Standard Details
Irrigation

IRRIGATION DISTRIBUTION NOTES

1. PIPING SHALL BE INSTALLED WITH A MINIMUM OF 30 INCHES OF COVER ABOVE TOP OF PIPE.

2. IRRIGATION PIPE SHALL MEET THE FOLLOWING REQUIREMENTS:

   DISTRIBUTION MAIN AND SERVICES LOCATED IN BACKYARD EASEMENTS: CLASS 200 PVC, SDR 21 OR BETTER. GLUED JOINTS AND FITTINGS ARE ALLOWED ON PIPE SIZES LESS THAN 4 INCH. TWO PART GLUE AND PRIMER REQUIRED. PVC SCH 80 REQUIRED FOR SERVICES.

   DISTRIBUTION MAIN LOCATED IN CITY STREET RIGHT OF WAY: C900 PVC, DR18

   DISTRIBUTION SERVICES LOCATED IN CITY STREET RIGHT OF WAY: 1 1/4" OR 2" PE TUBING, AWWA C901-96 PE 3408 (CTS)DR9

   ALL PIPE SHALL BE PURPLE IN COLOR OR HAVE PURPLE STRIPE.

3. BACKFILL MATERIAL SHALL CONTAIN NO ROCK, ORGANIC MATTER OR MATERIALS LARGER THAN 6 INCHES. PIPE TO BE BEDDED FULL WIDTH OF TRENCH 4 INCHES BELOW BOTTOM OF PIPE AND 6 INCHES ABOVE TOP OF PIPE WITH APPROVED NATIVE OR IMPORTED BEDDING MATERIAL.

4. IDENTIFICATION TAPE SHALL BE INSTALLED 12 INCHES BELOW FINISHED GRADE OVER ALL PIPES LOCATED WITHIN PUBLIC STREET RIGHT-OF-WAY. TAPE SHALL BE 2 INCHES WIDE PLASTIC COATED ALUMINUM AND SHALL BE CLEARLY MARKED "CAUTION IRRIGATION LINE BURIED BELOW," CONTINUOUSLY ALONG THE LENGTH OF THE TAPE WITH MINIMUM 1/2 INCH LETTERS. TAPE SHALL BE PURPLE IN COLOR.

5. TRACER WIRE SHALL BE SECURED TO ALL UNDERGROUND IRRIGATION PIPING WITH DUCT TAPE AT 10 FOOT INTERVALS. WIRE SHALL BE 12 GAUGE PIPELINE TRACER WIRE (TYPE PTW) SINGLE STRAND. 8"-10" TAILS SHALL BE INSTALLED IN EVERY VALVE BOX. SEE DETAIL.

6. GATE VALVES SHALL HAVE A NON-RISING STEM GATE WITH AN "O" RING SEAL AND RESILIENT SEAL. THE OPERATOR SHALL BE A 2 INCH SQUARE NUT. ALL VALVES SHALL HAVE FLANGE OR MECHANICAL JOINT CONNECTIONS MEETING AWWA C-509 STANDARDS.

7. VALVE BOXES SHALL BE INSTALLED ON ALL VALVES. VALVE BOXES SHALL BE CAST IRON, TWO PIECE SLIP TYPE, PER MATERIAL LIST. VALVE BOX COVER SHALL HAVE "IRR" OR "IRRIGATION" STAMPED ON IT. 9" THICK, 24" DIAMETER CONCRETE COLLARS SHALL BE PLACED AROUND ALL VALVE BOXES LOCATED IN UNPAVED AREAS. SEE STANDARD DETAIL U4.

8. THRUST BLOCKS ARE REQUIRED AT ALL FITTINGS, EXCEPT TEES LEADING TO SINGLE SERVICE RISERS.

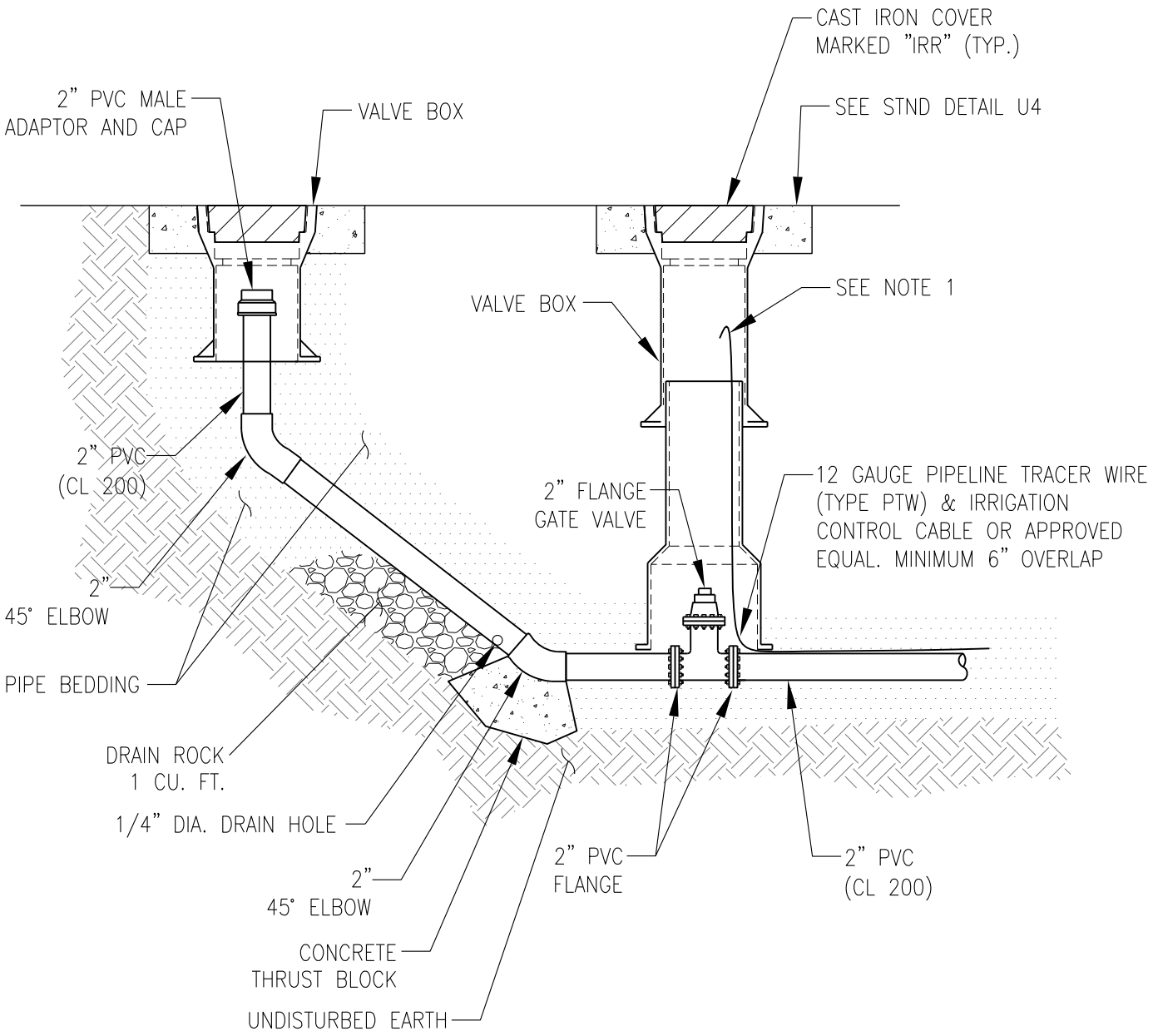
9. ALL FITTINGS 3 INCHES AND BELOW SHALL BE SOLVENT WELDED. ALL FITTINGS 4 INCHES AND ABOVE SHALL BE CAST IRON MEETING AWWA STANDARDS.

10. IRRIGATION SYSTEM SHALL BE PRESSURE TESTED AT 100 PSI, AND HELD FOR ONE HOUR WITH NO PRESSURE LOSS.

Richland Washington

RESIDENTIAL IRRIGATION DISTRIBUTION NOTES

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 12.2017
DRAWN BY: LD	DWG: IRR1
CAD FILE: 2013_IRR1_12_2017	



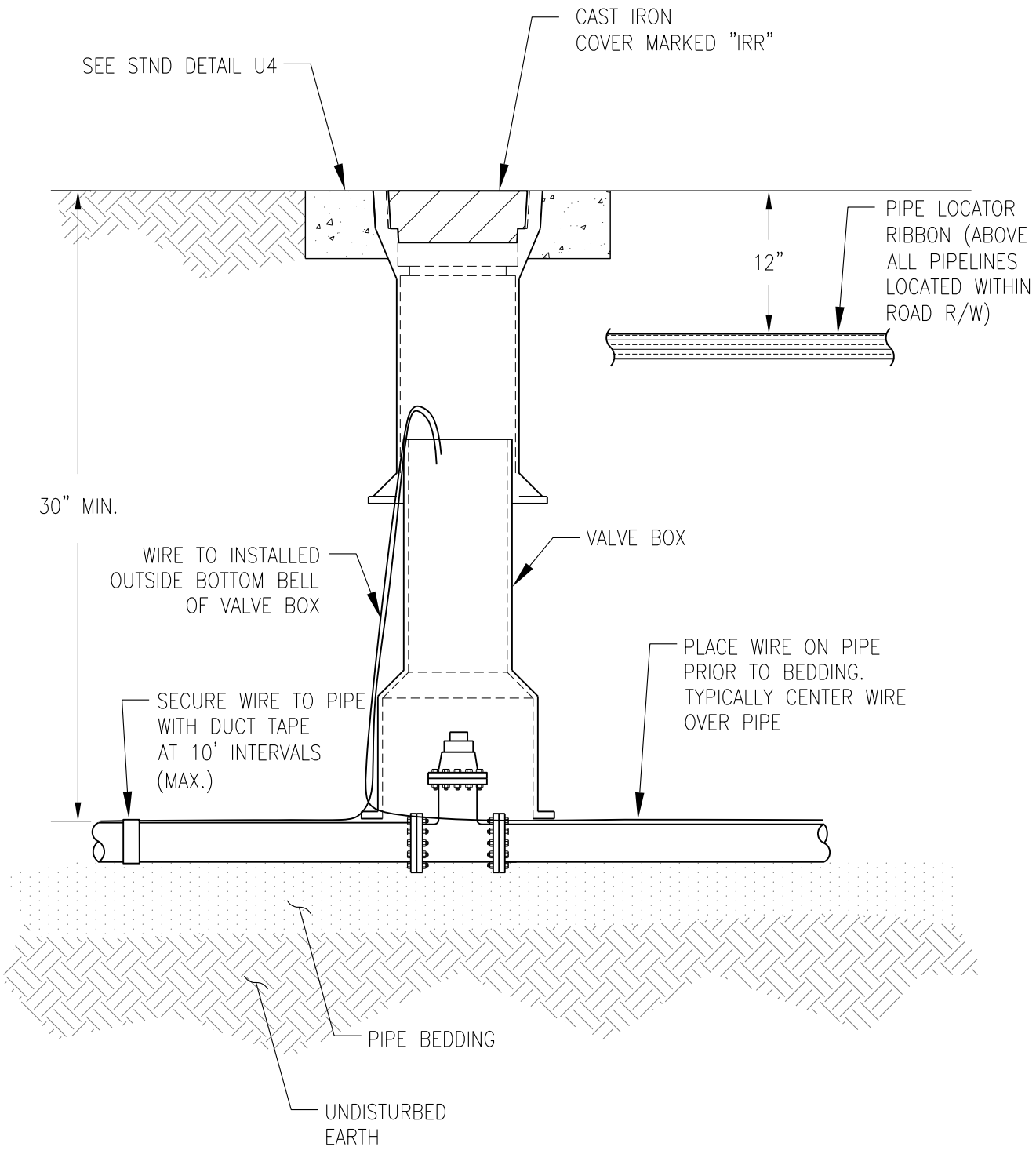
ELEVATION

NOTE:

1. INSTALL 8"–10" TAIL PIECE OF TRACER WIRE INSIDE EVERY VALVE BOX. IF THE DISTANCE BETWEEN VALVE BOXES OR RISERS IS GREATER THAN 300'. INSTALL CARSONITE WATER SERVICE MARKER WITH TRACER WIRE.

2" IRRIGATION DISTRIBUTION BLOW–OFF

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 12.2010
DRAWN BY: SC NYBY	DWG: IRR2
CAD FILE: 2012_IRR2_12_2010	

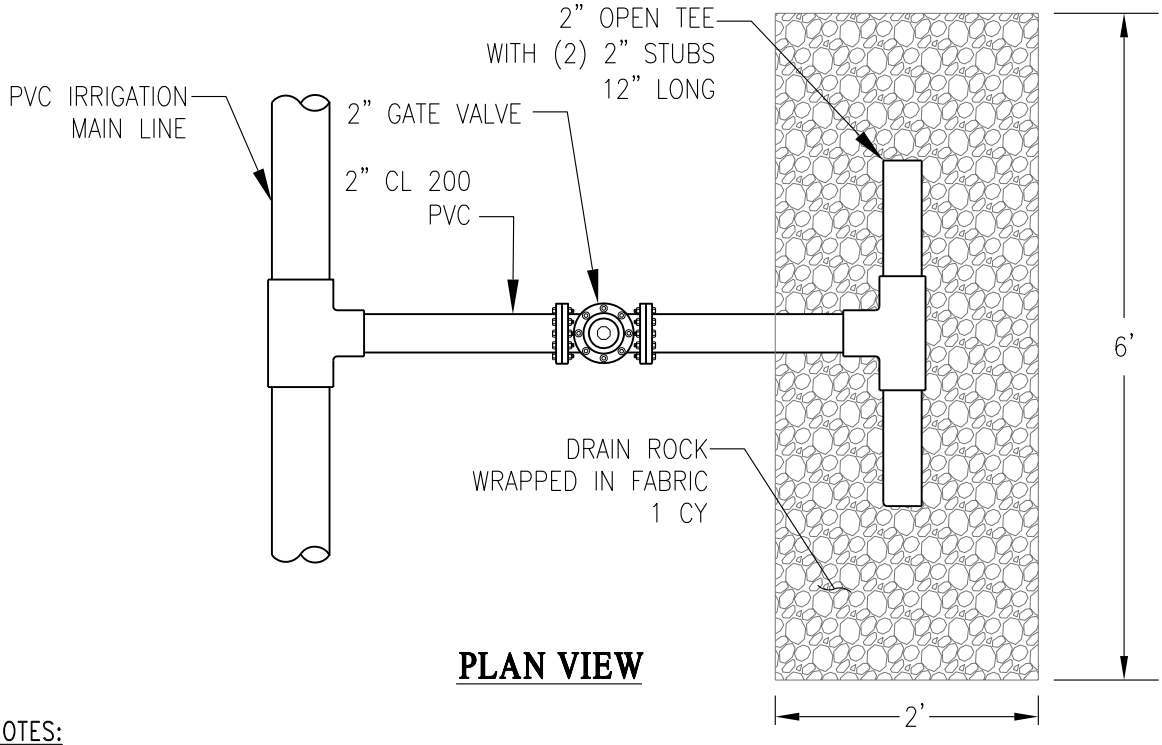


ELEVATION

Richland Washington

IRRIGATION DISTRIBUTION VALVE ASSEMBLY

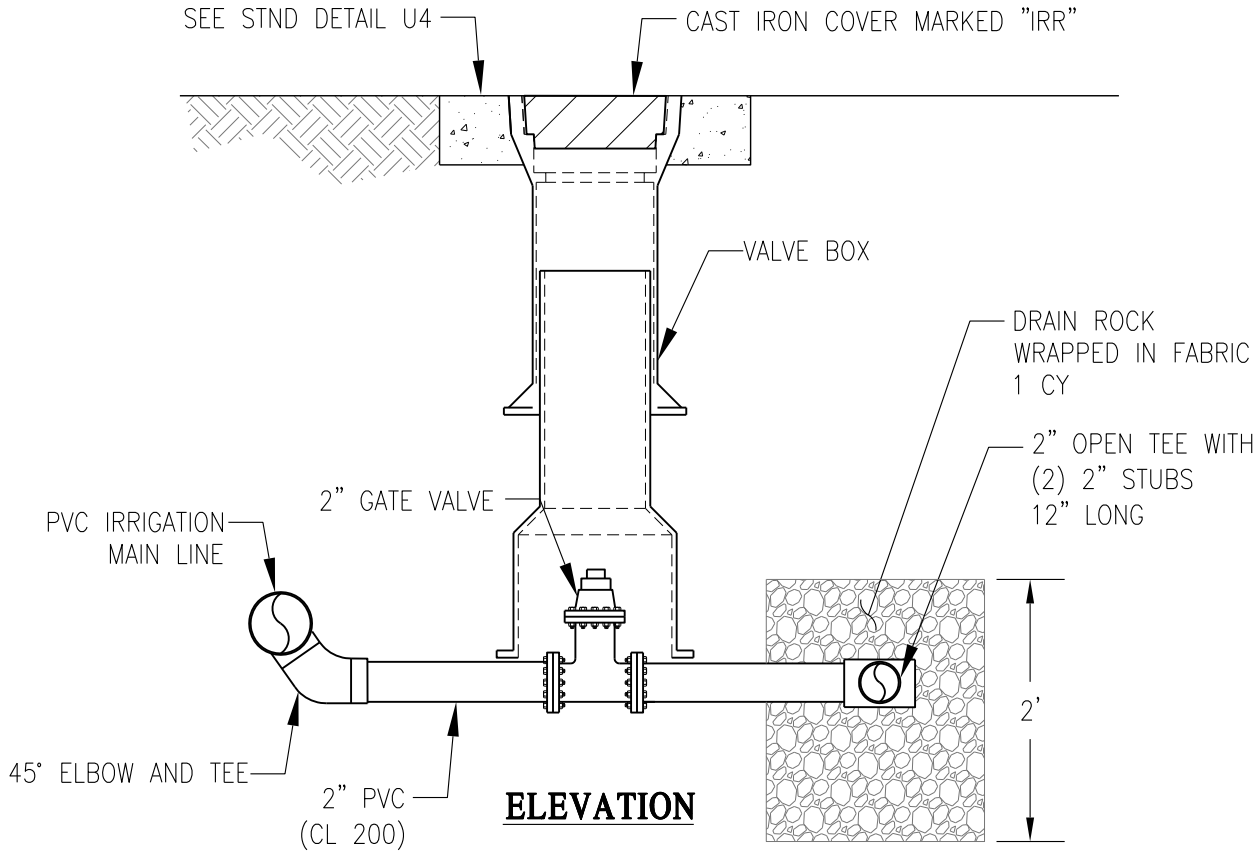
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 12.2010
DRAWN BY: SC NYBY	DWG: IRR3
CAD FILE: 2012_IRR3_12_2010	



PLAN VIEW

NOTES:

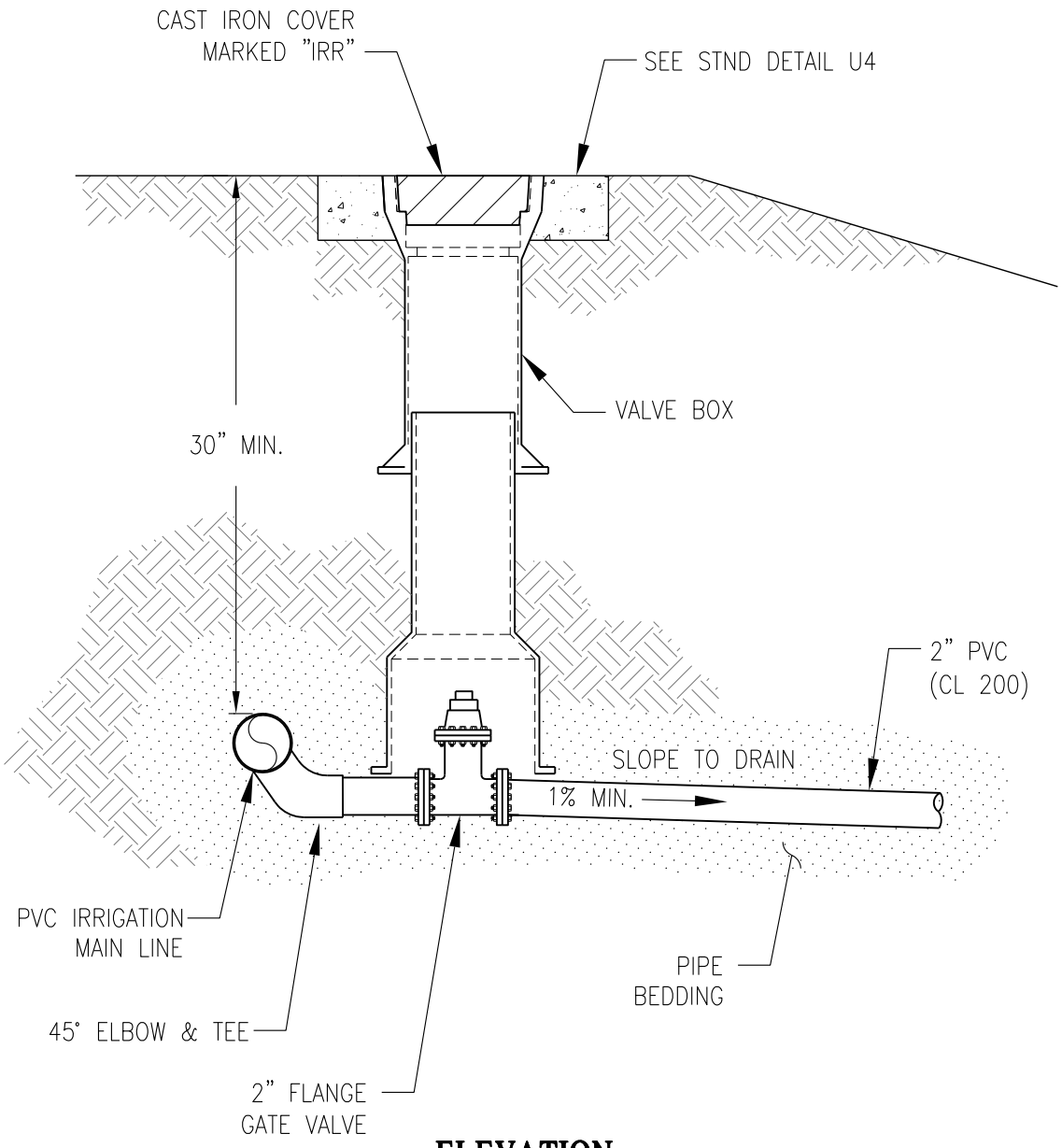
1. USE WHEN NOT DRAINED TO STORM DRAIN SYSTEM.
2. INSTALL DRAIN AT THE LOW POINT OF THE SYSTEM.



ELEVATION

2" IRRIGATION DISTRIBUTION DRAIN

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 12.2010
DRAWN BY: SC NYBY	DWG: IRR4
CAD FILE: 2012_IRR4_12_2010	



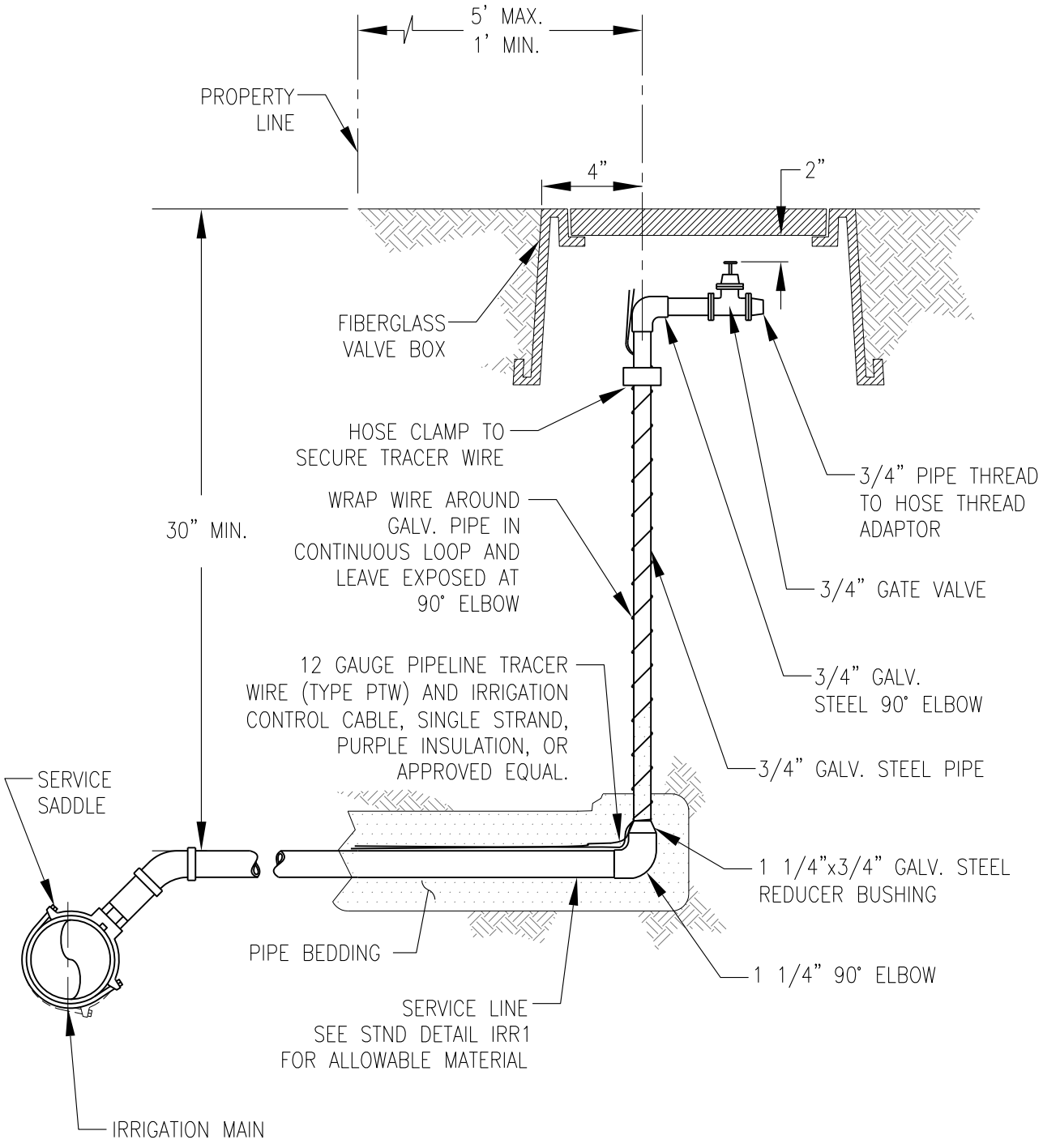
ELEVATION

NOTE:

1. PENETRATION INTO THE STORM DRAIN SYSTEM SHALL BE HIGHER THAN LOWEST INVERT ELEVATION OF THE STRUCTURE. CUT FLUSH INSIDE BARREL AND SAND COLLAR SHALL BE USED. THE ENTRANCE HOLE SHALL BE SAWCUT, AND THE SAND COLLAR SHALL BE GROUTED INSIDE AND OUT.

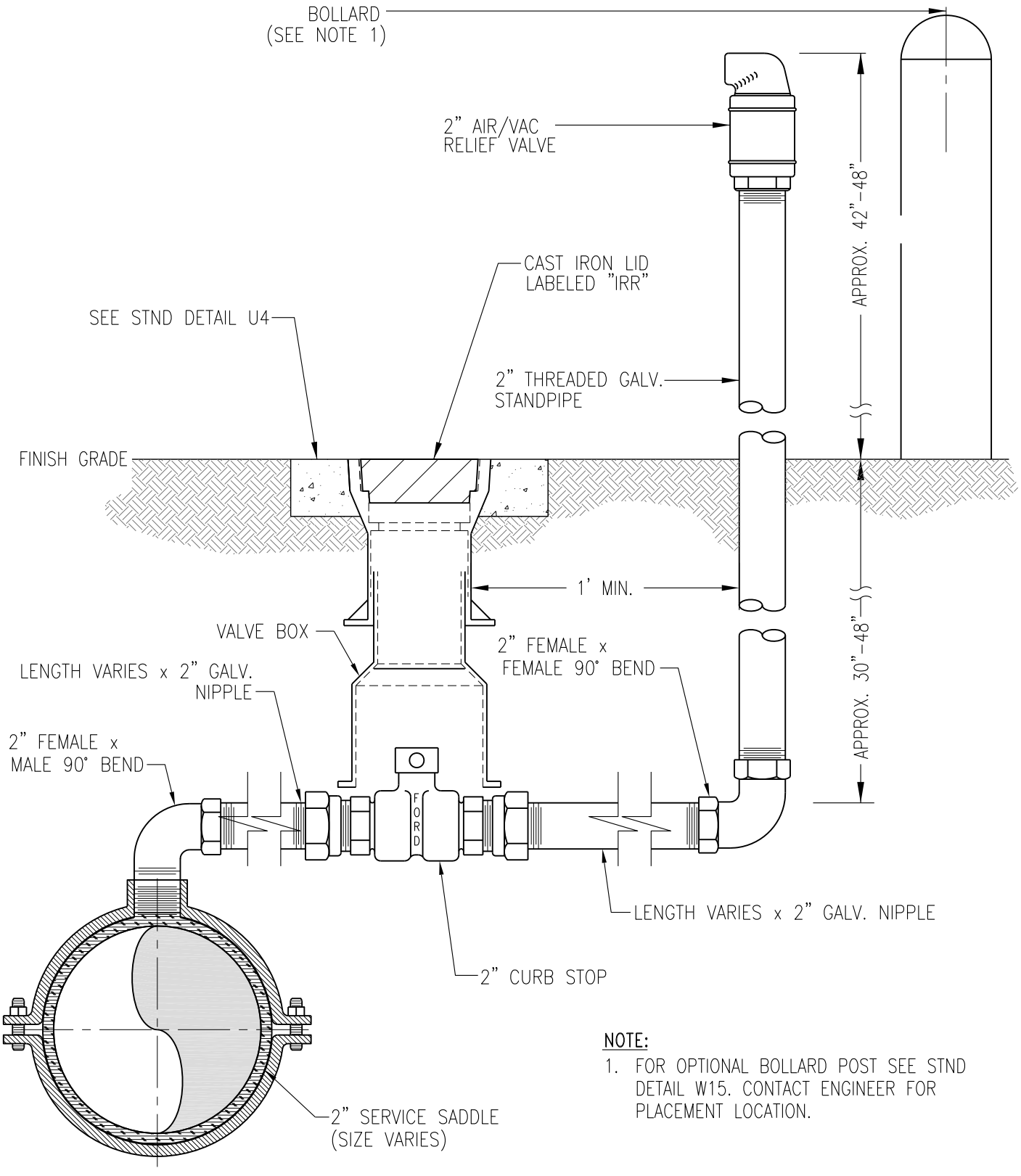
2" IRRIGATION DISTRIBUTION DRAIN (TO STORM DRAIN SYSTEM)

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 12.2010
DRAWN BY: SC NYBY	DWG: IRR5
CAD FILE: 2012_IRR5_12_2010	



IRRIGATION DISTRIBUTION SERVICE RISER

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 11.15
DRAWN BY: LD	DWG: IRR6
CAD FILE: 2013_IRR6_11_2015	



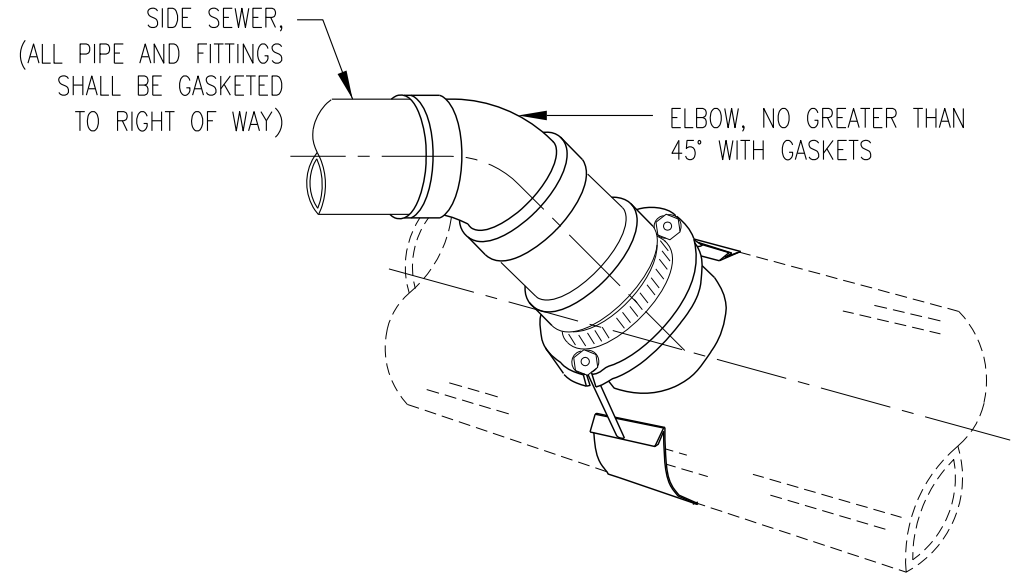
NOTE:

1. FOR OPTIONAL BOLLARD POST SEE STND DETAIL W15. CONTACT ENGINEER FOR PLACEMENT LOCATION.

IRRIGATION DISTRIBUTION AIR/VAC CONNECTION

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 11.15
DRAWN BY: LD	DWG: IRR7
CAD FILE: 2012_IRR7_11_2015	

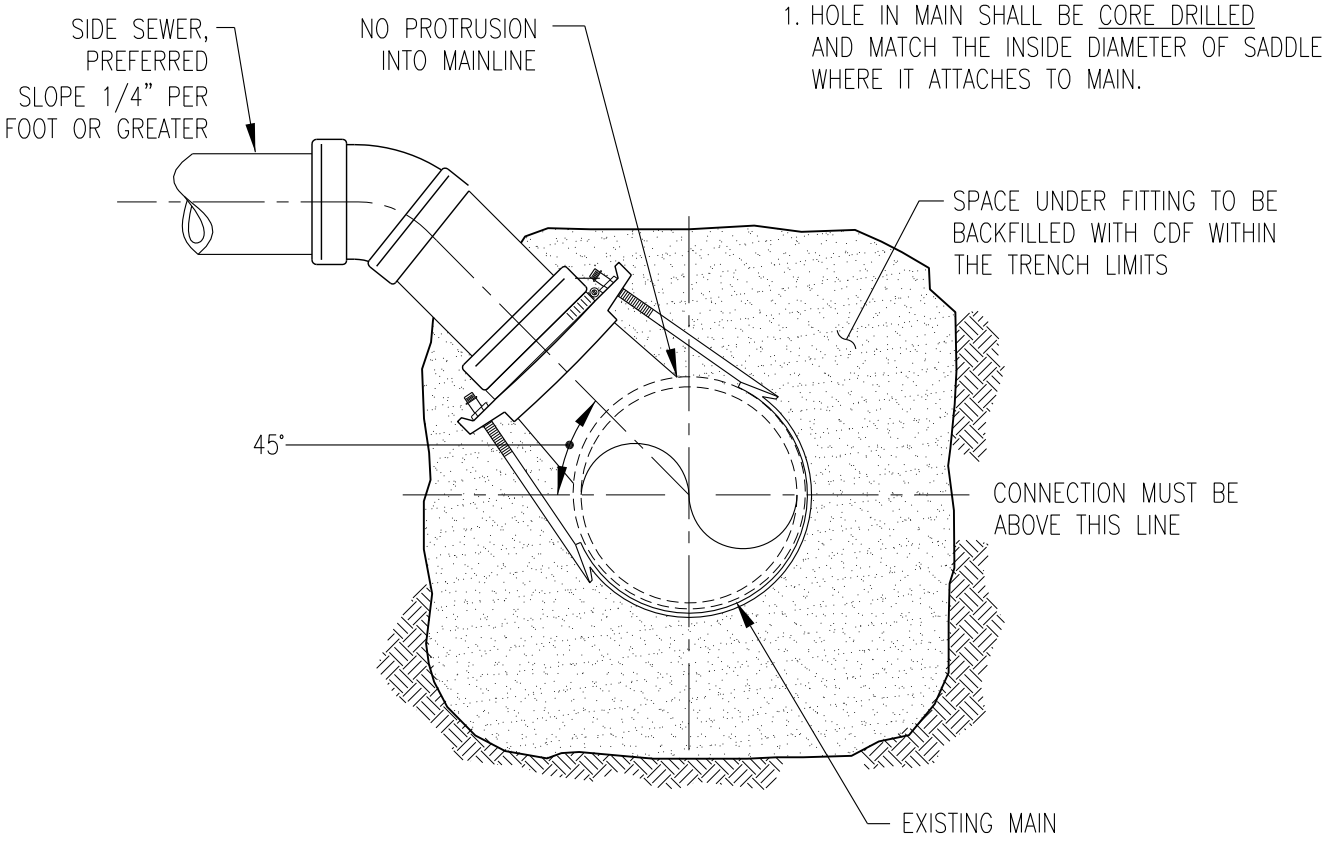
Standard Details
Sewer & Stormwater



ISOMETRIC

NOTE:

1. HOLE IN MAIN SHALL BE CORE DRILLED AND MATCH THE INSIDE DIAMETER OF SADDLE WHERE IT ATTACHES TO MAIN.

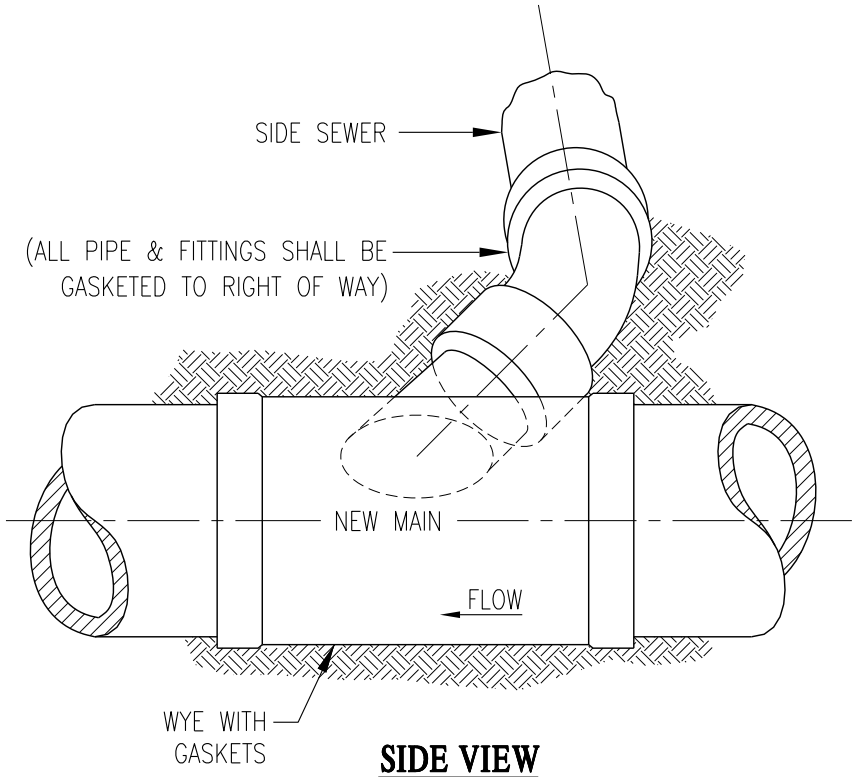


SECTION

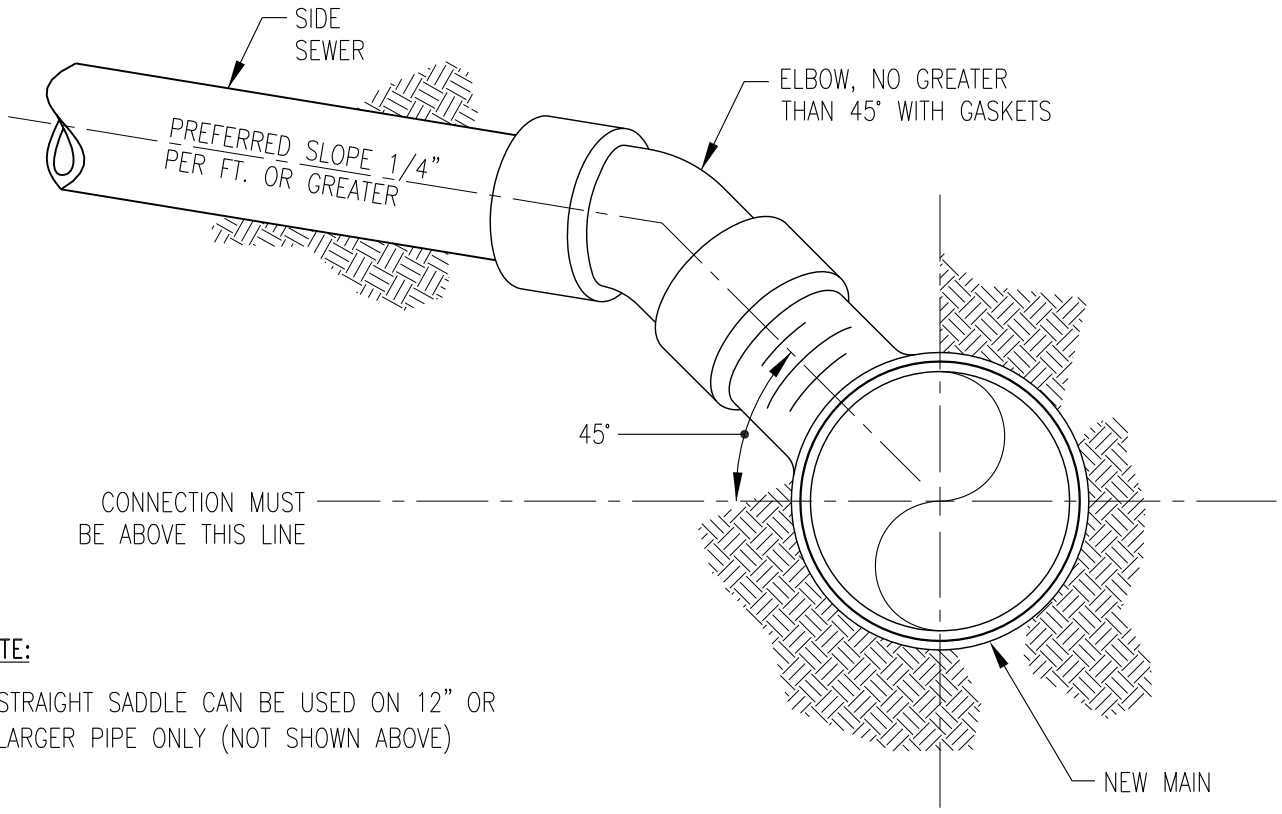
Richland Washington

SEWER SERVICE SADDLE CONNECTION TO EXISTING MAIN

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 02.2012
DRAWN BY: JKS	DWG: S1
CAD FILE: 2012_S1_02_2012	



SIDE VIEW



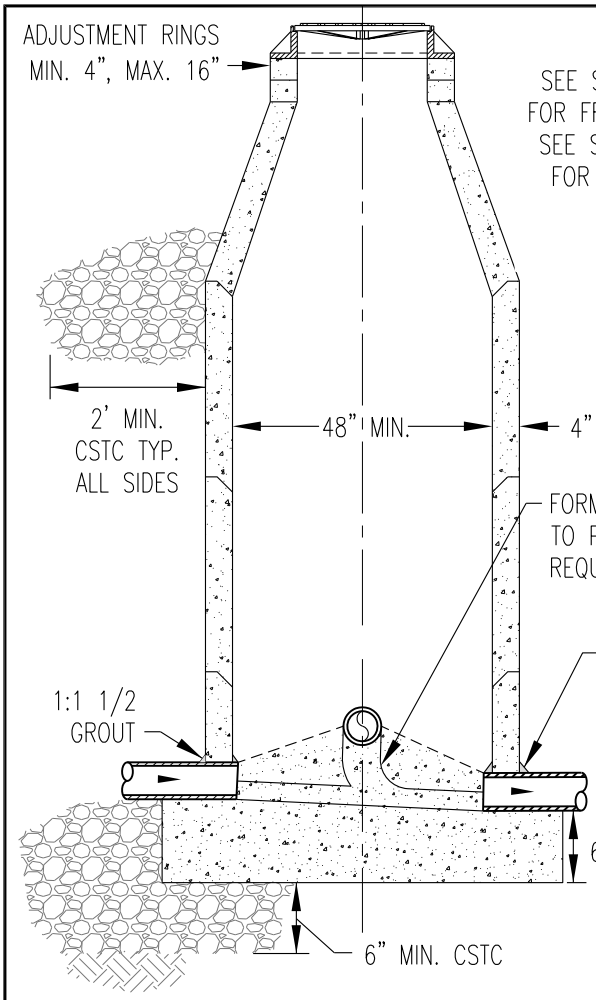
SECTION

NOTE:

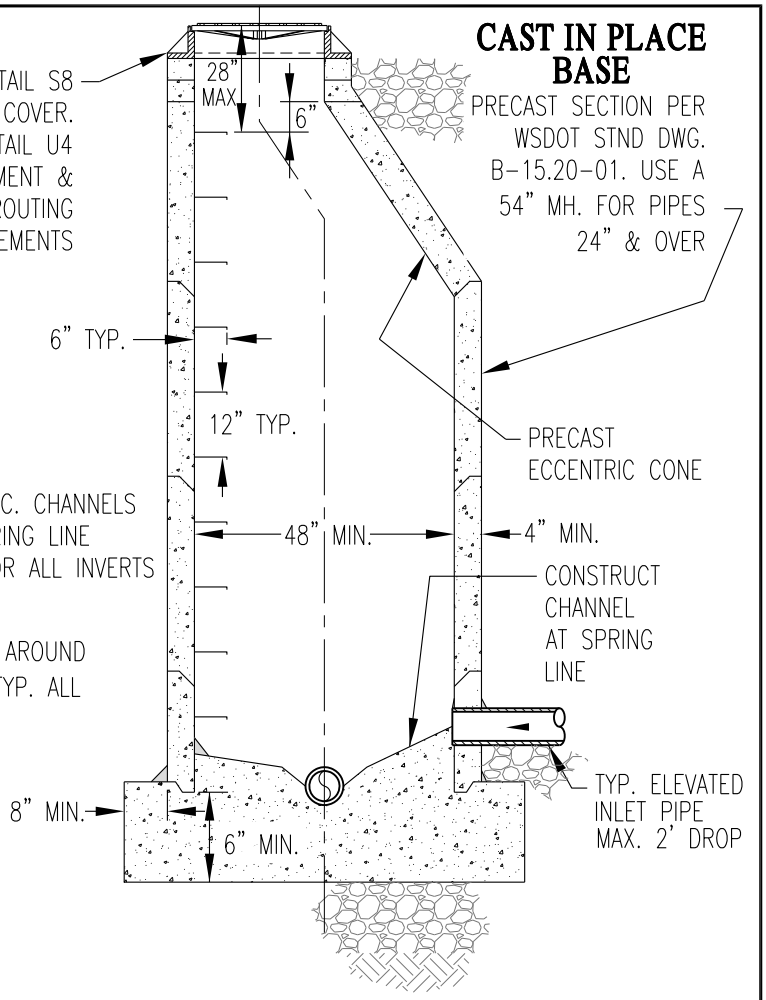
1. STRAIGHT SADDLE CAN BE USED ON 12" OR LARGER PIPE ONLY (NOT SHOWN ABOVE)

SEWER WYE CONNECTION TO NEW MAIN

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 02.2012
DRAWN BY: JKS	DWG: S2
CAD FILE: 2012_S2_02_2012	



SECTION A-A



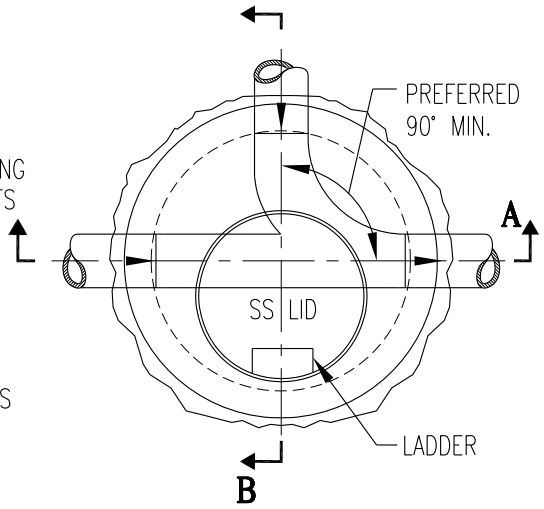
SECTION B-B

CAST IN PLACE BASE

PRECAST SECTION PER WSDOT STND DWG. B-15.20-01. USE A 54" MH. FOR PIPES 24" & OVER

NOTES:

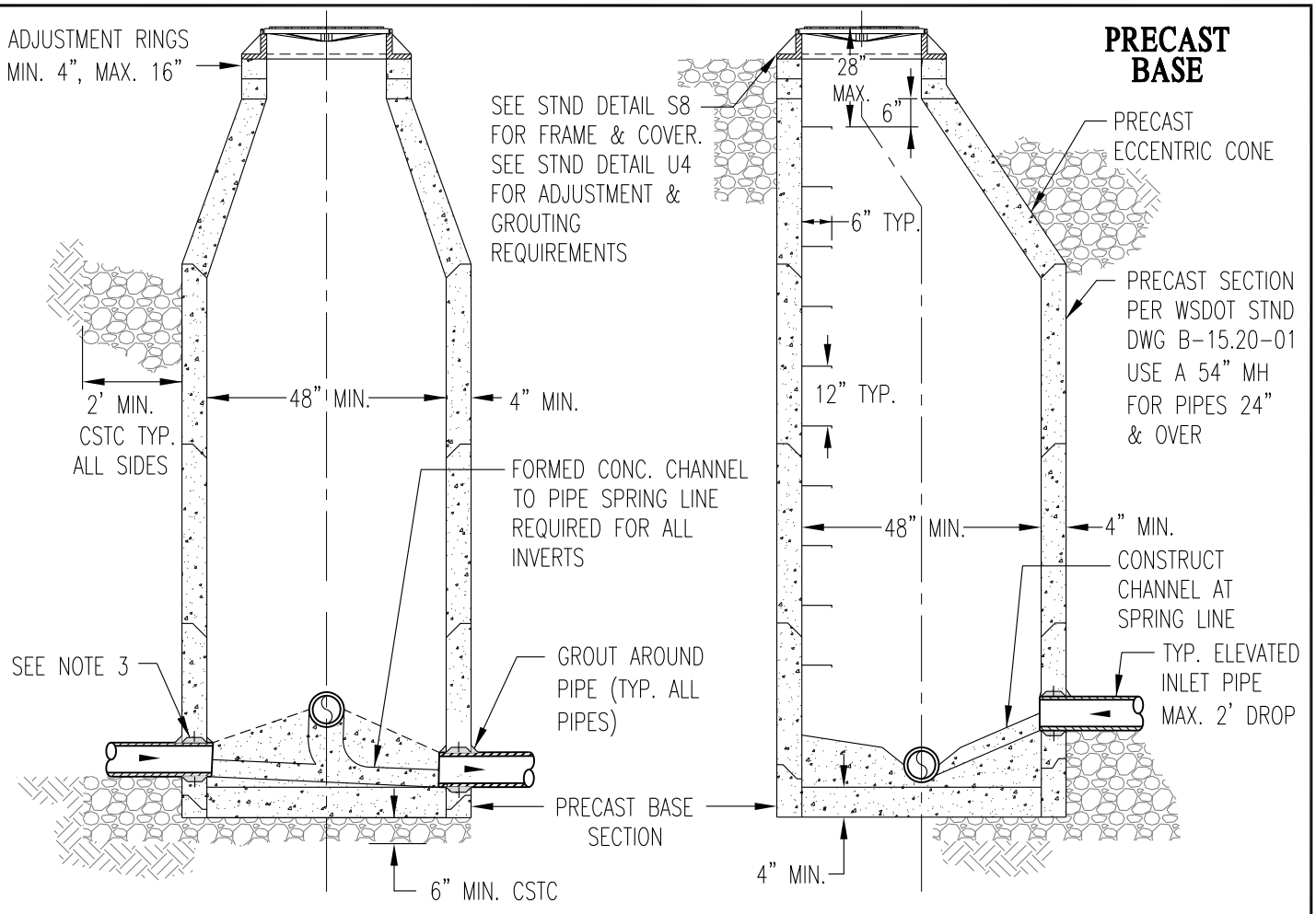
1. FOR NEW MAINLINE PIPES: PROVIDE A MINIMUM 0.10 FOOT IN-OUT DROP FOR STRAIGHT RUN AND 0.20 FOOT IN-OUT DROP FOR ANGLE RUNS. PIPES OF DIFFERENT SIZES SHALL ALIGN CROWN TO CROWN.
2. IN GROUNDWATER INSTALLATIONS: ALL MANHOLE JOINTS SHALL BE MADE USING A CONTINUOUS FLEXIBLE RUBBER MANHOLE GASKET JOINT. ALL HOLES JOINTS CONNECTIONS SHALL BE SEALED WITH GROUT ON THE OUTSIDE.
3. A SHALLOW MANHOLE SHALL BE USED WHEN IT'S DEPTH IS 5.5' OR LESS FROM INVERT TO TOP OF RIM.
4. STEPS SHALL BE PLACED OVER BENCH, NOT OBSTRUCTING ANY CHANNEL. MANHOLE STEPS SHALL CONFORM TO AASHTO M199 AND MEET ALL WISHA REQUIREMENTS. STEPS REQUIRED ON SANITARY SEWER ONLY. IF BENCH LESS THAN 1' IN WIDTH, PLACE LADDER OVER DOWNSTREAM PIPE.
5. CHANNEL INTERSECTIONS SHALL BE SMOOTH AND DIRECTED DOWNSTREAM.



PLAN

STANDARD MANHOLE (W/CAST IN PLACE BASE)

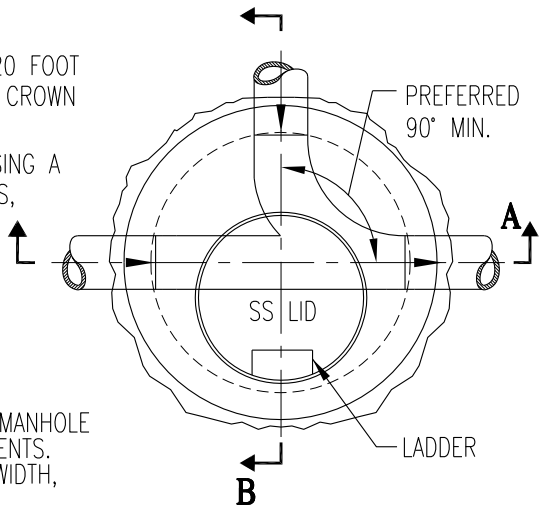
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 04.16
DRAWN BY: LD	DWG: S3
CAD FILE: 2013_S3_04_2016	



SECTION A-A **SECTION B-B**

NOTES:

1. PROVIDE A MINIMUM 0.10 FOOT IN-OUT DROP FOR STRAIGHT RUN AND 0.20 FOOT IN-OUT DROP FOR ANGLE RUNS. PIPES OF DIFFERENT SIZES SHALL ALIGN CROWN TO CROWN.
2. IN GROUNDWATER INSTALLATIONS: ALL MANHOLE JOINTS SHALL BE MADE USING A CONTINUOUS FLEXIBLE RUBBER MANHOLE GASKET JOINT. ALL HOLES, JOINTS, CONNECTIONS SHALL BE SEALED WITH GROUT ON THE OUTSIDE.
3. ALL NEW PRECAST MANHOLE SECTIONS SHALL BE PROVIDED WITH CAST-IN FLEXIBLE PIPE CONNECTORS.
   NO PIPE PENETRATIONS ALLOWED INTO PRECAST CONE SECTIONS.
4. A SHALLOW MANHOLE SHALL BE USED WHEN IT'S DEPTH IS 5.5' OR LESS FROM INVERT TO TOP OF RIM.
5. STEPS SHALL BE PLACED OVER BENCH, NOT OBSTRUCTING ANY CHANNEL. MANHOLE STEPS SHALL CONFORM TO AASHTO M199 AND MEET ALL WISHA REQUIREMENTS. STEPS REQUIRED ON SANITARY SEWER ONLY. IF BENCH LESS THAN 1' IN WIDTH, PLACE LADDER OVER DOWNSTREAM PIPE.
6. CHANNEL INTERSECTIONS SHALL BE SMOOTH AND DIRECTED DOWNSTREAM.

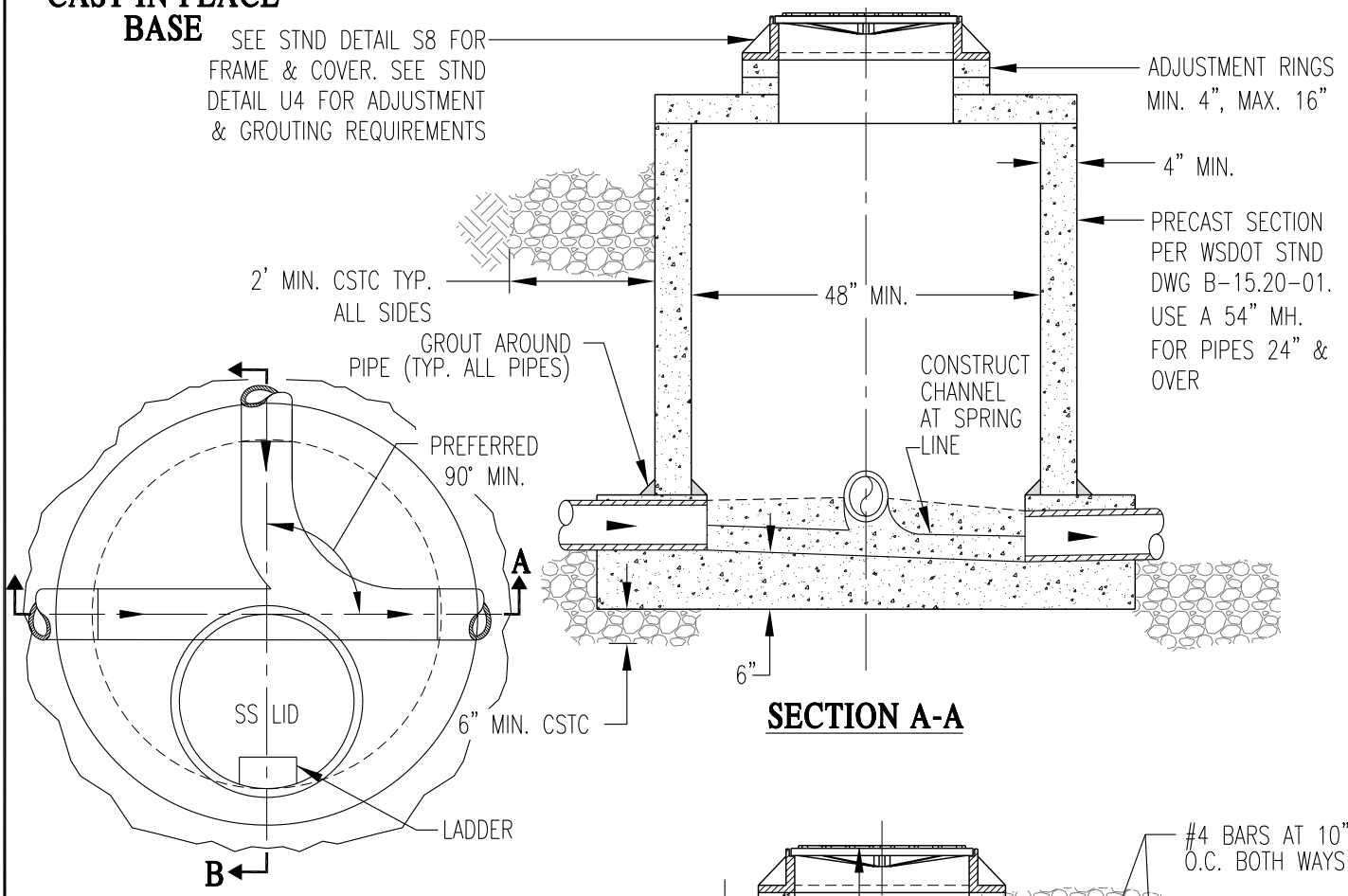


PLAN

STANDARD MANHOLE (W/PRECAST BASE)

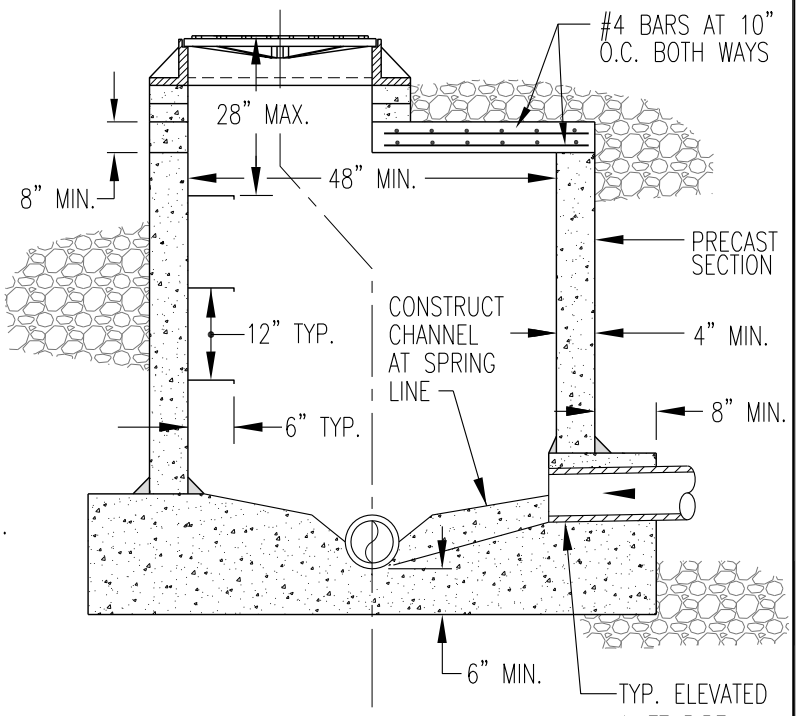
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 07.17
DRAWN BY: LD	DWG: S4
CAD FILE: 2014_S4_07_2017	

CAST IN PLACE BASE



SECTION A-A

PLAN



SECTION B-B

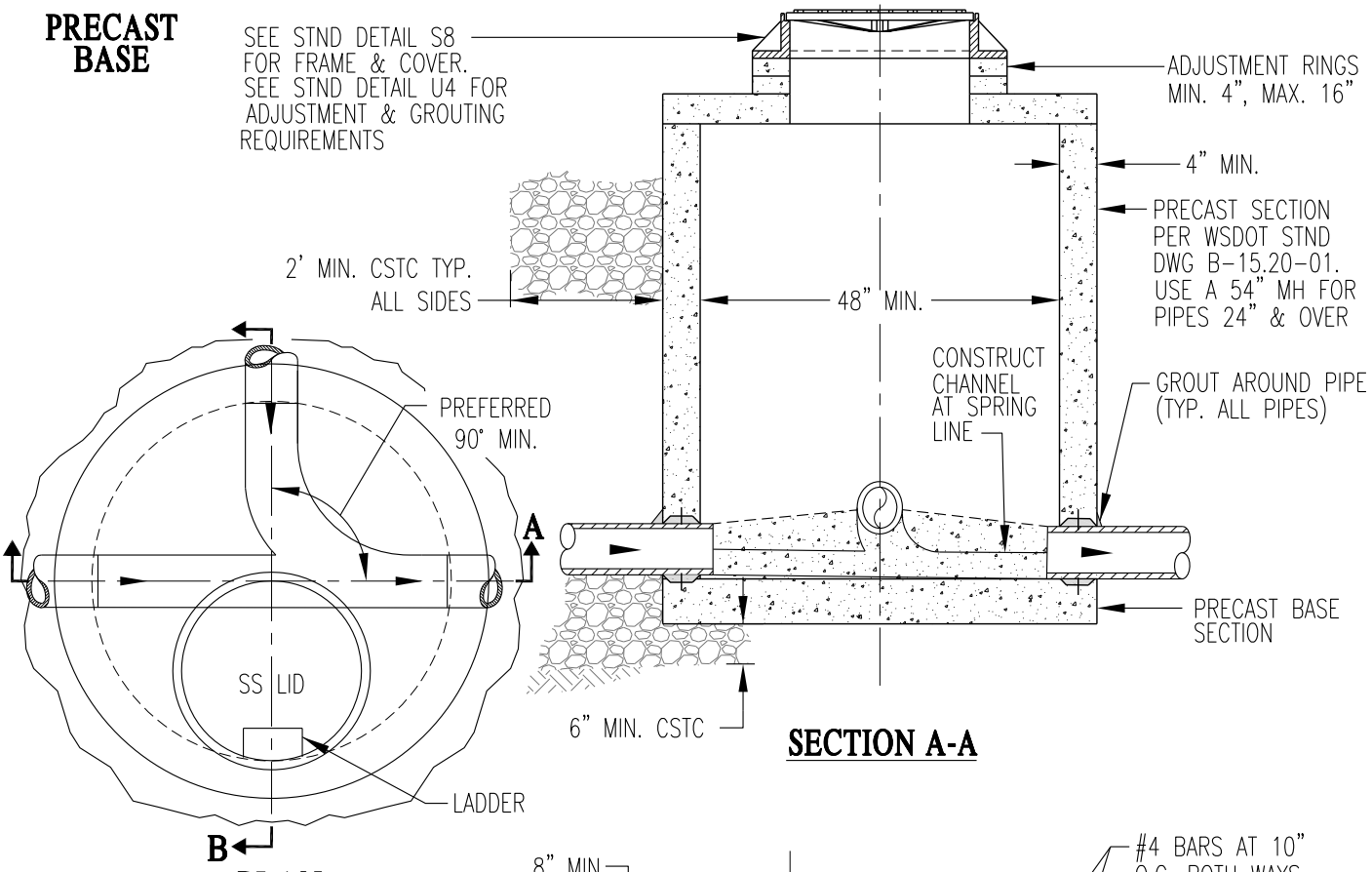
NOTES:

1. FOR NEW MAINLINE PIPES: PROVIDE A MINIMUM 0.10 FOOT IN-OUT DROP FOR STRAIGHT RUNS AND 0.20 FOOT IN-OUT DROP FOR ANGLE RUNS. PIPES OF DIFFERENT SIZES SHALL ALIGN CROWN TO CROWN.
2. IN GROUNDWATER INSTALLATIONS: ALL MANHOLE JOINTS SHALL BE MADE USING A CONTINUOUS FLEXIBLE RUBBER MANHOLE GASKET JOINT. ALL HOLES, JOINTS, CONNECTIONS SHALL BE SEALED WITH GROUT ON THE OUTSIDE.
3. A STANDARD MANHOLE SHALL BE USED WHEN IT'S DEPTH IS 5.5' OR MORE FROM INVERT TO TOP OF RIM.
4. STEPS SHALL BE PLACED OVER BENCH, NOT OBSTRUCTING ANY CHANNEL. MANHOLE STEPS SHALL CONFORM TO AASHTO M199 AND MEET ALL WISHA REQUIREMENTS. STEPS REQUIRED ON SANITARY SEWER ONLY. IF BENCH LESS THAN 1' IN WIDTH, PLACE LADDER OVER DOWNSTREAM PIPE.
5. CHANNEL INTERSECTIONS SHALL BE SMOOTH AND DIRECTED DOWNSTREAM.

SHALLOW MANHOLE (W/CAST IN PLACE BASE)

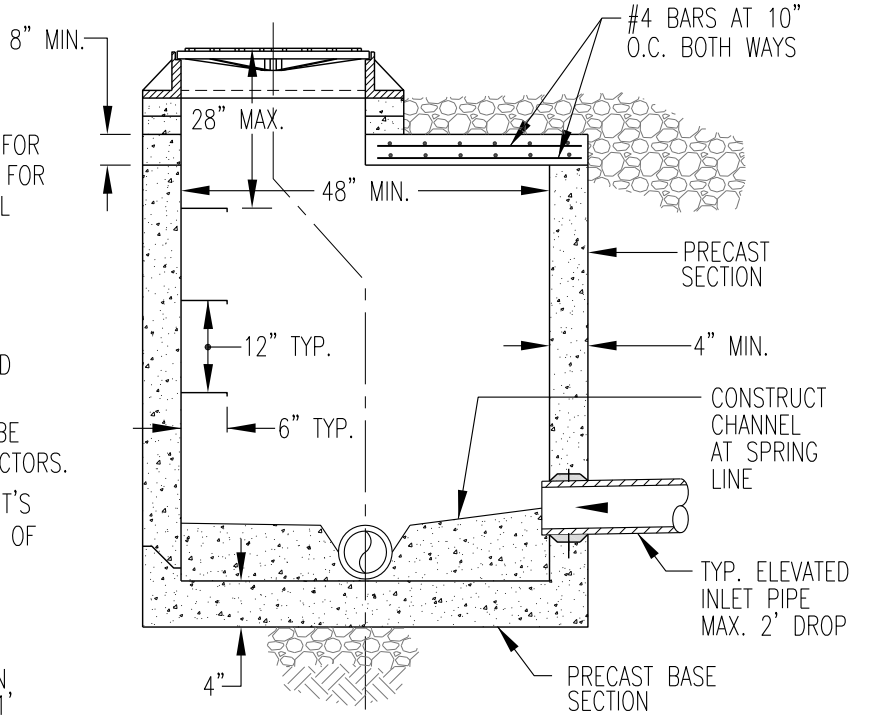
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 04.16
DRAWN BY: LD	DWG: S5
CAD FILE: 2013_S5_04_2016	

PRECAST BASE



PLAN

SECTION A-A



SECTION B-B

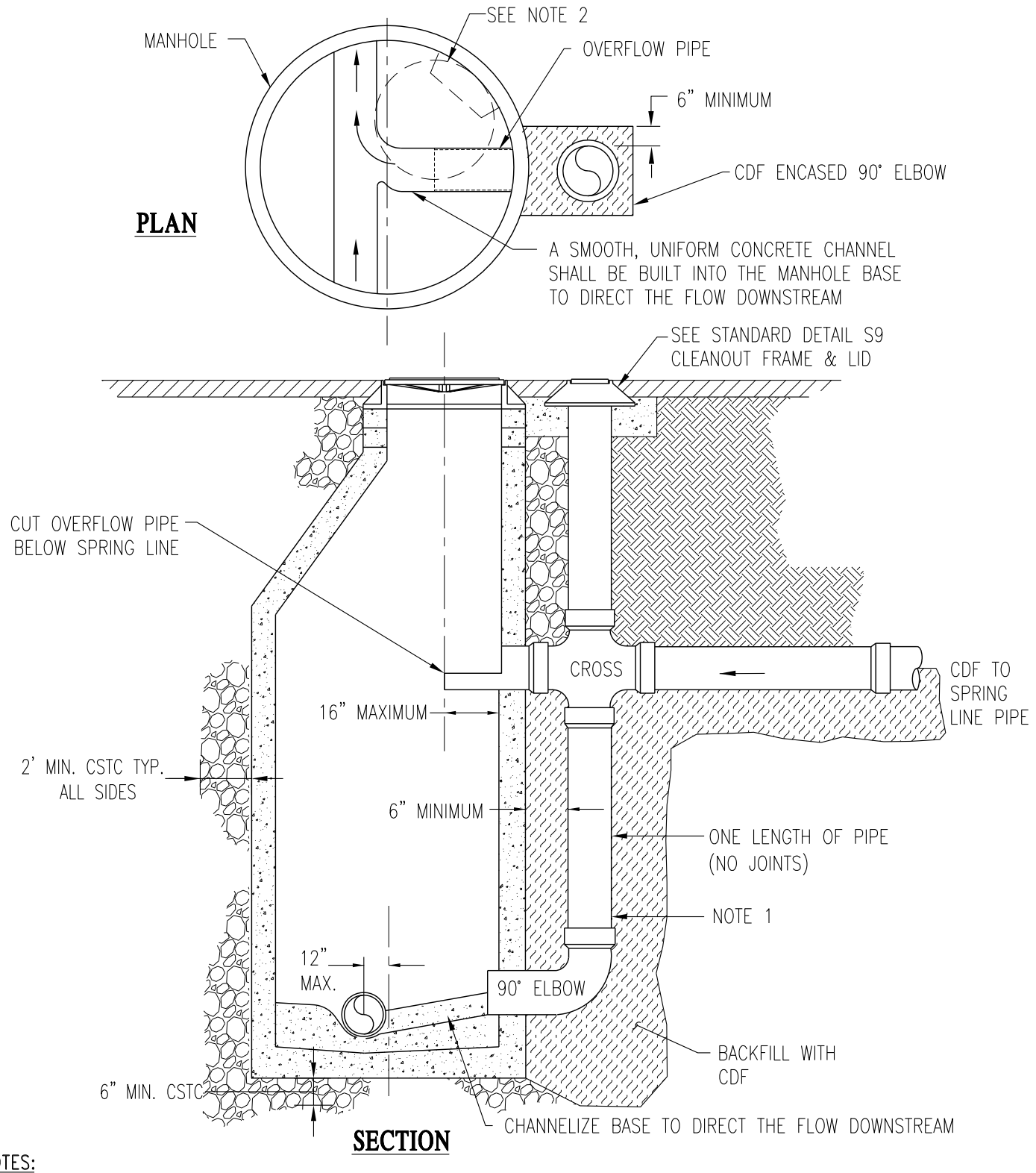
NOTES:

1. PROVIDE A MINIMUM 0.10 FOOT IN-OUT DROP FOR STRAIGHT RUNS AND 0.20 FOOT IN-OUT DROP FOR ANGLE RUNS. PIPES OF DIFFERENT SIZES SHALL ALIGN CROWN TO CROWN.
2. IN GROUNDWATER INSTALLATIONS: ALL MANHOLE JOINTS SHALL BE MADE USING A CONTINUOUS FLEXIBLE RUBBER MANHOLE GASKET JOINT. ALL HOLES, JOINTS, CONNECTIONS SHALL BE SEALED WITH GROUT ON THE OUTSIDE.
3. ALL NEW PRECAST MANHOLE SECTIONS SHALL BE PROVIDED WITH CAST-IN FLEXIBLE PIPE CONNECTORS.
4. A STANDARD MANHOLE SHALL BE USED WHEN IT'S DEPTH IS 5.5' OR MORE FROM INVERT TO TOP OF RIM.
5. STEPS SHALL BE PLACED OVER BENCH, NOT OBSTRUCTING ANY CHANNEL. MANHOLE STEPS SHALL CONFORM TO AASHTO M199 AND MEET ALL WISHA REQUIREMENTS. STEPS REQUIRED ON SANITARY SEWER ONLY. IF BENCH LESS THAN 1' IN WIDTH, PLACE LADDER OVER DOWNSTREAM PIPE.
6. CHANNEL INTERSECTIONS SHALL BE SMOOTH AND DIRECTED DOWNSTREAM.

Richland Washington

SHALLOW MANHOLE (W/PRECAST BASE)

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 07.17
DRAWN BY: LD	DWG: S6
CAD FILE: 2013_S6_07_2017	



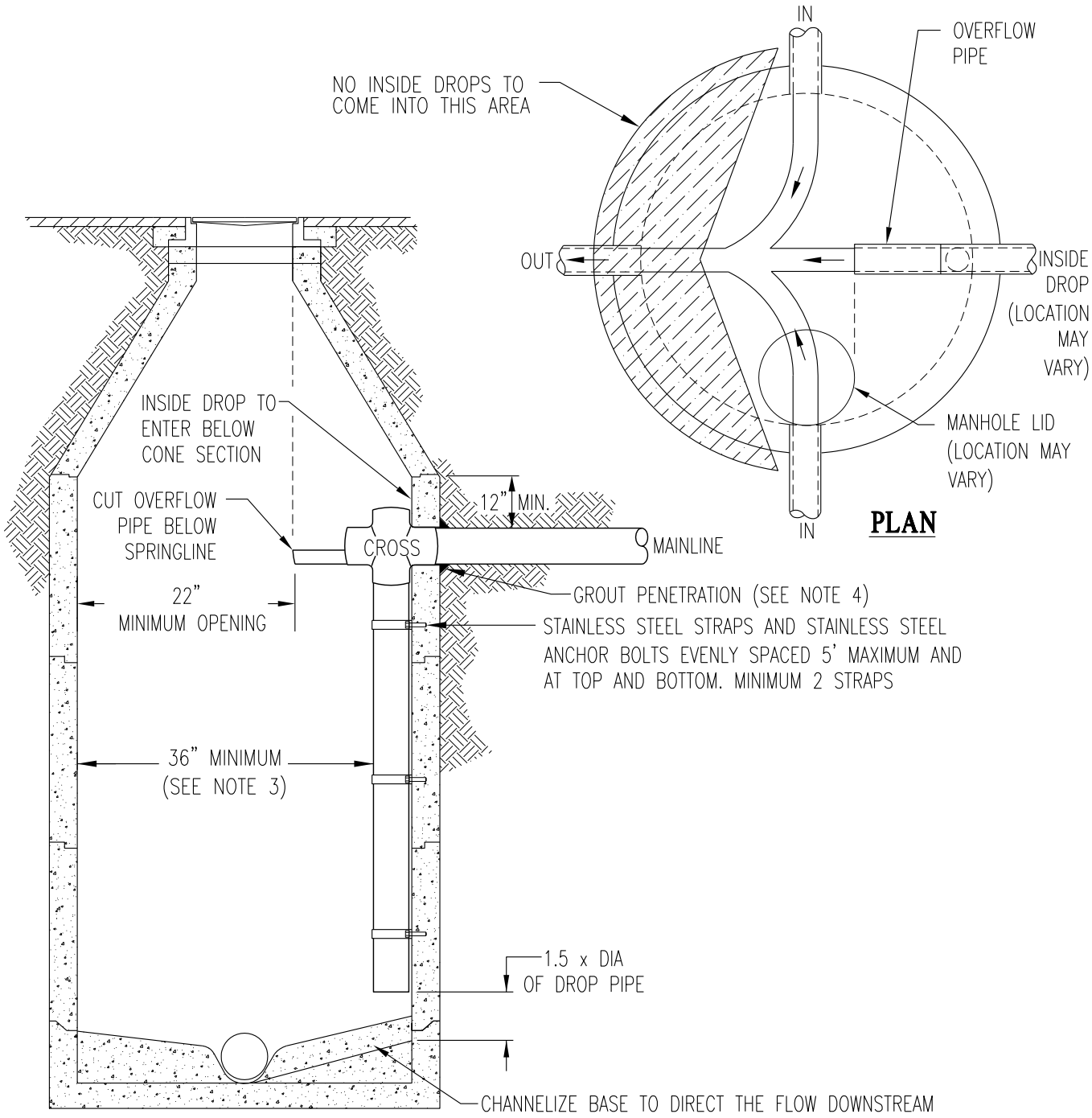
NOTES:

1. DROP CONNECTION PIPE DIAMETER AND FITTINGS SHALL BE EQUAL TO OR GREATER THAN THE DIAMETER OF THE SEWER. DROP CONNECTION PIPE SHALL BE ASTM F679-SDR26(PS115).
2. ROTATE FRAME, COVER, CONE AND LADDER SO THAT IS LOCATED 45° DOWNSTREAM FROM THE DROP CONNECTION.
3. OFFSET MAINLINE (NON-DROP CONNECTION) PIPE IN MANHOLE BY UP TO 12" FROM CENTER LINE.

Richland Washington

SEWER OUTSIDE DROP CONNECTION IN NEW MANHOLES

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 05.14
DRAWN BY: LD	DWG: S6A
CAD FILE: 2014_S6A_05_2014	



NOTES:

1. DROP CONNECTION PIPE DIAMETER AND FITTINGS SHALL BE EQUAL TO OR GREATER THAN THE DIAMETER OF THE SEWER SERVICE.
2. THE LENGTH OF THE OVERFLOW PIPE VARIES (DEPENDING ON THE MANHOLE LID LOCATION) TO ALLOW ACCESS FROM THE MANHOLE LID.
3. SPECIAL PERMISSION FROM CITY ENGINEER FOR INSTALLATIONS RESULTING IN LESS THAN 36" CLEARANCE.
4. THE ENTRANCE HOLE SHALL BE CORE DRILLED TO A DIAMETER LARGE ENOUGH THAT THE LEG OF THE CROSS WILL FIT THROUGH THE MANHOLE WALL AND SHALL BE GROUTED INSIDE AND OUT.
5. CHANNELIZE BASE TO DIRECT THE FLOW DOWNSTREAM FROM THE DROP PIPE TO THE EXISTING CHANNEL.

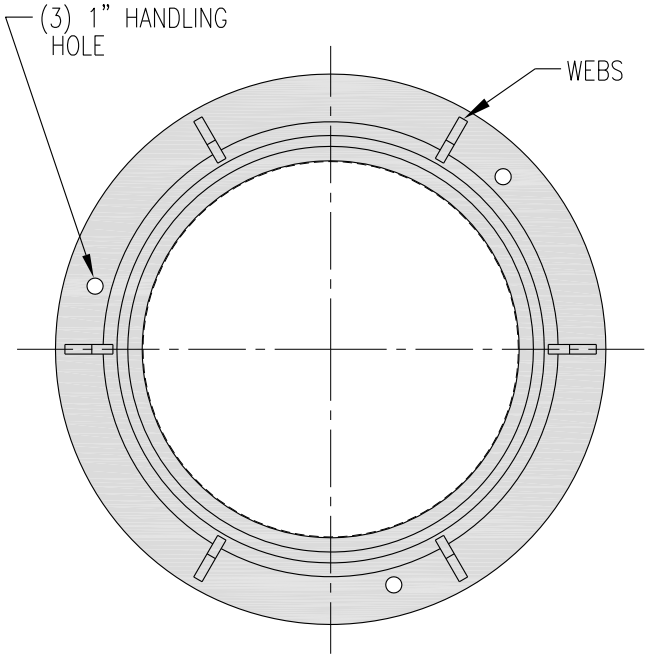
Richland Washington

DROP CONNECTION INSIDE SEWER ON EXISTING MANHOLES

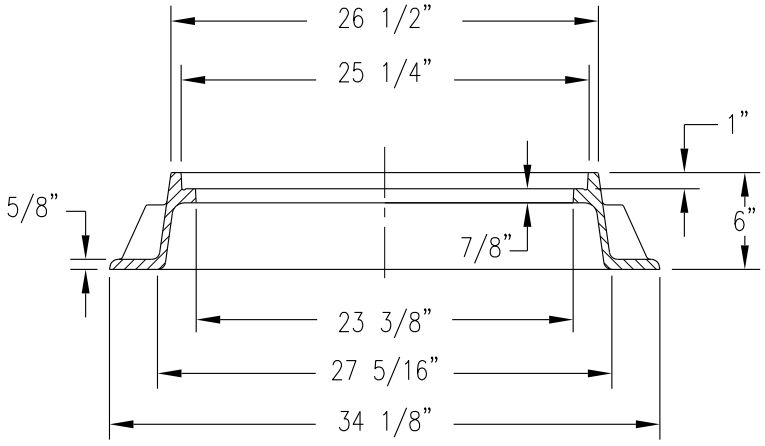
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 01.15
DRAWN BY: LD	DWG: S7
CAD FILE: 2013_S7_01_2015	

FRAME

NOT TO SCALE



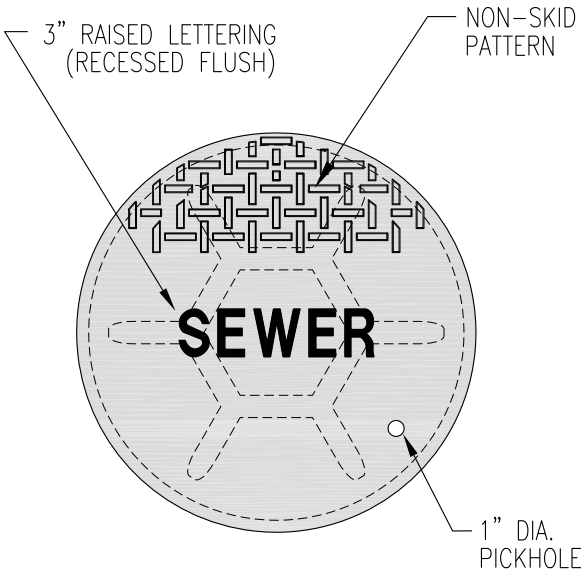
PLAN VIEW



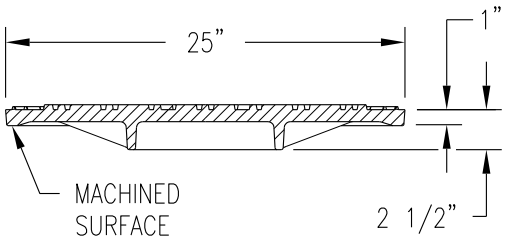
SECTION VIEW

COVER

NOT TO SCALE



PLAN VIEW



SECTION VIEW

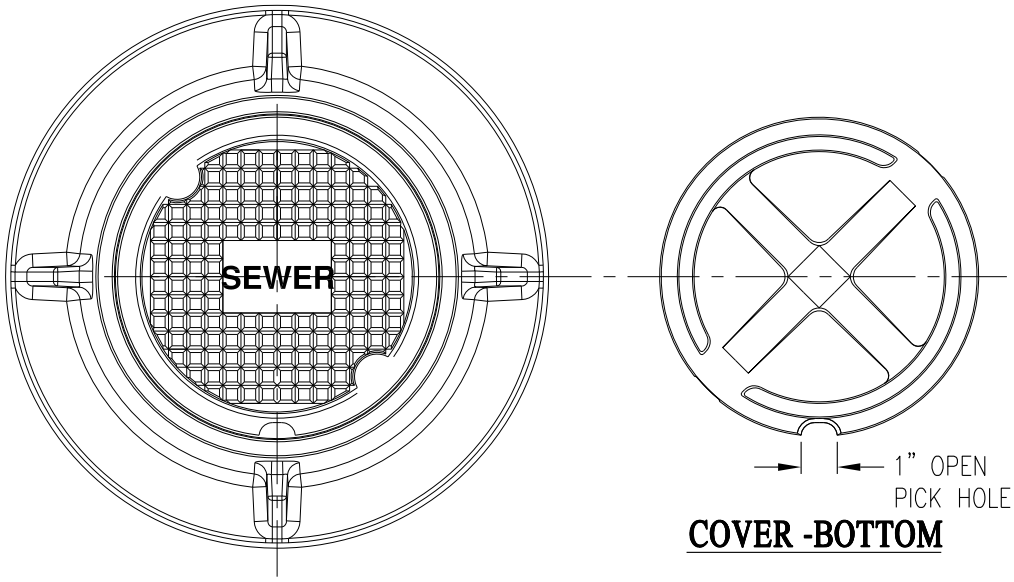
NOTES:

1. COVER – PER MATERIAL LIST
   FRAME – PER MATERIAL LIST
2. MACHINE COVER SEAT & COVER FACE.
3. LOADING – MINIMUM AASHTO H20
4. MANHOLE COVERS TO BE LETTERED AS "WATER," "SEWER," OR "DRAIN" AS REQUIRED BY TYPE OF APPLICATION.

Richland Washington

MANHOLE FRAME AND COVER

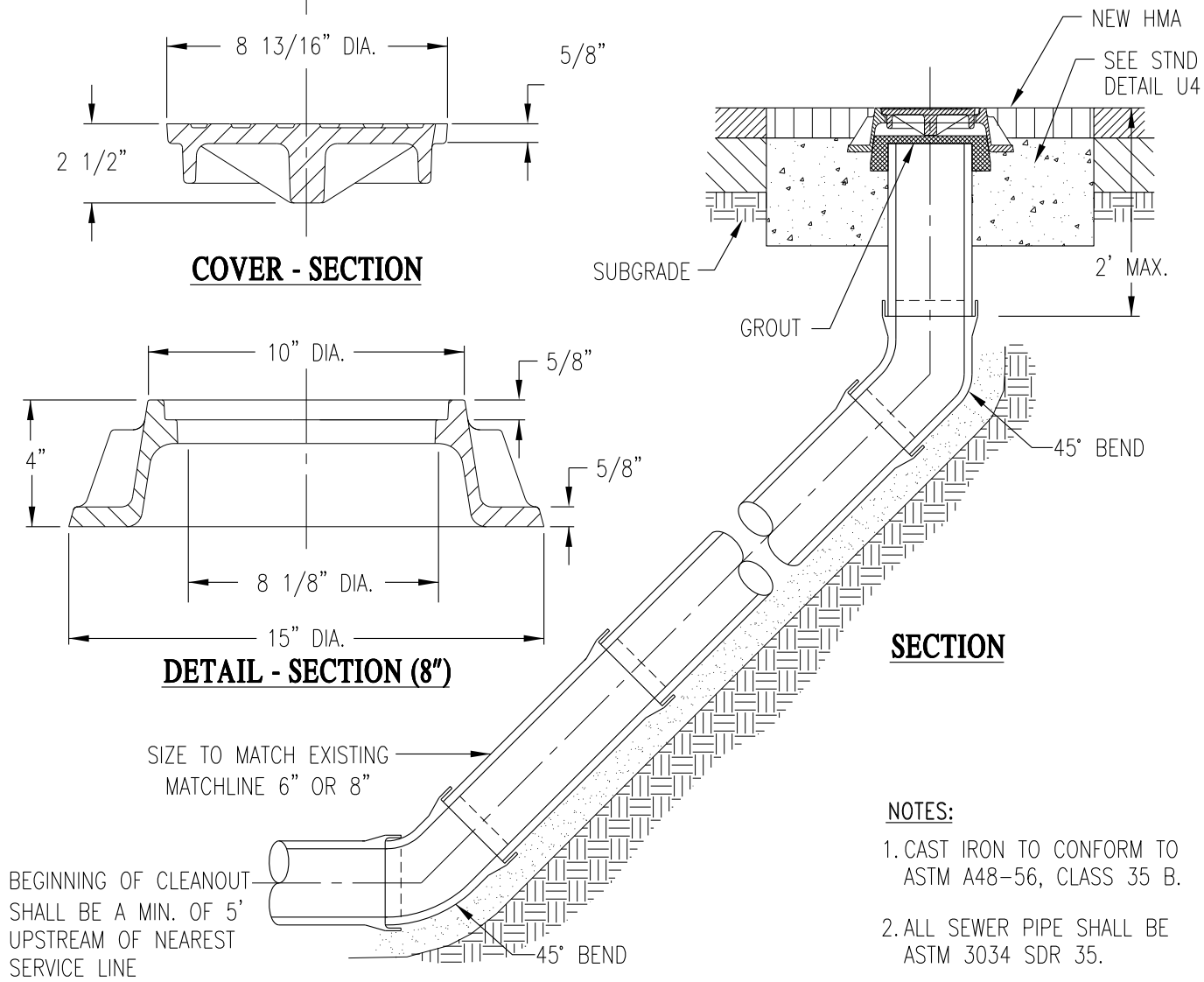
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 03.2018
DRAWN BY: EY	DWG: S8
CAD FILE: 2012_S8_03_2018	



COVER -BOTTOM

COVER - SECTION

DETAIL - SECTION (8")



SECTION

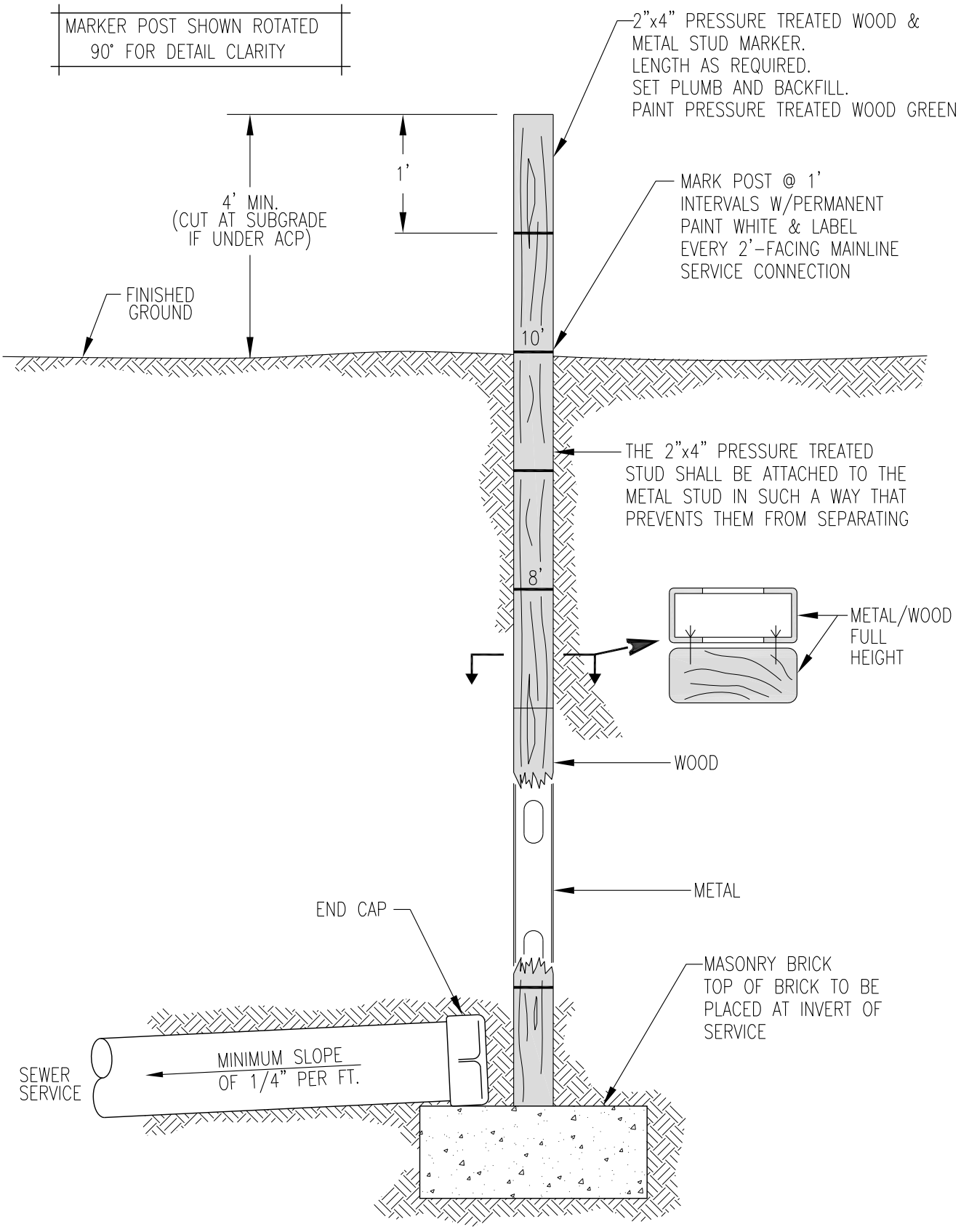
NOTES:

1. CAST IRON TO CONFORM TO ASTM A48-56, CLASS 35 B.
2. ALL SEWER PIPE SHALL BE ASTM 3034 SDR 35.

Richland Washington

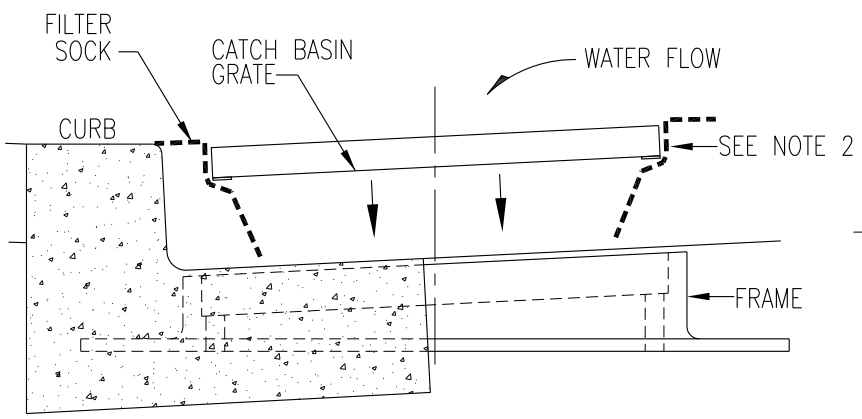
6" & 8" CLEANOUT ASSEMBLY

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 02.2012
DRAWN BY: JKS	DWG: S9
CAD FILE: 2012_S9_02_2012	

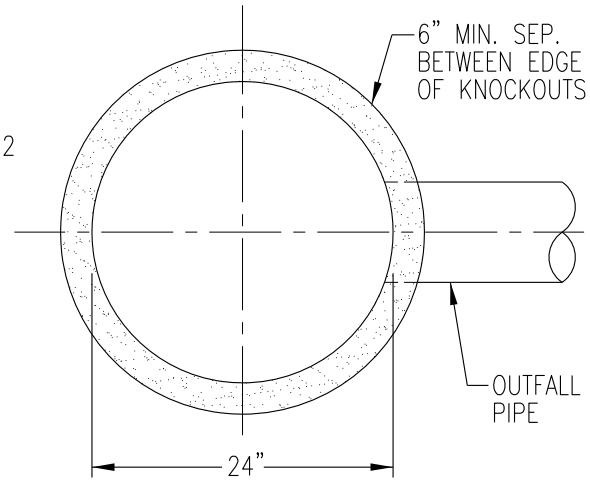


SEWER MARKER POST

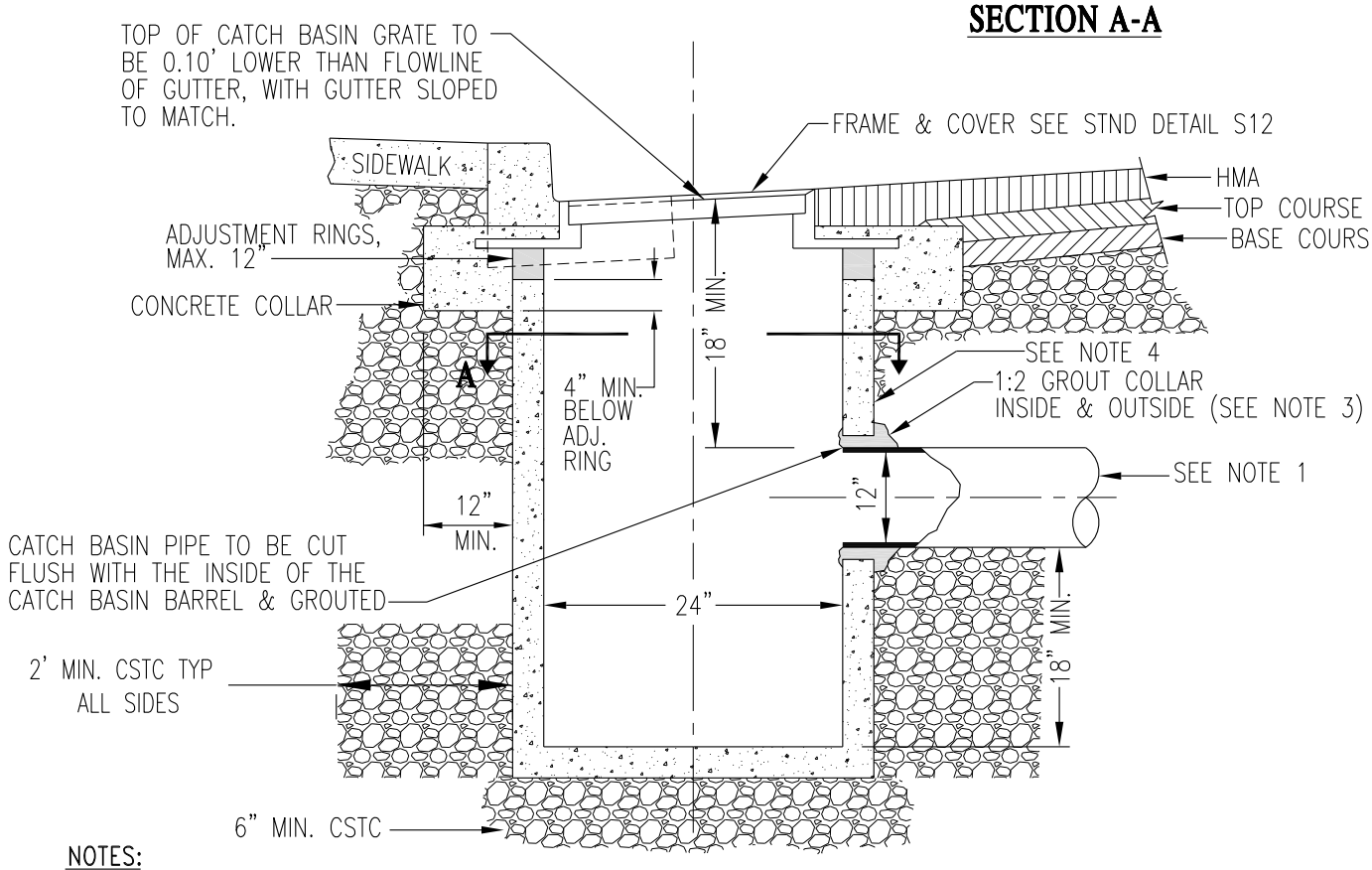
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 02.2012
DRAWN BY: JKS	DWG: S10
CAD FILE: 2012_S10_02_2012	



FILTER SOCK DETAIL



SECTION A-A



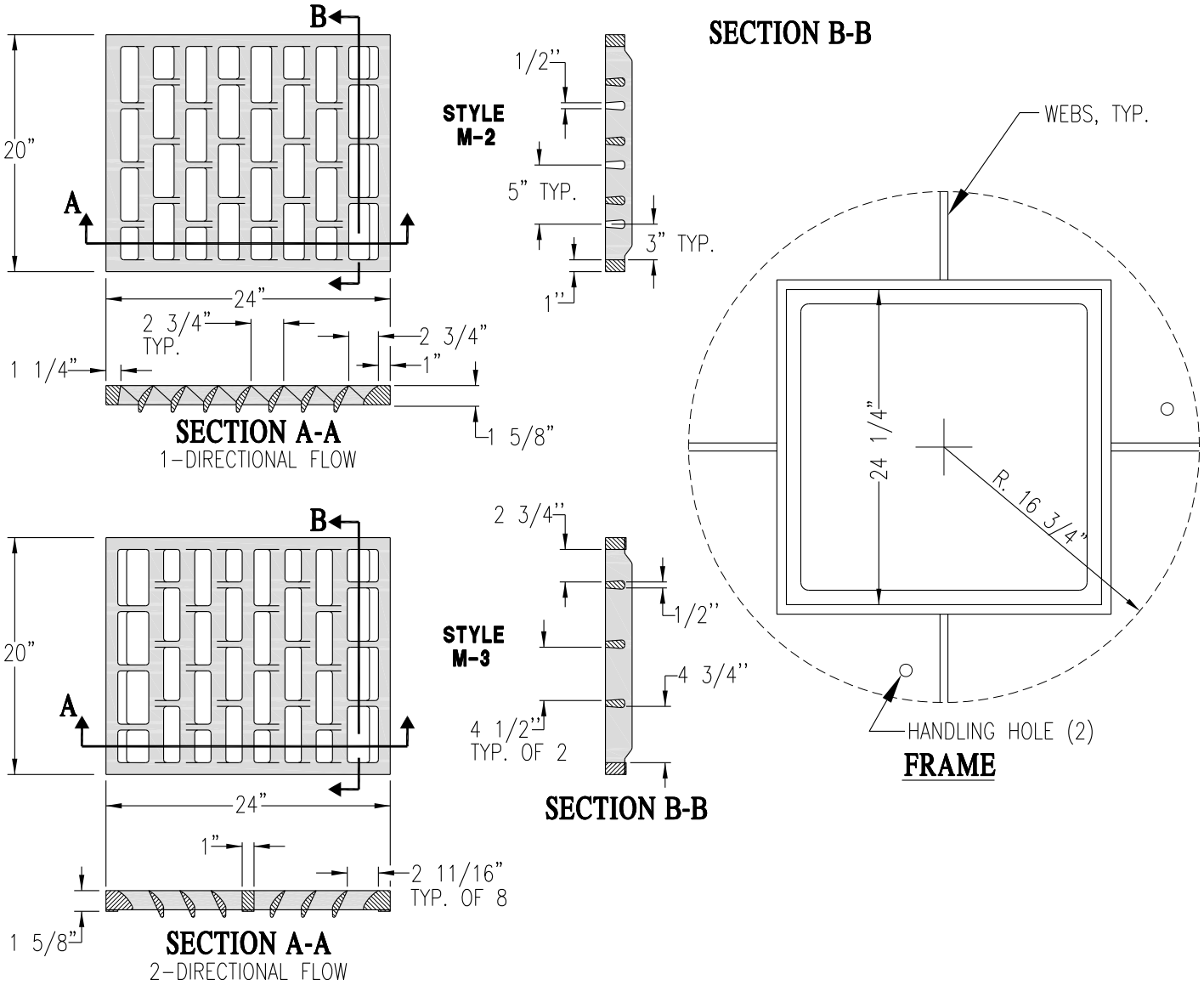
NOTES:

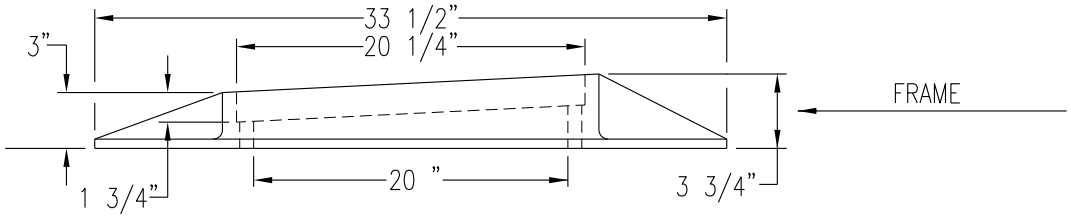
1. C900 PIPE TO BE USED WHEN PIPE COVER IS LESS THAN 18". MAXIMUM NUMBER AND SIZE OF PIPE CONNECTING TO CATCH BASIN SHALL NOT EXCEED 3-12" PIPES.
2. FILTER SOCK TO BE INSTALLED OVER TOP OF CATCH BASIN GRATE PER DETAIL. REMOVE ONLY WHEN DIRECTED BY CITY ENGINEER.
3. 1:2 GROUT BETWEEN CATCH BASIN RING AND CONCRETE TILE, BOTH INSIDE, OUTSIDE AND INSTALL A 12" CONCRETE COLLAR A MINIMUM 4" BELOW ADJUSTMENT RINGS. ADJUSTMENTS 2" AND GREATER TO BE MADE WITH PRECAST CONCRETE RINGS.
4. WIRE REINFORCED PRECAST CATCH BASIN SHALL BE REQUIRED WHEN 3-12" PIPES ARE TO BE CONNECTED.
5. A STORM DRAIN CATCH BASIN MANHOLE SHALL BE USED WHEN ITS DEPTH IS 4.5' OR MORE FROM INVERT TO TOP OF RIM, AND OR MORE THAN 3-12" PIPES ARE CONNECTED.

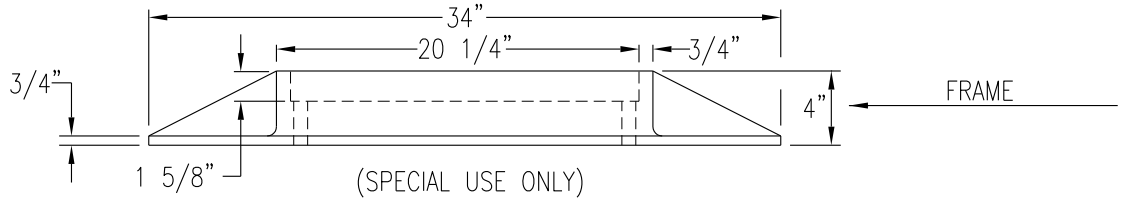
Richland Washington

TYPE 1 STORM DRAIN CATCH BASIN

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 03.16
DRAWN BY: JLC	DWG: S11
CAD FILE: 2016_S11_03_2016	



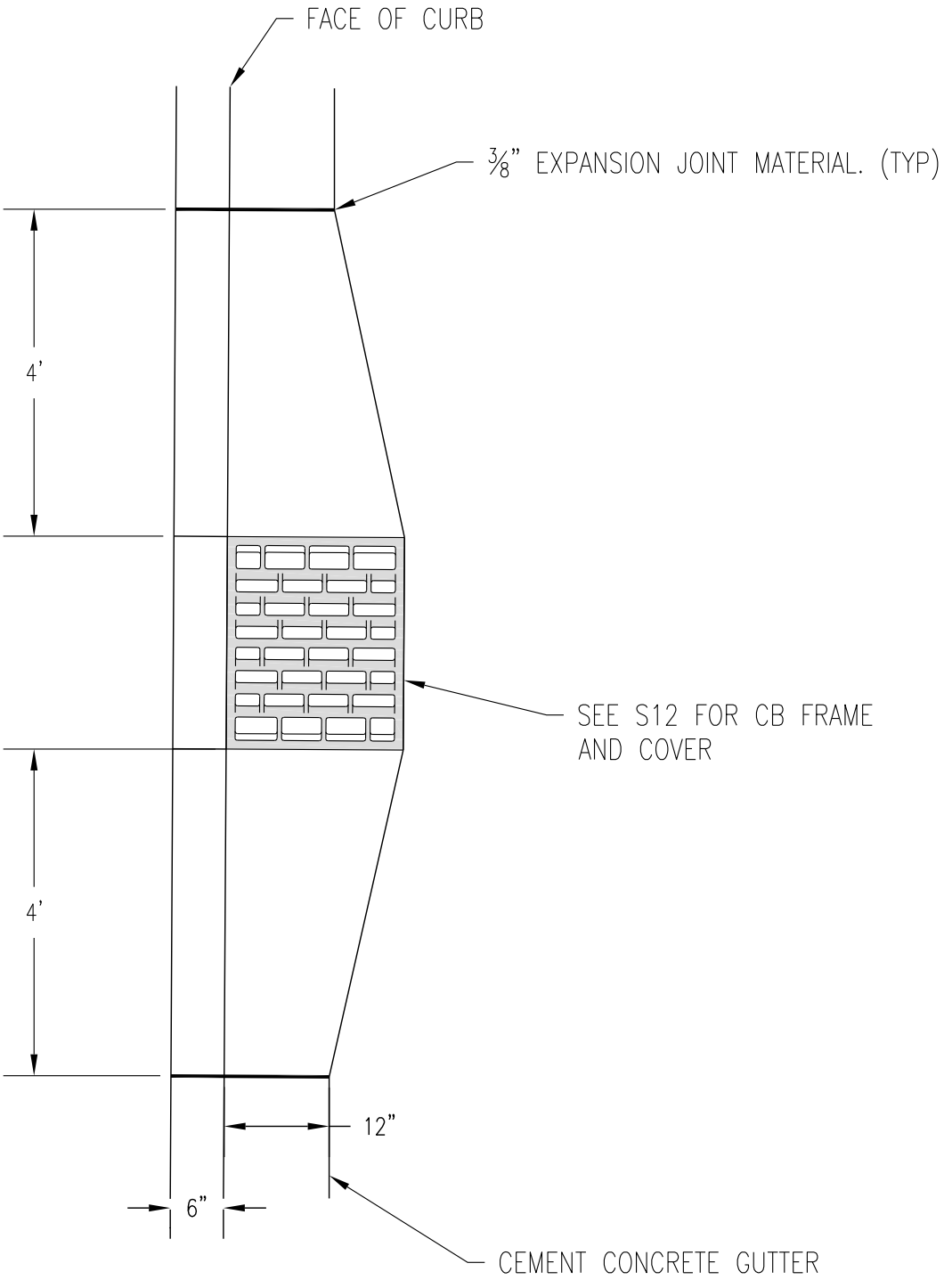




Richland Washington

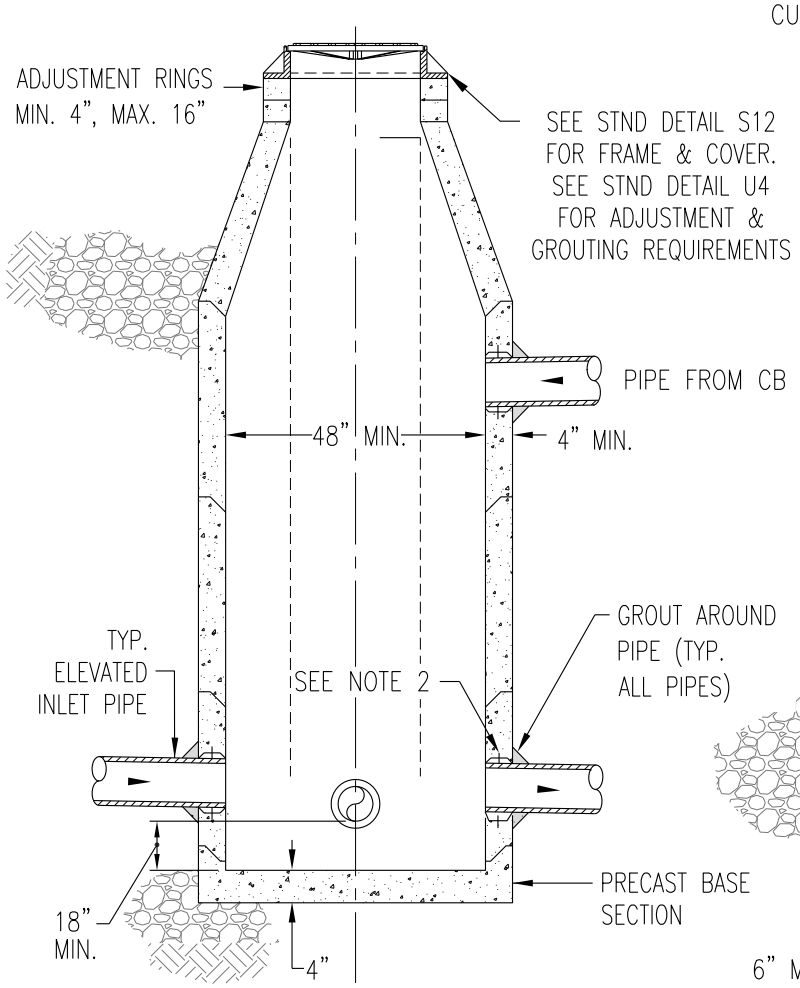
STORM DRAIN CATCH BASIN FRAME & COVER

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 12.2010
DRAWN BY: LD	DWG: S12
CAD FILE: 2012_S12_12_2010	

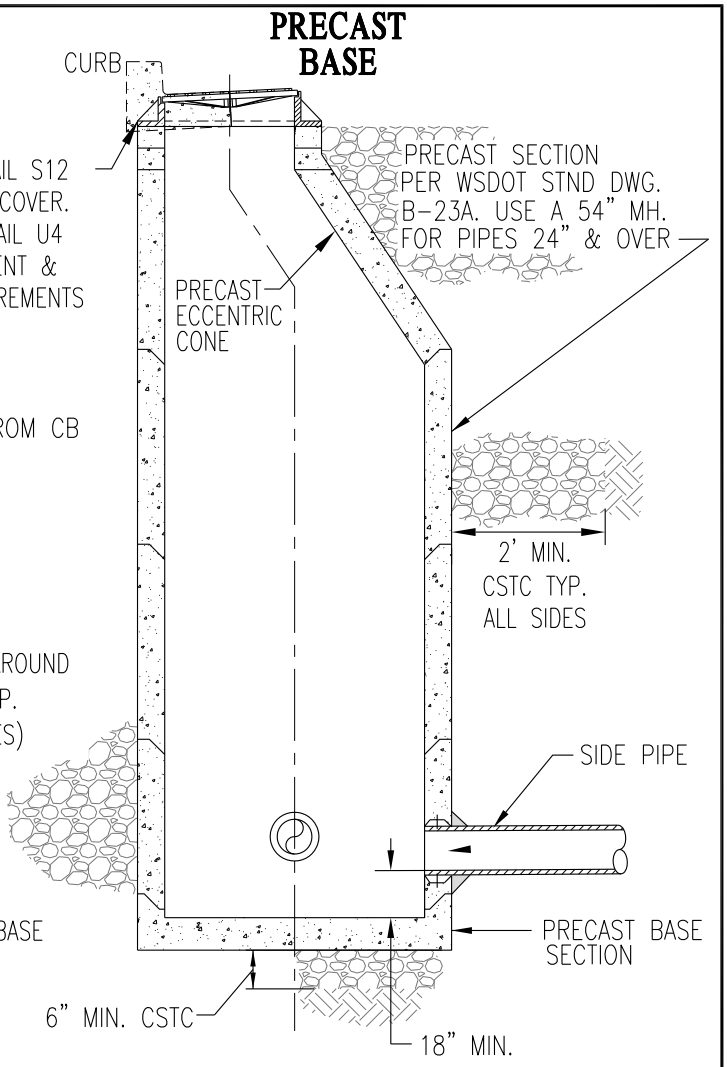


STORM DRAIN CATCH BASIN GUTTER PAN

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: S12A
CAD FILE: 2012_S12A_01_2024	



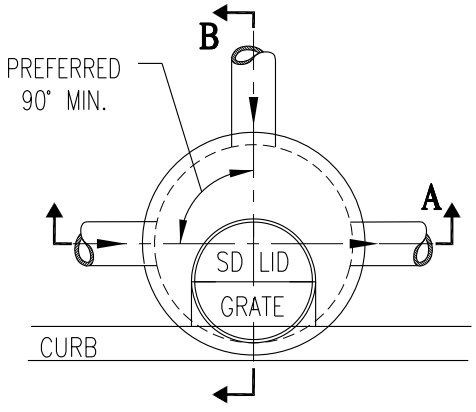
SECTION A-A



SECTION B-B

NOTES:

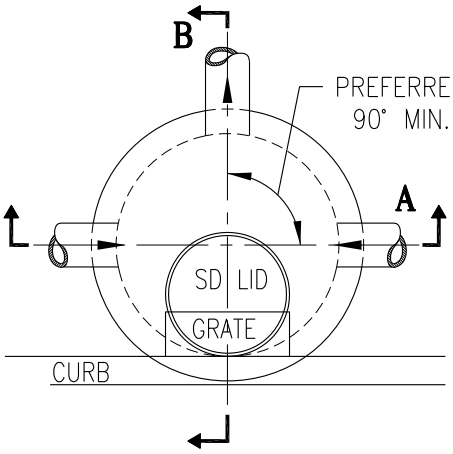
1. IN GROUNDWATER INSTALLATIONS: ALL MANHOLE JOINTS SHALL BE MADE USING A CONTINUOUS FLEXIBLE RUBBER MANHOLE GASKET JOINT. ALL HOLES, JOINTS, CONNECTIONS SHALL BE SEALED WITH GROUT ON THE OUTSIDE.
2. ALL NEW PRECAST MANHOLES SHALL BE PROVIDED WITH CAST-IN FLEXIBLE PIPE CONNECTORS. NO PIPE PENETRATIONS ALLOWED INTO PRECAST CONE SECTIONS.
3. A SHALLOW MANHOLE SHALL BE USED WHEN IT'S DEPTH IS 5.5' OR LESS FROM INVERT TO TOP OF RIM.



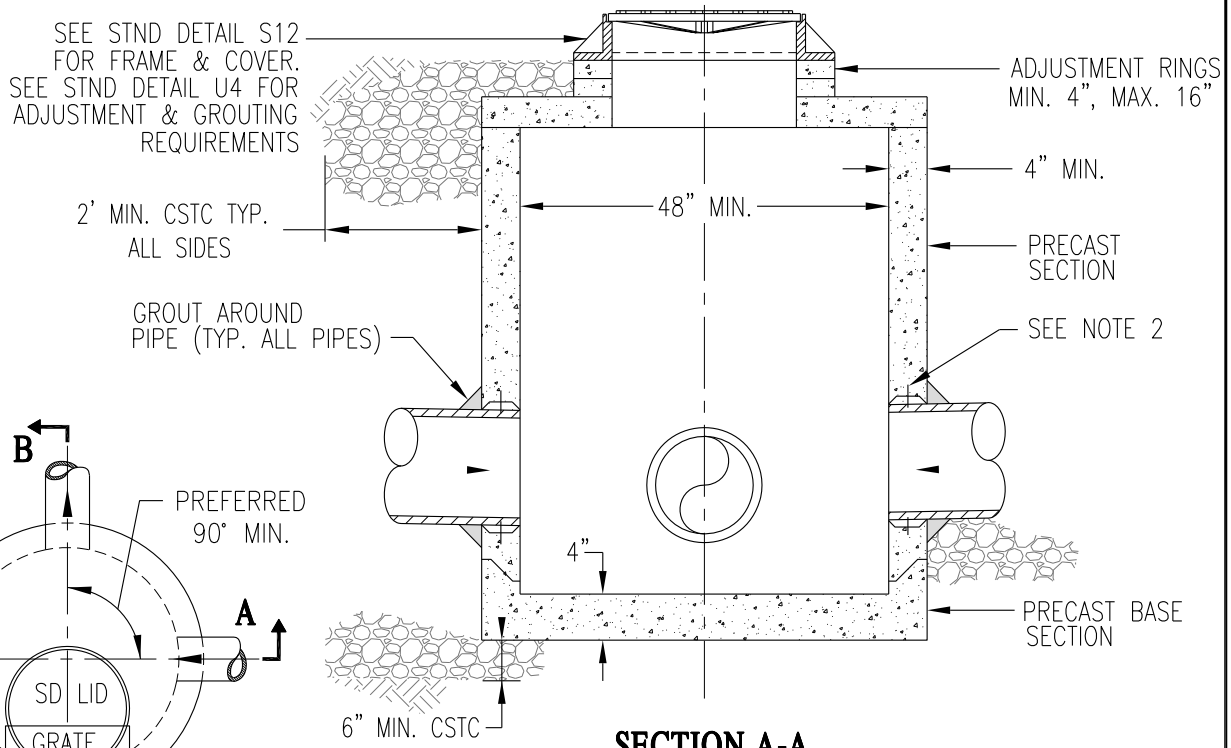
PLAN

STORM DRAIN CATCH BASIN MANHOLE

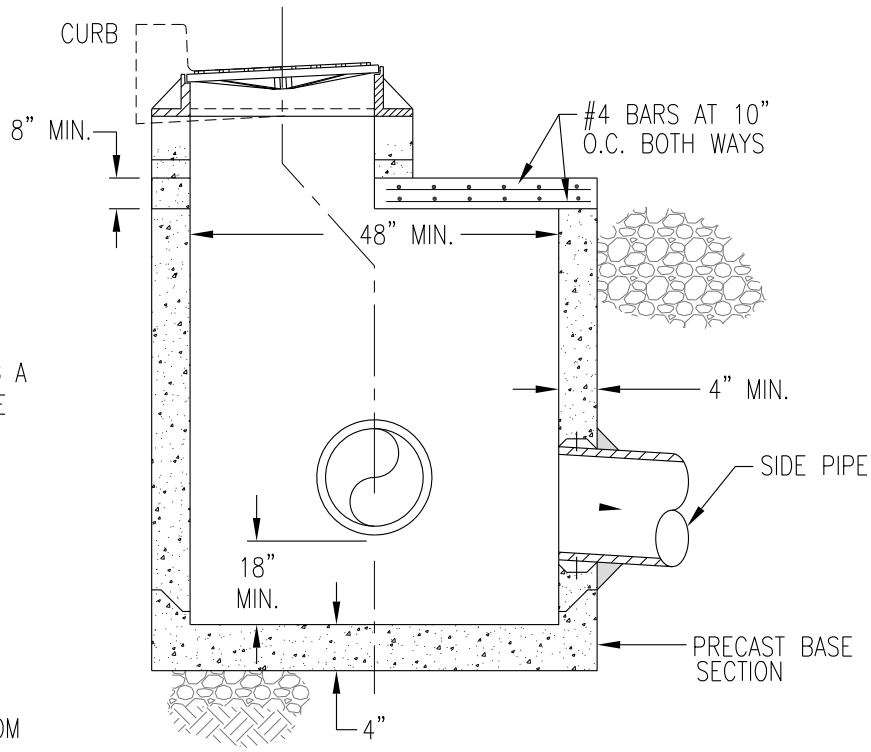
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 10.2019
DRAWN BY: EY	DWG: S13
CAD FILE: 2013_S13_03_2018	



PLAN



SECTION A-A



SECTION B-B

NOTES:

1. IN GROUNDWATER INSTALLATIONS: ALL MANHOLE JOINTS SHALL BE MADE USING A CONTINUOUS FLEXIBLE RUBBER MANHOLE GASKET JOINT. ALL HOLES, JOINTS, CONNECTIONS SHALL BE SEALED WITH GROUT ON THE OUTSIDE.

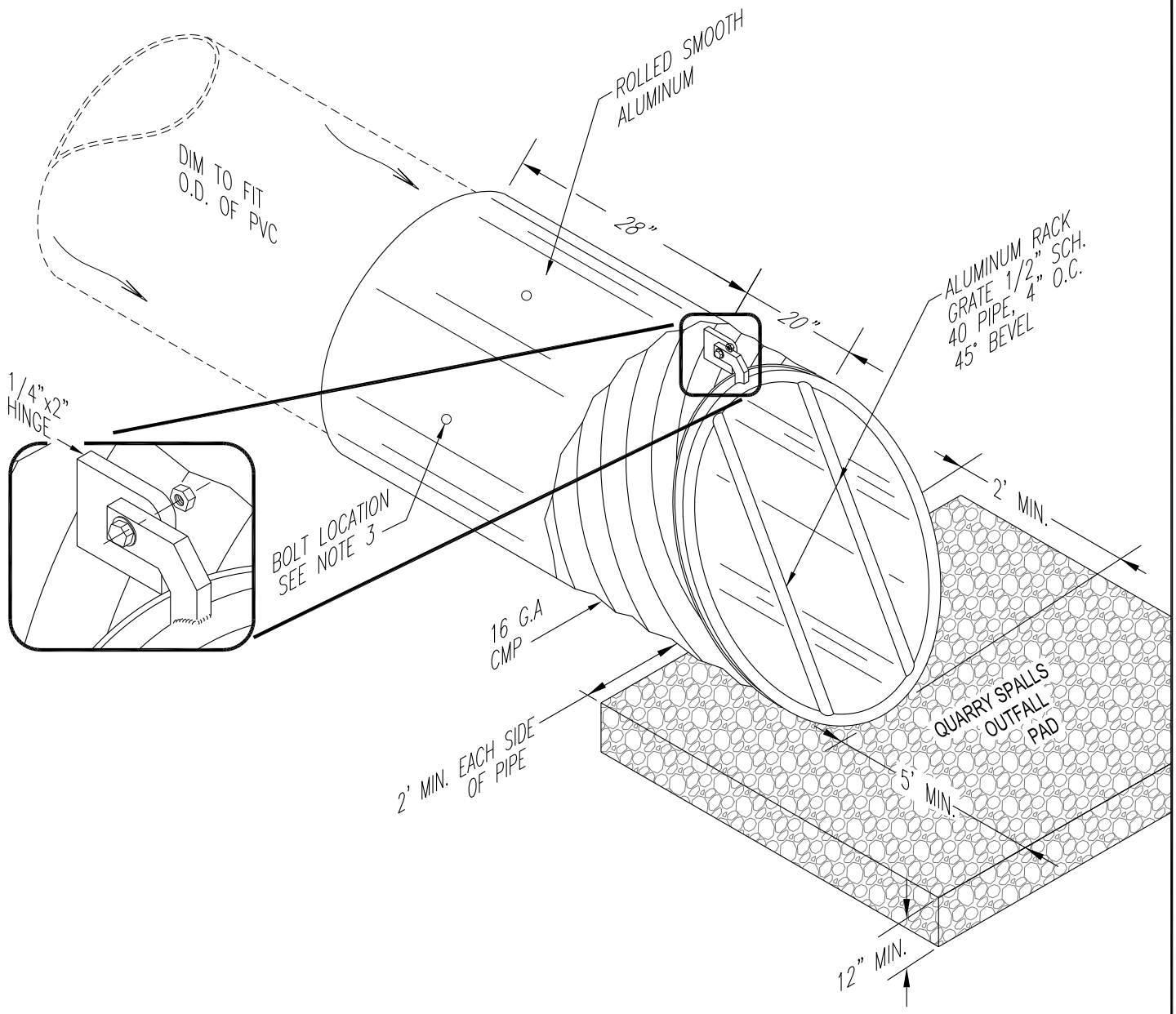
2. ALL NEW PRECAST MANHOLES SHALL BE PROVIDED WITH CAST-IN FLEXIBLE PIPE CONNECTORS.

3. A STANDARD MANHOLE SHALL BE USED WHEN IT'S DEPTH IS 5.5' OR MORE FROM INVERT TO TOP OF RIM.

Richland Washington

SHALLOW STORM DRAIN CATCH BASIN MANHOLE

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 10.2019
DRAWN BY: EY	DWG: S14
CAD FILE: 2013_S14_03_2018	



NOTES:

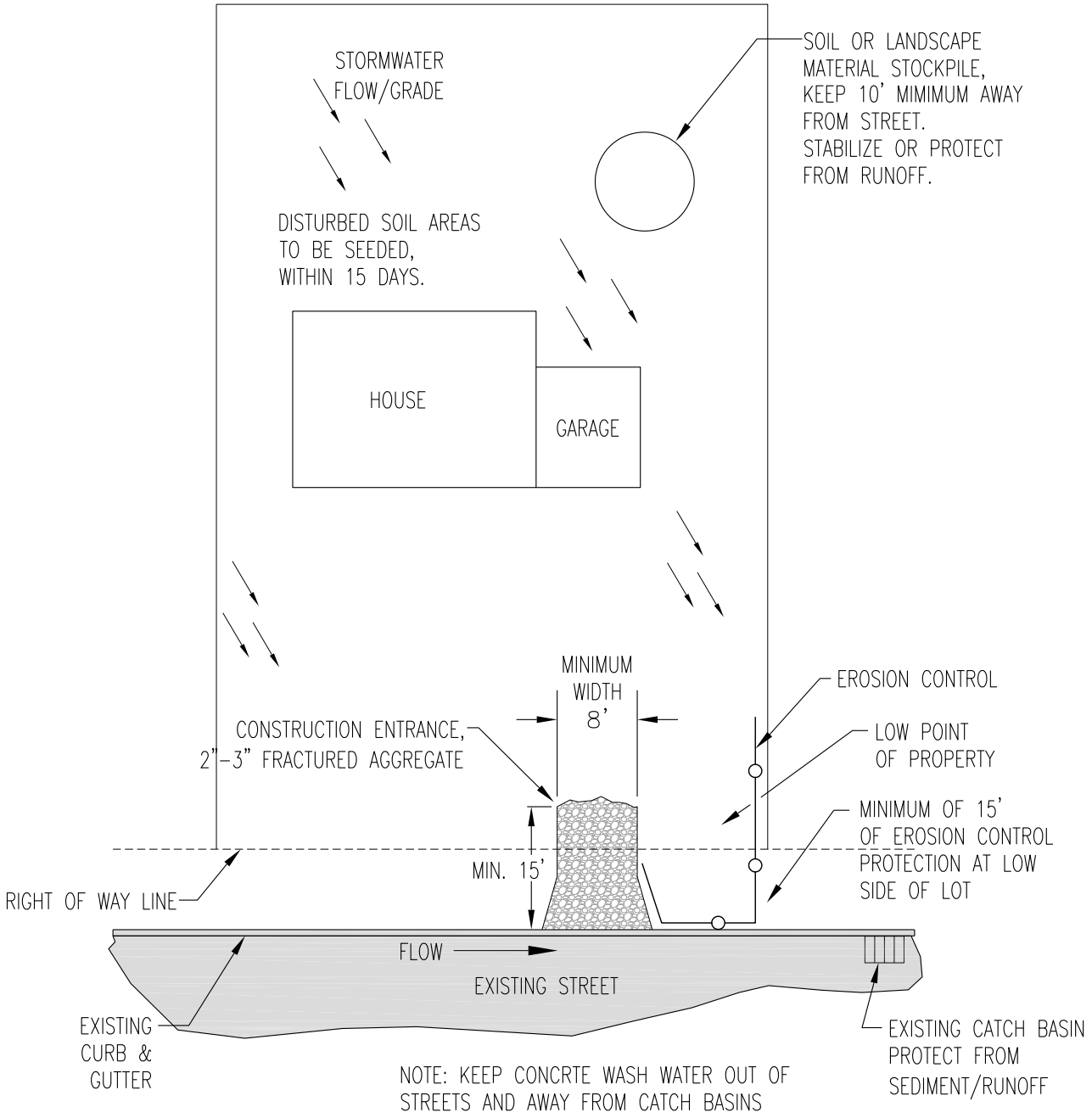
1. CONTRACTOR TO VERIFY ALL DIMENSIONS.
2. ALL PARTS MUST BE ALUMINUM WITH GALVANIZED HARDWARE.
3. SECURE DEBRIS BARRIER SECTION TO PIPE, USING 3 BOLTS INSTALLED AT 3, 9 AND 12 O'CLOCK, WITH HEAD OF BOLT ON THE INSIDE OF THE PIPE.
4. BAR FRAME OUTSIDE RING AND VERTICAL BARS TO BE WELDED INTO ONE RIGID UNIT.
5. WELDED VERTICAL BARS TO OUTSIDE RING.
6. PIPE SIZE, LOCATION AND INVERT PER PLANS.
7. FABRICATED OUTSIDE RING OF FRAME TO FIT OVER TOP OF BEVELED PIPE.

Richland Washington

ALUMINUM TRASH GRATE DETAIL

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 09.13
DRAWN BY: LD	DWG: S15
CAD FILE: 2013_S15_09_2013	

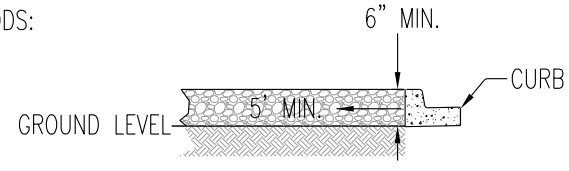
EXAMPLE EROSION CONTROL PLAN



EROSION CONTROL MEASURES

KEEP RUNOFF OUT OF THE STREET WITH ONE OF THE FOLLOWING METHODS:

1. SILT FENCING OR
2. EXCAVATE 5-FEET x 6-INCH DEEP BEHIND CURB AND STABILIZE WITH HYDRO SEED, ROCK OR MULCH. (SEE DETAIL AT RIGHT)



DETAIL

Richland Washington

EROSION CONTROL PLAN CONSTRUCTION BMP'S SHEET 1 of 3

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 05.14
DRAWN BY: JG	DWG: S16
CAD FILE: 2014_S16-1_05_2014	

SUGGESTED BMP'S FOR RESIDENTIAL CONSTRUCTION SITES

NOTE: PUBLIC WORKS WILL INSPECT THE SITE FOR SOIL/SEDIMENT STABILIZATION.

WARNING! EXTRA MEASURES (Beyond the BMP's) MAY BE NEEDED IF YOUR SITE:

- IS WITHIN 300-FEET OF A STREAM OR STORM DRAIN INLET THAT LEADS TO A STREAM.
- IS STEEPLY GRADED (SLOPES OF 5% OR MORE).
- RECEIVES RUNOFF FROM ADJACENT LAND.
- HAS MORE THAN AN ACRE OF DISTURBED GROUND.

Soil/Landscaping Piles:

1. DO NOT STOCKPILE SOIL OR LANDSCAPING MATERIALS IN THE STREET.
2. LOCATE AWAY FROM ANY DOWNSLOPE STREET, DRIVEWAY, STREAM, WETLAND, DITCH OR DRAINAGE WAY. COVER WITH PLASTIC OR HYDROSEED.
3. TEMPORARY DROUGHT-TOLERANT SEEDING OR TACKIFIER IS RECOMMENDED FOR TOPSOIL PILES.

Storm Drain Inlet Protection:

1. PROTECT THE NEAREST DOWNSTREAM STORM DRAIN INLET IN THE CITY STREET WITH SILT FENCES, SILT FABRIC OR EQUIVALENT MEASURES.
2. INSPECT, REPAIR AND REMOVE SEDIMENT DEPOSITS FROM LOW AREAS AND STREET AFTER EVERY STORM OR RUNOFF EVENT.

Sediment Cleanup :

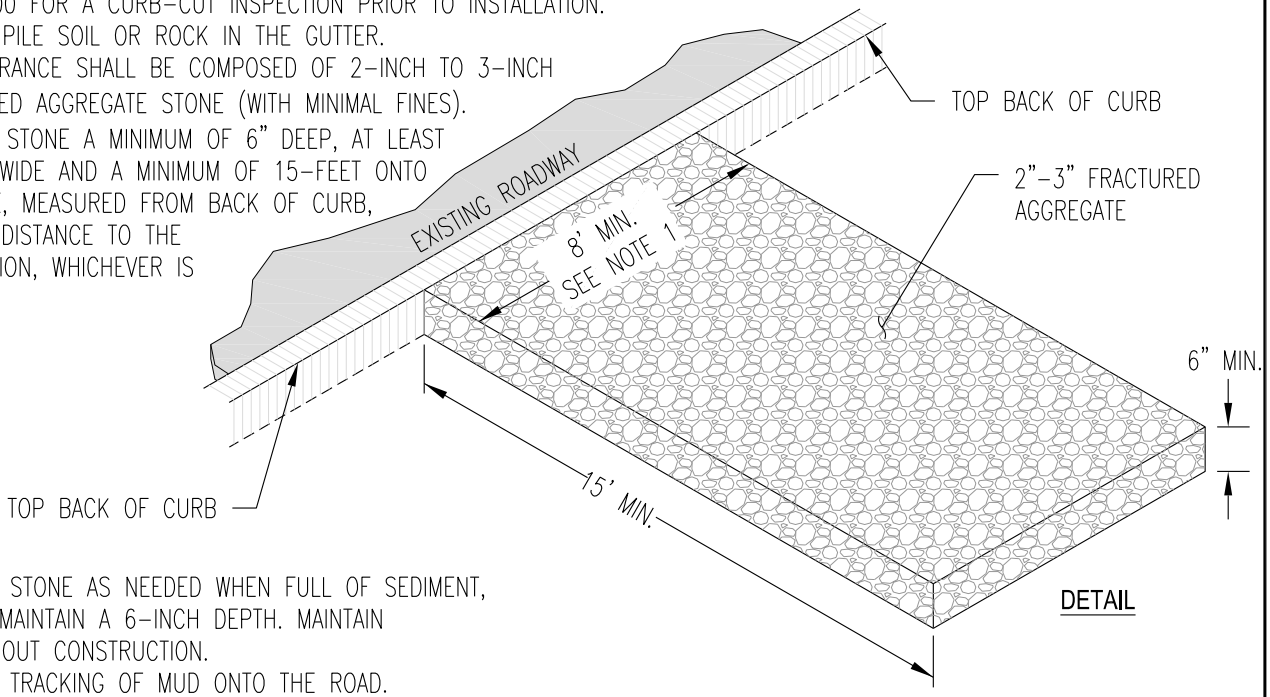
1. BY THE END OF EACH WORK DAY, SWEEP OR SCRAPE UP SOIL TRACKED ONTO THE ROAD. DO NOT HOSE INTO STORM DRAIN SYSTEM.
2. BY THE END OF THE NEXT WORK DAY AFTER A STORM, CLEAN UP SOIL WASHED OFF-SITE.
3. REMEMBER TO CONTROL YOUR DUST, BUT TOO MUCH WATERING CAN LEAD TO RUNOFF OF SEDIMENT-LADEN WATER INTO THE STREET OR NEIGHBORING LOT.

Vegetation/Revegetation :

1. WHEREVER POSSIBLE, PRESERVE EXISTING TREES, SHRUBS, GRASSES AND OTHER VEGETATION.
2. SEED, SOD OR MULCH BARE SOIL AS SOON AS POSSIBLE. VEGETATION IS THE MOST EFFECTIVE WAY TO CONTROL EROSION.

Stabilized Construction Entrances (See Detail):

1. THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE INSTALLED BEHIND THE CURB AT THE FUTURE DRIVEWAY LOCATION. CALL 942-7500 FOR A CURB-CUT INSPECTION PRIOR TO INSTALLATION. DO NOT PILE SOIL OR ROCK IN THE GUTTER.
2. THE ENTRANCE SHALL BE COMPOSED OF 2-INCH TO 3-INCH FRACTURED AGGREGATE STONE (WITH MINIMAL FINES). LAY THE STONE A MINIMUM OF 6" DEEP, AT LEAST 8-FEET WIDE AND A MINIMUM OF 15-FEET ONTO THE SITE, MEASURED FROM BACK OF CURB, OR THE DISTANCE TO THE FOUNDATION, WHICHEVER IS LESS.



DETAIL

3. REPLACE STONE AS NEEDED WHEN FULL OF SEDIMENT, AND TO MAINTAIN A 6-INCH DEPTH. MAINTAIN THROUGHOUT CONSTRUCTION.
4. PREVENT TRACKING OF MUD ONTO THE ROAD.

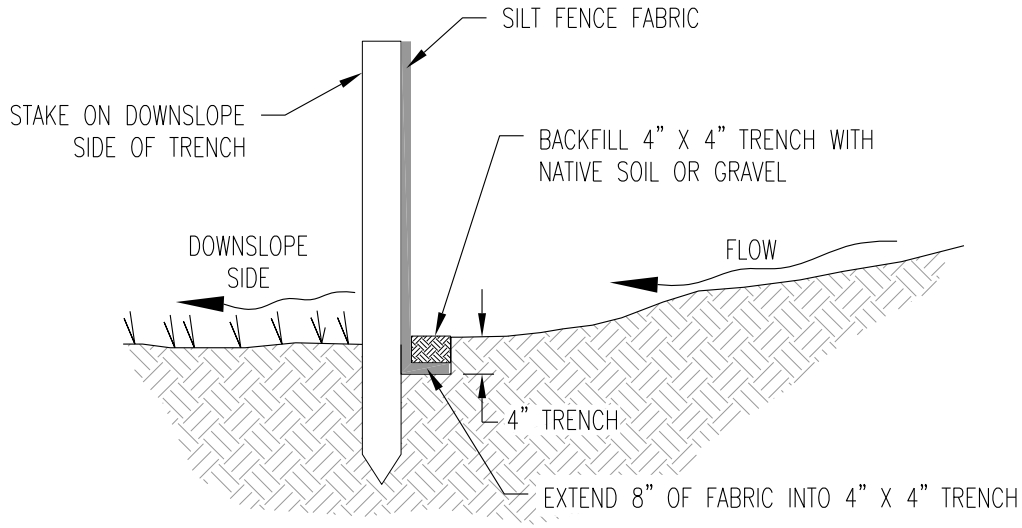
Richland Washington

EROSION CONTROL PLAN CONSTRUCTION BMP'S SHEET 2 of 3

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 11.15
DRAWN BY: LD	DWG: S16
CAD FILE: 2014_S16-2_11_2015	

Silt Fences :*

1. INSTALL PRIOR TO LAND DISTURBANCE.
2. INSTALL ON DOWNSLOPE SIDES OF SITE, PARALLEL TO CONTOUR OF THE LAND.
3. EXTEND ENDS UPSLOPE ENOUGH TO KEEP PONDING WATER BEHIND FENCE.
4. LEAVE NO GAPS. OVERLAP SECTIONS OF SILT FENCE, OR TWIST ENDS OF SILT FENCE TOGETHER.
5. INSPECT AND REPAIR ONCE A WEEK AND AFTER ANY RAIN/SNOWMELT EVENTS. REMOVE SEDIMENT IF DEPOSITS REACH HALF THE FENCE HEIGHT.
6. MAINTAIN UNTIL LANDSCAPING OR HYDROSEED IS ESTABLISHED.



SILT FENCE INSTALLATION CROSS SECTION

*ALTERNATIVELY, IF THE STREET IS ON THE LOW SIDE OF THE LOT, GRADE THE LOT 5' BEHIND THE CURB, THEN STABILIZE WITH 2-INCH TO 3-INCH FRACTURED AGGREGATE (6" DEEP). THIS CAN BE ALLOWED IN LIEU OF SILT FENCE.

Richland Washington

EROSION CONTROL PLAN CONSTRUCTION BMP'S SHEET 3 of 3

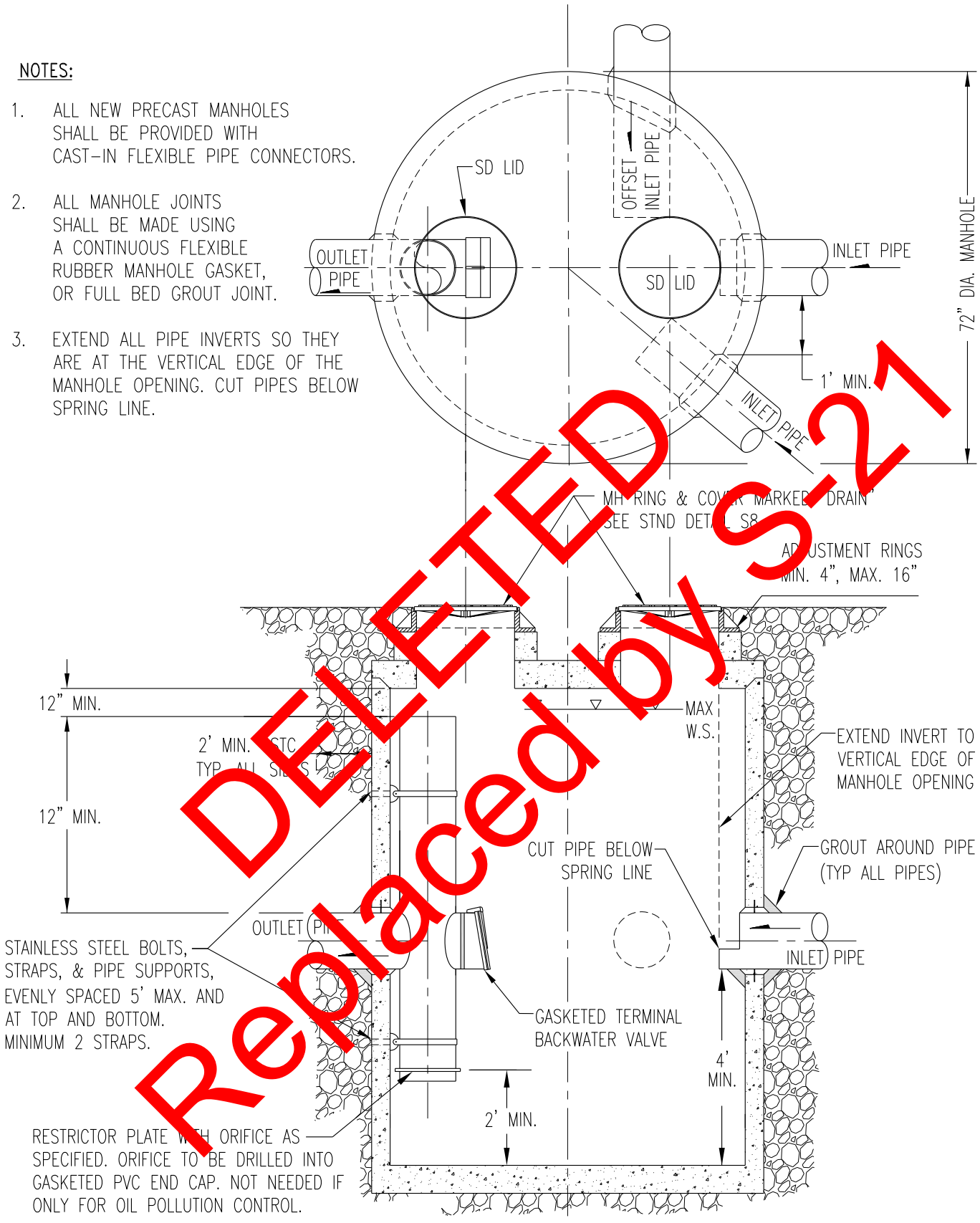
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 05.14
DRAWN BY: LD	DWG: S16
CAD FILE: 2014_S16-3_05_2014	

NOTES:

1. ALL NEW PRECAST MANHOLES SHALL BE PROVIDED WITH CAST-IN FLEXIBLE PIPE CONNECTORS.

2. ALL MANHOLE JOINTS SHALL BE MADE USING A CONTINUOUS FLEXIBLE RUBBER MANHOLE GASKET, OR FULL BED GROUT JOINT.

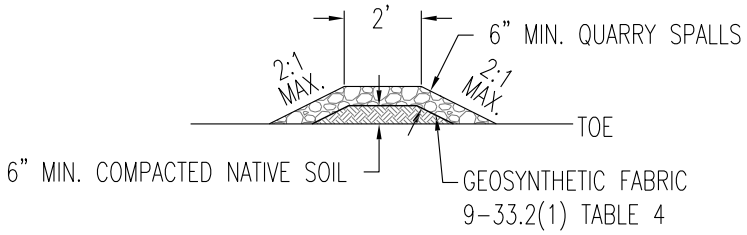
3. EXTEND ALL PIPE INVERTS SO THEY ARE AT THE VERTICAL EDGE OF THE MANHOLE OPENING. CUT PIPES BELOW SPRING LINE.



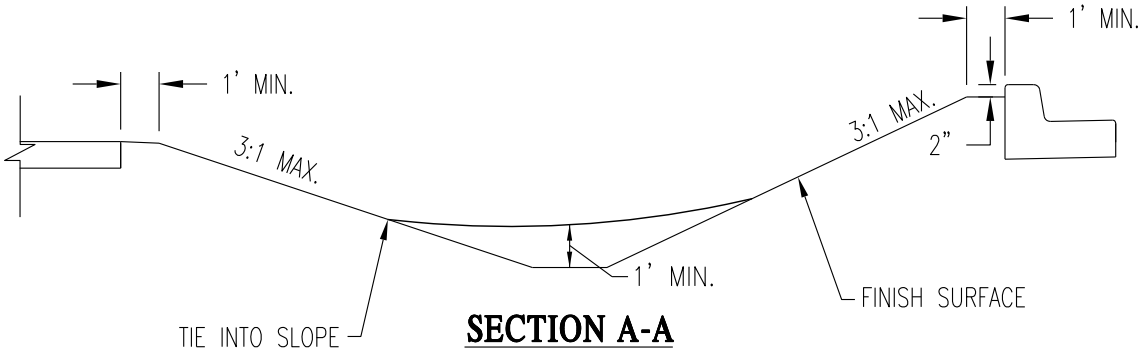
Richland Washington

SPILL CONTROL SEPARATOR

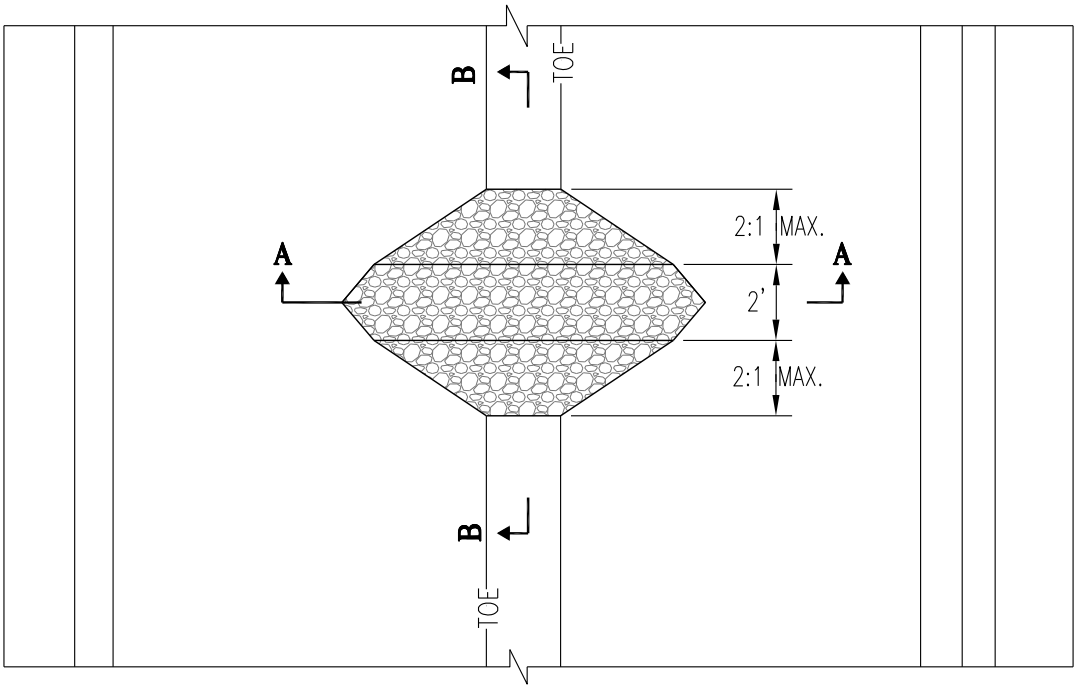
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 07.17
DRAWN BY: LD	DWG: S17
CAD FILE: 2014_S17_07_2017	



SECTION B-B



SECTION A-A

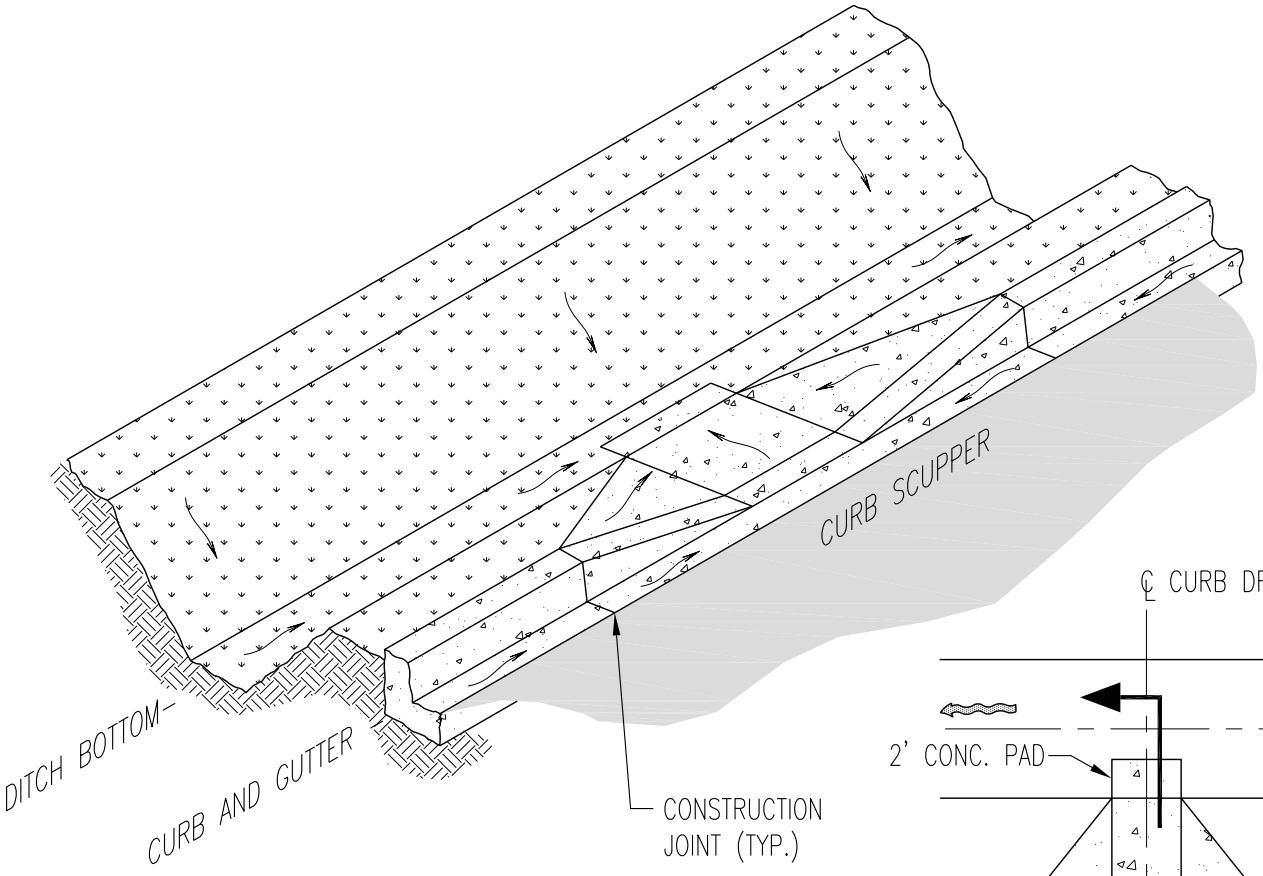


PLAN VIEW

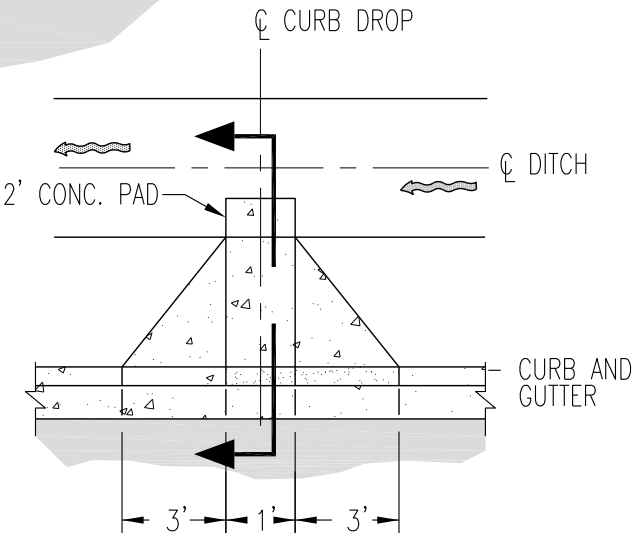
NOT TO SCALE

ROADSIDE SWALE/ CHECK DAM DETAIL

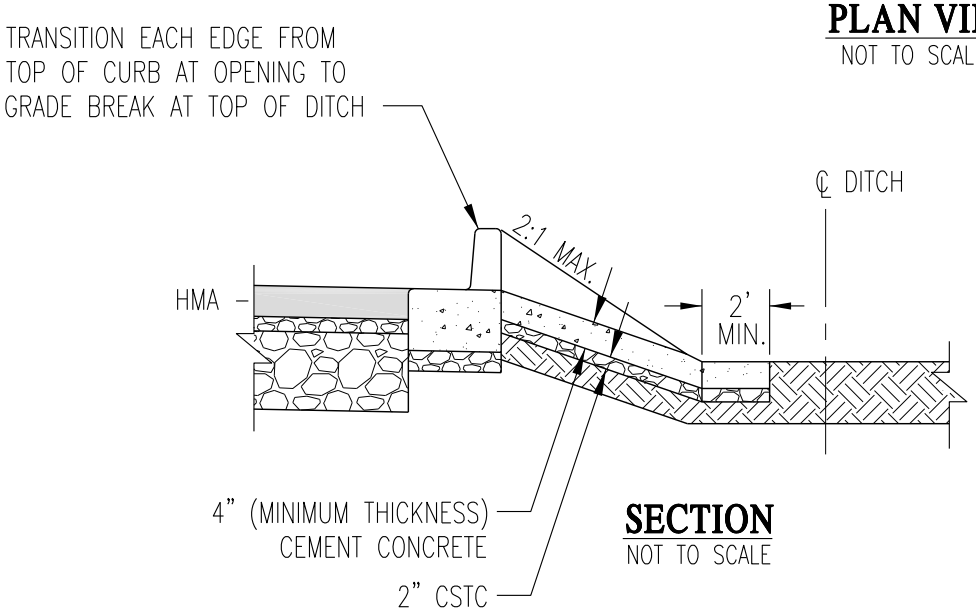
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 09.13
DRAWN BY: LD	DWG: S18
CAD FILE: 2013_S18_09_2013	



ISOMETRIC
NOT TO SCALE



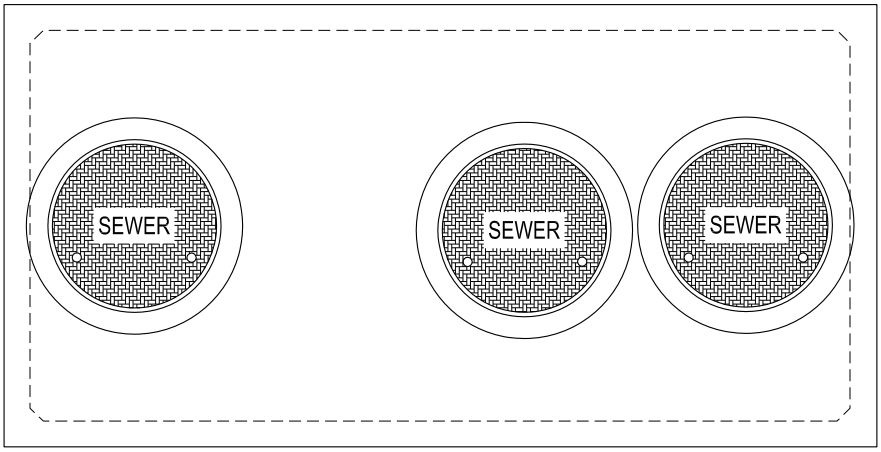
PLAN VIEW
NOT TO SCALE



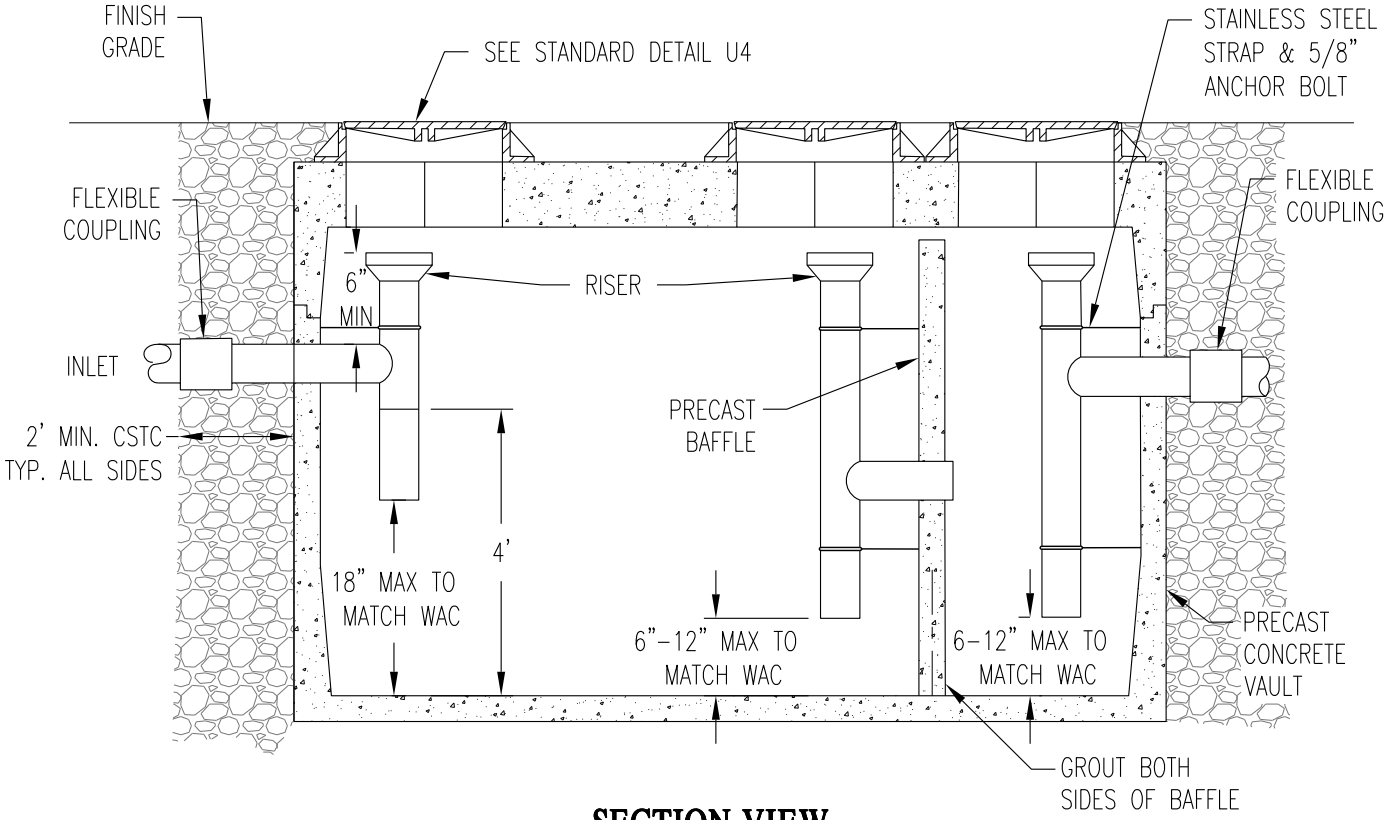
SECTION
NOT TO SCALE

CURB OPENING INLET DETAIL

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 12.14
DRAWN BY: LD	DWG: S19
CAD FILE: 2013_S19_12_2014	



PLAN VIEW
NOT TO SCALE



SECTION VIEW
NOT TO SCALE

NOTE:

1. STANDARD DETAIL S20A FOR NOTES.

TYPICAL GREASE INTERCEPTOR

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 05.14
DRAWN BY: LD	DWG: S20
CAD FILE: 2014_S20_05_2014	

NOTES FOR GREASE INTERCEPTORS:

1. THIS DEVICE SHALL MEET THE REQUIREMENTS IN THE WAC 246-272C-0230.

2. POSITION RISERS BELOW ACCESS OPENINGS TO ALLOW CLEAR ACCESS TO RISER AND VAULT CHAMBER.

3. CONNECTIONS TO CONCRETE WALL WITH PVC PIPE, REQUIRE KOR-N-SEAL CONNECTORS OR ACxPVC BRANT ADAPTER. SEAL ALL PIPE CONNECTIONS WITH NON-SHRINK GROUT.

4. FILL WITH CLEAN WATER PRIOR TO START UP OF SYSTEM.

5. THE PLANS AND SPECIFICATIONS SHALL ILLUSTRATE PROPERTY BOUNDARIES, PIPING/DRAINAGE DETAILS AND CONNECTIONS TO THE SANITARY SEWER. DETAIL AND ELEVATIONS DRAWINGS OF THE GREASE INTERCEPTOR SHALL INCLUDE UPC APPENDIX DESIGN CALCULATIONS TO SHOW CAPACITY, DETENTION TIME AND REMOVAL EFFICIENCIES.

6. EFFLUENT FROM GREASE INTERCEPTORS SHALL NOT EXCEED 100mg/L TOTAL FAT, OILS AND GREASE DISCHARGED TO THE SANITARY SEWER.

7. GREASE INTERCEPTORS INSTALLED IN PAVED AREAS SHALL COMPLY WITH H-20 LOADING.

8. THE GREASE INTERCEPTOR SHALL BE INSTALLED AND CONNECTED SUCH THAT IT SHALL BE EASILY ACCESSIBLE FOR INSPECTION AND CLEANING AT ALL TIMES. NO SANITARY WASTEWATER SHALL BE CONVEYED TO THE SEPARATOR. A SEPARATE SIDE SEWER SHALL BE REQUIRED TO CARRY SANITARY WASTEWATER TO THE SEWER MAIN. IT SHALL BE PLACED AS CLOSE TO THE SERVICE AS PRACTICAL. MANHOLE COVERS SHALL HAVE AN OPENING OF 24 INCHES IN DIAMETER.

9. PLUMBING/PIPING SHALL BE CONSTRUCTED TO ESTABLISH "PARALLEL FLOW" (90° TO THE TANK BAFFLE) THROUGH THE GREASE INTERCEPTOR. NO RADIUS, BEND OR ELBOW SHALL BE ALLOWED IN THE INLET PIPE FOR A MINIMUM OF 10 FEET OR 20 PIPE DIAMETERS (WHICHEVER IS GREATER) UPSTREAM OF THE INTERCEPTOR.

10. VENTING OF THE INTERCEPTOR SHALL IN ACCORDANCE WITH CHAPTER 4, 5, AND 7 OF THE UNIFORM PLUMBING CODE – 1988 OR AS ADOPTED BY THE CITY.

11. THE DESIGN ENGINEER SHALL PROVIDE THE CITY ENGINEER OR HIS REPRESENTATIVE WITH A LETTER OF INSPECTION CERTIFYING THAT THE INSTALLATION WAS PERFORMED IN ACCORDANCE WITH ALL REGULATIONS AND THE APPROVED PLAN.

12. FINAL INSPECTION IS REQUIRED BY THE CITY ENGINEER OR HIS REPRESENTATIVE PRIOR TO CONNECTION TO THE SANITARY SEWER.

13. THE PROPERTY OWNER SHALL RETAIN OWNERSHIP OF THE GREASE INTERCEPTOR AND SIDE SEWER LINES AND SHALL BE RESPONSIBLE FOR THEIR OPERATION AND MAINTENANCE. A MAINTENANCE RECORD SHALL BE KEPT ON THE PREMISES AT ALL TIMES AND SHALL BE IMMEDIATELY AVAILABLE TO THE CITY ENGINEER OR HIS REPRESENTATIVE UPON REQUEST.

14. THE PROPERTY OWNER SHALL REPORT IMMEDIATELY TO THE CITY ENGINEER OR HIS REPRESENTATIVE, ANY SPILL, SURCHARGE, BYPASS, OR MECHANICAL FAULT OR FAILURE WHICH INTERRUPTS OR OTHERWISE REDUCES THE CAPACITY OR REMOVAL EFFICIENCY OF THE GREASE INTERCEPTOR.

15. GREASE INTERCEPTOR SHALL NOT BE PLACED IN PARKING STALLS OR DRIVE-THROUGHS UNLESS NO OTHER FEASIBLE LOCATION IS AVAILABLE AND PERMISSION IS GRANTED BY THE CITY ENGINEER OR HIS REPRESENTATIVE.

Richland Washington

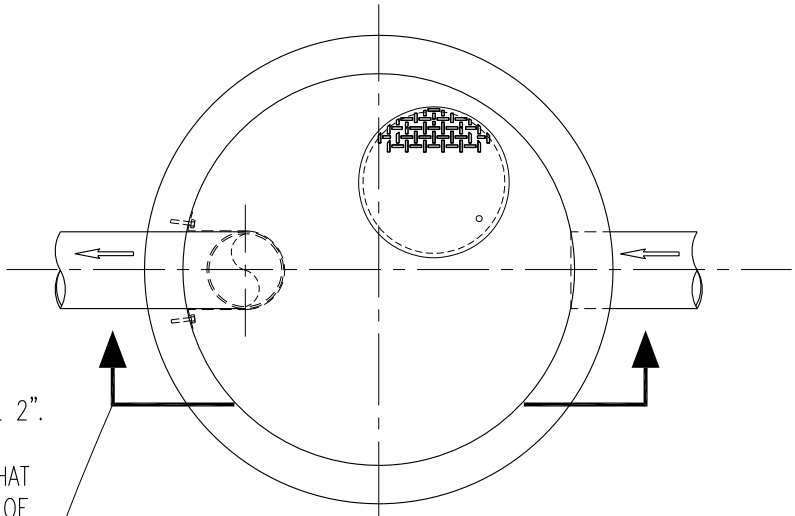
TYPICAL GREASE INTERCEPTOR NOTES

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 05.14
DRAWN BY: LD	DWG: S20A
CAD FILE: 2014_S20_05_2014	

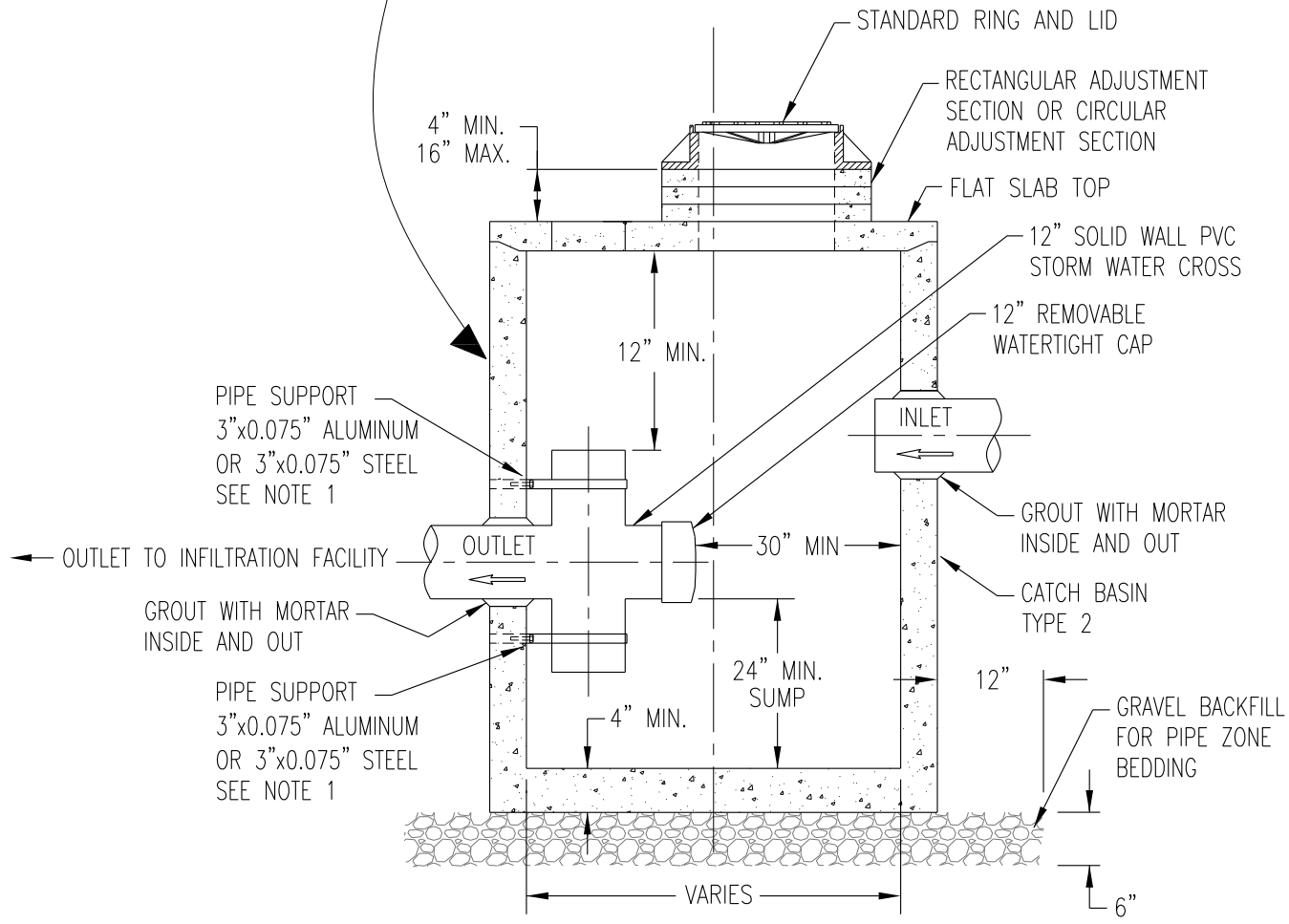
NOTES:

1. ATTACH THE PIPE SUPPORTS TO THE MANHOLE WITH $\frac{5}{8}$" STAINLESS STEEL EXPANSION BOLTS OR EMBED THE SUPPORTS INTO THE MANHOLE WALL 2".

2. THE FRAME SHALL BE OFFSET SO THAT THE CLIMB-DOWN SPACE IS CLEAR OF THE RISER.



PLAN

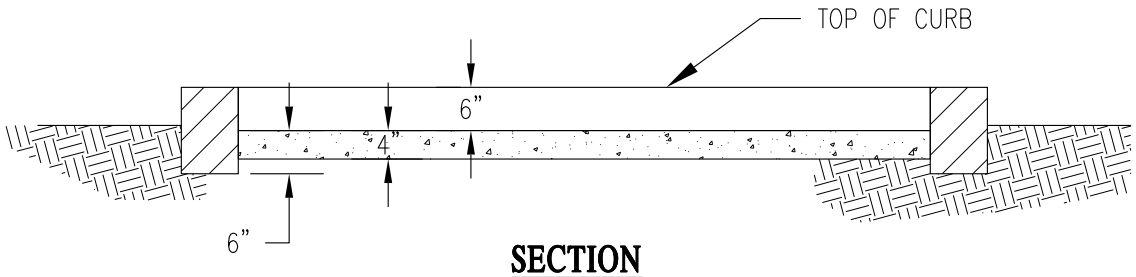


SECTION

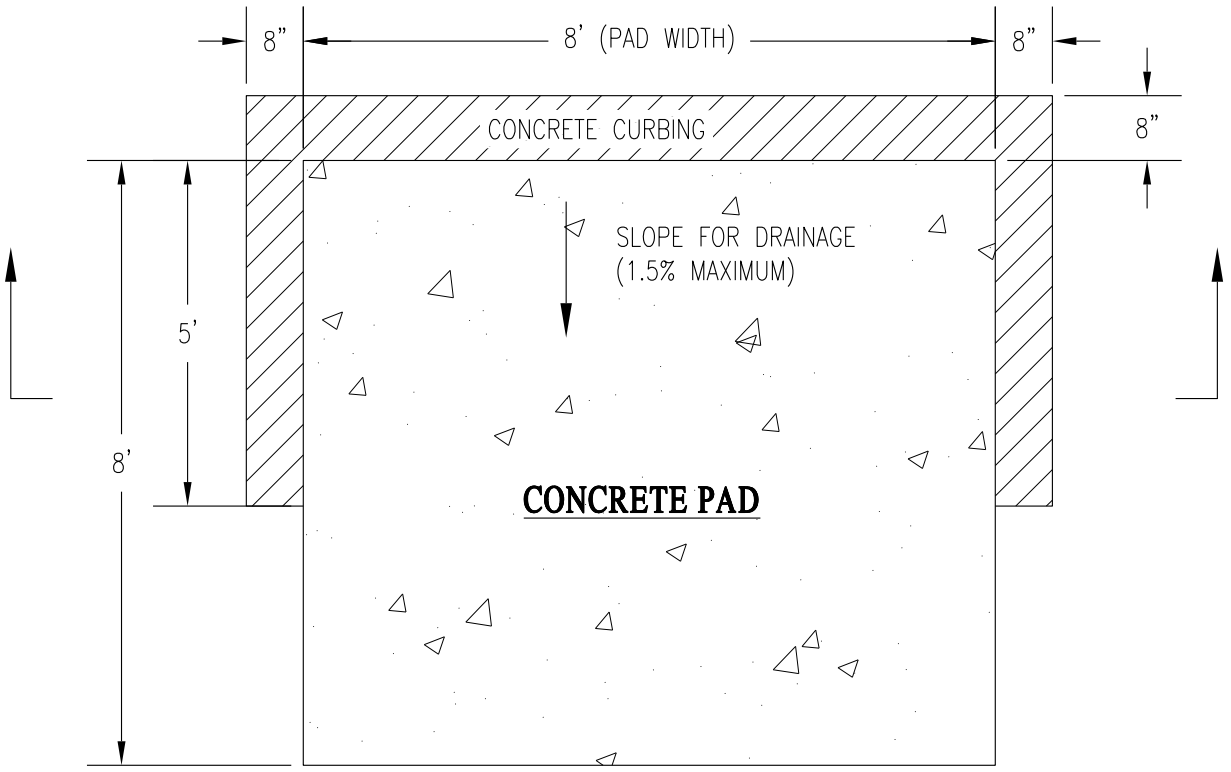
SEDIMENTATION MANHOLE DETAIL

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 06.19
DRAWN BY: EY	DWG: S21
CAD FILE: 2018_S21_06_2019	

Standard Details
Solid Waste



SECTION



NO PARKING

WHITE STENCILED LETTERING (MINIMUM 12" HIGH)

PLAN

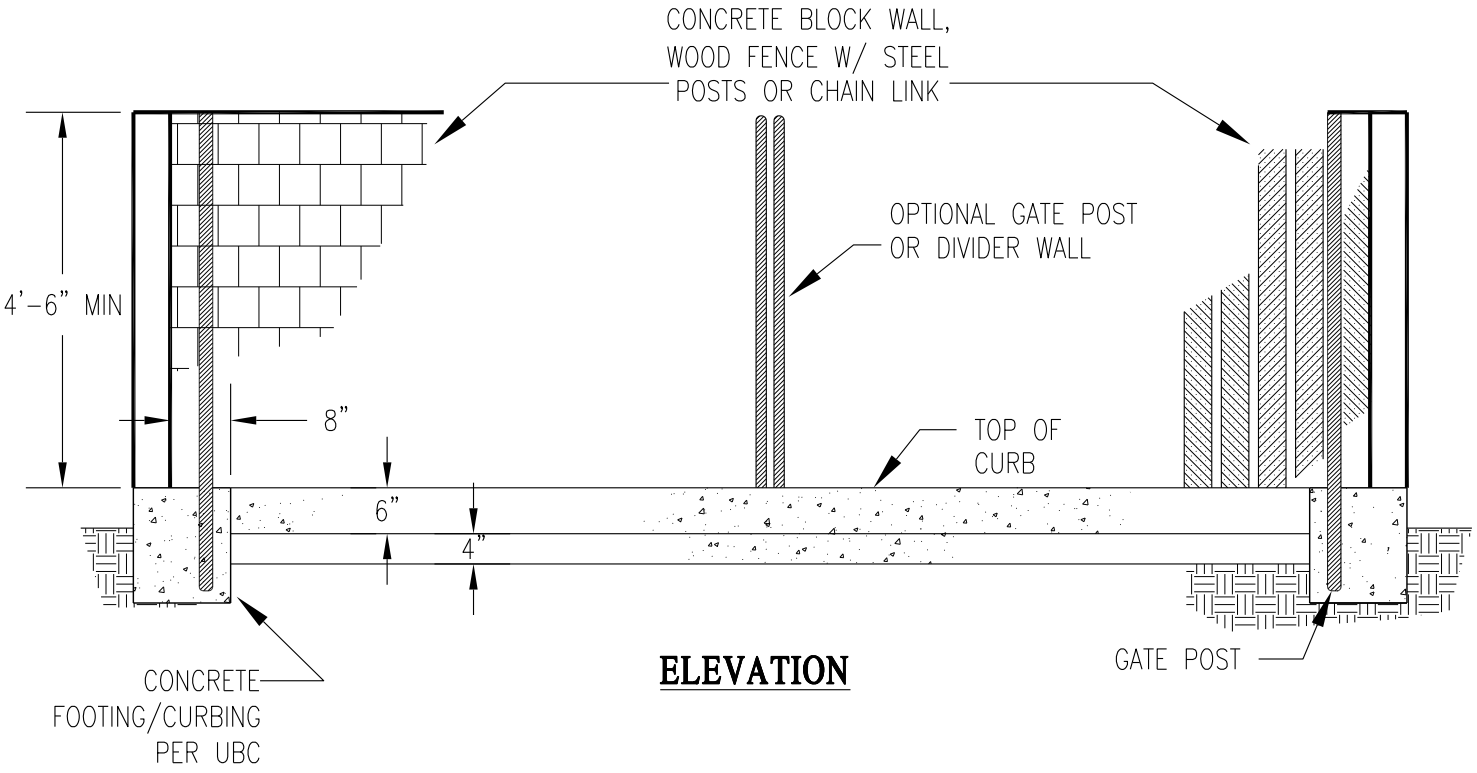
NOTES:

1. CONCRETE FORMS SHALL BE INSPECTED BY CITY OF RICHLAND PUBLIC WORKS PRIOR TO PLACEMENT OF CONCRETE. SEE SPECIFICATIONS FOR SOLID WASTE CONTAINER SITES.

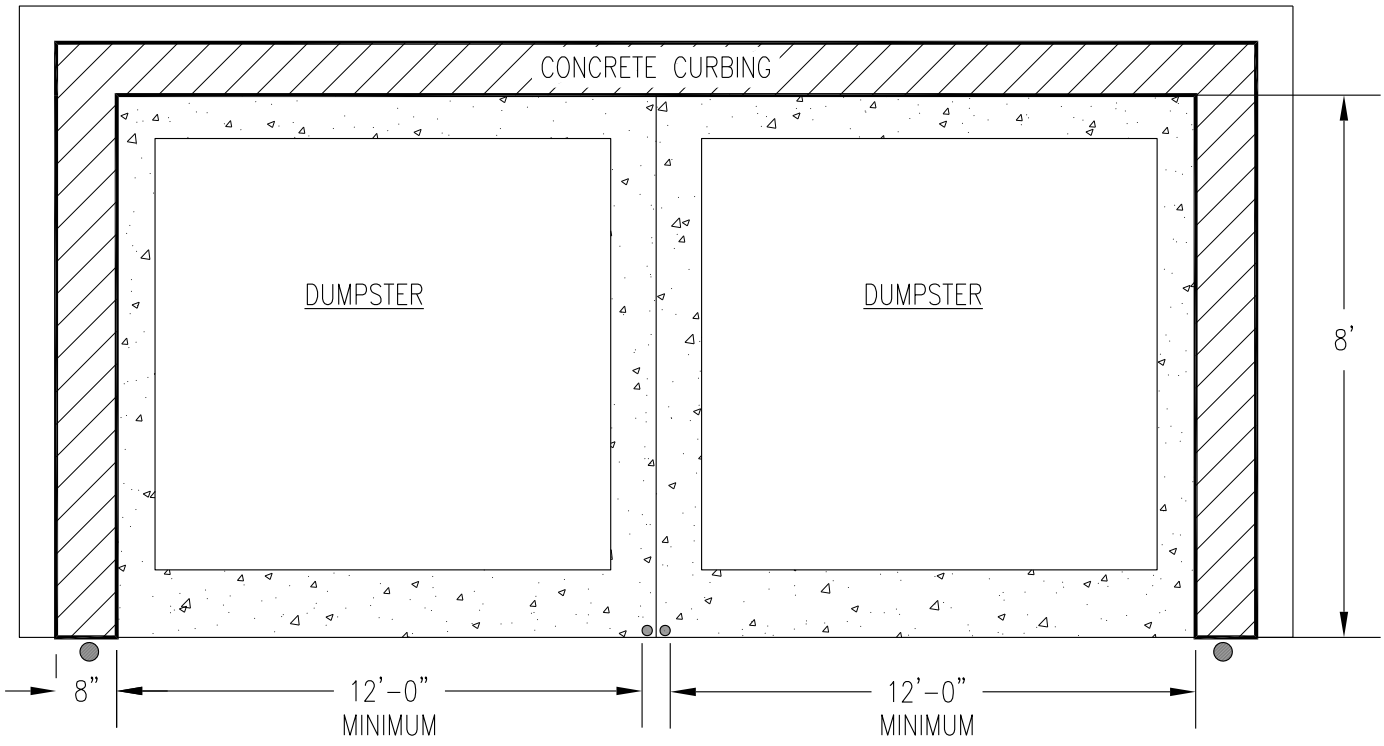
Richland Washington

SOLID WASTE CONTAINER PAD (NO WALLS OR FENCE)

PUBLIC WORKS ENGINEERING	
APPR. BY: JR	DATE: 05.14
DRAWN BY: JG	DWG: SW1
CAD FILE: 2014_SW1_05_2014	



ELEVATION



PLAN

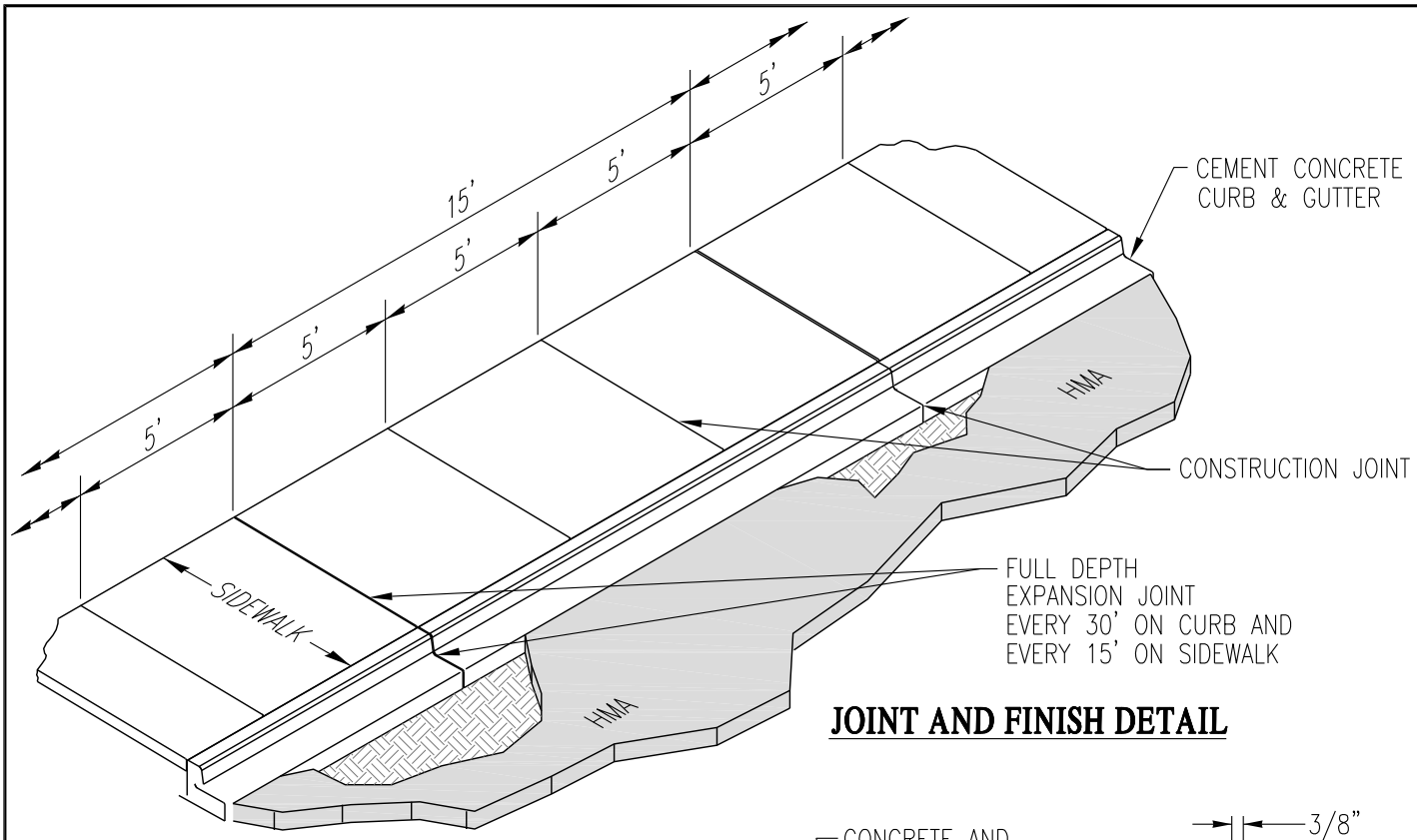
NOTES:

1. CONCRETE FORMS SHALL BE INSPECTED BY CITY OF RICHLAND PUBLIC WORKS PRIOR TO PLACEMENT OF CONCRETE. SEE SPECIFICATIONS FOR SOLID WASTE CONTAINER SITES.

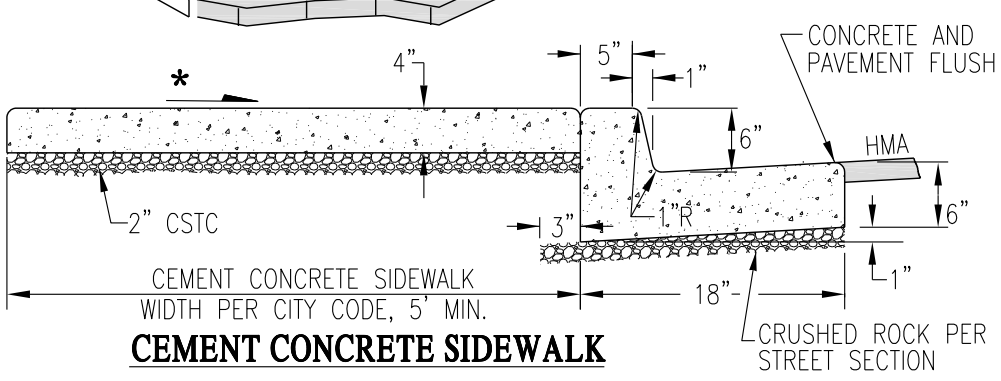
SOLID WASTE CONTAINER ENCLOSURE

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.2024
DRAWN BY: JLR	DWG: SW2
CAD FILE: 2013_SW2_01_2024	

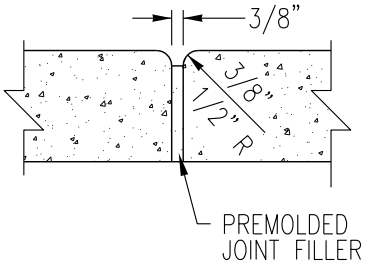
Standard Details
Streets



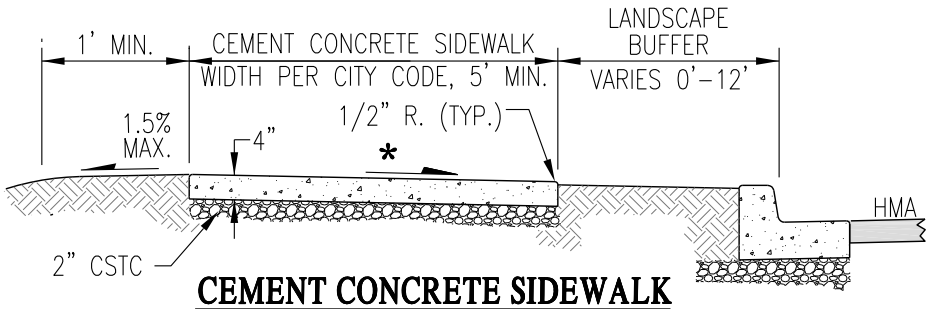
JOINT AND FINISH DETAIL



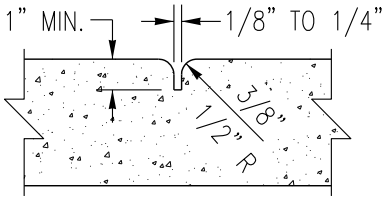
CEMENT CONCRETE SIDEWALK



EXPANSION JOINT



CEMENT CONCRETE SIDEWALK



CONSTRUCTION JOINT

LEGEND:

SLOPE IN EITHER DIRECTION

* 1.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (2% MAX)

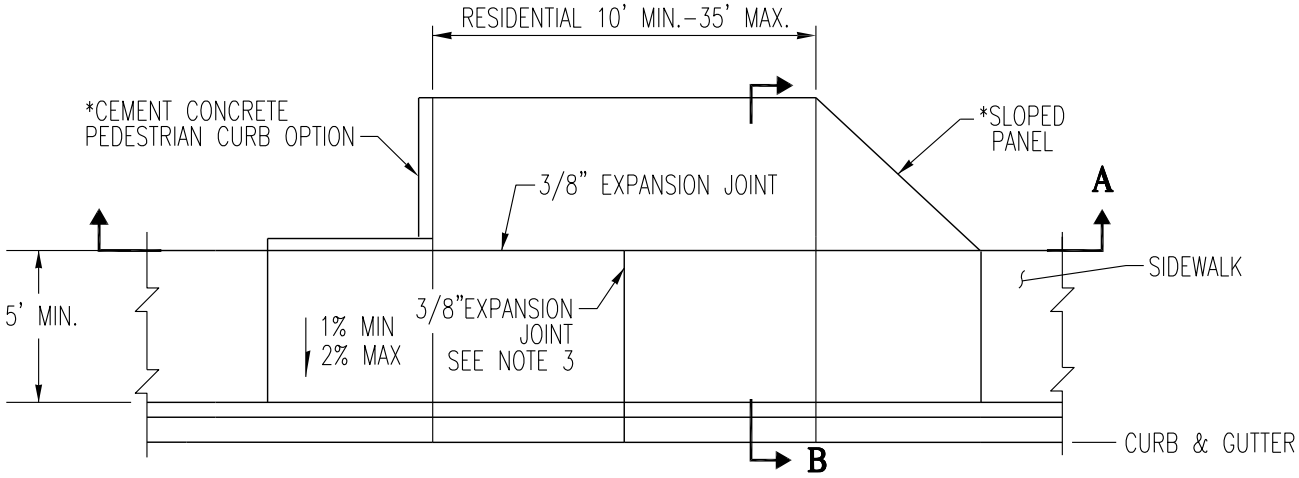
NOTES:

1. SEE STANDARD DETAIL ST7 FOR CURB, GUTTER AND SIDEWALK NOTES.
2. INSTALL 3/8" FULL EXPANSION JOINTS IN CURB AT ALL PC'S, PT'S AND CURB RETURNS.
3. ALL FILETS 1/2" UNLESS OTHERWISE NOTED.
4. FINISHED GRADE ADJACENT TO SIDEWALK OR CURB SHALL BE 1" BELOW TOP OF CONCRETE SURFACE.

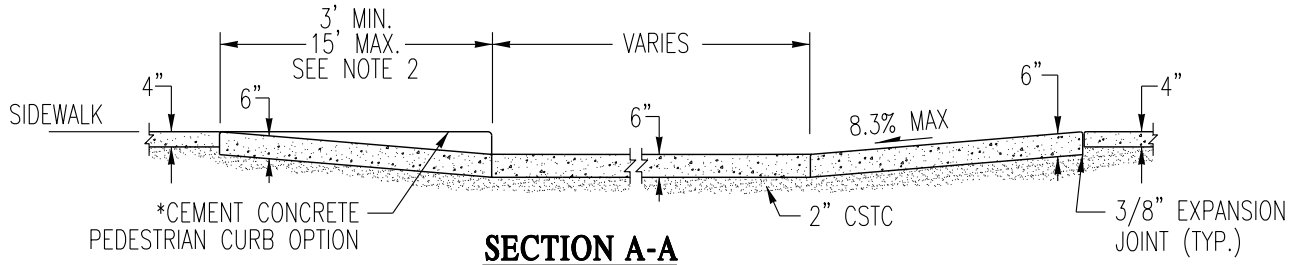
Richland Washington

CURB, GUTTER & SIDEWALK

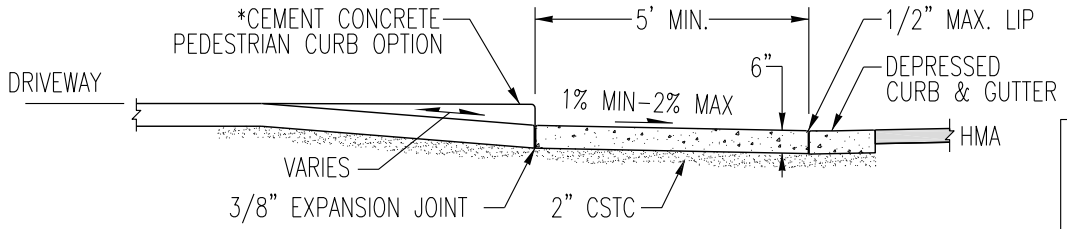
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 05.18
DRAWN BY: EY	DWG: ST1
CAD FILE: 2013_ST1_05_2018	



CEMENT CONCRETE DRIVEWAY



SECTION A-A



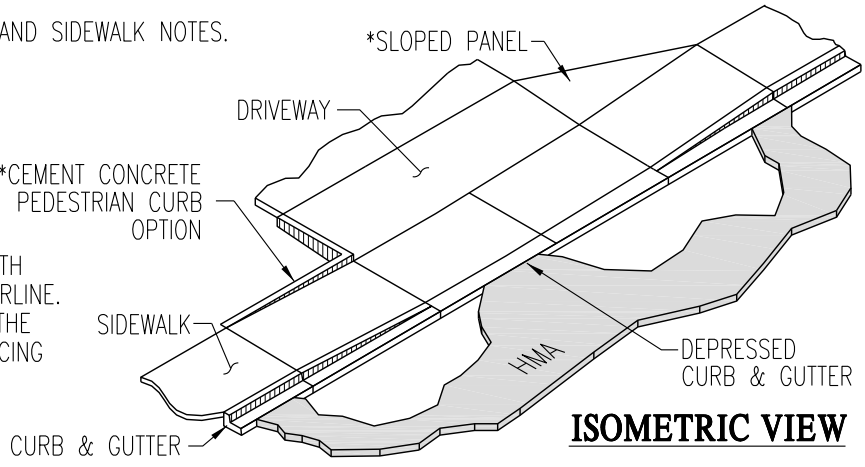
SECTION B-B

*NOTE:
OPTION USED WILL BE DETERMINED BY CITY ENGINEER; DEPENDENT UPON FIELD CONDITIONS.

LEGEND: SLOPE IN EITHER DIRECTION

NOTES:

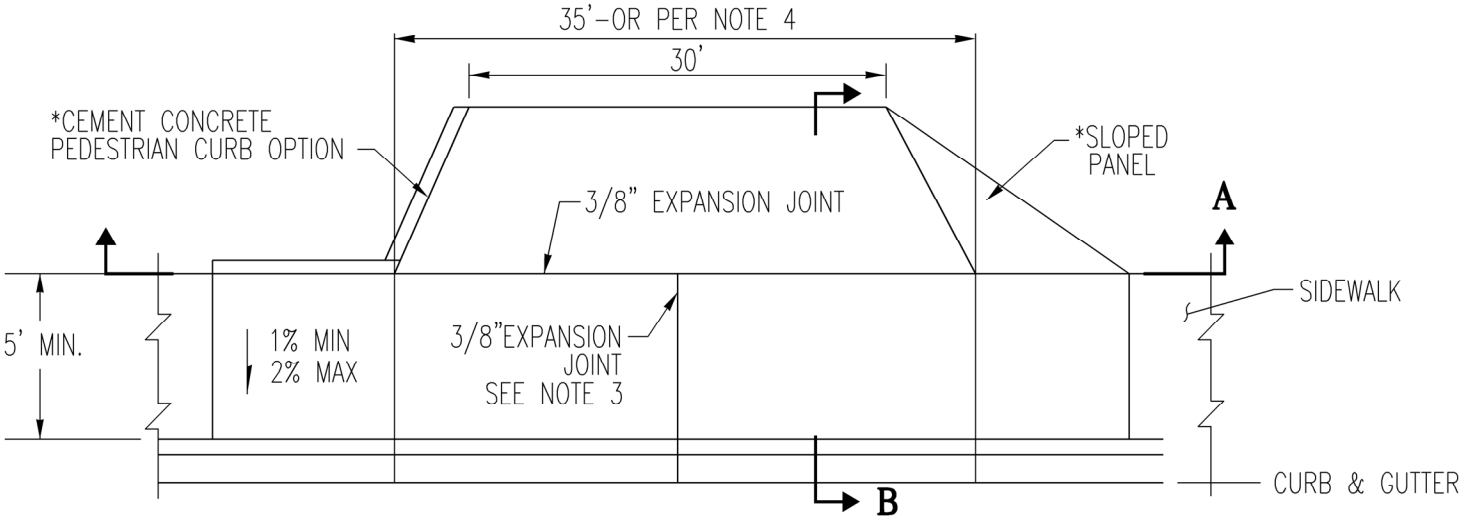
1. SEE STANDARD DETAIL ST7 FOR CURB, GUTTER AND SIDEWALK NOTES.
2. THE CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15' TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES.
3. WHEN THE DRIVEWAY WIDTH EXCEEDS 15', CONSTRUCT A FULL DEPTH EXPANSION JOINT WITH 3/8" JOINT FILLER ALONG THE DRIVEWAY CENTERLINE. CONSTRUCT EXPANSION JOINTS PARALLEL WITH THE CENTERLINE AS REQUIRED AT 15' MAXIMUM SPACING WHEN DRIVEWAY WIDTHS EXCEED 30'.
4. SEE RMC 12.04.090 AND 12.04.120 FOR ADDITIONAL DETAILS



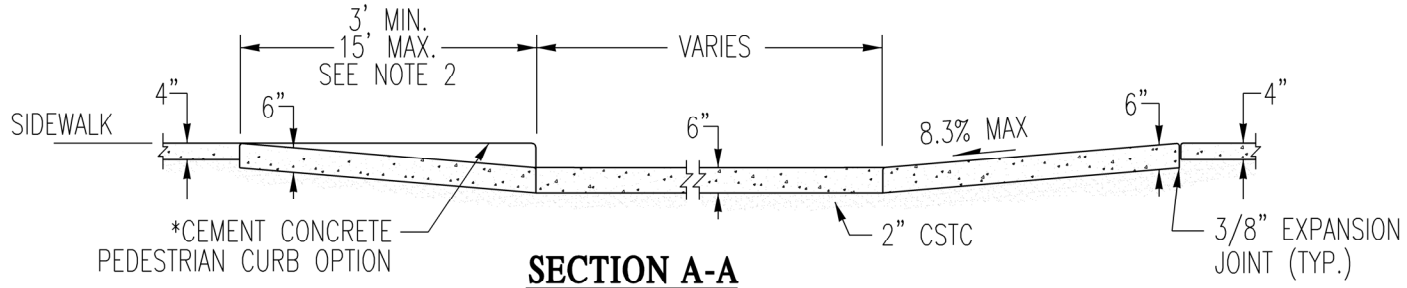
ISOMETRIC VIEW

STANDARD RESIDENTIAL DRIVEWAY (TYPE 1)

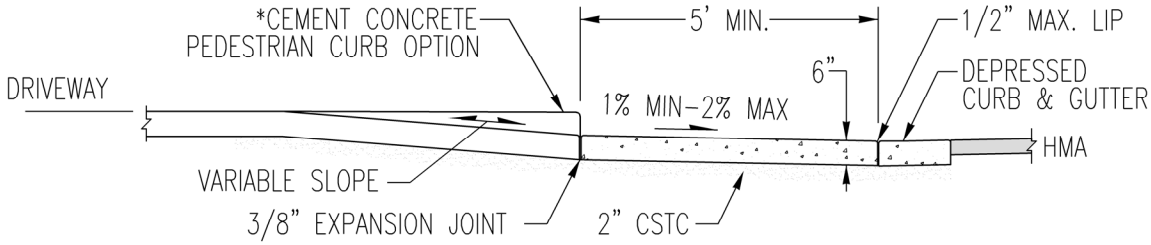
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 06.19
DRAWN BY: EY	DWG: ST2
CAD FILE: 2013_ST2_06_2019	



CEMENT CONCRETE DRIVEWAY



SECTION A-A

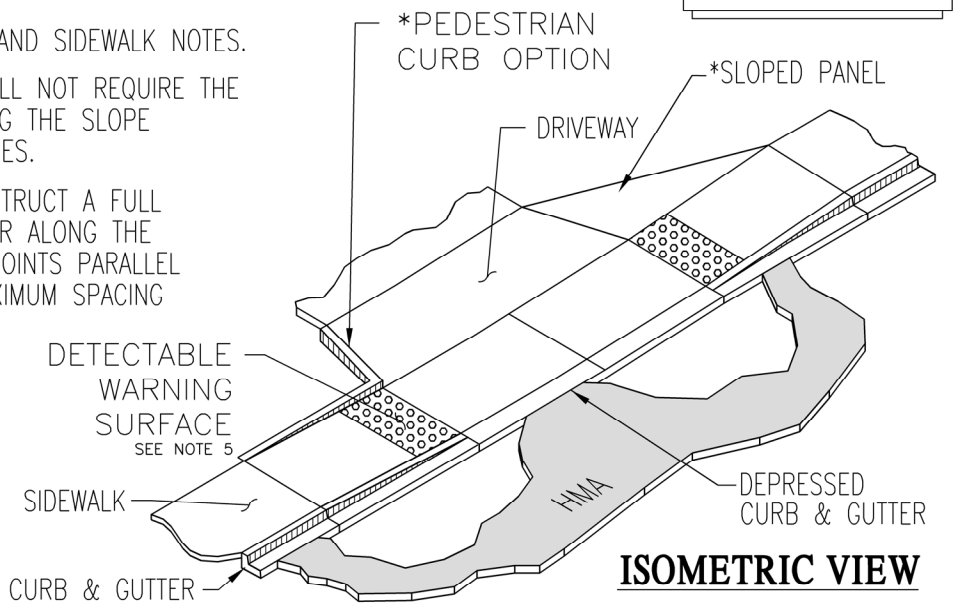


SECTION B-B

*NOTE:
OPTION USED WILL BE DETERMINED BY CITY ENGINEER; DEPENDENT UPON FIELD CONDITIONS.

NOTES:

1. SEE STANDARD DETAIL ST7 FOR CURB, GUTTER AND SIDEWALK NOTES.
2. THE CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15' TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES.
3. WHEN THE DRIVEWAY WIDTH EXCEEDS 15', CONSTRUCT A FULL DEPTH EXPANSION JOINT WITH 3/8" JOINT FILLER ALONG THE DRIVEWAY CENTERLINE. CONSTRUCT EXPANSION JOINTS PARALLEL WITH THE CENTERLINE AS REQUIRED AT 15' MAXIMUM SPACING WHEN DRIVEWAY WIDTHS EXCEED 30'.
4. SEE RMC 12.04.095 THRU 12.04.120 FOR ADDITIONAL DETAILS
5. DRIVEWAYS CONTROLLED WITH YIELD, STOP CONTROL DEVICES OR TRAFFIC SIGNALS SHALL HAVE DETECTABLE WARNING SURFACES COMPLYING WITH R305.2.8. REFER TO PROWAG R205.7 FOR MORE DETAILED INFORMATION.

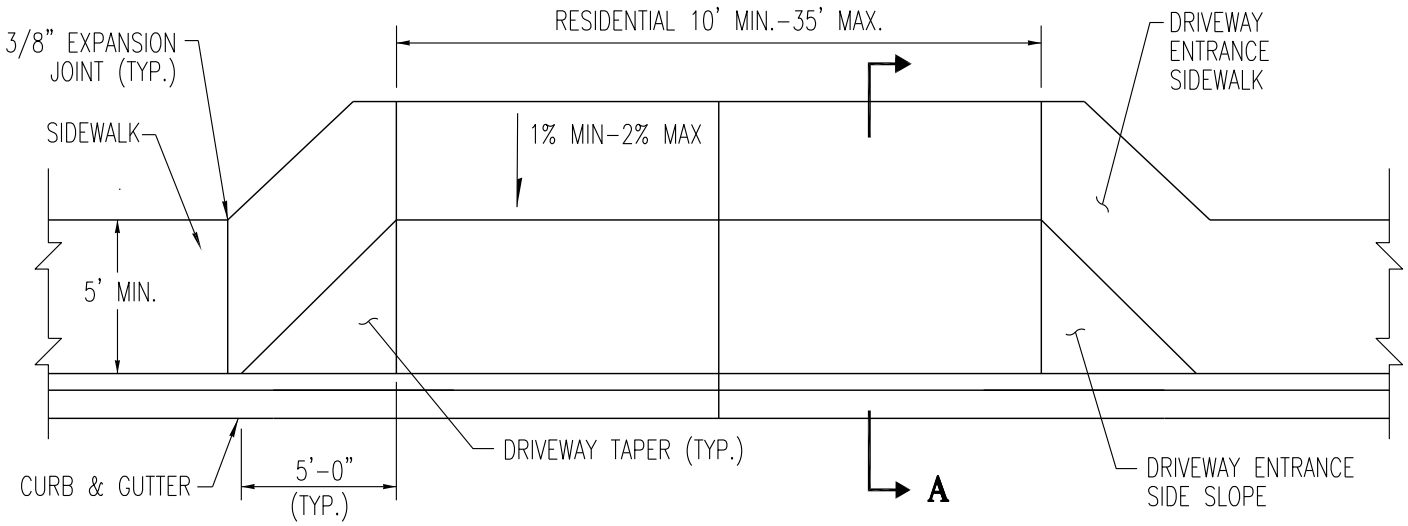


ISOMETRIC VIEW

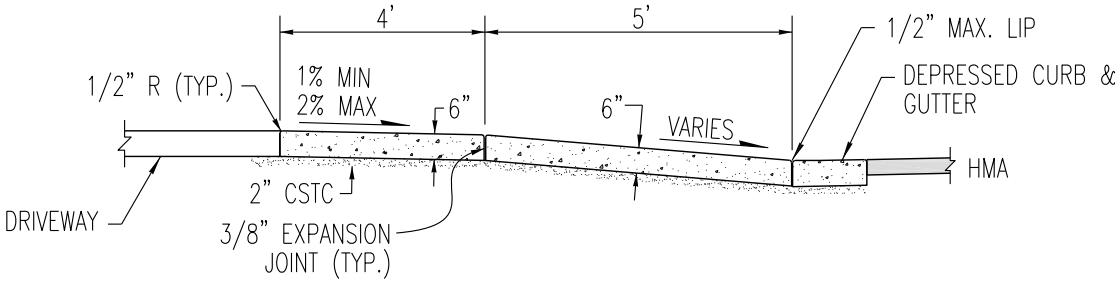
Richland Washington

STANDARD NON-RESIDENTIAL DRIVEWAY (TYPE 1)

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 09.24
DRAWN BY: JLR	DWG: ST2A
CAD FILE: 2013_ST2A_09_2024	



CEMENT CONCRETE DRIVEWAY

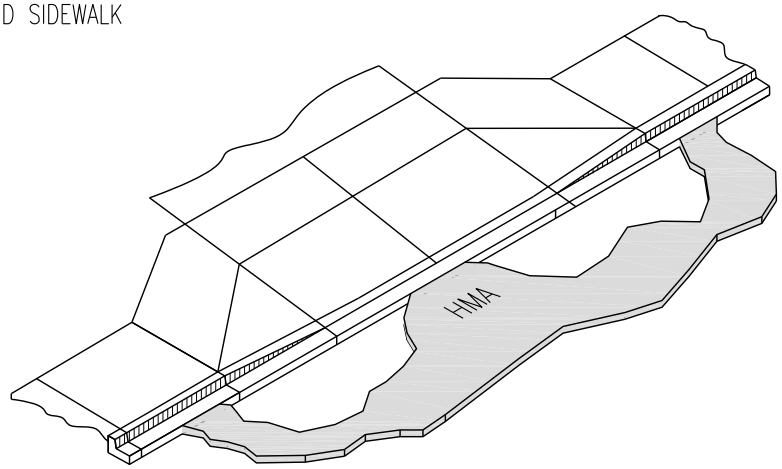


SECTION A-A

LEGEND: SLOPE

NOTES:

1. SEE STANDARD DETAIL ST7 FOR CURB, GUTTER AND SIDEWALK NOTES.
2. WHEN THE DRIVEWAY WIDTH EXCEEDS 15', CONSTRUCT A FULL DEPTH EXPANSION JOINT WITH 3/8" JOINT FILLER ALONG THE DRIVEWAY CENTERLINE. CONSTRUCT EXPANSION JOINTS PARALLEL WITH THE CENTERLINE AS REQUIRED AT 15' MAXIMUM SPACING WHEN DRIVEWAY WIDTHS EXCEED 30'.
3. SEE RMC 12.04.090 AND 12.04.120 FOR ADDITIONAL DETAILS

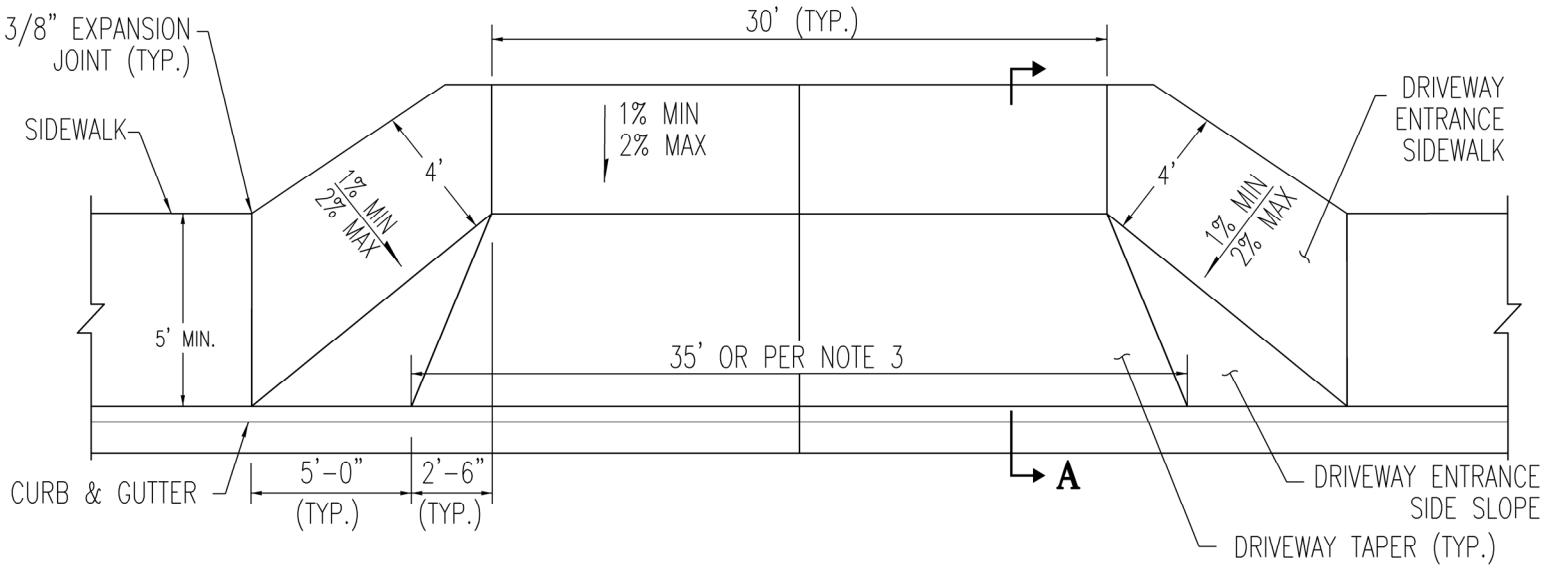


ISOMETRIC VIEW

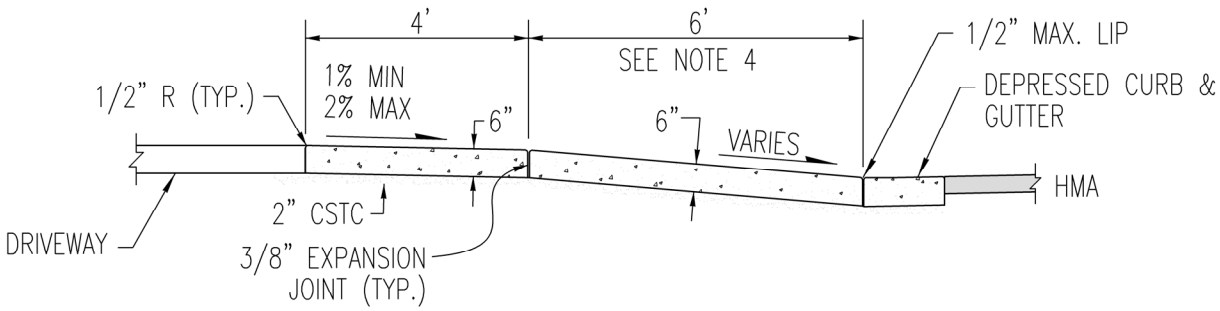
Richland Washington

STANDARD RESIDENTIAL DRIVEWAY (TYPE 2)

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 06.19
DRAWN BY: EY	DWG: ST3
CAD FILE: 2013_ST3_06_2019	



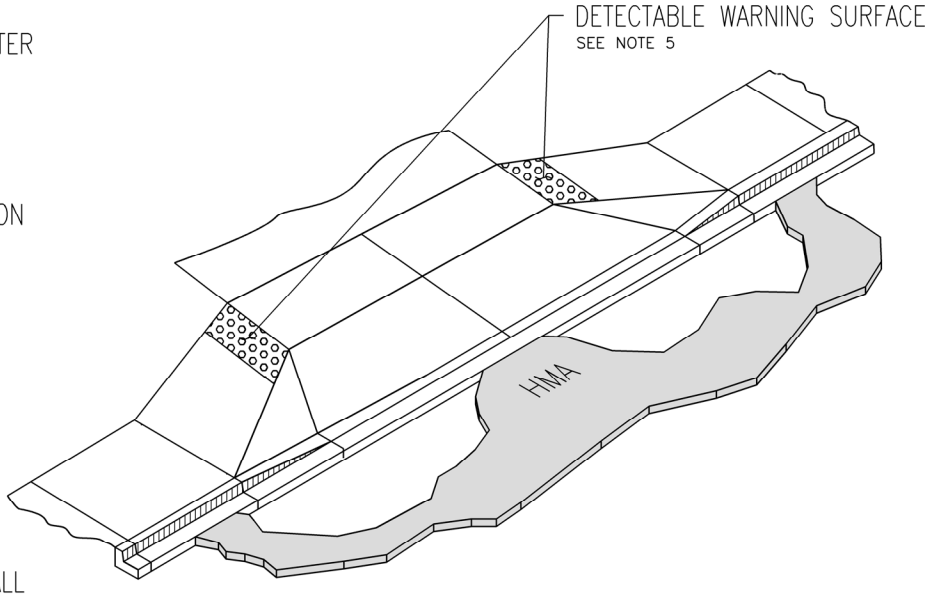
CEMENT CONCRETE DRIVEWAY



SECTION A-A

NOTES:

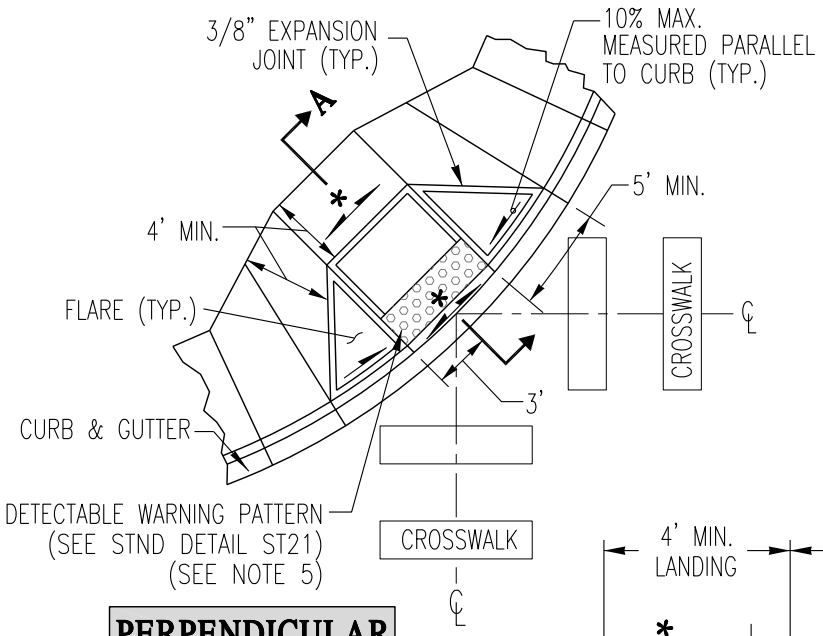
1. SEE STANDARD DETAIL ST7 FOR CURB, GUTTER AND SIDEWALK NOTES.
2. WHEN THE DRIVEWAY WIDTH EXCEEDS 15', CONSTRUCT A FULL DEPTH EXPANSION JOINT WITH 3/8" JOINT FILLER ALONG THE DRIVEWAY CENTERLINE. CONSTRUCT EXPANSION JOINTS PARALLEL WITH THE CENTERLINE AS REQUIRED AT 15' MAXIMUM SPACING WHEN DRIVEWAY WIDTHS EXCEED 30'.
3. SEE RMC 12.04.095 THRU 12.04.120 FOR ADDITIONAL DETAILS
4. THIS DIMENSION MAY BE REDUCED TO AS LOW AS 4'. REDUCTION REQUIRES VARIANCE REQUEST APPROVED BY CITY ENGINEER.
5. DRIVEWAYS CONTROLLED WITH YIELD, STOP CONTROL DEVICES OR TRAFFIC SIGNALS SHALL HAVE DETECTABLE WARNING SURFACES COMPLYING WITH R305.2.8. REFER TO PROWAG R205.7 FOR MORE DETAILED INFORMATION.



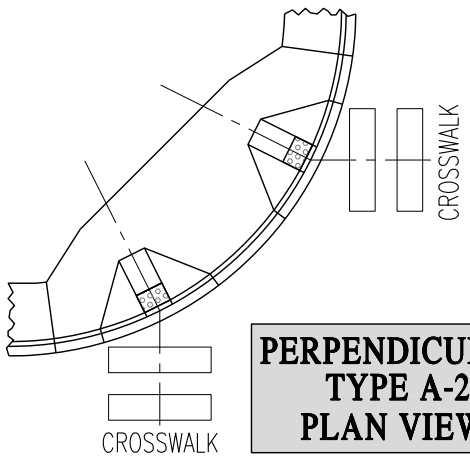
ISOMETRIC VIEW

STANDARD NON-RESIDENTIAL DRIVEWAY (TYPE 2)

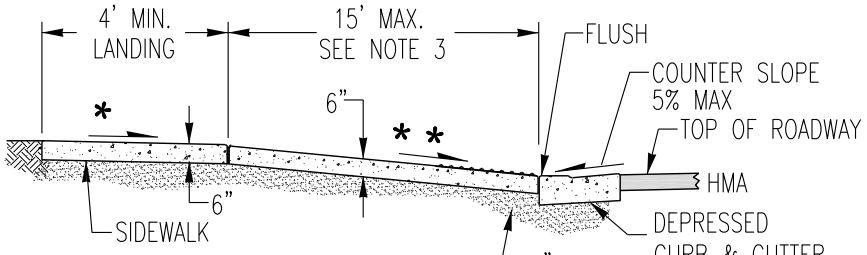
PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 09.24
DRAWN BY: JLR	DWG: ST3A
CAD FILE: 2013_ST3A_09_2024	



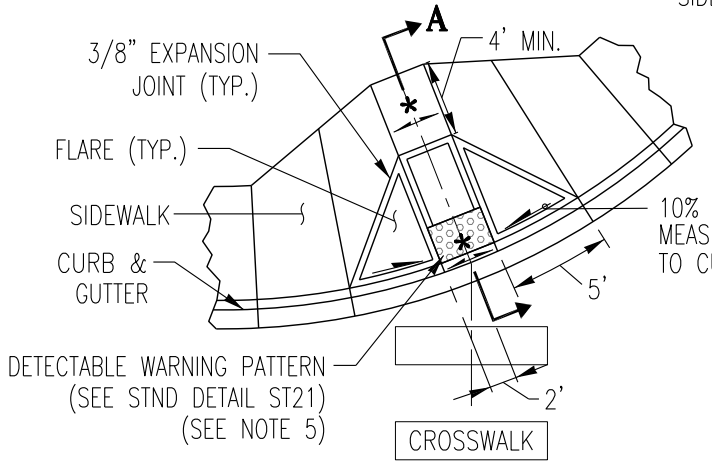
PERPENDICULAR TYPE A-1



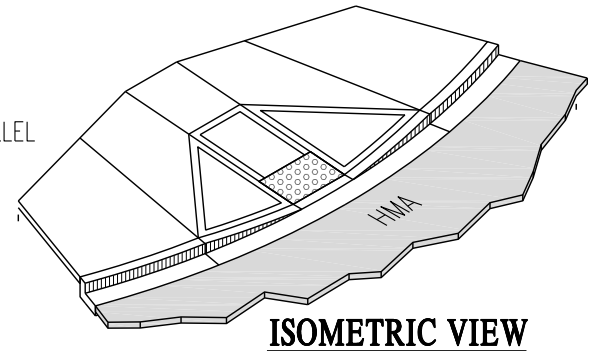
PERPENDICULAR TYPE A-2 PLAN VIEW



SECTION A-A



PERPENDICULAR TYPE A-2
SEE NOTE 4



ISOMETRIC VIEW

LEGEND:

SLOPE IN EITHER DIRECTION
* 1.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (2% MAX)
** 7.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (8.3% MAX)

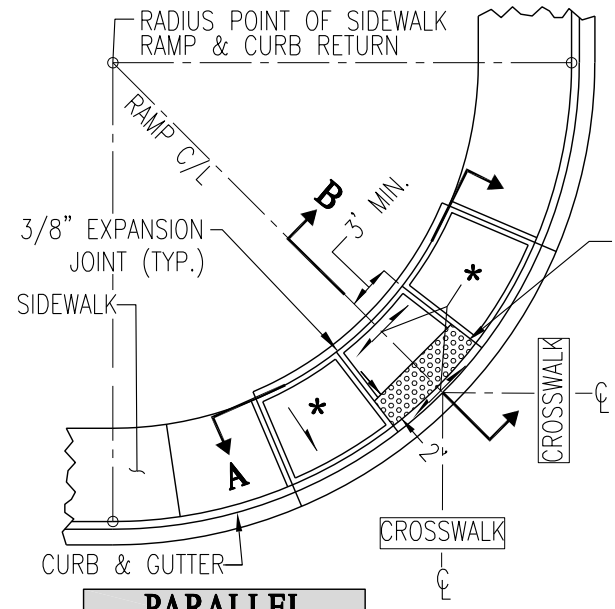
NOTES:

1. THE TYPE A-2 ARE THE PREFERRED RAMPS. WHEN IT IS INFEASIBLE TO PROVIDE A RAMP FOR EACH OF THE TWO CROSSWALKS, A SINGLE TYPE A-1 RAMP FOR BOTH CROSSWALKS CAN BE USED WITH THE APPROVAL OF THE ENGINEER.
2. SEE STANDARD DETAIL ST7 FOR CURB, GUTTER AND SIDEWALK NOTES.
3. THE CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15' TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15' MAXIMUM LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE AS FLAT AS FEASIBLE.
4. DETAILED DESIGN INFORMATION SHALL BE PROVIDED BY THE ENGINEER WITH THE ELEVATIONS PROVIDED FOR ALL FOUR CORNERS OF THE LANDING.
5. CURB SHALL BE FORMED TO PROVIDE A STRAIGHT LINE ALONG THE BACK OF CURB ADJACENT TO THE WARNING SURFACE.

Richland Washington

PERPENDICULAR CURB RAMP TYPE A

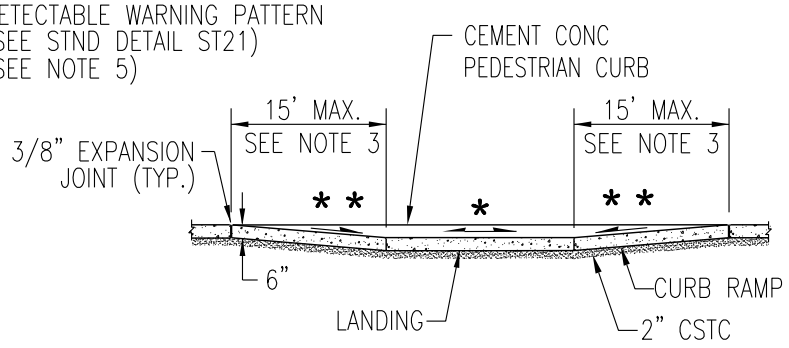
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 02.23
DRAWN BY: JR	DWG: ST4
CAD FILE: 2014_ST4_02_2023	



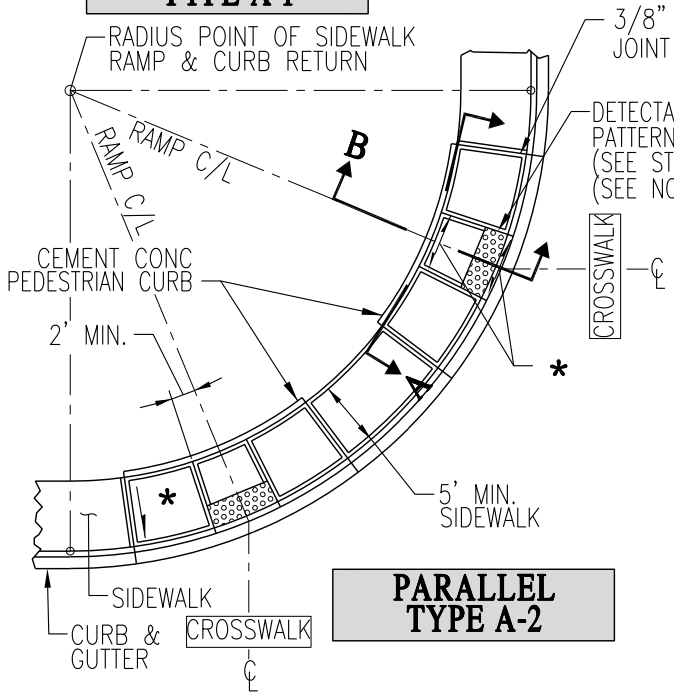
PARALLEL TYPE A-1

LEGEND:

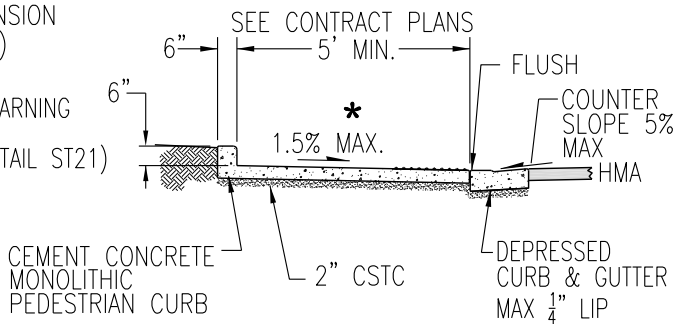
- ◄► SLOPE IN EITHER DIRECTION
- * 1.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (2% MAX)
- ** 7.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (8.3% MAX)



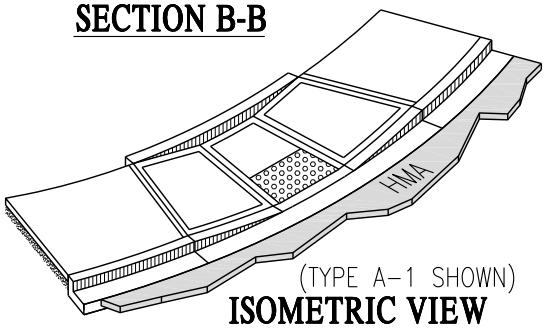
SECTION A-A



PARALLEL TYPE A-2



SECTION B-B



(TYPE A-1 SHOWN)

ISOMETRIC VIEW

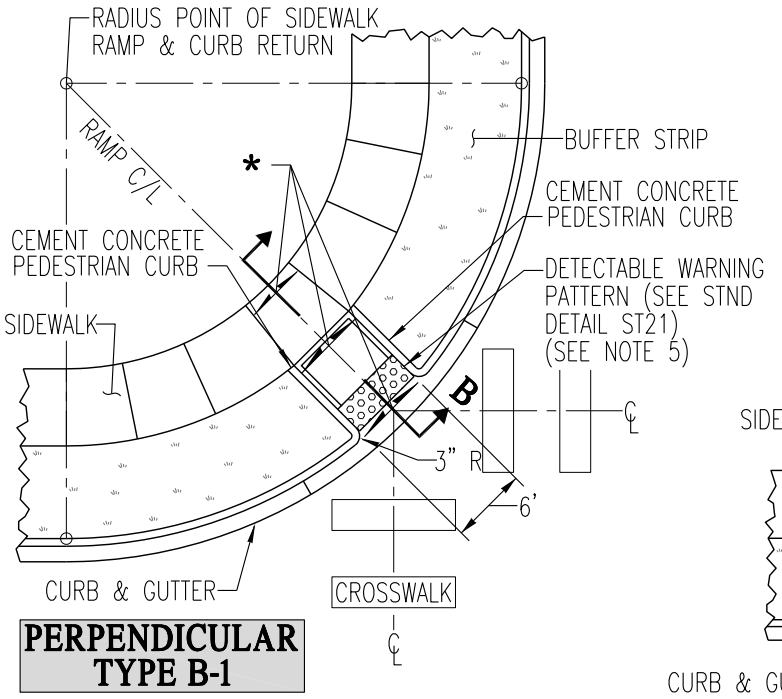
NOTES:

1. THE TYPE A-2 RAMPS ARE THE PREFERRED RAMPS. WHEN IT IS INFEASIBLE TO PROVIDE A RAMP FOR EACH OF THE TWO CROSSWALKS, A SINGLE TYPE A-1 RAMP FOR BOTH CROSSWALKS CAN BE USED WITH THE APPROVAL OF THE ENGINEER.
2. SEE STANDARD DETAIL ST7 FOR CURB, GUTTER AND SIDEWALK NOTES.
3. THE CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15' TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15' MAXIMUM LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE AS FLAT AS FEASIBLE.
4. DETAILED DESIGN INFORMATION SHALL BE PROVIDED BY ENGINEER ON THE CONSTRUCTION PLANS, INCLUDING DIMENSIONS AND ELEVATIONS AT TOP AND BOTTOM OF LANDING AT BOTH FRONT AND BACK OF SIDEWALK, AS WELL AS CURB RAMP TRANSITION LENGTHS. MINIMUM CURB LENGTH TRANSITION IS 5'.
5. CURB SHALL BE FORMED TO PROVIDE A STRAIGHT LINE ALONG THE BACK OF CURB ADJACENT TO THE WARNING PATTERN.

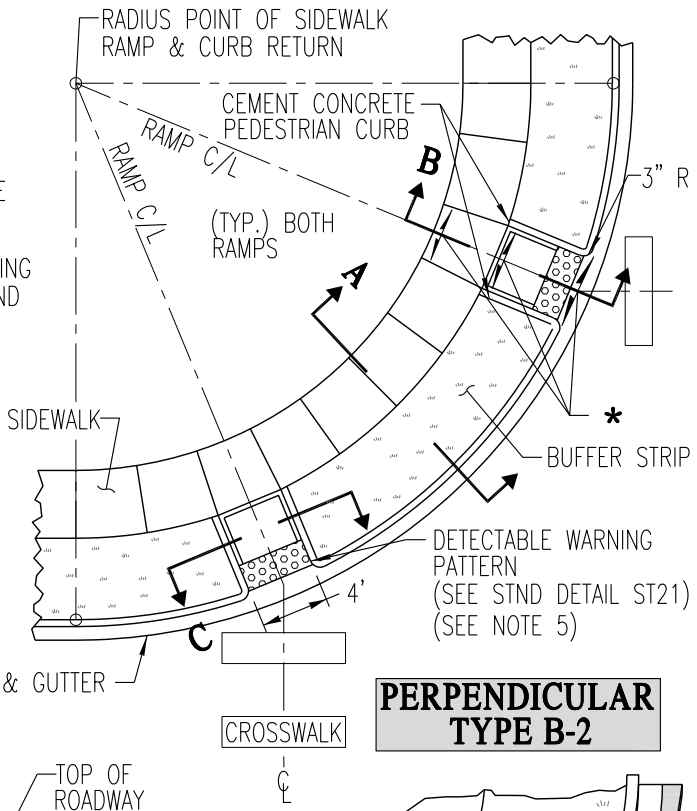
Richland Washington

PARALLEL CURB RAMP TYPE A

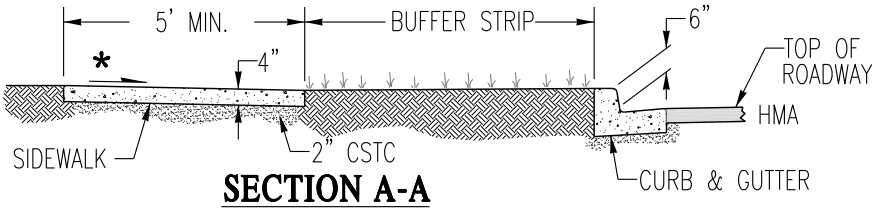
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 02.23
DRAWN BY: JR	DWG: ST5
CAD FILE: 2013_ST5_02_2023	



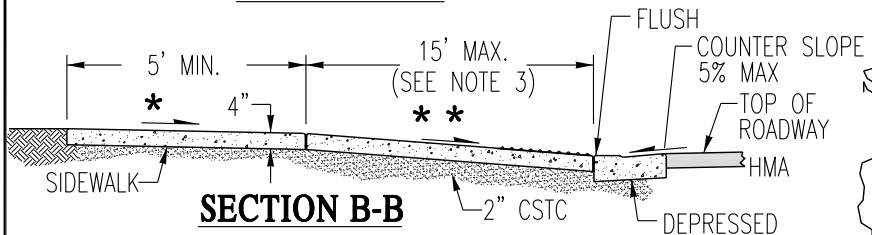
PERPENDICULAR TYPE B-1



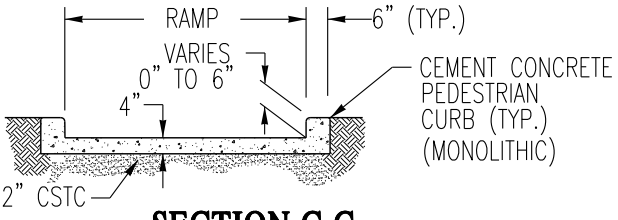
PERPENDICULAR TYPE B-2



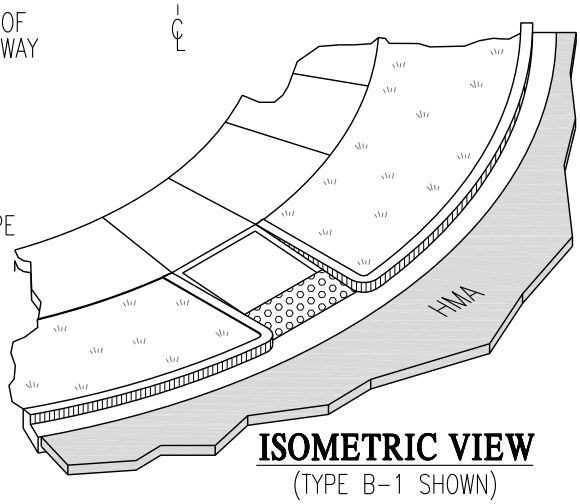
SECTION A-A



SECTION B-B



SECTION C-C



ISOMETRIC VIEW
(TYPE B-1 SHOWN)

LEGEND:

- SLOPE IN EITHER DIRECTION
- * 1.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (2% MAX)
- ** 7.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (8.3% MAX)

NOTES:

1. THE TYPE B-2 RAMP ARE THE PREFERRED RAMPS. WHEN IT IS INFEASIBLE TO PROVIDE A RAMP FOR EACH OF THE TWO CROSSWALKS, A SINGLE TYPE B-1 RAMP FOR BOTH CROSSWALKS CAN BE USED WITH THE APPROVAL OF THE ENGINEER.
2. SEE STANDARD DETAIL ST7 FOR CURB, GUTTER AND SIDEWALK NOTES.
3. THE CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15' TO AVOID CHASING THE CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15' TO AVOID CHASING RUNNING SLOPE OF THE CURB RAMP SHALL BE AS FLAT AS FEASIBLE.
4. DETAILED DESIGN INFORMATION SHALL BE PROVIDED BY THE ENGINEER WITH THE ELEVATIONS PROVIDED FOR ALL FOUR CORNERS OF THE LANDING AND RAMP LENGTH.
5. CURB SHALL BE FORMED TO PROVIDE A STRAIGHT LINE ALONG THE BACK OF CURB ADJACENT TO THE WARNING PATTERN.

Richland Washington

PERPENDICULAR CURB RAMP TYPE B

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 02.23
DRAWN BY: JR	DWG: ST6
CAD FILE: 2013_ST6_02_2023	

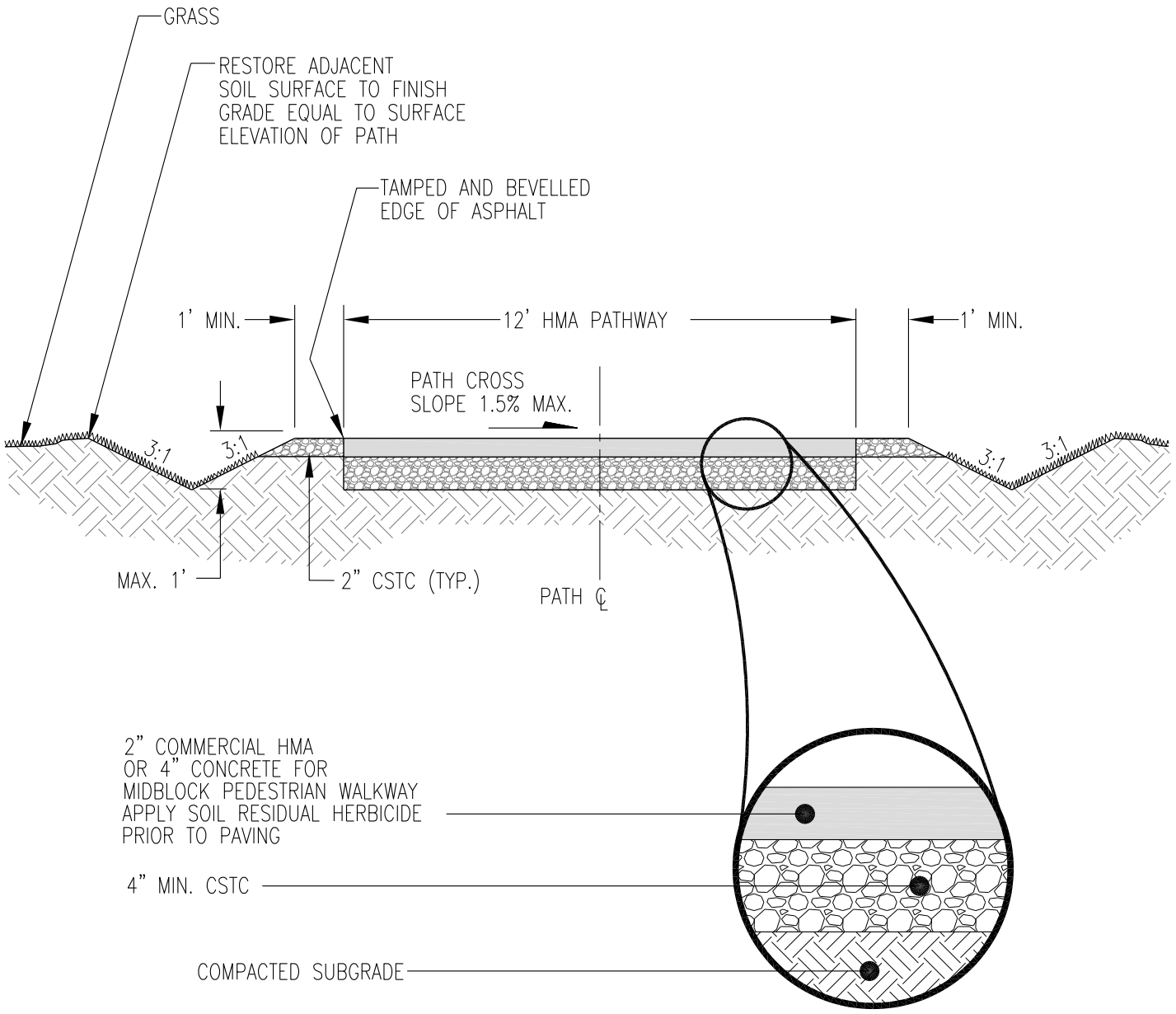
CONSTRUCTION NOTES FOR PEDESTRIAN FACILITIES

1. ASPHALT PATCHING – SAWCUT A MINIMUM OF 24" OF ASPHALT BEYOND THE FACE OF NEW GUTTER, REMOVE ALL DEBRIS AND ADD CRUSHED SURFACE TOP COURSE (CSTC) AS NEEDED. COMPACT AREA, PLACE HMA AND COMPACT AS REQUIRED.
2. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI FOR SIDEWALKS. CONCRETE FOR CURB, GUTTER AND DRIVEWAYS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI.
3. CONTRACTOR SHALL CALL FOR CITY INSPECTION PRIOR TO CUTTING AND/OR REMOVING CURB, GUTTER, AND SIDEWALK. THE INSPECTOR WILL MARK AREA TO BE CUT OR REMOVED. CONTRACTOR'S PRESENCE IS ADVISABLE.
4. CONTRACTOR SHALL CALL FOR INSPECTION OF ALL FORMS PRIOR TO POURING CONCRETE FOR CURB, GUTTER, SIDEWALK AND DRIVEWAYS. ALL EXPANSION JOINTS SHALL BE IN PLACE AT TIME OF INSPECTION. ("WET SET" MASTIC IS NOT ALLOWED)
5. THE INSPECTOR SHALL CHECK ALL JOINT LOCATIONS. ALL EXPANSION JOINTS SHALL BE MARKED WITH AN "M".
6. CONTRACTOR SHALL NOT POUR ANY CONCRETE UNTIL ALL JOINTS HAVE BEEN CHECKED AND GIVEN VERBAL OR WRITTEN APPROVAL BY INSPECTOR.
7. THE FACE OF CURB SHALL BE STAMPED AT ALL UTILITY CROSSINGS, MAIN LINES AND SERVICE LINES AS FOLLOWS: "S"–SANITARY SEWER, "W"–WATER, "I"–IRRIGATION, "C"–CONDUITS
8. CURB, GUTTER, AND SIDEWALK SURFACES SHALL HAVE A LIGHT BROOM FINISH. SIDEWALK SHALL BE BROOMED PERPENDICULAR TO CURB LINE IN A UNIFORM AND CONSISTENT MANNER.
9. A MINIMUM OF 2" OF CSTC SHALL BE PLACED AND COMPACTED UNDER ALL CURB, GUTTER AND SIDEWALK.
10. JOINT SPACING SHALL BE NO LESS THAN 2.5' AND NO GREATER THAN 5'.
11. SIDEWALKS SHALL BE A MINIMUM OF 5 FEET WIDE. IN COMMERCIAL ZONED C–2, C–3, AND CBD AREAS THE SIDEWALKS SHALL BE 8 FEET WIDE.
12. WHEN UTILITY METERS, VAULTS, TRANSFORMERS, ETC. EXIST IN THE AREA BETWEEN THE LOT LINE AND THE DRIVEWAY, THE DRIVEWAY MUST BE CONSTRUCTED AT LEAST 10' FROM THE LOT LINE.
13. IF A CONCRETE DRIVEWAY IS TO BE EXTENDED PAST THE R/W LINE A 3/8" MASTIC EXPANSION JOINT SHALL BE INSTALLED FULL LENGTH OF DRIVEWAY AND FULL DEPTH OF DRIVEWAY AT THE BACK OF SIDEWALK. DRIVEWAY SHALL LINE UP WITH THE BOTTOM OF THE DRIVEWAY TRANSITIONS IN THE CURB AND GUTTER.
14. MAINTAIN 4' MINIMUM CLEARANCE FROM ANY OBSTRUCTION ON SIDEWALK AND SIDEWALK RAMP.
15. AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES, OR OTHER OBSTRUCTIONS IN FRONT OF DRIVEWAY ENTRANCES.
16. AT NO TIME SHALL ANY SLOPES EXCEED CURRENT ADA STANDARDS.

Richland Washington

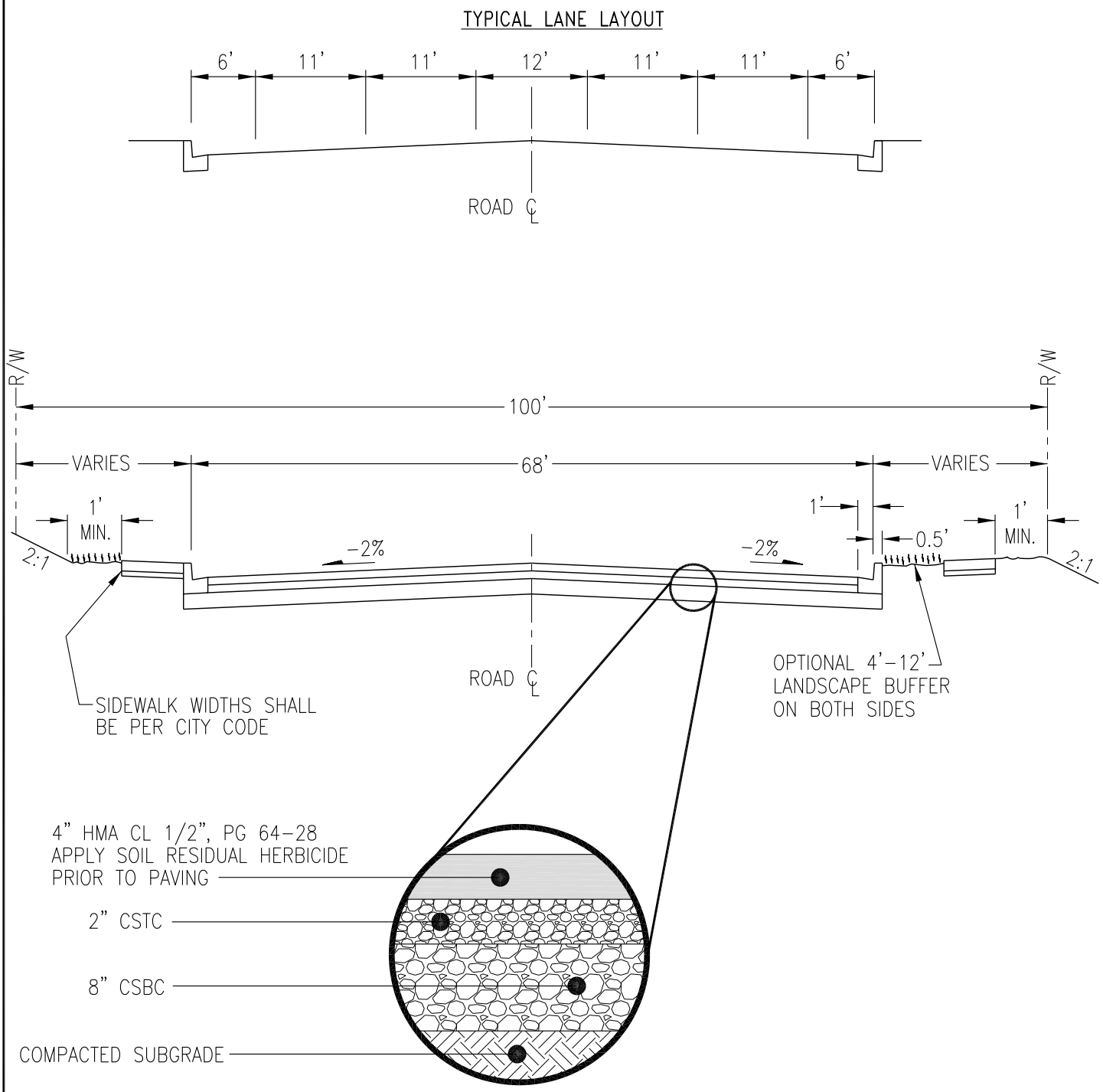
CURB, GUTTER & SIDEWALK NOTES

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 09.13
DRAWN BY: LD	DWG: ST7
CAD FILE: 2013_ST7_09_2013	



BIKE/PED PATH

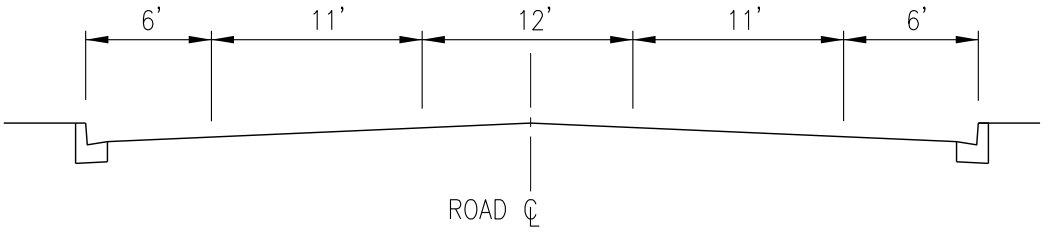
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 09.13
DRAWN BY: LD	DWG: ST8
CAD FILE: 2013_ST8_09_2013	

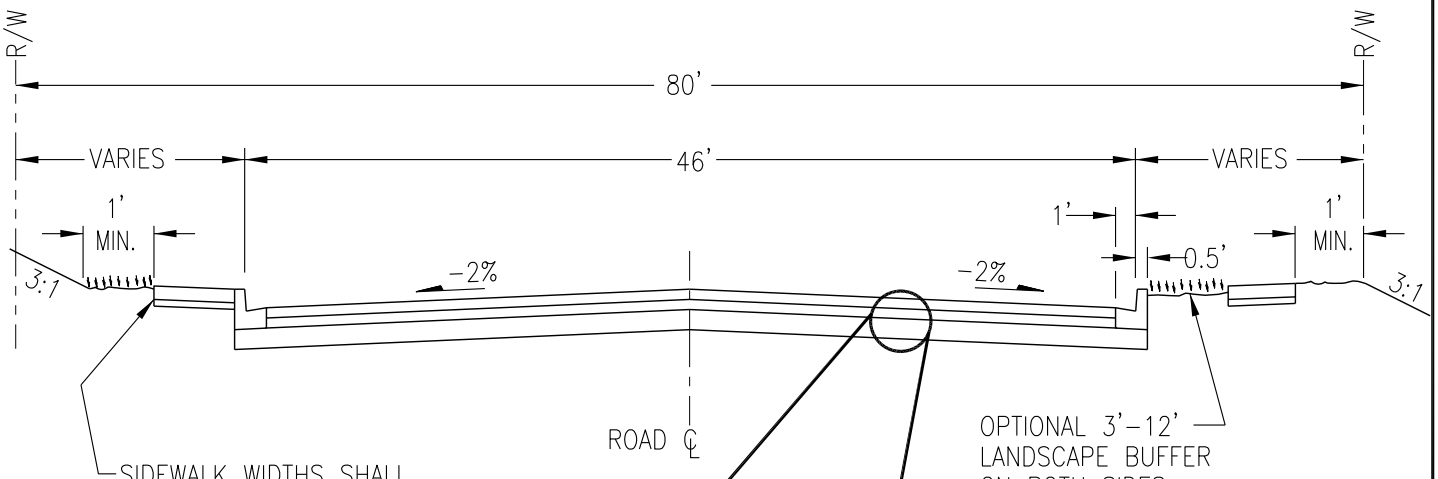


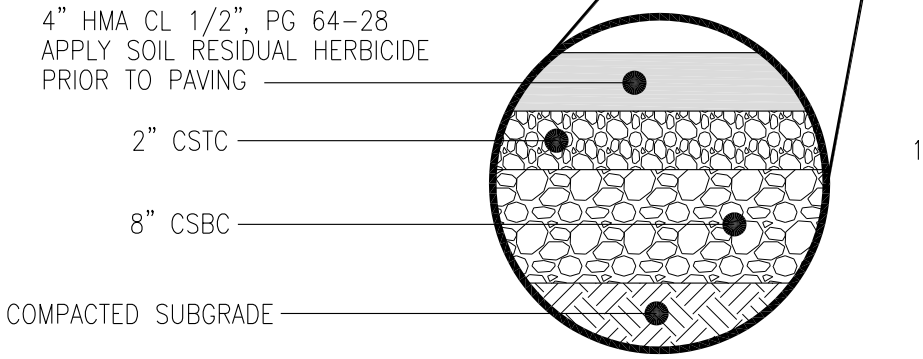
PRINCIPAL ARTERIAL

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: ST9
CAD FILE: 2013_ST9_01_2024	

TYPICAL LANE LAYOUT







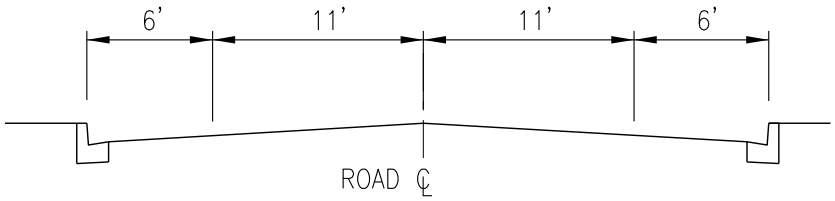
NOTES:

1. WHEN A MINOR ARTERIAL REQUIRES A 5-LANE CROSS SECTION AS DETERMINED BY THE PUBLIC WORKS DIRECTOR, THE CROSS SECTION DRAWING FOR PRINCIPAL ARTERIAL (ST9) SHALL BE USED.

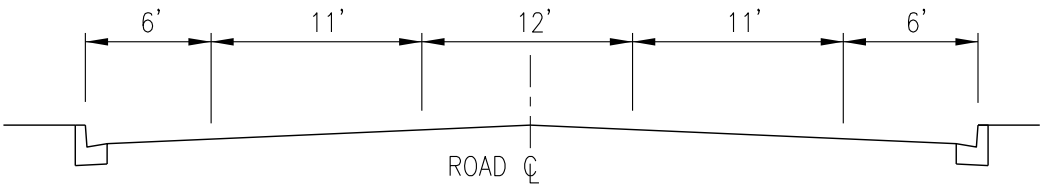
MINOR ARTERIAL

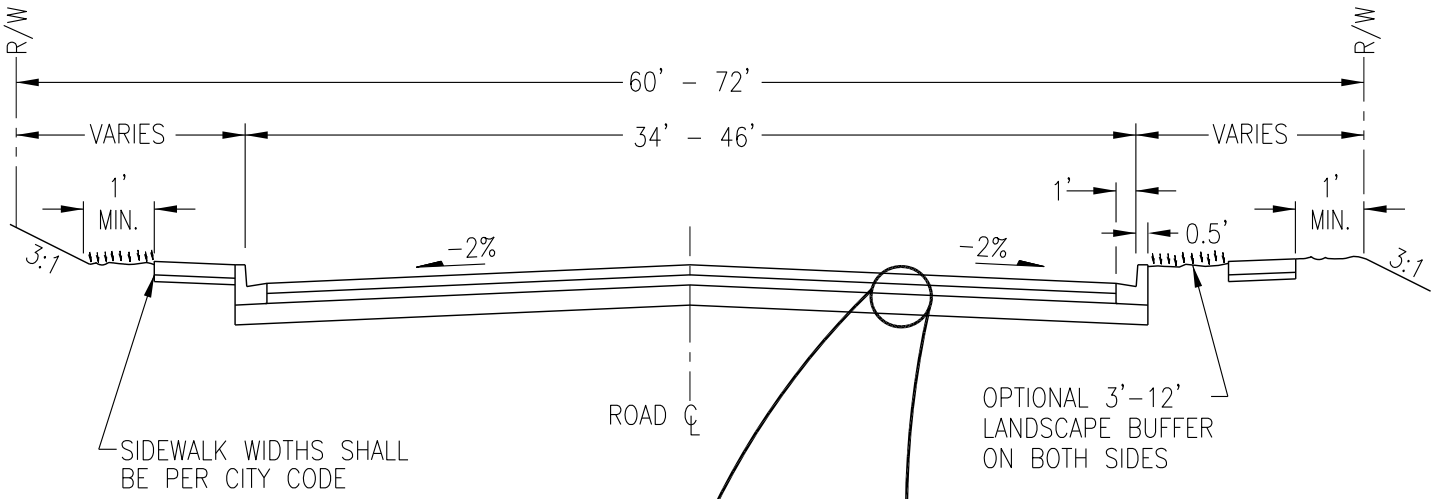
PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: ST10
CAD FILE: 2013_ST10_01_2024	

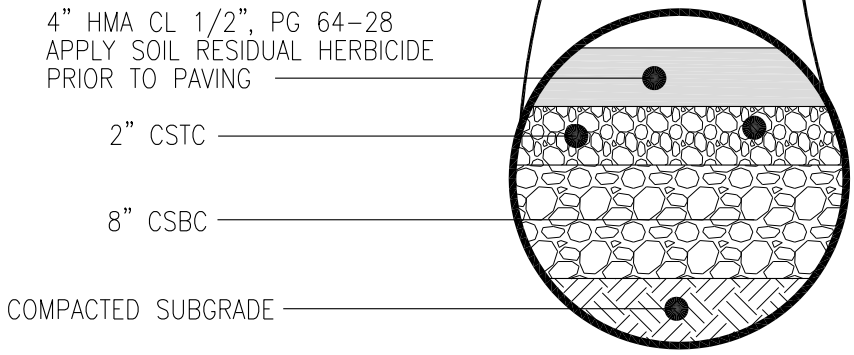
LANE OPTION 1



LANE OPTION 2





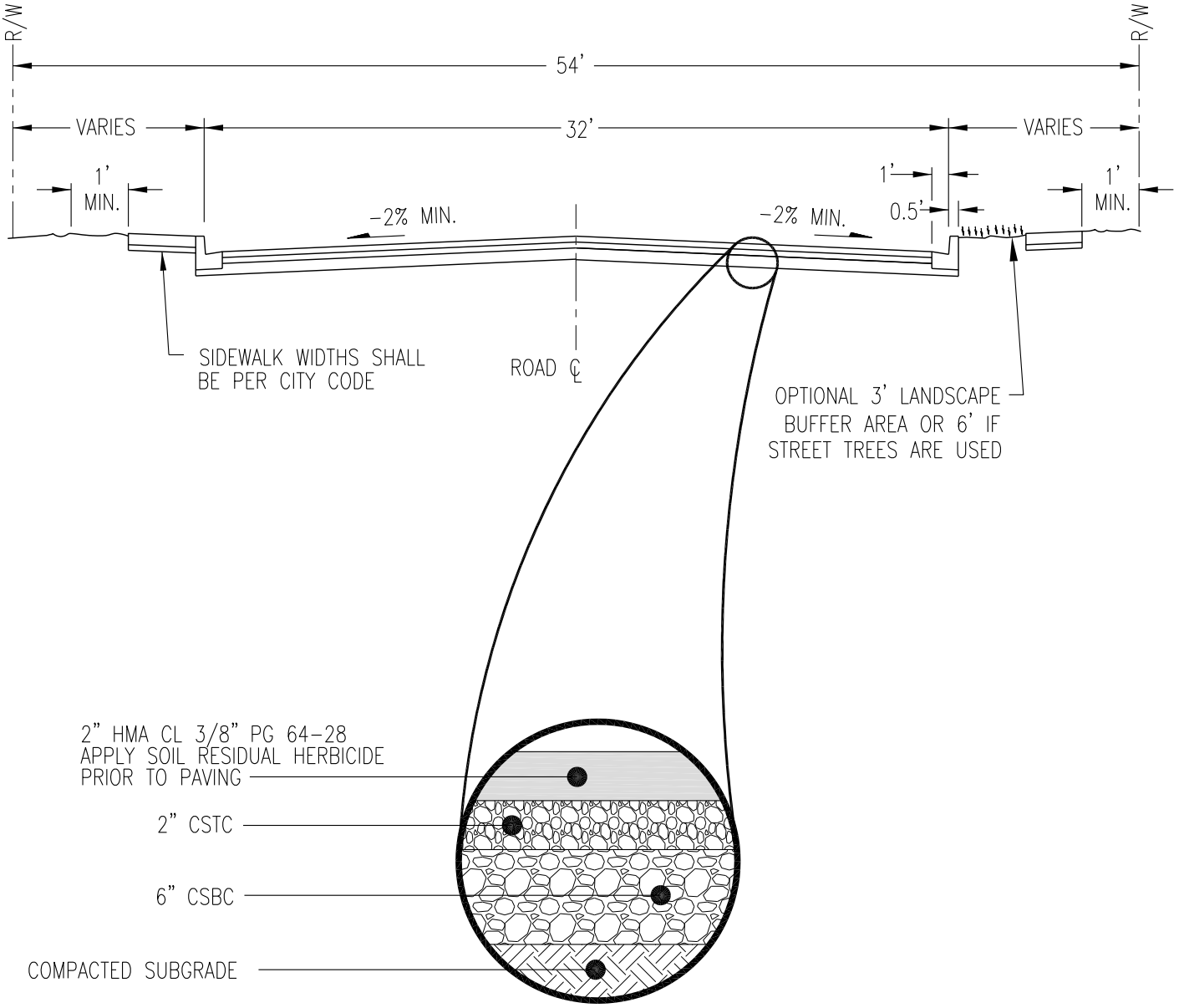


NOTES:

1. OPTION USED WILL BE DETERMINED BY CITY ENGINEER; DEPENDENT UPON FIELD CONDITIONS.
2. A PARKING OPTION MAY BE ALLOWED ON ONE OR BOTH SIDES BY ADDING 8' OUTSIDE OF THE BIKE LANE.

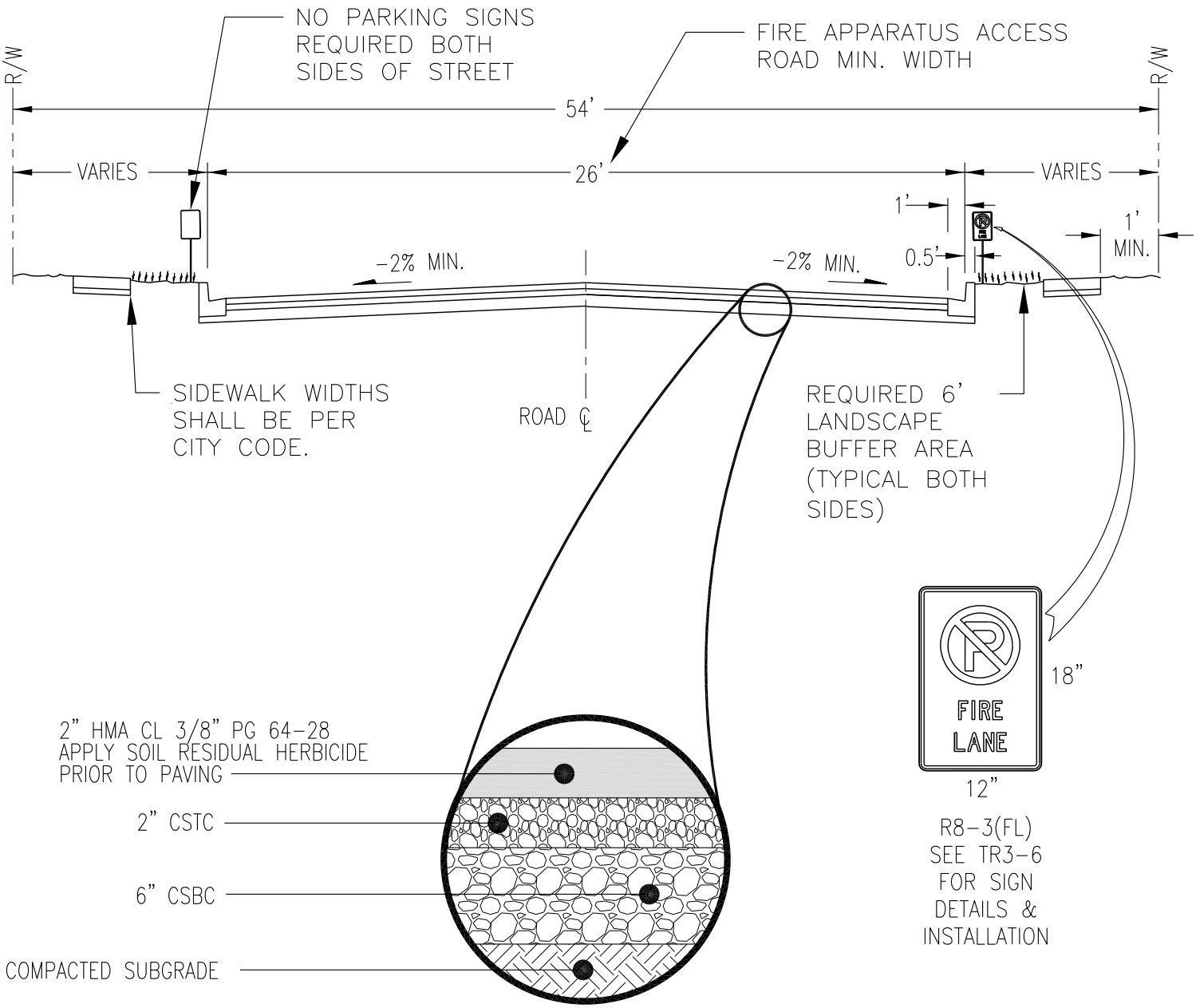
MAJOR COLLECTOR (Arterial Collector)

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: ST11
CAD FILE: 2013_ST11_01_2024	



MINOR (NEIGHBORHOOD) COLLECTOR and LOCAL STREET

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: ST13
CAD FILE: 2013_ST13_01_2024	

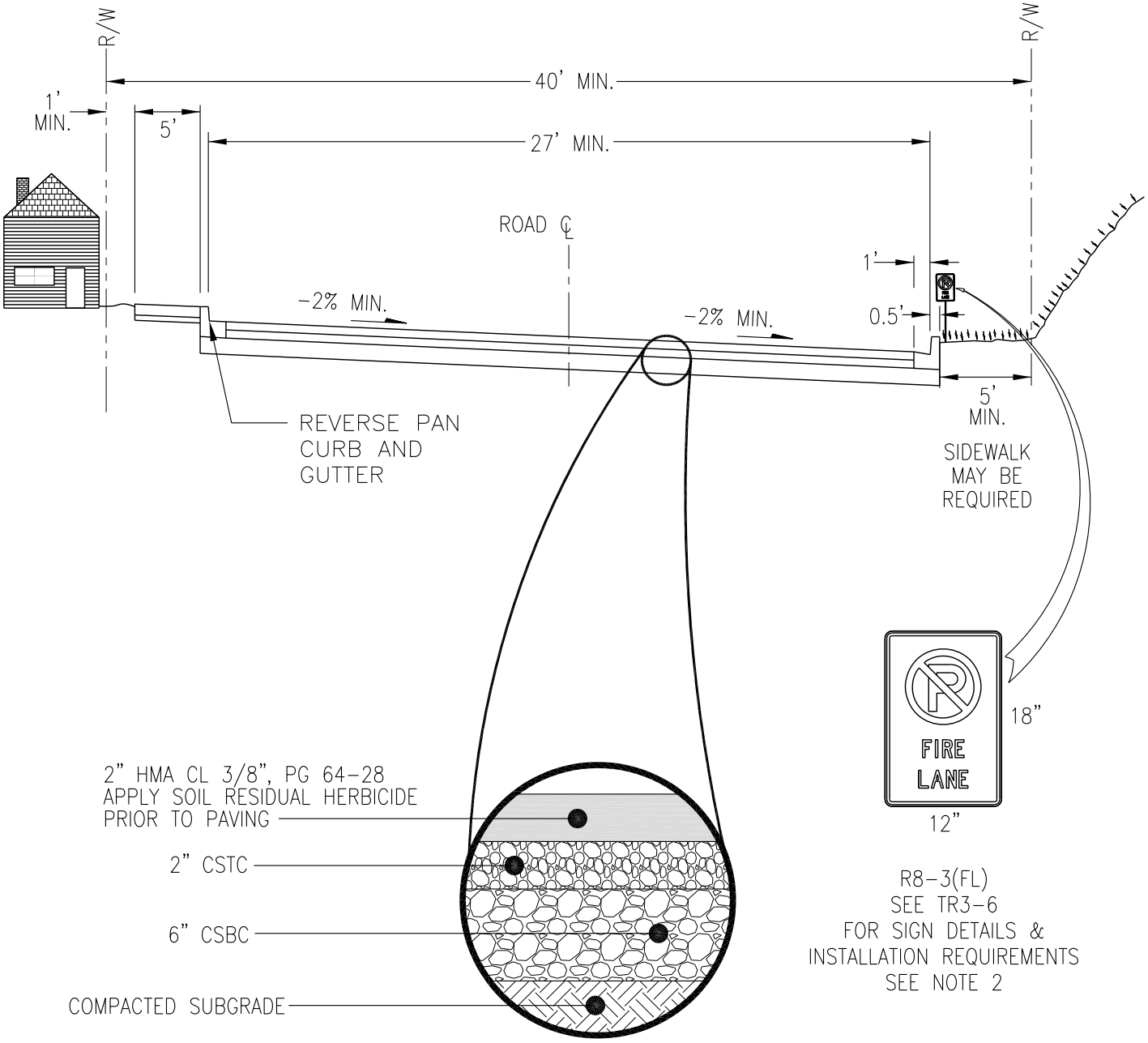


PERMISSIVE USE CASE: USE OF THIS NARROW STREET SECTION IS PERMITTED ONLY IN R-2S AND R-3 ZONED BLOCKS WHERE AVERAGE LOT WIDTH IS 40 FT OR LESS AND ADEQUATE OFF-STREET PARKING IS PROVIDED, OR AS APPROVED BY THE CITY ENGINEER.

Richland Washington

NARROW LOCAL STREET

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: ST13A
CAD FILE: 2013_ST13A_01_2024	



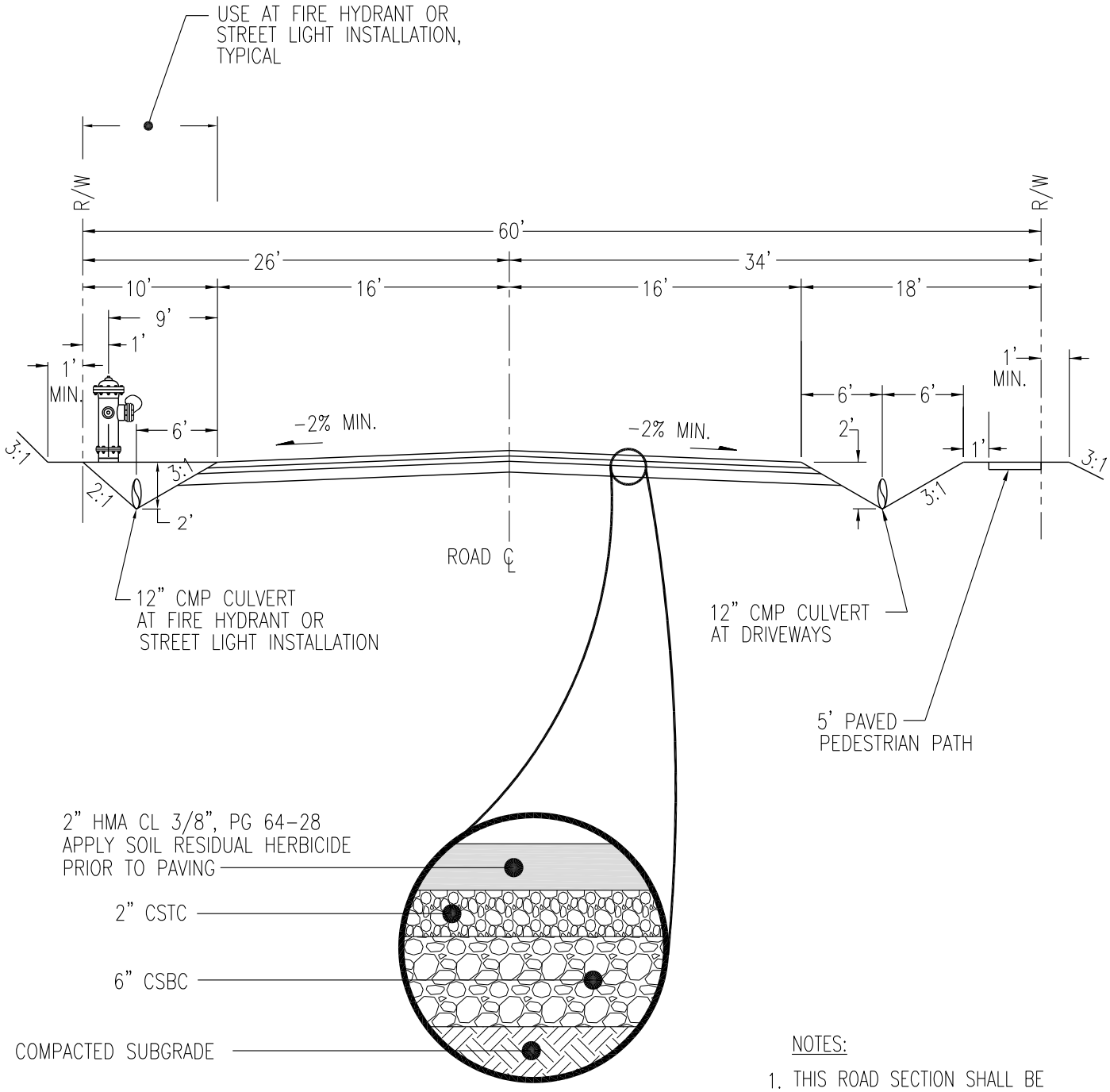
*CITY ENGINEER SHALL APPROVE SLOPING OF STREET TO MATCH DIRECTION OF EXISTING GRADE.

NOTES:

1. THIS ROAD SECTION SHALL ONLY BE USED WITH APPROVAL OF THE CITY ENGINEER.
2. IF DIRECTED PROVIDE NO PARKING THIS SIDE OF STREET. [R8-3(TSOS)]

LOCAL STREET (SINGLE FRONTAGE)

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: ST14
CAD FILE: 2013_ST14_01_2024	



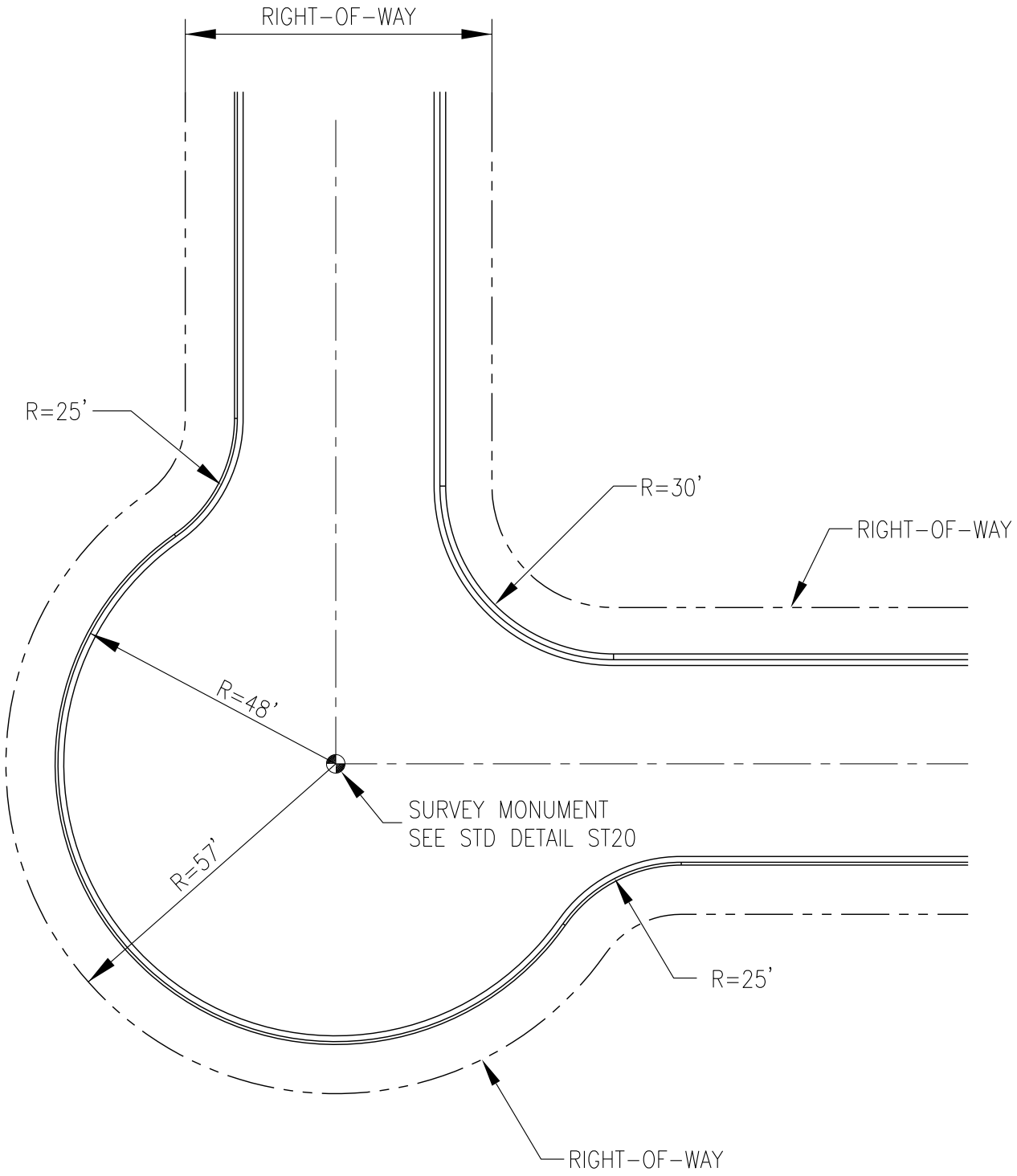
NOTES:

1. THIS ROAD SECTION SHALL BE USED WITH APPROVAL OF THE CITY ENGINEER
2. IN SOME INSTANCES A CENTER TURN LINE MAY BE REQUIRED, ADDING AN ADDITIONAL 12' OF WIDTH.
3. REQUIRES VARIANCE REQUEST APPROVED BY CITY ENGINEER

Richland Washington

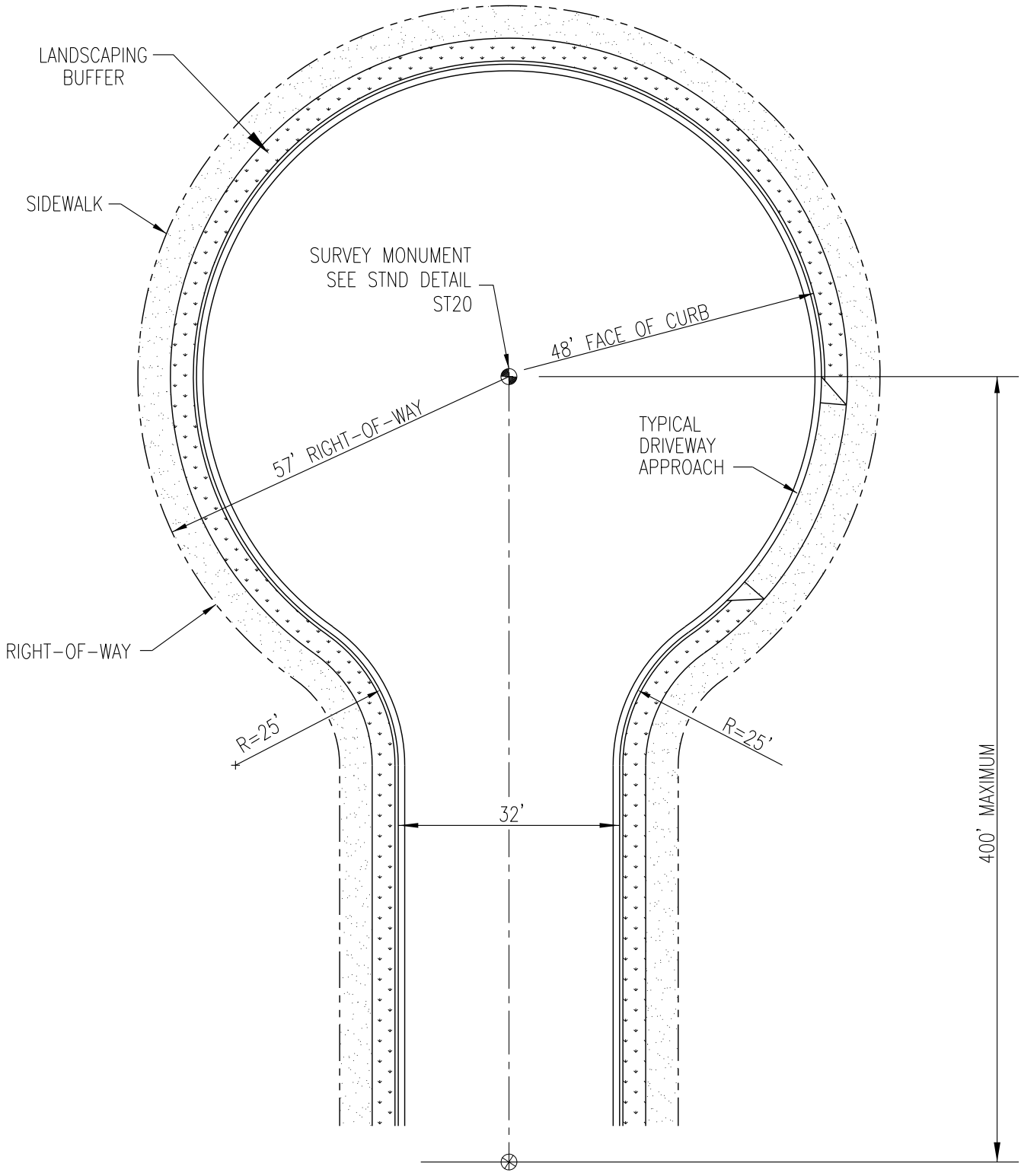
RURAL STREET

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: ST15
CAD FILE: 2013_ST15_01_2024	



LOCAL STREET RIGHT ANGLE INTERSECTION

CIVIL & UTILITY ENGINEERING	
APPR. BY: PKR	DATE: 06.19
DRAWN BY: LD	DWG: ST16
CAD FILE: 2012_ST16_06_2019	

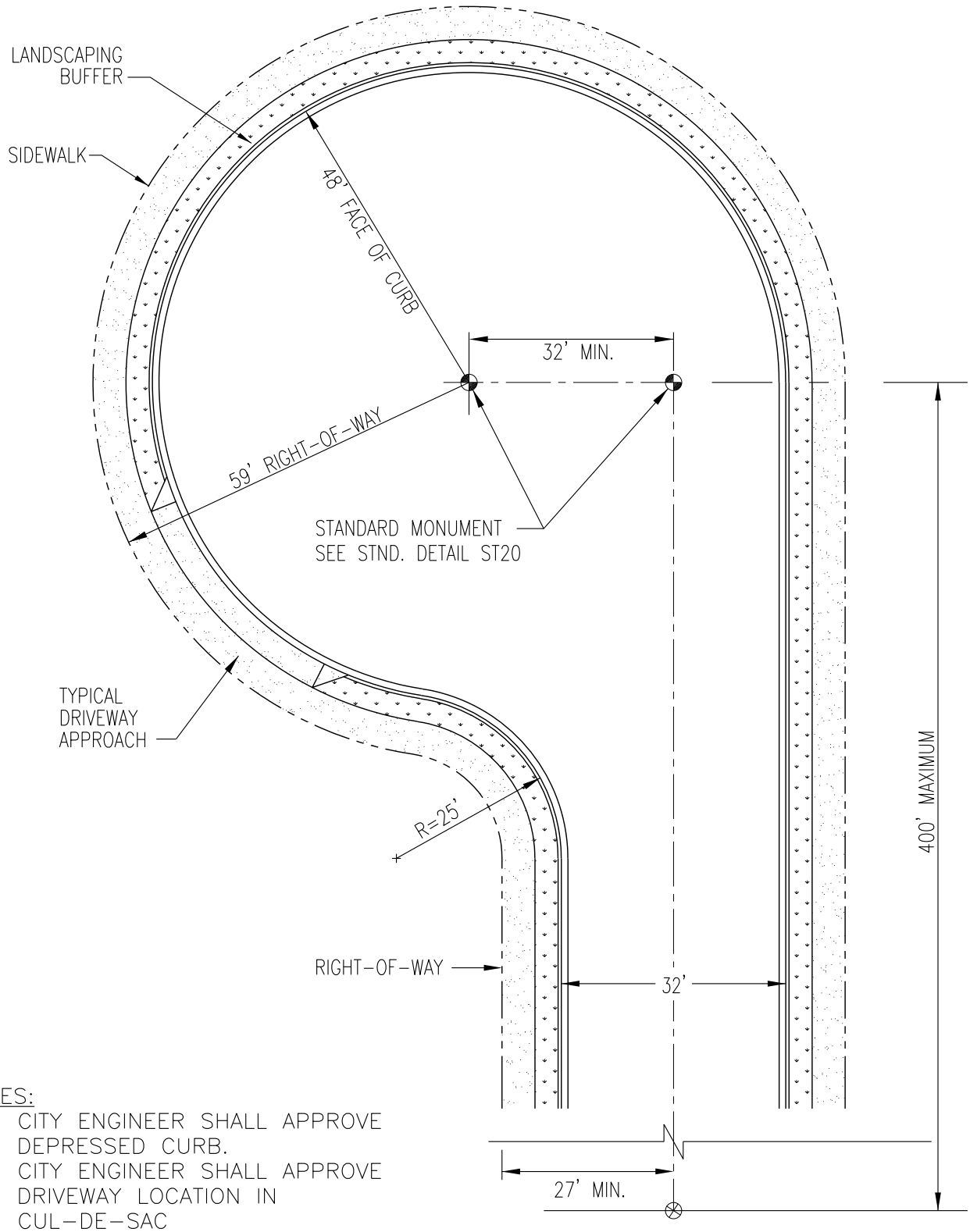


NOTES:

1. CITY ENGINEER SHALL APPROVE DRIVEWAY TYPE AND LOCATION IN CUL-DE-SAC.
2. CITY ENGINEER SHALL APPROVE DEPRESSED CURB.
3. LANDSCAPING BUFFER AND SIDEWALK WIDTHS BASED ON ZONING REQUIREMENTS.

STANDARD CUL-DE-SAC BULB

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: ST17
CAD FILE: 2012_ST17_01_2024	



NOTES:

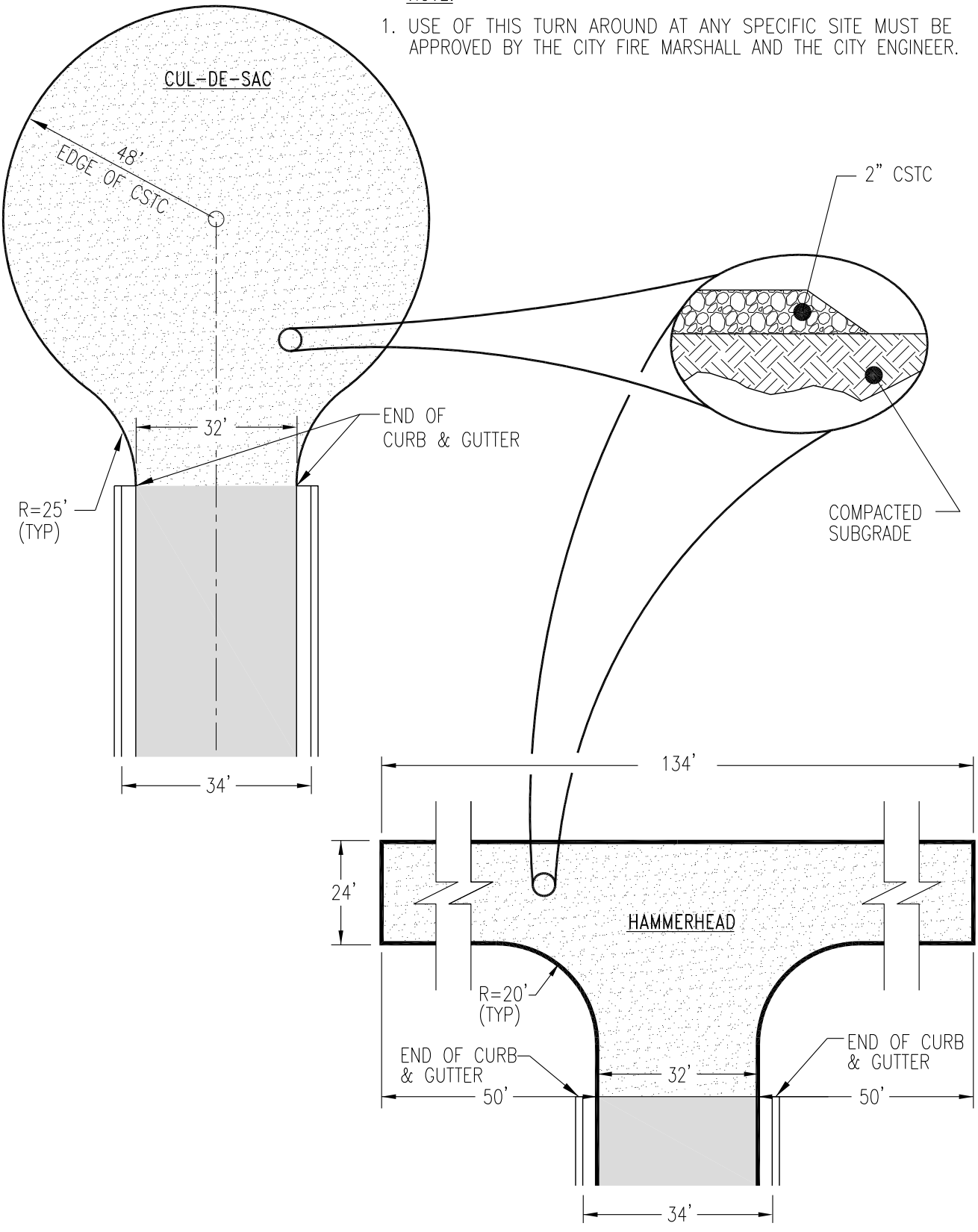
1. CITY ENGINEER SHALL APPROVE DEPRESSED CURB.
2. CITY ENGINEER SHALL APPROVE DRIVEWAY LOCATION IN CUL-DE-SAC
3. LANDSCAPING BUFFER AND SIDEWALK WIDTHS BASED ON ZONING REQUIREMENTS

STANDARD OFFSET CUL-DE-SAC

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: ST18
CAD FILE: 2012_ST18_01_2024	

NOTE:

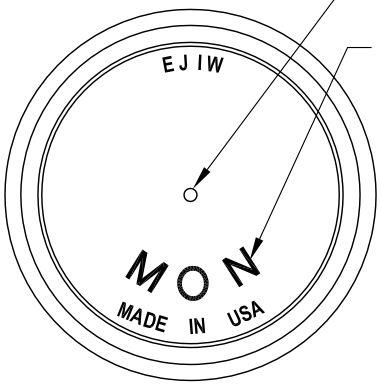
1. USE OF THIS TURN AROUND AT ANY SPECIFIC SITE MUST BE APPROVED BY THE CITY FIRE MARSHALL AND THE CITY ENGINEER.

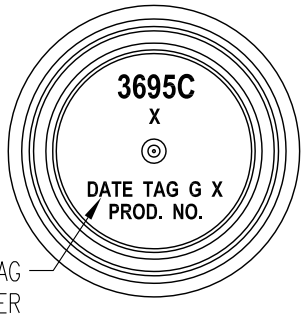


TEMPORARY TURN AROUND

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 06.19
DRAWN BY: LD	DWG: ST19
CAD FILE: 2012_ST19_06_2019	

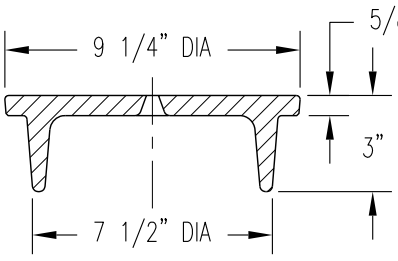
COVER-PLAN VIEW

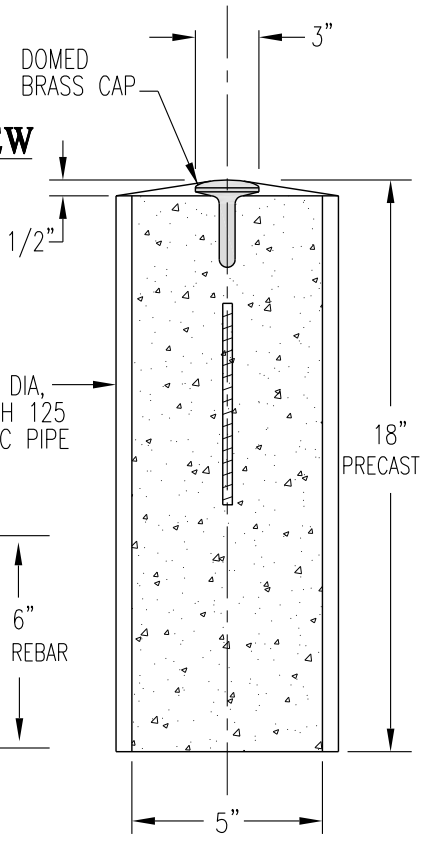




COVER BOTTOM VIEW

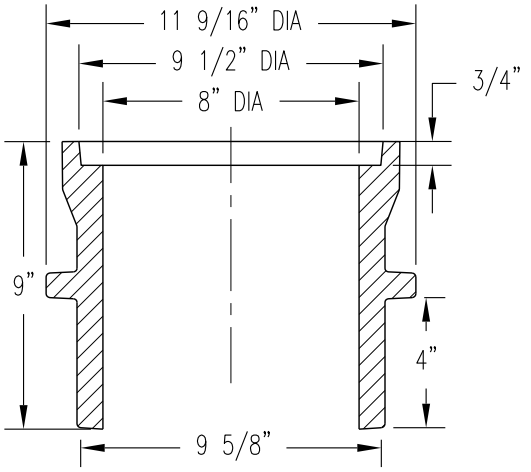
SECTION-COVER

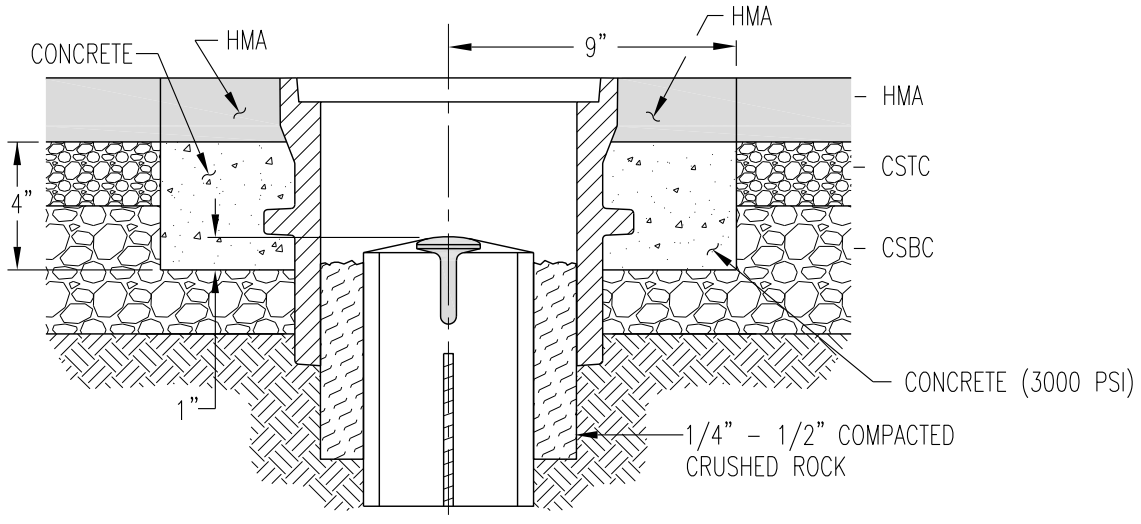




CONCRETE MONUMENT

SECTION-FRAME

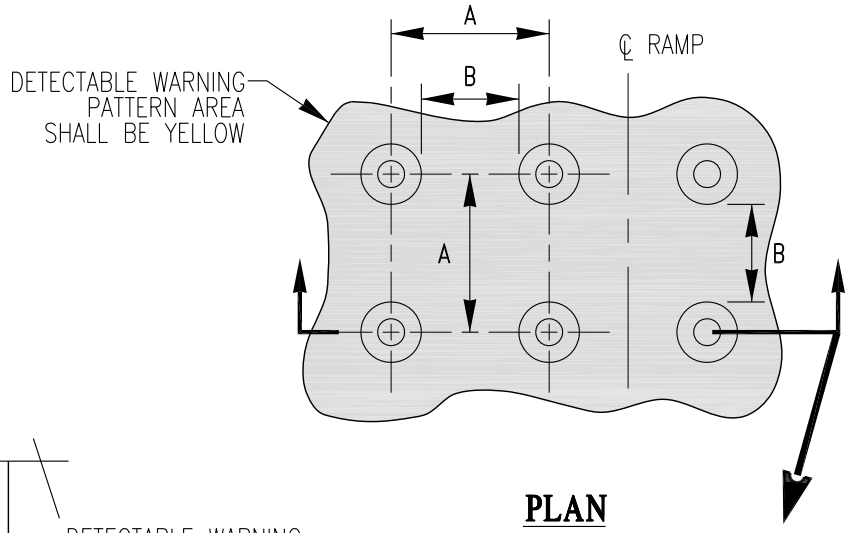




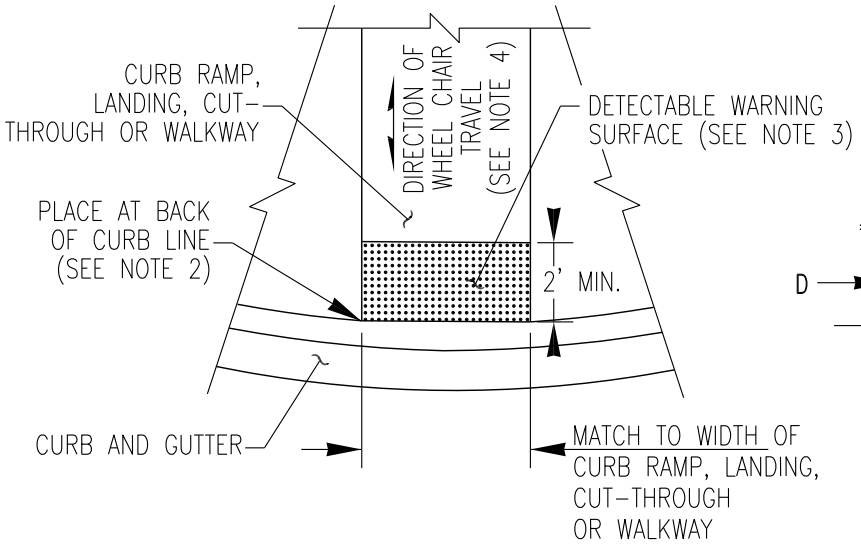
SURVEY MONUMENT

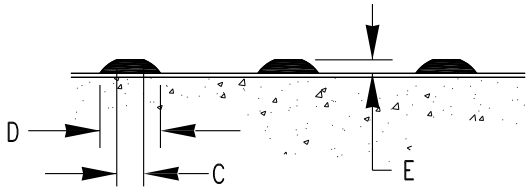
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 07.17
DRAWN BY: LD	DWG: ST20
CAD FILE: 2013_ST20_07_2017	

	MIN.	MAX.
A	1.60"	2.40"
B	0.65"	–
C	0.45"	0.90"
D	0.9"	1.40"
E	0.2"	0.2"



PLAN





SECTION VIEW

NOTES:

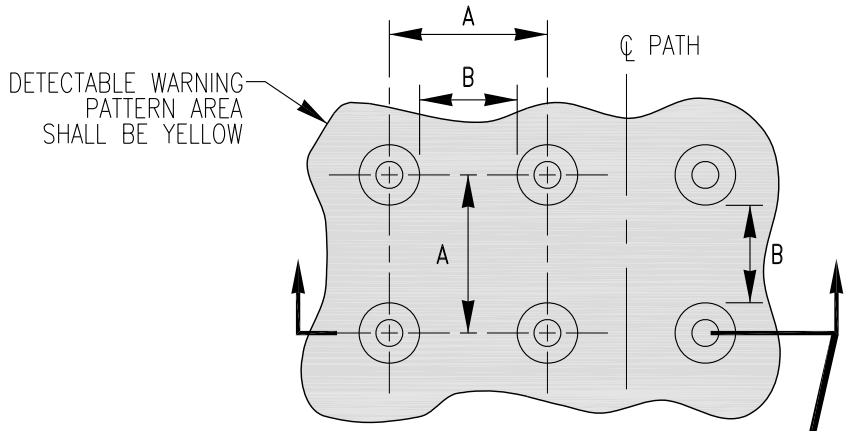
1. THE DETECTABLE WARNING SURFACE SHALL EXTEND THE FULL WIDTH OF THE CURB RAMP (EXCLUSIVE OF FLARES) OR THE LANDING.
2. THE EDGE OF THE DETECTABLE WARNING SURFACE SHALL BE PLACED AT THE BACK OF THE CURB. CURB SHALL BE FORMED TO PROVIDE A STRAIGHT LINE ALONG THE BACK OF CURB ADJACENT TO THE WARNING PATTERN.
3. THE ROWS OF TRUNCATED DOMES SHALL BE ALIGNED TO BE PERPENDICULAR TO THE GRADE BREAK AT THE BACK OF CURB.
4. THE ROWS OF TRUNCATED DOMES SHALL BE ALIGNED TO BE PARALLEL TO THE DIRECTION OF TRAVEL.
5. SEE STANDARD PLANS FOR SIDEWALK AND CURB RAMP DETAILS.
6. IF CURB AND GUTTER ARE NOT PRESENT, SUCH AS A SHARED–USE PATH CONNECTION, THE DETECTABLE WARNING SURFACE SHALL BE PLACED AT THE PAVEMENT EDGE.

Richland Washington

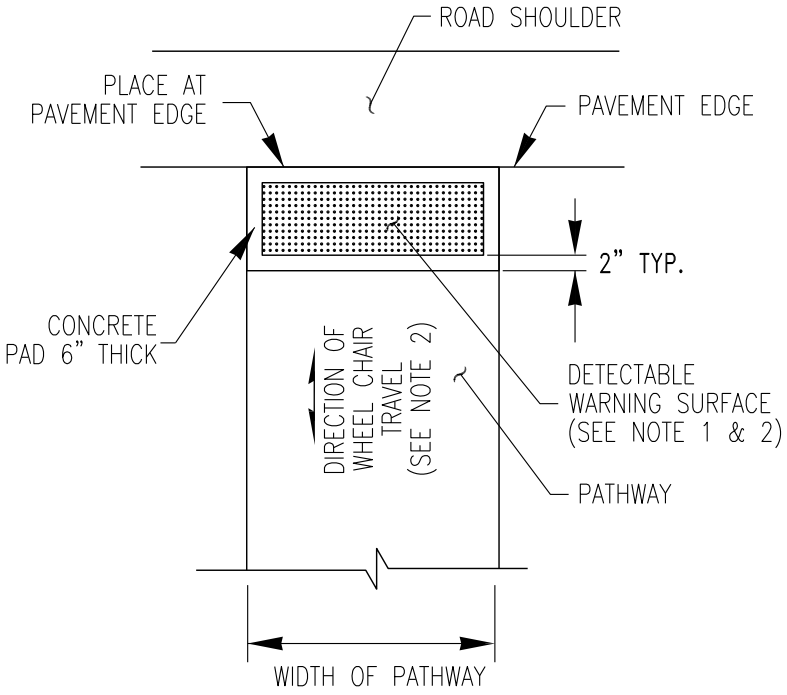
DETECTABLE WARNING SURFACE

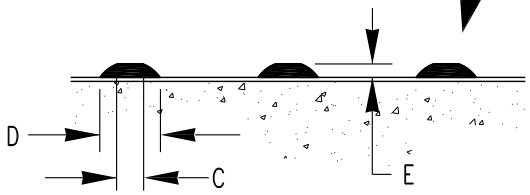
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 01.16
DRAWN BY: LD	DWG: ST21
CAD FILE: 2013_ST21_01_2016	

	MIN.	MAX.
A	1.60"	2.40"
B	0.65"	–
C	0.45"	0.90"
D	0.9"	1.40"
E	0.2"	0.2"



PLAN





SECTION VIEW

NOTES:

1. THE ROWS OF TRUNCATED DOMES SHALL BE ALIGNED TO BE PERPENDICULAR TO THE GRADE BREAK AT THE EDGE OF THE ROAD.

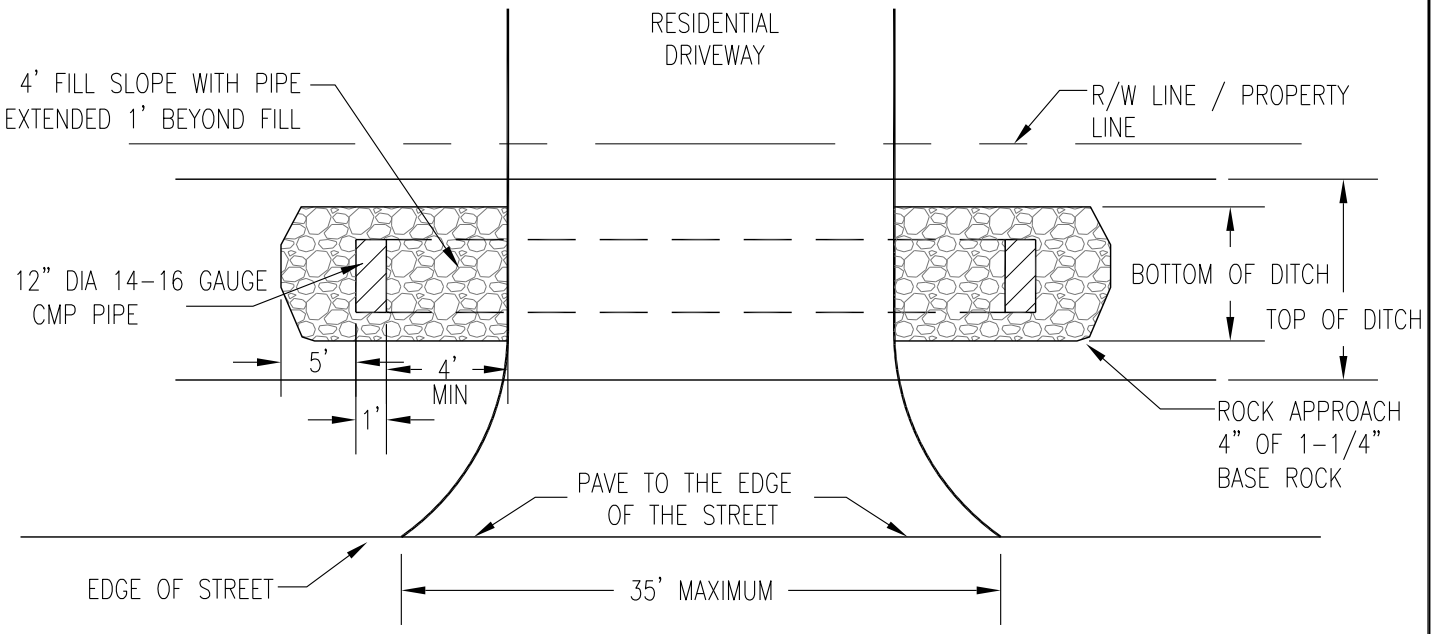
2. THE ROWS OF TRUNCATED DOMES SHALL BE ALIGNED TO BE PARALLEL TO THE DIRECTION OF TRAVEL.

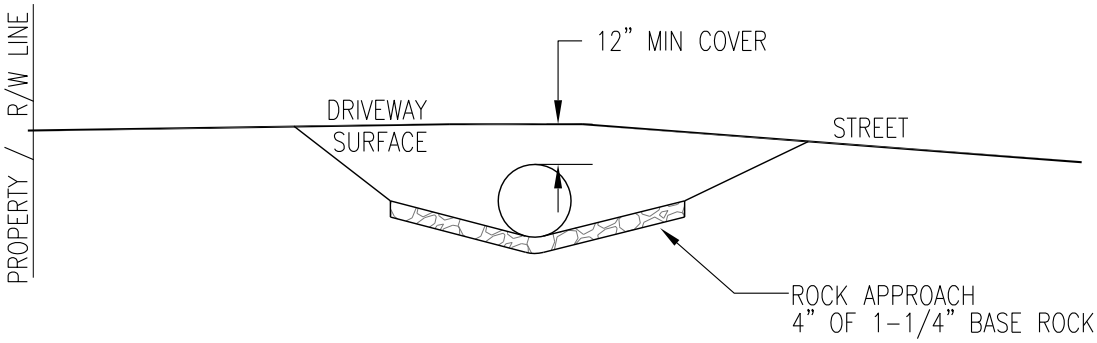
Richland Washington

DETECTABLE WARNING SURFACE ON ASPHALT PATHWAYS

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 09.20
DRAWN BY: EY	DWG: ST21A
CAD FILE: 2013_ST21a_09_2020	

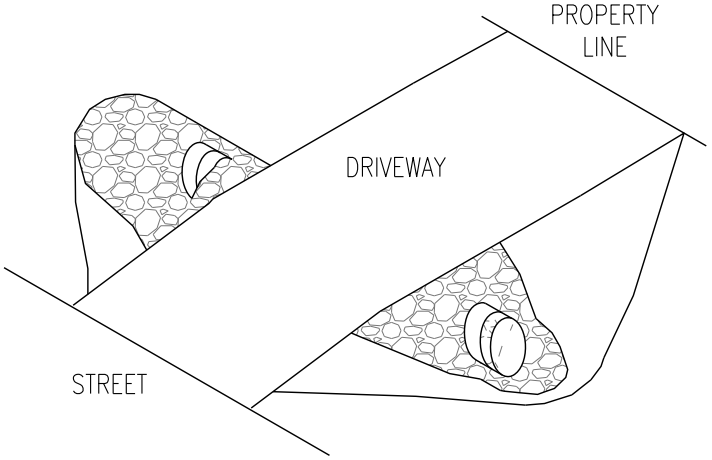
CULVERT INSTALLATION ALONG
CITY OF RICHLAND STREETS WHERE NO CURB AND GUTTER EXIST





NOTES:

1. CULVERT PIPE SHALL BE 12" EXTRA STRENGTH CMP.
2. SIDE SLOPES OF DITCH SHALL BE 3:1 MAXIMUM.
3. CULVERT INSTALLATION SHALL PASS A CITY PUBLIC WORKS INSPECTION PRIOR TO FINAL ACCEPTANCE.
4. DITCH SHALL BE RE-ESTABLISHED ACROSS THE ENTIRE FRONTAGE PRIOR TO FINAL ACCEPTANCE.

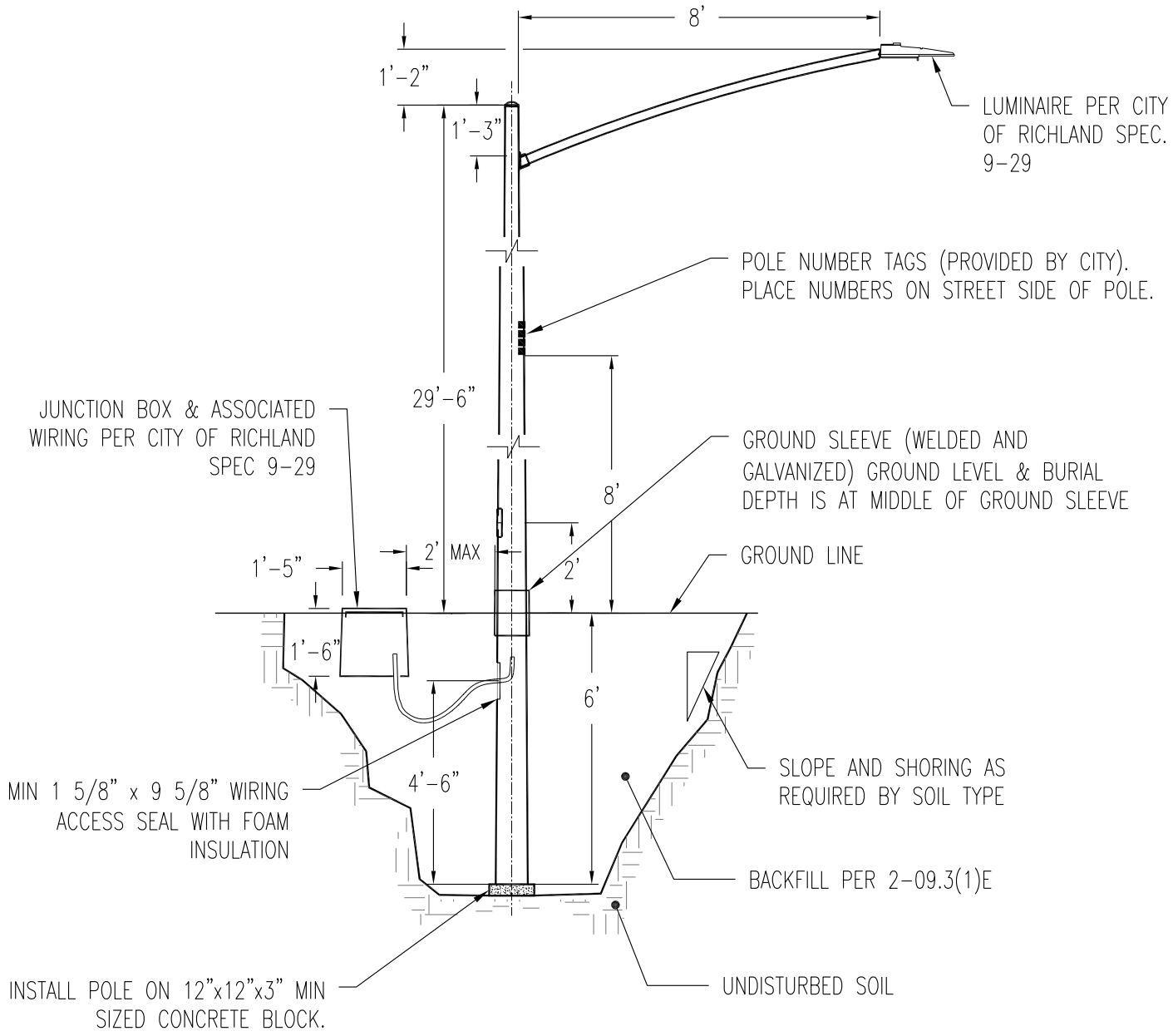


Richland Washington

RURAL DRIVEWAY / CULVERT DETAIL

PUBLIC WORKS ENGINEERING	
APPR. BY: JR	DATE: 02.12
DRAWN BY: JG	DWG: ST22
CAD FILE: 2012_ST22_02_2012	

Standard Details
Street Lighting

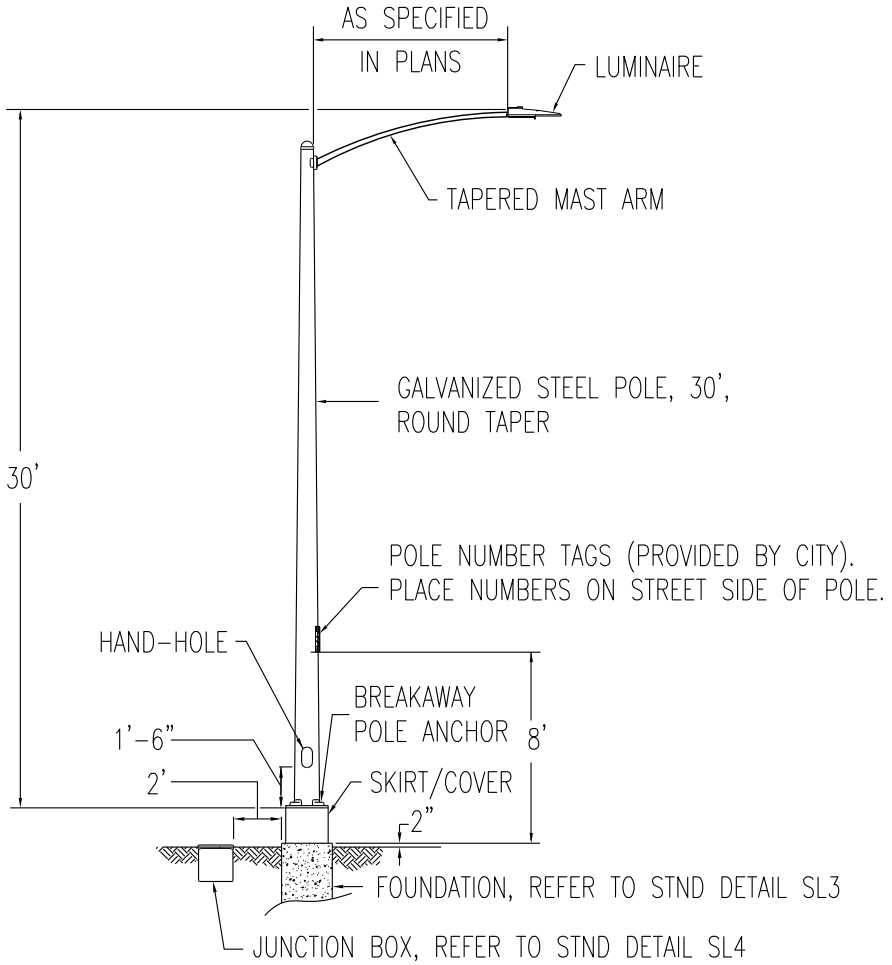


NOTES:

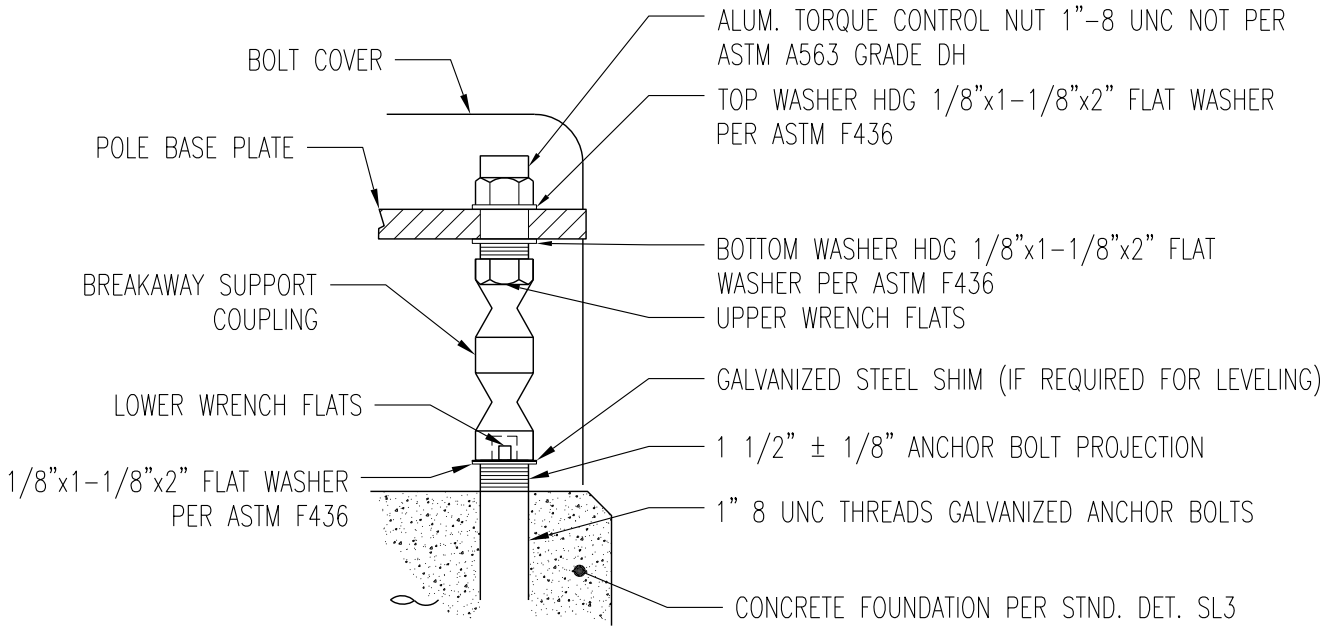
1. IF HOLES ARE AUGURED THEN MIN. 24" DIA. AUGER MUST BE USED.

DIRECT BURIED POLE (FOR USE ON LOCAL STREETS AND MINOR COLLECTORS)

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 11.21
DRAWN BY: LD	DWG: SL1
CAD FILE: 2015_SL1_11_2021	



STANDARD STREET LIGHT WITH FOUNDATION

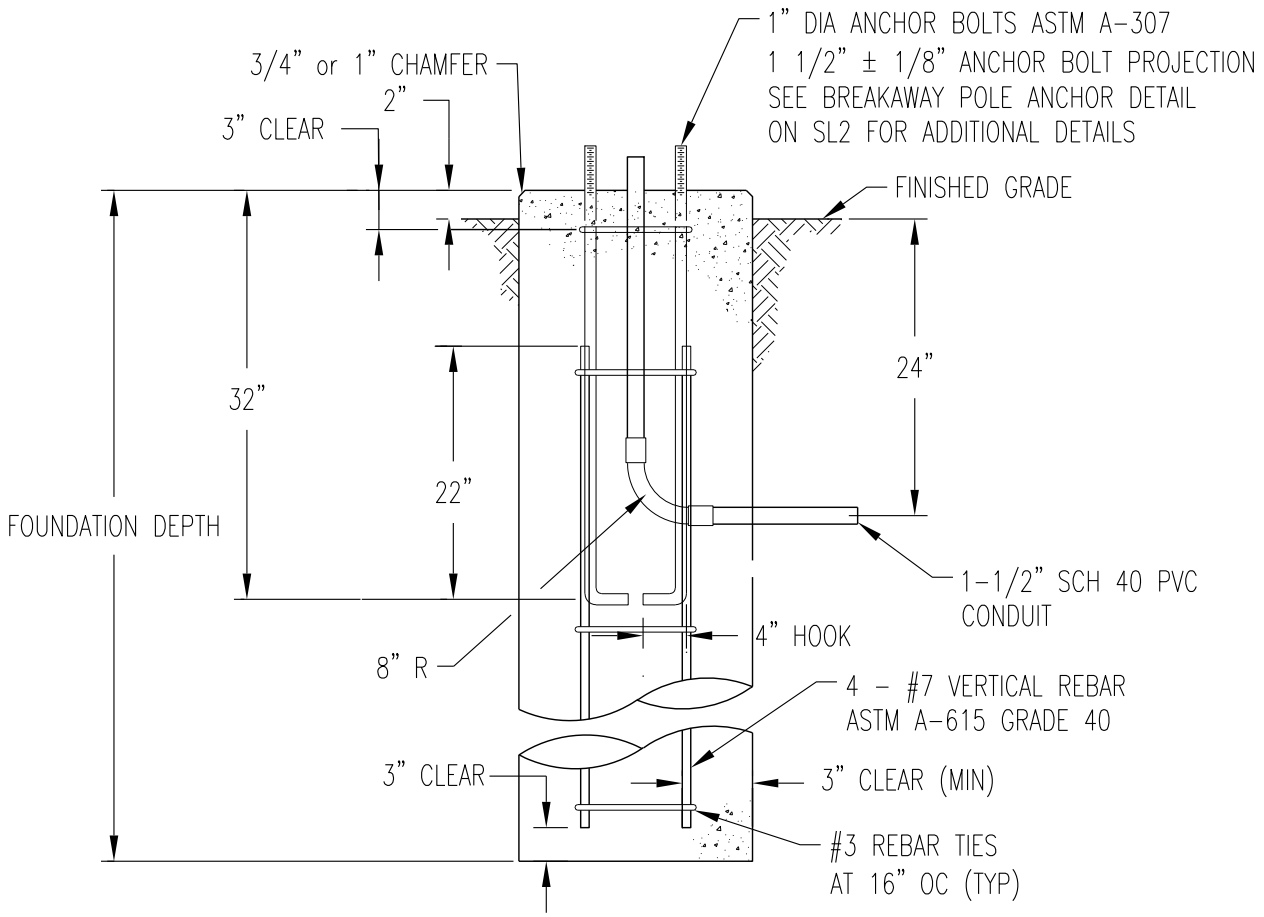


BREAKAWAY POLE ANCHOR DETAIL

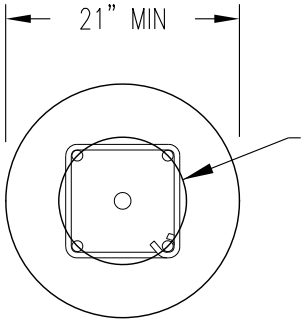
Richland Washington

POLE & BREAKAWAY ANCHOR DETAIL

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 11.21
DRAWN BY: LD	DWG: SL2
CAD FILE: 2015_SL2_11_2021	



FOUNDATION DETAIL



FOUNDATION TOP VIEW

NOTE: CONCRETE STRENGTH = 4000 PSI CONCRETE CLASS 4000P.
CONCRETE STRENGTH = 2400 PSI PRIOR TO SETTING POLE.

SOIL TYPE	CLASS OF MATERIAL (UNIFORM BUILDING CODE)
A	GOOD-COMPACT WELL-GRADED SAND AND GRAVEL. HARD CLAY WELL-GRADED FINE AND COARSE SAND (ALL DRAINED SO WATER WILL NOT STAND)
B	AVERAGE-COMPACT FINE SAND MEDIUM CLAY COMPACT SANDY LOAM LOOSE COARSE SAND AND GRAVEL (ALL DRAINED SO WATER WILL NOT STAND.)
C	POOR-SOFT CLAY CLAY LOAM POORLY COMPACTED SAND CLAYS CONTAINING LARGE AMOUNTS OF SILT (WATER STANDS DURING WET SEASON)

POLE LENGTH (FEET)	MINIMUM FOUNDATION DEPTH IN FEET SEE SOIL TABLE		
	A	B	C
30	5'0"	6'6"	8'0"

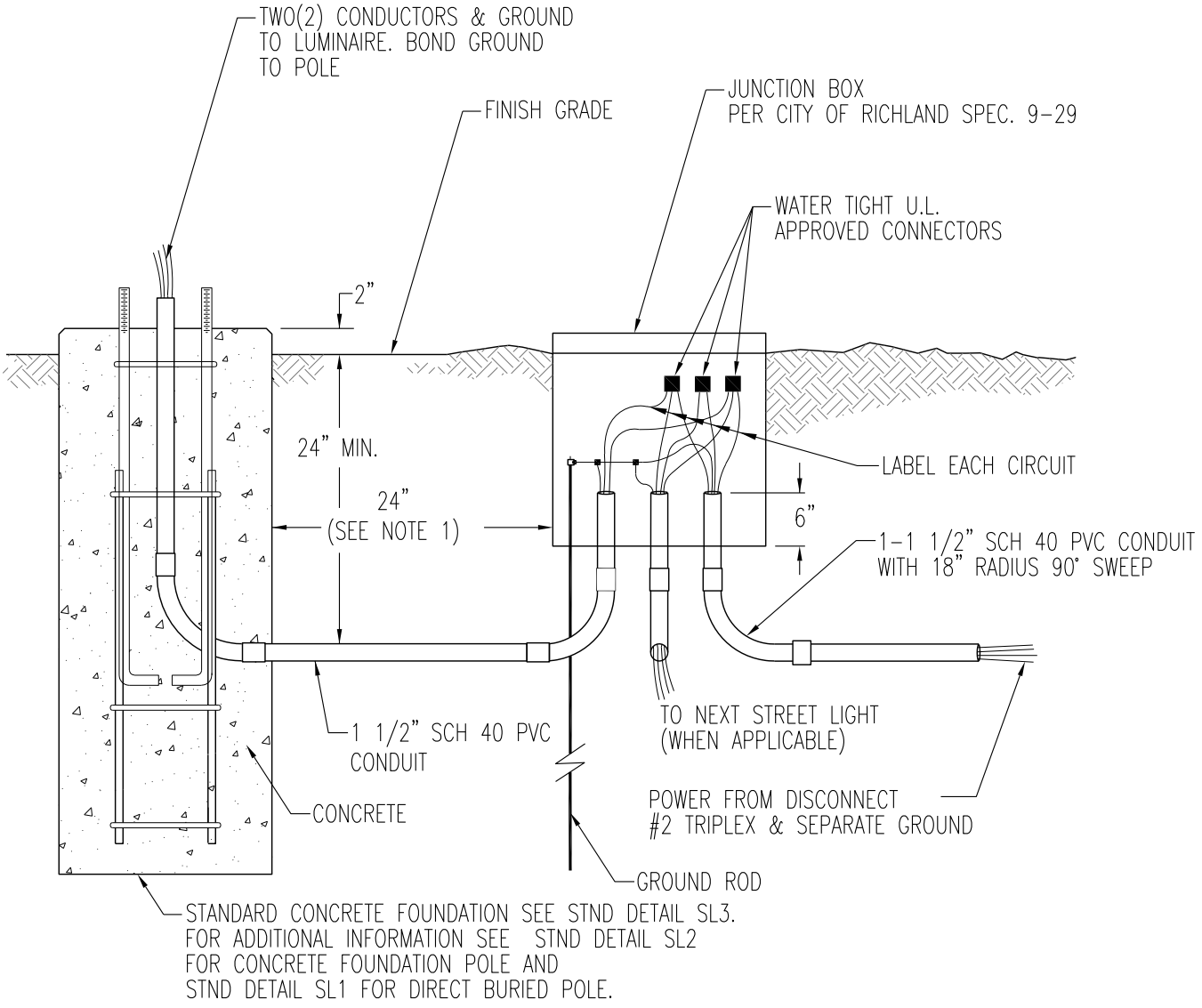
NOTE:

1. FORMING MATERIALS (SONOTUBE) SHALL BE REMOVED FROM THE TOP OF THE FOUNDATION TO SIX INCHES BELOW FINISHED GRADE.
2. SOIL BELOW FOUNDATION TO BE UNDISTURBED.
3. SOIL TYPE AS DETERMINED BY THE ENGINEER OR AS SHOWN IN PLANS. 8' MINIMUM FOUNDATION DEPTH SHALL BE USED UNLESS PLANS INDICATE OTHERWISE OR SOIL EVALUATION IS PROVIDED BY THE ENGINEER.

Richland Washington

CONCRETE FOUNDATION DETAILS

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 11.21
DRAWN BY: LD	DWG: SL3
CAD FILE: 2015_SL3_11_2021	



NOTES:

1. SET JUNCTION BOX AT 24" FROM STREET LIGHT FOUNDATION OR AS APPROVED BY ENGINEER. SET BOX AT AN ELEVATION SUCH THAT THE TOP OF THE BOX COVER IS APPROXIMATELY 2" ABOVE FINISHED GRADE UNLESS BOX IS TO BE SURROUNDED BY ASPHALT OR CONCRETE. SET BOX LEVEL WITH AND PARALLEL TO STREET.

2. SWEEP CONDUIT UP INTO JUNCTION BOX A MINIMUM OF 6". INSTALL BELL ENDS OR BUSHINGS ON ALL EXPOSED CONDUIT ENDS IN JUNCTION BOX.

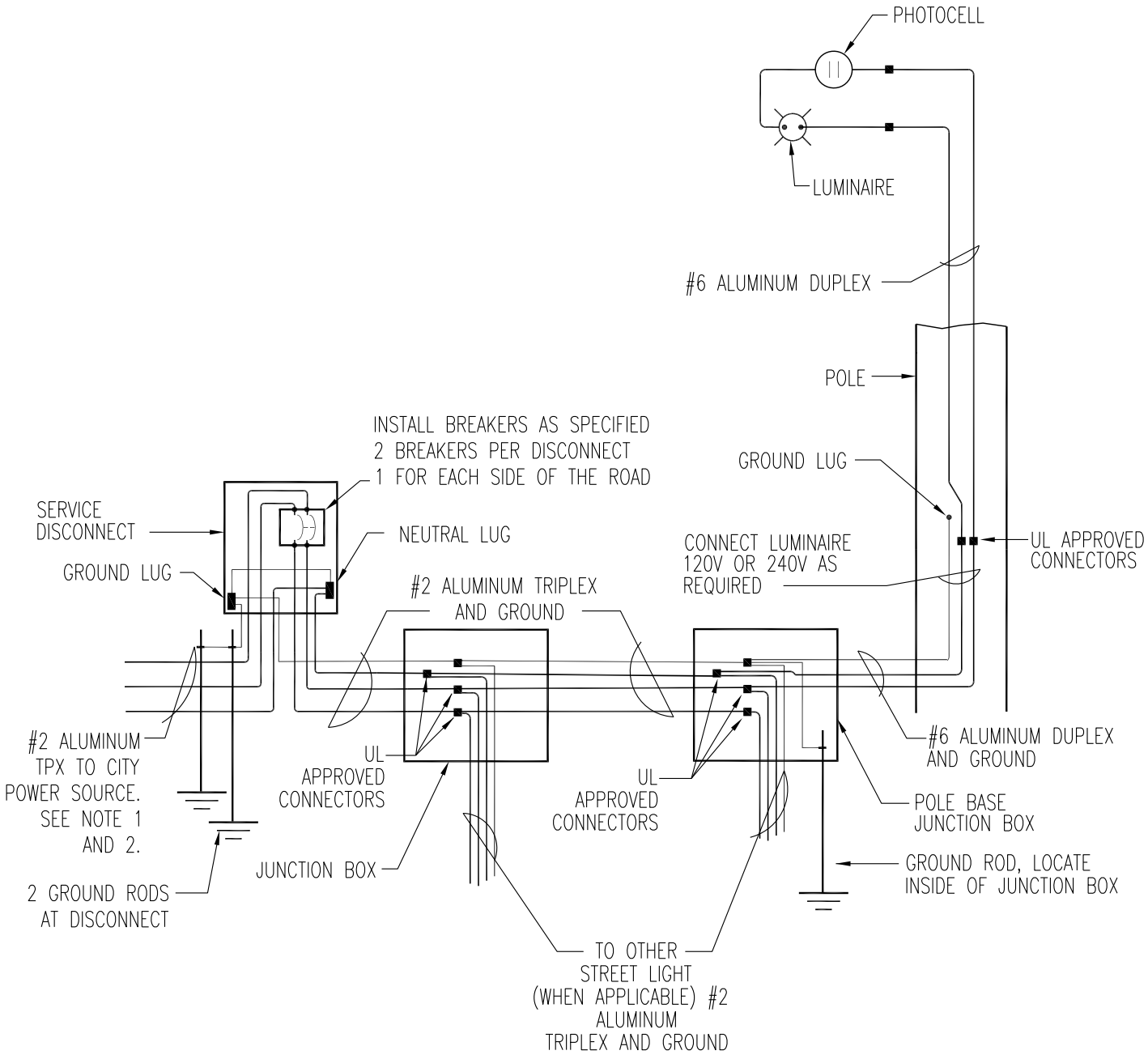
3. ALLOW SUFFICIENT SLACK IN CONDUCTORS SUCH THAT SPLICES MAY BE REMOVED A MINIMUM OF 36" FROM SPLICE BOX.

4. A HEAVY DUTY LID SHALL BE USED FOR SUCH OCCASIONS WHERE THE JUNCTION BOX IS LOCATED IN VEHICULAR TRAFFIC BEARING AREAS SUCH AS DRIVEWAYS OR SIDEWALKS.

Richland Washington

JUNCTION BOX & FOUNDATION DETAILS

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 11.21
DRAWN BY: LD	DWG: SL4
CAD FILE: 2015_SL4_11_2021	



NOTES:

1. IF POWER SOURCE IS OVERHEAD POWER LINE EXTEND CONDUIT TO WITHIN 1' OF CITY POLE AND LEAVE APPROXIMATELY 50' OF #2 ALUM TPX HANGING OUT OF CONDUIT FOR CITY CONNECTION. IF POWER SOURCE IS A PAD MOUNT TRANSFORMER OR UNDERGROUND JUNCTION BOX, EXTEND CONDUIT INTO VAULT OR JUNCTION BOX WITH CITY OVERSIGHT AND LEAVE 5' OF #2 ALUM TPX FOR CITY CONNECTION.

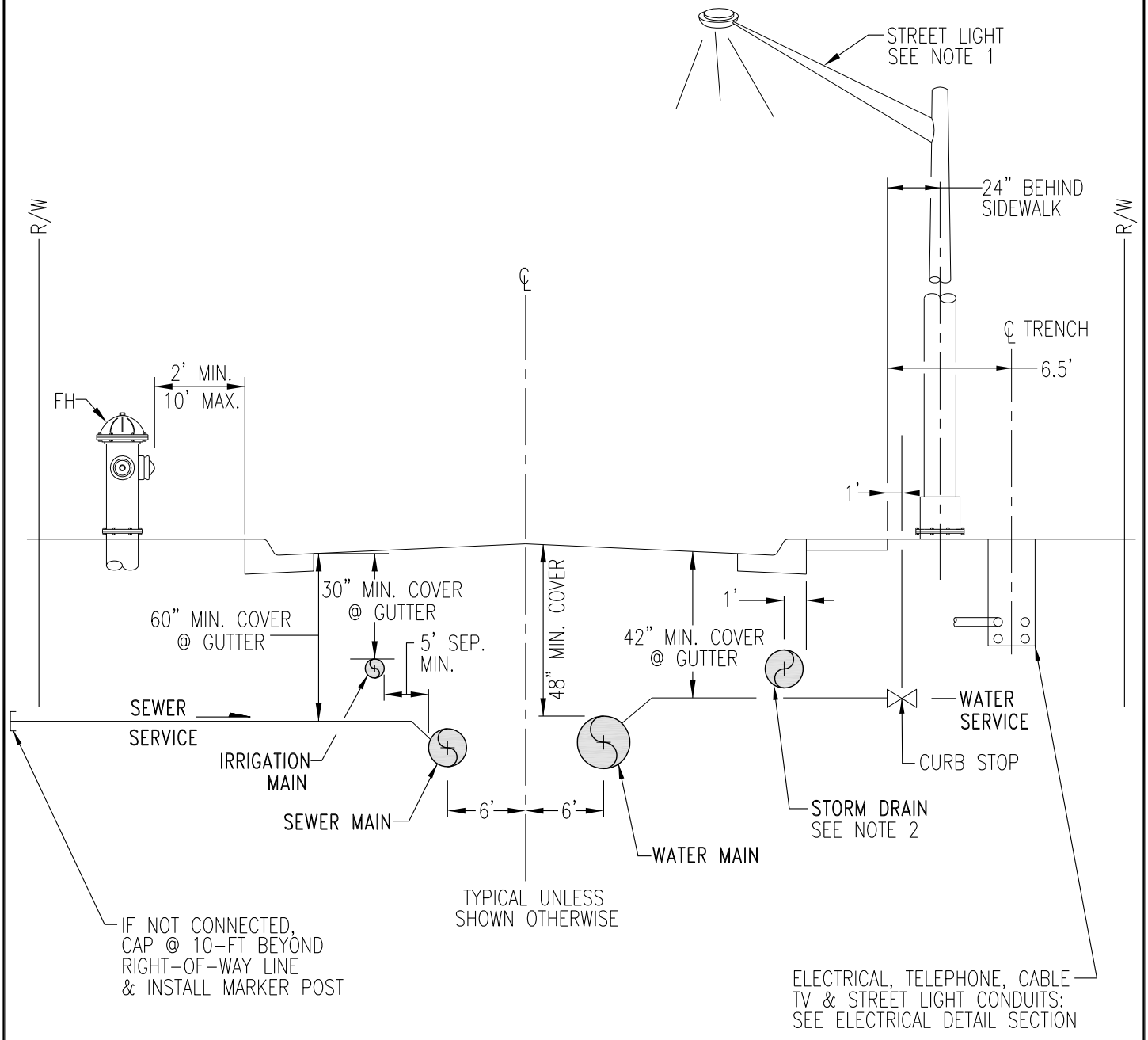
2. CITY OF RICHLAND TO PROVIDE POWER SOURCE CONNECTIONS.

Richland Washington

WIRING DIAGRAM

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 07.17
DRAWN BY: LD	DWG: SL5
CAD FILE: 2015_SL5_07_2017	

Standard Details
Utilities



NOTES:

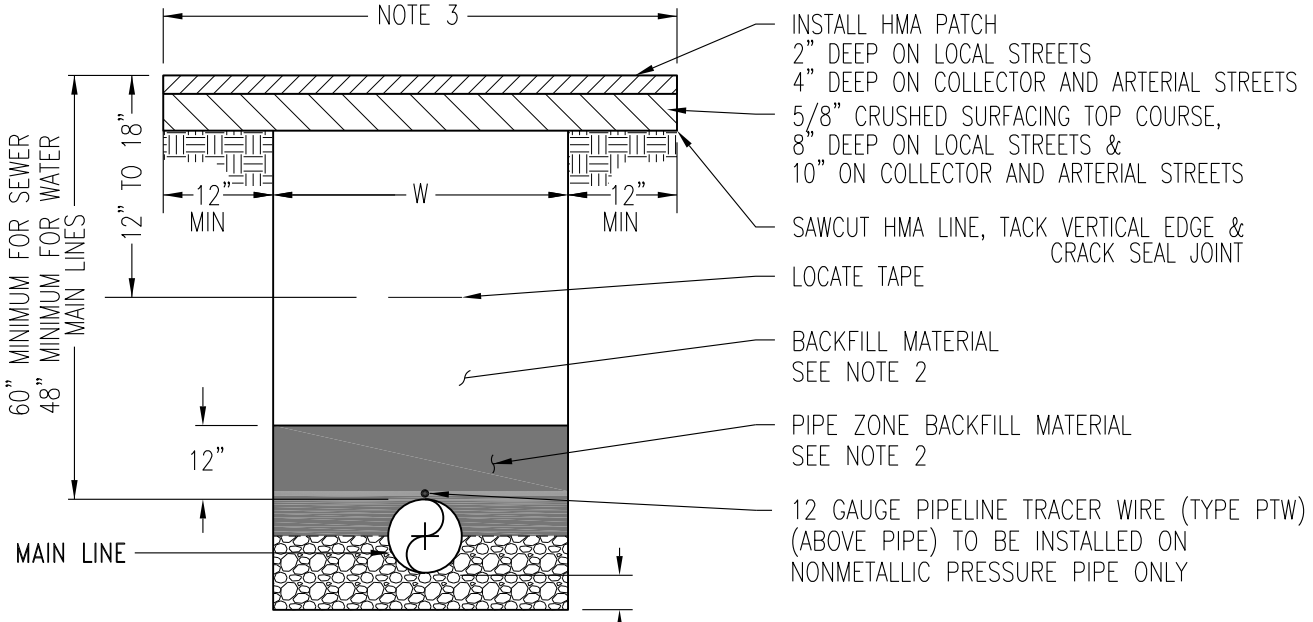
1. IF NO CURB AND GUTTER LIGHT POLE MUST BE A MINIMUM OF 12' FROM EDGE OF ROAD.

2. STORM LINE MAY BE INSTALLED 5' MINIMUM FROM THE WATER OR SEWER LINES ON EITHER SIDE OF THE STREET. PLANS SHALL BE SUBMITTED FOR APPROVAL BY CITY ENGINEER OR HIS REPRESENTATIVE.

Richland Washington

UTILITY PLAN TYPICAL SECTION

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 12.2010
DRAWN BY: LD	DWG: U1
CAD FILE: 2012_U1_12_2010	



MAIN LINE

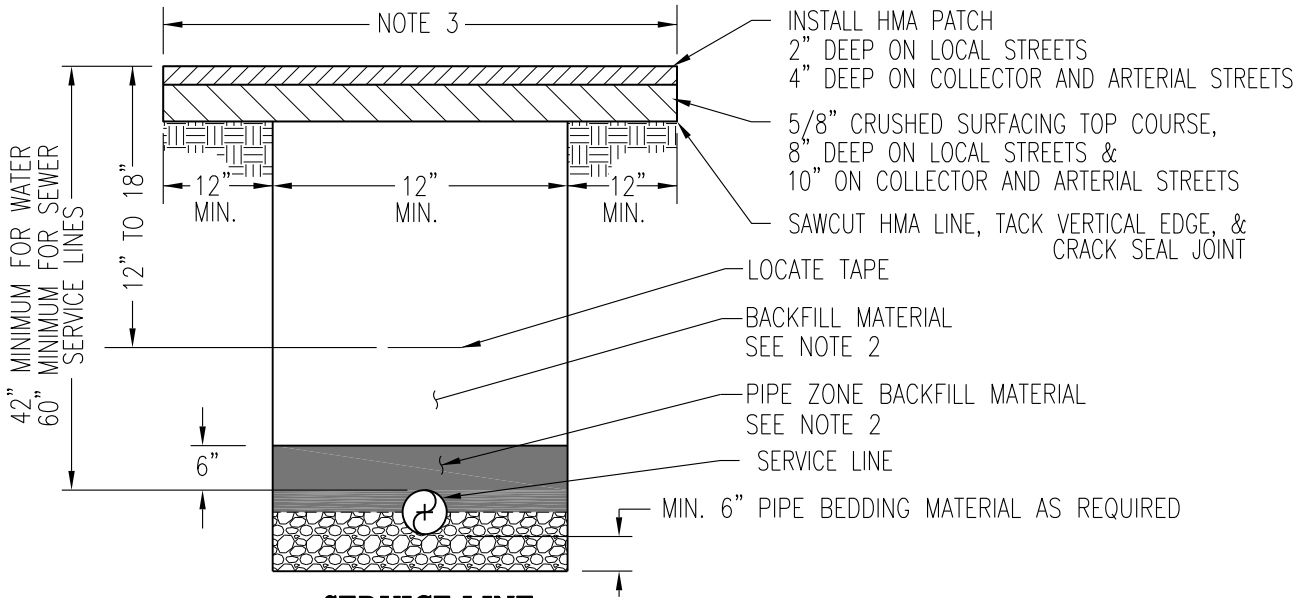
NOT TO SCALE

NOTES:

1. TRENCH WIDTH "W" SHALL BE 40" MINIMUM FOR 15" DIAMETER AND SMALLER PIPES AND1 1/2 TIMES THE INSIDE DIAMETER PLUS 18" MINIMUM FOR 18" AND LARGER PIPES.

2. 5/8" CRUSHED SURFACING TOP COURSE BACKFILL MATERIAL REQUIRED ON SMALL TRENCH REPAIR UTILITY PROJECTS, UNLESS DIRECTED OTHERWISE BY THE ENGINEER. FOR CITY OF RICHLAND CAPITAL IMPROVEMENT PROJECTS AND SUBDIVISIONS SECTION 7-08 OF THE WSDOT STANDARD SPECIFICATIONS SHALL APPLY.

3. HMA PATCH LIMITS SHALL MEET THE REQUIREMENTS OF RICHLAND MUNICIPAL CODE 12.08.065. MINIMUM 6 FT WIDE.

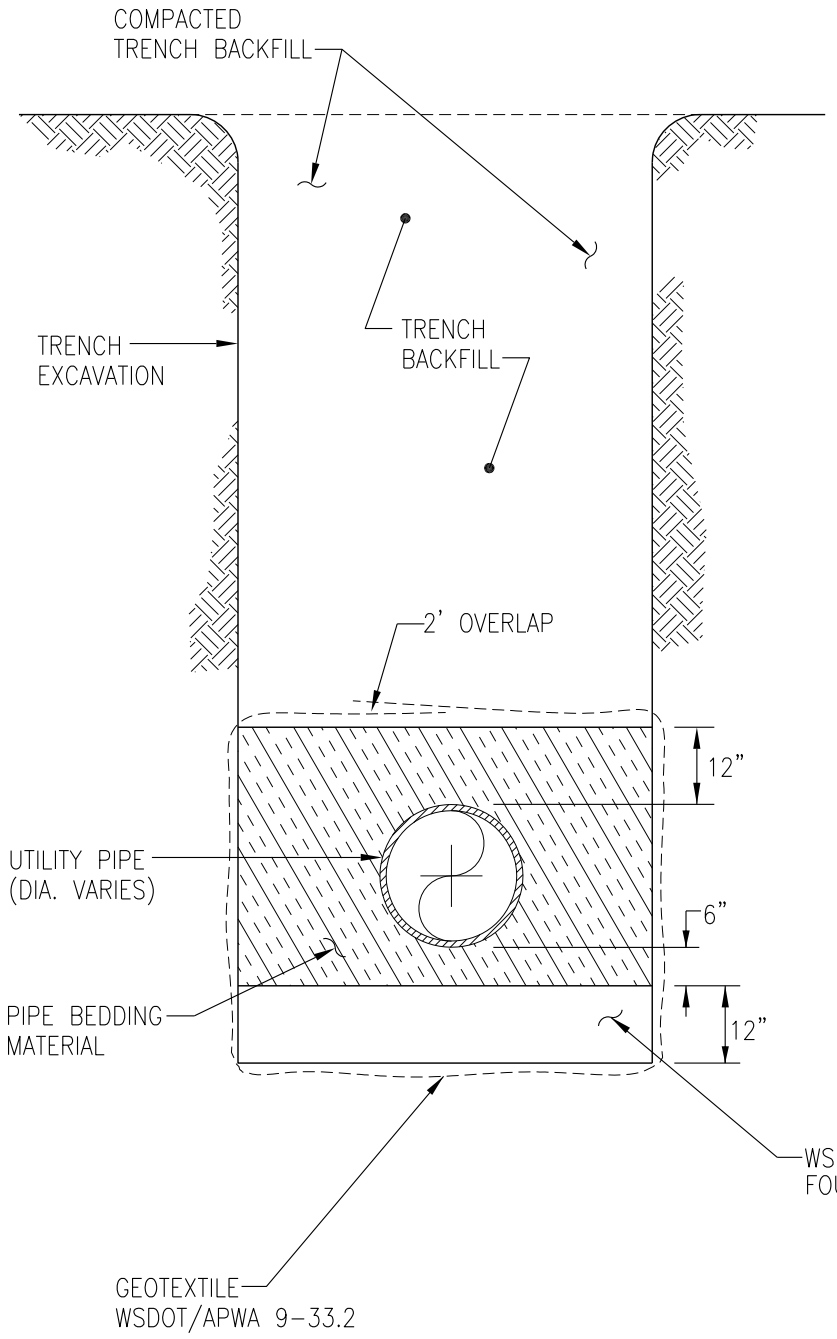


SERVICE LINE

NOT TO SCALE

TRENCH DETAIL

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: U2
CAD FILE: 2014_U2_01_2024	



THE ON-SITE SOILS MAY BE USED FOR COMPACTED TRENCH BACKFILL.

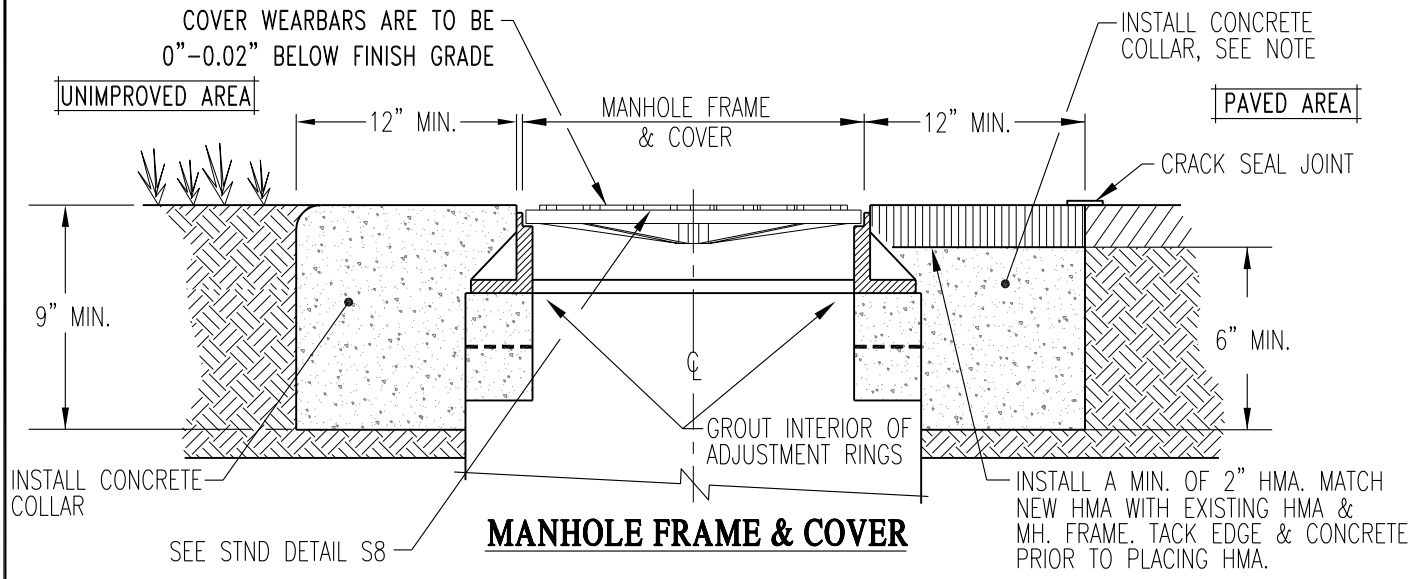
PIPE BEDDING MATERIAL SHALL CONFORM TO THE WSDOT/APWA STANDARD SPECIFICATIONS 9-03.9(3) TOP COURSE

ALL PIPE BEDDING SHOULD BE WRAPPED IN A NON-WOVEN GEOTEXTILE FABRIC. THE GEOTEXTILE SHALL HAVE A NOMINAL WEIGHT OF AT LEAST 6 OUNCES PER SQUARE YARD. THE GEOTEXTILE SHALL EXTEND ACROSS THE BOTTOM OF THE TRENCH, UP THE SIDES OF THE TRENCH, AND SHALL OVERLAP AT LEAST 2 FEET ON THE TOP OF THE TRENCH.

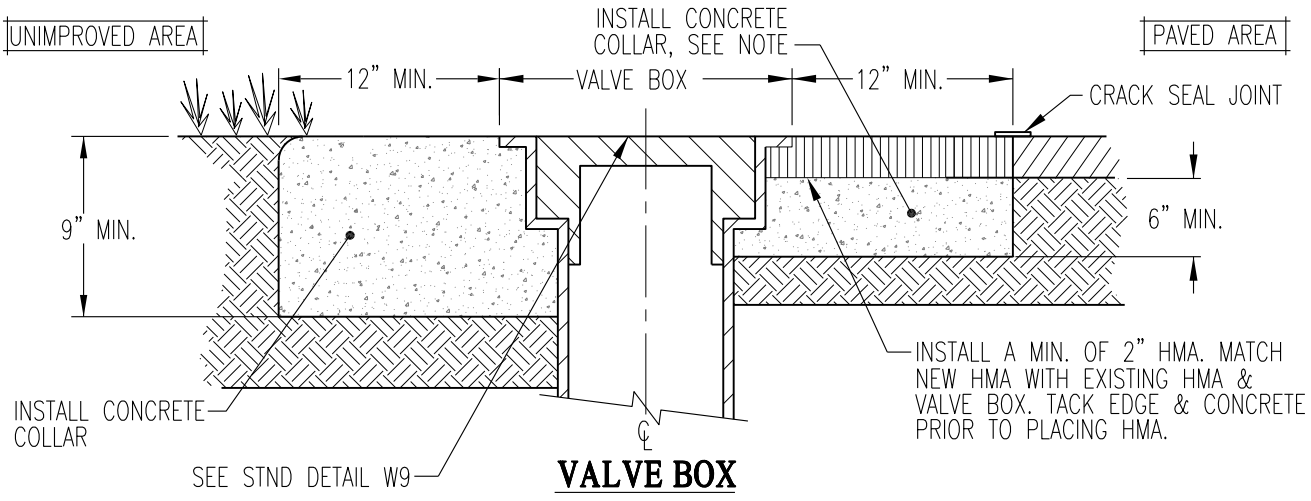
Richland Washington

GROUND WATER TRENCH DETAIL

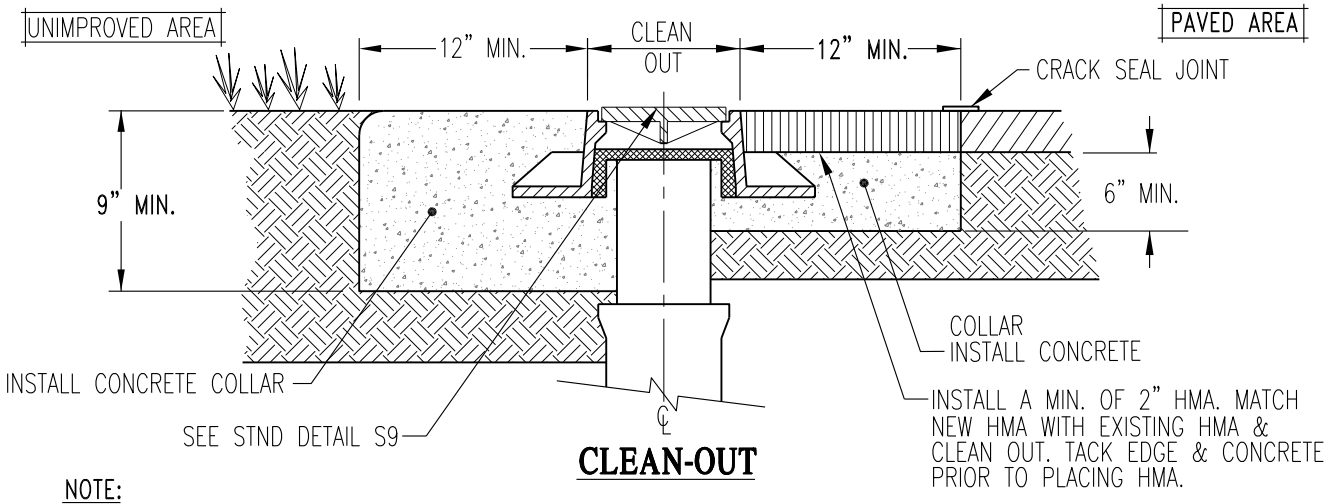
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 12.2010
DRAWN BY: LD	DWG: U3
CAD FILE: 2012_U3_12_2010	



MANHOLE FRAME & COVER



VALVE BOX



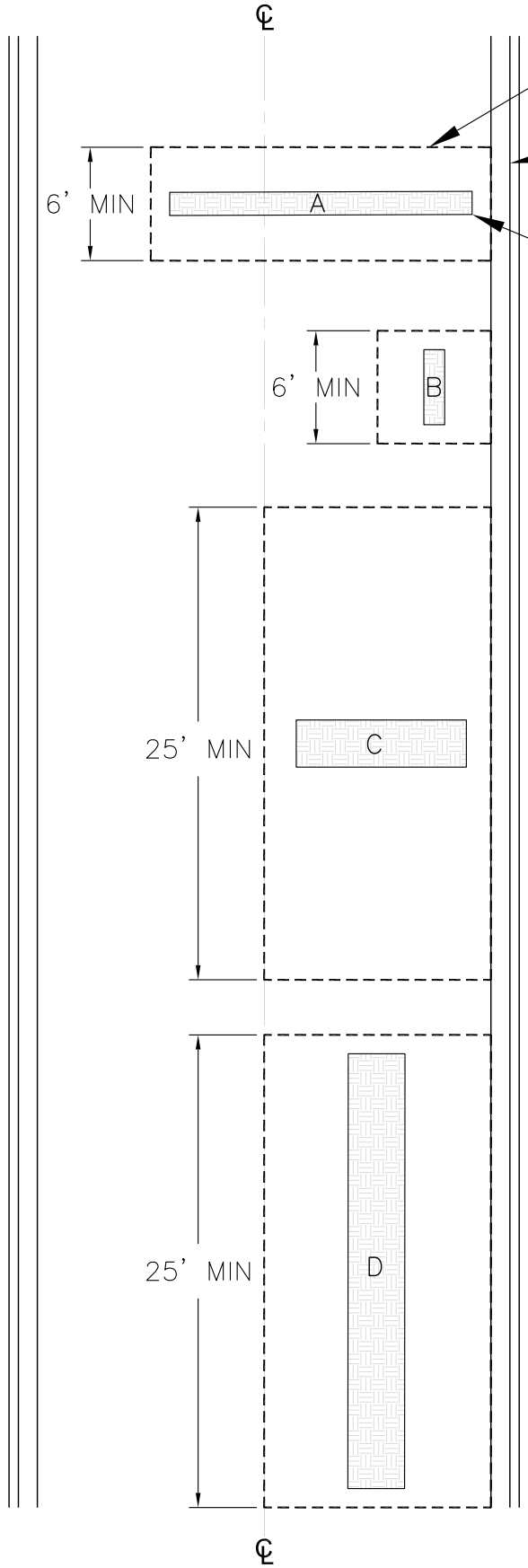
CLEAN-OUT

NOTE:

A CIRCULAR OR SQUARE SHAPED CONCRETE COLLAR IS REQUIRED ON ALL INSTALLATIONS. CONCRETE COLLAR SHALL EXTEND A MINIMUM OF 3" BELOW TOP SECTION OF MANHOLE FRAME, COVERING ALL ADJUSTMENT RINGS.

UTILITY ADJUSTMENTS

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: U4
CAD FILE: 2012_U4_01_2024	



NOTES:

A. LATERAL CUTS WITHIN ARTERIAL AND MAJOR COLLECTORS WITH PCI <75 OR MINOR COLLECTORS AND LOCAL STREETS

PATCH MIN 6' WIDE AND TO INCLUDE WHOLE OR HALF LANE WIDTH DEPENDING ON LOCATION OF TRENCH. MINIMUM ONE FOOT PATCH BEYOND TRENCH CUT.

B. LONGITUDINAL CUTS WITHIN ARTERIAL AND MAJOR COLLECTORS WITH PCI <75 OR MINOR COLLECTORS AND LOCAL STREETS

PATCH MIN 6' WIDE AND TO INCLUDE WHOLE OR HALF LANE WIDTH DEPENDING ON LOCATION OF TRENCH. MINIMUM ONE FOOT PATCH BEYOND TRENCH CUT

C. LATERAL CUTS WITHIN ARTERIAL AND MAJOR COLLECTORS PCI ≥75

PATCH MIN 25' AND TO INCLUDE FULL TRAVELED LANE AND ANY DISTURBED SHOULDER

LATERAL PATCHES <25' APART SHALL BE INCORPORATED INTO ONE PATCH.

D. LONGITUDINAL CUTS WITHIN ARTERIAL AND MAJOR COLLECTORS PCI ≥75

PATCH MIN 25' AND TO INCLUDE FULL TRAVELED LANE

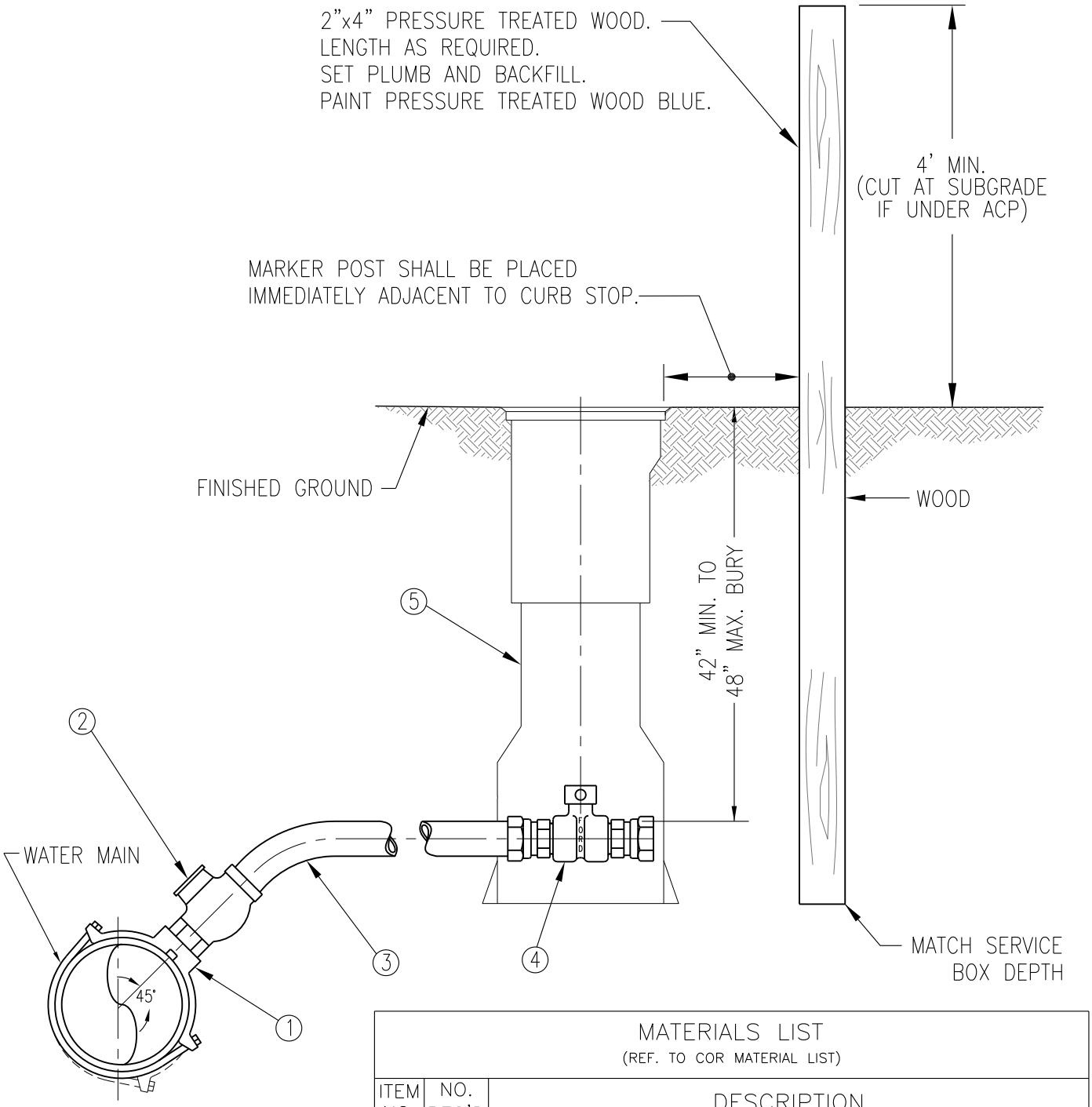
*EXAMPLE ONLY. PLEASE REFER TO RMC 12.08.065 AND STANDARD DETAIL U2

Richland Washington

PATCH DETAIL

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 08.23
DRAWN BY: JLR	DWG: U5
CAD FILE: 2023_U5_08_2023	

Standard Details
Water



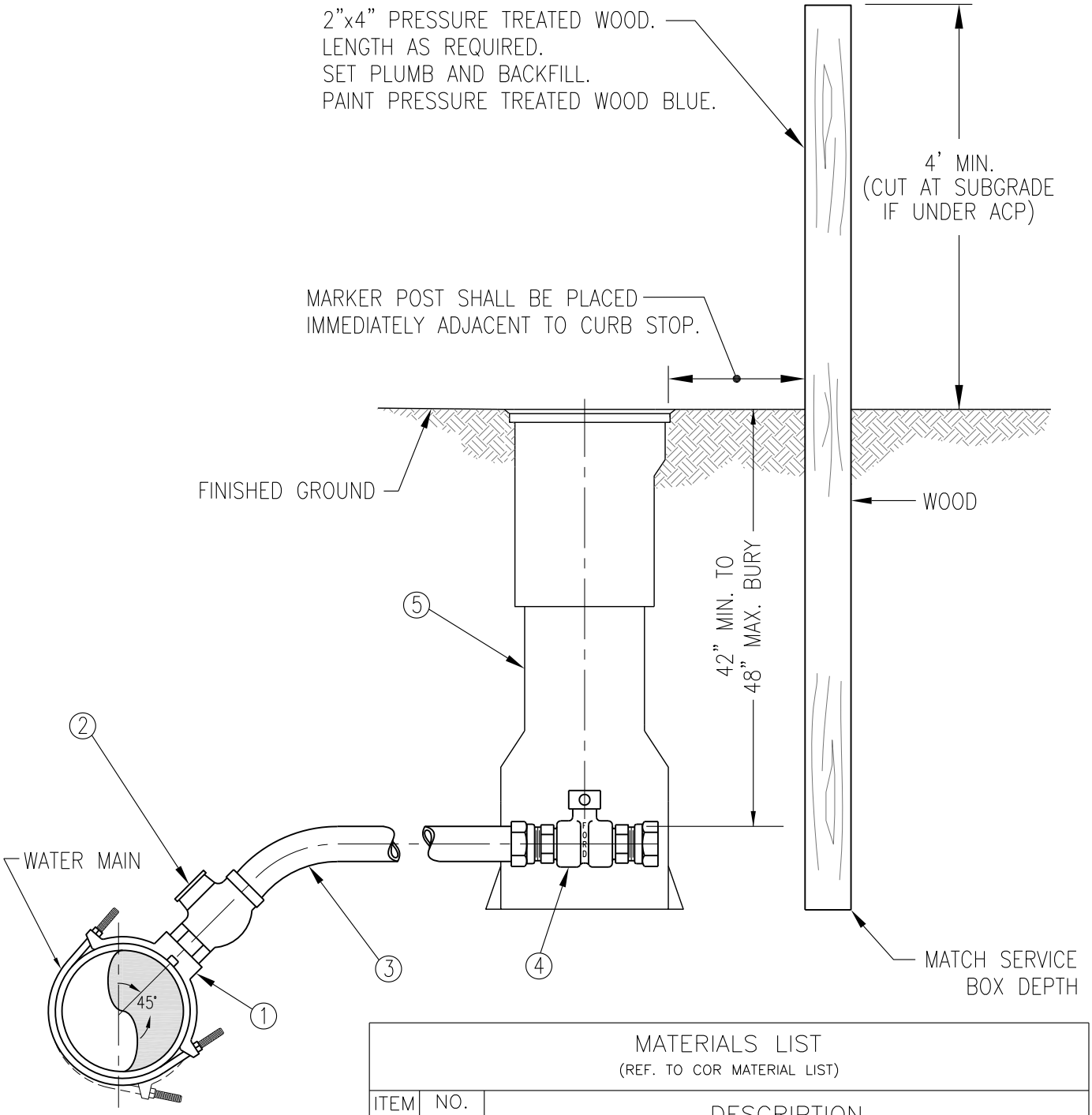
MATERIALS LIST (REF. TO COR MATERIAL LIST)		
ITEM NO.	NO. REQ'D	DESCRIPTION
1	1	SERVICE SADDLE
2	1	CORPORATION STOP
3	1	1" TUBING–CONTINUOUS, NO JOINTS ALLOWED
4	1	CURB STOP
5	1	SERVICE BOX

NOTE:

1. SERVICE TAPS ON PVC WATER MAIN SHALL BE SPACED A MINIMUM OF 36" IF TAPPED ON THE SAME SIDE AND 18" IF STAGGERED. TAP SHALL BE NO CLOSER THAN 24" FROM PIPE BELL.

1" STREET SERVICE ASSEMBLY

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: W1
CAD FILE: 2013_W1_01_2024	



MATERIALS LIST (REF. TO COR MATERIAL LIST)		
ITEM NO.	NO. REQ'D	DESCRIPTION
1	1	SERVICE SADDLE
2	1	CORPORATION STOP
3	1	2" TUBING, NO JOINTS ALLOWED
4	1	CURB STOP
5	1	SERVICE BOX

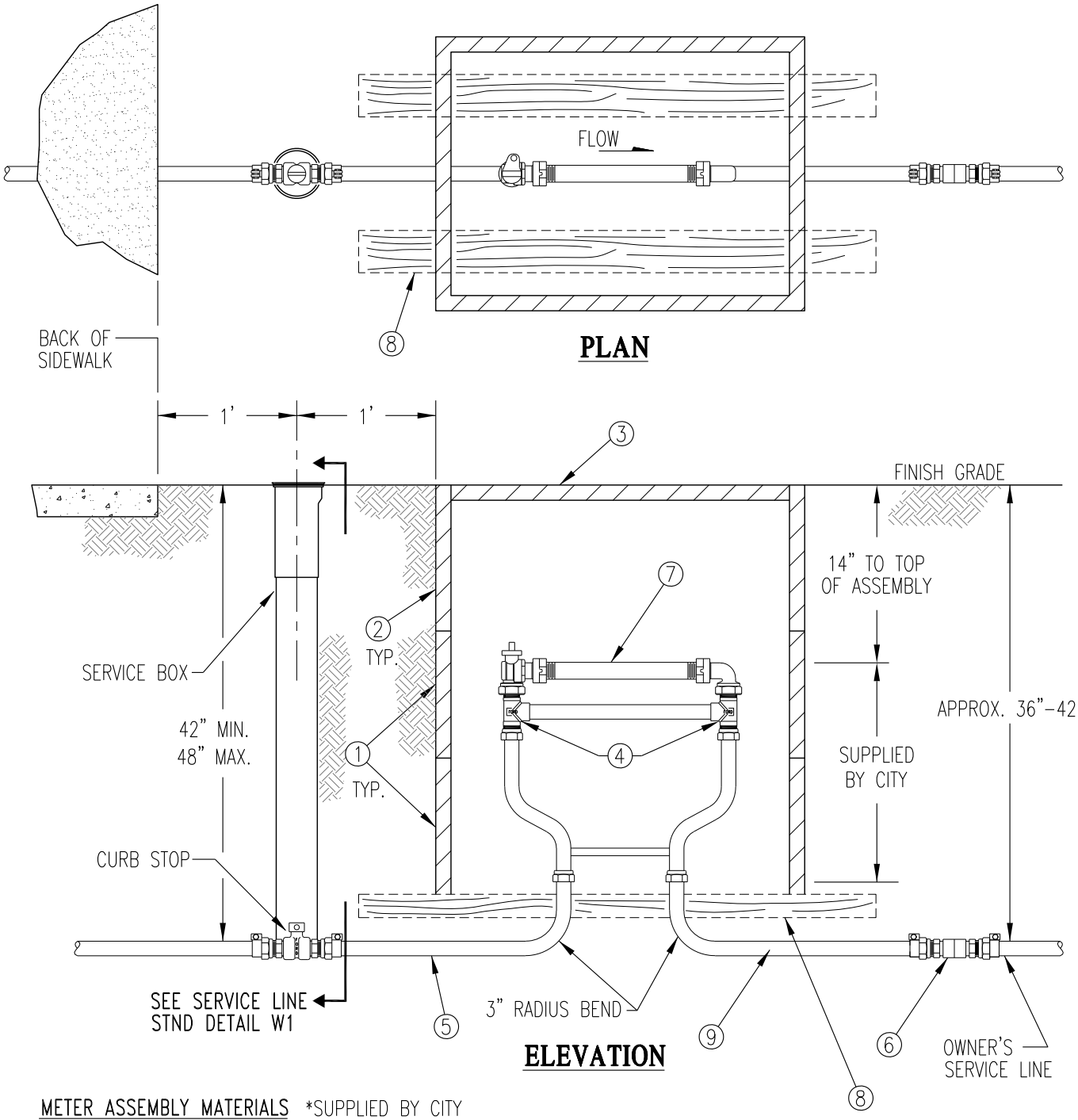
NOTE:

1. SERVICE TAPS ON PVC WATER MAIN SHALL BE SPACED A MINIMUM OF 36" IF TAPPED ON THE SAME SIDE AND 18" IF STAGGERED. TAP SHALL BE NO CLOSER THAN 24" FROM PIPE BELL.

Richland Washington

2" STREET SERVICE ASSEMBLY

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: W2
CAD FILE: 2013_W2_01_2024	



METER ASSEMBLY MATERIALS *SUPPLIED BY CITY

1. 2 EA. METER BOX, 12", MIDDLE SECTION,
2. 1 EA. METER BOX, 12". TOP SECTION,
3. 1 EA. METER BOX COVER
   TOP OF METER BOX TO BE LEVEL WITH SURROUNDING SURFACE.

*4. 1" METER SETTER

5. 5' TUBING, COPPER, 1" TYPE K, SOFT-ROLLED.
6. 1" COUPLING

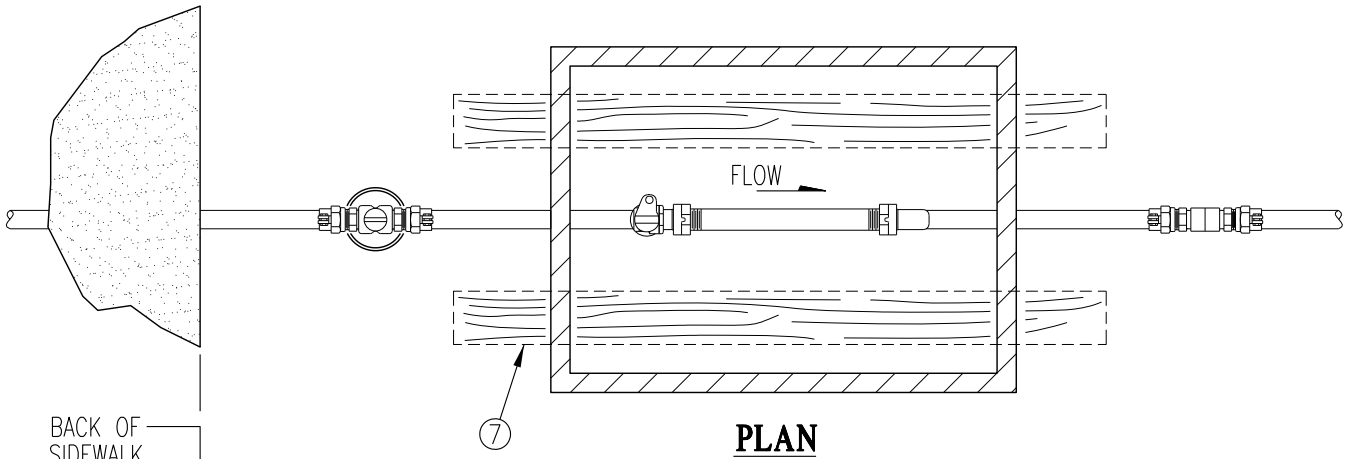
*7. 1" METER JUMPER

8. 2 EA. PRESSURE TREATED 2" X 4" X 4' LONG.
9. COPPER OR SERVICE LINE TUBING.

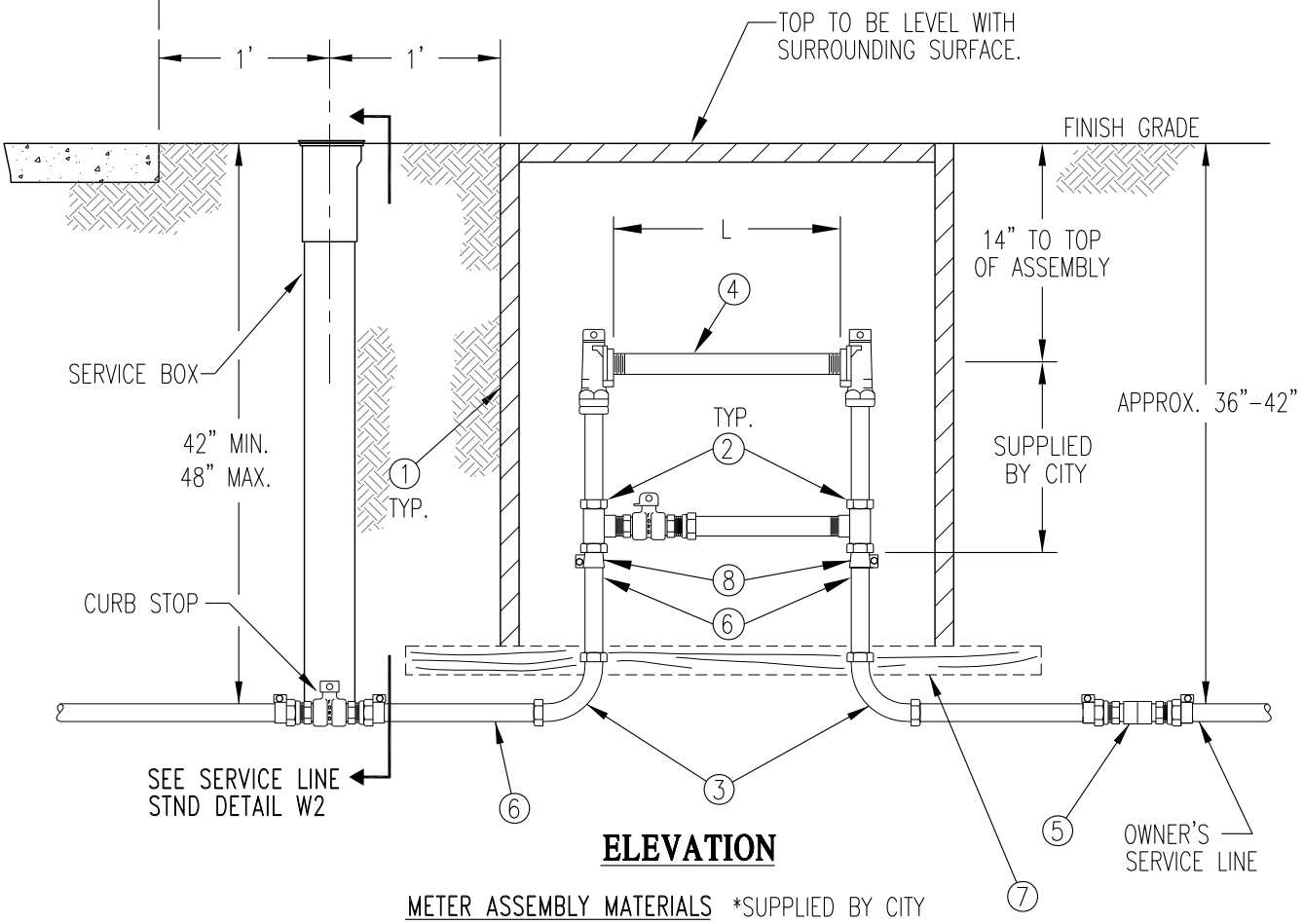
Richland Washington

WATER METER ASSEMBLY FOR 3/4" & 1" METERS

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: W3
CAD FILE: 2013_W3_01_2024	



PLAN



ELEVATION

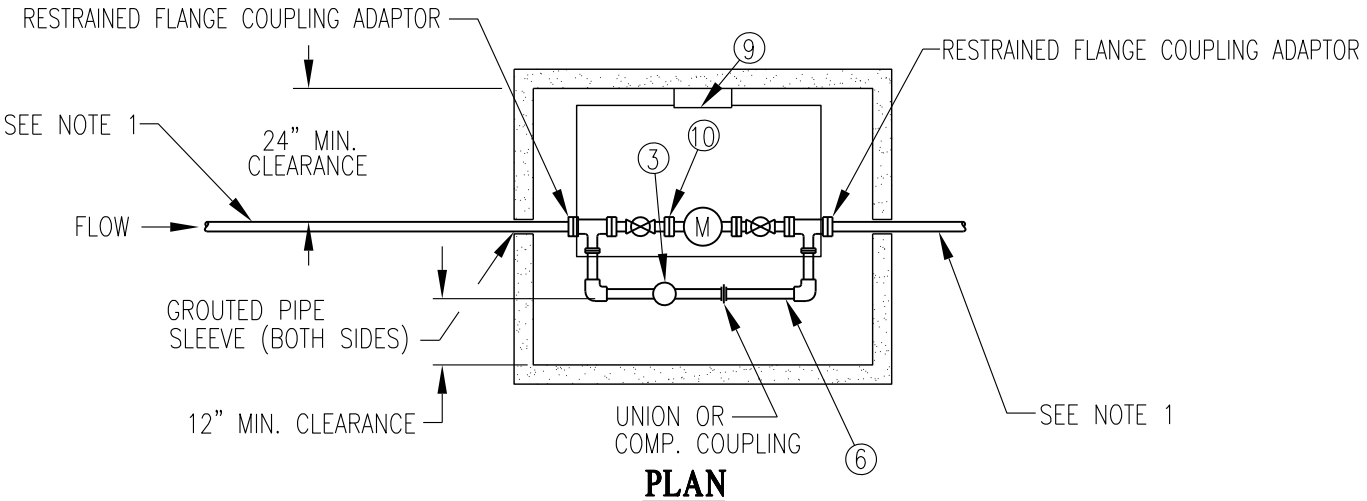
METER ASSEMBLY MATERIALS *SUPPLIED BY CITY

2" METER

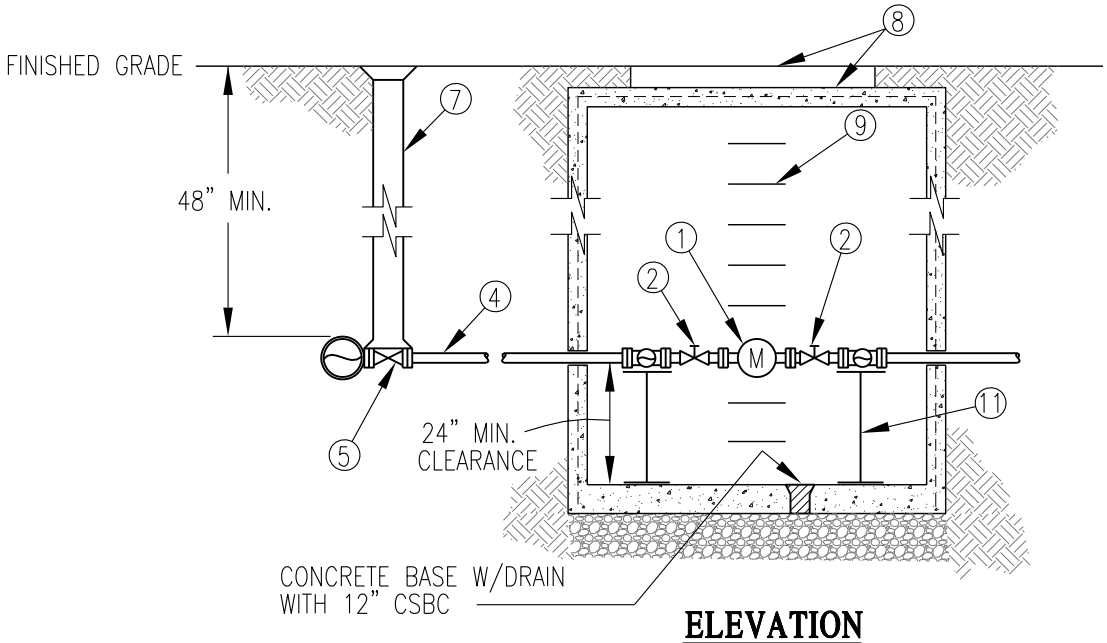
1. METER BOX (CONCRETE) (1-TOP SECTION, 2-MIDDLE SECTIONS & 1-LID).
* 2. 2" METER SETTER (WITH VERTICAL CONNECTION TEES).
3. 2" x 90° COMPRESSION ELL.
* 4. 2" METER JUMPER
5. 2" COUPLING.
6. 2" TYPE "L" COPPER TUBING.
7. 2 EA. PRESSURE TREATED 2" x 4" x 4' LONG.
8. COUPLING.

WATER METER ASSEMBLY FOR 2" METERS

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: W4
CAD FILE: 2013_W4_01_2024	



PLAN



ELEVATION

MATERIALS:

1. WATER METER, SUPPLIED BY CITY (METER LAY LENGTH PROVIDED BY CITY)
2. GATE VALVE, W/HANDWHEEL.
3. BALL VALVE W/LOCKING CAP
4. SERVICE LINE, CLASS 50 DUCTILE IRON.
5. GATE VALVE FL x MJ, W/2" SQUARE OPERATING NUT.
6. 2" TYPE-L COPPER.
7. VALVE BOX
8. REINFORCED PRE-CAST CONCRETE VAULT (SEE CHART FOR VAULT SIZE)
9. VAULT STEPS AT 12" SPACING.
10. DISMANTLING JOINT
11. 4 EA.- ADJUSTABLE STANDS

METER SIZE	VAULT SIZE*
3"	7' x 4' x 8' TALL W/ 3' x 3' ALUMINUM ACCESS DOOR
4"	9' x 5' x 7'-2" TALL W/ 36" x 72" ALUMINUM ACCESS DOOR
6"	11'-2" x 5'-8" x 7'-2" TALL W/ 36" x 72" ALUMINUM ACCESS DOOR

*MINIMUM INSIDE VAULT DIMENSIONS

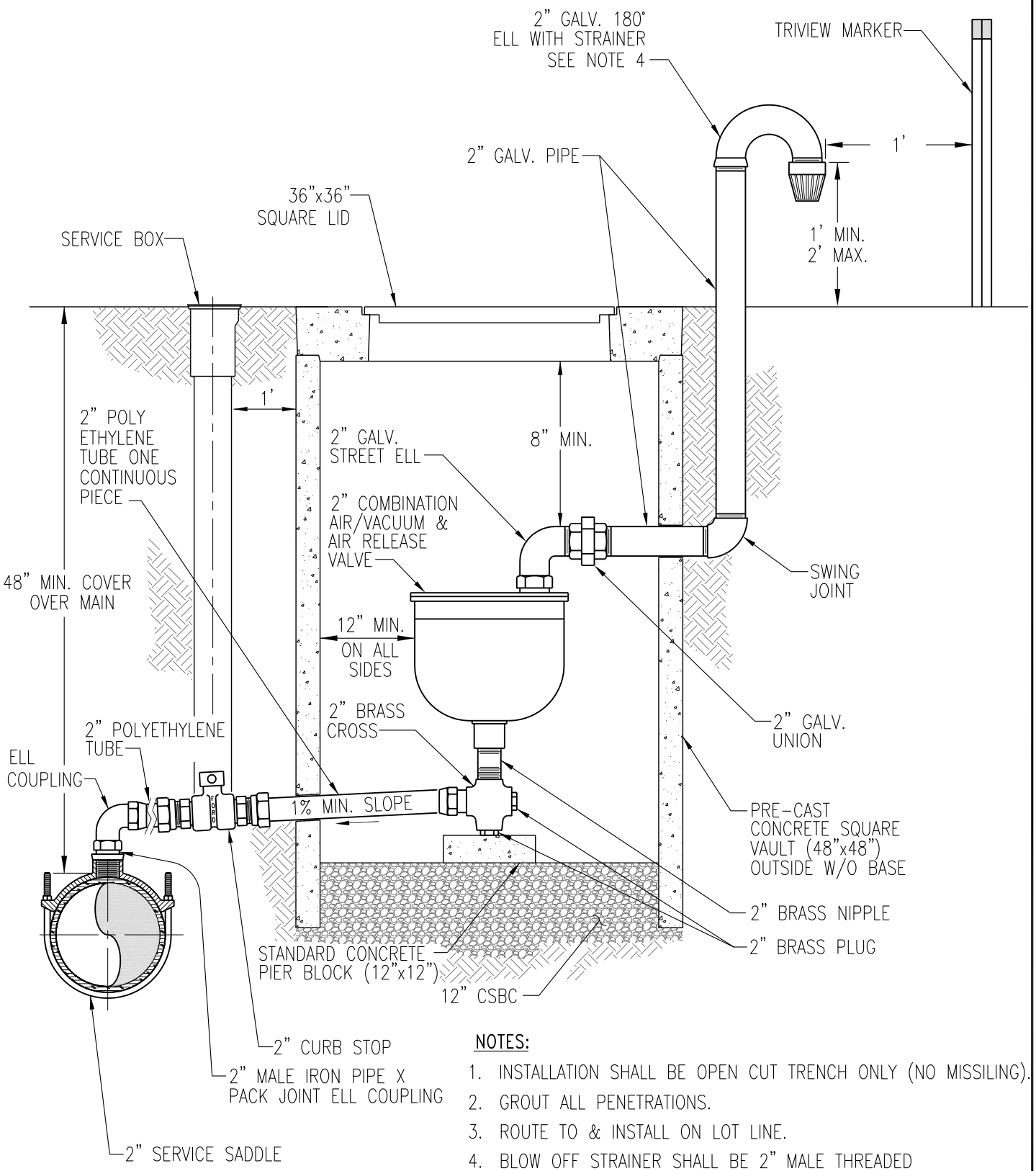
NOTES:

1. ALL RESTRAINED JOINT FITTINGS 60' EACH SIDE OF VAULT.

Richland Washington

COMMERCIAL WATER METER

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 09.2023
DRAWN BY: JLR	DWG: W5
CAD FILE: 2012_W5_10_2023	

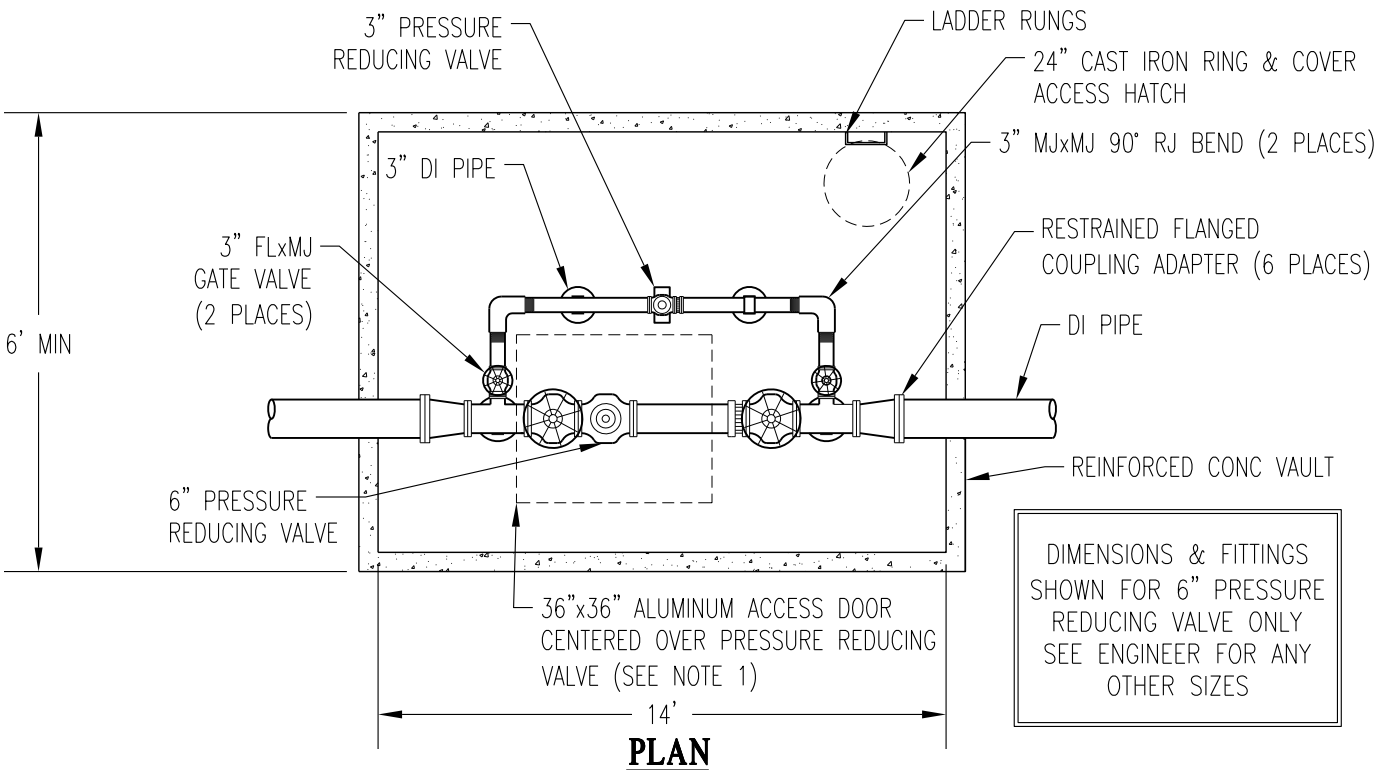


NOTES:

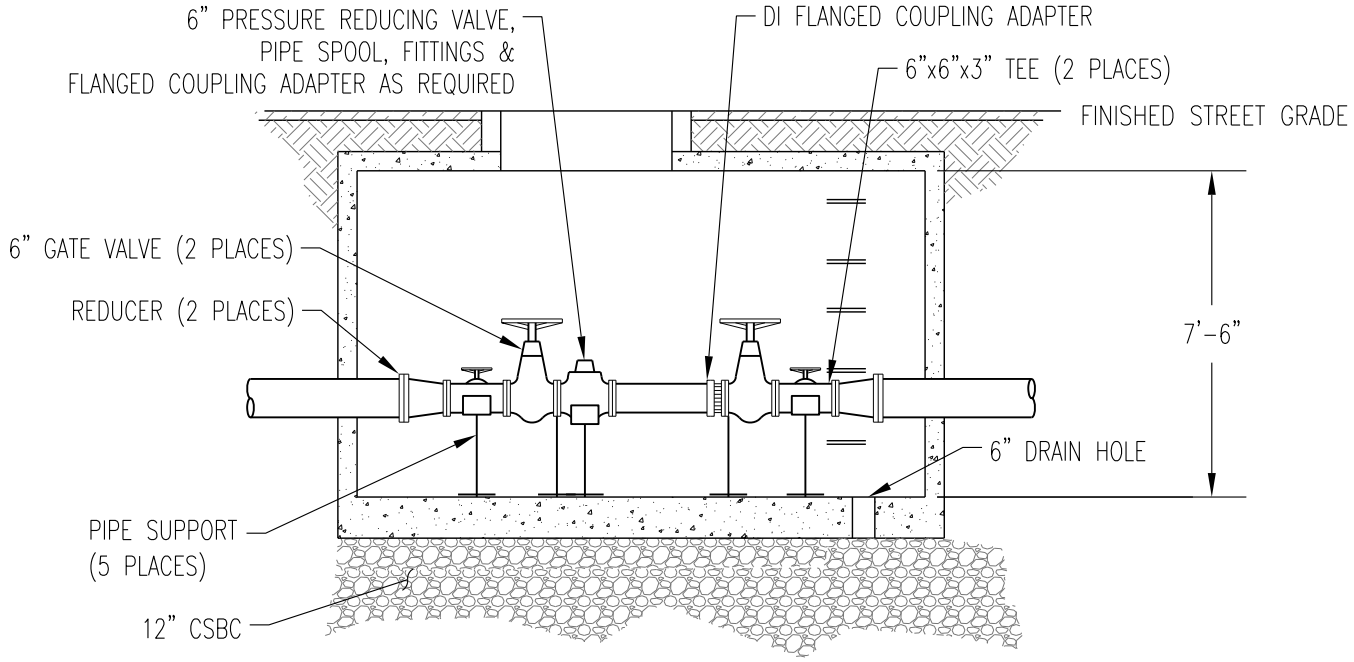
1. INSTALLATION SHALL BE OPEN CUT TRENCH ONLY (NO MISSILING).
2. GROUT ALL PENETRATIONS.
3. ROUTE TO & INSTALL ON LOT LINE.
4. BLOW OFF STRAINER SHALL BE 2" MALE THREADED STRAINER WITH SCREENING.

2" COMBINATION AIR & VACUUM VALVE ASSEMBLY

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 03.2018
DRAWN BY: EY	DWG: W6
CAD FILE: 2012_W6_03_2018	



PLAN



ELEVATION

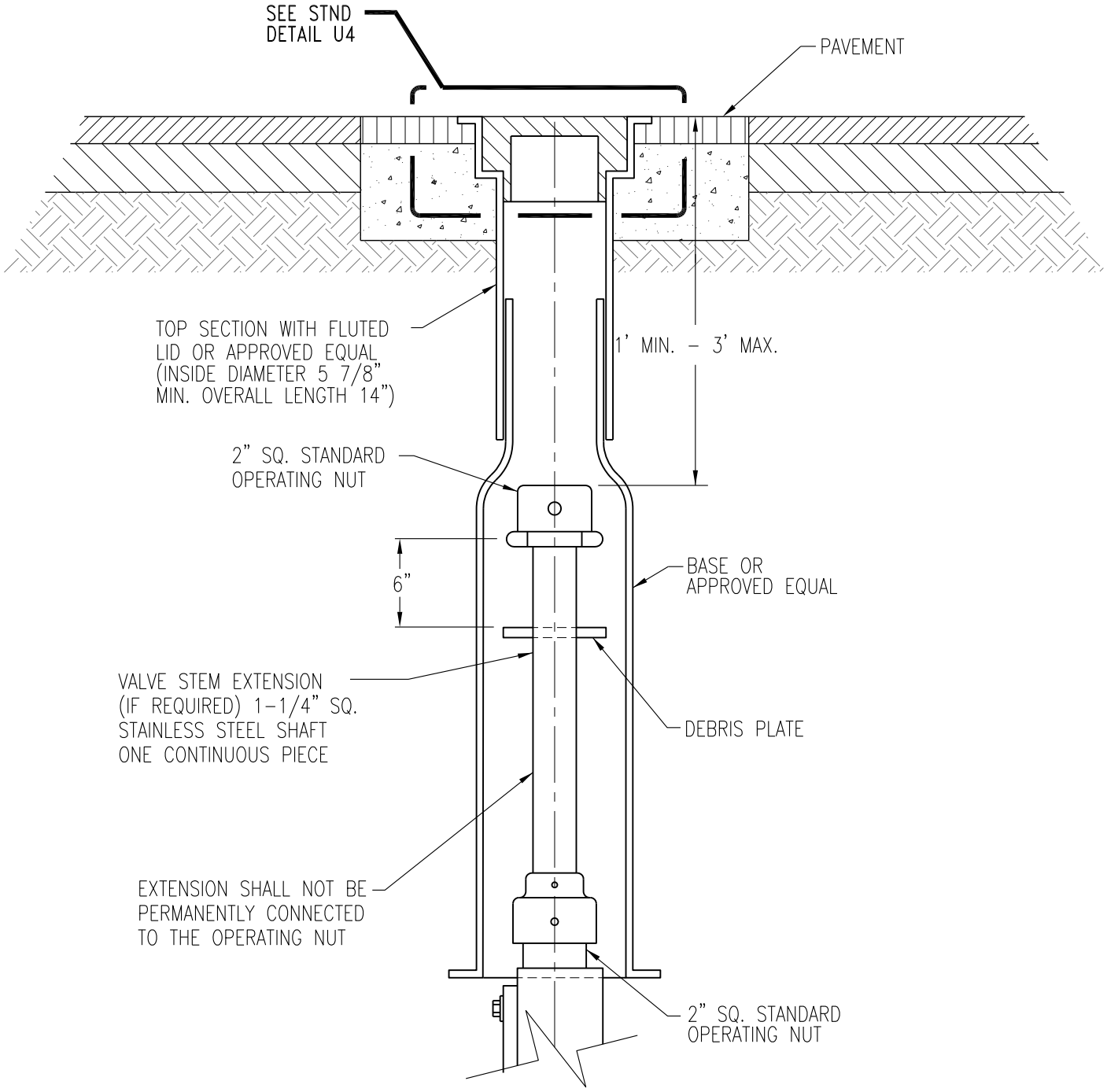
NOTES:

1. ALUMINUM ACCESS DOOR VAULTS LOCATED IN TRAFFIC AREAS SHALL HAVE TRAFFIC RATED DOORS.
2. ALL RESTRAINED JOINTS EACH SIDE OF VAULT. SEE STANDARD DETAIL W16-B.
3. GROUT ALL PENETRATIONS
4. CITY OF RICHLAND TO INSTALL CONTRACTOR SUPPLIED PRESSURE REDUCING VALVE PARTS. CONTRACTOR TO INSTALL VAULT AND PIPING STRAIGHT THROUGH.

Richland Washington

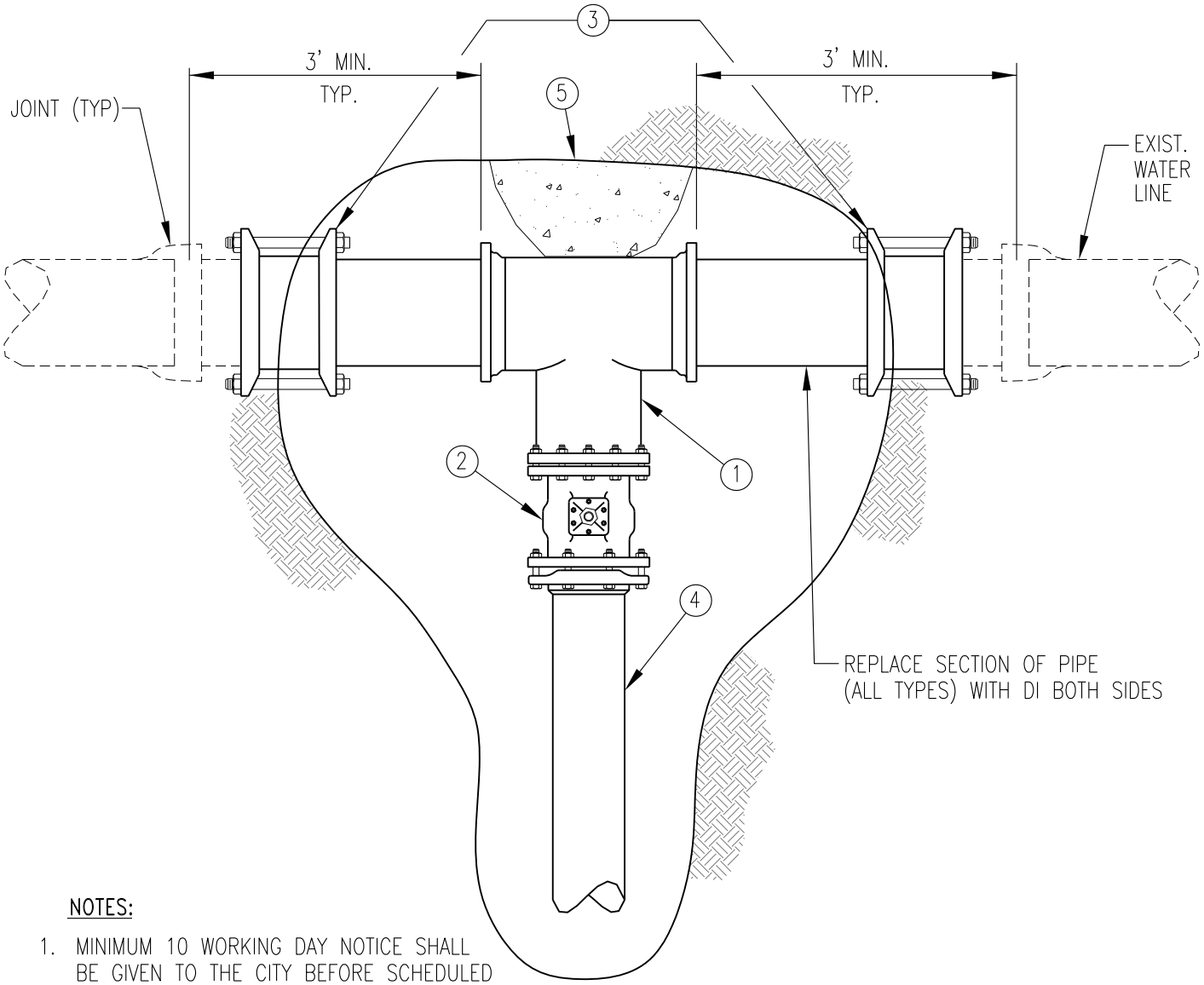
WATER PRESSURE REDUCING ASSEMBLY

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 03.2018
DRAWN BY: EY	DWG: W8
CAD FILE: 2013_W8_03_2018	



WATER
VALVE BOX

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 12.2010
DRAWN BY: SC NYBY	DWG: W9
CAD FILE: 2012_W9_12_2010	



NOTES:

1. MINIMUM 10 WORKING DAY NOTICE SHALL BE GIVEN TO THE CITY BEFORE SCHEDULED CUT-IN TO THE EXISTING WATERLINE. (CONSTRUCTION PLANS MUST BE APPROVED BY CITY ENGINEER PRIOR TO THIS NOTICE).
2. CONTRACTOR IS TO FURNISH ALL MATERIALS AS REQUIRED & HAVE LOCATION EXCAVATED AND SHORED SAFELY WITH MINIMUM OF 2' CLEARANCE OUTSIDE OF ALL NEW FITTINGS AS SHOWN & 18" CLEARANCE UNDER PIPE. PIPE & FITTINGS TO BE "SWABBED & BAGGED" 24 HOURS BEFORE CUT-IN.
3. AFTER THE CUT-IN BY CITY, CONTRACTOR SHALL INSTALL THRUST BLOCK & VALVE BOX, BACKFILL EXCAVATED AREA & PROVIDE APPROPRIATE STREET PATCH IF NECESSARY.

MATERIALS BY CONTRACTOR

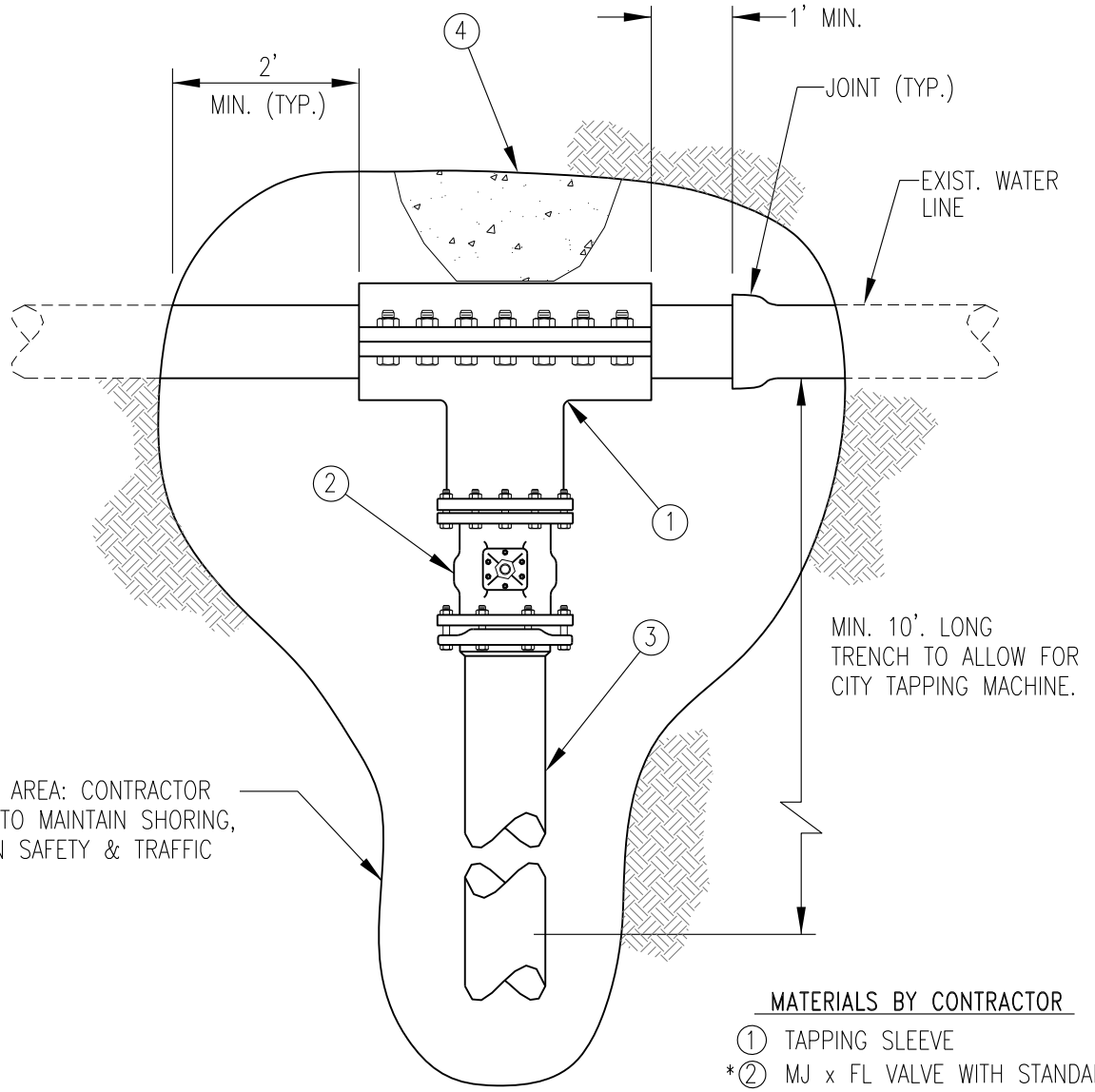
① MJxMJxFL TEE
② *MJxFL VALVE W/ STANDARD CONC PIER BLOCK
③ TRANSITION COUPLINGS
④ NEW WATER LINE
⑤ THRUST BLOCK

*BUTTERFLY VALVE FOR 10" AND LARGER, NOT SHOWN FOR CLARITY

Richland Washington

CUT-IN TO EXISTING WATER LINE

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 03.2018
DRAWN BY: EY	DWG: W10
CAD FILE: 2014_W10_03_2018	



MATERIALS BY CONTRACTOR

① TAPPING SLEEVE
*② MJ x FL VALVE WITH STANDARD CONCRETE PIER BLOCK
③ NEW WATER LINE EXTENSION
④ THRUST BLOCK

NOTES:

1. MINIMUM 10 WORKING DAY NOTICE SHALL BE GIVEN TO THE CITY BEFORE SCHEDULED TAP TO THE EXISTING WATER LINE. (CONSTRUCTION PLANS MUST BE APPROVED BY CITY ENGINEER PRIOR TO THIS NOTICE).

2. CONTRACTOR IS TO FURNISH ALL MATERIALS AS REQUIRED AND HAVE LOCATION EXCAVATED WITH MINIMUM OF 2' CLEARANCE OUTSIDE OF ALL NEW FITTINGS AS SHOWN & 18" CLEARANCE UNDER PIPE.

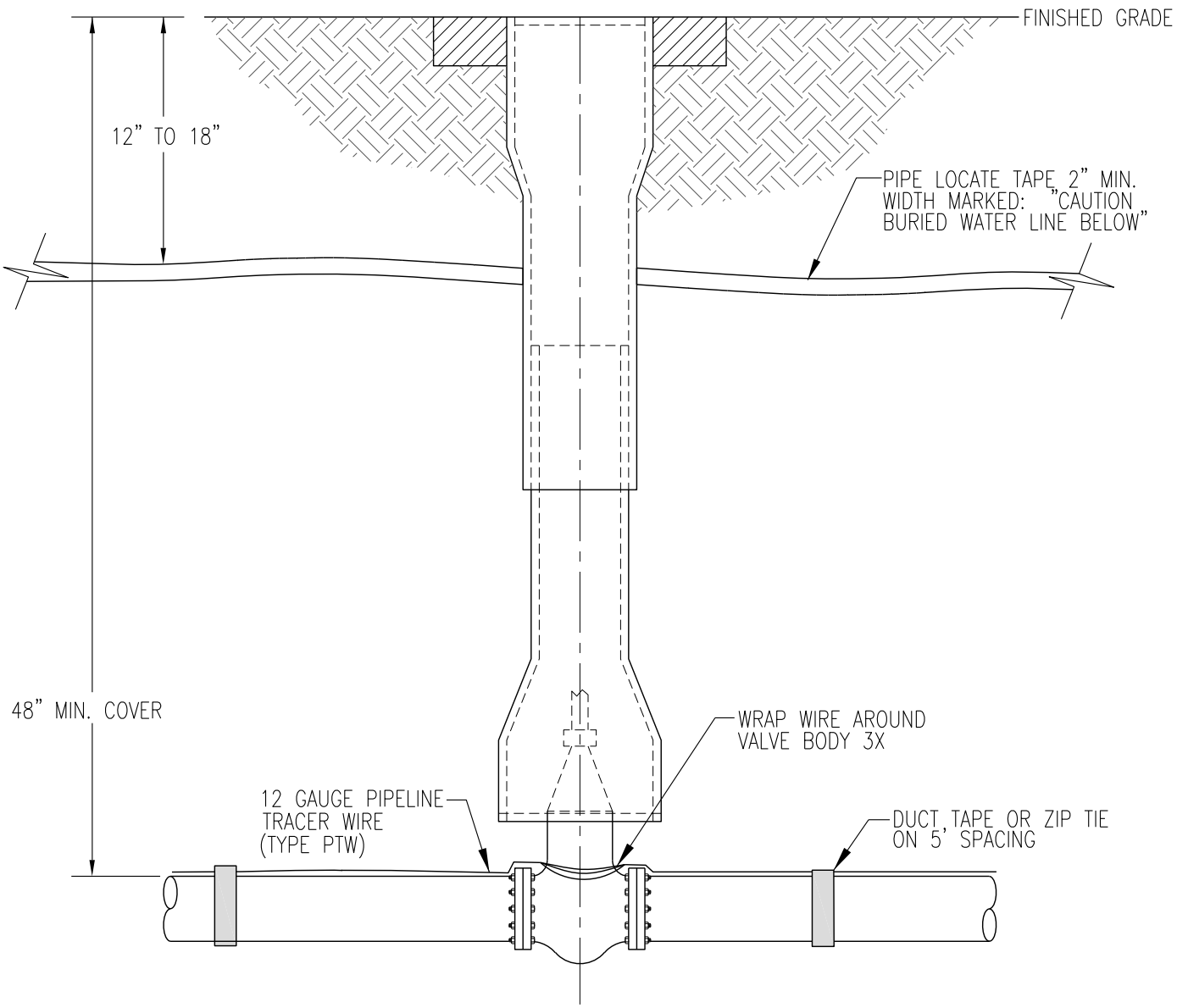
* TAPPING VALVES ARE REQUIRED ON 12 INCH DIAMETER & LARGER & ALL SIZE ON SIZE TAPS.

3. AFTER THE TAP BY CITY, CONTRACTOR SHALL INSTALL THRUST BLOCK & VALVE BOX, BACKFILL EXCAVATED AREA & PROVIDE APPROPRIATE STREET PATCH IF NECESSARY.

Richland Washington

TAP ON EXISTING WATER LINE

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 12.2010
DRAWN BY: SC NYBY	DWG: W11
CAD FILE: 2012_W11_12_2010	



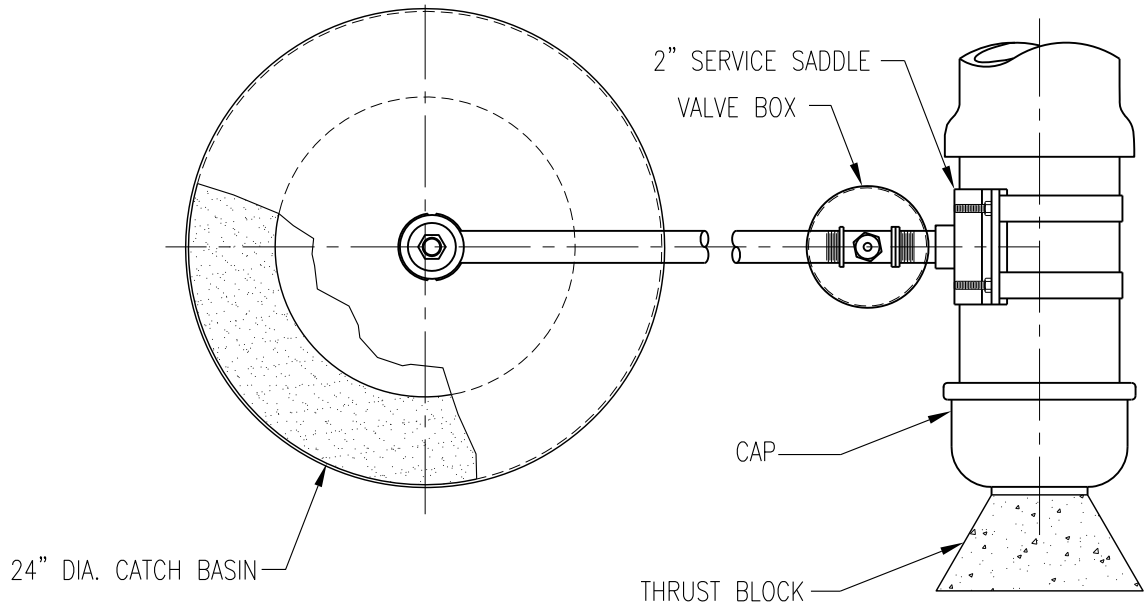
NOTES:

1. PRIOR TO PAVING, CONTRACTOR MUST SCHEDULE WITH CITY TO TEST WIRE FOR ELECTRICAL CONTINUITY.
2. INSTALL ELECTRICAL WATER TIGHT CONNECTORS (GEL PACKS) THAT SNAP TOGETHER AT ALL SPLICES.
3. WIRE REQUIRED ON ALL WATER MAINS AND PRESSURE SEWER MAINS.

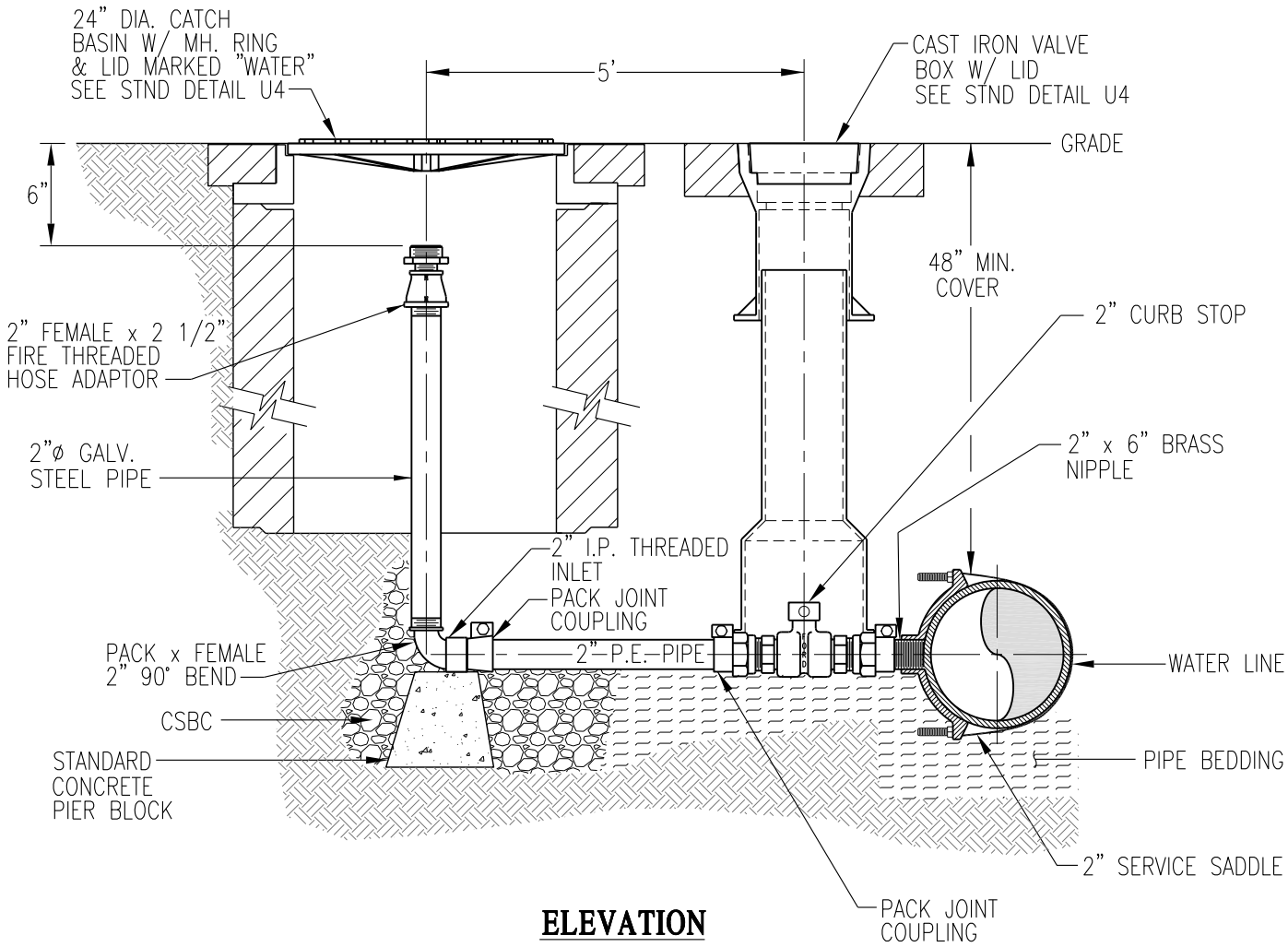
Richland Washington

TRACER WIRE INSTALLATION

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: W12
CAD FILE: 2012_W12_01_2024	



PLAN

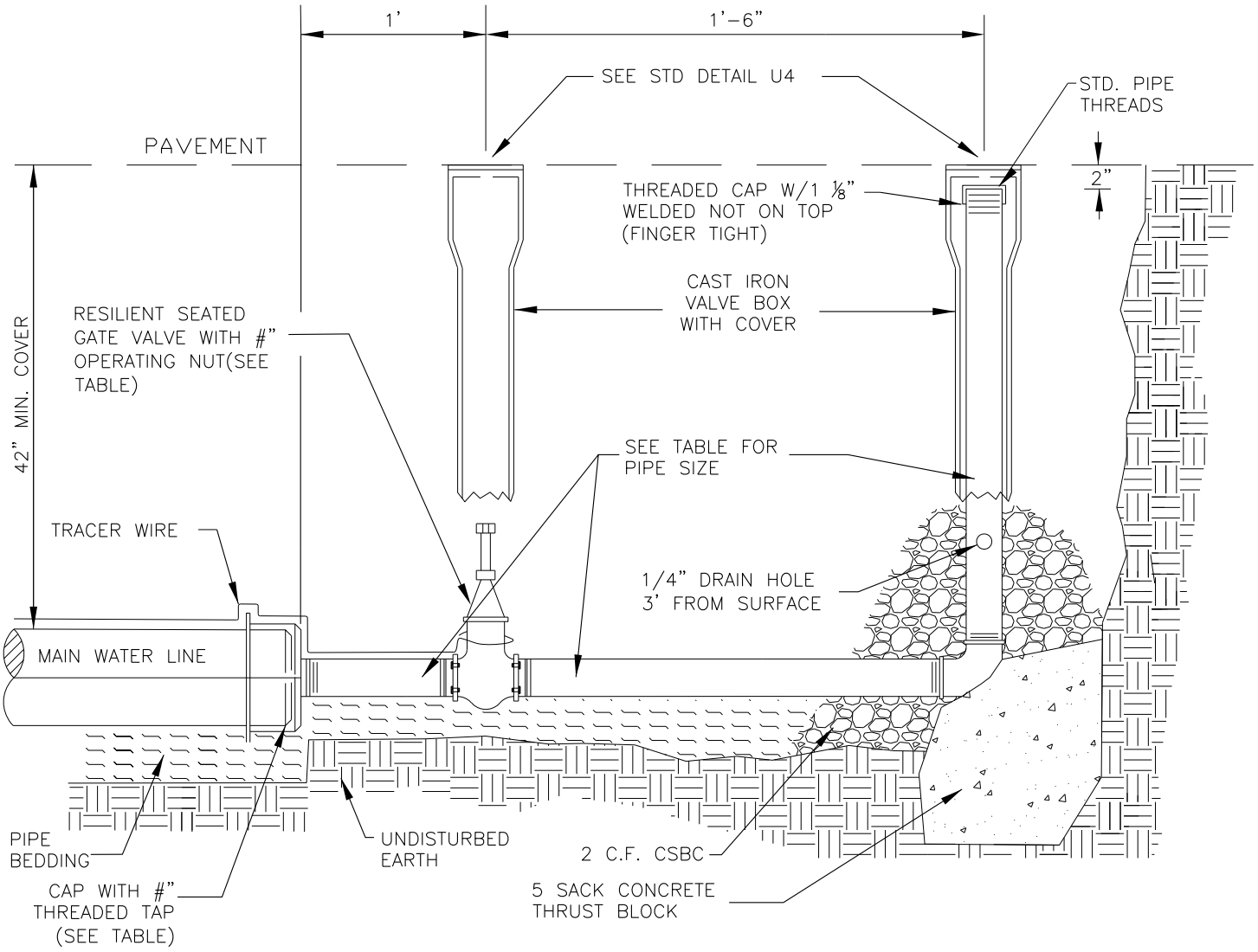


ELEVATION

Richland Washington

BLOW-OFF ASSEMBLY

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 03.2012
DRAWN BY: SC NYBY	DWG: W13
CAD FILE: 2012_W13_03_2012	



NOTES:

1. DRAIN HOLE TO BE INSTALLED AFTER PRESSURE TEST OF WATER MAIN.
2. RIGID SUPPORT REQUIRED BETWEEN CAP AND 90 DEG BEND
3. BLOW-OFF PIPE SIZE FOR PIPES >12" MUST BE CALCULATED TO INSURE REQUIRED FLUSHING VELOCITY.

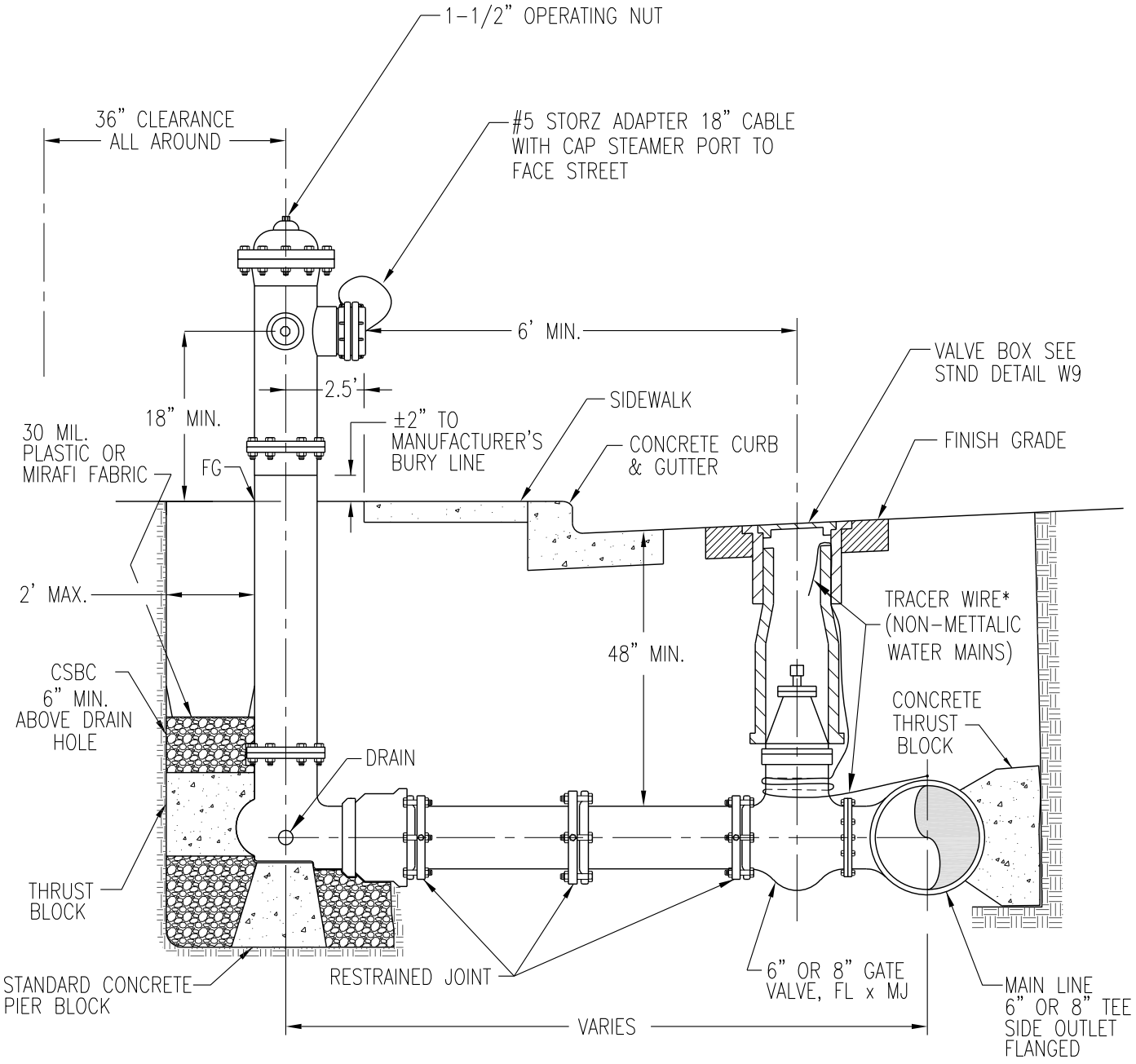
WATER LINE SIZE	THRUST BLK SIZE*	GALV. PIPE SIZE
6"	1.9 SF	2"
8"	3.3 SF	2"
10"	5.4 SF	3"
12"	7.7 SF	3"

*BEARING AREA AGAINST TRENCH WALL

Richland Washington

TEMPORARY BLOW-OFF ASSEMBLY

PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: W13A
CAD FILE: 2024_W13A_01_2024	



NOTES:

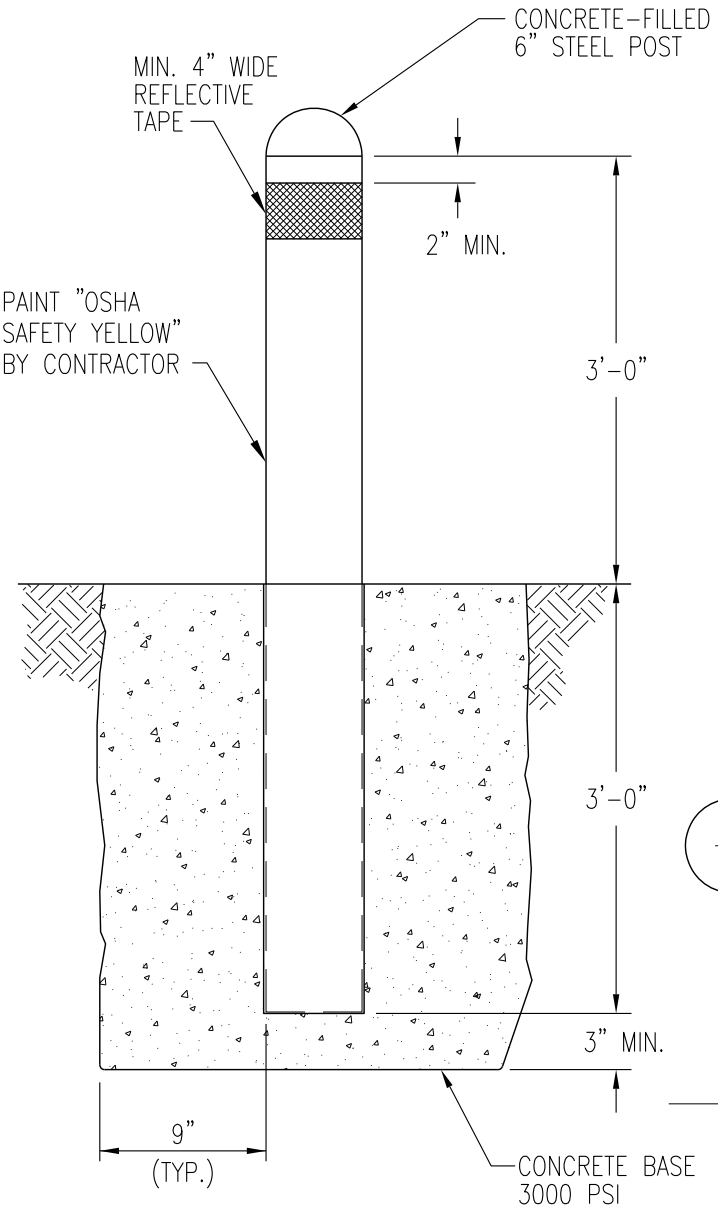
1. SEE STANDARD DETAIL W15 FOR BOLLARD POST REQUIREMENTS. CONTACT ENGINEER FOR PLACEMENT LOCATION. 5'x10' CONCRETE SIDEWALK TO BE PLACED AROUND HYDRANT AS DIRECTED BY ENGINEER.
2. IF FIRE HYDRANT IS MORE THAN 50' AWAY FROM THE WATER MAIN, INSTALL 8" LINE & VALVE WITH 8" X 6" REDUCER AT HYDRANT.
3. LOCATE FIRE HYDRANT 2' BEHIND CURB WHERE NO SIDEWALK IS PRESENT.
4. NO EXTENSIONS ALLOWED ON NEW INSTALLATIONS.
5. SEE STANDARD DETAIL W12 FOR TRACING WIRE INSTALLATION ON PVC MAIN LINES.

* STRIP INSULATION FROM LAST 12" OF THE WIRE AND BEND OVER LIP OF BOTTOM BOX.

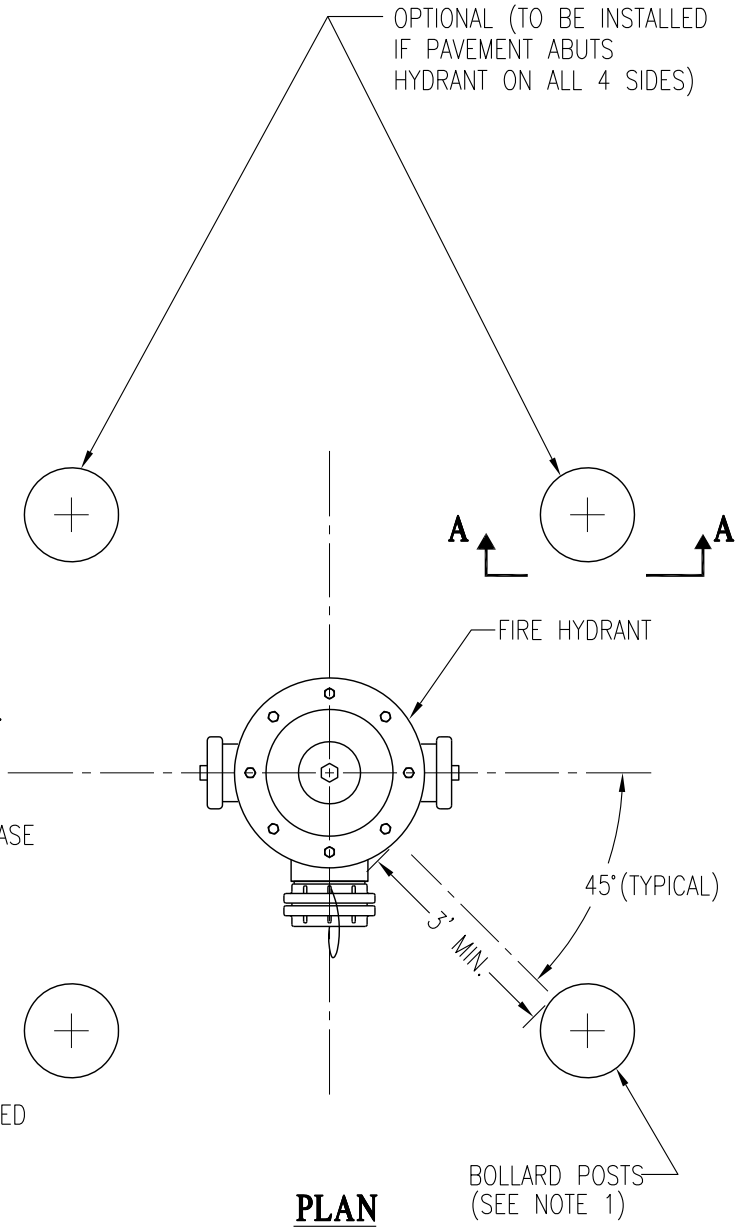
Richland Washington

FIRE HYDRANT DETAIL

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 03.2020
DRAWN BY: EY	DWG: W14
CAD FILE: 2014_W14_03_2020	



SECTION A-A



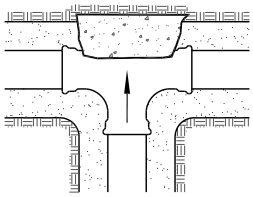
PLAN

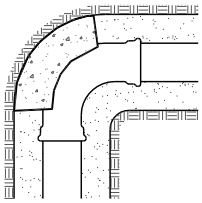
NOTE:

1. WHERE CONCRETE CURBING IS NOT INSTALLED, BOLLARD POSTS (2 EA. MINIMUM) SHALL BE INSTALLED ON SIDE FACING PAVED SURFACE.

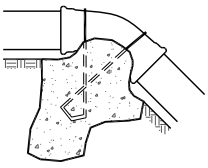
BOLLARD POSTS

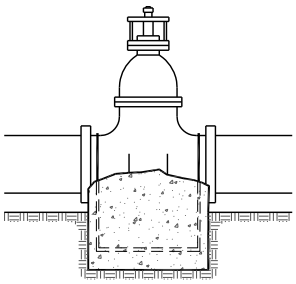
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 12.2010
DRAWN BY: SC NYBY	DWG: W15
CAD FILE: 2012_W15_12_2010	





VERTICAL THRUST BLOCKS





	HORIZONTAL THRUST BLOCKS				VERTICAL THRUST BLOCKS		
	MINIMUM BEARING AREA IN SQUARE FEET				MINIMUM VOLUME IN CUBIC YARDS		
Pipe Size in Inches	Tees, Wyes & Dead Ends	90° Bend	45° Bend	11 1/4° 22 1/2° Bend	45° Vertical Bend	11-1/4° 22-1/2° Vert. Bend	Restrained Valve
4 & Smaller	1.41	2.00	1.08	0.56	0.56	0.29	0.72
6	3.18	4.50	2.43	1.25	1.25	0.63	1.62
8	5.66	8.00	4.34	2.21	2.21	1.13	2.90
10	8.84	12.50	6.77	3.45	3.45	1.76	4.52
12	12.72	18.00	9.74	4.97	4.98	2.54	6.50
14	17.33	24.50	13.26	6.75	*	*	8.85
16	22.62	32.00	17.31	8.82	*	*	11.55
18	28.64	40.50	21.92	11.18	*	*	14.63
20	35.34	50.00	27.05	13.79	*	*	18.06
24	50.90	72.00	38.96	19.86	*	*	26.00

NOTES:

1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES.
3. ABOVE BEARING AREA & VOLUMES ARE CALCULATED AT A SOIL BEARING CAPACITY OF 2000 PSF & A TEST PRESSURE OF 225 PSI.
4. 6 MIL. PLASTIC TO BE PLACED BETWEEN THRUST BLOCK AND FITTINGS.
5. VALVES SHALL HAVE CONCRETE RESTRAINT BLOCKS AS SPECIFIED ABOVE UNLESS THE VALVE IS FLANGED TO A TEE, CROSS OR SIMILAR FITTING OR ANOTHER METHOD OF RESTRAINT IS PROVIDED.

*NO VERTICAL BENDS WITHOUT SPECIFIC APPROVAL BY THE ENGINEER.

Richland Washington

THRUST BLOCKING DETAILS

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 03.2018
DRAWN BY: EY	DWG: W16-A
CAD FILE: 2012_W16_03_2018	

RESTRAINED PIPE LENGTH (FEET)

TEE BRANCH AND LENGTH EACH SIDE OF BEND

Pipe Size in Inches		TYPE OR FITTINGS					
		Tee Branch	90° Bend	45° Bend	22 1/2° Bend	11 1/4° Bend	Dead End Valve Or Plug & FH
Static Test Pressure (PSI)		150	150	150	150	150	150
6 INCH	PVC	60	27	11	5	3	65
	D.I.P.	46	23	10	5	2	49
8 INCH	PVC	81	34	14	7	3	84
	D.I.P.	61	30	12	6	3	63
12 INCH	PVC	118	48	20	10	5	120
	D.I.P.	88	42	18	8	4	90
16 INCH	D.I.P.	113	54	22	11	5	THRUST BLOCK
20 INCH	D.I.P.	137	64	26	13	6	
24 INCH	D.I.P.	161	74	30	15	7	
30 INCH	D.I.P.	149	87	36	17	9	
36 INCH	D.I.P.	223	100	41	20	10	

CALCULATIONS ARE BASED ON INSTALLATION IN POORLY GRADED SANDS, GRAVEL AND GRAVEL–SAND MIXTURES (GM&SM). TYPE 3 TRENCH – PIPE BEDDED IN SELECT NATIVE, OR IMPORTED EARTH BEDDING, TO A DEPTH OF 6 INCHES OVER THE PIPE, SEE STANDARD DETAIL U2, A MINIMUM 3 FEET OF COMPACTED PIPE BURY AT THE TIME OF THE PRESSURE TEST AND A SAFETY FACTOR OF 1.5:1 TO ALLOW FOR SITE CONDITION VARIABLES.

NOTES:

1. FOR DESIGN FORMULAS, CALCULATIONS AND ADDITIONAL INFORMATION, THE TABLE IS BASED ON THE RESTRANT CALCULATIONS FOUND AT HTTPS://EBAA.COM/CALCULATOR/ THE RESTRAINED PIPE LENGTH APPLIES TO CONDITIONS WHERE A CONCRETE THRUST BLOCK IS NOT USED.

2. IF POLYETHYLENE WRAPPED D.I.P. IS SPECIFIED, INDEPENDENT CALCULATIONS ARE REQUIRED. DO NOT USE THE ABOVE TABLE.

3. EVERY JOINT WITHIN THE DESIGNATED RESTRAINT LENGTH MUST BE RESTRAINED, IF THE REQUIRED RESTRAINT LENGTH IS SHORTER THAN A SINGLE SECTION OF PIPE BEING USED, ONLY THE FITTING CONNECTION REQUIRES RESTRAINT.

4. THRUST BLOCKS ARE REQUIRED FOR ALL CONNECTIONS TO AC PIPE AND WHEN AN AC PIPE CONNECTION IS LOCATED ANYWHERE WITHIN THE DESIGNATED RESTRAINT LENGTH.

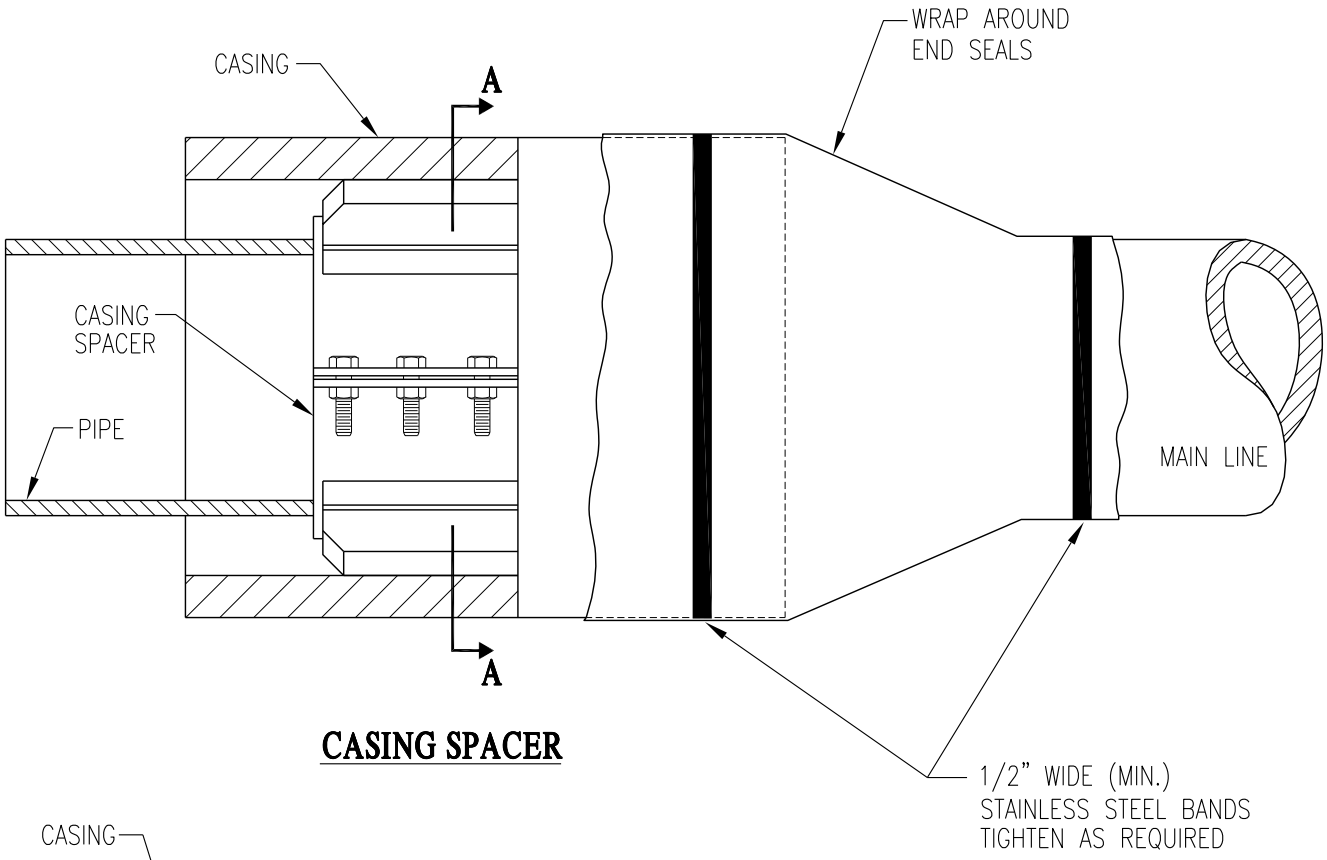
5. THRUST BLOCKS ARE REQUIRED IF THE DESIGNATED RESTRAINT LENGTH CANNOT BE OBTAINED, SPECIAL ATTENTION NEEDS TO BE GIVEN TO DEAD END STUBS AND FIRE HYDRANT INSTALLATIONS. IF THE LENGTH OF THE FEEDER PIPE, FROM THE MAIN LINE TEE TO THE END CAP, OR HYDRANT, IS LESS THAN THE DESIGNATED DEAD END RESTRAINT LENGTH, THRUST BLOCKS ARE REQUIRED AT BOTH THE TEE AND AT THE END CAP, OR HYDRANT. WHEN THE SPECIFIED CONDITIONS ALLOW THE USE OF MECHANICAL RESTRAINTS, THE RESTRAINT LENGTH REQUIREMENTS FOR BOTH THE TEE AND THE END CAP, OR HYDRANT MUST BE MET.

6. APPROVED TYPES OF RESTRAINED PIPE SHALL BE: SEE MATERIAL LIST.

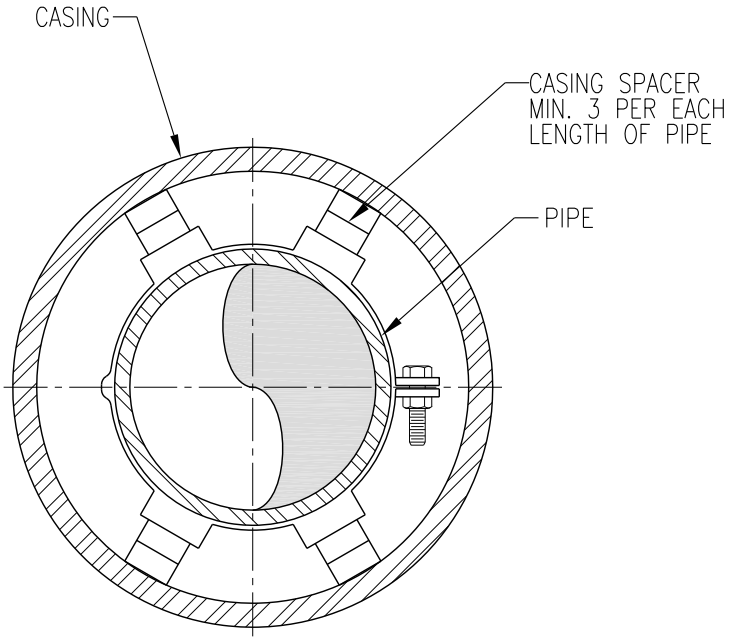
Richland Washington

MECHANICAL RESTRAINT

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 08.2020
DRAWN BY: EY	DWG: W16–B
CAD FILE: 2017_W16B_03_2018	



CASING SPACER



SECTION A-A

NOTES:

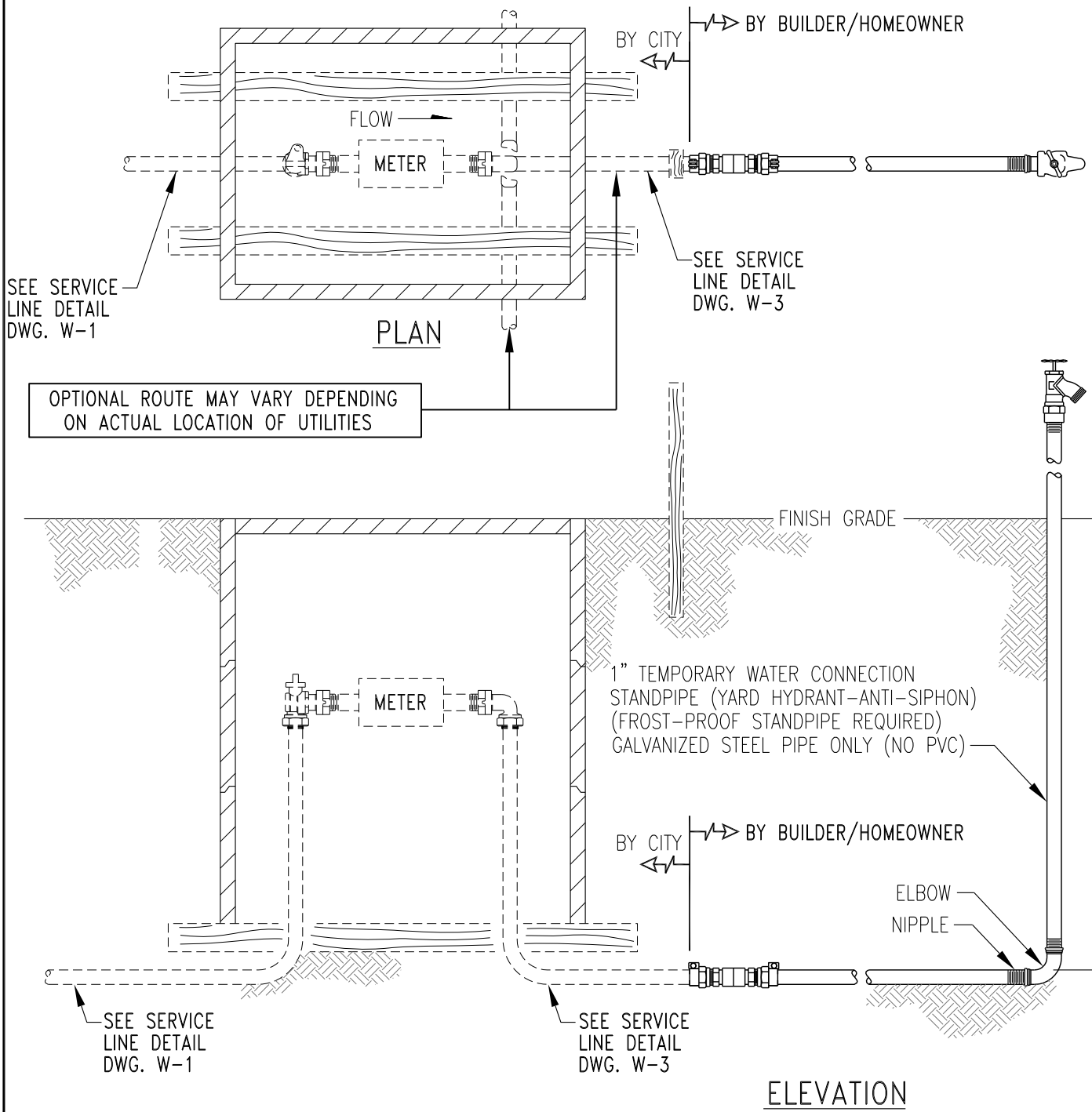
1. CASING SPACERS SHALL BE MANUFACTURED GALVANIZED OR STAINLESS STEEL, SIZED FOR THE TYPE OF PIPE & CASING SIZE PER THE MANUFACTURERS RECOMMENDATION.
2. CASING TO BE SIZED TO PROVIDE MINIMUM 2" CLEARANCE FOR THE TYPE OF JOINT APPROVED BY THE CITY ENGINEER.
3. PIPE JOINTS WITHIN CASING TO BE RESTRAINED JOINT AS APPROVED BY THE CITY ENGINEER.
4. FOR PIPES 12" & SMALLER, 2 SPACERS PER JOINT OF 13' SEWER, 4 SPACERS PER JOINT OF 18' OR 20' WATER.
5. MINIMUM 3/8" THICK STEEL CASINGS MAY BE REQUIRED BY THE RAILROAD OR IRRIGATION UTILITY.

Richland Washington

CASING SPACER

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 12.2010
DRAWN BY: SC NYBY	DWG: W17
CAD FILE: 2012_W17_12_2010	

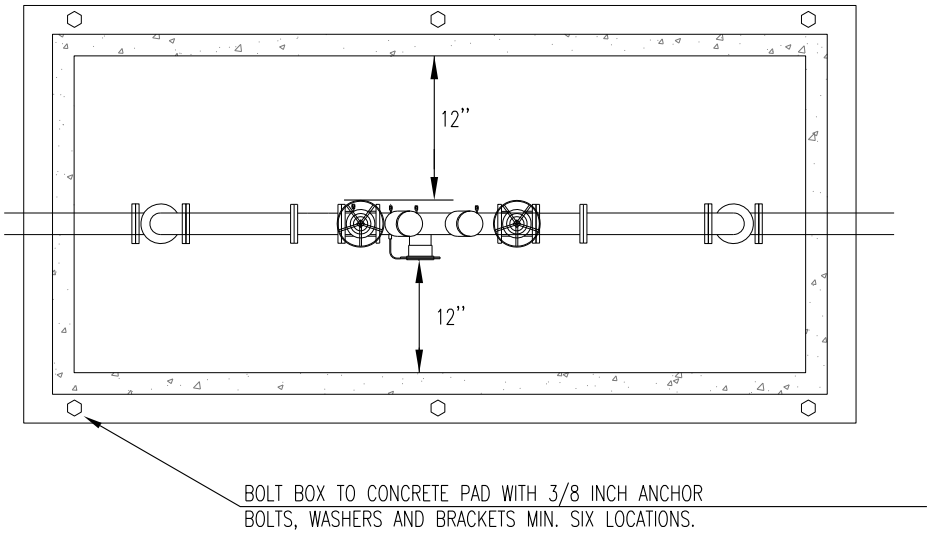
BUILDER IS RESPONSIBLE FOR THE WATER SERVICE IF DAMAGED - A $300.00 MINIMUM FEE WILL BE CHARGED. * ADDITIONAL FEES MAY BE CHARGED FOR EXTENSIVE DAMAGE OVER $300.00.



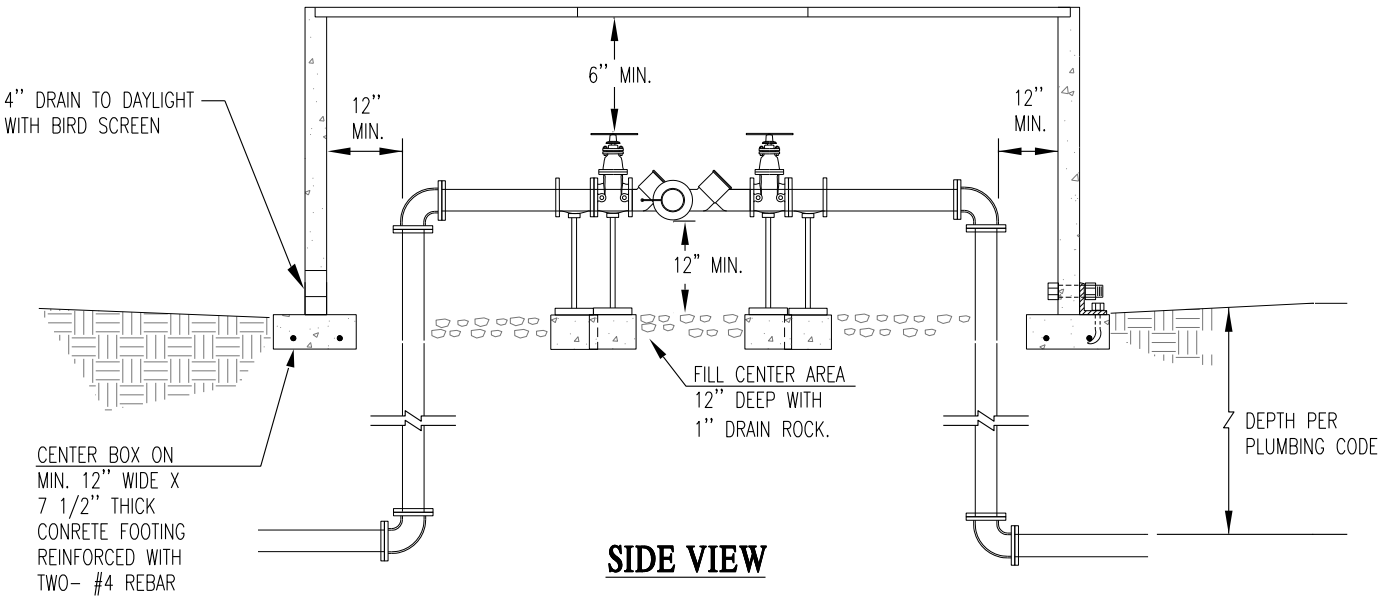
Richland Washington

WATER SERVICE CONNECTION FOR NEW RESIDENTIAL LOT

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 03.2012
DRAWN BY: SC NYBY	DWG: W18
CAD FILE: 2012_W18_03_2012	



TOP VIEW



SIDE VIEW

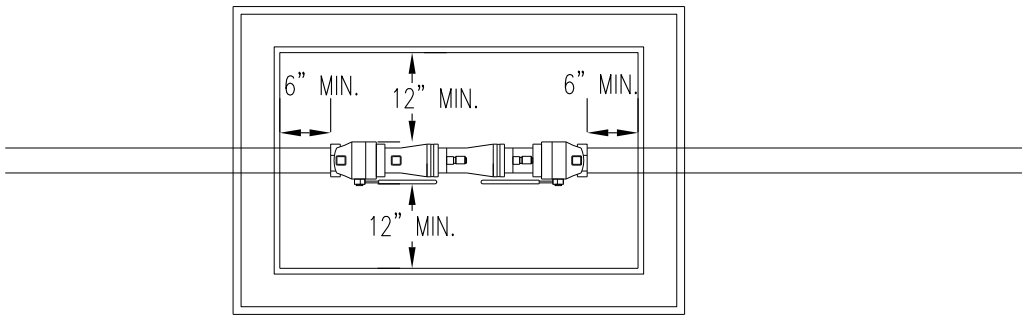
NOTES:

1. MUST BE ON THE LATEST WASHINGTON DEPARTMENT OF HEALTH APPROVED LIST OF BACKFLOW PREVENTION ASSEMBLIES.
2. MUST BE INSTALLED ABOVE GROUND MINIMUM 12 INCHES.
3. MUST BE PROTECTED FROM FREEZING CONDITIONS. INSTALL HEAT TAPE FOR FREEZE PROTECTION.
4. DO NOT INSTALL IN AN AREA SUBJECT TO FLOODING.
5. THE BACKFLOW DEVICE SHALL BE TESTED UPON INSTALLATION BY A QUALITIFED BACKFLOW ASSEMBLY TESTER (B.A.T.) AND TEST RESULTS SENT TO THE CITY OF RICHLAND WATER QUALITY COORDINATOR, THEN RETESTED ANNUALLY THEREAFTER.
6. OWNER SHALL FURNISH, INSTALL AND MAINTAIN THE BACKFLOW DEVICE AND ALL PIPING AND APPURTENANCES SHOWN ON THIS PLAN.
7. THE BACKFLOW DEVICE SHALL BE INSTALLED DIRECTLY DOWNSTREAM OF THE CITY WATER METER.
8. THE BACKFLOW DEVICE SHALL ONLY BE INSTALLED IN THE ORIENTATION FOR WHICH THEY ARE APPROVED.

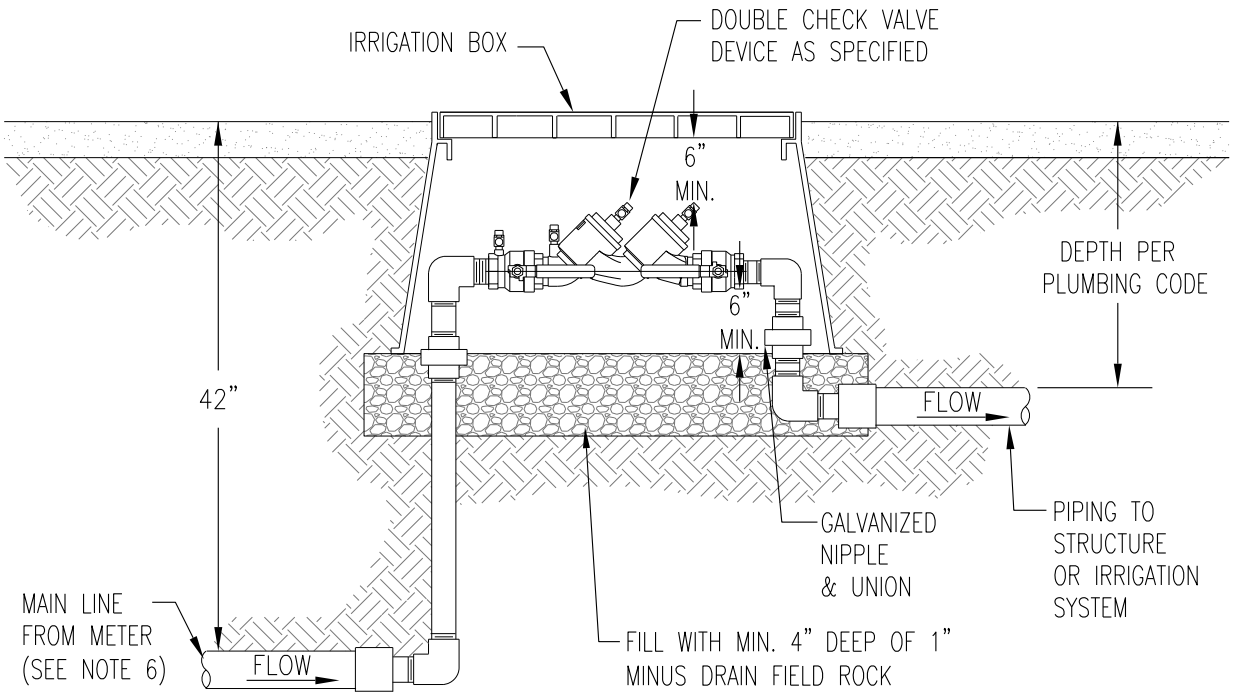
Richland Washington

REDUCED PRESSURE BACKFLOW ASSEMBLY DEVICES 2"AND SMALLER

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 09.13
DRAWN BY: LD	DWG: W19
CAD FILE: 2013_W19_09_2013	



PLAN VIEW



SIDE VIEW

NOTES:

1. MUST BE ON THE LATEST WASHINGTON STATE DEPARTMENT OF HEALTH APPROVED LIST OF BACKFLOW PREVENTION ASSEMBLIES.
2. MAY BE INSTALLED BELOW GROUND IN APPROVED VAULT.
3. THE BACKFLOW DEVICE SHALL BE TESTED UPON INSTALLATION BY A QUALIFIED BACKFLOW ASSEMBLY TESTER (B.A.T.) AND TEST RESULTS SENT TO THE CITY OF RICHLAND WATER QUALITY COORDINATOR, AND THEN RETESTED ANNUALLY THEREAFTER.
4. FREEZE PROTECTION IS THE RESPONSIBILITY OF THE OWNER.
5. RISERS AND ALL PIPE IN BOX TO BE GALVANIZED.
6. THE BACKFLOW DEVICE SHALL BE INSTALLED DIRECTLY DOWNSTREAM OF THE CITY WATER METER.
7. THE BACKFLOW DEVICE SHALL ONLY BE INSTALLED IN THE ORIENTATION FOR WHICH THEY ARE APPROVED.
8. OWNER SHALL FURNISH, INSTALL AND MAINTAIN THE BACKFLOW DEVICE, ALL PIPING AND APPURTENANCES SHOWN ON THIS PLAN.

Richland Washington

DOUBLE CHECK VALVE ASSEMBLY DEVICES 2" OR SMALLER

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 09.13
DRAWN BY: LD	DWG: W20
CAD FILE: 2013_W20_09_2013	

Standard Details
Traffic

INSTRUCTIONS FOR FABRICATION AND INSTALLATION OF STREET NAME, DEAD END & NO OUTLET SIGNS

1) STREET NAME SIGNS – SIGN BLANKS FOR STANDARD STREET NAME SHALL BE 9" TALL EXTRUDED ALUMINUM PLATE (6061–P61) WITH ALODINE FINISH. TALLER SIGNS AS SHOWN ON DRAWING ST24, SHALL USE FLAT ALUMINUM SIGNS PLATE WITH A MINIMUM THICKNESS OF 0.125 INCH. THE TARGET SIGN LENGTH IS A 36" SIGN BLADE OR LESS USING THE FOLLOWING GUIDELINES AND EXAMPLES ON TR2.

   a) FONTS SHALL BE 6C FOR STREET NAMES, 3C FOR SUFFIX, AND 2.5C FOR ADDRESSES. USE A 1" HORIZONTAL MINIMUM SPACING BETWEEN THE STREET NAME AND SUFFIX/ADDRESS BLOCK AND 1.5" MINIMUM TO THE EDGES OF THE SIGN TO FIND THE MINIMUM SIGN BLADE. THE SUFFIX IS STACKED ON TOP OF THE BLOCK ADDRESS WITH 1" VERTICAL SEPARATION AND THEY ARE TO BE LEFT JUSTIFIED WITH EACH OTHER.

   b) SPACING CAN BE REDUCED DOWN TO 75% IN 5% INCREMENTS FOR THE STREET NAME AND ADDRESS TO KEEP THE SIGN ON A 36" BLADE. IF THAT FAILS TO WORK, SWITCH TO B FONTS AT 100% SPACING AND REDUCE UP TO 75% TO MAINTAIN A 36" BLADE BEFORE MOVING TO A 42" BLADE. FURTHER REDUCTIONS IN SPACING MAY BE CONSIDERED IN ORDER TO AVOID INCREASING TO A 48" BLADE. WHEN THE MAIN STREET IS POSTED 45MPH OR GREATER, THEN SIGN SHALL BE PER THE EXAMPLE ON TR2.

   c) ACCEPTABLE SUFFIX'S SHALL BE Ave, Blvd, Ctr, Cir, Ct, Dr, Ln, Loop, Pkwy, Pl, Way, St, Ter, Trl, Rd.

   d) FOR STREET NAMES WITH DESCENDERS (i.e. g, j, p, q, y) THE SIGN SHALL BE 5C, WITH ALL THE TEXT MOVED UP TO ENSURE THAT THE DESCENDER HAS CLEAR SPACE FROM THE BORDER. SWITCHING TO B FONTS WILL BE PER ABOVE GUIDELINES. FOR SUFFIXES WITH DESCENDERS, A 2.5C LOWER CASE CAN BE USED BUT ONLY WHEN NEEDED TO AVOID LETTERS AND NUMBERS TOUCHING.

   e) ONCE ALL OTHER PARAMETERS ARE SET, BALANCE THE HORIZONTAL SPACE BY ADJUSTING THE SPACE BETWEEN THE STREET NAME AND THE SUFFIX/ADDRESS BLOCK TO MATCH THE SPACE BETWEEN THE TEXT AND BORDER AT THE ENDS OF THE SIGN.

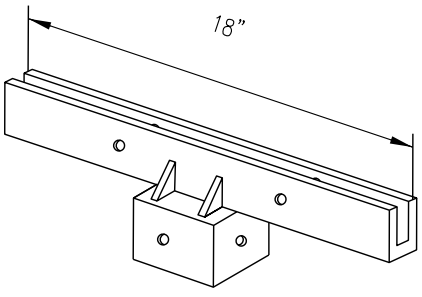
2) SIGN BRACKETS – SIGNS SHALL BE INSTALLED ON THE SIGN POST OR STREET LIGHT STANDARD BY MEANS OF ALUMINUM SIGN BRACKETS AND CROSSPIECES. WHEN ANY SIGN ON THE POST EXCEEDS 36", THEN 18" CROSS PIECE SHALL BE USED.

3) DEAD END AND NO OUTLET SIGNS SHALL USE 5C LETTERING ON A STANDARD 9"X36" EXTRUDED ALUMINUM PLATE. ARROWS SHALL BE 5"TALL AND 6" LONG, AND SPACING REDUCED TO 50%

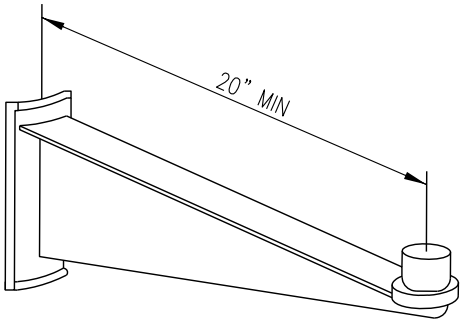
4) COLORS SHALL BE GREEN WITH WHITE TEXT FOR STANDARD STREETS. BLUE WITH WHITE TEXT FOR PRIVATE STREETS AND FLUORESCENT YELLOW WITH BLACK TEXT FOR DEAD END AND NO OUTLET SIGNS.

5) SEE DRAWING TR2 FOR EXAMPLE SIGNS AND TR3 FOR ELEVATIONS AND STANDARD SIGN SIZES.

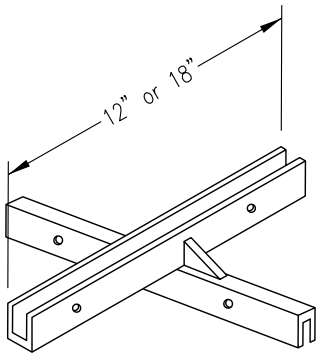
6) SIGN SUBMITTALS SHALL INCLUDE PROOFS THAT INCLUDE THE MUTCD SIGN CODE, SIGN SIZE, AS WELL AS LETTER SIZE AND FONT STYLE.



POST CAP BRACKET



STREET LIGHT BRACKET



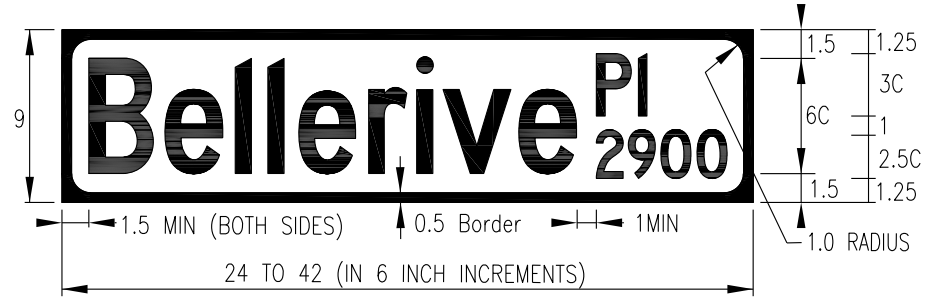
CROSS PIECE

STREET SIGN BRACKETS

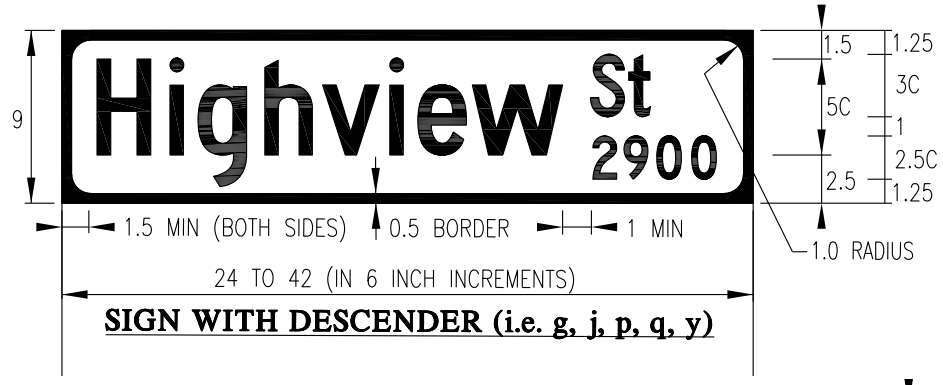
Richland Washington

STREET NAME SIGN FABRICATION & INSTALLATION

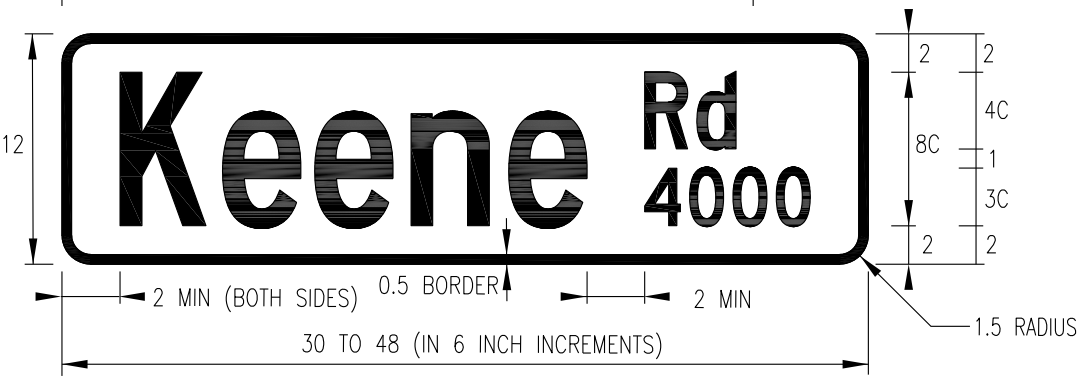
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 07.22
DRAWN BY: EY	DWG: TR1
CAD FILE: 2021_TR1_07_2022	



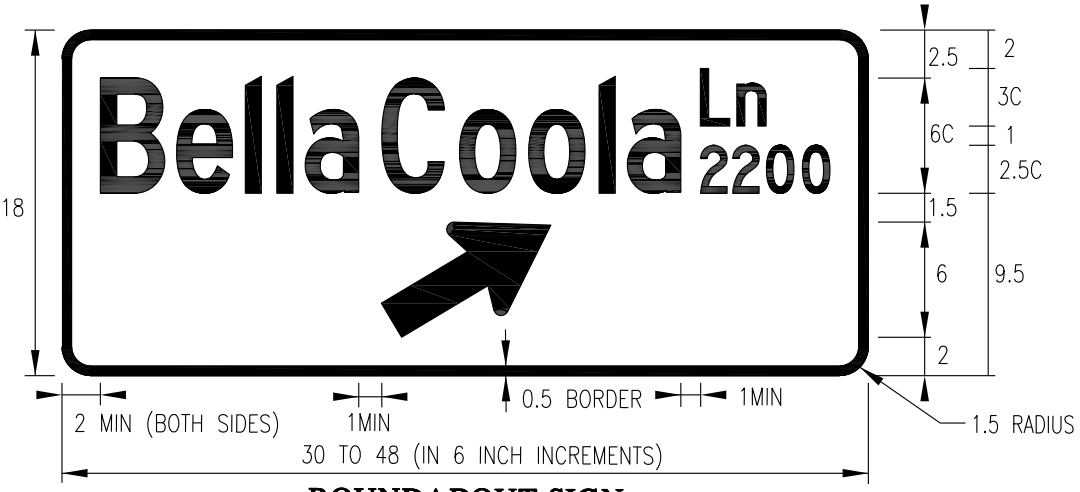
STANDARD STREET NAME SIGN



SIGN WITH DESCENDER (i.e. g, j, p, q, y)



SIGN WHEN MAIN STREET POSTED 45MPH OR ABOVE



ROUNDABOUT SIGN

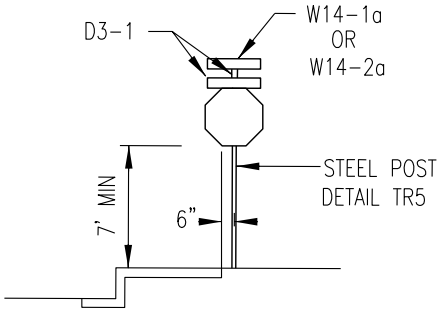
NOTES:

1. ALL DIMENSIONS IN INCHES
2. STANDARD 9" SIGNS USE EXTRUDED PLATES.
3. ARROWS FOR STANDARD SIGNS SHALL BE SIZE 2 WITH 6" LENGTH.
4. FOR 12" SIGNS WITH LOWER CASE DESCENDERS USE INITIAL UPPER CASE OF 8" AND 7" LOWER CASE.
5. ROUNDABOUT SIGNS GREATER THAN 36" IN LENGTH SHALL USE SIGN BRACE PER STD. DET. TR6.
6. ARROWS FOR ROUNDABOUT SIGNS SHALL BE SIZE 2 ANGLED AT 30 DEGREES WITH A 9.375" LENGTH.

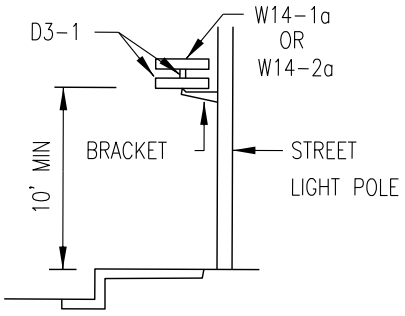
Richland Washington

STREET NAME SIGN EXAMPLES

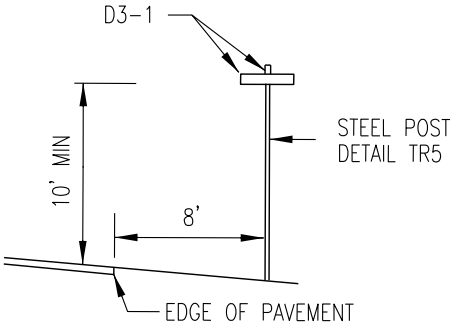
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 07.22
DRAWN BY: EY	DWG: TR2
CAD FILE: 2021_TR2_07_2022	



POST MOUNT

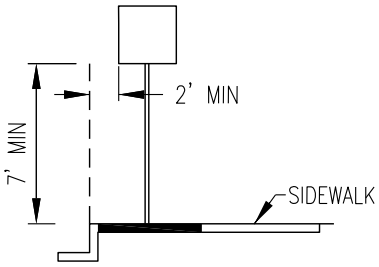


STREET LIGHT MOUNT

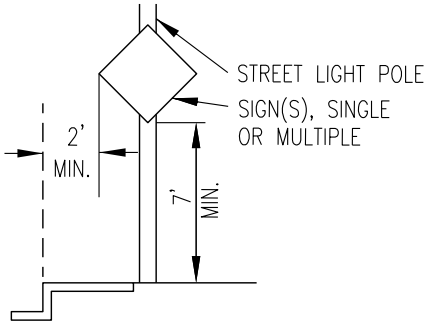


POST MOUNT, NO CURB

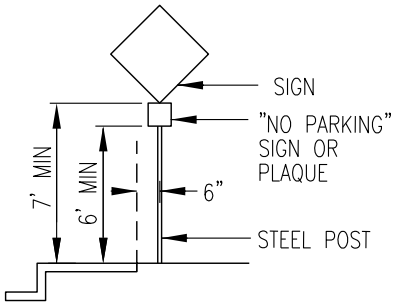
STREET NAME SIGNS



POST MOUNT, PLANTER STRIP OR STAMPED CONCRETE

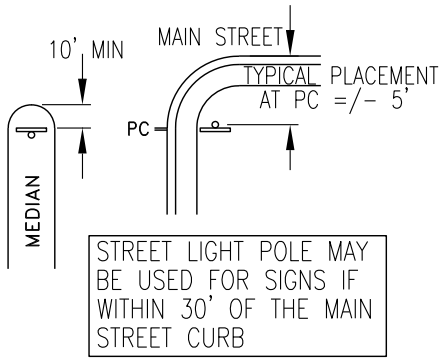


STREET LIGHT MOUNT



POST MOUNT MULTI-SIGN

STANDARD SIGNS



CORNER SIGN PLACEMENT

CITY STANDARD SIGN SIZES

SIGN	TYPE	SIZE
R1-1	STOP	30"X30"*
R1-2	YIELD	36"X36"X36"
R2-1(XX)	SPEED LIMIT (SPEED)	24"X30"
R8-3	NO PARKING SYMBOL	12"X12"
WX-X	WARNING SIGN**	PER PLANS

NOTES:

GRAFFITI OVERLAY FILM SHALL BE USED ON ALL SIGNS EXCEPT EXTRUDED STREET NAME SIGN BLADES AND CALLED OUT ON PROOFS

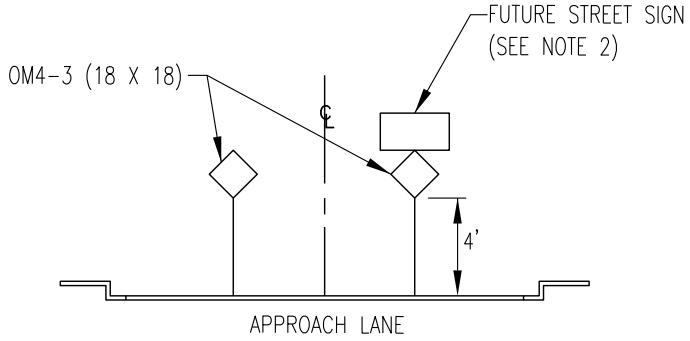
* 36"X36" WHEN ON AN APPROACH TO A STREET WITH A SPEED OF 45 MPH OR HIGHER.

** WARNING SIGNS SHALL USE FLUORESCENT YELLOW SHEETING.

Richland Washington

TYPICAL SIGN PLACEMENT & STANDARD SIGN SIZES

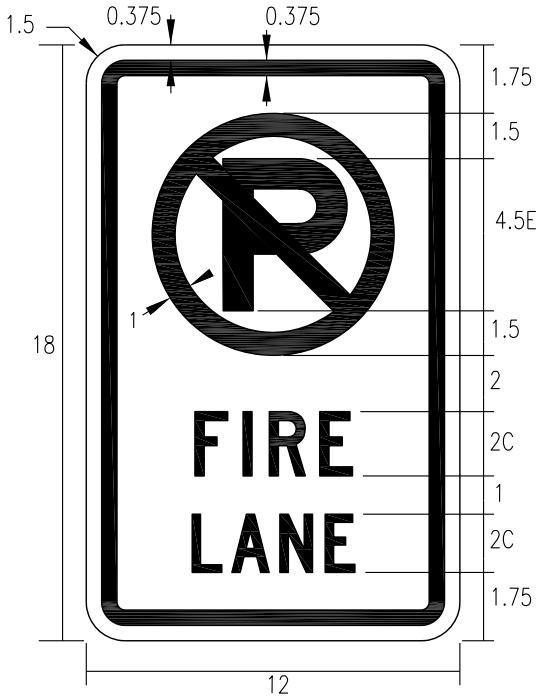
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 07.22
DRAWN BY: EY	DWG: TR3
CAD FILE: 2021_TR3_07_2022	



TYPICAL END OF THE ROADWAY SIGNAGE

NOTES:

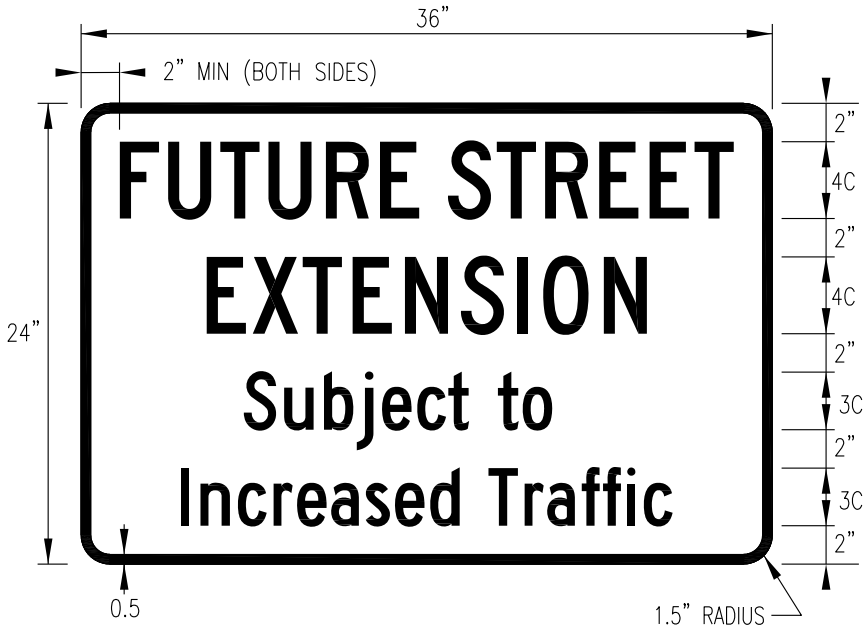
1. OM4-3 SIGNS ARE TO BE INSTALLED IN THE CENTER OF TRAVEL AND/OR PARKING LANES.
2. ONE "FUTURE STREET EXTENSION" SIGN SHALL BE INSTALLED ABOVE ONE OF THE OM4-3 SIGNS AT THE BOUNDARY EDGES OF PRE-PLATS. THE SIGNS ARE NOT REQUIRED ABOVE INTERIOR PHASES OF THE SAME PRE-PLAT.
3. SIGN SIZES AND MOUNTING HEIGHTS FOR SHARED USE PATH SIGNS SHALL BE PER MUTCD PART 9B.



NO PARKING FIRE LANE

R8-3(FL)

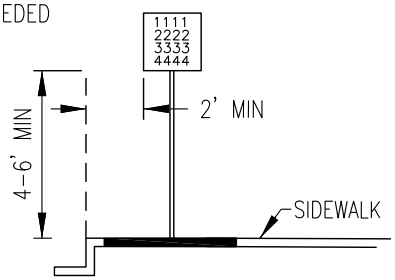
ALL DIMENSIONS ARE IN INCHES, WHITE BACKGROUND WITH RED BORDER, LEGEND AND SYMBOL. LARGE "P" IS BLACK



FUTURE STREET EXTENSION

COLOR: BROWN BACKGROUND
WITH WHITE LETTERS

SIGN DIMENSIONS:
WIDTH =18" TO 24"
HEIGHT = 9" TO 30"
AS NEEDED



PRIVATE ADDRESS SIGN

(WHEN REQUIRED PER RMC 12.01.140.C)

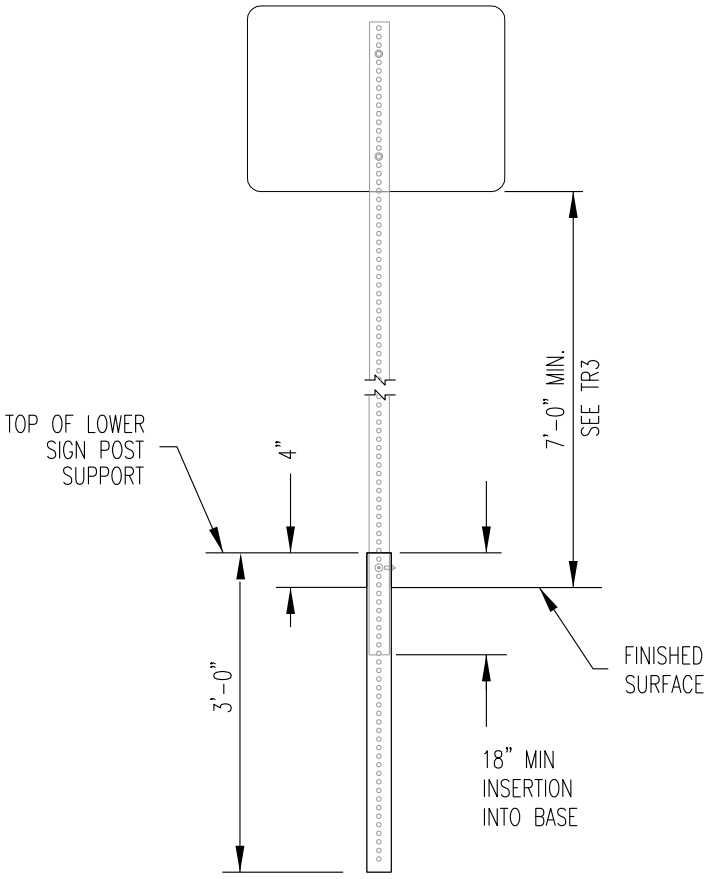
NOTES:

1. SIGN SHALL BE BLUE WITH WHITE LETTERS NO BORDER. MINIMUM FONT SIZE PER TABLE 2D-2 OF MUTCD.
2. SIGN MOUNTED PARALLEL TO STREET WITH POST PLACED ONE FOOT BEHIND SIDEWALK (IF PRESENT).
3. SIGN TO BE MOUNTED OUTSIDE THE VISION CLEARANCE TRIANGLE PER RMC 12.11

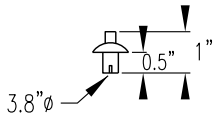
Richland Washington

MISCELLANEOUS SIGNS

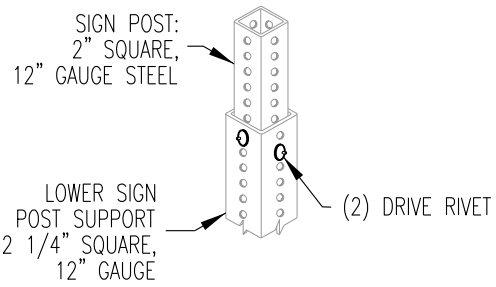
PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 07.22
DRAWN BY: EY	DWG: TR4
CAD FILE: 2021_TR4_07_2022	



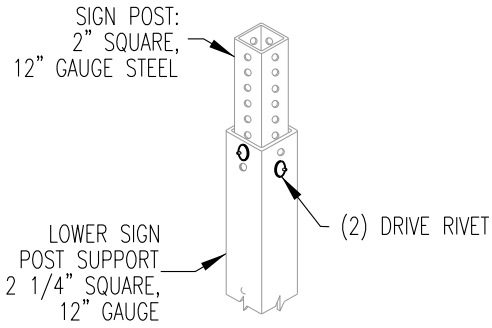
TYPICAL SIGN POST INSTALLATION



STEEL DRIVE RIVET



STANDARD BASE PARTS (ST-2)



HEAVY DUTY ANCHOR BASE PARTS (ST-4)

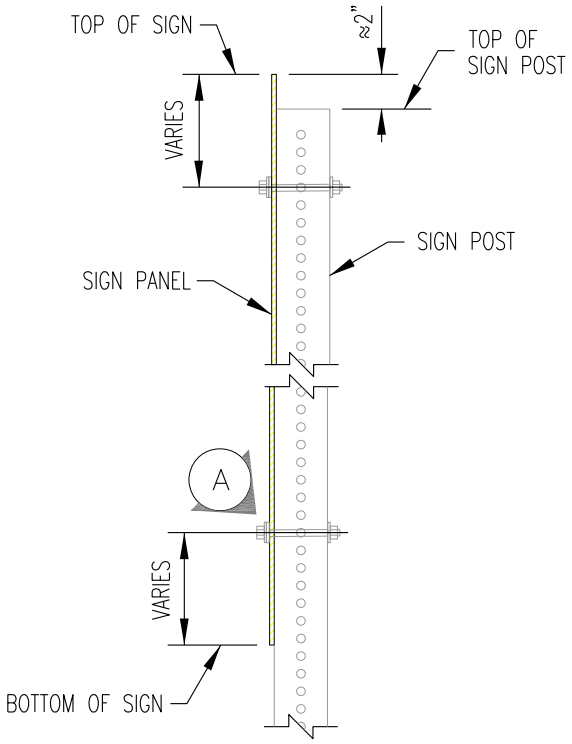
NOTES:

1. TYPE ST-2 AND ST-4 SIGN SUPPORTS/BASES SHALL BE DRIVEN IN COMPACTED BACKFILL OR NATIVE, UNDISTURBED SOIL WITH A MECHANICAL DRIVER UNLESS OTHERWISE APPROVED BY CITY ENGINEER.
2. WHEN PLACED IN NEW OR EXISTING CONCRETE (I.E. IN ISLANDS, SIDEWALK, OR AS OTHERWISE IDENTIFIED ON PROJECT PLANS) HEAVY DUTY ANCHOR BASE SHALL BE USED.
3. WHEN INSTALLED IN EXISTING CONCRETE USE A 6" CORE DRILL, DRIVE THE POST, BACKFILL WITH SOIL, AND TOP WITH CONCRETE TO MATCH THE THICKNESS OF THE EXISTING CONCRETE.

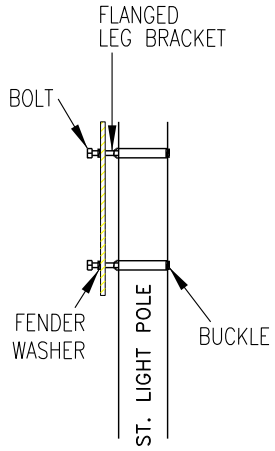
Richland Washington

TYPICAL SIGN POST INSTALLATION

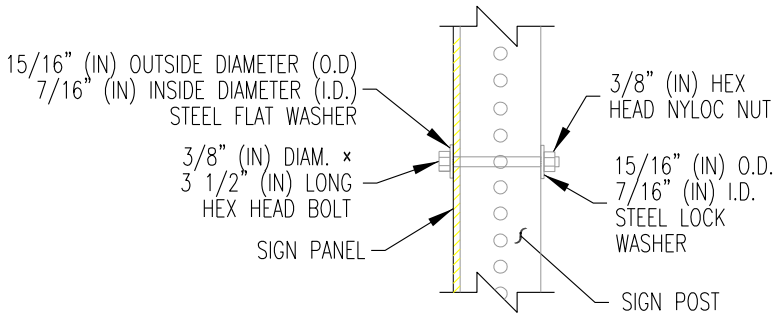
PUBLIC WORKS ENGINEERING	
APPR. BY: SAW	DATE: 01.24
DRAWN BY: JLR	DWG: TR5
CAD FILE: 2018_TR5_01_2024	



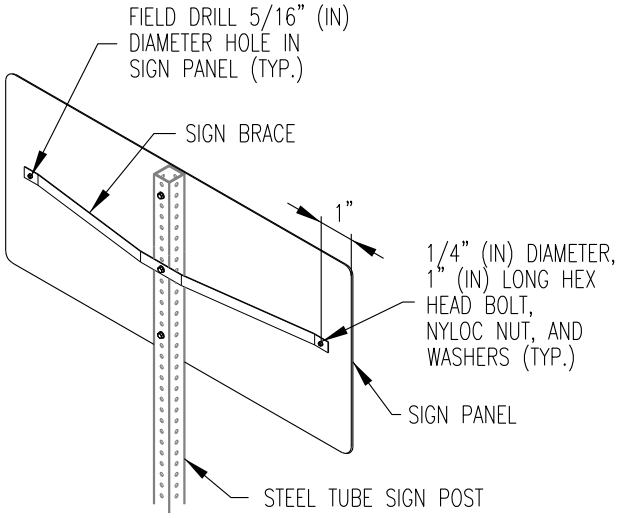
SIGN ATTACHMENT ON POST



SIGN ATTACHMENT ON STREETLIGHT POLE



DETAIL (A)

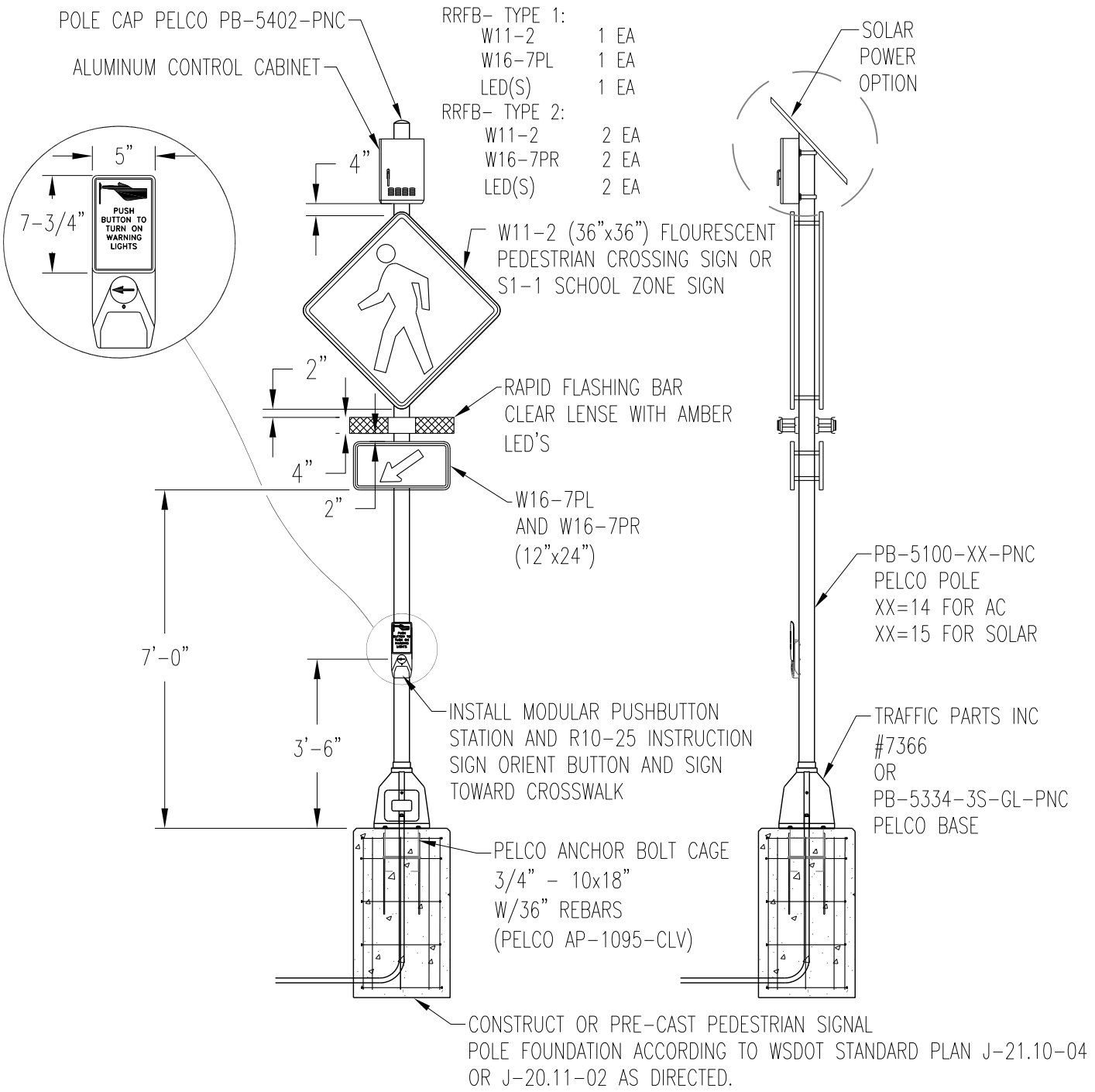


FOR ROUNDABOUT SIGNS 42" AND WIDER

Richland Washington

SIGN MOUNTING DETAILS

PUBLIC WORKS ENGINEERING	
APPR. BY: PKR	DATE: 10.21
DRAWN BY: EY	DWG: TR6
CAD FILE: 2021_TR6_10_2021	



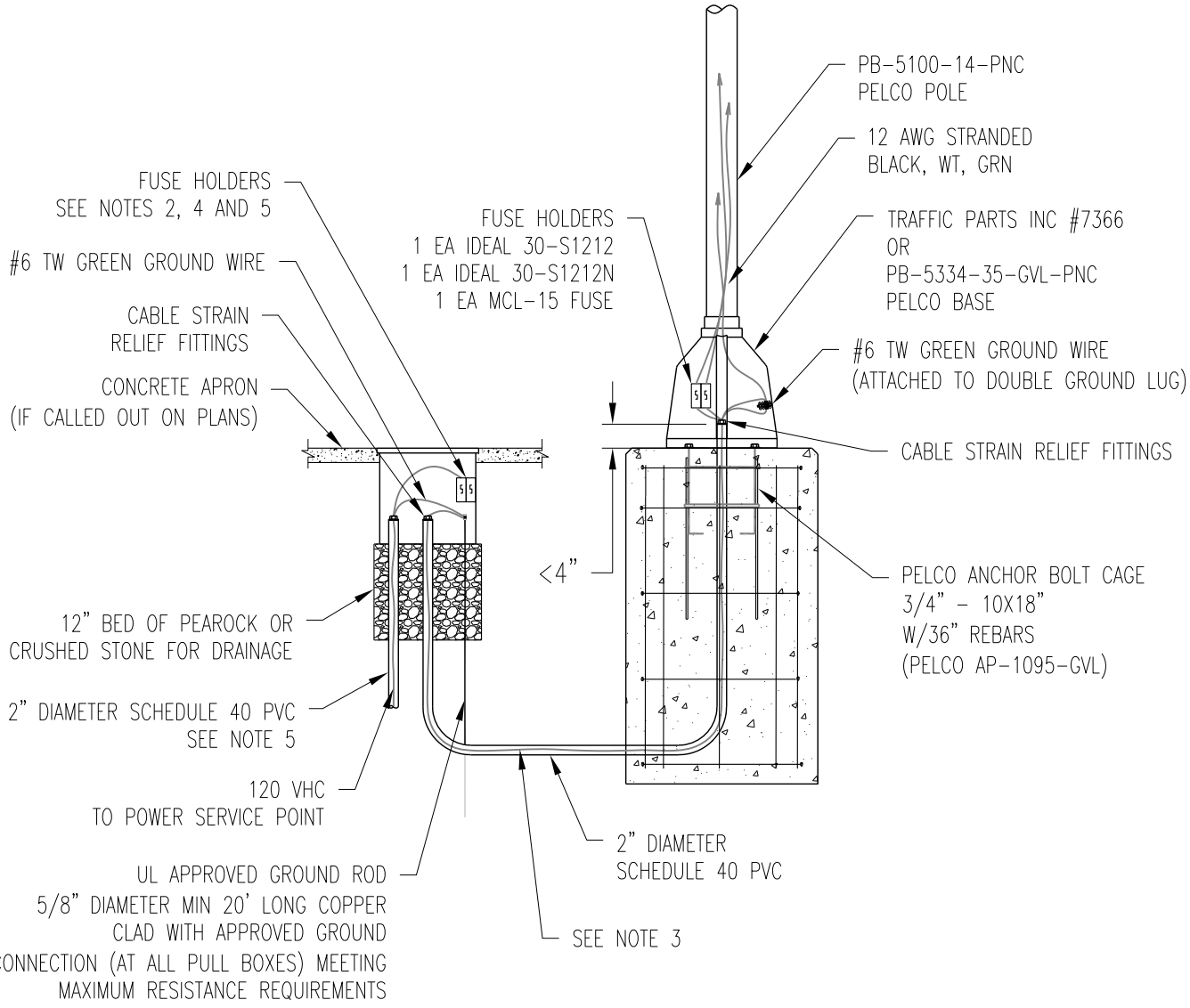
NOTES:

1. SIGN TYPES, SIZES AND COLORS PER PLAN OR SPECIFICATIONS.
2. INSTALL SIGNS, LIGHTBARS AND CABINETS WITH "BAND-IT" TOOL.
3. USE DEOX OXIDE INHIBITOR (ILSCO UTILCO OR EQUIVALENT) ON ALL THREADED FITTINGS.
4. INSTALL POLE ONTO BASE USING STRAP WRENCH. TURN UNTIL SNUG AND POLE BOTTOMS OUT TO PREVENT MOVEMENT AND ROTATION DUE TO WIND.
5. SOLAR HARNESS SHALL BE ORIGINAL EQUIPMENT FROM THE MANUFACTURER AND SIZED LONG ENOUGH SO THAT THERE ARE NO SPLICES IN THE CABLE.
6. POLE PENETRATIONS SHALL BE MADE AS SMALL AS PRACTICAL AND UTILIZE GROMMETS WHEN APPROPRIATE TO PROTECT THE CABLE SHEATHING. EXCESS SPACE AROUND THE HOLES SHALL BE FILLED WITH RTV SEALANT.

Richland Washington

RECTANGULAR RAPID FLASHING BEACON SYSTEM (RRFB)

CIVIL & UTILITY ENGINEERING	
APPR. BY: PKR	DATE: 05.22
DRAWN BY: LD	DWG: TR7
CAD FILE: 2022_TR7_06_2022	



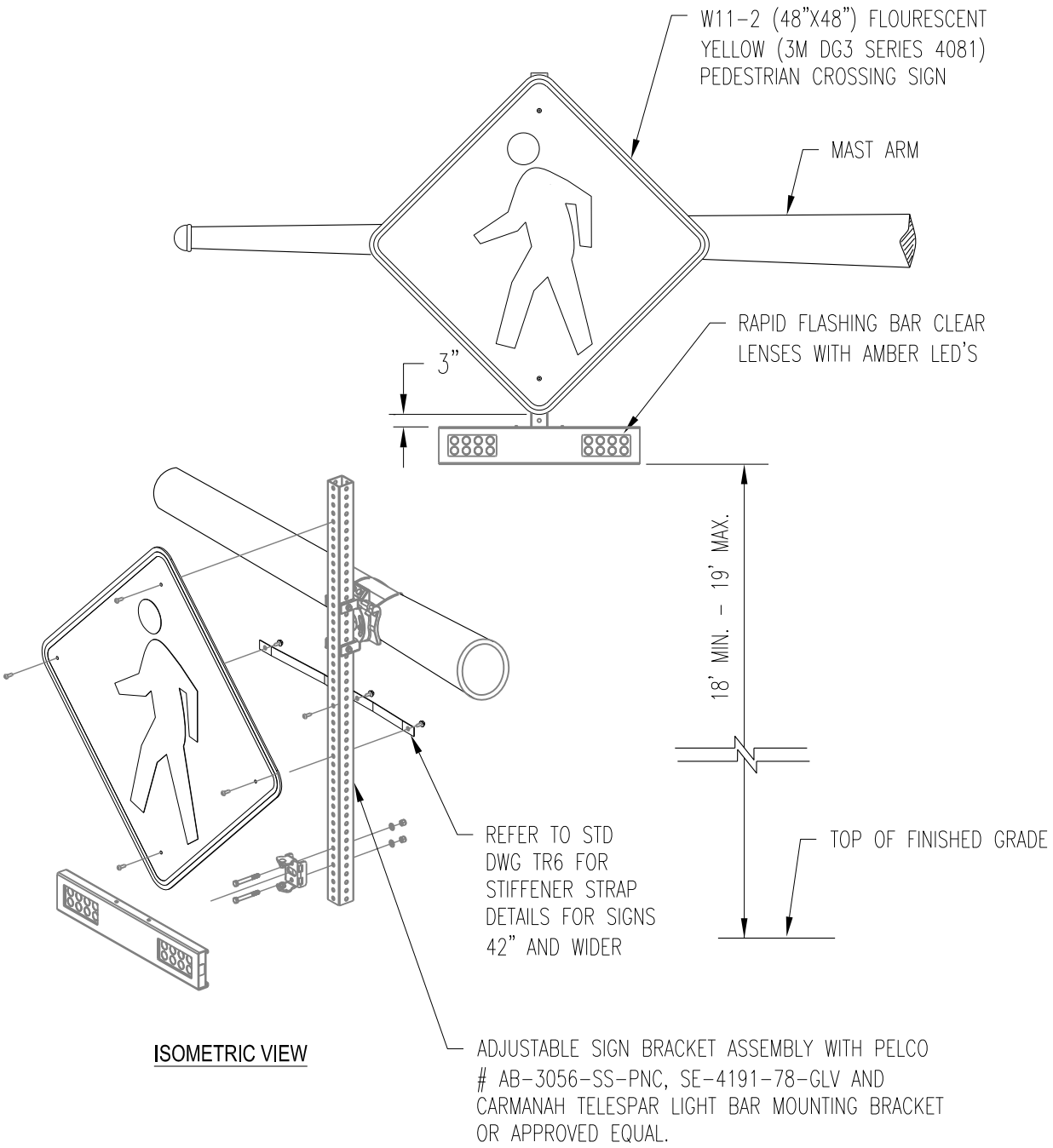
NOTES:

1. FUSES: CLASS CC, 600 VAC, 15 AMPS, CURRENT LIMITING, TIME-DELAY, UL LISTED, 100 KA VAC RMS SYM. INTERRUPTING RATING: MCL15
2. SINGLE-POLE IN-LINE FUSE HOLDER WITH SOLID BREAKAWAY OPTION FOR IMPACT SEPARATION: RATED 30A, 600V: IDEAL 30-S1212 FOR THE FUSED DISCONNECT AND IDEAL 30-S1212N HAVING A PERMANENTLY INSTALLED SOLID NEUTRAL (FOR THE NON-FUSED DISCONNECT), OR APPROVED EQUAL.
3. CONDUCTORS MUST BE SOOW TYPE WITH A 600V RATING, 12 AWG, 12/2.
4. 20A FUSE MCL20.
5. NOT REQUIRED FOR SOLAR INSTALLATIONS.

Richland Washington

POLE WIRING DETAIL
FOR SCHOOL BEACONS & RRFB

CIVIL & UTILITY ENGINEERING	
APPR. BY: PKR	DATE: 06.22
DRAWN BY: LD	DWG: TR8
CAD FILE: 2022_TR8_06_2022	



ISOMETRIC VIEW

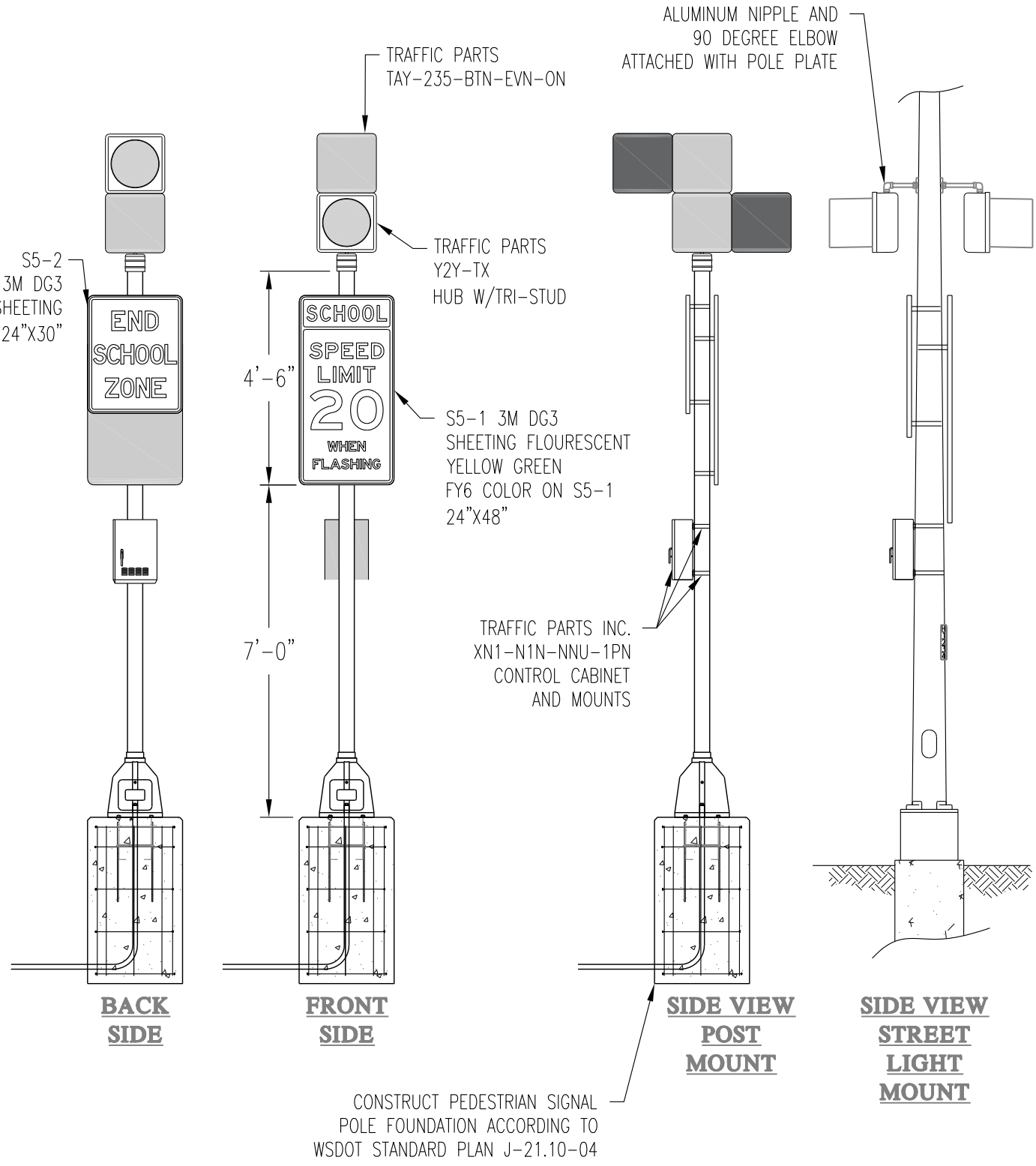
NOTES:

1. WHEN USING AN OVERHEAD SYSTEM, SOLAR PANEL SHALL BE MOUNTED AT 15' ABOVE SURFACE ELEVATION ON THE TYPE II OR TYPE III SIGNAL POLE UNLESS OTHERWISE NOTED (I.E. ON THE MAST ARM) ON PLANS.
2. SOLAR HARNESS SHALL BE ORIGINAL EQUIPMENT FROM THE MANUFACTURER AND SIZED LONG ENOUGH SO THAT THERE ARE NO SPLICES IN THE CABLE.
3. POLE PENETRATIONS SHALL BE MADE AS SMALL AS PRACTICAL AND UTILIZE GROMMETS AND/OR CORD GRIPS AS APPROPRIATE TO PROTECT THE CABLE SHEATHING. EXCESS SPACE AROUND THE HOLES SHALL BE FILLED WITH RTV SEALANT.

Richland Washington

RECTANGULAR RAPID FLASHING BEACON SYSTEM (RRFB) OVERHEAD MOUNTING DETAIL AND NOTES

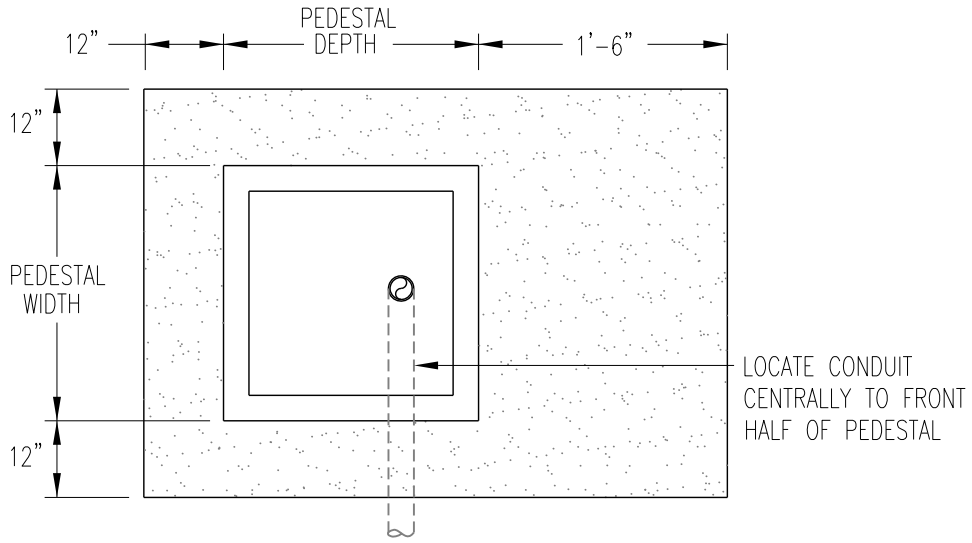
CIVIL & UTILITY ENGINEERING	
APPR. BY: PKR	DATE: 06.22
DRAWN BY: LD	DWG: TR9
CAD FILE: 2022_TR9_06_2022	



Richland Washington

SCHOOL BEACON

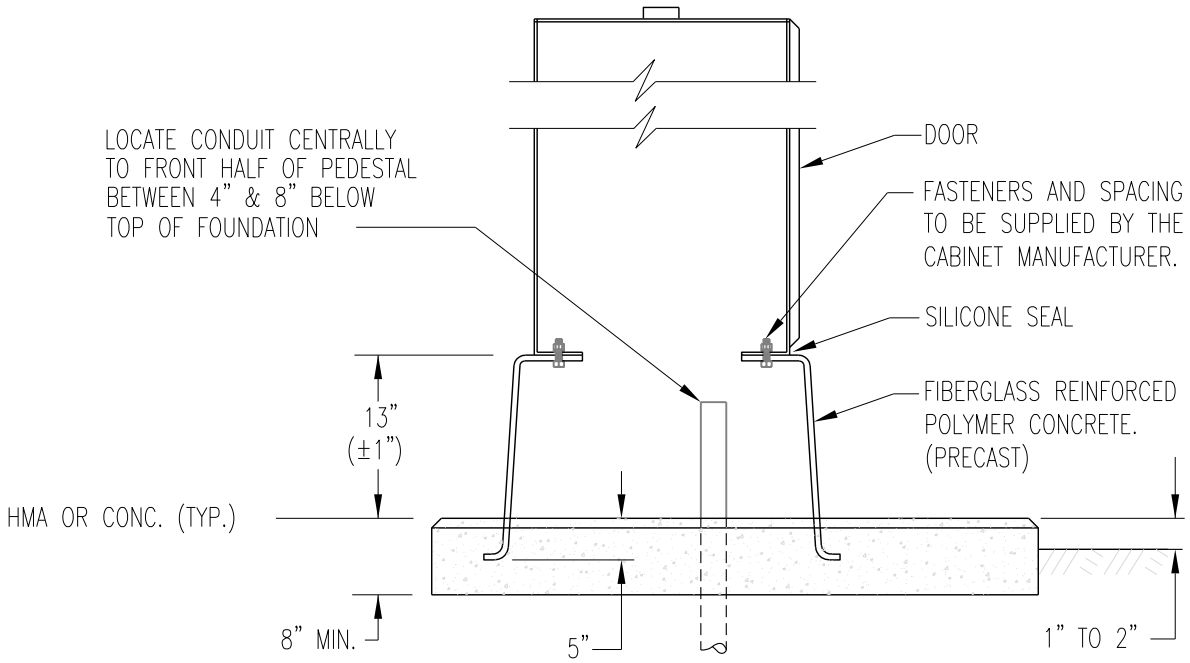
CIVIL & UTILITY ENGINEERING	
APPR. BY: PKR	DATE: 05.22
DRAWN BY: LD	DWG: TR10
CAD FILE: 2022_TR10_06_2022	



PLAN

NOTES:

1. WHERE THE FOUNDATION PAD IS LOCATED IN A SIDEWALK, CONSTRUCT TOP OF PAD FLUSH WITH SIDEWALK GRADE, OMITTING CHAMFER WHERE PAD & SIDEWALK ABUT.
2. CABINET FOUNDATION SHALL BE CLASS B CONCRETE.
3. MODIFY FOUNDATION OPENING TO MATCH CABINET OPENING.
4. THE FOUNDATION PAD SHALL BE A MONOLITHIC CONCRETE POUR BOTH INTERNAL & EXTERNAL OF THE PRECAST PEDESTAL AND IN BOTH AREAS TROWEL FINISHED SMOOTH & LEVEL.

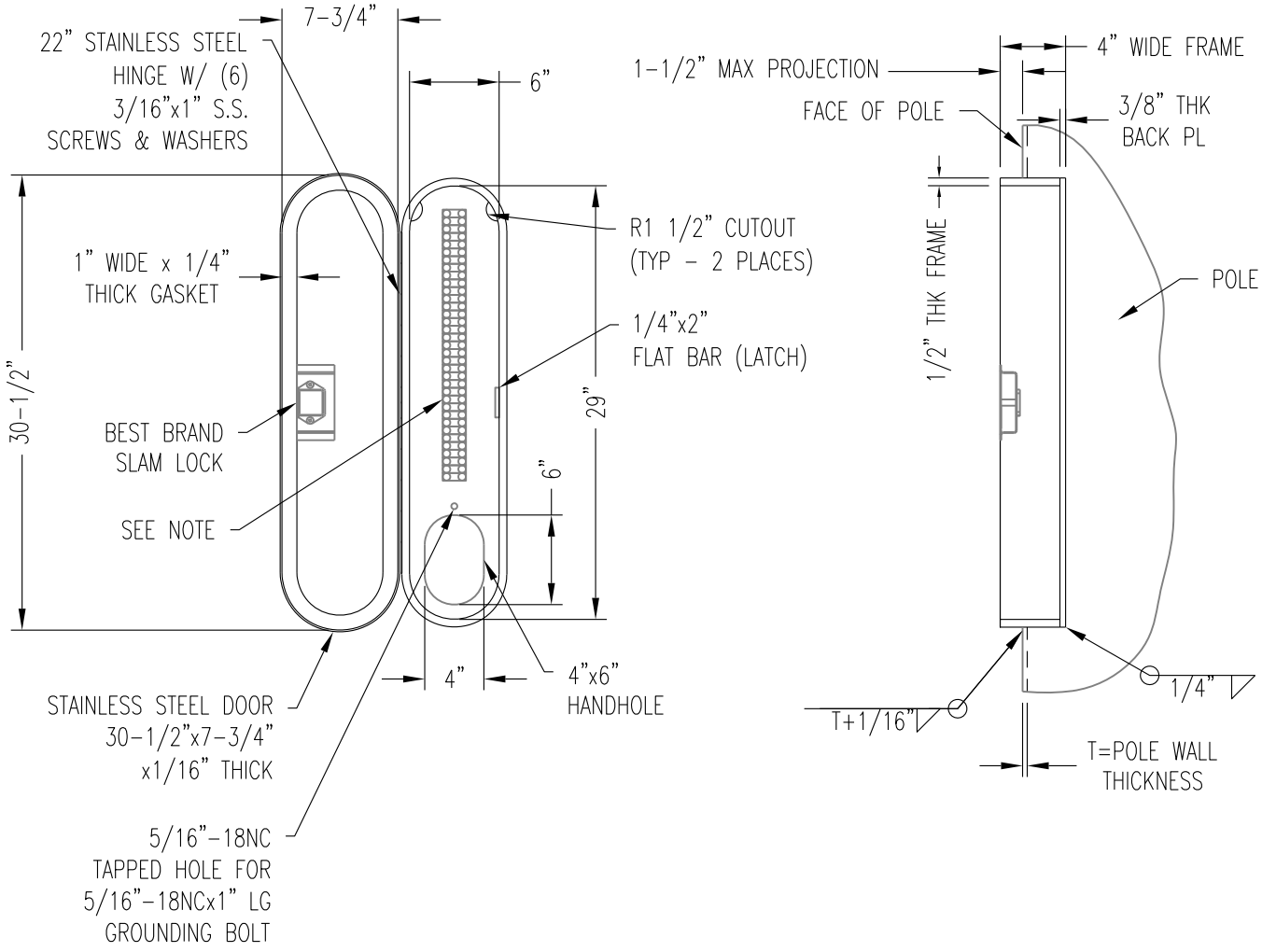


SECTION

Richland Washington

TRAFFIC SIGNAL FOUNDATION

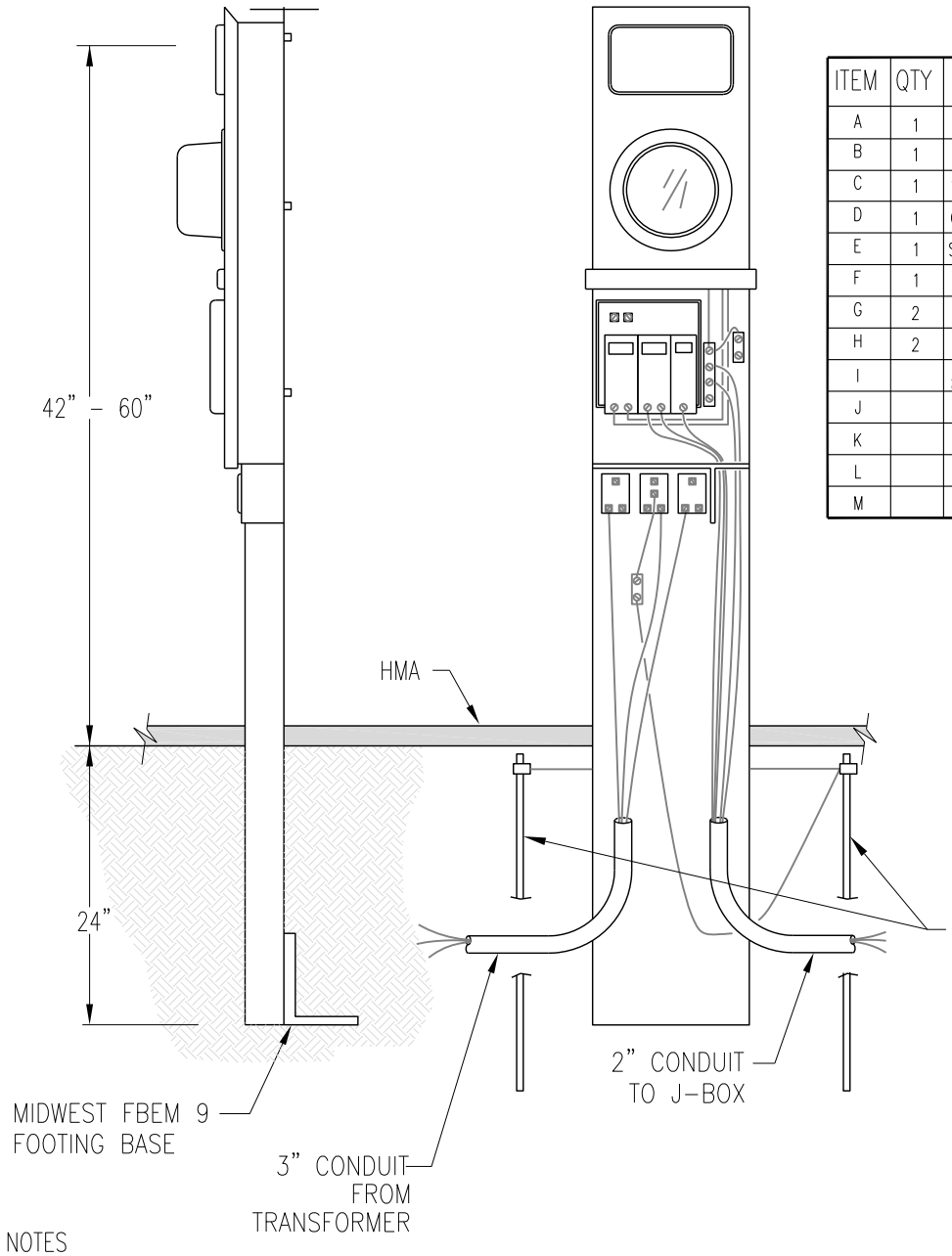
CIVIL & UTILITY ENGINEERING	
APPR. BY: PKR	DATE: 06.22
DRAWN BY: JC	DWG: TR11
CAD FILE: 2022_TR11_06_2022	



TERMINAL COMPARTMENT DETAIL

NOTE: TERMINAL STRIPS & COPPER NEUTRAL BAR SUPPLIED BY CONTRACTOR

Richland Washington	TRAFFIC SIGNAL TERMINAL COMPARTMENT	CIVIL & UTILITY ENGINEERING
	APPR. BY: PKR	DATE: 05.22
	DRAWN BY: JC	DWG: TR12
	CAD FILE: 2022_TR12_06_2022	



ITEM	QTY	MATERIAL DESCRIPTION
A	1	SERVICE ENTRANCE, POWER CENTER
B	1	FOOTING BASE
C	1	1/0 TPX. CONDUCTOR, (LENGTH AS RQRD.)
D	1	GROUND LUG, EXTERNAL
E	1	SINGLEPOLE, BRANCH CIRCUIT BREAKER
F	1	DOUBLE POLE BRANCH CIRCUIT BREAKER
G	2	GROUND ROD 5/8" X 8'
H	2	CLAMP, GROUND ROD
I		#8 WIRE, BARE COPPER SOFT DRAWN
J		#8 WIRE, WHITE-SIGNAL CABINET
K		#8 WIRE, BLACK-SIGNAL CABINET
L		#10 WIRE, BLACK-STREET LIGHTING
M		#10 WIRE, BLACK-STREET LIGHTING

NOTES

1. USE MIDWEST SERVICE ENTRANCE RATED LOAD CENTER WITH INTEGRAL RING TYPE METER BASE MODEL #M101CP6. (OR EQUAL) LOAD CENTER MUST BE NEMA 3R & SERVICE ENTRANCE RATED. PROVIDE (1) 40 AMP SINGLE POLE & (1) 20 AMP DOUBLE BRANCH CIRCUIT BREAKERS. ALL BREAKERS MUST BE UL LISTED FOR USE IN THE LOAD CENTER.
2. USE MIDWEST (OR EQUAL) EXTERNAL GROUND LUG, MODEL #GL-6.
3. USE MIDWEST (OR EQUAL) FOOTING BASE, MODEL #FBEM9.

Richland Washington

SERVICE CABINET DETAIL

CIVIL & UTILITY ENGINEERING	
APPR. BY: PKR	DATE: 11.22
DRAWN BY: LD	DWG: TR13
CAD FILE: 2022_TR13_11_2022	