. SPACING AND AT ALL DRIVEWAYS AND CURB RETURNS.
4. CURB EXPOSURE SHALL BE 9” AT ALL CATCH INLETS.
5. DRAIN BLOCKOUT SHALL BE ABLE TO FIT 3” DIA. DRAIN PIPE AND PLACED WHERE DIRECTED.
6. ADD KEYWAY WHEN CURB IS PLACED AGAINST SIDEWALK.
7. CRUSHED BASE ROCK SHALL BE COMPACTED TO 95% RELATIVE DENSITY PER AASHTO T-180.
8. TYPE "C" CURB SHALL ONLY BE INSTALLED AT LOCATIONS (REPLACEMENT) TO MATCH EXISTING CURB TYPE.
1. PCC SHALL BE 3000 PSI STRENGTH AT 28 DAYS.

2. CONTRACTION JOINTS SHALL BE PLACED AT 15’ MAX. SPACING.

3. EXPANSION JOINTS SHALL BE PLACED AT ALL DRIVEWAYS AND CURB RETURNS.

4. CURB EXPOSURE SHALL BE 8” AT ALL CATCH INLETS.

5. DRAIN BLOCKOUT SHALL BE SUFFICIENT FOR 3” DRAIN PIPE AND PLACED WHERE DIRECTED.

6. ADD KEYWAY WHEN CURB IS PLACED AGAINST SIDEWALK.

7. CRUSHED BASE ROCK SHALL BE COMPACTED TO 95% RELATIVE DENSITY PER AASHTO T-180.

8. WHEN A DRIVEWAY IS PLACED WHERE THERE IS AN EXISTING MONOLITHIC CURB MAKE A VERTICAL SAWCUT AT THE FACE OF CURB. REPLACE BACK PART OF CURB AND ADD DRIVEWAY WITH ONE CONTIGUOUS POUR.
1. PCC SHALL BE 3000 PSI STRENGTH AT 28 DAYS.
2. CONTRACTION JOINTS SHALL BE PLACED AT 15’ MAX. SPACING.
3. EXPANSION JOINTS SHALL BE PLACED AT 45’ MAX. SPACING AND AT ALL DRIVEWAYS AND CURB RETURNS.
4. ADD KEYWAY WHEN SIDEWALK IS PLACED AGAINST CURB.
5. CRUSHED BASE ROCK SHALL BE COMPACTED TO 95% RELATIVE DENSITY PER AASHTO T-180.
6. ROOF DRAINS SHALL DRAIN DIRECTLY TO DRAINAGE CATCH BASINS.
7. ALTERNATE DESIGNS MAY BE APPROVED BY THE CITY ENGINEER.
1. PCC SHALL BE 3000 PSI STRENGTH AT 28 DAYS.
2. CONTRACTION JOINTS SHALL BE PLACED AT 15’ MAX. SPACING.
3. EXPANSION JOINTS SHALL BE PLACED AT 45’ MAX. SPACING AND AT ALL DRIVEWAYS AND CURB RETURNS.
4. ADD KEYWAY WHEN SIDEWALK IS PLACED AGAINST CURB.
5. CRUSHED BASE ROCK SHALL BE COMPACTED TO 95% RELATIVE DENSITY PER AASHTO T-180.
6. ROOF DRAINS SHALL DRAIN DIRECTLY TO DRAINAGE CATCH BASINS.
7. ALTERNATE DESIGNS MAY BE APPROVED BY THE CITY ENGINEER.
1. MAINTAIN TOP OF CURB AT STANDARD ELEVATION. SET LOWER SIDE OF GRATE 0'-6" BELOW TOP OF CURB.
2. CONSTRUCT CATCH BASIN PER DRAWING 601B
*NOTE: IF SIX FOOT UTILITY EASEMENT IS PRESENT ALONG PROPERTY FRONTAGE, PLACEMENT SHALL BE AT BACK OF SIDEWALK WITHIN UTILITY EASEMENT.

1. ON STREETS LESS THAN 18’ IN WIDTH REFER TO DETAIL #411, FOR WATERLINE SANITARY SEWER LINE SEPARATION.

2. WHERE NO PLANTER STRIP EXISTS, FIRE HYDRANTS ARE TO BE LOCATED IN LINE WITH STREET LIGHTS & STREET TREES, OR AT BACK OF WALK. IF OUTSIDE THE R.O.W., LOCATE IN A 5’ X 5’ EASEMENT.

*JOINT TRENCH DETAIL (OPTIONAL)
STEP 1 COVER EXISTING MANHOLE WITH BUILDING PAPER AND CONSTRUCT A/C PAVEMENT OVER TOP OF MANHOLE.

STEP 2 SAW CUT AND REMOVE PAVEMENT AROUND MANHOLE 12" MIN. FROM MANHOLE FRAME.

STEP 3 RAISE MANHOLE FRAME AND INSTALL CONCRETE RINGS TO FINISH PAVEMENT PROFILE AND CROSS SLOPE.

STEP 4 BACKFILL WITH EARLY STRENGTH P.C.C. AND A/C TO DEPTHS AS DIRECTED.
NOTES:
1. SPACING – SPEED HUMPS SHOULD BE PLACED ACCORDING TO THE ENGINEER’S EVALUATION OF THE PHYSICAL STREET SECTION AS WELL AS TRAFFIC OPERATIONS DATA. TYPICALLY, SPEED HUMPS SHOULD BE PLACED BETWEEN 300 AND 600 FEET APART.
2. TOLERANCE – THE TOLERANCE FOR SPEED HUMPS SHOULDN’T VARY BY MORE THAN .5” FROM THE CITY’S TEMPLATE.
1. SPACING – SPEED HUMPS SHOULD BE PLACED ACCORDING TO THE ENGINEER’S EVALUATION OF THE PHYSICAL STREET SECTION AS WELL AS TRAFFIC OPERATIONS DATA. TYPICALLY, SPEED HUMPS SHOULD BE PLACED BETWEEN 300 AND 600 FEET APART.

2. TOLERANCE – THE TOLERANCE FOR SPEED HUMPS SHOULDN’T VARY BY MORE THAN .5” FROM THE CITY’S TEMPLATE.
LID

MONUMENT BOX

A.C. TO BE TAMPED IN

FINISHED STREET GRADE

MIN. 6" OF CONCRETE
2000 PSI MIX

UNDISTURBED SOIL

TOP TO BE 3/4" ABOVE BASE
WITH CITY STANDARD TAG

NOTE:
FOR MAJOR STREET
INTERSECTIONS AS
REQUIRED BY CITY
ENGINEER

5/8" BY 30"
IRON ROD

PLACEMENT OF BRASS CAP AND MONUMENT BOX SHALL FOLLOW
COLUMBIA COUNTY SURVEYORS OFFICE STANDARDS.
30' OR 35' GRAY ALUMINUM POLE
PGE CO. STANDARDS LC-115-45-05 & LC-115-45-10

6' ALUMINUM MAST ARM

Semi-Cutoff Style

HPS ROADWAY LAMP
GE "POWER DOOR" FIXTURE
ACTUAL FIXTURE DESIGN TO BE
APPROVED BY THE CITY ENGINEER

1. MOUNT LUMINAIRE 25–30 FT. ABOVE GROUND.
2. ON STREET WITH A PLANTER STRIP BETWEEN THE CURB AND SIDEWALK, MOUNT POLE 2FT. BEHIND FACE OF CURB.
ON STREET WITH NO PLANTER STRIP BETWEEN THE CURB AND SIDEWALK, MOUNT POLE 6" BEHIND SIDEWALK.
120 VOLT CIRCUITS, BLACK CONDUCTOR – HOT LEG  
RED CONDUCTOR – NEUTRAL  
GREEN CONDUCTOR – GROUND  

240 VOLT CIRCUITS, BLACK AND RED CONDUCTORS  
HOT LEGS – GREEN CONDUCTOR – GROUND  
( PGE CONNECTS ALL LIGHTS @ 240 V )  

TELEPHONE CO. OR CABLE CO.  
ATTACHMENT POINT  

SEMI-CUTOFF STYLE HPS LAMP  
GE "POWER DOOR" FIXTURE  
ACTUAL FIXTURE DESIGN TO BE  
APPROVED BY THE CITY ENGINEER  

POLE: EXISTING WOOD POLE  
WATTAGE REQUIREMENTS WILL VARY DEPENDING ON LIGHTING REQUIREMENTS.  

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Bolt, Mach., Galv., 5/8&quot; x 12&quot;</td>
</tr>
<tr>
<td>B</td>
<td>Washer, Flat 3/16&quot; x 2-1/4&quot;</td>
</tr>
<tr>
<td>C</td>
<td>Screw, Lag, 1/2&quot; x 4-1/2&quot;</td>
</tr>
<tr>
<td>F</td>
<td>Arm, Mast, Upswept – 8'</td>
</tr>
<tr>
<td>K</td>
<td>Bushing, Insulation 1-1/4&quot;</td>
</tr>
<tr>
<td>L</td>
<td>Staples – Flat Head Type</td>
</tr>
<tr>
<td>M</td>
<td>Wire, #10 TC 3 Conductor</td>
</tr>
</tbody>
</table>

* ACTUAL MAST ARM LENGTH DEPENDS ON LOCATION  

MAST ARM INSTALLATION DRAWING  
NEW CONSTRUCTION WHERE VOLTAGE IS LIMITED TO 300 VOLTS.  

COMMUNITY DEVELOPMENT  
CITY OF SCAPPOOSE  
34485 E. COLUMBIA AVE., PO BOX "P", SCAPPOOSE, OREGON  

MAST ARM DETAIL  

N.T.S.  
DATE 2002
1. ANCHOR SHALL BE COVERED BY DUCT TAPE ON ALL SIDES AND END.
2. ANCHOR SHALL BE SET IN 22" OF CONCRETE UNLESS IN SIDEWALK.
3. IF RECEIVER TUBE IS SET IN SIDEWALK IT SHALL BE 2'-2" DEEP & BACKFILLED WITH COMPACTED FILL, THEN CONCRETE FROM BOTTOM TO TOP OF WALK.
4. SIGN PLACEMENT IN SIDEWALK SHALL ALLOW FOR 5’ CLEAR PASSAGE & SIGN POST SHALL BE 12” FROM BACK OF CURB.
5. POST SHALL BE SPRAYED WITH ANTI-SEIZE ON THE LAST 2'-6".
INSTALL BRICK RED ECO-STONE INTERLOCKING CONCRETE PAVERS

2'

4'

PLAN

3" DIA. CALIPER TREE (HEADED AT 6' & WELL BRANCHED, BALLELD AND BURLAPED)

USE SAME ROCK AS USED TO FILL VOIDS IN PAVERS

PAVER EDGER

1" SAND

3" CRUSHED ROCK

SIDEWALK

GEOTEXTILE FABRIC

12"

MIN

SCARIFY SIDES OF PLANTING PIT

(2) 4" PERF. PVC DRAIN PIPE FILLED WITH 1" WASHED RIVER ROCK

UNDISTURBED SOIL

SOIL MIXTURE (SEE SPECS)

2" BRICK RED ECO-STONE CONCRETE PAVERS

CURB & GUTTER

GEOTEXTILE FABRIC

COMMUNITY DEVELOPMENT
CITY OF SCAPPOOSE
34485 E. COLUMBIA AVE., PO BOX "P", SCAPPOOSE, OREGON

TREE WELL DETAIL
3" INTERLOCKING CONCRETE PAVERS, HERRINGBONE PATTERN WITH ALTERNATING BRICK RED & SAND BROWN COLOR

PLAIN CONCRETE BORDER
EXPANSION JOINT SEE NOTE
CURB

PLAN VIEW

8" CONCRETE
3" CONCRETE PAVERS
1" BEDDING SAND
#4 REBAR CONT. 2" CLEAR

2" x 4" TAPERED KEYWAY
MIN. 6" OF 1"- 0" CRUSHED BASE ROCK

NOTE:
ALL CONC. TO BE 3,000 PSI AT 28 DAYS. PROVIDE 1/2" EXPANSION JOINT AT CENTER OF CROSSWALK OR AT 15' O.C.

SECTION
SAW-CUT EXIST. PAVEMENT AND EXCAVATE ROADWAY SO THAT A NEAT EDGE REMAINS FOR PLACEMENT OF CONCRETE

DIRECTION OF TRAFFIC

PLAN VIEW

SCORE JOINTS 2'x2' OC

EXPANSION JOINT

CONCRETE CROSS WALK

EDGE OF GUTTER

10'

SAW-CUT EXIST. PAVEMENT AND EXCAVATE ROADWAY SO THAT A NEAT EDGE REMAINS FOR PLACEMENT OF CONCRETE.

9" OF CONCRETE HIGH/EARLY

SECTION

COMPACTED BASE ROCK

EXISTING AC PAVEMENT

6"x6" WIRE MESH

NOTE:
PLACE 1/2" EXPANSION JOINT AT CENTER
NEW CURB

EXISTING CURB

NORMAL SLOPE OF PAVEMENT

SEE DETAIL 603 FOR FRAME & GRATE.

1'-8 7/8"

4-INCH PLUGGED HOLE

MIN. 1 1/2"

12" MIN.

SEE DETAIL 603 FOR FRAME & GRATE.

2'-8 1/2"

6"

9"

16"

1'-8 7/8"

6"
NORMAL SLOPE
OF PAVEMENT

R = 1"

SEE DETAIL 603 FOR
FRAME & GRATE.

SEE STANDARD DETAIL 610-A
FOR REINFORCEMENT DETAILS

<table>
<thead>
<tr>
<th>TABLE 601-C</th>
<th>CURB TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TYPE &quot;C&quot;</td>
</tr>
<tr>
<td>Y1</td>
<td>9&quot;</td>
</tr>
<tr>
<td>Y2</td>
<td>5 3/4&quot;±</td>
</tr>
<tr>
<td>Y3</td>
<td>8 1/2&quot;</td>
</tr>
<tr>
<td>Y4</td>
<td>16&quot;</td>
</tr>
</tbody>
</table>
NOTE:
USE VERTICAL BEADS IN CORNERS, FILLET WELD JOINT ON BOTTOM OF FRAME. GRATE MUST REST FLAT ON FRAME SURFACE.

3/8"x2" FLAT BAR EACH END
3/8"x2 1/2" FLAT BARS AT 1'-7 7/8" O.C.

NOTE:
3/8" ROUND OR RECTANGULAR CROSS BARS SHALL BE FILLET WELDED, RESISTANCE WELDED OR ELECTROFORGED TO BEARING BARS
COMMUNITY DEVELOPMENT
CITY OF SCPPOOSE
STORM SUMP SYSTEM

12" 90' SHORT RADIUS ELBOW PER ASTM D-1248, SDR 26 HDPE NOTE: CITY ENGINEER MAY REQUIRE ADDITIONAL PROTECTIVE MEASURES AS NEEDED

INfiltration Tests by a Qualified Soils Engineer Shall Verify Depth and Suitability of Sump Installation.

MINIMUM 12" STORM DRAIN PIPE SLOPE = 2.0% MINIMUM 10' MINIMUM

STEPS REQUIRED TO BOTTOM (12" SPACING)

12" 90' SHORT RAD. ELBOW WITH REMOVABLE COUPLING

12" STORM DRAIN PIPE

48" DIA. X 5" HIGH X 5" THICK WALLS PERFORATED M.H. SECTIONS WITH HDPE WRAPPING & A SOLID BOTTOM.

SEDIMENTATION

ALL PIPE TO SEDIMENTATION M.H. & PRECAST SUMP SHALL HAVE CLASS "B" BEDDING & PIPE ZONE MATERIAL.

UNDISTURBED NATIVE MATERIAL, OR 1"-0" COMPACTED CRUSHED ROCK (6" MIN. DEPTH) AS APPROVED BY THE ENGINEER

H DPE WRAP AROUND THE OUTSIDE OF THE PERFORATED SUMP SECTIONS MAY BE DELETED IF THE DRAIN ROCK IS 2"-4". SMALLER DRAIN ROCK REQUIRES HDPE WRAPPING.

MAXIMUM 6 INCHES OF GRADE RINGS.
MINIMUM - 2" RINGS

P AVEMENT BASE ROCK
GEOTEXTILE FABRIC TO BE PLACED BETWEEN COMPACTED BACKFILL AND DRAIN ROCK

Cored Opening with Non-Shrink Grout

OPENINGS 2 1/4" X 2 1/4"

FINISH GRADE

MINIMUM 12" STORM DRAIN PIPE
COMMUNITY DEVELOPMENT
CITY OF SCAPEPOLE
STORM SUMP SYSTEM AND SEDIMENTATION
MANHOLE (TYPICAL RETROFIT INSTALLATION)

EXISTING SUMP

STANDARD FRAME, CONE, SECTIONS AND COVER (STANDARD DWG. 307)
STANDARD CONE AND SECTIONS TAMPER-PROOF FRAME AND COVER (STANDARD DWG. NO. 309) OR FLAT TOP AS APPROVED BY THE ENGINEER

MAXIMUM 6 INCHES OF GRADE RINGS. MINIMUM—2" RINGS

EXISTING CATCH BASIN
SET IN MORTAR (TYPICAL)

POLYPROPYLENE HANGING LADDER SEE DETAIL 605-A
CLEAN AND GROUT ALL JOINTS AND PERFORATIONS TO BE WATERTIGHT

GEOTEXTILE FABRIC TO BE PLACED BETWEEN COMPACTED BACKFILL AND DRAIN ROCK.
CORED OPENING WITH NON-SHRINK GROUT

GEOMAXFABRIC
ALL PIPE TO SEDIMENTATION M.H. & PRECAST SUMP SHALL HAVE CLASS "B" BEDDING & PIPE ZONE MATERIAL.
12" 90° SHORT RADIUS ELBOW PER ASTM D-1248, SDR 26 HDPE

VARIABLE 8' TO 10' TYPICAL

POUR SOLID BOTTOM
FILL SUMP WITH SAND TO RAISE BOTTOM TO REQUIRED DEPTH.

UNDISTURBED NATIVE MATERIAL, OR 1"—0" COMPACTED CRUSHED ROCK (6" MIN. DEPTH) AS APPROVED BY THE ENGINEER

NEW SUMP

HDPE WRAP AROUND THE OUTSIDE OF PERFORATED SUMP SECTIONS MAY BE DELETED IF THE DRAIN ROCK IS 2"—4". SMALLER DRAIN ROCK REQUIRES HDPE WRAPPING.
INSTALL ONE STANDARD STEP

EXISTING SUMP CONVERTED TO SEDIMENTATION MANHOLE

POLYPROPYLENE HANGING LADDER

PLACE LADDER WITH BASE OF LADDER 6" MINIMUM BELOW FINISH GRADE OF NEW CONCRETE BASE

NEW 12" THICK CONCRETE BOTTOM
2" WEEP HOLE BOTH SIDES TYPICAL

COMBINATION CURB INLET, SEE DETAIL 606-B

PRECAST 48" FLAT TOP WITH 22"X26" RECTANGULAR OPENING, SEE DETAIL 606-B

STANDARD MANHOLE STEPS

PRECAST 48" DIA. MANHOLE SECTION (1'-4' HIGH)

PRECAST 48" DIA. MANHOLE BASE (2', 3' OR 4' HIGH)

12" MIN.

48"

58"

PROFILE
COMBINATION CURB INLET

NOTES:

1. REINFORCING FOR INLET UNIT 3 EA. #4 HORIZONTAL BARS.

2. REINFORCING FOR TOP UNIT 2 EA. #3 HORIZONTAL BARS.

3. REINFORCING FOR INLET SLOPED BASE, 4” X 4” MESH.

4. GUTTER IS TAPERED DOWN TO GRATE INLET.

5. TOP SLAB REINFORCING
   - #4 DEFORMED REBAR AROUND OPENING.
   - DIAGONALLY ON BOTH SIDES OF OPENING @ 6” O.C. IN BOTH DIRECTIONS.
FRAME AND COVER SET IN MORTAR
SEE STD. DETAILS
307, 308 & 309
AS CALLED OUT ON PLANS

24" MAX.

1/2" BOLT (STAINLESS STEEL)

GALV. CHAIN
200# CAPACITY SLACK WHEN GATE IS DOWN

12" MIN.

30" MIN.

12" MIN.

3" INVERT ELV.

FLOW

FLOW

ARMCO MODEL
160 TURNOUT
GATE OR APPROVED EQUAL,
TO BE WATER TIGHT IN PLACE.

60" MIN.

6" MIN.

24"

FLOW

24"

NON SHRINK GROUT
(TYPICAL)

COMPACTED GRANULAR
MATERIAL

RESTRICTOR PLATE (FOR FLOW CONTROL ONLY)
ORIFICE DIA. =

INFLOW LINE(S)
PER PLAN

OVERFLOW EL.

MULTI-ORIFICE ELBOWS TO BE LOCATED TO ASSURE LADDER CLEARANCE PROVIDE REMOVABLE WATER TIGHT COUPLING

FABRICATED SOLID WALL HDPE CROSS PER ASTM D–1248 SDR 26

SECTION A–A

COMMUNITY DEVELOPMENT
CITY OF SCAPPOOSE
34485 E. COLUMBIA AVE., PO BOX "P", SCAPPOOSE, OREGON
FLOW CONTROL MANHOLE

DRAWN
DIV.
REV.
DATE
APPR.

DRAWN
DIV.
REV.
DATE
APPR.

SCALE N.T.S.
DATE 2002
APPR.

DWG. NO. 607
NOTES:

1. THIS DETAIL REPRESENTS A DESIGN CONCEPT. FINAL DESIGN MAY VARY DEPENDING ON SITE CONDITIONS AND SHALL BE APPROVED BY THE CITY ENGINEER.

2. DETENTION PIPE TO BE MADE WATERTIGHT.
1. CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I. IN 28 DAYS

2. FOR FRAME & GRATE DETAIL SEE STD. DWG NO. 609-A

3. WHERE PRECAST INLETS ARE USED AS AN ALTERNATIVE TO CAST IN PLACE INLETS, A 4" COMPACTED LEVELING BED OF 1/4"-0" CRUSHED AGGREGATE SHALL BE PROVIDED

COMMUNITY DEVELOPMENT
CITY OF SCAPPOOSE
34485 E. COLUMBIA AVE., PO BOX "P", SCAPPOOSE, OREGON

DITCH INLET
TYPE D

DRAFT DRAWN
DIV. STORMWATER
REV. DATE APPR.
REV REV-DATE

SCALE N.T.S.
DATE 2002
APPR.
DWG. NO. 609
SECTION B-B

NOTES:

1. #3 BARS SHALL BE PLACED DURING CURB CONSTRUCTION.
2. ALL BARS SHALL BE PLACED 1 1/2" CLEAR OF NEAREST FACE OF CONCRETE UNLESS SHOWN OR OTHERWISE NOTED.
3. ALL BAR SPLICES LENGTHS SHALL BE A MIN. 20 DIA.
4. CLASS 3000 CONCRETE SHALL BE USED IN ALL INLETS.
NOTE:
USE VERTICAL BEADS IN CORNERS, FILLET WELD JOINT ON BOTTOM OF FRAME. GRATE MUST REST FLAT ON FRAME SURFACE.

PLAN (FRAME)  SECTION A–A

3/8" ROUND OR RECTANGULAR CROSS BARS SHALL BE FILLET WELDED, RESISTANCE WELDED OR ELECTROFORGED TO BEARING BARS

SECTION B–B

3/8" X 2" FLAT BAR EACH END

3/8" X 2.1/2" FLAT BARS @ 1 7/8" O.C.

8 BARS @ 4" O.C.

2' 8"

COMMUNITY DEVELOPMENT
CITY OF SCAPPOOSE
34485 E. COLUMBIA AVE., PO BOX "P", SCAPPOOSE, OREGON
CG–2 FRAME AND GRATE

SCALE N.T.S.
DATE 2002
APPR.