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PUBLIC UTILITY NOTES:

WATER AND SEWER SERVICES SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF 10 FEET AND A MINIMUM VERTICAL SEPARATION OF 2 FEET FROM EACH OTHER. PUBLIC UTILITY MAINS SHOULD BE LOCATED AT CENTER OF TRAVEL LANES.

WATER AND SEWER SERVICES SHALL HAVE A MINIMUM OF 5 FEET HORIZONTAL SEPARATION AND A MINIMUM VERTICAL SEPARATION OF 1 FOOT FROM SERVICE UTILITIES SUCH AS GAS, POWER AND COMMUNICATIONS.

WATER AND SEWER PIPE CROSSINGS SHALL HAVE A MINIMUM VERTICAL SEPARATION OF 24”. WHEN THIS SEPARATION CANNOT BE PROVIDED SEE STD PLAN 3-1.

WATER SERVICE TAPS SHALL MAINTAIN A MINIMUM SEPARATION OF 24” AT WATER MAIN.

SERVICE UTILITY NOTES:

ALL PRIVATE UTILITIES SHALL BE LOCATED IN PUBLIC UTILITY EASEMENT (PUE) UNLESS ONE IS NOT AVAILABLE; IN WHICH CASE UTILITIES SHALL BE PLACED UNDER SIDEWALK OR PLANTER STRIP INSIDE THE PUBLIC ROW. IF BOTH OF PREVIOUSLY MENTIONED ARE NOT AVAILABLE UTILITIES SHALL BE LOCATED IN THE STREET 4 FEET FROM FACE OF CURB AS APPROVED BY CITY ENGINEER.

NO PRIVATE UTILITY SHALL BE PLACED WITHIN 5 FEET WHEN RAN PARALLEL TO ANY CITY UTILITIES INCLUDING SERVICES. NO PRIVATE UTILITY SHALL CROSS WITHIN 1 FOOT VERTICALLY OF ANY CITY UTILITIES INCLUDING SERVICES.

STANDARD UTILITY LOCATIONS

DATE: 12/30/2016

APPROVED BY:
NOTES:

WATER AND SEWER SERVICES SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF 10 FEET AND A MINIMUM VERTICAL SEPARATION OF 2 FEET.

WATER AND SEWER SERVICES SHALL HAVE A MINIMUM OF 5 FEET HORIZONTAL SEPARATION AND A MINIMUM VERTICAL SEPARATION OF 1 FOOT FROM SERVICE UTILITIES SUCH AS GAS, POWER AND COMMUNICATIONS.

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WATER SERVICE TAPS SHALL MAINTAIN A MINIMUM SEPARATION OF 24" AT WATER MAIN.

STANDARD UTILITY LOCATIONS

DATE: 12/30/2016

APPROVED BY: [Signature]
MONUMENT PLACEMENT IN PAVED SURFACE

4" OR 6" DIA

CL. 4000 CONCRETE OR NON-SHRINK GROUT

RECESSED 1/8"

# 5 REBAR
MIN 2' LONG

4" OR 6" DIA

# 5 REBAR, MIN 2' LONG

PURSUANT TO THE REQUIREMENTS ESTABLISHED BY RCW 58.09.120, ANY MONUMENT SET BY A LAND SURVEYOR TO MARK OR REFERENCE A POINT ON A PROPERTY OR LAND LINE SHALL BE PERMANENTLY MARKED OR TAGGED WITH THE CERTIFICATE NUMBER OF THE LAND SURVEYOR SETTING IT.

RECORDING REQUIREMENTS FOR ALL SURVEYS SHALL COMPLY WITH RCW 58.09.

MONUMENT DETAIL

DATE: 01/15/2018

STANDARD PLAN 1-2

APPROVED BY:
GENERAL NOTES:
1) TRENCH EXCAVATION SHALL BE NOT MORE THAN 100 FEET AHEAD OF THE PIPE LAYING OPERATION.

2) TRENCHES ARE TO BE BACK FILLED AT THE END OF EACH DAY. IN LIEU OF BACK FILLING, SMALL EXCAVATIONS MAY BE LEFT OPEN AND COVERED WITH STEEL PLATES OR A SAFETY FENCE, IF APPROVED. IF A FENCE IS USED, IT SHALL BE AT LEAST 4’ HIGH AND BE ADEQUATELY SUPPORTED AT A MAXIMUM SPACING OF 6’ C-C TO PROVIDE AN IMPASSABLE BARRIER.

PAY WIDTH LIMITS FOR PIPE BEDDING, EXCAVATION, FOUNDATION BACKFILL AND BANK RUN BACKFILL, UNLESS OTHERWISE SPECIFIED.

COMPACTION TESTING:
SUBGRADE SHALL HAVE COMPACTION TESTS PERFORMED EVERY 150 LINEAR FEET OF TRENCH OR A MINIMUM OF 2 PER TRENCH AND 1 TEST PER 150 SQUARE FEET FOR ISOLATED PATCHES.

TESTING SHALL BE PERFORMED BY A CERTIFIED INDEPENDENT TESTING LABORATORY OR A CERTIFIED TESTER AS APPROVED BY THE CITY ENGINEER. THE COST OF TESTING IS THE RESPONSIBILITY OF THE PERMITTEE. TESTS SHALL BE COMPLETED AND REPORTS SUBMITTED TO THE CITY ENGINEERING OFFICE WITHIN 48 HOURS OF TESTS.

SUBGRADE SHALL BE COMPACTED TO 95% MODIFIED PROCTOR DENSITY, AS VERIFIED BY COMPACTION TESTING, BEFORE PROCEEDING TO PLACEMENT OF BASE ROCK AND PAVING. CITY INSPECTOR MAY REQUIRE EXCAVATION AND REMOVAL OF SOIL WHERE COMPACTION IS IN QUESTION.

NATIVE BACKFILL WILL REQUIRE LABORATORY TESTING TO DETERMINE MAX. MODIFIED PROCTOR DENSITY. IMPORTED BACKFILL WILL REQUIRE SUBMITTAL OF PROCTOR TEST RESULTS FROM SUPPLIER.

TRENCH DETAILS

DATE: 01/16/2018

APPROVED BY:

STANDARD PLAN 1-3
NOTE:
FOR SEWER PIPE LAID AT 6 FEET IN DEPTH AND DEEPER, PLACE IDENTIFYING TAPE 4 FEET BELOW FINISH GRADE.

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<td>CAUTION BURIED SEWER LINE BELOW</td>
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<tr>
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<tr>
<td>ELECTRIC CONDUIT &amp; DIRECT BURY WIRE</td>
<td></td>
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NOTES:

1) ALL SIGNS SHALL BE IN CONFORMANCE WITH, AND INSTALLED ACCORDING TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), CURRENT EDITION, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER OR HIS REPRESENTATIVE.

2) STREET NAME SIGNS SHALL BE REFLECTIVE COATED ALUMINUM AND SHALL BE MOUNTED ON BREAKAWAY GALVANIZED STEEL TELESPAR R POSTS MANUFACTURED BY UNI-STRUT OR APPROVED EQUAL. THE POST SHALL BE 2" SQUARE AND THE BASE SHALL BE 2-1/4" SQUARE. SEE STANDARD PLAN 1-7 FOR POST.

3) STREET NAME SIGNS SHALL BE EXTRUDED BLADE AND MOUNTED ABOVE STOP SIGNS, IF THEY ARE PRESENT OR REQUIRED. IF STOP SIGNS ARE NOT REQUIRED, THE STREET NAME SIGNS SHALL BE MOUNTED ON NEW POSTS ON THE SOUTHEAST AND NORTHWEST CORNERS FOR EQUALLY CLASSIFIED STREETS, OR AT THE FAR RIGHT HAND SIDE OF THE HIGHER CLASSIFIED STREET. EACH LOCATION SHALL HAVE TWO SIGNS AT 90° WITH THE FACE OF EACH SIGN PARALLEL TO THAT STREET.

4) FOR INTERSECTIONS THAT HAVE TRAFFIC SIGNALS, SEE STANDARD PLAN 1-6, 'SIGNAL MAST-ARM STREET SIGN DETAIL'.
GREEN BACKGROUND - ENGINEER GRADE

WHITE RETRO-REFLECTIVE LETTER AND 1" BORDER.  10" HEIGHT MINIMUM LETTERS FOR STREET NAME AND 6" HEIGHT MINIMUM LETTERS FOR SUPPLEMENTARY LETTERING.

NOTES:

2) SPAN WIRE MOUNTS ARE TO BE IN ACCORDANCE WITH WSDOT STANDARD PLAN J-15.15-02.

3) ALL SIGN STOCK TO BE 3/8" MINIMUM THICKNESS ALUMINUM.
NOTES:

1. THE SIGN SHALL BE LOCATED A MINIMUM OF 2 FEET FROM THE FACE OF CURB OR EDGE OF ROADWAY IF NO CURB EXISTS. WHERE NARROW SIDEWALKS EXIST, THE SIGN SHALL BE PLACED AT THE BACK EDGE OF THE SIDEWALK. THE SIGN LOCATION SHALL BE VERIFIED BY THE CITY ENGINEER PRIOR TO PLACEMENT.

2. SECONDARY SIGNS MOUNTED BELOW ANOTHER SIGN MAY BE 1 FOOT LOWER THAN THE PRIMARY SIGN. IF THE SECONDARY SIGN IS MOUNTED LOWER THAN 7 FEET ABOVE PEDESTRIAN SIDEWALK OR PATHWAY, THE SECONDARY SIGN SHALL NOT PROJECT MORE THAN 4 INCHES INTO THE PEDESTRIAN FACILITY.

3. THE BASE MUST BE OF SUFFICIENT LENGTH TO BE 18" BELOW FINISH GRADE IN HARD SURFACE AREAS.

4. TWO 3/8 INCH DRIVE RIVETS SHALL BE INSTALLED TO CONNECT THE POST AND BASE, AND TWO TO CONNECT THE SIGN TO THE POST.

5. IF THE POST IS TO BE PLACED IN THE SIDEWALK, THE BASE SHALL BE LOCATED AT LEAST 12 INCHES FROM THE NEAREST EDGE.

6. THE POST SHALL BE INSERTED A MINIMUM OF 12 INCHES INTO THE BASE WHERE INSTALLED IN LANDSCAPE AREAS.

7. WHEN THE SIGN IS TO BE LOCATED IN THE PLANTING STRIP, THE BASE SHALL BE 3 FEET LONG AND EXTEND A MINIMUM OF 30 INCHES BELOW THE FINISH GRADE.

8. IF THE BASE IS LOCATED IN THE SIDEWALK, THE HOLES THAT EXTEND INTO THE CONCRETE AREA SHALL BE WRAPPED WITH DUCT TAPE OR OTHER APPROVED MATERIAL TO PREVENT CONCRETE FROM FILLING THE HOLES AND LOCKING THE POST INTO THE BASE.

9. THE SIGN POST SHALL BE A MINIMUM OF 14 GAUGE, GALVANIZED PERFORATED STEEL AND SHALL BE 2 INCH SQUARE.

10. THE BASE SHALL BE A 2 1/2 INCH SQUARE 7 GAUGE, GALVANIZED, HEAVY DUTY SLIP-BASE ANCHOR PER WSDOT STANDARD PLAN G-24.40-06 IN HARD SURFACE AREAS. FOR LANDSCAPE AREAS, THE BASE SHALL BE A 2 1/2 INCH SQUARE AND A MINIMUM OF 12 GAUGE, GALVANIZED PERFORATED STEEL.


STREET SIGN POST DETAIL

DATE: APPROVED BY:
01/16/2018
NOTES:

FIRE APPARATUS ACCESS ROADS SHALL BE MARKED WITH PERMANENT **NO PARKING - FIRE LANE** SIGNS COMPLYING WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). SIGNS SHALL HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE POSTED ON ONE OR BOTH SIDES OF THE FIRE APPARATUS ROAD AS REQUIRED BY THE FOLLOWING CLASSIFICATIONS:

--ROADS LESS THAN 28 FEET IN WIDTH SHALL BE POSTED ON BOTH SIDES OF THE ROAD AS A FIRE LANE.

--ROADS 28 FEET IN WIDTH BUT LESS THAN 36 FEET IN WIDTH SHALL BE POSTED ON ONE SIDE OF THE ROAD AS A FIRE LANE.

--PLACEMENT OF SIGNS AS DETERMINED BY THE CITY ENGINEER.
NOTE:
1. FRAME AND COVER SHALL BE CAST OR DUCTILE IRON.
2. COVER WEIGHT - MIN. 147 LBS.
   FRAME WEIGHT - MIN. 210 LBS.
3. MACHINE COVER SEAT & COVER FACE.
4. LOADING - 40,000 LBS. HEAVY TRAFFIC LOADING.
5. MANHOLE COVERS TO BE LETTERED AS "WATER", "SEWER", OR "STORM" AS REQUIRED BY TYPE OF APPLICATION.
TRENCH BACKFILL ABOVE THE BEDDING ZONE AND BELOW THE SURFACING MAY BE BACK FILLED WITH CONTROLLED DENSITY FILL (SLURRY GROUT) AT THE OPTION OF THE CONTRACTOR. IF EXISTING UTILITIES CROSSING THE TRENCH CREATE A VOID AREA THAT IS NOT READILY COMPACTIBLE, THE CONTRACTOR SHALL USE CONTROLLED DENSITY FILL TO BACKFILL TO SIX INCHES ABOVE THE UTILITY. THE CONTRACTOR MAY ELECT TO BACKFILL THE REMAINING AREA WITH CDF OR USE SELECT BACKFILL.

ALL TRENCH WORK SHALL BE IN CONFORMANCE WITH STANDARD PLAN 1-3.

ALL CDF TRENCH FILL MATERIAL SHALL BE THOROUGHLY SET TO THE SATISFACTION OF THE ENGINEER BEFORE ANY ADDITIONAL FILL MATERIALS, CRUSHED SURFACING OR PAVEMENT IS PLACED.
NOTES:

1) RAILING MATERIAL SHALL BE WROUGHT IRON WITH A MAXIMUM HEIGHT OF 4 FEET FROM THE SIDEWALK. PAINTED BLACK OR DOWNTOWN GREEN AS DESCRIBED IN CITY STANDARD PLAN 7-4.

2) THE BASE OF THE RAILING POSTS SHALL BE ANCHORED TO THE SIDEWALK WITH NUMBER OF ANCHORS PER POST DETERMINED BY MANUFACTURER.

3) A MINIMUM OF 6 FEET IN WIDTH SHALL BE PROVIDED FOR AN OBSTRUCTION FREE PATHWAY BETWEEN THE RAILING AND TREE GRATE, TRASH RECEPTACLES, BICYCLE RACKS, BENCHES, ETC.

4) UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER, THE FRONTAGE OF ADJACENT SEATING AREAS SHALL BE IN LINE WITH EACH OTHER, TO PROMOTE A UNIFORM AND CLEARLY DEFINED PEDESTRIAN ZONE.

5) EGRESS OPENING FROM SEATING AREA SHALL BE ALIGNED WITH THE BUILDING EGRESS, AND SHALL BE A MINIMUM OF 6" WIDER THAN THE BUILDING EGRESS.

8' HIGH X 6' WIDE CLEAR SPACE. CORRIDOR SHALL BE FREE OF ALL OBJECTS PROTRUDING INTO CLEAR SPACE
1) All work in the public right of way shall be completed in accordance with the current version of the standard specifications for road, bridge and municipal construction published by the Washington State Department of Transportation. Generally, most work in the city right of way impacting the location or operation of city utility mains, roadway, curb and gutter, drainage, lighting, or pedestrian facilities will require a design stamped by a registered professional engineer.

2) All work in the right of way shall be approved by the city engineer either by issuance of a right of way permit, approved civil plans, or as a part of a city sponsored contract. No contractor or utility shall work in the right of way without authorized approval.

3) All temporary traffic control in the right of way shall be approved by the city engineer either by approved standard plans or by approved barricades. All work in the right of way shall be conducted in accordance with the current version of the standard specifications for road, bridge and municipal construction published by the Washington State Department of Transportation.

4) Public safety is paramount in the public right of way. Work zones shall be delineated with the appropriate signage and devices at all times. For work zones determined with the appropriate signage and devices at all times. For work zones established under the right of way permit, the following temporary traffic control devices shall be used:

   - Barrel (with flasher)
   - Type II Baricade (with flasher)
   - Type III Baricade (with flasher)
   - Vertical Baricade (with flasher)

5) All contractors working in the public right of way under a right of way permit shall have liability insurance in force and a copy of Form CG2012 on file with the Development Services Department. Insurance requirements for city projects shall be in accordance with the contract documents for that project.

6) No trenches or excavation backfill will be allowed without inspection. Contractors are responsible to schedule for inspections through the inspection call number at 509-524-4729 24 hours in advance or by pre-agreement with the inspector. Last minute calls for inspection will not be responded to. Any work completed without inspection is subject to rejection and removal at the discretion of the city engineer.

7) All contractors working in the public right of way under a right of way permit shall be allowed without inspection.

8) All work zones shall be delineated with the appropriate signage and devices at all times. For work zones established under the right of way permit, the following temporary traffic control devices shall be used:

   - Barrel (with flasher)
   - Type II Baricade (with flasher)
   - Type III Baricade (with flasher)
   - Vertical Baricade (with flasher)

9) Public safety is paramount in the public right of way. Work zones shall be delineated with the appropriate signage and devices at all times. For work zones that will remain in place after dark, delineation shall include barrels and/or barricades equipped with operation flashers. Any work performed after regular working hours (Monday-Friday, 7:30 AM to 5 PM) shall be scheduled to begin on Friday afternoon.
ALL DOWNTOWN PUBLIC RIGHT OF WAY SHALL HAVE BRICK PAVERS ALONG THE CURB AND GUTTER WITH STREET TREES INSIDE TREE WELLS. ADDITIONAL ELECTRICAL CONDUIT SHALL BE INSTALLED FOR FUTURE POWER. PAVERS TO BE INSTALLED TO THE APPROPRIATE DISTANCE SET FORTH BY THE CITY ENGINEER. BRICK PAVERS TO MATCH DOWNTOWN MASTER PLAN STANDARDS.

SEE STANDARD PLAN 1-14 FOR DIMENSIONS OF BRICK PAVERS.

*SIDEWALK TO BE 12' WIDE MIN. WHERE IT ALLOWS.

HERRINGBONE PATTERN TO BE LAID FOR THE CONCRETE PAVERS IN THE RIGHT OF WAY.
NOTE: PROVIDE IRRIGATION AND ELECTRICAL POWER TO ALL TREE WELLS.

SEE STANDARD PLAN 1-14 FOR ADDITION INFORMATION ON IRRIGATION AND ELECTRICAL LOCATIONS.
A. APPROVED TREE TYPE, MINIMUM CALIPER, AND MINIMUM BRANCH CLEARANCE AS DIRECTED BY THE PARKS DEPARTMENT

B. SET BALL ON FIRMLY PACKED SOIL TO PREVENT SETTLEMENT. REMOVE CONTAINERS, WRAPPINGS, WIRES, AND TIES.

C. GENTLY PACK TOPSOIL BACKFILL USING WATER TO SETTLE SOIL AROUND ROOT BALL.

D. INSTALL TREE BAG, SIZE AS DIRECTED BY THE PARKS DEPARTMENT. ARBOR RAINFOX MANUFACTURED BY A.M. LEONARD'S OR APPROVED EQUAL.

E. INSTALL 18" DEEP ROOT UB18-2 ROOT BARRIER, OR APPROVED EQUAL, AROUND ENTIRE TREE AREA. SEAL AROUND PERFORATED AREAS WITH A RUBBER OR SILICONE MATERIAL SO ROOTS DO NOT PENETRATE.

F. INSTALL ROOT BARRIER FOR ALL EXPANDED TREE WELLS. SURROUND STYLE INSTALL 18" DEEP ROOT UB18-2 ROOT BARRIER, OR APPROVED EQUAL, AROUND ENTIRE TREE AREA. SEAL AROUND PERFORATED AREAS WITH A RUBBER OR SILICONE MATERIAL SO ROOTS DO NOT PENETRATE.

G. Gently pack topsoil backfill using water to settle soil around root ball.

H. Cut slot in lid to allow holiday light chord into box.

I. CARSON 0910 ENCLOSURE LID 10" Ø FLUSH SOLID, BLACK COLOR W/ BOLT DOWN FEATURE AND LID GASKET. BOX SET TO FINISH GRADE

J. WEATHERPROOF, WATERTIGHT J-BOX W/ WATERTIGHT CONNECTIONS TO CONDUIT AND RECETPACLE CORD. BOX TO BE LOCATED 4"-8" BELOW GRADE.

K. CARSON 0910 ENCLOSURE 10"Ø, 10" DEPTH

L. WEATHERPROOF, WATERTIGHT J-BOX W/ WATERTIGHT CONNECTIONS TO CONDUIT AND RECETPACLE CORD. BOX TO BE LOCATED 4"-8" BELOW GRADE.

M. 3" MIN DEPTH OF 3" WASHED GRAVEL

N. ELECTRICAL CONDUIT TO IN-GROUND LIGHTS

O. EXIST. ELECTRICAL CONDUIT

P. 4" OF 3-CONDUCTOR, OUTDOOR RATED FLEXIBLE CABLE, RATED FOR WET LOCATION USE, SOUTH WIRE "SJEOW" OR APPROVED EQUAL.

Q. WATERTIGHT TWIST-LOCK RECEPTACLE W/ SAFETY SHROUD. HUBBEL HBL15W47 NEMA 5-15, OR APPROVED EQUAL.

R. FINISH GRADE OR TOP OF MULCH

S. Gently pack topsoil backfill using water to settle soil around root ball.

T. PLACE 3" METAL EDGING ALONG PAVERS, 6" MIN. HEIGHT (TYP.)

U. LOCKING JUNCTION BOX FOR OUTLET AND JUNCTION BOX, CARSON 0910 ENCLOSURE, OR APPROVED EQUAL.

V. LOCKING JUNCTION BOX DETAIL A

W. CARSON 0910 ENCLOSURE LID 10" Ø FLUSH SOLID, BLACK COLOR W/ BOLT DOWN FEATURE AND LID GASKET. BOX SET TO FINISH GRADE

X. WEATHERPROOF, WATERTIGHT J-BOX W/ WATERTIGHT CONNECTIONS TO CONDUIT AND RECETPACLE CORD. BOX TO BE LOCATED 4"-8" BELOW GRADE.

Y. CARSON 0910 ENCLOSURE 10"Ø, 10" DEPTH

Z. WEATHERPROOF, WATERTIGHT J-BOX W/ WATERTIGHT CONNECTIONS TO CONDUIT AND RECETPACLE CORD. BOX TO BE LOCATED 4"-8" BELOW GRADE.

AA. 3" MIN DEPTH OF 3" WASHED GRAVEL

BB. ELECTRICAL CONDUIT TO IN-GROUND LIGHTS

CC. EXIST. ELECTRICAL CONDUIT

DD. 4" OF 3-CONDUCTOR, OUTDOOR RATED FLEXIBLE CABLE, RATED FOR WET LOCATION USE, SOUTH WIRE "SJEOW" OR APPROVED EQUAL.

EE. WATERTIGHT TWIST-LOCK RECEPTACLE W/ SAFETY SHROUD. HUBBEL HBL15W47 NEMA 5-15, OR APPROVED EQUAL.

FF. FINISH GRADE OR TOP OF MULCH

GG. Gently pack topsoil backfill using water to settle soil around root ball.

HH. PLACE 3" METAL EDGING ALONG PAVERS, 6" MIN. HEIGHT (TYP.)

II. LOCKING JUNCTION BOX FOR OUTLET AND JUNCTION BOX, CARSON 0910 ENCLOSURE, OR APPROVED EQUAL.

JJ. LOCKING JUNCTION BOX DETAIL A

KK. CARSON 0910 ENCLOSURE LID 10" Ø FLUSH SOLID, BLACK COLOR W/ BOLT DOWN FEATURE AND LID GASKET. BOX SET TO FINISH GRADE

LL. WEATHERPROOF, WATERTIGHT J-BOX W/ WATERTIGHT CONNECTIONS TO CONDUIT AND RECETPACLE CORD. BOX TO BE LOCATED 4"-8" BELOW GRADE.

MM. CARSON 0910 ENCLOSURE 10"Ø, 10" DEPTH

NN. WEATHERPROOF, WATERTIGHT J-BOX W/ WATERTIGHT CONNECTIONS TO CONDUIT AND RECETPACLE CORD. BOX TO BE LOCATED 4"-8" BELOW GRADE.

OO. 3" MIN DEPTH OF 3" WASHED GRAVEL

PP. ELECTRICAL CONDUIT TO IN-GROUND LIGHTS

QQ. EXIST. ELECTRICAL CONDUIT

RR. 4" OF 3-CONDUCTOR, OUTDOOR RATED FLEXIBLE CABLE, RATED FOR WET LOCATION USE, SOUTH WIRE "SJEOW" OR APPROVED EQUAL.

SS. WATERTIGHT TWIST-LOCK RECEPTACLE W/ SAFETY SHROUD. HUBBEL HBL15W47 NEMA 5-15, OR APPROVED EQUAL.

TT. FINISH GRADE OR TOP OF MULCH

UU. Gently pack topsoil backfill using water to settle soil around root ball.

VV. PLACE 3" METAL EDGING ALONG PAVERS, 6" MIN. HEIGHT (TYP.)

WW. LOCKING JUNCTION BOX FOR OUTLET AND JUNCTION BOX, CARSON 0910 ENCLOSURE, OR APPROVED EQUAL.

XX. LOCKING JUNCTION BOX DETAIL A

YY. CARSON 0910 ENCLOSURE LID 10" Ø FLUSH SOLID, BLACK COLOR W/ BOLT DOWN FEATURE AND LID GASKET. BOX SET TO FINISH GRADE

ZZ. WEATHERPROOF, WATERTIGHT J-BOX W/ WATERTIGHT CONNECTIONS TO CONDUIT AND RECETPACLE CORD. BOX TO BE LOCATED 4"-8" BELOW GRADE.

AAA. CARSON 0910 ENCLOSURE 10"Ø, 10" DEPTH

BBB. WEATHERPROOF, WATERTIGHT J-BOX W/ WATERTIGHT CONNECTIONS TO CONDUIT AND RECETPACLE CORD. BOX TO BE LOCATED 4"-8" BELOW GRADE.

CCC. 3" MIN DEPTH OF 3" WASHED GRAVEL

DDD. ELECTRICAL CONDUIT TO IN-GROUND LIGHTS

EEE. EXIST. ELECTRICAL CONDUIT

FFF. 4" OF 3-CONDUCTOR, OUTDOOR RATED FLEXIBLE CABLE, RATED FOR WET LOCATION USE, SOUTH WIRE "SJEOW" OR APPROVED EQUAL.

GGG. WATERTIGHT TWIST-LOCK RECEPTACLE W/ SAFETY SHROUD. HUBBEL HBL15W47 NEMA 5-15, OR APPROVED EQUAL.

HHH. FINISH GRADE OR TOP OF MULCH

III. Gently pack topsoil backfill using water to settle soil around root ball.
TRENCHING AND EXCAVATION

GENERAL:
1. CITY ARBORIST OR URBAN FORESTER SHALL DESIGNATE ALL SIGNIFICANT TREES ON THE PROJECT SITE TO BE PROTECTED.
2. MINIMUM PROTECTED AREA SHALL BE 1.5' RADIUS FOR EVERY 1" OF TRUNK DIAMETER MEASURED AT 54" ABOVE GRADE, OR 10' WHICHEVER IS GREATER.
3. CONTRACTOR SHALL SUBMIT A TREE INVENTORY PLAN, AND A TREE PROTECTION PLAN FOR ALL TREES OVER 3" IN DIAMETER WHOSE CRITICAL ROOT ZONE IS ON THE PROPERTY TO BE DEVELOPED. CITY APPROVAL IS REQUIRED PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY.
4. 4' TALL HIGH VISIBILITY PLASTIC FENCE SHALL BE ERECTED AROUND THE CRITICAL ROOT ZONE, OR AS DIRECTED BY THE CITY, FOR ALL TREES TO BE PROTECTED PRIOR TO ANY CONSTRUCTION ON THE PROJECT. NO PERSON OR EQUIPMENT SHALL BE PERMITTED WITHIN THE TREE PROTECTION AREA.

ZONE A (CRITICAL ROOT ZONE):
1. NO DISTURBANCE SHALL BE ALLOWED WITHOUT A SITE-SPECIFIC INSPECTION AND APPROVAL OF METHODS TO MINIMIZE ROOT DAMAGE.
2. SEVERANCE OF ROOTS LARGER THAN 2" DIAMETER REQUIRE THE CITY ARBORIST APPROVAL.
3. TUNNELING REQUIRED FOR TRENCHES 36 INCHES BELOW GRADE OR DEEPER.

ZONE B (DRIPLINE):
1. ZONE B FOR ASYMMETRICAL CLOUMNAR AND NARROW CONICAL TREE FORMS. ZONE B= 1' RADIUS FOR EVERY 1" OF TRUNK DIAMETER MEASURED 54" ABOVE FINISH GRADE.
2. TUNNELING MAY BE REQUIRED FOR TRENCHES 36 INCHES OR DEEPER.

ZONE 3 (ROOT ZONE):
1. BEST MANAGEMENT PRACTICES REQUIRED TO PRESERVE AND PROTECT ROOT ZONE, AS DIRECTED BY CITY ARBORIST.
1. For placement of crushed surfacing, refer to the most current WSDOT standard specifications, Section 4-04.3(4) for maximum nominal depth of compacted material per lift.

2. Crushed surfacing shall have density testing performed at a minimum of four (4) per lane width for the first 1,000 linear feet, and two (2) per lane width for each additional 1,000 linear feet, or as directed by the engineer.

3. Depending on location, as approved by city engineer. Typically 44 feet.

4. Asphalt tack coat shall be applied between each lift of HMA, regardless of time between lift placements.

5. Design of geotextile fabric shall meet requirement guidelines of Section 630.05 of the WSDOT design manual. Material properties of the geotextile fabric shall meet the requirements of the most current WSDOT standard specifications Section 9-33 for woven soil stabilization fabric.

6. Pothole patching or patching for curb and gutter work shall use this cross section.

7. All traffic control devices shall comply with the most current version of the manual of uniform traffic control devices.

* Minimum surfacing design allowed. Thicker sections may be required as determined by a geotechnical report.
1. FOR PLACEMENT OF CRUSHED SURFACING, REFER TO THE MOST CURRENT WSDOT SPECIFICATIONS SECTION 4-04.3(4) FOR MAXIMUM NOMINAL DEPTH OF COMPACTED MATERIAL PER LIFT.

2. CRUSHED SURFACING SHALL HAVE DENSITY TESTING PERFORMED AT A MINIMUM OF FOUR (4) PER LANE WIDTH FOR THE FIRST 1,000 LINEAR FEET, AND TWO (2) PER LANE WIDTH FOR EACH ADDITIONAL 1,000 LINEAR FEET, OR AS DIRECTED BY THE ENGINEER.

3. POTHOLE PATCHING OR PATCHING FOR CURB AND GUTTER WORK SHALL USE THIS CROSS SECTION.

4. DEPENDING ON LOCATION, AS APPROVED BY CITY ENGINEER. TYPICALLY 36 FEET

5. DESIGN OF GEOTEXTILE FABRIC SHALL MEET REQUIREMENT GUIDELINES OF SECTION 630.05 OF THE WSDOT DESIGN MANUAL. MATERIAL PROPERTIES OF THE GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF THE MOST CURRENT WSDOT STANDARD SPECIFICATIONS SECTION 9-33.2 FOR WOVEN SOIL STABILIZATION FABRIC.

6. ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH THE MOST CURRENT VERSION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

* MINIMUM SURFACING DESIGN ALLOWED. THICKER SECTIONS MAY BE REQUIRED AS DETERMINED BY A GEOTECHNICAL REPORT.
NOTE:
ANY VARIATION FROM THIS DESIGN OR USE OF THIS TURNAROUND AT ANY SPECIFIC SITE MUST BE APPROVED BY THE CITY ENGINEER.

APPROPRIATE SIGNING SHALL BE DETERMINED BY THE CITY ENGINEER.

TRANSVERSE EXTENSION MAY BE PLACED ON EITHER SIDE OF THE ROADWAY

TYPICAL PRIVATE LANE CROSS-SECTION

DEAD-END HAMMERHEAD FOR PRIVATE LANE

STANDARD PLAN 2-3

DATE: 01/16/2018

APPROVED BY: [Signature]
CHIP SEAL AND OVERLAY

TYPICAL OVERLAY SECTION

EXISTING STREET

* MILLED AREA

ASPHALT LIP ABOVE GUTTER = 1/4" MAX

* MILLED AREA

ASPHALT CONCRETE OVERLAY LIFT = 1-1/2" MIN.

OR AS SPECIFIED.

NOTES:

1. THE WORK SHALL BE DONE IN ACCORDANCE WITH SECTIONS 5-02 AND 5-04 OF THE CURRENT WSDOT STANDARD SPECIFICATIONS.
2. THE MAXIMUM TEMPERATURE LEAVING THE PLANT SHALL BE 325 °F AND THE MINIMUM TEMPERATURE AT THE JOB SITE SHALL BE 250 °F.
3. MAXIMUM ROLLER SPEEDS ARE:
   VIBRATORY: 3 mph
   PNEUMATIC: 5 mph
   STEEL WHEEL: 4 mph
4. THE BREAKDOWN ROLLER SHALL BE WITHIN 50 FEET OF THE PAVER
5. TACK COAT SHALL BE APPLIED EVENLY OVER THE ENTIRE AREA TO BE OVERLAID AT THE RATE OF 0.08 GALLONS PER SQUARE YARD.

FOR CHIP SEAL OR OVERLAY PROJECTS TERMINATING AT AN INTERSECTION, THE PROJECT LIMIT SHALL BE THE PROJECTION OF THE CURB LINE ON THE CROSS STREET, AS SHOWN ABOVE.

FOR CHIP SEAL OR OVERLAY PROJECTS EXTENDING THROUGH AN INTERSECTION, THE LIMITS SHALL BE AS SHOWN BELOW.
NOTES:

1. AFTER DITCH BACK FILL HAS BEEN COMPACTED, AN ADDITIONAL 24” WILL BE REMOVED FROM EACH EDGE OF THE ORIGINAL CUT. THE ENGINEER MAY REQUIRE MORE THAN THE 24” ADDITIONAL CUT IF THE EXISTING PAVEMENT HAS BEEN LIFTED IN THE REMOVAL PROCESS, IF THE JOINT DOES NOT OCCUR ON UNDISTURBED MATERIAL, OR IF THE JOINT FALLS WITHIN THE TRAVEL LANE.

2. LONGITUDINAL CONSTRUCTION JOINTS SHALL ONLY BE LOCATED AT THE CENTER OR EDGE OF AFFECTED LANES.

STREETS 20 FT OR LESS IN WIDTH AND ALL ALLEYS ARE CONSIDERED ONE-LANE STREETS. NON-ARTERIAL STREETS GREATER THAN 20 FT IN WIDTH WITH NO TRAFFIC CHANNELIZATION ARE CONSIDERED TWO-LANE STREETS WITH ONE-LANE EITHER SIDE OF THE CENTERLINE OF THE STREET. NON-ARTERIAL STREETS GREATER THAN 32 FT IN WIDTH WITH NO TRAFFIC CHANNELIZATION MAY BE CONSIDERED THREE LANE STREETS UPON PRIOR APPROVAL FROM THE CITY ENGINEER.

3. ALL PERMANENT FINAL PATCHES SHALL BE RECTANGULAR IN SHAPE AND CONSTRUCTED PARALLEL AND PERPENDICULAR TO THE ROAD CENTERLINE.

4. THE FINAL CUT EDGE OF PAVED SURFACES SHALL BE SMOOTH AND STRAIGHT, CONSISTANT WITH GRINDING OR SAW CUTTING DEVICES. NO JAGGED, BROKEN OR UNDERMINED EDGES ARE ALLOWED. THE ENGINEER MAY REQUIRE THE REMOVAL AND REPLACEMENT OF ADDITIONAL PAVEMENT IF IT IS CRACKED OR BROKEN ADJACENT TO THE WORK SITE.

5. FOR SUBGRADE COMPACTION REQUIREMENTS SEE STD. PLAN 1-3

6. FINAL COMPACTION OF HMA SHALL BE 91% OF MAXIMUM DENSITY.

ISOLATED PATCHES: MINIMUM 1 TEST PER PATCH UP TO 150 SQUARE FEET, AND 1 TEST REQUIRED EVERY ADDITIONAL 300 SQUARE FEET THEREAFTER.

TRENCH PATCHES: 1 TEST EVERY 150 LINEAR FEET OF TRENCH WITH A MINIMUM OF 2 TESTS PER TRENCH.

TESTING SHALL BE PERFORMED BY A CERTIFIED INDEPENDENT TESTING LABORATORY OR CERTIFIED TESTOR, AS APPROVED BY THE CITY ENGINEER. TESTS SHALL BE COMPLETED AND REPORTS IDENTIFYING THE PROJECT SUBMITTED TO THE CITY ENGINEERING OFFICE WITHIN 48 HOURS OF TEST.

7. COLD MIX MAY BE USED TEMPORARILY ONLY UNTIL HOT MIX ASPHALT IS AVAILABLE.

8. FOR ATYPICAL CROSS SECTIONS CONSULT WITH THE CITY ENGINEER FOR REQUIREMENTS.
NOTES:

1. AFTER DITCH BACK FILL HAS BEEN COMPACTED, AN ADDITIONAL 24" WILL BE REMOVED FROM EACH EDGE OF THE ORIGINAL CUT. THE ENGINEER MAY REQUIRE MORE THAN THE 24" ADDITIONAL CUT IF THE EXISTING PAVEMENT HAS BEEN LIFTED IN THE REMOVAL PROCESS, IF THE JOINT DOES NOT OCCUR ON UNDISTURBED MATERIAL, OR IF THE JOINT FALLS WITHIN THE TRAVEL LANE.

2. ALL BACK FILL SHALL BE UNIFORMLY MOISTURE CONDITIONED AND COMPACTED TO 95% MAX. DENSITY. BASE ROCK SHALL BE PLACED IN 9" OR LESS Lifts. CRUSHED SURFACING SHALL BE PLACED IN 4" OR LESS Lifts.
NOTES:

1. FORMS, PROCEDURES AND COMPACTION SHALL BE IN ACCORDANCE WITH THE CURRENT VERSION OF THE WSDOT STANDARD SPECIFICATIONS.
2. ASPHALT SHALL BE SAW CUT 24" MINIMUM FROM FACE OF GUTTER AND HAVE A SMOOTH EDGE BEFORE BEING PATCHED. SEE STANDARD PLAN 2-5.
3. GRADE BREAKS SHALL BE FLUSH.
4. MATERIALS
   4.1. CONCRETE SHALL MEET 4000 PSI SPECIFICATION.
   4.2. PREMOLDED EXPANSION JOINT FILLER SHALL BE 3/8" THICK AND FILL THE FULL CROSS-SECTION OF THE CONCRETE.
5. JOINTS
   5.1. DUMMY JOINTS SHALL BE PLACED NOT TO EXCEED 15' C/C NOR LESS THAN 10' C/C. DUMMY JOINTS SHALL BE STABBED OR SAWED THROUGH THE CURB AND GUTTER TO PROVIDE A SHEAR PLANE FOR CONTRACTION CRACKS.
   5.2. THROUGH JOINTS SHALL BE PREMOLDED 3/8" MASTIC, PLACED ONLY AT POINTS OF HORIZONTAL TANGENCY ON STREETS, RETURNS AND AT THE HIGH POINT OF DRIVEWAYS, CURB RAMPS, AND ALLEY CUTS.
   5.3. ALL JOINTS SHALL BE CLEAN AND EDGED WITH A 1/2" RADIUS EDGER.

STANDARD CURB & GUTTER

DATE: 12/30/2016

APPROVED BY:

STANDARD PLAN 2-6
SHEET 1 OF 2
NOTES:

1. FORMS, PROCEDURES AND COMPACTION SHALL BE IN ACCORDANCE WITH THE CURRENT VERSION OF THE WSDOT STANDARD SPECIFICATIONS.

2. MATERIALS
   2.1. CONCRETE SHALL MEET 4000 PSI SPECIFICATION.
   2.2. PREMOLDED EXPANSION JOINT FILLER SHALL BE 3/8" THICK AND FILL THE FULL CROSS-SECTION OF THE CONCRETE.

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   3.3. ALL JOINTS SHALL BE CLEAN AND EDGED WITH A 1/2" RADIUS EDGER.
NOTES:
1. FORMS, PROCEDURES AND COMPACTION SHALL BE IN ACCORDANCE WITH THE CURRENT VERSION OF THE WSDOT STANDARD SPECIFICATIONS.
2. MATERIALS:
   2.1. CONCRETE SHALL MEET 4000 PSI SPECIFICATION.
   2.2. PREMOLDED EXPANSION JOINT FILLER SHALL BE 3/8" THICK AND FILL THE FULL CROSS-SECTION OF THE CONCRETE.
3. ALL RESTORATION WORK SHALL BE SAW CUT SMOOTH AND EVEN AT THE CURB, SIDEWALK, AND GUTTER EDGES.
4. CURB & GUTTER, DRIVEWAY & SIDEWALK SHALL NOT BE POURED AS ONE SECTION
5. OBSTRUCTIONS:
   5.1. ANY OBSTRUCTION IN THE SIDEWALK SHALL PROVIDE A MINIMUM 4 FOOT CLEAR WIDTH.
   5.2. A MINIMUM 2 FOOT CLEAR SPACE SHALL BE MAINTAINED BEHIND THE FACE OF CURB.
6. JOINTS:
   6.1. CONTRACTION JOINTS SHALL BE TRAVERSE 'V' GROOVE 1/4" TO 3/4" DEEP TO CREATE SQUARE PANELS NOT TO EXCEED 10 FEET.
   6.2. EXPANSION JOINTS SHALL BE PLACED NOT TO EXCEED 30' C/C OF THE RUNNING SIDEWALK, AS WELL AS AT DRIVEWAYS, ALLEYS, CURB RAMPS, AND WHERE THERE IS A CHANGE IN DIRECTION.
   6.3. INSTALL SILL PLATE GASKET, FOAM SEALR SILL PLATE GASKET 5-1/2" BY OWENS CORNING, OR APPROVED EQUAL AROUND ANY OBJECT WITHIN THE CONCRETE INCLUDING BUT NOT LIMITED TO METER BOXES, WATER VALVES, FIRE HYDRANTS, MANHOLES, UTILITY POLES, PHONE PEDESTALS. INSTALL 3/8" PREMOLDED EXPANSION JOINT FILLER AT THE NEAREST SCORE MARKS GREATER THAN 12" FROM THE OUTER EDGE OF THE UTILITY.
   6.4. EXPANSION JOINT MATERIAL SHALL BE PLACED BETWEEN THE BACK OF SIDEWALK AND A STRUCTURE WHEN THE SIDEWALK IS RESTRICTED ON ALL SIDES.
   6.5. ALL JOINTS SHALL BE CLEAN AND EDGED WITH A 1/2" RADIUS EDGER.
7. FINISH SHALL BE LIGHT BROOM IN A TRANSVERSE DIRECTION.
NOTES:
1. FORMS, PROCEDURES AND COMPACTION SHALL BE IN ACCORDANCE WITH THE CURRENT VERSION OF THE WSDOT STANDARD SPECIFICATIONS.
2. PURSUANT TO THE REQUIREMENTS ESTABLISHED BY RCW 35.68.075, WHEN A RAMP IS CONSTRUCTED, A SUBSEQUENT RECEIVING RAMP SHALL ALSO BE CONSTRUCTED ACROSS THE STREET.
3. SEE STANDARD PLAN 2-7 FOR MATERIAL SPECIFICATIONS
4. DETECTABLE WARNING SURFACE SHALL BE ARMOR TILE - REPLACEABLE CAST IN PLACE - HERCULITE SERIES OR APPROVED EQUAL. DETECTABLE WARNING SURFACE SHALL BE THE FULL WIDTH OF THE RAMP AND A MINIMUM OF 2 FEET IN DEPTH. PER WSDOT STD PLAN F-45.10-02.
5. GRADE BREAKS SHALL BE FLUSH.
6. PEDESTRIAN CURB MAY BE OMITTED IF THE GROUND SURFACE AT THE BACK OF THE CURB RAMP AND/OR LANDING WILL BE AT THE SAME ELEVATION AS THE CURB RAMP OF LANDING AND THERE WILL BE NO MATERIAL TO RETAIN.
7. FINISH SHALL BE LIGHT BROOM IN A TRANSVERSE DIRECTION.
NOTES:
1. FORMS, PROCEDURES AND COMPACTION SHALL BE IN ACCORDANCE WITH THE CURRENT VERSION OF THE WSDOT STANDARD SPECIFICATIONS.
2. PURSUANT TO THE REQUIREMENTS ESTABLISHED BY RCW 35.68.075, WHEN A RAMP IS CONSTRUCTED, A SUBSEQUENT RECEIVING RAMP SHALL ALSO BE CONSTRUCTED ACROSS THE STREET.
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5. GRADE BREAKS SHALL BE FLUSH.
6. PEDESTRIAN CURB MAY BE OMITTED IF THE GROUND SURFACE AT THE BACK OF THE CURB RAMP AND/OR LANDING WILL BE AT THE SAME ELEVATION AS THE CURB RAMP OF LANDING AND THERE WILL BE NO MATERIAL TO RETAIN.
7. FINISH SHALL BE LIGHT BROOM IN A TRANSVERSE DIRECTION.

PERPENDICULAR CURB RAMP
NOTES:

1. Driveway widths shall be measured perpendicular to the centerline of the driveway exclusive of the flare. Exceptions to the measurements may be approved by the City Engineer for specific unique reasons:

<table>
<thead>
<tr>
<th></th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circular drive</td>
<td>15 feet</td>
<td>20 feet</td>
</tr>
<tr>
<td>Single drive</td>
<td>15 feet</td>
<td>20 feet</td>
</tr>
<tr>
<td>Commercial/Industrial</td>
<td>15 feet</td>
<td>20 feet</td>
</tr>
<tr>
<td>Single drive</td>
<td>30 feet</td>
<td>40 feet</td>
</tr>
</tbody>
</table>

2. Driveway widths exceeding 30 feet shall have a 3/8 inch expansion joint placed at the mid point.

3. No monolithic pours are allowed. Sidewalks, curb & gutter and driveways shall be poured separately with expansion joints as noted.

4. There shall not be more than two driveways on one street for any one ownership. For exceptions see WWMC 12.04.140 C

5. For driveway approaches proposed where sidewalk does not exist, the approach must meet these standards set forth to accommodate the future construction of sidewalk.

6. See Standard Plan 2-7 for material and finish requirements.

7. See Standard Plan 2-5 for street patch requirements.
RAMP WITH 12H:1V SLOPE (TYP.)

SEE NOTE 1 BELOW

6' - 0" MIN

VARIES

DEPRESSED CURB & GUTTER
SEE STD PLAN 2-6

SLOPE (TYP.)

4" CSTC

6" MIN

6' - 0" MIN

3/8" EXPANSION JOINT (TYP.)

CEMENT CONCRETE CURB & GUTTER
SEE STD PLAN 2-6

DRIVEWAY APPROACH AND SIDEWALK CROSS-SECTION

NOTES:

1. Driveway widths shall be measured perpendicular to the centerline of the driveway exclusive of the flare. Exceptions to the measurements may be approved by the City Engineer for specific unique reasons:

<table>
<thead>
<tr>
<th></th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Circular drive</td>
<td>15 feet</td>
<td>20 feet</td>
</tr>
<tr>
<td>Single drive</td>
<td>15 feet</td>
<td>20 feet</td>
</tr>
<tr>
<td>Commercial/Industrial Circular drive</td>
<td>15 feet</td>
<td>20 feet</td>
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2. Driveway widths exceeding 30 feet shall have a 3/8 inch expansion joint placed at the mid point.

3. No monolithic pours are allowed. Sidewalks, curb & gutter and driveways shall be poured separately with expansion joints as noted.

4. There shall not be more than two driveways on one street for any one ownership. For exceptions see WWMC 12.04.140 C

5. For driveway approaches proposed where sidewalk does not exist, the approach must meet these standards set forth to accommodate the future construction of sidewalk.

6. See Standard Plan 2-7 for material and finish requirements.

7. See Standard Plan 2-5 for street patch requirements.
1. **DRIVEWAYS MUST PROVIDE ACCESS TO A GARAGE, CARPORT, PARKING APRON, OR OTHER STRUCTURE ON PRIVATE PROPERTY. DRIVEWAYS THAT PROVIDE ACCESS ONLY TO THE PLANTING STRIP OR THAT ALLOWS PARKING ON THE SIDEWALKS ARE NOT PERMITTED.**

2. **DRIVEWAYS MUST BE POSITIONED TO PRESERVE A CLEAR VIEW TRIANGLE OF 15 FEET ALONG THE PROPERTY LINE.**

3. **ON MID-BLOCK LOTS, DRIVEWAYS SHALL BE POSITIONED TO AVOID HAVING THE WATER METER IN THE DRIVEWAY. THE WATER METER IS TO BE LOCATED WITHIN TWO FEET OF THE PROPERTY LINE.**

4. **ON CORNER LOTS, DRIVEWAYS MUST BE ALONG THE PROPERTY LINE FURTHEST FROM THE INTERSECTION. LEAVE A FIVE FOOT SPACE BETWEEN THE DRIVEWAY AND PROPERTY LINE FOR THE WATER METER. SEE STANDARD PLANS 4-3 & 4-4 FOR DETAILS.**

5. **ON LOTS ADJACENT TO ALLEYS, IT IS PERMISSIBLE FOR DRIVEWAYS TO BE POSITIONED WITHIN TWO FEET OF THE ALLEY UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.**

6. **DRIVEWAYS SHOULD BE POSITIONED TO AVOID CONFLICT WITH POLES, FIRE HYDRANTS, STREET LIGHTS, AND TRAFFIC SIGNS.**

7. **WHERE EXISTING WATER METERS ARE LOCATED ON EITHER SIDE OF A COMMON PROPERTY LINE, THE ADJACENT DRIVEWAYS MUST BE A MINIMUM OF TEN FEET APART.**
NOTES

1) IF THE TRENCH WIDTH IS GREATER THAN ½ OF THE FULL PANEL WIDTH, THEN REMOVE TO THE NEXT JOINT.

2) IF UTILITY CUTS MUST BE CLOSER THAN 2 FEET, THEN REMOVE EXISTING CONCRETE TO THE NEAREST JOINT.

3) IF EXISTING CONCRETE IS UNDERMINED BY MORE THAN 1 FOOT, THEN SAW CUT FULL DEPTH AND REMOVE BACK TO UNDISTURBED SUB-GRADE.

4) SAW CUT OF SIDEWALK AND DRIVEWAY SHALL BE FULL DEPTH AND ONE CUT MUST ABUT AN EXISTING JOINT BEFORE REMOVAL.

5) WHEN PANELS ARE OFFSET OR IRREGULAR IN ANY MANNER, THE CITY ENGINEER SHALL DETERMINE THE PATTERN OF REPLACEMENT.

6) PATCH THICKNESS SHALL BE 8 INCH FOR ALL DRIVEWAYS AND ALLEY APPROACHES, 6 INCH FOR ALL OTHER.

7) ALL CROSSING CONTROL JOINTS SHALL BE RECONNECTED WITH A ½ INCH RADIUS EDGER OR BY SAW CUTTING A DEPTH OF ½ INCH.

8) CONCRETE SHALL MEET 4000 PSI SPECIFICATION.

9) FORMS SHALL MEET REQUIREMENT OF THE W.S.D.O.T. STANDARD SPECIFICATIONS.

10) CRUSHED SURFACING TOP COURSE MUST BE MOISTURE CONDITIONED BEFORE PLACEMENT AND COMPACTED TO A NON-YELDING CONDITION.

11) FINISH SHALL BE LIGHT BROOM.

12) COMPACTION OF SUBGRADE SHALL MEET REQUIREMENT OF THE W.S.D.O.T. STANDARD SPECIFICATIONS.
1. Stations shown on plans are referenced to manhole centerlines. Pipeline directional notation (i.e. N.S.E.W.) at manhole are shown for orientation purposes only.

2. Joint seal material shall be Tylox ‘Super Seal’ or approved equal. Joints shall be further sealed with 12” wide ‘Bestseal Wrap’ joint sealant from Bestfitt Gasket Co. Bestseal Wrap may be omitted with prior approval from the City Engineer.

3. Where concrete or ductile iron pipe is used, standard couplings shall be provided for flexible connections to manholes.

4. All 'U' shaped channel shall be constructed in the manhole base by use of a properly shaped form.

5. Branch line inverts shall normally be D/2 above the invert of the main channel at the junction unless otherwise specified on the plans.

6. Construct manhole lid 18” above existing ground in areas outside R.O.W. when shown on plans or required by Engineer.

7. No pick holes in pre formed manholes. Use pick balls that are formed into the barrels.

8. For a 48” diam. manhole, the maximum pipe size allowable is 21”. Pipe diameters larger than 21” must be approved by the city engineer.

9. Manholes shall be installed vertical and plumb in all directions with an overall tolerance of 1” vertical for the overall manhole.

10. All pipe connections shall be sealed on the interior of the manhole with non-shrink grout.

11. Use the fewest adjustment rings / largest size possible to achieve desired height. Where adjustment height is less than 6”, use no more than two rings. Where adjustment is between 6” and 15”, use no more than three rings.

CAST IN PLACE MANHOLE BASE NOTES:
1. See standard plan 3-7 for manhole construction on existing sewer.

2. Precast bases shall be used whenever possible. If necessary to cast in place and with engineer’s approval, use Class 4000 concrete.

3. Place 20 square feet of Visqueen before pouring base when groundwater exists.

4. Lower pre cast concrete barrel onto CMU blocks and level before concrete is placed.

5. Allow a minimum of 24 hours to elapse before placing remaining rings and cone.

SANITARY SEWER MAIN AND SERVICE NOTES:
1. All sewer mains, laterals, and fittings in the row shall be PVC 3034 SDR 35.

2. Existing sewer rehabilitation connections shall be with reinforced couplings. Reinforced couplings shall be Indiana Seal-Amazon shear ring coupling, Fernco-Strongback coupling, or approved equal.

3. Sewer line pay limit shall be measured horizontally from center to center of manhole.

WATER - SANITARY SEWER CROSSING NOTES:
1. A minimum of 24” vertical separation is required at water and sewer crossings.

2. Where sewer is to cross under a water main with less than 24” separation, a full stick of sewer pipe must be centered at the point of crossing so that the joints will be equidistant and as far as possible from the water main.

3. Where sewer is to cross over a water main, the sewer shall be cased in either C900 or ductile iron using casing spacers and grouted ends. See standard plan 4-12 for casing spacer requirements.
C.L. 3000 CONCRETE COLLAR PLACED CIRCULARLY AROUND CASTING (TACK BEFORE PAVING)

FRAME CASTING & COVER SEE STD PLAN 1-9

ADJUSTMENT RING SHALL MEET ASTM 478. USE NON-SHRINK GROUT TO SET AND SEAL. SEE STANDARD PLAN 3-1

JOINT SEAL AND WRAP REQUIRED SEE STD PLAN 3-1

PIPE JOINT SHALL BE A MINIMUM OF 10 FT. FROM MH, FOR FLEXIBLE PIPE PVC CONNECTIONS USE A GASKETED SOLID SLEEVE OR BELL. REINFORCED FLEXIBLE COUPLING REQUIRED FOR RIGID PIPE CONNECTIONS, CONCRETE OR CLAY.

GASKET TO BE 'A-LOCK', 'KOR-N-SEAL', OR APPROVED EQUAL FOR FLEXIBLE PIPE. NON-SHRINK GROUT AROUND PIPE AT MANHOLE CONNECTIONS.

MAX PIPE SIZE IS 21", FOR 24" TO 36", USE 54" DIAMETER MANHOLE. STATION & INVERT ELEVATION REFERENCE POINTS SHOWN ON PLANS.

ALSO SEE 'GENERAL SEWER NOTES' ON STANDARD PLAN 3-1.
CL. 3000 CONC. COLLAR PLACED CIRCULARLY AROUND CASTING. (TACK BEFORE PAVING).

FRAME CASTING & COVER SEE STD PLAN 1-9

ADJUSTMENT RING SHALL MEET ASTM 478. USE NON-SHRINK GROUT TO SET AND SEAL. SEE STANDARD PLAN 3-1

COAT ALL OUTSIDE AREA WITH WATERPROOF MEMBRANE

RUBBER 'O' RING GASKET.

NOTE: 1. IF MANHOLE INSIDE HEIGHT IS 6' OR LESS, USE PRE-CAST REINFORCED FLAT TOP, (STANDARD PLAN 3-4).

2. PVC PIPE TO MANHOLE JOINTS SHALL BE GPK MANHOLE ADAPTERS OR APPROVED EQUAL GROUTED WITH NON-SHRINK GROUT AFTER THE MANHOLE BASE IS SET.

3. ALL JOINTS SHALL BE FURTHER SEALED WITH 12" WIDE 'BESTSEAL WRAP' JOINT SEALANT FROM BESTFITT GASKET CO.

NOTE: CL. 3000 CONC. COLLAR PLACED CIRCULARLY AROUND CASTING. (TACK BEFORE PAVING).

FRAME CASTING & COVER SEE STD PLAN 1-9

ADJUSTMENT RING SHALL MEET ASTM 478. USE NON-SHRINK GROUT TO SET AND SEAL. SEE STANDARD PLAN 3-1

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3. ALL JOINTS SHALL BE FURTHER SEALED WITH 12" WIDE 'BESTSEAL WRAP' JOINT SEALANT FROM BESTFITT GASKET CO.

(JA SO SEE 'MANHOLE NOTES' ON STANDARD PLAN 3-1)
PIPE JOINT SHALL BE A MINIMUM OF 10 FT. FROM MH, FOR FLEXIBLE PIPE; PVC CONNECTIONS USE A GASKETED SOLID SLEEVE OR BELL. REINFORCED FLEXIBLE COUPLING REQUIRED FOR RIGID PIPE CONNECTIONS, CONCRETE OR CLAY.

C.L. 3000 CONCRETE COLLAR PLACED CIRCULARLY AROUND CASTING. (TACK BEFORE PAVING)

MIN. 1/2" OF NO-SHRINK GROUT BETWEEN RINGS AND BETWEEN CONE AND RINGS(S). USE THE FEWEST NUMBER OF RINGS TO ACHIEVE THE REQUIRED RISE.

ADJUSTMENT RINGS SHALL MEET ASTM 478.

USE NON-SHRINK GROUT TO SET & SEAL. SEE STANDARD PLAN 3-1

PRECAST CONCRETE TOP SLAB MORTAR

JOINT SEAL REQUIRED 5" OR LOAD RATED

CAST IN PLACE BASE MAY BE USED W/ APPROVAL OF CITY ENGINEER.

C.S.T.C. (SEE WSDOT STD. SPEC. SEC.9-03.9(3))

1:12 MAX. SHELF SLOPE

PLAN VIEW

*TYPICAL INVERT ELEVATIONS FOR 8" TO 10" PIPE. MATCH CROWNS ON LARGER PIPES.

SHALLOW MANHOLE

DATE: 01/16/2018

APPROVED BY:
**NOTES:**

1. DROP PIPING TO BE SAME DIAMETER AS SEWER LINE SERVED UNLESS OTHERWISE NOTED.

2. IMPORTED GRANULAR BACKFILL MATERIAL COMPACTED TO 95% OF MAX DENSITY ASTM D698.

3. DROP CONNECTION PIPE DIAMETER AND FITTINGS SHALL BE EQUAL TO OR GREATER THAN THE DIAMETER OF THE SEWER MAIN.

4. SEE 'GENERAL SEWER NOTES' ON STD PLAN 3-1 & 3-2.
CONSTRUCT PIPE WITH WATERTIGHT SEAL AND CONNECTION. PROVIDE A SANDED COLLAR FOR PVC & HDPE.

PIECE DIA. 6" DIA. A-6
10" DIA. 8" DIA. A-8
12" DIA. 10" DIA. A-10

* LARGER SIZE AS APPROVED BY CITY ENGINEER.

DROP BOWL MODEL TABLE

* ALL INSIDE DROP CONNECTIONS SHALL USE THE DROP BOWL AS PRODUCED BY: RELINER-DRUAN, INC. OR EQUAL.

ANCHOR DROP PIPE WITH 304-SS PIPE CLAMP AND ANCHORS, MIN. 2 PLACES, MAXIMUM SPACING OF CLAMPS SHALL BE 4 FEET.

A HOOD SHALL BE USED AT ALL TIMES.

REINFORCED FLEXIBLE COUPLING.

CUT A "V" NOTCH 2" (W) X 1" (D) AT THE INVERT OF THE INCOMING PIPE.

ALL INSIDE DROP CONNECTIONS SHALL USE THE DROP BOWL AS PRODUCED BY: RELINER-DRUAN, INC. OR EQUAL.

* LARGER SIZE AS APPROVED BY CITY ENGINEER.

DROP MANHOLE - INTERIOR

DATE: 01/16/2018

APPROVED BY:

CITY OF WALLA WALLA

STANDARD PLAN
3-5
SHEET 2 OF 2
PIPE JOINT SHALL BE A MINIMUM OF 10 FT. FROM MH, FOR FLEXIBLE PIPE; PVC CONNECTIONS USE A GASKETED SOLID SLEEVE OR BELL. REINFORCED FLEXIBLE COUPLING REQUIRED FOR RIGID PIPE CONNECTIONS, CONCRETE OR CLAY.

I.E. 'IN' TO BE 0.1' HIGHER THAN I.E. 'OUT' UNLESS OTHERWISE DIRECTED BY ENGINEER.

NEW U-SHAPED CHANNEL FORMED WITH GROUT

BREAK OUT CONCRETE TO FORM NEW U-SHAPED CHANNEL. CONCRETE SHALL BE REMOVED 2" MIN. BEYOND SIDES OF NEW CHANNEL. CLEAN SHELF AND CHANNEL WITH WIRE BRUSH 6" BEYOND BREAK OUT LINE.

A BONDING AGENT SUCH AS STA-CRETE OR APPROVED EQUAL SHALL BE APPLIED BETWEEN THE EXISTING CONCRETE AND NEW GROUT.

A MANHOLE CROSS-SECTION

PLAN

NEW U-SHAPED CHANNEL FORMED WITH GROUT

FLOW

1.5'

2" MIN.

BREAK OUT LINE

EXISTING PIPE

FLOW

SHELF

2" MIN.

A

SEWER CONNECTION TO EXISTING MANHOLE

DATE: 01/16/2018

STANDARD PLAN 3-6

APPROVED BY:
ALSO SEE 'GENERAL SEWER NOTES' ON STANDARD PLAN 3-1, AND STANDARD PLAN 3-2 FOR CONCRETE, CONNECTIONS, CHANNELING, PIPE GROUTING, ETC.

PLAN VIEW

PROFILE VIEW

REMOVE PIPE ABOVE SPRING LINE OR AS REQUIRED ON PLANS

CLEAN EXISTING PIPE WITH WIRE BRUSH & APPLY A COAT OF "BONDCRETE" ON ALL PIPE SURFACES AGAINST WHICH CONCRETE IS TO BE PLACED.

EARTH BRIDGE ONLY AVAILABLE WHEN EXISTING PIPE IS UNSTABLE. OTHERWISE SUPPORT PIPE WITH 6" CSTC.

MANHOLE CONSTRUCTION ON EXISTING SEWER

DATE: 12/30/2016

APPROVED BY:
SHelf
48" FOR 21" MAX PIPE SIZE,
54" FOR 24" TO 36" DIAMETER.

ALSO SEE 'GENERAL SEWER NOTES' ON STANDARD PLAN 3-1, AND STANDARD
PLAN 3-2 FOR CONCRETE, CONNECTIONS, CHANNELING, PIPE GROUTING, ETC.

JOINT SEAL
SHAPE CHANNEL
BOTTOM TO SMOOTH
VERTICAL CURVE. SET
PIPE ELEVATIONS AS
SPECIFIED ON PLANS.

FLARE ENTRANCE &
ROUND CORNERS ON
INSIDE OF PIPE.

CRUSHED SURFACING TOP
COURSE. (SEE WSDOT
STANDARD SPEC. SEC.9-03.9(3))

MANHOLE BASE CONST. FOR STEEP SLOPES

DATE: 01/16/2018
APPROVED BY:

STANDARD PLAN
3-8
NOTES:

1. LATERALS CONNECTING TO NEW MAINS SHALL BE CONNECTED WITH WYE.

2. LATERALS CONNECTING TO EXISTING MAINS SHALL BE CONNECTED WITH "ROMAC CB", "INSERTA TEE", OR APPROVED EQUAL.

3. MAINS, LATERALS & FITTINGS IN THE ROW SHALL BE PVC 3034 SDR 35.

4. SERVICES AT A DEPTH OF 12 FEET OR GREATER SHALL USE SDR 26 FITTINGS. FITTINGS SHALL BE FIELD INSPECTED BY THE CITY PRIOR TO INSTALLATION.

5. HDPE MAY BE SUBSTITUTED FOR PVC FOR SEWER SERVICE REPAIRS USING PIPE BURSTING OR LONGITUDINAL BORE, UPON APPROVAL BY THE CITY ENGINEER.

SACRIFICIAL WYE FOR TESTING PURPOSES. MUST BE CAPPED PRIOR TO BACKFILLING OF THE LATERAL TIE.

SEE STANDARD PLAN 1-3 FOR BEDDING ROCK REQUIREMENTS.
SERVICE CONNECTION OPTION FOR DEEP SEWER

LOCATION MARKED BY 6' METAL FENCE POST, 2' TO 6' BELOW SURFACE.

6" MIN.

45°

2%

6" MAX.

12 GAUGE COATED COPPER WIRE. (DUCT TAPE WIRE TO PIPE & FENCE POST ON 2' CENTER).

COLLECTING SEWER

LONG SWEEP ELBOW

SEWER CLEANOUT, SEE STANDARD PLAN 3-11

NATIVE OR SELECT BACKFILL AS REQUIRED BY ENGINEER.

6" MINIMUM BEDDING ROCK ALL AROUND PIPE.

PIPE AND FITTINGS TO BE SDR 35 UNLESS OTHERWISE APPROVED BY CITY ENGINEER.

INSTALL APPROVED REMOVABLE PLUG OR CAP.

RISER

"Y" OR APPROVED SADDLE

CLASS 3000 CONCRETE OR CONTROLLED DENSITY FILL.

1" CLEARANCE REQUIRED BETWEEN CONCRETE AND JOINT OR COUPLING

6" MIN

3' MIN

STANDARD PLAN 3-10

SERVICE CONNECTION OPTION FOR DEEP SEWER

DATE: 12/30/2016

APPROVED BY:

CITY OF WALLA WALLA
SANITARY SEWER MAIN CLEANOUT

CLOEOUTS ON MAINS ONLY ALLOWED WHEN APPROVED BY CITY ENGINEER

CAST IRON RING & COVER
INLAND FOUNDRY CO. RING & COVER
NO. 247 OR APPROVED EQUAL

RING AND COVER TO MEET REQUIREMENTS
OF THE CURRENT WSDOT STANDARD
SPECIFICATIONS SECTION 9-05.15

UNIT WEIGHT 64 POUNDS MINIMUM

SANITARY SEWER MAIN CLEANOUT

STANDARD PLAN
3-11

DATE: 12/30/2016

APPROVED BY: [Signature]
BUILDING - A: A BACKFLOW PREVENTION DEVICE IS NOT REQUIRED.

BUILDING - B: DRAINAGE FIXTURES LOCATED IN THE BASEMENT OF THIS BUILDING REQUIRE A BACKFLOW PREVENTION DEVICE.

BUILDING - C: DRAINAGE FIXTURES IN THIS BUILDING ARE ALL LOCATED BELOW THE FIRST UPSTREAM MANHOLE AND REQUIRE A BACKFLOW PREVENTION DEVICE.

NOTES:
1. IF RIM (LID) OF THE NEAREST UPSTREAM MANHOLE IS HIGHER THAN THE HOUSE OR THE BASEMENT FLOOR, THEN A BACKFLOW PREVENTION DEVICE IS REQUIRED PER 2015 UNIFORM PLUMBING CODE SECTION 710.1.

2. BACKFLOW PREVENTION DEVICE SHALL BE A SIOUX CHIEF PROCHECK BACKWATER VALVE OR APPROVED EQUAL.
1. PIPE:
   All pipe for water mains shall be ductile iron. Pipe 6" and smaller shall be class 52 and pipe 8" and larger shall be class 50. All pipes, fittings and related products installed, which contact city water, must conform to NSF/ANSI standard 61. The mainline cover depth shall be a minimum of 36".

2. WEDGES:
   Serrated silicone bronze wedges shall be used in all push-on ductile iron pipe joints. For 3" to 12" pipe, two wedges per joint shall be used. The wedges shall be on opposite sides of the pipe. For pipes larger than 12 inches, two pairs of wedges shall be used with the pairs on opposite sides of the pipe. The wedges shall be specifically manufactured for the specified application and shall have approximately 5 percent silicon, 1 percent tin, 5 percent zinc, and 89 percent copper.

3. IDENTIFYING TAPE:
   Identifying tape shall be used with all water mains as per standard plan 1-4.

4. RESTRAINED JOINTS:
   Thrust blocks shall not be used unless specifically authorized by water distribution supervisor or city engineer. Restrained joints shall be "Megalug" or "Field-Lok". A minimum of three joints shall be restrained from each fitting, each way.

5. WATER SYSTEM SHUTDOWNS:
   The contractor shall provide written notification to the water division 5 full working days in advance of a requested shutdown for residential services. Seven full working days of advance notice are required where commercial services are affected. A working day shall begin at 8am. A minimum of 24 hours in advance of the shutdown (72 hours for restaurants, hotels, etc.), the contractor shall distribute notices (supplied by water division) to the effected water users. The water division will determine the required shutdown area and shall turn all main distribution valves. Service valves shall be turned by the contractor.

6. POLYETHYLENE SLEEVING:
   In areas of clay soils, or corrosive soils, the water main shall be protected by polyethylene sleeving in accordance with ANSI/AWWA C105/A21.5.

7. WATER MAIN TAPPING:
   All taps on existing and/or charged water mains must be performed by the city of Walla Walla water department. The owner / contractor / or authorized agent is required to reimburse the water department for expenses at cost of the utility. When a tap must be performed on a water main 3" in diameter and larger, a Romac SST stainless steel tapping sleeve with ductile iron or stainless steel flange must be used.

8. WATER VALVES:
   Resilient seat gate valves to be installed on all branches and at all intersections for 4"-10" diameter piping. Butterfly valves to be used for 12" and larger diameter valves. Depth to top of nut on valve shall be four feet or less. If depth exceeds four feet a nut extension shall be used. Extension shall have a set screw to attach to nut and centering ring on the top of the extension. This shall be standard unless otherwise approved by the city engineer.

9. DISINFECTION AND TESTING REQUIREMENTS:
   For all new installations of water main, contractor shall be responsible to meet all disinfection and testing requirements (see standard plan 4-2). A maximum length of 750 feet per test section shall be allowed when pressure testing unless otherwise approved by the city engineer. An engineering representative shall be present for all testing.

10. WORK DAYS:
    No main water line will be installed during the weekend or any holiday unless approved by the city engineer.
ALL HDPE PIPE AND TUBING SHALL COMPLY WITH THE FOLLOWING STANDARDS AND SPECIFICATIONS:
  ANSI/WWA C901.
  NSF 61/14.
  PPI PE 4710.

PRESSURE RATING:
  200 PSI OR HIGHER.

SIZE:
  HDPE MAY BE ACCEPTED FOR WATER SERVICE LINES 1-INCH OR 2-INCH IN DIAMETER ONLY.
  HDPE SHALL BE CTS, OUTSIDE CONTROL DIAMETER PER ASTM D 3035.

COLOR:
  ALL HDPE PIPING AND TUBING SHALL BE SOLID BLUE FOR POTABLE WATER SYSTEMS.

MARKINGS:
  MARKINGS SHALL BE APPLIED AT AN INTERVAL OF NOT MORE THAN 5 FEET, TO INCLUDE: AWWA C901, NOMINAL PIPE SIZE, CTS, MANUFACTURERS NAME, MATERI pil DESIGNATION CODE PE 4710, AWWA PRESSURE CLASS (PC 200 PSI) MINIMUM.

FITTINGS:
  USE FORD PACK JOINT COUPLINGS WITH STAINLESS STEEL CLAMP SCREW AND FORD 50 SERIES INSERT STIFFENERS FOR POLYETHYLENE TUBING OR APPROVED EQUAL.

TRACER WIRE:
  TRACER WIRE SHALL BE DOUBLE INSULATED NO. 12 AWG COPPER TRACER WIRE CONNECTED TO BALLCORP STOP AT MAIN, TAPED EVERY FIVE FEET, WITH COPPER ENDS SEALED WITH 3M SCOTCHKOTE OR APPROVED EQUAL. 3 FEET OF TRACER WIRE SHALL EXTEND ABOVE METER.

INSTALLATION:
  SNAKE PIPE IN OPEN TRENCHES TO ALLOW FOR PIPE EXPANSION AND CONTRACTION.
  PULL PIPE BEYOND TARGET POINT AND PROVIDE SLACK PRIOR TO CONNECTION.
  LET PIPE COOL TO SOIL TEMPERATURE PRIOR TO CONNECTING ENDS.
  DO NOT INSTALL IN PETROLEUM OR SOLVENT STORAGE OR DISTRIBUTION FACILITIES, OR IN CONTAMINATED SOILS.

BEDDING:
  BEDDING SHALL BE 3/4-INCH MINUS WSDOT 9-03.9(3), CRUSHED SURFACING TOP COURSE.

DISINFECTION:
  DISINFECTION OF NEW PIPE SHALL BE CARRIED OUT IN ACCORDANCE WITH ANSI/WWA C651.
NOTES:

1. GENERAL
   1.1. WATER MAINS AND APPURTENANCES SHALL BE CONSTRUCTED, DISINFECTED, FLUSHED, AND TESTED IN ACCORDANCE WITH WSDOT STANDARD SPEC 7-09.3(24) UNLESS OTHERWISE STATED HEREIN.

2. RE-DISINFECTION
   2.1. RE-DISINFECTION METHODS AND TECHNIQUE SHALL BE PRE-APPROVED BY THE ENGINEER.

3. SERVICE LINES
   3.1. SERVICE LINES SHALL BE INSTALLED AND INCLUDED IN THIS ACCEPTANCE PROCESS (INCLUDING DISINFECTION AND PRESSURE TESTING) UNLESS OTHERWISE APPROVED BY THE ENGINEER. APPROPRIATE STEPS SHALL BE TAKEN TO ENSURE FLOW THROUGH THE SERVICE LINE TO ENSURE THOROUGH DISINFECTION AND FLUSHING.
   3.2. SPECIAL CARE SHALL BE TAKEN WITH HDPE SERVICE LINES TO PREVENT DAMAGE FROM LONG TERM EXPOSURE TO HIGH CHLORINE LEVELS.

4. SHORT PIPE SECTIONS
   4.1. PIPE SECTIONS SMALLER THAN 20 FEET IN LENGTH MAY (AT THE DISCRETION OF THE ENGINEER) BE DISINFECTED WITH AN ALTERNATIVE METHOD PER ANSI/AWWA C651-05.

5. TOOLS AND MATERIALS
   5.1. CONTRACTOR SHALL PROVIDE ALL TOOLS, MATERIALS, AND LABOR FOR FLUSHING AND DISINFECTION OF WATER MAIN AND APPURTENANCES.

6. FLUSHING
   6.1. FLUSH WATER SHALL BE DISCHARGED TO THE SANITARY SEWER UNLESS OTHERWISE APPROVED BY THE ENGINEER. THE WASTEWATER TREATMENT PLANT SHALL BE NOTIFIED PRIOR TO FLUSHING TO SANITARY SEWER (527-4509).

7. VERIFICATION
   7.1. BACTERIOLOGICAL TESTING SHALL BE VERIFIED WITH A COLIFORM PRESENCE/ABSENCE TEST (BAC-T) BY THE WATER TREATMENT PLANT LABORATORY AND APPROVED BY THE ENGINEER.
MATCH EXISTING GRADE/SLOPE, (TOP OF BOX SHOULD BE FLUSH).

STAMP 'W' INTO NEW CURB. (STAMP PROVIDED BY ENG).

WATER MAIN

NOTES:

1. CONNECTION TO MAIN SHALL BE AS FOLLOWS:

   OPTION 1: 1" DIRECT TAP FORD BALLCORP STOP (CTS) FB1000-4-TW-Q-NL 1" INLET AWWA/CC THREAD (IN DUCTILE IRON PIPE ONLY).
   
   OPTION 2: SERVICE SADDLE USING A SMITH-BLAIR 317x1" AWWA CC THREAD TAP OR ROMAC 202Nx1" AWWA CC THREAD TAP. (BOTH OPTIONS SHALL UTILIZE A MUELLER 110 OR FORD 'GRIP OR QUICK JOINT' COMPRESSION CONNECTORS TO CONNECT THE STOP TO THE SERVICE PIPE)
   
   CITY SERVICE LINE SHALL BE EITHER 1" TYPE K COPPER SERVICE PIPE, 1" TYPE K TUBING, 1" TYPE K SOFT 20' JOINTS, OR 1" HDPE (SEE STANDARD PLAN 4-1 SHEET 2). PIPE SHALL HAVE A MINIMUM OF 4" CSTC BEDDING ON ALL SIDES.

2. METER SETTER SHALL BE 1" FORD VB74-18W-44-44-Q-NL, OR EQUIVALENT AY MCDONALD METER SETTER, SIZED TO MATCH THE DEPTH OF THE SERVICE LINE.

   METER LOCATION (NEW OR REPLACEMENT) SHALL BE IN FRONT OF SIDEWALK AS SHOWN UNLESS OTHERWISE APPROVED BY THE ENGINEER. IF THE ENGINEER APPROVES PLACING METER BEHIND SIDEWALK, METER SHALL BE LOCATED 10'-18" FROM THE BACK OF SIDEWALK.

   METER BOXES FOR TRAFFIC AND NON-TRAFFIC AREAS FOR 3/4" & 1" METERS SHALL BE SYNERTECH 1324 X 24" DEEP. CARSON BCF 1324 GRAY LID WITH 2" HOLE AND 4" AMR RECESS FOR RADIO TRANSMITTER WILL BE USED IN SIDEWALK OR LANDSCAPE AREAS. SYNERTECH POLYMER LID SHALL BE USED FOR TRAFFIC AREAS. HOLES FOR TOUCH READ PAD SHALL BE AT ANY CORNER CENTERED AT 5-INCHES FROM THE EDGES OF THE LID.

   (NOTES ARE CONTINUED ON STANDARD PLAN 4-3b.)
METERS SHALL BE MANUFACTURED BY SENSUS. ¾" METERS SHALL BE IPERL MODEL I2X8FLXX AND 1" METERS SHALL BE IPERL MODEL I4X8FLXX. ALL METERS SHALL BE EQUIPPED WITH TOUCHREAD REMOTE READING PAD CONNECTED TO THE IPERL METER WITH A 6' TRPL (3 WIRE). THE CITY WATER DIVISION WILL PROVIDE & INSTALL IPERL METERS FOR ALL PROJECTS EXCEPT C.I.P. PROJECTS. ON C.I.P. PROJECTS THE CONTRACTOR SHALL SUPPLY TWO (2) FORD A-24 METER ADAPTERS WHEN INSTALLING ¾" WATER METERS.

4. CUSTOMER CONNECTIONS TO THE SETTER ON SERVICES WITHOUT AN EXISTING CUSTOMER SERVICE LINE SHALL BE NEW, EITHER 1" TYPE K COPPER OR HDPE PIPE, EXTENDING A MINIMUM OF 24" BEYOND EDGE OF METER BOX, VAULT, OR PUE, WHICHEVER IS GREATER. NOTE - CONNECTION TO THE METER SETTER MUST BE EITHER 1" TYPE K COPPER OR HDPE PIPE. ANY OTHER TYPE OF PIPE (I.E. GALVANIZED, PEX) MUST BE CONNECTED OUTSIDE OF BOX TO EXISTING COPPER OR HDPE STUB. NO EXCEPTIONS WILL BE ALLOWED. STUBS MUST BE MARKED WITH METAL LOCATE POST AND BLUE PAINT.

CUSTOMER CONNECTIONS TO THE SETTER ON SERVICES WITH AN EXISTING CUSTOMER SERVICE LINE SHALL CONNECT TO EXISTING WATER SERVICE AT THE SERVICE LINE DEPTH USING 1" MINIMUM TYPE K COPPER OR HDPE PIPE. THE CONTRACTOR MAY USE "GRIP OR QUICK CONNECT" COMPRESSION FITTINGS, AND SHALL SUPPLY ALL FITTINGS AND GASKETS TO MAKE THE CONNECTIONS. COMPRESSION FITTINGS MUST CONFORM TO SECTION 9-30.6(4) OF STANDARD SPECIFICATIONS. THE CONTRACTOR IS ALERTED THAT THE EXISTING SERVICE LINE WILL MOST PROBABLY BE RUSTY GALVANIZED STEEL. IF THERE ARE NOT EXISTING SERVICEABLE THREADS WITH WHICH TO CONNECT A FITTING, THE ONLY METHOD THAT WILL BE ACCEPTABLE IS: 1" TYPE K COPPER TUBING WITH TWO 1" COPPER TO EXISTING", OR 1" GALVANIZED PIPE CONNECTORS (FORD C45-43-Q-NL OR FORD C45-44-Q-NL).

5. EXISTING METER, METER BOX, METER STOP, AND OTHER APPURTENANCES ASSOCIATED WITH EXISTING METER SHALL BE REMOVED AND RETURNED TO CITY WATER SHOP. IF A STOP FALLS IN AN EXISTING CONCRETE SIDEWALK OR DRIVEWAY, LID SHALL BE REMOVED AND RETURNED TO CITY AND RISER SHALL BE FILLED WITH CONCRETE OR GROUT.
MATCH EXISTING GRADE/SLOPE, (TOP OF BOX SHOULD BE FLUSH). STAMP 'W' INTO NEW CURB, (STAMP PROVIDED BY ENG).

NOTES:

1. CONNECTION TO MAIN SHALL BE AS FOLLOWS:
   
   OPTION 1: 2" FORD BALLCORP STOP (CTS) FB1100-7-TW-Q-NL 2" MIP X QUICK JOINT (CTS).
   
   OPTION 2: SERVICE SADDLE USING A ROMAC 202NS X 2" FIP THREAD TAP OR SMITH BLAIR EQUIVALENT.
   
   (BOTH OPTIONS SHALL UTILIZE A MUELLER 110 OR FORD 'GRIP OR QUICK JOINT COMPRESSION CONNECTORS TO CONNECT THE STOP TO THE SERVICE PIPE)

2. CITY SERVICE LINE SHALL BE EITHER 2" TYPE K COPPER SERVICE PIPE, 2" TYPE K TUBING, 2" TYPE K SOFT 20' JOINTS, OR 2" HDPE (SEE STANDARD PLAN 4-1 SHEET 2). PIPE SHALL HAVE A MINIMUM OF 4" CSTC BEDDING ON ALL SIDES.

3. METER SETTER SHALL BE 2" FORD VBB77-18B-44-77-PK-NL, OR EQUIVALENT MUELLER METER SETTER, SIZED TO MATCH THE DEPTH OF THE SERVICE LINE. METER LOCATION (NEW OR REPLACEMENT) SHALL BE IN FRONT OF SIDEWALK AS SHOWN UNLESS OTHERWISE APPROVED BY THE ENGINEER. IF THE ENGINEER APPROVES PLACING METER BEHIND SIDEWALK, METER SHALL BE LOCATED 10'-18" FROM THE BACK OF SIDEWALK.

(NOTES ARE CONTINUED ON STANDARD PLAN 4-3d.)
(CONTINUED FROM STANDARD PLAN 4-3c)

ALL METER BOXES FOR 1-1/2" & 2" METERS SHALL BE 2436 OLDCASTLE SYNERTECH UTILITY BOXES, WITH LIDS TRAFFIC-RATED FOR 20K LBS OR HIGHER. ALL METER BOX LIDS SHALL BE PRE-DRILLED WITH 2-INCH HOLES AND 4-INCH AMR RECESS FOR RADIO TRANSMITTER. HOLES SHALL BE AT ANY CORNER CENTERED AT 5-INCHES FROM THE EDGES OF THE LID.

METER TYPE TO BE SPECIFIED BY THE CITY WATER DIVISION. METER TO BE SUPPLIED AND INSTALLED BY CITY WATER DIVISION. TOP OF METER DEPTH FROM FINISH GRADE SHALL BE 10" MINIMUM AND 14" MAXIMUM.

4. CUSTOMER CONNECTIONS TO THE SETTER ON SERVICES WITHOUT AN EXISTING CUSTOMER SERVICE LINE SHALL BE NEW, EITHER 2" TYPE K COPPER OR HDPE PIPE, EXTENDING A MINIMUM OF 24" BEYOND EDGE OF METER BOX, VAULT, OR PUE, WHICHEVER IS GREATER. NOTE - CONNECTION TO THE METER SETTER MUST BE EITHER 2" TYPE K COPPER OR HDPE PIPE. ANY OTHER TYPE OF PIPE (I.E. GALVANIZED, PEX) MUST BE CONNECTED OUTSIDE OF BOX TO EXISTING COPPER OR HDPE STUB. NO EXCEPTIONS WILL BE ALLOWED. STUBS MUST BE MARKED WITH METAL LOCATE POST AND BLUE PAINT.

CUSTOMER CONNECTIONS TO THE SETTER ON SERVICES WITH AN EXISTING CUSTOMER SERVICE LINE SHALL CONNECT TO EXISTING WATER SERVICE AT THE SERVICE LINE DEPTH USING 2" MINIMUM TYPE K COPPER OR HDPE PIPE. THE CONTRACTOR MAY USE "GRIP OR QUICK CONNECT" COMPRESSION FITTINGS, AND SHALL SUPPLY ALL FITTINGS AND GASKETS TO MAKE THE CONNECTIONS. COMPRESSION FITTINGS MUST CONFORM TO SECTION 9-30.6(4) OF STANDARD SPECIFICATIONS. THE CONTRACTOR IS ALERTED THAT THE EXISTING SERVICE LINE WILL MOST PROBABLY BE RUSTY GALVANIZED STEEL. IF THERE ARE NOT EXISTING SERVICEABLE THREADS WITH WHICH TO CONNECT A FITTING, THE ONLY METHOD THAT WILL BE ACCEPTABLE IS: 2" TYPE K COPPER TUBING WITH TWO 2" COPPER TO EXISTING", OR 2" GALVANIZED PIPE CONNECTORS (FORD C45-77-Q OR EQUIVALENT MUELLER FITTING).

5. EXISTING METER, METER BOX, METER STOP, AND OTHER APPURtenANCES ASSOCIATED WITH EXISTING METER SHALL BE REMOVED AND RETURNED TO CITY WATER SHOP. IF A STOP FALLS IN AN EXISTING CONCRETE SIDEWALK OR DRIVEWAY, LID SHALL BE REMOVED AND RETURNED TO CITY AND RISER SHALL BE FILLED WITH CONCRETE OR GROUT.
NOTES:

A DETAILED PLAN, WITH LOCATION AND PARTS LIST WHICH FollowS THE GUIDANCE BELOW, MUST BE SUBMITTED TO AND APPROVED BY THE CITY WATER DIVISION PRIOR TO METER AND VAULT PLACEMENT.

A. DUCTILE IRON TEE, OR LIVE TAP BY WATER DIVISION.
B. FLANGE BY MJ RSGV WITH SQUARE NUT AND VALVE CAN.
C. SERVICE PIPE
   - DUCTILE IRON FULLY RESTRAINED.
   - 4" MINIMUM DIAMETER.
   - 12" MINIMUM CLEARANCE TO VAULT FLOOR.
   - LENGTH & FITTINGS VARY AS REQUIRED BY INSTALLATION.
   - MINIMUM PIPE BEDDING SHALL BE 4" OF CSTC AROUND PIPE.
D. INLET AND OUTLET PIPES TO BE FULLY RESTRAINED, SEE ENGINEER OR WATER DIVISION FOR DETAILS.
E. FLANGED TEE.
F. FLANGE BY FLANGE GATE VALVE WITH HANDWHEEL.
   - 1/2 DIA. OF SERVICE PIPE.
   - 1/2" CHAIN TO BE INSTALLED ON VALVE.
   - LOCK SUPPLIED BY CITY.
G. BLIND FLANGE.
H. GATE VALVE WITH HANDWHEEL (SAME DIA. AS SERVICE PIPE).
I. SUPPORTS SHALL BE GRINNELL PRODUCT #264 OR APPROVED EQUAL.
J. THRUST OR NON-THRUST TYPE DISMANTLING JOINT.
K. METER TYPE, SIZE, MODEL AND STRAINER TO BE SPECIFIED BY THE CITY WATER DIVISION.
   - METER TO BE SUPPLIED AND INSTALLED BY CITY WATER DIVISION.
L. DRESSER COUPLING.
M. VAULT SHALL BE 'UTILITY VAULT CO.' PRE-CAST VAULT MODEL AS FOLLOWS):
   - 3" & 4" METER - #675-LA W/#675-T-2-332P TOP.
   - 6" & 8" METER - #612-3-LA W/#612-3-T-3-332P TOP - INCLUDE OPTIONAL SUMP AND GRATE.
   - ALL VAULTS SHALL INCLUDE PULL UP EXTENSION LADDERS AND RECTANGULAR DOORS WITH SPRING ASSIST CYLINDER AND HOLD OPEN ARMS AS SUPPLIED BY UTILITY VAULT CO.
   - BACKFILL AROUND VAULT AND COMPACT TO 95% DENSITY.
   - 4" MINIMUM CTSC BASE UNDER VAULT.
   - DRAINAGE REQUIREMENTS TO BE SPECIFIED BY CITY ON CASE BY CASE BASIS.
   - BLOCKOUTS AND OTHER HOLES TO BE FILLED WITH NON-SHRINK GROUT. ADJUST INLET & OUTLET PIPES AS REQUIRED TO MEET THE 12" MINIMUM PIPE SUPPORT HEIGHT. PIPE SUPPORTS SHALL BE GRINNELL PRODUCT #264 OR EQUAL.
NOTES:

1. HYDRANT SHALL BE PAINTED OSHA SAFETY YELLOW. HYDRANTS IN THE DOWNTOWN AREA SHALL BE PAINTED 'DOWNTOWN GREEN'.
2. TRAFFIC MODEL REQUIRED.
3. HYDRANTS SHALL BE FURNISHED WITH 5-1/4" MAIN VALVE OPENING.
4. HYDRANTS SHALL BE HOODED UNTIL OPERATIONAL.
6. HYDRANTS TO BE DRY BARREL WITH BURY TO MATCH DEPTH OF MAIN AND FINISH GRADE. A 1 1/2" PENTAGON OPERATING NUT OPENING COUNTERCLOCKWISE.
7. HYDRANT SHALL BE INSTALLED WITH STEAMER PORT FACING PERPENDICULAR TO NEAREST STREET CENTERLINE.

* Do not locate in gutter.

WATER MAIN

* Megalug' joint restraints

Gravel drain envelope. Rock shall meet the WSDOT specification 9-03.12(4). Rock shall be wrapped in drain fabric that meets WSDOT specification 9-33.2.

Quick connect device with cap. 5" Storz adapters style no.S-37 or style no.S-54RL. 5" Storz gap style no. sc.

Bury to match depth of main and finish grade. A 1-1/2" pentagon operating nut opening counterclockwise.

Adjustable valve box (cast iron)

6" gate valve (MJ X FL)

6" D.I. pipe CL.52

6' min. or as directed by engineer

As required

Thrust block req'd when restrained joint fittings are not adequate due to spacing of joints on existing main.

Field-Lok gasket in push joint pipe may be substituted.

Additional glands or restrained joints required for pipe lengths exceeding one section.

Furnish and install retainer glands as shown.

Date: 12/30/2016

Approved by: [Signature]

FIRE HYDRANT

STANDARD PLAN
4-5
NOTES:
1. WHERE CONCRETE CURBING IS NOT INSTALLED, GUARD POSTS (2 EA. MIN) SHALL BE INSTALLED ON SIDE FACING PAVED SURFACE.
2. GUARD POSTS TO BE PAINTED SAME AS HYDRANT.
DEAD END WATER MAIN

STANDARD VALVE BOX

6" STANDARD VALVE BOX

2" GALV STEEL PIPE AND FITTINGS.

GATE VALVE SHALL BE MUELLER
2" A-2360 WITH A 2" SQUARE WRENCH NUT OR APPROVED EQUAL

USE INLAND FOUNDRY CAST IRON RING AND COVER NO. 247 OR APPROVED EQUAL

2" THREAD CAP (FINGER TIGHT)

4" MAX DEPTH TO CAP FROM FINISH GRADE

INSTALL THRUST BLOCK UNLESS OTHERWISE DIRECTED BY ENGINEER.

* MEGALUG' AND CAP WITH 2" THREADED TAP.

* THE NUMBER OF RESTRAINED JOINTS SHALL BE DETERMINED BY THE CITY ENGINEER.

DATE: APPROVED BY:
12/30/2016
When existing waterline requires the in-line installation of a valve, reducer or flange adapter, then all connections to the tee or valve shall be flanged.

Where required, reducer to be all flange.

C.I. tee or C.I. cross flange x flange

Flange x MJ valve

New water main

Existing water main

Restained flanged coupling adapter
Romac RFCA only

Resilient seated gate valve
Per section 9.30.3(1) of the WSDOT specifications. 3" to 12" dia. flange x mechanical joint.

Valve or coupling adapter as required by pipe size and type.

Tapping sleeve JCM 412, Smith-Blair #662, Romac SST, FTS 419, FTS 420 or approved equal. Bolts and nuts to be corrosion resistant, high strength low alloy. Per AWWA C111.

Notes:

2. Taps on existing and/or charged water mains shall be performed by the City of Walla Walla Water Department per standard plan 4-1. Five working days notice shall be required to schedule city crews for tap.

3. Contractor to dig & verify water main size, type and location two weeks prior to scheduling city crews for tap.

4. Prior to city crews conducting tap the contractor shall excavate a minimum, 10 feet x 3 feet trench and ensure 3 feet of the main is cleaned and prepared with 6 inches of clearance on all sides of the main. Contractor shall provide and establish shoring for all trenches over 4 feet in depth.

5. Chlorinate valve & fittings per section 7-09.3 of specifications.

6. Maximum tap to existing line not to exceed 75% of main diameter on steel. Ductile iron shall be size on size. Maximum tap for cross not to exceed 50% of main.

7. Install thrust blocks per standard plan 4-9 and 4-10.

8. On steel pipe, contractor to restore all disturbed coal tar and wrapping.

Connection to existing water main

Date: 12/30/2016

Approved by: [Signature]
THRUST BLOCK NOTES

1. THRUST BLOCKS SHALL ONLY BE USED WHEN PRE APPROVED BY THE CITY ENGINEER AND WHEN ‘MEGALUG’ RESTRAINED JOINTS CAN NOT BE UTILIZED.
2. THRUST BLOCKS SHALL BE SIZED AS REQUIRED BY SOIL CONDITIONS AND OPERATING PRESSURE.
3. CONCRETE SHALL BE PLACED AGAINST UNDISTURBED SOIL.
4. CONCRETE SHALL BE CLASS 3000.
5. ALL CONCRETE SHALL BE PLACED SO PIPE AND FITTING JOINTS WILL BE ACCESSIBLE FOR REPAIRS.
6. ANCHOR RODS SHALL BE 3/4” DIAMETER GALVANIZED STEEL RODS, EMBEDDED 18” MINIMUM IN CONCRETE.
7. WRAP FITTING WITH 6 MIL PLASTIC BEFORE PLACING CONCRETE TO PROTECT ALL BOLT THREADS.

DETERMINATION OF THRUST BLOCK AREA

NOTE: WHEN THRUST BLOCK BEARING IN NOT SPECIFIED ON THE PLANS OR BY THE ENGINEER. THE FOLLOWING PROCEDURE SHALL BE USED.

1. DETERMINE THRUST (T) AT FITTING AS REQUIRED FOR TYPE OF FITTING, SIZE OF PIPE, AND WORKING PRESSURE FROM TABLE NO. 1.
2. DETERMINE BEARING CAPACITY (B) OF SOIL FROM TABLE NO. 2.
3. DETERMINE REQUIRED BEARING AREA (A) USING FORMULA A = T/B.

---

**TABLE NO. 1**

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>TEES AND DEAD ENDS</th>
<th>90 DEGREE BEND</th>
<th>45 DEGREE BEND</th>
<th>22-1/2 DEGREE BEND</th>
</tr>
</thead>
<tbody>
<tr>
<td>4”</td>
<td>1850</td>
<td>2610</td>
<td>1420</td>
<td>720</td>
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<tr>
<td>6”</td>
<td>3800</td>
<td>5370</td>
<td>2910</td>
<td>1470</td>
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<td>8”</td>
<td>6580</td>
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<tr>
<td>10”</td>
<td>10750</td>
<td>15200</td>
<td>8240</td>
<td>4170</td>
</tr>
<tr>
<td>12”</td>
<td>15310</td>
<td>21640</td>
<td>11720</td>
<td>5940</td>
</tr>
<tr>
<td>14”</td>
<td>20770</td>
<td>29360</td>
<td>15910</td>
<td>8060</td>
</tr>
<tr>
<td>16”</td>
<td>26880</td>
<td>38010</td>
<td>20590</td>
<td>10430</td>
</tr>
</tbody>
</table>

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**TABLE NO. 2**

<table>
<thead>
<tr>
<th>SOIL</th>
<th>SAFE BEARING LOAD LB. PER SQ. FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOFT CLAY</td>
<td>500</td>
</tr>
<tr>
<td>SAND</td>
<td>2000</td>
</tr>
<tr>
<td>SAND &amp; GRAVEL</td>
<td>3000</td>
</tr>
<tr>
<td>CEMENTED W/CLAY</td>
<td>4000</td>
</tr>
<tr>
<td>HARD CLAY</td>
<td>4000</td>
</tr>
</tbody>
</table>

**NOTE:** FOR WATER PRESSURES DIFFERENT THAN 100 P.S.I., MULTIPLY THRUST FOUND IN TABLE NO. 1 BY REQUIRED PROPORTION.

EXAMPLE: IF PRESSURE IS 175 PSI, MULTIPLY VALUE IN TABLE BY 1.75.

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**THRUST BLOCKS**

**DATE:** 06/05/2006

**STANDARD PLAN:** 4-9

**APPROVED BY:**
(WHEN THRUST BLOCKS ARE REQUIRED - SEE NOTE #1 ON STD PLAN 4-9 FOR THRUST BLOCKS)
EXISTING GROUND

STEEL CASING

GATE OR BUTTERFLY VALVE

AIR RELEASE VALVE
SEE STD 4-13

PROTECTIVE RIPRAP

MINIMUM 1’

GENERAL NOTES
1. THE LENGTH OF THE STEEL CASING SHALL BE DETERMINED BY THE CITY ENGINEER ON A CASE BY CASE BASIS. AT A MINIMUM THE CASING SHALL EXTEND FIVE FEET HORIZONTALLY BEYOND THE HIGH WATER MARK ON EACH SIDE OF THE CHANNEL OR TO THE TOP OF THE CHANNEL BANK.

2. STEEL CASING SHALL MET THE REQUIREMENTS OF SECTION 9-30.1(4)A OF THE WSDOT STANDARD SPECIFICATIONS.

3. CASING SPACERS SHALL HAVE A MINIMUM OF FOUR RUNNERS MANUFACTURED FROM GLASS REINFORCED POLYESTER WITH THE FOLLOWING PROPERTIES:
   A. TENSILE STRENGTH (ASTM D638): 17,600 PSI
   B. FLEXURAL STRENGTH (ASTM D790): 25,300 PSI
   C. COMPRESSION STRENGTH (10% DEFORMATION) (ASTM D695): 18,000 PSI
   D. DEFLECTION TEMP. @ 264 PSI (ASTM D648): 405°F, (205°C.)
   E. DEFORMATION UNDER LOAD @ 122°F (50°C) 2,000 lb. LOAD (ASTM D621): 1.2%
   F. ALL RUNNERS ARE PROJECTION WELDED TO BAND PER AWS SPECIFICATIONS OR ATTACHED TO PROJECTIONS WELDED STUDS.

   BANDS SHALL BE TWO PIECES AND SHALL BE MANUFACTURED FROM 14 GAUGE 304 SS. ALL BAND CONNECTION NUTS, WASHERS, AND BOLTS SHALL BE STAINLESS STEEL.

4. END SEALS SHALL BE ONE PIECE NEOPRENE RUBBER WITH A MINIMUM THICKNESS OF 1/4 INCH. BAND CLAMS SHALL BE STAINLESS STEEL.

5. PRIOR TO BEGINNING CONSTRUCTION PERMIT REQUIREMENTS SHALL BE MET THROUGH THE DEPARTMENT OF ECOLOGY.
1. Fittings on the service pipe shall be soldered or compression fittings.
2. The preferred location for the air release valve is in the planter strip. If one is not available place behind curb in the right of way. If location is in an unimproved area set the box 3" above grade.

BOX SHALL BE A L SERIES 1730-18 GREEN PLASTIC METER BOX OR A BROOKS 67MB - LID 67-TR STEEL COVER FOR TRAVELED AREAS.

PLACE A MINIMUM OF 18" OF CHIP ROCK FOR DRAINAGE BELOW BOX.
NOTES

1. CAST IRON ADJUSTABLE VALVE BOX SHALL BE A TYLER / UNION MODEL NUMBER 6855 OR APPROVED EQUAL.

2. INTERMEDIATE RISER SECTION FROM VALVE TO VALVE BOX SHALL BE CAST IRON ASTM A-48.

3. THE ADJUSTABLE VALVE BOX, INTERMEDIATE RISER SECTION, AND BASE SECTION SHALL BE INSTALLED PLUMB AND CENTERED OVER THE OPERATING NUT ON THE VALVE.
COMBINED WATER SERVICE VAULT NOTES:

GENERAL:
1. THESE ARE FOR GENERAL SCHEMATIC LAYOUT ONLY. INDIVIDUAL SITE REQUIREMENTS ARE DEPENDENT ON DEMAND AND/OR USAGE.

2. ALL PIPING 4" AND LARGER SHALL BE DUCTILE IRON CLASS 52, FULLY RESTRAINED. ALL PIPES 3" OR SMALLER SHALL BE SOFT TYPE K COPPER, IN STRAIGHT PIPE LENGTHS, WITH RESTRAINED JOINTS.

3. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE CITY OF WALLA WALLA FOR SUBMITTAL REVIEW, INSPECTIONS AND TAP OF EXISTING MAINS.

4. PROVIDE MONITORING SWITCHES FOR ALL FIRE LINE VALVES LOCATED IN VAULT, AS APPROVED BY THE FIRE MARSHAL.

5. PROVIDE PULL UP EXTENSION LADDER.

6. SEE CITY STANDARD DRAWING 5-3 FOR CLEARANCE REQUIREMENTS.

7. THERE SHALL BE 2-1/2 PIPE DIAMETERS OF STRAIGHT RUN IMMEDIATELY UPSTREAM AND DOWNSTREAM OF WATER METERS. THIS MAY INCLUDE STRAIGHT PIPE, FULL OPEN VALVES, BYPASS TEES, AND CONCENTRIC REDUCERS.

KEY NOTES:
1. ALL PIPES EXTENDING THROUGH WALLS AND/OR TOP OF VAULT SHALL BE GROUTED, SEALED, AND RESTRAINED OUTSIDE OF VAULT.

2. TRAFFIC RATED CONCRETE WATER METER UTILITY VAULT. WILBERT PRECAST, OR APPROVED EQUAL. DOORS SHALL BE RECTANGULAR WITH SPRING ASSIST CYLINDER AND HOLD OPEN ARMS. PROVIDE A 6" THICK CONCRETE BASE.

3. DOUBLE CHECK DETECTOR VALVE ASSEMBLY PER CITY OF WALLA WALLA STANDARDS. PROVIDE TAMPER SWITCHES ON OS&Y VALVES.

4. INSTALL PIPE SUPPORT JACKS AS REQUIRED.

5. TEE.

6. 1" SCH40 PVC CONDUIT TO BUILDING FOR TAMPER SWITCH ON DOUBLE CHECK DETECTOR VALVE ASSEMBLY GATE VALVES.

7. GATE VALVE FOR LESS THAN 3", GATE VALVE FOR 3" OR GREATER.

8. 90° BEND.

9. WATER METER PER CITY OF WALLA WALLA REQUIREMENTS.

10. DOUBLE CHECK VALVE ASSEMBLY PER CITY OF WALLA WALLA REQUIREMENTS.

11. OS&Y VALVE.

12. KElvucK (AS NEEDED).

13. 5" AREA DRAIN AND PERFORATED PIPING TO DRAIN ROCK.
NOTES

MANUFACTURED AIR GAP FITTINGS MUST MEET THE DIMENSION CRITERIA OF AN APPROVED AIR GAP AS SHOWN IN THIS DOCUMENT.

FLEXIBLE HOSES OR TUBING WHICH MAY BE BENT OR EASILY ALTERED TO REDUCE THE AIR GAP ARE NOT ALLOWED.

AIR GAPS MUST BE INSTALLED ABOVE GRADE UNLESS OTHERWISE APPROVED BY THE CROSS CONNECTION CONTROL SPECIALIST.

ADEQUATE ACCESS AND CLEARANCES FOR INSPECTION, TESTING, AND REPAIRS MUST BE PROVIDED.

ALL INSTALLATIONS ARE SUBJECT TO APPROVAL BY THE CROSS CONNECTION CONTROL SPECIALIST.

A CITY OF WALLA WALLA CROSS CONNECTION CONTROL SPECIALIST MUST INSPECT EVERY INSTALLATION BEFORE RESTORATION OF WATER SERVICE.

SOME MATERIAL REPRODUCED COURTESY OF THE NORTHWEST SECTION OF THE AMERICAN WATER WORKS ASSOCIATION.

---

### MINIMUM AIR GAP DIMENSIONS

<table>
<thead>
<tr>
<th>Effective Diameter of Supply Pipe Opening &quot;D&quot;</th>
<th>Minimum Air Gap Separation</th>
<th>If Walls, Ribs, or Obstructions Are Within 3 Times D From the Air Gap Centerline</th>
<th>If Intersecting Walls Are Within 4 Times D From the Air Gap Centerline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Greater Than 0.5 Inch</td>
<td>1 Inch</td>
<td>1.5 Inches</td>
<td>2 Inches</td>
</tr>
<tr>
<td>Not Greater Than 0.75 Inch</td>
<td>1.5 Inches</td>
<td>2.25 Inches</td>
<td>3 Inches</td>
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<tr>
<td>Not Greater Than 1 Inch</td>
<td>2 Inches</td>
<td>3 Inches</td>
<td>4 Inches</td>
</tr>
<tr>
<td>1 Inch and Greater</td>
<td>2 Times D</td>
<td>3 Times D</td>
<td>4 Times D</td>
</tr>
</tbody>
</table>

OCCASIONAL DEVIATION FROM THIS STANDARD MAY BE NECESSARY TO ENSURE THE OPERABILITY AND SERVICEABILITY OF BACKFLOW PREVENTION EQUIPMENT AS REQUIRED BY WASHINGTON STATE ADMINISTRATIVE CODE 246-290-490 AND WALLA WALLA MUNICIPAL CODE 13.05. IN ACCORDANCE WITH THESE LAWS, ALL INSTALLATIONS ARE SUBJECT TO APPROVAL BY THE CITY’S DESIGNATED, LICENSED CROSS CONNECTION CONTROL SPECIALIST.
REQUIREMENTS

1. ORIENTATION:
   1.1. INSTALL IN HORIZONTAL ORIENTATION WITH ID PLATE FACING UP AND TEST COCKS FACING UP OR TOWARD SERVICE PERSONNEL UNLESS OTHERWISE APPROVED BY THE CITY’S CROSS CONNECTION CONTROL SPECIALIST.

2. COLD WEATHER:
   2.1. IF OPERATED IN FREEZING TEMPERATURE, PROVIDE FREEZE PROTECTION (E.G. HEAT SOURCE AND INSULATION OR ENCLOSURE).

3. DRAINAGE:
   3.1. ADEQUATE DAYLIGHT DRAIN MUST BE PROVIDED TO PREVENT FLOODING OF ASSEMBLY OR WORK AREA. DRAIN SIZES APPROXIMATELY TWICE THE DIAMETER OF THE ASSEMBLY PIPE SIZE ARE USUALLY SUFFICIENT.
   3.2. ANY DRAIN LINE ATTACHED DIRECTLY TO RELIEF VALVE OUTLET MUST INCLUDE AN AIR GAP FITTING APPROVED BY THE CROSS CONNECTION CONTROL SPECIALIST.
   3.3. UNDERGROUND INSTALLATION OF RPBA/RPDA PROHIBITED WITHOUT WRITTEN PRE-APPROVAL OF CROSS CONNECTION CONTROL SPECIALIST.

4. SMALL ASSEMBLIES (SMALLER THAN 2.5 INCHES):
   A - 8 INCH MINIMUM CLEARANCE TO BACK WALL.
   B - 8 INCH MINIMUM CLEARANCE TO FRONT WALL, 18 INCH MAXIMUM IF ASSEMBLY IS SERVICED FROM FRONT THROUGH DOOR(S).
   C - 6 INCH MINIMUM DISTANCE FROM SIDE WALL TO FITTINGS.
   D - 12 INCH MINIMUM, 48 INCH MAXIMUM CLEARANCE FROM BOTTOM OF ASSEMBLY TO STANDING SURFACE.
   E - N/A.
   F - 3 INCH MINIMUM CLEARANCE ABOVE HIGHEST POINT ON BACKFLOW PREVENTER. 18 INCH MAXIMUM IF ASSEMBLY IS SERVICED TOP THROUGH DOOR(S).

5. LARGE ASSEMBLIES (2.5 INCHES AND LARGER):
   A - 12 INCH MINIMUM CLEARANCE TO BACK WALL.
   B - 12 INCH MINIMUM CLEARANCE TO FRONT WALL, 18 INCH MAXIMUM IF ASSEMBLY IS SERVICED FROM FRONT THROUGH DOOR(S).
   C - 12 INCH MINIMUM DISTANCE FROM SIDE WALL TO FITTINGS.
   D - 12 INCH MINIMUM, 48 INCH MAXIMUM CLEARANCE FROM BOTTOM OF ASSEMBLY TO STANDING SURFACE OR BOTTOM OF ENCLOSURE.
   E - STABLE, PERMANENT SUPPORTS REQUIRED.
   F - 12 INCH MINIMUM CLEARANCE REQUIRED ABOVE HIGHEST POINT ON BACKFLOW PREVENTER, (MEASURE WHEN VALVE FULLY OPENED FOR OS&Y VALVES). 18 INCH MAXIMUM IF ASSEMBLY IS SERVICED TOP THROUGH DOOR(S).
   G - TOP ENTRY VAULTS MUST HAVE RECTANGULAR DOORS WITH SPRING ASSIST CYLINDER AND HOLD OPEN ARMS. ACCESS OPENING MUST BE LARGE ENOUGH TO ACCOMMODATE THE COMPLETE REMOVAL AND REPLACEMENT OF THE BACKFLOW PREVENTER AND ASSOCIATED EQUIPMENT.

6. DETECTOR TYPE ASSEMBLIES:
   6.1. METER ON DETECTOR CHECK BYPASS SHALL BE EITHER SENSW SRII OR NEPTUNE T-10 MODELS EQUIPPED WITH TOUCHREAD REMOTE READING PAD.
   6.2. INSTALLER SHALL COORDINATE WITH WATER DIVISION FOR PROPER LOCATION AND INSTALLATION OF TOUCHREAD REMOTE READING PAD.

OCCASIONAL DEVIATION FROM THIS STANDARD MAY BE NECESSARY TO ENSURE THE OPERABILITY AND SERVICEABILITY OF BACKFLOW PREVENTION EQUIPMENT AS REQUIRED BY WASHINGTON STATE ADMINISTRATIVE CODE 246-290-490 AND WALLA WALLA MUNICIPAL CODE 13.05. IN ACCORDANCE WITH THESE LAWS, ALL INSTALLATIONS ARE SUBJECT TO APPROVAL BY THE CITY’S DESIGNATED, LICENSED CROSS CONNECTION CONTROL SPECIALIST.

REduced PRESSure BACK FLOW Assembly (RPBA/RPDA)

DATE: 10/25/2012

APPROVED BY:
REQUIREMENTS

1. ORIENTATION:
   1.1. INSTALL IN HORIZONTAL ORIENTATION WITH ID PLATE FACING UP AND TEST COCKS FACING UP OR TOWARD SERVICE PERSONNEL UNLESS OTHERWISE APPROVED BY THE CITY'S CROSS CONNECTION CONTROL SPECIALIST.

2. COLD WEATHER:
   2.1. IF OPERATED IN FREEZING TEMPERATURE, PROVIDE FREEZE PROTECTION (E.G. HEAT SOURCE AND INSULATION OR ENCLOSURE).
   2.2. UPON APPROVAL BY THE CITY'S CROSS CONNECTION CONTROL SPECIALIST, A WINTERIZATION ARRANGEMENT (SEE STANDARD PLAN 5-7) MAY BE ALLOWED UPSTREAM OF ASSEMBLY FOR THE PURPOSE OF WINTERIZING WITH COMPRESSED AIR.
   2.3. QUICK CONNECT FITTINGS ARE PROHIBITED UPSTREAM OF ASSEMBLY.

3. DRAINAGE:
   3.1. ADEQUATE DRAINAGE MUST BE PROVIDED TO PREVENT FLOODING OF ASSEMBLY OR WORK AREA.

4. SMALL ASSEMBLIES (SMALLER THAN 2.5 INCHES):
   A - 6 INCH MINIMUM CLEARANCE TO BACK WALL.
   B - 6 INCH MINIMUM CLEARANCE TO FRONT WALL.
   C - 3 INCH MINIMUM DISTANCE FROM SIDE WALL TO FITTINGS.
   D - 12 INCH MINIMUM, 48 INCH MAXIMUM CLEARANCE FROM BOTTOM OF ASSEMBLY TO STANDING SURFACE OR BOTTOM OF VAULT.
   E - N/A.
   F - 3 INCH MINIMUM CLEARANCE ABOVE HIGHEST POINT ON BACKFLOW PREVENTER.

5. LARGE ASSEMBLIES (2.5 INCHES AND LARGER):
   A - 12 INCH MINIMUM CLEARANCE TO BACK WALL.
   B - 36 INCH MINIMUM CLEARANCE TO FRONT WALL.
   C - 12 INCH MINIMUM DISTANCE FROM SIDE WALL TO FITTINGS.
   D - 12 INCH MINIMUM, 48 INCH MAXIMUM CLEARANCE FROM BOTTOM OF ASSEMBLY TO STANDING SURFACE OR BOTTOM OF VAULT.
   E - STABLE, PERMANENT SUPPORTS REQUIRED.
   F - 12 INCH MINIMUM CLEARANCE REQUIRED ABOVE HIGHEST POINT ON BACKFLOW PREVENTER. (MEASURE WHEN VALVE FULLY OPENED FOR OS&Y VALVES).
   G - TOP ENTRY VAULTS MUST HAVE RECTANGULAR DOORS WITH SPRING ASSIST CYLINDER AND HOLD OPEN ARMS. ACCESS OPENING MUST BE LARGE ENOUGH TO ACCOMMODATE THE COMPLETE REMOVAL AND REPLACEMENT OF THE BACKFLOW PREVENTER AND ASSOCIATED EQUIPMENT.

6. DETECTOR TYPE ASSEMBLIES:
   6.1. METER ON DETECTOR CHECK BYPASS SHALL BE EITHER SENSUS SRII OR NEPTUNE T-10 MODELS EQUIPPED WITH TOUCHREAD REMOTE READING PAD.
   6.2. INSTALLER SHALL COORDINATE WITH WATER DIVISION FOR PROPER LOCATION AND INSTALLATION OF TOUCHREAD REMOTE READING PAD.

OCCASIONAL DEVIATION FROM THIS STANDARD MAY BE NECESSARY TO ENSURE THE OPERABILITY AND SERVICEABILITY OF BACKFLOW PREVENTION EQUIPMENT AS REQUIRED BY WASHINGTON STATE ADMINISTRATIVE CODE 246-290-490 AND WALLA WALLA MUNICIPAL CODE 13.05. IN ACCORDANCE WITH THESE LAWS, ALL INSTALLATIONS ARE SUBJECT TO APPROVAL BY THE CITY'S DESIGNATED, LICENSED CROSS CONNECTION CONTROL SPECIALIST.

DOUBLE CHECK VALVE ASSEMBLY (DVCA/DVDA)

DATE: 10/25/2012

APPROVED BY: [Signature]

STANDARD PLAN 5-3
MIN 12 INCHES ABOVE HIGHEST POINT IN DOWNSTREAM PIPING
MAX 60 INCHES ABOVE GRADE. ASSEMBLY MUST BE ACCESSIBLE
FOR TESTING AND REPAIRS. MAY NOT BE INSTALLED IN
ENCLOSED SPACE.

CITY METER

SHUT OFF VALVE AND
OPTIONAL DRAIN AND/OR
WINTERIZATION
ARRANGEMENT

CONTROL VALVES AND
OPTIONAL DRAIN (NO
BLOWOUTS DOWNSTREAM
OF PRESSURE VACUUM
BREAKER ASSEMBLY)

SPRINKLER HEADS

REQUIREMENTS

1. ORIENTATION:
   1.1. INSTALL IN ORIENTATION SHOWN.

2. COLD WEATHER:
   2.1. UPON APPROVAL BY THE CITY'S CROSS CONNECTION CONTROL SPECIALIST, A WINTERIZATION ARRANGEMENT (SEE STANDARD PLAN 5-7) MAY BE ALLOWED UPSTREAM OF ASSEMBLY FOR THE PURPOSE OF WINTERIZING WITH COMPRESSED AIR.
   2.2. QUICK CONNECT FITTINGS ARE PROHIBITED.

OCCASIONAL DEVIATION FROM THIS STANDARD MAY BE NECESSARY TO ENSURE THE OPERABILITY AND SERVICEABILITY OF BACKFLOW PREVENTION EQUIPMENT AS REQUIRED BY WASHINGTON STATE ADMINISTRATIVE CODE 246-290-490 AND WALLA WALLA MUNICIPAL CODE 13.05. IN ACCORDANCE WITH THESE LAWS, ALL INSTALLATIONS ARE SUBJECT TO APPROVAL BY THE CITY'S DESIGNATED, LICENSED CROSS CONNECTION CONTROL SPECIALIST.

STANDARD PLAN
5-4
MIN 6 INCHES ABOVE HIGHEST POINT IN DOWNSTREAM PIPING MAX 60 INCHES ABOVE GRADE. MAY NOT BE INSTALLED IN ENCLOSED SPACE.

REQUIREMENTS

1. ATMOSPHERIC VACUUM BREAKER MUST BE INSTALLED DOWNSTREAM OF CONTROL VALVE. (NO VALVES ARE ALLOWED DOWNSTREAM OF ATMOSPHERIC VACUUM BREAKER).

2. ORIENTATION:
   2.1. INSTALL IN ORIENTATION SHOWN.

3. COLD WEATHER:
   3.1. UPON APPROVAL BY THE CITY’S CROSS CONNECTION CONTROL SPECIALIST, A WINTERIZATION ARRANGEMENT (SEE STANDARD PLAN 5-7) MAY BE ALLOWED UPSTREAM OF ASSEMBLY FOR THE PURPOSE OF WINTERIZING WITH COMPRESSED AIR.
   3.2. QUICK CONNECT FITTINGS ARE PROHIBITED.

OCCASIONAL DEVIATION FROM THIS STANDARD MAY BE NECESSARY TO ENSURE THE OPERABILITY AND SERVICEABILITY OF BACKFLOW PREVENTION EQUIPMENT AS REQUIRED BY WASHINGTON STATE ADMINISTRATIVE CODE 246-290-490 AND WALLA WALLA MUNICIPAL CODE 13.05. IN ACCORDANCE WITH THESE LAWS, ALL INSTALLATIONS ARE SUBJECT TO APPROVAL BY THE CITY’S DESIGNATED, LICENSED CROSS CONNECTION CONTROL SPECIALIST.
To reduce the risk of contamination of the public water supply, the City of Walla Walla requires premises isolation on certain water services. The purpose of premises isolation is to isolate the city mains from potentially contaminated water in a customer’s building. This is done by installing a backflow prevention assembly between the city’s main and the customer’s plumbing system. This hand-out explains basic locations for premises isolation equipment. Premises isolation systems are installed according to City of Walla Walla Municipal Code 13.05 and the Washington State Administrative Code 246-290-490.

There are two basic locations where backflow assemblies may be installed. The City’s Water Cross Connection Control Specialist determines which location is used in a particular building based on the length of the line to the building, possible future modifications, the degree of hazard presented by the use of the building, and other factors.

The following diagrams show the two locations where backflow assemblies may be installed. Final approval of the location by the City’s designated, licensed Cross Connection Control Specialist is required prior to water service being provided.

**LOCATION OF PREMISES ISOLATION BACKFLOW PREVENTER OUTSIDE OF BUILDING**

- RPBA installed above ground in heated, insulated enclosure.

**LOCATION OF PREMISES ISOLATION BACKFLOW PREVENTER INSIDE BUILDING**

- Assembly installed within 10ft (as measured along the supply pipe) of the point where the service line enters the building.

**Drainage requirements apply to RPBA (see standard plan 5-2)**

**Notes:**
- No branch lines or points of use are allowed upstream of assemblies installed for premises isolation, with one exception; upon prior approval by the Cross Connection Control Specialist, a single irrigation line isolated with a backflow preventer may be allowed.
- Plan approval from the Cross Connection Control Specialist is required prior to installation of backflow prevention equipment.
- Premises isolation backflow preventers must be accessible for inspection at all times by the City.

**PREMISES ISOLATION GUIDELINES**

**DATE:** 12/30/2016

**STANDARD PLAN 5-6**
Irrigation Winterization Arrangement
(CITY OF WALLA WALLA GUIDELINES FOR INSTALLATION)

Many water system customers choose to winterize their underground sprinkler systems with compressed air. When this is done properly, an entire irrigation system from backflow preventer to sprinkler head may be winterized without harming the quality of the potable water supply. When this is not done properly, compressed air may enter the customer's plumbing system or the City's public water system, creating a host of water quality problems. To prevent such problems, customers are generally required to have a double check valve assembly as a minimum upstream of any fixtures used for inserting compressed air into the piping. This requirement necessitates drainage or removal of the backflow preventer for winterization purposes for many customers as the backflow preventer does not pass air through it in the reverse direction.

In response to this problem, the following arrangement has been approved for use on irrigation systems connected to the City of Walla Walla water system. If you choose to winterize with compressed air, and would like to be able to remove the water in your backflow preventer with compressed air, please read these directions carefully and follow them exactly as stated. When you are finished with your installation, call the Cross Connection Control Specialist at the Water Division (527-4380) for an inspection and approval.

The winterization arrangement is to be installed in the supply line to the backflow preventer, as close as possible to the backflow preventer. This arrangement consists of a resilient seated ball valve with brass body, followed downstream by a tee fitting, from which a capped, threaded section of pipe is extended as a tie-in for connecting the compressed air.

The valve must have a Teflon or other resilient seat, and must be a ball valve in a brass body. Any other type of valve may result in air being passed through the valve and causing water quality problems for you and for your neighbors.

The tie-in for the compressed air must not have a quick connect fitting of any kind on it. It must be threaded and capped. This is so that the compressed air cannot be connected until the valve has been shut off.

Winterization Steps:
1. Turn off water at ball valve.
2. Remove the cap and connect air hose at connection point.
3. Apply air pressure to remove water from your system (be careful not to exceed the pressure rating of your plumbing). A good rule of thumb is not to exceed your normal water pressure.
4. Remove air hose connection.
5. Replace cap.
6. Leave valve off until sprinkler system is recharged for the next season.

Connection point, threaded and capped (no quick couplers)

Flow

Water supply this side.

Teflon seated ball valve with brass body.

Backflow preventer this side.
CITY MAIN CURB & GUTTER

36" TO 48" GATE VALVE (FL x MJ)
CONNECTION TO EXISTING MAIN PER STD. PLAN 4-8

DUCTILE IRON PIPE
SEE STD. PLAN 4-1

GATE VALVE (MJ) WITH INDICATOR POST 2' BEHIND ROW. INDICATOR POST VALVE SAME SIZE AS DOUBLE CHECK VALVE, PAINTED RED.

VALVE BOX PER STD. PLAN 4-14

GATE VALVE (FL x MJ) CONNECTION TO EXISTING MAIN PER STD. PLAN 4-8

METER TRANSMITTING UNIT
SEE NOTE 4

ELEVATION NTS

2' EDGE OF ROW/PROPERTY LINE

GATE VALVE (MJ)

4" MIN C.S.T.C.

36" TO 48"

ENTIRE ASSEMBLY MUST BE FULLY RESTRAINED

METER TRANSMITTING UNIT
SEE NOTE 4

全年

25' MAX

NOTES:
1. CITY OWNERSHIP ENDS AT THE PRIVATE PROPERTY SIDE OF THE VALVE LOCATED TWO FEET BEHIND ROW. CONTRACTOR IS REQUIRED TO INSTALL SERVICE FROM TWO FEET BEHIND ROW TO BACKFLOW DEVICE. PER WALLA WALLA MUNICIPAL CODE 13.04.240, THE CITY SERVICE LINE WILL BE INSTALLED AND MAINTAINED BY THE WATER DIVISION.
2. INSTALL RPDA IN HORIZONTAL ORIENTATION WITH ID PLATE FACING UP.
3. ALL REDUCED PRESSURE DETECTOR ASSEMBLIES SHALL INCLUDE RESILIENT SEATED OS&Y SHUTOFF VALVES AND TEST COCKS AND CAPS AND APPROVED CROSS - CONNECTION CONTROL ASSEMBLIES PER LATEST DOH USC APPROVED LIST.
4. METER ON DETECTOR CHECK BYPASS SHALL BE SENSUS IPERL EQUIPPED WITH A METER TRANSMITTING UNIT PROVIDED AND INSTALLED BY THE CITY.
5. PRIOR TO ACTIVATION OF THE NEW LINE, INSTALL 1/4" FLARE TEST COCKS WITH 1/4" FLARE CAPS FACING UP OR TOWARD SERVICE PERSONNEL.
6. AFTER FIELD INSTALLATION, MAIN RPDA AND BY-PASS RPVA MUST BE TESTED SATISFACTORILY BY A CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST RESULTS SHALL BE SUBMITTED TO THE CITY.
7. IF OPERATED IN FREEZING TEMPERATURE, PROVIDE FREEZE PROTECTION.
8. UNDERGROUND INSTALLATION OF RPDA PROHIBITED WITHOUT APPROVAL OF CITY ENGINEER. UNDERGROUND INSTALLATIONS MUST INCLUDE A DRAIN TO DAYLIGHT.

CLEARANCE REQUIREMENTS:
1. SMALL ASSEMBLIES (SMALLER THAN 2.5 INCHES):
   A. 8 INCH MINIMUM CLEARANCE TO BACK WALL.
   B. 8 INCH MINIMUM CLEARANCE TO FRONT WALL, 18 INCH MAXIMUM IF ASSEMBLY IS SERVICED FROM FRONT THROUGH DOOR(S).
   C. 6 INCH MINIMUM DISTANCE FROM SIDE WALL TO FITTINGS.
   D. 12 INCH MINIMUM, 48 INCH MAXIMUM CLEARANCE FROM BOTTOM OF ASSEMBLY TO STANDING SURFACE.
   E. N/A.
   F. 3 INCH MINIMUM CLEARANCE ABOVE HIGHEST POINT ON BACKFLOW PREVENTER. 18 INCH MAXIMUM IF ASSEMBLY IS SERVICED TOP THROUGH DOOR(S).

2. LARGE ASSEMBLIES (2.5 INCHES AND LARGER):
   A. 12 INCH MINIMUM CLEARANCE TO BACK WALL.
   B. 12 INCH MINIMUM CLEARANCE TO FRONT WALL, 18 INCH MAXIMUM IF ASSEMBLY IS SERVICED FROM FRONT THROUGH DOOR(S).
   C. 12 INCH MINIMUM DISTANCE FROM SIDE WALL TO FITTINGS.
   D. 12 INCH MINIMUM, 48 INCH MAXIMUM CLEARANCE FROM BOTTOM OF RELIEF VALVE TO STANDING SURFACE OR BOTTOM OF ENCLOSURE.
   E. STABLE, PERMANENT SUPPORTS REQUIRED.
   F. 12 INCH MINIMUM CLEARANCE REQUIRED ABOVE HIGHEST POINT ON BACKFLOW PREVENTER. (MEASURE WHEN VALVE FULLY OPENED FOR OS&Y VALVES). 18 INCH MAXIMUM IF ASSEMBLY IS SERVICED TOP THROUGH DOOR(S).

A FIRE SERVICE IS DEFINED AS ANY CONNECTION TO THE CITY WATER SYSTEM FOR THE SOLE INTENDED PURPOSE OF STAND ALONE FIRE PROTECTION.

STAND ALONE FIRE SERVICE REDUCED PRESSURE BACK FLOW ASSEMBLY (RPDA)

DATE: 03/30/2018

APPROVED BY:

STANDARD PLAN 5-8
1. CITY OWNERSHIP ENDS AT THE PRIVATE PROPERTY SIDE OF THE VALVE located two feet behind row. Contractor is required to install service from two feet behind row to backflow device. Per WALLA WALLA MUNICIPAL CODE 13.04.240, the city service line will be installed and maintained by the water division.

2. INSTALL DCDA IN HORIZONTAL ORIENTATION WITH ID PLATE FACING UP.

3. ALL DOUBLE CHECK DETECTOR ASSEMBLIES SHALL INCLUDE RESILIENT SEATED OS&Y SHUTOFF VALVES AND TEST COCKS AND CAPS AND APPROVED CROSS-CONNECTION CONTROL ASSEMBLIES PER DOH USC LATEST APPROVED LIST.

4. THE BYPASS ASSEMBLY SHALL BE INCLUDED AS PART OF THE DOUBLE CHECK DETECTOR ASSEMBLY.

5. METER ON DETECTOR CHECK BYPASS SHALL BE A 3/4" SENsus iPERl EQUIPPED WITH METER TRANSMITTING UNIT PROVIDED AND INSTALLED BY THE CITY.

6. TOUCH READ PIT LID SENSOR SHALL BE MOUNTED THROUGH LID.

7. PRIOR TO ACTIVATION OF THE NEW LINE, INSTALL 1/4" FLARE TEST COCKS WITH 1/4" FLARE CAPS FACING UP OR TOWARD SERVICE PERSONNEL.

8. AFTER FIELD INSTALLATION, MAIN DCDA AND BY-PASS DCVA MUST BE TESTED SATISFACTORYLY BY A CERTIFIED BACKFLOW ASSEMBLY TESTER.

9. IF OPERATED IN FREEZING TEMPERATURE, PROVIDE FREEZE PROTECTION. UPON APPROVAL BY THE CITY'S CROSS CONNECTION CONTROL SPECIALIST, A WINTERIZATION ARRANGEMENT (SEE STANDARD PLAN 5-7) MAY BE ALLOWED UPSTREAM OF ASSEMBLY FOR THE PURPOSE OF WINTERIZING WITH COMPRESSED AIR. QUICK CONNECT FITTINGS ARE PROHIBITED UPSTREAM OF ASSEMBLY.

CLEARANCE REQUIREMENTS

1. SMALL ASSEMBLIES (SMALLER THAN 2.5 INCHES):
   A. 6 INCH MINIMUM CLEARANCE TO BACK WALL.
   B. 6 INCH MINIMUM CLEARANCE TO FRONT WALL.
   C. 3 INCH MINIMUM DISTANCE FROM SIDE WALL TO FITTINGS.
   D. 12 INCH MINIMUM, 48 INCH MAXIMUM CLEARANCE FROM BOTTOM OF ASSEMBLY TO STANDING SURFACE OR BOTTOM OF VAULT.
   E. N/A.
   F. 3 INCH MINIMUM CLEARANCE ABOVE HIGHEST POINT ON BACKFLOW PREVENTER.

2. LARGE ASSEMBLIES (2.5 INCHES AND LARGER):
   A. 12 INCH MINIMUM CLEARANCE TO BACK WALL.
   B. 36 INCH MINIMUM CLEARANCE TO FRONT WALL.
   C. 12 INCH MINIMUM DISTANCE FROM SIDE WALL TO FITTINGS.
   D. 12 INCH MINIMUM, 48 INCH MAXIMUM CLEARANCE FROM BOTTOM OF ASSEMBLY TO STANDING SURFACE OR BOTTOM OF VAULT.
   E. STABLE, PERMANENT SUPPORTS REQUIRED.
   F. 12 INCH MINIMUM CLEARANCE REQUIRED ABOVE HIGHEST POINT ON BACKFLOW PREVENTER. (MEASURE WHEN VALVE FULLY OPENED FOR OS&Y VALVES).
   G. TOP ENTRY VAULTS MUST HAVE RECTANGULAR DOORS WITH SPRING ASSIST CYLINDER AND HOLD OPEN ARMS. ACCESS OPENING MUST BE LARGE ENOUGH TO ACCOMMODATE THE COMPLETE REMOVAL AND REPLACEMENT OF THE BACKFLOW PREVENTER AND ASSOCIATED EQUIPMENT.
**General Notes:**

1. A fire service is defined as an connection to the city water system for the sole intended purpose of stand alone fire protection.
2. City ownership ends at the private property side of the valve located two feet behind row. Contractor is required to install service from two feet behind row to backflow device. Per Walla Walla Municipal Code 13.04.240, the city service line will be installed and maintained by the water division.
3. DCDA must be installed immediately after pipe penetration through building floor.

**Construction Notes:**

1. Ductile iron pipe per city standard plan 4-1, all pipe and fittings shall be restrained with megalugs or equivalent and field lock gaskets or equivalent.
2. Branch valve (MJ) with valve box and cover or post-indicator valve (MJ) with tamper switch.
3. 2 - 90° bends.
4. 18" long spool (FL x PE).
5. For horizontal installations, bottom of DCDA shall be a minimum of 24 inches above floor level and not higher than 36 inches maximum. Install concrete pads or adjustable pipe support columns under DCDA.
6. O.S & Y valves to be resilient seated with tamper switches.
7. Double check valve assembly (DCVA) with 3/4" by-pass.
8. Metered 3/4" by-pass DCVA -- by-pass meter shall be a 3/4" Sensus IPerl equipped with meter transmitting unit provided and installed by the city.

Room in which DCDA is located shall:

A. Have floor drain connected to the sanitary sewer system
B. Have a heating system (40°F min. temp.) no heat tape
C. Not be used for storage around the DCDA
D. Have clearly delineated access ways to DCDA and pivs
NOTES:

1. CITY OWNERSHIP ENDS ON THE PRIVATE PROPERTY SIDE OF THE METER ASSEMBLY. CONTRACTOR IS REQUIRED TO INSTALL SERVICE FROM TWO FEET BEHIND ROW TO BACKFLOW DEVICE. PER WALLA WALLA MUNICIPAL CODE 13.04.240, THE CITY SERVICE LINE WILL BE INSTALLED AND MAINTAINED BY THE WATER DIVISION.

2. BACKFLOW PREVENTION DEVICES ARE REQUIRED ON ALL SERVICES AND MUST BE APPROVED CROSS-CONNECTION CONTROL ASSEMBLIES PER DOH USC LATEST APPROVED LIST.

3. SERVICES SHALL NOT BE LOCATED WITHIN A DRIVEWAY OR DRIVEWAY APPROACH.

4. SERVICE SHALL BE A MINIMUM OF 24" FROM ANY TAP, BELL, FITTING, OR OTHER SERVICE.

5. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER'S EXPENSE. HOT-TAP INCLUDES SADDLE, VALVE, G5 BOX, AND PVC RISER.

6. ONLY PRIVATE FIRE PROTECTION SYSTEMS (INCLUDING BUT NOT LIMITED TO FIRE SPRINKLERS AND FIRE HYDRANTS) SHALL BE CONNECTED TO FIRE SERVICES. OTHER USES MUST BE SERVED FROM METERED WATER SERVICES.

7. THE SIZE OF A FIRE SERVICE LATERAL SHALL BE IN CONFORMANCE WITH STD. PLAN 4-8

8. ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY ENGINEERING DIVISION PRIOR TO USE.

9. TRACER WIRE SHALL BE DOUBLE INSULATED NO. 12 AWG COPPER TRACER WIRE CONNECTED TO BALLCORP STOP AT MAIN, TAPED EVERY FIVE FEET, WITH COPPER ENDS SEALED WITH 3M SCOTCHKOTE OR APPROVED EQUAL. 3 FEET OF TRACER WIRE SHALL EXTEND ABOVE METER.

A FIRE SERVICE IS DEFINED AS ANY CONNECTION TO THE CITY WATER SYSTEM FOR THE SOLE INTENDED PURPOSE OF STAND ALONE FIRE PROTECTION.

STAND ALONE FIRE SERVICE 2" AND SMALLER

STANDARD PLAN

5-10
1. THE TYPE "A" GRATE SHALL BE USED WHERE THE GUTTER GRADE FLOWS THROUGH THE INLET UNLESS OTHERWISE NOTED IN THE PLANS.

2. THE TYPE "B" GRATE SHALL BE USED AT LOW POINT LOCATIONS WHERE THE GUTTER GRADE FLOWS FROM BOTH DIRECTIONS TO THE INLET UNLESS OTHERWISE NOTED IN THE PLANS.

3. THE TYPE "C" GRATE SHALL ONLY BE USED IN PARKING LOTS OR AS APPROVED BY THE CITY ENGINEER.

4. THE NAME OF THE MANUFACTURER AND DIRECTION OF THE FLOW SHALL BE EMBOSSED ON THE TOP SURFACE OF EACH GRATE. LETTERING TO BE RECESSIONED 1/16".

5. THE MATERIAL USED FOR THE GRATE SHALL BE EMBOSSED EITHER D (FOR DUCTILE IRON) OR C (FOR CAST IRON) NEAR THE NAME OF THE MANUFACTURER.

6. THE EDGES SHALL HAVE A 1/8" RADIUS, 1/8" CHAMFER, OR COMPLETE DEBURRING.

7. WELDING IS NOT PERMITTED.
1. THE INLET FRAME & GRATE SHALL BE PLACED 1" BELOW THE NORMAL FLOW LINE OF THE GUTTER.

2. THE GUTTER SECTION SHALL BE FORMED AND SLOPED 4' ON THE UPSTREAM SIDE AND 2' ON THE DOWNSTREAM SIDE.

3. SEE STANDARD PLAN FOR CURB AND INLET FRAME AND GRATE.

4. USE A MINIMUM 1/2" OF NON-SHRINK GROUT BETWEEN THE CASTING AND TOP OF THE BARREL AND BETWEEN ANY ADJUSTMENT RINGS BEING USED. USE THE FEWEST ADJUSTMENT RINGS / LARGEST SIZE POSSIBLE TO ACHIEVE DESIRED HEIGHT. WHERE ADJUSTMENT HEIGHT IS LESS THAN 6", USE NO MORE THAN TWO RINGS. WHERE ADJUSTMENT IS BETWEEN 6" AND 15", USE NO MORE THAN THREE RINGS.

5. INLET IS TO BE PLACED WITHIN A TOLERANCE 1/2" HORIZONTAL FROM THE CURB LINE.

6. CONCRETE SHALL BE CL. 4000

7. INLET TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 476 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN IN THE PLANS OR NOTED IN THE SPECIFICATIONS.

8. AS AN ACCEPTABLE ALTERNATE TO REBAR, WELDED WIRE FABRIC HAVING A MINIMUM AREA OF 0.12 SQ. INCHES PER FOOT SHALL MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY WITH ASTM A 497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN THE THE KNOCKOUTS.

9. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. KNOCKOUTS MAY BE ON ALL 4 SIDES, EITHER ROUND OR "D" SHAPED. FLEXIBLE PIPE SHALL BE INSTALLED USING A SAND COLLAR AND NON-SHRINK GROUT. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO THE OUTER DIAMETER PLUS INLET WALL THICKNESS. 20" MINIMUM.

10. THE BOTTOM OF THE PRECAST BASE SECTION MAY BE ROUNDED.

11. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0". THE MINIMUM DEPTH FROM FINISHED GRADE TO THE TOP OF PIPE IS 18" AT THE CURB INLET.
PIPE JOINT SHALL BE A MINIMUM OF 10 FT. FROM MH, FOR FLEXIBLE PIPE PVC CONNECTIONS USE A GASKETED SOLID SLEEVE OR BELL. REINFORCED FLEXIBLE COUPLING REQUIRED FOR RIGID PIPE CONNECTIONS, CONCRETE OR CLAY.

1. THE INLET FRAME & GRATE SHALL BE PLACED 1" BELOW THE NORMAL FLOW LINE OF THE GUTTER.
2. THE GUTTER SECTION SHALL BE FORMED AND SLOPED 4' ON UPSTREAM SIDE AND 2' ON DOWNSTREAM SIDE.
3. SEE STANDARD PLAN FOR CURB INLET GRATE STYLE.
4. THE ROUND INLET ALTERNATIVE MAY ONLY BE USED WITH THE APPROVAL OF THE CITY ENGINEER.
5. USE A MINIMUM 1/2" OF NON-SHRINK GROUT BETWEEN CASTING AND TOP OF BARREL AND BETWEEN ANY ADJUSTMENT RINGS BEING USED. USE THE FEWEST ADJUSTMENT RINGS / LARGEST SIZE POSSIBLE TO ACHIEVE DESIRED HEIGHT. WHERE ADJUSTMENT HEIGHT IS LESS THAN 6", USE NO MORE THAN TWO RINGS. WHERE ADJUSTMENT IS BETWEEN 6" AND 15", USE NO MORE THAN THREE RINGS.
6. INLET IS TO BE PLACED WITHIN A TOLERANCE OF 1" HORIZONTAL FROM CURB LINE.
7. CONCRETE SHALL BE CL. 4000.

(USED ONLY WITH CITY ENGINEER APPROVAL)
1. DRYWELLS SHALL BE SIZED AND DESIGNED BY A LICENSED PROFESSIONAL ENGINEER AND APPROVED BY THE CITY ENGINEER.

2. REFER TO THE CURRENT WSDOT STANDARD SPECIFICATIONS SEC. 9-05.50(5).

3. ADJUSTMENT RING SHALL MEET ASTM 478. USE NON-SHRINK GROUT TO SET AND SEAL. USE THE FEWEST ADJUSTMENT RINGS / LARGEST SIZE POSSIBLE TO ACHIEVE DESIRED HEIGHT. WHERE ADJUSTMENT HEIGHT IS LESS THAN 6", USE NO MORE THAN TWO RINGS. WHERE ADJUSTMENT IS BETWEEN 6" AND 15", USE NO MORE THAN THREE RINGS.

GRAVEL FOR ROCK ENVELOPE SHALL CONFORM TO SEC. 9-03.12(5) OF THE CURRENT WSDOT STANDARD SPECIFICATIONS.

IN FINE GRAINED SOILS USE GEOTECHNICAL FABRIC. MIRAFI 135N OR AN APPROVED EQUAL.

FOUR 6" DIAM. DRAIN HOLES (TYP.) POSITIONED NOT TO INTERFERE WITH REINFORCING BARS

ENVELOPE FABRIC AT TOP OF DRYWELL TO PREVENT FINE SILTS FROM ENTERING.

UNDISTURBED SUBGRADE OR LEVEL ROCK

BACKFILL ABOVE MOISTURE BARRIER WITH C.S.T.C. FOR INSTALLATIONS IN SIDEWALKS AND PAVED AREAS

C.L. 3000 CONCRETE COLLAR PLACED CIRCULARLY AROUND CASTING (TACK BEFORE PAVING)

DEPTH VARIES 8' MIN.

12" MIN.

2" HMA

12" MIN.

15" MAX.

6" I.D.

48" MIN.

48" MIN.

276x189

STANDARD DRYWELL

DATE: 12/30/2016

APPROVED BY:

STANDARD PLAN 6-4

CITY OF WALLA WALLA

WALLA WALLA

STANDARD PLAN 6-4
1. LOCATION OF THE DRYWELL, CATCH BASIN AND CURB INLET ARE SHOWN SCHEMATICALLY FOR CLARITY. THE ACTUAL LOCATION OF THE DRYWELL WILL DEPEND ON EXISTING UTILITIES. THE PREFERRED LOCATION IS OUTSIDE THE PAVED AREA OR IN GREEN AREAS WHEN RIGHT OF WAY OR LOT LAYOUT PERMITS.

2. CATCH BASIN OR CURB INLET TO DRY WELL PIPE RUNS SHALL BE 10" P.V.C. PIPE MEETING THE REQUIREMENTS OF 3034 SDR 35 WITH A MINIMUM COVER OF 18" AT THE CURB INLET OR CATCH BASIN AND A MINIMUM OF 32" AT THE DRYWELL. IF THE MINIMUM COVER CAN NOT BE MET, DUCTILE IRON PIPE SHALL BE SUBSTITUTED. THE ANGLE OF THE PIPE FROM THE PERPENDICULAR SHALL NOT EXCEED 30°. ALL PIPE CONNECTIONS TO DRYWELLS CATCH BASINS, OR INLETS SHALL BE MADE AT KNOCKOUTS UNLESS OTHERWISE AUTHORIZED BY THE CITY ENGINEER. SAND COLLARS SHALL BE USED WITH P.V.C. PIPE.

3. OPEN GRATES FOR DIRECT FLOW INTO THE DRYWELL WILL NOT BE PERMITTED UNLESS OTHERWISE AUTHORIZED BY THE CITY ENGINEER. DRYWELL FRAME AND COVER SHALL BE SOLID, AND SHALL BE LABELED "DRY WELL" OR "DRAIN".

DATE: 12/30/2016
APPROVED BY: [Signature]
C.L. 3000 CONCRETE COLLAR
PLACED CIRCULARLY
AROUND CASTING
(TACK BEFORE PAVING)

FRAME CASTING & COVER
SEE STD PLAN 1-9

ADJUSTMENT RING SHALL MEET ASTM 478.
USE NON-SHRINK GROUT TO SET AND SEAL.

PIPE JOINT SHALL BE A MINIMUM OF 10 FT.
FROM MH, FOR FLEXIBLE PIPE PVC
CONNECTIONS USE A GASKETED SOLID
SLEEVE OR BELL. REINFORCED FLEXIBLE
COUPLING REQUIRED FOR RIGID PIPE
CONNECTIONS, CONCRETE OR CLAY.

GASKET SHALL BE 'A-LOCK', 'KOR-N-SEAL',
OR APPROVED EQUAL FOR FLEXIBLE
PIPE. NON-SHRINK GROUT AROUND PIPE
AT MANHOLE CONNECTIONS.

REINFORCING STEEL (TYP.)

C.S.T.C. (SEE STD. SPEC.
SEC.9-03.9(3))

MANHOLE CROSS-SECTION

SEDITIONATION MANHOLE

DATE: 01/16/2018

STANDARD PLAN 6-6

MANHOLE NOTES:

1. FOR A 48" DIAM. MANHOLE, THE MAXIMUM PIPE
SIZE ALLOWABLE IS 21". PIPE DIAMETERS
LARGER THAN 21" MUST BE APPROVED BY THE
CITY ENGINEER.

2. MANHOLES SHALL BE INSTALLED VERTICAL AND
PLUMB IN ALL DIRECTIONS WITH AN OVERALL
TOLERANCE OF 1" VERTICAL FOR THE OVERALL
MANHOLE.

3. ALL PIPE CONNECTIONS SHALL BE SEALED ON
THE INTERIOR OF THE MANHOLE WITH
NON-SHRINK GROUT.

4. USE THE FEWEST ADJUSTMENT RINGS /
LARGEST SIZE POSSIBLE TO ACHIEVE DESIRED
HEIGHT. WHERE ADJUSTMENT HEIGHT IS LESS
THAN 6", USE NO MORE THAN TWO RINGS.
WHERE ADJUSTMENT IS BETWEEN 6" AND 15",
USE NO MORE THAN THREE RINGS.

5. THE BOTTOM OF THE PRECAST STORM SEWER
MANHOLE MAY BE SLOPED TO FACILITATE
CLEANING.

STORM MAIN AND LATERAL NOTES:

6. ALL STORM MAINS, LATERALS, AND FITTINGS IN
THE ROW SHALL BE PVC 3034 SDR 35.

7. EXISTING STORM REHABILITATION
CONNECTIONS SHALL BE WITH REINFORCED
COUPLINGS. REINFORCED COUPLINGS SHALL
BE INDIANA SEAL-AMAZON SHEAR RING
COUPLING, FERNCO-STRONGBACK COUPLING,
OR APPROVED EQUAL.

8. STORM LINE PAY LIMIT SHALL BE MEASURED
HORIZONTALLY FROM CENTER TO CENTER OF
MANHOLE.
STREET LIGHT POLE DETAIL

- Non-shrink grout seal between plate base and foundation. Provide 3/8" weep hole for drainage.
- Bolt cover at base and hand hole details.
- 3 deg. rise on "E" nominal mounting height.
- Additional Notes:
  - See Std Plans 7-2 & 7-3 for additional notes.
  - Each bolt furnished with hex nuts & 2 washers.
  - Galvanized pull length anchor bolt (40" overall length with 6" threaded end).
- Pole base and hand hole details:
  - 1/16" dia. bolt cir.
  - 1 1/2" dia. bolt cir.
  - 1 1/2" dia. base.
  - 7/8" dia. shaft dia. + 1/16".
  - 12 gauge HRMS.
  - 1/4" 20 UNC hex head stainless steel screw.
  - Handhole cover, 12 gauge HRMS.
  - 6" std. blk pipe formed from 11-1/2" dia. bolt cir.
  - 3" dia. access hole.
  - Mounting clip, 1/2" dia. base.
- Mast arm connection details:
  - ARM SIMPLEX PLATE
  - GUSSET PLATE
  - POLE SIMPLEX PLATE
  - 2" dia. access hole
  - 3 7/8" dia. plate x 1 3/4" lg.
  - 3/4" dia. hex cap screws.
  - Wall handhole rim.
  - Formed from 6" std. blk pipe.
  - 11-1/2" dia. bolt cir.
  - 1 1/4" 20 UNC hex head stainless steel screw (2 req'd)
  - Handhole cover, 12 gauge HRMS.

STANDARD PLAN 7-1

 ARTERIAL

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NOTE: All poles shall be wall of Walla Walla. NO. 4.1 X 36 X 4 HOOK.
INSTALL JUNCTION BOX IN PLAN LOCATION OR AS DIRECTED BY ENGINEER. SEE WSDOT STANDARD PLANS J-40.10, J-40.20, AND J-40.30.

11-1/2" RADIUS EDGE
BROOM FINISH (TYP.)

NOTES:
1. WHERE THE POLE BASE FALLS OUTSIDE OF THE SIDEWALK AREA, THE TOP OF BASE ELEVATION SHALL BE SET 1" ABOVE EXISTING GROUND SURFACE.
2. WHERE THE POLE BASE FALLS PARTIALLY OR WHOLLY INSIDE THE SIDEWALK, THAT PORTION BORDED BY THE SIDEWALK SHALL BE SEPARATED WITH 3/8" TO 1/2" JOINT MATERIAL PROVIDING A VERTICAL PLANE SEPARATION BETWEEN THE SIDEWALK AND THE BASE.
3. WHEN APPROVED BY THE ENGINEER, THE BASE MAY BE SET BELOW SIDEWALK ELEVATION. A THRU JOINT WILL BE REQUIRED ON EITHER SIDE OF THE VERTICAL PROJECTION OF THE BASE TO CONTROL CRACKING DUE TO MOVEMENT. THE SIDEWALK CONCRETE SHALL BE SEPARATED WITH 3/8" TO 1/2" JOINT MATERIAL PROVIDING A VERTICAL PLANE SEPARATION BETWEEN THE SIDEWALK AND THE BASE.
4. CONDUIT RUNS SHALL TERMINATE IN JUNCTION BOXES. CONDUCTOR WIRE SHALL BE CONTINUOUS FROM BOX TO BOX AND BOX TO POLE. NO SPLICES WILL BE ALLOWED IN CONDUIT RUNS. SPLICES IN JUNCTION BOXES SHALL BE 3M-tm SPLICE KIT. EACH POLE SHALL HAVE A QUICK DISCONNECT FUSE IN A BOX. THE POLE BASES SHALL BE 3-M' LONG AND HAVE A QUICK DISCONNECT FUSE IN A BOX.

CONCRETE SHALL MEET 4000 PSI SPECIFICATION.
8 - #7 REBAR EVENLY SPACED OVER EXCAVATED AREA SHALL BE backfilled with soils in accordance with WSDOT Standard Plans.
5 - #4 REBAR HOOPS +/- 12" ON CENTER WITH SOIL IN ACCORDANCE WITH WSDOT SPEC B-203.2 OR WITH SOIL IN ACCORDANCE WITH BROOM FINISH (TYP.)

8-0'-10" TO 14'-0" AND 4'-0" 4'-0" TO 10'-0"
SEE WSDOT STANDARD PLANS OR AS DIRECTED BY ENGINEER.
INSTALL JUNCTION BOX IN PLAN LOCATION.

MARKER TAPE
SEE STD PLAN 1-10
OVER-EXCAVATED AREA SHALL BE BACKFILLED WITH CDF OR WITH SOIL IN ACCORDANCE WITH WSDOT STD SPEC 8-20.3(2)

DATE: 12/30/2016
APPROVED BY: Walla Walla
WALLA WALLA
STREET LIGHT FOUNDATION PLAN DETAIL
STANDARD PLAN 7-2
4' 0" MIN BURRY DEPTH
18" MIN BURRY DEPTH
LUMINARE BASE - ELEVATION
CONCRETE SHALL MEET 4000 PSI SPECIFICATION.
ALL LUMINAIRES SHALL BE LED COBRA HEAD STYLE FIXTURES. GE EVOLVE LED ROADWAY LIGHTING OR LEOTEK LED GREEN COBRA STREET LIGHT MODELS SHALL BE USED UNLESS AN EQUAL PRODUCT IS APPROVED BY THE CITY ENGINEER.

LUMINAIRES SHALL MEET THE FOLLOWING SPECIFICATIONS:

1) LUMINAIRE SHALL BE SIZED ACCORDING TO THE ILLUMINATION REQUIREMENTS OF THE ROADWAY.
2) TYPE III MEDIUM DISTRIBUTION WITH CUTTOFF OPTICS.
3) LED LIGHT SOURCES SHALL PRODUCE A LIGHT COLOR TEMPERATURE BETWEEN 4,000 TO 5,200 K.
4) ENERGIZED BY 240 VOLTS.
5) LUMINAIRE SHALL INCLUDE "PER" RECEPTACLE AND PHOTOCELL.
6) FINISH SHALL BE BATTLESHIP GRAY.
7) LIGHT SOURCES WILL MEET OR EXCEED THE FOLLOWING EFFICIENCY AND LONGEVITY BENCHMARKS:
   - LUMINOUS EFFICACY: 65 LUMENS/WATT
   - AVERAGE LAMP LIFE: >50,000 HOURS
   - MAINTENANCE FACTOR @ 50,000 HOURS: 0.80
   - LUMINOSITY EFFICIENCY: 65 LUMENS/WATT

PLACEMENT OF STREET LIGHTS SHALL BE DETERMINED BY THE CITY ENGINEER. (SEE STD. PLAN 7-1 FOR PLAN DETAILS)

1) POLE SHAFT - HOT ROLLED COMMERCIAL QUALITY CARBON STEEL CONFORMING TO ASTM DESIGNATION: A595 GRADE A - 55,000 PSI MINIMUM YIELD STRENGTH. LINEAR TAPER - 0.14"/FT.
2) LUMINAIRE ARM SHAFT - 11GA. HOT ROLLED COMMERCIAL QUALITY CARBON STEEL WITH 55,000 PSI MINIMUM YIELD STRENGTH. LINEAR TAPER 0.14"/FT.
3) ARM CONNECTION SIMPLEX PLATES - 36,000 PSI MINIMUM YIELD STRENGTH. GUSSET PLATES 36,000 PSI MINIMUM YIELD STRENGTH. LINEAR TAPER 0.14"/FT.
4) BASE PLATE - 30,000 PSI MINIMUM YIELD STRENGTH.
5) FOUR CAST ANCHOR BOLT COVERS SECURED IN PLACE WITH 3 PLATED SET SCREWS.
6) CAST POLE TOP CAP SECURED IN PLACE WITH STAINLESS STEEL SELF-TAPPING SCREWS.
7) FINISH NOTES:
   - ACCESSORIES TO BE HOT DIP GALVANIZED TO ASTM DESIGNATION: A123.
   - ACCESSORIES TO BE HOT DIP GALVANIZED TO ASTM DESIGNATION: A153.
   - ACCESSORIES TO BE HOT DIP GALVANIZED TO ASTM DESIGNATION: A153.

(SEE STD. PLAN 7-1 FOR PLAN DETAILS)

STREET LIGHTING LUMINAIRE DETAIL

NOTE: APPROVED BY THE CITY ENGINEER.

APPROVED BY THE CITY ENGINEER.

LEOTEK LED GREEN COBRA STREET LIGHT MODELS SHALL BE USED UNLESS AN EQUAL PRODUCT IS APPROVED BY THE CITY ENGINEER.

STANDARD PLAN 7-3
**POLE NOTES**

1. PAINT FOR POLE, BASE, AND SOLID SPUN ALUMINUM TOP SHALL BE DOWNTOWN GREEN IN COLOR. COLOR CODE RAL6005.
2. PAINT SHALL BE PITT TECH DTM (DIRECT TO METAL) GLOSS 100% ACRYLIC 90-377 PAINT. THE DTM PAINT SHALL BE TINTED WITH 896 COLORANTS INSTEAD OF THE NORMAL GLYCOL COLORANTS.

**FIXTURE NOTES**

- SERIES PTGL (POST TOP GLOBE)
- 240 VOLTAGE.
- IES TYPE V OPTICS WITH DARK SKY COMPLIANT OPTICS.
- COLOR TEMPERATURE 4,000K - 5,000K.
- MINIMUM LAMP LIFE (HOURS) >50,000
- MINIMUM LUMINOUS EFFICIENCY: 65 LUMENS / WATT
- LUMENS: 3,000 - 5,000

**PLACEMENT OF STREET LIGHTS SHALL BE DETERMINED BY THE CITY ENGINEER.**

**STANDARD PLAN 7-4**

** glEndnotes:**
NOTES:
1. SEE CURRENT WSDOT STANDARD SPECIFICATION FOR BREAKAWAY BASE CONNECTION DETAILS. DIMENSIONS FOR THE PARTS USED TO ASSEMBLE THE BASE CONNECTIONS ARE INTENTIONALLY NOT SHOWN. BASE CONNECTIONS ARE PATENTED MANUFACTURED PRODUCTS THAT ARE IN COMPLIANCE WITH NCHRP 350 CRASH TEST CRITERIA. THE BREAKAWAY BASE CONNECTION DETAILS ARE ONLY SHOWN ON THIS PLAN TO ILLUSTRATE HOW PARTS ARE ASSEMBLED.

2. SEE CURRENT WSDOT STANDARD PLAN FOR ACCESSIBLE PEDESTRIAN PUSHBUTTON DETAILS.

3. SECURE CONDUCTOR IN ADJACENT JUNCTION BOX PER DETAIL IN CURRENT WSDOT STANDARD PLAN.

4. WHERE SHOWN IN THE PLANS, INSTALL PLAQUE (R10-32P) "PUSH BUTTON FOR 2 SECONDS FOR EXTRA CROSSING TIME" ABOVE THE ACCESSIBLE PEDESTRIAN SIGNAL (APS) ASSEMBLY. ADD 1/4" TO POST HEIGHT TO ACCOMMODATE PLAQUE AND LEAVE A 2" SPACE BETWEEN SIGNS.

5. MOUNTING DISTANCES VARY BETWEEN MANUFACTURERS. SEE MANUFACTURER'S RECOMMENDATIONS FOR MOUNTING INFORMATION.

6. JUNCTION BOX SERVING THE STANDARD SHALL PREFERABLY BE LOCATED 5'-0" (10'-0" MAX.) FROM THE STANDARD.

EXPLAINED VIEW
BREAKAWAY BASE CONNECTOR
(SEE NOTE 1)